Groundwater Monitoring 2024 Annual Report

for Compliance with the Michigan Part 115 CCR Solid Waste Regulations

Former Erickson Power Station

Lansing Board of Water & Light

January 30, 2025

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1.0 Introduction

The U.S. Environmental Protection Agency's (EPA) final Coal Combustion Residuals (CCR) Rule 40 CFR §257 and Michigan's Part 115 Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451 (Part 115), establishes a comprehensive set of requirements for the management and disposal of CCR (or coal ash) in surface impoundments by electric utilities. The Former Erickson Power Station (Erickson or Site) was an electrical power generation facility located at 3725 South Canal Road in Delta Township, Eaton County, Michigan owned and operated by Lansing Board of Water & Light (BWL) (**Figure 1**). Erickson contained a single coal-fired generator that was capable of producing 165 megawatts of electricity. It ceased operations in November 2022. Erickson had three CCR impoundments: the Forebay, Retention Basin, and Clear Water Pond (CWP) (**Figure 2**). The three CCR impoundments were physically closed by removal of CCR in 2024, with ongoing groundwater monitoring.

The BWL Former CCR surface impoundments, Forebay, Retention Basin, and CWP, are not licensed under Part 115 because Michigan Department of Environment, Great Lakes, and Energy (EGLE) denied BWL's permit application; however, BWL continues to work with EGLE and develop compliance documentation for EGLE as if the impoundments were permitted under an operating permit. BWL implements both the federal and state groundwater monitoring programs concurrently to comply with both the federal CCR Rule and Part 115 solid waste rules. The Part 115 permitting application requirements included approval of a Hydrogeologic Monitoring Plan (HMP) (HDR, 2024d). The current HMP was approved by EGLE and describes the monitoring network, sampling and analysis plan, and data validation and statical procedures for the monitoring program to comply with Part 115 solid waste rules. BWL has expanded the monitoring network; therefore, the HMP was revised and resubmitted to EGLE in July 2024.

BWL completed numerous tasks throughout 2024 to physically close by removal the CCR impoundments, characterize the impact to groundwater, and progress toward selecting a remedy for corrective action. In 2024, BWL completed the following tasks listed below:

- Published a Groundwater Flow Direction Update and Shale/Boron Correlation Memorandum, February 12, 2024.
- Hosted a community meeting for residents located east of the Erickson impoundments March 21, 2024 providing a review of the status of the Erickson Groundwater Investigation.
- Updated the Background Water Quality Statistical Certification for Erickson for the glacial and bedrock aquifers on March 8, 2024.
- Published a memorandum summarizing detected statistically significant levels (SSLs) over groundwater protection standards observed in newer wells MW-14, MW-16A, and MW-16D on June 14, 2024.
- Development of an Alternate Source Demonstration for the SSLs observed in MW-16A (chloride, TDS) and MW-16D (boron) submitted to EGLE July 2024.

- Updated the Groundwater Monitoring System Certification on June 18, 2024 as a result of the efforts in 2022 and 2023 to expand the well network to delineate the contamination plume originating from the CCR impoundments.
- Updated the Hydrogeologic Monitoring Plan (HMP) for Erickson to account for the changes to the site as a result of CCR removal activities, expansion of the certified well network, and minor alterations to sampling procedure and subsequent data processing and analysis, which was submitted to EGLE in July 2024.
- Obtained a wetland permit from EGLE for the installation of nine new wells (MW-17A, MW-17B, MW-17C, MW-17D, MW-17E, MW-18A, MW-18B, MW-18C, and MW-18D) within the wetlands on BWL property.
- Performed sampling and analysis associated with semiannual assessment monitoring and higher frequency background monitoring of wells within the MW-100 series and initiated background monitoring of newly installed MW-17 and MW-18 multi-level wells.
- Performed the physical closure of the CCR impoundments through dewatering, ash removal, and subsequent ash removal verification, which was approved by EGLE on November 8, 2024.
- Development of an Ash and Groundwater Isotope Investigation Memorandum, which was submitted to EGLE on July 28, 2024, that demonstrated there are measurable differences between elevated boron in groundwater occurring as a result of Erickson Impoundments and elevated boron as a result of natural occurrence in shale bedrock.
- Installation of a pump test well (PTW), step drawdown, and 24-hour constant rate pump test in May 2024 to collect hydrogeologic data associated with the groundwater extraction and treatment (GWET) remediation alternative. The Pump Test Report is included as **Appendix E**.
- Collection of monitored natural attenuation (MNA) soil samples and analysis to determine if MNA is feasible under the site-specific conditions as a remediation alternative.
- Performed shallow groundwater sampling and analysis using Pushpoint™ sampler (aka Henry Sampler) in accordance with the workplan to evaluate the potential for CCR constituents at Erickson to have migrated offsite to the north to Eaton County drain located along Carrier Creek. The Eaton County Shallow Groundwater Investigation is included as **Appendix F**.

This Annual Groundwater Monitoring Report presents these activities, and the sampling and analysis performed in 2024.

2.0 Facility Description

The Former Erickson Power Station (Erickson or Site) was an electrical power generation facility located at 3725 South Canal Road in Delta Township, Eaton County, Michigan, owned and operated by the Lansing Board of Water & Light (BWL) (**Figure 1**). During active operations, a single coal-fired generator was capable of producing 165 megawatts of electricity and CCR was stored in dewatering tanks (hydro-bins). After the majority of the CCR was removed from the waste stream at the hydro-bins, flow was discharged into the three former CCR impoundments in sequence: the Forebay, Retention Basin, and Clear Water Pond (CWP) (**Figure 2**).

Erickson Power Station ceased coal-fired power generation operations on November 27, 2022. The plant pipelines were washed down and CCR waste ceased to the CCR impoundments on December 29, 2022. The non-CCR stormwater flow to the impoundments ceased January 3, 2023. A CCR removal contractor was selected and mobilized to the site in February 2023 to begin dewatering operations for the three impoundments. The water removed from the surface impoundments was treated onsite, monitored, and discharged into nearby Lake Delta in compliance with a NPDES permit. Ash and liner material was removed and transported offsite to Granger Wood Street Landfill from all three impoundments. Ash removal verification efforts for the Forebay, Retention Basin, and CWP were completed and the removal activities are documented within the CCR Removal Report published for the site on November 4, 2024 and approved by EGLE on November 8, 2024.

Figure 1. Vicinity Map for Former Erickson Power Station

Figure 2. Former Erickson Power Station Facility Layout

2.1 Impoundment Closure Status

A CCR Removal Report detailing the removal of CCR from the three former impoundments and summarizing that the work performed was completed in accordance with the approved Closure Plan. The CCR Removal Report was published for the site on November 4, 2024 and subsequently approved by EGLE on November 8, 2024. Additional information regarding the impoundment closure may be found in **Section 5.1**.

2.2 Hydrogeology

The three former CCR impoundments at Erickson Power Station are in areas underlain with unconsolidated clay, silt, sand, and gravel of glacial origin which rest upon approximately 10,000 feet of consolidated bedrock sediments composed of limestone, shale, siltstone, sandstone, salt, and gypsum. Depth to the uppermost aquifer under the impoundments is determined to be approximately 2 to 17 feet below surface. Given the bedrock surface between 36 and 61 feet below surface, the upper glacial aquifer thickness at the site is approximately between 25 and 53 feet thick. The groundwater flow direction is east directly under the impoundments and remains similar flow direction throughout the year (**Appendix A**). However, after the installation of MW-16, MW-17, and MW-18 series wells, groundwater elevation data indicates that groundwater further east of Erickson flows west, back towards the BWL property and groundwater flow turns towards the north following Carrier Creek, consistent with the Carrier Creek Subwatershed. Additional information detailing the groundwater flow direction at former Erickson Power Station may be found in the revised Groundwater Monitoring Systems Certification for Erickson Power Station published in June 2024 (HDR, 2024b).

2.3 Monitoring Well Network

For monitoring throughout 2024, the certified monitoring system for the ash impoundments includes the following wells (**Figure 3**):

- Glacial background (upgradient) wells: MW-1, MW-4, MW-11, and MW-12.
- Glacial waste boundary compliance wells: MW-2, MW-5, MW-6, and MW-14.

2.3.1 Additional Wells

The certified groundwater monitoring system includes additional wells installed to evaluate groundwater further downgradient of the impoundments in response to identification of concentrations of constituents at statistically significant levels (SSLs) over GPS in the impoundment compliance wells (**Figure 3**):

- Glacial wells to evaluate extent of GPS exceedances: MW-7, MW-7C, MW-8, MW-9, MW-10, MW-13, MW-15, MW-16A, MW-16B, MW-17A, MW-17B, MW-17C, MW-18A, MW-18B, MW-100A, MW-100B.
- Bedrock background (upgradient) wells: MW-11B, MW-12B
- Bedrock wells to evaluate extent of GPS exceedances: MW-7B, MW-16C, MW-16D, MW-17D, MW-17E, MW-18C, MW-18D, MW-100C, and MW-100D

Additional details regarding the construction of these wells can be found in the revision to the Monitoring Well Installation Report, completed by HDR on October 24, 2023 (HDR, 2023). Nine of these wells (MW-17A, MW-17B, MW-17C, MW-17D, MW-17E, MW-18A, MW-18B, MW-18C, and MW-18D) were installed in September 2024 (**Figure 3**). These wells will be included in a revision to the Monitoring Well Installation Report prepared in the first quarter of 2025. Additional details regarding the construction of these newly installed wells are included in **Table 1** below.

Table 1. Construction Details for Monitoring Well Network Wells Installed in 2024

Well	Screen Interval Elevations (ft amsl)	Aquifer	Screen Lithology
MW-17A	850-860	Glacial	Silty sand, fat clay with sand, poorly graded sand
MW-17B	830-835	Glacial	Gravel, poorly graded, fine to coarse grained
MW-17C	815-825	Glacial	Silt
MW-17D	799-809	Bedrock	Shale (100%)
MW-17E	769-774	Bedrock	Shale (100%)
MW-18A	851-861	Glacial	Silty sand
MW-18B	815-825	Glacial	Silt with sand
MW-18C	797-807	Bedrock	Shale (100%)
MW-18D	765-770	Bedrock	Shale (100%)

2.3.2 Wells Outside of the Monitoring Well Network

Although not within the current monitoring well network for the site, a pump test well (PTW) was installed central to the MW-7 series wells. This well was installed for the completion of a constant rate pump test to assess hydrogeologic characteristics conditions within the uppermost glacial aquifer as part of data collection for the assessment of corrective measures and to assist in the selection of a remedy for the site. A report detailing the installation of the PTW and an analysis of the constant rate pump test are included as **Appendix E**.

No wells were repaired or abandoned in 2024.

Figure 3. Former Erickson Station CCR Units and Monitoring Wells

3.0 Monitoring

3.1 Groundwater

3.1.1 Frequency

Table 2 provides the well identification number, well location, and the dates and purpose of the samples collected. Semiannual assessment monitoring events for Erickson in 2024 were conducted in January/February and August.

In September 2024, nine new monitoring wells were installed (MW-17 series A-E and MW-18 series wells A-D). As new wells are added to the monitoring system, they are initially sampled on a 5-week frequency for a total of eight rounds to establish background in each well per §257.94(b). This expedited frequency develops the statistical strength recommended before using the data in the semiannual sampling events, provided the evaluation of the data for autocorrelation is acceptable. After the initial eight sampling events are completed, sampling aligns with the above sampling schedule. In January and February 2024, the seventh and eight sampling rounds for the MW-100 series wells, installed in 2023, were completed. To date, three sampling events have been completed for newly installed MW-17 series and MW-18 series wells.

Additional 2024 sampling events for groundwater included the collection of groundwater samples from the pump test well installed near well MW-7, collection of additional groundwater samples from select wells to assess the MNA remedial alternative, as well as collection of shallow groundwater samples within the wetland located on the northeast adjacent parcel owned by Eaton County. The shallow groundwater sampling from Pushpoint™ samplers is described in the attached **Appendix F**. MNA analysis is underway and will be reported in the first quarter of 2025.

Table 2. Dates of Groundwater Samples Collected for each Well in 2024 and Monitoring Purpose for the Erickson Impoundments

Monitoring Well I.D.	Well Location	Aquifer Monitored	Dates Monitored	Monitoring Purpose
MW-1	Background/ Upgradient	Glacial	January 29, 2024 August 5, 2024	Assessment Monitoring
MW-2	Downgradient	Glacial	January 29, 2024 August 5, 2024	Assessment Monitoring
			October 9, 2024 October 29, 2024	MNA Data Collection
MW-3	Cross-Gradient	Glacial	January 29, 2024 August 5, 2024	Assessment Monitoring
			October 9, 2024 October 29, 2024	MNA Data Collection
MW-4	Background/ Upgradient	Glacial	January 29, 2024 August 5, 2024	Assessment Monitoring
MW-5	Downgradient	Glacial	January 29, 2024 August 5, 2024	Assessment Monitoring
			October 9, 2024 October 29, 2024	MNA Data Collection
MW-6	Downgradient	Glacial	January 29, 2024 August 5, 2024	Assessment Monitoring
			October 9, 2024 October 29, 2024	MNA Data Collection
MW-7	Downgradient	Glacial	January 30, 2024 August 8, 2024	Assessment Monitoring
			October 9, 2024 October 29, 2024	MNA Data Collection
MW-7B	Downgradient	Bedrock	January 30, 2024 August 8, 2024	Assessment Monitoring
MW-7C	Downgradient	Glacial	January 30, 2024 August 8, 2024	Assessment Monitoring
MW-8	Downgradient	Glacial	January 30, 2024 August 8, 2024	Assessment Monitoring
MW-9	Downgradient	Glacial	January 30, 2024 August 8, 2024	Assessment Monitoring
MW-10	Downgradient	Glacial	January 30, 2024 August 8, 2024	Assessment Monitoring
MW-11	Background/ Upgradient	Glacial	January 31, 2024 August 5, 2024	Assessment Monitoring
MW-11B	Background/ Upgradient	Bedrock	January 31, 2024 August 5, 2024	Assessment Monitoring
MW-12	Background/ Upgradient	Glacial	January 31, 2024 August 6, 2024	Assessment Monitoring
MW-12B	Background/ Upgradient	Bedrock	January 31, 2024 August 6, 2024	Assessment Monitoring
MW-13	Downgradient	Glacial	January 30, 2024 August 7, 2024	Assessment Monitoring
MW-14	Downgradient	Glacial	January 31, 2024 August 5, 2024	Assessment Monitoring
			October 9, 2024 October 29, 2024	MNA Data Collection
MW-15	Downgradient	Glacial	January 31, 2024 August 7, 2024	Assessment Monitoring

Monitoring Well I.D.	Well Location	Aquifer Monitored	Dates Monitored	Monitoring Purpose
MW-16A	Downgradient	Glacial	February 1, 2023 August 6, 2024	Background Monitoring / Assessment Monitoring
MW-16B	Downgradient	Glacial	February 1, 2023 August 6, 2024	Background Monitoring / Assessment Monitoring
MW-16C	Downgradient	Bedrock	February 1, 2023 August 6, 2024	Background Monitoring / Assessment Monitoring
MW-16D	Downgradient	Bedrock	February 1, 2023 August 6, 2024	Background Monitoring / Assessment Monitoring
MW-100A	Downgradient	Glacial	January 3, 2024	Background Monitoring
			February 7, 2024	Background Monitoring / Assessment Monitoring
			August 7, 2024	Assessment Monitoring
MW-100B	Downgradient	Glacial	January 3, 2024	Background Monitoring
			February 7, 2024	Background Monitoring / Assessment Monitoring
			August 7, 2024	Assessment Monitoring
MW-100C	Downgradient	Bedrock	January 3, 2024	Background Monitoring
			February 7, 2024	Background Monitoring / Assessment Monitoring
			August 7, 2024	Assessment Monitoring
MW-100D	Downgradient	Bedrock	January 3, 2024	Background Monitoring
			February 7, 2024	Background Monitoring / Assessment Monitoring
			August 7, 2024	Assessment Monitoring
MW-17A	Downgradient	Glacial	October 8, 2024	Background Monitoring / MNA Data Collection
			October 29, 2024	MNA Data Collection
			November 13, 2024* December 18, 2024*	Background Monitoring / MNA Data Collection
MW-17B	Downgradient	Glacial	October 8, 2024 November 13, 2024* December 18, 2024*	Background Monitoring
MW-17C	Downgradient	Glacial	October 8, 2024 November 13, 2024* December 18, 2024*	Background Monitoring
MW-17D	Downgradient	Bedrock	October 8, 2024 November 13, 2024* December 18, 2024*	Background Monitoring
MW-17E	Downgradient	Bedrock	October 8, 2024 November 13, 2024* December 18, 2024*	Background Monitoring
MW-18A	Downgradient	Glacial	October 8, 2024	Background Monitoring / MNA Data Collection
			October 29, 2024	MNA Data Collection
			November 13, 2024* December 18, 2024*	Background Monitoring / MNA Data Collection
MW-18B	Downgradient	Glacial	October 8, 2024 November 13, 2024* December 18, 2024*	Background Monitoring

Monitoring Well I.D.	Well Location	Aquifer Monitored	Dates Monitored	Monitoring Purpose
MW-18C	Downgradient	Bedrock	October 8, 2024 November 13, 2024* December 18, 2024*	Background Monitoring
MW-18D	Downgradient	Bedrock	October 8, 2024 November 13, 2024* December 18, 2024*	Background Monitoring
PTW	Downgradient	Glacial	May 15, 2024	Pump Test

*Data analysis from these events are underway and will be included in the Semiannual report for the first half of 2025.

3.1.2 Water Levels and Sample Collection

Water levels were collected in each well following the Groundwater Level Monitoring Standard Operating Procedure (SOP) for Erickson (HDR, 2024c). Water levels were measured before purging the wells began. Wells were purged with a peristaltic pump until field parameters (pH, turbidity, conductivity, dissolved oxygen, temperature, and oxidation reduction potential) stabilized. The results of field measurements were recorded on a field data form, which is maintained as part of the field records. After field parameters stabilized, samples were collected and tested for the parameters listed in **Table 3**. For quality control, one field duplicate and one equipment blank sample were collected on each sampling date for each sampling event. Samples were delivered under Chain of Custody to Merit Laboratories in East Lansing, Michigan.

3.1.3 Analytical Testing

Samples collected for background monitoring and assessment monitoring events were analyzed for the parameters listed in **Table 3**. In addition to the required list in **Table 3**, on occasion, wells were analyzed for general water quality parameters including alkalinity, magnesium, potassium, and sodium.

Table 3. Constituents of Interest

Constituents for Assessment Monitoring	
Boron	Fluoride
Calcium	Iron
Chloride	Lead
Fluoride	Lithium
pH	Mercury
Sulfate	Molybdenum
Total Dissolved Solids (TDS)	Nickel
Antimony	Selenium
Arsenic	Silver
Barium	Thallium
Beryllium	Radium 226 and 228 combined
Cadmium	Vanadium
Chromium	Zinc
Cobalt	**Additional Parameters**
Copper	Total Suspended Solids (TSS)

3.1.4 Data Validation and Data Management

Data validation and data management tasks were performed per the Data Management and Statistical Procedures Plan for Compliance with the Coal Combustion Residuals Rule (HDR, 2020a). Data validation was conducted to eliminate data that did not meet validation criteria and designate a data qualifier for data quality limitation discovered.

Samples and quality control (QC) were reviewed and evaluated, and no samples were rejected. Quality Control analyses were within reportable limits; however, when QC was outside limit controls, samples were reported as estimated. Field and laboratory precision and accuracy goals were nearly met for all samples analyzed. Where failures of field and laboratory precision and accuracy were outside of control limits, data was qualified as necessary. Data analyses required minimal qualifications, and data were usable, even when qualified. Laboratory reports and accompanying data validation reports for the sampling completed in 2024 may be found in **Appendix C.**

4.0 Monitoring Results

4.1 Water Levels and Groundwater Flow Direction

Water levels for the Former Erickson Power Station are provided in **Table 4** and depicted in the hydrographs in **Figures 4 and 5**. Groundwater beneath the area of the impoundments is between 852 to 876 feet amsl. Based on the potentiometric contours, the groundwater flow under the former impoundments is generally east, however flow farther east of the wetlands at MW-16 appears to be flowing west, back towards the BWL property, and, prior to the installation of MW-17 series and MW-18 series wells, indicated that groundwater at Erickson was flowing east to the wetland area on the east side of the property and then following the surface topography towards the north. Groundwater elevation data obtained from the installation of MW-17 series and MW-18 series confirms northward flow within both the glacial and bedrock aquifers consistent with the Carrier Creek Subwatershed. Additional information detailing the groundwater flow direction at former Erickson Power Station may be found in the revised Groundwater Monitoring Systems Certification for Erickson Power Station published in June 2024 (HDR, 2024).

Water levels in the paired and multi-level glacial and bedrock wells is inconsistent between the sets. As shown in **Table 4**, bedrock well MW-7B has historically had a slightly higher water level than glacial paired well MW-7, indicating an upward vertical gradient, however, data collected since its installation in 2022 indicate that this trend may be seasonally dependent as the gradient has been inconsistent. Glacial wells MW-11 and MW-12 have higher water levels than the paired bedrock wells MW-11B and MW-12B (approximately 9 feet and 4 feet higher, respectively), indicating a downward vertical gradient. Similarly, groundwater elevations in the MW-16 series (except the D designated wells) decrease with well depth, indicating a downward vertical gradient. In the MW-100 well series, groundwater elevations in MW-100B and MW-100C are similar, while MW-100A is one foot higher and MW-100D is also one foot higher. Limited groundwater elevation data for the MW-17 series and MW-18 series wells indicate downward vertical gradients, except for MW-17D shallow bedrock well appears to have an upward gradient from the shallow bedrock to the glacial aquifer.

Bedrock well MW-16D does not appear to be hydraulically connected to the other wells within its multi-level well series (MW-16A, MW-16B, and MW-16C) or to other bedrock wells installed at Erickson. As shown in **Table 4** and highlighted in **Figure 5**, MW-16D does not demonstrate seasonal fluctuations similar to those observed at other glacial and bedrock wells and has a substantially lower groundwater elevation than other wells despite being completed at a similar elevation and lithology as bedrock wells MW-11B, MW-12B, MW-7B, and MW-100D. However, shallower bedrock well MW-16C does have groundwater elevations that fluctuate similarly to the glacial well and other bedrock wells onsite. Further investigation into the hydraulic disconnection of MW-16D is detailed in **Section 4.2**.

Because the groundwater elevations differed between glacial wells and bedrock wells, two separate sets of potentiometric contour maps were developed, one for wells screened in the glacial aquifer and one for the wells screened in the shale/sandstone bedrock aquifer.

Potentiometric surface maps were developed for the glacial and bedrock aquifers for the January and November 2024 water level measurement date. Maps displaying the groundwater elevations at the wells and the groundwater contours and are provided in **Appendix A**. Bedrock groundwater contour maps include well MW-16C (and not well MW-16D) due to the apparent MW-16D disconnection described above, whereas MW-17E, MW-18D, and MW-100D are included on the map (as opposed to MW-100C) due to the similar screened elevation as the onsite bedrock wells (MW-7B, MW-11B, MW-12B, MW-17E, and MW-18D).

The potentiometric surface maps and hydrographs indicate that monitoring wells MW-1, MW-4, MW-11, MW-12 are located upgradient in the glacial aquifer and wells MW-11B and MW-12B are upgradient in the bedrock aquifer relative to the former Forebay, Retention Pond, and CWP and are appropriate to represent background water quality.

Table 4. Groundwater Elevations Measured in 2024

Monitoring Well ID	Aquifer Monitored	TOC Elevation (ft amsl)	Groundwater Elevations (ft amsl)									
			1/3/2024	1/26/2024	2/7/2024	8/1/2024	10/8/2024	10/9/2024	10/29/2024	11/8/2024	11/13/2024	12/18/2024
MW-1	Glacial	888.74	NM	875.11	NM	873.88	NM	NM	NM	870.74	NM	NM
MW-2	Glacial	885.97	NM	867.37	NM	865.48	NM	863.49	863.45	863.75	NM	NM
MW-3	Glacial	884.81	NM	871.64	NM	870.52	NM	869.66	868.30	868.34	NM	NM
MW-4	Glacial	889.15	NM	872.76	NM	871.78	NM	NM	NM	869.64	NM	NM
MW-5	Glacial	885.50	NM	868.14	NM	866.93	NM	865.60	865.07	865.30	NM	NM
MW-6	Glacial	885.53	NM	866.69	NM	864.69	NM	863.69	863.56	863.61	NM	NM
MW-7	Glacial	870.144	NM	866.16	NM	864.24	NM	862.81	862.94	863.25	NM	NM
MW-7B	Bedrock	870.28	NM	865.02	NM	864.20	NM	NM	NM	863.10	NM	NM
MW-7C	Glacial	871.53	NM	866.14	NM	864.47	NM	NM	NM	863.54	NM	NM
MW-8	Glacial	873.743	NM	866.36	NM	864.36	NM	NM	NM	863.52	NM	NM
MW-9	Glacial	872.6	NM	866.65	NM	864.13	NM	NM	NM	863.40	NM	NM
MW-10	Glacial	875.654	NM	866.71	NM	864.98	NM	NM	NM	863.70	NM	NM
MW-11	Glacial	885.64	NM	875.35	NM	874.67	NM	NM	NM	872.57	NM	NM
MW-11B	Bedrock	885.58	NM	866.01	NM	865.56	NM	NM	NM	864.43	NM	NM
MW-12	Glacial	886.19	NM	871.42	NM	870.63	NM	NM	NM	868.34	NM	NM
MW-12B	Bedrock	886.27	NM	867.30	NM	867.03	NM	NM	NM	865.83	NM	NM
MW-13	Glacial	871.80	NM	867.18	NM	863.43	NM	NM	NM	862.32	NM	NM
MW-14	Glacial	884.59	NM	870.62	NM	869.24	NM	866.48	866.32	866.99	NM	NM
MW-15	Glacial	880.24	NM	876.15	NM	873.14	NM	NM	NM	870.04	NM	NM
MW-16A	Glacial	877.48	NM	872.34	NM	871.63	NM	NM	NM	868.70	NM	NM
MW-16B	Glacial	877.49	NM	868.23	NM	867.56	NM	NM	NM	865.84	NM	NM
MW-16C	Bedrock	877.49	NM	867.85	NM	867.23	NM	NM	NM	865.58	NM	NM
MW-16D	Bedrock	877.53	NM	853.40	NM	853.10	NM	NM	NM	852.07	NM	NM
MW-17A	Glacial	864.43	Well installed September 25, 2024				862.05	NM	862.86	863.24	863.37	863.73
MW-17B	Glacial	864.49	Well installed September 25, 2024				862.02	NM	NM	863.20	863.34	863.55
MW-17C	Glacial	864.51	Well installed September 25, 2024				862.09	NM	NM	863.23	863.33	863.31
MW-17D	Bedrock	864.42	Well installed September 25, 2024				862.47	NM	NM	863.24	863.41	863.48
MW-17E	Bedrock	864.36	Well installed September 25, 2024				862.40	NM	NM	863.11	863.21	863.39
MW-18A	Glacial	865.59	Well installed September 20, 2024				862.09	NM	862.81	863.14	863.34	863.50

Monitoring Well ID	Aquifer Monitored	TOC Elevation (ft amsl)	Groundwater Elevations (ft amsl)									
			1/3/2024	1/26/2024	2/7/2024	8/1/2024	10/8/2024	10/9/2024	10/29/2024	11/8/2024	11/13/2024	12/18/2024
MW-18B	Glacial	865.60	Well installed September 20, 2024				862.14	NM	NM	863.12	863.33	863.55
MW-18C	Bedrock	865.58	Well installed September 20, 2024				862.14	NM	NM	863.10	863.28	863.43
MW-18D	Bedrock	865.59	Well installed September 20, 2024				861.77	NM	NM	862.64	862.77	862.86
MW-100A	Glacial	879.77	864.07	864.62	864.89	864.27	NM	NM	NM	863.47	NM	NM
MW-100B	Glacial	879.74	863.33	863.90	864.30	864.04	NM	NM	NM	862.30	NM	NM
MW-100C	Bedrock	879.72	864.10	864.66	864.87	864.17	NM	NM	NM	862.96	NM	NM
MW-100D	Bedrock	879.70	864.66	865.19	865.44	864.27	NM	NM	NM	863.24	NM	NM

NM – Not measured.

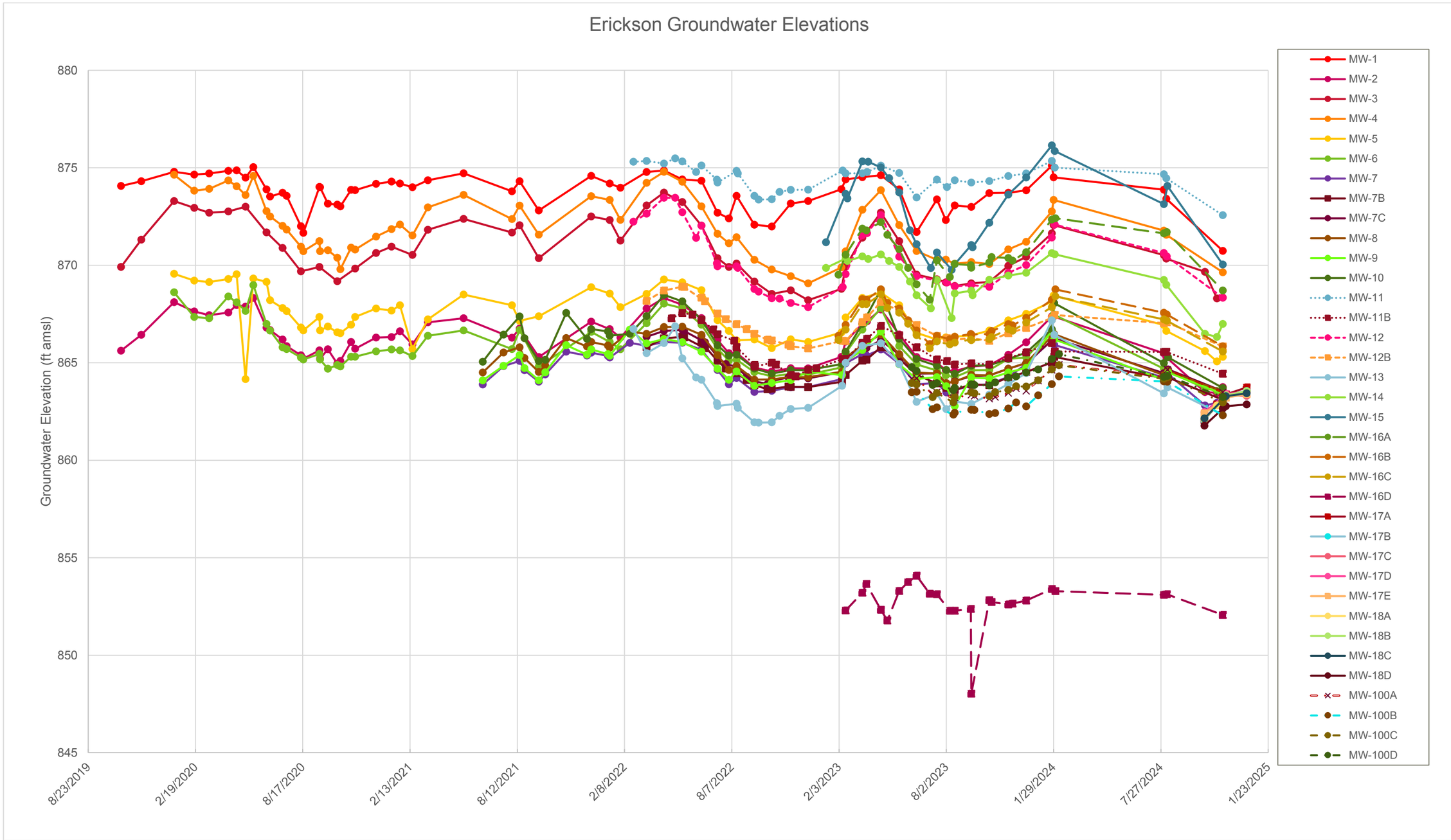


Figure 4. Former Erickson Power Station Groundwater Elevations

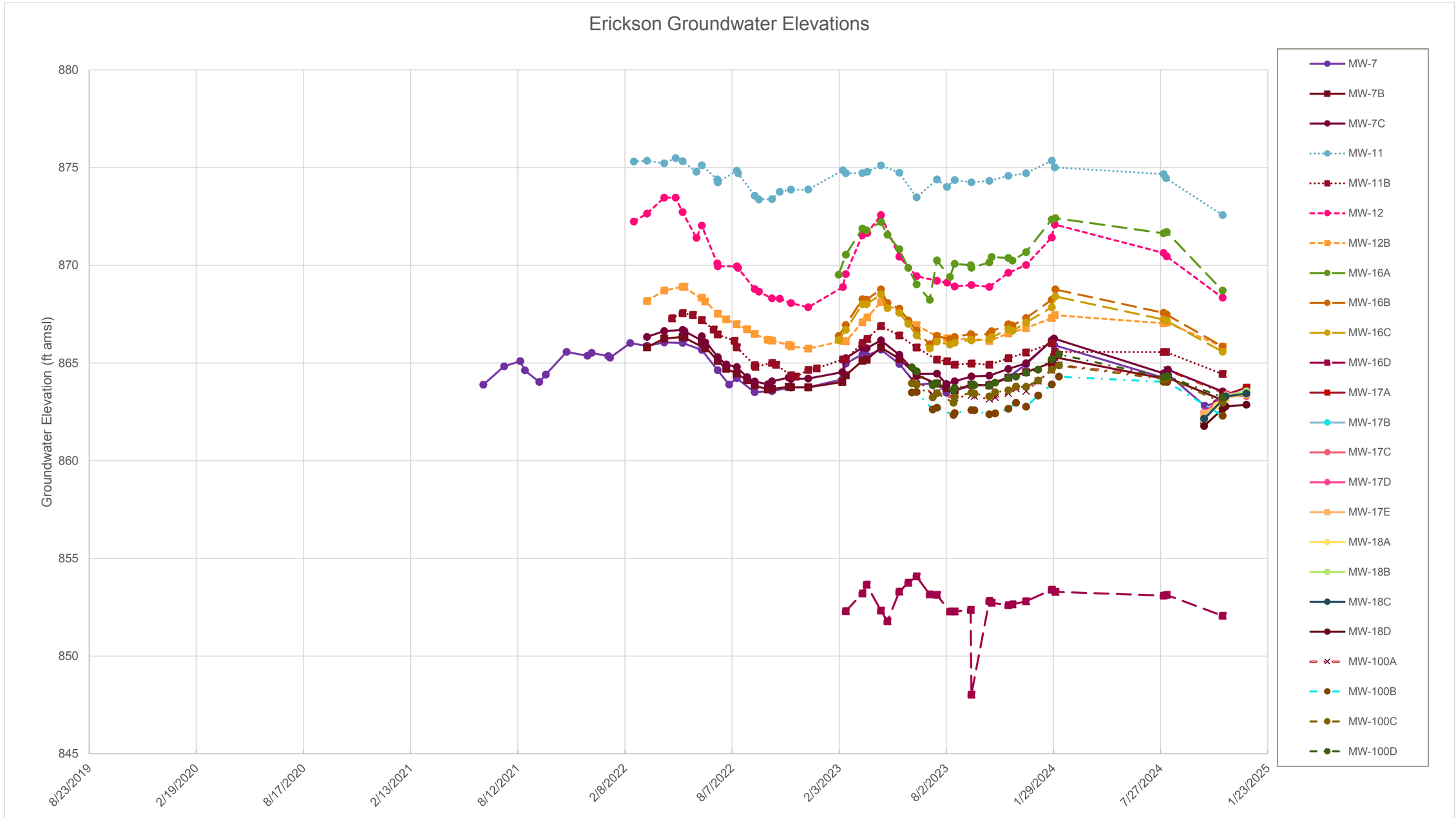


Figure 5. Former Erickson Power Station Paired Glacial and Bedrock Well Groundwater Elevations

4.2 Water Quality

A table summary of the analytical data is provided in **Appendix B** and laboratory reports are provided in **Appendix C**. In accordance with R 299.4441(9), Groundwater Protection Standards (GPS) were established for each detected COI.

Glacial Aquifer Background Values

Wells MW-1, MW-4, MW-11, and MW-12 represent background water quality for the glacial aquifer. Background statistics for the glacial aquifer were updated in October 2023 and were published in the Background Statistical Certification Report for the site in March 2024 (HDR, 2024a). The upper tolerance limit (UTL) values for assessment monitoring and established GPS for the glacial aquifer are provided in **Table 5**.

Table 5. Background Values and Groundwater Protection Standards for the Glacial Aquifer

Parameter		Site-Specific Glacial Background Level Upper Tolerance Limit (UTL)[1] (mg/L)	Federal Maximum Contaminant Level (mg/L)	State Non-Residential Drinking Water Cleanup Criteria for Groundwater[2] (mg/L)	Glacial Groundwater Protection Standards for Site (mg/L)
Sb, total	Antimony	0.005	0.006	0.006	0.006
As, total	Arsenic	0.021	0.01	0.01	0.021
Ba, total	Barium	0.168	2	2	2
Be, total	Beryllium	0.001	0.004	0.004	0.004
B, total	Boron	0.48	NV	0.5	0.5
Cd, total	Cadmium	0.0005	0.005	0.005	0.005
Cr, total	Chromium	0.005	0.1	0.1	0.1
Co, total	Cobalt	0.005	0.006	0.1	0.006
Cu, total	Copper	0.005	1.3	1	1
Fe, total	Iron	23.5	0.3	0.3	23.5
Pb, total	Lead	0.003	0.015	0.004	0.004
Li, total	Lithium	0.0397	0.04	0.35	0.04
Hg, total	Mercury	0.0002	0.002	0.002	0.002
Mo, total	Molybdenum	0.024	0.1	0.21	0.1
Ni, total	Nickel	0.021	NV	0.1	0.1
Se, total	Selenium	0.005	0.05	0.05	0.05
Ag, total	Silver	0.0005	0.1	0.098	0.098
Tl, total	Thallium	0.002	0.002	0.002	0.002
V, total	Vanadium	0.005	NV	0.062	0.062
Zn, total	Zinc	0.036	5	5	5
Ca	Calcium	188	NV	NV	188
F	Fluoride	1	4	2	2
Cl	Chloride	94.377	250	250	250
SO_4	Sulfate	344	250	250	344
TDS	Total Dissolved Solids	1168.639	500	500	1168.639
Ra226/228	Radium 226 and 228 combined	5.00 pCi/L	5 pCi/L	NV	5 pCi/L

[1] Calculated by pooling wells MW-1, MW-4, MW-11, and MW-12, through February 9, 2023, data. BTVs calculated in October 2023.
[2] Cleanup Criteria Requirements for Response Activity (Formerly the Part 201 Generic Cleanup Criteria and Screening Levels) found in R 299.44 Generic groundwater cleanup criteria.
NV=no value

Bedrock Aquifer Background Values

Wells MW-11B and MW-12B represent background water quality in the bedrock aquifer upgradient of the CCR impoundments and were completed in shale and sandstone at approximately 120 feet below ground surface. Background statistics for the bedrock aquifer were updated in October 2023 and were published in the Background Statistical Certification Report for the site in March 2024 (HDR, 2024a). The upper tolerance limit (UTL) values for assessment monitoring and established GPS for the bedrock aquifer are provided in **Table 6**.

Table 6. Background Values and Groundwater Protection Standards for the Bedrock Aquifer

Parameter		Site-Specific Bedrock Background Level Upper Tolerance Limit (UTL)[1] (mg/L)	Federal Maximum Contaminant Level (mg/L)	State Non-Residential Drinking Water Cleanup Criteria for Groundwater[2] (mg/L)	Bedrock Groundwater Protection Standards for Site (mg/L)
Sb, total	Antimony	0.005	0.006	0.006	0.006
As, total	Arsenic	0.009	0.01	0.01	0.01
Ba, total	Barium	0.081	2	2	2
Be, total	Beryllium	0.001	0.004	0.004	0.004
B, total	Boron	3.52	NV	0.5	3.52
Cd, total	Cadmium	0.0005	0.005	0.005	0.005
Cr, total	Chromium	0.005	0.1	0.1	0.1
Co, total	Cobalt	0.005	0.006	0.1	0.006
Cu, total	Copper	0.005	1.3	1	1
Fe, total	Iron	3.04	0.3	0.3	3.04
Pb, total	Lead	0.003	0.015	0.004	0.004
Li, total	Lithium	0.051	0.04	0.35	0.051
Hg, total	Mercury	0.0002	0.002	0.002	0.002
Mo, total	Molybdenum	0.011	0.1	0.21	0.1
Ni, total	Nickel	0.011	NV	0.1	0.1
Se, total	Selenium	0.005	0.05	0.05	0.05
Ag, total	Silver	0.0005	0.1	0.098	0.098
Tl, total	Thallium	0.002	0.002	0.002	0.002
V, total	Vanadium	0.005	NV	0.062	0.062
Zn, total	Zinc	0.042	5	5	5
Ca	Calcium	69.6	NV	NV	69.6
F	Fluoride	1	4	2	2
Cl	Chloride	5	250	250	250
SO_4	Sulfate	5	250	250	250
TDS	Total Dissolved Solids	380	500	500	500
Ra226/228	Radium 226 and 228 combined	5.5 pCi/L	5 pCi/L	NV	5.5 pCi/L

[1] Calculated by pooling wells MW-11B and MW-12B, through February 9, 2023, data. BTVs calculated in October 2023.
[2] Cleanup Criteria Requirements for Response Activity (Formerly the Part 201 Generic Cleanup Criteria and Screening Levels) found in R 299.44 Generic groundwater cleanup criteria.
NV=no value

Assessment Monitoring Event – January/February 2024

Twenty-seven (27) wells were sampled during January/February 2024 assessment monitoring event as presented in **Table 2**. The following wells had concentrations of one or more COIs that exceeded GPS: MW-2, MW-3, MW-5, MW-6, MW-7, MW-7C, MW-14, MW-16A, and MW-16D. In accordance with Michigan Rule R 299.4441, downgradient well concentrations were statistically evaluated to determine if one or more constituents are detected at SSLs above the GPS. To determine if an exceedance of a GPS value was statistically significant, the 95% lower confidence limit (95LCL) was calculated for each of the downgradient wells. Statistical output files are in **Appendix D**.

Glacial Aquifer

Wells MW-2 and MW-5 had SSLs of boron, calcium, lithium, sulfate, and TDS over the GPS (**Table 7**). Well MW-6 and MW-14 had SSLs of boron and lithium over the GPS, and well MW-7 had SSLs of boron, lithium, and molybdenum, over the GPS (**Table 7**). Well MW-7C had SSLs of boron, calcium, lithium, molybdenum, sulfate, and TDS over the GPS (**Table 7**). Additionally, well MW-3 had LCL concentrations greater than GPS for boron, calcium, lithium, molybdenum, sulfate, and TDS; but it was calculated based on only seven sample events and is therefore not yet considered an official SSL due to having less than 8 sample events.

Well MW-16A was also found to have SSLs of chloride and TDS (**Table 7**) upon completing its background sampling events in November 2023 and continues to exhibit concentrations above GPS for these constituents during the January/February 2024 sampling event. An amendment to the Determination of SSLs over GPS for Erickson Power Station was subsequently published on June 14, 2024, detailing the SSLs for well MW-16A. However, the chloride and TDS are likely the result of salt applications to the road for deicing. Based on several factors, an Alternate Source Demonstration for the SSLs observed in well MW-16A was prepared and submitted to EGLE in July 2024.

Table 7. Wells with SSLs over GPS – Calculated through the February 2024 Assessment Monitoring Event

Monitoring Well	Constituent	Boron	Calcium	Chloride	Lithium	Molybdenum	Sulfate	TDS
	State Glacial GPS	0.50 mg/l	188 mg/l	250 mg/l	0.040 mg/l	0.10 mg/l	344 mg/l	1,169 mg/l
MW-2	**95% LCL**	4.6	230	-	0.054	-	410	1,200
MW-5	**95% LCL**	3.7	210	-	0.061	-	570	1,200
MW-6	**95% LCL**	0.72	-	-	0.044	-	-	-
MW-7	**95% LCL**	1.6	-	-	0.084	0.17	-	-
MW-7C	**95% LCL**	6.5	240	-	0.13	0.39	680	1,400
MW-14	**95% LCL**	2.1	-	-	0.11	-	-	-
MW-16A*	**95% LCL**	-	-	410	-	-	-	1,300

*An ASD has been prepared for the SSLs observed within this well.
"-" Denotes the LCL did not exceed GPS along with wells not listed.

Bedrock Aquifer

Well MW-16D continued to demonstrate an SSL of boron over the GPS during the January/February 2024 assessment monitoring event (**Table 8**), first reported in the 2023 Groundwater Monitoring Annual Report for Erickson Station.

Table 8. SSLs in Bedrock Wells– Calculated through the February 2024 Assessment Monitoring Event

Monitoring Well	Constituent	Boron
	State Glacial GPS	3.52 mg/l
MW-16D*	95% LCL	4.6

*An ASD has been prepared for the SSL observed within this well.

However, as described in **Section 4.1** and demonstrated in **Figure 4** and **Figure 5**, MW-16D is hydraulically disconnected to the other wells at Erickson. In addition, a review of the impacted wells closer to the impoundment show a consistent set of parameters that exceed GPS, not solely boron. For example, at glacial wells with SSIs and SSLs over GPS, the parameters that exceed include lithium, sulfate, and TDS in addition to the boron. However, at MW-16D bedrock well, only boron exceeds the GPS. This is similar to the findings observed in the private wells completed in bedrock farther east and described in the Private Well Report published on April 16, 2023, and further supported in the Groundwater Flow Direction Update and Shale/Boron Correlation Memorandum published on February 12, 2024. Both documents contain further data supporting the boron in the bedrock to be naturally occurring. Based on numerous data points described in the ASD submitted to EGLE in July 2024, the alternate source of boron at MW-16D is the naturally occurring shale.

Assessment Monitoring Event – August 2024

Twenty-seven (27) wells were sampled during the August 2024 assessment monitoring event as presented in **Table 2**. The following wells had concentrations of one or more COIs that exceeded GPS: MW-2, MW-3, MW-5, MW-6, MW-7, MW-7C, MW-14, MW-16A, and MW-16D. In accordance with Michigan Rule R 299.4441, downgradient well concentrations were statistically evaluated to determine if one or more constituents are detected at SSLs above the GPS. To determine if an exceedance of a GPS value was statistically significant, the 95% lower confidence limit (95LCL) was calculated for each of the downgradient wells. Statistical output files are in **Appendix D**.

<u>Glacial Aquifer</u>

Wells MW-2 and MW-5 had SSLs of boron, calcium, lithium, sulfate, and TDS over the GPS (**Table 9**). Well MW-6 and MW-14 had SSLs of boron and lithium over the GPS, and well MW-7 had SSLs of boron, lithium, and molybdenum, over the GPS (**Table 9**). Well MW-7C had SSLs of boron, calcium, lithium, molybdenum, sulfate, and TDS over the GPS (**Table 9**). Additionally, upon completion of its eighth sample, well MW-3 demonstrated SSLs of boron, calcium, lithium, molybdenum, sulfate, and TDS over the GPS (**Table 9**).

Consistent with previous monitoring events, well MW-16A was also found to have SSLs of chloride and TDS (**Table 9**) and continues to exhibit concentrations above GPS for these constituents during the August 2024 sampling event. An amendment to the Determination of

SSLs over GPS for Erickson Power Station was subsequently published on June 14, 2024, detailing the SSLs for well MW-16A. However, the chloride and TDS are likely the result of salt applications to the road for deicing. As mentioned above, an alternate source demonstration for the SSLs observed in well MW-16A was prepared and submitted to EGLE in July 2024.

Table 9. SSLs for CCR Impoundments at Erickson Power Station – Calculated through the August 2024 Assessment Monitoring Event

Monitoring Well	Constituent	Boron	Calcium	Chloride	Lithium	Molybdenum	Sulfate	TDS
	State Glacial GPS	0.50 mg/l	188 mg/l	250 mg/l	0.040 mg/l	0.10 mg/l	344 mg/l	1,169 mg/l
MW-2	95% LCL	4.4	200	-	0.051	-	400	1,200
MW-3	95% LCL	5.5	240	-	0.078	0.16	690	1,400
MW-5	95% LCL	3.4	200	-	0.064	-	550	1,200
MW-6	95% LCL	0.71	-	-	0.043	-	-	-
MW-7	95% LCL	1.7	-	-	0.083	0.18	-	-
MW-7C	95% LCL	6.5	240	-	0.13	0.39	680	1,400
MW-14	95% LCL	2.1	-	-	0.11	-	-	-
MW-16A*	95% LCL	-	-	410	-	-	-	1,300

*An ASD has been prepared for the SSLs observed within this well.
"-" Denotes the LCL did not exceed GPS.

Bedrock Aquifer

Consistent with previous monitoring events, well MW-16D continued to demonstrate an SSL of boron over the GPS during the August 2024 assessment monitoring event (**Table 10**).

Table 10. SSLs in Bedrock Wells– Calculated through the August 2024 Assessment Monitoring Event

Monitoring Well	Constituent	Boron
	State Glacial GPS	3.52 mg/l
MW-16D*	95% LCL	4.5

*An ASD has been prepared for the SSL observed within this well.

However, as described in **Section 4.1** and demonstrated in **Figure 4** and **Figure 5**, MW-16D is hydraulically disconnected to the other wells at Erickson. As stated above, multiple lines of evidence indicating the boron is naturally occurring within the bedrock have been presented in the ASD prepared for the site and sent to EGLE for review in July 2024.

Background Monitoring Events – January, February 2024

Final background sampling for MW-100 series wells were completed in January and February 2024. These wells (MW-100A, MW-100B, MW-100C, and MW-100D) were sampled on a five-week frequency after installation for the first eight sample events. This section describes the January dates for the associated sampling events for MW-100 series wells can be found in **Table 2**. The February sample event was the eighth sample event; therefore, statistical

evaluation was completed, and the findings of that evaluation are described below. The statistical evaluation of the August 2024 monitoring event for these wells is discussed above.

Glacial Aquifer
Wells MW-100A and MW-100B do not have GPS exceedances or demonstrate SSLs upon statistical analysis after completion of eight background monitoring events. The plume's extent to the southeast of the impoundments is delineated. Data from these wells compared to the GPS during the background monitoring events in 2024 may be found in **Appendix B**. Statistical output files are in **Appendix D**.

Bedrock Aquifer
Wells MW-100C and MW-100D do not have GPS exceedances or demonstrate SSLs upon statistical analysis after completion of eight background monitoring events. Data from these wells compared to the GPS during the background monitoring events in 2024 may be found in **Appendix B**. Statistical output files are in **Appendix D**.

Background Monitoring Events – October, November, December 2024
Three background monitoring events for MW-17 and MW-18 multi-level series wells (MW-17A, MW-17B, MW-17C, MW-17D, MW-17E, MW-18A, MW-18B, MW-18C, and MW-18D) were completed in October, November, and December of 2024 as shown in **Table 3** and described in **Section 3.1**. At the time of this report, the full data analysis has not been completed for the November or December 2024 sampling events, however initial results have been reviewed and a summary of the findings is presented below. Although initial review of data collected from these wells indicate concentrations above GPS, these exceedances are not considered SSLs as the wells have not completed enough sampling events to be considered statistically significant.

Glacial Aquifer
Initial results from wells MW-17A, MW-17B, MW-17C, MW-18A, and MW-18B have GPS exceedances for boron and lithium. Wells MW-17A and MW-17B also demonstrate concentrations of calcium, sulfate, and TDS above the GPS. Additionally, during the October 2024 background monitoring event only, wells MW-17A, MW-17B, MW-17C, and MW-18B demonstrated concentrations of molybdenum above the GPS. Data from these wells compared to the GPS during for the October 2024 background event may be found in **Appendix B**.

Bedrock Aquifer
Concentrations of calcium, sulfate, TDS, lithium, and molybdenum above bedrock GPS were observed in wells MW-17D, MW-18C, and MW-18D during the October 2024 and/or November 2024 background sampling events. During the October 2024 sampling event only well MW-18D demonstrated concentrations above the GPS for boron. During the November 2024 background event only, well MW-18D demonstrated concentrations of iron above the GPS. Data from these wells compared to the GPS during the October 2024 background event may be found in **Appendix B**.

Shallow Groundwater Sampling

As mentioned in **Section 3.1**, the BWL collected additional samples as part of an investigation to assess shallow groundwater quality within the parcel owned by Eaton County immediately adjacent to the northeast of the Erickson property to continue to delineate the potential contamination migration along the eastern boundary of the Erickson site. A total of 29 sample locations were attempted, however sampling difficulties due to low permeability subsurface conditions, low saturation conditions, refusal, and dense vegetation or other access concerns limited the investigation. Eleven samples were collected from the 29 attempted locations (some locations contain multiple sampled depths) in October and November 2024 via Pushpoint™ sampler (Henry Sampler) as shown in **Figure 6**. Samples were delivered under Chain of Custody to Merit Laboratories in East Lansing, Michigan. The laboratory reports for the shallow groundwater sampling investigation are provided with the report in **Appendix F**. Results obtained from the investigation identified elevated levels of arsenic, boron, calcium, lithium, molybdenum, sulfate, and total dissolved solids (TDS) above the glacial GPS established for the site as shown in **Table 11**. Of these constituents, all except arsenic are currently identified as SSLs over GPS for the Erickson CCR groundwater impacts. In general, the most elevated concentrations were observed to be located closer to the eastern Erickson property boundary (south), decreasing as the sample locations were further to the north.

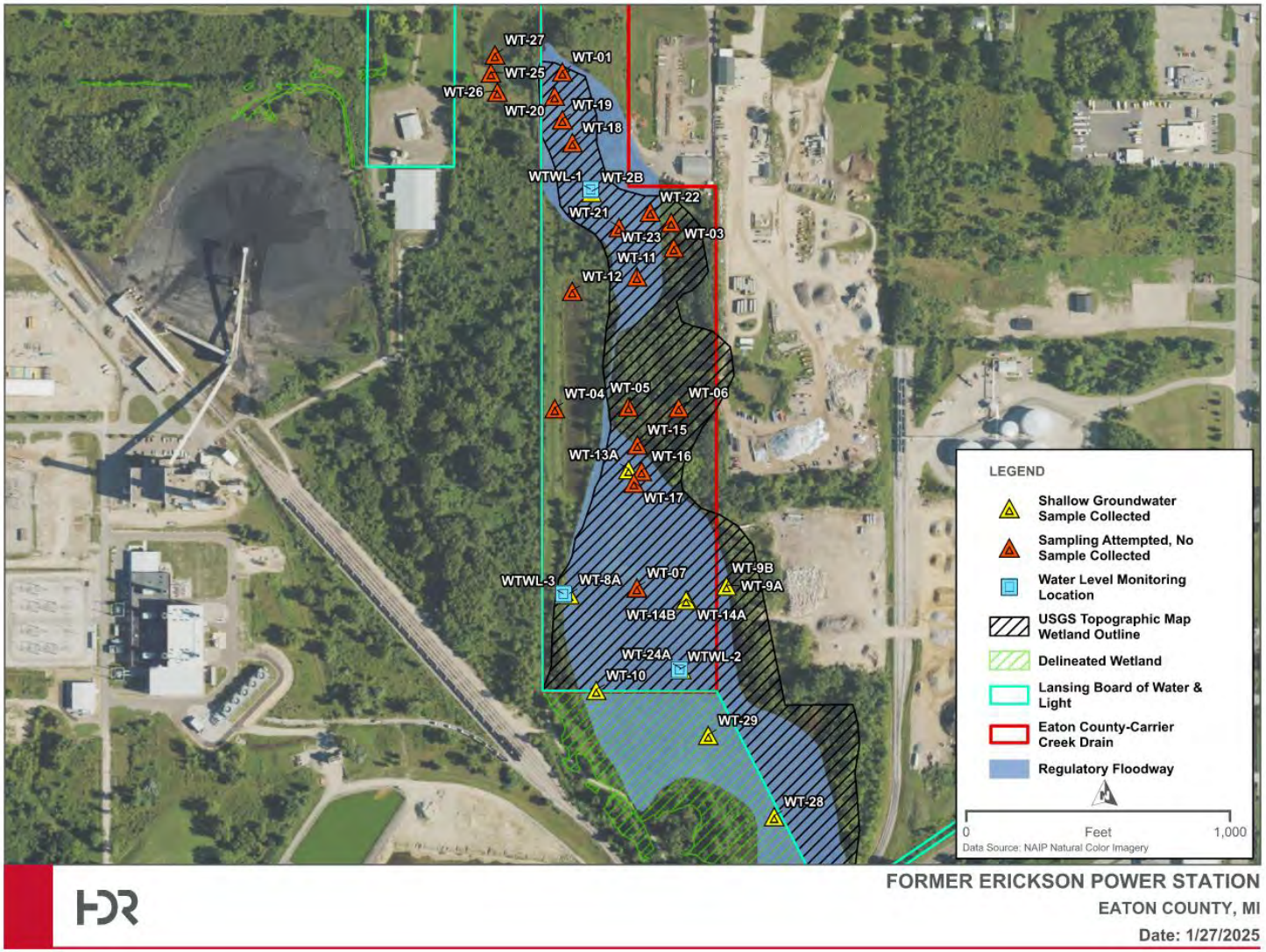


Figure 6. Shallow Groundwater Sampling Proposed, Attempted, and Successful Groundwater Sample Locations

Table 11. Shallow Groundwater Samples (Pushpoint™) with Glacial GPS Exceedances

Constituent (mg/L)	Arsenic	Boron	Calcium	Lithium	Molybdenum	Sulfate	Total Dissolved Solids
State Program Glacial GPS	**0.021**	**0.50**	**188**	**0.040**	**0.100**	**344**	**1190**
WT-2B	--	1.10	386	--	--	447	1610
WT-8A	--	1.32	--	--	--	--	--
WT-9A	--	3.85	468	0.205	--	1090	2280
WT-9B	--	7.42	592	0.230	--	1570	2880
WT-10A	--	2.62	318	--	--	490	1410
WT-13A	--	1.90	257	--	--	423	1290
WT-14A	--	4.84	494	0.202	--	1480	2680
WT-14B	--	3.48	518	0.192	--	1480	2810
WT-24A	--	1.67	283	0.070	--	659	1390
WT-28	--	2.55	599	0.064	--	1760	3200
WT-29	0.036	3.21	--	--	0.210	384	--

"--" Denotes the sample did not exceed the glacial GPS for Erickson.

5.0 Remedy Selection Progress Update

BWL is moving forward with source removal to close the impoundments. Groundwater measures being evaluated in the Assessment of Corrective Measures (ACM) in November 2021 assumed the impoundment would be excavated and source removed prior to implementation of groundwater remedy measures.

5.1 Impoundment Closure

A CCR removal contractor was selected and mobilized to the site in February 2023 to begin dewatering operations from the three impoundments. The water removed from the ponds was treated on site, monitored, and discharged into nearby Lake Delta in compliance with an NPDES permit. Dewatering efforts were completed in May 2023 and ash and liner material removal commenced, with the material being transported to Granger Wood Street Landfill. Through June 2024 approximately 68,000 cubic yards of material (ash, liner, and CCR impacted riprap) have been removed and disposed of offsite from the three impoundments.

Verification was completed through visual, photographic, and soil sampling and laboratory analytical testing. Visual verification was completed for all three units in August 2023. Sampling was initially completed for the CWP in July 2023 and the analytical results indicate that the pond had met the necessary statistical closure criteria. Multiple samples were collected for the Forebay and Retention Basin throughout July to December 2023 as analytical results indicated exceedances above established closure criteria. Analytical verification results were statistically analyzed, and exceedances were found for arsenic and boron for the Retention Basin and boron and molybdenum for the Forebay; however, microscopy results were below 3% CCR (microscopy closure criteria 7% CCR) for the Forebay and Retention Basin.

Efforts to close Erickson Power Station continued in the first half of 2024. During a meeting with EGLE on February 27, 2024, EGLE instructed BWL that to achieve closure, the BWL would be required to continue with deeper excavation and closure efforts until all sampling locations returned analytical results meeting the closure criteria, regardless of EGLE's previously agreed upon statistical closure criteria, as detailed in their acceptance of the Closure Plan for the Erickson impoundments on September 5, 2023. Therefore, in accordance with the EGLE's new requirements, BWL completed additional excavation of impacted nodes and re-sampling of all three impoundment units starting in March 2024. Final clean closure samples were obtained for the Clear Water Pond and Forebay in May 2024. Final clean closure samples were obtained for the Retention Basin in June 2024.

With the collection of the final samples in June 2024, analytical testing confirmed that the sample nodes were lower than the constituent thresholds established within the Closure Plan and met the final line of evidence for the CCR removal objectives established for the Forebay, Retention Basin, and CWP. A CCR Removal Report detailing the removal of CCR from the three impoundments and summarizing that the word documented has met the approved Closure Plan was published for the site on November 4, 2024 and subsequently approved by EGLE on November 8, 2024.

5.2 Plume Delineation

As discussed in the ACM*;* to select a groundwater remedy, additional data collection and analyses is ongoing to understand off-site plume transport and potential human or ecological receptors. Potential receptors were evaluated and, at this time, the risk to private wells is considered very low. BWL has been working with adjacent and nearby landowners requesting agreements to install monitoring wells. This time-consuming effort necessitated multiple points of contact and landowners would not grant easements for monitoring well installations. Meanwhile BWL has been developing “work-around” alternatives to landowner's parcels to the extent practical, including wells on a narrow BWL-owned strip of land. Ten new wells were installed for assessment and characterization of the groundwater plume at Erickson to the north, east, and south of the CCR impoundments. Groundwater data from these wells currently suggest that the plume is contained within the boundaries of these newly installed wells.

The property owner east of Erickson has declined to allow for the installation of a monitoring well on their property. Therefore, BWL proposed multi-level wells and supporting access paths in the wetland east of the Erickson property boundary. To accommodate the installation of these wells, BWL applied for a wetland permit. The permit to construct these wells within the wetland was submitted to EGLE on April 21, 2023. Review of the permit was completed in May 2023 and comments were sent back to BWL to address prior to resubmission in July 2023. Additional concerns regarding the constructed access paths and interference with the floodplain after this submission resulted in multiple meetings with BWL, EGLE, and HDR from September 8, 2023, through the end of the year, with the last meeting occurring on December 22, 2023. During the meeting, EGLE requested additional information which BWL provided on February 7, 2024, and the permit (WRP040277v.1) was issued on February 15, 2024, by EGLE, Water Resources Division, under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); specifically, Part 303, Wetland Protection.

The proposed monitoring wells and a portion of the access roads are located within the effective 100-year Special Flood Hazard Area (SFHA) and floodway of Carrier Creek. BWL prepared and submitted a No Rise Study Report to Delta Township, Floodplain regulatory authority of Carrier Creek, to demonstrate that the proposed access road and the proposed monitoring wells will not increase the Corrected Effective Base Flood Elevations (BFEs) nor modify the Corrected Effective floodway widths, and therefore demonstrates the flood carrying capacity is maintained and satisfies Section 13.03 D of the Delta Township Zoning Ordinance. Data from these proposed wells will help further define the groundwater flow directions, as well as refine the understanding of vertical and horizontal plume extent at the property boundary. Nine new wells were installed in September 2024:

- MW-17A, MW-17B, MW-17C, MW-17D, and MW-17E installed to the north of the clustered wells at MW-7 to confirm groundwater flow directions and delineate the northern extents of the plume in the glacial and bedrock aquifers.
- MW-18A, MW-18B, MW-18C, and MW-18D installed to the east of the clustered wells at MW-7 to confirm groundwater flow directions and delineate the eastern extents of the plume in the glacial and bedrock aquifers.

As discussed in **Section 4.2**, initial data collected from these wells indicate that concentrations above GPS for multiple constituents of concern have been identified in both the glacial and bedrock aquifers for these multi-level series wells. However, data analysis of the samples collected from these wells has not yet been completed and only three background sampling events have been performed. Consequently, data collected from these newly installed wells are not considered statistically significant and therefore, the GPS exceedances for these wells are not representative of SSLs for the site at this time.

Further plume delineation required sampling further north of the proposed wells within a parcel of land owned by the Eaton County. This area is within effective 100-year Special Flood Hazard Area (SFHA) and floodway of Carrier Creek and potential wetland. Due to the delays incurred with the installation of the wetland wells (MW-17 and MW-18), BWL proposed and implemented a shallow sampling approach that would avoid site disturbance and associated permits. BWL completed a work plan and submitted to EGLE on July 22, 2024 and subsequently completed the sampling as described in **Section 4.2** and **Appendix F**. As stated in **Section 4.2**, data collected from these samples identified concentrations above GPS for constituents of concern within the shallow groundwater on the Eaton County parcel.

Data collected from the sampling events in 2024 including the installation of the MW-17 and MW-18 series wells and the shallow groundwater Pushpoint™ sampling currently suggest that the groundwater plume at Erickson requires further delineation to the north. As mentioned previously, landowners adjacent to the Erickson property have denied BWL's proposals to install monitoring points, and the parcels of land within the path of groundwater flow consist of protected forested wetlands. Therefore, BWL is evaluating multiple paths forward in order to continue to delineate the groundwater plume to the north including reopening discussions for the installation of monitoring wells on the adjacent landowner parcels and additional "work-arounds" including the proposal of a new monitoring well and piezometer on the north and northeast corner of the Erickson property.

5.3 Assessment of Corrective Measures Data Collection

An Assessment of Corrective Measures Data Collection Work Plan was developed for the site to support the Assessment of Corrective Measures to ultimately select a remedy. The workplan was finalized on February 15, 2024, and focuses on data collection, site-specific feasibility, and time to achieve compliance for the Monitored Natural Attenuation (MNA) and Groundwater Extraction and Treatment (GWET) remedial measures.

5.3.1 Groundwater Extraction and Treatment Data Collection

To assess the GWET remedial strategy, a single pump test well was installed at Erickson, screened within the sandy glacial sediments. The well location was selected due to the proximity of the adjacent multi-level well series to obtain information on both the glacial and bedrock aquifers as wells as being within in an area of the contaminant plume where contamination is most concentrated.

The pump test well (PTW) was installed central to MW-7, MW-7B, and MW-7C, to use those wells, and MW-2 and MW-8, as observation wells for the pump test. The PTW was installed on May 10, 2024, and subsequently developed. To assess an accurate pump rate, a modified step drawdown test was completed on May 13, 2024. After the well had recovered, the 24-hour constant rate test began on May 14, 2024, at a pumping rate of 66.2 gallons per minute. There was 1.74 feet of drawdown within the pump test well and approximately 1 foot of drawdown in the adjacent MW-7 well. The transmissivity of the glacial aquifer at the PTW was measured to be 7,083 ft^2/day and the hydraulic conductivity was estimated at 118 ft/day. The Pump Test Report completed for the site is included as **Appendix E**. The findings will later be incorporated into the remedy selection for the site.

5.3.2 Monitored Natural Attenuation Data Collection

To assess the potential for MNA as a remedial strategy at the site, borings were co-located with Erickson wells with SSLs (MW-2, MW-3, MW-5, MW-6, MW-14, and MW-7/PTW) in May 2024. Soil samples were collected from each boring, including the PTW boring, and analyzed for the following:

- Contaminant concentrations in aquifer solids (COCs include aluminum, antimony, arsenic, boron, cadmium, calcium, chromium, iron, lead, lithium, manganese, mercury, and molybdenum) by Merit Laboratories, Inc.
- Batch attenuation testing for COCs listed above (chemical extractions to determine probable range of K_d partition values to suggest attenuation is taking place) from Resolution Partners, LLC.
- Subsurface mineralogy (clay mineralogy, Fe-Mn-Al oxides, carbonate minerals, sulfides, total organic carbon) from ACZ Laboratories, Inc.

Additional soil samples from the boreholes at wells MW-17 and MW-18 were collected in September 2024 and subsequently analyzed for the above listed parameters. Complete analysis of these samples is still in progress and is anticipated to be complete by the end of January 2025. For Tier I analysis of MNA, specific groundwater parameters from the targeted Erickson wells are also required. These additional groundwater monitoring parameters were first collected during the August 2024 assessment monitoring event and will continue to be collected through the first assessment monitoring event in 2025. An evaluation of the MNA data collected is anticipated to be completed in the first quarter of 2025.

5.4 Next Steps

The following activities are proposed to be completed or initiated in the next 6-month period:

- siting of a new well proposed for the northeastern corner of the Erickson property;
- continued semiannual groundwater assessment monitoring;
- complete analysis of MNA soil and groundwater samples and evaluation of MNA as a remedial option; and
- updates to the groundwater flow and transport model and predicted modeling of boron and lithium constituents of concern.

Additionally, BWL will continue implementing CCR groundwater compliance schedule in conformance with R 299.4439 – R 299.4445, which includes semiannual assessment monitoring in accordance with R 299.4441 to monitor groundwater conditions and inform the remedy selection. The final remedy will be formally selected per R 299.4444 once the selected option is reviewed and commented on by EGLE and a public meeting is conducted at least 30-days prior to the final selection as required under R 299.4443(4).

6.0 Summary

The following observations are based on CCR Rule compliance groundwater monitoring program development during 2024:

- Nine new monitoring wells were installed in September 2024 at two locations (MW-17A, MW-17B, MW-17C, MW-17D, MW-17E, MW-18A, MW-18B, MW-18C, MW-18D).
- New BTVs for the glacial aquifer and BTVs for the bedrock aquifer were published in the update to the Background Water Quality Statistical Certification, published on March 8, 2024.
- Assessment monitoring for the first half of 2024 was completed in January and February for twenty-seven (27) wells. Monitoring data was statistically evaluated, and SSLs above the GPS were observed at MW-2, MW-5, MW-6, MW-7, MW-7C, and MW-14 for lithium and boron. Additionally, SSLs above the GPS were observed at MW-2, MW-5, and MW-7C for calcium, sulfate, and TDS, and in MW-7 and MW-7C for molybdenum. These wells are all glacial wells.
- Assessment monitoring for the second half of 2024 was completed in August for twenty-seven (27) wells. Monitoring data was statistically evaluated and SSLs above the GPS were observed at MW-2, MW-3, MW-5, MW-6, MW-7, MW-7C, and MW-14 for lithium and boron. Additionally, SSLs above the GPS were observed at MW-2, MW-3, MW-5, and MW-3 and MW-7C for calcium, sulfate, and TDS, and in MW-7 and MW-7C for molybdenum. These wells are all glacial wells. This is the first time SSLs have been observed for MW-3, therefore a notification detailing the first-time detection of SSLs above GPS for this well will be published pursuant to Michigan Part 115 Rule R 299.4441(7).
- SSLs were also observed in glacial well MW-16A for chloride and TDS and bedrock well MW-16D for boron. Groundwater flow direction at the site does not indicate that these SSLs are indicative of impact from the Erickson impoundments. An ASD was prepared and submitted to EGLE in July 2024. Data collected this year at well MW-16D continues to indicate that this well is not hydraulically connected to the currently established well network at Erickson Station, as described in the ASD. This well will continue to be monitored and sampled. Monitoring at a five-week frequency at four nature and extent monitoring wells (MW-100A, MW-100B, MW-100C, and MW-100D) installed in 2023 was completed and the data statistically evaluated. No GPS exceedances were detected for any of these wells.
- Monitoring at a five-week frequency at the newly installed multi-level series wells at MW-17 and MW-18 commenced after their development. Three monitoring events have been completed for these wells in 2024.
- Physical CCR removal of the CCR impoundments at Erickson Station is complete and the verification of CCR removal and decontamination approval from EGLE was received on November 8, 2024.
- Collection of data to assess corrective measures for the site including the installation of a pump test well and collection of MNA soil and groundwater samples to support the selection of a remedy for the site.

- Erickson Power Station impoundment monitoring status is assessment monitoring and assessment of corrective measures.

7.0 References

HDR, 2020. Determination of Statistically Significant Increases over Background. November 23, 2020.

HDR, 2020a. Erickson Power Station Statistical Procedures Plan. May 11, 2020.

HDR, 2021. Assessment Monitoring Plan (AMP). March 26, 2021.

HDR, 2021b. Response Action Plan (RAP). March 26, 2021.

HDR, 2021c. Conceptual Site Model and Assessment of Corrective Measures. November 5, 2021

HDR, 2023. Monitoring Well Installation Report. October 24, 2023.

HDR, 2024. Assessment of Corrective Measures Data Collection Work Plan. February 15, 2024.

HDR, 2024a. Background Water Quality Statistical Certification. March 8, 2024.

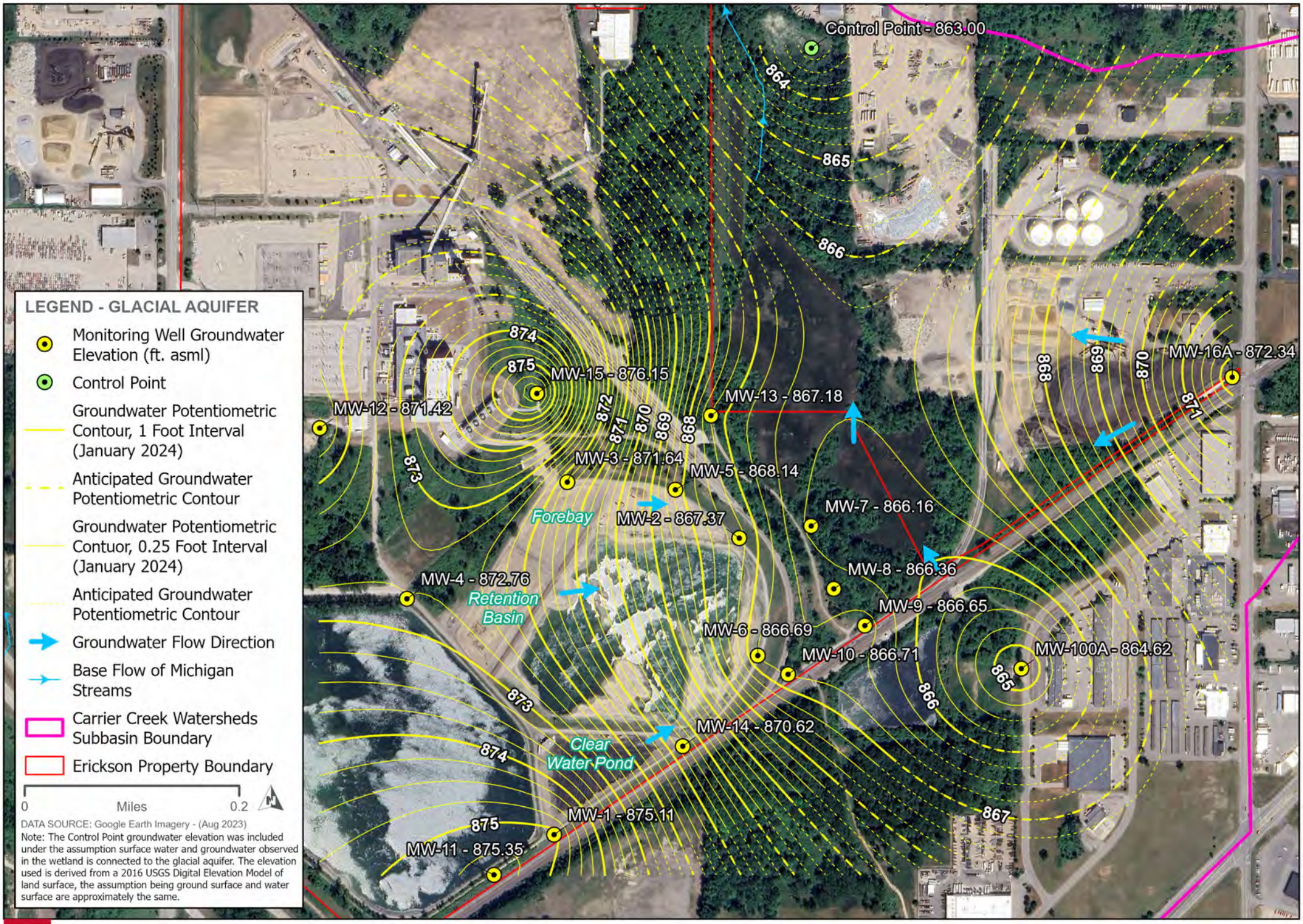
HDR, 2024b. Groundwater Monitoring System Certification, Erickson Station. June 18, 2024.

HDR, 2024c. Groundwater Level Monitoring Standard Operating Procedure (SOP). Revised July 2, 2024.

HDR, 2024d. Hydrogeologic Monitoring Plan (HMP). July 3, 2024.

Appendix A

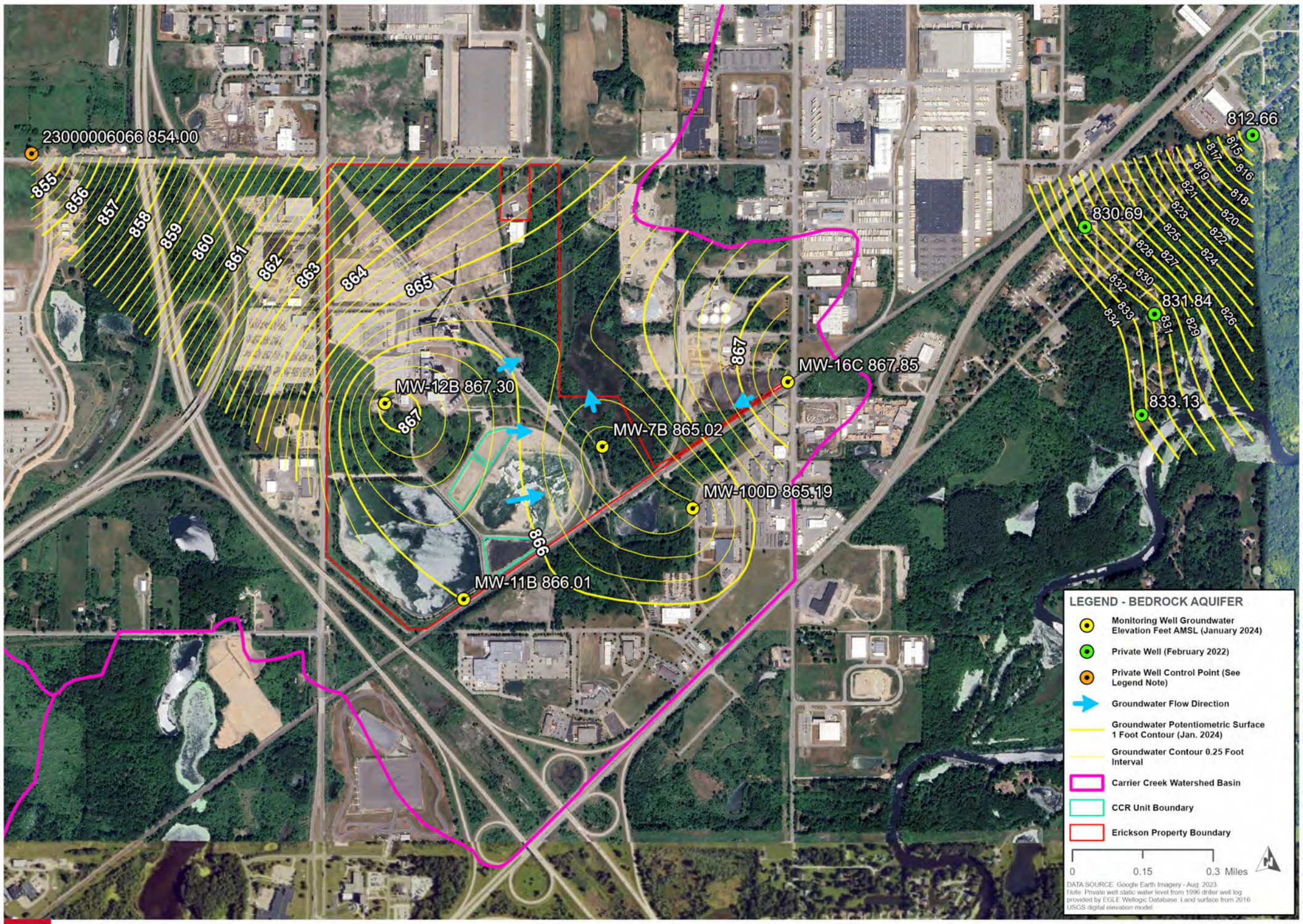
Potentiometric Surface Maps



HDR

ERICKSON POWER STATION

EATON COUNTY, MI



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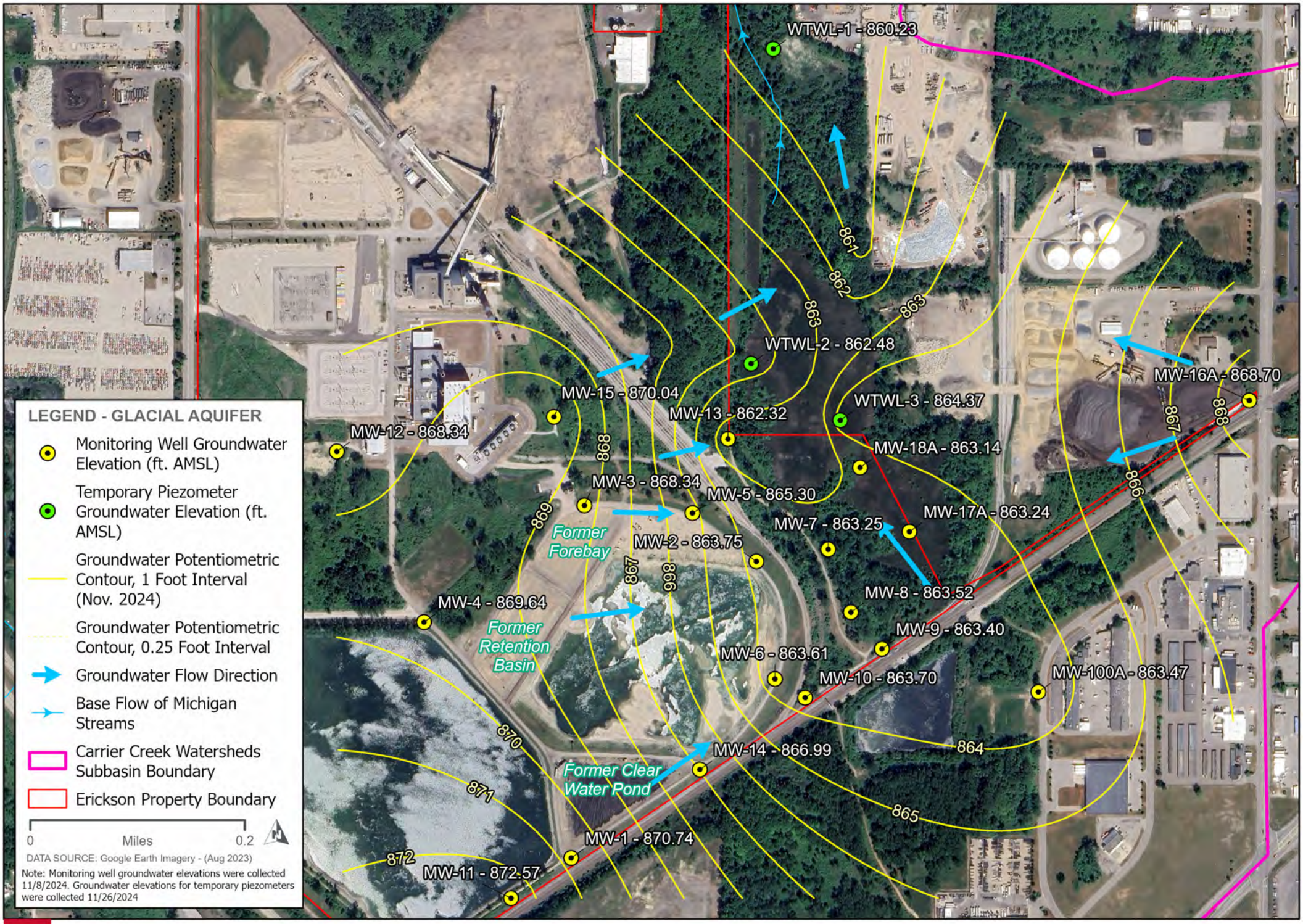
ERICKSON POWER STATION

EATON COUNTY, MI



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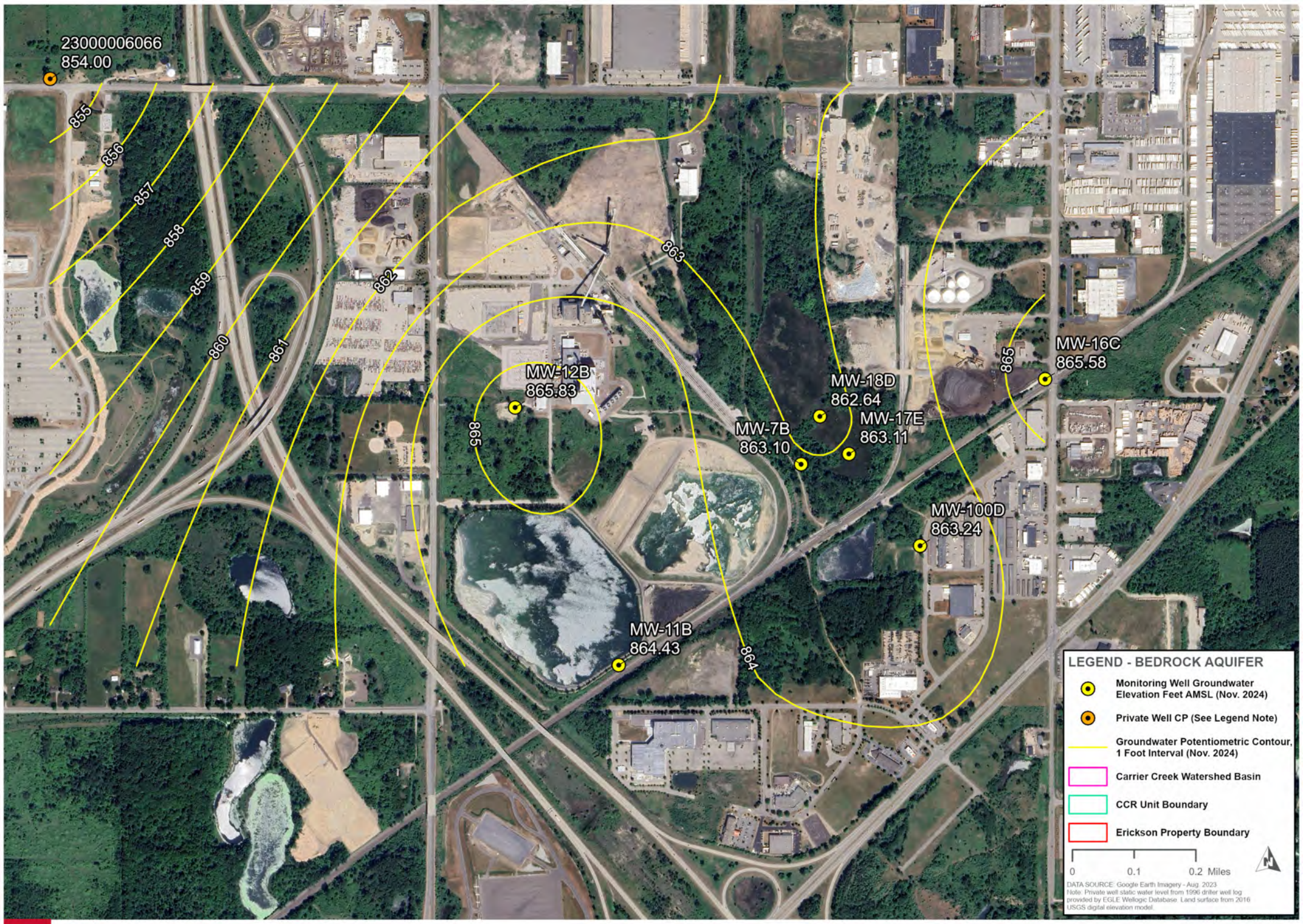
FORMER ERICKSON POWER STATION

EATON COUNTY, MI



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FORMER ERICKSON POWER STATION

EATON COUNTY, MI

Appendix B

Lab Reports Summary Tables

			Sample Location:		MW-1									
			Sample Type:		Upgradient									
			Sample Date:		4/28/2020	5/26/2020	6/23/2020	7/21/2020	8/18/2020	9/15/2020	9/28/2020	10/12/2020	10/19/2020	
Constituent	Unit	BTVs[1]	MCL	State Program GPS	Background Monitoring									
Field Parameters														Field Dup
pH	su	-	-	-	6.81	6.62	6.75	6.85	6.89	6.90	6.77	6.78	7.15	7.15
Conductivity	mS/cm	-	-	-	1.175	1.199	1.218	1.209	1.220	1.215	1.177	1.185	1.210	1.210
Turbidity	NTU	-	-	-	28.20	40.21	17.10	32.30	21.45	15.61	7.32	7.05	8.64	8.64
Dissolved Oxygen	mg/L	-	-	-	0.00	0.01	0.08	0.05	0.52	0.01	0.05	0.30	0.09	0.09
Temperature	°C	-	-	-	11.3	15.2	13.5	16.5	15.6	15.5	13.8	15.1	13.9	13.9
Oxidation Reduction Potential	mV	-	-	-	-43.2	-28.5	-87.2	-53.0	-34.7	-109.8	-62.7	-59.4	-79.2	-79.2
Part 115														
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	5.05	5.26	8.44	6.09	6.32	8.04	5.98	6.02	6.14[J]	6.15[J]
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	0.036	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005
Appendix III														
Boron	mg/L	0.48	-	0.50	0.48	0.27	0.39	0.38	0.41	0.44	0.45	0.37	0.41	0.39
Calcium	mg/L	188	-	188	162	180	165	156[J]	161	170	153	167	156[J]	150[J]
Chloride	mg/L	94.3	250	250	74	52	70	64	65	59	61	59	52	53
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	6.81	6.62	6.75	6.85	6.89	6.90	6.77	6.78	7.15	7.15
Sulfate	mg/L	344	250	344	38	69	59	75	75	77	80	81	84	85
Total Dissolved Solids	mg/L	1168	500	1168	728	794	774	782	776	768	796	774	806	784
Appendix IV														
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.004	0.005	0.007	0.004	0.006	0.006	0.006	0.006	0.005	0.006
Barium	mg/L	0.168	2.0	2.0	0.149	0.15	0.168	0.128	0.152	0.148	0.145	0.129	0.136	0.135
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.036	0.023	0.032	0.033	0.034	0.039	0.041	0.037	0.036	0.036
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	1.1	0.34	0.518	0.299	0.4	0.618	-0.0627	0.717	0.812[J+]	0.464[J-]
Radium-228	pCi/L	-	-	-	0.518	0.457	-0.166	0.254	1.47	0.217	-0.778	0.031	0.00457[J-]	1.14[J+]
Radium-226/228	pCi/L	5.00	5	5.00	1.61	0.796	0.518	0.553	1.87	0.889	0.00	0.748	0.816[J-]	1.61[J+]
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other														
Total Suspended Solids	mg/L	-	-	-	31	45	43	37	48	55	19	20	31	32
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Hardness	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-

			Sample Location:		MW-1									
			Sample Type:		Upgradient									
			Sample Date:		11/6/2020	1/27/2021	5/4/2021	8/3/2021	2/1/2022	8/2/2022	2/7/2023	8/1/2023	1/29/2024	8/5/2024
Constituent	Unit	BTVs[1]	MCL	State Program GPS	Initial A.M.	Assessment Monitoring								
Field Parameters														
pH	su	-	-	-	6.87	6.82	6.7	6.73	6.77	6.84	6.88	6.73	6.96	6.79
Conductivity	mS/cm	-	-	-	1.205	1.240	1.2	1.185	1.188	1.208	1.098	1.172	1.22	1.12
Turbidity	NTU	-	-	-	8.02	9.95	8.5	7.95	5.51	5.85	9.09	6.68	8.15	0.85
Dissolved Oxygen	mg/L	-	-	-	0.21	0.09	0.1	0.08	0.07	0.14	0.22	0.14	0.22	0.18
Temperature	°C	-	-	-	15.9	9.8	12	15.7	11.7	14.6	10.7	15.9	10.3	17.3
Oxidation Reduction Potential	mV	-	-	-	-78.8	-27.5	-20.1	-63.4	-46.6	-95.2	-67.2	-64.0	-35.6	-50.8
Part 115														
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	7.12	5.45	4.84	6.61	6.92	12	9.57	7.21	2.34	3.37
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III														
Boron	mg/L	0.48	-	0.50	-	0.21	0.19	0.22	0.27	0.34	0.32	0.16	0.07	0.12
Calcium	mg/L	188	-	188	-	173	156	153	166	158	150	169	174	178
Chloride	mg/L	94.3	250	250	-	44	48	46	52	66	61	42	26.5	33.4
Fluoride	mg/L	1.0	4	2.0	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	6.87	6.82	6.7	6.73	6.77	6.84	6.88	6.73	6.96	6.79
Sulfate	mg/L	344	250	344	-	78	65	57	49	37	31	54	80.3	74.8
Total Dissolved Solids	mg/L	1168	500	1168	-	776	760	748	746	742	546	746	764	766
Appendix IV														
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.007	0.005	0.005	0.005	0.007	0.007	0.007	0.007	0.005	0.003
Barium	mg/L	0.168	2.0	2.0	0.133	0.121	0.113	0.109	0.122	0.155	0.140	0.110	0.079	0.079
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.034	0.019	0.015	0.016	0.021	0.027	0.031	0.014	0.006	0.007
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.533	0.504	0.560	0.301	0.816	0.715	0.300	0.066	0.240	3.13
Radium-228	pCi/L	-	-	-	-0.0288	0.850	3.47	0.0172	1.76	0.891[J+]	1.24	0.576	-0.206	0.277
Radium-226/228	pCi/L	5.00	5	5.00	0.533	1.35	4.03	0.318	2.58	1.61[J+]	1.54	0.64	0.240	3.41
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other														
Total Suspended Solids	mg/L	-	-	-	19	14	14	11	13	36	32	19.4	7.0	8.4
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	650	636	690	743	700
Carbonate	mg/L	-	-	-	-	-	-	-	-	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	-	-	-	-	-	588	546	638	680	712
Magnesium	mg/L	-	-	-	-	-	-	-	-	43.1	41.3	52.7	58.1	54.6
Potassium	mg/L	-	-	-	-	-	-	-	-	1.14	1.08	0.96	0.89	0.90
Sodium	mg/L	-	-	-	-	-	-	-	-	40.4	41.0	30.9	22.1	21.9

			Sample Location:		MW-2								
			Sample Type:		Downgradient								
			Sample Date:		4/28/2020	5/26/2020	6/23/2020	7/21/2020	8/18/2020	9/15/2020	9/28/2020	10/12/2020	10/19/2020
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring								
Field Parameters													
pH	su	-	-	-	6.77	6.54	6.69	6.75	6.80	6.83	6.70	6.72	7.08
Conductivity	mS/cm	-	-	-	1.602	1.556	1.699	1.744	1.762	1.794	1.761	1.762	1.798
Turbidity	NTU	-	-	-	72.31	8.27	8.95	9.42	5.95	4.15	7.11	9.56	6.28
Dissolved Oxygen	mg/L	-	-	-	0.02	0.02	0.07	0.19	0.15	0.12	0.03	0.34	0.03
Temperature	°C	-	-	-	11.6	14.2	12.9	15.0	13.9	13.7	12.7	14.5	12.3
Oxidation Reduction Potential	mV	-	-	-	-42.5	36.0	-40.2	32.5	38.2	-75.8	56.1	35.3	22.1
Part 115													
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	0.91	0.67	0.48	0.44	0.62	0.51	0.51	0.67[J]	0.63[J]
Nickel	mg/L	0.021		0.1	0.018	0.019	0.022	0.024	0.026	0.027	0.027	0.028	0.027
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	0.041	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005
Appendix III													
Boron	mg/L	0.48	-	0.50	3.56	3.38	4.05	4.61	5.19	5.97	5.94	5.97	5.97
Calcium	mg/L	188	-	188	251	256	268	271[J]	272	270	265	270	270[J]
Chloride	mg/L	94.3	250	250	67	68	75	81	85	88	84	88	88
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	6.77	6.54	6.69	6.75	6.80	6.83	6.70	6.72	7.08
Sulfate	mg/L	344	250	344	386	386	484	549	580	560	586	560	560
Total Dissolved Solids	mg/L	1168	500	1168	1170	1180	1300	1390	1430	1390	1420	1390	1390
Appendix IV													
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.039	0.043	0.045	0.036	0.045	0.039	0.041	0.041	0.041
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.055	0.047	0.055	0.053	0.057	0.066	0.066	0.065	0.07
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.01	0.008	0.01	0.007	0.011	0.011	0.012	0.012	0.012
Radium-226	pCi/L	-	-	-	0.813	0.0551	0.754	0.329	0.171	0.183	0.263	0.151	0.405
Radium-228	pCi/L	-	-	-	1.05	0.0833	-0.139	0.0326	0.573	-0.0154	0.0604	1.3	0.0896
Radium-226/228	pCi/L	5.00	5	5.00	1.86	0.138	0.754	0.362	0.745	0.183	0.323	1.45	0.495
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other													
Total Suspended Solids	mg/L	-	-	-	<3	1[U]	<3	<3	14	<3	2[U]	6	3[U]
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Hardness	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-

			Sample Location:		MW-2											
			Sample Type:		Downgradient											
			Sample Date:		11/6/2020	1/27/2021	5/4/2021	8/3/2021	2/1/2022	8/2/2022	2/7/2023	8/1/2023	1/29/2024		8/5/2024	
Constituent	Unit	BTVs	MCL	State Program GPS	Initial A.M.	Assessment Monitoring										
Field Parameters														Diss. Metals		Diss. Metals
pH	su	-	-	-	6.83	6.76	6.70	6.65	6.73	6.86	6.85	6.75	6.88	6.88	6.74	6.74
Conductivity	mS/cm	-	-	-	1.792	1.734	1.700	1.655	1.614	1.395	1.411	1.344	1.418	1.418	1.285	1.285
Turbidity	NTU	-	-	-	11.27	10.15	10.00	9.62	9.95	9.01	8.25	2.38	17.8	17.8	11.91	11.91
Dissolved Oxygen	mg/L	-	-	-	0.19	0.08	0.21	0.02	0.20	1.01	0.37	0.49	0.00	0.00	0.30	0.30
Temperature	°C	-	-	-	14.3	9.1	12.0	14.3	11.7	15.4	11.7	14.1	10.0	10.0	16.2	16.2
Oxidation Reduction Potential	mV	-	-	-	-29.0	55.9	181.8	94.5	46.6	21.0	54.2	75.4	16.5	16.5	53.6	53.6
Part 115																
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	0.54	0.49	0.55	0.66	1.93	0.93	1.30	0.79	0.52	0.15	0.35	0.11
Nickel	mg/L	0.021		0.1	0.027	0.026	0.025	0.025	0.026	0.018	0.020	0.017	0.017	0.016	0.014	0.014
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III																
Boron	mg/L	0.48	-	0.50	-	5.8	5.04	6.17	5.33	4.76	5.10	4.44	4.07	3.92	3.32	3.16
Calcium	mg/L	188	-	188	-	260	254	226	237	204	204	198	192	164	198	195
Chloride	mg/L	94.3	250	250	-	94	77	79	87	87	88	82	81.7	-	70.0	-
Fluoride	mg/L	1.0	4	2.0	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	-
pH, Field	su	-	-	-	6.83	6.76	6.70	6.65	6.73	6.86	6.85	6.75	6.88	6.88	6.74	6.74
Sulfate	mg/L	344	250	344	-	506	505	504	398	330	322	278	281	-	238	-
Total Dissolved Solids	mg/L	1168	500	1168	-	1320	1250	1300	1180	1020	1050	1010	1000	-	950	-
Appendix IV																
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002	<0.002	<0.002	0.004	<0.002	0.002	0.003	<0.002	<0.002	<0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.042	0.041	0.041	0.039	0.048	0.043	0.037	0.034	0.036	0.037	0.034	0.032
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	-
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.063	0.067	0.061	0.058	0.058	0.051	0.050	0.049	0.041	0.037	0.041	0.039
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.012	0.01	0.009	0.012	0.011	0.013	0.015	0.014	0.010	0.009	0.012	0.011
Radium-226	pCi/L	-	-	-	0.539	0.296	0.366	0.170	0.630	0.290	0.184	0.423	-0.0321	-	3.25	-
Radium-228	pCi/L	-	-	-	0.874	0.713	0.150	1.02	1.49	-0.338[I+]	-0.445	0.62	-0.595	-	-0.503	-
Radium-226/228	pCi/L	5.00	5	5.00	1.41	1.01	0.515	1.19	2.12	0.29[I+]	0.184	1.05	0.000	-	3.25	-
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																
Total Suspended Solids	mg/L	-	-	-	10	10	12	10	12	19	22	34.1	9.4	-	10.4	-
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	410	454	470	550	-	560	-
Carbonate	mg/L	-	-	-	-	-	-	-	-	<10	<10	<10	<10	-	<10	-
Hardness	mg/L	-	-	-	-	-	-	-	-	654	708	680	714	-	704	-
Magnesium	mg/L	-	-	-	-	-	-	-	-	50.5	50.2	50.6	48.4	38.7	50.6	49.1
Potassium	mg/L	-	-	-	-	-	-	-	-	2.7	0.87	0.86	0.60	<0.50	0.73	0.69
Sodium	mg/L	-	-	-	-	-	-	-	-	61.6	68.3	64.5	50.3	42.0	46.8	45.7

			Sample Location:		MW-3							
			Sample Type:		Upgradient							
			Sample Date:		5/4/2021	8/3/2021	2/1/2022	8/2/2022	2/7/2023	8/1/2023	1/29/2024	8/5/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring							
Field Parameters												
pH	su	-	-	-	7.20	7.15	7.23	7.27	7.28	7.18	7.38	7.24
Conductivity	mS/cm	-	-	-	1.800	1.796	1.815	1.829	1.765	1.726	1.765	1.695
Turbidity	NTU	-	-	-	2.10	8.01	4.83	5.19	4.15	4.95	0.98	0.02
Dissolved Oxygen	mg/L	-	-	-	0.10	0.03	0.16	0.17	0.35	0.12	0.08	0.09
Temperature	°C	-	-	-	12.0	14.1	10.6	14.2	12.2	14.2	9.9	17.5
Oxidation Reduction Potential	mV	-	-	-	-37.5	-65.2	-40.3	-92.1	-74.2	-64.1	-55.7	-25.1
Part 115												
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	2.01	2.05	1.94	1.80	2.03	1.70	1.84	1.52
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III												
Boron	mg/L	0.48	-	0.50	5.41	6.16	5.62	5.89	5.63	5.67	5.68	5.34
Calcium	mg/L	188	-	188	243	223	255	241	248	253	252	257
Chloride	mg/L	94.3	250	250	89	92	94	101	102	99	99.5	103
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	7.20	7.15	7.23	7.27	7.28	7.18	7.38	7.24
Sulfate	mg/L	344	250	344	698	727	682	704	727	675	689	732
Total Dissolved Solids	mg/L	1168	500	1168	1490	1500	1480	1440	1450	1440	1430	1430
Appendix IV												
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.003	0.003	0.003	0.003	0.003	0.004	0.006	0.003
Barium	mg/L	0.168	2.0	2.0	0.021	0.021	0.020	0.019	0.019	0.019	0.017	0.017
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.077	0.086	0.086	0.091	0.082	0.079	0.080	0.075
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.162	0.153	0.164	0.162	0.182	0.166	0.176	0.156
Radium-226	pCi/L	-	-	-	0.437	0.152	0.554	0.355	0.566	0.176	0.0361	0.628
Radium-228	pCi/L	-	-	-	0.760	0.963	1.90	2.56[J+]	1.61	0.236	0.837	0.413
Radium-226/228	pCi/L	5.00	5	5.00	1.20	1.11	2.45	2.92[J+]	2.18	0.412	0.873	1.04
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other												
Total Suspended Solids	mg/L	-	-	-	3	1[U]	2[U]	4	<3	3.3	3.2	3.3
Bicarbonate	mg/L	-	-	-	-	-	-	210	215	210	228	240
Carbonate	mg/L	-	-	-	-	-	-	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	-	-	-	784	795	794	774	802
Magnesium	mg/L	-	-	-	-	-	-	45.9	46.5	49.8	50.7	49.2
Potassium	mg/L	-	-	-	-	-	-	1.67	1.67	1.73	1.81	1.67
Sodium	mg/L	-	-	-	-	-	-	111	113	121	119	119

			Sample Location:		MW-4											
			Sample Type:		Upgradient											
			Sample Date:		4/28/2020		5/26/2020		6/23/2020		7/21/2020		8/18/2020		9/15/2020	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring											
Field Parameters						Field Dup		Field Dup		Field Dup		Field Dup		Field Dup		Field Dup
pH	su	-	-	-	7.18	7.18	7.13	7.13	7.11	7.11	7.23	7.23	7.24	7.24	7.28	7.28
Conductivity	mS/cm	-	-	-	0.902	0.902	0.894	0.894	0.911	0.911	0.890	0.890	0.880	0.880	0.888	0.888
Turbidity	NTU	-	-	-	2.57	2.57	0.26	0.26	3.01	3.01	1.70	1.70	1.56	1.56	1.64	1.64
Dissolved Oxygen	mg/L	-	-	-	0.31	0.31	0.29	0.29	0.02	0.02	0.03	0.03	0.01	0.01	0.02	0.02
Temperature	°C	-	-	-	10.2	10.2	14.1	14.1	13.5	13.5	14.7	14.7	14.2	14.2	13.7	13.7
Oxidation Reduction Potential	mV	-	-	-	-76.7	-76.7	-45.2	-45.2	-174.8	-174.8	-68.4	-68.4	-75.0	-75.0	-153.2	-153.2
Part 115																
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	1.03	1.03	1.13	1.19	1.24	1.26	1.37	1.38	1.33	1.33	1.33	1.32
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	0.031	0.035	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III																
Boron	mg/L	0.48	-	0.50	0.05	0.05	0.06	0.06	0.06	0.05	0.06	0.05	0.06	0.06	0.07	0.07
Calcium	mg/L	188	-	188	113	111	115	114	108	108	105[J]	102	111	107	108	110
Chloride	mg/L	94.3	250	250	70	70	72	72	72	73	72	72	70	71	68	70
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	7.18	7.18	7.13	7.13	7.11	7.11	7.23	7.23	7.24	7.24	7.28	7.28
Sulfate	mg/L	344	250	344	59	60	57	56	57	57	56	56	58	59	58	58
Total Dissolved Solids	mg/L	1168	500	1168	548	546	566	562	558	582	540	534	582	552	572	542
Appendix IV																
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.007	0.008	0.007	0.009	0.007
Barium	mg/L	0.168	2.0	2.0	0.157	0.155	0.165	0.168	0.165	0.17	0.146	0.147	0.166	0.167	0.163	0.163
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	<0.010	<0.010	0.009	0.009	0.008	0.008	0.009	0.008	<0.010	<0.010	0.01	0.01
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	<0.005	<0.005	<0.005	0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	0.005	<0.005
Radium-226	pCi/L	-	-	-	0.839	0.953	0.599	0.265	0.368[J-]	0.568[J+]	0.339	1.06	0.527[J+]	0.34[J-]	0.583[J-]	1.01[J+]
Radium-228	pCi/L	-	-	-	1.08	1.38	-0.093	0.357	-0.141[J-]	0.771[J+]	0.863	-0.0421	2.46[J+]	1.22[J-]	0.113[J-]	0.641[J+]
Radium-226/228	pCi/L	5.00	5	5.00	1.92	2.33	0.599	0.622	0.368[J-]	1.34[J+]	1.2	1.06	2.99[J+]	1.56[J-]	0.696[J-]	1.65[J+]
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																
Total Suspended Solids	mg/L	-	-	-	<3	<3	1[U]	1[U]	<3	<3	<3	<3	<3	<3	<3	<3
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hardness	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Sample Location:		MW-4										
			Sample Type:		Upgradient										
			Sample Date:		9/28/2020		10/12/2020		10/19/2020	11/6/2020		1/27/2021		5/4/2021	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring					Initial A.M.		Assessment Monitoring			
Field Parameters						Field Dup		Field Dup			Field Dup		Field Dup		Field Dup
pH	su	-	-	-	7.14	7.14	7.13	7.13	7.87	7.22	7.22	7.14	7.14	7.10	7.10
Conductivity	mS/cm	-	-	-	0.859	0.859	0.866	0.866	0.875	0.876	0.876	0.900	0.900	0.910	0.910
Turbidity	NTU	-	-	-	1.08	1.08	1.39	1.39	1.25	1.21	1.21	1.57	1.57	2.00	2.00
Dissolved Oxygen	mg/L	-	-	-	0.02	0.02	0.35	0.35	0.04	0.18	0.18	0.13	0.13	0.19	0.19
Temperature	°C	-	-	-	13.4	13.4	14.0	14.0	12.9	14.4	14.4	9.7	9.7	13.0	13.0
Oxidation Reduction Potential	mV	-	-	-	-77.3	-77.3	-63.8	-63.8	-78.1	-119.1	-119.1	-21.9	-21.9	-22.5	-22.5
Part 115															
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	1.30	1.29	1.33	1.35	1.25^{J}	1.32	1.34	1.15	1.21	1.23	1.27
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III															
Boron	mg/L	0.48	-	0.50	0.07	0.07	0.06	0.05	0.06	-	-	0.05	0.05	0.05	0.05
Calcium	mg/L	188	-	188	102	105^{J}	111	110	99.7^{J}	-	-	112	109	102	107
Chloride	mg/L	94.3	250	250	69	70	71	71	68	-	-	70	70	72	75
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	-	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	7.14	7.14	7.13	7.13	7.87	7.22	7.22	7.14	7.14	7.10	7.10
Sulfate	mg/L	344	250	344	58	58	60	59	57	-	-	57	57	56	58
Total Dissolved Solids	mg/L	1168	500	1168	538	544	538	534	554	-	-	522	514	532	526
Appendix IV															
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.008	0.009	0.009	0.009	0.009	0.009	0.009	0.007	0.007	0.006	0.007
Barium	mg/L	0.168	2.0	2.0	0.163	0.168	0.151	0.155	0.16	0.16	0.159	0.157	0.153	0.156	0.156
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.01	0.011	0.01	<0.010	0.01	0.011	0.011	0.012	0.01	<0.010	0.011
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.797^{J+}	0.175^{J-}	0.35	0.31	0.357	0.742	0.393	0.524^{J+}	0.297^{J-}	2.12	0.626
Radium-228	pCi/L	-	-	-	0.839^{J+}	0.27^{J-}	1.65^{J+}	0.237^{J-}	0.232	0.0791	0.426	-0.957^{J-}	0.956^{J+}	2.89	-0.910
Radium-226/228	pCi/L	5.00	5	5.00	1.64^{J+}	0.445^{J-}	2.00^{J+}	0.547^{J-}	0.589	0.821	0.819	0.524^{J-}	1.25^{J+}	5.00^{J+}	0.626^{J-}
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other															
Total Suspended Solids	mg/L	-	-	-	2^{U}	2^{U}	<3	1^{U}	3^{U}	1^{U}	1^{U}	1^{U}	<3	1^{U}	<3
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hardness	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Sample Location:		MW-4											
			Sample Type:		Upgradient											
			Sample Date:		8/3/2021		2/1/2022		8/2/2022		2/7/2023		8/1/2023		1/29/2024	8/5/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Assessment Monitoring											
Field Parameters						Field Dup		Field Dup		Field Dup		Field Dup		Field Dup		
pH	su	-	-	-	7.03	7.03	7.13	7.13	7.19	7.19	7.19	7.19	7.06	7.06	7.26	7.13
Conductivity	mS/cm	-	-	-	0.884	0.884	0.911	0.911	0.429	0.429	0.882	0.882	0.893	0.893	0.92	0.832
Turbidity	NTU	-	-	-	1.84	1.84	2.54	2.54	0.75	0.75	3.28	3.28	1.97	1.97	1.01	1.97
Dissolved Oxygen	mg/L	-	-	-	0.03	0.03	0.37	0.37	0.12	0.12	0.44	0.44	0.08	0.08	0.31	0.26
Temperature	°C	-	-	-	14.4	14.4	10.6	10.6	13.8	13.8	11.5	11.5	14.1	14.1	10.2	15.8
Oxidation Reduction Potential	mV	-	-	-	-66.4	-66.4	-34.0	-34.0	-88.8	-88.8	-44.2	-44.2	-68.3	-68.3	-55.1	-73.2
Part 115																
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	1.43	1.46	1.26	1.23	1.53	1.54	1.31	1.30	1.39	1.44	1.09	1.44
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III																
Boron	mg/L	0.48	-	0.50	0.08	0.07	0.07	0.06	0.06	0.07	0.06	0.06	0.08	0.06	0.07	0.06
Calcium	mg/L	188	-	188	98.4	94.6	110	110	110	109	106	106	112	114	110	115
Chloride	mg/L	94.3	250	250	68	68	72	74	75	76	74	75	77	77	73.6	76.2
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	7.03	7.03	7.13	7.13	7.19	7.19	7.19	7.19	7.06	7.06	7.26	7.13
Sulfate	mg/L	344	250	344	52	53	54	53	51	52	56	56	52	52	57.5	53.4
Total Dissolved Solids	mg/L	1168	500	1168	568	570	548	540	554	574	532	530	558	572	556	588
Appendix IV																
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.008	0.009	0.008
Barium	mg/L	0.168	2.0	2.0	0.155	0.159	0.163	0.162	0.167	0.165	0.166	0.163	0.169	0.166	0.159	0.162
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.01	0.01	0.010	0.011	0.009	0.009	0.011	0.010	0.009	0.010	0.012	0.011
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.232 J-	0.532 J+	0.606 J+	0.322 J-	0.393	0.457	0.701	0.898	0.744	0.501	0.434	1.59
Radium-228	pCi/L	-	-	-	-0.362 J-	1.81 J+	2.17 J+	1.41 J-	-0.793 J	2.88 J+	0.692 J+	-0.593 J-	0.877 J+	0.0402 J-	-0.253	1.86
Radium-226/228	pCi/L	5.00	5	5.00	0.232 J-	2.34 J+	2.78 J+	1.74 J-	0.393 J	3.34 J+	1.39 J+	0.898 J-	0.744 J+	0.541 J-	0.434	3.44
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																
Total Suspended Solids	mg/L	-	-	-	1 U	1 U	2 U	1 U	3 J+	<3 UJ	<3	<3	1.8	2.1	1.5	2.4
Bicarbonate	mg/L	-	-	-	-	-	-	-	400	410	406	407	420	400	416	420
Carbonate	mg/L	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	-	-	-	-	412	426	420	431	450	434	428	442
Magnesium	mg/L	-	-	-	-	-	-	-	39.3	38.8	38.3	38.9	39.6	40.5	38.9	40.8
Potassium	mg/L	-	-	-	-	-	-	-	1.41	1.41	1.39	1.41	1.45	1.49	1.47	1.41
Sodium	mg/L	-	-	-	-	-	-	-	28.9	28.3	28.5	28.2	31.2	31.7	33.9	33.2

			Sample Location:		MW-5								
			Sample Type:		Downgradient								
			Sample Date:		4/28/2020	5/26/2020	6/23/2020	7/21/2020	8/18/2020	9/15/2020	9/28/2020	10/12/2020	10/19/2020
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring								
Field Parameters													
pH	su	-	-	-	7.27	7.24	7.31	7.34	7.30	7.17	6.71	7.34	7.45
Conductivity	mS/cm	-	-	-	1.576	1.882	1.970	1.869	1.750	1.893	1.945	2.493	1.425
Turbidity	NTU	-	-	-	179.57	69.71	17.91	15.10	20.25	19.02	15.75	12.35	9.58
Dissolved Oxygen	mg/L	-	-	-	0.55	0.65	2.61	3.85	2.50	0.64	1.27	3.49	4.25
Temperature	°C	-	-	-	11.6	13.9	15.2	17.5	12.7	12.3	12.5	15.5	11.6
Oxidation Reduction Potential	mV	-	-	-	-33.0	28.7	-34.8	58.4	69.5	-24.8	180.1	-31.2	130.2
Part 115													
Copper	mg/L	0.005	1.3	1.00	0.009	<0.005	<0.005	0.026	0.005	<0.005	<0.005	0.011	<0.005
Iron	mg/L	23.5	0.3	23.5	8.00	1.93	0.39	0.27	2.45	0.21	0.18	1.74	0.18[J]
Nickel	mg/L	0.021		0.1	0.019	0.016	0.013	0.011	0.013	0.011	0.016	0.018	0.014
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	0.023	0.033	0.026	0.007	0.011	<0.005	0.006	0.014	<0.005
Appendix III													
Boron	mg/L	0.48	-	0.50	4.99	5.19	4.59	4.57	4.48	5	5.09	5	5.75
Calcium	mg/L	188	-	188	245	320	289	251[J]	266	266	283	372	319[J]
Chloride	mg/L	94.3	250	250	68	82	75	80	76	77	78	81	83
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	7.27	7.24	7.31	7.34	7.30	7.17	6.71	7.34	7.45
Sulfate	mg/L	344	250	344	591	930	931	877	714	791	873	1,080	1,170
Total Dissolved Solids	mg/L	1168	500	1168	1280	1770	1720	1640	1520	1540	1660	1960	2020
Appendix IV													
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.005	0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.064	0.056	0.049	0.041	0.056	0.043	0.043	0.048	0.042
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	0.005	<0.003	<0.003	<0.003	0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.091	0.051	0.061	0.074	0.085	0.091	0.07	0.054	0.046
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.096	0.051	0.05	0.052	0.067	0.053	0.044	0.038	0.035
Radium-226	pCi/L	-	-	-	1.1	1.08	0.223	0.811	0.30	0.773	0.759	0.709	0.600
Radium-228	pCi/L	-	-	-	0.187	0.28	0.302	0.721	0.253	-0.641	1.47	1.38	-0.262
Radium-226/228	pCi/L	5.00	5	5.00	1.29	1.36	0.524	1.53	0.552	0.773	2.23	2.09	0.600
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other													
Total Suspended Solids	mg/L	-	-	-	161	21	23	37	20	61	6	14	7
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Hardness	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-

			Sample Location:		MW-5											
			Sample Type:		Downgradient											
			Sample Date:		11/6/2020	1/27/2021	5/4/2021	8/3/2021	2/1/2022	8/2/2022	2/7/2023		8/1/2023		1/29/2024	
Constituent	Unit	BTVs	MCL	State Program GPS	Initial A.M.	Assessment Monitoring										
Field Parameters												Diss. Metals		Diss. Metals		Diss. Metals
pH	su	-	-	-	7.16	7.35	6.40	7.22	7.18	7.40	7.13	7.13	7.24	7.24	7.38	7.38
Conductivity	mS/cm	-	-	-	2.234	1.295	1.600	1.772	1.238	1.643	1.304	1.304	1.076	1.076	1.002	1.002
Turbidity	NTU	-	-	-	18.49	15.25	21.00	9.52	14.21	20.19	23.53	23.53	15.85	15.85	25.15	25.15
Dissolved Oxygen	mg/L	-	-	-	1.02	2.34	2.45	2.45	3.21	5.42	3.52	3.52	3.81	3.81	3.16	3.16
Temperature	°C	-	-	-	12.5	8.6	13.0	13.3	10.1	15.3	10.5	10.5	16.1	16.1	6.9	6.9
Oxidation Reduction Potential	mV	-	-	-	17.5	191.2	248.4	132.6	59.1	28.6	164.6	164.6	158	158	119.2	119.2
Part 115																
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	0.019	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	<0.02	0.63	0.9	1.12	4.69	0.75	0.53	<0.02	1.25	<0.02	0.33	<0.02
Nickel	mg/L	0.021		0.1	0.007	0.01	0.01	0.01	0.008	0.011	0.006	0.005	0.006	<0.005	0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	0.098	<0.005	0.005	0.048	0.009	0.005	<0.005	0.006	<0.005	<0.005	<0.005
Appendix III																
Boron	mg/L	0.48	-	0.50	-	4.61	3.66	4.82	0.37	4.29	3.53	3.26	2.77	2.67	2.86	2.74
Calcium	mg/L	188	-	188	-	245	221	229	70.1	223	187	176	173	162	153	126
Chloride	mg/L	94.3	250	250	-	66	73	66	43	66	56	-	51	-	37.2	-
Fluoride	mg/L	1.0	4	2.0	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	-	<1.0	-
pH, Field	su	-	-	-	7.16	7.35	6.40	7.22	7.18	7.40	7.13	7.13	7.24	7.24	7.38	7.38
Sulfate	mg/L	344	250	344	-	578	581	700	186	598	411	-	288	-	319	-
Total Dissolved Solids	mg/L	1168	500	1168	-	1220	1230	1390	592	1210	984	-	792	-	788	-
Appendix IV																
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002	0.002	<0.002	0.007	<0.002	<0.002	<0.002	<0.002	<0.002	0.004	<0.002
Barium	mg/L	0.168	2.0	2.0	0.033	0.039	0.038	0.04	0.055	0.044	0.040	0.036	0.047	0.041	0.040	0.044
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	-	<1.0	-
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	0.014	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.057	0.08	0.073	0.078	0.016	0.076	0.083	0.085	0.085	0.081	0.069	0.073
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.032	0.054	0.05	0.039	0.010	0.063	0.055	0.055	0.072	0.070	0.082	0.078
Radium-226	pCi/L	-	-	-	3.30	0.787	0.349	0.374	0.252	0.525	0.558	-	0.409	-	0.857	-
Radium-228	pCi/L	-	-	-	0.921	3.2[J]	0.726	0.271	1.54	0.33[J+]	1.22	-	1.24	-	1.88	-
Radium-226/228	pCi/L	5.00	5	5.00	4.22	3.99[J]	1.08	0.644	1.79	0.855[J+]	1.78	-	1.65	-	2.73	-
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																
Total Suspended Solids	mg/L	-	-	-	4	7	8	4	63	17	21	-	8.6	-	7.7	-
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	280	320	-	290	-	298	-
Carbonate	mg/L	-	-	-	-	-	-	-	-	<10	<10	-	<10	-	<10	-
Hardness	mg/L	-	-	-	-	-	-	-	-	748	629	-	530	-	502	-
Magnesium	mg/L	-	-	-	-	-	-	-	-	54.5	42.3	39.9	38.1	34.5	33.3	24.8
Potassium	mg/L	-	-	-	-	-	-	-	-	3.77	4.44	4.06	4.61	4.22	4.34	3.33
Sodium	mg/L	-	-	-	-	-	-	-	-	69.5	57.4	52.3	47.8	44.1	45.6	34.4

			Sample Location:		MW-5	
			Sample Type:		Downgradient	
			Sample Date:		8/5/2024	
Constituent	Unit	BTVs	MCL	State Program GPS	Assessment Monitoring	
Field Parameters						Diss. Metals
pH	su	-	-	-	7.27	7.27
Conductivity	mS/cm	-	-	-	1.029	1.029
Turbidity	NTU	-	-	-	24.7	24.7
Dissolved Oxygen	mg/L	-	-	-	4.45	4.45
Temperature	°C	-	-	-	18.8	18.8
Oxidation Reduction Potential	mV	-	-	-	133.8	133.8
Part 115						
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	1.24	<0.02
Nickel	mg/L	0.021		0.1	0.007	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005
Zinc	mg/L	0.036	5	5	0.008	<0.005
Appendix III						
Boron	mg/L	0.48	-	0.50	2.89	2.87
Calcium	mg/L	188	-	188	160	151
Chloride	mg/L	94.3	250	250	36.5	-
Fluoride	mg/L	1.0	4	2.0	<1.0	-
pH, Field	su	-	-	-	7.27	7.27
Sulfate	mg/L	344	250	344	335	-
Total Dissolved Solids	mg/L	1168	500	1168	816	-
Appendix IV						
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.045	0.039
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	-
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.065	0.064
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.081	0.079
Radium-226	pCi/L	-	-	-	1.09	-
Radium-228	pCi/L	-	-	-	0.615	-
Radium-226/228	pCi/L	5.00	5	5.00	1.71	-
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002
Other						
Total Suspended Solids	mg/L	-	-	-	10.3	-
Bicarbonate	mg/L	-	-	-	290	-
Carbonate	mg/L	-	-	-	<10	-
Hardness	mg/L	-	-	-	534	-
Magnesium	mg/L	-	-	-	36.7	33.5
Potassium	mg/L	-	-	-	4.52	4.18
Sodium	mg/L	-	-	-	49.1	46.0

			Sample Location:		MW-6								
			Sample Type:		Downgradient								
			Sample Date:		4/28/2020	5/26/2020	6/23/2020	7/21/2020	8/18/2020	9/15/2020	9/28/2020	10/12/2020	10/19/2020
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring								
Field Parameters													
pH	su	-	-	-	6.64	6.35	6.68	6.76	6.80	6.85	6.69	6.71	7.11
Conductivity	mS/cm	-	-	-	0.954	0.902	1.044	1.075	1.130	1.251	1.149	1.205	1.275
Turbidity	NTU	-	-	-	16.71	17.80	33.60	6.61	8.99	6.95	5.42	8.45	8.35
Dissolved Oxygen	mg/L	-	-	-	0.05	0.01	0.09	0.09	0.05	0.04	0.02	0.24	0.04
Temperature	°C	-	-	-	10.5	14.2	11.7	13.4	13.0	13.6	12.6	14.3	12.8
Oxidation Reduction Potential	mV	-	-	-	-26.9	102.4	-45.9	139.7	91.1	-66.5	59.5	88.9	91.2
Part 115													
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	0.08	0.20	0.07	0.05	0.03	<0.02	<0.02	<0.02	<0.02^{UJ}
Nickel	mg/L	0.021		0.1	0.005	<0.005	0.007	0.007	0.008	0.007	0.008	0.007	0.007
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	0.034	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III													
Boron	mg/L	0.48	-	0.50	0.56	0.49	0.65	0.75	0.86	1.05	0.97	0.99	1.09
Calcium	mg/L	188	-	188	142	143	154	161^{J}	170	192	175	189	173^{J}
Chloride	mg/L	94.3	250	250	26	24	29	33	37	43	39	41	42
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	6.64	6.35	6.68	6.76	6.80	6.85	6.69	6.71	7.11
Sulfate	mg/L	344	250	344	135	123	154	183	222	264	214	242	263
Total Dissolved Solids	mg/L	1168	500	1168	642	598	706	738	820	880	822	868	898
Appendix IV													
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.042	0.05	0.042	0.044	0.053	0.054	0.055	0.054	0.057
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.037	0.038	0.037	0.041	0.044	0.055	0.053	0.052	0.059
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.021	0.021	0.026	0.025	0.03	0.031	0.028	0.029	0.034
Radium-226	pCi/L	-	-	-	0.212	-0.0419	0.379	-0.0445	0.415	0.458	0.533	0.461	0.537
Radium-228	pCi/L	-	-	-	0.384	-0.481	-0.299	0.460	1.06	-0.00462	0.225	0.176	-0.866
Radium-226/228	pCi/L	5.00	5	5.00	0.596	0.00	0.379	0.460	1.48	0.458	0.758	0.637	0.537
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other													
Total Suspended Solids	mg/L	-	-	-	<3	6	<3	<3	<3	<3	<3	<3	1^{U}
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Hardness	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-

			Sample Location:		MW-6										
			Sample Type:		Downgradient										
			Sample Date:		11/6/2020	1/27/2021	5/4/2021	8/3/2021	2/1/2022	8/2/2022	2/7/2023	8/1/2023	1/29/2024		8/5/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Initial A.M.	Assessment Monitoring									
Field Parameters														Field Dup	
pH	su	-	-	-	6.76	6.72	7.00	6.51	6.69	6.79	6.74	6.71	6.78	6.78	6.79
Conductivity	mS/cm	-	-	-	1.169	1.178	1.000	1.022	1.045	1.091	1.224	1.133	1.006	1.006	1.068
Turbidity	NTU	-	-	-	9.69	1.19	8.00	8.74	4.52	2.65	4.43	2.15	1.41	1.41	3.67
Dissolved Oxygen	mg/L	-	-	-	0.18	0.12	0.10	0.07	0.08	0.44	0.19	0.33	0.29	0.29	2.03
Temperature	°C	-	-	-	15.2	11.0	12.0	13.2	13.4	14.4	12.8	14.2	10.2	10.2	15.8
Oxidation Reduction Potential	mV	-	-	-	12.0	122.9	70.8	168.5	68.6	18.3	30.1	202.1	96.1	96.1	117.2
Part 115															
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	<0.02	<0.02	<0.02	0.02	0.04	0.02	<0.02	0.03	<0.02	<0.02	<0.02
Nickel	mg/L	0.021		0.1	0.007	0.006	0.006	0.007	0.007	<0.005	0.006	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III															
Boron	mg/L	0.48	-	0.50	-	0.91	0.64	0.76	0.68	0.80	0.99	0.85	0.57	0.61	0.71
Calcium	mg/L	188	-	188	-	191	149	146	160	169	193	189	161	161	191
Chloride	mg/L	94.3	250	250	-	38	27	27	27	35	42	39	26.5	26.5	38.4
Fluoride	mg/L	1.0	4	2.0	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	6.76	6.72	7.00	6.51	6.69	6.79	6.74	6.71	6.78	6.78	6.79
Sulfate	mg/L	344	250	344	-	198	133	139	131	172	233	185	118	119	180
Total Dissolved Solids	mg/L	1168	500	1168	-	798	658	692	688	728	866	822	660	658	792
Appendix IV															
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	0.003	<0.002
Barium	mg/L	0.168	2.0	2.0	0.052	0.052	0.044	0.043	0.044	0.038	0.046	0.050	0.049	0.049	0.053
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.058	0.048	0.048	0.047	0.044	0.046	0.054	0.049	0.032	0.034	0.050
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.028	0.024	0.024	0.029	0.036	0.016	0.027	0.021	0.012	0.013	0.018
Radium-226	pCi/L	-	-	-	0.343	0.263	0.320	0.116	0.571	0.0773	0.961	0.462	0.435^{J+}	0.190^{J-}	3.59
Radium-228	pCi/L	-	-	-	1.36	1.72	1.13	1.30	2.04	0.324^{J+}	-1.09	0.201	0.746^{J-}	2.24^{J+}	0.704
Radium-226/228	pCi/L	5.00	5	5.00	1.70	1.98	1.45	1.42	2.61	0.401^{J+}	0.961	0.663	1.18^{J-}	2.43^{J+}	4.29
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other															
Total Suspended Solids	mg/L	-	-	-	<3	<3	<3	2^{U}	32	<3	<3	1.4	<3	<3	1.1
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	480	543	530	516	510	530
Carbonate	mg/L	-	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	-	-	-	-	-	532	624	616	522	512	638
Magnesium	mg/L	-	-	-	-	-	-	-	-	32.9	39.4	40.3	29.9	30.5	40.1
Potassium	mg/L	-	-	-	-	-	-	-	-	6.4	6.85	7.02	6.77	6.72	7.06
Sodium	mg/L	-	-	-	-	-	-	-	-	38.8	43.9	34.3	32.4	32.7	29.5

			Sample Location:		MW-7												
			Sample Type:		Downgradient												
			Sample Date:		6/15/2021	7/20/2021	8/24/2021	9/28/2021	11/2/2021	12/7/2021	1/11/2022	2/17/2022	8/2/2022	2/8/2023	8/2/2023	1/30/2024	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring								Assessment Monitoring				
Field Parameters																	Field Dup
pH	su	-	-	-	8.18	7.40	7.40	7.47	7.37	7.47	7.56	7.24	7.58	7.58	7.44	7.09	7.09
Conductivity	mS/cm	-	-	-	0.879	0.900	0.916	0.925	0.462	0.972	0.964	1.129	0.965	0.780	0.845	1.210	1.210
Turbidity	NTU	-	-	-	1.71	5.00	5.37	16.01	5.18	2.2	2.49	2.21	2.65	3.53	1.45	4.98	4.98
Dissolved Oxygen	mg/L	-	-	-	0.03	<0.1	0.01	0.02	0	0.02	0.49	0.01	0.16	0.04	0.01	0.08	0.08
Temperature	°C	-	-	-	12.9	14.0	17.0	14.3	13	11	9.1	6.2	14.6	9.9	15.9	8.2	8.2
Oxidation Reduction Potential	mV	-	-	-	-142.1	-117.2	-139.5	-128.3	-146.5	-157.1	-112.6	-36.9	-129.0	-81.3	-146.9	-100.6	-100.6
Part 115																	
Copper	mg/L	0.005	1.3	1.00	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	1.34	1.25	1.31	1.37	1.49	1.50	1.52	2.81	1.19	1.00	1.04	1.91	1.89
Nickel	mg/L	0.021		0.1	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	< 0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.005
Zinc	mg/L	0.036	5	5	< 0.005	0.007	0.014	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005
Appendix III																	
Boron	mg/L	0.48	-	0.50	1.88	1.78	1.89	1.81	2.12	2.19	2.14	2.75	1.43	1.36	1.08	1.72	1.67
Calcium	mg/L	188	-	188	110	111	112	108	122	126	121	149	104	98.8	97.2	165	159
Chloride	mg/L	94.3	250	250	73	74	74	75	73	72.2	78	75	98	82	81	82.9	81.7
Fluoride	mg/L	1.0	4	2.0	< 1.0	<1.0	<1.0	<1.0	<1.0	0.338	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	8.18	7.40	7.40	7.47	7.37	7.47	7.56	7.24	7.58	7.58	7.44	7.09	7.09
Sulfate	mg/L	344	250	344	189	181	184	191	212	203	214	260	175	198	172	270	267
Total Dissolved Solids	mg/L	1168	500	1168	586	574	592	588	622	634	624	758	590	564	548	864	866
Appendix IV																	
Antimony	mg/L	0.005	0.006	0.006	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.006	0.006	0.007	0.006	0.005	0.006	0.006	0.005	0.004	0.004	0.006	0.006	0.006
Barium	mg/L	0.168	2.0	2.0	0.056	0.06	0.052	0.051	0.054	0.056	0.055	0.062	0.047	0.049	0.050	0.036	0.037
Beryllium	mg/L	0.001	0.004	0.004	< 0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	< 0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	< 1.0	<1.0	<1.0	<1.0	<1.0	0.338	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	< 0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.089	0.096	0.093	0.097	0.100	0.100	0.100	0.112	0.086	0.073	0.063	0.082	0.079
Mercury	mg/L	0.0002	0.002	0.002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.259	0.26	0.292	0.276	0.276	0.293	0.296	0.284	0.146	0.173	0.156	0.184	0.186
Radium-226	pCi/L	-	-	-	0.253	1.4	0.766	0.829	0.666[J]	2.64	0.676	0.818	0.568	1.06	0.619	0.000[J-]	0.693[J+]
Radium-228	pCi/L	-	-	-	1.85[J+]	3.42	0.535	2.49	0.115	0.179	-0.650	1.51	1.27[J+]	4.38	1.18	0.514[J-]	0.906[J+]
Radium-226/228	pCi/L	5.00	5	5.00	2.11[J+]	4.82	1.30	3.32	0.781[J]	2.82	0.676	2.33	1.84[J+]	5.44	1.80	0.514[J-]	1.60[J+]
Selenium	mg/L	0.005	0.05	0.050	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	< 0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																	
Total Suspended Solids	mg/L	-	-	-	< 3	<3	<3	<3	<3	<3	<3	1[U]	<3	<3	<3	2.6	3.3
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	180	163	150	334	346
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	-	-	-	-	-	-	-	-	305	290	289	496	510
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	12.3	12.3	12.1	20.5	20.4
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	9.53	8.90	9.44	5.77	5.69
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	71.1	66.5	68.1	83.9	83.9

			Sample Location:		MW-7
			Sample Type:		Downgradie
			Sample Date:		8/8/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Assessment Monitoring
Field Parameters					
pH	su	-	-	-	7.42
Conductivity	mS/cm	-	-	-	0.909
Turbidity	NTU	-	-	-	6.68
Dissolved Oxygen	mg/L	-	-	-	0.43
Temperature	°C	-	-	-	15.3
Oxidation Reduction Potential	mV	-	-	-	-90
Part 115					
Copper	mg/L	0.005	1.3	1.00	<0.005
Iron	mg/L	23.5	0.3	23.5	1.40
Nickel	mg/L	0.021		0.1	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005
Zinc	mg/L	0.036	5	5	<0.005
Appendix III					
Boron	mg/L	0.48	-	0.50	2.03
Calcium	mg/L	188	-	188	111
Chloride	mg/L	94.3	250	250	87.6
Fluoride	mg/L	1.0	4	2.0	0.3
pH, Field	su	-	-	-	7.42
Sulfate	mg/L	344	250	344	171
Total Dissolved Solids	mg/L	1168	500	1168	614
Appendix IV					
Antimony	mg/L	0.005	0.006	0.006	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.005
Barium	mg/L	0.168	2.0	2.0	0.056
Beryllium	mg/L	0.001	0.004	0.004	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	0.007
Cobalt	mg/L	0.005	0.006	0.006	<0.005
Fluoride	mg/L	1.0	4.0	2.0	0.3
Lead	mg/L	0.003	0.015	0.004	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.080
Mercury	mg/L	0.0002	0.002	0.002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.196
Radium-226	pCi/L	-	-	-	0.946
Radium-228	pCi/L	-	-	-	0.870
Radium-226/228	pCi/L	5.00	5	5.00	1.82
Selenium	mg/L	0.005	0.05	0.050	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002
Other					
Total Suspended Solids	mg/L	-	-	-	<3
Bicarbonate	mg/L	-	-	-	240
Carbonate	mg/L	-	-	-	<10
Hardness	mg/L	-	-	-	338
Magnesium	mg/L	-	-	-	15.1
Potassium	mg/L	-	-	-	9.98
Sodium	mg/L	-	-	-	72.3

			Sample Location:		MW-7B												
			Sample Type:		Downgradient												
			Sample Date:		3/9/2022		4/13/2022		5/19/2022	6/23/2022	7/28/2022	9/1/2022	10/6/2022	11/10/2022	2/8/2023	8/2/2023	########
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring										Assessment Monitoring		
Field Parameters						Field Dup		Field Dup									
pH	su	-	-	-	8.14	8.14	8.04	8.04	8.07	7.73	7.81	7.90	7.80	7.85	8.15	7.87	8.17
Conductivity	mS/cm	-	-	-	0.73	0.73	0.588	0.588	0.589	0.586	0.588	0.580	0.587	0.577	0.577	0.565	0.579
Turbidity	NTU	-	-	-	0.02	0.02	7.01	7.01	6.25	6.01	4.05	4.20	5.25	6.01	3.12	0.98	6.39
Dissolved Oxygen	mg/L	-	-	-	0.85	0.85	0.26	0.26	0.1	0.09	0.11	0.67	0.16	0.12	0.07	0.02	0.1
Temperature	°C	-	-	-	11.7	11.7	11.0	11.0	13.1	13.3	14.1	14.0	13.3	13.4	11.2	14.9	9.4
Oxidation Reduction Potential	mV	-	-	-	19.2	19.2	-95.1	-95.1	-135.8	-38.8	-108.9	-117.5	-98.2	-106.9	-130.1	-138.4	-153
Part 115																	
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	3.0	0.3	3.04	0.06	0.06	0.03	0.03	0.03	0.05[J]	0.04	0.05	0.06	0.07	0.08	0.09	0.09
Nickel	mg/L	0.011		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.042	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III																	
Boron	mg/L	3.52	-	3.52	3.07	3.09	2.90	2.88	3.02	3.04	2.98	3.17	2.91	2.94	3.00	3.06	2.92
Calcium	mg/L	69.6	-	69.6	10.2	10.4	9.59	9.28	8.24	9.22	9.25	9.14	8.73	9.24	8.77	9.36	8.83
Chloride	mg/L	5.0	250	250	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1.9
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.3
pH, Field	su	-	-	-	8.14	8.14	8.04	8.04	8.07	7.73	7.81	7.90	7.80	7.85	8.15	7.87	8.17
Sulfate	mg/L	5.0	250	250	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1.3
Total Dissolved Solids	mg/L	380	500	500	366	366	362	370	366	362	376	356	376	368	362	356	372
Appendix IV																	
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.009	0.01	0.01	<0.002	<0.002	0.003	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003
Barium	mg/L	0.081	2	2.0	0.01	0.009	0.011	0.011	0.01	0.009	0.009	0.009	0.010	0.008	0.009	0.008	0.008
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4	2.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.3
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	0.012	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.051	0.04	0.051	0.034	0.035	0.028	0.029	0.031	0.031	0.032	0.032	0.032	0.032	0.032	0.031	0.033
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.011	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.451	0.629	0.439	0.52	0.378	0.547	0.278	0.440	0.988	0.463	0.504	0.434	0.355
Radium-228	pCi/L	-	-	-	1.270	0.536	0.872	0.428	-0.123	1.88	0.136[J+]	0.286	0.103	1.30	-0.879	1.13	1.01
Radium-226/228	pCi/L	4.42	5.00	5.00	1.720	1.160	1.31	0.948	0.378	2.43	0.414[J+]	0.726	1.09	1.77	0.504	1.57	1.36
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																	
Total Suspended Solids	mg/L	-	-	-	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	1.0
Bicarbonate	mg/L	-	-	-	390	390	390	400	400	380	390	390	390	400	418	400	395
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	38	40	37	51	29	31	30	29	30	29	29	38	29.5
Magnesium	mg/L	-	-	-	2.93	3.00	2.99	2.93	2.43	2.75	2.79	2.84	2.75	2.78	2.81	2.81	2.69
Potassium	mg/L	-	-	-	5.48	5.57	5.64	5.57	4.8	5.57	5.72	5.61	5.53	5.85	5.58	5.78	5.63
Sodium	mg/L	-	-	-	132	131	136	133	116	135	138	140	138	137	142	146	87.5

			Sample Location:		MW-7B
			Sample Type:		Downgradi
			Sample Date:		8/8/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Assessment Monitorin
Field Parameters					
pH	su	-	-	-	8.00
Conductivity	mS/cm	-	-	-	0.585
Turbidity	NTU	-	-	-	9.44
Dissolved Oxygen	mg/L	-	-	-	0.3
Temperature	°C	-	-	-	14.3
Oxidation Reduction Potential	mV	-	-	-	-114.8
Part 115					
Copper	mg/L	0.005	1.3	1.00	<0.005
Iron	mg/L	3.0	0.3	3.04	0.12
Nickel	mg/L	0.011		0.1	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005
Zinc	mg/L	0.042	5	5	<0.005
Appendix III					
Boron	mg/L	3.52	-	3.52	2.95
Calcium	mg/L	69.6	-	69.6	8.87
Chloride	mg/L	5.0	250	250	1.9
Fluoride	mg/L	1.0	4	2.0	0.6
pH, Field	su	-	-	-	8.00
Sulfate	mg/L	5.0	250	250	1.1
Total Dissolved Solids	mg/L	380	500	500	358
Appendix IV					
Antimony	mg/L	0.005	0.006	0.006	<0.005
Arsenic	mg/L	0.009	0.01	0.01	<0.002
Barium	mg/L	0.081	2	2.0	0.008
Beryllium	mg/L	0.001	0.004	0.004	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005
Chromium	mg/L	0.005	0.1	0.100	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005
Fluoride	mg/L	1.0	4	2.00	0.6
Lead	mg/L	0.003	0.015	0.004	<0.003
Lithium	mg/L	0.051	0.04	0.051	0.032
Mercury	mg/L	0.0002	0.002	0.002	<0.0002
Molybdenum	mg/L	0.011	0.1	0.100	<0.005
Radium-226	pCi/L	-	-	-	0.623
Radium-228	pCi/L	-	-	-	0.207
Radium-226/228	pCi/L	4.42	5.00	5.00	0.830
Selenium	mg/L	0.005	0.05	0.050	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002
Other					
Total Suspended Solids	mg/L	-	-	-	1.0
Bicarbonate	mg/L	-	-	-	380
Carbonate	mg/L	-	-	-	<10
Hardness	mg/L	-	-	-	27
Magnesium	mg/L	-	-	-	2.65
Potassium	mg/L	-	-	-	5.71
Sodium	mg/L	-	-	-	139

			Sample Location:		MW-7C												
			Sample Type:		Downgradient												
			Sample Date:		3/10/2022	3/10/2022	4/14/2022	5/19/2022	6/23/2022	7/28/2022	9/1/2022	10/6/2022	11/10/2022	2/8/2023	8/2/2023	1/30/2024	8/8/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring									Assessment Monitoring			
Field Parameters						Field Dup											
pH	su	-	-	-	7.32	7.32	7.51	7.49	7.28	7.24	7.30	7.23	7.35	7.41	7.24	7.44	7.30
Conductivity	mS/cm	-	-	-	2.01	2.01	1.811	1.758	1.651	1.672	1.700	1.330	1.678	1.537	1.619	1.563	1.514
Turbidity	NTU	-	-	-	0.02	0.02	5.87	3.95	2.59	1.97	2.80	4.20	4.01	7.29	0.65	5.95	8.57
Dissolved Oxygen	mg/L	-	-	-	1.77	1.77	0.23	0.07	0.08	0.09	0.61	0.12	0.09	0.09	0.06	0.07	0.28
Temperature	°C	-	-	-	12.3	12.3	11.0	13.7	13.8	14.3	16.0	13.7	13.8	11.3	16.4	9.2	14.7
Oxidation Reduction Potential	mV	-	-	-	-39	-39	-121.4	-182.8	-110.2	-151.5	-136.4	-128.8	-120.4	-111.5	-130.0	-134.4	-103.3
Part 115																	
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	4.15	4.11	4.34	4.28	3.77[J]	3.84	4.11	3.81	4.11	3.67	4.02	4.41	4.30
Nickel	mg/L	0.021		0.1	0.01	0.011	0.008	0.008	0.007	0.008	0.008	0.007	0.007	0.007	0.007	0.008	0.007
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	0.007	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III																	
Boron	mg/L	0.48	-	0.50	6.54	6.55	6.44	6.74	6.46	6.7	7.24	6.29	6.62	6.46	6.68	6.62	6.38
Calcium	mg/L	188	-	188	277	272	255	183	245	241	247	234	243	246	235	238	241
Chloride	mg/L	94.3	250	250	96	95	101	93	91	90	93	93	92	94	93	90.1	105
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	7.32	7.32	7.51	7.49	7.28	7.24	7.30	7.23	7.35	7.41	7.24	7.44	7.30
Sulfate	mg/L	344	250	344	751	761	736	723	668	660	703	675	685	687	656	650	663
Total Dissolved Solids	mg/L	1168	500	1168	1500	1500	1450	1420	1360	1360	1370	1360	1360	1360	1350	1330	1310
Appendix IV																	
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.007	0.007	0.006	0.007	0.006	0.006	0.006	0.006	0.005	0.006	0.007	0.010	0.007
Barium	mg/L	0.168	2.0	2.0	0.045	0.046	0.043	0.046	0.041	0.042	0.047	0.041	0.044	0.041	0.044	0.042	0.039
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.0005	0.0008	<0.0005	0.0009	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.132	0.129	0.121	0.130	0.127	0.138	0.137	0.128	0.125	0.125	0.126	0.126	0.119
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.41	0.41	0.40	0.42	0.379	0.39	0.405	0.377	0.415	0.386	0.397	0.409	0.388
Radium-226	pCi/L	-	-	-	0.867	0.916	0.566	0.444	0.958	0.193	0.606	0.595	0.680	1.11	0.795	0.768	0.887
Radium-228	pCi/L	-	-	-	2.790	2.110	3.090	0.550	2.35	0.58[J+]	0.204	1.39	1.08	2.17	0.451	0.361	0.784
Radium-226/228	pCi/L	5.00	5	5.00	3.660	3.030	3.650	0.994	3.31	0.773[J+]	0.810	1.99	1.76	3.27	1.25	1.13	1.67
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																	
Total Suspended Solids	mg/L	-	-	-	27[J+]	13[J-]	10	9	8	<3	<3	<3	6	7	7.4	5.4	9.1
Bicarbonate	mg/L	-	-	-	150	160	160	170	160	160	170	150	150	172	170	167	180
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	840	860	812	812	777	740	764	750	754	742	779	558	770
Magnesium	mg/L	-	-	-	44.1	44.90	43.10	33.70	40	40	42.2	42.1	41.0	42.7	41.5	44.3	42.6
Potassium	mg/L	-	-	-	5.34	5.04	5.68	4.92	5.89	5.71	5.88	6.14	5.96	6.07	5.79	5.75	5.82
Sodium	mg/L	-	-	-	97.9	97.1	96.8	79	94.2	95.7	99.1	95.7	98.7	99.8	96.6	94.7	93.1

			Sample Location:		MW-8												
			Sample Type:		Downgradient												
			Sample Date:		6/15/2021	7/20/2021	8/24/2021	9/28/2021	11/2/2021	12/7/2021	1/11/2022	2/17/2022	8/2/2022	2/8/2023	8/2/2023	1/30/2024	8/8/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring								Assessment Monitoring				
Field Parameters																	
pH	su	-	-	-	7.78	7.00	6.99	7.24	7.03	7.12	7.26	6.99	7.18	7.18	7.06	7.14	7.10
Conductivity	mS/cm	-	-	-	0.620	0.640	0.620	0.721	0.656	0.653	0.637	0.638	0.665	0.634	0.744	0.617	0.661
Turbidity	NTU	-	-	-	2.24	7.00	7.18	6.53	5.25	2.95	5.43	2	4.31	6.17	2.75	5.15	2.15
Dissolved Oxygen	mg/L	-	-	-	2.29	1.00	1.66	0.04	7.83	1.76	2.24	1.64	0.88	2.92	0.01	5.24	0.47
Temperature	°C	-	-	-	10.7	14.0	16.4	14.3	14	11.2	9.2	5.9	14.4	9.4	14.2	7.8	14.9
Oxidation Reduction Potential	mV	-	-	-	72.1	280.5	325.9	112.7	228.5	122	234.6	365.3	100.5	249.8	114.5	116	193.6
Part 115																	
Copper	mg/L	0.005	1.3	1.00	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.010	<0.005
Iron	mg/L	23.5	0.3	23.5	< 0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	mg/L	0.021		0.1	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	< 0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005
Zinc	mg/L	0.036	5	5	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005
Appendix III																	
Boron	mg/L	0.48	-	0.50	0.11	0.10	0.08	0.21	0.08	0.05	0.04	<0.04	0.08	0.08	0.14	0.05	0.08
Calcium	mg/L	188	-	188	91.2	94.6	89.8	86.5	93.0	98.5	98.6	100.0	95.3	104	86.9	97.3	93.3
Chloride	mg/L	94.3	250	250	11	17	10	59	8	4.45	<5	<5	15.00	24	66	10.5	28.5
Fluoride	mg/L	1.0	4	2.0	< 1.0	<1.0	<1.0	<1.0	<1.0	0.0587	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	7.78	7.00	6.99	7.24	7.03	7.12	7.26	6.99	7.18	7.18	7.06	7.14	7.10
Sulfate	mg/L	344	250	344	25	35	17	48	16	13.8	11	11	15	32	52	21.4	27.5
Total Dissolved Solids	mg/L	1168	500	1168	392	384	362	414	368	370	372	382	382	430	460	388	406
Appendix IV																	
Antimony	mg/L	0.005	0.006	0.006	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.028	0.021	0.022	0.026	0.021	0.021	0.018	0.017	0.019	0.022	0.026	0.021	0.021
Beryllium	mg/L	0.001	0.004	0.004	< 0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	< 0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	< 1.0	<1.0	<1.0	<1.0	<1.0	0.0587	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	< 0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	< 0.010	<0.005	<0.005	0.013	0.009	0.006	<0.005	<0.005	0.005	0.007	0.009	<0.005	0.005
Mercury	mg/L	0.0002	0.002	0.002	< 0.0002	<0.0002	<0.0002	<0.0002^{UJ}	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	< 0.011	0.006	<0.005	0.013	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.287	0.389	0.437	0.228	0.228^{J}	1.70	1.77	0.843	0.201	0.118	0.245	0.515	0.219
Radium-228	pCi/L	-	-	-	0.396^{J+}	-0.103	0.114	0.469	1.71	0.583	4.44	2.00	3.04^{J+}	-0.133	4.30	1.33	0.454
Radium-226/228	pCi/L	5.00	5	5.00	0.683^{J+}	0.389	0.551	0.697	1.93^{J}	2.28	6.21	2.84	3.24^{J+}	0.118	4.55	1.85	0.673
Selenium	mg/L	0.005	0.05	0.050	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	< 0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																	
Total Suspended Solids	mg/L	-	-	-	< 3	<3	<3	<3	<3	2^{U}	<3	<3	<3	<3	<3	<3	<3
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	410	440	320	403	390
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	-	-	-	-	-	-	-	-	347	384	326	364	340
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	28.9	31.8	25.3	28.8	26.8
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	0.57	0.53	0.76	<0.50	0.52
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	12.7	14.2	40.9	13.9	23.9

			Sample Location:		MW-9											
			Sample Type:		Downgradient											
			Sample Date:		6/15/2021		7/20/2021		8/24/2021		9/28/2021		11/2/2021		12/7/2021	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring											
Field Parameters						Field Dup		Field Dup		Field Dup		Field Dup		Field Dup		Field Dup
pH	su	-	-	-	7.74	7.74	7.20	7.20	7.21	7.21	7.28	7.28	7.14	7.14	7.27	7.27
Conductivity	mS/cm	-	-	-	0.393	0.393	0.42	0.42	0.44	0.44	0.444	0.444	0.471	0.471	0.459	0.459
Turbidity	NTU	-	-	-	1.60	1.60	6.7	6.7	6.15	6.15	5.25	5.25	5.61	5.61	2.21	2.21
Dissolved Oxygen	mg/L	-	-	-	5.48	5.48	5.35	5.35	4.52	4.52	4.5	4.5	4.89	4.89	5.42	5.42
Temperature	°C	-	-	-	12.9	12.9	17	17	19	19	17.1	17.1	13.8	13.8	9.5	9.5
Oxidation Reduction Potential	mV	-	-	-	164.1	164.1	310.7	310.7	329.2	329.2	171.8	171.8	238.1	238.1	135.9	135.9
Part 115																
Copper	mg/L	0.005	1.3	1.00	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	mg/L	0.021		0.1	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	< 0.0005	< 0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005
Appendix III																
Boron	mg/L	0.48	-	0.50	< 0.04	< 0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Calcium	mg/L	188	-	188	62.1	64.2	66.3	67.5	69.2	68.8	71.0	71.5	78.0	80.7	76.6	75.8
Chloride	mg/L	94.3	250	250	< 5	< 5	<5	<5	<5	<5	<5	<5	<5	<5	1.11	1.07
Fluoride	mg/L	1.0	4	2.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.033	0.033
pH, Field	su	-	-	-	7.74	7.74	7.20	7.20	7.21	7.21	7.28	7.28	7.14	7.14	7.27	7.27
Sulfate	mg/L	344	250	344	< 5	< 5	<5	<5	<5	<5	<5	<5	<5	<5	3.58	3.52
Total Dissolved Solids	mg/L	1168	500	1168	232	240	242	232	242	256	246	244	252	268	244	246
Appendix IV																
Antimony	mg/L	0.005	0.006	0.006	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.015	0.015	0.013	0.014	0.015	0.014	0.014	0.015	0.015	0.016	0.014	0.015
Beryllium	mg/L	0.001	0.004	0.004	< 0.001	< 0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	< 0.0005	< 0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.033	0.033
Lead	mg/L	0.003	0.015	0.004	< 0.003	< 0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	mg/L	0.0002	0.002	0.002	< 0.0002	< 0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002^{UJ}	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.625	0.646	0.189	0.166	0.266^{J-}	0.421^{J+}	0.797	0.368	0.177^{J-}	0.534^{J+}	1.67	1.69
Radium-228	pCi/L	-	-	-	0.218^{J+}	0.171^{J+}	0.286^{J+}	-0.125^{J-}	-0.359^{J-}	1.65^{J+}	0.453	0.846	-0.0915^{J}	0.483^{J+}	0.666	0.826
Radium-226/228	pCi/L	5.00	5	5.00	0.844^{J+}	0.817^{J+}	0.475^{J+}	0.166^{J-}	0.266^{J-}	2.07^{J+}	1.25	1.21	0.177^{J}	1.02^{J+}	2.34	2.51
Selenium	mg/L	0.005	0.05	0.050	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	< 0.002	< 0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																
Total Suspended Solids	mg/L	-	-	-	< 3	< 3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hardness	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Sample Location:		MW-9								
			Sample Type:		Downgradient								
			Sample Date:		1/11/2022		2/17/2022		8/2/2022	2/8/2023	8/2/2023	1/30/2024	8/8/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring				Assessment Monitoring				
Field Parameters						Field Dup		Field Dup					
pH	su	-	-	-	7.35	7.35	7.16	7.16	7.44	7.45	7.13	7.28	7.06
Conductivity	mS/cm	-	-	-	0.455	0.455	0.471	0.471	0.420	0.424	0.474	0.540	0.585
Turbidity	NTU	-	-	-	2.89	2.89	1.6	1.6	3.44	3.01	2.2	5.02	2.59
Dissolved Oxygen	mg/L	-	-	-	6.13	6.13	6.17	6.17	3.96	6.33	3.35	6.22	3.96
Temperature	°C	-	-	-	7	7	4.7	4.7	19.2	7.3	16.5	5.3	17.9
Oxidation Reduction Potential	mV	-	-	-	260.1	260.1	380.9	380.9	99.2	252.1	132.5	108.1	215.3
Part 115													
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III													
Boron	mg/L	0.48	-	0.50	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.04
Calcium	mg/L	188	-	188	76.9	75.0	77.6	78	61.8	76.9	75.7	98.8	100
Chloride	mg/L	94.3	250	250	<5	<5	<5	<5	<5	<5	<5	5.5	6.1
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	7.35	7.35	7.16	7.16	7.44	7.45	7.13	7.28	7.06
Sulfate	mg/L	344	250	344	<5	<5	<5	<5	5.00	<5	6	11.9	12.6
Total Dissolved Solids	mg/L	1168	500	1168	264	266	280	276	242	274	282	348	360
Appendix IV													
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002
Barium	mg/L	0.168	2.0	2.0	0.013	0.013	0.013	0.013	0.013	0.014	0.016	0.017	0.020
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.838^{J-}	1.22^{J+}	0.533	0.657	0.0527	0.372	0.305	0.000	0.924
Radium-228	pCi/L	-	-	-	1.53^{J+}	-0.724^{J-}	0.0438^{J}	0.283^{J+}	1.88^{J+}	1.60	-0.43	-0.442	0.555
Radium-226/228	pCi/L	5.00	5	5.00	2.37^{J+}	1.22^{J-}	0.576^{J}	0.940^{J+}	1.94^{J+}	1.97	0.31	0.000	1.48
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other													
Total Suspended Solids	mg/L	-	-	-	<3	<3	<3	<3	<3	<3	<3	<3	<3
Bicarbonate	mg/L	-	-	-	-	-	-	-	260	336	310	378	380
Carbonate	mg/L	-	-	-	-	-	-	-	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	-	-	-	-	218	261	270	342	340
Magnesium	mg/L	-	-	-	-	-	-	-	15.2	19.4	19.5	23.3	23.4
Potassium	mg/L	-	-	-	-	-	-	-	1.09	0.93	1.28	0.93	1.47
Sodium	mg/L	-	-	-	-	-	-	-	2.41	2.86	3.84	4.11	3.67

			Sample Location:		MW-10							
			Sample Type:		Downgradient							
			Sample Date:		6/15/2021	7/20/2021	8/24/2021	9/28/2021	11/2/2021	12/7/2021	1/11/2022	2/17/2022
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring							
Field Parameters												
pH	su	-	-	-	7.30	6.60	6.70	6.89	6.57	6.69	6.68	6.49
Conductivity	mS/cm	-	-	-	0.725	0.71	0.741	0.664	0.78	0.753	0.807	0.784
Turbidity	NTU	-	-	-	1.79	2.3	1.95	5.99	1.29	2.09	2.98	3.76
Dissolved Oxygen	mg/L	-	-	-	2.05	3.3	3.2	2.43	2.83	2.89	3.92	3.61
Temperature	°C	-	-	-	12.0	14	15.5	15	14.2	11.6	9.7	8.6
Oxidation Reduction Potential	mV	-	-	-	121.2	240.0	330.1	164.1	230.9	147.9	283.3	391.8
Part 115												
Copper	mg/L	0.005	1.3	1.00	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	mg/L	0.021		0.1	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	< 0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.020	<0.005
Appendix III												
Boron	mg/L	0.48	-	0.50	0.05	0.05	0.06	0.05	0.07	0.05	0.06	0.05
Calcium	mg/L	188	-	188	132	128	129	113	137	128	141	142
Chloride	mg/L	94.3	250	250	< 5	<5	<5	<5	<5	1.03	<5	<5
Fluoride	mg/L	1.0	4	2.0	< 1.0	<1.0	<1.0	<1.0	<1.0	0.0660	<1.0	<1.0
pH, Field	su	-	-	-	7.30	6.60	6.70	6.89	6.57	6.69	6.68	6.49
Sulfate	mg/L	344	250	344	12	15	14	9	17	14.5	18	16
Total Dissolved Solids	mg/L	1168	500	1168	446	410	432	376	436	428	474	482
Appendix IV												
Antimony	mg/L	0.005	0.006	0.006	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	< 0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.044	0.041	0.047	0.041	0.044	0.043	0.040	0.038
Beryllium	mg/L	0.001	0.004	0.004	< 0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	< 0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	< 1.0	<1.0	<1.0	<1.0	<1.0	0.0660	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	< 0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	< 0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	mg/L	0.0002	0.002	0.002	0.0002	<0.0002	<0.0002	<0.0002^{UJ}	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.548	0.262	0.183	0.701	0.381^{J}	1.46	1.59	0.894
Radium-228	pCi/L	-	-	-	0.123^{J+}	-0.994	0.187	-0.076	0.225	0.929	0.142	-0.916
Radium-226/228	pCi/L	5.00	5	5.00	0.671^{J+}	0.262	0.371	0.701	0.605^{J}	2.39	1.73	0.894
Selenium	mg/L	0.005	0.05	0.050	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	< 0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other												
Total Suspended Solids	mg/L	-	-	-	< 3	<3	<3	<3	<3	<3	<3	<3
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-
Hardness	mg/L	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-

			Sample Location:		MW-10							
			Sample Type:		Downgradient							
			Sample Date:		8/2/2022	2/8/2023		8/2/2023		1/30/2024	8/8/2024	
Constituent	Unit	BTVs	MCL	State Program GPS	Assessment Monitoring							
Field Parameters							Field Dup		Field Dup			Field Dup
pH	su	-	-	-	6.85	6.73	6.73	6.52	6.52	6.81	6.85	6.85
Conductivity	mS/cm	-	-	-	0.691	0.679	0.679	0.739	0.739	0.695	0.625	0.625
Turbidity	NTU	-	-	-	3.57	1.88	1.88	2.34	2.34	4.91	3.51	3.51
Dissolved Oxygen	mg/L	-	-	-	2.82	4.03	4.03	3.15	3.15	4.29	2.53	2.53
Temperature	°C	-	-	-	15.4	9.5	9.5	14.4	14.4	8.4	15.8	15.8
Oxidation Reduction Potential	mV	-	-	-	98.9	238.0	238	163.5	163.5	100.1	272.9	272.9
Part 115												
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III												
Boron	mg/L	0.48	-	0.50	0.05	0.04	0.05	0.05	0.06	0.04	0.06	0.06
Calcium	mg/L	188	-	188	117	136	140	131	129	118	119	116
Chloride	mg/L	94.3	250	250	<5	<5	<5	6	6	9.3	2.2	2.2
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	6.85	6.73	6.73	6.52	6.52	6.81	6.85	6.85
Sulfate	mg/L	344	250	344	10	13	13	18	17	27.8	10.6	10.6
Total Dissolved Solids	mg/L	1168	500	1168	398	494	482	452	450	452	384	392
Appendix IV												
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.037	0.036	0.036	0.037	0.037	0.041	0.033	0.035
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.195	0.407	0.443	0.519[J-]	0.840[J+]	0.366	0.528	0.129
Radium-228	pCi/L	-	-	-	0.402[J+]	-0.255[J-]	0.758[J+]	-0.799[J-]	0.502[J+]	2.54	2.77[J+]	2.21[J-]
Radium-226/228	pCi/L	5.00	5	5.00	0.597[J+]	0.407[J-]	1.20[J+]	0.519[J-]	1.34[J+]	2.91	3.30[J+]	2.34[J-]
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other												
Total Suspended Solids	mg/L	-	-	-	<3	<3	<3	<3	<3	<3	<3	<3
Bicarbonate	mg/L	-	-	-	440	525	522	450	450	449	420	430
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	382	461	460	433	420	396	386	386
Magnesium	mg/L	-	-	-	23.6	29.5	29.2	25.8	25.6	27.0	22.8	22.5
Potassium	mg/L	-	-	-	0.73	0.62	0.70	0.68	0.68	<0.50	1.00	0.99
Sodium	mg/L	-	-	-	2.24	2.54	2.73	4.55	4.64	19.0	2.72	2.67

			Sample Location:		MW-11											
			Sample Type:		Upgradient											
			Sample Date:		2/23/2022		3/30/2022		5/4/2022	6/8/2022		7/13/2022		8/17/2022		9/21/2022	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring												
Field Parameters						Field Dup		Field Dup			Field Dup		Field Dup		Field Dup		Field Dup
pH	su	-	-	-	6.84	6.84	6.64	6.64	6.78	6.76	6.76	6.73	6.73	6.88	6.88	6.91	6.91
Conductivity	mS/cm	-	-	-	1.08	1.08	1.119	1.119	1.093	1.11	1.11	1.008	1.008	1.117	1.117	1.122	1.122
Turbidity	NTU	-	-	-	9.65	9.65	8.95	8.95	9.22	6.98	6.98	3.02	3.02	4.01	4.01	5.25	5.25
Dissolved Oxygen	mg/L	-	-	-	0.01	0.01	0.07	0.07	0.06	0.56	0.56	0.08	0.08	0.21	0.21	0.18	0.18
Temperature	°C	-	-	-	9.50	9.50	9.8	9.8	12	11.3	11.3	12.8	12.8	14.4	14.4	15.7	15.7
Oxidation Reduction Potential	mV	-	-	-	-88.90	-88.90	-83.9	-83.9	-103.4	-109.6	-109.6	-97.3	-97.3	-129.8	-129.8	-122.9	-122.1
Part 115																	
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	22.2	22.0	23.2	23.0	23.50	21.4	21.9	22	21.8^{J}	21.4	20.9	21.5	20.8
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.006
Appendix III																	
Boron	mg/L	0.48	-	0.50	0.22	0.22	0.20	0.22	0.21	0.22	0.22	0.21	0.2	0.21	0.2	0.22	0.22
Calcium	mg/L	188	-	188	136	130	138	140	144	139	138	134	135	140	138	141	142
Chloride	mg/L	94.3	250	250	67	67	67	67	63	63	63	61	62	63	64	61	62
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	6.84	6.84	6.64	6.64	6.78	6.76	6.76	6.73	6.73	6.88	6.88	6.91	6.91
Sulfate	mg/L	344	250	344	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Dissolved Solids	mg/L	1168	500	1168	632	532	642	636	612	644	654	666	644	368	344	652	658
Appendix IV																	
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.018	0.018	0.018	0.017	0.02	0.018	0.018	0.019	0.018	0.021	0.019	0.021	0.02
Barium	mg/L	0.168	2.0	2.0	0.147	0.146	0.144	0.145	0.146	0.142	0.144	0.143	0.147	0.15	0.146	0.167	0.165
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005^{UJ}	0.005^{J+}
Radium-226	pCi/L	-	-	-	0.273^{J-}	0.472^{J+}	0.358^{J-}	0.603^{J+}	0.545	0.618^{J}	1.520^{J}	0.325^{J+}	0.942^{J+}	0.542^{J-}	0.971^{J+}	0.396	0.443
Radium-228	pCi/L	-	-	-	0.000^{J-}	0.248^{J+}	0.757^{J+}	-0.419^{J}	0.479^{J}	0.573^{J}	0.630^{J}	0.925	0.383	0.0495^{J-}	0.835^{J+}	0.0525^{J-}	0.994^{J+}
Radium-226/228	pCi/L	5.00	5	5.00	0.273^{J-}	0.720^{J+}	1.11^{J+}	0.603^{J-}	1.020	1.190^{J}	2.150^{J}	1.25^{J+}	1.33^{J+}	0.591^{J-}	1.81^{J+}	0.449^{J-}	1.44^{J+}
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																	
Total Suspended Solids	mg/L	-	-	-	48	41	32	32	23	32	31	29	28	20	23	23	20
Bicarbonate	mg/L	-	-	-	-	-	-	-	610	595	593	600	610	620	630	600	620
Carbonate	mg/L	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	-	-	-	-	506	495	490	503	512	529	502	512	508
Magnesium	mg/L	-	-	-	-	-	39.0	37.8	40.80	39.4	39.1	38.8	38.3	39.8	39	40.8	39.6
Potassium	mg/L	-	-	-	-	-	1.47	1.45	1.38	1.3	1.32	1.31	1.3	1.38	1.34	1.55	1.52
Sodium	mg/L	-	-	-	-	-	40.4	39.6	39.70	37.5	38.8	38.9	37	38.7	37.8	39.7	38.5

			Sample Location:		MW-11							
			Sample Type:		Upgradient							
			Sample Date:		10/26/2022		2/9/2023		8/3/2023	1/31/2024		8/5/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring		Assessment Monitoring					
Field Parameters						Field Dup		Diss. Metals			Diss. Metals	
pH	su	-	-	-	6.77	6.77	7.43	7.43	6.74	6.77	6.77	6.79
Conductivity	mS/cm	-	-	-	1.075	1.075	1.082	1.082	1.095	1.084	1.084	1.052
Turbidity	NTU	-	-	-	5.78	5.78	25.29	25.29	0.98	7.22	7.22	0.02
Dissolved Oxygen	mg/L	-	-	-	0.37	0.37	0.33	0.33	0.06	0	0	0.14
Temperature	°C	-	-	-	12.2	12.2	10.9	10.9	13.8	11.1	11.1	15.2
Oxidation Reduction Potential	mV	-	-	-	-99.1	-99.1	-191.1	-191.1	-97.1	-177.2	-177.2	-86.5
Part 115												
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	19.8	20.6	15.5	0.44	24.3	25.1	0.03	23.1
Nickel	mg/L	0.021		0.1	0.007 J+	<0.005 UJ	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	0.018 J+	0.006 J-	<0.005	<0.005	0.007	<0.005	<0.005	<0.005
Appendix III												
Boron	mg/L	0.48	-	0.50	0.21	0.21	0.21	0.20	0.20	0.19	0.19	0.19
Calcium	mg/L	188	-	188	138	139	140	132	140	138	129	145
Chloride	mg/L	94.3	250	250	62	62	59	-	62	68.0	-	62.0
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	-	<1.0
pH, Field	su	-	-	-	6.77	6.77	7.43	7.43	6.74	6.77	6.77	6.79
Sulfate	mg/L	344	250	344	<5	<5	<5	-	<5	<5.0	-	<5.0
Total Dissolved Solids	mg/L	1168	500	1168	664	664	668	-	682	660	-	678
Appendix IV												
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.02	0.02	0.017	0.004	0.017	0.019	0.003	0.019
Barium	mg/L	0.168	2.0	2.0	0.158	0.154	0.151	0.105	0.170	0.181	0.116	0.174
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	-	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	<0.005	<0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.981	0.59	0.194	-	1.58	0.528	-	1.61
Radium-228	pCi/L	-	-	-	1.53	1.18	0.824	-	1.58	0.161	-	0.702
Radium-226/228	pCi/L	5.00	5	5.00	2.51	1.77	1.02	-	3.16	0.689	-	2.31
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other												
Total Suspended Solids	mg/L	-	-	-	29	32	35	-	19.8	40.6	-	46.0
Bicarbonate	mg/L	-	-	-	601	604	645	-	630	680	-	620
Carbonate	mg/L	-	-	-	<10	<10	<10	-	<10	<50	-	<10
Hardness	mg/L	-	-	-	512	518	509	-	538	524	-	518
Magnesium	mg/L	-	-	-	39.4	39.3	40.5	37.5	41.2	37.4	37.9	41.3
Potassium	mg/L	-	-	-	1.47	1.45	11.4	10.9	3.01	2.61	2.35	1.70
Sodium	mg/L	-	-	-	39.1	38.3	37.5	36.1	37.4	35.4	33.8	35.1

			Sample Location:		MW-11B									
			Sample Type:		Upgradient									
			Sample Date:		4/28/2022		6/2/2022		7/7/2022		8/11/2022		9/15/2022	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring									
Field Parameters						Field Dup		Field Dup		Field Dup		Field Dup		Field Dup
pH	su	-	-	-	7.95	7.95	7.28	7.28	7.15	7.15	7.37	7.37	7.33	7.33
Conductivity	mS/cm	-	-	-	0.538	0.538	0.544	0.544	0.537	0.537	0.527	0.527	0.535	0.535
Turbidity	NTU	-	-	-	1.12	1.12	8.03	8.03	8.02	8.02	6.15	6.15	4.14	4.14
Dissolved Oxygen	mg/L	-	-	-	11.68	11.68	0.35	0.35	0.22	0.22	0.24	0.24	0.07	0.07
Temperature	°C	-	-	-	12.3	12.3	13.7	13.7	14.6	14.6	13.4	13.4	13.2	13.2
Oxidation Reduction Potential	mV	-	-	-	228	228	-74.2	-74.2	-110.4	-110.4	-158.4	-158.4	-189.3	-189.4
Part 115														
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	3.0	0.3	3.04	0.10	0.11	0.96	0.98	2.59	2.66	3.04	3	2.48	2.44
Nickel	mg/L	0.011		0.1	<0.005	<0.005	<0.005	<0.005	0.011^{J+}	<0.005^{UJ}	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.042	5	5	<0.005	<0.005	<0.005	<0.005	0.042^{J+}	<0.005^{UJ}	<0.005	<0.005	<0.005	<0.005
Appendix III														
Boron	mg/L	3.52	-	3.52	0.62	0.63	0.65	0.66	0.69	0.71	0.77	0.75	0.73	0.72
Calcium	mg/L	69.6	-	69.6	64.6	63.9	63.8	65	66.1	66.1	66.6	65.6	64	64.7
Chloride	mg/L	5.0	250	250	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<1.0
pH, Field	su	-	-	-	7.95	7.95	7.28	7.28	7.15	7.15	7.37	7.37	7.33	7.33
Sulfate	mg/L	5.0	250	250	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Dissolved Solids	mg/L	380	500	500	304	294	300	308	296	306	308	288	300	300
Appendix IV														
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.009	0.01	0.01	0.003	0.003	0.004	0.004	0.007	0.008	0.009	0.009	0.009	0.009
Barium	mg/L	0.081	2	2.0	0.081	0.08	0.07	0.072	0.07	0.071	0.068	0.069	0.068	0.069
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4	2.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.051	0.04	0.051	0.03	0.03	0.02	0.02	0.024	0.025	0.025	0.024	0.026	0.028
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.011	0.1	0.100	<0.005	<0.005	0.01	0.01	0.007	0.007	0.007	0.006	0.006	0.006
Radium-226	pCi/L	-	-	-	1.010	1.440	1.72	1.79	0.638^{J+}	0.0501^{J-}	0.702	1.06	0.518	0.509
Radium-228	pCi/L	-	-	-	1.680	2.140	0.633	1.68	0.753^{J+}	0.445^{J-}	-1.33^{J-}	1.32^{J+}	0.773^{J+}	0.0951^{J}
Radium-226/228	pCi/L	4.42	5.00	5.00	2.690	3.590	2.35	3.47	1.39^{J+}	0.495^{J-}	0.702^{J-}	2.38^{J+}	1.29^{J+}	0.604^{J}
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other														
Total Suspended Solids	mg/L	-	-	-	1.7^{U}	2.7^{U}	<3	<3	3	4	<3^{UJ}	4^{J+}	5	5
Bicarbonate	mg/L	-	-	-	350	350	350	350	350	360	370	370	350	360
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	265	265	260	260	260	260	261	258	261	258
Magnesium	mg/L	-	-	-	24.30	24.80	23.30	23.10	24.6	24.3	24.3	24.2	23.4	23.7
Potassium	mg/L	-	-	-	6.07	6.12	6.08	6.07	6.28	6.24	6.4	6.31	5.98	6.24
Sodium	mg/L	-	-	-	13.50	13.70	17.60	17.20	17.9	17.9	17.7	17.3	16	16.2

			Sample Location:		MW-11B										
			Sample Type:		Upgradient										
			Sample Date:		10/20/2022		11/22/2022		12/27/2022		2/9/2023		8/3/2023	1/31/2024	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring						Assessment Monitoring				
Field Parameters						Field Dup		Field Dup		Field Dup		Field Dup			Field Dup
pH	su	-	-	-	7.29	7.29	7.10	7.10	7.16	7.16	7.35	7.35	7.18	7.26	7.26
Conductivity	mS/cm	-	-	-	0.535	0.535	0.532	0.532	0.515	0.515	0.522	0.522	0.527	0.530	0.530
Turbidity	NTU	-	-	-	5.15	5.15	6.15	6.15	8.45	8.45	7.12	7.12	0.45	2.02	2.02
Dissolved Oxygen	mg/L	-	-	-	0.03	0.03	0.12	0.12	0.09	0.09	0.23	0.23	0.20	0.04	0.04
Temperature	°C	-	-	-	11.4	11.4	11.8	11.8	11.4	11.4	11.9	11.9	17.0	10.8	10.8
Oxidation Reduction Potential	mV	-	-	-	-138.1	-138.1	-92.6	-92.6	-94.7	-94.7	-133.1	-133.1	-95.6	-181.1	-181.1
Part 115															
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	3.0	0.3	3.04	1.82	1.83	1.32	1.3	2.3	2.25	1.23	1.24	1.10	0.84	0.83
Nickel	mg/L	0.011		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.042	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012^{J+}	<0.005UJ	<0.005	<0.005	<0.005
Appendix III															
Boron	mg/L	3.52	-	3.52	0.72	0.71	0.73	0.73	0.83	0.83	0.80	0.82	0.85	0.76	0.79
Calcium	mg/L	69.6	-	69.6	60.3	59.9	66.3	66.2	69.6	67	65.7	66	65.6	62.7	62.9
Chloride	mg/L	5.0	250	250	<5	<5	1.7^{U}	1.7^{U}	<5	<5	<5	<5	<5	2.1	2.1
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	0.16^{U}	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	7.29	7.29	7.10	7.10	7.16	7.16	7.35	7.35	7.18	7.26	7.26
Sulfate	mg/L	5.0	250	250	<5	<5	2.58^{U}	2.78^{U}	<5	<5	<5	<5	<5	4.0	4.0
Total Dissolved Solids	mg/L	380	500	500	304	314	294	268	294	268	292	294	298	296	304
Appendix IV															
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.009	0.01	0.01	0.008	0.008	0.007	0.007	0.008	0.007	0.006	0.006	0.006	0.005	0.005
Barium	mg/L	0.081	2	2.0	0.066	0.066	0.059	0.06	0.062	0.062	0.063	0.065	0.064	0.069	0.068
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4	2.00	<1.0	<1.0	<1.0	0.16	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.051	0.04	0.051	0.026	0.025	0.029	0.027	0.029	0.028	0.031	0.031	0.032	0.030	0.033
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.011	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.633	0.527	0.919	1.07	0.926	0.773	1.46	1.39	1.43	1.32^{J+}	0.366^{J-}
Radium-228	pCi/L	-	-	-	1.33^{J}	2.60^{J+}	2.40^{J+}	0.745^{J-}	2.63J+	0.56J	0.131	0.583	3.26	0.581^{J-}	0.791^{J+}
Radium-226/228	pCi/L	4.42	5.00	5.00	1.96^{J}	3.13^{J+}	3.32^{J+}	1.81^{J-}	3.56J+	1.33J	1.59	1.97	4.70	1.90^{J+}	1.16^{J-}
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other															
Total Suspended Solids	mg/L	-	-	-	4	3	<3	<3	54^{J+}	32^{J-}	<3	<3	2.4	1.4	1.3
Bicarbonate	mg/L	-	-	-	360	360	360	360	371	372	378	377	370	356	381
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	261	260	260	260	265	268	264	262	258	268	269
Magnesium	mg/L	-	-	-	21.3	21.2	23.9	24.1	24.4	24.5	24.4	24.7	23.9	22.1	22.2
Potassium	mg/L	-	-	-	5.81	5.82	6.28	6.41	6.93	6.61	6.43	6.46	6.37	6.38	6.49
Sodium	mg/L	-	-	-	14.5	14.3	15.8	15.9	16.2	16	16.1	16.4	16.5	14.7	14.5

			Sample Location:		MW-11B	
			Sample Type:		Upgradient	
			Sample Date:		8/5/2024	
Constituent	Unit	BTVs	MCL	State Program GPS	Assessment Monitoring	
Field Parameters						Field Dup
pH	su	-	-	-	7.32	7.32
Conductivity	mS/cm	-	-	-	0.502	0.502
Turbidity	NTU	-	-	-	0.25	0.25
Dissolved Oxygen	mg/L	-	-	-	0.28	0.28
Temperature	°C	-	-	-	18.4	18.4
Oxidation Reduction Potential	mV	-	-	-	-85.4	-85.4
Part 115						
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005
Iron	mg/L	3.0	0.3	3.04	0.76	0.79
Nickel	mg/L	0.011		0.1	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005
Zinc	mg/L	0.042	5	5	<0.005	0.005
Appendix III						
Boron	mg/L	3.52	-	3.52	0.69	0.65
Calcium	mg/L	69.6	-	69.6	68.9	66.1
Chloride	mg/L	5.0	250	250	1.5	1.5
Fluoride	mg/L	1.0	4	2.0	0.2	0.2
pH, Field	su	-	-	-	7.32	7.32
Sulfate	mg/L	5.0	250	250	3.6	3.8
Total Dissolved Solids	mg/L	380	500	500	304	314
Appendix IV						
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005
Arsenic	mg/L	0.009	0.01	0.01	0.004	0.004
Barium	mg/L	0.081	2	2.0	0.066	0.067
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.100	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005
Fluoride	mg/L	1.0	4	2.00	0.2	0.2
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003
Lithium	mg/L	0.051	0.04	0.051	0.034	0.033
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002
Molybdenum	mg/L	0.011	0.1	0.100	<0.005	<0.005
Radium-226	pCi/L	-	-	-	1.93[J+]	1.16[J-]
Radium-228	pCi/L	-	-	-	-0.308[J-]	1.84[J+]
Radium-226/228	pCi/L	4.42	5.00	5.00	1.93[J-]	3.00[J+]
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002
Other						
Total Suspended Solids	mg/L	-	-	-	1.3[J-]	1.8[J+]
Bicarbonate	mg/L	-	-	-	350	360
Carbonate	mg/L	-	-	-	<10	<10
Hardness	mg/L	-	-	-	258	268
Magnesium	mg/L	-	-	-	23.7	23.7
Potassium	mg/L	-	-	-	6.57	6.25
Sodium	mg/L	-	-	-	15.1	14.9

			Sample Location:		MW-12											
			Sample Type:		Upgradient											
			Sample Date:		2/23/2022		3/30/2022		5/4/2022		6/8/2022		7/13/2022		8/17/2022	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring											
Field Parameters						Diss. Metals		Diss. Metals		Diss. Metals		Diss. Metals		Diss. Metals		Diss. Metals
pH	su	-	-	-	7.22	7.22	6.81	6.81	7.26	7.26	7.24	7.24	7.02	7.02	7.24	7.24
Conductivity	mS/cm	-	-	-	0.75	0.75	1.648	1.648	1.734	1.734	1.797	1.797	1.686	1.686	1.586	1.586
Turbidity	NTU	-	-	-	65.25	65.25	44.12	44.12	16.45	16.45	31.26	31.26	30.26	30.26	45.15	45.15
Dissolved Oxygen	mg/L	-	-	-	5.45	5.45	3.95	3.95	3.34	3.34	5.25	5.25	3.20	3.20	4.64	4.64
Temperature	°C	-	-	-	8.40	8.40	8.5	8.5	12	12	15.4	15.4	16.8	16.8	16.9	16.9
Oxidation Reduction Potential	mV	-	-	-	-113.50	-113.50	188.2	188.2	-35	-35	140.2	140.2	14.2	14.2	-17.9	-17.9
Part 115																
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	3.83	<0.02	2.24	<0.02	2.05	0.03	1	<0.02	1.82	0.05	1.37	0.03
Nickel	mg/L	0.021		0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.018	0.015	0.017	0.017	0.018	0.016
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	0.008	0.009	0.006	0.005	<0.005	<0.005	<0.005	0.007	<0.005	0.006	<0.005
Appendix III																
Boron	mg/L	0.48	-	0.50	0.05	0.05	0.09	0.09	0.08	0.08	0.1	0.1	0.07	0.07	0.07	0.07
Calcium	mg/L	188	-	188	185	188	157	147	149	143	149	144	147	143	157	148
Chloride	mg/L	94.3	250	250	90	-	94	-	90	-	82	-	83	-	83	-
Fluoride	mg/L	1.0	4	2.0	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
pH, Field	su	-	-	-	7.22	7.22	6.81	6.81	7.26	7.26	7.24	7.24	7.02	7.02	7.24	7.24
Sulfate	mg/L	344	250	344	344	-	308	-	283	-	254	-	250	-	256	-
Total Dissolved Solids	mg/L	1168	500	1168	1090	-	1110	-	1140	-	1080	-	1090	-	1050	-
Appendix IV																
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002	0.003	<0.002	0.004	0.002	<0.002	<0.002	0.002	<0.002	0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.069	0.059	0.074	0.068	0.07	0.064	0.064	0.064	0.067	0.06	0.064	0.06
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.02	0.018	0.021	0.018	0.023	0.021	0.025	0.022	0.022	0.019	0.019	0.018
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.013	0.011	0.024	0.024	0.023	0.024	0.019	0.018	0.017	0.017	0.014	0.014
Radium-226	pCi/L	-	-	-	0.252	-	0.783	-	1.23	-	1.9	-	0.394[J+]	-	0.398	-
Radium-228	pCi/L	-	-	-	0.948	-	2.33	-	0.237	-	0.721	-	1.23	-	1.8	-
Radium-226/228	pCi/L	5.00	5	5.00	1.200	-	3.110	-	1.46	-	2.62	-	1.63[J+]	-	2.2	-
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																
Total Suspended Solids	mg/L	-	-	-	24	-	39	-	22	-	17	-	50	-	23	-
Bicarbonate	mg/L	-	-	-	-	-	-	-	650	-	695	-	670	-	620	-
Carbonate	mg/L	-	-	-	-	-	-	-	<10	-	<10	-	<10	-	<10	-
Hardness	mg/L	-	-	-	-	-	-	-	572	-	565	-	566	-	609	-
Magnesium	mg/L	-	-	-	-	-	58.80	56.40	56.40	52.80	56.2	54.5	56.2	55.7	58.8	57.6
Potassium	mg/L	-	-	-	-	-	3.93	3.87	3.73	3.55	3.91	3.95	3.3	3.13	3.33	3.1
Sodium	mg/L	-	-	-	-	-	168.00	169.00	193.00	189.00	199	195	171	167	145	138

			Sample Location:		MW-12											
			Sample Type:		Upgradient											
			Sample Date:		9/21/2022		10/26/2022		2/9/2023		8/3/2023		1/31/2024		8/6/2024	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring				Assessment Monitoring							
Field Parameters						Diss. Metals		Diss. Metals		Diss. Metals		Diss. Metals		Diss. Metals		Diss. Metals
pH	su	-	-	-	7.38	7.38	7.05	7.05	7.13	7.13	7.10	7.10	6.92	6.92	7.06	7.06
Conductivity	mS/cm	-	-	-	1.600	1.600	1.387	1.387	1.391	1.391	1.457	1.457	1.392	1.392	1.393	1.393
Turbidity	NTU	-	-	-	46.25	46.25	26.20	26.20	17.01	17.01	10.32	10.32	16.45	16.45	35.44	35.44
Dissolved Oxygen	mg/L	-	-	-	1.95	1.96	3.57	3.57	2.95	2.95	3.41	3.41	2.15	2.15	4.52	4.52
Temperature	°C	-	-	-	15.9	15.9	11.8	11.8	11.5	11.5	16.0	16.0	8.5	8.5	15.3	15.3
Oxidation Reduction Potential	mV	-	-	-	15.2	15.2	155.8	155.8	-27.4	-27.4	122.7	122.7	-32.4	-32.4	110.7	110.7
Part 115																
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	1.25	<0.02	0.96	0.19	0.60	<0.02	0.74	<0.02	1.19	<0.02	1.18	0.22
Nickel	mg/L	0.021		0.1	0.018	0.017	0.018	0.015	0.017	0.016	0.015	0.015	0.014	0.014	0.013	0.013
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	0.008	0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III																
Boron	mg/L	0.48	-	0.50	0.08	0.08	0.08	0.08	0.07	0.07	0.06	0.06	0.07	0.06	0.07	0.07
Calcium	mg/L	188	-	188	154	148	156	136	143	141	156	151	158	152	166	158
Chloride	mg/L	94.3	250	250	80	-	78	-	71	-	70	-	69.2	-	63.7	-
Fluoride	mg/L	1.0	4	2.0	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
pH, Field	su	-	-	-	7.38	7.38	7.05	7.05	7.13	7.13	7.10	7.10	6.92	6.92	7.06	7.06
Sulfate	mg/L	344	250	344	255	-	252	-	207	-	184	-	177	-	187	-
Total Dissolved Solids	mg/L	1168	500	1168	1020	-	1020	-	948	-	928	-	916	-	946	-
Appendix IV																
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.002	<0.002	0.002	0.002	<0.002	<0.002	0.002	<0.002	0.003	<0.002	0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.064	0.058	0.057	0.052	0.058	0.054	0.052	0.049	0.052	0.049	0.049	0.044
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-		-
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.022	0.019	0.021	0.018	0.027	0.023	0.020	0.020	0.019	0.016	0.018	0.016
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.015	0.014	0.013	0.012	0.011	0.011	0.007	0.007	0.006	0.006	0.005	0.005
Radium-226	pCi/L	-	-	-	0.739	-	0.628	-	0.836	-	0.663	-	0.475	-	0.591	-
Radium-228	pCi/L	-	-	-	-0.692	-	2.11	-	2.60	-	0.731[J+]	-	0.866	-	0.644	-
Radium-226/228	pCi/L	5.00	5	5.00	0.739	-	2.74	-	3.43	-	1.39	-	1.34	-	1.24	-
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																
Total Suspended Solids	mg/L	-	-	-	43	-	16	-	9	-	8.4	-	12.0	-	15.7	-
Bicarbonate	mg/L	-	-	-	610	-	631	-	689	-	700	-	703	-	710	-
Carbonate	mg/L	-	-	-	<10	-	<10	-	<10	-	<10	-	<10	-	<10	-
Hardness	mg/L	-	-	-	611	-	618	-	575	-	628	-	658	-	678	-
Magnesium	mg/L	-	-	-	58.6	57.5	59.9	53	56.8	55.6	64.2	60.0	60.1	56.4	64.6	62.4
Potassium	mg/L	-	-	-	3.65	3.54	3.71	3.04	3.01	3.02	2.74	2.65	2.67	2.52	2.44	2.37
Sodium	mg/L	-	-	-	145	138	139	123	136	130	109	101	94.4	88.9	101	99.2

			Sample Location:		MW-12B													
			Sample Type:		Upgradient													
			Sample Date:		3/8/2022		4/14/2022	5/19/2022		6/23/2022		7/28/2022		9/1/2022		10/6/2022	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring												
Field Parameters						Field Dupe			Field Dupe		Field Dupe		Field Dupe		Field Dupe		Field Dupe
pH	su	-	-	-	8.00	8.00	7.68	7.86	7.86	7.51	7.51	7.50	7.50	7.60	7.60	7.50	7.50
Conductivity	mS/cm	-	-	-	0.72	0.72	0.611	0.61	0.61	0.601	0.601	0.602	0.602	0.600	0.600	0.593	0.593
Turbidity	NTU	-	-	-	10.2	10.2	9.89	9.72	9.72	6.89	6.89	8.35	8.35	6.70	6.70	7.15	7.15
Dissolved Oxygen	mg/L	-	-	-	3.58	3.58	0.31	0.05	0.05	0.2	0.2	0.22	0.22	0.74	0.74	0.24	0.24
Temperature	°C	-	-	-	10.8	10.8	10.1	12	12	12.8	12.8	14	14	13.0	13.0	12.7	12.7
Oxidation Reduction Potential	mV	-	-	-	100.9	100.9	-80.1	-97.8	-97.8	-73.2	-73.2	-141.0	-141.0	-124.1	-124.1	-117.2	-117.2
Part 115																	
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	$<0.005^{UJ}$	0.007^{J+}	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	3.0	0.3	3.04	0.34	0.36	0.24	0.33	0.33	0.3^{J}	0.28^{J}	0.29	0.3	0.37	0.37	0.41	0.34
Nickel	mg/L	0.011		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.042	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	$<0.005^{UJ}$	0.015^{J+}	<0.005	<0.005	<0.005	<0.005
Appendix III																	
Boron	mg/L	3.52	-	3.52	3.25^{J}	3.2	3.16	3.34	3.30	3.32	3.38	3.37	3.37	3.52	3.35	3.22	3.3
Calcium	mg/L	69.6	-	69.6	23.7	24	24	21.5	21.7	26.1	25.5	25.7	25.4	26.2	26.2	26.2	25.9
Chloride	mg/L	5.0	250	250	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	8.00	8.00	7.68	7.86	7.86	7.51	7.51	7.50	7.50	7.60	7.60	7.50	7.50
Sulfate	mg/L	5.0	250	250	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Dissolved Solids	mg/L	380	500	500	380	374	376	370	372	364	372	380	374	360	370	362	374
Appendix IV																	
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.009	0.01	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium	mg/L	0.081	2	2.0	0.025	0.025	0.026	0.027	0.026	0.026	0.025	0.023	0.024	0.028	0.028	0.027	0.026
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4	2.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.051	0.04	0.051	0.042	0.043	0.036	0.038	0.038	0.041	0.039	0.041	0.043	0.041	0.038	0.039	0.042
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.011	0.1	0.100	<0.005	<0.005	<0.005	0.011^{J+}	0.005^{J-}	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.480^{J+}	0.302^{J-}	0.264	0.611	0.657	1.00^{J-}	1.89^{J+}	0.581^{J-}	2.17^{J+}	0.398	0.519	0.370^{J-}	0.615^{J+}
Radium-228	pCi/L	-	-	-	0.275^{J-}	1.03^{J+}	0.116	0.421^{J-}	1.10^{J+}	0.209^{J-}	1.47^{J+}	-0.356^{J+}	-1.12^{J}	-0.204^{J-}	1.34^{J+}	1.26^{J+}	0.165^{J-}
Radium-226/228	pCi/L	4.42	5.00	5.00	0.755^{J-}	1.33^{J+}	0.38	1.03^{J-}	1.76^{J+}	1.21^{J-}	3.37^{J+}	0.581^{J}	2.17^{J+}	0.398^{J-}	1.86^{J+}	1.63^{J+}	0.779^{J-}
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																	
Total Suspended Solids	mg/L	-	-	-	28	31	3^{U}	7	7	5	<3	<3	<3	$<3^{UJ}$	3^{J+}	1^{U}	<3
Bicarbonate	mg/L	-	-	-	390	400	410	410	420	400	390	410	420	400	400	400	400
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	96	83	99	93	96	94	97	90	90	91	95	100	90
Magnesium	mg/L	-	-	-	7.5	7.36	8.12	6.63	6.68	8.31	8.14	8.22	8.02	8.33	8.65	8.39	8.33
Potassium	mg/L	-	-	-	8.99	8.61	8.26	6.93	7.07	8.27	8.15	8.28	8.07	8.18	8.36	8.32	8.14
Sodium	mg/L	-	-	-	116	117	109	90.9	92.4	111	107	107	107	113	115	112	109

			Sample Location:		MW-12B						
			Sample Type:		Upgradient						
			Sample Date:		11/10/2022		2/9/2023	8/3/2023		1/31/2024	8/6/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring		Assessment Monitoring				
Field Parameters						Field Dupe			Field Dup		
pH	su	-	-	-	7.61	7.61	7.71	7.52	7.52	7.59	7.67
Conductivity	mS/cm	-	-	-	0.591	0.591	0.587	0.582	0.582	0.59	0.587
Turbidity	NTU	-	-	-	6.35	6.35	8.18	2.25	2.25	1.99	0.71
Dissolved Oxygen	mg/L	-	-	-	0.18	0.18	0.29	0.13	0.13	0.04	0.4
Temperature	°C	-	-	-	13.1	13.1	10.9	15.1	15.1	9.8	14.5
Oxidation Reduction Potential	mV	-	-	-	-100.3	-100.3	-107.5	-113.5	-113.5	-193.1	-86.7
Part 115											
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	3.0	0.3	3.04	0.31	0.30	0.22	0.26	0.25	0.20	0.30
Nickel	mg/L	0.011		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.042	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III											
Boron	mg/L	3.52	-	3.52	3.35	3.19	3.33	3.33	3.38	3.29	3.22
Calcium	mg/L	69.6	-	69.6	25.7	26.2	26.3	25.8	25.9	26.3	25.2
Chloride	mg/L	5.0	250	250	<5	<5	<5	<5	<5	2.0	1.5
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.4	0.5
pH, Field	su	-	-	-	7.61	7.61	7.71	7.52	7.52	7.59	7.67
Sulfate	mg/L	5.0	250	250	<5	<5	<5	<5	<5	0.8	<5.0
Total Dissolved Solids	mg/L	380	500	500	358	356	356	364	362	366	370
Appendix IV											
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.009	0.01	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium	mg/L	0.081	2	2.0	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4	2.00	<1.0	<1.0	<1.0	<1.0	<1.0	0.4	0.5
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.051	0.04	0.051	0.04	0.037	0.043	0.040	0.041	0.041	0.039
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.011	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.608	0.619	0.831	1.13[J-]	0.880J+	0.458	0.811
Radium-228	pCi/L	-	-	-	0.638	0.282	3.31	0.848[J-]	2.68J+	0.845	1.83
Radium-226/228	pCi/L	4.42	5.00	5.00	1.25	0.901	4.14	1.98[J-]	3.56J+	1.30	2.64
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other											
Total Suspended Solids	mg/L	-	-	-	<3	<3	<3	1.1	1.2	<3	1.7
Bicarbonate	mg/L	-	-	-	390	390	417	360	390	424	400
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	96	96	98	92	110	653	107
Magnesium	mg/L	-	-	-	8.2	8.15	8.61	8.48	8.52	8.01	8.16
Potassium	mg/L	-	-	-	8.19	8.15	7.88	8.19	8.15	8.19	8.16
Sodium	mg/L	-	-	-	109	110	112	117	114	106	108.971

			Sample Location:		MW-13											
			Sample Type:		Downgradient											
			Sample Date:		2/23/2022	3/30/2022	5/4/2022	5/4/2022	6/8/2022	7/13/2022	8/17/2022	9/21/2022	10/26/2022	2/8/2023	8/2/2023	1/30/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring									Assessment Monitoring		
Field Parameters								Field Dupe								
pH	su	-	-	-	6.91	6.75	7.01	7.01	7.07	7.06	7.22	7.25	7.11	7.04	6.39	6.98
Conductivity	mS/cm	-	-	-	0.78	0.73	0.549	0.549	0.585	0.661	0.595	0.635	0.624	0.672	0.777	0.887
Turbidity	NTU	-	-	-	7.11	7.90	4.15	4.15	6.50	1.79	3.55	4.24	3.75	6.01	0.3	5.73
Dissolved Oxygen	mg/L	-	-	-	1.31	2.61	6.23	6.23	5.42	6.21	4.94	3.83	2.39	0.65	4.69	0.13
Temperature	°C	-	-	-	5.8	6.9	8.5	8.5	12.2	14.5	17.5	17.4	13.8	8.4	16.1	6.3
Oxidation Reduction Potential	mV	-	-	-	163.0	151.8	96.4	96.4	101.6	66.9	89.1	84.8	216.8	61.2	-48.6	-159.2
Part 115																
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	0.04	0.02	<0.02	0.02	0.08	0.03	0.02	0.03	0.04	0.06	0.16	1.03
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III																
Boron	mg/L	0.48	-	0.50	0.16	0.14	0.14	0.14	0.18	0.18	0.17	0.20	0.22	0.18	0.17	0.15
Calcium	mg/L	188	-	188	138	128.00	95.80	97.60	96.1	107	94.1	100	101	132	124	157
Chloride	mg/L	94.3	250	250	<5	<5	9.00	9.00	13	16	16	20	32	43	45	25.3
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	6.91	6.75	7.01	7.01	7.07	7.06	7.22	7.25	7.11	7.04	6.39	6.98
Sulfate	mg/L	344	250	344	32	45	16	16	17	55	33	30	22	37	87	122
Total Dissolved Solids	mg/L	1168	500	1168	478	430	336	342	354	396	380	384	386	476	492	638
Appendix IV																
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.004	0.008
Barium	mg/L	0.168	2.0	2.0	0.030	0.03	0.02	0.02	0.023	0.027	0.029	0.027	0.028	0.028	0.034	0.038
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.300	0.755	0.322 J+	0.149 J-	0.657	0.291 J+	0.402	0.286	0.392	0.000	0.070	0.937
Radium-228	pCi/L	-	-	-	-0.842	1.320	0.0544 J	0.893 J+	1.66	1.35	0.00710	-0.0026	0.291	0.188	-0.6698	1.05
Radium-226/228	pCi/L	5.00	5	5.00	0.300	2.080	0.376 J-	1.04 J+	2.31	1.64 J+	0.410	0.286	0.683	0.188	0.070	1.99
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																
Total Suspended Solids	mg/L	-	-	-	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Bicarbonate	mg/L	-	-	-	-	-	340	330	349	330	320	340	351	437	330	496
Carbonate	mg/L	-	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	-	-	309	308	310	353	312	333	358	444	428	550
Magnesium	mg/L	-	-	-	-	26.30	19.70	20.10	20.7	23.1	20.6	21.9	23.0	29.0	26.9	35.9
Potassium	mg/L	-	-	-	-	0.75	0.69	0.70	0.83	0.779	0.78	0.82	0.81	0.76	0.94	1.00
Sodium	mg/L	-	-	-	-	3.05	2.45	2.51	2.59	5.59	4.60	5.70	4.99	4.68	8.34	13.2

			Sample Location:		MW-13
			Sample Type:		Downgradie
			Sample Date:		8/7/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Assessment Monitoring
Field Parameters					
pH	su	-	-	-	6.76
Conductivity	mS/cm	-	-	-	0.91
Turbidity	NTU	-	-	-	6.55
Dissolved Oxygen	mg/L	-	-	-	0.4
Temperature	°C	-	-	-	16.5
Oxidation Reduction Potential	mV	-	-	-	-64.5
Part 115					
Copper	mg/L	0.005	1.3	1.00	<0.005
Iron	mg/L	23.5	0.3	23.5	0.94
Nickel	mg/L	0.021		0.1	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005
Zinc	mg/L	0.036	5	5	<0.005
Appendix III					
Boron	mg/L	0.48	-	0.50	0.17
Calcium	mg/L	188	-	188	158
Chloride	mg/L	94.3	250	250	20.7
Fluoride	mg/L	1.0	4	2.0	<1.0
pH, Field	su	-	-	-	6.76
Sulfate	mg/L	344	250	344	174
Total Dissolved Solids	mg/L	1168	500	1168	642
Appendix IV					
Antimony	mg/L	0.005	0.006	0.006	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.007
Barium	mg/L	0.168	2.0	2.0	0.044
Beryllium	mg/L	0.001	0.004	0.004	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003
Lithium	mg/L	0.0396	0.040	0.040	<0.005
Mercury	mg/L	0.0002	0.002	0.002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	<0.005
Radium-226	pCi/L	-	-	-	0.607
Radium-228	pCi/L	-	-	-	1.38
Radium-226/228	pCi/L	5.00	5	5.00	1.99
Selenium	mg/L	0.005	0.05	0.050	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002
Other					
Total Suspended Solids	mg/L	-	-	-	1.4
Bicarbonate	mg/L	-	-	-	390
Carbonate	mg/L	-	-	-	<10
Hardness	mg/L	-	-	-	524
Magnesium	mg/L	-	-	-	32.4
Potassium	mg/L	-	-	-	0.76
Sodium	mg/L	-	-	-	13.4

			Sample Location:		MW-14											
			Sample Type:		Downgradient											
			Sample Date:		1/12/2023		2/17/2023		3/24/2023		4/28/2023		6/2/2023		7/7/2023	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring											
Field Parameters						Field Dup		Field Dup		Field Dup		Field Dup		Field Dup		Field Dup
pH	su	-	-	-	7.04	7.04	7.11	7.11	6.98	6.98	7.13	7.13	7.00	7.00	7.06	7.06
Conductivity	mS/cm	-	-	-	1.27	1.27	1.091	1.091	1.295	1.295	1.323	1.323	1.307	1.307	1.285	1.285
Turbidity	NTU	-	-	-	6.31	6.31	5.34	5.34	3.95	3.95	4.05	4.05	5.42	5.42	3.24	3.24
Dissolved Oxygen	mg/L	-	-	-	0.45	0.45	0.39	0.39	0.07	0.07	0.09	0.09	0.21	0.21	0.06	0.06
Temperature	°C	-	-	-	10.9	10.9	10.1	10.1	10.5	10.5	10.3	10.3	13.3	13.3	13.7	13.7
Oxidation Reduction Potential	mV	-	-	-	-105.6	-105.6	-89.4	-89.4	-104.3	-104.3	-124.8	-124.8	-114.2	-114.2	-96.5	-96.5
Part 115																
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	6.58	6.78	9.46	9.35	10.2	10.4	11.2	11.2^{J}	11.5	11.8	11.4	11.5^{J}
Nickel	mg/L	0.021		0.1	0.006	0.007	0.005^{J+}	<0.005^{UJ}	<0.005UJ	0.005J+	<0.005	<0.005	<0.005	<0.005	<0.005^{UJ}	0.005^{J+}
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005^{UJ}	0.005^{J+}
Zinc	mg/L	0.036	5	5	<0.005^{UJ}	0.007J+	<0.005	<0.005	<0.005UJ	0.013J+	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III																
Boron	mg/L	0.48	-	0.50	2.29	2.32	2.23	2.20	2.11	2.20	2.03	2.06	2.06	2.02	2.16	2.14
Calcium	mg/L	188	-	188	147	149	144	144	144	148	143	140^{J}	141	141	148	148
Chloride	mg/L	94.3	250	250	108	109	111	112	114	114	115	115	114	114	113	114
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	7.04	7.04	7.11	7.11	6.98	6.98	7.13	7.13	7.00	7.00	7.06	7.06
Sulfate	mg/L	344	250	344	30	30	22	21	748	748	17	16	19	19	20	19
Total Dissolved Solids	mg/L	1168	500	1168	774	768	732	716	<0.005	<0.005	796	782	792	784	784	774
Appendix IV																
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.004	0.004	0.006	0.005	0.005	0.006	0.006	0.005	0.005	0.006	0.007	0.008
Barium	mg/L	0.168	2.0	2.0	0.177	0.122	0.119	0.116	0.128	0.126	0.120	0.119	0.126	0.128	0.134	0.131
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.125	0.132	0.122	0.126	0.113	0.113	0.111	0.111	0.106	0.106	0.108	0.106
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.012	0.013	0.015	0.014	0.014	0.014	0.013	0.012	0.014	0.015	0.016	0.016
Radium-226	pCi/L	-	-	-	0.907	0.322	0.396	0.363	0.964^{J+}	0.321^{J-}	0.260^{J-}	1.27^{J+}	0.275	0.271	0.388	0.244
Radium-228	pCi/L	-	-	-	3.53	3.07	0.272^{J-}	1.07^{J+}	0.853	1.10	1.20^{J+}	0.807^{J+}	0.601^{J-}	0.983^{J+}	0.0761^{J-}	0.915^{J+}
Radium-226/228	pCi/L	5.00	5	5.00	4.44	3.39	0.668^{J-}	1.43^{J+}	1.82	1.41	1.46^{J}	2.08^{J+}	0.876^{J-}	1.25^{J+}	0.464^{J-}	1.16^{J+}
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	0.009	0.013	0.012
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																
Total Suspended Solids	mg/L	-	-	-	16	16	4^{J-}	7^{J+}	22.2	22.0	23.4	24.3	26.0	26.0	24.8	26.3
Bicarbonate	mg/L	-	-	-	600	610	601	606	650	650	660	670	630	630	640	650
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	556	554	498	506	536	548	566	562	540	550	536	548
Magnesium	mg/L	-	-	-	42.3	42.2	41.3	41.2	40.3	42.1	39.7	38.5	40.0	39.5	41.9	41.0
Potassium	mg/L	-	-	-	4.79	4.76	5.82	5.81	4.72	4.82	4.55	4.43	4.65	4.72	5.03	5.08
Sodium	mg/L	-	-	-	79.2	80.4	78.3	77.9	75.8	77.3	72.5	70.9	73.7	73.9	79.0	77.0

			Sample Location:		MW-14					
			Sample Type:		Downgradient					
			Sample Date:		8/11/2023		9/15/2023		1/31/2024	8/5/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring				Assessment Monitoring	
Field Parameters						Field Dup		Field Dup		
pH	su	-	-	-	6.95	6.95	6.92	6.92	6.95	7.04
Conductivity	mS/cm	-	-	-	1.285	1.285	1.277	1.277	1.358	1.324
Turbidity	NTU	-	-	-	3.10	3.1	6.35	6.35	1.74	6.94
Dissolved Oxygen	mg/L	-	-	-	0.02	0.02	0.00	0	0.18	0.62
Temperature	°C	-	-	-	14.1	14.1	13.5	13.5	10.6	18
Oxidation Reduction Potential	mV	-	-	-	-116.2	-116.2	-127.9	-127.9	-175.1	-109.4
Part 115										
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	12.9	12.7	11.9	11.7	14.7	14.4
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	0.005	0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	0.024	<0.005
Appendix III										
Boron	mg/L	0.48	-	0.50	2.14	2.10	2.17	2.13	2.22	1.96
Calcium	mg/L	188	-	188	147	149	154	155	161	173
Chloride	mg/L	94.3	250	250	118	118	111	110	119	115
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	6.95	6.95	6.92	6.92	6.95	7.04
Sulfate	mg/L	344	250	344	16	16	16	16	8.5	5.9
Total Dissolved Solids	mg/L	1168	500	1168	804	804	808	824	818	866
Appendix IV										
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.007	0.007	0.008	0.007	0.008	0.006
Barium	mg/L	0.168	2.0	2.0	0.122	0.124	0.132	0.138	0.131	0.131
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.111	0.109	0.109	0.112	0.109	0.102
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.013	0.014	0.014	0.014	0.012	0.012
Radium-226	pCi/L	-	-	-	0.624	0.465	0.442[J]	1.06[J+]	0.160	5.03
Radium-228	pCi/L	-	-	-	0.326[J+]	0.147[J-]	0.497[J]	0.821[J+]	0.833	1.84
Radium-226/228	pCi/L	5.00	5	5.00	0.951[J+]	0.612[J-]	0.939[J]	1.88[J+]	0.994	6.88
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other										
Total Suspended Solids	mg/L	-	-	-	25.9	26.6	24.8	25.4	27.6	30.3
Bicarbonate	mg/L	-	-	-	690	680	670	660	850	770
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<50	<10
Hardness	mg/L	-	-	-	588	630	574	584	610	610
Magnesium	mg/L	-	-	-	42.2	42.1	42.1	43.8	44.1	46.4
Potassium	mg/L	-	-	-	4.96	5.07	5.43	5.58	5.71	5.38
Sodium	mg/L	-	-	-	77.8	78.3	79.4	80.4	77.4	78.5

			Sample Location:		MW-15									
			Sample Type:		Downgradient									
			Sample Date:		1/12/2023	2/17/23	3/24/23	4/28/2023	6/2/2023	7/7/2023	8/11/2023	9/15/2023	1/31/2024	8/7/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring								Assessment Monitoring	
Field Parameters														
pH	su	-	-	-	6.86	6.98	6.90	6.99	6.84	6.83	6.70	6.69	6.70	6.68
Conductivity	mS/cm	-	-	-	1.319	0.872	0.912	0.851	0.879	0.945	1.007	1.021	0.451	0.893
Turbidity	NTU	-	-	-	2.4	5.15	4.15	4.84	6.51	5.75	3.33	5.64	7.52	4.23
Dissolved Oxygen	mg/L	-	-	-	5.41	4.81	3.72	2.48	0.89	0.38	0.87	0.67	0.22	0.01
Temperature	°C	-	-	-	7.9	7.5	7.3	8.4	13.0	13.3	14.5	14.6	8.1	15.9
Oxidation Reduction Potential	mV	-	-	-	195.6	153.9	59.8	133.9	113.8	11.3	30.8	44.2	-153.9	1.1
Part 115														
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	<0.02	0.04	0.02	0.03	0.11	0.11	0.05	0.14	0.12	0.38
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	0.021	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III														
Boron	mg/L	0.48	-	0.50	0.37	0.34	0.33	0.34	0.35	0.40	0.41	0.44	0.39	0.41
Calcium	mg/L	188	-	188	183	140	119	104	115	133	140	145	131	131
Chloride	mg/L	94.3	250	250	100	84	72	60	59	65	73	78	69.3	74.7
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
pH, Field	su	-	-	-	6.86	6.98	6.90	6.99	6.84	6.83	6.70	6.69	6.70	6.68
Sulfate	mg/L	344	250	344	238	135	124	109	109	117	117	109	95.0	49.7
Total Dissolved Solids	mg/L	1168	500	1168	878	606	690	528	578	638	670	680	604	554
Appendix IV														
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.077	0.050	0.047	0.042	0.049	0.061	0.067	0.069	0.055	0.058
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.629	0.334	0.868	0.464	0.876	0.525	0.750	0.491	0.310	0.425
Radium-228	pCi/L	-	-	-	1.43	-0.367	-0.188	1.51 J+	-0.108	-0.119	0.470	1.46	0.00555	0.495
Radium-226/228	pCi/L	5.00	5	5.00	2.06	0.334	0.868	1.97 J+	0.876	0.525	1.22	1.95	0.316	0.921
Selenium	mg/L	0.005	0.05	0.050	0.01	0.026	0.034	0.021	0.011	0.009	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other														
Total Suspended Solids	mg/L	-	-	-	<3	<3	<3	<3	1.8	1.6	<3	<3	<3	0.8
Bicarbonate	mg/L	-	-	-	410	354	330	330	350	380	430	440	433	430
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	464	473	426	406	420	460	512	506	484	442
Magnesium	mg/L	-	-	-	47.2	35.1	31.1	25.7	28.9	32.2	34.2	34.2	31.6	31.4
Potassium	mg/L	-	-	-	0.61	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Sodium	mg/L	-	-	-	40.5	30.3	29.5	28.3	27.4	28.5	29.7	38.8	30.4	29.4

			Sample Location:		MW-16A											
			Sample Type:		Downgradient											
			Sample Date:		2/2/2023		3/21/2023		4/25/2023		5/30/2023		7/5/2023		8/8/2023	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring											
Field Parameters						Field Dup		Field Dup		Field Dup		Field Dup		Field Dup		Field Dup
pH	su	-	-	-	6.95	6.95	6.91	6.91	7.00	7.00	6.72	6.72	6.79	6.79	6.84	6.84
Conductivity	mS/cm	-	-	-	2.219	2.219	1.871	1.871	1.948	1.948	1.875	1.875	2.163	2.163	2.271	2.271
Turbidity	NTU	-	-	-	3.06	3.06	4.15	4.15	6.54	6.54	4.01	4.01	6.18	6.18	3.81	3.81
Dissolved Oxygen	mg/L	-	-	-	0.22	0.22	0.20	0.20	0.10	0.10	0.05	0.05	0.43	0.43	0.07	0.07
Temperature	°C	-	-	-	7.3	7.3	8.6	8.6	8.3	8.3	12.5	12.5	15.6	15.6	16.5	16.5
Oxidation Reduction Potential	mV	-	-	-	-51.0	-51.0	-48.6	-48.6	-65.2	-65.2	-49.9	-49.9	-102.3	-102.3	-67.3	-67.3
Part 115																
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	3.71	3.70	3.15	3.14	2.96	2.99	2.59	2.52	2.69	2.72	2.63	2.54
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III																
Boron	mg/L	0.48	-	0.50	0.21	0.21	0.11	0.11	0.10	0.10	0.10	0.11	0.11	0.11	0.16	0.17
Calcium	mg/L	188	-	188	179	176	147	150	145	148	172	171	173	174	172	167
Chloride	mg/L	94.3	250	250	383	383	405	411	391	397	401	400	436	439	423	442
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0
pH, Field	su	-	-	-	6.95	6.95	6.91	6.91	7.00	7.00	6.72	6.72	6.79	6.79	6.84	6.84
Sulfate	mg/L	344	250	344	145	146	86	85	92	92	132	132	151	154	131	130
Total Dissolved Solids	mg/L	1168	500	1168	1360	1350	1180	1180	1170	1170	1260	1270	1370	1340	1390	1390
Appendix IV																
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.003	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.003	0.004	0.004	0.004
Barium	mg/L	0.168	2.0	2.0	0.160	0.156	0.118	0.119	0.108	0.111	0.126	0.121	0.136	0.138	0.132	0.135
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.005^{J+}	<0.005^{UJ}	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.385	0.325	0.510^{J-}	1.22^{J+}	0.781	0.721	0.585^{J+}	0.261^{J-}	6.13^{J+}	1.17^{J-}	0.232^{J-}	1.18^{J+}
Radium-228	pCi/L	-	-	-	0.178^{J+}	-0.723^{J-}	0.698	0.907	1.59^{J+}	-2.75^{J}	-0.313^{J-}	4.94^{J+}	1.33^{J+}	-0.181^{UJ}	0.945	1.01
Radium-226/228	pCi/L	5.00	5	5.00	0.562^{J}	0.325^{J}	1.21^{J-}	2.13^{J+}	2.37^{J+}	0.721^{J}	0.585^{J-}	5.20^{J+}	7.46^{J+}	1.17^{J-}	1.18^{J-}	2.19^{J+}
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other																
Total Suspended Solids	mg/L	-	-	-	7	7	<3	<3	2.0	1.6	5.7	5.2	2.5^{J}	2.0^{J}	2.1^{J+}	1.2^{J-}
Bicarbonate	mg/L	-	-	-	610	620	460	470	420	420	440	430	460	470	510	500
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	608	605	524	522	526	519	570	576	598	600	578	568
Magnesium	mg/L	-	-	-	42.4	42.3	33.9	34.1	33.2	34.4	37.2	36.6	39.9	38.5	38.5	38.7
Potassium	mg/L	-	-	-	2.12	2.06	1.58	1.58	1.34	1.45	1.16	1.04	1.24	1.23	1.25	1.21
Sodium	mg/L	-	-	-	276	281	244	247	229	243	241	240	253	258	279	262

			Sample Location:		MW-16A							
			Sample Type:		Downgradient							
			Sample Date:		9/12/2023		10/17/2023		11/21/2023		2/1/2024	8/6/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring						Assessment Monitoring	
Field Parameters						Field Dup		Field Dup		Field Dup		
pH	su	-	-	-	6.76	6.76	6.78	6.78	6.82	6.82	6.99	6.81
Conductivity	mS/cm	-	-	-	2.579	2.579	2.599	2.599	2.44	2.44	2.606	2.37
Turbidity	NTU	-	-	-	5.28	5.28	6.41	6.41	4.39	4.39	5.41	5.44
Dissolved Oxygen	mg/L	-	-	-	0.34	0.34	0.01	0.01	0.01	0.01	0.12	0.03
Temperature	°C	-	-	-	16.8	16.8	15.8	15.8	13.6	13.6	9.2	16.2
Oxidation Reduction Potential	mV	-	-	-	-59.8	-59.8	-3.1	-3.1	-43.9	-43.9	-42.4	-39.6
Part 115												
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	4.13	4.11	3.78	3.81	3.08	3.04	4.38	3.04
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III												
Boron	mg/L	0.48	-	0.50	0.23	0.22	0.21	0.21	0.19	0.20	0.16	0.25
Calcium	mg/L	188	-	188	220	219	226	226	210	211	208	196
Chloride	mg/L	94.3	250	250	484	493	505	505	459	455	448	492
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0
pH, Field	su	-	-	-	6.76	6.76	6.78	6.78	6.82	6.82	6.99	6.81
Sulfate	mg/L	344	250	344	239	250	257	257	264	257	341	235
Total Dissolved Solids	mg/L	1168	500	1168	1640	1630	1720	1730	1580	1590	1590	1560
Appendix IV												
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.003	0.004	0.004	0.004	0.004	0.003	0.005	0.003
Barium	mg/L	0.168	2.0	2.0	0.178	0.172	0.177	0.181	0.163	0.166	0.158	0.146
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.421 J-	1.06 J+	0.892	0.682	2.26	1.78	1.63	0.413
Radium-228	pCi/L	-	-	-	0.285 J-	1.05 J+	2.26	2.85	0.548 J-	1.23 J+	2.12	0.189
Radium-226/228	pCi/L	5.00	5	5.00	0.705 J-	2.10 J+	3.15	3.53	2.80	3.01	3.74	0.602
Selenium	mg/L	0.005	0.05	0.050	0.005 J+	<0.005 UJ	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other												
Total Suspended Solids	mg/L	-	-	-	3.5	3.9	4.5	4.5	1.2 J+	<3 UJ	6.5	1.7
Bicarbonate	mg/L	-	-	-	520	520	520	510	510	510	588	530
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<50	<10
Hardness	mg/L	-	-	-	840	860	732	724	754	766	756	698
Magnesium	mg/L	-	-	-	52.2	52.2	51.1	51.7	52.4	52.1	46.9	46.3
Potassium	mg/L	-	-	-	1.40	1.44	1.45	1.40	1.49	1.49	1.57	1.72
Sodium	mg/L	-	-	-	307	308	324	322	312	294	277	297

			Sample Location:		MW-16B										
			Sample Type:		Downgradient										
			Sample Date:		2/2/2023	3/21/2023	4/25/2023	5/30/2023	7/5/2023	8/8/2023	9/12/2023	10/17/2023	11/21/2023	2/1/2024	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring									Assessment Monitoring	
Field Parameters															Field Dup
pH	su	-	-	-	7.49	7.45	7.50	7.25	7.34	7.42	7.32	7.46	7.47	7.56	7.56
Conductivity	mS/cm	-	-	-	0.623	0.587	0.619	0.578	0.613	0.635	0.590	0.634	0.625	0.615	0.615
Turbidity	NTU	-	-	-	7.42	5.65	6.29	3.94	4.41	4.32	0.44	1.32	6.34	6.45	6.45
Dissolved Oxygen	mg/L	-	-	-	0.18	0.12	0.11	0.09	0.37	0.05	0.00	0.01	0.00	0.08	0.08
Temperature	°C	-	-	-	9.2	12.0	11.1	14.4	15.8	15.6	14.5	13.6	13	11.8	11.8
Oxidation Reduction Potential	mV	-	-	-	-125.7	-107.0	-102.1	-104.2	-130.4	-101.2	-136.1	-63.3	-127.7	-88.2	-88.2
Part 115															
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	0.93	0.62	0.51	0.67	0.43	0.42	0.41	0.45	0.39	0.33	0.32
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III															
Boron	mg/L	0.48	-	0.50	0.12	0.13	0.12	0.13	0.11	0.12	0.11	0.11	0.12	0.11	0.12
Calcium	mg/L	188	-	188	74.5	76.9	78.4	79.5	80.8	81.7	80.2	85.4	83.9	81.8	79.9
Chloride	mg/L	94.3	250	250	<5	11	5	<5	<5	3.7	<5	<5	3.1	4.1	4.0
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.31	<1.0	<1.0	0.58	0.7	0.7
pH, Field	su	-	-	-	7.49	7.45	7.50	7.25	7.34	7.42	7.32	7.46	7.46	7.56	7.56
Sulfate	mg/L	344	250	344	18	16	16	15	17	17	18	18	17.8	17.4	17.4
Total Dissolved Solids	mg/L	1168	500	1168	366	366	350	358	366	366	366	378	370	364	366
Appendix IV															
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.09	0.085	0.085	0.082	0.089	0.085	0.086	0.089	0.091	0.089	0.087
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.31	<1.0	<1.0	<1.0	0.7	0.7
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.023	0.023	0.022	0.022	0.019	0.022	0.021	0.020	0.021	0.020	0.021
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.008	0.006	0.006	0.005	0.006	0.006	0.006	0.007	0.006	0.006	0.006
Radium-226	pCi/L	-	-	-	0.997	0.761	0.490	0.160	3.03	0.391	1.31	1.56	0.804	1.32[J+]	0.608[J-]
Radium-228	pCi/L	-	-	-	0.829	1.79	1.30[J+]	1.81	1.07	0.644	1.09	4.87	0.831	0.767[J+]	0.495[J-]
Radium-226/228	pCi/L	5.00	5	5.00	1.83	2.56	1.79[J+]	1.97	4.09	1.04	2.40	6.43	1.63	2.09[J+]	1.10[J-]
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other															
Total Suspended Solids	mg/L	-	-	-	7	<3	1.4	2.4	1.0	<3	<3	<3	<3	1.0	<3
Bicarbonate	mg/L	-	-	-	390	400	400	420	410	410	400	400	400	414	422
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	322	329	335	324	334	344	380	348	355	358	377
Magnesium	mg/L	-	-	-	29.7	32.7	33.3	32.6	35.6	35.0	33.4	34.5	36.4	32.4	32.1
Potassium	mg/L	-	-	-	3.81	3.17	3.00	2.89	2.97	2.91	2.86	2.80	3.02	2.90	2.90
Sodium	mg/L	-	-	-	24.5	15.5	12.6	12.2	11.1	11.1	10.6	11.1	11.0	10.3	10.3

			Sample Location:		MW-16B	
			Sample Type:		Downgradient	
			Sample Date:		8/6/24	
Constituent	Unit	BTVs	MCL	State Program GPS	Assessment Monitoring	
Field Parameters						Field Dup
pH	su	-	-	-	7.41	7.41
Conductivity	mS/cm	-	-	-	0.604	0.604
Turbidity	NTU	-	-	-	9.34	9.34
Dissolved Oxygen	mg/L	-	-	-	0.03	0.03
Temperature	°C	-	-	-	14.8	14.8
Oxidation Reduction Potential	mV	-	-	-	-87.7	-87.7
Part 115						
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	0.39	0.39
Nickel	mg/L	0.021		0.1	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005
Appendix III						
Boron	mg/L	0.48	-	0.50	0.11	0.11
Calcium	mg/L	188	-	188	84.5	84.5
Chloride	mg/L	94.3	250	250	3.5	3.7
Fluoride	mg/L	1.0	4	2.0	0.8	0.8
pH, Field	su	-	-	-	7.41	7.41
Sulfate	mg/L	344	250	344	19.9	20.6
Total Dissolved Solids	mg/L	1168	500	1168	376	368
Appendix IV						
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	<0.002	<0.002
Barium	mg/L	0.168	2.0	2.0	0.085	0.084
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	0.8	0.8
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.020	0.021
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.006	0.006
Radium-226	pCi/L	-	-	-	0.591	0.508
Radium-228	pCi/L	-	-	-	1.32[J+]	0.491[J-]
Radium-226/228	pCi/L	5.00	5	5.00	1.91[J+]	0.998[J-]
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002
Other						
Total Suspended Solids	mg/L	-	-	-	0.6	1.1
Bicarbonate	mg/L	-	-	-	420	440
Carbonate	mg/L	-	-	-	<10	<10
Hardness	mg/L	-	-	-	352	350
Magnesium	mg/L	-	-	-	34.6	35.0
Potassium	mg/L	-	-	-	2.86	2.90
Sodium	mg/L	-	-	-	10.7	10.8

			Sample Location:		MW-16C										
			Sample Type:		Downgradient										
			Sample Date:		2/2/2023	3/21/2023	4/25/2023	5/30/2023	7/5/2023	8/8/2023	9/12/2023	10/17/2023	11/21/2023	2/1/2024	8/6/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring									Assessment Monitoring	
Field Parameters															
pH	su	-	-	-	7.44	7.46	7.41	7.17	7.18	7.25	7.25	7.36	7.36	7.46	7.22
Conductivity	mS/cm	-	-	-	0.601	0.575	0.585	0.529	0.580	0.590	0.562	0.592	0.586	0.565	0.557
Turbidity	NTU	-	-	-	34.25	7.24	6.41	2.58	1.81	0.45	1.02	4.01	6.01	6.15	6.29
Dissolved Oxygen	mg/L	-	-	-	0.10	0.17	0.12	0.02	0.36	0.04	0.00	0.00	0.00	0.07	0.26
Temperature	°C	-	-	-	9.9	11.9	11.0	14.2	1.1	14.8	14.3	13.7	13.2	11.6	14.9
Oxidation Reduction Potential	mV	-	-	-	-62.2	-103.8	-97.3	-89.0	-126.5	-108.1	-139.6	-92.6	-145.6	-93.4	-42.2
Part 115															
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	3.0	0.3	3.04	0.76	1.10	0.64	0.61	0.51	0.48	0.48	0.47	0.45	0.46	0.45
Nickel	mg/L	0.011		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.042	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III															
Boron	mg/L	3.52	-	3.52	0.40	0.40	0.39	0.40	0.39	0.41	0.40	0.40	0.43	0.42	0.41
Calcium	mg/L	69.6	-	69.6	63.2	62.1	66.5	70.5	73.4	73.9	71.7	77.1	76.8	72.6	77.2
Chloride	mg/L	5.0	250	250	8	<5	<5	<5	<5	2.5	<5	<5	2.2	2.3	1.8
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	0.20	0.2	0.4
pH, Field	su	-	-	-	7.44	7.46	7.41	7.17	7.18	7.25	7.25	7.36	7.36	7.46	7.22
Sulfate	mg/L	5.0	250	250	19	8	7	7	8	7.2	8	8	7.90	7.5	9.9
Total Dissolved Solids	mg/L	380	500	500	418	370	330	344	320	322	334	332	340	328	332
Appendix IV															
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.009	0.01	0.01	0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002
Barium	mg/L	0.081	2	2.0	0.051	0.061	0.050	0.041	0.035	0.032	0.033	0.031	0.030	0.031	0.027
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4	2.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	0.20	0.2	0.4
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.051	0.04	0.051	0.030	0.026	0.027	0.026	0.026	0.029	0.027	0.026	0.029	0.029	0.029
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.011	0.1	0.100	0.007	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.230	0.509	0.478	0.255	1.14	0.450	0.30	0.101	0.821	1.46	0.978
Radium-228	pCi/L	-	-	-	0.0142	3.09	-0.309[J+]	-0.804	1.39	1.14	0.492	2.16	0.480	0.845	0.285
Radium-226/228	pCi/L	4.42	5.00	5.00	0.244	3.60	0.478[J+]	0.225	2.52	1.59	0.796	2.26	1.30	2.30	1.26
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other															
Total Suspended Solids	mg/L	-	-	-	40	11.6	1.6	5.8	1.2	<3	1.1	1.4	<3	<3	0.5
Bicarbonate	mg/L	-	-	-	370	400	400	470	410	400	400	410	390	414	400
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	263	253	272	292	293	298	310	304	318	305	308
Magnesium	mg/L	-	-	-	24.4	25.6	27.3	27.0	29.9	31.1	29.9	30.5	31.4	27.9	30.0
Potassium	mg/L	-	-	-	3.72	3.56	3.97	4.08	4.86	4.65	4.93	4.75	5.11	4.93	5.08
Sodium	mg/L	-	-	-	39.4	41.4	28.5	25.4	17.2	15.6	15.7	15.7	15.7	15.8	12.5

			Sample Location:		MW-16D										
			Sample Type:		Downgradient										
			Sample Date:		2/2/2023	3/21/2023	4/25/2023	5/30/2023	7/5/2023	8/8/2023	9/12/2023	10/17/2023	11/21/2023	2/1/2024	8/6/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring									Assessment Monitoring	
Field Parameters															
pH	su	-	-	-	7.67	7.56	7.73	7.44	7.52	7.53	7.47	7.49	7.45	7.83	7.58
Conductivity	mS/cm	-	-	-	0.582	0.596	0.620	0.638	0.624	0.614	0.588	0.612	0.601	0.614	0.609
Turbidity	NTU	-	-	-	8.31	7.31	4.95	7.05	4.32	5.12	7.02	7.95	6.01	6.85	5.02
Dissolved Oxygen	mg/L	-	-	-	4.82	0.39	0.38	0.28	0.28	0.07	0.19	0.17	0.08	0.06	0.41
Temperature	°C	-	-	-	8.6	8.4	3.9	19.6	22.5	19.0	15.2	12.5	11.2	9.8	16.5
Oxidation Reduction Potential	mV	-	-	-	44.3	85.9	-44.2	-3.5	-106.7	-101.2	-141.5	-103.6	-122.4	-200.1	-102.9
Part 115															
Copper	mg/L	0.005	1.3	1.00	0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	3.0	0.3	3.04	0.16	0.06	0.08	0.38	0.25	0.28	0.34	0.45	0.28	0.48	0.55
Nickel	mg/L	0.011		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.042	5	5	0.11	0.271	0.183	0.036	0.025	0.011	0.008	0.023	0.014	0.008	<0.005
Appendix III															
Boron	mg/L	3.52	-	3.52	4.65	4.59	4.59	4.70	4.39	4.70	4.69	4.62	4.85	5.01	4.33
Calcium	mg/L	69.6	-	69.6	29.3	29.0	28.9	28.9	28.5	29.3	29.4	30.5	30.0	29.3	30.5
Chloride	mg/L	5.0	250	250	6	7	8	8	8	6.8	7	7	7.25	7.6	7.2
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	0.36	0.4	0.5
pH, Field	su	-	-	-	7.67	7.56	7.73	7.44	7.52	7.53	7.47	7.49	7.49	7.83	7.58
Sulfate	mg/L	5.0	250	250	<5	9	13	7	7	6.2	6	5	4.47	4.2	4.3
Total Dissolved Solids	mg/L	380	500	500	366	364	380	396	374	376	376	380	372	380	378
Appendix IV															
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.009	0.01	0.01	<0.002	<0.002	0.004	0.003	0.003	0.004	<0.002	0.004	0.003	0.004	0.003
Barium	mg/L	0.081	2	2.0	0.037	0.036	0.038	0.037	0.036	0.034	0.036	0.035	0.035	0.035	0.033
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4	2.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	0.36	0.4	0.5
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.051	0.04	0.051	0.039	0.032	0.022	0.026	0.028	0.030	0.030	0.030	0.031	0.028	0.030
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.011	0.1	0.100	0.005	0.011	0.012	0.010	0.011	0.011	0.010	0.011	0.010	0.010	0.010
Radium-226	pCi/L	-	-	-	0.591	0.763	2.21	0.515	1.21	0.542 J+	0.461	0.593	0.500	0.569	0.461
Radium-228	pCi/L	-	-	-	1.84	0.757	1.93 J+	-0.743	0.128	0.276	0.773	2.25	1.34	0.243	2.71
Radium-226/228	pCi/L	4.42	5.00	5.00	2.43	1.52	4.14 J+	0.515	1.33	0.818	1.23	2.85	1.84	0.812	3.17
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other															
Total Suspended Solids	mg/L	-	-	-	5	3.80	2.0	14.0	6.4	12.4	7.3	12.0	2.0	3.0	2.8
Bicarbonate	mg/L	-	-	-	380	390	380	430	400	380	400	390	400	394	400
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	96	107	103	101	97	96	100	105	118	124	120
Magnesium	mg/L	-	-	-	6.99	7.31	7.28	7.41	7.39	7.33	7.45	7.69	7.68	7.10	7.49
Potassium	mg/L	-	-	-	9.4	9.79	9.65	9.90	9.38	9.21	9.61	9.18	9.83	9.30	9.54
Sodium	mg/L	-	-	-	106	110	115	115	112	108	108	116	114	95.0	110

			Sample Location:		MW-100A								
			Sample Type:		Downgradient								
			Sample Date:		6/5/2023	7/10/2023	8/14/2023	9/18/2023	10/23/2023	11/27/2023	1/3/2024	2/7/2024	8/7/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring								Assessment Monitoring
Field Parameters													
pH	su	-	-	-	7.29	7.21	7.31	7.28	7.34	7.08	7.36	7.4	7.22
Conductivity	mS/cm	-	-	-	0.750	0.766	0.728	0.719	0.725	0.68	0.593	0.665	0.672
Turbidity	NTU	-	-	-	3.52	7.95	0.65	4.21	7.35	3.32	4.45	6.3	6.81
Dissolved Oxygen	mg/L	-	-	-	4.15	1.31	1.15	0.98	0.45	0.39	0.41	0.51	1.02
Temperature	°C	-	-	-	14.2	17.2	14.6	16.8	14.9	10.2	11.2	10.0	14.7
Oxidation Reduction Potential	mV	-	-	-	60.9	-55.8	-130.6	-98.1	-117.7	-98.9	-125.2	-74.9	-8.9
Part 115													
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	0.63	1.25	3.75	3.59	3.04	2.88	2.51	2.59	2.55
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005
Appendix III													
Boron	mg/L	0.48	-	0.50	0.04	0.05	0.05	0.05	0.05	0.04	0.05	0.05	0.05
Calcium	mg/L	188	-	188	92.3	95.3	93.0	94.0	92.8	92.1	88.6	90.9	92.1
Chloride	mg/L	94.3	250	250	10	10	10	10	10	10.0	10.3	10.6	10.3
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.66	0.22	<1.0	0.4
pH, Field	su	-	-	-	7.29	7.21	7.31	7.28	7.34	7.08	7.36	7.4	7.22
Sulfate	mg/L	344	250	344	35	38	28	22	21	16.2	17.1	21.7	21.2
Total Dissolved Solids	mg/L	1168	500	1168	418	434	424	414	416	402	408	410	414
Appendix IV													
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.009	0.010	0.015	0.017	0.016	0.014	0.015	0.018	0.014
Barium	mg/L	0.168	2.0	2.0	0.206	0.202	0.206	0.207	0.201	0.199	0.189	0.200	0.189
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.22	<1.0	0.4
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.017	0.018	0.019	0.020	0.018	0.016	0.014	0.014	0.012
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.012	0.012	0.012	0.013	0.011	0.010	0.009	0.008	0.008
Radium-226	pCi/L	-	-	-	0.869	0.470	1.14[J+]	0.320[J+]	-0.164[J+]	1.09[J+]	0.0203	0.570	0.328
Radium-228	pCi/L	-	-	-	1.64	0.716	0.400	0.0819	0.527	0.0586	0.391	0.529	1.86
Radium-226/228	pCi/L	5.00	5	5.00	2.50	0.857	1.54	0.402	0.527	1.15	0.411	1.10	2.19
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other													
Total Suspended Solids	mg/L	-	-	-	<3	25	7.5	7.4	4.9	8.6	8.0	5.3	5.6
Bicarbonate	mg/L	-	-	-	450	430	460	440	450	410	430	431	440
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	390	393	396	394	398	398	368	400	388
Magnesium	mg/L	-	-	-	38.4	40.3	40.0	39.0	38.9	39.9	38.2	36.0	38.3
Potassium	mg/L	-	-	-	2.35	2.62	2.27	2.23	2.16	2.19	2.18	1.83	1.94
Sodium	mg/L	-	-	-	12.6	11.8	11.3	11.6	11.0	11.3	11.1	10.4	11.0

			Sample Location:		MW-100B									
			Sample Type:		Downgradient									
			Sample Date:		6/5/2023		7/10/2023		8/14/2023		9/18/2023		10/23/2023	11/27/2023
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring									
Field Parameters						Field Dup		Field Dup		Field Dup		Field Dup		
pH	su	-	-	-	7.34	7.34	7.33	7.33	7.40	7.40	7.34	7.34	7.44	7.40
Conductivity	mS/cm	-	-	-	0.799	0.799	0.805	0.805	0.776	0.776	0.745	0.745	0.752	0.713
Turbidity	NTU	-	-	-	4.02	4.02	4.15	4.15	4.15	4.15	0.81	0.81	5.16	5.01
Dissolved Oxygen	mg/L	-	-	-	0.03	0.03	0.08	0.08	0.19	0.19	0.00	0.00	0.00	0.00
Temperature	°C	-	-	-	13.8	13.8	13.9	13.9	14.2	14.2	12.9	12.9	12.1	10.6
Oxidation Reduction Potential	mV	-	-	-	-129.9	-129.9	-145.9	-145.9	-176.8	-176.8	-149.9	-149.9	-154.8	-141.7
Part 115														
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	1.77	1.79	3.54	3.43	2.89	2.88	2.34	2.36	2.33	2.35
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III														
Boron	mg/L	0.48	-	0.50	0.21	0.23	0.23	0.23	0.25	0.25	0.25	0.24	0.26	0.29
Calcium	mg/L	188	-	188	108	106	102	101	98.0	99.2	97.8	100	95.9	94.5
Chloride	mg/L	94.3	250	250	22	22	23	23	25	25	25	25	24	24.0
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.15
pH, Field	su	-	-	-	7.34	7.34	7.33	7.33	7.40	7.40	7.34	7.34	7.44	7.40
Sulfate	mg/L	344	250	344	136	135	126	126	116	116	110	110	108	105
Total Dissolved Solids	mg/L	1168	500	1168	538	534	534	526	508	510	492	496	490	482
Appendix IV														
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.009	0.008	0.010	0.010	0.011	0.010	0.011	0.012	0.010	0.010
Barium	mg/L	0.168	2.0	2.0	0.164	0.163	0.159	0.156	0.153	0.154	0.154	0.159	0.145	0.147
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.15
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.017	0.018	0.016	0.016	0.017	0.017	0.019	0.017	0.017	0.018
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.009	0.008	0.011	0.011	0.010	0.010	0.009	0.008	0.009	0.009
Radium-226	pCi/L	-	-	-	0.549^{UJ}	0.295^{UJ}	0.576^{UJ}	0.395^{UJ}	1.31^{J+}	0.200^{J-}	0.983^{J+}	0.188^{J}	0.732^{J+}	0.868J+
Radium-228	pCi/L	-	-	-	1.61^{J+}	1.50^{J-}	1.52^{J+}	1.17^{J-}	0.682	0.960	0.0316	0.832^{J+}	0.613	0.953
Radium-226/228	pCi/L	5.00	5	5.00	2.16^{J}	1.80^{J}	1.62^{J+}	1.23^{J-}	1.99^{J+}	1.16^{J-}	1.01	1.02	1.35	1.82
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other														
Total Suspended Solids	mg/L	-	-	-	3	2.3	7.1	6.7	3.0	3.4	3.7	4.7	4.1	2.5
Bicarbonate	mg/L	-	-	-	350	360	440	350	360	360	320	330	330	310
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	410	410	397	393	364	364	374	378	364	369
Magnesium	mg/L	-	-	-	35.7	38.0	35.0	34.9	35.8	35.5	32.7	33.5	33.2	32.5
Potassium	mg/L	-	-	-	3.34	3.35	3.50	3.54	3.46	3.54	3.51	3.61	3.69	3.76
Sodium	mg/L	-	-	-	23.2	23.0	26.9	27.1	24.8	24.9	25.9	24.8	27.4	30.3

			Sample Location:		MW-100B		
			Sample Type:		Downgradient		
			Sample Date:		1/3/2024	2/7/2024	8/7/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring		Assessment Monitoring
Field Parameters							
pH	su	-	-	-	7.58	7.62	7.41
Conductivity	mS/cm	-	-	-	0.759	0.737	0.73
Turbidity	NTU	-	-	-	0.95	4.18	2.42
Dissolved Oxygen	mg/L	-	-	-	0.00	0.02	0.26
Temperature	°C	-	-	-	11.5	11.1	13.6
Oxidation Reduction Potential	mV	-	-	-	-157.0	-132.9	-118.3
Part 115							
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005
Iron	mg/L	23.5	0.3	23.5	2.43	2.40	2.85
Nickel	mg/L	0.021		0.1	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005
Zinc	mg/L	0.036	5	5	<0.005	<0.005	<0.005
Appendix III							
Boron	mg/L	0.48	-	0.50	0.26	0.26	0.22
Calcium	mg/L	188	-	188	94.2	96.8	102
Chloride	mg/L	94.3	250	250	23.8	22.3	19.0
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	0.3
pH, Field	su	-	-	-	7.58	7.62	7.41
Sulfate	mg/L	344	250	344	112	107	118
Total Dissolved Solids	mg/L	1168	500	1168	490	496	520
Appendix IV							
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.01	0.021	0.011	0.011	0.010
Barium	mg/L	0.168	2.0	2.0	0.142	0.147	0.143
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.1	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4.0	2.0	<1.0	<1.0	0.3
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003
Lithium	mg/L	0.0396	0.040	0.040	0.018	0.017	0.018
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.024	0.1	0.100	0.008	0.009	0.006
Radium-226	pCi/L	-	-	-	0.201	1.03	0.532
Radium-228	pCi/L	-	-	-	0.293	0.482	-0.297
Radium-226/228	pCi/L	5.00	5	5.00	0.494	1.51	0.532
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002
Other							
Total Suspended Solids	mg/L	-	-	-	4.5	4.9	2.4
Bicarbonate	mg/L	-	-	-	330	339	360
Carbonate	mg/L	-	-	-	<10	<10	<10
Hardness	mg/L	-	-	-	376	367	398
Magnesium	mg/L	-	-	-	32.3	29.4	35.7
Potassium	mg/L	-	-	-	3.59	3.46	3.45
Sodium	mg/L	-	-	-	27.1	27.1	30.8

			Sample Location:		MW-100C									
			Sample Type:		Downgradient									
			Sample Date:		6/5/2023	7/10/2023	8/14/2023	9/18/2023	10/23/2023		11/27/2023		1/3/2024	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring									
Field Parameters										Field Dup		Field Dup		Field Dup
pH	su	-	-	-	7.54	7.30	7.34	7.23	7.29	7.29	7.27	7.27	7.43	7.43
Conductivity	mS/cm	-	-	-	0.544	0.539	0.537	0.525	0.538	0.538	0.523	0.523	0.533	0.533
Turbidity	NTU	-	-	-	4.68	4.02	5.89	0.81	5.15	5.15	4.15	4.15	1.44	1.44
Dissolved Oxygen	mg/L	-	-	-	0.02	0.06	0.23	0.01	0	0	0	0	0	0
Temperature	°C	-	-	-	13.5	13.7	14.0	12.8	12.3	12.3	10.2	10.2	11.3	11.3
Oxidation Reduction Potential	mV	-	-	-	-95.6	-131.4	-129.7	-113.3	-115.8	-115.8	-107.2	-107.2	-133.5	-133.5
Part 115														
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	3.0	0.3	3.04	0.31	1.00	0.97	0.76	0.66	0.66	0.64	0.66	0.63	0.61
Nickel	mg/L	0.011		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.042	5	5	<0.005	<0.005	<0.005	<0.005	0.010	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III														
Boron	mg/L	3.52	-	3.52	1.54	1.68	1.81	1.83	1.76	1.76	1.82	1.84	1.79	1.71
Calcium	mg/L	69.6	-	69.6	55.9	56.3	55.2	59.8	61.2	61.5	61.1	60.7	60.3	58.4
Chloride	mg/L	5.0	250	250	14	10	8	6	5	5	5.01	5.04	4.8	4.8
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.13^{J+}	<1.0^{UJ}	<1.0	<1.0
pH, Field	su	-	-	-	7.54	7.30	7.34	7.23	7.29	7.29	7.27	7.27	7.43	7.43
Sulfate	mg/L	5.0	250	250	27	14	13	8	7	6	5.59	5.66	5.4	4.9
Total Dissolved Solids	mg/L	380	500	500	310	300	314	302	302	298	306	302	282	298
Appendix IV														
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.009	0.01	0.01	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium	mg/L	0.081	2	2.0	0.067	0.082	0.082	0.092	0.082	0.083	0.081	0.085	0.073	0.074
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4	2.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.13	<1.0	<1.0	<1.0
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.051	0.04	0.051	0.029	0.028	0.031	0.035	0.034	0.032	0.032	0.032	0.033	0.032
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.011	0.1	0.100	0.009	0.009	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	0.677	0.520	1.20	0.581^{J+}	0.542^{J}	1.07^{J+}	1.69^{J+}	0.450^{J}	0.327J+	0.158J-
Radium-228	pCi/L	-	-	-	-0.307	0.827	-0.958	0.276	0.836	1.02	-0.293^{J-}	0.906^{J+}	0.198	0.211
Radium-226/228	pCi/L	4.42	5.00	5.00	0.677	0.977	1.20	0.857	1.38	2.09	1.69	1.36	0.525	0.369
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other														
Total Suspended Solids	mg/L	-	-	-	1.8	1.4	8.9	2.8	<3	<3	1.2^{J+}	<3^{UJ}	1.4	1.4
Bicarbonate	mg/L	-	-	-	310	100	340	340	340	340	330	340	350	350
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	200	204	218	232	232	238	237	237	233	233
Magnesium	mg/L	-	-	-	18.1	18.1	18.5	19.1	19.5	19.2	19.3	19.7	19.8	20.2
Potassium	mg/L	-	-	-	6.40	6.59	6.49	6.67	6.83	6.90	6.56	6.68	6.98	6.99
Sodium	mg/L	-	-	-	44.1	38.2	36.4	30.5	29.2	29.1	28.3	28.2	29.5	29.0

			Sample Location:		MW-100C			
			Sample Type:		Downgradient			
			Sample Date:		2/7/2024		8/7/2024	
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring		Assessment Monitoring	
Field Parameters						Field Dup		Field Dup
pH	su	-	-	-	7.46	7.46	7.39	7.39
Conductivity	mS/cm	-	-	-	0.52	0.52	0.512	0.512
Turbidity	NTU	-	-	-	5.78	5.78	0.02	0.02
Dissolved Oxygen	mg/L	-	-	-	0	0	0.23	0.23
Temperature	°C	-	-	-	11.3	11.3	14.1	14.1
Oxidation Reduction Potential	mV	-	-	-	-89.9	-89.9	-112.5	-112.5
Part 115								
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	3.0	0.3	3.04	0.59	0.58	0.69	0.71
Nickel	mg/L	0.011		0.1	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.042	5	5	<0.005	<0.005	<0.005	<0.005
Appendix III								
Boron	mg/L	3.52	-	3.52	1.87	1.81	1.91	1.90
Calcium	mg/L	69.6	-	69.6	58.7	59.5	59.4	59.2
Chloride	mg/L	5.0	250	250	4.7	4.8	4.6	4.6
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	0.3	0.3
pH, Field	su	-	-	-	7.46	7.46	7.39	7.39
Sulfate	mg/L	5.0	250	250	5.8	5.6	6.0	6.1
Total Dissolved Solids	mg/L	380	500	500	300	298	298	300
Appendix IV								
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.009	0.01	0.01	<0.002	<0.002	<0.002	<0.002
Barium	mg/L	0.081	2	2.0	0.075	0.073	0.062	0.060
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.100	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4	2.00	<1.0	<1.0	0.3	0.3
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.051	0.04	0.051	0.033	0.032	0.033	0.031
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.011	0.1	0.100	<0.005	<0.005	<0.005	<0.005
Radium-226	pCi/L	-	-	-	1.21^{J+}	0.682^{J-}	0.377	0.369
Radium-228	pCi/L	-	-	-	0.346^{J-}	2.56^{J+}	1.20^{J+}	0.745J-
Radium-226/228	pCi/L	4.42	5.00	5.00	1.56^{J-}	3.25^{J+}	1.58^{J+}	1.11^{J-}
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002
Other								
Total Suspended Solids	mg/L	-	-	-	<3	<3	0.9	1.2
Bicarbonate	mg/L	-	-	-	350	354	360	350
Carbonate	mg/L	-	-	-	<10	<10	<10	<10
Hardness	mg/L	-	-	-	238	230	218	216
Magnesium	mg/L	-	-	-	17.3	17.5	19.0	18.8
Potassium	mg/L	-	-	-	6.12	6.03	6.85	6.66
Sodium	mg/L	-	-	-	25.7	26.0	32.7	33.4

			Sample Location:		MW-100D								
			Sample Type:		Downgradient								
			Sample Date:		6/5/2023	7/10/2023	8/14/2023	9/18/2023	10/23/2023	11/27/2023	1/3/2024	2/7/2024	8/7/2024
Constituent	Unit	BTVs	MCL	State Program GPS	Background Monitoring								Assessment Monitoring
Field Parameters													
pH	su	-	-	-	8.04	7.82	7.90	7.58	7.59	8.01	8.22	7.74	7.21
Conductivity	mS/cm	-	-	-	0.575	0.585	0.598	0.597	0.6	0.592	0.597	0.737	0.927
Turbidity	NTU	-	-	-	8.78	8.15	7.95	5.58	5.05	4.95	3.08	6.19	6.9
Dissolved Oxygen	mg/L	-	-	-	0.01	0.05	0.15	0.02	0.01	0	0	0.02	0.23
Temperature	°C	-	-	-	13.8	14.3	14.5	13	13	9.9	11.1	11.6	14.2
Oxidation Reduction Potential	mV	-	-	-	-73.2	-90.1	-184.8	-201.5	-182.6	-163.3	-209.3	-81	-97.9
Part 115													
Copper	mg/L	0.005	1.3	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	3.0	0.3	3.04	0.24	0.64	0.45	0.38	0.15	0.12	0.12	0.13	0.77
Nickel	mg/L	0.011		0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/L	0.0005	0.1	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.005		0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.042	5	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III													
Boron	mg/L	3.52	-	3.52	3.45	3.23	3.39	3.35	3.22	3.37	3.19	2.84	1.89
Calcium	mg/L	69.6	-	69.6	7.77	7.18	6.27	6.21	5.86	5.57	5.26	20.2	56.5
Chloride	mg/L	5.0	250	250	<5	<5	5	<5	<5	4.20	4.2	9.1	13.1
Fluoride	mg/L	1.0	4	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.50	0.49	0.3	0.4
pH, Field	su	-	-	-	8.04	7.82	7.90	7.58	7.59	8.01	8.22	7.74	7.21
Sulfate	mg/L	5.0	250	250	<5	6	14	11	10	9.17	9.8	31.0	60.5
Total Dissolved Solids	mg/L	380	500	500	366	392	414	396	390	388	372	468	584
Appendix IV													
Antimony	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.009	0.01	0.01	<0.002	<0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Barium	mg/L	0.081	2	2.0	0.010	0.011	0.010	0.010	0.008	0.008	0.007	0.012	0.019
Beryllium	mg/L	0.001	0.004	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0005	0.005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.005	0.1	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	1.0	4	2.00	<1.0	<1.0	<1.0	<1.0	<1.0	0.50	0.49	0.3	0.4
Lead	mg/L	0.003	0.015	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.051	0.04	0.051	0.031	0.016	0.016	0.017	0.017	0.018	0.018	0.020	0.016
Mercury	mg/L	0.0002	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.011	0.1	0.100	<0.005	0.010	0.012	0.010	0.009	0.008	0.008	0.007	0.007
Radium-226	pCi/L	-	-	-	0.509	0.426	1.32	0.535 J+	0.649 J+	0.893J+	0.0752	0.515	0.153
Radium-228	pCi/L	-	-	-	4.56	0.921	0.135	0.261	0.947	-0.914	0.402	0.00918	1.22
Radium-226/228	pCi/L	4.42	5.00	5.00	5.06	1.01	1.46	0.796	1.60	0.893	0.477	0.524	1.37
Selenium	mg/L	0.005	0.05	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other													
Total Suspended Solids	mg/L	-	-	-	2.7	2.7	2.2	2.0	<3	<3	<3	1.8	9.5
Bicarbonate	mg/L	-	-	-	390	390	390	380	390	370	390	443	550
Carbonate	mg/L	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hardness	mg/L	-	-	-	30	32	19	17	19	49	28	69	178
Magnesium	mg/L	-	-	-	2.03	1.81	1.47	1.46	1.28	1.27	1.27	3.68	9.50
Potassium	mg/L	-	-	-	4.92	4.62	4.22	4.48	4.35	4.03	4.18	4.00	5.37
Sodium	mg/L	-	-	-	147	152	151	158	148	151	134	136	160

Footnotes:
1. BTV=UTL, calculated with data through February 2023.
Qualifiers:

U: The analyte was analyzed for, but was not detected at, a level greater than or equal to the level of the adjusted reporting limit (RL) for the sample and method.
J: The analyte was positively identified, and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain QC criteria were not met, or to the concentration of the analyte being below the RL).
J+: Same as J, and the reported concentration is potentially biased high.
J-: Same as J, and the reported concentration is potentially biased low.
UJ: The analyte was not detected at a level greater than or equal to the adjusted method detection limit (MDL). However, the reported adjusted MDL is approximate and might be inaccurate or imprecise.
R: The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte might or might not be present in the sample.

Appendix C

Lab Reports and Data Validation Reports

Analytical Laboratory Report

Final Report

Report ID: S57346.01(02)
Generated on 01/31/2024
Replaces report S57346.01(01) generated on 01/08/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S57346.01-S57346.06
Project: Erickson Well Project 100A-100D
Collected Date(s): 01/03/2024
Submitted Date/Time: 01/04/2024 09:27
Sampled by: Marc Wahrer
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

All analyses completed

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2320B	Standard Method 2320 B 2011
SM2340C	Standard Method 2340 C 2011
SM2540C	Standard Method 2540 C 2015
SM2540D	Standard Method 2540 D 2015
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S57346.01	MW-100A L401137-01	Groundwater	01/03/24 15:08
S57346.02	MW-100B L401137-02	Groundwater	01/03/24 11:30
S57346.03	MW-100C L401137-03	Groundwater	01/03/24 12:50
S57346.04	MW-100D L401137-04	Groundwater	01/03/24 14:34
S57346.05	MWT-100C L401137-05	Groundwater	01/03/24 12:50
S57346.06	Field Blank L401137-06	Water	01/03/24 09:25

Lab Sample ID: S57346.01
Sample Tag: MW-100A L401137-01
Collected Date/Time: 01/03/2024 15:08
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.3	IR
2	1L Plastic	None	Yes	2.3	IR
1	125mL Plastic	HNO3	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	01/05/24 10:24	CTV	
Metal Digestion	Completed	SW3015A	01/05/24 10:00	CCM	

Inorganics

Method: E300.0, Run Date: 01/05/24 11:49, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	10.3	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	0.22	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	17.1	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 01/04/24 13:24, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	430	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/04/24 14:08, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	368	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 01/04/24 14:47, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	408	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/05/24 15:00, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	8.0	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 01/05/24 11:43, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.015	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.189	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.05	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S57346.01 (continued)
Sample Tag: MW-100A L401137-01

Method: E200.8, Run Date: 01/05/24 11:43, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	2.51	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.014	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.009	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	0.006	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 01/05/24 13:53, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	88.6	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	38.2	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	2.18	0.50	0.119	mg/L	5	7440-09-7	
Sodium	11.1	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 01/05/24 13:36, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 01/30/24 15:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S57346.02
Sample Tag: MW-100B L401137-02
Collected Date/Time: 01/03/2024 11:30
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.3	IR
2	1L Plastic	None	Yes	2.3	IR
1	125mL Plastic	HNO3	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	01/05/24 10:24	CTV	
Metal Digestion	Completed	SW3015A	01/05/24 10:00	CCM	

Inorganics

Method: E300.0, Run Date: 01/05/24 12:02, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	23.8	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	112	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 01/04/24 13:26, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	330	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/04/24 14:12, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	376	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 01/04/24 14:47, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	490	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/05/24 15:00, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	4.5	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 01/05/24 11:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.011	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.142	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.26	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	2.43	0.02	0.0142	mg/L	5	7439-89-6	

Lab Sample ID: S57346.02 (continued)
Sample Tag: MW-100B L401137-02

Method: E200.8, Run Date: 01/05/24 11:48, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.018	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.008	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 01/05/24 13:55, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	94.2	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	32.3	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	3.59	0.50	0.119	mg/L	5	7440-09-7	
Sodium	27.1	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 01/05/24 13:39, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 01/30/24 15:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S57346.03
Sample Tag: MW-100C L401137-03
Collected Date/Time: 01/03/2024 12:50
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.3	IR
2	1L Plastic	None	Yes	2.3	IR
1	125mL Plastic	HNO3	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	01/05/24 10:24	CTV	
Metal Digestion	Completed	SW3015A	01/05/24 10:00	CCM	

Inorganics

Method: E300.0, Run Date: 01/05/24 12:15, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	4.8	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	5.4	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 01/04/24 13:28, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	350	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/04/24 14:18, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	233	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 01/04/24 14:47, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	282	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/05/24 15:00, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.4	3	1	mg/L	1		b

Metals

Method: E200.8, Run Date: 01/05/24 11:53, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.073	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	1.79	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S57346.03 (continued)
Sample Tag: MW-100C L401137-03

Method: E200.8, Run Date: 01/05/24 11:53, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.63	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.033	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 01/05/24 13:57, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	60.3	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	19.8	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	6.98	0.50	0.119	mg/L	5	7440-09-7	
Sodium	29.5	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 01/05/24 13:49, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 01/30/24 15:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S57346.04
Sample Tag: MW-100D L401137-04
Collected Date/Time: 01/03/2024 14:34
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.3	IR
2	1L Plastic	None	Yes	2.3	IR
1	125mL Plastic	HNO3	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	01/05/24 10:24	CTV	
Metal Digestion	Completed	SW3015A	01/05/24 10:00	CCM	

Inorganics

Method: E300.0, Run Date: 01/05/24 12:28, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	4.2	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.49	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	9.8	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 01/04/24 13:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	390	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/04/24 14:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	28	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 01/04/24 14:47, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	372	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/05/24 15:00, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 01/05/24 11:57, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.003	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.007	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	3.19	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S57346.04 (continued)
Sample Tag: MW-100D L401137-04

Method: E200.8, Run Date: 01/05/24 11:57, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.12	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.018	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.008	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 01/05/24 13:58, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	5.26	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	1.27	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	4.18	0.50	0.119	mg/L	5	7440-09-7	
Sodium	134	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 01/05/24 13:52, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 01/30/24 15:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S57346.05
Sample Tag: MWT-100C L401137-05
Collected Date/Time: 01/03/2024 12:50
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.3	IR
2	1L Plastic	None	Yes	2.3	IR
1	125mL Plastic	HNO3	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	01/05/24 10:24	CTV	
Metal Digestion	Completed	SW3015A	01/05/24 10:00	CCM	

Inorganics

Method: E300.0, Run Date: 01/05/24 12:40, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	4.8	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	4.9	5.0	0.295	mg/L	5	14808-79-8	b

Method: SM2320B, Run Date: 01/04/24 13:32, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	350	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/04/24 14:22, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	233	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 01/04/24 14:47, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	298	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/05/24 15:00, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.4	3	1	mg/L	1		b

Metals

Method: E200.8, Run Date: 01/05/24 12:00, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.074	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	1.71	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S57346.05 (continued)
Sample Tag: MWT-100C L401137-05

Method: E200.8, Run Date: 01/05/24 12:00, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.61	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.032	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 01/05/24 14:00, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	58.4	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	20.2	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	6.99	0.50	0.119	mg/L	5	7440-09-7	
Sodium	29.0	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 01/05/24 13:56, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 01/30/24 15:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S57346.06
Sample Tag: Field Blank L401137-06
Collected Date/Time: 01/03/2024 09:25
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.3	IR
2	1L Plastic	None	Yes	2.3	IR
1	125mL Plastic	HNO3	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	01/05/24 10:24	CTV	
Metal Digestion	Completed	SW3015A	01/05/24 10:00	CCM	

Inorganics

Method: E300.0, Run Date: 01/05/24 12:53, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	Not detected	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	Not detected	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 01/04/24 13:34, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	Not detected	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/04/24 14:24, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	Not detected	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 01/04/24 14:47, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/05/24 15:00, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 01/05/24 11:39, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.000900	mg/L	2	7440-36-0	
Arsenic	Not detected	0.002	0.000580	mg/L	2	7440-38-2	
Barium	Not detected	0.005	0.000360	mg/L	2	7440-39-3	
Beryllium	Not detected	0.001	0.0000800	mg/L	2	7440-41-7	
Boron	Not detected	0.04	0.00636	mg/L	2	7440-42-8	
Cadmium	Not detected	0.0005	0.000140	mg/L	2	7440-43-9	
Chromium	Not detected	0.005	0.000300	mg/L	2	7440-47-3	
Cobalt	Not detected	0.005	0.000180	mg/L	2	7440-48-4	
Copper	Not detected	0.005	0.000320	mg/L	2	7440-50-8	
Iron	Not detected	0.02	0.00568	mg/L	2	7439-89-6	

Lab Sample ID: S57346.06 (continued)
Sample Tag: Field Blank L401137-06

Method: E200.8, Run Date: 01/05/24 11:39, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.000180	mg/L	2	7439-92-1	
Lithium*	Not detected	0.005	0.000540	mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005	0.00168	mg/L	2	7439-98-7	
Nickel	Not detected	0.005	0.000460	mg/L	2	7440-02-0	
Selenium	Not detected	0.005	0.00174	mg/L	2	7782-49-2	
Silver	Not detected	0.0005	0.000100	mg/L	2	7440-22-4	
Thallium	Not detected	0.002	0.000140	mg/L	2	7440-28-0	
Vanadium	Not detected	0.005	0.000820	mg/L	2	7440-62-2	
Zinc	Not detected	0.005	0.00130	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 01/05/24 13:52, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	Not detected	0.50	0.0874	mg/L	2	7440-70-2	
Magnesium	Not detected	0.50	0.0231	mg/L	2	7439-95-4	
Potassium	Not detected	0.50	0.0479	mg/L	2	7440-09-7	
Sodium	Not detected	0.50	0.0436	mg/L	2	7440-23-5	

Method: E245.1, Run Date: 01/05/24 13:59, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 01/30/24 15:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S57346
Client: BWL01 (Board of Water & Light)
Project: Erickson Well Project 100A-100D
Submitted: 01/04/2024 09:27 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.3
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[X] Yes	[ ] No	[ ] N/A	Subcontracting needed? Subcontacted to:	GEL
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S57346 Submitted: 01/04/2024 09:27

Client: BWL01 (Board of Water & Light)

Project: Erickson Well Project 100A-100D

Initial Preservation Check: 01/04/2024 11:03 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S57346.01	125mL Plastic HNO3	<2			
S57346.01	1L Plastic HNO3	<2			
S57346.01	1L Plastic HNO3	<2			
S57346.02	125mL Plastic HNO3	<2			
S57346.02	1L Plastic HNO3	<2			
S57346.02	1L Plastic HNO3	<2			
S57346.03	125mL Plastic HNO3	<2			
S57346.03	1L Plastic HNO3	<2			
S57346.03	1L Plastic HNO3	<2			
S57346.04	125mL Plastic HNO3	<2			
S57346.04	1L Plastic HNO3	<2			
S57346.04	1L Plastic HNO3	<2			
S57346.05	125mL Plastic HNO3	<2			
S57346.05	1L Plastic HNO3	<2			
S57346.05	1L Plastic HNO3	<2			
S57346.06	125mL Plastic HNO3	<2			
S57346.06	1L Plastic HNO3	<2			
S57346.06	1L Plastic HNO3	<2			

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing STATE: Mi ZIP CODE: 48901
PHONE NO.: 517-702-6372 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Well Project 100A-100D
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Marc Wahrer

TURNAROUND TIME REQUIRED ☐1 DAY ☒2 DAYS ☐3 DAYS ☐STANDARD ☒OTHER ASAP

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☒LEVEL III ☐LEVEL IV ☒EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☒NPDES

Project Locations: ☐Detroit ☐New York ☐Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION (7 JSC 12/29/23)	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total Metals	F- undisstiled, Cl-, SO4, TDS	Radium 226	Radium 228	TSS	HCO3, CO3, Hardness	Special Instructions
5734601	1.3.24	1508	MW-100A L401136-01	GW	5	2		3					✓	✓	✓	✓	✓	✓	Metals to analyse:Na, Mg, K
.02	↓	1130	MW-100B -02	GW	5	2		3					✓	✓	✓	✓	✓	✓	B, Ca, Sb, As, Ba, Be, Cd, Cr,
.03		1250	MW-100C -03	GW	5	2		3					✓	✓	✓	✓	✓	✓	Co, Li, Hg, Mo,Pb,Se, Tl,
.04		1434	MW-100D -04	GW	5	2		3					✓	✓	✓	✓	✓	✓	Fe, Cu, Ni, Ag, V, Zn
.05		1250	MWT-106C -05	GW	5	2		3					✓	✓	✓	✓	✓	✓	Please send a preliminary report
.06	↓	0925	Field Blank ↓ -06	DI	5	2		3					✓	✓	✓	✓	✓	✓	

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☒Sampler DATE 1-4-24 TIME 0927
RECEIVED BY: SIGNATURE/ORGANIZATION M Chilcote DATE 1/4/24 TIME 0927
RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS

NOTES: TEMP. ON ARRIVAL 2.3

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Reporting Limits to go to Merit with COC

Sb, total	Antimony	250 mL plastic	mg/L	Nitric Acid	200.7	6 mos	0.005
As, total	Arsenic	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
Ba, total		250 mL plastic	mg/L	Nitric Acid	200.8	6mos	0.150
Be, total	Beryllium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.001
B, total	Boron	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.04
Cd, total	Cadmium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
Ca	Calcium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	2.5
Cl	Chloride	250 mL plastic	mg/L	Chill	300.0	28 d	10
Cr, total	Chromium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Co, total	Cobalt	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Cu, total	Copper	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
F	Fluoride	250 mL plastic	mg/L	None	9056	28 d	1.0
Fe, total	Iron	250 mL plastic	mg/L	Nitric Acid	300.0	6 mos	0.02
Pb, total	Lead	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.003
Li, total	Lithium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Hg, total	Mercury	250 mL plastic	mg/L	HNO3	245.1	28 d	0.0002
Mo, total	Molybdenum	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ni, total	Nickel	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
RA226/228	Radium 226 and 228 combined	(2) 1 L plastic	pCi/L	HNO3	SM 7500	6 mos	2.0 combined
Se, total	Selenium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ag, total	Silver	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
SO4	Sulfate	250 mL plastic	mg/L	Chill	300.0	28 d	10
Tl, total	Thallium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
TDS	Total Dissolved Solids	1 L plastic	mg/L	None	SM 2540C	NA	20
TSS	Total Suspended Solids	1 L plastic	mg/L	None	SM 2540D	NA	3
V, total	Vanadium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Zn, total	Zinc	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005

GEL Laboratories LLC
a member of The GEL Group INC

2040 Savage Road | Charleston, SC 29407
843.556.8171
gel.com

January 30, 2024

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 651135
SDG: S57346

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on January 09, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Delaney Stonesmith

Delaney Stonesmith
Project Manager

Purchase Order: GELP20-0018
Enclosures

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Case Narrative

Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S57346
Work Order: 651135

January 30, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on January 09, 2024 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
651135001	S57346.01
651135002	S57346.02
651135003	S57346.03
651135004	S57346.04
651135005	S57346.05
651135006	S57346.06 Field Blank

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.

Delaney Stonesmith
Project Manager

Chain of Custody and Supporting Documentation

651135

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2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
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C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: results@meritlabs.com QUOTE NO.:

INVOICE TO

☒ SAME
CONTACT NAME: Julie Teague
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S57346 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☐LEVEL III ☒LEVEL IV ☐EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Radium 226*	Radium 228**
	1/3/24	1508	S57346.01	GW	2			2					✓	✓
	1/3/24	1130	S57346.02	GW	2			2					✓	✓
	1/3/24	1250	S57346.03	GW	2			2					✓	✓
	1/3/24	1434	S57346.04	GW	2			2					✓	✓
	1/3/24	1250	S57346.05	GW	2			2					✓	✓
	1/3/24	0925	S57346.06 Field Blank	DI	2			2					✓	✓

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☐NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions:
* E903.1 Mod.
** E904.0/SW 9320 Mod.
Please use calculation product & provide Radium 226/228 combined results on the report
(No Ice needed)
** Subcontracted to GEL Laboratories, Inc. 2040 Savage Road Charleston, SC 29407

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☐Sampler DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION JTB DATE 1/9/24 TIME 0800
RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS

NOTES: TEMP. ON ARRIVAL

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.15.12

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: MERI	SDG/AR/COC/Work Order: 651135
Received By: STACY L BOONE	Date Received: ~~JAN 10, 2024~~ JAN 09, 2024 AM 01/10/24
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 1Z 466 477 03 6297 3570

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): ___CPM / ___mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*			✓	Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 16°c
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR3-23 Secondary Temperature Device Serial # (if Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed): AM 01/10/24

PM (or PMA) review: Initials AM Date 01/10/24 Page 1 of 1

Laboratory Certifications

List of current GEL Certifications as of 30 January 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122024-05
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-23-21
Utah NELAP	SC000122023-38
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S57346
Work Order #: 651135

Product: **EPA 904.0 Radium-228 in Drinking Water**
Analytical Method: EPA 904.0/ EPA 9320
Analytical Procedure: GL-RAD-A-030 REV# 21
Analytical Batch: 2551408

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
651135001	S57346.01
651135002	S57346.02
651135003	S57346.03
651135004	S57346.04
651135005	S57346.05
651135006	S57346.06 Field Blank
1205620194	Method Blank (MB)
1205620195	651308001(NonSDG) Sample Duplicate (DUP)
1205620196	651308001(NonSDG) Matrix Spike (MS)
1205620197	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Radium-226 in Drinking Water EPA 903.1 (De-emanation)**
Analytical Method: EPA 903.1
Analytical Procedure: GL-RAD-A-028 REV# 20
Analytical Batch: 2551043

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
651135001	S57346.01
651135002	S57346.02
651135003	S57346.03
651135004	S57346.04
651135005	S57346.05
651135006	S57346.06 Field Blank
1205619666	Method Blank (MB)
1205619667	651205001(NonSDG) Sample Duplicate (DUP)
1205619668	651205001(NonSDG) Matrix Spike (MS)
1205619669	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MERI001 Merit Laboratories, Inc.

Client SDG: S57346 GEL Work Order: 651135

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Kenshalla Oston **Name: Kenshalla Oston**

Date: 31 JAN 2024 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 31, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S57346.01	Project:	MERI00120
Sample ID:	651135001	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	03-JAN-24 15:08		
Receive Date:	09-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
EPA 904.0 Radium-228 in Drinking Water "As Received"													
Radium-228	U	0.391	+/-0.302	0.477	1.00	pCi/L			JE1	01/24/24	0957	2551408	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.411	+/-0.344			pCi/L			NXL1	01/30/24	1512	2551488	2
Rad Radium-226													
Radium-226 in Drinking Water EPA 903.1 (De-emanation) "As Received"													
Radium-226	U	0.0203	+/-0.164	0.381	1.00	pCi/L			LXP1	01/29/24	0824	2551043	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/ EPA 9320	
2	Calculation	
3	EPA 903.1	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Yttrium Carrier	EPA 904.0 Radium-228 in Drinking Water "As Received"			69.4	(25%-125%)
Barium Carrier	EPA 904.0 Radium-228 in Drinking Water "As Received"			108	(25%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 31, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S57346.02	Project:	MERI00120
Sample ID:	651135002	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	03-JAN-24 11:30		
Receive Date:	09-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
EPA 904.0 Radium-228 in Drinking Water "As Received"													
Radium-228	U	0.293	+/-0.296	0.482	1.00	pCi/L			JE1	01/24/24	0957	2551408	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.494	+/-0.357			pCi/L			NXL1	01/30/24	1512	2551488	2
Rad Radium-226													
Radium-226 in Drinking Water EPA 903.1 (De-emanation) "As Received"													
Radium-226	U	0.201	+/-0.200	0.290	1.00	pCi/L			LXP1	01/29/24	0859	2551043	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/ EPA 9320	
2	Calculation	
3	EPA 903.1	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Yttrium Carrier	EPA 904.0 Radium-228 in Drinking Water "As Received"			50.7	(25%-125%)
Barium Carrier	EPA 904.0 Radium-228 in Drinking Water "As Received"			108	(25%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 31, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S57346.03	Project:	MERI00120
Sample ID:	651135003	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	03-JAN-24 12:50		
Receive Date:	09-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
EPA 904.0 Radium-228 in Drinking Water "As Received"													
Radium-228	U	0.198	+/-0.448	0.807	1.00	pCi/L			JE1	01/24/24	0957	2551408	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.525	+/-0.519			pCi/L			NXL1	01/30/24	1512	2551488	2
Rad Radium-226													
Radium-226 in Drinking Water EPA 903.1 (De-emanation) "As Received"													
Radium-226	U	0.327	+/-0.262	0.363	1.00	pCi/L			LXP1	01/29/24	0859	2551043	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/ EPA 9320	
2	Calculation	
3	EPA 903.1	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Yttrium Carrier	EPA 904.0 Radium-228 in Drinking Water "As Received"			40.2	(25%-125%)
Barium Carrier	EPA 904.0 Radium-228 in Drinking Water "As Received"			109	(25%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 31, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S57346.04	Project:	MERI00120
Sample ID:	651135004	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	03-JAN-24 14:34		
Receive Date:	09-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
EPA 904.0 Radium-228 in Drinking Water "As Received"													
Radium-228	U	0.402	+/-0.441	0.733	1.00	pCi/L			JE1	01/24/24	0958	2551408	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.477	+/-0.462			pCi/L			NXL1	01/30/24	1512	2551488	2
Rad Radium-226													
Radium-226 in Drinking Water EPA 903.1 (De-emanation) "As Received"													
Radium-226	U	0.0752	+/-0.138	0.264	1.00	pCi/L			LXP1	01/29/24	0859	2551043	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/ EPA 9320	
2	Calculation	
3	EPA 903.1	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Yttrium Carrier	EPA 904.0 Radium-228 in Drinking Water "As Received"			40.5	(25%-125%)
Barium Carrier	EPA 904.0 Radium-228 in Drinking Water "As Received"			105	(25%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 31, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S57346.05	Project:	MERI00120
Sample ID:	651135005	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	03-JAN-24 12:50		
Receive Date:	09-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
EPA 904.0 Radium-228 in Drinking Water "As Received"													
Radium-228	U	0.211	+/-0.409	0.724	1.00	pCi/L			JE1	01/24/24	0958	2551408	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.369	+/-0.454			pCi/L			NXL1	01/30/24	1512	2551488	2
Rad Radium-226													
Radium-226 in Drinking Water EPA 903.1 (De-emanation) "As Received"													
Radium-226	U	0.158	+/-0.197	0.328	1.00	pCi/L			LXP1	01/29/24	0859	2551043	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/ EPA 9320	
2	Calculation	
3	EPA 903.1	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Yttrium Carrier	EPA 904.0 Radium-228 in Drinking Water "As Received"			48.4	(25%-125%)
Barium Carrier	EPA 904.0 Radium-228 in Drinking Water "As Received"			109	(25%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 31, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S57346.06 Field Blank	Project:	MERI00120
Sample ID:	651135006	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	03-JAN-24 09:25		
Receive Date:	09-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
EPA 904.0 Radium-228 in Drinking Water "As Received"													
Radium-228	U	-0.335	+/-0.314	0.642	1.00	pCi/L			JE1	01/24/24	0958	2551408	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.0989	+/-0.363			pCi/L			NXL1	01/30/24	1512	2551488	2
Rad Radium-226													
Radium-226 in Drinking Water EPA 903.1 (De-emanation) "As Received"													
Radium-226	U	0.0989	+/-0.181	0.348	1.00	pCi/L			LXP1	01/29/24	0859	2551043	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/ EPA 9320	
2	Calculation	
3	EPA 903.1	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Yttrium Carrier	EPA 904.0 Radium-228 in Drinking Water "As Received"			72.4	(25%-125%)
Barium Carrier	EPA 904.0 Radium-228 in Drinking Water "As Received"			114	(25%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Quality Control Data

QC Summary

Report Date: January 31, 2024

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: **John Laverty**

Workorder: **651135**

Parmname		NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gas Flow												
Batch 2551408												
QC1205620195 651308001 DUP												
Radium-228		U	0.501	U	0.0281	pCi/L	N/A		N/A	JE1	01/24/24	09:56
	Uncertainty		+/-0.385		+/-0.285							
QC1205620197 LCS												
Radium-228		3.45			2.87	pCi/L		83.3	(80%-120%)		01/24/24	09:57
	Uncertainty				+/-0.673							
QC1205620194 MB												
Radium-228				U	-0.266	pCi/L					01/24/24	09:57
	Uncertainty				+/-0.258							
QC1205620196 651308001 MS												
Radium-228		17.3 U	0.501		13.6	pCi/L		78.6	(70%-130%)		01/24/24	09:57
	Uncertainty		+/-0.385		+/-1.24							
Rad Ra-226												
Batch 2551043												
QC1205619667 651205001 DUP												
Radium-226		U	-0.0273	U	0.143	pCi/L	N/A		N/A	LXP1	01/29/24	09:35
	Uncertainty		+/-0.0755		+/-0.185							
QC1205619669 LCS												
Radium-226		14.9			13.8	pCi/L		92.9	(90%-110%)		01/29/24	09:35
	Uncertainty				+/-1.39							
QC1205619666 MB												
Radium-226				U	-0.0156	pCi/L					01/29/24	09:35
	Uncertainty				+/-0.0812							
QC1205619668 651205001 MS												
Radium-226		14.9 U	-0.0273		12.2	pCi/L		81.8	(80%-120%)		01/29/24	09:35
	Uncertainty		+/-0.0755		+/-1.25							

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

J Value is estimated

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

QC Summary

Workorder: **651135**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

H	Analytical holding time was exceeded
<	Result is less than value reported
>	Result is greater than value reported
UI	Gamma Spectroscopy--Uncertain identification
BD	Results are either below the MDC or tracer recovery is low
h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
M	M if above MDC and less than LLD
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
FA	Failed analysis.
UJ	Gamma Spectroscopy--Uncertain identification
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N1	See case narrative
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
**	Analyte is a Tracer compound
M	REMP Result > MDC/CL and < RDL
J	See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Gas Flow Raw Data

Batch 2551408 Check-list

This check-list was completed on 24-JAN-24 by Rhonda Birch

This batch was reviewed by Kenshalla Oston on 24-JAN-24 and Rhonda Birch on 24-JAN-24.

Batch ID: 2551408 **Product:** GFC28RAD **Description:** Gas Flow Radium 228 GL-RAD-A-030

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous		No	
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
12	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
13	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
14	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-228 in Drinking Water

Batch ID: **2551408**
Analyst: Jacqueline Winston (JE1)
Method: EPA 904.0/ EPA 9320
Lab SOP: GL-RAD-A-030 REV# 21
Instrument: SP-C018367602
Low Background Proportional Counter

Due Dates for Lab: 03-FEB-2024 **Package: 05-FEB-2024** **SDG: 06-FEB-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205620197	Radium-228 DW SPIKE	2051-C	.1	mL
MS	1205620196	Radium-228 DW SPIKE	2051-C	.5	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Decay (date)	Y Initial Weight (g)	Y Final Weight (g)	Y Net Weight (mg)	Ba Initial Weight (g)	Ba Final Weight (g)	Barium Carrier Yield (percent)	Yttrium Carrier Yield (percent)	Ba Net Weight (mg)
1	651104009	19-JAN-2024	1	1002.7	1002.7	01/22/24 10:45	01/24/24 06:46	0.0737	0.0887	15	7.6531	7.7144	111	56	61.3
2	651104010	19-JAN-2024	1	1001.3	1001.3	01/22/24 10:45	01/24/24 06:46	0.073	0.0836	10.6	7.6768	7.7365	108	40	59.7
3	651104011	19-JAN-2024	1	1000.4	1000.4	01/22/24 10:45	01/24/24 06:46	0.0732	0.0909	17.7	7.6811	7.7287	86	66	47.6
4	651104012	19-JAN-2024	1	1002.8	1002.8	01/22/24 10:45	01/24/24 06:46	0.0742	0.0863	12.1	7.5498	7.6005	91	45	50.7
5	651135001	19-JAN-2024	1	1007.4	1007.4	01/22/24 10:45	01/24/24 06:46	0.0742	0.0927	18.5	7.6618	7.7219	108	69	60.1
6	651135002	19-JAN-2024	1	1007.6	1007.6	01/22/24 10:45	01/24/24 06:46	0.075	0.0885	13.5	7.6726	7.7322	108	51	59.6
7	651135003	19-JAN-2024	1	1004.7	1004.7	01/22/24 10:45	01/24/24 06:46	0.0742	0.0849	10.7	7.6767	7.7369	109	40	60.2
8	651135004	19-JAN-2024	1	1003.3	1003.3	01/22/24 10:45	01/24/24 06:46	0.0743	0.0851	10.8	7.6744	7.7325	105	41	58.1
9	651135005	19-JAN-2024	1	1005.3	1005.3	01/22/24 10:45	01/24/24 06:46	0.0734	0.0863	12.9	7.6773	7.7378	109	48	60.5
10	651135006	19-JAN-2024	1	1006.9	1006.9	01/22/24 10:45	01/24/24 06:46	0.0741	0.0934	19.3	7.6849	7.7481	114	72	63.2
12	1205620194 MB	19-JAN-2024	1		1007.6	01/22/24 10:45	01/24/24 06:46	0.0727	0.0864	13.7	7.682	7.7425	109	51	60.5
13	651308001 TW	19-JAN-2024	1		1007.6	01/22/24 10:45	01/24/24 06:46	0.0742	0.0886	14.4	7.6607	7.7221	111	54	61.4
14	1205620195 DUP (651308001)	19-JAN-2024	1		1007.6	01/22/24 10:45	01/24/24 06:46	0.0737	0.0866	12.9	7.6598	7.7238	115	48	64
15	1205620196 MS (651308001)	19-JAN-2024	1		1007.6	01/22/24 10:45	01/24/24 06:46	0.0737	0.0863	12.6	7.5604	7.6254	117	47	65
16	1205620197 LCS	19-JAN-2024	1		1007.6	01/22/24 10:45	01/24/24 06:46	0.0736	0.085	11.4	7.6681	7.7328	117	43	64.7

Reagent/Solvent Lot ID	Description	Amount
CARR 4067332	Barium Carrier Ra228 DW 2mL=55.43	2 mL
CARR 4080480	Y Carrier 1mL=26.65mg	1 mL
REGNT 4070105	RGF-0.25M EDTA	85 mL
REGNT 3979611	RGF-0.9M Sr/Y Carrier	2 mL
REGNT 4065518	RGF-1.5 mg/mL Lead Nitrate	1 mL
REGNT 4211192	RGF-1.5M Ammonium Sulfate	10 mL
REGNT 4068806	RGF-10N Sodium Hydroxide	3 mL
REGNT 4067893	10mg/mL Strontium Nitrate	2 mL
REGNT 4071859	RGF-15mg/mL Lead Nitrate	10 mL
REGNT 4082191	18N Sodium Hydroxide	5 mL

Comments:
Pipet Id: RAD-GFC-1795419
Pipet Id: RAD-GFC-15505391
Pipet Id: RAD-GFC-G31467I
Data Entry Date2: 19-JAN-2024 11:04 GFC-C045440487 Jacqueline Winston
Data Entry Date3: 19-JAN-2024 00:00

Prep Logbook

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Decay (date)	Y Initial Weight (g)	Y Final Weight (g)	Y Net Weight (mg)	Ba Initial Weight (g)	Ba Final Weight (g)	Barium Carrier Yield (percent)	Yttrium Carrier Yield (percent)	Ba Net Weight (mg)

Reagent/Solvent Lot ID	Description	Amount
REGNT 4210700	RGF-1M Citric Acid	5 mL
REGNT 3285181	RGF-2% Ammonium Sulfide	.3 mL
REGNT 3971900	RGF-5% Ammonium Oxalate	5 mL
REGNT 4051303	RGF-6M Nitric Acid	2 mL
REGNT 4047703.5	Acetic Acid Glacial ACS Poly Coated Bottle	10 mL
REGNT 3854053.5	Bromocresol Green Indicator	1 mL
REGNT 3484616.1	Methyl Orange Indicator	1 mL
REGNT 4211094	PES Filter	1 filter
REGNT 3460248.2	Thymol Blue Indicator0.0.04%	.5 mL
REGNT 3961865	RGF-1:1 Sulfuric Acid	5 mL
REGNT 4212019	RGF-1M Nitric Acid	1.5 mL
REGNT 4210267.11	RGF-Ammonium Hydroxide	10 mL
REGNT 4077688.52	Nitric Acid	24 mL
REGNT 4080472	Yttrium Carrier 18mg/mL	1 mL

Comments:

Radium-228 Drinking Water Liquid

Filename : RA228DW.XLS
File type : Excel
Version # : 1.4.2

Batch : 2551408
Analyst : JAC02417
Prep Date : 1/19/2024
Ra-228 Method Uncertainty : 0.0809

Geometry: Yttrium Oxalate on 47mm filter

Ba Carrier S/N : 4067332
Carrier Exp Date : 12/1/2024
Carrier Volume Added: 2.0
Carrier Weight (mg/ml): 27.71
Carrier Weight StDev.: 0.26

Y Carrier S/N : 4080480
Carrier Exp Date : 1/2/2025
Carrier Volume Added: 1.00
Carrier Weight (mg/ml): 26.65
Carrier Weight StDev.: 0.21

Procedure Code : GFC28RAD
Parmname : Radium-228
Required MDA : 1 pCi/L
Ra-228 Abundance : 1.00
Halflife of Ra-228 : 5.75 years
Halflife of Ac-228 : 6.15 hours

Sample Characteristics					Carrier Calculations							
					Net Weight (mg)		Net Weight StDev. (mg)		Carrier Aliquot (mL)		Carrier Aliquot StDev. (mL)	
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Ba	Y	Ba	Y	Ba	Y	Ba	Y
1	651104009.1	1.0027	2.0399E-05	1/4/2024 8:14	61.3	15.0	0.270797	0.071800	2.0	1.0	0.002000	0.002000
2	651104010.1	1.0013	2.0399E-05	1/4/2024 7:42	59.7	10.6	0.263921	0.052889	2.0	1.0	0.002000	0.002000
3	651104011.1	1.0004	2.0399E-05	1/4/2024 7:27	47.6	17.7	0.211915	0.083405	2.0	1.0	0.002000	0.002000
4	651104012.1	1.0028	2.0399E-05	1/4/2024 7:13	50.7	12.1	0.225239	0.059336	2.0	1.0	0.002000	0.002000
5	651135001.1	1.0074	2.0399E-05	1/3/2024 15:08	60.1	18.5	0.265640	0.086843	2.0	1.0	0.002000	0.002000
6	651135002.1	1.0076	2.0399E-05	1/3/2024 11:30	59.6	13.5	0.263491	0.065353	2.0	1.0	0.002000	0.002000
7	651135003.1	1.0047	2.0399E-05	1/3/2024 12:50	60.2	10.7	0.266070	0.053319	2.0	1.0	0.002000	0.002000
8	651135004.1	1.0033	2.0399E-05	1/3/2024 14:34	58.1	10.8	0.257044	0.053748	2.0	1.0	0.002000	0.002000
9	651135005.1	1.0053	2.0399E-05	1/3/2024 12:50	60.5	12.9	0.267359	0.062774	2.0	1.0	0.002000	0.002000
10	651135006.1	1.0069	2.0399E-05	1/3/2024 9:25	63.2	19.3	0.278964	0.090281	2.0	1.0	0.002000	0.002000
11	1205620194.1	1.0076	2.0399E-05	1/19/2024 0:00	60.5	13.7	0.267359	0.066213	2.0	1.0	0.002000	0.002000
12	651308001.1	1.0076	2.0399E-05	1/19/2024 0:00	61.4	14.4	0.271227	0.069221	2.0	1.0	0.002000	0.002000
13	1205620195.1	1.0076	2.0399E-05	1/19/2024 0:00	64.0	12.9	0.282402	0.062774	2.0	1.0	0.002000	0.002000
14	1205620196.1	1.0076	2.0399E-05	1/19/2024 0:00	65.0	12.6	0.286700	0.061485	2.0	1.0	0.002000	0.002000
15	1205620197.1	1.0076	2.0399E-05	1/19/2024 0:00	64.7	11.4	0.285411	0.056327	2.0	1.0	0.002000	0.002000

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-030
Instrument SOP: GL-RAD-I-016

Count Raw Data							**Calibration Data**							
Pos.	Detector ID	Counting Time (min.)	Gross Counts Alpha	Gross Counts Beta	Beta cpm	Count Start Date/Time	Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Weekly Bkg cpm	Weekly Bkg Count Start Date/Time	Weekly Bkg Count Time (min.)
1	1A	60	7	96	1.600	1/24/2024 9:57	PIC	6/1/2023	5/31/2024	0.8025	0.00738	0.738	1/19/2024 18:15	500
2	1C	60	7	75	1.250	1/24/2024 9:57	PIC	6/1/2023	5/31/2024	0.8243	0.00847	0.852	1/19/2024 18:15	500
3	1D	60	6	57	0.950	1/24/2024 9:57	PIC	6/1/2023	5/31/2024	0.7984	0.00692	0.774	1/19/2024 18:15	500
4	2A	60	8	57	0.950	1/24/2024 9:57	PIC	6/1/2023	5/31/2024	0.8040	0.01914	0.770	1/19/2024 18:15	500
5	2B	60	2	60	1.000	1/24/2024 9:57	PIC	6/1/2023	5/31/2024	0.7942	0.02111	0.660	1/19/2024 18:15	500
6	2C	60	12	30	0.500	1/24/2024 9:57	PIC	6/1/2023	5/31/2024	0.7923	0.01274	0.316	1/19/2024 18:15	500
7	3B	60	1	38	0.633	1/24/2024 9:57	PIC	6/1/2023	5/31/2024	0.7452	0.01614	0.540	1/19/2024 18:15	500
8	3C	60	3	34	0.567	1/24/2024 9:58	PIC	6/1/2023	5/31/2024	0.7305	0.00988	0.386	1/19/2024 18:15	500
9	4A	60	2	47	0.783	1/24/2024 9:58	PIC	6/1/2023	5/31/2024	0.7488	0.01123	0.662	1/19/2024 18:15	500
10	4D	60	15	66	1.100	1/24/2024 9:58	PIC	6/1/2023	5/31/2024	0.7563	0.00773	1.404	1/19/2024 18:16	500
11	5C	60	5	22	0.367	1/24/2024 9:57	PIC	6/1/2023	5/31/2024	0.7829	0.00657	0.538	1/19/2024 18:16	500
12	5D	60	6	58	0.967	1/24/2024 9:58	PIC	6/1/2023	5/31/2024	0.7678	0.00925	0.630	1/19/2024 18:16	500
13	7A	60	0	26	0.433	1/24/2024 9:56	PIC	6/1/2023	5/31/2024	0.7532	0.00594	0.416	1/19/2024 18:10	500
14	7B	60	42	514	8.567	1/24/2024 9:57	PIC	6/1/2023	5/31/2024	0.7354	0.00627	0.470	1/19/2024 18:10	500
15	7D	60	14	121	2.017	1/24/2024 9:57	PIC	6/1/2023	5/31/2024	0.7398	0.01113	0.462	1/19/2024 18:10	500

Decay, Ingrowth & Yield Calculations

Pos.	Ac-228 Ingrowth Date/Time	Ac-228 Decay Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Ingrowth	Ac-228 Count Correction	Calculated Sample Recovery % Ba	Y	Total	Sample Recovery Error Ba	Y	Total
1	1/22/2024 10:45	1/24/2024 6:46	0.993	0.698	0.993	1.057	111%	56.3%	62.3%	1.13%	1.06%	1.55%
2	1/22/2024 10:45	1/24/2024 6:46	0.993	0.698	0.993	1.057	108%	39.8%	42.8%	1.13%	1.08%	1.56%
3	1/22/2024 10:45	1/24/2024 6:46	0.993	0.698	0.993	1.057	85.9%	66.4%	57.0%	1.13%	1.05%	1.55%
4	1/22/2024 10:45	1/24/2024 6:46	0.993	0.698	0.993	1.057	91.5%	45.4%	41.5%	1.13%	1.07%	1.56%
5	1/22/2024 10:45	1/24/2024 6:46	0.993	0.697	0.993	1.057	108%	69.4%	75.3%	1.13%	1.05%	1.54%
6	1/22/2024 10:45	1/24/2024 6:46	0.993	0.697	0.993	1.057	108%	50.7%	54.5%	1.13%	1.06%	1.55%
7	1/22/2024 10:45	1/24/2024 6:46	0.993	0.697	0.993	1.057	109%	40.2%	43.6%	1.13%	1.08%	1.56%
8	1/22/2024 10:45	1/24/2024 6:46	0.993	0.697	0.993	1.057	105%	40.5%	42.5%	1.13%	1.08%	1.56%
9	1/22/2024 10:45	1/24/2024 6:46	0.993	0.697	0.993	1.057	109%	48.4%	52.8%	1.13%	1.07%	1.55%
10	1/22/2024 10:45	1/24/2024 6:46	0.993	0.697	0.993	1.057	114%	72.4%	82.6%	1.13%	1.05%	1.54%
11	1/22/2024 10:45	1/24/2024 6:46	0.998	0.698	0.993	1.057	109%	51.4%	56.1%	1.13%	1.06%	1.55%
12	1/22/2024 10:45	1/24/2024 6:46	0.998	0.697	0.993	1.057	111%	54.0%	59.9%	1.13%	1.06%	1.55%
13	1/22/2024 10:45	1/24/2024 6:46	0.998	0.699	0.993	1.057	115%	48.4%	55.9%	1.13%	1.07%	1.55%
14	1/22/2024 10:45	1/24/2024 6:46	0.998	0.698	0.993	1.057	117%	47.3%	55.5%	1.13%	1.07%	1.55%
15	1/22/2024 10:45	1/24/2024 6:46	0.998	0.698	0.993	1.057	117%	42.8%	49.9%	1.13%	1.07%	1.56%

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

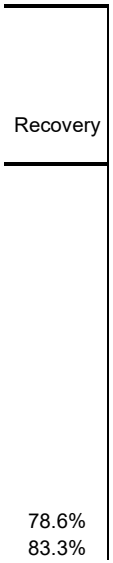
* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : 2051-C
Spike Exp Date : 4/27/2024
Spike Activity (dpm/ml): 77.18
Spike Volume Added: 0.50

LCS S/N : 2051-C
LCS Exp Date : 4/27/2024
LCS Activity (dpm/ml): 77.18
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	2 SIGMA Counting Uncertainty pCi/L	2 SIGMA Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L
1	0.3777	0.2667	1	0.6024	**1.1907**	19.54%	0.8620	0.1678	0.4542	0.4935		SAMPLE			
2	0.5750	0.4060	1	0.9098	**0.7789**	37.76%	0.3980	0.1501	0.5758	0.5896		SAMPLE			
3	0.4254	0.3004	1	0.6767	**0.2674**	74.93%	0.1760	0.1318	0.3925	0.3949		SAMPLE			
4	0.5774	0.4077	1	0.9187	**0.3721**	73.27%	0.1800	0.1318	0.5340	0.5376		SAMPLE			
5	0.2973	0.2099	1	0.4773	**0.3909**	39.53%	0.3400	0.1341	0.3022	0.3091		SAMPLE			
6	0.2850	0.2012	1	0.4820	**0.2930**	51.50%	0.1840	0.0947	0.2955	0.2994		SAMPLE			
7	0.4962	0.3503	1	0.8068	**0.1980**	115.59%	0.0933	0.1079	0.4485	0.4497		SAMPLE			
8	0.4400	0.3107	1	0.7326	**0.4019**	55.98%	0.1807	0.1011	0.4408	0.4456		SAMPLE			
9	0.4511	0.3185	1	0.7241	**0.2113**	98.85%	0.1213	0.1199	0.4094	0.4108		SAMPLE			
10	0.4156	0.2934	1	0.6419	**-0.3349**	47.86%	-0.3040	0.1454	0.3140	0.3140		SAMPLE			
11	0.3631	0.2564	1	0.5905	**-0.2665**	49.51%	-0.1713	0.0848	0.2584	0.2585		MB			
12	0.3762	0.2656	1	0.6057	**0.5013**	39.19%	0.3367	0.1318	0.3846	0.3931		TW			
13	0.3329	0.2350	1	0.5511	**0.0281**	517.76%	0.0173	0.0897	0.2852	0.2852	651308001.1	DUP	* 0.0%		
14	0.3654	0.2580	1	0.5996	**13.5557**	4.97%	8.0967	0.3791	1.2440	2.5231	651308001.1	MS			17.2527
15	0.4000	0.2824	1	0.6572	**2.8737**	12.11%	1.5547	0.1858	0.6733	0.8201		LCS			3.4505


Recovery
78.6%
83.3%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine	Batch ID
651104009	1A	60	7	96	1/24/2024 9:57	1/24/2024 10:57	PIC	2551408
651104010	1C	60	7	75	1/24/2024 9:57	1/24/2024 10:57	PIC	2551408
651104011	1D	60	6	57	1/24/2024 9:57	1/24/2024 10:57	PIC	2551408
651104012	2A	60	8	57	1/24/2024 9:57	1/24/2024 10:57	PIC	2551408
651135001	2B	60	2	60	1/24/2024 9:57	1/24/2024 10:57	PIC	2551408
651135002	2C	60	12	30	1/24/2024 9:57	1/24/2024 10:57	PIC	2551408
651135003	3B	60	1	38	1/24/2024 9:57	1/24/2024 10:57	PIC	2551408
651135004	3C	60	3	34	1/24/2024 9:58	1/24/2024 10:58	PIC	2551408
651135005	4A	60	2	47	1/24/2024 9:58	1/24/2024 10:58	PIC	2551408
651135006	4D	60	15	66	1/24/2024 9:58	1/24/2024 10:58	PIC	2551408
651308001	5D	60	6	58	1/24/2024 9:58	1/24/2024 10:58	PIC	2551408
1205620194	5C	60	5	22	1/24/2024 9:57	1/24/2024 10:57	PIC	2551408
1205620195	7A	60	0	26	1/24/2024 9:56	1/24/2024 10:56	PIC	2551408
1205620196	7B	60	42	514	1/24/2024 9:57	1/24/2024 10:57	PIC	2551408
1205620197	7D	60	14	121	1/24/2024 9:57	1/24/2024 10:57	PIC	2551408

Continuing Calibration Data

Gas Flow Proportional Counter Checks for 24-Jan-2024

Detectors LB4100 E1 through H4 and PIC 1A through 14D and G5400W 1W through 1Z and LB4200 GA1 through OD4

Short Name	Status	Parmname	Run Time	Count Time	CPM or dec	Low Limit	High Limit	Stdev
LB4100G2	Below	Alpha eff	24-Jan 05:40	5	11737	12110	13740	-4.37
LB4100G2	Above	Alpha XTalk	24-Jan 05:40	5	0.216	0.179	0.214	+3.46
LB4100G3	Below	Alpha eff	24-Jan 05:40	5	8035	8123	10070	-3.27
LB4100G3	Above	Beta bkg	24-Jan 04:36	60	2.767	0.716	2.721	+3.14
LB4100H1	Above	Alpha bkg	24-Jan 04:36	60	0.483	-8.08E-2	0.225	+8.06
LB4100H1	Above	Alpha eff	24-Jan 05:40	5	12093	7523	11160	+4.54
LB4100H1	Above	Beta bkg	24-Jan 04:36	60	3.567	-5.15E-1	3.743	+2.75
LB4100H2	Above	Alpha bkg	24-Jan 04:36	60	0.400	0.057	0.420	+2.67
LB4100H3	Below	Alpha XTalk	24-Jan 05:40	5	0.289	0.292	0.367	-3.25
LB4200GB2	need 2nd	Alpha eff	24-Jan 05:54	5	9472	9443	9898	-2.61
LB4200GB2	Above	Beta bkg	24-Jan 06:33	60	65.833	0.129	1.304	+332.37
LB4200OB1	need 2nd	Alpha bkg	24-Jan 04:41	60	0.067	-1.05E-1	0.362	-0.79
LB4200OB1	Above	Beta bkg	24-Jan 04:41	60	4.833	-2.59E-1	2.044	+10.27
PIC4C	Above	Alpha bkg	24-Jan 05:09	60	0.400	-6.39E-2	0.394	+3.08
PIC4C	Above	Alpha eff	24-Jan 04:54	5	23854	19080	21320	+9.79
PIC4C	Below	Alpha XTalk	24-Jan 04:54	5	0.087	0.210	0.310	-10.42
PIC4C	Below	Beta eff	24-Jan 05:02	5	19972	23400	26740	-9.16
PIC4C	Above	Beta XTalk	24-Jan 05:02	5	0.290	-3.23E-2	0.066	+16.68
PIC8D	Above	Alpha bkg	24-Jan 07:28	60	0.333	-4.64E-2	0.372	+2.45
PIC9A	Above	Beta bkg	24-Jan 06:36	60	2.050	0.060	1.587	+4.82
PIC14D	Above	Beta bkg	24-Jan 05:42	60	2.267	-2.45E-1	2.368	+2.77

INSTRUMENTS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

The following detectors may not have properly transferred to the LIMS system

PIC1B	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC5B	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC10B	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk

Reviewed by Jasmine Conley

Date 1/24/24

Runlogs

Instrument Run Log

Instrument Type: GFPC **Batch ID: 2551408**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1205620195	DUP	JE1	PIC7A	JAN-24-24 09:56:57	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
1205620196	MS	JE1	PIC7B	JAN-24-24 09:57:02	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
1205620197	LCS	JE1	PIC7D	JAN-24-24 09:57:07	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
1205620194	MB	JE1	PIC5C	JAN-24-24 09:57:26	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
651104009	SAMPLE	JE1	PIC1A	JAN-24-24 09:57:33	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
651104010	SAMPLE	JE1	PIC1C	JAN-24-24 09:57:39	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
651104011	SAMPLE	JE1	PIC1D	JAN-24-24 09:57:42	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
651104012	SAMPLE	JE1	PIC2A	JAN-24-24 09:57:46	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
651135001	SAMPLE	JE1	PIC2B	JAN-24-24 09:57:49	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
651135002	SAMPLE	JE1	PIC2C	JAN-24-24 09:57:52	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
651135003	SAMPLE	JE1	PIC3B	JAN-24-24 09:57:56	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
651135004	SAMPLE	JE1	PIC3C	JAN-24-24 09:58:00	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
651135005	SAMPLE	JE1	PIC4A	JAN-24-24 09:58:06	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
651135006	SAMPLE	JE1	PIC4D	JAN-24-24 09:58:09	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00
651308001	TW	JE1	PIC5D	JAN-24-24 09:58:15	DONE	Yttrium Oxalate on 47mm filter	01-JUN-23 00:00

Lucas Cell Raw Data

Batch 2551043 Check-list

This check-list was completed on 29-JAN-24 by Lyndsey Pace

This batch was reviewed by Lyndsey Pace on 29-JAN-24 and Kate Gellatly on 30-JAN-24.

Batch ID: 2551043 **Product:** LUC26RAD **Description:** Lucas Cell Radium-226 GL-RAD-A-028

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous		No	
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
10	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-226 in Drinking Water by EPA 903.1

Batch ID: **2551043**
Analyst: Lyndsey Pace (LXP1)
Method: EPA 903.1
Lab SOP: GL-RAD-A-028 REV# 20
Instrument: LUCAS-C202389980
Ludlum Alpha Scintillation Detector

Due Dates for Lab: 03-FEB-2024 **Package: 05-FEB-2024** **SDG: 06-FEB-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
MS	1205619668	Ra-226 emanation spike	1715-I	.1	mL
LCS	1205619669	Ra-226 emanation spike	1715-I	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	End Degas (date)	CELL #	End Transfer (date)	Start Count Time (date)	Background Counts	Total Counts
1	651104009	23-JAN-2024	1	917.68	917.68	01/25/24 10:10	207D	01/29/24 04:14	01/29/24 08:24	5	3
2	651104010	23-JAN-2024	1	907.83	907.83	01/25/24 10:10	402D	01/29/24 04:14	01/29/24 08:24	1	4
3	651104011	23-JAN-2024	1	899.19	899.19	01/25/24 10:10	503D	01/29/24 04:14	01/29/24 08:24	1	4
4	651104012	23-JAN-2024	1	922.27	922.27	01/25/24 10:10	603D	01/29/24 04:14	01/29/24 08:24	5	6
5	651135001	23-JAN-2024	1	845.92	845.92	01/25/24 10:10	704D	01/29/24 04:14	01/29/24 08:24	5	3
6	651135002	23-JAN-2024	1	896.81	896.81	01/25/24 10:10	201D	01/29/24 04:22	01/29/24 08:59	3	7
7	651135003	23-JAN-2024	1	873.27	873.27	01/25/24 10:10	401D	01/29/24 04:22	01/29/24 08:59	6	12
8	651135004	23-JAN-2024	1	856.67	856.67	01/25/24 10:10	502D	01/29/24 04:22	01/29/24 08:59	2	3
9	651135005	23-JAN-2024	1	869.32	869.32	01/25/24 10:10	602D	01/29/24 04:22	01/29/24 08:59	5	7
10	651135006	23-JAN-2024	1	888.37	888.37	01/25/24 10:10	705D	01/29/24 04:22	01/29/24 08:59	2	3
12	1205619666 MB	23-JAN-2024	1		922.27	01/25/24 10:10	205D	01/29/24 04:28	01/29/24 09:35	3	1
13	651205001 TW	23-JAN-2024	1		922.27	01/25/24 10:10	405D	01/29/24 04:28	01/29/24 09:35	4	1
14	1205619667 DUP (651205001)	23-JAN-2024	1		922.27	01/25/24 10:10	501D	01/29/24 04:28	01/29/24 09:35	4	6
15	1205619668 MS (651205001)	23-JAN-2024	1		922.27	01/25/24 10:10	604D	01/29/24 04:28	01/29/24 09:35	8	372
16	1205619669 LCS	23-JAN-2024	1		922.27	01/25/24 10:10	706D	01/29/24 04:28	01/29/24 09:35	2	381

Reagent/Solvent Lot ID	Description	Amount

Comments:
Data Entry Date2: 23-JAN-2024 00:00

Radium-226 Liquid

Filename : RA226.XLS
File type : Excel
Version # : 1.3.2

Batch : 2551043
Analyst : LIN01615
Prep Date : 1/23/2024
Ra-226 Method Uncertainty : 0.0689

Procedure Code : LUC26RAD
Parmname : Radium-226
Required MDA : 1 pCi/L
Halflife of Ra-226 : 1600 years
Ra-226 Abundance : 1.00
Halflife of Rn-222: 3.8235 days

Batch counted on : LUCAS CELL DETECTOR
BKG Count time : 30 min

Sample Characteristics					**Count Raw Data**							
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Background Count Time (min.)	Cell Efficiency (cpm/dpm)
1	651104009.1	0.9177	2.0725E-05	1/4/2024 8:14	207D	15	3	0.200	5	0.167	30	2.2190
2	651104010.1	0.9078	2.0750E-05	1/4/2024 7:42	402D	15	4	0.267	1	0.033	30	2.2970
3	651104011.1	0.8992	2.0769E-05	1/4/2024 7:27	503D	15	4	0.267	1	0.033	30	2.0270
4	651104012.1	0.9223	2.0712E-05	1/4/2024 7:13	603D	15	6	0.400	5	0.167	30	2.2600
5	651135001.1	0.8459	2.0846E-05	1/3/2024 15:08	704D	15	3	0.200	5	0.167	30	1.8270
6	651135002.1	0.8968	2.0774E-05	1/3/2024 11:30	201D	15	7	0.467	3	0.100	30	1.9190
7	651135003.1	0.8733	2.0816E-05	1/3/2024 12:50	401D	15	12	0.800	6	0.200	30	1.9860
8	651135004.1	0.8567	2.0837E-05	1/3/2024 14:34	502D	15	3	0.200	2	0.067	30	1.9570
9	651135005.1	0.8693	2.0821E-05	1/3/2024 12:50	602D	15	7	0.467	5	0.167	30	2.0700
10	651135006.1	0.8884	2.0791E-05	1/3/2024 9:25	705D	15	3	0.200	2	0.067	30	1.4340
11	1205619666.1	0.9223	2.0712E-05	1/23/2024 0:00	205D	15	1	0.067	3	0.100	30	2.1890
12	651205001.1	0.9223	2.0712E-05	1/23/2024 0:00	405D	15	1	0.067	4	0.133	30	2.5140
13	1205619667.1	0.9223	2.0712E-05	1/23/2024 0:00	501D	15	6	0.400	4	0.133	30	1.9200
14	1205619668.1	0.9223	2.0712E-05	1/23/2024 0:00	604D	15	372	24.800	8	0.267	30	2.0740
15	1205619669.1	0.9223	2.0712E-05	1/23/2024 0:00	706D	15	381	25.400	2	0.067	30	1.8860

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-028
Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections			
						De-Gas to Ingrowth	Ingrowth to Count	During Count	Ra-226 Decay
4.000%	3/20/2023	3/31/2024	1/25/2024 10:10	1/29/2024 4:14	1/29/2024 8:24	0.494	0.969	1.001	1.000
6.300%	2/6/2023	1/31/2024	1/25/2024 10:10	1/29/2024 4:14	1/29/2024 8:24	0.494	0.969	1.001	1.000
7.300%	6/1/2023	5/31/2024	1/25/2024 10:10	1/29/2024 4:14	1/29/2024 8:24	0.494	0.969	1.001	1.000
5.400%	4/11/2023	3/31/2024	1/25/2024 10:10	1/29/2024 4:14	1/29/2024 8:24	0.494	0.969	1.001	1.000
5.200%	12/11/2023	11/30/2024	1/25/2024 10:10	1/29/2024 4:14	1/29/2024 8:24	0.494	0.969	1.001	1.000
6.500%	3/20/2023	3/31/2024	1/25/2024 10:10	1/29/2024 4:22	1/29/2024 8:59	0.494	0.966	1.001	1.000
7.100%	2/6/2023	1/31/2024	1/25/2024 10:10	1/29/2024 4:22	1/29/2024 8:59	0.494	0.966	1.001	1.000
9.500%	6/1/2023	5/31/2024	1/25/2024 10:10	1/29/2024 4:22	1/29/2024 8:59	0.494	0.966	1.001	1.000
5.300%	4/11/2023	3/31/2024	1/25/2024 10:10	1/29/2024 4:22	1/29/2024 8:59	0.494	0.966	1.001	1.000
5.000%	12/11/2023	11/30/2024	1/25/2024 10:10	1/29/2024 4:22	1/29/2024 8:59	0.494	0.966	1.001	1.000
3.100%	3/20/2023	3/31/2024	1/25/2024 10:10	1/29/2024 4:28	1/29/2024 9:35	0.494	0.962	1.001	1.000
4.200%	2/6/2023	1/31/2024	1/25/2024 10:10	1/29/2024 4:28	1/29/2024 9:35	0.494	0.962	1.001	1.000
6.400%	6/1/2023	5/31/2024	1/25/2024 10:10	1/29/2024 4:28	1/29/2024 9:35	0.494	0.962	1.001	1.000
0.700%	4/11/2023	3/31/2024	1/25/2024 10:10	1/29/2024 4:28	1/29/2024 9:35	0.494	0.962	1.001	1.000
8.900%	12/11/2023	11/30/2024	1/25/2024 10:10	1/29/2024 4:28	1/29/2024 9:35	0.494	0.962	1.001	1.000

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : 1715-I
Spike Exp Date : 8/29/2024
Spike Activity (dpm/ml): 304.16
Spike Volume Added: 0.10

LCS S/N : 1715-I
LCS Exp Date : 8/29/2024
LCS Activity (dpm/ml): 304.16
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	2 SIGMA Counting Uncertainty pCi/L	2 SIGMA Total Prop. Uncertainty pCi/L	Sample QC	Sample Type		RPD	RER	Nominal pCi/L	Recovery
1	0.1393	0.0983	1	0.2892	**0.0154**	412.33%	0.0333	0.1374	0.1247	0.1247		SAMPLE					
2	0.0608	0.0429	1	0.1763	**0.1055**	59.24%	0.2333	0.1374	0.1218	0.1233		SAMPLE					
3	0.0696	0.0491	1	0.2017	**0.1207**	59.35%	0.2333	0.1374	0.1393	0.1413		SAMPLE					
4	0.1361	0.0961	1	0.2826	**0.1055**	77.12%	0.2333	0.1795	0.1591	0.1602		SAMPLE					
5	0.1835	0.1295	1	0.3811	**0.0203**	412.34%	0.0333	0.1374	0.1643	0.1644		SAMPLE					
6	0.1279	0.0903	1	0.2905	**0.2013**	51.03%	0.3667	0.1856	0.1997	0.2032		SAMPLE					
7	0.1795	0.1268	1	0.3625	**0.3269**	41.44%	0.6000	0.2449	0.2616	0.2692		SAMPLE					
8	0.1072	0.0757	1	0.2642	**0.0752**	94.02%	0.1333	0.1247	0.1378	0.1389		SAMPLE					
9	0.1580	0.1115	1	0.3281	**0.1575**	64.05%	0.3000	0.1915	0.1971	0.1989		SAMPLE					
10	0.1411	0.0996	1	0.3476	**0.0989**	93.67%	0.1333	0.1247	0.1813	0.1821		SAMPLE					
11	0.1094	0.0772	1	0.2484	**-0.0156**	264.59%	-0.0333	0.0882	0.0812	0.0812		MB					
12	0.1100	0.0777	1	0.2371	**-0.0273**	141.48%	-0.0667	0.0943	0.0755	0.0756		TW					
13	0.1440	0.1017	1	0.3104	**0.1427**	66.45%	0.2667	0.1764	0.1850	0.1869	651205001.1	DUP	*	0.0%			
14	0.1885	0.1331	1	0.3653	**12.1568**	5.30%	24.5333	1.2893	1.2522	2.0715	651205001.1	MS				14.8555	81.8%
15	0.1037	0.0732	1	0.2554	**13.8046**	10.28%	25.3333	1.3021	1.3907	3.3479		LCS				14.8555	92.9%

Continuing Calibration Data

Ludlum Alpha Scintillation Counter Checks for 29-JAN-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	05:29	1	1.12E+05	112440	0.32		
LUCAS2	EFF	05:27	1	1.28E+05	127807	-1.61		
LUCAS3	EFF	05:23	1	94524	94524	2.23		
LUCAS4	EFF	05:21	1	1.25E+05	125386	0.1		
LUCAS5	EFF	05:18	1	1.27E+05	127313	-1.87		
LUCAS6	EFF	05:15	1	1.29E+05	129236	1.75		
LUCAS7	EFF	05:13	1	1.30E+05	130367	-0.69		
LUCAS8	EFF	05:08	1	1.07E+05	106799	-2.11		

Reviewed by: Lyndsey Pace **Date:** 29-JAN-24

Lyndsey Pace

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR **Batch ID: 2551043**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
651104009	SAMPLE	LXP1	LUCAS2	JAN-29-24 08:24:00	DONE	Lucas Cell	20-MAR-23 00:00
651104010	SAMPLE	LXP1	LUCAS4	JAN-29-24 08:24:00	DONE	Lucas Cell	06-FEB-23 00:00
651104011	SAMPLE	LXP1	LUCAS5	JAN-29-24 08:24:00	DONE	Lucas Cell	01-JUN-23 12:00
651104012	SAMPLE	LXP1	LUCAS6	JAN-29-24 08:24:00	DONE	Lucas Cell	11-APR-23 00:00
651135001	SAMPLE	LXP1	LUCAS7	JAN-29-24 08:24:00	DONE	Lucas Cell	11-DEC-23 00:00
651135002	SAMPLE	LXP1	LUCAS2	JAN-29-24 08:59:00	DONE	Lucas Cell	20-MAR-23 00:00
651135003	SAMPLE	LXP1	LUCAS4	JAN-29-24 08:59:00	DONE	Lucas Cell	06-FEB-23 00:00
651135004	SAMPLE	LXP1	LUCAS5	JAN-29-24 08:59:00	DONE	Lucas Cell	01-JUN-23 12:00
651135005	SAMPLE	LXP1	LUCAS6	JAN-29-24 08:59:00	DONE	Lucas Cell	11-APR-23 00:00
651135006	SAMPLE	LXP1	LUCAS7	JAN-29-24 08:59:00	DONE	Lucas Cell	11-DEC-23 00:00
651205001	TW	LXP1	LUCAS4	JAN-29-24 09:35:00	DONE	Lucas Cell	06-FEB-23 00:00
1205619666	MB	LXP1	LUCAS2	JAN-29-24 09:35:00	DONE	Lucas Cell	20-MAR-23 00:00
1205619667	DUP	LXP1	LUCAS5	JAN-29-24 09:35:00	DONE	Lucas Cell	01-JUN-23 12:00
1205619668	MS	LXP1	LUCAS6	JAN-29-24 09:35:00	DONE	Lucas Cell	11-APR-23 00:00
1205619669	LCS	LXP1	LUCAS7	JAN-29-24 09:35:00	DONE	Lucas Cell	11-DEC-23 00:00

Analytical Laboratory Report

Final Report

Report ID: S58527.01(02)
Generated on 03/08/2024
Replaces report S58527.01(01) generated on 02/12/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

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Report Summary

Lab Sample ID(s): S58527.01-S58527.06
Project: Erickson Well Project 100A-100D
Collected Date(s): 02/07/2024
Submitted Date/Time: 02/08/2024 09:42
Sampled by: Marc Wahrer
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

All analyses completed

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2320B	Standard Method 2320 B 2011
SM2340C	Standard Method 2340 C 2011
SM2540C	Standard Method 2540 C 2015
SM2540D	Standard Method 2540 D 2015
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S58527.01	MW-100A L402146-01	Groundwater	02/07/24 15:20
S58527.02	MW-100B L402146-02	Groundwater	02/07/24 11:14
S58527.03	MW-100C L402146-03	Groundwater	02/07/24 12:43
S58527.04	MW-100D L402146-04	Groundwater	02/07/24 14:18
S58527.05	MWT-100C L402146-05	Groundwater	02/07/24 12:43
S58527.06	Field Blank L402146-06	Water	02/07/24 09:18

Lab Sample ID: S58527.01
Sample Tag: MW-100A L402146-01
Collected Date/Time: 02/07/2024 15:20
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/12/24 10:59	CTV	
Metal Digestion	Completed	SW3015A	02/12/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 02/09/24 13:38, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	10.6	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	21.7	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 20:41, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	431	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/12/24 15:32, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	400	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/08/24 23:53, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	410	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/13/24 12:44, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	5.3	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/12/24 12:06, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.018	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.200	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	0.05	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	
Iron	2.59	0.02	0.014	mg/L	5	7439-89-6	

Lab Sample ID: S58527.01 (continued)
Sample Tag: MW-100A L402146-01

Method: E200.8, Run Date: 02/12/24 12:06, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.014	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.008	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/12/24 15:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	90.9	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	36.0	0.50	0.058	mg/L	5	7439-95-4	
Potassium	1.83	0.50	0.12	mg/L	5	7440-09-7	
Sodium	10.4	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/12/24 14:51, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 03/04/24 08:36, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58527.02
Sample Tag: MW-100B L402146-02
Collected Date/Time: 02/07/2024 11:14
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/12/24 10:59	CTV	
Metal Digestion	Completed	SW3015A	02/12/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 02/09/24 13:50, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	22.3	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	107	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 21:25, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	339	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/12/24 15:38, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	367	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/08/24 23:53, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	496	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/13/24 12:44, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	4.9	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/12/24 12:10, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.011	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.147	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	0.26	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	
Iron	2.40	0.02	0.014	mg/L	5	7439-89-6	

Lab Sample ID: S58527.02 (continued)
Sample Tag: MW-100B L402146-02

Method: E200.8, Run Date: 02/12/24 12:10, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.017	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.009	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/12/24 15:24, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	96.8	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	29.4	0.50	0.058	mg/L	5	7439-95-4	
Potassium	3.46	0.50	0.12	mg/L	5	7440-09-7	
Sodium	27.1	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/12/24 14:54, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 03/04/24 09:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58527.03
Sample Tag: MW-100C L402146-03
Collected Date/Time: 02/07/2024 12:43
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/12/24 10:59	CTV	
Metal Digestion	Completed	SW3015A	02/12/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 02/09/24 14:03, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	4.7	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	5.8	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 21:30, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	350	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/12/24 15:43, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	238	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/08/24 23:53, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	300	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/13/24 12:44, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/12/24 12:13, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.075	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	1.87	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58527.03 (continued)
Sample Tag: MW-100C L402146-03

Method: E200.8, Run Date: 02/12/24 12:13, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.59	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.033	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/12/24 15:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	58.7	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	17.3	0.50	0.058	mg/L	5	7439-95-4	
Potassium	6.12	0.50	0.12	mg/L	5	7440-09-7	
Sodium	25.7	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/12/24 14:57, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 03/04/24 09:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58527.04
Sample Tag: MW-100D L402146-04
Collected Date/Time: 02/07/2024 14:18
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/12/24 10:59	CTV	
Metal Digestion	Completed	SW3015A	02/12/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 02/09/24 14:16, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	9.1	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	0.3	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	31.0	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 21:36, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	443	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/12/24 15:47, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	69	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/08/24 23:53, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	468	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/13/24 12:44, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.8	3	1	mg/L	1		b

Metals

Method: E200.8, Run Date: 02/12/24 12:17, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.003	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.012	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	2.84	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58527.04 (continued)
Sample Tag: MW-100D L402146-04

Method: E200.8, Run Date: 02/12/24 12:17, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.13	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.020	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.007	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/12/24 15:27, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	20.2	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	3.68	0.50	0.058	mg/L	5	7439-95-4	
Potassium	4.00	0.50	0.12	mg/L	5	7440-09-7	
Sodium	136	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/12/24 15:00, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 03/04/24 09:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58527.05
Sample Tag: MWT-100C L402146-05
Collected Date/Time: 02/07/2024 12:43
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/12/24 10:59	CTV	
Metal Digestion	Completed	SW3015A	02/12/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 02/09/24 14:29, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	4.8	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	5.6	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 22:03, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	354	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/12/24 16:15, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	230	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/08/24 23:53, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	298	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/13/24 12:44, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/12/24 12:20, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.073	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	1.81	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58527.05 (continued)
Sample Tag: MWT-100C L402146-05

Method: E200.8, Run Date: 02/12/24 12:20, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.58	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.032	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/12/24 15:30, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	59.5	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	17.5	0.50	0.058	mg/L	5	7439-95-4	
Potassium	6.03	0.50	0.12	mg/L	5	7440-09-7	
Sodium	26.0	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/12/24 15:04, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 03/04/24 09:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58527.06
Sample Tag: Field Blank L402146-06
Collected Date/Time: 02/07/2024 09:18
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/12/24 10:59	CTV	
Metal Digestion	Completed	SW3015A	02/12/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 02/09/24 14:42, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	1.3	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	Not detected	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 22:08, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	1.2	10	0.504	mg/L	1	71-52-3	b
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/12/24 16:19, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	Not detected	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/08/24 23:53, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/13/24 12:44, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/12/24 12:02, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00090	mg/L	2	7440-36-0	
Arsenic	Not detected	0.002	0.00058	mg/L	2	7440-38-2	
Barium	Not detected	0.005	0.00036	mg/L	2	7440-39-3	
Beryllium	Not detected	0.001	0.000080	mg/L	2	7440-41-7	
Boron	Not detected	0.04	0.0064	mg/L	2	7440-42-8	
Cadmium	Not detected	0.0005	0.00014	mg/L	2	7440-43-9	
Chromium	Not detected	0.005	0.00030	mg/L	2	7440-47-3	
Cobalt	Not detected	0.005	0.00018	mg/L	2	7440-48-4	
Copper	Not detected	0.005	0.00032	mg/L	2	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58527.06 (continued)
Sample Tag: Field Blank L402146-06

Method: E200.8, Run Date: 02/12/24 12:02, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	Not detected	0.02	0.0057	mg/L	2	7439-89-6	
Lead	Not detected	0.003	0.00018	mg/L	2	7439-92-1	
Lithium*	Not detected	0.005	0.00054	mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005	0.0017	mg/L	2	7439-98-7	
Nickel	Not detected	0.005	0.00046	mg/L	2	7440-02-0	
Selenium	Not detected	0.005	0.0017	mg/L	2	7782-49-2	
Silver	Not detected	0.0005	0.00010	mg/L	2	7440-22-4	
Thallium	Not detected	0.002	0.00014	mg/L	2	7440-28-0	
Vanadium	Not detected	0.005	0.00082	mg/L	2	7440-62-2	
Zinc	Not detected	0.005	0.0013	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 02/12/24 15:20, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	Not detected	0.50	0.087	mg/L	2	7440-70-2	
Magnesium	Not detected	0.50	0.023	mg/L	2	7439-95-4	
Potassium	Not detected	0.50	0.048	mg/L	2	7440-09-7	
Sodium	Not detected	0.50	0.044	mg/L	2	7440-23-5	

Method: E245.1, Run Date: 02/12/24 15:07, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 03/04/24 09:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S58527
Client: BWL01 (Board of Water & Light)
Project: Erickson Well Project 100A-100D
Submitted: 02/08/2024 09:42 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 1.9
02.	☒ Yes	☐ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☐ Yes	☒ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☐ Yes	☐ No	☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☒ Yes	☐ No	☐ N/A	Subcontracting needed? Subcontacted to:	GEL
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☒ Yes	☐ No	☐ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☐ No	☒ N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S58527 Submitted: 02/08/2024 09:42

Client: BWL01 (Board of Water & Light)

Project: Erickson Well Project 100A-100D

Initial Preservation Check: 02/08/2024 10:17 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S58527.01	125mL Plastic HNO3	<2			
S58527.01	1L Plastic HNO3	<2			
S58527.01	1L Plastic HNO3	<2			
S58527.02	125mL Plastic HNO3	<2			
S58527.02	1L Plastic HNO3	<2			
S58527.02	1L Plastic HNO3	<2			
S58527.03	125mL Plastic HNO3	<2			
S58527.03	1L Plastic HNO3	<2			
S58527.03	1L Plastic HNO3	<2			
S58527.04	125mL Plastic HNO3	<2			
S58527.04	1L Plastic HNO3	<2			
S58527.04	1L Plastic HNO3	<2			
S58527.05	125mL Plastic HNO3	<2			
S58527.05	1L Plastic HNO3	<2			
S58527.05	1L Plastic HNO3	<2			
S58527.06	125mL Plastic HNO3	<2			
S58527.06	1L Plastic HNO3	<2			
S58527.06	1L Plastic HNO3	<2			

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing STATE: Mi ZIP CODE: 48901
PHONE NO.: 517-702-6372 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Well Project 100A-100D
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Marc Wahrer

TURNAROUND TIME REQUIRED ☐1 DAY ☒2 DAYS ☐3 DAYS ☐STANDARD ☒OTHER ASAP

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☒LEVEL III ☐LEVEL IV ☒EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☒NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION		MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total Metals	F- undistilled, Cl-, SO4, TDS	Radium 226	Radium 228	TSS	HCO3, CO3, Hardness	Special Instructions
58527.01	02/07/24	1520	MW-100A	L402146-01	GW	5	2		3					✓	✓	✓	✓	✓	✓	Metals to analyse:Na, Mg, K
.02	02/07/24	1114	MW-100B	L402146-02	GW	5	2		3					✓	✓	✓	✓	✓	✓	B, Ca, Sb, As, Ba, Be, Cd, Cr,
.03	02/07/24	1243	MW-100C	L402146-03	GW	5	2		3					✓	✓	✓	✓	✓	✓	Co, Li, Hg, Mo,Pb,Se, Tl,
.04	02/07/24	1418	MW-100D	L402146-04	GW	5	2		3					✓	✓	✓	✓	✓	✓	Fe, Cu, Ni, Ag, V, Zn
.05	02/07/24	1243	MWT-100C	L402146-05	GW	5	2		3					✓	✓	✓	✓	✓	✓	Please send a preliminary report
.06	02/07/24	0918	Field Blank	L402146-06	DI	5	2		3					✓	✓	✓	✓	✓	✓	

RELINQUISHED BY: SIGNATURE/ORGANIZATION (Sampler)	DATE: 2-8-24	TIME: 0942	RELINQUISHED BY: SIGNATURE/ORGANIZATION
RECEIVED BY: SIGNATURE/ORGANIZATION: M Chilcote	DATE: 2/8/24	TIME: 0942	RECEIVED BY: SIGNATURE/ORGANIZATION
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME	

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL: 1.9

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.16.12

Reporting Limits to go to Merit with COC

Sb, total	Antimony	250 mL plastic	mg/L	Nitric Acid	200.7	6 mos	0.005
As, total	Arsenic	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
Ba, total		250 mL plastic	mg/L	Nitric Acid	200.8	6mos	0.150
Be, total	Beryllium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.001
B, total	Boron	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.04
Cd, total	Cadmium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
Ca	Calcium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	2.5
Cl	Chloride	250 mL plastic	mg/L	Chill	300.0	28 d	10
Cr, total	Chromium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Co, total	Cobalt	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Cu, total	Copper	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
F	Fluoride	250 mL plastic	mg/L	None	9056	28 d	1.0
Fe, total	Iron	250 mL plastic	mg/L	Nitric Acid	300.0	6 mos	0.02
Pb, total	Lead	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.003
Li, total	Lithium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Hg, total	Mercury	250 mL plastic	mg/L	HNO3	245.1	28 d	0.0002
Mo, total	Molybdenum	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ni, total	Nickel	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
RA226/228	Radium 226 and 228 combined	(2) 1 L plastic	pCi/L	HNO3	SM 7500	6 mos	2.0 combined
Se, total	Selenium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ag, total	Silver	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
SO4	Sulfate	250 mL plastic	mg/L	Chill	300.0	28 d	10
Tl, total	Thallium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
TDS	Total Dissolved Solids	1 L plastic	mg/L	None	SM 2540C	NA	20
TSS	Total Suspended Solids	1 L plastic	mg/L	None	SM 2540D	NA	3
V, total	Vanadium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Zn, total	Zinc	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005

GEL Laboratories LLC
a member of The GEL Group INC

2040 Savage Road | Charleston, SC 29407
843.556.8171
gel.com

March 07, 2024

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 655017
SDG: S58527

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 12, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Delaney Stonesmith

Delaney Stonesmith
Project Manager

Purchase Order: GELP20-0018
Enclosures

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Case Narrative

Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S58527
Work Order: 655017

March 07, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on February 12, 2024 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
655017001	S58527.01
655017002	S58527.02
655017003	S58527.03
655017004	S58527.04
655017005	S58527.05
655017006	S58527.06 Field Blank

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.

Delaney Stonesmith
Project Manager

Chain of Custody and Supporting Documentation

655017

Merit Laboratories, Inc
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing | STATE: MI | ZIP CODE: 48823
PHONE NO.: 517-332-0167 | FAX NO.: | P.O. NO.:
E-MAIL ADDRESS: results@meritlabs.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague ☒ SAME
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing | STATE: MI | ZIP CODE: 48823
PHONE NO.: 517-332-0167 | E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S58527 | SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☐LEVEL III ☒LEVEL IV ☐EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☐NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Radium 226*	Radium 228**
	2/7/24	1520	S58527.01	GW	2			2					✓	✓
	2/7/24	1114	S58527.02	GW	2			2					✓	✓
	2/7/24	1243	S58527.03	GW	2			2					✓	✓
	2/7/24	1418	S58527.04	GW	2			2					✓	✓
	2/7/24	1243	S58527.05	GW	2			2					✓	✓
	2/7/24	0918	S58527.06 Field Blank	GW	2			2					✓	✓

Special Instructions:
* E903.1 Mod.
** E904.0/SW 9320 Mod.
Please use calculation product & provide Radium 226/228 combined results on the report
(No Ice needed)
** Subcontracted to
GEL Laboratories, Inc.
2040 Savage Road
Charleston, SC 29407

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐Sampler	DATE 2/8/24	TIME 1700
RECEIVED BY: SIGNATURE/ORGANIZATION	WPS	DATE 2/8/24	TIME 1700
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	Stacy Boone	DATE 2/12/24	TIME 940
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	NOTES: TEMP. ON ARRIVAL
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: MERT	SDG/AR/COC/Work Order: 658017
Received By: SB	Date Received: 2/12/24
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 1Z 466 477 03 6286 9184

Suspected Hazard Information	Yes	No	
			*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A) Shipped as a DOT Hazardous?		/	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		/	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		/	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		/	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		/	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	/			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	/			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		/		Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 19°c
4	Daily check performed and passed on IR temperature gun?	/			Temperature Device Serial #: IR3-23 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	/			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	/			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			/	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	/			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	/			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	/			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	/			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?	/			
13	COC form is properly signed in relinquished/received sections?	/			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials AM Date 02/15/24 Page 1 of 1

GL-CHL-SR-001 Rev 7

Laboratory Certifications

List of current GEL Certifications as of 07 March 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122024-05
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-23-21
Utah NELAP	SC000122023-38
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S58527
Work Order #: 655017

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2570188

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
655017001	S58527.01
655017002	S58527.02
655017003	S58527.03
655017004	S58527.04
655017005	S58527.05
655017006	S58527.06 Field Blank
1205653413	Method Blank (MB)
1205653414	654532001(S58248.01) Sample Duplicate (DUP)
1205653415	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2570168

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
655017001	S58527.01
655017002	S58527.02
655017003	S58527.03
655017004	S58527.04
655017005	S58527.05
655017006	S58527.06 Field Blank
1205653347	Method Blank (MB)
1205653348	654458007(NonSDG) Sample Duplicate (DUP)
1205653349	654458007(NonSDG) Matrix Spike (MS)
1205653350	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1205653349 (Non SDG 654458007MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MERI001 Merit Laboratories, Inc.

Client SDG: S58527 GEL Work Order: 655017

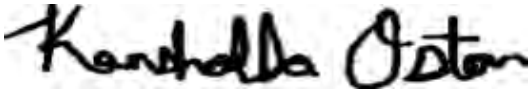
The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:  **Name: Kenshalla Oston**

Date: 08 MAR 2024 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 8, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58527.01
Sample ID: 655017001
Matrix: Ground Water
Collect Date: 07-FEB-24 15:20
Receive Date: 12-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.529	+/-1.11	1.96	3.00	pCi/L			JE1	02/29/24	1207	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.10	+/-1.26			pCi/L			NXL1	03/07/24	1155	2572520	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.570	+/-0.604	0.948	1.00	pCi/L			LXP1	03/04/24	0836	2570168	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			81.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 8, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S58527.02	Project:	MERI00120
Sample ID:	655017002	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	07-FEB-24 11:14		
Receive Date:	12-FEB-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.482	+/-0.879	1.55	3.00	pCi/L			JE1	02/29/24	1207	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.51	+/-1.07			pCi/L			NXL1	03/07/24	1155	2572520	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.03	+/-0.615	0.524	1.00	pCi/L			LXP1	03/04/24	0910	2570168	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.3	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: March 8, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S58527.03	Project:	MERI00120
Sample ID:	655017003	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	07-FEB-24 12:43		
Receive Date:	12-FEB-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.346	+/-0.748	1.35	3.00	pCi/L			JE1	02/29/24	1207	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.56	+/-1.07			pCi/L			NXL1	03/07/24	1155	2572520	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.21	+/-0.765	0.835	1.00	pCi/L			LXP1	03/04/24	0910	2570168	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			83.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 8, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S58527.04	Project:	MERI00120
Sample ID:	655017004	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	07-FEB-24 14:18		
Receive Date:	12-FEB-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.00918	+/-1.20	2.24	3.00	pCi/L			JE1	02/29/24	1207	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.524	+/-1.30			pCi/L			NXL1	03/07/24	1155	2572520	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.515	+/-0.515	0.724	1.00	pCi/L			LXP1	03/04/24	0910	2570168	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			76.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 8, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58527.05
Sample ID: 655017005
Matrix: Ground Water
Collect Date: 07-FEB-24 12:43
Receive Date: 12-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		2.56	+/-1.23	1.74	3.00	pCi/L			JE1	02/29/24	1207	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.25	+/-1.33			pCi/L			NXL1	03/07/24	1155	2572520	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.682	+/-0.515	0.659	1.00	pCi/L			LXP1	03/04/24	0910	2570168	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			82.9	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 8, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58527.06 Field Blank
Sample ID: 655017006
Matrix: Ground Water
Collect Date: 07-FEB-24 09:18
Receive Date: 12-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.17	+/-1.23	2.06	3.00	pCi/L			JE1	02/29/24	1207	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.58	+/-1.30			pCi/L			NXL1	03/07/24	1155	2572520	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.409	+/-0.409	0.532	1.00	pCi/L			LXP1	03/04/24	0910	2570168	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			78	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Data

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 8, 2024

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: **John Laverty**

Workorder: **655017**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 2570188										
QC1205653414 654532001 DUP										
Radium-228	U	0.161	U	0.346	pCi/L	N/A		N/A	JE1	02/29/24 12:06
	Uncertainty	+/-1.06		+/-0.655						
QC1205653415 LCS										
Radium-228	72.1			60.4	pCi/L		83.8	(75%-125%)		02/29/24 12:06
	Uncertainty			+/-4.09						
QC1205653413 MB										
Radium-228			U	-0.0339	pCi/L					02/29/24 12:06
	Uncertainty			+/-1.17						
Rad Ra-226										
Batch 2570168										
QC1205653348 654458007 DUP										
Radium-226		1.29		1.33	pCi/L	3.55		(0% - 100%)	LXP1	03/04/24 09:46
	Uncertainty	+/-0.961		+/-0.766						
QC1205653350 LCS										
Radium-226	26.4			23.3	pCi/L		88.1	(75%-125%)		03/04/24 09:46
	Uncertainty			+/-2.59						
QC1205653347 MB										
Radium-226			U	0.249	pCi/L					03/04/24 09:46
	Uncertainty			+/-0.352						
QC1205653349 654458007 MS										
Radium-226	136	1.29		121	pCi/L		87.6	(75%-125%)		03/04/24 09:46
	Uncertainty	+/-0.961		+/-14.1						

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported
- > Result is greater than value reported

QC Summary

Workorder: **655017**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

UI	Gamma Spectroscopy--Uncertain identification
BD	Results are either below the MDC or tracer recovery is low
h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
M	M if above MDC and less than LLD
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
FA	Failed analysis.
UJ	Gamma Spectroscopy--Uncertain identification
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N1	See case narrative
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
**	Analyte is a Tracer compound
M	REMP Result > MDC/CL and < RDL
J	See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Gas Flow Raw Data

Batch 2570188 Check-list

This check-list was completed on 29-FEB-24 by Nat Long

This batch was reviewed by Kenshalla Oston on 29-FEB-24 and Nat Long on 29-FEB-24.

Batch ID: 2570188 **Product:** GFC28RAL **Description:** Gas Flow Radium 228 GL-RAD-A-063

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-228 in Liquid

Batch ID: **2570188**
Analyst: Jacqueline Winston (JE1)
Method: EPA 904.0/SW846 9320 Modified
Lab SOP: GL-RAD-A-063 REV# 5
Instrument: SP-C018367602

Due Dates for Lab: 03-MAR-2024 **Package: 05-MAR-2024** **SDG: 06-MAR-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205653415	Radium 228	2051-D	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)
1	654532001	26-FEB-2024	3	306.63	306.63	02/27/24 12:56	02/29/24 09:18
2	654532002	26-FEB-2024	3	302.23	302.23	02/27/24 12:56	02/29/24 09:18
3	654532003	26-FEB-2024	3	305.13	305.13	02/27/24 12:56	02/29/24 09:18
4	654532004	26-FEB-2024	3	303.93	303.93	02/27/24 12:56	02/29/24 09:18
5	654532005	26-FEB-2024	3	303.93	303.93	02/27/24 12:56	02/29/24 09:18
6	654532006	26-FEB-2024	3	314.53	314.53	02/27/24 12:56	02/29/24 09:18
7	654532007	26-FEB-2024	3	301.53	301.53	02/27/24 12:56	02/29/24 09:18
8	654532008	26-FEB-2024	3	304.33	304.33	02/27/24 12:56	02/29/24 09:18
9	654534001	26-FEB-2024	3	310.23	310.23	02/27/24 12:56	02/29/24 09:18
10	654534002	26-FEB-2024	3	300.53	300.53	02/27/24 12:56	02/29/24 09:18
11	654534003	26-FEB-2024	3	300.83	300.83	02/27/24 12:56	02/29/24 09:18
12	654534004	26-FEB-2024	3	300.33	300.33	02/27/24 12:56	02/29/24 09:18
13	654534005	26-FEB-2024	3	300.23	300.23	02/27/24 12:56	02/29/24 09:18
14	654534006	26-FEB-2024	3	304.33	304.33	02/27/24 12:56	02/29/24 09:18
15	655017001	26-FEB-2024	3	308.13	308.13	02/27/24 12:56	02/29/24 09:18
16	655017002	26-FEB-2024	3	301.63	301.63	02/27/24 12:56	02/29/24 09:18
17	655017003	26-FEB-2024	3	302.03	302.03	02/27/24 12:56	02/29/24 09:18
18	655017004	26-FEB-2024	3	303.63	303.63	02/27/24 12:56	02/29/24 09:18
19	655017005	26-FEB-2024	3	300.33	300.33	02/27/24 12:56	02/29/24 09:18
20	655017006	26-FEB-2024	3	307.53	307.53	02/27/24 12:56	02/29/24 09:18
21	1205653413 MB	26-FEB-2024	3		314.53	02/27/24 12:56	02/29/24 09:18
22	1205653414 DUP (654532001)	26-FEB-2024	3	302.23	302.23	02/27/24 12:56	02/29/24 09:18
23	1205653415 LCS	26-FEB-2024	3		314.53	02/27/24 12:56	02/29/24 09:18

Reagent/Solvent Lot ID	Description	Amount
WORK 2097-B	Ba-133 Tracer	.1 mL
REGNT 4214820	Barium Carrier Ra228 REG	1 mL
REGNT 4223988	RGF-1M Citric Acid	5 mL
REGNT 4226396	2M HCl	20 mL
REGNT 4221876	RGF-50% Potassium Carbonate	2 mL
REGNT 3867033.5	RGF-Hydrofluoric Acid	4 mL
REGNT 4209237	500 mg/mL Neodymium Carrier	.2 mL
REGNT 4216641	RGF-Neodymium Subtrate	5 mL
REGNT 4229023	RGF-1.5M Ammonium Sulfate	10 mL
REGNT 4221872	RGF-7M Nitric Acid	25 mL
REGNT 4072674	Acetic Acid Glacial ACS Poly Coated Bottle	10 mL
REGNT DGA12292023	2561518	2 g
REGNT 4208393.51	Nitric Acid	5 mL

Comments:
Pipet Id: RAD-GFC-1795419
Data Entry Date2: 26-FEB-2024 00:00

Prep Logbook

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)

Reagent/Solvent Lot ID	Description	Amount	Comments:

Radium-228 Liquid

Filename : RA228.XLS
File type : Excel
Version # : 1.4.3

Tracer S/N : 2097-B
Tracer Exp Date : 7/12/2024
Tracer Volume Added: 0.10

Batch : 2570188
Analyst : JAC02417
Prep Date : 2/26/2024
Ra-228 Method Uncertainty : 0.1268

Geometry: 25mm Filter

Procedure Code : GFC28RAL
Parmname : Radium-228
Required MDA : 3 pCi/L
Ra-228 Abundance : 1.00
Halflife of Ra-228 : 5.75 years
Halflife of Ac-228 : 6.15 hours

Sample Characteristics					Tracer Calculations					
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Tracer Ref. Activity (CPM)	Tracer Ref. Count Uncertainty (%)	Tracer Samp. Activity (CPM)	Tracer Samp. Count Uncertainty (%)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	654532001.1	0.3066	1.8569E-05	1/31/2024 11:54	771.7	2.08%	624.6	2.31%	0.1	0.000200
2	654532002.1	0.3022	1.8497E-05	1/31/2024 13:13	771.7	2.08%	630.0	2.30%	0.1	0.000200
3	654532003.1	0.3051	1.8545E-05	1/31/2024 17:34	771.7	2.08%	599.9	2.36%	0.1	0.000200
4	654532004.1	0.3039	1.8525E-05	1/31/2024 10:06	771.7	2.08%	607.7	2.34%	0.1	0.000200
5	654532005.1	0.3039	1.8525E-05	1/31/2024 15:22	771.7	2.08%	685.7	2.20%	0.1	0.000200
6	654532006.1	0.3145	1.8694E-05	1/31/2024 16:56	771.7	2.08%	625.8	2.31%	0.1	0.000200
7	654532007.1	0.3015	1.8485E-05	1/31/2024 13:13	771.7	2.08%	595.8	2.37%	0.1	0.000200
8	654532008.1	0.3043	1.8532E-05	1/31/2024 7:55	771.7	2.08%	601.5	2.35%	0.1	0.000200
9	654534001.1	0.3102	1.8627E-05	2/1/2024 11:36	771.7	2.08%	690.7	2.20%	0.1	0.000200
10	654534002.1	0.3005	1.8468E-05	2/1/2024 13:02	771.7	2.08%	675.4	2.22%	0.1	0.000200
11	654534003.1	0.3008	1.8473E-05	2/1/2024 14:43	771.7	2.08%	613.2	2.33%	0.1	0.000200
12	654534004.1	0.3003	1.8465E-05	2/1/2024 12:40	771.7	2.08%	643.5	2.28%	0.1	0.000200
13	654534005.1	0.3002	1.8463E-05	2/1/2024 13:02	771.7	2.08%	648.7	2.27%	0.1	0.000200
14	654534006.1	0.3043	1.8532E-05	2/1/2024 9:40	771.7	2.08%	640.1	2.28%	0.1	0.000200
15	655017001.1	0.3081	1.8594E-05	2/7/2024 15:20	771.7	2.08%	629.9	2.30%	0.1	0.000200
16	655017002.1	0.3016	1.8487E-05	2/7/2024 11:14	771.7	2.08%	650.3	2.26%	0.1	0.000200
17	655017003.1	0.3020	1.8493E-05	2/7/2024 12:43	771.7	2.08%	643.4	2.28%	0.1	0.000200
18	655017004.1	0.3036	1.8520E-05	2/7/2024 14:18	771.7	2.08%	587.3	2.38%	0.1	0.000200
19	655017005.1	0.3003	1.8465E-05	2/7/2024 12:43	771.7	2.08%	639.8	2.28%	0.1	0.000200
20	655017006.1	0.3075	1.8584E-05	2/7/2024 9:18	771.7	2.08%	601.8	2.35%	0.1	0.000200
21	1205653413.1	0.3145	1.8694E-05	2/26/2024 0:00	771.7	2.08%	630.8	2.30%	0.1	0.000200
22	1205653414.1	0.3022	1.8497E-05	1/31/2024 11:54	771.7	2.08%	633.3	2.29%	0.1	0.000200
23	1205653415.1	0.3145	1.8694E-05	2/26/2024 0:00	771.7	2.08%	622.0	2.32%	0.1	0.000200

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-063
Instrument SOP: GL-RAD-I-016

Count raw Data

Pos.	Detector ID	Counting Time (min.)	Gross Counts Alpha	Gross Counts Beta	Beta cpm	Count Start Date/Time	Ac-228 Ingrowth Date/Time	Ac-228 Decay Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Ingrowth	Ac-228 Count Correction	Calculated Sample Recovery %	Sample Recovery Error %
1	1D	60	9	49	0.817	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.990	0.730	0.993	1.057	80.9%	3.12%
2	3B	60	7	44	0.733	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.990	0.730	0.993	1.057	81.6%	3.11%
3	5D	60	2	41	0.683	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.991	0.730	0.993	1.057	77.7%	3.16%
4	6B	70	6	84	1.200	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.990	0.730	0.993	1.067	78.7%	3.14%
5	7A	60	5	35	0.583	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.991	0.730	0.993	1.057	88.9%	3.04%
6	7D	60	7	26	0.433	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.991	0.730	0.993	1.057	81.1%	3.12%
7	8D	70	17	87	1.243	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.990	0.729	0.993	1.067	77.2%	3.17%
8	9A	60	11	64	1.067	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.990	0.729	0.993	1.057	77.9%	3.15%
9	9B	60	12	86	1.433	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.729	0.993	1.057	89.5%	3.04%
10	9D	60	12	53	0.883	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.729	0.993	1.057	87.5%	3.06%
11	11A	80	16	130	1.625	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.728	0.993	1.077	79.5%	3.14%
12	11C	60	12	55	0.917	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.728	0.993	1.057	83.4%	3.10%
13	11D	60	11	36	0.600	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.728	0.993	1.057	84.1%	3.09%
14	12A	80	5	141	1.763	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.728	0.993	1.077	82.9%	3.10%
15	12B	60	6	63	1.050	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	81.6%	3.11%
16	12C	60	17	40	0.667	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	84.3%	3.08%
17	12D	60	5	29	0.483	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	83.4%	3.10%
18	13A	60	10	57	0.950	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	76.1%	3.17%
19	13B	60	9	77	1.283	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	82.9%	3.10%
20	13D	60	16	69	1.150	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.727	0.993	1.057	78.0%	3.15%
21	14A	110	12	207	1.882	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.999	0.729	0.993	1.107	81.7%	3.11%
22	14B	60	6	22	0.367	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.990	0.729	0.993	1.057	82.1%	3.11%
23	14C	60	6	920	15.333	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.999	0.729	0.993	1.057	80.6%	3.13%

Pos.	Calibration Data: Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Bkg cpm	Weekly Bkg Count Start Date/Time	Bkg Count Time (min.)
1	PIC	6/1/2023	5/31/2024	0.6071	0.00692	0.780	2/23/2024 17:51	500
2	PIC	6/1/2023	5/31/2024	0.6266	0.01614	0.598	2/23/2024 17:51	500
3	PIC	6/1/2023	5/31/2024	0.6566	0.00925	0.480	2/23/2024 17:52	500
4	PIC	6/1/2023	5/31/2024	0.5957	0.00851	1.020	2/23/2024 17:49	500
5	PIC	6/1/2023	5/31/2024	0.6229	0.00594	0.372	2/23/2024 17:49	500
6	PIC	6/1/2023	5/31/2024	0.6247	0.01113	0.432	2/23/2024 17:50	500
7	PIC	6/1/2023	5/31/2024	0.6073	0.00609	1.076	2/23/2024 17:50	500
8	PIC	6/1/2023	5/31/2024	0.6343	0.00758	0.710	2/23/2024 17:50	500
9	PIC	6/1/2023	5/31/2024	0.6496	0.00754	0.858	2/23/2024 17:50	500
10	PIC	6/1/2023	5/31/2024	0.6292	0.02610	0.692	2/23/2024 17:50	500
11	PIC	6/1/2023	5/31/2024	0.6466	0.01317	1.432	2/23/2024 17:48	500
12	PIC	6/1/2023	5/31/2024	0.6409	0.01278	0.858	2/23/2024 17:49	500
13	PIC	6/1/2023	5/31/2024	0.6379	0.01068	0.480	2/23/2024 17:49	500
14	PIC	6/1/2023	5/31/2024	0.6537	0.01964	1.436	2/23/2024 17:49	500
15	PIC	6/1/2023	5/31/2024	0.6488	0.01114	0.920	2/23/2024 17:49	500
16	PIC	6/1/2023	5/31/2024	0.6434	0.01666	0.548	2/23/2024 17:49	500
17	PIC	6/1/2023	5/31/2024	0.6498	0.01845	0.398	2/23/2024 17:49	500
18	PIC	6/1/2023	5/31/2024	0.6259	0.00714	0.948	2/23/2024 17:49	500
19	PIC	6/1/2023	5/31/2024	0.6399	0.00967	0.668	2/23/2024 17:49	500
20	PIC	6/1/2023	5/31/2024	0.6360	0.01144	0.882	2/23/2024 17:49	500
21	PIC	6/1/2023	5/31/2024	0.6482	0.02119	1.890	2/24/2024 11:03	500
22	PIC	6/1/2023	5/31/2024	0.6549	0.01028	0.282	2/23/2024 17:53	500
23	PIC	6/1/2023	5/31/2024	0.6309	0.01828	0.668	2/23/2024 17:53	500

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : N/A
Spike Exp Date : N/A
Spike Activity (dpm/ml): N/A
Spike Volume Added: N/A

LCS S/N : 2051-D
LCS Exp Date : 7/12/2024
LCS Activity (dpm/ml): 503.35
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	1.2378	0.8739	3	1.9679	**0.1614**	335.94%	0.0367	0.1232	1.0629	1.0637		SAMPLE				
2	1.0563	0.7457	3	1.7060	**0.5807**	85.67%	0.1353	0.1158	0.9742	0.9856		SAMPLE				
3	0.9395	0.6633	3	1.5396	**0.8662**	54.75%	0.2033	0.1111	0.9278	0.9541		SAMPLE				
4	1.4102	0.9956	3	2.1925	**0.8453**	77.01%	0.1800	0.1385	1.2748	1.2931		SAMPLE				
5	0.7657	0.5406	3	1.2784	**0.8335**	48.51%	0.2113	0.1023	0.7908	0.8191		SAMPLE				
6	0.8712	0.6151	3	1.4384	**5.552E-03**	6744.26%	0.0013	0.0899	0.7339	0.7341		SAMPLE				
7	1.4615	1.0318	3	2.2667	**0.7906**	84.62%	0.1669	0.1411	1.3103	1.3259		SAMPLE				
8	1.1835	0.8356	3	1.8918	**1.5737**	38.98%	0.3567	0.1386	1.1982	1.2644		SAMPLE				
9	1.0850	0.7660	3	1.7161	**2.1170**	27.99%	0.5753	0.1600	1.1541	1.2750		SAMPLE				
10	1.0622	0.7499	3	1.7003	**0.7674**	66.45%	0.1913	0.1269	0.9977	1.0176		SAMPLE				
11	1.4702	1.0379	3	2.2401	**0.8451**	78.95%	0.1930	0.1522	1.3066	1.3245		SAMPLE				
12	1.2209	0.8620	3	1.9310	**0.2429**	222.23%	0.0587	0.1304	1.0579	1.0597		SAMPLE				
13	0.9105	0.6428	3	1.4920	**0.4954**	87.30%	0.1200	0.1047	0.8471	0.8566		SAMPLE				
14	1.3795	0.9740	3	2.1018	**1.3397**	48.47%	0.3265	0.1578	1.2691	1.3156		SAMPLE				
15	1.2414	0.8765	3	1.9562	**0.5285**	107.03%	0.1300	0.1391	1.1082	1.1165		SAMPLE				
16	0.9563	0.6751	3	1.5531	**0.4815**	93.17%	0.1187	0.1105	0.8787	0.8875		SAMPLE				
17	0.8145	0.5751	3	1.3529	**0.3461**	110.31%	0.0853	0.0941	0.7479	0.7532		SAMPLE				
18	1.4225	1.0043	3	2.2381	**9.179E-03**	6657.58%	0.0020	0.1332	1.1978	1.1979		SAMPLE				
19	1.0840	0.7653	3	1.7390	**2.5637**	24.71%	0.6153	0.1507	1.2310	1.3957		SAMPLE				
20	1.3015	0.9189	3	2.0554	**1.1667**	54.09%	0.2680	0.1447	1.2345	1.2704		SAMPLE				
21	1.3961	0.9856	3	2.0841	**-0.0339**	1766.42%	-0.0082	0.1445	1.1723	1.1723		MB				
22	0.6915	0.4882	3	1.1809	**0.3463**	96.55%	0.0847	0.0817	0.6550	0.6610	654532001.1	DUP	* 0.0%			
23	1.0720	0.7569	3	1.7198	**60.4261**	5.01%	14.6653	0.5068	4.0932	16.1462		LCS			72.0872	83.8%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine	Batch ID
654532001	1D	60	9	49	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532002	3B	60	7	44	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532003	5D	60	2	41	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532004	6B	70	6	84	2/29/2024 12:05	2/29/2024 13:15	PIC	2570188
654532005	7A	60	5	35	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532006	7D	60	7	26	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532007	8D	70	17	87	2/29/2024 12:05	2/29/2024 13:15	PIC	2570188
654532008	9A	60	11	64	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534001	9B	60	12	86	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534002	9D	60	12	53	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534003	11A	80	16	130	2/29/2024 12:06	2/29/2024 13:26	PIC	2570188
654534004	11C	60	12	55	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534005	11D	60	11	36	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534006	12A	80	5	141	2/29/2024 12:06	2/29/2024 13:26	PIC	2570188
655017001	12B	60	6	63	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017002	12C	60	17	40	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017003	12D	60	5	29	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017004	13A	60	10	57	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017005	13B	60	9	77	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017006	13D	60	16	69	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
1205653413	14A	110	12	207	2/29/2024 12:06	2/29/2024 13:56	PIC	2570188
1205653414	14B	60	6	22	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
1205653415	14C	60	6	920	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188

ASSAY	29-Feb-24	11:54:29	
Wizard 1480 s/n 4800440			
Protocol	id	9	228_REC2
Time	limit	180	
Count	limit	50000	
Isotope	Ba-133		
Protocol	date	26-Sep-13	15:01:58
Run	id.	45	

Samp_ID	POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
REF	1	87	1	180	2315	771.7	2.08		11:54:36
654532001	2	87	2	180	1873	624.6	2.31	80.94	11:57:48
654532002	3	87	3	180	1890	630	2.3	81.64	12:00:59
654532003	4	87	4	180	1799	599.9	2.36	77.74	12:04:11
654532004	5	87	5	180	1823	607.7	2.34	78.75	12:07:22
654532005	6	99	6	180	2057	685.7	2.2	88.86	12:10:47
654532006	7	99	7	180	1877	625.8	2.31	81.09	12:13:58
654532007	8	99	8	180	1787	595.8	2.37	77.21	12:17:09
654532008	9	99	9	180	1804	601.5	2.35	77.94	12:20:21
654534001	10	99	10	180	2072	690.7	2.2	89.50	12:23:32
654534002	11	37	11	180	2026	675.4	2.22	87.52	12:26:57
654534003	12	37	12	180	1839	613.2	2.33	79.46	12:30:08
654534004	13	37	13	180	1930	643.5	2.28	83.39	12:33:20
654534005	14	37	14	180	1946	648.7	2.27	84.06	12:36:31
654534006	15	37	15	180	1920	640.1	2.28	82.95	12:39:42
655017001	16	81	16	180	1890	629.9	2.3	81.62	12:43:06
655017002	17	81	17	180	1951	650.3	2.26	84.27	12:46:18
655017003	18	81	18	180	1930	643.4	2.28	83.37	12:49:29
655017004	19	81	19	180	1762	587.3	2.38	76.10	12:52:40
655017005	20	81	20	180	1919	639.8	2.28	82.91	12:55:52
655017006	21	84	21	180	1805	601.8	2.35	77.98	12:59:29
1205653413	22	84	22	180	1892	630.8	2.3	81.74	13:02:40
1205653414	23	84	23	180	1900	633.3	2.29	82.07	13:05:52
1205653415	24	84	24	180	1866	622	2.32	80.60	13:09:03

END OF ASSAY

Continuing Calibration Data

Gas Flow Proportional Counter Checks for 29-Feb-2024

Detectors LB4100 E1 through H4 and PIC 1A through 14D and G5400W 1W through 1Z and LB4200 GA1 through OD4

Short Name	Status	Parmname	Run Time	Count Time	CPM or dec	Low Limit	High Limit	Stdev
LB4100F4	Below	Alpha eff	29-Feb 08:14	5	16766	16940	18140	-3.87
LB4100F4	Above	Alpha XTalk	29-Feb 08:14	5	0.199	0.170	0.193	+4.84
LB4100H1	Above	Alpha bkg	29-Feb 04:47	60	0.517	-8.08E-2	0.225	+8.71
LB4100H1	Above	Alpha eff	29-Feb 05:54	5	12028	7523	11160	+4.43
LB4100H1	Above	Beta bkg	29-Feb 04:47	60	3.433	-5.15E-1	3.743	+2.56
LB4100H2	Above	Alpha bkg	29-Feb 04:47	60	0.333	0.057	0.420	+1.57
LB4200GB2	Below	Alpha eff	29-Feb 06:08	5	9343	9443	9898	-4.32
LB4200GB2	Above	Beta bkg	29-Feb 15:44	60	12.117	0.129	1.304	+58.19
LB4200GD3	Above	Alpha bkg	29-Feb 15:44	60	0.917	-1.04E-1	0.321	+11.41
LB4200OB1	Above	Alpha bkg	29-Feb 11:54	60	0.767	-1.05E-1	0.362	+8.20
LB4200OC2	need 2nd	Alpha bkg	29-Feb 11:54	60	0.100	-1.37E-1	0.428	-0.49
LB4200OC2	need 2nd	Beta bkg	29-Feb 11:54	60	1.383	-6.67E-2	2.499	+0.39
PIC2D	Above	Beta bkg	29-Feb 10:06	60	2.000	0.417	1.868	+3.55
PIC4C	Above	Alpha bkg	29-Feb 06:36	60	0.400	-2.25E-1	1.312	-0.56

INSTRUMENTS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

The following detectors may not have properly transferred to the LIMS system

Reviewed by Jc Poparad

Date 3/4/24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: GFPC **Batch ID: 2570188**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
654532001	SAMPLE	JE1	PIC1D	FEB-29-24 12:05:37	DONE	25mm Filter	01-JUN-23 00:00
654532002	SAMPLE	JE1	PIC3B	FEB-29-24 12:05:40	DONE	25mm Filter	01-JUN-23 00:00
654532004	SAMPLE	JE1	PIC6B	FEB-29-24 12:05:41	DONE	25mm Filter	01-JUN-23 00:00
654532003	SAMPLE	JE1	PIC5D	FEB-29-24 12:05:45	DONE	25mm Filter	01-JUN-23 00:00
654532005	SAMPLE	JE1	PIC7A	FEB-29-24 12:05:45	DONE	25mm Filter	01-JUN-23 00:00
654532006	SAMPLE	JE1	PIC7D	FEB-29-24 12:05:48	DONE	25mm Filter	01-JUN-23 00:00
654532007	SAMPLE	JE1	PIC8D	FEB-29-24 12:05:59	DONE	25mm Filter	01-JUN-23 00:00
654532008	SAMPLE	JE1	PIC9A	FEB-29-24 12:06:03	DONE	25mm Filter	01-JUN-23 00:00
654534001	SAMPLE	JE1	PIC9B	FEB-29-24 12:06:07	DONE	25mm Filter	01-JUN-23 00:00
654534002	SAMPLE	JE1	PIC9D	FEB-29-24 12:06:10	DONE	25mm Filter	01-JUN-23 00:00
1205653413	MB	JE1	PIC14A	FEB-29-24 12:06:30	DONE	25mm Filter	01-JUN-23 00:00
1205653414	DUP	JE1	PIC14B	FEB-29-24 12:06:32	DONE	25mm Filter	01-JUN-23 00:00
1205653415	LCS	JE1	PIC14C	FEB-29-24 12:06:36	DONE	25mm Filter	01-JUN-23 00:00
654534003	SAMPLE	JE1	PIC11A	FEB-29-24 12:06:43	DONE	25mm Filter	01-JUN-23 00:00
654534004	SAMPLE	JE1	PIC11C	FEB-29-24 12:06:48	DONE	25mm Filter	01-JUN-23 00:00
654534005	SAMPLE	JE1	PIC11D	FEB-29-24 12:06:51	DONE	25mm Filter	01-JUN-23 00:00
654534006	SAMPLE	JE1	PIC12A	FEB-29-24 12:06:57	DONE	25mm Filter	01-JUN-23 00:00
655017001	SAMPLE	JE1	PIC12B	FEB-29-24 12:07:00	DONE	25mm Filter	01-JUN-23 00:00
655017002	SAMPLE	JE1	PIC12C	FEB-29-24 12:07:04	DONE	25mm Filter	01-JUN-23 00:00
655017003	SAMPLE	JE1	PIC12D	FEB-29-24 12:07:08	DONE	25mm Filter	01-JUN-23 00:00
655017004	SAMPLE	JE1	PIC13A	FEB-29-24 12:07:13	DONE	25mm Filter	01-JUN-23 00:00
655017005	SAMPLE	JE1	PIC13B	FEB-29-24 12:07:18	DONE	25mm Filter	01-JUN-23 00:00
655017006	SAMPLE	JE1	PIC13D	FEB-29-24 12:07:22	DONE	25mm Filter	01-JUN-23 00:00

Lucas Cell Raw Data

Batch 2570168 Check-list

This check-list was completed on 05-MAR-24 by Lyndsey Pace

This batch was reviewed by Elizabeth Krouse on 05-MAR-24 and Lyndsey Pace on 05-MAR-24.

Batch ID:	**Product:**	**Description:** Lucas Cell Radium 226
2570168	LUC26RAL	GL-RAD-A-008

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
10	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-226 in Liquid

Batch ID: **2570168**
Analyst: Lyndsey Pace (LXP1)
Prep: Charles Hall (CH7)
Method: EPA 903.1 Modified
Lab SOP: GL-RAD-A-008 REV# 15
Instrument: SP-C018367602

Due Dates for Lab: 03-MAR-2024 **Package: 05-MAR-2024** **SDG: 05-MAR-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
MS	1205653349	Ra-226 emanation spike	1715-I	.1	mL
LCS	1205653350	Ra-226 emanation spike	1715-I	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	End Degas (date)	CELL #	End Transfer (date)	Start Count Time (date)	Background Counts	Total Counts
1	654458007	01-MAR-2024	1	402.23	402.23	03/01/24 13:00	105	03/04/24 05:44	03/04/24 08:36	6	13
2	654458008	01-MAR-2024	1	502.53	502.53	03/01/24 13:00	204	03/04/24 05:44	03/04/24 08:36	6	6
3	654458009	01-MAR-2024	1	509.33	509.33	03/01/24 13:00	309	03/04/24 05:44	03/04/24 08:36	1	20
4	654458010	01-MAR-2024	1	500.93	500.93	03/01/24 13:00	401	03/04/24 05:44	03/04/24 08:36	1	13
5	654469001	01-MAR-2024	1	500.73	500.73	03/01/24 13:00	502	03/04/24 05:44	03/04/24 08:36	1	19
6	654472001	01-MAR-2024	1	518.53	518.53	03/01/24 13:00	604	03/04/24 05:44	03/04/24 08:36	5	86
7	654869001	01-MAR-2024	1	502.43	502.43	03/01/24 13:00	708	03/04/24 05:44	03/04/24 08:36	2	6
8	655017001	01-MAR-2024	1	504.63	504.63	03/01/24 13:00	806	03/04/24 05:44	03/04/24 08:36	6	9
9	655017002	01-MAR-2024	1	502.83	502.83	03/01/24 13:00	108	03/04/24 06:08	03/04/24 09:10	1	12
10	655017003	01-MAR-2024	1	502.03	502.03	03/01/24 13:00	202	03/04/24 06:08	03/04/24 09:10	3	13
11	655017004	01-MAR-2024	1	504.93	504.93	03/01/24 13:00	301	03/04/24 06:08	03/04/24 09:10	2	6
12	655017005	01-MAR-2024	1	511.83	511.83	03/01/24 13:00	406	03/04/24 06:08	03/04/24 09:10	4	11
13	655017006	01-MAR-2024	1	506.93	506.93	03/01/24 13:00	501	03/04/24 06:08	03/04/24 09:10	1	5
14	655127001	01-MAR-2024	1	500.43	500.43	03/01/24 13:00	608	03/04/24 06:08	03/04/24 09:10	2	7
15	655690001	01-MAR-2024	1	502.63	502.63	03/01/24 13:00	707	03/04/24 06:08	03/04/24 09:10	3	5
16	655697001	01-MAR-2024	1	512.33	512.33	03/01/24 13:00	801	03/04/24 06:08	03/04/24 09:10	1	1
17	655697002	01-MAR-2024	1	505.53	505.53	03/01/24 13:00	101	03/04/24 06:33	03/04/24 09:46	1	7
18	655697003	01-MAR-2024	1	504.73	504.73	03/01/24 13:00	207	03/04/24 06:33	03/04/24 09:46	1	4
19	1205653347 MB	01-MAR-2024	1		518.53	03/01/24 13:00	305	03/04/24 06:33	03/04/24 09:46	1	3
20	1205653348 DUP (654458007)	01-MAR-2024	1	403.93	403.93	03/01/24 13:00	409	03/04/24 06:33	03/04/24 09:46	2	14
21	1205653349 MS (654458007)	01-MAR-2024	1	100.43	100.43	03/01/24 13:00	506	03/04/24 06:33	03/04/24 09:46	8	293
22	1205653350 LCS	01-MAR-2024	1		518.53	03/01/24 13:00	605	03/04/24 06:33	03/04/24 09:46	1	311

Reagent/Solvent Lot ID	Description	Amount

Comments:
Data Entry Date2: 01-MAR-2024 00:00

Radium-226 Liquid

Filename : RA226.XLS
File type : Excel
Version # : 1.3.2

Batch : 2570168
Analyst : LXP1
Prep Date : 3/1/2024
Ra-226 Method Uncertainty : 0.073648

Procedure Code : LUC26RAL
Parmname : Radium-226
Required MDA : 1 pCi/L
Halflife of Ra-226 : 1600 years
Ra-226 Abundance : 1.00
Halflife of Rn-222: 3.8235 days

Batch counted on : LUCAS CELL DETECTOR
BKG Count time : 30 min

Sample Characteristics					Count Raw Data							
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Background Count Time (min.)	Cell Efficiency (cpm/dpm)
1	654458007.1	0.4022	1.9687E-05	2/6/2024 10:00	105	15	13	0.867	6	0.200	30	1.5340
2	654458008.1	0.5025	2.0266E-05	2/6/2024 10:30	204	15	6	0.400	6	0.200	30	1.5970
3	654458009.1	0.5093	2.0293E-05	2/6/2024 7:50	309	15	20	1.333	1	0.033	30	1.5690
4	654458010.1	0.5009	2.0260E-05	2/6/2024 8:40	401	15	13	0.867	1	0.033	30	1.9410
5	654469001.1	0.5007	2.0259E-05	2/6/2024 11:00	502	15	19	1.267	1	0.033	30	1.8590
6	654472001.1	0.5185	2.0328E-05	2/6/2024 7:50	604	15	86	5.733	5	0.167	30	1.7290
7	654869001.1	0.5024	2.0266E-05	2/7/2024 16:46	708	15	6	0.400	2	0.067	30	1.5430
8	655017001.1	0.5046	2.0275E-05	2/7/2024 15:20	806	15	9	0.600	6	0.200	30	1.6560
9	655017002.1	0.5028	2.0267E-05	2/7/2024 11:14	108	15	12	0.800	1	0.033	30	1.7570
10	655017003.1	0.5020	2.0264E-05	2/7/2024 12:43	202	15	13	0.867	3	0.100	30	1.4980
11	655017004.1	0.5049	2.0276E-05	2/7/2024 14:18	301	15	6	0.400	2	0.067	30	1.5220
12	655017005.1	0.5118	2.0303E-05	2/7/2024 12:43	406	15	11	0.733	4	0.133	30	2.0400
13	655017006.1	0.5069	2.0284E-05	2/7/2024 9:18	501	15	5	0.333	1	0.033	30	1.7160
14	655127001.1	0.5004	2.0258E-05	2/8/2024 9:46	608	15	7	0.467	2	0.067	30	1.8960
15	655690001.1	0.5026	2.0267E-05	2/12/2024 17:45	707	15	5	0.333	3	0.100	30	1.5500
16	655697001.1	0.5123	2.0305E-05	2/13/2024 14:25	801	15	1	0.067	1	0.033	30	1.4200
17	655697002.1	0.5055	2.0278E-05	2/13/2024 15:41	101	15	7	0.467	1	0.033	30	1.8120
18	655697003.1	0.5047	2.0275E-05	2/13/2024 15:15	207	15	4	0.267	1	0.033	30	1.8080
19	1205653347.1	0.5185	2.0328E-05	3/1/2024 0:00	305	15	3	0.200	1	0.033	30	1.5280
20	1205653348.1	0.4039	1.9701E-05	2/6/2024 10:00	409	15	14	0.933	2	0.067	30	1.9030
21	1205653349.1	0.1004	1.1397E-05	2/6/2024 10:00	506	15	293	19.533	8	0.267	30	1.8780
22	1205653350.1	0.5185	2.0328E-05	3/1/2024 0:00	605	15	311	20.733	1	0.033	30	2.0280

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-008
Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections			
						De-Gas to Ingrowth	Ingrowth to Count	During Count	Ra-226 Decay
7.900%	5/1/2023	4/30/2024	3/1/2024 13:00	3/4/2024 5:44	3/4/2024 8:36	0.387	0.979	1.001	1.000
2.600%	8/1/2023	7/31/2024	3/1/2024 13:00	3/4/2024 5:44	3/4/2024 8:36	0.387	0.979	1.001	1.000
9.100%	11/1/2023	10/31/2024	3/1/2024 13:00	3/4/2024 5:44	3/4/2024 8:36	0.387	0.979	1.001	1.000
7.800%	2/1/2024	1/31/2025	3/1/2024 13:00	3/4/2024 5:44	3/4/2024 8:36	0.387	0.979	1.001	1.000
7.700%	6/1/2023	5/31/2024	3/1/2024 13:00	3/4/2024 5:44	3/4/2024 8:36	0.387	0.979	1.001	1.000
2.300%	7/1/2023	6/30/2024	3/1/2024 13:00	3/4/2024 5:44	3/4/2024 8:36	0.387	0.979	1.001	1.000
5.200%	11/1/2023	10/31/2024	3/1/2024 13:00	3/4/2024 5:44	3/4/2024 8:36	0.387	0.979	1.001	1.000
1.900%	4/8/2023	3/31/2024	3/1/2024 13:00	3/4/2024 5:44	3/4/2024 8:36	0.387	0.979	1.001	1.000
4.600%	10/10/2023	4/30/2024	3/1/2024 13:00	3/4/2024 6:08	3/4/2024 9:10	0.389	0.977	1.001	1.000
1.400%	8/1/2023	7/31/2024	3/1/2024 13:00	3/4/2024 6:08	3/4/2024 9:10	0.389	0.977	1.001	1.000
5.700%	11/1/2023	10/31/2024	3/1/2024 13:00	3/4/2024 6:08	3/4/2024 9:10	0.389	0.977	1.001	1.000
8.700%	2/1/2024	1/31/2025	3/1/2024 13:00	3/4/2024 6:08	3/4/2024 9:10	0.389	0.977	1.001	1.000
5.500%	6/1/2023	5/31/2024	3/1/2024 13:00	3/4/2024 6:08	3/4/2024 9:10	0.389	0.977	1.001	1.000
7.800%	7/1/2023	6/30/2024	3/1/2024 13:00	3/4/2024 6:08	3/4/2024 9:10	0.389	0.977	1.001	1.000
5.800%	11/1/2023	10/31/2024	3/1/2024 13:00	3/4/2024 6:08	3/4/2024 9:10	0.389	0.977	1.001	1.000
3.200%	4/8/2023	3/31/2024	3/1/2024 13:00	3/4/2024 6:08	3/4/2024 9:10	0.389	0.977	1.001	1.000
4.500%	5/1/2023	4/30/2024	3/1/2024 13:00	3/4/2024 6:33	3/4/2024 9:46	0.391	0.976	1.001	1.000
4.000%	10/10/2023	7/31/2024	3/1/2024 13:00	3/4/2024 6:33	3/4/2024 9:46	0.391	0.976	1.001	1.000
7.000%	11/1/2023	10/31/2024	3/1/2024 13:00	3/4/2024 6:33	3/4/2024 9:46	0.391	0.976	1.001	1.000
4.900%	2/1/2024	1/31/2025	3/1/2024 13:00	3/4/2024 6:33	3/4/2024 9:46	0.391	0.976	1.001	1.000
1.400%	6/1/2023	5/31/2024	3/1/2024 13:00	3/4/2024 6:33	3/4/2024 9:46	0.391	0.976	1.001	1.000
2.300%	10/10/2023	6/30/2024	3/1/2024 13:00	3/4/2024 6:33	3/4/2024 9:46	0.391	0.976	1.001	1.000

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

Spike S/N : 1715-I
Spike Exp Date : 8/29/2024
Spike Activity (dpm/ml): 304.14
Spike Volume Added: 0.10

LCS S/N : 1715-I
LCS Exp Date : 8/29/2024
LCS Activity (dpm/ml): 304.14
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	2 SIGMA Counting Uncertainty pCi/L	2 SIGMA Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	0.6362	0.4492	1	1.2846	**1.2872**	38.89%	0.6667	0.2539	0.9607	0.9986		SAMPLE				
2	0.4892	0.3454	1	0.9876	**0.2969**	91.32%	0.2000	0.1826	0.5312	0.5332		SAMPLE				
3	0.2006	0.1416	1	0.5813	**1.9381**	24.81%	1.3000	0.3000	0.8766	0.9830		SAMPLE				
4	0.1648	0.1164	1	0.4778	**1.0211**	30.15%	0.8333	0.2427	0.5828	0.6211		SAMPLE				
5	0.1722	0.1216	1	0.4991	**1.5785**	24.93%	1.2333	0.2925	0.7338	0.8044		SAMPLE				
6	0.3997	0.2822	1	0.8302	**7.3974**	11.42%	5.5667	0.6227	1.6219	1.9703		SAMPLE				
7	0.2924	0.2064	1	0.7202	**0.5123**	51.25%	0.3333	0.1700	0.5120	0.5199		SAMPLE				
8	0.4698	0.3317	1	0.9485	**0.5703**	54.04%	0.4000	0.2160	0.6036	0.6096		SAMPLE				
9	0.1808	0.1276	1	0.5240	**1.0302**	30.78%	0.7667	0.2333	0.6146	0.6391		SAMPLE				
10	0.3678	0.2597	1	0.8351	**1.2103**	32.27%	0.7667	0.2472	0.7649	0.7853		SAMPLE				
11	0.2939	0.2075	1	0.7239	**0.5149**	51.31%	0.3333	0.1700	0.5146	0.5232		SAMPLE				
12	0.3059	0.2160	1	0.6594	**0.6822**	39.46%	0.6000	0.2309	0.5147	0.5368		SAMPLE				
13	0.1836	0.1296	1	0.5322	**0.4094**	51.21%	0.3000	0.1528	0.4086	0.4152		SAMPLE				
14	0.2380	0.1681	1	0.5864	**0.5005**	46.31%	0.4000	0.1826	0.4478	0.4600		SAMPLE				
15	0.3551	0.2507	1	0.8061	**0.3556**	68.76%	0.2333	0.1599	0.4775	0.4819		SAMPLE				
16	0.2195	0.1550	1	0.6363	**0.0544**	223.63%	0.0333	0.0745	0.2384	0.2386		SAMPLE				
17	0.1737	0.1227	1	0.5036	**0.5596**	41.67%	0.4333	0.1795	0.4544	0.4641		SAMPLE				
18	0.1744	0.1231	1	0.5055	**0.3025**	59.04%	0.2333	0.1374	0.3492	0.3527		SAMPLE				
19	0.2009	0.1418	1	0.5822	**0.2488**	72.45%	0.1667	0.1202	0.3517	0.3552		MB				
20	0.2928	0.2067	1	0.7212	**1.3338**	29.70%	0.8667	0.2539	0.7658	0.7999	654458007.1	DUP	3.6%			
21	2.3865	1.6849	1	4.6243	**120.8464**	6.11%	19.2667	1.1450	14.0768	22.6595	654458007.1	MS			136.4193	87.6%
22	0.1513	0.1068	1	0.4387	**23.2864**	6.13%	20.7000	1.1762	2.5933	4.3733		LCS			26.4212	88.1%

Continuing Calibration Data

Ludlum Alpha Scintillation Counter Checks for 04-MAR-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	05:31	1	1.12E+05	111729	-0.63		
LUCAS2	EFF	05:28	1	1.27E+05	126866	-2.56		
LUCAS3	EFF	05:26	1	93806	93806	1.68		
LUCAS4	EFF	05:23	1	1.23E+05	122866	-2.83		
LUCAS5	EFF	05:22	1	1.27E+05	127208	-1.98		
LUCAS6	EFF	05:20	1	1.28E+05	127888	-0.16		
LUCAS7	EFF	05:17	1	1.29E+05	128719	-2.84		
LUCAS8	EFF	05:10	1	1.16E+05	115504	-0.76		

Reviewed by: **Date:** 04-MAR-24

Lyndsey Pace

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR **Batch ID: 2570168**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
654458007	SAMPLE	LXP1	LUCAS1	MAR-04-24 08:36:00	DONE	Lucas Cell	01-MAY-23 00:00
654458008	SAMPLE	LXP1	LUCAS2	MAR-04-24 08:36:00	DONE	Lucas Cell	01-AUG-23 00:00
654458009	SAMPLE	LXP1	LUCAS3	MAR-04-24 08:36:00	DONE	Lucas Cell	01-NOV-23 00:00
654458010	SAMPLE	LXP1	LUCAS4	MAR-04-24 08:36:00	DONE	Lucas Cell	01-FEB-24 00:00
654469001	SAMPLE	LXP1	LUCAS5	MAR-04-24 08:36:00	DONE	Lucas Cell	01-JUN-23 00:00
654472001	SAMPLE	LXP1	LUCAS6	MAR-04-24 08:36:00	DONE	Lucas Cell	01-JUL-23 00:00
654869001	SAMPLE	LXP1	LUCAS7	MAR-04-24 08:36:00	DONE	Lucas Cell	01-NOV-23 00:00
655017001	SAMPLE	LXP1	LUCAS8	MAR-04-24 08:36:00	DONE	Lucas Cell	08-APR-23 00:00
655017002	SAMPLE	LXP1	LUCAS1	MAR-04-24 09:10:00	DONE	Lucas Cell	01-MAY-23 00:00
655017003	SAMPLE	LXP1	LUCAS2	MAR-04-24 09:10:00	DONE	Lucas Cell	01-AUG-23 00:00
655017004	SAMPLE	LXP1	LUCAS3	MAR-04-24 09:10:00	DONE	Lucas Cell	01-NOV-23 00:00
655017005	SAMPLE	LXP1	LUCAS4	MAR-04-24 09:10:00	DONE	Lucas Cell	01-FEB-24 00:00
655017006	SAMPLE	LXP1	LUCAS5	MAR-04-24 09:10:00	DONE	Lucas Cell	01-JUN-23 00:00
655127001	SAMPLE	LXP1	LUCAS6	MAR-04-24 09:10:00	DONE	Lucas Cell	01-JUL-23 00:00
655690001	SAMPLE	LXP1	LUCAS7	MAR-04-24 09:10:00	DONE	Lucas Cell	01-NOV-23 00:00
655697001	SAMPLE	LXP1	LUCAS8	MAR-04-24 09:10:00	DONE	Lucas Cell	08-APR-23 00:00
655697002	SAMPLE	LXP1	LUCAS1	MAR-04-24 09:46:00	DONE	Lucas Cell	01-MAY-23 00:00
655697003	SAMPLE	LXP1	LUCAS2	MAR-04-24 09:46:00	DONE	Lucas Cell	01-AUG-23 00:00
1205653347	MB	LXP1	LUCAS3	MAR-04-24 09:46:00	DONE	Lucas Cell	01-NOV-23 00:00
1205653348	DUP	LXP1	LUCAS4	MAR-04-24 09:46:00	DONE	Lucas Cell	01-FEB-24 00:00
1205653349	MS	LXP1	LUCAS5	MAR-04-24 09:46:00	DONE	Lucas Cell	01-JUN-23 00:00
1205653350	LCS	LXP1	LUCAS6	MAR-04-24 09:46:00	DONE	Lucas Cell	01-JUL-23 00:00

Analytical Laboratory Report

Final Report

Report ID: S58153.01(01)
Generated on 02/29/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

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Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S58153.01-S58153.08
Project: Erickson Semi Annual Wells 1-6
Collected Date(s): 01/29/2024
Submitted Date/Time: 01/30/2024 09:11
Sampled by: Marc Wahrer
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

All analyses completed

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2320B	Standard Method 2320 B 2011
SM2340C	Standard Method 2340 C 2011
SM2540C	Standard Method 2540 C 2015
SM2540D	Standard Method 2540 D 2015
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S58153.01	MW-1 L401209-01	Groundwater	01/29/24 17:41
S58153.02	MW-2 L401209-02	Groundwater	01/29/24 15:40
S58153.03	MW-3 L401209-03	Groundwater	01/29/24 11:35
S58153.04	MW-4 L401209-04	Groundwater	01/29/24 13:13
S58153.05	MW-5 L401209-05	Groundwater	01/29/24 20:02
S58153.06	MW-6 L401209-06	Groundwater	01/29/24 19:08
S58153.07	MWT-6 L401209-07	Groundwater	01/29/24 19:08
S58153.08	Field Blank L401209-08	Water	01/29/24 09:18

Lab Sample ID: S58153.01
Sample Tag: MW-1 L401209-01
Collected Date/Time: 01/29/2024 17:41
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.0	IR
2	1L Plastic	None	Yes	3.0	IR
1	125mL Plastic	HNO3	Yes	3.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/01/24 11:05	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 12:45, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	26.5	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	80.3	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/05/24 15:28, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	743	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 17:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	680	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	764	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	7.0	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 17:17, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 02/02/24 13:41, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.005	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.079	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.07	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	

Lab Sample ID: S58153.01 (continued)
Sample Tag: MW-1 L401209-01

Method: E200.8, Run Date: 02/02/24 13:41, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	2.34	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.006	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 16:00, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	174	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	58.1	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	0.89	0.50	0.119	mg/L	5	7440-09-7	
Sodium	22.1	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/01/24 15:36, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 09:55, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58153.02
Sample Tag: MW-2 L401209-02
Collected Date/Time: 01/29/2024 15:40
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.0	IR
2	1L Plastic	None	Yes	3.0	IR
1	125mL Plastic	HNO3	Yes	3.0	IR
1	250mL Plastic	None	Yes	3.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/01/24 11:05	CTV	
Mercury Digestion	Completed	E245.1	02/01/24 11:05	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 14:29, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	281	25.0	1.475	mg/L	25	14808-79-8	

Method: E300.0, Run Date: 01/31/24 12:58, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	81.7	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: SM2320B, Run Date: 02/05/24 15:42, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	550	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 18:25, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	714	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,000	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	9.4	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 17:19, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium, Dissolved	Not detected	0.005	0.00205	mg/L	5	7440-62-2	f

f-Filtered and preserved in lab

Lab Sample ID: S58153.02 (continued)
Sample Tag: MW-2 L401209-02

Method: E200.8, Run Date: 02/02/24 17:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 02/02/24 13:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.036	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	4.07	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	0.52	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.041	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.010	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	0.017	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 13:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	f
Arsenic, Dissolved	Not detected	0.002	0.00145	mg/L	5	7440-38-2	f
Barium, Dissolved	0.037	0.005	0.000900	mg/L	5	7440-39-3	f
Beryllium, Dissolved	Not detected	0.001	0.000200	mg/L	5	7440-41-7	f
Boron, Dissolved	3.92	0.04	0.0159	mg/L	5	7440-42-8	f
Cadmium, Dissolved	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	f
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	f
Cobalt, Dissolved	Not detected	0.005	0.000450	mg/L	5	7440-48-4	f
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	f
Iron, Dissolved	0.15	0.02	0.0142	mg/L	5	7439-89-6	f
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	f
Lithium, Dissolved*	0.037	0.005	0.00135	mg/L	5	7439-93-2	f
Molybdenum, Dissolved	0.009	0.005	0.00420	mg/L	5	7439-98-7	f
Nickel, Dissolved	0.016	0.005	0.00115	mg/L	5	7440-02-0	f
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	f
Silver, Dissolved	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	f
Thallium, Dissolved	Not detected	0.002	0.000350	mg/L	5	7440-28-0	f
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	f

Method: E200.8, Run Date: 02/02/24 16:02, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	192	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	48.4	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	0.60	0.50	0.119	mg/L	5	7440-09-7	

f-Filtered and preserved in lab

Lab Sample ID: S58153.02 (continued)

Sample Tag: MW-2 L401209-02

Method: E200.8, Run Date: 02/02/24 16:02, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sodium	50.3	0.50	0.109	mg/L	5	7440-23-5	

Method: E200.8, Run Date: 02/02/24 16:04, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	164	0.50	0.218	mg/L	5	7440-70-2	f
Magnesium, Dissolved	38.7	0.50	0.0579	mg/L	5	7439-95-4	f
Potassium, Dissolved	Not detected	0.50	0.119	mg/L	5	7440-09-7	f
Sodium, Dissolved	42.0	0.50	0.109	mg/L	5	7440-23-5	f

Method: E245.1, Run Date: 02/01/24 15:43, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	f

Method: E245.1, Run Date: 02/01/24 15:40, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 09:55, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

f-Filtered and preserved in lab

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58153.03
Sample Tag: MW-3 L401209-03
Collected Date/Time: 01/29/2024 11:35
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.0	IR
2	1L Plastic	None	Yes	3.0	IR
1	125mL Plastic	HNO3	Yes	3.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/01/24 11:05	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 13:11, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: E300.0, Run Date: 01/31/24 14:42, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	99.5	50.0	0.800	mg/L	50	16887-00-6	
Sulfate	689	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 02/05/24 15:49, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	228	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 18:30, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	774	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,430	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	3.2	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 16:08, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sodium	119	2.5	1.09	mg/L	50	7440-23-5	

Method: E200.8, Run Date: 02/02/24 17:19, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Lab Sample ID: S58153.03 (continued)
Sample Tag: MW-3 L401209-03

Method: E200.8, Run Date: 02/02/24 13:52, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.006	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.017	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	5.68	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	1.84	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.080	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.176	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 16:05, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	252	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	50.7	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	1.81	0.50	0.119	mg/L	5	7440-09-7	

Method: E245.1, Run Date: 02/01/24 15:53, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 09:55, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58153.04
Sample Tag: MW-4 L401209-04
Collected Date/Time: 01/29/2024 13:13
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.0	IR
2	1L Plastic	None	Yes	3.0	IR
1	125mL Plastic	HNO3	Yes	3.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/01/24 11:05	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 14:55, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	73.6	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 01/31/24 13:24, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	57.5	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/05/24 16:27, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	416	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 18:35, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	428	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	556	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.5	3	1	mg/L	1		b

Metals

Method: E200.8, Run Date: 02/02/24 17:20, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 02/02/24 13:57, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.009	0.002	0.00145	mg/L	5	7440-38-2	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58153.04 (continued)
Sample Tag: MW-4 L401209-04

Method: E200.8, Run Date: 02/02/24 13:57, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Barium	0.159	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.07	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	1.09	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.012	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 16:09, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	110	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	38.9	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	1.47	0.50	0.119	mg/L	5	7440-09-7	
Sodium	33.9	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/01/24 15:56, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 09:55, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58153.05
Sample Tag: MW-5 L401209-05
Collected Date/Time: 01/29/2024 20:02
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.0	IR
2	1L Plastic	None	Yes	3.0	IR
1	125mL Plastic	HNO3	Yes	3.0	IR
1	250mL Plastic	None	Yes	3.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/01/24 11:05	CTV	
Mercury Digestion	Completed	E245.1	02/01/24 11:05	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 15:07, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	319	25.0	1.475	mg/L	25	14808-79-8	

Method: E300.0, Run Date: 01/31/24 13:37, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	37.2	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: SM2320B, Run Date: 02/05/24 16:34, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	298	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 18:37, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	502	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	788	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	7.7	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 14:01, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.004	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.040	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	

Lab Sample ID: S58153.05 (continued)
Sample Tag: MW-5 L401209-05

Method: E200.8, Run Date: 02/02/24 14:01, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	2.86	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	0.33	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.069	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.082	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	0.005	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 14:04, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	f
Arsenic, Dissolved	Not detected	0.002	0.00145	mg/L	5	7440-38-2	f
Barium, Dissolved	0.044	0.005	0.000900	mg/L	5	7440-39-3	f
Beryllium, Dissolved	Not detected	0.001	0.000200	mg/L	5	7440-41-7	f
Boron, Dissolved	2.74	0.04	0.0159	mg/L	5	7440-42-8	f
Cadmium, Dissolved	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	f
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	f
Cobalt, Dissolved	Not detected	0.005	0.000450	mg/L	5	7440-48-4	f
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	f
Iron, Dissolved	Not detected	0.02	0.0142	mg/L	5	7439-89-6	f
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	f
Lithium, Dissolved*	0.073	0.005	0.00135	mg/L	5	7439-93-2	f
Molybdenum, Dissolved	0.078	0.005	0.00420	mg/L	5	7439-98-7	f
Nickel, Dissolved	Not detected	0.005	0.00115	mg/L	5	7440-02-0	f
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	f
Silver, Dissolved	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	f
Thallium, Dissolved	Not detected	0.002	0.000350	mg/L	5	7440-28-0	f
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	f

Method: E200.8, Run Date: 02/02/24 16:11, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	153	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	33.3	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	4.34	0.50	0.119	mg/L	5	7440-09-7	
Sodium	45.6	0.50	0.109	mg/L	5	7440-23-5	

Method: E200.8, Run Date: 02/02/24 16:12, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	126	0.50	0.218	mg/L	5	7440-70-2	f
Magnesium, Dissolved	24.8	0.50	0.0579	mg/L	5	7439-95-4	f
Potassium, Dissolved	3.33	0.50	0.119	mg/L	5	7440-09-7	f
Sodium, Dissolved	34.4	0.50	0.109	mg/L	5	7440-23-5	f

f-Filtered and preserved in lab

Lab Sample ID: S58153.05 (continued)

Sample Tag: MW-5 L401209-05

Method: E200.8, Run Date: 02/02/24 17:21, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium, Dissolved	Not detected	0.005	0.00205	mg/L	5	7440-62-2	f
Vanadium	0.005	0.005	0.00205	mg/L	5	7440-62-2	

Method: E245.1, Run Date: 02/01/24 16:03, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	f

Method: E245.1, Run Date: 02/01/24 15:59, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 09:55, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

f-Filtered and preserved in lab

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58153.06
Sample Tag: MW-6 L401209-06
Collected Date/Time: 01/29/2024 19:08
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.0	IR
2	1L Plastic	None	Yes	3.0	IR
1	125mL Plastic	HNO3	Yes	3.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/01/24 11:05	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 14:03, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	26.5	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	118	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/05/24 16:41, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	516	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 18:39, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	522	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	660	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 17:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 02/02/24 14:08, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.003	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.049	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.57	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	

Lab Sample ID: S58153.06 (continued)
Sample Tag: MW-6 L401209-06

Method: E200.8, Run Date: 02/02/24 14:08, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	Not detected	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.032	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.012	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 16:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	161	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	29.9	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	6.77	0.50	0.119	mg/L	5	7440-09-7	
Sodium	32.4	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/01/24 16:06, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 09:55, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58153.07
Sample Tag: MWT-6 L401209-07
Collected Date/Time: 01/29/2024 19:08
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.0	IR
2	1L Plastic	None	Yes	3.0	IR
1	125mL Plastic	HNO3	Yes	3.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/01/24 11:05	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 13:51, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	26.5	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	119	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/05/24 17:04, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	510	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 18:42, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	512	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	658	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 17:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 02/02/24 14:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.003	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.049	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.61	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	

Lab Sample ID: S58153.07 (continued)
Sample Tag: MWT-6 L401209-07

Method: E200.8, Run Date: 02/02/24 14:22, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	Not detected	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.034	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.013	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 16:23, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	161	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	30.5	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	6.72	0.50	0.119	mg/L	5	7440-09-7	
Sodium	32.7	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/01/24 16:09, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 10:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58153.08
Sample Tag: Field Blank L401209-08
Collected Date/Time: 01/29/2024 09:18
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.0	IR
2	1L Plastic	None	Yes	3.0	IR
1	125mL Plastic	HNO3	Yes	3.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/01/24 11:05	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 14:16, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	Not detected	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	Not detected	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/05/24 17:16, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	Not detected	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 19:00, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	Not detected	10	0.238	mg/L	1		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 17:15, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.000820	mg/L	2	7440-62-2	

Method: E200.8, Run Date: 02/02/24 13:33, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.000900	mg/L	2	7440-36-0	
Arsenic	Not detected	0.002	0.000580	mg/L	2	7440-38-2	
Barium	Not detected	0.005	0.000360	mg/L	2	7440-39-3	
Beryllium	Not detected	0.001	0.0000800	mg/L	2	7440-41-7	
Boron	Not detected	0.04	0.00636	mg/L	2	7440-42-8	
Cadmium	Not detected	0.0005	0.000140	mg/L	2	7440-43-9	

Lab Sample ID: S58153.08 (continued)
Sample Tag: Field Blank L401209-08

Method: E200.8, Run Date: 02/02/24 13:33, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005	0.000300	mg/L	2	7440-47-3	
Cobalt	Not detected	0.005	0.000180	mg/L	2	7440-48-4	
Copper	Not detected	0.005	0.000320	mg/L	2	7440-50-8	
Iron	Not detected	0.02	0.00568	mg/L	2	7439-89-6	
Lead	Not detected	0.003	0.000180	mg/L	2	7439-92-1	
Lithium*	Not detected	0.005	0.000540	mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005	0.00168	mg/L	2	7439-98-7	
Nickel	Not detected	0.005	0.000460	mg/L	2	7440-02-0	
Selenium	Not detected	0.005	0.00174	mg/L	2	7782-49-2	
Silver	Not detected	0.0005	0.000100	mg/L	2	7440-22-4	
Thallium	Not detected	0.002	0.000140	mg/L	2	7440-28-0	
Zinc	Not detected	0.005	0.00130	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 02/02/24 15:58, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	Not detected	0.50	0.0874	mg/L	2	7440-70-2	
Magnesium	Not detected	0.50	0.0231	mg/L	2	7439-95-4	
Potassium	Not detected	0.50	0.0479	mg/L	2	7440-09-7	
Sodium	Not detected	0.50	0.0436	mg/L	2	7440-23-5	

Method: E245.1, Run Date: 02/01/24 16:13, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 10:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S58153
Client: BWL01 (Board of Water & Light)
Project: Erickson Semi Annual Wells 1-6
Submitted: 01/30/2024 09:11 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 3.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[X] Yes	[ ] No	[ ] N/A	Subcontracting needed? Subcontacted to:	GEL
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[X] Yes	[ ] No	[ ] N/A	Did any samples need to be preserved in the lab?	Diss Metals
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[X] Yes	[ ] No	[ ] N/A	Samples require laboratory filtration	Diss Metals
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S58153 Submitted: 01/30/2024 09:11

Client: BWL01 (Board of Water & Light)

Project: Erickson Semi Annual Wells 1-6

Initial Preservation Check: 01/30/2024 09:59 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S58153.01	125mL Plastic HNO3	<2			
S58153.01	1L Plastic HNO3	<2			
S58153.01	1L Plastic HNO3	<2			
S58153.02	125mL Plastic HNO3	<2			
S58153.02	1L Plastic HNO3	<2			
S58153.02	1L Plastic HNO3	<2			
S58153.03	125mL Plastic HNO3	<2			
S58153.03	1L Plastic HNO3	<2			
S58153.03	1L Plastic HNO3	<2			
S58153.04	125mL Plastic HNO3	<2			
S58153.04	1L Plastic HNO3	<2			
S58153.04	1L Plastic HNO3	<2			
S58153.05	125mL Plastic HNO3	<2			
S58153.05	1L Plastic HNO3	<2			
S58153.05	1L Plastic HNO3	<2			
S58153.06	125mL Plastic HNO3	<2			
S58153.06	1L Plastic HNO3	<2			
S58153.06	1L Plastic HNO3	<2			
S58153.07	125mL Plastic HNO3	<2			
S58153.07	1L Plastic HNO3	<2			
S58153.07	1L Plastic HNO3	<2			
S58153.08	125mL Plastic HNO3	<2			
S58153.08	1L Plastic HNO3	<2			
S58153.08	1L Plastic HNO3	<2			

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing STATE: Mi ZIP CODE: 48901
PHONE NO.: 517-702-6372 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Semi Annual Wells 1-6
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Marc Wahrer

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☒LEVEL III ☐LEVEL IV ☒EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☒NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total Metals	F- undistilled, Cl-, SO4, TDS	Radium 226	Radium 228	TSS	HCO3, CO3, Hardness	dissolved Metals	Special Instructions
58153.01	01/29/24	1741	MW-1 L401209-01	GW	5	2		3					✓	✓	✓	✓	✓	✓		Metals to analyse:Na, Mg, K
.02		1540	MW-2 -02	GW	5	2		3					✓	✓	✓	✓	✓	✓		B, Ca, Sb, As, Ba, Be, Cd, Cr,
.03		1135	MW-3 -03	GW	5	2		3					✓	✓	✓	✓	✓	✓		Co, Li, Hg, Mo,Pb,Se, Tl,
.04		1313	MW-4 -04	GW	5	2		3					✓	✓	✓	✓	✓	✓		Fe, Cu, Ni, Ag, V, Zn
.05		2002	MW-5 -05	GW	5	2		3					✓	✓	✓	✓	✓	✓	✓	Please send a preliminary report
.06		1908	MW-6 -06	GW	5	2		3					✓	✓	✓	✓	✓	✓		
.07	↓	1908	MWT- 6 -07	GW	5	2		3					✓	✓	✓	✓	✓	✓		Dissolved metals are the same as total.
.08	↓	0918	Field Blank ↓ -08	DI	5	2		3					✓	✓	✓	✓	✓	✓		

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Julie Maltby M Chilcott ☐Sampler DATE: 1/30/24 TIME: 0911
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: 1/30/24 TIME: 0911
RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS:
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS:
NOTES: TEMP. ON ARRIVAL 3.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Reporting Limits to go to Merit with COC

Sb, total	Antimony	250 mL plastic	mg/L	Nitric Acid	200.7	6 mos	0.005
As, total	Arsenic	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
Ba, total		250 mL plastic	mg/L	Nitric Acid	200.8	6mos	0.150
Be, total	Beryllium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.001
B, total	Boron	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.04
Cd, total	Cadmium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
Ca	Calcium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	2.5
Cl	Chloride	250 mL plastic	mg/L	Chill	300.0	28 d	10
Cr, total	Chromium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Co, total	Cobalt	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Cu, total	Copper	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
F	Fluoride	250 mL plastic	mg/L	None	9056	28 d	1.0
Fe, total	Iron	250 mL plastic	mg/L	Nitric Acid	300.0	6 mos	0.02
Pb, total	Lead	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.003
Li, total	Lithium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Hg, total	Mercury	250 mL plastic	mg/L	HNO3	245.1	28 d	0.0002
Mo, total	Molybdenum	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ni, total	Nickel	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
RA226/228	Radium 226 and 228 combined	(2) 1 L plastic	pCi/L	HNO3	SM 7500	6 mos	2.0 combined
Se, total	Selenium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ag, total	Silver	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
SO4	Sulfate	250 mL plastic	mg/L	Chill	300.0	28 d	10
Tl, total	Thallium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
TDS	Total Dissolved Solids	1 L plastic	mg/L	None	SM 2540C	NA	20
TSS	Total Suspended Solids	1 L plastic	mg/L	None	SM 2540D	NA	3
V, total	Vanadium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Zn, total	Zinc	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005

GEL Laboratories LLC
a member of The GEL Group INC

2040 Savage Road | Charleston, SC 29407
843.556.8171
gel.com

February 22, 2024

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 653796
SDG: S58153

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 01, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Abagail Martin for
Delaney Stonesmith
Project Manager

Purchase Order: GELP20-0018
Enclosures

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Case Narrative

Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S58153
Work Order: 653796

February 22, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on February 01, 2024 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

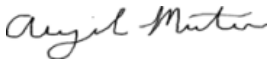
Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
653796001	S58153.01
653796002	S58153.02
653796003	S58153.03
653796004	S58153.04
653796005	S58153.05
653796006	S58153.06
653796007	S58153.07
653796008	S58153.08 Field Blank

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.



Abagail Martin for
Delaney Stonesmith
Project Manager

Chain of Custody and Supporting Documentation

653796

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: results@meritlabs.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague ☒ SAME
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S58153 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☒ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Radium 226*	Radium 228**
	1/29/24	1741	S58153.01	GW	2			2					✓	✓
	1/29/24	1540	S58153.02	GW	2			2					✓	✓
	1/29/24	1135	S58153.03	GW	2			2					✓	✓
	1/29/24	1313	S58153.04	GW	2			2					✓	✓
	1/29/24	2002	S58153.05	GW	2			2					✓	✓
	1/29/24	1908	S58153.06	GW	2			2					✓	✓
	1/29/24	1908	S58153.07	GW	2			2					✓	✓
	1/29/24	0918	S58153.08 Field Blank	DI	2			2					✓	✓

Special Instructions:
* E903.1 Mod.
** E904.0/SW 9320 Mod.

Please use calculation product & provide Radium 226/228 combined results on the report

(No Ice needed)

** Subcontracted to
GEL Laboratories, Inc.
2040 Savage Road
Charleston, SC 29407

RELINQUISHED BY: SIGNATURE/ORGANIZATION: M Chilcote ☐ Sampler	DATE: 1/30/24	TIME: 1700	
RECEIVED BY: SIGNATURE/ORGANIZATION: UPS	DATE: 1/30/24	TIME: 1700	
RELINQUISHED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	
RECEIVED BY: SIGNATURE/ORGANIZATION: L. E. Hamm GEL	DATE: 2/1/24	TIME: 1020	

RELINQUISHED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	
RECEIVED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL:
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 3.18.10

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: MER1	**SDG/AR/COC/Work Order:** 653796
Received By: QG	**Date Received:** 2/1/24
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 12 466 477 03 6252 3481

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?			Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?			COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?			Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr **Classified as: Rad 1 Rad 2 Rad 3**
D) Did the client designate samples are hazardous?			COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?			If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?				Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?				Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*				Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 13 °C
4	Daily check performed and passed on IR temperature gun?	✓			**Temperature Device Serial #:** IR1-23 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?				Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?				Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?				If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?				ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?				ID's and containers affected:
10	Date & time on COC match date & time on bottles?				Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?				Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?				
13	COC form is properly signed in relinquished/received sections?				Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials AM Date 02/02/24 Page 1 of 1

Laboratory Certifications

List of current GEL Certifications as of 22 February 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122024-05
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-23-21
Utah NELAP	SC000122023-38
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S58153
Work Order #: 653796

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2568549

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
653796001	S58153.01
653796002	S58153.02
653796003	S58153.03
653796004	S58153.04
653796005	S58153.05
653796006	S58153.06
653796007	S58153.07
653796008	S58153.08 Field Blank
1205650321	Method Blank (MB)
1205650322	653796001(S58153.01) Sample Duplicate (DUP)
1205650323	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2564063

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
653796001	S58153.01
653796002	S58153.02
653796003	S58153.03
653796004	S58153.04
653796005	S58153.05
653796006	S58153.06
653796007	S58153.07
653796008	S58153.08 Field Blank
1205641711	Method Blank (MB)

1205641712	653796001(S58153.01) Sample Duplicate (DUP)
1205641713	653796001(S58153.01) Matrix Spike (MS)
1205641714	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1205641713 (S58153.01MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MERI001 Merit Laboratories, Inc.

Client SDG: S58153 GEL Work Order: 653796

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Kate Gellatly**

Date: 29 FEB 2024 **Title: Analyst 1 PT**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: February 29, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58153.01
Sample ID: 653796001
Matrix: Ground Water
Collect Date: 29-JAN-24 17:41
Receive Date: 01-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	-0.206	+/-1.19	2.28	3.00	pCi/L			JE1	02/26/24	0843	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.240	+/-1.24			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.240	+/-0.332	0.561	1.00	pCi/L			MJ2	02/27/24	0955	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			77.9	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: February 29, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58153.02
Sample ID: 653796002
Matrix: Ground Water
Collect Date: 29-JAN-24 15:40
Receive Date: 01-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	-0.595	+/-0.875	1.81	3.00	pCi/L			JE1	02/26/24	0843	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.000	+/-0.891			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	-0.0321	+/-0.167	0.510	1.00	pCi/L			MJ2	02/27/24	0955	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			77.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: February 29, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58153.03
Sample ID: 653796003
Matrix: Ground Water
Collect Date: 29-JAN-24 11:35
Receive Date: 01-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.837	+/-1.10	1.87	3.00	pCi/L			JE1	02/26/24	0843	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.873	+/-1.14			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.0361	+/-0.292	0.676	1.00	pCi/L			MJ2	02/27/24	0955	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			77.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: February 29, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S58153.04	Project:	MERI00120
Sample ID:	653796004	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	29-JAN-24 13:13		
Receive Date:	01-FEB-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	-0.253	+/-0.808	1.59	3.00	pCi/L			JE1	02/26/24	0843	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.434	+/-0.895			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.434	+/-0.385	0.540	1.00	pCi/L			MJ2	02/27/24	0955	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			86.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: February 29, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S58153.05	Project:	MERI00120
Sample ID:	653796005	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	29-JAN-24 20:02		
Receive Date:	01-FEB-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		1.88	+/-1.12	1.69	3.00	pCi/L			JE1	02/26/24	0843	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.73	+/-1.26			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.857	+/-0.572	0.648	1.00	pCi/L			MJ2	02/27/24	0955	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: February 29, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S58153.06	Project:	MERI00120
Sample ID:	653796006	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	29-JAN-24 19:08		
Receive Date:	01-FEB-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.746	+/-0.990	1.69	3.00	pCi/L			JE1	02/26/24	0843	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.18	+/-1.05			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.435	+/-0.355	0.437	1.00	pCi/L			MJ2	02/27/24	0955	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: February 29, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S58153.07	Project:	MERI00120
Sample ID:	653796007	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	29-JAN-24 19:08		
Receive Date:	01-FEB-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		2.24	+/-1.37	2.14	3.00	pCi/L			JE1	02/26/24	0843	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.43	+/-1.41			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.190	+/-0.325	0.603	1.00	pCi/L			MJ2	02/27/24	1012	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			81.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: February 29, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S58153.08 Field Blank	Project:	MERI00120
Sample ID:	653796008	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	29-JAN-24 09:18		
Receive Date:	01-FEB-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.90	+/-1.40	2.22	3.00	pCi/L			JE1	02/26/24	0844	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.60	+/-1.51			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.701	+/-0.561	0.777	1.00	pCi/L			MJ2	02/27/24	1012	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			73.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Quality Control Data

QC Summary

Report Date: February 29, 2024

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: **John Laverty**

Workorder: **653796**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 2568549										
QC1205650322 653796001 DUP										
Radium-228	U	-0.206	U	0.935	pCi/L	N/A		N/A	JE1	02/26/24 08:43
	Uncertainty	+/-1.19		+/-1.07						
QC1205650323 LCS										
Radium-228	72.6			71.9	pCi/L		99	(75%-125%)		02/26/24 08:43
	Uncertainty			+/-4.05						
QC1205650321 MB										
Radium-228			U	0.707	pCi/L					02/26/24 08:43
	Uncertainty			+/-0.981						
Rad Ra-226										
Batch 2564063										
QC1205641712 653796001 DUP										
Radium-226	U	0.240	U	0.337	pCi/L	N/A		N/A	MJ2	02/27/24 10:30
	Uncertainty	+/-0.332		+/-0.373						
QC1205641714 LCS										
Radium-226	27.0			23.8	pCi/L		88	(75%-125%)		02/27/24 10:30
	Uncertainty			+/-2.59						
QC1205641711 MB										
Radium-226			U	-0.0351	pCi/L					02/27/24 10:30
	Uncertainty			+/-0.248						
QC1205641713 653796001 MS										
Radium-226	128 U	0.240		124	pCi/L		96.9	(75%-125%)		02/27/24 10:30
	Uncertainty	+/-0.332		+/-12.3						

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported
- > Result is greater than value reported

QC Summary

Workorder: **653796**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

UI	Gamma Spectroscopy--Uncertain identification
BD	Results are either below the MDC or tracer recovery is low
h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
M	M if above MDC and less than LLD
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
FA	Failed analysis.
UJ	Gamma Spectroscopy--Uncertain identification
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N1	See case narrative
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
**	Analyte is a Tracer compound
M	REMP Result > MDC/CL and < RDL
J	See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Gas Flow Raw Data

Batch 2568549 Check-list

This check-list was completed on 26-FEB-24 by Nat Long

This batch was reviewed by Kenshalla Oston on 26-FEB-24 and Nat Long on 26-FEB-24.

Batch ID: 2568549 **Product:** GFC28RAL **Description:** Gas Flow Radium 228 GL-RAD-A-063

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-228 in Liquid

Batch ID: **2568549**
Analyst: Jacqueline Winston (JE1)
Method: EPA 904.0/SW846 9320 Modified
Lab SOP: GL-RAD-A-063 REV# 5
Instrument: SP-C018367602

Due Dates for Lab: 26-FEB-2024 **Package: 28-FEB-2024** **SDG: 29-FEB-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205650323	Radium 228	2051-D	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)
1	653796001	21-FEB-2024	3	304.6	304.6	02/22/24 13:27	02/26/24 07:02
2	653796002	21-FEB-2024	3	304.9	304.9	02/22/24 13:27	02/26/24 07:02
3	653796003	21-FEB-2024	3	302.9	302.9	02/22/24 13:27	02/26/24 07:02
4	653796004	21-FEB-2024	3	302.8	302.8	02/22/24 13:27	02/26/24 07:02
5	653796005	21-FEB-2024	3	303.5	303.5	02/22/24 13:27	02/26/24 07:02
6	653796006	21-FEB-2024	3	310.6	310.6	02/22/24 13:27	02/26/24 07:02
7	653796007	21-FEB-2024	3	310.5	310.5	02/22/24 13:27	02/26/24 07:02
8	653796008	21-FEB-2024	3	303.5	303.5	02/22/24 13:27	02/26/24 07:02
9	654013001	21-FEB-2024	3	312.9	312.9	02/22/24 13:27	02/26/24 07:02
10	654013002	21-FEB-2024	3	302.1	302.1	02/22/24 13:27	02/26/24 07:02
11	654013003	21-FEB-2024	3	305.6	305.6	02/22/24 13:27	02/26/24 07:02
12	654013004	21-FEB-2024	3	304.5	304.5	02/22/24 13:27	02/26/24 07:02
13	654013005	21-FEB-2024	3	306.4	306.4	02/22/24 13:27	02/26/24 07:02
14	654013006	21-FEB-2024	3	302.8	302.8	02/22/24 13:27	02/26/24 07:02
15	654013007	21-FEB-2024	3	304.7	304.7	02/22/24 13:27	02/26/24 07:02
16	654013008	21-FEB-2024	3	311.5	311.5	02/22/24 13:27	02/26/24 07:02
17	654013009	21-FEB-2024	3	308.9	308.9	02/22/24 13:27	02/26/24 07:02
18	1205650321 MB	21-FEB-2024	3		312.9	02/22/24 13:27	02/26/24 07:02
19	1205650322 DUP (653796001)	21-FEB-2024	3	311.3	311.3	02/22/24 13:27	02/26/24 07:02
20	1205650323 LCS	21-FEB-2024	3		312.9	02/22/24 13:27	02/26/24 07:02

Reagent/Solvent Lot ID	Description	Amount
WORK 2097-B	Ba-133 Tracer	.1 mL
REGNT 4227383	RGF-1.5M Ammonium Sulfate	10 mL
REGNT 4214820	Barium Carrier Ra228 REG	1 mL
REGNT 4223988	RGF-1M Citric Acid	5 mL
REGNT 4226396	2M HCl	20 mL
REGNT 4221876	RGF-50% Potassium Carbonate	2 mL
REGNT 4077716.14	RGF-Hydrofluoric Acid	4 mL
REGNT 4209237	500 mg/mL Neodymium Carrier	.2 mL
REGNT 4216641	RGF-Neodymium Subtrate	5 mL
REGNT 4221872	RGF-7M Nitric Acid	25 mL
REGNT 4072674	Acetic Acid Glacial ACS Poly Coated Bottle	10 mL
REGNT DGA12292023	2561518	2 g
REGNT 4208393.51	Nitric Acid	5 mL

Comments:
Pipet Id: RAD-GFC-1795419
Data Entry Date2: 21-FEB-2024 00:00

Radium-228 Liquid

Filename : RA228.XLS
File type : Excel
Version # : 1.4.3

Tracer S/N : 2097-B
Tracer Exp Date : 7/12/2024
Tracer Volume Added: 0.10

Batch : 2568549
Analyst : JE1
Prep Date : 2/21/2024
Ra-228 Method Uncertainty : 0.1268

Geometry: 25mm Filter

Procedure Code : GFC28RAL
Parmname : Radium-228
Required MDA : 3 pCi/L
Ra-228 Abundance : 1.00
Halflife of Ra-228 : 5.75 years
Halflife of Ac-228 : 6.15 hours

Sample Characteristics					**Tracer Calculations**					
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Tracer Ref. Activity (CPM)	Tracer Ref. Count Uncertainty (%)	Tracer Samp. Activity (CPM)	Tracer Samp. Count Uncertainty (%)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	653796001.1	0.3046	1.8536E-05	1/29/2024 17:41	921.9	1.90%	718.3	2.15%	0.1	0.000200
2	653796002.1	0.3049	1.8541E-05	1/29/2024 15:40	921.9	1.90%	714.2	2.16%	0.1	0.000200
3	653796003.1	0.3029	1.8508E-05	1/29/2024 11:35	921.9	1.90%	713.7	2.16%	0.1	0.000200
4	653796004.1	0.3028	1.8506E-05	1/29/2024 13:13	921.9	1.90%	799.0	2.04%	0.1	0.000200
5	653796005.1	0.3035	1.8518E-05	1/29/2024 20:02	921.9	1.90%	781.5	2.07%	0.1	0.000200
6	653796006.1	0.3106	1.8633E-05	1/29/2024 19:08	921.9	1.90%	778.7	2.07%	0.1	0.000200
7	653796007.1	0.3105	1.8631E-05	1/29/2024 19:08	921.9	1.90%	754.5	2.10%	0.1	0.000200
8	653796008.1	0.3035	1.8518E-05	1/29/2024 9:18	921.9	1.90%	673.7	2.22%	0.1	0.000200
9	654013001.1	0.3129	1.8669E-05	1/30/2024 14:04	921.9	1.90%	825.4	2.01%	0.1	0.000200
10	654013002.1	0.3021	1.8495E-05	1/30/2024 12:36	921.9	1.90%	741.0	2.12%	0.1	0.000200
11	654013003.1	0.3056	1.8553E-05	1/30/2024 11:03	921.9	1.90%	733.9	2.13%	0.1	0.000200
12	654013004.1	0.3045	1.8534E-05	1/30/2024 18:21	921.9	1.90%	774.5	2.07%	0.1	0.000200
13	654013005.1	0.3064	1.8566E-05	1/30/2024 17:03	921.9	1.90%	742.7	2.12%	0.1	0.000200
14	654013006.1	0.3028	1.8506E-05	1/30/2024 15:44	921.9	1.90%	740.7	2.12%	0.1	0.000200
15	654013007.1	0.3047	1.8538E-05	1/30/2024 9:11	921.9	1.90%	752.2	2.10%	0.1	0.000200
16	654013008.1	0.3115	1.8647E-05	1/30/2024 14:04	921.9	1.90%	725.1	2.14%	0.1	0.000200
17	654013009.1	0.3089	1.8606E-05	1/30/2024 8:10	921.9	1.90%	754.4	2.10%	0.1	0.000200
18	1205650321.1	0.3129	1.8669E-05	2/21/2024 0:00	921.9	1.90%	692.4	2.19%	0.1	0.000200
19	1205650322.1	0.3113	1.8644E-05	1/29/2024 17:41	921.9	1.90%	762.2	2.09%	0.1	0.000200
20	1205650323.1	0.3129	1.8669E-05	2/21/2024 0:00	921.9	1.90%	793.4	2.05%	0.1	0.000200

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-063
Instrument SOP: GL-RAD-I-016

Count raw Data

Pos.	Detector ID	Counting Time (min.)	Gross Counts Alpha	Gross Counts Beta	Beta cpm	Count Start Date/Time	Ac-228 Ingrowth Date/Time	Ac-228 Decay Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Ingrowth	Ac-228 Count Correction	Calculated Sample Recovery %	Sample Recovery Error %
1	1A	60	13	56	0.933	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.827	1.000	1.057	77.9%	2.88%
2	1D	60	9	38	0.633	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.827	1.000	1.057	77.5%	2.89%
3	2A	60	24	62	1.033	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	77.4%	2.89%
4	2B	60	5	43	0.717	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	86.7%	2.80%
5	2C	60	7	79	1.317	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	84.8%	2.82%
6	5A	60	16	69	1.150	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	84.5%	2.82%
7	6A	60	15	128	2.133	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	81.8%	2.85%
8	6B	60	16	87	1.450	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	73.1%	2.94%
9	6C	60	13	64	1.067	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	89.5%	2.78%
10	7A	60	14	38	0.633	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	80.4%	2.86%
11	7C	60	9	27	0.450	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	79.6%	2.87%
12	8A	60	17	73	1.217	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	84.0%	2.82%
13	8C	60	8	39	0.650	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	80.6%	2.86%
14	9A	60	12	83	1.383	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	80.4%	2.86%
15	9B	60	13	69	1.150	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	81.6%	2.85%
16	9C	60	15	61	1.017	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.824	1.000	1.057	78.7%	2.88%
17	9D	60	11	45	0.750	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.824	1.000	1.057	81.8%	2.85%
18	10A	60	10	55	0.917	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.998	0.826	1.000	1.057	75.1%	2.91%
19	10C	60	9	77	1.283	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	82.7%	2.84%
20	11A	60	20	1387	23.117	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.998	0.827	1.000	1.057	86.1%	2.81%

Calibration Data								
Pos.	Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Bkg cpm	Weekly Bkg Count Start Date/Time	Bkg Count Time (min.)
1	PIC	6/1/2023	5/31/2024	0.5320	0.00738	0.978	2/23/2024 17:51	500
2	PIC	6/1/2023	5/31/2024	0.6071	0.00692	0.780	2/23/2024 17:51	500
3	PIC	6/1/2023	5/31/2024	0.6083	0.01914	0.828	2/23/2024 17:51	500
4	PIC	6/1/2023	5/31/2024	0.6253	0.02111	0.788	2/23/2024 17:51	500
5	PIC	6/1/2023	5/31/2024	0.6085	0.01274	0.812	2/23/2024 17:51	500
6	PIC	6/1/2023	5/31/2024	0.6366	0.00851	0.936	2/23/2024 17:51	500
7	PIC	6/1/2023	5/31/2024	0.6444	0.02228	1.504	2/23/2024 17:49	500
8	PIC	6/1/2023	5/31/2024	0.5957	0.00851	1.020	2/23/2024 17:49	500
9	PIC	6/1/2023	5/31/2024	0.6167	0.01970	0.914	2/23/2024 17:49	500
10	PIC	6/1/2023	5/31/2024	0.6229	0.00594	0.372	2/23/2024 17:49	500
11	PIC	6/1/2023	5/31/2024	0.6369	0.00790	0.354	2/23/2024 17:50	500
12	PIC	6/1/2023	5/31/2024	0.6413	0.01579	0.842	2/23/2024 17:50	500
13	PIC	6/1/2023	5/31/2024	0.5662	0.01955	0.756	2/23/2024 17:50	500
14	PIC	6/1/2023	5/31/2024	0.6343	0.00758	0.710	2/23/2024 17:50	500
15	PIC	6/1/2023	5/31/2024	0.6496	0.00754	0.858	2/23/2024 17:50	500
16	PIC	6/1/2023	5/31/2024	0.6429	0.00584	0.772	2/23/2024 17:50	500
17	PIC	6/1/2023	5/31/2024	0.6292	0.02610	0.692	2/23/2024 17:50	500
18	PIC	6/1/2023	5/31/2024	0.6356	0.00651	0.734	2/23/2024 17:50	500
19	PIC	6/1/2023	5/31/2024	0.6368	0.00638	1.020	2/23/2024 17:50	500
20	PIC	6/1/2023	5/31/2024	0.6466	0.01317	1.432	2/23/2024 17:48	500

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : N/A
Spike Exp Date : N/A
Spike Activity (dpm/ml): N/A
Spike Volume Added: N/A

LCS S/N : 2051-D
LCS Exp Date : 7/12/2024
LCS Activity (dpm/ml): 504.19
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	1.4497	1.0235	3	2.2773	**-0.2057**	296.28%	-0.0447	0.1323	1.1944	1.1946		SAMPLE				
2	1.1402	0.8050	3	1.8127	**-0.5948**	75.11%	-0.1467	0.1101	0.8749	0.8751		SAMPLE				
3	1.1811	0.8338	3	1.8715	**0.8372**	67.00%	0.2053	0.1374	1.0980	1.1190		SAMPLE				
4	1.0017	0.7072	3	1.5916	**-0.2528**	163.04%	-0.0713	0.1163	0.8078	0.8080		SAMPLE				
5	1.0659	0.7525	3	1.6909	**1.8752**	30.58%	0.5047	0.1535	1.1181	1.2167		SAMPLE				
6	1.0729	0.7575	3	1.6892	**0.7455**	67.84%	0.2140	0.1450	0.9904	1.0085		SAMPLE				
7	1.3878	0.9798	3	2.1374	**2.2372**	31.41%	0.6293	0.1964	1.3682	1.4854		SAMPLE				
8	1.4170	1.0004	3	2.2212	**1.8952**	37.77%	0.4300	0.1619	1.3984	1.4800		SAMPLE				
9	1.0254	0.7240	3	1.6164	**0.5144**	91.78%	0.1527	0.1400	0.9247	0.9341		SAMPLE				
10	0.7474	0.5277	3	1.2478	**1.0060**	40.78%	0.2613	0.1063	0.8020	0.8420		SAMPLE				
11	0.7118	0.5026	3	1.1930	**0.3608**	94.42%	0.0960	0.0906	0.6674	0.6737		SAMPLE				
12	1.0369	0.7321	3	1.6416	**1.3300**	39.69%	0.3747	0.1482	1.0311	1.0860		SAMPLE				
13	1.1536	0.8144	3	1.8372	**-0.4418**	104.88%	-0.1060	0.1111	0.9076	0.9078		SAMPLE				
14	1.0127	0.7150	3	1.6188	**2.5422**	23.42%	0.6733	0.1564	1.1577	1.3271		SAMPLE				
15	1.0640	0.7512	3	1.6828	**1.0536**	49.58%	0.2920	0.1445	1.0220	1.0568		SAMPLE				
16	1.0352	0.7309	3	1.6468	**0.9055**	55.65%	0.2447	0.1360	0.9864	1.0130		SAMPLE				
17	0.9708	0.6854	3	1.5541	**0.2126**	203.19%	0.0580	0.1178	0.8467	0.8485		SAMPLE				
18	1.0549	0.7447	3	1.6829	**0.7065**	70.91%	0.1827	0.1294	0.9810	0.9974		MB				
19	1.1417	0.8061	3	1.7897	**0.9351**	58.20%	0.2633	0.1531	1.0654	1.0917	653796001.1	DUP	* 0.0%			
20	1.2625	0.8914	3	1.9484	**71.8679**	4.23%	21.6847	0.6230	4.0470	18.8282		LCS			72.5824	99.0%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine	Batch ID
653796001	1A	60	13	56	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796002	1D	60	9	38	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796003	2A	60	24	62	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796004	2B	60	5	43	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796005	2C	60	7	79	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796006	5A	60	16	69	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796007	6A	60	15	128	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796008	6B	60	16	87	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013001	6C	60	13	64	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013002	7A	60	14	38	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013003	7C	60	9	27	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013004	8A	60	17	73	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013005	8C	60	8	39	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013006	9A	60	12	83	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013007	9B	60	13	69	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013008	9C	60	15	61	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013009	9D	60	11	45	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
1205650321	10A	60	10	55	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
1205650322	10C	60	9	77	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
1205650323	11A	60	20	1387	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549

ASSAY 26-Feb-24 7:21:43
Wizard 2480 s/n 46190630
Protocol id 8 Ba-133
Time limit
Count limit
Isotope Ba-133
Protocol date 2/26/2024
Run id. 916

Samp_ID	POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
REF	1	93	1	180	2766	921.85	1.9		07:21:43
653796001	2	93	2	180	2155.5	718.33	2.15	77.92	07:24:57
653796002	3	93	3	180	2143	714.21	2.16	77.48	07:28:11
653796003	4	93	4	180	2141.5	713.72	2.16	77.42	07:31:25
653796004	5	93	5	180	2397.5	799.04	2.04	86.68	07:34:39
653796005	1	94	1	180	2345	781.54	2.07	84.78	07:38:17
653796006	2	94	2	180	2336.5	778.68	2.07	84.47	07:41:31
653796007	3	94	3	180	2264	754.52	2.1	81.85	07:44:45
653796008	4	94	4	180	2021.5	673.66	2.22	73.08	07:47:59
654013001	5	94	5	180	2476.5	825.37	2.01	89.53	07:51:13
654013002	1	2	1	180	2223.5	741.03	2.12	80.39	07:54:48
654013003	2	2	2	180	2202	733.87	2.13	79.61	07:58:02
654013004	3	2	3	180	2324	774.48	2.07	84.01	08:01:16
654013005	4	2	4	180	2228.5	742.72	2.12	80.57	08:04:30
654013006	5	2	5	180	2222.5	740.71	2.12	80.35	08:07:44
654013007	1	18	1	180	2257	752.22	2.1	81.60	08:11:27
654013008	2	18	2	180	2175.5	725.05	2.14	78.65	08:14:41
654013009	3	18	3	180	2263.5	754.39	2.1	81.83	08:17:55
1205650321	4	18	4	180	2077.5	692.39	2.19	75.11	08:21:09
1205650322	5	18	5	180	2287	762.21	2.09	82.68	08:24:23
1205650323	1	14	1	180	2380.5	793.38	2.05	86.06	08:28:07

END OF ASSAY

Continuing Calibration Data

Gas Flow Proportional Counter Checks for 26-Feb-2024

Detectors LB4100 E1 through H4 and PIC 1A through 14D and G5400W 1W through 1Z and LB4200 GA1 through OD4

Short Name	Status	Parmname	Run Time	Count Time	CPM or dec	Low Limit	High Limit	Stdev
LB4100G2	Below	Alpha eff	26-Feb 07:56	5	11834	12110	13740	-4.02
LB4100G2	Above	Alpha XTalk	26-Feb 07:56	5	0.216	0.179	0.214	+3.47
LB4100H1	Above	Alpha bkg	26-Feb 04:55	60	0.650	-8.08E-2	0.225	+11.32
LB4100H1	Above	Alpha eff	26-Feb 06:53	5	11984	7523	11160	+4.36
LB4100H1	Above	Beta bkg	26-Feb 04:55	60	3.167	-5.15E-1	3.743	+2.19
LB4100H2	Above	Alpha bkg	26-Feb 04:55	60	0.417	0.057	0.420	+2.95
LB4100H3	Above	Alpha bkg	26-Feb 09:42	60	0.283	-8.01E-2	0.242	+3.77
LB4200GB2	Below	Alpha eff	26-Feb 06:35	5	9359	9443	9898	-4.11
LB4200GB2	Above	Beta bkg	26-Feb 17:22	60	19.200	0.129	1.304	+94.34
LB4200GD3	Above	Alpha bkg	26-Feb 17:22	60	0.967	-1.04E-1	0.321	+12.11
LB4200OB1	Above	Alpha bkg	26-Feb 17:16	60	0.850	-1.05E-1	0.362	+9.27
LB4200OB1	Above	Beta bkg	26-Feb 17:16	60	2.650	-2.59E-1	2.044	+4.58
PIC2D	Above	Beta bkg	26-Feb 08:26	60	2.183	0.417	1.868	+4.30
PIC4C	Above	Alpha bkg	26-Feb 07:35	60	0.350	-2.25E-1	1.312	-0.75
PIC12D	Above	Alpha eff	26-Feb 06:00	5	18171	14940	17150	+5.77
PIC14A	Above	Beta bkg	26-Feb 08:48	60	2.150	-9.44E-1	2.673	+2.13
PIC14B	Above	Beta bkg	26-Feb 08:47	60	2.133	-1.14E+0	2.499	+2.40

INSTRUMENTS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

The following detectors may not have properly transferred to the LIMS system

PIC1B	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC5B	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC10B	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk

Reviewed by Jasmine Conley

Date 2/28/24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: GFPC **Batch ID: 2568549**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1205650323	LCS	JE1	PIC11A	FEB-26-24 08:43:11	DONE	25mm Filter	01-JUN-23 00:00
653796001	SAMPLE	JE1	PIC1A	FEB-26-24 08:43:21	DONE	25mm Filter	01-JUN-23 00:00
653796002	SAMPLE	JE1	PIC1D	FEB-26-24 08:43:24	DONE	25mm Filter	01-JUN-23 00:00
653796003	SAMPLE	JE1	PIC2A	FEB-26-24 08:43:27	DONE	25mm Filter	01-JUN-23 00:00
653796004	SAMPLE	JE1	PIC2B	FEB-26-24 08:43:31	DONE	25mm Filter	01-JUN-23 00:00
653796005	SAMPLE	JE1	PIC2C	FEB-26-24 08:43:36	DONE	25mm Filter	01-JUN-23 00:00
653796006	SAMPLE	JE1	PIC5A	FEB-26-24 08:43:41	DONE	25mm Filter	01-JUN-23 00:00
1205650321	MB	JE1	PIC10A	FEB-26-24 08:43:48	DONE	25mm Filter	01-JUN-23 00:00
1205650322	DUP	JE1	PIC10C	FEB-26-24 08:43:50	DONE	25mm Filter	01-JUN-23 00:00
653796007	SAMPLE	JE1	PIC6A	FEB-26-24 08:43:58	DONE	25mm Filter	01-JUN-23 00:00
653796008	SAMPLE	JE1	PIC6B	FEB-26-24 08:44:02	DONE	25mm Filter	01-JUN-23 00:00
654013001	SAMPLE	JE1	PIC6C	FEB-26-24 08:44:06	DONE	25mm Filter	01-JUN-23 00:00
654013002	SAMPLE	JE1	PIC7A	FEB-26-24 08:44:13	DONE	25mm Filter	01-JUN-23 00:00
654013003	SAMPLE	JE1	PIC7C	FEB-26-24 08:44:16	DONE	25mm Filter	01-JUN-23 00:00
654013004	SAMPLE	JE1	PIC8A	FEB-26-24 08:44:20	DONE	25mm Filter	01-JUN-23 00:00
654013005	SAMPLE	JE1	PIC8C	FEB-26-24 08:44:26	DONE	25mm Filter	01-JUN-23 00:00
654013006	SAMPLE	JE1	PIC9A	FEB-26-24 08:44:35	DONE	25mm Filter	01-JUN-23 00:00
654013007	SAMPLE	JE1	PIC9B	FEB-26-24 08:44:39	DONE	25mm Filter	01-JUN-23 00:00
654013008	SAMPLE	JE1	PIC9C	FEB-26-24 08:44:49	DONE	25mm Filter	01-JUN-23 00:00
654013009	SAMPLE	JE1	PIC9D	FEB-26-24 08:44:54	DONE	25mm Filter	01-JUN-23 00:00

Lucas Cell Raw Data

Batch 2564063 Check-list

This check-list was completed on 27-FEB-24 by Lyndsey Pace

This batch was reviewed by Lyndsey Pace on 27-FEB-24 and Elizabeth Krouse on 28-FEB-24.

Batch ID:	**Product:**	**Description:** Lucas Cell Radium 226
2564063	LUC26RAL	GL-RAD-A-008

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
10	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-226 in Liquid

Batch ID: **2564063**
Analyst: Marisa Johnson (MJ2)
Method: EPA 903.1 Modified
Lab SOP: GL-RAD-A-008 REV# 15
Instrument: LUCAS-C202389980

Due Dates for Lab: 26-FEB-2024 **Package: 28-FEB-2024** **SDG: 29-FEB-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
MS	1205641713	Ra-226 emanation spike	1715-I	.1	mL
LCS	1205641714	Ra-226 emanation spike	1715-I	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	End Degas (date)	CELL #	End Transfer (date)	Start Count Time (date)	Background Counts	Total Counts
1	653796001	23-FEB-2024	1	504.04	504.04	02/23/24 13:55	309	02/27/24 06:34	02/27/24 09:55	2	4
2	653796002	23-FEB-2024	1	504.33	504.33	02/23/24 13:55	407	02/27/24 06:34	02/27/24 09:55	3	1
3	653796003	23-FEB-2024	1	500.87	500.87	02/23/24 13:55	505	02/27/24 06:34	02/27/24 09:55	5	3
4	653796004	23-FEB-2024	1	502.03	502.03	02/23/24 13:55	605	02/27/24 06:34	02/27/24 09:55	4	9
5	653796005	23-FEB-2024	1	501.25	501.25	02/23/24 13:55	708	02/27/24 06:34	02/27/24 09:55	3	12
6	653796006	23-FEB-2024	1	501.39	501.39	02/23/24 13:55	807	02/27/24 06:34	02/27/24 09:55	2	8
7	653796007	23-FEB-2024	1	504.81	504.81	02/23/24 13:55	103	02/27/24 06:58	02/27/24 10:12	3	4
8	653796008	23-FEB-2024	1	505.89	505.89	02/23/24 13:55	204	02/27/24 06:58	02/27/24 10:12	6	12
9	654013001	23-FEB-2024	1	507.57	507.57	02/23/24 13:55	303	02/27/24 06:58	02/27/24 10:12	8	4
10	654013002	23-FEB-2024	1	502.26	502.26	02/23/24 13:55	404	02/27/24 06:58	02/27/24 10:12	3	7
11	654013003	23-FEB-2024	1	507.59	507.59	02/23/24 13:55	504	02/27/24 06:58	02/27/24 10:12	3	10
12	654013004	23-FEB-2024	1	502.57	502.57	02/23/24 13:55	602	02/27/24 06:58	02/27/24 10:12	4	9
13	654013005	23-FEB-2024	1	500.7	500.7	02/23/24 13:55	701	02/27/24 06:58	02/27/24 10:12	6	3
14	654013006	23-FEB-2024	1	502.21	502.21	02/23/24 13:55	805	02/27/24 06:58	02/27/24 10:12	3	6
15	654013007	23-FEB-2024	1	502.07	502.07	02/23/24 13:55	104	02/27/24 07:23	02/27/24 10:30	1	13
16	654013008	23-FEB-2024	1	500.1	500.1	02/23/24 13:55	207	02/27/24 07:23	02/27/24 10:30	2	11
17	654013009	23-FEB-2024	1	505.72	505.72	02/23/24 13:55	304	02/27/24 07:23	02/27/24 10:30	2	14
18	1205641711 MB	23-FEB-2024	1		507.59	02/23/24 13:55	403	02/27/24 07:23	02/27/24 10:30	5	2
19	1205641712 DUP (653796001)	23-FEB-2024	1	500.37	500.37	02/23/24 13:55	502	02/27/24 07:23	02/27/24 10:30	4	7
20	1205641713 MS (653796001)	23-FEB-2024	1	106.73	106.73	02/23/24 13:55	608	02/27/24 07:23	02/27/24 10:30	8	406
21	1205641714 LCS	23-FEB-2024	1		507.59	02/23/24 13:55	702	02/27/24 07:23	02/27/24 10:30	1	324

Reagent/Solvent Lot ID	Description	Amount

Comments:
Data Entry Date2: 23-FEB-2024 00:00

Radium-226 Liquid

Filename : RA226.XLS
File type : Excel
Version # : 1.3.2

Batch : 2564063
Analyst : MAR02577
Prep Date : 2/23/2024
Ra-226 Method Uncertainty : 0.073648

Procedure Code : LUC26RAL
Parmname : Radium-226
Required MDA : 1 pCi/L
Halflife of Ra-226 : 1600 years
Ra-226 Abundance : 1.00
Halflife of Rn-222: 3.8235 days

Batch counted on : LUCAS CELL DETECTOR
BKG Count time : 30 min

Sample Characteristics					Count Raw Data							
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Background Count Time (min.)	Cell Efficiency (cpm/dpm)
1	653796001.1	0.5040	2.0272E-05	1/29/2024 17:41	309	15	4	0.267	2	0.067	30	1.5690
2	653796002.1	0.5043	2.0273E-05	1/29/2024 15:40	407	15	1	0.067	3	0.100	30	1.9490
3	653796003.1	0.5009	2.0259E-05	1/29/2024 11:35	505	15	3	0.200	5	0.167	30	1.7470
4	653796004.1	0.5020	2.0264E-05	1/29/2024 13:13	605	15	9	0.600	4	0.133	30	2.0280
5	653796005.1	0.5013	2.0261E-05	1/29/2024 20:02	708	15	12	0.800	3	0.100	30	1.5430
6	653796006.1	0.5014	2.0262E-05	1/29/2024 19:08	807	15	8	0.533	2	0.067	30	2.0260
7	653796007.1	0.5048	2.0275E-05	1/29/2024 19:08	103	15	4	0.267	3	0.100	30	1.6400
8	653796008.1	0.5059	2.0280E-05	1/29/2024 9:18	204	15	12	0.800	6	0.200	30	1.5970
9	654013001.1	0.5076	2.0286E-05	1/30/2024 14:04	303	15	4	0.267	8	0.267	30	1.5370
10	654013002.1	0.5023	2.0265E-05	1/30/2024 12:36	404	15	7	0.467	3	0.100	30	1.9410
11	654013003.1	0.5076	2.0286E-05	1/30/2024 11:03	504	15	10	0.667	3	0.100	30	1.3720
12	654013004.1	0.5026	2.0266E-05	1/30/2024 18:21	602	15	9	0.600	4	0.133	30	1.7010
13	654013005.1	0.5007	2.0259E-05	1/30/2024 17:03	701	15	3	0.200	6	0.200	30	1.5970
14	654013006.1	0.5022	2.0265E-05	1/30/2024 15:44	805	15	6	0.400	3	0.100	30	1.5410
15	654013007.1	0.5021	2.0264E-05	1/30/2024 9:11	104	15	13	0.867	1	0.033	30	1.6640
16	654013008.1	0.5001	2.0256E-05	1/30/2024 14:04	207	15	11	0.733	2	0.067	30	1.8080
17	654013009.1	0.5057	2.0279E-05	1/30/2024 8:10	304	15	14	0.933	2	0.067	30	1.4940
18	1205641711.1	0.5076	2.0286E-05	2/23/2024 0:00	403	15	2	0.133	5	0.167	30	1.7560
19	1205641712.1	0.5004	2.0257E-05	1/29/2024 17:41	502	15	7	0.467	4	0.133	30	1.8590
20	1205641713.1	0.1067	1.1775E-05	1/29/2024 17:41	608	15	406	27.067	8	0.267	30	1.8960
21	1205641714.1	0.5076	2.0286E-05	2/23/2024 0:00	702	15	324	21.600	1	0.033	30	1.6810

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-008
Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections De-Gas to Ingrowth	Ingrowth to Count	During Count	Ra-226 Decay
9.100%	11/1/2023	10/31/2024	2/23/2024 13:55	2/27/2024 6:34	2/27/2024 9:55	0.488	0.975	1.001	1.000
7.500%	2/1/2024	1/31/2025	2/23/2024 13:55	2/27/2024 6:34	2/27/2024 9:55	0.488	0.975	1.001	1.000
8.200%	6/1/2023	5/31/2024	2/23/2024 13:55	2/27/2024 6:34	2/27/2024 9:55	0.488	0.975	1.001	1.000
2.300%	10/10/2023	6/30/2024	2/23/2024 13:55	2/27/2024 6:34	2/27/2024 9:55	0.488	0.975	1.001	1.000
5.200%	11/1/2023	10/31/2024	2/23/2024 13:55	2/27/2024 6:34	2/27/2024 9:55	0.488	0.975	1.001	1.000
9.200%	10/10/2023	3/31/2024	2/23/2024 13:55	2/27/2024 6:34	2/27/2024 9:55	0.488	0.975	1.001	1.000
9.600%	5/1/2023	4/30/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
2.600%	8/1/2023	7/31/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
6.800%	11/1/2023	10/31/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
3.700%	2/1/2024	1/31/2025	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
1.100%	10/10/2023	5/31/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
9.900%	7/1/2023	6/30/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
5.900%	11/1/2023	10/31/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
9.600%	4/8/2023	3/31/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
6.700%	5/1/2023	4/30/2024	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000
4.000%	10/10/2023	7/31/2024	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000
2.100%	11/1/2023	10/31/2024	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000
8.500%	2/1/2024	1/31/2025	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000
7.700%	6/1/2023	5/31/2024	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000
7.800%	7/1/2023	6/30/2024	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000
2.000%	11/1/2023	10/31/2024	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : 1715-I
Spike Exp Date : 8/29/2024
Spike Activity (dpm/ml): 304.15
Spike Volume Added: 0.10

LCS S/N : 1715-I
LCS Exp Date : 8/29/2024
LCS Activity (dpm/ml): 304.15
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type		RPD	RER	Nominal pCi/L	Recovery
1	0.2279	0.1609	1	0.5614	**0.2396**	71.29%	0.2000	0.1414	0.3321	0.3366		SAMPLE					
2	0.2246	0.1586	1	0.5099	**-0.0321**	264.68%	-0.0333	0.0882	0.1666	0.1667		SAMPLE					
3	0.3257	0.2299	1	0.6764	**0.0361**	412.39%	0.0333	0.1374	0.2917	0.2918		SAMPLE					
4	0.2504	0.1768	1	0.5396	**0.4343**	45.23%	0.4667	0.2108	0.3845	0.3901		SAMPLE					
5	0.2854	0.2015	1	0.6480	**0.8575**	34.40%	0.7000	0.2380	0.5715	0.5913		SAMPLE					
6	0.1774	0.1253	1	0.4371	**0.4353**	42.65%	0.4667	0.1944	0.3553	0.3693		SAMPLE					
7	0.2656	0.1875	1	0.6029	**0.1900**	87.70%	0.1667	0.1453	0.3246	0.3277		SAMPLE					
8	0.3849	0.2717	1	0.7770	**0.7008**	40.91%	0.6000	0.2449	0.5607	0.5709		SAMPLE					
9	0.4602	0.3249	1	0.8918	**0.000E+00**	0.00%	0.0000	0.1633	0.3871	0.3872		SAMPLE					
10	0.2255	0.1592	1	0.5120	**0.3549**	50.75%	0.3667	0.1856	0.3521	0.3567		SAMPLE					
11	0.3157	0.2229	1	0.7168	**0.7678**	38.59%	0.5667	0.2186	0.5805	0.5912		SAMPLE					
12	0.2970	0.2097	1	0.6401	**0.5151**	46.25%	0.4667	0.2108	0.4561	0.4728		SAMPLE					
13	0.3889	0.2745	1	0.7851	**0.000E+00**	0.00%	0.0000	0.1414	0.3271	0.3272		SAMPLE					
14	0.2841	0.2006	1	0.6450	**0.3658**	58.53%	0.3000	0.1732	0.4139	0.4229		SAMPLE					
15	0.1513	0.1068	1	0.4386	**0.9373**	29.88%	0.8333	0.2427	0.5350	0.5654		SAMPLE					
16	0.1977	0.1396	1	0.4870	**0.6929**	34.15%	0.6667	0.2261	0.4605	0.4744		SAMPLE					
17	0.2366	0.1671	1	0.5829	**1.0779**	29.37%	0.8667	0.2539	0.6188	0.6396		SAMPLE					
18	0.3171	0.2239	1	0.6586	**-0.0351**	360.66%	-0.0333	0.1202	0.2483	0.2485		MB					
19	0.2718	0.1919	1	0.5858	**0.3367**	57.09%	0.3333	0.1886	0.3734	0.3799	653796001.1	DUP	*	0.0%			
20	1.7669	1.2474	1	3.4236	**124.4524**	9.28%	26.8000	1.3466	12.2564	28.8955	653796001.1	MS				128.3679	96.9%
21	0.1481	0.1046	1	0.4294	**23.7511**	5.91%	21.5667	1.2005	2.5912	4.3972		LCS				26.9909	88.0%

Continuing Calibration Data

Ludlum Alpha Scintillation Counter Checks for 27-FEB-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	07:40	1	1.11E+05	110723	-1.97		
LUCAS2	EFF	07:39	1	1.27E+05	127433	-1.99		
LUCAS3	EFF	07:37	1	93705	93705	1.6		
LUCAS4	EFF	07:36	1	1.23E+05	123195	-2.44		
LUCAS5	EFF	07:34	1	1.28E+05	127753	-1.38		
LUCAS6	EFF	07:31	1	1.27E+05	127311	-0.98		
LUCAS7	EFF	07:30	1	1.30E+05	130051	-1.11		
LUCAS8	EFF	07:29	1	1.13E+05	113219	-1.12		

Reviewed by: Lyndsey Pace **Date:** 27-FEB-24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR **Batch ID: 2564063**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
653796001	SAMPLE	MJ2	LUCAS3	FEB-27-24 09:55:00	DONE	Lucas Cell	01-NOV-23 00:00
653796002	SAMPLE	MJ2	LUCAS4	FEB-27-24 09:55:00	DONE	Lucas Cell	01-FEB-24 00:00
653796003	SAMPLE	MJ2	LUCAS5	FEB-27-24 09:55:00	DONE	Lucas Cell	01-JUN-23 00:00
653796004	SAMPLE	MJ2	LUCAS6	FEB-27-24 09:55:00	DONE	Lucas Cell	01-JUL-23 00:00
653796005	SAMPLE	MJ2	LUCAS7	FEB-27-24 09:55:00	DONE	Lucas Cell	01-NOV-23 00:00
653796006	SAMPLE	MJ2	LUCAS8	FEB-27-24 09:55:00	DONE	Lucas Cell	08-APR-23 00:00
653796007	SAMPLE	MJ2	LUCAS1	FEB-27-24 10:12:00	DONE	Lucas Cell	01-MAY-23 00:00
653796008	SAMPLE	MJ2	LUCAS2	FEB-27-24 10:12:00	DONE	Lucas Cell	01-AUG-23 00:00
654013001	SAMPLE	MJ2	LUCAS3	FEB-27-24 10:12:00	DONE	Lucas Cell	01-NOV-23 00:00
654013002	SAMPLE	MJ2	LUCAS4	FEB-27-24 10:12:00	DONE	Lucas Cell	01-FEB-24 00:00
654013003	SAMPLE	MJ2	LUCAS5	FEB-27-24 10:12:00	DONE	Lucas Cell	01-JUN-23 00:00
654013004	SAMPLE	MJ2	LUCAS6	FEB-27-24 10:12:00	DONE	Lucas Cell	01-JUL-23 00:00
654013005	SAMPLE	MJ2	LUCAS7	FEB-27-24 10:12:00	DONE	Lucas Cell	01-NOV-23 00:00
654013006	SAMPLE	MJ2	LUCAS8	FEB-27-24 10:12:00	DONE	Lucas Cell	08-APR-23 00:00
654013007	SAMPLE	MJ2	LUCAS1	FEB-27-24 10:30:00	DONE	Lucas Cell	01-MAY-23 00:00
654013008	SAMPLE	MJ2	LUCAS2	FEB-27-24 10:30:00	DONE	Lucas Cell	01-AUG-23 00:00
654013009	SAMPLE	MJ2	LUCAS3	FEB-27-24 10:30:00	DONE	Lucas Cell	01-NOV-23 00:00
1205641711	MB	MJ2	LUCAS4	FEB-27-24 10:30:00	DONE	Lucas Cell	01-FEB-24 00:00
1205641712	DUP	MJ2	LUCAS5	FEB-27-24 10:30:00	DONE	Lucas Cell	01-JUN-23 00:00
1205641713	MS	MJ2	LUCAS6	FEB-27-24 10:30:00	DONE	Lucas Cell	01-JUL-23 00:00
1205641714	LCS	MJ2	LUCAS7	FEB-27-24 10:30:00	DONE	Lucas Cell	01-NOV-23 00:00

Analytical Laboratory Report

Report ID: S58205.01(01)
Generated on 02/29/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S58205.01-S58205.09
Project: Erickson Semi Annual Wells 7-10, 13
Collected Date(s): 01/30/2024
Submitted Date/Time: 01/31/2024 08:48
Sampled by: Marc Wahrer
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2320B	Standard Method 2320 B 2011
SM2340C	Standard Method 2340 C 2011
SM2540C	Standard Method 2540 C 2015
SM2540D	Standard Method 2540 D 2015
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (9 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S58205.01	MW-7 L401210-01	Groundwater	01/30/24 14:04
S58205.02	MW-7B L401210-02	Groundwater	01/30/24 12:36
S58205.03	MW-7C L401210-03	Groundwater	01/30/24 11:03
S58205.04	MW-8 L401210-04	Groundwater	01/30/24 18:21
S58205.05	MW-9 L401210-05	Groundwater	01/30/24 17:03
S58205.06	MW-10 L401210-06	Groundwater	01/30/24 15:44
S58205.07	MW-13 L401210-07	Groundwater	01/30/24 09:11
S58205.08	MWT-7 L401210-08	Groundwater	01/30/24 14:04
S58205.09	Field Blank L401210-09	Water	01/30/24 08:10

Analytical Laboratory Report

Lab Sample ID: S58205.01
Sample Tag: MW-7 L401210-01
Collected Date/Time: 01/30/2024 14:04
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/02/24 10:42	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 16:13, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: E300.0, Run Date: 01/31/24 18:09, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	82.9	25.0	0.400	mg/L	25	16887-00-6	
Sulfate	270	25.0	1.475	mg/L	25	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 12:54, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	334	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 19:30, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	496	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	864	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	2.6	3	1	mg/L	1		b

Metals

Method: E200.8, Run Date: 02/02/24 17:26, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	0.006	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 02/02/24 14:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.006	0.002	0.00145	mg/L	5	7440-38-2	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58205.01 (continued)
Sample Tag: MW-7 L401210-01

Method: E200.8, Run Date: 02/02/24 14:25, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Barium	0.036	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	1.72	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	1.91	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.082	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.184	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 16:24, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	165	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	20.5	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	5.77	0.50	0.119	mg/L	5	7440-09-7	
Sodium	83.9	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/02/24 14:06, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 10:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Analytical Laboratory Report

Lab Sample ID: S58205.02
Sample Tag: MW-7B L401210-02
Collected Date/Time: 01/30/2024 12:36
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/02/24 10:42	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 16:26, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	1.9	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.3	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	1.3	5.0	0.295	mg/L	5	14808-79-8	b

Method: SM2320B, Run Date: 02/08/24 13:00, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	395	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 19:15, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	29.5	10	0.238	mg/L	1		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	372	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.0	3	1	mg/L	1		b

Metals

Method: E200.8, Run Date: 02/02/24 17:27, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 02/02/24 14:28, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.003	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.008	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	2.92	0.04	0.0159	mg/L	5	7440-42-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58205.02 (continued)
Sample Tag: MW-7B L401210-02

Method: E200.8, Run Date: 02/02/24 14:28, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	0.09	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.033	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 16:26, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	8.83	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	2.69	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	5.63	0.50	0.119	mg/L	5	7440-09-7	
Sodium	87.5	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/02/24 14:09, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 10:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Analytical Laboratory Report

Lab Sample ID: S58205.03
Sample Tag: MW-7C L401210-03
Collected Date/Time: 01/30/2024 11:03
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/02/24 10:42	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 16:39, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: E300.0, Run Date: 01/31/24 18:22, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	90.1	50.0	0.800	mg/L	50	16887-00-6	
Sulfate	650	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 13:05, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	167	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 19:25, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	558	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,330	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	5.4	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 17:27, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 02/02/24 14:31, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.010	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.042	0.005	0.000900	mg/L	5	7440-39-3	

Lab Sample ID: S58205.03 (continued)
Sample Tag: MW-7C L401210-03

Method: E200.8, Run Date: 02/02/24 14:31, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	6.62	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	4.41	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.126	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.409	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	0.008	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 16:27, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	238	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	44.3	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	5.75	0.50	0.119	mg/L	5	7440-09-7	
Sodium	94.7	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/02/24 14:12, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 10:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Analytical Laboratory Report

Lab Sample ID: S58205.04
Sample Tag: MW-8 L401210-04
Collected Date/Time: 01/30/2024 18:21
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/02/24 10:42	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 16:52, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	10.5	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	21.4	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 13:13, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	403	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 19:34, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	364	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	388	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 17:28, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	0.005	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 02/02/24 14:35, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.002	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.021	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.05	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	

Lab Sample ID: S58205.04 (continued)
Sample Tag: MW-8 L401210-04

Method: E200.8, Run Date: 02/02/24 14:35, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	0.010	0.005	0.000800	mg/L	5	7440-50-8	
Iron	Not detected	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	0.007	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 16:29, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	97.3	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	28.8	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	Not detected	0.50	0.119	mg/L	5	7440-09-7	
Sodium	13.9	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/02/24 14:22, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 10:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Analytical Laboratory Report

Lab Sample ID: S58205.05
Sample Tag: MW-9 L401210-05
Collected Date/Time: 01/30/2024 17:03
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/02/24 10:42	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 17:05, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	5.5	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	11.9	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 20:09, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	378	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 19:37, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	342	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	348	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 17:29, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 02/02/24 14:38, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.003	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.017	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	Not detected	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	

Lab Sample ID: S58205.05 (continued)
Sample Tag: MW-9 L401210-05

Method: E200.8, Run Date: 02/02/24 14:38, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	Not detected	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 16:30, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	98.8	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	23.3	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	0.93	0.50	0.119	mg/L	5	7440-09-7	
Sodium	4.11	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/02/24 14:25, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 10:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Analytical Laboratory Report

Lab Sample ID: S58205.06
Sample Tag: MW-10 L401210-06
Collected Date/Time: 01/30/2024 15:44
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/02/24 10:42	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 17:17, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	9.3	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	27.8	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 20:15, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	449	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 19:39, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	396	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	452	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 17:30, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 02/02/24 14:41, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.002	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.041	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.04	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	

Lab Sample ID: S58205.06 (continued)
Sample Tag: MW-10 L401210-06

Method: E200.8, Run Date: 02/02/24 14:41, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	Not detected	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 16:32, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	118	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	27.0	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	Not detected	0.50	0.119	mg/L	5	7440-09-7	
Sodium	19.0	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/02/24 14:29, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 10:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Analytical Laboratory Report

Lab Sample ID: S58205.07
Sample Tag: MW-13 L401210-07
Collected Date/Time: 01/30/2024 09:11
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/02/24 10:42	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 17:30, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	25.3	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	122	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 20:23, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	496	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 19:42, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	550	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	638	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 17:30, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 02/02/24 14:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.008	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.038	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.15	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	

Lab Sample ID: S58205.07 (continued)
Sample Tag: MW-13 L401210-07

Method: E200.8, Run Date: 02/02/24 14:44, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	1.03	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 16:33, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	157	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	35.9	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	1.00	0.50	0.119	mg/L	5	7440-09-7	
Sodium	13.2	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/02/24 14:32, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 10:30, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Analytical Laboratory Report

Lab Sample ID: S58205.08
Sample Tag: MWT-7 L401210-08
Collected Date/Time: 01/30/2024 14:04
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/02/24 10:42	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 17:43, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: E300.0, Run Date: 01/31/24 18:35, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	81.7	25.0	0.400	mg/L	25	16887-00-6	
Sulfate	267	25.0	1.475	mg/L	25	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 20:29, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	346	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 19:45, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	510	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	866	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	3.3	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 17:31, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	0.005	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 02/02/24 14:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.006	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.037	0.005	0.000900	mg/L	5	7440-39-3	

Lab Sample ID: S58205.08 (continued)
Sample Tag: MWT-7 L401210-08

Method: E200.8, Run Date: 02/02/24 14:47, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	1.67	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	1.89	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.079	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.186	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/02/24 16:35, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	159	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	20.4	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	5.69	0.50	0.119	mg/L	5	7440-09-7	
Sodium	83.9	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/02/24 14:35, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 10:30, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Analytical Laboratory Report

Lab Sample ID: S58205.09
Sample Tag: Field Blank L401210-09
Collected Date/Time: 01/30/2024 08:10
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.9	IR
2	1L Plastic	None	Yes	1.9	IR
1	125mL Plastic	HNO3	Yes	1.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/02/24 10:42	CTV	
Metal Digestion	Completed	SW3015A	02/02/24 11:30	CCM	

Inorganics

Method: E300.0, Run Date: 01/31/24 17:56, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	Not detected	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	Not detected	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/08/24 20:34, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	14.6	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 01/31/24 19:50, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	Not detected	10	0.238	mg/L	1		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50	6	mg/L	2		

Method: SM2540D, Run Date: 01/31/24 18:55, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/02/24 17:16, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.000820	mg/L	2	7440-62-2	

Method: E200.8, Run Date: 02/02/24 13:35, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.000900	mg/L	2	7440-36-0	
Arsenic	Not detected	0.002	0.000580	mg/L	2	7440-38-2	
Barium	Not detected	0.005	0.000360	mg/L	2	7440-39-3	
Beryllium	Not detected	0.001	0.0000800	mg/L	2	7440-41-7	
Boron	Not detected	0.04	0.00636	mg/L	2	7440-42-8	
Cadmium	Not detected	0.0005	0.000140	mg/L	2	7440-43-9	

Lab Sample ID: S58205.09 (continued)
Sample Tag: Field Blank L401210-09

Method: E200.8, Run Date: 02/02/24 13:35, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005	0.000300	mg/L	2	7440-47-3	
Cobalt	Not detected	0.005	0.000180	mg/L	2	7440-48-4	
Copper	Not detected	0.005	0.000320	mg/L	2	7440-50-8	
Iron	Not detected	0.02	0.00568	mg/L	2	7439-89-6	
Lead	Not detected	0.003	0.000180	mg/L	2	7439-92-1	
Lithium*	Not detected	0.005	0.000540	mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005	0.00168	mg/L	2	7439-98-7	
Nickel	Not detected	0.005	0.000460	mg/L	2	7440-02-0	
Selenium	Not detected	0.005	0.00174	mg/L	2	7782-49-2	
Silver	Not detected	0.0005	0.000100	mg/L	2	7440-22-4	
Thallium	Not detected	0.002	0.000140	mg/L	2	7440-28-0	
Zinc	Not detected	0.005	0.00130	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 02/02/24 15:59, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	Not detected	0.50	0.0874	mg/L	2	7440-70-2	
Magnesium	Not detected	0.50	0.0231	mg/L	2	7439-95-4	
Potassium	Not detected	0.50	0.0479	mg/L	2	7440-09-7	
Sodium	Not detected	0.50	0.0436	mg/L	2	7440-23-5	

Method: E245.1, Run Date: 02/02/24 14:39, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/27/24 10:30, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S58205
Client: BWL01 (Board of Water & Light)
Project: Erickson Semi Annual Wells 7-10, 13
Submitted: 01/31/2024 08:48 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 1.9
02.	☒ Yes	☐ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☐ Yes	☒ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☐ Yes	☐ No	☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☒ Yes	☐ No	☐ N/A	Subcontracting needed? Subcontacted to:	GEL
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☒ Yes	☐ No	☐ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☐ No	☒ N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S58205 Submitted: 01/31/2024 08:48

Client: BWL01 (Board of Water & Light)

Project: Erickson Semi Annual Wells 7-10, 13

Initial Preservation Check: 01/31/2024 10:06 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S58205.01	125mL Plastic HNO3	<2			
S58205.01	1L Plastic HNO3	<2			
S58205.01	1L Plastic HNO3	<2			
S58205.02	125mL Plastic HNO3	<2			
S58205.02	1L Plastic HNO3	<2			
S58205.02	1L Plastic HNO3	<2			
S58205.03	125mL Plastic HNO3	<2			
S58205.03	1L Plastic HNO3	<2			
S58205.03	1L Plastic HNO3	<2			
S58205.04	125mL Plastic HNO3	<2			
S58205.04	1L Plastic HNO3	<2			
S58205.04	1L Plastic HNO3	<2			
S58205.05	125mL Plastic HNO3	<2			
S58205.05	1L Plastic HNO3	<2			
S58205.05	1L Plastic HNO3	<2			
S58205.06	125mL Plastic HNO3	<2			
S58205.06	1L Plastic HNO3	<2			
S58205.06	1L Plastic HNO3	<2			
S58205.07	125mL Plastic HNO3	<2			
S58205.07	1L Plastic HNO3	<2			
S58205.07	1L Plastic HNO3	<2			
S58205.08	125mL Plastic HNO3	<2			
S58205.08	1L Plastic HNO3	<2			
S58205.08	1L Plastic HNO3	<2			
S58205.09	125mL Plastic HNO3	<2			
S58205.09	1L Plastic HNO3	<2			
S58205.09	1L Plastic HNO3	<2			

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing | STATE: Mi | ZIP CODE: 48901
PHONE NO.: 517-702-6372 | FAX NO.: | P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Semi Annual Wells 7-10, 13
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Marc Wahrer

TURNAROUND TIME REQUIRED ~~JSC 01/25/24~~ ☒ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☒ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☒ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total Metals	F- undisstiled, Cl-, SO4, TDS	Radium 226	Radium 228	TSS	HCO3, CO3, Hardness	Special Instructions
58205.01	1.30.24	1404	MW-7 L401210-01	GW	5	2		3					✓	✓	✓	✓	✓	✓	Metals to analyse:Na, Mg, K
.02		1236	MW-7B -02	GW	5	2		3					✓	✓	✓	✓	✓	✓	B, Ca, Sb, As, Ba, Be, Cd, Cr,
.03		1103	MW-7C -03	GW	5	2		3					✓	✓	✓	✓	✓	✓	Co, Li, Hg, Mo,Pb,Se, Tl,
.04		1821	MW-8 -04	GW	5	2		3					✓	✓	✓	✓	✓	✓	Fe, Cu, Ni, Ag, V, Zn
.05		1703	MW-9 -05	GW	5	2		3					✓	✓	✓	✓	✓	✓	Please send a preliminary report
.06		1544	MW-10 -06	GW	5	2		3					✓	✓	✓	✓	✓	✓	
.07		0911	MW-13 -07	GW	5	2		3					✓	✓	✓	✓	✓	✓	
.08		1404	MWT- 7 -08	GW	5	2		3					✓	✓	✓	✓	✓	✓	
.09		0810	Field Blank -09	DI	5	2		3					✓	✓	✓	✓	✓	✓	

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Julia Mahlon	☐ Sampler	DATE: 1/31/24	TIME: 0848
RECEIVED BY: SIGNATURE/ORGANIZATION: M Chilcote		DATE: 1/31/24	TIME: 0848
RELINQUISHED BY: SIGNATURE/ORGANIZATION:		DATE:	TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION:		DATE:	TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION:		DATE:	TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION:		DATE:	TIME:

SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL: 1.9
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Reporting Limits to go to Merit with COC

Sb, total	Antimony	250 mL plastic	mg/L	Nitric Acid	200.7	6 mos	0.005
As, total	Arsenic	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
Ba, total		250 mL plastic	mg/L	Nitric Acid	200.8	6mos	0.150
Be, total	Beryllium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.001
B, total	Boron	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.04
Cd, total	Cadmium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
Ca	Calcium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	2.5
Cl	Chloride	250 mL plastic	mg/L	Chill	300.0	28 d	10
Cr, total	Chromium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Co, total	Cobalt	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Cu, total	Copper	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
F	Fluoride	250 mL plastic	mg/L	None	9056	28 d	1.0
Fe, total	Iron	250 mL plastic	mg/L	Nitric Acid	300.0	6 mos	0.02
Pb, total	Lead	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.003
Li, total	Lithium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Hg, total	Mercury	250 mL plastic	mg/L	HNO3	245.1	28 d	0.0002
Mo, total	Molybdenum	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ni, total	Nickel	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
RA226/228	Radium 226 and 228 combined	(2) 1 L plastic	pCi/L	HNO3	SM 7500	6 mos	2.0 combined
Se, total	Selenium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ag, total	Silver	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
SO4	Sulfate	250 mL plastic	mg/L	Chill	300.0	28 d	10
Tl, total	Thallium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
TDS	Total Dissolved Solids	1 L plastic	mg/L	None	SM 2540C	NA	20
TSS	Total Suspended Solids	1 L plastic	mg/L	None	SM 2540D	NA	3
V, total	Vanadium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Zn, total	Zinc	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005

GEL Laboratories LLC
a member of The GEL Group INC

2040 Savage Road | Charleston, SC 29407
843.556.8171
gel.com

February 22, 2024

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 654013
SDG: S58205

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 02, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Abagail Martin for
Delaney Stonesmith
Project Manager

Purchase Order: GELP20-0018
Enclosures

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Case Narrative

Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S58205
Work Order: 654013

February 22, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on February 02, 2024 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

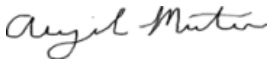
Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
654013001	S58205.01
654013002	S58205.02
654013003	S58205.03
654013004	S58205.04
654013005	S58205.05
654013006	S58205.06
654013007	S58205.07
654013008	S58205.08
654013009	S58205.09 Field Blank

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.



Abagail Martin for
Delaney Stonesmith
Project Manager

Chain of Custody and Supporting Documentation

654013

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing | STATE: MI | ZIP CODE: 48823
PHONE NO.: 517-332-0167 | FAX NO.: | P.O. NO.:
E-MAIL ADDRESS: results@meritlabs.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague ☒ SAME
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing | STATE: MI | ZIP CODE: 48823
PHONE NO.: 517-332-0167 | E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S58205 | SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☐LEVEL III ☒LEVEL IV ☐EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☐NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Radium 226*	Radium 228**
	1/30/24	1404	S58205.01	GW	2			2					✓	✓
	1/30/24	1236	S58205.02	GW	2			2					✓	✓
	1/30/24	1103	S58205.03	GW	2			2					✓	✓
	1/30/24	1821	S58205.04	GW	2			2					✓	✓
	1/30/24	1703	S58205.05	GW	2			2					✓	✓
	1/30/24	1544	S58205.06	GW	2			2					✓	✓
	1/30/24	0911	S58205.07	GW	2			2					✓	✓
	1/30/24	1404	S58205.08	GW	2			2					✓	✓
	1/30/24	0810	S58205.09 Field Blank	DI	2			2					✓	✓

* E903.1 Mod.
** E904.0/SW 9320 Mod.
Please use calculation product & provide Radium 226/228 combined results on the report
(No Ice needed)
** Subcontracted to GEL Laboratories, Inc. 2040 Savage Road Charleston, SC 29407

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐Sampler	DATE 1/31/24	TIME 1720
RECEIVED BY: SIGNATURE/ORGANIZATION UPS		DATE 1/31/24	TIME 1706
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION Stacy Boom		DATE 2/2/24	TIME 1010
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	NOTES: TEMP. ON ARRIVAL
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

GEL | Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: MERI	SDG/AR/COC/Work Order: 654013
Received By: Stacy Boone	Date Received: ~~Feb 5, 2024~~ Feb 2, 2024 AM 2/5/24
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 21 °c
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR3-23 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials AM Date 02/05/24 Page 1 of 1

Laboratory Certifications

List of current GEL Certifications as of 22 February 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122024-05
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-23-21
Utah NELAP	SC000122023-38
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S58205
Work Order #: 654013

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2568549

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
654013001	S58205.01
654013002	S58205.02
654013003	S58205.03
654013004	S58205.04
654013005	S58205.05
654013006	S58205.06
654013007	S58205.07
654013008	S58205.08
654013009	S58205.09 Field Blank
1205650321	Method Blank (MB)
1205650322	653796001(S58153.01) Sample Duplicate (DUP)
1205650323	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2564063

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
654013001	S58205.01
654013002	S58205.02
654013003	S58205.03
654013004	S58205.04
654013005	S58205.05
654013006	S58205.06
654013007	S58205.07
654013008	S58205.08

654013009	S58205.09 Field Blank
1205641711	Method Blank (MB)
1205641712	653796001(S58153.01) Sample Duplicate (DUP)
1205641713	653796001(S58153.01) Matrix Spike (MS)
1205641714	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1205641713 (S58153.01MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MERI001 Merit Laboratories, Inc.

Client SDG: S58205 GEL Work Order: 654013

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: John Petrovic **Name: John Petrovic**

Date: 29 FEB 2024 **Title: Data Validator**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: February 29, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S58205.01	Project:	MERI00120
Sample ID:	654013001	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	30-JAN-24 14:04		
Receive Date:	02-FEB-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.514	+/-0.925	1.62	3.00	pCi/L			JE1	02/26/24	0844	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.514	+/-1.00			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.000	+/-0.387	0.892	1.00	pCi/L			MJ2	02/27/24	1012	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			89.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: February 29, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58205.02
Sample ID: 654013002
Matrix: Ground Water
Collect Date: 30-JAN-24 12:36
Receive Date: 02-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.01	+/-0.802	1.25	3.00	pCi/L			JE1	02/26/24	0844	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.36	+/-0.876			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.355	+/-0.352	0.512	1.00	pCi/L			MJ2	02/27/24	1012	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			80.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: February 29, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S58205.03	Project:	MERI00120
Sample ID:	654013003	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	30-JAN-24 11:03		
Receive Date:	02-FEB-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.361	+/-0.667	1.19	3.00	pCi/L			JE1	02/26/24	0844	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.13	+/-0.885			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.768	+/-0.580	0.717	1.00	pCi/L			MJ2	02/27/24	1012	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			79.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: February 29, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58205.04
Sample ID: 654013004
Matrix: Ground Water
Collect Date: 30-JAN-24 18:21
Receive Date: 02-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.33	+/-1.03	1.64	3.00	pCi/L			JE1	02/26/24	0844	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.85	+/-1.13			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.515	+/-0.456	0.640	1.00	pCi/L			MJ2	02/27/24	1012	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: February 29, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive
East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58205.05
Sample ID: 654013005
Matrix: Ground Water
Collect Date: 30-JAN-24 17:03
Receive Date: 02-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	-0.442	+/-0.908	1.84	3.00	pCi/L			JE1	02/26/24	0844	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.000	+/-0.965			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.000	+/-0.327	0.785	1.00	pCi/L			MJ2	02/27/24	1012	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			80.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: February 29, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58205.06
Sample ID: 654013006
Matrix: Ground Water
Collect Date: 30-JAN-24 15:44
Receive Date: 02-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		2.54	+/-1.16	1.62	3.00	pCi/L			JE1	02/26/24	0844	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.91	+/-1.23			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.366	+/-0.414	0.645	1.00	pCi/L			MJ2	02/27/24	1012	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			80.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: February 29, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S58205.07	Project:	MERI00120
Sample ID:	654013007	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	30-JAN-24 09:11		
Receive Date:	02-FEB-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.05	+/-1.02	1.68	3.00	pCi/L			JE1	02/26/24	0844	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.99	+/-1.15			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.937	+/-0.535	0.439	1.00	pCi/L			MJ2	02/27/24	1030	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			81.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: February 29, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58205.08
Sample ID: 654013008
Matrix: Ground Water
Collect Date: 30-JAN-24 14:04
Receive Date: 02-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.906	+/-0.986	1.65	3.00	pCi/L			JE1	02/26/24	0844	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.60	+/-1.09			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.693	+/-0.461	0.487	1.00	pCi/L			MJ2	02/27/24	1030	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			78.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: February 29, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S58205.09 Field Blank	Project:	MERI00120
Sample ID:	654013009	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	30-JAN-24 08:10		
Receive Date:	02-FEB-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.213	+/-0.847	1.55	3.00	pCi/L			JE1	02/26/24	0844	2568549	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.29	+/-1.05			pCi/L			NXL1	02/28/24	0842	2570136	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.08	+/-0.619	0.583	1.00	pCi/L			MJ2	02/27/24	1030	2564063	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			81.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Data

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: February 29, 2024

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: **John Laverty**

Workorder: **654013**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 2568549										
QC1205650322 653796001 DUP										
Radium-228	U	-0.206	U	0.935	pCi/L	N/A		N/A	JE1	02/26/24 08:43
	Uncertainty	+/-1.19		+/-1.07						
QC1205650323 LCS										
Radium-228	72.6			71.9	pCi/L		99	(75%-125%)		02/26/24 08:43
	Uncertainty			+/-4.05						
QC1205650321 MB										
Radium-228			U	0.707	pCi/L					02/26/24 08:43
	Uncertainty			+/-0.981						
Rad Ra-226										
Batch 2564063										
QC1205641712 653796001 DUP										
Radium-226	U	0.240	U	0.337	pCi/L	N/A		N/A	MJ2	02/27/24 10:30
	Uncertainty	+/-0.332		+/-0.373						
QC1205641714 LCS										
Radium-226	27.0			23.8	pCi/L		88	(75%-125%)		02/27/24 10:30
	Uncertainty			+/-2.59						
QC1205641711 MB										
Radium-226			U	-0.0351	pCi/L					02/27/24 10:30
	Uncertainty			+/-0.248						
QC1205641713 653796001 MS										
Radium-226	128 U	0.240		124	pCi/L		96.9	(75%-125%)		02/27/24 10:30
	Uncertainty	+/-0.332		+/-12.3						

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported
- > Result is greater than value reported

QC Summary

Workorder: **654013**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

UI	Gamma Spectroscopy--Uncertain identification
BD	Results are either below the MDC or tracer recovery is low
h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
M	M if above MDC and less than LLD
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
FA	Failed analysis.
UJ	Gamma Spectroscopy--Uncertain identification
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N1	See case narrative
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
**	Analyte is a Tracer compound
M	REMP Result > MDC/CL and < RDL
J	See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Gas Flow Raw Data

Batch 2568549 Check-list

This check-list was completed on 26-FEB-24 by Nat Long

This batch was reviewed by Kenshalla Oston on 26-FEB-24 and Nat Long on 26-FEB-24.

Batch ID: 2568549 **Product:** GFC28RAL **Description:** Gas Flow Radium 228 GL-RAD-A-063

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-228 in Liquid

Batch ID: **2568549**
Analyst: Jacqueline Winston (JE1)
Method: EPA 904.0/SW846 9320 Modified
Lab SOP: GL-RAD-A-063 REV# 5
Instrument: SP-C018367602

Due Dates for Lab: 26-FEB-2024 **Package: 28-FEB-2024** **SDG: 29-FEB-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205650323	Radium 228	2051-D	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)
1	653796001	21-FEB-2024	3	304.6	304.6	02/22/24 13:27	02/26/24 07:02
2	653796002	21-FEB-2024	3	304.9	304.9	02/22/24 13:27	02/26/24 07:02
3	653796003	21-FEB-2024	3	302.9	302.9	02/22/24 13:27	02/26/24 07:02
4	653796004	21-FEB-2024	3	302.8	302.8	02/22/24 13:27	02/26/24 07:02
5	653796005	21-FEB-2024	3	303.5	303.5	02/22/24 13:27	02/26/24 07:02
6	653796006	21-FEB-2024	3	310.6	310.6	02/22/24 13:27	02/26/24 07:02
7	653796007	21-FEB-2024	3	310.5	310.5	02/22/24 13:27	02/26/24 07:02
8	653796008	21-FEB-2024	3	303.5	303.5	02/22/24 13:27	02/26/24 07:02
9	654013001	21-FEB-2024	3	312.9	312.9	02/22/24 13:27	02/26/24 07:02
10	654013002	21-FEB-2024	3	302.1	302.1	02/22/24 13:27	02/26/24 07:02
11	654013003	21-FEB-2024	3	305.6	305.6	02/22/24 13:27	02/26/24 07:02
12	654013004	21-FEB-2024	3	304.5	304.5	02/22/24 13:27	02/26/24 07:02
13	654013005	21-FEB-2024	3	306.4	306.4	02/22/24 13:27	02/26/24 07:02
14	654013006	21-FEB-2024	3	302.8	302.8	02/22/24 13:27	02/26/24 07:02
15	654013007	21-FEB-2024	3	304.7	304.7	02/22/24 13:27	02/26/24 07:02
16	654013008	21-FEB-2024	3	311.5	311.5	02/22/24 13:27	02/26/24 07:02
17	654013009	21-FEB-2024	3	308.9	308.9	02/22/24 13:27	02/26/24 07:02
18	1205650321 MB	21-FEB-2024	3		312.9	02/22/24 13:27	02/26/24 07:02
19	1205650322 DUP (653796001)	21-FEB-2024	3	311.3	311.3	02/22/24 13:27	02/26/24 07:02
20	1205650323 LCS	21-FEB-2024	3		312.9	02/22/24 13:27	02/26/24 07:02

Reagent/Solvent Lot ID	Description	Amount
WORK 2097-B	Ba-133 Tracer	.1 mL
REGNT 4227383	RGF-1.5M Ammonium Sulfate	10 mL
REGNT 4214820	Barium Carrier Ra228 REG	1 mL
REGNT 4223988	RGF-1M Citric Acid	5 mL
REGNT 4226396	2M HCl	20 mL
REGNT 4221876	RGF-50% Potassium Carbonate	2 mL
REGNT 4077716.14	RGF-Hydrofluoric Acid	4 mL
REGNT 4209237	500 mg/mL Neodymium Carrier	.2 mL
REGNT 4216641	RGF-Neodymium Subtrate	5 mL
REGNT 4221872	RGF-7M Nitric Acid	25 mL
REGNT 4072674	Acetic Acid Glacial ACS Poly Coated Bottle	10 mL
REGNT DGA12292023	2561518	2 g
REGNT 4208393.51	Nitric Acid	5 mL

Comments:
Pipet Id: RAD-GFC-1795419
Data Entry Date2: 21-FEB-2024 00:00

Radium-228 Liquid

Filename : RA228.XLS
File type : Excel
Version # : 1.4.3

Tracer S/N : 2097-B
Tracer Exp Date : 7/12/2024
Tracer Volume Added: 0.10

Batch : 2568549
Analyst : JE1
Prep Date : 2/21/2024
Ra-228 Method Uncertainty : 0.1268

Geometry: 25mm Filter

Procedure Code : GFC28RAL
Parmname : Radium-228
Required MDA : 3 pCi/L
Ra-228 Abundance : 1.00
Halflife of Ra-228 : 5.75 years
Halflife of Ac-228 : 6.15 hours

Sample Characteristics					Tracer Calculations					
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Tracer Ref. Activity (CPM)	Tracer Ref. Count Uncertainty (%)	Tracer Samp. Activity (CPM)	Tracer Samp. Count Uncertainty (%)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	653796001.1	0.3046	1.8536E-05	1/29/2024 17:41	921.9	1.90%	718.3	2.15%	0.1	0.000200
2	653796002.1	0.3049	1.8541E-05	1/29/2024 15:40	921.9	1.90%	714.2	2.16%	0.1	0.000200
3	653796003.1	0.3029	1.8508E-05	1/29/2024 11:35	921.9	1.90%	713.7	2.16%	0.1	0.000200
4	653796004.1	0.3028	1.8506E-05	1/29/2024 13:13	921.9	1.90%	799.0	2.04%	0.1	0.000200
5	653796005.1	0.3035	1.8518E-05	1/29/2024 20:02	921.9	1.90%	781.5	2.07%	0.1	0.000200
6	653796006.1	0.3106	1.8633E-05	1/29/2024 19:08	921.9	1.90%	778.7	2.07%	0.1	0.000200
7	653796007.1	0.3105	1.8631E-05	1/29/2024 19:08	921.9	1.90%	754.5	2.10%	0.1	0.000200
8	653796008.1	0.3035	1.8518E-05	1/29/2024 9:18	921.9	1.90%	673.7	2.22%	0.1	0.000200
9	654013001.1	0.3129	1.8669E-05	1/30/2024 14:04	921.9	1.90%	825.4	2.01%	0.1	0.000200
10	654013002.1	0.3021	1.8495E-05	1/30/2024 12:36	921.9	1.90%	741.0	2.12%	0.1	0.000200
11	654013003.1	0.3056	1.8553E-05	1/30/2024 11:03	921.9	1.90%	733.9	2.13%	0.1	0.000200
12	654013004.1	0.3045	1.8534E-05	1/30/2024 18:21	921.9	1.90%	774.5	2.07%	0.1	0.000200
13	654013005.1	0.3064	1.8566E-05	1/30/2024 17:03	921.9	1.90%	742.7	2.12%	0.1	0.000200
14	654013006.1	0.3028	1.8506E-05	1/30/2024 15:44	921.9	1.90%	740.7	2.12%	0.1	0.000200
15	654013007.1	0.3047	1.8538E-05	1/30/2024 9:11	921.9	1.90%	752.2	2.10%	0.1	0.000200
16	654013008.1	0.3115	1.8647E-05	1/30/2024 14:04	921.9	1.90%	725.1	2.14%	0.1	0.000200
17	654013009.1	0.3089	1.8606E-05	1/30/2024 8:10	921.9	1.90%	754.4	2.10%	0.1	0.000200
18	1205650321.1	0.3129	1.8669E-05	2/21/2024 0:00	921.9	1.90%	692.4	2.19%	0.1	0.000200
19	1205650322.1	0.3113	1.8644E-05	1/29/2024 17:41	921.9	1.90%	762.2	2.09%	0.1	0.000200
20	1205650323.1	0.3129	1.8669E-05	2/21/2024 0:00	921.9	1.90%	793.4	2.05%	0.1	0.000200

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-063
Instrument SOP: GL-RAD-I-016

Count raw Data

Pos.	Detector ID	Counting Time (min.)	Gross Counts Alpha	Gross Counts Beta	Beta cpm	Count Start Date/Time	Ac-228 Ingrowth Date/Time	Ac-228 Decay Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Ingrowth	Ac-228 Count Correction	Calculated Sample Recovery %	Sample Recovery Error %
1	1A	60	13	56	0.933	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.827	1.000	1.057	77.9%	2.88%
2	1D	60	9	38	0.633	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.827	1.000	1.057	77.5%	2.89%
3	2A	60	24	62	1.033	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	77.4%	2.89%
4	2B	60	5	43	0.717	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	86.7%	2.80%
5	2C	60	7	79	1.317	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	84.8%	2.82%
6	5A	60	16	69	1.150	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	84.5%	2.82%
7	6A	60	15	128	2.133	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	81.8%	2.85%
8	6B	60	16	87	1.450	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	73.1%	2.94%
9	6C	60	13	64	1.067	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	89.5%	2.78%
10	7A	60	14	38	0.633	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	80.4%	2.86%
11	7C	60	9	27	0.450	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	79.6%	2.87%
12	8A	60	17	73	1.217	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	84.0%	2.82%
13	8C	60	8	39	0.650	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	80.6%	2.86%
14	9A	60	12	83	1.383	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	80.4%	2.86%
15	9B	60	13	69	1.150	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.825	1.000	1.057	81.6%	2.85%
16	9C	60	15	61	1.017	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.824	1.000	1.057	78.7%	2.88%
17	9D	60	11	45	0.750	2/26/2024 8:44	2/22/2024 13:27	2/26/2024 7:02	0.991	0.824	1.000	1.057	81.8%	2.85%
18	10A	60	10	55	0.917	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.998	0.826	1.000	1.057	75.1%	2.91%
19	10C	60	9	77	1.283	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.991	0.826	1.000	1.057	82.7%	2.84%
20	11A	60	20	1387	23.117	2/26/2024 8:43	2/22/2024 13:27	2/26/2024 7:02	0.998	0.827	1.000	1.057	86.1%	2.81%

Pos.	Calibration Data: Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Bkg cpm	Weekly Bkg Count Start Date/Time	Bkg Count Time (min.)
1	PIC	6/1/2023	5/31/2024	0.5320	0.00738	0.978	2/23/2024 17:51	500
2	PIC	6/1/2023	5/31/2024	0.6071	0.00692	0.780	2/23/2024 17:51	500
3	PIC	6/1/2023	5/31/2024	0.6083	0.01914	0.828	2/23/2024 17:51	500
4	PIC	6/1/2023	5/31/2024	0.6253	0.02111	0.788	2/23/2024 17:51	500
5	PIC	6/1/2023	5/31/2024	0.6085	0.01274	0.812	2/23/2024 17:51	500
6	PIC	6/1/2023	5/31/2024	0.6366	0.00851	0.936	2/23/2024 17:51	500
7	PIC	6/1/2023	5/31/2024	0.6444	0.02228	1.504	2/23/2024 17:49	500
8	PIC	6/1/2023	5/31/2024	0.5957	0.00851	1.020	2/23/2024 17:49	500
9	PIC	6/1/2023	5/31/2024	0.6167	0.01970	0.914	2/23/2024 17:49	500
10	PIC	6/1/2023	5/31/2024	0.6229	0.00594	0.372	2/23/2024 17:49	500
11	PIC	6/1/2023	5/31/2024	0.6369	0.00790	0.354	2/23/2024 17:50	500
12	PIC	6/1/2023	5/31/2024	0.6413	0.01579	0.842	2/23/2024 17:50	500
13	PIC	6/1/2023	5/31/2024	0.5662	0.01955	0.756	2/23/2024 17:50	500
14	PIC	6/1/2023	5/31/2024	0.6343	0.00758	0.710	2/23/2024 17:50	500
15	PIC	6/1/2023	5/31/2024	0.6496	0.00754	0.858	2/23/2024 17:50	500
16	PIC	6/1/2023	5/31/2024	0.6429	0.00584	0.772	2/23/2024 17:50	500
17	PIC	6/1/2023	5/31/2024	0.6292	0.02610	0.692	2/23/2024 17:50	500
18	PIC	6/1/2023	5/31/2024	0.6356	0.00651	0.734	2/23/2024 17:50	500
19	PIC	6/1/2023	5/31/2024	0.6368	0.00638	1.020	2/23/2024 17:50	500
20	PIC	6/1/2023	5/31/2024	0.6466	0.01317	1.432	2/23/2024 17:48	500

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : N/A
Spike Exp Date : N/A
Spike Activity (dpm/ml): N/A
Spike Volume Added: N/A

LCS S/N : 2051-D
LCS Exp Date : 7/12/2024
LCS Activity (dpm/ml): 504.19
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	1.4497	1.0235	3	2.2773	**-0.2057**	296.28%	-0.0447	0.1323	1.1944	1.1946		SAMPLE				
2	1.1402	0.8050	3	1.8127	**-0.5948**	75.11%	-0.1467	0.1101	0.8749	0.8751		SAMPLE				
3	1.1811	0.8338	3	1.8715	**0.8372**	67.00%	0.2053	0.1374	1.0980	1.1190		SAMPLE				
4	1.0017	0.7072	3	1.5916	**-0.2528**	163.04%	-0.0713	0.1163	0.8078	0.8080		SAMPLE				
5	1.0659	0.7525	3	1.6909	**1.8752**	30.58%	0.5047	0.1535	1.1181	1.2167		SAMPLE				
6	1.0729	0.7575	3	1.6892	**0.7455**	67.84%	0.2140	0.1450	0.9904	1.0085		SAMPLE				
7	1.3878	0.9798	3	2.1374	**2.2372**	31.41%	0.6293	0.1964	1.3682	1.4854		SAMPLE				
8	1.4170	1.0004	3	2.2212	**1.8952**	37.77%	0.4300	0.1619	1.3984	1.4800		SAMPLE				
9	1.0254	0.7240	3	1.6164	**0.5144**	91.78%	0.1527	0.1400	0.9247	0.9341		SAMPLE				
10	0.7474	0.5277	3	1.2478	**1.0060**	40.78%	0.2613	0.1063	0.8020	0.8420		SAMPLE				
11	0.7118	0.5026	3	1.1930	**0.3608**	94.42%	0.0960	0.0906	0.6674	0.6737		SAMPLE				
12	1.0369	0.7321	3	1.6416	**1.3300**	39.69%	0.3747	0.1482	1.0311	1.0860		SAMPLE				
13	1.1536	0.8144	3	1.8372	**-0.4418**	104.88%	-0.1060	0.1111	0.9076	0.9078		SAMPLE				
14	1.0127	0.7150	3	1.6188	**2.5422**	23.42%	0.6733	0.1564	1.1577	1.3271		SAMPLE				
15	1.0640	0.7512	3	1.6828	**1.0536**	49.58%	0.2920	0.1445	1.0220	1.0568		SAMPLE				
16	1.0352	0.7309	3	1.6468	**0.9055**	55.65%	0.2447	0.1360	0.9864	1.0130		SAMPLE				
17	0.9708	0.6854	3	1.5541	**0.2126**	203.19%	0.0580	0.1178	0.8467	0.8485		SAMPLE				
18	1.0549	0.7447	3	1.6829	**0.7065**	70.91%	0.1827	0.1294	0.9810	0.9974		MB				
19	1.1417	0.8061	3	1.7897	**0.9351**	58.20%	0.2633	0.1531	1.0654	1.0917	653796001.1	DUP	* 0.0%			
20	1.2625	0.8914	3	1.9484	**71.8679**	4.23%	21.6847	0.6230	4.0470	18.8282		LCS			72.5824	99.0%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine	Batch ID
653796001	1A	60	13	56	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796002	1D	60	9	38	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796003	2A	60	24	62	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796004	2B	60	5	43	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796005	2C	60	7	79	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796006	5A	60	16	69	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796007	6A	60	15	128	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
653796008	6B	60	16	87	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013001	6C	60	13	64	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013002	7A	60	14	38	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013003	7C	60	9	27	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013004	8A	60	17	73	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013005	8C	60	8	39	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013006	9A	60	12	83	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013007	9B	60	13	69	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013008	9C	60	15	61	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
654013009	9D	60	11	45	2/26/2024 8:44	2/26/2024 9:44	PIC	2568549
1205650321	10A	60	10	55	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
1205650322	10C	60	9	77	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549
1205650323	11A	60	20	1387	2/26/2024 8:43	2/26/2024 9:43	PIC	2568549

ASSAY 26-Feb-24 7:21:43
Wizard 2480 s/n 46190630
Protocol id 8 Ba-133
Time limit
Count limit
Isotope Ba-133
Protocol date 2/26/2024
Run id. 916

Samp_ID	POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
REF	1	93	1	180	2766	921.85	1.9		07:21:43
653796001	2	93	2	180	2155.5	718.33	2.15	77.92	07:24:57
653796002	3	93	3	180	2143	714.21	2.16	77.48	07:28:11
653796003	4	93	4	180	2141.5	713.72	2.16	77.42	07:31:25
653796004	5	93	5	180	2397.5	799.04	2.04	86.68	07:34:39
653796005	1	94	1	180	2345	781.54	2.07	84.78	07:38:17
653796006	2	94	2	180	2336.5	778.68	2.07	84.47	07:41:31
653796007	3	94	3	180	2264	754.52	2.1	81.85	07:44:45
653796008	4	94	4	180	2021.5	673.66	2.22	73.08	07:47:59
654013001	5	94	5	180	2476.5	825.37	2.01	89.53	07:51:13
654013002	1	2	1	180	2223.5	741.03	2.12	80.39	07:54:48
654013003	2	2	2	180	2202	733.87	2.13	79.61	07:58:02
654013004	3	2	3	180	2324	774.48	2.07	84.01	08:01:16
654013005	4	2	4	180	2228.5	742.72	2.12	80.57	08:04:30
654013006	5	2	5	180	2222.5	740.71	2.12	80.35	08:07:44
654013007	1	18	1	180	2257	752.22	2.1	81.60	08:11:27
654013008	2	18	2	180	2175.5	725.05	2.14	78.65	08:14:41
654013009	3	18	3	180	2263.5	754.39	2.1	81.83	08:17:55
1205650321	4	18	4	180	2077.5	692.39	2.19	75.11	08:21:09
1205650322	5	18	5	180	2287	762.21	2.09	82.68	08:24:23
1205650323	1	14	1	180	2380.5	793.38	2.05	86.06	08:28:07

END OF ASSAY

Continuing Calibration Data

Gas Flow Proportional Counter Checks for 26-Feb-2024

Detectors LB4100 E1 through H4 and PIC 1A through 14D and G5400W 1W through 1Z and LB4200 GA1 through OD4

Short Name	Status	Parmname	Run Time	Count Time	CPM or dec	Low Limit	High Limit	Stdev
LB4100G2	Below	Alpha eff	26-Feb 07:56	5	11834	12110	13740	-4.02
LB4100G2	Above	Alpha XTalk	26-Feb 07:56	5	0.216	0.179	0.214	+3.47
LB4100H1	Above	Alpha bkg	26-Feb 04:55	60	0.650	-8.08E-2	0.225	+11.32
LB4100H1	Above	Alpha eff	26-Feb 06:53	5	11984	7523	11160	+4.36
LB4100H1	Above	Beta bkg	26-Feb 04:55	60	3.167	-5.15E-1	3.743	+2.19
LB4100H2	Above	Alpha bkg	26-Feb 04:55	60	0.417	0.057	0.420	+2.95
LB4100H3	Above	Alpha bkg	26-Feb 09:42	60	0.283	-8.01E-2	0.242	+3.77
LB4200GB2	Below	Alpha eff	26-Feb 06:35	5	9359	9443	9898	-4.11
LB4200GB2	Above	Beta bkg	26-Feb 17:22	60	19.200	0.129	1.304	+94.34
LB4200GD3	Above	Alpha bkg	26-Feb 17:22	60	0.967	-1.04E-1	0.321	+12.11
LB4200OB1	Above	Alpha bkg	26-Feb 17:16	60	0.850	-1.05E-1	0.362	+9.27
LB4200OB1	Above	Beta bkg	26-Feb 17:16	60	2.650	-2.59E-1	2.044	+4.58
PIC2D	Above	Beta bkg	26-Feb 08:26	60	2.183	0.417	1.868	+4.30
PIC4C	Above	Alpha bkg	26-Feb 07:35	60	0.350	-2.25E-1	1.312	-0.75
PIC12D	Above	Alpha eff	26-Feb 06:00	5	18171	14940	17150	+5.77
PIC14A	Above	Beta bkg	26-Feb 08:48	60	2.150	-9.44E-1	2.673	+2.13
PIC14B	Above	Beta bkg	26-Feb 08:47	60	2.133	-1.14E+0	2.499	+2.40

INSTRUMENTS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

The following detectors may not have properly transferred to the LIMS system

PIC1B	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC5B	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC10B	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk

Reviewed by Jasmine Conley

Date 2/28/24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: GFPC **Batch ID: 2568549**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1205650323	LCS	JE1	PIC11A	FEB-26-24 08:43:11	DONE	25mm Filter	01-JUN-23 00:00
653796001	SAMPLE	JE1	PIC1A	FEB-26-24 08:43:21	DONE	25mm Filter	01-JUN-23 00:00
653796002	SAMPLE	JE1	PIC1D	FEB-26-24 08:43:24	DONE	25mm Filter	01-JUN-23 00:00
653796003	SAMPLE	JE1	PIC2A	FEB-26-24 08:43:27	DONE	25mm Filter	01-JUN-23 00:00
653796004	SAMPLE	JE1	PIC2B	FEB-26-24 08:43:31	DONE	25mm Filter	01-JUN-23 00:00
653796005	SAMPLE	JE1	PIC2C	FEB-26-24 08:43:36	DONE	25mm Filter	01-JUN-23 00:00
653796006	SAMPLE	JE1	PIC5A	FEB-26-24 08:43:41	DONE	25mm Filter	01-JUN-23 00:00
1205650321	MB	JE1	PIC10A	FEB-26-24 08:43:48	DONE	25mm Filter	01-JUN-23 00:00
1205650322	DUP	JE1	PIC10C	FEB-26-24 08:43:50	DONE	25mm Filter	01-JUN-23 00:00
653796007	SAMPLE	JE1	PIC6A	FEB-26-24 08:43:58	DONE	25mm Filter	01-JUN-23 00:00
653796008	SAMPLE	JE1	PIC6B	FEB-26-24 08:44:02	DONE	25mm Filter	01-JUN-23 00:00
654013001	SAMPLE	JE1	PIC6C	FEB-26-24 08:44:06	DONE	25mm Filter	01-JUN-23 00:00
654013002	SAMPLE	JE1	PIC7A	FEB-26-24 08:44:13	DONE	25mm Filter	01-JUN-23 00:00
654013003	SAMPLE	JE1	PIC7C	FEB-26-24 08:44:16	DONE	25mm Filter	01-JUN-23 00:00
654013004	SAMPLE	JE1	PIC8A	FEB-26-24 08:44:20	DONE	25mm Filter	01-JUN-23 00:00
654013005	SAMPLE	JE1	PIC8C	FEB-26-24 08:44:26	DONE	25mm Filter	01-JUN-23 00:00
654013006	SAMPLE	JE1	PIC9A	FEB-26-24 08:44:35	DONE	25mm Filter	01-JUN-23 00:00
654013007	SAMPLE	JE1	PIC9B	FEB-26-24 08:44:39	DONE	25mm Filter	01-JUN-23 00:00
654013008	SAMPLE	JE1	PIC9C	FEB-26-24 08:44:49	DONE	25mm Filter	01-JUN-23 00:00
654013009	SAMPLE	JE1	PIC9D	FEB-26-24 08:44:54	DONE	25mm Filter	01-JUN-23 00:00

Lucas Cell Raw Data

Batch 2564063 Check-list

This check-list was completed on 27-FEB-24 by Lyndsey Pace

This batch was reviewed by Lyndsey Pace on 27-FEB-24 and Elizabeth Krouse on 28-FEB-24.

Batch ID:	**Product:**	**Description:** Lucas Cell Radium 226
2564063	LUC26RAL	GL-RAD-A-008

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
10	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-226 in Liquid

Batch ID: **2564063**
Analyst: Marisa Johnson (MJ2)
Method: EPA 903.1 Modified
Lab SOP: GL-RAD-A-008 REV# 15
Instrument: LUCAS-C202389980

Due Dates for Lab: 26-FEB-2024 **Package: 28-FEB-2024** **SDG: 29-FEB-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
MS	1205641713	Ra-226 emanation spike	1715-I	.1	mL
LCS	1205641714	Ra-226 emanation spike	1715-I	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	End Degas (date)	CELL #	End Transfer (date)	Start Count Time (date)	Background Counts	Total Counts
1	653796001	23-FEB-2024	1	504.04	504.04	02/23/24 13:55	309	02/27/24 06:34	02/27/24 09:55	2	4
2	653796002	23-FEB-2024	1	504.33	504.33	02/23/24 13:55	407	02/27/24 06:34	02/27/24 09:55	3	1
3	653796003	23-FEB-2024	1	500.87	500.87	02/23/24 13:55	505	02/27/24 06:34	02/27/24 09:55	5	3
4	653796004	23-FEB-2024	1	502.03	502.03	02/23/24 13:55	605	02/27/24 06:34	02/27/24 09:55	4	9
5	653796005	23-FEB-2024	1	501.25	501.25	02/23/24 13:55	708	02/27/24 06:34	02/27/24 09:55	3	12
6	653796006	23-FEB-2024	1	501.39	501.39	02/23/24 13:55	807	02/27/24 06:34	02/27/24 09:55	2	8
7	653796007	23-FEB-2024	1	504.81	504.81	02/23/24 13:55	103	02/27/24 06:58	02/27/24 10:12	3	4
8	653796008	23-FEB-2024	1	505.89	505.89	02/23/24 13:55	204	02/27/24 06:58	02/27/24 10:12	6	12
9	654013001	23-FEB-2024	1	507.57	507.57	02/23/24 13:55	303	02/27/24 06:58	02/27/24 10:12	8	4
10	654013002	23-FEB-2024	1	502.26	502.26	02/23/24 13:55	404	02/27/24 06:58	02/27/24 10:12	3	7
11	654013003	23-FEB-2024	1	507.59	507.59	02/23/24 13:55	504	02/27/24 06:58	02/27/24 10:12	3	10
12	654013004	23-FEB-2024	1	502.57	502.57	02/23/24 13:55	602	02/27/24 06:58	02/27/24 10:12	4	9
13	654013005	23-FEB-2024	1	500.7	500.7	02/23/24 13:55	701	02/27/24 06:58	02/27/24 10:12	6	3
14	654013006	23-FEB-2024	1	502.21	502.21	02/23/24 13:55	805	02/27/24 06:58	02/27/24 10:12	3	6
15	654013007	23-FEB-2024	1	502.07	502.07	02/23/24 13:55	104	02/27/24 07:23	02/27/24 10:30	1	13
16	654013008	23-FEB-2024	1	500.1	500.1	02/23/24 13:55	207	02/27/24 07:23	02/27/24 10:30	2	11
17	654013009	23-FEB-2024	1	505.72	505.72	02/23/24 13:55	304	02/27/24 07:23	02/27/24 10:30	2	14
18	1205641711 MB	23-FEB-2024	1		507.59	02/23/24 13:55	403	02/27/24 07:23	02/27/24 10:30	5	2
19	1205641712 DUP (653796001)	23-FEB-2024	1	500.37	500.37	02/23/24 13:55	502	02/27/24 07:23	02/27/24 10:30	4	7
20	1205641713 MS (653796001)	23-FEB-2024	1	106.73	106.73	02/23/24 13:55	608	02/27/24 07:23	02/27/24 10:30	8	406
21	1205641714 LCS	23-FEB-2024	1		507.59	02/23/24 13:55	702	02/27/24 07:23	02/27/24 10:30	1	324

Reagent/Solvent Lot ID	Description	Amount

Comments:
Data Entry Date2: 23-FEB-2024 00:00

Radium-226 Liquid

Filename : RA226.XLS
File type : Excel
Version # : 1.3.2

Batch : 2564063
Analyst : MAR02577
Prep Date : 2/23/2024
Ra-226 Method Uncertainty : 0.073648

Procedure Code : LUC26RAL
Parmname : Radium-226
Required MDA : 1 pCi/L
Halflife of Ra-226 : 1600 years
Ra-226 Abundance : 1.00
Halflife of Rn-222: 3.8235 days

Batch counted on : LUCAS CELL DETECTOR
BKG Count time : 30 min

Sample Characteristics					**Count Raw Data**							
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Background Count Time (min.)	Cell Efficiency (cpm/dpm)
1	653796001.1	0.5040	2.0272E-05	1/29/2024 17:41	309	15	4	0.267	2	0.067	30	1.5690
2	653796002.1	0.5043	2.0273E-05	1/29/2024 15:40	407	15	1	0.067	3	0.100	30	1.9490
3	653796003.1	0.5009	2.0259E-05	1/29/2024 11:35	505	15	3	0.200	5	0.167	30	1.7470
4	653796004.1	0.5020	2.0264E-05	1/29/2024 13:13	605	15	9	0.600	4	0.133	30	2.0280
5	653796005.1	0.5013	2.0261E-05	1/29/2024 20:02	708	15	12	0.800	3	0.100	30	1.5430
6	653796006.1	0.5014	2.0262E-05	1/29/2024 19:08	807	15	8	0.533	2	0.067	30	2.0260
7	653796007.1	0.5048	2.0275E-05	1/29/2024 19:08	103	15	4	0.267	3	0.100	30	1.6400
8	653796008.1	0.5059	2.0280E-05	1/29/2024 9:18	204	15	12	0.800	6	0.200	30	1.5970
9	654013001.1	0.5076	2.0286E-05	1/30/2024 14:04	303	15	4	0.267	8	0.267	30	1.5370
10	654013002.1	0.5023	2.0265E-05	1/30/2024 12:36	404	15	7	0.467	3	0.100	30	1.9410
11	654013003.1	0.5076	2.0286E-05	1/30/2024 11:03	504	15	10	0.667	3	0.100	30	1.3720
12	654013004.1	0.5026	2.0266E-05	1/30/2024 18:21	602	15	9	0.600	4	0.133	30	1.7010
13	654013005.1	0.5007	2.0259E-05	1/30/2024 17:03	701	15	3	0.200	6	0.200	30	1.5970
14	654013006.1	0.5022	2.0265E-05	1/30/2024 15:44	805	15	6	0.400	3	0.100	30	1.5410
15	654013007.1	0.5021	2.0264E-05	1/30/2024 9:11	104	15	13	0.867	1	0.033	30	1.6640
16	654013008.1	0.5001	2.0256E-05	1/30/2024 14:04	207	15	11	0.733	2	0.067	30	1.8080
17	654013009.1	0.5057	2.0279E-05	1/30/2024 8:10	304	15	14	0.933	2	0.067	30	1.4940
18	1205641711.1	0.5076	2.0286E-05	2/23/2024 0:00	403	15	2	0.133	5	0.167	30	1.7560
19	1205641712.1	0.5004	2.0257E-05	1/29/2024 17:41	502	15	7	0.467	4	0.133	30	1.8590
20	1205641713.1	0.1067	1.1775E-05	1/29/2024 17:41	608	15	406	27.067	8	0.267	30	1.8960
21	1205641714.1	0.5076	2.0286E-05	2/23/2024 0:00	702	15	324	21.600	1	0.033	30	1.6810

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-008
Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections			
						De-Gas to Ingrowth	Ingrowth to Count	During Count	Ra-226 Decay
9.100%	11/1/2023	10/31/2024	2/23/2024 13:55	2/27/2024 6:34	2/27/2024 9:55	0.488	0.975	1.001	1.000
7.500%	2/1/2024	1/31/2025	2/23/2024 13:55	2/27/2024 6:34	2/27/2024 9:55	0.488	0.975	1.001	1.000
8.200%	6/1/2023	5/31/2024	2/23/2024 13:55	2/27/2024 6:34	2/27/2024 9:55	0.488	0.975	1.001	1.000
2.300%	10/10/2023	6/30/2024	2/23/2024 13:55	2/27/2024 6:34	2/27/2024 9:55	0.488	0.975	1.001	1.000
5.200%	11/1/2023	10/31/2024	2/23/2024 13:55	2/27/2024 6:34	2/27/2024 9:55	0.488	0.975	1.001	1.000
9.200%	10/10/2023	3/31/2024	2/23/2024 13:55	2/27/2024 6:34	2/27/2024 9:55	0.488	0.975	1.001	1.000
9.600%	5/1/2023	4/30/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
2.600%	8/1/2023	7/31/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
6.800%	11/1/2023	10/31/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
3.700%	2/1/2024	1/31/2025	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
1.100%	10/10/2023	5/31/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
9.900%	7/1/2023	6/30/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
5.900%	11/1/2023	10/31/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
9.600%	4/8/2023	3/31/2024	2/23/2024 13:55	2/27/2024 6:58	2/27/2024 10:12	0.490	0.976	1.001	1.000
6.700%	5/1/2023	4/30/2024	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000
4.000%	10/10/2023	7/31/2024	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000
2.100%	11/1/2023	10/31/2024	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000
8.500%	2/1/2024	1/31/2025	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000
7.700%	6/1/2023	5/31/2024	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000
7.800%	7/1/2023	6/30/2024	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000
2.000%	11/1/2023	10/31/2024	2/23/2024 13:55	2/27/2024 7:23	2/27/2024 10:30	0.491	0.977	1.001	1.000

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : 1715-I
Spike Exp Date : 8/29/2024
Spike Activity (dpm/ml): 304.15
Spike Volume Added: 0.10

LCS S/N : 1715-I
LCS Exp Date : 8/29/2024
LCS Activity (dpm/ml): 304.15
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type		RPD	RER	Nominal pCi/L	Recovery
1	0.2279	0.1609	1	0.5614	**0.2396**	71.29%	0.2000	0.1414	0.3321	0.3366		SAMPLE					
2	0.2246	0.1586	1	0.5099	**-0.0321**	264.68%	-0.0333	0.0882	0.1666	0.1667		SAMPLE					
3	0.3257	0.2299	1	0.6764	**0.0361**	412.39%	0.0333	0.1374	0.2917	0.2918		SAMPLE					
4	0.2504	0.1768	1	0.5396	**0.4343**	45.23%	0.4667	0.2108	0.3845	0.3901		SAMPLE					
5	0.2854	0.2015	1	0.6480	**0.8575**	34.40%	0.7000	0.2380	0.5715	0.5913		SAMPLE					
6	0.1774	0.1253	1	0.4371	**0.4353**	42.65%	0.4667	0.1944	0.3553	0.3693		SAMPLE					
7	0.2656	0.1875	1	0.6029	**0.1900**	87.70%	0.1667	0.1453	0.3246	0.3277		SAMPLE					
8	0.3849	0.2717	1	0.7770	**0.7008**	40.91%	0.6000	0.2449	0.5607	0.5709		SAMPLE					
9	0.4602	0.3249	1	0.8918	**0.000E+00**	0.00%	0.0000	0.1633	0.3871	0.3872		SAMPLE					
10	0.2255	0.1592	1	0.5120	**0.3549**	50.75%	0.3667	0.1856	0.3521	0.3567		SAMPLE					
11	0.3157	0.2229	1	0.7168	**0.7678**	38.59%	0.5667	0.2186	0.5805	0.5912		SAMPLE					
12	0.2970	0.2097	1	0.6401	**0.5151**	46.25%	0.4667	0.2108	0.4561	0.4728		SAMPLE					
13	0.3889	0.2745	1	0.7851	**0.000E+00**	0.00%	0.0000	0.1414	0.3271	0.3272		SAMPLE					
14	0.2841	0.2006	1	0.6450	**0.3658**	58.53%	0.3000	0.1732	0.4139	0.4229		SAMPLE					
15	0.1513	0.1068	1	0.4386	**0.9373**	29.88%	0.8333	0.2427	0.5350	0.5654		SAMPLE					
16	0.1977	0.1396	1	0.4870	**0.6929**	34.15%	0.6667	0.2261	0.4605	0.4744		SAMPLE					
17	0.2366	0.1671	1	0.5829	**1.0779**	29.37%	0.8667	0.2539	0.6188	0.6396		SAMPLE					
18	0.3171	0.2239	1	0.6586	**-0.0351**	360.66%	-0.0333	0.1202	0.2483	0.2485		MB					
19	0.2718	0.1919	1	0.5858	**0.3367**	57.09%	0.3333	0.1886	0.3734	0.3799	653796001.1	DUP	*	0.0%			
20	1.7669	1.2474	1	3.4236	**124.4524**	9.28%	26.8000	1.3466	12.2564	28.8955	653796001.1	MS				128.3679	96.9%
21	0.1481	0.1046	1	0.4294	**23.7511**	5.91%	21.5667	1.2005	2.5912	4.3972		LCS				26.9909	88.0%

Continuing Calibration Data

Ludlum Alpha Scintillation Counter Checks for 27-FEB-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	07:40	1	1.11E+05	110723	-1.97		
LUCAS2	EFF	07:39	1	1.27E+05	127433	-1.99		
LUCAS3	EFF	07:37	1	93705	93705	1.6		
LUCAS4	EFF	07:36	1	1.23E+05	123195	-2.44		
LUCAS5	EFF	07:34	1	1.28E+05	127753	-1.38		
LUCAS6	EFF	07:31	1	1.27E+05	127311	-0.98		
LUCAS7	EFF	07:30	1	1.30E+05	130051	-1.11		
LUCAS8	EFF	07:29	1	1.13E+05	113219	-1.12		

Reviewed by: Lyndsey Pace **Date:** 27-FEB-24

Lyndsey Pace

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR **Batch ID: 2564063**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
653796001	SAMPLE	MJ2	LUCAS3	FEB-27-24 09:55:00	DONE	Lucas Cell	01-NOV-23 00:00
653796002	SAMPLE	MJ2	LUCAS4	FEB-27-24 09:55:00	DONE	Lucas Cell	01-FEB-24 00:00
653796003	SAMPLE	MJ2	LUCAS5	FEB-27-24 09:55:00	DONE	Lucas Cell	01-JUN-23 00:00
653796004	SAMPLE	MJ2	LUCAS6	FEB-27-24 09:55:00	DONE	Lucas Cell	01-JUL-23 00:00
653796005	SAMPLE	MJ2	LUCAS7	FEB-27-24 09:55:00	DONE	Lucas Cell	01-NOV-23 00:00
653796006	SAMPLE	MJ2	LUCAS8	FEB-27-24 09:55:00	DONE	Lucas Cell	08-APR-23 00:00
653796007	SAMPLE	MJ2	LUCAS1	FEB-27-24 10:12:00	DONE	Lucas Cell	01-MAY-23 00:00
653796008	SAMPLE	MJ2	LUCAS2	FEB-27-24 10:12:00	DONE	Lucas Cell	01-AUG-23 00:00
654013001	SAMPLE	MJ2	LUCAS3	FEB-27-24 10:12:00	DONE	Lucas Cell	01-NOV-23 00:00
654013002	SAMPLE	MJ2	LUCAS4	FEB-27-24 10:12:00	DONE	Lucas Cell	01-FEB-24 00:00
654013003	SAMPLE	MJ2	LUCAS5	FEB-27-24 10:12:00	DONE	Lucas Cell	01-JUN-23 00:00
654013004	SAMPLE	MJ2	LUCAS6	FEB-27-24 10:12:00	DONE	Lucas Cell	01-JUL-23 00:00
654013005	SAMPLE	MJ2	LUCAS7	FEB-27-24 10:12:00	DONE	Lucas Cell	01-NOV-23 00:00
654013006	SAMPLE	MJ2	LUCAS8	FEB-27-24 10:12:00	DONE	Lucas Cell	08-APR-23 00:00
654013007	SAMPLE	MJ2	LUCAS1	FEB-27-24 10:30:00	DONE	Lucas Cell	01-MAY-23 00:00
654013008	SAMPLE	MJ2	LUCAS2	FEB-27-24 10:30:00	DONE	Lucas Cell	01-AUG-23 00:00
654013009	SAMPLE	MJ2	LUCAS3	FEB-27-24 10:30:00	DONE	Lucas Cell	01-NOV-23 00:00
1205641711	MB	MJ2	LUCAS4	FEB-27-24 10:30:00	DONE	Lucas Cell	01-FEB-24 00:00
1205641712	DUP	MJ2	LUCAS5	FEB-27-24 10:30:00	DONE	Lucas Cell	01-JUN-23 00:00
1205641713	MS	MJ2	LUCAS6	FEB-27-24 10:30:00	DONE	Lucas Cell	01-JUL-23 00:00
1205641714	LCS	MJ2	LUCAS7	FEB-27-24 10:30:00	DONE	Lucas Cell	01-NOV-23 00:00

Analytical Laboratory Report

Final Report

Report ID: S58248.01(02)
Generated on 03/05/2024
Replaces report S58248.01(01) generated on 03/05/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Report produced by

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Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S58248.01-S58248.08
Project: Erickson Semi Annual Wells 11-12, 14, 15
Collected Date(s): 01/31/2024
Submitted Date/Time: 02/01/2024 09:17
Sampled by: Marc Wahrer
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

All analyses completed

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2320B	Standard Method 2320 B 2011
SM2340C	Standard Method 2340 C 2011
SM2540C	Standard Method 2540 C 2015
SM2540D	Standard Method 2540 D 2015
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S58248.01	MW-11 L401211-01	Groundwater	01/31/24 11:54
S58248.02	MW-11B L401211-02	Groundwater	01/31/24 13:13
S58248.03	MW-12 L401211-03	Groundwater	01/31/24 17:34
S58248.04	MW-12B L401211-04	Groundwater	01/31/24 10:06
S58248.05	MW-14 L401211-05	Groundwater	01/31/24 15:22
S58248.06	MW-15 L401211-06	Groundwater	01/31/24 16:56
S58248.07	MWT-11B L401211-07	Groundwater	01/31/24 13:13
S58248.08	Field Blank L401211-08	Water	01/31/24 07:55

Lab Sample ID: S58248.01
Sample Tag: MW-11 L401211-01
Collected Date/Time: 01/31/2024 11:54
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.4	IR
2	1L Plastic	None	Yes	3.4	IR
1	125mL Plastic	HNO3	Yes	3.4	IR
1	250mL Plastic	None	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/08/24 11:01	CTV	
Mercury Digestion	Completed	E245.1	02/08/24 11:01	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 13:40, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	68.0	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	Not detected	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/14/24 17:47, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	680	50	2.52	mg/L	5	71-52-3	
Carbonate*	Not detected	50	2.52	mg/L	5	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 12:42, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	524	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	660	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	40.6	5	2	mg/L	2		

Metals

Method: E200.8, Run Date: 02/07/24 11:57, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.019	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.181	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	0.19	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	

Lab Sample ID: S58248.01 (continued)
Sample Tag: MW-11 L401211-01

Method: E200.8, Run Date: 02/07/24 11:57, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	
Iron	25.1	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/07/24 12:01, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	f
Arsenic, Dissolved	0.003	0.002	0.0015	mg/L	5	7440-38-2	f
Barium, Dissolved	0.116	0.005	0.00090	mg/L	5	7440-39-3	f
Beryllium, Dissolved	Not detected	0.001	0.00020	mg/L	5	7440-41-7	f
Boron, Dissolved	0.19	0.04	0.016	mg/L	5	7440-42-8	f
Cadmium, Dissolved	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	f
Chromium, Dissolved	Not detected	0.005	0.00075	mg/L	5	7440-47-3	f
Cobalt, Dissolved	Not detected	0.005	0.00045	mg/L	5	7440-48-4	f
Copper, Dissolved	Not detected	0.005	0.00080	mg/L	5	7440-50-8	f
Iron, Dissolved	0.03	0.02	0.014	mg/L	5	7439-89-6	f
Lead, Dissolved	Not detected	0.003	0.00045	mg/L	5	7439-92-1	f
Lithium, Dissolved*	Not detected	0.005	0.0014	mg/L	5	7439-93-2	f
Molybdenum, Dissolved	Not detected	0.005	0.0042	mg/L	5	7439-98-7	f
Nickel, Dissolved	Not detected	0.005	0.0012	mg/L	5	7440-02-0	f
Selenium, Dissolved	Not detected	0.005	0.0044	mg/L	5	7782-49-2	f
Silver, Dissolved	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	f
Thallium, Dissolved	Not detected	0.002	0.00035	mg/L	5	7440-28-0	f
Vanadium, Dissolved	Not detected	0.005	0.0021	mg/L	5	7440-62-2	f
Zinc, Dissolved	Not detected	0.005	0.0033	mg/L	5	7440-66-6	f

Method: E200.8, Run Date: 02/07/24 14:15, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	138	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	37.4	0.50	0.058	mg/L	5	7439-95-4	
Potassium	2.61	0.50	0.12	mg/L	5	7440-09-7	
Sodium	35.4	0.50	0.11	mg/L	5	7440-23-5	

Method: E200.8, Run Date: 02/07/24 14:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	129	0.50	0.22	mg/L	5	7440-70-2	f
Magnesium, Dissolved	37.9	0.50	0.058	mg/L	5	7439-95-4	f
Potassium, Dissolved	2.35	0.50	0.12	mg/L	5	7440-09-7	f
Sodium, Dissolved	33.8	0.50	0.11	mg/L	5	7440-23-5	f

f-Filtered and preserved in lab

Lab Sample ID: S58248.01 (continued)

Sample Tag: MW-11 L401211-01

Method: E245.1, Run Date: 02/08/24 14:03, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	f

Method: E245.1, Run Date: 02/08/24 14:00, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 09:56, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

f-Filtered and preserved in lab

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58248.02
Sample Tag: MW-11B L401211-02
Collected Date/Time: 01/31/2024 13:13
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.4	IR
2	1L Plastic	None	Yes	3.4	IR
1	125mL Plastic	HNO3	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/08/24 11:01	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 13:50, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	2.1	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	4.0	5.0	0.295	mg/L	5	14808-79-8	b

Method: SM2320B, Run Date: 02/14/24 17:57, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	356	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 12:50, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	268	100	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	296	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.4	3	1	mg/L	1		b

Metals

Method: E200.8, Run Date: 02/07/24 12:04, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.005	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.069	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	0.76	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58248.02 (continued)
Sample Tag: MW-11B L401211-02

Method: E200.8, Run Date: 02/07/24 12:04, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.84	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.030	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/07/24 14:19, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	62.7	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	22.1	0.50	0.058	mg/L	5	7439-95-4	
Potassium	6.38	0.50	0.12	mg/L	5	7440-09-7	
Sodium	14.7	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/08/24 14:07, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 09:56, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58248.03
Sample Tag: MW-12 L401211-03
Collected Date/Time: 01/31/2024 17:34
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.4	IR
2	1L Plastic	None	Yes	3.4	IR
1	125mL Plastic	HNO3	Yes	3.4	IR
1	250mL Plastic	None	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/08/24 11:01	CTV	
Mercury Digestion	Completed	E245.1	02/08/24 11:01	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 15:00, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	177	10.0	0.590	mg/L	10	14808-79-8	

Method: E300.0, Run Date: 02/02/24 14:00, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	69.2	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: SM2320B, Run Date: 02/14/24 18:03, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	703	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 12:52, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	658	100	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	916	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	12.0	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/07/24 12:08, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.003	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.052	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	

Lab Sample ID: S58248.03 (continued)
Sample Tag: MW-12 L401211-03

Method: E200.8, Run Date: 02/07/24 12:08, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	0.07	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	
Iron	1.19	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.019	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.006	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	0.014	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/07/24 12:12, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	f
Arsenic, Dissolved	Not detected	0.002	0.0015	mg/L	5	7440-38-2	f
Barium, Dissolved	0.049	0.005	0.00090	mg/L	5	7440-39-3	f
Beryllium, Dissolved	Not detected	0.001	0.00020	mg/L	5	7440-41-7	f
Boron, Dissolved	0.06	0.04	0.016	mg/L	5	7440-42-8	f
Cadmium, Dissolved	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	f
Chromium, Dissolved	Not detected	0.005	0.00075	mg/L	5	7440-47-3	f
Cobalt, Dissolved	Not detected	0.005	0.00045	mg/L	5	7440-48-4	f
Copper, Dissolved	Not detected	0.005	0.00080	mg/L	5	7440-50-8	f
Iron, Dissolved	Not detected	0.02	0.014	mg/L	5	7439-89-6	f
Lead, Dissolved	Not detected	0.003	0.00045	mg/L	5	7439-92-1	f
Lithium, Dissolved*	0.016	0.005	0.0014	mg/L	5	7439-93-2	f
Molybdenum, Dissolved	0.006	0.005	0.0042	mg/L	5	7439-98-7	f
Nickel, Dissolved	0.014	0.005	0.0012	mg/L	5	7440-02-0	f
Selenium, Dissolved	Not detected	0.005	0.0044	mg/L	5	7782-49-2	f
Silver, Dissolved	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	f
Thallium, Dissolved	Not detected	0.002	0.00035	mg/L	5	7440-28-0	f
Vanadium, Dissolved	Not detected	0.005	0.0021	mg/L	5	7440-62-2	f
Zinc, Dissolved	Not detected	0.005	0.0033	mg/L	5	7440-66-6	f

Method: E200.8, Run Date: 02/07/24 14:21, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	158	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	60.1	0.50	0.058	mg/L	5	7439-95-4	
Potassium	2.67	0.50	0.12	mg/L	5	7440-09-7	
Sodium	94.4	0.50	0.11	mg/L	5	7440-23-5	

Method: E200.8, Run Date: 02/07/24 14:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	152	0.50	0.22	mg/L	5	7440-70-2	f
Magnesium, Dissolved	56.4	0.50	0.058	mg/L	5	7439-95-4	f

f-Filtered and preserved in lab

Lab Sample ID: S58248.03 (continued)

Sample Tag: MW-12 L401211-03

Method: E200.8, Run Date: 02/07/24 14:22, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Potassium, Dissolved	2.52	0.50	0.12	mg/L	5	7440-09-7	f
Sodium, Dissolved	88.9	0.50	0.11	mg/L	5	7440-23-5	f

Method: E245.1, Run Date: 02/08/24 14:13, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	f

Method: E245.1, Run Date: 02/08/24 14:10, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 09:56, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

f-Filtered and preserved in lab

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58248.04
Sample Tag: MW-12B L401211-04
Collected Date/Time: 01/31/2024 10:06
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.4	IR
2	1L Plastic	None	Yes	3.4	IR
1	125mL Plastic	HNO3	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/08/24 11:01	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 14:10, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	2.0	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.4	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	0.8	5.0	0.295	mg/L	5	14808-79-8	b

Method: SM2320B, Run Date: 02/14/24 18:21, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	424	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 12:54, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	653	100	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	366	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/07/24 12:15, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.025	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	3.29	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58248.04 (continued)
Sample Tag: MW-12B L401211-04

Method: E200.8, Run Date: 02/07/24 12:15, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.20	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.041	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/07/24 14:24, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	26.3	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	8.01	0.50	0.058	mg/L	5	7439-95-4	
Potassium	8.19	0.50	0.12	mg/L	5	7440-09-7	
Sodium	106	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/08/24 14:17, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 09:56, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58248.05
Sample Tag: MW-14 L401211-05
Collected Date/Time: 01/31/2024 15:22
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.4	IR
2	1L Plastic	None	Yes	3.4	IR
1	125mL Plastic	HNO3	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/08/24 11:01	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 15:10, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	119	25.0	0.400	mg/L	25	16887-00-6	

Method: E300.0, Run Date: 02/02/24 14:20, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	8.5	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/14/24 18:35, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	850	50	2.52	mg/L	5	71-52-3	
Carbonate*	Not detected	50	2.52	mg/L	5	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 12:56, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	610	200	4.76	mg/L	20		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	818	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	27.6	5	2	mg/L	2		

Metals

Method: E200.8, Run Date: 02/07/24 12:28, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.008	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.131	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	2.22	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	

Lab Sample ID: S58248.05 (continued)
Sample Tag: MW-14 L401211-05

Method: E200.8, Run Date: 02/07/24 12:28, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	
Iron	14.7	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.109	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.012	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	0.005	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	0.024	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/07/24 14:35, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	161	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	44.1	0.50	0.058	mg/L	5	7439-95-4	
Potassium	5.71	0.50	0.12	mg/L	5	7440-09-7	
Sodium	77.4	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/08/24 14:20, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 09:56, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58248.06
Sample Tag: MW-15 L401211-06
Collected Date/Time: 01/31/2024 16:56
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.4	IR
2	1L Plastic	None	Yes	3.4	IR
1	125mL Plastic	HNO3	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/08/24 11:01	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 14:30, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	69.3	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	95.0	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/14/24 18:39, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	433	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 12:58, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	484	100	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	604	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/07/24 12:32, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.002	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.055	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	0.39	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	
Iron	0.12	0.02	0.014	mg/L	5	7439-89-6	

Lab Sample ID: S58248.06 (continued)
Sample Tag: MW-15 L401211-06

Method: E200.8, Run Date: 02/07/24 12:32, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/07/24 14:37, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	131	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	31.6	0.50	0.058	mg/L	5	7439-95-4	
Potassium	Not detected	0.50	0.12	mg/L	5	7440-09-7	
Sodium	30.4	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/08/24 14:23, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 09:56, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58248.07
Sample Tag: MWT-11B L401211-07
Collected Date/Time: 01/31/2024 13:13
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.4	IR
2	1L Plastic	None	Yes	3.4	IR
1	125mL Plastic	HNO3	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/08/24 11:01	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 14:40, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	2.1	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	4.0	5.0	0.295	mg/L	5	14808-79-8	b

Method: SM2320B, Run Date: 02/14/24 18:52, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	381	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 13:00, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	269	100	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	304	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.3	3	1	mg/L	1		b

Metals

Method: E200.8, Run Date: 02/07/24 12:35, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.005	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.068	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	0.79	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58248.07 (continued)
Sample Tag: MWT-11B L401211-07

Method: E200.8, Run Date: 02/07/24 12:35, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.83	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.033	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/07/24 14:38, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	62.9	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	22.2	0.50	0.058	mg/L	5	7439-95-4	
Potassium	6.49	0.50	0.12	mg/L	5	7440-09-7	
Sodium	14.5	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/08/24 14:33, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 09:56, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58248.08
Sample Tag: Field Blank L401211-08
Collected Date/Time: 01/31/2024 07:55
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	3.4	IR
2	1L Plastic	None	Yes	3.4	IR
1	125mL Plastic	HNO3	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/08/24 11:01	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 14:50, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	Not detected	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	Not detected	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/14/24 18:56, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	Not detected	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 13:04, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	Not detected	100	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/02/24 15:36, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/07/24 11:52, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00090	mg/L	2	7440-36-0	
Arsenic	Not detected	0.002	0.00058	mg/L	2	7440-38-2	
Barium	Not detected	0.005	0.00036	mg/L	2	7440-39-3	
Beryllium	Not detected	0.001	0.000080	mg/L	2	7440-41-7	
Boron	Not detected	0.04	0.0064	mg/L	2	7440-42-8	
Cadmium	Not detected	0.0005	0.00014	mg/L	2	7440-43-9	
Chromium	Not detected	0.005	0.00030	mg/L	2	7440-47-3	
Cobalt	Not detected	0.005	0.00018	mg/L	2	7440-48-4	
Copper	Not detected	0.005	0.00032	mg/L	2	7440-50-8	
Iron	Not detected	0.02	0.0057	mg/L	2	7439-89-6	

Lab Sample ID: S58248.08 (continued)
Sample Tag: Field Blank L401211-08

Method: E200.8, Run Date: 02/07/24 11:52, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.00018	mg/L	2	7439-92-1	
Lithium*	Not detected	0.005	0.00054	mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005	0.0017	mg/L	2	7439-98-7	
Nickel	Not detected	0.005	0.00046	mg/L	2	7440-02-0	
Selenium	Not detected	0.005	0.0017	mg/L	2	7782-49-2	
Silver	Not detected	0.0005	0.00010	mg/L	2	7440-22-4	
Thallium	Not detected	0.002	0.00014	mg/L	2	7440-28-0	
Vanadium	Not detected	0.005	0.00082	mg/L	2	7440-62-2	
Zinc	Not detected	0.005	0.0013	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 02/07/24 14:12, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	Not detected	0.50	0.087	mg/L	2	7440-70-2	
Magnesium	Not detected	0.50	0.023	mg/L	2	7439-95-4	
Potassium	Not detected	0.50	0.048	mg/L	2	7440-09-7	
Sodium	Not detected	0.50	0.044	mg/L	2	7440-23-5	

Method: E245.1, Run Date: 02/08/24 14:37, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 09:56, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S58248
Client: BWL01 (Board of Water & Light)
Project: Erickson Semi Annual Wells 11-12, 14, 15
Submitted: 02/01/2024 09:17 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 3.4
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[X] Yes	[ ] No	[ ] N/A	Subcontracting needed? Subcontacted to:	GEL
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S58248 Submitted: 02/01/2024 09:17

Client: BWL01 (Board of Water & Light)

Project: Erickson Semi Annual Wells 11-12, 14, 15

Initial Preservation Check: 02/01/2024 09:54 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S58248.01	125mL Plastic HNO3	<2			
S58248.01	1L Plastic HNO3	<2			
S58248.01	1L Plastic HNO3	<2			
S58248.02	125mL Plastic HNO3	<2			
S58248.02	1L Plastic HNO3	<2			
S58248.02	1L Plastic HNO3	<2			
S58248.03	125mL Plastic HNO3	<2			
S58248.03	1L Plastic HNO3	<2			
S58248.03	1L Plastic HNO3	<2			
S58248.04	125mL Plastic HNO3	<2			
S58248.04	1L Plastic HNO3	<2			
S58248.04	1L Plastic HNO3	<2			
S58248.05	125mL Plastic HNO3	<2			
S58248.05	1L Plastic HNO3	<2			
S58248.05	1L Plastic HNO3	<2			
S58248.06	125mL Plastic HNO3	<2			
S58248.06	1L Plastic HNO3	<2			
S58248.06	1L Plastic HNO3	<2			
S58248.07	125mL Plastic HNO3	<2			
S58248.07	1L Plastic HNO3	<2			
S58248.07	1L Plastic HNO3	<2			
S58248.08	125mL Plastic HNO3	<2			
S58248.08	1L Plastic HNO3	<2			
S58248.08	1L Plastic HNO3	<2			

Merit Laboratories, Inc.
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Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing STATE: Mi ZIP CODE: 48901
PHONE NO.: 517-702-6372 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Semi Annaul Wells 11-12, 14, 15
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Marc Wahrer

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☒LEVEL III ☐LEVEL IV ☒EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☒NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total Metals	F- undisstilled, Cl-, SO4, TDS	Radium 226	Radium 228	TSS	Dissolved Metals	HCO_3, CO_3, Hardness				Special Instructions
58248.01	1.31.24	1154	MW-11 LA01211-01	GW	6	3		3					✓	✓	✓	✓	✓	✓	✓				Metals to analyse:Na, Mg, K
.02	↓	1313	MW-11B -02	GW	5	2		3					✓	✓	✓	✓	✓		✓				B, Ca, Sb, As, Ba, Be, Cd, Cr,
.03		1734	MW-12 -03	GW	6	3		3					✓	✓	✓	✓	✓	✓	✓				Co, Li, Hg, Mo,Pb,Se, Tl,
.04		1006	MW-12B -04	GW	5	2		3					✓	✓	✓	✓	✓		✓				Fe, Cu, Ni, Ag, V, Zn
.05		1522	MW-14 -05	GW	5	2		3					✓	✓	✓	✓	✓		✓				Please send a preliminary report
.06		1656	MW-15 -06	GW	5	2		3					✓	✓	✓	✓	✓		✓				
.07		1313	MWT-11B -07	GW	5	2		3					✓	✓	✓	✓	✓		✓				The analytes for dissolved metals are
.08	↓	0755	Field Blank ↓ -08	DI	5	2		3					✓	✓	✓	✓	✓		✓				same metals that are analysed for total.

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Julie Maltby ☐Sampler DATE: 2/1/24 TIME: 0917
RECEIVED BY: SIGNATURE/ORGANIZATION: M Pilarski DATE: 2/1/24 TIME: 0917
RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS

NOTES: TEMP. ON ARRIVAL: 3.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Reporting Limits to go to Merit with COC

Sb, total	Antimony	250 mL plastic	mg/L	Nitric Acid	200.7	6 mos	0.005
As, total	Arsenic	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
Ba, total		250 mL plastic	mg/L	Nitric Acid	200.8	6mos	0.150
Be, total	Beryllium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.001
B, total	Boron	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.04
Cd, total	Cadmium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
Ca	Calcium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	2.5
Cl	Chloride	250 mL plastic	mg/L	Chill	300.0	28 d	10
Cr, total	Chromium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Co, total	Cobalt	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Cu, total	Copper	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
F	Fluoride	250 mL plastic	mg/L	None	9056	28 d	1.0
Fe, total	Iron	250 mL plastic	mg/L	Nitric Acid	300.0	6 mos	0.02
Pb, total	Lead	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.003
Li, total	Lithium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Hg, total	Mercury	250 mL plastic	mg/L	HNO3	245.1	28 d	0.0002
Mo, total	Molybdenum	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ni, total	Nickel	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
RA226/228	Radium 226 and 228 combined	(2) 1 L plastic	pCi/L	HNO3	SM 7500	6 mos	2.0 combined
Se, total	Selenium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ag, total	Silver	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
SO4	Sulfate	250 mL plastic	mg/L	Chill	300.0	28 d	10
Tl, total	Thallium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
TDS	Total Dissolved Solids	1 L plastic	mg/L	None	SM 2540C	NA	20
TSS	Total Suspended Solids	1 L plastic	mg/L	None	SM 2540D	NA	3
V, total	Vanadium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Zn, total	Zinc	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005

GEL Laboratories LLC
a member of The GEL Group INC

2040 Savage Road | Charleston, SC 29407
843.556.8171
gel.com

March 04, 2024

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 654532
SDG: S58248

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 07, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Delaney Stonesmith

Delaney Stonesmith
Project Manager

Purchase Order: GELP20-0018
Enclosures

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Case Narrative

Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S58248
Work Order: 654532

March 04, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on February 07, 2024 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
654532001	S58248.01
654532002	S58248.02
654532003	S58248.03
654532004	S58248.04
654532005	S58248.05
654532006	S58248.06
654532007	S58248.07
654532008	S58248.08 Field Blank

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.

Delaney Stonesmith
Project Manager

Chain of Custody and Supporting Documentation

654532

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: results@meritlabs.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague ☒ SAME
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S58248 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☒ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO3	H2SO4	NaOH	MeOH	OTHER	Radium 226*	Radium 228**	Special Instructions
	1/31/24	1154	S58248.01	GW	2			2					✓	✓	* E903.1 Mod.
	1/31/24	1313	S58248.02	GW	2			2					✓	✓	** E904.0/SW 9320 Mod.
	1/31/24	1734	S58248.03	GW	2			2					✓	✓	
	1/31/24	1006	S58248.04	GW	2			2					✓	✓	Please use calculation product &
	1/31/24	1522	S58248.05	GW	2			2					✓	✓	provide Radium 226/228 combined
	1/31/24	1656	S58248.06	GW	2			2					✓	✓	results on the report
	1/31/24	1313	S58248.07	GW	2			2					✓	✓	
	1/31/24	0755	S58248.08 Field Blank	DI	2			2					✓	✓	(No Ice needed)
															** Subcontracted to
															GEL Laboratories, Inc.
															2040 Savage Road
															Charleston, SC 29407

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☐ Sampler DATE 2/5/24 TIME 1700
RECEIVED BY: SIGNATURE/ORGANIZATION UPS DATE 2/5/24 TIME 1700
RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE 2/7/24 TIME 1000

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: MERI	SDG/AR/COC/Work Order: 654532
Received By: STACY BOONE	Date Received: ~~FEBRUARY 8, 2024~~ FEB 7, 2024
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other AM 02/09/24
	1Z 466 477 03 6104 0061 17 c

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A) Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Wet Ice Ice Packs Dry ice None Other *all temperatures are recorded in Celsius TEMP:_____
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR3-23 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?		✓		If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

1Z 466 477 03 6216 5658 20 c

PM (or PMA) review: Initials _____ Date _____ Page ____ of ____

GL-CHL-SR-001 Rev 7

Laboratory Certifications

List of current GEL Certifications as of 04 March 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122024-05
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-23-21
Utah NELAP	SC000122023-38
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S58248
Work Order #: 654532

Product: **Radium-226+Radium-228 Calculation**
Analytical Method: Calculation
Analytical Procedure: GL-RAD-D-003 REV# 45
Analytical Batch: 2570945

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
654532001	S58248.01
654532002	S58248.02
654532003	S58248.03
654532004	S58248.04
654532005	S58248.05
654532006	S58248.06
654532007	S58248.07
654532008	S58248.08 Field Blank

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2570188

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
654532001	S58248.01
654532002	S58248.02
654532003	S58248.03
654532004	S58248.04
654532005	S58248.05
654532006	S58248.06
654532007	S58248.07
654532008	S58248.08 Field Blank
1205653413	Method Blank (MB)
1205653414	654532001(S58248.01) Sample Duplicate (DUP)
1205653415	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2570163

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
654532001	S58248.01
654532002	S58248.02
654532003	S58248.03
654532004	S58248.04
654532005	S58248.05
654532006	S58248.06
654532007	S58248.07
654532008	S58248.08 Field Blank
1205653334	Method Blank (MB)
1205653335	654233023(NonSDG) Sample Duplicate (DUP)
1205653336	654233023(NonSDG) Matrix Spike (MS)
1205653337	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1205653336 (Non SDG 654233023MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MERI001 Merit Laboratories, Inc.

Client SDG: S58248 GEL Work Order: 654532

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: John Petrovic **Name: John Petrovic**

Date: 04 MAR 2024 **Title: Data Validator**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58248.01
Sample ID: 654532001
Matrix: Ground Water
Collect Date: 31-JAN-24 11:54
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.161	+/-1.06	1.97	3.00	pCi/L			JE1	02/29/24	1205	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.689	+/-1.19			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.528	+/-0.527	0.853	1.00	pCi/L			MJ2	02/29/24	0956	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			80.9	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58248.02
Sample ID: 654532002
Matrix: Ground Water
Collect Date: 31-JAN-24 13:13
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.581	+/-0.974	1.71	3.00	pCi/L			JE1	02/29/24	1205	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.90	+/-1.11			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.32	+/-0.528	0.390	1.00	pCi/L			MJ2	02/29/24	1035	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			81.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58248.03
Sample ID: 654532003
Matrix: Ground Water
Collect Date: 31-JAN-24 17:34
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.866	+/-0.928	1.54	3.00	pCi/L			JE1	02/29/24	1205	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.34	+/-0.977			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.475	+/-0.305	0.331	1.00	pCi/L			MJ2	02/29/24	1035	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			77.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58248.04
Sample ID: 654532004
Matrix: Ground Water
Collect Date: 31-JAN-24 10:06
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.845	+/-1.27	2.19	3.00	pCi/L			JE1	02/29/24	1205	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.30	+/-1.34			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.458	+/-0.411	0.626	1.00	pCi/L			MJ2	02/29/24	1035	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			78.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58248.05
Sample ID: 654532005
Matrix: Ground Water
Collect Date: 31-JAN-24 15:22
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.833	+/-0.791	1.28	3.00	pCi/L			JE1	02/29/24	1205	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.994	+/-0.851			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.160	+/-0.314	0.577	1.00	pCi/L			MJ2	02/29/24	1035	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			88.9	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58248.06
Sample ID: 654532006
Matrix: Ground Water
Collect Date: 31-JAN-24 16:56
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.00555	+/-0.734	1.44	3.00	pCi/L			JE1	02/29/24	1205	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.316	+/-0.798			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.310	+/-0.313	0.490	1.00	pCi/L			MJ2	02/29/24	1035	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			81.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58248.07
Sample ID: 654532007
Matrix: Ground Water
Collect Date: 31-JAN-24 13:13
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.791	+/-1.31	2.27	3.00	pCi/L			JE1	02/29/24	1205	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.16	+/-1.36			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.366	+/-0.365	0.585	1.00	pCi/L			MJ2	02/29/24	1035	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			77.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58248.08 Field Blank
Sample ID: 654532008
Matrix: Waste Water
Collect Date: 31-JAN-24 07:55
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.57	+/-1.20	1.89	3.00	pCi/L			JE1	02/29/24	1206	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.12	+/-1.34			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.55	+/-0.611	0.614	1.00	pCi/L			MJ2	02/29/24	1035	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			77.9	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Data

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 4, 2024

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: **John Laverty**

Workorder: **654532**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 2570188										
QC1205653414 654532001 DUP										
Radium-228	U	0.161	U	0.346	pCi/L	N/A		N/A	JE1	02/29/24 12:06
	Uncertainty	+/-1.06		+/-0.655						
QC1205653415 LCS										
Radium-228	72.1			60.4	pCi/L		83.8	(75%-125%)		02/29/24 12:06
	Uncertainty			+/-4.09						
QC1205653413 MB										
Radium-228			U	-0.0339	pCi/L					02/29/24 12:06
	Uncertainty			+/-1.17						
Rad Ra-226										
Batch 2570163										
QC1205653335 654233023 DUP										
Radium-226	U	0.415		0.535	pCi/L	25.3		(0% - 100%)	MJ2	02/29/24 11:21
	Uncertainty	+/-0.352		+/-0.300						
QC1205653337 LCS										
Radium-226	53.8			43.4	pCi/L		80.6	(75%-125%)		03/01/24 04:24
	Uncertainty			+/-4.23						
QC1205653334 MB										
Radium-226			U	0.252	pCi/L					02/29/24 09:56
	Uncertainty			+/-0.431						
QC1205653336 654233023 MS										
Radium-226	117 U	0.415		88.7	pCi/L		75.7	(75%-125%)		02/29/24 11:21
	Uncertainty	+/-0.352		+/-8.62						

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported
- > Result is greater than value reported

QC Summary

Workorder: **654532**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

UI	Gamma Spectroscopy--Uncertain identification
BD	Results are either below the MDC or tracer recovery is low
h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
M	M if above MDC and less than LLD
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
FA	Failed analysis.
UJ	Gamma Spectroscopy--Uncertain identification
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N1	See case narrative
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
**	Analyte is a Tracer compound
M	REMP Result > MDC/CL and < RDL
J	See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Gas Flow Raw Data

Batch 2570188 Check-list

This check-list was completed on 29-FEB-24 by Nat Long

This batch was reviewed by Kenshalla Oston on 29-FEB-24 and Nat Long on 29-FEB-24.

Batch ID: 2570188 **Product:** GFC28RAL **Description:** Gas Flow Radium 228 GL-RAD-A-063

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-228 in Liquid

Batch ID: **2570188**
Analyst: Jacqueline Winston (JE1)
Method: EPA 904.0/SW846 9320 Modified
Lab SOP: GL-RAD-A-063 REV# 5
Instrument: SP-C018367602

Due Dates for Lab: 03-MAR-2024 **Package: 05-MAR-2024** **SDG: 06-MAR-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205653415	Radium 228	2051-D	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)
1	654532001	26-FEB-2024	3	306.63	306.63	02/27/24 12:56	02/29/24 09:18
2	654532002	26-FEB-2024	3	302.23	302.23	02/27/24 12:56	02/29/24 09:18
3	654532003	26-FEB-2024	3	305.13	305.13	02/27/24 12:56	02/29/24 09:18
4	654532004	26-FEB-2024	3	303.93	303.93	02/27/24 12:56	02/29/24 09:18
5	654532005	26-FEB-2024	3	303.93	303.93	02/27/24 12:56	02/29/24 09:18
6	654532006	26-FEB-2024	3	314.53	314.53	02/27/24 12:56	02/29/24 09:18
7	654532007	26-FEB-2024	3	301.53	301.53	02/27/24 12:56	02/29/24 09:18
8	654532008	26-FEB-2024	3	304.33	304.33	02/27/24 12:56	02/29/24 09:18
9	654534001	26-FEB-2024	3	310.23	310.23	02/27/24 12:56	02/29/24 09:18
10	654534002	26-FEB-2024	3	300.53	300.53	02/27/24 12:56	02/29/24 09:18
11	654534003	26-FEB-2024	3	300.83	300.83	02/27/24 12:56	02/29/24 09:18
12	654534004	26-FEB-2024	3	300.33	300.33	02/27/24 12:56	02/29/24 09:18
13	654534005	26-FEB-2024	3	300.23	300.23	02/27/24 12:56	02/29/24 09:18
14	654534006	26-FEB-2024	3	304.33	304.33	02/27/24 12:56	02/29/24 09:18
15	655017001	26-FEB-2024	3	308.13	308.13	02/27/24 12:56	02/29/24 09:18
16	655017002	26-FEB-2024	3	301.63	301.63	02/27/24 12:56	02/29/24 09:18
17	655017003	26-FEB-2024	3	302.03	302.03	02/27/24 12:56	02/29/24 09:18
18	655017004	26-FEB-2024	3	303.63	303.63	02/27/24 12:56	02/29/24 09:18
19	655017005	26-FEB-2024	3	300.33	300.33	02/27/24 12:56	02/29/24 09:18
20	655017006	26-FEB-2024	3	307.53	307.53	02/27/24 12:56	02/29/24 09:18
21	1205653413 MB	26-FEB-2024	3		314.53	02/27/24 12:56	02/29/24 09:18
22	1205653414 DUP (654532001)	26-FEB-2024	3	302.23	302.23	02/27/24 12:56	02/29/24 09:18
23	1205653415 LCS	26-FEB-2024	3		314.53	02/27/24 12:56	02/29/24 09:18

Reagent/Solvent Lot ID	Description	Amount
WORK 2097-B	Ba-133 Tracer	.1 mL
REGNT 4214820	Barium Carrier Ra228 REG	1 mL
REGNT 4223988	RGF-1M Citric Acid	5 mL
REGNT 4226396	2M HCl	20 mL
REGNT 4221876	RGF-50% Potassium Carbonate	2 mL
REGNT 3867033.5	RGF-Hydrofluoric Acid	4 mL
REGNT 4209237	500 mg/mL Neodymium Carrier	.2 mL
REGNT 4216641	RGF-Neodymium Subtrate	5 mL
REGNT 4229023	RGF-1.5M Ammonium Sulfate	10 mL
REGNT 4221872	RGF-7M Nitric Acid	25 mL
REGNT 4072674	Acetic Acid Glacial ACS Poly Coated Bottle	10 mL
REGNT DGA12292023	2561518	2 g
REGNT 4208393.51	Nitric Acid	5 mL

Comments:
Pipet Id: RAD-GFC-1795419
Data Entry Date2: 26-FEB-2024 00:00

Prep Logbook

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)

Reagent/Solvent Lot ID	Description	Amount	Comments:

Radium-228 Liquid

Filename : RA228.XLS
File type : Excel
Version # : 1.4.3

Tracer S/N : 2097-B
Tracer Exp Date : 7/12/2024
Tracer Volume Added: 0.10

Batch : 2570188
Analyst : JAC02417
Prep Date : 2/26/2024
Ra-228 Method Uncertainty : 0.1268

Geometry: 25mm Filter

Procedure Code : GFC28RAL
Parmname : Radium-228
Required MDA : 3 pCi/L
Ra-228 Abundance : 1.00
Halflife of Ra-228 : 5.75 years
Halflife of Ac-228 : 6.15 hours

Sample Characteristics					Tracer Calculations					
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Tracer Ref. Activity (CPM)	Tracer Ref. Count Uncertainty (%)	Tracer Samp. Activity (CPM)	Tracer Samp. Count Uncertainty (%)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	654532001.1	0.3066	1.8569E-05	1/31/2024 11:54	771.7	2.08%	624.6	2.31%	0.1	0.000200
2	654532002.1	0.3022	1.8497E-05	1/31/2024 13:13	771.7	2.08%	630.0	2.30%	0.1	0.000200
3	654532003.1	0.3051	1.8545E-05	1/31/2024 17:34	771.7	2.08%	599.9	2.36%	0.1	0.000200
4	654532004.1	0.3039	1.8525E-05	1/31/2024 10:06	771.7	2.08%	607.7	2.34%	0.1	0.000200
5	654532005.1	0.3039	1.8525E-05	1/31/2024 15:22	771.7	2.08%	685.7	2.20%	0.1	0.000200
6	654532006.1	0.3145	1.8694E-05	1/31/2024 16:56	771.7	2.08%	625.8	2.31%	0.1	0.000200
7	654532007.1	0.3015	1.8485E-05	1/31/2024 13:13	771.7	2.08%	595.8	2.37%	0.1	0.000200
8	654532008.1	0.3043	1.8532E-05	1/31/2024 7:55	771.7	2.08%	601.5	2.35%	0.1	0.000200
9	654534001.1	0.3102	1.8627E-05	2/1/2024 11:36	771.7	2.08%	690.7	2.20%	0.1	0.000200
10	654534002.1	0.3005	1.8468E-05	2/1/2024 13:02	771.7	2.08%	675.4	2.22%	0.1	0.000200
11	654534003.1	0.3008	1.8473E-05	2/1/2024 14:43	771.7	2.08%	613.2	2.33%	0.1	0.000200
12	654534004.1	0.3003	1.8465E-05	2/1/2024 12:40	771.7	2.08%	643.5	2.28%	0.1	0.000200
13	654534005.1	0.3002	1.8463E-05	2/1/2024 13:02	771.7	2.08%	648.7	2.27%	0.1	0.000200
14	654534006.1	0.3043	1.8532E-05	2/1/2024 9:40	771.7	2.08%	640.1	2.28%	0.1	0.000200
15	655017001.1	0.3081	1.8594E-05	2/7/2024 15:20	771.7	2.08%	629.9	2.30%	0.1	0.000200
16	655017002.1	0.3016	1.8487E-05	2/7/2024 11:14	771.7	2.08%	650.3	2.26%	0.1	0.000200
17	655017003.1	0.3020	1.8493E-05	2/7/2024 12:43	771.7	2.08%	643.4	2.28%	0.1	0.000200
18	655017004.1	0.3036	1.8520E-05	2/7/2024 14:18	771.7	2.08%	587.3	2.38%	0.1	0.000200
19	655017005.1	0.3003	1.8465E-05	2/7/2024 12:43	771.7	2.08%	639.8	2.28%	0.1	0.000200
20	655017006.1	0.3075	1.8584E-05	2/7/2024 9:18	771.7	2.08%	601.8	2.35%	0.1	0.000200
21	1205653413.1	0.3145	1.8694E-05	2/26/2024 0:00	771.7	2.08%	630.8	2.30%	0.1	0.000200
22	1205653414.1	0.3022	1.8497E-05	1/31/2024 11:54	771.7	2.08%	633.3	2.29%	0.1	0.000200
23	1205653415.1	0.3145	1.8694E-05	2/26/2024 0:00	771.7	2.08%	622.0	2.32%	0.1	0.000200

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-063
Instrument SOP: GL-RAD-I-016

Count raw Data

Pos.	Detector ID	Counting Time (min.)	Gross Counts Alpha	Gross Counts Beta	Beta cpm	Count Start Date/Time	Ac-228 Ingrowth Date/Time	Ac-228 Decay Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Ingrowth	Ac-228 Count Correction	Calculated Sample Recovery %	Sample Recovery Error %
1	1D	60	9	49	0.817	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.990	0.730	0.993	1.057	80.9%	3.12%
2	3B	60	7	44	0.733	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.990	0.730	0.993	1.057	81.6%	3.11%
3	5D	60	2	41	0.683	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.991	0.730	0.993	1.057	77.7%	3.16%
4	6B	70	6	84	1.200	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.990	0.730	0.993	1.067	78.7%	3.14%
5	7A	60	5	35	0.583	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.991	0.730	0.993	1.057	88.9%	3.04%
6	7D	60	7	26	0.433	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.991	0.730	0.993	1.057	81.1%	3.12%
7	8D	70	17	87	1.243	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.990	0.729	0.993	1.067	77.2%	3.17%
8	9A	60	11	64	1.067	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.990	0.729	0.993	1.057	77.9%	3.15%
9	9B	60	12	86	1.433	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.729	0.993	1.057	89.5%	3.04%
10	9D	60	12	53	0.883	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.729	0.993	1.057	87.5%	3.06%
11	11A	80	16	130	1.625	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.728	0.993	1.077	79.5%	3.14%
12	11C	60	12	55	0.917	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.728	0.993	1.057	83.4%	3.10%
13	11D	60	11	36	0.600	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.728	0.993	1.057	84.1%	3.09%
14	12A	80	5	141	1.763	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.728	0.993	1.077	82.9%	3.10%
15	12B	60	6	63	1.050	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	81.6%	3.11%
16	12C	60	17	40	0.667	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	84.3%	3.08%
17	12D	60	5	29	0.483	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	83.4%	3.10%
18	13A	60	10	57	0.950	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	76.1%	3.17%
19	13B	60	9	77	1.283	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	82.9%	3.10%
20	13D	60	16	69	1.150	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.727	0.993	1.057	78.0%	3.15%
21	14A	110	12	207	1.882	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.999	0.729	0.993	1.107	81.7%	3.11%
22	14B	60	6	22	0.367	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.990	0.729	0.993	1.057	82.1%	3.11%
23	14C	60	6	920	15.333	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.999	0.729	0.993	1.057	80.6%	3.13%

Pos.	Calibration Data: Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Bkg cpm	Weekly Bkg Count Start Date/Time	Bkg Count Time (min.)
1	PIC	6/1/2023	5/31/2024	0.6071	0.00692	0.780	2/23/2024 17:51	500
2	PIC	6/1/2023	5/31/2024	0.6266	0.01614	0.598	2/23/2024 17:51	500
3	PIC	6/1/2023	5/31/2024	0.6566	0.00925	0.480	2/23/2024 17:52	500
4	PIC	6/1/2023	5/31/2024	0.5957	0.00851	1.020	2/23/2024 17:49	500
5	PIC	6/1/2023	5/31/2024	0.6229	0.00594	0.372	2/23/2024 17:49	500
6	PIC	6/1/2023	5/31/2024	0.6247	0.01113	0.432	2/23/2024 17:50	500
7	PIC	6/1/2023	5/31/2024	0.6073	0.00609	1.076	2/23/2024 17:50	500
8	PIC	6/1/2023	5/31/2024	0.6343	0.00758	0.710	2/23/2024 17:50	500
9	PIC	6/1/2023	5/31/2024	0.6496	0.00754	0.858	2/23/2024 17:50	500
10	PIC	6/1/2023	5/31/2024	0.6292	0.02610	0.692	2/23/2024 17:50	500
11	PIC	6/1/2023	5/31/2024	0.6466	0.01317	1.432	2/23/2024 17:48	500
12	PIC	6/1/2023	5/31/2024	0.6409	0.01278	0.858	2/23/2024 17:49	500
13	PIC	6/1/2023	5/31/2024	0.6379	0.01068	0.480	2/23/2024 17:49	500
14	PIC	6/1/2023	5/31/2024	0.6537	0.01964	1.436	2/23/2024 17:49	500
15	PIC	6/1/2023	5/31/2024	0.6488	0.01114	0.920	2/23/2024 17:49	500
16	PIC	6/1/2023	5/31/2024	0.6434	0.01666	0.548	2/23/2024 17:49	500
17	PIC	6/1/2023	5/31/2024	0.6498	0.01845	0.398	2/23/2024 17:49	500
18	PIC	6/1/2023	5/31/2024	0.6259	0.00714	0.948	2/23/2024 17:49	500
19	PIC	6/1/2023	5/31/2024	0.6399	0.00967	0.668	2/23/2024 17:49	500
20	PIC	6/1/2023	5/31/2024	0.6360	0.01144	0.882	2/23/2024 17:49	500
21	PIC	6/1/2023	5/31/2024	0.6482	0.02119	1.890	2/24/2024 11:03	500
22	PIC	6/1/2023	5/31/2024	0.6549	0.01028	0.282	2/23/2024 17:53	500
23	PIC	6/1/2023	5/31/2024	0.6309	0.01828	0.668	2/23/2024 17:53	500

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : N/A
Spike Exp Date : N/A
Spike Activity (dpm/ml): N/A
Spike Volume Added: N/A

LCS S/N : 2051-D
LCS Exp Date : 7/12/2024
LCS Activity (dpm/ml): 503.35
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	1.2378	0.8739	3	1.9679	**0.1614**	335.94%	0.0367	0.1232	1.0629	1.0637		SAMPLE				
2	1.0563	0.7457	3	1.7060	**0.5807**	85.67%	0.1353	0.1158	0.9742	0.9856		SAMPLE				
3	0.9395	0.6633	3	1.5396	**0.8662**	54.75%	0.2033	0.1111	0.9278	0.9541		SAMPLE				
4	1.4102	0.9956	3	2.1925	**0.8453**	77.01%	0.1800	0.1385	1.2748	1.2931		SAMPLE				
5	0.7657	0.5406	3	1.2784	**0.8335**	48.51%	0.2113	0.1023	0.7908	0.8191		SAMPLE				
6	0.8712	0.6151	3	1.4384	**5.552E-03**	6744.26%	0.0013	0.0899	0.7339	0.7341		SAMPLE				
7	1.4615	1.0318	3	2.2667	**0.7906**	84.62%	0.1669	0.1411	1.3103	1.3259		SAMPLE				
8	1.1835	0.8356	3	1.8918	**1.5737**	38.98%	0.3567	0.1386	1.1982	1.2644		SAMPLE				
9	1.0850	0.7660	3	1.7161	**2.1170**	27.99%	0.5753	0.1600	1.1541	1.2750		SAMPLE				
10	1.0622	0.7499	3	1.7003	**0.7674**	66.45%	0.1913	0.1269	0.9977	1.0176		SAMPLE				
11	1.4702	1.0379	3	2.2401	**0.8451**	78.95%	0.1930	0.1522	1.3066	1.3245		SAMPLE				
12	1.2209	0.8620	3	1.9310	**0.2429**	222.23%	0.0587	0.1304	1.0579	1.0597		SAMPLE				
13	0.9105	0.6428	3	1.4920	**0.4954**	87.30%	0.1200	0.1047	0.8471	0.8566		SAMPLE				
14	1.3795	0.9740	3	2.1018	**1.3397**	48.47%	0.3265	0.1578	1.2691	1.3156		SAMPLE				
15	1.2414	0.8765	3	1.9562	**0.5285**	107.03%	0.1300	0.1391	1.1082	1.1165		SAMPLE				
16	0.9563	0.6751	3	1.5531	**0.4815**	93.17%	0.1187	0.1105	0.8787	0.8875		SAMPLE				
17	0.8145	0.5751	3	1.3529	**0.3461**	110.31%	0.0853	0.0941	0.7479	0.7532		SAMPLE				
18	1.4225	1.0043	3	2.2381	**9.179E-03**	6657.58%	0.0020	0.1332	1.1978	1.1979		SAMPLE				
19	1.0840	0.7653	3	1.7390	**2.5637**	24.71%	0.6153	0.1507	1.2310	1.3957		SAMPLE				
20	1.3015	0.9189	3	2.0554	**1.1667**	54.09%	0.2680	0.1447	1.2345	1.2704		SAMPLE				
21	1.3961	0.9856	3	2.0841	**-0.0339**	1766.42%	-0.0082	0.1445	1.1723	1.1723		MB				
22	0.6915	0.4882	3	1.1809	**0.3463**	96.55%	0.0847	0.0817	0.6550	0.6610	654532001.1	DUP	* 0.0%			
23	1.0720	0.7569	3	1.7198	**60.4261**	5.01%	14.6653	0.5068	4.0932	16.1462		LCS			72.0872	83.8%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine	Batch ID
654532001	1D	60	9	49	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532002	3B	60	7	44	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532003	5D	60	2	41	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532004	6B	70	6	84	2/29/2024 12:05	2/29/2024 13:15	PIC	2570188
654532005	7A	60	5	35	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532006	7D	60	7	26	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532007	8D	70	17	87	2/29/2024 12:05	2/29/2024 13:15	PIC	2570188
654532008	9A	60	11	64	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534001	9B	60	12	86	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534002	9D	60	12	53	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534003	11A	80	16	130	2/29/2024 12:06	2/29/2024 13:26	PIC	2570188
654534004	11C	60	12	55	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534005	11D	60	11	36	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534006	12A	80	5	141	2/29/2024 12:06	2/29/2024 13:26	PIC	2570188
655017001	12B	60	6	63	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017002	12C	60	17	40	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017003	12D	60	5	29	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017004	13A	60	10	57	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017005	13B	60	9	77	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017006	13D	60	16	69	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
1205653413	14A	110	12	207	2/29/2024 12:06	2/29/2024 13:56	PIC	2570188
1205653414	14B	60	6	22	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
1205653415	14C	60	6	920	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188

ASSAY		29-Feb-24	11:54:29
Wizard 1480 s/n 4800440			
Protocol	id	9	228_REC2
Time	limit	180	
Count	limit	50000	
Isotope	Ba-133		
Protocol	date	26-Sep-13	15:01:58
Run	id.	45	

Samp_ID	POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
REF	1	87	1	180	2315	771.7	2.08		11:54:36
654532001	2	87	2	180	1873	624.6	2.31	80.94	11:57:48
654532002	3	87	3	180	1890	630	2.3	81.64	12:00:59
654532003	4	87	4	180	1799	599.9	2.36	77.74	12:04:11
654532004	5	87	5	180	1823	607.7	2.34	78.75	12:07:22
654532005	6	99	6	180	2057	685.7	2.2	88.86	12:10:47
654532006	7	99	7	180	1877	625.8	2.31	81.09	12:13:58
654532007	8	99	8	180	1787	595.8	2.37	77.21	12:17:09
654532008	9	99	9	180	1804	601.5	2.35	77.94	12:20:21
654534001	10	99	10	180	2072	690.7	2.2	89.50	12:23:32
654534002	11	37	11	180	2026	675.4	2.22	87.52	12:26:57
654534003	12	37	12	180	1839	613.2	2.33	79.46	12:30:08
654534004	13	37	13	180	1930	643.5	2.28	83.39	12:33:20
654534005	14	37	14	180	1946	648.7	2.27	84.06	12:36:31
654534006	15	37	15	180	1920	640.1	2.28	82.95	12:39:42
655017001	16	81	16	180	1890	629.9	2.3	81.62	12:43:06
655017002	17	81	17	180	1951	650.3	2.26	84.27	12:46:18
655017003	18	81	18	180	1930	643.4	2.28	83.37	12:49:29
655017004	19	81	19	180	1762	587.3	2.38	76.10	12:52:40
655017005	20	81	20	180	1919	639.8	2.28	82.91	12:55:52
655017006	21	84	21	180	1805	601.8	2.35	77.98	12:59:29
1205653413	22	84	22	180	1892	630.8	2.3	81.74	13:02:40
1205653414	23	84	23	180	1900	633.3	2.29	82.07	13:05:52
1205653415	24	84	24	180	1866	622	2.32	80.60	13:09:03

END OF ASSAY

Continuing Calibration Data

Gas Flow Proportional Counter Checks for 29-Feb-2024

Detectors LB4100 E1 through H4 and PIC 1A through 14D and G5400W 1W through 1Z and LB4200 GA1 through OD4

Short Name	Status	Parmname	Run Time	Count Time	CPM or dec	Low Limit	High Limit	Stdev
LB4100F4	Below	Alpha eff	29-Feb 08:14	5	16766	16940	18140	-3.87
LB4100F4	Above	Alpha XTalk	29-Feb 08:14	5	0.199	0.170	0.193	+4.84
LB4100H1	Above	Alpha bkg	29-Feb 04:47	60	0.517	-8.08E-2	0.225	+8.71
LB4100H1	Above	Alpha eff	29-Feb 05:54	5	12028	7523	11160	+4.43
LB4100H1	Above	Beta bkg	29-Feb 04:47	60	3.433	-5.15E-1	3.743	+2.56
LB4100H2	Above	Alpha bkg	29-Feb 04:47	60	0.333	0.057	0.420	+1.57
LB4200GB2	Below	Alpha eff	29-Feb 06:08	5	9343	9443	9898	-4.32
LB4200GB2	Above	Beta bkg	29-Feb 15:44	60	12.117	0.129	1.304	+58.19
LB4200GD3	Above	Alpha bkg	29-Feb 15:44	60	0.917	-1.04E-1	0.321	+11.41
LB4200OB1	Above	Alpha bkg	29-Feb 11:54	60	0.767	-1.05E-1	0.362	+8.20
LB4200OC2	need 2nd	Alpha bkg	29-Feb 11:54	60	0.100	-1.37E-1	0.428	-0.49
LB4200OC2	need 2nd	Beta bkg	29-Feb 11:54	60	1.383	-6.67E-2	2.499	+0.39
PIC2D	Above	Beta bkg	29-Feb 10:06	60	2.000	0.417	1.868	+3.55
PIC4C	Above	Alpha bkg	29-Feb 06:36	60	0.400	-2.25E-1	1.312	-0.56

INSTRUMENTS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

The following detectors may not have properly transferred to the LIMS system

Reviewed by Jc Poparad

Date 3/4/24

GEL Laboratories LLC

Jasmine Conley

2/29/24

Runlogs

Instrument Run Log

Instrument Type: GFPC **Batch ID: 2570188**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
654532001	SAMPLE	JE1	PIC1D	FEB-29-24 12:05:37	DONE	25mm Filter	01-JUN-23 00:00
654532002	SAMPLE	JE1	PIC3B	FEB-29-24 12:05:40	DONE	25mm Filter	01-JUN-23 00:00
654532004	SAMPLE	JE1	PIC6B	FEB-29-24 12:05:41	DONE	25mm Filter	01-JUN-23 00:00
654532003	SAMPLE	JE1	PIC5D	FEB-29-24 12:05:45	DONE	25mm Filter	01-JUN-23 00:00
654532005	SAMPLE	JE1	PIC7A	FEB-29-24 12:05:45	DONE	25mm Filter	01-JUN-23 00:00
654532006	SAMPLE	JE1	PIC7D	FEB-29-24 12:05:48	DONE	25mm Filter	01-JUN-23 00:00
654532007	SAMPLE	JE1	PIC8D	FEB-29-24 12:05:59	DONE	25mm Filter	01-JUN-23 00:00
654532008	SAMPLE	JE1	PIC9A	FEB-29-24 12:06:03	DONE	25mm Filter	01-JUN-23 00:00
654534001	SAMPLE	JE1	PIC9B	FEB-29-24 12:06:07	DONE	25mm Filter	01-JUN-23 00:00
654534002	SAMPLE	JE1	PIC9D	FEB-29-24 12:06:10	DONE	25mm Filter	01-JUN-23 00:00
1205653413	MB	JE1	PIC14A	FEB-29-24 12:06:30	DONE	25mm Filter	01-JUN-23 00:00
1205653414	DUP	JE1	PIC14B	FEB-29-24 12:06:32	DONE	25mm Filter	01-JUN-23 00:00
1205653415	LCS	JE1	PIC14C	FEB-29-24 12:06:36	DONE	25mm Filter	01-JUN-23 00:00
654534003	SAMPLE	JE1	PIC11A	FEB-29-24 12:06:43	DONE	25mm Filter	01-JUN-23 00:00
654534004	SAMPLE	JE1	PIC11C	FEB-29-24 12:06:48	DONE	25mm Filter	01-JUN-23 00:00
654534005	SAMPLE	JE1	PIC11D	FEB-29-24 12:06:51	DONE	25mm Filter	01-JUN-23 00:00
654534006	SAMPLE	JE1	PIC12A	FEB-29-24 12:06:57	DONE	25mm Filter	01-JUN-23 00:00
655017001	SAMPLE	JE1	PIC12B	FEB-29-24 12:07:00	DONE	25mm Filter	01-JUN-23 00:00
655017002	SAMPLE	JE1	PIC12C	FEB-29-24 12:07:04	DONE	25mm Filter	01-JUN-23 00:00
655017003	SAMPLE	JE1	PIC12D	FEB-29-24 12:07:08	DONE	25mm Filter	01-JUN-23 00:00
655017004	SAMPLE	JE1	PIC13A	FEB-29-24 12:07:13	DONE	25mm Filter	01-JUN-23 00:00
655017005	SAMPLE	JE1	PIC13B	FEB-29-24 12:07:18	DONE	25mm Filter	01-JUN-23 00:00
655017006	SAMPLE	JE1	PIC13D	FEB-29-24 12:07:22	DONE	25mm Filter	01-JUN-23 00:00

Lucas Cell Raw Data

Batch 2570163 Check-list

This check-list was completed on 01-MAR-24 by Elizabeth Krouse

This batch was reviewed by Elizabeth Krouse on 01-MAR-24 and Lyndsey Pace on 03-MAR-24.

Batch ID: 2570163 **Product:** LUC26RAL **Description:** Lucas Cell Radium 226 GL-RAD-A-008

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?		No	
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
10	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-226 in Liquid

Batch ID: **2570163**
Analyst: Marisa Johnson (MJ2)
Method: EPA 903.1 Modified
Lab SOP: GL-RAD-A-008 REV# 15
Instrument: LUCAS-C202389980

Due Dates for Lab: 02-MAR-2024 **Hold: 03-JAN-2024** **Package: 05-MAR-2024** **SDG: 04-M**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
MS	1205653336	Ra-226 emanation spike	1715-I	.1	mL
LCS	1205653337	Ra-226 emanation spike	1715-I	.2	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	End Degas (date)	CELL #	End Transfer (date)	Start Count Time (date)	Background Counts	Total Counts
1	654233023	26-FEB-2024	1	509.31	509.31	02/26/24 12:15	102	02/29/24 06:27	02/29/24 09:56	2	10
2	654233024	26-FEB-2024	1	507.13	507.13	02/26/24 12:15	206	02/29/24 06:27	02/29/24 09:56	3	14
3	654233025	26-FEB-2024	1	501.17	501.17	02/26/24 12:15	301	02/29/24 06:27	02/29/24 09:56	2	18
4	654233026	26-FEB-2024	1	503.26	503.26	02/26/24 12:15	405	02/29/24 06:27	02/29/24 09:56	1	3
5	654233027	26-FEB-2024	1	501.42	501.42	02/26/24 12:15	504	02/29/24 06:27	02/29/24 09:56	1	8
6	654233028	26-FEB-2024	1	504.69	504.69	02/26/24 12:15	602	02/29/24 06:27	02/29/24 09:56	1	15
7	654532001	26-FEB-2024	1	504.05	504.05	02/26/24 12:15	803	02/29/24 06:27	02/29/24 09:56	8	18
8	654532002	26-FEB-2024	1	500.49	500.49	02/26/24 12:15	105	02/29/24 06:54	02/29/24 10:35	1	27
9	654532003	26-FEB-2024	1	500.62	500.62	02/26/24 12:15	207	02/29/24 06:54	02/29/24 10:35	1	12
10	654532004	26-FEB-2024	1	503.27	503.27	02/26/24 12:15	305	02/29/24 06:54	02/29/24 10:35	4	13
11	654532005	26-FEB-2024	1	502.84	502.84	02/26/24 12:15	401	02/29/24 06:54	02/29/24 10:35	6	10
12	654532006	26-FEB-2024	1	504.97	504.97	02/26/24 12:15	505	02/29/24 06:54	02/29/24 10:35	3	10
13	654532007	26-FEB-2024	1	507.77	507.77	02/26/24 12:15	608	02/29/24 06:54	02/29/24 10:35	6	15
14	654532008	26-FEB-2024	1	505.81	505.81	02/26/24 12:15	707	02/29/24 06:54	02/29/24 10:35	4	35
15	654534001	26-FEB-2024	1	502.15	502.15	02/26/24 12:15	802	02/29/24 06:54	02/29/24 10:35	8	40
16	654534002	26-FEB-2024	1	502.84	502.84	02/26/24 12:15	106	02/29/24 07:19	02/29/24 11:21	8	34
17	654534003	26-FEB-2024	1	503.4	503.4	02/26/24 12:15	204	02/29/24 07:19	02/29/24 11:21	5	35
18	654534004	26-FEB-2024	1	504.64	504.64	02/26/24 12:15	304	02/29/24 07:19	02/29/24 11:21	1	12
19	654534005	26-FEB-2024	1	505.84	505.84	02/26/24 12:15	409	02/29/24 07:19	02/29/24 11:21	4	19
20	654534006	26-FEB-2024	1	500.84	500.84	02/26/24 12:15	501	02/29/24 07:19	02/29/24 11:21	7	13
21	1205653334 MB	26-FEB-2024	1		509.31	02/26/24 12:15	706	02/29/24 06:27	02/29/24 09:56	7	12
22	1205653335 DUP (654233023)	26-FEB-2024	1	503.42	503.42	02/26/24 12:15	605	02/29/24 07:19	02/29/24 11:21	1	15
23	1205653336 MS (654233023)	26-FEB-2024	1	116.95	116.95	02/26/24 12:15	708	02/29/24 07:19	02/29/24 11:21	2	412
24	1205653337 LCS	26-FEB-2024	1		509.31	02/26/24 11:10	701	02/29/24 07:45	03/01/24 04:25	4	408

Reagent/Solvent Lot ID	Description	Amount

Comments:
Data Entry Date2: 26-FEB-2024 00:00

Radium-226 Liquid

Filename : RA226.XLS
File type : Excel
Version # : 1.3.2

Batch : 2570163
Analyst : MAR02577
Prep Date : 2/26/2024
Ra-226 Method Uncertainty : 0.073648

Procedure Code : LUC26RAL
Parmname : Radium-226
Required MDA : 1 pCi/L
Halflife of Ra-226 : 1600 years
Ra-226 Abundance : 1.00
Halflife of Rn-222: 3.8235 days

Batch counted on : LUCAS CELL DETECTOR
BKG Count time : 30 min

Sample Characteristics					Count Raw Data							
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Background Count Time (min.)	Cell Efficiency (cpm/dpm)
1	654233023.1	0.5093	2.0293E-05	11/29/2023 10:35	102	30	10	0.333	2	0.067	30	1.4860
2	654233024.1	0.5071	2.0285E-05	11/29/2023 11:52	206	30	14	0.467	3	0.100	30	1.5880
3	654233025.1	0.5012	2.0261E-05	11/29/2023 12:14	301	30	18	0.600	2	0.067	30	1.5220
4	654233026.1	0.5033	2.0269E-05	11/29/2023 13:38	405	30	3	0.100	1	0.033	30	1.7990
5	654233027.1	0.5014	2.0262E-05	7/7/2023 15:05	504	30	8	0.267	1	0.033	30	1.3720
6	654233028.1	0.5047	2.0275E-05	7/7/2023 15:17	602	30	15	0.500	1	0.033	30	1.7010
7	654532001.1	0.5041	2.0272E-05	1/31/2024 11:54	803	30	18	0.600	8	0.267	30	1.4760
8	654532002.1	0.5005	2.0258E-05	1/31/2024 13:13	105	30	27	0.900	1	0.033	30	1.5340
9	654532003.1	0.5006	2.0258E-05	1/31/2024 17:34	207	30	12	0.400	1	0.033	30	1.8080
10	654532004.1	0.5033	2.0269E-05	1/31/2024 10:06	305	30	13	0.433	4	0.133	30	1.5280
11	654532005.1	0.5028	2.0267E-05	1/31/2024 15:22	401	30	10	0.333	6	0.200	30	1.9410
12	654532006.1	0.5050	2.0276E-05	1/31/2024 16:56	505	30	10	0.333	3	0.100	30	1.7470
13	654532007.1	0.5078	2.0287E-05	1/31/2024 13:13	608	30	15	0.500	6	0.200	30	1.8960
14	654532008.1	0.5058	2.0279E-05	1/31/2024 7:55	707	30	35	1.167	4	0.133	30	1.5500
15	654534001.1	0.5022	2.0265E-05	2/1/2024 11:36	802	30	40	1.333	8	0.267	30	1.5330
16	654534002.1	0.5028	2.0267E-05	2/1/2024 13:02	106	30	34	1.133	8	0.267	30	1.5250
17	654534003.1	0.5034	2.0270E-05	2/1/2024 14:43	204	30	35	1.167	5	0.167	30	1.5970
18	654534004.1	0.5046	2.0275E-05	2/1/2024 12:40	304	30	12	0.400	1	0.033	30	1.4940
19	654534005.1	0.5058	2.0280E-05	2/1/2024 13:02	409	30	19	0.633	4	0.133	30	1.9030
20	654534006.1	0.5008	2.0259E-05	2/1/2024 9:40	501	30	13	0.433	7	0.233	30	1.7160
21	1205653334.1	0.5093	2.0293E-05	2/26/2024 0:00	706	30	12	0.400	7	0.233	30	1.5280
22	1205653335.1	0.5034	2.0270E-05	11/29/2023 10:35	605	30	15	0.500	1	0.033	30	2.0280
23	1205653336.1	0.1170	1.2362E-05	11/29/2023 10:35	708	30	412	13.733	2	0.067	30	1.5430
24	1205653337.1	0.5093	2.0293E-05	2/26/2024 0:00	701	15	408	27.200	4	0.133	30	1.5970

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-008
Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections De-Gas to Ingrowth	Ingrowth to Count	During Count	Ra-226 Decay
2.300%	5/1/2023	4/30/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
8.600%	8/1/2023	7/31/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
5.700%	11/1/2023	10/31/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
4.600%	2/1/2024	1/31/2025	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
1.100%	10/10/2023	5/31/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
9.900%	7/1/2023	6/30/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
4.700%	4/8/2023	3/31/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
7.900%	5/1/2023	4/30/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
4.000%	10/10/2023	7/31/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
7.000%	11/1/2023	10/31/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
7.800%	2/1/2024	1/31/2025	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
8.200%	6/1/2023	5/31/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
7.800%	7/1/2023	6/30/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
5.800%	11/1/2023	10/31/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
6.100%	4/8/2023	3/31/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
3.400%	5/1/2023	4/30/2024	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
2.600%	8/1/2023	7/31/2024	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
2.100%	11/1/2023	10/31/2024	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
4.900%	2/1/2024	1/31/2025	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
5.500%	6/1/2023	5/31/2024	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
5.100%	11/1/2023	10/31/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
2.300%	10/10/2023	6/30/2024	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
5.200%	11/1/2023	10/31/2024	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
5.900%	11/1/2023	10/31/2024	2/26/2024 11:10	2/29/2024 7:45	3/1/2024 4:24	0.404	0.856	1.001	1.000

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

Spike S/N : 1715-I
Spike Exp Date : 8/29/2024
Spike Activity (dpm/ml): 304.15
Spike Volume Added: 0.10

LCS S/N : 1715-I
LCS Exp Date : 8/29/2024
LCS Activity (dpm/ml): 304.15
LCS Volume Added: 0.20

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	0.2417	0.1706	1	0.4969	**0.4149**	43.36%	0.2667	0.1155	0.3521	0.3577		SAMPLE				
2	0.2782	0.1964	1	0.5390	**0.5362**	38.46%	0.3667	0.1374	0.3939	0.4115		SAMPLE				
3	0.2398	0.1693	1	0.4930	**0.8234**	28.53%	0.5333	0.1491	0.4511	0.4755		SAMPLE				
4	0.1429	0.1009	1	0.3318	**0.0867**	100.11%	0.0667	0.0667	0.1700	0.1706		SAMPLE				
5	0.1880	0.1328	1	0.4367	**0.3995**	42.87%	0.2333	0.1000	0.3356	0.3406		SAMPLE				
6	0.1507	0.1064	1	0.3500	**0.6402**	30.24%	0.4667	0.1333	0.3585	0.3905		SAMPLE				
7	0.4917	0.3471	1	0.8526	**0.5276**	51.21%	0.3333	0.1700	0.5273	0.5349		SAMPLE				
8	0.1678	0.1185	1	0.3898	**1.3243**	21.83%	0.8667	0.1764	0.5283	0.5980		SAMPLE				
9	0.1424	0.1005	1	0.3306	**0.4752**	33.02%	0.3667	0.1202	0.3053	0.3151		SAMPLE				
10	0.3351	0.2366	1	0.6258	**0.4577**	46.34%	0.3000	0.1374	0.4110	0.4209		SAMPLE				
11	0.3234	0.2283	1	0.5768	**0.1603**	100.30%	0.1333	0.1333	0.3141	0.3159		SAMPLE				
12	0.2530	0.1786	1	0.4902	**0.3103**	52.16%	0.2333	0.1202	0.3133	0.3204		SAMPLE				
13	0.3278	0.2315	1	0.5848	**0.3656**	51.51%	0.3000	0.1528	0.3648	0.3728		SAMPLE				
14	0.3287	0.2321	1	0.6138	**1.5462**	20.96%	1.0333	0.2082	0.6105	0.6734		SAMPLE				
15	0.4734	0.3343	1	0.8209	**1.6256**	22.49%	1.0667	0.2309	0.6898	0.7541		SAMPLE				
16	0.4743	0.3348	1	0.8223	**1.3230**	25.16%	0.8667	0.2160	0.6464	0.6797		SAMPLE				
17	0.3576	0.2525	1	0.6506	**1.4561**	21.24%	1.0000	0.2108	0.6017	0.6416		SAMPLE				
18	0.1705	0.1204	1	0.3961	**0.5693**	32.84%	0.3667	0.1202	0.3658	0.3756		SAMPLE				
19	0.2671	0.1886	1	0.4988	**0.6081**	32.35%	0.5000	0.1599	0.3810	0.3954		SAMPLE				
20	0.3958	0.2795	1	0.6951	**0.2724**	74.74%	0.2000	0.1491	0.3980	0.4010		SAMPLE				
21	0.4397	0.3104	1	0.7721	**0.2522**	87.33%	0.1667	0.1453	0.4309	0.4332		MB				
22	0.1260	0.0889	1	0.2925	**0.5351**	28.66%	0.4667	0.1333	0.2997	0.3104	654233023.1	DUP	25.3%			
23	1.0078	0.7115	1	2.0717	**88.6649**	7.19%	13.6667	0.6782	8.6243	17.8844	654233023.1	MS			117.1587	75.7%
24	0.4311	0.3044	1	0.9293	**43.3733**	7.72%	27.0667	1.3482	4.2346	9.0713		LCS			53.7993	80.6%

Continuing Calibration Data

Ludlum Alpha Scintillation Counter Checks for 29-FEB-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	07:25	1	1.10E+05	110471	-2.3		
LUCAS2	EFF	07:27	1	1.28E+05	127645	-1.78		
LUCAS3	EFF	07:46	1	92517	92517	0.67		
LUCAS4	EFF	07:28	1	1.23E+05	123364	-2.25		
LUCAS5	EFF	07:36	1	1.28E+05	127851	-1.27		
LUCAS6	EFF	07:42	1	1.29E+05	129111	1.58		
LUCAS7	EFF	07:43	1	1.29E+05	129446	-1.89		
LUCAS8	EFF	07:45	1	1.27E+05	126535	0.95		

Reviewed by: Elizabeth Krouse **Date:** 29-FEB-24

GEL Laboratories LLC

Ludlum Alpha Scintillation Counter Checks for 01-MAR-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	07:15	1	1.11E+05	111073	-1.5		
LUCAS2	EFF	07:22	1	1.28E+05	127648	-1.77		
LUCAS3	EFF	07:48	1	91011	91011	-0.5		
LUCAS4	EFF	07:58	1	1.23E+05	123220	-2.42		
LUCAS5	EFF	07:30	1	1.28E+05	127688	-1.45		
LUCAS6	EFF	07:36	1	1.27E+05	127020	-1.39		
LUCAS7	EFF	07:41	1	1.29E+05	128680	-2.89		
LUCAS8	EFF	07:45	1	1.26E+05	125869	0.85		

Reviewed by: Elizabeth Krouse **Date:** 01-MAR-24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR **Batch ID: 2570163**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
654233023	SAMPLE	MJ2	LUCAS1	FEB-29-24 09:56:00	DONE	Lucas Cell	01-MAY-23 00:00
654233024	SAMPLE	MJ2	LUCAS2	FEB-29-24 09:56:00	DONE	Lucas Cell	01-AUG-23 00:00
654233025	SAMPLE	MJ2	LUCAS3	FEB-29-24 09:56:00	DONE	Lucas Cell	01-NOV-23 00:00
654233026	SAMPLE	MJ2	LUCAS4	FEB-29-24 09:56:00	DONE	Lucas Cell	01-FEB-24 00:00
654233027	SAMPLE	MJ2	LUCAS5	FEB-29-24 09:56:00	DONE	Lucas Cell	01-JUN-23 00:00
654233028	SAMPLE	MJ2	LUCAS6	FEB-29-24 09:56:00	DONE	Lucas Cell	01-JUL-23 00:00
654532001	SAMPLE	MJ2	LUCAS8	FEB-29-24 09:56:00	DONE	Lucas Cell	08-APR-23 00:00
1205653334	MB	MJ2	LUCAS7	FEB-29-24 09:56:00	DONE	Lucas Cell	01-NOV-23 00:00
654532002	SAMPLE	MJ2	LUCAS1	FEB-29-24 10:35:00	DONE	Lucas Cell	01-MAY-23 00:00
654532003	SAMPLE	MJ2	LUCAS2	FEB-29-24 10:35:00	DONE	Lucas Cell	01-AUG-23 00:00
654532004	SAMPLE	MJ2	LUCAS3	FEB-29-24 10:35:00	DONE	Lucas Cell	01-NOV-23 00:00
654532005	SAMPLE	MJ2	LUCAS4	FEB-29-24 10:35:00	DONE	Lucas Cell	01-FEB-24 00:00
654532006	SAMPLE	MJ2	LUCAS5	FEB-29-24 10:35:00	DONE	Lucas Cell	01-JUN-23 00:00
654532007	SAMPLE	MJ2	LUCAS6	FEB-29-24 10:35:00	DONE	Lucas Cell	01-JUL-23 00:00
654532008	SAMPLE	MJ2	LUCAS7	FEB-29-24 10:35:00	DONE	Lucas Cell	01-NOV-23 00:00
654534001	SAMPLE	MJ2	LUCAS8	FEB-29-24 10:35:00	DONE	Lucas Cell	08-APR-23 00:00
654534002	SAMPLE	MJ2	LUCAS1	FEB-29-24 11:21:00	DONE	Lucas Cell	01-MAY-23 00:00
654534003	SAMPLE	MJ2	LUCAS2	FEB-29-24 11:21:00	DONE	Lucas Cell	01-AUG-23 00:00
654534004	SAMPLE	MJ2	LUCAS3	FEB-29-24 11:21:00	DONE	Lucas Cell	01-NOV-23 00:00
654534005	SAMPLE	MJ2	LUCAS4	FEB-29-24 11:21:00	DONE	Lucas Cell	01-FEB-24 00:00
654534006	SAMPLE	MJ2	LUCAS5	FEB-29-24 11:21:00	DONE	Lucas Cell	01-JUN-23 00:00
1205653335	DUP	MJ2	LUCAS6	FEB-29-24 11:21:00	DONE	Lucas Cell	01-JUL-23 00:00
1205653336	MS	MJ2	LUCAS7	FEB-29-24 11:21:00	DONE	Lucas Cell	01-NOV-23 00:00
1205653337	LCS	MJ2	LUCAS7	MAR-01-24 04:24:00	DONE	Lucas Cell	01-NOV-23 00:00

Analytical Laboratory Report

Final Report

Report ID: S58313.01(01)
Generated on 03/05/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
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Report Summary

Lab Sample ID(s): S58313.01-S58313.06
Project: Erickson Semi Annual 16A-16D
Collected Date(s): 02/01/2024
Submitted Date/Time: 02/02/2024 09:15
Sampled by: Marc Wahrer
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

All analyses completed

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2320B	Standard Method 2320 B 2011
SM2340C	Standard Method 2340 C 2011
SM2540C	Standard Method 2540 C 2015
SM2540D	Standard Method 2540 D 2015
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S58313.01	MW-16A L401212-01	Groundwater	02/01/24 11:36
S58313.02	MW-16B L401212-02	Groundwater	02/01/24 13:02
S58313.03	MW-16C L401212-03	Groundwater	02/01/24 14:43
S58313.04	MW-16D L401212-04	Groundwater	02/01/24 12:40
S58313.05	MWT-16B L401212-05	Groundwater	02/01/24 13:02
S58313.06	Field Blank L401212-06	Water	02/01/24 09:40

Lab Sample ID: S58313.01
Sample Tag: MW-16A L401212-01
Collected Date/Time: 02/01/2024 11:36
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.1	IR
2	1L Plastic	None	Yes	2.1	IR
1	125mL Plastic	HNO3	Yes	2.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/09/24 10:59	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 17:01, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	448	100	1.600	mg/L	100	16887-00-6	

Method: E300.0, Run Date: 02/02/24 17:53, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	5.0	0.650	mg/L	25	16984-48-8	
Sulfate	341	25.0	1.475	mg/L	25	14808-79-8	

Method: SM2320B, Run Date: 02/14/24 19:06, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	588	50	2.52	mg/L	5	71-52-3	
Carbonate*	Not detected	50	2.52	mg/L	5	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 13:06, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	756	100	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/08/24 23:53, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,590	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/07/24 22:24, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	6.5	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/07/24 12:38, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.005	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.158	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	0.16	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	

Lab Sample ID: S58313.01 (continued)
Sample Tag: MW-16A L401212-01

Method: E200.8, Run Date: 02/07/24 12:38, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	
Iron	4.38	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/07/24 14:40, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Magnesium	46.9	0.50	0.058	mg/L	5	7439-95-4	
Potassium	1.57	0.50	0.12	mg/L	5	7440-09-7	

Method: E200.8, Run Date: 02/07/24 14:43, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	208	5.0	2.2	mg/L	50	7440-70-2	
Sodium	277	5.0	1.1	mg/L	50	7440-23-5	

Method: E245.1, Run Date: 02/09/24 13:42, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 10:35, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58313.02
Sample Tag: MW-16B L401212-02
Collected Date/Time: 02/01/2024 13:02
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.1	IR
2	1L Plastic	None	Yes	2.1	IR
1	125mL Plastic	HNO3	Yes	2.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/09/24 10:59	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 16:10, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	4.1	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.7	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	17.4	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/14/24 19:19, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	414	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 13:08, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	358	100	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/08/24 23:53, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	364	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/07/24 22:24, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.0	3	1	mg/L	1		b

Metals

Method: E200.8, Run Date: 02/07/24 12:41, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.089	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	0.11	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58313.02 (continued)
Sample Tag: MW-16B L401212-02

Method: E200.8, Run Date: 02/07/24 12:41, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.33	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.020	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.006	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/07/24 14:45, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	81.8	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	32.4	0.50	0.058	mg/L	5	7439-95-4	
Potassium	2.90	0.50	0.12	mg/L	5	7440-09-7	
Sodium	10.3	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/09/24 13:45, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 10:35, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58313.03
Sample Tag: MW-16C L401212-03
Collected Date/Time: 02/01/2024 14:43
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.1	IR
2	1L Plastic	None	Yes	2.1	IR
1	125mL Plastic	HNO3	Yes	2.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/09/24 10:59	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 16:20, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	2.3	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.2	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	7.5	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/14/24 19:25, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	414	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 13:10, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	305	100	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/08/24 23:53, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	328	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/07/24 22:24, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/07/24 12:45, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.003	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.031	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	0.42	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58313.03 (continued)
Sample Tag: MW-16C L401212-03

Method: E200.8, Run Date: 02/07/24 12:45, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.46	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.029	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/07/24 14:46, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	72.6	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	27.9	0.50	0.058	mg/L	5	7439-95-4	
Potassium	4.93	0.50	0.12	mg/L	5	7440-09-7	
Sodium	15.8	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/09/24 13:48, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 10:35, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58313.04
Sample Tag: MW-16D L401212-04
Collected Date/Time: 02/01/2024 12:40
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.1	IR
2	1L Plastic	None	Yes	2.1	IR
1	125mL Plastic	HNO3	Yes	2.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/09/24 10:59	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 16:31, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	7.6	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	0.4	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	4.2	5.0	0.295	mg/L	5	14808-79-8	b

Method: SM2320B, Run Date: 02/14/24 19:34, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	394	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 13:12, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	124	100	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/08/24 23:53, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	380	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/07/24 22:24, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	3.0	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/07/24 12:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.004	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.035	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	5.01	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58313.04 (continued)
Sample Tag: MW-16D L401212-04

Method: E200.8, Run Date: 02/07/24 12:48, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.48	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.028	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.010	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	0.008	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/07/24 14:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	29.3	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	7.10	0.50	0.058	mg/L	5	7439-95-4	
Potassium	9.30	0.50	0.12	mg/L	5	7440-09-7	
Sodium	95.0	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/09/24 13:52, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 10:35, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58313.05
Sample Tag: MWT-16B L401212-05
Collected Date/Time: 02/01/2024 13:02
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.1	IR
2	1L Plastic	None	Yes	2.1	IR
1	125mL Plastic	HNO3	Yes	2.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/09/24 10:59	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 16:41, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	4.0	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.7	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	17.4	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/14/24 19:42, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	422	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 13:14, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	377	100	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/08/24 23:53, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	366	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/07/24 22:24, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/07/24 12:51, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.087	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	0.12	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.00080	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S58313.05 (continued)
Sample Tag: MWT-16B L401212-05

Method: E200.8, Run Date: 02/07/24 12:51, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.32	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.021	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.006	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/07/24 14:51, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	79.9	0.50	0.22	mg/L	5	7440-70-2	
Magnesium	32.1	0.50	0.058	mg/L	5	7439-95-4	
Potassium	2.90	0.50	0.12	mg/L	5	7440-09-7	
Sodium	10.3	0.50	0.11	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 02/09/24 13:55, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 10:35, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S58313.06
Sample Tag: Field Blank L401212-06
Collected Date/Time: 02/01/2024 09:40
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.1	IR
2	1L Plastic	None	Yes	2.1	IR
1	125mL Plastic	HNO3	Yes	2.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/09/24 10:59	CTV	
Metal Digestion	Completed	SW3015A	02/07/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 02/02/24 16:51, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	Not detected	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	Not detected	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 02/14/24 19:46, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	Not detected	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 02/02/24 13:16, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	Not detected	100	2.38	mg/L	10		

Method: SM2540C, Run Date: 02/08/24 23:53, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50	6	mg/L	2		

Method: SM2540D, Run Date: 02/07/24 22:24, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1		

Metals

Method: E200.8, Run Date: 02/07/24 11:54, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00090	mg/L	2	7440-36-0	
Arsenic	Not detected	0.002	0.00058	mg/L	2	7440-38-2	
Barium	Not detected	0.005	0.00036	mg/L	2	7440-39-3	
Beryllium	Not detected	0.001	0.000080	mg/L	2	7440-41-7	
Boron	Not detected	0.04	0.0064	mg/L	2	7440-42-8	
Cadmium	Not detected	0.0005	0.00014	mg/L	2	7440-43-9	
Chromium	Not detected	0.005	0.00030	mg/L	2	7440-47-3	
Cobalt	Not detected	0.005	0.00018	mg/L	2	7440-48-4	
Copper	Not detected	0.005	0.00032	mg/L	2	7440-50-8	
Iron	Not detected	0.02	0.0057	mg/L	2	7439-89-6	

Lab Sample ID: S58313.06 (continued)
Sample Tag: Field Blank L401212-06

Method: E200.8, Run Date: 02/07/24 11:54, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.00018	mg/L	2	7439-92-1	
Lithium*	Not detected	0.005	0.00054	mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005	0.0017	mg/L	2	7439-98-7	
Nickel	Not detected	0.005	0.00046	mg/L	2	7440-02-0	
Selenium	Not detected	0.005	0.0017	mg/L	2	7782-49-2	
Silver	Not detected	0.0005	0.00010	mg/L	2	7440-22-4	
Thallium	Not detected	0.002	0.00014	mg/L	2	7440-28-0	
Vanadium	Not detected	0.005	0.00082	mg/L	2	7440-62-2	
Zinc	Not detected	0.005	0.0013	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 02/07/24 14:13, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	Not detected	0.50	0.087	mg/L	2	7440-70-2	
Magnesium	Not detected	0.50	0.023	mg/L	2	7439-95-4	
Potassium	Not detected	0.50	0.048	mg/L	2	7440-09-7	
Sodium	Not detected	0.50	0.044	mg/L	2	7440-23-5	

Method: E245.1, Run Date: 02/09/24 13:58, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 02/29/24 10:35, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S58313
Client: BWL01 (Board of Water & Light)
Project: Erickson Semi Annual 16A-16D
Submitted: 02/02/2024 09:15 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.1
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[X] Yes	[ ] No	[ ] N/A	Subcontracting needed? Subcontacted to:	GEL
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S58313 Submitted: 02/02/2024 09:15

Client: BWL01 (Board of Water & Light)

Project: Erickson Semi Annual 16A-16D

Initial Preservation Check: 02/02/2024 11:05 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S58313.01	125mL Plastic HNO3	<2			
S58313.01	1L Plastic HNO3	<2			
S58313.01	1L Plastic HNO3	<2			
S58313.02	125mL Plastic HNO3	<2			
S58313.02	1L Plastic HNO3	<2			
S58313.02	1L Plastic HNO3	<2			
S58313.03	125mL Plastic HNO3	<2			
S58313.03	1L Plastic HNO3	<2			
S58313.03	1L Plastic HNO3	<2			
S58313.04	125mL Plastic HNO3	<2			
S58313.04	1L Plastic HNO3	<2			
S58313.04	1L Plastic HNO3	<2			
S58313.05	125mL Plastic HNO3	<2			
S58313.05	1L Plastic HNO3	<2			
S58313.05	1L Plastic HNO3	<2			
S58313.06	125mL Plastic HNO3	<2			
S58313.06	1L Plastic HNO3	<2			
S58313.06	1L Plastic HNO3	<2			

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing STATE: Mi ZIP CODE: 48901
PHONE NO.: 517-702-6372 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Semi Annual 16A-16D
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Marc Wahrer

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☒LEVEL III ☐LEVEL IV ☒EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☒NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total Metals	F- undisstilled, Cl-, SO4, TDS	Radium 226	Radium 228	TSS	HCO3, CO3, Hardness	Special Instructions
58313.01	02/01/24	1136	MW-16A L401212-01	GW	5	2		3					✓	✓	✓	✓	✓	✓	Metals to analyse:Na, Mg, K
.02		1302	MW-16B -02	GW	5	2		3					✓	✓	✓	✓	✓	✓	B, Ca, Sb, As, Ba, Be, Cd, Cr,
.03		1443	MW-16C -03	GW	5	2		3					✓	✓	✓	✓	✓	✓	Co, Li, Hg, Mo,Pb,Se, Tl,
.04		1240	MW16-D -04	GW	5	2		3					✓	✓	✓	✓	✓	✓	Fe, Cu, Ni, Ag, V, Zn
.05		1302	MWT-16B -05	GW	5	2		3					✓	✓	✓	✓	✓	✓	Please send a preliminary report
.06	↓	0940	Field Blank ↓ -06	DI	5	2		3					✓	✓	✓	✓	✓	✓	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒Sampler	DATE 2-2-24	TIME 0915
RECEIVED BY: SIGNATURE/ORGANIZATION	M Chilcott	DATE 2/2/24	TIME 0915
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS

NOTES: TEMP. ON ARRIVAL 2.1

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Reporting Limits to go to Merit with COC

Sb, total	Antimony	250 mL plastic	mg/L	Nitric Acid	200.7	6 mos	0.005
As, total	Arsenic	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
Ba, total		250 mL plastic	mg/L	Nitric Acid	200.8	6mos	0.150
Be, total	Beryllium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.001
B, total	Boron	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.04
Cd, total	Cadmium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
Ca	Calcium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	2.5
Cl	Chloride	250 mL plastic	mg/L	Chill	300.0	28 d	10
Cr, total	Chromium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Co, total	Cobalt	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Cu, total	Copper	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
F	Fluoride	250 mL plastic	mg/L	None	9056	28 d	1.0
Fe, total	Iron	250 mL plastic	mg/L	Nitric Acid	300.0	6 mos	0.02
Pb, total	Lead	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.003
Li, total	Lithium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Hg, total	Mercury	250 mL plastic	mg/L	HNO3	245.1	28 d	0.0002
Mo, total	Molybdenum	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ni, total	Nickel	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
RA226/228	Radium 226 and 228 combined	(2) 1 L plastic	pCi/L	HNO3	SM 7500	6 mos	2.0 combined
Se, total	Selenium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ag, total	Silver	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
SO4	Sulfate	250 mL plastic	mg/L	Chill	300.0	28 d	10
Tl, total	Thallium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
TDS	Total Dissolved Solids	1 L plastic	mg/L	None	SM 2540C	NA	20
TSS	Total Suspended Solids	1 L plastic	mg/L	None	SM 2540D	NA	3
V, total	Vanadium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Zn, total	Zinc	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005

GEL Laboratories LLC
a member of The GEL Group INC

2040 Savage Road | Charleston, SC 29407
843.556.8171
gel.com

March 04, 2024

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 654534
SDG: S58313

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 07, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Delaney Stonesmith

Delaney Stonesmith
Project Manager

Purchase Order: GELP20-0018
Enclosures

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Case Narrative

Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S58313
Work Order: 654534

March 04, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on February 07, 2024 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
654534001	S58313.01
654534002	S58313.02
654534003	S58313.03
654534004	S58313.04
654534005	S58313.05
654534006	S58313.06 Field Blank

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.

Delaney Stonesmith
Project Manager

Chain of Custody and Supporting Documentation

654534

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: results@meritlabs.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague ☒ SAME
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S58313 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☐LEVEL III ☒LEVEL IV ☐EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☐NPDES

Project Locations: ☐Detroit ☐New York ☐Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO3	H2SO4	NaOH	MeOH	OTHER	Radium 226*	Radium 228**	Special Instructions
	2/1/24	1136	S58313.01	GW	2			2					✓	✓	* E903.1 Mod.
	2/1/24	1302	S58313.02	GW	2			2					✓	✓	** E904.0/SW 9320 Mod.
	2/1/24	1443	S58313.03	GW	2			2					✓	✓	
	2/1/24	1240	S58313.04	GW	2			2					✓	✓	Please use calculation product &
	2/1/24	1302	S58313.05	GW	2			2					✓	✓	provide Radium 226/228 combined
	2/1/24	0940	S58313.06 Field Blank	GW	2			2					✓	✓	results on the report
															(No Ice needed)
															** Subcontracted to
															GEL Laboratories, Inc.
															2040 Savage Road
															Charleston, SC 29407

Special Instructions: * E903.1 Mod. ** E904.0/SW 9320 Mod. Please use calculation product & provide Radium 226/228 combined results on the report (No Ice needed) ** Subcontracted to GEL Laboratories, Inc. 2040 Savage Road Charleston, SC 29407

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☐Sampler	DATE 2/5/24	TIME 1700	RELINQUISHED BY: SIGNATURE/ORGANIZATION
RECEIVED BY: SIGNATURE/ORGANIZATION UPS	DATE 2/5/24	TIME 1700	RECEIVED BY: SIGNATURE/ORGANIZATION
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME	SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 2/7/24	TIME 1000	SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS

NOTES: TEMP. ON ARRIVAL

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: MERI	SDG/AR/COC/Work Order: 654534
Received By: STACY BOONE	Date Received: ~~FEBRUARY 8, 2024~~ FEB 7, 2024
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other AM 02/09/24
	1Z 466 477 03 6104 0061 17 c

Suspected Hazard Information	Yes	No	
			*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A) Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP:_____
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR3-23 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?		✓		If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

1Z 466 477 03 6216 5658 20 c

PM (or PMA) review: Initials _____ Date _____ Page ____ of ____

GL-CHL-SR-001 Rev 7

Laboratory Certifications

List of current GEL Certifications as of 04 March 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122024-05
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-23-21
Utah NELAP	SC000122023-38
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S58313
Work Order #: 654534

Product: **Radium-226+Radium-228 Calculation**
Analytical Method: Calculation
Analytical Procedure: GL-RAD-D-003 REV# 45
Analytical Batch: 2570945

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
654534001	S58313.01
654534002	S58313.02
654534003	S58313.03
654534004	S58313.04
654534005	S58313.05
654534006	S58313.06 Field Blank

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2570188

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
654534001	S58313.01
654534002	S58313.02
654534003	S58313.03
654534004	S58313.04
654534005	S58313.05
654534006	S58313.06 Field Blank
1205653413	Method Blank (MB)
1205653414	654532001(S58248.01) Sample Duplicate (DUP)
1205653415	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2570163

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
654534001	S58313.01
654534002	S58313.02
654534003	S58313.03
654534004	S58313.04
654534005	S58313.05
654534006	S58313.06 Field Blank
1205653334	Method Blank (MB)
1205653335	654233023(NonSDG) Sample Duplicate (DUP)
1205653336	654233023(NonSDG) Matrix Spike (MS)
1205653337	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1205653336 (Non SDG 654233023MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MERI001 Merit Laboratories, Inc.

Client SDG: S58313 GEL Work Order: 654534

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: John Petrovic **Name: John Petrovic**

Date: 04 MAR 2024 **Title: Data Validator**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58313.01
Sample ID: 654534001
Matrix: Ground Water
Collect Date: 01-FEB-24 11:36
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		2.12	+/-1.15	1.72	3.00	pCi/L			JE1	02/29/24	1206	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.74	+/-1.34			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.63	+/-0.690	0.821	1.00	pCi/L			MJ2	02/29/24	1035	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			89.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58313.02
Sample ID: 654534002
Matrix: Ground Water
Collect Date: 01-FEB-24 13:02
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.767	+/-0.998	1.70	3.00	pCi/L			JE1	02/29/24	1206	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.09	+/-1.19			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.32	+/-0.646	0.822	1.00	pCi/L			MJ2	02/29/24	1121	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			87.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58313.03
Sample ID: 654534003
Matrix: Ground Water
Collect Date: 01-FEB-24 14:43
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.845	+/-1.31	2.24	3.00	pCi/L			JE1	02/29/24	1206	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.30	+/-1.44			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.46	+/-0.602	0.651	1.00	pCi/L			MJ2	02/29/24	1121	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			79.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58313.04
Sample ID: 654534004
Matrix: Ground Water
Collect Date: 01-FEB-24 12:40
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.243	+/-1.06	1.93	3.00	pCi/L			JE1	02/29/24	1206	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.812	+/-1.12			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.569	+/-0.366	0.396	1.00	pCi/L			MJ2	02/29/24	1121	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			83.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58313.05
Sample ID: 654534005
Matrix: Ground Water
Collect Date: 01-FEB-24 13:02
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.495	+/-0.847	1.49	3.00	pCi/L			JE1	02/29/24	1206	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.10	+/-0.929			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.608	+/-0.381	0.499	1.00	pCi/L			MJ2	02/29/24	1121	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S58313.06 Field Blank
Sample ID: 654534006
Matrix: Ground Water
Collect Date: 01-FEB-24 09:40
Receive Date: 07-FEB-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.34	+/-1.27	2.10	3.00	pCi/L			JE1	02/29/24	1206	2570188	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.61	+/-1.33			pCi/L		1	TON1	03/04/24	0733	2570945	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.272	+/-0.398	0.695	1.00	pCi/L			MJ2	02/29/24	1121	2570163	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			82.9	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Data

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 4, 2024

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: **John Laverty**

Workorder: **654534**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 2570188										
QC1205653414 654532001 DUP										
Radium-228	U	0.161	U	0.346	pCi/L	N/A		N/A	JE1	02/29/24 12:06
	Uncertainty	+/-1.06		+/-0.655						
QC1205653415 LCS										
Radium-228	72.1			60.4	pCi/L		83.8	(75%-125%)		02/29/24 12:06
	Uncertainty			+/-4.09						
QC1205653413 MB										
Radium-228			U	-0.0339	pCi/L					02/29/24 12:06
	Uncertainty			+/-1.17						
Rad Ra-226										
Batch 2570163										
QC1205653335 654233023 DUP										
Radium-226	U	0.415		0.535	pCi/L	25.3		(0% - 100%)	MJ2	02/29/24 11:21
	Uncertainty	+/-0.352		+/-0.300						
QC1205653337 LCS										
Radium-226	53.8			43.4	pCi/L		80.6	(75%-125%)		03/01/24 04:24
	Uncertainty			+/-4.23						
QC1205653334 MB										
Radium-226			U	0.252	pCi/L					02/29/24 09:56
	Uncertainty			+/-0.431						
QC1205653336 654233023 MS										
Radium-226	117 U	0.415		88.7	pCi/L		75.7	(75%-125%)		02/29/24 11:21
	Uncertainty	+/-0.352		+/-8.62						

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported
- > Result is greater than value reported

QC Summary

Workorder: **654534**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

UI	Gamma Spectroscopy--Uncertain identification
BD	Results are either below the MDC or tracer recovery is low
h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
M	M if above MDC and less than LLD
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
FA	Failed analysis.
UJ	Gamma Spectroscopy--Uncertain identification
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N1	See case narrative
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
**	Analyte is a Tracer compound
M	REMP Result > MDC/CL and < RDL
J	See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Gas Flow Raw Data

Batch 2570188 Check-list

This check-list was completed on 29-FEB-24 by Nat Long

This batch was reviewed by Kenshalla Oston on 29-FEB-24 and Nat Long on 29-FEB-24.

Batch ID: 2570188 **Product:** GFC28RAL **Description:** Gas Flow Radium 228 GL-RAD-A-063

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-228 in Liquid

Batch ID: **2570188**
Analyst: Jacqueline Winston (JE1)
Method: EPA 904.0/SW846 9320 Modified
Lab SOP: GL-RAD-A-063 REV# 5
Instrument: SP-C018367602

Due Dates for Lab: 03-MAR-2024 **Package: 05-MAR-2024** **SDG: 06-MAR-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205653415	Radium 228	2051-D	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)
1	654532001	26-FEB-2024	3	306.63	306.63	02/27/24 12:56	02/29/24 09:18
2	654532002	26-FEB-2024	3	302.23	302.23	02/27/24 12:56	02/29/24 09:18
3	654532003	26-FEB-2024	3	305.13	305.13	02/27/24 12:56	02/29/24 09:18
4	654532004	26-FEB-2024	3	303.93	303.93	02/27/24 12:56	02/29/24 09:18
5	654532005	26-FEB-2024	3	303.93	303.93	02/27/24 12:56	02/29/24 09:18
6	654532006	26-FEB-2024	3	314.53	314.53	02/27/24 12:56	02/29/24 09:18
7	654532007	26-FEB-2024	3	301.53	301.53	02/27/24 12:56	02/29/24 09:18
8	654532008	26-FEB-2024	3	304.33	304.33	02/27/24 12:56	02/29/24 09:18
9	654534001	26-FEB-2024	3	310.23	310.23	02/27/24 12:56	02/29/24 09:18
10	654534002	26-FEB-2024	3	300.53	300.53	02/27/24 12:56	02/29/24 09:18
11	654534003	26-FEB-2024	3	300.83	300.83	02/27/24 12:56	02/29/24 09:18
12	654534004	26-FEB-2024	3	300.33	300.33	02/27/24 12:56	02/29/24 09:18
13	654534005	26-FEB-2024	3	300.23	300.23	02/27/24 12:56	02/29/24 09:18
14	654534006	26-FEB-2024	3	304.33	304.33	02/27/24 12:56	02/29/24 09:18
15	655017001	26-FEB-2024	3	308.13	308.13	02/27/24 12:56	02/29/24 09:18
16	655017002	26-FEB-2024	3	301.63	301.63	02/27/24 12:56	02/29/24 09:18
17	655017003	26-FEB-2024	3	302.03	302.03	02/27/24 12:56	02/29/24 09:18
18	655017004	26-FEB-2024	3	303.63	303.63	02/27/24 12:56	02/29/24 09:18
19	655017005	26-FEB-2024	3	300.33	300.33	02/27/24 12:56	02/29/24 09:18
20	655017006	26-FEB-2024	3	307.53	307.53	02/27/24 12:56	02/29/24 09:18
21	1205653413 MB	26-FEB-2024	3		314.53	02/27/24 12:56	02/29/24 09:18
22	1205653414 DUP (654532001)	26-FEB-2024	3	302.23	302.23	02/27/24 12:56	02/29/24 09:18
23	1205653415 LCS	26-FEB-2024	3		314.53	02/27/24 12:56	02/29/24 09:18

Reagent/Solvent Lot ID	Description	Amount
WORK 2097-B	Ba-133 Tracer	.1 mL
REGNT 4214820	Barium Carrier Ra228 REG	1 mL
REGNT 4223988	RGF-1M Citric Acid	5 mL
REGNT 4226396	2M HCl	20 mL
REGNT 4221876	RGF-50% Potassium Carbonate	2 mL
REGNT 3867033.5	RGF-Hydrofluoric Acid	4 mL
REGNT 4209237	500 mg/mL Neodymium Carrier	.2 mL
REGNT 4216641	RGF-Neodymium Subtrate	5 mL
REGNT 4229023	RGF-1.5M Ammonium Sulfate	10 mL
REGNT 4221872	RGF-7M Nitric Acid	25 mL
REGNT 4072674	Acetic Acid Glacial ACS Poly Coated Bottle	10 mL
REGNT DGA12292023	2561518	2 g
REGNT 4208393.51	Nitric Acid	5 mL

Comments:
Pipet Id: RAD-GFC-1795419
Data Entry Date2: 26-FEB-2024 00:00

Prep Logbook

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)

Reagent/Solvent Lot ID	Description	Amount	Comments:

Radium-228 Liquid

Filename : RA228.XLS
File type : Excel
Version # : 1.4.3

Tracer S/N : 2097-B
Tracer Exp Date : 7/12/2024
Tracer Volume Added: 0.10

Batch : 2570188
Analyst : JAC02417
Prep Date : 2/26/2024
Ra-228 Method Uncertainty : 0.1268

Geometry: 25mm Filter

Procedure Code : GFC28RAL
Parmname : Radium-228
Required MDA : 3 pCi/L
Ra-228 Abundance : 1.00
Halflife of Ra-228 : 5.75 years
Halflife of Ac-228 : 6.15 hours

Sample Characteristics					Tracer Calculations					
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Tracer Ref. Activity (CPM)	Tracer Ref. Count Uncertainty (%)	Tracer Samp. Activity (CPM)	Tracer Samp. Count Uncertainty (%)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	654532001.1	0.3066	1.8569E-05	1/31/2024 11:54	771.7	2.08%	624.6	2.31%	0.1	0.000200
2	654532002.1	0.3022	1.8497E-05	1/31/2024 13:13	771.7	2.08%	630.0	2.30%	0.1	0.000200
3	654532003.1	0.3051	1.8545E-05	1/31/2024 17:34	771.7	2.08%	599.9	2.36%	0.1	0.000200
4	654532004.1	0.3039	1.8525E-05	1/31/2024 10:06	771.7	2.08%	607.7	2.34%	0.1	0.000200
5	654532005.1	0.3039	1.8525E-05	1/31/2024 15:22	771.7	2.08%	685.7	2.20%	0.1	0.000200
6	654532006.1	0.3145	1.8694E-05	1/31/2024 16:56	771.7	2.08%	625.8	2.31%	0.1	0.000200
7	654532007.1	0.3015	1.8485E-05	1/31/2024 13:13	771.7	2.08%	595.8	2.37%	0.1	0.000200
8	654532008.1	0.3043	1.8532E-05	1/31/2024 7:55	771.7	2.08%	601.5	2.35%	0.1	0.000200
9	654534001.1	0.3102	1.8627E-05	2/1/2024 11:36	771.7	2.08%	690.7	2.20%	0.1	0.000200
10	654534002.1	0.3005	1.8468E-05	2/1/2024 13:02	771.7	2.08%	675.4	2.22%	0.1	0.000200
11	654534003.1	0.3008	1.8473E-05	2/1/2024 14:43	771.7	2.08%	613.2	2.33%	0.1	0.000200
12	654534004.1	0.3003	1.8465E-05	2/1/2024 12:40	771.7	2.08%	643.5	2.28%	0.1	0.000200
13	654534005.1	0.3002	1.8463E-05	2/1/2024 13:02	771.7	2.08%	648.7	2.27%	0.1	0.000200
14	654534006.1	0.3043	1.8532E-05	2/1/2024 9:40	771.7	2.08%	640.1	2.28%	0.1	0.000200
15	655017001.1	0.3081	1.8594E-05	2/7/2024 15:20	771.7	2.08%	629.9	2.30%	0.1	0.000200
16	655017002.1	0.3016	1.8487E-05	2/7/2024 11:14	771.7	2.08%	650.3	2.26%	0.1	0.000200
17	655017003.1	0.3020	1.8493E-05	2/7/2024 12:43	771.7	2.08%	643.4	2.28%	0.1	0.000200
18	655017004.1	0.3036	1.8520E-05	2/7/2024 14:18	771.7	2.08%	587.3	2.38%	0.1	0.000200
19	655017005.1	0.3003	1.8465E-05	2/7/2024 12:43	771.7	2.08%	639.8	2.28%	0.1	0.000200
20	655017006.1	0.3075	1.8584E-05	2/7/2024 9:18	771.7	2.08%	601.8	2.35%	0.1	0.000200
21	1205653413.1	0.3145	1.8694E-05	2/26/2024 0:00	771.7	2.08%	630.8	2.30%	0.1	0.000200
22	1205653414.1	0.3022	1.8497E-05	1/31/2024 11:54	771.7	2.08%	633.3	2.29%	0.1	0.000200
23	1205653415.1	0.3145	1.8694E-05	2/26/2024 0:00	771.7	2.08%	622.0	2.32%	0.1	0.000200

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-063
Instrument SOP: GL-RAD-I-016

Count raw Data

Pos.	Detector ID	Counting Time (min.)	Gross Counts Alpha	Gross Counts Beta	Beta cpm	Count Start Date/Time	Ac-228 Ingrowth Date/Time	Ac-228 Decay Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Ingrowth	Ac-228 Count Correction	Calculated Sample Recovery %	Sample Recovery Error %
1	1D	60	9	49	0.817	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.990	0.730	0.993	1.057	80.9%	3.12%
2	3B	60	7	44	0.733	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.990	0.730	0.993	1.057	81.6%	3.11%
3	5D	60	2	41	0.683	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.991	0.730	0.993	1.057	77.7%	3.16%
4	6B	70	6	84	1.200	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.990	0.730	0.993	1.067	78.7%	3.14%
5	7A	60	5	35	0.583	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.991	0.730	0.993	1.057	88.9%	3.04%
6	7D	60	7	26	0.433	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.991	0.730	0.993	1.057	81.1%	3.12%
7	8D	70	17	87	1.243	2/29/2024 12:05	2/27/2024 12:56	2/29/2024 9:18	0.990	0.729	0.993	1.067	77.2%	3.17%
8	9A	60	11	64	1.067	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.990	0.729	0.993	1.057	77.9%	3.15%
9	9B	60	12	86	1.433	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.729	0.993	1.057	89.5%	3.04%
10	9D	60	12	53	0.883	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.729	0.993	1.057	87.5%	3.06%
11	11A	80	16	130	1.625	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.728	0.993	1.077	79.5%	3.14%
12	11C	60	12	55	0.917	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.728	0.993	1.057	83.4%	3.10%
13	11D	60	11	36	0.600	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.728	0.993	1.057	84.1%	3.09%
14	12A	80	5	141	1.763	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.991	0.728	0.993	1.077	82.9%	3.10%
15	12B	60	6	63	1.050	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	81.6%	3.11%
16	12C	60	17	40	0.667	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	84.3%	3.08%
17	12D	60	5	29	0.483	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	83.4%	3.10%
18	13A	60	10	57	0.950	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	76.1%	3.17%
19	13B	60	9	77	1.283	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.728	0.993	1.057	82.9%	3.10%
20	13D	60	16	69	1.150	2/29/2024 12:07	2/27/2024 12:56	2/29/2024 9:18	0.993	0.727	0.993	1.057	78.0%	3.15%
21	14A	110	12	207	1.882	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.999	0.729	0.993	1.107	81.7%	3.11%
22	14B	60	6	22	0.367	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.990	0.729	0.993	1.057	82.1%	3.11%
23	14C	60	6	920	15.333	2/29/2024 12:06	2/27/2024 12:56	2/29/2024 9:18	0.999	0.729	0.993	1.057	80.6%	3.13%

Pos.	Calibration Data: Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Bkg cpm	Weekly Bkg Count Start Date/Time	Bkg Count Time (min.)
1	PIC	6/1/2023	5/31/2024	0.6071	0.00692	0.780	2/23/2024 17:51	500
2	PIC	6/1/2023	5/31/2024	0.6266	0.01614	0.598	2/23/2024 17:51	500
3	PIC	6/1/2023	5/31/2024	0.6566	0.00925	0.480	2/23/2024 17:52	500
4	PIC	6/1/2023	5/31/2024	0.5957	0.00851	1.020	2/23/2024 17:49	500
5	PIC	6/1/2023	5/31/2024	0.6229	0.00594	0.372	2/23/2024 17:49	500
6	PIC	6/1/2023	5/31/2024	0.6247	0.01113	0.432	2/23/2024 17:50	500
7	PIC	6/1/2023	5/31/2024	0.6073	0.00609	1.076	2/23/2024 17:50	500
8	PIC	6/1/2023	5/31/2024	0.6343	0.00758	0.710	2/23/2024 17:50	500
9	PIC	6/1/2023	5/31/2024	0.6496	0.00754	0.858	2/23/2024 17:50	500
10	PIC	6/1/2023	5/31/2024	0.6292	0.02610	0.692	2/23/2024 17:50	500
11	PIC	6/1/2023	5/31/2024	0.6466	0.01317	1.432	2/23/2024 17:48	500
12	PIC	6/1/2023	5/31/2024	0.6409	0.01278	0.858	2/23/2024 17:49	500
13	PIC	6/1/2023	5/31/2024	0.6379	0.01068	0.480	2/23/2024 17:49	500
14	PIC	6/1/2023	5/31/2024	0.6537	0.01964	1.436	2/23/2024 17:49	500
15	PIC	6/1/2023	5/31/2024	0.6488	0.01114	0.920	2/23/2024 17:49	500
16	PIC	6/1/2023	5/31/2024	0.6434	0.01666	0.548	2/23/2024 17:49	500
17	PIC	6/1/2023	5/31/2024	0.6498	0.01845	0.398	2/23/2024 17:49	500
18	PIC	6/1/2023	5/31/2024	0.6259	0.00714	0.948	2/23/2024 17:49	500
19	PIC	6/1/2023	5/31/2024	0.6399	0.00967	0.668	2/23/2024 17:49	500
20	PIC	6/1/2023	5/31/2024	0.6360	0.01144	0.882	2/23/2024 17:49	500
21	PIC	6/1/2023	5/31/2024	0.6482	0.02119	1.890	2/24/2024 11:03	500
22	PIC	6/1/2023	5/31/2024	0.6549	0.01028	0.282	2/23/2024 17:53	500
23	PIC	6/1/2023	5/31/2024	0.6309	0.01828	0.668	2/23/2024 17:53	500

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : N/A
Spike Exp Date : N/A
Spike Activity (dpm/ml): N/A
Spike Volume Added: N/A

LCS S/N : 2051-D
LCS Exp Date : 7/12/2024
LCS Activity (dpm/ml): 503.35
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	1.2378	0.8739	3	1.9679	**0.1614**	335.94%	0.0367	0.1232	1.0629	1.0637		SAMPLE				
2	1.0563	0.7457	3	1.7060	**0.5807**	85.67%	0.1353	0.1158	0.9742	0.9856		SAMPLE				
3	0.9395	0.6633	3	1.5396	**0.8662**	54.75%	0.2033	0.1111	0.9278	0.9541		SAMPLE				
4	1.4102	0.9956	3	2.1925	**0.8453**	77.01%	0.1800	0.1385	1.2748	1.2931		SAMPLE				
5	0.7657	0.5406	3	1.2784	**0.8335**	48.51%	0.2113	0.1023	0.7908	0.8191		SAMPLE				
6	0.8712	0.6151	3	1.4384	**5.552E-03**	6744.26%	0.0013	0.0899	0.7339	0.7341		SAMPLE				
7	1.4615	1.0318	3	2.2667	**0.7906**	84.62%	0.1669	0.1411	1.3103	1.3259		SAMPLE				
8	1.1835	0.8356	3	1.8918	**1.5737**	38.98%	0.3567	0.1386	1.1982	1.2644		SAMPLE				
9	1.0850	0.7660	3	1.7161	**2.1170**	27.99%	0.5753	0.1600	1.1541	1.2750		SAMPLE				
10	1.0622	0.7499	3	1.7003	**0.7674**	66.45%	0.1913	0.1269	0.9977	1.0176		SAMPLE				
11	1.4702	1.0379	3	2.2401	**0.8451**	78.95%	0.1930	0.1522	1.3066	1.3245		SAMPLE				
12	1.2209	0.8620	3	1.9310	**0.2429**	222.23%	0.0587	0.1304	1.0579	1.0597		SAMPLE				
13	0.9105	0.6428	3	1.4920	**0.4954**	87.30%	0.1200	0.1047	0.8471	0.8566		SAMPLE				
14	1.3795	0.9740	3	2.1018	**1.3397**	48.47%	0.3265	0.1578	1.2691	1.3156		SAMPLE				
15	1.2414	0.8765	3	1.9562	**0.5285**	107.03%	0.1300	0.1391	1.1082	1.1165		SAMPLE				
16	0.9563	0.6751	3	1.5531	**0.4815**	93.17%	0.1187	0.1105	0.8787	0.8875		SAMPLE				
17	0.8145	0.5751	3	1.3529	**0.3461**	110.31%	0.0853	0.0941	0.7479	0.7532		SAMPLE				
18	1.4225	1.0043	3	2.2381	**9.179E-03**	6657.58%	0.0020	0.1332	1.1978	1.1979		SAMPLE				
19	1.0840	0.7653	3	1.7390	**2.5637**	24.71%	0.6153	0.1507	1.2310	1.3957		SAMPLE				
20	1.3015	0.9189	3	2.0554	**1.1667**	54.09%	0.2680	0.1447	1.2345	1.2704		SAMPLE				
21	1.3961	0.9856	3	2.0841	**-0.0339**	1766.42%	-0.0082	0.1445	1.1723	1.1723		MB				
22	0.6915	0.4882	3	1.1809	**0.3463**	96.55%	0.0847	0.0817	0.6550	0.6610	654532001.1	DUP	* 0.0%			
23	1.0720	0.7569	3	1.7198	**60.4261**	5.01%	14.6653	0.5068	4.0932	16.1462		LCS			72.0872	83.8%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine	Batch ID
654532001	1D	60	9	49	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532002	3B	60	7	44	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532003	5D	60	2	41	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532004	6B	70	6	84	2/29/2024 12:05	2/29/2024 13:15	PIC	2570188
654532005	7A	60	5	35	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532006	7D	60	7	26	2/29/2024 12:05	2/29/2024 13:05	PIC	2570188
654532007	8D	70	17	87	2/29/2024 12:05	2/29/2024 13:15	PIC	2570188
654532008	9A	60	11	64	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534001	9B	60	12	86	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534002	9D	60	12	53	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534003	11A	80	16	130	2/29/2024 12:06	2/29/2024 13:26	PIC	2570188
654534004	11C	60	12	55	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534005	11D	60	11	36	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
654534006	12A	80	5	141	2/29/2024 12:06	2/29/2024 13:26	PIC	2570188
655017001	12B	60	6	63	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017002	12C	60	17	40	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017003	12D	60	5	29	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017004	13A	60	10	57	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017005	13B	60	9	77	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
655017006	13D	60	16	69	2/29/2024 12:07	2/29/2024 13:07	PIC	2570188
1205653413	14A	110	12	207	2/29/2024 12:06	2/29/2024 13:56	PIC	2570188
1205653414	14B	60	6	22	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188
1205653415	14C	60	6	920	2/29/2024 12:06	2/29/2024 13:06	PIC	2570188

ASSAY	29-Feb-24	11:54:29	
Wizard 1480 s/n 4800440			
Protocol	id	9	228_REC2
Time	limit	180	
Count	limit	50000	
Isotope	Ba-133		
Protocol	date	26-Sep-13	15:01:58
Run	id.	45	

Samp_ID	POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
REF	1	87	1	180	2315	771.7	2.08		11:54:36
654532001	2	87	2	180	1873	624.6	2.31	80.94	11:57:48
654532002	3	87	3	180	1890	630	2.3	81.64	12:00:59
654532003	4	87	4	180	1799	599.9	2.36	77.74	12:04:11
654532004	5	87	5	180	1823	607.7	2.34	78.75	12:07:22
654532005	6	99	6	180	2057	685.7	2.2	88.86	12:10:47
654532006	7	99	7	180	1877	625.8	2.31	81.09	12:13:58
654532007	8	99	8	180	1787	595.8	2.37	77.21	12:17:09
654532008	9	99	9	180	1804	601.5	2.35	77.94	12:20:21
654534001	10	99	10	180	2072	690.7	2.2	89.50	12:23:32
654534002	11	37	11	180	2026	675.4	2.22	87.52	12:26:57
654534003	12	37	12	180	1839	613.2	2.33	79.46	12:30:08
654534004	13	37	13	180	1930	643.5	2.28	83.39	12:33:20
654534005	14	37	14	180	1946	648.7	2.27	84.06	12:36:31
654534006	15	37	15	180	1920	640.1	2.28	82.95	12:39:42
655017001	16	81	16	180	1890	629.9	2.3	81.62	12:43:06
655017002	17	81	17	180	1951	650.3	2.26	84.27	12:46:18
655017003	18	81	18	180	1930	643.4	2.28	83.37	12:49:29
655017004	19	81	19	180	1762	587.3	2.38	76.10	12:52:40
655017005	20	81	20	180	1919	639.8	2.28	82.91	12:55:52
655017006	21	84	21	180	1805	601.8	2.35	77.98	12:59:29
1205653413	22	84	22	180	1892	630.8	2.3	81.74	13:02:40
1205653414	23	84	23	180	1900	633.3	2.29	82.07	13:05:52
1205653415	24	84	24	180	1866	622	2.32	80.60	13:09:03

END OF ASSAY

Continuing Calibration Data

Gas Flow Proportional Counter Checks for 29-Feb-2024

Detectors LB4100 E1 through H4 and PIC 1A through 14D and G5400W 1W through 1Z and LB4200 GA1 through OD4

Short Name	Status	Parmname	Run Time	Count Time	CPM or dec	Low Limit	High Limit	Stdev
LB4100F4	Below	Alpha eff	29-Feb 08:14	5	16766	16940	18140	-3.87
LB4100F4	Above	Alpha XTalk	29-Feb 08:14	5	0.199	0.170	0.193	+4.84
LB4100H1	Above	Alpha bkg	29-Feb 04:47	60	0.517	-8.08E-2	0.225	+8.71
LB4100H1	Above	Alpha eff	29-Feb 05:54	5	12028	7523	11160	+4.43
LB4100H1	Above	Beta bkg	29-Feb 04:47	60	3.433	-5.15E-1	3.743	+2.56
LB4100H2	Above	Alpha bkg	29-Feb 04:47	60	0.333	0.057	0.420	+1.57
LB4200GB2	Below	Alpha eff	29-Feb 06:08	5	9343	9443	9898	-4.32
LB4200GB2	Above	Beta bkg	29-Feb 04:56	60	20.800	0.129	1.304	+102.51
LB4200GD3	Above	Alpha bkg	29-Feb 04:56	60	0.350	-1.04E-1	0.321	+3.41
LB4200OB1	need 2nd	Alpha bkg	29-Feb 04:53	60	0.083	-1.05E-1	0.362	-0.58
LB4200OB1	need 2nd	Beta bkg	29-Feb 04:53	60	1.833	-2.59E-1	2.044	+2.45
LB4200OC2	Above	Alpha bkg	29-Feb 07:34	60	1.017	-1.37E-1	0.428	+9.25
LB4200OC2	Above	Beta bkg	29-Feb 07:34	60	3.317	-6.67E-2	2.499	+4.91
PIC2D	need 2nd	Beta bkg	29-Feb 08:50	60	1.717	0.417	1.868	+2.37
PIC4C	Above	Alpha bkg	29-Feb 06:36	60	0.400	-2.25E-1	1.312	-0.56
PIC6B	need 2nd	Beta bkg	29-Feb 09:01	60	1.683	0.262	2.449	+0.90
PIC8D	need 2nd	Alpha bkg	29-Feb 08:53	60	0.200	-4.64E-2	0.372	+0.54
PIC14D	need 2nd	Beta bkg	29-Feb 08:50	60	1.983	-2.45E-1	2.368	+2.12

INSTRUMENTS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

The following detectors may not have properly transferred to the LIMS system

PIC1B	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC5B	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC10B	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk

Reviewed by Jasmine Conley

Date 2/29/24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: GFPC **Batch ID: 2570188**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
654532001	SAMPLE	JE1	PIC1D	FEB-29-24 12:05:37	DONE	25mm Filter	01-JUN-23 00:00
654532002	SAMPLE	JE1	PIC3B	FEB-29-24 12:05:40	DONE	25mm Filter	01-JUN-23 00:00
654532004	SAMPLE	JE1	PIC6B	FEB-29-24 12:05:41	DONE	25mm Filter	01-JUN-23 00:00
654532003	SAMPLE	JE1	PIC5D	FEB-29-24 12:05:45	DONE	25mm Filter	01-JUN-23 00:00
654532005	SAMPLE	JE1	PIC7A	FEB-29-24 12:05:45	DONE	25mm Filter	01-JUN-23 00:00
654532006	SAMPLE	JE1	PIC7D	FEB-29-24 12:05:48	DONE	25mm Filter	01-JUN-23 00:00
654532007	SAMPLE	JE1	PIC8D	FEB-29-24 12:05:59	DONE	25mm Filter	01-JUN-23 00:00
654532008	SAMPLE	JE1	PIC9A	FEB-29-24 12:06:03	DONE	25mm Filter	01-JUN-23 00:00
654534001	SAMPLE	JE1	PIC9B	FEB-29-24 12:06:07	DONE	25mm Filter	01-JUN-23 00:00
654534002	SAMPLE	JE1	PIC9D	FEB-29-24 12:06:10	DONE	25mm Filter	01-JUN-23 00:00
1205653413	MB	JE1	PIC14A	FEB-29-24 12:06:30	DONE	25mm Filter	01-JUN-23 00:00
1205653414	DUP	JE1	PIC14B	FEB-29-24 12:06:32	DONE	25mm Filter	01-JUN-23 00:00
1205653415	LCS	JE1	PIC14C	FEB-29-24 12:06:36	DONE	25mm Filter	01-JUN-23 00:00
654534003	SAMPLE	JE1	PIC11A	FEB-29-24 12:06:43	DONE	25mm Filter	01-JUN-23 00:00
654534004	SAMPLE	JE1	PIC11C	FEB-29-24 12:06:48	DONE	25mm Filter	01-JUN-23 00:00
654534005	SAMPLE	JE1	PIC11D	FEB-29-24 12:06:51	DONE	25mm Filter	01-JUN-23 00:00
654534006	SAMPLE	JE1	PIC12A	FEB-29-24 12:06:57	DONE	25mm Filter	01-JUN-23 00:00
655017001	SAMPLE	JE1	PIC12B	FEB-29-24 12:07:00	DONE	25mm Filter	01-JUN-23 00:00
655017002	SAMPLE	JE1	PIC12C	FEB-29-24 12:07:04	DONE	25mm Filter	01-JUN-23 00:00
655017003	SAMPLE	JE1	PIC12D	FEB-29-24 12:07:08	DONE	25mm Filter	01-JUN-23 00:00
655017004	SAMPLE	JE1	PIC13A	FEB-29-24 12:07:13	DONE	25mm Filter	01-JUN-23 00:00
655017005	SAMPLE	JE1	PIC13B	FEB-29-24 12:07:18	DONE	25mm Filter	01-JUN-23 00:00
655017006	SAMPLE	JE1	PIC13D	FEB-29-24 12:07:22	DONE	25mm Filter	01-JUN-23 00:00

Lucas Cell Raw Data

Batch 2570163 Check-list

This check-list was completed on 01-MAR-24 by Elizabeth Krouse

This batch was reviewed by Elizabeth Krouse on 01-MAR-24 and Lyndsey Pace on 03-MAR-24.

Batch ID:	**Product:**	**Description:** Lucas Cell Radium 226
2570163	LUC26RAL	GL-RAD-A-008

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?		No	
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
10	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-226 in Liquid

Batch ID: **2570163**
Analyst: Marisa Johnson (MJ2)
Method: EPA 903.1 Modified
Lab SOP: GL-RAD-A-008 REV# 15
Instrument: LUCAS-C202389980

Due Dates for Lab: 02-MAR-2024 **Hold: 03-JAN-2024** **Package: 05-MAR-2024** **SDG: 04-M**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
MS	1205653336	Ra-226 emanation spike	1715-I	.1	mL
LCS	1205653337	Ra-226 emanation spike	1715-I	.2	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	End Degas (date)	CELL #	End Transfer (date)	Start Count Time (date)	Background Counts	Total Counts
1	654233023	26-FEB-2024	1	509.31	509.31	02/26/24 12:15	102	02/29/24 06:27	02/29/24 09:56	2	10
2	654233024	26-FEB-2024	1	507.13	507.13	02/26/24 12:15	206	02/29/24 06:27	02/29/24 09:56	3	14
3	654233025	26-FEB-2024	1	501.17	501.17	02/26/24 12:15	301	02/29/24 06:27	02/29/24 09:56	2	18
4	654233026	26-FEB-2024	1	503.26	503.26	02/26/24 12:15	405	02/29/24 06:27	02/29/24 09:56	1	3
5	654233027	26-FEB-2024	1	501.42	501.42	02/26/24 12:15	504	02/29/24 06:27	02/29/24 09:56	1	8
6	654233028	26-FEB-2024	1	504.69	504.69	02/26/24 12:15	602	02/29/24 06:27	02/29/24 09:56	1	15
7	654532001	26-FEB-2024	1	504.05	504.05	02/26/24 12:15	803	02/29/24 06:27	02/29/24 09:56	8	18
8	654532002	26-FEB-2024	1	500.49	500.49	02/26/24 12:15	105	02/29/24 06:54	02/29/24 10:35	1	27
9	654532003	26-FEB-2024	1	500.62	500.62	02/26/24 12:15	207	02/29/24 06:54	02/29/24 10:35	1	12
10	654532004	26-FEB-2024	1	503.27	503.27	02/26/24 12:15	305	02/29/24 06:54	02/29/24 10:35	4	13
11	654532005	26-FEB-2024	1	502.84	502.84	02/26/24 12:15	401	02/29/24 06:54	02/29/24 10:35	6	10
12	654532006	26-FEB-2024	1	504.97	504.97	02/26/24 12:15	505	02/29/24 06:54	02/29/24 10:35	3	10
13	654532007	26-FEB-2024	1	507.77	507.77	02/26/24 12:15	608	02/29/24 06:54	02/29/24 10:35	6	15
14	654532008	26-FEB-2024	1	505.81	505.81	02/26/24 12:15	707	02/29/24 06:54	02/29/24 10:35	4	35
15	654534001	26-FEB-2024	1	502.15	502.15	02/26/24 12:15	802	02/29/24 06:54	02/29/24 10:35	8	40
16	654534002	26-FEB-2024	1	502.84	502.84	02/26/24 12:15	106	02/29/24 07:19	02/29/24 11:21	8	34
17	654534003	26-FEB-2024	1	503.4	503.4	02/26/24 12:15	204	02/29/24 07:19	02/29/24 11:21	5	35
18	654534004	26-FEB-2024	1	504.64	504.64	02/26/24 12:15	304	02/29/24 07:19	02/29/24 11:21	1	12
19	654534005	26-FEB-2024	1	505.84	505.84	02/26/24 12:15	409	02/29/24 07:19	02/29/24 11:21	4	19
20	654534006	26-FEB-2024	1	500.84	500.84	02/26/24 12:15	501	02/29/24 07:19	02/29/24 11:21	7	13
21	1205653334 MB	26-FEB-2024	1		509.31	02/26/24 12:15	706	02/29/24 06:27	02/29/24 09:56	7	12
22	1205653335 DUP (654233023)	26-FEB-2024	1	503.42	503.42	02/26/24 12:15	605	02/29/24 07:19	02/29/24 11:21	1	15
23	1205653336 MS (654233023)	26-FEB-2024	1	116.95	116.95	02/26/24 12:15	708	02/29/24 07:19	02/29/24 11:21	2	412
24	1205653337 LCS	26-FEB-2024	1		509.31	02/26/24 11:10	701	02/29/24 07:45	03/01/24 04:25	4	408

Reagent/Solvent Lot ID	Description	Amount

Comments:
Data Entry Date2: 26-FEB-2024 00:00

Radium-226 Liquid

Filename : RA226.XLS
File type : Excel
Version # : 1.3.2

Batch : 2570163
Analyst : MAR02577
Prep Date : 2/26/2024
Ra-226 Method Uncertainty : 0.073648

Procedure Code : LUC26RAL
Parmname : Radium-226
Required MDA : 1 pCi/L
Halflife of Ra-226 : 1600 years
Ra-226 Abundance : 1.00
Halflife of Rn-222: 3.8235 days

Batch counted on : LUCAS CELL DETECTOR
BKG Count time : 30 min

Sample Characteristics					Count Raw Data							
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Background Count Time (min.)	Cell Efficiency (cpm/dpm)
1	654233023.1	0.5093	2.0293E-05	11/29/2023 10:35	102	30	10	0.333	2	0.067	30	1.4860
2	654233024.1	0.5071	2.0285E-05	11/29/2023 11:52	206	30	14	0.467	3	0.100	30	1.5880
3	654233025.1	0.5012	2.0261E-05	11/29/2023 12:14	301	30	18	0.600	2	0.067	30	1.5220
4	654233026.1	0.5033	2.0269E-05	11/29/2023 13:38	405	30	3	0.100	1	0.033	30	1.7990
5	654233027.1	0.5014	2.0262E-05	7/7/2023 15:05	504	30	8	0.267	1	0.033	30	1.3720
6	654233028.1	0.5047	2.0275E-05	7/7/2023 15:17	602	30	15	0.500	1	0.033	30	1.7010
7	654532001.1	0.5041	2.0272E-05	1/31/2024 11:54	803	30	18	0.600	8	0.267	30	1.4760
8	654532002.1	0.5005	2.0258E-05	1/31/2024 13:13	105	30	27	0.900	1	0.033	30	1.5340
9	654532003.1	0.5006	2.0258E-05	1/31/2024 17:34	207	30	12	0.400	1	0.033	30	1.8080
10	654532004.1	0.5033	2.0269E-05	1/31/2024 10:06	305	30	13	0.433	4	0.133	30	1.5280
11	654532005.1	0.5028	2.0267E-05	1/31/2024 15:22	401	30	10	0.333	6	0.200	30	1.9410
12	654532006.1	0.5050	2.0276E-05	1/31/2024 16:56	505	30	10	0.333	3	0.100	30	1.7470
13	654532007.1	0.5078	2.0287E-05	1/31/2024 13:13	608	30	15	0.500	6	0.200	30	1.8960
14	654532008.1	0.5058	2.0279E-05	1/31/2024 7:55	707	30	35	1.167	4	0.133	30	1.5500
15	654534001.1	0.5022	2.0265E-05	2/1/2024 11:36	802	30	40	1.333	8	0.267	30	1.5330
16	654534002.1	0.5028	2.0267E-05	2/1/2024 13:02	106	30	34	1.133	8	0.267	30	1.5250
17	654534003.1	0.5034	2.0270E-05	2/1/2024 14:43	204	30	35	1.167	5	0.167	30	1.5970
18	654534004.1	0.5046	2.0275E-05	2/1/2024 12:40	304	30	12	0.400	1	0.033	30	1.4940
19	654534005.1	0.5058	2.0280E-05	2/1/2024 13:02	409	30	19	0.633	4	0.133	30	1.9030
20	654534006.1	0.5008	2.0259E-05	2/1/2024 9:40	501	30	13	0.433	7	0.233	30	1.7160
21	1205653334.1	0.5093	2.0293E-05	2/26/2024 0:00	706	30	12	0.400	7	0.233	30	1.5280
22	1205653335.1	0.5034	2.0270E-05	11/29/2023 10:35	605	30	15	0.500	1	0.033	30	2.0280
23	1205653336.1	0.1170	1.2362E-05	11/29/2023 10:35	708	30	412	13.733	2	0.067	30	1.5430
24	1205653337.1	0.5093	2.0293E-05	2/26/2024 0:00	701	15	408	27.200	4	0.133	30	1.5970

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-008
Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections De-Gas to Ingrowth	Ingrowth to Count	During Count	Ra-226 Decay
2.300%	5/1/2023	4/30/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
8.600%	8/1/2023	7/31/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
5.700%	11/1/2023	10/31/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
4.600%	2/1/2024	1/31/2025	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
1.100%	10/10/2023	5/31/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
9.900%	7/1/2023	6/30/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
4.700%	4/8/2023	3/31/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
7.900%	5/1/2023	4/30/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
4.000%	10/10/2023	7/31/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
7.000%	11/1/2023	10/31/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
7.800%	2/1/2024	1/31/2025	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
8.200%	6/1/2023	5/31/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
7.800%	7/1/2023	6/30/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
5.800%	11/1/2023	10/31/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
6.100%	4/8/2023	3/31/2024	2/26/2024 12:15	2/29/2024 6:54	2/29/2024 10:35	0.396	0.973	1.002	1.000
3.400%	5/1/2023	4/30/2024	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
2.600%	8/1/2023	7/31/2024	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
2.100%	11/1/2023	10/31/2024	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
4.900%	2/1/2024	1/31/2025	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
5.500%	6/1/2023	5/31/2024	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
5.100%	11/1/2023	10/31/2024	2/26/2024 12:15	2/29/2024 6:27	2/29/2024 9:56	0.393	0.974	1.002	1.000
2.300%	10/10/2023	6/30/2024	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
5.200%	11/1/2023	10/31/2024	2/26/2024 12:15	2/29/2024 7:19	2/29/2024 11:21	0.397	0.970	1.002	1.000
5.900%	11/1/2023	10/31/2024	2/26/2024 11:10	2/29/2024 7:45	3/1/2024 4:24	0.404	0.856	1.001	1.000

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

Spike S/N : 1715-I
Spike Exp Date : 8/29/2024
Spike Activity (dpm/ml): 304.15
Spike Volume Added: 0.10

LCS S/N : 1715-I
LCS Exp Date : 8/29/2024
LCS Activity (dpm/ml): 304.15
LCS Volume Added: 0.20

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	2 SIGMA Counting Uncertainty pCi/L	2 SIGMA Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	0.2417	0.1706	1	0.4969	**0.4149**	43.36%	0.2667	0.1155	0.3521	0.3577		SAMPLE				
2	0.2782	0.1964	1	0.5390	**0.5362**	38.46%	0.3667	0.1374	0.3939	0.4115		SAMPLE				
3	0.2398	0.1693	1	0.4930	**0.8234**	28.53%	0.5333	0.1491	0.4511	0.4755		SAMPLE				
4	0.1429	0.1009	1	0.3318	**0.0867**	100.11%	0.0667	0.0667	0.1700	0.1706		SAMPLE				
5	0.1880	0.1328	1	0.4367	**0.3995**	42.87%	0.2333	0.1000	0.3356	0.3406		SAMPLE				
6	0.1507	0.1064	1	0.3500	**0.6402**	30.24%	0.4667	0.1333	0.3585	0.3905		SAMPLE				
7	0.4917	0.3471	1	0.8526	**0.5276**	51.21%	0.3333	0.1700	0.5273	0.5349		SAMPLE				
8	0.1678	0.1185	1	0.3898	**1.3243**	21.83%	0.8667	0.1764	0.5283	0.5980		SAMPLE				
9	0.1424	0.1005	1	0.3306	**0.4752**	33.02%	0.3667	0.1202	0.3053	0.3151		SAMPLE				
10	0.3351	0.2366	1	0.6258	**0.4577**	46.34%	0.3000	0.1374	0.4110	0.4209		SAMPLE				
11	0.3234	0.2283	1	0.5768	**0.1603**	100.30%	0.1333	0.1333	0.3141	0.3159		SAMPLE				
12	0.2530	0.1786	1	0.4902	**0.3103**	52.16%	0.2333	0.1202	0.3133	0.3204		SAMPLE				
13	0.3278	0.2315	1	0.5848	**0.3656**	51.51%	0.3000	0.1528	0.3648	0.3728		SAMPLE				
14	0.3287	0.2321	1	0.6138	**1.5462**	20.96%	1.0333	0.2082	0.6105	0.6734		SAMPLE				
15	0.4734	0.3343	1	0.8209	**1.6256**	22.49%	1.0667	0.2309	0.6898	0.7541		SAMPLE				
16	0.4743	0.3348	1	0.8223	**1.3230**	25.16%	0.8667	0.2160	0.6464	0.6797		SAMPLE				
17	0.3576	0.2525	1	0.6506	**1.4561**	21.24%	1.0000	0.2108	0.6017	0.6416		SAMPLE				
18	0.1705	0.1204	1	0.3961	**0.5693**	32.84%	0.3667	0.1202	0.3658	0.3756		SAMPLE				
19	0.2671	0.1886	1	0.4988	**0.6081**	32.35%	0.5000	0.1599	0.3810	0.3954		SAMPLE				
20	0.3958	0.2795	1	0.6951	**0.2724**	74.74%	0.2000	0.1491	0.3980	0.4010		SAMPLE				
21	0.4397	0.3104	1	0.7721	**0.2522**	87.33%	0.1667	0.1453	0.4309	0.4332		MB				
22	0.1260	0.0889	1	0.2925	**0.5351**	28.66%	0.4667	0.1333	0.2997	0.3104	654233023.1	DUP	25.3%			
23	1.0078	0.7115	1	2.0717	**88.6649**	7.19%	13.6667	0.6782	8.6243	17.8844	654233023.1	MS			117.1587	75.7%
24	0.4311	0.3044	1	0.9293	**43.3733**	7.72%	27.0667	1.3482	4.2346	9.0713		LCS			53.7993	80.6%

Continuing Calibration Data

Ludlum Alpha Scintillation Counter Checks for 29-FEB-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	07:25	1	1.10E+05	110471	-2.3		
LUCAS2	EFF	07:27	1	1.28E+05	127645	-1.78		
LUCAS3	EFF	07:46	1	92517	92517	0.67		
LUCAS4	EFF	07:28	1	1.23E+05	123364	-2.25		
LUCAS5	EFF	07:36	1	1.28E+05	127851	-1.27		
LUCAS6	EFF	07:42	1	1.29E+05	129111	1.58		
LUCAS7	EFF	07:43	1	1.29E+05	129446	-1.89		
LUCAS8	EFF	07:45	1	1.27E+05	126535	0.95		

Reviewed by: Elizabeth Krouse **Date:** 29-FEB-24

GEL Laboratories LLC

Ludlum Alpha Scintillation Counter Checks for 01-MAR-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	07:15	1	1.11E+05	111073	-1.5		
LUCAS2	EFF	07:22	1	1.28E+05	127648	-1.77		
LUCAS3	EFF	07:48	1	91011	91011	-0.5		
LUCAS4	EFF	07:58	1	1.23E+05	123220	-2.42		
LUCAS5	EFF	07:30	1	1.28E+05	127688	-1.45		
LUCAS6	EFF	07:36	1	1.27E+05	127020	-1.39		
LUCAS7	EFF	07:41	1	1.29E+05	128680	-2.89		
LUCAS8	EFF	07:45	1	1.26E+05	125869	0.85		

Reviewed by: Elizabeth Krouse **Date:** 01-MAR-24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR **Batch ID: 2570163**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
654233023	SAMPLE	MJ2	LUCAS1	FEB-29-24 09:56:00	DONE	Lucas Cell	01-MAY-23 00:00
654233024	SAMPLE	MJ2	LUCAS2	FEB-29-24 09:56:00	DONE	Lucas Cell	01-AUG-23 00:00
654233025	SAMPLE	MJ2	LUCAS3	FEB-29-24 09:56:00	DONE	Lucas Cell	01-NOV-23 00:00
654233026	SAMPLE	MJ2	LUCAS4	FEB-29-24 09:56:00	DONE	Lucas Cell	01-FEB-24 00:00
654233027	SAMPLE	MJ2	LUCAS5	FEB-29-24 09:56:00	DONE	Lucas Cell	01-JUN-23 00:00
654233028	SAMPLE	MJ2	LUCAS6	FEB-29-24 09:56:00	DONE	Lucas Cell	01-JUL-23 00:00
654532001	SAMPLE	MJ2	LUCAS8	FEB-29-24 09:56:00	DONE	Lucas Cell	08-APR-23 00:00
1205653334	MB	MJ2	LUCAS7	FEB-29-24 09:56:00	DONE	Lucas Cell	01-NOV-23 00:00
654532002	SAMPLE	MJ2	LUCAS1	FEB-29-24 10:35:00	DONE	Lucas Cell	01-MAY-23 00:00
654532003	SAMPLE	MJ2	LUCAS2	FEB-29-24 10:35:00	DONE	Lucas Cell	01-AUG-23 00:00
654532004	SAMPLE	MJ2	LUCAS3	FEB-29-24 10:35:00	DONE	Lucas Cell	01-NOV-23 00:00
654532005	SAMPLE	MJ2	LUCAS4	FEB-29-24 10:35:00	DONE	Lucas Cell	01-FEB-24 00:00
654532006	SAMPLE	MJ2	LUCAS5	FEB-29-24 10:35:00	DONE	Lucas Cell	01-JUN-23 00:00
654532007	SAMPLE	MJ2	LUCAS6	FEB-29-24 10:35:00	DONE	Lucas Cell	01-JUL-23 00:00
654532008	SAMPLE	MJ2	LUCAS7	FEB-29-24 10:35:00	DONE	Lucas Cell	01-NOV-23 00:00
654534001	SAMPLE	MJ2	LUCAS8	FEB-29-24 10:35:00	DONE	Lucas Cell	08-APR-23 00:00
654534002	SAMPLE	MJ2	LUCAS1	FEB-29-24 11:21:00	DONE	Lucas Cell	01-MAY-23 00:00
654534003	SAMPLE	MJ2	LUCAS2	FEB-29-24 11:21:00	DONE	Lucas Cell	01-AUG-23 00:00
654534004	SAMPLE	MJ2	LUCAS3	FEB-29-24 11:21:00	DONE	Lucas Cell	01-NOV-23 00:00
654534005	SAMPLE	MJ2	LUCAS4	FEB-29-24 11:21:00	DONE	Lucas Cell	01-FEB-24 00:00
654534006	SAMPLE	MJ2	LUCAS5	FEB-29-24 11:21:00	DONE	Lucas Cell	01-JUN-23 00:00
1205653335	DUP	MJ2	LUCAS6	FEB-29-24 11:21:00	DONE	Lucas Cell	01-JUL-23 00:00
1205653336	MS	MJ2	LUCAS7	FEB-29-24 11:21:00	DONE	Lucas Cell	01-NOV-23 00:00
1205653337	LCS	MJ2	LUCAS7	MAR-01-24 04:24:00	DONE	Lucas Cell	01-NOV-23 00:00

Analytical Laboratory Report

Final Report

Report ID: S64830.01(01)
Generated on 09/05/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Report produced by

Merit Laboratories, Inc.
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Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S64830.01-S64830.11
Project: Erickson Wellfield
Collected Date(s): 08/05/2024
Submitted Date/Time: 08/06/2024 09:20
Sampled by: Julie Maltby / Marc Wahrer
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

All analyses completed

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2320B	Standard Method 2320 B 2011
SM2340C	Standard Method 2340 C 2011
SM2540C	Standard Method 2540 C 2015
SM2540D	Standard Method 2540 D 2015
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (11 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S64830.01	MW-3 L408215-01	Groundwater	08/05/24 13:55
S64830.02	MW-4 L408215-02	Groundwater	08/05/24 15:38
S64830.03	MW-5 L408215-03	Groundwater	08/05/24 20:28
S64830.04	MW-6 L408215-04	Groundwater	08/05/24 18:51
S64830.05	MW-14 L408215-05	Groundwater	08/05/24 17:15
S64830.06	MW-11 L408215-06	Groundwater	08/05/24 14:08
S64830.07	MW-11B L408215-07	Groundwater	08/05/24 15:25
S64830.08	MWT-11B L408215-08	Groundwater	08/05/24 15:25
S64830.09	MW-1 L408215-09	Groundwater	08/05/24 17:37
S64830.10	MW-2 L408215-10	Groundwater	08/05/24 20:09
S64830.11	Field Blank L408215-11	Water	08/05/24 12:10

Lab Sample ID: S64830.01
Sample Tag: MW-3 L408215-01
Collected Date/Time: 08/05/2024 13:55
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 10:48	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 14:58, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: E300.0, Run Date: 08/07/24 20:03, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	103	50.0	0.800	mg/L	50	16887-00-6	
Sulfate	732	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 08/13/24 12:54, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	240	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:08, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	802	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/06/24 21:09, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,430	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	3.3	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 13:38, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.003	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.017	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	5.34	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	

Lab Sample ID: S64830.01 (continued)
Sample Tag: MW-3 L408215-01

Method: E200.8, Run Date: 08/14/24 13:38, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	1.52	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.075	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.156	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 12:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	257	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	49.2	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	1.67	0.50	0.119	mg/L	5	7440-09-7	
Sodium	119	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/07/24 14:50, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 08/21/24 10:11, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64830.02
Sample Tag: MW-4 L408215-02
Collected Date/Time: 08/05/2024 15:38
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 10:48	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 18:40, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	76.2	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 08/07/24 15:08, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	53.4	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/13/24 13:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	420	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:12, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	442	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/06/24 21:09, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	588	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	2.4	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 13:49, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.008	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.162	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.06	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64830.02 (continued)
Sample Tag: MW-4 L408215-02

Method: E200.8, Run Date: 08/14/24 13:49, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	1.44	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.011	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 12:29, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	115	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	40.8	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	1.41	0.50	0.119	mg/L	5	7440-09-7	
Sodium	33.2	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/07/24 15:00, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 08/21/24 10:11, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64830.03
Sample Tag: MW-5 L408215-03
Collected Date/Time: 08/05/2024 20:28
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR
1	250mL Plastic	None	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 10:48	CTV	
Mercury Digestion	Completed	E245.1	08/08/24 11:19	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 20:13, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	335	25.0	1.475	mg/L	25	14808-79-8	

Method: E300.0, Run Date: 08/07/24 15:18, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	36.5	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: SM2320B, Run Date: 08/13/24 13:21, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	290	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:18, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	534	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/06/24 21:09, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	816	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	10.3	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 13:53, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.045	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	

Lab Sample ID: S64830.03 (continued)
Sample Tag: MW-5 L408215-03

Method: E200.8, Run Date: 08/14/24 13:53, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	2.89	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	1.24	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.065	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.081	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	0.007	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	0.008	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/14/24 13:58, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium, Dissolved	0.039	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron, Dissolved	2.87	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron, Dissolved	Not detected	0.02	0.0142	mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium, Dissolved*	0.064	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum, Dissolved	0.079	0.005	0.00420	mg/L	5	7439-98-7	
Nickel, Dissolved	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 12:30, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	160	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	36.7	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	4.52	0.50	0.119	mg/L	5	7440-09-7	
Sodium	49.1	0.50	0.109	mg/L	5	7440-23-5	

Method: E200.8, Run Date: 08/15/24 12:32, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	151	1.0	0.218	mg/L	5	7440-70-2	
Magnesium, Dissolved	33.5	0.50	0.0579	mg/L	5	7439-95-4	
Potassium, Dissolved	4.18	0.50	0.119	mg/L	5	7440-09-7	

Lab Sample ID: S64830.03 (continued)

Sample Tag: MW-5 L408215-03

Method: E200.8, Run Date: 08/15/24 12:32, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sodium, Dissolved	46.0	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/08/24 14:27, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Method: E245.1, Run Date: 08/07/24 15:03, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 08/21/24 10:11, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64830.04
Sample Tag: MW-6 L408215-04
Collected Date/Time: 08/05/2024 18:51
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 10:48	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 20:23, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	180	10.0	0.590	mg/L	10	14808-79-8	

Method: E300.0, Run Date: 08/07/24 15:28, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	38.4	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: SM2320B, Run Date: 08/13/24 13:24, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	530	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	638	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/06/24 21:09, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	792	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.1	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 14:03, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.053	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.71	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64830.04 (continued)
Sample Tag: MW-6 L408215-04

Method: E200.8, Run Date: 08/14/24 14:03, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	Not detected	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.050	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.018	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 12:34, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	191	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	40.1	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	7.06	0.50	0.119	mg/L	5	7440-09-7	
Sodium	29.5	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/07/24 15:07, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 08/21/24 10:11, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64830.05
Sample Tag: MW-14 L408215-05
Collected Date/Time: 08/05/2024 17:15
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 20:33, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	115	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 08/07/24 15:38, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	5.9	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/13/24 13:27, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	770	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:22, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	610	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/06/24 21:09, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	866	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	30.3	4	0.7	mg/L	1.7		

Metals

Method: E200.8, Run Date: 08/14/24 14:07, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.006	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.131	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	1.96	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	

Lab Sample ID: S64830.05 (continued)
Sample Tag: MW-14 L408215-05

Method: E200.8, Run Date: 08/14/24 14:07, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	14.4	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.102	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.012	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	0.005	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 12:36, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	173	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	46.4	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	5.38	0.50	0.119	mg/L	5	7440-09-7	
Sodium	78.5	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/07/24 15:43, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 08/21/24 10:11, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64830.06
Sample Tag: MW-11 L408215-06
Collected Date/Time: 08/05/2024 14:08
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 15:48, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	62.0	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	Not detected	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/13/24 13:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	620	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:24, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	518	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/06/24 21:09, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	678	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	46.0	6	1	mg/L	2.5		

Metals

Method: E200.8, Run Date: 08/14/24 14:16, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.019	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.174	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.19	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	23.1	0.02	0.0142	mg/L	5	7439-89-6	

Lab Sample ID: S64830.06 (continued)
Sample Tag: MW-11 L408215-06

Method: E200.8, Run Date: 08/14/24 14:16, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 12:38, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	145	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	41.3	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	1.70	0.50	0.119	mg/L	5	7440-09-7	
Sodium	35.1	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/07/24 15:46, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 08/21/24 10:11, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64830.07
Sample Tag: MW-11B L408215-07
Collected Date/Time: 08/05/2024 15:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 15:58, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	1.5	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.2	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	3.6	5.0	0.295	mg/L	5	14808-79-8	b

Method: SM2320B, Run Date: 08/13/24 13:33, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	350	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:26, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	258	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/06/24 21:09, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	304	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.3	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 14:43, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.004	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.066	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.69	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64830.07 (continued)
Sample Tag: MW-11B L408215-07

Method: E200.8, Run Date: 08/14/24 14:43, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.76	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.034	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 12:46, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	68.9	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	23.7	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	6.57	0.50	0.119	mg/L	5	7440-09-7	
Sodium	15.1	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/07/24 15:50, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 08/21/24 10:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64830.08
Sample Tag: MWT-11B L408215-08
Collected Date/Time: 08/05/2024 15:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 16:09, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	1.5	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.2	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	3.8	5.0	0.295	mg/L	5	14808-79-8	b

Method: SM2320B, Run Date: 08/13/24 13:36, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	360	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:28, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	268	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 08/06/24 21:09, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	314	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.8	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 14:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.004	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.067	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.65	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64830.08 (continued)
Sample Tag: MWT-11B L408215-08

Method: E200.8, Run Date: 08/14/24 14:47, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.79	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.033	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	0.005	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 12:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	66.1	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	23.7	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	6.25	0.50	0.119	mg/L	5	7440-09-7	
Sodium	14.9	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/07/24 15:53, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 08/21/24 10:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64830.09
Sample Tag: MW-1 L408215-09
Collected Date/Time: 08/05/2024 17:37
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 16:19, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	33.4	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	74.8	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/13/24 13:39, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	700	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	712	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/06/24 21:09, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	766	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	8.4	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 14:24, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.003	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.079	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.12	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	3.37	0.02	0.0142	mg/L	5	7439-89-6	

Lab Sample ID: S64830.09 (continued)
Sample Tag: MW-1 L408215-09

Method: E200.8, Run Date: 08/14/24 14:24, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.007	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 12:40, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	178	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	54.6	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	0.90	0.50	0.119	mg/L	5	7440-09-7	
Sodium	21.9	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/07/24 15:56, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 08/21/24 10:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64830.10
Sample Tag: MW-2 L408215-10
Collected Date/Time: 08/05/2024 20:09
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR
1	250mL Plastic	None	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Mercury Digestion	Completed	E245.1	08/08/24 11:19	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 20:43, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	238	25.0	1.475	mg/L	25	14808-79-8	

Method: E300.0, Run Date: 08/07/24 16:29, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	70.0	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: SM2320B, Run Date: 08/13/24 13:42, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	560	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:32, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	704	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/06/24 21:09, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	950	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	10.4	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 14:51, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.034	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	

Lab Sample ID: S64830.10 (continued)
Sample Tag: MW-2 L408215-10

Method: E200.8, Run Date: 08/14/24 14:51, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	3.32	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	0.35	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.041	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.012	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	0.014	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/14/24 14:55, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium, Dissolved	0.032	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron, Dissolved	3.16	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron, Dissolved	0.11	0.02	0.0142	mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium, Dissolved*	0.039	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum, Dissolved	0.011	0.005	0.00420	mg/L	5	7439-98-7	
Nickel, Dissolved	0.014	0.005	0.00115	mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 12:50, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	198	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	50.6	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	0.73	0.50	0.119	mg/L	5	7440-09-7	
Sodium	46.8	0.50	0.109	mg/L	5	7440-23-5	

Method: E200.8, Run Date: 08/15/24 12:52, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	195	1.0	0.218	mg/L	5	7440-70-2	
Magnesium, Dissolved	49.1	0.50	0.0579	mg/L	5	7439-95-4	
Potassium, Dissolved	0.69	0.50	0.119	mg/L	5	7440-09-7	

Lab Sample ID: S64830.10 (continued)

Sample Tag: MW-2 L408215-10

Method: E200.8, Run Date: 08/15/24 12:52, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sodium, Dissolved	45.7	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/08/24 14:30, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Method: E245.1, Run Date: 08/07/24 15:59, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 08/21/24 10:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64830.11
Sample Tag: Field Blank L408215-11
Collected Date/Time: 08/05/2024 12:10
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 16:59, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	Not detected	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	Not detected	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/13/24 13:48, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	10	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:36, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	Not detected	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 08/06/24 21:09, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 13:35, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.000900	mg/L	2	7440-36-0	
Arsenic	Not detected	0.002	0.000580	mg/L	2	7440-38-2	
Barium	Not detected	0.005	0.000360	mg/L	2	7440-39-3	
Beryllium	Not detected	0.001	0.0000800	mg/L	2	7440-41-7	
Boron	Not detected	0.04	0.00636	mg/L	2	7440-42-8	
Cadmium	Not detected	0.0005	0.000140	mg/L	2	7440-43-9	
Chromium	Not detected	0.005	0.000300	mg/L	2	7440-47-3	
Cobalt	Not detected	0.005	0.000180	mg/L	2	7440-48-4	
Copper	Not detected	0.005	0.000320	mg/L	2	7440-50-8	
Iron	Not detected	0.02	0.00568	mg/L	2	7439-89-6	

Lab Sample ID: S64830.11 (continued)
Sample Tag: Field Blank L408215-11

Method: E200.8, Run Date: 08/14/24 13:35, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.000180	mg/L	2	7439-92-1	
Lithium*	Not detected	0.005	0.000540	mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005	0.00168	mg/L	2	7439-98-7	
Nickel	Not detected	0.005	0.000460	mg/L	2	7440-02-0	
Selenium	Not detected	0.005	0.00174	mg/L	2	7782-49-2	
Silver	Not detected	0.0005	0.000100	mg/L	2	7440-22-4	
Thallium	Not detected	0.002	0.000140	mg/L	2	7440-28-0	
Vanadium	Not detected	0.005	0.000820	mg/L	2	7440-62-2	
Zinc	Not detected	0.005	0.00130	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 08/15/24 12:20, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	Not detected	1.0	0.0874	mg/L	2	7440-70-2	
Magnesium	Not detected	0.50	0.0231	mg/L	2	7439-95-4	
Potassium	Not detected	0.50	0.0479	mg/L	2	7440-09-7	
Sodium	Not detected	0.50	0.0436	mg/L	2	7440-23-5	

Method: E245.1, Run Date: 08/07/24 16:09, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 08/21/24 10:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S64830
Client: BWL01 (Board of Water & Light)
Project: Erickson Wellfield
Submitted: 08/06/2024 09:20 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.4
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[X] Yes	[ ] No	[ ] N/A	Subcontracting needed? Subcontacted to:	GEL
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S64830 Submitted: 08/06/2024 09:20

Client: BWL01 (Board of Water & Light)

Project: Erickson Wellfield

Initial Preservation Check: 08/06/2024 09:59 MMC

Preservation Recheck (E200.8): 08/07/2024 11:32 MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S64830.01	125mL Plastic HNO3	<2			
S64830.01	1L Plastic HNO3	<2			
S64830.01	1L Plastic HNO3	<2			
S64830.02	125mL Plastic HNO3	<2			
S64830.02	1L Plastic HNO3	<2			
S64830.02	1L Plastic HNO3	<2			
S64830.03	125mL Plastic HNO3	<2			
S64830.03	1L Plastic HNO3	<2			
S64830.03	1L Plastic HNO3	<2			
S64830.04	125mL Plastic HNO3	<2			
S64830.04	1L Plastic HNO3	<2			
S64830.04	1L Plastic HNO3	<2			
S64830.05	125mL Plastic HNO3	7	0.5	<2	Lot# 2024010848
S64830.05	1L Plastic HNO3	<2			
S64830.05	1L Plastic HNO3	<2			
S64830.06	125mL Plastic HNO3	<2			
S64830.06	1L Plastic HNO3	<2			
S64830.06	1L Plastic HNO3	<2			
S64830.07	125mL Plastic HNO3	<2			
S64830.07	1L Plastic HNO3	<2			
S64830.07	1L Plastic HNO3	<2			
S64830.08	125mL Plastic HNO3	<2			
S64830.08	1L Plastic HNO3	<2			
S64830.08	1L Plastic HNO3	<2			
S64830.09	125mL Plastic HNO3	<2			
S64830.09	1L Plastic HNO3	<2			
S64830.09	1L Plastic HNO3	<2			
S64830.10	125mL Plastic HNO3	<2			
S64830.10	1L Plastic HNO3	<2			

Merit Laboratories Bottle Preservation Check

Lab Set ID: S64830 Submitted: 08/06/2024 09:20

Client: BWL01 (Board of Water & Light)

Project: Erickson Wellfield

Initial Preservation Check: 08/06/2024 09:59 MMC

Preservation Recheck (E200.8): 08/07/2024 11:32 MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S64830.10	1L Plastic HNO3	<2			
S64830.11	125mL Plastic HNO3	<2			
S64830.11	1L Plastic HNO3	<2			
S64830.11	1L Plastic HNO3	<2			

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing STATE: Mi ZIP CODE: 48901
PHONE NO.: 517-702-6372 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Wellfield
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Julie Maltby ; Marc Wahrer

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☒ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☒ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO3	H2SO4	NaOH	MeOH	OTHER	Total Metals	F- undisstiled, Cl-, SO4, TDS	Radium 226	Radium 228	TSS	Dissolved Metals	HCO3, CO3, Hardness				Special Instructions
64830.01	8.5.24	1355	MW-3 L40845-01	GW	5			X					✓	✓	✓	✓	✓		✓				Metals to analyse:Na, Mg, K
.02		1538	MW-4 -02		5			X					✓	✓	✓	✓	✓		✓				B, Ca, Sb, As, Ba, Be, Cd, Cr,
.03		2028	MW-5 -03		6			X					✓	✓	✓	✓	✓	✓	✓				Co, Li, Hg, Mo,Pb,Se, Tl,
.04		1851	MW-6 -04		5			X					✓	✓	✓	✓	✓		✓				Fe, Cu, Ni, Ag, V, Zn
.05		1715	MW-14 -05		5			X					✓	✓	✓	✓	✓		✓				Please send a preliminary report
.06		1408	MW-11 -06		5			X					✓	✓	✓	✓	✓		✓				
.07		1525	MW-11B -07		5			X					✓	✓	✓	✓	✓		✓				The analytes for dissolved metals are
.08		1525	MWT-11B -08		5			X					✓	✓	✓	✓	✓		✓				same metals that are analysed for total.
.09		1737	MW-1 -09		5			X					✓	✓	✓	✓	✓	✓					
.10		2009	MW-2 -10		6			X					✓	✓	✓	✓	✓	✓	✓				
.11		1210	Field Blank -11		5			X					✓	✓	✓	✓	✓		✓				

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE: 8-6-24	TIME: 0920
RECEIVED BY: SIGNATURE/ORGANIZATION: M Allcot		DATE: 8/6/24	TIME: 0920
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

NOTES: TEMP. ON ARRIVAL: 4.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Reporting Limits to go to Merit with COC

Sb, total	Antimony	250 mL plastic	mg/L	Nitric Acid	200.7	6 mos	0.005
As, total	Arsenic	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
Ba, total		250 mL plastic	mg/L	Nitric Acid	200.8	6mos	0.150
Be, total	Beryllium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.001
B, total	Boron	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.04
Cd, total	Cadmium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
Ca	Calcium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	2.5
Cl	Chloride	250 mL plastic	mg/L	Chill	300.0	28 d	10
Cr, total	Chromium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Co, total	Cobalt	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Cu, total	Copper	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
F	Fluoride	250 mL plastic	mg/L	None	9056	28 d	1.0
Fe, total	Iron	250 mL plastic	mg/L	Nitric Acid	300.0	6 mos	0.02
Pb, total	Lead	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.003
Li, total	Lithium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Hg, total	Mercury	250 mL plastic	mg/L	HNO3	245.1	28 d	0.0002
Mo, total	Molybdenum	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ni, total	Nickel	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
RA226/228	Radium 226 and 228 combined	(2) 1 L plastic	pCi/L	HNO3	SM 7500	6 mos	2.0 combined
Se, total	Selenium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ag, total	Silver	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
SO4	Sulfate	250 mL plastic	mg/L	Chill	300.0	28 d	10
Tl, total	Thallium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
TDS	Total Dissolved Solids	1 L plastic	mg/L	None	SM 2540C	NA	20
TSS	Total Suspended Solids	1 L plastic	mg/L	None	SM 2540D	NA	3
V, total	Vanadium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Zn, total	Zinc	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005

GEL Laboratories LLC
a member of The GEL Group INC

2040 Savage Road | Charleston, SC 29407
843.556.8171
gel.com

September 03, 2024

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 679881
SDG: S64830

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 08, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Abagail Martin for
Delaney Stonesmith
Project Manager

Purchase Order: GELP20-0018
Enclosures

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Case Narrative

Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S64830
Work Order: 679881

September 03, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on August 08, 2024 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

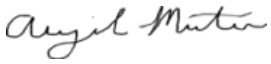
Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
679881001	S64830.01
679881002	S64830.02
679881003	S64830.03
679881004	S64830.04
679881005	S64830.05
679881006	S64830.06
679881007	S64830.07
679881008	S64830.08
679881009	S64830.09
679881010	S64830.10
679881011	S64830.11

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.



Abagail Martin for
Delaney Stonesmith
Project Manager

Chain of Custody and Supporting Documentation

679881

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: results@meritlabs.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague ☒ SAME
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S64830 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☐LEVEL III ☒LEVEL IV ☐EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☐NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO3	H2SO4	NaOH	MeOH	OTHER	Radium 226*	Radium 228**	Special Instructions
	8/5/24	1355	S64830.01	GW	2			2					✓	✓	* E903.1 Mod.
	8/5/24	1538	S64830.02	GW	2			2					✓	✓	** E904.0/SW 9320 Mod.
	8/5/24	2028	S64830.03	GW	2			2					✓	✓	
	8/5/24	1851	S64830..04	GW	2			2					✓	✓	Please use calculation product &
	8/5/24	1715	S64830.05	GW	2			2					✓	✓	provide Radium 226/228 combined
	8/5/24	1408	S64830.06	GW	2			2					✓	✓	results on the report
	8/5/24	1525	S64830.07	GW	2			2					✓	✓	
	8/5/24	1525	S64830.08	GW	2			2					✓	✓	(No Ice needed)
	8/5/24	1737	S64830.09	GW	2			2					✓	✓	** Subcontracted to
	8/5/24	2009	S64830.10	GW	2			2					✓	✓	GEL Laboratories, Inc.
	8/5/24	1210	S64830.11	GW	2			2					✓	✓	2040 Savage Road
															Charleston, SC 29407

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☐Sampler DATE 8/6/24 TIME 1700
RECEIVED BY: SIGNATURE/ORGANIZATION DATE 8/6/24 TIME 1700
RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE 8/8/24 TIME 1340

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS

NOTES: TEMP. ON ARRIVAL 21°C

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: MERI	SDG/AR/COC/Work Order: 479881
Received By: STACY BOONE	Date Received: 08.08.24
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 1Z 466 477 03 6227 1695

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation. Yes
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): ___ CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation. Yes
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*			✓	Preservation Method: Wet Ice Ice Packs Dry Ice None Other: *all temperatures are recorded in Celsius TEMP: 21°c
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR3-23 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials AM Date 8/8/24 Page 1 of 1

GL-CHL-SR-001 Rev 7

Laboratory Certifications

List of current GEL Certifications as of 03 September 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	NV-C24-00175
New Hampshire NELAP	205424
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235
Utah NELAP	SC000122024-41
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S64830
Work Order #: 679881

Product: **Radium-226+Radium-228 Calculation**
Analytical Method: Calculation
Analytical Procedure: GL-RAD-D-003 REV# 45
Analytical Batch: 2659095

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
679881001	S64830.01
679881002	S64830.02
679881003	S64830.03
679881004	S64830.04
679881005	S64830.05
679881006	S64830.06
679881007	S64830.07
679881008	S64830.08
679881009	S64830.09
679881010	S64830.10
679881011	S64830.11

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2653587

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
679881001	S64830.01
679881002	S64830.02
679881003	S64830.03
679881004	S64830.04
679881005	S64830.05
679881006	S64830.06
679881007	S64830.07
679881008	S64830.08
679881009	S64830.09
679881010	S64830.10

679881011	S64830.11
1205815845	Method Blank (MB)
1205815846	679881001(S64830.01) Sample Duplicate (DUP)
1205815847	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Preparation Information

Homogenous Matrix
Samples 679881003 (S64830.03), 679881005 (S64830.05) and 679881006 (S64830.06) were non-homogenous matrix. 679881003: cloudy 679881005, 679881006: yellow tint 679881003 (S64830.03), 679881005 (S64830.05) and 679881006 (S64830.06).

Quality Control (QC) Information

Duplication Criteria between QC Sample and Duplicate Sample
The Sample and the Duplicate, (See Below), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with the value listed below.

Sample	Analyte	Value
1205815846 (S64830.01DUP)	Radium-228	RPD 148* (0.0%-100.0%) RER 2.25 (0-3)

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2653874

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
679881001	S64830.01
679881002	S64830.02
679881003	S64830.03
679881004	S64830.04
679881005	S64830.05
679881006	S64830.06
679881007	S64830.07
679881008	S64830.08
679881009	S64830.09
679881010	S64830.10
679881011	S64830.11
1205816416	Method Blank (MB)
1205816417	679285001(NonSDG) Sample Duplicate (DUP)

1205816418	679285001(NonSDG) Matrix Spike (MS)
1205816419	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1205816418 (Non SDG 679285001MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MERI001 Merit Laboratories, Inc.

Client SDG: S64830 GEL Work Order: 679881

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: John Petrovic **Name: John Petrovic**

Date: 04 SEP 2024 **Title: Data Validator**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64830.01	Project:	MERI00120
Sample ID:	679881001	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	05-AUG-24 13:55		
Receive Date:	08-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.413	+/-1.35	2.40	3.00	pCi/L			KP1	08/21/24	1011	2653587	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.04	+/-1.39			pCi/L		1	TON1	09/04/24	0720	2659095	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.628	+/-0.327	0.301	1.00	pCi/L			MJ2	08/15/24	1020	2653874	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			88.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64830.02	Project:	MERI00120
Sample ID:	679881002	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	05-AUG-24 15:38		
Receive Date:	08-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.86	+/-1.27	1.97	3.00	pCi/L			KP1	08/21/24	1011	2653587	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.44	+/-1.38			pCi/L		1	TON1	09/04/24	0720	2659095	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.59	+/-0.538	0.410	1.00	pCi/L			MJ2	08/15/24	1020	2653874	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			85.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 4, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S64830.03	Project:	MERI00120
Sample ID:	679881003	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	05-AUG-24 20:28		
Receive Date:	08-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.615	+/-0.906	1.56	3.00	pCi/L			KP1	08/21/24	1011	2653587	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.71	+/-1.01			pCi/L		1	TON1	09/04/24	0720	2659095	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.09	+/-0.440	0.448	1.00	pCi/L			MJ2	08/15/24	1020	2653874	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			94.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64830.04	Project:	MERI00120
Sample ID:	679881004	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	05-AUG-24 18:51		
Receive Date:	08-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.704	+/-1.11	1.91	3.00	pCi/L			KP1	08/21/24	1011	2653587	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		4.29	+/-1.37			pCi/L		1	TON1	09/04/24	0720	2659095	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		3.59	+/-0.801	0.348	1.00	pCi/L			MJ2	08/15/24	1020	2653874	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			88.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 4, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S64830.05	Project:	MERI00120
Sample ID:	679881005	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	05-AUG-24 17:15		
Receive Date:	08-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		1.84	+/-1.09	1.60	3.00	pCi/L			KP1	08/21/24	1011	2653587	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		6.88	+/-1.46			pCi/L		1	TON1	09/04/24	0720	2659095	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		5.03	+/-0.979	0.568	1.00	pCi/L			MJ2	08/15/24	1020	2653874	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			87.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64830.06	Project:	MERI00120
Sample ID:	679881006	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	05-AUG-24 14:08		
Receive Date:	08-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.702	+/-0.839	1.41	3.00	pCi/L			KP1	08/21/24	1011	2653587	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.31	+/-1.02			pCi/L		1	TON1	09/04/24	0720	2659095	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.61	+/-0.585	0.584	1.00	pCi/L			MJ2	08/15/24	1053	2653874	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			90.3	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 4, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S64830.07	Project:	MERI00120
Sample ID:	679881007	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	05-AUG-24 15:25		
Receive Date:	08-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	-0.308	+/-1.12	2.14	3.00	pCi/L			KP1	08/21/24	1012	2653587	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.93	+/-1.29			pCi/L		1	TON1	09/04/24	0720	2659095	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.93	+/-0.637	0.565	1.00	pCi/L			MJ2	08/15/24	1053	2653874	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			91.9	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 4, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S64830.08	Project:	MERI00120
Sample ID:	679881008	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	05-AUG-24 15:25		
Receive Date:	08-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		1.84	+/-1.13	1.71	3.00	pCi/L			KP1	08/21/24	1012	2653587	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.00	+/-1.25			pCi/L		1	TON1	09/04/24	0720	2659095	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.16	+/-0.519	0.534	1.00	pCi/L			MJ2	08/15/24	1053	2653874	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			87.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 4, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64830.09	Project:	MERI00120
Sample ID:	679881009	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	05-AUG-24 17:37		
Receive Date:	08-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.277	+/-0.866	1.59	3.00	pCi/L			KP1	08/21/24	1012	2653587	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.41	+/-1.11			pCi/L		1	TON1	09/04/24	0720	2659095	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		3.13	+/-0.694	0.366	1.00	pCi/L			MJ2	08/15/24	1053	2653874	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 4, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S64830.10	Project:	MERI00120
Sample ID:	679881010	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	05-AUG-24 20:09		
Receive Date:	08-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	-0.503	+/-1.36	2.57	3.00	pCi/L			KP1	08/21/24	1012	2653587	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.25	+/-1.62			pCi/L		1	TON1	09/04/24	0720	2659095	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		3.25	+/-0.876	0.743	1.00	pCi/L			MJ2	08/15/24	1053	2653874	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			88.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 4, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S64830.11	Project:	MERI00120
Sample ID:	679881011	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	05-AUG-24 12:10		
Receive Date:	08-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.20	+/-0.917	1.40	3.00	pCi/L			KP1	08/21/24	1012	2653587	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.88	+/-1.08			pCi/L		1	TON1	09/04/24	0720	2659095	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.68	+/-0.563	0.589	1.00	pCi/L			MJ2	08/15/24	1053	2653874	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			75.9	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Quality Control Data

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: September 4, 2024

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: **John Laverty**

Workorder: **679881**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gas Flow											
Batch 2653587											
QC1205815846 679881001 DUP											
Radium-228	U	0.413		2.74	pCi/L	148 *		(0% - 100%)	KP1	08/21/24	10:11
	Uncertainty	+/-1.35		+/-1.33							
QC1205815847 LCS											
Radium-228	71.2			69.0	pCi/L		96.9	(75%-125%)		08/21/24	10:11
	Uncertainty			+/-4.41							
QC1205815845 MB											
Radium-228			U	1.81	pCi/L					08/21/24	10:11
	Uncertainty			+/-1.44							
Rad Ra-226											
Batch 2653874											
QC1205816417 679285001 DUP											
Radium-226	U	0.565	U	0.624	pCi/L	N/A		N/A	MJ2	08/15/24	10:53
	Uncertainty	+/-0.461		+/-0.432							
QC1205816419 LCS											
Radium-226	27.1			25.1	pCi/L		92.6	(75%-125%)		08/15/24	11:25
	Uncertainty			+/-2.68							
QC1205816416 MB											
Radium-226			U	0.241	pCi/L					08/15/24	10:53
	Uncertainty			+/-0.250							
QC1205816418 679285001 MS											
Radium-226	135 U	0.565		124	pCi/L		92	(75%-125%)		08/15/24	11:25
	Uncertainty	+/-0.461		+/-14.2							

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported

QC Summary

Workorder: **679881**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

>	Result is greater than value reported
UI	Gamma Spectroscopy--Uncertain identification
BD	Results are either below the MDC or tracer recovery is low
h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
M	M if above MDC and less than LLD
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
FA	Failed analysis.
UJ	Gamma Spectroscopy--Uncertain identification
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N1	See case narrative
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
**	Analyte is a Tracer compound
M	REMP Result > MDC/CL and < RDL
J	See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Gas Flow Raw Data

Batch 2653587 Check-list

This check-list was completed on 21-AUG-24 by Rhonda Birch

This batch was reviewed by Kenshalla Oston on 21-AUG-24 and Rhonda Birch on 21-AUG-24.

Batch ID: 2653587 **Product:** GFC28RAL **Description:** Gas Flow Radium 228 GL-RAD-A-063

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous		No	
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?		No	
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-228 in Liquid

Batch ID: **2653587**
Analyst: Kaitlyn Painter (KP1)
Method: EPA 904.0/SW846 9320 Modified
Lab SOP: GL-RAD-A-063 REV# 5
Instrument: ASP-33005595

Due Dates for Lab: 03-SEP-2024 **Package: 05-SEP-2024** **SDG: 06-SEP-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205815847	Radium 228	2051-E	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)
1	679881001	12-AUG-2024	3	300.3	300.3	08/14/24 11:40	08/21/24 07:58
2	679881002	12-AUG-2024	3	300.3	300.3	08/14/24 11:40	08/21/24 07:58
3	679881003	12-AUG-2024	3	300.4	300.4	08/14/24 11:40	08/21/24 07:58
4	679881004	12-AUG-2024	3	300.7	300.7	08/14/24 11:40	08/21/24 07:58
5	679881005	12-AUG-2024	3	300.1	300.1	08/14/24 11:40	08/21/24 07:58
6	679881006	12-AUG-2024	3	300.1	300.1	08/14/24 11:40	08/21/24 07:58
7	679881007	12-AUG-2024	3	300.2	300.2	08/14/24 11:40	08/21/24 07:58
8	679881008	12-AUG-2024	3	300.5	300.5	08/14/24 11:40	08/21/24 07:58
9	679881009	12-AUG-2024	3	300.2	300.2	08/14/24 11:40	08/21/24 07:58
10	679881010	12-AUG-2024	3	300.7	300.7	08/14/24 11:40	08/21/24 07:58
11	679881011	12-AUG-2024	3	300.6	300.6	08/14/24 11:40	08/21/24 07:58
12	1205815845 MB	12-AUG-2024	3		300.7	08/14/24 11:40	08/21/24 07:58
13	1205815846 DUP (679881001)	12-AUG-2024	3	300.1	300.1	08/14/24 11:40	08/21/24 07:58
14	1205815847 LCS	12-AUG-2024	3		300.7	08/14/24 11:40	08/21/24 07:58

Reagent/Solvent Lot ID	Description	Amount
WORK 2097-C	Ba-133 Tracer	.1 mL
REGNT 4386714	RGF-1.5M Ammonium Sulfate	10 mL
REGNT 4359903	Barium Carrier Ra228 REG	1 mL
REGNT 4375823	RGF-1M Citric Acid	5 mL
REGNT 4385628	2M HCl	20 mL
REGNT 4388485	RGF-50% Potassium Carbonate	2 mL
REGNT 4388157	RGF-7M Nitric Acid	25 mL
REGNT 4365040.1	Acetic Acid Glacial ACS Poly Coated Bottle	10 mL
REGNT DGA07232024	2651587	2 g
REGNT 4381503.2	RGF-Hydrofluoric Acid	4 mL
REGNT 4337194	500 mg/mL Neodymium Carrier	.2 mL
REGNT 4382975	RGF-Neodymium Subtrate	5 mL
REGNT 4382588.5	Nitric Acid	5 mL

Comments:
Pipet Id: RAD-GFC-1795419
Data Entry Date2: 12-AUG-2024 00:00

Radium-228 Liquid

Filename : RA228.XLS
File type : Excel
Version # : 1.4.3

Tracer S/N : 2097-C
Tracer Exp Date : 4/9/2025
Tracer Volume Added: 0.10

Batch : 2653587
Analyst : KAI02410
Prep Date : 8/12/2024
Ra-228 Method Uncertainty : 0.1268

Geometry: 25mm Filter

Procedure Code : GFC28RAL
Parmname : Radium-228
Required MDA : 3 pCi/L
Ra-228 Abundance : 1.00
Halflife of Ra-228 : 5.75 years
Halflife of Ac-228 : 6.15 hours

Sample Characteristics					**Tracer Calculations**					
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Tracer Ref. Activity (CPM)	Tracer Ref. Count Uncertainty (%)	Tracer Samp. Activity (CPM)	Tracer Samp. Count Uncertainty (%)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	679881001.1	0.3003	1.8464E-05	8/5/2024 13:55	740.7	2.12%	655.0	2.26%	0.1	0.000200
2	679881002.1	0.3003	1.8464E-05	8/5/2024 15:38	740.7	2.12%	633.4	2.29%	0.1	0.000200
3	679881003.1	0.3004	1.8466E-05	8/5/2024 20:28	740.7	2.12%	699.0	2.18%	0.1	0.000200
4	679881004.1	0.3007	1.8471E-05	8/5/2024 18:51	740.7	2.12%	656.6	2.25%	0.1	0.000200
5	679881005.1	0.3001	1.8461E-05	8/5/2024 17:15	740.7	2.12%	647.8	2.27%	0.1	0.000200
6	679881006.1	0.3001	1.8461E-05	8/5/2024 14:08	740.7	2.12%	668.7	2.23%	0.1	0.000200
7	679881007.1	0.3002	1.8462E-05	8/5/2024 15:25	740.7	2.12%	680.6	2.21%	0.1	0.000200
8	679881008.1	0.3005	1.8468E-05	8/5/2024 15:25	740.7	2.12%	649.3	2.27%	0.1	0.000200
9	679881009.1	0.3002	1.8462E-05	8/5/2024 17:37	740.7	2.12%	626.4	2.31%	0.1	0.000200
10	679881010.1	0.3007	1.8471E-05	8/5/2024 20:09	740.7	2.12%	657.3	2.25%	0.1	0.000200
11	679881011.1	0.3006	1.8469E-05	8/5/2024 12:10	740.7	2.12%	562.5	2.43%	0.1	0.000200
12	1205815845.1	0.3007	1.8471E-05	8/12/2024 0:00	740.7	2.12%	579.3	2.40%	0.1	0.000200
13	1205815846.1	0.3001	1.8461E-05	8/5/2024 13:55	740.7	2.12%	640.5	2.28%	0.1	0.000200
14	1205815847.1	0.3007	1.8471E-05	8/12/2024 0:00	740.7	2.12%	625.4	2.31%	0.1	0.000200

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-063
Instrument SOP: GL-RAD-I-016

Count raw Data

Pos.	Detector ID	Counting Time (min.)	Gross Counts Alpha	Gross Counts Beta	Beta cpm	Count Start Date/Time	Ac-228 Ingrowth Date/Time	Ac-228 Decay Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Ingrowth	Ac-228 Count Correction	Calculated Sample Recovery %	Sample Recovery Error %
1	4A	60	13	91	1.517	8/21/2024 10:11	8/14/2024 11:40	8/21/2024 7:58	0.995	0.779	1.000	1.057	88.4%	3.11%
2	4D	60	15	79	1.317	8/21/2024 10:11	8/14/2024 11:40	8/21/2024 7:58	0.995	0.779	1.000	1.057	85.5%	3.13%
3	5C	60	13	49	0.817	8/21/2024 10:11	8/14/2024 11:40	8/21/2024 7:58	0.995	0.779	1.000	1.057	94.4%	3.05%
4	6A	60	10	64	1.067	8/21/2024 10:11	8/14/2024 11:40	8/21/2024 7:58	0.995	0.778	1.000	1.057	88.6%	3.10%
5	7D	60	12	59	0.983	8/21/2024 10:11	8/14/2024 11:40	8/21/2024 7:58	0.995	0.778	1.000	1.057	87.5%	3.12%
6	8B	60	10	39	0.650	8/21/2024 10:11	8/14/2024 11:40	8/21/2024 7:58	0.995	0.777	1.000	1.057	90.3%	3.09%
7	8C	60	4	63	1.050	8/21/2024 10:12	8/14/2024 11:40	8/21/2024 7:58	0.995	0.777	1.000	1.057	91.9%	3.08%
8	9A	60	10	66	1.100	8/21/2024 10:12	8/14/2024 11:40	8/21/2024 7:58	0.995	0.777	1.000	1.057	87.7%	3.12%
9	9B	60	7	36	0.600	8/21/2024 10:12	8/14/2024 11:40	8/21/2024 7:58	0.995	0.777	1.000	1.057	84.6%	3.15%
10	9D	60	8	92	1.533	8/21/2024 10:12	8/14/2024 11:40	8/21/2024 7:58	0.995	0.777	1.000	1.057	88.7%	3.10%
11	10A	60	8	35	0.583	8/21/2024 10:12	8/14/2024 11:40	8/21/2024 7:58	0.995	0.777	1.000	1.057	75.9%	3.24%
12	10D	60	10	90	1.500	8/21/2024 10:11	8/14/2024 11:40	8/21/2024 7:58	0.997	0.778	1.000	1.057	78.2%	3.21%
13	11D	60	11	94	1.567	8/21/2024 10:11	8/14/2024 11:40	8/21/2024 7:58	0.995	0.778	1.000	1.057	86.5%	3.13%
14	13A	60	13	1043	17.383	8/21/2024 10:11	8/14/2024 11:40	8/21/2024 7:58	0.997	0.778	1.000	1.057	84.4%	3.15%

Calibration Data								
Pos.	Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Bkg cpm	Weekly Bkg Count Start Date/Time	Bkg Count Time (min.)
1	PIC	6/1/2024	5/31/2025	0.5637	0.01123	1.416	8/16/2024 18:22	500
2	PIC	6/1/2024	5/31/2025	0.5706	0.00773	0.874	8/16/2024 18:22	500
3	PIC	6/1/2024	5/31/2025	0.5733	0.00657	0.654	8/16/2024 18:22	500
4	PIC	6/1/2024	5/31/2025	0.5728	0.02228	0.892	8/16/2024 18:18	500
5	PIC	6/1/2024	5/31/2025	0.5590	0.01113	0.544	8/16/2024 18:18	500
6	PIC	6/1/2024	5/31/2025	0.5764	0.02148	0.472	8/16/2024 18:18	500
7	PIC	6/1/2024	5/31/2025	0.5505	0.01955	1.126	8/16/2024 18:18	500
8	PIC	6/1/2024	5/31/2025	0.5671	0.00758	0.654	8/16/2024 18:18	500
9	PIC	6/1/2024	5/31/2025	0.5776	0.00754	0.534	8/16/2024 18:18	500
10	PIC	6/1/2024	5/31/2025	0.5635	0.02610	1.656	8/16/2024 18:19	500
11	PIC	6/1/2024	5/31/2025	0.5876	0.00651	0.322	8/16/2024 18:19	500
12	PIC	6/1/2024	5/31/2025	0.5882	0.00557	1.092	8/16/2024 18:19	500
13	PIC	6/1/2024	5/31/2025	0.5822	0.01068	0.894	8/16/2024 18:15	500
14	PIC	6/1/2024	5/31/2025	0.5798	0.00714	0.842	8/16/2024 18:34	500

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

Spike S/N : N/A
Spike Exp Date : N/A
Spike Activity (dpm/ml): N/A
Spike Volume Added: N/A

LCS S/N : 2051-E
LCS Exp Date : 4/29/2025
LCS Activity (dpm/ml): 475.33
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	1.5556	1.0983	3	2.4018	**0.4134**	166.58%	0.1007	0.1677	1.3495	1.3536		SAMPLE				
2	1.2487	0.8816	3	1.9730	**1.8573**	34.92%	0.4427	0.1539	1.2658	1.3525		SAMPLE				
3	0.9739	0.6876	3	1.5642	**0.6153**	75.15%	0.1627	0.1221	0.9056	0.9192		SAMPLE				
4	1.2124	0.8560	3	1.9136	**0.7043**	80.17%	0.1747	0.1399	1.1054	1.1205		SAMPLE				
5	0.9854	0.6957	3	1.6013	**1.8439**	30.27%	0.4393	0.1322	1.0875	1.1862		SAMPLE				
6	0.8624	0.6089	3	1.4149	**0.7019**	61.08%	0.1780	0.1085	0.8388	0.8583		SAMPLE				
7	1.3702	0.9674	3	2.1375	**-0.3083**	184.96%	-0.0760	0.1405	1.1173	1.1175		SAMPLE				
8	1.0616	0.7495	3	1.7052	**1.8392**	31.59%	0.4460	0.1401	1.1327	1.2269		SAMPLE				
9	0.9772	0.6899	3	1.5899	**0.2772**	159.43%	0.0660	0.1052	0.8662	0.8691		SAMPLE				
10	1.6783	1.1849	3	2.5747	**-0.5026**	138.57%	-0.1227	0.1699	1.3643	1.3644		SAMPLE				
11	0.8299	0.5859	3	1.4016	**1.2007**	39.10%	0.2613	0.1018	0.9168	0.9673		SAMPLE				
12	1.4772	1.0429	3	2.3079	**1.8118**	40.54%	0.4080	0.1649	1.4350	1.5085		MB				
13	1.2261	0.8657	3	1.9350	**2.7402**	25.05%	0.6727	0.1670	1.3336	1.5079	679881001.1	DUP	147.6%	2.2506		
14	1.2188	0.8605	3	1.9296	**69.0164**	4.59%	16.5413	0.5398	4.4146	18.2418		LCS			71.2050	96.9%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine	Batch ID
679881001	4A	60	13	91	8/21/2024 10:11	8/21/2024 11:11	PIC	2653587
679881002	4D	60	15	79	8/21/2024 10:11	8/21/2024 11:11	PIC	2653587
679881003	5C	60	13	49	8/21/2024 10:11	8/21/2024 11:11	PIC	2653587
679881004	6A	60	10	64	8/21/2024 10:11	8/21/2024 11:11	PIC	2653587
679881005	7D	60	12	59	8/21/2024 10:11	8/21/2024 11:11	PIC	2653587
679881006	8B	60	10	39	8/21/2024 10:11	8/21/2024 11:11	PIC	2653587
679881007	8C	60	4	63	8/21/2024 10:12	8/21/2024 11:12	PIC	2653587
679881008	9A	60	10	66	8/21/2024 10:12	8/21/2024 11:12	PIC	2653587
679881009	9B	60	7	36	8/21/2024 10:12	8/21/2024 11:12	PIC	2653587
679881010	9D	60	8	92	8/21/2024 10:12	8/21/2024 11:12	PIC	2653587
679881011	10A	60	8	35	8/21/2024 10:12	8/21/2024 11:12	PIC	2653587
1205815845	10D	60	10	90	8/21/2024 10:11	8/21/2024 11:11	PIC	2653587
1205815846	11D	60	11	94	8/21/2024 10:11	8/21/2024 11:11	PIC	2653587
1205815847	13A	60	13	1043	8/21/2024 10:11	8/21/2024 11:11	PIC	2653587

ASSAY	21-Aug-24	8:09:52	
Wizard 1480 s/n 4800440			
Protocol	id	8	228_REC
Time	limit	180	
Count	limit	50000	
Isotope	Ba-133		
Protocol	date	10-Jan-20	14:21:10
Run	id.	94	

Samp_ID	POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
REF	1	61	1	180	2222	740.7	2.12		08:09:59
679881001	2	61	2	180	1965	655	2.26	88.43	08:13:10
679881002	3	61	3	180	1900	633.4	2.29	85.51	08:16:21
679881003	4	61	4	180	2097	699	2.18	94.37	08:19:33
679881004	5	61	5	180	1970	656.6	2.25	88.65	08:22:44
679881005	6	37	6	180	1943	647.8	2.27	87.46	08:26:09
679881006	7	37	7	180	2006	668.7	2.23	90.28	08:29:20
679881007	8	37	8	180	2041	680.6	2.21	91.89	08:32:32
679881008	9	37	9	180	1948	649.3	2.27	87.66	08:35:43
679881009	10	37	10	180	1879	626.4	2.31	84.57	08:38:54
679881010	11	81	11	180	1972	657.3	2.25	88.74	08:42:19
679881011	12	81	12	180	1687	562.5	2.43	75.94	08:45:30
1205815845	13	81	13	180	1738	579.3	2.4	78.21	08:48:42
1205815846	14	81	14	180	1921	640.5	2.28	86.47	08:51:53
1205815847	15	81	15	180	1876	625.4	2.31	84.43	08:55:04

END OF ASSAY

Continuing Calibration Data

Gas Flow Proportional Counter Checks for 21-Aug-2024

Detectors LB4100 E1 through H4 and PIC 1A through 14D and G5400W 1W through 1Z and LB4200 GA1 through OD4

Short Name	Status	Parmname	Run Time	Count Time	CPM or dec	Low Limit	High Limit	Stdev
LB4100E2	Above	Beta bkg	21-Aug 06:58	60	2.117	0.210	2.270	+2.55
LB4100F1	Above	Beta bkg	21-Aug 06:58	60	2.367	-2.37E-1	3.338	+1.37
LB4100F3	Above	Beta bkg	21-Aug 06:58	60	2.083	1.140	2.317	+1.81
LB4100F4	Above	Beta bkg	21-Aug 06:58	60	14.250	0.069	2.031	+40.36
LB4100G2	Below	Alpha eff	21-Aug 05:22	5	10063	10810	14340	-4.27
LB4100G2	Above	Alpha XTalk	21-Aug 05:22	5	0.321	0.169	0.234	+10.98
LB4100G2	Above	Beta bkg	21-Aug 05:45	60	528	0.407	1.917	+2,091.72
LB4100G2	need 2nd	Beta eff	21-Aug 05:30	5	14410	12830	15530	+0.51
LB4100G3	Below	Alpha eff	21-Aug 05:22	5	7647	8123	10070	-4.47
LB4100G3	Above	Beta bkg	21-Aug 05:45	60	13.300	0.716	2.721	+34.66
LB4100H2	Below	Beta eff	21-Aug 05:30	5	13144	13170	14610	-3.11
LB4100H4	Above	Beta bkg	21-Aug 05:44	60	14.167	0.484	2.128	+46.95
LB4200GB2	need 2nd	Alpha eff	21-Aug 05:34	5	9453	9443	9898	-2.86
LB4200GB2	Above	Beta bkg	21-Aug 06:01	60	14.217	0.129	1.304	+68.91
LB4200GB2	need 2nd	Beta eff	21-Aug 05:45	5	13972	13840	15160	-2.40
LB4200OB1	Below	Alpha eff	21-Aug 05:51	5	10527	10660	11210	-4.45
LB4200OB1	Above	Beta bkg	21-Aug 06:16	60	3.400	-2.59E-1	2.044	+6.53
LB4200OC2	Above	Beta bkg	21-Aug 06:16	60	61.450	-6.67E-2	2.499	+140.86
LB4200OC4	Above	Alpha XTalk	21-Aug 05:59	5	0.246	0.178	0.246	+3.07
LB4200OC4	Above	Beta bkg	21-Aug 06:16	60	216	0.232	1.342	+1,163.04
PIC8D	Above	Alpha bkg	21-Aug 05:14	60	0.533	-4.64E-2	0.372	+5.32
PIC8D	Below	Beta eff	21-Aug 06:32	5	40045	40150	43480	-3.19
PIC10C	Above	Beta bkg	21-Aug 08:27	60	2.033	-2.64E-1	1.953	+3.22
PIC12B	Above	Beta bkg	21-Aug 05:25	60	2.700	-5.75E-1	2.641	+3.11
PIC12C	Above	Alpha bkg	21-Aug 05:25	60	0.367	-8.15E-2	0.328	+3.57
PIC12C	Above	Beta bkg	21-Aug 05:25	60	3.083	-4.45E-1	2.258	+4.83

INSTRUMENTS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

The following detectors may not have properly transferred to the LIMS system

LB4100G1	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC8A	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk

Reviewed by Jasmine Conley

Date 8/21/24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: GFPC **Batch ID: 2653587**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
679881001	SAMPLE	KP1	PIC4A	AUG-21-24 10:11:03	DONE	25mm Filter	01-JUN-24 00:00
679881002	SAMPLE	KP1	PIC4D	AUG-21-24 10:11:07	DONE	25mm Filter	01-JUN-24 00:00
679881003	SAMPLE	KP1	PIC5C	AUG-21-24 10:11:10	DONE	25mm Filter	01-JUN-24 00:00
1205815846	DUP	KP1	PIC11D	AUG-21-24 10:11:39	DONE	25mm Filter	01-JUN-24 00:00
1205815847	LCS	KP1	PIC13A	AUG-21-24 10:11:43	DONE	25mm Filter	01-JUN-24 00:00
1205815845	MB	KP1	PIC10D	AUG-21-24 10:11:46	DONE	25mm Filter	01-JUN-24 00:00
679881004	SAMPLE	KP1	PIC6A	AUG-21-24 10:11:52	DONE	25mm Filter	01-JUN-24 00:00
679881005	SAMPLE	KP1	PIC7D	AUG-21-24 10:11:56	DONE	25mm Filter	01-JUN-24 00:00
679881006	SAMPLE	KP1	PIC8B	AUG-21-24 10:11:59	DONE	25mm Filter	01-JUN-24 00:00
679881007	SAMPLE	KP1	PIC8C	AUG-21-24 10:12:03	DONE	25mm Filter	01-JUN-24 00:00
679881008	SAMPLE	KP1	PIC9A	AUG-21-24 10:12:06	DONE	25mm Filter	01-JUN-24 00:00
679881009	SAMPLE	KP1	PIC9B	AUG-21-24 10:12:10	DONE	25mm Filter	01-JUN-24 00:00
679881010	SAMPLE	KP1	PIC9D	AUG-21-24 10:12:12	DONE	25mm Filter	01-JUN-24 00:00
679881011	SAMPLE	KP1	PIC10A	AUG-21-24 10:12:20	DONE	25mm Filter	01-JUN-24 00:00

Lucas Cell Raw Data

Batch 2653874 Check-list

This check-list was completed on 15-AUG-24 by Lyndsey Pace

This batch was reviewed by Lyndsey Pace on 15-AUG-24 and Elizabeth Krouse on 16-AUG-24.

Batch ID:	**Product:**	**Description:** Lucas Cell Radium 226
2653874	LUC26RAL	GL-RAD-A-008

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
10	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-226 in Liquid

Batch ID: **2653874**
Analyst: Marisa Johnson (MJ2)
Method: EPA 903.1 Modified
Lab SOP: GL-RAD-A-008 REV# 15
Instrument: ASP-33005595

Due Dates for Lab: 17-AUG-2024 **Package: 19-AUG-2024** **SDG: 19-AUG-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205816419	Ra-226 emanation spike	1715-J	.1	mL
MS	1205816418	Ra-226 emanation spike	1715-J	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	End Degas (date)	CELL #	End Transfer (date)	Start Count Time (date)	Background Counts	Total Counts
1	679285001	12-AUG-2024	1	502.7	502.7	08/12/24 11:45	304	08/15/24 07:12	08/15/24 10:20	5	16
2	679881001	12-AUG-2024	1	506.1	506.1	08/12/24 11:45	401	08/15/24 07:12	08/15/24 10:20	1	17
3	679881002	12-AUG-2024	1	506.5	506.5	08/12/24 11:45	501	08/15/24 07:12	08/15/24 10:20	2	39
4	679881003	12-AUG-2024	1	509.4	509.4	08/12/24 11:45	602	08/15/24 07:12	08/15/24 10:20	4	34
5	679881004	12-AUG-2024	1	505.5	505.5	08/12/24 11:45	702	08/15/24 07:12	08/15/24 10:20	1	80
6	679881005	12-AUG-2024	1	500.6	500.6	08/12/24 11:45	806	08/15/24 07:12	08/15/24 10:20	4	113
7	679881006	12-AUG-2024	1	501.7	501.7	08/12/24 11:45	101	08/15/24 07:48	08/15/24 10:53	5	42
8	679881007	12-AUG-2024	1	502	502	08/12/24 11:45	204	08/15/24 07:48	08/15/24 10:53	4	46
9	679881008	12-AUG-2024	1	505.4	505.4	08/12/24 11:45	309	08/15/24 07:48	08/15/24 10:53	3	27
10	679881009	12-AUG-2024	1	503.6	503.6	08/12/24 11:45	402	08/15/24 07:48	08/15/24 10:53	2	84
11	679881010	12-AUG-2024	1	500.5	500.5	08/12/24 11:45	508	08/15/24 07:48	08/15/24 10:53	6	69
12	679881011	12-AUG-2024	1	507	507	08/12/24 11:45	601	08/15/24 07:48	08/15/24 10:53	8	54
13	1205816416 MB	12-AUG-2024	1		509.4	08/12/24 11:45	703	08/15/24 07:48	08/15/24 10:53	1	6
14	1205816417 DUP (679285001)	12-AUG-2024	1	501.6	501.6	08/12/24 11:45	808	08/15/24 07:48	08/15/24 10:53	8	24
15	1205816418 MS (679285001)	12-AUG-2024	1	102.4	102.4	08/12/24 11:45	105	08/15/24 08:19	08/15/24 11:25	6	298
16	1205816419 LCS	12-AUG-2024	1		509.4	08/12/24 11:45	207	08/15/24 08:19	08/15/24 11:25	1	336

Reagent/Solvent Lot ID	Description	Amount

Comments:
Data Entry Date2: 12-AUG-2024 00:00

Radium-226 Liquid

Filename : RA226.XLS
File type : Excel
Version # : 1.3.2

Batch : 2653874
Analyst : MAR02577
Prep Date : 8/12/2024
Ra-226 Method Uncertainty : 0.073648

Procedure Code : LUC26RAL
Parmname : Radium-226
Required MDA : 1 pCi/L
Halflife of Ra-226 : 1600 years
Ra-226 Abundance : 1.00
Halflife of Rn-222: 3.8235 days

Batch counted on : LUCAS CELL DETECTOR
BKG Count time : 30 min

Sample Characteristics					Count Raw Data							
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Background Count Time (min.)	Cell Efficiency (cpm/dpm)
1	679285001.1	0.5027	2.0267E-05	7/25/2024 8:00	304	30	16	0.533	5	0.167	30	1.4940
2	679881001.1	0.5061	2.0281E-05	8/5/2024 13:55	401	30	17	0.567	1	0.033	30	1.9410
3	679881002.1	0.5065	2.0282E-05	8/5/2024 15:38	501	30	39	1.300	2	0.067	30	1.7780
4	679881003.1	0.5094	2.0294E-05	8/5/2024 20:28	602	30	34	1.133	4	0.133	30	2.0788
5	679881004.1	0.5055	2.0278E-05	8/5/2024 18:51	702	30	80	2.667	1	0.033	30	1.6810
6	679881005.1	0.5006	2.0258E-05	8/5/2024 17:15	806	30	113	3.767	4	0.133	30	1.6699
7	679881006.1	0.5017	2.0263E-05	8/5/2024 14:08	101	30	42	1.400	5	0.167	30	1.7540
8	679881007.1	0.5020	2.0264E-05	8/5/2024 15:25	204	30	46	1.533	4	0.133	30	1.6616
9	679881008.1	0.5054	2.0278E-05	8/5/2024 15:25	309	30	27	0.900	3	0.100	30	1.5690
10	679881009.1	0.5036	2.0271E-05	8/5/2024 17:37	402	30	84	2.800	2	0.067	30	1.9920
11	679881010.1	0.5005	2.0258E-05	8/5/2024 20:09	508	30	69	2.300	6	0.200	30	1.4840
12	679881011.1	0.5070	2.0284E-05	8/5/2024 12:10	601	30	54	1.800	8	0.267	30	2.0728
13	1205816416.1	0.5094	2.0294E-05	8/12/2024 0:00	703	30	6	0.200	1	0.033	30	1.5580
14	1205816417.1	0.5016	2.0262E-05	7/25/2024 8:00	808	30	24	0.800	8	0.267	30	1.9590
15	1205816418.1	0.1024	1.1516E-05	7/25/2024 8:00	105	15	298	19.867	6	0.200	30	1.7710
16	1205816419.1	0.5094	2.0294E-05	8/12/2024 0:00	207	15	336	22.400	1	0.033	30	2.0011

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-008
Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections			
						De-Gas to Ingrowth	Ingrowth to Count	During Count	Ra-226 Decay
2.100%	11/1/2023	10/31/2024	8/12/2024 11:45	8/15/2024 7:12	8/15/2024 10:20	0.399	0.977	1.002	1.000
7.800%	2/1/2024	1/31/2025	8/12/2024 11:45	8/15/2024 7:12	8/15/2024 10:20	0.399	0.977	1.002	1.000
4.600%	6/12/2024	6/30/2025	8/12/2024 11:45	8/15/2024 7:12	8/15/2024 10:20	0.399	0.977	1.002	1.000
5.654%	7/16/2024	7/31/2025	8/12/2024 11:45	8/15/2024 7:12	8/15/2024 10:20	0.399	0.977	1.002	1.000
2.000%	11/1/2023	10/31/2024	8/12/2024 11:45	8/15/2024 7:12	8/15/2024 10:20	0.399	0.977	1.002	1.000
2.647%	4/1/2024	3/31/2025	8/12/2024 11:45	8/15/2024 7:12	8/15/2024 10:20	0.399	0.977	1.002	1.000
7.900%	5/1/2024	4/30/2025	8/12/2024 11:45	8/15/2024 7:48	8/15/2024 10:53	0.402	0.977	1.002	1.000
5.120%	8/14/2024	8/31/2025	8/12/2024 11:45	8/15/2024 7:48	8/15/2024 10:53	0.402	0.977	1.002	1.000
9.100%	11/1/2023	10/31/2024	8/12/2024 11:45	8/15/2024 7:48	8/15/2024 10:53	0.402	0.977	1.002	1.000
6.500%	2/1/2024	1/31/2025	8/12/2024 11:45	8/15/2024 7:48	8/15/2024 10:53	0.402	0.977	1.002	1.000
4.000%	6/12/2024	6/30/2025	8/12/2024 11:45	8/15/2024 7:48	8/15/2024 10:53	0.402	0.977	1.002	1.000
7.778%	7/16/2024	7/31/2025	8/12/2024 11:45	8/15/2024 7:48	8/15/2024 10:53	0.402	0.977	1.002	1.000
2.200%	11/1/2023	10/31/2024	8/12/2024 11:45	8/15/2024 7:48	8/15/2024 10:53	0.402	0.977	1.002	1.000
8.300%	4/1/2024	3/31/2025	8/12/2024 11:45	8/15/2024 7:48	8/15/2024 10:53	0.402	0.977	1.002	1.000
5.800%	5/1/2024	4/30/2025	8/12/2024 11:45	8/15/2024 8:19	8/15/2024 11:25	0.404	0.977	1.001	1.000
2.265%	8/14/2024	8/31/2025	8/12/2024 11:45	8/15/2024 8:19	8/15/2024 11:25	0.404	0.977	1.001	1.000

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

Spike S/N : 1715-J
Spike Exp Date : 4/1/2025
Spike Activity (dpm/ml): 305.98
Spike Volume Added: 0.10

LCS S/N : 1715-J
LCS Exp Date : 4/1/2025
LCS Activity (dpm/ml): 305.98
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	0.3786	0.2673	1	0.6887	**0.5652**	41.71%	0.3667	0.1528	0.4615	0.4692		SAMPLE				
2	0.1294	0.0914	1	0.3006	**0.6285**	27.64%	0.5333	0.1414	0.3266	0.3524		SAMPLE				
3	0.1997	0.1410	1	0.4105	**1.5854**	17.91%	1.2333	0.2134	0.5377	0.6016		SAMPLE				
4	0.2401	0.1695	1	0.4484	**1.0932**	21.31%	1.0000	0.2055	0.4403	0.4831		SAMPLE				
5	0.1496	0.1056	1	0.3475	**3.5874**	11.57%	2.6333	0.3000	0.8010	0.9641		SAMPLE				
6	0.3042	0.2148	1	0.5680	**5.0315**	10.27%	3.6333	0.3606	0.9786	1.2463		SAMPLE				
7	0.3208	0.2265	1	0.5836	**1.6109**	20.14%	1.2333	0.2285	0.5850	0.6771		SAMPLE				
8	0.3027	0.2137	1	0.5652	**1.9290**	17.60%	1.4000	0.2357	0.6365	0.7213		SAMPLE				
9	0.2757	0.1947	1	0.5343	**1.1595**	24.57%	0.8000	0.1826	0.5187	0.5829		SAMPLE				
10	0.1780	0.1256	1	0.3659	**3.1316**	13.04%	2.7333	0.3091	0.6942	0.9194		SAMPLE				
11	0.4163	0.2939	1	0.7426	**3.2496**	14.32%	2.1000	0.2887	0.8755	1.0254		SAMPLE				
12	0.3398	0.2399	1	0.5891	**1.6770**	18.80%	1.5333	0.2625	0.5626	0.6637		SAMPLE				
13	0.1591	0.1123	1	0.3694	**0.2414**	52.96%	0.1667	0.0882	0.2503	0.2530		MB				
14	0.3634	0.2565	1	0.6301	**0.6238**	36.32%	0.5333	0.1886	0.4323	0.4531	679285001.1	DUP	9.9%			
15	2.0746	1.4647	1	4.1887	**123.8239**	8.25%	19.6667	1.1537	14.2376	26.8390	679285001.1	MS			134.5994	92.0%
16	0.1507	0.1064	1	0.4368	**25.0533**	5.92%	22.3667	1.2225	2.6839	4.6389		LCS			27.0567	92.6%

Continuing Calibration Data

Ludlum Alpha Scintillation Counter Checks for 15-AUG-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	07:07	1	1.11E+05	110617	0.17		
LUCAS2	EFF	07:04	1	1.30E+05	130215	2.2		
LUCAS3	EFF	06:59	1	95121	95121	1.42		
LUCAS4	EFF	06:57	1	1.26E+05	126406	2.85		
LUCAS5	EFF	06:54	1	1.29E+05	128517	0.9		
LUCAS6	EFF	06:52	1	1.30E+05	129636	2.32		
LUCAS7	EFF	06:49	1	1.30E+05	130067	0.27		
LUCAS8	EFF	06:48	1	1.25E+05	125311	0.76		

Reviewed by: Lyndsey Pace **Date:** 15-AUG-24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR **Batch ID: 2653874**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
679285001	SAMPLE	MJ2	LUCAS3	AUG-15-24 10:20:00	DONE	Lucas Cell	01-NOV-23 00:00
679881001	SAMPLE	MJ2	LUCAS4	AUG-15-24 10:20:00	DONE	Lucas Cell	01-FEB-24 00:00
679881002	SAMPLE	MJ2	LUCAS5	AUG-15-24 10:20:00	DONE	Lucas Cell	12-JUN-24 00:00
679881003	SAMPLE	MJ2	LUCAS6	AUG-15-24 10:20:00	DONE	Lucas Cell	16-JUL-24 00:00
679881004	SAMPLE	MJ2	LUCAS7	AUG-15-24 10:20:00	DONE	Lucas Cell	01-NOV-23 00:00
679881005	SAMPLE	MJ2	LUCAS8	AUG-15-24 10:20:00	DONE	Lucas Cell	01-APR-24 00:00
679881006	SAMPLE	MJ2	LUCAS1	AUG-15-24 10:53:00	DONE	Lucas Cell	01-MAY-24 00:00
679881007	SAMPLE	MJ2	LUCAS2	AUG-15-24 10:53:00	DONE	Lucas Cell	14-AUG-24 00:00
679881008	SAMPLE	MJ2	LUCAS3	AUG-15-24 10:53:00	DONE	Lucas Cell	01-NOV-23 00:00
679881009	SAMPLE	MJ2	LUCAS4	AUG-15-24 10:53:00	DONE	Lucas Cell	01-FEB-24 00:00
679881010	SAMPLE	MJ2	LUCAS5	AUG-15-24 10:53:00	DONE	Lucas Cell	12-JUN-24 00:00
679881011	SAMPLE	MJ2	LUCAS6	AUG-15-24 10:53:00	DONE	Lucas Cell	16-JUL-24 00:00
1205816416	MB	MJ2	LUCAS7	AUG-15-24 10:53:00	DONE	Lucas Cell	01-NOV-23 00:00
1205816417	DUP	MJ2	LUCAS8	AUG-15-24 10:53:00	DONE	Lucas Cell	01-APR-24 00:00
1205816418	MS	MJ2	LUCAS1	AUG-15-24 11:25:00	DONE	Lucas Cell	01-MAY-24 00:00
1205816419	LCS	MJ2	LUCAS2	AUG-15-24 11:25:00	DONE	Lucas Cell	14-AUG-24 00:00

Analytical Laboratory Report

Final Report

Report ID: S64874.01(01)
Generated on 09/06/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

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Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S64874.01-S64874.08
Project: Erickson Wellfield
Collected Date(s): 08/06/2024
Submitted Date/Time: 08/07/2024 08:46
Sampled by: Julie Maltby / Marc Wahrer
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

All analyses completed

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2320B	Standard Method 2320 B 2011
SM2340C	Standard Method 2340 C 2011
SM2540C	Standard Method 2540 C 2015
SM2540D	Standard Method 2540 D 2015
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S64874.01	MW-12 L408221-01	Groundwater	08/06/24 18:13
S64874.02	MW-16A L408221-02	Groundwater	08/06/24 15:37
S64874.03	MW-16B L408221-03	Groundwater	08/06/24 16:58
S64874.04	MWT-16B L408221-04	Groundwater	08/06/24 16:58
S64874.05	MW-16D L408221-05	Groundwater	08/06/24 15:59
S64874.06	MW-16C L408221-06	Groundwater	08/06/24 17:22
S64874.07	MW-12B L408221-07	Groundwater	08/06/24 19:14
S64874.08	Field Blank L408221-08	Water	08/06/24 12:45

Lab Sample ID: S64874.01
Sample Tag: MW-12 L408221-01
Collected Date/Time: 08/06/2024 18:13
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.6	IR
2	1L Plastic	None	Yes	1.6	IR
1	125mL Plastic	HNO3	Yes	1.6	IR
1	250mL Plastic	None	Yes	1.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Mercury Digestion	Completed	E245.1	08/08/24 11:19	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 19:23, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	187	10.0	0.590	mg/L	10	14808-79-8	

Method: E300.0, Run Date: 08/07/24 17:10, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	63.7	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: SM2320B, Run Date: 08/13/24 13:51, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	710	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:44, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	678	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	946	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	15.7	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 14:59, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.002	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.049	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	

Lab Sample ID: S64874.01 (continued)
Sample Tag: MW-12 L408221-01

Method: E200.8, Run Date: 08/14/24 14:59, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	0.07	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	1.18	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.018	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.005	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	0.013	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/14/24 15:02, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium, Dissolved	0.044	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron, Dissolved	0.07	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron, Dissolved	0.22	0.02	0.0142	mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium, Dissolved*	0.016	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum, Dissolved	0.005	0.005	0.00420	mg/L	5	7439-98-7	
Nickel, Dissolved	0.013	0.005	0.00115	mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 12:54, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	166	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	64.6	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	2.44	0.50	0.119	mg/L	5	7440-09-7	
Sodium	101	0.50	0.109	mg/L	5	7440-23-5	

Method: E200.8, Run Date: 08/15/24 12:56, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	158	1.0	0.218	mg/L	5	7440-70-2	
Magnesium, Dissolved	62.4	0.50	0.0579	mg/L	5	7439-95-4	
Potassium, Dissolved	2.37	0.50	0.119	mg/L	5	7440-09-7	

Lab Sample ID: S64874.01 (continued)

Sample Tag: MW-12 L408221-01

Method: E200.8, Run Date: 08/15/24 12:56, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sodium, Dissolved	99.2	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/08/24 14:34, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Method: E245.1, Run Date: 08/07/24 16:22, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 08:25, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64874.02
Sample Tag: MW-16A L408221-02
Collected Date/Time: 08/06/2024 15:37
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.6	IR
2	1L Plastic	None	Yes	1.6	IR
1	125mL Plastic	HNO3	Yes	1.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 17:20, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: E300.0, Run Date: 08/07/24 19:33, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	492	50.0	0.800	mg/L	50	16887-00-6	
Sulfate	235	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 08/13/24 13:54, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	530	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:46, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	698	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,560	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.7	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/15/24 13:01, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sodium	297	2.5	1.09	mg/L	50	7440-23-5	

Method: E200.8, Run Date: 08/14/24 15:05, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.003	0.002	0.00145	mg/L	5	7440-38-2	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64874.02 (continued)
Sample Tag: MW-16A L408221-02

Method: E200.8, Run Date: 08/14/24 15:05, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Barium	0.146	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.25	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	3.04	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 12:57, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	196	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	46.3	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	1.72	0.50	0.119	mg/L	5	7440-09-7	

Method: E245.1, Run Date: 08/07/24 16:26, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 08:25, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64874.03
Sample Tag: MW-16B L408221-03
Collected Date/Time: 08/06/2024 16:58
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.6	IR
2	1L Plastic	None	Yes	1.6	IR
1	125mL Plastic	HNO3	Yes	1.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 17:30, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	3.5	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.8	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	19.9	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/13/24 13:57, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	420	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:48, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	352	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	376	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	0.6	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 15:08, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.085	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.11	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64874.03 (continued)
Sample Tag: MW-16B L408221-03

Method: E200.8, Run Date: 08/14/24 15:08, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.39	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.020	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.006	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:03, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	84.5	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	34.6	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	2.86	0.50	0.119	mg/L	5	7440-09-7	
Sodium	10.7	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/07/24 16:29, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 08:25, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64874.04
Sample Tag: MWT-16B L408221-04
Collected Date/Time: 08/06/2024 16:58
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.6	IR
2	1L Plastic	None	Yes	1.6	IR
1	125mL Plastic	HNO3	Yes	1.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 17:40, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	3.7	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.8	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	20.6	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/13/24 14:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	440	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	350	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	368	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.1	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 15:11, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.084	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.11	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64874.04 (continued)
Sample Tag: MWT-16B L408221-04

Method: E200.8, Run Date: 08/14/24 15:11, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.39	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.021	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.006	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:05, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	84.5	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	35.0	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	2.90	0.50	0.119	mg/L	5	7440-09-7	
Sodium	10.8	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/07/24 16:32, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 08:25, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64874.05
Sample Tag: MW-16D L408221-05
Collected Date/Time: 08/06/2024 15:59
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.6	IR
2	1L Plastic	None	Yes	1.6	IR
1	125mL Plastic	HNO3	Yes	1.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 17:50, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	7.2	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	0.5	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	4.3	5.0	0.295	mg/L	5	14808-79-8	b

Method: SM2320B, Run Date: 08/13/24 14:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	400	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:52, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	120	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	378	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	2.8	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 15:49, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.003	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.033	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	4.33	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64874.05 (continued)
Sample Tag: MW-16D L408221-05

Method: E200.8, Run Date: 08/14/24 15:49, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.55	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.030	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.010	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:20, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	30.5	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	7.49	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	9.54	0.50	0.119	mg/L	5	7440-09-7	
Sodium	110	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/07/24 16:36, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 08:25, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64874.06
Sample Tag: MW-16C L408221-06
Collected Date/Time: 08/06/2024 17:22
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.6	IR
2	1L Plastic	None	Yes	1.6	IR
1	125mL Plastic	HNO3	Yes	1.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 18:00, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	1.8	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.4	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	9.9	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/13/24 14:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	400	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:54, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	308	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	332	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	0.5	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 15:54, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.027	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.41	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	0.011	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64874.06 (continued)
Sample Tag: MW-16C L408221-06

Method: E200.8, Run Date: 08/14/24 15:54, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.45	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.029	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	77.2	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	30.0	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	5.08	0.50	0.119	mg/L	5	7440-09-7	
Sodium	12.5	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/07/24 16:39, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 08:25, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64874.07
Sample Tag: MW-12B L408221-07
Collected Date/Time: 08/06/2024 19:14
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.6	IR
2	1L Plastic	None	Yes	1.6	IR
1	125mL Plastic	HNO3	Yes	1.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 18:11, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	1.5	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.5	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	Not detected	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/13/24 14:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	400	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/14/24 14:56, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	107	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	370	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.7	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 15:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.025	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	3.22	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64874.07 (continued)
Sample Tag: MW-12B L408221-07

Method: E200.8, Run Date: 08/14/24 15:14, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.30	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.039	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:07, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	25.2	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	8.16	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	8.16	0.50	0.119	mg/L	5	7440-09-7	
Sodium	108.971	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/07/24 16:42, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 08:25, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64874.08
Sample Tag: Field Blank L408221-08
Collected Date/Time: 08/06/2024 12:45
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	1.6	IR
2	1L Plastic	None	Yes	1.6	IR
1	125mL Plastic	HNO3	Yes	1.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/07/24 11:51	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/07/24 18:21, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	0.6	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	Not detected	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/13/24 14:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	10	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:08, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	Not detected	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/07/24 20:32, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 15:38, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.000900	mg/L	2	7440-36-0	
Arsenic	Not detected	0.002	0.000580	mg/L	2	7440-38-2	
Barium	Not detected	0.005	0.000360	mg/L	2	7440-39-3	
Beryllium	Not detected	0.001	0.0000800	mg/L	2	7440-41-7	
Boron	Not detected	0.04	0.00636	mg/L	2	7440-42-8	
Cadmium	Not detected	0.0005	0.000140	mg/L	2	7440-43-9	
Chromium	Not detected	0.005	0.000300	mg/L	2	7440-47-3	
Cobalt	Not detected	0.005	0.000180	mg/L	2	7440-48-4	
Copper	Not detected	0.005	0.000320	mg/L	2	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64874.08 (continued)
Sample Tag: Field Blank L408221-08

Method: E200.8, Run Date: 08/14/24 15:38, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	Not detected	0.02	0.00568	mg/L	2	7439-89-6	
Lead	Not detected	0.003	0.000180	mg/L	2	7439-92-1	
Lithium*	Not detected	0.005	0.000540	mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005	0.00168	mg/L	2	7439-98-7	
Nickel	Not detected	0.005	0.000460	mg/L	2	7440-02-0	
Selenium	Not detected	0.005	0.00174	mg/L	2	7782-49-2	
Silver	Not detected	0.0005	0.000100	mg/L	2	7440-22-4	
Thallium	Not detected	0.002	0.000140	mg/L	2	7440-28-0	
Vanadium	Not detected	0.005	0.000820	mg/L	2	7440-62-2	
Zinc	Not detected	0.005	0.00130	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:16, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	Not detected	1.0	0.0874	mg/L	2	7440-70-2	
Magnesium	Not detected	0.50	0.0231	mg/L	2	7439-95-4	
Potassium	Not detected	0.50	0.0479	mg/L	2	7440-09-7	
Sodium	Not detected	0.50	0.0436	mg/L	2	7440-23-5	

Method: E245.1, Run Date: 08/07/24 16:45, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 08:25, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S64874
Client: BWL01 (Board of Water & Light)
Project: Erickson Wellfield
Submitted: 08/07/2024 08:46 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 1.6
02.	☒ Yes	☐ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☐ Yes	☒ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☐ Yes	☐ No	☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☒ Yes	☐ No	☐ N/A	Subcontracting needed? Subcontacted to:	GEL
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☒ Yes	☐ No	☐ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☐ No	☒ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S64874 Submitted: 08/07/2024 08:46

Client: BWL01 (Board of Water & Light)

Project: Erickson Wellfield

Initial Preservation Check: 08/07/2024 09:24 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S64874.01	125mL Plastic HNO3	<2			
S64874.01	1L Plastic HNO3	<2			
S64874.01	1L Plastic HNO3	<2			
S64874.02	125mL Plastic HNO3	<2			
S64874.02	1L Plastic HNO3	<2			
S64874.02	1L Plastic HNO3	<2			
S64874.03	125mL Plastic HNO3	<2			
S64874.03	1L Plastic HNO3	<2			
S64874.03	1L Plastic HNO3	<2			
S64874.04	125mL Plastic HNO3	<2			
S64874.04	1L Plastic HNO3	<2			
S64874.04	1L Plastic HNO3	<2			
S64874.05	125mL Plastic HNO3	<2			
S64874.05	1L Plastic HNO3	<2			
S64874.05	1L Plastic HNO3	<2			
S64874.06	125mL Plastic HNO3	<2			
S64874.06	1L Plastic HNO3	<2			
S64874.06	1L Plastic HNO3	<2			
S64874.07	125mL Plastic HNO3	<2			
S64874.07	1L Plastic HNO3	<2			
S64874.07	1L Plastic HNO3	<2			
S64874.08	125mL Plastic HNO3	<2			
S64874.08	1L Plastic HNO3	<2			
S64874.08	1L Plastic HNO3	<2			

Merit Laboratories, Inc.

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Phone (517) 332-0167 Fax (517) 332-4034
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C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing | STATE: Mi | ZIP CODE: 48901
PHONE NO.: 517-702-6372 | FAX NO.: | P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Wellfield
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Julie Mattby, Marc Walker

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☒LEVEL III ☐LEVEL IV ☒EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☒NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total Metals	F- undistilled, Cl-, SO4, TDS	Radium 226	Radium 228	TSS	Dissolved Metals	HCO3, CO3, Hardness	Special Instructions
64874.01	8.6.24	1813	MW-12 L408221-01	GW	6			X					✓	✓	✓	✓	✓	✓	✓	Metals to analyse:Na, Mg, K
.02		1537	MW-16A -02		5			X					✓	✓	✓	✓	✓		✓	B, Ca, Sb, As, Ba, Be, Cd, Cr,
.03		1658	MW-16B -03		5			X					✓	✓	✓	✓	✓		✓	Co, Li, Hg, Mo,Pb,Se, Tl,
.04		1658	MW-16B -04		5			X					✓	✓	✓	✓	✓		✓	Fe, Cu, Ni, Ag, V, Zn
.05		1559	MW-16D -05		5			X					✓	✓	✓	✓	✓		✓	Please send a preliminary report
.06		1722	MW-16C -06		5			X					✓	✓	✓	✓	✓		✓	
.07		1914	MW-12B -07		5			X					✓	✓	✓	✓	✓		✓	The analytes for dissolved metals are
.08	↓	1245	Field Blank ↓ -08	↓	5			X					✓	✓	✓	✓	✓		✓	same metals that are analysed for total.

RELINQUISHED BY: SIGNATURE/ORGANIZATION: [signature] Sampler — DATE: 8-7-24 — TIME: 0846
RECEIVED BY: SIGNATURE/ORGANIZATION: M Dilcato — DATE: 8/7/24 — TIME: 0846
RELINQUISHED BY: SIGNATURE/ORGANIZATION: — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION: — DATE — TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION: — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION: — DATE — TIME

SEAL NO. — SEAL INTACT YES☐ NO☐ — INITIALS
SEAL NO. — SEAL INTACT YES☐ NO☐ — INITIALS

NOTES: TEMP. ON ARRIVAL: 1.6

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Reporting Limits to go to Merit with COC

Sb, total	Antimony	250 mL plastic	mg/L	Nitric Acid	200.7	6 mos	0.005
As, total	Arsenic	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
Ba, total		250 mL plastic	mg/L	Nitric Acid	200.8	6mos	0.150
Be, total	Beryllium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.001
B, total	Boron	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.04
Cd, total	Cadmium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
Ca	Calcium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	2.5
Cl	Chloride	250 mL plastic	mg/L	Chill	300.0	28 d	10
Cr, total	Chromium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Co, total	Cobalt	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Cu, total	Copper	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
F	Fluoride	250 mL plastic	mg/L	None	9056	28 d	1.0
Fe, total	Iron	250 mL plastic	mg/L	Nitric Acid	300.0	6 mos	0.02
Pb, total	Lead	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.003
Li, total	Lithium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Hg, total	Mercury	250 mL plastic	mg/L	HNO3	245.1	28 d	0.0002
Mo, total	Molybdenum	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ni, total	Nickel	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
RA226/228	Radium 226 and 228 combined	(2) 1 L plastic	pCi/L	HNO3	SM 7500	6 mos	2.0 combined
Se, total	Selenium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ag, total	Silver	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
SO4	Sulfate	250 mL plastic	mg/L	Chill	300.0	28 d	10
Tl, total	Thallium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
TDS	Total Dissolved Solids	1 L plastic	mg/L	None	SM 2540C	NA	20
TSS	Total Suspended Solids	1 L plastic	mg/L	None	SM 2540D	NA	3
V, total	Vanadium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Zn, total	Zinc	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005

GEL Laboratories LLC
a member of The GEL Group INC

2040 Savage Road | Charleston, SC 29407
843.556.8171
gel.com

September 03, 2024

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 680141
SDG: S64874

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 09, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Abagail Martin for
Delaney Stonesmith
Project Manager

Purchase Order: GELP20-0018
Enclosures

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Case Narrative

Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S64874
Work Order: 680141

September 03, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on August 09, 2024 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

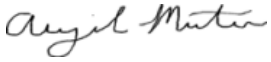
Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
680141001	S64874.01
680141002	S64874.02
680141003	S64874.03
680141004	S64874.04
680141005	S64874.05
680141006	S64874.06
680141007	S64874.07
680141008	S64874.08

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.



Abagail Martin for
Delaney Stonesmith
Project Manager

Chain of Custody and Supporting Documentation

680141

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: results@meritlabs.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague ☒ SAME
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S64874 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☐LEVEL III ☒LEVEL IV ☐EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Radium 226*	Radium 228**	Special Instructions
	8/6/24	1813	S64874.01	GW	2			2					✓	✓	* E903.1 Mod.
	8/6/24	1537	S64874.02	GW	2			2					✓	✓	** E904.0/SW 9320 Mod.
	8/6/24	1658	S64874.03	GW	2			2					✓	✓	
	8/6/24	1658	S64874.04	GW	2			2					✓	✓	Please use calculation product &
	8/6/24	1559	S64874.05	GW	2			2					✓	✓	provide Radium 226/228 combined
	8/6/24	1722	S64874.06	GW	2			2					✓	✓	results on the report
	8/6/24	1914	S64874.07	GW	2			2					✓	✓	
	8/6/24	1245	S64874.08	GW	2			2					✓	✓	(No Ice needed)
															** Subcontracted to
															GEL Laboratories, Inc.
															2040 Savage Road
															Charleston, SC 29407

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐OHIO VAP ☐Drinking Water
☐DoD ☐NPDES
Project Locations
☐Detroit ☐New York
☐Other

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐Sampler	DATE	TIME
		8/7/24	1700
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
UPS		8/7/24	1700
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	8/9/24	1135

SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS

NOTES: TEMP. ON ARRIVAL 21°C

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: MERI	SDG/AR/COC/Work Order: 480141
Received By: Stacy L. Bowne	Date Received: Aug 12, 2024
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 1Z 466 477 03 6223 1568

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*			✓	Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 21°C
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR3-23 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials AM Date 8/12/24 Page 1 of 1

GL-CHL-SR-001 Rev 7

Laboratory Certifications

List of current GEL Certifications as of 03 September 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	NV-C24-00175
New Hampshire NELAP	205424
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235
Utah NELAP	SC000122024-41
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S64874
Work Order #: 680141

Product: **Radium-226+Radium-228 Calculation**
Analytical Method: Calculation
Analytical Procedure: GL-RAD-D-003 REV# 45
Analytical Batch: 2659108

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
680141001	S64874.01
680141002	S64874.02
680141003	S64874.03
680141004	S64874.04
680141005	S64874.05
680141006	S64874.06
680141007	S64874.07
680141008	S64874.08

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2654956

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
680141001	S64874.01
680141002	S64874.02
680141003	S64874.03
680141004	S64874.04
680141005	S64874.05
680141006	S64874.06
680141007	S64874.07
680141008	S64874.08
1205818574	Method Blank (MB)
1205818575	680141001(S64874.01) Sample Duplicate (DUP)
1205818576	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Preparation Information

Homogenous Matrix
Samples were non-homogenous matrix. Sample was water with salt like residues.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2655429

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
680141001	S64874.01
680141002	S64874.02
680141003	S64874.03
680141004	S64874.04
680141005	S64874.05
680141006	S64874.06
680141007	S64874.07
680141008	S64874.08
1205819421	Method Blank (MB)
1205819422	680141001(S64874.01) Sample Duplicate (DUP)
1205819423	680141001(S64874.01) Matrix Spike (MS)
1205819424	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1205819423 (S64874.01MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MERI001 Merit Laboratories, Inc.

Client SDG: S64874 GEL Work Order: 680141

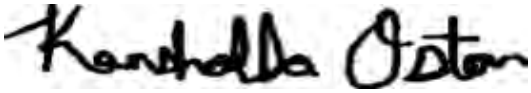
The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:  **Name: Kenshalla Oston**

Date: 06 SEP 2024 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 6, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64874.01	Project:	MERI00120
Sample ID:	680141001	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	06-AUG-24 18:13		
Receive Date:	09-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.644	+/-0.850	1.45	3.00	pCi/L			KP1	09/04/24	0716	2654956	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.24	+/-0.884			pCi/L		1	TON1	09/05/24	1259	2659108	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.591	+/-0.244	0.218	1.00	pCi/L			MJ2	09/05/24	0825	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			82.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 6, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64874.02	Project:	MERI00120
Sample ID:	680141002	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	06-AUG-24 15:37		
Receive Date:	09-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.189	+/-0.848	1.58	3.00	pCi/L			KP1	09/04/24	0716	2654956	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.602	+/-0.895			pCi/L		1	TON1	09/05/24	1259	2659108	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.413	+/-0.286	0.417	1.00	pCi/L			MJ2	09/05/24	0825	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 6, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64874.03	Project:	MERI00120
Sample ID:	680141003	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	06-AUG-24 16:58		
Receive Date:	09-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.32	+/-1.34	2.22	3.00	pCi/L			KP1	09/04/24	0716	2654956	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.91	+/-1.38			pCi/L		1	TON1	09/05/24	1259	2659108	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.591	+/-0.335	0.455	1.00	pCi/L			MJ2	09/05/24	0825	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 6, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64874.04	Project:	MERI00120
Sample ID:	680141004	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	06-AUG-24 16:58		
Receive Date:	09-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.491	+/-1.26	2.24	3.00	pCi/L			KP1	09/04/24	0716	2654956	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.998	+/-1.28			pCi/L		1	TON1	09/05/24	1259	2659108	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.508	+/-0.216	0.169	1.00	pCi/L			MJ2	09/05/24	0825	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 6, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64874.05	Project:	MERI00120
Sample ID:	680141005	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	06-AUG-24 15:59		
Receive Date:	09-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		2.71	+/-1.14	1.48	3.00	pCi/L			KP1	09/04/24	0716	2654956	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.17	+/-1.17			pCi/L		1	TON1	09/05/24	1259	2659108	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.461	+/-0.238	0.268	1.00	pCi/L			MJ2	09/05/24	0825	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			85.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 6, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64874.06	Project:	MERI00120
Sample ID:	680141006	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	06-AUG-24 17:22		
Receive Date:	09-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.285	+/-0.815	1.49	3.00	pCi/L			KP1	09/04/24	0716	2654956	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.26	+/-0.886			pCi/L		1	TON1	09/05/24	1259	2659108	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.978	+/-0.348	0.325	1.00	pCi/L			MJ2	09/05/24	0825	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			89.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 6, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64874.07	Project:	MERI00120
Sample ID:	680141007	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	06-AUG-24 19:14		
Receive Date:	09-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.83	+/-1.33	2.10	3.00	pCi/L			KP1	09/04/24	0716	2654956	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.64	+/-1.36			pCi/L		1	TON1	09/05/24	1259	2659108	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.811	+/-0.298	0.243	1.00	pCi/L			MJ2	09/05/24	0825	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			78.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 6, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64874.08	Project:	MERI00120
Sample ID:	680141008	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	06-AUG-24 12:45		
Receive Date:	09-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.79	+/-1.21	1.85	3.00	pCi/L			KP1	09/04/24	0716	2654956	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.99	+/-1.23			pCi/L		1	TON1	09/05/24	1259	2659108	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.193	+/-0.183	0.288	1.00	pCi/L			MJ2	09/05/24	0825	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			71.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Data

QC Summary

Report Date: September 6, 2024

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: **John Laverty**

Workorder: **680141**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 2654956										
QC1205818575 680141001 DUP										
Radium-228	U	0.644	U	0.444	pCi/L	N/A		N/A	KP1	09/04/24 07:16
	Uncertainty	+/-0.850		+/-0.808						
QC1205818576 LCS										
Radium-228	69.9			78.7	pCi/L		113	(75%-125%)		09/04/24 07:15
	Uncertainty			+/-4.67						
QC1205818574 MB										
Radium-228			U	0.911	pCi/L					09/04/24 07:16
	Uncertainty			+/-1.00						
Rad Ra-226										
Batch 2655429										
QC1205819422 680141001 DUP										
Radium-226		0.591		0.628	pCi/L	6.06		(0% - 100%)	MJ2	09/05/24 09:30
	Uncertainty	+/-0.244		+/-0.272						
QC1205819424 LCS										
Radium-226	27.3			21.7	pCi/L		79.5	(75%-125%)		09/05/24 09:30
	Uncertainty			+/-1.37						
QC1205819421 MB										
Radium-226			U	0.0957	pCi/L					09/05/24 09:30
	Uncertainty			+/-0.199						
QC1205819423 680141001 MS										
Radium-226	137	0.591		151	pCi/L		109	(75%-125%)		09/05/24 09:30
	Uncertainty	+/-0.244		+/-9.05						

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported

QC Summary

Workorder: **680141**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

>	Result is greater than value reported
UI	Gamma Spectroscopy--Uncertain identification
BD	Results are either below the MDC or tracer recovery is low
h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
M	M if above MDC and less than LLD
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
FA	Failed analysis.
UJ	Gamma Spectroscopy--Uncertain identification
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N1	See case narrative
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
**	Analyte is a Tracer compound
M	REMP Result > MDC/CL and < RDL
J	See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Gas Flow Raw Data

Batch 2654956 Check-list

This check-list was completed on 04-SEP-24 by Nat Long

This batch was reviewed by Kenshalla Oston on 04-SEP-24 and Nat Long on 04-SEP-24.

Batch ID: 2654956 **Product:** GFC28RAL **Description:** Gas Flow Radium 228 GL-RAD-A-063

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous		No	
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-228 in Liquid

Batch ID: **2654956**
Analyst: Kaitlyn Painter (KP1)
Method: EPA 904.0/SW846 9320 Modified
Lab SOP: GL-RAD-A-063 REV# 5
Instrument: SP-C018367602

Due Dates for Lab: 06-SEP-2024 **Package: 08-SEP-2024** **SDG: 09-SEP-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205818576	Radium 228	2051-E	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)
1	680141001	14-AUG-2024	3	300.3	300.3	08/16/24 11:08	09/04/24 05:09
2	680141002	14-AUG-2024	3	303.1	303.1	08/16/24 11:08	09/04/24 05:09
3	680141003	14-AUG-2024	3	300.7	300.7	08/16/24 11:08	09/04/24 05:09
4	680141004	14-AUG-2024	3	301.2	301.2	08/16/24 11:08	09/04/24 05:09
5	680141005	14-AUG-2024	3	300.6	300.6	08/16/24 11:08	09/04/24 05:09
6	680141006	14-AUG-2024	3	300	300	08/16/24 11:08	09/04/24 05:09
7	680141007	14-AUG-2024	3	300.9	300.9	08/16/24 11:08	09/04/24 05:09
8	680141008	14-AUG-2024	3	306	306	08/16/24 11:08	09/04/24 05:09
9	1205818574 MB	14-AUG-2024	3		306	08/16/24 11:08	09/04/24 05:09
10	1205818575 DUP (680141001)	14-AUG-2024	3	300.8	300.8	08/16/24 11:08	09/04/24 05:09
11	1205818576 LCS	14-AUG-2024	3		306	08/16/24 11:08	09/04/24 05:09

Reagent/Solvent Lot ID	Description	Amount
WORK 2097-C	Ba-133 Tracer	.1 mL
REGNT 4390939	RGF-1.5M Ammonium Sulfate	10 mL
REGNT 4389691	Barium Carrier Ra228 REG	1 mL
REGNT 4389703	RGF-1M Citric Acid	5 mL
REGNT 4390928	2M HCl	20 mL
REGNT 4388485	RGF-50% Potassium Carbonate	2 mL
REGNT 4388157	RGF-7M Nitric Acid	25 mL
REGNT 4379234.4	Acetic Acid Glacial ACS	10 mL
REGNT DGA07232024	2651587	2 g
REGNT 4381503.2	RGF-Hydrofluoric Acid	4 mL
REGNT 4337194	500 mg/mL Neodymium Carrier	.2 mL
REGNT 4382975	RGF-Neodymium Subtrate	5 mL
REGNT 4380794.5	Nitric Acid	5 mL

Comments:
Pipet Id: RAD-GFC-1795419
Data Entry Date2: 15-AUG-2024 10:36 SP-C018367602 Kaitlyn Painter
Data Entry Date3: 14-AUG-2024 00:00

Radium-228 Liquid

Filename : RA228.XLS
File type : Excel
Version # : 1.4.3

Tracer S/N : 2097-C
Tracer Exp Date : 4/9/2025
Tracer Volume Added: 0.10

Batch : 2654956
Analyst : KAI02410
Prep Date : 8/14/2024
Ra-228 Method Uncertainty : 0.1268

Geometry: 25mm Filter

Procedure Code : GFC28RAL
Parmname : Radium-228
Required MDA : 3 pCi/L
Ra-228 Abundance : 1.00
Halflife of Ra-228 : 5.75 years
Halflife of Ac-228 : 6.15 hours

Sample Characteristics					**Tracer Calculations**					
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Tracer Ref. Activity (CPM)	Tracer Ref. Count Uncertainty (%)	Tracer Samp. Activity (CPM)	Tracer Samp. Count Uncertainty (%)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	680141001.1	0.3003	1.8464E-05	8/6/2024 18:13	978.8	1.85%	804.6	2.04%	0.1	0.000200
2	680141002.1	0.3031	1.8511E-05	8/6/2024 15:37	978.8	1.85%	827.4	2.01%	0.1	0.000200
3	680141003.1	0.3007	1.8471E-05	8/6/2024 16:58	978.8	1.85%	829.2	2.00%	0.1	0.000200
4	680141004.1	0.3012	1.8479E-05	8/6/2024 16:58	978.8	1.85%	824.3	2.01%	0.1	0.000200
5	680141005.1	0.3006	1.8469E-05	8/6/2024 15:59	978.8	1.85%	833.1	2.00%	0.1	0.000200
6	680141006.1	0.3000	1.8459E-05	8/6/2024 17:22	978.8	1.85%	875.2	1.95%	0.1	0.000200
7	680141007.1	0.3009	1.8474E-05	8/6/2024 19:14	978.8	1.85%	769.2	2.08%	0.1	0.000200
8	680141008.1	0.3060	1.8559E-05	8/6/2024 12:45	978.8	1.85%	699.5	2.18%	0.1	0.000200
9	1205818574.1	0.3060	1.8559E-05	8/14/2024 0:00	978.8	1.85%	777.6	2.07%	0.1	0.000200
10	1205818575.1	0.3008	1.8473E-05	8/6/2024 18:13	978.8	1.85%	829.1	2.00%	0.1	0.000200
11	1205818576.1	0.3060	1.8559E-05	8/14/2024 0:00	978.8	1.85%	856.2	1.97%	0.1	0.000200

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-063
Instrument SOP: GL-RAD-I-016

Count raw Data

Pos.	Detector ID	Counting Time (min.)	Gross Counts Alpha	Gross Counts Beta	Beta cpm	Count Start Date/Time	Ac-228 Ingrowth Date/Time	Ac-228 Decay Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Ingrowth	Ac-228 Count Correction	Calculated Sample Recovery %	Sample Recovery Error %
1	7A	60	8	34	0.567	9/4/2024 7:16	8/16/2024 11:08	9/4/2024 5:09	0.991	0.787	1.000	1.057	82.2%	2.77%
2	6A	60	12	35	0.583	9/4/2024 7:16	8/16/2024 11:08	9/4/2024 5:09	0.991	0.787	1.000	1.057	84.5%	2.75%
3	6B	60	10	88	1.467	9/4/2024 7:16	8/16/2024 11:08	9/4/2024 5:09	0.991	0.787	1.000	1.057	84.7%	2.74%
4	6C	60	7	80	1.333	9/4/2024 7:16	8/16/2024 11:08	9/4/2024 5:09	0.991	0.787	1.000	1.057	84.2%	2.75%
5	7D	60	12	64	1.067	9/4/2024 7:16	8/16/2024 11:08	9/4/2024 5:09	0.991	0.787	1.000	1.057	85.1%	2.74%
6	8B	60	7	36	0.600	9/4/2024 7:16	8/16/2024 11:08	9/4/2024 5:09	0.991	0.787	1.000	1.057	89.4%	2.70%
7	9A	60	10	74	1.233	9/4/2024 7:16	8/16/2024 11:08	9/4/2024 5:09	0.991	0.787	1.000	1.057	78.6%	2.80%
8	9B	60	12	55	0.917	9/4/2024 7:16	8/16/2024 11:08	9/4/2024 5:09	0.991	0.786	1.000	1.057	71.5%	2.87%
9	7B	60	7	44	0.733	9/4/2024 7:16	8/16/2024 11:08	9/4/2024 5:09	0.993	0.787	1.000	1.057	79.4%	2.79%
10	7C	60	7	31	0.517	9/4/2024 7:16	8/16/2024 11:08	9/4/2024 5:09	0.991	0.787	1.000	1.057	84.7%	2.74%
11	5A	60	56	1210	20.167	9/4/2024 7:15	8/16/2024 11:08	9/4/2024 5:09	0.993	0.788	1.000	1.057	87.5%	2.72%

Calibration Data								
Pos.	Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Bkg cpm	Weekly Bkg Count Start Date/Time	Bkg Count Time (min.)
1	PIC	6/1/2024	5/31/2025	0.5788	0.00594	0.416	8/30/2024 18:47	500
2	PIC	6/1/2024	5/31/2025	0.5728	0.02228	0.538	8/30/2024 18:14	500
3	PIC	6/1/2024	5/31/2025	0.5756	0.00851	1.150	8/30/2024 18:15	500
4	PIC	6/1/2024	5/31/2025	0.5862	0.01970	1.214	8/30/2024 18:15	500
5	PIC	6/1/2024	5/31/2025	0.5590	0.01113	0.432	8/30/2024 18:47	500
6	PIC	6/1/2024	5/31/2025	0.5764	0.02148	0.528	8/30/2024 18:15	500
7	PIC	6/1/2024	5/31/2025	0.5671	0.00758	0.832	8/30/2024 18:15	500
8	PIC	6/1/2024	5/31/2025	0.5776	0.00754	0.546	8/30/2024 18:15	500
9	PIC	6/1/2024	5/31/2025	0.5647	0.00627	0.528	8/30/2024 18:47	500
10	PIC	6/1/2024	5/31/2025	0.5652	0.00790	0.412	8/30/2024 18:15	500
11	PIC	6/1/2024	5/31/2025	0.5552	0.00851	0.940	8/30/2024 18:16	500

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : N/A
Spike Exp Date : N/A
Spike Activity (dpm/ml): N/A
Spike Volume Added: N/A

LCS S/N : 2051-E
LCS Exp Date : 4/29/2025
LCS Activity (dpm/ml): 475.02
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type		RPD	RER	Nominal pCi/L	Recovery
1	0.8779	0.6198	3	1.4535	**0.6442**	67.34%	0.1507	0.1014	0.8496	0.8653		SAMPLE					
2	0.9721	0.6863	3	1.5808	**0.1887**	229.25%	0.0453	0.1039	0.8480	0.8493		SAMPLE					
3	1.4225	1.0043	3	2.2170	**1.3196**	51.72%	0.3167	0.1635	1.3357	1.3773		SAMPLE					
4	1.4417	1.0179	3	2.2412	**0.4905**	131.61%	0.1193	0.1570	1.2649	1.2711		SAMPLE					
5	0.8942	0.6313	3	1.4762	**2.7122**	21.72%	0.6347	0.1365	1.1436	1.3368		SAMPLE					
6	0.9144	0.6456	3	1.4889	**0.2846**	146.08%	0.0720	0.1051	0.8147	0.8180		SAMPLE					
7	1.3239	0.9347	3	2.0973	**1.8298**	37.25%	0.4013	0.1491	1.3321	1.4114		SAMPLE					
8	1.1386	0.8039	3	1.8498	**1.7942**	34.64%	0.3707	0.1279	1.2139	1.2974		SAMPLE					
9	1.0268	0.7249	3	1.6717	**0.9114**	56.19%	0.2053	0.1152	1.0025	1.0290		MB					
10	0.8667	0.6119	3	1.4359	**0.4440**	92.85%	0.1047	0.0971	0.8075	0.8154	680141001.1	DUP	*	0.0%			
11	1.2639	0.8923	3	1.9894	**78.7323**	4.15%	19.2267	0.5814	4.6661	20.5901		LCS				69.9256	112.6%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine	Batch ID
680141001	7A	60	8	34	9/4/2024 7:16	9/4/2024 8:16	PIC	2654956
680141002	6A	60	12	35	9/4/2024 7:16	9/4/2024 8:16	PIC	2654956
680141003	6B	60	10	88	9/4/2024 7:16	9/4/2024 8:16	PIC	2654956
680141004	6C	60	7	80	9/4/2024 7:16	9/4/2024 8:16	PIC	2654956
680141005	7D	60	12	64	9/4/2024 7:16	9/4/2024 8:16	PIC	2654956
680141006	8B	60	7	36	9/4/2024 7:16	9/4/2024 8:16	PIC	2654956
680141007	9A	60	10	74	9/4/2024 7:16	9/4/2024 8:16	PIC	2654956
680141008	9B	60	12	55	9/4/2024 7:16	9/4/2024 8:16	PIC	2654956
1205818574	7B	60	7	44	9/4/2024 7:16	9/4/2024 8:16	PIC	2654956
1205818575	7C	60	7	31	9/4/2024 7:16	9/4/2024 8:16	PIC	2654956
1205818576	5A	60	56	1210	9/4/2024 7:15	9/4/2024 8:15	PIC	2654956

ASSAY		4-Sep-24	6:13:14							
Wizard 2480 s/n 46190630										
Protocol	id	8	Ba-133							
Time	limit									
Count	limit									
Isotope	Ba-133									
Protocol	date	9/4/2024								
Run	id.	2483								

Samp_ID	POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
REF	1	98	1	180	2937	978.8	1.85		06:13:14
680141001	2	98	2	180	2414	804.57	2.04	82.20	06:16:27
680141002	3	98	3	180	2482.5	827.44	2.01	84.54	06:19:42
680141003	4	98	4	180	2488	829.24	2	84.72	06:22:56
680141004	5	98	5	180	2473	824.26	2.01	84.21	06:26:09
680141005	1	53	1	180	2500	833.13	2	85.12	06:29:45
680141006	2	53	2	180	2626	875.17	1.95	89.41	06:32:59
680141007	3	53	3	180	2308	769.17	2.08	78.58	06:36:13
680141008	4	53	4	180	2099	699.54	2.18	71.47	06:39:27
1205818574	5	53	5	180	2333	777.55	2.07	79.44	06:42:41
1205818575	1	61	1	180	2488	829.12	2	84.71	06:46:24
1205818576	2	61	2	180	2569	856.24	1.97	87.48	06:49:38

END OF ASSAY

Continuing Calibration Data

Gas Flow Proportional Counter Checks for 04-Sep-2024

Detectors LB4100 E1 through H4 and PIC 1A through 14D and G5400W 1W through 1Z and LB4200 GA1 through OD4

Short Name	Status	Parmname	Run Time	Count Time	CPM or dec	Low Limit	High Limit	Stdev
LB4100F1	Above	Beta bkg	04-Sep 09:25	60	2.233	-2.37E-1	3.338	+1.15
LB4100F4	Above	Alpha XTalk	04-Sep 09:17	5	0.207	0.165	0.206	+3.24
LB4100G2	Below	Alpha eff	04-Sep 07:45	5	10077	10810	14340	-4.25
LB4100G2	Above	Alpha XTalk	04-Sep 07:45	5	0.299	0.169	0.234	+8.95
LB4100G2	Above	Beta bkg	04-Sep 05:45	60	499	0.407	1.917	+1,979.10
LB4100G2	need 2nd	Beta eff	04-Sep 07:51	5	14608	12830	15530	+0.95
LB4100G3	Below	Alpha eff	04-Sep 07:45	5	7706	8123	10070	-4.28
LB4100G3	Above	Beta bkg	04-Sep 05:45	60	8.317	0.716	2.721	+19.74
LB4200GB2	need 2nd	Alpha eff	04-Sep 07:07	5	9494	9443	9898	-2.33
LB4200GB2	Above	Beta bkg	04-Sep 05:41	60	10.350	0.129	1.304	+49.17
LB4200OB1	Below	Alpha eff	04-Sep 06:50	5	10646	10660	11210	-3.15
LB4200OB1	Above	Beta bkg	04-Sep 05:41	60	2.667	-2.59E-1	2.044	+4.62
LB4200OC2	Above	Beta bkg	04-Sep 05:41	60	40.550	-6.67E-2	2.499	+91.99
LB4200OC4	need 2nd	Alpha XTalk	04-Sep 07:00	5	0.241	0.178	0.246	+2.57
LB4200OC4	Above	Beta bkg	04-Sep 05:41	60	71.850	0.232	1.342	+384.12
PIC8C	Above	Alpha bkg	04-Sep 06:03	60	1.033	-1.17E-1	0.365	+11.32
PIC8C	Above	Beta bkg	04-Sep 06:03	60	89.350	-1.07E-1	1.869	+268.68
PIC14C	need 2nd	Alpha eff	04-Sep 06:08	5	15080	14840	16050	-1.81
PIC14C	Above	Beta bkg	04-Sep 06:24	60	10.200	-1.14E+0	3.604	+11.35
PIC14D	Above	Beta bkg	04-Sep 06:24	60	3.600	-2.45E-1	2.368	+5.83

INSTRUMENTS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

The following detectors may not have properly transferred to the LIMS system

LB4100G1	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC8A	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk

Reviewed by Jc Poparad

Date 9/4/24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: GFPC **Batch ID: 2654956**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1205818576	LCS	KP1	PIC5A	SEP-04-24 07:15:41	DONE	25mm Filter	01-JUN-24 00:00
1205818574	MB	KP1	PIC7B	SEP-04-24 07:16:22	DONE	25mm Filter	01-JUN-24 00:00
1205818575	DUP	KP1	PIC7C	SEP-04-24 07:16:24	DONE	25mm Filter	01-JUN-24 00:00
680141001	SAMPLE	KP1	PIC7A	SEP-04-24 07:16:29	DONE	25mm Filter	01-JUN-24 00:00
680141002	SAMPLE	KP1	PIC6A	SEP-04-24 07:16:32	DONE	25mm Filter	01-JUN-24 00:00
680141003	SAMPLE	KP1	PIC6B	SEP-04-24 07:16:35	DONE	25mm Filter	01-JUN-24 00:00
680141004	SAMPLE	KP1	PIC6C	SEP-04-24 07:16:38	DONE	25mm Filter	01-JUN-24 00:00
680141005	SAMPLE	KP1	PIC7D	SEP-04-24 07:16:43	DONE	25mm Filter	01-JUN-24 00:00
680141006	SAMPLE	KP1	PIC8B	SEP-04-24 07:16:46	DONE	25mm Filter	01-JUN-24 00:00
680141007	SAMPLE	KP1	PIC9A	SEP-04-24 07:16:51	DONE	25mm Filter	01-JUN-24 00:00
680141008	SAMPLE	KP1	PIC9B	SEP-04-24 07:16:56	DONE	25mm Filter	01-JUN-24 00:00

Lucas Cell Raw Data

Batch 2655429 Check-list

This check-list was completed on 05-SEP-24 by Elizabeth Krouse

This batch was reviewed by Elizabeth Krouse on 05-SEP-24 and Lyndsey Pace on 05-SEP-24.

Batch ID: 2655429 **Product:** LUC26RAL **Description:** Lucas Cell Radium 226 GL-RAD-A-008

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
10	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-226 in Liquid

Batch ID: **2655429**
Analyst: Marisa Johnson (MJ2)
Method: EPA 903.1 Modified
Lab SOP: GL-RAD-A-008 REV# 15
Instrument: LUCAS-C202389980

Due Dates for Lab: 06-SEP-2024 **Package: 08-SEP-2024** **SDG: 09-SEP-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205819424	Ra-226 emanation spike	1715-J	.1	mL
MS	1205819423	Ra-226 emanation spike	1715-J	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	End Degas (date)	CELL #	End Transfer (date)	Start Count Time (date)	Background Counts	Total Counts
1	680141001	27-AUG-2024	1	500.11	500.11	08/29/24 06:50	108	09/05/24 05:33	09/05/24 08:25	2	28
2	680141002	27-AUG-2024	1	500.31	500.31	08/29/24 06:50	204	09/05/24 05:33	09/05/24 08:25	8	24
3	680141003	27-AUG-2024	1	502.89	502.89	08/29/24 06:50	302	09/05/24 05:33	09/05/24 08:25	8	29
4	680141004	27-AUG-2024	1	501.04	501.04	08/29/24 06:50	404	09/05/24 05:33	09/05/24 08:25	1	24
5	680141005	27-AUG-2024	1	501.34	501.34	08/29/24 06:50	505	09/05/24 05:33	09/05/24 08:25	3	22
6	680141006	27-AUG-2024	1	501.49	501.49	08/29/24 06:50	609	09/05/24 05:33	09/05/24 08:25	4	41
7	680141007	27-AUG-2024	1	504	504	08/29/24 06:50	702	09/05/24 05:33	09/05/24 08:25	2	34
8	680141008	27-AUG-2024	1	502.12	502.12	08/29/24 06:50	803	09/05/24 05:33	09/05/24 08:25	5	14
9	680266001	27-AUG-2024	1	504.84	504.84	08/29/24 06:50	101	09/05/24 06:08	09/05/24 08:57	7	29
10	680266002	27-AUG-2024	1	502.42	502.42	08/29/24 06:50	206	09/05/24 06:08	09/05/24 08:57	3	19
11	680266003	27-AUG-2024	1	504.69	504.69	08/29/24 06:50	304	09/05/24 06:08	09/05/24 08:57	1	14
12	680266004	27-AUG-2024	1	502.6	502.6	08/29/24 06:50	407	09/05/24 06:08	09/05/24 08:57	7	14
13	680266005	27-AUG-2024	1	502.76	502.76	08/29/24 06:50	502	09/05/24 06:08	09/05/24 08:57	4	18
14	680266006	27-AUG-2024	1	502.37	502.37	08/29/24 06:50	607	09/05/24 06:08	09/05/24 08:57	3	32
15	680266007	27-AUG-2024	1	504.49	504.49	08/29/24 06:50	701	09/05/24 06:08	09/05/24 08:57	3	19
16	680266008	27-AUG-2024	1	502.1	502.1	08/29/24 06:50	804	09/05/24 06:08	09/05/24 08:57	1	15
17	1205819421 MB	27-AUG-2024	1		504.84	08/29/24 06:50	105	09/05/24 06:41	09/05/24 09:30	7	11
18	1205819422 DUP (680141001)	27-AUG-2024	1	501.43	501.43	08/29/24 06:50	201	09/05/24 06:41	09/05/24 09:30	8	39
19	1205819423 MS (680141001)	27-AUG-2024	1	100.27	100.27	08/29/24 06:50	301	09/05/24 06:41	09/05/24 09:30	4	1081
20	1205819424 LCS	27-AUG-2024	1		504.84	08/29/24 06:50	409	09/05/24 06:41	09/05/24 09:30	4	979

Reagent/Solvent Lot ID	Description	Amount

Comments:
Data Entry Date2: 27-AUG-2024 00:00

Radium-226 Liquid

Filename : RA226.XLS
File type : Excel
Version # : 1.3.2

Batch : 2655429
Analyst : MAR02577
Prep Date : 8/27/2024
Ra-226 Method Uncertainty : 0.073648

Procedure Code : LUC26RAL
Parmname : Radium-226
Required MDA : 1 pCi/L
Halflife of Ra-226 : 1600 years
Ra-226 Abundance : 1.00
Halflife of Rn-222: 3.8235 days

Batch counted on : LUCAS CELL DETECTOR
BKG Count time : 30 min

Sample Characteristics					Count Raw Data							
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Background Count Time (min.)	Cell Efficiency (cpm/dpm)
1	680141001.1	0.5001	2.0256E-05	8/6/2024 18:13	108	30	28	0.933	2	0.067	30	1.8870
2	680141002.1	0.5003	2.0257E-05	8/6/2024 15:37	204	30	24	0.800	8	0.267	30	1.6616
3	680141003.1	0.5029	2.0268E-05	8/6/2024 16:58	302	30	29	0.967	8	0.267	30	1.5170
4	680141004.1	0.5010	2.0260E-05	8/6/2024 16:58	404	30	24	0.800	1	0.033	30	1.9410
5	680141005.1	0.5013	2.0261E-05	8/6/2024 15:59	505	30	22	0.733	3	0.100	30	1.7660
6	680141006.1	0.5015	2.0262E-05	8/6/2024 17:22	609	30	41	1.367	4	0.133	30	1.6188
7	680141007.1	0.5040	2.0272E-05	8/6/2024 19:14	702	30	34	1.133	2	0.067	30	1.6810
8	680141008.1	0.5021	2.0265E-05	8/6/2024 12:45	803	30	14	0.467	5	0.167	30	1.9922
9	680266001.1	0.5048	2.0276E-05	8/7/2024 10:47	101	30	29	0.967	7	0.233	30	1.7540
10	680266002.1	0.5024	2.0266E-05	8/7/2024 12:08	206	30	19	0.633	3	0.100	30	1.8102
11	680266003.1	0.5047	2.0275E-05	8/7/2024 12:08	304	30	14	0.467	1	0.033	30	1.4940
12	680266004.1	0.5026	2.0266E-05	8/7/2024 14:00	407	30	14	0.467	7	0.233	30	1.9490
13	680266005.1	0.5028	2.0267E-05	8/7/2024 15:23	502	30	18	0.600	4	0.133	30	1.8160
14	680266006.1	0.5024	2.0266E-05	8/7/2024 15:12	607	30	32	1.067	3	0.100	30	2.0379
15	680266007.1	0.5045	2.0274E-05	8/7/2024 13:36	701	30	19	0.633	3	0.100	30	1.5970
16	680266008.1	0.5021	2.0264E-05	8/7/2024 10:15	804	30	15	0.500	1	0.033	30	1.5337
17	1205819421.1	0.5048	2.0276E-05	8/27/2024 0:00	105	30	11	0.367	7	0.233	30	1.7710
18	1205819422.1	0.5014	2.0262E-05	8/6/2024 18:13	201	30	39	1.300	8	0.267	30	2.1041
19	1205819423.1	0.1003	1.1387E-05	8/6/2024 18:13	301	30	1081	36.033	4	0.133	30	1.5220
20	1205819424.1	0.5048	2.0276E-05	8/27/2024 0:00	409	30	979	32.633	4	0.133	30	1.9030

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-008
Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections			
						De-Gas to Ingrowth	Ingrowth to Count	During Count	Ra-226 Decay
2.600%	5/1/2024	4/30/2025	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
5.120%	8/14/2024	8/31/2025	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
0.600%	11/1/2023	10/31/2024	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
3.700%	2/1/2024	1/31/2025	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
5.600%	6/12/2024	6/30/2025	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
8.216%	7/16/2024	7/31/2025	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
2.000%	11/1/2023	10/31/2024	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
7.204%	4/1/2024	3/31/2025	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
7.900%	5/1/2024	4/30/2025	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
9.532%	8/14/2024	8/31/2025	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
2.100%	11/1/2023	10/31/2024	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
7.500%	2/1/2024	1/31/2025	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
1.000%	6/12/2024	6/30/2025	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
6.129%	7/16/2024	7/31/2025	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
5.900%	11/1/2023	10/31/2024	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
6.090%	4/1/2024	3/31/2025	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
5.800%	5/1/2024	4/30/2025	8/29/2024 6:50	9/5/2024 6:41	9/5/2024 9:30	0.719	0.979	1.002	1.000
2.597%	8/14/2024	8/31/2025	8/29/2024 6:50	9/5/2024 6:41	9/5/2024 9:30	0.719	0.979	1.002	1.000
5.700%	11/1/2023	10/31/2024	8/29/2024 6:50	9/5/2024 6:41	9/5/2024 9:30	0.719	0.979	1.002	1.000
4.900%	2/1/2024	1/31/2025	8/29/2024 6:50	9/5/2024 6:41	9/5/2024 9:30	0.719	0.979	1.002	1.000

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

Spike S/N : 1715-J
Spike Exp Date : 4/1/2025
Spike Activity (dpm/ml): 305.97
Spike Volume Added: 0.10

LCS S/N : 1715-J
LCS Exp Date : 4/1/2025
LCS Activity (dpm/ml): 305.97
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	0.1060	0.0748	1	0.2179	**0.5914**	21.23%	0.8667	0.1826	0.2442	0.2604		SAMPLE				
2	0.2407	0.1699	1	0.4173	**0.4131**	35.72%	0.5333	0.1886	0.2863	0.2954		SAMPLE				
3	0.2622	0.1852	1	0.4547	**0.5909**	28.97%	0.7000	0.2028	0.3355	0.3462		SAMPLE				
4	0.0727	0.0513	1	0.1689	**0.5077**	22.05%	0.7667	0.1667	0.2163	0.2313		SAMPLE				
5	0.1384	0.0977	1	0.2681	**0.4607**	26.91%	0.6333	0.1667	0.2376	0.2519		SAMPLE				
6	0.1743	0.1230	1	0.3254	**0.9784**	19.91%	1.2333	0.2236	0.3477	0.4070		SAMPLE				
7	0.1181	0.0834	1	0.2427	**0.8108**	18.86%	1.0667	0.2000	0.2980	0.3217		SAMPLE				
8	0.1581	0.1116	1	0.2876	**0.1931**	48.97%	0.3000	0.1453	0.1833	0.1874		SAMPLE				
9	0.2109	0.1489	1	0.3704	**0.5322**	28.39%	0.7333	0.2000	0.2845	0.3060		SAMPLE				
10	0.1344	0.0949	1	0.2605	**0.3768**	30.83%	0.5333	0.1563	0.2165	0.2341		SAMPLE				
11	0.0936	0.0661	1	0.2174	**0.3693**	29.87%	0.4333	0.1291	0.2157	0.2227		SAMPLE				
12	0.1906	0.1346	1	0.3348	**0.1531**	65.89%	0.2333	0.1528	0.1964	0.1989		SAMPLE				
13	0.1546	0.1092	1	0.2887	**0.3285**	33.52%	0.4667	0.1563	0.2157	0.2209		SAMPLE				
14	0.1194	0.0843	1	0.2314	**0.6068**	21.30%	0.9667	0.1972	0.2426	0.2680		SAMPLE				
15	0.1517	0.1071	1	0.2940	**0.4254**	29.90%	0.5333	0.1563	0.2444	0.2568		SAMPLE				
16	0.0917	0.0647	1	0.2129	**0.3894**	29.21%	0.4667	0.1333	0.2181	0.2300		SAMPLE				
17	0.2085	0.1472	1	0.3662	**0.0957**	106.22%	0.1333	0.1414	0.1989	0.1997		MB				
18	0.1889	0.1334	1	0.3276	**0.6284**	22.27%	1.0333	0.2285	0.2724	0.2889	680141001.1	DUP	6.1%			
19	0.9235	0.6520	1	1.7244	**150.9241**	6.47%	35.9000	1.0980	9.0472	28.9962	680141001.1	MS			137.4566	109.4%
20	0.1467	0.1036	1	0.2739	**21.7035**	5.86%	32.5000	1.0451	1.3679	4.0039		LCS			27.3006	79.5%

Continuing Calibration Data

Ludlum Alpha Scintillation Counter Checks for 05-SEP-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	07:51	1	1.11E+05	111377	1.24		
LUCAS2	EFF	07:50	1	1.31E+05	130700	2.7		
LUCAS3	EFF	07:48	1	95234	95234	1.49		
LUCAS4	EFF	07:46	1	1.26E+05	125522	1.85		
LUCAS5	EFF	07:45	1	1.29E+05	129269	2		
LUCAS6	EFF	07:44	1	1.27E+05	126727	-1.81		
LUCAS7	EFF	07:42	1	1.30E+05	130074	0.28		
LUCAS8	EFF	07:40	1	1.25E+05	125239	0.75		

Reviewed by: Lyndsey Pace **Date:** 05-SEP-24

Lyndsey Pace

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR **Batch ID: 2655429**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
680141001	SAMPLE	MJ2	LUCAS1	SEP-05-24 08:25:00	DONE	Lucas Cell	01-MAY-24 00:00
680141002	SAMPLE	MJ2	LUCAS2	SEP-05-24 08:25:00	DONE	Lucas Cell	14-AUG-24 00:00
680141003	SAMPLE	MJ2	LUCAS3	SEP-05-24 08:25:00	DONE	Lucas Cell	01-NOV-23 00:00
680141004	SAMPLE	MJ2	LUCAS4	SEP-05-24 08:25:00	DONE	Lucas Cell	01-FEB-24 00:00
680141005	SAMPLE	MJ2	LUCAS5	SEP-05-24 08:25:00	DONE	Lucas Cell	12-JUN-24 00:00
680141006	SAMPLE	MJ2	LUCAS6	SEP-05-24 08:25:00	DONE	Lucas Cell	16-JUL-24 00:00
680141007	SAMPLE	MJ2	LUCAS7	SEP-05-24 08:25:00	DONE	Lucas Cell	01-NOV-23 00:00
680141008	SAMPLE	MJ2	LUCAS8	SEP-05-24 08:25:00	DONE	Lucas Cell	01-APR-24 00:00
680266001	SAMPLE	MJ2	LUCAS1	SEP-05-24 08:57:00	DONE	Lucas Cell	01-MAY-24 00:00
680266002	SAMPLE	MJ2	LUCAS2	SEP-05-24 08:57:00	DONE	Lucas Cell	14-AUG-24 00:00
680266003	SAMPLE	MJ2	LUCAS3	SEP-05-24 08:57:00	DONE	Lucas Cell	01-NOV-23 00:00
680266004	SAMPLE	MJ2	LUCAS4	SEP-05-24 08:57:00	DONE	Lucas Cell	01-FEB-24 00:00
680266005	SAMPLE	MJ2	LUCAS5	SEP-05-24 08:57:00	DONE	Lucas Cell	12-JUN-24 00:00
680266006	SAMPLE	MJ2	LUCAS6	SEP-05-24 08:57:00	DONE	Lucas Cell	16-JUL-24 00:00
680266007	SAMPLE	MJ2	LUCAS7	SEP-05-24 08:57:00	DONE	Lucas Cell	01-NOV-23 00:00
680266008	SAMPLE	MJ2	LUCAS8	SEP-05-24 08:57:00	DONE	Lucas Cell	01-APR-24 00:00
1205819421	MB	MJ2	LUCAS1	SEP-05-24 09:30:00	DONE	Lucas Cell	01-MAY-24 00:00
1205819422	DUP	MJ2	LUCAS2	SEP-05-24 09:30:00	DONE	Lucas Cell	14-AUG-24 00:00
1205819423	MS	MJ2	LUCAS3	SEP-05-24 09:30:00	DONE	Lucas Cell	01-NOV-23 00:00
1205819424	LCS	MJ2	LUCAS4	SEP-05-24 09:30:00	DONE	Lucas Cell	01-FEB-24 00:00

Analytical Laboratory Report

Final Report

Report ID: S64939.01(01)
Generated on 09/10/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

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Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S64939.01-S64939.08
Project: Erickson Wellfield
Collected Date(s): 08/07/2024
Submitted Date/Time: 08/08/2024 08:30
Sampled by: Unknown
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

All analyses completed

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2320B	Standard Method 2320 B 2011
SM2340C	Standard Method 2340 C 2011
SM2540C	Standard Method 2540 C 2015
SM2540D	Standard Method 2540 D 2015
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S64939.01	MW-100B L408227-01	Groundwater	08/07/24 10:47
S64939.02	MW-100C L408227-02	Groundwater	08/07/24 12:08
S64939.03	MWT-100C L408227-03	Groundwater	08/07/24 12:08
S64939.04	MW-100D L408227-04	Groundwater	08/07/24 14:00
S64939.05	MW-100A L408227-05	Groundwater	08/07/24 15:23
S64939.06	MW-13 L408227-06	Groundwater	08/07/24 15:12
S64939.07	MW-15 L408227-07	Groundwater	08/07/24 13:36
S64939.08	Field Blank L408227-08	Water	08/07/24 10:15

Lab Sample ID: S64939.01
Sample Tag: MW-100B L408227-01
Collected Date/Time: 08/07/2024 10:47
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	125mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/08/24 11:19	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/16/24 14:10, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	19.0	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	0.3	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	118	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 12:54, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	360	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:12, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	398	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	520	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/09/24 09:25, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	2.4	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 15:58, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.010	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.143	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.22	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64939.01 (continued)
Sample Tag: MW-100B L408227-01

Method: E200.8, Run Date: 08/14/24 15:58, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	2.85	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.018	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.006	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:24, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	102	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	35.7	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	3.45	0.50	0.119	mg/L	5	7440-09-7	
Sodium	30.8	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/08/24 15:26, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 06:58, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64939.02
Sample Tag: MW-100C L408227-02
Collected Date/Time: 08/07/2024 12:08
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	125mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/09/24 13:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/16/24 14:20, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	4.6	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.3	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	6.0	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 13:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	360	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:18, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	218	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	298	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/09/24 09:25, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	0.9	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 16:01, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.062	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	1.91	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64939.02 (continued)
Sample Tag: MW-100C L408227-02

Method: E200.8, Run Date: 08/14/24 16:01, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.69	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.033	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:26, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	59.4	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	19.0	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	6.85	0.50	0.119	mg/L	5	7440-09-7	
Sodium	32.7	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/09/24 16:13, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 06:58, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64939.03
Sample Tag: MWT-100C L408227-03
Collected Date/Time: 08/07/2024 12:08
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	125mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/09/24 13:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/16/24 14:31, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	4.6	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.3	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	6.1	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 13:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	350	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	216	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	300	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/09/24 09:25, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.2	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 16:04, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.060	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	1.90	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64939.03 (continued)
Sample Tag: MWT-100C L408227-03

Method: E200.8, Run Date: 08/14/24 16:04, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.71	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.031	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:29, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	59.2	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	18.8	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	6.66	0.50	0.119	mg/L	5	7440-09-7	
Sodium	33.4	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/09/24 17:02, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 06:58, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64939.04
Sample Tag: MW-100D L408227-04
Collected Date/Time: 08/07/2024 14:00
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	125mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/09/24 13:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/16/24 14:41, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	13.1	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	0.4	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	60.5	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 13:13, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	550	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:22, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	178	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	584	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/09/24 09:25, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	9.5	3	0.5	mg/L	1.3		

Metals

Method: E200.8, Run Date: 08/14/24 16:08, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.003	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.019	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	1.89	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64939.04 (continued)
Sample Tag: MW-100D L408227-04

Method: E200.8, Run Date: 08/14/24 16:08, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.77	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.016	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.007	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:31, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	56.5	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	9.50	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	5.37	0.50	0.119	mg/L	5	7440-09-7	
Sodium	160	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/09/24 17:06, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 06:58, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64939.05
Sample Tag: MW-100A L408227-05
Collected Date/Time: 08/07/2024 15:23
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	125mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/09/24 13:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/16/24 14:51, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	10.3	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	0.4	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	21.2	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 13:21, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	440	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:24, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	388	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	414	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/09/24 09:25, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	5.6	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 16:23, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.014	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.189	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.05	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64939.05 (continued)
Sample Tag: MW-100A L408227-05

Method: E200.8, Run Date: 08/14/24 16:23, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	2.55	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.012	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.008	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:39, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	92.1	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	38.3	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	1.94	0.50	0.119	mg/L	5	7440-09-7	
Sodium	11.0	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/09/24 17:09, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 06:58, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64939.06
Sample Tag: MW-13 L408227-06
Collected Date/Time: 08/07/2024 15:12
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	125mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/09/24 13:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/16/24 16:01, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	174	10.0	0.590	mg/L	10	14808-79-8	

Method: E300.0, Run Date: 08/16/24 15:01, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	20.7	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: SM2320B, Run Date: 08/16/24 13:24, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	390	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:26, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	524	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	642	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/09/24 09:25, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.4	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 16:27, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.007	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.044	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.17	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64939.06 (continued)
Sample Tag: MW-13 L408227-06

Method: E200.8, Run Date: 08/14/24 16:27, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	0.94	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:42, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	158	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	32.4	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	0.76	0.50	0.119	mg/L	5	7440-09-7	
Sodium	13.4	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/09/24 17:12, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 06:58, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64939.07
Sample Tag: MW-15 L408227-07
Collected Date/Time: 08/07/2024 13:36
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	125mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/09/24 13:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/16/24 15:11, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	74.7	5	0.08	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1	0.13	mg/L	5	16984-48-8	b
Sulfate	49.7	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 13:33, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	430	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:28, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	442	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	554	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/09/24 09:25, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	0.8	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 16:30, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.058	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.41	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64939.07 (continued)
Sample Tag: MW-15 L408227-07

Method: E200.8, Run Date: 08/14/24 16:30, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.38	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:43, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	131	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	31.4	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	Not detected	0.50	0.119	mg/L	5	7440-09-7	
Sodium	29.4	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/09/24 17:16, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 06:58, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64939.08
Sample Tag: Field Blank L408227-08
Collected Date/Time: 08/07/2024 10:15
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	125mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/09/24 13:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/16/24 15:21, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	Not detected	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	Not detected	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 13:36, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	Not detected	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	Not detected	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 08/12/24 17:09, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/09/24 09:25, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 15:40, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.000900	mg/L	2	7440-36-0	
Arsenic	Not detected	0.002	0.000580	mg/L	2	7440-38-2	
Barium	Not detected	0.005	0.000360	mg/L	2	7440-39-3	
Beryllium	Not detected	0.001	0.0000800	mg/L	2	7440-41-7	
Boron	Not detected	0.04	0.00636	mg/L	2	7440-42-8	
Cadmium	Not detected	0.0005	0.000140	mg/L	2	7440-43-9	
Chromium	Not detected	0.005	0.000300	mg/L	2	7440-47-3	
Cobalt	Not detected	0.005	0.000180	mg/L	2	7440-48-4	
Copper	Not detected	0.005	0.000320	mg/L	2	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64939.08 (continued)
Sample Tag: Field Blank L408227-08

Method: E200.8, Run Date: 08/14/24 15:40, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	Not detected	0.02	0.00568	mg/L	2	7439-89-6	
Lead	Not detected	0.003	0.000180	mg/L	2	7439-92-1	
Lithium*	Not detected	0.005	0.000540	mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005	0.00168	mg/L	2	7439-98-7	
Nickel	Not detected	0.005	0.000460	mg/L	2	7440-02-0	
Selenium	Not detected	0.005	0.00174	mg/L	2	7782-49-2	
Silver	Not detected	0.0005	0.000100	mg/L	2	7440-22-4	
Thallium	Not detected	0.002	0.000140	mg/L	2	7440-28-0	
Vanadium	Not detected	0.005	0.000820	mg/L	2	7440-62-2	
Zinc	Not detected	0.005	0.00130	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:17, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	Not detected	1.0	0.0874	mg/L	2	7440-70-2	
Magnesium	Not detected	0.50	0.0231	mg/L	2	7439-95-4	
Potassium	Not detected	0.50	0.0479	mg/L	2	7440-09-7	
Sodium	Not detected	0.50	0.0436	mg/L	2	7440-23-5	

Method: E245.1, Run Date: 08/09/24 16:29, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/05/24 06:58, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S64939
Client: BWL01 (Board of Water & Light)
Project: Erickson Wellfield
Submitted: 08/08/2024 08:30 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.4
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[X] Yes	[ ] No	[ ] N/A	Subcontracting needed? Subcontacted to:	GEL
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S64939 Submitted: 08/08/2024 08:30

Client: BWL01 (Board of Water & Light)

Project: Erickson Wellfield

Initial Preservation Check: 08/08/2024 09:28 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S64939.01	125mL Plastic HNO3	<2			
S64939.01	1L Plastic HNO3	<2			
S64939.01	1L Plastic HNO3	<2			
S64939.02	125mL Plastic HNO3	<2			
S64939.02	1L Plastic HNO3	<2			
S64939.02	1L Plastic HNO3	<2			
S64939.03	125mL Plastic HNO3	<2			
S64939.03	1L Plastic HNO3	<2			
S64939.03	1L Plastic HNO3	<2			
S64939.04	125mL Plastic HNO3	<2			
S64939.04	1L Plastic HNO3	<2			
S64939.04	1L Plastic HNO3	<2			
S64939.05	125mL Plastic HNO3	<2			
S64939.05	1L Plastic HNO3	<2			
S64939.05	1L Plastic HNO3	<2			
S64939.06	125mL Plastic HNO3	<2			
S64939.06	1L Plastic HNO3	<2			
S64939.06	1L Plastic HNO3	<2			
S64939.07	125mL Plastic HNO3	<2			
S64939.07	1L Plastic HNO3	<2			
S64939.07	1L Plastic HNO3	<2			
S64939.08	125mL Plastic HNO3	<2			
S64939.08	1L Plastic HNO3	<2			
S64939.08	1L Plastic HNO3	<2			

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing STATE: Mi ZIP CODE: 48901
PHONE NO.: 517-702-6372 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Wellfield
SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☒LEVEL III ☐LEVEL IV ☒EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☒NPDES

Project Locations: ☐Detroit ☐New York ☐Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total Metals	F- undisstiled, Cl-, SO4, TDS	Radium 226	Radium 228	TSS	Dissolved Metals	HCO3, CO3, Hardness	Special Instructions
64939.01	8.7.24	1047	MW-100B L408227-01	GW	5			X					✓	✓	✓	✓	✓		✓	Metals to analyse:Na, Mg, K
.02		1208	MW-100C -02		5			X					✓	✓	✓	✓	✓		✓	B, Ca, Sb, As, Ba, Be, Cd, Cr,
.03		1208	MWT-100C -03		5			X					✓	✓	✓	✓	✓		✓	Co, Li, Hg, Mo,Pb,Se, Tl,
.04		1400	MW-100D -04		5			X					✓	✓	✓	✓	✓		✓	Fe, Cu, Ni, Ag, V, Zn
.05		1523	MW-100A -05		5			X					✓	✓	✓	✓	✓		✓	Please send a preliminary report
.06		1512	MW-13 -06		5			X					✓	✓	✓	✓	✓		✓	
.07		1336	MW-15 -07		5			X					✓	✓	✓	✓	✓		✓	The analytes for dissolved metals are
.08		1015	Field Blank -08	DI	5			X					✓	✓	✓	✓	✓		✓	same metals that are analysed for total.

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Sampler	DATE 8-8-24	TIME 0830
RECEIVED BY: SIGNATURE/ORGANIZATION	M Chilcote	DATE 8/8/24	TIME 0830
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

NOTES: TEMP. ON ARRIVAL 2.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Reporting Limits to go to Merit with COC

Sb, total	Antimony	250 mL plastic	mg/L	Nitric Acid	200.7	6 mos	0.005
As, total	Arsenic	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
Ba, total		250 mL plastic	mg/L	Nitric Acid	200.8	6mos	0.150
Be, total	Beryllium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.001
B, total	Boron	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.04
Cd, total	Cadmium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
Ca	Calcium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	2.5
Cl	Chloride	250 mL plastic	mg/L	Chill	300.0	28 d	10
Cr, total	Chromium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Co, total	Cobalt	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Cu, total	Copper	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
F	Fluoride	250 mL plastic	mg/L	None	9056	28 d	1.0
Fe, total	Iron	250 mL plastic	mg/L	Nitric Acid	300.0	6 mos	0.02
Pb, total	Lead	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.003
Li, total	Lithium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Hg, total	Mercury	250 mL plastic	mg/L	HNO3	245.1	28 d	0.0002
Mo, total	Molybdenum	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ni, total	Nickel	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
RA226/228	Radium 226 and 228 combined	(2) 1 L plastic	pCi/L	HNO3	SM 7500	6 mos	2.0 combined
Se, total	Selenium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ag, total	Silver	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
SO4	Sulfate	250 mL plastic	mg/L	Chill	300.0	28 d	10
Tl, total	Thallium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
TDS	Total Dissolved Solids	1 L plastic	mg/L	None	SM 2540C	NA	20
TSS	Total Suspended Solids	1 L plastic	mg/L	None	SM 2540D	NA	3
V, total	Vanadium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Zn, total	Zinc	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005

GEL Laboratories LLC
a member of The GEL Group INC

2040 Savage Road | Charleston, SC 29407
843.556.8171
gel.com

September 03, 2024

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 680266
SDG: S64939

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 12, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Abagail Martin for
Delaney Stonesmith
Project Manager

Purchase Order: GELP20-0018
Enclosures

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Case Narrative

Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S64939
Work Order: 680266

September 03, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on August 12, 2024 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

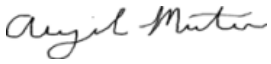
Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
680266001	S64939.01
680266002	S64939.02
680266003	S64939.03
680266004	S64939.04
680266005	S64939.05
680266006	S64939.06
680266007	S64939.07
680266008	S64939.08

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.



Abagail Martin for
Delaney Stonesmith
Project Manager

Chain of Custody and Supporting Documentation

6802606

Merit Laboratories, Inc
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: results@meritlabs.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague ☒ SAME
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S64939 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☐LEVEL III ☒LEVEL IV ☐EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☐NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Radium 226*	Radium 228**	Special Instructions
	8/7/24	1047	S64939.01	GW	2			2					✓	✓	* E903.1 Mod.
	8/7/24	1208	S64939.02	GW	2			2					✓	✓	** E904.0/SW 9320 Mod.
	8/7/24	1208	S64939.03	GW	2			2					✓	✓	
	8/7/24	1400	S64939.04	GW	2			2					✓	✓	Please use calculation product &
	8/7/24	1523	S64939.05	GW	2			2					✓	✓	provide Radium 226/228 combined
	8/7/24	1512	S64939.06	GW	2			2					✓	✓	results on the report
	8/7/24	1336	S64939.07	GW	2			2					✓	✓	
	8/7/24	1015	S64939.08	W	2			2					✓	✓	(No Ice needed)
															** Subcontracted to
															GEL Laboratories, Inc.
															2040 Savage Road
															Charleston, SC 29407

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Pat ☐Sampler DATE: 8/8/24 TIME: 1700
RECEIVED BY: SIGNATURE/ORGANIZATION: UPS DATE: 8/8/24 TIME: 1700
RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: Thyaa Tatum DATE: 8/12/24 TIME: 935

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
NOTES: TEMP. ON ARRIVAL

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: WERT	SDG/AR/COC/Work Order: 1680266 05
Received By: Thyasia Tatum	Date Received: 8/13/24
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground (UPS) Field Services Courier Other 1Z 4G0 477 03 4124 6974

Suspected Hazard Information	Yes	No	
			*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*			✓	Preservation Method: Wet Ice Ice Packs Dry ice (None) Other: *all temperatures are recorded in Celsius TEMP: 10°C
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR2-23 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials AM Date 8/13/24 Page 1 of 1

GL-CHL-SR-001 Rev 7

Laboratory Certifications

List of current GEL Certifications as of 03 September 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	NV-C24-00175
New Hampshire NELAP	205424
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235
Utah NELAP	SC000122024-41
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S64939
Work Order #: 680266

Product: **Radium-226+Radium-228 Calculation**
Analytical Method: Calculation
Analytical Procedure: GL-RAD-D-003 REV# 45
Analytical Batch: 2664908

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
680266001	S64939.01
680266002	S64939.02
680266003	S64939.03
680266004	S64939.04
680266005	S64939.05
680266006	S64939.06
680266007	S64939.07
680266008	S64939.08

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2655265

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
680266001	S64939.01
680266002	S64939.02
680266003	S64939.03
680266004	S64939.04
680266005	S64939.05
680266006	S64939.06
680266007	S64939.07
680266008	S64939.08
1205819204	Method Blank (MB)
1205819205	680266001(S64939.01) Sample Duplicate (DUP)
1205819206	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Preparation Information

Homogenous Matrix
Sample 680266004 (S64939.04) was non-homogenous matrix. The sample was water with salt like residues.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2655429

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
680266001	S64939.01
680266002	S64939.02
680266003	S64939.03
680266004	S64939.04
680266005	S64939.05
680266006	S64939.06
680266007	S64939.07
680266008	S64939.08
1205819421	Method Blank (MB)
1205819422	680141001(S64874.01) Sample Duplicate (DUP)
1205819423	680141001(S64874.01) Matrix Spike (MS)
1205819424	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1205819423 (S64874.01MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MERI001 Merit Laboratories, Inc.

Client SDG: S64939 GEL Work Order: 680266

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Kate Gellatly**

Date: 10 SEP 2024 **Title: Analyst 1 PT**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 10, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S64939.01	Project:	MERI00120
Sample ID:	680266001	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	07-AUG-24 10:47		
Receive Date:	12-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	-0.297	+/-0.721	1.53	3.00	pCi/L			KP1	09/05/24	0658	2655265	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.532	+/-0.775			pCi/L		1	TON1	09/05/24	1300	2664908	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.532	+/-0.284	0.370	1.00	pCi/L			MJ2	09/05/24	0857	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			73.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 10, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive
East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64939.02	Project:	MERI00120
Sample ID:	680266002	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	07-AUG-24 12:08		
Receive Date:	12-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.20	+/-1.15	1.89	3.00	pCi/L			KP1	09/05/24	0658	2655265	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.58	+/-1.17			pCi/L		1	TON1	09/05/24	1300	2664908	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.377	+/-0.217	0.260	1.00	pCi/L			MJ2	09/05/24	0857	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			90.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 10, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64939.03	Project:	MERI00120
Sample ID:	680266003	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	07-AUG-24 12:08		
Receive Date:	12-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.745	+/-0.875	1.47	3.00	pCi/L			KP1	09/05/24	0658	2655265	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.11	+/-0.902			pCi/L		1	TON1	09/05/24	1300	2664908	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.369	+/-0.216	0.217	1.00	pCi/L			MJ2	09/05/24	0857	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			77.9	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 10, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S64939.04
Sample ID: 680266004
Matrix: Ground Water
Collect Date: 07-AUG-24 14:00
Receive Date: 12-AUG-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.22	+/-0.905	1.41	3.00	pCi/L			KP1	09/05/24	0658	2655265	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.37	+/-0.926			pCi/L		1	TON1	09/05/24	1300	2664908	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.153	+/-0.196	0.335	1.00	pCi/L			MJ2	09/05/24	0857	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			91.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 10, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64939.05	Project:	MERI00120
Sample ID:	680266005	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	07-AUG-24 15:23		
Receive Date:	12-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.86	+/-1.26	1.98	3.00	pCi/L			KP1	09/05/24	0658	2655265	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.19	+/-1.28			pCi/L		1	TON1	09/05/24	1300	2664908	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.328	+/-0.216	0.289	1.00	pCi/L			MJ2	09/05/24	0857	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			90.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 10, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64939.06	Project:	MERI00120
Sample ID:	680266006	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	07-AUG-24 15:12		
Receive Date:	12-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.38	+/-1.30	2.14	3.00	pCi/L			KP1	09/05/24	0658	2655265	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.99	+/-1.32			pCi/L		1	TON1	09/05/24	1300	2664908	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.607	+/-0.243	0.231	1.00	pCi/L			MJ2	09/05/24	0857	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 10, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64939.07	Project:	MERI00120
Sample ID:	680266007	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	07-AUG-24 13:36		
Receive Date:	12-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.495	+/-0.868	1.53	3.00	pCi/L			KP1	09/05/24	0658	2655265	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.921	+/-0.901			pCi/L		1	TON1	09/05/24	1300	2664908	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.425	+/-0.244	0.294	1.00	pCi/L			MJ2	09/05/24	0857	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			82.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 10, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64939.08	Project:	MERI00120
Sample ID:	680266008	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	07-AUG-24 10:15		
Receive Date:	12-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	-0.0365	+/-0.809	1.62	3.00	pCi/L			KP1	09/05/24	0658	2655265	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.389	+/-0.837			pCi/L		1	TON1	09/05/24	1300	2664908	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.389	+/-0.218	0.213	1.00	pCi/L			MJ2	09/05/24	0857	2655429	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			67.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Data

QC Summary

Report Date: September 10, 2024

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: **John Laverty**

Workorder: **680266**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gas Flow											
Batch 2655265											
QC1205819205 680266001 DUP											
Radium-228	U	-0.297	U	0.0827	pCi/L	N/A		N/A	KP1	09/05/24	06:58
	Uncertainty	+/-0.721		+/-0.682							
QC1205819206 LCS											
Radium-228	69.8			60.9	pCi/L		87.2	(75%-125%)		09/05/24	06:58
	Uncertainty			+/-3.96							
QC1205819204 MB											
Radium-228			U	-0.180	pCi/L					09/05/24	06:58
	Uncertainty			+/-0.756							
Rad Ra-226											
Batch 2655429											
QC1205819422 680141001 DUP											
Radium-226		0.591		0.628	pCi/L	6.06		(0% - 100%)	MJ2	09/05/24	09:30
	Uncertainty	+/-0.244		+/-0.272							
QC1205819424 LCS											
Radium-226	27.3			21.7	pCi/L		79.5	(75%-125%)		09/05/24	09:30
	Uncertainty			+/-1.37							
QC1205819421 MB											
Radium-226			U	0.0957	pCi/L					09/05/24	09:30
	Uncertainty			+/-0.199							
QC1205819423 680141001 MS											
Radium-226	137	0.591		151	pCi/L		109	(75%-125%)		09/05/24	09:30
	Uncertainty	+/-0.244		+/-9.05							

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported

QC Summary

Workorder: **680266**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

>	Result is greater than value reported
UI	Gamma Spectroscopy--Uncertain identification
BD	Results are either below the MDC or tracer recovery is low
h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
M	M if above MDC and less than LLD
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
FA	Failed analysis.
UJ	Gamma Spectroscopy--Uncertain identification
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N1	See case narrative
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
**	Analyte is a Tracer compound
M	REMP Result > MDC/CL and < RDL
J	See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Gas Flow Raw Data

Batch 2655265 Check-list

This check-list was completed on 05-SEP-24 by Rhonda Birch

This batch was reviewed by Kenshalla Oston on 05-SEP-24 and Rhonda Birch on 05-SEP-24.

Batch ID: 2655265 **Product:** GFC28RAL **Description:** Gas Flow Radium 228 GL-RAD-A-063

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous		No	
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-228 in Liquid

Batch ID: **2655265**
Analyst: Kaitlyn Painter (KP1)
Method: EPA 904.0/SW846 9320 Modified
Lab SOP: GL-RAD-A-063 REV# 5
Instrument: SP-C018367602

Due Dates for Lab: 07-SEP-2024 **Package: 09-SEP-2024** **SDG: 10-SEP-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205819206	Radium 228	2051-E	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)
1	680266001	14-AUG-2024	3	306.5	306.5	08/16/24 11:08	09/05/24 05:15
2	680266002	14-AUG-2024	3	300.3	300.3	08/16/24 11:08	09/05/24 05:15
3	680266003	14-AUG-2024	3	300.9	300.9	08/16/24 11:08	09/05/24 05:15
4	680266004	14-AUG-2024	3	300.9	300.9	08/16/24 11:08	09/05/24 05:15
5	680266005	14-AUG-2024	3	301.1	301.1	08/16/24 11:08	09/05/24 05:15
6	680266006	14-AUG-2024	3	302.5	302.5	08/16/24 11:08	09/05/24 05:15
7	680266007	14-AUG-2024	3	301.5	301.5	08/16/24 11:08	09/05/24 05:15
8	680266008	14-AUG-2024	3	306.4	306.4	08/16/24 11:08	09/05/24 05:15
9	1205819204 MB	14-AUG-2024	3		306.5	08/16/24 11:08	09/05/24 05:15
10	1205819205 DUP (680266001)	14-AUG-2024	3	302.2	302.2	08/16/24 11:08	09/05/24 05:15
11	1205819206 LCS	14-AUG-2024	3		306.5	08/16/24 11:08	09/05/24 05:15

Reagent/Solvent Lot ID	Description	Amount
WORK 2097-C	Ba-133 Tracer	.1 mL
REGNT 4390939	RGF-1.5M Ammonium Sulfate	10 mL
REGNT 4389691	Barium Carrier Ra228 REG	1 mL
REGNT 4389703	RGF-1M Citric Acid	5 mL
REGNT 4390928	2M HCl	20 mL
REGNT 4388485	RGF-50% Potassium Carbonate	2 mL
REGNT 4388157	RGF-7M Nitric Acid	25 mL
REGNT 4379234.4	Acetic Acid Glacial ACS	10 mL
REGNT DGA07232024	2651587	2 g
REGNT 4381503.2	RGF-Hydrofluoric Acid	4 mL
REGNT 4337194	500 mg/mL Neodymium Carrier	.2 mL
REGNT 4382975	RGF-Neodymium Subtrate	5 mL
REGNT 4380794.5	Nitric Acid	5 mL

Comments:
Pipet Id: RAD-GFC-1795419
Data Entry Date2: 15-AUG-2024 10:37 SP-C018367602 Kaitlyn Painter
Data Entry Date3: 14-AUG-2024 00:00

Radium-228 Liquid

Filename : RA228.XLS
File type : Excel
Version # : 1.4.3

Tracer S/N : 2097-C
Tracer Exp Date : 4/9/2025
Tracer Volume Added: 0.10

Batch : 2655265
Analyst : KAI02410
Prep Date : 8/14/2024
Ra-228 Method Uncertainty : 0.1268

Geometry: 25mm Filter

Procedure Code : GFC28RAL
Parmname : Radium-228
Required MDA : 3 pCi/L
Ra-228 Abundance : 1.00
Halflife of Ra-228 : 5.75 years
Halflife of Ac-228 : 6.15 hours

Sample Characteristics					Tracer Calculations					
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Tracer Ref. Activity (CPM)	Tracer Ref. Count Uncertainty (%)	Tracer Samp. Activity (CPM)	Tracer Samp. Count Uncertainty (%)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	680266001.1	0.3065	1.8567E-05	8/7/2024 10:47	941.2	1.88%	688.0	2.20%	0.1	0.000200
2	680266002.1	0.3003	1.8464E-05	8/7/2024 12:08	941.2	1.88%	849.3	1.98%	0.1	0.000200
3	680266003.1	0.3009	1.8474E-05	8/7/2024 12:08	941.2	1.88%	733.2	2.13%	0.1	0.000200
4	680266004.1	0.3009	1.8474E-05	8/7/2024 14:00	941.2	1.88%	861.3	1.97%	0.1	0.000200
5	680266005.1	0.3011	1.8478E-05	8/7/2024 15:23	941.2	1.88%	852.6	1.98%	0.1	0.000200
6	680266006.1	0.3025	1.8501E-05	8/7/2024 15:12	941.2	1.88%	792.0	2.05%	0.1	0.000200
7	680266007.1	0.3015	1.8484E-05	8/7/2024 13:36	941.2	1.88%	779.7	2.07%	0.1	0.000200
8	680266008.1	0.3064	1.8566E-05	8/7/2024 10:15	941.2	1.88%	632.6	2.30%	0.1	0.000200
9	1205819204.1	0.3065	1.8567E-05	8/14/2024 0:00	941.2	1.88%	784.5	2.06%	0.1	0.000200
10	1205819205.1	0.3022	1.8496E-05	8/7/2024 10:47	941.2	1.88%	830.2	2.00%	0.1	0.000200
11	1205819206.1	0.3065	1.8567E-05	8/14/2024 0:00	941.2	1.88%	822.8	2.01%	0.1	0.000200

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-063
Instrument SOP: GL-RAD-I-016

Count raw Data

Pos.	Detector ID	Counting Time (min.)	Gross Counts Alpha	Gross Counts Beta	Beta cpm	Count Start Date/Time	Ac-228 Ingrowth Date/Time	Ac-228 Decay Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Ingrowth	Ac-228 Count Correction	Calculated Sample Recovery %	Sample Recovery Error %
1	7A	60	4	21	0.350	9/5/2024 6:58	8/16/2024 11:08	9/5/2024 5:15	0.991	0.823	1.000	1.057	73.1%	2.91%
2	5A	60	14	75	1.250	9/5/2024 6:58	8/16/2024 11:08	9/5/2024 5:15	0.991	0.823	1.000	1.057	90.2%	2.74%
3	5C	60	6	35	0.583	9/5/2024 6:58	8/16/2024 11:08	9/5/2024 5:15	0.991	0.823	1.000	1.057	77.9%	2.86%
4	6A	60	7	52	0.867	9/5/2024 6:58	8/16/2024 11:08	9/5/2024 5:15	0.991	0.823	1.000	1.057	91.5%	2.74%
5	6B	60	11	99	1.650	9/5/2024 6:58	8/16/2024 11:08	9/5/2024 5:15	0.991	0.823	1.000	1.057	90.6%	2.74%
6	6C	60	11	94	1.567	9/5/2024 6:58	8/16/2024 11:08	9/5/2024 5:15	0.991	0.823	1.000	1.057	84.1%	2.80%
7	8B	60	6	39	0.650	9/5/2024 6:58	8/16/2024 11:08	9/5/2024 5:15	0.991	0.823	1.000	1.057	82.8%	2.81%
8	10C	60	9	22	0.367	9/5/2024 6:58	8/16/2024 11:08	9/5/2024 5:15	0.991	0.823	1.000	1.057	67.2%	2.98%
9	7B	60	10	29	0.483	9/5/2024 6:58	8/16/2024 11:08	9/5/2024 5:15	0.993	0.823	1.000	1.057	83.3%	2.80%
10	7C	60	9	26	0.433	9/5/2024 6:58	8/16/2024 11:08	9/5/2024 5:15	0.991	0.823	1.000	1.057	88.2%	2.76%
11	7D	60	9	965	16.083	9/5/2024 6:58	8/16/2024 11:08	9/5/2024 5:15	0.993	0.823	1.000	1.057	87.4%	2.77%

Pos.	Calibration Data: Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Bkg cpm	Weekly Bkg Count Start Date/Time	Bkg Count Time (min.)
1	PIC	6/1/2024	5/31/2025	0.5788	0.00594	0.416	8/30/2024 18:47	500
2	PIC	6/1/2024	5/31/2025	0.5552	0.00851	0.940	8/30/2024 18:16	500
3	PIC	6/1/2024	5/31/2025	0.5733	0.00657	0.412	8/30/2024 18:16	500
4	PIC	6/1/2024	5/31/2025	0.5728	0.02228	0.538	8/30/2024 18:14	500
5	PIC	6/1/2024	5/31/2025	0.5756	0.00851	1.150	8/30/2024 18:15	500
6	PIC	6/1/2024	5/31/2025	0.5862	0.01970	1.214	8/30/2024 18:15	500
7	PIC	6/1/2024	5/31/2025	0.5764	0.02148	0.528	8/30/2024 18:15	500
8	PIC	6/1/2024	5/31/2025	0.5699	0.00638	0.374	8/30/2024 18:15	500
9	PIC	6/1/2024	5/31/2025	0.5647	0.00627	0.528	8/30/2024 18:47	500
10	PIC	6/1/2024	5/31/2025	0.5652	0.00790	0.412	8/30/2024 18:15	500
11	PIC	6/1/2024	5/31/2025	0.5590	0.01113	0.432	8/30/2024 18:47	500

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : N/A
Spike Exp Date : N/A
Spike Activity (dpm/ml): N/A
Spike Volume Added: N/A

LCS S/N : 2051-E
LCS Exp Date : 4/29/2025
LCS Activity (dpm/ml): 475.02
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	0.9250	0.6530	3	1.5313	**-0.2973**	123.73%	-0.0660	0.0816	0.7209	0.7211		SAMPLE				
2	1.1980	0.8458	3	1.8857	**1.2033**	48.70%	0.3100	0.1507	1.1466	1.1869		SAMPLE				
3	0.8887	0.6275	3	1.4724	**0.7452**	60.01%	0.1713	0.1027	0.8755	0.8959		SAMPLE				
4	0.8650	0.6107	3	1.4066	**1.2175**	38.07%	0.3287	0.1246	0.9045	0.9575		SAMPLE				
5	1.2705	0.8970	3	1.9801	**1.8609**	34.64%	0.5000	0.1726	1.2593	1.3456		SAMPLE				
6	1.3737	0.9699	3	2.1356	**1.3812**	48.02%	0.3527	0.1689	1.2968	1.3447		SAMPLE				
7	0.9390	0.6629	3	1.5289	**0.4952**	89.45%	0.1220	0.1090	0.8676	0.8769		SAMPLE				
8	0.9698	0.6847	3	1.6184	**-0.0365**	1129.36%	-0.0073	0.0828	0.8086	0.8089		SAMPLE				
9	0.9345	0.6597	3	1.5215	**-0.1804**	213.72%	-0.0447	0.0955	0.7558	0.7560		MB				
10	0.7922	0.5593	3	1.3125	**0.0827**	420.48%	0.0213	0.0897	0.6817	0.6820	680266001.1	DUP	* 0.0%			
11	0.8143	0.5749	3	1.3443	**60.9086**	4.46%	15.6513	0.5186	3.9554	16.0457		LCS			69.8115	87.2%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine	Batch ID
680266001	7A	60	4	21	9/5/2024 6:58	9/5/2024 7:58	PIC	2655265
680266002	5A	60	14	75	9/5/2024 6:58	9/5/2024 7:58	PIC	2655265
680266003	5C	60	6	35	9/5/2024 6:58	9/5/2024 7:58	PIC	2655265
680266004	6A	60	7	52	9/5/2024 6:58	9/5/2024 7:58	PIC	2655265
680266005	6B	60	11	99	9/5/2024 6:58	9/5/2024 7:58	PIC	2655265
680266006	6C	60	11	94	9/5/2024 6:58	9/5/2024 7:58	PIC	2655265
680266007	8B	60	6	39	9/5/2024 6:58	9/5/2024 7:58	PIC	2655265
680266008	10C	60	9	22	9/5/2024 6:58	9/5/2024 7:58	PIC	2655265
1205819204	7B	60	10	29	9/5/2024 6:58	9/5/2024 7:58	PIC	2655265
1205819205	7C	60	9	26	9/5/2024 6:58	9/5/2024 7:58	PIC	2655265
1205819206	7D	60	9	965	9/5/2024 6:58	9/5/2024 7:58	PIC	2655265

ASSAY		5-Sep-24	6:08:13							
Wizard 2480 s/n 46190630										
Protocol	id		8	Ba-133						
Time	limit									
Count	limit									
Isotope	Ba-133									
Protocol	date	9/5/2024								
Run	id.		2495							

Samp_ID	POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
REF	1	91	1	180	2824	941.22	1.88		06:08:13
680266001	2	91	2	180	2064.5	688.02	2.2	73.10	06:11:27
680266002	3	91	3	180	2548.5	849.32	1.98	90.24	06:14:41
680266003	4	91	4	180	2200	733.17	2.13	77.90	06:17:55
680266004	5	91	5	180	2584.5	861.32	1.97	91.51	06:21:09
680266005	1	37	1	180	2558	852.56	1.98	90.58	06:24:44
680266006	2	37	2	180	2376.5	792.01	2.05	84.15	06:27:59
680266007	3	37	3	180	2339.5	779.71	2.07	82.84	06:31:13
680266008	4	37	4	180	1898	632.55	2.3	67.21	06:34:26
1205819204	5	37	5	180	2354	784.5	2.06	83.35	06:37:40
1205819205	1	3	1	180	2491	830.16	2	88.20	06:41:24
1205819206	2	3	2	180	2469	822.83	2.01	87.42	06:44:38

END OF ASSAY

Continuing Calibration Data

Gas Flow Proportional Counter Checks for 05-Sep-2024

Detectors LB4100 E1 through H4 and PIC 1A through 14D and G5400W 1W through 1Z and LB4200 GA1 through OD4

Short Name	Status	Parmname	Run Time	Count Time	CPM or dec	Low Limit	High Limit	Stdev
LB4100F1	Above	Beta bkg	05-Sep 04:55	60	2.250	-2.37E-1	3.338	+1.17
LB4100G2	need 2nd	Alpha eff	05-Sep 05:58	5	10991	10810	14340	-2.69
LB4100G2	Above	Alpha XTalk	05-Sep 05:58	5	0.293	0.169	0.234	+8.40
LB4100G2	Above	Beta bkg	05-Sep 04:56	60	635	0.407	1.917	+2,519.58
LB4100G3	need 2nd	Alpha eff	05-Sep 05:58	5	8269	8123	10070	-2.55
LB4100G3	Above	Beta bkg	05-Sep 04:56	60	10.133	0.716	2.721	+25.18
LB4200GB2	Below	Alpha eff	05-Sep 06:17	5	9426	9443	9898	-3.23
LB4200GB2	Above	Beta bkg	05-Sep 05:00	60	12.617	0.129	1.304	+60.74
LB4200GB4	Below	Beta eff	05-Sep 07:17	5	26401	26430	29060	-3.07
LB4200OB1	Below	Alpha eff	05-Sep 06:38	5	10508	10660	11210	-4.65
LB4200OB1	Above	Alpha XTalk	05-Sep 06:38	5	0.231	0.167	0.228	+3.32
LB4200OB1	Above	Beta bkg	05-Sep 05:00	60	2.567	-2.59E-1	2.044	+4.36
LB4200OC2	Above	Beta bkg	05-Sep 05:00	60	37.333	-6.67E-2	2.499	+84.46
LB4200OC4	Above	Beta bkg	05-Sep 05:00	60	108	0.232	1.342	+578.09
PIC8C	Above	Alpha bkg	05-Sep 05:42	60	1.167	-1.17E-1	0.365	+12.98
PIC8C	Above	Beta bkg	05-Sep 05:42	60	89.933	-1.07E-1	1.869	+270.46
PIC11D	Above	Beta bkg	05-Sep 09:54	60	16.850	-5.10E-1	2.264	+34.55
PIC14C	Above	Beta bkg	05-Sep 05:59	60	9.117	-1.14E+0	3.604	+9.98
PIC14D	Above	Beta bkg	05-Sep 05:59	60	3.750	-2.45E-1	2.368	+6.17

INSTRUMENTS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

The following detectors may not have properly transferred to the LIMS system

LB4100G1	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC8A	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk

Reviewed by Jasmine Conley

Date 9/5/24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: GFPC **Batch ID: 2655265**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
680266002	SAMPLE	KP1	PIC5A	SEP-05-24 06:58:24	DONE	25mm Filter	01-JUN-24 00:00
1205819204	MB	KP1	PIC7B	SEP-05-24 06:58:30	DONE	25mm Filter	01-JUN-24 00:00
1205819205	DUP	KP1	PIC7C	SEP-05-24 06:58:30	DONE	25mm Filter	01-JUN-24 00:00
1205819206	LCS	KP1	PIC7D	SEP-05-24 06:58:34	DONE	25mm Filter	01-JUN-24 00:00
680266001	SAMPLE	KP1	PIC7A	SEP-05-24 06:58:37	DONE	25mm Filter	01-JUN-24 00:00
680266004	SAMPLE	KP1	PIC6A	SEP-05-24 06:58:41	DONE	25mm Filter	01-JUN-24 00:00
680266005	SAMPLE	KP1	PIC6B	SEP-05-24 06:58:44	DONE	25mm Filter	01-JUN-24 00:00
680266006	SAMPLE	KP1	PIC6C	SEP-05-24 06:58:48	DONE	25mm Filter	01-JUN-24 00:00
680266007	SAMPLE	KP1	PIC8B	SEP-05-24 06:58:52	DONE	25mm Filter	01-JUN-24 00:00
680266003	SAMPLE	KP1	PIC5C	SEP-05-24 06:58:54	DONE	25mm Filter	01-JUN-24 00:00
680266008	SAMPLE	KP1	PIC10C	SEP-05-24 06:58:56	DONE	25mm Filter	01-JUN-24 00:00

Lucas Cell Raw Data

Batch 2655429 Check-list

This check-list was completed on 05-SEP-24 by Elizabeth Krouse

This batch was reviewed by Elizabeth Krouse on 05-SEP-24 and Lyndsey Pace on 05-SEP-24.

Batch ID: 2655429 **Product:** LUC26RAL **Description:** Lucas Cell Radium 226 GL-RAD-A-008

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
10	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-226 in Liquid

Batch ID: **2655429**
Analyst: Marisa Johnson (MJ2)
Method: EPA 903.1 Modified
Lab SOP: GL-RAD-A-008 REV# 15
Instrument: LUCAS-C202389980

Due Dates for Lab: 06-SEP-2024 **Package: 08-SEP-2024** **SDG: 09-SEP-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205819424	Ra-226 emanation spike	1715-J	.1	mL
MS	1205819423	Ra-226 emanation spike	1715-J	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	End Degas (date)	CELL #	End Transfer (date)	Start Count Time (date)	Background Counts	Total Counts
1	680141001	27-AUG-2024	1	500.11	500.11	08/29/24 06:50	108	09/05/24 05:33	09/05/24 08:25	2	28
2	680141002	27-AUG-2024	1	500.31	500.31	08/29/24 06:50	204	09/05/24 05:33	09/05/24 08:25	8	24
3	680141003	27-AUG-2024	1	502.89	502.89	08/29/24 06:50	302	09/05/24 05:33	09/05/24 08:25	8	29
4	680141004	27-AUG-2024	1	501.04	501.04	08/29/24 06:50	404	09/05/24 05:33	09/05/24 08:25	1	24
5	680141005	27-AUG-2024	1	501.34	501.34	08/29/24 06:50	505	09/05/24 05:33	09/05/24 08:25	3	22
6	680141006	27-AUG-2024	1	501.49	501.49	08/29/24 06:50	609	09/05/24 05:33	09/05/24 08:25	4	41
7	680141007	27-AUG-2024	1	504	504	08/29/24 06:50	702	09/05/24 05:33	09/05/24 08:25	2	34
8	680141008	27-AUG-2024	1	502.12	502.12	08/29/24 06:50	803	09/05/24 05:33	09/05/24 08:25	5	14
9	680266001	27-AUG-2024	1	504.84	504.84	08/29/24 06:50	101	09/05/24 06:08	09/05/24 08:57	7	29
10	680266002	27-AUG-2024	1	502.42	502.42	08/29/24 06:50	206	09/05/24 06:08	09/05/24 08:57	3	19
11	680266003	27-AUG-2024	1	504.69	504.69	08/29/24 06:50	304	09/05/24 06:08	09/05/24 08:57	1	14
12	680266004	27-AUG-2024	1	502.6	502.6	08/29/24 06:50	407	09/05/24 06:08	09/05/24 08:57	7	14
13	680266005	27-AUG-2024	1	502.76	502.76	08/29/24 06:50	502	09/05/24 06:08	09/05/24 08:57	4	18
14	680266006	27-AUG-2024	1	502.37	502.37	08/29/24 06:50	607	09/05/24 06:08	09/05/24 08:57	3	32
15	680266007	27-AUG-2024	1	504.49	504.49	08/29/24 06:50	701	09/05/24 06:08	09/05/24 08:57	3	19
16	680266008	27-AUG-2024	1	502.1	502.1	08/29/24 06:50	804	09/05/24 06:08	09/05/24 08:57	1	15
17	1205819421 MB	27-AUG-2024	1		504.84	08/29/24 06:50	105	09/05/24 06:41	09/05/24 09:30	7	11
18	1205819422 DUP (680141001)	27-AUG-2024	1	501.43	501.43	08/29/24 06:50	201	09/05/24 06:41	09/05/24 09:30	8	39
19	1205819423 MS (680141001)	27-AUG-2024	1	100.27	100.27	08/29/24 06:50	301	09/05/24 06:41	09/05/24 09:30	4	1081
20	1205819424 LCS	27-AUG-2024	1		504.84	08/29/24 06:50	409	09/05/24 06:41	09/05/24 09:30	4	979

Reagent/Solvent Lot ID	Description	Amount

Comments:
Data Entry Date2: 27-AUG-2024 00:00

Radium-226 Liquid

Filename : RA226.XLS
File type : Excel
Version # : 1.3.2

Batch : 2655429
Analyst : MAR02577
Prep Date : 8/27/2024
Ra-226 Method Uncertainty : 0.073648

Procedure Code : LUC26RAL
Parmname : Radium-226
Required MDA : 1 pCi/L
Halflife of Ra-226 : 1600 years
Ra-226 Abundance : 1.00
Halflife of Rn-222: 3.8235 days

Batch counted on : LUCAS CELL DETECTOR
BKG Count time : 30 min

Sample Characteristics					Count Raw Data							
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Background Count Time (min.)	Cell Efficiency (cpm/dpm)
1	680141001.1	0.5001	2.0256E-05	8/6/2024 18:13	108	30	28	0.933	2	0.067	30	1.8870
2	680141002.1	0.5003	2.0257E-05	8/6/2024 15:37	204	30	24	0.800	8	0.267	30	1.6616
3	680141003.1	0.5029	2.0268E-05	8/6/2024 16:58	302	30	29	0.967	8	0.267	30	1.5170
4	680141004.1	0.5010	2.0260E-05	8/6/2024 16:58	404	30	24	0.800	1	0.033	30	1.9410
5	680141005.1	0.5013	2.0261E-05	8/6/2024 15:59	505	30	22	0.733	3	0.100	30	1.7660
6	680141006.1	0.5015	2.0262E-05	8/6/2024 17:22	609	30	41	1.367	4	0.133	30	1.6188
7	680141007.1	0.5040	2.0272E-05	8/6/2024 19:14	702	30	34	1.133	2	0.067	30	1.6810
8	680141008.1	0.5021	2.0265E-05	8/6/2024 12:45	803	30	14	0.467	5	0.167	30	1.9922
9	680266001.1	0.5048	2.0276E-05	8/7/2024 10:47	101	30	29	0.967	7	0.233	30	1.7540
10	680266002.1	0.5024	2.0266E-05	8/7/2024 12:08	206	30	19	0.633	3	0.100	30	1.8102
11	680266003.1	0.5047	2.0275E-05	8/7/2024 12:08	304	30	14	0.467	1	0.033	30	1.4940
12	680266004.1	0.5026	2.0266E-05	8/7/2024 14:00	407	30	14	0.467	7	0.233	30	1.9490
13	680266005.1	0.5028	2.0267E-05	8/7/2024 15:23	502	30	18	0.600	4	0.133	30	1.8160
14	680266006.1	0.5024	2.0266E-05	8/7/2024 15:12	607	30	32	1.067	3	0.100	30	2.0379
15	680266007.1	0.5045	2.0274E-05	8/7/2024 13:36	701	30	19	0.633	3	0.100	30	1.5970
16	680266008.1	0.5021	2.0264E-05	8/7/2024 10:15	804	30	15	0.500	1	0.033	30	1.5337
17	1205819421.1	0.5048	2.0276E-05	8/27/2024 0:00	105	30	11	0.367	7	0.233	30	1.7710
18	1205819422.1	0.5014	2.0262E-05	8/6/2024 18:13	201	30	39	1.300	8	0.267	30	2.1041
19	1205819423.1	0.1003	1.1387E-05	8/6/2024 18:13	301	30	1081	36.033	4	0.133	30	1.5220
20	1205819424.1	0.5048	2.0276E-05	8/27/2024 0:00	409	30	979	32.633	4	0.133	30	1.9030

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-008
Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections			
						De-Gas to Ingrowth	Ingrowth to Count	During Count	Ra-226 Decay
2.600%	5/1/2024	4/30/2025	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
5.120%	8/14/2024	8/31/2025	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
0.600%	11/1/2023	10/31/2024	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
3.700%	2/1/2024	1/31/2025	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
5.600%	6/12/2024	6/30/2025	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
8.216%	7/16/2024	7/31/2025	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
2.000%	11/1/2023	10/31/2024	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
7.204%	4/1/2024	3/31/2025	8/29/2024 6:50	9/5/2024 5:33	9/5/2024 8:25	0.716	0.979	1.002	1.000
7.900%	5/1/2024	4/30/2025	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
9.532%	8/14/2024	8/31/2025	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
2.100%	11/1/2023	10/31/2024	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
7.500%	2/1/2024	1/31/2025	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
1.000%	6/12/2024	6/30/2025	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
6.129%	7/16/2024	7/31/2025	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
5.900%	11/1/2023	10/31/2024	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
6.090%	4/1/2024	3/31/2025	8/29/2024 6:50	9/5/2024 6:08	9/5/2024 8:57	0.717	0.979	1.002	1.000
5.800%	5/1/2024	4/30/2025	8/29/2024 6:50	9/5/2024 6:41	9/5/2024 9:30	0.719	0.979	1.002	1.000
2.597%	8/14/2024	8/31/2025	8/29/2024 6:50	9/5/2024 6:41	9/5/2024 9:30	0.719	0.979	1.002	1.000
5.700%	11/1/2023	10/31/2024	8/29/2024 6:50	9/5/2024 6:41	9/5/2024 9:30	0.719	0.979	1.002	1.000
4.900%	2/1/2024	1/31/2025	8/29/2024 6:50	9/5/2024 6:41	9/5/2024 9:30	0.719	0.979	1.002	1.000

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

Spike S/N : 1715-J
Spike Exp Date : 4/1/2025
Spike Activity (dpm/ml): 305.97
Spike Volume Added: 0.10

LCS S/N : 1715-J
LCS Exp Date : 4/1/2025
LCS Activity (dpm/ml): 305.97
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	0.1060	0.0748	1	0.2179	**0.5914**	21.23%	0.8667	0.1826	0.2442	0.2604		SAMPLE				
2	0.2407	0.1699	1	0.4173	**0.4131**	35.72%	0.5333	0.1886	0.2863	0.2954		SAMPLE				
3	0.2622	0.1852	1	0.4547	**0.5909**	28.97%	0.7000	0.2028	0.3355	0.3462		SAMPLE				
4	0.0727	0.0513	1	0.1689	**0.5077**	22.05%	0.7667	0.1667	0.2163	0.2313		SAMPLE				
5	0.1384	0.0977	1	0.2681	**0.4607**	26.91%	0.6333	0.1667	0.2376	0.2519		SAMPLE				
6	0.1743	0.1230	1	0.3254	**0.9784**	19.91%	1.2333	0.2236	0.3477	0.4070		SAMPLE				
7	0.1181	0.0834	1	0.2427	**0.8108**	18.86%	1.0667	0.2000	0.2980	0.3217		SAMPLE				
8	0.1581	0.1116	1	0.2876	**0.1931**	48.97%	0.3000	0.1453	0.1833	0.1874		SAMPLE				
9	0.2109	0.1489	1	0.3704	**0.5322**	28.39%	0.7333	0.2000	0.2845	0.3060		SAMPLE				
10	0.1344	0.0949	1	0.2605	**0.3768**	30.83%	0.5333	0.1563	0.2165	0.2341		SAMPLE				
11	0.0936	0.0661	1	0.2174	**0.3693**	29.87%	0.4333	0.1291	0.2157	0.2227		SAMPLE				
12	0.1906	0.1346	1	0.3348	**0.1531**	65.89%	0.2333	0.1528	0.1964	0.1989		SAMPLE				
13	0.1546	0.1092	1	0.2887	**0.3285**	33.52%	0.4667	0.1563	0.2157	0.2209		SAMPLE				
14	0.1194	0.0843	1	0.2314	**0.6068**	21.30%	0.9667	0.1972	0.2426	0.2680		SAMPLE				
15	0.1517	0.1071	1	0.2940	**0.4254**	29.90%	0.5333	0.1563	0.2444	0.2568		SAMPLE				
16	0.0917	0.0647	1	0.2129	**0.3894**	29.21%	0.4667	0.1333	0.2181	0.2300		SAMPLE				
17	0.2085	0.1472	1	0.3662	**0.0957**	106.22%	0.1333	0.1414	0.1989	0.1997		MB				
18	0.1889	0.1334	1	0.3276	**0.6284**	22.27%	1.0333	0.2285	0.2724	0.2889	680141001.1	DUP	6.1%			
19	0.9235	0.6520	1	1.7244	**150.9241**	6.47%	35.9000	1.0980	9.0472	28.9962	680141001.1	MS			137.4566	109.4%
20	0.1467	0.1036	1	0.2739	**21.7035**	5.86%	32.5000	1.0451	1.3679	4.0039		LCS			27.3006	79.5%

Continuing Calibration Data

Ludlum Alpha Scintillation Counter Checks for 05-SEP-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	07:51	1	1.11E+05	111377	1.24		
LUCAS2	EFF	07:50	1	1.31E+05	130700	2.7		
LUCAS3	EFF	07:48	1	95234	95234	1.49		
LUCAS4	EFF	07:46	1	1.26E+05	125522	1.85		
LUCAS5	EFF	07:45	1	1.29E+05	129269	2		
LUCAS6	EFF	07:44	1	1.27E+05	126727	-1.81		
LUCAS7	EFF	07:42	1	1.30E+05	130074	0.28		
LUCAS8	EFF	07:40	1	1.25E+05	125239	0.75		

Reviewed by: Lyndsey Pace **Date:** 05-SEP-24

Lyndsey Pace

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR **Batch ID: 2655429**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
680141001	SAMPLE	MJ2	LUCAS1	SEP-05-24 08:25:00	DONE	Lucas Cell	01-MAY-24 00:00
680141002	SAMPLE	MJ2	LUCAS2	SEP-05-24 08:25:00	DONE	Lucas Cell	14-AUG-24 00:00
680141003	SAMPLE	MJ2	LUCAS3	SEP-05-24 08:25:00	DONE	Lucas Cell	01-NOV-23 00:00
680141004	SAMPLE	MJ2	LUCAS4	SEP-05-24 08:25:00	DONE	Lucas Cell	01-FEB-24 00:00
680141005	SAMPLE	MJ2	LUCAS5	SEP-05-24 08:25:00	DONE	Lucas Cell	12-JUN-24 00:00
680141006	SAMPLE	MJ2	LUCAS6	SEP-05-24 08:25:00	DONE	Lucas Cell	16-JUL-24 00:00
680141007	SAMPLE	MJ2	LUCAS7	SEP-05-24 08:25:00	DONE	Lucas Cell	01-NOV-23 00:00
680141008	SAMPLE	MJ2	LUCAS8	SEP-05-24 08:25:00	DONE	Lucas Cell	01-APR-24 00:00
680266001	SAMPLE	MJ2	LUCAS1	SEP-05-24 08:57:00	DONE	Lucas Cell	01-MAY-24 00:00
680266002	SAMPLE	MJ2	LUCAS2	SEP-05-24 08:57:00	DONE	Lucas Cell	14-AUG-24 00:00
680266003	SAMPLE	MJ2	LUCAS3	SEP-05-24 08:57:00	DONE	Lucas Cell	01-NOV-23 00:00
680266004	SAMPLE	MJ2	LUCAS4	SEP-05-24 08:57:00	DONE	Lucas Cell	01-FEB-24 00:00
680266005	SAMPLE	MJ2	LUCAS5	SEP-05-24 08:57:00	DONE	Lucas Cell	12-JUN-24 00:00
680266006	SAMPLE	MJ2	LUCAS6	SEP-05-24 08:57:00	DONE	Lucas Cell	16-JUL-24 00:00
680266007	SAMPLE	MJ2	LUCAS7	SEP-05-24 08:57:00	DONE	Lucas Cell	01-NOV-23 00:00
680266008	SAMPLE	MJ2	LUCAS8	SEP-05-24 08:57:00	DONE	Lucas Cell	01-APR-24 00:00
1205819421	MB	MJ2	LUCAS1	SEP-05-24 09:30:00	DONE	Lucas Cell	01-MAY-24 00:00
1205819422	DUP	MJ2	LUCAS2	SEP-05-24 09:30:00	DONE	Lucas Cell	14-AUG-24 00:00
1205819423	MS	MJ2	LUCAS3	SEP-05-24 09:30:00	DONE	Lucas Cell	01-NOV-23 00:00
1205819424	LCS	MJ2	LUCAS4	SEP-05-24 09:30:00	DONE	Lucas Cell	01-FEB-24 00:00

Analytical Laboratory Report

Revised Report

Report ID: S64993.01(03)
Generated on 10/16/2024
Replaces report S64993.01(02) generated on 09/24/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

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Contacts for report questions:
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Report Summary

Lab Sample ID(s): S64993.01-S64993.08
Project: Erickson Wellfield
Collected Date(s): 08/08/2024
Submitted Date/Time: 08/09/2024 08:07
Sampled by: Julie Maltby / Marc Wahrer
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

During QC review, it was found that the Chloride result originally reported for Sample S64993.01 exceeded the calibration range.
Chloride is being re-reported from a higher dilution ran on a later date to bring the Chloride result within the calibration range.

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2320B	Standard Method 2320 B 2011
SM2340C	Standard Method 2340 C 2011
SM2540C	Standard Method 2540 C 2015
SM2540D	Standard Method 2540 D 2015
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S64993.01	MW-7 L408239-01	Groundwater	08/08/24 11:13
S64993.02	MW-7B L408239-02	Groundwater	08/08/24 12:40
S64993.03	MW-7C L408239-03	Groundwater	08/08/24 14:13
S64993.04	MW-10 L408239-04	Groundwater	08/08/24 11:21
S64993.05	MWT-10 L408239-05	Groundwater	08/08/24 11:21
S64993.06	MW-9 L408239-06	Groundwater	08/08/24 13:00
S64993.07	MW-8 L408239-07	Groundwater	08/08/24 14:15
S64993.08	Field Blank L408239-08	Water	08/08/24 10:25

Lab Sample ID: S64993.01
Sample Tag: MW-7 L408239-01
Collected Date/Time: 08/08/2024 11:13
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.1	IR
2	1L Plastic	None	Yes	4.1	IR
1	125mL Plastic	HNO3	Yes	4.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/12/24 11:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/16/24 15:31, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	0.3	1.0	0.130	mg/L	5	16984-48-8	b

Method: E300.0, Run Date: 08/25/24 09:21, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	82.4	10	0.160	mg/L	10	16887-00-6	
Sulfate	171	10.0	0.59	mg/L	10	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 13:39, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	240	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:34, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	338	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	614	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 16:33, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum	Not detected	0.010	0.00690	mg/L	5	7429-90-5	
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.005	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.056	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	2.03	0.04	0.0159	mg/L	5	7440-42-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64993.01 (continued)
Sample Tag: MW-7 L408239-01

Method: E200.8, Run Date: 08/14/24 16:33, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	0.007	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	1.40	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.080	0.005	0.00135	mg/L	5	7439-93-2	
Manganese	0.218	0.005	0.00125	mg/L	5	7439-96-5	
Molybdenum	0.196	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:45, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	111	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	15.1	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	9.98	0.50	0.119	mg/L	5	7440-09-7	
Sodium	72.3	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/12/24 14:30, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/09/24 11:02, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64993.02
Sample Tag: MW-7B L408239-02
Collected Date/Time: 08/08/2024 12:40
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.1	IR
2	1L Plastic	None	Yes	4.1	IR
1	125mL Plastic	HNO3	Yes	4.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/12/24 11:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/18/24 15:21, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	1.9	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	0.6	1.0	0.130	mg/L	5	16984-48-8	b
Sulfate	1.1	5.0	0.295	mg/L	5	14808-79-8	b

Method: SM2320B, Run Date: 08/16/24 13:42, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	380	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:36, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	27	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	358	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.0	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 08/14/24 16:36, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.008	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	2.95	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64993.02 (continued)
Sample Tag: MW-7B L408239-02

Method: E200.8, Run Date: 08/14/24 16:36, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.12	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.032	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	8.87	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	2.65	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	5.71	0.50	0.119	mg/L	5	7440-09-7	
Sodium	139	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/12/24 14:33, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/09/24 11:02, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64993.03
Sample Tag: MW-7C L408239-03
Collected Date/Time: 08/08/2024 14:13
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.1	IR
2	1L Plastic	None	Yes	4.1	IR
1	125mL Plastic	HNO3	Yes	4.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/12/24 11:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/18/24 15:31, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	

Method: E300.0, Run Date: 08/18/24 18:02, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	105	50.0	0.800	mg/L	50	16887-00-6	
Sulfate	663	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 13:48, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	180	10	0.504	mg/L	1	71-52-3	

Method: SM2320B, Run Date: 08/16/24 11:34, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:38, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	770	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,310	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	9.1	3	0.5	mg/L	1.3		

Metals

Method: E200.8, Run Date: 08/14/24 16:40, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.007	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.039	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	

Lab Sample ID: S64993.03 (continued)
Sample Tag: MW-7C L408239-03

Method: E200.8, Run Date: 08/14/24 16:40, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	6.38	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	4.30	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.119	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.388	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	0.007	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:49, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	241	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	42.6	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	5.82	0.50	0.119	mg/L	5	7440-09-7	
Sodium	93.1	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/12/24 14:36, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/09/24 11:02, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64993.04
Sample Tag: MW-10 L408239-04
Collected Date/Time: 08/08/2024 11:21
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.1	IR
2	1L Plastic	None	Yes	4.1	IR
1	125mL Plastic	HNO3	Yes	4.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/12/24 11:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/18/24 15:41, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	2.2	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	10.6	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 13:51, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	420	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:40, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	386	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	384	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 16:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.033	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.06	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64993.04 (continued)
Sample Tag: MW-10 L408239-04

Method: E200.8, Run Date: 08/14/24 16:44, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	Not detected	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:51, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	119	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	22.8	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	1.00	0.50	0.119	mg/L	5	7440-09-7	
Sodium	2.72	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/12/24 14:40, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/09/24 11:03, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64993.05
Sample Tag: MWT-10 L408239-05
Collected Date/Time: 08/08/2024 11:21
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.1	IR
2	1L Plastic	None	Yes	4.1	IR
1	125mL Plastic	HNO3	Yes	4.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/12/24 11:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/18/24 15:51, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	2.2	5.0	0.080	mg/L	5	16887-00-6	b
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	10.6	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 13:54, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	430	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:42, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	386	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	392	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 16:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.035	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.06	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S64993.05 (continued)
Sample Tag: MWT-10 L408239-05

Method: E200.8, Run Date: 08/14/24 16:48, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	Not detected	0.02	0.0142	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:53, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	116	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	22.5	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	0.99	0.50	0.119	mg/L	5	7440-09-7	
Sodium	2.67	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/12/24 14:43, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/09/24 11:02, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64993.06
Sample Tag: MW-9 L408239-06
Collected Date/Time: 08/08/2024 13:00
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.1	IR
2	1L Plastic	None	Yes	4.1	IR
1	125mL Plastic	HNO3	Yes	4.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/12/24 11:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/18/24 16:01, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	6.1	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	12.6	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 13:57, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	380	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:44, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	340	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	360	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 16:51, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.020	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.04	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	Not detected	0.02	0.0142	mg/L	5	7439-89-6	

Lab Sample ID: S64993.06 (continued)
Sample Tag: MW-9 L408239-06

Method: E200.8, Run Date: 08/14/24 16:51, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	Not detected	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:55, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	100	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	23.4	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	1.47	0.50	0.119	mg/L	5	7440-09-7	
Sodium	3.67	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/12/24 14:46, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/09/24 11:02, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64993.07
Sample Tag: MW-8 L408239-07
Collected Date/Time: 08/08/2024 14:15
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.1	IR
2	1L Plastic	None	Yes	4.1	IR
1	125mL Plastic	HNO3	Yes	4.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/12/24 11:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/18/24 16:11, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	28.5	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	27.5	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 14:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	390	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:46, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	340	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	406	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 16:55, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.021	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.08	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Iron	Not detected	0.02	0.0142	mg/L	5	7439-89-6	

Lab Sample ID: S64993.07 (continued)
Sample Tag: MW-8 L408239-07

Method: E200.8, Run Date: 08/14/24 16:55, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.005	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:57, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	93.3	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	26.8	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	0.52	0.50	0.119	mg/L	5	7440-09-7	
Sodium	23.9	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 08/12/24 14:56, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/09/24 11:02, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S64993.08
Sample Tag: Field Blank L408239-08
Collected Date/Time: 08/08/2024 10:25
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.1	IR
2	1L Plastic	None	Yes	4.1	IR
1	125mL Plastic	HNO3	Yes	4.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/12/24 11:26	CTV	
Metal Digestion	Completed	SW3015A	08/14/24 12:30	CCM	

Inorganics

Method: E300.0, Run Date: 08/18/24 16:21, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	Not detected	5.0	0.080	mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.0	0.130	mg/L	5	16984-48-8	
Sulfate	Not detected	5.0	0.295	mg/L	5	14808-79-8	

Method: SM2320B, Run Date: 08/16/24 14:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	Not detected	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 08/15/24 14:48, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	Not detected	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50	12	mg/L	2		

Method: SM2540D, Run Date: 08/14/24 17:13, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 08/14/24 15:41, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.000900	mg/L	2	7440-36-0	
Arsenic	Not detected	0.002	0.000580	mg/L	2	7440-38-2	
Barium	Not detected	0.005	0.000360	mg/L	2	7440-39-3	
Beryllium	Not detected	0.001	0.0000800	mg/L	2	7440-41-7	
Boron	Not detected	0.04	0.00636	mg/L	2	7440-42-8	
Cadmium	Not detected	0.0005	0.000140	mg/L	2	7440-43-9	
Chromium	Not detected	0.005	0.000300	mg/L	2	7440-47-3	
Cobalt	Not detected	0.005	0.000180	mg/L	2	7440-48-4	
Copper	Not detected	0.005	0.000320	mg/L	2	7440-50-8	
Iron	Not detected	0.02	0.00568	mg/L	2	7439-89-6	

Lab Sample ID: S64993.08 (continued)
Sample Tag: Field Blank L408239-08

Method: E200.8, Run Date: 08/14/24 15:41, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.000180	mg/L	2	7439-92-1	
Lithium*	Not detected	0.005	0.000540	mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005	0.00168	mg/L	2	7439-98-7	
Nickel	Not detected	0.005	0.000460	mg/L	2	7440-02-0	
Selenium	Not detected	0.005	0.00174	mg/L	2	7782-49-2	
Silver	Not detected	0.0005	0.000100	mg/L	2	7440-22-4	
Thallium	Not detected	0.002	0.000140	mg/L	2	7440-28-0	
Vanadium	Not detected	0.005	0.000820	mg/L	2	7440-62-2	
Zinc	Not detected	0.005	0.00130	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 08/15/24 13:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	Not detected	1.0	0.0874	mg/L	2	7440-70-2	
Magnesium	Not detected	0.50	0.0231	mg/L	2	7439-95-4	
Potassium	Not detected	0.50	0.0479	mg/L	2	7440-09-7	
Sodium	Not detected	0.50	0.0436	mg/L	2	7440-23-5	

Method: E245.1, Run Date: 08/12/24 14:59, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 09/09/24 11:02, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S64993
Client: BWL01 (Board of Water & Light)
Project: Erickson Wellfield
Submitted: 08/09/2024 08:07 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.1
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[X] Yes	[ ] No	[ ] N/A	Subcontracting needed? Subcontacted to:	GEL
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S64993 Submitted: 08/09/2024 08:07

Client: BWL01 (Board of Water & Light)

Project: Erickson Wellfield

Initial Preservation Check: 08/09/2024 09:08 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S64993.01	125mL Plastic HNO3	<2			
S64993.01	1L Plastic HNO3	<2			
S64993.01	1L Plastic HNO3	<2			
S64993.02	125mL Plastic HNO3	<2			
S64993.02	1L Plastic HNO3	<2			
S64993.02	1L Plastic HNO3	<2			
S64993.03	125mL Plastic HNO3	<2			
S64993.03	1L Plastic HNO3	<2			
S64993.03	1L Plastic HNO3	<2			
S64993.04	125mL Plastic HNO3	<2			
S64993.04	1L Plastic HNO3	<2			
S64993.04	1L Plastic HNO3	<2			
S64993.05	125mL Plastic HNO3	<2			
S64993.05	1L Plastic HNO3	<2			
S64993.05	1L Plastic HNO3	<2			
S64993.06	125mL Plastic HNO3	<2			
S64993.06	1L Plastic HNO3	<2			
S64993.06	1L Plastic HNO3	<2			
S64993.07	125mL Plastic HNO3	<2			
S64993.07	1L Plastic HNO3	<2			
S64993.07	1L Plastic HNO3	<2			
S64993.08	125mL Plastic HNO3	<2			
S64993.08	1L Plastic HNO3	<2			
S64993.08	1L Plastic HNO3	<2			

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing | STATE: Mi | ZIP CODE: 48901
PHONE NO.: 517-702-6372 | FAX NO.: | P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Wellfield
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Julie Maltby, Marc Wahrer

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☒LEVEL III ☐LEVEL IV ☒EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☒NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total Metals	F- undisstiled, Cl-, SO4, TDS	Radium 226	Radium 228	TSS	Dissolved Metals	HCO_3, CO_3, Hardness	Special Instructions
604993.01	8.8.24	1113	MW-7 L408239-01	GW	5			X					✓	✓	✓	✓	✓		✓	Metals to analyse:Na, Mg, K
.02		1240	MW-7B -02		5			X					✓	✓	✓	✓	✓		✓	B, Ca, Sb, As, Ba, Be, Cd, Cr,
.03		1413	MW-7C -03		5			X					✓	✓	✓	✓	✓		✓	Co, Li, Hg, Mo,Pb,Se, Tl,
.04		1121	MW-10 -04		5			X					✓	✓	✓	✓	✓		✓	Fe, Cu, Ni, Ag, V, Zn
.05		1121	MWT-10 D5		5			X					✓	✓	✓	✓	✓		✓	Please send a preliminary report
.06		1300	MW-9 -06		5			X					✓	✓	✓	✓	✓		✓	
.07		1415	MW-8 -07		5			X					✓	✓	✓	✓	✓		✓	The analytes for dissolved metals are
.08	↓	1025	Field Blank ↓ -08	DI	5			X					✓	✓	✓	✓	✓		✓	same metals that are analysed for total.

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐Sampler	DATE 8-9-24	TIME 0807
RECEIVED BY: SIGNATURE/ORGANIZATION	M Milcetic	DATE 8/9/24	TIME 0807
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

NOTES: TEMP. ON ARRIVAL 4.1

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Reporting Limits to go to Merit with COC

Sb, total	Antimony	250 mL plastic	mg/L	Nitric Acid	200.7	6 mos	0.005
As, total	Arsenic	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
Ba, total		250 mL plastic	mg/L	Nitric Acid	200.8	6mos	0.150
Be, total	Beryllium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.001
B, total	Boron	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.04
Cd, total	Cadmium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
Ca	Calcium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	2.5
Cl	Chloride	250 mL plastic	mg/L	Chill	300.0	28 d	10
Cr, total	Chromium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Co, total	Cobalt	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Cu, total	Copper	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
F	Fluoride	250 mL plastic	mg/L	None	9056	28 d	1.0
Fe, total	Iron	250 mL plastic	mg/L	Nitric Acid	300.0	6 mos	0.02
Pb, total	Lead	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.003
Li, total	Lithium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Hg, total	Mercury	250 mL plastic	mg/L	HNO3	245.1	28 d	0.0002
Mo, total	Molybdenum	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ni, total	Nickel	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
RA226/228	Radium 226 and 228 combined	(2) 1 L plastic	pCi/L	HNO3	SM 7500	6 mos	2.0 combined
Se, total	Selenium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ag, total	Silver	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
SO4	Sulfate	250 mL plastic	mg/L	Chill	300.0	28 d	10
Tl, total	Thallium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
TDS	Total Dissolved Solids	1 L plastic	mg/L	None	SM 2540C	NA	20
TSS	Total Suspended Solids	1 L plastic	mg/L	None	SM 2540D	NA	3
V, total	Vanadium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Zn, total	Zinc	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005

GEL Laboratories LLC
a member of The GEL Group INC

2040 Savage Road | Charleston, SC 29407
843.556.8171
gel.com

September 12, 2024

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 680750
SDG: S64993

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 14, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Abagail Martin for
Delaney Stonesmith
Project Manager

Purchase Order: GELP20-0018
Enclosures

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Case Narrative

Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S64993
Work Order: 680750

September 12, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on August 14, 2024 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

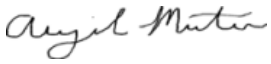
Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
680750001	S64993.01
680750002	S64993.02
680750003	S64993.03
680750004	S64993.04
680750005	S64993.05
680750006	S64993.06
680750007	S64993.07
680750008	S64993.08

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.



Abagail Martin for
Delaney Stonesmith
Project Manager

Chain of Custody and Supporting Documentation

680750

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: results@meritlabs.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague SAME
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S64993 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☐LEVEL III ☒LEVEL IV ☐EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☐NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Radium 226*	Radium 228**	Special Instructions
	8/8/24	1113	S64993.01	GW	2			2					✓	✓	* E903.1 Mod.
	8/8/24	1240	S64993.02	GW	2			2					✓	✓	** E904.0/SW 9320 Mod.
	8/8/24	1413	S64993.03	GW	2			2					✓	✓	
	8/8/24	1121	S64993.04	GW	2			2					✓	✓	Please use calculation product &
	8/8/24	1121	S64993.05	GW	2			2					✓	✓	provide Radium 226/228 combined
	8/8/24	1300	S64993.06	GW	2			2					✓	✓	results on the report
	8/8/24	1415	S64993.07	GW	2			2					✓	✓	
	8/8/24	1025	S64993.08	W	2			2					✓	✓	(No Ice needed)
															** Subcontracted to
															GEL Laboratories, Inc.
															2040 Savage Road
															Charleston, SC 29407

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Pat ☐Sampler DATE: 8/12/24 TIME: 1700
RECEIVED BY: SIGNATURE/ORGANIZATION: UPS DATE: 8/12/24 TIME: 1700
RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: Theresa Tatum DATE: 8/14/24 TIME: 1020

SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS

NOTES: TEMP. ON ARRIVAL 10°C

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: MERI	SDG/AR/COC/Work Order: 480750 P.S.
Received By: Thyasia Tatum	Date Received: 8/14/24
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 1Z 466 477 03 6398 0008

Suspected Hazard Information	Yes	No	
			*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*			✓	Preservation Method: Wet Ice Ice Packs Dry ice (None) Other: *all temperatures are recorded in Celsius TEMP: 16°C
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR2-23 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?	✓			
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials AM Date 8/15/24 Page 1 of 1

GL-CHL-SR-001 Rev 7

Laboratory Certifications

List of current GEL Certifications as of 12 September 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	NV-C24-00175
New Hampshire NELAP	205424
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235
Utah NELAP	SC000122024-41
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S64993
Work Order #: 680750

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2657369

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
680750001	S64993.01
680750002	S64993.02
680750003	S64993.03
680750004	S64993.04
680750005	S64993.05
680750006	S64993.06
680750007	S64993.07
680750008	S64993.08
1205823162	Method Blank (MB)
1205823163	680750001(S64993.01) Sample Duplicate (DUP)
1205823164	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2658480

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
680750001	S64993.01
680750002	S64993.02
680750003	S64993.03
680750004	S64993.04
680750005	S64993.05
680750006	S64993.06
680750007	S64993.07
680750008	S64993.08
1205825485	Method Blank (MB)

1205825486	680654001(NonSDG) Sample Duplicate (DUP)
1205825487	680654001(NonSDG) Matrix Spike (MS)
1205825488	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1205825487 (Non SDG 680654001MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MERI001 Merit Laboratories, Inc.

Client SDG: S64993 GEL Work Order: 680750

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Theresa Austin**

Date: 12 SEP 2024 **Title: Analyst III - Data Validator**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 12, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64993.01	Project:	MERI00120
Sample ID:	680750001	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-AUG-24 11:13		
Receive Date:	14-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.870	+/-1.20	2.06	3.00	pCi/L			KP1	09/09/24	1102	2657369	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.82	+/-1.33			pCi/L			NXL1	09/11/24	1549	2664976	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.946	+/-0.567	0.698	1.00	pCi/L			MJ2	09/11/24	0822	2658480	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			90.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 12, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64993.02	Project:	MERI00120
Sample ID:	680750002	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-AUG-24 12:40		
Receive Date:	14-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.207	+/-0.857	1.59	3.00	pCi/L			KP1	09/09/24	1102	2657369	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.830	+/-0.962			pCi/L			NXL1	09/11/24	1549	2664976	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.623	+/-0.437	0.428	1.00	pCi/L			MJ2	09/11/24	0822	2658480	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			86.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 12, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S64993.03	Project:	MERI00120
Sample ID:	680750003	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-AUG-24 14:13		
Receive Date:	14-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.784	+/-1.13	1.95	3.00	pCi/L			KP1	09/09/24	1102	2657369	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.67	+/-1.22			pCi/L			NXL1	09/11/24	1549	2664976	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.887	+/-0.457	0.454	1.00	pCi/L			MJ2	09/11/24	0822	2658480	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			83.3	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 12, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S64993.04	Project:	MERI00120
Sample ID:	680750004	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-AUG-24 11:21		
Receive Date:	14-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		2.77	+/-1.49	2.27	3.00	pCi/L			KP1	09/09/24	1103	2657369	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.30	+/-1.54			pCi/L			NXL1	09/11/24	1549	2664976	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.528	+/-0.399	0.464	1.00	pCi/L			MJ2	09/11/24	0822	2658480	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			90.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 12, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S64993.05	Project:	MERI00120
Sample ID:	680750005	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-AUG-24 11:21		
Receive Date:	14-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		2.21	+/-1.10	1.54	3.00	pCi/L			KP1	09/09/24	1102	2657369	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.34	+/-1.11			pCi/L			NXL1	09/11/24	1549	2664976	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.129	+/-0.182	0.301	1.00	pCi/L			MJ2	09/11/24	0822	2658480	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			88.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 12, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S64993.06	Project:	MERI00120
Sample ID:	680750006	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-AUG-24 13:00		
Receive Date:	14-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.555	+/-1.11	1.95	3.00	pCi/L			KP1	09/09/24	1102	2657369	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.48	+/-1.25			pCi/L			NXL1	09/11/24	1549	2664976	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.924	+/-0.581	0.721	1.00	pCi/L			MJ2	09/11/24	0822	2658480	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			93	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: September 12, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S64993.07	Project:	MERI00120
Sample ID:	680750007	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-AUG-24 14:15		
Receive Date:	14-AUG-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.454	+/-0.816	1.44	3.00	pCi/L			KP1	09/09/24	1102	2657369	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.673	+/-0.868			pCi/L			NXL1	09/11/24	1549	2664976	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.219	+/-0.294	0.497	1.00	pCi/L			MJ2	09/11/24	0821	2658480	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			91.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 12, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S64993.08
Sample ID: 680750008
Matrix: Water
Collect Date: 08-AUG-24 10:25
Receive Date: 14-AUG-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.43	+/-1.32	2.15	3.00	pCi/L			KP1	09/09/24	1102	2657369	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.52	+/-1.35			pCi/L			NXL1	09/11/24	1549	2664976	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.0903	+/-0.306	0.634	1.00	pCi/L			MJ2	09/11/24	0858	2658480	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			76.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Data

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: September 12, 2024

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: **John Laverty**

Workorder: **680750**

Parmname			NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gas Flow													
Batch 2657369													
QC1205823163	680750001	DUP											
Radium-228			U	0.870	U	1.54	pCi/L	N/A		N/A	KP1	09/09/24	11:02
			Uncertainty	+/-1.20		+/-1.37							
QC1205823164	LCS												
Radium-228			71.1			59.8	pCi/L		84.1	(75%-125%)		09/09/24	11:02
			Uncertainty			+/-4.23							
QC1205823162	MB												
Radium-228					U	0.0492	pCi/L					09/09/24	11:02
			Uncertainty			+/-0.887							
Rad Ra-226													
Batch 2658480													
QC1205825486	680654001	DUP											
Radium-226				0.477	U	0.639	pCi/L	29		(0% - 100%)	MJ2	09/11/24	08:58
			Uncertainty	+/-0.387		+/-0.560							
QC1205825488	LCS												
Radium-226			27.2			23.9	pCi/L		87.8	(75%-125%)		09/11/24	08:58
			Uncertainty			+/-2.35							
QC1205825485	MB												
Radium-226					U	0.0261	pCi/L					09/11/24	08:58
			Uncertainty			+/-0.170							
QC1205825487	680654001	MS											
Radium-226			133	0.477		101	pCi/L		75.9	(75%-125%)		09/11/24	08:58
			Uncertainty	+/-0.387		+/-10.1							

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported

QC Summary

Workorder: **680750**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

>	Result is greater than value reported
UI	Gamma Spectroscopy--Uncertain identification
BD	Results are either below the MDC or tracer recovery is low
h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
M	M if above MDC and less than LLD
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
FA	Failed analysis.
UJ	Gamma Spectroscopy--Uncertain identification
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N1	See case narrative
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
**	Analyte is a Tracer compound
M	REMP Result > MDC/CL and < RDL
J	See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Gas Flow Raw Data

Batch 2657369 Check-list

This check-list was completed on 09-SEP-24 by Nat Long

This batch was reviewed by Kenshalla Oston on 09-SEP-24 and Nat Long on 09-SEP-24.

Batch ID: 2657369 **Product:** GFC28RAL **Description:** Gas Flow Radium 228 GL-RAD-A-063

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-228 in Liquid

Batch ID: **2657369**
Analyst: Kaitlyn Painter (KP1)
Method: EPA 904.0/SW846 9320 Modified
Lab SOP: GL-RAD-A-063 REV# 5
Instrument: ASP-33005595

Due Dates for Lab: 09-SEP-2024 **Package: 11-SEP-2024** **SDG: 12-SEP-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205823164	Radium 228	2051-E	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)
1	680750001	16-AUG-2024	3	300.2	300.2	08/17/24 14:00	09/09/24 08:59
2	680750002	16-AUG-2024	3	300	300	08/17/24 14:00	09/09/24 08:59
3	680750003	16-AUG-2024	3	300.8	300.8	08/17/24 14:00	09/09/24 08:59
4	680750004	16-AUG-2024	3	300.2	300.2	08/17/24 14:00	09/09/24 08:59
5	680750005	16-AUG-2024	3	300.2	300.2	08/17/24 14:00	09/09/24 08:59
6	680750006	16-AUG-2024	3	300.6	300.6	08/17/24 14:00	09/09/24 08:59
7	680750007	16-AUG-2024	3	300.4	300.4	08/17/24 14:00	09/09/24 08:59
8	680750008	16-AUG-2024	3	300.2	300.2	08/17/24 14:00	09/09/24 08:59
9	1205823162 MB	16-AUG-2024	3		300.8	08/17/24 14:00	09/09/24 08:59
10	1205823163 DUP (680750001)	16-AUG-2024	3	300.3	300.3	08/17/24 14:00	09/09/24 08:59
11	1205823164 LCS	16-AUG-2024	3		300.8	08/17/24 14:00	09/09/24 08:59

Reagent/Solvent Lot ID	Description	Amount
WORK 2097-C	Ba-133 Tracer	.1 mL
REGNT 4390939	RGF-1.5M Ammonium Sulfate	10 mL
REGNT 4389691	Barium Carrier Ra228 REG	1 mL
REGNT 4389703	RGF-1M Citric Acid	5 mL
REGNT 4390928	2M HCl	20 mL
REGNT 4388485	RGF-50% Potassium Carbonate	2 mL
REGNT 4388157	RGF-7M Nitric Acid	25 mL
REGNT 4379234.4	Acetic Acid Glacial ACS	10 mL
REGNT DGA07232024	2651587	2 g
REGNT 4381503.2	RGF-Hydrofluoric Acid	4 mL
REGNT 4337194	500 mg/mL Neodymium Carrier	.2 mL
REGNT 4382975	RGF-Neodymium Subtrate	5 mL
REGNT 4380794.5	Nitric Acid	5 mL

Comments:
Pipet Id: RAD-GFC-1795419
Data Entry Date2: 09-SEP-2024 09:03 ASP-33005595 Kaitlyn Painter
Data Entry Date3: 16-AUG-2024 00:00

Radium-228 Liquid

Filename : RA228.XLS
File type : Excel
Version # : 1.4.3

Tracer S/N : 2097-C
Tracer Exp Date : 4/9/2025
Tracer Volume Added: 0.10

Batch : 2657369
Analyst : KAI02410
Prep Date : 8/16/2024
Ra-228 Method Uncertainty : 0.1268

Geometry: 25mm Filter

Procedure Code : GFC28RAL
Parmname : Radium-228
Required MDA : 3 pCi/L
Ra-228 Abundance : 1.00
Halflife of Ra-228 : 5.75 years
Halflife of Ac-228 : 6.15 hours

Sample Characteristics					**Tracer Calculations**					
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Tracer Ref. Activity (CPM)	Tracer Ref. Count Uncertainty (%)	Tracer Samp. Activity (CPM)	Tracer Samp. Count Uncertainty (%)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	680750001.1	0.3002	1.8462E-05	8/8/2024 11:13	934.1	1.89%	847.7	1.98%	0.1	0.000200
2	680750002.1	0.3000	1.8459E-05	8/8/2024 12:40	934.1	1.89%	807.0	2.03%	0.1	0.000200
3	680750003.1	0.3008	1.8473E-05	8/8/2024 14:13	934.1	1.89%	778.2	2.07%	0.1	0.000200
4	680750004.1	0.3002	1.8462E-05	8/8/2024 11:21	934.1	1.89%	842.4	1.99%	0.1	0.000200
5	680750005.1	0.3002	1.8462E-05	8/8/2024 11:21	934.1	1.89%	829.0	2.01%	0.1	0.000200
6	680750006.1	0.3006	1.8469E-05	8/8/2024 13:00	934.1	1.89%	868.5	1.96%	0.1	0.000200
7	680750007.1	0.3004	1.8466E-05	8/8/2024 14:15	934.1	1.89%	857.9	1.97%	0.1	0.000200
8	680750008.1	0.3002	1.8462E-05	8/8/2024 10:25	934.1	1.89%	716.2	2.16%	0.1	0.000200
9	1205823162.1	0.3008	1.8473E-05	8/16/2024 0:00	934.1	1.89%	750.3	2.11%	0.1	0.000200
10	1205823163.1	0.3003	1.8464E-05	8/8/2024 11:13	934.1	1.89%	814.7	2.02%	0.1	0.000200
11	1205823164.1	0.3008	1.8473E-05	8/16/2024 0:00	934.1	1.89%	766.2	2.09%	0.1	0.000200

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-063
Instrument SOP: GL-RAD-I-016

Count raw Data

Pos.	Detector ID	Counting Time (min.)	Gross Counts Alpha	Gross Counts Beta	Beta cpm	Count Start Date/Time	Ac-228 Ingrowth Date/Time	Ac-228 Decay Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Ingrowth	Ac-228 Count Correction	Calculated Sample Recovery %	Sample Recovery Error %
1	3B	60	9	80	1.333	9/9/2024 11:02	8/17/2024 14:00	9/9/2024 8:59	0.989	0.793	1.000	1.057	90.8%	2.75%
2	3C	60	9	38	0.633	9/9/2024 11:02	8/17/2024 14:00	9/9/2024 8:59	0.990	0.793	1.000	1.057	86.4%	2.79%
3	4D	60	7	61	1.017	9/9/2024 11:02	8/17/2024 14:00	9/9/2024 8:59	0.990	0.793	1.000	1.057	83.3%	2.82%
4	5D	60	15	127	2.117	9/9/2024 11:03	8/17/2024 14:00	9/9/2024 8:59	0.989	0.792	1.000	1.057	90.2%	2.76%
5	8B	60	10	68	1.133	9/9/2024 11:02	8/17/2024 14:00	9/9/2024 8:59	0.989	0.793	1.000	1.057	88.8%	2.77%
6	8C	60	10	67	1.117	9/9/2024 11:02	8/17/2024 14:00	9/9/2024 8:59	0.990	0.792	1.000	1.057	93.0%	2.74%
7	8D	60	8	38	0.633	9/9/2024 11:02	8/17/2024 14:00	9/9/2024 8:59	0.990	0.792	1.000	1.057	91.8%	2.74%
8	9A	60	16	69	1.150	9/9/2024 11:02	8/17/2024 14:00	9/9/2024 8:59	0.989	0.792	1.000	1.057	76.7%	2.88%
9	9B	60	10	35	0.583	9/9/2024 11:02	8/17/2024 14:00	9/9/2024 8:59	0.992	0.793	1.000	1.057	80.3%	2.85%
10	5A	60	14	93	1.550	9/9/2024 11:02	8/17/2024 14:00	9/9/2024 8:59	0.989	0.793	1.000	1.057	87.2%	2.78%
11	9C	60	13	873	14.550	9/9/2024 11:02	8/17/2024 14:00	9/9/2024 8:59	0.992	0.793	1.000	1.057	82.0%	2.83%

Calibration Data								
Pos.	Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Bkg cpm	Weekly Bkg Count Start Date/Time	Bkg Count Time (min.)
1	PIC	6/1/2024	5/31/2025	0.5669	0.01614	1.112	9/7/2024 9:32	500
2	PIC	6/1/2024	5/31/2025	0.5795	0.00988	0.582	9/7/2024 9:32	500
3	PIC	6/1/2024	5/31/2025	0.5706	0.00773	0.832	9/6/2024 19:38	500
4	PIC	6/1/2024	5/31/2025	0.5759	0.00925	1.406	9/6/2024 19:39	500
5	PIC	6/1/2024	5/31/2025	0.5764	0.02148	0.574	9/6/2024 19:39	500
6	PIC	6/1/2024	5/31/2025	0.5505	0.01955	0.976	9/6/2024 19:39	500
7	PIC	6/1/2024	5/31/2025	0.5690	0.00609	0.516	9/6/2024 19:39	500
8	PIC	6/1/2024	5/31/2025	0.5671	0.00758	0.842	9/6/2024 19:40	500
9	PIC	6/1/2024	5/31/2025	0.5776	0.00754	0.572	9/6/2024 19:40	500
10	PIC	6/1/2024	5/31/2025	0.5552	0.00851	1.182	9/6/2024 19:39	500
11	PIC	6/1/2024	5/31/2025	0.5621	0.00584	0.862	9/6/2024 19:40	500

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : N/A
Spike Exp Date : N/A
Spike Activity (dpm/ml): N/A
Spike Volume Added: N/A

LCS S/N : 2051-E
LCS Exp Date : 4/29/2025
LCS Activity (dpm/ml): 474.70
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type		RPD	RER	Nominal pCi/L	Recovery
1	1.3190	0.9312	3	2.0589	**0.8697**	70.71%	0.2213	0.1564	1.2041	1.2246		SAMPLE					
2	0.9812	0.6928	3	1.5876	**0.2074**	210.91%	0.0513	0.1083	0.8573	0.8589		SAMPLE					
3	1.2325	0.8702	3	1.9526	**0.7839**	73.93%	0.1847	0.1364	1.1349	1.1524		SAMPLE					
4	1.4713	1.0387	3	2.2723	**2.7699**	27.62%	0.7107	0.1952	1.4910	1.6498		SAMPLE					
5	0.9538	0.6734	3	1.5445	**2.2119**	25.55%	0.5593	0.1416	1.0972	1.2366		SAMPLE					
6	1.2416	0.8766	3	1.9506	**0.5553**	102.00%	0.1407	0.1434	1.1096	1.1188		SAMPLE					
7	0.8849	0.6247	3	1.4429	**0.4540**	91.79%	0.1173	0.1076	0.8164	0.8246		SAMPLE					
8	1.3598	0.9600	3	2.1528	**1.4338**	46.98%	0.3080	0.1444	1.3175	1.3674		SAMPLE					
9	1.0448	0.7377	3	1.6923	**0.0492**	919.78%	0.0113	0.1042	0.8867	0.8869		MB					
10	1.4442	1.0196	3	2.2478	**1.5356**	45.72%	0.3680	0.1679	1.3733	1.4281	680750001.1	DUP	*	0.0%			
11	1.2909	0.9114	3	2.0411	**59.7833**	4.63%	13.6880	0.4942	4.2305	15.8156		LCS				71.0874	84.1%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine	Batch ID
680750001	3B	60	9	80	9/9/2024 11:02	9/9/2024 12:02	PIC	2657369
680750002	3C	60	9	38	9/9/2024 11:02	9/9/2024 12:02	PIC	2657369
680750003	4D	60	7	61	9/9/2024 11:02	9/9/2024 12:02	PIC	2657369
680750004	5D	60	15	127	9/9/2024 11:03	9/9/2024 12:03	PIC	2657369
680750005	8B	60	10	68	9/9/2024 11:02	9/9/2024 12:02	PIC	2657369
680750006	8C	60	10	67	9/9/2024 11:02	9/9/2024 12:02	PIC	2657369
680750007	8D	60	8	38	9/9/2024 11:02	9/9/2024 12:02	PIC	2657369
680750008	9A	60	16	69	9/9/2024 11:02	9/9/2024 12:02	PIC	2657369
1205823162	9B	60	10	35	9/9/2024 11:02	9/9/2024 12:02	PIC	2657369
1205823163	5A	60	14	93	9/9/2024 11:02	9/9/2024 12:02	PIC	2657369
1205823164	9C	60	13	873	9/9/2024 11:02	9/9/2024 12:02	PIC	2657369

ASSAY		9-Sep-24	9:37:06							
Wizard 2480 s/n 46190630										
Protocol	id		8	Ba-133						
Time	limit									
Count	limit									
Isotope	Ba-133									
Protocol	date	9/9/2024								
Run	id.		2523							

Samp_ID	POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
REF	1	4	1	180	2802.5	934.06	1.89		09:37:06
680750001	2	4	2	180	2543.5	847.73	1.98	90.76	09:40:20
680750002	3	4	3	180	2421.5	807.01	2.03	86.40	09:43:34
680750003	4	4	4	180	2335	778.17	2.07	83.31	09:46:48
680750004	5	4	5	180	2527.5	842.41	1.99	90.19	09:50:02
680750005	1	37	1	180	2487.5	829.04	2.01	88.76	09:53:50
680750006	2	37	2	180	2606	868.53	1.96	92.98	09:57:04
680750007	3	37	3	180	2574	857.87	1.97	91.84	10:00:18
680750008	4	37	4	180	2149	716.22	2.16	76.68	10:03:32
1205823162	5	37	5	180	2251.5	750.32	2.11	80.33	10:06:46
1205823163	1	3	1	180	2444.5	814.71	2.02	87.22	10:10:33
1205823164	2	3	2	180	2299	766.21	2.09	82.03	10:13:47

END OF ASSAY

Continuing Calibration Data

Gas Flow Proportional Counter Checks for 09-Sep-2024

Detectors LB4100 E1 through H4 and PIC 1A through 14D and G5400W 1W through 1Z and LB4200 GA1 through OD4

Short Name	Status	Parmname	Run Time	Count Time	CPM or dec	Low Limit	High Limit	Stdev
LB4100E1	need 2nd	Beta eff	09-Sep 06:06	5	13506	13290	15000	-2.24
LB4100F1	Above	Beta bkg	09-Sep 04:43	60	2.167	-2.37E-1	3.338	+1.03
LB4100G2	Below	Alpha eff	09-Sep 06:07	5	9881	10810	14340	-4.58
LB4100G2	Above	Alpha XTalk	09-Sep 06:07	5	0.306	0.169	0.234	+9.60
LB4100G2	Above	Beta bkg	09-Sep 04:43	60	325	0.407	1.917	+1,288.37
LB4100G2	need 2nd	Beta eff	09-Sep 05:51	5	14567	12830	15530	+0.86
LB4100G3	Below	Alpha eff	09-Sep 06:07	5	7459	8123	10070	-5.05
LB4100G3	Above	Beta bkg	09-Sep 04:43	60	7.033	0.716	2.721	+15.90
LB4100H2	Below	Beta eff	09-Sep 05:51	5	13099	13170	14610	-3.30
LB4200GB2	Below	Alpha eff	09-Sep 05:13	5	9412	9443	9898	-3.40
LB4200GB2	Above	Beta bkg	09-Sep 05:30	60	9.567	0.129	1.304	+45.17
LB4200GB2	Below	Beta eff	09-Sep 05:21	5	13837	13840	15160	-3.01
LB4200OB1	Below	Alpha eff	09-Sep 05:28	5	10591	10660	11210	-3.75
LB4200OB1	Above	Alpha XTalk	09-Sep 05:28	5	0.232	0.167	0.228	+3.47
LB4200OB1	Above	Beta bkg	09-Sep 05:50	60	2.300	-2.59E-1	2.044	+3.67
LB4200OC2	Above	Beta bkg	09-Sep 05:50	60	41.383	-6.67E-2	2.499	+93.93
LB4200OC2	need 2nd	Beta eff	09-Sep 05:28	5	14413	14260	15090	-1.89
LB4200OC4	Above	Alpha XTalk	09-Sep 05:39	5	0.250	0.178	0.246	+3.41
LB4200OC4	Above	Beta bkg	09-Sep 05:50	60	126	0.232	1.342	+677.55
PIC4A	Below	Alpha XTalk	09-Sep 07:30	5	0.249	0.253	0.285	-3.84
PIC9D	Above	Beta bkg	09-Sep 07:21	60	2.033	-3.65E-2	2.013	+3.06
PIC10D	Above	Beta bkg	09-Sep 05:05	60	2.050	-9.69E-1	3.090	+1.46
PIC14B	Above	Beta bkg	09-Sep 05:09	60	2.883	0.031	2.049	+5.48

INSTRUMENTS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

The following detectors may not have properly transferred to the LIMS system

LB4100G1	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC8A	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk

Reviewed by Jc Poparad

Date 9/9/24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: GFPC **Batch ID: 2657369**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1205823163	DUP	KP1	PIC5A	SEP-09-24 11:02:15	DONE	25mm Filter	01-JUN-24 00:00
680750001	SAMPLE	KP1	PIC3B	SEP-09-24 11:02:19	DONE	25mm Filter	01-JUN-24 00:00
680750002	SAMPLE	KP1	PIC3C	SEP-09-24 11:02:23	DONE	25mm Filter	01-JUN-24 00:00
680750003	SAMPLE	KP1	PIC4D	SEP-09-24 11:02:27	DONE	25mm Filter	01-JUN-24 00:00
1205823162	MB	KP1	PIC9B	SEP-09-24 11:02:38	DONE	25mm Filter	01-JUN-24 00:00
1205823164	LCS	KP1	PIC9C	SEP-09-24 11:02:43	DONE	25mm Filter	01-JUN-24 00:00
680750005	SAMPLE	KP1	PIC8B	SEP-09-24 11:02:47	DONE	25mm Filter	01-JUN-24 00:00
680750006	SAMPLE	KP1	PIC8C	SEP-09-24 11:02:51	DONE	25mm Filter	01-JUN-24 00:00
680750007	SAMPLE	KP1	PIC8D	SEP-09-24 11:02:55	DONE	25mm Filter	01-JUN-24 00:00
680750008	SAMPLE	KP1	PIC9A	SEP-09-24 11:02:59	DONE	25mm Filter	01-JUN-24 00:00
680750004	SAMPLE	KP1	PIC5D	SEP-09-24 11:03:03	DONE	25mm Filter	01-JUN-24 00:00

Lucas Cell Raw Data

Batch 2658480 Check-list

This check-list was completed on 11-SEP-24 by Lyndsey Pace

This batch was reviewed by Elizabeth Krouse on 11-SEP-24 and Lyndsey Pace on 11-SEP-24.

Batch ID:	**Product:**	**Description:** Lucas Cell Radium 226
2658480	LUC26RAL	GL-RAD-A-008

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
10	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-226 in Liquid

Batch ID: **2658480**
Analyst: Marisa Johnson (MJ2)
Method: EPA 903.1 Modified
Lab SOP: GL-RAD-A-008 REV# 15
Instrument: LUCAS-C202389980

Due Dates for Lab: 09-SEP-2024 **Package: 11-SEP-2024** **SDG: 11-SEP-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
MS	1205825487	Ra-226 emanation spike	1715-J	.1	mL
LCS	1205825488	Ra-226 emanation spike	1715-J	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	End Degas (date)	CELL #	End Transfer (date)	Start Count Time (date)	Background Counts	Total Counts
1	680654001	03-SEP-2024	.999	402.97	402.97	09/06/24 09:00	107	09/11/24 05:02	09/11/24 07:46	1	7
2	680655001	03-SEP-2024	.999	503.65	503.65	09/06/24 09:00	203	09/11/24 05:02	09/11/24 07:46	1	14
3	680655002	03-SEP-2024	.999	502.42	502.42	09/06/24 09:00	301	09/11/24 05:02	09/11/24 07:46	3	5
4	680655003	03-SEP-2024	.999	506.44	506.44	09/06/24 09:00	405	09/11/24 05:02	09/11/24 07:46	1	4
5	680682001	03-SEP-2024	1	502.64	502.64	09/06/24 09:00	507	09/11/24 05:02	09/11/24 07:46	1	6
6	680686005	03-SEP-2024	1	501.42	501.42	09/06/24 09:00	605	09/11/24 05:02	09/11/24 07:46	1	20
7	680686006	03-SEP-2024	1	502.73	502.73	09/06/24 09:00	702	09/11/24 05:02	09/11/24 07:46	1	3
8	680686007	03-SEP-2024	1	501.64	501.64	09/06/24 09:00	807	09/11/24 05:02	09/11/24 07:46	2	14
9	680686008	03-SEP-2024	1	506.88	506.88	09/06/24 09:00	105	09/11/24 05:26	09/11/24 08:22	8	7
10	680750001	03-SEP-2024	1	501.15	501.15	09/06/24 09:00	204	09/11/24 05:26	09/11/24 08:22	8	19
11	680750002	03-SEP-2024	1	501.91	501.91	09/06/24 09:00	308	09/11/24 05:26	09/11/24 08:22	1	9
12	680750003	03-SEP-2024	1	505.54	505.54	09/06/24 09:00	402	09/11/24 05:26	09/11/24 08:22	4	19
13	680750004	03-SEP-2024	1	502.71	502.71	09/06/24 09:00	506	09/11/24 05:26	09/11/24 08:22	2	9
14	680750005	03-SEP-2024	1	503.42	503.42	09/06/24 09:00	604	09/11/24 05:26	09/11/24 08:22	1	3
15	680750006	03-SEP-2024	1	502.3	502.3	09/06/24 09:00	706	09/11/24 05:26	09/11/24 08:22	7	17
16	680750007	03-SEP-2024	1	502.27	502.27	09/06/24 09:00	806	09/11/24 05:26	09/11/24 08:21	3	5
17	680750008	03-SEP-2024	1	504.58	504.58	09/06/24 09:00	109	09/11/24 05:50	09/11/24 08:58	7	5
18	1205825485 MB	03-SEP-2024	.999		506.88	09/06/24 09:00	202	09/11/24 05:50	09/11/24 08:58	3	2
19	1205825486 DUP (680654001)	03-SEP-2024	.999	400.94	400.94	09/06/24 09:00	303	09/11/24 05:50	09/11/24 08:58	5	10
20	1205825487 MS (680654001)	03-SEP-2024	.999	103.6	103.6	09/06/24 09:00	401	09/11/24 05:50	09/11/24 08:58	1	389
21	1205825488 LCS	03-SEP-2024	.999		506.88	09/06/24 09:00	504	09/11/24 05:50	09/11/24 08:58	2	400

Reagent/Solvent Lot ID	Description	Amount

Comments:
Data Entry Date2: 03-SEP-2024 00:00

Radium-226 Liquid

Filename : RA226.XLS
File type : Excel
Version # : 1.3.2

Batch : 2658480
Analyst : MAR02577
Prep Date : 9/3/2024
Ra-226 Method Uncertainty : 0.073648

Procedure Code : LUC26RAL
Parmname : Radium-226
Required MDA : 1 pCi/L
Halflife of Ra-226 : 1600 years
Ra-226 Abundance : 1.00
Halflife of Rn-222: 3.8235 days

Batch counted on : LUCAS CELL DETECTOR
BKG Count time : 30 min

Sample Characteristics					Count Raw Data							
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Background Count Time (min.)	Cell Efficiency (cpm/dpm)
1	680654001.1	0.4030	1.9693E-05	8/6/2024 0:00	107	15	7	0.467	1	0.033	30	1.7770
2	680655001.1	0.5037	2.0271E-05	7/31/2024 9:43	203	15	14	0.933	1	0.033	30	2.0011
3	680655002.1	0.5024	2.0266E-05	7/31/2024 10:15	301	15	5	0.333	3	0.100	30	1.5220
4	680655003.1	0.5064	2.0282E-05	7/31/2024 10:02	405	15	4	0.267	1	0.033	30	1.7990
5	680682001.1	0.5026	2.0267E-05	8/8/2024 8:22	507	15	6	0.400	1	0.033	30	1.5260
6	680686005.1	0.5014	2.0262E-05	8/8/2024 7:29	605	15	20	1.333	1	0.033	30	2.0120
7	680686006.1	0.5027	2.0267E-05	8/8/2024 8:01	702	15	3	0.200	1	0.033	30	1.6810
8	680686007.1	0.5016	2.0263E-05	8/8/2024 8:24	807	15	14	0.933	2	0.067	30	1.7271
9	680686008.1	0.5069	2.0284E-05	8/8/2024 7:15	105	15	7	0.467	8	0.267	30	1.7710
10	680750001.1	0.5012	2.0261E-05	8/8/2024 11:13	204	15	19	1.267	8	0.267	30	1.6616
11	680750002.1	0.5019	2.0264E-05	8/8/2024 12:40	308	15	9	0.600	1	0.033	30	1.4290
12	680750003.1	0.5055	2.0278E-05	8/8/2024 14:13	402	15	19	1.267	4	0.133	30	1.9920
13	680750004.1	0.5027	2.0267E-05	8/8/2024 11:21	506	15	9	0.600	2	0.067	30	1.5820
14	680750005.1	0.5034	2.0270E-05	8/8/2024 11:21	604	15	3	0.200	1	0.033	30	2.0270
15	680750006.1	0.5023	2.0265E-05	8/8/2024 13:00	706	15	17	1.133	7	0.233	30	1.5280
16	680750007.1	0.5023	2.0265E-05	8/8/2024 14:15	806	15	5	0.333	3	0.100	30	1.6699
17	680750008.1	0.5046	2.0274E-05	8/8/2024 10:25	109	15	5	0.333	7	0.233	30	1.7290
18	1205825485.1	0.5069	2.0284E-05	9/3/2024 0:00	202	15	2	0.133	3	0.100	30	1.9828
19	1205825486.1	0.4009	1.9677E-05	8/6/2024 0:00	303	15	10	0.667	5	0.167	30	1.5370
20	1205825487.1	0.1036	1.1589E-05	8/6/2024 0:00	401	15	389	25.933	1	0.033	30	1.9410
21	1205825488.1	0.5069	2.0284E-05	9/3/2024 0:00	504	15	400	26.667	2	0.067	30	1.7320

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-008
Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections			
						De-Gas to Ingrowth	Ingrowth to Count	During Count	Ra-226 Decay
4.000%	5/1/2024	4/30/2025	9/6/2024 9:00	9/11/2024 5:02	9/11/2024 7:46	0.584	0.980	1.001	1.000
6.956%	8/14/2024	8/31/2025	9/6/2024 9:00	9/11/2024 5:02	9/11/2024 7:46	0.584	0.980	1.001	1.000
5.700%	11/1/2023	10/31/2024	9/6/2024 9:00	9/11/2024 5:02	9/11/2024 7:46	0.584	0.980	1.001	1.000
4.600%	2/1/2024	1/31/2025	9/6/2024 9:00	9/11/2024 5:02	9/11/2024 7:46	0.584	0.980	1.001	1.000
8.000%	6/12/2024	6/30/2025	9/6/2024 9:00	9/11/2024 5:02	9/11/2024 7:46	0.584	0.980	1.001	1.000
8.804%	7/16/2024	7/31/2025	9/6/2024 9:00	9/11/2024 5:02	9/11/2024 7:46	0.584	0.980	1.001	1.000
2.000%	11/1/2023	10/31/2024	9/6/2024 9:00	9/11/2024 5:02	9/11/2024 7:46	0.584	0.980	1.001	1.000
5.479%	4/1/2024	3/31/2025	9/6/2024 9:00	9/11/2024 5:02	9/11/2024 7:46	0.584	0.980	1.001	1.000
5.800%	5/1/2024	4/30/2025	9/6/2024 9:00	9/11/2024 5:26	9/11/2024 8:22	0.585	0.978	1.001	1.000
5.120%	8/14/2024	8/31/2025	9/6/2024 9:00	9/11/2024 5:26	9/11/2024 8:22	0.585	0.978	1.001	1.000
3.200%	11/1/2023	10/31/2024	9/6/2024 9:00	9/11/2024 5:26	9/11/2024 8:22	0.585	0.978	1.001	1.000
6.500%	2/1/2024	1/31/2025	9/6/2024 9:00	9/11/2024 5:26	9/11/2024 8:22	0.585	0.978	1.001	1.000
9.400%	6/12/2024	6/30/2025	9/6/2024 9:00	9/11/2024 5:26	9/11/2024 8:22	0.585	0.978	1.001	1.000
6.247%	7/16/2024	7/31/2025	9/6/2024 9:00	9/11/2024 5:26	9/11/2024 8:22	0.585	0.978	1.001	1.000
5.100%	11/1/2023	10/31/2024	9/6/2024 9:00	9/11/2024 5:26	9/11/2024 8:22	0.585	0.978	1.001	1.000
2.647%	4/1/2024	3/31/2025	9/6/2024 9:00	9/11/2024 5:26	9/11/2024 8:21	0.585	0.978	1.001	1.000
8.000%	5/1/2024	4/30/2025	9/6/2024 9:00	9/11/2024 5:50	9/11/2024 8:58	0.586	0.977	1.001	1.000
8.090%	8/14/2024	8/31/2025	9/6/2024 9:00	9/11/2024 5:50	9/11/2024 8:58	0.586	0.977	1.001	1.000
6.800%	11/1/2023	10/31/2024	9/6/2024 9:00	9/11/2024 5:50	9/11/2024 8:58	0.586	0.977	1.001	1.000
7.800%	2/1/2024	1/31/2025	9/6/2024 9:00	9/11/2024 5:50	9/11/2024 8:58	0.586	0.977	1.001	1.000
3.600%	6/12/2024	6/30/2025	9/6/2024 9:00	9/11/2024 5:50	9/11/2024 8:58	0.586	0.977	1.001	1.000

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

Spike S/N : 1715-J
Spike Exp Date : 4/1/2025
Spike Activity (dpm/ml): 305.97
Spike Volume Added: 0.10

LCS S/N : 1715-J
LCS Exp Date : 4/1/2025
LCS Activity (dpm/ml): 305.97
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	0.1481	0.1046	1	0.4294	**0.4772**	41.62%	0.4333	0.1795	0.3874	0.3953		SAMPLE				
2	0.1052	0.0743	1	0.3051	**0.7041**	28.81%	0.9000	0.2517	0.3859	0.4105		SAMPLE				
3	0.2403	0.1696	1	0.5455	**0.2406**	68.75%	0.2333	0.1599	0.3231	0.3261		SAMPLE				
4	0.1164	0.0822	1	0.3375	**0.2019**	59.08%	0.2333	0.1374	0.2331	0.2357		SAMPLE				
5	0.1383	0.0976	1	0.4009	**0.3769**	46.15%	0.3667	0.1667	0.3358	0.3453		SAMPLE				
6	0.1051	0.0742	1	0.3048	**1.0161**	24.70%	1.3000	0.3000	0.4596	0.5133		SAMPLE				
7	0.1255	0.0886	1	0.3638	**0.1555**	72.14%	0.1667	0.1202	0.2198	0.2210		SAMPLE				
8	0.1731	0.1222	1	0.4265	**0.7888**	29.80%	0.8667	0.2539	0.4529	0.4746		SAMPLE				
9	0.3340	0.2358	1	0.6472	**0.1756**	100.17%	0.2000	0.2000	0.3441	0.3456		SAMPLE				
10	0.3601	0.2542	1	0.6977	**0.9463**	30.98%	1.0000	0.3055	0.5666	0.5906		SAMPLE				
11	0.1478	0.1043	1	0.4284	**0.6226**	35.92%	0.5667	0.2028	0.4366	0.4475		SAMPLE				
12	0.2105	0.1486	1	0.4538	**0.8868**	27.10%	1.1333	0.2981	0.4573	0.4881		SAMPLE				
13	0.1885	0.1331	1	0.4643	**0.5285**	39.66%	0.5333	0.2055	0.3991	0.4178		SAMPLE				
14	0.1039	0.0733	1	0.3011	**0.1287**	72.38%	0.1667	0.1202	0.1819	0.1835		SAMPLE				
15	0.3654	0.2580	1	0.7213	**0.9240**	32.48%	0.9000	0.2887	0.5809	0.6031		SAMPLE				
16	0.2189	0.1545	1	0.4970	**0.2192**	68.56%	0.2333	0.1599	0.2943	0.2963		SAMPLE				
17	0.3213	0.2268	1	0.6342	**0.0903**	173.39%	0.1000	0.1732	0.3064	0.3070		SAMPLE				
18	0.1826	0.1289	1	0.4145	**0.0261**	331.76%	0.0333	0.1106	0.1698	0.1699		MB				
19	0.3844	0.2714	1	0.7984	**0.6390**	45.24%	0.5000	0.2236	0.5601	0.5740	680654001.1	DUP	29.0%			
20	0.5268	0.3719	1	1.5272	**101.4328**	9.31%	25.9000	1.3153	10.0962	23.5963	680654001.1	MS			133.0384	75.9%
21	0.1707	0.1205	1	0.4204	**23.8604**	6.17%	26.6000	1.3342	2.3456	4.4944		LCS			27.1905	87.8%

Continuing Calibration Data

Ludlum Alpha Scintillation Counter Checks for 11-SEP-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	07:44	1	1.10E+05	109997	-0.71		
LUCAS2	EFF	07:43	1	1.29E+05	129237	1.18		
LUCAS3	EFF	07:42	1	95140	95140	1.44		
LUCAS4	EFF	07:40	1	1.26E+05	126270	2.7		
LUCAS5	EFF	07:39	1	1.29E+05	128673	1.13		
LUCAS6	EFF	07:38	1	1.27E+05	127003	-1.41		
LUCAS7	EFF	07:37	1	1.31E+05	130961	1.7		
LUCAS8	EFF	07:36	1	1.25E+05	124861	0.69		

Reviewed by: Lyndsey Pace **Date:** 11-SEP-24

Lyndsey Pace

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR **Batch ID: 2658480**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
680654001	SAMPLE	MJ2	LUCAS1	SEP-11-24 07:46:00	DONE	Lucas Cell	01-MAY-24 00:00
680655001	SAMPLE	MJ2	LUCAS2	SEP-11-24 07:46:00	DONE	Lucas Cell	14-AUG-24 00:00
680655002	SAMPLE	MJ2	LUCAS3	SEP-11-24 07:46:00	DONE	Lucas Cell	01-NOV-23 00:00
680655003	SAMPLE	MJ2	LUCAS4	SEP-11-24 07:46:00	DONE	Lucas Cell	01-FEB-24 00:00
680682001	SAMPLE	MJ2	LUCAS5	SEP-11-24 07:46:00	DONE	Lucas Cell	12-JUN-24 00:00
680686005	SAMPLE	MJ2	LUCAS6	SEP-11-24 07:46:00	DONE	Lucas Cell	16-JUL-24 00:00
680686006	SAMPLE	MJ2	LUCAS7	SEP-11-24 07:46:00	DONE	Lucas Cell	01-NOV-23 00:00
680686007	SAMPLE	MJ2	LUCAS8	SEP-11-24 07:46:00	DONE	Lucas Cell	01-APR-24 00:00
680750007	SAMPLE	MJ2	LUCAS8	SEP-11-24 08:21:00	DONE	Lucas Cell	01-APR-24 00:00
680686008	SAMPLE	MJ2	LUCAS1	SEP-11-24 08:22:00	DONE	Lucas Cell	01-MAY-24 00:00
680750001	SAMPLE	MJ2	LUCAS2	SEP-11-24 08:22:00	DONE	Lucas Cell	14-AUG-24 00:00
680750002	SAMPLE	MJ2	LUCAS3	SEP-11-24 08:22:00	DONE	Lucas Cell	01-NOV-23 00:00
680750003	SAMPLE	MJ2	LUCAS4	SEP-11-24 08:22:00	DONE	Lucas Cell	01-FEB-24 00:00
680750004	SAMPLE	MJ2	LUCAS5	SEP-11-24 08:22:00	DONE	Lucas Cell	12-JUN-24 00:00
680750005	SAMPLE	MJ2	LUCAS6	SEP-11-24 08:22:00	DONE	Lucas Cell	16-JUL-24 00:00
680750006	SAMPLE	MJ2	LUCAS7	SEP-11-24 08:22:00	DONE	Lucas Cell	01-NOV-23 00:00
680750008	SAMPLE	MJ2	LUCAS1	SEP-11-24 08:58:00	DONE	Lucas Cell	01-MAY-24 00:00
1205825485	MB	MJ2	LUCAS2	SEP-11-24 08:58:00	DONE	Lucas Cell	14-AUG-24 00:00
1205825486	DUP	MJ2	LUCAS3	SEP-11-24 08:58:00	DONE	Lucas Cell	01-NOV-23 00:00
1205825487	MS	MJ2	LUCAS4	SEP-11-24 08:58:00	DONE	Lucas Cell	01-FEB-24 00:00
1205825488	LCS	MJ2	LUCAS5	SEP-11-24 08:58:00	DONE	Lucas Cell	12-JUN-24 00:00

Analytical Laboratory Report

Report ID: S67152.01(01)
Generated on 10/23/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S67152.01-S67152.04
Project: Erickson Wells T1-MNA
Collected Date(s): 10/08/2024
Submitted Date/Time: 10/09/2024 09:57
Sampled by: Julie Maltby / Marc Wahrer
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM3500FeB/HACH81	Standard Method 3500 Fe B 2011 / HACH Method 8146
SM4500-S2 D	Standard Method 4500 S2 D 2011
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Analytical Laboratory Report

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S67152.01	MW-17A L410219-01	Groundwater	10/08/24 11:45
S67152.02	MW-18A L410219-02	Groundwater	10/08/24 16:20
S67152.03	MWT-17A L410219-03	Groundwater	10/08/24 11:45
S67152.04	Field Blank L410219-04	Water	10/08/24 09:10

Analytical Laboratory Report

Lab Sample ID: S67152.01
Sample Tag: MW-17A L410219-01
Collected Date/Time: 10/08/2024 11:45
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	2.4	IR
2	125mL Plastic	None	Yes	2.4	IR
1	125mL Plastic	NaOH	Yes	2.4	IR
2	40mL Glass	HCL	Yes	2.4	IR
2	40mL Glass	H2SO4	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	

Inorganics

Method: , Run Date: 10/21/24 19:04, Analyst: EF

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	Completed				1		O

Method: E300.0, Run Date: 10/09/24 14:35, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	0.06	0.25	0.023	mg/L	2.5	14797-55-8	b
Nitrite-N*	Not detected	0.25	0.013	mg/L	2.5	14797-65-0	

Method: SM3500FeB/HACH81, Run Date: 10/16/24 15:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	5.82	0.05	0.02	mg/L	2.5	15438-31-0	

Method: SM4500-S2 D, Run Date: 10/11/24 17:02, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.04	0.01	mg/L	2	18496-25-8	

Metals

Method: E200.8, Run Date: 10/18/24 13:46, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum	0.012	0.010	0.00690	mg/L	5	7429-90-5	
Manganese	0.145	0.010	0.00125	mg/L	5	7439-96-5	

Method: E200.8, Run Date: 10/18/24 13:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum, Dissolved	Not detected	0.010	0.00690	mg/L	5	7429-90-5	
Iron, Dissolved	0.56	0.02	0.0142	mg/L	5	7439-89-6	
Manganese, Dissolved	0.139	0.010	0.00125	mg/L	5	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S67152.02
Sample Tag: MW-18A L410219-02
Collected Date/Time: 10/08/2024 16:20
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	2.4	IR
2	125mL Plastic	None	Yes	2.4	IR
1	125mL Plastic	NaOH	Yes	2.4	IR
2	40mL Glass	HCL	Yes	2.4	IR
2	40mL Glass	H2SO4	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	

Inorganics

Method: , Run Date: 10/21/24 20:17, Analyst: EF

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	Completed				1		O

Method: E300.0, Run Date: 10/09/24 16:47, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	0.07	0.10	0.009	mg/L	1	14797-55-8	b
Nitrite-N*	Not detected	0.10	0.005	mg/L	1	14797-65-0	

Method: SM3500FeB/HACH81, Run Date: 10/16/24 15:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	1.50	0.05	0.02	mg/L	2.5	15438-31-0	

Method: SM4500-S2 D, Run Date: 10/11/24 17:04, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.04	0.01	mg/L	2	18496-25-8	

Metals

Method: E200.8, Run Date: 10/18/24 13:50, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum	0.055	0.010	0.00690	mg/L	5	7429-90-5	
Manganese	0.187	0.010	0.00125	mg/L	5	7439-96-5	

Method: E200.8, Run Date: 10/18/24 13:52, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum, Dissolved	Not detected	0.010	0.00690	mg/L	5	7429-90-5	
Iron, Dissolved	0.10	0.02	0.0142	mg/L	5	7439-89-6	
Manganese, Dissolved	0.180	0.010	0.00125	mg/L	5	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S67152.03
Sample Tag: MWT-17A L410219-03
Collected Date/Time: 10/08/2024 11:45
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	2.4	IR
2	125mL Plastic	None	Yes	2.4	IR
1	125mL Plastic	NaOH	Yes	2.4	IR
2	40mL Glass	HCL	Yes	2.4	IR
2	40mL Glass	H2SO4	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	

Inorganics

Method: , Run Date: 10/21/24 20:41, Analyst: EF

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	Completed				1		O

Method: E300.0, Run Date: 10/09/24 14:55, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	0.07	0.25	0.023	mg/L	2.5	14797-55-8	b
Nitrite-N*	Not detected	0.25	0.013	mg/L	2.5	14797-65-0	

Method: SM3500FeB/HACH81, Run Date: 10/16/24 15:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	5.98	0.05	0.02	mg/L	2.5	15438-31-0	

Method: SM4500-S2 D, Run Date: 10/11/24 17:06, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.04	0.01	mg/L	2	18496-25-8	

Metals

Method: E200.8, Run Date: 10/18/24 13:54, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum	Not detected	0.010	0.00690	mg/L	5	7429-90-5	
Manganese	0.146	0.010	0.00125	mg/L	5	7439-96-5	

Method: E200.8, Run Date: 10/18/24 13:55, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum, Dissolved	Not detected	0.010	0.00690	mg/L	5	7429-90-5	
Iron, Dissolved	0.92	0.02	0.0142	mg/L	5	7439-89-6	
Manganese, Dissolved	0.141	0.010	0.00125	mg/L	5	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S67152.04
Sample Tag: Field Blank L410219-04
Collected Date/Time: 10/08/2024 09:10
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	2.4	IR
2	125mL Plastic	None	Yes	2.4	IR
1	125mL Plastic	NaOH	Yes	2.4	IR
2	40mL Glass	HCL	Yes	2.4	IR
2	40mL Glass	H2SO4	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	

Inorganics

Method: , Run Date: 10/21/24 21:06, Analyst: EF

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	Completed				1		O

Method: E300.0, Run Date: 10/09/24 16:57, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	0.08	0.10	0.009	mg/L	1	14797-55-8	b
Nitrite-N*	Not detected	0.10	0.005	mg/L	1	14797-65-0	

Method: SM3500FeB/HACH81, Run Date: 10/16/24 15:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	Not detected	0.02	0.010	mg/L	1	15438-31-0	

Method: SM4500-S2 D, Run Date: 10/11/24 17:08, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.04	0.01	mg/L	2	18496-25-8	

Metals

Method: E200.8, Run Date: 10/18/24 13:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum, Dissolved	Not detected	0.010	0.00276	mg/L	2	7429-90-5	
Aluminum	Not detected	0.010	0.00276	mg/L	2	7429-90-5	
Iron, Dissolved	Not detected	0.02	0.00568	mg/L	2	7439-89-6	
Manganese, Dissolved	Not detected	0.010	0.000500	mg/L	2	7439-96-5	
Manganese	Not detected	0.010	0.000500	mg/L	2	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL

Merit Laboratories Login Checklist

Lab Set ID: S67152
Client: BWL01 (Board of Water & Light)
Project: Erickson Wells T1-MNA
Submitted: 10/09/2024 09:57 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.4
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[X] Yes	[ ] No	[ ] N/A	Subcontracting needed? Subcontacted to:	Eurofins
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[X] Yes	[ ] No	[ ] N/A	Did any samples need to be preserved in the lab?	Diss metals
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[X] Yes	[ ] No	[ ] N/A	Samples require laboratory filtration	Diss metals
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S67152 Submitted: 10/09/2024 09:57

Client: BWL01 (Board of Water & Light)

Project: Erickson Wells T1-MNA

Initial Preservation Check: 10/09/2024 10:30 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S67152.01	125mL Plastic HNO3	<2			
S67152.01	125mL Plastic NaOH	>12			
S67152.02	125mL Plastic HNO3	<2			
S67152.02	125mL Plastic NaOH	>12			
S67152.03	125mL Plastic HNO3	<2			
S67152.03	125mL Plastic NaOH	>12			
S67152.04	125mL Plastic HNO3	<2			
S67152.04	125mL Plastic NaOH	>12			

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing STATE: Mi ZIP CODE: 48901
PHONE NO.: 517-702-6372 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Wells T1-MNA
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Julie Maltby, Marc Wahrer

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☒ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☒ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO3	H2SO4	NaOH	MeOH	OTHER	TOC SM5310C	Al, Mn Total	Ferrouse Iron	NO2-N, NO3-N	Fe, Al, Mn Dissolved	Sulfide SM4500-S2 D	Ferric Iron Calculated	Special Instructions
67152.01	10/8/24	1145	JSC 10/09/24 MWT-17A LAH0219-01	GW	8	2	2	1	2	1			✓	✓	✓	✓	✓	✓	✓	
.02	↓	1620	MWT-18A -02																	See other side for DL
.03		1145	MWT-17A -03																	
.04	↓	0910	Field Blank -04																	

① JSC 10/09/24 JSC 10/09/24

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Julie Maltby ☐ Sampler	DATE: 10/9/24	TIME: 0957	
RECEIVED BY: SIGNATURE/ORGANIZATION: M Wahrer	DATE: 10/9/24	TIME: 0957	
RELINQUISHED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	
RECEIVED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	

RELINQUISHED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	
RECEIVED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL: 2.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Detection Limits to go to Merit with COC

TOC - 1.0mg/L
Nitrate and Nitrite - 0.1mg/L
Sulfide and Ferrous Iron - 0.02 mg/L
Iron, Aluminum and Manganese metals - 0.01mg/L

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Lab Results
Merit Laboratories
2680 E Lansing Drive
East Lansing, Michigan 48823

Generated 10/22/2024 11:54:46 PM

JOB DESCRIPTION

S67152

JOB NUMBER

190-35492-1

Eurofins Michigan
10448 Citation Drive
Suite 200
Brighton MI 48116

See page two for job notes and contact information.

myEOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization

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10/22/2024 11:54:46 PM

Authorized for release by
Sue Schafer, Project Manager II
Sue.Schafer@et.eurofinsus.com
(810)229-2763

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Sample Summary

Client: Merit Laboratories
Project/Site: S67152

Job ID: 190-35492-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-35492-1	S67152.01	Water	10/08/24 11:45	10/11/24 11:28
190-35492-2	S67152.02	Water	10/08/24 16:20	10/11/24 11:28
190-35492-3	S67152.03	Water	10/08/24 11:45	10/11/24 11:28
190-35492-4	S67152.04	Water	10/08/24 09:10	10/11/24 11:28

Job Narrative
190-35492-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/11/2024 11:28 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 15.7°C.

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client: Merit Laboratories
Project/Site: S67152

Job ID: 190-35492-1

Client Sample ID: S67152.01

Lab Sample ID: 190-35492-1

Date Collected: 10/08/24 11:45
Matrix: Water
Date Received: 10/11/24 11:28

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SM 5310C-2011)	4.8		1.0		mg/L			10/21/24 19:04	1

Client Sample ID: S67152.02

Lab Sample ID: 190-35492-2

Date Collected: 10/08/24 16:20
Matrix: Water
Date Received: 10/11/24 11:28

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SM 5310C-2011)	2.8		1.0		mg/L			10/21/24 20:17	1

Client Sample ID: S67152.03

Lab Sample ID: 190-35492-3

Date Collected: 10/08/24 11:45
Matrix: Water
Date Received: 10/11/24 11:28

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SM 5310C-2011)	4.8		1.0		mg/L			10/21/24 20:41	1

Client Sample ID: S67152.04

Lab Sample ID: 190-35492-4

Date Collected: 10/08/24 09:10
Matrix: Water
Date Received: 10/11/24 11:28

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SM 5310C-2011)	<1.0		1.0		mg/L			10/21/24 21:06	1

Client: Merit Laboratories
Project/Site: S67152

Job ID: 190-35492-1

Method: 5310C-2011 - Total Organic Carbon/Persulfate - Ultrav

Lab Sample ID: MB 240-631961/5
Matrix: Water
Analysis Batch: 631961

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<1.0		1.0		mg/L			10/21/24 15:49	1

Lab Sample ID: LCS 240-631961/6
Matrix: Water
Analysis Batch: 631961

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Organic Carbon			26.6	27.2		mg/L		102	85 - 115		
TOC Result 1			26.6	27.1		mg/L		102	85 - 115		
TOC Result 2			26.6	27.5		mg/L		103	85 - 115		

Definitions/Glossary

Client: Merit Laboratories
Project/Site: S67152

Job ID: 190-35492-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: Merit Laboratories
Project/Site: S67152

Job ID: 190-35492-1

General Chemistry

Analysis Batch: 631961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-35492-1	S67152.01	Total/NA	Water	5310C-2011	
190-35492-2	S67152.02	Total/NA	Water	5310C-2011	
190-35492-3	S67152.03	Total/NA	Water	5310C-2011	
190-35492-4	S67152.04	Total/NA	Water	5310C-2011	
MB 240-631961/5	Method Blank	Total/NA	Water	5310C-2011	
LCS 240-631961/6	Lab Control Sample	Total/NA	Water	5310C-2011	

Lab Chronicle

Client: Merit Laboratories
Project/Site: S67152

Job ID: 190-35492-1

Client Sample ID: S67152.01
Lab Sample ID: 190-35492-1
Date Collected: 10/08/24 11:45
Matrix: Water
Date Received: 10/11/24 11:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631961	JWW	EET CLE	10/21/24 19:04

Client Sample ID: S67152.02
Lab Sample ID: 190-35492-2
Date Collected: 10/08/24 16:20
Matrix: Water
Date Received: 10/11/24 11:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631961	JWW	EET CLE	10/21/24 20:17

Client Sample ID: S67152.03
Lab Sample ID: 190-35492-3
Date Collected: 10/08/24 11:45
Matrix: Water
Date Received: 10/11/24 11:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631961	JWW	EET CLE	10/21/24 20:41

Client Sample ID: S67152.04
Lab Sample ID: 190-35492-4
Date Collected: 10/08/24 09:10
Matrix: Water
Date Received: 10/11/24 11:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631961	JWW	EET CLE	10/21/24 21:06

Client Sample ID: Method Blank
Lab Sample ID: MB 240-631961/5
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631961	JWW	EET CLE	10/21/24 15:49

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 240-631961/6
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631961	JWW	EET CLE	10/21/24 16:13

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Analyst References:

Lab: EET CLE

Batch Type: Analysis

JWW = Joshua Weimer

Accreditation/Certification Summary

Client: Merit Laboratories
Project/Site: S67152

Job ID: 190-35492-1

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-28-25
Connecticut	State	PH-0806	12-31-26
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	08-31-25
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Hampshire	NELAP	225024	09-30-25
New Jersey	NELAP	OH001	07-03-25
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-25
Texas	NELAP	T104704517-22-19	08-31-25
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-25
West Virginia DEP	State	210	12-31-24

Method Summary

Client: Merit Laboratories
Project/Site: S67152

Job ID: 190-35492-1

Method	Method Description	Protocol	Laboratory
5310C-2011	Total Organic Carbon/Persulfate - Ultrav	SM	EET CLE

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

MICHIGAN

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Results@meritlabs.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: S67152
SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☒ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

MERIT LAB NO. FOR LAB USE ONLY	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TOC RL 1.0mg/L
	10/8/24	1145	S67152.01	GW	2				2				✓
	10/8/24	1620	S67152.02	GW	2				2				✓
	10/8/24	1145	S67152.03	GW	2				2				✓
	10/8/24	0910	S67152.04	W	2				2				✓

Special Instructions

W=Water
Method SM5310C

190-35492 Chain of Custody

** Subcontracted to
Eurofins

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐ Sampler	DATE 10/10/24	TIME 1330
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 10/10/24	TIME 1440
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 10/10/24	TIME 1440

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 10/10/24	TIME 1440	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 10/11/24	TIME 1140	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES:	TEMP. ON ARRIVAL
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev 5.18.12

eurofins | Environment Testing TestAmerica

☐ SDS or Known Hazard Information Supplied by Client
☐ Discrepancies
☐ Short Hold
☐ Rush ☐ 24 Hr ☐ 2-Day ☐ 3-Day ☐ 5-Day ☐ Other: _____

Client ID: Merit Labs.
Work Oder #: 35492

Cooler / Sample Receipt

After hours receipt: complete gray areas. Place cooler in walk-in, place form in Receiving box. Date: _____ Time: _____

Receipt Evaluation Performed by: Initials: FK Date: 10/11/24 Time: 11:28

Method of Shipment:
Walk-In Client Eurofins TA Field/Courier
~~Other Client / 3rd Party~~ Courier: _____
Fed Ex Tracking #: _____
UPS Tracking #: _____
Other: _____

Shipping Container Type:
☒ Cooler ☐ Box
☐ None ☐ Other: _____

Custody Seals Intact:
☐ Yes ☐ No
☒ NA (not used or required)

Packing Materials:
☒ Plastic Bags ☐ Foam
☒ Bubble Wrap ☐ Paper
☐ Packing Peanuts ☐ None
☐ Other: _____

Cooling Materials:
☒ Ice (Solid) ☐ Ice (Melted)
☐ Blue Ice ☐ None
☐ Other: _____

Bacteriological Samples	Temp Corrected (°C)	Frozen? Yes	Frozen? No	Rec'd Within 2 Hrs? Yes	Rec'd Within 2 Hrs? No	Sample Flagged? Yes	Sample Flagged? No

Received on same day sampled? Yes No

Additional Sheets Required? Yes No

Receipt Temperatures

Thermometer ID	Observed (°C)	Corrected (°C)	Temp Blank	Sample Temp	Acceptable	Cooler ID	Affected Samples
CP313209	15.7	15.7			_Y _N		
					_Y _N		
					_Y _N		

Receipt Questions**	Y	N	NA	"No" answers require additional comment
CoC present and ETA receipt signature, date, and time properly documented?	✓			
Containers and Labels in good condition? *(unbroken, not leaking, appropriately filled, labels legible & attached)*	✓			
Appropriate containers used and adequate volume provided?	✓			Preserved bottles checked for pH?* Yes No
Number of sample containers match CoC?	✓			pH strip lot # _____
Samples received within hold?	✓			
Samples submitted for GRO and Volatiles analysis (8260, 624, 524) received without headspace?			✓	
Was a Trip Blank received with VOA samples?			✓	
Were the samples free of any questionable physical conformities? (i.e.; field duplicates or multiple bottles of the same sample do not significantly vary in appearance – color, solid proportions, etc.)	✓			
Were the CoC bottle labels and all other items free of all other discrepancies or issues that would need to be addressed with the Project Manager and/or Client?	✓			
**May not be applicable if samples are not for compliance testing				*Excludes FOG, VOAs, TOC Vials, HEM

Client Contact Record

Contact Via: ☐ Phone ☐ Email ☐ Other: _____ Person Contacted: _____ Date/Time: _____

☐ Discrepancy allowance agreement is on record in the client project file

Discussion / Resolution

Any additional documentation and clarification from the client must be noted in the narrative and/or scanned into the CoC directory.

Reviewed by Jelcon Date: 10/11/24

WI-MI-010_020720

Eurofins Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone: 810-229-2763 Fax: 810-229-0000

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schafer, Sue	Carrier Tracking No(s):	COC No: 190-40379.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Sue.Schafer@et.eurofinsus.com	State of Origin: Michigan	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note):		Job #: 190-35492-1
Address: 180 S. Van Buren Avenue, ,	Due Date Requested: 10/24/2024			Preservation Codes: -
City: Barberton	TAT Requested (days):			
State, Zip: OH, 44203				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: S67152	Project #: 19001249			
Site:	SSOW#:			Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	5310C/ TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:						R003
S67152.01 (190-35492-1)	10/8/24	11:45 Eastern	G	Water			X	2	
S67152.02 (190-35492-2)	10/8/24	16:20 Eastern	G	Water			X	2	
S67152.03 (190-35492-3)	10/8/24	11:45 Eastern	G	Water			X	2	
S67152.04 (190-35492-4)	10/8/24	09:10 Eastern	G	Water			X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	10/11/24 12:33 pm	EEM	KATHARINE MARTIN	10/12/24 800	EUR
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ▵ Yes ▵ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Eurofins – Cleveland Sample Receipt Form/Narrative **Login # :** _____
Barberton Facility

Client Eurofins - Michigan Site Name _____ Cooler unpacked by: KM

Cooler Received on 10/12/24 Opened on 10/12/24

FedEx 1st Grd Exp UPS FAS (Waypoint) Client Drop Off Eurofins Courier Other _____

Receipt After-hours Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # EC Foam Box Client Cooler Box Other _____

Packing material used. (Bubble Wrap) Foam Plastic Bag None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 17 (CF +0.1 °C) Observed Cooler Temp. 0.8 °C Corrected Cooler Temp. 0.9 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
-Were tamper/custody seals intact and uncompromised?	(Yes)	No NA
3 Shippers' packing slip attached to the cooler(s)?	Yes	(No)
4. Did custody papers accompany the sample(s)?	(Yes)	No
5 Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6 Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	(No)
7 Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes)	No
9 For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?		
10 Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
11 Sufficient quantity received to perform indicated analyses?	(Yes)	No
12 Are these work share samples and all listed on the COC?	(Yes)	No
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC447997
14. Were VOAs on the COC?	Yes	No
15 Were air bubbles >6 mm in any VOA vials? ● ← Larger than this.	Yes	No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
17 Was a LL Hg or Me Hg trip blank present? _____	Yes	No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page | Samples processed by:

_____
_____
_____
_____

19 SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container
Sample(s) _____ were received with bubble >6 mm in diameter (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory
Time preserved. _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen _____

Analytical Laboratory Report

Final Report

Report ID: S67153.01(01)
Generated on 11/11/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S67153.01-S67153.11
Project: Erickson Wellfield
Collected Date(s): 10/08/2024
Submitted Date/Time: 10/09/2024 09:57
Sampled by: Julie Maltby / Marc Wahrer
P.O. #:

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Sample Summary (Page 5)

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

All analyses completed

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2320B	Standard Method 2320 B 2021
SM2340C	Standard Method 2340 C 2021
SM2540C	Standard Method 2540 C 2020
SM2540D	Standard Method 2540 D 2020
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (11 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S67153.01	MW-17A L410218-01	Groundwater	10/08/24 11:45
S67153.02	MW-17B L410218-02	Groundwater	10/08/24 13:32
S67153.03	MW-17C L410218-03	Groundwater	10/08/24 12:16
S67153.04	MW-17D L410218-04	Groundwater	10/08/24 10:21
S67153.05	MW-17E L410218-05	Groundwater	10/08/24 10:10
S67153.06	MW-18A L410218-06	Groundwater	10/08/24 16:20
S67153.07	MW-18B L410218-07	Groundwater	10/08/24 16:17
S67153.08	MW-18C L410218-08	Groundwater	10/08/24 14:58
S67153.09	MW-18D L410218-09	Groundwater	10/08/24 14:58
S67153.10	MWT-17A L410218-10	Groundwater	10/08/24 11:45
S67153.11	Field Blank L410218-11	Water	10/08/24 09:10

Lab Sample ID: S67153.01
Sample Tag: MW-17A L410218-01
Collected Date/Time: 10/08/2024 11:45
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	250mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/17/24 13:29	CTV	
Metal Digestion	Completed	SW3015A	10/11/24 09:40	CCM	

Inorganics

Method: E300.0, Run Date: 10/09/24 16:23, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	68.7	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 10/09/24 14:24, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	0.50	0.065	mg/L	2.5	16984-48-8	

Method: E300.0, Run Date: 10/09/24 16:36, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	569	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 10/15/24 13:06, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	360	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 10/14/24 13:08, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	900	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 10/11/24 16:43, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,290	50	12	mg/L	2		

Method: SM2540D, Run Date: 10/09/24 17:28, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	9.80	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 10/11/24 11:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.048	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	

Lab Sample ID: S67153.01 (continued)
Sample Tag: MW-17A L410218-01

Method: E200.8, Run Date: 10/11/24 11:14, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	3.84	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.059	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.014	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	0.011	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/11/24 13:28, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	6.32	0.02	0.0142	mg/L	5	7439-89-6	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 10/11/24 16:05, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	249	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	66.8	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	2.78	0.50	0.119	mg/L	5	7440-09-7	
Sodium	52.8	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 10/17/24 17:50, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 11/05/24 10:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S67153.02
Sample Tag: MW-17B L410218-02
Collected Date/Time: 10/08/2024 13:32
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	250mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/17/24 13:29	CTV	
Metal Digestion	Completed	SW3015A	10/11/24 09:40	CCM	

Inorganics

Method: E300.0, Run Date: 10/09/24 16:46, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	80.9	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 10/09/24 14:34, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	0.50	0.065	mg/L	2.5	16984-48-8	

Method: E300.0, Run Date: 10/09/24 16:56, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	352	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 10/15/24 13:12, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	190	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 10/14/24 13:12, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	490	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 10/11/24 16:43, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	856	50	12	mg/L	2		

Method: SM2540D, Run Date: 10/09/24 17:28, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	3.20	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 10/11/24 11:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.058	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	

Lab Sample ID: S67153.02 (continued)
Sample Tag: MW-17B L410218-02

Method: E200.8, Run Date: 10/11/24 11:18, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	2.16	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.117	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.111	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/11/24 13:35, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	2.59	0.02	0.0142	mg/L	5	7439-89-6	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 10/11/24 16:06, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	144	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	30.7	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	4.26	0.50	0.119	mg/L	5	7440-09-7	
Sodium	81.0	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 10/17/24 18:00, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 11/05/24 10:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S67153.03
Sample Tag: MW-17C L410218-03
Collected Date/Time: 10/08/2024 12:16
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	250mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/17/24 13:29	CTV	
Metal Digestion	Completed	SW3015A	10/11/24 09:40	CCM	

Inorganics

Method: E300.0, Run Date: 10/09/24 17:06, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	73.6	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 10/09/24 14:44, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	0.50	0.065	mg/L	2.5	16984-48-8	

Method: E300.0, Run Date: 10/09/24 17:16, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	329	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 10/15/24 13:21, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	220	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 10/14/24 13:18, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	400	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 10/11/24 16:43, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	818	50	12	mg/L	2		

Method: SM2540D, Run Date: 10/09/24 17:28, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	6.80	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 10/11/24 11:21, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	0.002	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.064	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	

Lab Sample ID: S67153.03 (continued)
Sample Tag: MW-17C L410218-03

Method: E200.8, Run Date: 10/11/24 11:21, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	1.78	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.088	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.107	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/11/24 13:37, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	1.26	0.02	0.0142	mg/L	5	7439-89-6	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 10/11/24 16:08, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	114	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	28.6	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	4.12	0.50	0.119	mg/L	5	7440-09-7	
Sodium	105	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 10/17/24 18:04, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 11/05/24 10:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S67153.04
Sample Tag: MW-17D L410218-04
Collected Date/Time: 10/08/2024 10:21
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	250mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/17/24 13:29	CTV	
Metal Digestion	Completed	SW3015A	10/11/24 09:40	CCM	

Inorganics

Method: E300.0, Run Date: 10/09/24 14:55, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	9.9	2.5	0.040	mg/L	2.5	16887-00-6	
Fluoride (Undistilled)	0.29	0.50	0.065	mg/L	2.5	16984-48-8	b
Sulfate	8.9	2.5	0.148	mg/L	2.5	14808-79-8	

Method: SM2320B, Run Date: 10/15/24 13:24, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	330	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 10/14/24 13:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	200	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 10/11/24 16:43, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	314	50	12	mg/L	2		

Method: SM2540D, Run Date: 10/09/24 17:28, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	7.40	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 10/11/24 11:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.043	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	2.47	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S67153.04 (continued)
Sample Tag: MW-17D L410218-04

Method: E200.8, Run Date: 10/11/24 11:25, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.037	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/11/24 13:39, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.23	0.02	0.0142	mg/L	5	7439-89-6	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 10/11/24 16:10, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	52.3	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	16.4	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	9.15	0.50	0.119	mg/L	5	7440-09-7	
Sodium	44.4	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 10/17/24 18:07, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 11/05/24 10:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S67153.05
Sample Tag: MW-17E L410218-05
Collected Date/Time: 10/08/2024 10:10
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	250mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/17/24 13:29	CTV	
Metal Digestion	Completed	SW3015A	10/11/24 09:40	CCM	

Inorganics

Method: E300.0, Run Date: 10/09/24 15:05, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	2.7	2.5	0.040	mg/L	2.5	16887-00-6	
Fluoride (Undistilled)	0.99	0.50	0.065	mg/L	2.5	16984-48-8	
Sulfate	1.5	2.5	0.148	mg/L	2.5	14808-79-8	b

Method: SM2320B, Run Date: 10/15/24 13:27, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	420	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 10/14/24 13:22, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	40	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 10/11/24 16:43, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	388	50	12	mg/L	2		

Method: SM2540D, Run Date: 10/09/24 17:28, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	1.00	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 10/11/24 11:28, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.005	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	3.19	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S67153.05 (continued)
Sample Tag: MW-17E L410218-05

Method: E200.8, Run Date: 10/11/24 11:28, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.028	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/11/24 13:49, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.08	0.02	0.0142	mg/L	5	7439-89-6	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 10/11/24 16:12, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	5.98	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	1.66	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	4.13	0.50	0.119	mg/L	5	7440-09-7	
Sodium	152	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 10/17/24 18:10, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 11/05/24 10:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S67153.06
Sample Tag: MW-18A L410218-06
Collected Date/Time: 10/08/2024 16:20
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	250mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/17/24 13:29	CTV	
Metal Digestion	Completed	SW3015A	10/11/24 09:40	CCM	

Inorganics

Method: E300.0, Run Date: 10/09/24 15:15, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	0.50	0.50	0.065	mg/L	2.5	16984-48-8	

Method: E300.0, Run Date: 10/09/24 17:26, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	79.8	10.0	0.160	mg/L	10	16887-00-6	
Sulfate	175	10.0	0.590	mg/L	10	14808-79-8	

Method: SM2320B, Run Date: 10/15/24 13:29, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	160	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 10/14/24 13:24, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	290	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 10/11/24 16:43, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	524	50	12	mg/L	2		

Method: SM2540D, Run Date: 10/09/24 17:28, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	2.10	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 10/11/24 11:31, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.055	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	0.80	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S67153.06 (continued)
Sample Tag: MW-18A L410218-06

Method: E200.8, Run Date: 10/11/24 11:31, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.072	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.120	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	Not detected	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/11/24 13:42, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	1.67	0.02	0.0142	mg/L	5	7439-89-6	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 10/11/24 16:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	88.7	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	15.4	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	7.15	0.50	0.119	mg/L	5	7440-09-7	
Sodium	61.5	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 10/17/24 18:14, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 11/05/24 10:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S67153.07
Sample Tag: MW-18B L410218-07
Collected Date/Time: 10/08/2024 16:17
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	250mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/17/24 13:29	CTV	
Metal Digestion	Completed	SW3015A	10/11/24 09:40	CCM	

Inorganics

Method: E300.0, Run Date: 10/09/24 17:36, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	87.5	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 10/09/24 15:25, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	0.12	0.50	0.065	mg/L	2.5	16984-48-8	b

Method: E300.0, Run Date: 10/09/24 17:46, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	371	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 10/15/24 13:31, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	200	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 10/14/24 13:26, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	510	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 10/11/24 16:43, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	874	50	12	mg/L	2		

Method: SM2540D, Run Date: 10/09/24 17:28, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	4.80	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 10/11/24 11:34, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.055	0.005	0.000900	mg/L	5	7440-39-3	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S67153.07 (continued)
Sample Tag: MW-18B L410218-07

Method: E200.8, Run Date: 10/11/24 11:34, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	3.08	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.132	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.140	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	0.007	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/11/24 13:42, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	2.65	0.02	0.0142	mg/L	5	7439-89-6	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 10/11/24 16:15, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	146	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	26.3	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	8.07	0.50	0.119	mg/L	5	7440-09-7	
Sodium	81.7	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 10/17/24 18:17, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 11/05/24 10:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S67153.08
Sample Tag: MW-18C L410218-08
Collected Date/Time: 10/08/2024 14:58
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	250mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/17/24 13:29	CTV	
Metal Digestion	Completed	SW3015A	10/11/24 09:40	CCM	

Inorganics

Method: E300.0, Run Date: 10/09/24 17:56, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	82.4	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 10/09/24 15:35, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	0.11	0.50	0.065	mg/L	2.5	16984-48-8	b

Method: E300.0, Run Date: 10/09/24 18:06, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	484	100	5.900	mg/L	100	14808-79-8	

Method: SM2320B, Run Date: 10/15/24 13:33, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	240	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 10/14/24 13:28, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	660	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 10/11/24 16:43, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,080	50	12	mg/L	2		

Method: SM2540D, Run Date: 10/09/24 17:28, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	6.30	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 10/11/24 11:37, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.060	0.005	0.000900	mg/L	5	7440-39-3	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S67153.08 (continued)
Sample Tag: MW-18C L410218-08

Method: E200.8, Run Date: 10/11/24 11:37, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	2.28	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.078	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.088	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	0.009	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/11/24 13:43, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	2.71	0.02	0.0142	mg/L	5	7439-89-6	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 10/11/24 16:17, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	179	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	48.1	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	5.95	0.50	0.119	mg/L	5	7440-09-7	
Sodium	78.8	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 10/17/24 18:20, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 11/05/24 10:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S67153.09
Sample Tag: MW-18D L410218-09
Collected Date/Time: 10/08/2024 14:58
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	250mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/17/24 13:29	CTV	
Metal Digestion	Completed	SW3015A	10/11/24 09:40	CCM	

Inorganics

Method: E300.0, Run Date: 10/09/24 18:16, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	48.5	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 10/09/24 15:45, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	0.55	0.50	0.065	mg/L	2.5	16984-48-8	

Method: E300.0, Run Date: 10/09/24 18:26, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	252	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 10/15/24 13:36, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	330	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 10/14/24 13:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	320	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 10/11/24 16:43, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	752	50	12	mg/L	2		

Method: SM2540D, Run Date: 10/09/24 17:28, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	6.10	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 10/11/24 11:40, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.038	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	

Lab Sample ID: S67153.09 (continued)
Sample Tag: MW-18D L410218-09

Method: E200.8, Run Date: 10/11/24 11:40, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	3.58	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.088	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.081	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	0.005	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/11/24 13:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	1.22	0.02	0.0142	mg/L	5	7439-89-6	
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 10/11/24 16:19, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	82.4	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	15.5	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	6.82	0.50	0.119	mg/L	5	7440-09-7	
Sodium	147	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 10/17/24 18:24, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 11/05/24 10:43, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S67153.10
Sample Tag: MWT-17A L410218-10
Collected Date/Time: 10/08/2024 11:45
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	250mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/17/24 13:29	CTV	
Metal Digestion	Completed	SW3015A	10/11/24 09:40	CCM	

Inorganics

Method: E300.0, Run Date: 10/09/24 18:36, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	68.6	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 10/09/24 15:55, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	0.50	0.065	mg/L	2.5	16984-48-8	

Method: E300.0, Run Date: 10/09/24 21:09, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	577	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 10/15/24 13:39, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	360	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 10/14/24 13:32, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	910	20	4.76	mg/L	20		

Method: SM2540C, Run Date: 10/11/24 16:43, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,320	50	12	mg/L	2		

Method: SM2540D, Run Date: 10/09/24 17:28, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	10.0	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 10/11/24 14:00, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	6.39	0.10	0.0710	mg/L	25	7439-89-6	

Lab Sample ID: S67153.10 (continued)
Sample Tag: MWT-17A L410218-10

Method: E200.8, Run Date: 10/11/24 13:54, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005	0.00205	mg/L	5	7440-62-2	

Method: E200.8, Run Date: 10/11/24 11:55, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00225	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Barium	0.049	0.005	0.000900	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000200	mg/L	5	7440-41-7	
Boron	3.66	0.04	0.0159	mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005	0.000350	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000450	mg/L	5	7440-48-4	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Lithium*	0.059	0.005	0.00135	mg/L	5	7439-93-2	
Molybdenum	0.014	0.005	0.00420	mg/L	5	7439-98-7	
Nickel	0.011	0.005	0.00115	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Silver	Not detected	0.0005	0.000250	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.000350	mg/L	5	7440-28-0	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/11/24 16:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	247	1.0	0.218	mg/L	5	7440-70-2	
Magnesium	65.8	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	2.78	0.50	0.119	mg/L	5	7440-09-7	
Sodium	52.3	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 10/17/24 18:27, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 11/05/24 10:43, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S67153.11
Sample Tag: Field Blank L410218-11
Collected Date/Time: 10/08/2024 09:10
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	2.4	IR
2	1L Plastic	None	Yes	2.4	IR
1	250mL Plastic	HNO3	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/17/24 13:29	CTV	
Metal Digestion	Completed	SW3015A	10/11/24 09:40	CCM	

Inorganics

Method: E300.0, Run Date: 10/09/24 20:59, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	0.5	2.5	0.040	mg/L	2.5	16887-00-6	b
Fluoride (Undistilled)	Not detected	0.50	0.065	mg/L	2.5	16984-48-8	
Sulfate	Not detected	2.5	0.148	mg/L	2.5	14808-79-8	

Method: SM2320B, Run Date: 10/15/24 13:41, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	Not detected	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 10/14/24 13:34, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	Not detected	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 10/11/24 16:43, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50	12	mg/L	2		

Method: SM2540D, Run Date: 10/09/24 17:28, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 10/11/24 11:11, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.000900	mg/L	2	7440-36-0	
Arsenic	Not detected	0.002	0.000580	mg/L	2	7440-38-2	
Barium	Not detected	0.005	0.000360	mg/L	2	7440-39-3	
Beryllium	Not detected	0.001	0.0000800	mg/L	2	7440-41-7	
Boron	Not detected	0.04	0.00636	mg/L	2	7440-42-8	
Cadmium	Not detected	0.0005	0.000140	mg/L	2	7440-43-9	
Chromium	Not detected	0.005	0.000300	mg/L	2	7440-47-3	
Cobalt	Not detected	0.005	0.000180	mg/L	2	7440-48-4	
Copper	Not detected	0.005	0.000320	mg/L	2	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S67153.11 (continued)
Sample Tag: Field Blank L410218-11

Method: E200.8, Run Date: 10/11/24 11:11, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.000180	mg/L	2	7439-92-1	
Lithium*	Not detected	0.005	0.000540	mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005	0.00168	mg/L	2	7439-98-7	
Nickel	Not detected	0.005	0.000460	mg/L	2	7440-02-0	
Selenium	Not detected	0.005	0.00174	mg/L	2	7782-49-2	
Silver	Not detected	0.0005	0.000100	mg/L	2	7440-22-4	
Thallium	Not detected	0.002	0.000140	mg/L	2	7440-28-0	
Zinc	Not detected	0.005	0.00130	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 10/11/24 13:26, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	Not detected	0.02	0.00568	mg/L	2	7439-89-6	
Vanadium	Not detected	0.005	0.000820	mg/L	2	7440-62-2	

Method: E200.8, Run Date: 10/11/24 16:03, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	Not detected	0.50	0.0874	mg/L	2	7440-70-2	
Magnesium	Not detected	0.50	0.0231	mg/L	2	7439-95-4	
Potassium	Not detected	0.50	0.0479	mg/L	2	7440-09-7	
Sodium	Not detected	0.50	0.0436	mg/L	2	7440-23-5	

Method: E245.1, Run Date: 10/17/24 18:37, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 11/05/24 10:43, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S67153
Client: BWL01 (Board of Water & Light)
Project: Erickson Wellfield
Submitted: 10/09/2024 09:57 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.4
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[X] Yes	[ ] No	[ ] N/A	Subcontracting needed? Subcontacted to:	GEL
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S67153 Submitted: 10/09/2024 09:57

Client: BWL01 (Board of Water & Light)

Project: Erickson Wellfield

Initial Preservation Check: 10/09/2024 10:36 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S67153.01	1L Plastic HNO3	<2			
S67153.01	1L Plastic HNO3	<2			
S67153.01	250mL Plastic HNO3	<2			
S67153.02	1L Plastic HNO3	<2			
S67153.02	1L Plastic HNO3	<2			
S67153.02	250mL Plastic HNO3	<2			
S67153.03	1L Plastic HNO3	<2			
S67153.03	1L Plastic HNO3	<2			
S67153.03	250mL Plastic HNO3	<2			
S67153.04	1L Plastic HNO3	<2			
S67153.04	1L Plastic HNO3	<2			
S67153.04	250mL Plastic HNO3	<2			
S67153.05	1L Plastic HNO3	<2			
S67153.05	1L Plastic HNO3	<2			
S67153.05	250mL Plastic HNO3	<2			
S67153.06	1L Plastic HNO3	<2			
S67153.06	1L Plastic HNO3	<2			
S67153.06	250mL Plastic HNO3	<2			
S67153.07	1L Plastic HNO3	<2			
S67153.07	1L Plastic HNO3	<2			
S67153.07	250mL Plastic HNO3	<2			
S67153.08	1L Plastic HNO3	<2			
S67153.08	1L Plastic HNO3	<2			
S67153.08	250mL Plastic HNO3	<2			
S67153.09	1L Plastic HNO3	<2			
S67153.09	1L Plastic HNO3	<2			
S67153.09	250mL Plastic HNO3	<2			
S67153.10	1L Plastic HNO3	<2			
S67153.10	1L Plastic HNO3	<2			

Merit Laboratories Bottle Preservation Check

Lab Set ID: S67153 Submitted: 10/09/2024 09:57

Client: BWL01 (Board of Water & Light)

Project: Erickson Wellfield

Initial Preservation Check: 10/09/2024 10:36 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S67153.10	250mL Plastic HNO3	<2			
S67153.11	1L Plastic HNO3	<2			
S67153.11	1L Plastic HNO3	<2			
S67153.11	250mL Plastic HNO3	<2			

Merit Laboratories, Inc

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing STATE: Mi ZIP CODE: 48901
PHONE NO.: 517-702-6372 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Wellfield
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Julie Maltby, Marc Wahrer

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☒LEVEL III ☐LEVEL IV ☒EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☒NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total Metals	F- undisstiled, Cl-, SO4, TDS	Radium 226	Radium 228	TSS	Dissolved Metals	HCO3, CO3, Hardness	Special Instructions
67153.01	10/8/24	1145	MW-17A · L410218-01	GW	5	2		3					✓	✓	✓	✓	✓		✓	Metals to analyse: Na, Mg, K
.02		1332	MW-17B · -02																	B, Ca, Sb, As, Ba, Be, Cd, Cr,
.03		1216	MW-17C -03																	Co, Li, Hg, Mo, Pb, Se, Tl,
.04		1021	MW-17D -04																	Fe, Cu, Ni, Ag, V, Zn
.05		1010	MW-17E · -05																	Please send a preliminary report
.06		1620	MW-18A -06																	
.07		1617	MW-18B · -07																	The analytes for dissolved metals are
.08		1458	MW-18C · -08																	same metals that are analysed for total.
.09		1458	MW-18D -09																	
.10		1145	MWT-17A · -10	↓																See other side for RL's
.11	↓	0910	Field Blank ↓ -11	DI	↓	↓		↓												

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐Sampler	DATE	TIME
Julie Maltby		10/9/24	0957
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
M Wilcoto		10/9/24	0957
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME

SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS

NOTES: TEMP. ON ARRIVAL: 2.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Reporting Limits to go to Merit with COC

Sb, total	Antimony	250 mL plastic	mg/L	Nitric Acid	200.7	6 mos	0.005
As, total	Arsenic	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
Ba, total		250 mL plastic	mg/L	Nitric Acid	200.8	6mos	0.150
Be, total	Beryllium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.001
B, total	Boron	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.04
Cd, total	Cadmium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
Ca	Calcium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	2.5
Cl	Chloride	250 mL plastic	mg/L	Chill	300.0	28 d	10
Cr, total	Chromium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Co, total	Cobalt	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Cu, total	Copper	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
F	Fluoride	250 mL plastic	mg/L	None	9056	28 d	1.0
Fe, total	Iron	250 mL plastic	mg/L	Nitric Acid	300.0	6 mos	0.02
Pb, total	Lead	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.003
Li, total	Lithium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Hg, total	Mercury	250 mL plastic	mg/L	HNO3	245.1	28 d	0.0002
Mo, total	Molybdenum	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ni, total	Nickel	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
RA226/228	Radium 226 and 228 combined	(2) 1 L plastic	pCi/L	HNO3	SM 7500	6 mos	2.0 combined
Se, total	Selenium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ag, total	Silver	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
SO4	Sulfate	250 mL plastic	mg/L	Chill	300.0	28 d	10
Tl, total	Thallium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
TDS	Total Dissolved Solids	1 L plastic	mg/L	None	SM 2540C	NA	20
TSS	Total Suspended Solids	1 L plastic	mg/L	None	SM 2540D	NA	3
V, total	Vanadium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Zn, total	Zinc	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005

GEL Laboratories LLC
a member of The GEL Group INC

2040 Savage Road | Charleston, SC 29407
843.556.8171
gel.com

November 08, 2024

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 690127
SDG: S67153

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on October 14, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Abagail Martin for
Delaney Stonesmith
Project Manager

Purchase Order: GELP20-0018
Enclosures

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Case Narrative

Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S67153
Work Order: 690127

November 08, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on October 14, 2024 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
690127001	S67153.01
690127002	S67153.02
690127003	S67153.03
690127004	S67153.04
690127005	S67153.05
690127006	S67153.06
690127007	S67153.07
690127008	S67153.08
690127009	S67153.09
690127010	S67153.10
690127011	S67153.11

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.

Abagail Martin for
Delaney Stonesmith
Project Manager

Chain of Custody and Supporting Documentation

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

690127

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: results@meritlabs.com QUOTE NO.:

INVOICE TO

☒ SAME

CONTACT NAME: Julie Teague
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S67153 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☒ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Radium 226*	Radium 228**	Special Instructions
	10/8/24	1145	S67153.01	GW	2			2					✓	✓	* E903.1 Mod.
	10/8/24	1332	S67153.02	GW	2			2					✓	✓	** E904.0/SW 9320 Mod.
	10/8/24	1216	S67153.03	GW	2			2					✓	✓	
	10/8/24	1021	S67153.04	GW	2			2					✓	✓	Please use calculation product &
	10/8/24	1010	S67153.05	GW	2			2					✓	✓	provide Radium 226/228 combined
	10/8/24	1620	S67153.06	GW	2			2					✓	✓	results on the report
	10/8/24	1617	S67153.07	GW	2			2					✓	✓	
	10/8/24	1458	S67153.08	GW	2			2					✓	✓	(No Ice needed)
	10/8/24	1458	S67153.09	GW	2			2					✓	✓	** Subcontracted to
	10/8/24	1145	S67153.10	GW	2			2					✓	✓	GEL Laboratories, Inc.
	10/8/24	0910	S67153.11	W	2			2					✓	✓	2040 Savage Road
															Charleston, SC 29407

RELINQUISHED BY: SIGNATURE/ORGANIZATION	M Dilcato ☐ Sampler	DATE 10/10/24	TIME 1700
RECEIVED BY: SIGNATURE/ORGANIZATION	UPS	DATE 10/10/24	TIME 1700
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 10/14/24	TIME 1205

RELINQUISHED BY: SIGNATURE/ORGANIZATION — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION — DATE — TIME

SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS
SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS

NOTES: TEMP. ON ARRIVAL

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

GEL | Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: MERI	SDG/AR/COC/Work Order: 690127
Received By: Stacy Boone	Date Received: Oct 14, 2024
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 1Z 466 477 03 6329 8325

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
a) Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
b) Did the client designate the samples are to be received as radioactive?		✓	COC notation "radioactive" or client provided shipping documents indicating radioactive shipment.
c) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): ___CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
d) Did the client designate samples are hazardous?		✓	COC notation or shipping documents indicate hazardous shipment.
e) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Wet Ice Ice Packs Dry Ice None Other: *all temperatures are recorded in Celsius TEMP: 21c
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR3-23 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓	[illegible]		Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓	[illegible]		Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials AM Date 10/15/24 Page 1 of 1

GL-CHL-SR-001 Rev 7

Laboratory Certifications

List of current GEL Certifications as of 08 November 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	NV-C24-00175
New Hampshire NELAP	205424
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235
Utah NELAP	SC000122024-42
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S67153
Work Order #: 690127

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2687259

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
690127001	S67153.01
690127002	S67153.02
690127003	S67153.03
690127004	S67153.04
690127005	S67153.05
690127006	S67153.06
690127007	S67153.07
690127008	S67153.08
690127009	S67153.09
690127010	S67153.10
690127011	S67153.11
1205885354	Method Blank (MB)
1205885355	690127001(S67153.01) Sample Duplicate (DUP)
1205885356	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2688572

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
690127001	S67153.01
690127002	S67153.02
690127003	S67153.03
690127004	S67153.04
690127005	S67153.05
690127006	S67153.06

690127007	S67153.07
690127008	S67153.08
690127009	S67153.09
690127010	S67153.10
690127011	S67153.11
1205887866	Method Blank (MB)
1205887867	689884004(NonSDG) Sample Duplicate (DUP)
1205887868	689884004(NonSDG) Matrix Spike (MS)
1205887869	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Preparation Information

Homogenous Matrix
Samples were non-homogenous matrix. All samples had a tint of yellow, some more than others, with dirt pieces in them.

Quality Control (QC) Information

CSU
The blank (See Below) result is greater than 1.65 times the CSU but less than the MDC.

Sample	Analyte	Value
1205887866 (MB)	Radium-226	Blank result > 1.65 CSU

Duplication Criteria between QC Sample and Duplicate Sample
The Sample and the Duplicate, (See Below), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with the value listed below.

Sample	Analyte	Value
1205887867 (Non SDG 689884004DUP)	Radium-226	RPD 43.4* (0.00%-20.00%) RER 1.85 (0-3)

Technical Information

Recounts
Sample 1205887868 (Non SDG 689884004MS) was recounted due to low recovery. The recount is reported. Sample 1205887866 (MB) was recounted due to a suspected blank false positive. The recount is reported.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MERI001 Merit Laboratories, Inc.

Client SDG: S67153 GEL Work Order: 690127

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Kate Gellatly**

Date: 08 NOV 2024 **Title: Analyst 1 PT**

Sample Data Summary

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: November 8, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S67153.01	Project:	MERI00120
Sample ID:	690127001	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-OCT-24 11:45		
Receive Date:	14-OCT-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.12	+/-1.61	2.76	3.00	pCi/L			KP1	10/30/24	0957	2687259	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.54	+/-1.63			pCi/L			NXL1	11/08/24	1207	2691587	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.418	+/-0.234	0.228	1.00	pCi/L			MJ2	11/05/24	1010	2688572	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			82.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 8, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S67153.02	Project:	MERI00120
Sample ID:	690127002	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-OCT-24 13:32		
Receive Date:	14-OCT-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		2.11	+/-1.06	1.45	3.00	pCi/L			KP1	10/30/24	0957	2687259	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.66	+/-1.10			pCi/L			NXL1	11/08/24	1207	2691587	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.551	+/-0.286	0.361	1.00	pCi/L			MJ2	11/05/24	1010	2688572	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 8, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S67153.03
Sample ID: 690127003
Matrix: Ground Water
Collect Date: 08-OCT-24 12:16
Receive Date: 14-OCT-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.165	+/-0.898	1.68	3.00	pCi/L			KP1	10/30/24	0957	2687259	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.50	+/-0.995			pCi/L			NXL1	11/08/24	1207	2691587	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.33	+/-0.428	0.261	1.00	pCi/L			MJ2	11/05/24	1010	2688572	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			86.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 8, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S67153.04	Project:	MERI00120
Sample ID:	690127004	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-OCT-24 10:21		
Receive Date:	14-OCT-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	2.20	+/-1.43	2.21	3.00	pCi/L			KP1	10/30/24	0957	2687259	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.94	+/-1.46			pCi/L			NXL1	11/08/24	1207	2691587	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.737	+/-0.298	0.262	1.00	pCi/L			MJ2	11/05/24	1010	2688572	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 8, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S67153.05	Project:	MERI00120
Sample ID:	690127005	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-OCT-24 10:10		
Receive Date:	14-OCT-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		4.03	+/-1.48	1.96	3.00	pCi/L			KP1	10/30/24	0957	2687259	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		4.42	+/-1.51			pCi/L			NXL1	11/08/24	1207	2691587	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.390	+/-0.318	0.475	1.00	pCi/L			MJ2	11/05/24	1010	2688572	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			87.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 8, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S67153.06	Project:	MERI00120
Sample ID:	690127006	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-OCT-24 16:20		
Receive Date:	14-OCT-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		2.42	+/-1.43	2.17	3.00	pCi/L			KP1	10/30/24	0957	2687259	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.19	+/-1.47			pCi/L			NXL1	11/08/24	1207	2691587	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.776	+/-0.336	0.396	1.00	pCi/L			MJ2	11/05/24	1010	2688572	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			86.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 8, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S67153.07	Project:	MERI00120
Sample ID:	690127007	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-OCT-24 16:17		
Receive Date:	14-OCT-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		4.31	+/-1.71	2.37	3.00	pCi/L			KP1	10/30/24	0957	2687259	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		5.76	+/-1.76			pCi/L			NXL1	11/08/24	1207	2691587	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.45	+/-0.404	0.217	1.00	pCi/L			MJ2	11/05/24	1010	2688572	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			80.9	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 8, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S67153.08	Project:	MERI00120
Sample ID:	690127008	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-OCT-24 14:58		
Receive Date:	14-OCT-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		2.38	+/-1.51	2.35	3.00	pCi/L			KP1	10/30/24	0958	2687259	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.97	+/-1.59			pCi/L			NXL1	11/08/24	1207	2691587	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.59	+/-0.487	0.381	1.00	pCi/L			MJ2	11/05/24	1010	2688572	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			83.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 8, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S67153.09	Project:	MERI00120
Sample ID:	690127009	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-OCT-24 14:58		
Receive Date:	14-OCT-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.736	+/-1.05	1.81	3.00	pCi/L			KP1	10/30/24	0958	2687259	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.76	+/-1.12			pCi/L			NXL1	11/08/24	1207	2691587	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.03	+/-0.394	0.422	1.00	pCi/L			MJ2	11/05/24	1043	2688572	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			86	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 8, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S67153.10	Project:	MERI00120
Sample ID:	690127010	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	08-OCT-24 11:45		
Receive Date:	14-OCT-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		3.06	+/-1.19	1.47	3.00	pCi/L			KP1	10/30/24	0958	2687259	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.87	+/-1.24			pCi/L			NXL1	11/08/24	1207	2691587	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.812	+/-0.341	0.357	1.00	pCi/L			MJ2	11/05/24	1043	2688572	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			83.3	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 8, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S67153.11	Project:	MERI00120
Sample ID:	690127011	Client ID:	MERI001
Matrix:	Water		
Collect Date:	08-OCT-24 09:10		
Receive Date:	14-OCT-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.278	+/-1.38	2.48	3.00	pCi/L			KP1	10/30/24	0958	2687259	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.794	+/-1.42			pCi/L			NXL1	11/08/24	1207	2691587	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.517	+/-0.338	0.462	1.00	pCi/L			MJ2	11/05/24	1043	2688572	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			89.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Quality Control Data

QC Summary

Report Date: November 8, 2024

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: **John Laverty**

Workorder: **690127**

Parmname	NOM	Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date	Time
Rad Gas Flow												
Batch 2687259												
QC1205885355 690127001 DUP												
Radium-228	U	1.12	U	2.13	pCi/L	N/A			N/A	KP1	10/30/24	09:57
	Uncertainty	+/-1.61		+/-1.59								
QC1205885356 LCS												
Radium-228	69.3			72.9	pCi/L			105	(75%-125%)		10/30/24	09:57
	Uncertainty			+/-4.53								
QC1205885354 MB												
Radium-228			U	1.18	pCi/L						10/30/24	09:57
	Uncertainty			+/-1.22								
Rad Ra-226												
Batch 2688572												
QC1205887867 689884004 DUP												
Radium-226		2.15		3.34	pCi/L	43.4	*		(0%-20%)	MJ2	11/05/24	10:43
	Uncertainty	+/-0.565		+/-0.712								
QC1205887869 LCS												
Radium-226	27.2			27.8	pCi/L			102	(75%-125%)		11/05/24	10:43
	Uncertainty			+/-1.68								
QC1205887866 MB												
Radium-226			U	0.236	pCi/L						11/05/24	13:58
	Uncertainty			+/-0.212								
QC1205887868 689884004 MS												
Radium-226	136	2.15		105	pCi/L			75.8	(75%-125%)		11/05/24	13:58
	Uncertainty	+/-0.565		+/-7.26								

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported

QC Summary

Workorder: **690127**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

>	Result is greater than value reported
UI	Gamma Spectroscopy--Uncertain identification
BD	Results are either below the MDC or tracer recovery is low
h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
M	M if above MDC and less than LLD
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
FA	Failed analysis.
UJ	Gamma Spectroscopy--Uncertain identification
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N1	See case narrative
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
**	Analyte is a Tracer compound
M	REMP Result > MDC/CL and < RDL
J	See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Gas Flow Raw Data

Batch 2687259 Check-list

This check-list was completed on 30-OCT-24 by Rhonda Birch

This batch was reviewed by Rhonda Birch on 30-OCT-24 and Kenshalla Oston on 31-OCT-24.

Batch ID: 2687259 **Product:** GFC28RAL **Description:** Gas Flow Radium 228 GL-RAD-A-063

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-228 in Liquid

Batch ID: **2687259**
Analyst: Kaitlyn Painter (KP1)
Method: EPA 904.0/SW846 9320 Modified
Lab SOP: GL-RAD-A-063 REV# 5
Instrument: ASP-33005595

Due Dates for Lab: 08-NOV-2024 **Package: 10-NOV-2024** **SDG: 11-NOV-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205885356	Radium 228	2051-E	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)
1	690127001	15-OCT-2024	3	300.1	300.1	10/16/24 12:42	10/30/24 07:25
2	690127002	15-OCT-2024	3	300.1	300.1	10/16/24 12:42	10/30/24 07:25
3	690127003	15-OCT-2024	3	301.9	301.9	10/16/24 12:42	10/30/24 07:25
4	690127004	15-OCT-2024	3	301.7	301.7	10/16/24 12:42	10/30/24 07:25
5	690127005	15-OCT-2024	3	300.8	300.8	10/16/24 12:42	10/30/24 07:25
6	690127006	15-OCT-2024	3	301.6	301.6	10/16/24 12:42	10/30/24 07:25
7	690127007	15-OCT-2024	3	301.2	301.2	10/16/24 12:42	10/30/24 07:25
8	690127008	15-OCT-2024	3	301.4	301.4	10/16/24 12:42	10/30/24 07:25
9	690127009	15-OCT-2024	3	301.1	301.1	10/16/24 12:42	10/30/24 07:25
10	690127010	15-OCT-2024	3	302.4	302.4	10/16/24 12:42	10/30/24 07:25
11	690127011	15-OCT-2024	3	301.1	301.1	10/16/24 12:42	10/30/24 07:25
12	1205885354 MB	15-OCT-2024	3		302.4	10/16/24 12:42	10/30/24 07:25
13	1205885355 DUP (690127001)	15-OCT-2024	3	301	301	10/16/24 12:42	10/30/24 07:25
14	1205885356 LCS	15-OCT-2024	3		302.4	10/16/24 12:42	10/30/24 07:25

Reagent/Solvent Lot ID	Description	Amount
WORK 2097-C	Ba-133 Tracer	.1 mL
REGNT 4420090	RGF-1.5M Ammonium Sulfate	10 mL
REGNT 4398588	Barium Carrier Ra228 REG	1 mL
REGNT 4420398	RGF-1M Citric Acid	5 mL
REGNT 4416311	2M HCl	20 mL
REGNT 4413792	RGF-50% Potassium Carbonate	2 mL
REGNT 4417869	RGF-7M Nitric Acid	25 mL
REGNT 4417757.6	Acetic Acid Glacial ACS Poly Coated Bottle	10 mL
REGNT 4410868.10	RGF-Hydrofluoric Acid	4 mL
REGNT 4398414	500 mg/mL Neodymium Carrier	.2 mL
REGNT 4419428	RGF-Neodymium Subtrate	5 mL
REGNT DGA09112024	2682351	2 g
REGNT 4419320.4	Nitric Acid	5 mL

Comments:
Pipet Id: RAD-GFC-1795419
Data Entry Date2: 15-OCT-2024 00:00

Radium-228 Liquid

Filename : RA228.XLS
File type : Excel
Version # : 1.4.3

Tracer S/N : 2097-C
Tracer Exp Date : 4/9/2025
Tracer Volume Added: 0.10

Batch : 2687259
Analyst : KAI02410
Prep Date : 10/15/2024
Ra-228 Method Uncertainty : 0.1268

Geometry: 25mm Filter

Procedure Code : GFC28RAL
Parmname : Radium-228
Required MDA : 3 pCi/L
Ra-228 Abundance : 1.00
Halflife of Ra-228 : 5.75 years
Halflife of Ac-228 : 6.15 hours

Sample Characteristics					Tracer Calculations					
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Tracer Ref. Activity (CPM)	Tracer Ref. Count Uncertainty (%)	Tracer Samp. Activity (CPM)	Tracer Samp. Count Uncertainty (%)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	690127001.1	0.3001	1.8461E-05	10/8/2024 11:45	1010.9	1.82%	835.8	2.00%	0.1	0.000200
2	690127002.1	0.3001	1.8461E-05	10/8/2024 13:32	1010.9	1.82%	853.6	1.98%	0.1	0.000200
3	690127003.1	0.3019	1.8491E-05	10/8/2024 12:16	1010.9	1.82%	873.9	1.95%	0.1	0.000200
4	690127004.1	0.3017	1.8488E-05	10/8/2024 10:21	1010.9	1.82%	853.5	1.98%	0.1	0.000200
5	690127005.1	0.3008	1.8473E-05	10/8/2024 10:10	1010.9	1.82%	883.1	1.94%	0.1	0.000200
6	690127006.1	0.3016	1.8486E-05	10/8/2024 16:20	1010.9	1.82%	875.5	1.95%	0.1	0.000200
7	690127007.1	0.3012	1.8479E-05	10/8/2024 16:17	1010.9	1.82%	817.8	2.02%	0.1	0.000200
8	690127008.1	0.3014	1.8483E-05	10/8/2024 14:58	1010.9	1.82%	845.3	1.99%	0.1	0.000200
9	690127009.1	0.3011	1.8478E-05	10/8/2024 14:58	1010.9	1.82%	869.7	1.96%	0.1	0.000200
10	690127010.1	0.3024	1.8500E-05	10/8/2024 11:45	1010.9	1.82%	842.4	1.99%	0.1	0.000200
11	690127011.1	0.3011	1.8478E-05	10/8/2024 9:10	1010.9	1.82%	905.6	1.92%	0.1	0.000200
12	1205885354.1	0.3024	1.8500E-05	10/15/2024 0:00	1010.9	1.82%	836.4	2.00%	0.1	0.000200
13	1205885355.1	0.3010	1.8476E-05	10/8/2024 11:45	1010.9	1.82%	757.2	2.10%	0.1	0.000200
14	1205885356.1	0.3024	1.8500E-05	10/15/2024 0:00	1010.9	1.82%	866.8	1.96%	0.1	0.000200

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-063
Instrument SOP: GL-RAD-I-016

Count raw Data

Pos.	Detector ID	Counting Time (min.)	Gross Counts Alpha	Gross Counts Beta	Beta cpm	Count Start Date/Time	Ac-228 Ingrowth Date/Time	Ac-228 Decay Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Ingrowth	Ac-228 Count Correction	Calculated Sample Recovery %	Sample Recovery Error %
1	1A	60	60	82	1.367	10/30/2024 9:57	10/16/2024 12:42	10/30/2024 7:25	0.993	0.751	1.000	1.057	82.7%	2.72%
2	1C	60	45	52	0.867	10/30/2024 9:57	10/16/2024 12:42	10/30/2024 7:25	0.993	0.751	1.000	1.057	84.4%	2.70%
3	1D	60	65	36	0.600	10/30/2024 9:57	10/16/2024 12:42	10/30/2024 7:25	0.993	0.751	1.000	1.057	86.4%	2.68%
4	2A	60	70	88	1.467	10/30/2024 9:57	10/16/2024 12:42	10/30/2024 7:25	0.993	0.751	1.000	1.057	84.4%	2.70%
5	2B	60	65	108	1.800	10/30/2024 9:57	10/16/2024 12:42	10/30/2024 7:25	0.993	0.751	1.000	1.057	87.4%	2.68%
6	2C	60	62	88	1.467	10/30/2024 9:57	10/16/2024 12:42	10/30/2024 7:25	0.993	0.751	1.000	1.057	86.6%	2.68%
7	2D	60	76	113	1.883	10/30/2024 9:57	10/16/2024 12:42	10/30/2024 7:25	0.993	0.750	1.000	1.057	80.9%	2.73%
8	3B	60	89	99	1.650	10/30/2024 9:58	10/16/2024 12:42	10/30/2024 7:25	0.993	0.750	1.000	1.057	83.6%	2.71%
9	3C	60	57	52	0.867	10/30/2024 9:58	10/16/2024 12:42	10/30/2024 7:25	0.993	0.750	1.000	1.057	86.0%	2.69%
10	3D	60	58	65	1.083	10/30/2024 9:58	10/16/2024 12:42	10/30/2024 7:25	0.993	0.750	1.000	1.057	83.3%	2.71%
11	4A	60	40	90	1.500	10/30/2024 9:58	10/16/2024 12:42	10/30/2024 7:25	0.993	0.750	1.000	1.057	89.6%	2.66%
12	4D	60	86	64	1.067	10/30/2024 9:57	10/16/2024 12:42	10/30/2024 7:25	0.995	0.752	1.000	1.057	82.7%	2.72%
13	5A	60	94	84	1.400	10/30/2024 9:57	10/16/2024 12:42	10/30/2024 7:25	0.993	0.751	1.000	1.057	74.9%	2.79%
14	5C	60	83	1046	17.433	10/30/2024 9:57	10/16/2024 12:42	10/30/2024 7:25	0.995	0.751	1.000	1.057	85.8%	2.69%

Calibration Data								
Pos.	Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Bkg cpm	Weekly Bkg Count Start Date/Time	Bkg Count Time (min.)
1	PIC	6/1/2024	5/31/2025	0.4962	0.00738	1.150	10/25/2024 17:21	500
2	PIC	6/1/2024	5/31/2025	0.5734	0.00847	0.386	10/25/2024 17:21	500
3	PIC	6/1/2024	5/31/2025	0.5638	0.00692	0.562	10/25/2024 17:21	500
4	PIC	6/1/2024	5/31/2025	0.5596	0.01914	0.976	10/25/2024 17:21	500
5	PIC	6/1/2024	5/31/2025	0.5747	0.02111	0.848	10/25/2024 17:22	500
6	PIC	6/1/2024	5/31/2025	0.5453	0.01274	0.928	10/25/2024 17:22	500
7	PIC	6/1/2024	5/31/2025	0.5484	0.00745	0.982	10/25/2024 17:22	500
8	PIC	6/1/2024	5/31/2025	0.5669	0.01614	1.118	10/25/2024 17:22	500
9	PIC	6/1/2024	5/31/2025	0.5795	0.00988	0.694	10/25/2024 17:22	500
10	PIC	6/1/2024	5/31/2025	0.5731	0.02297	0.392	10/25/2024 17:22	500
11	PIC	6/1/2024	5/31/2025	0.5637	0.01123	1.434	10/25/2024 17:22	500
12	PIC	6/1/2024	5/31/2025	0.5706	0.00773	0.802	10/25/2024 17:22	500
13	PIC	6/1/2024	5/31/2025	0.5552	0.00851	0.982	10/25/2024 17:22	500
14	PIC	6/1/2024	5/31/2025	0.5733	0.00657	0.428	10/25/2024 17:23	500

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : N/A
Spike Exp Date : N/A
Spike Activity (dpm/ml): N/A
Spike Volume Added: N/A

LCS S/N : 2051-E
LCS Exp Date : 4/29/2025
LCS Activity (dpm/ml): 465.40
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	2 SIGMA Counting Uncertainty pCi/L	2 SIGMA Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	1.7712	1.2505	3	2.7604	**1.1242**	73.14%	0.2167	0.1584	1.6104	1.6356		SAMPLE				
2	0.8696	0.6140	3	1.4478	**2.1135**	25.82%	0.4807	0.1234	1.0631	1.1915		SAMPLE				
3	1.0363	0.7317	3	1.6805	**0.1650**	277.57%	0.0380	0.1055	0.8977	0.8987		SAMPLE				
4	1.4099	0.9954	3	2.2149	**2.1996**	33.28%	0.4907	0.1625	1.4276	1.5353		SAMPLE				
5	1.2407	0.8760	3	1.9635	**4.0292**	19.01%	0.9520	0.1780	1.4769	1.8045		SAMPLE				
6	1.3761	0.9715	3	2.1674	**2.4171**	30.25%	0.5387	0.1622	1.4263	1.5540		SAMPLE				
7	1.5096	1.0658	3	2.3708	**4.3131**	20.46%	0.9013	0.1826	1.7129	2.0348		SAMPLE				
8	1.5066	1.0637	3	2.3511	**2.3812**	32.57%	0.5320	0.1724	1.5128	1.6311		SAMPLE				
9	1.1299	0.7977	3	1.8084	**0.7356**	72.93%	0.1727	0.1258	1.0507	1.0673		SAMPLE				
10	0.8829	0.6233	3	1.4681	**3.0623**	20.17%	0.6913	0.1373	1.1917	1.4300		SAMPLE				
11	1.6040	1.1324	3	2.4752	**0.2777**	252.95%	0.0660	0.1669	1.3767	1.3785		SAMPLE				
12	1.2720	0.8980	3	2.0191	**1.1809**	52.68%	0.2647	0.1392	1.2175	1.2540		MB				
13	1.6090	1.1360	3	2.5270	**2.1321**	38.16%	0.4180	0.1591	1.5901	1.6805	690127001.1	DUP	* 0.0%			
14	0.8926	0.6302	3	1.4747	**72.8873**	4.21%	17.0053	0.5398	4.5350	19.0879		LCS			69.3248	105.1%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine	Batch ID
690127001	1A	60	60	82	10/30/2024 9:57	10/30/2024 10:57	PIC	2687259
690127002	1C	60	45	52	10/30/2024 9:57	10/30/2024 10:57	PIC	2687259
690127003	1D	60	65	36	10/30/2024 9:57	10/30/2024 10:57	PIC	2687259
690127004	2A	60	70	88	10/30/2024 9:57	10/30/2024 10:57	PIC	2687259
690127005	2B	60	65	108	10/30/2024 9:57	10/30/2024 10:57	PIC	2687259
690127006	2C	60	62	88	10/30/2024 9:57	10/30/2024 10:57	PIC	2687259
690127007	2D	60	76	113	10/30/2024 9:57	10/30/2024 10:57	PIC	2687259
690127008	3B	60	89	99	10/30/2024 9:58	10/30/2024 10:58	PIC	2687259
690127009	3C	60	57	52	10/30/2024 9:58	10/30/2024 10:58	PIC	2687259
690127010	3D	60	58	65	10/30/2024 9:58	10/30/2024 10:58	PIC	2687259
690127011	4A	60	40	90	10/30/2024 9:58	10/30/2024 10:58	PIC	2687259
1205885354	4D	60	86	64	10/30/2024 9:57	10/30/2024 10:57	PIC	2687259
1205885355	5A	60	94	84	10/30/2024 9:57	10/30/2024 10:57	PIC	2687259
1205885356	5C	60	83	1046	10/30/2024 9:57	10/30/2024 10:57	PIC	2687259

ASSAY 30-Oct-24 8:22:37
Wizard 2480 s/n 46190630
Protocol id 8 Ba-133
Time limit
Count limit
Isotope Ba-133
Protocol date 10/30/2024
Run id. 2978

Samp_ID	POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
REF	1	98	1	180	3033	1010.89	1.82		08:22:37
690127001	2	98	2	180	2508	835.82	2	82.68	08:25:51
690127002	3	98	3	180	2561.5	853.6	1.98	84.44	08:29:05
690127003	4	98	4	180	2622	873.85	1.95	86.44	08:32:19
690127004	5	98	5	180	2561	853.51	1.98	84.43	08:35:33
690127005	1	88	1	180	2649.5	883.06	1.94	87.35	08:39:09
690127006	2	88	2	180	2627	875.5	1.95	86.61	08:42:23
690127007	3	88	3	180	2454	817.79	2.02	80.90	08:45:36
690127008	4	88	4	180	2536.5	845.33	1.99	83.62	08:48:50
690127009	5	88	5	180	2609.5	869.66	1.96	86.03	08:52:05
690127010	1	45	1	180	2527.5	842.4	1.99	83.33	08:55:40
690127011	2	45	2	180	2717	905.56	1.92	89.58	08:58:54
1205885354	3	45	3	180	2509.5	836.41	2	82.74	09:02:08
1205885355	4	45	4	180	2272	757.2	2.1	74.90	09:05:22
1205885356	5	45	5	180	2601	866.84	1.96	85.75	09:08:36

END OF ASSAY

Continuing Calibration Data

Gas Flow Proportional Counter Checks for 30-Oct-2024

Detectors LB4100 E1 through H4 and PIC 1A through 14D and G5400W 1W through 1Z and LB4200 GA1 through OD4

Short Name	Status	Parmname	Run Time	Count Time	CPM or dec	Low Limit	High Limit	Stdev
LB4100F1	Above	Beta bkg	30-Oct 04:12	60	2.050	1.212	3.048	-0.26
LB4100G2	Above	Alpha XTalk	30-Oct 05:14	5	0.245	0.169	0.234	+3.95
LB4100G2	Above	Beta bkg	30-Oct 04:12	60	2.250	0.407	1.917	+4.32
LB4100G3	Above	Beta bkg	30-Oct 04:12	60	3.350	0.716	2.721	+4.88
LB4200GB2	Below	Alpha eff	30-Oct 06:26	5	9313	9443	9898	-4.72
LB4200GB2	Above	Beta bkg	30-Oct 05:15	60	6.633	0.129	1.304	+30.20
LB4200GB2	Below	Beta eff	30-Oct 06:33	5	13714	13840	15160	-3.57
LB4200OC2	need 2nd	Alpha bkg	30-Oct 05:18	60	0.283	-1.37E-1	0.428	+1.46
LB4200OC2	Above	Beta bkg	30-Oct 05:18	60	18.350	-6.67E-2	2.499	+40.07
LB4200OC2	Below	Beta eff	30-Oct 06:53	5	14171	14260	15090	-3.64
LB4200OC4	Above	Beta bkg	30-Oct 05:18	60	49.100	0.232	1.342	+261.15
PIC6B	Above	Beta bkg	30-Oct 05:55	60	2.333	-3.17E-1	2.303	+3.07
PIC6B	need 2nd	Beta eff	30-Oct 05:48	5	18908	18670	20770	-2.32
PIC6C	Above	Beta bkg	30-Oct 05:55	60	3.317	0.104	2.742	+4.31
PIC8B	Below	Alpha eff	30-Oct 07:08	5	8214	8621	9674	-5.32
PIC8B	Above	Alpha XTalk	30-Oct 07:08	5	0.382	0.213	0.328	+5.84
PIC8B	Below	Beta eff	30-Oct 05:57	5	18550	19400	21890	-5.05
PIC9D	Above	Beta bkg	30-Oct 08:48	60	2.083	-3.65E-2	2.013	+3.21
PIC10D	Below	Beta eff	30-Oct 12:21	5	36362	36480	41450	-3.14
PIC14A	Above	Beta bkg	30-Oct 07:33	60	2.350	-6.92E-1	2.278	+3.15
PIC14C	need 2nd	Beta bkg	30-Oct 06:27	60	0.633	-1.14E+0	3.604	-0.76
PIC14C	Below	Beta eff	30-Oct 06:14	5	21172	21510	22730	-4.66

INSTRUMENTS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

The following detectors may not have properly transferred to the LIMS system

LB4100G1	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC8A	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk

Reviewed by Jc Poparad

Date 10/30/24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: GFPC **Batch ID: 2687259**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1205885354	MB	KP1	PIC4D	OCT-30-24 09:57:03	DONE	25mm Filter	01-JUN-24 00:00
1205885355	DUP	KP1	PIC5A	OCT-30-24 09:57:06	DONE	25mm Filter	01-JUN-24 00:00
1205885356	LCS	KP1	PIC5C	OCT-30-24 09:57:14	DONE	25mm Filter	01-JUN-24 00:00
690127001	SAMPLE	KP1	PIC1A	OCT-30-24 09:57:26	DONE	25mm Filter	01-JUN-24 00:00
690127002	SAMPLE	KP1	PIC1C	OCT-30-24 09:57:29	DONE	25mm Filter	01-JUN-24 00:00
690127003	SAMPLE	KP1	PIC1D	OCT-30-24 09:57:33	DONE	25mm Filter	01-JUN-24 00:00
690127004	SAMPLE	KP1	PIC2A	OCT-30-24 09:57:36	DONE	25mm Filter	01-JUN-24 00:00
690127005	SAMPLE	KP1	PIC2B	OCT-30-24 09:57:38	DONE	25mm Filter	01-JUN-24 00:00
690127006	SAMPLE	KP1	PIC2C	OCT-30-24 09:57:43	DONE	25mm Filter	01-JUN-24 00:00
690127007	SAMPLE	KP1	PIC2D	OCT-30-24 09:57:55	DONE	25mm Filter	01-JUN-24 00:00
690127008	SAMPLE	KP1	PIC3B	OCT-30-24 09:58:00	DONE	25mm Filter	01-JUN-24 00:00
690127009	SAMPLE	KP1	PIC3C	OCT-30-24 09:58:04	DONE	25mm Filter	01-JUN-24 00:00
690127010	SAMPLE	KP1	PIC3D	OCT-30-24 09:58:08	DONE	25mm Filter	01-JUN-24 00:00
690127011	SAMPLE	KP1	PIC4A	OCT-30-24 09:58:12	DONE	25mm Filter	01-JUN-24 00:00

Lucas Cell Raw Data

Batch 2688572 Check-list

This check-list was completed on 08-NOV-24 by Elizabeth Krouse

This batch was reviewed by Elizabeth Krouse on 08-NOV-24 and Gregory Ramsay on 08-NOV-24.

Batch ID: 2688572 **Product:** LUC26RAL **Description:** Lucas Cell Radium 226 GL-RAD-A-008

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous		No	
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Is the blank result less than 1.65 times the CSU?		No	
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
12	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?		No	
13	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
14	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-226 in Liquid

Batch ID: **2688572**
Analyst: Marisa Johnson (MJ2)
Method: EPA 903.1 Modified
Lab SOP: GL-RAD-A-008 REV# 15
Instrument: SP-C018367602

Due Dates for Lab: 09-NOV-2024 **Package: 10-NOV-2024** **SDG: 11-NOV-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
MS	1205887868	Ra-226 emanation spike	1715-J	.1	mL
LCS	1205887869	Ra-226 emanation spike	1715-J	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	End Degas (date)	CELL #	End Transfer (date)	Start Count Time (date)	Background Counts	Total Counts
1	689884004	30-OCT-2024	1	450	450	10/31/24 11:45	505	11/05/24 06:16	11/05/24 09:34	5	69
2	689884005	30-OCT-2024	1	500.1	500.1	10/31/24 11:45	609	11/05/24 06:16	11/05/24 09:34	2	45
3	689884006	30-OCT-2024	1	505.7	505.7	10/31/24 11:45	701	11/05/24 06:16	11/05/24 09:34	7	35
4	689884007	30-OCT-2024	1	505	505	10/31/24 11:45	808	11/05/24 06:16	11/05/24 09:34	1	15
5	690127001	30-OCT-2024	1	500.6	500.6	10/31/24 11:45	107	11/05/24 06:53	11/05/24 10:10	1	15
6	690127002	30-OCT-2024	1	503.5	503.5	10/31/24 11:45	205	11/05/24 06:53	11/05/24 10:10	6	28
7	690127003	30-OCT-2024	1	506.2	506.2	10/31/24 11:45	303	11/05/24 06:53	11/05/24 10:10	1	40
8	690127004	30-OCT-2024	1	500.8	500.8	10/31/24 11:45	404	11/05/24 06:53	11/05/24 10:10	2	29
9	690127005	30-OCT-2024	1	505.1	505.1	10/31/24 11:45	508	11/05/24 06:53	11/05/24 10:10	5	16
10	690127006	30-OCT-2024	1	503.9	503.9	10/31/24 11:45	607	11/05/24 06:53	11/05/24 10:10	7	37
11	690127007	30-OCT-2024	1	500.5	500.5	10/31/24 11:45	703	11/05/24 06:53	11/05/24 10:10	1	52
12	690127008	30-OCT-2024	1	502.2	502.2	10/31/24 11:45	804	11/05/24 06:53	11/05/24 10:10	3	49
13	690127009	30-OCT-2024	1	502.1	502.1	10/31/24 11:45	103	11/05/24 07:37	11/05/24 10:43	6	41
14	690127010	30-OCT-2024	1	502.9	502.9	10/31/24 11:45	206	11/05/24 07:37	11/05/24 10:43	4	32
15	690127011	30-OCT-2024	1	503.7	503.7	10/31/24 11:45	301	11/05/24 07:37	11/05/24 10:43	5	20
16	1205887866 MB	30-OCT-2024	1		506.2	10/31/24 11:45	406	11/05/24 07:37	11/05/24 13:58	4	13
17	1205887867 DUP (689884004)	30-OCT-2024	1	450.4	450.4	10/31/24 11:45	506	11/05/24 07:37	11/05/24 10:43	3	93
18	1205887868 MS (689884004)	30-OCT-2024	1	101.2	101.2	10/31/24 11:45	602	11/05/24 07:37	11/05/24 13:58	5	824
19	1205887869 LCS	30-OCT-2024	1		506.2	10/31/24 11:45	702	11/05/24 07:37	11/05/24 10:43	1	1062

Reagent/Solvent Lot ID	Description	Amount

Comments:
Data Entry Date2: 30-OCT-2024 00:00

Radium-226 Liquid

Filename : RA226.XLS
File type : Excel
Version # : 1.3.2

Batch : 2688572
Analyst : MAR02577
Prep Date : 10/30/2024
Ra-226 Method Uncertainty : 0.073648

Procedure Code : LUC26RAL
Parmname : Radium-226
Required MDA : 1 pCi/L
Halflife of Ra-226 : 1600 years
Ra-226 Abundance : 1.00
Halflife of Rn-222: 3.8235 days

Batch counted on : LUCAS CELL DETECTOR
BKG Count time : 30 min

Sample Characteristics					Count Raw Data							
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Background Count Time (min.)	Cell Efficiency (cpm/dpm)
1	689884004.1	0.4500	2.0013E-05	10/2/2024 13:30	505	30	69	2.300	5	0.167	30	1.7660
2	689884005.1	0.5001	2.0256E-05	10/2/2024 13:30	609	30	45	1.500	2	0.067	30	1.6188
3	689884006.1	0.5057	2.0279E-05	10/2/2024 13:30	701	30	35	1.167	7	0.233	30	1.9550
4	689884007.1	0.5050	2.0276E-05	10/2/2024 13:30	808	30	15	0.500	1	0.033	30	1.9590
5	690127001.1	0.5006	2.0258E-05	10/8/2024 11:45	107	30	15	0.500	1	0.033	30	1.7770
6	690127002.1	0.5035	2.0270E-05	10/8/2024 13:32	205	30	28	0.933	6	0.200	30	2.1042
7	690127003.1	0.5062	2.0281E-05	10/8/2024 12:16	303	30	40	1.333	1	0.033	30	1.5370
8	690127004.1	0.5008	2.0259E-05	10/8/2024 10:21	404	30	29	0.967	2	0.067	30	1.9410
9	690127005.1	0.5051	2.0277E-05	10/8/2024 10:10	508	30	16	0.533	5	0.167	30	1.4840
10	690127006.1	0.5039	2.0272E-05	10/8/2024 16:20	607	30	37	1.233	7	0.233	30	2.0379
11	690127007.1	0.5005	2.0258E-05	10/8/2024 16:17	703	30	52	1.733	1	0.033	30	1.8720
12	690127008.1	0.5022	2.0265E-05	10/8/2024 14:58	804	30	49	1.633	3	0.100	30	1.5337
13	690127009.1	0.5021	2.0264E-05	10/8/2024 14:58	103	30	41	1.367	6	0.200	30	1.7930
14	690127010.1	0.5029	2.0268E-05	10/8/2024 11:45	206	30	32	1.067	4	0.133	30	1.8102
15	690127011.1	0.5037	2.0271E-05	10/8/2024 9:10	301	30	20	0.667	5	0.167	30	1.5220
16	1205887866.1	0.5062	2.0281E-05	10/30/2024 0:00	406	30	13	0.433	4	0.133	30	2.0400
17	1205887867.1	0.4504	2.0015E-05	10/2/2024 13:30	506	30	93	3.100	3	0.100	30	1.5820
18	1205887868.1	0.1012	1.1444E-05	10/2/2024 13:30	602	30	824	27.467	5	0.167	30	2.0788
19	1205887869.1	0.5062	2.0281E-05	10/30/2024 0:00	702	30	1062	35.400	1	0.033	30	1.9900

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-008
Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections			
						De-Gas to Ingrowth	Ingrowth to Count	During Count	Ra-226 Decay
5.600%	6/12/2024	6/30/2025	10/31/2024 11:45	11/5/2024 6:16	11/5/2024 9:34	0.579	0.975	1.002	1.000
8.216%	7/16/2024	7/31/2025	10/31/2024 11:45	11/5/2024 6:16	11/5/2024 9:34	0.579	0.975	1.002	1.000
3.700%	11/1/2024	10/31/2025	10/31/2024 11:45	11/5/2024 6:16	11/5/2024 9:34	0.579	0.975	1.002	1.000
8.300%	4/1/2024	3/31/2025	10/31/2024 11:45	11/5/2024 6:16	11/5/2024 9:34	0.579	0.975	1.002	1.000
4.000%	5/1/2024	4/30/2025	10/31/2024 11:45	11/5/2024 6:53	11/5/2024 10:10	0.581	0.976	1.002	1.000
3.813%	8/14/2024	8/31/2025	10/31/2024 11:45	11/5/2024 6:53	11/5/2024 10:10	0.581	0.976	1.002	1.000
6.800%	11/1/2023	11/30/2024	10/31/2024 11:45	11/5/2024 6:53	11/5/2024 10:10	0.581	0.976	1.002	1.000
3.700%	2/1/2024	1/31/2025	10/31/2024 11:45	11/5/2024 6:53	11/5/2024 10:10	0.581	0.976	1.002	1.000
4.000%	6/12/2024	6/30/2025	10/31/2024 11:45	11/5/2024 6:53	11/5/2024 10:10	0.581	0.976	1.002	1.000
6.129%	7/16/2024	7/31/2025	10/31/2024 11:45	11/5/2024 6:53	11/5/2024 10:10	0.581	0.976	1.002	1.000
6.200%	11/1/2024	10/31/2025	10/31/2024 11:45	11/5/2024 6:53	11/5/2024 10:10	0.581	0.976	1.002	1.000
6.090%	4/1/2024	3/31/2025	10/31/2024 11:45	11/5/2024 6:53	11/5/2024 10:10	0.581	0.976	1.002	1.000
4.400%	5/1/2024	4/30/2025	10/31/2024 11:45	11/5/2024 7:37	11/5/2024 10:43	0.583	0.977	1.002	1.000
9.532%	8/14/2024	8/31/2025	10/31/2024 11:45	11/5/2024 7:37	11/5/2024 10:43	0.583	0.977	1.002	1.000
5.700%	11/1/2023	11/30/2024	10/31/2024 11:45	11/5/2024 7:37	11/5/2024 10:43	0.583	0.977	1.002	1.000
8.700%	2/1/2024	1/31/2025	10/31/2024 11:45	11/5/2024 7:37	11/5/2024 13:58	0.583	0.953	1.002	1.000
9.400%	6/12/2024	6/30/2025	10/31/2024 11:45	11/5/2024 7:37	11/5/2024 10:43	0.583	0.977	1.002	1.000
5.654%	7/16/2024	7/31/2025	10/31/2024 11:45	11/5/2024 7:37	11/5/2024 13:58	0.583	0.953	1.002	1.000
6.400%	11/1/2024	10/31/2025	10/31/2024 11:45	11/5/2024 7:37	11/5/2024 10:43	0.583	0.977	1.002	1.000

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

Spike S/N : 1715-J
Spike Exp Date : 4/1/2025
Spike Activity (dpm/ml): 305.95
Spike Volume Added: 0.10

LCS S/N : 1715-J
LCS Exp Date : 4/1/2025
LCS Activity (dpm/ml): 305.95
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	0.2470	0.1744	1	0.4493	**2.1455**	14.56%	2.1333	0.2867	0.5652	0.6862		SAMPLE				
2	0.1534	0.1083	1	0.3153	**1.4151**	17.94%	1.4333	0.2285	0.4422	0.5378		SAMPLE				
3	0.2349	0.1659	1	0.4126	**0.7545**	23.44%	0.9333	0.2160	0.3423	0.3633		SAMPLE				
4	0.0887	0.0626	1	0.2061	**0.3770**	29.75%	0.4667	0.1333	0.2111	0.2265		SAMPLE				
5	0.0983	0.0694	1	0.2284	**0.4178**	28.85%	0.4667	0.1333	0.2340	0.2438		SAMPLE				
6	0.2022	0.1428	1	0.3607	**0.5513**	26.78%	0.7333	0.1944	0.2864	0.3001		SAMPLE				
7	0.1124	0.0794	1	0.2611	**1.3307**	17.77%	1.3000	0.2134	0.4282	0.5017		SAMPLE				
8	0.1273	0.0899	1	0.2616	**0.7374**	20.95%	0.9000	0.1856	0.2980	0.3210		SAMPLE				
9	0.2610	0.1842	1	0.4747	**0.3896**	41.85%	0.3667	0.1528	0.3181	0.3245		SAMPLE				
10	0.2254	0.1591	1	0.3958	**0.7755**	22.94%	1.0000	0.2211	0.3361	0.3663		SAMPLE				
11	0.0934	0.0659	1	0.2168	**1.4450**	15.56%	1.7000	0.2427	0.4043	0.4877		SAMPLE				
12	0.1967	0.1389	1	0.3812	**1.5855**	16.82%	1.5333	0.2404	0.4872	0.5705		SAMPLE				
13	0.2367	0.1671	1	0.4223	**1.0266**	20.08%	1.1667	0.2285	0.3941	0.4303		SAMPLE				
14	0.1912	0.1350	1	0.3569	**0.8122**	23.45%	0.9333	0.2000	0.3411	0.3913		SAMPLE				
15	0.2538	0.1792	1	0.4617	**0.5166**	33.82%	0.5000	0.1667	0.3375	0.3505		SAMPLE				
16	0.1727	0.1219	1	0.3225	**0.2358**	46.63%	0.3000	0.1374	0.2118	0.2182		MB				
17	0.2115	0.1493	1	0.4098	**3.3353**	14.38%	3.0000	0.3266	0.7117	1.0563	689884004.1	DUP	43.4%	1.8514		
18	0.9478	0.6691	1	1.7242	**105.3508**	6.66%	27.3000	0.9597	7.2592	20.5003	689884004.1	MS			136.1842	75.8%
19	0.0864	0.0610	1	0.2006	**27.8112**	7.10%	35.3667	1.0868	1.6750	5.5761		LCS			27.2252	102.2%

Continuing Calibration Data

Ludlum Alpha Scintillation Counter Checks for 05-NOV-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	08:20	1	1.08E+05	107991	-2.18		
LUCAS2	EFF	08:24	1	1.30E+05	130140	2.12		
LUCAS3	EFF	08:18	1	93499	93499	0.42		
LUCAS4	EFF	07:57	1	1.23E+05	122840	-1.21		
LUCAS5	EFF	10:08	1	1.28E+05	127865	-0.05		
LUCAS6	EFF	08:02	1	1.27E+05	126857	-1.62		
LUCAS7	EFF	08:03	1	1.32E+05	131681	2.85		
LUCAS8	EFF	08:06	1	1.33E+05	132951	1.95		

Reviewed by: **Date:** 05-NOV-24

Elizabeth Krouse

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR **Batch ID: 2688572**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
689884004	SAMPLE	MJ2	LUCAS5	NOV-05-24 09:34:00	DONE	Lucas Cell	12-JUN-24 00:00
689884005	SAMPLE	MJ2	LUCAS6	NOV-05-24 09:34:00	DONE	Lucas Cell	16-JUL-24 00:00
689884006	SAMPLE	MJ2	LUCAS7	NOV-05-24 09:34:00	DONE	Lucas Cell	01-NOV-24 00:00
689884007	SAMPLE	MJ2	LUCAS8	NOV-05-24 09:34:00	DONE	Lucas Cell	01-APR-24 00:00
690127001	SAMPLE	MJ2	LUCAS1	NOV-05-24 10:10:00	DONE	Lucas Cell	01-MAY-24 00:00
690127002	SAMPLE	MJ2	LUCAS2	NOV-05-24 10:10:00	DONE	Lucas Cell	14-AUG-24 00:00
690127003	SAMPLE	MJ2	LUCAS3	NOV-05-24 10:10:00	DONE	Lucas Cell	01-NOV-24 00:00
690127004	SAMPLE	MJ2	LUCAS4	NOV-05-24 10:10:00	DONE	Lucas Cell	01-FEB-24 00:00
690127005	SAMPLE	MJ2	LUCAS5	NOV-05-24 10:10:00	DONE	Lucas Cell	12-JUN-24 00:00
690127006	SAMPLE	MJ2	LUCAS6	NOV-05-24 10:10:00	DONE	Lucas Cell	16-JUL-24 00:00
690127007	SAMPLE	MJ2	LUCAS7	NOV-05-24 10:10:00	DONE	Lucas Cell	01-NOV-24 00:00
690127008	SAMPLE	MJ2	LUCAS8	NOV-05-24 10:10:00	DONE	Lucas Cell	01-APR-24 00:00
690127009	SAMPLE	MJ2	LUCAS1	NOV-05-24 10:43:00	DONE	Lucas Cell	01-MAY-24 00:00
690127010	SAMPLE	MJ2	LUCAS2	NOV-05-24 10:43:00	DONE	Lucas Cell	14-AUG-24 00:00
690127011	SAMPLE	MJ2	LUCAS3	NOV-05-24 10:43:00	DONE	Lucas Cell	01-NOV-24 00:00
1205887867	DUP	MJ2	LUCAS5	NOV-05-24 10:43:00	DONE	Lucas Cell	12-JUN-24 00:00
1205887869	LCS	MJ2	LUCAS7	NOV-05-24 10:43:00	DONE	Lucas Cell	01-NOV-24 00:00
1205887866	MB	MJ2	LUCAS4	NOV-05-24 13:58:00	DONE	Lucas Cell	01-FEB-24 00:00
1205887868	MS	MJ2	LUCAS6	NOV-05-24 13:58:00	DONE	Lucas Cell	16-JUL-24 00:00

Analytical Laboratory Report

Report ID: S67209.01(01)
Generated on 10/21/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Report produced by

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Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S67209.01-S67209.06
Project: Erickson Wells T1-MNA
Collected Date(s): 10/09/2024
Submitted Date/Time: 10/10/2024 09:24
Sampled by: Julie Maltby / Marc Wahrer
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM3500FeB/HACH81	Standard Method 3500 Fe B 2011 / HACH Method 8146
SM4500-S2 D	Standard Method 4500 S2 D 2011
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Analytical Laboratory Report

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S67209.01	MW-2 L410224-01	Groundwater	10/09/24 14:33
S67209.02	MW-3 L410224-02	Groundwater	10/09/24 15:54
S67209.03	MW-5 L410224-03	Groundwater	10/09/24 16:30
S67209.04	MW-6 L410224-04	Groundwater	10/09/24 13:18
S67209.05	MW-7 L410224-05	Groundwater	10/09/24 14:43
S67209.06	MW-14 L410224-06	Groundwater	10/09/24 12:08

Analytical Laboratory Report

Lab Sample ID: S67209.01
Sample Tag: MW-2 L410224-01
Collected Date/Time: 10/09/2024 14:33
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	4.8	IR
2	125mL Plastic	None	Yes	4.8	IR
1	125mL Plastic	NaOH	Yes	4.8	IR
2	40mL Glass	HCL	Yes	4.8	IR
2	40mL Glass	H2SO4	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	

Inorganics

Method: , Run Date: 10/18/24 01:55, Analyst: EF

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	Completed				1		O

Method: E300.0, Run Date: 10/10/24 21:39, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	0.05	0.10	0.009	mg/L	1	14797-55-8	b

Method: E300.0, Run Date: 10/10/24 19:26, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrite-N*	Not detected	0.25	0.013	mg/L	2.5	14797-65-0	

Method: SM3500FeB/HACH81, Run Date: 10/16/24 15:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	0.32	0.02	0.010	mg/L	1	15438-31-0	

Method: SM4500-S2 D, Run Date: 10/11/24 17:20, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.04	0.01	mg/L	2	18496-25-8	

Metals

Method: E200.8, Run Date: 10/18/24 13:59, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	Not detected	0.02	0.0142	mg/L	5	7439-89-6	f

Method: E200.8, Run Date: 10/18/24 13:57, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum	0.161	0.010	0.00690	mg/L	5	7429-90-5	
Manganese	1.44	0.010	0.00125	mg/L	5	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Analytical Laboratory Report

Lab Sample ID: S67209.02
Sample Tag: MW-3 L410224-02
Collected Date/Time: 10/09/2024 15:54
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	4.8	IR
2	125mL Plastic	None	Yes	4.8	IR
1	125mL Plastic	NaOH	Yes	4.8	IR
2	40mL Glass	HCL	Yes	4.8	IR
2	40mL Glass	H2SO4	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	

Inorganics

Method: , Run Date: 10/18/24 03:33, Analyst: EF

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	Completed				1		O

Method: E300.0, Run Date: 10/10/24 19:39, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	0.05	0.25	0.023	mg/L	2.5	14797-55-8	b
Nitrite-N*	Not detected	0.25	0.013	mg/L	2.5	14797-65-0	

Method: SM3500FeB/HACH81, Run Date: 10/16/24 16:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	1.22	0.02	0.010	mg/L	1	15438-31-0	

Method: SM4500-S2 D, Run Date: 10/11/24 17:22, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.04	0.01	mg/L	2	18496-25-8	

Metals

Method: E200.8, Run Date: 10/18/24 14:07, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	Not detected	0.02	0.0142	mg/L	5	7439-89-6	f

Method: E200.8, Run Date: 10/18/24 14:04, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum	0.011	0.010	0.00690	mg/L	5	7429-90-5	
Manganese	0.184	0.010	0.00125	mg/L	5	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Analytical Laboratory Report

Lab Sample ID: S67209.03
Sample Tag: MW-5 L410224-03
Collected Date/Time: 10/09/2024 16:30
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	4.8	IR
2	125mL Plastic	None	Yes	4.8	IR
1	125mL Plastic	NaOH	Yes	4.8	IR
2	40mL Glass	HCL	Yes	4.8	IR
2	40mL Glass	H2SO4	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	

Inorganics

Method: , Run Date: 10/18/24 04:05, Analyst: EF

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	Completed				1		O

Method: E300.0, Run Date: 10/10/24 20:59, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	0.04	0.10	0.009	mg/L	1	14797-55-8	b
Nitrite-N*	Not detected	0.10	0.005	mg/L	1	14797-65-0	

Method: SM3500FeB/HACH81, Run Date: 10/16/24 16:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	0.15	0.02	0.010	mg/L	1	15438-31-0	

Method: SM4500-S2 D, Run Date: 10/11/24 17:24, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.011	0.04	0.01	mg/L	2	18496-25-8	b

Metals

Method: E200.8, Run Date: 10/18/24 14:12, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	Not detected	0.02	0.0142	mg/L	5	7439-89-6	f

Method: E200.8, Run Date: 10/18/24 14:09, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum	0.603	0.010	0.00690	mg/L	5	7429-90-5	
Manganese	0.028	0.010	0.00125	mg/L	5	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Analytical Laboratory Report

Lab Sample ID: S67209.04
Sample Tag: MW-6 L410224-04
Collected Date/Time: 10/09/2024 13:18
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	4.8	IR
2	125mL Plastic	None	Yes	4.8	IR
1	125mL Plastic	NaOH	Yes	4.8	IR
2	40mL Glass	HCL	Yes	4.8	IR
2	40mL Glass	H2SO4	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	

Inorganics

Method: , Run Date: 10/18/24 04:38, Analyst: EF

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	Completed				1		O

Method: E300.0, Run Date: 10/10/24 21:09, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	0.19	0.10	0.009	mg/L	1	14797-55-8	

Method: E300.0, Run Date: 10/10/24 19:59, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrite-N*	Not detected	0.25	0.013	mg/L	2.5	14797-65-0	

Method: SM3500FeB/HACH81, Run Date: 10/16/24 16:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	Not detected	0.02	0.010	mg/L	1	15438-31-0	

Method: SM4500-S2 D, Run Date: 10/11/24 17:26, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.04	0.01	mg/L	2	18496-25-8	

Metals

Method: E200.8, Run Date: 10/18/24 14:15, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	Not detected	0.02	0.0142	mg/L	5	7439-89-6	f

Method: E200.8, Run Date: 10/18/24 14:13, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum	0.012	0.010	0.00690	mg/L	5	7429-90-5	
Manganese	0.020	0.010	0.00125	mg/L	5	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
f-Filtered and preserved in lab

Analytical Laboratory Report

Lab Sample ID: S67209.05
Sample Tag: MW-7 L410224-05
Collected Date/Time: 10/09/2024 14:43
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	4.8	IR
2	125mL Plastic	None	Yes	4.8	IR
1	125mL Plastic	NaOH	Yes	4.8	IR
2	40mL Glass	HCL	Yes	4.8	IR
2	40mL Glass	H2SO4	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	

Inorganics

Method: , Run Date: 10/18/24 05:10, Analyst: EF

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	Completed				1		O

Method: E300.0, Run Date: 10/10/24 21:19, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	0.05	0.10	0.009	mg/L	1	14797-55-8	b

Method: E300.0, Run Date: 10/10/24 20:09, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrite-N*	Not detected	0.25	0.013	mg/L	2.5	14797-65-0	

Method: SM3500FeB/HACH81, Run Date: 10/16/24 16:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	Not detected	0.02	0.010	mg/L	1	15438-31-0	

Method: SM4500-S2 D, Run Date: 10/11/24 17:28, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.038	0.04	0.01	mg/L	2	18496-25-8	b

Metals

Method: E200.8, Run Date: 10/18/24 14:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	Not detected	0.02	0.0142	mg/L	5	7439-89-6	f

Method: E200.8, Run Date: 10/18/24 14:16, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum	Not detected	0.010	0.00690	mg/L	5	7429-90-5	
Manganese	0.209	0.010	0.00125	mg/L	5	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Analytical Laboratory Report

Lab Sample ID: S67209.06
Sample Tag: MW-14 L410224-06
Collected Date/Time: 10/09/2024 12:08
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	4.8	IR
2	125mL Plastic	None	Yes	4.8	IR
1	125mL Plastic	NaOH	Yes	4.8	IR
2	40mL Glass	HCL	Yes	4.8	IR
2	40mL Glass	H2SO4	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	
Metal Digestion	Completed	SW3015A	10/18/24 12:15	CCM	

Inorganics

Method: , Run Date: 10/18/24 05:43, Analyst: EF

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	Completed				1		O

Method: E300.0, Run Date: 10/10/24 21:29, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	0.04	0.10	0.009	mg/L	1	14797-55-8	b

Method: E300.0, Run Date: 10/10/24 20:19, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrite-N*	Not detected	0.25	0.013	mg/L	2.5	14797-65-0	

Method: SM3500FeB/HACH81, Run Date: 10/16/24 16:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	9.15	0.25	0.05	mg/L	5	15438-31-0	

Method: SM4500-S2 D, Run Date: 10/11/24 17:30, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.04	0.01	mg/L	2	18496-25-8	

Metals

Method: E200.8, Run Date: 10/18/24 14:21, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	0.03	0.02	0.0142	mg/L	5	7439-89-6	f

Method: E200.8, Run Date: 10/18/24 14:20, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aluminum	0.152	0.010	0.00690	mg/L	5	7429-90-5	
Manganese	0.506	0.010	0.00125	mg/L	5	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Merit Laboratories Login Checklist

Lab Set ID: S67209
Client: BWL01 (Board of Water & Light)
Project: Erickson Wells T1-MNA
Submitted: 10/10/2024 09:24 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.8
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[X] Yes	[ ] No	[ ] N/A	Subcontracting needed? Subcontacted to:	Eurofins
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[X] Yes	[ ] No	[ ] N/A	Did any samples need to be preserved in the lab?	Diss metals
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[X] Yes	[ ] No	[ ] N/A	Samples require laboratory filtration	Diss metals
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S67209 Submitted: 10/10/2024 09:24

Client: BWL01 (Board of Water & Light)

Project: Erickson Wells T1-MNA

Initial Preservation Check: 10/10/2024 10:08 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S67209.01	125mL Plastic HNO3	<2			
S67209.01	125mL Plastic NaOH	>12			
S67209.02	125mL Plastic HNO3	<2			
S67209.02	125mL Plastic NaOH	>12			
S67209.03	125mL Plastic HNO3	<2			
S67209.03	125mL Plastic NaOH	>12			
S67209.04	125mL Plastic HNO3	<2			
S67209.04	125mL Plastic NaOH	>12			
S67209.05	125mL Plastic HNO3	<2			
S67209.05	125mL Plastic NaOH	>12			
S67209.06	125mL Plastic HNO3	<2			
S67209.06	125mL Plastic NaOH	>12			

Merit Laboratories, Inc
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing STATE: Mi ZIP CODE: 48901
PHONE NO.: 517-702-6372 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Wells T1-MNA
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Marc Wahrer ; Julie Maltby

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☒LEVEL III ☐LEVEL IV ☒EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☒NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TOC SM5310C	Al, Mn Total	Ferrouse Iron	NO2-N, NO3-N	Fe Dissolved	Sulfide SM4500-S2 D	Ferric Iron Calculated	Special Instructions
67209.01	10.9.24	1433	MW-2 L410224-01	GW	8	2	2	1	2	1			✓	✓	✓	✓	✓	✓	✓	
.02		1554	MW-3 -02		8	2	2	1	2	1			✓	✓	✓	✓	✓	✓	✓	See other side for DL
.03		1630	MW-5 -03		8	2	2	1	2	1			✓	✓	✓	✓	✓	✓	✓	
.04		1318	MW-6 -04		8	2	2	1	2	1			✓	✓	✓	✓	✓	✓	✓	
.05		1443	MW-7 -05		8	2	2	1	2	1			✓	✓	✓	✓	✓	✓	✓	
.06		1208	MW-14 -06		8	2	2	1	2	1			✓	✓	✓	✓	✓	✓	✓	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	of Sampler	DATE 10-10-24	TIME 0924
RECEIVED BY: SIGNATURE/ORGANIZATION	M Allcott	DATE 10/10/24	TIME 0924
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 4.8

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Detection Limits to go to Merit with COC

TOC - 1.0mg/L
Nitrate and Nitrite - 0.1mg/L
Sulfide and Ferrous Iron - 0.02 mg/L
Iron, Aluminum and Manganese metals - 0.01mg/L

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Lab Results
Merit Laboratories
2680 E Lansing Drive
East Lansing, Michigan 48823

Generated 10/21/2024 8:11:20 AM

JOB DESCRIPTION

S67209

JOB NUMBER

190-35491-1

Eurofins Michigan
10448 Citation Drive
Suite 200
Brighton MI 48116

See page two for job notes and contact information.

myEOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization

Generated
10/21/2024 8:11:20 AM

Authorized for release by
Sue Schafer, Project Manager II
Sue.Schafer@et.eurofinsus.com
(810)229-2763

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Sample Summary

Client: Merit Laboratories
Project/Site: S67209

Job ID: 190-35491-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-35491-1	S67209.01	Water	10/09/24 14:33	10/11/24 11:19
190-35491-2	S67209.02	Water	10/09/24 15:54	10/11/24 11:19
190-35491-3	S67209.03	Water	10/09/24 16:30	10/11/24 11:19
190-35491-4	S67209.04	Water	10/09/24 13:18	10/11/24 11:19
190-35491-5	S67209.05	Water	10/09/24 14:43	10/11/24 11:19
190-35491-6	S67209.06	Water	10/09/24 12:08	10/11/24 11:19

Job ID: 190-35491-1 — Eurofins Michigan

Job Narrative
190-35491-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/11/2024 11:19 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 15.7°C.

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Merit Laboratories
Project/Site: S67209

Job ID: 190-35491-1

Client Sample ID: S67209.01
Lab Sample ID: 190-35491-1
Date Collected: 10/09/24 14:33
Matrix: Water
Date Received: 10/11/24 11:19

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SM 5310C-2011)	3.9		1.0		mg/L			10/18/24 01:55	1

Client Sample ID: S67209.02
Lab Sample ID: 190-35491-2
Date Collected: 10/09/24 15:54
Matrix: Water
Date Received: 10/11/24 11:19

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SM 5310C-2011)	1.8		1.0		mg/L			10/18/24 03:33	1

Client Sample ID: S67209.03
Lab Sample ID: 190-35491-3
Date Collected: 10/09/24 16:30
Matrix: Water
Date Received: 10/11/24 11:19

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SM 5310C-2011)	1.1		1.0		mg/L			10/18/24 04:05	1

Client Sample ID: S67209.04
Lab Sample ID: 190-35491-4
Date Collected: 10/09/24 13:18
Matrix: Water
Date Received: 10/11/24 11:19

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SM 5310C-2011)	2.2		1.0		mg/L			10/18/24 04:38	1

Client Sample ID: S67209.05
Lab Sample ID: 190-35491-5
Date Collected: 10/09/24 14:43
Matrix: Water
Date Received: 10/11/24 11:19

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SM 5310C-2011)	4.9		1.0		mg/L			10/18/24 05:10	1

Client Sample ID: S67209.06
Lab Sample ID: 190-35491-6
Date Collected: 10/09/24 12:08
Matrix: Water
Date Received: 10/11/24 11:19

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SM 5310C-2011)	16		1.0		mg/L			10/18/24 05:43	1

Client: Merit Laboratories
Project/Site: S67209

Job ID: 190-35491-1

Method: 5310C-2011 - Total Organic Carbon/Persulfate - Ultrav

Lab Sample ID: MB 240-631537/5
Matrix: Water
Analysis Batch: 631537

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<1.0		1.0		mg/L			10/17/24 21:30	1

Lab Sample ID: LCS 240-631537/6
Matrix: Water
Analysis Batch: 631537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Organic Carbon			26.6	25.7		mg/L		97	85 - 115		
TOC Result 1			26.6	25.2		mg/L		95	85 - 115		
TOC Result 2			26.6	25.6		mg/L		96	85 - 115		

Client: Merit Laboratories
Project/Site: S67209

Job ID: 190-35491-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: Merit Laboratories
Project/Site: S67209

Job ID: 190-35491-1

General Chemistry

Analysis Batch: 631537

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-35491-1	S67209.01	Total/NA	Water	5310C-2011	
190-35491-2	S67209.02	Total/NA	Water	5310C-2011	
190-35491-3	S67209.03	Total/NA	Water	5310C-2011	
190-35491-4	S67209.04	Total/NA	Water	5310C-2011	
190-35491-5	S67209.05	Total/NA	Water	5310C-2011	
190-35491-6	S67209.06	Total/NA	Water	5310C-2011	
MB 240-631537/5	Method Blank	Total/NA	Water	5310C-2011	
LCS 240-631537/6	Lab Control Sample	Total/NA	Water	5310C-2011	

Lab Chronicle

Client: Merit Laboratories
Project/Site: S67209

Job ID: 190-35491-1

Client Sample ID: S67209.01
Lab Sample ID: 190-35491-1
Date Collected: 10/09/24 14:33
Matrix: Water
Date Received: 10/11/24 11:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631537	JWW	EET CLE	10/18/24 01:55

Client Sample ID: S67209.02
Lab Sample ID: 190-35491-2
Date Collected: 10/09/24 15:54
Matrix: Water
Date Received: 10/11/24 11:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631537	JWW	EET CLE	10/18/24 03:33

Client Sample ID: S67209.03
Lab Sample ID: 190-35491-3
Date Collected: 10/09/24 16:30
Matrix: Water
Date Received: 10/11/24 11:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631537	JWW	EET CLE	10/18/24 04:05

Client Sample ID: S67209.04
Lab Sample ID: 190-35491-4
Date Collected: 10/09/24 13:18
Matrix: Water
Date Received: 10/11/24 11:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631537	JWW	EET CLE	10/18/24 04:38

Client Sample ID: S67209.05
Lab Sample ID: 190-35491-5
Date Collected: 10/09/24 14:43
Matrix: Water
Date Received: 10/11/24 11:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631537	JWW	EET CLE	10/18/24 05:10

Client Sample ID: S67209.06
Lab Sample ID: 190-35491-6
Date Collected: 10/09/24 12:08
Matrix: Water
Date Received: 10/11/24 11:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631537	JWW	EET CLE	10/18/24 05:43

Client Sample ID: Method Blank
Lab Sample ID: MB 240-631537/5
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631537	JWW	EET CLE	10/17/24 21:30

Lab Chronicle

Client: Merit Laboratories
Project/Site: S67209

Job ID: 190-35491-1

Client Sample ID: Lab Control Sample

Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCS 240-631537/6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5310C-2011		1	631537	JWW	EET CLE	10/17/24 22:03

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Analyst References:

Lab: EET CLE

Batch Type: Analysis

JWW = Joshua Weimer

Accreditation/Certification Summary

Client: Merit Laboratories
Project/Site: S67209

Job ID: 190-35491-1

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-28-25
Connecticut	State	PH-0806	12-31-26
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	08-31-25
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Hampshire	NELAP	225024	09-30-25
New Jersey	NELAP	OH001	07-03-25
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-25
Texas	NELAP	T104704517-22-19	08-31-25
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-25
West Virginia DEP	State	210	12-31-24

Method Summary

Client: Merit Laboratories
Project/Site: S67209

Job ID: 190-35491-1

Method	Method Description	Protocol	Laboratory
5310C-2011	Total Organic Carbon/Persulfate - Ultrav	SM	EET CLE

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

MICHIGAN
Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Results@meritlabs.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: S67209 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☒ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TOC RL 1.0 mg/L
	10/9/24	1433	S67209.01	GW	2				2				✓
	10/9/24	1554	S67209.02	GW	2				2				✓
	10/9/24	1630	S67209.03	GW	2				2				✓
	10/9/24	1318	S67209.04	GW	2				2				✓
	10/9/24	1443	S67209.05	GW	2				2				✓
	10/9/24	1208	S67209.06	GW	2				2				✓

Special Instructions:
W=Water
Method SM5310C

** Subcontracted to Eurofins

90-35491 Chain of Custody

RELINQUISHED BY: SIGNATURE/ORGANIZATION M Clifford ☐ Sampler	DATE 10/10/24	TIME 1330	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME	
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 10/10/24	TIME 1440	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE 10/10/24	TIME 1440	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 10/11/24	TIME 1140	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

eurofins | Environment Testing TestAmerica

☐ SDS or Known Hazard Information Supplied by Client
☐ Discrepancies
☐ Short Hold
☐ Rush ☐ 24 Hr ☐ 2-Day ☐ 3-Day ☐ 5-Day ☐ Other: _____

Client ID: Merit Lab.
Work Oder #: 35491

Cooler / Sample Receipt

After hours receipt: complete gray areas. Place cooler in walk-in, place form in Receiving box. Date: _____ Time: _____

Receipt Evaluation Performed by: Initials: FK Date: 10/11/24 Time: 11:19

Method of Shipment:
☒ Walk-In Client ☐ Eurofins TA Field/Courier
☐ Other Client / 3rd Party Courier: _____
Fed Ex Tracking #: _____
UPS Tracking #: _____
Other: _____

Shipping Container Type:
☒ Cooler ☐ Box
☐ None ☐ Other: _____

Custody Seals Intact:
☐ Yes ☐ No
☒ NA (not used or required)

Packing Materials:
☒ Plastic Bags ☐ Foam
☒ Bubble Wrap ☐ Paper
☐ Packing Peanuts ☐ None
☐ Other: _____

Cooling Materials:
☒ Ice (Solid) ☐ Ice (Melted)
☐ Blue Ice ☐ None
☐ Other: _____

Bacteriological Samples	Temp Corrected (°C)	Frozen? Yes	Frozen? No	Rec'd Within 2 Hrs? Yes	Rec'd Within 2 Hrs? No	Sample Flagged? Yes	Sample Flagged? No

Received on same day sampled? Yes (No) Additional Sheets Required? Yes (No)

Receipt Temperatures

Thermometer ID	Observed (°C)	Corrected (°C)	Temp Blank	Sample Temp	Acceptable	Cooler ID	Affected Samples
CP313207	15.7	15.7			__Y __N		
					__Y __N		
					__Y __N		

Receipt Questions**	Y	N	NA	"No" answers require additional comment
CoC present and ETA receipt signature, date, and time properly documented?	✓			
Containers and Labels in good condition? *(unbroken, not leaking, appropriately filled, labels legible & attached)*	✓			
Appropriate containers used and adequate volume provided?	✓			Preserved bottles checked for pH?* Yes No
Number of sample containers match CoC?	✓			pH strip lot # _____
Samples received within hold?	✓			
Samples submitted for GRO and Volatiles analysis (8260, 624, 524) received without headspace?			✓	
Was a Trip Blank received with VOA samples?			✓	
Were the samples free of any questionable physical conformities? (i.e.; field duplicates or multiple bottles of the same sample do not significantly vary in appearance – color, solid proportions, etc.)	✓			
Were the CoC bottle labels and all other items free of all other discrepancies or issues that would need to be addressed with the Project Manager and/or Client?	✓			
**May not be applicable if samples are not for compliance testing				*Excludes FOG, VOAs, TOC Vials, HEM

Client Contact Record

Contact Via: ☐ Phone ☐ Email ☐ Other: _____ Person Contacted: _____ Date/Time: _____
☐ Discrepancy allowance agreement is on record in the client project file

Discussion / Resolution

Any additional documentation and clarification from the client must be noted in the narrative and/or scanned into the CoC directory.

Reviewed by Jelicon Date: 10/11/24

WI-MI-010_020720

Eurofins Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone: 810-229-2763 Fax: 810-229-0000

Chain of Custody Record

0.8/0.9

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schafer, Sue	Carrier Tracking No(s):	COC No: 190-40378.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Sue.Schafer@et.eurofinsus.com	State of Origin: Michigan	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note):		Job #: 190-35491-1
Address: 180 S. Van Buren Avenue, ,	Due Date Requested: 10/24/2024			Preservation Codes:
City: Barberton	TAT Requested (days):			
State, Zip: OH, 44203				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: S67209	Project #: 19001249			
Site:	SSOW#:			Other:

R003

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	5310C/ TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
S67209.01 (190-35491-1)	10/9/24	14:33 Eastern	G	Water			X	2	
S67209.02 (190-35491-2)	10/9/24	15:54 Eastern	G	Water			X	2	
S67209.03 (190-35491-3)	10/9/24	16:30 Eastern	G	Water			X	2	
S67209.04 (190-35491-4)	10/9/24	13:18 Eastern	G	Water			X	2	
S67209.05 (190-35491-5)	10/9/24	14:43 Eastern	G	Water			X	2	
S67209.06 (190-35491-6)	10/9/24	12:08 Eastern	G	Water			X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	10/11/24 12:22 pm	EETA	KATHARINE MÄRTJN	10/12/24 800	EUR
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

10/21/2024

Eurofins – Cleveland Sample Receipt Form/Narrative Login # :
Barberton Facility

Client Eurofins - Michigan Site Name

Cooler Received on 10/12/24 Opened on 10/12/24

Cooler unpacked by: KM

FedEx. 1st Grd Exp UPS FAS (Waypoint) Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used. (Bubble Wrap) Foam Plastic Bag None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 17 (CF +0.1 °C) Observed Cooler Temp. 0.8 °C Corrected Cooler Temp 0.9 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes) No	**Tests that are not checked for pH by Receiving:** VOAs, Oil and Grease, TOC
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes) No NA	
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes (No)	
-Were tamper/custody seals intact and uncompromised?	(Yes) No NA	
3 Shippers' packing slip attached to the cooler(s)?	Yes (No)	
4. Did custody papers accompany the sample(s)?	(Yes) No	
5 Were the custody papers relinquished & signed in the appropriate place?	(Yes) No	
6 Was/were the person(s) who collected the samples clearly identified on the COC?	Yes (No)	
7 Did all bottles arrive in good condition (Unbroken)?	(Yes) No	
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes) No	
9 For each sample, does the COC specify preservatives (Y(N), # of containers (Y/N), and sample type of grab/comp(Y/N)?		
10 Were correct bottle(s) used for the test(s) indicated?	(Yes) No	
11 Sufficient quantity received to perform indicated analyses?	(Yes) No	
12 Are these work share samples and all listed on the COC?	(Yes) No	
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all preserved sample(s) at the correct pH upon receipt?	Yes No NA	pH Strip Lot# HC447997
14. Were VOAs on the COC?	Yes No	
15 Were air bubbles >6 mm in any VOA vials? ● ← Larger than this.	Yes No NA	
16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes No	
17 Was a LL Hg or Me Hg trip blank present?	Yes No	

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container
Sample(s) were received with bubble >6 mm in diameter (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory
Time preserved. Preservative(s) added/Lot number(s).

VOA Sample Preservation - Date/Time VOAs Frozen.

Analytical Laboratory Report

Report ID: S67337.01(01)
Generated on 10/22/2024

Report to

Attention: Molly Reeves
HDR Inc.
1000 Oakbrook Drive, Suite 200
Ann Arbor, MI 48104

Phone: 517-263-7138 FAX:
Email: Molly.Reeves@HDRinc.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S67337.01-S67337.11
Project: BWL - ECDC
Collected Date(s): 10/08/2024 - 10/11/2024
Submitted Date/Time: 10/11/2024 16:39
Sampled by: Tanten Buszka
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2540C	Standard Method 2540 C 2015
SM2540D	Standard Method 2540 D 2015
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Analytical Laboratory Report

Sample Summary (11 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S67337.01	WT-24A	Groundwater	10/11/24 12:15
S67337.02	WT-9B	Groundwater	10/10/24 14:15
S67337.03	WT-9A	Groundwater	10/10/24 13:15
S67337.04	WT-14A	Groundwater	10/10/24 15:30
S67337.05	WT-14B	Groundwater	10/10/24 10:00
S67337.06	WT-10A	Groundwater	10/09/24 17:30
S67337.07	WT-2B	Groundwater	10/09/24 10:30
S67337.08	WT-8A	Groundwater	10/08/24 13:00
S67337.09	WT-13A	Groundwater	10/10/24 10:15
S67337.10	WTT-13A	Groundwater	10/10/24 12:00
S67337.11	EB-1	Groundwater	10/11/24 15:40

Lab Sample ID: S67337.01
Sample Tag: WT-24A
Collected Date/Time: 10/11/2024 12:15
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:05	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 20:28, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	659	50.0		mg/L	50	14808-79-8	

Method: E300.0, Run Date: 10/15/24 16:50, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	45.0	25.0		mg/L	25	16887-00-6	
Fluoride (Undistilled)	Not detected	5.00		mg/L	25	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,390	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3		mg/L	1		

Metals

Method: E200.8, Run Date: 10/22/24 15:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	277	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:16, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	283	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 12:26, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.002	0.002		mg/L	5	7440-38-2	
Barium	0.106	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	1.67	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.01 (continued)
Sample Tag: WT-24A

Method: E200.8, Run Date: 10/22/24 12:26, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	3.65	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.070	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	0.006	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 12:30, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.105	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	1.63	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	2.92	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.071	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.006	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:21, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 14:20, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.02
Sample Tag: WT-9B
Collected Date/Time: 10/10/2024 14:15
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:05	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 20:38, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	1,570	100		mg/L	100	14808-79-8	

Method: E300.0, Run Date: 10/15/24 17:00, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	74.1	25.0		mg/L	25	16887-00-6	
Fluoride (Undistilled)	Not detected	5.00		mg/L	25	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	2,880	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	31.6	10		mg/L	4		

Metals

Method: E200.8, Run Date: 10/22/24 15:21, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	566	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:19, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	592	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 12:33, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Barium	0.061	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	7.42	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.02 (continued)
Sample Tag: WT-9B

Method: E200.8, Run Date: 10/22/24 12:33, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	16.1	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.230	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	0.010	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 12:37, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.056	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	7.06	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.45	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.221	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.009	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:24, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 14:24, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.03
Sample Tag: WT-9A
Collected Date/Time: 10/10/2024 13:15
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:05	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 20:48, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	1,090	100		mg/L	100	14808-79-8	

Method: E300.0, Run Date: 10/15/24 17:10, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	77.3	25.0		mg/L	25	16887-00-6	
Fluoride (Undistilled)	Not detected	5.00		mg/L	25	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	2,280	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	6.44	3		mg/L	1		

Metals

Method: E200.8, Run Date: 10/22/24 15:24, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	445	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	468	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 12:41, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Barium	0.247	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	3.85	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.03 (continued)
Sample Tag: WT-9A

Method: E200.8, Run Date: 10/22/24 12:41, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	4.32	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.205	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	0.006	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 12:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.230	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	3.86	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.11	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.205	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.006	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:27, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 14:27, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.04
Sample Tag: WT-14A
Collected Date/Time: 10/10/2024 15:30
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:05	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 20:59, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	1,480	100		mg/L	100	14808-79-8	

Method: E300.0, Run Date: 10/15/24 17:20, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	96.6	25.0		mg/L	25	16887-00-6	
Fluoride (Undistilled)	Not detected	5.00		mg/L	25	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	2,680	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	16.4	5		mg/L	2		

Metals

Method: E200.8, Run Date: 10/22/24 15:27, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	469	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	494	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 12:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.002	0.002		mg/L	5	7440-38-2	
Barium	0.089	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	4.84	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.04 (continued)
Sample Tag: WT-14A

Method: E200.8, Run Date: 10/22/24 12:47, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	9.68	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.202	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	0.013	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 12:51, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.084	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	4.49	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	1.41	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.193	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.012	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:31, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 14:30, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.05
Sample Tag: WT-14B
Collected Date/Time: 10/10/2024 10:00
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 21:09, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	1,480	100		mg/L	100	14808-79-8	

Method: E300.0, Run Date: 10/15/24 17:30, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	106	25.0		mg/L	25	16887-00-6	
Fluoride (Undistilled)	Not detected	5.00		mg/L	25	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	2,810	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	5.30	3		mg/L	1		

Metals

Method: E200.8, Run Date: 10/22/24 15:45, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	488	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	518	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 13:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Barium	0.116	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	3.48	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.05 (continued)
Sample Tag: WT-14B

Method: E200.8, Run Date: 10/22/24 13:18, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	3.55	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.192	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	0.008	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 13:21, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.112	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	3.39	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.71	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.186	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.008	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:34, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 15:44, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.06
Sample Tag: WT-10A
Collected Date/Time: 10/09/2024 17:30
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 17:40, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	490	25.0		mg/L	25	14808-79-8	

Method: E300.0, Run Date: 10/15/24 20:18, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	39.2	10.0		mg/L	10	16887-00-6	
Fluoride (Undistilled)	Not detected	2.00		mg/L	10	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,410	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	25.4	7		mg/L	2.9		

Metals

Method: E200.8, Run Date: 10/22/24 15:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	297	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	318	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 13:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.009	0.002		mg/L	5	7440-38-2	
Barium	0.056	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	2.62	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.06 (continued)
Sample Tag: WT-10A

Method: E200.8, Run Date: 10/22/24 13:25, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	10.2	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.030	0.005		mg/L	5	7439-93-2	
Molybdenum	0.010	0.005		mg/L	5	7439-98-7	
Nickel	0.015	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	0.005	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 13:28, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.049	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	2.62	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.05	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.030	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	0.009	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.014	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:37, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 15:47, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.07
Sample Tag: WT-2B
Collected Date/Time: 10/09/2024 10:30
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 17:50, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	243	25.0		mg/L	25	16887-00-6	
Fluoride (Undistilled)	Not detected	5.00		mg/L	25	16984-48-8	
Sulfate	447	25.0		mg/L	25	14808-79-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,610	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	40.8	6		mg/L	2.5		

Metals

Method: E200.8, Run Date: 10/22/24 15:51, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	357	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:50, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	386	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 13:32, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.006	0.002		mg/L	5	7440-38-2	
Barium	0.077	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	1.10	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	

Lab Sample ID: S67337.07 (continued)
Sample Tag: WT-2B

Method: E200.8, Run Date: 10/22/24 13:32, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	10.5	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.032	0.005		mg/L	5	7439-93-2	
Molybdenum	0.008	0.005		mg/L	5	7439-98-7	
Nickel	0.006	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	0.006	0.005		mg/L	5	7440-62-2	
Zinc	0.005	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 13:36, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.062	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	1.07	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.02	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.031	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	0.008	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:41, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 15:50, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.08
Sample Tag: WT-8A
Collected Date/Time: 10/08/2024 13:00
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 18:00, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	241	25.0		mg/L	25	14808-79-8	

Method: E300.0, Run Date: 10/15/24 21:19, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	75.9	10.0		mg/L	10	16887-00-6	
Fluoride (Undistilled)	Not detected	2.00		mg/L	10	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	946	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	27.8	5		mg/L	2		

Metals

Method: E200.8, Run Date: 10/22/24 15:54, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	167	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:53, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	173	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 13:41, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.009	0.002		mg/L	5	7440-38-2	
Barium	0.085	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	1.32	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.08 (continued)
Sample Tag: WT-8A

Method: E200.8, Run Date: 10/22/24 13:41, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	0.008	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	0.013	0.005		mg/L	5	7440-50-8	
Iron	8.68	0.02		mg/L	5	7439-89-6	
Lead	0.004	0.003		mg/L	5	7439-92-1	
Lithium*	0.024	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	0.012	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	0.0032	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	0.009	0.005		mg/L	5	7440-62-2	
Zinc	0.022	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 13:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	0.002	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.046	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	1.29	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.84	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.021	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.008	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	0.005	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:44, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 15:54, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.09
Sample Tag: WT-13A
Collected Date/Time: 10/10/2024 10:15
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 18:10, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	423	25.0		mg/L	25	14808-79-8	

Method: E300.0, Run Date: 10/15/24 21:29, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	32.9	10.0		mg/L	10	16887-00-6	
Fluoride (Undistilled)	Not detected	2.00		mg/L	10	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,290	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	28.0	3		mg/L	1		

Metals

Method: E200.8, Run Date: 10/22/24 15:58, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	243	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:56, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	257	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 13:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.017	0.002		mg/L	5	7440-38-2	
Barium	0.044	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	1.90	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.09 (continued)
Sample Tag: WT-13A

Method: E200.8, Run Date: 10/22/24 13:47, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	17.9	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.034	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 13:50, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	0.002	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.035	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	1.82	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.10	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.033	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:47, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 15:57, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.10
Sample Tag: WTT-13A
Collected Date/Time: 10/10/2024 12:00
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 10:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 10:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 18:21, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	420	25.0		mg/L	25	14808-79-8	

Method: E300.0, Run Date: 10/15/24 21:39, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	32.8	10.0		mg/L	10	16887-00-6	
Fluoride (Undistilled)	Not detected	2.00		mg/L	10	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,290	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	20.3	3		mg/L	1.3		

Metals

Method: E200.8, Run Date: 10/22/24 15:06, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	268	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:01, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	281	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 11:37, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.016	0.002		mg/L	5	7440-38-2	
Barium	0.044	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	1.86	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.10 (continued)
Sample Tag: WTT-13A

Method: E200.8, Run Date: 10/22/24 11:37, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	18.0	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.035	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 11:42, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	0.002	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.034	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	1.79	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.10	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.033	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 13:10, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 16:00, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Analytical Laboratory Report

Lab Sample ID: S67337.11
Sample Tag: EB-1
Collected Date/Time: 10/11/2024 15:40
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 21:49, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	Not detected	5.0		mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.00		mg/L	5	16984-48-8	
Sulfate	Not detected	5.0		mg/L	5	14808-79-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3		mg/L	1		

Metals

Method: E200.8, Run Date: 10/22/24 12:20, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	2	7440-36-0	
Arsenic	Not detected	0.002		mg/L	2	7440-38-2	
Barium	Not detected	0.005		mg/L	2	7440-39-3	
Beryllium	Not detected	0.001		mg/L	2	7440-41-7	
Boron	Not detected	0.04		mg/L	2	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	2	7440-43-9	
Chromium	Not detected	0.005		mg/L	2	7440-47-3	
Cobalt	Not detected	0.005		mg/L	2	7440-48-4	
Copper	Not detected	0.005		mg/L	2	7440-50-8	
Iron	Not detected	0.02		mg/L	2	7439-89-6	
Lead	Not detected	0.003		mg/L	2	7439-92-1	
Lithium*	Not detected	0.005		mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	2	7439-98-7	
Nickel	Not detected	0.005		mg/L	2	7440-02-0	
Selenium	Not detected	0.005		mg/L	2	7782-49-2	
Silver	Not detected	0.0005		mg/L	2	7440-22-4	
Thallium	Not detected	0.002		mg/L	2	7440-28-0	

Lab Sample ID: S67337.11 (continued)
Sample Tag: EB-1

Method: E200.8, Run Date: 10/22/24 12:20, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005		mg/L	2	7440-62-2	
Zinc	Not detected	0.005		mg/L	2	7440-66-6	

Method: E200.8, Run Date: 10/22/24 12:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	2	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	2	7440-38-2	
Barium, Dissolved	Not detected	0.005		mg/L	2	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	2	7440-41-7	
Boron, Dissolved	Not detected	0.04		mg/L	2	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	2	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	2	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	2	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	2	7440-50-8	
Iron, Dissolved	Not detected	0.02		mg/L	2	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	2	7439-92-1	
Lithium, Dissolved*	Not detected	0.005		mg/L	2	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	2	7439-98-7	
Nickel, Dissolved	Not detected	0.005		mg/L	2	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	2	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	2	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	2	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	2	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	2	7440-66-6	

Method: E200.8, Run Date: 10/22/24 15:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	Not detected	0.50		mg/L	2	7440-70-2	
Calcium*	Not detected	0.50		mg/L	2	7440-70-2	

Method: E245.1, Run Date: 10/22/24 13:13, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 16:03, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Merit Laboratories Login Checklist

Lab Set ID: S67337
Client: HDR (HDR Inc.)
Project: BWL - ECDC
Submitted: 10/11/2024 16:39 Login User: MMC

Attention: Molly Reeves
Address: HDR Inc.
1000 Oakbrook Drive, Suite 200
Ann Arbor, MI 48104

Phone: 517-263-7138 FAX:
Email: Molly.Reeves@HDRinc.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.6
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[X] Yes	[ ] No	[ ] N/A	Did any samples need to be preserved in the lab?	Diss metals
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[X] Yes	[ ] No	[ ] N/A	Samples require laboratory filtration	Diss metals
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S67337 Submitted: 10/11/2024 16:39

Client: HDR (HDR Inc.)

Project: BWL - ECDC

Initial Preservation Check: 10/11/2024 17:09 MMC

Preservation Recheck (E200.8): N/A

Attention: Molly Reeves
Address: HDR Inc.
1000 Oakbrook Drive, Suite 200
Ann Arbor, MI 48104

Phone: 517-263-7138 FAX:
Email: Molly.Reeves@HDRinc.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S67337.01	125mL Plastic HNO3	<2			
S67337.02	125mL Plastic HNO3	<2			
S67337.03	125mL Plastic HNO3	<2			
S67337.04	125mL Plastic HNO3	<2			
S67337.05	125mL Plastic HNO3	<2			
S67337.06	125mL Plastic HNO3	<2			
S67337.07	125mL Plastic HNO3	<2			
S67337.08	125mL Plastic HNO3	<2			
S67337.09	125mL Plastic HNO3	<2			
S67337.10	125mL Plastic HNO3	<2			
S67337.11	125mL Plastic HNO3	<2			

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

175380

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Molly Reeves
COMPANY: HDR. Inc Ann Arbor
ADDRESS: 1000 Oakbrook Dr
CITY: Ann Arbor STATE: MI ZIP CODE: 48104
PHONE NO.: 734-263-7188 CELL NO.: P.O. NO.:
E-MAIL ADDRESS: Molly.Reeves@HDRinc.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Cheryl. Louden ☐ SAME
COMPANY: LBWL
ADDRESS: on File
CITY: STATE: ZIP CODE:
PHONE NO.: 517-763-1465 E-MAIL ADDRESS:

PROJECT NO./NAME: BWL - ECDL
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Tanten Beszka

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ LEVEL II ☐ LEVEL III ☒ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OEHS VAP ☐ Drinking Water ☐ Dod ☐ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	LCR App III metals	LCR App IV metals	TDS, TSS, Sulfate	Diss App III + IV metals	Antimony, Arsenic,	Barium, Beryllium	Boron, Cadmium, Calcium	Chloride, Chromium, Cobalt,	Copper, Fluoride, Iron, Lead,	Lithium, Mercury, Molybdenum,	Nickel, Selenium, Silver,	Thallium, Vanadium, Zinc
67337.01	10/11/24	12:15	WT-24A	GW	4	3		1																
.02	10/10/24	14:15	WT-9B																					
.03	10/10/24	13:15	WT-9A																					
.04	10/10/24	15:30	WT-14A																					
.05	10/10/24	16:00	WT-14B																					
.06	10/9/24	17:30	WT-10A																					
.07	10/9/24	10:30	WT-2B																					
.08	10/8/24	13:00	WT-8A																					
.09	10/10/24	10:15	WT-13A																					
.10	10/10/24	12:00	WTF-13A																					
.11	10/11/24	15:40	EB-1																					

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 10-11-24	TIME 16:39
RECEIVED BY: SIGNATURE/ORGANIZATION Johanna Murray		DATE 10/11/24	TIME 1639
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 5.6

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 05/24

Analytical Laboratory Report

Report ID: S67952.01(01)
Generated on 11/07/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S67952.01-S67952.10
Project: Erickson Wells T1-MNA-Fe Calculation
Collected Date(s): 10/29/2024
Submitted Date/Time: 10/30/2024 09:05
Sampled by: Unknown
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
Calculation	Calculation
E200.8	EPA Method 200.8 Revision 5.4
SM3500FeB/HACH81	Standard Method 3500 Fe B 2011 / HACH Method 8146
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (10 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S67952.01	MW-2 L410271-01	Groundwater	10/29/24 15:59
S67952.02	MW-3 L410271-02	Groundwater	10/29/24 11:22
S67952.03	MW-5 L410271-03	Groundwater	10/29/24 12:50
S67952.04	MW-7 L410271-04	Groundwater	10/29/24 13:52
S67952.05	MW-14 L410271-05	Groundwater	10/29/24 08:22
S67952.06	MW-17A L410271-06	Groundwater	10/29/24 11:00
S67952.07	MW-18A L410271-07	Groundwater	10/29/24 12:28
S67952.08	MW-6 L410271-08	Groundwater	10/29/24 09:47
S67952.09	MWT-17 L410271-09	Groundwater	10/29/24 11:00
S67952.10	Field Blank L410271-10	Water	10/29/24 08:10

Analytical Laboratory Report

Lab Sample ID: S67952.01
Sample Tag: MW-2 L410271-01
Collected Date/Time: 10/29/2024 15:59
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	6.0	IR
2	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/31/24 10:10	CCM	

Inorganics

Method: Calculation, Run Date: 11/07/24 14:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferric Iron, Dissolved*	0.04	0.02	0.010	mg/L	1		

Method: SM3500FeB/HACH81, Run Date: 11/07/24 14:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	0.17	0.02	0.010	mg/L	1	15438-31-0	

Metals

Method: E200.8, Run Date: 10/31/24 12:12, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	0.21	0.02	0.0142	mg/L	5	7439-89-6	

Analytical Laboratory Report

Lab Sample ID: S67952.02
Sample Tag: MW-3 L410271-02
Collected Date/Time: 10/29/2024 11:22
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	6.0	IR
2	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/31/24 10:10	CCM	

Inorganics

Method: Calculation, Run Date: 11/07/24 14:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferric Iron, Dissolved*	0.22	0.02	0.010	mg/L	1		

Method: SM3500FeB/HACH81, Run Date: 11/07/24 14:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	1.47	0.02	0.010	mg/L	1	15438-31-0	

Metals

Method: E200.8, Run Date: 10/31/24 12:15, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	1.69	0.02	0.0142	mg/L	5	7439-89-6	

Analytical Laboratory Report

Lab Sample ID: S67952.03
Sample Tag: MW-5 L410271-03
Collected Date/Time: 10/29/2024 12:50
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	6.0	IR
2	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/31/24 10:10	CCM	

Inorganics

Method: Calculation, Run Date: 11/07/24 14:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferric Iron, Dissolved*	Not detected	0.02	0.010	mg/L	1		

Method: SM3500FeB/HACH81, Run Date: 11/07/24 14:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	Not detected	0.02	0.010	mg/L	1	15438-31-0	

Metals

Method: E200.8, Run Date: 10/31/24 12:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	Not detected	0.02	0.0142	mg/L	5	7439-89-6	

Analytical Laboratory Report

Lab Sample ID: S67952.04
Sample Tag: MW-7 L410271-04
Collected Date/Time: 10/29/2024 13:52
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	6.0	IR
2	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/31/24 10:10	CCM	

Inorganics

Method: Calculation, Run Date: 11/07/24 14:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferric Iron, Dissolved*	0.18	0.02	0.010	mg/L	1		

Method: SM3500FeB/HACH81, Run Date: 11/07/24 14:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	1.20	0.02	0.010	mg/L	1	15438-31-0	

Metals

Method: E200.8, Run Date: 10/31/24 12:19, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	1.38	0.02	0.0142	mg/L	5	7439-89-6	

Analytical Laboratory Report

Lab Sample ID: S67952.05
Sample Tag: MW-14 L410271-05
Collected Date/Time: 10/29/2024 08:22
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	6.0	IR
2	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/31/24 10:10	CCM	

Inorganics

Method: Calculation, Run Date: 11/07/24 14:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferric Iron, Dissolved*	0.90	0.1	0.05	mg/L	5		

Method: SM3500FeB/HACH81, Run Date: 11/07/24 14:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	13.8	0.1	0.05	mg/L	5	15438-31-0	

Metals

Method: E200.8, Run Date: 10/31/24 12:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	14.7	0.02	0.0142	mg/L	5	7439-89-6	

Analytical Laboratory Report

Lab Sample ID: S67952.06
Sample Tag: MW-17A L410271-06
Collected Date/Time: 10/29/2024 11:00
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	6.0	IR
2	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/31/24 10:10	CCM	

Inorganics

Method: Calculation, Run Date: 11/07/24 15:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferric Iron, Dissolved*	0.39	0.02	0.010	mg/L	1		

Method: SM3500FeB/HACH81, Run Date: 11/07/24 15:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	2.01	0.02	0.010	mg/L	1	15438-31-0	

Metals

Method: E200.8, Run Date: 10/31/24 12:26, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	2.40	0.02	0.0142	mg/L	5	7439-89-6	

Analytical Laboratory Report

Lab Sample ID: S67952.07
Sample Tag: MW-18A L410271-07
Collected Date/Time: 10/29/2024 12:28
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	6.0	IR
2	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/31/24 10:10	CCM	

Inorganics

Method: Calculation, Run Date: 11/07/24 15:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferric Iron, Dissolved*	0.14	0.02	0.010	mg/L	1		

Method: SM3500FeB/HACH81, Run Date: 11/07/24 15:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	1.95	0.02	0.010	mg/L	1	15438-31-0	

Metals

Method: E200.8, Run Date: 10/31/24 12:28, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	2.09	0.02	0.0142	mg/L	5	7439-89-6	

Analytical Laboratory Report

Lab Sample ID: S67952.08
Sample Tag: MW-6 L410271-08
Collected Date/Time: 10/29/2024 09:47
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	6.0	IR
2	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/31/24 10:10	CCM	

Inorganics

Method: Calculation, Run Date: 11/07/24 15:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferric Iron, Dissolved*	Not detected	0.02	0.010	mg/L	1		

Method: SM3500FeB/HACH81, Run Date: 11/07/24 15:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	Not detected	0.02	0.010	mg/L	1	15438-31-0	

Metals

Method: E200.8, Run Date: 10/31/24 12:32, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	Not detected	0.02	0.0142	mg/L	5	7439-89-6	

Analytical Laboratory Report

Lab Sample ID: S67952.09
Sample Tag: MWT-17 L410271-09
Collected Date/Time: 10/29/2024 11:00
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	6.0	IR
2	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/31/24 10:10	CCM	

Inorganics

Method: Calculation, Run Date: 11/07/24 15:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferric Iron, Dissolved*	0.14	0.02	0.010	mg/L	1		

Method: SM3500FeB/HACH81, Run Date: 11/07/24 15:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	2.15	0.02	0.010	mg/L	1	15438-31-0	

Metals

Method: E200.8, Run Date: 10/31/24 12:33, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	2.29	0.02	0.0142	mg/L	5	7439-89-6	

Analytical Laboratory Report

Lab Sample ID: S67952.10
Sample Tag: Field Blank L410271-10
Collected Date/Time: 10/29/2024 08:10
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	6.0	IR
2	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	10/31/24 10:10	CCM	

Inorganics

Method: Calculation, Run Date: 11/07/24 15:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferric Iron, Dissolved*	Not detected	0.02	0.010	mg/L	1		

Method: SM3500FeB/HACH81, Run Date: 11/07/24 15:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ferrous Iron, Dissolved*	Not detected	0.02	0.010	mg/L	1	15438-31-0	

Metals

Method: E200.8, Run Date: 10/31/24 12:10, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron, Dissolved	Not detected	0.02	0.00568	mg/L	2	7439-89-6	

Merit Laboratories Login Checklist

Lab Set ID: S67952
Client: BWL01 (Board of Water & Light)
Project: Erickson Wells T1-MNA-Fe Calculation
Submitted: 10/30/2024 09:05 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 6.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S67952 Submitted: 10/30/2024 09:05

Client: BWL01 (Board of Water & Light)

Project: Erickson Wells T1-MNA-Fe Calculation

Initial Preservation Check: 10/30/2024 10:37 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S67952.01	125mL Plastic HNO3	<2			
S67952.02	125mL Plastic HNO3	<2			
S67952.03	125mL Plastic HNO3	<2			
S67952.04	125mL Plastic HNO3	<2			
S67952.05	125mL Plastic HNO3	<2			
S67952.06	125mL Plastic HNO3	<2			
S67952.07	125mL Plastic HNO3	<2			
S67952.08	125mL Plastic HNO3	<2			
S67952.09	125mL Plastic HNO3	<2			
S67952.10	125mL Plastic HNO3	<2			

Merit Laboratories, Inc

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www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing STATE: Mi ZIP CODE: 48901
PHONE NO.: 517-702-6372 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Wells T1-MNA-Fe Calculation SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☒ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☒ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Ferrous Iron	Dissolved Fe	Ferric Iron Calculated	Special Instructions
67952.01	10/29/24	1559	MW-2 L410271-01	GW	3		2	1					✓	✓	✓	
.02		1122	MW-3 -02	GW	3		2	1					✓	✓	✓	
.03		1250	MW-5 -03	GW	3		2	1					✓	✓	✓	
.04		1352	MW-7 -04	GW	3		2	1					✓	✓	✓	Please use
.05		0822	MW-14 -05	GW	3		2	1					✓	✓	✓	RL's on back
.06		1100	MW-17A -06	GW	3		2	1					✓	✓	✓	of COC. JSC 10/30/24
.07		1228	MW-18A -07	GW	3		2	1					✓	✓	✓	
.08		0947	MW-6 -08	↓	3		2	1					✓	✓	✓	
.09		1100	MWT-17 ~~Dupe~~ JSC 10/30/24 -09	↓	↓		↓	↓					↓	↓	↓	
.10	↓	0810	Field Blank ↓-10 DI (1)	↓	↓		↓	↓					↓	↓	↓	

RELINQUISHED BY: SIGNATURE/ORGANIZATION: ☒ Sampler	DATE: 10-30-24	TIME: 0905	
RECEIVED BY: SIGNATURE/ORGANIZATION: M Chilcote	DATE: 10/30/24	TIME: 0905	
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME	

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

NOTES: TEMP. ON ARRIVAL: 6.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

(1) JSC 10/28/24

Rev. 5.18.12

Analytical Laboratory Report

Final Report

Report ID: S68521.01(02)
Generated on 12/17/2024
Replaces report S68521.01(01) generated on 11/19/2024

Report to

Attention: Jennifer Caporale
Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Report produced by

Merit Laboratories, Inc.
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Report Summary

Lab Sample ID(s): S68521.01-S68521.11
Project: Erickson Wellfield
Collected Date(s): 11/13/2024
Submitted Date/Time: 11/14/2024 10:05
Sampled by: Julie Maltby / Marc Wahrer
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

All analyses completed

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2320B	Standard Method 2320 B 2021
SM2340C	Standard Method 2340 C 2021
SM2540C	Standard Method 2540 C 2020
SM2540D	Standard Method 2540 D 2020
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (11 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68521.01	MW-17A L411142-01	Groundwater	11/13/24 13:07
S68521.02	MW-17B L411142-02	Groundwater	11/13/24 13:03
S68521.03	MW-17C L411142-03	Groundwater	11/13/24 14:22
S68521.04	MW-17D L411142-04	Groundwater	11/13/24 11:49
S68521.05	MW-17E L411142-05	Groundwater	11/13/24 10:22
S68521.06	MW-18A L411142-06	Groundwater	11/13/24 16:01
S68521.07	MW-18B L411142-07	Groundwater	11/13/24 17:33
S68521.08	MW-18C L411142-08	Groundwater	11/13/24 17:25
S68521.09	MW-18D L411142-09	Groundwater	11/13/24 15:57
S68521.10	MWT-17A L411142-10	Groundwater	11/13/24 13:07
S68521.11	Field Blank L411142-11	Water	11/13/24 08:40

Lab Sample ID: S68521.01
Sample Tag: MW-17A L411142-01
Collected Date/Time: 11/13/2024 13:07
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/18/24 10:07	CTV	
Metal Digestion	Completed	SW3015A	11/15/24 09:50	CCM	

Inorganics

Method: E300.0, Run Date: 11/17/24 20:46, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	68.3	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 11/17/24 17:35, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	0.50	0.065	mg/L	2.5	16984-48-8	

Method: E300.0, Run Date: 11/17/24 20:56, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	656	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 11/20/24 12:21, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	330	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 11/18/24 15:21, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	1,100	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,400	50	0.4	mg/L	2		

Method: SM2540D, Run Date: 11/14/24 15:24, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	13.7	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 11/15/24 11:59, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.002	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.046	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	

Lab Sample ID: S68521.01 (continued)
Sample Tag: MW-17A L411142-01

Method: E200.8, Run Date: 11/15/24 11:59, Analyst: JRH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	4.07	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.05	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.05	0.00080	mg/L	5	7440-50-8	
Iron	7.39	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.059	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.015	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.05	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 11/15/24 15:42, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	244	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	68.6	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	2.65	0.50	0.119	mg/L	5	7440-09-7	
Sodium	48.5	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 11/18/24 14:40, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 12/10/24 11:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S68521.02
Sample Tag: MW-17B L411142-02
Collected Date/Time: 11/13/2024 13:03
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/18/24 10:07	CTV	
Metal Digestion	Completed	SW3015A	11/15/24 09:50	CCM	

Inorganics

Method: E300.0, Run Date: 11/17/24 21:06, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	68.3	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 11/17/24 17:45, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	0.50	0.065	mg/L	2.5	16984-48-8	

Method: E300.0, Run Date: 11/17/24 21:16, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	643	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 11/20/24 12:29, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	320	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 11/18/24 16:14, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	1,110	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,400	50	0.4	mg/L	2		

Method: SM2540D, Run Date: 11/14/24 15:24, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	16.0	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 11/15/24 12:43, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.002	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.044	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	

Lab Sample ID: S68521.02 (continued)
Sample Tag: MW-17B L411142-02

Method: E200.8, Run Date: 11/15/24 12:43, Analyst: JRH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	4.10	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.05	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.05	0.00080	mg/L	5	7440-50-8	
Iron	7.27	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.059	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.018	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.05	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 11/15/24 15:54, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	243	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	67.3	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	2.58	0.50	0.119	mg/L	5	7440-09-7	
Sodium	47.8	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 11/18/24 14:45, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 12/10/24 11:48, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S68521.03
Sample Tag: MW-17C L411142-03
Collected Date/Time: 11/13/2024 14:22
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/18/24 10:07	CTV	
Metal Digestion	Completed	SW3015A	11/15/24 09:50	CCM	

Inorganics

Method: E300.0, Run Date: 11/17/24 21:27, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	74.5	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 11/17/24 17:55, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	0.23	0.50	0.065	mg/L	2.5	16984-48-8	b

Method: E300.0, Run Date: 11/17/24 21:37, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	321	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 11/20/24 12:33, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	220	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 11/18/24 16:18, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	620	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	820	50	0.4	mg/L	2		

Method: SM2540D, Run Date: 11/14/24 15:24, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	4.30	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 11/15/24 12:45, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.002	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.063	0.005	0.00090	mg/L	5	7440-39-3	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S68521.03 (continued)
Sample Tag: MW-17C L411142-03

Method: E200.8, Run Date: 11/15/24 12:45, Analyst: JRH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	1.88	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.05	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.05	0.00080	mg/L	5	7440-50-8	
Iron	2.70	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.094	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.098	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.05	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 11/15/24 15:55, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	120	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	29.8	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	3.83	0.50	0.119	mg/L	5	7440-09-7	
Sodium	82.2	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 11/18/24 14:55, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 12/10/24 11:48, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S68521.04
Sample Tag: MW-17D L411142-04
Collected Date/Time: 11/13/2024 11:49
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/18/24 10:07	CTV	
Metal Digestion	Completed	SW3015A	11/15/24 09:50	CCM	

Inorganics

Method: E300.0, Run Date: 11/17/24 21:47, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	65.9	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 11/17/24 18:05, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	0.27	0.50	0.065	mg/L	2.5	16984-48-8	b

Method: E300.0, Run Date: 11/17/24 21:57, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	315	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 11/20/24 12:41, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	260	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 11/18/24 16:22, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	540	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	828	50	0.4	mg/L	2		

Method: SM2540D, Run Date: 11/14/24 15:24, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	5.60	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 11/15/24 12:48, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.004	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.072	0.005	0.00090	mg/L	5	7440-39-3	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S68521.04 (continued)
Sample Tag: MW-17D L411142-04

Method: E200.8, Run Date: 11/15/24 12:48, Analyst: JRH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	1.67	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.05	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.05	0.00080	mg/L	5	7440-50-8	
Iron	1.98	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.069	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.105	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.05	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 11/15/24 15:56, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	92.5	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	27.9	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	4.05	0.50	0.119	mg/L	5	7440-09-7	
Sodium	122	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 11/18/24 14:59, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 12/10/24 11:48, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S68521.05
Sample Tag: MW-17E L411142-05
Collected Date/Time: 11/13/2024 10:22
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/18/24 10:07	CTV	
Metal Digestion	Completed	SW3015A	11/15/24 09:50	CCM	

Inorganics

Method: E300.0, Run Date: 11/17/24 18:15, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	10.2	2.5	0.040	mg/L	2.5	16887-00-6	
Fluoride (Undistilled)	0.22	0.50	0.065	mg/L	2.5	16984-48-8	b
Sulfate	10.8	2.5	0.148	mg/L	2.5	14808-79-8	

Method: SM2320B, Run Date: 11/20/24 13:16, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	340	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 11/18/24 16:34, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	340	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	316	50	0.4	mg/L	2		

Method: SM2540D, Run Date: 11/14/24 15:24, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	4.20	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 11/15/24 12:50, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.042	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	2.36	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.05	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.05	0.00080	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S68521.05 (continued)
Sample Tag: MW-17E L411142-05

Method: E200.8, Run Date: 11/15/24 12:50, Analyst: JRH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.26	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.033	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.010	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.05	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 11/15/24 16:00, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	46.7	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	15.1	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	8.38	0.50	0.119	mg/L	5	7440-09-7	
Sodium	47.4	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 11/18/24 15:02, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 12/10/24 11:48, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S68521.06
Sample Tag: MW-18A L411142-06
Collected Date/Time: 11/13/2024 16:01
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/18/24 10:07	CTV	
Metal Digestion	Completed	SW3015A	11/15/24 09:50	CCM	

Inorganics

Method: E300.0, Run Date: 11/17/24 18:25, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	2.2	2.5	0.040	mg/L	2.5	16887-00-6	b
Fluoride (Undistilled)	0.89	0.50	0.065	mg/L	2.5	16984-48-8	
Sulfate	0.9	2.5	0.148	mg/L	2.5	14808-79-8	b

Method: SM2320B, Run Date: 11/20/24 15:57, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	430	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 11/18/24 16:53, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	30	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	392	50	0.4	mg/L	2		

Method: SM2540D, Run Date: 11/14/24 15:24, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	0.80	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 11/15/24 12:52, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.005	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	3.47	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.05	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.05	0.00080	mg/L	5	7440-50-8	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S68521.06 (continued)
Sample Tag: MW-18A L411142-06

Method: E200.8, Run Date: 11/15/24 12:52, Analyst: JRH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.03	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.026	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.05	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 11/15/24 16:01, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	5.69	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	1.60	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	4.09	0.50	0.119	mg/L	5	7440-09-7	
Sodium	152	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 11/18/24 15:05, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 12/10/24 11:48, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S68521.07
Sample Tag: MW-18B L411142-07
Collected Date/Time: 11/13/2024 17:33
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/18/24 10:07	CTV	
Metal Digestion	Completed	SW3015A	11/15/24 09:50	CCM	

Inorganics

Method: E300.0, Run Date: 11/17/24 18:35, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	0.35	0.50	0.065	mg/L	2.5	16984-48-8	b

Method: E300.0, Run Date: 11/17/24 22:37, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	70.7	10.0	0.160	mg/L	10	16887-00-6	
Sulfate	143	10.0	0.590	mg/L	10	14808-79-8	

Method: SM2320B, Run Date: 11/20/24 16:03, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	240	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 11/18/24 16:57, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	324	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	562	50	0.4	mg/L	2		

Method: SM2540D, Run Date: 11/14/24 15:24, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	2.20	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 11/15/24 12:55, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	0.005	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.064	0.005	0.00090	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	1.09	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.005	0.00035	mg/L	5	7440-43-9	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S68521.07 (continued)
Sample Tag: MW-18B L411142-07

Method: E200.8, Run Date: 11/15/24 12:55, Analyst: JRH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.05	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.05	0.00080	mg/L	5	7440-50-8	
Iron	2.64	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.092	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.100	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.05	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 11/15/24 16:02, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	89.8	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	17.3	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	7.21	0.50	0.119	mg/L	5	7440-09-7	
Sodium	62.2	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 11/18/24 15:08, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 12/10/24 11:48, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S68521.08
Sample Tag: MW-18C L411142-08
Collected Date/Time: 11/13/2024 17:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/18/24 10:07	CTV	
Metal Digestion	Completed	SW3015A	11/15/24 09:50	CCM	

Inorganics

Method: E300.0, Run Date: 11/17/24 22:47, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	86.8	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 11/17/24 18:46, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	0.50	0.065	mg/L	2.5	16984-48-8	

Method: E300.0, Run Date: 11/17/24 22:57, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	365	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 11/20/24 16:08, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	200	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 11/18/24 17:01, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	501	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	914	50	0.4	mg/L	2		

Method: SM2540D, Run Date: 11/14/24 15:24, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	2.10	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 11/15/24 12:57, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.052	0.005	0.00090	mg/L	5	7440-39-3	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S68521.08 (continued)
Sample Tag: MW-18C L411142-08

Method: E200.8, Run Date: 11/15/24 12:57, Analyst: JRH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	2.80	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.05	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.05	0.00080	mg/L	5	7440-50-8	
Iron	2.53	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.123	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.134	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.05	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 11/15/24 16:03, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	143	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	27.7	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	7.91	0.50	0.119	mg/L	5	7440-09-7	
Sodium	81.3	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 11/18/24 15:12, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 12/10/24 11:48, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S68521.09
Sample Tag: MW-18D L411142-09
Collected Date/Time: 11/13/2024 15:57
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/18/24 10:07	CTV	
Metal Digestion	Completed	SW3015A	11/15/24 09:50	CCM	

Inorganics

Method: E300.0, Run Date: 11/17/24 23:07, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	94.1	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 11/17/24 18:56, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	0.50	0.065	mg/L	2.5	16984-48-8	

Method: E300.0, Run Date: 11/17/24 23:17, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	601	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 11/20/24 16:11, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	220	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 11/18/24 17:18, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	745	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,260	50	0.4	mg/L	2		

Method: SM2540D, Run Date: 11/14/24 15:24, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	2.60	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 11/15/24 12:59, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.056	0.005	0.00090	mg/L	5	7440-39-3	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S68521.09 (continued)
Sample Tag: MW-18D L411142-09

Method: E200.8, Run Date: 11/15/24 12:59, Analyst: JRH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	2.66	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.05	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.05	0.00080	mg/L	5	7440-50-8	
Iron	3.73	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.087	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.116	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.05	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 11/15/24 16:05, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	202	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	53.9	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	3.85	0.50	0.119	mg/L	5	7440-09-7	
Sodium	82.1	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 11/18/24 15:15, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 12/10/24 12:07, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S68521.10
Sample Tag: MWT-17A L411142-10
Collected Date/Time: 11/13/2024 13:07
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/18/24 10:07	CTV	
Metal Digestion	Completed	SW3015A	11/15/24 09:50	CCM	

Inorganics

Method: E300.0, Run Date: 11/17/24 23:27, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	41.8	10.0	0.160	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 11/17/24 19:06, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	0.56	0.50	0.065	mg/L	2.5	16984-48-8	

Method: E300.0, Run Date: 11/17/24 23:37, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	209	50.0	2.950	mg/L	50	14808-79-8	

Method: SM2320B, Run Date: 11/20/24 16:16, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	340	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 11/18/24 17:23, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	260	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	694	50	0.4	mg/L	2		

Method: SM2540D, Run Date: 11/14/24 15:24, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	2.00	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 11/15/24 13:02, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.0023	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.0015	mg/L	5	7440-38-2	
Barium	0.028	0.005	0.00090	mg/L	5	7440-39-3	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S68521.10 (continued)
Sample Tag: MWT-17A L411142-10

Method: E200.8, Run Date: 11/15/24 13:02, Analyst: JRH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Beryllium	Not detected	0.001	0.00020	mg/L	5	7440-41-7	
Boron	3.75	0.04	0.016	mg/L	5	7440-42-8	
Cadmium	Not detected	0.005	0.00035	mg/L	5	7440-43-9	
Chromium	Not detected	0.05	0.00075	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.00045	mg/L	5	7440-48-4	
Copper	Not detected	0.05	0.00080	mg/L	5	7440-50-8	
Iron	1.51	0.02	0.014	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.00045	mg/L	5	7439-92-1	
Lithium*	0.086	0.005	0.0014	mg/L	5	7439-93-2	
Molybdenum	0.078	0.005	0.0042	mg/L	5	7439-98-7	
Nickel	Not detected	0.05	0.0012	mg/L	5	7440-02-0	
Selenium	Not detected	0.005	0.0044	mg/L	5	7782-49-2	
Silver	Not detected	0.005	0.00025	mg/L	5	7440-22-4	
Thallium	Not detected	0.002	0.00035	mg/L	5	7440-28-0	
Vanadium	Not detected	0.005	0.0021	mg/L	5	7440-62-2	
Zinc	Not detected	0.005	0.0033	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 11/15/24 16:06, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	73.4	0.50	0.218	mg/L	5	7440-70-2	
Magnesium	14.5	0.50	0.0579	mg/L	5	7439-95-4	
Potassium	5.70	0.50	0.119	mg/L	5	7440-09-7	
Sodium	140	0.50	0.109	mg/L	5	7440-23-5	

Method: E245.1, Run Date: 11/18/24 15:18, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 12/10/24 12:07, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S68521.11
Sample Tag: Field Blank L411142-11
Collected Date/Time: 11/13/2024 08:40
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.4	IR
2	1L Plastic	None	Yes	4.4	IR
1	125mL Plastic	HNO3	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/18/24 10:07	CTV	
Metal Digestion	Completed	SW3015A	11/15/24 09:50	CCM	

Inorganics

Method: E300.0, Run Date: 11/17/24 19:36, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	Not detected	2.5	0.040	mg/L	2.5	16887-00-6	
Fluoride (Undistilled)	Not detected	0.50	0.065	mg/L	2.5	16984-48-8	
Sulfate	Not detected	2.5	0.148	mg/L	2.5	14808-79-8	

Method: SM2320B, Run Date: 11/20/24 16:23, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	Not detected	10	0.504	mg/L	1	71-52-3	
Carbonate*	Not detected	10	0.504	mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 11/18/24 17:29, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness*	Not detected	10	2.38	mg/L	10		

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50	0.4	mg/L	2		

Method: SM2540D, Run Date: 11/14/24 15:24, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	0.4	mg/L	1		

Metals

Method: E200.8, Run Date: 11/15/24 11:27, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005	0.00090	mg/L	2	7440-36-0	
Arsenic	Not detected	0.002	0.00058	mg/L	2	7440-38-2	
Barium	Not detected	0.005	0.00036	mg/L	2	7440-39-3	
Beryllium	Not detected	0.001	0.000080	mg/L	2	7440-41-7	
Boron	Not detected	0.04	0.0064	mg/L	2	7440-42-8	
Cadmium	Not detected	0.005	0.00014	mg/L	2	7440-43-9	
Chromium	Not detected	0.05	0.00030	mg/L	2	7440-47-3	
Cobalt	Not detected	0.005	0.00018	mg/L	2	7440-48-4	
Copper	Not detected	0.05	0.00032	mg/L	2	7440-50-8	
Iron	Not detected	0.02	0.0057	mg/L	2	7439-89-6	

Lab Sample ID: S68521.11 (continued)
Sample Tag: Field Blank L411142-11

Method: E200.8, Run Date: 11/15/24 11:27, Analyst: JRH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.00018	mg/L	2	7439-92-1	
Lithium*	Not detected	0.005	0.00054	mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005	0.0017	mg/L	2	7439-98-7	
Nickel	Not detected	0.05	0.00046	mg/L	2	7440-02-0	
Selenium	Not detected	0.005	0.0017	mg/L	2	7782-49-2	
Silver	Not detected	0.005	0.00010	mg/L	2	7440-22-4	
Thallium	Not detected	0.002	0.00014	mg/L	2	7440-28-0	
Vanadium	Not detected	0.005	0.00082	mg/L	2	7440-62-2	
Zinc	Not detected	0.005	0.0013	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 11/18/24 16:26, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	Not detected	0.50	0.0874	mg/L	2	7440-70-2	
Magnesium	Not detected	0.50	0.0231	mg/L	2	7439-95-4	
Potassium	Not detected	0.50	0.0479	mg/L	2	7440-09-7	
Sodium	Not detected	0.50	0.0436	mg/L	2	7440-23-5	

Method: E245.1, Run Date: 11/18/24 15:22, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.0000160	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 12/10/24 12:07, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S68521
Client: BWL01 (Board of Water & Light)
Project: Erickson Wellfield
Submitted: 11/14/2024 10:05 Login User: MMC

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.4
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S68521 Submitted: 11/14/2024 10:05

Client: BWL01 (Board of Water & Light)

Project: Erickson Wellfield

Initial Preservation Check: 11/14/2024 11:18 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S68521.01	125mL Plastic HNO3	<2			
S68521.01	1L Plastic HNO3	<2			
S68521.01	1L Plastic HNO3	<2			
S68521.02	125mL Plastic HNO3	<2			
S68521.02	1L Plastic HNO3	<2			
S68521.02	1L Plastic HNO3	<2			
S68521.03	125mL Plastic HNO3	<2			
S68521.03	1L Plastic HNO3	<2			
S68521.03	1L Plastic HNO3	<2			
S68521.04	125mL Plastic HNO3	<2			
S68521.04	1L Plastic HNO3	<2			
S68521.04	1L Plastic HNO3	<2			
S68521.05	125mL Plastic HNO3	<2			
S68521.05	1L Plastic HNO3	<2			
S68521.05	1L Plastic HNO3	<2			
S68521.06	125mL Plastic HNO3	<2			
S68521.06	1L Plastic HNO3	<2			
S68521.06	1L Plastic HNO3	<2			
S68521.07	125mL Plastic HNO3	<2			
S68521.07	1L Plastic HNO3	<2			
S68521.07	1L Plastic HNO3	<2			
S68521.08	125mL Plastic HNO3	<2			
S68521.08	1L Plastic HNO3	<2			
S68521.08	1L Plastic HNO3	<2			
S68521.09	125mL Plastic HNO3	<2			
S68521.09	1L Plastic HNO3	<2			
S68521.09	1L Plastic HNO3	<2			
S68521.10	125mL Plastic HNO3	<2			
S68521.10	1L Plastic HNO3	<2			

Merit Laboratories Bottle Preservation Check

Lab Set ID: S68521 Submitted: 11/14/2024 10:05

Client: BWL01 (Board of Water & Light)

Project: Erickson Wellfield

Initial Preservation Check: 11/14/2024 11:18 MMC

Preservation Recheck (E200.8): N/A

Attention: Jennifer Caporale
Address: Board of Water & Light
P.O. Box 13007
Lansing, MI 48901

Phone: 517-702-6372 FAX:
Email: Environmental_Laboratory@LBWL.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S68521.10	1L Plastic HNO3	<2			
S68521.11	125mL Plastic HNO3	<2			
S68521.11	1L Plastic HNO3	<2			
S68521.11	1L Plastic HNO3	<2			

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Caporale
COMPANY: Lansing Board of Water and Light
ADDRESS: PO Box 13007 48901-3007
CITY: Lansing | STATE: Mi | ZIP CODE: 48901
PHONE NO.: 517-702-6372 | FAX NO.: | P.O. NO.:
E-MAIL ADDRESS: Environmental_Laboratory@lbwl.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: Beth Zimpfer ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: Beth.Zimpfer@lbwl.com

PROJECT NO./NAME: Erickson Wellfield
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Marc Wahrer | Julie Maltby
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER Rush (ASAP) JSC 11/13/24
DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☒ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☒ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total Metals	F- undisstiled, Cl-, SO4, TDS	Radium 226	Radium 228	TSS	Dissolved Metals	HCO3, CO3, Hardness	Special Instructions
68521.01	11/13/24	1307	MW-17A L411142-01	GW	5	2		3					✓	✓	✓	✓	✓		✓	Metals to analyse:Na, Mg, K
.02		1303	17B -02																	B, Ca, Sb, As, Ba, Be, Cd, Cr,
.03		1422	17C -03																	Co, Li, Hg, Mo,Pb,Se, Tl,
.04		1149	17D -04																	Fe, Cu, Ni, Ag, V, Zn
.05		1022	17E -05																	Please send a preliminary report
.06		1601	18A -06																	
.07		1733	18B -07																	The analytes for dissolved metals are
.08		1725	18C -08																	same metals that are analysed for total.
.09		1554	18D -09																	
.10		1307	MWT-17A -10																	
.11	↓	840	Field Blank -11	DI	↓	↓		↓					↓	↓	↓	↓	↓		↓	

→ BMZ 11/14/24

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
	☒ Sampler	11-14-24	1005
RECEIVED BY: SIGNATURE/ORGANIZATION	M Allcock	11/14/24	1005
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 4.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Reporting Limits to go to Merit with COC

Sb, total	Antimony	250 mL plastic	mg/L	Nitric Acid	200.7	6 mos	0.005
As, total	Arsenic	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
Ba, total		250 mL plastic	mg/L	Nitric Acid	200.8	6mos	0.150
Be, total	Beryllium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.001
B, total	Boron	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.04
Cd, total	Cadmium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
Ca	Calcium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	2.5
Cl	Chloride	250 mL plastic	mg/L	Chill	300.0	28 d	10
Cr, total	Chromium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Co, total	Cobalt	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Cu, total	Copper	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
F	Fluoride	250 mL plastic	mg/L	None	9056	28 d	1.0
Fe, total	Iron	250 mL plastic	mg/L	Nitric Acid	300.0	6 mos	0.02
Pb, total	Lead	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.003
Li, total	Lithium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Hg, total	Mercury	250 mL plastic	mg/L	HNO3	245.1	28 d	0.0002
Mo, total	Molybdenum	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ni, total	Nickel	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
RA226/228	Radium 226 and 228 combined	(2) 1 L plastic	pCi/L	HNO3	SM 7500	6 mos	2.0 combined
Se, total	Selenium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Ag, total	Silver	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.0005
SO4	Sulfate	250 mL plastic	mg/L	Chill	300.0	28 d	10
Tl, total	Thallium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.002
TDS	Total Dissolved Solids	1 L plastic	mg/L	None	SM 2540C	NA	20
TSS	Total Suspended Solids	1 L plastic	mg/L	None	SM 2540D	NA	3
V, total	Vanadium	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005
Zn, total	Zinc	250 mL plastic	mg/L	Nitric Acid	200.8	6 mos	0.005

GEL Laboratories LLC
a member of The GEL Group INC

2040 Savage Road | Charleston, SC 29407
843.556.8171
gel.com

December 16, 2024

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 696182
SDG: S68521

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 18, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Abagail Martin for
Delaney Stonesmith
Project Manager

Purchase Order: GELP20-0018
Enclosures

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Case Narrative

Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S68521
Work Order: 696182

December 16, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 18, 2024 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
696182001	S68521.01
696182002	S68521.02
696182003	S68521.03
696182004	S68521.04
696182005	S68521.05
696182006	S68521.06
696182007	S68521.07
696182008	S68521.08
696182009	S68521.09
696182010	S68521.10
696182011	S68521.11

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.

Abagail Martin for
Delaney Stonesmith
Project Manager

Chain of Custody and Supporting Documentation

696182

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: results@meritlabs.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague SAME: ☒
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S68521 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☒ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Radium 226*	Radium 228**	Special Instructions
	11/13/24	1307	S68521.01	GW	2			2					✓	✓	* E903.1 Mod.
	11/13/24	1303	S68521.02	GW	2			2					✓	✓	** E904.0/SW 9320 Mod.
	11/13/24	1422	S68521.03	GW	2			2					✓	✓	
	11/13/24	1149	S68521.04	GW	2			2					✓	✓	Please use calculation product &
	11/13/24	1022	S68521.05	GW	2			2					✓	✓	provide Radium 226/228 combined
	11/13/24	1601	S68521.06	GW	2			2					✓	✓	results on the report
	11/13/24	1733	S68521.07	GW	2			2					✓	✓	
	11/13/24	1725	S68521.08	GW	2			2					✓	✓	(No Ice needed)
	11/13/24	1557	S68521.09	GW	2			2					✓	✓	** Subcontracted to
	11/13/24	1307	S68521.10	GW	2			2					✓	✓	GEL Laboratories, Inc.
	11/13/24	0840	S68521.11	W	2			2					✓	✓	2040 Savage Road
															Charleston, SC 29407

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☐ Sampler DATE 11/19/24 TIME 1700
RECEIVED BY: SIGNATURE/ORGANIZATION UPS DATE 11/19/24 TIME 1700
RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE 11-18-24 TIME 915

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 2.1°C

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 6.18.12

GEL | Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: MERT	SDG/AR/COC/Work Order: 696182
Received By: Stacy L Boone	Date Received: Nov 18, 2024
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 1Z 466 477 03 6285 5582 16

Suspected Hazard Information	Yes	No	
			*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A) Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive labels on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designations.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*			✓	Preservation Method: Wet Ice Ice Packs Dry Ice None Other: *all temperatures are recorded in Celsius TEMP:___
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR2-24 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓	Not Req		Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓	Not Req		Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			✓	
13	COC form is properly signed in relinquished/received sections?			✓	Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

1Z 466 477 03 6135 2635 21

PM (or PMA) review: Initials AM Date 11/19/24 Page 1 of 1

GL-CHL-SR-001 Rev 7

Laboratory Certifications

List of current GEL Certifications as of 16 December 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	NV-C24-00175
New Hampshire NELAP	205424
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235
Utah NELAP	SC000122024-44
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S68521
Work Order #: 696182

Product: **Radium-226+Radium-228 Calculation**
Analytical Method: Calculation
Analytical Procedure: GL-RAD-D-003 REV# 45
Analytical Batch: 2707572

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
696182001	S68521.01
696182002	S68521.02
696182003	S68521.03
696182004	S68521.04
696182005	S68521.05
696182006	S68521.06
696182007	S68521.07
696182008	S68521.08
696182009	S68521.09
696182010	S68521.10
696182011	S68521.11

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2707581

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
696182001	S68521.01
696182002	S68521.02
696182003	S68521.03
696182004	S68521.04
696182005	S68521.05
696182006	S68521.06
696182007	S68521.07
696182008	S68521.08
696182009	S68521.09
696182010	S68521.10

696182011	S68521.11
1205923354	Method Blank (MB)
1205923355	696182001(S68521.01) Sample Duplicate (DUP)
1205923356	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2708766

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
696182001	S68521.01
696182002	S68521.02
696182003	S68521.03
696182004	S68521.04
696182005	S68521.05
696182006	S68521.06
696182007	S68521.07
696182008	S68521.08
696182009	S68521.09
696182010	S68521.10
696182011	S68521.11
1205925528	Method Blank (MB)
1205925529	696182001(S68521.01) Sample Duplicate (DUP)
1205925530	696182001(S68521.01) Matrix Spike (MS)
1205925531	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1205925530 (S68521.01MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MERI001 Merit Laboratories, Inc.

Client SDG: S68521 GEL Work Order: 696182

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Theresa Austin**

Date: 17 DEC 2024 **Title: Analyst III - Data Validator**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 17, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S68521.01
Sample ID: 696182001
Matrix: Ground Water
Collect Date: 13-NOV-24 13:07
Receive Date: 18-NOV-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.0963	+/-1.29	2.39	3.00	pCi/L			KP1	11/27/24	1025	2707581	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.697	+/-1.35			pCi/L			TON1	12/17/24	0927	2707572	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.600	+/-0.421	0.545	1.00	pCi/L			MJ2	12/10/24	1112	2708766	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			79.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 17, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S68521.02	Project:	MERI00120
Sample ID:	696182002	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	13-NOV-24 13:03		
Receive Date:	18-NOV-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.92	+/-1.50	2.37	3.00	pCi/L			KP1	11/27/24	1025	2707581	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.40	+/-1.54			pCi/L			TON1	12/17/24	0927	2707572	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.474	+/-0.379	0.525	1.00	pCi/L			MJ2	12/10/24	1148	2708766	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			61.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 17, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S68521.03
Sample ID: 696182003
Matrix: Ground Water
Collect Date: 13-NOV-24 14:22
Receive Date: 18-NOV-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.53	+/-1.32	2.13	3.00	pCi/L			KP1	11/27/24	1026	2707581	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.93	+/-1.35			pCi/L			TON1	12/17/24	0927	2707572	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.400	+/-0.303	0.374	1.00	pCi/L			MJ2	12/10/24	1148	2708766	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			78	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 17, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S68521.04	Project:	MERI00120
Sample ID:	696182004	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	13-NOV-24 11:49		
Receive Date:	18-NOV-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.41	+/-1.60	2.69	3.00	pCi/L			KP1	11/27/24	1026	2707581	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.08	+/-1.66			pCi/L			TON1	12/17/24	0927	2707572	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.664	+/-0.442	0.525	1.00	pCi/L			MJ2	12/10/24	1148	2708766	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			77.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 17, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S68521.05	Project:	MERI00120
Sample ID:	696182005	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	13-NOV-24 10:22		
Receive Date:	18-NOV-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.29	+/-0.980	1.53	3.00	pCi/L			KP1	11/27/24	1026	2707581	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.35	+/-1.08			pCi/L			TON1	12/17/24	0927	2707572	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.06	+/-0.459	0.374	1.00	pCi/L			MJ2	12/10/24	1148	2708766	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: December 17, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S68521.06
Sample ID: 696182006
Matrix: Ground Water
Collect Date: 13-NOV-24 16:01
Receive Date: 18-NOV-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.447	+/-0.828	1.47	3.00	pCi/L			KP1	11/27/24	1026	2707581	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.897	+/-0.895			pCi/L			TON1	12/17/24	0927	2707572	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.451	+/-0.341	0.421	1.00	pCi/L			MJ2	12/10/24	1148	2708766	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			81.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: December 17, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S68521.07	Project:	MERI00120
Sample ID:	696182007	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	13-NOV-24 17:33		
Receive Date:	18-NOV-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.79	+/-1.68	2.77	3.00	pCi/L			KP1	11/27/24	1026	2707581	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.40	+/-1.76			pCi/L			TON1	12/17/24	0927	2707572	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.61	+/-0.543	0.273	1.00	pCi/L			MJ2	12/10/24	1148	2708766	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			81.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: December 17, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S68521.08
Sample ID: 696182008
Matrix: Ground Water
Collect Date: 13-NOV-24 17:25
Receive Date: 18-NOV-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	2.16	+/-1.56	2.51	3.00	pCi/L			KP1	11/27/24	1026	2707581	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.33	+/-1.66			pCi/L			TON1	12/17/24	0927	2707572	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.17	+/-0.565	0.535	1.00	pCi/L			MJ2	12/10/24	1148	2708766	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: December 17, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID:	S68521.09	Project:	MERI00120
Sample ID:	696182009	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	13-NOV-24 15:57		
Receive Date:	18-NOV-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		4.11	+/-1.55	2.10	3.00	pCi/L			KP1	11/27/24	1026	2707581	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		5.17	+/-1.62			pCi/L			TON1	12/17/24	0927	2707572	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.06	+/-0.473	0.393	1.00	pCi/L			MJ2	12/10/24	1207	2708766	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			82.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: December 17, 2024

Company :	Merit Laboratories Inc.
Address :	2680 East Lansing Drive
	East Lansing, Michigan 48823
Contact:	John Laverty
Project:	Routine Analysis

Client Sample ID:	S68521.10	Project:	MERI00120
Sample ID:	696182010	Client ID:	MERI001
Matrix:	Ground Water		
Collect Date:	13-NOV-24 13:07		
Receive Date:	18-NOV-24		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228		2.84	+/-1.26	1.67	3.00	pCi/L			KP1	11/27/24	1027	2707581	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.43	+/-1.30			pCi/L			TON1	12/17/24	0927	2707572	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.588	+/-0.336	0.275	1.00	pCi/L			MJ2	12/10/24	1207	2708766	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			73.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: December 17, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S68521.11
Sample ID: 696182011
Matrix: Water
Collect Date: 13-NOV-24 08:40
Receive Date: 18-NOV-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.695	+/-1.48	2.60	3.00	pCi/L			KP1	11/27/24	1027	2707581	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.04	+/-1.51			pCi/L			TON1	12/17/24	0927	2707572	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.343	+/-0.305	0.365	1.00	pCi/L			MJ2	12/10/24	1207	2708766	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			78.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Data

QC Summary

Report Date: December 17, 2024

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: **John Laverty**

Workorder: **696182**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gas Flow											
Batch 2707581											
QC1205923355 696182001 DUP											
Radium-228	U	0.0963	U	1.74	pCi/L	N/A		N/A	KP1	11/27/24	10:24
	Uncertainty	+/-1.29		+/-1.44							
QC1205923356 LCS											
Radium-228	81.4			66.0	pCi/L		81.1	(75%-125%)		11/27/24	10:24
	Uncertainty			+/-4.24							
QC1205923354 MB											
Radium-228			U	1.65	pCi/L					11/27/24	10:23
	Uncertainty			+/-1.29							
Rad Ra-226											
Batch 2708766											
QC1205925529 696182001 DUP											
Radium-226		0.600		1.09	pCi/L	58.2		(0% - 100%)	MJ2	12/10/24	12:07
	Uncertainty	+/-0.421		+/-0.499							
QC1205925531 LCS											
Radium-226	27.2			23.4	pCi/L		86.2	(75%-125%)		12/10/24	12:07
	Uncertainty			+/-2.03							
QC1205925528 MB											
Radium-226			U	0.273	pCi/L					12/10/24	12:07
	Uncertainty			+/-0.272							
QC1205925530 696182001 MS											
Radium-226	137	0.600		140	pCi/L		102	(75%-125%)		12/10/24	12:07
	Uncertainty	+/-0.421		+/-12.5							

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported

QC Summary

Workorder: **696182**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

>	Result is greater than value reported
UI	Gamma Spectroscopy--Uncertain identification
BD	Results are either below the MDC or tracer recovery is low
h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
M	M if above MDC and less than LLD
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
FA	Failed analysis.
UJ	Gamma Spectroscopy--Uncertain identification
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N1	See case narrative
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
**	Analyte is a Tracer compound
M	REMP Result > MDC/CL and < RDL
J	See case narrative for an explanation
x	Subaliquot was taken. See Case Narrative for details.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Gas Flow Raw Data

Batch 2707581 Check-list

This check-list was completed on 27-NOV-24 by Rhonda Birch

This batch was reviewed by Kenshalla Oston on 27-NOV-24 and Rhonda Birch on 27-NOV-24.

Batch ID: 2707581 **Product:** GFC28RAL **Description:** Gas Flow Radium 228 GL-RAD-A-063

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-228 in Liquid

Batch ID: **2707581**
Analyst: Kaitlyn Painter (KP1)
Method: EPA 904.0/SW846 9320 Modified
Lab SOP: GL-RAD-A-063 REV# 5
Instrument: ASP-33005595

Due Dates for Lab: 14-DEC-2024 **Package: 16-DEC-2024** **SDG: 17-DEC-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205923356	Radium 228	2162-A	.5	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)
1	696182001	20-NOV-2024	3	300.4	300.4	11/21/24 13:36	11/27/24 08:34
2	696182002	20-NOV-2024	3	302.1	302.1	11/21/24 13:36	11/27/24 08:34
3	696182003	20-NOV-2024	3	300.5	300.5	11/21/24 13:36	11/27/24 08:34
4	696182004	20-NOV-2024	3	301.6	301.6	11/21/24 13:36	11/27/24 08:34
5	696182005	20-NOV-2024	3	300.8	300.8	11/21/24 13:36	11/27/24 08:34
6	696182006	20-NOV-2024	3	300.4	300.4	11/21/24 13:36	11/27/24 08:34
7	696182007	20-NOV-2024	3	300.2	300.2	11/21/24 13:36	11/27/24 08:34
8	696182008	20-NOV-2024	3	301.5	301.5	11/21/24 13:36	11/27/24 08:34
9	696182009	20-NOV-2024	3	300.1	300.1	11/21/24 13:36	11/27/24 08:34
10	696182010	20-NOV-2024	3	301.7	301.7	11/21/24 13:36	11/27/24 08:34
11	696182011	20-NOV-2024	3	300.8	300.8	11/21/24 13:36	11/27/24 08:34
12	1205923354 MB	20-NOV-2024	3		302.1	11/21/24 13:36	11/27/24 08:34
13	1205923355 DUP (696182001)	20-NOV-2024	3	301.7	301.7	11/21/24 13:36	11/27/24 08:34
14	1205923356 LCS	20-NOV-2024	3		302.1	11/21/24 13:36	11/27/24 08:34

Reagent/Solvent Lot ID	Description	Amount
WORK 2097-E	Ba-133 Tracer	.1 mL
REGNT DGAC02192024	1 ml cartridge	1 mL
REGNT 4433651	RGF-1.5M Ammonium Sulfate	10 mL
REGNT 4398588	Barium Carrier Ra228 REG	1 mL
REGNT 4428363	RGF-1M Citric Acid	5 mL
REGNT 4429588	2M HCl	20 mL
REGNT 4437503	RGF-50% Potassium Carbonate	2 mL
REGNT 4434840	RGF-7M Nitric Acid	25 mL
REGNT 4433595.1	Acetic Acid Glacial ACS Poly Coated Bottle	10 mL
REGNT 4410852.2	RGF-Hydrofluoric Acid	4 mL
REGNT 4432751	500 mg/mL Neodymium Carrier	.2 mL
REGNT 4419428	RGF-Neodymium Subtrate	5 mL
REGNT 4431175.29	Nitric Acid	5 mL

Comments:
Pipet Id: RAD-GFC-1795419
Data Entry Date2: 20-NOV-2024 11:02 ASP-33005595 Kaitlyn Painter
Data Entry Date3: 20-NOV-2024 00:00

Radium-228 Liquid

Filename : RA228.XLS
File type : Excel
Version # : 1.4.3

Tracer S/N : 2097-E
Tracer Exp Date : 10/29/2025
Tracer Volume Added: 0.10

Batch : 2707581
Analyst : KAI02410
Prep Date : 11/20/2024
Ra-228 Method Uncertainty : 0.1268

Geometry: 25mm Filter

Procedure Code : GFC28RAL
Parmname : Radium-228
Required MDA : 3 pCi/L
Ra-228 Abundance : 1.00
Halflife of Ra-228 : 5.75 years
Halflife of Ac-228 : 6.15 hours

Sample Characteristics					Tracer Calculations					
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Tracer Ref. Activity (CPM)	Tracer Ref. Count Uncertainty (%)	Tracer Samp. Activity (CPM)	Tracer Samp. Count Uncertainty (%)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	696182001.1	0.3004	1.8466E-05	11/13/2024 13:07	937.5	1.89%	745.2	2.11%	0.1	0.000200
2	696182002.1	0.3021	1.8495E-05	11/13/2024 13:03	937.5	1.89%	579.7	2.40%	0.1	0.000200
3	696182003.1	0.3005	1.8468E-05	11/13/2024 14:22	937.5	1.89%	731.1	2.14%	0.1	0.000200
4	696182004.1	0.3016	1.8486E-05	11/13/2024 11:49	937.5	1.89%	727.9	2.14%	0.1	0.000200
5	696182005.1	0.3008	1.8473E-05	11/13/2024 10:22	937.5	1.89%	792.1	2.05%	0.1	0.000200
6	696182006.1	0.3004	1.8466E-05	11/13/2024 16:01	937.5	1.89%	763.6	2.09%	0.1	0.000200
7	696182007.1	0.3002	1.8462E-05	11/13/2024 17:33	937.5	1.89%	761.2	2.09%	0.1	0.000200
8	696182008.1	0.3015	1.8484E-05	11/13/2024 17:25	937.5	1.89%	794.9	2.05%	0.1	0.000200
9	696182009.1	0.3001	1.8461E-05	11/13/2024 15:57	937.5	1.89%	774.9	2.07%	0.1	0.000200
10	696182010.1	0.3017	1.8488E-05	11/13/2024 13:07	937.5	1.89%	689.7	2.20%	0.1	0.000200
11	696182011.1	0.3008	1.8473E-05	11/13/2024 8:40	937.5	1.89%	732.1	2.13%	0.1	0.000200
12	1205923354.1	0.3021	1.8495E-05	11/20/2024 0:00	937.5	1.89%	667.4	2.23%	0.1	0.000200
13	1205923355.1	0.3017	1.8488E-05	11/13/2024 13:07	937.5	1.89%	747.7	2.11%	0.1	0.000200
14	1205923356.1	0.3021	1.8495E-05	11/20/2024 0:00	937.5	1.89%	791.9	2.05%	0.1	0.000200

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-063
Instrument SOP: GL-RAD-I-016

Count raw Data

Pos.	Detector ID	Counting Time (min.)	Gross Counts Alpha	Gross Counts Beta	Beta cpm	Count Start Date/Time	Ac-228 Ingrowth Date/Time	Ac-228 Decay Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Ingrowth	Ac-228 Count Correction	Calculated Sample Recovery %	Sample Recovery Error %
1	1A	60	10	56	0.933	11/27/2024 10:25	11/21/2024 13:36	11/27/2024 8:34	0.995	0.810	1.000	1.057	79.5%	2.85%
2	2A	60	10	61	1.017	11/27/2024 10:25	11/21/2024 13:36	11/27/2024 8:34	0.995	0.810	1.000	1.057	61.8%	3.07%
3	2D	60	10	71	1.183	11/27/2024 10:26	11/21/2024 13:36	11/27/2024 8:34	0.995	0.810	1.000	1.057	78.0%	2.87%
4	3B	60	14	110	1.833	11/27/2024 10:26	11/21/2024 13:36	11/27/2024 8:34	0.995	0.810	1.000	1.057	77.6%	2.87%
5	3C	60	9	52	0.867	11/27/2024 10:26	11/21/2024 13:36	11/27/2024 8:34	0.995	0.810	1.000	1.057	84.5%	2.80%
6	3D	60	9	33	0.550	11/27/2024 10:26	11/21/2024 13:36	11/27/2024 8:34	0.995	0.810	1.000	1.057	81.4%	2.83%
7	4A	60	18	130	2.167	11/27/2024 10:26	11/21/2024 13:36	11/27/2024 8:34	0.995	0.810	1.000	1.057	81.2%	2.83%
8	4D	60	17	128	2.133	11/27/2024 10:26	11/21/2024 13:36	11/27/2024 8:34	0.995	0.810	1.000	1.057	84.8%	2.80%
9	5A	60	11	115	1.917	11/27/2024 10:26	11/21/2024 13:36	11/27/2024 8:34	0.995	0.810	1.000	1.057	82.7%	2.82%
10	5C	60	14	65	1.083	11/27/2024 10:27	11/21/2024 13:36	11/27/2024 8:34	0.995	0.808	1.000	1.057	73.6%	2.91%
11	5D	60	12	97	1.617	11/27/2024 10:27	11/21/2024 13:36	11/27/2024 8:34	0.995	0.808	1.000	1.057	78.1%	2.86%
12	6B	60	12	64	1.067	11/27/2024 10:23	11/21/2024 13:36	11/27/2024 8:34	0.998	0.813	1.000	1.057	71.2%	2.94%
13	7B	60	10	95	1.583	11/27/2024 10:24	11/21/2024 13:36	11/27/2024 8:34	0.995	0.813	1.000	1.057	79.8%	2.85%
14	7D	60	15	992	16.533	11/27/2024 10:24	11/21/2024 13:36	11/27/2024 8:34	0.998	0.813	1.000	1.057	84.5%	2.80%

Pos.	Calibration Data: Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Bkg cpm	Weekly Bkg Count Start Date/Time	Bkg Count Time (min.)
1	PIC	6/1/2024	5/31/2025	0.4962	0.00738	0.914	11/22/2024 18:17	500
2	PIC	6/1/2024	5/31/2025	0.5596	0.01914	0.676	11/22/2024 18:17	500
3	PIC	6/1/2024	5/31/2025	0.5484	0.00745	0.850	11/22/2024 18:17	500
4	PIC	6/1/2024	5/31/2025	0.5669	0.01614	1.516	11/22/2024 18:17	500
5	PIC	6/1/2024	5/31/2025	0.5795	0.00988	0.544	11/22/2024 18:17	500
6	PIC	6/1/2024	5/31/2025	0.5731	0.02297	0.444	11/22/2024 18:17	500
7	PIC	6/1/2024	5/31/2025	0.5637	0.01123	1.750	11/22/2024 18:18	500
8	PIC	6/1/2024	5/31/2025	0.5706	0.00773	1.600	11/22/2024 18:18	500
9	PIC	6/1/2024	5/31/2025	0.5552	0.00851	0.960	11/22/2024 18:18	500
10	PIC	6/1/2024	5/31/2025	0.5733	0.00657	0.472	11/22/2024 18:18	500
11	PIC	6/1/2024	5/31/2025	0.5759	0.00925	1.458	11/22/2024 18:18	500
12	PIC	6/1/2024	5/31/2025	0.5756	0.00851	0.718	11/22/2024 18:13	500
13	PIC	6/1/2024	5/31/2025	0.5647	0.00627	1.182	11/22/2024 18:13	500
14	PIC	6/1/2024	5/31/2025	0.5590	0.01113	0.502	11/22/2024 18:13	500

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : N/A
Spike Exp Date : N/A
Spike Activity (dpm/ml): N/A
Spike Volume Added: N/A

LCS S/N : 2162-A
LCS Exp Date : 10/16/2025
LCS Activity (dpm/ml): 109.14
LCS Volume Added: 0.50

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	1.5165	1.0707	3	2.3905	**0.0963**	681.97%	0.0193	0.1318	1.2877	1.2879		SAMPLE				
2	1.4785	1.0439	3	2.3702	**1.9244**	39.87%	0.3407	0.1353	1.4976	1.5781		SAMPLE				
3	1.3489	0.9523	3	2.1345	**1.5320**	44.01%	0.3333	0.1464	1.3185	1.3752		SAMPLE				
4	1.7442	1.2314	3	2.6853	**1.4121**	57.85%	0.3173	0.1833	1.5984	1.6390		SAMPLE				
5	0.9416	0.6648	3	1.5301	**1.2940**	38.74%	0.3227	0.1246	0.9796	1.0338		SAMPLE				
6	0.8937	0.6310	3	1.4726	**0.4466**	94.67%	0.1060	0.1003	0.8281	0.8361		SAMPLE				
7	1.8107	1.2783	3	2.7717	**1.7915**	47.86%	0.4167	0.1990	1.6772	1.7386		SAMPLE				
8	1.6311	1.1516	3	2.5056	**2.1603**	37.03%	0.5333	0.1969	1.5630	1.6572		SAMPLE				
9	1.3386	0.9450	3	2.1047	**4.1056**	19.46%	0.9567	0.1840	1.5479	1.8690		SAMPLE				
10	1.0175	0.7184	3	1.6694	**2.8443**	22.74%	0.6113	0.1378	1.2570	1.4517		SAMPLE				
11	1.6828	1.1881	3	2.5951	**0.6946**	108.95%	0.1587	0.1728	1.4828	1.4934		SAMPLE				
12	1.2792	0.9031	3	2.0434	**1.6535**	39.87%	0.3487	0.1386	1.2884	1.3560		MB				
13	1.4985	1.0580	3	2.3325	**1.7377**	42.35%	0.4013	0.1696	1.4390	1.5057	696182001.1	DUP	* 0.0%			
14	0.9284	0.6555	3	1.5168	**65.9903**	4.46%	16.0313	0.5259	4.2429	17.3836		LCS			81.3649	81.1%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine	Batch ID
696182001	1A	60	10	56	11/27/2024 10:25	11/27/2024 11:25	PIC	2707581
696182002	2A	60	10	61	11/27/2024 10:25	11/27/2024 11:25	PIC	2707581
696182003	2D	60	10	71	11/27/2024 10:26	11/27/2024 11:26	PIC	2707581
696182004	3B	60	14	110	11/27/2024 10:26	11/27/2024 11:26	PIC	2707581
696182005	3C	60	9	52	11/27/2024 10:26	11/27/2024 11:26	PIC	2707581
696182006	3D	60	9	33	11/27/2024 10:26	11/27/2024 11:26	PIC	2707581
696182007	4A	60	18	130	11/27/2024 10:26	11/27/2024 11:26	PIC	2707581
696182008	4D	60	17	128	11/27/2024 10:26	11/27/2024 11:26	PIC	2707581
696182009	5A	60	11	115	11/27/2024 10:26	11/27/2024 11:26	PIC	2707581
696182010	5C	60	14	65	11/27/2024 10:27	11/27/2024 11:27	PIC	2707581
696182011	5D	60	12	97	11/27/2024 10:27	11/27/2024 11:27	PIC	2707581
1205923354	6B	60	12	64	11/27/2024 10:23	11/27/2024 11:23	PIC	2707581
1205923355	7B	60	10	95	11/27/2024 10:24	11/27/2024 11:24	PIC	2707581
1205923356	7D	60	15	992	11/27/2024 10:24	11/27/2024 11:24	PIC	2707581

ASSAY		27-Nov-24	9:28:06							
Wizard 2480 s/n 46190630										
Protocol	id		8 Ba-133							
Time	limit									
Count	limit									
Isotope	Ba-133									
Protocol	date	11/27/2024								
Run	id.		3292							
Samp_ID	POS		RACK		BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
REF		1		11	1	180	2813	937.5	1.89		09:28:06
	696182001	2		11	2	180	2236	745.22	2.11	79.49	09:31:20
	696182002	3		11	3	180	1739.5	579.7	2.4	61.83	09:34:34
	696182003	4		11	4	180	2193.5	731.06	2.14	77.98	09:37:48
	696182004	5		11	5	180	2184	727.87	2.14	77.64	09:41:02
	696182005	1		3	1	180	2377	792.14	2.05	84.49	09:44:51
	696182006	2		3	2	180	2291	763.55	2.09	81.45	09:48:04
	696182007	3		3	3	180	2284	761.22	2.09	81.20	09:51:19
	696182008	4		3	4	180	2385	794.88	2.05	84.79	09:54:33
	696182009	5		3	5	180	2325	774.87	2.07	82.65	09:57:46
	696182010	1		1	1	180	2069.5	689.72	2.2	73.57	10:01:34
	696182011	2		1	2	180	2196.5	732.05	2.13	78.09	10:04:48
	1205923354	3		1	3	180	2002.5	667.35	2.23	71.18	10:08:02
	1205923355	4		1	4	180	2243.5	747.74	2.11	79.76	10:11:16
	1205923356	5		1	5	180	2376	791.93	2.05	84.47	10:14:30
END	OF	ASSAY								

Continuing Calibration Data

Gas Flow Proportional Counter Checks for 27-Nov-2024

Detectors LB4100 E1 through H4 and PIC 1A through 14D and G5400W 1W through 1Z and LB4200 GA1 through OD4

Short Name	Status	Parmname	Run Time	Count Time	CPM or dec	Low Limit	High Limit	Stdev
LB4100G2	Below	Alpha eff	27-Nov 06:11	5	9993	10810	14340	-4.39
LB4100G2	Above	Alpha XTalk	27-Nov 06:11	5	0.257	0.169	0.234	+5.13
LB4100G3	Below	Alpha eff	27-Nov 06:11	5	7658	8123	10070	-4.43
LB4100G3	need 2nd	Beta bkg	27-Nov 05:07	60	1.983	0.716	2.721	+0.79
LB4200GB2	Below	Alpha eff	27-Nov 06:25	5	9366	9443	9898	-4.02
LB4200GB2	Above	Beta bkg	27-Nov 05:09	60	4.450	0.129	1.304	+19.06
LB4200GB2	Below	Beta eff	27-Nov 06:33	5	13698	13840	15160	-3.65
LB4200OC2	Above	Beta bkg	27-Nov 05:13	60	6.050	-6.67E-2	2.499	+11.30
LB4200OC2	Below	Beta eff	27-Nov 06:51	5	14155	14260	15090	-3.76
LB4200OC4	Above	Beta bkg	27-Nov 05:13	60	35.333	0.232	1.342	+186.74
PIC1C	Above	Alpha XTalk	27-Nov 05:20	5	0.334	0.236	0.295	+6.96
PIC6A	Above	Beta bkg	27-Nov 06:59	60	2.100	0.030	2.442	+2.15
PIC6C	Above	Beta bkg	27-Nov 06:59	60	2.400	0.104	2.742	+2.22
PIC9B	Above	Beta bkg	27-Nov 08:31	60	2.050	-5.08E-1	2.014	+3.09
PIC9D	Above	Alpha eff	27-Nov 05:43	5	10416	9662	10210	+5.26
PIC9D	Below	Alpha XTalk	27-Nov 05:43	5	0.270	0.270	0.291	-3.20
PIC9D	Above	Beta XTalk	27-Nov 05:54	5	0.002	3.04E-4	0.002	+3.86
PIC14B	Below	Alpha eff	27-Nov 05:56	5	7696	8779	9407	-13.35
PIC14B	Above	Alpha XTalk	27-Nov 05:56	5	0.494	0.265	0.288	+55.69
PIC14B	Below	Beta eff	27-Nov 06:10	5	18055	19770	22360	-6.97
PIC14C	Above	Alpha eff	27-Nov 05:56	5	19705	14510	16070	+16.98
PIC14C	Below	Alpha XTalk	27-Nov 05:56	5	0.295	0.591	0.735	-15.28
PIC14C	Above	Beta eff	27-Nov 06:10	5	25686	21200	22700	+14.95
PIC14C	need 2nd	Beta XTalk	27-Nov 06:10	5	4.33E-4	1.24E-4	5.64E-4	+1.22

INSTRUMENTS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

The following detectors may not have properly transferred to the LIMS system

LB4100G1	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk
PIC8A	Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk

Reviewed by Jc Poparad

Date 11/27/24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: GFPC **Batch ID: 2707581**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1205923354	MB	KP1	PIC6B	NOV-27-24 10:23:57	DONE	25mm Filter	01-JUN-24 00:00
1205923355	DUP	KP1	PIC7B	NOV-27-24 10:24:03	DONE	25mm Filter	01-JUN-24 00:00
1205923356	LCS	KP1	PIC7D	NOV-27-24 10:24:06	DONE	25mm Filter	01-JUN-24 00:00
696182001	SAMPLE	KP1	PIC1A	NOV-27-24 10:25:54	DONE	25mm Filter	01-JUN-24 00:00
696182002	SAMPLE	KP1	PIC2A	NOV-27-24 10:25:59	DONE	25mm Filter	01-JUN-24 00:00
696182003	SAMPLE	KP1	PIC2D	NOV-27-24 10:26:02	DONE	25mm Filter	01-JUN-24 00:00
696182004	SAMPLE	KP1	PIC3B	NOV-27-24 10:26:06	DONE	25mm Filter	01-JUN-24 00:00
696182005	SAMPLE	KP1	PIC3C	NOV-27-24 10:26:07	DONE	25mm Filter	01-JUN-24 00:00
696182006	SAMPLE	KP1	PIC3D	NOV-27-24 10:26:12	DONE	25mm Filter	01-JUN-24 00:00
696182007	SAMPLE	KP1	PIC4A	NOV-27-24 10:26:17	DONE	25mm Filter	01-JUN-24 00:00
696182008	SAMPLE	KP1	PIC4D	NOV-27-24 10:26:19	DONE	25mm Filter	01-JUN-24 00:00
696182009	SAMPLE	KP1	PIC5A	NOV-27-24 10:26:24	DONE	25mm Filter	01-JUN-24 00:00
696182010	SAMPLE	KP1	PIC5C	NOV-27-24 10:27:23	DONE	25mm Filter	01-JUN-24 00:00
696182011	SAMPLE	KP1	PIC5D	NOV-27-24 10:27:25	DONE	25mm Filter	01-JUN-24 00:00

Lucas Cell Raw Data

Batch 2708766 Check-list

This check-list was completed on 17-DEC-24 by Lyndsey Pace

This batch was reviewed by Elizabeth Krouse on 17-DEC-24 and Lyndsey Pace on 17-DEC-24.

Batch ID:	**Product:**	**Description:** Lucas Cell Radium 226
2708766	LUC26RAL	GL-RAD-A-008

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
10	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-226 in Liquid

Batch ID: **2708766**
Analyst: Marisa Johnson (MJ2)
Method: EPA 903.1 Modified
Lab SOP: GL-RAD-A-008 REV# 15
Instrument: LUCAS-C202389980

Due Dates for Lab: 14-DEC-2024 **Package: 16-DEC-2024** **SDG: 17-DEC-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
MS	1205925530	Ra-226 emanation spike	1715-J	.1	mL
LCS	1205925531	Ra-226 emanation spike	1715-J	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	End Degas (date)	CELL #	End Transfer (date)	Start Count Time (date)	Background Counts	Total Counts
1	696182001	26-NOV-2024	1	500.33	500.33	12/04/24 12:02	805	12/10/24 07:46	12/10/24 11:12	6	14
2	696182002	26-NOV-2024	1	500.03	500.03	12/04/24 12:02	103	12/10/24 08:22	12/10/24 11:48	6	12
3	696182003	26-NOV-2024	1	500.86	500.86	12/04/24 12:02	203	12/10/24 08:22	12/10/24 11:48	3	10
4	696182004	26-NOV-2024	1	500.54	500.54	12/04/24 12:02	309	12/10/24 08:22	12/10/24 11:48	4	13
5	696182005	26-NOV-2024	1	503.32	503.32	12/04/24 12:02	402	12/10/24 08:22	12/10/24 11:48	3	24
6	696182006	26-NOV-2024	1	500.61	500.61	12/04/24 12:02	501	12/10/24 08:22	12/10/24 11:48	3	10
7	696182007	26-NOV-2024	1	502.95	502.95	12/04/24 12:02	605	12/10/24 08:22	12/10/24 11:48	1	35
8	696182008	26-NOV-2024	1	500.44	500.44	12/04/24 12:02	804	12/10/24 08:22	12/10/24 11:48	4	21
9	696182009	26-NOV-2024	1	503.62	503.62	12/04/24 12:02	106	12/10/24 08:50	12/10/24 12:07	3	23
10	696182010	26-NOV-2024	1	504.45	504.45	12/04/24 12:02	202	12/10/24 08:50	12/10/24 12:07	1	13
11	696182011	26-NOV-2024	1	507	507	12/04/24 12:02	302	12/10/24 08:50	12/10/24 12:07	1	6
12	1205925528 MB	26-NOV-2024	1		507	12/04/24 12:02	705	12/10/24 08:50	12/10/24 12:07	1	5
13	1205925529 DUP (696182001)	26-NOV-2024	1	502.45	502.45	12/04/24 12:02	403	12/10/24 08:50	12/10/24 12:07	3	22
14	1205925530 MS (696182001)	26-NOV-2024	1	100.76	100.76	12/04/24 12:02	503	12/10/24 08:50	12/10/24 12:07	5	489
15	1205925531 LCS	26-NOV-2024	1		507	12/04/24 12:02	608	12/10/24 08:50	12/10/24 12:07	4	517

Reagent/Solvent Lot ID	Description	Amount

Comments:
Data Entry Date2: 26-NOV-2024 00:00

Radium-226 Liquid

Filename : RA226.XLS
File type : Excel
Version # : 1.3.2

Batch : 2708766
Analyst : MAR02577
Prep Date : 11/26/2024
Ra-226 Method Uncertainty : 0.073648

Procedure Code : LUC26RAL
Parmname : Radium-226
Required MDA : 1 pCi/L
Halflife of Ra-226 : 1600 years
Ra-226 Abundance : 1.00
Halflife of Rn-222: 3.8235 days

Batch counted on : LUCAS CELL DETECTOR
BKG Count time : 30 min

Sample Characteristics					Count Raw Data							
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Background Count Time (min.)	Cell Efficiency (cpm/dpm)
1	696182001.1	0.5003	2.0257E-05	11/13/2024 13:07	805	15	14	0.933	6	0.200	30	1.7324
2	696182002.1	0.5000	2.0256E-05	11/13/2024 13:03	103	15	12	0.800	6	0.200	30	1.7930
3	696182003.1	0.5009	2.0259E-05	11/13/2024 14:22	203	15	10	0.667	3	0.100	30	2.0011
4	696182004.1	0.5005	2.0258E-05	11/13/2024 11:49	309	15	13	0.867	4	0.133	30	1.5630
5	696182005.1	0.5033	2.0269E-05	11/13/2024 10:22	402	15	24	1.600	3	0.100	30	1.9920
6	696182006.1	0.5006	2.0258E-05	11/13/2024 16:01	501	15	10	0.667	3	0.100	30	1.7780
7	696182007.1	0.5030	2.0268E-05	11/13/2024 17:33	605	15	35	2.333	1	0.033	30	2.0120
8	696182008.1	0.5004	2.0258E-05	11/13/2024 17:25	804	15	21	1.400	4	0.133	30	1.5337
9	696182009.1	0.5036	2.0271E-05	11/13/2024 15:57	106	15	23	1.533	3	0.100	30	1.8890
10	696182010.1	0.5045	2.0274E-05	11/13/2024 13:07	202	15	13	0.867	1	0.033	30	1.9828
11	696182011.1	0.5070	2.0284E-05	11/13/2024 8:40	302	15	6	0.400	1	0.033	30	1.4890
12	1205925528.1	0.5070	2.0284E-05	11/26/2024 0:00	705	15	5	0.333	1	0.033	30	1.5320
13	1205925529.1	0.5025	2.0266E-05	11/13/2024 13:07	403	15	22	1.467	3	0.100	30	1.7560
14	1205925530.1	0.1008	1.1417E-05	11/13/2024 13:07	503	15	489	32.600	5	0.167	30	1.6250
15	1205925531.1	0.5070	2.0284E-05	11/26/2024 0:00	608	15	517	34.467	4	0.133	30	2.0407

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-008
Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections			
						De-Gas to Ingrowth	Ingrowth to Count	During Count	Ra-226 Decay
6.076%	4/1/2024	3/31/2025	12/4/2024 12:02	12/10/2024 7:46	12/10/2024 11:12	0.652	0.974	1.001	1.000
4.400%	5/1/2024	4/30/2025	12/4/2024 12:02	12/10/2024 8:22	12/10/2024 11:48	0.654	0.974	1.001	1.000
6.956%	8/14/2024	8/31/2025	12/4/2024 12:02	12/10/2024 8:22	12/10/2024 11:48	0.654	0.974	1.001	1.000
4.700%	12/4/2024	11/30/2025	12/4/2024 12:02	12/10/2024 8:22	12/10/2024 11:48	0.654	0.974	1.001	1.000
6.500%	2/1/2024	1/31/2025	12/4/2024 12:02	12/10/2024 8:22	12/10/2024 11:48	0.654	0.974	1.001	1.000
4.600%	6/12/2024	6/30/2025	12/4/2024 12:02	12/10/2024 8:22	12/10/2024 11:48	0.654	0.974	1.001	1.000
8.804%	7/16/2024	7/31/2025	12/4/2024 12:02	12/10/2024 8:22	12/10/2024 11:48	0.654	0.974	1.001	1.000
6.090%	4/1/2024	3/31/2025	12/4/2024 12:02	12/10/2024 8:22	12/10/2024 11:48	0.654	0.974	1.001	1.000
3.100%	5/1/2024	4/30/2025	12/4/2024 12:02	12/10/2024 8:50	12/10/2024 12:07	0.655	0.976	1.001	1.000
8.090%	8/14/2024	8/31/2025	12/4/2024 12:02	12/10/2024 8:50	12/10/2024 12:07	0.655	0.976	1.001	1.000
4.800%	12/4/2024	11/30/2025	12/4/2024 12:02	12/10/2024 8:50	12/10/2024 12:07	0.655	0.976	1.001	1.000
9.100%	11/1/2024	10/31/2025	12/4/2024 12:02	12/10/2024 8:50	12/10/2024 12:07	0.655	0.976	1.001	1.000
8.500%	2/1/2024	1/31/2025	12/4/2024 12:02	12/10/2024 8:50	12/10/2024 12:07	0.655	0.976	1.001	1.000
5.700%	6/12/2024	6/30/2025	12/4/2024 12:02	12/10/2024 8:50	12/10/2024 12:07	0.655	0.976	1.001	1.000
9.015%	7/16/2024	7/31/2025	12/4/2024 12:02	12/10/2024 8:50	12/10/2024 12:07	0.655	0.976	1.001	1.000

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

Spike S/N : 1715-J
Spike Exp Date : 4/1/2025
Spike Activity (dpm/ml): 305.94
Spike Volume Added: 0.10

LCS S/N : 1715-J
LCS Exp Date : 4/1/2025
LCS Activity (dpm/ml): 305.94
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	0.2698	0.1905	1	0.5448	**0.6005**	36.30%	0.7333	0.2625	0.4212	0.4360		SAMPLE				
2	0.2602	0.1837	1	0.5254	**0.4738**	41.06%	0.6000	0.2449	0.3791	0.3874		SAMPLE				
3	0.1646	0.1162	1	0.3737	**0.4003**	39.20%	0.5667	0.2186	0.3026	0.3129		SAMPLE				
4	0.2435	0.1719	1	0.5248	**0.6637**	34.34%	0.7333	0.2494	0.4425	0.4568		SAMPLE				
5	0.1645	0.1162	1	0.3736	**1.0593**	23.05%	1.5000	0.3317	0.4591	0.5023		SAMPLE				
6	0.1853	0.1309	1	0.4208	**0.4508**	38.85%	0.5667	0.2186	0.3408	0.3493		SAMPLE				
7	0.0941	0.0665	1	0.2728	**1.6093**	19.33%	2.3000	0.3958	0.5428	0.6525		SAMPLE				
8	0.2482	0.1752	1	0.5350	**1.1685**	25.43%	1.2667	0.3127	0.5654	0.6063		SAMPLE				
9	0.1729	0.1221	1	0.3925	**1.0636**	22.88%	1.4333	0.3249	0.4725	0.5010		SAMPLE				
10	0.0949	0.0670	1	0.2752	**0.5881**	30.22%	0.8333	0.2427	0.3357	0.3586		SAMPLE				
11	0.1258	0.0888	1	0.3646	**0.3429**	45.71%	0.3667	0.1667	0.3055	0.3111		SAMPLE				
12	0.1223	0.0863	1	0.3544	**0.2726**	51.72%	0.3000	0.1528	0.2721	0.2792		MB				
13	0.1864	0.1316	1	0.4232	**1.0934**	24.77%	1.3667	0.3180	0.4986	0.5538	696182001.1	DUP	58.2%			
14	1.2968	0.9156	1	2.6934	**139.8299**	7.29%	32.4333	1.4761	12.4733	28.4084	696182001.1	MS			136.7721	101.8%
15	0.1836	0.1296	1	0.3956	**23.4241**	10.04%	34.3333	1.5173	2.0290	5.7165		LCS			27.1814	86.2%

Continuing Calibration Data

Ludlum Alpha Scintillation Counter Checks for 10-DEC-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	08:25	1	1.06E+05	106213	-2.31		
LUCAS2	EFF	08:24	1	1.27E+05	126891	-1.25		
LUCAS3	EFF	08:23	1	92082	92082	-2.02		
LUCAS4	EFF	08:21	1	1.23E+05	122837	-1.21		
LUCAS5	EFF	08:20	1	1.27E+05	127420	-0.7		
LUCAS6	EFF	08:19	1	1.27E+05	126715	-1.82		
LUCAS7	EFF	08:17	1	1.30E+05	129566	-0.54		
LUCAS8	EFF	08:41	1	1.20E+05	120392	-1.57		

Reviewed by: **Date:** 10-DEC-24

Lyndsey Pace

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR **Batch ID: 2708766**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
696182001	SAMPLE	MJ2	LUCAS8	DEC-10-24 11:12:00	DONE	Lucas Cell	01-APR-24 00:00
696182002	SAMPLE	MJ2	LUCAS1	DEC-10-24 11:48:00	DONE	Lucas Cell	01-MAY-24 00:00
696182003	SAMPLE	MJ2	LUCAS2	DEC-10-24 11:48:00	DONE	Lucas Cell	14-AUG-24 00:00
696182004	SAMPLE	MJ2	LUCAS3	DEC-10-24 11:48:00	DONE	Lucas Cell	04-DEC-24 00:00
696182005	SAMPLE	MJ2	LUCAS4	DEC-10-24 11:48:00	DONE	Lucas Cell	01-FEB-24 00:00
696182006	SAMPLE	MJ2	LUCAS5	DEC-10-24 11:48:00	DONE	Lucas Cell	12-JUN-24 00:00
696182007	SAMPLE	MJ2	LUCAS6	DEC-10-24 11:48:00	DONE	Lucas Cell	16-JUL-24 00:00
696182008	SAMPLE	MJ2	LUCAS8	DEC-10-24 11:48:00	DONE	Lucas Cell	01-APR-24 00:00
696182009	SAMPLE	MJ2	LUCAS1	DEC-10-24 12:07:00	DONE	Lucas Cell	01-MAY-24 00:00
696182010	SAMPLE	MJ2	LUCAS2	DEC-10-24 12:07:00	DONE	Lucas Cell	14-AUG-24 00:00
696182011	SAMPLE	MJ2	LUCAS3	DEC-10-24 12:07:00	DONE	Lucas Cell	04-DEC-24 00:00
1205925528	MB	MJ2	LUCAS7	DEC-10-24 12:07:00	DONE	Lucas Cell	01-NOV-24 00:00
1205925529	DUP	MJ2	LUCAS4	DEC-10-24 12:07:00	DONE	Lucas Cell	01-FEB-24 00:00
1205925530	MS	MJ2	LUCAS5	DEC-10-24 12:07:00	DONE	Lucas Cell	12-JUN-24 00:00
1205925531	LCS	MJ2	LUCAS6	DEC-10-24 12:07:00	DONE	Lucas Cell	16-JUL-24 00:00

Data Verification & Validation Report

Lansing Board of Water & Light – Erickson Power Station

Sampling Event (dates and purpose): Background Sampling

Data Package Number: S57346.01 Lab Report Date: 1/31/2024

Data Validator: Andrew Byks Data Validation Completion Date: 3/21/2024

General Overall Assessment:
_____ Data are usable without qualification.
__X__ Data are usable with qualification (as noted below).
_____ Some or all data are unusable (as noted below).

Wells planned for sampling:

Well ID	Planned for Sampling
MW-1	
MW-2	
MW-3	
MW-4	
MW-5	
MW-6	
MW-7	
MW-7B	
MW-7C	
MW-8	
MW-9	
MW-10	
MW-11	
MW-11B	
MW-12	
MW-12B	
MW-13	
MW-14	
MW-15	
MW-16A	
MW-16B	
MW-16C	
MW-16D	
MW-100A	X
MW-100B	X
MW-100C	X
MW-100D	X

Data Summary

Sample ID	Matrix	Lab ID	Date Collected	App III Metals	App IV Metals	Part 115 Metals	Anions	TDS TSS	Rad-226 Rad-228	Diss. Metals
MW-100A	GW	S57346.01	1/3/2024	X	X	X	X	X	X	
MW-100B	GW	S57346.02	1/3/2024	X	X	X	X	X	X	
MW-100C	GW	S57346.03	1/3/2024	X	X	X	X	X	X	
MW-100D	GW	S57346.04	1/3/2024	X	X	X	X	X	X	
MWT-100C	GW	S57346.05	1/3/2024	X	X	X	X	X	X	

Other analytes requested for analysis: Na, Mg, K, HCO_3, CO_3, hardness

Any planned sampling or analysis NOT completed? If yes, explain: ____

Data Verification & Validation Checklist

Review Category	Verify Complete		Validation Criteria	Criteria Met?			Description of Nonconformance and Qualification (if applicable)
	Yes	No		Yes	No	N/A	
Field Data							
Sample Collection Field Forms	X		Purging performed as required in the Groundwater Monitoring Plan	X			
Field Calibration Records	X		Field instruments calibrated daily according to manufacturer specifications	X			
Chain of Custody	X		Accurately reflect samples, collection dates/times, analyses, bottles, etc.	X			
Field decontamination documentation	X		Record of decontamination for non-dedicated sampling equipment	X			
Drilling logs	X		N/A	-	-	-	
Well construction logs	X		N/A	-	-	-	
Well development field forms	X		N/A	-	-	-	
Analytical Data Package							
Cover Sheet	X		N/A	-	-	-	
Case Narrative	X		Summarizes sample receipt and any exceptions to QC acceptance criteria	X			
Internal Laboratory Chain of Custody forms	X		Analyses as requested; accurate transcription of field COC	X			
Sample Chronology and Consistency	X		Accurate representation of dates, times of receipt, preparation, and analysis	X			
Communication Records with Lab	X		N/A	-	-	-	
EDD Format Consistency	X		EDD format and content as requested	X			
Sample Identification, Results Nomenclature, and Data Qualifier Consistency	X		All included in final report	X			
Method Detection Limit Consistency	X		MDLs consistent between samples		X		Dilution varies across samples for hardness
Instrument Calibration Records	X		Present and no nonconformance noted	X			
Laboratory Report Complete	X		Includes QC component	X			
Holding Times	X		Analyses performed within allowed holding time	X			

Review Category	Verify Complete		Validation Criteria	Criteria Met?			Description of Nonconformance and Qualification (if applicable)
	Yes	No		Yes	No	N/A	
Method	X		Method as requested	X			
Reporting Limits	X		RLs as requested		X		RLs for hardness and TDS were not met
			MDLs<RLs		X		RL=MDL for carbonate
			MDLs<MCLs	X			
			MDLs<GPS	X			
QC Validation							
Evaluate Accuracy							
Matrix Spike (Recovery)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Laboratory Control Sample (Recovery)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Evaluate Precision							
Matrix Spike Duplicate (RPD)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Field Duplicate (RPD)	X		RPD ≤ 20%		X		Field duplicates for Rad-226 not met; see below
Evaluate Representativeness							
Equipment Blanks (if applicable)	X		Non-detect (<RL)	X			
QC Verification							
Verify Instrument Calibration & Analytical Process							
Initial Calibration Verification	X		Laboratory-determined	-	-	-	
Continuing Calibration Verification	X		Laboratory-determined	-	-	-	
Initial Calibration Blank	X		Laboratory-determined	-	-	-	
Continuing Calibration Blank	X		Laboratory-determined	-	-	-	
Serial Dilutions	X		Laboratory-determined	-	-	-	
Post-Digestion Spikes	X		Laboratory-determined	-	-	-	
Internal Standards	X		Laboratory-determined	-	-	-	
Laboratory Duplicate (RPD)	X		Laboratory-determined	-	-	-	
Method Blanks	X		Laboratory-determined	-	-	-	
Evaluate Completeness (# usable measurements/ # unusable measurements)							
Completeness	X		100%	X			

Other instances of nonconformance to QC control limits noted on case narrative:

None.

Comments:

The RPD of Rad-226 between parent sample MW-100C and field duplicate MWT-100C was 35%. Rad-226 in parent sample MW-100C required qualification as estimated with high bias (J+) and in field duplicate MWT-100C as estimated with low bias (J-).

Data Verification & Validation Report

Lansing Board of Water & Light – Erickson Power Station

Sampling Event (dates and purpose): Background Sampling

Data Package Number: S58527.01 Lab Report Date: 3/8/2024

Data Validator: Andrew Byks Data Validation Completion Date: 5/1/2024

General Overall Assessment:
_____ Data are usable without qualification.
__X__ Data are usable with qualification (as noted below).
_____ Some or all data are unusable (as noted below).

Wells planned for sampling:

Well ID	Planned for Sampling
MW-1	
MW-2	
MW-3	
MW-4	
MW-5	
MW-6	
MW-7	
MW-7B	
MW-7C	
MW-8	
MW-9	
MW-10	
MW-11	
MW-11B	
MW-12	
MW-12B	
MW-13	
MW-14	
MW-15	
MW-16A	
MW-16B	
MW-16C	
MW-16D	
MW-100A	X
MW-100B	X
MW-100C	X
MW-100D	X

Data Summary

Sample ID	Matrix	Lab ID	Date Collected	App III Metals	App IV Metals	Part 115 Metals	Anions	TDS TSS	Rad-226 Rad-228	Diss. Metals
MW-100A	GW	S57346.01	2/7/2024	X	X	X	X	X	X	
MW-100B	GW	S57346.02	2/7/2024	X	X	X	X	X	X	
MW-100C	GW	S57346.03	2/7/2024	X	X	X	X	X	X	
MW-100D	GW	S57346.04	2/7/2024	X	X	X	X	X	X	
MWT-100C	GW	S57346.05	2/7/2024	X	X	X	X	X	X	

Other analytes requested for analysis: Na, Mg, K, HCO_3, CO_3, hardness

Any planned sampling or analysis NOT completed? If yes, explain: ____

Data Verification & Validation Checklist

Review Category	Verify Complete		Validation Criteria	Criteria Met?			Description of Nonconformance and Qualification (if applicable)
	Yes	No		Yes	No	N/A	
Field Data							
Sample Collection Field Forms	X		Purging performed as required in the Groundwater Monitoring Plan	X			
Field Calibration Records	X		Field instruments calibrated daily according to manufacturer specifications	X			
Chain of Custody	X		Accurately reflect samples, collection dates/times, analyses, bottles, etc.	X			
Field decontamination documentation	X		Record of decontamination for non-dedicated sampling equipment	X			
Drilling logs	X		N/A	-	-	-	
Well construction logs	X		N/A	-	-	-	
Well development field forms	X		N/A	-	-	-	
Analytical Data Package							
Cover Sheet	X		N/A	-	-	-	
Case Narrative	X		Summarizes sample receipt and any exceptions to QC acceptance criteria	X			
Internal Laboratory Chain of Custody forms	X		Analyses as requested; accurate transcription of field COC	X			
Sample Chronology and Consistency	X		Accurate representation of dates, times of receipt, preparation, and analysis	X			
Communication Records with Lab	X		N/A	-	-	-	
EDD Format Consistency	X		EDD format and content as requested	X			
Sample Identification, Results Nomenclature, and Data Qualifier Consistency	X		All included in final report	X			
Method Detection Limit Consistency	X		MDLs consistent between samples	X			
Instrument Calibration Records	X		Present and no nonconformance noted	X			
Laboratory Report Complete	X		Includes QC component	X			
Holding Times	X		Analyses performed within allowed holding time	X			

Review Category	Verify Complete		Validation Criteria	Criteria Met?			Description of Nonconformance and Qualification (if applicable)
	Yes	No		Yes	No	N/A	
Method	X		Method as requested	X			
Reporting Limits	X		RLs as requested		X		RLs for TDS were not met
			MDLs<RLs		X		RL=MDL for carbonate
			MDLs<MCLs	X			
			MDLs<GPS	X			
QC Validation							
Evaluate Accuracy							
Matrix Spike (Recovery)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Laboratory Control Sample (Recovery)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Evaluate Precision							
Matrix Spike Duplicate (RPD)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Field Duplicate (RPD)	X		RPD ≤ 20%		X		Field duplicates for Rad-226, Rad-228, and combined rad not met; see below
Evaluate Representativeness							
Equipment Blanks (if applicable)	X		Non-detect (<RL)	X			
QC Verification							
Verify Instrument Calibration & Analytical Process							
Initial Calibration Verification	X		Laboratory-determined	-	-	-	
Continuing Calibration Verification	X		Laboratory-determined	-	-	-	
Initial Calibration Blank	X		Laboratory-determined	-	-	-	
Continuing Calibration Blank	X		Laboratory-determined	-	-	-	
Serial Dilutions	X		Laboratory-determined	-	-	-	
Post-Digestion Spikes	X		Laboratory-determined	-	-	-	
Internal Standards	X		Laboratory-determined	-	-	-	
Laboratory Duplicate (RPD)	X		Laboratory-determined	-	-	-	
Method Blanks	X		Laboratory-determined	-	-	-	
Evaluate Completeness (# usable measurements/ # unusable measurements)							
Completeness	X		100%	X			

Other instances of nonconformance to QC control limits noted on case narrative:

None.

Comments:

The RPDs of Rad-226, Rad-228, and combined radium between parent sample MW-100C and field duplicate MWT-100C were 28%, 76%, and 35%, respectively. Rad-226 in parent sample MW-100C required qualification as estimated with high bias (J+) and in field duplicate MWT-100C as estimated with

low bias (J-). Rad-228 and combined radium in parent sample MW-100C required qualification as estimated with low bias (J-) and in field duplicate MWT-100C as estimated with high bias (J+).

Data Verification & Validation Report

Lansing Board of Water & Light – Erickson Power Station

Sampling Event (dates and purpose): Background Sampling

Data Package Number:	Lab Report Date:
S58153.01	2/29/2024
S58205.01	2/29/2024
S58248.01	3/5/2024
S58313.01	3/5/2024

Data Validator: Andrew Byks

Data Validation Completion Date: 4/1/2024

General Overall Assessment:
_____ Data are usable without qualification.
__X__ Data are usable with qualification (as noted below).
_____ Some or all data are unusable (as noted below).

Wells planned for sampling:

Well ID	Planned for Sampling
MW-1	X
MW-2	X
MW-3	X
MW-4	X
MW-5	X
MW-6	X
MW-7	X
MW-7B	X
MW-7C	X
MW-8	X
MW-9	X
MW-10	X
MW-11	X
MW-11B	X
MW-12	X
MW-12B	X
MW-13	X
MW-14	X
MW-15	X
MW-16A	X
MW-16B	X
MW-16C	X
MW-16D	X
MW-100A	
MW-100B	
MW-100C	
MW-100D	

Data Summary

Sample ID	Matrix	Lab ID	Date Collected	App III Metals	App IV Metals	Part 115 Metals	Anions	TDS TSS	Rad-226 Rad-228	Diss. Metals
MW-1	GW	S58153.01	1/29/2024	X	X	X	X	X	X	
MW-2	GW	S58153.02	1/29/2024	X	X	X	X	X	X	X
MW-3	GW	S58153.03	1/29/2024	X	X	X	X	X	X	
MW-4	GW	S58153.04	1/29/2024	X	X	X	X	X	X	
MW-5	GW	S58153.05	1/29/2024	X	X	X	X	X	X	X
MW-6	GW	S58153.06	1/29/2024	X	X	X	X	X	X	
MWT-6	GW	S58153.07	1/29/2024	X	X	X	X	X	X	
MW-7	GW	S58205.01	1/30/2024	X	X	X	X	X	X	
MW-7B	GW	S58205.02	1/30/2024	X	X	X	X	X	X	
MW-7C	GW	S58205.03	1/30/2024	X	X	X	X	X	X	
MW-8	GW	S58205.04	1/30/2024	X	X	X	X	X	X	
MW-9	GW	S58205.05	1/30/2024	X	X	X	X	X	X	
MW-10	GW	S58205.06	1/30/2024	X	X	X	X	X	X	
MW-13	GW	S58205.07	1/30/2024	X	X	X	X	X	X	
MWT-7	GW	S58205.08	1/30/2024	X	X	X	X	X	X	
MW-11	GW	S58248.01	1/31/2024	X	X	X	X	X	X	X
MW-11B	GW	S58248.02	1/31/2024	X	X	X	X	X	X	
MW-12	GW	S58248.03	1/31/2024	X	X	X	X	X	X	X
MW-12B	GW	S58248.04	1/31/2024	X	X	X	X	X	X	
MW-14	GW	S58248.05	1/31/2024	X	X	X	X	X	X	
MW-15	GW	S58248.06	1/31/2024	X	X	X	X	X	X	
MWT-11B	GW	S58248.07	1/31/2024	X	X	X	X	X	X	
MW-16A	GW	S58313.01	2/1/2024	X	X	X	X	X	X	
MW-16B	GW	S58313.02	2/1/2024	X	X	X	X	X	X	
MW-16C	GW	S58313.03	2/1/2024	X	X	X	X	X	X	
MW-16D	GW	S58313.04	2/1/2024	X	X	X	X	X	X	
MWT-16B	GW	S58313.05	2/1/2024	X	X	X	X	X	X	

Other analytes requested for analysis: Na, Mg, K, HCO_3, CO_3, hardness

Any planned sampling or analysis NOT completed? If yes, explain: ____

Data Verification & Validation Checklist

Review Category	Verify Complete		Validation Criteria	Criteria Met?			Description of Nonconformance and Qualification (if applicable)
	Yes	No		Yes	No	N/A	
Field Data							
Sample Collection Field Forms	X		Purging performed as required in the Groundwater Monitoring Plan	X			
Field Calibration Records	X		Field instruments calibrated daily according to manufacturer specifications	X			
Chain of Custody	X		Accurately reflect samples, collection dates/times, analyses, bottles, etc.	X			
Field decontamination documentation	X		Record of decontamination for non-dedicated sampling equipment	X			
Drilling logs	X		N/A	-	-	-	
Well construction logs	X		N/A	-	-	-	
Well development field forms	X		N/A	-	-	-	
Analytical Data Package							
Cover Sheet	X		N/A	-	-	-	
Case Narrative	X		Summarizes sample receipt and any exceptions to QC acceptance criteria	X			
Internal Laboratory Chain of Custody forms	X		Analyses as requested; accurate transcription of field COC	X			
Sample Chronology and Consistency	X		Accurate representation of dates, times of receipt, preparation, and analysis	X			
Communication Records with Lab	X		N/A	-	-	-	
EDD Format Consistency	X		EDD format and content as requested	X			
Sample Identification, Results Nomenclature, and Data Qualifier Consistency	X		All included in final report	X			
Method Detection Limit Consistency	X		MDLs consistent between samples		X		Dilution varies across samples for bicarbonate, calcium, carbonate, chloride, fluoride, hardness, sodium, sulfate, TSS
Instrument Calibration Records	X		Present and no nonconformance noted	X			
Laboratory Report Complete	X		Includes QC component	X			

Review Category	Verify Complete		Validation Criteria	Criteria Met?			Description of Nonconformance and Qualification (if applicable)
	Yes	No		Yes	No	N/A	
Holding Times	X		Analyses performed within allowed holding time	X			
Method	X		Method as requested	X			
Reporting Limits	X		RLs as requested		X		RLs for bicarbonate, carbonate, chloride, fluoride hardness, sulfate, and TDS were not met
			MDLs<RLs		X		RL=MDL for carbonate
			MDLs<MCLs	X			
			MDLs<GPS	X			
QC Validation							
Evaluate Accuracy							
Matrix Spike (Recovery)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Laboratory Control Sample (Recovery)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Evaluate Precision							
Matrix Spike Duplicate (RPD)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Field Duplicate (RPD)	X		RPD ≤ 20%		X		Field duplicates for TSS and Rad-226/228 not met; see below
Evaluate Representativeness							
Equipment Blanks (if applicable)	X		Non-detect (<RL)	X			
QC Verification							
Verify Instrument Calibration & Analytical Process							
Initial Calibration Verification	X		Laboratory-determined	-	-	-	
Continuing Calibration Verification	X		Laboratory-determined	-	-	-	
Initial Calibration Blank	X		Laboratory-determined	-	-	-	
Continuing Calibration Blank	X		Laboratory-determined	-	-	-	
Serial Dilutions	X		Laboratory-determined	-	-	-	
Post-Digestion Spikes	X		Laboratory-determined	-	-	-	
Internal Standards	X		Laboratory-determined	-	-	-	
Laboratory Duplicate (RPD)	X		Laboratory-determined	-	-	-	
Method Blanks	X		Laboratory-determined	-	-	-	
Evaluate Completeness (# usable measurements/ # unusable measurements)							
Completeness	X		100%	X			

Other instances of nonconformance to QC control limits noted on case narrative:

None.

Comments:

The RPDs of Rad-228 and combined radium between parent sample MW-6 and field duplicate MWT-6 were 120% and 82%, respectively. Rad-228 and combined radium in parent sample MW-6 required qualification as estimated with low bias (J-) and in field duplicate MWT-6 as estimated with high bias (J+).

The RPDs of Rad-226, Rad-228, and combined radium between parent sample MW-7 and field duplicate MWT-7 were 100%, 28%, and 51%, respectively. Rad-226, Rad-228, and combined radium in parent sample MW-7 required qualification as estimated with low bias (J-) and in field duplicate MWT-7 as estimated with high bias (J+).

The RPDs of Rad-226 and combined radium between parent sample MW-11B and field duplicate MWT-11B were 57% and 24%, respectively. Rad-226 and combined radium in parent sample MW-11B required qualification as estimated with high bias (J+) and in field duplicate MWT-11B as estimated with low bias (J-).

TSS was detected in parent sample MW-16B but not detected in field duplicate MWT-16B. TSS in parent sample MW-16B required qualification as estimated with high bias (J+) and in field duplicate MWT-16B as estimated but not detected (UJ).

The RPDs of Rad-226, Rad-228, and combined radium between parent sample MW-16B and field duplicate MWT-16B were 37%, 22%, and 31%, respectively. Rad-226, Rad-228, and combined radium required qualification as estimated with high bias (J+) in parent sample MW-16B and in field duplicate MWT-16B as estimated with low bias (J-).

Data Verification & Validation Report

Lansing Board of Water & Light – Erickson Power Station

Sampling Event (dates and purpose): Background Sampling

Data Package Number:	Lab Report Date:
S64830.01	10/11/2024
S64874.01	10/11/2024
S64939.01	10/11/2024
S64993.01	10/22/2024

Data Validator: Andrew Byks

Data Validation Completion Date: 12/3/2024

General Overall Assessment:
_____ Data are usable without qualification.
__X__ Data are usable with qualification (as noted below).
_____ Some or all data are unusable (as noted below).

Wells planned for sampling:

Well ID	Planned for Sampling
MW-1	X
MW-2	X
MW-3	X
MW-4	X
MW-5	X
MW-6	X
MW-7	X
MW-7B	X
MW-7C	X
MW-8	X
MW-9	X
MW-10	X
MW-11	X
MW-11B	X
MW-12	X
MW-12B	X
MW-13	X
MW-14	X
MW-15	X
MW-16A	X
MW-16B	X
MW-16C	X
MW-16D	X
MW-100A	X
MW-100B	X
MW-100C	X
MW-100D	X

Data Summary

Sample ID	Matrix	Lab ID	Date Collected	App III Metals	App IV Metals	Part 115 Metals	Anions	TDS TSS	Rad-226 Rad-228	Diss. Metals
MW-3	GW	S64830.01	08/05/2024	X	X	X	X	X	X	
MW-4	GW	S64830.02	08/05/2024	X	X	X	X	X	X	
MW-5	GW	S64830.03	08/05/2024	X	X	X	X	X	X	X
MW-6	GW	S64830.04	08/05/2024	X	X	X	X	X	X	
MW-14	GW	S64830.05	08/05/2024	X	X	X	X	X	X	
MW-11	GW	S64830.06	08/05/2024	X	X	X	X	X	X	
MW-11B	GW	S64830.07	08/05/2024	X	X	X	X	X	X	
MWT-11B	GW	S64830.08	08/05/2024	X	X	X	X	X	X	
MW-1	GW	S64830.09	08/05/2024	X	X	X	X	X	X	
MW-2	GW	S64830.10	08/05/2024	X	X	X	X	X	X	X
Field Blank	GW	S64830.11	08/05/2024	X	X	X	X	X	X	
MW-12	GW	S64874.01	08/06/2024	X	X	X	X	X	X	X
MW-16A	GW	S64874.02	08/06/2024	X	X	X	X	X	X	
MW-16B	GW	S64874.03	08/06/2024	X	X	X	X	X	X	
MWT-16B	GW	S64874.04	08/06/2024	X	X	X	X	X	X	
MW-16D	GW	S64874.05	08/06/2024	X	X	X	X	X	X	
MW-16C	GW	S64874.06	08/06/2024	X	X	X	X	X	X	
MW-12B	GW	S64874.07	08/06/2024	X	X	X	X	X	X	
Field Blank	GW	S64874.08	08/06/2024	X	X	X	X	X	X	
MW-100B	GW	S64939.01	08/07/2024	X	X	X	X	X	X	
MW-100C	GW	S64939.02	08/07/2024	X	X	X	X	X	X	
MWT-100C	GW	S64939.03	08/07/2024	X	X	X	X	X	X	
MW-100D	GW	S64939.04	08/07/2024	X	X	X	X	X	X	
MW-100A	GW	S64939.05	08/07/2024	X	X	X	X	X	X	
MW-13	GW	S64939.06	08/07/2024	X	X	X	X	X	X	
MW-15	GW	S64939.07	08/07/2024	X	X	X	X	X	X	
Field Blank	GW	S64939.08	08/07/2024	X	X	X	X	X	X	
MW-7	GW	S64993.01	08/08/2024	X	X	X	X	X	X	
MW-7B	GW	S64993.02	08/08/2024	X	X	X	X	X	X	
MW-7C	GW	S64993.03	08/08/2024	X	X	X	X	X	X	
MW-10	GW	S64993.04	08/08/2024	X	X	X	X	X	X	
MWT-10	GW	S64993.05	08/08/2024	X	X	X	X	X	X	
MW-9	GW	S64993.06	08/08/2024	X	X	X	X	X	X	
MW-8	GW	S64993.07	08/08/2024	X	X	X	X	X	X	
Field Blank	GW	S64993.08	08/08/2024	X	X	X	X	X	X	

Other analytes requested for analysis: Na, Mg, K, HCO_3, CO_3, hardness

Any planned sampling or analysis NOT completed? If yes, explain: ____

Data Verification & Validation Checklist

Review Category	Verify Complete		Validation Criteria	Criteria Met?			Description of Nonconformance and Qualification (if applicable)
	Yes	No		Yes	No	N/A	
Field Data							
Sample Collection Field Forms	X		Purging performed as required in the Groundwater Monitoring Plan	X			
Field Calibration Records	X		Field instruments calibrated daily according to manufacturer specifications	X			
Chain of Custody	X		Accurately reflect samples, collection dates/times, analyses, bottles, etc.	X			
Field decontamination documentation	X		Record of decontamination for non-dedicated sampling equipment	X			
Drilling logs	X		N/A	-	-	-	
Well construction logs	X		N/A	-	-	-	
Well development field forms	X		N/A	-	-	-	
Analytical Data Package							
Cover Sheet	X		N/A	-	-	-	
Case Narrative	X		Summarizes sample receipt and any exceptions to QC acceptance criteria	X			
Internal Laboratory Chain of Custody forms	X		Analyses as requested; accurate transcription of field COC	X			
Sample Chronology and Consistency	X		Accurate representation of dates, times of receipt, preparation, and analysis	X			
Communication Records with Lab	X		N/A	-	-	-	
EDD Format Consistency	X		EDD format and content as requested	X			
Sample Identification, Results Nomenclature, and Data Qualifier Consistency	X		All included in final report	X			
Method Detection Limit Consistency	X		MDLs consistent between samples		X		Dilution varies across samples for chloride, fluoride, hardness, sodium, sulfate, TSS
Instrument Calibration Records	X		Present and no nonconformance noted	X			
Laboratory Report Complete	X		Includes QC component	X			

Review Category	Verify Complete		Validation Criteria	Criteria Met?			Description of Nonconformance and Qualification (if applicable)
	Yes	No		Yes	No	N/A	
Holding Times	X		Analyses performed within allowed holding time	X			
Method	X		Method as requested	X			
Reporting Limits	X		RLs as requested		X		RLs for bicarbonate, carbonate, chloride, fluoride hardness, sulfate, TDS, and TSS were not met
			MDLs<RLs		X		RL=MDL for carbonate
			MDLs<MCLs	X			
			MDLs<GPS	X			
QC Validation							
Evaluate Accuracy							
Matrix Spike (Recovery)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Laboratory Control Sample (Recovery)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Evaluate Precision							
Matrix Spike Duplicate (RPD)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Field Duplicate (RPD)	X		RPD ≤ 20%		X		Field duplicates for TSS, zinc, and Rad-226/228 not met; see below
Evaluate Representativeness							
Equipment Blanks (if applicable)	X		Non-detect (<RL)	X			
QC Verification							
Verify Instrument Calibration & Analytical Process							
Initial Calibration Verification	X		Laboratory-determined	-	-	-	
Continuing Calibration Verification	X		Laboratory-determined	-	-	-	
Initial Calibration Blank	X		Laboratory-determined	-	-	-	
Continuing Calibration Blank	X		Laboratory-determined	-	-	-	
Serial Dilutions	X		Laboratory-determined	-	-	-	
Post-Digestion Spikes	X		Laboratory-determined	-	-	-	
Internal Standards	X		Laboratory-determined	-	-	-	
Laboratory Duplicate (RPD)	X		Laboratory-determined	-	-	-	
Method Blanks	X		Laboratory-determined	-	-	-	
Evaluate Completeness (# usable measurements/ # unusable measurements)							
Completeness	X		100%	X			

Other instances of nonconformance to QC control limits noted on case narrative:

None.

Comments:

The RPDs of Rad-226, Rad-228, and consequently, combined Rad-226+228 between parent sample(s) MW-10 and MW-11B and their respective field duplicates MWT-10 and MWT-11B were outside of control limits. Rad-226 required qualification as estimated with high bias (J+) in both parent samples and as estimated with low bias (J-) in both field duplicates. Rad-228 and combined Rad-226+228 required qualification as estimated with high bias (J+) in parent sample MW-10 and field duplicate MWT-11B and as estimated with low bias (J-) in field duplicate MWT-10 and parent sample MW-11B.

The RPD of TSS between parent sample MW-11B and field duplicate MWT-11B was 32%. TSS in parent sample MW-11B required qualification as estimated with low bias (J-) and in field duplicate MWT-11B as estimated with high bias (J+).

Zinc was detected in field duplicate MWT-11B, but not detected in parent sample MW-11B. Zinc in parent sample MW-11B required qualification as estimated but not detected (UJ) and in field duplicate MWT-11B as estimated with high bias (J+).

The RPDs of Rad-228, and consequently, combined Rad-226+228 between parent sample(s) MW-16B and MW-100C and their respective field duplicates MWT-16B and MWT-100C were outside of control limits. Rad-228 and combined Rad-226+228 required qualification as estimated with high bias (J+) in both parent samples and as estimated with low bias (J-) in both field duplicates.

The RPD of TSS between parent sample MW-100C and field duplicate MWT-100C was 29%. TSS in parent sample MW-100C required qualification as estimated with low bias (J-) and in field duplicate MWT-100C as estimated with high bias (J+).

Data Verification & Validation Report

Lansing Board of Water & Light – Erickson Power Station

Sampling Event (dates and purpose): Background Sampling

Data Package Number: s67153.01 Lab Report Date: 12/6/2024

Data Validator: Andrew Byks Data Validation Completion Date: 12/20/2024

General Overall Assessment:
_____ Data are usable without qualification.
__X__ Data are usable with qualification (as noted below).
_____ Some or all data are unusable (as noted below).

Wells planned for sampling:

Well ID	Planned for Sampling
MW-1	
MW-2	
MW-3	
MW-4	
MW-5	
MW-6	
MW-7	
MW-7B	
MW-7C	
MW-8	
MW-9	
MW-10	
MW-11	
MW-11B	
MW-12	
MW-12B	
MW-13	
MW-14	
MW-15	
MW-16A	X
MW-16B	X
MW-16C	X
MW-16D	X
MW-17A	X
MW-17B	X
MW-17C	X
MW-17D	X
MW-17E	X
MW-18A	X
MW-18B	X
MW-18C	X
MW-18D	X
MW-100A	
MW-100B	
MW-100C	
MW-100D	

Data Summary

Sample ID	Matrix	Lab ID	Date Collected	App III Metals	App IV Metals	Part 115 Metals	Anions	TDS TSS	Rad-226 Rad-228	Diss. Metals
MW-17A	GW	S67153.01	10/08/2024	X	X	X	X	X	X	
MW-17B	GW	S67153.02	10/08/2024	X	X	X	X	X	X	
MW-17C	GW	S67153.03	10/08/2024	X	X	X	X	X	X	
MW-17D	GW	S67153.04	10/08/2024	X	X	X	X	X	X	
MW-17E	GW	S67153.05	10/08/2024	X	X	X	X	X	X	
MW-18A	GW	S67153.06	10/08/2024	X	X	X	X	X	X	
MW-18B	GW	S67153.07	10/08/2024	X	X	X	X	X	X	
MW-18C	GW	S67153.08	10/08/2024	X	X	X	X	X	X	
MW-18D	GW	S67153.09	10/08/2024	X	X	X	X	X	X	
MWT-17A	GW	S67153.10	10/08/2024	X	X	X	X	X	X	
Field Blank	W	S67153.11	10/08/2024	X	X	X	X	X	X	

Other analytes requested for analysis: Na, Mg, K, HCO_3, CO_3, hardness

Any planned sampling or analysis NOT completed? If yes, explain: ____

Data Verification & Validation Checklist

Review Category	Verify Complete		Validation Criteria	Criteria Met?			Description of Nonconformance and Qualification (if applicable)
	Yes	No		Yes	No	N/A	
Field Data							
Sample Collection Field Forms	X		Purging performed as required in the Groundwater Monitoring Plan	X			
Field Calibration Records	X		Field instruments calibrated daily according to manufacturer specifications	X			
Chain of Custody	X		Accurately reflect samples, collection dates/times, analyses, bottles, etc.	X			
Field decontamination documentation	X		Record of decontamination for non-dedicated sampling equipment	X			
Drilling logs	X		N/A	-	-	-	
Well construction logs	X		N/A	-	-	-	
Well development field forms	X		N/A	-	-	-	
Analytical Data Package							
Cover Sheet	X		N/A	-	-	-	
Case Narrative	X		Summarizes sample receipt and any exceptions to QC acceptance criteria	X			
Internal Laboratory Chain of Custody forms	X		Analyses as requested; accurate transcription of field COC	X			
Sample Chronology and Consistency	X		Accurate representation of dates, times of receipt, preparation, and analysis	X			
Communication Records with Lab	X		N/A	-	-	-	
EDD Format Consistency	X		EDD format and content as requested	X			
Sample Identification, Results Nomenclature, and Data Qualifier Consistency	X		All included in final report	X			
Method Detection Limit Consistency	X		MDLs consistent between samples	X			
Instrument Calibration Records	X		Present and no nonconformance noted	X			
Laboratory Report Complete	X		Includes QC component	X			
Holding Times	X		Analyses performed within allowed holding time	X			

Review Category	Verify Complete		Validation Criteria	Criteria Met?			Description of Nonconformance and Qualification (if applicable)
	Yes	No		Yes	No	N/A	
Method	X		Method as requested	X			
Reporting Limits	X		RLs as requested		X		RLs for TDS were not met
			MDLs<RLs		X		RL=MDL for carbonate
			MDLs<MCLs	X			
			MDLs<GPS	X			
QC Validation							
Evaluate Accuracy							
Matrix Spike (Recovery)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Laboratory Control Sample (Recovery)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Evaluate Precision							
Matrix Spike Duplicate (RPD)	X		See "Minimum QC Procedures for Project Parameters" table	X			
Field Duplicate (RPD)	X		RPD ≤ 20%		X		Field duplicates for Rad-226, Rad-228, and combined rad not met; see below
Evaluate Representativeness							
Equipment Blanks (if applicable)	X		Non-detect (<RL)	X			
QC Verification							
Verify Instrument Calibration & Analytical Process							
Initial Calibration Verification	X		Laboratory-determined	-	-	-	
Continuing Calibration Verification	X		Laboratory-determined	-	-	-	
Initial Calibration Blank	X		Laboratory-determined	-	-	-	
Continuing Calibration Blank	X		Laboratory-determined	-	-	-	
Serial Dilutions	X		Laboratory-determined	-	-	-	
Post-Digestion Spikes	X		Laboratory-determined	-	-	-	
Internal Standards	X		Laboratory-determined	-	-	-	
Laboratory Duplicate (RPD)	X		Laboratory-determined	-	-	-	
Method Blanks	X		Laboratory-determined	-	-	-	
Evaluate Completeness (# usable measurements/ # unusable measurements)							
Completeness	X		100%	X			

Other instances of nonconformance to QC control limits noted on case narrative:

None.

Comments:

The RPDs of Rad-226, Rad-228, and combined radium between parent sample MW-17A and field duplicate MWT-17A were 64%, 93%, and 86%, respectively. Rad-226, Rad-228, and combined radium in parent sample required qualification as estimated with low bias (J-) and in field duplicate MWT-17A as estimated with high bias (J+).

Appendix D

Statistical Output Reports

Table 1: Summary Statistics, Non-Detects Included

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
02_1_01	MW-2	Appendix III	Boron	mg/L	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	4.79	4.90	3.16	6.17	1.01	0.211	-0.179	-1.34
02_1_02	MW-2	Appendix III	Calcium	mg/L	20	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	236	252	164	272	35	0.148	-0.582	-1.13
02_1_03	MW-2	Appendix III	Chloride	mg/L	18	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	81.7	83.0	67.0	94.0	7.66	0.0938	-0.650	-0.371
02_1_04	MW-2	Appendix III	Fluoride	mg/L	18	18	100%	2020-04-28 to 2024-08-05		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
02_1_05	MW-2	Appendix III	pH, Field	su	21	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	6.77	6.75	6.54	7.08	0.108	0.0159	0.710	2.72
02_1_06	MW-2	Appendix III	Sulfate	mg/L	18	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	445	494	238	586	118	0.265	-0.416	-1.36
02_1_07	MW-2	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1230	1275	950	1430	165	0.134	-0.409	-1.34
02_2_04	MW-2	Appendix IV	Fluoride	mg/L	19	19	100%	2020-04-28 to 2024-08-05		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
02_2_08	MW-2	Appendix IV	Antimony	mg/L	21	21	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
02_2_09	MW-2	Appendix IV	Arsenic	mg/L	21	17	81%	2020-04-28 to 2024-08-05		Nonparametric	0.00214	0.00200	0.00200	0.00400	0.000478	0.223	3.53	12.6
02_2_10	MW-2	Appendix IV	Barium	mg/L	21	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0397	0.0410	0.0320	0.0480	0.00405	0.102	-0.0151	-0.322
02_2_11	MW-2	Appendix IV	Beryllium	mg/L	21	21	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
02_2_12	MW-2	Appendix IV	Cadmium	mg/L	21	21	100%	2020-04-28 to 2024-08-05		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
02_2_13	MW-2	Appendix IV	Chromium	mg/L	21	21	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
02_2_14	MW-2	Appendix IV	Cobalt	mg/L	21	21	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
02_2_15	MW-2	Appendix IV	Lead	mg/L	21	21	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
02_2_16	MW-2	Appendix IV	Lithium	mg/L	21	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0547	0.0550	0.0370	0.0700	0.00987	0.180	-0.294	-0.925
02_2_17	MW-2	Appendix IV	Mercury	mg/L	21	21	100%	2020-04-28 to 2024-08-05		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
02_2_18	MW-2	Appendix IV	Molybdenum	mg/L	21	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0110	0.0110	0.00700	0.0150	0.00190	0.172	-0.0485	0.306
02_2_21	MW-2	Appendix IV	Radium-226/228	pCi/L	19	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	0.912	0.745	0	3.25	0.829	0.909	1.41	2.17
02_2_22	MW-2	Appendix IV	Selenium	mg/L	21	21	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
02_2_23	MW-2	Appendix IV	Thallium	mg/L	21	21	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
02_3_24	MW-2	Field Parameters	pH	su	21	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	6.77	6.75	6.54	7.08	0.108	0.0159	0.710	2.72
02_3_25	MW-2	Field Parameters	Conductivity	mS/cm	21	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	1.60	1.66	1.28	1.80	0.182	0.114	-0.528	-1.32
02_3_26	MW-2	Field Parameters	Turbidity	NTU	21	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	12.5	9.56	2.38	72.3	14.2	1.14	4.10	17.9
02_3_27	MW-2	Field Parameters	Dissolved Oxygen	mg/L	21	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	0.197	0.150	0	1.01	0.233	1.18	2.31	6.92
02_3_28	MW-2	Field Parameters	Temperature	°C	21	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	13.1	13.7	9.10	16.2	1.99	0.152	-0.379	-0.528
02_3_29	MW-2	Field Parameters	Oxidation Reduction Potential	mV	21	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	33.4	36.0	-75.8	182	53.8	1.61	0.433	2.33
02_4_30	MW-2	Other	Total Suspended Solids	mg/L	19	4	21%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	9.84	10.0	1.00	34.1	8.29	0.842	1.54	2.96
02_4_31	MW-2	Other	Bicarbonate	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	489	470	410	560	64.4	0.132	0.0812	-2.19
02_4_32	MW-2	Other	Carbonate	mg/L	5	5	100%	2022-08-02 to 2024-08-05		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
02_4_33	MW-2	Other	Hardness	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	692	704	654	714	24.9	0.0359	-1.09	-0.0586
02_4_34	MW-2	Other	Magnesium	mg/L	7	0	0%	2022-08-02 to 2024-08-05	Nonparametric	Nonparametric	48.3	50.2	38.7	50.6	4.32	0.0894	-2.44	6.13
02_4_35	MW-2	Other	Potassium	mg/L	7	1	14%	2022-08-02 to 2024-08-05	Nonparametric	Nonparametric	0.993	0.730	0.500	2.70	0.764	0.770	2.48	6.35
02_4_36	MW-2	Other	Sodium	mg/L	7	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	54.2	50.3	42.0	68.3	10.4	0.192	0.302	-2.05
02_5_37	MW-2	Part 115	Copper	mg/L	21	21	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
02_5_38	MW-2	Part 115	Iron	mg/L	21	0	0%	2020-04-28 to 2024-08-05	Gamma	Gamma	0.655	0.550	0.110	1.93	0.390	0.595	1.89	5.26
02_5_39	MW-2	Part 115	Nickel	mg/L	21	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	0.0220	0.0240	0.0140	0.0280	0.00482	0.219	-0.369	-1.48
02_5_40	MW-2	Part 115	Silver	mg/L	21	21	100%	2020-04-28 to 2024-08-05		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
02_5_41	MW-2	Part 115	Vanadium	mg/L	21	21	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
02_5_42	MW-2	Part 115	Zinc	mg/L	21	18	86%	2020-04-28 to 2024-08-05		Nonparametric	0.00690	0.00500	0.00500	0.0410	0.00784	1.13	4.54	20.7
03_1_01	MW-3	Appendix III	Boron	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	5.67	5.65	5.34	6.16	0.259	0.0456	0.742	0.829

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
03_1_02	MW-3	Appendix III	Calcium	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	246	250	223	257	11.0	0.0448	-1.56	2.65
03_1_03	MW-3	Appendix III	Chloride	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	97.4	99.2	89.0	103	5.12	0.0526	-0.676	-1.09
03_1_04	MW-3	Appendix III	Fluoride	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
03_1_05	MW-3	Appendix III	pH, Field	su	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	7.24	7.24	7.15	7.38	0.0712	0.00983	0.893	1.23
03_1_06	MW-3	Appendix III	Sulfate	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	704	701	675	732	22.1	0.0314	0.0894	-1.81
03_1_07	MW-3	Appendix III	Total Dissolved Solids	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1458	1445	1430	1500	28.2	0.0193	0.595	-1.64
03_2_04	MW-3	Appendix IV	Fluoride	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
03_2_08	MW-3	Appendix IV	Antimony	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
03_2_09	MW-3	Appendix IV	Arsenic	mg/L	8	0	0%	2021-05-04 to 2024-08-05		Nonparametric	0.00350	0.00300	0.00300	0.00600	0.00107	0.305	2.34	5.47
03_2_10	MW-3	Appendix IV	Barium	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0191	0.0190	0.0170	0.0210	0.00155	0.0812	-0.272	-1.00
03_2_11	MW-3	Appendix IV	Beryllium	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
03_2_12	MW-3	Appendix IV	Cadmium	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
03_2_13	MW-3	Appendix IV	Chromium	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
03_2_14	MW-3	Appendix IV	Cobalt	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
03_2_15	MW-3	Appendix IV	Lead	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
03_2_16	MW-3	Appendix IV	Lithium	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0820	0.0810	0.0750	0.0910	0.00535	0.0652	0.442	-0.618
03_2_17	MW-3	Appendix IV	Mercury	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
03_2_18	MW-3	Appendix IV	Molybdenum	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.165	0.163	0.153	0.182	0.00967	0.0586	0.734	-0.0496
03_2_21	MW-3	Appendix IV	Radium-226/228	pCi/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1.52	1.16	0.412	2.92	0.879	0.577	0.545	-1.15
03_2_22	MW-3	Appendix IV	Selenium	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
03_2_23	MW-3	Appendix IV	Thallium	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
03_3_24	MW-3	Field Parameters	pH	su	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	7.24	7.24	7.15	7.38	0.0712	0.00983	0.893	1.23
03_3_25	MW-3	Field Parameters	Conductivity	mS/cm	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1.77	1.78	1.70	1.83	0.0456	0.0257	-0.674	-0.409
03_3_26	MW-3	Field Parameters	Turbidity	NTU	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Gamma	3.78	4.49	0.0200	8.01	2.60	0.688	0.0176	-0.419
03_3_27	MW-3	Field Parameters	Dissolved Oxygen	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.138	0.110	0.0300	0.350	0.0968	0.704	1.69	3.67
03_3_28	MW-3	Field Parameters	Temperature	°C	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	13.1	13.2	9.90	17.5	2.43	0.186	0.531	0.291
03_3_29	MW-3	Field Parameters	Oxidation Reduction Potential	mV	8	0	0%	2021-05-04 to 2024-08-05	Normal	Normal	-56.8	-59.9	-92.1	-25.1	21.8	-0.384	-0.128	-0.526
03_4_30	MW-3	Other	Total Suspended Solids	mg/L	8	1	12%	2021-05-04 to 2024-08-05	Gamma; Normal	Normal	2.85	3.10	1.00	4.00	0.929	0.326	-1.23	1.59
03_4_31	MW-3	Other	Bicarbonate	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	221	215	210	240	13.1	0.0594	0.953	-0.763
03_4_32	MW-3	Other	Carbonate	mg/L	5	5	100%	2022-08-02 to 2024-08-05		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
03_4_33	MW-3	Other	Hardness	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	790	794	774	802	10.9	0.0138	-0.675	-0.377
03_4_34	MW-3	Other	Magnesium	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	48.4	49.2	45.9	50.7	2.11	0.0435	-0.362	-2.61
03_4_35	MW-3	Other	Potassium	mg/L	5	0	0%	2022-08-02 to 2024-08-05		Nonparametric	1.71	1.67	1.67	1.81	0.0616	0.0360	1.45	1.34
03_4_36	MW-3	Other	Sodium	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	117	119	111	121	4.34	0.0372	-0.559	-2.37
03_5_37	MW-3	Part 115	Copper	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
03_5_38	MW-3	Part 115	Iron	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1.86	1.89	1.52	2.05	0.185	0.0993	-0.871	0.0550
03_5_39	MW-3	Part 115	Nickel	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
03_5_40	MW-3	Part 115	Silver	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
03_5_41	MW-3	Part 115	Vanadium	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
03_5_42	MW-3	Part 115	Zinc	mg/L	8	8	100%	2021-05-04 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
05_1_01	MW-5	Appendix III	Boron	mg/L	22	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	3.91	4.38	0.370	5.75	1.26	0.322	-0.978	1.28
05_1_02	MW-5	Appendix III	Calcium	mg/L	22	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	222	226	70.1	372	72.6	0.327	0.0193	-0.215

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
05_1_03	MW-5	Appendix III	Chloride	mg/L	18	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	66.4	70.5	36.5	83.0	15.4	0.232	-0.917	-0.384
05_1_04	MW-5	Appendix III	Fluoride	mg/L	18	18	100%	2020-04-28 to 2024-08-05		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
05_1_05	MW-5	Appendix III	pH, Field	su	23	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	7.21	7.27	6.40	7.45	0.230	0.0318	-2.57	7.41
05_1_06	MW-5	Appendix III	Sulfate	mg/L	18	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	664	649	186	1170	283	0.427	0.00890	-0.855
05_1_07	MW-5	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1341	1335	592	2020	424	0.316	-0.166	-0.950
05_2_04	MW-5	Appendix IV	Fluoride	mg/L	19	19	100%	2020-04-28 to 2024-08-05		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
05_2_08	MW-5	Appendix IV	Antimony	mg/L	23	23	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
05_2_09	MW-5	Appendix IV	Arsenic	mg/L	23	17	74%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	0.00248	0.00200	0.00200	0.00700	0.00124	0.500	2.89	8.35
05_2_10	MW-5	Appendix IV	Barium	mg/L	23	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0445	0.0430	0.0330	0.0640	0.00738	0.166	1.08	0.997
05_2_11	MW-5	Appendix IV	Beryllium	mg/L	23	23	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
05_2_12	MW-5	Appendix IV	Cadmium	mg/L	23	23	100%	2020-04-28 to 2024-08-05		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
05_2_13	MW-5	Appendix IV	Chromium	mg/L	23	21	91%	2020-04-28 to 2024-08-05		Nonparametric	0.00530	0.00500	0.00500	0.0100	0.00111	0.208	3.98	16.4
05_2_14	MW-5	Appendix IV	Cobalt	mg/L	23	22	96%	2020-04-28 to 2024-08-05		Nonparametric	0.00504	0.00500	0.00500	0.00600	0.000209	0.0413	4.80	23.0
05_2_15	MW-5	Appendix IV	Lead	mg/L	23	20	87%	2020-04-28 to 2024-08-05		Nonparametric	0.00357	0.00300	0.00300	0.0140	0.00231	0.649	4.57	21.3
05_2_16	MW-5	Appendix IV	Lithium	mg/L	23	0	0%	2020-04-28 to 2024-08-05	Gamma; Normal	Normal	0.0699	0.0730	0.0160	0.0910	0.0172	0.246	-1.47	3.12
05_2_17	MW-5	Appendix IV	Mercury	mg/L	23	23	100%	2020-04-28 to 2024-08-05		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
05_2_18	MW-5	Appendix IV	Molybdenum	mg/L	23	0	0%	2020-04-28 to 2024-08-05	Gamma; Normal	Normal	0.0568	0.0540	0.0100	0.0960	0.0197	0.347	-0.163	0.233
05_2_21	MW-5	Appendix IV	Radium-226/228	pCi/L	19	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1.65	1.53	0.524	4.22	1.06	0.644	1.28	1.36
05_2_22	MW-5	Appendix IV	Selenium	mg/L	23	23	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
05_2_23	MW-5	Appendix IV	Thallium	mg/L	23	23	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
05_3_24	MW-5	Field Parameters	pH	su	23	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	7.21	7.27	6.40	7.45	0.230	0.0318	-2.57	7.41
05_3_25	MW-5	Field Parameters	Conductivity	mS/cm	23	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1.54	1.58	1.00	2.49	0.427	0.277	0.414	-0.615
05_3_26	MW-5	Field Parameters	Turbidity	NTU	23	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	27.7	19.0	9.52	180	35.1	1.27	4.08	17.6
05_3_27	MW-5	Field Parameters	Dissolved Oxygen	mg/L	23	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	2.89	3.16	0.550	5.42	1.34	0.464	-0.363	-0.537
05_3_28	MW-5	Field Parameters	Temperature	°C	23	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	13.1	12.7	6.90	18.8	3.33	0.255	-0.0796	-0.409
05_3_29	MW-5	Field Parameters	Oxidation Reduction Potential	mV	23	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	94.4	119	-34.8	248	81.5	0.863	-0.220	-0.932
05_4_30	MW-5	Other	Total Suspended Solids	mg/L	19	0	0%	2020-04-28 to 2024-08-05	Lognormal	Lognormal	26.3	14.0	4.00	161	36.9	1.40	3.03	10.3
05_4_31	MW-5	Other	Bicarbonate	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	296	290	280	320	15.1	0.0509	1.27	2.10
05_4_32	MW-5	Other	Carbonate	mg/L	5	5	100%	2022-08-02 to 2024-08-05		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
05_4_33	MW-5	Other	Hardness	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	589	534	502	748	101	0.172	1.25	0.647
05_4_34	MW-5	Other	Magnesium	mg/L	9	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Normal	37.5	36.7	24.8	54.5	8.08	0.215	0.854	2.37
05_4_35	MW-5	Other	Potassium	mg/L	9	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Normal	4.16	4.22	3.33	4.61	0.403	0.0967	-1.18	1.22
05_4_36	MW-5	Other	Sodium	mg/L	9	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Normal	49.6	47.8	34.4	69.5	9.73	0.196	0.807	1.87
05_5_37	MW-5	Part 115	Copper	mg/L	23	18	78%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	0.00696	0.00500	0.00500	0.0260	0.00523	0.751	2.99	8.80
05_5_38	MW-5	Part 115	Iron	mg/L	23	5	22%	2020-04-28 to 2024-08-05	Gamma; Lognormal	Gamma	1.17	0.530	0.0200	8.00	1.84	1.57	2.83	8.88
05_5_39	MW-5	Part 115	Nickel	mg/L	23	3	13%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0100	0.0100	0.00500	0.0190	0.00444	0.442	0.526	-0.786
05_5_40	MW-5	Part 115	Silver	mg/L	23	23	100%	2020-04-28 to 2024-08-05		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
05_5_41	MW-5	Part 115	Vanadium	mg/L	23	20	87%	2020-04-28 to 2024-08-05		Nonparametric	0.00548	0.00500	0.00500	0.0120	0.00165	0.301	3.55	12.5
05_5_42	MW-5	Part 115	Zinc	mg/L	23	9	39%	2020-04-28 to 2024-08-05	Gamma; Lognormal	Gamma	0.0150	0.00600	0.00500	0.0980	0.0212	1.42	3.14	11
06_1_01	MW-6	Appendix III	Boron	mg/L	19	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.786	0.760	0.490	1.09	0.179	0.228	0.132	-1.13
06_1_02	MW-6	Appendix III	Calcium	mg/L	19	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	169	169	142	193	17.9	0.106	0.0252	-1.37
06_1_03	MW-6	Appendix III	Chloride	mg/L	19	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	33.7	35.0	24.0	43.0	6.67	0.198	-0.0583	-1.75

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
06_1_04	MW-6	Appendix III	Fluoride	mg/L	19	19	100%	2020-04-28 to 2024-08-05		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
06_1_05	MW-6	Appendix III	pH, Field	su	20	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	6.74	6.75	6.35	7.11	0.155	0.0229	-0.110	2.71
06_1_06	MW-6	Appendix III	Sulfate	mg/L	19	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	179	180	118	264	49.3	0.275	0.365	-1.16
06_1_07	MW-6	Appendix III	Total Dissolved Solids	mg/L	19	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	754	738	598	898	92.7	0.123	0.0214	-1.35
06_2_04	MW-6	Appendix IV	Fluoride	mg/L	20	20	100%	2020-04-28 to 2024-08-05		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
06_2_08	MW-6	Appendix IV	Antimony	mg/L	20	20	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
06_2_09	MW-6	Appendix IV	Arsenic	mg/L	20	18	90%	2020-04-28 to 2024-08-05		Nonparametric	0.00210	0.00200	0.00200	0.00300	0.000308	0.147	2.89	7.04
06_2_10	MW-6	Appendix IV	Barium	mg/L	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0486	0.0495	0.0380	0.0570	0.00532	0.109	-0.290	-1.01
06_2_11	MW-6	Appendix IV	Beryllium	mg/L	20	20	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
06_2_12	MW-6	Appendix IV	Cadmium	mg/L	20	20	100%	2020-04-28 to 2024-08-05		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
06_2_13	MW-6	Appendix IV	Chromium	mg/L	20	20	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
06_2_14	MW-6	Appendix IV	Cobalt	mg/L	20	20	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
06_2_15	MW-6	Appendix IV	Lead	mg/L	20	20	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
06_2_16	MW-6	Appendix IV	Lithium	mg/L	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0463	0.0475	0.0320	0.0590	0.00786	0.170	-0.218	-0.842
06_2_17	MW-6	Appendix IV	Mercury	mg/L	20	20	100%	2020-04-28 to 2024-08-05		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
06_2_18	MW-6	Appendix IV	Molybdenum	mg/L	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0246	0.0255	0.0120	0.0360	0.00652	0.265	-0.368	-0.356
06_2_21	MW-6	Appendix IV	Radium-226/228	pCi/L	20	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	1.22	0.860	0	4.29	1.02	0.833	1.62	3.22
06_2_22	MW-6	Appendix IV	Selenium	mg/L	20	20	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
06_2_23	MW-6	Appendix IV	Thallium	mg/L	20	20	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
06_3_24	MW-6	Field Parameters	pH	su	20	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	6.74	6.75	6.35	7.11	0.155	0.0229	-0.110	2.71
06_3_25	MW-6	Field Parameters	Conductivity	mS/cm	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1.10	1.08	0.902	1.27	0.102	0.0929	0.0336	-0.728
06_3_26	MW-6	Field Parameters	Turbidity	NTU	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal	Gamma	8.04	6.78	1.19	33.6	7.54	0.939	2.29	6.51
06_3_27	MW-6	Field Parameters	Dissolved Oxygen	mg/L	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal	Gamma	0.237	0.0950	0.0100	2.03	0.438	1.85	3.96	16.7
06_3_28	MW-6	Field Parameters	Temperature	°C	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	12.9	13.1	10.2	15.8	1.60	0.124	-0.264	-0.561
06_3_29	MW-6	Field Parameters	Oxidation Reduction Potential	mV	20	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	71.8	90.0	-66.5	202	68.8	0.958	-0.350	-0.0274
06_4_30	MW-6	Other	Total Suspended Solids	mg/L	20	14	70%	2020-04-28 to 2024-08-05	Gamma; Lognormal	Nonparametric	4.28	3.00	1.00	32.0	6.60	1.54	4.30	18.9
06_4_31	MW-6	Other	Bicarbonate	mg/L	6	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	518	523	480	543	22.0	0.0425	-1.05	1.33
06_4_32	MW-6	Other	Carbonate	mg/L	6	6	100%	2022-08-02 to 2024-08-05		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
06_4_33	MW-6	Other	Hardness	mg/L	6	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	574	574	512	638	57.7	0.101	0.0128	-3.02
06_4_34	MW-6	Other	Magnesium	mg/L	6	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	35.5	36.1	29.9	40.3	4.95	0.139	-0.141	-2.91
06_4_35	MW-6	Other	Potassium	mg/L	6	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	6.80	6.81	6.40	7.06	0.239	0.0351	-0.857	0.837
06_4_36	MW-6	Other	Sodium	mg/L	6	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	35.3	33.5	29.5	43.9	5.22	0.148	0.961	0.305
06_5_37	MW-6	Part 115	Copper	mg/L	20	20	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
06_5_38	MW-6	Part 115	Iron	mg/L	20	11	55%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	0.0380	0.0200	0.0200	0.200	0.0420	1.11	3.38	12.6
06_5_39	MW-6	Part 115	Nickel	mg/L	20	6	30%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	0.00625	0.00650	0.00500	0.00800	0.00107	0.171	0.0179	-1.42
06_5_40	MW-6	Part 115	Silver	mg/L	20	20	100%	2020-04-28 to 2024-08-05		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
06_5_41	MW-6	Part 115	Vanadium	mg/L	20	20	100%	2020-04-28 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
06_5_42	MW-6	Part 115	Zinc	mg/L	20	19	95%	2020-04-28 to 2024-08-05		Nonparametric	0.00645	0.00500	0.00500	0.0340	0.00648	1.01	4.47	20.0
07_1_01	MW-7	Appendix III	Boron	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	1.85	1.84	1.08	2.75	0.410	0.222	0.241	1.05
07_1_02	MW-7	Appendix III	Calcium	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	121	112	97.2	165	21.7	0.179	1.11	0.130
07_1_03	MW-7	Appendix III	Chloride	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	79.1	76.5	72.2	98.0	7.19	0.0909	1.52	2.58
07_1_04	MW-7	Appendix III	Fluoride	mg/L	14	12	86%	2021-06-15 to 2024-08-08		Nonparametric	0.903	1.00	0.300	1.00	0.247	0.274	-2.30	3.83

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
07_1_05	MW-7	Appendix III	pH, Field	su	14	0	0%	2021-06-15 to 2024-08-08	Gamma	Gamma	7.45	7.43	7.09	8.18	0.262	0.0352	1.46	4.44
07_1_06	MW-7	Appendix III	Sulfate	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	206	194	171	270	34.9	0.169	1.03	-0.291
07_1_07	MW-7	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	645	603	548	866	106	0.164	1.55	1.14
07_2_04	MW-7	Appendix IV	Fluoride	mg/L	14	12	86%	2021-06-15 to 2024-08-08		Nonparametric	0.903	1.00	0.300	1.00	0.247	0.274	-2.30	3.83
07_2_08	MW-7	Appendix IV	Antimony	mg/L	14	14	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
07_2_09	MW-7	Appendix IV	Arsenic	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	0.00557	0.00600	0.00400	0.00700	0.000852	0.153	-0.694	0.103
07_2_10	MW-7	Appendix IV	Barium	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0515	0.0530	0.0360	0.0620	0.00755	0.147	-0.996	0.717
07_2_11	MW-7	Appendix IV	Beryllium	mg/L	14	14	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
07_2_12	MW-7	Appendix IV	Cadmium	mg/L	14	14	100%	2021-06-15 to 2024-08-08		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
07_2_13	MW-7	Appendix IV	Chromium	mg/L	14	13	93%	2021-06-15 to 2024-08-08		Nonparametric	0.00514	0.00500	0.00500	0.00700	0.000535	0.104	3.74	14.0
07_2_14	MW-7	Appendix IV	Cobalt	mg/L	14	14	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
07_2_15	MW-7	Appendix IV	Lead	mg/L	14	14	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
07_2_16	MW-7	Appendix IV	Lithium	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0893	0.0910	0.0630	0.112	0.0130	0.145	-0.352	-0.0457
07_2_17	MW-7	Appendix IV	Mercury	mg/L	14	13	93%	2021-06-15 to 2024-08-08		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
07_2_18	MW-7	Appendix IV	Molybdenum	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	0.234	0.260	0.146	0.296	0.0567	0.242	-0.363	-1.76
07_2_21	MW-7	Appendix IV	Radium-226/228	pCi/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	2.23	1.83	0.514	5.44	1.46	0.657	1.12	0.793
07_2_22	MW-7	Appendix IV	Selenium	mg/L	14	14	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
07_2_23	MW-7	Appendix IV	Thallium	mg/L	14	14	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
07_3_24	MW-7	Field Parameters	pH	su	14	0	0%	2021-06-15 to 2024-08-08	Gamma	Gamma	7.45	7.43	7.09	8.18	0.262	0.0352	1.46	4.44
07_3_25	MW-7	Field Parameters	Conductivity	mS/cm	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Normal	Normal	0.933	0.920	0.462	1.21	0.187	0.200	-0.816	2.52
07_3_26	MW-7	Field Parameters	Turbidity	NTU	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	4.60	4.25	1.45	16.0	3.67	0.797	2.53	7.78
07_3_27	MW-7	Field Parameters	Dissolved Oxygen	mg/L	14	1	7%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	0.106	0.0350	0	0.490	0.157	1.49	1.97	2.88
07_3_28	MW-7	Field Parameters	Temperature	°C	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	12.1	12.9	6.20	17.0	3.34	0.276	-0.312	-1.14
07_3_29	MW-7	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	2021-06-15 to 2024-08-08	Normal	Normal	-116	-123	-157	-36.9	32.5	-0.280	1.08	1.32
07_4_30	MW-7	Other	Total Suspended Solids	mg/L	14	11	79%	2021-06-15 to 2024-08-08		Nonparametric	2.85	3.00	1.00	3.30	0.550	0.193	-3.35	11.9
07_4_31	MW-7	Other	Bicarbonate	mg/L	6	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	236	210	150	346	86.7	0.368	0.519	-2.11
07_4_32	MW-7	Other	Carbonate	mg/L	6	6	100%	2022-08-02 to 2024-08-08		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
07_4_33	MW-7	Other	Hardness	mg/L	6	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	371	322	289	510	104	0.279	0.857	-1.87
07_4_34	MW-7	Other	Magnesium	mg/L	6	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	15.4	13.7	12.1	20.5	4.03	0.261	0.687	-2.07
07_4_35	MW-7	Other	Potassium	mg/L	6	0	0%	2022-08-02 to 2024-08-08	Gamma; Normal	Nonparametric	8.22	9.17	5.69	9.98	1.96	0.238	-0.838	-1.88
07_4_36	MW-7	Other	Sodium	mg/L	6	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	74.3	71.7	66.5	83.9	7.72	0.104	0.663	-1.85
07_5_37	MW-7	Part 115	Copper	mg/L	14	14	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
07_5_38	MW-7	Part 115	Iron	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	1.50	1.38	1.00	2.81	0.460	0.306	1.93	4.68
07_5_39	MW-7	Part 115	Nickel	mg/L	14	14	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
07_5_40	MW-7	Part 115	Silver	mg/L	14	14	100%	2021-06-15 to 2024-08-08		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
07_5_41	MW-7	Part 115	Vanadium	mg/L	14	12	86%	2021-06-15 to 2024-08-08		Nonparametric	0.00507	0.00500	0.00500	0.00600	0.000267	0.0527	3.74	14.0
07_5_42	MW-7	Part 115	Zinc	mg/L	14	11	79%	2021-06-15 to 2024-08-08		Nonparametric	0.00593	0.00500	0.00500	0.0140	0.00243	0.410	3.24	11.0
08_1_01	MW-8	Appendix III	Boron	mg/L	13	1	8%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	0.0877	0.0800	0.0400	0.210	0.0466	0.531	1.62	3.28
08_1_02	MW-8	Appendix III	Calcium	mg/L	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	94.5	94.6	86.5	104	5.17	0.0546	0.0331	-0.501
08_1_03	MW-8	Appendix III	Chloride	mg/L	13	2	15%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	20.3	11.0	4.45	66.0	20.1	0.994	1.67	1.82
08_1_04	MW-8	Appendix III	Fluoride	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.928	1.00	0.0587	1.00	0.261	0.281	-3.61	13.0
08_1_05	MW-8	Appendix III	pH, Field	su	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	7.16	7.12	6.99	7.78	0.208	0.0290	2.46	7.29

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
08_1_06	MW-8	Appendix III	Sulfate	mg/L	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	25	21.4	11.0	52.0	13.5	0.541	0.967	-0.0338
08_1_07	MW-8	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	393	384	362	460	27.9	0.0711	1.31	1.49
08_2_04	MW-8	Appendix IV	Fluoride	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.928	1.00	0.0587	1.00	0.261	0.281	-3.61	13.0
08_2_08	MW-8	Appendix IV	Antimony	mg/L	13	13	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
08_2_09	MW-8	Appendix IV	Arsenic	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
08_2_10	MW-8	Appendix IV	Barium	mg/L	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0218	0.0210	0.0170	0.0280	0.00319	0.147	0.629	-0.0414
08_2_11	MW-8	Appendix IV	Beryllium	mg/L	13	13	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
08_2_12	MW-8	Appendix IV	Cadmium	mg/L	13	13	100%	2021-06-15 to 2024-08-08		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
08_2_13	MW-8	Appendix IV	Chromium	mg/L	13	13	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
08_2_14	MW-8	Appendix IV	Cobalt	mg/L	13	13	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
08_2_15	MW-8	Appendix IV	Lead	mg/L	13	13	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
08_2_16	MW-8	Appendix IV	Lithium	mg/L	13	6	46%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.00685	0.00500	0.00500	0.0130	0.00261	0.381	1.33	1.01
08_2_17	MW-8	Appendix IV	Mercury	mg/L	13	13	100%	2021-06-15 to 2024-08-08		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
08_2_18	MW-8	Appendix IV	Molybdenum	mg/L	13	11	85%	2021-06-15 to 2024-08-08		Nonparametric	0.00615	0.00500	0.00500	0.0130	0.00264	0.429	2.24	3.91
08_2_21	MW-8	Appendix IV	Radium-226/228	pCi/L	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Gamma	2.00	1.85	0.118	6.21	1.83	0.913	1.18	0.932
08_2_22	MW-8	Appendix IV	Selenium	mg/L	13	13	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
08_2_23	MW-8	Appendix IV	Thallium	mg/L	13	13	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
08_3_24	MW-8	Field Parameters	pH	su	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	7.16	7.12	6.99	7.78	0.208	0.0290	2.46	7.29
08_3_25	MW-8	Field Parameters	Conductivity	mS/cm	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	0.654	0.640	0.617	0.744	0.0383	0.0585	1.52	1.83
08_3_26	MW-8	Field Parameters	Turbidity	NTU	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	4.55	5.15	2.00	7.18	1.93	0.424	-0.0841	-1.65
08_3_27	MW-8	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	2021-06-15 to 2024-08-08	Gamma	Gamma	2.15	1.66	0.0100	7.83	2.20	1.02	1.72	3.09
08_3_28	MW-8	Field Parameters	Temperature	°C	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	12.0	14.0	5.90	16.4	3.21	0.267	-0.575	-0.811
08_3_29	MW-8	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	194	194	72.1	365	94.9	0.490	0.448	-1.06
08_4_30	MW-8	Other	Total Suspended Solids	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	2.92	3.00	2.00	3.00	0.277	0.0949	-3.61	13.0
08_4_31	MW-8	Other	Bicarbonate	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	393	403	320	440	44.5	0.113	-1.27	2.46
08_4_32	MW-8	Other	Carbonate	mg/L	5	5	100%	2022-08-02 to 2024-08-08		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
08_4_33	MW-8	Other	Hardness	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	352	347	326	384	22.4	0.0637	0.512	-0.417
08_4_34	MW-8	Other	Magnesium	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	28.3	28.8	25.3	31.8	2.45	0.0867	0.321	0.0987
08_4_35	MW-8	Other	Potassium	mg/L	5	1	20%	2022-08-02 to 2024-08-08		Nonparametric	0.576	0.530	0.500	0.760	0.106	0.184	1.93	3.83
08_4_36	MW-8	Other	Sodium	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	21.1	14.2	12.7	40.9	11.9	0.565	1.58	2.05
08_5_37	MW-8	Part 115	Copper	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.00538	0.00500	0.00500	0.0100	0.00139	0.258	3.61	13.0
08_5_38	MW-8	Part 115	Iron	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.0200	0.0200	0.0200	0.0200	0	0	NA	NA
08_5_39	MW-8	Part 115	Nickel	mg/L	13	13	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
08_5_40	MW-8	Part 115	Silver	mg/L	13	13	100%	2021-06-15 to 2024-08-08		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
08_5_41	MW-8	Part 115	Vanadium	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
08_5_42	MW-8	Part 115	Zinc	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.00515	0.00500	0.00500	0.00700	0.000555	0.108	3.61	13.0
09_1_01	MW-9	Appendix III	Boron	mg/L	21	20	95%	2021-06-15 to 2024-08-08		Nonparametric	0.0400	0.0400	0.0400	0.0400	0	0	NA	NA
09_1_02	MW-9	Appendix III	Calcium	mg/L	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	74.9	75.7	61.8	100	9.87	0.132	1.31	2.24
09_1_03	MW-9	Appendix III	Chloride	mg/L	21	17	81%	2021-06-15 to 2024-08-08		Nonparametric	4.70	5.00	1.07	6.10	1.23	0.261	-2.70	6.73
09_1_04	MW-9	Appendix III	Fluoride	mg/L	21	19	90%	2021-06-15 to 2024-08-08		Nonparametric	0.908	1.00	0.0330	1.00	0.291	0.320	-2.97	7.56
09_1_05	MW-9	Appendix III	pH, Field	su	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	7.29	7.27	7.06	7.74	0.180	0.0247	1.55	2.25
09_1_06	MW-9	Appendix III	Sulfate	mg/L	21	15	71%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	5.60	5.00	3.52	12.6	2.27	0.405	2.71	6.71

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
09_1_07	MW-9	Appendix III	Total Dissolved Solids	mg/L	21	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	264	252	232	360	33.8	0.128	1.97	3.77
09_2_04	MW-9	Appendix IV	Fluoride	mg/L	21	19	90%	2021-06-15 to 2024-08-08		Nonparametric	0.908	1.00	0.0330	1.00	0.291	0.320	-2.97	7.56
09_2_08	MW-9	Appendix IV	Antimony	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
09_2_09	MW-9	Appendix IV	Arsenic	mg/L	21	20	95%	2021-06-15 to 2024-08-08		Nonparametric	0.00205	0.00200	0.00200	0.00300	0.000218	0.107	4.58	21.0
09_2_10	MW-9	Appendix IV	Barium	mg/L	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	0.0146	0.0140	0.0130	0.0200	0.00169	0.115	1.70	4.15
09_2_11	MW-9	Appendix IV	Beryllium	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
09_2_12	MW-9	Appendix IV	Cadmium	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
09_2_13	MW-9	Appendix IV	Chromium	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
09_2_14	MW-9	Appendix IV	Cobalt	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
09_2_15	MW-9	Appendix IV	Lead	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
09_2_16	MW-9	Appendix IV	Lithium	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00548	0.00500	0.00500	0.0100	0.00150	0.275	2.97	7.56
09_2_17	MW-9	Appendix IV	Mercury	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
09_2_18	MW-9	Appendix IV	Molybdenum	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
09_2_21	MW-9	Appendix IV	Radium-226/228	pCi/L	21	0	0%	2021-06-15 to 2024-08-08	Normal	Normal	1.14	1.02	0	2.51	0.800	0.702	0.322	-1.14
09_2_22	MW-9	Appendix IV	Selenium	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
09_2_23	MW-9	Appendix IV	Thallium	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
09_3_24	MW-9	Field Parameters	pH	su	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	7.29	7.27	7.06	7.74	0.180	0.0247	1.55	2.25
09_3_25	MW-9	Field Parameters	Conductivity	mS/cm	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	0.455	0.455	0.393	0.585	0.0439	0.0966	1.45	3.32
09_3_26	MW-9	Field Parameters	Turbidity	NTU	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	3.82	3.01	1.60	6.70	1.88	0.493	0.257	-1.64
09_3_27	MW-9	Field Parameters	Dissolved Oxygen	mg/L	21	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	5.18	5.35	3.35	6.33	0.861	0.166	-0.393	-0.686
09_3_28	MW-9	Field Parameters	Temperature	°C	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	12.8	13.8	4.70	19.2	5.19	0.406	-0.331	-1.47
09_3_29	MW-9	Field Parameters	Oxidation Reduction Potential	mV	21	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	228	238	99.2	381	88.2	0.387	0.262	-1.09
09_4_30	MW-9	Other	Total Suspended Solids	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	3.00	3.00	3.00	3.00	0	0	NA	NA
09_4_31	MW-9	Other	Bicarbonate	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	333	336	260	380	50.3	0.151	-0.657	-0.650
09_4_32	MW-9	Other	Carbonate	mg/L	5	5	100%	2022-08-02 to 2024-08-08		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
09_4_33	MW-9	Other	Hardness	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	286	270	218	342	53.8	0.188	-0.0215	-1.98
09_4_34	MW-9	Other	Magnesium	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	20.2	19.5	15.2	23.4	3.39	0.168	-0.618	-0.305
09_4_35	MW-9	Other	Potassium	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	1.14	1.09	0.930	1.47	0.234	0.205	0.651	-1.28
09_4_36	MW-9	Other	Sodium	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	3.38	3.67	2.41	4.11	0.714	0.211	-0.607	-1.80
09_5_37	MW-9	Part 115	Copper	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
09_5_38	MW-9	Part 115	Iron	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.0200	0.0200	0.0200	0.0200	0	0	NA	NA
09_5_39	MW-9	Part 115	Nickel	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
09_5_40	MW-9	Part 115	Silver	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
09_5_41	MW-9	Part 115	Vanadium	mg/L	21	21	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
09_5_42	MW-9	Part 115	Zinc	mg/L	21	20	95%	2021-06-15 to 2024-08-08		Nonparametric	0.00519	0.00500	0.00500	0.00900	0.000873	0.168	4.58	21.0
100A_1_01	MW-100A	Appendix III	Boron	mg/L	9	0	0%	2023-06-05 to 2024-08-07		Nonparametric	0.0478	0.0500	0.0400	0.0500	0.00441	0.0923	-1.62	0.735
100A_1_02	MW-100A	Appendix III	Calcium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	92.3	92.3	88.6	95.3	1.88	0.0204	-0.598	1.51
100A_1_03	MW-100A	Appendix III	Chloride	mg/L	9	0	0%	2023-06-05 to 2024-08-07		Nonparametric	10.1	10.0	10.0	10.6	0.218	0.0215	1.50	1.47
100A_1_04	MW-100A	Appendix III	Fluoride	mg/L	9	6	67%	2023-06-05 to 2024-08-07		Nonparametric	0.809	1.00	0.220	1.00	0.307	0.380	-1.30	0.138
100A_1_05	MW-100A	Appendix III	pH, Field	su	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	7.28	7.29	7.08	7.40	0.0960	0.0132	-0.968	1.17
100A_1_06	MW-100A	Appendix III	Sulfate	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	24.5	21.7	16.2	38.0	7.63	0.312	0.946	-0.303
100A_1_07	MW-100A	Appendix III	Total Dissolved Solids	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	416	414	402	434	9.32	0.0224	0.754	1.08

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
100A_2_04	MW-100A	Appendix IV	Fluoride	mg/L	9	7	78%	2023-06-05 to 2024-08-07		Nonparametric	0.847	1.00	0.220	1.00	0.308	0.363	-1.71	1.35
100A_2_08	MW-100A	Appendix IV	Antimony	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100A_2_09	MW-100A	Appendix IV	Arsenic	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0142	0.0150	0.00900	0.0180	0.00299	0.210	-0.816	-0.100
100A_2_10	MW-100A	Appendix IV	Barium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.200	0.201	0.189	0.207	0.00679	0.0340	-0.901	-0.353
100A_2_11	MW-100A	Appendix IV	Beryllium	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
100A_2_12	MW-100A	Appendix IV	Cadmium	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
100A_2_13	MW-100A	Appendix IV	Chromium	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100A_2_14	MW-100A	Appendix IV	Cobalt	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100A_2_15	MW-100A	Appendix IV	Lead	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
100A_2_16	MW-100A	Appendix IV	Lithium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0164	0.0170	0.0120	0.0200	0.00265	0.161	-0.412	-0.906
100A_2_17	MW-100A	Appendix IV	Mercury	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
100A_2_18	MW-100A	Appendix IV	Molybdenum	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0106	0.0110	0.00800	0.0130	0.00188	0.178	-0.329	-1.56
100A_2_21	MW-100A	Appendix IV	Radium-226/228	pCi/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	1.19	1.10	0.402	2.50	0.760	0.641	0.749	-0.608
100A_2_22	MW-100A	Appendix IV	Selenium	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100A_2_23	MW-100A	Appendix IV	Thallium	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
100A_3_24	MW-100A	Field Parameters	pH	su	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	7.28	7.29	7.08	7.40	0.0960	0.0132	-0.968	1.17
100A_3_25	MW-100A	Field Parameters	Conductivity	mS/cm	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.700	0.719	0.593	0.766	0.0530	0.0758	-0.891	0.820
100A_3_26	MW-100A	Field Parameters	Turbidity	NTU	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Normal	Normal	4.95	4.45	0.650	7.95	2.35	0.474	-0.469	-0.300
100A_3_27	MW-100A	Field Parameters	Dissolved Oxygen	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal	Gamma	1.15	0.980	0.390	4.15	1.18	1.02	2.51	6.82
100A_3_28	MW-100A	Field Parameters	Temperature	°C	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	13.8	14.6	10.0	17.2	2.68	0.195	-0.354	-1.30
100A_3_29	MW-100A	Field Parameters	Oxidation Reduction Potential	mV	9	0	0%	2023-06-05 to 2024-08-07	Normal	Normal	-72.1	-98.1	-131	60.9	62.9	-0.872	1.37	1.48
100A_4_30	MW-100A	Other	Total Suspended Solids	mg/L	9	1	11%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	8.37	7.40	3.00	25.0	6.48	0.775	2.57	7.19
100A_4_31	MW-100A	Other	Bicarbonate	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	438	440	410	460	14.8	0.0337	-0.431	0.503
100A_4_32	MW-100A	Other	Carbonate	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
100A_4_33	MW-100A	Other	Hardness	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	392	394	368	400	9.70	0.0248	-2.14	5.20
100A_4_34	MW-100A	Other	Magnesium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	38.8	38.9	36.0	40.3	1.30	0.0336	-1.09	1.86
100A_4_35	MW-100A	Other	Potassium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	2.20	2.19	1.83	2.62	0.227	0.103	0.188	1.02
100A_4_36	MW-100A	Other	Sodium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	11.3	11.3	10.4	12.6	0.617	0.0544	0.789	1.65
100A_5_37	MW-100A	Part 115	Copper	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100A_5_38	MW-100A	Part 115	Iron	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Normal	Normal	2.53	2.59	0.630	3.75	1.02	0.401	-0.895	0.300
100A_5_39	MW-100A	Part 115	Nickel	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100A_5_40	MW-100A	Part 115	Silver	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
100A_5_41	MW-100A	Part 115	Vanadium	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100A_5_42	MW-100A	Part 115	Zinc	mg/L	9	8	89%	2023-06-05 to 2024-08-07		Nonparametric	0.00511	0.00500	0.00500	0.00600	0.000333	0.0652	3.00	9.0
100B_1_01	MW-100B	Appendix III	Boron	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.245	0.250	0.210	0.290	0.0211	0.0861	0.411	0.525
100B_1_02	MW-100B	Appendix III	Calcium	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	99.6	99.2	94.2	108	4.16	0.0418	0.661	-0.0520
100B_1_03	MW-100B	Appendix III	Chloride	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	23.3	23.8	19.0	25.0	1.73	0.0741	-1.26	2.05
100B_1_04	MW-100B	Appendix III	Fluoride	mg/L	13	11	85%	2023-06-05 to 2024-08-07		Nonparametric	0.881	1.00	0.150	1.00	0.293	0.332	-2.23	3.61
100B_1_05	MW-100B	Appendix III	pH, Field	su	13	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	7.41	7.40	7.33	7.62	0.0941	0.0127	1.57	1.68
100B_1_06	MW-100B	Appendix III	Sulfate	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	117	116	105	136	10.4	0.0886	0.761	-0.625
100B_1_07	MW-100B	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	509	508	482	538	19.5	0.0384	0.267	-1.54
100B_2_04	MW-100B	Appendix IV	Fluoride	mg/L	13	11	85%	2023-06-05 to 2024-08-07		Nonparametric	0.881	1.00	0.150	1.00	0.293	0.332	-2.23	3.61

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
100B_2_08	MW-100B	Appendix IV	Antimony	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100B_2_09	MW-100B	Appendix IV	Arsenic	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Lognormal; Normal	Normal	0.0102	0.0100	0.00800	0.0120	0.00101	0.0990	-0.539	1.09
100B_2_10	MW-100B	Appendix IV	Barium	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.153	0.154	0.142	0.164	0.00742	0.0486	-0.00620	-1.27
100B_2_11	MW-100B	Appendix IV	Beryllium	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
100B_2_12	MW-100B	Appendix IV	Cadmium	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
100B_2_13	MW-100B	Appendix IV	Chromium	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100B_2_14	MW-100B	Appendix IV	Cobalt	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100B_2_15	MW-100B	Appendix IV	Lead	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
100B_2_16	MW-100B	Appendix IV	Lithium	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Lognormal; Normal	Normal	0.0173	0.0170	0.0160	0.0190	0.000855	0.0494	0.241	-0.0485
100B_2_17	MW-100B	Appendix IV	Mercury	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
100B_2_18	MW-100B	Appendix IV	Molybdenum	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.00900	0.00900	0.00600	0.0110	0.00135	0.150	-0.476	0.913
100B_2_21	MW-100B	Appendix IV	Radium-226/228	pCi/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	1.36	1.35	0.494	2.16	0.521	0.383	-0.247	-0.722
100B_2_22	MW-100B	Appendix IV	Selenium	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100B_2_23	MW-100B	Appendix IV	Thallium	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
100B_3_24	MW-100B	Field Parameters	pH	su	13	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	7.41	7.40	7.33	7.62	0.0941	0.0127	1.57	1.68
100B_3_25	MW-100B	Field Parameters	Conductivity	mS/cm	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.765	0.759	0.713	0.805	0.0309	0.0404	-0.0133	-1.27
100B_3_26	MW-100B	Field Parameters	Turbidity	NTU	13	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	3.38	4.15	0.810	5.16	1.57	0.465	-0.927	-0.714
100B_3_27	MW-100B	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	0.0677	0.0300	0	0.260	0.0891	1.32	1.25	0.297
100B_3_28	MW-100B	Field Parameters	Temperature	°C	13	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	13	13.6	10.6	14.2	1.24	0.0960	-0.844	-0.724
100B_3_29	MW-100B	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	2023-06-05 to 2024-08-07	Normal	Normal	-147	-146	-177	-118	17.3	-0.118	-0.360	-0.0972
100B_4_30	MW-100B	Other	Total Suspended Solids	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	4.02	3.70	2.30	7.10	1.54	0.384	0.912	0.0848
100B_4_31	MW-100B	Other	Bicarbonate	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	349	350	310	440	32.0	0.0917	1.94	5.46
100B_4_32	MW-100B	Other	Carbonate	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
100B_4_33	MW-100B	Other	Hardness	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	382	376	364	410	17.4	0.0457	0.566	-1.28
100B_4_34	MW-100B	Other	Magnesium	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	34.2	34.9	29.4	38.0	2.19	0.0641	-0.496	0.745
100B_4_35	MW-100B	Other	Potassium	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	3.52	3.51	3.34	3.76	0.120	0.0342	0.377	0.0602
100B_4_36	MW-100B	Other	Sodium	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	26.4	26.9	23.0	30.8	2.36	0.0893	0.461	-0.0781
100B_5_37	MW-100B	Part 115	Copper	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100B_5_38	MW-100B	Part 115	Iron	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	2.57	2.40	1.77	3.54	0.537	0.209	0.403	-0.175
100B_5_39	MW-100B	Part 115	Nickel	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100B_5_40	MW-100B	Part 115	Silver	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
100B_5_41	MW-100B	Part 115	Vanadium	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100B_5_42	MW-100B	Part 115	Zinc	mg/L	13	13	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
10_1_01	MW-10	Appendix III	Boron	mg/L	16	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	0.0531	0.0500	0.0400	0.0700	0.00793	0.149	0.254	0.126
10_1_02	MW-10	Appendix III	Calcium	mg/L	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	128	129	113	142	9.48	0.0738	-0.195	-1.20
10_1_03	MW-10	Appendix III	Chloride	mg/L	16	10	62%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	4.80	5.00	1.03	9.30	1.85	0.385	0.0796	2.33
10_1_04	MW-10	Appendix III	Fluoride	mg/L	16	15	94%	2021-06-15 to 2024-08-08		Nonparametric	0.942	1.00	0.0660	1.00	0.234	0.248	-4.00	16.0
10_1_05	MW-10	Appendix III	pH, Field	su	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	6.74	6.71	6.49	7.30	0.199	0.0295	1.41	3.39
10_1_06	MW-10	Appendix III	Sulfate	mg/L	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	14.7	14.2	9.00	27.8	4.53	0.308	1.54	3.82
10_1_07	MW-10	Appendix III	Total Dissolved Solids	mg/L	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	437	441	376	494	36.8	0.0842	-0.159	-1.02
10_2_04	MW-10	Appendix IV	Fluoride	mg/L	16	15	94%	2021-06-15 to 2024-08-08		Nonparametric	0.942	1.00	0.0660	1.00	0.234	0.248	-4.00	16.0
10_2_08	MW-10	Appendix IV	Antimony	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
10_2_09	MW-10	Appendix IV	Arsenic	mg/L	16	15	94%	2021-06-15 to 2024-08-08		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
10_2_10	MW-10	Appendix IV	Barium	mg/L	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0394	0.0390	0.0330	0.0470	0.00386	0.0981	0.317	-0.634
10_2_11	MW-10	Appendix IV	Beryllium	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
10_2_12	MW-10	Appendix IV	Cadmium	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
10_2_13	MW-10	Appendix IV	Chromium	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
10_2_14	MW-10	Appendix IV	Cobalt	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
10_2_15	MW-10	Appendix IV	Lead	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
10_2_16	MW-10	Appendix IV	Lithium	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00531	0.00500	0.00500	0.0100	0.00125	0.235	4.00	16.0
10_2_17	MW-10	Appendix IV	Mercury	mg/L	16	15	94%	2021-06-15 to 2024-08-08		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
10_2_18	MW-10	Appendix IV	Molybdenum	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
10_2_21	MW-10	Appendix IV	Radium-226/228	pCi/L	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	1.26	0.797	0.262	3.30	0.976	0.772	0.972	-0.346
10_2_22	MW-10	Appendix IV	Selenium	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
10_2_23	MW-10	Appendix IV	Thallium	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
10_3_24	MW-10	Field Parameters	pH	su	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	6.74	6.71	6.49	7.30	0.199	0.0295	1.41	3.39
10_3_25	MW-10	Field Parameters	Conductivity	mS/cm	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.715	0.718	0.625	0.807	0.0537	0.0751	-0.0939	-0.624
10_3_26	MW-10	Field Parameters	Turbidity	NTU	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	2.88	2.34	1.29	5.99	1.26	0.439	1.16	1.08
10_3_27	MW-10	Field Parameters	Dissolved Oxygen	mg/L	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	3.17	3.15	2.05	4.29	0.656	0.207	0.189	-0.872
10_3_28	MW-10	Field Parameters	Temperature	°C	16	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	12.7	14.1	8.40	15.8	2.78	0.218	-0.451	-1.56
10_3_29	MW-10	Field Parameters	Oxidation Reduction Potential	mV	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	216	234	98.9	392	83.9	0.388	0.367	-0.377
10_4_30	MW-10	Other	Total Suspended Solids	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	3.00	3.00	3.00	3.00	0	0	NA	NA
10_4_31	MW-10	Other	Bicarbonate	mg/L	8	0	0%	2022-08-02 to 2024-08-08	Nonparametric	Nonparametric	461	450	420	525	40.2	0.0871	1.13	-0.284
10_4_32	MW-10	Other	Carbonate	mg/L	8	8	100%	2022-08-02 to 2024-08-08		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
10_4_33	MW-10	Other	Hardness	mg/L	8	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Normal	416	408	382	461	33	0.0794	0.485	-1.65
10_4_34	MW-10	Other	Magnesium	mg/L	8	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Normal	25.8	25.7	22.5	29.5	2.71	0.105	0.247	-1.40
10_4_35	MW-10	Other	Potassium	mg/L	8	1	12%	2022-08-02 to 2024-08-08	Gamma; Lognormal	Gamma	0.738	0.690	0.500	1.00	0.174	0.235	0.682	-0.291
10_4_36	MW-10	Other	Sodium	mg/L	8	0	0%	2022-08-02 to 2024-08-08	Nonparametric	Nonparametric	5.14	2.73	2.24	19.0	5.68	1.11	2.68	7.36
10_5_37	MW-10	Part 115	Copper	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
10_5_38	MW-10	Part 115	Iron	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.0200	0.0200	0.0200	0.0200	0	0	NA	NA
10_5_39	MW-10	Part 115	Nickel	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
10_5_40	MW-10	Part 115	Silver	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
10_5_41	MW-10	Part 115	Vanadium	mg/L	16	16	100%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
10_5_42	MW-10	Part 115	Zinc	mg/L	16	14	88%	2021-06-15 to 2024-08-08		Nonparametric	0.00619	0.00500	0.00500	0.0200	0.00382	0.617	3.61	13.4
13_1_01	MW-13	Appendix III	Boron	mg/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.169	0.170	0.140	0.220	0.0240	0.142	0.579	0.217
13_1_02	MW-13	Appendix III	Calcium	mg/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	118	107	94.1	158	23.4	0.199	0.679	-0.962
13_1_03	MW-13	Appendix III	Chloride	mg/L	13	2	15%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	19.9	16.0	5.00	45.0	13.2	0.664	0.863	-0.182
13_1_04	MW-13	Appendix III	Fluoride	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
13_1_05	MW-13	Appendix III	pH, Field	su	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	6.97	7.01	6.39	7.25	0.227	0.0326	-1.39	2.57
13_1_06	MW-13	Appendix III	Sulfate	mg/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal	Gamma	52.8	33.0	16.0	174	47.7	0.903	1.77	2.68
13_1_07	MW-13	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	441	396	336	642	102	0.231	1.16	0.470
13_2_04	MW-13	Appendix IV	Fluoride	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
13_2_08	MW-13	Appendix IV	Antimony	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
13_2_09	MW-13	Appendix IV	Arsenic	mg/L	13	10	77%	2022-02-23 to 2024-08-07		Nonparametric	0.00300	0.00200	0.00200	0.00800	0.00208	0.694	1.97	2.62

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
13_2_10	MW-13	Appendix IV	Barium	mg/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0287	0.0280	0.0190	0.0440	0.00687	0.240	0.838	0.947
13_2_11	MW-13	Appendix IV	Beryllium	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
13_2_12	MW-13	Appendix IV	Cadmium	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
13_2_13	MW-13	Appendix IV	Chromium	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
13_2_14	MW-13	Appendix IV	Cobalt	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
13_2_15	MW-13	Appendix IV	Lead	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
13_2_16	MW-13	Appendix IV	Lithium	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
13_2_17	MW-13	Appendix IV	Mercury	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
13_2_18	MW-13	Appendix IV	Molybdenum	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
13_2_21	MW-13	Appendix IV	Radium-226/228	pCi/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Gamma	1.03	0.683	0.0699	2.31	0.847	0.824	0.399	-1.77
13_2_22	MW-13	Appendix IV	Selenium	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
13_2_23	MW-13	Appendix IV	Thallium	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
13_3_24	MW-13	Field Parameters	pH	su	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	6.97	7.01	6.39	7.25	0.227	0.0326	-1.39	2.57
13_3_25	MW-13	Field Parameters	Conductivity	mS/cm	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.689	0.661	0.549	0.910	0.120	0.174	0.688	-0.598
13_3_26	MW-13	Field Parameters	Turbidity	NTU	13	0	0%	2022-02-23 to 2024-08-07	Normal	Normal	4.75	4.24	0.300	7.90	2.17	0.456	-0.567	-0.0177
13_3_27	MW-13	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Gamma	3.46	3.83	0.130	6.23	2.34	0.674	-0.189	-1.64
13_3_28	MW-13	Field Parameters	Temperature	°C	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	11.7	12.2	5.80	17.5	4.47	0.381	0.0176	-1.82
13_3_29	MW-13	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	2022-02-23 to 2024-08-07	Normal	Normal	65.8	89.1	-159	217	102	1.55	-0.932	0.807
13_4_30	MW-13	Other	Total Suspended Solids	mg/L	13	12	92%	2022-02-23 to 2024-08-07		Nonparametric	2.88	3.00	1.40	3.00	0.444	0.154	-3.61	13.0
13_4_31	MW-13	Other	Bicarbonate	mg/L	11	0	0%	2022-05-04 to 2024-08-07	Nonparametric	Nonparametric	365	340	320	496	55.1	0.151	1.75	2.45
13_4_32	MW-13	Other	Carbonate	mg/L	11	11	100%	2022-05-04 to 2024-08-07		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
13_4_33	MW-13	Other	Hardness	mg/L	11	0	0%	2022-05-04 to 2024-08-07	Gamma; Lognormal	Gamma	384	353	308	550	88.9	0.231	0.991	-0.406
13_4_34	MW-13	Other	Magnesium	mg/L	12	0	0%	2022-03-30 to 2024-08-07	Gamma; Lognormal; Normal	Normal	25	23.1	19.7	35.9	5.24	0.210	1.01	0.0979
13_4_35	MW-13	Other	Potassium	mg/L	12	0	0%	2022-03-30 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.802	0.779	0.690	1.00	0.0903	0.113	1.15	1.17
13_4_36	MW-13	Other	Sodium	mg/L	12	0	0%	2022-03-30 to 2024-08-07	Gamma; Lognormal	Gamma	5.92	4.83	2.45	13.4	3.84	0.648	1.29	0.638
13_5_37	MW-13	Part 115	Copper	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
13_5_38	MW-13	Part 115	Iron	mg/L	13	1	8%	2022-02-23 to 2024-08-07	Lognormal	Nonparametric	0.192	0.0400	0.0200	1.03	0.355	1.85	2.14	3.17
13_5_39	MW-13	Part 115	Nickel	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
13_5_40	MW-13	Part 115	Silver	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
13_5_41	MW-13	Part 115	Vanadium	mg/L	13	13	100%	2022-02-23 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
13_5_42	MW-13	Part 115	Zinc	mg/L	13	12	92%	2022-02-23 to 2024-08-07		Nonparametric	0.00538	0.00500	0.00500	0.0100	0.00139	0.258	3.61	13.0
14_1_01	MW-14	Appendix III	Boron	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	2.14	2.14	1.96	2.32	0.0946	0.0442	0.0313	-0.291
14_1_02	MW-14	Appendix III	Calcium	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	149	148	140	173	8.08	0.0544	1.84	4.08
14_1_03	MW-14	Appendix III	Chloride	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	114	114	108	119	3.03	0.0267	-0.00433	-0.340
14_1_04	MW-14	Appendix III	Fluoride	mg/L	18	18	100%	2023-01-12 to 2024-08-05		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
14_1_05	MW-14	Appendix III	pH, Field	su	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	7.02	7.02	6.92	7.13	0.0701	0.00998	0.185	-1.16
14_1_06	MW-14	Appendix III	Sulfate	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	99.3	19.0	5.90	748	236	2.38	2.70	5.97
14_1_07	MW-14	Appendix III	Total Dissolved Solids	mg/L	16	2	11%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	789	788	716	866	35.1	0.0444	-0.106	1.36
14_2_04	MW-14	Appendix IV	Fluoride	mg/L	18	18	100%	2023-01-12 to 2024-08-05		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
14_2_08	MW-14	Appendix IV	Antimony	mg/L	18	18	100%	2023-01-12 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
14_2_09	MW-14	Appendix IV	Arsenic	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.00611	0.00600	0.00400	0.00800	0.00128	0.209	-0.0407	-0.896
14_2_10	MW-14	Appendix IV	Barium	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	0.129	0.127	0.116	0.177	0.0133	0.103	2.92	10.5

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
14_2_11	MW-14	Appendix IV	Beryllium	mg/L	18	18	100%	2023-01-12 to 2024-08-05		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
14_2_12	MW-14	Appendix IV	Cadmium	mg/L	18	18	100%	2023-01-12 to 2024-08-05		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
14_2_13	MW-14	Appendix IV	Chromium	mg/L	18	18	100%	2023-01-12 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
14_2_14	MW-14	Appendix IV	Cobalt	mg/L	18	18	100%	2023-01-12 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
14_2_15	MW-14	Appendix IV	Lead	mg/L	18	18	100%	2023-01-12 to 2024-08-05		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
14_2_16	MW-14	Appendix IV	Lithium	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	0.113	0.111	0.102	0.132	0.00808	0.0716	1.18	0.637
14_2_17	MW-14	Appendix IV	Mercury	mg/L	18	18	100%	2023-01-12 to 2024-08-05		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
14_2_18	MW-14	Appendix IV	Molybdenum	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Lognormal; Normal	Normal	0.0137	0.0140	0.0120	0.0160	0.00127	0.0929	0.204	-0.587
14_2_21	MW-14	Appendix IV	Radium-226/228	pCi/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal	Gamma	1.82	1.33	0.464	6.88	1.61	0.885	2.27	5.43
14_2_22	MW-14	Appendix IV	Selenium	mg/L	18	14	78%	2023-01-12 to 2024-08-05		Nonparametric	0.00628	0.00500	0.00500	0.0130	0.00261	0.415	1.87	2.30
14_2_23	MW-14	Appendix IV	Thallium	mg/L	18	18	100%	2023-01-12 to 2024-08-05		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
14_3_24	MW-14	Field Parameters	pH	su	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	7.02	7.02	6.92	7.13	0.0701	0.00998	0.185	-1.16
14_3_25	MW-14	Field Parameters	Conductivity	mS/cm	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	1.27	1.28	1.09	1.36	0.0707	0.0554	-2.14	4.29
14_3_26	MW-14	Field Parameters	Turbidity	NTU	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	4.68	4.70	1.74	6.94	1.49	0.318	-0.189	-0.987
14_3_27	MW-14	Field Parameters	Dissolved Oxygen	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	0.188	0.0900	0	0.620	0.190	1.01	0.978	-0.210
14_3_28	MW-14	Field Parameters	Temperature	°C	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	12.3	12.1	10.1	18.0	2.15	0.175	0.985	1.10
14_3_29	MW-14	Field Parameters	Oxidation Reduction Potential	mV	18	0	0%	2023-01-12 to 2024-08-05	Normal	Normal	-113	-112	-175	-89.4	19.6	-0.173	-1.78	5.14
14_4_30	MW-14	Other	Total Suspended Solids	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	22.1	24.8	4.00	30.3	7.04	0.318	-1.67	2.22
14_4_31	MW-14	Other	Bicarbonate	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	662	650	600	850	61.7	0.0931	1.99	4.70
14_4_32	MW-14	Other	Carbonate	mg/L	18	18	100%	2023-01-12 to 2024-08-05		Nonparametric	12.2	10.0	10.0	50.0	9.43	0.771	4.24	18.0
14_4_33	MW-14	Other	Hardness	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	561	555	498	630	34.5	0.0615	0.228	0.0000589
14_4_34	MW-14	Other	Magnesium	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	41.7	42.0	38.5	46.4	1.85	0.0445	0.695	1.32
14_4_35	MW-14	Other	Potassium	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	5.07	5.0	4.43	5.82	0.444	0.0876	0.482	-1.05
14_4_36	MW-14	Other	Sodium	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Normal	Normal	77.1	77.8	70.9	80.4	2.70	0.0351	-1.01	0.255
14_5_37	MW-14	Part 115	Copper	mg/L	18	18	100%	2023-01-12 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
14_5_38	MW-14	Part 115	Iron	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Normal	Normal	11.1	11.4	6.58	14.7	2.14	0.193	-0.598	0.740
14_5_39	MW-14	Part 115	Nickel	mg/L	18	11	61%	2023-01-12 to 2024-08-05		Nonparametric	0.00517	0.00500	0.00500	0.00700	0.000514	0.0996	3.24	10.5
14_5_40	MW-14	Part 115	Silver	mg/L	18	18	100%	2023-01-12 to 2024-08-05		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
14_5_41	MW-14	Part 115	Vanadium	mg/L	18	17	94%	2023-01-12 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
14_5_42	MW-14	Part 115	Zinc	mg/L	18	15	83%	2023-01-12 to 2024-08-05		Nonparametric	0.00661	0.00500	0.00500	0.0240	0.00474	0.717	3.39	11.8
15_1_01	MW-15	Appendix III	Boron	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.378	0.380	0.330	0.440	0.0374	0.0988	0.196	-1.29
15_1_02	MW-15	Appendix III	Calcium	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	134	132	104	183	21.3	0.159	1.16	2.75
15_1_03	MW-15	Appendix III	Chloride	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	73.5	72.5	59.0	100	12.1	0.165	1.07	1.64
15_1_04	MW-15	Appendix III	Fluoride	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
15_1_05	MW-15	Appendix III	pH, Field	su	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	6.82	6.83	6.68	6.99	0.119	0.0175	0.192	-1.50
15_1_06	MW-15	Appendix III	Sulfate	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal	Gamma	120	113	49.7	238	47.3	0.393	1.66	5.16
15_1_07	MW-15	Appendix III	Total Dissolved Solids	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	643	622	528	878	98.8	0.154	1.53	3.30
15_2_04	MW-15	Appendix IV	Fluoride	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
15_2_08	MW-15	Appendix IV	Antimony	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
15_2_09	MW-15	Appendix IV	Arsenic	mg/L	10	9	90%	2023-01-12 to 2024-08-07		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
15_2_10	MW-15	Appendix IV	Barium	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0575	0.0565	0.0420	0.0770	0.0111	0.192	0.401	-0.709
15_2_11	MW-15	Appendix IV	Beryllium	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
15_2_12	MW-15	Appendix IV	Cadmium	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
15_2_13	MW-15	Appendix IV	Chromium	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
15_2_14	MW-15	Appendix IV	Cobalt	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
15_2_15	MW-15	Appendix IV	Lead	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
15_2_16	MW-15	Appendix IV	Lithium	mg/L	10	9	90%	2023-01-12 to 2024-08-07		Nonparametric	0.00590	0.00500	0.00500	0.0140	0.00285	0.482	3.16	10.0
15_2_17	MW-15	Appendix IV	Mercury	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
15_2_18	MW-15	Appendix IV	Molybdenum	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
15_2_21	MW-15	Appendix IV	Radium-226/228	pCi/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	1.10	0.898	0.316	2.06	0.674	0.610	0.436	-1.41
15_2_22	MW-15	Appendix IV	Selenium	mg/L	10	4	40%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0131	0.00950	0.00500	0.0340	0.0103	0.788	1.20	0.275
15_2_23	MW-15	Appendix IV	Thallium	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
15_3_24	MW-15	Field Parameters	pH	su	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	6.82	6.83	6.68	6.99	0.119	0.0175	0.192	-1.50
15_3_25	MW-15	Field Parameters	Conductivity	mS/cm	10	0	0%	2023-01-12 to 2024-08-07	Normal	Normal	0.915	0.902	0.451	1.32	0.213	0.232	-0.468	3.48
15_3_26	MW-15	Field Parameters	Turbidity	NTU	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	4.95	5.0	2.40	7.52	1.51	0.305	-0.00901	-0.128
15_3_27	MW-15	Field Parameters	Dissolved Oxygen	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal	Gamma	1.95	0.880	0.0100	5.41	2.02	1.04	0.844	-0.989
15_3_28	MW-15	Field Parameters	Temperature	°C	10	0	0%	2023-01-12 to 2024-08-07	Lognormal	Lognormal	11.1	10.7	7.30	15.9	3.48	0.315	0.150	-2.15
15_3_29	MW-15	Field Parameters	Oxidation Reduction Potential	mV	10	0	0%	2023-01-12 to 2024-08-07	Normal	Normal	59.0	52.0	-154	196	99.0	1.68	-0.859	1.43
15_4_30	MW-15	Other	Total Suspended Solids	mg/L	10	7	70%	2023-01-12 to 2024-08-07		Nonparametric	2.52	3.00	0.800	3.00	0.812	0.322	-1.42	0.733
15_4_31	MW-15	Other	Bicarbonate	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	389	395	330	440	44.9	0.115	-0.203	-1.96
15_4_32	MW-15	Other	Carbonate	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
15_4_33	MW-15	Other	Hardness	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	459	462	406	512	35.9	0.0781	0.0353	-1.08
15_4_34	MW-15	Other	Magnesium	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal	Gamma	33.2	31.9	25.7	47.2	5.65	0.170	1.74	4.71
15_4_35	MW-15	Other	Potassium	mg/L	10	9	90%	2023-01-12 to 2024-08-07		Nonparametric	0.511	0.500	0.500	0.610	0.0348	0.0681	3.16	10.0
15_4_36	MW-15	Other	Sodium	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Nonparametric	Nonparametric	31.3	29.6	27.4	40.5	4.52	0.145	1.63	1.30
15_5_37	MW-15	Part 115	Copper	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
15_5_38	MW-15	Part 115	Iron	mg/L	10	1	10%	2023-01-12 to 2024-08-07	Gamma; Lognormal	Gamma	0.102	0.0800	0.0200	0.380	0.108	1.06	2.19	5.59
15_5_39	MW-15	Part 115	Nickel	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
15_5_40	MW-15	Part 115	Silver	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
15_5_41	MW-15	Part 115	Vanadium	mg/L	10	10	100%	2023-01-12 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
15_5_42	MW-15	Part 115	Zinc	mg/L	10	9	90%	2023-01-12 to 2024-08-07		Nonparametric	0.00660	0.00500	0.00500	0.0210	0.00506	0.767	3.16	10.0
16A_1_01	MW-16A	Appendix III	Boron	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	0.164	0.165	0.100	0.250	0.0524	0.321	0.0233	-1.66
16A_1_02	MW-16A	Appendix III	Calcium	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	184	175	145	226	27.7	0.150	0.163	-1.33
16A_1_03	MW-16A	Appendix III	Chloride	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	438	438	383	505	41.5	0.0948	0.334	-1.22
16A_1_04	MW-16A	Appendix III	Fluoride	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	1.30	1.00	1.00	5.00	0.923	0.710	3.78	15.1
16A_1_05	MW-16A	Appendix III	pH, Field	su	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	6.85	6.82	6.72	7.00	0.0924	0.0135	0.467	-1.09
16A_1_06	MW-16A	Appendix III	Sulfate	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Lognormal	Lognormal	179	148	85.0	341	75.7	0.423	0.486	-0.912
16A_1_07	MW-16A	Appendix III	Total Dissolved Solids	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	1424	1380	1170	1730	190	0.134	0.157	-1.36
16A_2_04	MW-16A	Appendix IV	Fluoride	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	1.30	1.00	1.00	5.00	0.923	0.710	3.78	15.1
16A_2_08	MW-16A	Appendix IV	Antimony	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16A_2_09	MW-16A	Appendix IV	Arsenic	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	0.00340	0.00300	0.00200	0.00500	0.000754	0.222	-0.0327	-0.0728
16A_2_10	MW-16A	Appendix IV	Barium	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.145	0.142	0.108	0.181	0.0237	0.163	0.0143	-1.36
16A_2_11	MW-16A	Appendix IV	Beryllium	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
16A_2_12	MW-16A	Appendix IV	Cadmium	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
16A_2_13	MW-16A	Appendix IV	Chromium	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16A_2_14	MW-16A	Appendix IV	Cobalt	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16A_2_15	MW-16A	Appendix IV	Lead	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
16A_2_16	MW-16A	Appendix IV	Lithium	mg/L	20	19	95%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16A_2_17	MW-16A	Appendix IV	Mercury	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
16A_2_18	MW-16A	Appendix IV	Molybdenum	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16A_2_21	MW-16A	Appendix IV	Radium-226/228	pCi/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	2.24	2.12	0.325	7.46	1.80	0.805	1.45	2.51
16A_2_22	MW-16A	Appendix IV	Selenium	mg/L	20	19	95%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16A_2_23	MW-16A	Appendix IV	Thallium	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
16A_3_24	MW-16A	Field Parameters	pH	su	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	6.85	6.82	6.72	7.00	0.0924	0.0135	0.467	-1.09
16A_3_25	MW-16A	Field Parameters	Conductivity	mS/cm	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	2.25	2.25	1.87	2.61	0.275	0.123	-0.0942	-1.42
16A_3_26	MW-16A	Field Parameters	Turbidity	NTU	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	4.93	4.83	3.06	6.54	1.18	0.239	0.0254	-1.37
16A_3_27	MW-16A	Field Parameters	Dissolved Oxygen	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Gamma	0.150	0.100	0.0100	0.430	0.141	0.934	0.885	-0.407
16A_3_28	MW-16A	Field Parameters	Temperature	°C	20	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	12.8	13.6	7.30	16.8	3.67	0.287	-0.379	-1.66
16A_3_29	MW-16A	Field Parameters	Oxidation Reduction Potential	mV	20	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	-53.2	-50.5	-102	-3.10	24.2	-0.456	0.0457	1.57
16A_4_30	MW-16A	Other	Total Suspended Solids	mg/L	20	3	15%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	3.56	3.00	1.20	7.00	1.91	0.536	0.601	-0.838
16A_4_31	MW-16A	Other	Bicarbonate	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	501	510	420	620	57.6	0.115	0.569	-0.0356
16A_4_32	MW-16A	Other	Carbonate	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	12.0	10.0	10.0	50.0	8.94	0.745	4.47	20.0
16A_4_33	MW-16A	Other	Hardness	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Lognormal	Lognormal	646	602	519	860	109	0.169	0.586	-0.945
16A_4_34	MW-16A	Other	Magnesium	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	42.7	41.1	33.2	52.4	7.19	0.168	0.226	-1.58
16A_4_35	MW-16A	Other	Potassium	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	1.46	1.45	1.04	2.12	0.272	0.186	1.08	1.41
16A_4_36	MW-16A	Other	Sodium	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	275	276	229	324	30.1	0.110	0.198	-1.29
16A_5_37	MW-16A	Part 115	Copper	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16A_5_38	MW-16A	Part 115	Iron	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	3.24	3.06	2.52	4.38	0.587	0.181	0.548	-0.970
16A_5_39	MW-16A	Part 115	Nickel	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16A_5_40	MW-16A	Part 115	Silver	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
16A_5_41	MW-16A	Part 115	Vanadium	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16A_5_42	MW-16A	Part 115	Zinc	mg/L	20	20	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16B_1_01	MW-16B	Appendix III	Boron	mg/L	13	0	0%	2023-02-02 to 2024-08-06		Nonparametric	0.117	0.120	0.110	0.130	0.00751	0.0642	0.611	-0.776
16B_1_02	MW-16B	Appendix III	Calcium	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	80.9	80.8	74.5	85.4	3.21	0.0396	-0.424	-0.245
16B_1_03	MW-16B	Appendix III	Chloride	mg/L	13	5	38%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	4.85	5.00	3.10	11.0	1.97	0.407	2.82	9.18
16B_1_04	MW-16B	Appendix III	Fluoride	mg/L	13	7	54%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Nonparametric	0.838	1.00	0.310	1.00	0.218	0.260	-1.33	1.42
16B_1_05	MW-16B	Appendix III	pH, Field	su	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.43	7.45	7.25	7.56	0.0903	0.0122	-0.508	0.0380
16B_1_06	MW-16B	Appendix III	Sulfate	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	17.5	17.4	15.0	20.6	1.51	0.0862	0.501	0.589
16B_1_07	MW-16B	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Lognormal; Normal	Normal	366	366	350	378	7.0	0.0191	-0.600	1.93
16B_2_04	MW-16B	Appendix IV	Fluoride	mg/L	13	8	62%	2023-02-02 to 2024-08-06		Nonparametric	0.870	1.00	0.310	1.00	0.207	0.238	-1.86	3.69
16B_2_08	MW-16B	Appendix IV	Antimony	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16B_2_09	MW-16B	Appendix IV	Arsenic	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
16B_2_10	MW-16B	Appendix IV	Barium	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.0867	0.0860	0.0820	0.0910	0.00269	0.0310	0.0530	-0.975
16B_2_11	MW-16B	Appendix IV	Beryllium	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
16B_2_12	MW-16B	Appendix IV	Cadmium	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
16B_2_13	MW-16B	Appendix IV	Chromium	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
16B_2_14	MW-16B	Appendix IV	Cobalt	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16B_2_15	MW-16B	Appendix IV	Lead	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
16B_2_16	MW-16B	Appendix IV	Lithium	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.0212	0.0210	0.0190	0.0230	0.00121	0.0574	-0.0117	-0.654
16B_2_17	MW-16B	Appendix IV	Mercury	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
16B_2_18	MW-16B	Appendix IV	Molybdenum	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	0.00615	0.00600	0.00500	0.00800	0.000689	0.112	1.61	4.59
16B_2_21	MW-16B	Appendix IV	Radium-226/228	pCi/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal	Gamma	2.30	1.91	0.998	6.43	1.48	0.645	2.13	4.98
16B_2_22	MW-16B	Appendix IV	Selenium	mg/L	13	12	92%	2023-02-02 to 2024-08-06		Nonparametric	0.00508	0.00500	0.00500	0.00600	0.000277	0.0546	3.61	13.0
16B_2_23	MW-16B	Appendix IV	Thallium	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
16B_3_24	MW-16B	Field Parameters	pH	su	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.43	7.45	7.25	7.56	0.0906	0.0122	-0.529	0.0145
16B_3_25	MW-16B	Field Parameters	Conductivity	mS/cm	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.611	0.615	0.578	0.635	0.0177	0.0289	-0.495	-0.560
16B_3_26	MW-16B	Field Parameters	Turbidity	NTU	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Normal	Normal	5.52	6.29	0.440	9.34	2.65	0.481	-0.477	0.0475
16B_3_27	MW-16B	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	0.0885	0.0800	0	0.370	0.0997	1.13	2.06	5.19
16B_3_28	MW-16B	Field Parameters	Temperature	°C	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	13.3	13.6	9.20	15.8	1.97	0.149	-0.584	-0.355
16B_3_29	MW-16B	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	-104	-102	-136	-63.3	21.3	-0.206	0.0588	-0.547
16B_4_30	MW-16B	Other	Total Suspended Solids	mg/L	13	6	46%	2023-02-02 to 2024-08-06	Gamma; Lognormal	Gamma	2.50	3.00	0.600	7.00	1.66	0.664	1.60	4.06
16B_4_31	MW-16B	Other	Bicarbonate	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	410	410	390	440	13.4	0.0327	0.808	0.691
16B_4_32	MW-16B	Other	Carbonate	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
16B_4_33	MW-16B	Other	Hardness	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	347	348	322	380	18.3	0.0527	0.486	-0.385
16B_4_34	MW-16B	Other	Magnesium	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	33.6	33.4	29.7	36.4	1.79	0.0532	-0.576	0.542
16B_4_35	MW-16B	Other	Potassium	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	3.0	2.90	2.80	3.81	0.261	0.0869	2.89	9.08
16B_4_36	MW-16B	Other	Sodium	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	12.4	11.1	10.3	24.5	3.88	0.312	2.92	9.03
16B_5_37	MW-16B	Part 115	Copper	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16B_5_38	MW-16B	Part 115	Iron	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Lognormal	Lognormal	0.482	0.420	0.320	0.930	0.169	0.351	1.81	3.41
16B_5_39	MW-16B	Part 115	Nickel	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16B_5_40	MW-16B	Part 115	Silver	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
16B_5_41	MW-16B	Part 115	Vanadium	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16B_5_42	MW-16B	Part 115	Zinc	mg/L	13	13	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7C_1_01	MW-7C	Appendix III	Boron	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	6.59	6.55	6.29	7.24	0.235	0.0356	1.74	4.55
7C_1_02	MW-7C	Appendix III	Calcium	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	243	243	183	277	22.3	0.0917	-1.33	4.46
7C_1_03	MW-7C	Appendix III	Chloride	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal	Gamma	94.3	93.0	90.0	105	4.30	0.0456	1.62	2.47
7C_1_04	MW-7C	Appendix III	Fluoride	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
7C_1_05	MW-7C	Appendix III	pH, Field	su	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	7.34	7.32	7.23	7.51	0.0940	0.0128	0.675	-0.730
7C_1_06	MW-7C	Appendix III	Sulfate	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	694	685	650	761	37.7	0.0544	0.671	-0.958
7C_1_07	MW-7C	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	1387	1360	1310	1500	61.3	0.0442	1.02	-0.0765
7C_2_04	MW-7C	Appendix IV	Fluoride	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA
7C_2_08	MW-7C	Appendix IV	Antimony	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7C_2_09	MW-7C	Appendix IV	Arsenic	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	0.00662	0.00600	0.00500	0.0100	0.00119	0.180	1.94	5.54
7C_2_10	MW-7C	Appendix IV	Barium	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0432	0.0430	0.0390	0.0470	0.00241	0.0558	0.0407	-0.949
7C_2_11	MW-7C	Appendix IV	Beryllium	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
7C_2_12	MW-7C	Appendix IV	Cadmium	mg/L	13	10	77%	2022-03-10 to 2024-08-08		Nonparametric	0.000569	0.000500	0.000500	0.000900	0.000138	0.242	1.79	1.94
7C_2_13	MW-7C	Appendix IV	Chromium	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7C_2_14	MW-7C	Appendix IV	Cobalt	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
7C_2_15	MW-7C	Appendix IV	Lead	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
7C_2_16	MW-7C	Appendix IV	Lithium	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.128	0.127	0.119	0.138	0.00547	0.0428	0.447	0.112
7C_2_17	MW-7C	Appendix IV	Mercury	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
7C_2_18	MW-7C	Appendix IV	Molybdenum	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.399	0.402	0.377	0.422	0.0141	0.0354	-0.139	-1.07
7C_2_21	MW-7C	Appendix IV	Radium-226/228	pCi/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	2.10	1.76	0.773	3.66	1.12	0.535	0.293	-1.74
7C_2_22	MW-7C	Appendix IV	Selenium	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7C_2_23	MW-7C	Appendix IV	Thallium	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
7C_3_24	MW-7C	Field Parameters	pH	su	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	7.34	7.32	7.23	7.51	0.0940	0.0128	0.675	-0.730
7C_3_25	MW-7C	Field Parameters	Conductivity	mS/cm	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	1.68	1.67	1.33	2.01	0.189	0.113	0.306	0.400
7C_3_26	MW-7C	Field Parameters	Turbidity	NTU	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Normal	Gamma	3.68	3.95	0.0200	8.57	2.71	0.736	0.259	-0.752
7C_3_27	MW-7C	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	0.410	0.0900	0.0600	1.77	0.622	1.52	1.94	2.46
7C_3_28	MW-7C	Field Parameters	Temperature	°C	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	13.3	13.7	9.20	16.4	2.02	0.152	-0.397	0.0360
7C_3_29	MW-7C	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	2022-03-10 to 2024-08-08	Normal	Normal	-116	-121	-183	-39.0	39.7	-0.342	0.872	1.17
7C_4_30	MW-7C	Other	Total Suspended Solids	mg/L	13	3	23%	2022-03-10 to 2024-08-08	Gamma; Lognormal	Gamma	8.53	7.40	3.00	27.0	6.30	0.738	2.30	6.58
7C_4_31	MW-7C	Other	Bicarbonate	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	163	160	150	180	9.47	0.0581	0.00418	-0.780
7C_4_32	MW-7C	Other	Carbonate	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
7C_4_33	MW-7C	Other	Hardness	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	766	770	558	860	72.9	0.0952	-1.93	5.79
7C_4_34	MW-7C	Other	Magnesium	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	41.7	42.2	33.7	44.9	2.85	0.0683	-1.94	5.13
7C_4_35	MW-7C	Other	Potassium	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Normal	Normal	5.69	5.79	4.92	6.14	0.372	0.0654	-1.14	0.508
7C_4_36	MW-7C	Other	Sodium	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	95.3	96.6	79.0	99.8	5.26	0.0553	-2.76	8.78
7C_5_37	MW-7C	Part 115	Copper	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7C_5_38	MW-7C	Part 115	Iron	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	4.07	4.11	3.67	4.41	0.236	0.0580	-0.308	-1.06
7C_5_39	MW-7C	Part 115	Nickel	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	0.00792	0.00800	0.00700	0.0110	0.00126	0.158	1.66	2.32
7C_5_40	MW-7C	Part 115	Silver	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
7C_5_41	MW-7C	Part 115	Vanadium	mg/L	13	13	100%	2022-03-10 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7C_5_42	MW-7C	Part 115	Zinc	mg/L	13	11	85%	2022-03-10 to 2024-08-08		Nonparametric	0.00523	0.00500	0.00500	0.00700	0.000599	0.115	2.68	6.96

[a] Non-detects are excluded from goodness-of-fit tests.

Table 2: Summary Statistics, Non-Detects Excluded

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
02_1_01	MW-2	Appendix III	Boron	mg/L	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	4.79	4.90	3.16	6.17	1.01	0.211	-0.179	-1.34
02_1_02	MW-2	Appendix III	Calcium	mg/L	20	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	236	252	164	272	35	0.148	-0.582	-1.13
02_1_03	MW-2	Appendix III	Chloride	mg/L	18	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	81.7	83.0	67.0	94.0	7.66	0.0938	-0.650	-0.371
02_1_05	MW-2	Appendix III	pH, Field	su	21	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	6.77	6.75	6.54	7.08	0.108	0.0159	0.710	2.72
02_1_06	MW-2	Appendix III	Sulfate	mg/L	18	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	445	494	238	586	118	0.265	-0.416	-1.36
02_1_07	MW-2	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1230	1275	950	1430	165	0.134	-0.409	-1.34
02_2_09	MW-2	Appendix IV	Arsenic	mg/L	21	17	81%	2020-04-28 to 2024-08-05		Nonparametric	0.00275	0.00250	0.00200	0.00400	0.000957	0.348	0.855	-1.29
02_2_10	MW-2	Appendix IV	Barium	mg/L	21	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0397	0.0410	0.0320	0.0480	0.00405	0.102	-0.0151	-0.322
02_2_16	MW-2	Appendix IV	Lithium	mg/L	21	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0547	0.0550	0.0370	0.0700	0.00987	0.180	-0.294	-0.925
02_2_18	MW-2	Appendix IV	Molybdenum	mg/L	21	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0110	0.0110	0.00700	0.0150	0.00190	0.172	-0.0485	0.306
02_2_21	MW-2	Appendix IV	Radium-226/228	pCi/L	19	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	0.912	0.745	0	3.25	0.829	0.909	1.41	2.17
02_3_24	MW-2	Field Parameters	pH	su	21	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	6.77	6.75	6.54	7.08	0.108	0.0159	0.710	2.72
02_3_25	MW-2	Field Parameters	Conductivity	mS/cm	21	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	1.60	1.66	1.28	1.80	0.182	0.114	-0.528	-1.32
02_3_26	MW-2	Field Parameters	Turbidity	NTU	21	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	12.5	9.56	2.38	72.3	14.2	1.14	4.10	17.9
02_3_27	MW-2	Field Parameters	Dissolved Oxygen	mg/L	21	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	0.197	0.150	0	1.01	0.233	1.18	2.31	6.92
02_3_28	MW-2	Field Parameters	Temperature	°C	21	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	13.1	13.7	9.10	16.2	1.99	0.152	-0.379	-0.528
02_3_29	MW-2	Field Parameters	Oxidation Reduction Potential	mV	21	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	33.4	36.0	-75.8	182	53.8	1.61	0.433	2.33
02_4_30	MW-2	Other	Total Suspended Solids	mg/L	19	4	21%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	11.7	10.0	1.00	34.1	8.45	0.724	1.35	2.62
02_4_31	MW-2	Other	Bicarbonate	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	489	470	410	560	64.4	0.132	0.0812	-2.19
02_4_33	MW-2	Other	Hardness	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	692	704	654	714	24.9	0.0359	-1.09	-0.0586
02_4_34	MW-2	Other	Magnesium	mg/L	7	0	0%	2022-08-02 to 2024-08-05	Nonparametric	Nonparametric	48.3	50.2	38.7	50.6	4.32	0.0894	-2.44	6.13
02_4_35	MW-2	Other	Potassium	mg/L	7	1	14%	2022-08-02 to 2024-08-05	Nonparametric	Nonparametric	1.07	0.795	0.600	2.70	0.803	0.747	2.36	5.66
02_4_36	MW-2	Other	Sodium	mg/L	7	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	54.2	50.3	42.0	68.3	10.4	0.192	0.302	-2.05
02_5_38	MW-2	Part 115	Iron	mg/L	21	0	0%	2020-04-28 to 2024-08-05	Gamma	Gamma	0.655	0.550	0.110	1.93	0.390	0.595	1.89	5.26
02_5_39	MW-2	Part 115	Nickel	mg/L	21	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	0.0220	0.0240	0.0140	0.0280	0.00482	0.219	-0.369	-1.48
02_5_42	MW-2	Part 115	Zinc	mg/L	21	18	86%	2020-04-28 to 2024-08-05		Nonparametric	0.0183	0.00700	0.00700	0.0410	0.0196	1.07	1.73	NA
03_1_01	MW-3	Appendix III	Boron	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	5.67	5.65	5.34	6.16	0.259	0.0456	0.742	0.829
03_1_02	MW-3	Appendix III	Calcium	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	246	250	223	257	11.0	0.0448	-1.56	2.65
03_1_03	MW-3	Appendix III	Chloride	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	97.4	99.2	89.0	103	5.12	0.0526	-0.676	-1.09
03_1_05	MW-3	Appendix III	pH, Field	su	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	7.24	7.24	7.15	7.38	0.0712	0.00983	0.893	1.23
03_1_06	MW-3	Appendix III	Sulfate	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	704	701	675	732	22.1	0.0314	0.0894	-1.81
03_1_07	MW-3	Appendix III	Total Dissolved Solids	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1458	1445	1430	1500	28.2	0.0193	0.595	-1.64
03_2_09	MW-3	Appendix IV	Arsenic	mg/L	8	0	0%	2021-05-04 to 2024-08-05		Nonparametric	0.00350	0.00300	0.00300	0.00600	0.00107	0.305	2.34	5.47
03_2_10	MW-3	Appendix IV	Barium	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0191	0.0190	0.0170	0.0210	0.00155	0.0812	-0.272	-1.00
03_2_16	MW-3	Appendix IV	Lithium	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0820	0.0810	0.0750	0.0910	0.00535	0.0652	0.442	-0.618
03_2_18	MW-3	Appendix IV	Molybdenum	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.165	0.163	0.153	0.182	0.00967	0.0586	0.734	-0.0496
03_2_21	MW-3	Appendix IV	Radium-226/228	pCi/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1.52	1.16	0.412	2.92	0.879	0.577	0.545	-1.15
03_3_24	MW-3	Field Parameters	pH	su	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	7.24	7.24	7.15	7.38	0.0712	0.00983	0.893	1.23
03_3_25	MW-3	Field Parameters	Conductivity	mS/cm	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1.77	1.78	1.70	1.83	0.0456	0.0257	-0.674	-0.409
03_3_26	MW-3	Field Parameters	Turbidity	NTU	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Gamma	3.78	4.49	0.0200	8.01	2.60	0.688	0.0176	-0.419
03_3_27	MW-3	Field Parameters	Dissolved Oxygen	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.138	0.110	0.0300	0.350	0.0968	0.704	1.69	3.67
03_3_28	MW-3	Field Parameters	Temperature	°C	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	13.1	13.2	9.90	17.5	2.43	0.186	0.531	0.291
03_3_29	MW-3	Field Parameters	Oxidation Reduction Potential	mV	8	0	0%	2021-05-04 to 2024-08-05	Normal	Normal	-56.8	-59.9	-92.1	-25.1	21.8	-0.384	-0.128	-0.526

(Table continues on next page)

Table 2: Summary Statistics, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
03_4_30	MW-3	Other	Total Suspended Solids	mg/L	8	1	12%	2021-05-04 to 2024-08-05	Gamma; Normal	Normal	2.83	3.20	1.00	4.00	1.00	0.354	-1.12	0.941
03_4_31	MW-3	Other	Bicarbonate	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	221	215	210	240	13.1	0.0594	0.953	-0.763
03_4_33	MW-3	Other	Hardness	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	790	794	774	802	10.9	0.0138	-0.675	-0.377
03_4_34	MW-3	Other	Magnesium	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	48.4	49.2	45.9	50.7	2.11	0.0435	-0.362	-2.61
03_4_35	MW-3	Other	Potassium	mg/L	5	0	0%	2022-08-02 to 2024-08-05		Nonparametric	1.71	1.67	1.67	1.81	0.0616	0.0360	1.45	1.34
03_4_36	MW-3	Other	Sodium	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	117	119	111	121	4.34	0.0372	-0.559	-2.37
03_5_38	MW-3	Part 115	Iron	mg/L	8	0	0%	2021-05-04 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1.86	1.89	1.52	2.05	0.185	0.0993	-0.871	0.0550
05_1_01	MW-5	Appendix III	Boron	mg/L	22	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	3.91	4.38	0.370	5.75	1.26	0.322	-0.978	1.28
05_1_02	MW-5	Appendix III	Calcium	mg/L	22	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	222	226	70.1	372	72.6	0.327	0.0193	-0.215
05_1_03	MW-5	Appendix III	Chloride	mg/L	18	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	66.4	70.5	36.5	83.0	15.4	0.232	-0.917	-0.384
05_1_05	MW-5	Appendix III	pH, Field	su	23	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	7.21	7.27	6.40	7.45	0.230	0.0318	-2.57	7.41
05_1_06	MW-5	Appendix III	Sulfate	mg/L	18	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	664	649	186	1170	283	0.427	0.00890	-0.855
05_1_07	MW-5	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1341	1335	592	2020	424	0.316	-0.166	-0.950
05_2_09	MW-5	Appendix IV	Arsenic	mg/L	23	17	74%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	0.00383	0.00350	0.00200	0.00700	0.00194	0.506	0.839	-0.0587
05_2_10	MW-5	Appendix IV	Barium	mg/L	23	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0445	0.0430	0.0330	0.0640	0.00738	0.166	1.08	0.997
05_2_13	MW-5	Appendix IV	Chromium	mg/L	23	21	91%	2020-04-28 to 2024-08-05		Nonparametric	0.00850	0.00850	0.00700	0.0100	0.00212	0.250	NA	NA
05_2_14	MW-5	Appendix IV	Cobalt	mg/L	23	22	96%	2020-04-28 to 2024-08-05		Nonparametric	0.00600	0.00600	0.00600	0.00600	NA	NA	NA	NA
05_2_15	MW-5	Appendix IV	Lead	mg/L	23	20	87%	2020-04-28 to 2024-08-05		Nonparametric	0.00733	0.00500	0.00300	0.0140	0.00586	0.799	1.51	NA
05_2_16	MW-5	Appendix IV	Lithium	mg/L	23	0	0%	2020-04-28 to 2024-08-05	Gamma; Normal	Normal	0.0699	0.0730	0.0160	0.0910	0.0172	0.246	-1.47	3.12
05_2_18	MW-5	Appendix IV	Molybdenum	mg/L	23	0	0%	2020-04-28 to 2024-08-05	Gamma; Normal	Normal	0.0568	0.0540	0.0100	0.0960	0.0197	0.347	-0.163	0.233
05_2_21	MW-5	Appendix IV	Radium-226/228	pCi/L	19	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1.65	1.53	0.524	4.22	1.06	0.644	1.28	1.36
05_3_24	MW-5	Field Parameters	pH	su	23	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	7.21	7.27	6.40	7.45	0.230	0.0318	-2.57	7.41
05_3_25	MW-5	Field Parameters	Conductivity	mS/cm	23	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1.54	1.58	1.00	2.49	0.427	0.277	0.414	-0.615
05_3_26	MW-5	Field Parameters	Turbidity	NTU	23	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	27.7	19.0	9.52	180	35.1	1.27	4.08	17.6
05_3_27	MW-5	Field Parameters	Dissolved Oxygen	mg/L	23	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	2.89	3.16	0.550	5.42	1.34	0.464	-0.363	-0.537
05_3_28	MW-5	Field Parameters	Temperature	°C	23	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	13.1	12.7	6.90	18.8	3.33	0.255	-0.0796	-0.409
05_3_29	MW-5	Field Parameters	Oxidation Reduction Potential	mV	23	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	94.4	119	-34.8	248	81.5	0.863	-0.220	-0.932
05_4_30	MW-5	Other	Total Suspended Solids	mg/L	19	0	0%	2020-04-28 to 2024-08-05	Lognormal	Lognormal	26.3	14.0	4.00	161	36.9	1.40	3.03	10.3
05_4_31	MW-5	Other	Bicarbonate	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	296	290	280	320	15.1	0.0509	1.27	2.10
05_4_33	MW-5	Other	Hardness	mg/L	5	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	589	534	502	748	101	0.172	1.25	0.647
05_4_34	MW-5	Other	Magnesium	mg/L	9	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Normal	37.5	36.7	24.8	54.5	8.08	0.215	0.854	2.37
05_4_35	MW-5	Other	Potassium	mg/L	9	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Normal	4.16	4.22	3.33	4.61	0.403	0.0967	-1.18	1.22
05_4_36	MW-5	Other	Sodium	mg/L	9	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Normal	49.6	47.8	34.4	69.5	9.73	0.196	0.807	1.87
05_5_37	MW-5	Part 115	Copper	mg/L	23	18	78%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	0.0140	0.0110	0.00500	0.0260	0.00843	0.602	0.677	-0.901
05_5_38	MW-5	Part 115	Iron	mg/L	23	5	22%	2020-04-28 to 2024-08-05	Gamma; Lognormal	Gamma	1.49	0.825	0.180	8.00	1.97	1.32	2.58	7.15
05_5_39	MW-5	Part 115	Nickel	mg/L	23	3	13%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0108	0.0105	0.00500	0.0190	0.00426	0.395	0.389	-0.776
05_5_41	MW-5	Part 115	Vanadium	mg/L	23	20	87%	2020-04-28 to 2024-08-05		Nonparametric	0.00867	0.00900	0.00500	0.0120	0.00351	0.405	-0.423	NA
05_5_42	MW-5	Part 115	Zinc	mg/L	23	9	39%	2020-04-28 to 2024-08-05	Gamma; Lognormal	Gamma	0.0214	0.0100	0.00500	0.0980	0.0255	1.19	2.42	6.41
06_1_01	MW-6	Appendix III	Boron	mg/L	19	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.786	0.760	0.490	1.09	0.179	0.228	0.132	-1.13
06_1_02	MW-6	Appendix III	Calcium	mg/L	19	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	169	169	142	193	17.9	0.106	0.0252	-1.37
06_1_03	MW-6	Appendix III	Chloride	mg/L	19	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	33.7	35.0	24.0	43.0	6.67	0.198	-0.0583	-1.75
06_1_05	MW-6	Appendix III	pH, Field	su	20	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	6.74	6.75	6.35	7.11	0.155	0.0229	-0.110	2.71
06_1_06	MW-6	Appendix III	Sulfate	mg/L	19	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	179	180	118	264	49.3	0.275	0.365	-1.16

(Table continues on next page)

Table 2: Summary Statistics, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
06_1_07	MW-6	Appendix III	Total Dissolved Solids	mg/L	19	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	754	738	598	898	92.7	0.123	0.0214	-1.35
06_2_09	MW-6	Appendix IV	Arsenic	mg/L	20	18	90%	2020-04-28 to 2024-08-05		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
06_2_10	MW-6	Appendix IV	Barium	mg/L	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0486	0.0495	0.0380	0.0570	0.00532	0.109	-0.290	-1.01
06_2_16	MW-6	Appendix IV	Lithium	mg/L	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0463	0.0475	0.0320	0.0590	0.00786	0.170	-0.218	-0.842
06_2_18	MW-6	Appendix IV	Molybdenum	mg/L	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.0246	0.0255	0.0120	0.0360	0.00652	0.265	-0.368	-0.356
06_2_21	MW-6	Appendix IV	Radium-226/228	pCi/L	20	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	1.22	0.860	0	4.29	1.02	0.833	1.62	3.22
06_3_24	MW-6	Field Parameters	pH	su	20	0	0%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	6.74	6.75	6.35	7.11	0.155	0.0229	-0.110	2.71
06_3_25	MW-6	Field Parameters	Conductivity	mS/cm	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	1.10	1.08	0.902	1.27	0.102	0.0929	0.0336	-0.728
06_3_26	MW-6	Field Parameters	Turbidity	NTU	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal	Gamma	8.04	6.78	1.19	33.6	7.54	0.939	2.29	6.51
06_3_27	MW-6	Field Parameters	Dissolved Oxygen	mg/L	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal	Gamma	0.237	0.0950	0.0100	2.03	0.438	1.85	3.96	16.7
06_3_28	MW-6	Field Parameters	Temperature	°C	20	0	0%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Normal	12.9	13.1	10.2	15.8	1.60	0.124	-0.264	-0.561
06_3_29	MW-6	Field Parameters	Oxidation Reduction Potential	mV	20	0	0%	2020-04-28 to 2024-08-05	Normal	Normal	71.8	90.0	-66.5	202	68.8	0.958	-0.350	-0.0274
06_4_30	MW-6	Other	Total Suspended Solids	mg/L	20	14	70%	2020-04-28 to 2024-08-05	Gamma; Lognormal	Nonparametric	7.25	1.70	1.00	32.0	12.3	1.69	2.33	5.49
06_4_31	MW-6	Other	Bicarbonate	mg/L	6	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	518	523	480	543	22.0	0.0425	-1.05	1.33
06_4_33	MW-6	Other	Hardness	mg/L	6	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	574	574	512	638	57.7	0.101	0.0128	-3.02
06_4_34	MW-6	Other	Magnesium	mg/L	6	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	35.5	36.1	29.9	40.3	4.95	0.139	-0.141	-2.91
06_4_35	MW-6	Other	Potassium	mg/L	6	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	6.80	6.81	6.40	7.06	0.239	0.0351	-0.857	0.837
06_4_36	MW-6	Other	Sodium	mg/L	6	0	0%	2022-08-02 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	35.3	33.5	29.5	43.9	5.22	0.148	0.961	0.305
06_5_38	MW-6	Part 115	Iron	mg/L	20	11	55%	2020-04-28 to 2024-08-05	Gamma; Lognormal; Normal	Nonparametric	0.0600	0.0400	0.0200	0.200	0.0566	0.943	2.27	5.66
06_5_39	MW-6	Part 115	Nickel	mg/L	20	6	30%	2020-04-28 to 2024-08-05	Nonparametric	Nonparametric	0.00679	0.00700	0.00500	0.00800	0.000802	0.118	-0.608	0.801
06_5_42	MW-6	Part 115	Zinc	mg/L	20	19	95%	2020-04-28 to 2024-08-05		Nonparametric	0.0340	0.0340	0.0340	0.0340	NA	NA	NA	NA
07_1_01	MW-7	Appendix III	Boron	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	1.85	1.84	1.08	2.75	0.410	0.222	0.241	1.05
07_1_02	MW-7	Appendix III	Calcium	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	121	112	97.2	165	21.7	0.179	1.11	0.130
07_1_03	MW-7	Appendix III	Chloride	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	79.1	76.5	72.2	98.0	7.19	0.0909	1.52	2.58
07_1_04	MW-7	Appendix III	Fluoride	mg/L	14	12	86%	2021-06-15 to 2024-08-08		Nonparametric	0.319	0.319	0.300	0.338	0.0269	0.0842	NA	NA
07_1_05	MW-7	Appendix III	pH, Field	su	14	0	0%	2021-06-15 to 2024-08-08	Gamma	Gamma	7.45	7.43	7.09	8.18	0.262	0.0352	1.46	4.44
07_1_06	MW-7	Appendix III	Sulfate	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	206	194	171	270	34.9	0.169	1.03	-0.291
07_1_07	MW-7	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	645	603	548	866	106	0.164	1.55	1.14
07_2_04	MW-7	Appendix IV	Fluoride	mg/L	14	12	86%	2021-06-15 to 2024-08-08		Nonparametric	0.319	0.319	0.300	0.338	0.0269	0.0842	NA	NA
07_2_09	MW-7	Appendix IV	Arsenic	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	0.00557	0.00600	0.00400	0.00700	0.000852	0.153	-0.694	0.103
07_2_10	MW-7	Appendix IV	Barium	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0515	0.0530	0.0360	0.0620	0.00755	0.147	-0.996	0.717
07_2_13	MW-7	Appendix IV	Chromium	mg/L	14	13	93%	2021-06-15 to 2024-08-08		Nonparametric	0.00700	0.00700	0.00700	0.00700	NA	NA	NA	NA
07_2_16	MW-7	Appendix IV	Lithium	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0893	0.0910	0.0630	0.112	0.0130	0.145	-0.352	-0.0457
07_2_17	MW-7	Appendix IV	Mercury	mg/L	14	13	93%	2021-06-15 to 2024-08-08		Nonparametric	0.000200	0.000200	0.000200	0.000200	NA	NA	NA	NA
07_2_18	MW-7	Appendix IV	Molybdenum	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	0.234	0.260	0.146	0.296	0.0567	0.242	-0.363	-1.76
07_2_21	MW-7	Appendix IV	Radium-226/228	pCi/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	2.23	1.83	0.514	5.44	1.46	0.657	1.12	0.793
07_3_24	MW-7	Field Parameters	pH	su	14	0	0%	2021-06-15 to 2024-08-08	Gamma	Gamma	7.45	7.43	7.09	8.18	0.262	0.0352	1.46	4.44
07_3_25	MW-7	Field Parameters	Conductivity	mS/cm	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Normal	Normal	0.933	0.920	0.462	1.21	0.187	0.200	-0.816	2.52
07_3_26	MW-7	Field Parameters	Turbidity	NTU	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	4.60	4.25	1.45	16.0	3.67	0.797	2.53	7.78
07_3_27	MW-7	Field Parameters	Dissolved Oxygen	mg/L	14	1	7%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	0.106	0.0300	0	0.490	0.163	1.54	1.91	2.50
07_3_28	MW-7	Field Parameters	Temperature	°C	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	12.1	12.9	6.20	17.0	3.34	0.276	-0.312	-1.14
07_3_29	MW-7	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	2021-06-15 to 2024-08-08	Normal	Normal	-116	-123	-157	-36.9	32.5	-0.280	1.08	1.32
07_4_30	MW-7	Other	Total Suspended Solids	mg/L	14	11	79%	2021-06-15 to 2024-08-08		Nonparametric	2.30	2.60	1.00	3.30	1.18	0.513	-1.07	NA

(Table continues on next page)

Table 2: Summary Statistics, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
07_4_31	MW-7	Other	Bicarbonate	mg/L	6	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	236	210	150	346	86.7	0.368	0.519	-2.11
07_4_33	MW-7	Other	Hardness	mg/L	6	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	371	322	289	510	104	0.279	0.857	-1.87
07_4_34	MW-7	Other	Magnesium	mg/L	6	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	15.4	13.7	12.1	20.5	4.03	0.261	0.687	-2.07
07_4_35	MW-7	Other	Potassium	mg/L	6	0	0%	2022-08-02 to 2024-08-08	Gamma; Normal	Nonparametric	8.22	9.17	5.69	9.98	1.96	0.238	-0.838	-1.88
07_4_36	MW-7	Other	Sodium	mg/L	6	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	74.3	71.7	66.5	83.9	7.72	0.104	0.663	-1.85
07_5_38	MW-7	Part 115	Iron	mg/L	14	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	1.50	1.38	1.00	2.81	0.460	0.306	1.93	4.68
07_5_41	MW-7	Part 115	Vanadium	mg/L	14	12	86%	2021-06-15 to 2024-08-08		Nonparametric	0.00550	0.00550	0.00500	0.00600	0.000707	0.129	NA	NA
07_5_42	MW-7	Part 115	Zinc	mg/L	14	11	79%	2021-06-15 to 2024-08-08		Nonparametric	0.00933	0.00700	0.00700	0.0140	0.00404	0.433	1.73	NA
08_1_01	MW-8	Appendix III	Boron	mg/L	13	1	8%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	0.0917	0.0800	0.0400	0.210	0.0463	0.505	1.63	3.34
08_1_02	MW-8	Appendix III	Calcium	mg/L	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	94.5	94.6	86.5	104	5.17	0.0546	0.0331	-0.501
08_1_03	MW-8	Appendix III	Chloride	mg/L	13	2	15%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	23.0	15.0	4.45	66.0	20.8	0.902	1.49	1.08
08_1_04	MW-8	Appendix III	Fluoride	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.0587	0.0587	0.0587	0.0587	NA	NA	NA	NA
08_1_05	MW-8	Appendix III	pH, Field	su	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	7.16	7.12	6.99	7.78	0.208	0.0290	2.46	7.29
08_1_06	MW-8	Appendix III	Sulfate	mg/L	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	25	21.4	11.0	52.0	13.5	0.541	0.967	-0.0338
08_1_07	MW-8	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	393	384	362	460	27.9	0.0711	1.31	1.49
08_2_04	MW-8	Appendix IV	Fluoride	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.0587	0.0587	0.0587	0.0587	NA	NA	NA	NA
08_2_09	MW-8	Appendix IV	Arsenic	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.00200	0.00200	0.00200	0.00200	NA	NA	NA	NA
08_2_10	MW-8	Appendix IV	Barium	mg/L	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0218	0.0210	0.0170	0.0280	0.00319	0.147	0.629	-0.0414
08_2_16	MW-8	Appendix IV	Lithium	mg/L	13	6	46%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.00771	0.00700	0.00500	0.0130	0.00287	0.372	1.05	0.813
08_2_18	MW-8	Appendix IV	Molybdenum	mg/L	13	11	85%	2021-06-15 to 2024-08-08		Nonparametric	0.00950	0.00950	0.00600	0.0130	0.00495	0.521	NA	NA
08_2_21	MW-8	Appendix IV	Radium-226/228	pCi/L	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Gamma	2.00	1.85	0.118	6.21	1.83	0.913	1.18	0.932
08_3_24	MW-8	Field Parameters	pH	su	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	7.16	7.12	6.99	7.78	0.208	0.0290	2.46	7.29
08_3_25	MW-8	Field Parameters	Conductivity	mS/cm	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	0.654	0.640	0.617	0.744	0.0383	0.0585	1.52	1.83
08_3_26	MW-8	Field Parameters	Turbidity	NTU	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	4.55	5.15	2.00	7.18	1.93	0.424	-0.0841	-1.65
08_3_27	MW-8	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	2021-06-15 to 2024-08-08	Gamma	Gamma	2.15	1.66	0.0100	7.83	2.20	1.02	1.72	3.09
08_3_28	MW-8	Field Parameters	Temperature	°C	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	12.0	14.0	5.90	16.4	3.21	0.267	-0.575	-0.811
08_3_29	MW-8	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	194	194	72.1	365	94.9	0.490	0.448	-1.06
08_4_30	MW-8	Other	Total Suspended Solids	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	2.00	2.00	2.00	2.00	NA	NA	NA	NA
08_4_31	MW-8	Other	Bicarbonate	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	393	403	320	440	44.5	0.113	-1.27	2.46
08_4_33	MW-8	Other	Hardness	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	352	347	326	384	22.4	0.0637	0.512	-0.417
08_4_34	MW-8	Other	Magnesium	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	28.3	28.8	25.3	31.8	2.45	0.0867	0.321	0.0987
08_4_35	MW-8	Other	Potassium	mg/L	5	1	20%	2022-08-02 to 2024-08-08		Nonparametric	0.595	0.550	0.520	0.760	0.112	0.188	1.79	3.20
08_4_36	MW-8	Other	Sodium	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	21.1	14.2	12.7	40.9	11.9	0.565	1.58	2.05
08_5_37	MW-8	Part 115	Copper	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.0100	0.0100	0.0100	0.0100	NA	NA	NA	NA
08_5_38	MW-8	Part 115	Iron	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.0200	0.0200	0.0200	0.0200	NA	NA	NA	NA
08_5_41	MW-8	Part 115	Vanadium	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	NA	NA	NA	NA
08_5_42	MW-8	Part 115	Zinc	mg/L	13	12	92%	2021-06-15 to 2024-08-08		Nonparametric	0.00700	0.00700	0.00700	0.00700	NA	NA	NA	NA
09_1_01	MW-9	Appendix III	Boron	mg/L	21	20	95%	2021-06-15 to 2024-08-08		Nonparametric	0.0400	0.0400	0.0400	0.0400	NA	NA	NA	NA
09_1_02	MW-9	Appendix III	Calcium	mg/L	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	74.9	75.7	61.8	100	9.87	0.132	1.31	2.24
09_1_03	MW-9	Appendix III	Chloride	mg/L	21	17	81%	2021-06-15 to 2024-08-08		Nonparametric	3.44	3.31	1.07	6.10	2.73	0.793	0.0415	-5.76
09_1_04	MW-9	Appendix III	Fluoride	mg/L	21	19	90%	2021-06-15 to 2024-08-08		Nonparametric	0.0330	0.0330	0.0330	0.0330	0	0	NA	NA
09_1_05	MW-9	Appendix III	pH, Field	su	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	7.29	7.27	7.06	7.74	0.180	0.0247	1.55	2.25
09_1_06	MW-9	Appendix III	Sulfate	mg/L	21	15	71%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	7.10	5.50	3.52	12.6	4.10	0.578	0.769	-1.84

(Table continues on next page)

Table 2: Summary Statistics, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
09_1_07	MW-9	Appendix III	Total Dissolved Solids	mg/L	21	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	264	252	232	360	33.8	0.128	1.97	3.77
09_2_04	MW-9	Appendix IV	Fluoride	mg/L	21	19	90%	2021-06-15 to 2024-08-08		Nonparametric	0.0330	0.0330	0.0330	0.0330	0	0	NA	NA
09_2_09	MW-9	Appendix IV	Arsenic	mg/L	21	20	95%	2021-06-15 to 2024-08-08		Nonparametric	0.00300	0.00300	0.00300	0.00300	NA	NA	NA	NA
09_2_10	MW-9	Appendix IV	Barium	mg/L	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	0.0146	0.0140	0.0130	0.0200	0.00169	0.115	1.70	4.15
09_2_21	MW-9	Appendix IV	Radium-226/228	pCi/L	21	0	0%	2021-06-15 to 2024-08-08	Normal	Normal	1.14	1.02	0	2.51	0.800	0.702	0.322	-1.14
09_3_24	MW-9	Field Parameters	pH	su	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	7.29	7.27	7.06	7.74	0.180	0.0247	1.55	2.25
09_3_25	MW-9	Field Parameters	Conductivity	mS/cm	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	0.455	0.455	0.393	0.585	0.0439	0.0966	1.45	3.32
09_3_26	MW-9	Field Parameters	Turbidity	NTU	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	3.82	3.01	1.60	6.70	1.88	0.493	0.257	-1.64
09_3_27	MW-9	Field Parameters	Dissolved Oxygen	mg/L	21	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	5.18	5.35	3.35	6.33	0.861	0.166	-0.393	-0.686
09_3_28	MW-9	Field Parameters	Temperature	°C	21	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	12.8	13.8	4.70	19.2	5.19	0.406	-0.331	-1.47
09_3_29	MW-9	Field Parameters	Oxidation Reduction Potential	mV	21	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	228	238	99.2	381	88.2	0.387	0.262	-1.09
09_4_31	MW-9	Other	Bicarbonate	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	333	336	260	380	50.3	0.151	-0.657	-0.650
09_4_33	MW-9	Other	Hardness	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	286	270	218	342	53.8	0.188	-0.0215	-1.98
09_4_34	MW-9	Other	Magnesium	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	20.2	19.5	15.2	23.4	3.39	0.168	-0.618	-0.305
09_4_35	MW-9	Other	Potassium	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	1.14	1.09	0.930	1.47	0.234	0.205	0.651	-1.28
09_4_36	MW-9	Other	Sodium	mg/L	5	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	3.38	3.67	2.41	4.11	0.714	0.211	-0.607	-1.80
09_5_42	MW-9	Part 115	Zinc	mg/L	21	20	95%	2021-06-15 to 2024-08-08		Nonparametric	0.00900	0.00900	0.00900	0.00900	NA	NA	NA	NA
100A_1_01	MW-100A	Appendix III	Boron	mg/L	9	0	0%	2023-06-05 to 2024-08-07		Nonparametric	0.0478	0.0500	0.0400	0.0500	0.00441	0.0923	-1.62	0.735
100A_1_02	MW-100A	Appendix III	Calcium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	92.3	92.3	88.6	95.3	1.88	0.0204	-0.598	1.51
100A_1_03	MW-100A	Appendix III	Chloride	mg/L	9	0	0%	2023-06-05 to 2024-08-07		Nonparametric	10.1	10.0	10.0	10.6	0.218	0.0215	1.50	1.47
100A_1_04	MW-100A	Appendix III	Fluoride	mg/L	9	6	67%	2023-06-05 to 2024-08-07		Nonparametric	0.427	0.400	0.220	0.660	0.221	0.518	0.535	NA
100A_1_05	MW-100A	Appendix III	pH, Field	su	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	7.28	7.29	7.08	7.40	0.0960	0.0132	-0.968	1.17
100A_1_06	MW-100A	Appendix III	Sulfate	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	24.5	21.7	16.2	38.0	7.63	0.312	0.946	-0.303
100A_1_07	MW-100A	Appendix III	Total Dissolved Solids	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	416	414	402	434	9.32	0.0224	0.754	1.08
100A_2_04	MW-100A	Appendix IV	Fluoride	mg/L	9	7	78%	2023-06-05 to 2024-08-07		Nonparametric	0.310	0.310	0.220	0.400	0.127	0.411	NA	NA
100A_2_09	MW-100A	Appendix IV	Arsenic	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0142	0.0150	0.00900	0.0180	0.00299	0.210	-0.816	-0.100
100A_2_10	MW-100A	Appendix IV	Barium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.200	0.201	0.189	0.207	0.00679	0.0340	-0.901	-0.353
100A_2_16	MW-100A	Appendix IV	Lithium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0164	0.0170	0.0120	0.0200	0.00265	0.161	-0.412	-0.906
100A_2_18	MW-100A	Appendix IV	Molybdenum	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0106	0.0110	0.00800	0.0130	0.00188	0.178	-0.329	-1.56
100A_2_21	MW-100A	Appendix IV	Radium-226/228	pCi/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	1.19	1.10	0.402	2.50	0.760	0.641	0.749	-0.608
100A_3_24	MW-100A	Field Parameters	pH	su	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	7.28	7.29	7.08	7.40	0.0960	0.0132	-0.968	1.17
100A_3_25	MW-100A	Field Parameters	Conductivity	mS/cm	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.700	0.719	0.593	0.766	0.0530	0.0758	-0.891	0.820
100A_3_26	MW-100A	Field Parameters	Turbidity	NTU	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Normal	Normal	4.95	4.45	0.650	7.95	2.35	0.474	-0.469	-0.300
100A_3_27	MW-100A	Field Parameters	Dissolved Oxygen	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal	Gamma	1.15	0.980	0.390	4.15	1.18	1.02	2.51	6.82
100A_3_28	MW-100A	Field Parameters	Temperature	°C	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	13.8	14.6	10.0	17.2	2.68	0.195	-0.354	-1.30
100A_3_29	MW-100A	Field Parameters	Oxidation Reduction Potential	mV	9	0	0%	2023-06-05 to 2024-08-07	Normal	Normal	-72.1	-98.1	-131	60.9	62.9	-0.872	1.37	1.48
100A_4_30	MW-100A	Other	Total Suspended Solids	mg/L	9	1	11%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	9.04	7.45	4.90	25.0	6.59	0.729	2.59	7.02
100A_4_31	MW-100A	Other	Bicarbonate	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	438	440	410	460	14.8	0.0337	-0.431	0.503
100A_4_33	MW-100A	Other	Hardness	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	392	394	368	400	9.70	0.0248	-2.14	5.20
100A_4_34	MW-100A	Other	Magnesium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	38.8	38.9	36.0	40.3	1.30	0.0336	-1.09	1.86
100A_4_35	MW-100A	Other	Potassium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	2.20	2.19	1.83	2.62	0.227	0.103	0.188	1.02
100A_4_36	MW-100A	Other	Sodium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	11.3	11.3	10.4	12.6	0.617	0.0544	0.789	1.65
100A_5_38	MW-100A	Part 115	Iron	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Normal	Normal	2.53	2.59	0.630	3.75	1.02	0.401	-0.895	0.300

(Table continues on next page)

Table 2: Summary Statistics, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
100A_5_42	MW-100A	Part 115	Zinc	mg/L	9	8	89%	2023-06-05 to 2024-08-07		Nonparametric	0.00600	0.00600	0.00600	0.00600	NA	NA	NA	NA
100B_1_01	MW-100B	Appendix III	Boron	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.245	0.250	0.210	0.290	0.0211	0.0861	0.411	0.525
100B_1_02	MW-100B	Appendix III	Calcium	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	99.6	99.2	94.2	108	4.16	0.0418	0.661	-0.0520
100B_1_03	MW-100B	Appendix III	Chloride	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	23.3	23.8	19.0	25.0	1.73	0.0741	-1.26	2.05
100B_1_04	MW-100B	Appendix III	Fluoride	mg/L	13	11	85%	2023-06-05 to 2024-08-07		Nonparametric	0.225	0.225	0.150	0.300	0.106	0.471	NA	NA
100B_1_05	MW-100B	Appendix III	pH, Field	su	13	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	7.41	7.40	7.33	7.62	0.0941	0.0127	1.57	1.68
100B_1_06	MW-100B	Appendix III	Sulfate	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	117	116	105	136	10.4	0.0886	0.761	-0.625
100B_1_07	MW-100B	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	509	508	482	538	19.5	0.0384	0.267	-1.54
100B_2_04	MW-100B	Appendix IV	Fluoride	mg/L	13	11	85%	2023-06-05 to 2024-08-07		Nonparametric	0.225	0.225	0.150	0.300	0.106	0.471	NA	NA
100B_2_09	MW-100B	Appendix IV	Arsenic	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Lognormal; Normal	Normal	0.0102	0.0100	0.00800	0.0120	0.00101	0.0990	-0.539	1.09
100B_2_10	MW-100B	Appendix IV	Barium	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.153	0.154	0.142	0.164	0.00742	0.0486	-0.00620	-1.27
100B_2_16	MW-100B	Appendix IV	Lithium	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Lognormal; Normal	Normal	0.0173	0.0170	0.0160	0.0190	0.000855	0.0494	0.241	-0.0485
100B_2_18	MW-100B	Appendix IV	Molybdenum	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.00900	0.00900	0.00600	0.0110	0.00135	0.150	-0.476	0.913
100B_2_21	MW-100B	Appendix IV	Radium-226/228	pCi/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	1.36	1.35	0.494	2.16	0.521	0.383	-0.247	-0.722
100B_3_24	MW-100B	Field Parameters	pH	su	13	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	7.41	7.40	7.33	7.62	0.0941	0.0127	1.57	1.68
100B_3_25	MW-100B	Field Parameters	Conductivity	mS/cm	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.765	0.759	0.713	0.805	0.0309	0.0404	-0.0133	-1.27
100B_3_26	MW-100B	Field Parameters	Turbidity	NTU	13	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	3.38	4.15	0.810	5.16	1.57	0.465	-0.927	-0.714
100B_3_27	MW-100B	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	0.0677	0.0300	0	0.260	0.0891	1.32	1.25	0.297
100B_3_28	MW-100B	Field Parameters	Temperature	°C	13	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	13	13.6	10.6	14.2	1.24	0.0960	-0.844	-0.724
100B_3_29	MW-100B	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	2023-06-05 to 2024-08-07	Normal	Normal	-147	-146	-177	-118	17.3	-0.118	-0.360	-0.0972
100B_4_30	MW-100B	Other	Total Suspended Solids	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	4.02	3.70	2.30	7.10	1.54	0.384	0.912	0.0848
100B_4_31	MW-100B	Other	Bicarbonate	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	349	350	310	440	32.0	0.0917	1.94	5.46
100B_4_33	MW-100B	Other	Hardness	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	382	376	364	410	17.4	0.0457	0.566	-1.28
100B_4_34	MW-100B	Other	Magnesium	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	34.2	34.9	29.4	38.0	2.19	0.0641	-0.496	0.745
100B_4_35	MW-100B	Other	Potassium	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	3.52	3.51	3.34	3.76	0.120	0.0342	0.377	0.0602
100B_4_36	MW-100B	Other	Sodium	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	26.4	26.9	23.0	30.8	2.36	0.0893	0.461	-0.0781
100B_5_38	MW-100B	Part 115	Iron	mg/L	13	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	2.57	2.40	1.77	3.54	0.537	0.209	0.403	-0.175
10_1_01	MW-10	Appendix III	Boron	mg/L	16	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	0.0531	0.0500	0.0400	0.0700	0.00793	0.149	0.254	0.126
10_1_02	MW-10	Appendix III	Calcium	mg/L	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	128	129	113	142	9.48	0.0738	-0.195	-1.20
10_1_03	MW-10	Appendix III	Chloride	mg/L	16	10	62%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Nonparametric	4.46	4.10	1.03	9.30	3.17	0.711	0.548	-1.02
10_1_04	MW-10	Appendix III	Fluoride	mg/L	16	15	94%	2021-06-15 to 2024-08-08		Nonparametric	0.0660	0.0660	0.0660	0.0660	NA	NA	NA	NA
10_1_05	MW-10	Appendix III	pH, Field	su	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	6.74	6.71	6.49	7.30	0.199	0.0295	1.41	3.39
10_1_06	MW-10	Appendix III	Sulfate	mg/L	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	14.7	14.2	9.00	27.8	4.53	0.308	1.54	3.82
10_1_07	MW-10	Appendix III	Total Dissolved Solids	mg/L	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	437	441	376	494	36.8	0.0842	-0.159	-1.02
10_2_04	MW-10	Appendix IV	Fluoride	mg/L	16	15	94%	2021-06-15 to 2024-08-08		Nonparametric	0.0660	0.0660	0.0660	0.0660	NA	NA	NA	NA
10_2_09	MW-10	Appendix IV	Arsenic	mg/L	16	15	94%	2021-06-15 to 2024-08-08		Nonparametric	0.00200	0.00200	0.00200	0.00200	NA	NA	NA	NA
10_2_10	MW-10	Appendix IV	Barium	mg/L	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0394	0.0390	0.0330	0.0470	0.00386	0.0981	0.317	-0.634
10_2_17	MW-10	Appendix IV	Mercury	mg/L	16	15	94%	2021-06-15 to 2024-08-08		Nonparametric	0.000200	0.000200	0.000200	0.000200	NA	NA	NA	NA
10_2_21	MW-10	Appendix IV	Radium-226/228	pCi/L	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal	Gamma	1.26	0.797	0.262	3.30	0.976	0.772	0.972	-0.346
10_3_24	MW-10	Field Parameters	pH	su	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	6.74	6.71	6.49	7.30	0.199	0.0295	1.41	3.39
10_3_25	MW-10	Field Parameters	Conductivity	mS/cm	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.715	0.718	0.625	0.807	0.0537	0.0751	-0.0939	-0.624
10_3_26	MW-10	Field Parameters	Turbidity	NTU	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	2.88	2.34	1.29	5.99	1.26	0.439	1.16	1.08
10_3_27	MW-10	Field Parameters	Dissolved Oxygen	mg/L	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	3.17	3.15	2.05	4.29	0.656	0.207	0.189	-0.872

(Table continues on next page)

Table 2: Summary Statistics, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
10_3_28	MW-10	Field Parameters	Temperature	°C	16	0	0%	2021-06-15 to 2024-08-08	Nonparametric	Nonparametric	12.7	14.1	8.40	15.8	2.78	0.218	-0.451	-1.56
10_3_29	MW-10	Field Parameters	Oxidation Reduction Potential	mV	16	0	0%	2021-06-15 to 2024-08-08	Gamma; Lognormal; Normal	Normal	216	234	98.9	392	83.9	0.388	0.367	-0.377
10_4_31	MW-10	Other	Bicarbonate	mg/L	8	0	0%	2022-08-02 to 2024-08-08	Nonparametric	Nonparametric	461	450	420	525	40.2	0.0871	1.13	-0.284
10_4_33	MW-10	Other	Hardness	mg/L	8	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Normal	416	408	382	461	33	0.0794	0.485	-1.65
10_4_34	MW-10	Other	Magnesium	mg/L	8	0	0%	2022-08-02 to 2024-08-08	Gamma; Lognormal; Normal	Normal	25.8	25.7	22.5	29.5	2.71	0.105	0.247	-1.40
10_4_35	MW-10	Other	Potassium	mg/L	8	1	12%	2022-08-02 to 2024-08-08	Gamma; Lognormal	Gamma	0.771	0.700	0.620	1.00	0.156	0.203	1.04	-0.932
10_4_36	MW-10	Other	Sodium	mg/L	8	0	0%	2022-08-02 to 2024-08-08	Nonparametric	Nonparametric	5.14	2.73	2.24	19.0	5.68	1.11	2.68	7.36
10_5_42	MW-10	Part 115	Zinc	mg/L	16	14	88%	2021-06-15 to 2024-08-08		Nonparametric	0.0145	0.0145	0.00900	0.0200	0.00778	0.536	NA	NA
13_1_01	MW-13	Appendix III	Boron	mg/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.169	0.170	0.140	0.220	0.0240	0.142	0.579	0.217
13_1_02	MW-13	Appendix III	Calcium	mg/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	118	107	94.1	158	23.4	0.199	0.679	-0.962
13_1_03	MW-13	Appendix III	Chloride	mg/L	13	2	15%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	22.6	20.0	9.00	45.0	12.5	0.554	0.861	-0.377
13_1_05	MW-13	Appendix III	pH, Field	su	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	6.97	7.01	6.39	7.25	0.227	0.0326	-1.39	2.57
13_1_06	MW-13	Appendix III	Sulfate	mg/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal	Gamma	52.8	33.0	16.0	174	47.7	0.903	1.77	2.68
13_1_07	MW-13	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	441	396	336	642	102	0.231	1.16	0.470
13_2_09	MW-13	Appendix IV	Arsenic	mg/L	13	10	77%	2022-02-23 to 2024-08-07		Nonparametric	0.00633	0.00700	0.00400	0.00800	0.00208	0.329	-1.29	NA
13_2_10	MW-13	Appendix IV	Barium	mg/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0287	0.0280	0.0190	0.0440	0.00687	0.240	0.838	0.947
13_2_21	MW-13	Appendix IV	Radium-226/228	pCi/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Gamma	1.03	0.683	0.0699	2.31	0.847	0.824	0.399	-1.77
13_3_24	MW-13	Field Parameters	pH	su	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	6.97	7.01	6.39	7.25	0.227	0.0326	-1.39	2.57
13_3_25	MW-13	Field Parameters	Conductivity	mS/cm	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.689	0.661	0.549	0.910	0.120	0.174	0.688	-0.598
13_3_26	MW-13	Field Parameters	Turbidity	NTU	13	0	0%	2022-02-23 to 2024-08-07	Normal	Normal	4.75	4.24	0.300	7.90	2.17	0.456	-0.567	-0.0177
13_3_27	MW-13	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Gamma	3.46	3.83	0.130	6.23	2.34	0.674	-0.189	-1.64
13_3_28	MW-13	Field Parameters	Temperature	°C	13	0	0%	2022-02-23 to 2024-08-07	Gamma; Lognormal; Normal	Normal	11.7	12.2	5.80	17.5	4.47	0.381	0.0176	-1.82
13_3_29	MW-13	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	2022-02-23 to 2024-08-07	Normal	Normal	65.8	89.1	-159	217	102	1.55	-0.932	0.807
13_4_30	MW-13	Other	Total Suspended Solids	mg/L	13	12	92%	2022-02-23 to 2024-08-07		Nonparametric	1.40	1.40	1.40	1.40	NA	NA	NA	NA
13_4_31	MW-13	Other	Bicarbonate	mg/L	11	0	0%	2022-05-04 to 2024-08-07	Nonparametric	Nonparametric	365	340	320	496	55.1	0.151	1.75	2.45
13_4_33	MW-13	Other	Hardness	mg/L	11	0	0%	2022-05-04 to 2024-08-07	Gamma; Lognormal	Gamma	384	353	308	550	88.9	0.231	0.991	-0.406
13_4_34	MW-13	Other	Magnesium	mg/L	12	0	0%	2022-03-30 to 2024-08-07	Gamma; Lognormal; Normal	Normal	25	23.1	19.7	35.9	5.24	0.210	1.01	0.0979
13_4_35	MW-13	Other	Potassium	mg/L	12	0	0%	2022-03-30 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.802	0.779	0.690	1.00	0.0903	0.113	1.15	1.17
13_4_36	MW-13	Other	Sodium	mg/L	12	0	0%	2022-03-30 to 2024-08-07	Gamma; Lognormal	Gamma	5.92	4.83	2.45	13.4	3.84	0.648	1.29	0.638
13_5_38	MW-13	Part 115	Iron	mg/L	13	1	8%	2022-02-23 to 2024-08-07	Lognormal	Nonparametric	0.206	0.0400	0.0200	1.03	0.367	1.78	2.02	2.60
13_5_42	MW-13	Part 115	Zinc	mg/L	13	12	92%	2022-02-23 to 2024-08-07		Nonparametric	0.0100	0.0100	0.0100	0.0100	NA	NA	NA	NA
14_1_01	MW-14	Appendix III	Boron	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	2.14	2.14	1.96	2.32	0.0946	0.0442	0.0313	-0.291
14_1_02	MW-14	Appendix III	Calcium	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	149	148	140	173	8.08	0.0544	1.84	4.08
14_1_03	MW-14	Appendix III	Chloride	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	114	114	108	119	3.03	0.0267	-0.00433	-0.340
14_1_05	MW-14	Appendix III	pH, Field	su	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	7.02	7.02	6.92	7.13	0.0701	0.00998	0.185	-1.16
14_1_06	MW-14	Appendix III	Sulfate	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	99.3	19.0	5.90	748	236	2.38	2.70	5.97
14_1_07	MW-14	Appendix III	Total Dissolved Solids	mg/L	16	2	11%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	789	788	716	866	35.1	0.0444	-0.106	1.36
14_2_09	MW-14	Appendix IV	Arsenic	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	0.00611	0.00600	0.00400	0.00800	0.00128	0.209	-0.0407	-0.896
14_2_10	MW-14	Appendix IV	Barium	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	0.129	0.127	0.116	0.177	0.0133	0.103	2.92	10.5
14_2_16	MW-14	Appendix IV	Lithium	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	0.113	0.111	0.102	0.132	0.00808	0.0716	1.18	0.637
14_2_18	MW-14	Appendix IV	Molybdenum	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Lognormal; Normal	Normal	0.0137	0.0140	0.0120	0.0160	0.00127	0.0929	0.204	-0.587
14_2_21	MW-14	Appendix IV	Radium-226/228	pCi/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal	Gamma	1.82	1.33	0.464	6.88	1.61	0.885	2.27	5.43
14_2_22	MW-14	Appendix IV	Selenium	mg/L	18	14	78%	2023-01-12 to 2024-08-05		Nonparametric	0.0107	0.0105	0.00900	0.0130	0.00206	0.192	0.200	-4.86

(Table continues on next page)

Table 2: Summary Statistics, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
14_3_24	MW-14	Field Parameters	pH	su	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	7.02	7.02	6.92	7.13	0.0701	0.00998	0.185	-1.16
14_3_25	MW-14	Field Parameters	Conductivity	mS/cm	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	1.27	1.28	1.09	1.36	0.0707	0.0554	-2.14	4.29
14_3_26	MW-14	Field Parameters	Turbidity	NTU	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	4.68	4.70	1.74	6.94	1.49	0.318	-0.189	-0.987
14_3_27	MW-14	Field Parameters	Dissolved Oxygen	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	0.188	0.0900	0	0.620	0.190	1.01	0.978	-0.210
14_3_28	MW-14	Field Parameters	Temperature	°C	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	12.3	12.1	10.1	18.0	2.15	0.175	0.985	1.10
14_3_29	MW-14	Field Parameters	Oxidation Reduction Potential	mV	18	0	0%	2023-01-12 to 2024-08-05	Normal	Normal	-113	-112	-175	-89.4	19.6	-0.173	-1.78	5.14
14_4_30	MW-14	Other	Total Suspended Solids	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	22.1	24.8	4.00	30.3	7.04	0.318	-1.67	2.22
14_4_31	MW-14	Other	Bicarbonate	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Nonparametric	Nonparametric	662	650	600	850	61.7	0.0931	1.99	4.70
14_4_33	MW-14	Other	Hardness	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	561	555	498	630	34.5	0.0615	0.228	0.0000589
14_4_34	MW-14	Other	Magnesium	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	41.7	42.0	38.5	46.4	1.85	0.0445	0.695	1.32
14_4_35	MW-14	Other	Potassium	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Gamma; Lognormal; Normal	Normal	5.07	5.0	4.43	5.82	0.444	0.0876	0.482	-1.05
14_4_36	MW-14	Other	Sodium	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Normal	Normal	77.1	77.8	70.9	80.4	2.70	0.0351	-1.01	0.255
14_5_38	MW-14	Part 115	Iron	mg/L	18	0	0%	2023-01-12 to 2024-08-05	Normal	Normal	11.1	11.4	6.58	14.7	2.14	0.193	-0.598	0.740
14_5_39	MW-14	Part 115	Nickel	mg/L	18	11	61%	2023-01-12 to 2024-08-05		Nonparametric	0.00543	0.00500	0.00500	0.00700	0.000787	0.145	1.76	2.36
14_5_41	MW-14	Part 115	Vanadium	mg/L	18	17	94%	2023-01-12 to 2024-08-05		Nonparametric	0.00500	0.00500	0.00500	0.00500	NA	NA	NA	NA
14_5_42	MW-14	Part 115	Zinc	mg/L	18	15	83%	2023-01-12 to 2024-08-05		Nonparametric	0.0147	0.0130	0.00700	0.0240	0.00862	0.588	0.837	NA
15_1_01	MW-15	Appendix III	Boron	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.378	0.380	0.330	0.440	0.0374	0.0988	0.196	-1.29
15_1_02	MW-15	Appendix III	Calcium	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	134	132	104	183	21.3	0.159	1.16	2.75
15_1_03	MW-15	Appendix III	Chloride	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	73.5	72.5	59.0	100	12.1	0.165	1.07	1.64
15_1_05	MW-15	Appendix III	pH, Field	su	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	6.82	6.83	6.68	6.99	0.119	0.0175	0.192	-1.50
15_1_06	MW-15	Appendix III	Sulfate	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal	Gamma	120	113	49.7	238	47.3	0.393	1.66	5.16
15_1_07	MW-15	Appendix III	Total Dissolved Solids	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	643	622	528	878	98.8	0.154	1.53	3.30
15_2_09	MW-15	Appendix IV	Arsenic	mg/L	10	9	90%	2023-01-12 to 2024-08-07		Nonparametric	0.00200	0.00200	0.00200	0.00200	NA	NA	NA	NA
15_2_10	MW-15	Appendix IV	Barium	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0575	0.0565	0.0420	0.0770	0.0111	0.192	0.401	-0.709
15_2_16	MW-15	Appendix IV	Lithium	mg/L	10	9	90%	2023-01-12 to 2024-08-07		Nonparametric	0.0140	0.0140	0.0140	0.0140	NA	NA	NA	NA
15_2_21	MW-15	Appendix IV	Radium-226/228	pCi/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	1.10	0.898	0.316	2.06	0.674	0.610	0.436	-1.41
15_2_22	MW-15	Appendix IV	Selenium	mg/L	10	4	40%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0185	0.0160	0.00900	0.0340	0.0102	0.552	0.639	-1.27
15_3_24	MW-15	Field Parameters	pH	su	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	6.82	6.83	6.68	6.99	0.119	0.0175	0.192	-1.50
15_3_25	MW-15	Field Parameters	Conductivity	mS/cm	10	0	0%	2023-01-12 to 2024-08-07	Normal	Normal	0.915	0.902	0.451	1.32	0.213	0.232	-0.468	3.48
15_3_26	MW-15	Field Parameters	Turbidity	NTU	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	4.95	5.0	2.40	7.52	1.51	0.305	-0.00901	-0.128
15_3_27	MW-15	Field Parameters	Dissolved Oxygen	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal	Gamma	1.95	0.880	0.0100	5.41	2.02	1.04	0.844	-0.989
15_3_28	MW-15	Field Parameters	Temperature	°C	10	0	0%	2023-01-12 to 2024-08-07	Lognormal	Lognormal	11.1	10.7	7.30	15.9	3.48	0.315	0.150	-2.15
15_3_29	MW-15	Field Parameters	Oxidation Reduction Potential	mV	10	0	0%	2023-01-12 to 2024-08-07	Normal	Normal	59.0	52.0	-154	196	99.0	1.68	-0.859	1.43
15_4_30	MW-15	Other	Total Suspended Solids	mg/L	10	7	70%	2023-01-12 to 2024-08-07		Nonparametric	1.40	1.60	0.800	1.80	0.529	0.378	-1.46	NA
15_4_31	MW-15	Other	Bicarbonate	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	389	395	330	440	44.9	0.115	-0.203	-1.96
15_4_33	MW-15	Other	Hardness	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal; Normal	Normal	459	462	406	512	35.9	0.0781	0.0353	-1.08
15_4_34	MW-15	Other	Magnesium	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Gamma; Lognormal	Gamma	33.2	31.9	25.7	47.2	5.65	0.170	1.74	4.71
15_4_35	MW-15	Other	Potassium	mg/L	10	9	90%	2023-01-12 to 2024-08-07		Nonparametric	0.610	0.610	0.610	0.610	NA	NA	NA	NA
15_4_36	MW-15	Other	Sodium	mg/L	10	0	0%	2023-01-12 to 2024-08-07	Nonparametric	Nonparametric	31.3	29.6	27.4	40.5	4.52	0.145	1.63	1.30
15_5_38	MW-15	Part 115	Iron	mg/L	10	1	10%	2023-01-12 to 2024-08-07	Gamma; Lognormal	Gamma	0.111	0.110	0.0200	0.380	0.110	0.990	2.12	5.25
15_5_42	MW-15	Part 115	Zinc	mg/L	10	9	90%	2023-01-12 to 2024-08-07		Nonparametric	0.0210	0.0210	0.0210	0.0210	NA	NA	NA	NA
16A_1_01	MW-16A	Appendix III	Boron	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	0.164	0.165	0.100	0.250	0.0524	0.321	0.0233	-1.66
16A_1_02	MW-16A	Appendix III	Calcium	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	184	175	145	226	27.7	0.150	0.163	-1.33

(Table continues on next page)

Table 2: Summary Statistics, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
16A_1_03	MW-16A	Appendix III	Chloride	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	438	438	383	505	41.5	0.0948	0.334	-1.22
16A_1_05	MW-16A	Appendix III	pH, Field	su	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	6.85	6.82	6.72	7.00	0.0924	0.0135	0.467	-1.09
16A_1_06	MW-16A	Appendix III	Sulfate	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Lognormal	Lognormal	179	148	85.0	341	75.7	0.423	0.486	-0.912
16A_1_07	MW-16A	Appendix III	Total Dissolved Solids	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	1424	1380	1170	1730	190	0.134	0.157	-1.36
16A_2_09	MW-16A	Appendix IV	Arsenic	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	0.00340	0.00300	0.00200	0.00500	0.000754	0.222	-0.0327	-0.0728
16A_2_10	MW-16A	Appendix IV	Barium	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.145	0.142	0.108	0.181	0.0237	0.163	0.0143	-1.36
16A_2_16	MW-16A	Appendix IV	Lithium	mg/L	20	19	95%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	NA	NA	NA	NA
16A_2_21	MW-16A	Appendix IV	Radium-226/228	pCi/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	2.24	2.12	0.325	7.46	1.80	0.805	1.45	2.51
16A_2_22	MW-16A	Appendix IV	Selenium	mg/L	20	19	95%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	NA	NA	NA	NA
16A_3_24	MW-16A	Field Parameters	pH	su	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	6.85	6.82	6.72	7.00	0.0924	0.0135	0.467	-1.09
16A_3_25	MW-16A	Field Parameters	Conductivity	mS/cm	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	2.25	2.25	1.87	2.61	0.275	0.123	-0.0942	-1.42
16A_3_26	MW-16A	Field Parameters	Turbidity	NTU	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	4.93	4.83	3.06	6.54	1.18	0.239	0.0254	-1.37
16A_3_27	MW-16A	Field Parameters	Dissolved Oxygen	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Gamma	0.150	0.100	0.0100	0.430	0.141	0.934	0.885	-0.407
16A_3_28	MW-16A	Field Parameters	Temperature	°C	20	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	12.8	13.6	7.30	16.8	3.67	0.287	-0.379	-1.66
16A_3_29	MW-16A	Field Parameters	Oxidation Reduction Potential	mV	20	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	-53.2	-50.5	-102	-3.10	24.2	-0.456	0.0457	1.57
16A_4_30	MW-16A	Other	Total Suspended Solids	mg/L	20	3	15%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	3.65	3.50	1.20	7.00	2.06	0.564	0.419	-1.29
16A_4_31	MW-16A	Other	Bicarbonate	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	501	510	420	620	57.6	0.115	0.569	-0.0356
16A_4_33	MW-16A	Other	Hardness	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Lognormal	Lognormal	646	602	519	860	109	0.169	0.586	-0.945
16A_4_34	MW-16A	Other	Magnesium	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	42.7	41.1	33.2	52.4	7.19	0.168	0.226	-1.58
16A_4_35	MW-16A	Other	Potassium	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	1.46	1.45	1.04	2.12	0.272	0.186	1.08	1.41
16A_4_36	MW-16A	Other	Sodium	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	275	276	229	324	30.1	0.110	0.198	-1.29
16A_5_38	MW-16A	Part 115	Iron	mg/L	20	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	3.24	3.06	2.52	4.38	0.587	0.181	0.548	-0.970
16B_1_01	MW-16B	Appendix III	Boron	mg/L	13	0	0%	2023-02-02 to 2024-08-06		Nonparametric	0.117	0.120	0.110	0.130	0.00751	0.0642	0.611	-0.776
16B_1_02	MW-16B	Appendix III	Calcium	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	80.9	80.8	74.5	85.4	3.21	0.0396	-0.424	-0.245
16B_1_03	MW-16B	Appendix III	Chloride	mg/L	13	5	38%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	4.76	3.85	3.10	11.0	2.58	0.542	2.58	6.91
16B_1_04	MW-16B	Appendix III	Fluoride	mg/L	13	7	54%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Nonparametric	0.648	0.700	0.310	0.800	0.185	0.285	-1.51	2.30
16B_1_05	MW-16B	Appendix III	pH, Field	su	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.43	7.45	7.25	7.56	0.0903	0.0122	-0.508	0.0380
16B_1_06	MW-16B	Appendix III	Sulfate	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	17.5	17.4	15.0	20.6	1.51	0.0862	0.501	0.589
16B_1_07	MW-16B	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Lognormal; Normal	Normal	366	366	350	378	7.0	0.0191	-0.600	1.93
16B_2_04	MW-16B	Appendix IV	Fluoride	mg/L	13	8	62%	2023-02-02 to 2024-08-06		Nonparametric	0.662	0.700	0.310	0.800	0.203	0.307	-1.90	3.83
16B_2_10	MW-16B	Appendix IV	Barium	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.0867	0.0860	0.0820	0.0910	0.00269	0.0310	0.0530	-0.975
16B_2_16	MW-16B	Appendix IV	Lithium	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.0212	0.0210	0.0190	0.0230	0.00121	0.0574	-0.0117	-0.654
16B_2_18	MW-16B	Appendix IV	Molybdenum	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	0.00615	0.00600	0.00500	0.00800	0.000689	0.112	1.61	4.59
16B_2_21	MW-16B	Appendix IV	Radium-226/228	pCi/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal	Gamma	2.30	1.91	0.998	6.43	1.48	0.645	2.13	4.98
16B_2_22	MW-16B	Appendix IV	Selenium	mg/L	13	12	92%	2023-02-02 to 2024-08-06		Nonparametric	0.00600	0.00600	0.00600	0.00600	NA	NA	NA	NA
16B_3_24	MW-16B	Field Parameters	pH	su	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.43	7.45	7.25	7.56	0.0906	0.0122	-0.529	0.0145
16B_3_25	MW-16B	Field Parameters	Conductivity	mS/cm	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.611	0.615	0.578	0.635	0.0177	0.0289	-0.495	-0.560
16B_3_26	MW-16B	Field Parameters	Turbidity	NTU	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Normal	Normal	5.52	6.29	0.440	9.34	2.65	0.481	-0.477	0.0475
16B_3_27	MW-16B	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	0.0885	0.0800	0	0.370	0.0997	1.13	2.06	5.19
16B_3_28	MW-16B	Field Parameters	Temperature	°C	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	13.3	13.6	9.20	15.8	1.97	0.149	-0.584	-0.355
16B_3_29	MW-16B	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	-104	-102	-136	-63.3	21.3	-0.206	0.0588	-0.547
16B_4_30	MW-16B	Other	Total Suspended Solids	mg/L	13	6	46%	2023-02-02 to 2024-08-06	Gamma; Lognormal	Gamma	2.07	1.10	0.600	7.00	2.25	1.08	2.33	5.58
16B_4_31	MW-16B	Other	Bicarbonate	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	410	410	390	440	13.4	0.0327	0.808	0.691

(Table continues on next page)

Table 2: Summary Statistics, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
16B_4_33	MW-16B	Other	Hardness	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	347	348	322	380	18.3	0.0527	0.486	-0.385
16B_4_34	MW-16B	Other	Magnesium	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	33.6	33.4	29.7	36.4	1.79	0.0532	-0.576	0.542
16B_4_35	MW-16B	Other	Potassium	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	3.0	2.90	2.80	3.81	0.261	0.0869	2.89	9.08
16B_4_36	MW-16B	Other	Sodium	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	12.4	11.1	10.3	24.5	3.88	0.312	2.92	9.03
16B_5_38	MW-16B	Part 115	Iron	mg/L	13	0	0%	2023-02-02 to 2024-08-06	Lognormal	Lognormal	0.482	0.420	0.320	0.930	0.169	0.351	1.81	3.41
7C_1_01	MW-7C	Appendix III	Boron	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	6.59	6.55	6.29	7.24	0.235	0.0356	1.74	4.55
7C_1_02	MW-7C	Appendix III	Calcium	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	243	243	183	277	22.3	0.0917	-1.33	4.46
7C_1_03	MW-7C	Appendix III	Chloride	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal	Gamma	94.3	93.0	90.0	105	4.30	0.0456	1.62	2.47
7C_1_05	MW-7C	Appendix III	pH, Field	su	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	7.34	7.32	7.23	7.51	0.0940	0.0128	0.675	-0.730
7C_1_06	MW-7C	Appendix III	Sulfate	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	694	685	650	761	37.7	0.0544	0.671	-0.958
7C_1_07	MW-7C	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	1387	1360	1310	1500	61.3	0.0442	1.02	-0.0765
7C_2_09	MW-7C	Appendix IV	Arsenic	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	0.00662	0.00600	0.00500	0.0100	0.00119	0.180	1.94	5.54
7C_2_10	MW-7C	Appendix IV	Barium	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0432	0.0430	0.0390	0.0470	0.00241	0.0558	0.0407	-0.949
7C_2_12	MW-7C	Appendix IV	Cadmium	mg/L	13	10	77%	2022-03-10 to 2024-08-08		Nonparametric	0.000800	0.000800	0.000700	0.000900	0.000100	0.125	-0.00000000000000485	NA
7C_2_16	MW-7C	Appendix IV	Lithium	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.128	0.127	0.119	0.138	0.00547	0.0428	0.447	0.112
7C_2_18	MW-7C	Appendix IV	Molybdenum	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.399	0.402	0.377	0.422	0.0141	0.0354	-0.139	-1.07
7C_2_21	MW-7C	Appendix IV	Radium-226/228	pCi/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	2.10	1.76	0.773	3.66	1.12	0.535	0.293	-1.74
7C_3_24	MW-7C	Field Parameters	pH	su	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	7.34	7.32	7.23	7.51	0.0940	0.0128	0.675	-0.730
7C_3_25	MW-7C	Field Parameters	Conductivity	mS/cm	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	1.68	1.67	1.33	2.01	0.189	0.113	0.306	0.400
7C_3_26	MW-7C	Field Parameters	Turbidity	NTU	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Normal	Gamma	3.68	3.95	0.0200	8.57	2.71	0.736	0.259	-0.752
7C_3_27	MW-7C	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	0.410	0.0900	0.0600	1.77	0.622	1.52	1.94	2.46
7C_3_28	MW-7C	Field Parameters	Temperature	°C	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	13.3	13.7	9.20	16.4	2.02	0.152	-0.397	0.0360
7C_3_29	MW-7C	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	2022-03-10 to 2024-08-08	Normal	Normal	-116	-121	-183	-39.0	39.7	-0.342	0.872	1.17
7C_4_30	MW-7C	Other	Total Suspended Solids	mg/L	13	3	23%	2022-03-10 to 2024-08-08	Gamma; Lognormal	Gamma	10.2	8.50	5.40	27.0	6.29	0.618	2.52	6.93
7C_4_31	MW-7C	Other	Bicarbonate	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	163	160	150	180	9.47	0.0581	0.00418	-0.780
7C_4_33	MW-7C	Other	Hardness	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	766	770	558	860	72.9	0.0952	-1.93	5.79
7C_4_34	MW-7C	Other	Magnesium	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	41.7	42.2	33.7	44.9	2.85	0.0683	-1.94	5.13
7C_4_35	MW-7C	Other	Potassium	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Normal	Normal	5.69	5.79	4.92	6.14	0.372	0.0654	-1.14	0.508
7C_4_36	MW-7C	Other	Sodium	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	95.3	96.6	79.0	99.8	5.26	0.0553	-2.76	8.78
7C_5_38	MW-7C	Part 115	Iron	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Gamma; Lognormal; Normal	Normal	4.07	4.11	3.67	4.41	0.236	0.0580	-0.308	-1.06
7C_5_39	MW-7C	Part 115	Nickel	mg/L	13	0	0%	2022-03-10 to 2024-08-08	Nonparametric	Nonparametric	0.00792	0.00800	0.00700	0.0110	0.00126	0.158	1.66	2.32
7C_5_42	MW-7C	Part 115	Zinc	mg/L	13	11	85%	2022-03-10 to 2024-08-08		Nonparametric	0.00650	0.00650	0.00600	0.00700	0.000707	0.109	NA	NA

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
02_1_01	MW-2	Appendix III	Boron	mg/L	20	0	0%	0.922	0.109	0.142	0.359	0.915	0.080	0.134	0.452	0.143	>= 0.10	0.559	>= 0.10	0.221	Gamma; Lognormal; Normal	Normal
02_1_02	MW-2	Appendix III	Calcium	mg/L	20	0	0%	0.855	0.006	0.213	0.017	0.847	0.005	0.227	0.008	0.232	< 0.01	1.377	< 0.01	0.156	Nonparametric	Nonparametric
02_1_03	MW-2	Appendix III	Chloride	mg/L	18	0	0%	0.922	0.139	0.148	0.372	0.905	0.071	0.152	0.333	0.157	>= 0.10	0.715	0.05 <= p < 0.10	0.097	Gamma; Lognormal; Normal	Normal
02_1_04	MW-2	Appendix III	Fluoride	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_1_05	MW-2	Appendix III	pH, Field	su	21	0	0%	0.933	0.161	0.133	0.429	0.937	0.192	0.130	0.465	0.131	>= 0.10	0.495	>= 0.10	0.016	Gamma; Lognormal; Normal	Normal
02_1_06	MW-2	Appendix III	Sulfate	mg/L	18	0	0%	0.894	0.045	0.191	0.081	0.879	0.025	0.217	0.025	0.211	0.01 <= p < 0.05	0.855	0.01 <= p < 0.05	0.292	Normal	Normal
02_1_07	MW-2	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	0.893	0.043	0.168	0.200	0.884	0.030	0.178	0.136	0.179	>= 0.10	0.814	0.01 <= p < 0.05	0.139	Gamma; Lognormal; Normal	Normal
02_2_04	MW-2	Appendix IV	Fluoride	mg/L	19	19	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_2_08	MW-2	Appendix IV	Antimony	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_2_09	MW-2	Appendix IV	Arsenic	mg/L	21	17	81%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.338		Nonparametric
02_2_10	MW-2	Appendix IV	Barium	mg/L	21	0	0%	0.978	0.892	0.148	0.265	0.974	0.817	0.164	0.151	0.162	>= 0.10	0.298	>= 0.10	0.103	Gamma; Lognormal; Normal	Normal
02_2_11	MW-2	Appendix IV	Beryllium	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_2_12	MW-2	Appendix IV	Cadmium	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_2_13	MW-2	Appendix IV	Chromium	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_2_14	MW-2	Appendix IV	Cobalt	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_2_15	MW-2	Appendix IV	Lead	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_2_16	MW-2	Appendix IV	Lithium	mg/L	21	0	0%	0.954	0.403	0.108	0.752	0.936	0.178	0.117	0.636	0.124	>= 0.10	0.454	>= 0.10	0.190	Gamma; Lognormal; Normal	Normal
02_2_17	MW-2	Appendix IV	Mercury	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_2_18	MW-2	Appendix IV	Molybdenum	mg/L	21	0	0%	0.970	0.724	0.156	0.199	0.953	0.396	0.152	0.232	0.144	>= 0.10	0.440	>= 0.10	0.180	Gamma; Lognormal; Normal	Normal
02_2_21	MW-2	Appendix IV	Radium-226/228	pCi/L	19	0	0%	0.874	0.017	0.158	0.245	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
02_2_22	MW-2	Appendix IV	Selenium	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_2_23	MW-2	Appendix IV	Thallium	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_3_24	MW-2	Field Parameters	pH	su	21	0	0%	0.933	0.161	0.133	0.429	0.937	0.192	0.130	0.465	0.131	>= 0.10	0.495	>= 0.10	0.016	Gamma; Lognormal; Normal	Normal
02_3_25	MW-2	Field Parameters	Conductivity	mS/cm	21	0	0%	0.868	0.009	0.189	0.048	0.860	0.006	0.196	0.035	0.202	0.01 <= p < 0.05	1.220	< 0.01	0.118	Nonparametric	Nonparametric
02_3_26	MW-2	Field Parameters	Turbidity	NTU	21	0	0%	0.455	0.000	0.373	0.000	0.855	0.005	0.227	0.006	0.291	< 0.01	1.957	< 0.01	0.639	Nonparametric	Nonparametric
02_3_27	MW-2	Field Parameters	Dissolved Oxygen	mg/L	21	0	0%	0.760	0.000	0.199	0.030	NA	NA	NA	NA	NA		NA		NA	Nonparametric	Nonparametric
02_3_28	MW-2	Field Parameters	Temperature	°C	21	0	0%	0.959	0.489	0.136	0.399	0.939	0.207	0.156	0.199	0.155	>= 0.10	0.458	>= 0.10	0.159	Gamma; Lognormal; Normal	Normal
02_3_29	MW-2	Field Parameters	Oxidation Reduction Potential	mV	21	0	0%	0.917	0.075	0.194	0.038	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
02_4_30	MW-2	Other	Total Suspended Solids	mg/L	19	4	21%	0.883	0.052	0.217	0.055	0.899	0.091	0.272	0.004	0.225	0.05 <= p < 0.10	0.485	>= 0.10	0.925	Gamma; Lognormal; Normal	Normal
02_4_31	MW-2	Other	Bicarbonate	mg/L	5	0	0%	0.910	0.468	0.229	0.526	0.917	0.513	0.227	0.537	0.255	>= 0.10	0.348	>= 0.10	0.132	Gamma; Lognormal; Normal	Nonparametric
02_4_32	MW-2	Other	Carbonate	mg/L	5	5	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_4_33	MW-2	Other	Hardness	mg/L	5	0	0%	0.880	0.309	0.285	0.199	0.876	0.291	0.287	0.192	0.308	>= 0.10	0.436	>= 0.10	0.036	Gamma; Lognormal; Normal	Nonparametric
02_4_34	MW-2	Other	Magnesium	mg/L	7	0	0%	0.613	0.000	0.366	0.005	0.596	0.000	0.381	0.003	0.378	< 0.01	1.431	< 0.01	0.098	Nonparametric	Nonparametric
02_4_35	MW-2	Other	Potassium	mg/L	7	1	14%	0.619	0.001	0.434	0.001	0.737	0.015	0.375	0.008	0.409	< 0.01	0.995	< 0.01	0.545	Nonparametric	Nonparametric
02_4_36	MW-2	Other	Sodium	mg/L	7	0	0%	0.898	0.319	0.216	0.412	0.907	0.374	0.203	0.515	0.217	>= 0.10	0.427	>= 0.10	0.191	Gamma; Lognormal; Normal	Nonparametric
02_5_37	MW-2	Part 115	Copper	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_5_38	MW-2	Part 115	Iron	mg/L	21	0	0%	0.821	0.001	0.247	0.002	0.894	0.026	0.214	0.013	0.175	>= 0.10	0.792	0.01 <= p < 0.05	0.620	Gamma	Gamma
02_5_39	MW-2	Part 115	Nickel	mg/L	21	0	0%	0.878	0.013	0.206	0.020	0.870	0.010	0.216	0.011	0.219	0.01 <= p < 0.05	1.094	< 0.01	0.234	Nonparametric	Nonparametric
02_5_40	MW-2	Part 115	Silver	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
02_5_41	MW-2	Part 115	Vanadium	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
02_5_42	MW-2	Part 115	Zinc	mg/L	21	18	86%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		1.021		Nonparametric
03_1_01	MW-3	Appendix III	Boron	mg/L	8	0	0%	0.931	0.524	0.242	0.181	0.937	0.586	0.234	0.220	0.236	>= 0.10	0.344	>= 0.10	0.045	Gamma; Lognormal; Normal	Normal
03_1_02	MW-3	Appendix III	Calcium	mg/L	8	0	0%	0.854	0.105	0.191	0.529	0.841	0.077	0.194	0.503	0.206	>= 0.10	0.555	>= 0.10	0.046	Gamma; Lognormal; Normal	Normal
03_1_03	MW-3	Appendix III	Chloride	mg/L	8	0	0%	0.904	0.314	0.245	0.169	0.899	0.284	0.251	0.145	0.258	>= 0.10	0.457	>= 0.10	0.053	Gamma; Lognormal; Normal	Normal
03_1_04	MW-3	Appendix III	Fluoride	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_1_05	MW-3	Appendix III	pH, Field	su	8	0	0%	0.950	0.712	0.168	0.726	0.952	0.733	0.167	0.739	0.155	>= 0.10	0.238	>= 0.10	0.010	Gamma; Lognormal; Normal	Normal
03_1_06	MW-3	Appendix III	Sulfate	mg/L	8	0	0%	0.906	0.325	0.223	0.285	0.907	0.337	0.223	0.288	0.239	>= 0.10	0.409	>= 0.10	0.031	Gamma; Lognormal; Normal	Normal
03_1_07	MW-3	Appendix III	Total Dissolved Solids	mg/L	8	0	0%	0.855	0.108	0.233	0.227	0.856	0.110	0.232	0.231	0.246	>= 0.10	0.601	>= 0.10	0.019	Gamma; Lognormal; Normal	Normal
03_2_04	MW-3	Appendix IV	Fluoride	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_2_08	MW-3	Appendix IV	Antimony	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_2_09	MW-3	Appendix IV	Arsenic	mg/L	8	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.252		Nonparametric
03_2_10	MW-3	Appendix IV	Barium	mg/L	8	0	0%	0.883	0.202	0.218	0.319	0.877	0.176	0.232	0.230	0.226	>= 0.10	0.493	>= 0.10	0.082	Gamma; Lognormal; Normal	Normal
03_2_11	MW-3	Appendix IV	Beryllium	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_2_12	MW-3	Appendix IV	Cadmium	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_2_13	MW-3	Appendix IV	Chromium	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_2_14	MW-3	Appendix IV	Cobalt	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_2_15	MW-3	Appendix IV	Lead	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_2_16	MW-3	Appendix IV	Lithium	mg/L	8	0	0%	0.961	0.823	0.148	0.873	0.967	0.871	0.153	0.841	0.165	>= 0.10	0.223	>= 0.10	0.065	Gamma; Lognormal; Normal	Normal
03_2_17	MW-3	Appendix IV	Mercury	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_2_18	MW-3	Appendix IV	Molybdenum	mg/L	8	0	0%	0.931	0.521	0.214	0.346	0.939	0.601	0.203	0.426	0.204	>= 0.10	0.331	>= 0.10	0.058	Gamma; Lognormal; Normal	Normal
03_2_21	MW-3	Appendix IV	Radium-226/228	pCi/L	8	0	0%	0.912	0.370	0.268	0.093	0.939	0.599	0.171	0.703	0.212	>= 0.10	0.329	>= 0.10	0.642	Gamma; Lognormal; Normal	Normal
03_2_22	MW-3	Appendix IV	Selenium	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_2_23	MW-3	Appendix IV	Thallium	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_3_24	MW-3	Field Parameters	pH	su	8	0	0%	0.950	0.712	0.168	0.726	0.952	0.733	0.167	0.739	0.155	>= 0.10	0.238	>= 0.10	0.010	Gamma; Lognormal; Normal	Normal
03_3_25	MW-3	Field Parameters	Conductivity	mS/cm	8	0	0%	0.941	0.622	0.186	0.571	0.938	0.589	0.188	0.556	0.200	>= 0.10	0.307	>= 0.10	0.026	Gamma; Lognormal; Normal	Normal
03_3_26	MW-3	Field Parameters	Turbidity	NTU	8	0	0%	0.950	0.714	0.182	0.609	0.697	0.002	0.281	0.063	0.299	0.05 <= p < 0.10	0.763	0.01 <= p < 0.05	1.952	Gamma; Lognormal; Normal	Gamma
03_3_27	MW-3	Field Parameters	Dissolved Oxygen	mg/L	8	0	0%	0.846	0.087	0.243	0.175	0.959	0.804	0.193	0.515	0.163	>= 0.10	0.271	>= 0.10	0.708	Gamma; Lognormal; Normal	Normal
03_3_28	MW-3	Field Parameters	Temperature	°C	8	0	0%	0.940	0.611	0.198	0.466	0.954	0.751	0.187	0.567	0.189	>= 0.10	0.291	>= 0.10	0.184	Gamma; Lognormal; Normal	Normal
03_3_29	MW-3	Field Parameters	Oxidation Reduction Potential	mV	8	0	0%	0.977	0.946	0.150	0.859	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
03_4_30	MW-3	Other	Total Suspended Solids	mg/L	8	1	12%	0.884	0.244	0.282	0.097	0.788	0.031	0.328	0.022	0.325	0.01 <= p < 0.05	0.699	0.05 <= p < 0.10	0.473	Gamma; Normal	Normal
03_4_31	MW-3	Other	Bicarbonate	mg/L	5	0	0%	0.858	0.222	0.265	0.293	0.861	0.233	0.261	0.316	0.279	>= 0.10	0.445	>= 0.10	0.059	Gamma; Lognormal; Normal	Nonparametric
03_4_32	MW-3	Other	Carbonate	mg/L	5	5	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_4_33	MW-3	Other	Hardness	mg/L	5	0	0%	0.948	0.726	0.250	0.385	0.947	0.715	0.251	0.377	0.268	>= 0.10	0.289	>= 0.10	0.014	Gamma; Lognormal; Normal	Nonparametric
03_4_34	MW-3	Other	Magnesium	mg/L	5	0	0%	0.896	0.386	0.244	0.419	0.893	0.371	0.249	0.389	0.264	>= 0.10	0.409	>= 0.10	0.044	Gamma; Lognormal; Normal	Nonparametric
03_4_35	MW-3	Other	Potassium	mg/L	5	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.036		Nonparametric
03_4_36	MW-3	Other	Sodium	mg/L	5	0	0%	0.871	0.272	0.310	0.117	0.869	0.264	0.312	0.113	0.334	0.05 <= p < 0.10	0.492	>= 0.10	0.037	Gamma; Lognormal; Normal	Nonparametric
03_5_37	MW-3	Part 115	Copper	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_5_38	MW-3	Part 115	Iron	mg/L	8	0	0%	0.914	0.384	0.165	0.752	0.900	0.286	0.172	0.695	0.184	>= 0.10	0.384	>= 0.10	0.103	Gamma; Lognormal; Normal	Normal

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
03_5_39	MW-3	Part 115	Nickel	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_5_40	MW-3	Part 115	Silver	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_5_41	MW-3	Part 115	Vanadium	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
03_5_42	MW-3	Part 115	Zinc	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
05_1_01	MW-5	Appendix III	Boron	mg/L	22	0	0%	0.899	0.029	0.175	0.078	0.625	0.000	0.262	0.000	0.203	0.01 <= p < 0.05	1.557	< 0.01	0.565	Normal	Normal
05_1_02	MW-5	Appendix III	Calcium	mg/L	22	0	0%	0.985	0.978	0.101	0.810	0.929	0.118	0.149	0.230	0.131	>= 0.10	0.306	>= 0.10	0.376	Gamma; Lognormal; Normal	Normal
05_1_03	MW-5	Appendix III	Chloride	mg/L	18	0	0%	0.868	0.016	0.213	0.031	0.821	0.003	0.260	0.002	0.246	< 0.01	1.155	< 0.01	0.268	Nonparametric	Nonparametric
05_1_04	MW-5	Appendix III	Fluoride	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
05_1_05	MW-5	Appendix III	pH, Field	su	23	0	0%	0.704	0.000	0.273	0.000	0.686	0.000	0.284	0.000	0.274	< 0.01	2.351	< 0.01	0.033	Nonparametric	Nonparametric
05_1_06	MW-5	Appendix III	Sulfate	mg/L	18	0	0%	0.968	0.768	0.103	0.882	0.927	0.170	0.197	0.063	0.165	>= 0.10	0.394	>= 0.10	0.508	Gamma; Lognormal; Normal	Normal
05_1_07	MW-5	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	0.961	0.615	0.114	0.773	0.929	0.185	0.168	0.197	0.144	>= 0.10	0.423	>= 0.10	0.353	Gamma; Lognormal; Normal	Normal
05_2_04	MW-5	Appendix IV	Fluoride	mg/L	19	19	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
05_2_08	MW-5	Appendix IV	Antimony	mg/L	23	23	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
05_2_09	MW-5	Appendix IV	Arsenic	mg/L	23	17	74%	0.912	0.452	0.172	0.833	0.929	0.573	0.193	0.690	0.206	>= 0.10	0.279	>= 0.10	0.505	Gamma; Lognormal; Normal	Nonparametric
05_2_10	MW-5	Appendix IV	Barium	mg/L	23	0	0%	0.910	0.041	0.178	0.057	0.949	0.274	0.149	0.209	0.157	>= 0.10	0.643	0.05 <= p < 0.10	0.157	Gamma; Lognormal; Normal	Normal
05_2_11	MW-5	Appendix IV	Beryllium	mg/L	23	23	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
05_2_12	MW-5	Appendix IV	Cadmium	mg/L	23	23	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
05_2_13	MW-5	Appendix IV	Chromium	mg/L	23	21	91%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.252		Nonparametric
05_2_14	MW-5	Appendix IV	Cobalt	mg/L	23	22	96%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
05_2_15	MW-5	Appendix IV	Lead	mg/L	23	20	87%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.785		Nonparametric
05_2_16	MW-5	Appendix IV	Lithium	mg/L	23	0	0%	0.891	0.016	0.136	0.324	0.686	0.000	0.196	0.022	0.175	0.05 <= p < 0.10	1.383	< 0.01	0.362	Gamma; Normal	Normal
05_2_17	MW-5	Appendix IV	Mercury	mg/L	23	23	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
05_2_18	MW-5	Appendix IV	Molybdenum	mg/L	23	0	0%	0.977	0.855	0.145	0.241	0.822	0.001	0.199	0.019	0.167	0.05 <= p < 0.10	0.565	>= 0.10	0.464	Gamma; Normal	Normal
05_2_21	MW-5	Appendix IV	Radium-226/228	pCi/L	19	0	0%	0.864	0.012	0.185	0.085	0.955	0.482	0.096	0.918	0.106	>= 0.10	0.325	>= 0.10	0.630	Gamma; Lognormal; Normal	Normal
05_2_22	MW-5	Appendix IV	Selenium	mg/L	23	23	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
05_2_23	MW-5	Appendix IV	Thallium	mg/L	23	23	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
05_3_24	MW-5	Field Parameters	pH	su	23	0	0%	0.704	0.000	0.273	0.000	0.686	0.000	0.284	0.000	0.274	< 0.01	2.351	< 0.01	0.033	Nonparametric	Nonparametric
05_3_25	MW-5	Field Parameters	Conductivity	mS/cm	23	0	0%	0.935	0.138	0.144	0.247	0.935	0.143	0.137	0.323	0.138	>= 0.10	0.525	>= 0.10	0.279	Gamma; Lognormal; Normal	Normal
05_3_26	MW-5	Field Parameters	Turbidity	NTU	23	0	0%	0.422	0.000	0.442	0.000	0.766	0.000	0.293	0.000	0.367	< 0.01	2.987	< 0.01	0.617	Nonparametric	Nonparametric
05_3_27	MW-5	Field Parameters	Dissolved Oxygen	mg/L	23	0	0%	0.943	0.212	0.143	0.253	0.820	0.001	0.253	0.001	0.212	0.01 <= p < 0.05	1.284	< 0.01	0.668	Normal	Normal
05_3_28	MW-5	Field Parameters	Temperature	°C	23	0	0%	0.971	0.704	0.088	0.912	0.940	0.178	0.120	0.527	0.101	>= 0.10	0.312	>= 0.10	0.276	Gamma; Lognormal; Normal	Normal
05_3_29	MW-5	Field Parameters	Oxidation Reduction Potential	mV	23	0	0%	0.936	0.146	0.185	0.041	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
05_4_30	MW-5	Other	Total Suspended Solids	mg/L	19	0	0%	0.598	0.000	0.326	0.000	0.938	0.247	0.138	0.448	0.211	0.01 <= p < 0.05	0.988	0.01 <= p < 0.05	0.994	Lognormal	Lognormal
05_4_31	MW-5	Other	Bicarbonate	mg/L	5	0	0%	0.896	0.390	0.245	0.416	0.907	0.447	0.241	0.440	0.257	>= 0.10	0.387	>= 0.10	0.050	Gamma; Lognormal; Normal	Nonparametric
05_4_32	MW-5	Other	Carbonate	mg/L	5	5	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
05_4_33	MW-5	Other	Hardness	mg/L	5	0	0%	0.857	0.219	0.305	0.130	0.877	0.296	0.301	0.143	0.324	>= 0.10	0.455	>= 0.10	0.164	Gamma; Lognormal; Normal	Nonparametric
05_4_34	MW-5	Other	Magnesium	mg/L	9	0	0%	0.927	0.453	0.190	0.458	0.951	0.700	0.209	0.307	0.191	>= 0.10	0.328	>= 0.10	0.212	Gamma; Lognormal; Normal	Normal
05_4_35	MW-5	Other	Potassium	mg/L	9	0	0%	0.911	0.322	0.183	0.518	0.885	0.176	0.200	0.378	0.196	>= 0.10	0.446	>= 0.10	0.102	Gamma; Lognormal; Normal	Normal
05_4_36	MW-5	Other	Sodium	mg/L	9	0	0%	0.933	0.515	0.186	0.491	0.955	0.746	0.190	0.458	0.177	>= 0.10	0.327	>= 0.10	0.193	Gamma; Lognormal; Normal	Normal

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
05_5_37	MW-5	Part 115	Copper	mg/L	23	18	78%	0.944	0.692	0.239	0.455	0.978	0.922	0.163	0.931	0.193	>= 0.10	0.212	>= 0.10	0.645	Gamma; Lognormal; Normal	Nonparametric
05_5_38	MW-5	Part 115	Iron	mg/L	23	5	22%	0.665	0.000	0.270	0.001	0.963	0.669	0.084	0.983	0.151	>= 0.10	0.532	>= 0.10	1.099	Gamma; Lognormal	Gamma
05_5_39	MW-5	Part 115	Nickel	mg/L	23	3	13%	0.946	0.304	0.131	0.488	0.949	0.353	0.151	0.268	0.125	>= 0.10	0.321	>= 0.10	0.414	Gamma; Lognormal; Normal	Normal
05_5_40	MW-5	Part 115	Silver	mg/L	23	23	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
05_5_41	MW-5	Part 115	Vanadium	mg/L	23	20	87%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.446		Nonparametric
05_5_42	MW-5	Part 115	Zinc	mg/L	23	9	39%	0.680	0.000	0.261	0.011	0.904	0.129	0.168	0.354	0.206	>= 0.10	0.807	0.01 <= p < 0.05	0.930	Gamma; Lognormal	Gamma
06_1_01	MW-6	Appendix III	Boron	mg/L	19	0	0%	0.962	0.615	0.111	0.780	0.965	0.681	0.107	0.822	0.115	>= 0.10	0.249	>= 0.10	0.234	Gamma; Lognormal; Normal	Normal
06_1_02	MW-6	Appendix III	Calcium	mg/L	19	0	0%	0.907	0.065	0.185	0.085	0.911	0.077	0.181	0.100	0.190	0.05 <= p < 0.10	0.611	>= 0.10	0.107	Gamma; Lognormal; Normal	Normal
06_1_03	MW-6	Appendix III	Chloride	mg/L	19	0	0%	0.876	0.018	0.211	0.026	0.871	0.015	0.210	0.028	0.220	0.01 <= p < 0.05	1.122	< 0.01	0.203	Nonparametric	Nonparametric
06_1_04	MW-6	Appendix III	Fluoride	mg/L	19	19	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_1_05	MW-6	Appendix III	pH, Field	su	20	0	0%	0.902	0.044	0.206	0.026	0.900	0.042	0.203	0.030	0.200	0.01 <= p < 0.05	0.953	0.01 <= p < 0.05	0.023	Nonparametric	Nonparametric
06_1_06	MW-6	Appendix III	Sulfate	mg/L	19	0	0%	0.920	0.113	0.162	0.211	0.927	0.155	0.156	0.262	0.165	>= 0.10	0.479	>= 0.10	0.275	Gamma; Lognormal; Normal	Normal
06_1_07	MW-6	Appendix III	Total Dissolved Solids	mg/L	19	0	0%	0.938	0.239	0.131	0.529	0.939	0.252	0.148	0.339	0.147	>= 0.10	0.515	>= 0.10	0.124	Gamma; Lognormal; Normal	Normal
06_2_04	MW-6	Appendix IV	Fluoride	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_2_08	MW-6	Appendix IV	Antimony	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_2_09	MW-6	Appendix IV	Arsenic	mg/L	20	18	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.000		Nonparametric
06_2_10	MW-6	Appendix IV	Barium	mg/L	20	0	0%	0.947	0.326	0.154	0.245	0.939	0.231	0.154	0.248	0.155	>= 0.10	0.548	>= 0.10	0.112	Gamma; Lognormal; Normal	Normal
06_2_11	MW-6	Appendix IV	Beryllium	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_2_12	MW-6	Appendix IV	Cadmium	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_2_13	MW-6	Appendix IV	Chromium	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_2_14	MW-6	Appendix IV	Cobalt	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_2_15	MW-6	Appendix IV	Lead	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_2_16	MW-6	Appendix IV	Lithium	mg/L	20	0	0%	0.968	0.706	0.104	0.821	0.953	0.411	0.118	0.657	0.114	>= 0.10	0.348	>= 0.10	0.177	Gamma; Lognormal; Normal	Normal
06_2_17	MW-6	Appendix IV	Mercury	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_2_18	MW-6	Appendix IV	Molybdenum	mg/L	20	0	0%	0.970	0.756	0.110	0.756	0.918	0.092	0.166	0.157	0.149	>= 0.10	0.480	>= 0.10	0.299	Gamma; Lognormal; Normal	Normal
06_2_21	MW-6	Appendix IV	Radium-226/228	pCi/L	20	0	0%	0.852	0.006	0.175	0.111	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
06_2_22	MW-6	Appendix IV	Selenium	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_2_23	MW-6	Appendix IV	Thallium	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_3_24	MW-6	Field Parameters	pH	su	20	0	0%	0.902	0.044	0.206	0.026	0.900	0.042	0.203	0.030	0.200	0.01 <= p < 0.05	0.953	0.01 <= p < 0.05	0.023	Nonparametric	Nonparametric
06_3_25	MW-6	Field Parameters	Conductivity	mS/cm	20	0	0%	0.980	0.929	0.093	0.922	0.979	0.926	0.093	0.918	0.093	>= 0.10	0.189	>= 0.10	0.093	Gamma; Lognormal; Normal	Normal
06_3_26	MW-6	Field Parameters	Turbidity	NTU	20	0	0%	0.759	0.000	0.263	0.001	0.961	0.567	0.121	0.620	0.156	>= 0.10	0.369	>= 0.10	0.887	Gamma; Lognormal	Gamma
06_3_27	MW-6	Field Parameters	Dissolved Oxygen	mg/L	20	0	0%	0.466	0.000	0.316	0.000	0.979	0.915	0.095	0.908	0.159	>= 0.10	0.861	0.01 <= p < 0.05	1.192	Gamma; Lognormal	Gamma
06_3_28	MW-6	Field Parameters	Temperature	°C	20	0	0%	0.959	0.522	0.120	0.639	0.943	0.273	0.144	0.339	0.135	>= 0.10	0.407	>= 0.10	0.127	Gamma; Lognormal; Normal	Normal
06_3_29	MW-6	Field Parameters	Oxidation Reduction Potential	mV	20	0	0%	0.967	0.690	0.148	0.298	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
06_4_30	MW-6	Other	Total Suspended Solids	mg/L	20	14	70%	0.606	0.001	0.374	0.009	0.829	0.104	0.275	0.165	0.332	0.05 <= p < 0.10	0.786	0.01 <= p < 0.05	1.344	Gamma; Lognormal	Nonparametric
06_4_31	MW-6	Other	Bicarbonate	mg/L	6	0	0%	0.925	0.541	0.204	0.601	0.916	0.477	0.206	0.592	0.225	>= 0.10	0.349	>= 0.10	0.043	Gamma; Lognormal; Normal	Nonparametric
06_4_32	MW-6	Other	Carbonate	mg/L	6	6	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_4_33	MW-6	Other	Hardness	mg/L	6	0	0%	0.822	0.092	0.266	0.200	0.822	0.092	0.271	0.182	0.291	>= 0.10	0.649	0.05 <= p < 0.10	0.101	Gamma; Lognormal; Normal	Nonparametric
06_4_34	MW-6	Other	Magnesium	mg/L	6	0	0%	0.809	0.071	0.284	0.136	0.812	0.076	0.286	0.128	0.308	0.05 <= p < 0.10	0.655	0.05 <= p < 0.10	0.141	Gamma; Lognormal; Normal	Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
06_4_35	MW-6	Other	Potassium	mg/L	6	0	0%	0.931	0.584	0.197	0.659	0.925	0.542	0.203	0.611	0.188	>= 0.10	0.300	>= 0.10	0.036	Gamma; Lognormal; Normal	Nonparametric
06_4_36	MW-6	Other	Sodium	mg/L	6	0	0%	0.922	0.518	0.240	0.342	0.943	0.685	0.220	0.484	0.233	>= 0.10	0.318	>= 0.10	0.143	Gamma; Lognormal; Normal	Nonparametric
06_5_37	MW-6	Part 115	Copper	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_5_38	MW-6	Part 115	Iron	mg/L	20	11	55%	0.715	0.002	0.251	0.105	0.925	0.431	0.155	0.771	0.174	>= 0.10	0.491	>= 0.10	0.743	Gamma; Lognormal; Normal	Nonparametric
06_5_39	MW-6	Part 115	Nickel	mg/L	20	6	30%	0.850	0.022	0.320	0.000	0.832	0.013	0.335	0.000	0.334	< 0.01	1.221	< 0.01	0.124	Nonparametric	Nonparametric
06_5_40	MW-6	Part 115	Silver	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_5_41	MW-6	Part 115	Vanadium	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
06_5_42	MW-6	Part 115	Zinc	mg/L	20	19	95%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
07_1_01	MW-7	Appendix III	Boron	mg/L	14	0	0%	0.971	0.894	0.129	0.757	0.961	0.748	0.156	0.470	0.138	>= 0.10	0.269	>= 0.10	0.231	Gamma; Lognormal; Normal	Normal
07_1_02	MW-7	Appendix III	Calcium	mg/L	14	0	0%	0.851	0.023	0.232	0.039	0.887	0.072	0.219	0.068	0.229	0.05 <= p < 0.10	0.779	0.01 <= p < 0.05	0.168	Gamma; Lognormal	Gamma
07_1_03	MW-7	Appendix III	Chloride	mg/L	14	0	0%	0.839	0.016	0.216	0.076	0.862	0.033	0.217	0.073	0.224	0.05 <= p < 0.10	0.728	0.05 <= p < 0.10	0.086	Gamma; Lognormal; Normal	Normal
07_1_04	MW-7	Appendix III	Fluoride	mg/L	14	12	86%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.084		Nonparametric
07_1_05	MW-7	Appendix III	pH, Field	su	14	0	0%	0.840	0.016	0.238	0.031	0.853	0.025	0.230	0.043	0.228	0.05 <= p < 0.10	0.789	0.01 <= p < 0.05	0.035	Gamma	Gamma
07_1_06	MW-7	Appendix III	Sulfate	mg/L	14	0	0%	0.833	0.013	0.198	0.146	0.865	0.035	0.165	0.384	0.172	>= 0.10	0.823	0.01 <= p < 0.05	0.160	Gamma; Lognormal; Normal	Normal
07_1_07	MW-7	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	0.740	0.001	0.326	0.000	0.775	0.003	0.300	0.001	0.310	< 0.01	1.505	< 0.01	0.150	Nonparametric	Nonparametric
07_2_04	MW-7	Appendix IV	Fluoride	mg/L	14	12	86%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.084		Nonparametric
07_2_08	MW-7	Appendix IV	Antimony	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
07_2_09	MW-7	Appendix IV	Arsenic	mg/L	14	0	0%	0.825	0.010	0.335	0.000	0.801	0.005	0.343	0.000	0.355	< 0.01	1.498	< 0.01	0.164	Nonparametric	Nonparametric
07_2_10	MW-7	Appendix IV	Barium	mg/L	14	0	0%	0.901	0.116	0.156	0.470	0.855	0.026	0.191	0.183	0.167	>= 0.10	0.784	0.01 <= p < 0.05	0.160	Gamma; Lognormal; Normal	Normal
07_2_11	MW-7	Appendix IV	Beryllium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
07_2_12	MW-7	Appendix IV	Cadmium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
07_2_13	MW-7	Appendix IV	Chromium	mg/L	14	13	93%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
07_2_14	MW-7	Appendix IV	Cobalt	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
07_2_15	MW-7	Appendix IV	Lead	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
07_2_16	MW-7	Appendix IV	Lithium	mg/L	14	0	0%	0.972	0.899	0.133	0.719	0.953	0.602	0.136	0.685	0.140	>= 0.10	0.297	>= 0.10	0.152	Gamma; Lognormal; Normal	Normal
07_2_17	MW-7	Appendix IV	Mercury	mg/L	14	13	93%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
07_2_18	MW-7	Appendix IV	Molybdenum	mg/L	14	0	0%	0.850	0.022	0.241	0.026	0.847	0.020	0.265	0.009	0.264	0.01 <= p < 0.05	0.985	0.01 <= p < 0.05	0.260	Nonparametric	Nonparametric
07_2_21	MW-7	Appendix IV	Radium-226/228	pCi/L	14	0	0%	0.890	0.080	0.186	0.210	0.962	0.762	0.143	0.612	0.105	>= 0.10	0.247	>= 0.10	0.691	Gamma; Lognormal; Normal	Normal
07_2_22	MW-7	Appendix IV	Selenium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
07_2_23	MW-7	Appendix IV	Thallium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
07_3_24	MW-7	Field Parameters	pH	su	14	0	0%	0.840	0.016	0.238	0.031	0.853	0.025	0.230	0.043	0.228	0.05 <= p < 0.10	0.789	0.01 <= p < 0.05	0.035	Gamma	Gamma
07_3_25	MW-7	Field Parameters	Conductivity	mS/cm	14	0	0%	0.888	0.074	0.204	0.119	0.800	0.005	0.228	0.046	0.205	>= 0.10	0.857	0.01 <= p < 0.05	0.234	Gamma; Normal	Normal
07_3_26	MW-7	Field Parameters	Turbidity	NTU	14	0	0%	0.707	0.000	0.274	0.005	0.937	0.382	0.174	0.302	0.180	>= 0.10	0.583	>= 0.10	0.638	Gamma; Lognormal	Gamma
07_3_27	MW-7	Field Parameters	Dissolved Oxygen	mg/L	14	1	7%	0.655	0.000	0.333	0.000	NA	NA	NA	NA	NA		NA		NA	Nonparametric	Nonparametric
07_3_28	MW-7	Field Parameters	Temperature	°C	14	0	0%	0.948	0.531	0.164	0.385	0.922	0.237	0.204	0.118	0.197	>= 0.10	0.446	>= 0.10	0.304	Gamma; Lognormal; Normal	Normal
07_3_29	MW-7	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	0.921	0.227	0.144	0.604	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
07_4_30	MW-7	Other	Total Suspended Solids	mg/L	14	11	79%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.632		Nonparametric
07_4_31	MW-7	Other	Bicarbonate	mg/L	6	0	0%	0.856	0.175	0.239	0.350	0.881	0.273	0.221	0.477	0.247	>= 0.10	0.449	>= 0.10	0.364	Gamma; Lognormal; Normal	Nonparametric
07_4_32	MW-7	Other	Carbonate	mg/L	6	6	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
07_4_33	MW-7	Other	Hardness	mg/L	6	0	0%	0.767	0.029	0.293	0.110	0.786	0.044	0.262	0.222	0.283	>= 0.10	0.735	0.01 <= p < 0.05	0.265	Gamma; Lognormal; Normal	Nonparametric
07_4_34	MW-7	Other	Magnesium	mg/L	6	0	0%	0.773	0.033	0.283	0.139	0.786	0.044	0.288	0.124	0.308	0.05 <= p < 0.10	0.717	0.01 <= p < 0.05	0.252	Gamma; Lognormal; Normal	Nonparametric
07_4_35	MW-7	Other	Potassium	mg/L	6	0	0%	0.778	0.037	0.303	0.091	0.754	0.022	0.325	0.047	0.332	0.05 <= p < 0.10	0.822	0.01 <= p < 0.05	0.261	Gamma; Normal	Nonparametric
07_4_36	MW-7	Other	Sodium	mg/L	6	0	0%	0.831	0.109	0.269	0.190	0.844	0.141	0.256	0.253	0.267	>= 0.10	0.545	>= 0.10	0.102	Gamma; Lognormal; Normal	Nonparametric
07_5_37	MW-7	Part 115	Copper	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
07_5_38	MW-7	Part 115	Iron	mg/L	14	0	0%	0.814	0.007	0.270	0.007	0.918	0.205	0.214	0.081	0.232	0.01 <= p < 0.05	0.592	>= 0.10	0.266	Gamma; Lognormal	Gamma
07_5_39	MW-7	Part 115	Nickel	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
07_5_40	MW-7	Part 115	Silver	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
07_5_41	MW-7	Part 115	Vanadium	mg/L	14	12	86%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.129		Nonparametric
07_5_42	MW-7	Part 115	Zinc	mg/L	14	11	79%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.400		Nonparametric
08_1_01	MW-8	Appendix III	Boron	mg/L	13	1	8%	0.835	0.024	0.266	0.019	0.939	0.489	0.219	0.117	0.228	>= 0.10	0.519	>= 0.10	0.458	Gamma; Lognormal	Gamma
08_1_02	MW-8	Appendix III	Calcium	mg/L	13	0	0%	0.976	0.958	0.088	0.996	0.975	0.947	0.094	0.990	0.100	>= 0.10	0.167	>= 0.10	0.055	Gamma; Lognormal; Normal	Normal
08_1_03	MW-8	Appendix III	Chloride	mg/L	13	2	15%	0.777	0.005	0.251	0.052	0.955	0.706	0.147	0.726	0.181	>= 0.10	0.490	>= 0.10	0.828	Gamma; Lognormal; Normal	Normal
08_1_04	MW-8	Appendix III	Fluoride	mg/L	13	12	92%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_1_05	MW-8	Appendix III	pH, Field	su	13	0	0%	0.724	0.001	0.237	0.045	0.738	0.001	0.228	0.062	0.227	0.05 <= p < 0.10	1.120	< 0.01	0.028	Gamma; Lognormal	Gamma
08_1_06	MW-8	Appendix III	Sulfate	mg/L	13	0	0%	0.884	0.081	0.184	0.265	0.945	0.527	0.151	0.582	0.174	>= 0.10	0.340	>= 0.10	0.522	Gamma; Lognormal; Normal	Normal
08_1_07	MW-8	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	0.883	0.078	0.208	0.130	0.901	0.137	0.195	0.192	0.199	>= 0.10	0.543	>= 0.10	0.069	Gamma; Lognormal; Normal	Normal
08_2_04	MW-8	Appendix IV	Fluoride	mg/L	13	12	92%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_2_08	MW-8	Appendix IV	Antimony	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_2_09	MW-8	Appendix IV	Arsenic	mg/L	13	12	92%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_2_10	MW-8	Appendix IV	Barium	mg/L	13	0	0%	0.905	0.158	0.240	0.038	0.923	0.279	0.213	0.108	0.221	0.05 <= p < 0.10	0.613	>= 0.10	0.144	Gamma; Lognormal; Normal	Normal
08_2_11	MW-8	Appendix IV	Beryllium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_2_12	MW-8	Appendix IV	Cadmium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_2_13	MW-8	Appendix IV	Chromium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_2_14	MW-8	Appendix IV	Cobalt	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_2_15	MW-8	Appendix IV	Lead	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_2_16	MW-8	Appendix IV	Lithium	mg/L	13	6	46%	0.887	0.258	0.184	0.670	0.923	0.496	0.152	0.895	0.161	>= 0.10	0.336	>= 0.10	0.353	Gamma; Lognormal; Normal	Normal
08_2_17	MW-8	Appendix IV	Mercury	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_2_18	MW-8	Appendix IV	Molybdenum	mg/L	13	11	85%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.547		Nonparametric
08_2_21	MW-8	Appendix IV	Radium-226/228	pCi/L	13	0	0%	0.873	0.057	0.224	0.074	0.950	0.598	0.176	0.330	0.205	>= 0.10	0.294	>= 0.10	1.126	Gamma; Lognormal; Normal	Gamma
08_2_22	MW-8	Appendix IV	Selenium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_2_23	MW-8	Appendix IV	Thallium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_3_24	MW-8	Field Parameters	pH	su	13	0	0%	0.724	0.001	0.237	0.045	0.738	0.001	0.228	0.062	0.227	0.05 <= p < 0.10	1.120	< 0.01	0.028	Gamma; Lognormal	Gamma
08_3_25	MW-8	Field Parameters	Conductivity	mS/cm	13	0	0%	0.819	0.012	0.236	0.046	0.835	0.018	0.223	0.076	0.225	0.05 <= p < 0.10	0.879	0.01 <= p < 0.05	0.057	Gamma; Lognormal	Gamma
08_3_26	MW-8	Field Parameters	Turbidity	NTU	13	0	0%	0.900	0.132	0.181	0.289	0.877	0.065	0.217	0.095	0.207	>= 0.10	0.633	0.05 <= p < 0.10	0.478	Gamma; Lognormal; Normal	Normal
08_3_27	MW-8	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	0.821	0.012	0.244	0.033	0.818	0.011	0.254	0.022	0.186	>= 0.10	0.446	>= 0.10	1.880	Gamma	Gamma
08_3_28	MW-8	Field Parameters	Temperature	°C	13	0	0%	0.913	0.200	0.269	0.011	0.880	0.071	0.273	0.009	0.282	< 0.01	0.683	0.05 <= p < 0.10	0.303	Gamma; Lognormal; Normal	Normal
08_3_29	MW-8	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	0.916	0.219	0.236	0.046	0.928	0.320	0.208	0.129	0.229	0.05 <= p < 0.10	0.508	>= 0.10	0.517	Gamma; Lognormal; Normal	Normal
08_4_30	MW-8	Other	Total Suspended Solids	mg/L	13	12	92%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
08_4_31	MW-8	Other	Bicarbonate	mg/L	5	0	0%	0.902	0.419	0.277	0.236	0.874	0.284	0.296	0.158	0.287	>= 0.10	0.453	>= 0.10	0.120	Gamma; Lognormal; Normal	Nonparametric
08_4_32	MW-8	Other	Carbonate	mg/L	5	5	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_4_33	MW-8	Other	Hardness	mg/L	5	0	0%	0.977	0.917	0.192	0.789	0.982	0.945	0.183	0.840	0.195	>= 0.10	0.198	>= 0.10	0.063	Gamma; Lognormal; Normal	Nonparametric
08_4_34	MW-8	Other	Magnesium	mg/L	5	0	0%	0.966	0.852	0.207	0.688	0.971	0.879	0.194	0.776	0.196	>= 0.10	0.242	>= 0.10	0.086	Gamma; Lognormal; Normal	Nonparametric
08_4_35	MW-8	Other	Potassium	mg/L	5	1	20%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.176		Nonparametric
08_4_36	MW-8	Other	Sodium	mg/L	5	0	0%	0.785	0.061	0.319	0.096	0.837	0.157	0.320	0.094	0.345	0.05 <= p < 0.10	0.563	>= 0.10	0.496	Gamma; Lognormal; Normal	Nonparametric
08_5_37	MW-8	Part 115	Copper	mg/L	13	12	92%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_5_38	MW-8	Part 115	Iron	mg/L	13	12	92%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_5_39	MW-8	Part 115	Nickel	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_5_40	MW-8	Part 115	Silver	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_5_41	MW-8	Part 115	Vanadium	mg/L	13	12	92%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
08_5_42	MW-8	Part 115	Zinc	mg/L	13	12	92%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_1_01	MW-9	Appendix III	Boron	mg/L	21	20	95%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_1_02	MW-9	Appendix III	Calcium	mg/L	21	0	0%	0.857	0.006	0.233	0.004	0.899	0.034	0.206	0.021	0.216	0.01 <= p < 0.05	0.825	0.01 <= p < 0.05	0.125	Nonparametric	Nonparametric
09_1_03	MW-9	Appendix III	Chloride	mg/L	21	17	81%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.966		Nonparametric
09_1_04	MW-9	Appendix III	Fluoride	mg/L	21	19	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.000		Nonparametric
09_1_05	MW-9	Appendix III	pH, Field	su	21	0	0%	0.832	0.002	0.233	0.004	0.841	0.003	0.229	0.005	0.231	< 0.01	1.194	< 0.01	0.024	Nonparametric	Nonparametric
09_1_06	MW-9	Appendix III	Sulfate	mg/L	21	15	71%	0.811	0.074	0.272	0.176	0.862	0.195	0.209	0.565	0.231	>= 0.10	0.516	>= 0.10	0.565	Gamma; Lognormal; Normal	Nonparametric
09_1_07	MW-9	Appendix III	Total Dissolved Solids	mg/L	21	0	0%	0.756	0.000	0.198	0.031	0.802	0.001	0.179	0.077	0.183	0.05 <= p < 0.10	1.511	< 0.01	0.117	Gamma; Lognormal	Gamma
09_2_04	MW-9	Appendix IV	Fluoride	mg/L	21	19	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.000		Nonparametric
09_2_08	MW-9	Appendix IV	Antimony	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_2_09	MW-9	Appendix IV	Arsenic	mg/L	21	20	95%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_2_10	MW-9	Appendix IV	Barium	mg/L	21	0	0%	0.819	0.001	0.220	0.009	0.857	0.006	0.195	0.037	0.201	0.01 <= p < 0.05	0.961	0.01 <= p < 0.05	0.108	Nonparametric	Nonparametric
09_2_11	MW-9	Appendix IV	Beryllium	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_2_12	MW-9	Appendix IV	Cadmium	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_2_13	MW-9	Appendix IV	Chromium	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_2_14	MW-9	Appendix IV	Cobalt	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_2_15	MW-9	Appendix IV	Lead	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_2_16	MW-9	Appendix IV	Lithium	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_2_17	MW-9	Appendix IV	Mercury	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_2_18	MW-9	Appendix IV	Molybdenum	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_2_21	MW-9	Appendix IV	Radium-226/228	pCi/L	21	0	0%	0.934	0.164	0.127	0.507	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
09_2_22	MW-9	Appendix IV	Selenium	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_2_23	MW-9	Appendix IV	Thallium	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_3_24	MW-9	Field Parameters	pH	su	21	0	0%	0.832	0.002	0.233	0.004	0.841	0.003	0.229	0.005	0.231	< 0.01	1.194	< 0.01	0.024	Nonparametric	Nonparametric
09_3_25	MW-9	Field Parameters	Conductivity	mS/cm	21	0	0%	0.862	0.007	0.235	0.004	0.897	0.031	0.214	0.013	0.222	< 0.01	0.832	0.01 <= p < 0.05	0.092	Nonparametric	Nonparametric
09_3_26	MW-9	Field Parameters	Turbidity	NTU	21	0	0%	0.870	0.010	0.191	0.045	0.882	0.016	0.203	0.024	0.198	0.01 <= p < 0.05	0.942	0.01 <= p < 0.05	0.530	Nonparametric	Nonparametric
09_3_27	MW-9	Field Parameters	Dissolved Oxygen	mg/L	21	0	0%	0.932	0.148	0.151	0.238	0.917	0.075	0.176	0.087	0.173	>= 0.10	0.639	0.05 <= p < 0.10	0.176	Gamma; Lognormal; Normal	Normal
09_3_28	MW-9	Field Parameters	Temperature	°C	21	0	0%	0.887	0.020	0.192	0.041	0.857	0.006	0.208	0.018	0.202	0.01 <= p < 0.05	1.064	< 0.01	0.489	Nonparametric	Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
09_3_29	MW-9	Field Parameters	Oxidation Reduction Potential	mV	21	0	0%	0.940	0.222	0.167	0.132	0.946	0.283	0.139	0.364	0.143	>= 0.10	0.407	>= 0.10	0.411	Gamma; Lognormal; Normal	Normal
09_4_30	MW-9	Other	Total Suspended Solids	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_4_31	MW-9	Other	Bicarbonate	mg/L	5	0	0%	0.916	0.502	0.216	0.621	0.906	0.443	0.208	0.681	0.237	>= 0.10	0.327	>= 0.10	0.158	Gamma; Lognormal; Normal	Nonparametric
09_4_32	MW-9	Other	Carbonate	mg/L	5	5	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_4_33	MW-9	Other	Hardness	mg/L	5	0	0%	0.891	0.363	0.242	0.438	0.901	0.416	0.236	0.480	0.267	>= 0.10	0.392	>= 0.10	0.191	Gamma; Lognormal; Normal	Nonparametric
09_4_34	MW-9	Other	Magnesium	mg/L	5	0	0%	0.889	0.350	0.223	0.570	0.878	0.300	0.241	0.444	0.243	>= 0.10	0.412	>= 0.10	0.177	Gamma; Lognormal; Normal	Nonparametric
09_4_35	MW-9	Other	Potassium	mg/L	5	0	0%	0.897	0.393	0.215	0.626	0.900	0.410	0.224	0.561	0.244	>= 0.10	0.342	>= 0.10	0.201	Gamma; Lognormal; Normal	Nonparametric
09_4_36	MW-9	Other	Sodium	mg/L	5	0	0%	0.915	0.500	0.259	0.331	0.900	0.408	0.276	0.241	0.289	>= 0.10	0.377	>= 0.10	0.225	Gamma; Lognormal; Normal	Nonparametric
09_5_37	MW-9	Part 115	Copper	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_5_38	MW-9	Part 115	Iron	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_5_39	MW-9	Part 115	Nickel	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_5_40	MW-9	Part 115	Silver	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_5_41	MW-9	Part 115	Vanadium	mg/L	21	21	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
09_5_42	MW-9	Part 115	Zinc	mg/L	21	20	95%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_1_01	MW-100A	Appendix III	Boron	mg/L	9	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.098		Nonparametric
100A_1_02	MW-100A	Appendix III	Calcium	mg/L	9	0	0%	0.952	0.711	0.226	0.204	0.948	0.671	0.230	0.185	0.225	>= 0.10	0.317	>= 0.10	0.020	Gamma; Lognormal; Normal	Normal
100A_1_03	MW-100A	Appendix III	Chloride	mg/L	9	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.021		Nonparametric
100A_1_04	MW-100A	Appendix III	Fluoride	mg/L	9	6	67%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.550		Nonparametric
100A_1_05	MW-100A	Appendix III	pH, Field	su	9	0	0%	0.942	0.602	0.181	0.542	0.939	0.568	0.183	0.522	0.183	>= 0.10	0.286	>= 0.10	0.013	Gamma; Lognormal; Normal	Normal
100A_1_06	MW-100A	Appendix III	Sulfate	mg/L	9	0	0%	0.868	0.116	0.293	0.025	0.910	0.318	0.256	0.092	0.276	0.05 <= p < 0.10	0.508	>= 0.10	0.294	Gamma; Lognormal; Normal	Normal
100A_1_07	MW-100A	Appendix III	Total Dissolved Solids	mg/L	9	0	0%	0.959	0.787	0.174	0.599	0.963	0.831	0.170	0.637	0.166	>= 0.10	0.249	>= 0.10	0.022	Gamma; Lognormal; Normal	Normal
100A_2_04	MW-100A	Appendix IV	Fluoride	mg/L	9	7	78%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.423		Nonparametric
100A_2_08	MW-100A	Appendix IV	Antimony	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_2_09	MW-100A	Appendix IV	Arsenic	mg/L	9	0	0%	0.908	0.300	0.248	0.113	0.862	0.100	0.289	0.029	0.276	0.05 <= p < 0.10	0.580	>= 0.10	0.234	Gamma; Lognormal; Normal	Normal
100A_2_10	MW-100A	Appendix IV	Barium	mg/L	9	0	0%	0.848	0.071	0.226	0.206	0.842	0.060	0.232	0.174	0.227	>= 0.10	0.657	0.05 <= p < 0.10	0.034	Gamma; Lognormal; Normal	Normal
100A_2_11	MW-100A	Appendix IV	Beryllium	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_2_12	MW-100A	Appendix IV	Cadmium	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_2_13	MW-100A	Appendix IV	Chromium	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_2_14	MW-100A	Appendix IV	Cobalt	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_2_15	MW-100A	Appendix IV	Lead	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_2_16	MW-100A	Appendix IV	Lithium	mg/L	9	0	0%	0.951	0.705	0.166	0.676	0.935	0.528	0.173	0.609	0.183	>= 0.10	0.326	>= 0.10	0.168	Gamma; Lognormal; Normal	Normal
100A_2_17	MW-100A	Appendix IV	Mercury	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_2_18	MW-100A	Appendix IV	Molybdenum	mg/L	9	0	0%	0.895	0.223	0.224	0.218	0.881	0.159	0.225	0.212	0.243	>= 0.10	0.554	>= 0.10	0.185	Gamma; Lognormal; Normal	Normal
100A_2_21	MW-100A	Appendix IV	Radium-226/228	pCi/L	9	0	0%	0.900	0.252	0.186	0.496	0.929	0.474	0.150	0.810	0.165	>= 0.10	0.287	>= 0.10	0.682	Gamma; Lognormal; Normal	Normal
100A_2_22	MW-100A	Appendix IV	Selenium	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_2_23	MW-100A	Appendix IV	Thallium	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_3_24	MW-100A	Field Parameters	pH	su	9	0	0%	0.942	0.602	0.181	0.542	0.939	0.568	0.183	0.522	0.183	>= 0.10	0.286	>= 0.10	0.013	Gamma; Lognormal; Normal	Normal
100A_3_25	MW-100A	Field Parameters	Conductivity	mS/cm	9	0	0%	0.932	0.503	0.197	0.399	0.915	0.355	0.204	0.347	0.213	>= 0.10	0.368	>= 0.10	0.078	Gamma; Lognormal; Normal	Normal
100A_3_26	MW-100A	Field Parameters	Turbidity	NTU	9	0	0%	0.946	0.649	0.162	0.712	0.771	0.009	0.276	0.047	0.218	>= 0.10	0.565	>= 0.10	0.765	Gamma; Normal	Normal

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
100A_3_27	MW-100A	Field Parameters	Dissolved Oxygen	mg/L	9	0	0%	0.653	0.000	0.336	0.004	0.878	0.150	0.193	0.437	0.224	>= 0.10	0.687	0.05 <= p < 0.10	0.762	Gamma; Lognormal	Gamma
100A_3_28	MW-100A	Field Parameters	Temperature	°C	9	0	0%	0.891	0.205	0.232	0.173	0.872	0.128	0.263	0.073	0.258	0.05 <= p < 0.10	0.576	>= 0.10	0.205	Gamma; Lognormal; Normal	Normal
100A_3_29	MW-100A	Field Parameters	Oxidation Reduction Potential	mV	9	0	0%	0.860	0.095	0.216	0.265	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
100A_4_30	MW-100A	Other	Total Suspended Solids	mg/L	9	1	11%	0.611	0.000	0.401	0.000	0.783	0.019	0.301	0.032	0.341	0.01 <= p < 0.05	1.011	< 0.01	0.514	Nonparametric	Nonparametric
100A_4_31	MW-100A	Other	Bicarbonate	mg/L	9	0	0%	0.953	0.726	0.185	0.499	0.949	0.680	0.190	0.458	0.177	>= 0.10	0.304	>= 0.10	0.034	Gamma; Lognormal; Normal	Normal
100A_4_32	MW-100A	Other	Carbonate	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_4_33	MW-100A	Other	Hardness	mg/L	9	0	0%	0.763	0.008	0.242	0.136	0.753	0.006	0.248	0.114	0.235	>= 0.10	0.896	0.01 <= p < 0.05	0.025	Gamma; Lognormal; Normal	Normal
100A_4_34	MW-100A	Other	Magnesium	mg/L	9	0	0%	0.898	0.241	0.217	0.253	0.889	0.196	0.224	0.214	0.211	>= 0.10	0.435	>= 0.10	0.034	Gamma; Lognormal; Normal	Normal
100A_4_35	MW-100A	Other	Potassium	mg/L	9	0	0%	0.949	0.675	0.214	0.278	0.949	0.678	0.231	0.178	0.222	>= 0.10	0.350	>= 0.10	0.104	Gamma; Lognormal; Normal	Normal
100A_4_36	MW-100A	Other	Sodium	mg/L	9	0	0%	0.941	0.598	0.195	0.413	0.951	0.703	0.186	0.491	0.190	>= 0.10	0.318	>= 0.10	0.054	Gamma; Lognormal; Normal	Normal
100A_5_37	MW-100A	Part 115	Copper	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_5_38	MW-100A	Part 115	Iron	mg/L	9	0	0%	0.905	0.282	0.269	0.059	0.786	0.014	0.350	0.002	0.333	< 0.01	0.757	0.01 <= p < 0.05	0.575	Normal	Normal
100A_5_39	MW-100A	Part 115	Nickel	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_5_40	MW-100A	Part 115	Silver	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_5_41	MW-100A	Part 115	Vanadium	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100A_5_42	MW-100A	Part 115	Zinc	mg/L	9	8	89%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_1_01	MW-100B	Appendix III	Boron	mg/L	13	0	0%	0.954	0.661	0.156	0.527	0.962	0.780	0.154	0.542	0.153	>= 0.10	0.320	>= 0.10	0.085	Gamma; Lognormal; Normal	Normal
100B_1_02	MW-100B	Appendix III	Calcium	mg/L	13	0	0%	0.948	0.574	0.132	0.775	0.954	0.664	0.126	0.830	0.121	>= 0.10	0.245	>= 0.10	0.041	Gamma; Lognormal; Normal	Normal
100B_1_03	MW-100B	Appendix III	Chloride	mg/L	13	0	0%	0.863	0.042	0.165	0.434	0.841	0.022	0.176	0.334	0.162	>= 0.10	0.644	0.05 <= p < 0.10	0.078	Gamma; Lognormal; Normal	Normal
100B_1_04	MW-100B	Appendix III	Fluoride	mg/L	13	11	85%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.490		Nonparametric
100B_1_05	MW-100B	Appendix III	pH, Field	su	13	0	0%	0.761	0.002	0.250	0.026	0.764	0.003	0.247	0.029	0.247	0.01 <= p < 0.05	1.284	< 0.01	0.013	Nonparametric	Nonparametric
100B_1_06	MW-100B	Appendix III	Sulfate	mg/L	13	0	0%	0.896	0.119	0.166	0.424	0.909	0.177	0.151	0.577	0.157	>= 0.10	0.509	>= 0.10	0.087	Gamma; Lognormal; Normal	Normal
100B_1_07	MW-100B	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	0.907	0.165	0.207	0.132	0.909	0.177	0.205	0.141	0.214	>= 0.10	0.539	>= 0.10	0.038	Gamma; Lognormal; Normal	Normal
100B_2_04	MW-100B	Appendix IV	Fluoride	mg/L	13	11	85%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.490		Nonparametric
100B_2_08	MW-100B	Appendix IV	Antimony	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_2_09	MW-100B	Appendix IV	Arsenic	mg/L	13	0	0%	0.901	0.139	0.256	0.020	0.882	0.077	0.276	0.008	0.266	0.01 <= p < 0.05	0.782	0.01 <= p < 0.05	0.103	Lognormal; Normal	Normal
100B_2_10	MW-100B	Appendix IV	Barium	mg/L	13	0	0%	0.940	0.452	0.166	0.420	0.939	0.440	0.164	0.445	0.174	>= 0.10	0.353	>= 0.10	0.049	Gamma; Lognormal; Normal	Normal
100B_2_11	MW-100B	Appendix IV	Beryllium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_2_12	MW-100B	Appendix IV	Cadmium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_2_13	MW-100B	Appendix IV	Chromium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_2_14	MW-100B	Appendix IV	Cobalt	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_2_15	MW-100B	Appendix IV	Lead	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_2_16	MW-100B	Appendix IV	Lithium	mg/L	13	0	0%	0.891	0.099	0.256	0.020	0.891	0.102	0.249	0.027	0.256	0.01 <= p < 0.05	0.801	0.01 <= p < 0.05	0.049	Lognormal; Normal	Normal
100B_2_17	MW-100B	Appendix IV	Mercury	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_2_18	MW-100B	Appendix IV	Molybdenum	mg/L	13	0	0%	0.921	0.256	0.192	0.210	0.889	0.095	0.220	0.084	0.212	>= 0.10	0.565	>= 0.10	0.160	Gamma; Lognormal; Normal	Normal
100B_2_21	MW-100B	Appendix IV	Radium-226/228	pCi/L	13	0	0%	0.962	0.787	0.108	0.949	0.890	0.098	0.170	0.386	0.136	>= 0.10	0.396	>= 0.10	0.464	Gamma; Lognormal; Normal	Normal
100B_2_22	MW-100B	Appendix IV	Selenium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_2_23	MW-100B	Appendix IV	Thallium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_3_24	MW-100B	Field Parameters	pH	su	13	0	0%	0.761	0.002	0.250	0.026	0.764	0.003	0.247	0.029	0.247	0.01 <= p < 0.05	1.284	< 0.01	0.013	Nonparametric	Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
100B_3_25	MW-100B	Field Parameters	Conductivity	mS/cm	13	0	0%	0.927	0.310	0.174	0.347	0.929	0.330	0.173	0.360	0.183	>= 0.10	0.415	>= 0.10	0.040	Gamma; Lognormal; Normal	Normal
100B_3_26	MW-100B	Field Parameters	Turbidity	NTU	13	0	0%	0.783	0.004	0.350	0.000	0.700	0.001	0.381	0.000	0.383	< 0.01	1.794	< 0.01	0.708	Nonparametric	Nonparametric
100B_3_27	MW-100B	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	0.773	0.003	0.279	0.007	NA	NA	NA	NA	NA		NA		NA	Nonparametric	Nonparametric
100B_3_28	MW-100B	Field Parameters	Temperature	°C	13	0	0%	0.859	0.037	0.235	0.049	0.849	0.027	0.239	0.041	0.249	0.01 <= p < 0.05	0.897	0.01 <= p < 0.05	0.100	Nonparametric	Nonparametric
100B_3_29	MW-100B	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	0.948	0.561	0.126	0.830	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
100B_4_30	MW-100B	Other	Total Suspended Solids	mg/L	13	0	0%	0.900	0.134	0.132	0.773	0.948	0.569	0.119	0.885	0.133	>= 0.10	0.306	>= 0.10	0.367	Gamma; Lognormal; Normal	Normal
100B_4_31	MW-100B	Other	Bicarbonate	mg/L	13	0	0%	0.799	0.007	0.291	0.004	0.841	0.022	0.269	0.011	0.271	0.01 <= p < 0.05	0.787	0.01 <= p < 0.05	0.086	Nonparametric	Nonparametric
100B_4_32	MW-100B	Other	Carbonate	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_4_33	MW-100B	Other	Hardness	mg/L	13	0	0%	0.863	0.042	0.203	0.153	0.866	0.046	0.196	0.189	0.201	>= 0.10	0.713	0.05 <= p < 0.10	0.045	Gamma; Lognormal; Normal	Normal
100B_4_34	MW-100B	Other	Magnesium	mg/L	13	0	0%	0.948	0.573	0.169	0.392	0.938	0.431	0.177	0.324	0.181	>= 0.10	0.407	>= 0.10	0.065	Gamma; Lognormal; Normal	Normal
100B_4_35	MW-100B	Other	Potassium	mg/L	13	0	0%	0.965	0.829	0.136	0.730	0.967	0.861	0.130	0.792	0.130	>= 0.10	0.225	>= 0.10	0.034	Gamma; Lognormal; Normal	Normal
100B_4_36	MW-100B	Other	Sodium	mg/L	13	0	0%	0.928	0.319	0.183	0.273	0.936	0.413	0.169	0.389	0.168	>= 0.10	0.410	>= 0.10	0.088	Gamma; Lognormal; Normal	Normal
100B_5_37	MW-100B	Part 115	Copper	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_5_38	MW-100B	Part 115	Iron	mg/L	13	0	0%	0.916	0.224	0.216	0.101	0.922	0.263	0.204	0.145	0.196	>= 0.10	0.520	>= 0.10	0.210	Gamma; Lognormal; Normal	Normal
100B_5_39	MW-100B	Part 115	Nickel	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_5_40	MW-100B	Part 115	Silver	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_5_41	MW-100B	Part 115	Vanadium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100B_5_42	MW-100B	Part 115	Zinc	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_1_01	MW-10	Appendix III	Boron	mg/L	16	0	0%	0.871	0.028	0.278	0.002	0.869	0.026	0.256	0.006	0.268	< 0.01	1.151	< 0.01	0.150	Nonparametric	Nonparametric
10_1_02	MW-10	Appendix III	Calcium	mg/L	16	0	0%	0.930	0.245	0.166	0.277	0.926	0.211	0.180	0.177	0.175	>= 0.10	0.497	>= 0.10	0.075	Gamma; Lognormal; Normal	Normal
10_1_03	MW-10	Appendix III	Chloride	mg/L	16	10	62%	0.900	0.376	0.262	0.222	0.920	0.508	0.248	0.296	0.252	>= 0.10	0.382	>= 0.10	0.832	Gamma; Lognormal; Normal	Nonparametric
10_1_04	MW-10	Appendix III	Fluoride	mg/L	16	15	94%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_1_05	MW-10	Appendix III	pH, Field	su	16	0	0%	0.877	0.035	0.159	0.348	0.888	0.052	0.152	0.411	0.150	>= 0.10	0.523	>= 0.10	0.029	Gamma; Lognormal; Normal	Normal
10_1_06	MW-10	Appendix III	Sulfate	mg/L	16	0	0%	0.874	0.032	0.172	0.234	0.959	0.641	0.135	0.613	0.137	>= 0.10	0.306	>= 0.10	0.282	Gamma; Lognormal; Normal	Normal
10_1_07	MW-10	Appendix III	Total Dissolved Solids	mg/L	16	0	0%	0.954	0.552	0.104	0.915	0.950	0.484	0.112	0.850	0.113	>= 0.10	0.327	>= 0.10	0.085	Gamma; Lognormal; Normal	Normal
10_2_04	MW-10	Appendix IV	Fluoride	mg/L	16	15	94%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_08	MW-10	Appendix IV	Antimony	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_09	MW-10	Appendix IV	Arsenic	mg/L	16	15	94%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_10	MW-10	Appendix IV	Barium	mg/L	16	0	0%	0.962	0.697	0.168	0.263	0.967	0.794	0.161	0.329	0.169	>= 0.10	0.325	>= 0.10	0.098	Gamma; Lognormal; Normal	Normal
10_2_11	MW-10	Appendix IV	Beryllium	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_12	MW-10	Appendix IV	Cadmium	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_13	MW-10	Appendix IV	Chromium	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_14	MW-10	Appendix IV	Cobalt	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_15	MW-10	Appendix IV	Lead	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_16	MW-10	Appendix IV	Lithium	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_17	MW-10	Appendix IV	Mercury	mg/L	16	15	94%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_18	MW-10	Appendix IV	Molybdenum	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_21	MW-10	Appendix IV	Radium-226/228	pCi/L	16	0	0%	0.856	0.017	0.218	0.040	0.952	0.526	0.152	0.413	0.189	>= 0.10	0.482	>= 0.10	0.786	Gamma; Lognormal	Gamma
10_2_22	MW-10	Appendix IV	Selenium	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
10_2_23	MW-10	Appendix IV	Thallium	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_3_24	MW-10	Field Parameters	pH	su	16	0	0%	0.877	0.035	0.159	0.348	0.888	0.052	0.152	0.411	0.150	>= 0.10	0.523	>= 0.10	0.029	Gamma; Lognormal; Normal	Normal
10_3_25	MW-10	Field Parameters	Conductivity	mS/cm	16	0	0%	0.969	0.822	0.112	0.856	0.965	0.747	0.121	0.773	0.124	>= 0.10	0.221	>= 0.10	0.076	Gamma; Lognormal; Normal	Normal
10_3_26	MW-10	Field Parameters	Turbidity	NTU	16	0	0%	0.888	0.052	0.228	0.026	0.959	0.645	0.183	0.163	0.206	0.05 <= p < 0.10	0.466	>= 0.10	0.411	Gamma; Lognormal; Normal	Normal
10_3_27	MW-10	Field Parameters	Dissolved Oxygen	mg/L	16	0	0%	0.959	0.646	0.123	0.747	0.965	0.755	0.115	0.825	0.127	>= 0.10	0.270	>= 0.10	0.210	Gamma; Lognormal; Normal	Normal
10_3_28	MW-10	Field Parameters	Temperature	°C	16	0	0%	0.857	0.017	0.238	0.016	0.844	0.011	0.257	0.006	0.257	< 0.01	1.046	< 0.01	0.234	Nonparametric	Nonparametric
10_3_29	MW-10	Field Parameters	Oxidation Reduction Potential	mV	16	0	0%	0.951	0.499	0.170	0.252	0.943	0.393	0.197	0.097	0.181	>= 0.10	0.378	>= 0.10	0.414	Gamma; Lognormal; Normal	Normal
10_4_30	MW-10	Other	Total Suspended Solids	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_4_31	MW-10	Other	Bicarbonate	mg/L	8	0	0%	0.790	0.023	0.356	0.004	0.807	0.034	0.346	0.006	0.353	< 0.01	0.834	0.01 <= p < 0.05	0.084	Nonparametric	Nonparametric
10_4_32	MW-10	Other	Carbonate	mg/L	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_4_33	MW-10	Other	Hardness	mg/L	8	0	0%	0.857	0.111	0.223	0.287	0.861	0.122	0.218	0.316	0.231	>= 0.10	0.535	>= 0.10	0.078	Gamma; Lognormal; Normal	Normal
10_4_34	MW-10	Other	Magnesium	mg/L	8	0	0%	0.917	0.403	0.161	0.783	0.920	0.430	0.159	0.799	0.174	>= 0.10	0.323	>= 0.10	0.105	Gamma; Lognormal; Normal	Normal
10_4_35	MW-10	Other	Potassium	mg/L	8	1	12%	0.779	0.025	0.319	0.030	0.809	0.050	0.295	0.066	0.310	0.05 <= p < 0.10	0.800	0.01 <= p < 0.05	0.191	Gamma; Lognormal	Gamma
10_4_36	MW-10	Other	Sodium	mg/L	8	0	0%	0.549	0.000	0.410	0.000	0.722	0.004	0.309	0.024	0.329	0.01 <= p < 0.05	1.302	< 0.01	0.702	Nonparametric	Nonparametric
10_5_37	MW-10	Part 115	Copper	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_5_38	MW-10	Part 115	Iron	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_5_39	MW-10	Part 115	Nickel	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_5_40	MW-10	Part 115	Silver	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_5_41	MW-10	Part 115	Vanadium	mg/L	16	16	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_5_42	MW-10	Part 115	Zinc	mg/L	16	14	88%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.565		Nonparametric
13_1_01	MW-13	Appendix III	Boron	mg/L	13	0	0%	0.924	0.281	0.173	0.359	0.931	0.351	0.154	0.542	0.154	>= 0.10	0.384	>= 0.10	0.139	Gamma; Lognormal; Normal	Normal
13_1_02	MW-13	Appendix III	Calcium	mg/L	13	0	0%	0.857	0.035	0.223	0.077	0.868	0.050	0.220	0.085	0.230	0.05 <= p < 0.10	0.745	0.01 <= p < 0.05	0.192	Gamma; Lognormal; Normal	Normal
13_1_03	MW-13	Appendix III	Chloride	mg/L	13	2	15%	0.889	0.133	0.198	0.267	0.946	0.598	0.103	0.986	0.135	>= 0.10	0.286	>= 0.10	0.555	Gamma; Lognormal; Normal	Normal
13_1_04	MW-13	Appendix III	Fluoride	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_1_05	MW-13	Appendix III	pH, Field	su	13	0	0%	0.883	0.077	0.217	0.097	0.871	0.054	0.222	0.079	0.222	0.05 <= p < 0.10	0.643	0.05 <= p < 0.10	0.033	Gamma; Lognormal; Normal	Normal
13_1_06	MW-13	Appendix III	Sulfate	mg/L	13	0	0%	0.765	0.003	0.257	0.019	0.926	0.298	0.145	0.639	0.194	>= 0.10	0.606	>= 0.10	0.767	Gamma; Lognormal	Gamma
13_1_07	MW-13	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	0.845	0.025	0.209	0.124	0.891	0.101	0.193	0.204	0.206	>= 0.10	0.637	0.05 <= p < 0.10	0.215	Gamma; Lognormal; Normal	Normal
13_2_04	MW-13	Appendix IV	Fluoride	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_2_08	MW-13	Appendix IV	Antimony	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_2_09	MW-13	Appendix IV	Arsenic	mg/L	13	10	77%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.368		Nonparametric
13_2_10	MW-13	Appendix IV	Barium	mg/L	13	0	0%	0.933	0.368	0.194	0.201	0.962	0.789	0.151	0.573	0.161	>= 0.10	0.328	>= 0.10	0.233	Gamma; Lognormal; Normal	Normal
13_2_11	MW-13	Appendix IV	Beryllium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_2_12	MW-13	Appendix IV	Cadmium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_2_13	MW-13	Appendix IV	Chromium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_2_14	MW-13	Appendix IV	Cobalt	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_2_15	MW-13	Appendix IV	Lead	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_2_16	MW-13	Appendix IV	Lithium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_2_17	MW-13	Appendix IV	Mercury	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_2_18	MW-13	Appendix IV	Molybdenum	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
13_2_21	MW-13	Appendix IV	Radium-226/228	pCi/L	13	0	0%	0.848	0.027	0.229	0.061	0.911	0.189	0.181	0.288	0.188	>= 0.10	0.549	>= 0.10	1.112	Gamma; Lognormal; Normal	Gamma
13_2_22	MW-13	Appendix IV	Selenium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_2_23	MW-13	Appendix IV	Thallium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_3_24	MW-13	Field Parameters	pH	su	13	0	0%	0.883	0.077	0.217	0.097	0.871	0.054	0.222	0.079	0.222	0.05 <= p < 0.10	0.643	0.05 <= p < 0.10	0.033	Gamma; Lognormal; Normal	Normal
13_3_25	MW-13	Field Parameters	Conductivity	mS/cm	13	0	0%	0.915	0.216	0.172	0.365	0.935	0.392	0.143	0.662	0.153	>= 0.10	0.342	>= 0.10	0.169	Gamma; Lognormal; Normal	Normal
13_3_26	MW-13	Field Parameters	Turbidity	NTU	13	0	0%	0.952	0.636	0.136	0.732	0.706	0.001	0.307	0.002	0.254	0.01 <= p < 0.05	0.918	0.01 <= p < 0.05	0.863	Normal	Normal
13_3_27	MW-13	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	0.893	0.106	0.162	0.465	0.825	0.014	0.216	0.099	0.204	>= 0.10	0.712	0.05 <= p < 0.10	1.235	Gamma; Lognormal; Normal	Gamma
13_3_28	MW-13	Field Parameters	Temperature	°C	13	0	0%	0.883	0.077	0.226	0.068	0.885	0.084	0.189	0.233	0.211	>= 0.10	0.649	0.05 <= p < 0.10	0.410	Gamma; Lognormal; Normal	Normal
13_3_29	MW-13	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	0.908	0.174	0.251	0.024	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
13_4_30	MW-13	Other	Total Suspended Solids	mg/L	13	12	92%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_4_31	MW-13	Other	Bicarbonate	mg/L	11	0	0%	0.753	0.002	0.326	0.002	0.783	0.006	0.311	0.004	0.314	< 0.01	1.091	< 0.01	0.138	Nonparametric	Nonparametric
13_4_32	MW-13	Other	Carbonate	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_4_33	MW-13	Other	Hardness	mg/L	11	0	0%	0.826	0.021	0.253	0.047	0.847	0.039	0.226	0.122	0.240	0.05 <= p < 0.10	0.766	0.01 <= p < 0.05	0.217	Gamma; Lognormal	Gamma
13_4_34	MW-13	Other	Magnesium	mg/L	12	0	0%	0.882	0.094	0.223	0.103	0.909	0.205	0.201	0.202	0.214	>= 0.10	0.505	>= 0.10	0.198	Gamma; Lognormal; Normal	Normal
13_4_35	MW-13	Other	Potassium	mg/L	12	0	0%	0.890	0.119	0.210	0.153	0.917	0.262	0.188	0.287	0.189	>= 0.10	0.509	>= 0.10	0.108	Gamma; Lognormal; Normal	Normal
13_4_36	MW-13	Other	Sodium	mg/L	12	0	0%	0.805	0.011	0.273	0.014	0.907	0.198	0.163	0.510	0.201	>= 0.10	0.559	>= 0.10	0.594	Gamma; Lognormal	Gamma
13_5_37	MW-13	Part 115	Copper	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_5_38	MW-13	Part 115	Iron	mg/L	13	1	8%	0.551	0.000	0.384	0.000	0.801	0.010	0.228	0.084	0.306	< 0.01	1.616	< 0.01	1.397	Lognormal	Nonparametric
13_5_39	MW-13	Part 115	Nickel	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_5_40	MW-13	Part 115	Silver	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_5_41	MW-13	Part 115	Vanadium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
13_5_42	MW-13	Part 115	Zinc	mg/L	13	12	92%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_1_01	MW-14	Appendix III	Boron	mg/L	18	0	0%	0.989	0.997	0.082	0.988	0.989	0.997	0.081	0.990	0.088	>= 0.10	0.127	>= 0.10	0.044	Gamma; Lognormal; Normal	Normal
14_1_02	MW-14	Appendix III	Calcium	mg/L	18	0	0%	0.823	0.003	0.261	0.002	0.845	0.007	0.251	0.004	0.254	< 0.01	0.979	0.01 <= p < 0.05	0.052	Nonparametric	Nonparametric
14_1_03	MW-14	Appendix III	Chloride	mg/L	18	0	0%	0.956	0.532	0.169	0.188	0.957	0.536	0.174	0.158	0.174	>= 0.10	0.406	>= 0.10	0.027	Gamma; Lognormal; Normal	Normal
14_1_04	MW-14	Appendix III	Fluoride	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_1_05	MW-14	Appendix III	pH, Field	su	18	0	0%	0.932	0.207	0.121	0.690	0.932	0.210	0.121	0.693	0.128	>= 0.10	0.431	>= 0.10	0.010	Gamma; Lognormal; Normal	Normal
14_1_06	MW-14	Appendix III	Sulfate	mg/L	18	0	0%	0.395	0.000	0.504	0.000	0.639	0.000	0.344	0.000	0.461	< 0.01	4.317	< 0.01	1.280	Nonparametric	Nonparametric
14_1_07	MW-14	Appendix III	Total Dissolved Solids	mg/L	16	2	11%	0.956	0.590	0.148	0.454	0.953	0.537	0.154	0.398	0.145	>= 0.10	0.390	>= 0.10	0.045	Gamma; Lognormal; Normal	Normal
14_2_04	MW-14	Appendix IV	Fluoride	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_2_08	MW-14	Appendix IV	Antimony	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_2_09	MW-14	Appendix IV	Arsenic	mg/L	18	0	0%	0.924	0.155	0.146	0.397	0.917	0.113	0.173	0.166	0.159	>= 0.10	0.564	>= 0.10	0.218	Gamma; Lognormal; Normal	Normal
14_2_10	MW-14	Appendix IV	Barium	mg/L	18	0	0%	0.684	0.000	0.248	0.005	0.746	0.000	0.221	0.021	0.233	0.01 <= p < 0.05	1.478	< 0.01	0.093	Nonparametric	Nonparametric
14_2_11	MW-14	Appendix IV	Beryllium	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_2_12	MW-14	Appendix IV	Cadmium	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_2_13	MW-14	Appendix IV	Chromium	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_2_14	MW-14	Appendix IV	Cobalt	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_2_15	MW-14	Appendix IV	Lead	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_2_16	MW-14	Appendix IV	Lithium	mg/L	18	0	0%	0.860	0.012	0.270	0.001	0.877	0.023	0.256	0.003	0.260	< 0.01	1.072	< 0.01	0.069	Nonparametric	Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
14_2_17	MW-14	Appendix IV	Mercury	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_2_18	MW-14	Appendix IV	Molybdenum	mg/L	18	0	0%	0.902	0.063	0.197	0.062	0.902	0.061	0.214	0.029	0.211	0.01 <= p < 0.05	0.741	0.01 <= p < 0.05	0.093	Lognormal; Normal	Normal
14_2_21	MW-14	Appendix IV	Radium-226/228	pCi/L	18	0	0%	0.721	0.000	0.268	0.001	0.956	0.525	0.145	0.404	0.195	0.05 <= p < 0.10	0.750	0.05 <= p < 0.10	0.691	Gamma; Lognormal	Gamma
14_2_22	MW-14	Appendix IV	Selenium	mg/L	18	14	78%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.192		Nonparametric
14_2_23	MW-14	Appendix IV	Thallium	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_3_24	MW-14	Field Parameters	pH	su	18	0	0%	0.932	0.207	0.121	0.690	0.932	0.210	0.121	0.693	0.128	>= 0.10	0.431	>= 0.10	0.010	Gamma; Lognormal; Normal	Normal
14_3_25	MW-14	Field Parameters	Conductivity	mS/cm	18	0	0%	0.680	0.000	0.361	0.000	0.656	0.000	0.373	0.000	0.368	< 0.01	2.579	< 0.01	0.059	Nonparametric	Nonparametric
14_3_26	MW-14	Field Parameters	Turbidity	NTU	18	0	0%	0.932	0.211	0.172	0.171	0.899	0.056	0.199	0.059	0.198	0.05 <= p < 0.10	0.602	>= 0.10	0.362	Gamma; Lognormal; Normal	Normal
14_3_27	MW-14	Field Parameters	Dissolved Oxygen	mg/L	18	0	0%	0.848	0.008	0.252	0.004	NA	NA	NA	NA	NA		NA		NA	Nonparametric	Nonparametric
14_3_28	MW-14	Field Parameters	Temperature	°C	18	0	0%	0.831	0.004	0.242	0.006	0.850	0.008	0.240	0.007	0.247	< 0.01	1.213	< 0.01	0.167	Nonparametric	Nonparametric
14_3_29	MW-14	Field Parameters	Oxidation Reduction Potential	mV	18	0	0%	0.843	0.007	0.175	0.153	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
14_4_30	MW-14	Other	Total Suspended Solids	mg/L	18	0	0%	0.784	0.001	0.270	0.001	0.637	0.000	0.342	0.000	0.328	< 0.01	2.405	< 0.01	0.524	Nonparametric	Nonparametric
14_4_31	MW-14	Other	Bicarbonate	mg/L	18	0	0%	0.791	0.001	0.227	0.015	0.830	0.004	0.206	0.041	0.213	0.01 <= p < 0.05	1.103	< 0.01	0.087	Nonparametric	Nonparametric
14_4_32	MW-14	Other	Carbonate	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_4_33	MW-14	Other	Hardness	mg/L	18	0	0%	0.968	0.768	0.124	0.654	0.971	0.810	0.128	0.613	0.120	>= 0.10	0.282	>= 0.10	0.061	Gamma; Lognormal; Normal	Normal
14_4_34	MW-14	Other	Magnesium	mg/L	18	0	0%	0.945	0.346	0.208	0.039	0.953	0.478	0.199	0.057	0.199	0.05 <= p < 0.10	0.430	>= 0.10	0.044	Gamma; Lognormal; Normal	Normal
14_4_35	MW-14	Other	Potassium	mg/L	18	0	0%	0.921	0.135	0.160	0.257	0.931	0.202	0.153	0.318	0.159	>= 0.10	0.524	>= 0.10	0.086	Gamma; Lognormal; Normal	Normal
14_4_36	MW-14	Other	Sodium	mg/L	18	0	0%	0.897	0.051	0.208	0.038	0.889	0.037	0.215	0.027	0.212	0.01 <= p < 0.05	0.833	0.01 <= p < 0.05	0.036	Normal	Normal
14_5_37	MW-14	Part 115	Copper	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_5_38	MW-14	Part 115	Iron	mg/L	18	0	0%	0.931	0.202	0.187	0.098	0.874	0.021	0.222	0.019	0.212	0.01 <= p < 0.05	0.767	0.01 <= p < 0.05	0.214	Normal	Normal
14_5_39	MW-14	Part 115	Nickel	mg/L	18	11	61%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.134		Nonparametric
14_5_40	MW-14	Part 115	Silver	mg/L	18	18	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_5_41	MW-14	Part 115	Vanadium	mg/L	18	17	94%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
14_5_42	MW-14	Part 115	Zinc	mg/L	18	15	83%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.616		Nonparametric
15_1_01	MW-15	Appendix III	Boron	mg/L	10	0	0%	0.930	0.449	0.173	0.537	0.930	0.445	0.169	0.576	0.182	>= 0.10	0.384	>= 0.10	0.099	Gamma; Lognormal; Normal	Normal
15_1_02	MW-15	Appendix III	Calcium	mg/L	10	0	0%	0.904	0.244	0.205	0.275	0.944	0.593	0.180	0.476	0.178	>= 0.10	0.367	>= 0.10	0.152	Gamma; Lognormal; Normal	Normal
15_1_03	MW-15	Appendix III	Chloride	mg/L	10	0	0%	0.924	0.389	0.161	0.658	0.956	0.734	0.130	0.901	0.138	>= 0.10	0.244	>= 0.10	0.158	Gamma; Lognormal; Normal	Normal
15_1_04	MW-15	Appendix III	Fluoride	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_1_05	MW-15	Appendix III	pH, Field	su	10	0	0%	0.881	0.136	0.237	0.116	0.881	0.134	0.237	0.115	0.249	0.05 <= p < 0.10	0.548	>= 0.10	0.017	Gamma; Lognormal; Normal	Normal
15_1_06	MW-15	Appendix III	Sulfate	mg/L	10	0	0%	0.786	0.010	0.278	0.028	0.849	0.057	0.264	0.046	0.239	>= 0.10	0.858	0.01 <= p < 0.05	0.381	Gamma; Lognormal	Gamma
15_1_07	MW-15	Appendix III	Total Dissolved Solids	mg/L	10	0	0%	0.872	0.107	0.216	0.208	0.922	0.370	0.187	0.415	0.186	>= 0.10	0.385	>= 0.10	0.144	Gamma; Lognormal; Normal	Normal
15_2_04	MW-15	Appendix IV	Fluoride	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_2_08	MW-15	Appendix IV	Antimony	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_2_09	MW-15	Appendix IV	Arsenic	mg/L	10	9	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_2_10	MW-15	Appendix IV	Barium	mg/L	10	0	0%	0.968	0.876	0.151	0.745	0.979	0.959	0.140	0.834	0.154	>= 0.10	0.176	>= 0.10	0.191	Gamma; Lognormal; Normal	Normal
15_2_11	MW-15	Appendix IV	Beryllium	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_2_12	MW-15	Appendix IV	Cadmium	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_2_13	MW-15	Appendix IV	Chromium	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_2_14	MW-15	Appendix IV	Cobalt	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
15_2_15	MW-15	Appendix IV	Lead	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_2_16	MW-15	Appendix IV	Lithium	mg/L	10	9	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_2_17	MW-15	Appendix IV	Mercury	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_2_18	MW-15	Appendix IV	Molybdenum	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_2_21	MW-15	Appendix IV	Radium-226/228	pCi/L	10	0	0%	0.874	0.112	0.207	0.260	0.903	0.237	0.175	0.519	0.190	>= 0.10	0.412	>= 0.10	0.696	Gamma; Lognormal; Normal	Normal
15_2_22	MW-15	Appendix IV	Selenium	mg/L	10	4	40%	0.882	0.279	0.269	0.191	0.887	0.305	0.257	0.246	0.283	>= 0.10	0.433	>= 0.10	0.560	Gamma; Lognormal; Normal	Normal
15_2_23	MW-15	Appendix IV	Thallium	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_3_24	MW-15	Field Parameters	pH	su	10	0	0%	0.881	0.136	0.237	0.116	0.881	0.134	0.237	0.115	0.249	0.05 <= p < 0.10	0.548	>= 0.10	0.017	Gamma; Lognormal; Normal	Normal
15_3_25	MW-15	Field Parameters	Conductivity	mS/cm	10	0	0%	0.861	0.078	0.282	0.024	0.780	0.008	0.336	0.002	0.314	< 0.01	0.931	0.01 <= p < 0.05	0.270	Normal	Normal
15_3_26	MW-15	Field Parameters	Turbidity	NTU	10	0	0%	0.993	0.999	0.098	0.997	0.961	0.793	0.149	0.765	0.122	>= 0.10	0.172	>= 0.10	0.334	Gamma; Lognormal; Normal	Normal
15_3_27	MW-15	Field Parameters	Dissolved Oxygen	mg/L	10	0	0%	0.838	0.042	0.299	0.011	0.870	0.101	0.163	0.633	0.158	>= 0.10	0.278	>= 0.10	1.885	Gamma; Lognormal	Gamma
15_3_28	MW-15	Field Parameters	Temperature	°C	10	0	0%	0.828	0.031	0.277	0.029	0.822	0.027	0.261	0.052	0.279	0.01 <= p < 0.05	0.905	0.01 <= p < 0.05	0.321	Lognormal	Lognormal
15_3_29	MW-15	Field Parameters	Oxidation Reduction Potential	mV	10	0	0%	0.939	0.543	0.179	0.482	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
15_4_30	MW-15	Other	Total Suspended Solids	mg/L	10	7	70%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.438		Nonparametric
15_4_31	MW-15	Other	Bicarbonate	mg/L	10	0	0%	0.857	0.071	0.221	0.179	0.856	0.068	0.219	0.188	0.235	>= 0.10	0.680	0.05 <= p < 0.10	0.117	Gamma; Lognormal; Normal	Normal
15_4_32	MW-15	Other	Carbonate	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_4_33	MW-15	Other	Hardness	mg/L	10	0	0%	0.962	0.807	0.123	0.936	0.962	0.811	0.123	0.939	0.136	>= 0.10	0.205	>= 0.10	0.078	Gamma; Lognormal; Normal	Normal
15_4_34	MW-15	Other	Magnesium	mg/L	10	0	0%	0.826	0.030	0.266	0.044	0.887	0.157	0.231	0.135	0.235	>= 0.10	0.622	0.05 <= p < 0.10	0.157	Gamma; Lognormal	Gamma
15_4_35	MW-15	Other	Potassium	mg/L	10	9	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_4_36	MW-15	Other	Sodium	mg/L	10	0	0%	0.718	0.001	0.377	0.000	0.745	0.003	0.360	0.001	0.370	< 0.01	1.325	< 0.01	0.134	Nonparametric	Nonparametric
15_5_37	MW-15	Part 115	Copper	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_5_38	MW-15	Part 115	Iron	mg/L	10	1	10%	0.748	0.005	0.285	0.033	0.955	0.746	0.209	0.312	0.175	>= 0.10	0.381	>= 0.10	0.914	Gamma; Lognormal	Gamma
15_5_39	MW-15	Part 115	Nickel	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_5_40	MW-15	Part 115	Silver	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_5_41	MW-15	Part 115	Vanadium	mg/L	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
15_5_42	MW-15	Part 115	Zinc	mg/L	10	9	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_1_01	MW-16A	Appendix III	Boron	mg/L	20	0	0%	0.864	0.009	0.246	0.003	0.845	0.004	0.246	0.002	0.253	< 0.01	1.319	< 0.01	0.337	Nonparametric	Nonparametric
16A_1_02	MW-16A	Appendix III	Calcium	mg/L	20	0	0%	0.905	0.051	0.179	0.094	0.909	0.062	0.157	0.218	0.162	>= 0.10	0.717	0.05 <= p < 0.10	0.151	Gamma; Lognormal; Normal	Normal
16A_1_03	MW-16A	Appendix III	Chloride	mg/L	20	0	0%	0.919	0.097	0.139	0.391	0.925	0.125	0.133	0.464	0.141	>= 0.10	0.514	>= 0.10	0.094	Gamma; Lognormal; Normal	Normal
16A_1_04	MW-16A	Appendix III	Fluoride	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_1_05	MW-16A	Appendix III	pH, Field	su	20	0	0%	0.909	0.062	0.180	0.088	0.911	0.066	0.178	0.098	0.179	0.05 <= p < 0.10	0.713	0.05 <= p < 0.10	0.013	Gamma; Lognormal; Normal	Normal
16A_1_06	MW-16A	Appendix III	Sulfate	mg/L	20	0	0%	0.888	0.025	0.228	0.008	0.908	0.058	0.197	0.040	0.196	0.01 <= p < 0.05	0.873	0.01 <= p < 0.05	0.434	Lognormal	Lognormal
16A_1_07	MW-16A	Appendix III	Total Dissolved Solids	mg/L	20	0	0%	0.912	0.070	0.170	0.136	0.913	0.074	0.173	0.123	0.175	>= 0.10	0.657	0.05 <= p < 0.10	0.134	Gamma; Lognormal; Normal	Normal
16A_2_04	MW-16A	Appendix IV	Fluoride	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_2_08	MW-16A	Appendix IV	Antimony	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_2_09	MW-16A	Appendix IV	Arsenic	mg/L	20	0	0%	0.858	0.007	0.252	0.002	0.839	0.003	0.237	0.004	0.244	< 0.01	1.553	< 0.01	0.235	Nonparametric	Nonparametric
16A_2_10	MW-16A	Appendix IV	Barium	mg/L	20	0	0%	0.940	0.238	0.128	0.531	0.940	0.239	0.147	0.308	0.146	>= 0.10	0.430	>= 0.10	0.166	Gamma; Lognormal; Normal	Normal
16A_2_11	MW-16A	Appendix IV	Beryllium	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_2_12	MW-16A	Appendix IV	Cadmium	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
16A_2_13	MW-16A	Appendix IV	Chromium	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_2_14	MW-16A	Appendix IV	Cobalt	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_2_15	MW-16A	Appendix IV	Lead	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_2_16	MW-16A	Appendix IV	Lithium	mg/L	20	19	95%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_2_17	MW-16A	Appendix IV	Mercury	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_2_18	MW-16A	Appendix IV	Molybdenum	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_2_21	MW-16A	Appendix IV	Radium-226/228	pCi/L	20	0	0%	0.864	0.009	0.166	0.159	0.961	0.557	0.167	0.152	0.136	>= 0.10	0.350	>= 0.10	0.854	Gamma; Lognormal; Normal	Normal
16A_2_22	MW-16A	Appendix IV	Selenium	mg/L	20	19	95%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_2_23	MW-16A	Appendix IV	Thallium	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_3_24	MW-16A	Field Parameters	pH	su	20	0	0%	0.909	0.062	0.180	0.088	0.911	0.066	0.178	0.098	0.179	0.05 <= p < 0.10	0.713	0.05 <= p < 0.10	0.013	Gamma; Lognormal; Normal	Normal
16A_3_25	MW-16A	Field Parameters	Conductivity	mS/cm	20	0	0%	0.888	0.025	0.160	0.199	0.884	0.021	0.161	0.194	0.169	>= 0.10	0.782	0.01 <= p < 0.05	0.124	Gamma; Lognormal; Normal	Normal
16A_3_26	MW-16A	Field Parameters	Turbidity	NTU	20	0	0%	0.909	0.060	0.175	0.111	0.912	0.070	0.154	0.248	0.158	>= 0.10	0.664	0.05 <= p < 0.10	0.248	Gamma; Lognormal; Normal	Normal
16A_3_27	MW-16A	Field Parameters	Dissolved Oxygen	mg/L	20	0	0%	0.861	0.008	0.190	0.056	0.895	0.034	0.153	0.258	0.136	>= 0.10	0.433	>= 0.10	1.309	Gamma; Lognormal; Normal	Gamma
16A_3_28	MW-16A	Field Parameters	Temperature	°C	20	0	0%	0.838	0.003	0.230	0.007	0.824	0.002	0.231	0.007	0.237	< 0.01	1.448	< 0.01	0.316	Nonparametric	Nonparametric
16A_3_29	MW-16A	Field Parameters	Oxidation Reduction Potential	mV	20	0	0%	0.888	0.025	0.187	0.064	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
16A_4_30	MW-16A	Other	Total Suspended Solids	mg/L	20	3	15%	0.898	0.063	0.186	0.121	0.919	0.145	0.147	0.423	0.171	>= 0.10	0.514	>= 0.10	0.614	Gamma; Lognormal; Normal	Normal
16A_4_31	MW-16A	Other	Bicarbonate	mg/L	20	0	0%	0.925	0.123	0.170	0.135	0.938	0.220	0.150	0.280	0.154	>= 0.10	0.506	>= 0.10	0.113	Gamma; Lognormal; Normal	Normal
16A_4_32	MW-16A	Other	Carbonate	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_4_33	MW-16A	Other	Hardness	mg/L	20	0	0%	0.892	0.030	0.236	0.005	0.905	0.050	0.214	0.017	0.225	< 0.01	0.829	0.01 <= p < 0.05	0.165	Lognormal	Lognormal
16A_4_34	MW-16A	Other	Magnesium	mg/L	20	0	0%	0.873	0.013	0.178	0.098	0.886	0.022	0.174	0.116	0.181	0.05 <= p < 0.10	0.858	0.01 <= p < 0.05	0.168	Gamma; Lognormal; Normal	Normal
16A_4_35	MW-16A	Other	Potassium	mg/L	20	0	0%	0.907	0.057	0.181	0.086	0.953	0.418	0.148	0.298	0.154	>= 0.10	0.469	>= 0.10	0.177	Gamma; Lognormal; Normal	Normal
16A_4_36	MW-16A	Other	Sodium	mg/L	20	0	0%	0.936	0.201	0.121	0.615	0.939	0.233	0.121	0.615	0.127	>= 0.10	0.467	>= 0.10	0.109	Gamma; Lognormal; Normal	Normal
16A_5_37	MW-16A	Part 115	Copper	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_5_38	MW-16A	Part 115	Iron	mg/L	20	0	0%	0.906	0.054	0.208	0.023	0.920	0.100	0.176	0.106	0.188	0.05 <= p < 0.10	0.681	0.05 <= p < 0.10	0.177	Gamma; Lognormal; Normal	Normal
16A_5_39	MW-16A	Part 115	Nickel	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_5_40	MW-16A	Part 115	Silver	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_5_41	MW-16A	Part 115	Vanadium	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16A_5_42	MW-16A	Part 115	Zinc	mg/L	20	20	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_1_01	MW-16B	Appendix III	Boron	mg/L	13	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.063		Nonparametric
16B_1_02	MW-16B	Appendix III	Calcium	mg/L	13	0	0%	0.960	0.756	0.131	0.783	0.957	0.703	0.130	0.796	0.141	>= 0.10	0.247	>= 0.10	0.040	Gamma; Lognormal; Normal	Normal
16B_1_03	MW-16B	Appendix III	Chloride	mg/L	13	5	38%	0.612	0.000	0.351	0.004	0.736	0.006	0.315	0.019	0.338	0.01 <= p < 0.05	1.164	< 0.01	0.397	Nonparametric	Nonparametric
16B_1_04	MW-16B	Appendix III	Fluoride	mg/L	13	7	54%	0.833	0.114	0.277	0.159	0.760	0.025	0.300	0.097	0.307	>= 0.10	0.674	0.05 <= p < 0.10	0.359	Gamma; Lognormal; Normal	Nonparametric
16B_1_05	MW-16B	Appendix III	pH, Field	su	13	0	0%	0.955	0.683	0.168	0.399	0.954	0.662	0.171	0.378	0.166	>= 0.10	0.278	>= 0.10	0.012	Gamma; Lognormal; Normal	Normal
16B_1_06	MW-16B	Appendix III	Sulfate	mg/L	13	0	0%	0.941	0.468	0.228	0.063	0.951	0.612	0.213	0.108	0.214	>= 0.10	0.394	>= 0.10	0.085	Gamma; Lognormal; Normal	Normal
16B_1_07	MW-16B	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	0.883	0.078	0.260	0.016	0.879	0.070	0.264	0.014	0.263	0.01 <= p < 0.05	0.868	0.01 <= p < 0.05	0.019	Lognormal; Normal	Normal
16B_2_04	MW-16B	Appendix IV	Fluoride	mg/L	13	8	62%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.400		Nonparametric
16B_2_08	MW-16B	Appendix IV	Antimony	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_2_09	MW-16B	Appendix IV	Arsenic	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_2_10	MW-16B	Appendix IV	Barium	mg/L	13	0	0%	0.936	0.411	0.197	0.182	0.937	0.418	0.194	0.197	0.203	>= 0.10	0.501	>= 0.10	0.031	Gamma; Lognormal; Normal	Normal

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
16B_2_11	MW-16B	Appendix IV	Beryllium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_2_12	MW-16B	Appendix IV	Cadmium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_2_13	MW-16B	Appendix IV	Chromium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_2_14	MW-16B	Appendix IV	Cobalt	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_2_15	MW-16B	Appendix IV	Lead	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_2_16	MW-16B	Appendix IV	Lithium	mg/L	13	0	0%	0.938	0.437	0.166	0.424	0.939	0.442	0.155	0.531	0.161	>= 0.10	0.421	>= 0.10	0.058	Gamma; Lognormal; Normal	Normal
16B_2_17	MW-16B	Appendix IV	Mercury	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_2_18	MW-16B	Appendix IV	Molybdenum	mg/L	13	0	0%	0.661	0.000	0.435	0.000	0.683	0.000	0.421	0.000	0.425	< 0.01	2.332	< 0.01	0.106	Nonparametric	Nonparametric
16B_2_21	MW-16B	Appendix IV	Radium-226/228	pCi/L	13	0	0%	0.753	0.002	0.275	0.008	0.921	0.258	0.162	0.459	0.196	>= 0.10	0.640	0.05 <= p < 0.10	0.525	Gamma; Lognormal	Gamma
16B_2_22	MW-16B	Appendix IV	Selenium	mg/L	13	12	92%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_2_23	MW-16B	Appendix IV	Thallium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_3_24	MW-16B	Field Parameters	pH	su	13	0	0%	0.956	0.695	0.165	0.428	0.955	0.672	0.168	0.405	0.163	>= 0.10	0.267	>= 0.10	0.012	Gamma; Lognormal; Normal	Normal
16B_3_25	MW-16B	Field Parameters	Conductivity	mS/cm	13	0	0%	0.948	0.567	0.162	0.460	0.945	0.520	0.167	0.412	0.168	>= 0.10	0.329	>= 0.10	0.029	Gamma; Lognormal; Normal	Normal
16B_3_26	MW-16B	Field Parameters	Turbidity	NTU	13	0	0%	0.938	0.436	0.153	0.553	0.744	0.002	0.290	0.004	0.235	0.05 <= p < 0.10	0.969	0.01 <= p < 0.05	0.856	Gamma; Normal	Normal
16B_3_27	MW-16B	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	0.787	0.005	0.222	0.079	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
16B_3_28	MW-16B	Field Parameters	Temperature	°C	13	0	0%	0.938	0.437	0.180	0.300	0.917	0.225	0.185	0.261	0.198	>= 0.10	0.447	>= 0.10	0.158	Gamma; Lognormal; Normal	Normal
16B_3_29	MW-16B	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	0.935	0.392	0.155	0.532	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
16B_4_30	MW-16B	Other	Total Suspended Solids	mg/L	13	6	46%	0.660	0.001	0.332	0.019	0.880	0.227	0.242	0.248	0.293	0.05 <= p < 0.10	0.719	0.05 <= p < 0.10	0.802	Gamma; Lognormal	Gamma
16B_4_31	MW-16B	Other	Bicarbonate	mg/L	13	0	0%	0.914	0.209	0.227	0.067	0.919	0.247	0.227	0.066	0.234	0.05 <= p < 0.10	0.541	>= 0.10	0.032	Gamma; Lognormal; Normal	Normal
16B_4_32	MW-16B	Other	Carbonate	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_4_33	MW-16B	Other	Hardness	mg/L	13	0	0%	0.943	0.495	0.125	0.838	0.949	0.576	0.122	0.858	0.130	>= 0.10	0.275	>= 0.10	0.052	Gamma; Lognormal; Normal	Normal
16B_4_34	MW-16B	Other	Magnesium	mg/L	13	0	0%	0.958	0.723	0.147	0.624	0.948	0.573	0.150	0.583	0.158	>= 0.10	0.299	>= 0.10	0.054	Gamma; Lognormal; Normal	Normal
16B_4_35	MW-16B	Other	Potassium	mg/L	13	0	0%	0.618	0.000	0.314	0.001	0.652	0.000	0.296	0.003	0.302	< 0.01	1.813	< 0.01	0.079	Nonparametric	Nonparametric
16B_4_36	MW-16B	Other	Sodium	mg/L	13	0	0%	0.566	0.000	0.330	0.000	0.647	0.000	0.328	0.000	0.335	< 0.01	2.016	< 0.01	0.240	Nonparametric	Nonparametric
16B_5_37	MW-16B	Part 115	Copper	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_5_38	MW-16B	Part 115	Iron	mg/L	13	0	0%	0.798	0.006	0.266	0.012	0.889	0.094	0.221	0.082	0.241	0.01 <= p < 0.05	0.774	0.01 <= p < 0.05	0.301	Lognormal	Lognormal
16B_5_39	MW-16B	Part 115	Nickel	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_5_40	MW-16B	Part 115	Silver	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_5_41	MW-16B	Part 115	Vanadium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16B_5_42	MW-16B	Part 115	Zinc	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_1_01	MW-7C	Appendix III	Boron	mg/L	13	0	0%	0.853	0.031	0.190	0.225	0.869	0.051	0.182	0.283	0.179	>= 0.10	0.597	>= 0.10	0.035	Gamma; Lognormal; Normal	Normal
7C_1_02	MW-7C	Appendix III	Calcium	mg/L	13	0	0%	0.827	0.014	0.269	0.011	0.784	0.004	0.292	0.003	0.272	0.01 <= p < 0.05	1.046	< 0.01	0.098	Nonparametric	Nonparametric
7C_1_03	MW-7C	Appendix III	Chloride	mg/L	13	0	0%	0.820	0.012	0.236	0.047	0.834	0.018	0.232	0.054	0.235	0.05 <= p < 0.10	0.912	0.01 <= p < 0.05	0.044	Gamma; Lognormal	Gamma
7C_1_04	MW-7C	Appendix III	Fluoride	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_1_05	MW-7C	Appendix III	pH, Field	su	13	0	0%	0.907	0.166	0.203	0.152	0.908	0.174	0.201	0.161	0.205	>= 0.10	0.505	>= 0.10	0.013	Gamma; Lognormal; Normal	Normal
7C_1_06	MW-7C	Appendix III	Sulfate	mg/L	13	0	0%	0.902	0.142	0.186	0.253	0.908	0.171	0.177	0.320	0.182	>= 0.10	0.515	>= 0.10	0.054	Gamma; Lognormal; Normal	Normal
7C_1_07	MW-7C	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	0.833	0.017	0.301	0.002	0.842	0.022	0.296	0.003	0.300	< 0.01	1.055	< 0.01	0.043	Nonparametric	Nonparametric
7C_2_04	MW-7C	Appendix IV	Fluoride	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_2_08	MW-7C	Appendix IV	Antimony	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
7C_2_09	MW-7C	Appendix IV	Arsenic	mg/L	13	0	0%	0.754	0.002	0.297	0.003	0.817	0.011	0.258	0.018	0.265	0.01 <= p < 0.05	1.155	< 0.01	0.163	Nonparametric	Nonparametric
7C_2_10	MW-7C	Appendix IV	Barium	mg/L	13	0	0%	0.957	0.703	0.145	0.635	0.957	0.710	0.138	0.710	0.148	>= 0.10	0.307	>= 0.10	0.056	Gamma; Lognormal; Normal	Normal
7C_2_11	MW-7C	Appendix IV	Beryllium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_2_12	MW-7C	Appendix IV	Cadmium	mg/L	13	10	77%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.126		Nonparametric
7C_2_13	MW-7C	Appendix IV	Chromium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_2_14	MW-7C	Appendix IV	Cobalt	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_2_15	MW-7C	Appendix IV	Lead	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_2_16	MW-7C	Appendix IV	Lithium	mg/L	13	0	0%	0.952	0.623	0.143	0.665	0.957	0.703	0.146	0.628	0.138	>= 0.10	0.309	>= 0.10	0.042	Gamma; Lognormal; Normal	Normal
7C_2_17	MW-7C	Appendix IV	Mercury	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_2_18	MW-7C	Appendix IV	Molybdenum	mg/L	13	0	0%	0.954	0.660	0.144	0.655	0.952	0.633	0.145	0.636	0.154	>= 0.10	0.325	>= 0.10	0.035	Gamma; Lognormal; Normal	Normal
7C_2_21	MW-7C	Appendix IV	Radium-226/228	pCi/L	13	0	0%	0.869	0.050	0.181	0.292	0.898	0.125	0.196	0.187	0.202	>= 0.10	0.566	>= 0.10	0.583	Gamma; Lognormal; Normal	Normal
7C_2_22	MW-7C	Appendix IV	Selenium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_2_23	MW-7C	Appendix IV	Thallium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_3_24	MW-7C	Field Parameters	pH	su	13	0	0%	0.907	0.166	0.203	0.152	0.908	0.174	0.201	0.161	0.205	>= 0.10	0.505	>= 0.10	0.013	Gamma; Lognormal; Normal	Normal
7C_3_25	MW-7C	Field Parameters	Conductivity	mS/cm	13	0	0%	0.949	0.585	0.152	0.562	0.957	0.703	0.132	0.775	0.137	>= 0.10	0.297	>= 0.10	0.113	Gamma; Lognormal; Normal	Normal
7C_3_26	MW-7C	Field Parameters	Turbidity	NTU	13	0	0%	0.957	0.699	0.117	0.898	0.707	0.001	0.307	0.002	0.239	0.05 <= p < 0.10	1.027	0.01 <= p < 0.05	2.060	Gamma; Normal	Gamma
7C_3_27	MW-7C	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	0.596	0.000	0.352	0.000	0.803	0.007	0.260	0.016	0.295	< 0.01	1.547	< 0.01	1.206	Nonparametric	Nonparametric
7C_3_28	MW-7C	Field Parameters	Temperature	°C	13	0	0%	0.963	0.796	0.200	0.166	0.941	0.465	0.222	0.079	0.221	0.05 <= p < 0.10	0.357	>= 0.10	0.160	Gamma; Lognormal; Normal	Normal
7C_3_29	MW-7C	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	0.879	0.069	0.220	0.084	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
7C_4_30	MW-7C	Other	Total Suspended Solids	mg/L	13	3	23%	0.682	0.001	0.312	0.007	0.871	0.103	0.218	0.196	0.253	0.05 <= p < 0.10	0.768	0.01 <= p < 0.05	0.459	Gamma; Lognormal	Gamma
7C_4_31	MW-7C	Other	Bicarbonate	mg/L	13	0	0%	0.916	0.223	0.163	0.454	0.913	0.199	0.158	0.506	0.166	>= 0.10	0.545	>= 0.10	0.058	Gamma; Lognormal; Normal	Normal
7C_4_32	MW-7C	Other	Carbonate	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_4_33	MW-7C	Other	Hardness	mg/L	13	0	0%	0.801	0.007	0.284	0.005	0.744	0.002	0.311	0.001	0.288	< 0.01	1.055	< 0.01	0.105	Nonparametric	Nonparametric
7C_4_34	MW-7C	Other	Magnesium	mg/L	13	0	0%	0.821	0.012	0.197	0.180	0.785	0.004	0.217	0.095	0.194	>= 0.10	0.845	0.01 <= p < 0.05	0.073	Gamma; Lognormal; Normal	Normal
7C_4_35	MW-7C	Other	Potassium	mg/L	13	0	0%	0.871	0.054	0.257	0.019	0.854	0.032	0.269	0.011	0.265	0.01 <= p < 0.05	0.854	0.01 <= p < 0.05	0.068	Normal	Normal
7C_4_36	MW-7C	Other	Sodium	mg/L	13	0	0%	0.675	0.000	0.266	0.012	0.645	0.000	0.282	0.006	0.270	0.01 <= p < 0.05	1.581	< 0.01	0.059	Nonparametric	Nonparametric
7C_5_37	MW-7C	Part 115	Copper	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_5_38	MW-7C	Part 115	Iron	mg/L	13	0	0%	0.941	0.464	0.181	0.287	0.936	0.410	0.191	0.218	0.191	>= 0.10	0.413	>= 0.10	0.059	Gamma; Lognormal; Normal	Normal
7C_5_39	MW-7C	Part 115	Nickel	mg/L	13	0	0%	0.730	0.001	0.322	0.001	0.757	0.002	0.291	0.004	0.301	< 0.01	1.330	< 0.01	0.145	Nonparametric	Nonparametric
7C_5_40	MW-7C	Part 115	Silver	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_5_41	MW-7C	Part 115	Vanadium	mg/L	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7C_5_42	MW-7C	Part 115	Zinc	mg/L	13	11	85%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.109		Nonparametric

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 4: Autocorrelation Tests, Non-Detects Excluded

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
02_1_01	MW-2	Appendix III	Boron	mg/L	20	0	0%	0.744	0.000	***
02_1_02	MW-2	Appendix III	Calcium	mg/L	20	0	0%	0.864	0.000	***
02_1_03	MW-2	Appendix III	Chloride	mg/L	18	0	0%	0.469	0.031	*
02_1_05	MW-2	Appendix III	pH, Field	su	21	0	0%	0.197	0.332	
02_1_06	MW-2	Appendix III	Sulfate	mg/L	18	0	0%	0.819	0.000	***
02_1_07	MW-2	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	0.819	0.000	***
02_2_09	MW-2	Appendix IV	Arsenic	mg/L	21	17	81%	-0.750	0.034	*
02_2_10	MW-2	Appendix IV	Barium	mg/L	21	0	0%	0.304	0.135	
02_2_16	MW-2	Appendix IV	Lithium	mg/L	21	0	0%	0.804	0.000	***
02_2_18	MW-2	Appendix IV	Molybdenum	mg/L	21	0	0%	0.403	0.048	*
02_2_21	MW-2	Appendix IV	Radium-226/228	pCi/L	19	0	0%	-0.247	0.246	
02_3_24	MW-2	Field Parameters	pH	su	21	0	0%	0.197	0.332	
02_3_25	MW-2	Field Parameters	Conductivity	mS/cm	21	0	0%	0.842	0.000	***
02_3_26	MW-2	Field Parameters	Turbidity	NTU	21	0	0%	-0.001	0.995	
02_3_27	MW-2	Field Parameters	Dissolved Oxygen	mg/L	21	0	0%	0.172	0.398	
02_3_28	MW-2	Field Parameters	Temperature	°C	21	0	0%	-0.098	0.629	
02_3_29	MW-2	Field Parameters	Oxidation Reduction Potential	mV	21	0	0%	0.161	0.430	
02_4_30	MW-2	Other	Total Suspended Solids	mg/L	19	4	21%	0.334	0.153	
02_4_31	MW-2	Other	Bicarbonate	mg/L	5	0	0%	0.398	0.239	
02_4_33	MW-2	Other	Hardness	mg/L	5	0	0%	-0.324	0.338	
02_4_34	MW-2	Other	Magnesium	mg/L	7	0	0%	-0.111	0.719	
02_4_35	MW-2	Other	Potassium	mg/L	7	1	14%	0.034	0.916	
02_4_36	MW-2	Other	Sodium	mg/L	7	0	0%	0.630	0.041	*
02_5_38	MW-2	Part 115	Iron	mg/L	21	0	0%	0.362	0.075	
02_5_39	MW-2	Part 115	Nickel	mg/L	21	0	0%	0.799	0.000	***
02_5_42	MW-2	Part 115	Zinc	mg/L	21	18	86%	-0.167	0.648	
03_1_01	MW-3	Appendix III	Boron	mg/L	8	0	0%	-0.380	0.199	
03_1_02	MW-3	Appendix III	Calcium	mg/L	8	0	0%	-0.081	0.783	
03_1_03	MW-3	Appendix III	Chloride	mg/L	8	0	0%	0.492	0.096	
03_1_05	MW-3	Appendix III	pH, Field	su	8	0	0%	-0.154	0.603	
03_1_06	MW-3	Appendix III	Sulfate	mg/L	8	0	0%	-0.377	0.203	
03_1_07	MW-3	Appendix III	Total Dissolved Solids	mg/L	8	0	0%	0.620	0.036	*
03_2_09	MW-3	Appendix IV	Arsenic	mg/L	8	0	0%	0.094	0.751	
03_2_10	MW-3	Appendix IV	Barium	mg/L	8	0	0%	0.584	0.048	*
03_2_16	MW-3	Appendix IV	Lithium	mg/L	8	0	0%	0.260	0.379	
03_2_18	MW-3	Appendix IV	Molybdenum	mg/L	8	0	0%	-0.111	0.708	
03_2_21	MW-3	Appendix IV	Radium-226/228	pCi/L	8	0	0%	0.420	0.156	
03_3_24	MW-3	Field Parameters	pH	su	8	0	0%	-0.154	0.603	
03_3_25	MW-3	Field Parameters	Conductivity	mS/cm	8	0	0%	0.330	0.264	
03_3_26	MW-3	Field Parameters	Turbidity	NTU	8	0	0%	0.149	0.615	
03_3_27	MW-3	Field Parameters	Dissolved Oxygen	mg/L	8	0	0%	0.141	0.633	
03_3_28	MW-3	Field Parameters	Temperature	°C	8	0	0%	-0.629	0.033	*

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
03_3_29	MW-3	Field Parameters	Oxidation Reduction Potential	mV	8	0	0%	-0.034	0.908	
03_4_30	MW-3	Other	Total Suspended Solids	mg/L	8	1	12%	0.188	0.541	
03_4_31	MW-3	Other	Bicarbonate	mg/L	5	0	0%	0.268	0.429	
03_4_33	MW-3	Other	Hardness	mg/L	5	0	0%	-0.561	0.097	
03_4_34	MW-3	Other	Magnesium	mg/L	5	0	0%	0.401	0.236	
03_4_35	MW-3	Other	Potassium	mg/L	5	0	0%	-0.079	0.815	
03_4_36	MW-3	Other	Sodium	mg/L	5	0	0%	0.274	0.417	
03_5_38	MW-3	Part 115	Iron	mg/L	8	0	0%	0.047	0.874	
05_1_01	MW-5	Appendix III	Boron	mg/L	22	0	0%	0.350	0.079	
05_1_02	MW-5	Appendix III	Calcium	mg/L	22	0	0%	0.625	0.002	**
05_1_03	MW-5	Appendix III	Chloride	mg/L	18	0	0%	0.632	0.004	**
05_1_05	MW-5	Appendix III	pH, Field	su	23	0	0%	-0.083	0.670	
05_1_06	MW-5	Appendix III	Sulfate	mg/L	18	0	0%	0.571	0.009	**
05_1_07	MW-5	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	0.603	0.005	**
05_2_09	MW-5	Appendix IV	Arsenic	mg/L	23	17	74%	-0.232	0.473	
05_2_10	MW-5	Appendix IV	Barium	mg/L	23	0	0%	0.268	0.171	
05_2_13	MW-5	Appendix IV	Chromium	mg/L	23	21	91%	-0.500	0.157	
05_2_14	MW-5	Appendix IV	Cobalt	mg/L	23	22	96%	NA	NA	
05_2_15	MW-5	Appendix IV	Lead	mg/L	23	20	87%	-0.273	0.454	
05_2_16	MW-5	Appendix IV	Lithium	mg/L	23	0	0%	0.098	0.616	
05_2_18	MW-5	Appendix IV	Molybdenum	mg/L	23	0	0%	0.449	0.022	*
05_2_21	MW-5	Appendix IV	Radium-226/228	pCi/L	19	0	0%	0.158	0.458	
05_3_24	MW-5	Field Parameters	pH	su	23	0	0%	-0.083	0.670	
05_3_25	MW-5	Field Parameters	Conductivity	mS/cm	23	0	0%	0.485	0.013	*
05_3_26	MW-5	Field Parameters	Turbidity	NTU	23	0	0%	0.293	0.135	
05_3_27	MW-5	Field Parameters	Dissolved Oxygen	mg/L	23	0	0%	0.397	0.042	*
05_3_28	MW-5	Field Parameters	Temperature	°C	23	0	0%	0.080	0.682	
05_3_29	MW-5	Field Parameters	Oxidation Reduction Potential	mV	23	0	0%	0.171	0.382	
05_4_30	MW-5	Other	Total Suspended Solids	mg/L	19	0	0%	0.000	1.000	
05_4_31	MW-5	Other	Bicarbonate	mg/L	5	0	0%	-0.600	0.076	
05_4_33	MW-5	Other	Hardness	mg/L	5	0	0%	0.339	0.316	
05_4_34	MW-5	Other	Magnesium	mg/L	9	0	0%	0.329	0.247	
05_4_35	MW-5	Other	Potassium	mg/L	9	0	0%	-0.452	0.112	
05_4_36	MW-5	Other	Sodium	mg/L	9	0	0%	0.360	0.205	
05_5_37	MW-5	Part 115	Copper	mg/L	23	18	78%	-0.549	0.104	
05_5_38	MW-5	Part 115	Iron	mg/L	23	5	22%	0.033	0.881	
05_5_39	MW-5	Part 115	Nickel	mg/L	23	3	13%	0.624	0.003	**
05_5_41	MW-5	Part 115	Vanadium	mg/L	23	20	87%	-0.005	0.990	
05_5_42	MW-5	Part 115	Zinc	mg/L	23	9	39%	-0.177	0.462	
06_1_01	MW-6	Appendix III	Boron	mg/L	19	0	0%	0.613	0.004	**
06_1_02	MW-6	Appendix III	Calcium	mg/L	19	0	0%	0.363	0.088	
06_1_03	MW-6	Appendix III	Chloride	mg/L	19	0	0%	0.528	0.013	*

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
06_1_05	MW-6	Appendix III	pH, Field	su	20	0	0%	0.015	0.941	
06_1_06	MW-6	Appendix III	Sulfate	mg/L	19	0	0%	0.595	0.005	**
06_1_07	MW-6	Appendix III	Total Dissolved Solids	mg/L	19	0	0%	0.538	0.011	*
06_2_09	MW-6	Appendix IV	Arsenic	mg/L	20	18	90%	NA	NA	
06_2_10	MW-6	Appendix IV	Barium	mg/L	20	0	0%	0.524	0.012	*
06_2_16	MW-6	Appendix IV	Lithium	mg/L	20	0	0%	0.551	0.008	**
06_2_18	MW-6	Appendix IV	Molybdenum	mg/L	20	0	0%	0.422	0.042	*
06_2_21	MW-6	Appendix IV	Radium-226/228	pCi/L	20	0	0%	0.331	0.111	
06_3_24	MW-6	Field Parameters	pH	su	20	0	0%	0.015	0.941	
06_3_25	MW-6	Field Parameters	Conductivity	mS/cm	20	0	0%	0.561	0.007	**
06_3_26	MW-6	Field Parameters	Turbidity	NTU	20	0	0%	0.421	0.043	*
06_3_27	MW-6	Field Parameters	Dissolved Oxygen	mg/L	20	0	0%	0.094	0.650	
06_3_28	MW-6	Field Parameters	Temperature	°C	20	0	0%	-0.257	0.216	
06_3_29	MW-6	Field Parameters	Oxidation Reduction Potential	mV	20	0	0%	-0.189	0.363	
06_4_30	MW-6	Other	Total Suspended Solids	mg/L	20	14	70%	-0.263	0.415	
06_4_31	MW-6	Other	Bicarbonate	mg/L	6	0	0%	-0.313	0.332	
06_4_33	MW-6	Other	Hardness	mg/L	6	0	0%	-0.176	0.586	
06_4_34	MW-6	Other	Magnesium	mg/L	6	0	0%	-0.108	0.737	
06_4_35	MW-6	Other	Potassium	mg/L	6	0	0%	-0.121	0.708	
06_4_36	MW-6	Other	Sodium	mg/L	6	0	0%	0.346	0.283	
06_5_38	MW-6	Part 115	Iron	mg/L	20	11	55%	0.328	0.248	
06_5_39	MW-6	Part 115	Nickel	mg/L	20	6	30%	0.114	0.636	
06_5_42	MW-6	Part 115	Zinc	mg/L	20	19	95%	NA	NA	
07_1_01	MW-7	Appendix III	Boron	mg/L	14	0	0%	0.334	0.165	
07_1_02	MW-7	Appendix III	Calcium	mg/L	14	0	0%	0.161	0.504	
07_1_03	MW-7	Appendix III	Chloride	mg/L	14	0	0%	0.267	0.268	
07_1_04	MW-7	Appendix III	Fluoride	mg/L	14	12	86%	-0.500	0.157	
07_1_05	MW-7	Appendix III	pH, Field	su	14	0	0%	0.081	0.736	
07_1_06	MW-7	Appendix III	Sulfate	mg/L	14	0	0%	0.002	0.993	
07_1_07	MW-7	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	0.254	0.292	
07_2_04	MW-7	Appendix IV	Fluoride	mg/L	14	12	86%	-0.500	0.157	
07_2_09	MW-7	Appendix IV	Arsenic	mg/L	14	0	0%	0.390	0.106	
07_2_10	MW-7	Appendix IV	Barium	mg/L	14	0	0%	0.344	0.153	
07_2_13	MW-7	Appendix IV	Chromium	mg/L	14	13	93%	NA	NA	
07_2_16	MW-7	Appendix IV	Lithium	mg/L	14	0	0%	0.628	0.009	**
07_2_17	MW-7	Appendix IV	Mercury	mg/L	14	13	93%	NA	NA	
07_2_18	MW-7	Appendix IV	Molybdenum	mg/L	14	0	0%	0.704	0.003	**
07_2_21	MW-7	Appendix IV	Radium-226/228	pCi/L	14	0	0%	-0.282	0.242	
07_3_24	MW-7	Field Parameters	pH	su	14	0	0%	0.081	0.736	
07_3_25	MW-7	Field Parameters	Conductivity	mS/cm	14	0	0%	0.123	0.610	
07_3_26	MW-7	Field Parameters	Turbidity	NTU	14	0	0%	0.189	0.432	
07_3_27	MW-7	Field Parameters	Dissolved Oxygen	mg/L	14	1	7%	-0.136	0.582	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
07_3_28	MW-7	Field Parameters	Temperature	°C	14	0	0%	0.020	0.933	
07_3_29	MW-7	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	-0.021	0.931	
07_4_30	MW-7	Other	Total Suspended Solids	mg/L	14	11	79%	-0.032	0.929	
07_4_31	MW-7	Other	Bicarbonate	mg/L	6	0	0%	0.351	0.277	
07_4_33	MW-7	Other	Hardness	mg/L	6	0	0%	0.270	0.403	
07_4_34	MW-7	Other	Magnesium	mg/L	6	0	0%	0.330	0.306	
07_4_35	MW-7	Other	Potassium	mg/L	6	0	0%	0.025	0.939	
07_4_36	MW-7	Other	Sodium	mg/L	6	0	0%	0.291	0.367	
07_5_38	MW-7	Part 115	Iron	mg/L	14	0	0%	0.018	0.939	
07_5_41	MW-7	Part 115	Vanadium	mg/L	14	12	86%	-0.500	0.157	
07_5_42	MW-7	Part 115	Zinc	mg/L	14	11	79%	-0.667	0.068	
08_1_01	MW-8	Appendix III	Boron	mg/L	13	1	8%	-0.060	0.814	
08_1_02	MW-8	Appendix III	Calcium	mg/L	13	0	0%	-0.010	0.967	
08_1_03	MW-8	Appendix III	Chloride	mg/L	13	2	15%	-0.232	0.379	
08_1_04	MW-8	Appendix III	Fluoride	mg/L	13	12	92%	NA	NA	
08_1_05	MW-8	Appendix III	pH, Field	su	13	0	0%	-0.220	0.374	
08_1_06	MW-8	Appendix III	Sulfate	mg/L	13	0	0%	0.062	0.803	
08_1_07	MW-8	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	0.234	0.345	
08_2_04	MW-8	Appendix IV	Fluoride	mg/L	13	12	92%	NA	NA	
08_2_09	MW-8	Appendix IV	Arsenic	mg/L	13	12	92%	NA	NA	
08_2_10	MW-8	Appendix IV	Barium	mg/L	13	0	0%	0.205	0.408	
08_2_16	MW-8	Appendix IV	Lithium	mg/L	13	6	46%	0.137	0.657	
08_2_18	MW-8	Appendix IV	Molybdenum	mg/L	13	11	85%	-0.500	0.157	
08_2_21	MW-8	Appendix IV	Radium-226/228	pCi/L	13	0	0%	0.121	0.625	
08_3_24	MW-8	Field Parameters	pH	su	13	0	0%	-0.220	0.374	
08_3_25	MW-8	Field Parameters	Conductivity	mS/cm	13	0	0%	-0.381	0.125	
08_3_26	MW-8	Field Parameters	Turbidity	NTU	13	0	0%	-0.058	0.814	
08_3_27	MW-8	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	-0.460	0.064	
08_3_28	MW-8	Field Parameters	Temperature	°C	13	0	0%	-0.076	0.760	
08_3_29	MW-8	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	-0.282	0.255	
08_4_30	MW-8	Other	Total Suspended Solids	mg/L	13	12	92%	NA	NA	
08_4_31	MW-8	Other	Bicarbonate	mg/L	5	0	0%	-0.428	0.205	
08_4_33	MW-8	Other	Hardness	mg/L	5	0	0%	-0.721	0.033	*
08_4_34	MW-8	Other	Magnesium	mg/L	5	0	0%	-0.443	0.190	
08_4_35	MW-8	Other	Potassium	mg/L	5	1	20%	-0.570	0.107	
08_4_36	MW-8	Other	Sodium	mg/L	5	0	0%	-0.424	0.210	
08_5_37	MW-8	Part 115	Copper	mg/L	13	12	92%	NA	NA	
08_5_38	MW-8	Part 115	Iron	mg/L	13	12	92%	NA	NA	
08_5_41	MW-8	Part 115	Vanadium	mg/L	13	12	92%	NA	NA	
08_5_42	MW-8	Part 115	Zinc	mg/L	13	12	92%	NA	NA	
09_1_01	MW-9	Appendix III	Boron	mg/L	21	20	95%	NA	NA	
09_1_02	MW-9	Appendix III	Calcium	mg/L	21	0	0%	0.508	0.013	*

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
09_1_03	MW-9	Appendix III	Chloride	mg/L	21	17	81%	0.274	0.439	
09_1_04	MW-9	Appendix III	Fluoride	mg/L	21	19	90%	NA	NA	
09_1_05	MW-9	Appendix III	pH, Field	su	21	0	0%	0.318	0.118	
09_1_06	MW-9	Appendix III	Sulfate	mg/L	21	15	71%	0.518	0.109	
09_1_07	MW-9	Appendix III	Total Dissolved Solids	mg/L	21	0	0%	0.583	0.004	**
09_2_04	MW-9	Appendix IV	Fluoride	mg/L	21	19	90%	NA	NA	
09_2_09	MW-9	Appendix IV	Arsenic	mg/L	21	20	95%	NA	NA	
09_2_10	MW-9	Appendix IV	Barium	mg/L	21	0	0%	0.455	0.025	*
09_2_21	MW-9	Appendix IV	Radium-226/228	pCi/L	21	0	0%	0.381	0.061	
09_3_24	MW-9	Field Parameters	pH	su	21	0	0%	0.318	0.118	
09_3_25	MW-9	Field Parameters	Conductivity	mS/cm	21	0	0%	0.552	0.007	**
09_3_26	MW-9	Field Parameters	Turbidity	NTU	21	0	0%	0.539	0.008	**
09_3_27	MW-9	Field Parameters	Dissolved Oxygen	mg/L	21	0	0%	-0.213	0.294	
09_3_28	MW-9	Field Parameters	Temperature	°C	21	0	0%	0.246	0.227	
09_3_29	MW-9	Field Parameters	Oxidation Reduction Potential	mV	21	0	0%	0.277	0.174	
09_4_31	MW-9	Other	Bicarbonate	mg/L	5	0	0%	0.079	0.815	
09_4_33	MW-9	Other	Hardness	mg/L	5	0	0%	0.366	0.280	
09_4_34	MW-9	Other	Magnesium	mg/L	5	0	0%	0.269	0.426	
09_4_35	MW-9	Other	Potassium	mg/L	5	0	0%	-0.536	0.113	
09_4_36	MW-9	Other	Sodium	mg/L	5	0	0%	0.399	0.238	
09_5_42	MW-9	Part 115	Zinc	mg/L	21	20	95%	NA	NA	
100A_1_01	MW-100A	Appendix III	Boron	mg/L	9	0	0%	-0.175	0.539	
100A_1_02	MW-100A	Appendix III	Calcium	mg/L	9	0	0%	0.360	0.205	
100A_1_03	MW-100A	Appendix III	Chloride	mg/L	9	0	0%	0.585	0.040	*
100A_1_04	MW-100A	Appendix III	Fluoride	mg/L	9	6	67%	-0.436	0.232	
100A_1_05	MW-100A	Appendix III	pH, Field	su	9	0	0%	-0.384	0.177	
100A_1_06	MW-100A	Appendix III	Sulfate	mg/L	9	0	0%	0.664	0.019	*
100A_1_07	MW-100A	Appendix III	Total Dissolved Solids	mg/L	9	0	0%	0.481	0.091	
100A_2_04	MW-100A	Appendix IV	Fluoride	mg/L	9	7	78%	-0.500	0.157	
100A_2_09	MW-100A	Appendix IV	Arsenic	mg/L	9	0	0%	0.383	0.178	
100A_2_10	MW-100A	Appendix IV	Barium	mg/L	9	0	0%	0.226	0.426	
100A_2_16	MW-100A	Appendix IV	Lithium	mg/L	9	0	0%	0.653	0.022	*
100A_2_18	MW-100A	Appendix IV	Molybdenum	mg/L	9	0	0%	0.706	0.013	*
100A_2_21	MW-100A	Appendix IV	Radium-226/228	pCi/L	9	0	0%	-0.060	0.833	
100A_3_24	MW-100A	Field Parameters	pH	su	9	0	0%	-0.384	0.177	
100A_3_25	MW-100A	Field Parameters	Conductivity	mS/cm	9	0	0%	0.557	0.050	
100A_3_26	MW-100A	Field Parameters	Turbidity	NTU	9	0	0%	-0.387	0.173	
100A_3_27	MW-100A	Field Parameters	Dissolved Oxygen	mg/L	9	0	0%	0.203	0.474	
100A_3_28	MW-100A	Field Parameters	Temperature	°C	9	0	0%	0.375	0.187	
100A_3_29	MW-100A	Field Parameters	Oxidation Reduction Potential	mV	9	0	0%	0.206	0.468	
100A_4_30	MW-100A	Other	Total Suspended Solids	mg/L	9	1	11%	0.012	0.967	
100A_4_31	MW-100A	Other	Bicarbonate	mg/L	9	0	0%	-0.158	0.577	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
100A_4_33	MW-100A	Other	Hardness	mg/L	9	0	0%	-0.411	0.148	
100A_4_34	MW-100A	Other	Magnesium	mg/L	9	0	0%	0.295	0.299	
100A_4_35	MW-100A	Other	Potassium	mg/L	9	0	0%	0.481	0.091	
100A_4_36	MW-100A	Other	Sodium	mg/L	9	0	0%	0.340	0.232	
100A_5_38	MW-100A	Part 115	Iron	mg/L	9	0	0%	0.348	0.221	
100A_5_42	MW-100A	Part 115	Zinc	mg/L	9	8	89%	NA	NA	
100B_1_01	MW-100B	Appendix III	Boron	mg/L	13	0	0%	0.389	0.117	
100B_1_02	MW-100B	Appendix III	Calcium	mg/L	13	0	0%	0.600	0.016	*
100B_1_03	MW-100B	Appendix III	Chloride	mg/L	13	0	0%	0.448	0.071	
100B_1_04	MW-100B	Appendix III	Fluoride	mg/L	13	11	85%	-0.500	0.157	
100B_1_05	MW-100B	Appendix III	pH, Field	su	13	0	0%	0.518	0.037	*
100B_1_06	MW-100B	Appendix III	Sulfate	mg/L	13	0	0%	0.701	0.005	**
100B_1_07	MW-100B	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	0.728	0.003	**
100B_2_04	MW-100B	Appendix IV	Fluoride	mg/L	13	11	85%	-0.500	0.157	
100B_2_09	MW-100B	Appendix IV	Arsenic	mg/L	13	0	0%	0.327	0.188	
100B_2_10	MW-100B	Appendix IV	Barium	mg/L	13	0	0%	0.585	0.018	*
100B_2_16	MW-100B	Appendix IV	Lithium	mg/L	13	0	0%	-0.002	0.993	
100B_2_18	MW-100B	Appendix IV	Molybdenum	mg/L	13	0	0%	0.227	0.360	
100B_2_21	MW-100B	Appendix IV	Radium-226/228	pCi/L	13	0	0%	-0.074	0.767	
100B_3_24	MW-100B	Field Parameters	pH	su	13	0	0%	0.518	0.037	*
100B_3_25	MW-100B	Field Parameters	Conductivity	mS/cm	13	0	0%	0.632	0.011	*
100B_3_26	MW-100B	Field Parameters	Turbidity	NTU	13	0	0%	-0.035	0.888	
100B_3_27	MW-100B	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	0.228	0.359	
100B_3_28	MW-100B	Field Parameters	Temperature	°C	13	0	0%	0.650	0.009	**
100B_3_29	MW-100B	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	0.406	0.102	
100B_4_30	MW-100B	Other	Total Suspended Solids	mg/L	13	0	0%	0.027	0.912	
100B_4_31	MW-100B	Other	Bicarbonate	mg/L	13	0	0%	0.275	0.267	
100B_4_33	MW-100B	Other	Hardness	mg/L	13	0	0%	0.520	0.036	*
100B_4_34	MW-100B	Other	Magnesium	mg/L	13	0	0%	0.331	0.182	
100B_4_35	MW-100B	Other	Potassium	mg/L	13	0	0%	0.587	0.018	*
100B_4_36	MW-100B	Other	Sodium	mg/L	13	0	0%	0.314	0.205	
100B_5_38	MW-100B	Part 115	Iron	mg/L	13	0	0%	0.337	0.174	
10_1_01	MW-10	Appendix III	Boron	mg/L	16	0	0%	-0.249	0.276	
10_1_02	MW-10	Appendix III	Calcium	mg/L	16	0	0%	0.078	0.733	
10_1_03	MW-10	Appendix III	Chloride	mg/L	16	10	62%	-0.025	0.938	
10_1_04	MW-10	Appendix III	Fluoride	mg/L	16	15	94%	NA	NA	
10_1_05	MW-10	Appendix III	pH, Field	su	16	0	0%	-0.091	0.689	
10_1_06	MW-10	Appendix III	Sulfate	mg/L	16	0	0%	-0.023	0.919	
10_1_07	MW-10	Appendix III	Total Dissolved Solids	mg/L	16	0	0%	0.140	0.538	
10_2_04	MW-10	Appendix IV	Fluoride	mg/L	16	15	94%	NA	NA	
10_2_09	MW-10	Appendix IV	Arsenic	mg/L	16	15	94%	NA	NA	
10_2_10	MW-10	Appendix IV	Barium	mg/L	16	0	0%	0.483	0.034	*

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
10_2_17	MW-10	Appendix IV	Mercury	mg/L	16	15	94%	NA	NA	
10_2_21	MW-10	Appendix IV	Radium-226/228	pCi/L	16	0	0%	0.595	0.009	**
10_3_24	MW-10	Field Parameters	pH	su	16	0	0%	-0.091	0.689	
10_3_25	MW-10	Field Parameters	Conductivity	mS/cm	16	0	0%	0.397	0.082	
10_3_26	MW-10	Field Parameters	Turbidity	NTU	16	0	0%	-0.128	0.574	
10_3_27	MW-10	Field Parameters	Dissolved Oxygen	mg/L	16	0	0%	0.037	0.872	
10_3_28	MW-10	Field Parameters	Temperature	°C	16	0	0%	0.031	0.892	
10_3_29	MW-10	Field Parameters	Oxidation Reduction Potential	mV	16	0	0%	-0.174	0.447	
10_4_31	MW-10	Other	Bicarbonate	mg/L	8	0	0%	0.347	0.241	
10_4_33	MW-10	Other	Hardness	mg/L	8	0	0%	0.356	0.228	
10_4_34	MW-10	Other	Magnesium	mg/L	8	0	0%	0.209	0.480	
10_4_35	MW-10	Other	Potassium	mg/L	8	1	12%	0.417	0.177	
10_4_36	MW-10	Other	Sodium	mg/L	8	0	0%	-0.084	0.776	
10_5_42	MW-10	Part 115	Zinc	mg/L	16	14	88%	-0.500	0.157	
13_1_01	MW-13	Appendix III	Boron	mg/L	13	0	0%	0.566	0.023	*
13_1_02	MW-13	Appendix III	Calcium	mg/L	13	0	0%	0.570	0.022	*
13_1_03	MW-13	Appendix III	Chloride	mg/L	13	2	15%	0.711	0.007	**
13_1_05	MW-13	Appendix III	pH, Field	su	13	0	0%	0.182	0.463	
13_1_06	MW-13	Appendix III	Sulfate	mg/L	13	0	0%	0.545	0.028	*
13_1_07	MW-13	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	0.661	0.008	**
13_2_09	MW-13	Appendix IV	Arsenic	mg/L	13	10	77%	-0.321	0.380	
13_2_10	MW-13	Appendix IV	Barium	mg/L	13	0	0%	0.631	0.011	*
13_2_21	MW-13	Appendix IV	Radium-226/228	pCi/L	13	0	0%	0.090	0.717	
13_3_24	MW-13	Field Parameters	pH	su	13	0	0%	0.182	0.463	
13_3_25	MW-13	Field Parameters	Conductivity	mS/cm	13	0	0%	0.617	0.013	*
13_3_26	MW-13	Field Parameters	Turbidity	NTU	13	0	0%	-0.091	0.714	
13_3_27	MW-13	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	0.425	0.087	
13_3_28	MW-13	Field Parameters	Temperature	°C	13	0	0%	0.183	0.461	
13_3_29	MW-13	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	0.573	0.021	*
13_4_30	MW-13	Other	Total Suspended Solids	mg/L	13	12	92%	NA	NA	
13_4_31	MW-13	Other	Bicarbonate	mg/L	11	0	0%	0.007	0.979	
13_4_33	MW-13	Other	Hardness	mg/L	11	0	0%	0.665	0.012	*
13_4_34	MW-13	Other	Magnesium	mg/L	12	0	0%	0.587	0.022	*
13_4_35	MW-13	Other	Potassium	mg/L	12	0	0%	0.300	0.240	
13_4_36	MW-13	Other	Sodium	mg/L	12	0	0%	0.650	0.011	*
13_5_38	MW-13	Part 115	Iron	mg/L	13	1	8%	0.544	0.034	*
13_5_42	MW-13	Part 115	Zinc	mg/L	13	12	92%	NA	NA	
14_1_01	MW-14	Appendix III	Boron	mg/L	18	0	0%	0.289	0.183	
14_1_02	MW-14	Appendix III	Calcium	mg/L	18	0	0%	0.579	0.008	**
14_1_03	MW-14	Appendix III	Chloride	mg/L	18	0	0%	0.329	0.130	
14_1_05	MW-14	Appendix III	pH, Field	su	18	0	0%	0.476	0.029	*
14_1_06	MW-14	Appendix III	Sulfate	mg/L	18	0	0%	0.432	0.047	*

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
14_1_07	MW-14	Appendix III	Total Dissolved Solids	mg/L	16	2	11%	0.509	0.026	*
14_2_09	MW-14	Appendix IV	Arsenic	mg/L	18	0	0%	0.596	0.006	**
14_2_10	MW-14	Appendix IV	Barium	mg/L	18	0	0%	0.032	0.885	
14_2_16	MW-14	Appendix IV	Lithium	mg/L	18	0	0%	0.670	0.002	**
14_2_18	MW-14	Appendix IV	Molybdenum	mg/L	18	0	0%	0.386	0.076	
14_2_21	MW-14	Appendix IV	Radium-226/228	pCi/L	18	0	0%	0.072	0.741	
14_2_22	MW-14	Appendix IV	Selenium	mg/L	18	14	78%	0.152	0.667	
14_3_24	MW-14	Field Parameters	pH	su	18	0	0%	0.476	0.029	*
14_3_25	MW-14	Field Parameters	Conductivity	mS/cm	18	0	0%	0.497	0.022	*
14_3_26	MW-14	Field Parameters	Turbidity	NTU	18	0	0%	-0.013	0.954	
14_3_27	MW-14	Field Parameters	Dissolved Oxygen	mg/L	18	0	0%	0.489	0.024	*
14_3_28	MW-14	Field Parameters	Temperature	°C	18	0	0%	0.313	0.149	
14_3_29	MW-14	Field Parameters	Oxidation Reduction Potential	mV	18	0	0%	0.351	0.106	
14_4_30	MW-14	Other	Total Suspended Solids	mg/L	18	0	0%	0.695	0.001	**
14_4_31	MW-14	Other	Bicarbonate	mg/L	18	0	0%	0.504	0.020	*
14_4_33	MW-14	Other	Hardness	mg/L	18	0	0%	0.624	0.004	**
14_4_34	MW-14	Other	Magnesium	mg/L	18	0	0%	0.545	0.012	*
14_4_35	MW-14	Other	Potassium	mg/L	18	0	0%	0.547	0.012	*
14_4_36	MW-14	Other	Sodium	mg/L	18	0	0%	0.614	0.005	**
14_5_38	MW-14	Part 115	Iron	mg/L	18	0	0%	0.665	0.002	**
14_5_39	MW-14	Part 115	Nickel	mg/L	18	11	61%	0.258	0.403	
14_5_41	MW-14	Part 115	Vanadium	mg/L	18	17	94%	NA	NA	
14_5_42	MW-14	Part 115	Zinc	mg/L	18	15	83%	-0.019	0.959	
15_1_01	MW-15	Appendix III	Boron	mg/L	10	0	0%	0.654	0.017	*
15_1_02	MW-15	Appendix III	Calcium	mg/L	10	0	0%	0.313	0.253	
15_1_03	MW-15	Appendix III	Chloride	mg/L	10	0	0%	0.440	0.108	
15_1_05	MW-15	Appendix III	pH, Field	su	10	0	0%	0.651	0.018	*
15_1_06	MW-15	Appendix III	Sulfate	mg/L	10	0	0%	0.200	0.465	
15_1_07	MW-15	Appendix III	Total Dissolved Solids	mg/L	10	0	0%	-0.059	0.829	
15_2_09	MW-15	Appendix IV	Arsenic	mg/L	10	9	90%	NA	NA	
15_2_10	MW-15	Appendix IV	Barium	mg/L	10	0	0%	0.281	0.304	
15_2_16	MW-15	Appendix IV	Lithium	mg/L	10	9	90%	NA	NA	
15_2_21	MW-15	Appendix IV	Radium-226/228	pCi/L	10	0	0%	-0.322	0.239	
15_2_22	MW-15	Appendix IV	Selenium	mg/L	10	4	40%	0.276	0.393	
15_3_24	MW-15	Field Parameters	pH	su	10	0	0%	0.651	0.018	*
15_3_25	MW-15	Field Parameters	Conductivity	mS/cm	10	0	0%	-0.104	0.704	
15_3_26	MW-15	Field Parameters	Turbidity	NTU	10	0	0%	-0.098	0.721	
15_3_27	MW-15	Field Parameters	Dissolved Oxygen	mg/L	10	0	0%	0.698	0.011	*
15_3_28	MW-15	Field Parameters	Temperature	°C	10	0	0%	0.264	0.334	
15_3_29	MW-15	Field Parameters	Oxidation Reduction Potential	mV	10	0	0%	0.361	0.188	
15_4_30	MW-15	Other	Total Suspended Solids	mg/L	10	7	70%	-0.071	0.845	
15_4_31	MW-15	Other	Bicarbonate	mg/L	10	0	0%	0.729	0.008	**

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
15_4_33	MW-15	Other	Hardness	mg/L	10	0	0%	0.577	0.035	*
15_4_34	MW-15	Other	Magnesium	mg/L	10	0	0%	0.263	0.336	
15_4_35	MW-15	Other	Potassium	mg/L	10	9	90%	NA	NA	
15_4_36	MW-15	Other	Sodium	mg/L	10	0	0%	0.043	0.875	
15_5_38	MW-15	Part 115	Iron	mg/L	10	1	10%	0.154	0.588	
15_5_42	MW-15	Part 115	Zinc	mg/L	10	9	90%	NA	NA	
16A_1_01	MW-16A	Appendix III	Boron	mg/L	20	0	0%	0.651	0.002	**
16A_1_02	MW-16A	Appendix III	Calcium	mg/L	20	0	0%	0.831	0.000	***
16A_1_03	MW-16A	Appendix III	Chloride	mg/L	20	0	0%	0.771	0.000	***
16A_1_05	MW-16A	Appendix III	pH, Field	su	20	0	0%	0.454	0.029	*
16A_1_06	MW-16A	Appendix III	Sulfate	mg/L	20	0	0%	0.812	0.000	***
16A_1_07	MW-16A	Appendix III	Total Dissolved Solids	mg/L	20	0	0%	0.878	0.000	***
16A_2_09	MW-16A	Appendix IV	Arsenic	mg/L	20	0	0%	0.244	0.239	
16A_2_10	MW-16A	Appendix IV	Barium	mg/L	20	0	0%	0.775	0.000	***
16A_2_16	MW-16A	Appendix IV	Lithium	mg/L	20	19	95%	NA	NA	
16A_2_21	MW-16A	Appendix IV	Radium-226/228	pCi/L	20	0	0%	0.243	0.243	
16A_2_22	MW-16A	Appendix IV	Selenium	mg/L	20	19	95%	NA	NA	
16A_3_24	MW-16A	Field Parameters	pH	su	20	0	0%	0.454	0.029	*
16A_3_25	MW-16A	Field Parameters	Conductivity	mS/cm	20	0	0%	0.845	0.000	***
16A_3_26	MW-16A	Field Parameters	Turbidity	NTU	20	0	0%	0.320	0.124	
16A_3_27	MW-16A	Field Parameters	Dissolved Oxygen	mg/L	20	0	0%	0.323	0.120	
16A_3_28	MW-16A	Field Parameters	Temperature	°C	20	0	0%	0.714	0.001	***
16A_3_29	MW-16A	Field Parameters	Oxidation Reduction Potential	mV	20	0	0%	0.569	0.006	**
16A_4_30	MW-16A	Other	Total Suspended Solids	mg/L	20	3	15%	0.017	0.938	
16A_4_31	MW-16A	Other	Bicarbonate	mg/L	20	0	0%	0.570	0.006	**
16A_4_33	MW-16A	Other	Hardness	mg/L	20	0	0%	0.759	0.000	***
16A_4_34	MW-16A	Other	Magnesium	mg/L	20	0	0%	0.838	0.000	***
16A_4_35	MW-16A	Other	Potassium	mg/L	20	0	0%	0.635	0.002	**
16A_4_36	MW-16A	Other	Sodium	mg/L	20	0	0%	0.804	0.000	***
16A_5_38	MW-16A	Part 115	Iron	mg/L	20	0	0%	0.421	0.043	*
16B_1_01	MW-16B	Appendix III	Boron	mg/L	13	0	0%	-0.003	0.992	
16B_1_02	MW-16B	Appendix III	Calcium	mg/L	13	0	0%	0.487	0.050	*
16B_1_03	MW-16B	Appendix III	Chloride	mg/L	13	5	38%	0.148	0.616	
16B_1_04	MW-16B	Appendix III	Fluoride	mg/L	13	7	54%	0.311	0.335	
16B_1_05	MW-16B	Appendix III	pH, Field	su	13	0	0%	0.249	0.315	
16B_1_06	MW-16B	Appendix III	Sulfate	mg/L	13	0	0%	0.518	0.037	*
16B_1_07	MW-16B	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	0.320	0.197	
16B_2_04	MW-16B	Appendix IV	Fluoride	mg/L	13	8	62%	0.075	0.825	
16B_2_10	MW-16B	Appendix IV	Barium	mg/L	13	0	0%	0.169	0.495	
16B_2_16	MW-16B	Appendix IV	Lithium	mg/L	13	0	0%	0.168	0.498	
16B_2_18	MW-16B	Appendix IV	Molybdenum	mg/L	13	0	0%	-0.004	0.987	
16B_2_21	MW-16B	Appendix IV	Radium-226/228	pCi/L	13	0	0%	-0.153	0.536	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
16B_2_22	MW-16B	Appendix IV	Selenium	mg/L	13	12	92%	NA	NA	
16B_3_24	MW-16B	Field Parameters	pH	su	13	0	0%	0.263	0.288	
16B_3_25	MW-16B	Field Parameters	Conductivity	mS/cm	13	0	0%	-0.356	0.151	
16B_3_26	MW-16B	Field Parameters	Turbidity	NTU	13	0	0%	0.544	0.028	*
16B_3_27	MW-16B	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	0.128	0.607	
16B_3_28	MW-16B	Field Parameters	Temperature	°C	13	0	0%	0.430	0.083	
16B_3_29	MW-16B	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	-0.361	0.146	
16B_4_30	MW-16B	Other	Total Suspended Solids	mg/L	13	6	46%	0.009	0.977	
16B_4_31	MW-16B	Other	Bicarbonate	mg/L	13	0	0%	0.382	0.124	
16B_4_33	MW-16B	Other	Hardness	mg/L	13	0	0%	0.451	0.069	
16B_4_34	MW-16B	Other	Magnesium	mg/L	13	0	0%	0.134	0.588	
16B_4_35	MW-16B	Other	Potassium	mg/L	13	0	0%	0.264	0.286	
16B_4_36	MW-16B	Other	Sodium	mg/L	13	0	0%	0.336	0.176	
16B_5_38	MW-16B	Part 115	Iron	mg/L	13	0	0%	0.396	0.111	
7C_1_01	MW-7C	Appendix III	Boron	mg/L	13	0	0%	-0.304	0.220	
7C_1_02	MW-7C	Appendix III	Calcium	mg/L	13	0	0%	0.078	0.752	
7C_1_03	MW-7C	Appendix III	Chloride	mg/L	13	0	0%	-0.055	0.823	
7C_1_05	MW-7C	Appendix III	pH, Field	su	13	0	0%	0.061	0.807	
7C_1_06	MW-7C	Appendix III	Sulfate	mg/L	13	0	0%	0.646	0.009	**
7C_1_07	MW-7C	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	0.703	0.005	**
7C_2_09	MW-7C	Appendix IV	Arsenic	mg/L	13	0	0%	0.289	0.245	
7C_2_10	MW-7C	Appendix IV	Barium	mg/L	13	0	0%	-0.196	0.430	
7C_2_12	MW-7C	Appendix IV	Cadmium	mg/L	13	10	77%	0.000	1.000	
7C_2_16	MW-7C	Appendix IV	Lithium	mg/L	13	0	0%	0.274	0.270	
7C_2_18	MW-7C	Appendix IV	Molybdenum	mg/L	13	0	0%	-0.390	0.116	
7C_2_21	MW-7C	Appendix IV	Radium-226/228	pCi/L	13	0	0%	-0.002	0.995	
7C_3_24	MW-7C	Field Parameters	pH	su	13	0	0%	0.061	0.807	
7C_3_25	MW-7C	Field Parameters	Conductivity	mS/cm	13	0	0%	0.441	0.076	
7C_3_26	MW-7C	Field Parameters	Turbidity	NTU	13	0	0%	0.037	0.882	
7C_3_27	MW-7C	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	0.481	0.053	
7C_3_28	MW-7C	Field Parameters	Temperature	°C	13	0	0%	-0.382	0.124	
7C_3_29	MW-7C	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	0.330	0.183	
7C_4_30	MW-7C	Other	Total Suspended Solids	mg/L	13	3	23%	0.279	0.308	
7C_4_31	MW-7C	Other	Bicarbonate	mg/L	13	0	0%	0.106	0.669	
7C_4_33	MW-7C	Other	Hardness	mg/L	13	0	0%	0.162	0.514	
7C_4_34	MW-7C	Other	Magnesium	mg/L	13	0	0%	0.180	0.469	
7C_4_35	MW-7C	Other	Potassium	mg/L	13	0	0%	0.274	0.269	
7C_4_36	MW-7C	Other	Sodium	mg/L	13	0	0%	0.080	0.748	
7C_5_38	MW-7C	Part 115	Iron	mg/L	13	0	0%	0.167	0.500	
7C_5_39	MW-7C	Part 115	Nickel	mg/L	13	0	0%	0.467	0.060	
7C_5_42	MW-7C	Part 115	Zinc	mg/L	13	11	85%	-0.500	0.157	

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 5: Outlier Counts by Date

Date	Count
2020-04-28	4
2020-05-26	4
2021-01-27	1
2021-05-04	2
2021-06-15	2
2021-08-24	1
2021-09-28	1
2021-11-02	1
2022-01-11	1
2022-02-01	3
2022-03-10	3
2022-05-19	1
2022-08-02	2
2022-09-01	1
2023-01-12	3
2023-02-02	4
2023-02-17	1
2023-03-21	1
2023-03-24	1
2023-06-05	2
2023-07-05	2
2023-07-10	2
2023-08-02	1
2023-08-08	1
2023-10-17	2
2024-01-03	1
2024-01-29	1
2024-01-30	4
2024-01-31	3
2024-02-07	2
2024-08-05	3
2024-08-07	1
2024-08-08	4

Table 6: Outliers Identified at the 1% Significance Level, Non-Detects Excluded

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	No. Detects	Date	Value
02_3_26	MW-2	Field Parameters	Turbidity	NTU	21	0	0%	21	2020-04-28	72.3
02_3_27	MW-2	Field Parameters	Dissolved Oxygen	mg/L	21	0	0%	21	2022-08-02	1.01
02_4_34	MW-2	Other	Magnesium	mg/L	7	0	0%	7	2024-01-29	38.7
02_4_35	MW-2	Other	Potassium	mg/L	7	1	14%	6	2022-08-02	2.70

(Table continues on next page)

Table 6: Outliers Identified at the 1% Significance Level, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	No. Detects	Date	Value
02_5_38	MW-2	Part 115	Iron	mg/L	21	0	0%	21	2022-02-01	1.93
02_5_42	MW-2	Part 115	Zinc	mg/L	21	18	86%	3	2020-05-26	0.0410
05_1_05	MW-5	Appendix III	pH, Field	su	23	0	0%	23	2021-05-04	6.40
05_2_16	MW-5	Appendix IV	Lithium	mg/L	23	0	0%	23	2022-02-01	0.0160
05_3_24	MW-5	Field Parameters	pH	su	23	0	0%	23	2021-05-04	6.40
05_3_26	MW-5	Field Parameters	Turbidity	NTU	23	0	0%	23	2020-04-28	180
05_4_30	MW-5	Other	Total Suspended Solids	mg/L	19	0	0%	19	2020-04-28	161
05_5_38	MW-5	Part 115	Iron	mg/L	23	5	22%	18	2020-04-28	8.00
05_5_42	MW-5	Part 115	Zinc	mg/L	23	9	39%	14	2021-01-27	0.0980
06_1_05	MW-6	Appendix III	pH, Field	su	20	0	0%	20	2020-05-26	6.35
06_3_24	MW-6	Field Parameters	pH	su	20	0	0%	20	2020-05-26	6.35
06_3_27	MW-6	Field Parameters	Dissolved Oxygen	mg/L	20	0	0%	20	2024-08-05	2.03
06_4_30	MW-6	Other	Total Suspended Solids	mg/L	20	14	70%	6	2022-02-01	32.0
06_5_38	MW-6	Part 115	Iron	mg/L	20	11	55%	9	2020-05-26	0.200
07_3_26	MW-7	Field Parameters	Turbidity	NTU	14	0	0%	14	2021-09-28	16.0
07_3_27	MW-7	Field Parameters	Dissolved Oxygen	mg/L	14	1	7%	13	2022-01-11	0.490
07_5_42	MW-7	Part 115	Zinc	mg/L	14	11	79%	3	2021-08-24	0.0140
08_1_05	MW-8	Appendix III	pH, Field	su	13	0	0%	13	2021-06-15	7.78
08_3_24	MW-8	Field Parameters	pH	su	13	0	0%	13	2021-06-15	7.78
08_3_25	MW-8	Field Parameters	Conductivity	mS/cm	13	0	0%	13	2023-08-02	0.744
08_3_27	MW-8	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	13	2021-11-02	7.83
09_1_02	MW-9	Appendix III	Calcium	mg/L	21	0	0%	21	2024-08-08	100
09_1_07	MW-9	Appendix III	Total Dissolved Solids	mg/L	21	0	0%	21	2024-08-08	360
09_2_10	MW-9	Appendix IV	Barium	mg/L	21	0	0%	21	2024-08-08	0.0200
09_3_25	MW-9	Field Parameters	Conductivity	mS/cm	21	0	0%	21	2024-08-08	0.585
100A_3_27	MW-100A	Field Parameters	Dissolved Oxygen	mg/L	9	0	0%	9	2023-06-05	4.15
100A_4_30	MW-100A	Other	Total Suspended Solids	mg/L	9	1	11%	8	2023-07-10	25.0
100A_4_33	MW-100A	Other	Hardness	mg/L	9	0	0%	9	2024-01-03	368
100B_1_05	MW-100B	Appendix III	pH, Field	su	13	0	0%	13	2024-02-07	7.62
100B_2_09	MW-100B	Appendix IV	Arsenic	mg/L	13	0	0%	13	2023-06-05	0.00800
100B_3_24	MW-100B	Field Parameters	pH	su	13	0	0%	13	2024-02-07	7.62
100B_4_31	MW-100B	Other	Bicarbonate	mg/L	13	0	0%	13	2023-07-10	440
10_4_36	MW-10	Other	Sodium	mg/L	8	0	0%	8	2024-01-30	19.0
13_5_38	MW-13	Part 115	Iron	mg/L	13	1	8%	12	2024-01-30	1.03
14_1_02	MW-14	Appendix III	Calcium	mg/L	18	0	0%	18	2024-08-05	173
14_1_06	MW-14	Appendix III	Sulfate	mg/L	18	0	0%	18	2023-03-24	748
14_2_10	MW-14	Appendix IV	Barium	mg/L	18	0	0%	18	2023-01-12	0.177
14_2_21	MW-14	Appendix IV	Radium-226/228	pCi/L	18	0	0%	18	2024-08-05	6.88
14_3_25	MW-14	Field Parameters	Conductivity	mS/cm	18	0	0%	18	2023-02-17	1.09
14_3_29	MW-14	Field Parameters	Oxidation Reduction Potential	mV	18	0	0%	18	2024-01-31	-175
14_4_31	MW-14	Other	Bicarbonate	mg/L	18	0	0%	18	2024-01-31	850
15_1_06	MW-15	Appendix III	Sulfate	mg/L	10	0	0%	10	2023-01-12	238
15_3_25	MW-15	Field Parameters	Conductivity	mS/cm	10	0	0%	10	2024-01-31	0.451

(Table continues on next page)

Table 6: Outliers Identified at the 1% Significance Level, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	No. Detects	Date	Value
15_4_34	MW-15	Other	Magnesium	mg/L	10	0	0%	10	2023-01-12	47.2
15_5_38	MW-15	Part 115	Iron	mg/L	10	1	10%	9	2024-08-07	0.380
16A_2_21	MW-16A	Appendix IV	Radium-226/228	pCi/L	20	0	0%	20	2023-07-05	7.46
16A_3_29	MW-16A	Field Parameters	Oxidation Reduction Potential	mV	20	0	0%	20	2023-10-17	-3.10
16B_1_03	MW-16B	Appendix III	Chloride	mg/L	13	5	38%	8	2023-03-21	11.0
16B_2_04	MW-16B	Appendix IV	Fluoride	mg/L	13	8	62%	5	2023-08-08	0.310
16B_2_18	MW-16B	Appendix IV	Molybdenum	mg/L	13	0	0%	13	2023-02-02	0.00800
16B_2_21	MW-16B	Appendix IV	Radium-226/228	pCi/L	13	0	0%	13	2023-10-17	6.43
16B_3_27	MW-16B	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	13	2023-07-05	0.370
16B_4_30	MW-16B	Other	Total Suspended Solids	mg/L	13	6	46%	7	2023-02-02	7.00
16B_4_35	MW-16B	Other	Potassium	mg/L	13	0	0%	13	2023-02-02	3.81
16B_4_36	MW-16B	Other	Sodium	mg/L	13	0	0%	13	2023-02-02	24.5
7C_1_01	MW-7C	Appendix III	Boron	mg/L	13	0	0%	13	2022-09-01	7.24
7C_2_09	MW-7C	Appendix IV	Arsenic	mg/L	13	0	0%	13	2024-01-30	0.0100
7C_3_27	MW-7C	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	13	2022-03-10	1.77
7C_4_30	MW-7C	Other	Total Suspended Solids	mg/L	13	3	23%	10	2022-03-10	27.0
7C_4_33	MW-7C	Other	Hardness	mg/L	13	0	0%	13	2024-01-30	558
7C_4_36	MW-7C	Other	Sodium	mg/L	13	0	0%	13	2022-05-19	79.0
7C_5_39	MW-7C	Part 115	Nickel	mg/L	13	0	0%	13	2022-03-10	0.0110

Table 7: Seasonality Tests

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
02_1_01	MW-2	Appendix III	Boron	mg/L	0%	5	3	8	4	20	0.043 *	0.027 *	0.040 *	5	3	8	4	20	0.043 *	0.027 *	0.040 *
02_1_02	MW-2	Appendix III	Calcium	mg/L	0%	5	3	8	4	20	0.094	0.053	0.057	5	3	8	4	20	0.094	0.053	0.057
02_1_03	MW-2	Appendix III	Chloride	mg/L	0%	4	3	7	4	18	0.010 *	0.002 **	0.002 **	4	3	7	4	18	0.010 *	0.002 **	0.002 **
02_1_04	MW-2	Appendix III	Fluoride	mg/L	100%	4	3	7	4	18	NA	0.169	NA	NA	NA	NA	NA	NA	NA	NA	NA
02_1_05	MW-2	Appendix III	pH, Field	su	0%	5	3	8	5	21	0.191	0.124	0.120	5	3	8	5	21	0.191	0.124	0.120
02_1_06	MW-2	Appendix III	Sulfate	mg/L	0%	4	3	7	4	18	0.064	0.103	0.160	4	3	7	4	18	0.064	0.103	0.160
02_1_07	MW-2	Appendix III	Total Dissolved Solids	mg/L	0%	4	3	7	4	18	0.101	0.115	0.139	4	3	7	4	18	0.101	0.115	0.139
02_2_04	MW-2	Appendix IV	Fluoride	mg/L	100%	4	3	7	5	19	NA	0.142	NA	NA	NA	NA	NA	NA	NA	NA	NA
02_2_08	MW-2	Appendix IV	Antimony	mg/L	100%	5	3	8	5	21	NA	0.101	0.101	NA	NA	NA	NA	NA	NA	NA	NA
02_2_09	MW-2	Appendix IV	Arsenic	mg/L	81%	5	3	8	5	21	0.666	0.570	0.603	2	0	1	1	4	0.632	0.853	0.837
02_2_10	MW-2	Appendix IV	Barium	mg/L	0%	5	3	8	5	21	0.719	0.741	0.666	5	3	8	5	21	0.719	0.741	0.666
02_2_11	MW-2	Appendix IV	Beryllium	mg/L	100%	5	3	8	5	21	NA	0.101	NA	NA	NA	NA	NA	NA	NA	NA	NA
02_2_12	MW-2	Appendix IV	Cadmium	mg/L	100%	5	3	8	5	21	NA	0.101	0.101	NA	NA	NA	NA	NA	NA	NA	NA
02_2_13	MW-2	Appendix IV	Chromium	mg/L	100%	5	3	8	5	21	NA	0.101	0.101	NA	NA	NA	NA	NA	NA	NA	NA
02_2_14	MW-2	Appendix IV	Cobalt	mg/L	100%	5	3	8	5	21	NA	0.101	0.101	NA	NA	NA	NA	NA	NA	NA	NA
02_2_15	MW-2	Appendix IV	Lead	mg/L	100%	5	3	8	5	21	NA	0.101	0.101	NA	NA	NA	NA	NA	NA	NA	NA
02_2_16	MW-2	Appendix IV	Lithium	mg/L	0%	5	3	8	5	21	0.028 *	0.016 *	0.030 *	5	3	8	5	21	0.028 *	0.016 *	0.030 *
02_2_17	MW-2	Appendix IV	Mercury	mg/L	100%	5	3	8	5	21	NA	0.101	0.101	NA	NA	NA	NA	NA	NA	NA	NA
02_2_18	MW-2	Appendix IV	Molybdenum	mg/L	0%	5	3	8	5	21	0.100	0.231	0.211	5	3	8	5	21	0.100	0.231	0.211
02_2_21	MW-2	Appendix IV	Radium-226/228	pCi/L	0%	4	3	7	5	19	0.889	0.926	NA	4	3	7	5	19	0.889	0.926	NA
02_2_22	MW-2	Appendix IV	Selenium	mg/L	100%	5	3	8	5	21	NA	0.101	0.101	NA	NA	NA	NA	NA	NA	NA	NA
02_2_23	MW-2	Appendix IV	Thallium	mg/L	100%	5	3	8	5	21	NA	0.101	0.101	NA	NA	NA	NA	NA	NA	NA	NA
02_3_24	MW-2	Field Parameters	pH	su	0%	5	3	8	5	21	0.191	0.124	0.120	5	3	8	5	21	0.191	0.124	0.120
02_3_25	MW-2	Field Parameters	Conductivity	mS/cm	0%	5	3	8	5	21	0.016 *	0.043 *	0.052	5	3	8	5	21	0.016 *	0.043 *	0.052
02_3_26	MW-2	Field Parameters	Turbidity	NTU	0%	5	3	8	5	21	0.239	0.110	0.139	5	3	8	5	21	0.239	0.110	0.139
02_3_27	MW-2	Field Parameters	Dissolved Oxygen	mg/L	0%	5	3	8	5	21	0.405	0.338	NA	5	3	8	5	21	0.405	0.338	NA
02_3_28	MW-2	Field Parameters	Temperature	°C	0%	5	3	8	5	21	0.004 **	0.000 ***	0.000 ***	5	3	8	5	21	0.004 **	0.000 ***	0.000 ***
02_3_29	MW-2	Field Parameters	Oxidation Reduction Potential	mV	0%	5	3	8	5	21	0.696	0.491	NA	5	3	8	5	21	0.696	0.491	NA
02_4_30	MW-2	Other	Total Suspended Solids	mg/L	21%	4	3	7	5	19	0.125	0.195	0.088	4	2	5	4	15	0.087	0.119	0.052
02_4_31	MW-2	Other	Bicarbonate	mg/L	0%	2	0	3	0	5	1.000	0.763	0.747	2	0	3	0	5	1.000	0.763	0.747
02_4_32	MW-2	Other	Carbonate	mg/L	100%	2	0	3	0	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
02_4_33	MW-2	Other	Hardness	mg/L	0%	2	0	3	0	5	0.083	0.190	0.195	2	0	3	0	5	0.083	0.190	0.195
02_4_34	MW-2	Other	Magnesium	mg/L	0%	3	0	4	0	7	0.074	0.202	0.209	3	0	4	0	7	0.074	0.202	0.209
02_4_35	MW-2	Other	Potassium	mg/L	14%	3	0	4	0	7	0.289	0.359	0.282	2	0	4	0	6	0.643	0.526	0.503
02_4_36	MW-2	Other	Sodium	mg/L	0%	3	0	4	0	7	1.000	0.903	0.863	3	0	4	0	7	1.000	0.903	0.863
02_5_37	MW-2	Part 115	Copper	mg/L	100%	5	3	8	5	21	NA	0.101	0.101	NA	NA	NA	NA	NA	NA	NA	NA
02_5_38	MW-2	Part 115	Iron	mg/L	0%	5	3	8	5	21	0.625	0.500	0.795	5	3	8	5	21	0.625	0.500	0.795
02_5_39	MW-2	Part 115	Nickel	mg/L	0%	5	3	8	5	21	0.010 *	0.038 *	0.063	5	3	8	5	21	0.010 *	0.038 *	0.063
02_5_40	MW-2	Part 115	Silver	mg/L	100%	5	3	8	5	21	NA	0.101	0.101	NA	NA	NA	NA	NA	NA	NA	NA

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full									Without Non-Detects							
						Sample Size					p-Value				Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA		Log ANOVA		Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
02_5_41	MW-2	Part 115	Vanadium	mg/L	100%	5	3	8	5	21	NA	0.101		0.101		NA	NA	NA	NA	NA	NA	NA	NA
02_5_42	MW-2	Part 115	Zinc	mg/L	86%	5	3	8	5	21	0.560	0.111		0.143		1	1	1	0	3	0.368	NA	NA
03_1_01	MW-3	Appendix III	Boron	mg/L	0%	3	1	4	0	8	0.489	0.528		0.529		3	1	4	0	8	0.489	0.528	0.529
03_1_02	MW-3	Appendix III	Calcium	mg/L	0%	3	1	4	0	8	0.683	0.665		0.665		3	1	4	0	8	0.683	0.665	0.665
03_1_03	MW-3	Appendix III	Chloride	mg/L	0%	3	1	4	0	8	0.311	0.231		0.216		3	1	4	0	8	0.311	0.231	0.216
03_1_04	MW-3	Appendix III	Fluoride	mg/L	100%	3	1	4	0	8	NA	0.000	***	NA		NA	NA	NA	NA	NA	NA	NA	NA
03_1_05	MW-3	Appendix III	pH, Field	su	0%	3	1	4	0	8	0.256	0.259		0.259		3	1	4	0	8	0.256	0.259	0.259
03_1_06	MW-3	Appendix III	Sulfate	mg/L	0%	3	1	4	0	8	0.767	0.846		0.850		3	1	4	0	8	0.767	0.846	0.850
03_1_07	MW-3	Appendix III	Total Dissolved Solids	mg/L	0%	3	1	4	0	8	0.543	0.541		0.541		3	1	4	0	8	0.543	0.541	0.541
03_2_04	MW-3	Appendix IV	Fluoride	mg/L	100%	3	1	4	0	8	NA	0.000	***	NA		NA	NA	NA	NA	NA	NA	NA	NA
03_2_08	MW-3	Appendix IV	Antimony	mg/L	100%	3	1	4	0	8	NA	NA		0.000	***	NA	NA	NA	NA	NA	NA	NA	NA
03_2_09	MW-3	Appendix IV	Arsenic	mg/L	0%	3	1	4	0	8	0.772	0.654		0.692		3	1	4	0	8	0.772	0.654	0.692
03_2_10	MW-3	Appendix IV	Barium	mg/L	0%	3	1	4	0	8	0.387	0.488		0.511		3	1	4	0	8	0.387	0.488	0.511
03_2_11	MW-3	Appendix IV	Beryllium	mg/L	100%	3	1	4	0	8	NA	NA		0.000	***	NA	NA	NA	NA	NA	NA	NA	NA
03_2_12	MW-3	Appendix IV	Cadmium	mg/L	100%	3	1	4	0	8	NA	NA		NA		NA	NA	NA	NA	NA	NA	NA	NA
03_2_13	MW-3	Appendix IV	Chromium	mg/L	100%	3	1	4	0	8	NA	NA		0.000	***	NA	NA	NA	NA	NA	NA	NA	NA
03_2_14	MW-3	Appendix IV	Cobalt	mg/L	100%	3	1	4	0	8	NA	NA		0.000	***	NA	NA	NA	NA	NA	NA	NA	NA
03_2_15	MW-3	Appendix IV	Lead	mg/L	100%	3	1	4	0	8	NA	0.000	***	0.000	***	NA	NA	NA	NA	NA	NA	NA	NA
03_2_16	MW-3	Appendix IV	Lithium	mg/L	0%	3	1	4	0	8	0.525	0.680		0.675		3	1	4	0	8	0.525	0.680	0.675
03_2_17	MW-3	Appendix IV	Mercury	mg/L	100%	3	1	4	0	8	NA	0.000	***	0.000	***	NA	NA	NA	NA	NA	NA	NA	NA
03_2_18	MW-3	Appendix IV	Molybdenum	mg/L	0%	3	1	4	0	8	0.148	0.110		0.111		3	1	4	0	8	0.148	0.110	0.111
03_2_21	MW-3	Appendix IV	Radium-226/228	pCi/L	0%	3	1	4	0	8	0.846	0.789		0.742		3	1	4	0	8	0.846	0.789	0.742
03_2_22	MW-3	Appendix IV	Selenium	mg/L	100%	3	1	4	0	8	NA	NA		0.000	***	NA	NA	NA	NA	NA	NA	NA	NA
03_2_23	MW-3	Appendix IV	Thallium	mg/L	100%	3	1	4	0	8	NA	NA		NA		NA	NA	NA	NA	NA	NA	NA	NA
03_3_24	MW-3	Field Parameters	pH	su	0%	3	1	4	0	8	0.256	0.259		0.259		3	1	4	0	8	0.256	0.259	0.259
03_3_25	MW-3	Field Parameters	Conductivity	mS/cm	0%	3	1	4	0	8	0.755	0.766		0.759		3	1	4	0	8	0.755	0.766	0.759
03_3_26	MW-3	Field Parameters	Turbidity	NTU	0%	3	1	4	0	8	0.499	0.722		0.935		3	1	4	0	8	0.499	0.722	0.935
03_3_27	MW-3	Field Parameters	Dissolved Oxygen	mg/L	0%	3	1	4	0	8	0.757	0.477		0.555		3	1	4	0	8	0.757	0.477	0.555
03_3_28	MW-3	Field Parameters	Temperature	°C	0%	3	1	4	0	8	0.065	0.038	*	0.028	*	3	1	4	0	8	0.065	0.038	* 0.028 *
03_3_29	MW-3	Field Parameters	Oxidation Reduction Potential	mV	0%	3	1	4	0	8	0.543	0.686		NA		3	1	4	0	8	0.543	0.686	NA
03_4_30	MW-3	Other	Total Suspended Solids	mg/L	12%	3	1	4	0	8	0.505	0.970		0.965		2	1	4	0	7	0.564	0.949	0.967
03_4_31	MW-3	Other	Bicarbonate	mg/L	0%	2	0	3	0	5	0.554	0.920		0.900		2	0	3	0	5	0.554	0.920	0.900
03_4_32	MW-3	Other	Carbonate	mg/L	100%	2	0	3	0	5	NA	NA		NA		NA	NA	NA	NA	NA	NA	NA	NA
03_4_33	MW-3	Other	Hardness	mg/L	0%	2	0	3	0	5	0.564	0.455		0.454		2	0	3	0	5	0.564	0.455	0.454
03_4_34	MW-3	Other	Magnesium	mg/L	0%	2	0	3	0	5	0.564	0.901		0.906		2	0	3	0	5	0.564	0.901	0.906
03_4_35	MW-3	Other	Potassium	mg/L	0%	2	0	3	0	5	0.519	0.454		0.459		2	0	3	0	5	0.519	0.454	0.459
03_4_36	MW-3	Other	Sodium	mg/L	0%	2	0	3	0	5	0.767	0.840		0.847		2	0	3	0	5	0.767	0.840	0.847
03_5_37	MW-3	Part 115	Copper	mg/L	100%	3	1	4	0	8	NA	NA		0.000	***	NA	NA	NA	NA	NA	NA	NA	NA
03_5_38	MW-3	Part 115	Iron	mg/L	0%	3	1	4	0	8	0.499	0.394		0.389		3	1	4	0	8	0.499	0.394	0.389

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
03_5_39	MW-3	Part 115	Nickel	mg/L	100%	3	1	4	0	8	NA	NA	0.000 ***	NA	NA	NA	NA	NA	NA	NA	NA
03_5_40	MW-3	Part 115	Silver	mg/L	100%	3	1	4	0	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03_5_41	MW-3	Part 115	Vanadium	mg/L	100%	3	1	4	0	8	NA	NA	0.000 ***	NA	NA	NA	NA	NA	NA	NA	NA
03_5_42	MW-3	Part 115	Zinc	mg/L	100%	3	1	4	0	8	NA	NA	0.000 ***	NA	NA	NA	NA	NA	NA	NA	NA
05_1_01	MW-5	Appendix III	Boron	mg/L	0%	6	3	9	4	22	0.008 **	0.014 *	0.108	6	3	9	4	22	0.008 **	0.014 *	0.108
05_1_02	MW-5	Appendix III	Calcium	mg/L	0%	6	3	9	4	22	0.015 *	0.002 **	0.007 **	6	3	9	4	22	0.015 *	0.002 **	0.007 **
05_1_03	MW-5	Appendix III	Chloride	mg/L	0%	4	3	7	4	18	0.022 *	0.023 *	0.041 *	4	3	7	4	18	0.022 *	0.023 *	0.041 *
05_1_04	MW-5	Appendix III	Fluoride	mg/L	100%	4	3	7	4	18	NA	0.169	NA	NA	NA	NA	NA	NA	NA	NA	NA
05_1_05	MW-5	Appendix III	pH, Field	su	0%	6	3	9	5	23	0.591	0.192	0.184	6	3	9	5	23	0.591	0.192	0.184
05_1_06	MW-5	Appendix III	Sulfate	mg/L	0%	4	3	7	4	18	0.030 *	0.010 **	0.018 *	4	3	7	4	18	0.030 *	0.010 **	0.018 *
05_1_07	MW-5	Appendix III	Total Dissolved Solids	mg/L	0%	4	3	7	4	18	0.022 *	0.011 *	0.016 *	4	3	7	4	18	0.022 *	0.011 *	0.016 *
05_2_04	MW-5	Appendix IV	Fluoride	mg/L	100%	4	3	7	5	19	NA	0.142	NA	NA	NA	NA	NA	NA	NA	NA	NA
05_2_08	MW-5	Appendix IV	Antimony	mg/L	100%	6	3	9	5	23	NA	0.071	0.071	NA	NA	NA	NA	NA	NA	NA	NA
05_2_09	MW-5	Appendix IV	Arsenic	mg/L	74%	6	3	9	5	23	0.370	0.281	0.277	2	3	1	0	6	0.366	0.416	0.421
05_2_10	MW-5	Appendix IV	Barium	mg/L	0%	6	3	9	5	23	0.495	0.182	0.243	6	3	9	5	23	0.495	0.182	0.243
05_2_11	MW-5	Appendix IV	Beryllium	mg/L	100%	6	3	9	5	23	NA	NA	0.071	NA	NA	NA	NA	NA	NA	NA	NA
05_2_12	MW-5	Appendix IV	Cadmium	mg/L	100%	6	3	9	5	23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05_2_13	MW-5	Appendix IV	Chromium	mg/L	91%	6	3	9	5	23	0.250	0.124	0.144	1	1	0	0	2	0.317	NA	NA
05_2_14	MW-5	Appendix IV	Cobalt	mg/L	96%	6	3	9	5	23	0.083	0.071	0.071	0	1	0	0	1	NA	NA	NA
05_2_15	MW-5	Appendix IV	Lead	mg/L	87%	6	3	9	5	23	0.289	0.476	0.468	1	1	1	0	3	0.368	NA	NA
05_2_16	MW-5	Appendix IV	Lithium	mg/L	0%	6	3	9	5	23	0.662	0.733	0.705	6	3	9	5	23	0.662	0.733	0.705
05_2_17	MW-5	Appendix IV	Mercury	mg/L	100%	6	3	9	5	23	NA	0.071	0.071	NA	NA	NA	NA	NA	NA	NA	NA
05_2_18	MW-5	Appendix IV	Molybdenum	mg/L	0%	6	3	9	5	23	0.088	0.155	0.299	6	3	9	5	23	0.088	0.155	0.299
05_2_21	MW-5	Appendix IV	Radium-226/228	pCi/L	0%	4	3	7	5	19	0.066	0.097	0.101	4	3	7	5	19	0.066	0.097	0.101
05_2_22	MW-5	Appendix IV	Selenium	mg/L	100%	6	3	9	5	23	NA	0.071	0.071	NA	NA	NA	NA	NA	NA	NA	NA
05_2_23	MW-5	Appendix IV	Thallium	mg/L	100%	6	3	9	5	23	NA	NA	0.071	NA	NA	NA	NA	NA	NA	NA	NA
05_3_24	MW-5	Field Parameters	pH	su	0%	6	3	9	5	23	0.591	0.192	0.184	6	3	9	5	23	0.591	0.192	0.184
05_3_25	MW-5	Field Parameters	Conductivity	mS/cm	0%	6	3	9	5	23	0.016 *	0.006 **	0.009 **	6	3	9	5	23	0.016 *	0.006 **	0.009 **
05_3_26	MW-5	Field Parameters	Turbidity	NTU	0%	6	3	9	5	23	0.052	0.004 **	0.001 **	6	3	9	5	23	0.052	0.004 **	0.001 **
05_3_27	MW-5	Field Parameters	Dissolved Oxygen	mg/L	0%	6	3	9	5	23	0.030 *	0.010 **	0.003 **	6	3	9	5	23	0.030 *	0.010 **	0.003 **
05_3_28	MW-5	Field Parameters	Temperature	°C	0%	6	3	9	5	23	0.001 ***	0.000 ***	0.000 ***	6	3	9	5	23	0.001 ***	0.000 ***	0.000 ***
05_3_29	MW-5	Field Parameters	Oxidation Reduction Potential	mV	0%	6	3	9	5	23	0.459	0.436	NA	6	3	9	5	23	0.459	0.436	NA
05_4_30	MW-5	Other	Total Suspended Solids	mg/L	0%	4	3	7	5	19	0.521	0.315	0.591	4	3	7	5	19	0.521	0.315	0.591
05_4_31	MW-5	Other	Bicarbonate	mg/L	0%	2	0	3	0	5	0.076	0.095	0.092	2	0	3	0	5	0.076	0.095	0.092
05_4_32	MW-5	Other	Carbonate	mg/L	100%	2	0	3	0	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05_4_33	MW-5	Other	Hardness	mg/L	0%	2	0	3	0	5	0.564	0.737	0.751	2	0	3	0	5	0.564	0.737	0.751
05_4_34	MW-5	Other	Magnesium	mg/L	0%	4	0	5	0	9	0.624	0.456	0.429	4	0	5	0	9	0.624	0.456	0.429
05_4_35	MW-5	Other	Potassium	mg/L	0%	4	0	5	0	9	0.462	0.458	0.450	4	0	5	0	9	0.462	0.458	0.450
05_4_36	MW-5	Other	Sodium	mg/L	0%	4	0	5	0	9	0.806	0.588	0.561	4	0	5	0	9	0.806	0.588	0.561

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full										Without Non-Detects									
						Sample Size					p-Value					Sample Size					p-Value				
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis		ANOVA		Log ANOVA		Winter	Spring	Summer	Fall	Total	Kruskal-Wallis		ANOVA		Log ANOVA	
05_5_37	MW-5	Part 115	Copper	mg/L	78%	6	3	9	5	23	0.937		0.977		0.997		1	1	2	1	5	0.849		0.952		0.964	
05_5_38	MW-5	Part 115	Iron	mg/L	22%	6	3	9	5	23	0.161		0.084		0.261		4	3	7	4	18	0.144		0.199		0.120	
05_5_39	MW-5	Part 115	Nickel	mg/L	13%	6	3	9	5	23	0.017	*	0.005	**	0.008	**	5	3	7	5	20	0.027	*	0.014	*	0.013	*
05_5_40	MW-5	Part 115	Silver	mg/L	100%	6	3	9	5	23	NA		NA		NA		NA	NA	NA	NA	NA	NA		NA		NA	
05_5_41	MW-5	Part 115	Vanadium	mg/L	87%	6	3	9	5	23	0.250		0.165		0.192		2	1	0	0	3	0.221		0.386		0.458	
05_5_42	MW-5	Part 115	Zinc	mg/L	39%	6	3	9	5	23	0.671		0.306		0.437		3	2	7	2	14	0.365		0.108		0.175	
06_1_01	MW-6	Appendix III	Boron	mg/L	0%	5	3	7	4	19	0.008	**	0.001	***	0.001	**	5	3	7	4	19	0.008	**	0.001	***	0.001	**
06_1_02	MW-6	Appendix III	Calcium	mg/L	0%	5	3	7	4	19	0.038	*	0.028	*	0.019	*	5	3	7	4	19	0.038	*	0.028	*	0.019	*
06_1_03	MW-6	Appendix III	Chloride	mg/L	0%	5	3	7	4	19	0.013	*	0.007	**	0.006	**	5	3	7	4	19	0.013	*	0.007	**	0.006	**
06_1_04	MW-6	Appendix III	Fluoride	mg/L	100%	5	3	7	4	19	NA		0.142		NA		NA	NA	NA	NA	NA	NA		NA		NA	
06_1_05	MW-6	Appendix III	pH, Field	su	0%	5	3	7	5	20	0.736		0.542		0.533		5	3	7	5	20	0.736		0.542		0.533	
06_1_06	MW-6	Appendix III	Sulfate	mg/L	0%	5	3	7	4	19	0.017	*	0.002	**	0.003	**	5	3	7	4	19	0.017	*	0.002	**	0.003	**
06_1_07	MW-6	Appendix III	Total Dissolved Solids	mg/L	0%	5	3	7	4	19	0.006	**	0.002	**	0.001	**	5	3	7	4	19	0.006	**	0.002	**	0.001	**
06_2_04	MW-6	Appendix IV	Fluoride	mg/L	100%	5	3	7	5	20	NA		0.120		NA		NA	NA	NA	NA	NA	NA		NA		NA	
06_2_08	MW-6	Appendix IV	Antimony	mg/L	100%	5	3	7	5	20	NA		0.120		0.120		NA	NA	NA	NA	NA	NA		NA		NA	
06_2_09	MW-6	Appendix IV	Arsenic	mg/L	90%	5	3	7	5	20	0.096		0.083		0.083		2	0	0	0	2	NA		NA		NA	
06_2_10	MW-6	Appendix IV	Barium	mg/L	0%	5	3	7	5	20	0.020	*	0.019	*	0.026	*	5	3	7	5	20	0.020	*	0.019	*	0.026	*
06_2_11	MW-6	Appendix IV	Beryllium	mg/L	100%	5	3	7	5	20	NA		0.120		0.120		NA	NA	NA	NA	NA	NA		NA		NA	
06_2_12	MW-6	Appendix IV	Cadmium	mg/L	100%	5	3	7	5	20	NA		0.120		0.120		NA	NA	NA	NA	NA	NA		NA		NA	
06_2_13	MW-6	Appendix IV	Chromium	mg/L	100%	5	3	7	5	20	NA		0.120		0.120		NA	NA	NA	NA	NA	NA		NA		NA	
06_2_14	MW-6	Appendix IV	Cobalt	mg/L	100%	5	3	7	5	20	NA		0.120		0.120		NA	NA	NA	NA	NA	NA		NA		NA	
06_2_15	MW-6	Appendix IV	Lead	mg/L	100%	5	3	7	5	20	NA		0.120		0.120		NA	NA	NA	NA	NA	NA		NA		NA	
06_2_16	MW-6	Appendix IV	Lithium	mg/L	0%	5	3	7	5	20	0.019	*	0.009	**	0.018	*	5	3	7	5	20	0.019	*	0.009	**	0.018	*
06_2_17	MW-6	Appendix IV	Mercury	mg/L	100%	5	3	7	5	20	NA		0.120		0.120		NA	NA	NA	NA	NA	NA		NA		NA	
06_2_18	MW-6	Appendix IV	Molybdenum	mg/L	0%	5	3	7	5	20	0.111		0.202		0.220		5	3	7	5	20	0.111		0.202		0.220	
06_2_21	MW-6	Appendix IV	Radium-226/228	pCi/L	0%	5	3	7	5	20	0.181		0.342		NA		5	3	7	5	20	0.181		0.342		NA	
06_2_22	MW-6	Appendix IV	Selenium	mg/L	100%	5	3	7	5	20	NA		0.120		0.120		NA	NA	NA	NA	NA	NA		NA		NA	
06_2_23	MW-6	Appendix IV	Thallium	mg/L	100%	5	3	7	5	20	NA		0.120		0.120		NA	NA	NA	NA	NA	NA		NA		NA	
06_3_24	MW-6	Field Parameters	pH	su	0%	5	3	7	5	20	0.736		0.542		0.533		5	3	7	5	20	0.736		0.542		0.533	
06_3_25	MW-6	Field Parameters	Conductivity	mS/cm	0%	5	3	7	5	20	0.006	**	0.001	***	0.000	***	5	3	7	5	20	0.006	**	0.001	***	0.000	***
06_3_26	MW-6	Field Parameters	Turbidity	NTU	0%	5	3	7	5	20	0.025	*	0.182		0.011	*	5	3	7	5	20	0.025	*	0.182		0.011	*
06_3_27	MW-6	Field Parameters	Dissolved Oxygen	mg/L	0%	5	3	7	5	20	0.146		0.493		0.131		5	3	7	5	20	0.146		0.493		0.131	
06_3_28	MW-6	Field Parameters	Temperature	°C	0%	5	3	7	5	20	0.099		0.052		0.045	*	5	3	7	5	20	0.099		0.052		0.045	*
06_3_29	MW-6	Field Parameters	Oxidation Reduction Potential	mV	0%	5	3	7	5	20	0.311		0.450		NA		5	3	7	5	20	0.311		0.450		NA	
06_4_30	MW-6	Other	Total Suspended Solids	mg/L	70%	5	3	7	5	20	0.135		0.375		0.205		1	1	3	1	6	0.219		0.001	***	0.030	*
06_4_31	MW-6	Other	Bicarbonate	mg/L	0%	3	0	3	0	6	0.825		0.646		0.639		3	0	3	0	6	0.825		0.646		0.639	
06_4_32	MW-6	Other	Carbonate	mg/L	100%	3	0	3	0	6	NA		0.374		NA		NA	NA	NA	NA	NA	NA		NA		NA	
06_4_33	MW-6	Other	Hardness	mg/L	0%	3	0	3	0	6	0.275		0.426		0.421		3	0	3	0	6	0.275		0.426		0.421	
06_4_34	MW-6	Other	Magnesium	mg/L	0%	3	0	3	0	6	0.127		0.315		0.305		3	0	3	0	6	0.127		0.315		0.305	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
06_4_35	MW-6	Other	Potassium	mg/L	0%	3	0	3	0	6	0.513	0.840	0.864	3	0	3	0	6	0.513	0.840	0.864
06_4_36	MW-6	Other	Sodium	mg/L	0%	3	0	3	0	6	0.827	0.670	0.680	3	0	3	0	6	0.827	0.670	0.680
06_5_37	MW-6	Part 115	Copper	mg/L	100%	5	3	7	5	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
06_5_38	MW-6	Part 115	Iron	mg/L	55%	5	3	7	5	20	0.090	0.028 *	0.033 *	1	2	6	0	9	0.109	0.045 *	0.055
06_5_39	MW-6	Part 115	Nickel	mg/L	30%	5	3	7	5	20	0.066	0.055	0.059	3	2	4	5	14	0.034 *	0.008 **	0.006 **
06_5_40	MW-6	Part 115	Silver	mg/L	100%	5	3	7	5	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
06_5_41	MW-6	Part 115	Vanadium	mg/L	100%	5	3	7	5	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
06_5_42	MW-6	Part 115	Zinc	mg/L	95%	5	3	7	5	20	0.129	0.120	0.120	0	1	0	0	1	NA	NA	NA
07_1_01	MW-7	Appendix III	Boron	mg/L	0%	6	0	6	2	14	0.576	0.463	0.472	6	0	6	2	14	0.576	0.463	0.472
07_1_02	MW-7	Appendix III	Calcium	mg/L	0%	6	0	6	2	14	0.099	0.048 *	0.050	6	0	6	2	14	0.099	0.048 *	0.050
07_1_03	MW-7	Appendix III	Chloride	mg/L	0%	6	0	6	2	14	0.545	0.491	0.494	6	0	6	2	14	0.545	0.491	0.494
07_1_04	MW-7	Appendix III	Fluoride	mg/L	86%	6	0	6	2	14	0.830	0.856	0.854	1	0	1	0	2	0.317	NA	NA
07_1_05	MW-7	Appendix III	pH, Field	su	0%	6	0	6	2	14	0.622	0.331	0.323	6	0	6	2	14	0.622	0.331	0.323
07_1_06	MW-7	Appendix III	Sulfate	mg/L	0%	6	0	6	2	14	0.006 **	0.006 **	0.003 **	6	0	6	2	14	0.006 **	0.006 **	0.003 **
07_1_07	MW-7	Appendix III	Total Dissolved Solids	mg/L	0%	6	0	6	2	14	0.074	0.061	0.056	6	0	6	2	14	0.074	0.061	0.056
07_2_04	MW-7	Appendix IV	Fluoride	mg/L	86%	6	0	6	2	14	0.830	0.856	0.854	1	0	1	0	2	0.317	NA	NA
07_2_08	MW-7	Appendix IV	Antimony	mg/L	100%	6	0	6	2	14	NA	0.551	0.551	NA	NA	NA	NA	NA	NA	NA	NA
07_2_09	MW-7	Appendix IV	Arsenic	mg/L	0%	6	0	6	2	14	0.899	0.946	0.968	6	0	6	2	14	0.899	0.946	0.968
07_2_10	MW-7	Appendix IV	Barium	mg/L	0%	6	0	6	2	14	0.809	0.636	0.560	6	0	6	2	14	0.809	0.636	0.560
07_2_11	MW-7	Appendix IV	Beryllium	mg/L	100%	6	0	6	2	14	NA	0.551	0.551	NA	NA	NA	NA	NA	NA	NA	NA
07_2_12	MW-7	Appendix IV	Cadmium	mg/L	100%	6	0	6	2	14	NA	0.551	NA	NA	NA	NA	NA	NA	NA	NA	NA
07_2_13	MW-7	Appendix IV	Chromium	mg/L	93%	6	0	6	2	14	0.513	0.551	0.551	0	0	1	0	1	NA	NA	NA
07_2_14	MW-7	Appendix IV	Cobalt	mg/L	100%	6	0	6	2	14	NA	0.551	0.551	NA	NA	NA	NA	NA	NA	NA	NA
07_2_15	MW-7	Appendix IV	Lead	mg/L	100%	6	0	6	2	14	NA	NA	0.551	NA	NA	NA	NA	NA	NA	NA	NA
07_2_16	MW-7	Appendix IV	Lithium	mg/L	0%	6	0	6	2	14	0.292	0.414	0.428	6	0	6	2	14	0.292	0.414	0.428
07_2_17	MW-7	Appendix IV	Mercury	mg/L	93%	6	0	6	2	14	NA	0.551	0.551	0	0	1	0	1	NA	NA	NA
07_2_18	MW-7	Appendix IV	Molybdenum	mg/L	0%	6	0	6	2	14	0.480	0.492	0.478	6	0	6	2	14	0.480	0.492	0.478
07_2_21	MW-7	Appendix IV	Radium-226/228	pCi/L	0%	6	0	6	2	14	0.963	0.984	0.840	6	0	6	2	14	0.963	0.984	0.840
07_2_22	MW-7	Appendix IV	Selenium	mg/L	100%	6	0	6	2	14	NA	0.551	0.551	NA	NA	NA	NA	NA	NA	NA	NA
07_2_23	MW-7	Appendix IV	Thallium	mg/L	100%	6	0	6	2	14	NA	0.551	0.551	NA	NA	NA	NA	NA	NA	NA	NA
07_3_24	MW-7	Field Parameters	pH	su	0%	6	0	6	2	14	0.622	0.331	0.323	6	0	6	2	14	0.622	0.331	0.323
07_3_25	MW-7	Field Parameters	Conductivity	mS/cm	0%	6	0	6	2	14	0.109	0.046 *	0.040 *	6	0	6	2	14	0.109	0.046 *	0.040 *
07_3_26	MW-7	Field Parameters	Turbidity	NTU	0%	6	0	6	2	14	0.162	0.027 *	0.094	6	0	6	2	14	0.162	0.027 *	0.094
07_3_27	MW-7	Field Parameters	Dissolved Oxygen	mg/L	7%	6	0	6	2	14	0.295	0.684	NA	6	0	5	2	13	0.306	0.700	NA
07_3_28	MW-7	Field Parameters	Temperature	°C	0%	6	0	6	2	14	0.007 **	0.000 ***	0.000 ***	6	0	6	2	14	0.007 **	0.000 ***	0.000 ***
07_3_29	MW-7	Field Parameters	Oxidation Reduction Potential	mV	0%	6	0	6	2	14	0.230	0.188	NA	6	0	6	2	14	0.230	0.188	NA
07_4_30	MW-7	Other	Total Suspended Solids	mg/L	79%	6	0	6	2	14	0.772	0.538	0.528	3	0	0	0	3	NA	NA	NA
07_4_31	MW-7	Other	Bicarbonate	mg/L	0%	3	0	3	0	6	0.275	0.233	0.274	3	0	3	0	6	0.275	0.233	0.274
07_4_32	MW-7	Other	Carbonate	mg/L	100%	3	0	3	0	6	NA	0.374	NA	NA	NA	NA	NA	NA	NA	NA	NA

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
07_4_33	MW-7	Other	Hardness	mg/L	0%	3	0	3	0	6	0.275	0.170	0.188	3	0	3	0	6	0.275	0.170	0.188
07_4_34	MW-7	Other	Magnesium	mg/L	0%	3	0	3	0	6	0.184	0.189	0.208	3	0	3	0	6	0.184	0.189	0.208
07_4_35	MW-7	Other	Potassium	mg/L	0%	3	0	3	0	6	0.050 *	0.055	0.065	3	0	3	0	6	0.050 *	0.055	0.065
07_4_36	MW-7	Other	Sodium	mg/L	0%	3	0	3	0	6	0.507	0.269	0.290	3	0	3	0	6	0.507	0.269	0.290
07_5_37	MW-7	Part 115	Copper	mg/L	100%	6	0	6	2	14	NA	0.551	0.551	NA	NA	NA	NA	NA	NA	NA	NA
07_5_38	MW-7	Part 115	Iron	mg/L	0%	6	0	6	2	14	0.074	0.145	0.145	6	0	6	2	14	0.074	0.145	0.145
07_5_39	MW-7	Part 115	Nickel	mg/L	100%	6	0	6	2	14	NA	0.551	0.551	NA	NA	NA	NA	NA	NA	NA	NA
07_5_40	MW-7	Part 115	Silver	mg/L	100%	6	0	6	2	14	NA	0.551	NA	NA	NA	NA	NA	NA	NA	NA	NA
07_5_41	MW-7	Part 115	Vanadium	mg/L	86%	6	0	6	2	14	0.513	0.551	0.551	2	0	0	0	2	NA	NA	NA
07_5_42	MW-7	Part 115	Zinc	mg/L	79%	6	0	6	2	14	0.097	0.275	0.197	0	0	3	0	3	NA	NA	NA
08_1_01	MW-8	Appendix III	Boron	mg/L	8%	5	0	6	2	13	0.024 *	0.025 *	0.007 **	4	0	6	2	12	0.044 *	0.052	0.022 *
08_1_02	MW-8	Appendix III	Calcium	mg/L	0%	5	0	6	2	13	0.011 *	0.003 **	0.003 **	5	0	6	2	13	0.011 *	0.003 **	0.003 **
08_1_03	MW-8	Appendix III	Chloride	mg/L	15%	5	0	6	2	13	0.157	0.312	0.172	3	0	6	2	11	0.567	0.588	0.552
08_1_04	MW-8	Appendix III	Fluoride	mg/L	92%	5	0	6	2	13	0.449	0.489	0.489	1	0	0	0	1	NA	NA	NA
08_1_05	MW-8	Appendix III	pH, Field	su	0%	5	0	6	2	13	0.848	0.930	0.939	5	0	6	2	13	0.848	0.930	0.939
08_1_06	MW-8	Appendix III	Sulfate	mg/L	0%	5	0	6	2	13	0.213	0.334	0.277	5	0	6	2	13	0.213	0.334	0.277
08_1_07	MW-8	Appendix III	Total Dissolved Solids	mg/L	0%	5	0	6	2	13	0.882	0.876	0.882	5	0	6	2	13	0.882	0.876	0.882
08_2_04	MW-8	Appendix IV	Fluoride	mg/L	92%	5	0	6	2	13	0.449	0.489	0.489	1	0	0	0	1	NA	NA	NA
08_2_08	MW-8	Appendix IV	Antimony	mg/L	100%	5	0	6	2	13	NA	NA	0.600	NA	NA	NA	NA	NA	NA	NA	NA
08_2_09	MW-8	Appendix IV	Arsenic	mg/L	92%	5	0	6	2	13	NA	0.600	0.600	1	0	0	0	1	NA	NA	NA
08_2_10	MW-8	Appendix IV	Barium	mg/L	0%	5	0	6	2	13	0.279	0.217	0.204	5	0	6	2	13	0.279	0.217	0.204
08_2_11	MW-8	Appendix IV	Beryllium	mg/L	100%	5	0	6	2	13	NA	0.600	0.600	NA	NA	NA	NA	NA	NA	NA	NA
08_2_12	MW-8	Appendix IV	Cadmium	mg/L	100%	5	0	6	2	13	NA	0.600	0.600	NA	NA	NA	NA	NA	NA	NA	NA
08_2_13	MW-8	Appendix IV	Chromium	mg/L	100%	5	0	6	2	13	NA	NA	0.600	NA	NA	NA	NA	NA	NA	NA	NA
08_2_14	MW-8	Appendix IV	Cobalt	mg/L	100%	5	0	6	2	13	NA	NA	0.600	NA	NA	NA	NA	NA	NA	NA	NA
08_2_15	MW-8	Appendix IV	Lead	mg/L	100%	5	0	6	2	13	NA	0.600	0.600	NA	NA	NA	NA	NA	NA	NA	NA
08_2_16	MW-8	Appendix IV	Lithium	mg/L	46%	5	0	6	2	13	0.119	0.024 *	0.038 *	2	0	3	2	7	0.195	0.150	0.172
08_2_17	MW-8	Appendix IV	Mercury	mg/L	100%	5	0	6	2	13	NA	0.600	0.600	NA	NA	NA	NA	NA	NA	NA	NA
08_2_18	MW-8	Appendix IV	Molybdenum	mg/L	85%	5	0	6	2	13	0.252	0.203	0.228	0	0	1	1	2	0.317	NA	NA
08_2_21	MW-8	Appendix IV	Radium-226/228	pCi/L	0%	5	0	6	2	13	0.739	0.613	0.878	5	0	6	2	13	0.739	0.613	0.878
08_2_22	MW-8	Appendix IV	Selenium	mg/L	100%	5	0	6	2	13	NA	NA	0.600	NA	NA	NA	NA	NA	NA	NA	NA
08_2_23	MW-8	Appendix IV	Thallium	mg/L	100%	5	0	6	2	13	NA	0.600	0.600	NA	NA	NA	NA	NA	NA	NA	NA
08_3_24	MW-8	Field Parameters	pH	su	0%	5	0	6	2	13	0.848	0.930	0.939	5	0	6	2	13	0.848	0.930	0.939
08_3_25	MW-8	Field Parameters	Conductivity	mS/cm	0%	5	0	6	2	13	0.183	0.260	0.254	5	0	6	2	13	0.183	0.260	0.254
08_3_26	MW-8	Field Parameters	Turbidity	NTU	0%	5	0	6	2	13	0.611	0.604	0.561	5	0	6	2	13	0.611	0.604	0.561
08_3_27	MW-8	Field Parameters	Dissolved Oxygen	mg/L	0%	5	0	6	2	13	0.201	0.211	0.366	5	0	6	2	13	0.201	0.211	0.366
08_3_28	MW-8	Field Parameters	Temperature	°C	0%	5	0	6	2	13	0.020 *	0.001 **	0.003 **	5	0	6	2	13	0.020 *	0.001 **	0.003 **
08_3_29	MW-8	Field Parameters	Oxidation Reduction Potential	mV	0%	5	0	6	2	13	0.493	0.795	0.773	5	0	6	2	13	0.493	0.795	0.773
08_4_30	MW-8	Other	Total Suspended Solids	mg/L	92%	5	0	6	2	13	0.449	0.489	0.489	1	0	0	0	1	NA	NA	NA

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
08_4_31	MW-8	Other	Bicarbonate	mg/L	0%	2	0	3	0	5	0.248	0.293	0.309	2	0	3	0	5	0.248	0.293	0.309
08_4_32	MW-8	Other	Carbonate	mg/L	100%	2	0	3	0	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08_4_33	MW-8	Other	Hardness	mg/L	0%	2	0	3	0	5	0.083	0.045 *	0.046 *	2	0	3	0	5	0.083	0.045 *	0.046 *
08_4_34	MW-8	Other	Magnesium	mg/L	0%	2	0	3	0	5	0.248	0.156	0.159	2	0	3	0	5	0.248	0.156	0.159
08_4_35	MW-8	Other	Potassium	mg/L	20%	2	0	3	0	5	0.248	0.363	0.344	1	0	3	0	4	0.655	0.613	0.607
08_4_36	MW-8	Other	Sodium	mg/L	0%	2	0	3	0	5	0.564	0.347	0.335	2	0	3	0	5	0.564	0.347	0.335
08_5_37	MW-8	Part 115	Copper	mg/L	92%	5	0	6	2	13	0.449	0.489	0.489	1	0	0	0	1	NA	NA	NA
08_5_38	MW-8	Part 115	Iron	mg/L	92%	5	0	6	2	13	NA	NA	0.600	1	0	0	0	1	NA	NA	NA
08_5_39	MW-8	Part 115	Nickel	mg/L	100%	5	0	6	2	13	NA	NA	0.600	NA	NA	NA	NA	NA	NA	NA	NA
08_5_40	MW-8	Part 115	Silver	mg/L	100%	5	0	6	2	13	NA	0.600	0.600	NA	NA	NA	NA	NA	NA	NA	NA
08_5_41	MW-8	Part 115	Vanadium	mg/L	92%	5	0	6	2	13	NA	NA	0.600	1	0	0	0	1	NA	NA	NA
08_5_42	MW-8	Part 115	Zinc	mg/L	92%	5	0	6	2	13	0.449	0.489	0.489	1	0	0	0	1	NA	NA	NA
09_1_01	MW-9	Appendix III	Boron	mg/L	95%	8	0	9	4	21	NA	0.537	NA	0	0	1	0	1	NA	NA	NA
09_1_02	MW-9	Appendix III	Calcium	mg/L	0%	8	0	9	4	21	0.020 *	0.187	0.115	8	0	9	4	21	0.020 *	0.187	0.115
09_1_03	MW-9	Appendix III	Chloride	mg/L	81%	8	0	9	4	21	0.521	0.197	0.189	3	0	1	0	4	0.180	0.352	0.388
09_1_04	MW-9	Appendix III	Fluoride	mg/L	90%	8	0	9	4	21	0.181	0.185	0.185	2	0	0	0	2	NA	NA	NA
09_1_05	MW-9	Appendix III	pH, Field	su	0%	8	0	9	4	21	0.598	0.589	0.596	8	0	9	4	21	0.598	0.589	0.596
09_1_06	MW-9	Appendix III	Sulfate	mg/L	71%	8	0	9	4	21	0.360	0.790	0.732	3	0	3	0	6	0.275	0.697	0.565
09_1_07	MW-9	Appendix III	Total Dissolved Solids	mg/L	0%	8	0	9	4	21	0.114	0.497	0.434	8	0	9	4	21	0.114	0.497	0.434
09_2_04	MW-9	Appendix IV	Fluoride	mg/L	90%	8	0	9	4	21	0.181	0.185	0.185	2	0	0	0	2	NA	NA	NA
09_2_08	MW-9	Appendix IV	Antimony	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_2_09	MW-9	Appendix IV	Arsenic	mg/L	95%	8	0	9	4	21	0.444	0.466	0.466	1	0	0	0	1	NA	NA	NA
09_2_10	MW-9	Appendix IV	Barium	mg/L	0%	8	0	9	4	21	0.232	0.441	0.399	8	0	9	4	21	0.232	0.441	0.399
09_2_11	MW-9	Appendix IV	Beryllium	mg/L	100%	8	0	9	4	21	NA	0.537	NA	NA	NA	NA	NA	NA	NA	NA	NA
09_2_12	MW-9	Appendix IV	Cadmium	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_2_13	MW-9	Appendix IV	Chromium	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_2_14	MW-9	Appendix IV	Cobalt	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_2_15	MW-9	Appendix IV	Lead	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_2_16	MW-9	Appendix IV	Lithium	mg/L	100%	8	0	9	4	21	0.246	0.256	0.256	NA	NA	NA	NA	NA	NA	NA	NA
09_2_17	MW-9	Appendix IV	Mercury	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_2_18	MW-9	Appendix IV	Molybdenum	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_2_21	MW-9	Appendix IV	Radium-226/228	pCi/L	0%	8	0	9	4	21	0.343	0.304	NA	8	0	9	4	21	0.343	0.304	NA
09_2_22	MW-9	Appendix IV	Selenium	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_2_23	MW-9	Appendix IV	Thallium	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_3_24	MW-9	Field Parameters	pH	su	0%	8	0	9	4	21	0.598	0.589	0.596	8	0	9	4	21	0.598	0.589	0.596
09_3_25	MW-9	Field Parameters	Conductivity	mS/cm	0%	8	0	9	4	21	0.115	0.551	0.445	8	0	9	4	21	0.115	0.551	0.445
09_3_26	MW-9	Field Parameters	Turbidity	NTU	0%	8	0	9	4	21	0.093	0.038 *	0.047 *	8	0	9	4	21	0.093	0.038 *	0.047 *
09_3_27	MW-9	Field Parameters	Dissolved Oxygen	mg/L	0%	8	0	9	4	21	0.002 **	0.000 ***	0.001 **	8	0	9	4	21	0.002 **	0.000 ***	0.001 **
09_3_28	MW-9	Field Parameters	Temperature	°C	0%	8	0	9	4	21	0.001 ***	0.000 ***	0.000 ***	8	0	9	4	21	0.001 ***	0.000 ***	0.000 ***

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
09_3_29	MW-9	Field Parameters	Oxidation Reduction Potential	mV	0%	8	0	9	4	21	0.890	0.832	0.964	8	0	9	4	21	0.890	0.832	0.964
09_4_30	MW-9	Other	Total Suspended Solids	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_4_31	MW-9	Other	Bicarbonate	mg/L	0%	2	0	3	0	5	0.564	0.459	0.444	2	0	3	0	5	0.564	0.459	0.444
09_4_32	MW-9	Other	Carbonate	mg/L	100%	2	0	3	0	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
09_4_33	MW-9	Other	Hardness	mg/L	0%	2	0	3	0	5	0.564	0.673	0.655	2	0	3	0	5	0.564	0.673	0.655
09_4_34	MW-9	Other	Magnesium	mg/L	0%	2	0	3	0	5	1.000	0.599	0.579	2	0	3	0	5	1.000	0.599	0.579
09_4_35	MW-9	Other	Potassium	mg/L	0%	2	0	3	0	5	0.076	0.090	0.068	2	0	3	0	5	0.076	0.090	0.068
09_4_36	MW-9	Other	Sodium	mg/L	0%	2	0	3	0	5	0.564	0.826	0.823	2	0	3	0	5	0.564	0.826	0.823
09_5_37	MW-9	Part 115	Copper	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_5_38	MW-9	Part 115	Iron	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_5_39	MW-9	Part 115	Nickel	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_5_40	MW-9	Part 115	Silver	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_5_41	MW-9	Part 115	Vanadium	mg/L	100%	8	0	9	4	21	NA	0.537	0.537	NA	NA	NA	NA	NA	NA	NA	NA
09_5_42	MW-9	Part 115	Zinc	mg/L	95%	8	0	9	4	21	0.444	0.466	0.466	1	0	0	0	1	NA	NA	NA
100A_1_01	MW-100A	Appendix III	Boron	mg/L	0%	2	0	4	3	9	0.700	0.755	0.755	2	0	4	3	9	0.700	0.755	0.755
100A_1_02	MW-100A	Appendix III	Calcium	mg/L	0%	2	0	4	3	9	0.119	0.058	0.055	2	0	4	3	9	0.119	0.058	0.055
100A_1_03	MW-100A	Appendix III	Chloride	mg/L	0%	2	0	4	3	9	0.064	0.026 *	0.026 *	2	0	4	3	9	0.064	0.026 *	0.026 *
100A_1_04	MW-100A	Appendix III	Fluoride	mg/L	67%	2	0	4	3	9	0.685	0.641	0.486	1	0	1	1	3	0.368	NA	NA
100A_1_05	MW-100A	Appendix III	pH, Field	su	0%	2	0	4	3	9	0.122	0.232	0.237	2	0	4	3	9	0.122	0.232	0.237
100A_1_06	MW-100A	Appendix III	Sulfate	mg/L	0%	2	0	4	3	9	0.146	0.078	0.071	2	0	4	3	9	0.146	0.078	0.071
100A_1_07	MW-100A	Appendix III	Total Dissolved Solids	mg/L	0%	2	0	4	3	9	0.097	0.121	0.120	2	0	4	3	9	0.097	0.121	0.120
100A_2_04	MW-100A	Appendix IV	Fluoride	mg/L	78%	2	0	4	3	9	0.392	0.437	0.369	1	0	1	0	2	0.317	NA	NA
100A_2_08	MW-100A	Appendix IV	Antimony	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100A_2_09	MW-100A	Appendix IV	Arsenic	mg/L	0%	2	0	4	3	9	0.129	0.119	0.135	2	0	4	3	9	0.129	0.119	0.135
100A_2_10	MW-100A	Appendix IV	Barium	mg/L	0%	2	0	4	3	9	0.414	0.485	0.486	2	0	4	3	9	0.414	0.485	0.486
100A_2_11	MW-100A	Appendix IV	Beryllium	mg/L	100%	2	0	4	3	9	NA	0.601	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100A_2_12	MW-100A	Appendix IV	Cadmium	mg/L	100%	2	0	4	3	9	NA	0.601	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100A_2_13	MW-100A	Appendix IV	Chromium	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100A_2_14	MW-100A	Appendix IV	Cobalt	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100A_2_15	MW-100A	Appendix IV	Lead	mg/L	100%	2	0	4	3	9	NA	0.601	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100A_2_16	MW-100A	Appendix IV	Lithium	mg/L	0%	2	0	4	3	9	0.270	0.285	0.311	2	0	4	3	9	0.270	0.285	0.311
100A_2_17	MW-100A	Appendix IV	Mercury	mg/L	100%	2	0	4	3	9	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA	NA
100A_2_18	MW-100A	Appendix IV	Molybdenum	mg/L	0%	2	0	4	3	9	0.254	0.225	0.219	2	0	4	3	9	0.254	0.225	0.219
100A_2_21	MW-100A	Appendix IV	Radium-226/228	pCi/L	0%	2	0	4	3	9	0.146	0.101	0.107	2	0	4	3	9	0.146	0.101	0.107
100A_2_22	MW-100A	Appendix IV	Selenium	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100A_2_23	MW-100A	Appendix IV	Thallium	mg/L	100%	2	0	4	3	9	NA	0.601	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100A_3_24	MW-100A	Field Parameters	pH	su	0%	2	0	4	3	9	0.122	0.232	0.237	2	0	4	3	9	0.122	0.232	0.237
100A_3_25	MW-100A	Field Parameters	Conductivity	mS/cm	0%	2	0	4	3	9	0.086	0.061	0.057	2	0	4	3	9	0.086	0.061	0.057
100A_3_26	MW-100A	Field Parameters	Turbidity	NTU	0%	2	0	4	3	9	0.946	0.963	0.791	2	0	4	3	9	0.946	0.963	0.791

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
100A_3_27	MW-100A	Field Parameters	Dissolved Oxygen	mg/L	0%	2	0	4	3	9	0.050 *	0.247	0.056	2	0	4	3	9	0.050 *	0.247	0.056
100A_3_28	MW-100A	Field Parameters	Temperature	°C	0%	2	0	4	3	9	0.211	0.134	0.118	2	0	4	3	9	0.211	0.134	0.118
100A_3_29	MW-100A	Field Parameters	Oxidation Reduction Potential	mV	0%	2	0	4	3	9	0.472	0.290	NA	2	0	4	3	9	0.472	0.290	NA
100A_4_30	MW-100A	Other	Total Suspended Solids	mg/L	11%	2	0	4	3	9	1.000	0.783	0.965	2	0	3	3	8	0.757	0.551	0.607
100A_4_31	MW-100A	Other	Bicarbonate	mg/L	0%	2	0	4	3	9	0.455	0.484	0.489	2	0	4	3	9	0.455	0.484	0.489
100A_4_32	MW-100A	Other	Carbonate	mg/L	100%	2	0	4	3	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
100A_4_33	MW-100A	Other	Hardness	mg/L	0%	2	0	4	3	9	0.375	0.412	0.404	2	0	4	3	9	0.375	0.412	0.404
100A_4_34	MW-100A	Other	Magnesium	mg/L	0%	2	0	4	3	9	0.122	0.101	0.098	2	0	4	3	9	0.122	0.101	0.098
100A_4_35	MW-100A	Other	Potassium	mg/L	0%	2	0	4	3	9	0.233	0.385	0.379	2	0	4	3	9	0.233	0.385	0.379
100A_4_36	MW-100A	Other	Sodium	mg/L	0%	2	0	4	3	9	0.280	0.241	0.228	2	0	4	3	9	0.280	0.241	0.228
100A_5_37	MW-100A	Part 115	Copper	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100A_5_38	MW-100A	Part 115	Iron	mg/L	0%	2	0	4	3	9	0.301	0.400	0.368	2	0	4	3	9	0.301	0.400	0.368
100A_5_39	MW-100A	Part 115	Nickel	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100A_5_40	MW-100A	Part 115	Silver	mg/L	100%	2	0	4	3	9	NA	0.601	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100A_5_41	MW-100A	Part 115	Vanadium	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100A_5_42	MW-100A	Part 115	Zinc	mg/L	89%	2	0	4	3	9	0.174	0.178	0.178	1	0	0	0	1	NA	NA	NA
100B_1_01	MW-100B	Appendix III	Boron	mg/L	0%	2	0	7	4	13	0.030 *	0.033 *	0.031 *	2	0	7	4	13	0.030 *	0.033 *	0.031 *
100B_1_02	MW-100B	Appendix III	Calcium	mg/L	0%	2	0	7	4	13	0.021 *	0.022 *	0.020 *	2	0	7	4	13	0.021 *	0.022 *	0.020 *
100B_1_03	MW-100B	Appendix III	Chloride	mg/L	0%	2	0	7	4	13	0.169	0.269	0.284	2	0	7	4	13	0.169	0.269	0.284
100B_1_04	MW-100B	Appendix III	Fluoride	mg/L	85%	2	0	7	4	13	0.693	0.718	0.641	0	0	1	1	2	0.317	NA	NA
100B_1_05	MW-100B	Appendix III	pH, Field	su	0%	2	0	7	4	13	0.069	0.000 ***	0.000 ***	2	0	7	4	13	0.069	0.000 ***	0.000 ***
100B_1_06	MW-100B	Appendix III	Sulfate	mg/L	0%	2	0	7	4	13	0.010 *	0.006 **	0.004 **	2	0	7	4	13	0.010 *	0.006 **	0.004 **
100B_1_07	MW-100B	Appendix III	Total Dissolved Solids	mg/L	0%	2	0	7	4	13	0.010 *	0.000 ***	0.000 ***	2	0	7	4	13	0.010 *	0.000 ***	0.000 ***
100B_2_04	MW-100B	Appendix IV	Fluoride	mg/L	85%	2	0	7	4	13	0.693	0.718	0.641	0	0	1	1	2	0.317	NA	NA
100B_2_08	MW-100B	Appendix IV	Antimony	mg/L	100%	2	0	7	4	13	NA	NA	0.690	NA	NA	NA	NA	NA	NA	NA	NA
100B_2_09	MW-100B	Appendix IV	Arsenic	mg/L	0%	2	0	7	4	13	0.100	0.130	0.141	2	0	7	4	13	0.100	0.130	0.141
100B_2_10	MW-100B	Appendix IV	Barium	mg/L	0%	2	0	7	4	13	0.161	0.133	0.131	2	0	7	4	13	0.161	0.133	0.131
100B_2_11	MW-100B	Appendix IV	Beryllium	mg/L	100%	2	0	7	4	13	NA	0.690	0.690	NA	NA	NA	NA	NA	NA	NA	NA
100B_2_12	MW-100B	Appendix IV	Cadmium	mg/L	100%	2	0	7	4	13	NA	0.690	0.690	NA	NA	NA	NA	NA	NA	NA	NA
100B_2_13	MW-100B	Appendix IV	Chromium	mg/L	100%	2	0	7	4	13	NA	NA	0.690	NA	NA	NA	NA	NA	NA	NA	NA
100B_2_14	MW-100B	Appendix IV	Cobalt	mg/L	100%	2	0	7	4	13	NA	NA	0.690	NA	NA	NA	NA	NA	NA	NA	NA
100B_2_15	MW-100B	Appendix IV	Lead	mg/L	100%	2	0	7	4	13	NA	0.690	0.690	NA	NA	NA	NA	NA	NA	NA	NA
100B_2_16	MW-100B	Appendix IV	Lithium	mg/L	0%	2	0	7	4	13	0.422	0.386	0.386	2	0	7	4	13	0.422	0.386	0.386
100B_2_17	MW-100B	Appendix IV	Mercury	mg/L	100%	2	0	7	4	13	NA	0.690	0.690	NA	NA	NA	NA	NA	NA	NA	NA
100B_2_18	MW-100B	Appendix IV	Molybdenum	mg/L	0%	2	0	7	4	13	0.472	0.734	0.849	2	0	7	4	13	0.472	0.734	0.849
100B_2_21	MW-100B	Appendix IV	Radium-226/228	pCi/L	0%	2	0	7	4	13	0.455	0.515	0.492	2	0	7	4	13	0.455	0.515	0.492
100B_2_22	MW-100B	Appendix IV	Selenium	mg/L	100%	2	0	7	4	13	NA	NA	0.690	NA	NA	NA	NA	NA	NA	NA	NA
100B_2_23	MW-100B	Appendix IV	Thallium	mg/L	100%	2	0	7	4	13	NA	0.690	0.690	NA	NA	NA	NA	NA	NA	NA	NA
100B_3_24	MW-100B	Field Parameters	pH	su	0%	2	0	7	4	13	0.069	0.000 ***	0.000 ***	2	0	7	4	13	0.069	0.000 ***	0.000 ***

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full										Without Non-Detects									
						Sample Size					p-Value					Sample Size					p-Value				
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis		ANOVA		Log ANOVA		Winter	Spring	Summer	Fall	Total	Kruskal-Wallis		ANOVA		Log ANOVA	
100B_3_25	MW-100B	Field Parameters	Conductivity	mS/cm	0%	2	0	7	4	13	0.068		0.026	*	0.027	*	2	0	7	4	13	0.068		0.026	*	0.027	*
100B_3_26	MW-100B	Field Parameters	Turbidity	NTU	0%	2	0	7	4	13	1.000		0.511		0.295		2	0	7	4	13	1.000		0.511		0.295	
100B_3_27	MW-100B	Field Parameters	Dissolved Oxygen	mg/L	0%	2	0	7	4	13	0.007	**	0.036	*	NA		2	0	7	4	13	0.007	**	0.036	*	NA	
100B_3_28	MW-100B	Field Parameters	Temperature	°C	0%	2	0	7	4	13	0.010	**	0.000	***	0.001	***	2	0	7	4	13	0.010	**	0.000	***	0.001	***
100B_3_29	MW-100B	Field Parameters	Oxidation Reduction Potential	mV	0%	2	0	7	4	13	0.764		0.959		NA		2	0	7	4	13	0.764		0.959		NA	
100B_4_30	MW-100B	Other	Total Suspended Solids	mg/L	0%	2	0	7	4	13	0.465		0.804		0.696		2	0	7	4	13	0.465		0.804		0.696	
100B_4_31	MW-100B	Other	Bicarbonate	mg/L	0%	2	0	7	4	13	0.007	**	0.038	*	0.023	*	2	0	7	4	13	0.007	**	0.038	*	0.023	*
100B_4_32	MW-100B	Other	Carbonate	mg/L	100%	2	0	7	4	13	NA		0.690		NA		NA	NA	NA	NA	NA	NA		NA		NA	
100B_4_33	MW-100B	Other	Hardness	mg/L	0%	2	0	7	4	13	0.354		0.128		0.133		2	0	7	4	13	0.354		0.128		0.133	
100B_4_34	MW-100B	Other	Magnesium	mg/L	0%	2	0	7	4	13	0.007	**	0.000	***	0.000	***	2	0	7	4	13	0.007	**	0.000	***	0.000	***
100B_4_35	MW-100B	Other	Potassium	mg/L	0%	2	0	7	4	13	0.049	*	0.026	*	0.027	*	2	0	7	4	13	0.049	*	0.026	*	0.027	*
100B_4_36	MW-100B	Other	Sodium	mg/L	0%	2	0	7	4	13	0.458		0.659		0.621		2	0	7	4	13	0.458		0.659		0.621	
100B_5_37	MW-100B	Part 115	Copper	mg/L	100%	2	0	7	4	13	NA		NA		0.690		NA	NA	NA	NA	NA	NA		NA		NA	
100B_5_38	MW-100B	Part 115	Iron	mg/L	0%	2	0	7	4	13	0.295		0.504		0.665		2	0	7	4	13	0.295		0.504		0.665	
100B_5_39	MW-100B	Part 115	Nickel	mg/L	100%	2	0	7	4	13	NA		NA		0.690		NA	NA	NA	NA	NA	NA		NA		NA	
100B_5_40	MW-100B	Part 115	Silver	mg/L	100%	2	0	7	4	13	NA		0.690		0.690		NA	NA	NA	NA	NA	NA		NA		NA	
100B_5_41	MW-100B	Part 115	Vanadium	mg/L	100%	2	0	7	4	13	NA		NA		0.690		NA	NA	NA	NA	NA	NA		NA		NA	
100B_5_42	MW-100B	Part 115	Zinc	mg/L	100%	2	0	7	4	13	NA		NA		0.690		NA	NA	NA	NA	NA	NA		NA		NA	
10_1_01	MW-10	Appendix III	Boron	mg/L	0%	6	0	8	2	16	0.171		0.123		0.119		6	0	8	2	16	0.171		0.123		0.119	
10_1_02	MW-10	Appendix III	Calcium	mg/L	0%	6	0	8	2	16	0.200		0.185		0.200		6	0	8	2	16	0.200		0.185		0.200	
10_1_03	MW-10	Appendix III	Chloride	mg/L	62%	6	0	8	2	16	1.000		0.883		0.929		2	0	4	0	6	1.000		0.742		0.851	
10_1_04	MW-10	Appendix III	Fluoride	mg/L	94%	6	0	8	2	16	0.435		0.465		0.465		1	0	0	0	1	NA		NA		NA	
10_1_05	MW-10	Appendix III	pH, Field	su	0%	6	0	8	2	16	0.744		0.755		0.765		6	0	8	2	16	0.744		0.755		0.765	
10_1_06	MW-10	Appendix III	Sulfate	mg/L	0%	6	0	8	2	16	0.391		0.297		0.271		6	0	8	2	16	0.391		0.297		0.271	
10_1_07	MW-10	Appendix III	Total Dissolved Solids	mg/L	0%	6	0	8	2	16	0.025	*	0.011	*	0.013	*	6	0	8	2	16	0.025	*	0.011	*	0.013	*
10_2_04	MW-10	Appendix IV	Fluoride	mg/L	94%	6	0	8	2	16	0.435		0.465		0.465		1	0	0	0	1	NA		NA		NA	
10_2_08	MW-10	Appendix IV	Antimony	mg/L	100%	6	0	8	2	16	NA		0.639		0.639		NA	NA	NA	NA	NA	NA		NA		NA	
10_2_09	MW-10	Appendix IV	Arsenic	mg/L	94%	6	0	8	2	16	NA		0.639		0.639		1	0	0	0	1	NA		NA		NA	
10_2_10	MW-10	Appendix IV	Barium	mg/L	0%	6	0	8	2	16	0.396		0.504		0.488		6	0	8	2	16	0.396		0.504		0.488	
10_2_11	MW-10	Appendix IV	Beryllium	mg/L	100%	6	0	8	2	16	NA		0.639		NA		NA	NA	NA	NA	NA	NA		NA		NA	
10_2_12	MW-10	Appendix IV	Cadmium	mg/L	100%	6	0	8	2	16	NA		0.639		NA		NA	NA	NA	NA	NA	NA		NA		NA	
10_2_13	MW-10	Appendix IV	Chromium	mg/L	100%	6	0	8	2	16	NA		0.639		0.639		NA	NA	NA	NA	NA	NA		NA		NA	
10_2_14	MW-10	Appendix IV	Cobalt	mg/L	100%	6	0	8	2	16	NA		0.639		0.639		NA	NA	NA	NA	NA	NA		NA		NA	
10_2_15	MW-10	Appendix IV	Lead	mg/L	100%	6	0	8	2	16	NA		0.639		0.639		NA	NA	NA	NA	NA	NA		NA		NA	
10_2_16	MW-10	Appendix IV	Lithium	mg/L	100%	6	0	8	2	16	0.607		0.639		0.639		NA	NA	NA	NA	NA	NA		NA		NA	
10_2_17	MW-10	Appendix IV	Mercury	mg/L	94%	6	0	8	2	16	NA		0.639		0.639		0	0	1	0	1	NA		NA		NA	
10_2_18	MW-10	Appendix IV	Molybdenum	mg/L	100%	6	0	8	2	16	NA		0.639		0.639		NA	NA	NA	NA	NA	NA		NA		NA	
10_2_21	MW-10	Appendix IV	Radium-226/228	pCi/L	0%	6	0	8	2	16	0.427		0.501		0.441		6	0	8	2	16	0.427		0.501		0.441	
10_2_22	MW-10	Appendix IV	Selenium	mg/L	100%	6	0	8	2	16	NA		0.639		0.639		NA	NA	NA	NA	NA	NA		NA		NA	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
10_2_23	MW-10	Appendix IV	Thallium	mg/L	100%	6	0	8	2	16	NA	0.639	0.639	NA	NA	NA	NA	NA	NA	NA	NA
10_3_24	MW-10	Field Parameters	pH	su	0%	6	0	8	2	16	0.744	0.755	0.765	6	0	8	2	16	0.744	0.755	0.765
10_3_25	MW-10	Field Parameters	Conductivity	mS/cm	0%	6	0	8	2	16	0.592	0.536	0.546	6	0	8	2	16	0.592	0.536	0.546
10_3_26	MW-10	Field Parameters	Turbidity	NTU	0%	6	0	8	2	16	0.994	0.650	0.961	6	0	8	2	16	0.994	0.650	0.961
10_3_27	MW-10	Field Parameters	Dissolved Oxygen	mg/L	0%	6	0	8	2	16	0.015 *	0.003 **	0.006 **	6	0	8	2	16	0.015 *	0.003 **	0.006 **
10_3_28	MW-10	Field Parameters	Temperature	°C	0%	6	0	8	2	16	0.005 **	0.000 ***	0.000 ***	6	0	8	2	16	0.005 **	0.000 ***	0.000 ***
10_3_29	MW-10	Field Parameters	Oxidation Reduction Potential	mV	0%	6	0	8	2	16	0.892	0.830	0.912	6	0	8	2	16	0.892	0.830	0.912
10_4_30	MW-10	Other	Total Suspended Solids	mg/L	100%	6	0	8	2	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10_4_31	MW-10	Other	Bicarbonate	mg/L	0%	3	0	5	0	8	0.099	0.022 *	0.022 *	3	0	5	0	8	0.099	0.022 *	0.022 *
10_4_32	MW-10	Other	Carbonate	mg/L	100%	3	0	5	0	8	NA	NA	0.482	NA	NA	NA	NA	NA	NA	NA	NA
10_4_33	MW-10	Other	Hardness	mg/L	0%	3	0	5	0	8	0.099	0.124	0.129	3	0	5	0	8	0.099	0.124	0.129
10_4_34	MW-10	Other	Magnesium	mg/L	0%	3	0	5	0	8	0.025 *	0.006 **	0.007 **	3	0	5	0	8	0.025 *	0.006 **	0.007 **
10_4_35	MW-10	Other	Potassium	mg/L	12%	3	0	5	0	8	0.099	0.098	0.080	2	0	5	0	7	0.241	0.268	0.248
10_4_36	MW-10	Other	Sodium	mg/L	0%	3	0	5	0	8	0.655	0.287	0.412	3	0	5	0	8	0.655	0.287	0.412
10_5_37	MW-10	Part 115	Copper	mg/L	100%	6	0	8	2	16	NA	0.639	0.639	NA	NA	NA	NA	NA	NA	NA	NA
10_5_38	MW-10	Part 115	Iron	mg/L	100%	6	0	8	2	16	NA	0.639	0.639	NA	NA	NA	NA	NA	NA	NA	NA
10_5_39	MW-10	Part 115	Nickel	mg/L	100%	6	0	8	2	16	NA	0.639	0.639	NA	NA	NA	NA	NA	NA	NA	NA
10_5_40	MW-10	Part 115	Silver	mg/L	100%	6	0	8	2	16	NA	0.639	NA	NA	NA	NA	NA	NA	NA	NA	NA
10_5_41	MW-10	Part 115	Vanadium	mg/L	100%	6	0	8	2	16	NA	0.639	0.639	NA	NA	NA	NA	NA	NA	NA	NA
10_5_42	MW-10	Part 115	Zinc	mg/L	88%	6	0	8	2	16	0.815	0.592	0.672	1	0	1	0	2	0.317	NA	NA
13_1_01	MW-13	Appendix III	Boron	mg/L	0%	3	3	5	2	13	0.020 *	0.000 ***	0.000 ***	3	3	5	2	13	0.020 *	0.000 ***	0.000 ***
13_1_02	MW-13	Appendix III	Calcium	mg/L	0%	3	3	5	2	13	0.224	0.158	0.152	3	3	5	2	13	0.224	0.158	0.152
13_1_03	MW-13	Appendix III	Chloride	mg/L	15%	3	3	5	2	13	0.190	0.355	0.192	2	2	5	2	11	0.123	0.255	0.071
13_1_04	MW-13	Appendix III	Fluoride	mg/L	100%	3	3	5	2	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13_1_05	MW-13	Appendix III	pH, Field	su	0%	3	3	5	2	13	0.217	0.567	0.579	3	3	5	2	13	0.217	0.567	0.579
13_1_06	MW-13	Appendix III	Sulfate	mg/L	0%	3	3	5	2	13	0.237	0.495	0.356	3	3	5	2	13	0.237	0.495	0.356
13_1_07	MW-13	Appendix III	Total Dissolved Solids	mg/L	0%	3	3	5	2	13	0.186	0.221	0.178	3	3	5	2	13	0.186	0.221	0.178
13_2_04	MW-13	Appendix IV	Fluoride	mg/L	100%	3	3	5	2	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13_2_08	MW-13	Appendix IV	Antimony	mg/L	100%	3	3	5	2	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_2_09	MW-13	Appendix IV	Arsenic	mg/L	77%	3	3	5	2	13	0.531	0.625	0.612	1	0	2	0	3	0.221	0.512	0.550
13_2_10	MW-13	Appendix IV	Barium	mg/L	0%	3	3	5	2	13	0.089	0.199	0.120	3	3	5	2	13	0.089	0.199	0.120
13_2_11	MW-13	Appendix IV	Beryllium	mg/L	100%	3	3	5	2	13	NA	0.379	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_2_12	MW-13	Appendix IV	Cadmium	mg/L	100%	3	3	5	2	13	NA	0.379	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_2_13	MW-13	Appendix IV	Chromium	mg/L	100%	3	3	5	2	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_2_14	MW-13	Appendix IV	Cobalt	mg/L	100%	3	3	5	2	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_2_15	MW-13	Appendix IV	Lead	mg/L	100%	3	3	5	2	13	NA	0.379	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_2_16	MW-13	Appendix IV	Lithium	mg/L	100%	3	3	5	2	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_2_17	MW-13	Appendix IV	Mercury	mg/L	100%	3	3	5	2	13	NA	0.379	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_2_18	MW-13	Appendix IV	Molybdenum	mg/L	100%	3	3	5	2	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
13_2_21	MW-13	Appendix IV	Radium-226/228	pCi/L	0%	3	3	5	2	13	0.660	0.731	0.877	3	3	5	2	13	0.660	0.731	0.877
13_2_22	MW-13	Appendix IV	Selenium	mg/L	100%	3	3	5	2	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_2_23	MW-13	Appendix IV	Thallium	mg/L	100%	3	3	5	2	13	NA	0.379	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_3_24	MW-13	Field Parameters	pH	su	0%	3	3	5	2	13	0.217	0.567	0.579	3	3	5	2	13	0.217	0.567	0.579
13_3_25	MW-13	Field Parameters	Conductivity	mS/cm	0%	3	3	5	2	13	0.227	0.337	0.314	3	3	5	2	13	0.227	0.337	0.314
13_3_26	MW-13	Field Parameters	Turbidity	NTU	0%	3	3	5	2	13	0.431	0.418	0.479	3	3	5	2	13	0.431	0.418	0.479
13_3_27	MW-13	Field Parameters	Dissolved Oxygen	mg/L	0%	3	3	5	2	13	0.094	0.071	0.075	3	3	5	2	13	0.094	0.071	0.075
13_3_28	MW-13	Field Parameters	Temperature	°C	0%	3	3	5	2	13	0.023 *	0.000 ***	0.000 ***	3	3	5	2	13	0.023 *	0.000 ***	0.000 ***
13_3_29	MW-13	Field Parameters	Oxidation Reduction Potential	mV	0%	3	3	5	2	13	0.376	0.383	NA	3	3	5	2	13	0.376	0.383	NA
13_4_30	MW-13	Other	Total Suspended Solids	mg/L	92%	3	3	5	2	13	0.659	0.716	0.716	0	0	1	0	1	NA	NA	NA
13_4_31	MW-13	Other	Bicarbonate	mg/L	0%	2	2	5	2	11	0.148	0.004 **	0.005 **	2	2	5	2	11	0.148	0.004 **	0.005 **
13_4_32	MW-13	Other	Carbonate	mg/L	100%	2	2	5	2	11	NA	0.217	0.217	NA	NA	NA	NA	NA	NA	NA	NA
13_4_33	MW-13	Other	Hardness	mg/L	0%	2	2	5	2	11	0.085	0.155	0.146	2	2	5	2	11	0.085	0.155	0.146
13_4_34	MW-13	Other	Magnesium	mg/L	0%	2	3	5	2	12	0.161	0.120	0.138	2	3	5	2	12	0.161	0.120	0.138
13_4_35	MW-13	Other	Potassium	mg/L	0%	2	3	5	2	12	0.096	0.207	0.174	2	3	5	2	12	0.096	0.207	0.174
13_4_36	MW-13	Other	Sodium	mg/L	0%	2	3	5	2	12	0.143	0.316	0.162	2	3	5	2	12	0.143	0.316	0.162
13_5_37	MW-13	Part 115	Copper	mg/L	100%	3	3	5	2	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_5_38	MW-13	Part 115	Iron	mg/L	8%	3	3	5	2	13	0.098	0.626	0.310	3	2	5	2	12	0.181	0.709	0.443
13_5_39	MW-13	Part 115	Nickel	mg/L	100%	3	3	5	2	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_5_40	MW-13	Part 115	Silver	mg/L	100%	3	3	5	2	13	NA	0.379	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_5_41	MW-13	Part 115	Vanadium	mg/L	100%	3	3	5	2	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
13_5_42	MW-13	Part 115	Zinc	mg/L	92%	3	3	5	2	13	0.659	0.716	0.716	0	0	1	0	1	NA	NA	NA
14_1_01	MW-14	Appendix III	Boron	mg/L	0%	5	4	7	2	18	0.013 *	0.004 **	0.005 **	5	4	7	2	18	0.013 *	0.004 **	0.005 **
14_1_02	MW-14	Appendix III	Calcium	mg/L	0%	5	4	7	2	18	0.178	0.489	0.457	5	4	7	2	18	0.178	0.489	0.457
14_1_03	MW-14	Appendix III	Chloride	mg/L	0%	5	4	7	2	18	0.082	0.098	0.090	5	4	7	2	18	0.082	0.098	0.090
14_1_04	MW-14	Appendix III	Fluoride	mg/L	100%	5	4	7	2	18	NA	0.493	NA	NA	NA	NA	NA	NA	NA	NA	NA
14_1_05	MW-14	Appendix III	pH, Field	su	0%	5	4	7	2	18	0.104	0.089	0.087	5	4	7	2	18	0.104	0.089	0.087
14_1_06	MW-14	Appendix III	Sulfate	mg/L	0%	5	4	7	2	18	0.219	0.041 *	0.061	5	4	7	2	18	0.219	0.041 *	0.061
14_1_07	MW-14	Appendix III	Total Dissolved Solids	mg/L	11%	5	2	7	2	16	0.113	0.161	0.150	5	2	7	2	16	0.113	0.161	0.150
14_2_04	MW-14	Appendix IV	Fluoride	mg/L	100%	5	4	7	2	18	NA	0.493	NA	NA	NA	NA	NA	NA	NA	NA	NA
14_2_08	MW-14	Appendix IV	Antimony	mg/L	100%	5	4	7	2	18	NA	0.493	0.493	NA	NA	NA	NA	NA	NA	NA	NA
14_2_09	MW-14	Appendix IV	Arsenic	mg/L	0%	5	4	7	2	18	0.114	0.114	0.108	5	4	7	2	18	0.114	0.114	0.108
14_2_10	MW-14	Appendix IV	Barium	mg/L	0%	5	4	7	2	18	0.171	0.690	0.680	5	4	7	2	18	0.171	0.690	0.680
14_2_11	MW-14	Appendix IV	Beryllium	mg/L	100%	5	4	7	2	18	NA	0.493	0.493	NA	NA	NA	NA	NA	NA	NA	NA
14_2_12	MW-14	Appendix IV	Cadmium	mg/L	100%	5	4	7	2	18	NA	0.493	0.493	NA	NA	NA	NA	NA	NA	NA	NA
14_2_13	MW-14	Appendix IV	Chromium	mg/L	100%	5	4	7	2	18	NA	0.493	0.493	NA	NA	NA	NA	NA	NA	NA	NA
14_2_14	MW-14	Appendix IV	Cobalt	mg/L	100%	5	4	7	2	18	NA	0.493	0.493	NA	NA	NA	NA	NA	NA	NA	NA
14_2_15	MW-14	Appendix IV	Lead	mg/L	100%	5	4	7	2	18	NA	0.493	0.493	NA	NA	NA	NA	NA	NA	NA	NA
14_2_16	MW-14	Appendix IV	Lithium	mg/L	0%	5	4	7	2	18	0.010 **	0.001 ***	0.001 ***	5	4	7	2	18	0.010 **	0.001 ***	0.001 ***

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
14_2_17	MW-14	Appendix IV	Mercury	mg/L	100%	5	4	7	2	18	NA	0.493	0.493	NA	NA	NA	NA	NA	NA	NA	NA
14_2_18	MW-14	Appendix IV	Molybdenum	mg/L	0%	5	4	7	2	18	0.457	0.447	0.461	5	4	7	2	18	0.457	0.447	0.461
14_2_21	MW-14	Appendix IV	Radium-226/228	pCi/L	0%	5	4	7	2	18	0.351	0.946	0.755	5	4	7	2	18	0.351	0.946	0.755
14_2_22	MW-14	Appendix IV	Selenium	mg/L	78%	5	4	7	2	18	0.058	0.061	0.047 *	0	0	4	0	4	NA	NA	NA
14_2_23	MW-14	Appendix IV	Thallium	mg/L	100%	5	4	7	2	18	NA	0.493	0.493	NA	NA	NA	NA	NA	NA	NA	NA
14_3_24	MW-14	Field Parameters	pH	su	0%	5	4	7	2	18	0.104	0.089	0.087	5	4	7	2	18	0.104	0.089	0.087
14_3_25	MW-14	Field Parameters	Conductivity	mS/cm	0%	5	4	7	2	18	0.078	0.162	0.154	5	4	7	2	18	0.078	0.162	0.154
14_3_26	MW-14	Field Parameters	Turbidity	NTU	0%	5	4	7	2	18	0.206	0.282	0.495	5	4	7	2	18	0.206	0.282	0.495
14_3_27	MW-14	Field Parameters	Dissolved Oxygen	mg/L	0%	5	4	7	2	18	0.024 *	0.027 *	NA	5	4	7	2	18	0.024 *	0.027 *	NA
14_3_28	MW-14	Field Parameters	Temperature	°C	0%	5	4	7	2	18	0.004 **	0.000 ***	0.000 ***	5	4	7	2	18	0.004 **	0.000 ***	0.000 ***
14_3_29	MW-14	Field Parameters	Oxidation Reduction Potential	mV	0%	5	4	7	2	18	0.209	0.729	NA	5	4	7	2	18	0.209	0.729	NA
14_4_30	MW-14	Other	Total Suspended Solids	mg/L	0%	5	4	7	2	18	0.028 *	0.007 **	0.021 *	5	4	7	2	18	0.028 *	0.007 **	0.021 *
14_4_31	MW-14	Other	Bicarbonate	mg/L	0%	5	4	7	2	18	0.271	0.976	0.945	5	4	7	2	18	0.271	0.976	0.945
14_4_32	MW-14	Other	Carbonate	mg/L	100%	5	4	7	2	18	0.457	0.493	0.493	NA	NA	NA	NA	NA	NA	NA	NA
14_4_33	MW-14	Other	Hardness	mg/L	0%	5	4	7	2	18	0.552	0.505	0.485	5	4	7	2	18	0.552	0.505	0.485
14_4_34	MW-14	Other	Magnesium	mg/L	0%	5	4	7	2	18	0.156	0.255	0.234	5	4	7	2	18	0.156	0.255	0.234
14_4_35	MW-14	Other	Potassium	mg/L	0%	5	4	7	2	18	0.042 *	0.018 *	0.018 *	5	4	7	2	18	0.042 *	0.018 *	0.018 *
14_4_36	MW-14	Other	Sodium	mg/L	0%	5	4	7	2	18	0.019 *	0.016 *	0.017 *	5	4	7	2	18	0.019 *	0.016 *	0.017 *
14_5_37	MW-14	Part 115	Copper	mg/L	100%	5	4	7	2	18	NA	0.493	0.493	NA	NA	NA	NA	NA	NA	NA	NA
14_5_38	MW-14	Part 115	Iron	mg/L	0%	5	4	7	2	18	0.050 *	0.107	0.068	5	4	7	2	18	0.050 *	0.107	0.068
14_5_39	MW-14	Part 115	Nickel	mg/L	61%	5	4	7	2	18	0.138	0.177	0.167	4	1	2	0	7	0.417	0.548	0.537
14_5_40	MW-14	Part 115	Silver	mg/L	100%	5	4	7	2	18	NA	0.493	0.493	NA	NA	NA	NA	NA	NA	NA	NA
14_5_41	MW-14	Part 115	Vanadium	mg/L	94%	5	4	7	2	18	NA	0.493	0.493	0	0	1	0	1	NA	NA	NA
14_5_42	MW-14	Part 115	Zinc	mg/L	83%	5	4	7	2	18	0.295	0.501	0.456	2	1	0	0	3	1.000	0.893	0.998
15_1_01	MW-15	Appendix III	Boron	mg/L	0%	3	2	4	1	10	0.083	0.053	0.058	3	2	4	1	10	0.083	0.053	0.058
15_1_02	MW-15	Appendix III	Calcium	mg/L	0%	3	2	4	1	10	0.152	0.200	0.156	3	2	4	1	10	0.152	0.200	0.156
15_1_03	MW-15	Appendix III	Chloride	mg/L	0%	3	2	4	1	10	0.287	0.256	0.260	3	2	4	1	10	0.287	0.256	0.260
15_1_04	MW-15	Appendix III	Fluoride	mg/L	100%	3	2	4	1	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
15_1_05	MW-15	Appendix III	pH, Field	su	0%	3	2	4	1	10	0.137	0.222	0.223	3	2	4	1	10	0.137	0.222	0.223
15_1_06	MW-15	Appendix III	Sulfate	mg/L	0%	3	2	4	1	10	0.678	0.521	0.576	3	2	4	1	10	0.678	0.521	0.576
15_1_07	MW-15	Appendix III	Total Dissolved Solids	mg/L	0%	3	2	4	1	10	0.706	0.719	0.723	3	2	4	1	10	0.706	0.719	0.723
15_2_04	MW-15	Appendix IV	Fluoride	mg/L	100%	3	2	4	1	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
15_2_08	MW-15	Appendix IV	Antimony	mg/L	100%	3	2	4	1	10	NA	0.586	NA	NA	NA	NA	NA	NA	NA	NA	NA
15_2_09	MW-15	Appendix IV	Arsenic	mg/L	90%	3	2	4	1	10	NA	0.586	0.586	1	0	0	0	1	NA	NA	NA
15_2_10	MW-15	Appendix IV	Barium	mg/L	0%	3	2	4	1	10	0.160	0.264	0.203	3	2	4	1	10	0.160	0.264	0.203
15_2_11	MW-15	Appendix IV	Beryllium	mg/L	100%	3	2	4	1	10	NA	0.586	0.586	NA	NA	NA	NA	NA	NA	NA	NA
15_2_12	MW-15	Appendix IV	Cadmium	mg/L	100%	3	2	4	1	10	NA	0.586	0.586	NA	NA	NA	NA	NA	NA	NA	NA
15_2_13	MW-15	Appendix IV	Chromium	mg/L	100%	3	2	4	1	10	NA	0.586	NA	NA	NA	NA	NA	NA	NA	NA	NA
15_2_14	MW-15	Appendix IV	Cobalt	mg/L	100%	3	2	4	1	10	NA	0.586	NA	NA	NA	NA	NA	NA	NA	NA	NA

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
15_2_15	MW-15	Appendix IV	Lead	mg/L	100%	3	2	4	1	10	NA	0.586	0.586	NA	NA	NA	NA	NA	NA	NA	NA
15_2_16	MW-15	Appendix IV	Lithium	mg/L	90%	3	2	4	1	10	0.506	0.586	0.586	1	0	0	0	1	NA	NA	NA
15_2_17	MW-15	Appendix IV	Mercury	mg/L	100%	3	2	4	1	10	NA	0.586	0.586	NA	NA	NA	NA	NA	NA	NA	NA
15_2_18	MW-15	Appendix IV	Molybdenum	mg/L	100%	3	2	4	1	10	NA	0.586	NA	NA	NA	NA	NA	NA	NA	NA	NA
15_2_21	MW-15	Appendix IV	Radium-226/228	pCi/L	0%	3	2	4	1	10	0.712	0.512	0.484	3	2	4	1	10	0.712	0.512	0.484
15_2_22	MW-15	Appendix IV	Selenium	mg/L	40%	3	2	4	1	10	0.199	0.092	0.120	2	2	2	0	6	0.276	0.264	0.232
15_2_23	MW-15	Appendix IV	Thallium	mg/L	100%	3	2	4	1	10	NA	0.586	0.586	NA	NA	NA	NA	NA	NA	NA	NA
15_3_24	MW-15	Field Parameters	pH	su	0%	3	2	4	1	10	0.137	0.222	0.223	3	2	4	1	10	0.137	0.222	0.223
15_3_25	MW-15	Field Parameters	Conductivity	mS/cm	0%	3	2	4	1	10	0.539	0.961	0.897	3	2	4	1	10	0.539	0.961	0.897
15_3_26	MW-15	Field Parameters	Turbidity	NTU	0%	3	2	4	1	10	0.856	0.961	0.963	3	2	4	1	10	0.856	0.961	0.963
15_3_27	MW-15	Field Parameters	Dissolved Oxygen	mg/L	0%	3	2	4	1	10	0.363	0.187	0.405	3	2	4	1	10	0.363	0.187	0.405
15_3_28	MW-15	Field Parameters	Temperature	°C	0%	3	2	4	1	10	0.073	0.000 ***	0.000 ***	3	2	4	1	10	0.073	0.000 ***	0.000 ***
15_3_29	MW-15	Field Parameters	Oxidation Reduction Potential	mV	0%	3	2	4	1	10	0.584	0.949	NA	3	2	4	1	10	0.584	0.949	NA
15_4_30	MW-15	Other	Total Suspended Solids	mg/L	70%	3	2	4	1	10	0.134	0.132	0.209	0	0	3	0	3	NA	NA	NA
15_4_31	MW-15	Other	Bicarbonate	mg/L	0%	3	2	4	1	10	0.110	0.152	0.136	3	2	4	1	10	0.110	0.152	0.136
15_4_32	MW-15	Other	Carbonate	mg/L	100%	3	2	4	1	10	NA	0.586	NA	NA	NA	NA	NA	NA	NA	NA	NA
15_4_33	MW-15	Other	Hardness	mg/L	0%	3	2	4	1	10	0.189	0.146	0.135	3	2	4	1	10	0.189	0.146	0.135
15_4_34	MW-15	Other	Magnesium	mg/L	0%	3	2	4	1	10	0.147	0.301	0.260	3	2	4	1	10	0.147	0.301	0.260
15_4_35	MW-15	Other	Potassium	mg/L	90%	3	2	4	1	10	0.506	0.586	0.586	1	0	0	0	1	NA	NA	NA
15_4_36	MW-15	Other	Sodium	mg/L	0%	3	2	4	1	10	0.086	0.112	0.098	3	2	4	1	10	0.086	0.112	0.098
15_5_37	MW-15	Part 115	Copper	mg/L	100%	3	2	4	1	10	NA	0.586	NA	NA	NA	NA	NA	NA	NA	NA	NA
15_5_38	MW-15	Part 115	Iron	mg/L	10%	3	2	4	1	10	0.171	0.480	0.172	2	2	4	1	9	0.169	0.600	0.193
15_5_39	MW-15	Part 115	Nickel	mg/L	100%	3	2	4	1	10	NA	0.586	NA	NA	NA	NA	NA	NA	NA	NA	NA
15_5_40	MW-15	Part 115	Silver	mg/L	100%	3	2	4	1	10	NA	0.586	0.586	NA	NA	NA	NA	NA	NA	NA	NA
15_5_41	MW-15	Part 115	Vanadium	mg/L	100%	3	2	4	1	10	NA	0.586	NA	NA	NA	NA	NA	NA	NA	NA	NA
15_5_42	MW-15	Part 115	Zinc	mg/L	90%	3	2	4	1	10	0.261	0.285	0.285	0	1	0	0	1	NA	NA	NA
16A_1_01	MW-16A	Appendix III	Boron	mg/L	0%	3	6	5	6	20	0.006 **	0.000 ***	0.000 ***	3	6	5	6	20	0.006 **	0.000 ***	0.000 ***
16A_1_02	MW-16A	Appendix III	Calcium	mg/L	0%	3	6	5	6	20	0.001 ***	0.000 ***	0.000 ***	3	6	5	6	20	0.001 ***	0.000 ***	0.000 ***
16A_1_03	MW-16A	Appendix III	Chloride	mg/L	0%	3	6	5	6	20	0.003 **	0.000 ***	0.000 ***	3	6	5	6	20	0.003 **	0.000 ***	0.000 ***
16A_1_04	MW-16A	Appendix III	Fluoride	mg/L	100%	3	6	5	6	20	0.172	0.163	0.179	NA	NA	NA	NA	NA	NA	NA	NA
16A_1_05	MW-16A	Appendix III	pH, Field	su	0%	3	6	5	6	20	0.079	0.020 *	0.020 *	3	6	5	6	20	0.079	0.020 *	0.020 *
16A_1_06	MW-16A	Appendix III	Sulfate	mg/L	0%	3	6	5	6	20	0.003 **	0.000 ***	0.000 ***	3	6	5	6	20	0.003 **	0.000 ***	0.000 ***
16A_1_07	MW-16A	Appendix III	Total Dissolved Solids	mg/L	0%	3	6	5	6	20	0.001 ***	0.000 ***	0.000 ***	3	6	5	6	20	0.001 ***	0.000 ***	0.000 ***
16A_2_04	MW-16A	Appendix IV	Fluoride	mg/L	100%	3	6	5	6	20	0.172	0.163	0.179	NA	NA	NA	NA	NA	NA	NA	NA
16A_2_08	MW-16A	Appendix IV	Antimony	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16A_2_09	MW-16A	Appendix IV	Arsenic	mg/L	0%	3	6	5	6	20	0.037 *	0.018 *	0.016 *	3	6	5	6	20	0.037 *	0.018 *	0.016 *
16A_2_10	MW-16A	Appendix IV	Barium	mg/L	0%	3	6	5	6	20	0.001 ***	0.000 ***	0.000 ***	3	6	5	6	20	0.001 ***	0.000 ***	0.000 ***
16A_2_11	MW-16A	Appendix IV	Beryllium	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16A_2_12	MW-16A	Appendix IV	Cadmium	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
16A_2_13	MW-16A	Appendix IV	Chromium	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16A_2_14	MW-16A	Appendix IV	Cobalt	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16A_2_15	MW-16A	Appendix IV	Lead	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16A_2_16	MW-16A	Appendix IV	Lithium	mg/L	95%	3	6	5	6	20	NA	0.120	0.120	1	0	0	0	1	NA	NA	NA
16A_2_17	MW-16A	Appendix IV	Mercury	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16A_2_18	MW-16A	Appendix IV	Molybdenum	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16A_2_21	MW-16A	Appendix IV	Radium-226/228	pCi/L	0%	3	6	5	6	20	0.569	0.866	0.506	3	6	5	6	20	0.569	0.866	0.506
16A_2_22	MW-16A	Appendix IV	Selenium	mg/L	95%	3	6	5	6	20	NA	0.120	0.120	0	0	0	1	1	NA	NA	NA
16A_2_23	MW-16A	Appendix IV	Thallium	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16A_3_24	MW-16A	Field Parameters	pH	su	0%	3	6	5	6	20	0.079	0.020 *	0.020 *	3	6	5	6	20	0.079	0.020 *	0.020 *
16A_3_25	MW-16A	Field Parameters	Conductivity	mS/cm	0%	3	6	5	6	20	0.002 **	0.000 ***	0.000 ***	3	6	5	6	20	0.002 **	0.000 ***	0.000 ***
16A_3_26	MW-16A	Field Parameters	Turbidity	NTU	0%	3	6	5	6	20	0.353	0.350	0.234	3	6	5	6	20	0.353	0.350	0.234
16A_3_27	MW-16A	Field Parameters	Dissolved Oxygen	mg/L	0%	3	6	5	6	20	0.351	0.692	0.197	3	6	5	6	20	0.351	0.692	0.197
16A_3_28	MW-16A	Field Parameters	Temperature	°C	0%	3	6	5	6	20	0.002 **	0.000 ***	0.000 ***	3	6	5	6	20	0.002 **	0.000 ***	0.000 ***
16A_3_29	MW-16A	Field Parameters	Oxidation Reduction Potential	mV	0%	3	6	5	6	20	0.112	0.037 *	NA	3	6	5	6	20	0.112	0.037 *	NA
16A_4_30	MW-16A	Other	Total Suspended Solids	mg/L	15%	3	6	5	6	20	0.016 *	0.000 ***	0.006 **	3	4	5	5	17	0.034 *	0.002 **	0.017 *
16A_4_31	MW-16A	Other	Bicarbonate	mg/L	0%	3	6	5	6	20	0.002 **	0.000 ***	0.000 ***	3	6	5	6	20	0.002 **	0.000 ***	0.000 ***
16A_4_32	MW-16A	Other	Carbonate	mg/L	100%	3	6	5	6	20	0.129	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16A_4_33	MW-16A	Other	Hardness	mg/L	0%	3	6	5	6	20	0.001 **	0.000 ***	0.000 ***	3	6	5	6	20	0.001 **	0.000 ***	0.000 ***
16A_4_34	MW-16A	Other	Magnesium	mg/L	0%	3	6	5	6	20	0.001 ***	0.000 ***	0.000 ***	3	6	5	6	20	0.001 ***	0.000 ***	0.000 ***
16A_4_35	MW-16A	Other	Potassium	mg/L	0%	3	6	5	6	20	0.080	0.004 **	0.009 **	3	6	5	6	20	0.080	0.004 **	0.009 **
16A_4_36	MW-16A	Other	Sodium	mg/L	0%	3	6	5	6	20	0.001 ***	0.000 ***	0.000 ***	3	6	5	6	20	0.001 ***	0.000 ***	0.000 ***
16A_5_37	MW-16A	Part 115	Copper	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16A_5_38	MW-16A	Part 115	Iron	mg/L	0%	3	6	5	6	20	0.007 **	0.000 ***	0.000 ***	3	6	5	6	20	0.007 **	0.000 ***	0.000 ***
16A_5_39	MW-16A	Part 115	Nickel	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16A_5_40	MW-16A	Part 115	Silver	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16A_5_41	MW-16A	Part 115	Vanadium	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16A_5_42	MW-16A	Part 115	Zinc	mg/L	100%	3	6	5	6	20	NA	0.120	0.120	NA	NA	NA	NA	NA	NA	NA	NA
16B_1_01	MW-16B	Appendix III	Boron	mg/L	0%	3	3	4	3	13	0.092	0.037 *	0.041 *	3	3	4	3	13	0.092	0.037 *	0.041 *
16B_1_02	MW-16B	Appendix III	Calcium	mg/L	0%	3	3	4	3	13	0.071	0.065	0.067	3	3	4	3	13	0.071	0.065	0.067
16B_1_03	MW-16B	Appendix III	Chloride	mg/L	38%	3	3	4	3	13	0.201	0.195	0.164	2	2	3	1	8	0.087	0.241	0.136
16B_1_04	MW-16B	Appendix III	Fluoride	mg/L	54%	3	3	4	3	13	0.352	0.471	0.533	2	0	3	1	6	0.635	0.910	0.897
16B_1_05	MW-16B	Appendix III	pH, Field	su	0%	3	3	4	3	13	0.103	0.146	0.151	3	3	4	3	13	0.103	0.146	0.151
16B_1_06	MW-16B	Appendix III	Sulfate	mg/L	0%	3	3	4	3	13	0.077	0.046 *	0.034 *	3	3	4	3	13	0.077	0.046 *	0.034 *
16B_1_07	MW-16B	Appendix III	Total Dissolved Solids	mg/L	0%	3	3	4	3	13	0.075	0.065	0.064	3	3	4	3	13	0.075	0.065	0.064
16B_2_04	MW-16B	Appendix IV	Fluoride	mg/L	62%	3	3	4	3	13	0.111	0.208	0.319	2	0	3	0	5	0.543	0.784	0.685
16B_2_08	MW-16B	Appendix IV	Antimony	mg/L	100%	3	3	4	3	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
16B_2_09	MW-16B	Appendix IV	Arsenic	mg/L	100%	3	3	4	3	13	NA	0.379	0.379	NA	NA	NA	NA	NA	NA	NA	NA
16B_2_10	MW-16B	Appendix IV	Barium	mg/L	0%	3	3	4	3	13	0.063	0.051	0.050 *	3	3	4	3	13	0.063	0.051	0.050 *

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
16B_2_11	MW-16B	Appendix IV	Beryllium	mg/L	100%	3	3	4	3	13	NA	0.379	0.379	NA	NA	NA	NA	NA	NA	NA	NA
16B_2_12	MW-16B	Appendix IV	Cadmium	mg/L	100%	3	3	4	3	13	NA	0.379	0.379	NA	NA	NA	NA	NA	NA	NA	NA
16B_2_13	MW-16B	Appendix IV	Chromium	mg/L	100%	3	3	4	3	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
16B_2_14	MW-16B	Appendix IV	Cobalt	mg/L	100%	3	3	4	3	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
16B_2_15	MW-16B	Appendix IV	Lead	mg/L	100%	3	3	4	3	13	NA	0.379	0.379	NA	NA	NA	NA	NA	NA	NA	NA
16B_2_16	MW-16B	Appendix IV	Lithium	mg/L	0%	3	3	4	3	13	0.199	0.213	0.219	3	3	4	3	13	0.199	0.213	0.219
16B_2_17	MW-16B	Appendix IV	Mercury	mg/L	100%	3	3	4	3	13	NA	0.379	0.379	NA	NA	NA	NA	NA	NA	NA	NA
16B_2_18	MW-16B	Appendix IV	Molybdenum	mg/L	0%	3	3	4	3	13	0.291	0.342	0.323	3	3	4	3	13	0.291	0.342	0.323
16B_2_21	MW-16B	Appendix IV	Radium-226/228	pCi/L	0%	3	3	4	3	13	0.619	0.497	0.525	3	3	4	3	13	0.619	0.497	0.525
16B_2_22	MW-16B	Appendix IV	Selenium	mg/L	92%	3	3	4	3	13	0.343	0.379	0.379	0	0	0	1	1	NA	NA	NA
16B_2_23	MW-16B	Appendix IV	Thallium	mg/L	100%	3	3	4	3	13	NA	0.379	0.379	NA	NA	NA	NA	NA	NA	NA	NA
16B_3_24	MW-16B	Field Parameters	pH	su	0%	3	3	4	3	13	0.104	0.153	0.158	3	3	4	3	13	0.104	0.153	0.158
16B_3_25	MW-16B	Field Parameters	Conductivity	mS/cm	0%	3	3	4	3	13	0.441	0.372	0.363	3	3	4	3	13	0.441	0.372	0.363
16B_3_26	MW-16B	Field Parameters	Turbidity	NTU	0%	3	3	4	3	13	0.161	0.156	0.081	3	3	4	3	13	0.161	0.156	0.081
16B_3_27	MW-16B	Field Parameters	Dissolved Oxygen	mg/L	0%	3	3	4	3	13	0.056	0.459	NA	3	3	4	3	13	0.056	0.459	NA
16B_3_28	MW-16B	Field Parameters	Temperature	°C	0%	3	3	4	3	13	0.019 *	0.006 **	0.009 **	3	3	4	3	13	0.019 *	0.006 **	0.009 **
16B_3_29	MW-16B	Field Parameters	Oxidation Reduction Potential	mV	0%	3	3	4	3	13	0.788	0.973	NA	3	3	4	3	13	0.788	0.973	NA
16B_4_30	MW-16B	Other	Total Suspended Solids	mg/L	46%	3	3	4	3	13	0.263	0.354	0.257	2	2	3	0	7	0.259	0.380	0.340
16B_4_31	MW-16B	Other	Bicarbonate	mg/L	0%	3	3	4	3	13	0.262	0.266	0.266	3	3	4	3	13	0.262	0.266	0.266
16B_4_32	MW-16B	Other	Carbonate	mg/L	100%	3	3	4	3	13	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA	NA
16B_4_33	MW-16B	Other	Hardness	mg/L	0%	3	3	4	3	13	0.199	0.178	0.175	3	3	4	3	13	0.199	0.178	0.175
16B_4_34	MW-16B	Other	Magnesium	mg/L	0%	3	3	4	3	13	0.018 *	0.005 **	0.005 **	3	3	4	3	13	0.018 *	0.005 **	0.005 **
16B_4_35	MW-16B	Other	Potassium	mg/L	0%	3	3	4	3	13	0.581	0.469	0.474	3	3	4	3	13	0.581	0.469	0.474
16B_4_36	MW-16B	Other	Sodium	mg/L	0%	3	3	4	3	13	0.233	0.506	0.499	3	3	4	3	13	0.233	0.506	0.499
16B_5_37	MW-16B	Part 115	Copper	mg/L	100%	3	3	4	3	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
16B_5_38	MW-16B	Part 115	Iron	mg/L	0%	3	3	4	3	13	0.235	0.456	0.398	3	3	4	3	13	0.235	0.456	0.398
16B_5_39	MW-16B	Part 115	Nickel	mg/L	100%	3	3	4	3	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
16B_5_40	MW-16B	Part 115	Silver	mg/L	100%	3	3	4	3	13	NA	0.379	0.379	NA	NA	NA	NA	NA	NA	NA	NA
16B_5_41	MW-16B	Part 115	Vanadium	mg/L	100%	3	3	4	3	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
16B_5_42	MW-16B	Part 115	Zinc	mg/L	100%	3	3	4	3	13	NA	NA	0.379	NA	NA	NA	NA	NA	NA	NA	NA
7C_1_01	MW-7C	Appendix III	Boron	mg/L	0%	2	4	4	3	13	0.993	0.826	0.846	2	4	4	3	13	0.993	0.826	0.846
7C_1_02	MW-7C	Appendix III	Calcium	mg/L	0%	2	4	4	3	13	0.561	0.986	0.999	2	4	4	3	13	0.561	0.986	0.999
7C_1_03	MW-7C	Appendix III	Chloride	mg/L	0%	2	4	4	3	13	0.354	0.663	0.652	2	4	4	3	13	0.354	0.663	0.652
7C_1_04	MW-7C	Appendix III	Fluoride	mg/L	100%	2	4	4	3	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7C_1_05	MW-7C	Appendix III	pH, Field	su	0%	2	4	4	3	13	0.052	0.036 *	0.036 *	2	4	4	3	13	0.052	0.036 *	0.036 *
7C_1_06	MW-7C	Appendix III	Sulfate	mg/L	0%	2	4	4	3	13	0.024 *	0.000 ***	0.000 ***	2	4	4	3	13	0.024 *	0.000 ***	0.000 ***
7C_1_07	MW-7C	Appendix III	Total Dissolved Solids	mg/L	0%	2	4	4	3	13	0.024 *	0.001 ***	0.000 ***	2	4	4	3	13	0.024 *	0.001 ***	0.000 ***
7C_2_04	MW-7C	Appendix IV	Fluoride	mg/L	100%	2	4	4	3	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7C_2_08	MW-7C	Appendix IV	Antimony	mg/L	100%	2	4	4	3	13	NA	NA	0.579	NA	NA	NA	NA	NA	NA	NA	NA

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
7C_2_09	MW-7C	Appendix IV	Arsenic	mg/L	0%	2	4	4	3	13	0.217	0.197	0.193	2	4	4	3	13	0.217	0.197	0.193
7C_2_10	MW-7C	Appendix IV	Barium	mg/L	0%	2	4	4	3	13	0.145	0.119	0.120	2	4	4	3	13	0.145	0.119	0.120
7C_2_11	MW-7C	Appendix IV	Beryllium	mg/L	100%	2	4	4	3	13	NA	0.579	0.579	NA	NA	NA	NA	NA	NA	NA	NA
7C_2_12	MW-7C	Appendix IV	Cadmium	mg/L	77%	2	4	4	3	13	0.153	0.097	0.107	0	1	0	2	3	0.221	0.333	0.310
7C_2_13	MW-7C	Appendix IV	Chromium	mg/L	100%	2	4	4	3	13	NA	NA	0.579	NA	NA	NA	NA	NA	NA	NA	NA
7C_2_14	MW-7C	Appendix IV	Cobalt	mg/L	100%	2	4	4	3	13	NA	NA	0.579	NA	NA	NA	NA	NA	NA	NA	NA
7C_2_15	MW-7C	Appendix IV	Lead	mg/L	100%	2	4	4	3	13	NA	0.579	0.579	NA	NA	NA	NA	NA	NA	NA	NA
7C_2_16	MW-7C	Appendix IV	Lithium	mg/L	0%	2	4	4	3	13	0.736	0.874	0.876	2	4	4	3	13	0.736	0.874	0.876
7C_2_17	MW-7C	Appendix IV	Mercury	mg/L	100%	2	4	4	3	13	NA	0.579	0.579	NA	NA	NA	NA	NA	NA	NA	NA
7C_2_18	MW-7C	Appendix IV	Molybdenum	mg/L	0%	2	4	4	3	13	0.217	0.175	0.179	2	4	4	3	13	0.217	0.175	0.179
7C_2_21	MW-7C	Appendix IV	Radium-226/228	pCi/L	0%	2	4	4	3	13	0.552	0.453	0.590	2	4	4	3	13	0.552	0.453	0.590
7C_2_22	MW-7C	Appendix IV	Selenium	mg/L	100%	2	4	4	3	13	NA	NA	0.579	NA	NA	NA	NA	NA	NA	NA	NA
7C_2_23	MW-7C	Appendix IV	Thallium	mg/L	100%	2	4	4	3	13	NA	0.579	0.579	NA	NA	NA	NA	NA	NA	NA	NA
7C_3_24	MW-7C	Field Parameters	pH	su	0%	2	4	4	3	13	0.052	0.036 *	0.036 *	2	4	4	3	13	0.052	0.036 *	0.036 *
7C_3_25	MW-7C	Field Parameters	Conductivity	mS/cm	0%	2	4	4	3	13	0.041 *	0.021 *	0.030 *	2	4	4	3	13	0.041 *	0.021 *	0.030 *
7C_3_26	MW-7C	Field Parameters	Turbidity	NTU	0%	2	4	4	3	13	0.264	0.404	0.270	2	4	4	3	13	0.264	0.404	0.270
7C_3_27	MW-7C	Field Parameters	Dissolved Oxygen	mg/L	0%	2	4	4	3	13	0.333	0.199	0.240	2	4	4	3	13	0.333	0.199	0.240
7C_3_28	MW-7C	Field Parameters	Temperature	°C	0%	2	4	4	3	13	0.024 *	0.006 **	0.005 **	2	4	4	3	13	0.024 *	0.006 **	0.005 **
7C_3_29	MW-7C	Field Parameters	Oxidation Reduction Potential	mV	0%	2	4	4	3	13	0.850	0.722	NA	2	4	4	3	13	0.850	0.722	NA
7C_4_30	MW-7C	Other	Total Suspended Solids	mg/L	23%	2	4	4	3	13	0.036 *	0.087	0.032 *	2	4	3	1	10	0.062	0.339	0.132
7C_4_31	MW-7C	Other	Bicarbonate	mg/L	0%	2	4	4	3	13	0.329	0.339	0.329	2	4	4	3	13	0.329	0.339	0.329
7C_4_32	MW-7C	Other	Carbonate	mg/L	100%	2	4	4	3	13	NA	0.579	NA	NA	NA	NA	NA	NA	NA	NA	NA
7C_4_33	MW-7C	Other	Hardness	mg/L	0%	2	4	4	3	13	0.023 *	0.011 *	0.017 *	2	4	4	3	13	0.023 *	0.011 *	0.017 *
7C_4_34	MW-7C	Other	Magnesium	mg/L	0%	2	4	4	3	13	0.218	0.832	0.847	2	4	4	3	13	0.218	0.832	0.847
7C_4_35	MW-7C	Other	Potassium	mg/L	0%	2	4	4	3	13	0.028 *	0.006 **	0.007 **	2	4	4	3	13	0.028 *	0.006 **	0.007 **
7C_4_36	MW-7C	Other	Sodium	mg/L	0%	2	4	4	3	13	0.339	0.638	0.643	2	4	4	3	13	0.339	0.638	0.643
7C_5_37	MW-7C	Part 115	Copper	mg/L	100%	2	4	4	3	13	NA	NA	0.579	NA	NA	NA	NA	NA	NA	NA	NA
7C_5_38	MW-7C	Part 115	Iron	mg/L	0%	2	4	4	3	13	0.454	0.552	0.549	2	4	4	3	13	0.454	0.552	0.549
7C_5_39	MW-7C	Part 115	Nickel	mg/L	0%	2	4	4	3	13	0.089	0.061	0.053	2	4	4	3	13	0.089	0.061	0.053
7C_5_40	MW-7C	Part 115	Silver	mg/L	100%	2	4	4	3	13	NA	0.579	0.579	NA	NA	NA	NA	NA	NA	NA	NA
7C_5_41	MW-7C	Part 115	Vanadium	mg/L	100%	2	4	4	3	13	NA	NA	0.579	NA	NA	NA	NA	NA	NA	NA	NA
7C_5_42	MW-7C	Part 115	Zinc	mg/L	85%	2	4	4	3	13	0.711	0.726	0.734	0	1	1	0	2	0.317	NA	NA

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 8: Trend Tests: Lognormal MLE and MK

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
02_1_01	MW-2	Appendix III	Boron	mg/L	20	0	0%	Parametric	Lognormal MLE	-0.000183	0.018	↔
02_1_02	MW-2	Appendix III	Calcium	mg/L	20	0	0%	Nonparametric	MK	-0.0540	0.000	↓
02_1_03	MW-2	Appendix III	Chloride	mg/L	18	0	0%	Parametric	Lognormal MLE	0.00000200	0.965	↔
02_1_05	MW-2	Appendix III	pH, Field	su	21	0	0%	Parametric	Lognormal MLE	0.00000560	0.359	↔
02_1_06	MW-2	Appendix III	Sulfate	mg/L	18	0	0%	Parametric	Lognormal MLE	-0.000504	0.000	↓
02_1_07	MW-2	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	Parametric	Lognormal MLE	-0.000240	0.000	↓
02_2_10	MW-2	Appendix IV	Barium	mg/L	21	0	0%	Parametric	Lognormal MLE	-0.000125	0.000	↓
02_2_16	MW-2	Appendix IV	Lithium	mg/L	21	0	0%	Parametric	Lognormal MLE	-0.000272	0.000	↓
02_2_18	MW-2	Appendix IV	Molybdenum	mg/L	21	0	0%	Parametric	Lognormal MLE	0.0000957	0.155	↔
02_3_24	MW-2	Field Parameters	pH	su	21	0	0%	Parametric	Lognormal MLE	0.00000560	0.359	↔
02_3_25	MW-2	Field Parameters	Conductivity	mS/cm	21	0	0%	Nonparametric	MK	-0.000281	0.004	↓
02_3_26	MW-2	Field Parameters	Turbidity	NTU	21	0	0%	Nonparametric	MK	0.00205	0.155	↔
02_3_27	MW-2	Field Parameters	Dissolved Oxygen	mg/L	21	0	0%	Nonparametric	MK	0.000150	0.115	↔
02_3_28	MW-2	Field Parameters	Temperature	°C	21	0	0%	Parametric	Lognormal MLE	0.00000247	0.968	↔
02_4_30	MW-2	Other	Total Suspended Solids	mg/L	19	4	21%	Parametric	Lognormal MLE	0.00145	0.000	↑
02_5_38	MW-2	Part 115	Iron	mg/L	21	0	0%	Parametric	Lognormal MLE	-0.000422	0.061	↔
02_5_39	MW-2	Part 115	Nickel	mg/L	21	0	0%	Nonparametric	MK	-0.00000587	0.016	↔
03_1_01	MW-3	Appendix III	Boron	mg/L	8	0	0%	Parametric	Lognormal MLE	-0.0000400	0.245	↔
03_1_02	MW-3	Appendix III	Calcium	mg/L	8	0	0%	Parametric	Lognormal MLE	0.0000704	0.014	↔
03_1_03	MW-3	Appendix III	Chloride	mg/L	8	0	0%	Parametric	Lognormal MLE	0.000106	0.000	↑
03_1_05	MW-3	Appendix III	pH, Field	su	8	0	0%	Parametric	Lognormal MLE	0.0000121	0.076	↔
03_1_06	MW-3	Appendix III	Sulfate	mg/L	8	0	0%	Parametric	Lognormal MLE	0.00000441	0.864	↔
03_1_07	MW-3	Appendix III	Total Dissolved Solids	mg/L	8	0	0%	Parametric	Lognormal MLE	-0.0000410	0.000	↓
03_2_09	MW-3	Appendix IV	Arsenic	mg/L	8	0	0%	Nonparametric	MK	0	0.188	↔
03_2_10	MW-3	Appendix IV	Barium	mg/L	8	0	0%	Parametric	Lognormal MLE	-0.000183	0.000	↓
03_2_16	MW-3	Appendix IV	Lithium	mg/L	8	0	0%	Parametric	Lognormal MLE	-0.0000685	0.149	↔
03_2_18	MW-3	Appendix IV	Molybdenum	mg/L	8	0	0%	Parametric	Lognormal MLE	0.0000405	0.372	↔
03_2_21	MW-3	Appendix IV	Radium-226/228	pCi/L	8	0	0%	Parametric	Lognormal MLE	-0.000556	0.257	↔
03_3_24	MW-3	Field Parameters	pH	su	8	0	0%	Parametric	Lognormal MLE	0.0000121	0.076	↔
03_3_25	MW-3	Field Parameters	Conductivity	mS/cm	8	0	0%	Parametric	Lognormal MLE	-0.0000481	0.000	↓
03_3_26	MW-3	Field Parameters	Turbidity	NTU	8	0	0%	Parametric	Lognormal MLE	-0.00306	0.010	↔
03_3_27	MW-3	Field Parameters	Dissolved Oxygen	mg/L	8	0	0%	Parametric	Lognormal MLE	0.000281	0.625	↔
03_3_28	MW-3	Field Parameters	Temperature	°C	8	0	0%	Parametric	Lognormal MLE	0.000109	0.456	↔
03_4_30	MW-3	Other	Total Suspended Solids	mg/L	8	1	12%	Parametric	Lognormal MLE	0.000530	0.101	↔
03_5_38	MW-3	Part 115	Iron	mg/L	8	0	0%	Parametric	Lognormal MLE	-0.000190	0.000	↓
05_1_01	MW-5	Appendix III	Boron	mg/L	22	0	0%	Parametric	Lognormal MLE	-0.000425	0.030	↔
05_1_02	MW-5	Appendix III	Calcium	mg/L	22	0	0%	Parametric	Lognormal MLE	-0.000472	0.000	↓
05_1_03	MW-5	Appendix III	Chloride	mg/L	18	0	0%	Nonparametric	MK	-0.0262	0.001	↓
05_1_05	MW-5	Appendix III	pH, Field	su	23	0	0%	Nonparametric	MK	0.0000273	0.770	↔
05_1_06	MW-5	Appendix III	Sulfate	mg/L	18	0	0%	Parametric	Lognormal MLE	-0.000772	0.000	↓
05_1_07	MW-5	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	Parametric	Lognormal MLE	-0.000559	0.000	↓
05_2_10	MW-5	Appendix IV	Barium	mg/L	23	0	0%	Parametric	Lognormal MLE	-0.0000860	0.128	↔
05_2_16	MW-5	Appendix IV	Lithium	mg/L	23	0	0%	Parametric	Lognormal MLE	0.0000503	0.712	↔

(Table continues on next page)

Table 8: Trend Tests: Lognormal MLE and MK *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
05_2_18	MW-5	Appendix IV	Molybdenum	mg/L	23	0	0%	Parametric	Lognormal MLE	0.000300	0.067	↔
05_2_21	MW-5	Appendix IV	Radium-226/228	pCi/L	19	0	0%	Parametric	Lognormal MLE	0.000319	0.262	↔
05_3_24	MW-5	Field Parameters	pH	su	23	0	0%	Nonparametric	MK	0.0000273	0.770	↔
05_3_25	MW-5	Field Parameters	Conductivity	mS/cm	23	0	0%	Parametric	Lognormal MLE	-0.000432	0.000	↓
05_3_26	MW-5	Field Parameters	Turbidity	NTU	23	0	0%	Nonparametric	MK	0.00307	0.340	↔
05_3_27	MW-5	Field Parameters	Dissolved Oxygen	mg/L	23	0	0%	Parametric	Lognormal MLE	0.000716	0.000	↑
05_3_28	MW-5	Field Parameters	Temperature	°C	23	0	0%	Parametric	Lognormal MLE	-0.0000292	0.778	↔
05_4_30	MW-5	Other	Total Suspended Solids	mg/L	19	0	0%	Parametric	Lognormal MLE	-0.000497	0.269	↔
05_4_34	MW-5	Other	Magnesium	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.000593	0.002	↓
05_4_35	MW-5	Other	Potassium	mg/L	9	0	0%	Parametric	Lognormal MLE	0.0000581	0.661	↔
05_4_36	MW-5	Other	Sodium	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.000511	0.006	↓
05_5_38	MW-5	Part 115	Iron	mg/L	23	5	22%	Parametric	Lognormal MLE	-0.00170	0.042	↔
05_5_39	MW-5	Part 115	Nickel	mg/L	23	3	13%	Parametric	Lognormal MLE	-0.000779	0.000	↓
05_5_42	MW-5	Part 115	Zinc	mg/L	23	9	39%	Parametric	Lognormal MLE	-0.00105	0.033	↔
06_1_01	MW-6	Appendix III	Boron	mg/L	19	0	0%	Parametric	Lognormal MLE	-0.0000681	0.497	↔
06_1_02	MW-6	Appendix III	Calcium	mg/L	19	0	0%	Parametric	Lognormal MLE	0.0000601	0.173	↔
06_1_03	MW-6	Appendix III	Chloride	mg/L	19	0	0%	Nonparametric	MK	0.000666	0.725	↔
06_1_05	MW-6	Appendix III	pH, Field	su	20	0	0%	Nonparametric	MK	0.0000581	0.134	↔
06_1_06	MW-6	Appendix III	Sulfate	mg/L	19	0	0%	Parametric	Lognormal MLE	-0.000140	0.222	↔
06_1_07	MW-6	Appendix III	Total Dissolved Solids	mg/L	19	0	0%	Parametric	Lognormal MLE	-0.0000117	0.827	↔
06_2_10	MW-6	Appendix IV	Barium	mg/L	20	0	0%	Parametric	Lognormal MLE	-0.00000979	0.839	↔
06_2_16	MW-6	Appendix IV	Lithium	mg/L	20	0	0%	Parametric	Lognormal MLE	-0.0000646	0.387	↔
06_2_18	MW-6	Appendix IV	Molybdenum	mg/L	20	0	0%	Parametric	Lognormal MLE	-0.000376	0.000	↓
06_3_24	MW-6	Field Parameters	pH	su	20	0	0%	Nonparametric	MK	0.0000581	0.134	↔
06_3_25	MW-6	Field Parameters	Conductivity	mS/cm	20	0	0%	Parametric	Lognormal MLE	-0.0000179	0.654	↔
06_3_26	MW-6	Field Parameters	Turbidity	NTU	20	0	0%	Parametric	Lognormal MLE	-0.00122	0.000	↓
06_3_27	MW-6	Field Parameters	Dissolved Oxygen	mg/L	20	0	0%	Parametric	Lognormal MLE	0.00178	0.000	↑
06_3_28	MW-6	Field Parameters	Temperature	°C	20	0	0%	Parametric	Lognormal MLE	-0.0000109	0.842	↔
06_5_39	MW-6	Part 115	Nickel	mg/L	20	6	30%	Nonparametric	MK	-0.00000104	0.027	↔
07_1_01	MW-7	Appendix III	Boron	mg/L	14	0	0%	Parametric	Lognormal MLE	-0.000219	0.130	↔
07_1_02	MW-7	Appendix III	Calcium	mg/L	14	0	0%	Parametric	Lognormal MLE	0.000110	0.315	↔
07_1_03	MW-7	Appendix III	Chloride	mg/L	14	0	0%	Parametric	Lognormal MLE	0.000141	0.002	↑
07_1_05	MW-7	Appendix III	pH, Field	su	14	0	0%	Parametric	Lognormal MLE	-0.0000416	0.042	↔
07_1_06	MW-7	Appendix III	Sulfate	mg/L	14	0	0%	Parametric	Lognormal MLE	0.0000861	0.415	↔
07_1_07	MW-7	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	Nonparametric	MK	0.120	0.207	↔
07_2_09	MW-7	Appendix IV	Arsenic	mg/L	14	0	0%	Nonparametric	MK	0	0.175	↔
07_2_10	MW-7	Appendix IV	Barium	mg/L	14	0	0%	Parametric	Lognormal MLE	-0.000248	0.004	↓
07_2_16	MW-7	Appendix IV	Lithium	mg/L	14	0	0%	Parametric	Lognormal MLE	-0.000267	0.000	↓
07_2_18	MW-7	Appendix IV	Molybdenum	mg/L	14	0	0%	Nonparametric	MK	-0.0000856	0.323	↔
07_2_21	MW-7	Appendix IV	Radium-226/228	pCi/L	14	0	0%	Parametric	Lognormal MLE	-0.000378	0.407	↔
07_3_24	MW-7	Field Parameters	pH	su	14	0	0%	Parametric	Lognormal MLE	-0.0000416	0.042	↔
07_3_25	MW-7	Field Parameters	Conductivity	mS/cm	14	0	0%	Parametric	Lognormal MLE	0.000190	0.203	↔
07_3_26	MW-7	Field Parameters	Turbidity	NTU	14	0	0%	Parametric	Lognormal MLE	0.000114	0.791	↔

(Table continues on next page)

Table 8: Trend Tests: Lognormal MLE and MK *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
07_3_27	MW-7	Field Parameters	Dissolved Oxygen	mg/L	14	1	7%	Nonparametric	MK	0.0000703	0.293	↔
07_3_28	MW-7	Field Parameters	Temperature	°C	14	0	0%	Parametric	Lognormal MLE	-0.000131	0.518	↔
07_5_38	MW-7	Part 115	Iron	mg/L	14	0	0%	Parametric	Lognormal MLE	0.0000411	0.819	↔
08_1_01	MW-8	Appendix III	Boron	mg/L	13	1	8%	Parametric	Lognormal MLE	-0.000104	0.783	↔
08_1_02	MW-8	Appendix III	Calcium	mg/L	13	0	0%	Parametric	Lognormal MLE	0.0000170	0.670	↔
08_1_03	MW-8	Appendix III	Chloride	mg/L	13	2	15%	Parametric	Lognormal MLE	0.000977	0.154	↔
08_1_05	MW-8	Appendix III	pH, Field	su	13	0	0%	Parametric	Lognormal MLE	-0.0000151	0.455	↔
08_1_06	MW-8	Appendix III	Sulfate	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000354	0.338	↔
08_1_07	MW-8	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	Parametric	Lognormal MLE	0.0000935	0.030	↔
08_2_10	MW-8	Appendix IV	Barium	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.0000202	0.848	↔
08_2_16	MW-8	Appendix IV	Lithium	mg/L	13	6	46%	Parametric	Lognormal MLE	0.00000561	0.989	↔
08_2_21	MW-8	Appendix IV	Radium-226/228	pCi/L	13	0	0%	Parametric	Lognormal MLE	0.000121	0.884	↔
08_3_24	MW-8	Field Parameters	pH	su	13	0	0%	Parametric	Lognormal MLE	-0.0000151	0.455	↔
08_3_25	MW-8	Field Parameters	Conductivity	mS/cm	13	0	0%	Parametric	Lognormal MLE	0.0000257	0.529	↔
08_3_26	MW-8	Field Parameters	Turbidity	NTU	13	0	0%	Parametric	Lognormal MLE	-0.000367	0.273	↔
08_3_27	MW-8	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.000944	0.485	↔
08_3_28	MW-8	Field Parameters	Temperature	°C	13	0	0%	Parametric	Lognormal MLE	-0.0000606	0.785	↔
08_3_29	MW-8	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	Parametric	Lognormal MLE	-0.000177	0.637	↔
09_1_02	MW-9	Appendix III	Calcium	mg/L	21	0	0%	Nonparametric	MK	0.0338	0.000	↑
09_1_05	MW-9	Appendix III	pH, Field	su	21	0	0%	Nonparametric	MK	-0.000111	0.484	↔
09_1_07	MW-9	Appendix III	Total Dissolved Solids	mg/L	21	0	0%	Parametric	Lognormal MLE	0.000323	0.000	↑
09_2_10	MW-9	Appendix IV	Barium	mg/L	21	0	0%	Nonparametric	MK	0	0.826	↔
09_3_24	MW-9	Field Parameters	pH	su	21	0	0%	Nonparametric	MK	-0.000111	0.484	↔
09_3_25	MW-9	Field Parameters	Conductivity	mS/cm	21	0	0%	Nonparametric	MK	0.000137	0.000	↑
09_3_26	MW-9	Field Parameters	Turbidity	NTU	21	0	0%	Nonparametric	MK	-0.00450	0.082	↔
09_3_27	MW-9	Field Parameters	Dissolved Oxygen	mg/L	21	0	0%	Parametric	Lognormal MLE	-0.000128	0.268	↔
09_3_28	MW-9	Field Parameters	Temperature	°C	21	0	0%	Nonparametric	MK	-0.0139	0.107	↔
09_3_29	MW-9	Field Parameters	Oxidation Reduction Potential	mV	21	0	0%	Parametric	Lognormal MLE	-0.000424	0.105	↔
100A_1_01	MW-100A	Appendix III	Boron	mg/L	9	0	0%	Nonparametric	MK	0	0.464	↔
100A_1_02	MW-100A	Appendix III	Calcium	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.0000727	0.118	↔
100A_1_03	MW-100A	Appendix III	Chloride	mg/L	9	0	0%	Nonparametric	MK	0.000730	0.032	↔
100A_1_05	MW-100A	Appendix III	pH, Field	su	9	0	0%	Parametric	Lognormal MLE	-0.00000158	0.963	↔
100A_1_06	MW-100A	Appendix III	Sulfate	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.00141	0.017	↔
100A_1_07	MW-100A	Appendix III	Total Dissolved Solids	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.0000858	0.082	↔
100A_2_09	MW-100A	Appendix IV	Arsenic	mg/L	9	0	0%	Parametric	Lognormal MLE	0.000874	0.094	↔
100A_2_10	MW-100A	Appendix IV	Barium	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.000213	0.000	↓
100A_2_16	MW-100A	Appendix IV	Lithium	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.00111	0.000	↓
100A_2_18	MW-100A	Appendix IV	Molybdenum	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.00124	0.000	↓
100A_2_21	MW-100A	Appendix IV	Radium-226/228	pCi/L	9	0	0%	Parametric	Lognormal MLE	0.000525	0.763	↔
100A_3_24	MW-100A	Field Parameters	pH	su	9	0	0%	Parametric	Lognormal MLE	-0.00000158	0.963	↔
100A_3_25	MW-100A	Field Parameters	Conductivity	mS/cm	9	0	0%	Parametric	Lognormal MLE	-0.000388	0.011	↔
100A_3_26	MW-100A	Field Parameters	Turbidity	NTU	9	0	0%	Parametric	Lognormal MLE	0.00199	0.281	↔
100A_3_27	MW-100A	Field Parameters	Dissolved Oxygen	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.00277	0.108	↔

(Table continues on next page)

Table 8: Trend Tests: Lognormal MLE and MK *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
100A_3_28	MW-100A	Field Parameters	Temperature	°C	9	0	0%	Parametric	Lognormal MLE	-0.000565	0.249	↔
100A_4_30	MW-100A	Other	Total Suspended Solids	mg/L	9	1	11%	Nonparametric	MK	-0.00407	0.917	↔
100A_4_31	MW-100A	Other	Bicarbonate	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.0000691	0.409	↔
100A_4_33	MW-100A	Other	Hardness	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.0000375	0.555	↔
100A_4_34	MW-100A	Other	Magnesium	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.000122	0.113	↔
100A_4_35	MW-100A	Other	Potassium	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.000636	0.000	↓
100A_4_36	MW-100A	Other	Sodium	mg/L	9	0	0%	Parametric	Lognormal MLE	-0.000288	0.003	↓
100A_5_38	MW-100A	Part 115	Iron	mg/L	9	0	0%	Parametric	Lognormal MLE	0.00188	0.158	↔
100B_1_01	MW-100B	Appendix III	Boron	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000147	0.447	↔
100B_1_02	MW-100B	Appendix III	Calcium	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.000141	0.108	↔
100B_1_03	MW-100B	Appendix III	Chloride	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.000334	0.030	↔
100B_1_05	MW-100B	Appendix III	pH, Field	su	13	0	0%	Nonparametric	MK	0.000643	0.007	↑
100B_1_06	MW-100B	Appendix III	Sulfate	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.000380	0.026	↔
100B_1_07	MW-100B	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.000129	0.110	↔
100B_2_09	MW-100B	Appendix IV	Arsenic	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000292	0.191	↔
100B_2_10	MW-100B	Appendix IV	Barium	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.000336	0.000	↓
100B_2_16	MW-100B	Appendix IV	Lithium	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000156	0.140	↔
100B_2_18	MW-100B	Appendix IV	Molybdenum	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.000955	0.000	↓
100B_2_21	MW-100B	Appendix IV	Radium-226/228	pCi/L	13	0	0%	Parametric	Lognormal MLE	-0.00260	0.001	↓
100B_3_24	MW-100B	Field Parameters	pH	su	13	0	0%	Nonparametric	MK	0.000643	0.007	↑
100B_3_25	MW-100B	Field Parameters	Conductivity	mS/cm	13	0	0%	Parametric	Lognormal MLE	-0.000255	0.000	↓
100B_3_26	MW-100B	Field Parameters	Turbidity	NTU	13	0	0%	Nonparametric	MK	0.000142	0.754	↔
100B_3_27	MW-100B	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	Nonparametric	MK	0	0.702	↔
100B_3_28	MW-100B	Field Parameters	Temperature	°C	13	0	0%	Nonparametric	MK	-0.0118	0.041	↔
100B_4_30	MW-100B	Other	Total Suspended Solids	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.000660	0.428	↔
100B_4_31	MW-100B	Other	Bicarbonate	mg/L	13	0	0%	Nonparametric	MK	-0.119	0.208	↔
100B_4_33	MW-100B	Other	Hardness	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.0000815	0.426	↔
100B_4_34	MW-100B	Other	Magnesium	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.000227	0.098	↔
100B_4_35	MW-100B	Other	Potassium	mg/L	13	0	0%	Parametric	Lognormal MLE	0.0000608	0.430	↔
100B_4_36	MW-100B	Other	Sodium	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000567	0.000	↑
100B_5_38	MW-100B	Part 115	Iron	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000233	0.628	↔
10_1_01	MW-10	Appendix III	Boron	mg/L	16	0	0%	Nonparametric	MK	0	1.000	↔
10_1_02	MW-10	Appendix III	Calcium	mg/L	16	0	0%	Parametric	Lognormal MLE	-0.0000682	0.115	↔
10_1_05	MW-10	Appendix III	pH, Field	su	16	0	0%	Parametric	Lognormal MLE	-0.00000309	0.864	↔
10_1_06	MW-10	Appendix III	Sulfate	mg/L	16	0	0%	Parametric	Lognormal MLE	0.0000536	0.760	↔
10_1_07	MW-10	Appendix III	Total Dissolved Solids	mg/L	16	0	0%	Parametric	Lognormal MLE	-0.0000208	0.694	↔
10_2_10	MW-10	Appendix IV	Barium	mg/L	16	0	0%	Parametric	Lognormal MLE	-0.000188	0.000	↓
10_2_21	MW-10	Appendix IV	Radium-226/228	pCi/L	16	0	0%	Parametric	Lognormal MLE	0.00117	0.003	↑
10_3_24	MW-10	Field Parameters	pH	su	16	0	0%	Parametric	Lognormal MLE	-0.00000309	0.864	↔
10_3_25	MW-10	Field Parameters	Conductivity	mS/cm	16	0	0%	Parametric	Lognormal MLE	-0.000114	0.002	↓
10_3_26	MW-10	Field Parameters	Turbidity	NTU	16	0	0%	Parametric	Lognormal MLE	0.000319	0.190	↔
10_3_27	MW-10	Field Parameters	Dissolved Oxygen	mg/L	16	0	0%	Parametric	Lognormal MLE	0.0000693	0.593	↔
10_3_28	MW-10	Field Parameters	Temperature	°C	16	0	0%	Nonparametric	MK	0.000278	0.928	↔

(Table continues on next page)

Table 8: Trend Tests: Lognormal MLE and MK *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
10_3_29	MW-10	Field Parameters	Oxidation Reduction Potential	mV	16	0	0%	Parametric	Lognormal MLE	-0.0000516	0.841	↔
10_4_31	MW-10	Other	Bicarbonate	mg/L	8	0	0%	Nonparametric	MK	-0.0806	0.074	↔
10_4_33	MW-10	Other	Hardness	mg/L	8	0	0%	Parametric	Lognormal MLE	-0.000137	0.137	↔
10_4_34	MW-10	Other	Magnesium	mg/L	8	0	0%	Parametric	Lognormal MLE	-0.000200	0.094	↔
10_4_35	MW-10	Other	Potassium	mg/L	8	1	12%	Parametric	Lognormal MLE	0.000377	0.220	↔
10_4_36	MW-10	Other	Sodium	mg/L	8	0	0%	Nonparametric	MK	0.00158	0.311	↔
13_1_01	MW-13	Appendix III	Boron	mg/L	13	0	0%	Parametric	Lognormal MLE	0.0000618	0.655	↔
13_1_02	MW-13	Appendix III	Calcium	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000467	0.001	↑
13_1_03	MW-13	Appendix III	Chloride	mg/L	13	2	15%	Parametric	Lognormal MLE	0.00184	0.005	↑
13_1_05	MW-13	Appendix III	pH, Field	su	13	0	0%	Parametric	Lognormal MLE	-0.0000463	0.133	↔
13_1_06	MW-13	Appendix III	Sulfate	mg/L	13	0	0%	Parametric	Lognormal MLE	0.00234	0.000	↑
13_1_07	MW-13	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000649	0.000	↑
13_2_10	MW-13	Appendix IV	Barium	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000702	0.000	↑
13_2_21	MW-13	Appendix IV	Radium-226/228	pCi/L	13	0	0%	Parametric	Lognormal MLE	0.000254	0.819	↔
13_3_24	MW-13	Field Parameters	pH	su	13	0	0%	Parametric	Lognormal MLE	-0.0000463	0.133	↔
13_3_25	MW-13	Field Parameters	Conductivity	mS/cm	13	0	0%	Parametric	Lognormal MLE	0.000445	0.000	↑
13_3_26	MW-13	Field Parameters	Turbidity	NTU	13	0	0%	Parametric	Lognormal MLE	-0.000498	0.559	↔
13_3_27	MW-13	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.00318	0.000	↓
13_3_28	MW-13	Field Parameters	Temperature	°C	13	0	0%	Parametric	Lognormal MLE	0.000372	0.350	↔
13_4_31	MW-13	Other	Bicarbonate	mg/L	11	0	0%	Nonparametric	MK	0.0761	0.096	↔
13_4_33	MW-13	Other	Hardness	mg/L	11	0	0%	Parametric	Lognormal MLE	0.000738	0.000	↑
13_4_34	MW-13	Other	Magnesium	mg/L	12	0	0%	Parametric	Lognormal MLE	0.000603	0.000	↑
13_4_35	MW-13	Other	Potassium	mg/L	12	0	0%	Parametric	Lognormal MLE	0.000206	0.032	↔
13_4_36	MW-13	Other	Sodium	mg/L	12	0	0%	Parametric	Lognormal MLE	0.00197	0.000	↑
13_5_38	MW-13	Part 115	Iron	mg/L	13	1	8%	Nonparametric	MK	0.000229	0.007	↑
14_1_01	MW-14	Appendix III	Boron	mg/L	18	0	0%	Parametric	Lognormal MLE	-0.000159	0.012	↔
14_1_02	MW-14	Appendix III	Calcium	mg/L	18	0	0%	Nonparametric	MK	0.0381	0.021	↔
14_1_03	MW-14	Appendix III	Chloride	mg/L	18	0	0%	Parametric	Lognormal MLE	0.0000925	0.016	↔
14_1_05	MW-14	Appendix III	pH, Field	su	18	0	0%	Parametric	Lognormal MLE	-0.0000262	0.088	↔
14_1_06	MW-14	Appendix III	Sulfate	mg/L	18	0	0%	Nonparametric	MK	-0.0429	0.000	↓
14_1_07	MW-14	Appendix III	Total Dissolved Solids	mg/L	16	2	11%	Parametric	Lognormal MLE	0.000254	0.000	↑
14_2_09	MW-14	Appendix IV	Arsenic	mg/L	18	0	0%	Parametric	Lognormal MLE	0.000894	0.002	↑
14_2_10	MW-14	Appendix IV	Barium	mg/L	18	0	0%	Nonparametric	MK	0.0000280	0.061	↔
14_2_16	MW-14	Appendix IV	Lithium	mg/L	18	0	0%	Nonparametric	MK	-0.0000476	0.001	↓
14_2_18	MW-14	Appendix IV	Molybdenum	mg/L	18	0	0%	Parametric	Lognormal MLE	-0.000166	0.263	↔
14_2_21	MW-14	Appendix IV	Radium-226/228	pCi/L	18	0	0%	Parametric	Lognormal MLE	0.000617	0.587	↔
14_3_24	MW-14	Field Parameters	pH	su	18	0	0%	Parametric	Lognormal MLE	-0.0000262	0.088	↔
14_3_25	MW-14	Field Parameters	Conductivity	mS/cm	18	0	0%	Nonparametric	MK	0.0000852	0.191	↔
14_3_26	MW-14	Field Parameters	Turbidity	NTU	18	0	0%	Parametric	Lognormal MLE	-0.000426	0.472	↔
14_3_27	MW-14	Field Parameters	Dissolved Oxygen	mg/L	18	0	0%	Nonparametric	MK	-0.000703	0.011	↔
14_3_28	MW-14	Field Parameters	Temperature	°C	18	0	0%	Nonparametric	MK	0.0114	0.004	↑
14_4_30	MW-14	Other	Total Suspended Solids	mg/L	18	0	0%	Nonparametric	MK	0.0302	0.000	↑
14_4_31	MW-14	Other	Bicarbonate	mg/L	18	0	0%	Nonparametric	MK	0.286	0.000	↑

(Table continues on next page)

Table 8: Trend Tests: Lognormal MLE and MK *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
14_4_33	MW-14	Other	Hardness	mg/L	18	0	0%	Parametric	Lognormal MLE	0.000301	0.000	↑
14_4_34	MW-14	Other	Magnesium	mg/L	18	0	0%	Parametric	Lognormal MLE	0.000209	0.000	↑
14_4_35	MW-14	Other	Potassium	mg/L	18	0	0%	Parametric	Lognormal MLE	0.000222	0.096	↔
14_4_36	MW-14	Other	Sodium	mg/L	18	0	0%	Parametric	Lognormal MLE	0.0000368	0.530	↔
14_5_38	MW-14	Part 115	Iron	mg/L	18	0	0%	Parametric	Lognormal MLE	0.00120	0.000	↑
15_1_01	MW-15	Appendix III	Boron	mg/L	10	0	0%	Parametric	Lognormal MLE	0.000354	0.012	↔
15_1_02	MW-15	Appendix III	Calcium	mg/L	10	0	0%	Parametric	Lognormal MLE	-0.000111	0.686	↔
15_1_03	MW-15	Appendix III	Chloride	mg/L	10	0	0%	Parametric	Lognormal MLE	-0.000179	0.525	↔
15_1_05	MW-15	Appendix III	pH, Field	su	10	0	0%	Parametric	Lognormal MLE	-0.0000778	0.000	↓
15_1_06	MW-15	Appendix III	Sulfate	mg/L	10	0	0%	Parametric	Lognormal MLE	-0.00194	0.000	↓
15_1_07	MW-15	Appendix III	Total Dissolved Solids	mg/L	10	0	0%	Parametric	Lognormal MLE	-0.000373	0.110	↔
15_2_10	MW-15	Appendix IV	Barium	mg/L	10	0	0%	Parametric	Lognormal MLE	0.000119	0.731	↔
15_2_21	MW-15	Appendix IV	Radium-226/228	pCi/L	10	0	0%	Parametric	Lognormal MLE	-0.000745	0.550	↔
15_2_22	MW-15	Appendix IV	Selenium	mg/L	10	4	40%	Parametric	Lognormal MLE	-0.00818	0.004	↓
15_3_24	MW-15	Field Parameters	pH	su	10	0	0%	Parametric	Lognormal MLE	-0.0000778	0.000	↓
15_3_25	MW-15	Field Parameters	Conductivity	mS/cm	10	0	0%	Parametric	Lognormal MLE	-0.000705	0.108	↔
15_3_26	MW-15	Field Parameters	Turbidity	NTU	10	0	0%	Parametric	Lognormal MLE	0.000592	0.307	↔
15_3_27	MW-15	Field Parameters	Dissolved Oxygen	mg/L	10	0	0%	Parametric	Lognormal MLE	-0.0105	0.000	↓
15_3_28	MW-15	Field Parameters	Temperature	°C	10	0	0%	Parametric	Lognormal MLE	0.00106	0.027	↔
15_4_31	MW-15	Other	Bicarbonate	mg/L	10	0	0%	Parametric	Lognormal MLE	0.000412	0.015	↔
15_4_33	MW-15	Other	Hardness	mg/L	10	0	0%	Parametric	Lognormal MLE	0.0000756	0.591	↔
15_4_34	MW-15	Other	Magnesium	mg/L	10	0	0%	Parametric	Lognormal MLE	-0.000247	0.370	↔
15_4_36	MW-15	Other	Sodium	mg/L	10	0	0%	Nonparametric	MK	-0.000829	0.858	↔
15_5_38	MW-15	Part 115	Iron	mg/L	10	1	10%	Parametric	Lognormal MLE	0.00503	0.000	↑
16A_1_01	MW-16A	Appendix III	Boron	mg/L	20	0	0%	Nonparametric	MK	0.000237	0.037	↔
16A_1_02	MW-16A	Appendix III	Calcium	mg/L	20	0	0%	Parametric	Lognormal MLE	0.000729	0.000	↑
16A_1_03	MW-16A	Appendix III	Chloride	mg/L	20	0	0%	Parametric	Lognormal MLE	0.000549	0.000	↑
16A_1_05	MW-16A	Appendix III	pH, Field	su	20	0	0%	Parametric	Lognormal MLE	-0.0000323	0.128	↔
16A_1_06	MW-16A	Appendix III	Sulfate	mg/L	20	0	0%	Parametric	Lognormal MLE	0.00244	0.000	↑
16A_1_07	MW-16A	Appendix III	Total Dissolved Solids	mg/L	20	0	0%	Parametric	Lognormal MLE	0.000714	0.000	↑
16A_2_09	MW-16A	Appendix IV	Arsenic	mg/L	20	0	0%	Nonparametric	MK	0	0.101	↔
16A_2_10	MW-16A	Appendix IV	Barium	mg/L	20	0	0%	Parametric	Lognormal MLE	0.000573	0.020	↔
16A_2_21	MW-16A	Appendix IV	Radium-226/228	pCi/L	20	0	0%	Parametric	Lognormal MLE	0.00143	0.304	↔
16A_3_24	MW-16A	Field Parameters	pH	su	20	0	0%	Parametric	Lognormal MLE	-0.0000323	0.128	↔
16A_3_25	MW-16A	Field Parameters	Conductivity	mS/cm	20	0	0%	Parametric	Lognormal MLE	0.000604	0.000	↑
16A_3_26	MW-16A	Field Parameters	Turbidity	NTU	20	0	0%	Parametric	Lognormal MLE	0.000725	0.057	↔
16A_3_27	MW-16A	Field Parameters	Dissolved Oxygen	mg/L	20	0	0%	Parametric	Lognormal MLE	-0.00481	0.011	↔
16A_3_28	MW-16A	Field Parameters	Temperature	°C	20	0	0%	Nonparametric	MK	0.0216	0.003	↑
16A_4_30	MW-16A	Other	Total Suspended Solids	mg/L	20	3	15%	Parametric	Lognormal MLE	-0.000890	0.385	↔
16A_4_31	MW-16A	Other	Bicarbonate	mg/L	20	0	0%	Parametric	Lognormal MLE	0.000189	0.304	↔
16A_4_33	MW-16A	Other	Hardness	mg/L	20	0	0%	Parametric	Lognormal MLE	0.000804	0.000	↑
16A_4_34	MW-16A	Other	Magnesium	mg/L	20	0	0%	Parametric	Lognormal MLE	0.000790	0.000	↑
16A_4_35	MW-16A	Other	Potassium	mg/L	20	0	0%	Parametric	Lognormal MLE	-0.0000748	0.800	↔

(Table continues on next page)

Table 8: Trend Tests: Lognormal MLE and MK *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
16A_4_36	MW-16A	Other	Sodium	mg/L	20	0	0%	Parametric	Lognormal MLE	0.000476	0.001	↑
16A_5_38	MW-16A	Part 115	Iron	mg/L	20	0	0%	Parametric	Lognormal MLE	0.000226	0.438	↔
16B_1_01	MW-16B	Appendix III	Boron	mg/L	13	0	0%	Nonparametric	MK	-0.0000213	0.044	↔
16B_1_02	MW-16B	Appendix III	Calcium	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000178	0.000	↑
16B_1_03	MW-16B	Appendix III	Chloride	mg/L	13	5	38%	Nonparametric	MK	-0.00324	0.008	↓
16B_1_05	MW-16B	Appendix III	pH, Field	su	13	0	0%	Parametric	Lognormal MLE	0.00000904	0.635	↔
16B_1_06	MW-16B	Appendix III	Sulfate	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000370	0.000	↑
16B_1_07	MW-16B	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	Parametric	Lognormal MLE	0.0000544	0.038	↔
16B_2_10	MW-16B	Appendix IV	Barium	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.0000149	0.759	↔
16B_2_16	MW-16B	Appendix IV	Lithium	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.000184	0.014	↔
16B_2_18	MW-16B	Appendix IV	Molybdenum	mg/L	13	0	0%	Nonparametric	MK	0	0.738	↔
16B_2_21	MW-16B	Appendix IV	Radium-226/228	pCi/L	13	0	0%	Parametric	Lognormal MLE	-0.000879	0.265	↔
16B_3_24	MW-16B	Field Parameters	pH	su	13	0	0%	Parametric	Lognormal MLE	0.00000920	0.629	↔
16B_3_25	MW-16B	Field Parameters	Conductivity	mS/cm	13	0	0%	Parametric	Lognormal MLE	0.00000654	0.887	↔
16B_3_26	MW-16B	Field Parameters	Turbidity	NTU	13	0	0%	Parametric	Lognormal MLE	0.00104	0.430	↔
16B_3_28	MW-16B	Field Parameters	Temperature	°C	13	0	0%	Parametric	Lognormal MLE	0.000373	0.098	↔
16B_4_30	MW-16B	Other	Total Suspended Solids	mg/L	13	6	46%	Parametric	Lognormal MLE	-0.00243	0.003	↓
16B_4_31	MW-16B	Other	Bicarbonate	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000136	0.000	↑
16B_4_33	MW-16B	Other	Hardness	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000180	0.006	↑
16B_4_34	MW-16B	Other	Magnesium	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000132	0.086	↔
16B_4_35	MW-16B	Other	Potassium	mg/L	13	0	0%	Nonparametric	MK	-0.000443	0.026	↔
16B_4_36	MW-16B	Other	Sodium	mg/L	13	0	0%	Nonparametric	MK	-0.00769	0.001	↓
16B_5_38	MW-16B	Part 115	Iron	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.00127	0.000	↓
7C_1_01	MW-7C	Appendix III	Boron	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.0000181	0.602	↔
7C_1_02	MW-7C	Appendix III	Calcium	mg/L	13	0	0%	Nonparametric	MK	-0.0259	0.076	↔
7C_1_03	MW-7C	Appendix III	Chloride	mg/L	13	0	0%	Parametric	Lognormal MLE	0.0000412	0.339	↔
7C_1_05	MW-7C	Appendix III	pH, Field	su	13	0	0%	Parametric	Lognormal MLE	-0.00000411	0.748	↔
7C_1_06	MW-7C	Appendix III	Sulfate	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.000137	0.000	↓
7C_1_07	MW-7C	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	Nonparametric	MK	-0.165	0.000	↓
7C_2_09	MW-7C	Appendix IV	Arsenic	mg/L	13	0	0%	Nonparametric	MK	0	1.000	↔
7C_2_10	MW-7C	Appendix IV	Barium	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.000117	0.011	↔
7C_2_16	MW-7C	Appendix IV	Lithium	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.0000783	0.033	↔
7C_2_18	MW-7C	Appendix IV	Molybdenum	mg/L	13	0	0%	Parametric	Lognormal MLE	-0.0000263	0.451	↔
7C_2_21	MW-7C	Appendix IV	Radium-226/228	pCi/L	13	0	0%	Parametric	Lognormal MLE	-0.000647	0.246	↔
7C_3_24	MW-7C	Field Parameters	pH	su	13	0	0%	Parametric	Lognormal MLE	-0.00000411	0.748	↔
7C_3_25	MW-7C	Field Parameters	Conductivity	mS/cm	13	0	0%	Parametric	Lognormal MLE	-0.000238	0.010	↓
7C_3_26	MW-7C	Field Parameters	Turbidity	NTU	13	0	0%	Parametric	Lognormal MLE	0.00341	0.065	↔
7C_3_27	MW-7C	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	Nonparametric	MK	-0.000200	0.138	↔
7C_3_28	MW-7C	Field Parameters	Temperature	°C	13	0	0%	Parametric	Lognormal MLE	-0.0000117	0.942	↔
7C_4_30	MW-7C	Other	Total Suspended Solids	mg/L	13	3	23%	Parametric	Lognormal MLE	-0.000305	0.699	↔
7C_4_31	MW-7C	Other	Bicarbonate	mg/L	13	0	0%	Parametric	Lognormal MLE	0.000128	0.006	↑
7C_4_33	MW-7C	Other	Hardness	mg/L	13	0	0%	Nonparametric	MK	-0.276	0.012	↔
7C_4_34	MW-7C	Other	Magnesium	mg/L	13	0	0%	Parametric	Lognormal MLE	0.0000543	0.450	↔

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Table 8: Trend Tests: Lognormal MLE and MK *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
7C_4_35	MW-7C	Other	Potassium	mg/L	13	0	0%	Parametric	Lognormal MLE	0.0000997	0.110	↔
7C_4_36	MW-7C	Other	Sodium	mg/L	13	0	0%	Nonparametric	MK	-0.00181	0.668	↔
7C_5_38	MW-7C	Part 115	Iron	mg/L	13	0	0%	Parametric	Lognormal MLE	0.0000521	0.362	↔
7C_5_39	MW-7C	Part 115	Nickel	mg/L	13	0	0%	Nonparametric	MK	-0.00000270	0.013	↔

Table 9: Trend Tests: Piecewise Linear-Linear

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
02_1_01	MW-2	Appendix III	Boron	mg/L	20	0	0%	0.0182	0.000	↑	-0.00179	0.000	↓	2020-10-04	0.906	↔
02_1_03	MW-2	Appendix III	Chloride	mg/L	18	0	0%	0.175	0.007	↑	-0.00669	0.032	↔	2020-09-01	0.665	↔
02_1_05	MW-2	Appendix III	pH, Field	su	21	0	0%	0.000975	0.436	↔	0.00000284	0.956	↔	2020-09-14	0.146	↔
02_1_06	MW-2	Appendix III	Sulfate	mg/L	18	0	0%	2.10	0.000	↑	-0.251	0.000	↓	2020-08-04	0.951	↔
02_1_07	MW-2	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	2.79	0.003	↑	-0.346	0.000	↓	2020-07-28	0.928	↔
02_2_09	MW-2	Appendix IV	Arsenic	mg/L	21	17	81%	0.00000154	0.033	↔	-0.000000902	0.174	↔	2022-02-01	0.313	↔
02_2_10	MW-2	Appendix IV	Barium	mg/L	21	0	0%	0.00000483	0.274	↔	-0.0000117	0.011	↔	2022-02-01	0.602	↔
02_2_16	MW-2	Appendix IV	Lithium	mg/L	21	0	0%	0.0000991	0.000	↑	-0.0000201	0.000	↓	2020-10-18	0.902	↔
02_2_18	MW-2	Appendix IV	Molybdenum	mg/L	21	0	0%	0.00000396	0.050	↔	-0.00000621	0.092	↔	2023-02-06	0.351	↔
02_3_24	MW-2	Field Parameters	pH	su	21	0	0%	0.000975	0.436	↔	0.00000284	0.956	↔	2020-09-14	0.146	↔
02_3_25	MW-2	Field Parameters	Conductivity	mS/cm	21	0	0%	0.00203	0.028	↔	-0.000347	0.000	↓	2020-08-13	0.928	↔
02_3_26	MW-2	Field Parameters	Turbidity	NTU	21	0	0%	-2.29	0.000	↓	0.00335	0.036	↔	2020-05-26	0.950	↔
02_3_27	MW-2	Field Parameters	Dissolved Oxygen	mg/L	21	0	0%	0.000650	0.046	↔	-0.000553	0.073	↔	2022-08-01	0.400	↔
02_3_29	MW-2	Field Parameters	Oxidation Reduction Potential	mV	21	0	0%	0.335	0.020	↔	-0.0542	0.191	↔	2021-05-04	0.406	↔
02_4_30	MW-2	Other	Total Suspended Solids	mg/L	19	4	21%	0.0206	0.000	↑	-0.0550	0.111	↔	2023-08-01	0.772	↔
02_4_35	MW-2	Other	Potassium	mg/L	7	1	14%	-0.00968	0.003	↓	-0.000212	0.694	↔	2023-02-18	0.980	↔
02_5_38	MW-2	Part 115	Iron	mg/L	21	0	0%	0.00132	0.010	↑	-0.00133	0.007	↓	2022-04-02	0.519	↔
02_5_39	MW-2	Part 115	Nickel	mg/L	21	0	0%	0.0000750	0.000	↑	-0.00000937	0.000	↓	2020-09-08	0.948	↔
02_5_42	MW-2	Part 115	Zinc	mg/L	21	18	86%	-0.000114	0.185	↔	-0.0000000323	0.993	↔	2020-08-27	0.257	↔
03_1_02	MW-3	Appendix III	Calcium	mg/L	8	0	0%	0.0426	0.807	↔	0.0113	0.457	↔	2022-01-29	0.481	↔
03_1_03	MW-3	Appendix III	Chloride	mg/L	8	0	0%	0.0244	0.011	↔	0.00179	0.723	↔	2022-08-02	0.920	↔
03_1_05	MW-3	Appendix III	pH, Field	su	8	0	0%	0.000194	0.644	↔	0.0000260	0.854	↔	2022-08-01	0.340	↔
03_1_07	MW-3	Appendix III	Total Dissolved Solids	mg/L	8	0	0%	-0.111	0.021	↔	-0.0299	0.315	↔	2022-08-02	0.919	↔
03_2_10	MW-3	Appendix IV	Barium	mg/L	8	0	0%	-0.00000311	0.040	↔	-0.00000461	0.091	↔	2023-07-31	0.930	↔
03_2_16	MW-3	Appendix IV	Lithium	mg/L	8	0	0%	0.0000989	0.115	↔	-0.0000143	0.026	↔	2021-09-18	0.800	↔
03_2_18	MW-3	Appendix IV	Molybdenum	mg/L	8	0	0%	0.0000318	0.134	↔	-0.0000276	0.464	↔	2023-02-08	0.513	↔
03_2_21	MW-3	Appendix IV	Radium-226/228	pCi/L	8	0	0%	0.00498	0.228	↔	-0.00276	0.081	↔	2022-04-27	0.650	↔
03_3_24	MW-3	Field Parameters	pH	su	8	0	0%	0.000194	0.644	↔	0.0000260	0.854	↔	2022-08-01	0.340	↔
03_3_25	MW-3	Field Parameters	Conductivity	mS/cm	8	0	0%	0.0000620	0.675	↔	-0.000148	0.035	↔	2022-05-25	0.799	↔
03_3_27	MW-3	Field Parameters	Dissolved Oxygen	mg/L	8	0	0%	0.000326	0.086	↔	-0.000408	0.230	↔	2023-02-07	0.652	↔
03_3_29	MW-3	Field Parameters	Oxidation Reduction Potential	mV	8	0	0%	-0.0876	0.142	↔	0.0862	0.106	↔	2022-10-18	0.660	↔
03_4_30	MW-3	Other	Total Suspended Solids	mg/L	8	1	12%	0.00305	0.567	↔	0.0000246	0.989	↔	2022-08-01	0.386	↔

(Table continues on next page)

Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
03_4_31	MW-3	Other	Bicarbonate	mg/L	5	0	0%	0.00268	0.950	↔	0.0767	0.142	↔	2023-07-31	0.970	↔
03_4_34	MW-3	Other	Magnesium	mg/L	5	0	0%	0.0106	0.256	↔	-0.00794	0.529	↔	2023-12-31	0.924	↔
03_4_36	MW-3	Other	Sodium	mg/L	5	0	0%	0.0268	0.403	↔	-0.00248	0.846	↔	2023-07-31	0.908	↔
05_1_01	MW-5	Appendix III	Boron	mg/L	22	0	0%	-0.00382	0.009	↓	0.0000613	0.959	↔	2022-02-01	0.615	↔
05_1_02	MW-5	Appendix III	Calcium	mg/L	22	0	0%	-0.216	0.005	↓	-0.0148	0.810	↔	2022-02-01	0.692	↔
05_1_05	MW-5	Appendix III	pH, Field	su	23	0	0%	-0.000908	0.316	↔	0.000307	0.080	↔	2021-05-03	0.191	↔
05_1_06	MW-5	Appendix III	Sulfate	mg/L	18	0	0%	-0.764	0.020	↔	-0.140	0.675	↔	2022-02-01	0.634	↔
05_1_07	MW-5	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	-1.20	0.054	↔	-0.209	0.551	↔	2022-01-31	0.686	↔
05_2_09	MW-5	Appendix IV	Arsenic	mg/L	23	17	74%	-0.0000879	0.162	↔	0.000000176	0.722	↔	2020-05-28	0.196	↔
05_2_10	MW-5	Appendix IV	Barium	mg/L	23	0	0%	-0.0000983	0.002	↓	0.00000226	0.542	↔	2020-11-06	0.508	↔
05_2_13	MW-5	Appendix IV	Chromium	mg/L	23	21	91%	-0.000159	0.000	↓	0.0000000412	0.831	↔	2020-05-28	0.848	↔
05_2_14	MW-5	Appendix IV	Cobalt	mg/L	23	22	96%	-0.0000137	0.000	↓	0.0000000237	0.603	↔	2020-06-26	0.777	↔
05_2_15	MW-5	Appendix IV	Lead	mg/L	23	20	87%	0.00000612	0.211	↔	-0.00000483	0.057	↔	2022-01-31	0.237	↔
05_2_16	MW-5	Appendix IV	Lithium	mg/L	23	0	0%	-0.000766	0.402	↔	0.00000506	0.493	↔	2020-05-28	0.085	↔
05_2_18	MW-5	Appendix IV	Molybdenum	mg/L	23	0	0%	-0.0000584	0.068	↔	0.0000612	0.001	↑	2021-11-18	0.571	↔
05_2_21	MW-5	Appendix IV	Radium-226/228	pCi/L	19	0	0%	0.00653	0.303	↔	-0.000226	0.770	↔	2020-11-05	0.120	↔
05_3_24	MW-5	Field Parameters	pH	su	23	0	0%	-0.000908	0.316	↔	0.000307	0.080	↔	2021-05-03	0.191	↔
05_3_25	MW-5	Field Parameters	Conductivity	mS/cm	23	0	0%	0.0109	0.405	↔	-0.000667	0.000	↓	2020-05-31	0.694	↔
05_3_26	MW-5	Field Parameters	Turbidity	NTU	23	0	0%	-3.92	0.000	↓	0.00568	0.002	↑	2020-06-08	0.989	↔
05_3_27	MW-5	Field Parameters	Dissolved Oxygen	mg/L	23	0	0%	0.0368	0.173	↔	0.00123	0.011	↔	2020-06-24	0.495	↔
05_3_28	MW-5	Field Parameters	Temperature	°C	23	0	0%	-0.00232	0.368	↔	0.00771	0.411	↔	2023-02-07	0.100	↔
05_3_29	MW-5	Field Parameters	Oxidation Reduction Potential	mV	23	0	0%	0.623	0.025	↔	-0.0156	0.751	↔	2021-02-02	0.455	↔
05_4_33	MW-5	Other	Hardness	mg/L	5	0	0%	-0.599	0.020	↔	0.169	0.131	↔	2023-10-13	0.999	↔
05_4_34	MW-5	Other	Magnesium	mg/L	9	0	0%	-0.0472	0.012	↔	0.0320	0.163	↔	2023-12-28	0.869	↔
05_4_35	MW-5	Other	Potassium	mg/L	9	0	0%	0.00254	0.445	↔	-0.000154	0.909	↔	2023-02-08	0.140	↔
05_4_36	MW-5	Other	Sodium	mg/L	9	0	0%	-0.0630	0.007	↓	0.0399	0.142	↔	2023-11-29	0.876	↔
05_5_37	MW-5	Part 115	Copper	mg/L	23	18	78%	-0.0000136	0.660	↔	-0.00000151	0.638	↔	2020-11-05	0.071	↔
05_5_38	MW-5	Part 115	Iron	mg/L	23	5	22%	-0.217	0.001	↓	-0.000229	0.623	↔	2020-05-30	0.678	↔
05_5_39	MW-5	Part 115	Nickel	mg/L	23	3	13%	-0.000107	0.096	↔	-0.00000569	0.000	↓	2020-06-25	0.742	↔
05_5_41	MW-5	Part 115	Vanadium	mg/L	23	20	87%	-0.000221	0.000	↓	0.0000000585	0.877	↔	2020-05-28	0.735	↔
05_5_42	MW-5	Part 115	Zinc	mg/L	23	9	39%	0.00000816	0.864	↔	-0.0000250	0.307	↔	2022-01-31	0.104	↔
06_1_01	MW-6	Appendix III	Boron	mg/L	19	0	0%	0.00329	0.038	↔	-0.000206	0.009	↓	2020-09-14	0.573	↔
06_1_02	MW-6	Appendix III	Calcium	mg/L	19	0	0%	0.264	0.157	↔	0.0000658	0.994	↔	2020-09-07	0.357	↔
06_1_03	MW-6	Appendix III	Chloride	mg/L	19	0	0%	0.00233	0.716	↔	-0.00746	0.791	↔	2023-02-07	0.018	↔
06_1_05	MW-6	Appendix III	pH, Field	su	20	0	0%	0.00261	0.130	↔	-0.0000355	0.640	↔	2020-08-19	0.266	↔
06_1_06	MW-6	Appendix III	Sulfate	mg/L	19	0	0%	0.836	0.100	↔	-0.0529	0.033	↔	2020-08-24	0.390	↔
06_1_07	MW-6	Appendix III	Total Dissolved Solids	mg/L	19	0	0%	1.77	0.066	↔	-0.0685	0.126	↔	2020-08-25	0.392	↔
06_2_09	MW-6	Appendix IV	Arsenic	mg/L	20	18	90%	-0.00000000000253	1.000	↔	0.000000828	0.075	↔	2022-07-26	0.396	↔
06_2_10	MW-6	Appendix IV	Barium	mg/L	20	0	0%	-0.0000108	0.077	↔	0.0000147	0.245	↔	2022-08-02	0.242	↔
06_2_16	MW-6	Appendix IV	Lithium	mg/L	20	0	0%	0.000120	0.011	↔	-0.00000913	0.014	↔	2020-10-06	0.531	↔
06_2_18	MW-6	Appendix IV	Molybdenum	mg/L	20	0	0%	0.0000786	0.151	↔	-0.0000106	0.000	↓	2020-09-03	0.578	↔
06_2_21	MW-6	Appendix IV	Radium-226/228	pCi/L	20	0	0%	0.000351	0.488	↔	0.0131	0.012	↔	2023-12-22	0.583	↔

(Table continues on next page)

Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
06_3_24	MW-6	Field Parameters	pH	su	20	0	0%	0.00261	0.130	↔	-0.0000355	0.640	↔	2020-08-19	0.266	↔
06_3_25	MW-6	Field Parameters	Conductivity	mS/cm	20	0	0%	0.00187	0.049	↔	-0.0000959	0.030	↔	2020-09-11	0.507	↔
06_3_26	MW-6	Field Parameters	Turbidity	NTU	20	0	0%	-0.104	0.034	↔	-0.00412	0.165	↔	2020-09-20	0.589	↔
06_3_29	MW-6	Field Parameters	Oxidation Reduction Potential	mV	20	0	0%	0.245	0.487	↔	0.0154	0.759	↔	2021-01-26	0.169	↔
06_4_30	MW-6	Other	Total Suspended Solids	mg/L	20	14	70%	0.0195	0.157	↔	-0.0158	0.051	↔	2022-01-31	0.301	↔
06_5_38	MW-6	Part 115	Iron	mg/L	20	11	55%	-0.000893	0.010	↔	0.00000132	0.926	↔	2020-09-03	0.645	↔
06_5_39	MW-6	Part 115	Nickel	mg/L	20	6	30%	0.0000357	0.029	↔	-0.00000174	0.000	↓	2020-07-09	0.746	↔
06_5_42	MW-6	Part 115	Zinc	mg/L	20	19	95%	-0.000104	0.150	↔	0.00000000000000455	1.000	↔	2020-08-18	0.263	↔
07_1_01	MW-7	Appendix III	Boron	mg/L	14	0	0%	-0.00113	0.033	↔	0.00215	0.370	↔	2023-08-02	0.414	↔
07_1_02	MW-7	Appendix III	Calcium	mg/L	14	0	0%	-0.0112	0.865	↔	0.0554	0.337	↔	2023-02-07	0.151	↔
07_1_03	MW-7	Appendix III	Chloride	mg/L	14	0	0%	0.0409	0.096	↔	-0.00571	0.514	↔	2022-08-01	0.617	↔
07_1_06	MW-7	Appendix III	Sulfate	mg/L	14	0	0%	0.153	0.463	↔	-0.00415	0.931	↔	2022-02-16	0.136	↔
07_1_07	MW-7	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	0.0209	0.914	↔	0.263	0.525	↔	2023-02-08	0.241	↔
07_2_09	MW-7	Appendix IV	Arsenic	mg/L	14	0	0%	-0.00000512	0.028	↔	0.00000214	0.240	↔	2022-08-02	0.466	↔
07_2_16	MW-7	Appendix IV	Lithium	mg/L	14	0	0%	-0.0000393	0.007	↓	0.0000320	0.596	↔	2023-08-02	0.621	↔
07_2_18	MW-7	Appendix IV	Molybdenum	mg/L	14	0	0%	-0.000212	0.006	↓	0.000107	0.420	↔	2023-05-06	0.733	↔
07_2_21	MW-7	Appendix IV	Radium-226/228	pCi/L	14	0	0%	0.00177	0.537	↔	-0.00427	0.482	↔	2023-02-08	0.148	↔
07_3_25	MW-7	Field Parameters	Conductivity	mS/cm	14	0	0%	0.0000515	0.888	↔	0.000337	0.662	↔	2023-02-08	0.145	↔
07_3_26	MW-7	Field Parameters	Turbidity	NTU	14	0	0%	-0.00892	0.439	↔	0.00728	0.461	↔	2022-11-08	0.113	↔
07_3_27	MW-7	Field Parameters	Dissolved Oxygen	mg/L	14	1	7%	-0.0000187	0.921	↔	0.00183	0.075	↔	2024-01-23	0.354	↔
07_3_28	MW-7	Field Parameters	Temperature	°C	14	0	0%	-0.0230	0.229	↔	0.00307	0.478	↔	2022-02-16	0.242	↔
07_3_29	MW-7	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	0.180	0.329	↔	-0.00194	0.963	↔	2022-02-16	0.234	↔
07_4_30	MW-7	Other	Total Suspended Solids	mg/L	14	11	79%	-0.00340	0.281	↔	0.000863	0.242	↔	2022-02-16	0.224	↔
07_5_38	MW-7	Part 115	Iron	mg/L	14	0	0%	0.00224	0.323	↔	-0.000371	0.660	↔	2022-02-17	0.120	↔
07_5_42	MW-7	Part 115	Zinc	mg/L	14	11	79%	-0.0000122	0.497	↔	-0.000000579	0.836	↔	2021-12-26	0.157	↔
08_1_01	MW-8	Appendix III	Boron	mg/L	13	1	8%	-0.000307	0.272	↔	0.0000288	0.665	↔	2022-01-11	0.184	↔
08_1_02	MW-8	Appendix III	Calcium	mg/L	13	0	0%	0.0380	0.118	↔	-0.00616	0.495	↔	2022-02-17	0.294	↔
08_1_03	MW-8	Appendix III	Chloride	mg/L	13	2	15%	0.0359	0.216	↔	-0.0515	0.749	↔	2023-08-04	0.180	↔
08_1_04	MW-8	Appendix III	Fluoride	mg/L	13	12	92%	-0.00167	0.519	↔	0.000309	0.304	↔	2021-12-06	0.163	↔
08_1_06	MW-8	Appendix III	Sulfate	mg/L	13	0	0%	-0.0790	0.422	↔	0.0213	0.207	↔	2022-01-10	0.222	↔
08_1_07	MW-8	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	0.0810	0.023	↔	-0.110	0.539	↔	2023-08-04	0.481	↔
08_2_04	MW-8	Appendix IV	Fluoride	mg/L	13	12	92%	-0.00167	0.519	↔	0.000309	0.304	↔	2021-12-06	0.163	↔
08_2_10	MW-8	Appendix IV	Barium	mg/L	13	0	0%	-0.0000316	0.063	↔	0.00000468	0.232	↔	2022-01-20	0.437	↔
08_2_16	MW-8	Appendix IV	Lithium	mg/L	13	6	46%	-0.0000105	0.416	↔	0.0000000449	0.993	↔	2022-02-17	0.132	↔
08_2_18	MW-8	Appendix IV	Molybdenum	mg/L	13	11	85%	-0.0000204	0.256	↔	-0.0000000000000117	1.000	↔	2022-01-10	0.348	↔
08_2_21	MW-8	Appendix IV	Radium-226/228	pCi/L	13	0	0%	0.0189	0.112	↔	-0.00262	0.177	↔	2022-01-10	0.447	↔
08_3_25	MW-8	Field Parameters	Conductivity	mS/cm	13	0	0%	0.0000623	0.261	↔	-0.000133	0.670	↔	2023-08-02	0.155	↔
08_4_30	MW-8	Other	Total Suspended Solids	mg/L	13	12	92%	-0.00177	0.519	↔	0.000328	0.304	↔	2021-12-06	0.163	↔
08_4_31	MW-8	Other	Bicarbonate	mg/L	5	0	0%	-0.207	0.581	↔	0.121	0.853	↔	2023-08-02	0.396	↔
08_4_35	MW-8	Other	Potassium	mg/L	5	1	20%	0.000397	0.619	↔	-0.000530	0.717	↔	2023-08-02	0.499	↔
08_4_36	MW-8	Other	Sodium	mg/L	5	0	0%	0.0606	0.532	↔	-0.0354	0.829	↔	2023-08-02	0.473	↔
08_5_42	MW-8	Part 115	Zinc	mg/L	13	12	92%	0.000000000000832	1.000	↔	0.00000107	0.299	↔	2022-07-25	0.236	↔

(Table continues on next page)

Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
09_1_02	MW-9	Appendix III	Calcium	mg/L	21	0	0%	0.0132	0.189	↔	0.0628	0.014	↔	2023-08-01	0.686	↔
09_1_03	MW-9	Appendix III	Chloride	mg/L	21	17	81%	-0.00818	0.279	↔	0.00223	0.045	↔	2021-12-06	0.263	↔
09_1_04	MW-9	Appendix III	Fluoride	mg/L	21	19	90%	-0.00188	0.319	↔	0.000359	0.184	↔	2021-12-06	0.171	↔
09_1_06	MW-9	Appendix III	Sulfate	mg/L	21	15	71%	-0.000557	0.746	↔	0.0157	0.000	↑	2023-02-03	0.914	↔
09_1_07	MW-9	Appendix III	Total Dissolved Solids	mg/L	21	0	0%	0.0587	0.015	↔	0.208	0.001	↑	2023-07-12	0.865	↔
09_2_04	MW-9	Appendix IV	Fluoride	mg/L	21	19	90%	-0.00188	0.319	↔	0.000359	0.184	↔	2021-12-06	0.171	↔
09_2_09	MW-9	Appendix IV	Arsenic	mg/L	21	20	95%	0.000000560	0.015	↔	-0.00000238	0.091	↔	2024-01-29	0.427	↔
09_2_10	MW-9	Appendix IV	Barium	mg/L	21	0	0%	-0.00000476	0.028	↔	0.0000105	0.000	↑	2022-09-28	0.785	↔
09_2_21	MW-9	Appendix IV	Radium-226/228	pCi/L	21	0	0%	0.00336	0.193	↔	-0.00154	0.279	↔	2022-05-10	0.154	↔
09_3_25	MW-9	Field Parameters	Conductivity	mS/cm	21	0	0%	0.0000350	0.394	↔	0.000298	0.006	↑	2023-06-05	0.728	↔
09_3_26	MW-9	Field Parameters	Turbidity	NTU	21	0	0%	-0.00993	0.101	↔	0.000728	0.822	↔	2022-02-17	0.185	↔
09_3_27	MW-9	Field Parameters	Dissolved Oxygen	mg/L	21	0	0%	0.00305	0.273	↔	-0.00133	0.387	↔	2022-02-17	0.134	↔
09_3_28	MW-9	Field Parameters	Temperature	°C	21	0	0%	-0.0398	0.035	↔	0.00737	0.181	↔	2022-02-16	0.346	↔
09_4_36	MW-9	Other	Sodium	mg/L	5	0	0%	0.00390	0.149	↔	-0.00230	0.419	↔	2023-12-07	0.972	↔
09_5_42	MW-9	Part 115	Zinc	mg/L	21	20	95%	0.00000390	0.511	↔	-0.000000743	0.377	↔	2021-12-06	0.081	↔
100A_1_02	MW-100A	Appendix III	Calcium	mg/L	9	0	0%	-0.0181	0.105	↔	0.00664	0.637	↔	2024-01-03	0.490	↔
100A_1_04	MW-100A	Appendix III	Fluoride	mg/L	9	6	67%	-0.00211	0.226	↔	-0.000921	0.694	↔	2024-01-03	0.464	↔
100A_1_06	MW-100A	Appendix III	Sulfate	mg/L	9	0	0%	-0.126	0.007	↓	0.0174	0.327	↔	2023-11-13	0.894	↔
100A_1_07	MW-100A	Appendix III	Total Dissolved Solids	mg/L	9	0	0%	-0.118	0.067	↔	0.0258	0.590	↔	2023-11-28	0.608	↔
100A_2_04	MW-100A	Appendix IV	Fluoride	mg/L	9	7	78%	0.0000000000410	1.000	↔	-0.00184	0.165	↔	2023-09-06	0.437	↔
100A_2_09	MW-100A	Appendix IV	Arsenic	mg/L	9	0	0%	0.0000857	0.051	↔	-0.00000582	0.408	↔	2023-09-06	0.808	↔
100A_2_10	MW-100A	Appendix IV	Barium	mg/L	9	0	0%	-0.00000288	0.978	↔	-0.0000471	0.058	↔	2023-08-14	0.668	↔
100A_2_16	MW-100A	Appendix IV	Lithium	mg/L	9	0	0%	0.0000286	0.349	↔	-0.0000227	0.008	↓	2023-08-14	0.833	↔
100A_2_21	MW-100A	Appendix IV	Radium-226/228	pCi/L	9	0	0%	-0.0160	0.062	↔	0.00550	0.064	↔	2023-09-25	0.702	↔
100A_3_25	MW-100A	Field Parameters	Conductivity	mS/cm	9	0	0%	-0.000618	0.016	↔	0.000138	0.608	↔	2024-01-03	0.767	↔
100A_3_26	MW-100A	Field Parameters	Turbidity	NTU	9	0	0%	-0.0206	0.858	↔	0.00924	0.365	↔	2023-08-13	0.171	↔
100A_3_27	MW-100A	Field Parameters	Dissolved Oxygen	mg/L	9	0	0%	-0.0811	0.003	↓	-0.0000171	0.990	↔	2023-07-17	0.940	↔
100A_3_29	MW-100A	Field Parameters	Oxidation Reduction Potential	mV	9	0	0%	-3.33	0.010	↔	0.315	0.007	↑	2023-08-03	0.933	↔
100A_4_30	MW-100A	Other	Total Suspended Solids	mg/L	9	1	11%	-0.0332	0.750	↔	-0.00678	0.851	↔	2023-10-22	0.112	↔
100A_4_31	MW-100A	Other	Bicarbonate	mg/L	9	0	0%	-0.131	0.278	↔	0.0472	0.642	↔	2023-11-30	0.291	↔
100A_4_33	MW-100A	Other	Hardness	mg/L	9	0	0%	0.0857	0.865	↔	-0.0242	0.577	↔	2023-08-02	0.072	↔
100A_4_36	MW-100A	Other	Sodium	mg/L	9	0	0%	-0.0229	0.176	↔	-0.00151	0.275	↔	2023-07-31	0.788	↔
100A_5_38	MW-100A	Part 115	Iron	mg/L	9	0	0%	0.0424	0.070	↔	-0.00288	0.126	↔	2023-08-13	0.873	↔
100A_5_42	MW-100A	Part 115	Zinc	mg/L	9	8	89%	0.00000232	0.282	↔	-0.00000186	0.535	↔	2024-01-03	0.275	↔
100B_1_01	MW-100B	Appendix III	Boron	mg/L	13	0	0%	0.000319	0.000	↑	-0.000224	0.004	↓	2023-11-27	0.851	↔
100B_1_02	MW-100B	Appendix III	Calcium	mg/L	13	0	0%	-0.0728	0.000	↓	0.0314	0.005	↑	2023-11-13	0.881	↔
100B_1_03	MW-100B	Appendix III	Chloride	mg/L	13	0	0%	0.0429	0.000	↑	-0.0183	0.000	↓	2023-08-28	0.969	↔
100B_1_06	MW-100B	Appendix III	Sulfate	mg/L	13	0	0%	-0.247	0.000	↓	0.0386	0.002	↑	2023-10-02	0.970	↔
100B_1_07	MW-100B	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	-0.381	0.000	↓	0.145	0.000	↑	2023-11-02	0.958	↔
100B_2_09	MW-100B	Appendix IV	Arsenic	mg/L	13	0	0%	0.0000286	0.015	↔	-0.00000305	0.238	↔	2023-08-28	0.671	↔
100B_2_10	MW-100B	Appendix IV	Barium	mg/L	13	0	0%	-0.0000923	0.001	↓	-0.00000413	0.843	↔	2023-12-14	0.848	↔
100B_3_25	MW-100B	Field Parameters	Conductivity	mS/cm	13	0	0%	-0.000546	0.003	↓	-0.0000371	0.593	↔	2023-10-06	0.821	↔

(Table continues on next page)

Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
100B_3_27	MW-100B	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	-0.000406	0.246	↔	0.00132	0.042	↔	2024-01-20	0.515	↔
100B_3_28	MW-100B	Field Parameters	Temperature	°C	13	0	0%	-0.0151	0.001	↓	0.0137	0.022	↔	2024-01-22	0.803	↔
100B_3_29	MW-100B	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	-0.514	0.084	↔	0.141	0.001	↑	2023-08-13	0.785	↔
100B_4_31	MW-100B	Other	Bicarbonate	mg/L	13	0	0%	-0.347	0.136	↔	0.172	0.281	↔	2023-11-21	0.375	↔
100B_4_33	MW-100B	Other	Hardness	mg/L	13	0	0%	-0.657	0.000	↓	0.0717	0.021	↔	2023-08-15	0.874	↔
100B_4_35	MW-100B	Other	Potassium	mg/L	13	0	0%	0.00200	0.006	↑	-0.000940	0.042	↔	2023-10-30	0.690	↔
10_1_02	MW-10	Appendix III	Calcium	mg/L	16	0	0%	0.0110	0.403	↔	-0.0347	0.158	↔	2023-02-08	0.346	↔
10_1_04	MW-10	Appendix III	Fluoride	mg/L	16	15	94%	0.000142	0.598	↔	0.00000000000810	1.000	↔	2023-09-18	0.039	↔
10_1_05	MW-10	Appendix III	pH, Field	su	16	0	0%	-0.00323	0.184	↔	0.000172	0.262	↔	2021-10-26	0.350	↔
10_1_07	MW-10	Appendix III	Total Dissolved Solids	mg/L	16	0	0%	0.0940	0.062	↔	-0.170	0.062	↔	2023-03-22	0.438	↔
10_2_04	MW-10	Appendix IV	Fluoride	mg/L	16	15	94%	0.000142	0.598	↔	0.00000000000810	1.000	↔	2023-09-18	0.039	↔
10_2_10	MW-10	Appendix IV	Barium	mg/L	16	0	0%	-0.0000190	0.099	↔	-0.00000211	0.550	↔	2022-06-27	0.685	↔
10_2_17	MW-10	Appendix IV	Mercury	mg/L	16	15	94%	-0.000000000000000000000631	0.011	↔	0.000000000000000000000767	0.572	↔	2023-09-18	0.453	↔
10_2_21	MW-10	Appendix IV	Radium-226/228	pCi/L	16	0	0%	0.000192	0.856	↔	0.00505	0.020	↔	2023-07-02	0.588	↔
10_3_24	MW-10	Field Parameters	pH	su	16	0	0%	-0.00323	0.184	↔	0.000172	0.262	↔	2021-10-26	0.350	↔
10_3_25	MW-10	Field Parameters	Conductivity	mS/cm	16	0	0%	0.000309	0.287	↔	-0.000135	0.006	↓	2022-01-10	0.540	↔
10_3_26	MW-10	Field Parameters	Turbidity	NTU	16	0	0%	-0.000620	0.758	↔	0.00309	0.403	↔	2023-04-14	0.121	↔
10_3_27	MW-10	Field Parameters	Dissolved Oxygen	mg/L	16	0	0%	0.00195	0.045	↔	-0.00205	0.219	↔	2023-02-08	0.358	↔
10_3_28	MW-10	Field Parameters	Temperature	°C	16	0	0%	-0.0177	0.257	↔	0.00416	0.208	↔	2022-02-16	0.215	↔
10_4_34	MW-10	Other	Magnesium	mg/L	8	0	0%	0.00252	0.775	↔	-0.0228	0.230	↔	2024-01-07	0.511	↔
10_5_42	MW-10	Part 115	Zinc	mg/L	16	14	88%	0.0000277	0.298	↔	-0.00000580	0.140	↔	2022-01-10	0.240	↔
13_1_01	MW-13	Appendix III	Boron	mg/L	13	0	0%	0.000245	0.027	↔	-0.0000716	0.059	↔	2022-10-25	0.601	↔
13_1_02	MW-13	Appendix III	Calcium	mg/L	13	0	0%	-0.618	0.003	↓	0.0856	0.000	↑	2022-05-12	0.893	↔
13_1_03	MW-13	Appendix III	Chloride	mg/L	13	2	15%	0.111	0.000	↑	-0.0652	0.001	↓	2023-04-26	0.943	↔
13_1_05	MW-13	Appendix III	pH, Field	su	13	0	0%	0.00177	0.361	↔	-0.000674	0.053	↔	2022-08-13	0.396	↔
13_1_06	MW-13	Appendix III	Sulfate	mg/L	13	0	0%	-0.00498	0.931	↔	0.245	0.000	↑	2022-12-27	0.944	↔
13_1_07	MW-13	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	-2.04	0.001	↓	0.390	0.000	↑	2022-05-04	0.952	↔
13_2_09	MW-13	Appendix IV	Arsenic	mg/L	13	10	77%	-0.00000000000000304	1.000	↔	0.0000104	0.000	↑	2022-12-25	0.905	↔
13_2_10	MW-13	Appendix IV	Barium	mg/L	13	0	0%	-0.000114	0.242	↔	0.0000258	0.000	↑	2022-04-30	0.919	↔
13_2_21	MW-13	Appendix IV	Radium-226/228	pCi/L	13	0	0%	-0.00286	0.272	↔	0.00513	0.120	↔	2023-05-21	0.356	↔
13_3_24	MW-13	Field Parameters	pH	su	13	0	0%	0.00177	0.361	↔	-0.000674	0.053	↔	2022-08-13	0.396	↔
13_3_25	MW-13	Field Parameters	Conductivity	mS/cm	13	0	0%	-0.00336	0.038	↔	0.000440	0.000	↑	2022-05-03	0.939	↔
13_3_26	MW-13	Field Parameters	Turbidity	NTU	13	0	0%	-0.00813	0.072	↔	0.0148	0.334	↔	2023-08-02	0.395	↔
13_3_27	MW-13	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	0.0629	0.349	↔	-0.00689	0.004	↓	2022-05-03	0.658	↔
13_3_28	MW-13	Field Parameters	Temperature	°C	13	0	0%	0.0649	0.081	↔	-0.00415	0.463	↔	2022-07-28	0.499	↔
13_4_36	MW-13	Other	Sodium	mg/L	12	0	0%	0.0100	0.146	↔	0.0154	0.001	↑	2023-02-07	0.926	↔
13_5_38	MW-13	Part 115	Iron	mg/L	13	1	8%	0.0000612	0.887	↔	0.00208	0.003	↑	2023-03-22	0.892	↔
13_5_42	MW-13	Part 115	Zinc	mg/L	13	12	92%	0.0000108	0.573	↔	-0.00000207	0.331	↔	2022-07-12	0.149	↔
14_1_01	MW-14	Appendix III	Boron	mg/L	18	0	0%	-0.00211	0.046	↔	-0.0000493	0.757	↔	2023-04-14	0.567	↔
14_1_02	MW-14	Appendix III	Calcium	mg/L	18	0	0%	-0.0497	0.034	↔	0.0707	0.000	↑	2023-05-04	0.930	↔
14_1_03	MW-14	Appendix III	Chloride	mg/L	18	0	0%	0.0833	0.228	↔	0.00366	0.468	↔	2023-03-19	0.493	↔
14_1_05	MW-14	Appendix III	pH, Field	su	18	0	0%	-0.000518	0.015	↔	0.000481	0.306	↔	2023-11-30	0.399	↔

(Table continues on next page)

Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
14_1_07	MW-14	Appendix III	Total Dissolved Solids	mg/L	16	2	11%	0.246	0.002	↑	0.157	0.319	↔	2023-09-15	0.740	↔
14_2_09	MW-14	Appendix IV	Arsenic	mg/L	18	0	0%	0.0000129	0.000	↑	-0.0000107	0.062	↔	2023-12-04	0.756	↔
14_2_16	MW-14	Appendix IV	Lithium	mg/L	18	0	0%	-0.000218	0.000	↓	-0.0000111	0.112	↔	2023-04-12	0.895	↔
14_2_18	MW-14	Appendix IV	Molybdenum	mg/L	18	0	0%	0.00000895	0.219	↔	-0.00000824	0.017	↔	2023-07-06	0.391	↔
14_2_21	MW-14	Appendix IV	Radium-226/228	pCi/L	18	0	0%	-0.00749	0.016	↔	0.0315	0.000	↑	2023-12-26	0.756	↔
14_2_22	MW-14	Appendix IV	Selenium	mg/L	18	14	78%	0.0000227	0.157	↔	-0.0000118	0.097	↔	2023-07-03	0.310	↔
14_3_24	MW-14	Field Parameters	pH	su	18	0	0%	-0.000518	0.015	↔	0.000481	0.306	↔	2023-11-30	0.399	↔
14_3_25	MW-14	Field Parameters	Conductivity	mS/cm	18	0	0%	0.000904	0.137	↔	0.0000865	0.599	↔	2023-04-28	0.323	↔
14_3_27	MW-14	Field Parameters	Dissolved Oxygen	mg/L	18	0	0%	-0.00167	0.000	↓	0.00235	0.006	↑	2023-10-10	0.792	↔
14_4_30	MW-14	Other	Total Suspended Solids	mg/L	18	0	0%	0.113	0.012	↔	0.0104	0.358	↔	2023-05-18	0.686	↔
14_4_34	MW-14	Other	Magnesium	mg/L	18	0	0%	-0.0215	0.015	↔	0.0153	0.000	↑	2023-04-28	0.822	↔
14_4_35	MW-14	Other	Potassium	mg/L	18	0	0%	-0.00362	0.550	↔	0.00208	0.047	↔	2023-04-27	0.268	↔
14_4_36	MW-14	Other	Sodium	mg/L	18	0	0%	-0.0458	0.180	↔	0.0123	0.034	↔	2023-04-25	0.402	↔
14_5_38	MW-14	Part 115	Iron	mg/L	18	0	0%	0.0757	0.000	↑	0.00871	0.000	↑	2023-03-05	0.940	↑
15_1_01	MW-15	Appendix III	Boron	mg/L	10	0	0%	0.000334	0.038	↔	-0.0000299	0.893	↔	2023-09-15	0.608	↔
15_1_02	MW-15	Appendix III	Calcium	mg/L	10	0	0%	-1.19	0.061	↔	0.0357	0.282	↔	2023-03-05	0.743	↔
15_1_03	MW-15	Appendix III	Chloride	mg/L	10	0	0%	-0.395	0.015	↔	0.0275	0.108	↔	2023-04-12	0.845	↔
15_1_05	MW-15	Appendix III	pH, Field	su	10	0	0%	-0.000999	0.026	↔	-0.000106	0.861	↔	2023-09-28	0.718	↔
15_1_06	MW-15	Appendix III	Sulfate	mg/L	10	0	0%	-2.86	0.000	↓	-0.130	0.001	↓	2023-02-18	0.971	↓
15_3_24	MW-15	Field Parameters	pH	su	10	0	0%	-0.000999	0.026	↔	-0.000106	0.861	↔	2023-09-28	0.718	↔
15_3_27	MW-15	Field Parameters	Dissolved Oxygen	mg/L	10	0	0%	-0.0323	0.000	↓	-0.00168	0.114	↔	2023-06-17	0.986	↔
15_3_28	MW-15	Field Parameters	Temperature	°C	10	0	0%	0.0362	0.108	↔	0.00125	0.904	↔	2023-07-15	0.563	↔
15_4_31	MW-15	Other	Bicarbonate	mg/L	10	0	0%	-1.56	0.307	↔	0.215	0.038	↔	2023-02-21	0.584	↔
15_4_33	MW-15	Other	Hardness	mg/L	10	0	0%	0.205	0.262	↔	-0.222	0.460	↔	2023-11-27	0.266	↔
15_4_34	MW-15	Other	Magnesium	mg/L	10	0	0%	-0.336	0.025	↔	0.00504	0.472	↔	2023-03-03	0.827	↔
15_4_36	MW-15	Other	Sodium	mg/L	10	0	0%	-0.283	0.109	↔	0.00305	0.738	↔	2023-02-19	0.523	↔
15_5_42	MW-15	Part 115	Zinc	mg/L	10	9	90%	0.0000508	0.665	↔	-0.0000138	0.363	↔	2023-04-27	0.179	↔
16A_1_01	MW-16A	Appendix III	Boron	mg/L	20	0	0%	-0.00213	0.008	↓	0.000341	0.000	↑	2023-03-23	0.669	↔
16A_1_02	MW-16A	Appendix III	Calcium	mg/L	20	0	0%	0.246	0.000	↑	-0.0564	0.528	↔	2023-10-28	0.625	↔
16A_1_03	MW-16A	Appendix III	Chloride	mg/L	20	0	0%	0.401	0.000	↑	-0.00285	0.974	↔	2023-10-16	0.775	↔
16A_1_05	MW-16A	Appendix III	pH, Field	su	20	0	0%	-0.00149	0.030	↔	0.000173	0.422	↔	2023-06-12	0.419	↔
16A_1_07	MW-16A	Appendix III	Total Dissolved Solids	mg/L	20	0	0%	1.78	0.000	↑	-0.156	0.776	↔	2023-10-17	0.695	↔
16A_2_11	MW-16A	Appendix IV	Beryllium	mg/L	20	20	100%	-0.00000000000000000000130	0.017	↔	-0.00000000000000000000130	0.972	↔	2023-08-13	0.449	↔
16A_2_12	MW-16A	Appendix IV	Cadmium	mg/L	20	20	100%	-0.00000000000000000000770	0.038	↔	-0.00000000000000000000537	0.976	↔	2023-07-23	0.440	↔
16A_2_21	MW-16A	Appendix IV	Radium-226/228	pCi/L	20	0	0%	0.0188	0.207	↔	-0.00441	0.370	↔	2023-06-24	0.206	↔
16A_2_23	MW-16A	Appendix IV	Thallium	mg/L	20	20	100%	-0.00000000000000000000196	0.132	↔	-0.00000000000000000000610	0.355	↔	2023-07-27	0.397	↔
16A_3_24	MW-16A	Field Parameters	pH	su	20	0	0%	-0.00149	0.030	↔	0.000173	0.422	↔	2023-06-12	0.419	↔
16A_3_25	MW-16A	Field Parameters	Conductivity	mS/cm	20	0	0%	0.00215	0.000	↑	-0.00126	0.391	↔	2024-01-11	0.603	↔
16A_3_26	MW-16A	Field Parameters	Turbidity	NTU	20	0	0%	0.0279	0.215	↔	-0.000269	0.904	↔	2023-04-24	0.374	↔
16A_3_27	MW-16A	Field Parameters	Dissolved Oxygen	mg/L	20	0	0%	-0.0000312	0.979	↔	-0.000440	0.279	↔	2023-06-06	0.119	↔
16A_3_28	MW-16A	Field Parameters	Temperature	°C	20	0	0%	0.0536	0.000	↑	-0.00683	0.276	↔	2023-07-31	0.757	↔
16A_3_29	MW-16A	Field Parameters	Oxidation Reduction Potential	mV	20	0	0%	-0.113	0.561	↔	0.127	0.064	↔	2023-07-04	0.217	↔

(Table continues on next page)

Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
16A_4_31	MW-16A	Other	Bicarbonate	mg/L	20	0	0%	-3.19	0.000	↓	0.305	0.000	↑	2023-03-28	0.794	↔
16A_4_33	MW-16A	Other	Hardness	mg/L	20	0	0%	0.861	0.001	↑	-0.310	0.606	↔	2023-12-07	0.573	↔
16A_4_34	MW-16A	Other	Magnesium	mg/L	20	0	0%	0.0577	0.000	↑	-0.0180	0.646	↔	2023-11-21	0.577	↔
16A_4_35	MW-16A	Other	Potassium	mg/L	20	0	0%	-0.00861	0.000	↓	0.00148	0.000	↑	2023-05-17	0.938	↔
16A_4_36	MW-16A	Other	Sodium	mg/L	20	0	0%	0.233	0.005	↑	-0.0232	0.839	↔	2023-10-17	0.471	↔
16A_5_38	MW-16A	Part 115	Iron	mg/L	20	0	0%	-0.0119	0.337	↔	0.00209	0.107	↔	2023-04-12	0.218	↔
16A_5_40	MW-16A	Part 115	Silver	mg/L	20	20	100%	-0.00000000000000000000770	0.038	↔	-0.000000000000000000000537	0.976	↔	2023-07-23	0.440	↔
16B_1_01	MW-16B	Appendix III	Boron	mg/L	13	0	0%	-0.0000501	0.180	↔	-0.0000119	0.624	↔	2023-09-12	0.416	↔
16B_1_02	MW-16B	Appendix III	Calcium	mg/L	13	0	0%	0.0407	0.019	↔	0.00613	0.218	↔	2023-07-20	0.787	↔
16B_1_03	MW-16B	Appendix III	Chloride	mg/L	13	5	38%	-0.0160	0.316	↔	-0.00238	0.635	↔	2023-08-07	0.383	↔
16B_1_04	MW-16B	Appendix III	Fluoride	mg/L	13	7	54%	-0.00181	0.344	↔	0.0000460	0.939	↔	2023-08-07	0.269	↔
16B_1_06	MW-16B	Appendix III	Sulfate	mg/L	13	0	0%	-0.0426	0.091	↔	0.00879	0.000	↑	2023-03-29	0.816	↔
16B_2_10	MW-16B	Appendix IV	Barium	mg/L	13	0	0%	0.00000909	0.380	↔	-0.0000187	0.232	↔	2024-01-02	0.228	↔
16B_2_16	MW-16B	Appendix IV	Lithium	mg/L	13	0	0%	-0.0000178	0.117	↔	-0.000000543	0.807	↔	2023-07-04	0.599	↔
16B_2_18	MW-16B	Appendix IV	Molybdenum	mg/L	13	0	0%	-0.0000426	0.014	↔	0.000000549	0.564	↔	2023-03-24	0.662	↔
16B_2_21	MW-16B	Appendix IV	Radium-226/228	pCi/L	13	0	0%	0.00536	0.434	↔	-0.00706	0.300	↔	2023-10-17	0.199	↔
16B_2_22	MW-16B	Appendix IV	Selenium	mg/L	13	12	92%	0.00000158	0.422	↔	-0.000000982	0.297	↔	2023-09-11	0.184	↔
16B_3_25	MW-16B	Field Parameters	Conductivity	mS/cm	13	0	0%	0.0000635	0.381	↔	-0.0000641	0.546	↔	2023-11-21	0.123	↔
16B_3_26	MW-16B	Field Parameters	Turbidity	NTU	13	0	0%	-0.0220	0.015	↔	0.0225	0.001	↑	2023-09-12	0.787	↔
16B_3_27	MW-16B	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	-0.000547	0.225	↔	-0.0000306	0.942	↔	2023-10-17	0.274	↔
16B_3_28	MW-16B	Field Parameters	Temperature	°C	13	0	0%	0.0383	0.056	↔	-0.00195	0.608	↔	2023-06-13	0.561	↔
16B_4_30	MW-16B	Other	Total Suspended Solids	mg/L	13	6	46%	-0.0851	0.019	↔	-0.00238	0.255	↔	2023-03-25	0.733	↔
16B_4_31	MW-16B	Other	Bicarbonate	mg/L	13	0	0%	0.0260	0.478	↔	0.0905	0.117	↔	2023-11-21	0.603	↔
16B_4_33	MW-16B	Other	Hardness	mg/L	13	0	0%	0.139	0.012	↔	-0.0882	0.211	↔	2024-01-17	0.663	↔
16B_4_34	MW-16B	Other	Magnesium	mg/L	13	0	0%	0.0268	0.145	↔	-0.00133	0.714	↔	2023-07-04	0.504	↔
16B_4_35	MW-16B	Other	Potassium	mg/L	13	0	0%	-0.0136	0.000	↓	-0.000131	0.331	↔	2023-04-06	0.954	↔
16B_4_36	MW-16B	Other	Sodium	mg/L	13	0	0%	-0.191	0.000	↓	-0.00302	0.025	↔	2023-04-09	0.984	↔
16B_5_38	MW-16B	Part 115	Iron	mg/L	13	0	0%	-0.00660	0.023	↔	-0.000364	0.047	↔	2023-04-06	0.831	↔
7C_1_01	MW-7C	Appendix III	Boron	mg/L	13	0	0%	0.00226	0.624	↔	-0.000261	0.458	↔	2022-05-25	0.093	↔
7C_1_02	MW-7C	Appendix III	Calcium	mg/L	13	0	0%	-0.634	0.348	↔	0.0178	0.448	↔	2022-05-18	0.494	↔
7C_1_05	MW-7C	Appendix III	pH, Field	su	13	0	0%	-0.000667	0.565	↔	0.0000602	0.682	↔	2022-07-26	0.120	↔
7C_1_06	MW-7C	Appendix III	Sulfate	mg/L	13	0	0%	-0.730	0.021	↔	-0.0366	0.097	↔	2022-06-22	0.879	↔
7C_1_07	MW-7C	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	-1.24	0.000	↓	-0.0675	0.000	↓	2022-06-23	0.991	↓
7C_2_09	MW-7C	Appendix IV	Arsenic	mg/L	13	0	0%	-0.00000468	0.356	↔	0.00000463	0.041	↔	2022-11-08	0.465	↔
7C_2_12	MW-7C	Appendix IV	Cadmium	mg/L	13	10	77%	0.000000673	0.247	↔	-0.000000364	0.311	↔	2022-11-10	0.244	↔
7C_2_16	MW-7C	Appendix IV	Lithium	mg/L	13	0	0%	0.0000294	0.469	↔	-0.0000157	0.067	↔	2022-07-28	0.382	↔
7C_2_18	MW-7C	Appendix IV	Molybdenum	mg/L	13	0	0%	-0.000159	0.346	↔	0.00000311	0.882	↔	2022-06-23	0.197	↔
7C_2_21	MW-7C	Appendix IV	Radium-226/228	pCi/L	13	0	0%	-0.0246	0.499	↔	-0.000489	0.699	↔	2022-05-18	0.407	↔
7C_3_24	MW-7C	Field Parameters	pH	su	13	0	0%	-0.000667	0.565	↔	0.0000602	0.682	↔	2022-07-26	0.120	↔
7C_3_25	MW-7C	Field Parameters	Conductivity	mS/cm	13	0	0%	-0.00201	0.012	↔	0.0000506	0.783	↔	2022-10-05	0.763	↔
7C_3_26	MW-7C	Field Parameters	Turbidity	NTU	13	0	0%	0.00258	0.614	↔	0.0137	0.465	↔	2023-09-11	0.400	↔
7C_3_27	MW-7C	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	-0.0440	0.000	↓	0.0000170	0.937	↔	2022-04-15	0.943	↔

(Table continues on next page)

Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
7C_3_28	MW-7C	Field Parameters	Temperature	°C	13	0	0%	0.0171	0.481	↔	-0.00208	0.502	↔	2022-07-23	0.166	↔
7C_3_29	MW-7C	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	-2.35	0.009	↓	0.0400	0.145	↔	2022-04-23	0.801	↔
7C_4_30	MW-7C	Other	Total Suspended Solids	mg/L	13	3	23%	-0.119	0.023	↔	0.00670	0.258	↔	2022-07-11	0.703	↔
7C_4_33	MW-7C	Other	Hardness	mg/L	13	0	0%	-0.665	0.340	↔	-0.0866	0.331	↔	2022-07-27	0.488	↔
7C_4_34	MW-7C	Other	Magnesium	mg/L	13	0	0%	-0.0757	0.382	↔	0.00605	0.066	↔	2022-05-18	0.486	↔
7C_4_35	MW-7C	Other	Potassium	mg/L	13	0	0%	0.00397	0.030	↔	-0.000448	0.326	↔	2022-10-05	0.641	↔
7C_4_36	MW-7C	Other	Sodium	mg/L	13	0	0%	0.0160	0.379	↔	-0.0105	0.643	↔	2023-02-08	0.109	↔
7C_5_38	MW-7C	Part 115	Iron	mg/L	13	0	0%	-0.00115	0.083	↔	0.00117	0.150	↔	2023-02-08	0.483	↔
7C_5_39	MW-7C	Part 115	Nickel	mg/L	13	0	0%	-0.0000714	0.005	↓	-0.000000404	0.569	↔	2022-04-20	0.852	↔

Table 10: Trend Tests: Piecewise Linear-Linear-Linear

								Line 1			Line 2			Line 3						
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	Break 2	R-Squared	Overall Trend
02_1_01	MW-2	Appendix III	Boron	mg/L	20	0	0%	0.0184	0.000	↑	-0.00121	0.004	↓	-0.00336	0.004	↓	2020-09-24	2023-05-21	0.931	↔
02_1_02	MW-2	Appendix III	Calcium	mg/L	20	0	0%	0.257	0.088	↔	-0.0750	0.000	↓	0.0979	0.053	↔	2020-07-21	2024-01-17	0.954	↔
02_1_03	MW-2	Appendix III	Chloride	mg/L	18	0	0%	0.175	0.004	↑	-0.00215	0.574	↔	-0.0619	0.085	↔	2020-08-26	2023-12-25	0.767	↔
02_1_05	MW-2	Appendix III	pH, Field	su	21	0	0%	0.00122	0.057	↔	-0.000973	0.602	↔	0.0000835	0.311	↔	2020-10-19	2021-03-06	0.279	↔
02_1_06	MW-2	Appendix III	Sulfate	mg/L	18	0	0%	2.10	0.000	↑	-0.337	0.000	↓	-0.137	0.020	↔	2020-08-11	2022-08-02	0.978	↔
02_1_07	MW-2	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	2.80	0.000	↑	-0.505	0.000	↓	-0.135	0.100	↔	2020-08-07	2022-08-02	0.975	↔
02_2_10	MW-2	Appendix IV	Barium	mg/L	21	0	0%	0.00000566	0.212	↔	-0.0000317	0.152	↔	-0.00000515	0.578	↔	2022-06-08	2023-02-20	0.638	↔
02_2_18	MW-2	Appendix IV	Molybdenum	mg/L	21	0	0%	0.0000145	0.244	↔	0.00000283	0.164	↔	-0.00000536	0.338	↔	2020-10-09	2023-02-07	0.412	↔
02_2_21	MW-2	Appendix IV	Radium-226/228	pCi/L	19	0	0%	0.00135	0.267	↔	-0.00430	0.461	↔	0.00562	0.074	↔	2022-02-01	2023-03-22	0.400	↔
02_3_24	MW-2	Field Parameters	pH	su	21	0	0%	0.00122	0.057	↔	-0.000973	0.602	↔	0.0000835	0.311	↔	2020-10-19	2021-03-06	0.279	↔
02_3_25	MW-2	Field Parameters	Conductivity	mS/cm	21	0	0%	0.00178	0.003	↑	-0.000502	0.000	↓	-0.000188	0.012	↔	2020-09-06	2022-08-01	0.955	↔
02_3_26	MW-2	Field Parameters	Turbidity	NTU	21	0	0%	-2.26	0.000	↓	-0.0159	0.932	↔	0.00359	0.046	↔	2020-05-26	2020-08-17	0.951	↔
02_3_29	MW-2	Field Parameters	Oxidation Reduction Potential	mV	21	0	0%	0.376	0.014	↔	-0.107	0.358	↔	0.0363	0.812	↔	2021-05-04	2023-04-18	0.438	↔
02_5_38	MW-2	Part 115	Iron	mg/L	21	0	0%	-0.00300	0.330	↔	0.00204	0.002	↑	-0.00136	0.003	↓	2020-09-04	2022-02-01	0.656	↔
02_5_39	MW-2	Part 115	Nickel	mg/L	21	0	0%	0.0000749	0.000	↑	-0.00000792	0.066	↔	-0.0000102	0.000	↓	2020-09-05	2022-01-31	0.950	↔
02_5_42	MW-2	Part 115	Zinc	mg/L	21	18	86%	-0.000115	0.212	↔	0.000000706	0.950	↔	-0.000000958	0.954	↔	2020-08-28	2022-09-13	0.257	↔
03_1_03	MW-3	Appendix III	Chloride	mg/L	8	0	0%	0.0246	0.027	↔	-0.0171	0.280	↔	0.0185	0.229	↔	2022-12-01	2023-10-19	0.977	↔
03_1_06	MW-3	Appendix III	Sulfate	mg/L	8	0	0%	0.0259	0.787	↔	-0.199	0.490	↔	0.170	0.521	↔	2022-12-28	2023-08-23	0.495	↔
03_2_21	MW-3	Appendix IV	Radium-226/228	pCi/L	8	0	0%	0.00534	0.139	↔	-0.00666	0.180	↔	0.00115	0.564	↔	2022-07-05	2023-07-31	0.929	↔
05_1_01	MW-5	Appendix III	Boron	mg/L	22	0	0%	-0.00442	0.005	↓	0.00173	0.763	↔	-0.00139	0.564	↔	2022-02-01	2023-04-11	0.635	↔
05_1_02	MW-5	Appendix III	Calcium	mg/L	22	0	0%	-0.251	0.002	↓	0.0874	0.767	↔	-0.0827	0.505	↔	2022-02-01	2023-02-24	0.710	↔
05_1_05	MW-5	Appendix III	pH, Field	su	23	0	0%	0.000577	0.923	↔	-0.00111	0.484	↔	0.000329	0.076	↔	2020-07-15	2021-05-03	0.203	↔
05_1_06	MW-5	Appendix III	Sulfate	mg/L	18	0	0%	1.21	0.279	↔	-1.38	0.110	↔	-0.0315	0.891	↔	2020-10-18	2021-12-12	0.740	↔
05_1_07	MW-5	Appendix III	Total Dissolved Solids	mg/L	18	0	0%	1.54	0.319	↔	-2.00	0.097	↔	-0.0516	0.871	↔	2020-10-17	2021-12-27	0.777	↔
05_2_09	MW-5	Appendix IV	Arsenic	mg/L	23	17	74%	-0.0000499	0.410	↔	0.00000333	0.280	↔	-0.00000198	0.142	↔	2020-06-22	2022-01-31	0.312	↔
05_2_10	MW-5	Appendix IV	Barium	mg/L	23	0	0%	-0.000104	0.001	↓	0.0000288	0.166	↔	-0.00000701	0.366	↔	2020-12-17	2022-02-01	0.582	↔

(Table continues on next page)

Table 10: Trend Tests: Piecewise Linear-Linear-Linear *(continued)*

								Line 1			Line 2			Line 3						
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	Break 2	R-Squared	Overall Trend
05_2_13	MW-5	Appendix IV	Chromium	mg/L	23	21	91%	-0.000169	0.000	↓	0.00000150	0.045	↔	-0.00000100	0.090	↔	2020-05-28	2022-02-01	0.898	↔
05_2_14	MW-5	Appendix IV	Cobalt	mg/L	23	22	96%	-0.0000340	0.000	↓	0.000000626	0.138	↔	-0.00000000366	0.622	↔	2020-05-28	2020-09-01	0.995	↔
05_2_15	MW-5	Appendix IV	Lead	mg/L	23	20	87%	0.00000911	0.012	↔	-0.0000132	0.342	↔	0.00000209	0.715	↔	2022-02-01	2023-04-03	0.372	↔
05_2_18	MW-5	Appendix IV	Molybdenum	mg/L	23	0	0%	-0.000192	0.028	↔	-0.0000133	0.806	↔	0.0000562	0.001	↑	2020-10-14	2022-01-31	0.667	↔
05_3_24	MW-5	Field Parameters	pH	su	23	0	0%	0.000577	0.923	↔	-0.00111	0.484	↔	0.000329	0.076	↔	2020-07-15	2021-05-03	0.203	↔
05_3_25	MW-5	Field Parameters	Conductivity	mS/cm	23	0	0%	0.0109	0.425	↔	-0.000720	0.000	↓	0.000143	0.920	↔	2020-06-01	2024-01-20	0.703	↔
05_3_26	MW-5	Field Parameters	Turbidity	NTU	23	0	0%	-3.92	0.000	↓	-0.0269	0.408	↔	0.00772	0.008	↑	2020-06-08	2020-11-28	0.990	↔
05_5_37	MW-5	Part 115	Copper	mg/L	23	18	78%	-0.0000226	0.422	↔	0.0000163	0.697	↔	-0.00000796	0.202	↔	2021-01-22	2022-01-31	0.158	↔
05_5_38	MW-5	Part 115	Iron	mg/L	23	5	22%	-0.222	0.002	↓	0.0135	0.821	↔	-0.000354	0.498	↔	2020-06-02	2020-08-17	0.688	↔
05_5_39	MW-5	Part 115	Nickel	mg/L	23	3	13%	-0.0000972	0.454	↔	-0.0000144	0.484	↔	-0.00000480	0.009	↓	2020-06-19	2021-01-16	0.752	↔
05_5_41	MW-5	Part 115	Vanadium	mg/L	23	20	87%	-0.0000211	0.022	↔	0.00000503	0.503	↔	-0.00000230	0.179	↔	2020-10-22	2022-01-31	0.366	↔
05_5_42	MW-5	Part 115	Zinc	mg/L	23	9	39%	-0.000234	0.687	↔	0.0000181	0.776	↔	-0.0000281	0.273	↔	2020-07-02	2022-01-31	0.129	↔
06_1_05	MW-6	Appendix III	pH, Field	su	20	0	0%	0.00200	0.044	↔	-0.000655	0.292	↔	0.000103	0.578	↔	2020-10-18	2021-08-04	0.347	↔
06_2_09	MW-6	Appendix IV	Arsenic	mg/L	20	18	90%	-0.000000206	0.407	↔	0.00000292	0.111	↔	-0.00000264	0.076	↔	2022-11-16	2023-11-11	0.649	↔
06_2_10	MW-6	Appendix IV	Barium	mg/L	20	0	0%	0.0000744	0.002	↑	-0.0000458	0.004	↓	0.0000124	0.007	↑	2020-10-17	2021-09-29	0.735	↔
06_2_18	MW-6	Appendix IV	Molybdenum	mg/L	20	0	0%	0.0000733	0.200	↔	-0.00000749	0.289	↔	-0.0000184	0.137	↔	2020-09-02	2023-02-06	0.598	↔
06_2_21	MW-6	Appendix IV	Radium-226/228	pCi/L	20	0	0%	0.00308	0.031	↔	-0.00289	0.065	↔	0.0131	0.004	↑	2021-11-22	2023-09-29	0.753	↔
06_3_24	MW-6	Field Parameters	pH	su	20	0	0%	0.00200	0.044	↔	-0.000655	0.292	↔	0.000103	0.578	↔	2020-10-18	2021-08-04	0.347	↔
06_3_25	MW-6	Field Parameters	Conductivity	mS/cm	20	0	0%	0.00201	0.001	↑	-0.000807	0.058	↔	0.0000184	0.785	↔	2020-10-02	2021-05-04	0.672	↔
06_4_30	MW-6	Other	Total Suspended Solids	mg/L	20	14	70%	-0.0215	0.482	↔	0.0351	0.127	↔	-0.0196	0.066	↔	2020-11-25	2022-02-01	0.412	↔
06_5_38	MW-6	Part 115	Iron	mg/L	20	11	55%	-0.000895	0.016	↔	0.0000205	0.734	↔	-0.0000107	0.828	↔	2020-09-06	2022-02-01	0.649	↔
06_5_39	MW-6	Part 115	Nickel	mg/L	20	6	30%	0.0000296	0.005	↑	-0.0000122	0.195	↔	-0.00000133	0.006	↓	2020-08-12	2020-11-26	0.796	↔
06_5_42	MW-6	Part 115	Zinc	mg/L	20	19	95%	-0.000104	0.179	↔	0.00000000000374	1.000	↔	-0.0000000000000414	1.000	↔	2020-08-18	2020-11-03	0.263	↔
07_1_01	MW-7	Appendix III	Boron	mg/L	14	0	0%	0.00248	0.045	↔	-0.00298	0.131	↔	0.00286	0.013	↔	2022-02-17	2023-06-09	0.793	↔
07_1_03	MW-7	Appendix III	Chloride	mg/L	14	0	0%	-0.00468	0.890	↔	0.0721	0.704	↔	-0.0114	0.191	↔	2021-12-10	2022-07-31	0.727	↔
07_1_04	MW-7	Appendix III	Fluoride	mg/L	14	12	86%	-0.00139	0.341	↔	0.000437	0.327	↔	-0.00354	0.025	↔	2021-12-07	2023-12-15	0.592	↔
07_1_05	MW-7	Appendix III	pH, Field	su	14	0	0%	-0.0223	0.010	↔	0.000354	0.568	↔	-0.000545	0.209	↔	2021-07-20	2022-10-13	0.755	↔
07_2_04	MW-7	Appendix IV	Fluoride	mg/L	14	12	86%	-0.00139	0.341	↔	0.000437	0.327	↔	-0.00354	0.025	↔	2021-12-07	2023-12-15	0.592	↔
07_2_09	MW-7	Appendix IV	Arsenic	mg/L	14	0	0%	-0.00000535	0.008	↓	0.0000114	0.032	↔	-0.00000524	0.172	↔	2022-12-26	2023-09-27	0.748	↔
07_2_16	MW-7	Appendix IV	Lithium	mg/L	14	0	0%	0.0000647	0.034	↔	-0.0000981	0.001	↓	0.0000451	0.035	↔	2022-02-16	2023-04-28	0.920	↔
07_2_23	MW-7	Appendix IV	Thallium	mg/L	14	14	100%	0.00000000000000000000505	0.763	↔	-0.00000000000000000000232	0.173	↔	0.00000000000000000000493	0.413	↔	2021-12-22	2022-08-03	0.417	↔
07_3_24	MW-7	Field Parameters	pH	su	14	0	0%	-0.0223	0.010	↔	0.000354	0.568	↔	-0.000545	0.209	↔	2021-07-20	2022-10-13	0.755	↔
07_3_26	MW-7	Field Parameters	Turbidity	NTU	14	0	0%	0.144	0.038	↔	-0.165	0.194	↔	0.00308	0.298	↔	2021-09-12	2021-11-18	0.621	↔
07_3_27	MW-7	Field Parameters	Dissolved Oxygen	mg/L	14	1	7%	0.000610	0.376	↔	-0.000414	0.492	↔	0.00183	0.090	↔	2022-04-11	2023-11-20	0.451	↔
07_3_28	MW-7	Field Parameters	Temperature	°C	14	0	0%	0.0556	0.434	↔	-0.0523	0.460	↔	0.00349	0.358	↔	2021-08-24	2022-01-08	0.385	↔
07_3_29	MW-7	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	0.222	0.177	↔	-0.0564	0.682	↔	0.113	0.621	↔	2022-02-17	2023-08-09	0.318	↔
07_4_30	MW-7	Other	Total Suspended Solids	mg/L	14	11	79%	-0.00386	0.181	↔	0.00143	0.556	↔	-0.000884	0.824	↔	2022-02-17	2023-10-09	0.265	↔
07_5_38	MW-7	Part 115	Iron	mg/L	14	0	0%	0.00375	0.152	↔	-0.00290	0.135	↔	0.00163	0.357	↔	2022-02-16	2023-02-17	0.439	↔
07_5_41	MW-7	Part 115	Vanadium	mg/L	14	12	86%	-0.000000290	0.712	↔	0.00000113	0.618	↔	-0.00000214	0.252	↔	2022-10-02	2024-01-21	0.370	↔
07_5_42	MW-7	Part 115	Zinc	mg/L	14	11	79%	-0.0000123	0.442	↔	-0.0000214	0.486	↔	-0.00000225	0.750	↔	2022-08-26	2022-02-15	0.172	↔
08_1_01	MW-8	Appendix III	Boron	mg/L	13	1	8%	0.000572	0.360	↔	-0.00106	0.583	↔	0.0000555	0.322	↔	2021-09-28	2022-01-02	0.438	↔
08_1_02	MW-8	Appendix III	Calcium	mg/L	13	0	0%	-0.0405	0.698	↔	0.0987	0.163	↔	-0.00810	0.256	↔	2021-09-27	2022-01-21	0.462	↔

(Table continues on next page)

Table 10: Trend Tests: Piecewise Linear-Linear-Linear *(continued)*

								Line 1			Line 2			Line 3						
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	Break 2	R-Squared	Overall Trend
08_1_03	MW-8	Appendix III	Chloride	mg/L	13	2	15%	-0.0450	0.645	↔	0.114	0.209	↔	-0.0906	0.585	↔	2022-06-20	2023-08-02	0.344	↔
08_1_06	MW-8	Appendix III	Sulfate	mg/L	13	0	0%	-0.0879	0.147	↔	0.0895	0.360	↔	-0.0650	0.207	↔	2022-04-20	2023-07-19	0.518	↔
08_1_07	MW-8	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	-0.0512	0.603	↔	0.253	0.157	↔	-0.143	0.122	↔	2022-06-09	2023-05-18	0.658	↔
08_2_10	MW-8	Appendix IV	Barium	mg/L	13	0	0%	-0.0000338	0.015	↔	0.0000169	0.375	↔	-0.0000132	0.192	↔	2022-03-17	2023-08-01	0.670	↔
08_2_16	MW-8	Appendix IV	Lithium	mg/L	13	6	46%	-0.0000122	0.375	↔	0.0000105	0.645	↔	-0.0000107	0.372	↔	2022-06-06	2023-07-07	0.259	↔
08_2_21	MW-8	Appendix IV	Radium-226/228	pCi/L	13	0	0%	-0.00866	0.805	↔	0.0279	0.435	↔	-0.00307	0.150	↔	2021-08-25	2022-01-10	0.513	↔
08_3_25	MW-8	Field Parameters	Conductivity	mS/cm	13	0	0%	0.000588	0.343	↔	-0.000174	0.769	↔	0.0000279	0.732	↔	2021-09-28	2022-03-20	0.182	↔
08_3_26	MW-8	Field Parameters	Turbidity	NTU	13	0	0%	0.140	0.069	↔	-0.0310	0.372	↔	-0.000421	0.807	↔	2021-07-27	2021-12-06	0.593	↔
08_3_27	MW-8	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	0.0198	0.440	↔	0.0676	0.562	↔	0.000718	0.845	↔	2022-01-17	2021-11-22	0.132	↔
08_3_28	MW-8	Field Parameters	Temperature	°C	13	0	0%	-0.0202	0.356	↔	0.00334	0.830	↔	0.00286	0.848	↔	2022-02-01	2023-02-18	0.188	↔
09_1_02	MW-9	Appendix III	Calcium	mg/L	21	0	0%	0.107	0.000	↑	-0.0592	0.241	↔	0.0513	0.000	↑	2021-11-19	2022-08-01	0.906	↔
09_1_03	MW-9	Appendix III	Chloride	mg/L	21	17	81%	-0.00843	0.296	↔	0.00246	0.439	↔	0.00156	0.741	↔	2021-12-04	2023-07-28	0.261	↔
09_1_04	MW-9	Appendix III	Fluoride	mg/L	21	19	90%	-0.00282	0.054	↔	0.00317	0.680	↔	-0.000287	0.560	↔	2021-12-07	2022-05-23	0.309	↔
09_1_05	MW-9	Appendix III	pH, Field	su	21	0	0%	-0.0154	0.000	↓	0.000493	0.090	↔	-0.000558	0.020	↔	2021-07-21	2022-11-23	0.822	↔
09_1_06	MW-9	Appendix III	Sulfate	mg/L	21	15	71%	-0.00335	0.478	↔	0.00149	0.426	↔	0.0176	0.000	↑	2021-12-06	2023-05-03	0.924	↔
09_2_04	MW-9	Appendix IV	Fluoride	mg/L	21	19	90%	-0.00282	0.054	↔	0.00317	0.680	↔	-0.000287	0.560	↔	2021-12-07	2022-05-23	0.309	↔
09_2_09	MW-9	Appendix IV	Arsenic	mg/L	21	20	95%	-0.000000380	0.660	↔	0.000000793	0.025	↔	-0.00000282	0.046	↔	2022-01-08	2024-01-29	0.516	↔
09_2_10	MW-9	Appendix IV	Barium	mg/L	21	0	0%	-0.00000527	0.079	↔	0.00000526	0.444	↔	0.0000108	0.007	↑	2022-06-30	2023-03-18	0.787	↔
09_2_12	MW-9	Appendix IV	Cadmium	mg/L	21	21	100%	-0.0000000000000000000553	0.007	↓	0.0000000000000000000189	0.661	↔	-0.0000000000000000000539	0.805	↔	2022-04-13	2023-06-25	0.460	↔
09_2_21	MW-9	Appendix IV	Radium-226/228	pCi/L	21	0	0%	0.00310	0.094	↔	-0.00951	0.132	↔	0.00775	0.178	↔	2022-12-18	2023-11-08	0.359	↔
09_3_24	MW-9	Field Parameters	pH	su	21	0	0%	-0.0154	0.000	↓	0.000493	0.090	↔	-0.000558	0.020	↔	2021-07-21	2022-11-23	0.822	↔
09_3_25	MW-9	Field Parameters	Conductivity	mS/cm	21	0	0%	0.000514	0.000	↑	-0.000158	0.003	↓	0.000301	0.000	↑	2021-11-04	2022-12-12	0.970	↔
09_3_28	MW-9	Field Parameters	Temperature	°C	21	0	0%	0.117	0.312	↔	-0.0909	0.021	↔	0.00803	0.057	↔	2021-08-16	2022-01-06	0.572	↔
09_5_40	MW-9	Part 115	Silver	mg/L	21	21	100%	-0.0000000000000000000553	0.007	↓	0.0000000000000000000189	0.661	↔	-0.0000000000000000000539	0.805	↔	2022-04-13	2023-06-25	0.460	↔
100A_1_01	MW-100A	Appendix III	Boron	mg/L	9	0	0%	0.000286	0.215	↔	-0.0000476	0.638	↔	0.0000198	0.454	↔	2023-07-18	2023-11-26	0.607	↔
100A_1_02	MW-100A	Appendix III	Calcium	mg/L	9	0	0%	0.0723	0.299	↔	-0.0308	0.190	↔	0.00982	0.339	↔	2023-07-15	2024-01-02	0.785	↔
100A_2_16	MW-100A	Appendix IV	Lithium	mg/L	9	0	0%	0.0000286	0.002	↑	-0.0000571	0.000	↓	-0.00000980	0.001	↓	2023-09-17	2023-12-28	0.999	↔
100A_3_25	MW-100A	Field Parameters	Conductivity	mS/cm	9	0	0%	-0.000236	0.588	↔	-0.00130	0.368	↔	0.000244	0.279	↔	2023-10-18	2024-01-02	0.876	↔
100A_3_28	MW-100A	Field Parameters	Temperature	°C	9	0	0%	0.0149	0.512	↔	-0.134	0.124	↔	0.0193	0.135	↔	2023-10-08	2023-11-30	0.872	↔
100A_3_29	MW-100A	Field Parameters	Oxidation Reduction Potential	mV	9	0	0%	-3.22	0.028	↔	0.105	0.597	↔	0.451	0.062	↔	2023-07-31	2024-01-03	0.962	↔
100A_4_33	MW-100A	Other	Hardness	mg/L	9	0	0%	0.108	0.731	↔	-0.117	0.711	↔	0.0187	0.842	↔	2023-09-05	2023-12-31	0.196	↔
100A_5_38	MW-100A	Part 115	Iron	mg/L	9	0	0%	0.0446	0.017	↔	-0.0101	0.349	↔	0.0000516	0.986	↔	2023-08-22	2023-12-23	0.925	↔
100A_5_42	MW-100A	Part 115	Zinc	mg/L	9	8	89%	-0.00000105	0.850	↔	0.00000758	0.672	↔	-0.00000270	0.348	↔	2023-10-13	2024-01-02	0.458	↔
100B_1_02	MW-100B	Appendix III	Calcium	mg/L	13	0	0%	-0.157	0.003	↓	-0.0413	0.017	↔	0.0335	0.003	↑	2023-07-16	2023-12-14	0.950	↔
100B_1_06	MW-100B	Appendix III	Sulfate	mg/L	13	0	0%	-0.279	0.000	↓	-0.0571	0.416	↔	0.0448	0.002	↑	2023-09-01	2023-11-22	0.981	↔
100B_3_27	MW-100B	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	0.00154	0.345	↔	-0.00176	0.019	↔	0.00128	0.005	↑	2023-08-13	2023-12-02	0.792	↔
100B_3_28	MW-100B	Field Parameters	Temperature	°C	13	0	0%	0.00533	0.473	↔	-0.0327	0.000	↓	0.0111	0.000	↑	2023-08-13	2023-11-27	0.977	↔
10_2_17	MW-10	Appendix IV	Mercury	mg/L	16	15	94%	-0.0000000000000000000154	0.056	↔	0.0000000000000000000509	0.733	↔	0.0000000000000000000169	0.919	↔	2022-08-30	2023-11-08	0.480	↔
10_2_21	MW-10	Appendix IV	Radium-226/228	pCi/L	16	0	0%	0.00813	0.095	↔	-0.0226	0.381	↔	0.00360	0.003	↑	2022-01-07	2022-04-08	0.709	↔
10_3_25	MW-10	Field Parameters	Conductivity	mS/cm	16	0	0%	0.000262	0.392	↔	-0.0000994	0.213	↔	-0.000324	0.265	↔	2022-01-10	2024-01-27	0.576	↔
13_1_01	MW-13	Appendix III	Boron	mg/L	13	0	0%	0.000279	0.016	↔	-0.000147	0.120	↔	0.0000907	0.489	↔	2022-10-25	2023-11-28	0.717	↔
13_1_02	MW-13	Appendix III	Calcium	mg/L	13	0	0%	-0.587	0.009	↓	-0.656	0.008	↓	0.0292	0.693	↔	2024-01-25	2022-05-18	0.903	↔

(Table continues on next page)

Table 10: Trend Tests: Piecewise Linear-Linear-Linear *(continued)*

								Line 1			Line 2			Line 3						
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	Break 2	R-Squared	Overall Trend
13_1_03	MW-13	Appendix III	Chloride	mg/L	13	2	15%	0.0762	0.036	↔	0.153	0.000	↑	-0.0647	0.001	↓	2022-08-16	2023-03-22	0.965	↔
13_1_06	MW-13	Appendix III	Sulfate	mg/L	13	0	0%	-0.208	0.724	↔	0.0501	0.568	↔	0.246	0.000	↑	2022-05-03	2023-02-07	0.950	↔
13_3_26	MW-13	Field Parameters	Turbidity	NTU	13	0	0%	-0.0165	0.288	↔	-0.00399	0.658	↔	0.0126	0.449	↔	2022-08-23	2023-08-02	0.444	↔
13_3_27	MW-13	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	0.0733	0.023	↔	-0.0241	0.113	↔	-0.00299	0.436	↔	2022-05-14	2022-11-08	0.768	↔
13_3_29	MW-13	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	0.0167	0.942	↔	-0.627	0.176	↔	0.498	0.236	↔	2022-11-04	2024-01-27	0.850	↔
13_4_34	MW-13	Other	Magnesium	mg/L	12	0	0%	-0.145	0.169	↔	0.0330	0.218	↔	0.0122	0.111	↔	2022-05-17	2023-02-04	0.860	↔
13_5_42	MW-13	Part 115	Zinc	mg/L	13	12	92%	0.0000222	0.127	↔	-0.0000238	0.432	↔	0.00000103	0.775	↔	2022-07-13	2022-11-02	0.393	↔
14_1_01	MW-14	Appendix III	Boron	mg/L	18	0	0%	-0.00238	0.000	↓	0.000857	0.023	↔	-0.00139	0.000	↓	2023-05-02	2024-01-05	0.895	↔
14_1_05	MW-14	Appendix III	pH, Field	su	18	0	0%	-0.000119	0.662	↔	-0.00186	0.263	↔	0.000549	0.214	↔	2023-07-07	2023-10-03	0.561	↔
14_1_06	MW-14	Appendix III	Sulfate	mg/L	18	0	0%	8.27	0.102	↔	-7.35	0.010	↔	0.166	0.730	↔	2023-03-23	2023-06-06	0.641	↔
14_2_09	MW-14	Appendix IV	Arsenic	mg/L	18	0	0%	0.0000136	0.003	↑	0.0000106	0.629	↔	-0.0000101	0.100	↔	2023-07-18	2023-12-09	0.758	↔
14_2_10	MW-14	Appendix IV	Barium	mg/L	18	0	0%	-0.000320	0.125	↔	0.000214	0.596	↔	0.00000394	0.920	↔	2023-04-08	2023-06-15	0.249	↔
14_2_16	MW-14	Appendix IV	Lithium	mg/L	18	0	0%	-0.000180	0.000	↓	0.0000471	0.052	↔	-0.0000374	0.064	↔	2023-05-21	2023-10-24	0.936	↔
14_3_24	MW-14	Field Parameters	pH	su	18	0	0%	-0.000119	0.662	↔	-0.00186	0.263	↔	0.000549	0.214	↔	2023-07-07	2023-10-03	0.561	↔
14_3_27	MW-14	Field Parameters	Dissolved Oxygen	mg/L	18	0	0%	-0.00477	0.028	↔	-0.000780	0.037	↔	0.00218	0.001	↑	2023-03-23	2023-10-21	0.907	↔
14_4_31	MW-14	Other	Bicarbonate	mg/L	18	0	0%	0.175	0.189	↔	0.956	0.223	↔	-0.314	0.137	↔	2023-07-18	2024-01-25	0.874	↔
14_4_34	MW-14	Other	Magnesium	mg/L	18	0	0%	-0.0269	0.001	↓	0.0486	0.034	↔	0.0112	0.000	↑	2023-05-17	2023-07-19	0.897	↔
14_4_35	MW-14	Other	Potassium	mg/L	18	0	0%	-0.00531	0.154	↔	0.00691	0.073	↔	-0.00176	0.560	↔	2023-05-16	2023-11-14	0.457	↔
14_4_36	MW-14	Other	Sodium	mg/L	18	0	0%	-0.0731	0.000	↓	0.120	0.004	↑	-0.00170	0.660	↔	2023-05-13	2023-07-14	0.861	↔
15_1_01	MW-15	Appendix III	Boron	mg/L	10	0	0%	-0.000565	0.192	↔	0.000743	0.032	↔	-0.0000800	0.362	↔	2023-04-05	2023-08-28	0.896	↔
15_1_02	MW-15	Appendix III	Calcium	mg/L	10	0	0%	-0.903	0.001	↓	0.414	0.023	↔	-0.0344	0.162	↔	2023-04-13	2023-07-31	0.968	↔
15_1_03	MW-15	Appendix III	Chloride	mg/L	10	0	0%	-0.374	0.001	↓	0.200	0.035	↔	-0.00779	0.598	↔	2023-05-11	2023-08-24	0.970	↔
15_1_05	MW-15	Appendix III	pH, Field	su	10	0	0%	0.000738	0.507	↔	-0.00243	0.020	↔	-0.0000247	0.916	↔	2023-04-27	2023-08-18	0.919	↔
15_1_06	MW-15	Appendix III	Sulfate	mg/L	10	0	0%	-2.86	0.000	↓	-0.0351	0.470	↔	-0.240	0.008	↓	2023-02-22	2023-12-07	0.992	↔
15_1_07	MW-15	Appendix III	Total Dissolved Solids	mg/L	10	0	0%	-2.75	0.041	↔	1.71	0.592	↔	-0.353	0.241	↔	2023-04-30	2023-07-31	0.758	↔
15_2_10	MW-15	Appendix IV	Barium	mg/L	10	0	0%	-0.000750	0.033	↔	0.000169	0.035	↔	-0.0000307	0.299	↔	2023-03-04	2023-08-18	0.870	↔
15_2_22	MW-15	Appendix IV	Selenium	mg/L	10	4	40%	0.000444	0.016	↔	-0.000243	0.002	↓	-0.00000000000000291	1.000	↔	2023-03-09	2023-07-11	0.967	↔
15_3_24	MW-15	Field Parameters	pH	su	10	0	0%	0.000738	0.507	↔	-0.00243	0.020	↔	-0.0000247	0.916	↔	2023-04-27	2023-08-18	0.919	↔
15_3_27	MW-15	Field Parameters	Dissolved Oxygen	mg/L	10	0	0%	-0.0324	0.001	↓	-0.00123	0.874	↔	-0.00199	0.504	↔	2023-06-17	2023-12-07	0.986	↔
15_4_30	MW-15	Other	Total Suspended Solids	mg/L	10	7	70%	-0.00773	0.078	↔	0.0184	0.398	↔	-0.0116	0.032	↔	2023-07-07	2023-10-31	0.843	↔
15_4_31	MW-15	Other	Bicarbonate	mg/L	10	0	0%	-1.13	0.005	↓	0.943	0.002	↑	-0.0297	0.525	↔	2023-04-09	2023-08-29	0.978	↔
15_4_33	MW-15	Other	Hardness	mg/L	10	0	0%	-0.624	0.016	↔	1.31	0.006	↑	-0.197	0.021	↔	2023-05-17	2023-08-14	0.947	↔
15_4_34	MW-15	Other	Magnesium	mg/L	10	0	0%	-0.227	0.003	↓	0.0929	0.055	↔	-0.00857	0.227	↔	2023-04-15	2023-07-28	0.959	↔
15_4_36	MW-15	Other	Sodium	mg/L	10	0	0%	-0.105	0.079	↔	0.0917	0.269	↔	-0.0217	0.228	↔	2023-05-17	2023-09-14	0.728	↔
15_5_38	MW-15	Part 115	Iron	mg/L	10	1	10%	0.000489	0.262	↔	0.0000642	0.943	↔	0.00134	0.013	↔	2023-07-06	2024-01-17	0.933	↔
16A_1_01	MW-16A	Appendix III	Boron	mg/L	20	0	0%	-0.00147	0.000	↓	0.000967	0.013	↔	0.0000788	0.360	↔	2023-05-01	2023-09-11	0.847	↔
16A_1_02	MW-16A	Appendix III	Calcium	mg/L	20	0	0%	-0.616	0.020	↔	0.414	0.000	↑	-0.0879	0.065	↔	2023-04-05	2023-10-16	0.882	↔
16A_1_03	MW-16A	Appendix III	Chloride	mg/L	20	0	0%	0.112	0.496	↔	0.738	0.021	↔	-0.00596	0.940	↔	2023-06-02	2023-09-12	0.835	↔
16A_2_09	MW-16A	Appendix IV	Arsenic	mg/L	20	0	0%	-0.0000149	0.335	↔	0.0000128	0.214	↔	-0.000000795	0.717	↔	2023-04-19	2023-08-06	0.367	↔
16A_2_10	MW-16A	Appendix IV	Barium	mg/L	20	0	0%	-0.000840	0.000	↓	0.000403	0.000	↑	-0.000102	0.009	↓	2023-04-10	2023-10-07	0.906	↔
16A_2_11	MW-16A	Appendix IV	Beryllium	mg/L	20	20	100%	0.00000000000000000000486	0.864	↔	-0.000000000000000000000221	0.081	↔	0.000000000000000000000287	0.539	↔	2023-04-23	2023-08-26	0.467	↔
16A_2_12	MW-16A	Appendix IV	Cadmium	mg/L	20	20	100%	-0.00000000000000000000443	0.549	↔	-0.00000000000000000000459	0.132	↔	0.00000000000000000000153	0.738	↔	2023-05-23	2023-12-07	0.429	↔

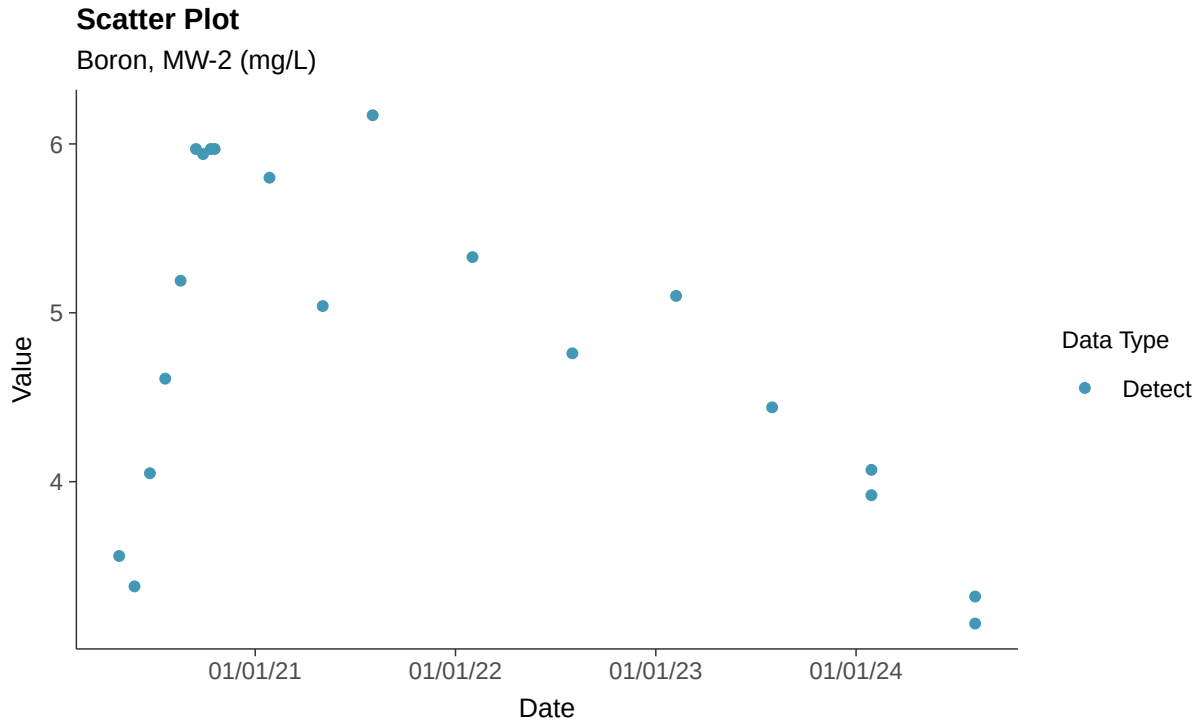
(Table continues on next page)

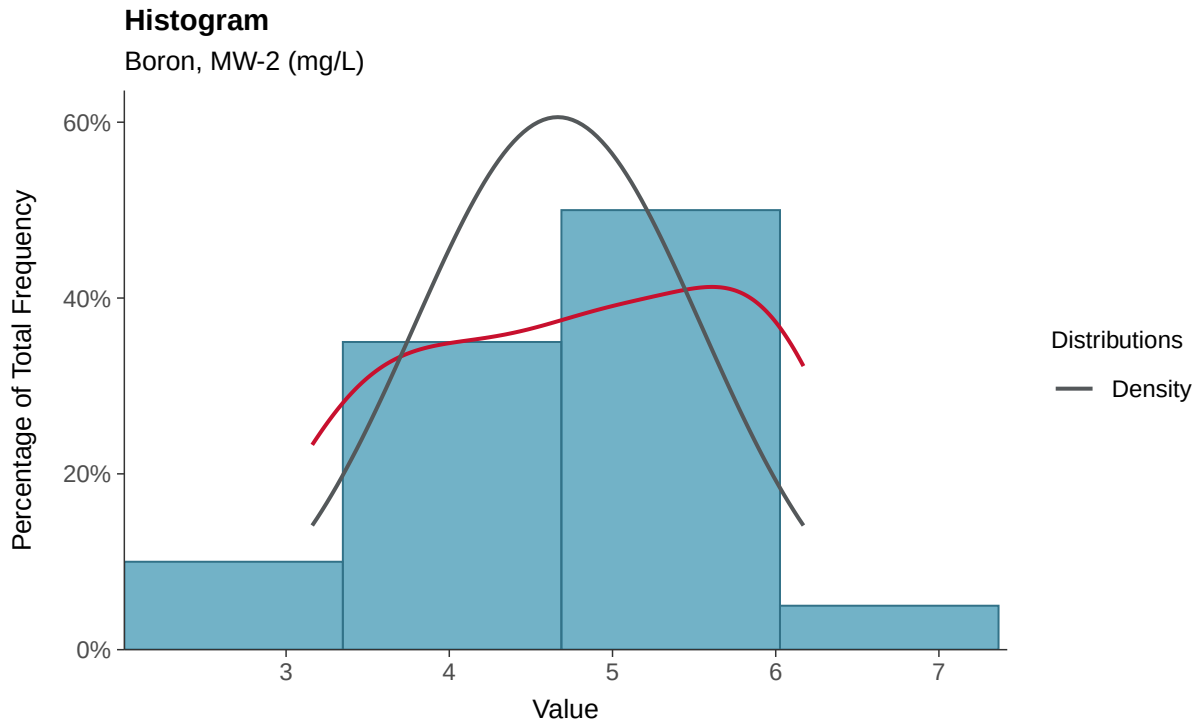
Table 10: Trend Tests: Piecewise Linear-Linear-Linear *(continued)*

								Line 1			Line 2			Line 3						
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	Break 2	R-Squared	Overall Trend
16A_2_17	MW-16A	Appendix IV	Mercury	mg/L	20	20	100%	-0.000000000000000000000447	0.040	↔	0.000000000000000000000932	0.795	↔	0.000000000000000000000225	0.819	↔	2023-06-29	2023-10-06	0.481	↔
16A_3_29	MW-16A	Field Parameters	Oxidation Reduction Potential	mV	20	0	0%	-0.280	0.015	↔	0.639	0.208	↔	-0.0700	0.316	↔	2023-07-13	2023-10-16	0.639	↔
16A_4_31	MW-16A	Other	Bicarbonate	mg/L	20	0	0%	-3.19	0.000	↓	0.811	0.000	↑	0.0860	0.199	↔	2023-04-09	2023-08-31	0.925	↔
16A_4_33	MW-16A	Other	Hardness	mg/L	20	0	0%	-1.84	0.176	↔	1.86	0.004	↑	-0.134	0.535	↔	2023-04-15	2023-09-11	0.775	↔
16A_4_34	MW-16A	Other	Magnesium	mg/L	20	0	0%	-0.178	0.011	↔	0.109	0.000	↑	-0.0221	0.125	↔	2023-04-08	2023-10-20	0.883	↔
16A_4_35	MW-16A	Other	Potassium	mg/L	20	0	0%	-0.00861	0.000	↓	0.00274	0.000	↑	0.000979	0.001	↑	2023-05-25	2023-09-22	0.966	↔
16A_4_36	MW-16A	Other	Sodium	mg/L	20	0	0%	-0.528	0.002	↓	0.618	0.000	↑	-0.0817	0.100	↔	2023-05-11	2023-09-30	0.889	↔
16A_5_40	MW-16A	Part 115	Silver	mg/L	20	20	100%	-0.000000000000000000000443	0.549	↔	-0.000000000000000000000459	0.132	↔	0.000000000000000000000153	0.738	↔	2023-05-23	2023-12-07	0.429	↔
16B_1_01	MW-16B	Appendix III	Boron	mg/L	13	0	0%	0.000159	0.457	↔	-0.000151	0.296	↔	-0.0000119	0.534	↔	2023-04-02	2023-07-05	0.532	↔
16B_1_03	MW-16B	Appendix III	Chloride	mg/L	13	5	38%	0.0621	0.244	↔	0.104	0.120	↔	-0.000900	0.844	↔	2023-07-15	2023-03-28	0.606	↔
16B_1_07	MW-16B	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	-0.184	0.104	↔	0.222	0.357	↔	0.00790	0.627	↔	2023-05-03	2023-07-12	0.607	↔
16B_2_10	MW-16B	Appendix IV	Barium	mg/L	13	0	0%	-0.0000679	0.097	↔	0.0000340	0.112	↔	-0.0000214	0.043	↔	2023-05-06	2023-11-20	0.657	↔
16B_2_16	MW-16B	Appendix IV	Lithium	mg/L	13	0	0%	-0.0000140	0.164	↔	-0.000000528	0.970	↔	-0.000000421	0.944	↔	2023-07-31	2024-01-10	0.542	↔
16B_2_18	MW-16B	Appendix IV	Molybdenum	mg/L	13	0	0%	-0.0000308	0.091	↔	0.00000277	0.359	↔	-0.00000164	0.574	↔	2023-04-16	2024-01-07	0.665	↔
16B_3_28	MW-16B	Field Parameters	Temperature	°C	13	0	0%	0.0415	0.000	↑	-0.0249	0.024	↔	0.0160	0.003	↑	2023-07-16	2024-01-14	0.931	↔
16B_3_29	MW-16B	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	0.368	0.614	↔	-0.215	0.825	↔	0.0810	0.193	↔	2023-04-17	2023-07-04	0.310	↔
16B_4_30	MW-16B	Other	Total Suspended Solids	mg/L	13	6	46%	-0.0851	0.025	↔	0.0286	0.500	↔	-0.00406	0.136	↔	2023-04-12	2023-06-15	0.791	↔
16B_4_31	MW-16B	Other	Bicarbonate	mg/L	13	0	0%	0.230	0.037	↔	-0.146	0.390	↔	0.101	0.008	↑	2023-06-03	2023-09-25	0.805	↔
16B_4_33	MW-16B	Other	Hardness	mg/L	13	0	0%	-0.00261	0.985	↔	0.400	0.147	↔	-0.0358	0.425	↔	2023-06-07	2023-09-12	0.750	↔
16B_4_35	MW-16B	Other	Potassium	mg/L	13	0	0%	-0.0113	0.002	↓	-0.000494	0.881	↔	-0.0000733	0.713	↔	2023-04-17	2023-06-05	0.947	↔
16B_4_36	MW-16B	Other	Sodium	mg/L	13	0	0%	-0.191	0.000	↓	-0.0160	0.007	↓	-0.000289	0.784	↔	2023-04-03	2023-08-19	0.996	↔
7C_1_01	MW-7C	Appendix III	Boron	mg/L	13	0	0%	0.00130	0.581	↔	-0.000580	0.817	↔	-0.000211	0.852	↔	2022-08-19	2023-05-21	0.128	↔
7C_1_05	MW-7C	Appendix III	pH, Field	su	13	0	0%	-0.000767	0.551	↔	0.000173	0.653	↔	-0.000437	0.614	↔	2022-07-27	2024-01-23	0.177	↔
7C_1_06	MW-7C	Appendix III	Sulfate	mg/L	13	0	0%	-0.703	0.043	↔	-0.0568	0.283	↔	0.0332	0.794	↔	2022-06-22	2023-12-17	0.887	↔
7C_1_07	MW-7C	Appendix III	Total Dissolved Solids	mg/L	13	0	0%	-1.29	0.000	↓	-0.0206	0.601	↔	-0.107	0.002	↓	2022-06-23	2023-05-22	0.995	↔
7C_2_12	MW-7C	Appendix IV	Cadmium	mg/L	13	10	77%	0.000000849	0.186	↔	-0.000000887	0.481	↔	0.000000176	0.876	↔	2022-11-10	2023-08-26	0.332	↔
7C_2_21	MW-7C	Appendix IV	Radium-226/228	pCi/L	13	0	0%	-0.0164	0.079	↔	0.0122	0.573	↔	-0.00240	0.370	↔	2022-08-11	2022-12-20	0.518	↔
7C_3_24	MW-7C	Field Parameters	pH	su	13	0	0%	-0.000767	0.551	↔	0.000173	0.653	↔	-0.000437	0.614	↔	2022-07-27	2024-01-23	0.177	↔
7C_3_27	MW-7C	Field Parameters	Dissolved Oxygen	mg/L	13	0	0%	-0.0440	0.000	↓	-0.000212	0.677	↔	0.00110	0.446	↔	2022-04-14	2024-01-16	0.949	↔
7C_3_29	MW-7C	Field Parameters	Oxidation Reduction Potential	mV	13	0	0%	-2.35	0.013	↔	0.280	0.321	↔	0.0129	0.718	↔	2022-05-02	2022-09-20	0.845	↔
7C_4_31	MW-7C	Other	Bicarbonate	mg/L	13	0	0%	0.192	0.526	↔	-0.0736	0.506	↔	0.0327	0.049	↔	2022-05-15	2022-10-05	0.560	↔
7C_4_34	MW-7C	Other	Magnesium	mg/L	13	0	0%	-0.107	0.023	↔	0.0264	0.214	↔	-0.000687	0.900	↔	2022-05-19	2022-12-23	0.671	↔
7C_4_36	MW-7C	Other	Sodium	mg/L	13	0	0%	-0.153	0.368	↔	0.0685	0.063	↔	-0.0159	0.196	↔	2022-05-18	2022-12-10	0.566	↔
7C_5_39	MW-7C	Part 115	Nickel	mg/L	13	0	0%	-0.0000710	0.010	↓	-0.00000401	0.345	↔	0.000000513	0.729	↔	2022-04-14	2022-11-27	0.876	↔

Appendix III: Boron, MW-2

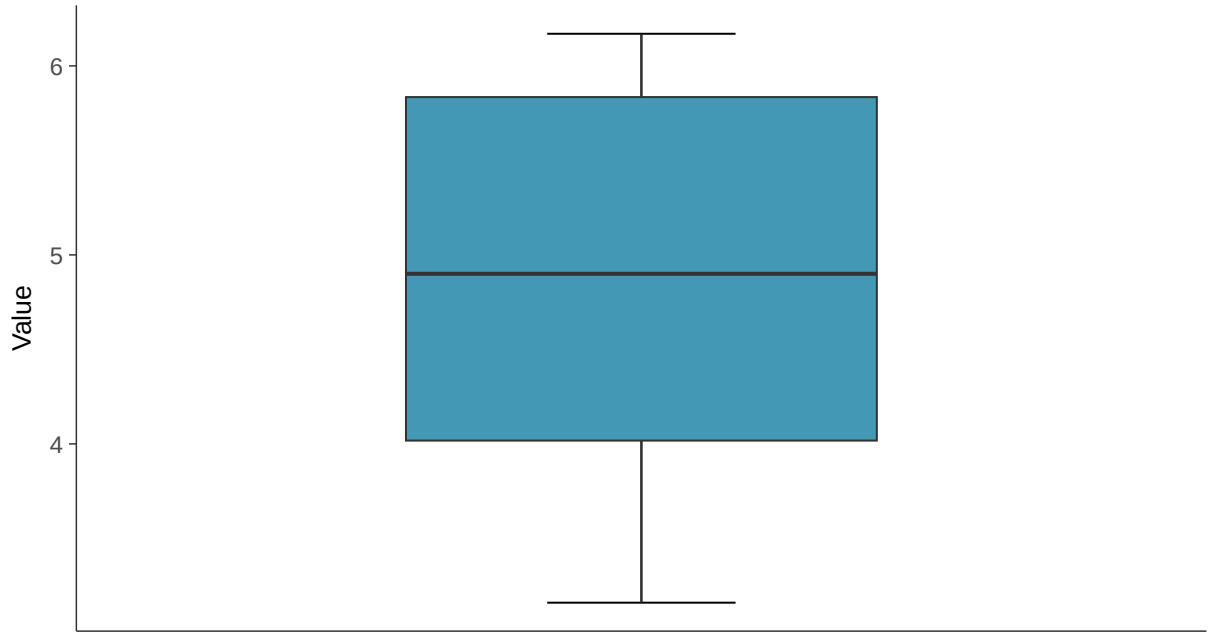
ID: 02_1_01





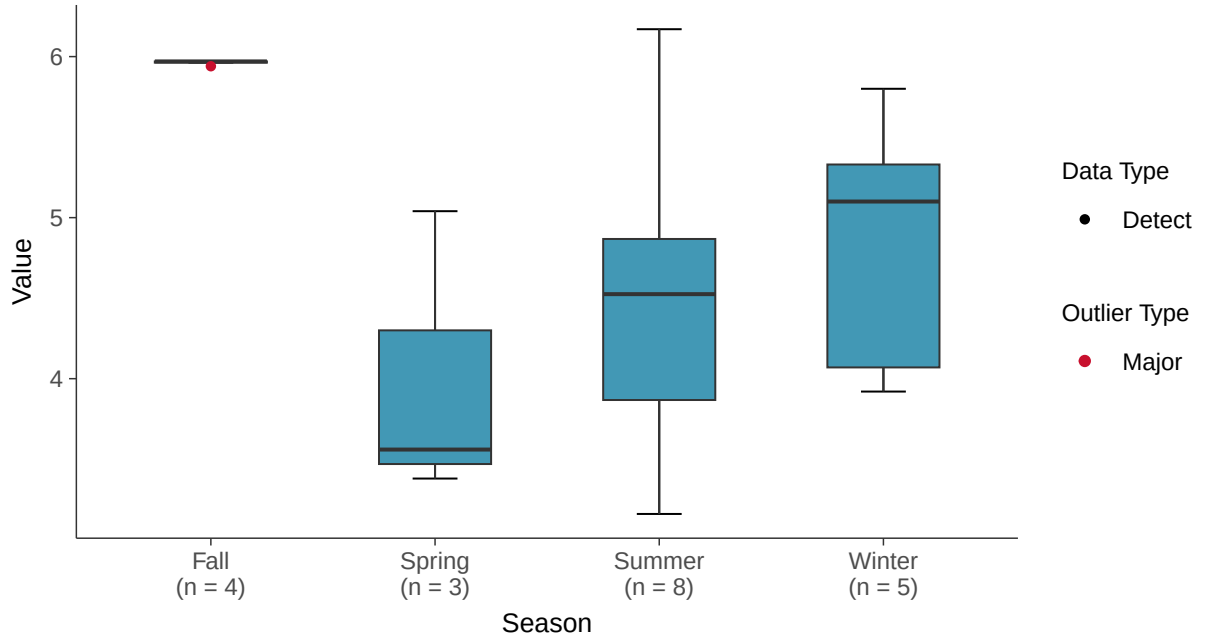
Boxplot

Boron, MW-2 (mg/L)



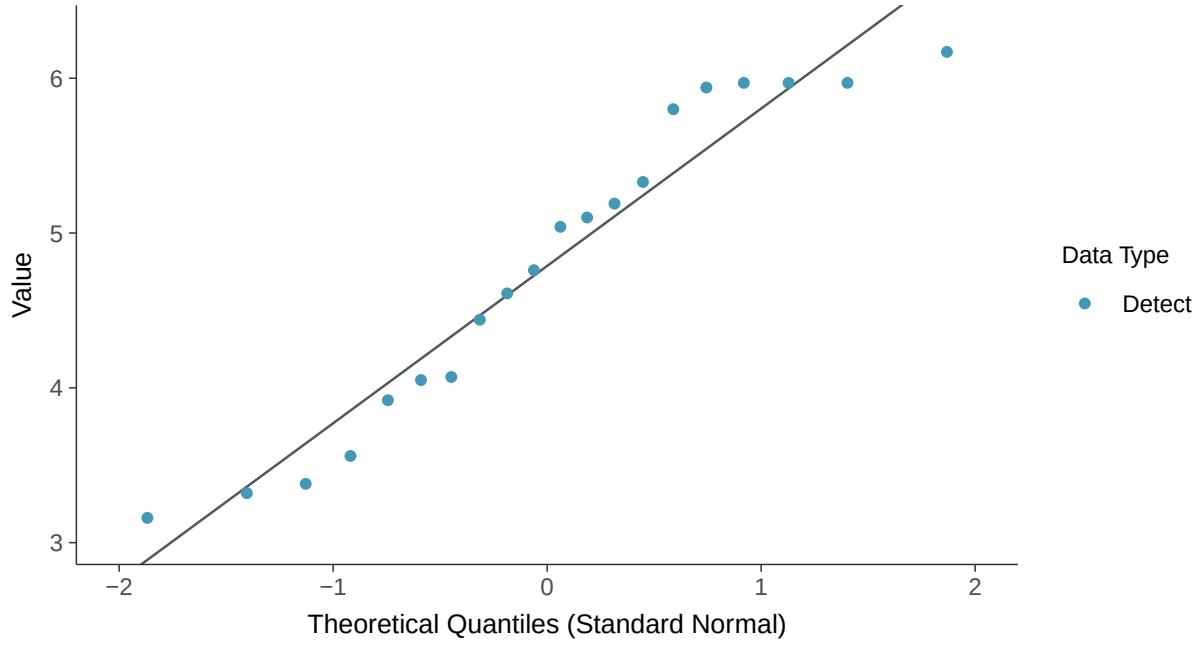
Boxplot by Season

Boron, MW-2 (mg/L)



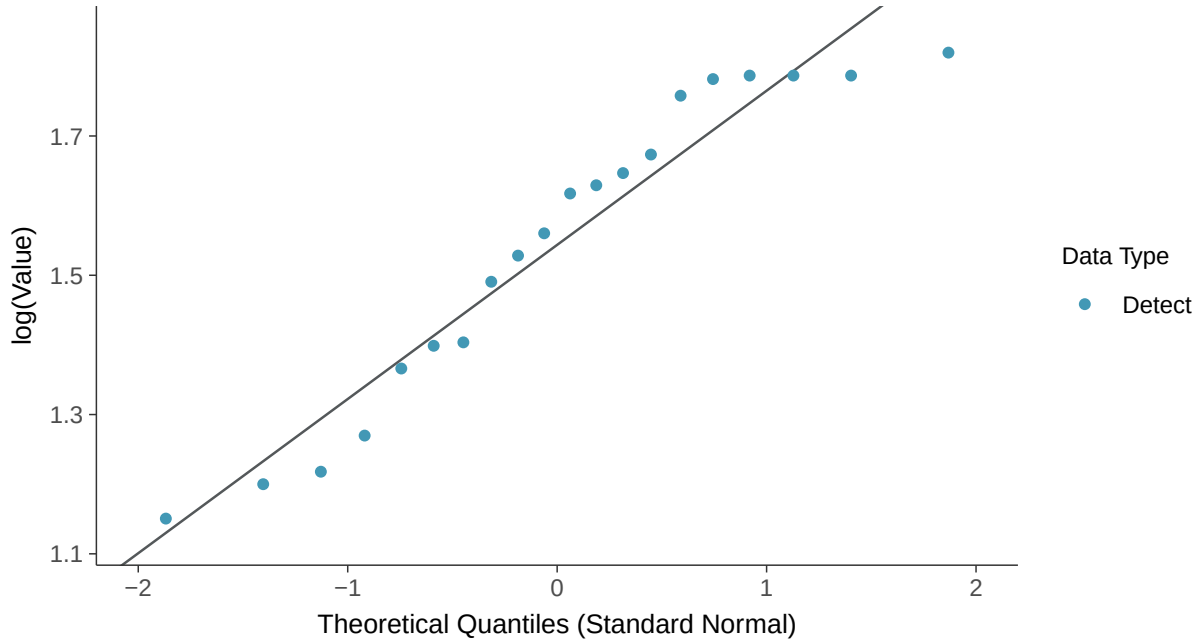
Normal Q-Q plot

Boron, MW-2 (mg/L)



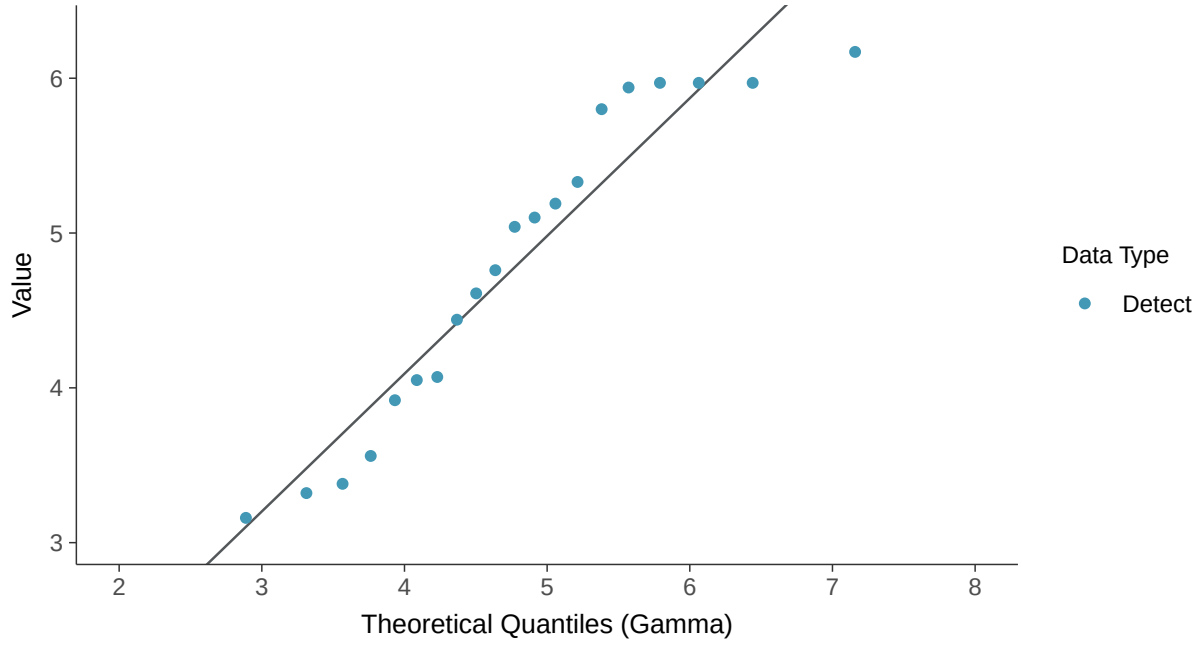
Lognormal Q-Q plot

Boron, MW-2 (mg/L)



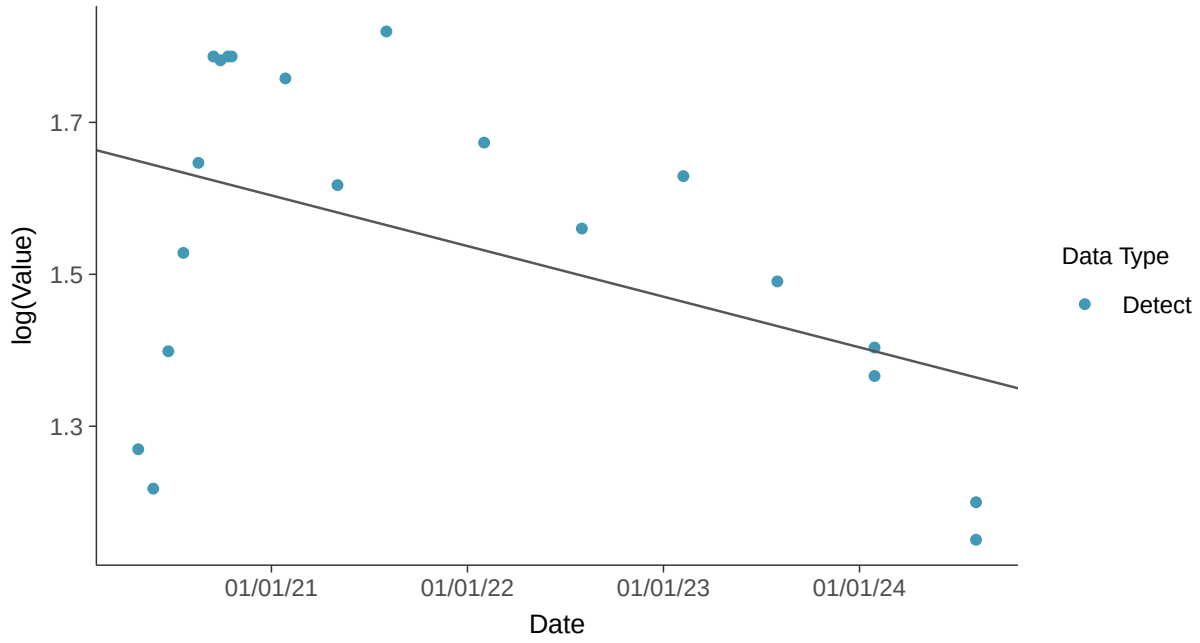
Gamma Q-Q plot

Boron, MW-2 (mg/L)



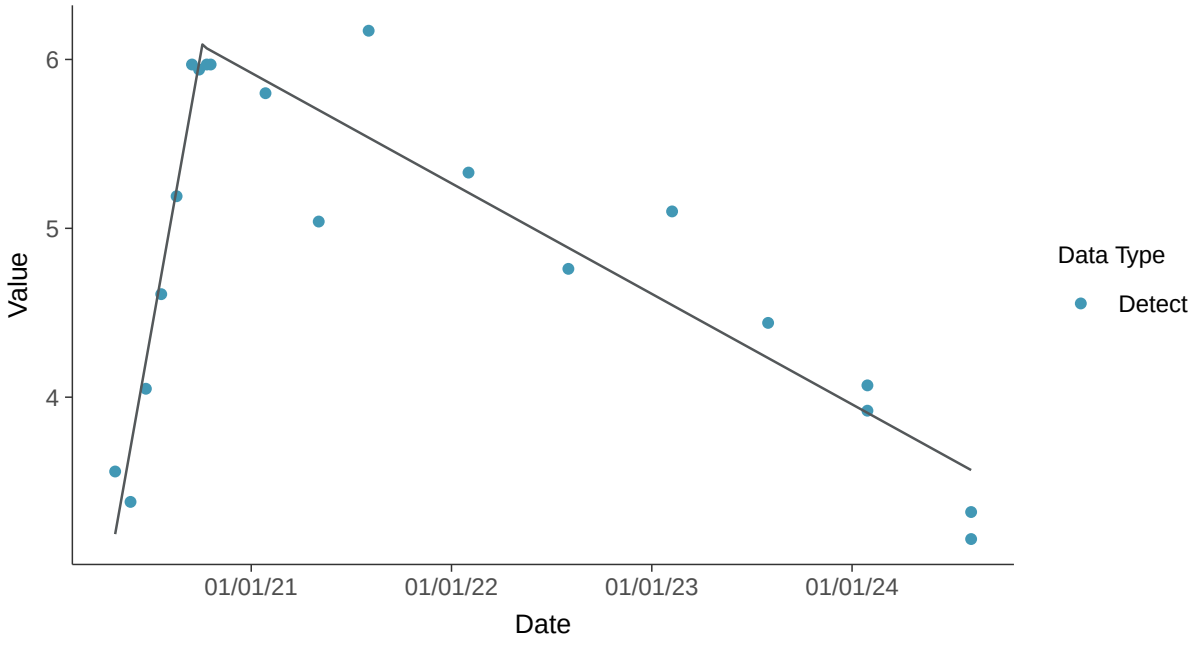
Trend Regression: Lognormal MLE

Boron, MW-2 (mg/L)



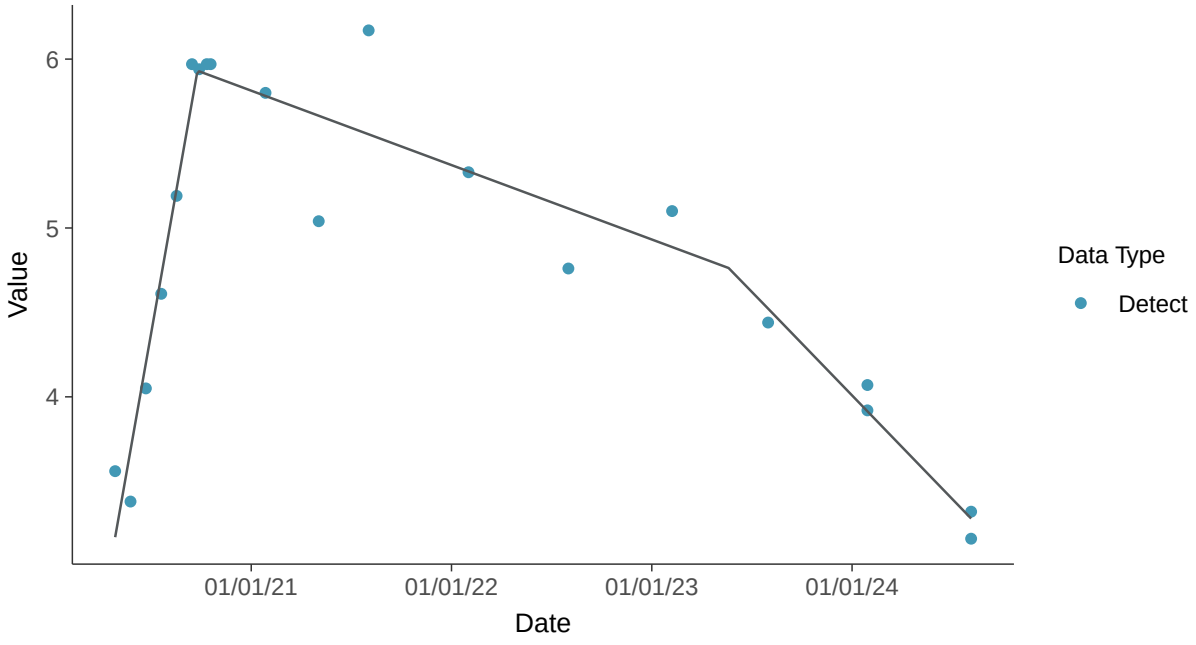
Trend Regression: Piecewise Linear-Linear

Boron, MW-2 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Boron, MW-2 (mg/L)

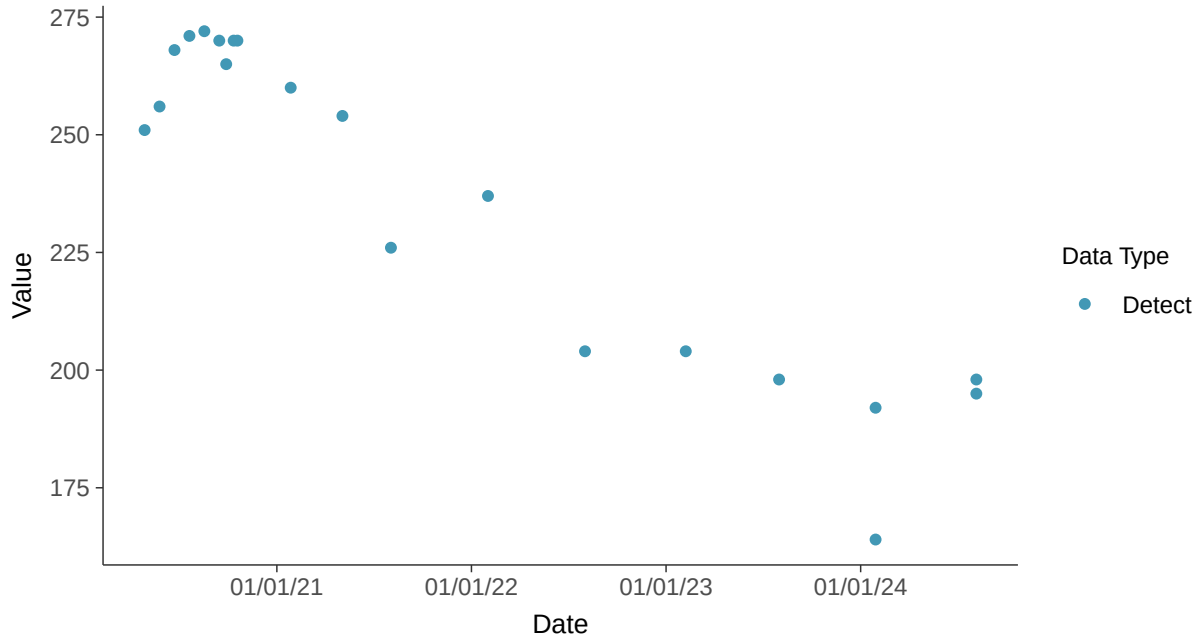


Appendix III: Calcium, MW-2

ID: 02_1_02

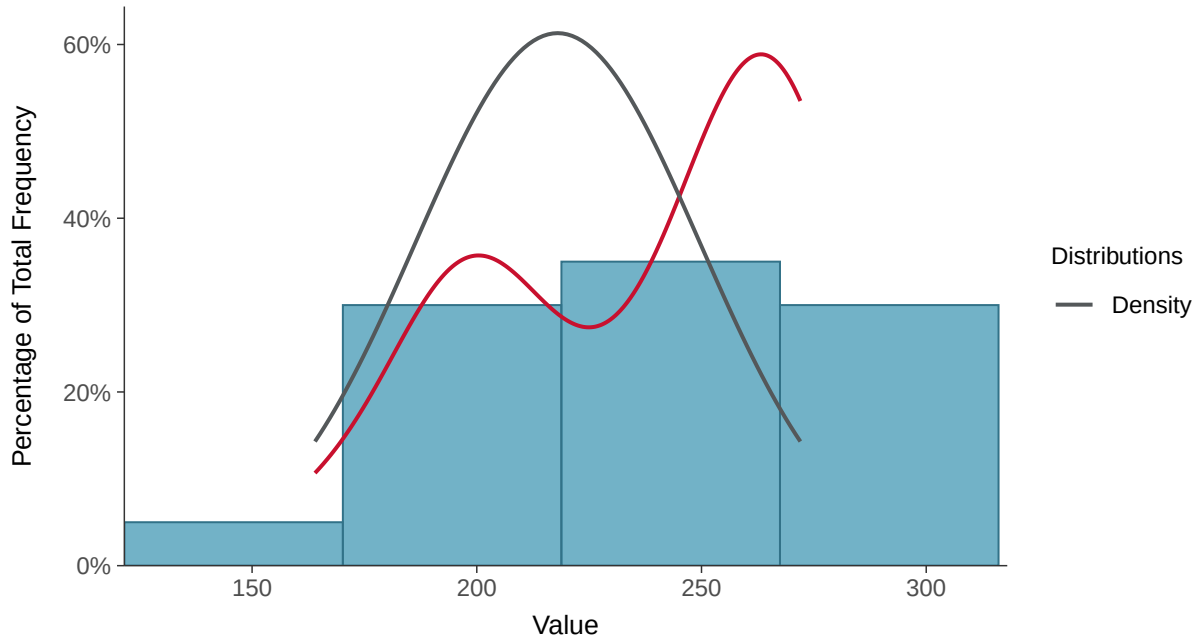
Scatter Plot

Calcium, MW-2 (mg/L)



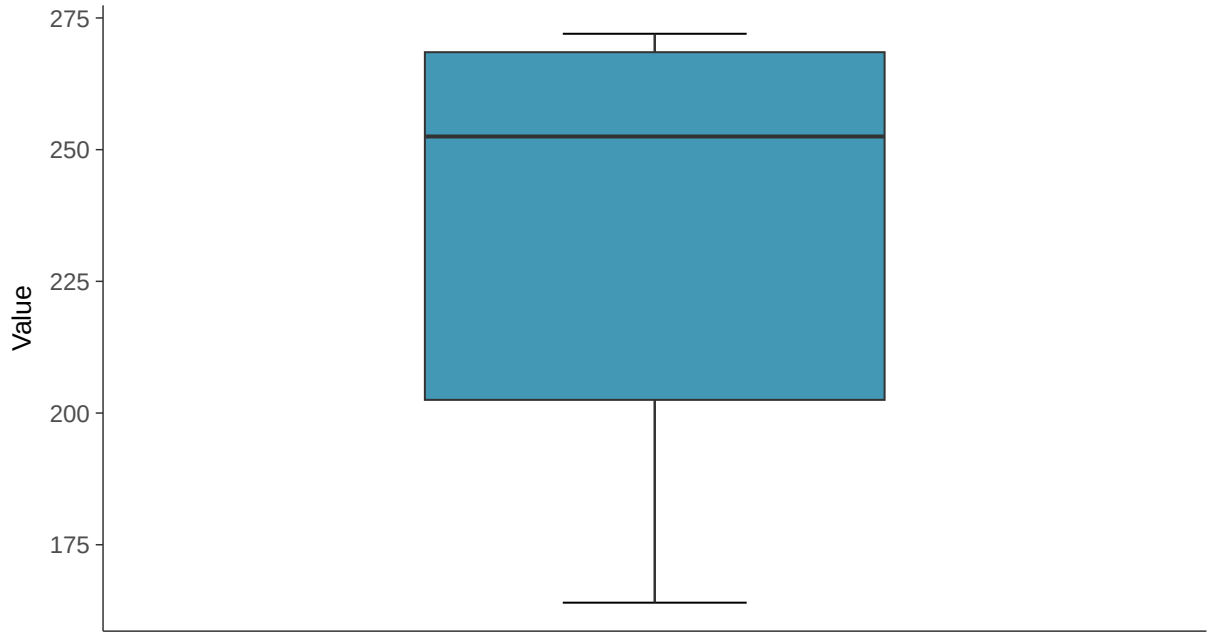
Histogram

Calcium, MW-2 (mg/L)



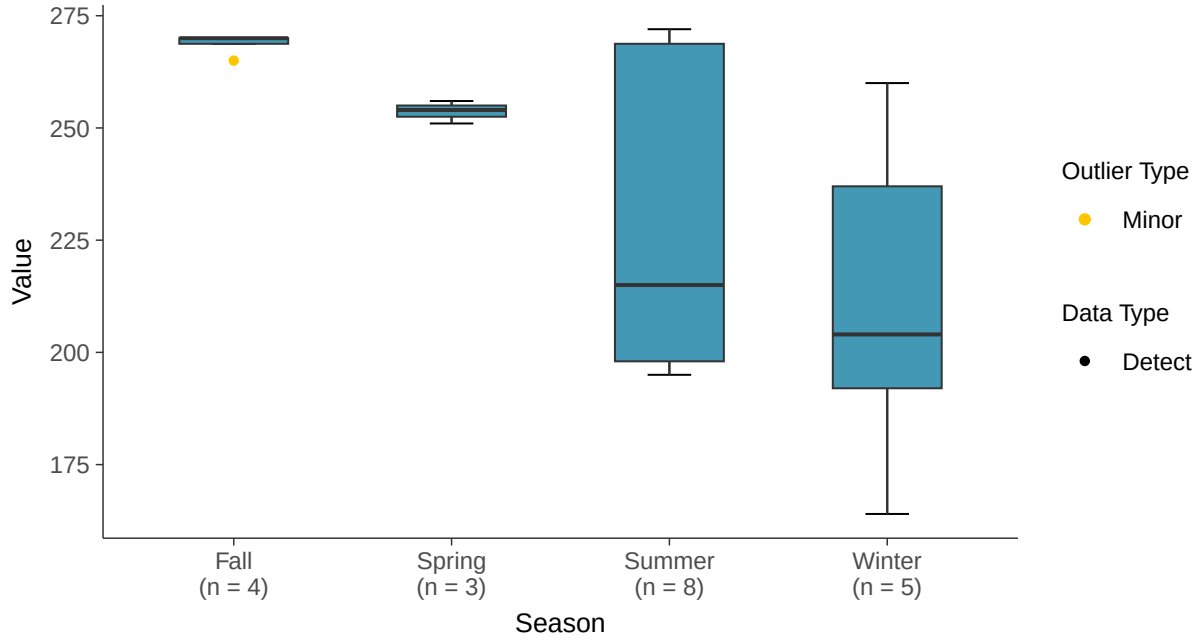
Boxplot

Calcium, MW-2 (mg/L)



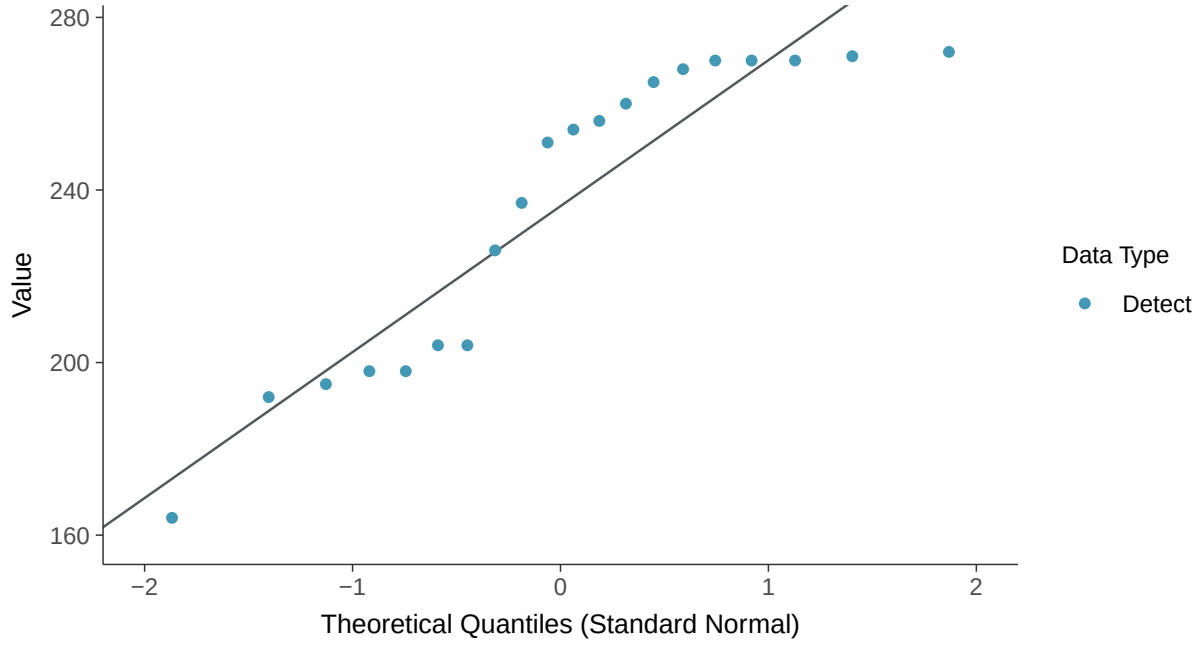
Boxplot by Season

Calcium, MW-2 (mg/L)



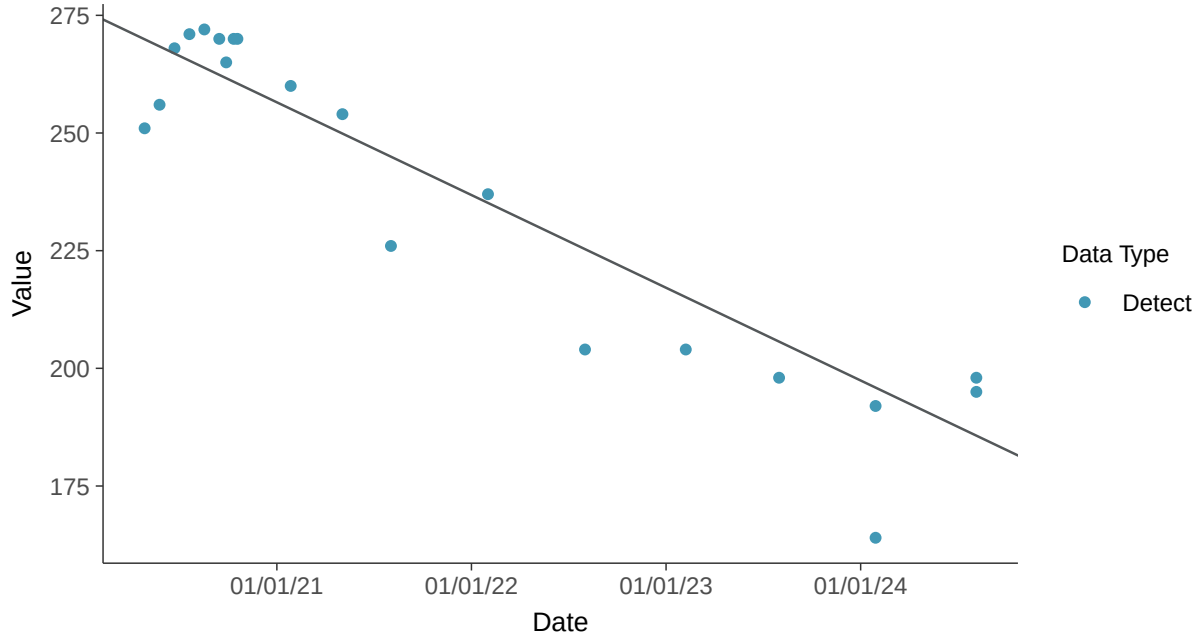
Normal Q-Q plot

Calcium, MW-2 (mg/L)



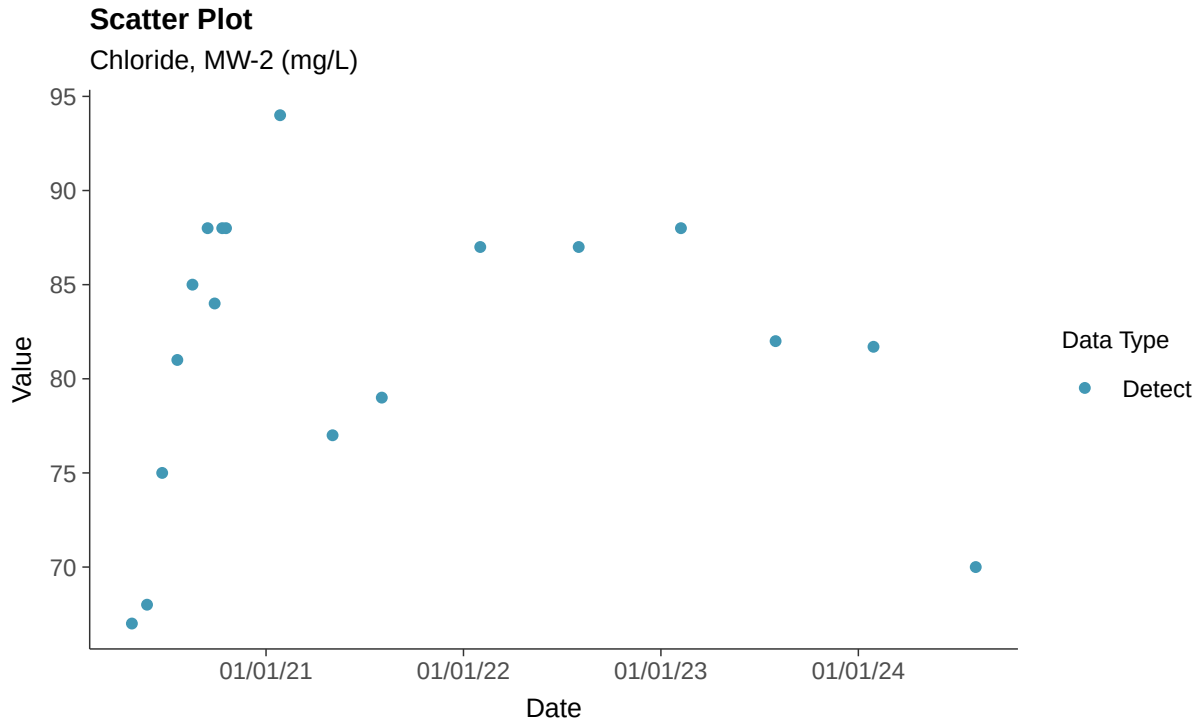
Trend Regression: Mann-Kendall/Theil-Sen Estimate

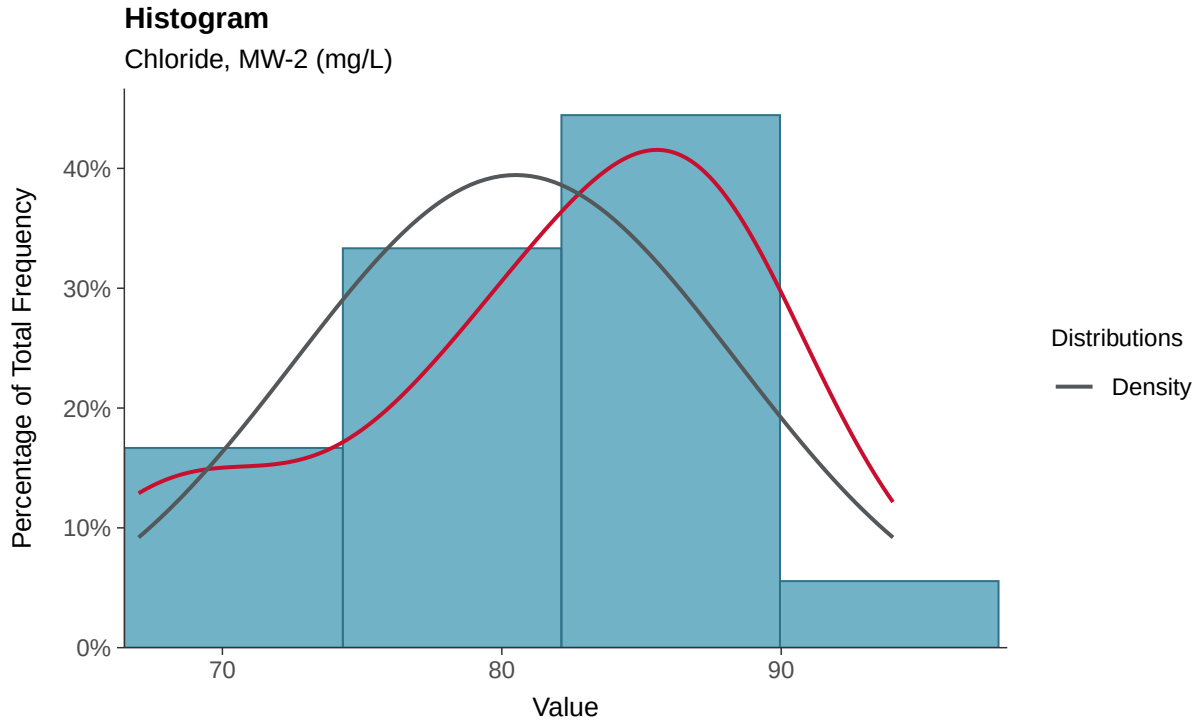
Calcium, MW-2 (mg/L)



Appendix III: Chloride, MW-2

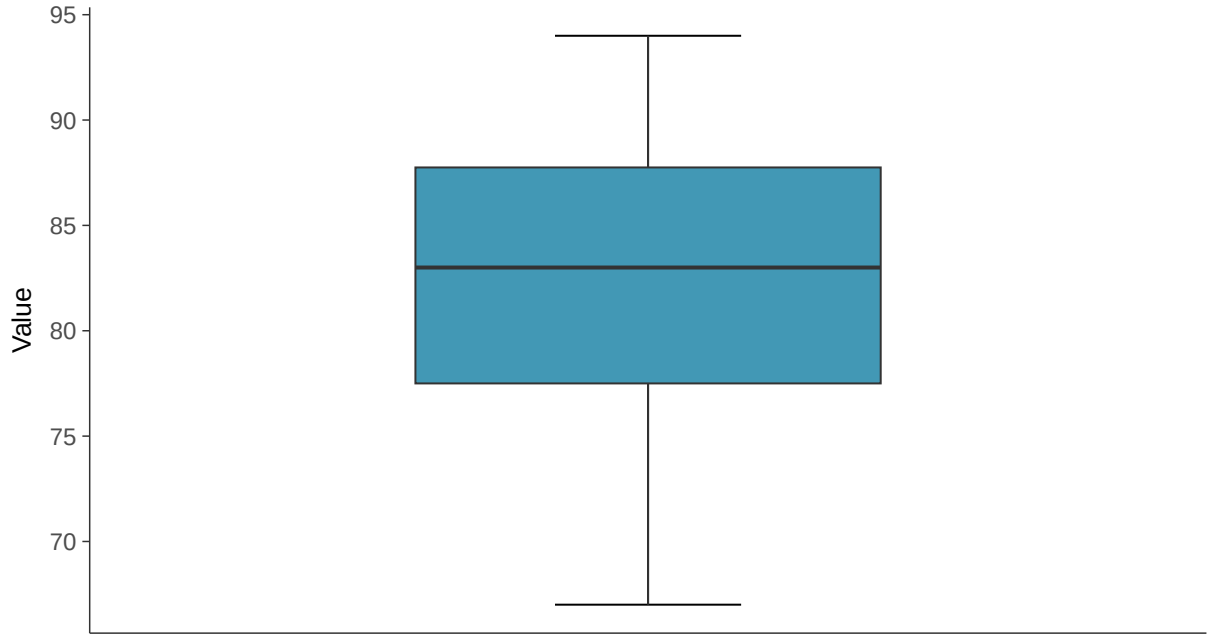
ID: 02_1_03





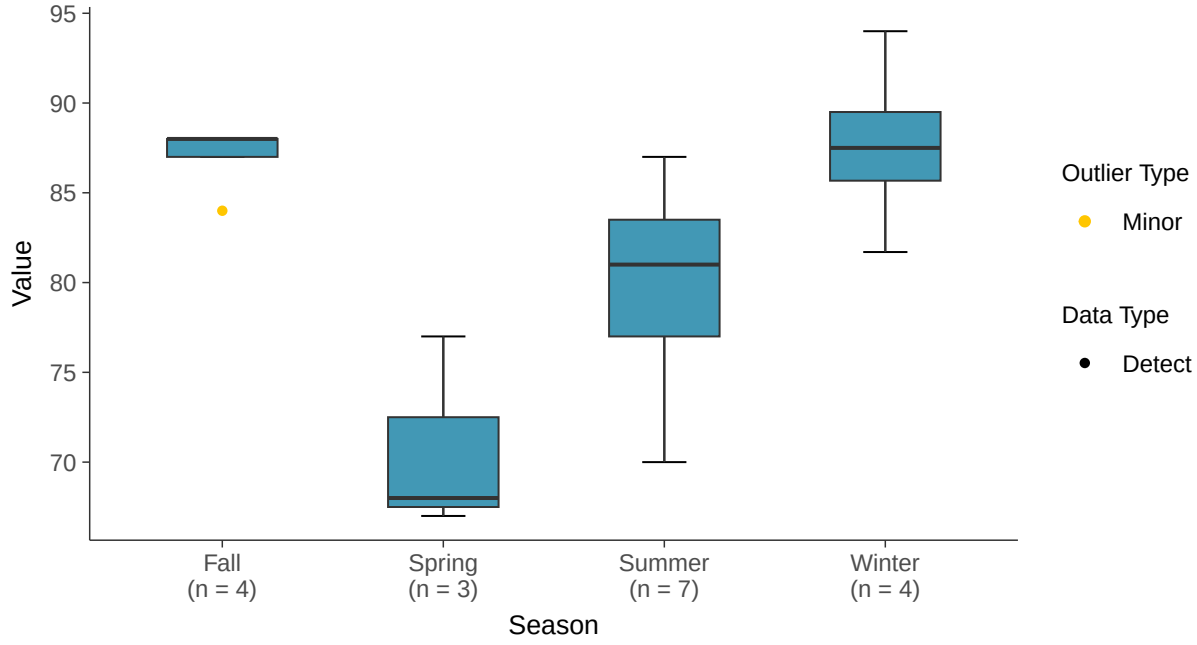
Boxplot

Chloride, MW-2 (mg/L)



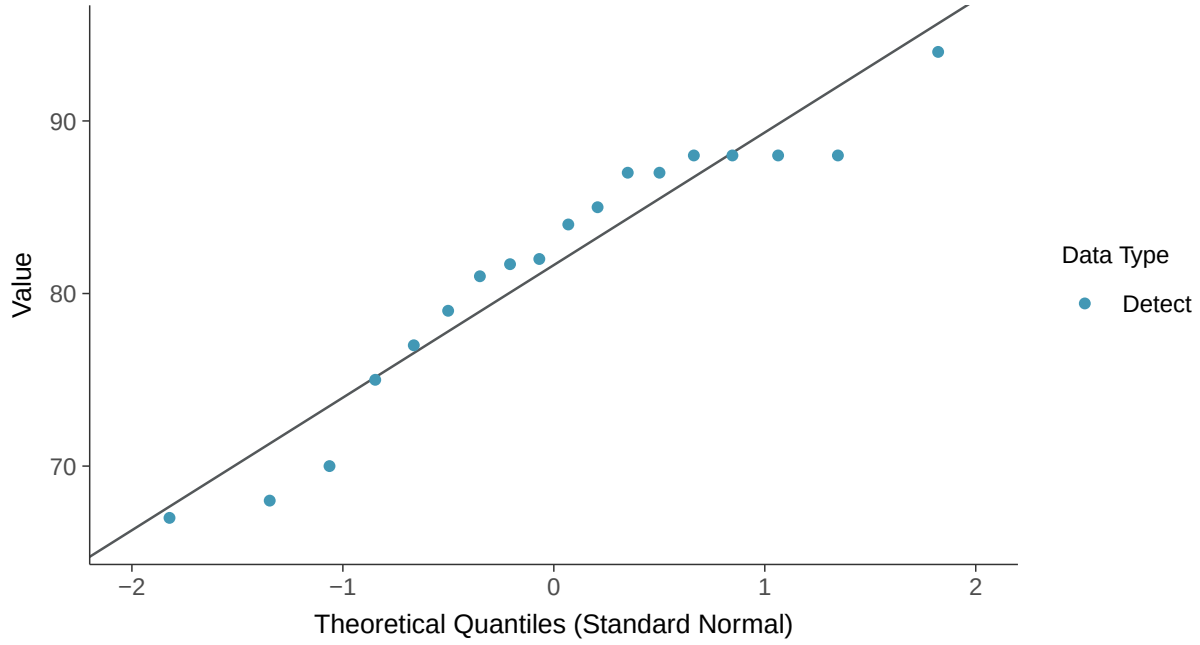
Boxplot by Season

Chloride, MW-2 (mg/L)



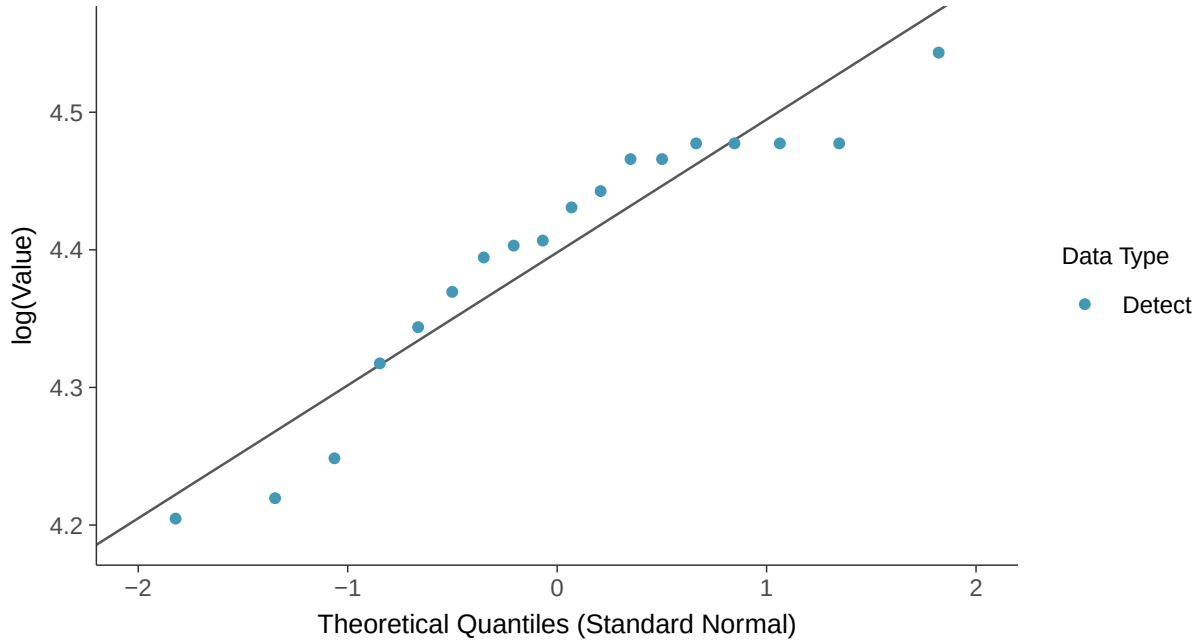
Normal Q-Q plot

Chloride, MW-2 (mg/L)



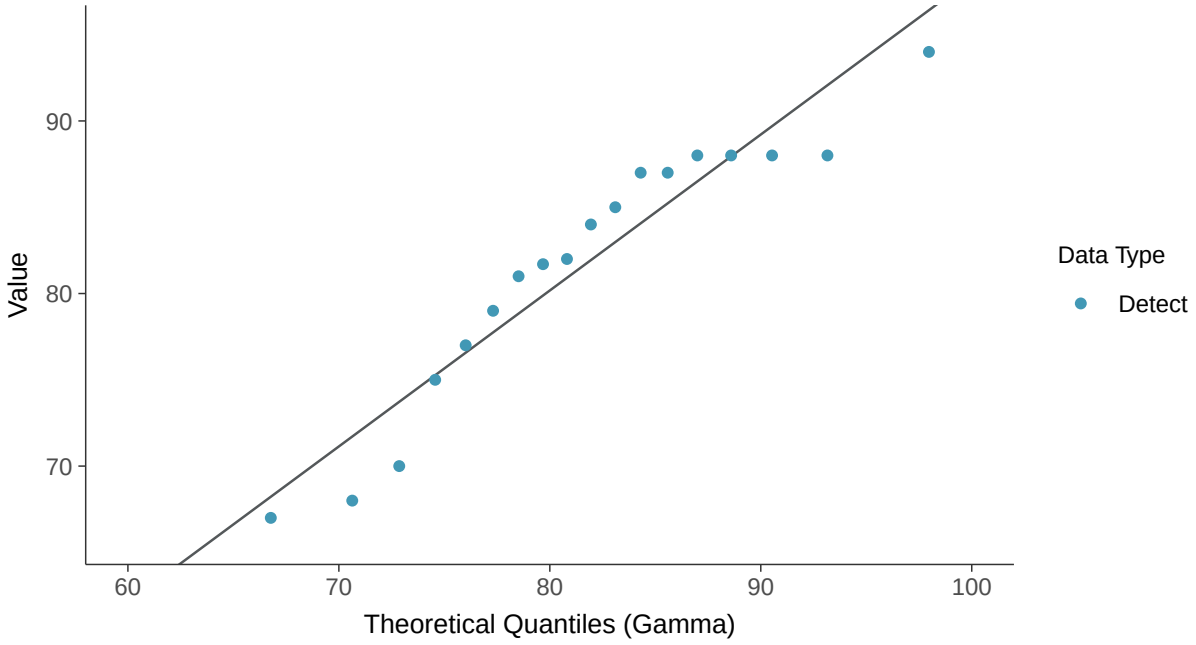
Lognormal Q-Q plot

Chloride, MW-2 (mg/L)



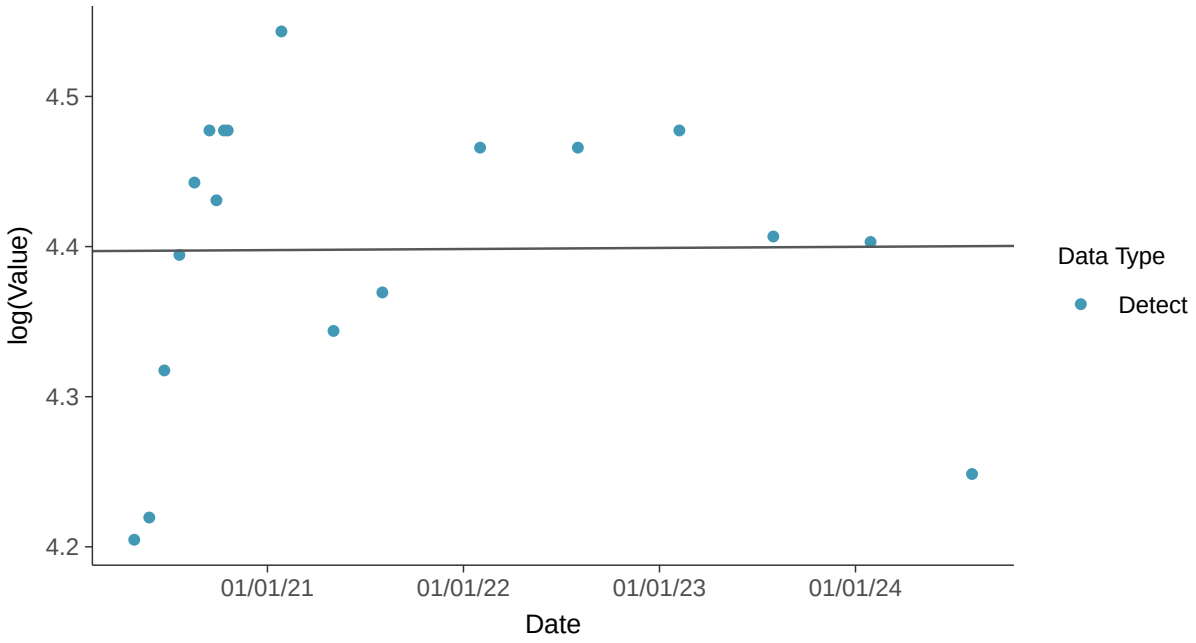
Gamma Q-Q plot

Chloride, MW-2 (mg/L)



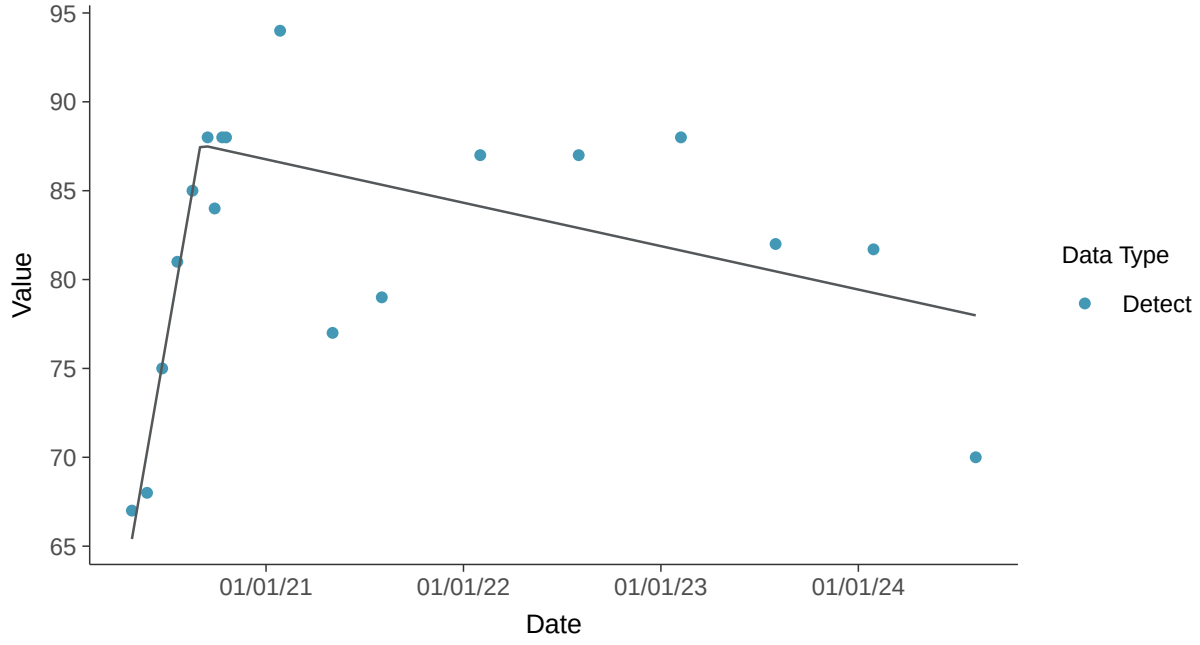
Trend Regression: Lognormal MLE

Chloride, MW-2 (mg/L)



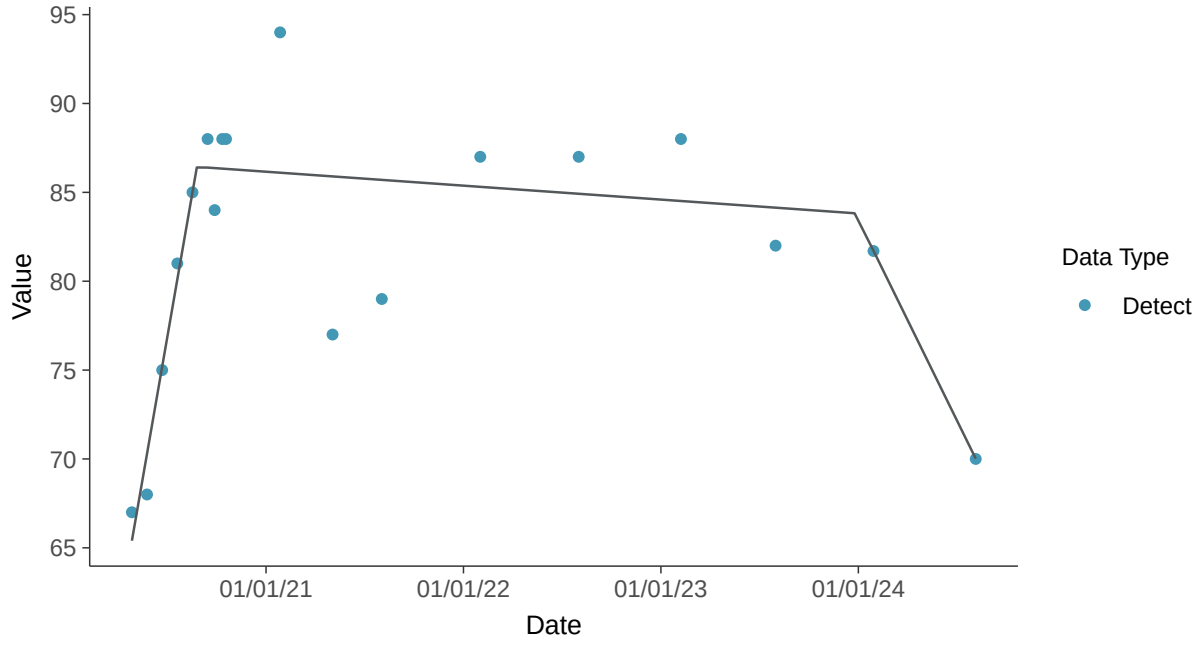
Trend Regression: Piecewise Linear-Linear

Chloride, MW-2 (mg/L)



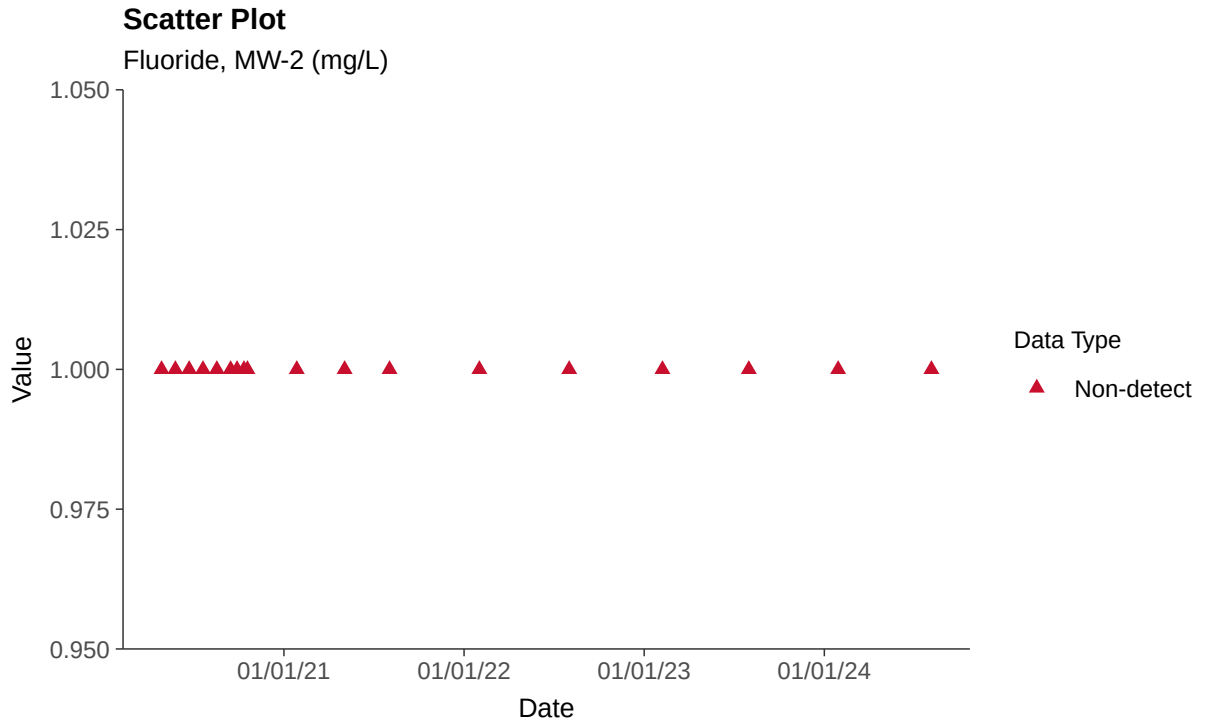
Trend Regression: Piecewise Linear-Linear-Linear

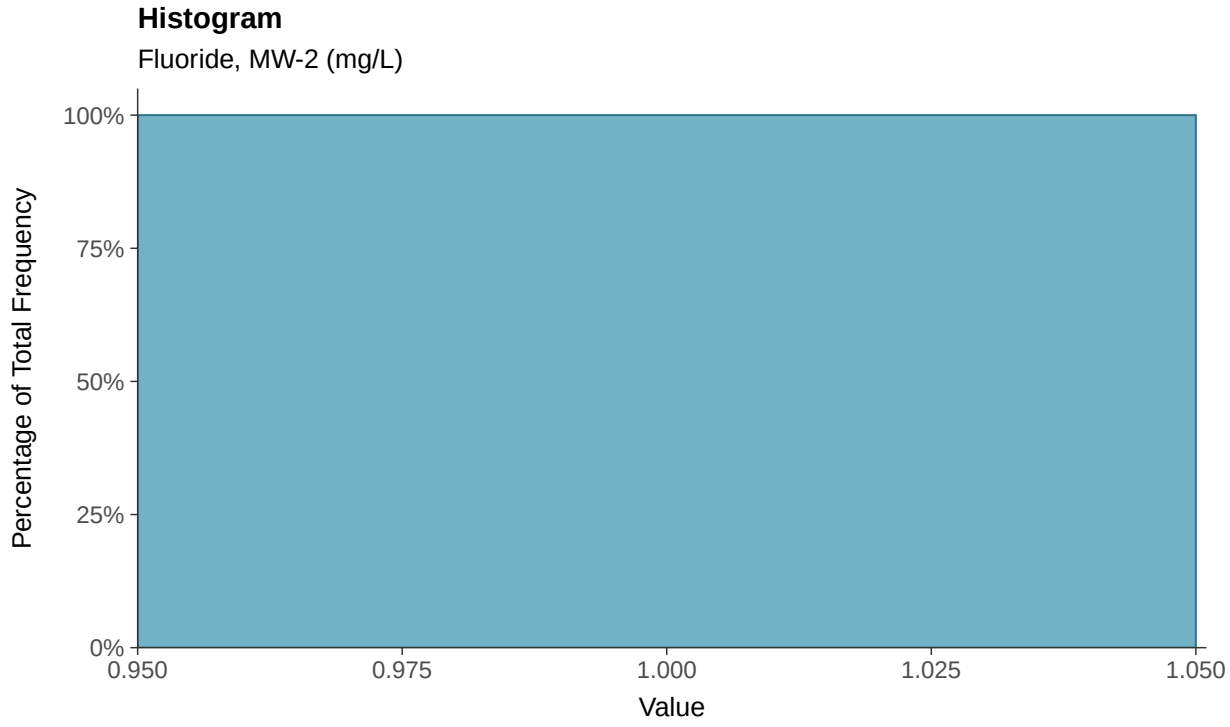
Chloride, MW-2 (mg/L)



Appendix III: Fluoride, MW-2

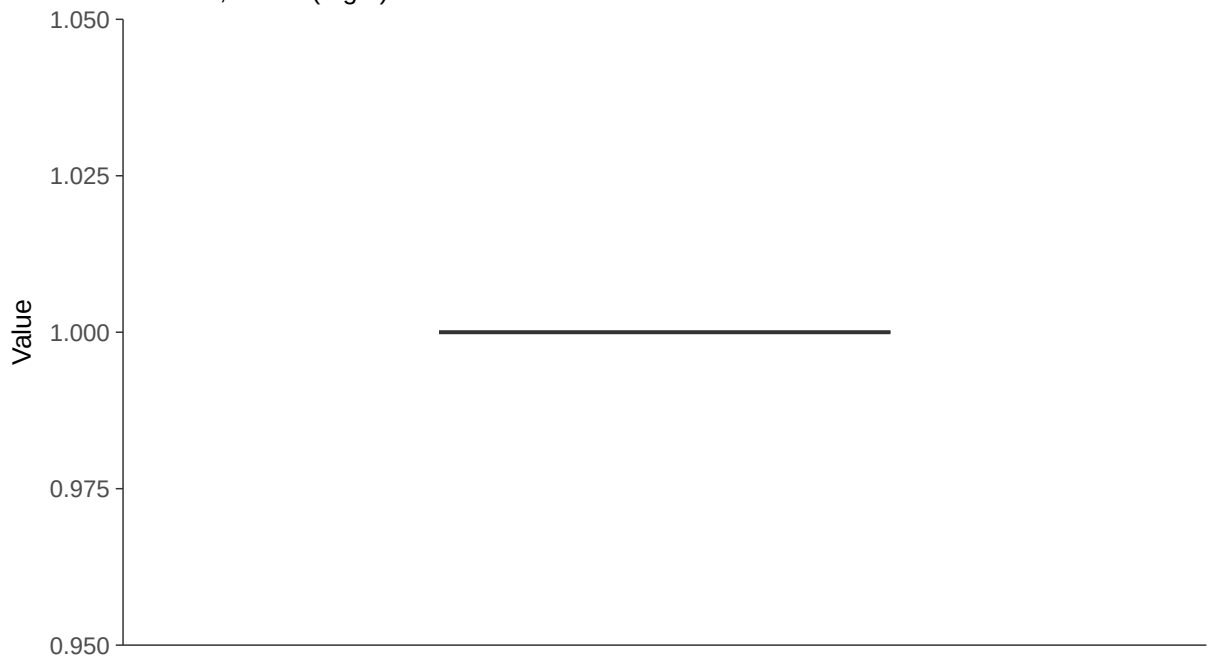
ID: 02_1_04





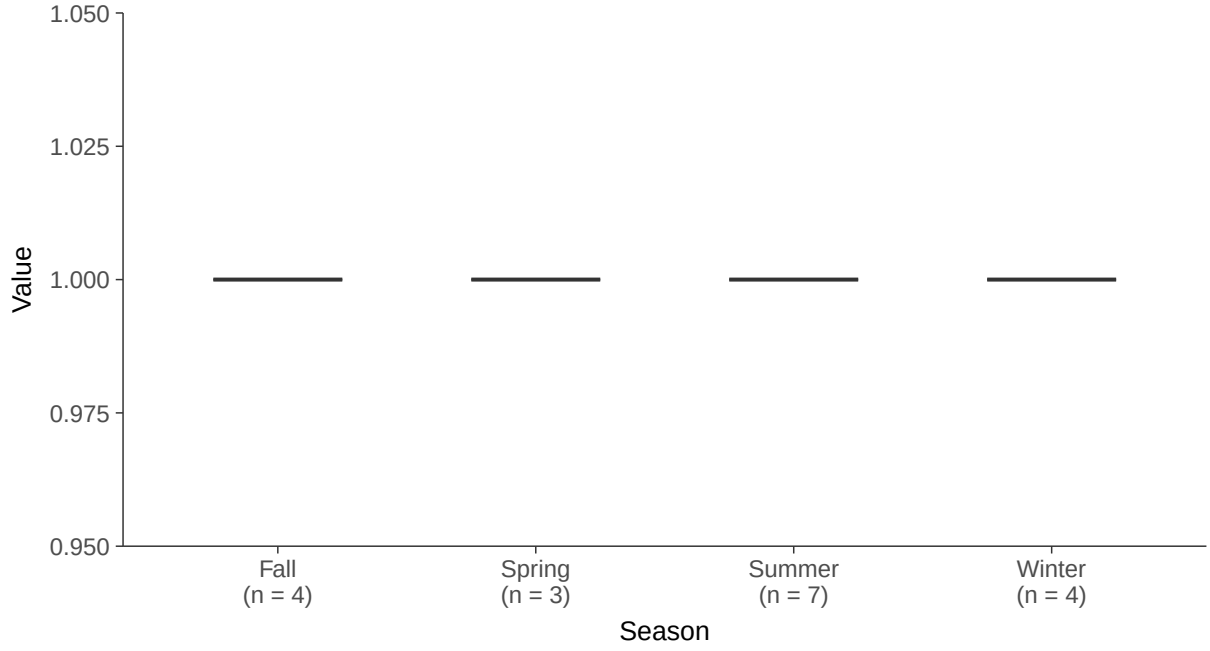
Boxplot

Fluoride, MW-2 (mg/L)



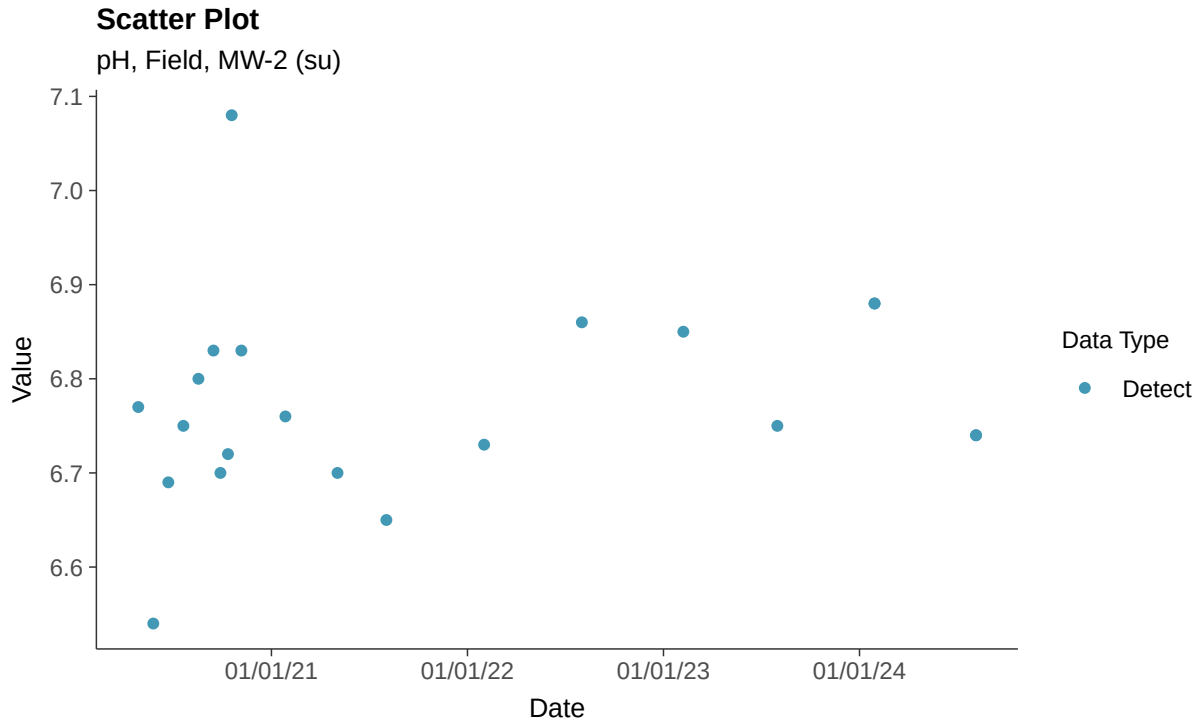
Boxplot by Season

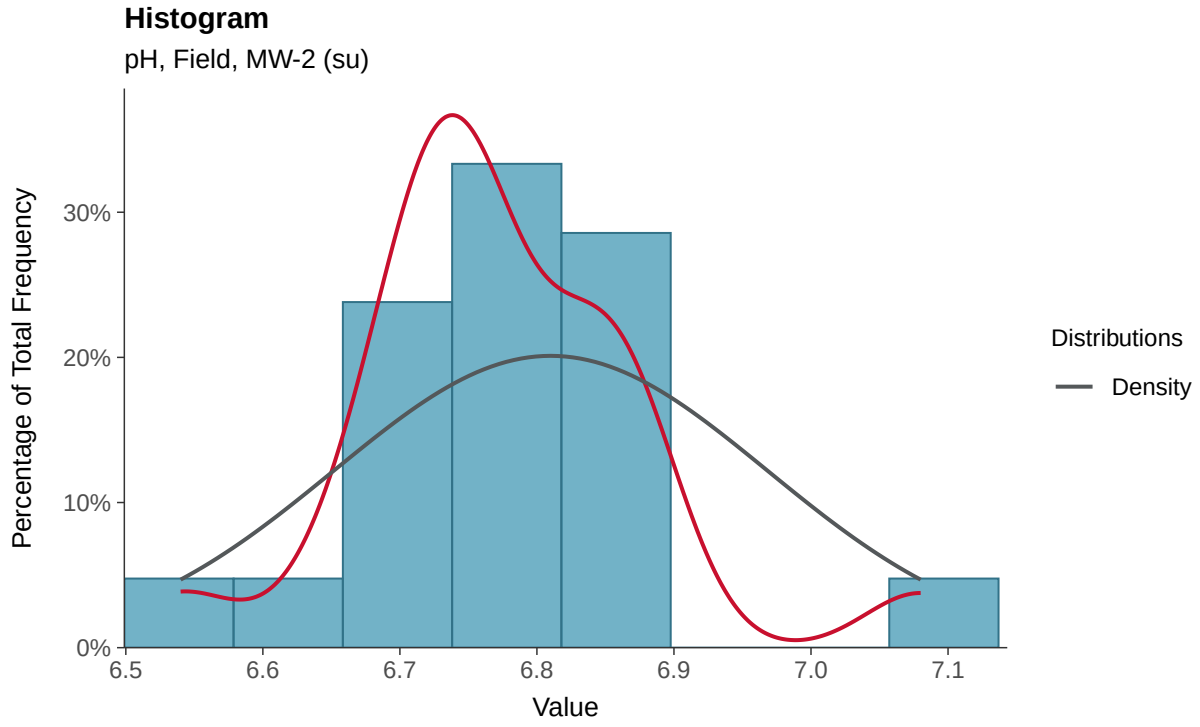
Fluoride, MW-2 (mg/L)



Appendix III: pH, Field, MW-2

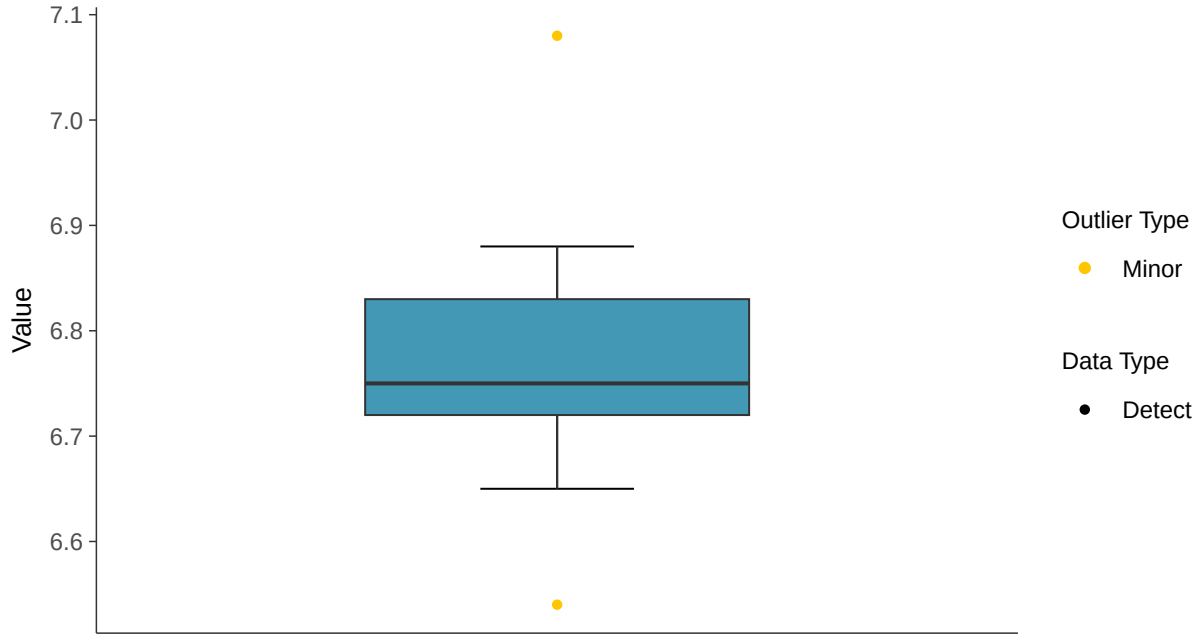
ID: 02_1_05





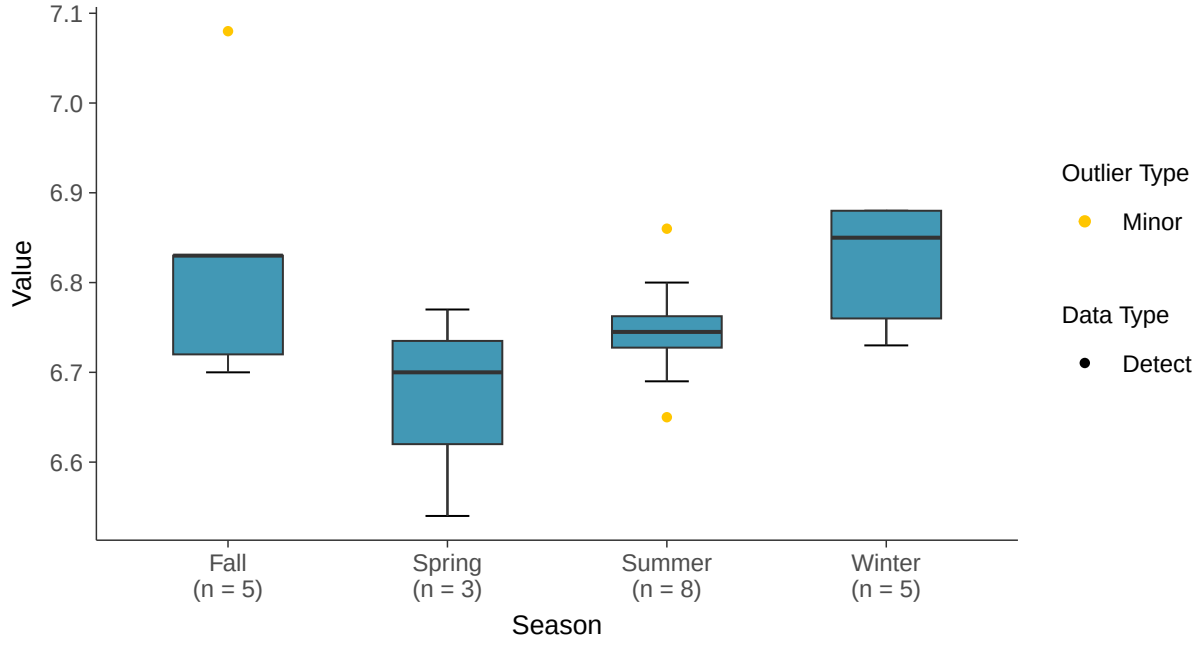
Boxplot

pH, Field, MW-2 (su)



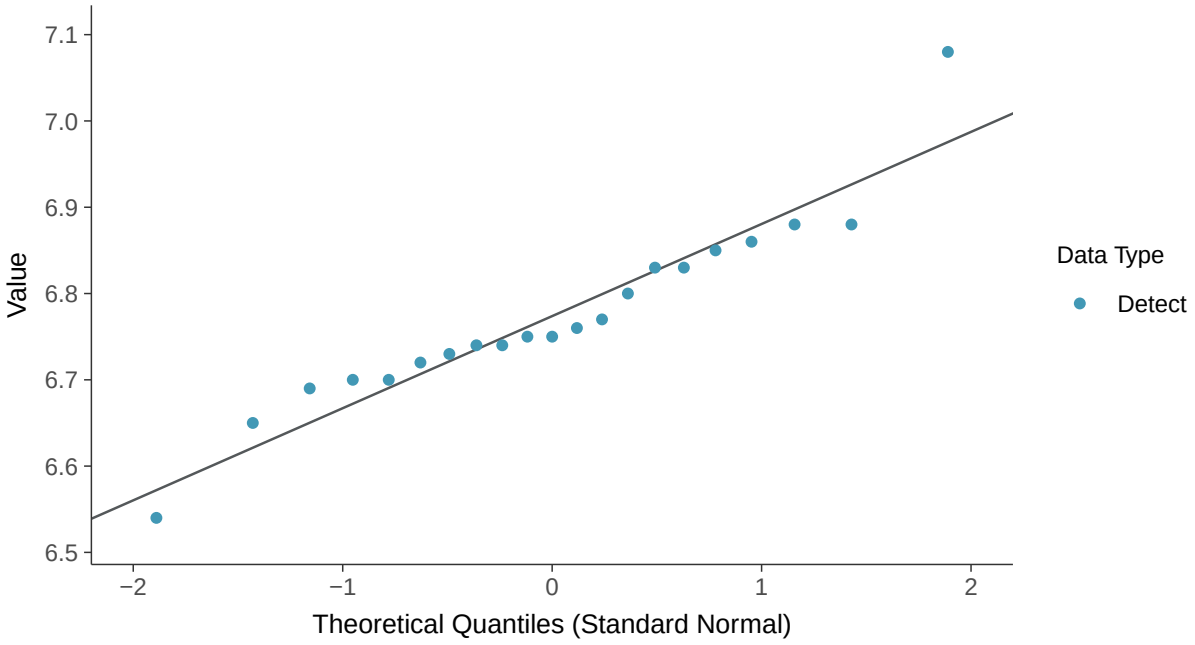
Boxplot by Season

pH, Field, MW-2 (su)



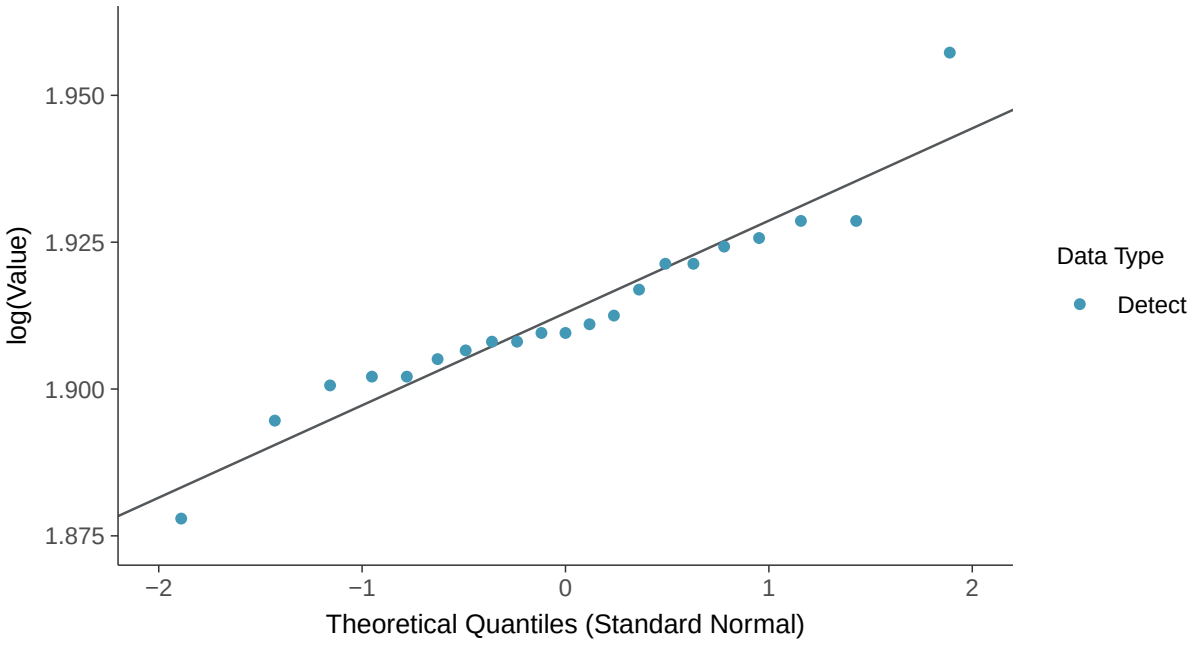
Normal Q-Q plot

pH, Field, MW-2 (su)



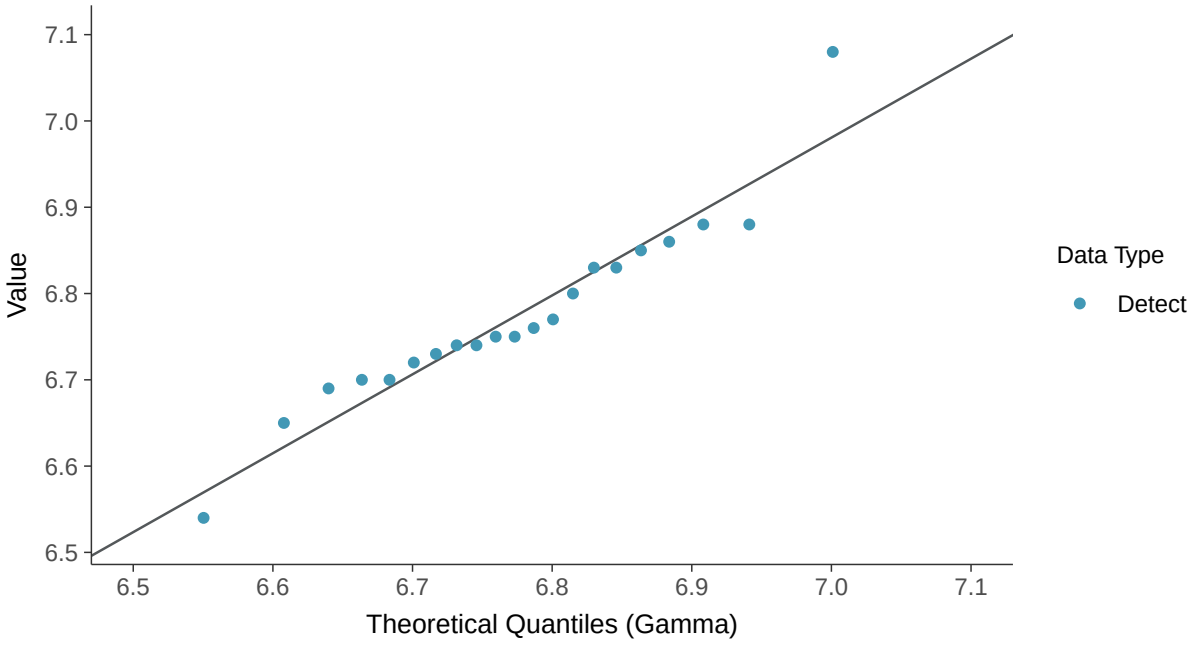
Lognormal Q-Q plot

pH, Field, MW-2 (su)



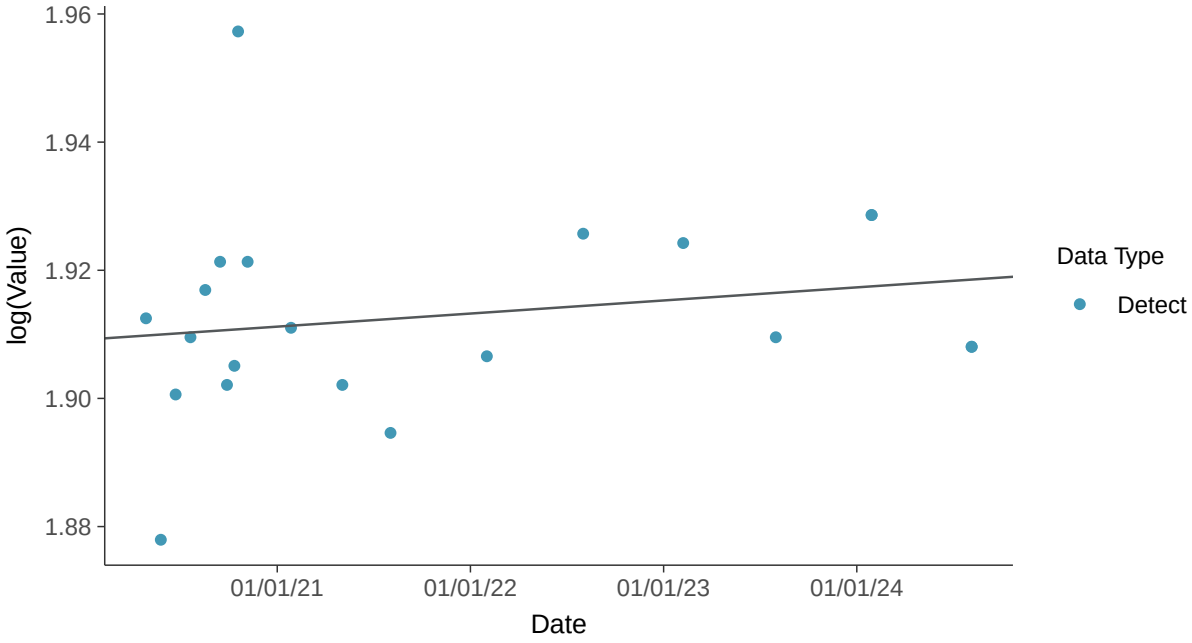
Gamma Q-Q plot

pH, Field, MW-2 (su)



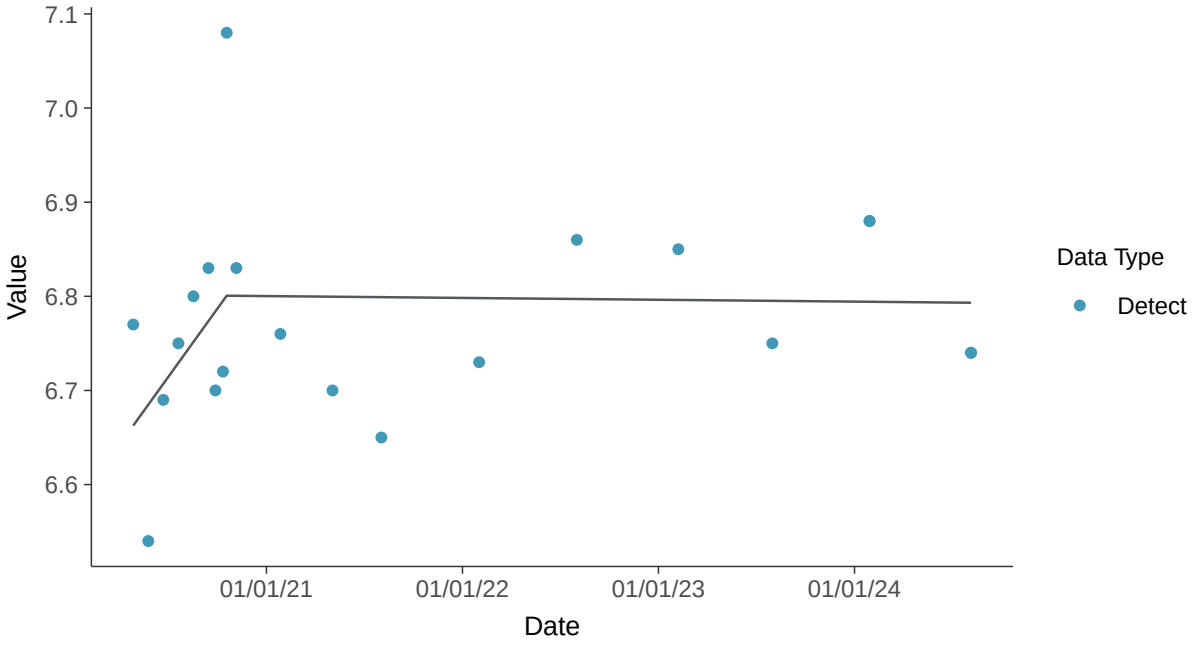
Trend Regression: Lognormal MLE

pH, Field, MW-2 (su)



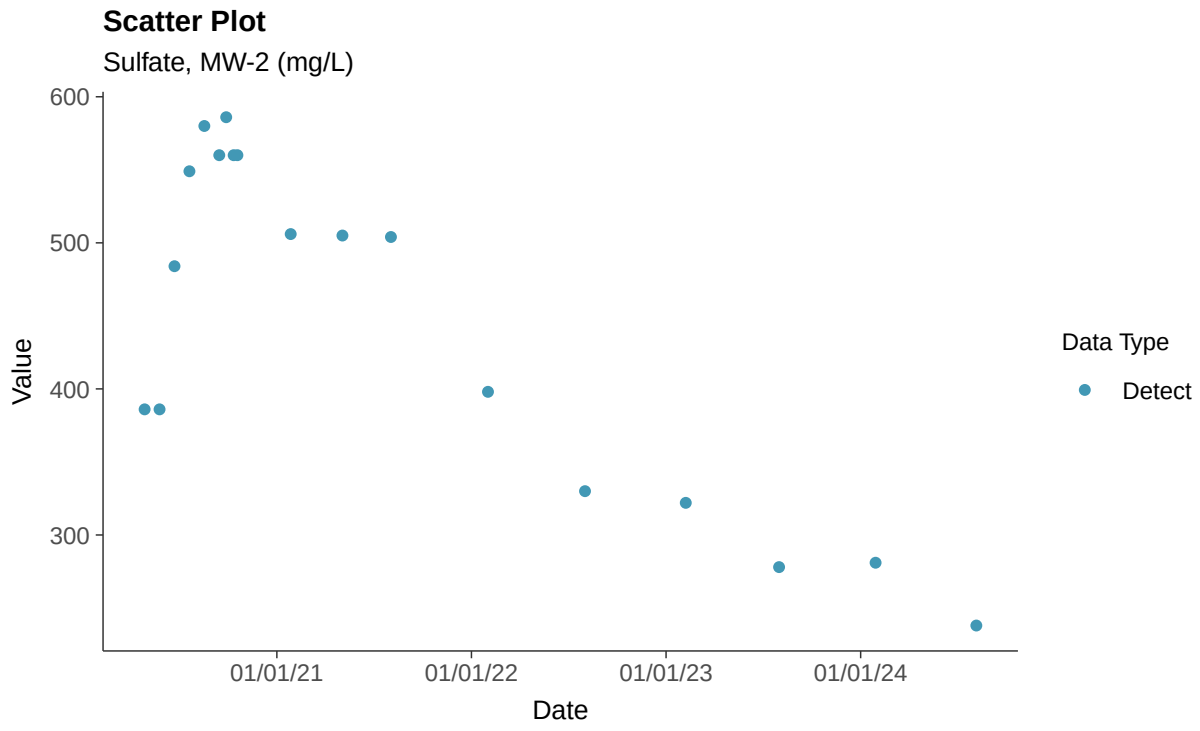
Trend Regression: Piecewise Linear-Linear

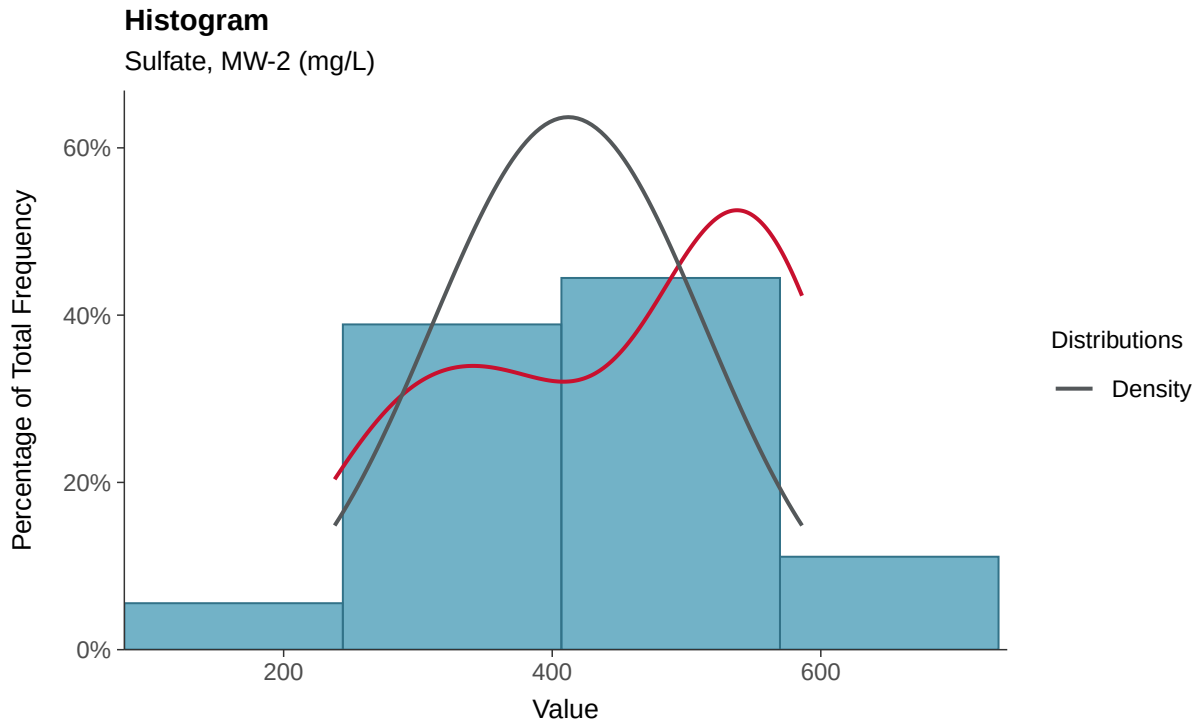
pH, Field, MW-2 (su)



Appendix III: Sulfate, MW-2

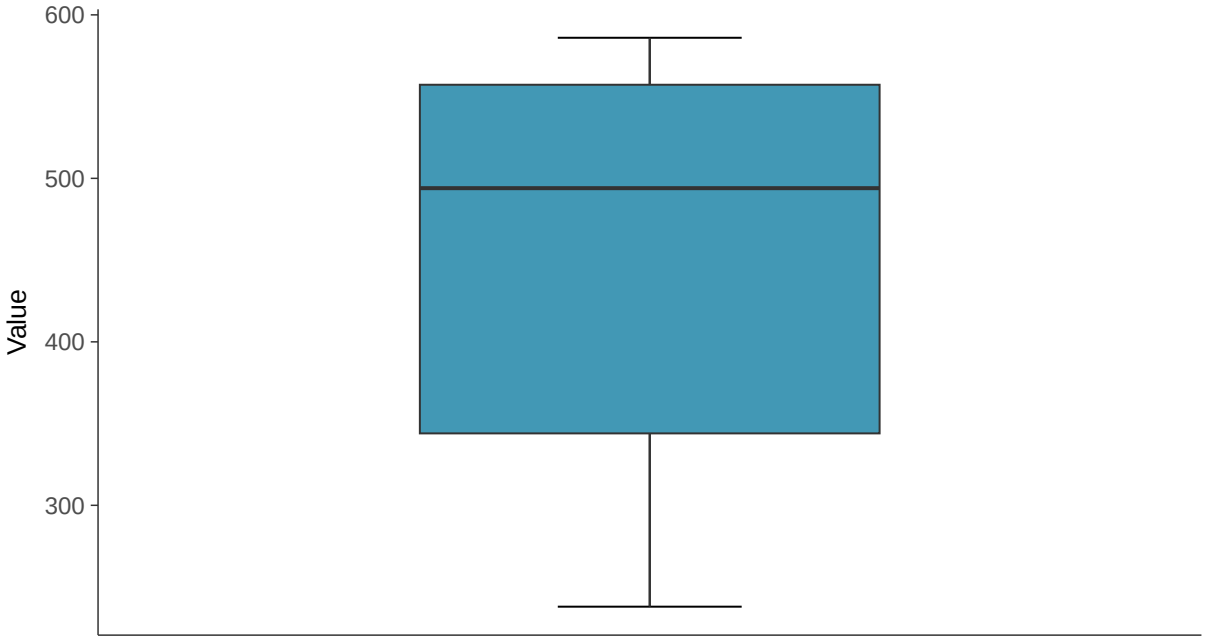
ID: 02_1_06





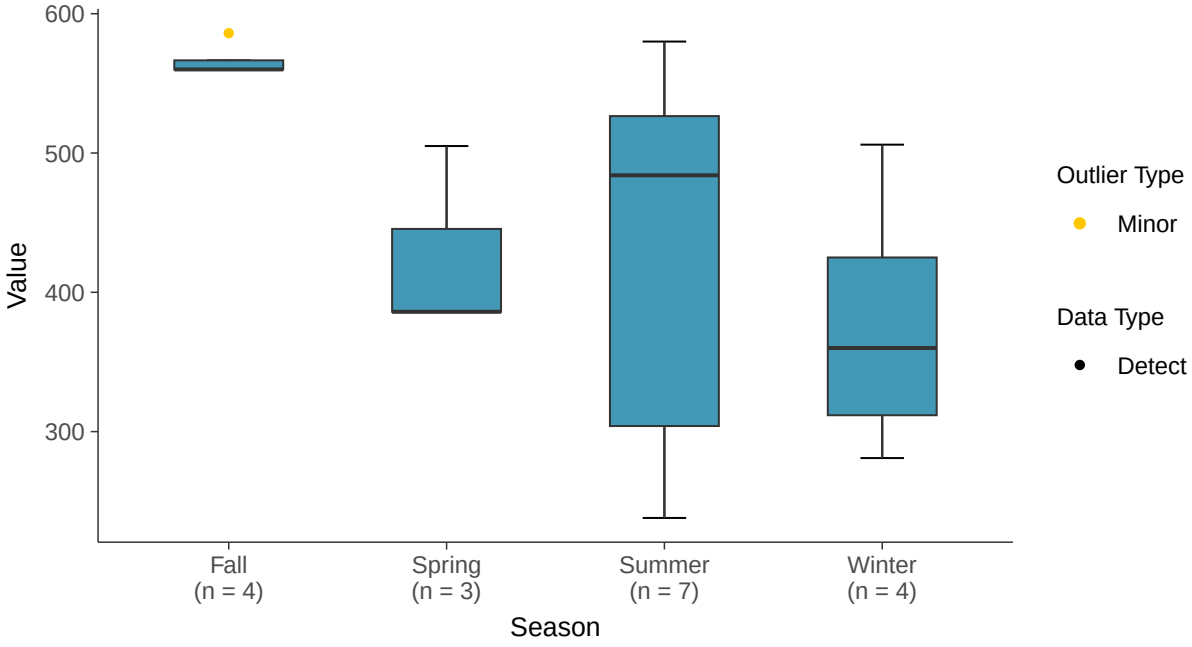
Boxplot

Sulfate, MW-2 (mg/L)



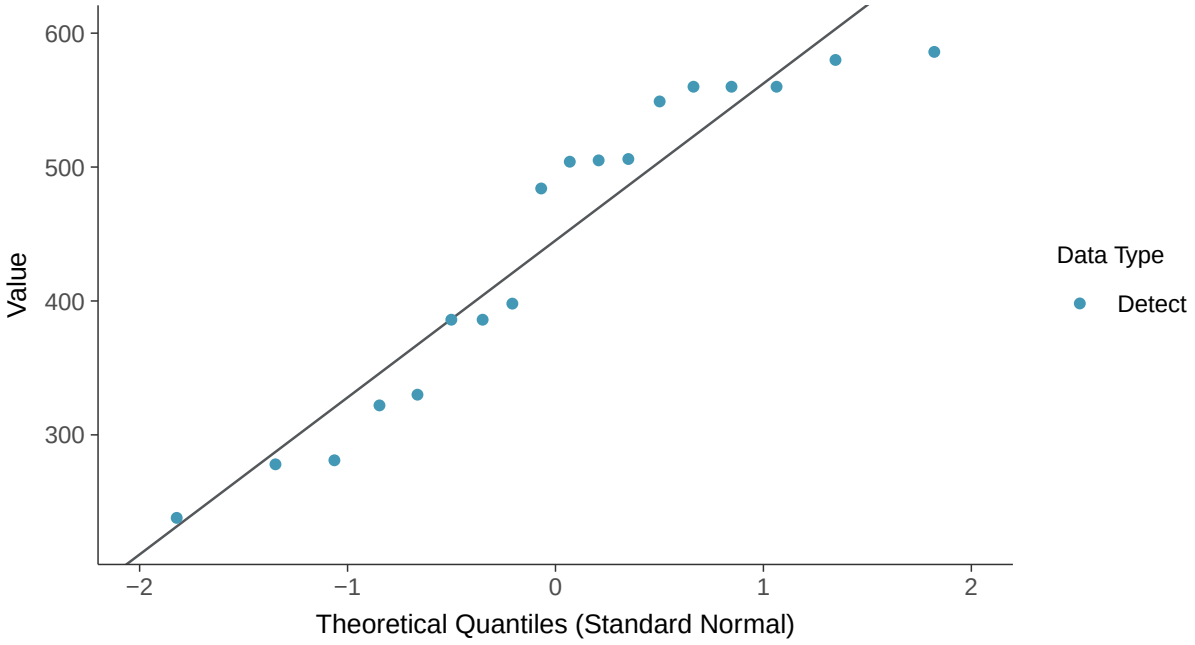
Boxplot by Season

Sulfate, MW-2 (mg/L)



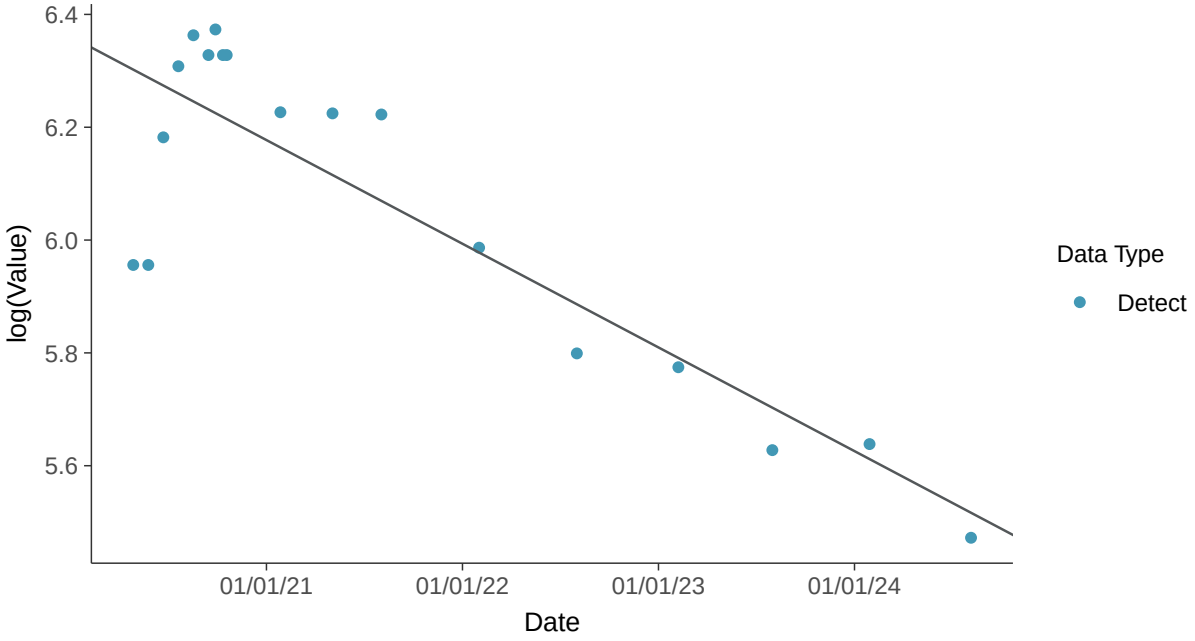
Normal Q-Q plot

Sulfate, MW-2 (mg/L)



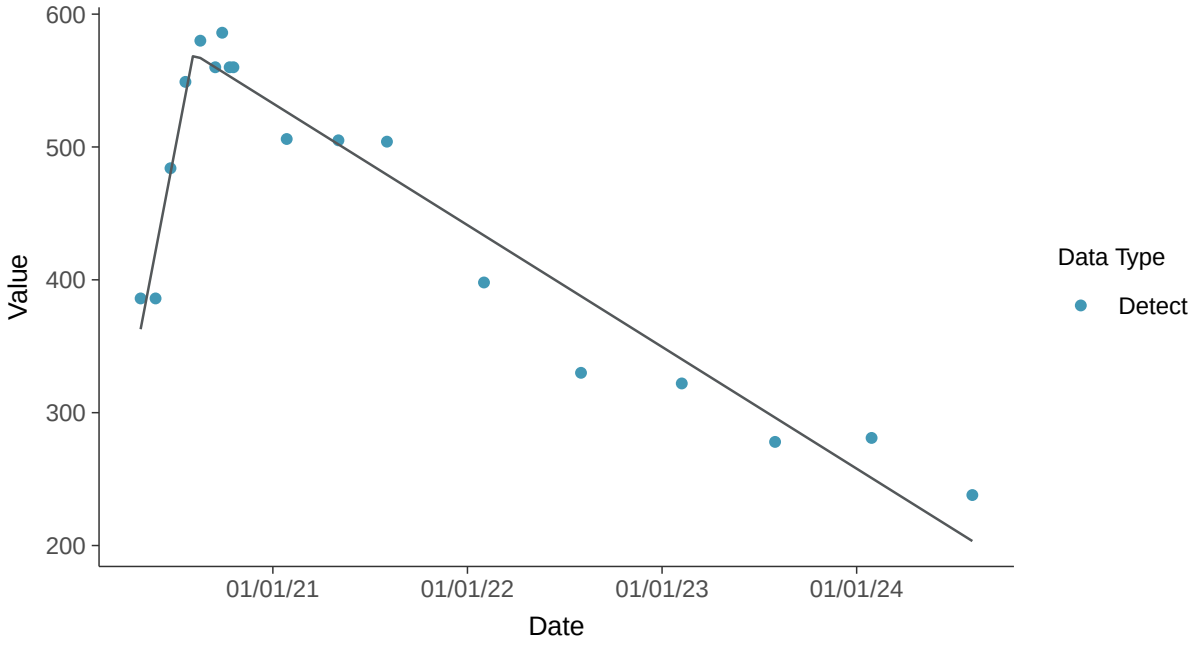
Trend Regression: Lognormal MLE

Sulfate, MW-2 (mg/L)



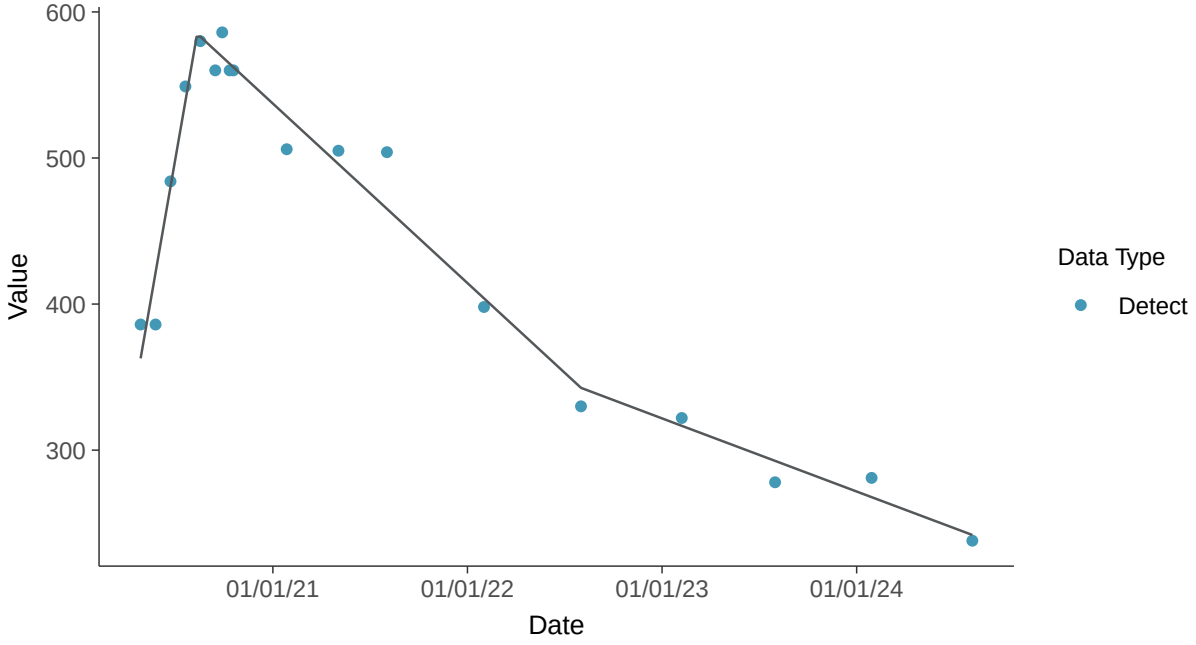
Trend Regression: Piecewise Linear-Linear

Sulfate, MW-2 (mg/L)



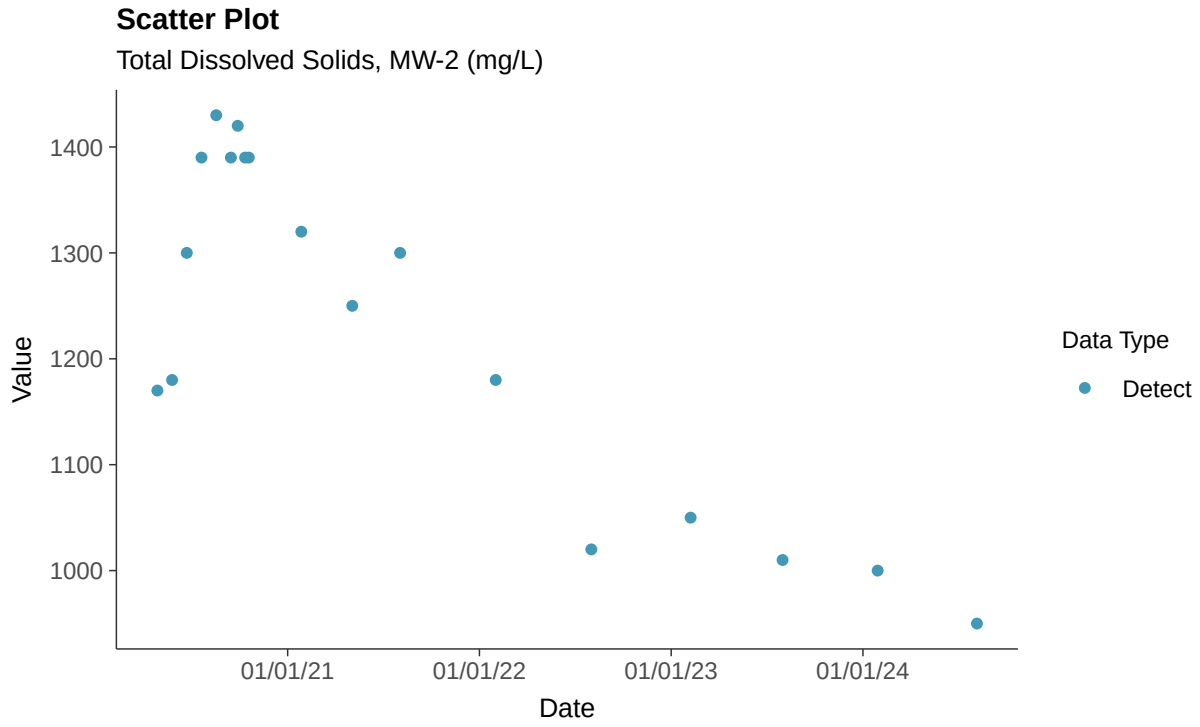
Trend Regression: Piecewise Linear-Linear-Linear

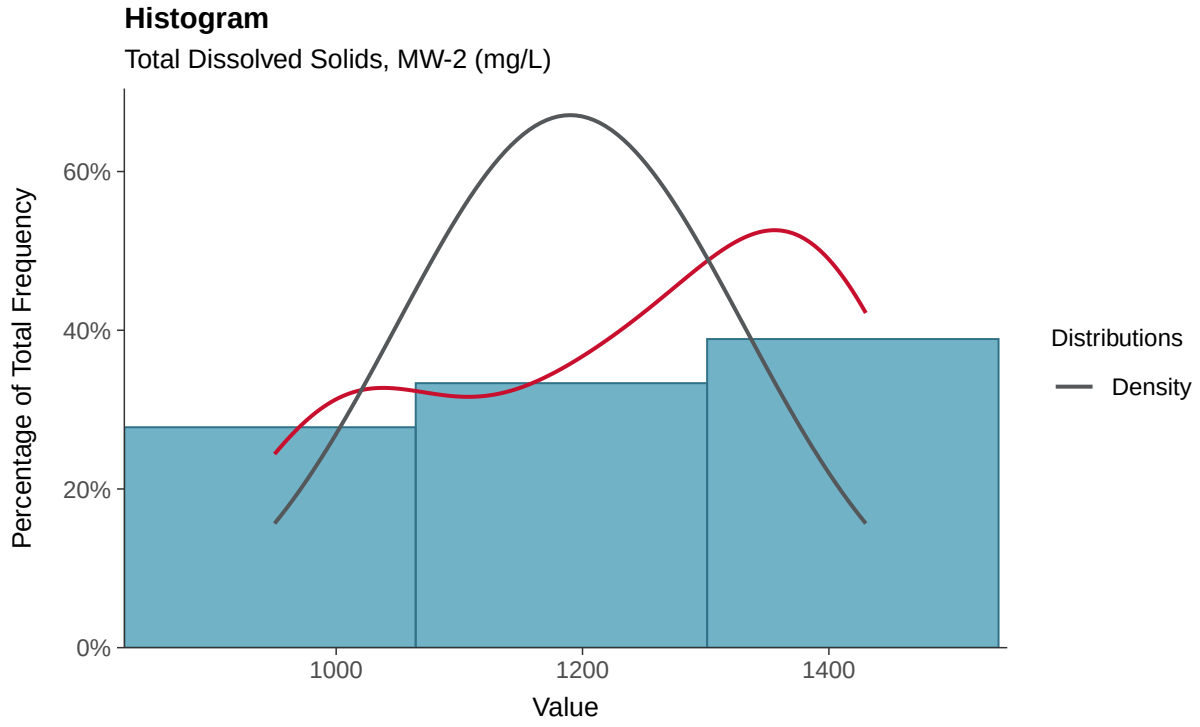
Sulfate, MW-2 (mg/L)



Appendix III: Total Dissolved Solids, MW-2

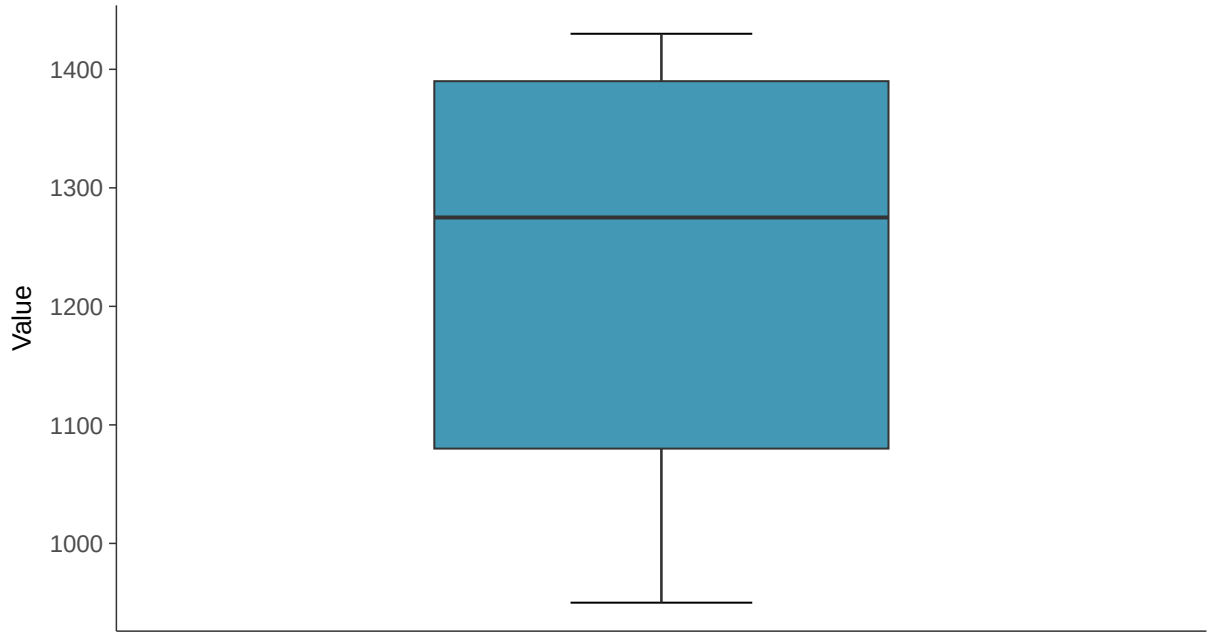
ID: 02_1_07





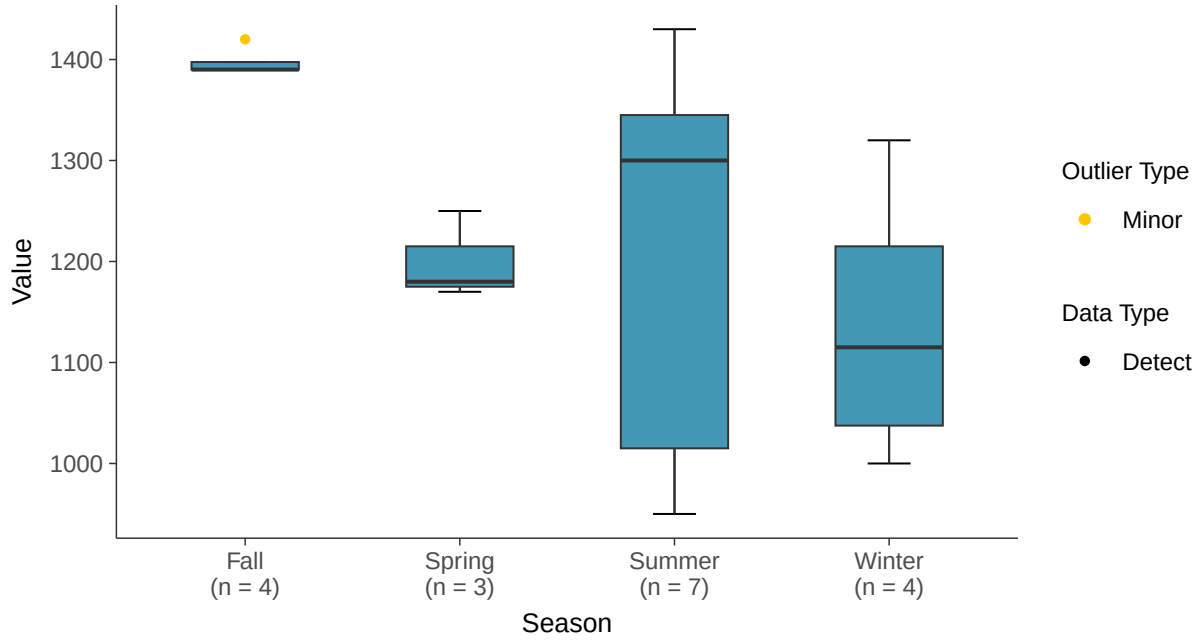
Boxplot

Total Dissolved Solids, MW-2 (mg/L)



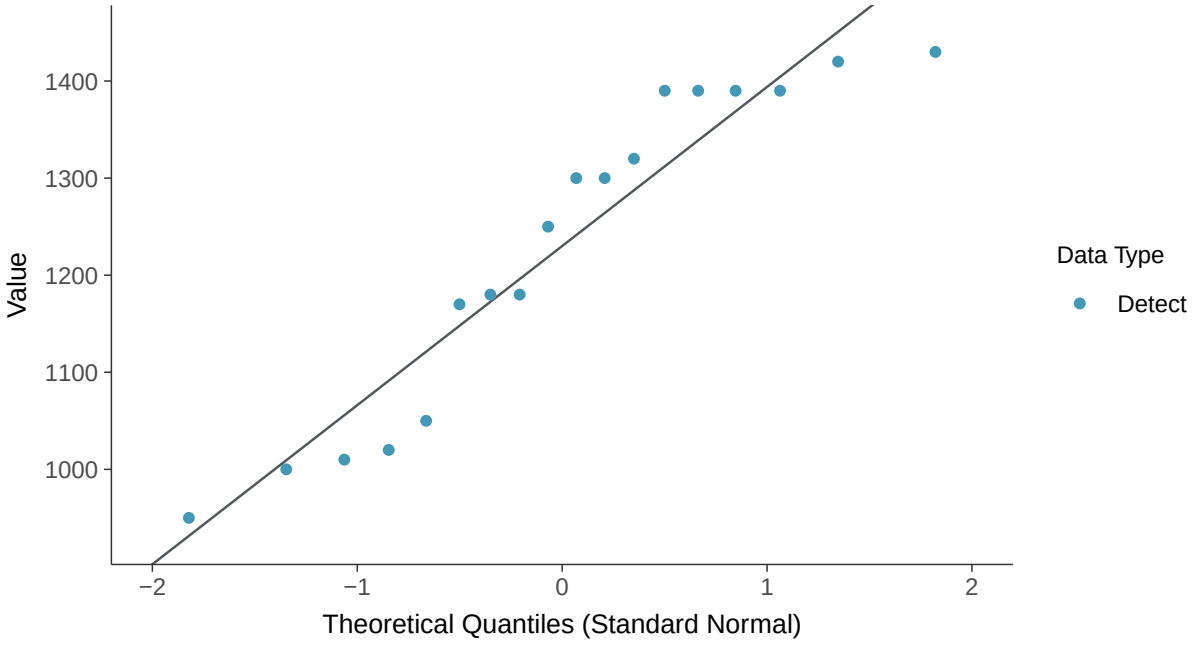
Boxplot by Season

Total Dissolved Solids, MW-2 (mg/L)



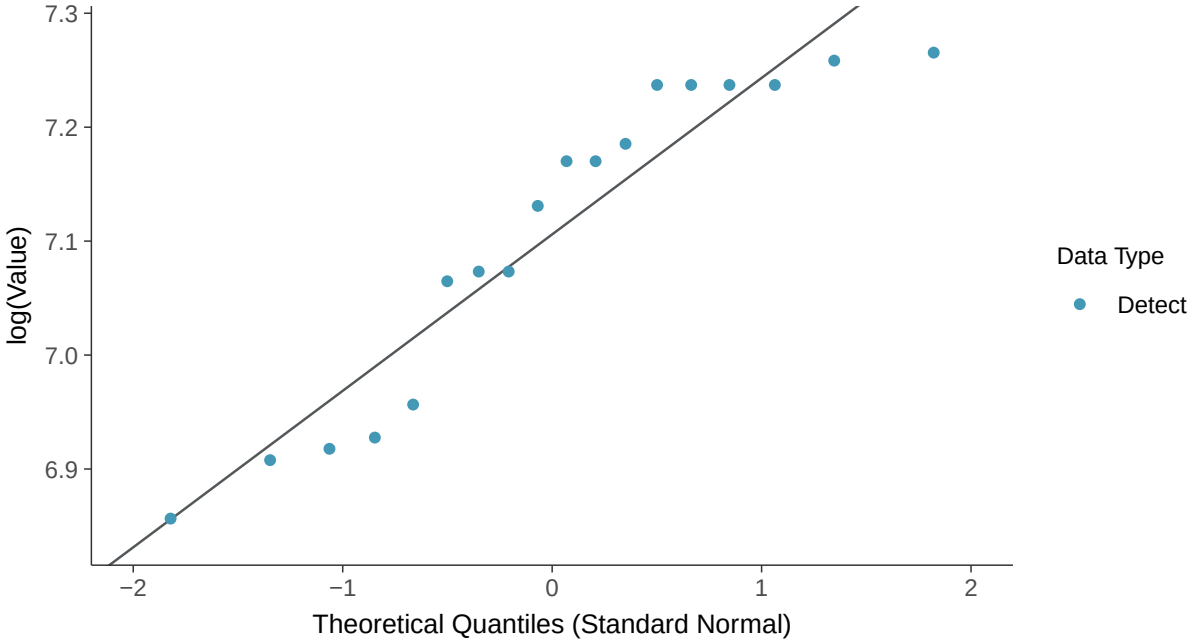
Normal Q-Q plot

Total Dissolved Solids, MW-2 (mg/L)



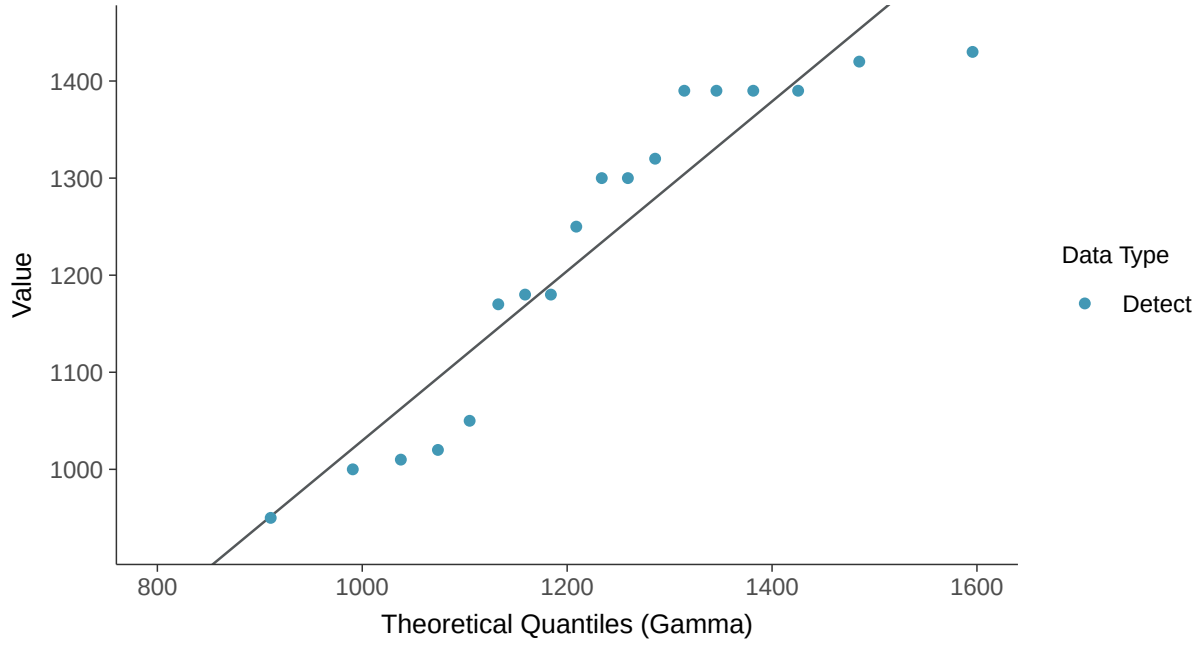
Lognormal Q-Q plot

Total Dissolved Solids, MW-2 (mg/L)



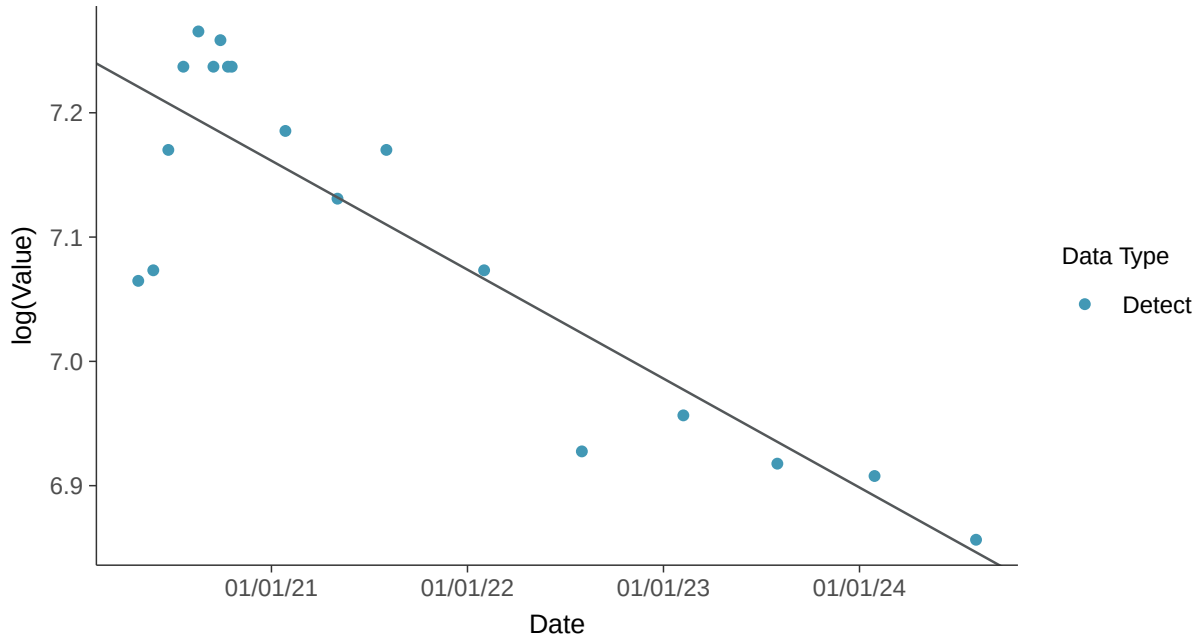
Gamma Q-Q plot

Total Dissolved Solids, MW-2 (mg/L)



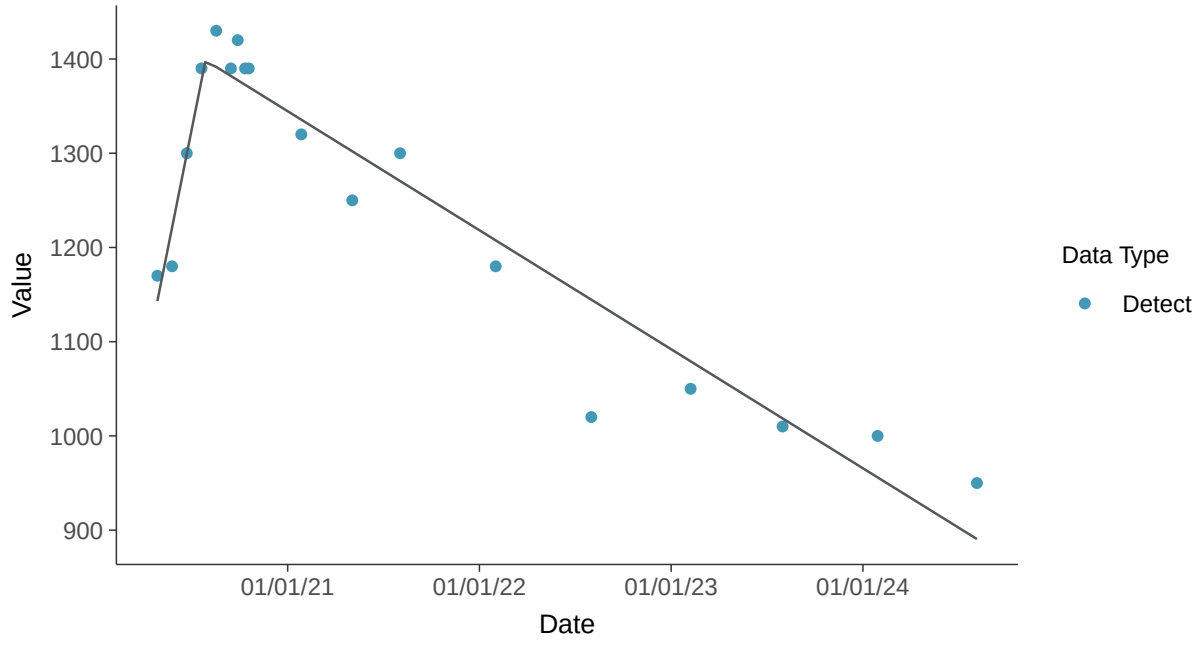
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-2 (mg/L)



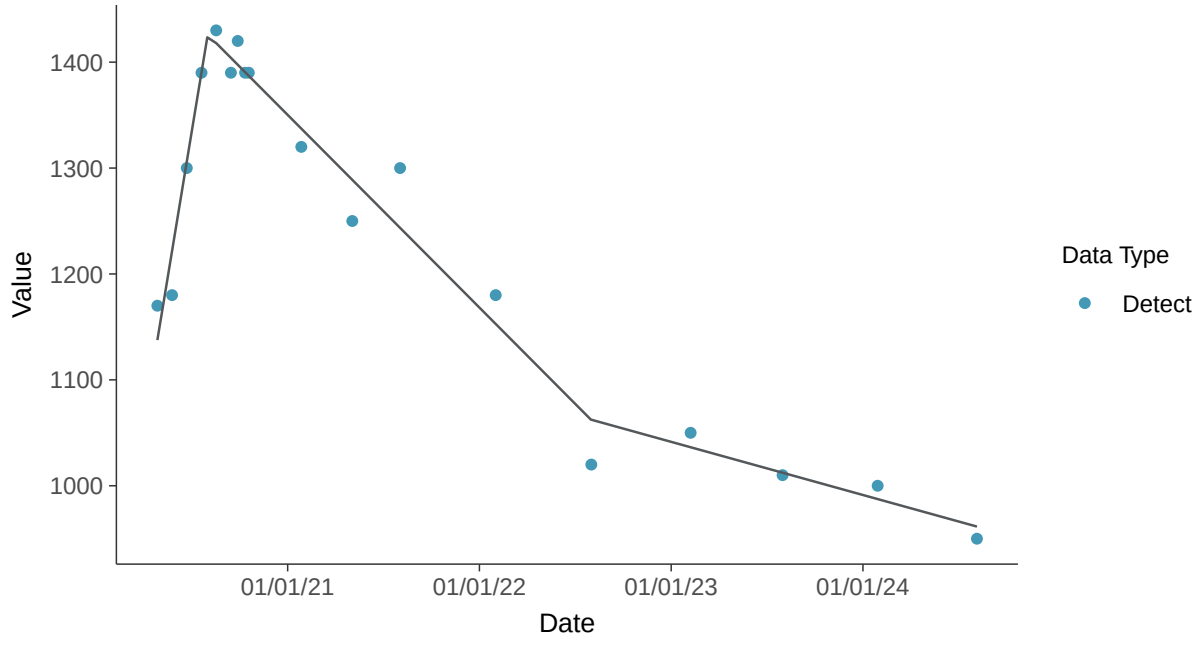
Trend Regression: Piecewise Linear-Linear

Total Dissolved Solids, MW-2 (mg/L)



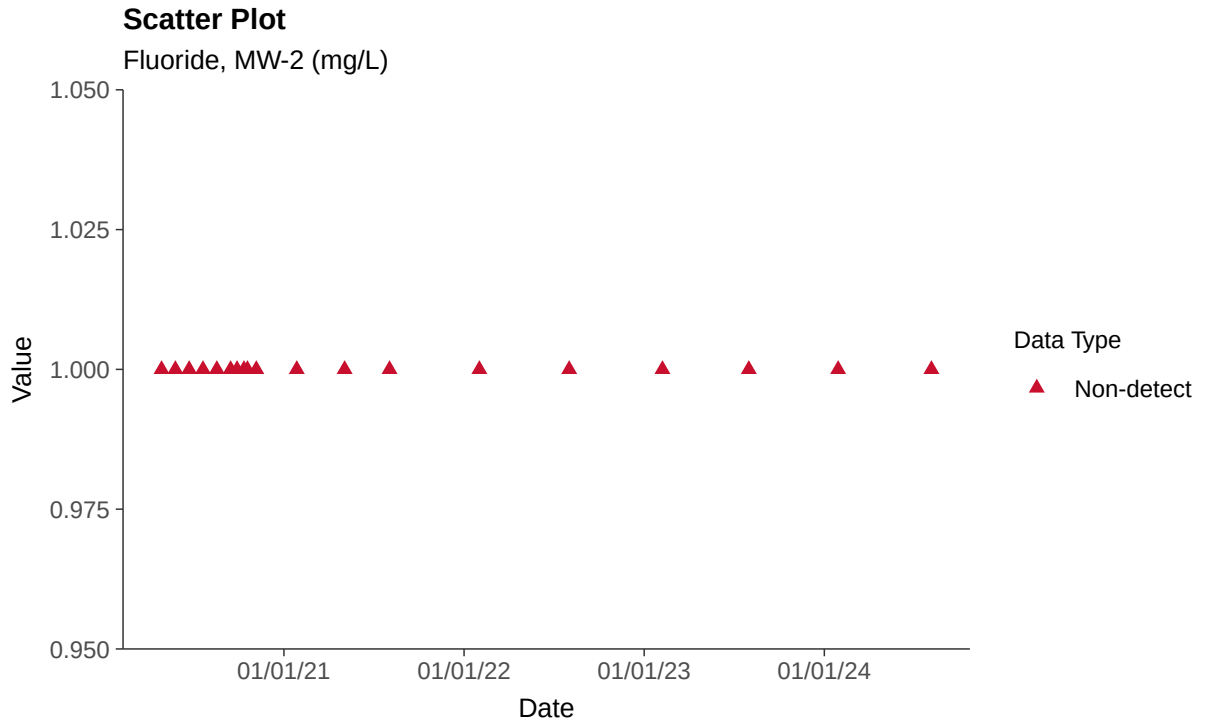
Trend Regression: Piecewise Linear-Linear-Linear

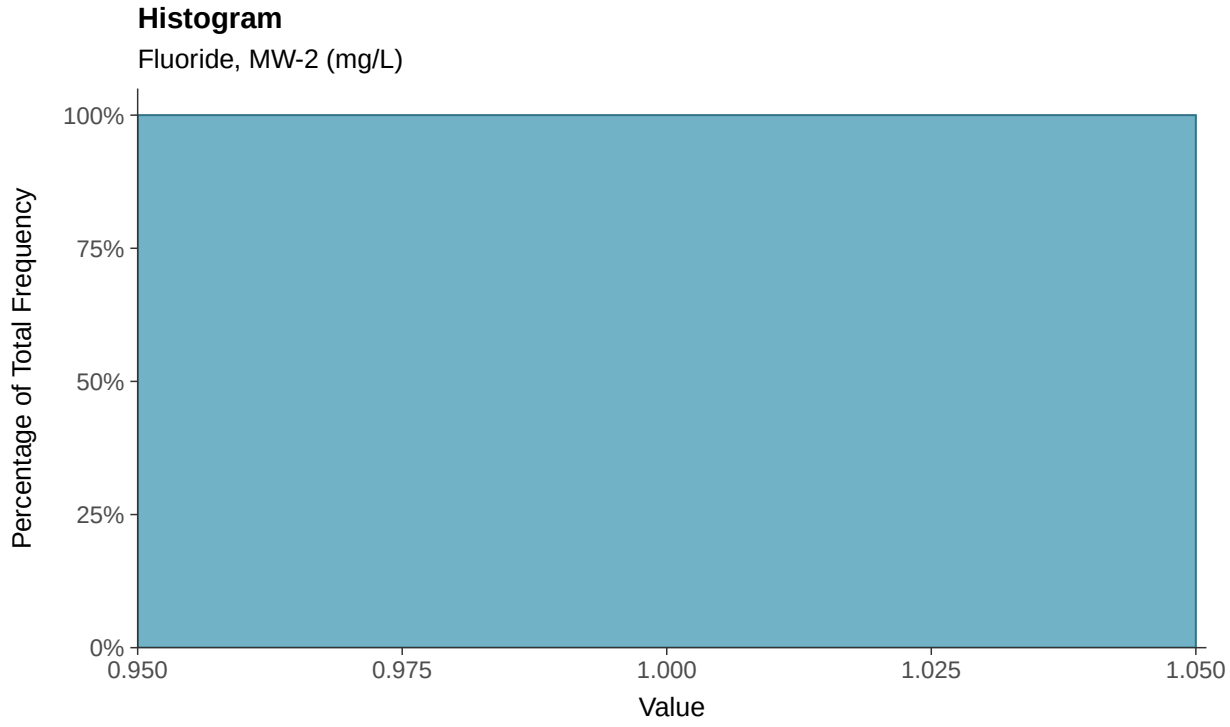
Total Dissolved Solids, MW-2 (mg/L)



Appendix IV: Fluoride, MW-2

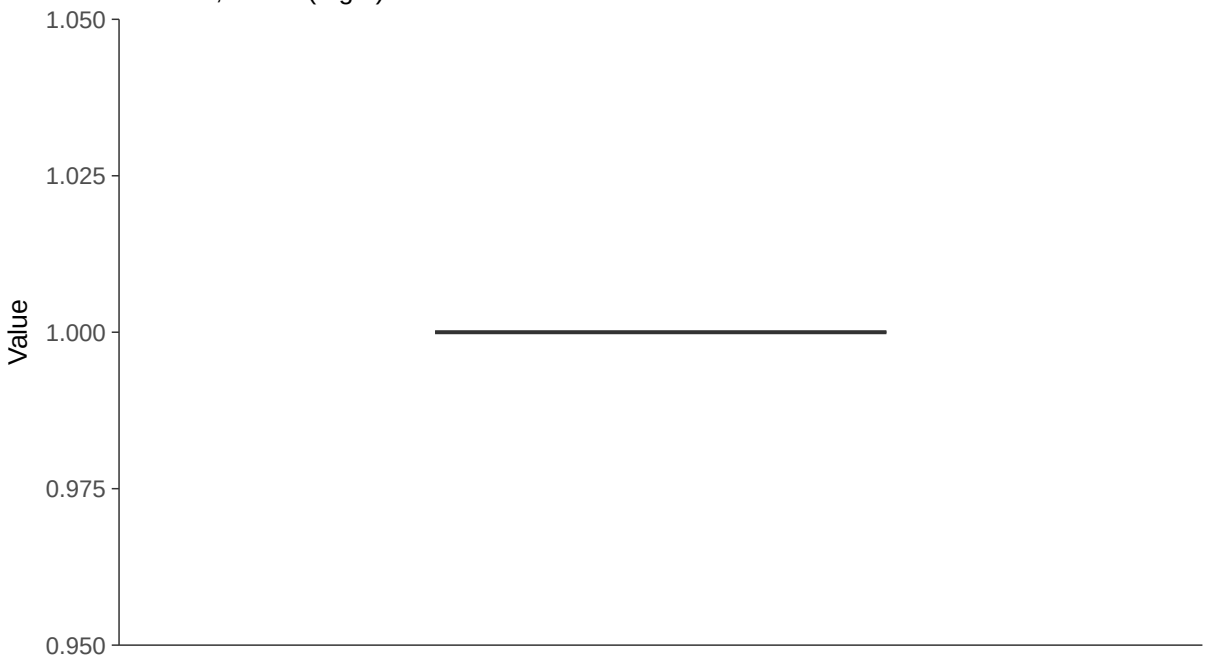
ID: 02_2_04





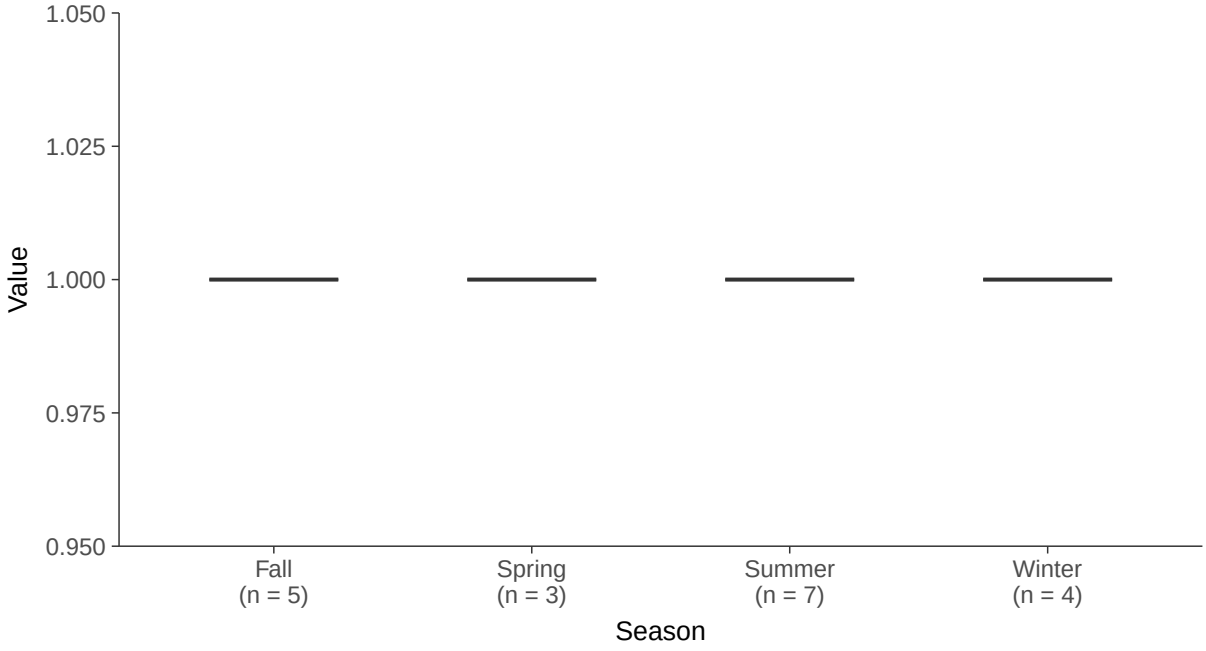
Boxplot

Fluoride, MW-2 (mg/L)



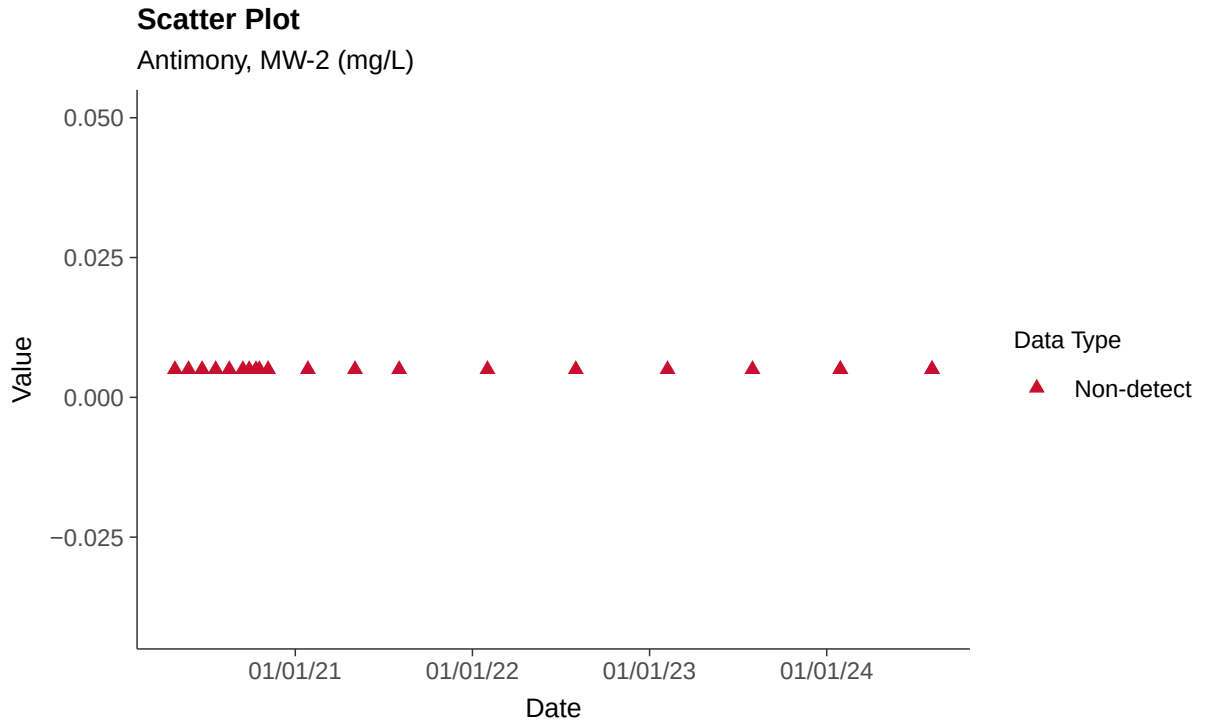
Boxplot by Season

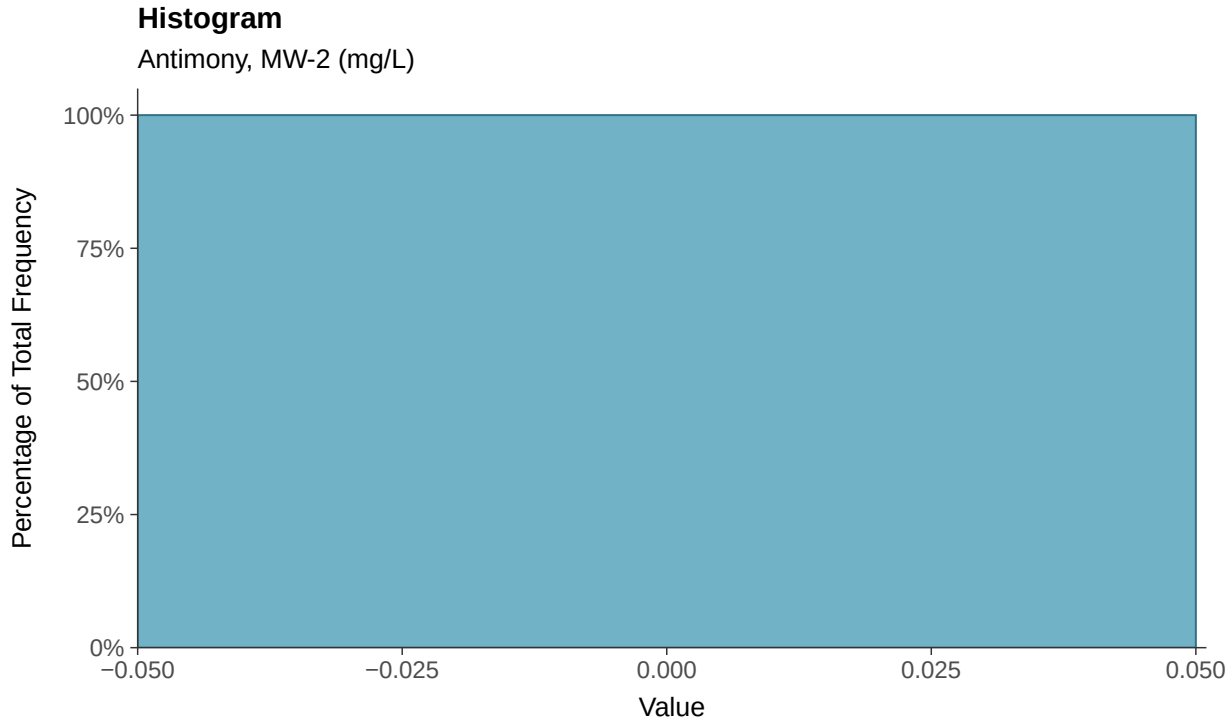
Fluoride, MW-2 (mg/L)



Appendix IV: Antimony, MW-2

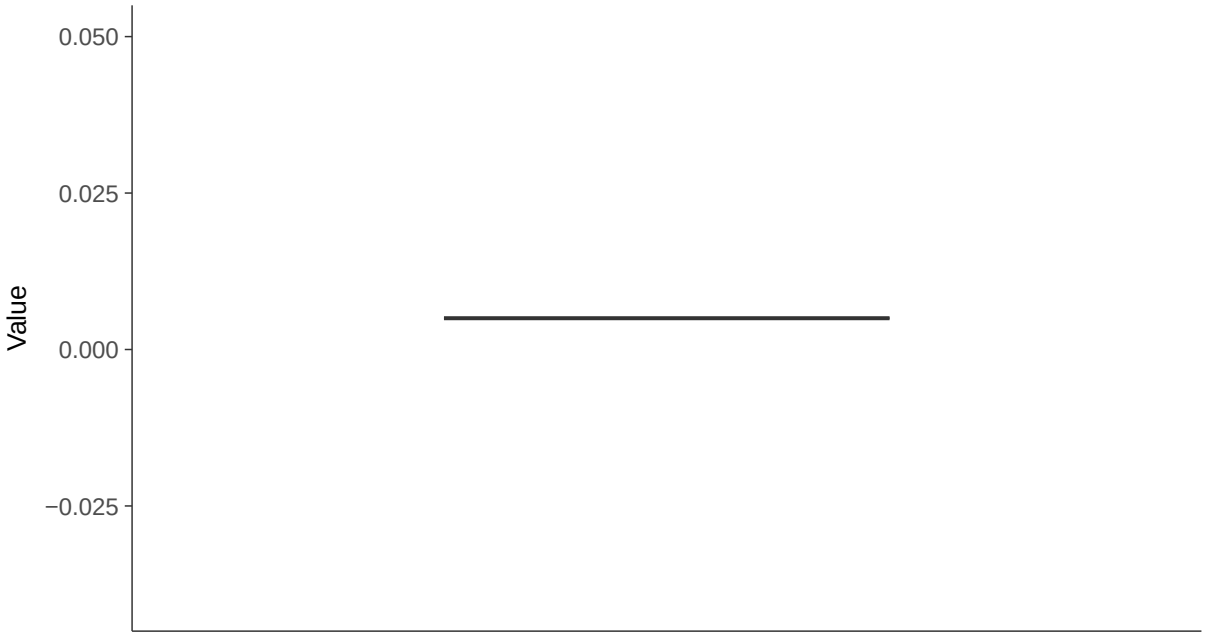
ID: 02_2_08





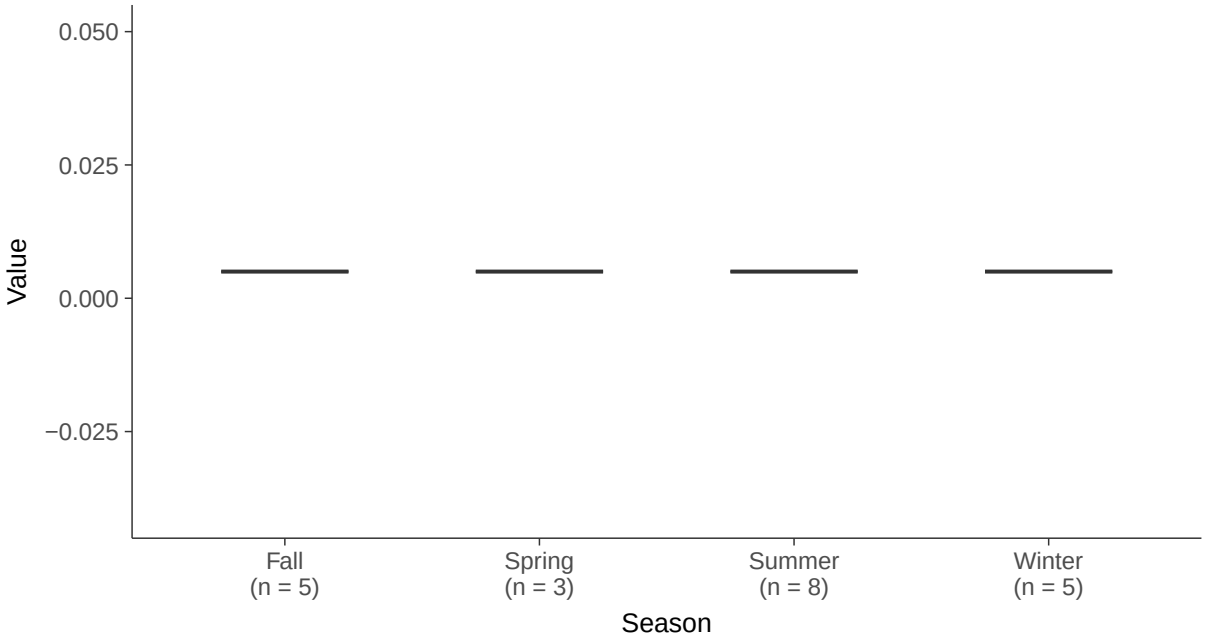
Boxplot

Antimony, MW-2 (mg/L)



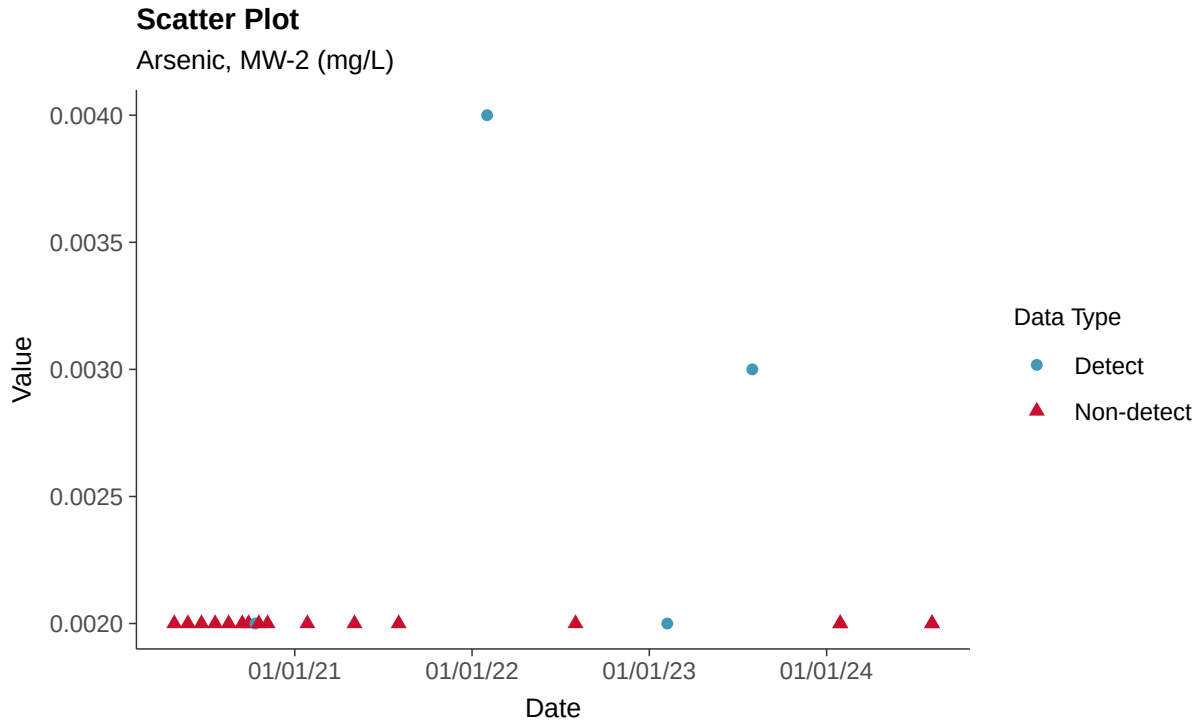
Boxplot by Season

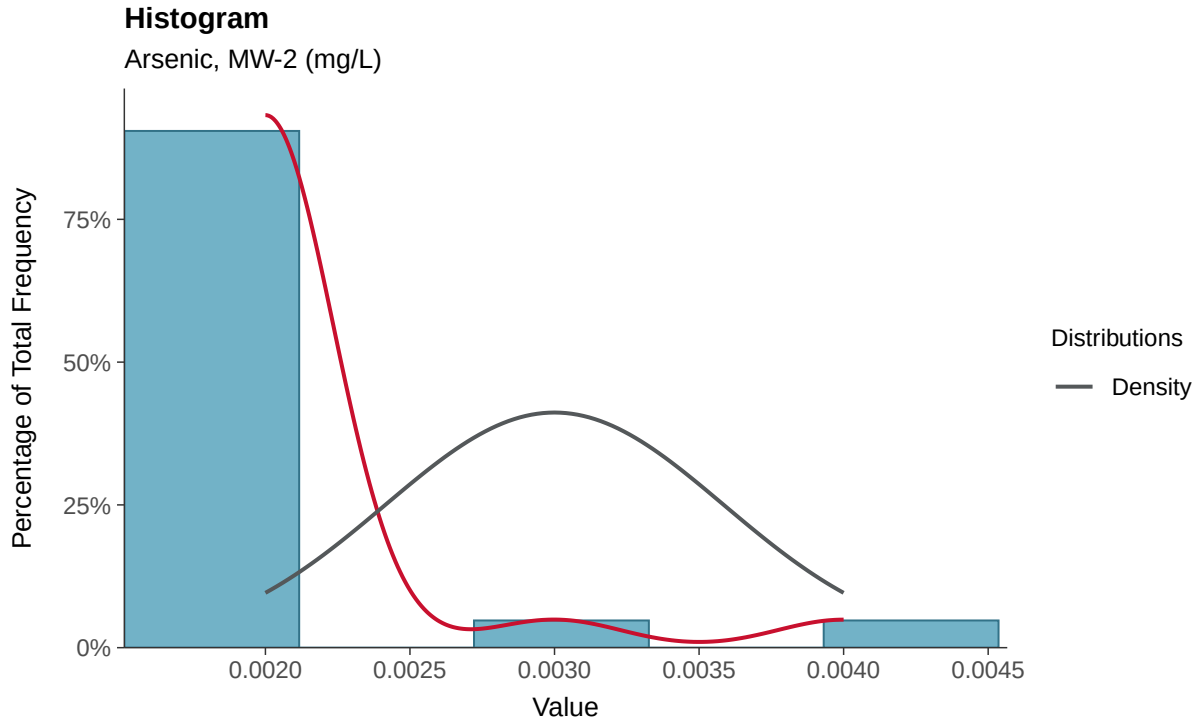
Antimony, MW-2 (mg/L)



Appendix IV: Arsenic, MW-2

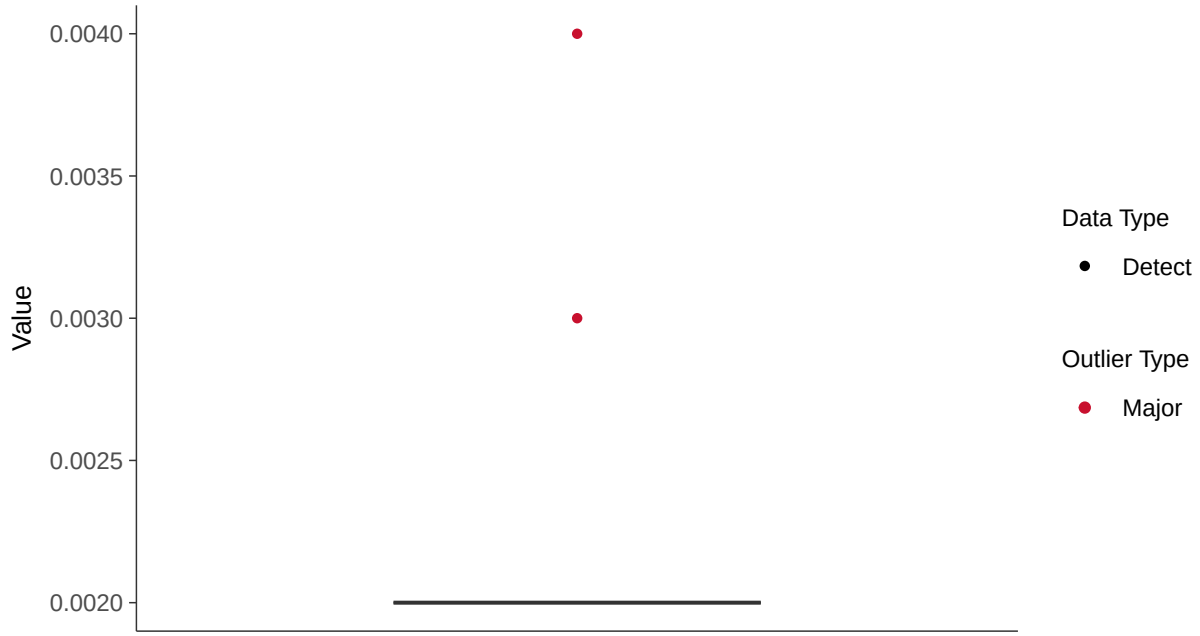
ID: 02_2_09





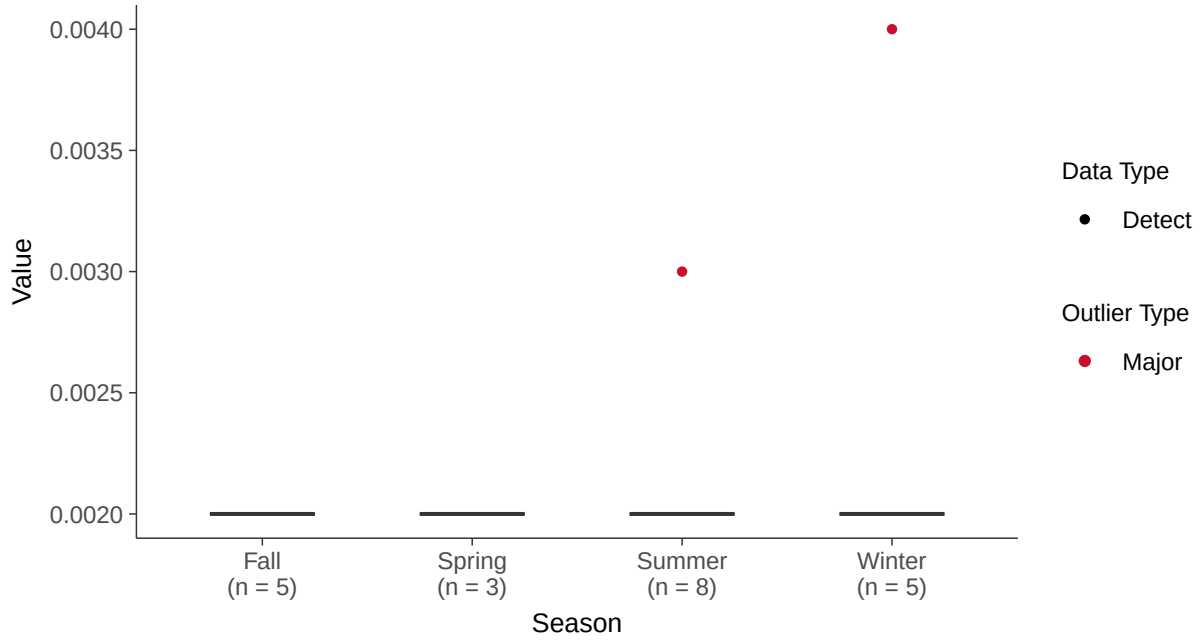
Boxplot

Arsenic, MW-2 (mg/L)



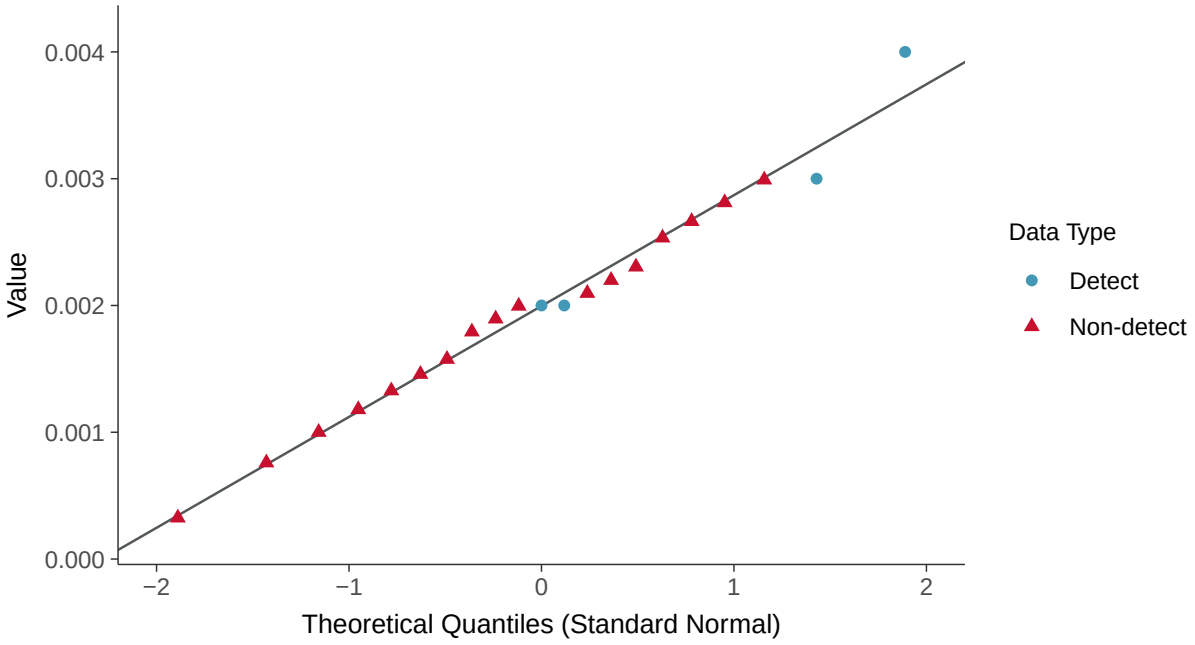
Boxplot by Season

Arsenic, MW-2 (mg/L)



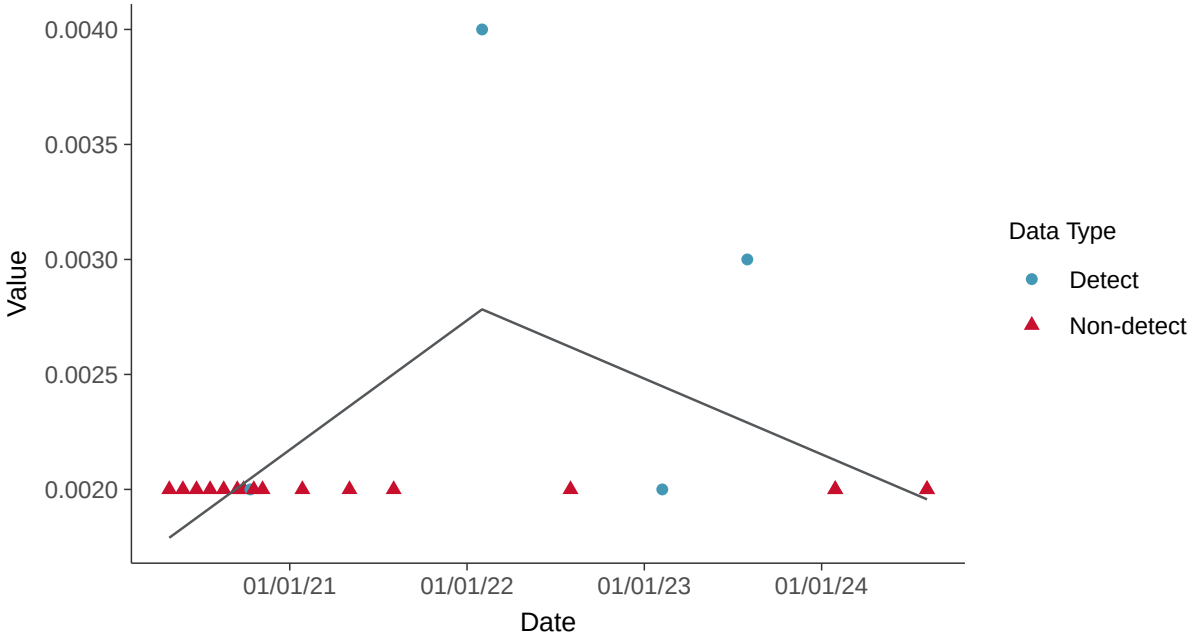
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, MW-2 (mg/L)



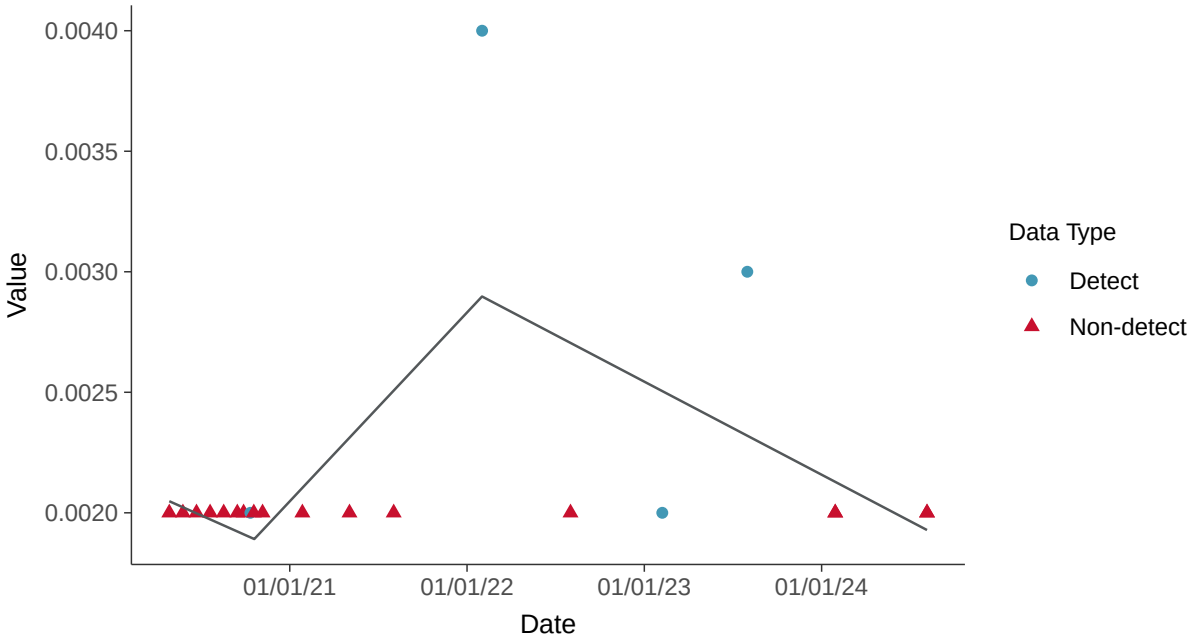
Trend Regression: Piecewise Linear-Linear

Arsenic, MW-2 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Arsenic, MW-2 (mg/L)

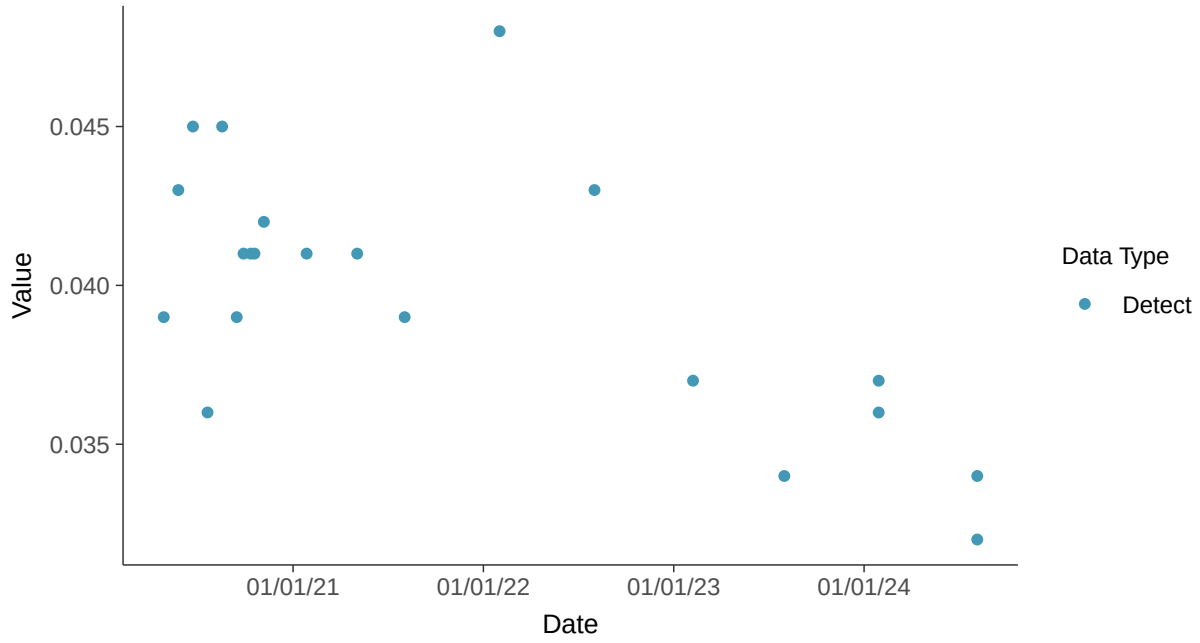


Appendix IV: Barium, MW-2

ID: 02_2_10

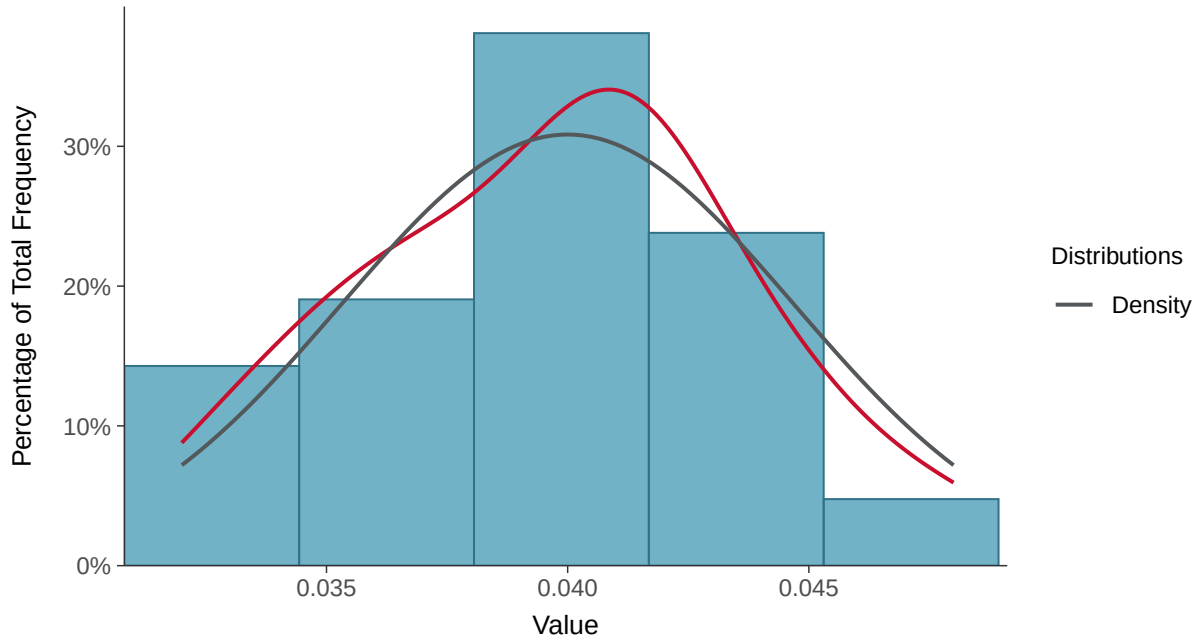
Scatter Plot

Barium, MW-2 (mg/L)



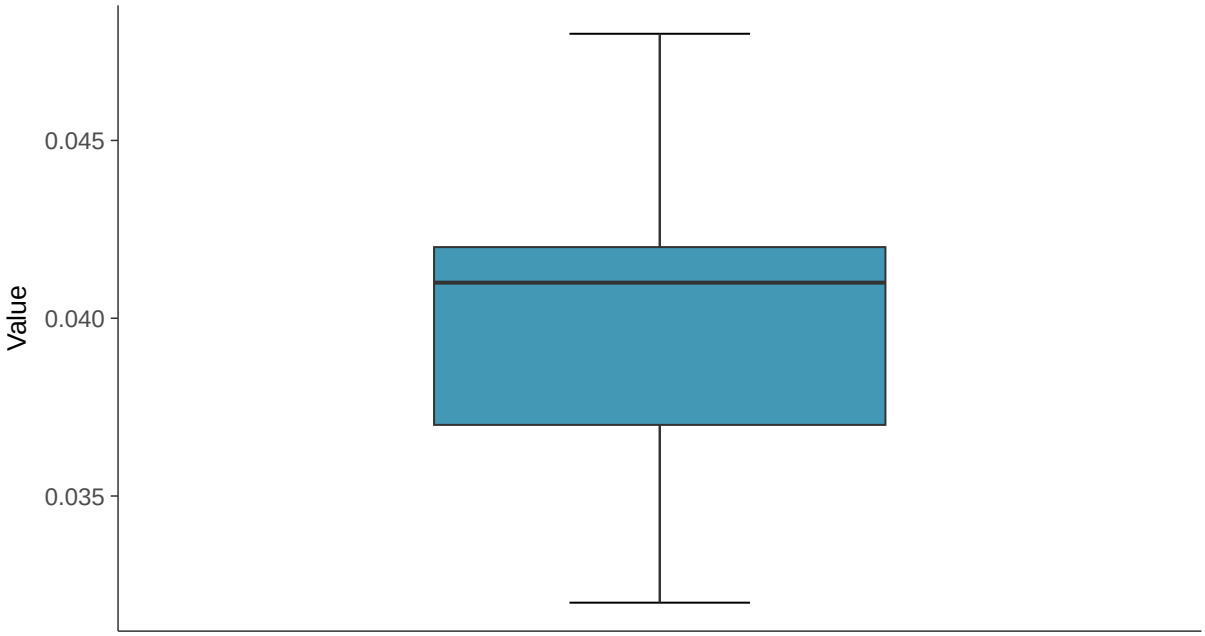
Histogram

Barium, MW-2 (mg/L)



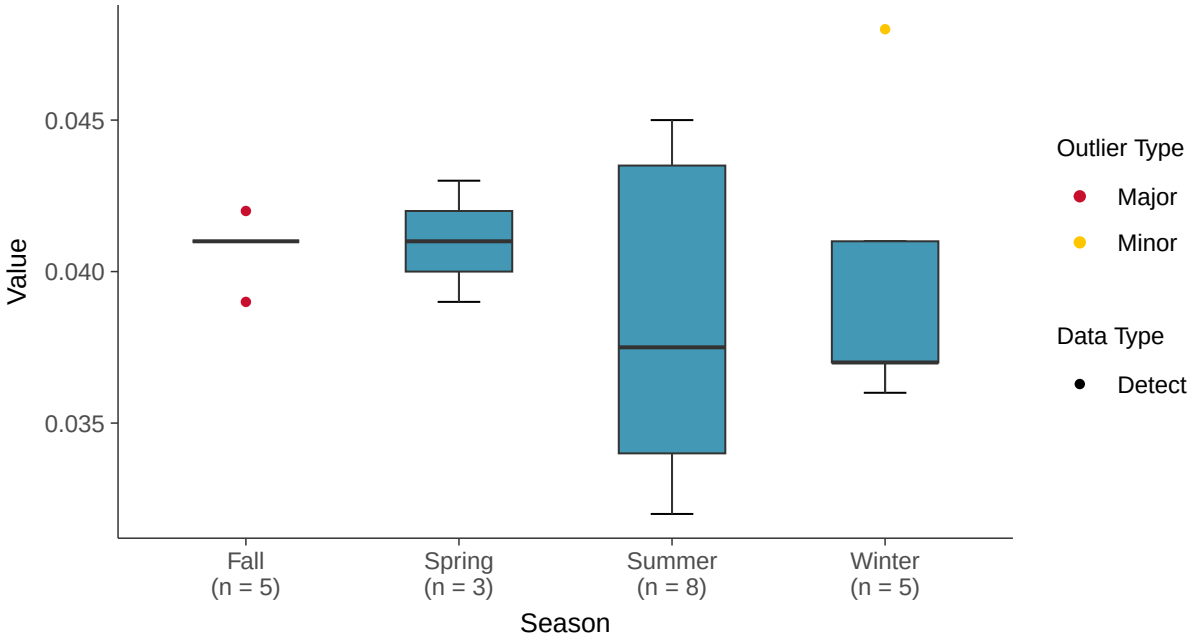
Boxplot

Barium, MW-2 (mg/L)



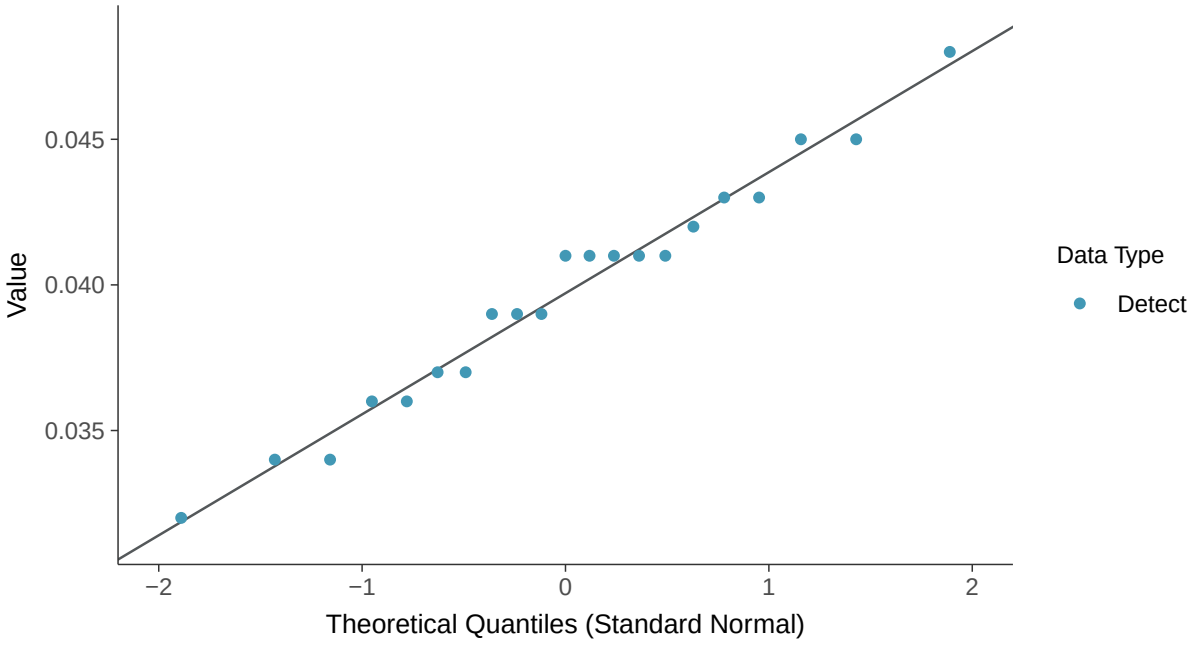
Boxplot by Season

Barium, MW-2 (mg/L)



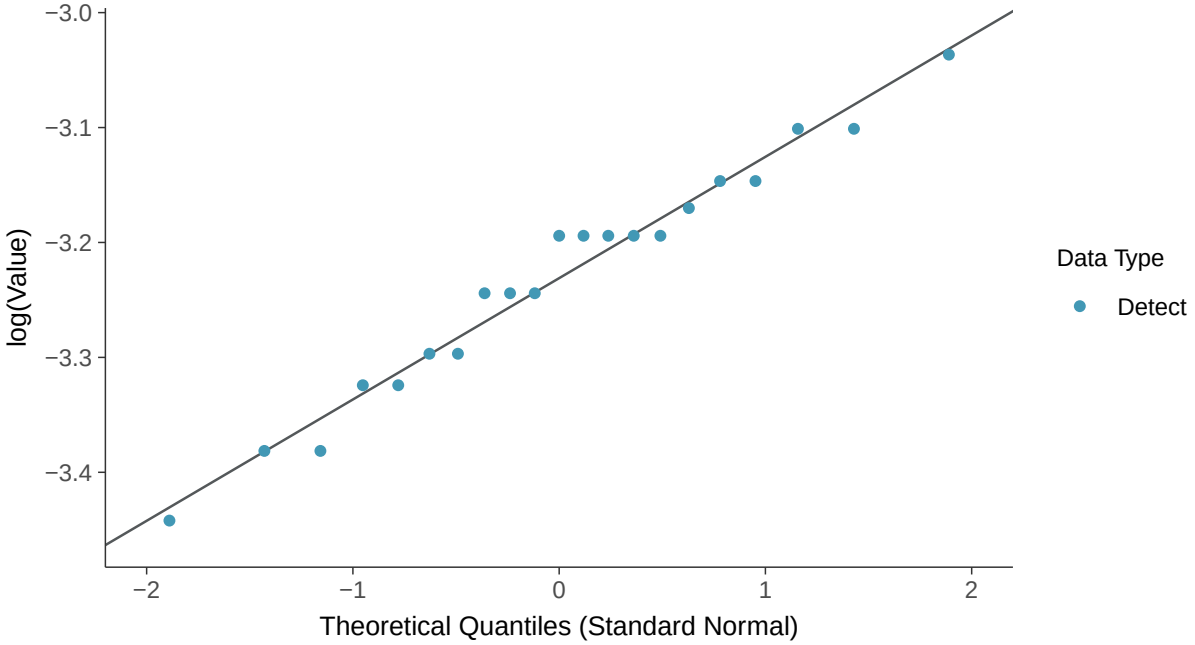
Normal Q-Q plot

Barium, MW-2 (mg/L)



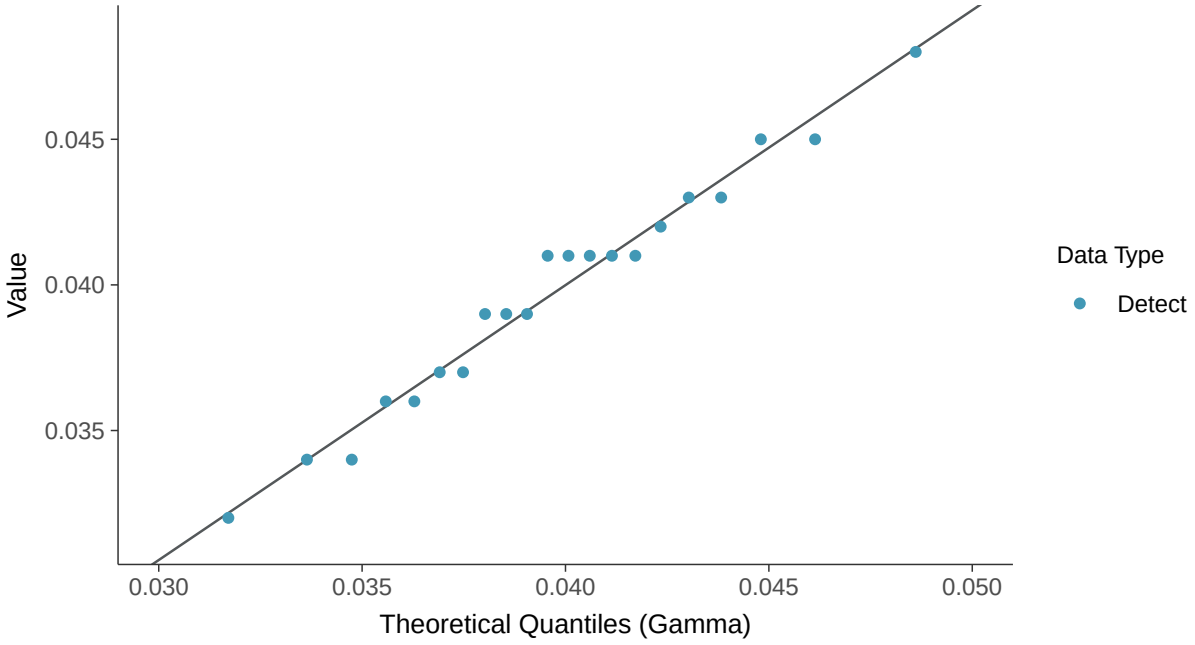
Lognormal Q-Q plot

Barium, MW-2 (mg/L)



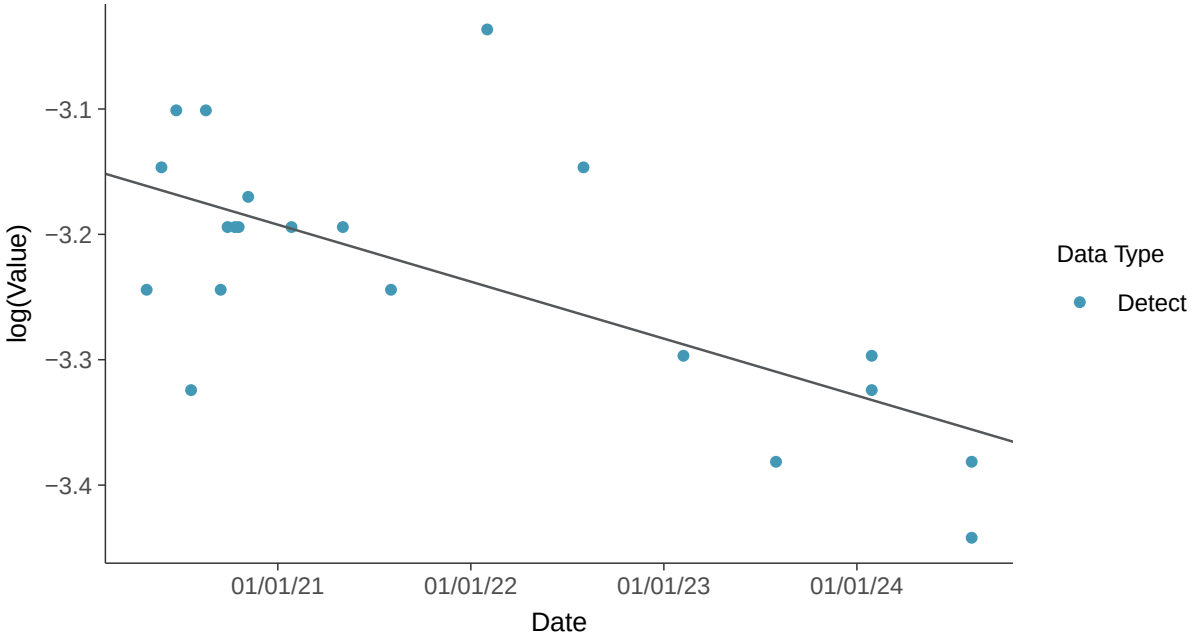
Gamma Q-Q plot

Barium, MW-2 (mg/L)



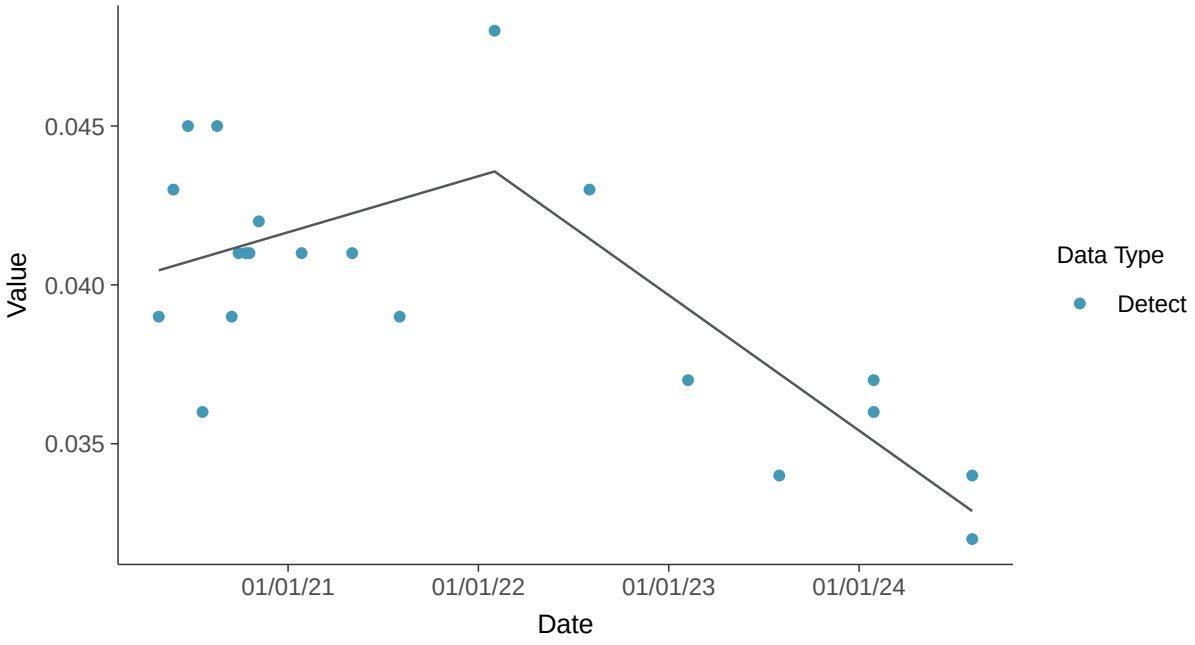
Trend Regression: Lognormal MLE

Barium, MW-2 (mg/L)



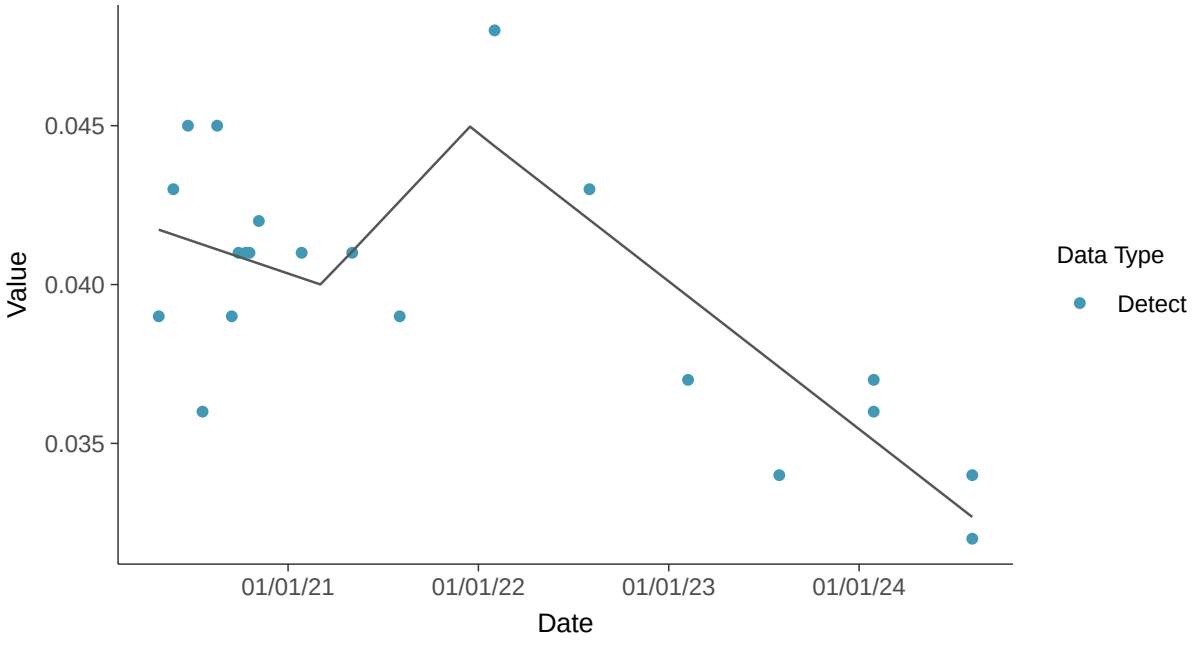
Trend Regression: Piecewise Linear-Linear

Barium, MW-2 (mg/L)



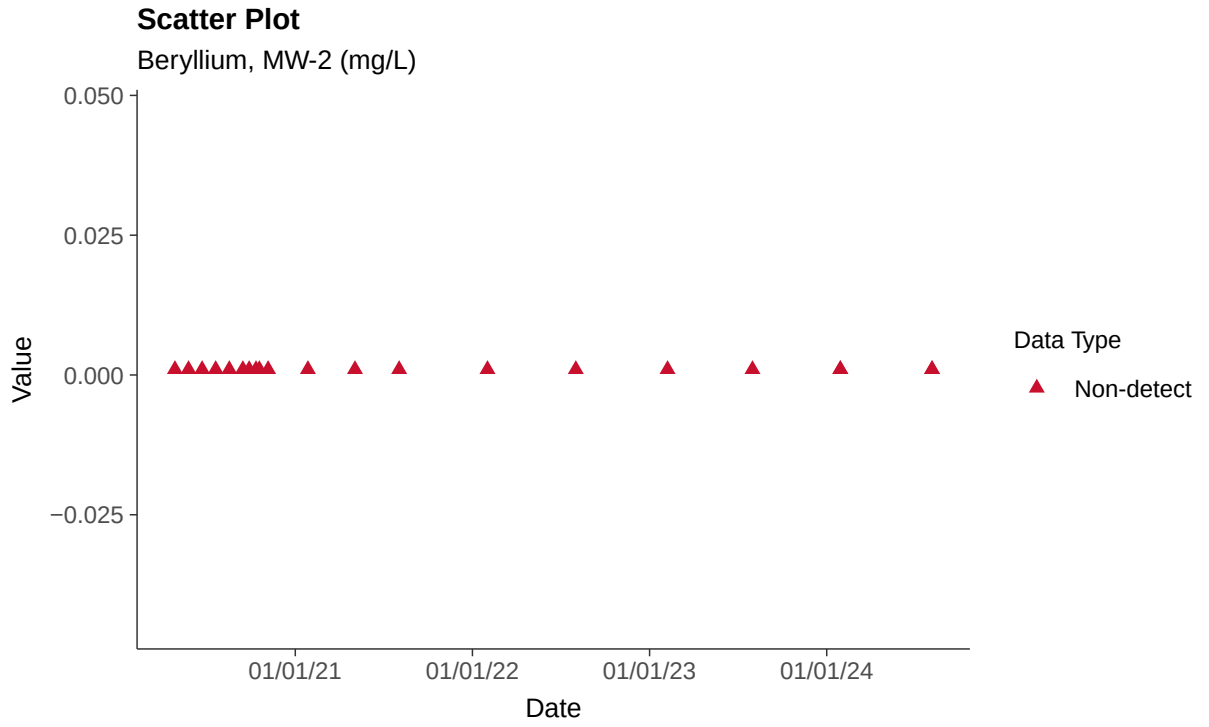
Trend Regression: Piecewise Linear-Linear-Linear

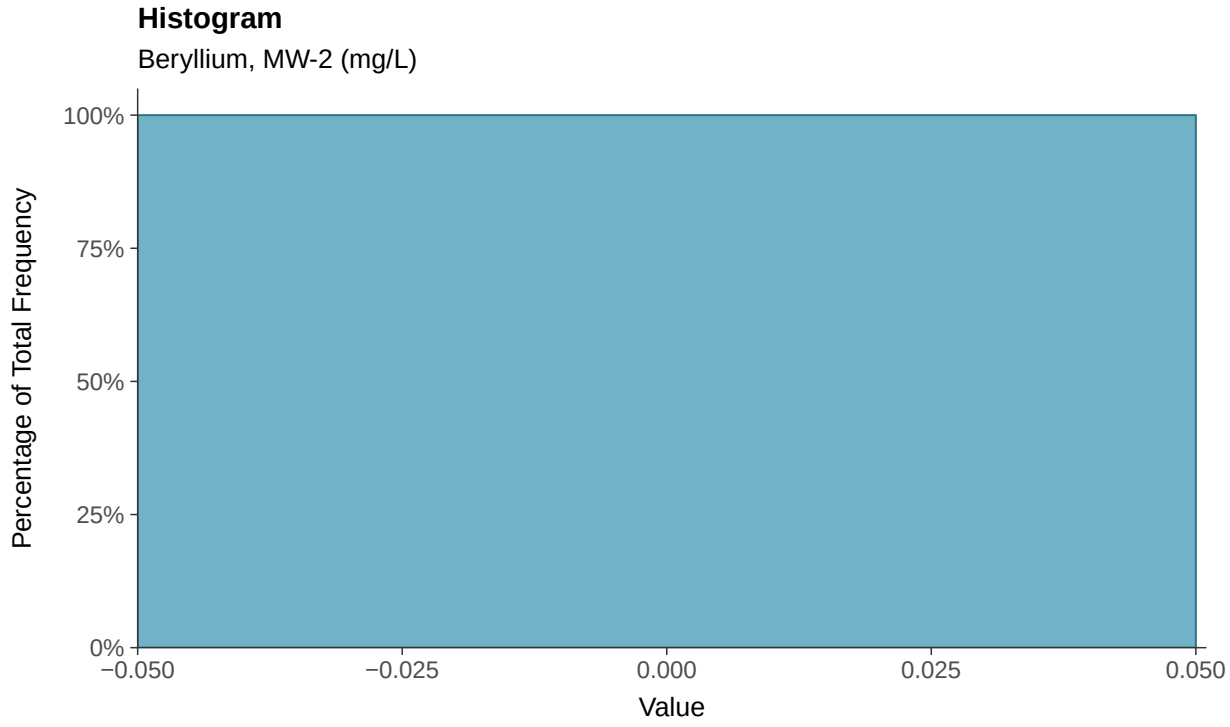
Barium, MW-2 (mg/L)



Appendix IV: Beryllium, MW-2

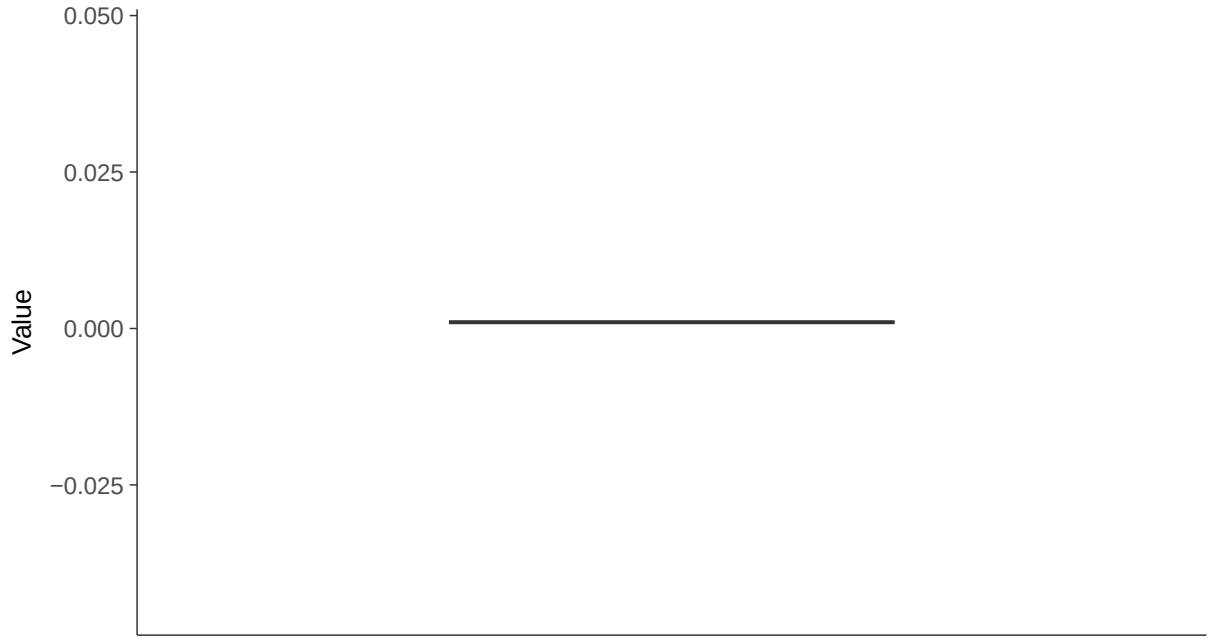
ID: 02_2_11





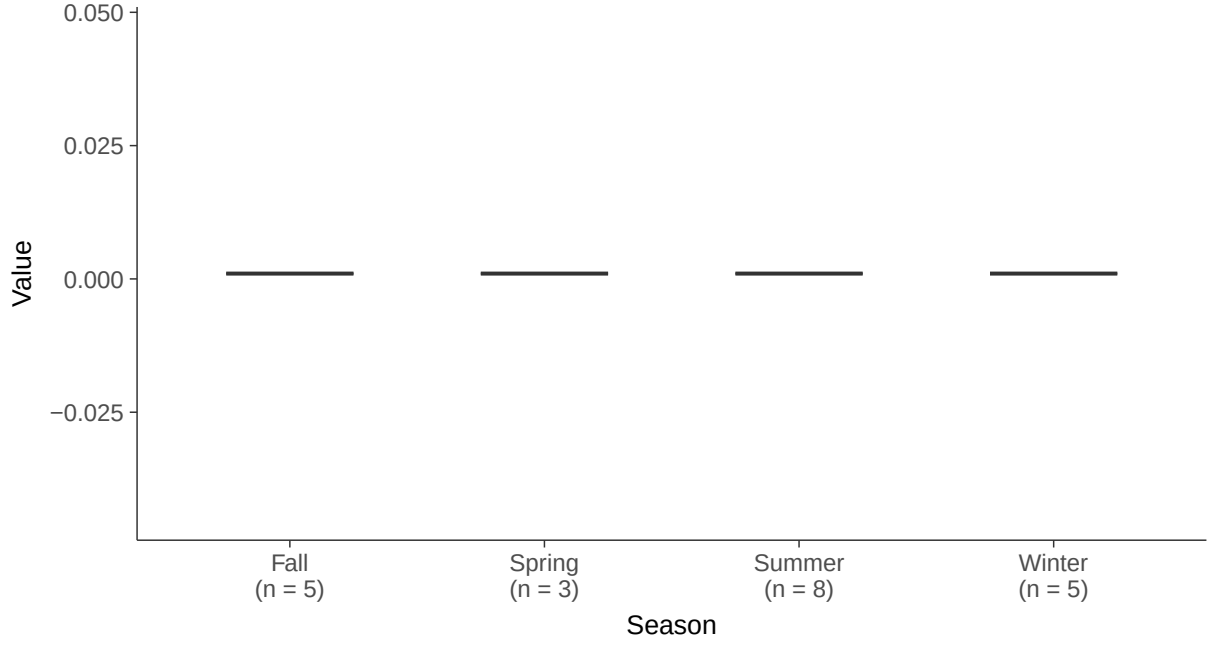
Boxplot

Beryllium, MW-2 (mg/L)



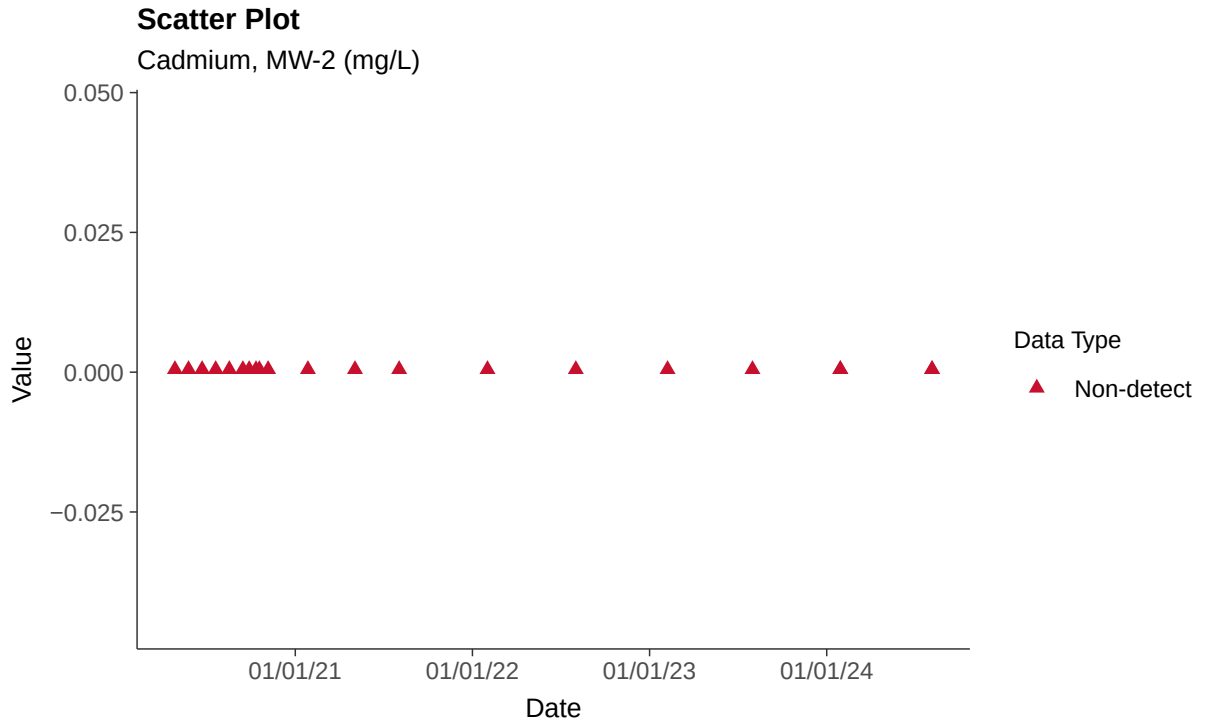
Boxplot by Season

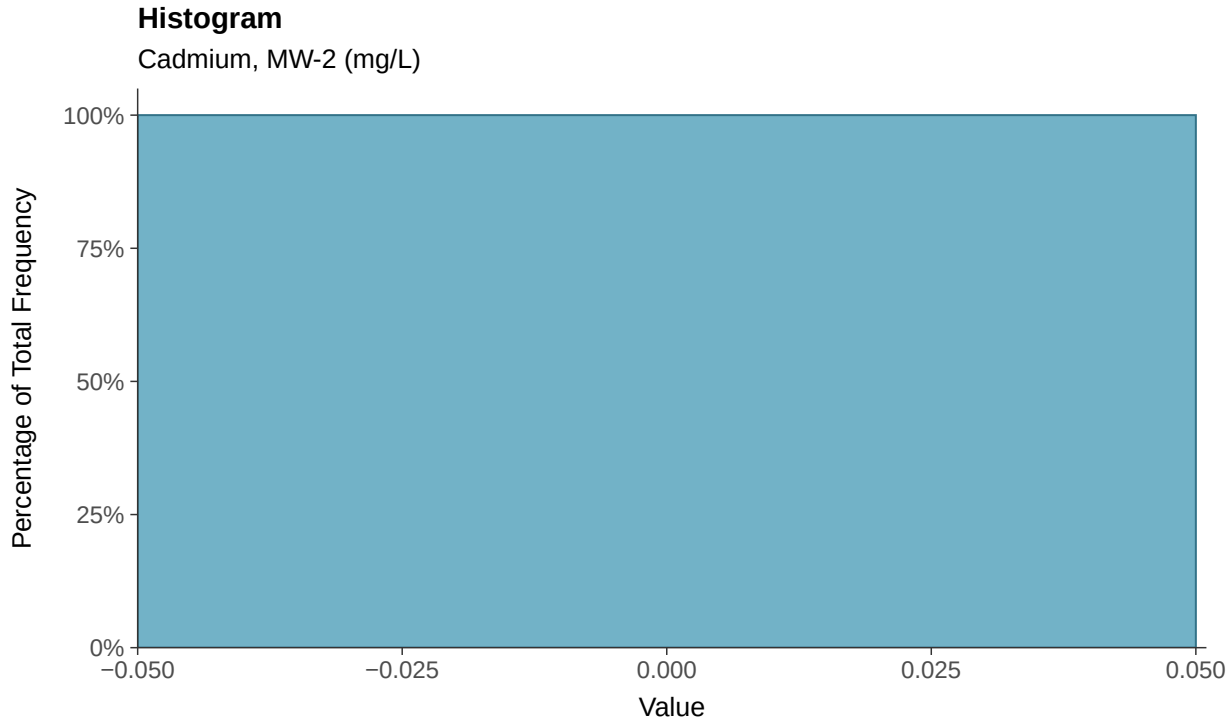
Beryllium, MW-2 (mg/L)



Appendix IV: Cadmium, MW-2

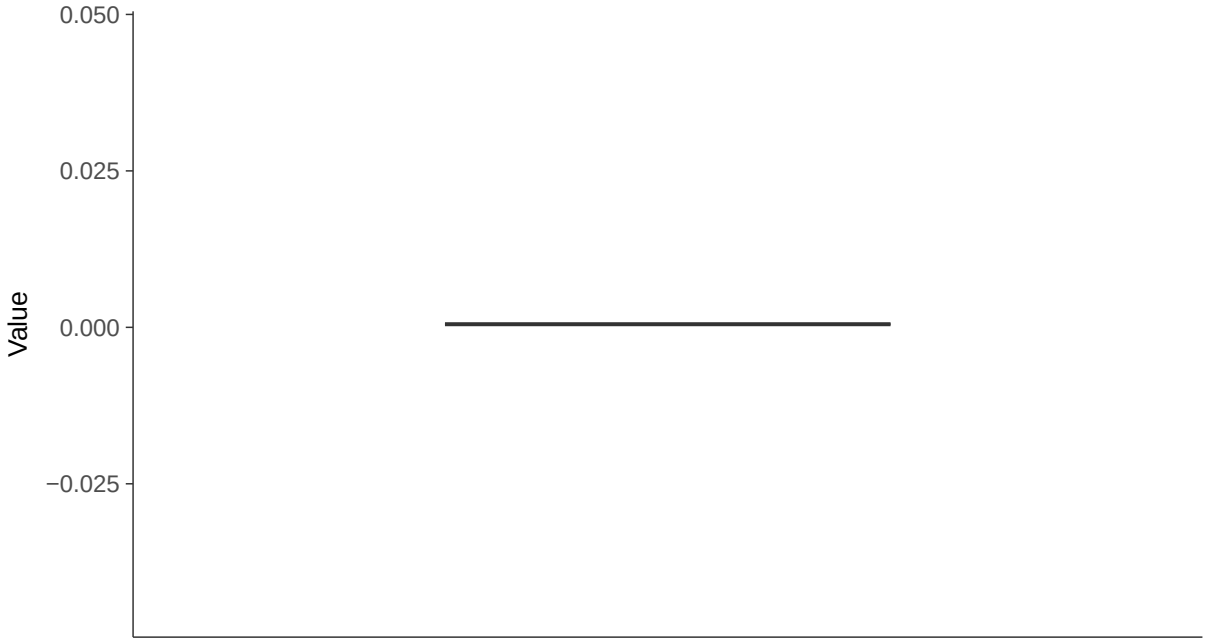
ID: 02_2_12





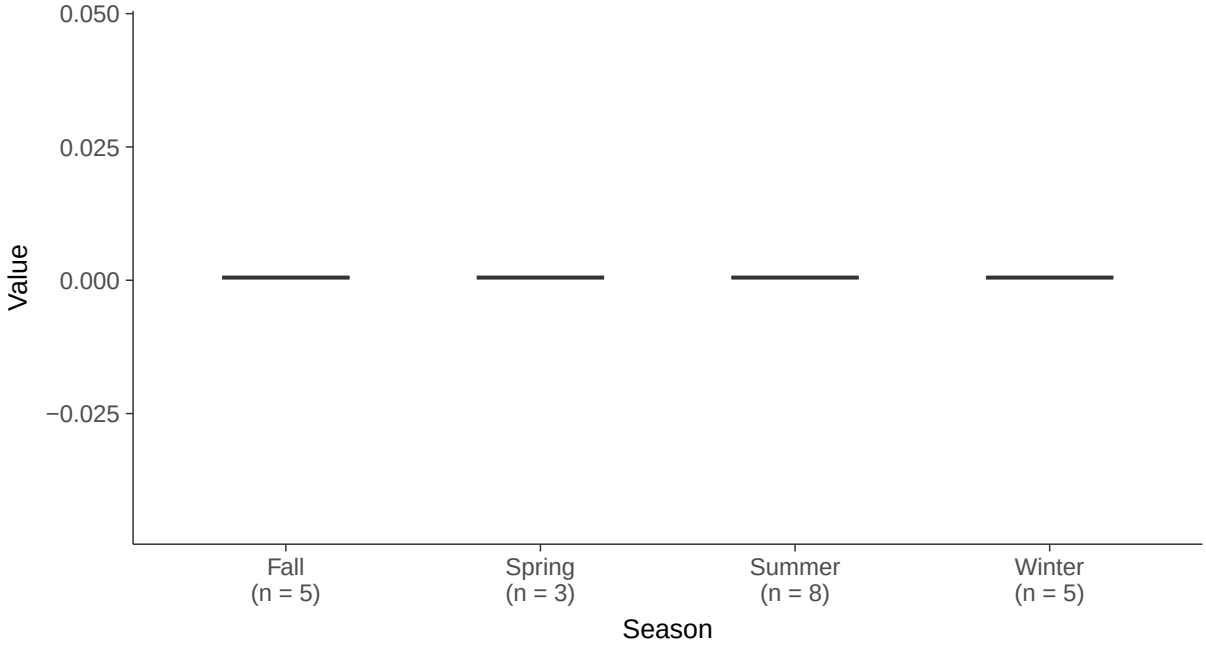
Boxplot

Cadmium, MW-2 (mg/L)



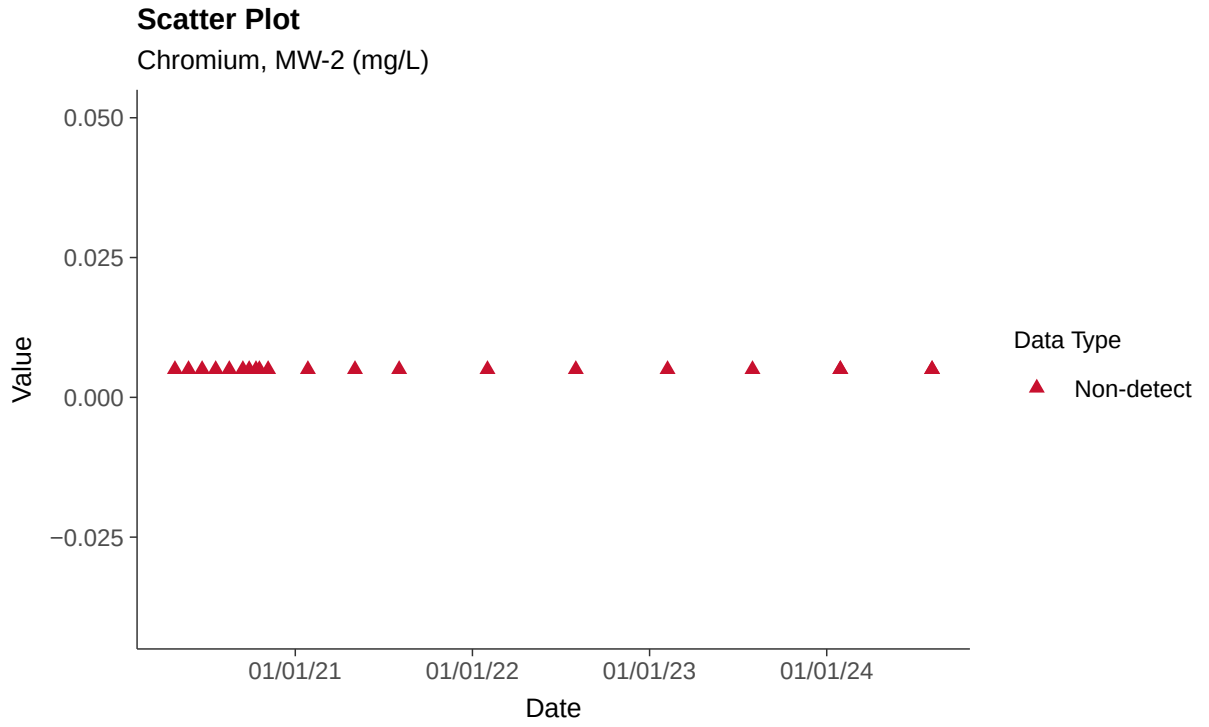
Boxplot by Season

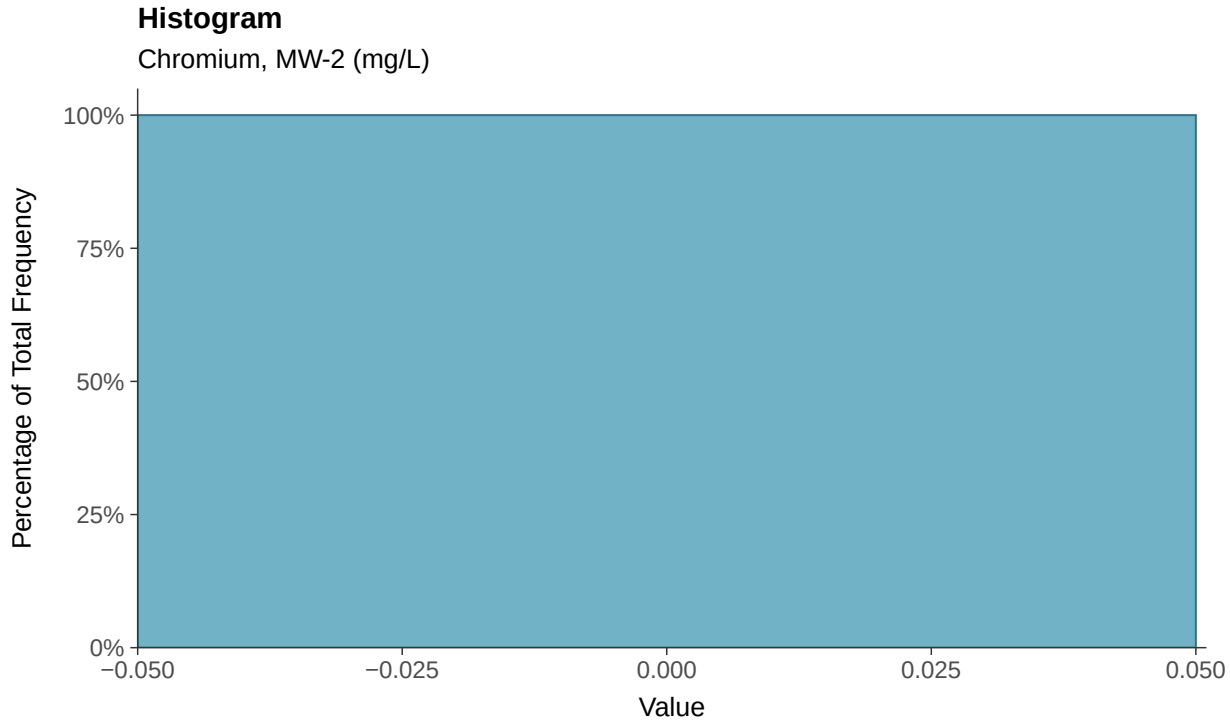
Cadmium, MW-2 (mg/L)



Appendix IV: Chromium, MW-2

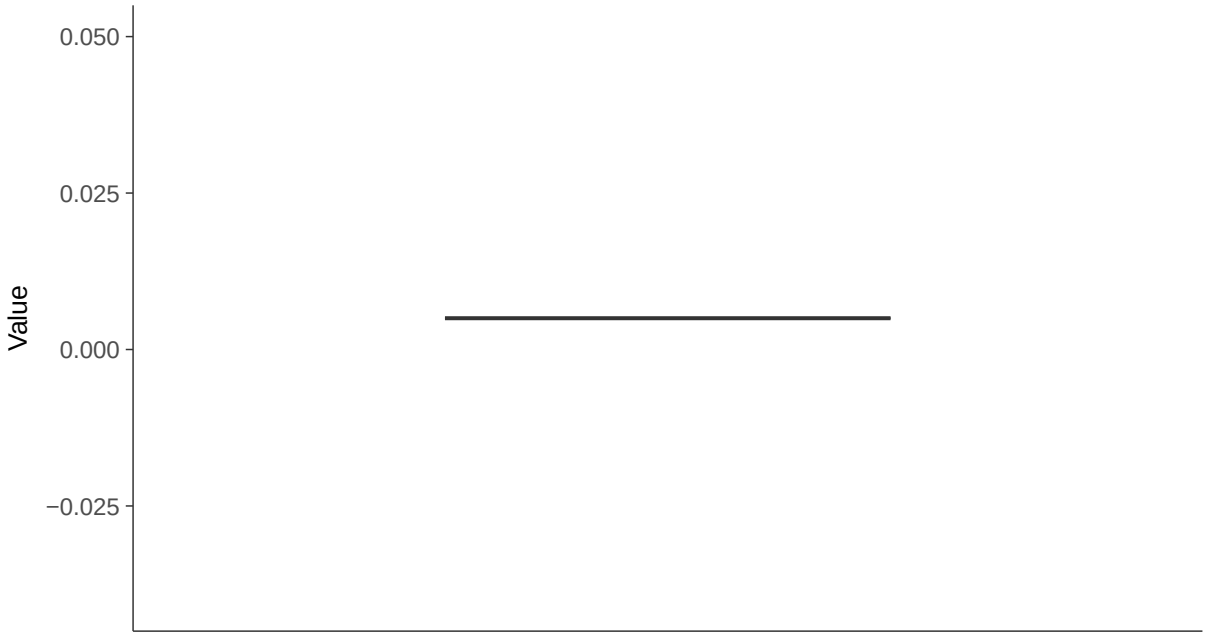
ID: 02_2_13





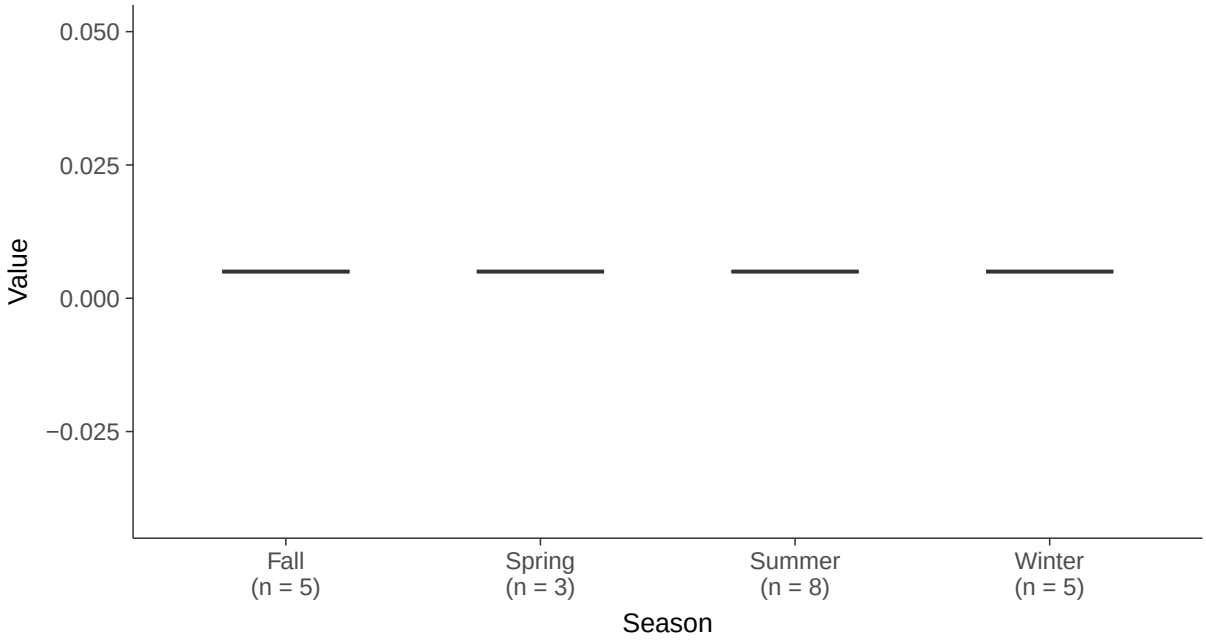
Boxplot

Chromium, MW-2 (mg/L)



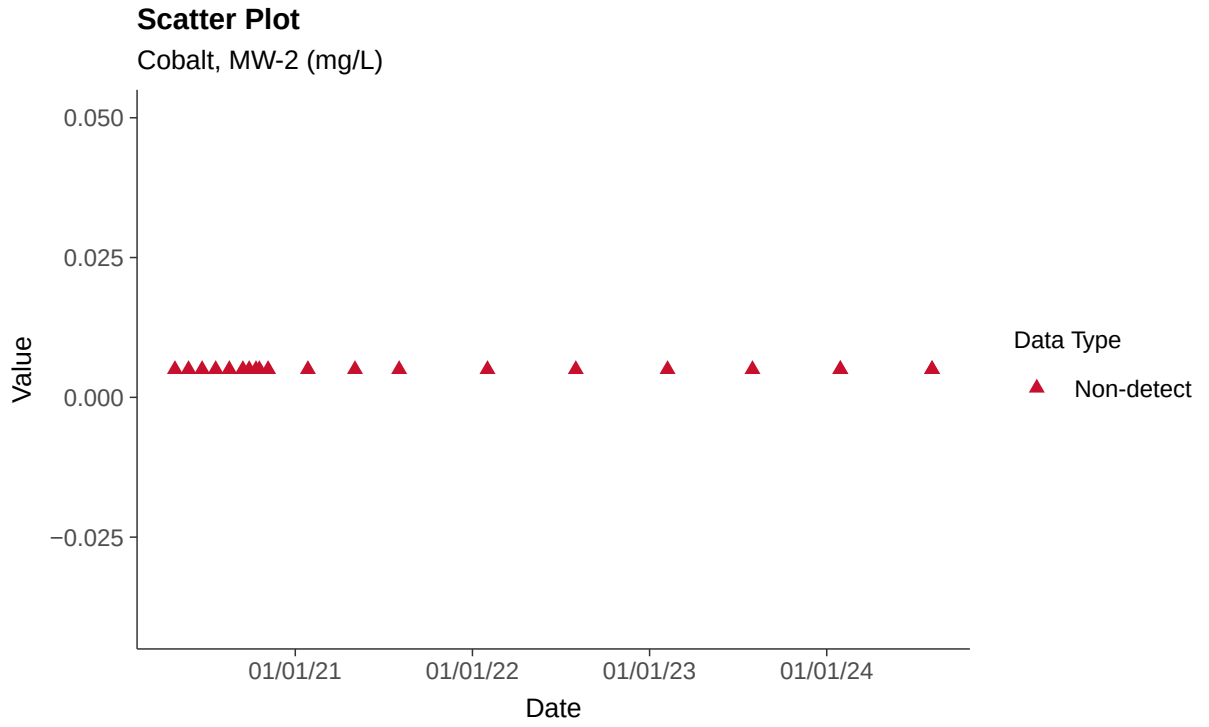
Boxplot by Season

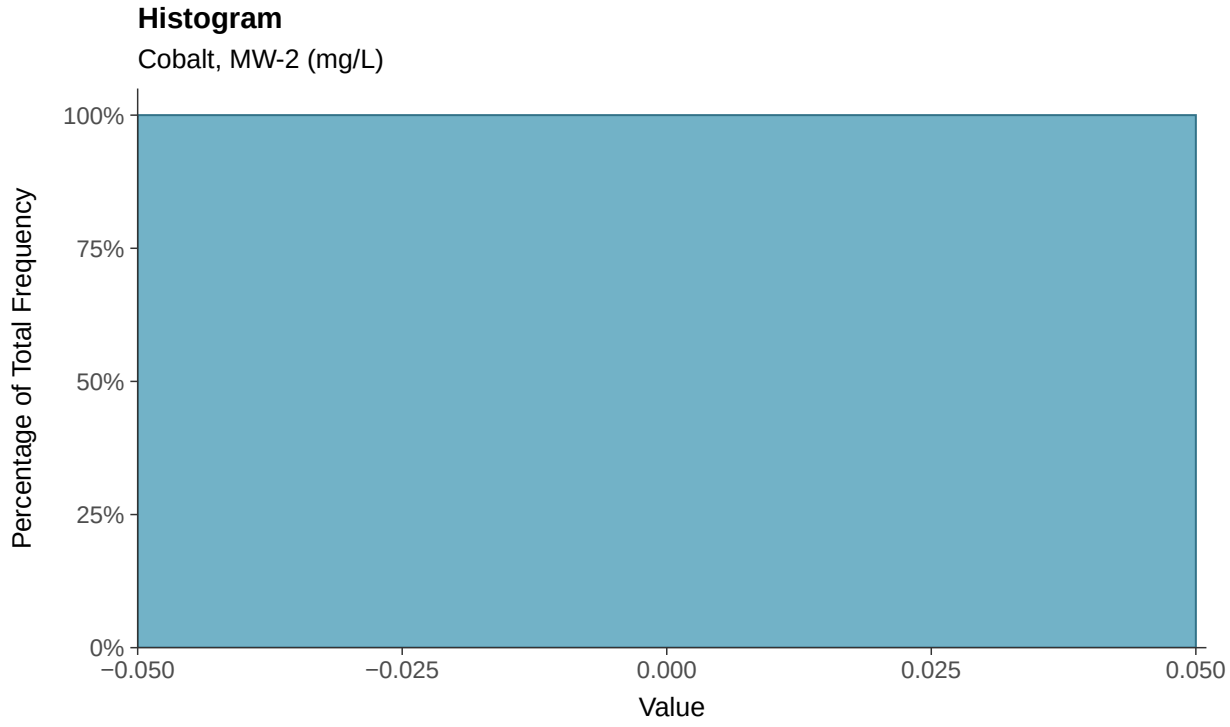
Chromium, MW-2 (mg/L)



Appendix IV: Cobalt, MW-2

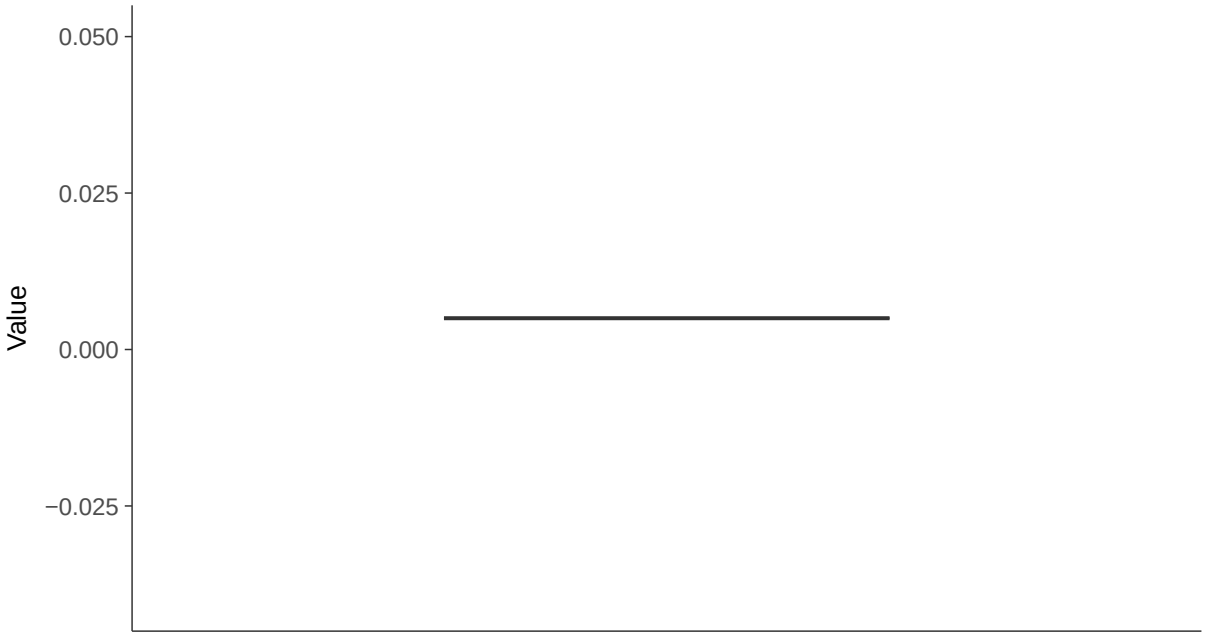
ID: 02_2_14





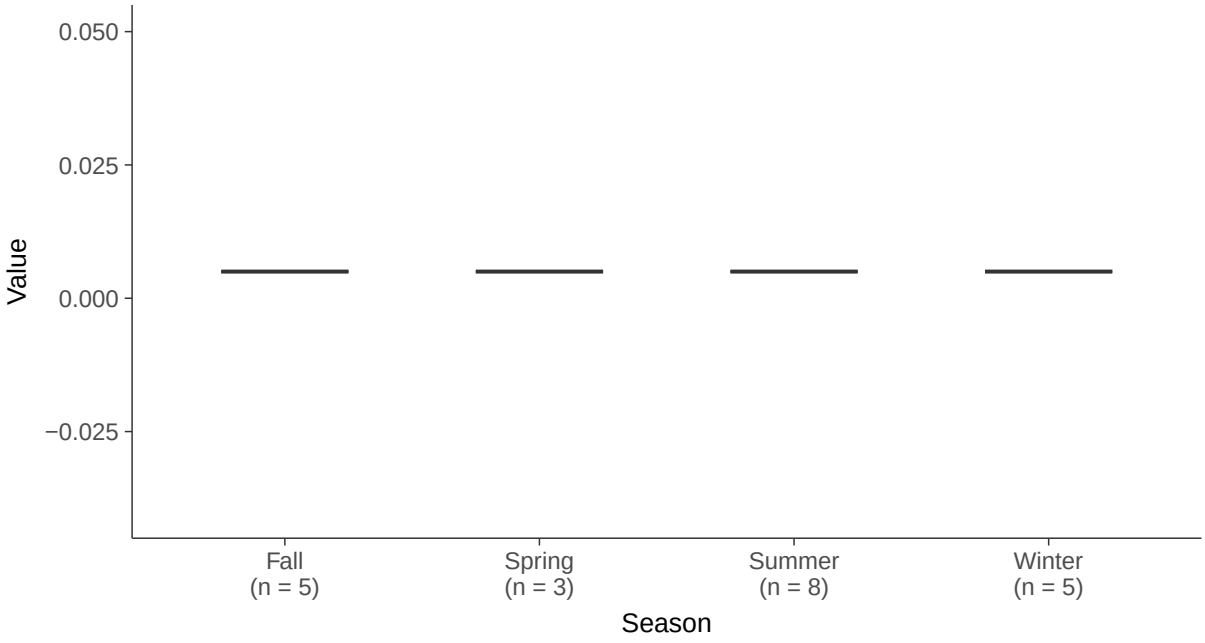
Boxplot

Cobalt, MW-2 (mg/L)



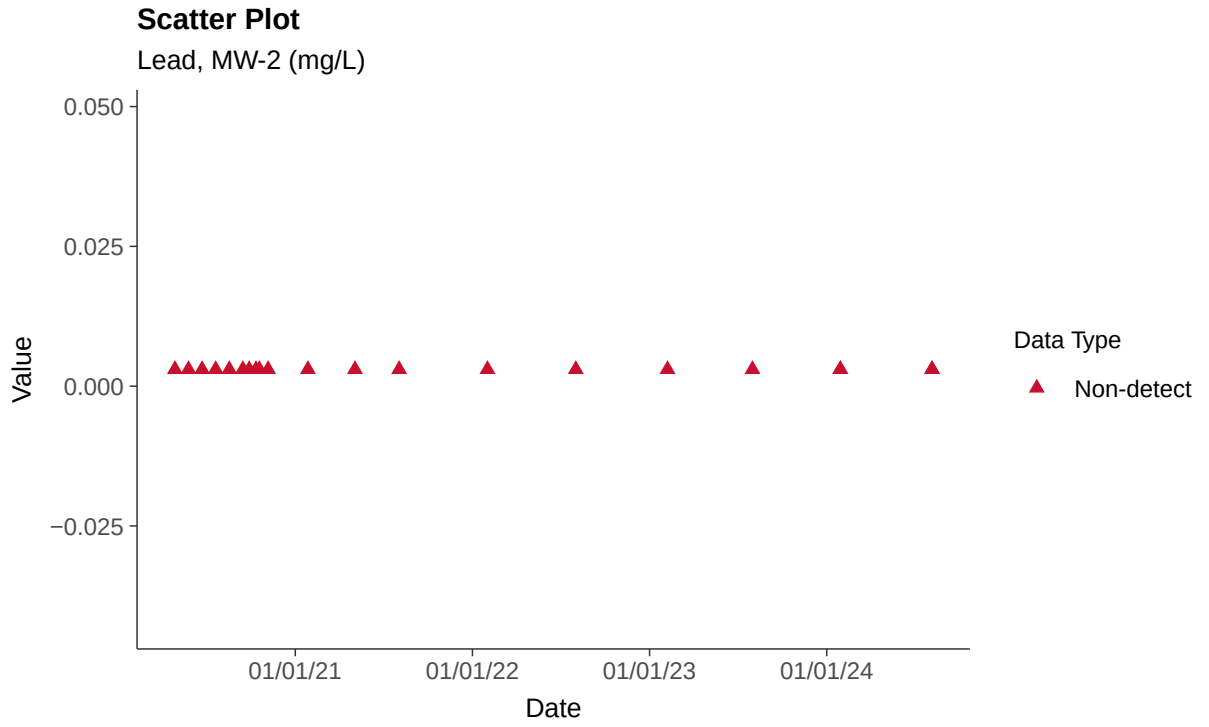
Boxplot by Season

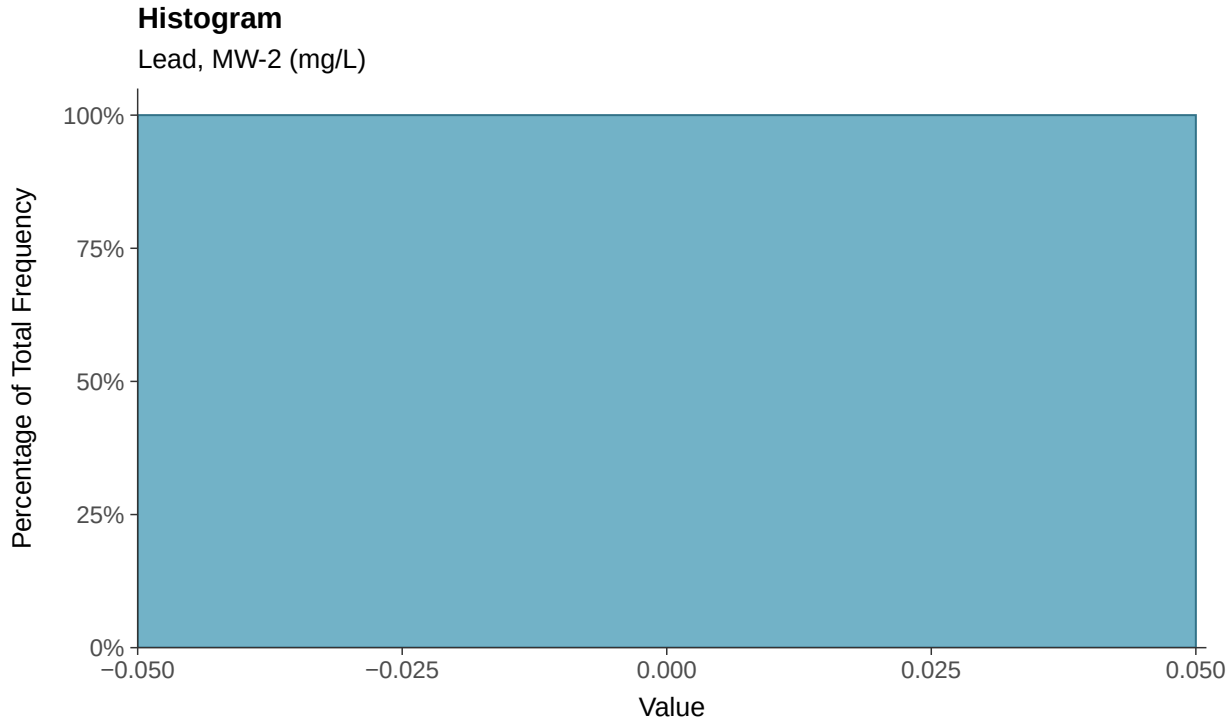
Cobalt, MW-2 (mg/L)



Appendix IV: Lead, MW-2

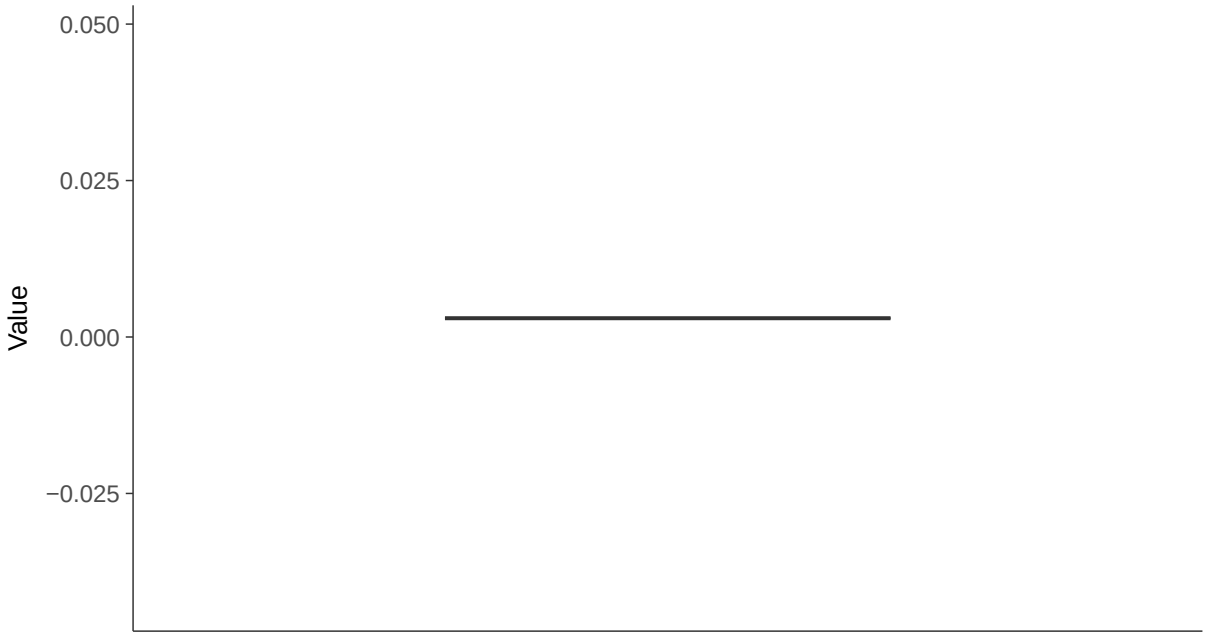
ID: 02_2_15





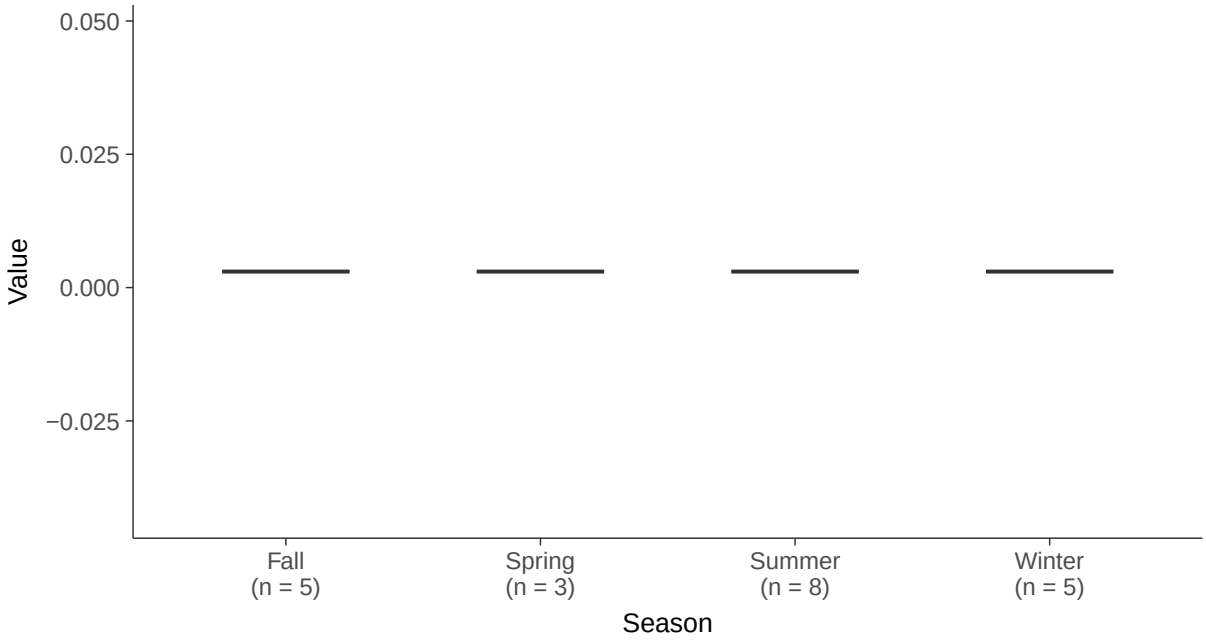
Boxplot

Lead, MW-2 (mg/L)



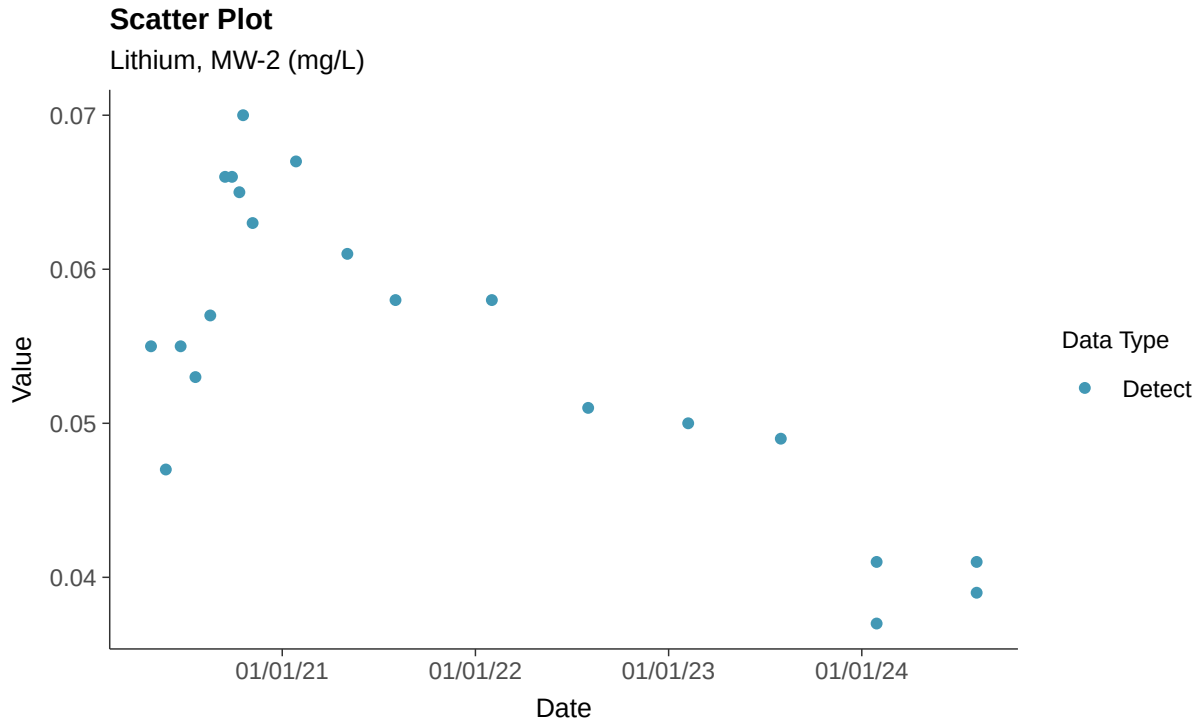
Boxplot by Season

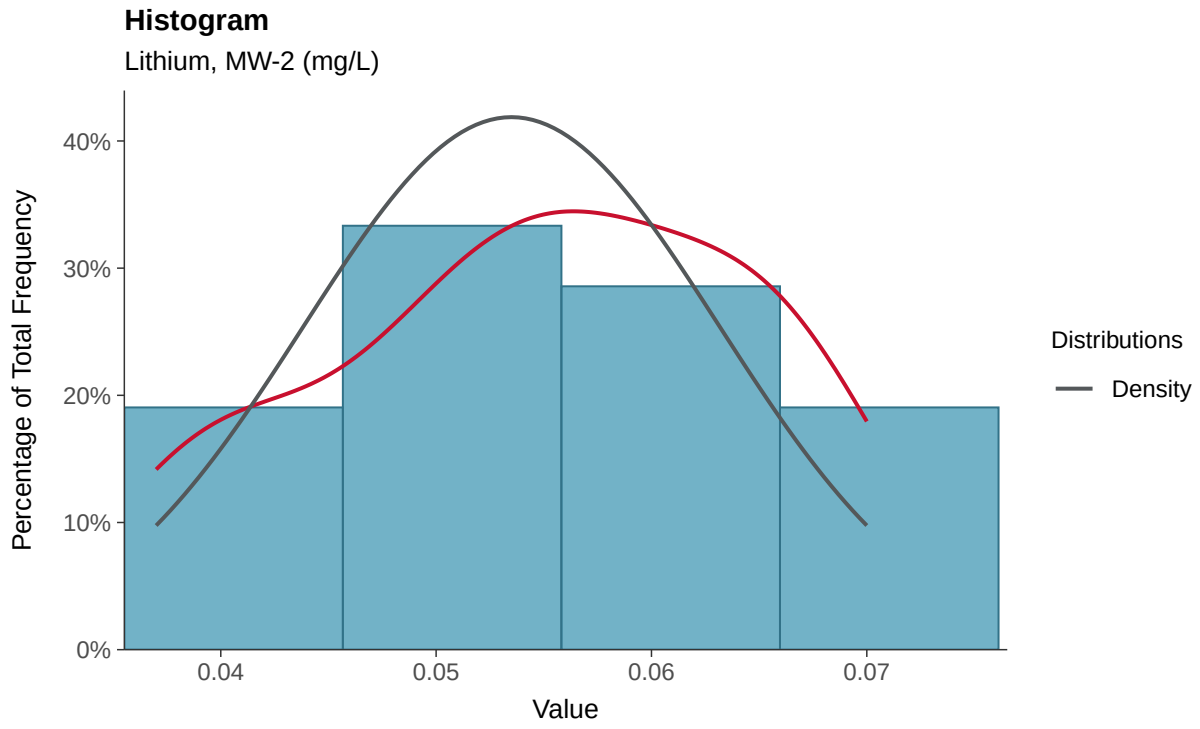
Lead, MW-2 (mg/L)



Appendix IV: Lithium, MW-2

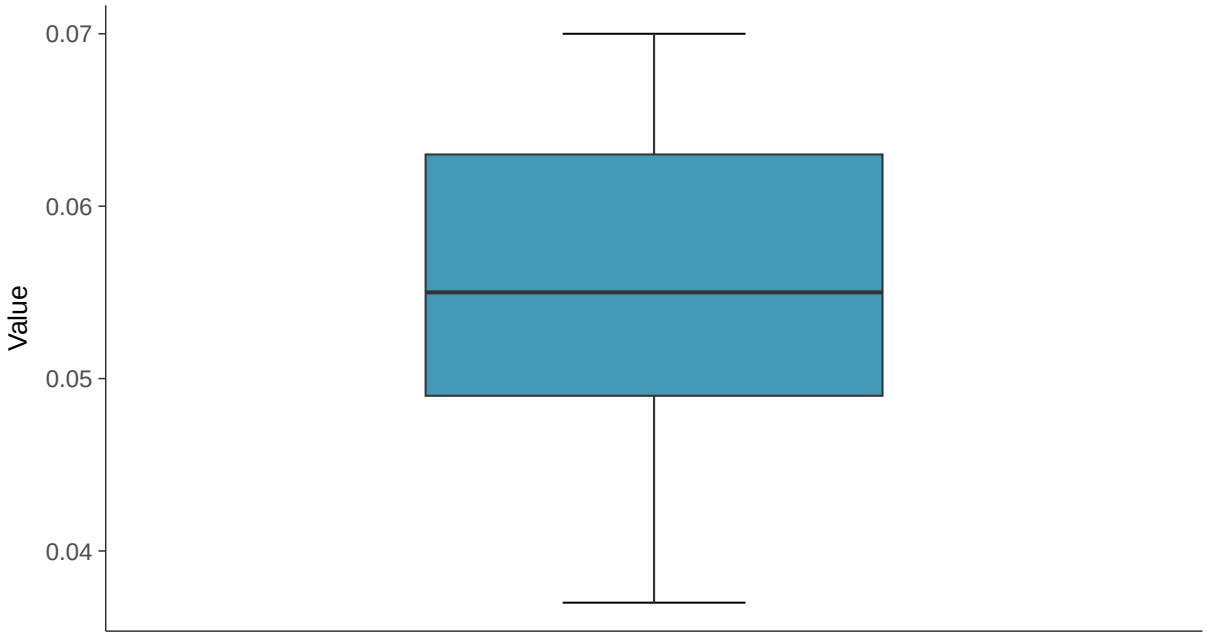
ID: 02_2_16





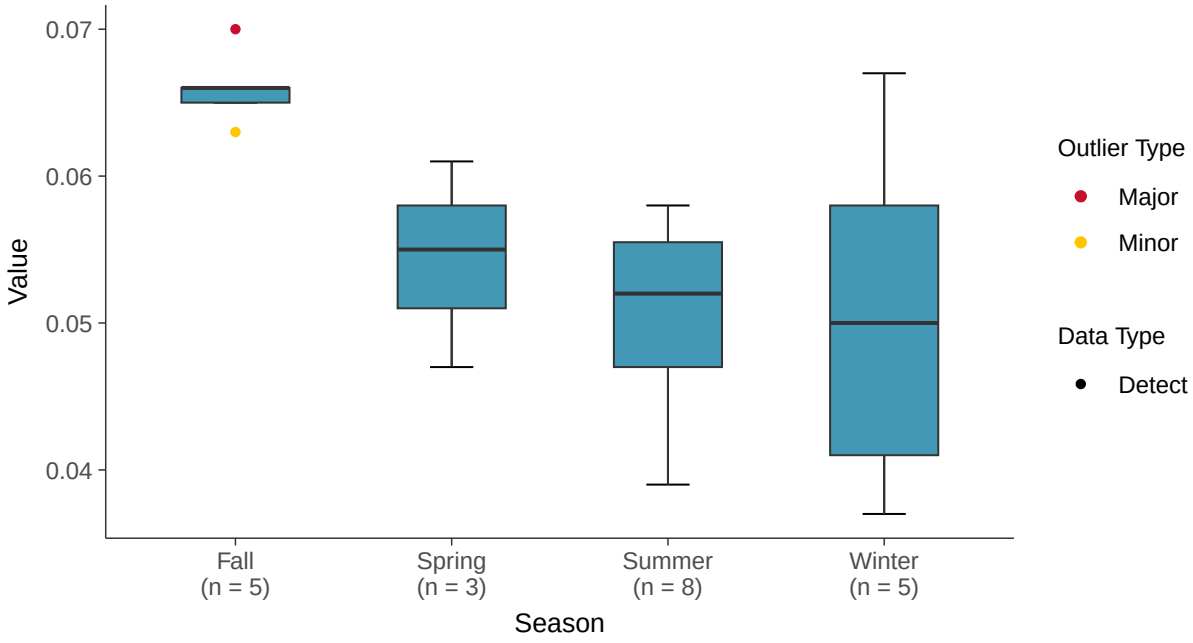
Boxplot

Lithium, MW-2 (mg/L)



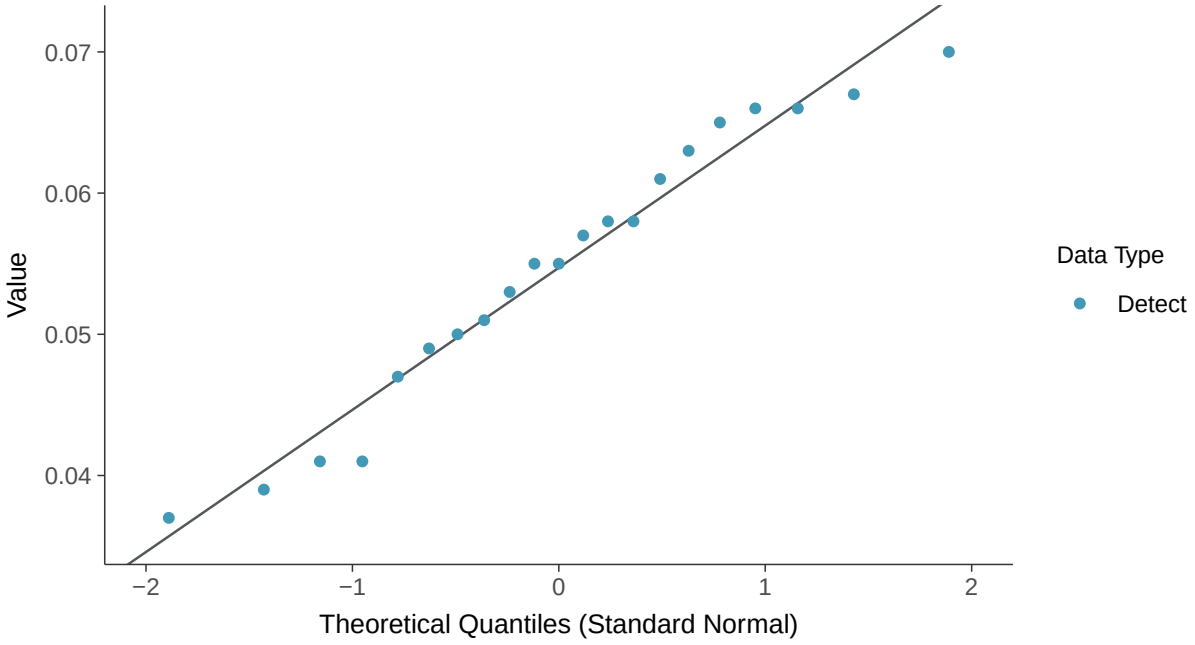
Boxplot by Season

Lithium, MW-2 (mg/L)



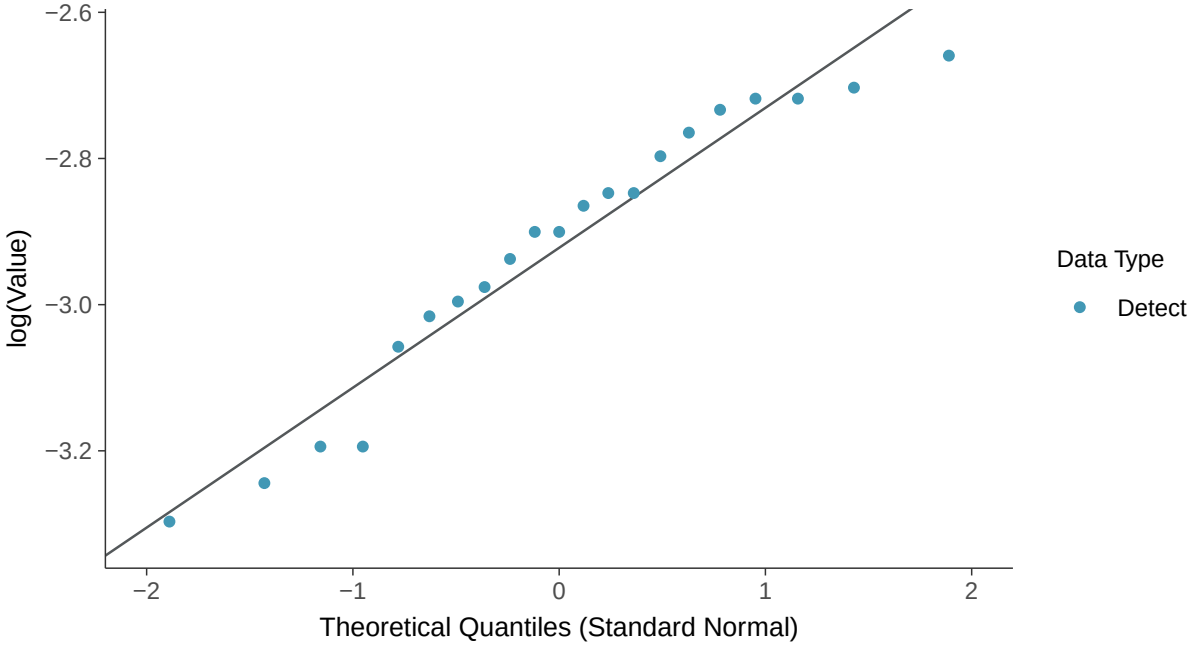
Normal Q-Q plot

Lithium, MW-2 (mg/L)



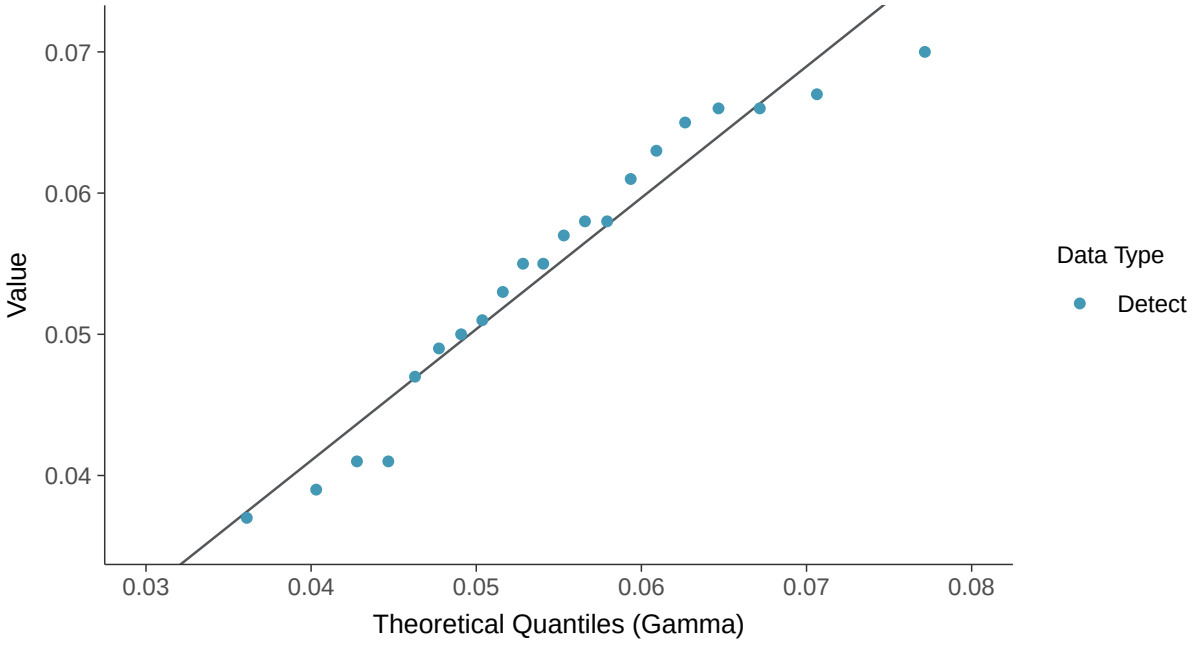
Lognormal Q-Q plot

Lithium, MW-2 (mg/L)



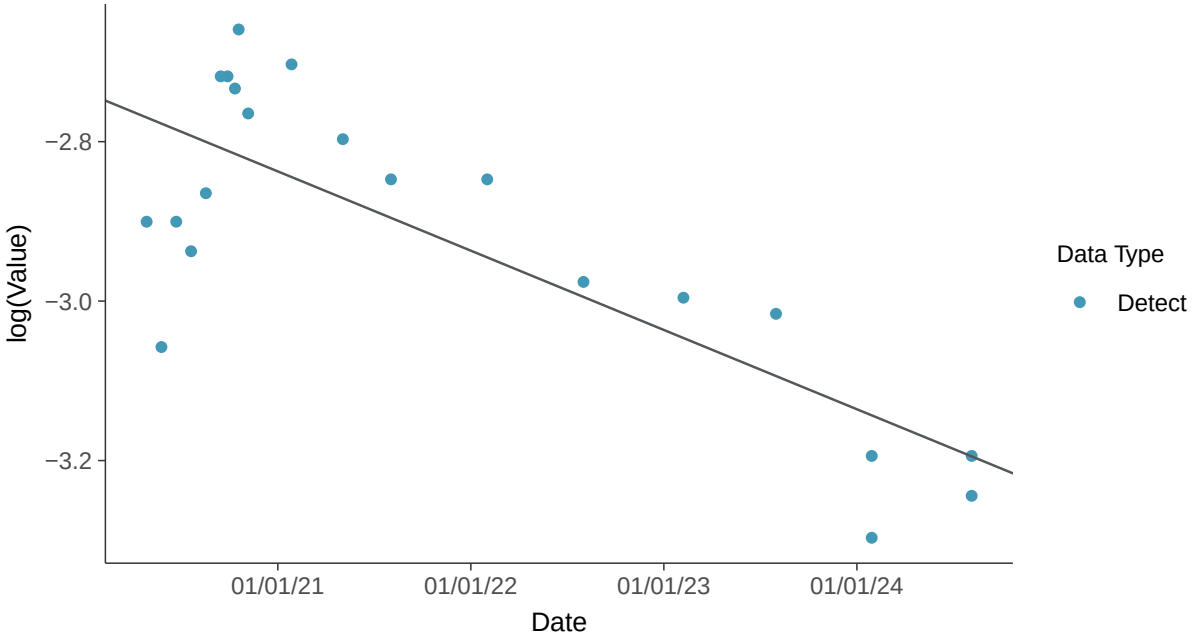
Gamma Q-Q plot

Lithium, MW-2 (mg/L)



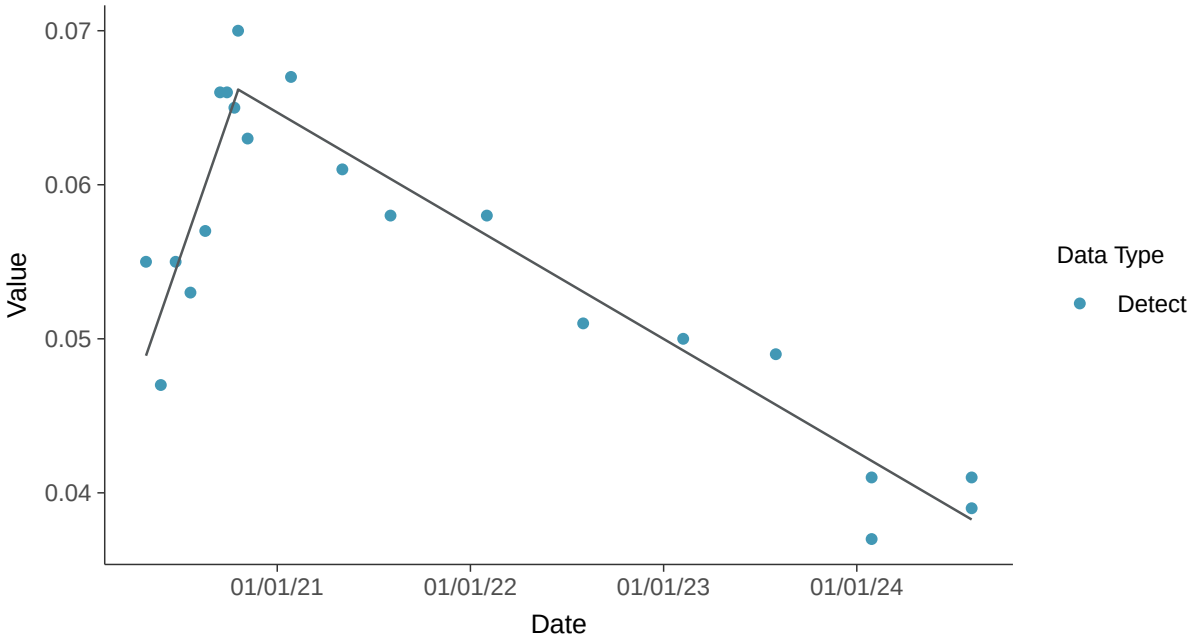
Trend Regression: Lognormal MLE

Lithium, MW-2 (mg/L)



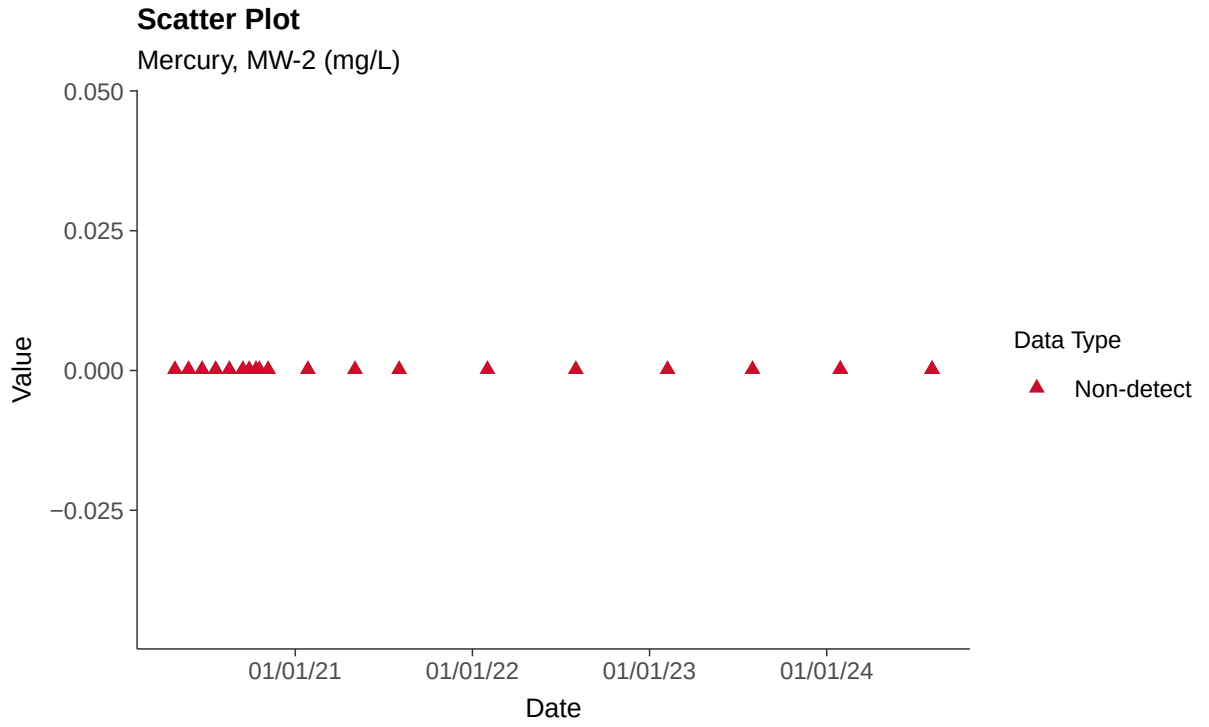
Trend Regression: Piecewise Linear-Linear

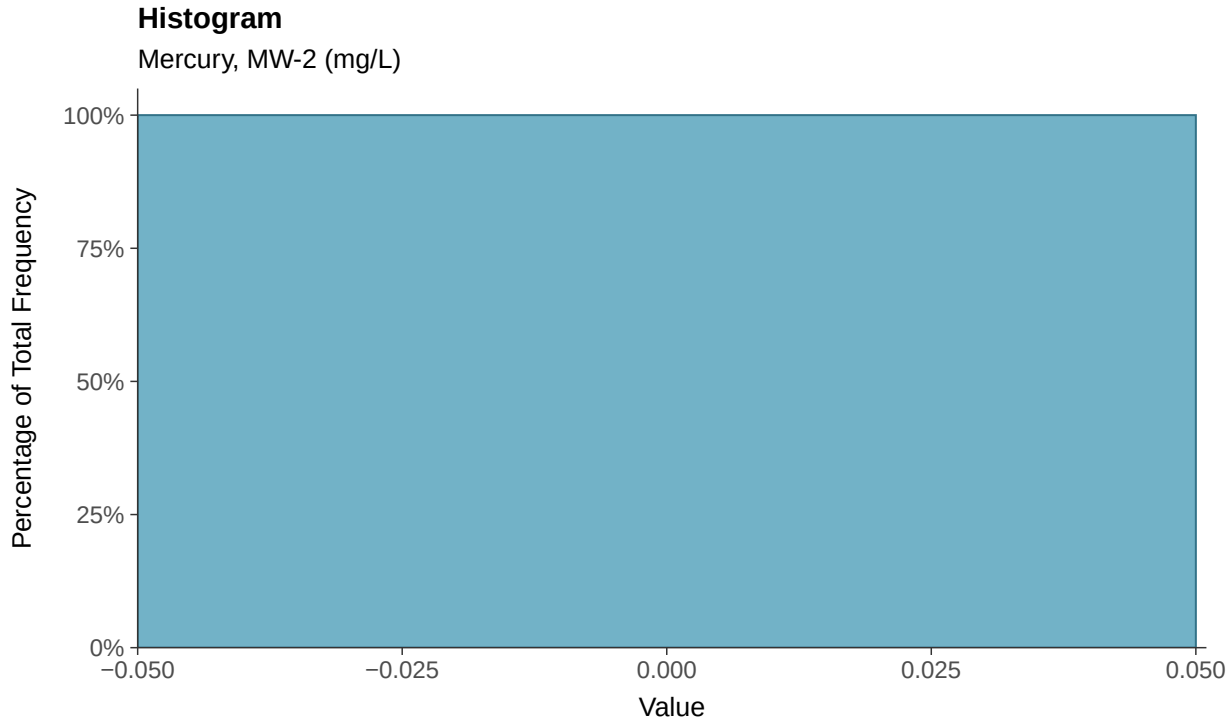
Lithium, MW-2 (mg/L)



Appendix IV: Mercury, MW-2

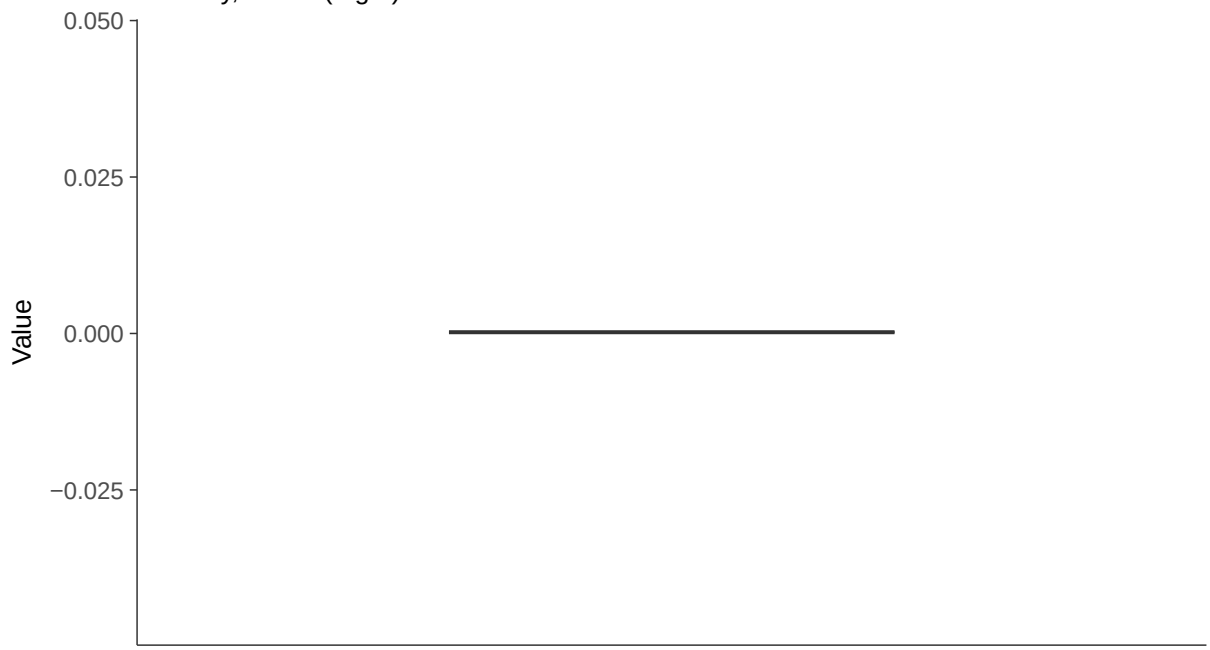
ID: 02_2_17





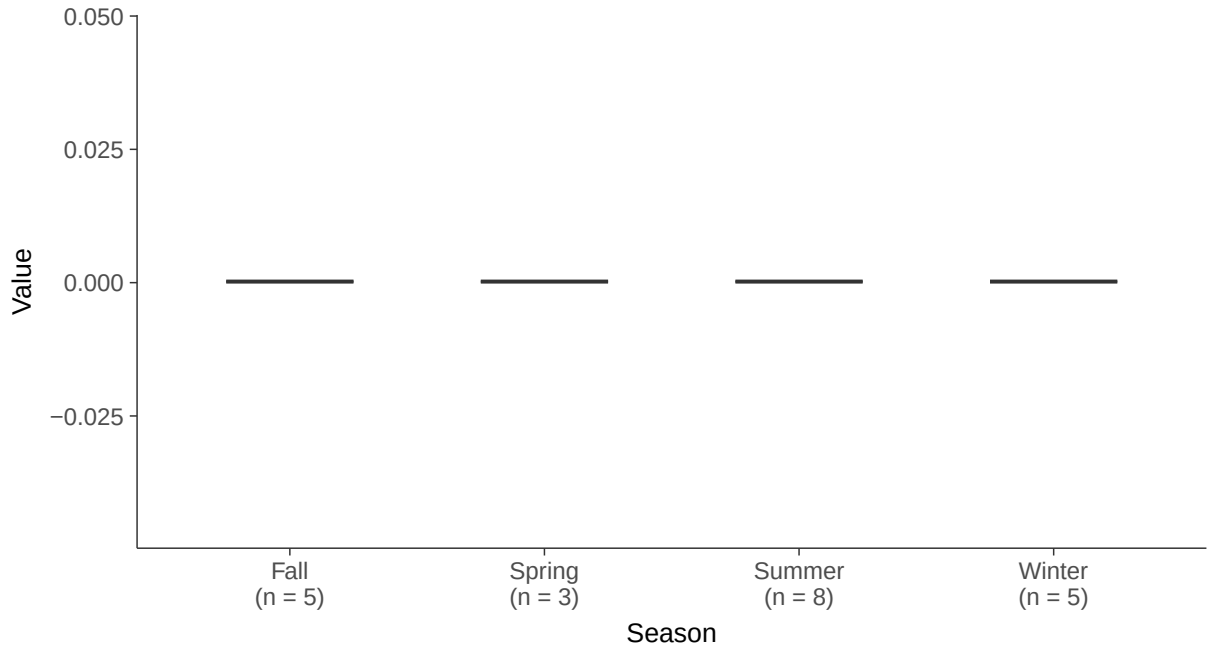
Boxplot

Mercury, MW-2 (mg/L)



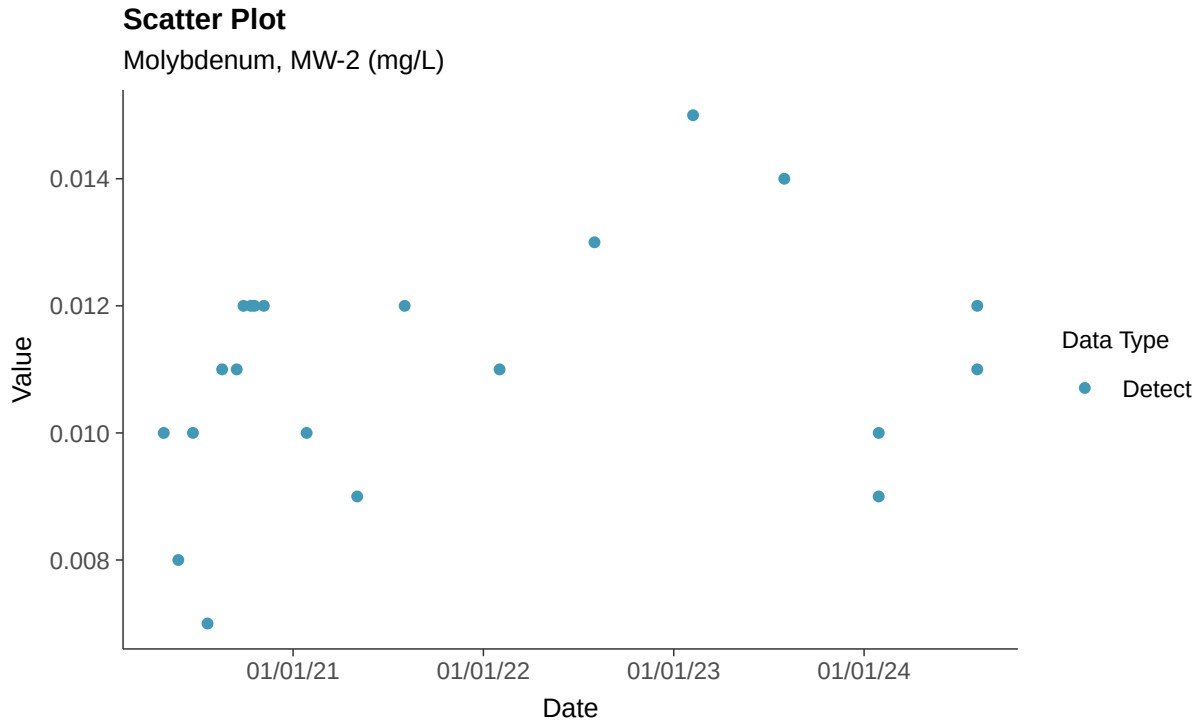
Boxplot by Season

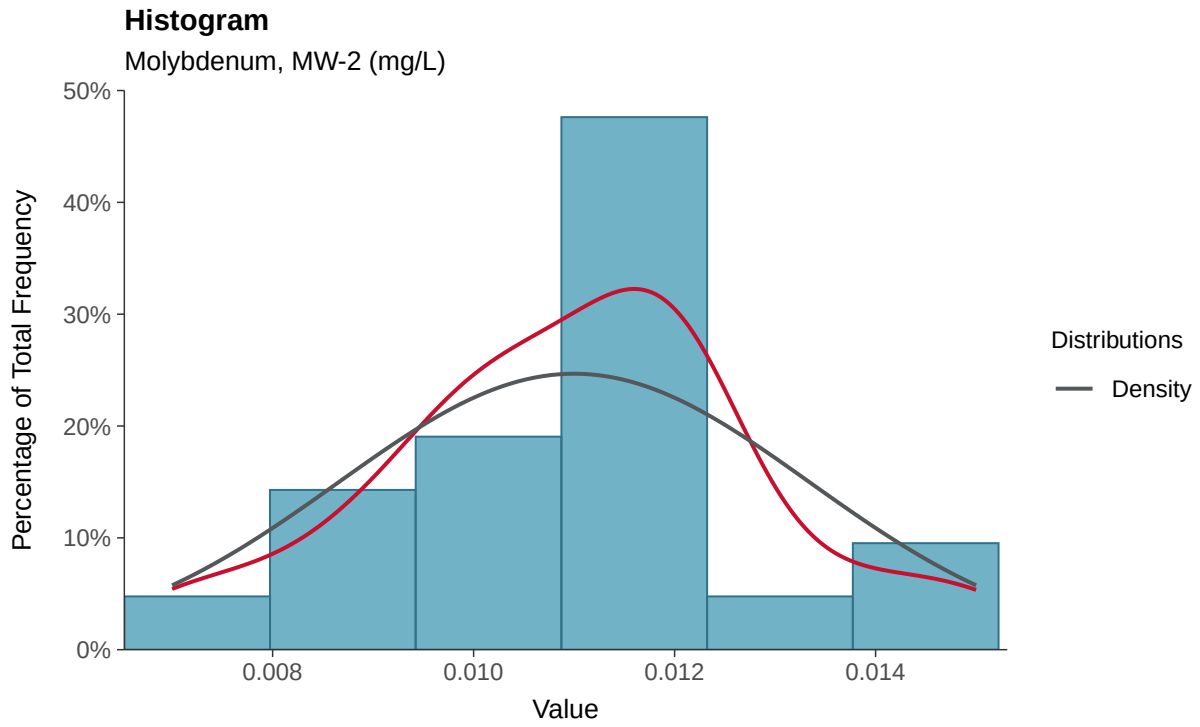
Mercury, MW-2 (mg/L)



Appendix IV: Molybdenum, MW-2

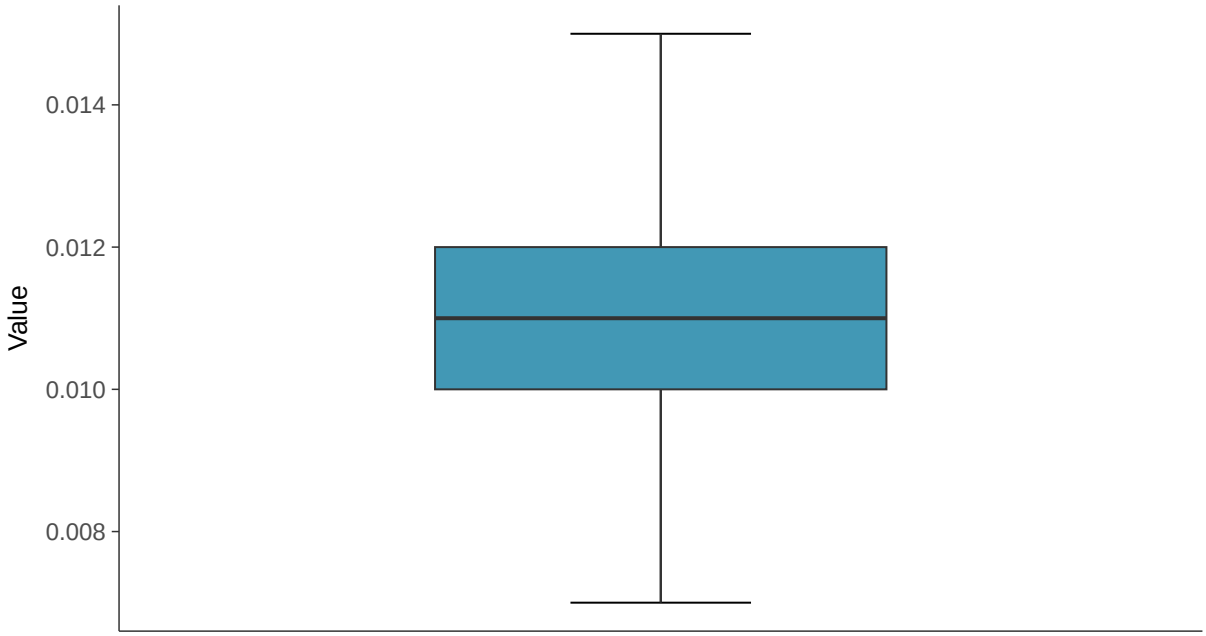
ID: 02_2_18





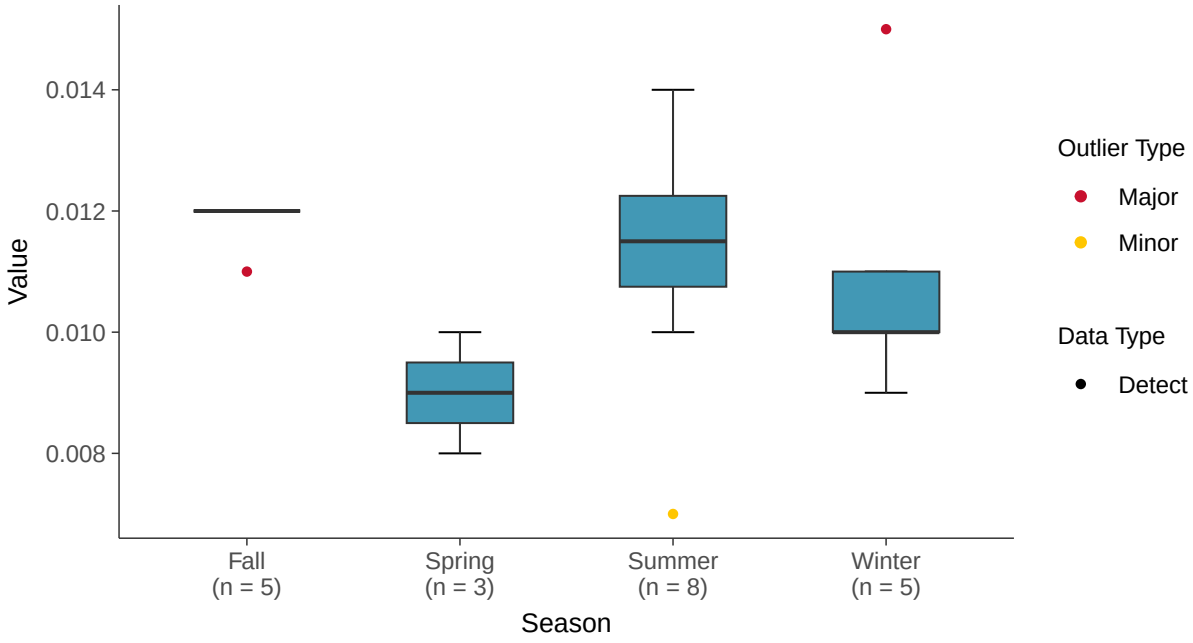
Boxplot

Molybdenum, MW-2 (mg/L)



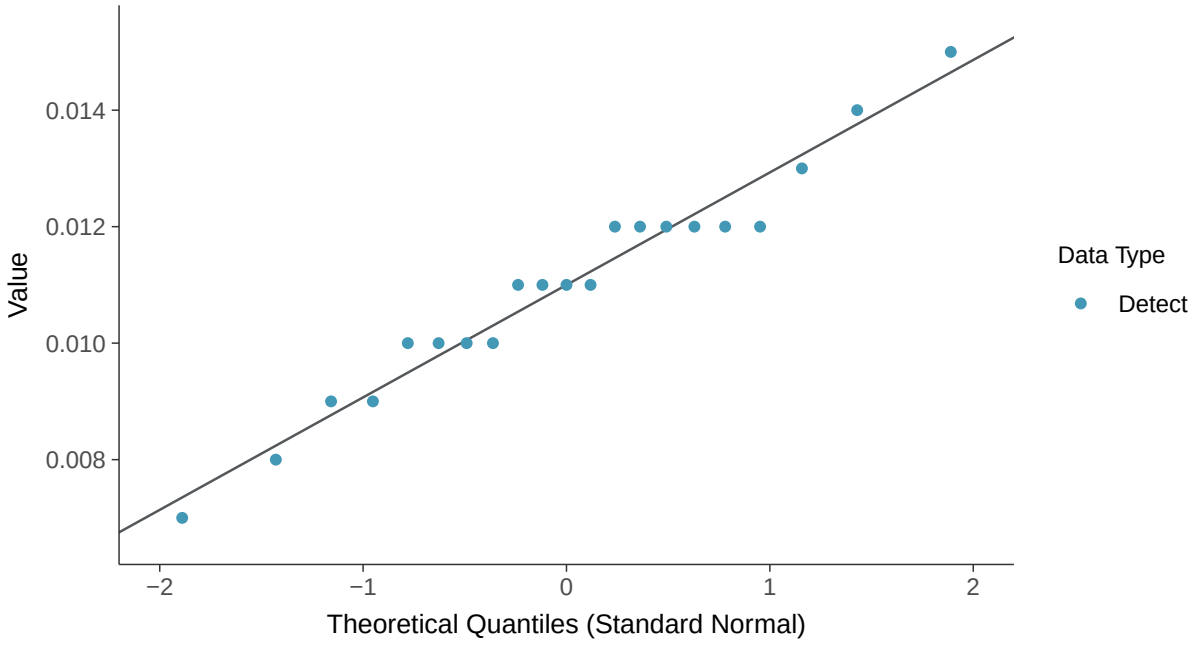
Boxplot by Season

Molybdenum, MW-2 (mg/L)



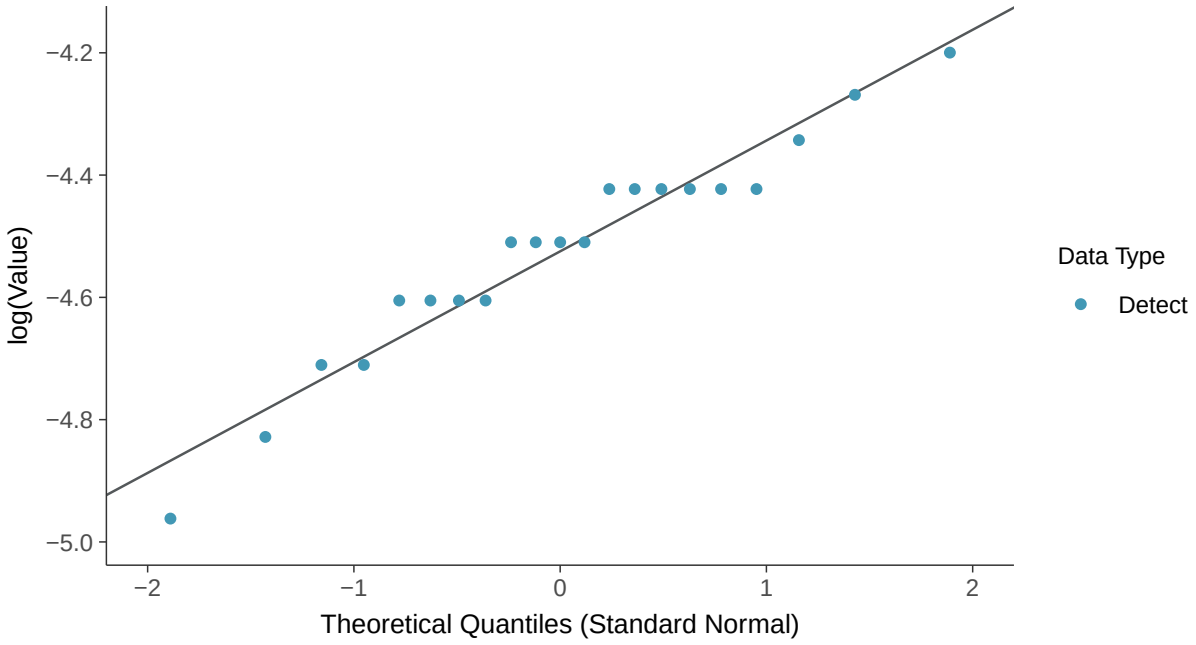
Normal Q-Q plot

Molybdenum, MW-2 (mg/L)



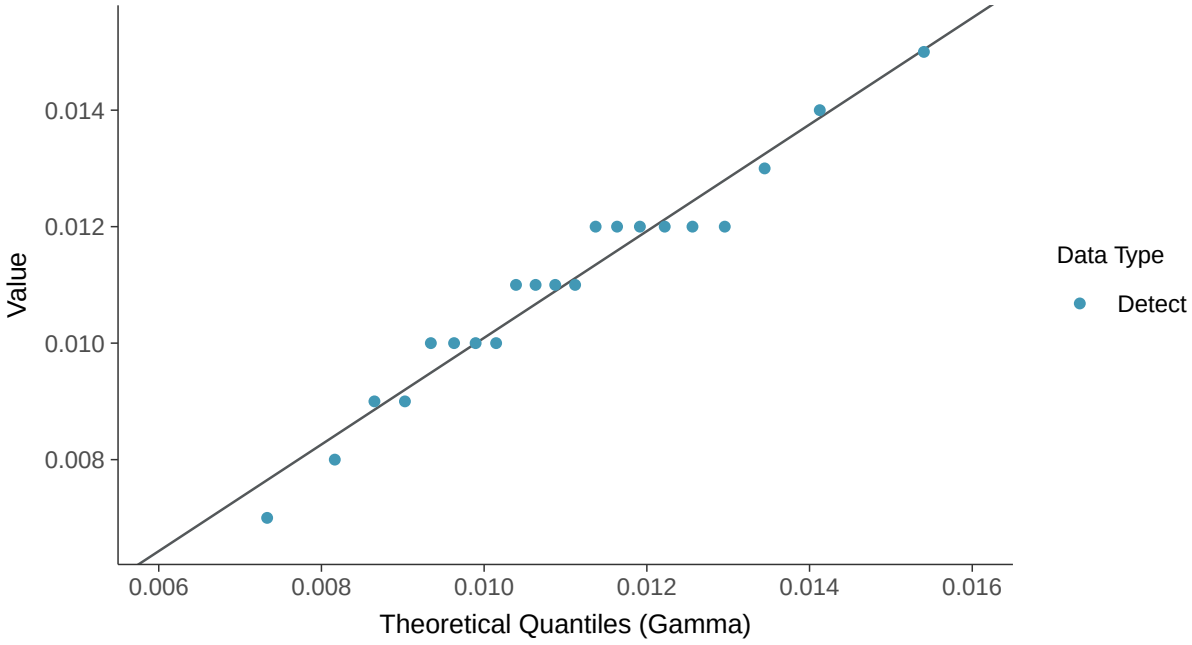
Lognormal Q-Q plot

Molybdenum, MW-2 (mg/L)



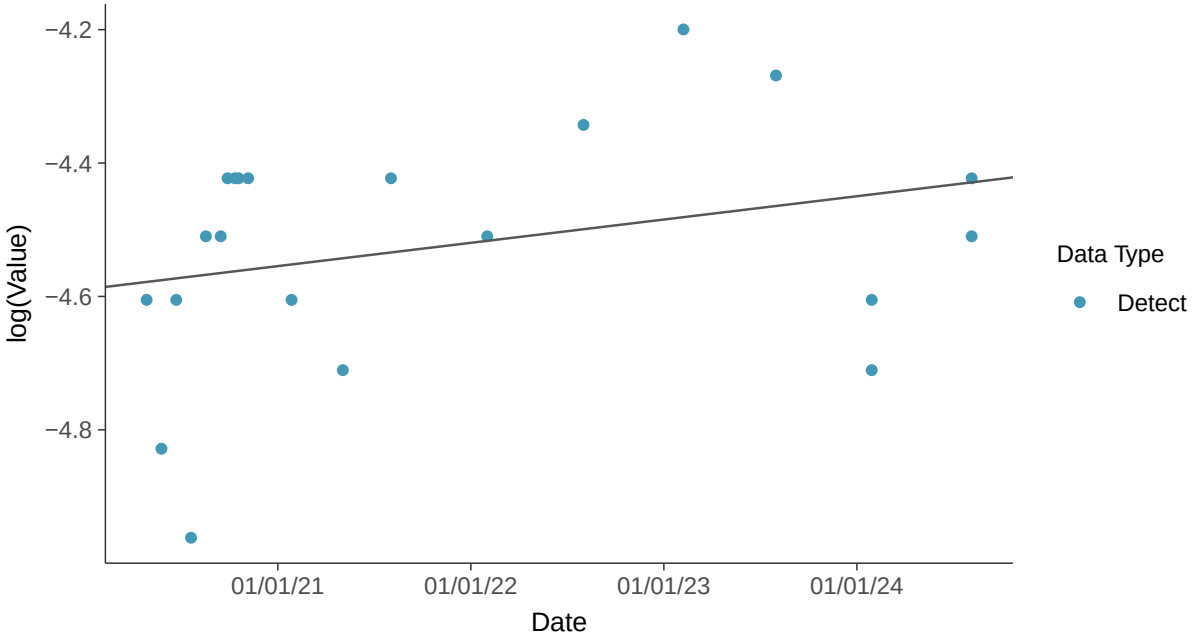
Gamma Q-Q plot

Molybdenum, MW-2 (mg/L)



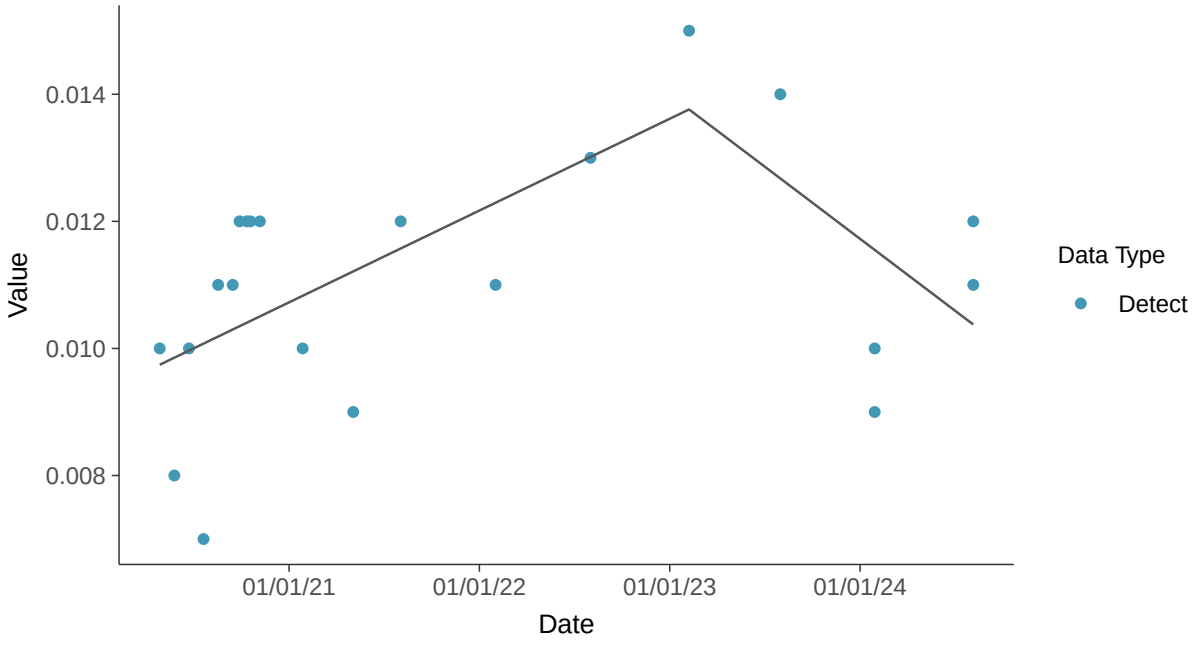
Trend Regression: Lognormal MLE

Molybdenum, MW-2 (mg/L)



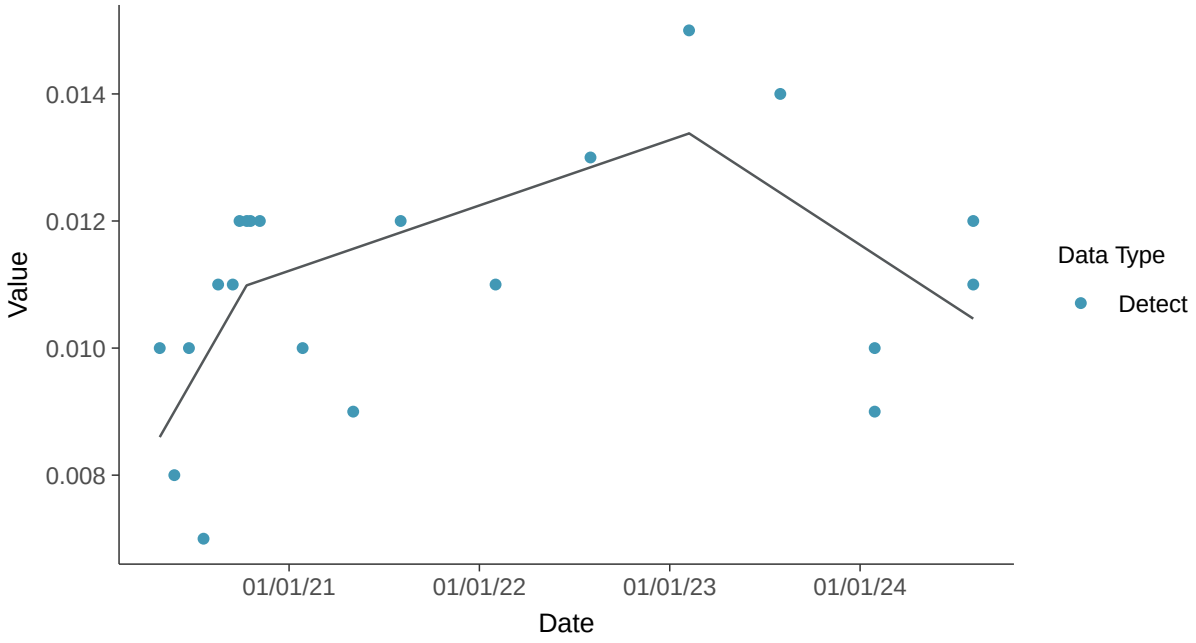
Trend Regression: Piecewise Linear-Linear

Molybdenum, MW-2 (mg/L)



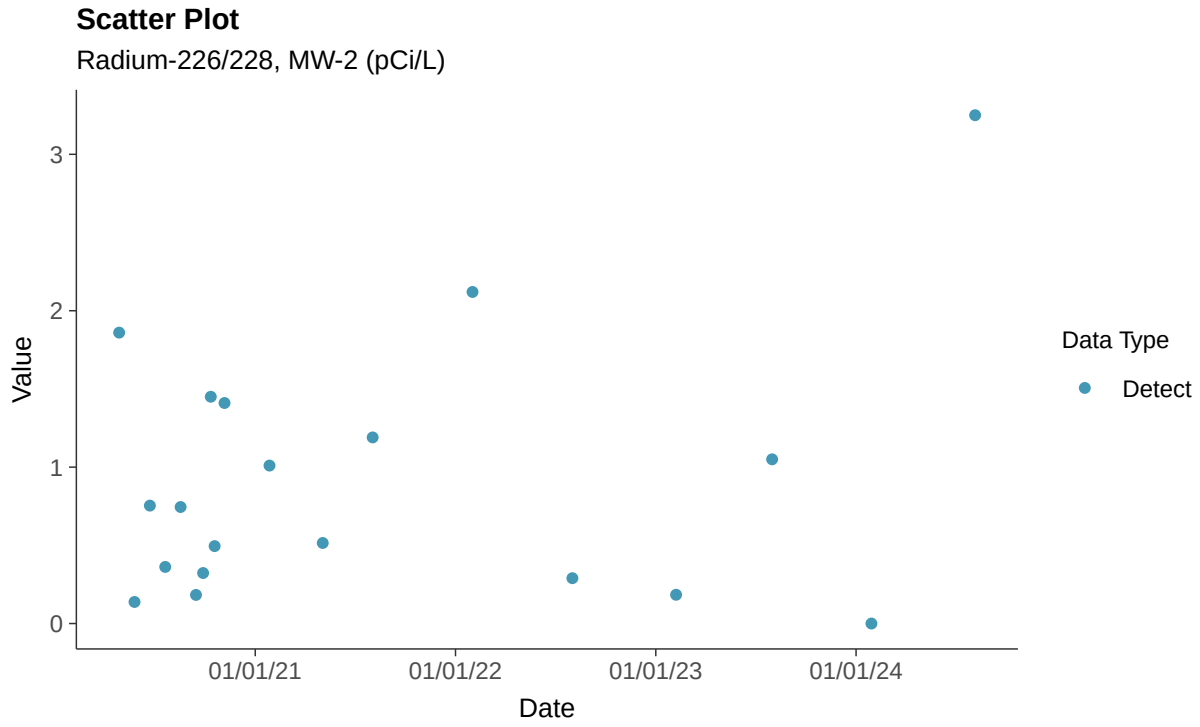
Trend Regression: Piecewise Linear-Linear-Linear

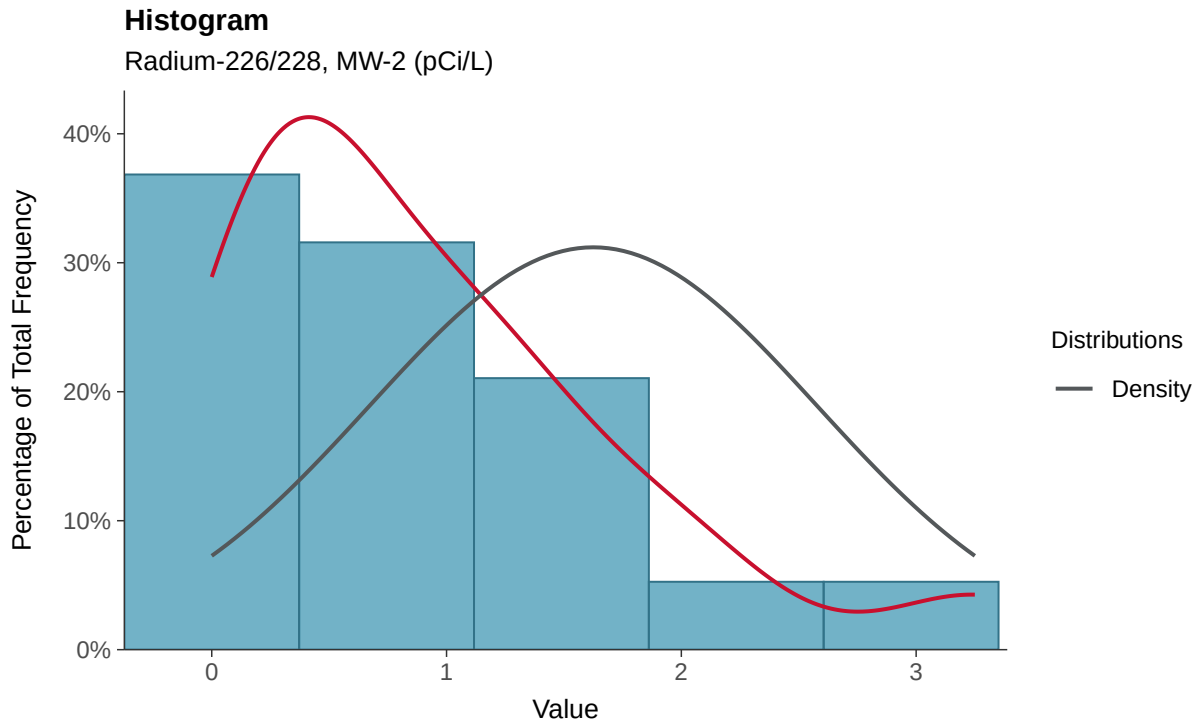
Molybdenum, MW-2 (mg/L)



Appendix IV: Radium-226/228, MW-2

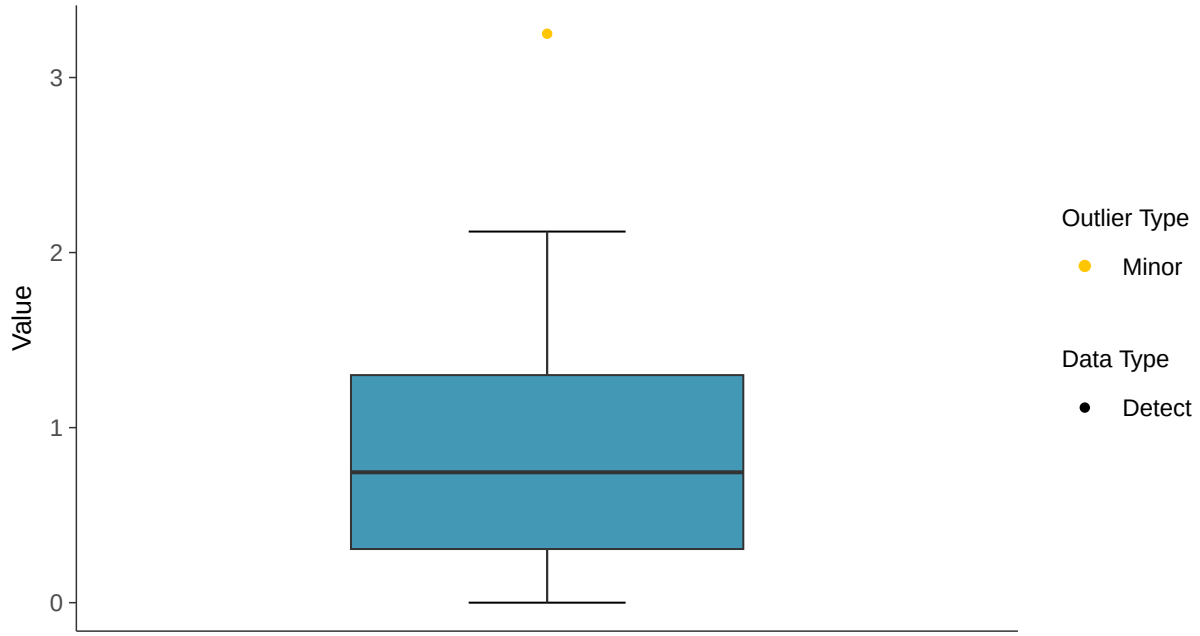
ID: 02_2_21





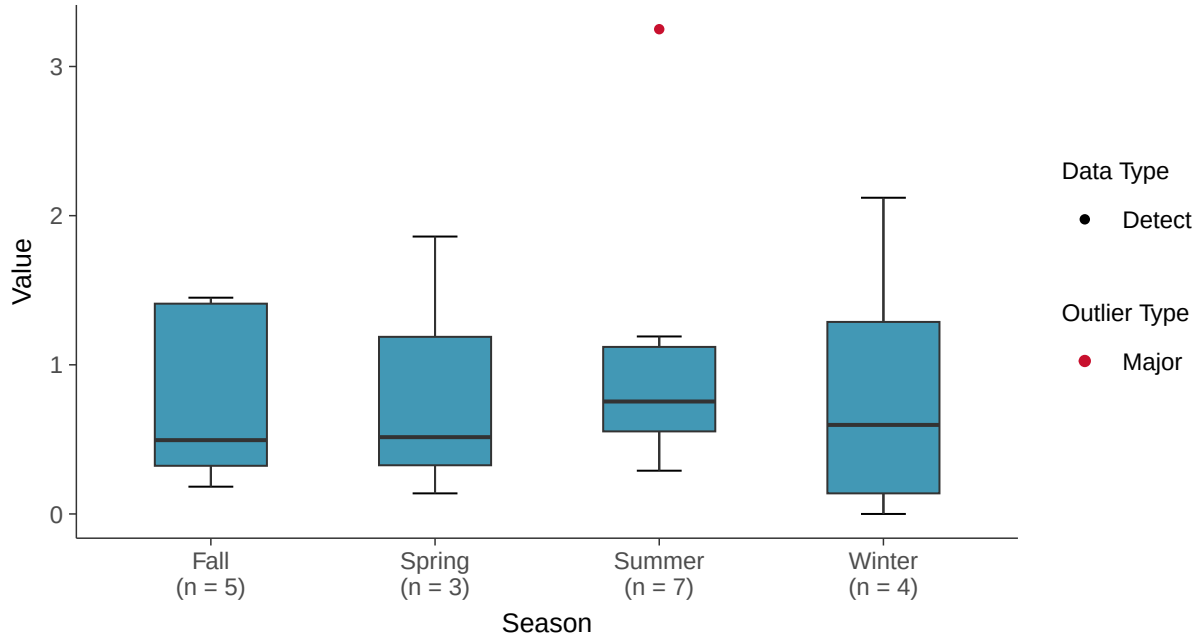
Boxplot

Radium-226/228, MW-2 (pCi/L)



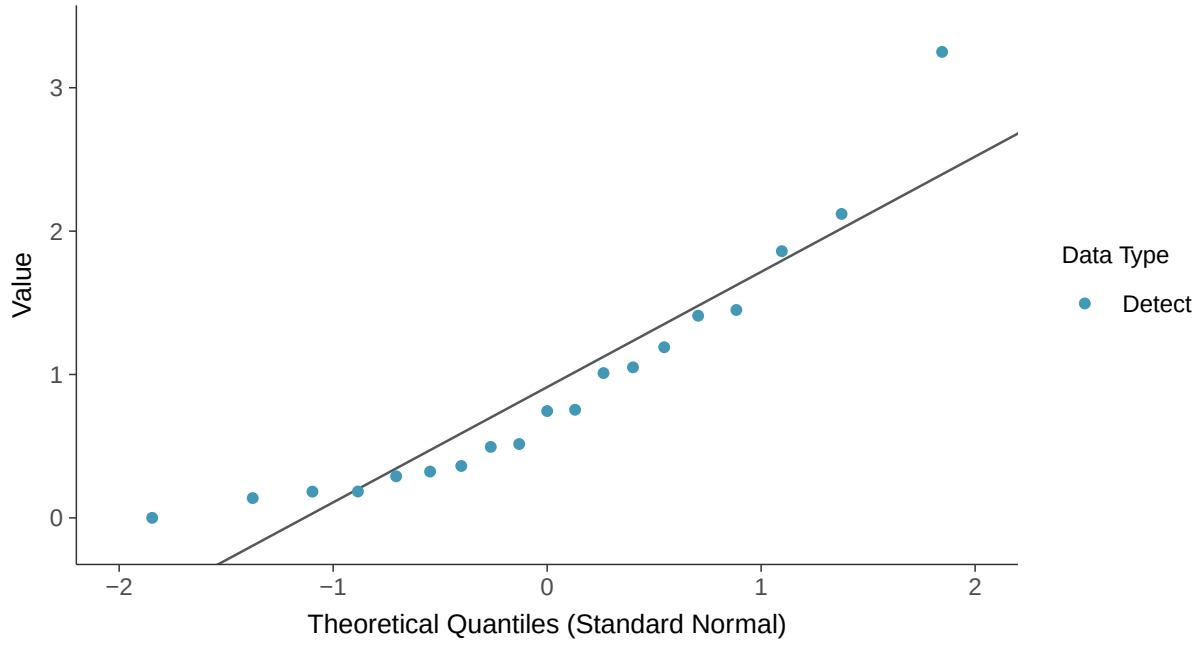
Boxplot by Season

Radium-226/228, MW-2 (pCi/L)



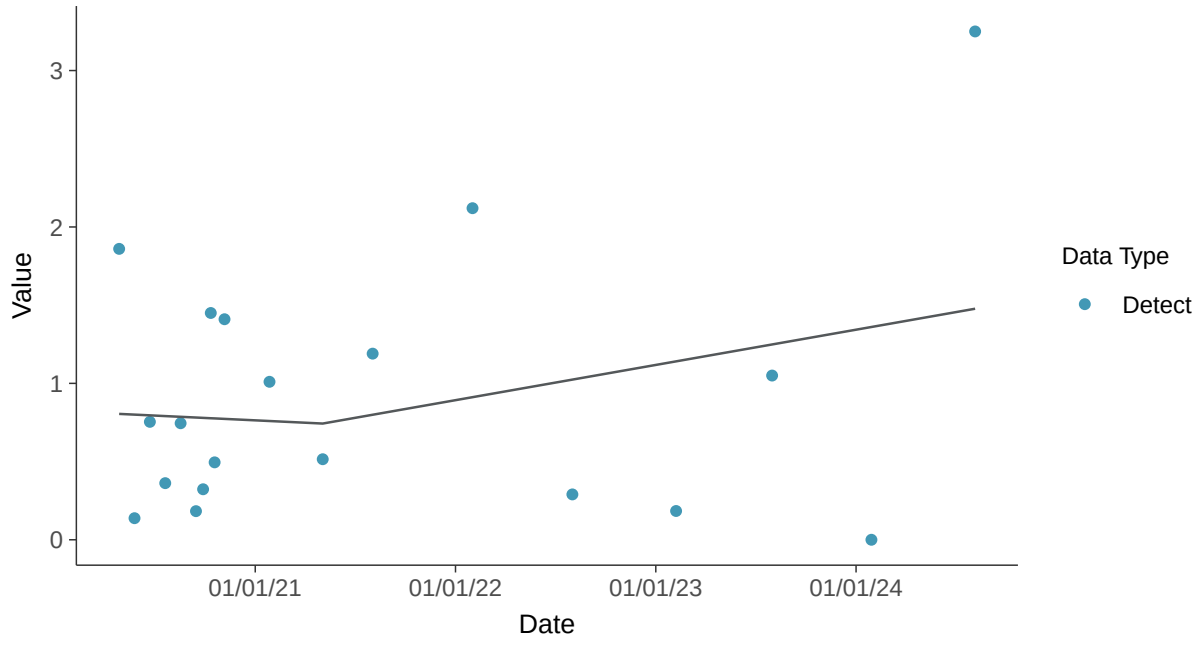
Normal Q-Q plot

Radium-226/228, MW-2 (pCi/L)



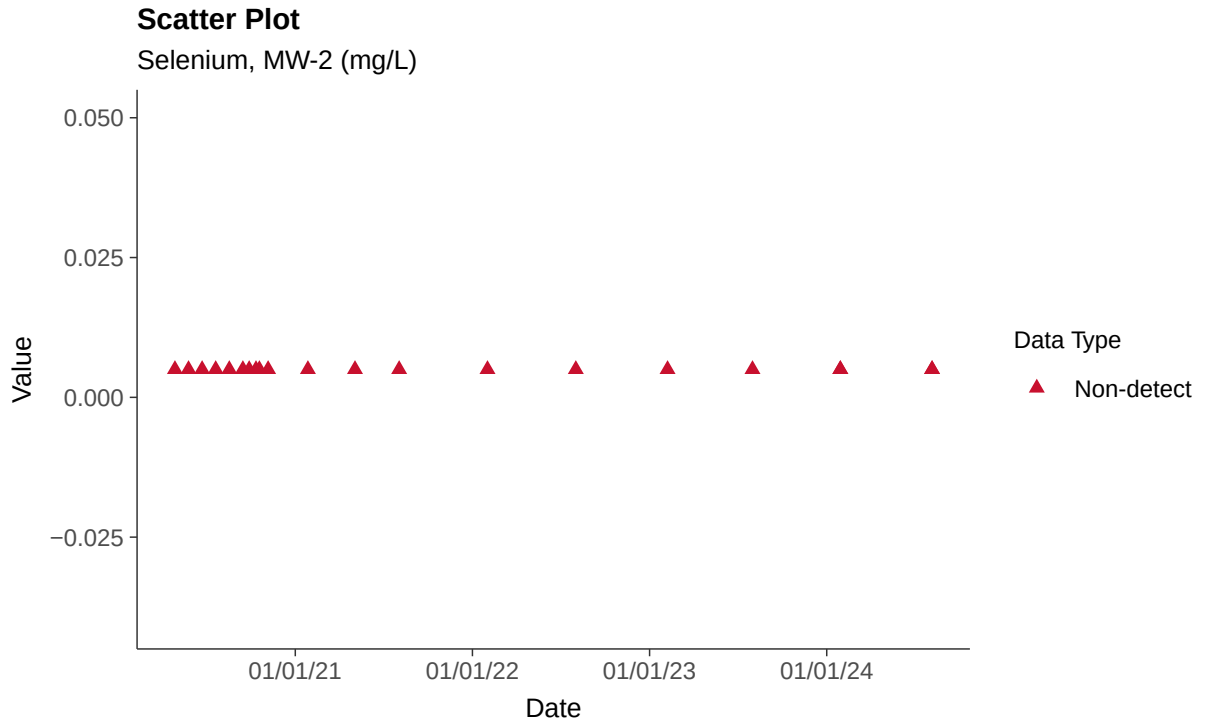
Trend Regression: Piecewise Linear-Linear

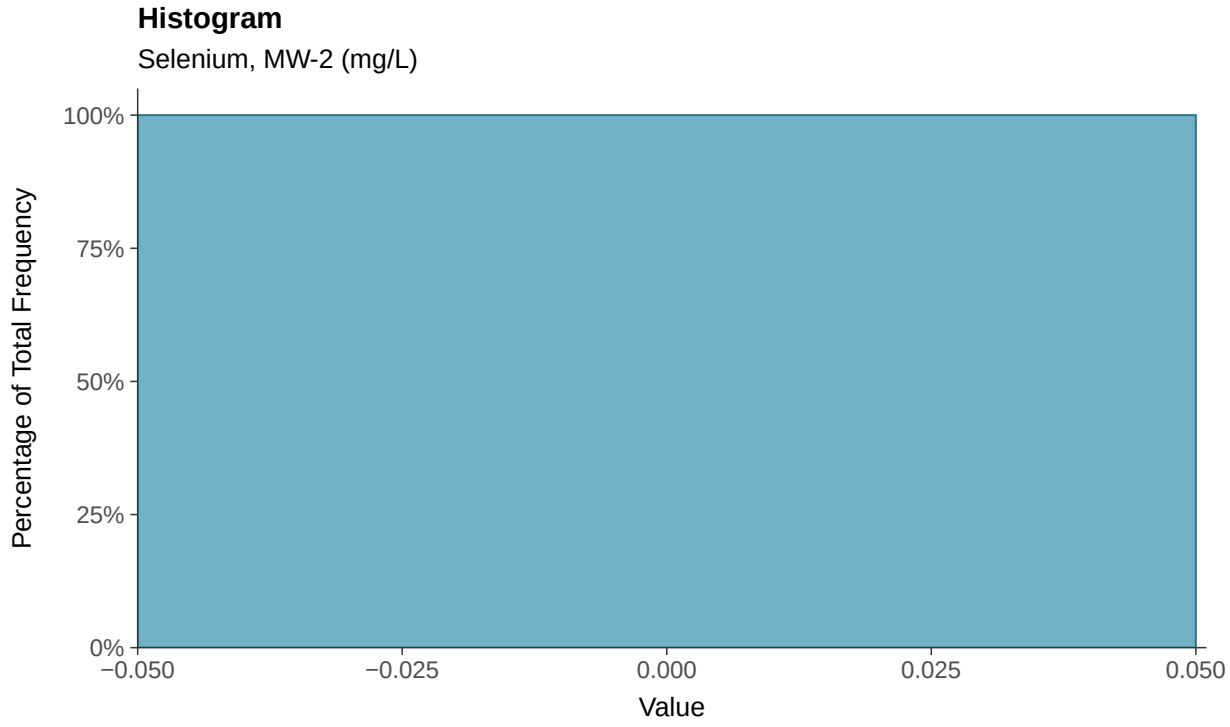
Radium-226/228, MW-2 (pCi/L)



Appendix IV: Selenium, MW-2

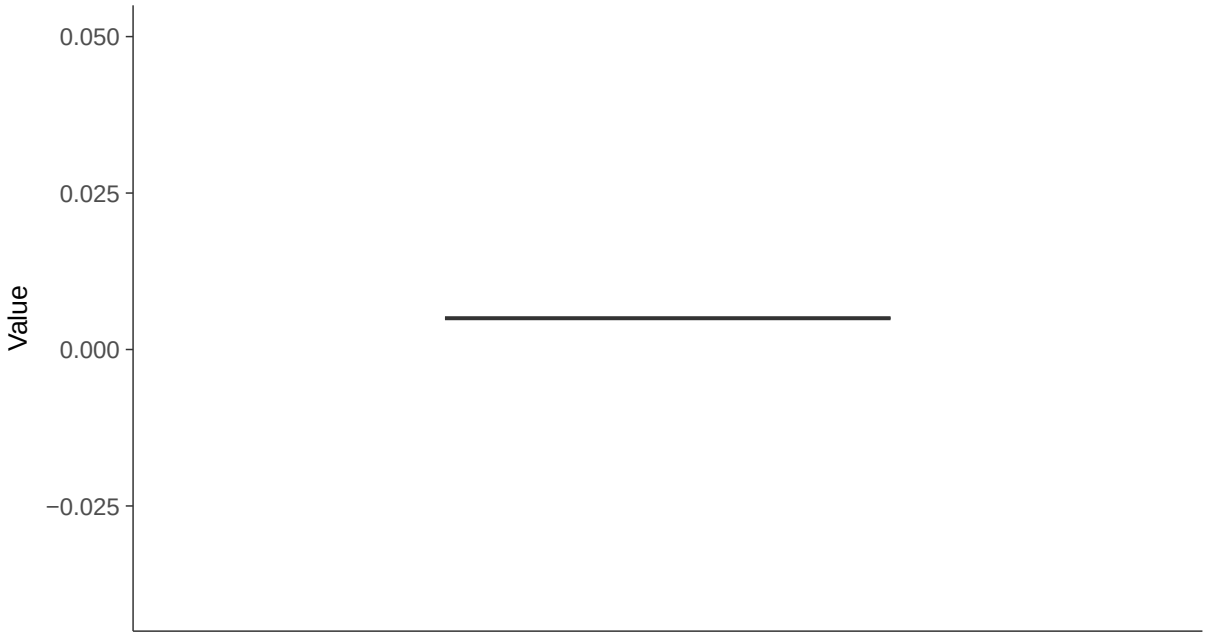
ID: 02_2_22





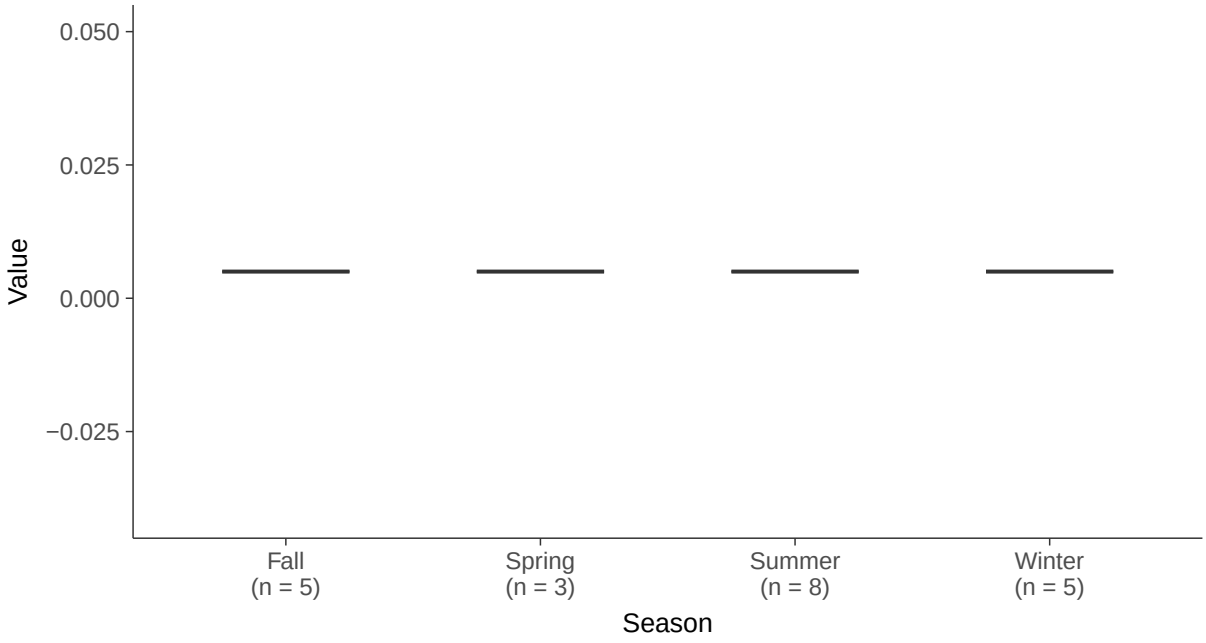
Boxplot

Selenium, MW-2 (mg/L)



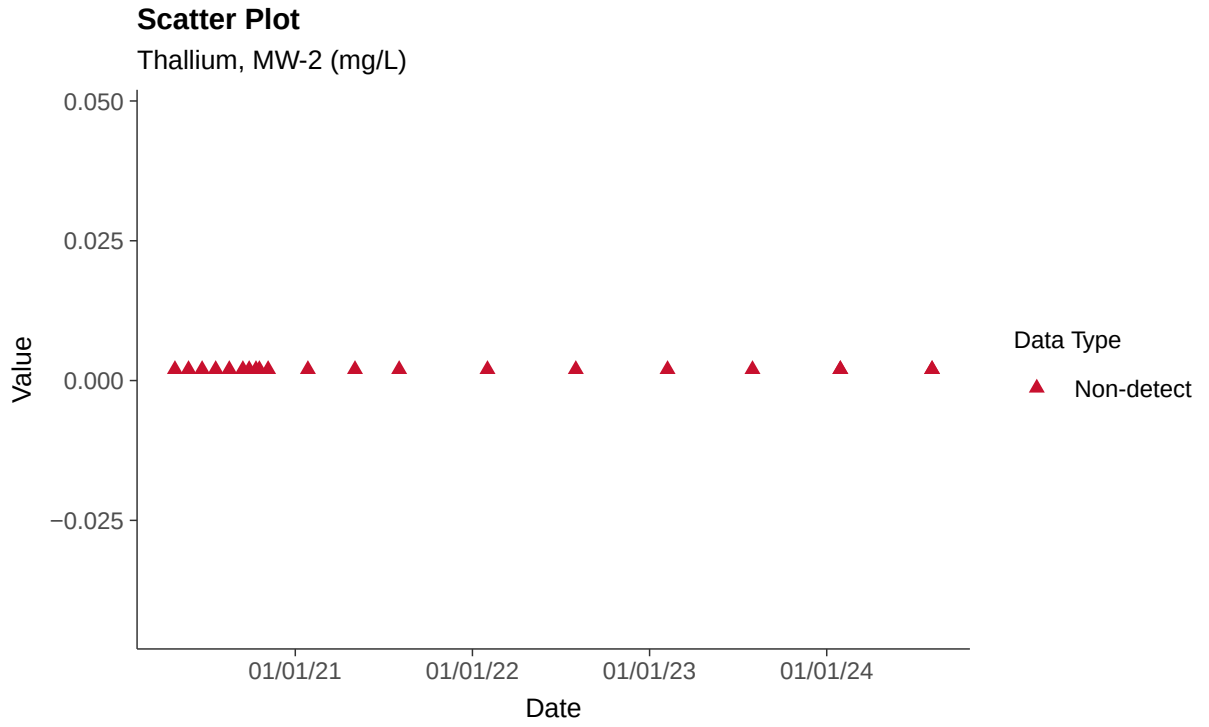
Boxplot by Season

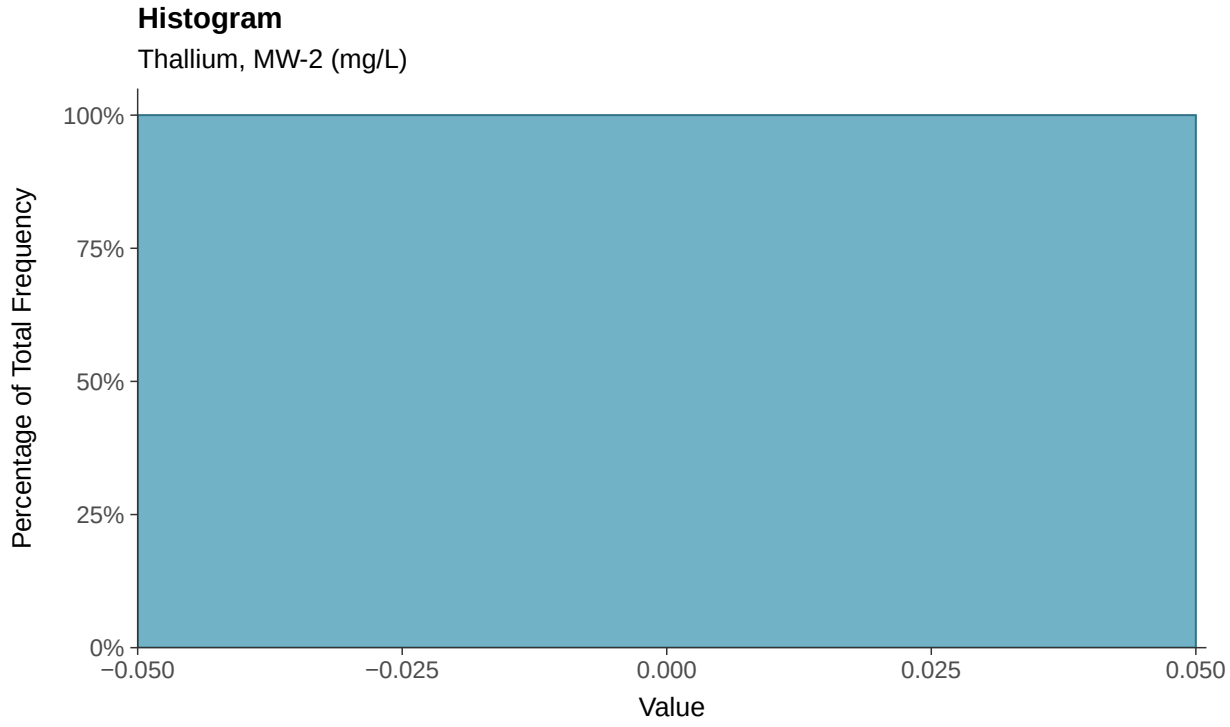
Selenium, MW-2 (mg/L)



Appendix IV: Thallium, MW-2

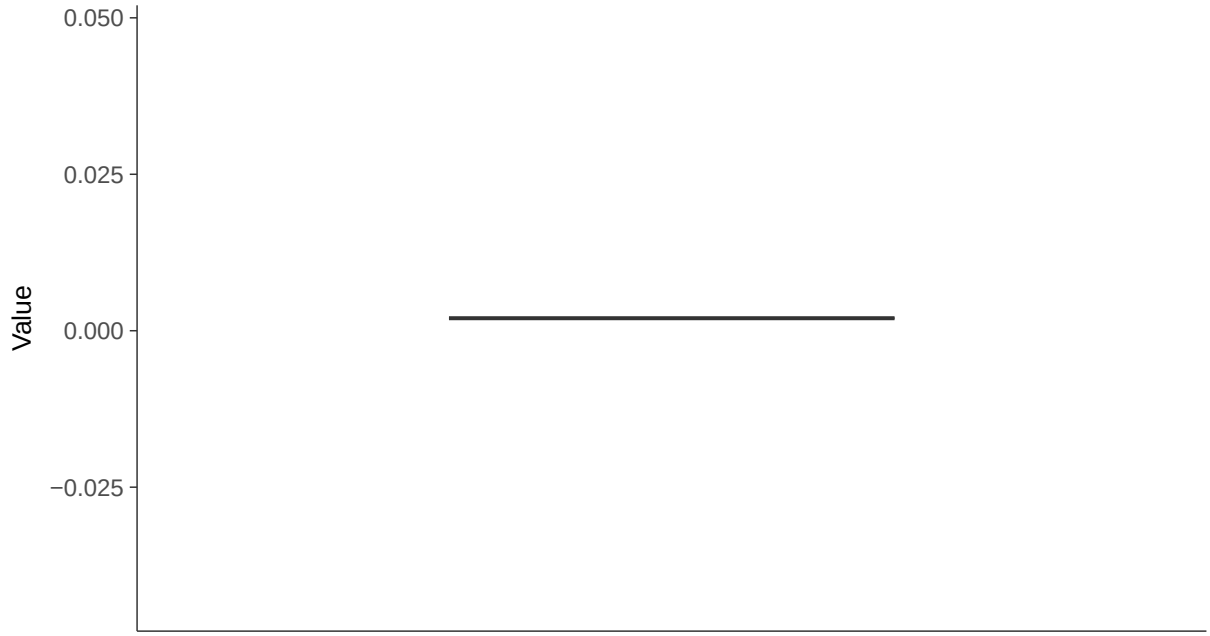
ID: 02_2_23





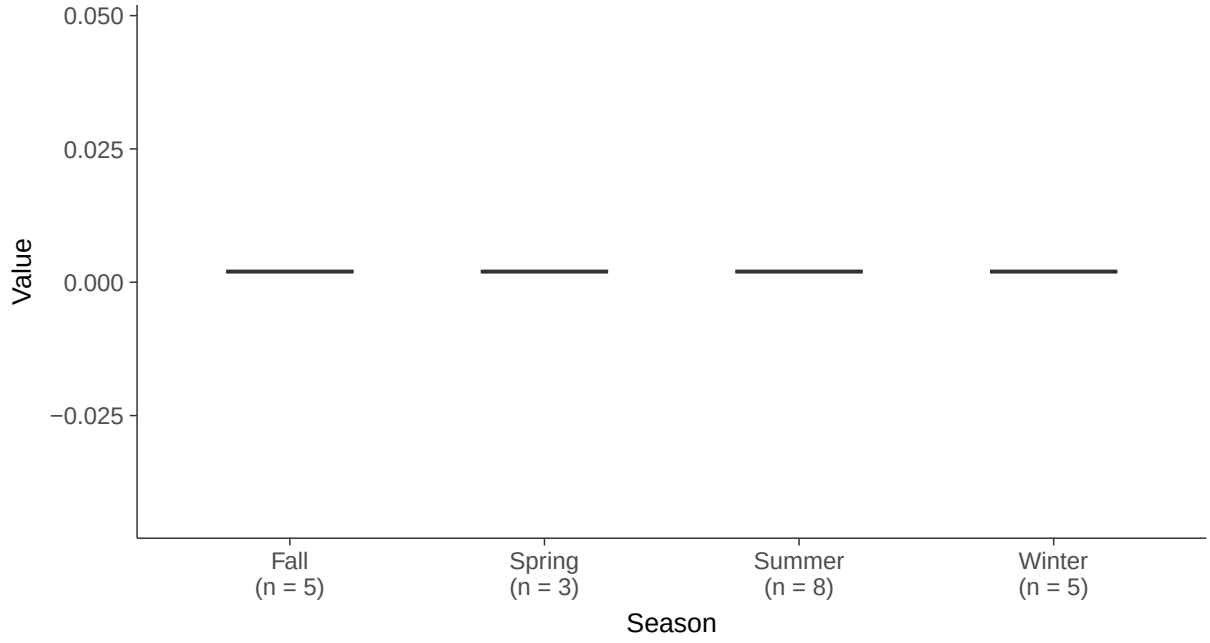
Boxplot

Thallium, MW-2 (mg/L)



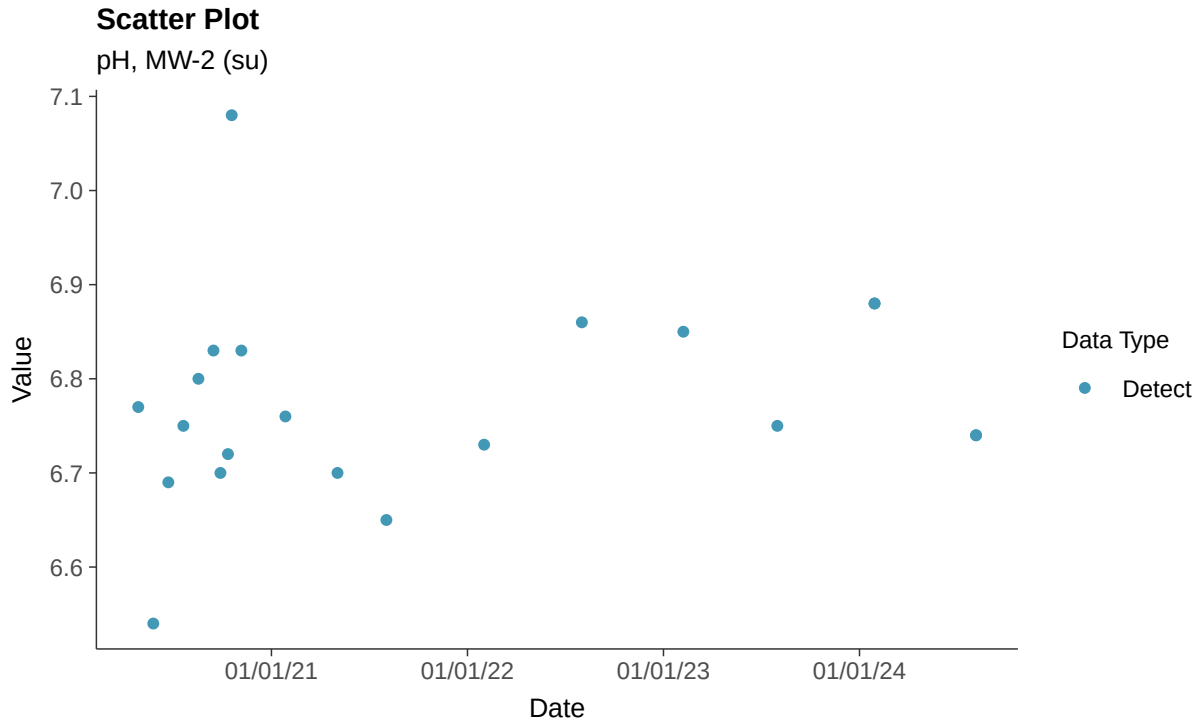
Boxplot by Season

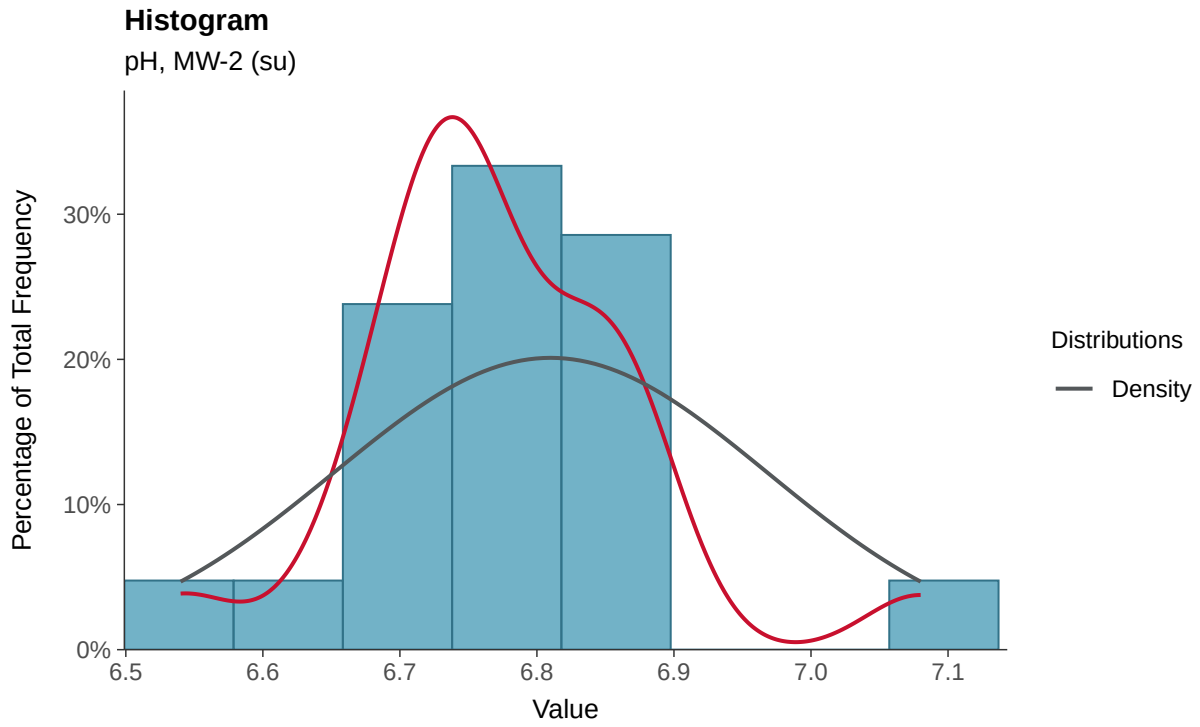
Thallium, MW-2 (mg/L)



Field Parameters: pH, MW-2

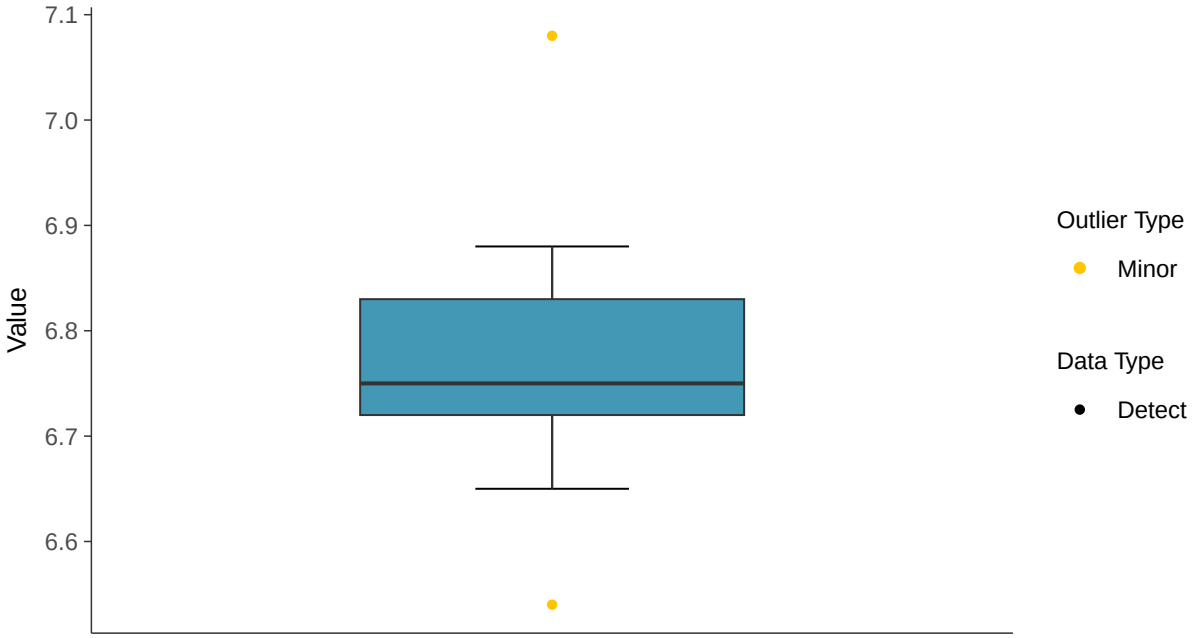
ID: 02_3_24





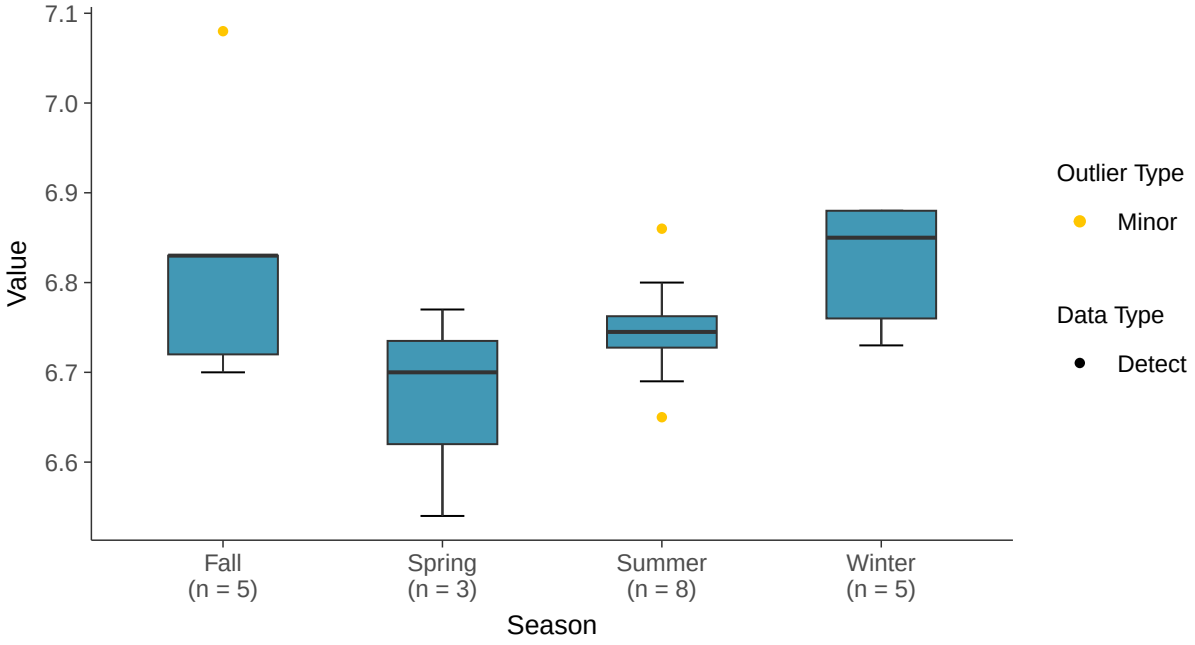
Boxplot

pH, MW-2 (su)



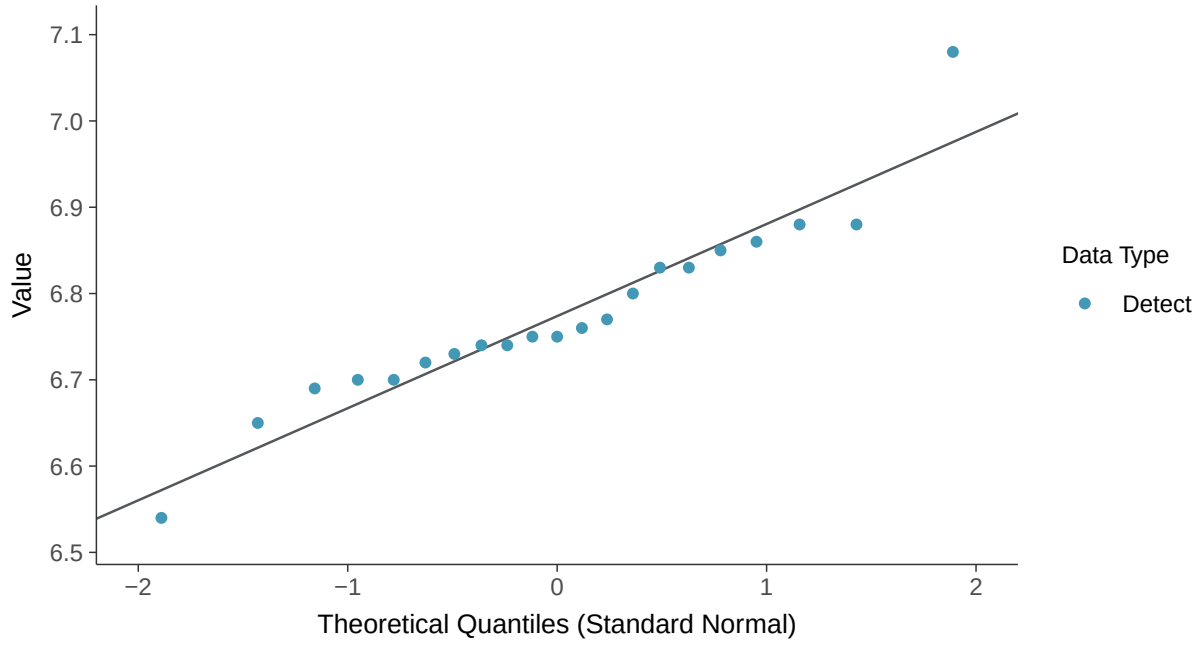
Boxplot by Season

pH, MW-2 (su)



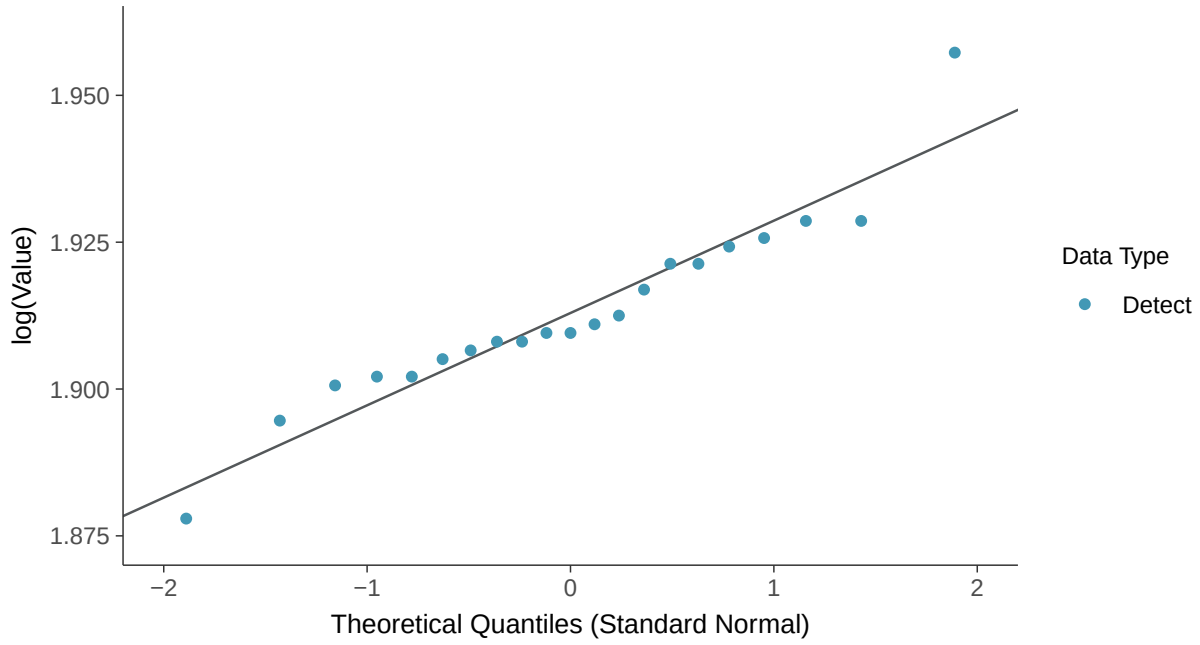
Normal Q-Q plot

pH, MW-2 (su)



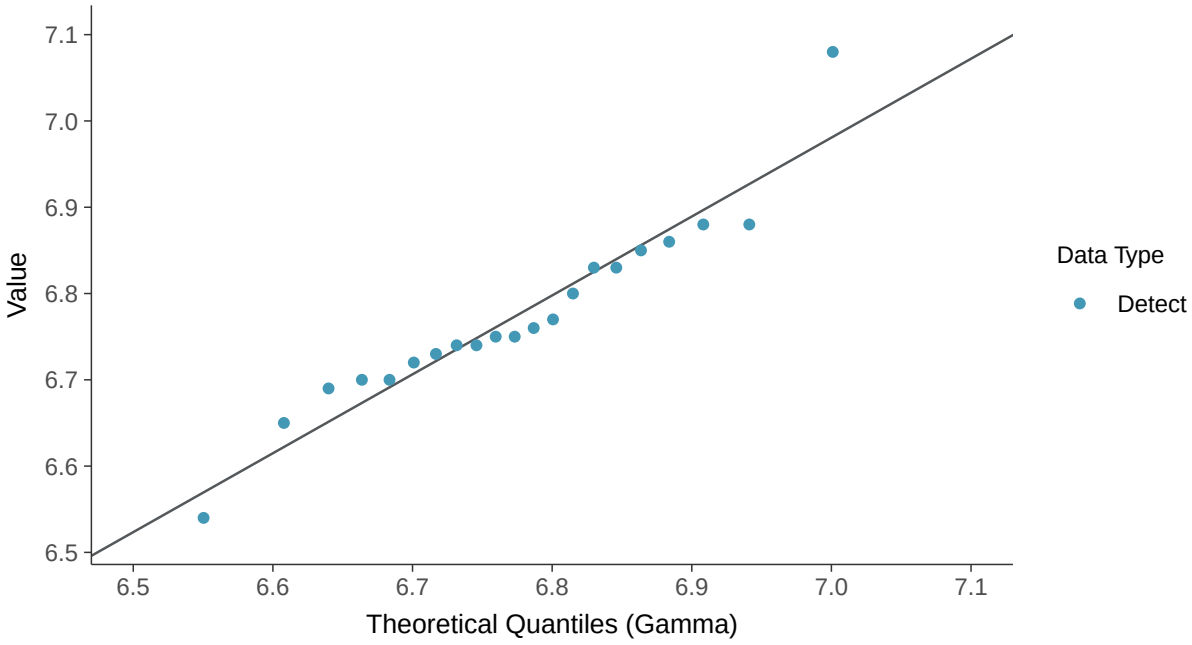
Lognormal Q-Q plot

pH, MW-2 (su)



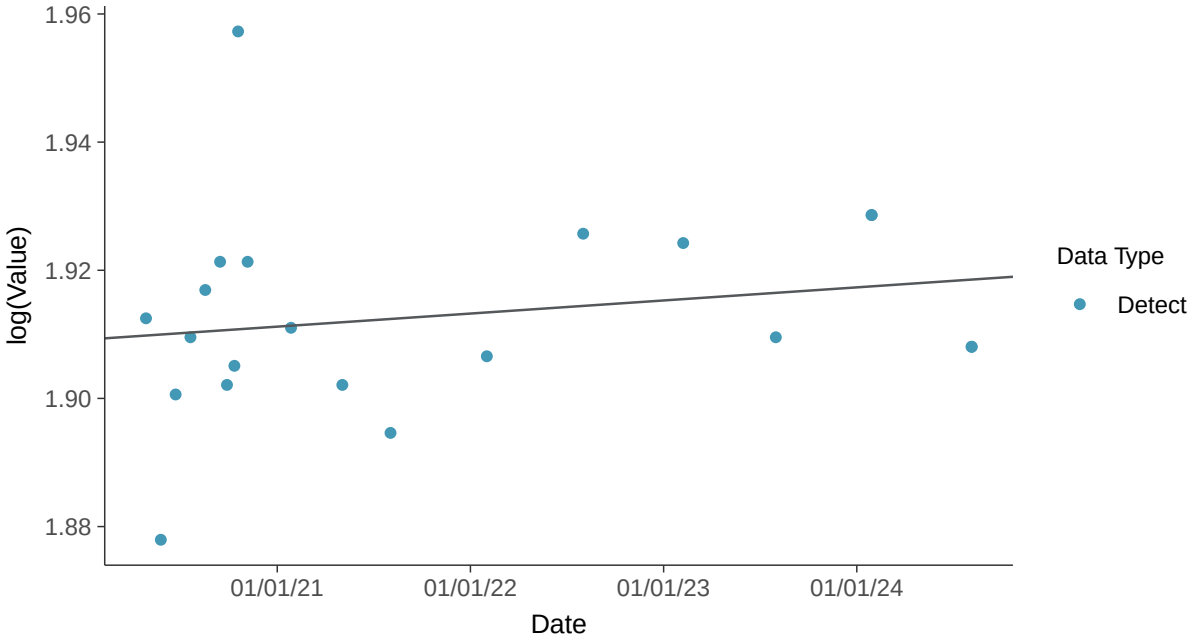
Gamma Q-Q plot

pH, MW-2 (su)



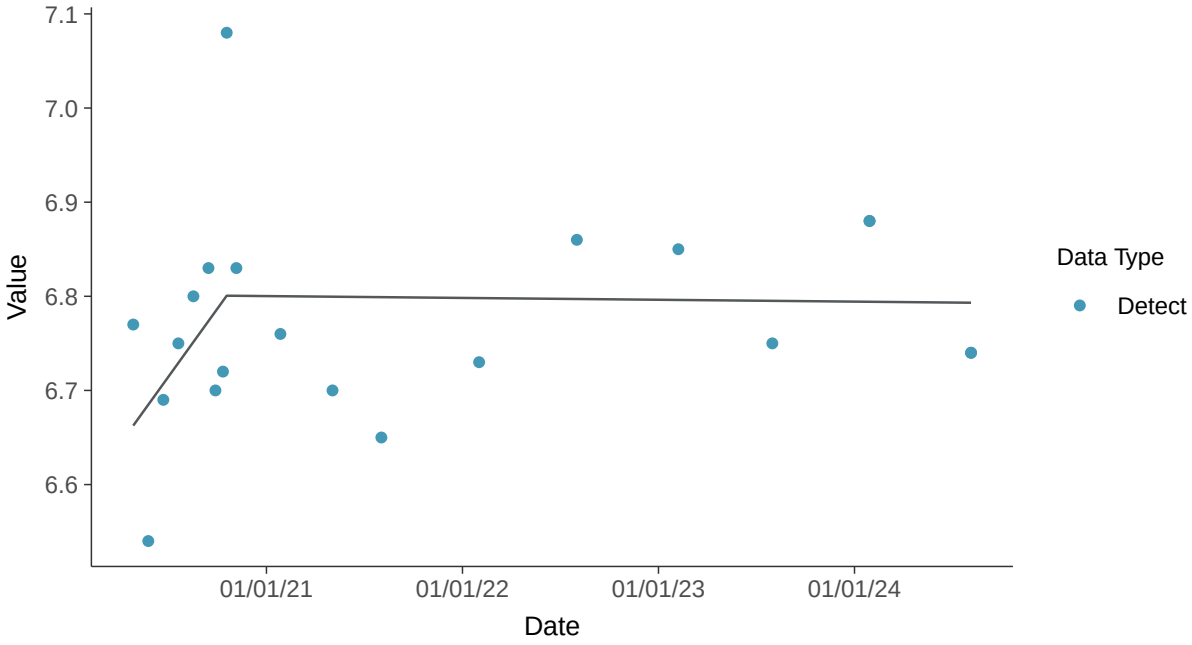
Trend Regression: Lognormal MLE

pH, MW-2 (su)



Trend Regression: Piecewise Linear-Linear

pH, MW-2 (su)

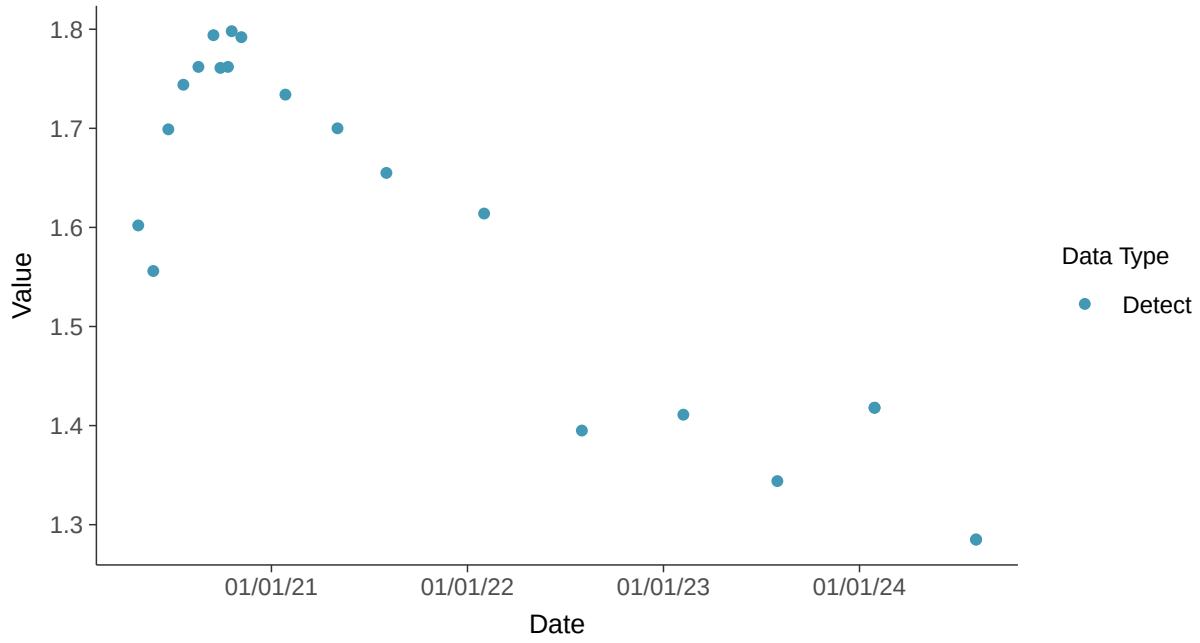


Field Parameters: Conductivity, MW-2

ID: 02_3_25

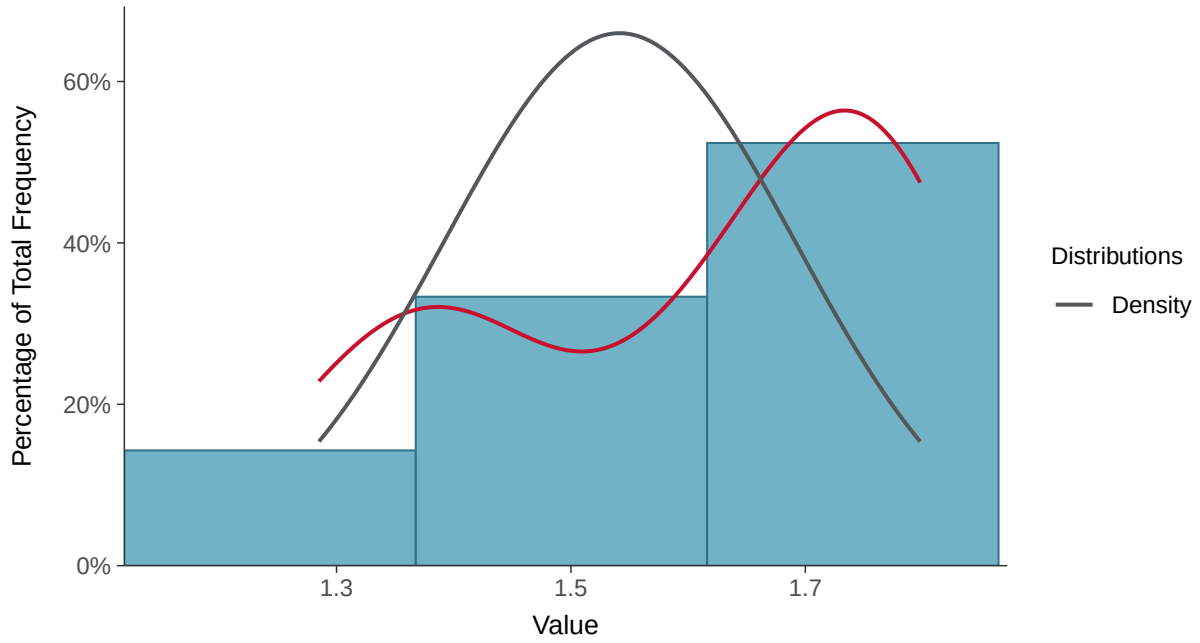
Scatter Plot

Conductivity, MW-2 (mS/cm)



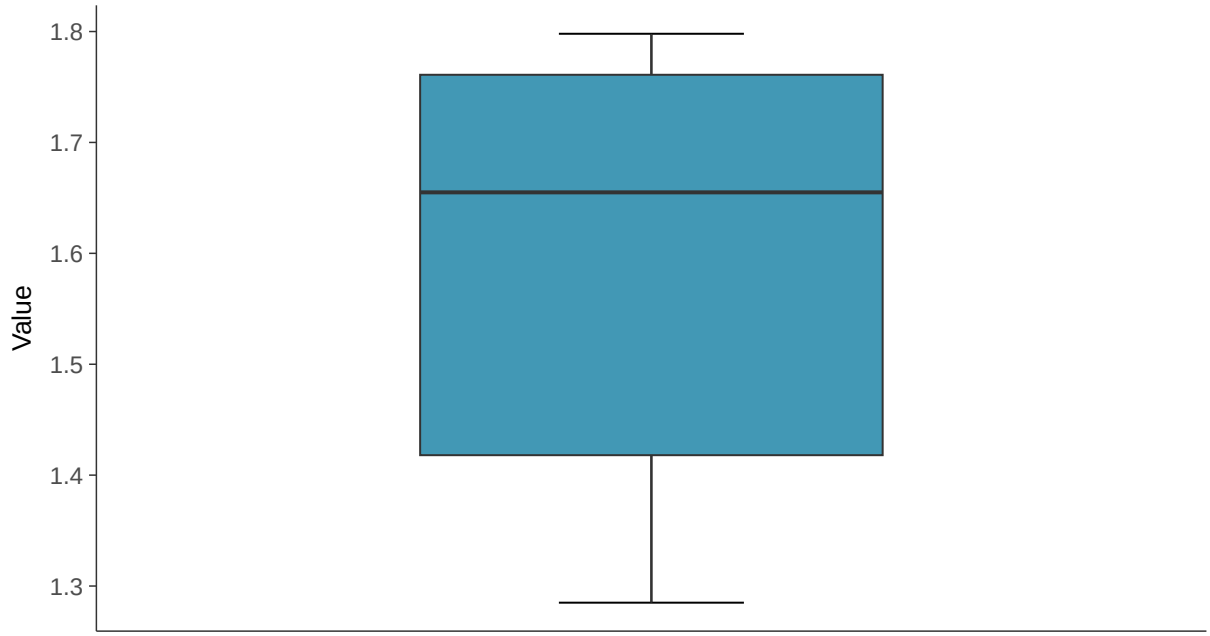
Histogram

Conductivity, MW-2 (mS/cm)



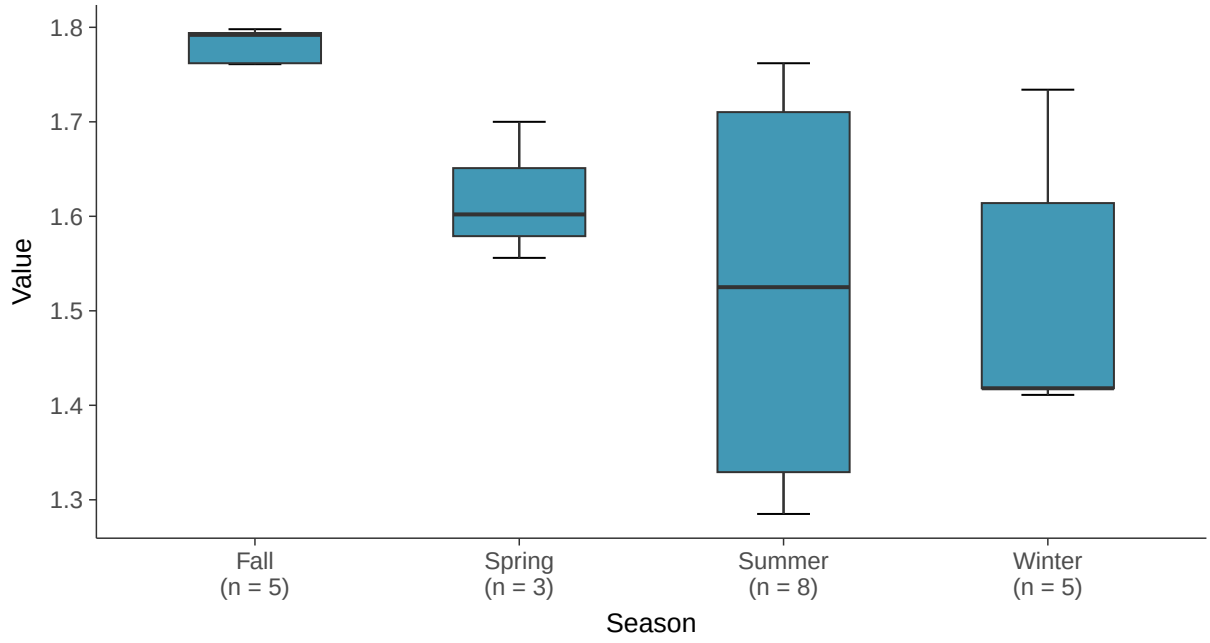
Boxplot

Conductivity, MW-2 (mS/cm)



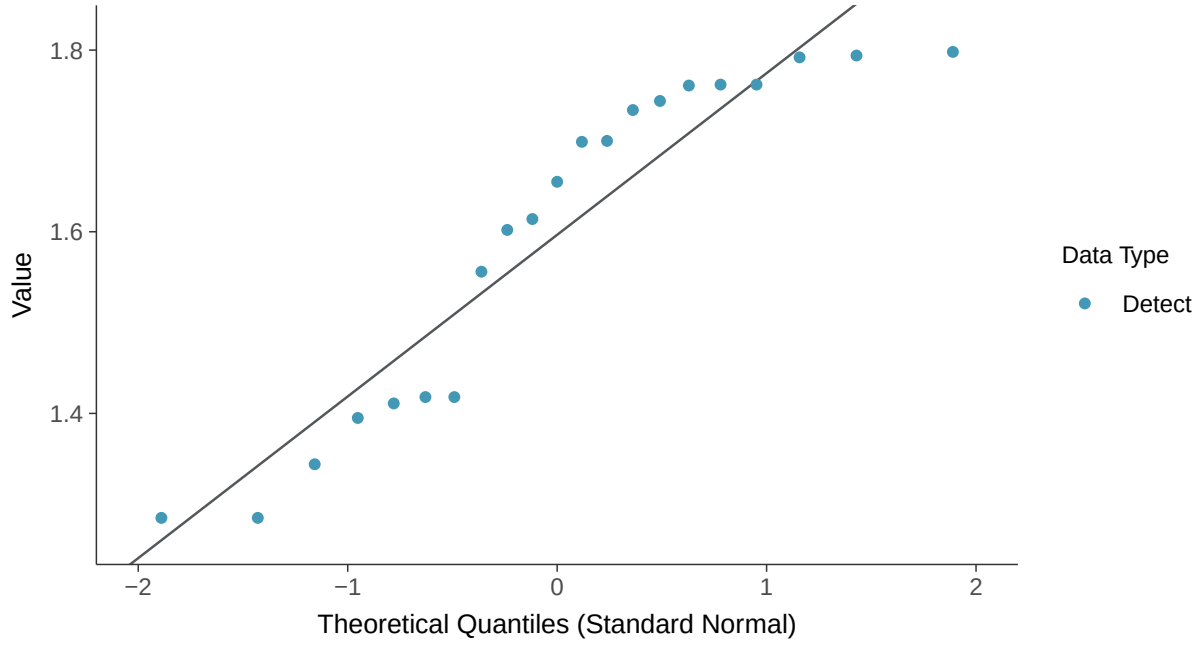
Boxplot by Season

Conductivity, MW-2 (mS/cm)



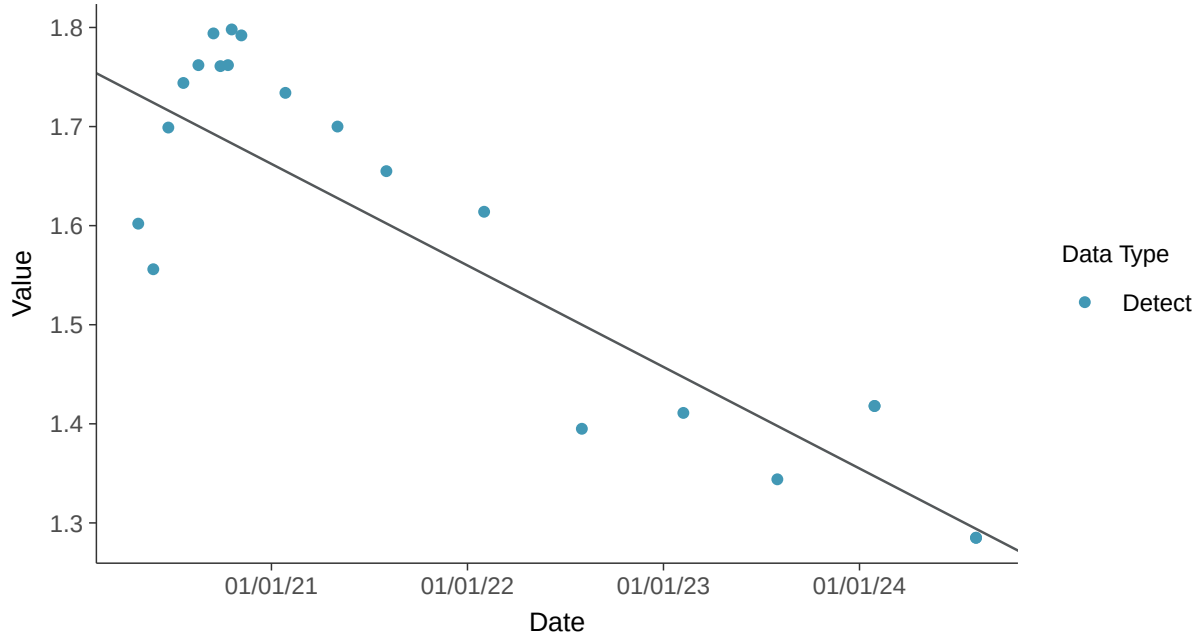
Normal Q-Q plot

Conductivity, MW-2 (mS/cm)



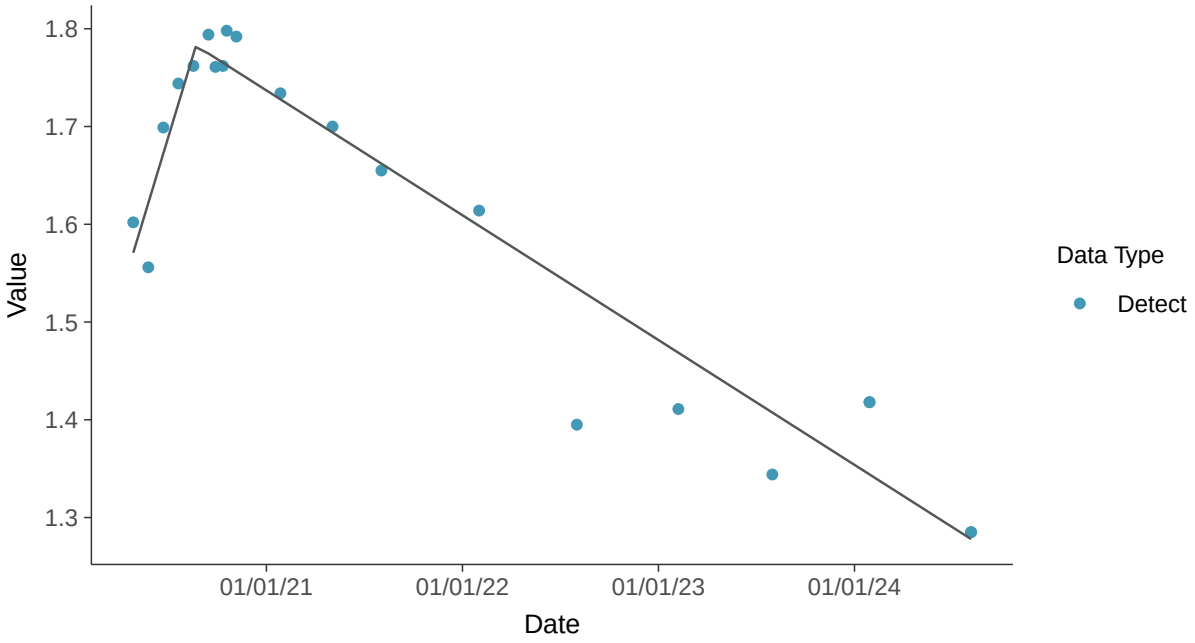
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Conductivity, MW-2 (mS/cm)



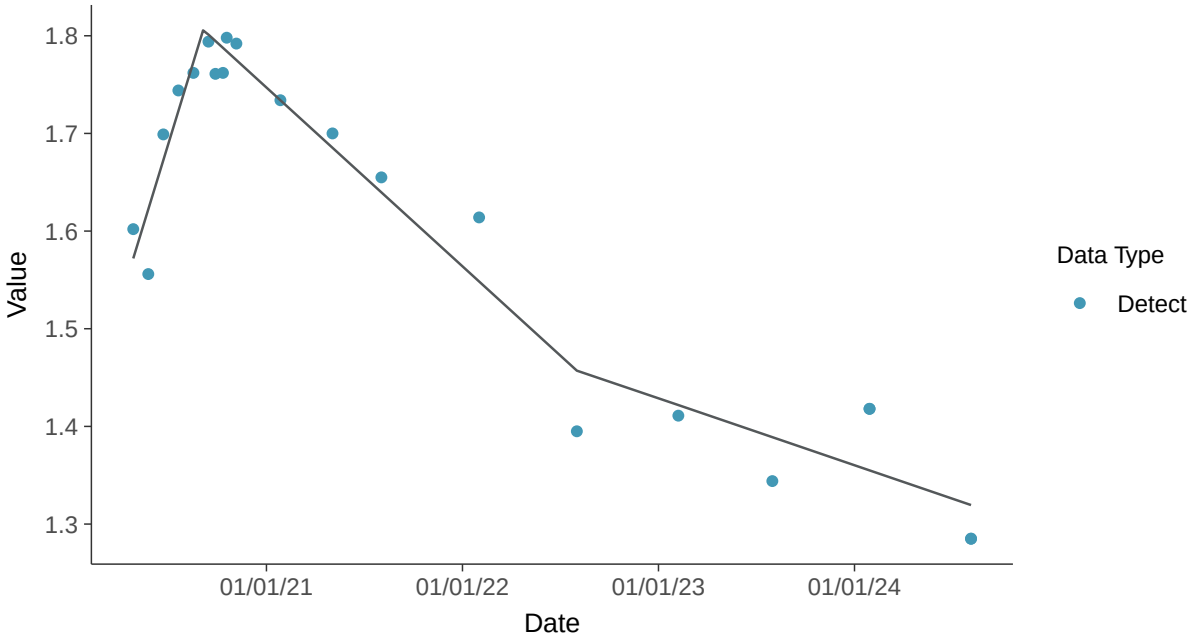
Trend Regression: Piecewise Linear-Linear

Conductivity, MW-2 (mS/cm)



Trend Regression: Piecewise Linear-Linear-Linear

Conductivity, MW-2 (mS/cm)

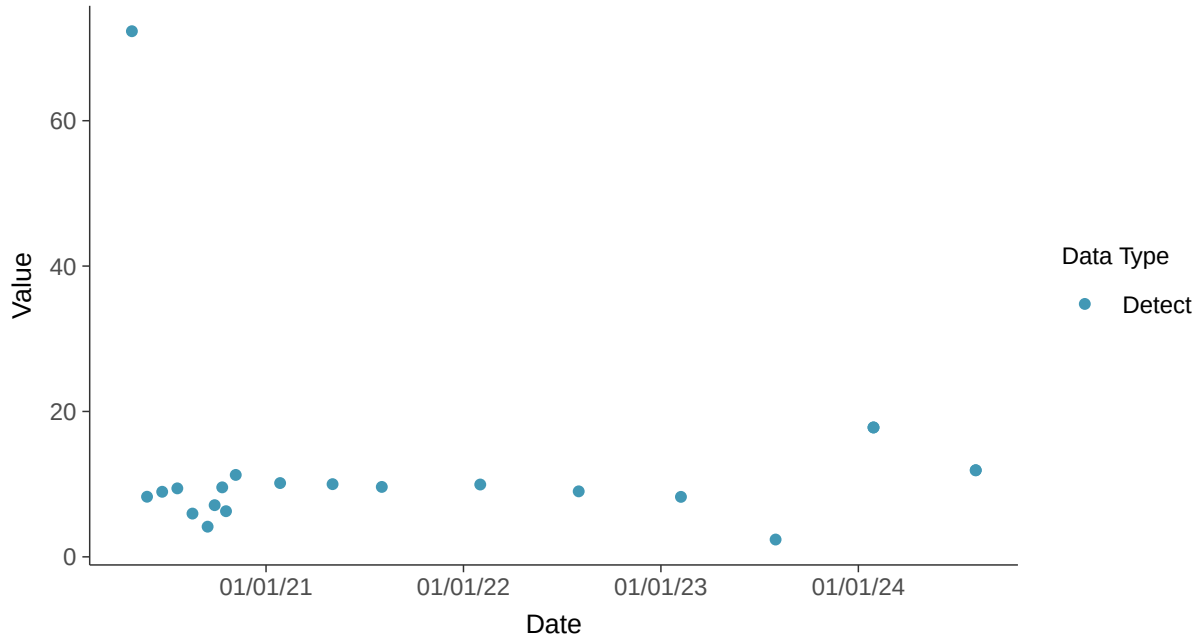


Field Parameters: Turbidity, MW-2

ID: 02_3_26

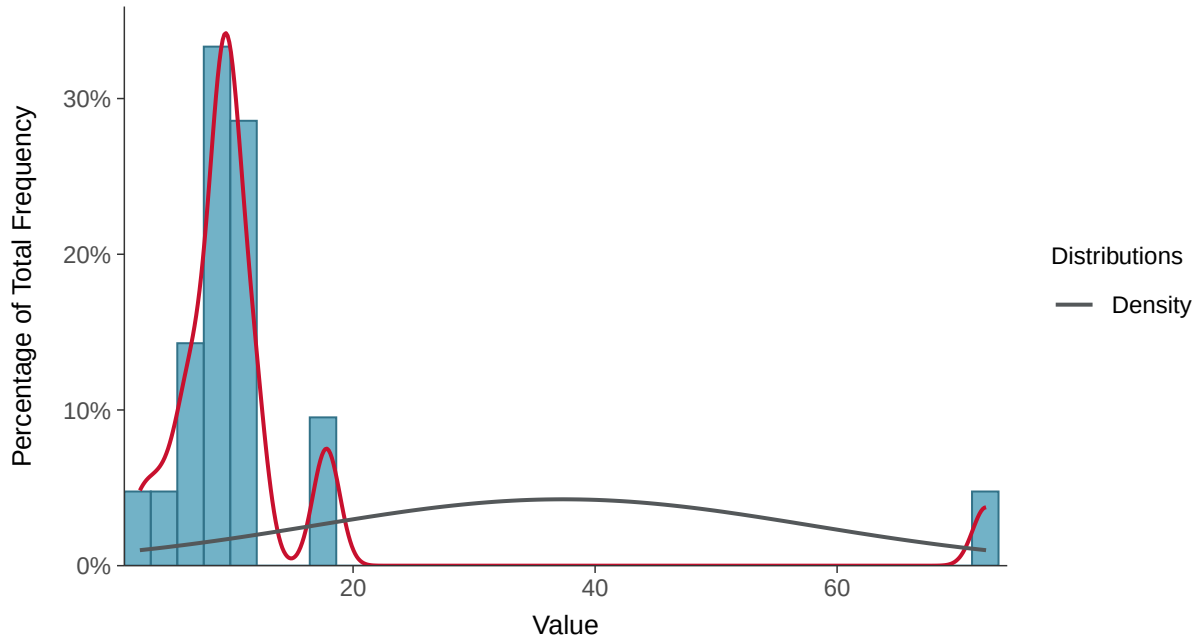
Scatter Plot

Turbidity, MW-2 (NTU)



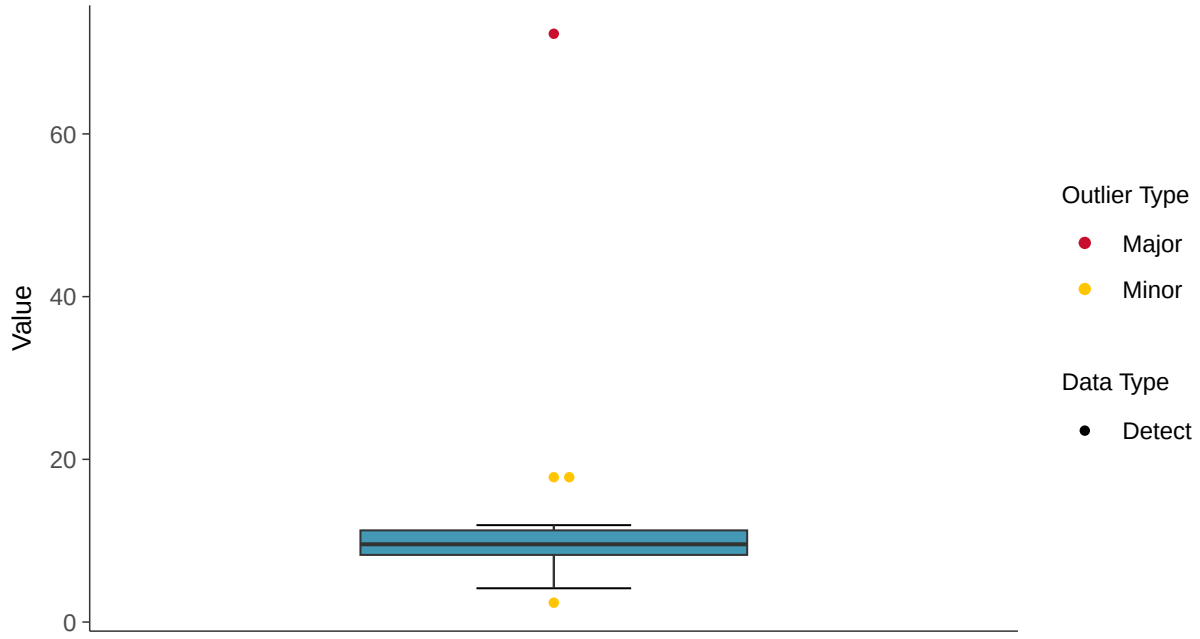
Histogram

Turbidity, MW-2 (NTU)



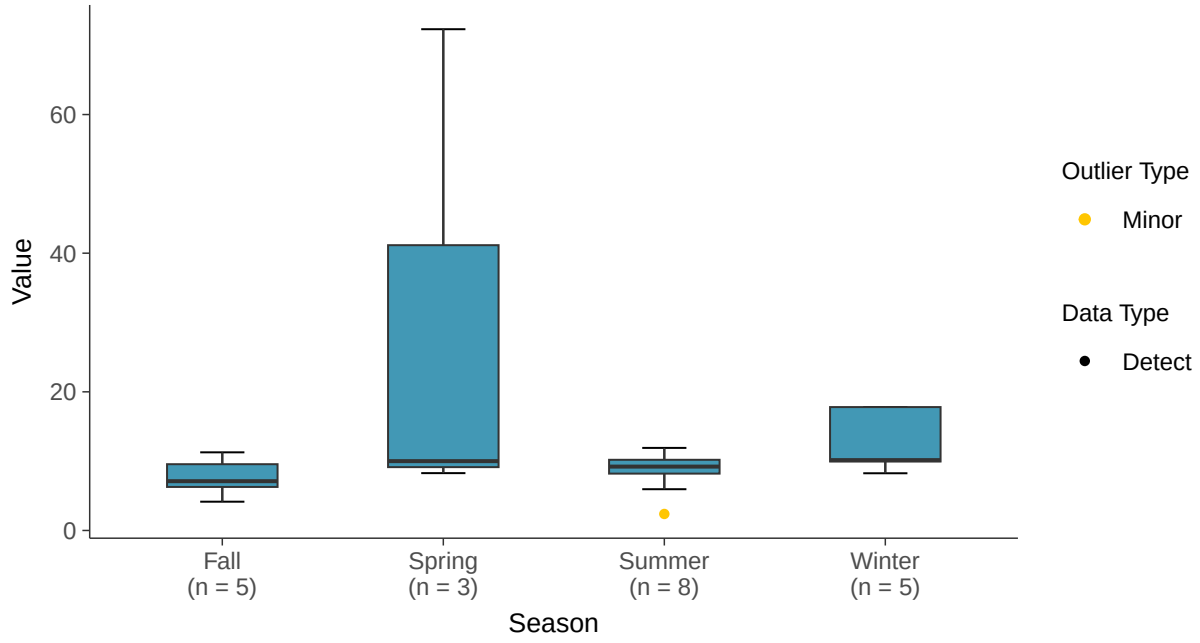
Boxplot

Turbidity, MW-2 (NTU)



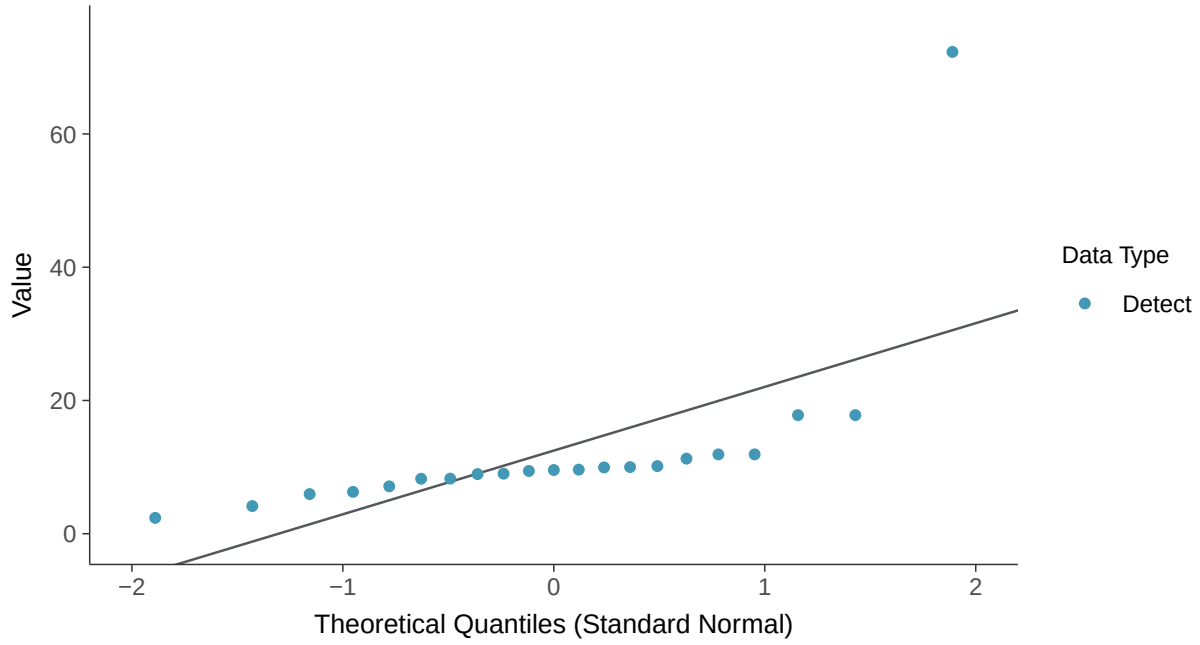
Boxplot by Season

Turbidity, MW-2 (NTU)



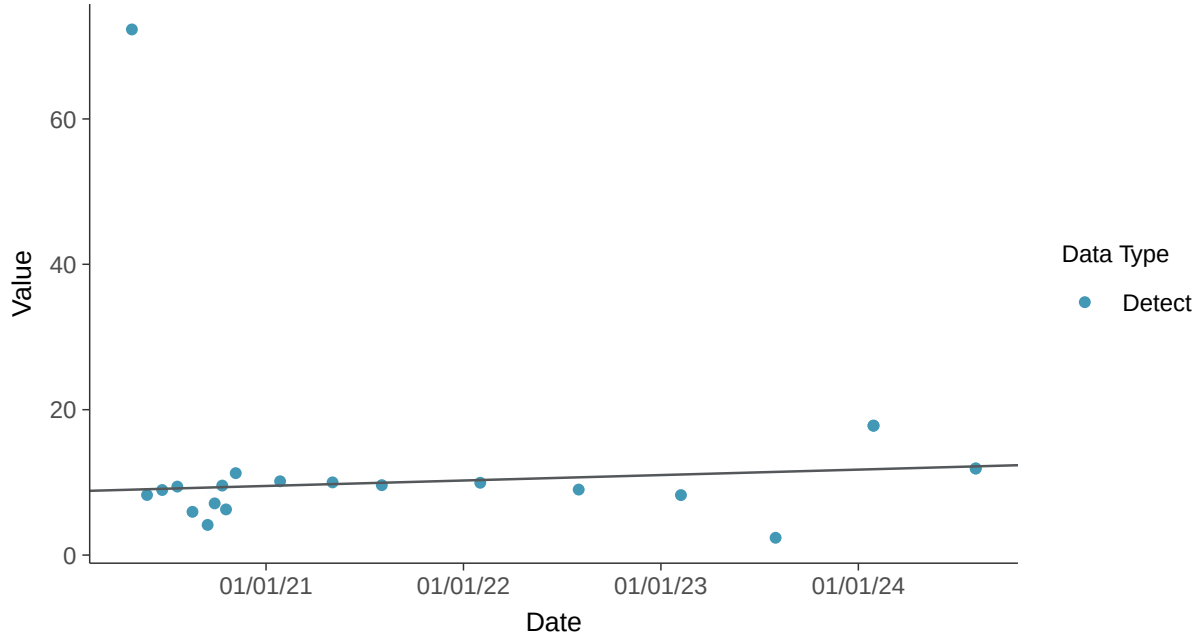
Normal Q-Q plot

Turbidity, MW-2 (NTU)



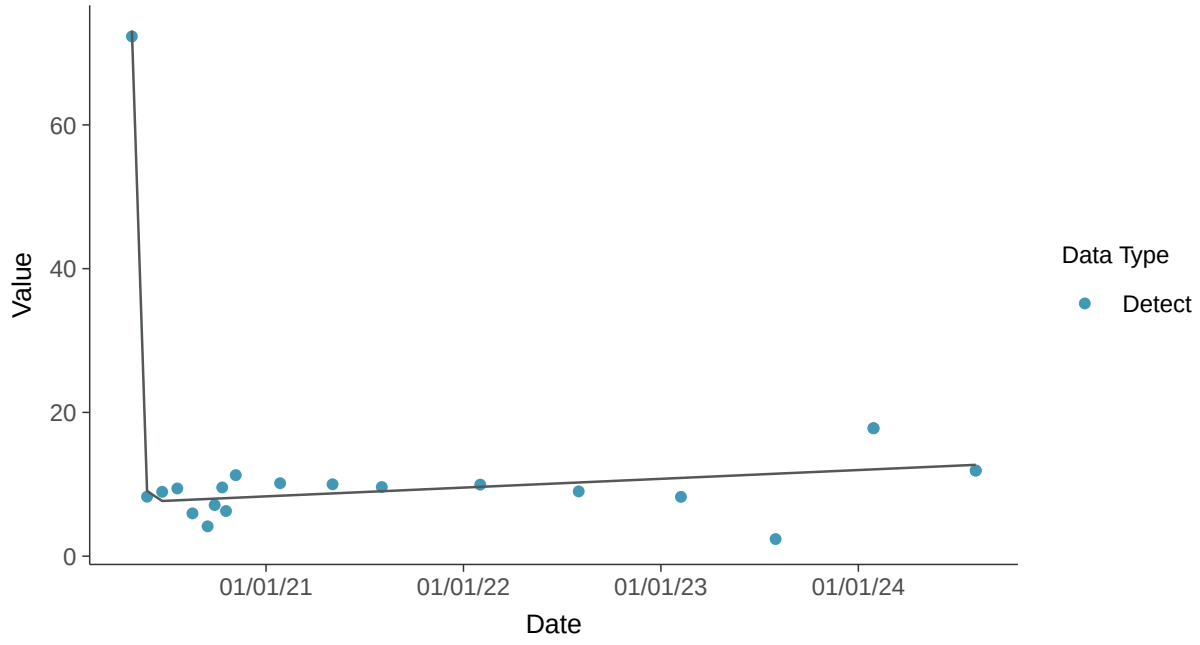
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Turbidity, MW-2 (NTU)



Trend Regression: Piecewise Linear-Linear

Turbidity, MW-2 (NTU)

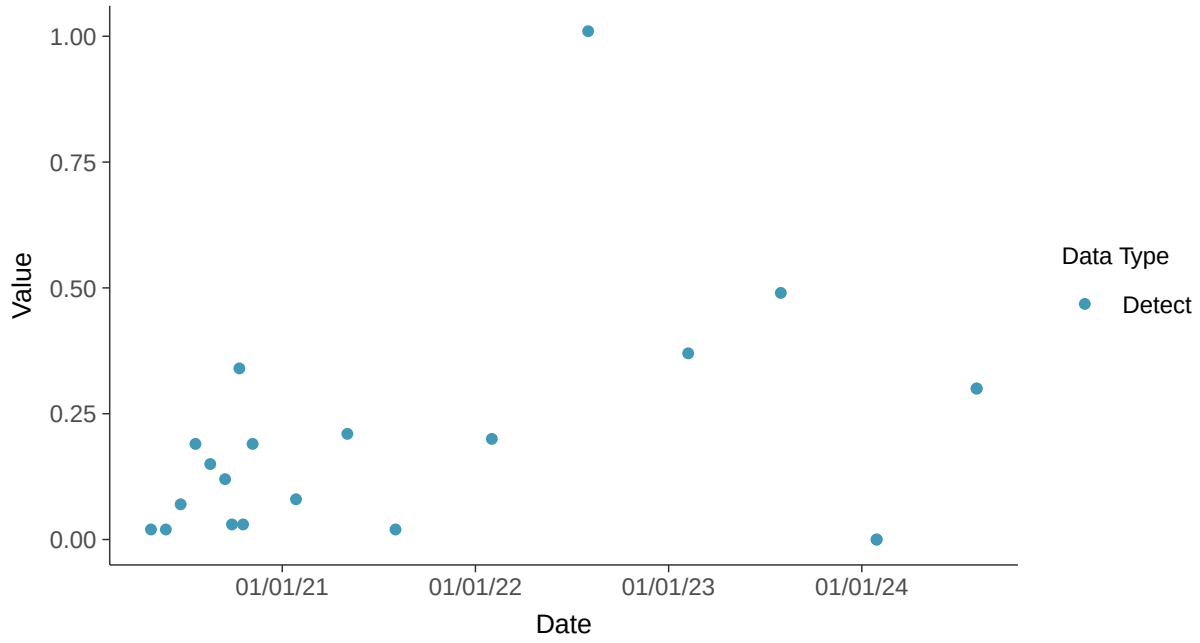


Field Parameters: Dissolved Oxygen, MW-2

ID: 02_3_27

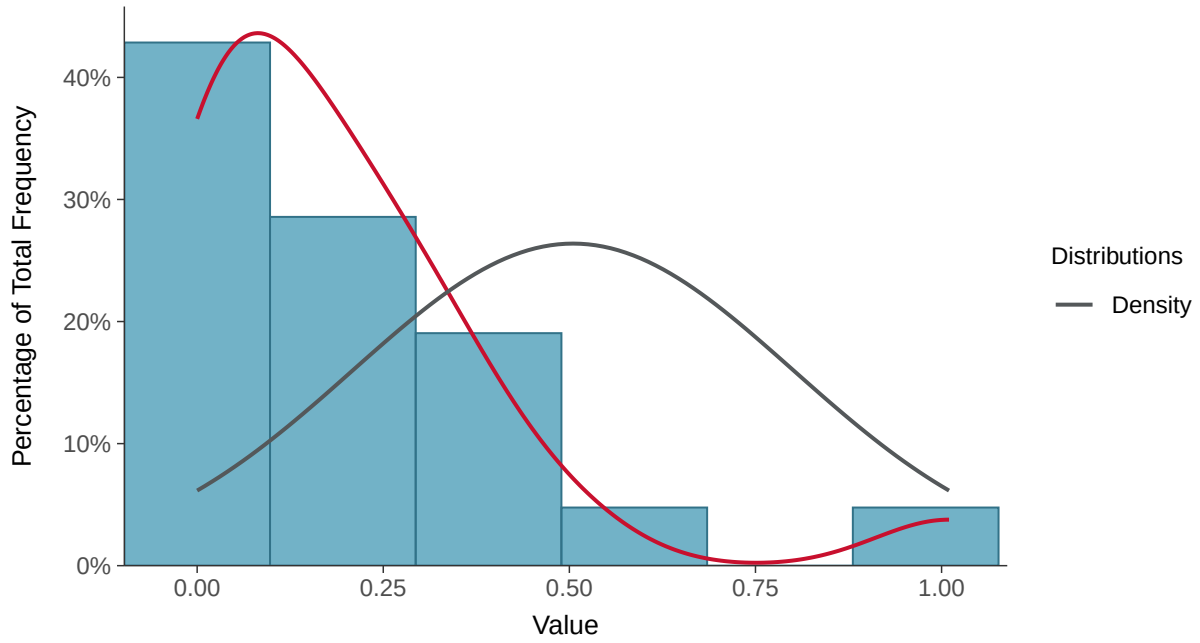
Scatter Plot

Dissolved Oxygen, MW-2 (mg/L)



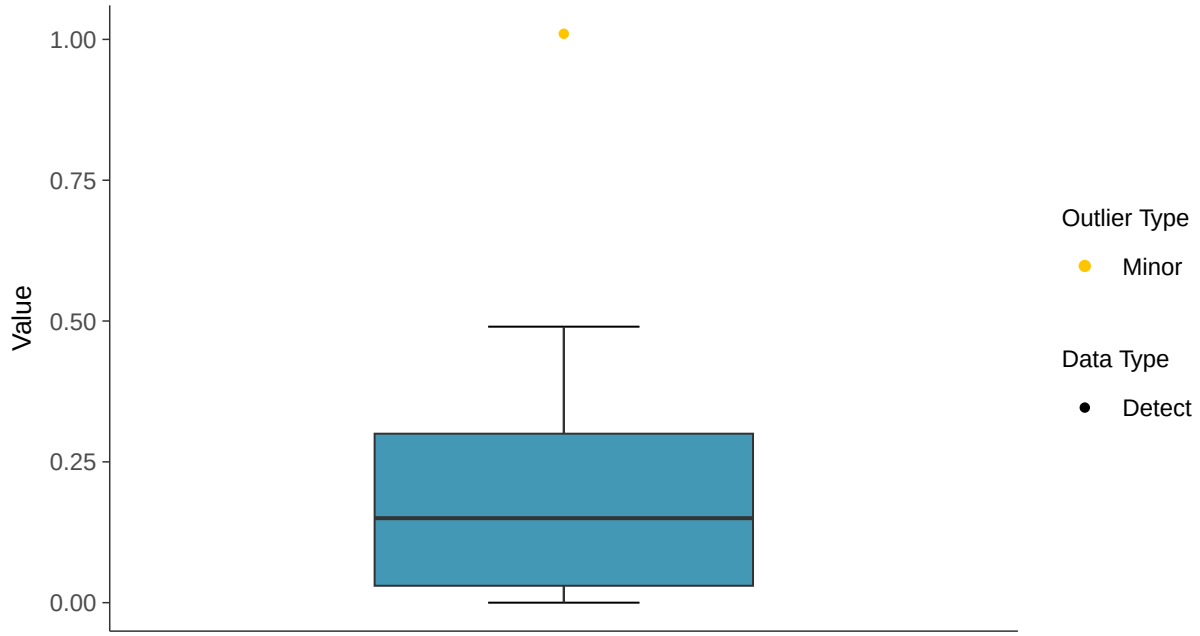
Histogram

Dissolved Oxygen, MW-2 (mg/L)



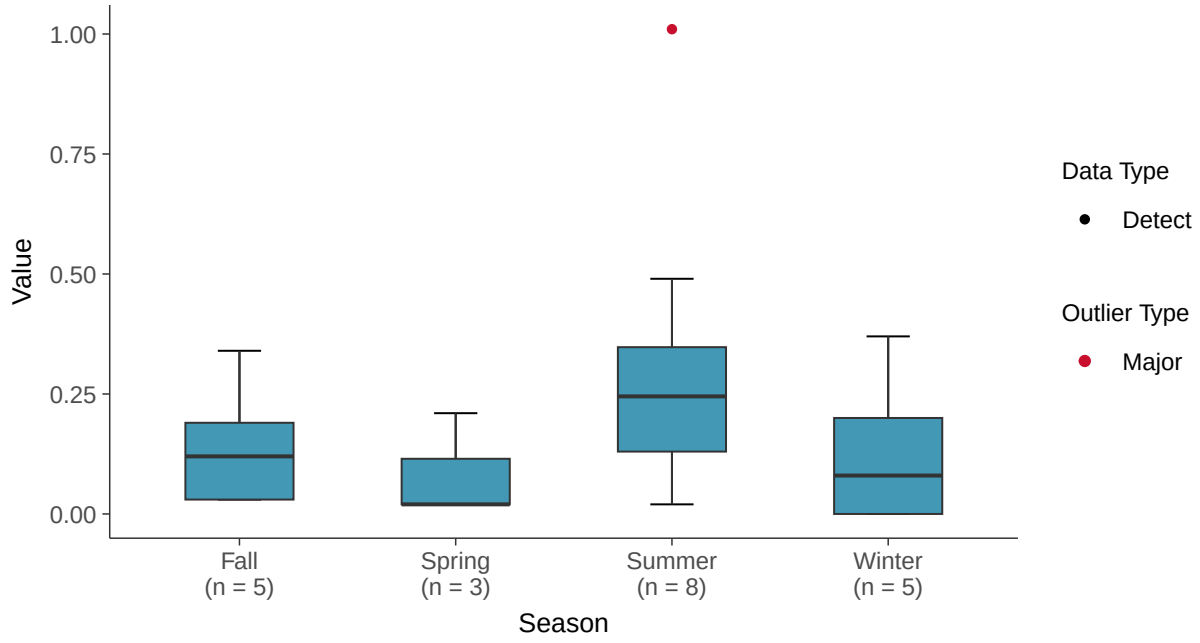
Boxplot

Dissolved Oxygen, MW-2 (mg/L)



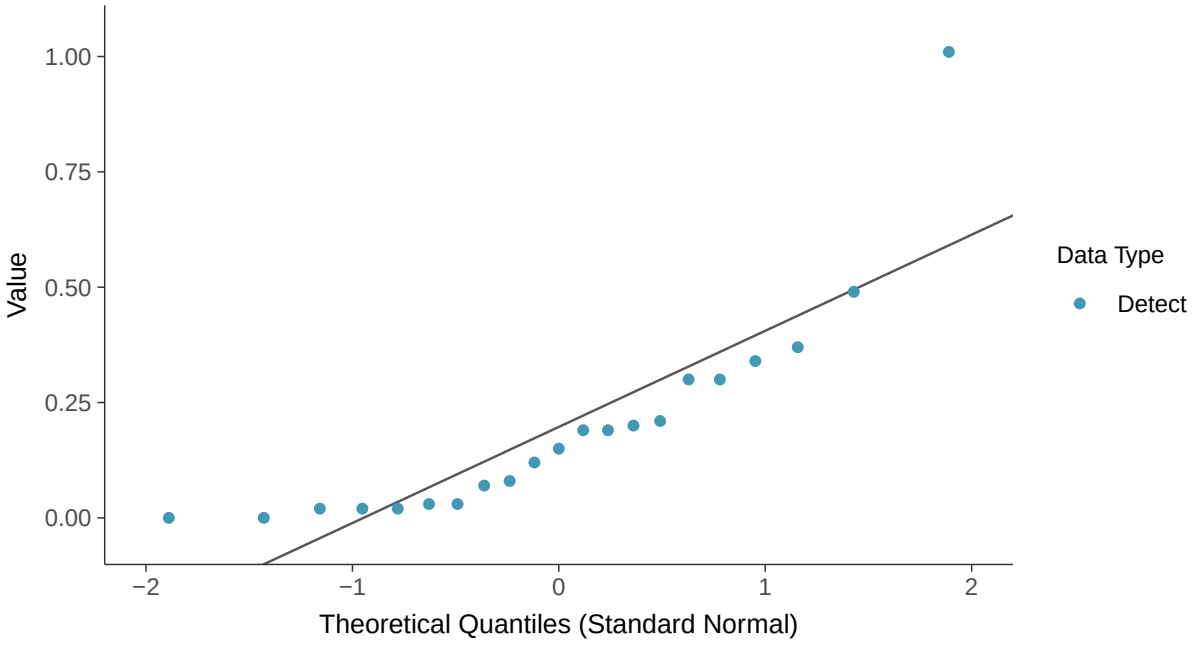
Boxplot by Season

Dissolved Oxygen, MW-2 (mg/L)



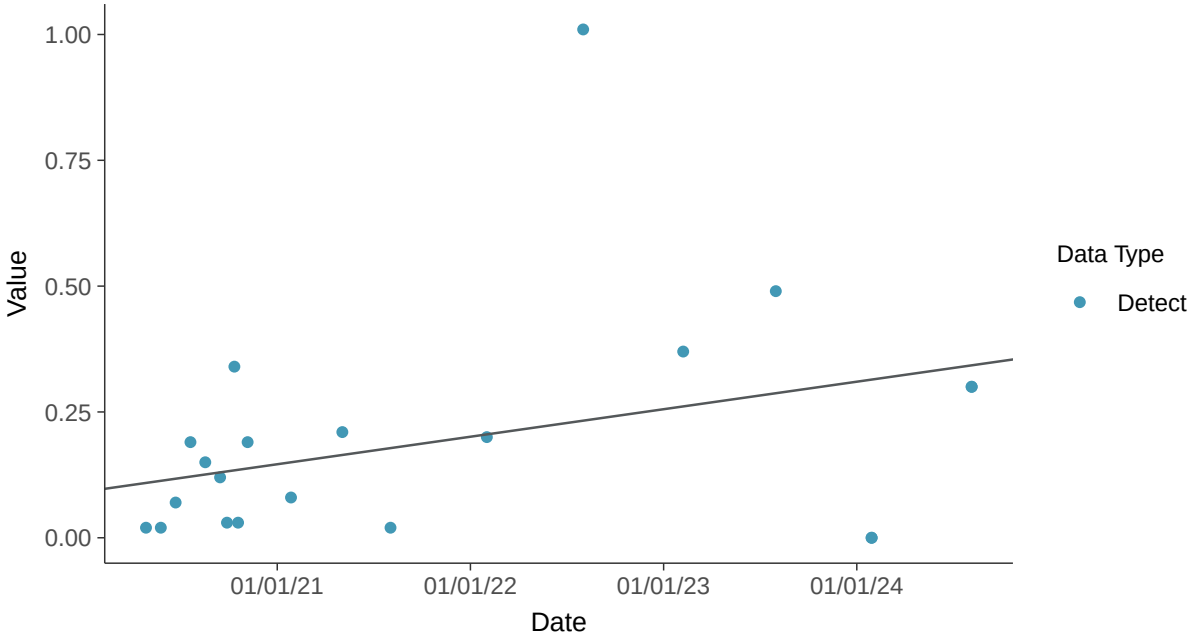
Normal Q-Q plot

Dissolved Oxygen, MW-2 (mg/L)



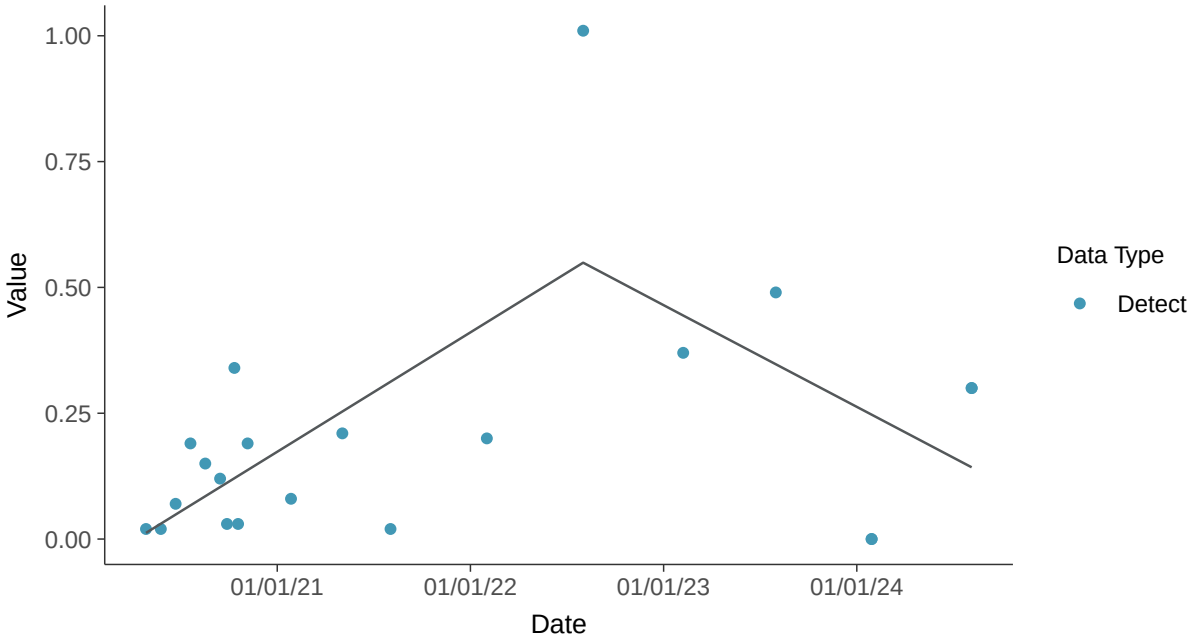
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Dissolved Oxygen, MW-2 (mg/L)



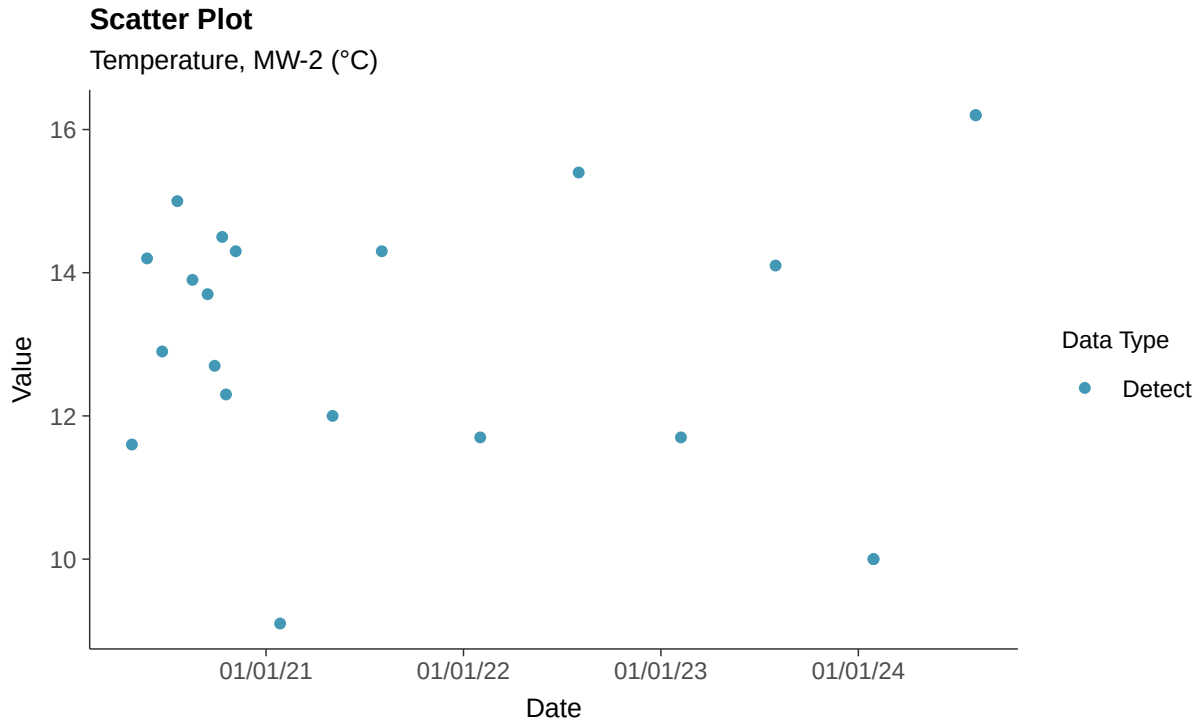
Trend Regression: Piecewise Linear-Linear

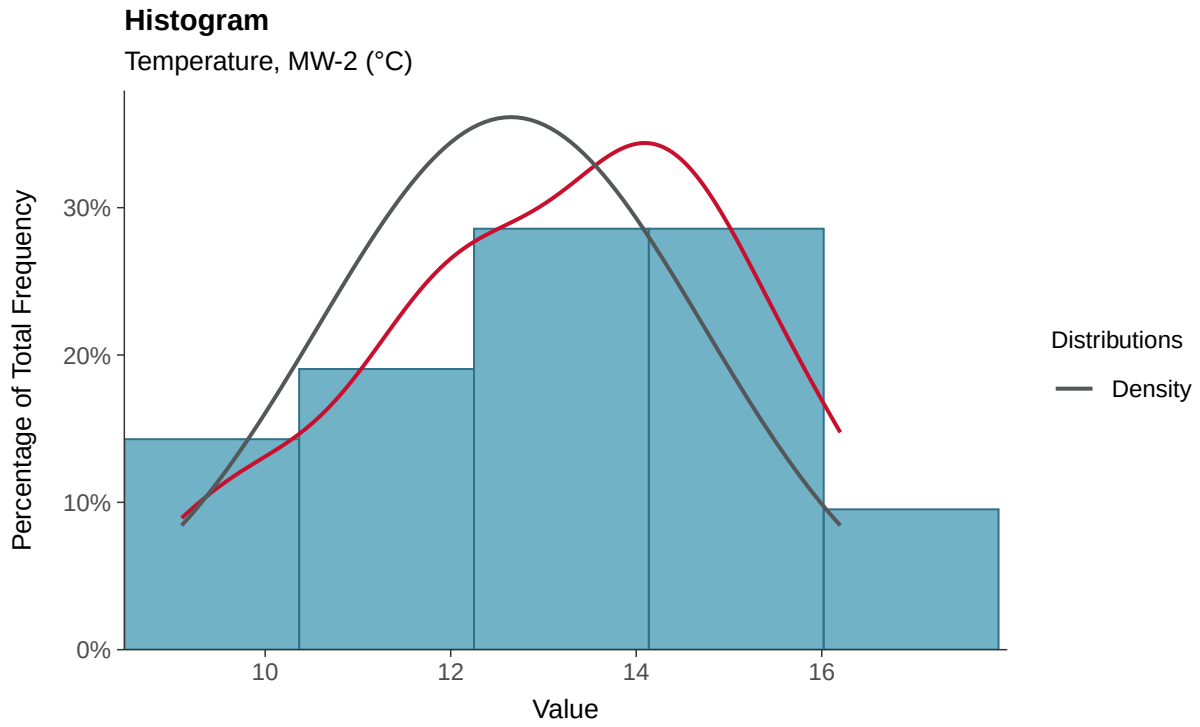
Dissolved Oxygen, MW-2 (mg/L)



Field Parameters: Temperature, MW-2

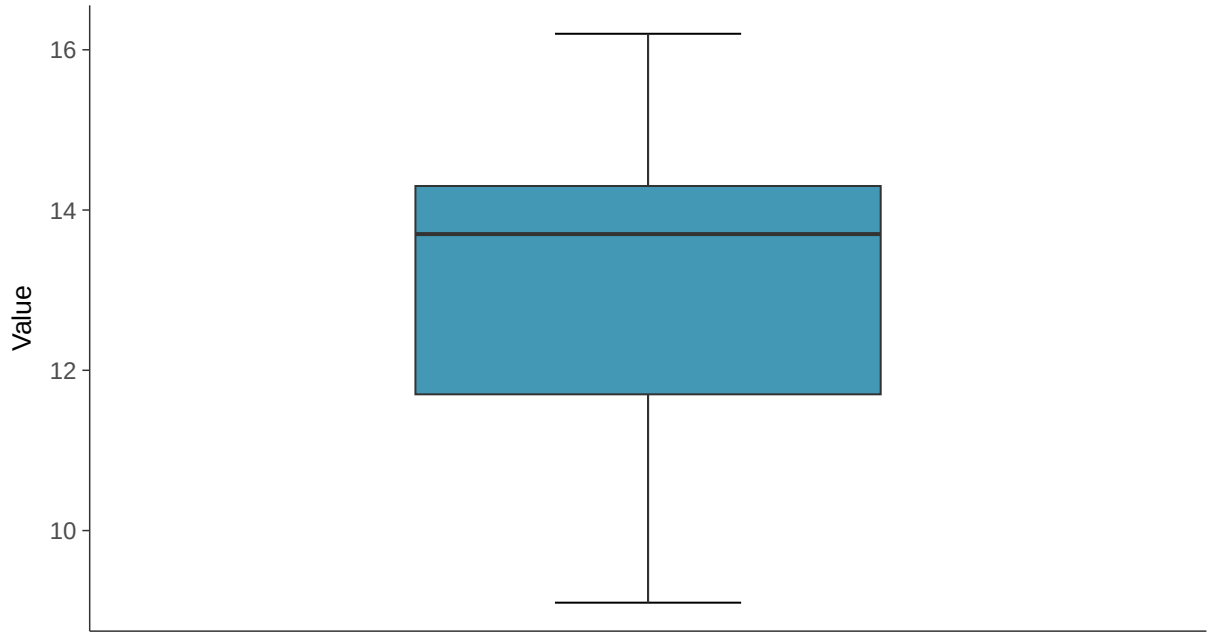
ID: 02_3_28





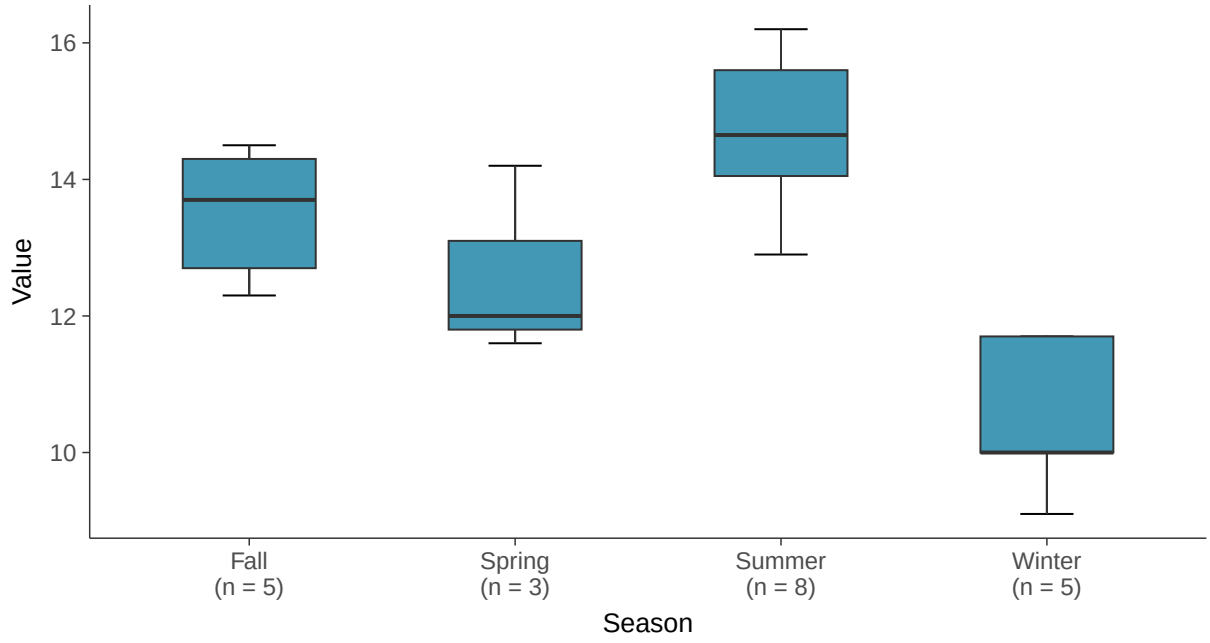
Boxplot

Temperature, MW-2 (°C)



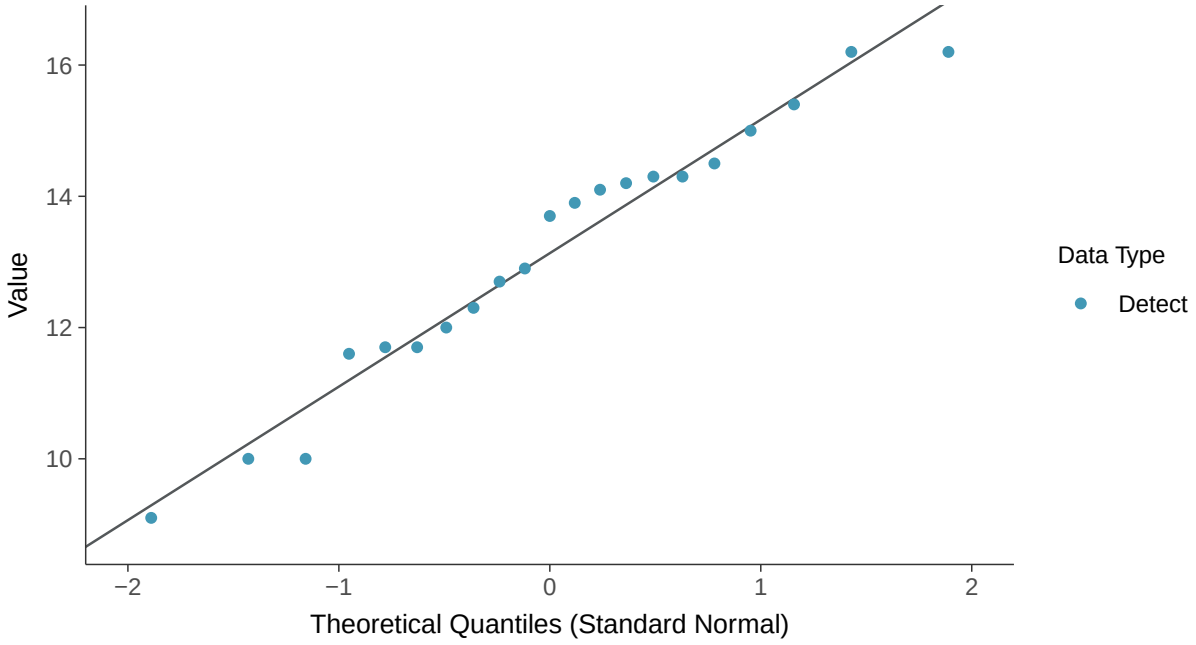
Boxplot by Season

Temperature, MW-2 (°C)



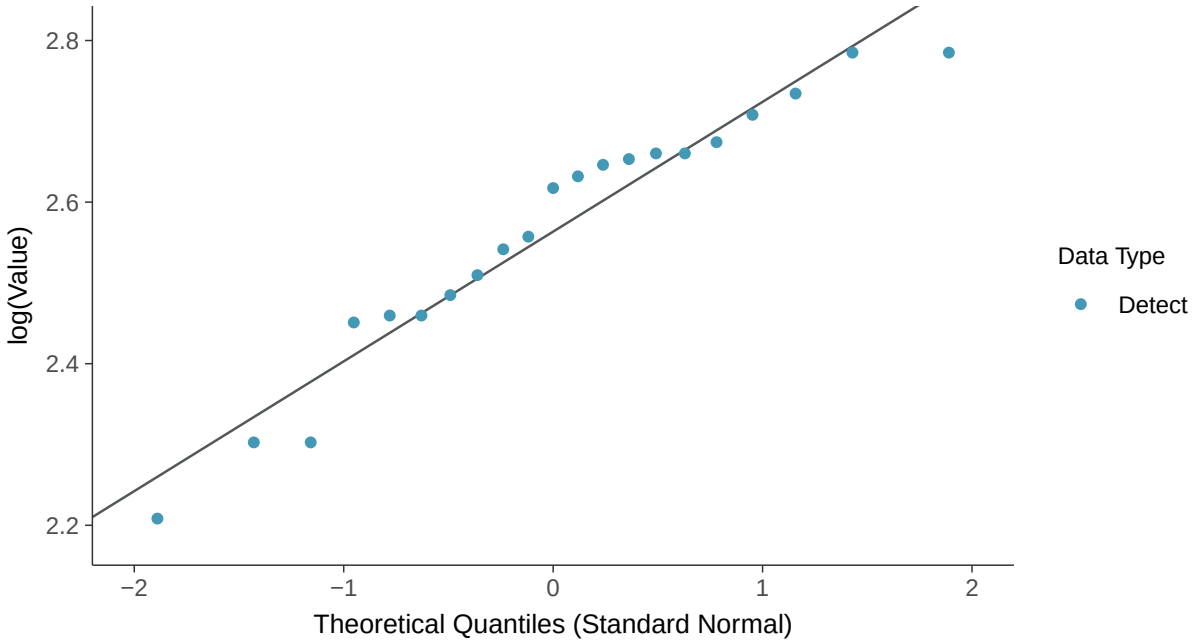
Normal Q-Q plot

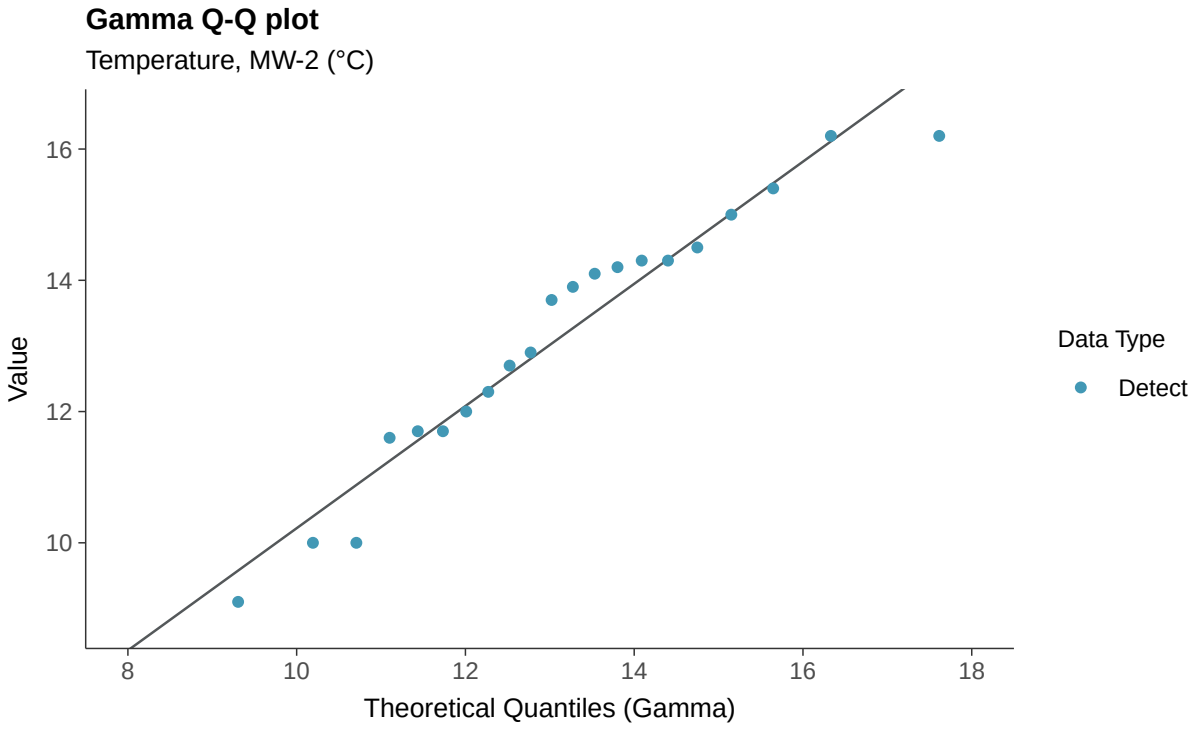
Temperature, MW-2 (°C)

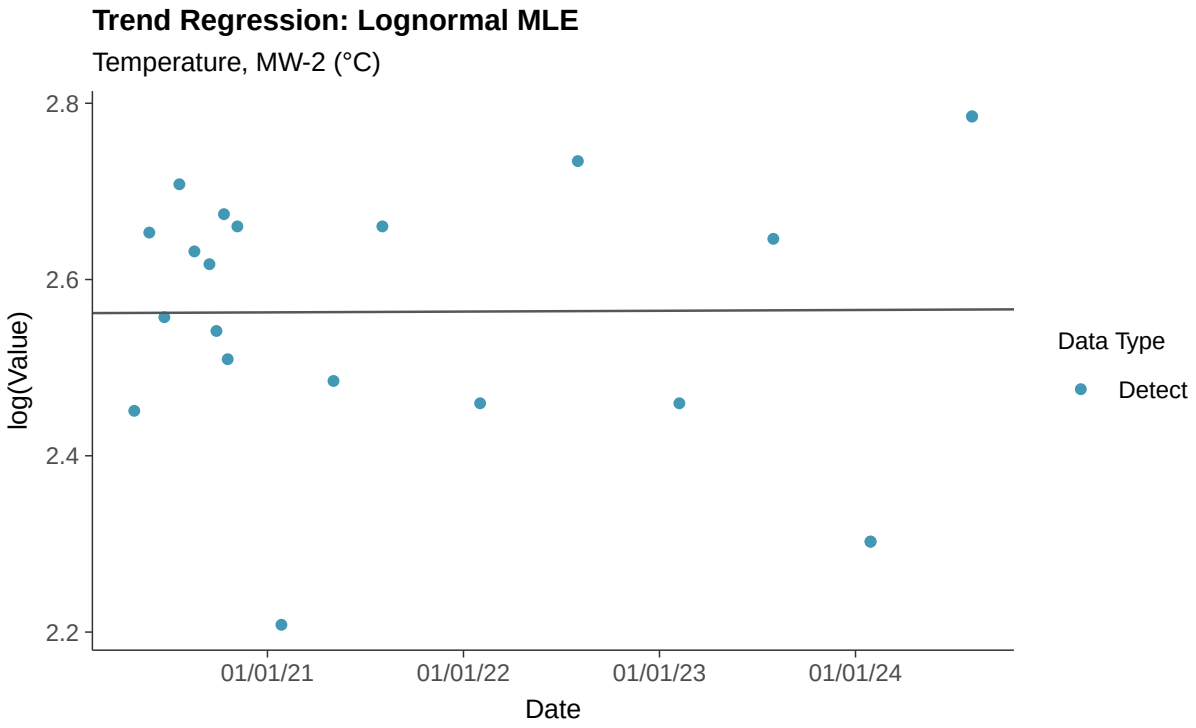


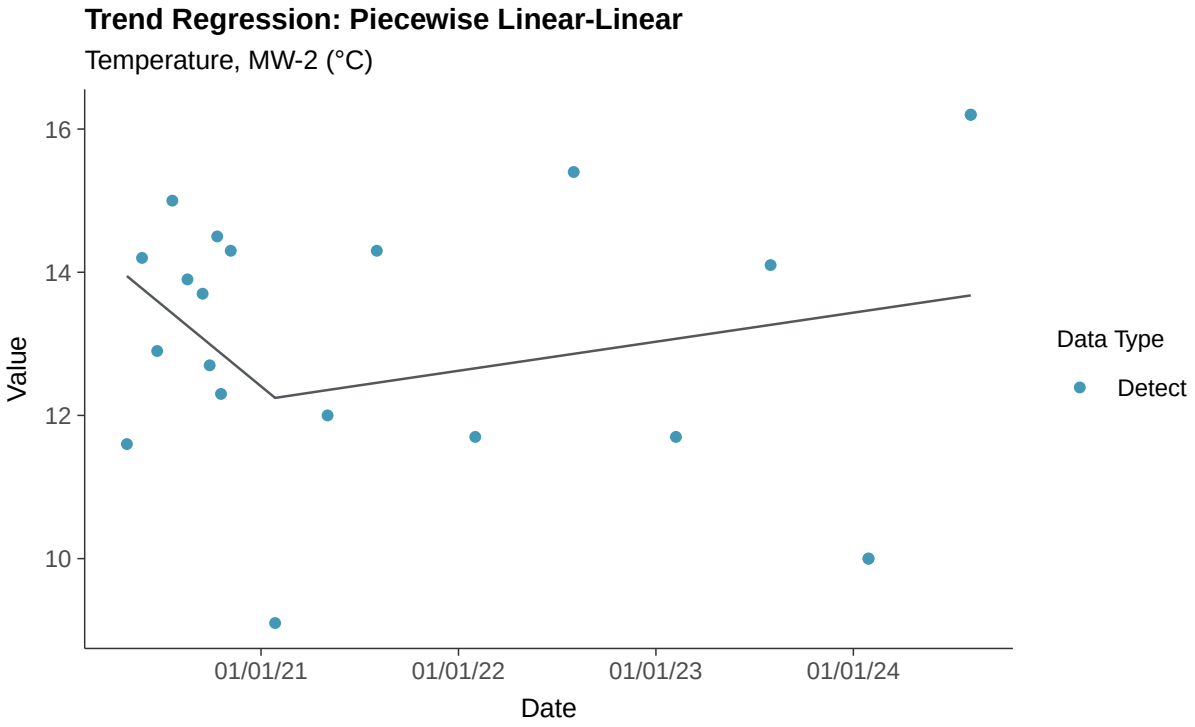
Lognormal Q-Q plot

Temperature, MW-2 (°C)




Gamma Q-Q plot
Temperature, MW-2 (°C)
Value
16
14
12
10
8
10
12
14
16
18
Theoretical Quantiles (Gamma)
Data Type
Detect


Trend Regression: Lognormal MLE
Temperature, MW-2 (°C)
log(Value)
2.8
2.6
2.4
2.2
01/01/21
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

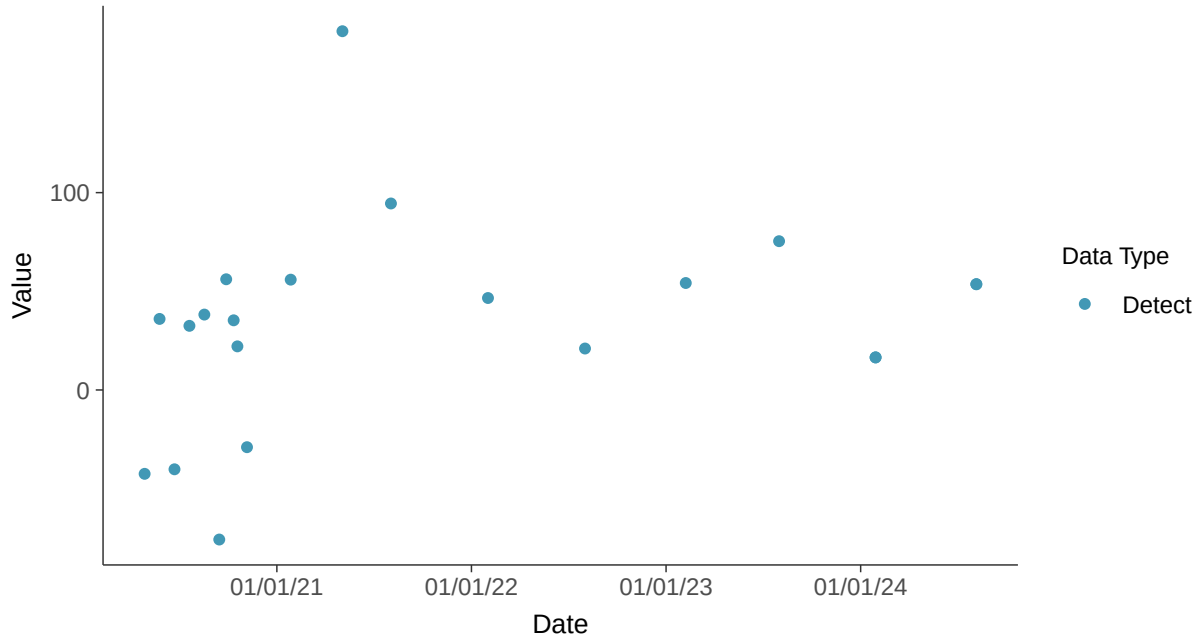

Trend Regression: Piecewise Linear-Linear
Temperature, MW-2 (°C)
Value
16
14
12
10
01/01/21
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Field Parameters: Oxidation Reduction Potential, MW-2

ID: 02_3_29

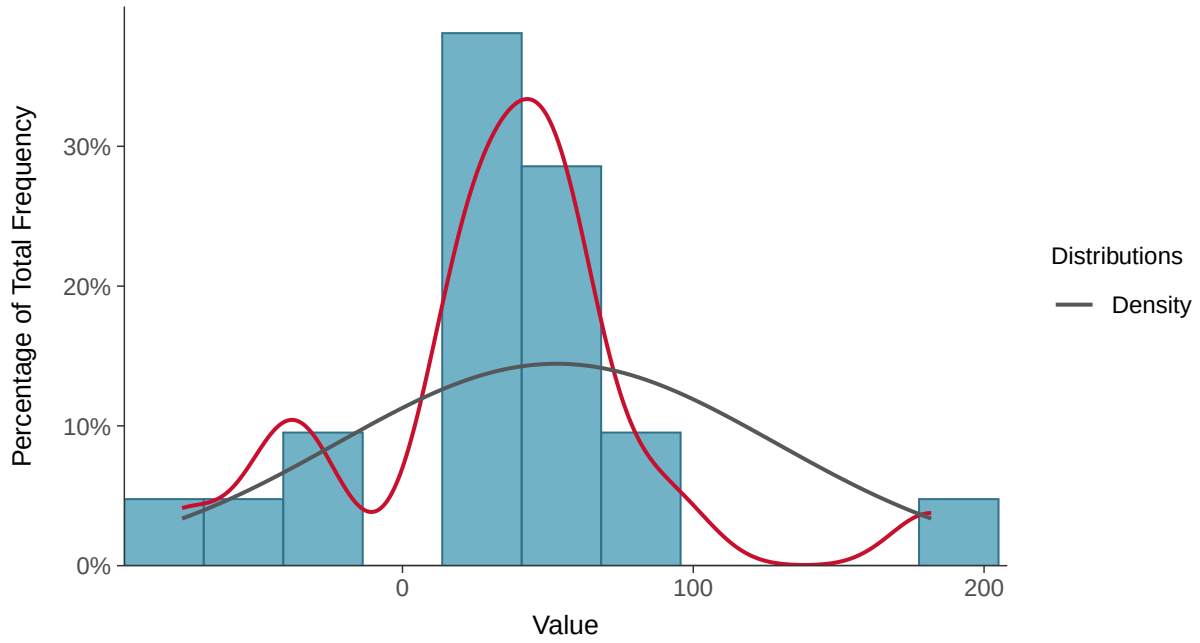
Scatter Plot

Oxidation Reduction Potential, MW-2 (mV)



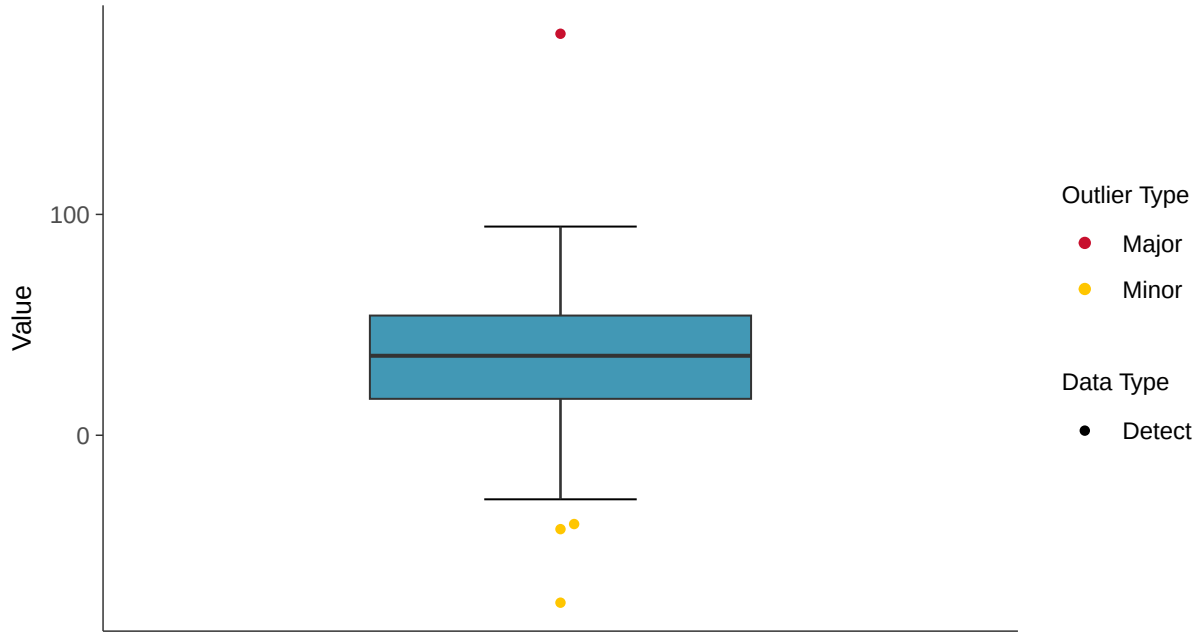
Histogram

Oxidation Reduction Potential, MW-2 (mV)



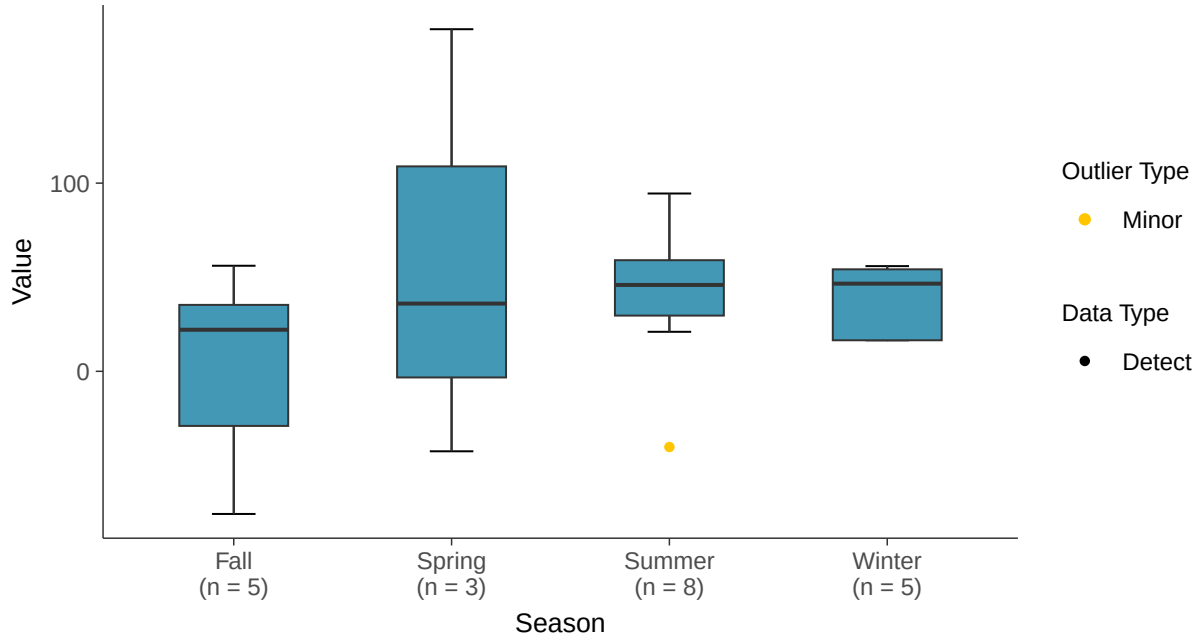
Boxplot

Oxidation Reduction Potential, MW-2 (mV)



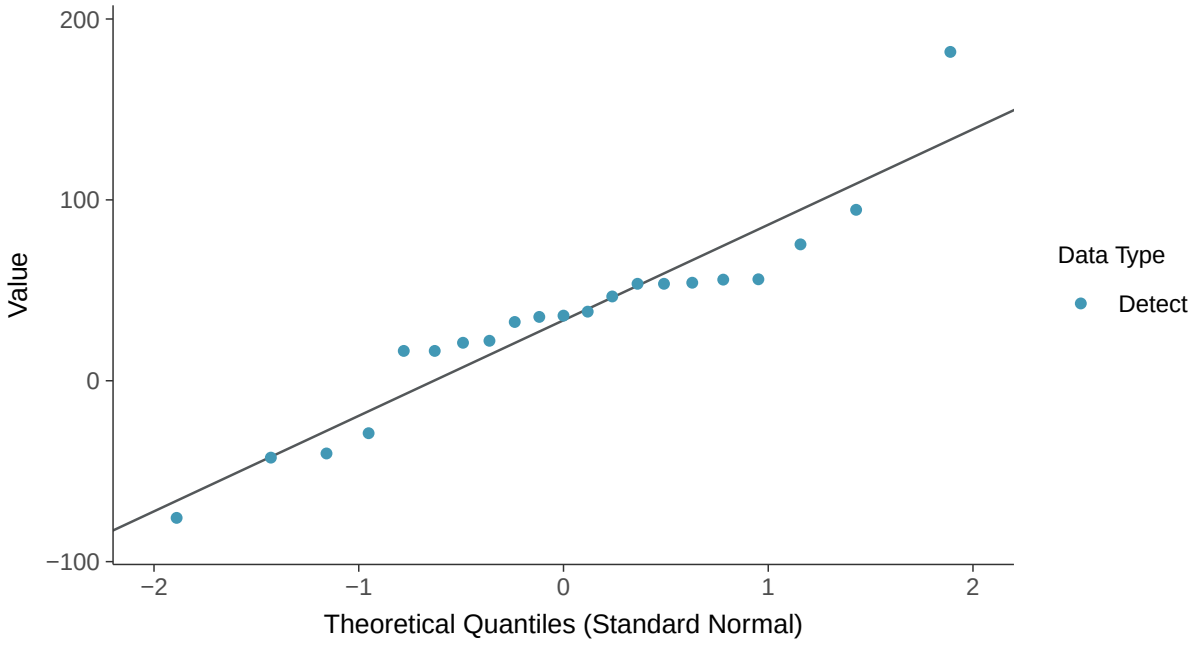
Boxplot by Season

Oxidation Reduction Potential, MW-2 (mV)



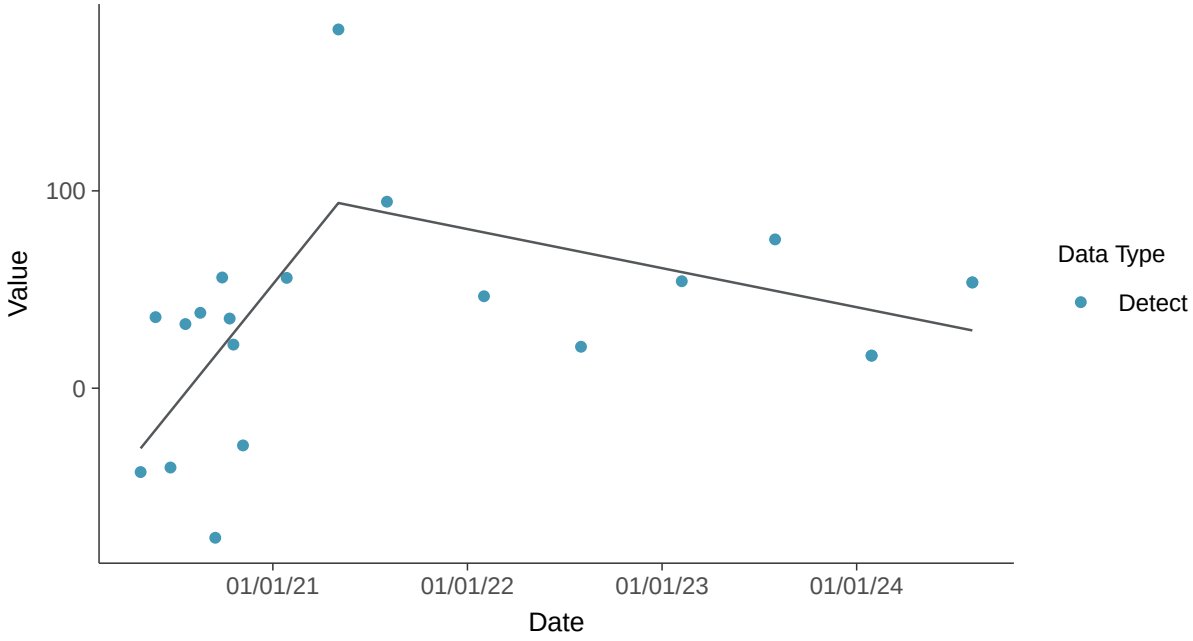
Normal Q-Q plot

Oxidation Reduction Potential, MW-2 (mV)



Trend Regression: Piecewise Linear-Linear

Oxidation Reduction Potential, MW-2 (mV)

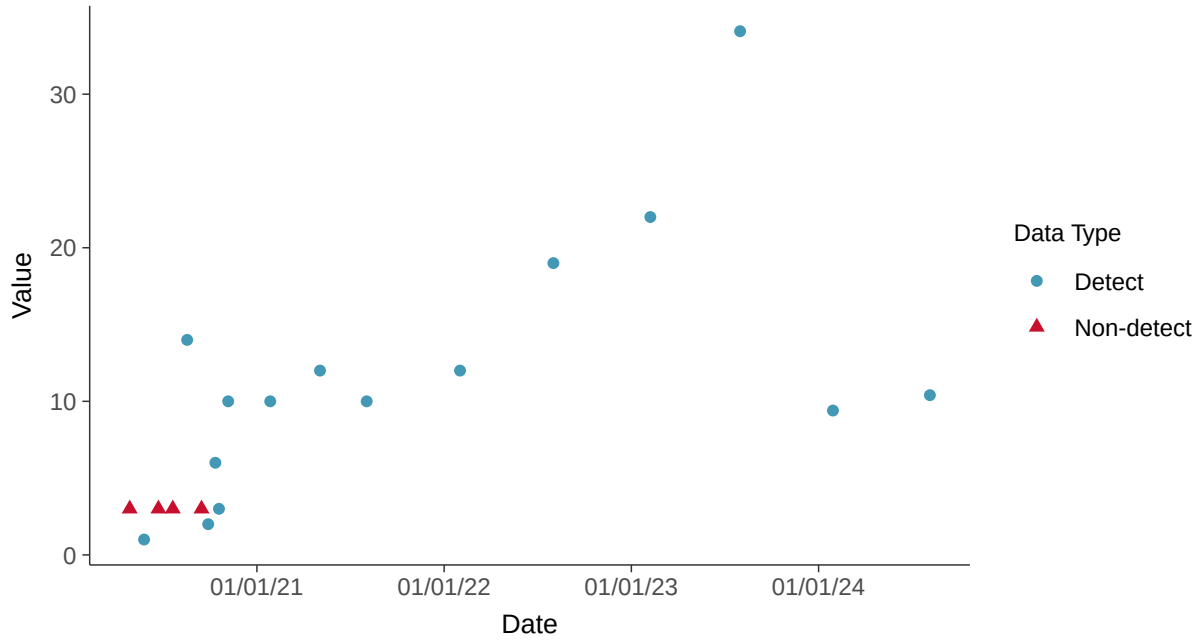


Other: Total Suspended Solids, MW-2

ID: 02_4_30

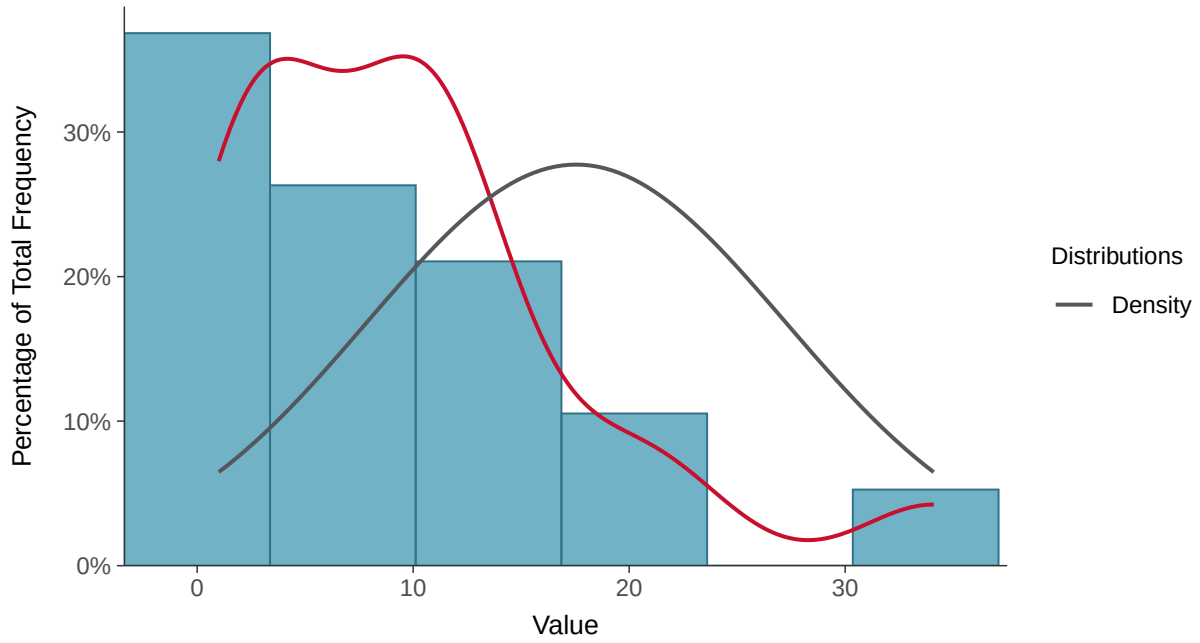
Scatter Plot

Total Suspended Solids, MW-2 (mg/L)



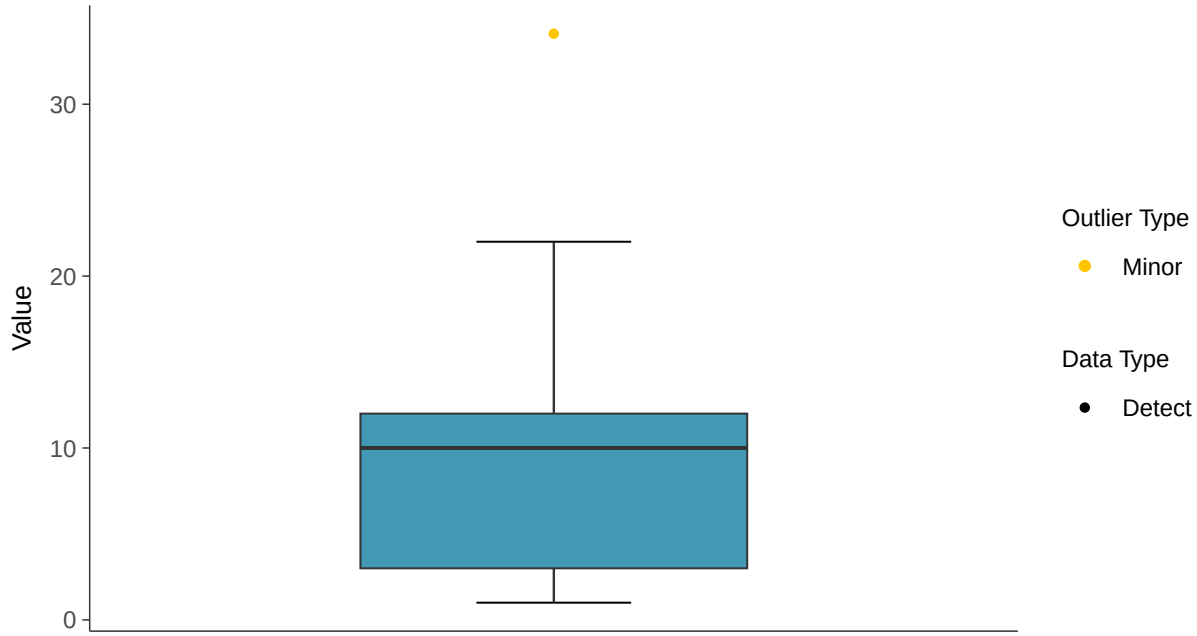
Histogram

Total Suspended Solids, MW-2 (mg/L)



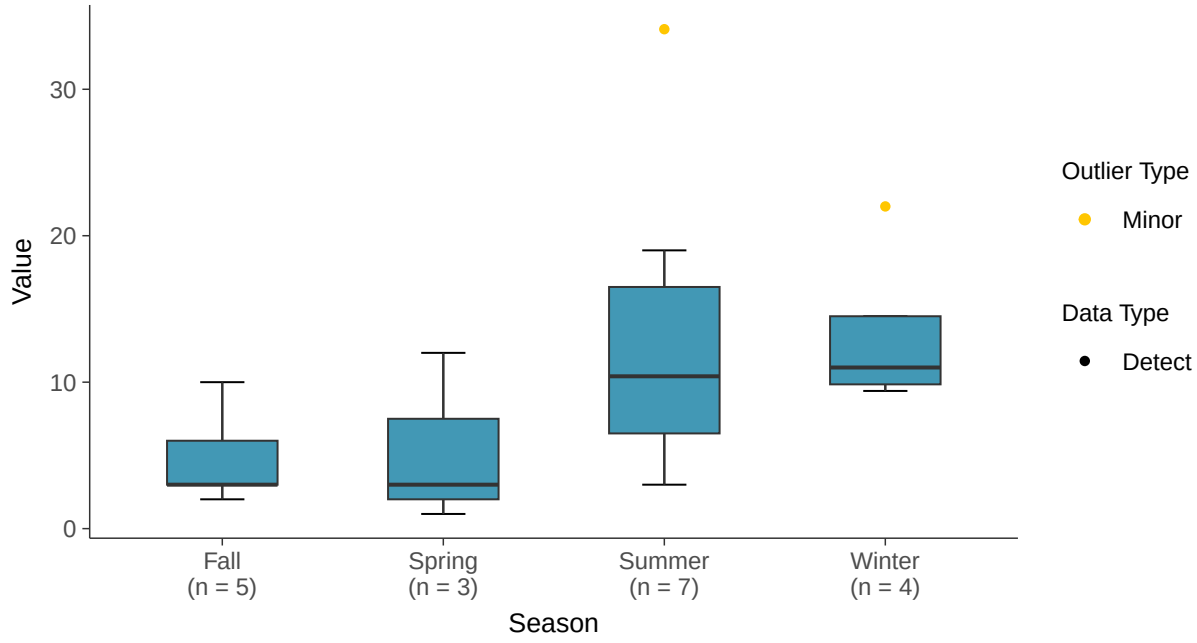
Boxplot

Total Suspended Solids, MW-2 (mg/L)



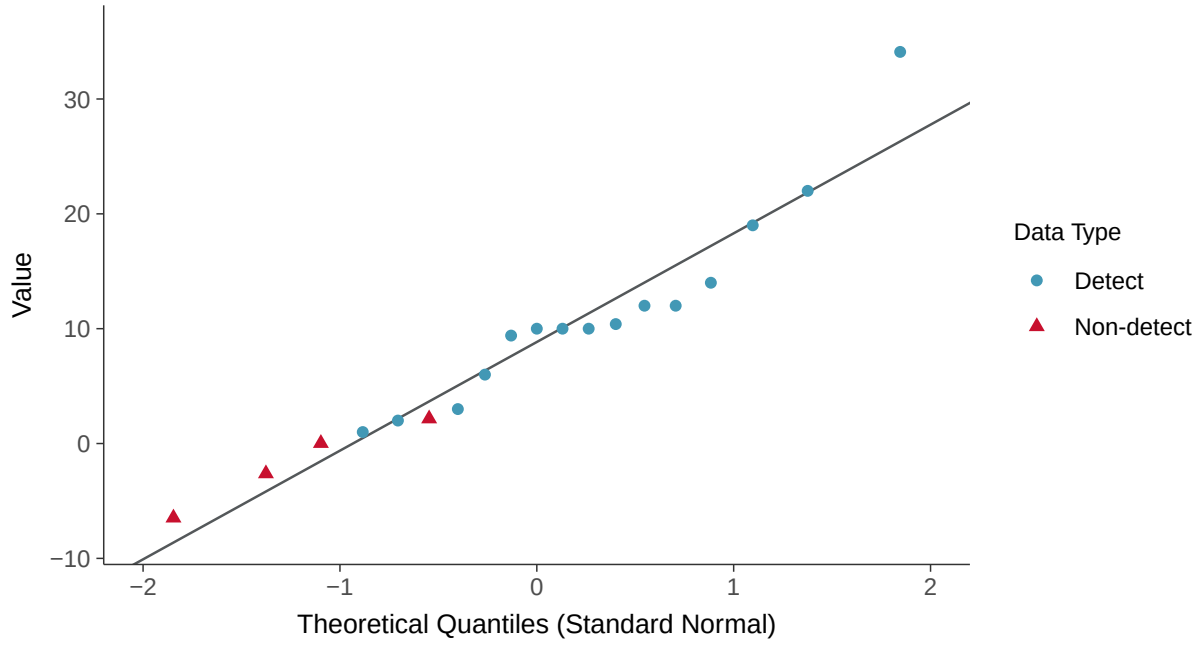
Boxplot by Season

Total Suspended Solids, MW-2 (mg/L)



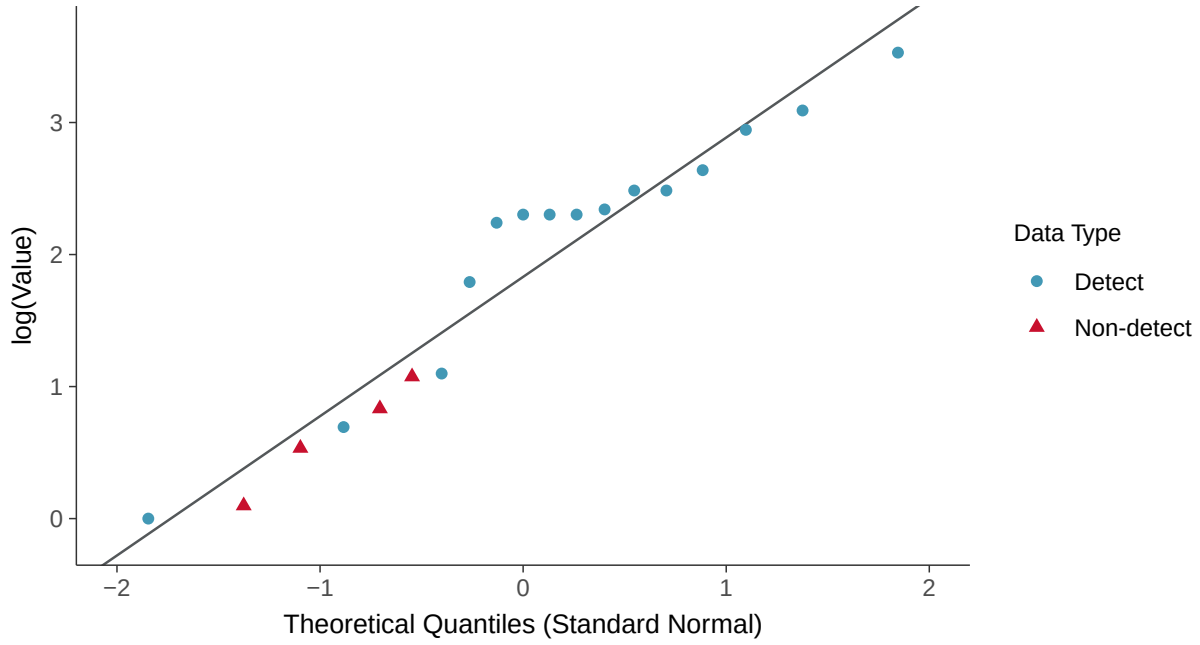
Normal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-2 (mg/L)



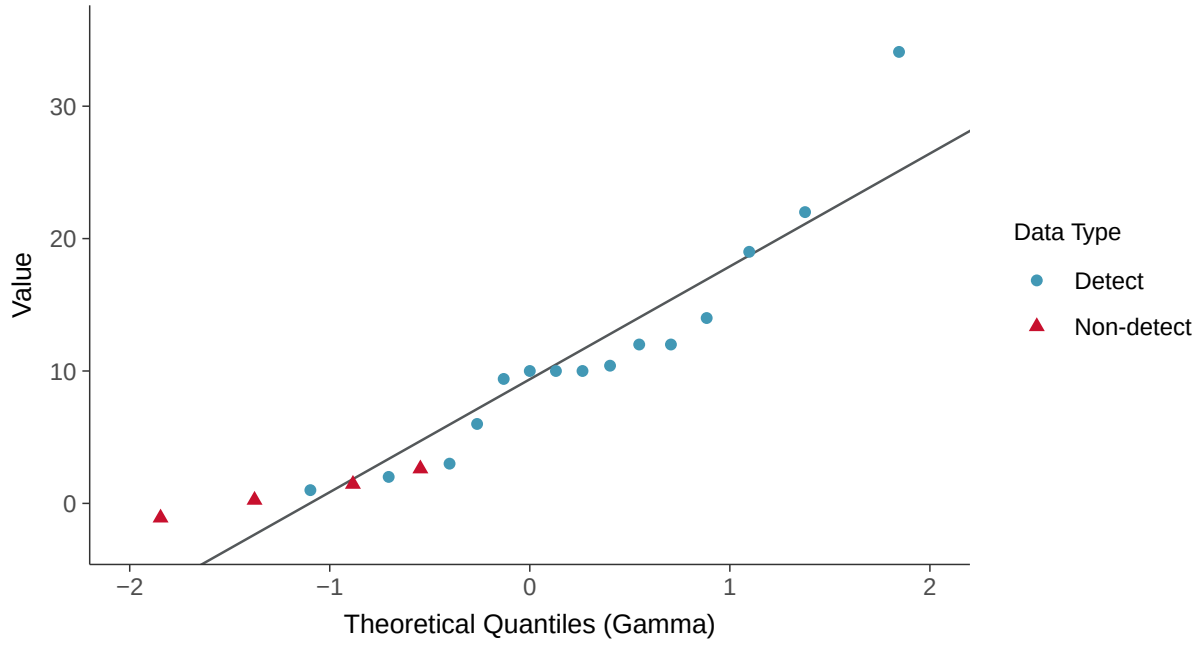
Lognormal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-2 (mg/L)



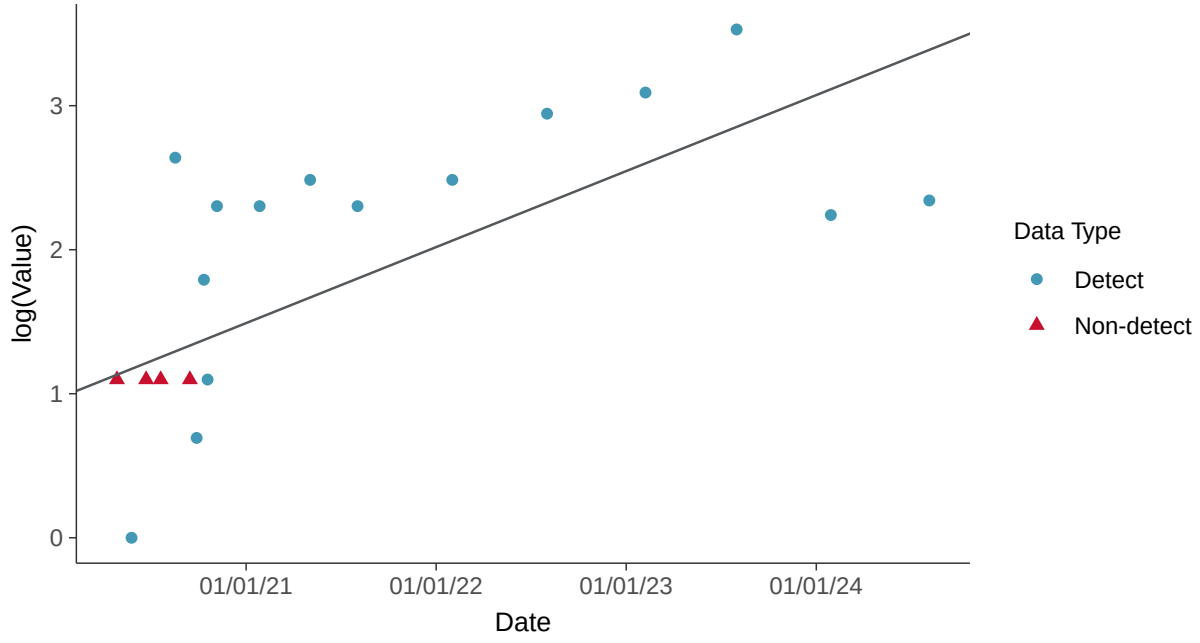
Gamma Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-2 (mg/L)



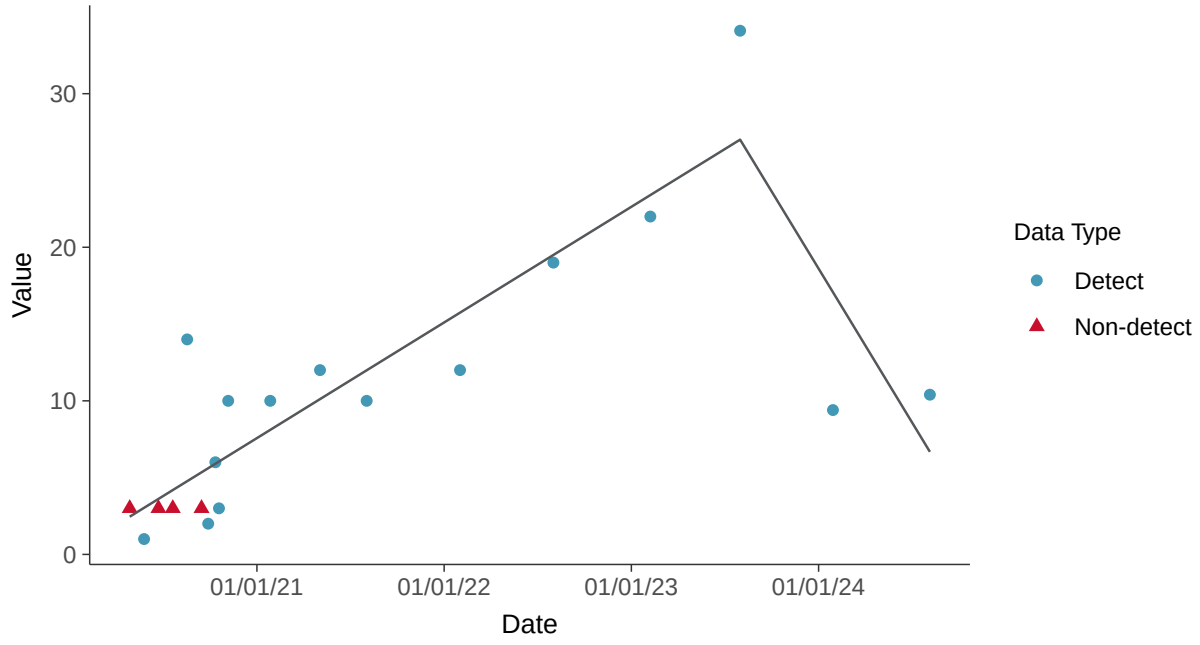
Trend Regression: Lognormal MLE

Total Suspended Solids, MW-2 (mg/L)



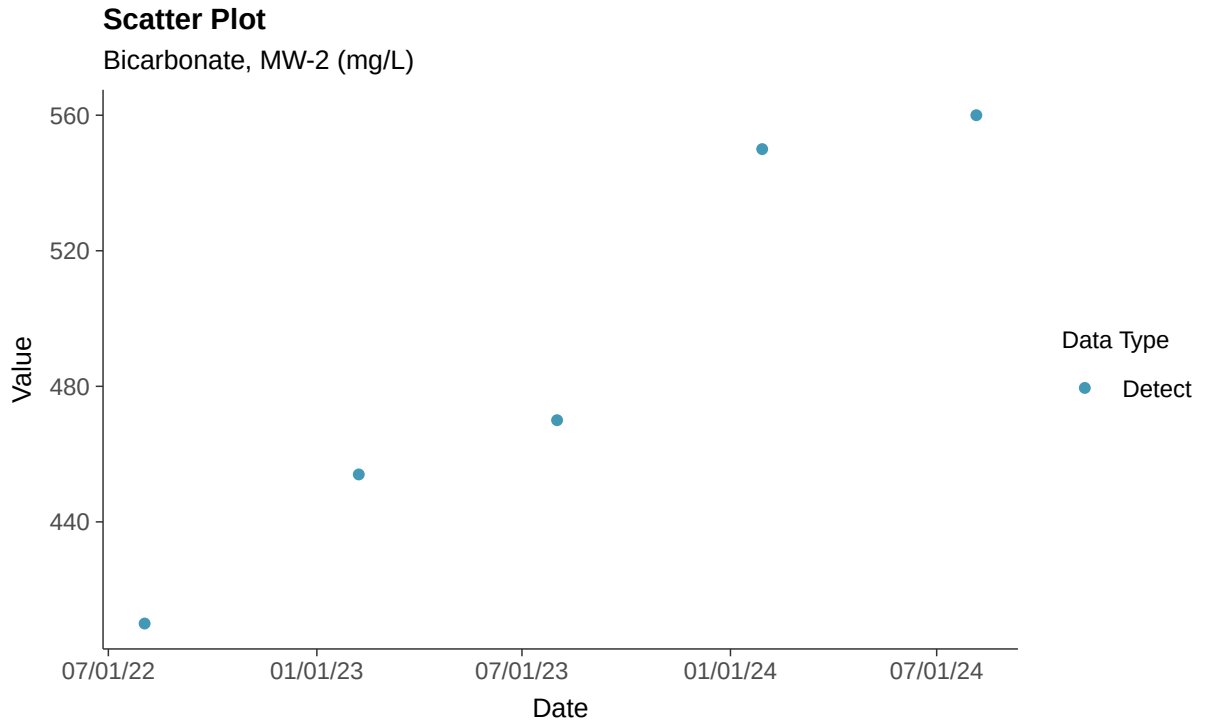
Trend Regression: Piecewise Linear-Linear

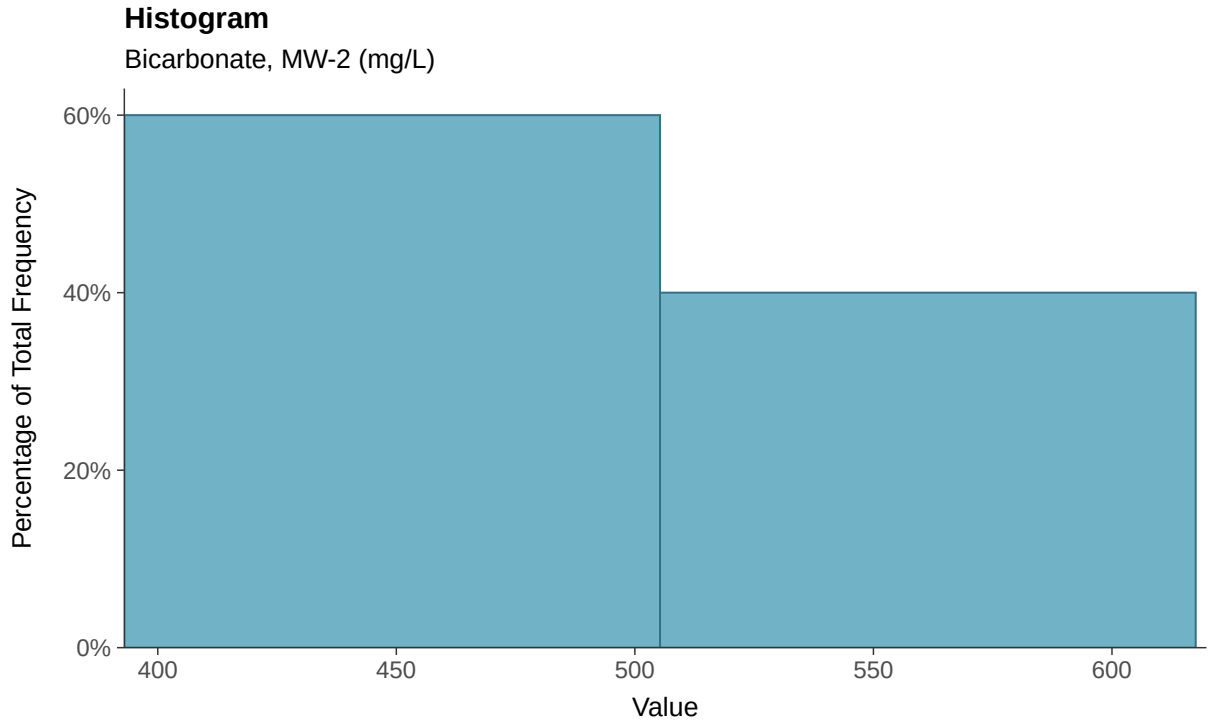
Total Suspended Solids, MW-2 (mg/L)



Other: Bicarbonate, MW-2

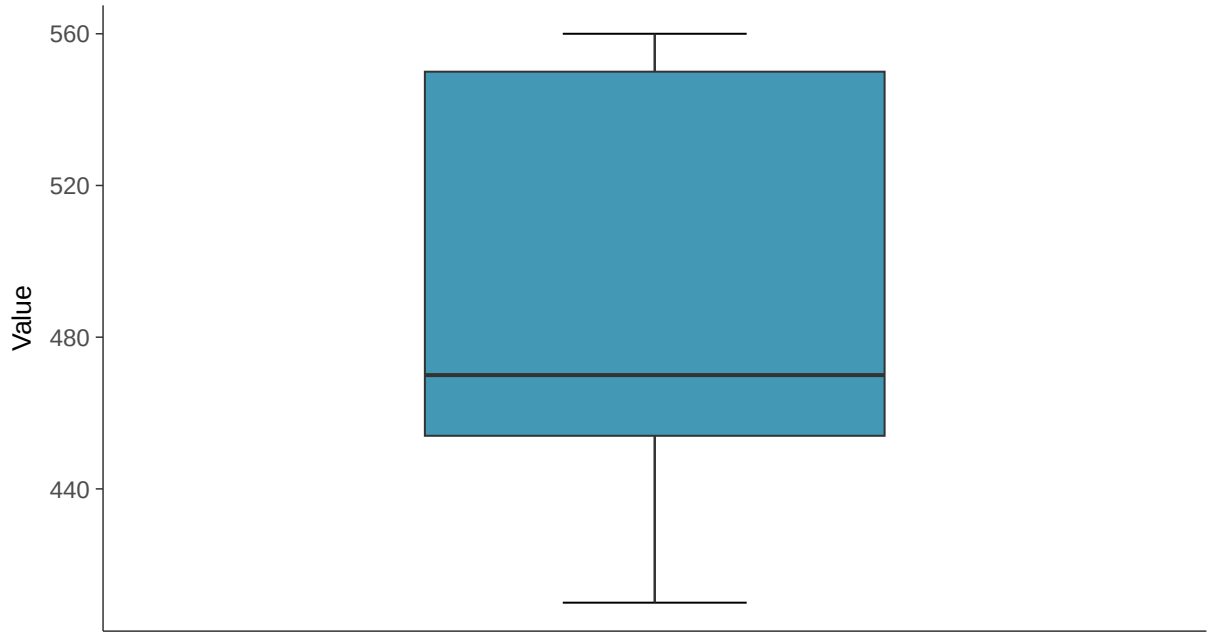
ID: 02_4_31





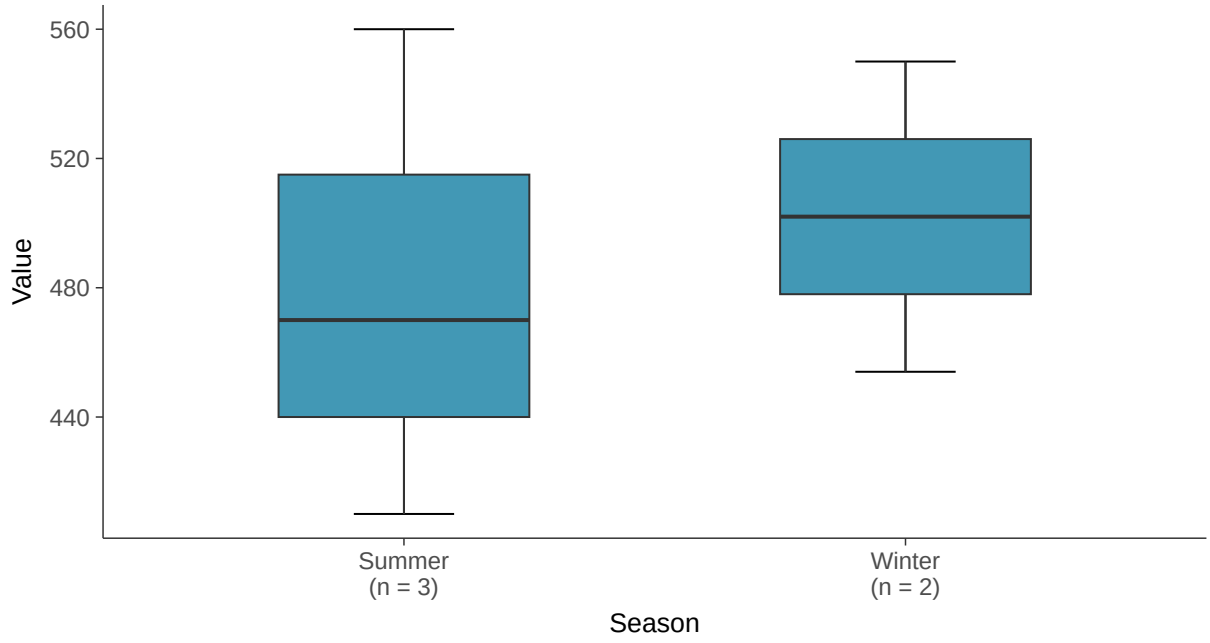
Boxplot

Bicarbonate, MW-2 (mg/L)



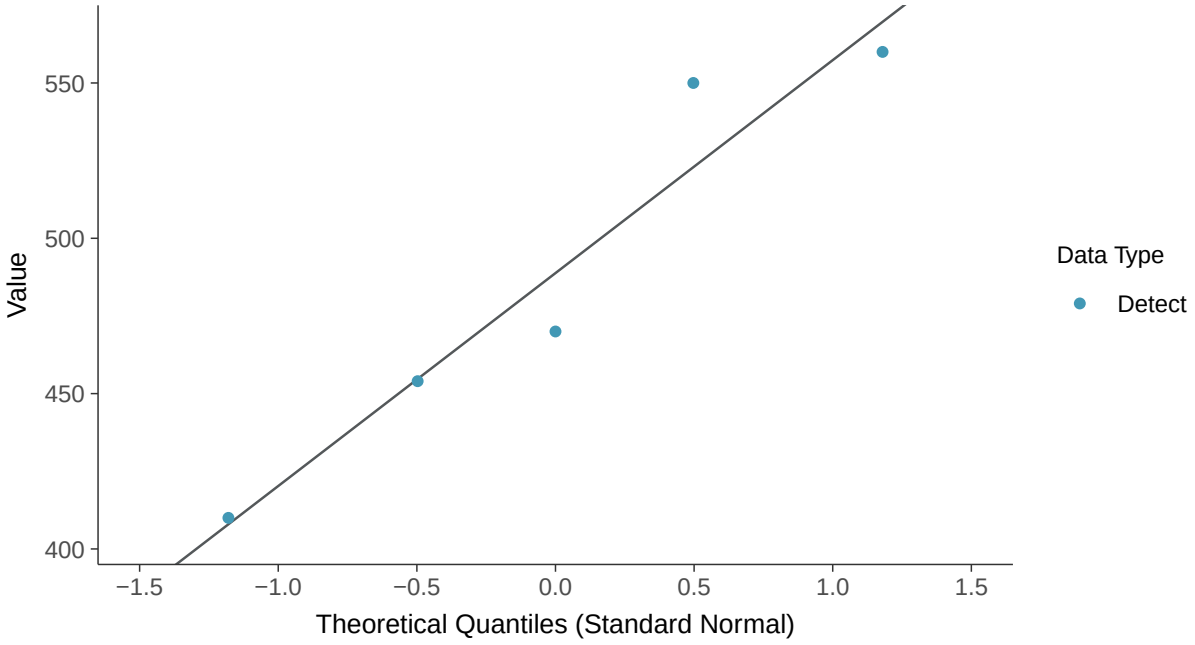
Boxplot by Season

Bicarbonate, MW-2 (mg/L)



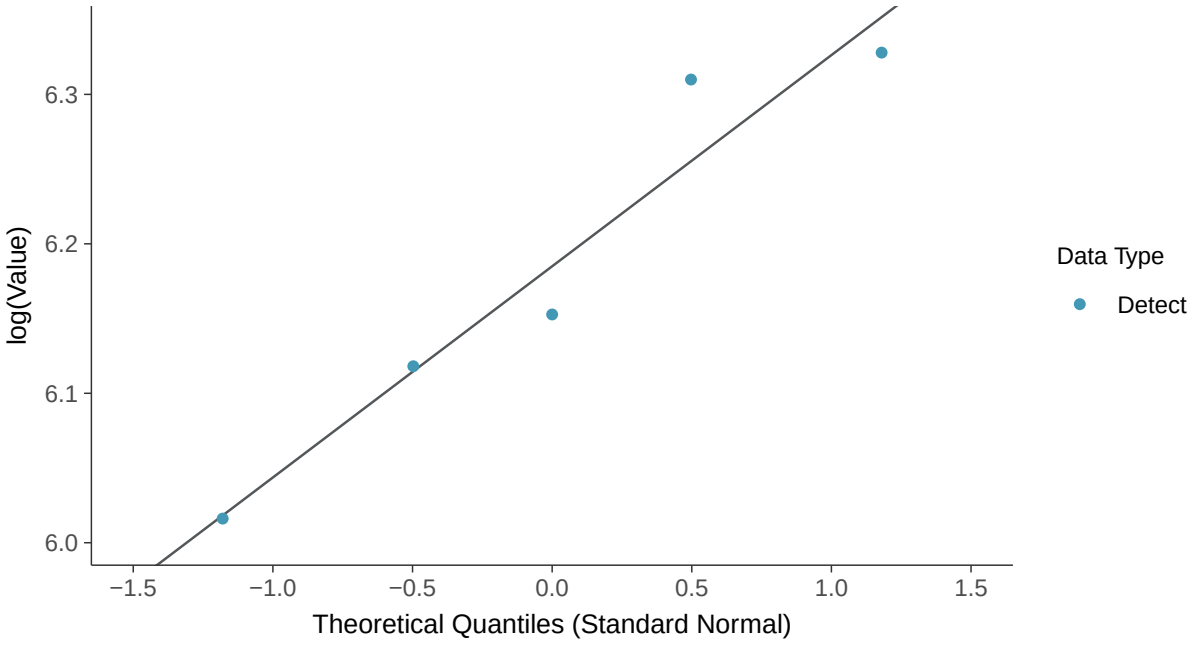
Normal Q-Q plot

Bicarbonate, MW-2 (mg/L)



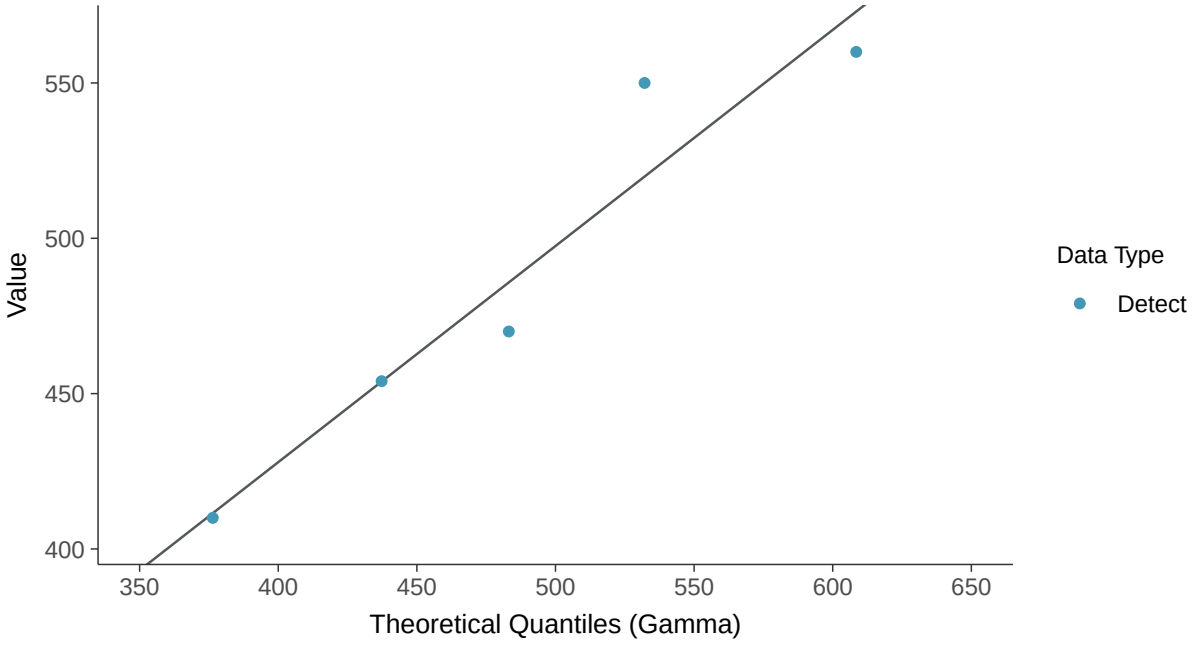
Lognormal Q-Q plot

Bicarbonate, MW-2 (mg/L)



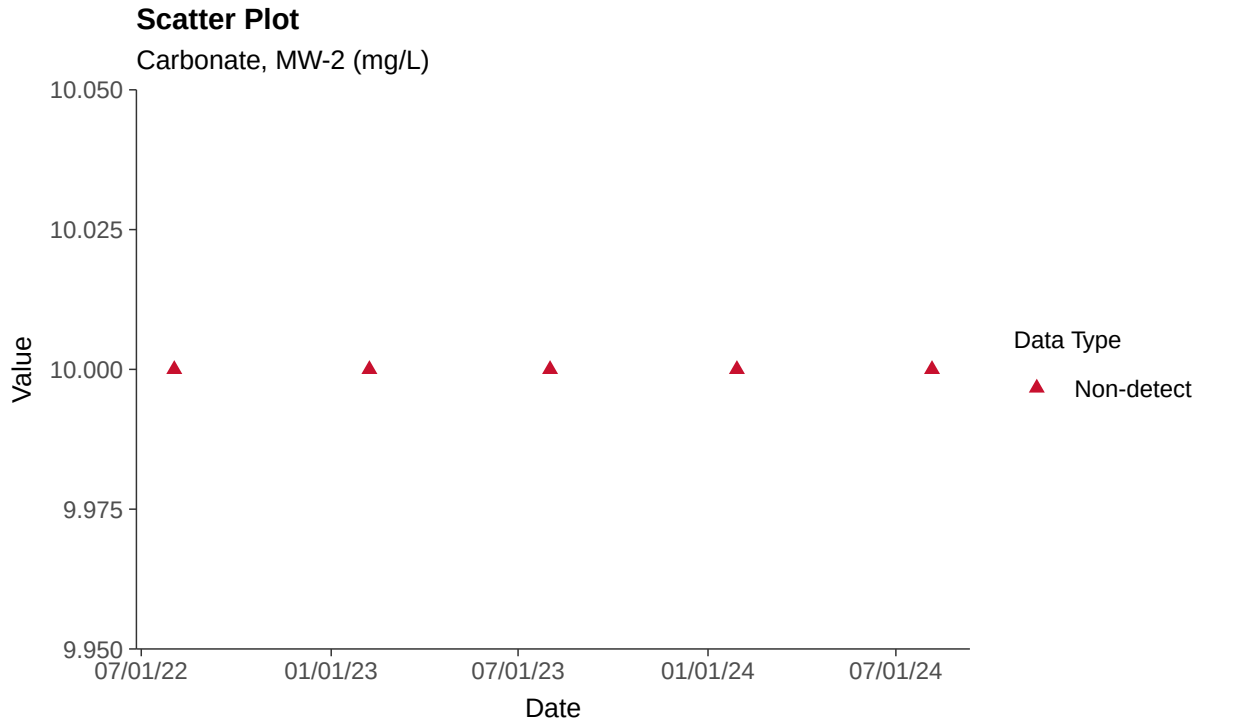
Gamma Q-Q plot

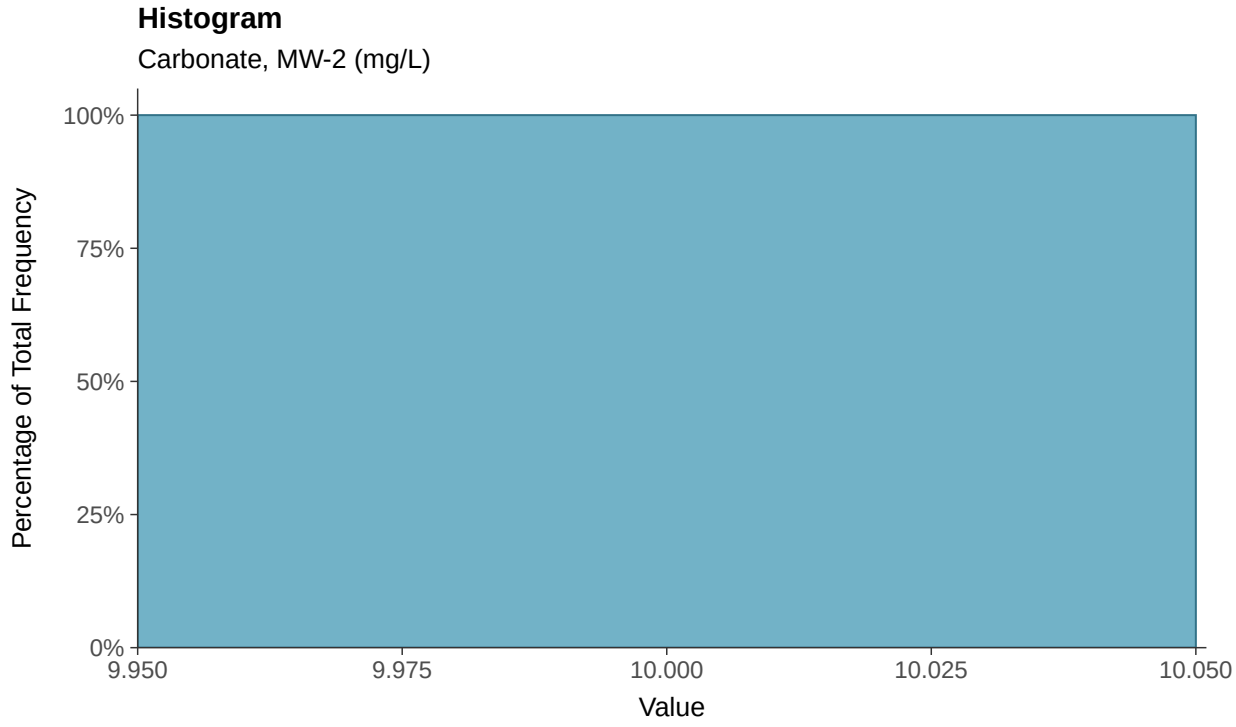
Bicarbonate, MW-2 (mg/L)



Other: Carbonate, MW-2

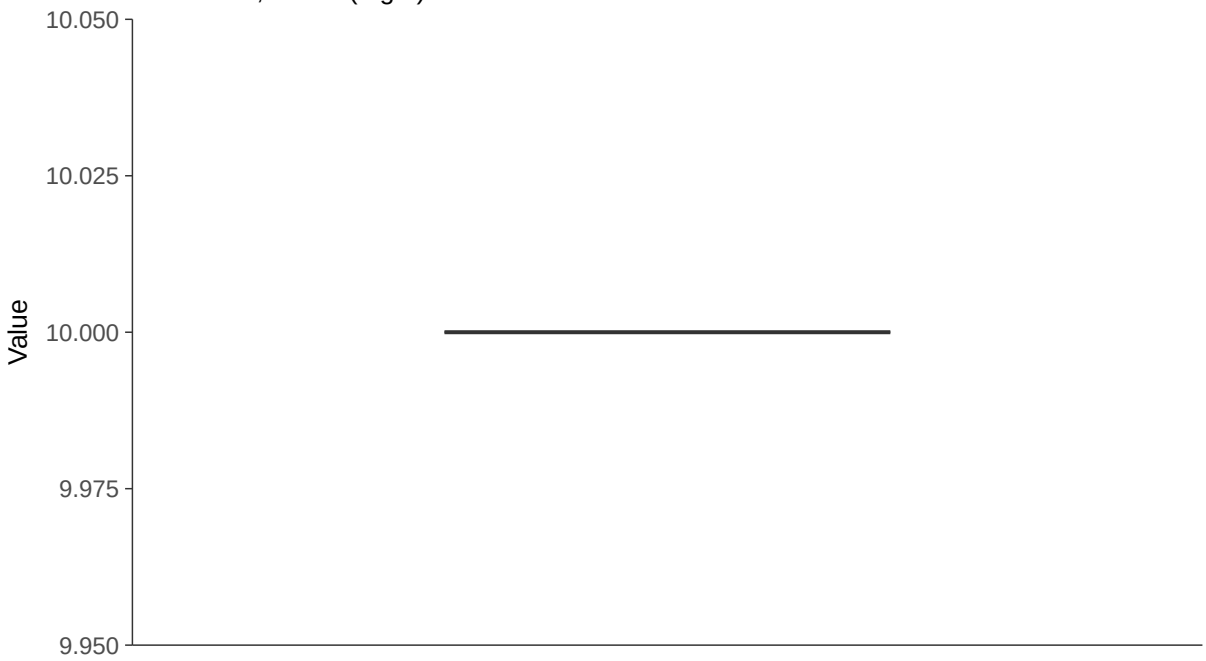
ID: 02_4_32





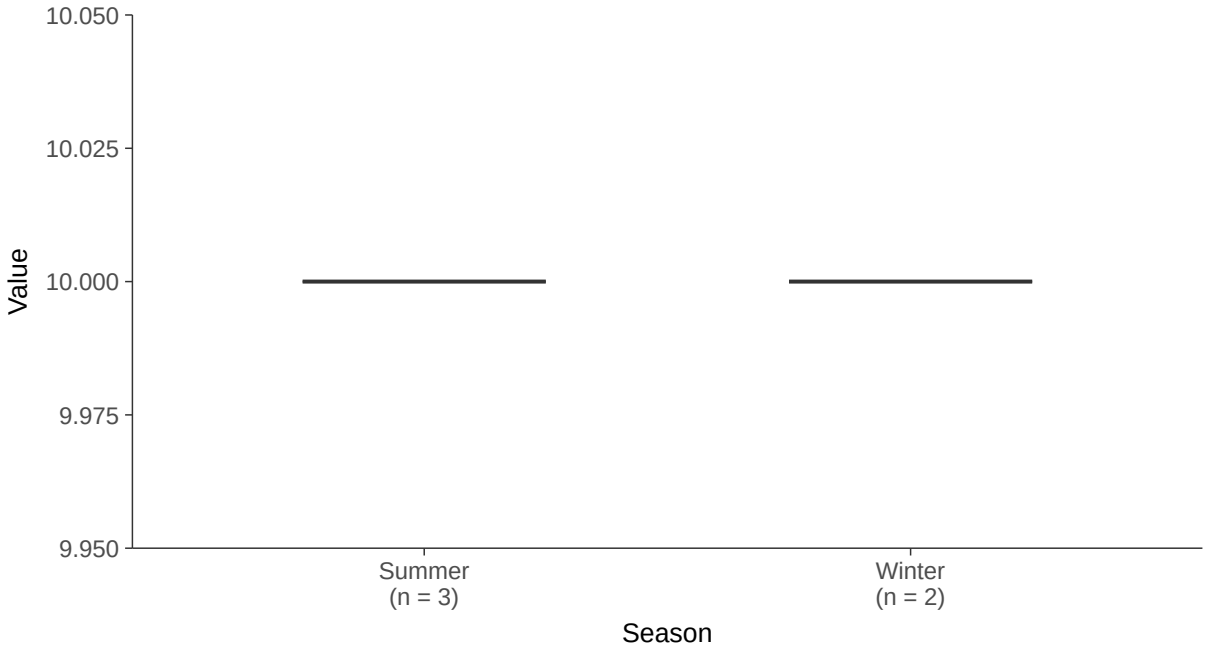
Boxplot

Carbonate, MW-2 (mg/L)



Boxplot by Season

Carbonate, MW-2 (mg/L)

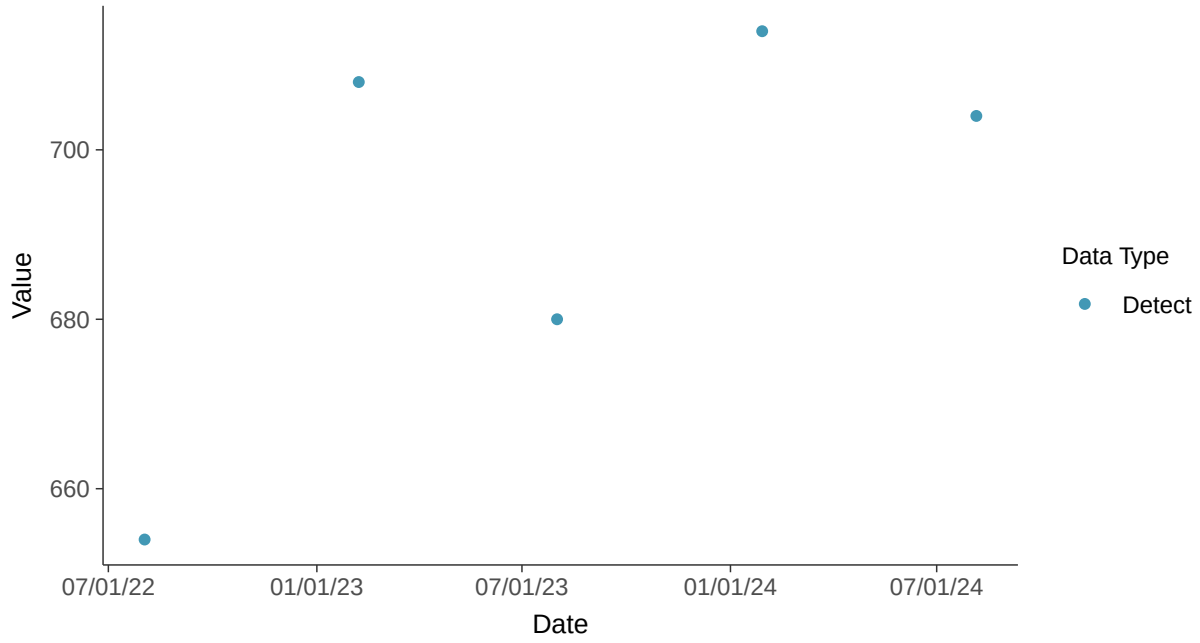


Other: Hardness, MW-2

ID: 02_4_33

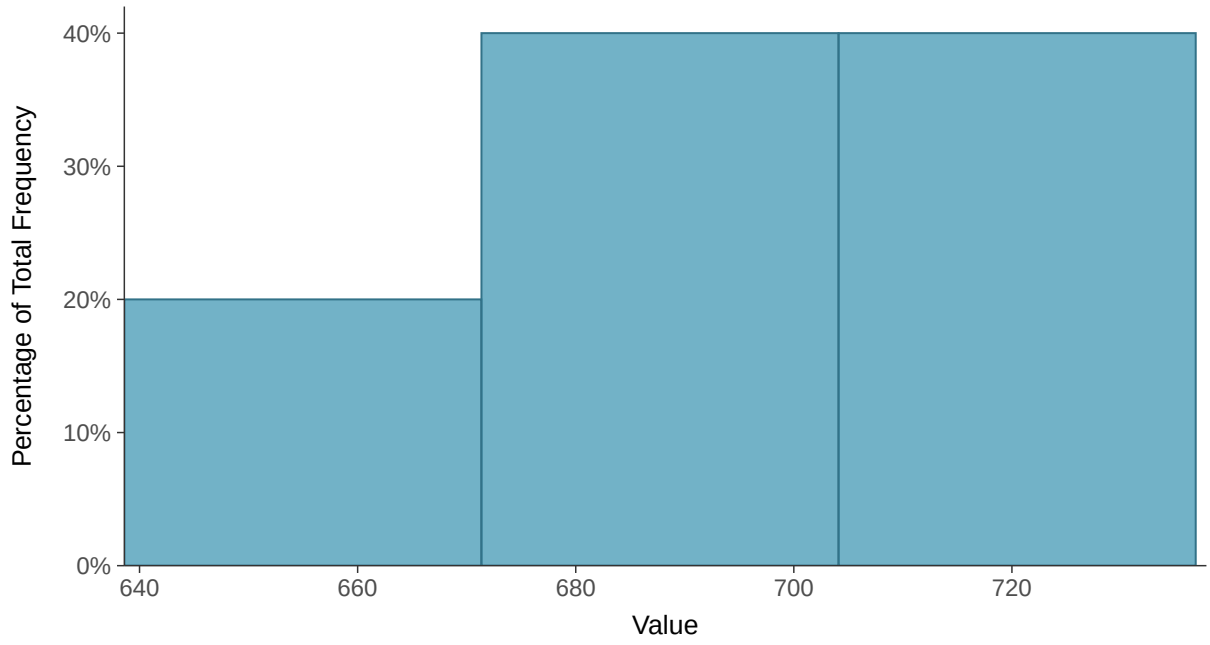
Scatter Plot

Hardness, MW-2 (mg/L)



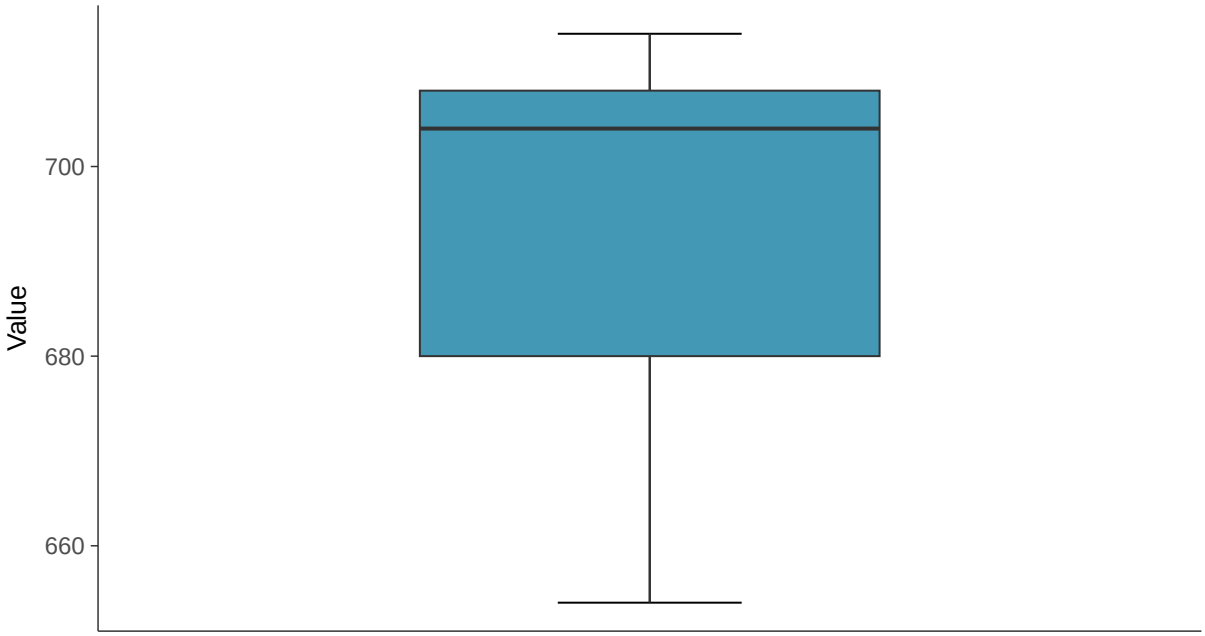
Histogram

Hardness, MW-2 (mg/L)



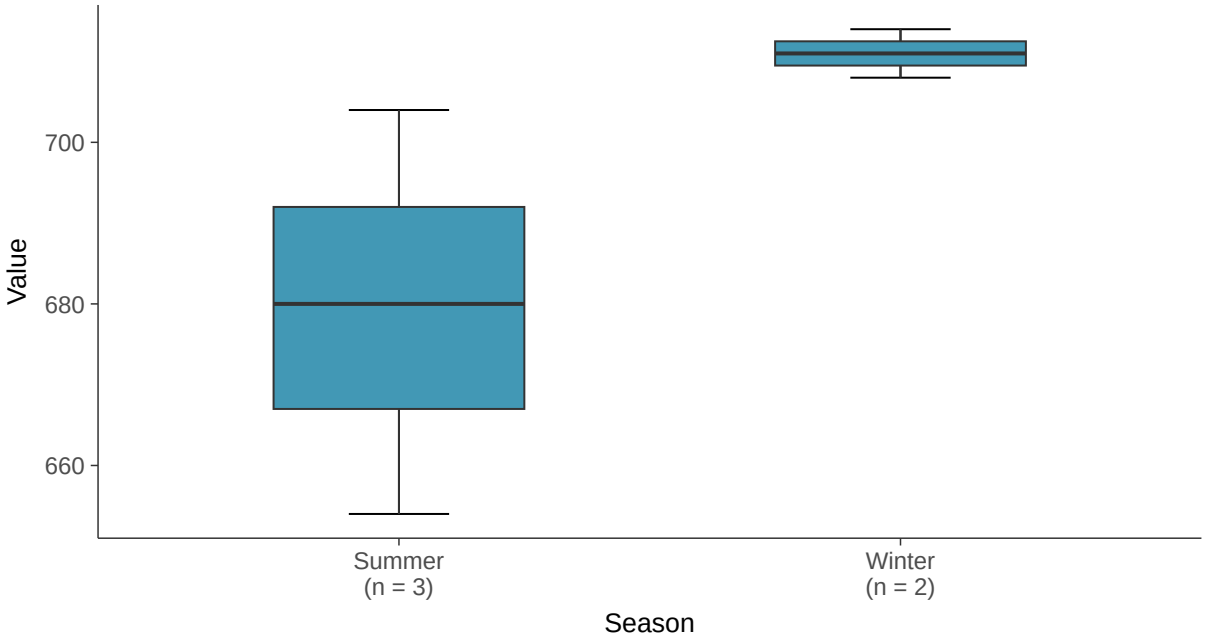
Boxplot

Hardness, MW-2 (mg/L)



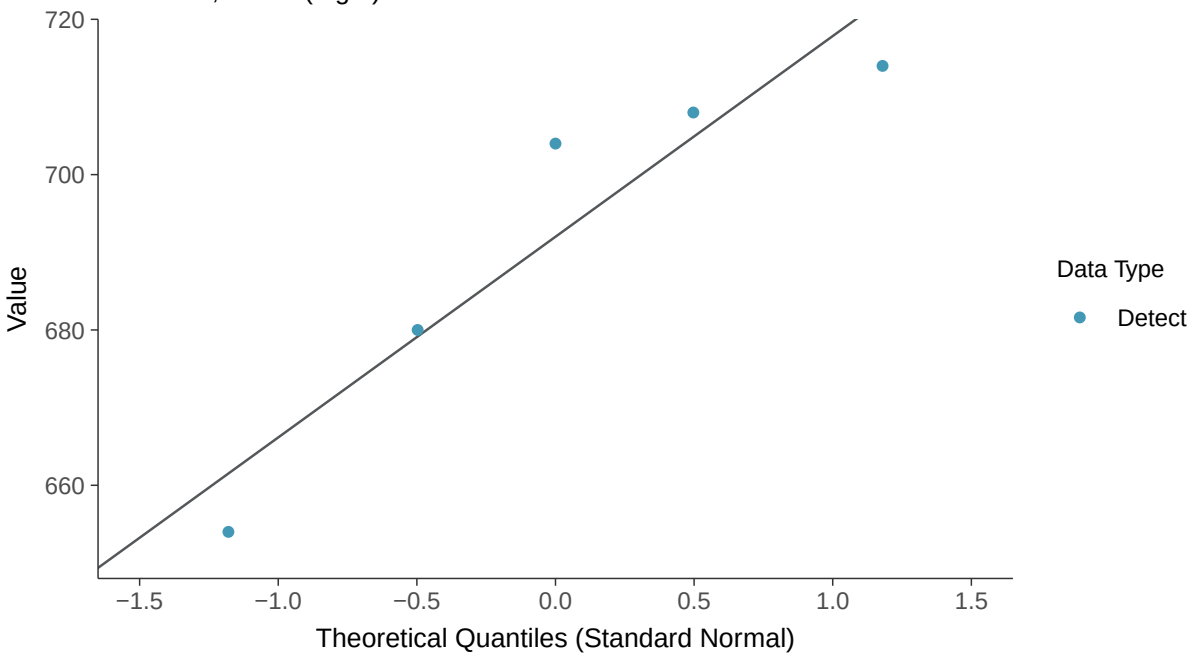
Boxplot by Season

Hardness, MW-2 (mg/L)



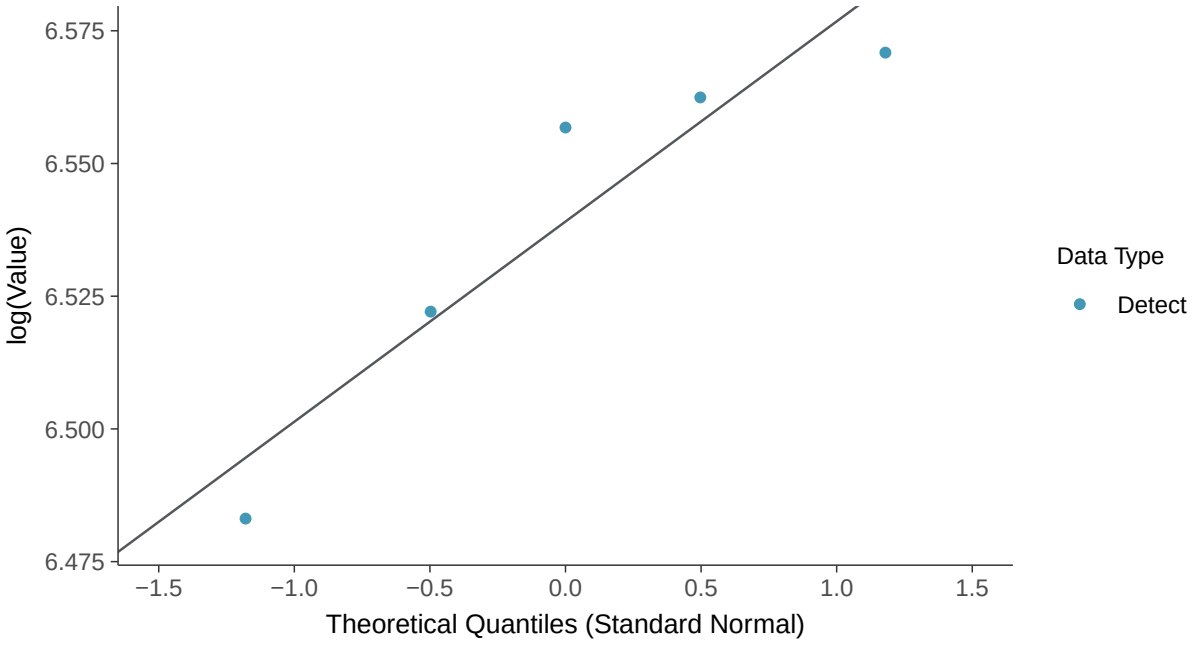
Normal Q-Q plot

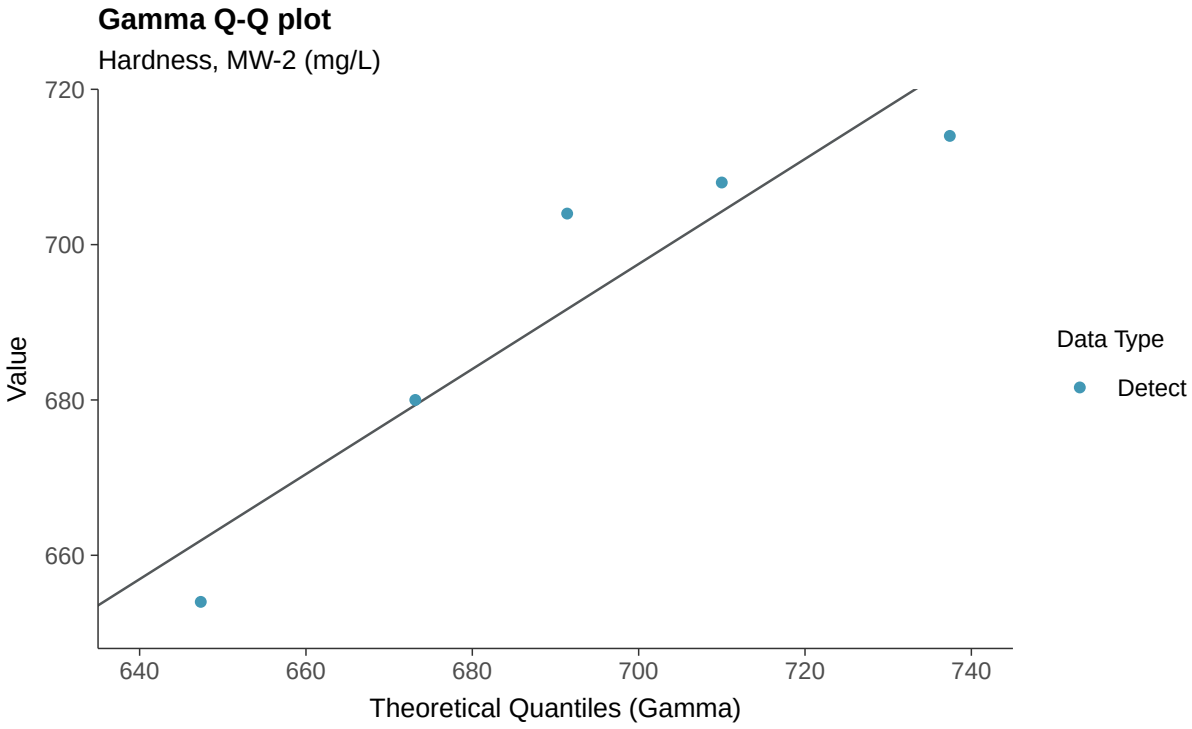
Hardness, MW-2 (mg/L)



Lognormal Q-Q plot

Hardness, MW-2 (mg/L)



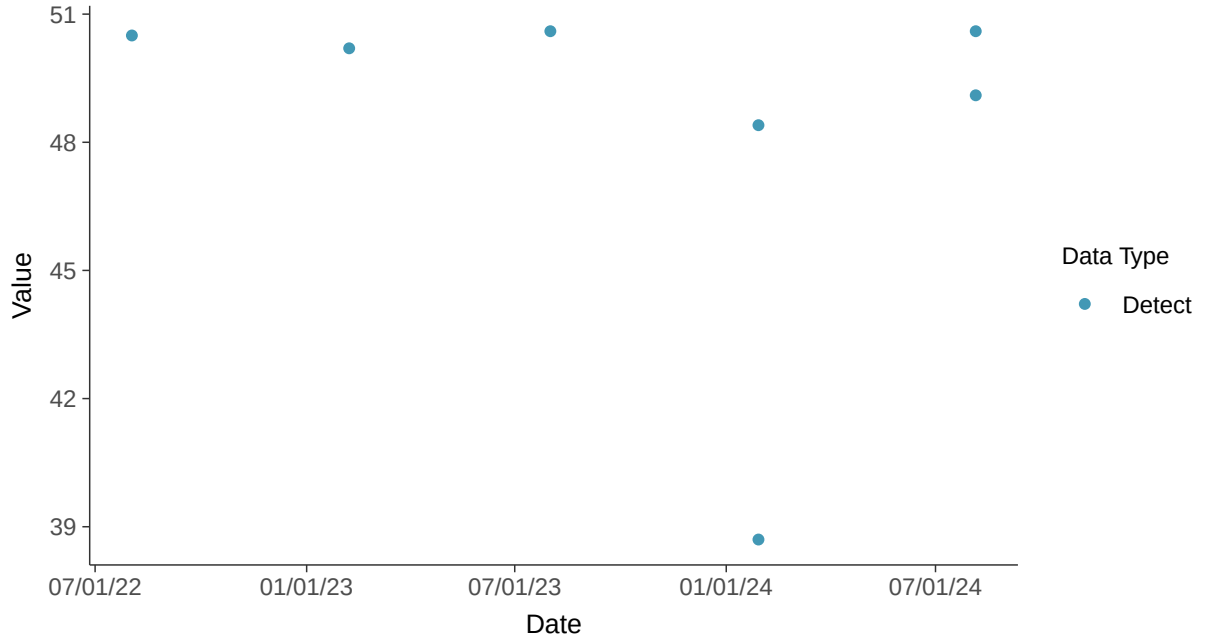

Gamma Q-Q plot
Hardness, MW-2 (mg/L)
720
700
680
660
Value
640
660
680
700
720
740
Theoretical Quantiles (Gamma)
Data Type
Detect

Other: Magnesium, MW-2

ID: 02_4_34

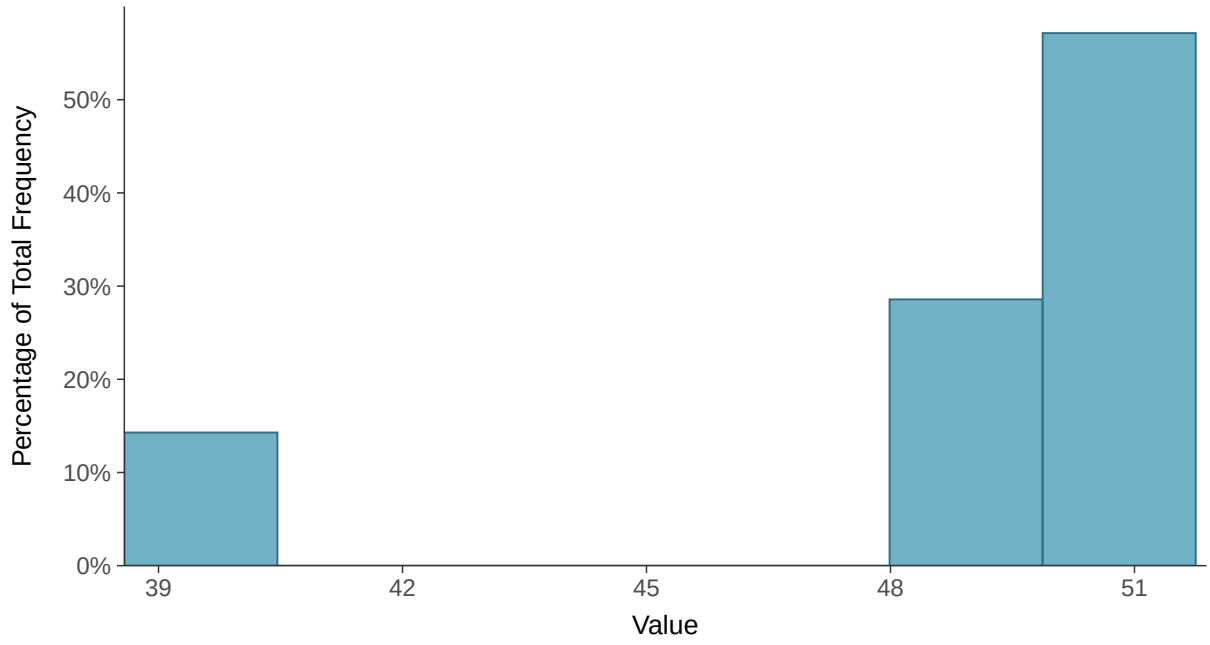
Scatter Plot

Magnesium, MW-2 (mg/L)



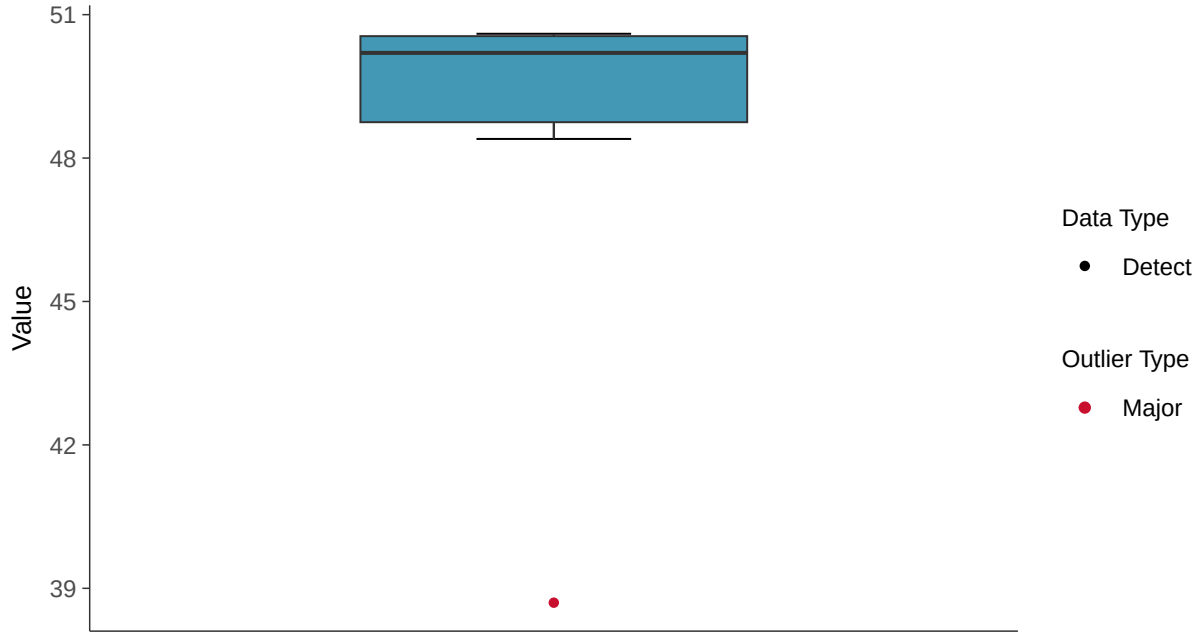
Histogram

Magnesium, MW-2 (mg/L)



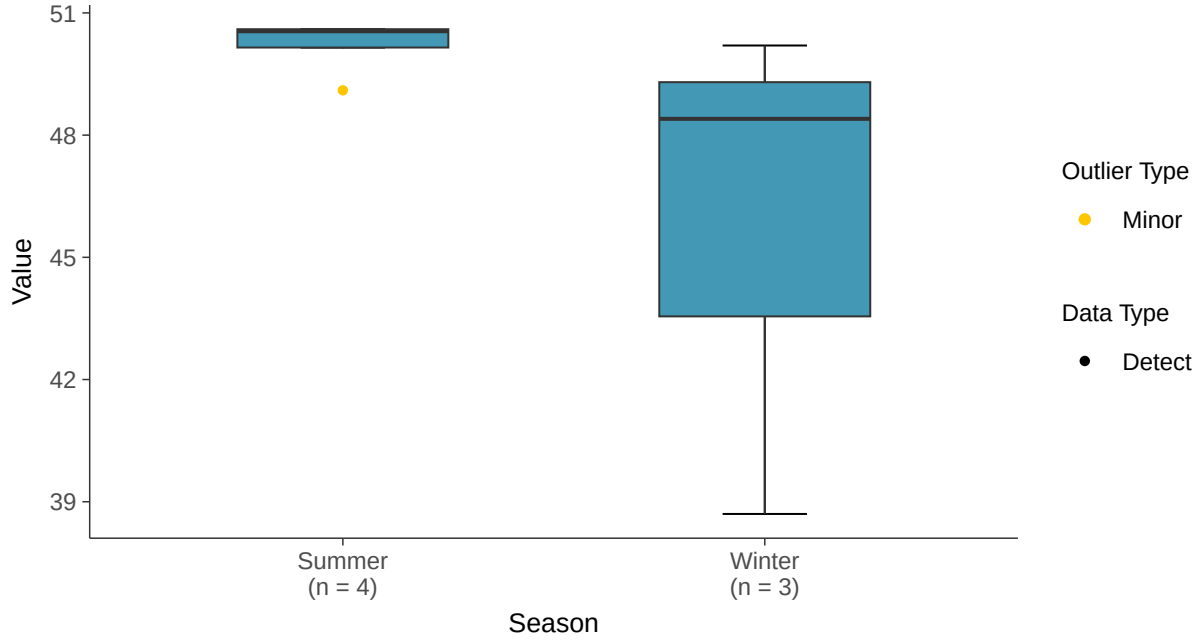
Boxplot

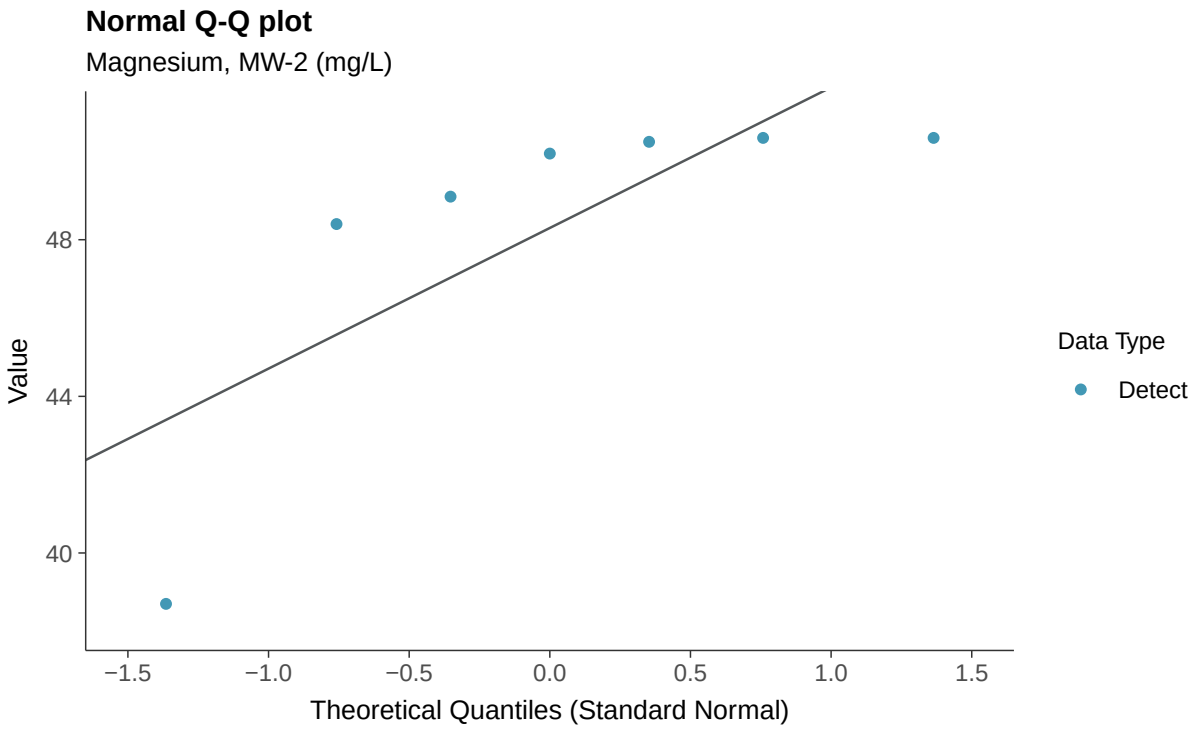
Magnesium, MW-2 (mg/L)



Boxplot by Season

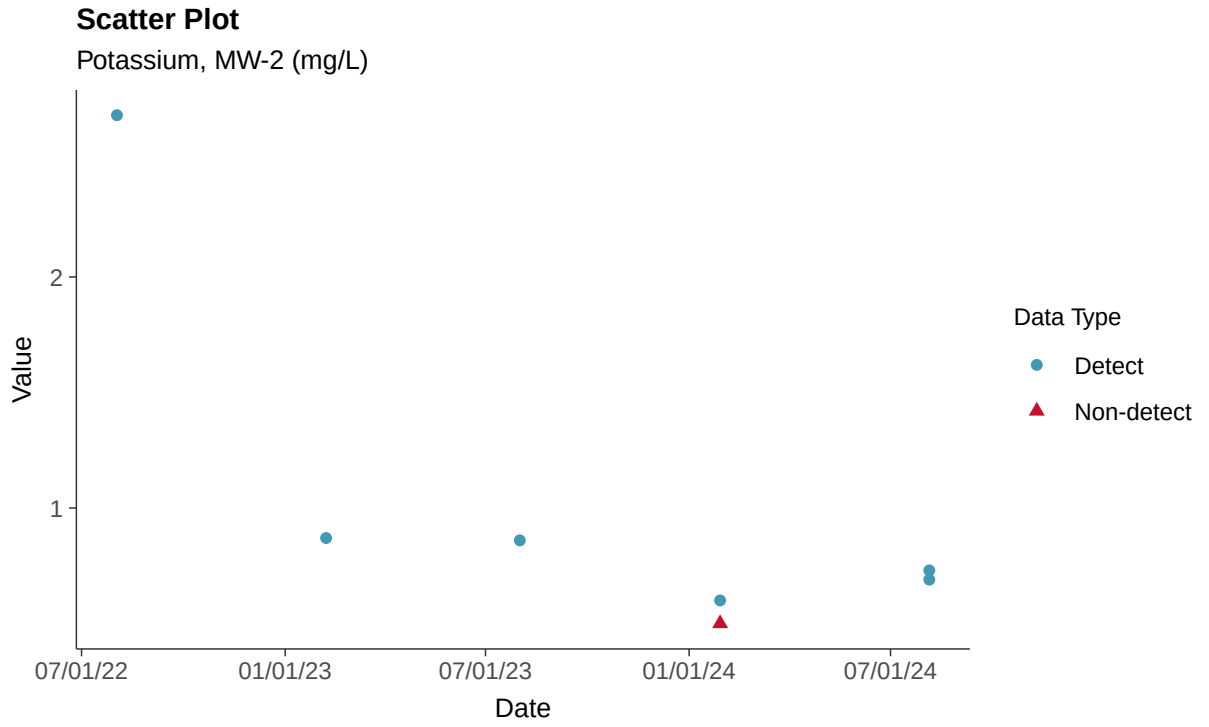
Magnesium, MW-2 (mg/L)

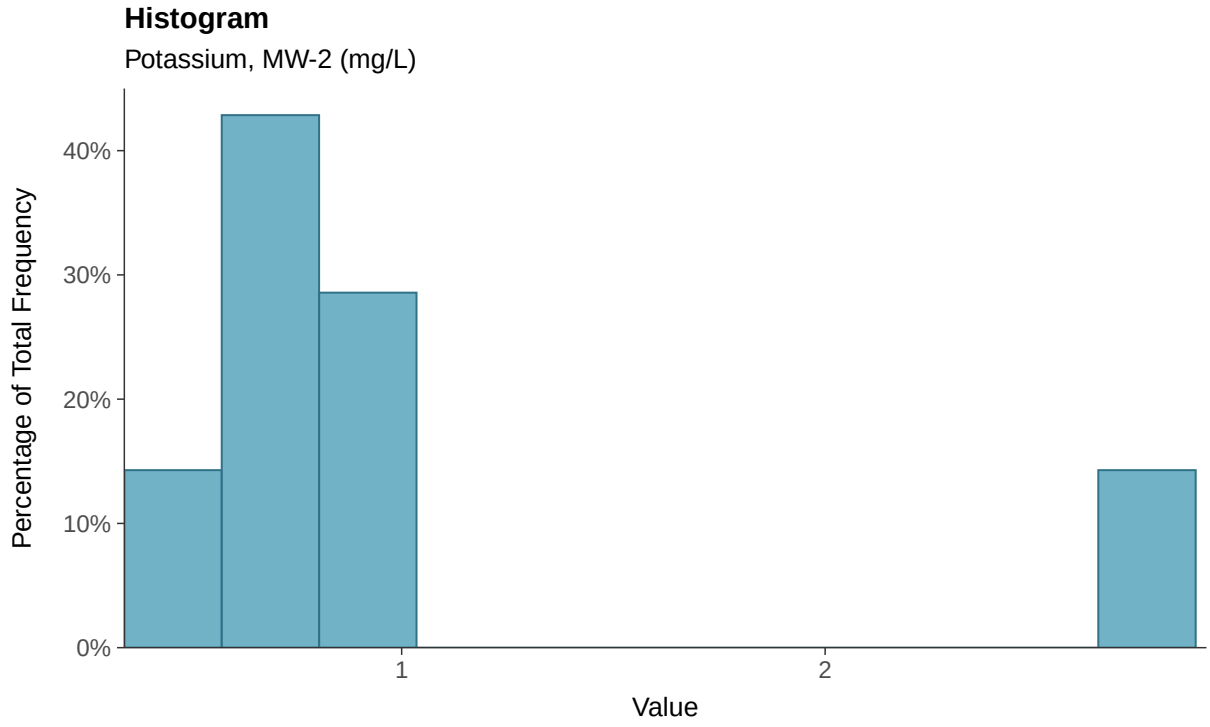



Normal Q-Q plot
Magnesium, MW-2 (mg/L)
Value
48
44
40
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
Data Type
Detect

Other: Potassium, MW-2

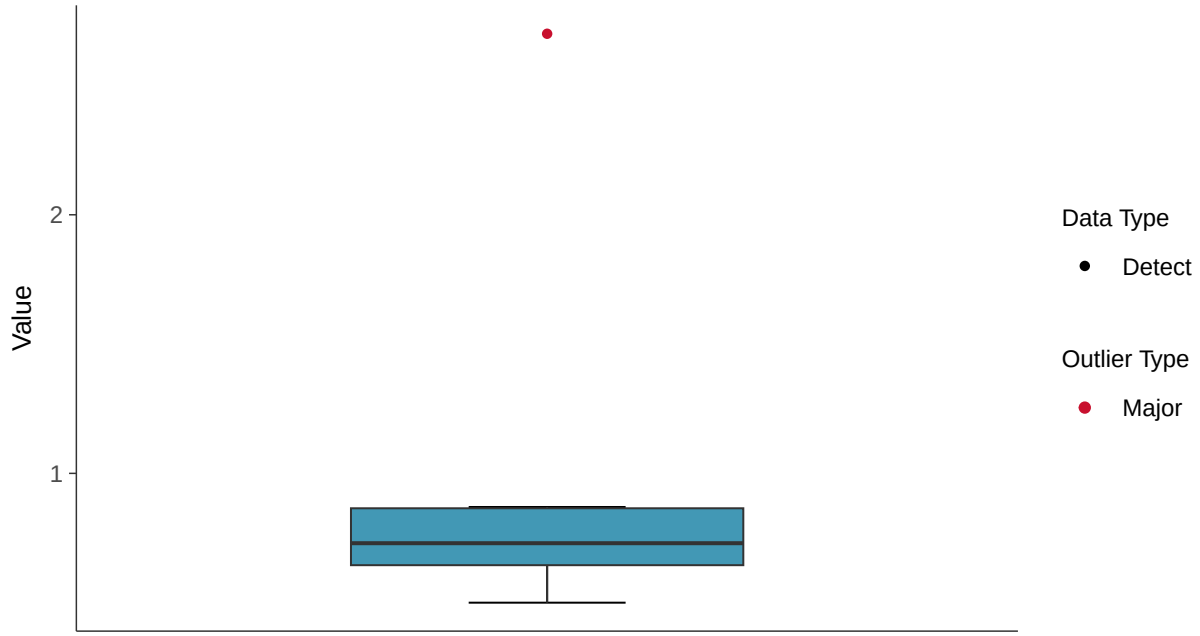
ID: 02_4_35





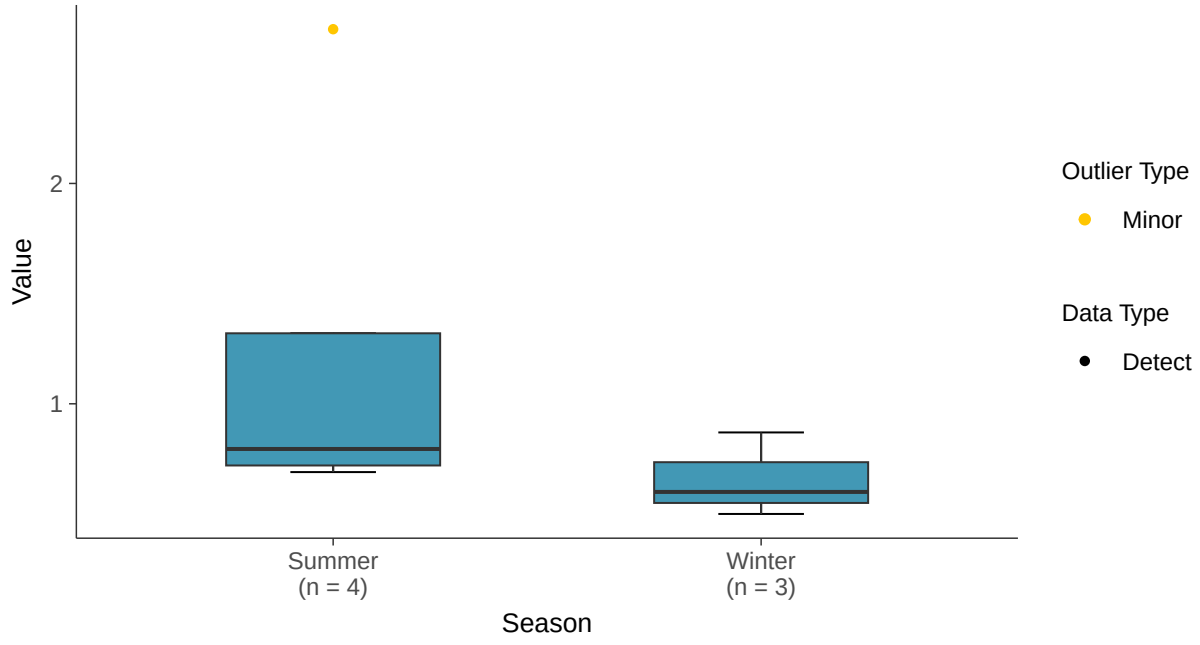
Boxplot

Potassium, MW-2 (mg/L)



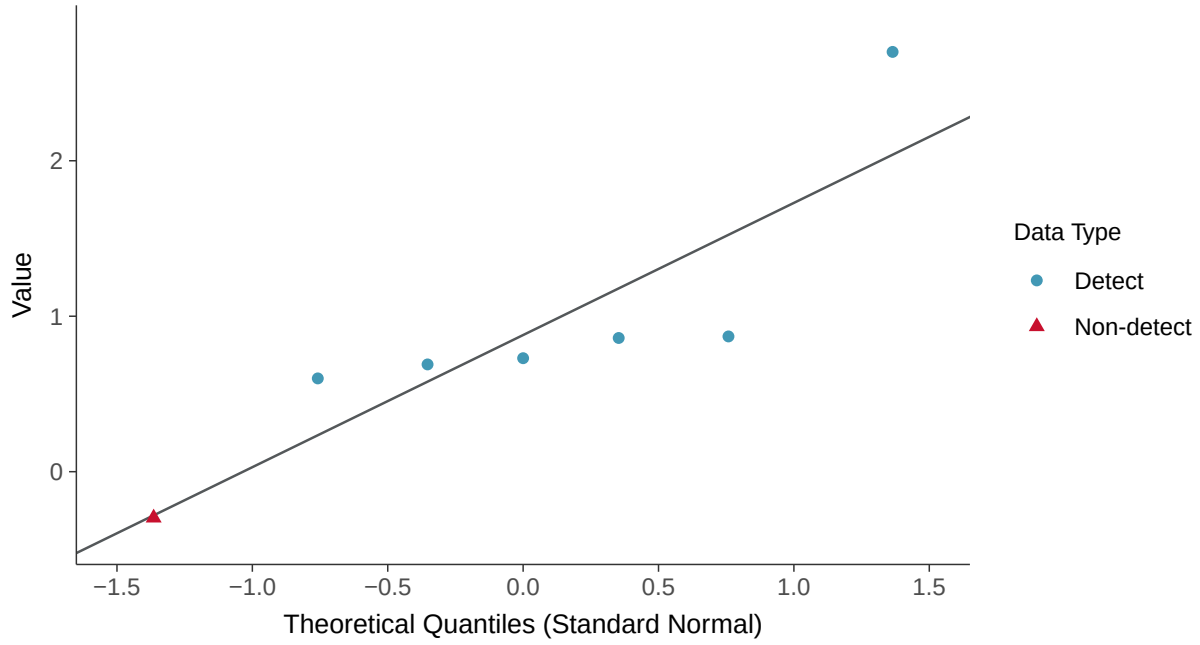
Boxplot by Season

Potassium, MW-2 (mg/L)



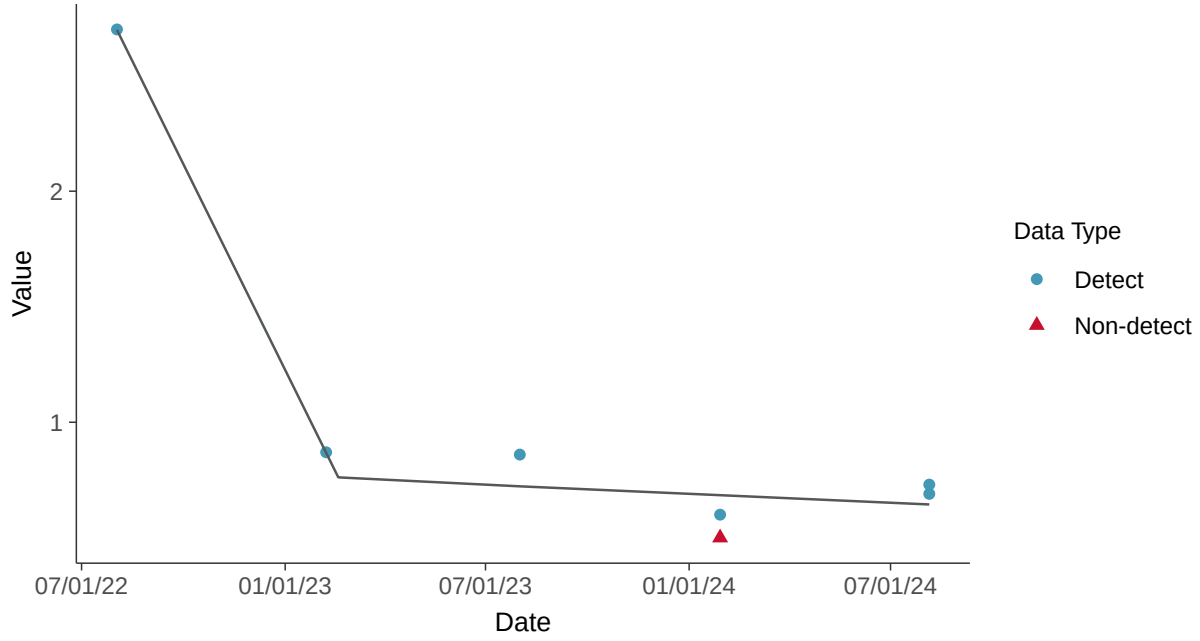
Normal Q-Q plot using ROS Imputed Estimates

Potassium, MW-2 (mg/L)



Trend Regression: Piecewise Linear-Linear

Potassium, MW-2 (mg/L)

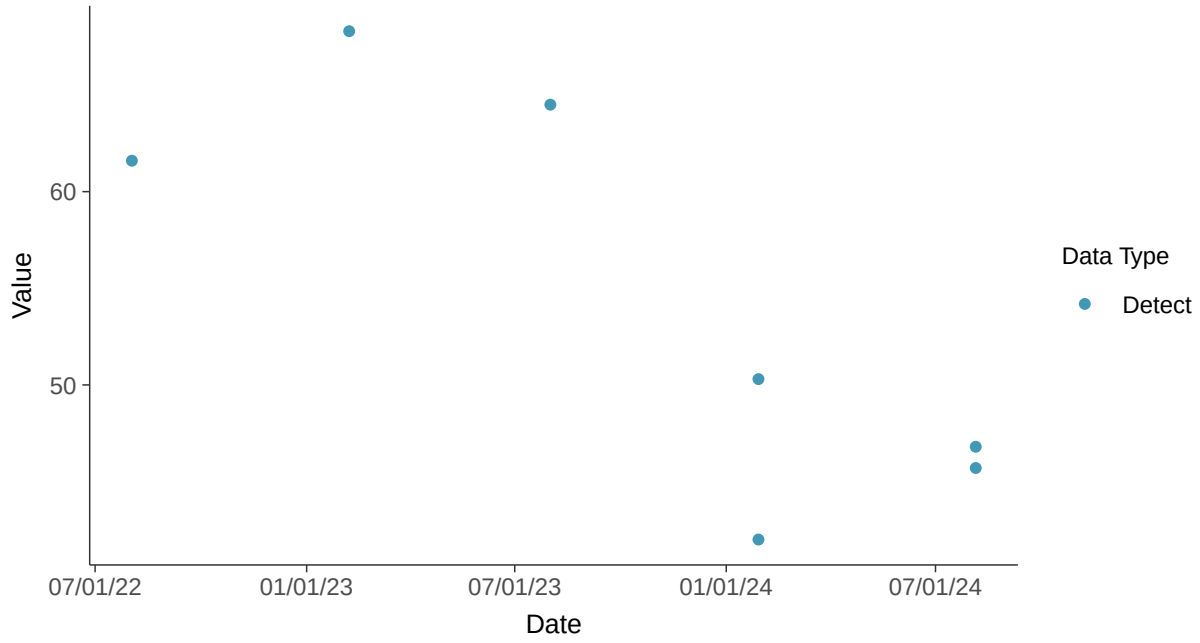


Other: Sodium, MW-2

ID: 02_4_36

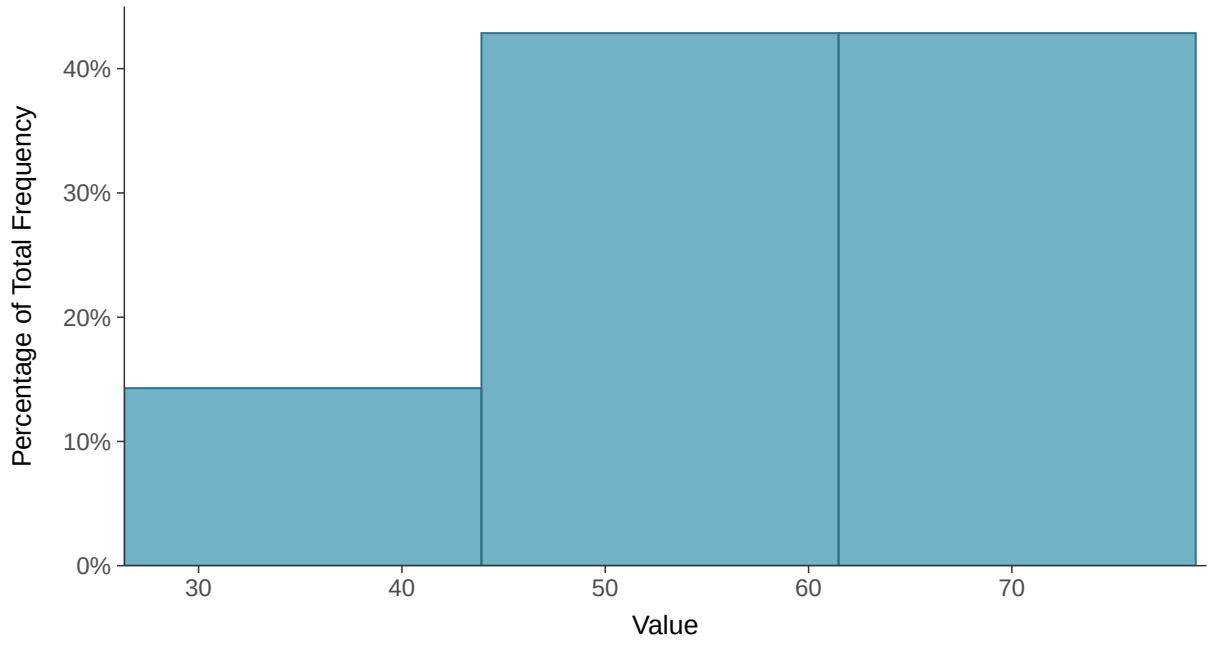
Scatter Plot

Sodium, MW-2 (mg/L)



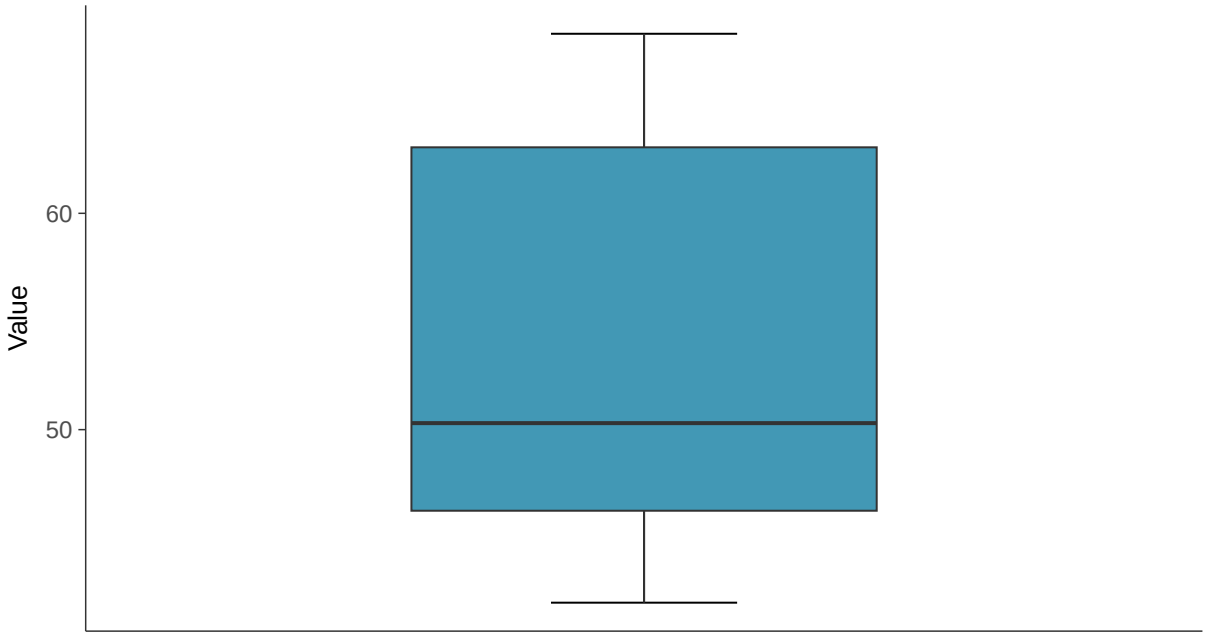
Histogram

Sodium, MW-2 (mg/L)



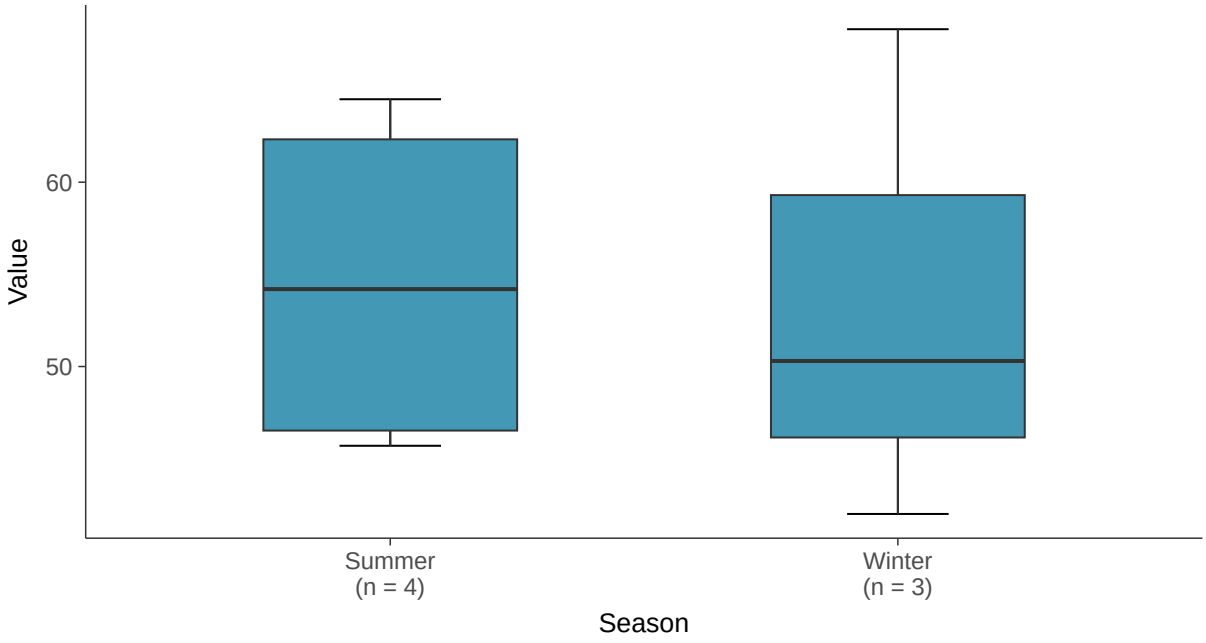
Boxplot

Sodium, MW-2 (mg/L)



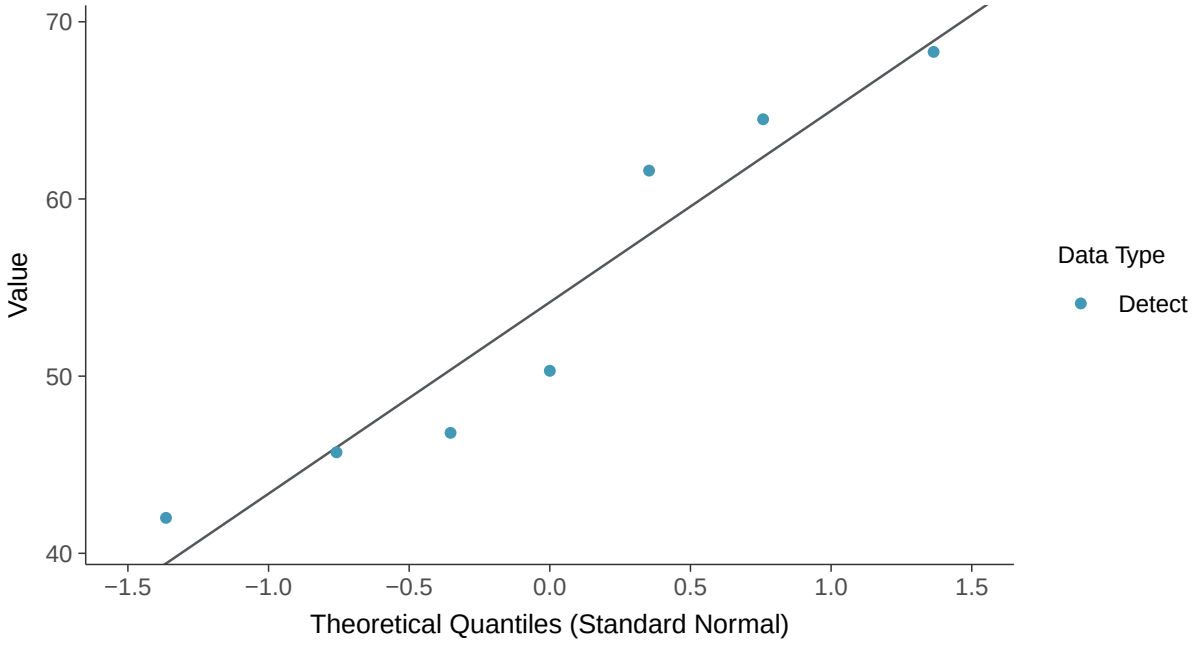
Boxplot by Season

Sodium, MW-2 (mg/L)



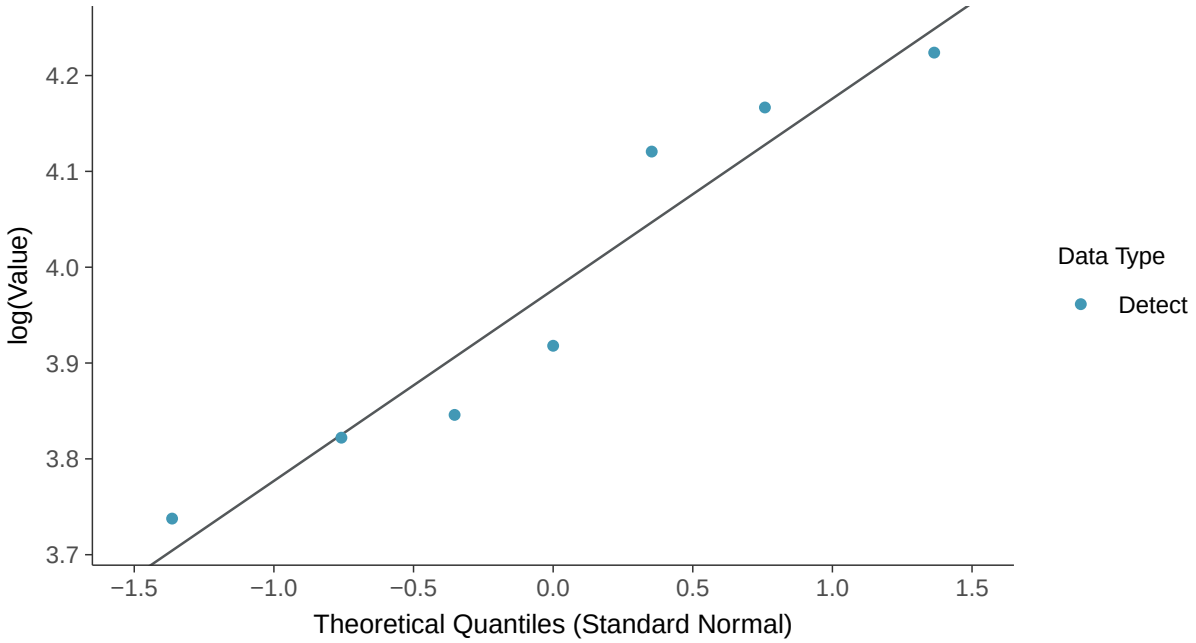
Normal Q-Q plot

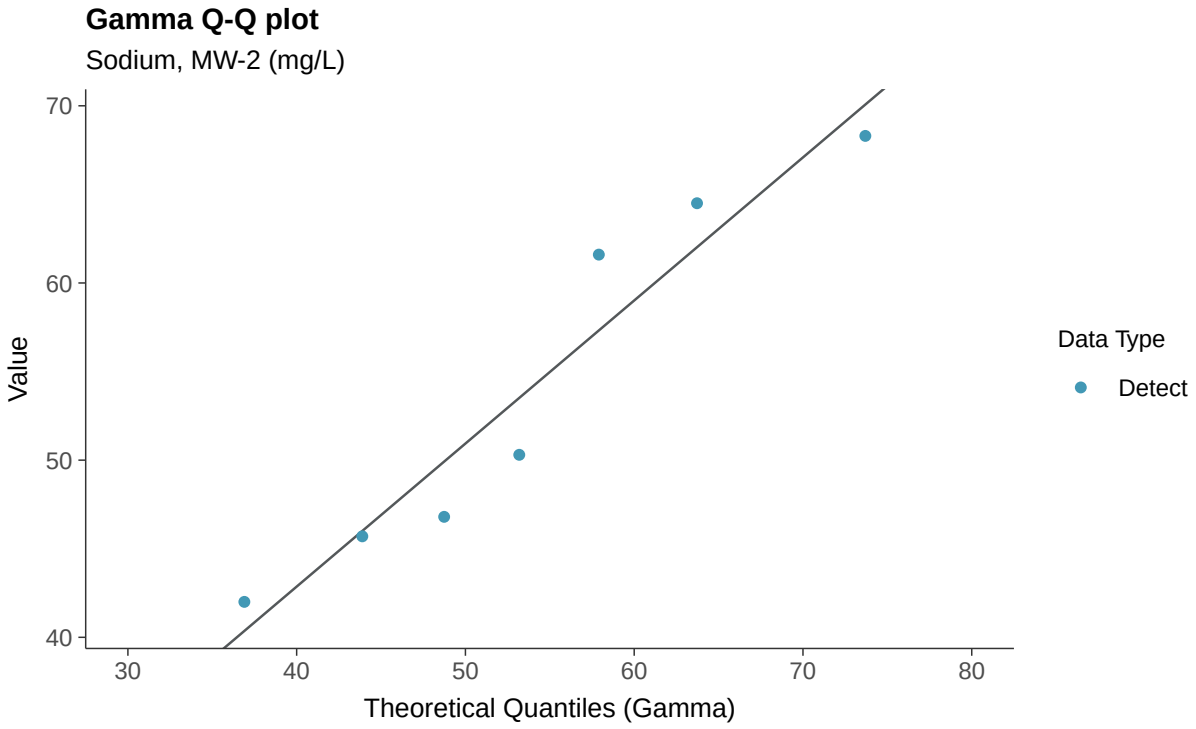
Sodium, MW-2 (mg/L)



Lognormal Q-Q plot

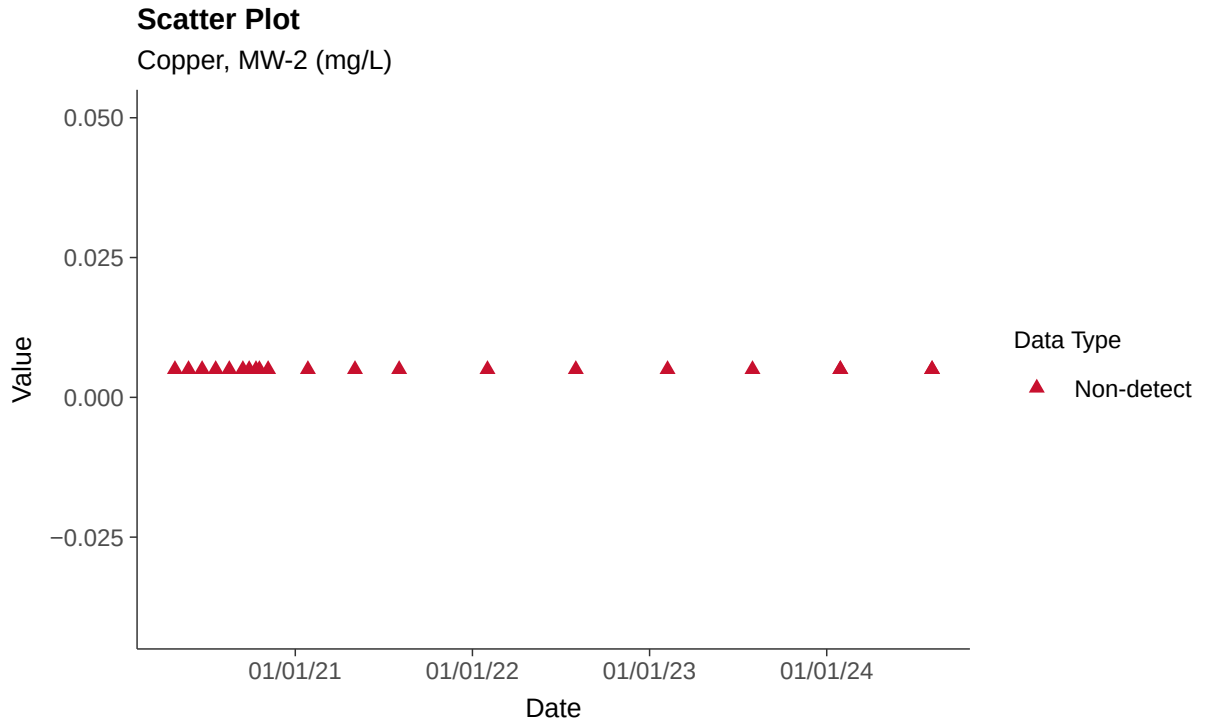
Sodium, MW-2 (mg/L)

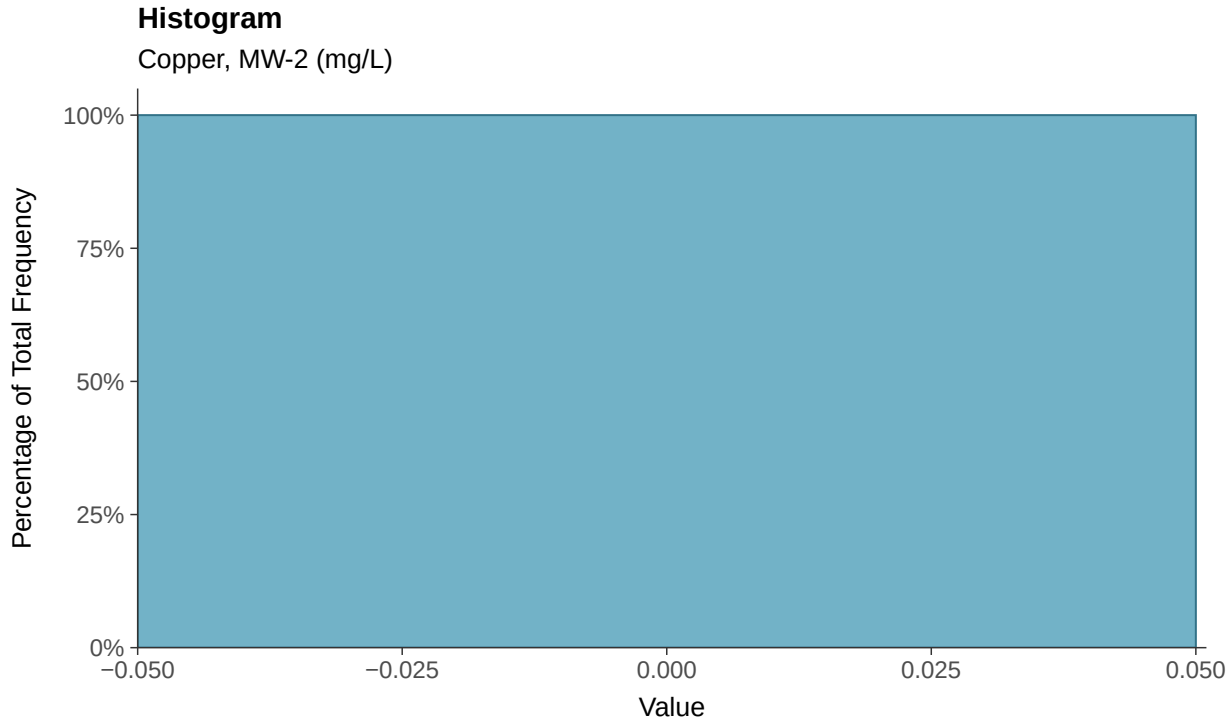



Gamma Q-Q plot
Sodium, MW-2 (mg/L)
Value
70
60
50
40
30
40
50
60
70
80
Theoretical Quantiles (Gamma)
Data Type
Detect

Part 115: Copper, MW-2

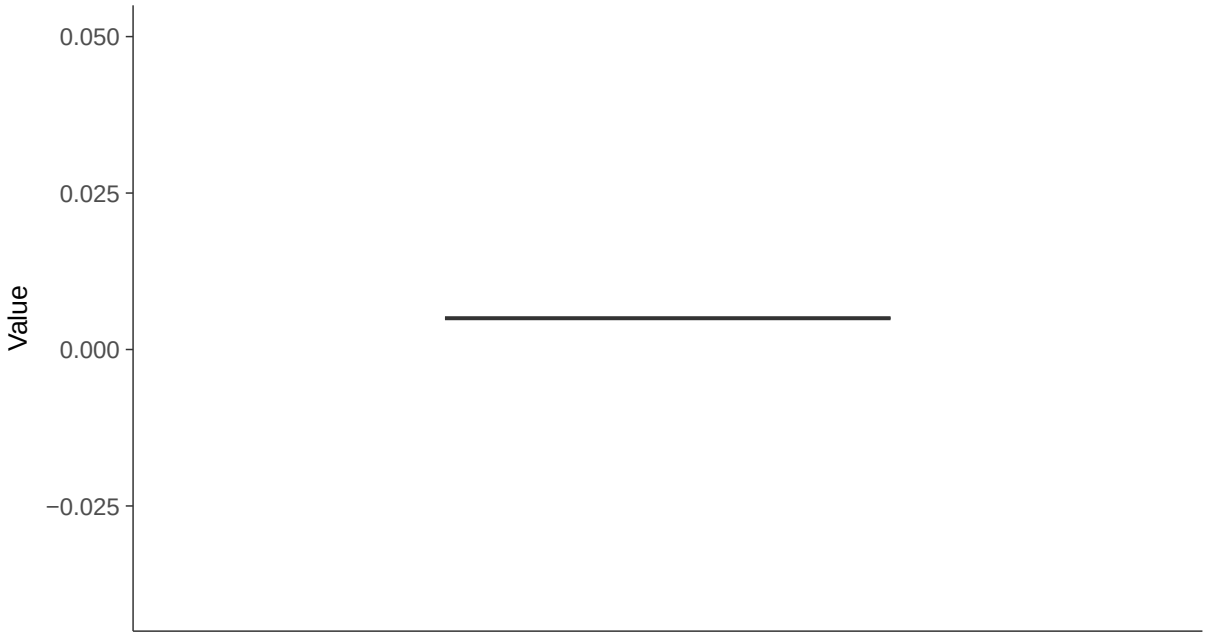
ID: 02_5_37





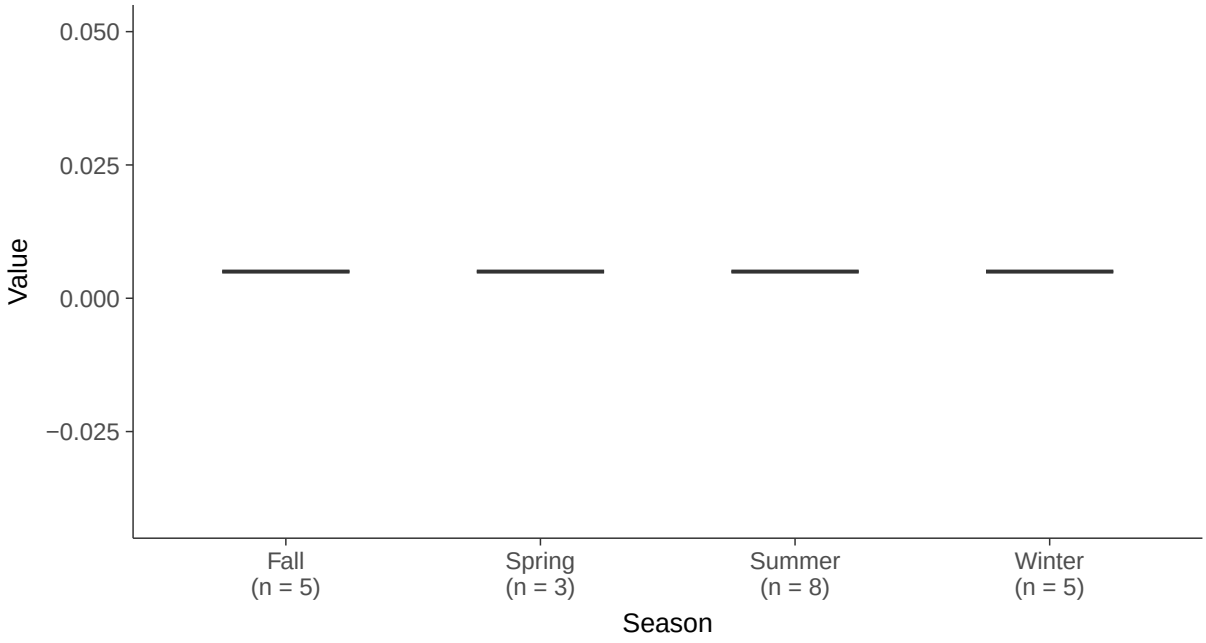
Boxplot

Copper, MW-2 (mg/L)



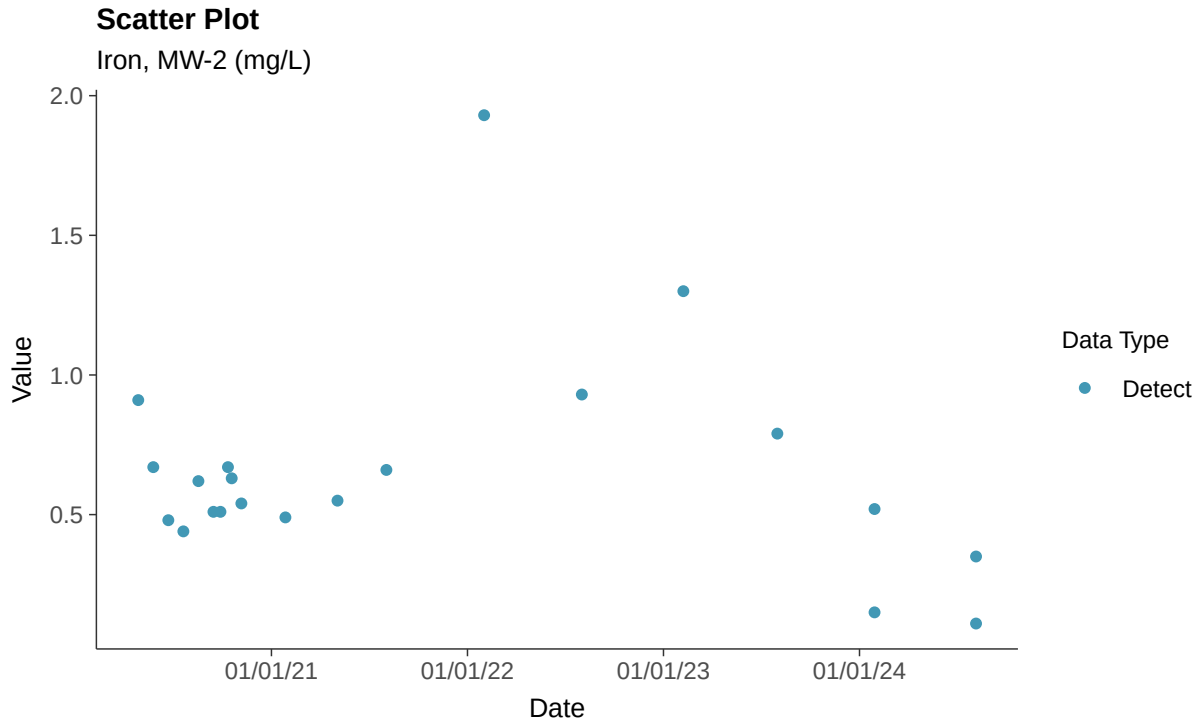
Boxplot by Season

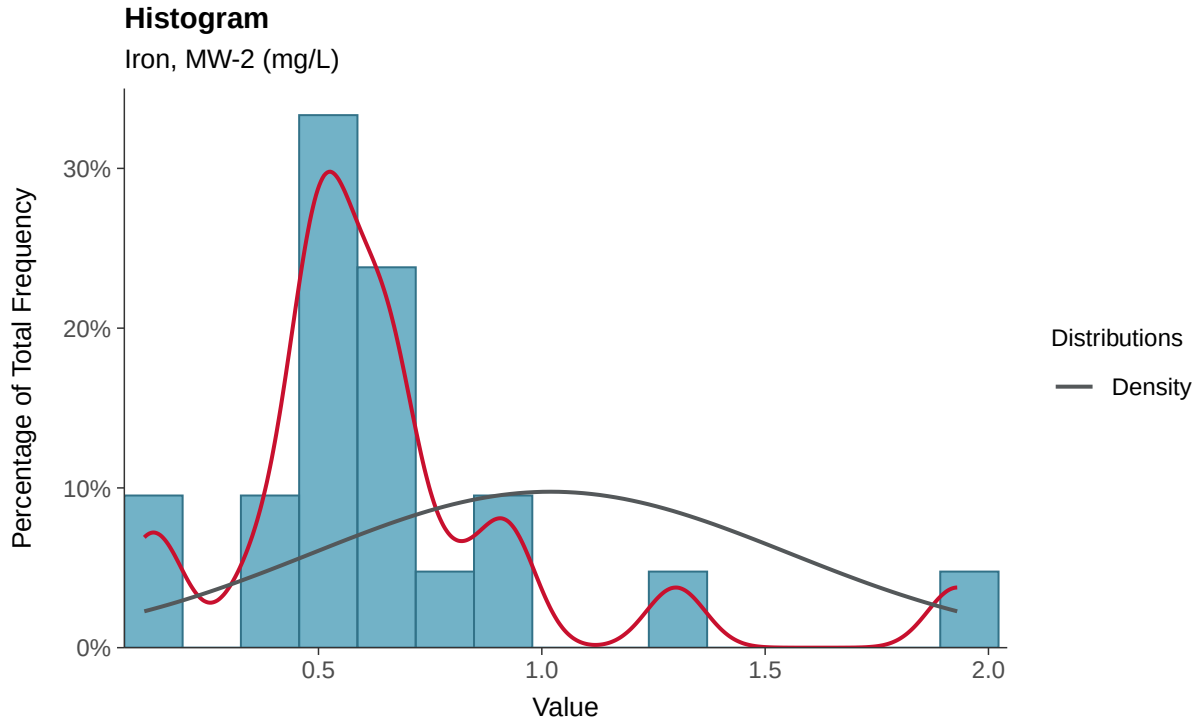
Copper, MW-2 (mg/L)



Part 115: Iron, MW-2

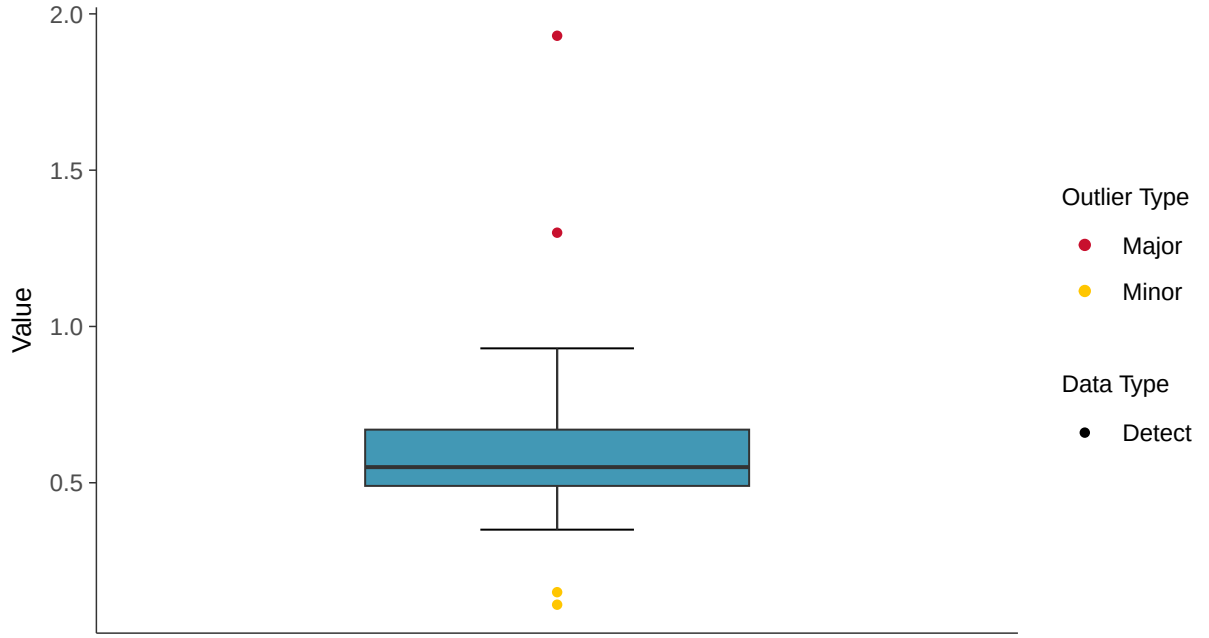
ID: 02_5_38





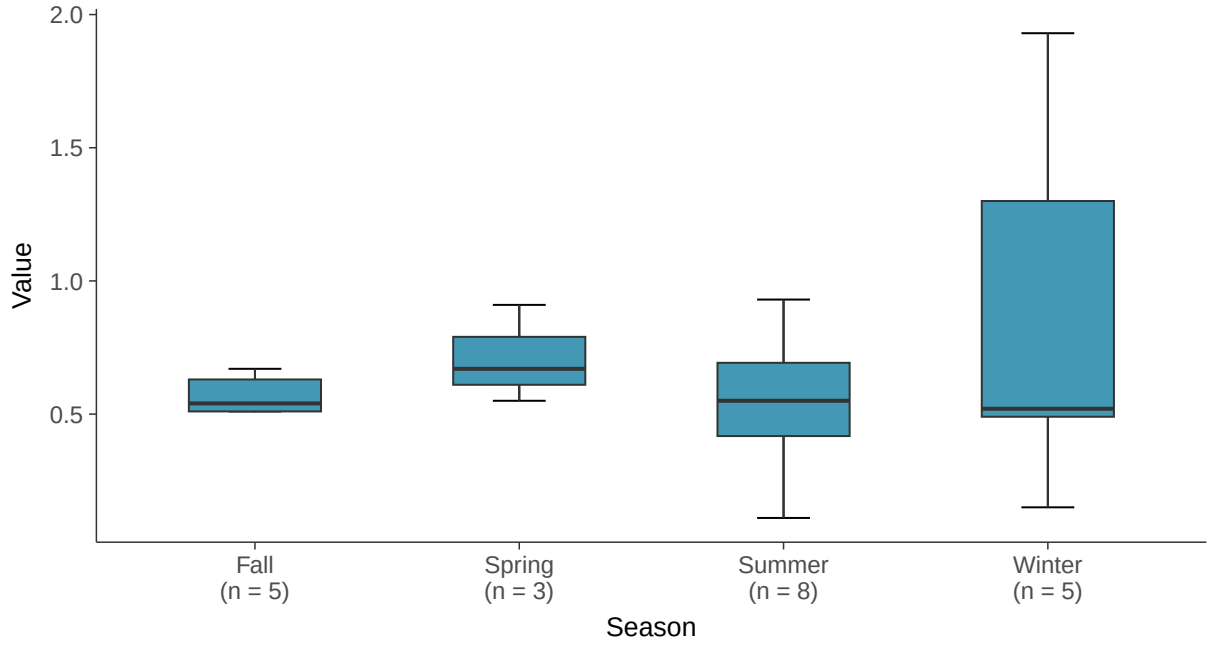
Boxplot

Iron, MW-2 (mg/L)



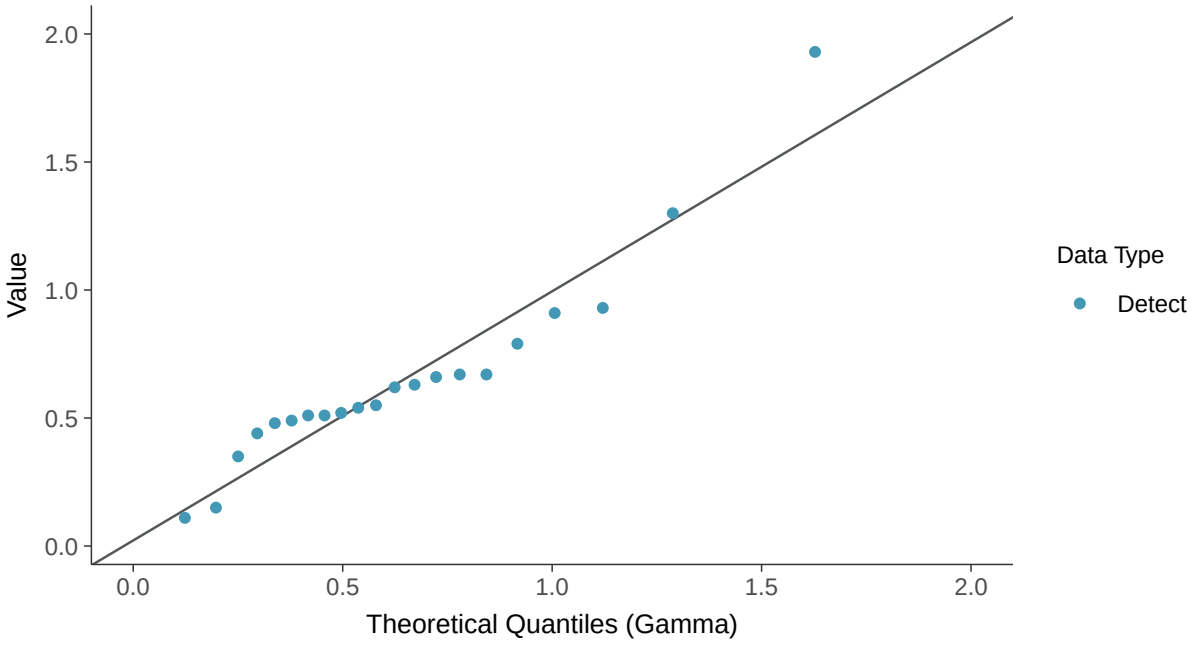
Boxplot by Season

Iron, MW-2 (mg/L)



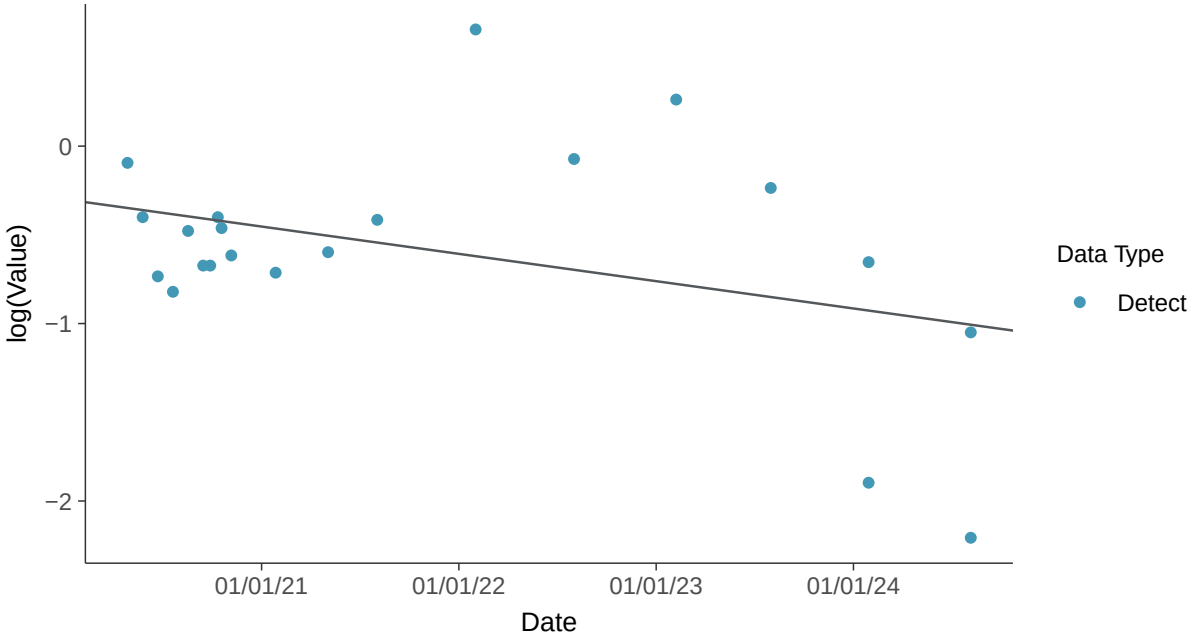
Gamma Q-Q plot

Iron, MW-2 (mg/L)



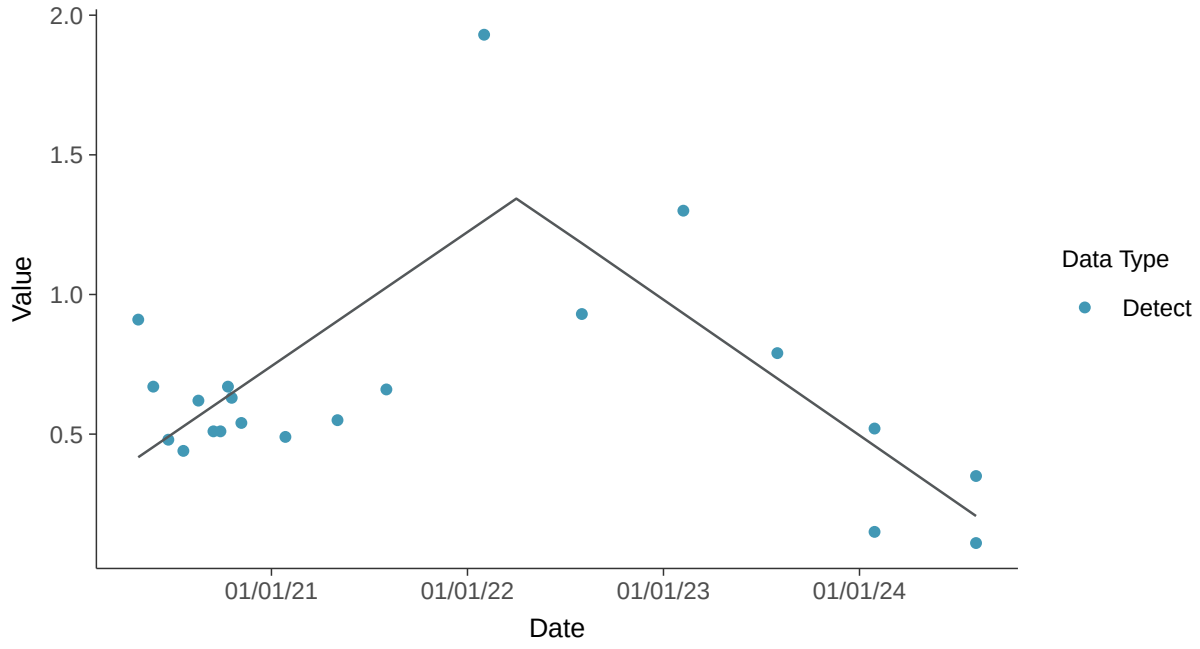
Trend Regression: Lognormal MLE

Iron, MW-2 (mg/L)



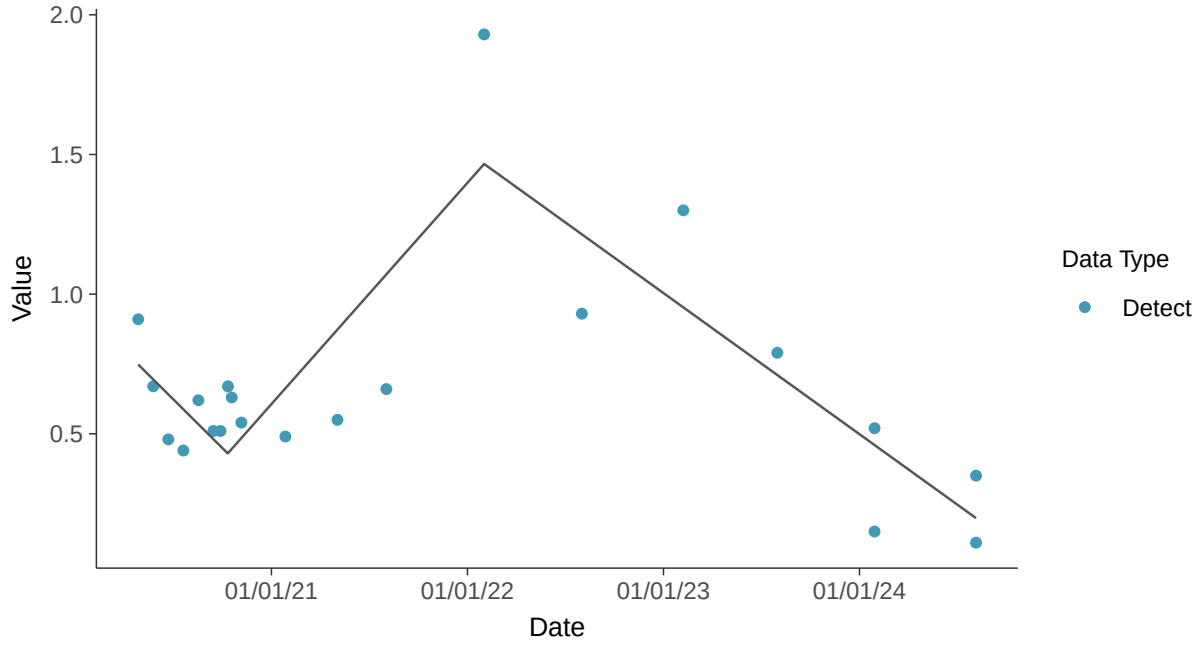
Trend Regression: Piecewise Linear-Linear

Iron, MW-2 (mg/L)



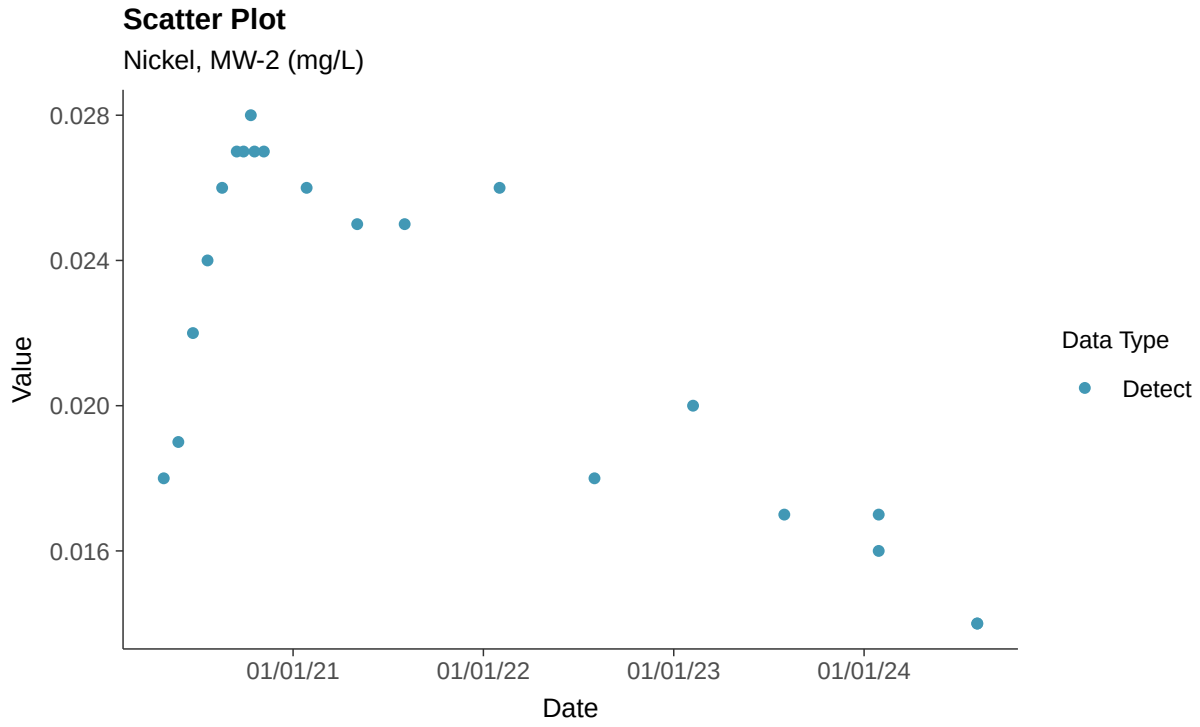
Trend Regression: Piecewise Linear-Linear-Linear

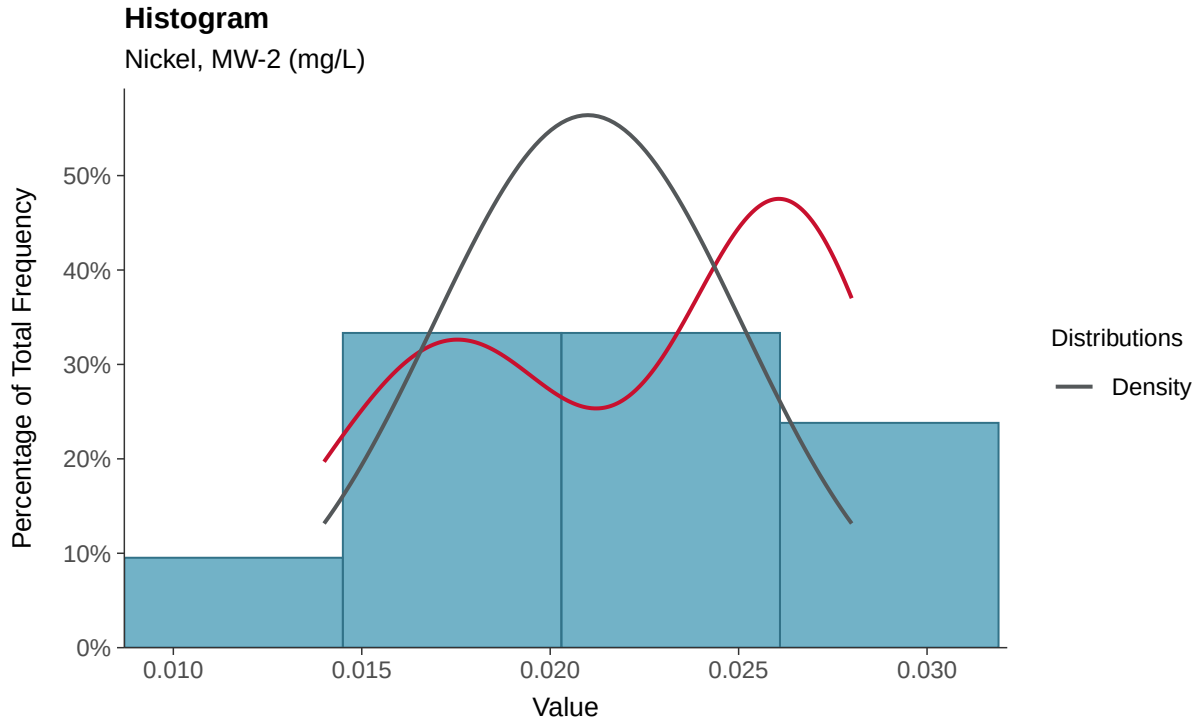
Iron, MW-2 (mg/L)



Part 115: Nickel, MW-2

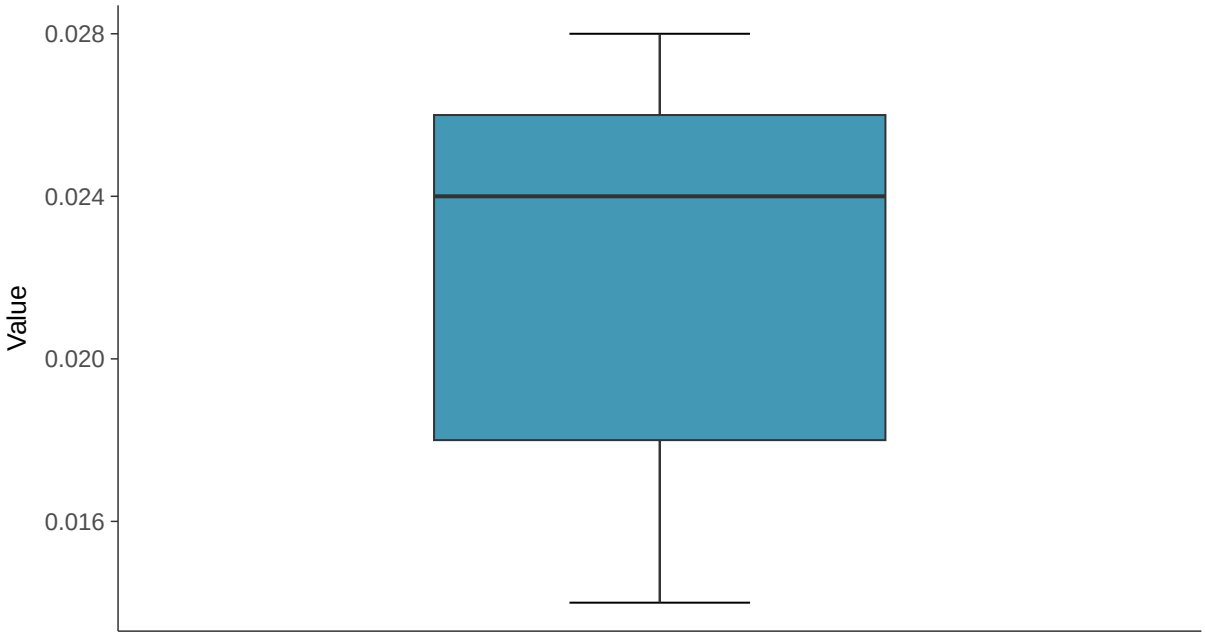
ID: 02_5_39





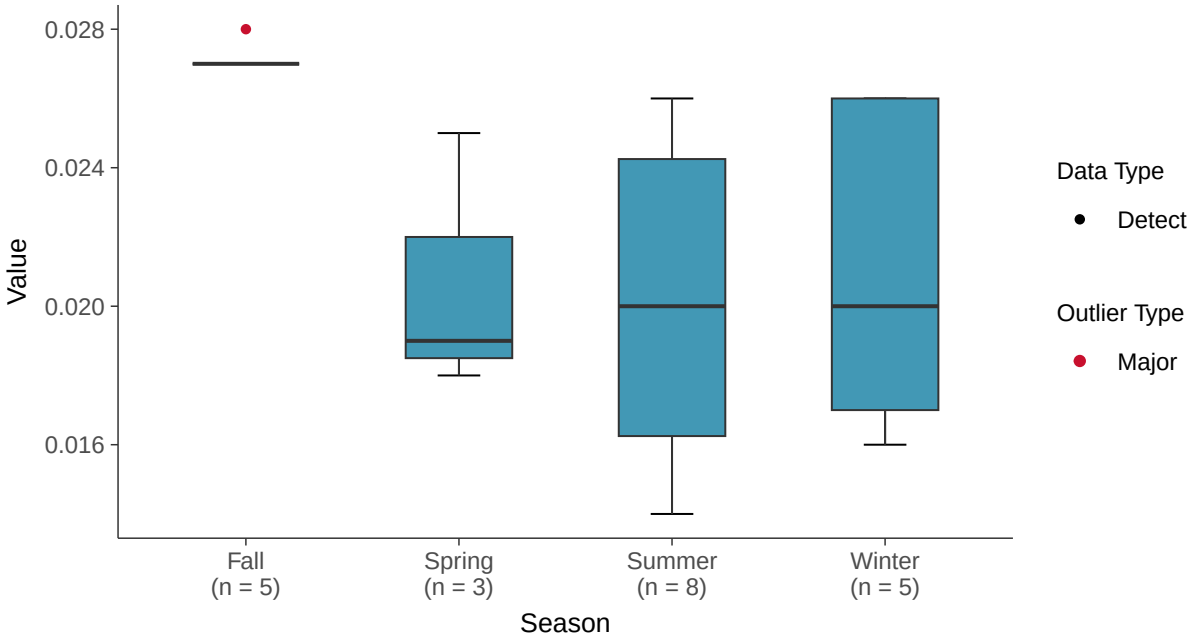
Boxplot

Nickel, MW-2 (mg/L)



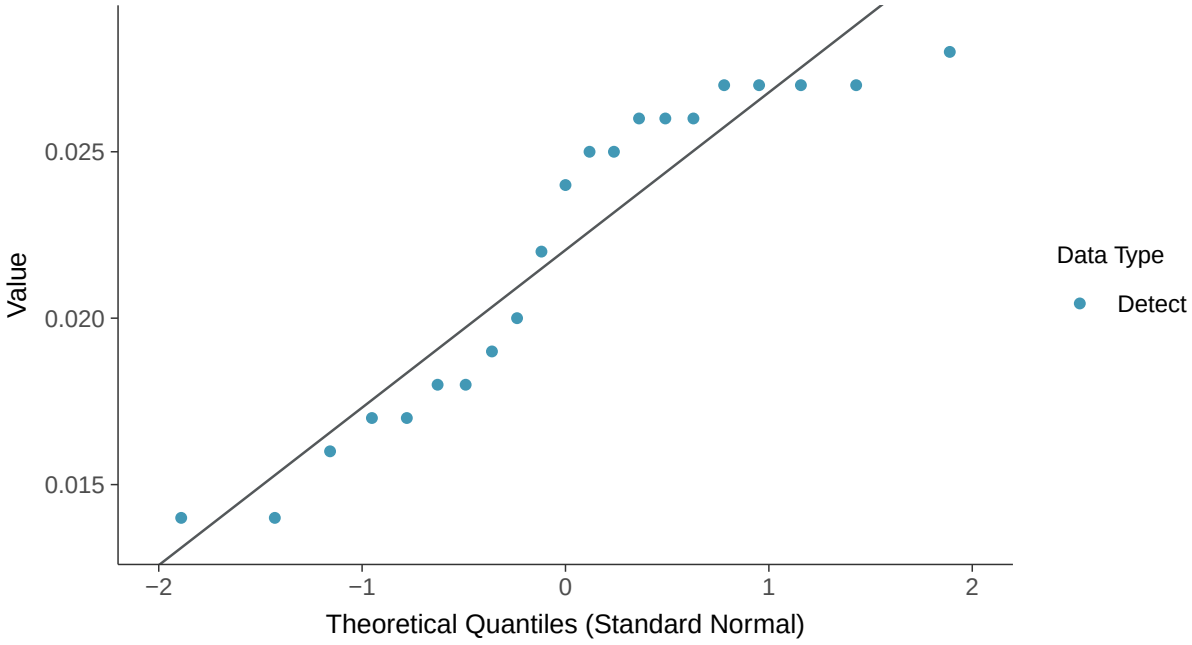
Boxplot by Season

Nickel, MW-2 (mg/L)



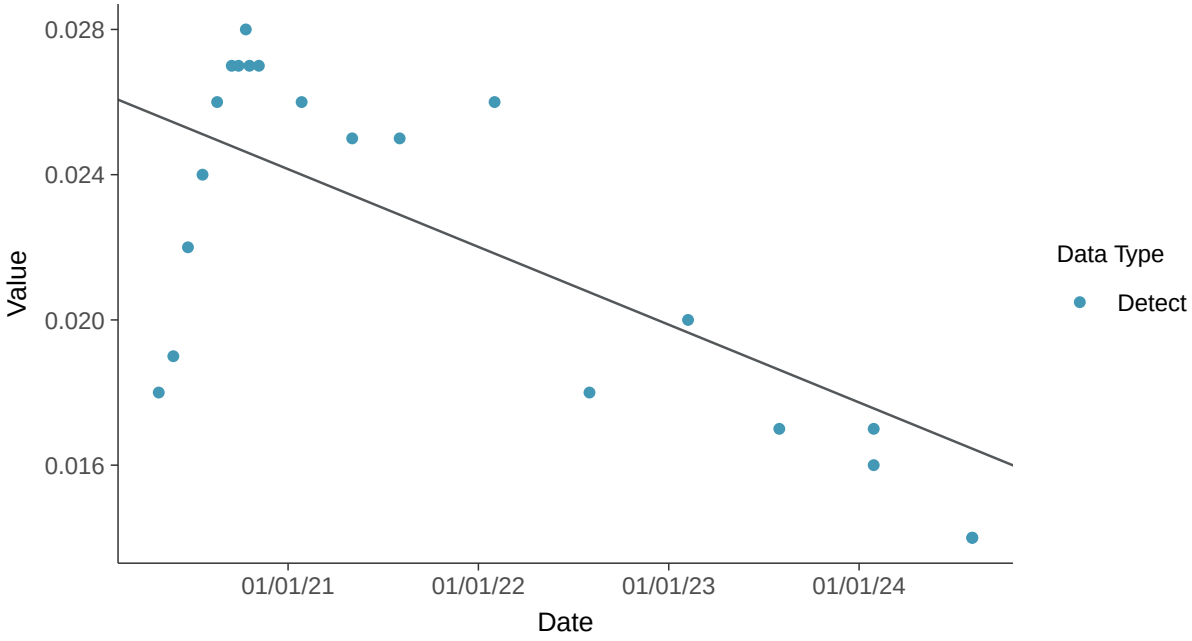
Normal Q-Q plot

Nickel, MW-2 (mg/L)



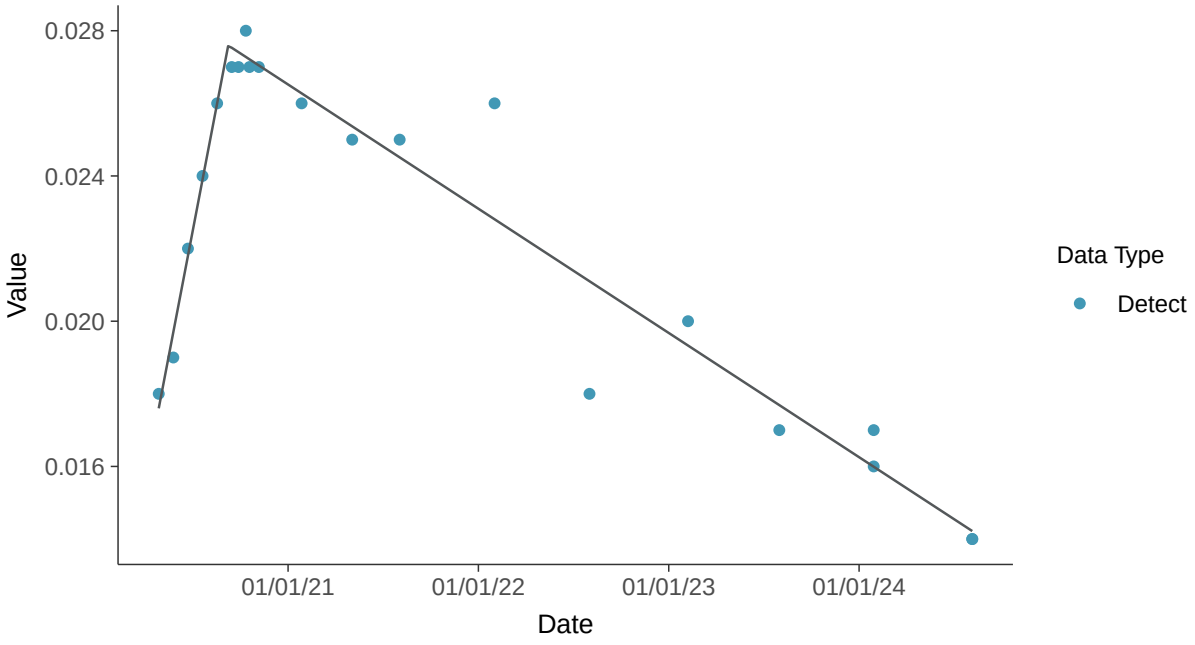
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Nickel, MW-2 (mg/L)



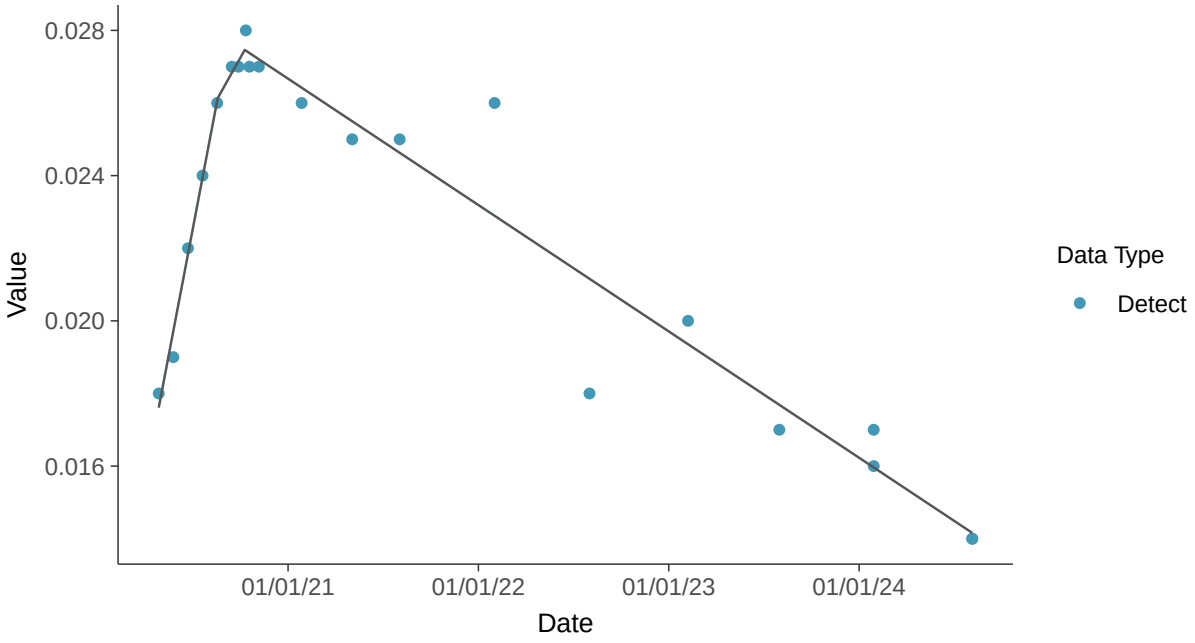
Trend Regression: Piecewise Linear-Linear

Nickel, MW-2 (mg/L)



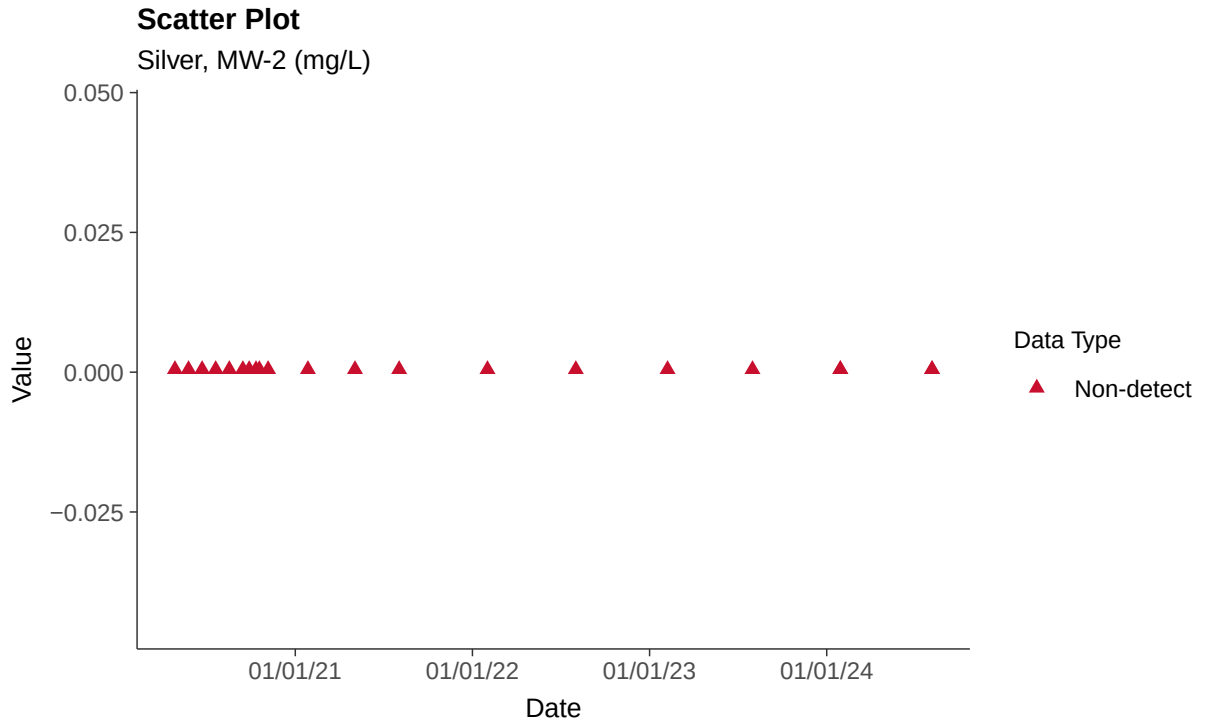
Trend Regression: Piecewise Linear-Linear-Linear

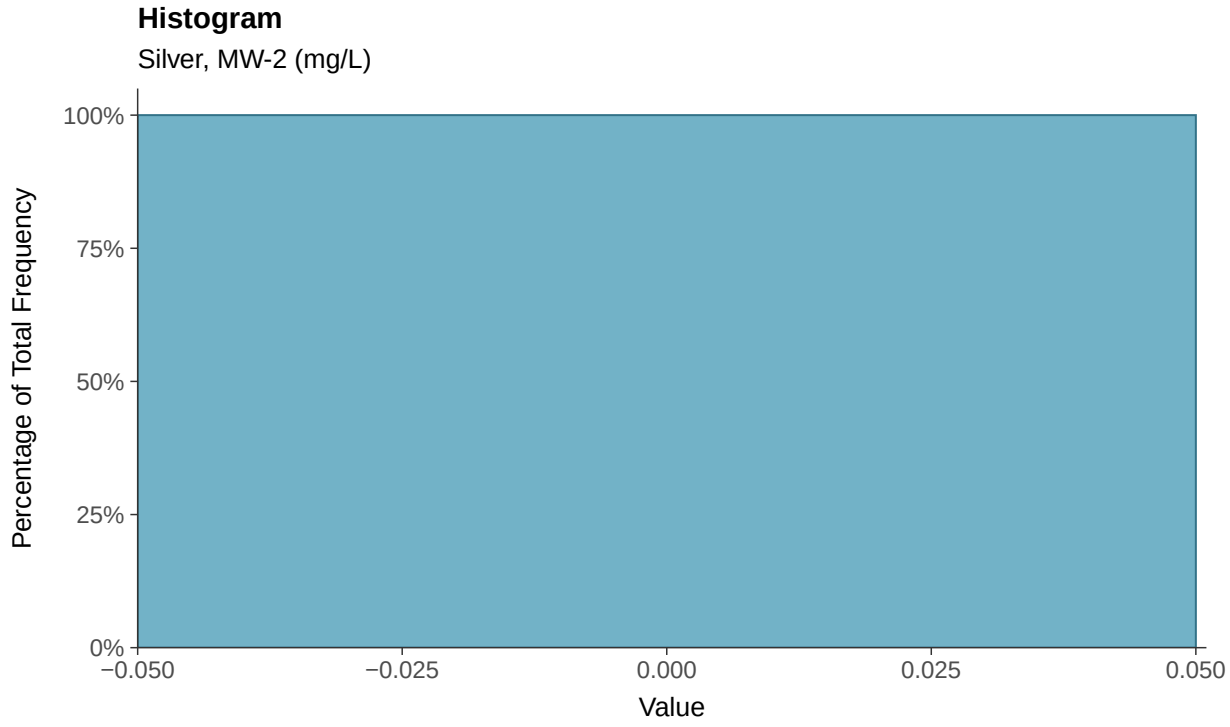
Nickel, MW-2 (mg/L)



Part 115: Silver, MW-2

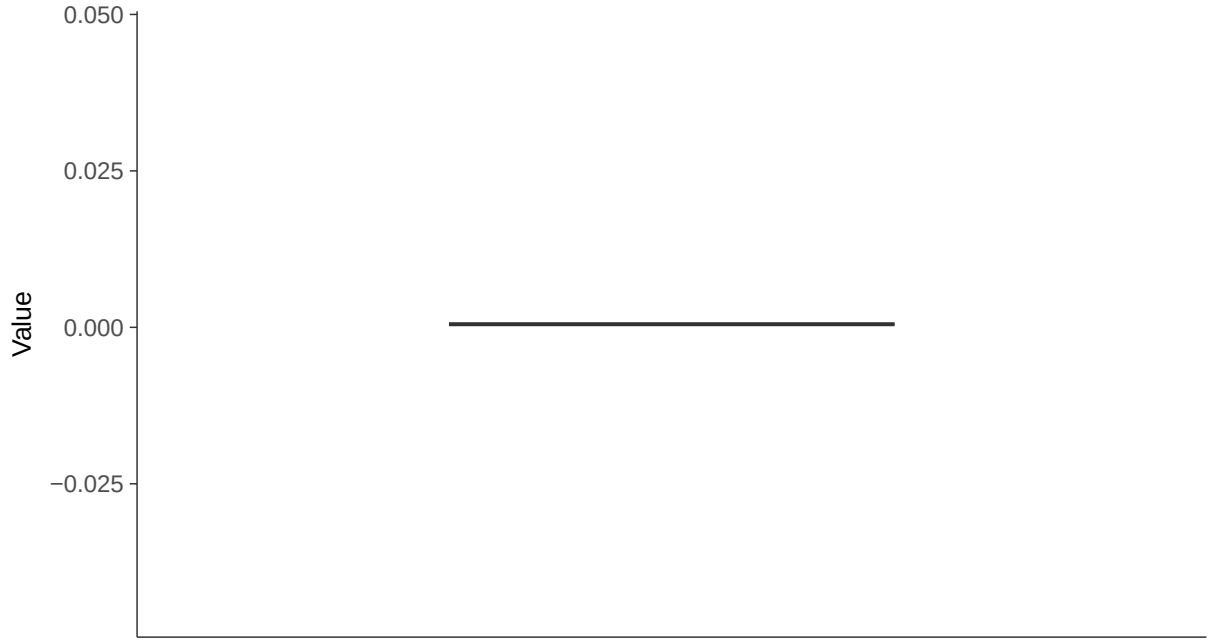
ID: 02_5_40





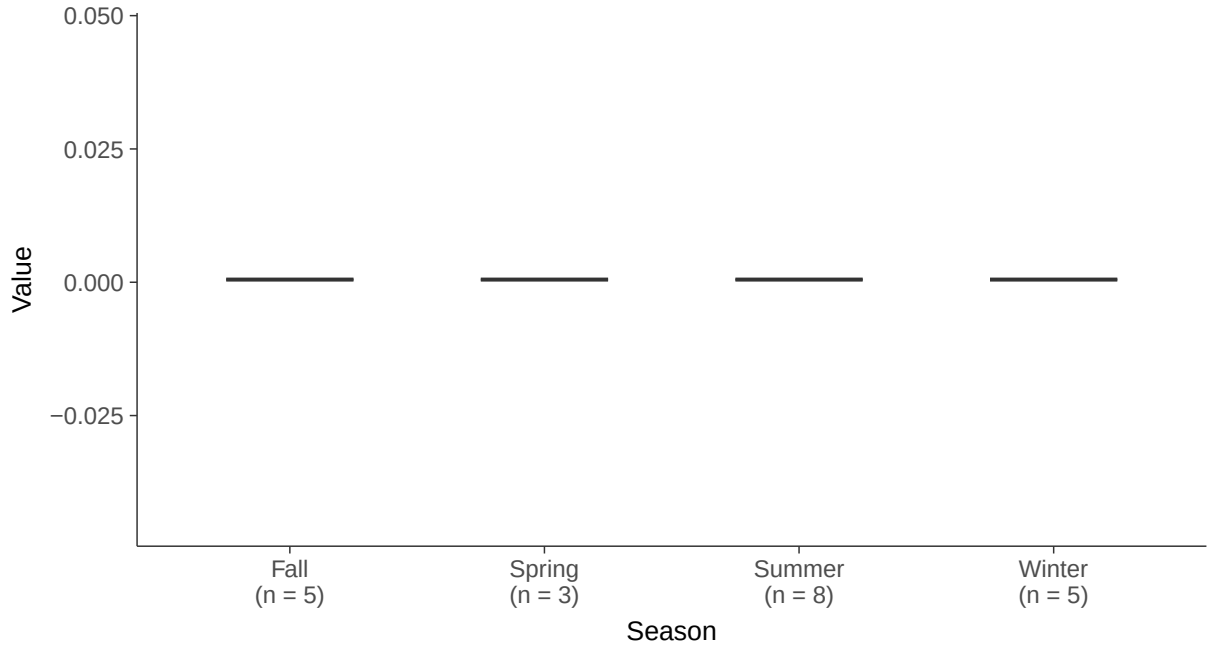
Boxplot

Silver, MW-2 (mg/L)



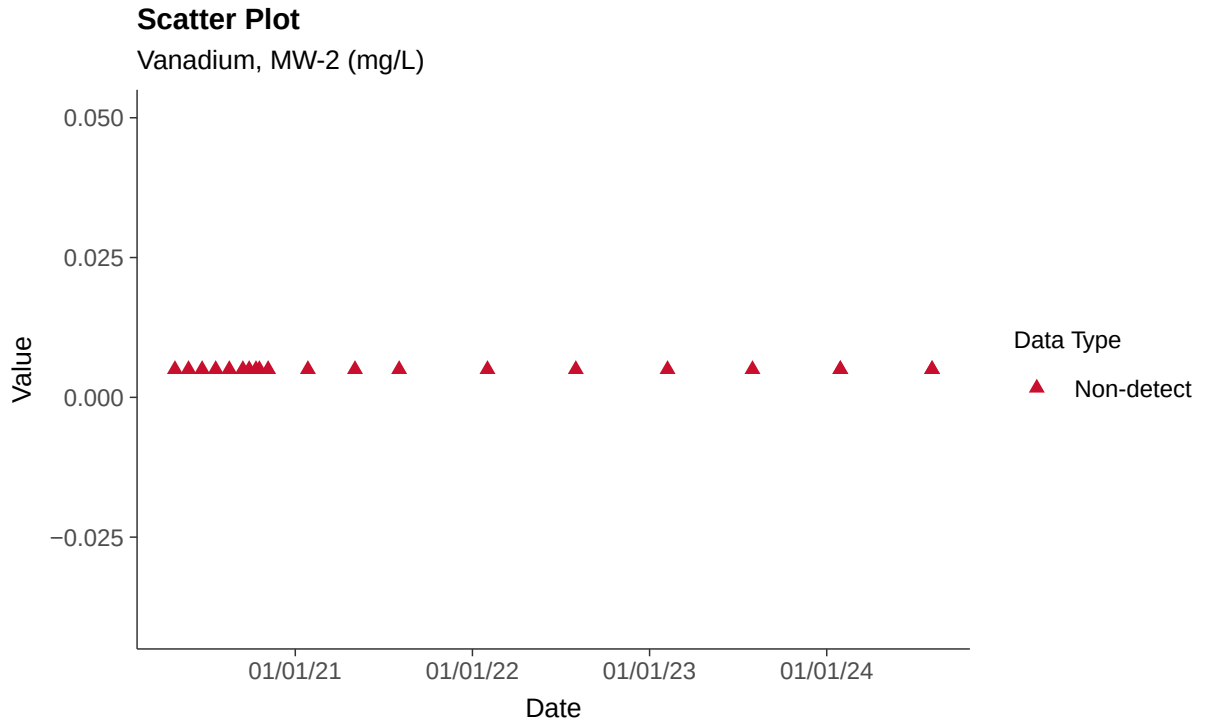
Boxplot by Season

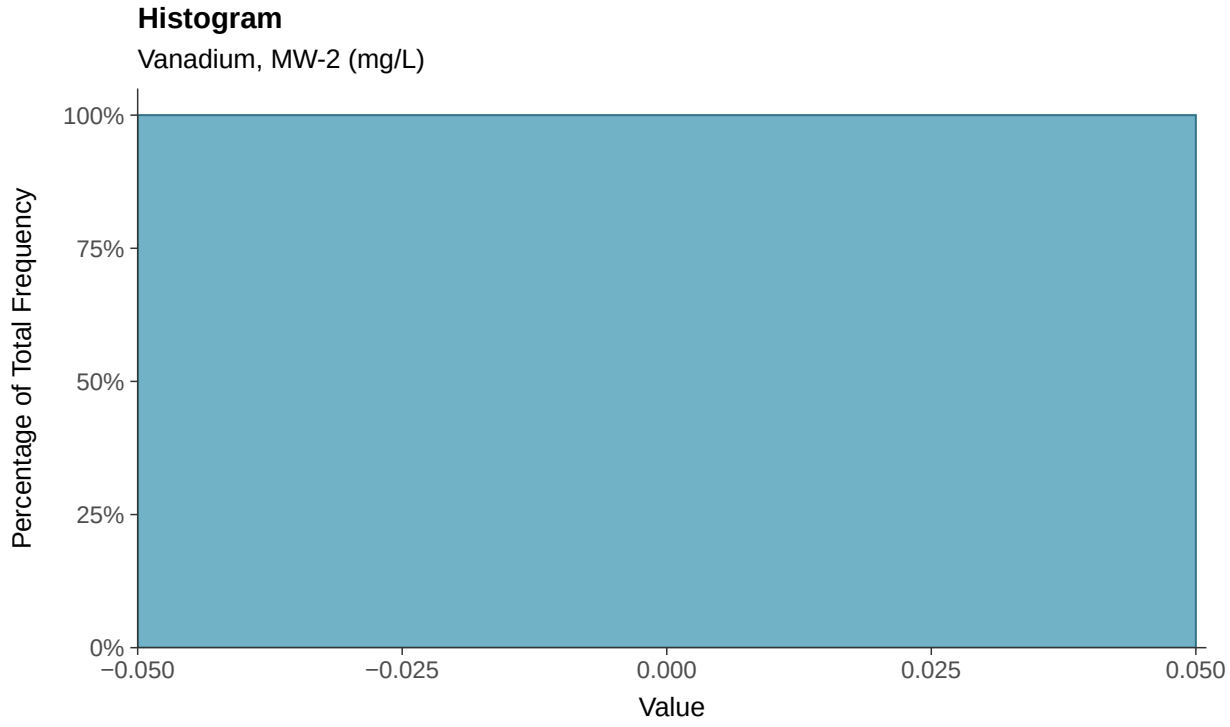
Silver, MW-2 (mg/L)



Part 115: Vanadium, MW-2

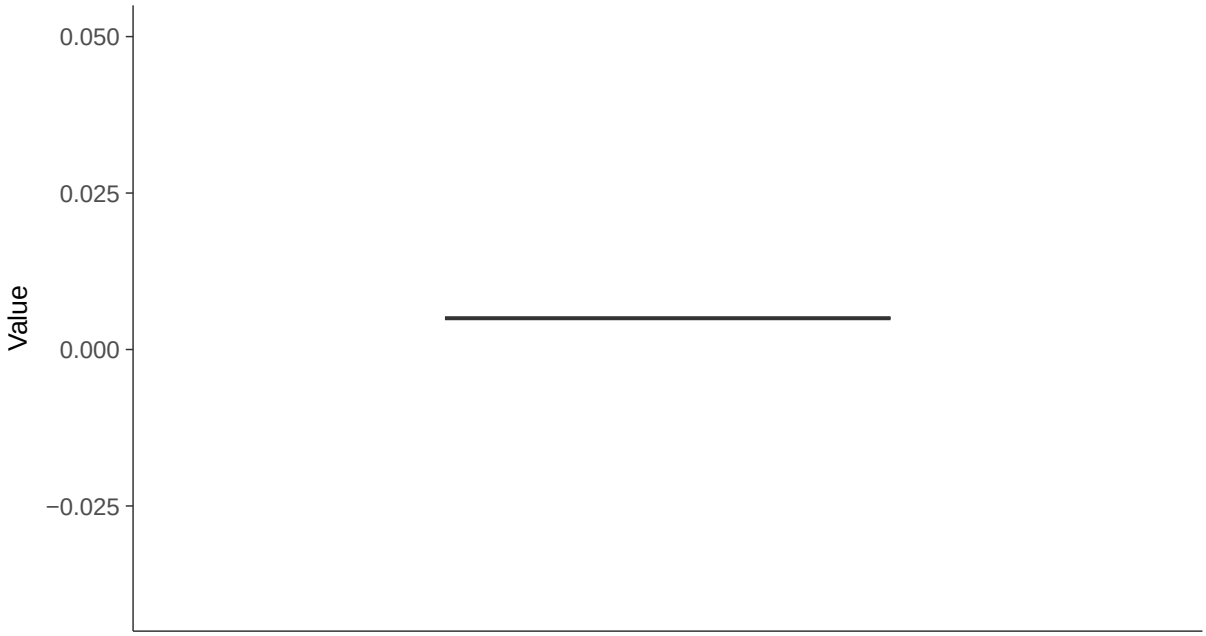
ID: 02_5_41





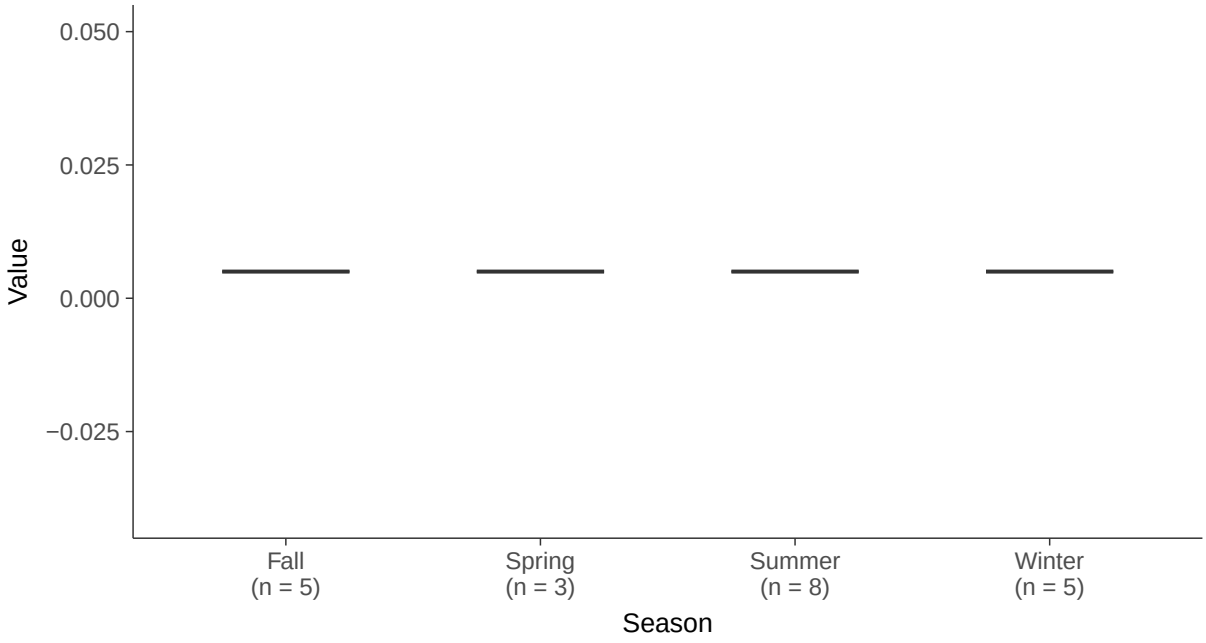
Boxplot

Vanadium, MW-2 (mg/L)



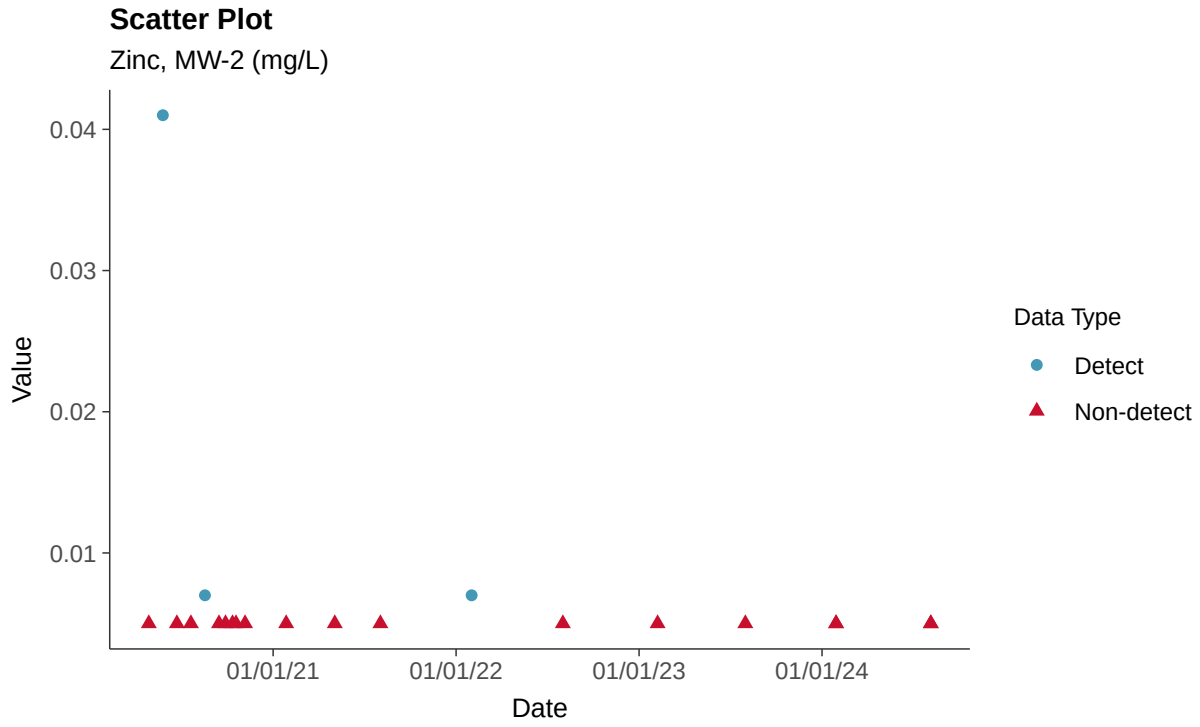
Boxplot by Season

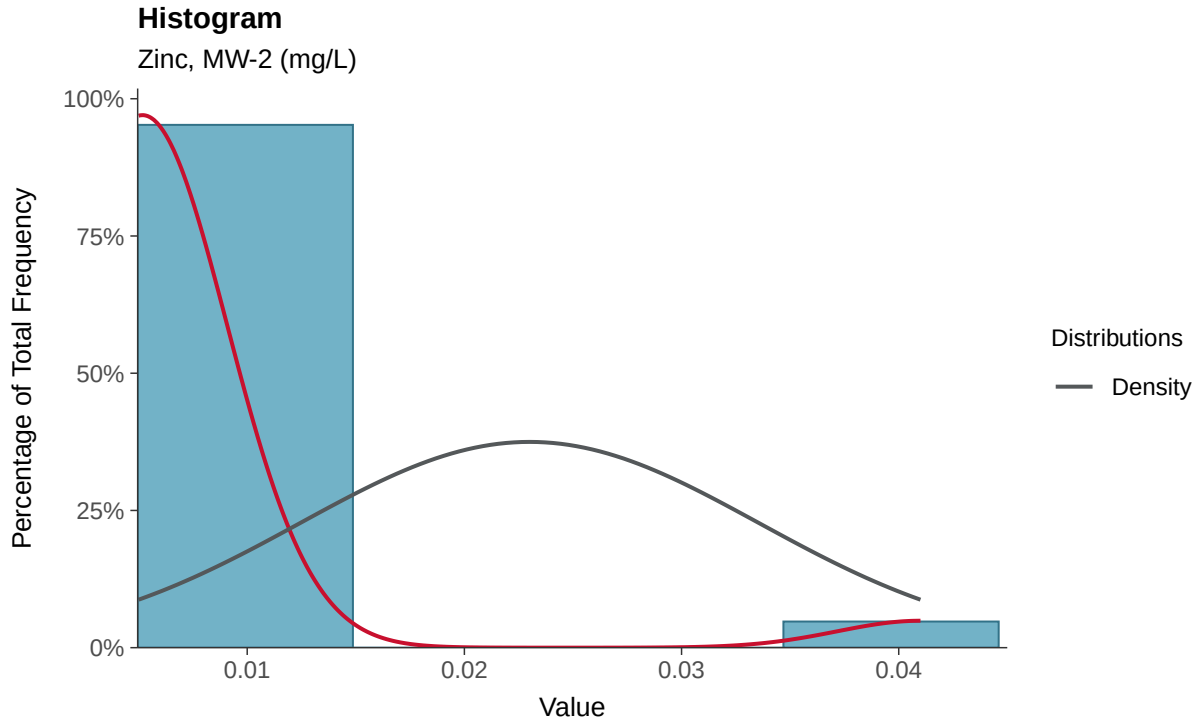
Vanadium, MW-2 (mg/L)



Part 115: Zinc, MW-2

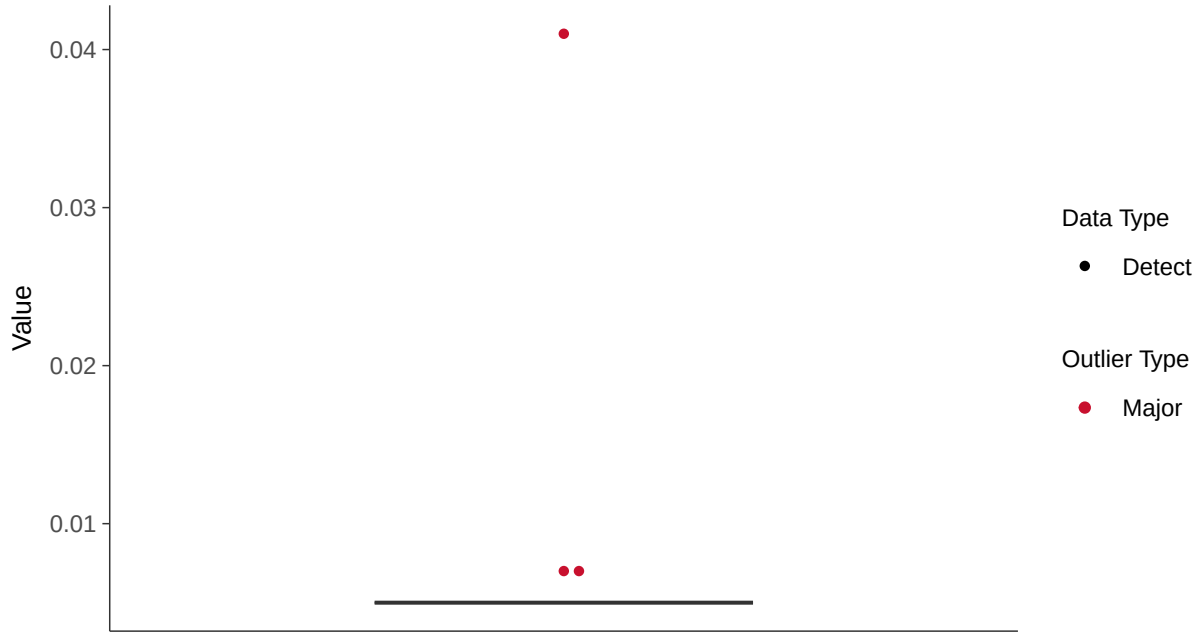
ID: 02_5_42





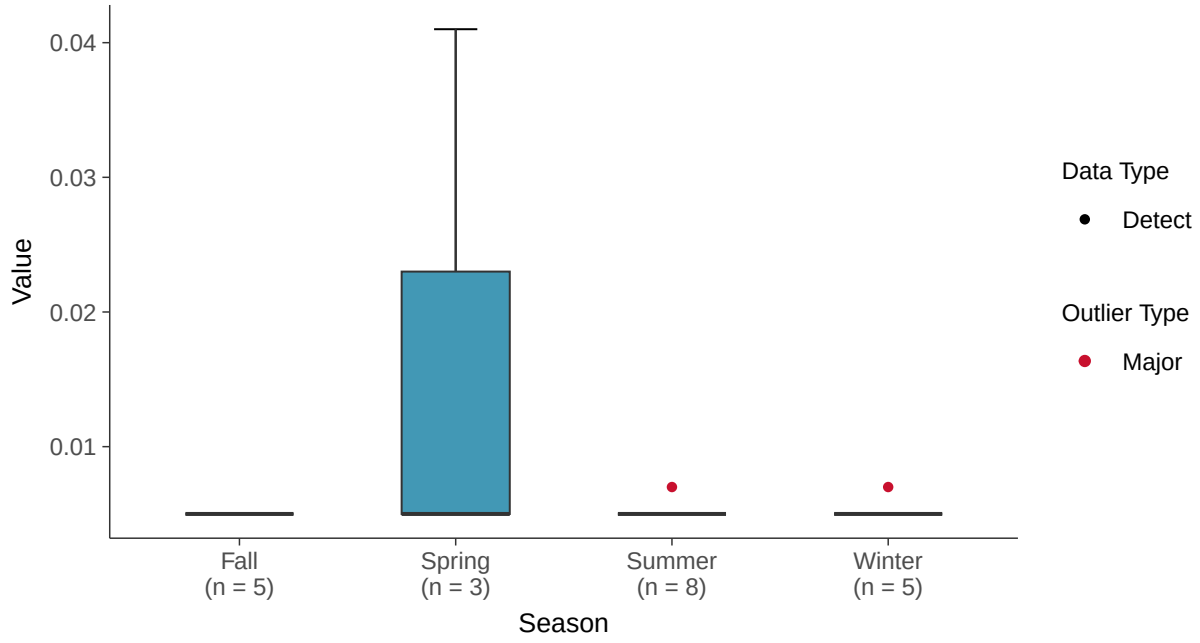
Boxplot

Zinc, MW-2 (mg/L)



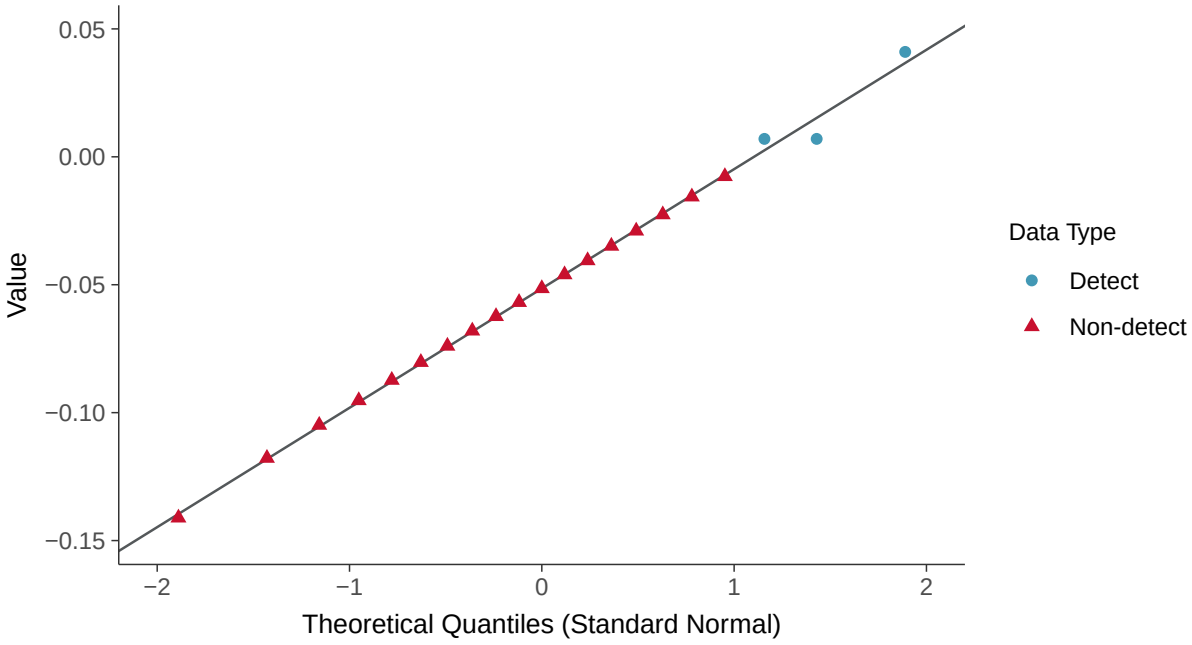
Boxplot by Season

Zinc, MW-2 (mg/L)



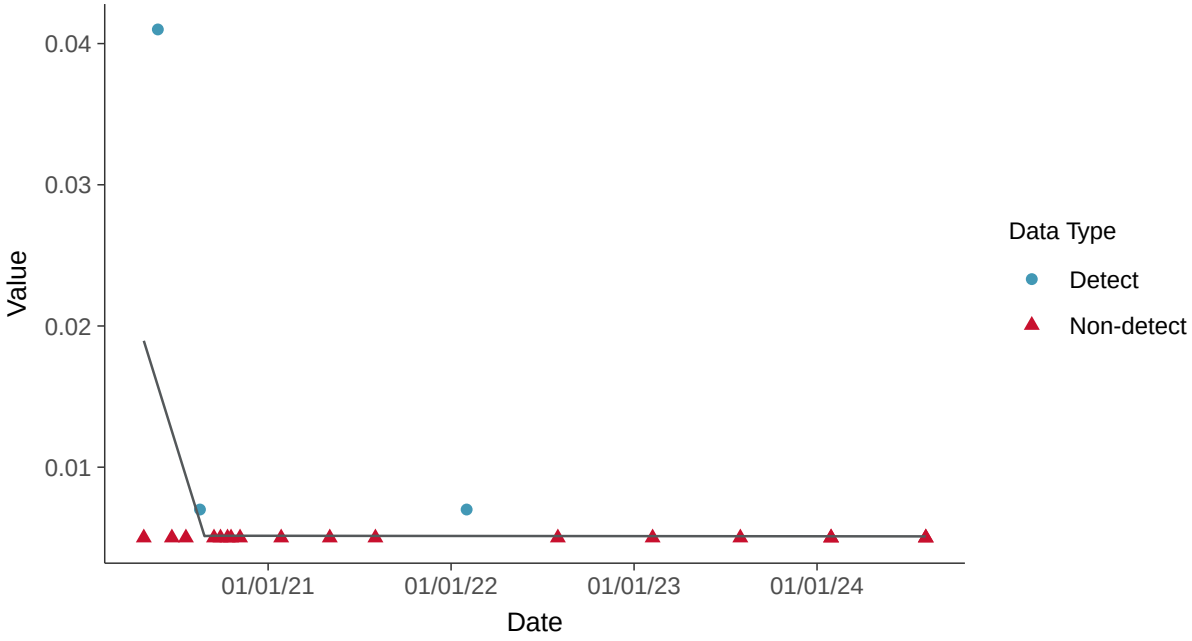
Normal Q-Q plot using ROS Imputed Estimates

Zinc, MW-2 (mg/L)



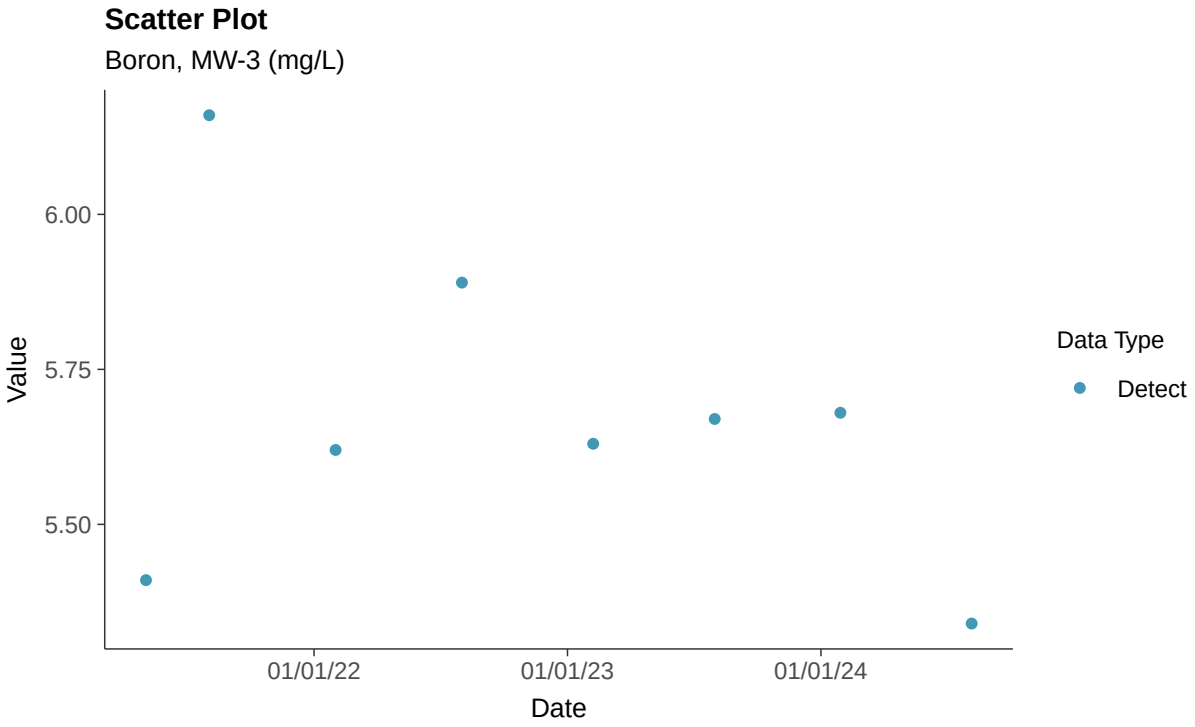
Trend Regression: Piecewise Linear-Linear

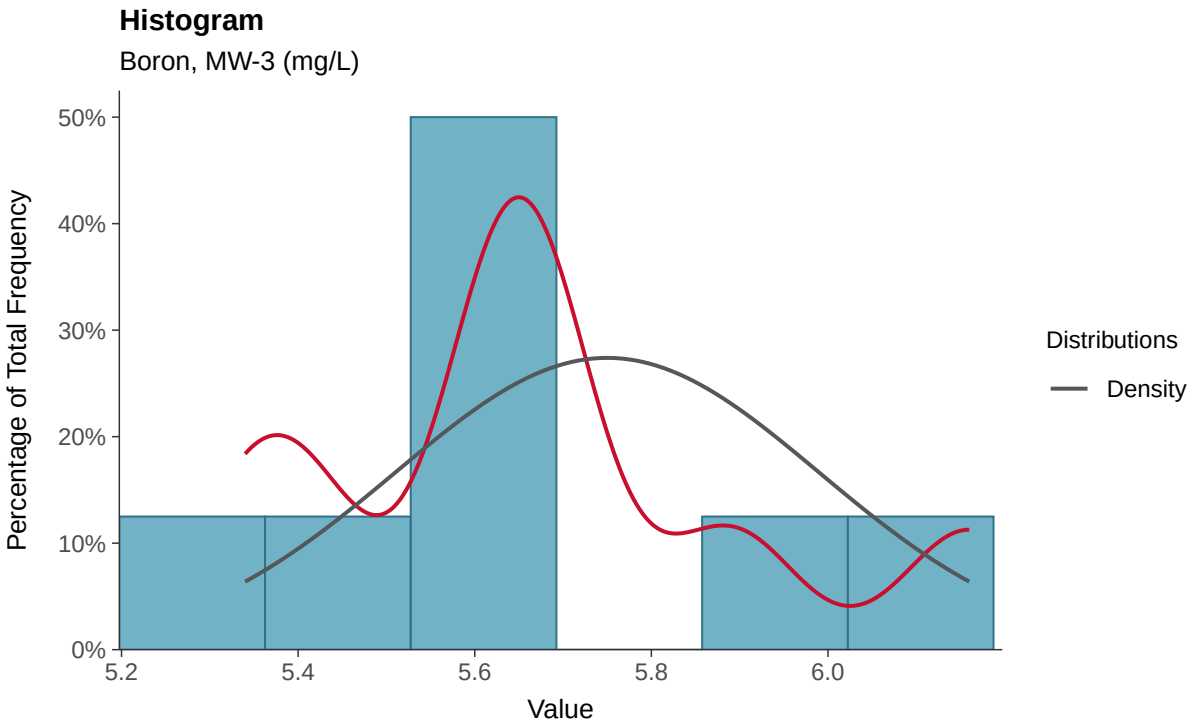
Zinc, MW-2 (mg/L)



Appendix III: Boron, MW-3

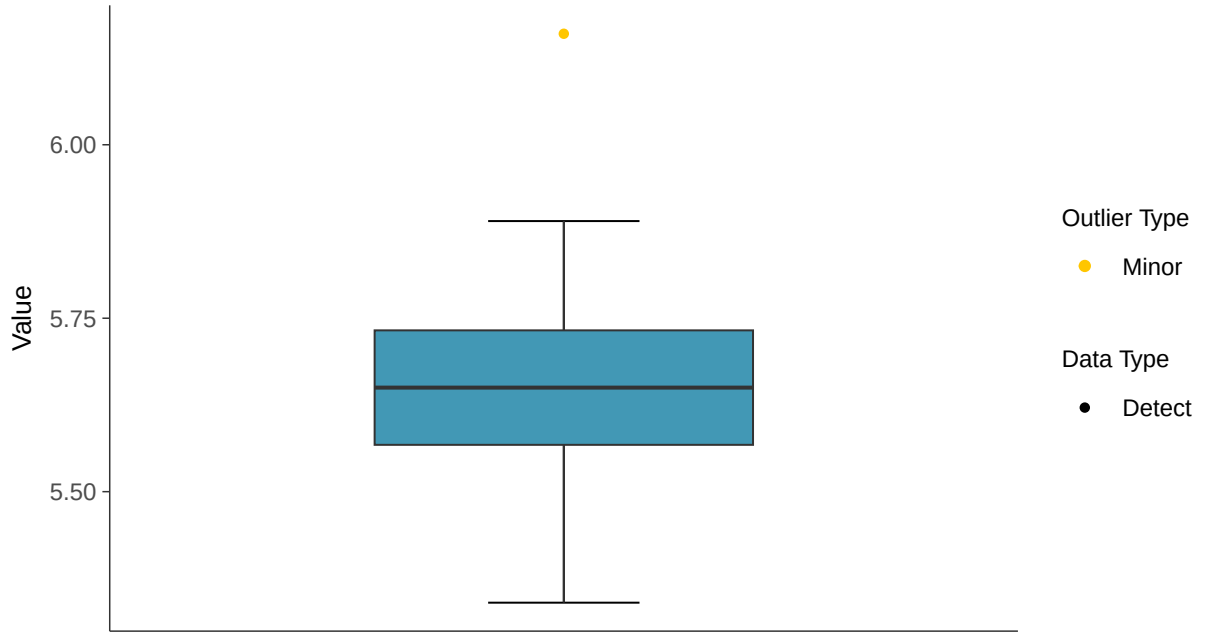
ID: 03_1_01





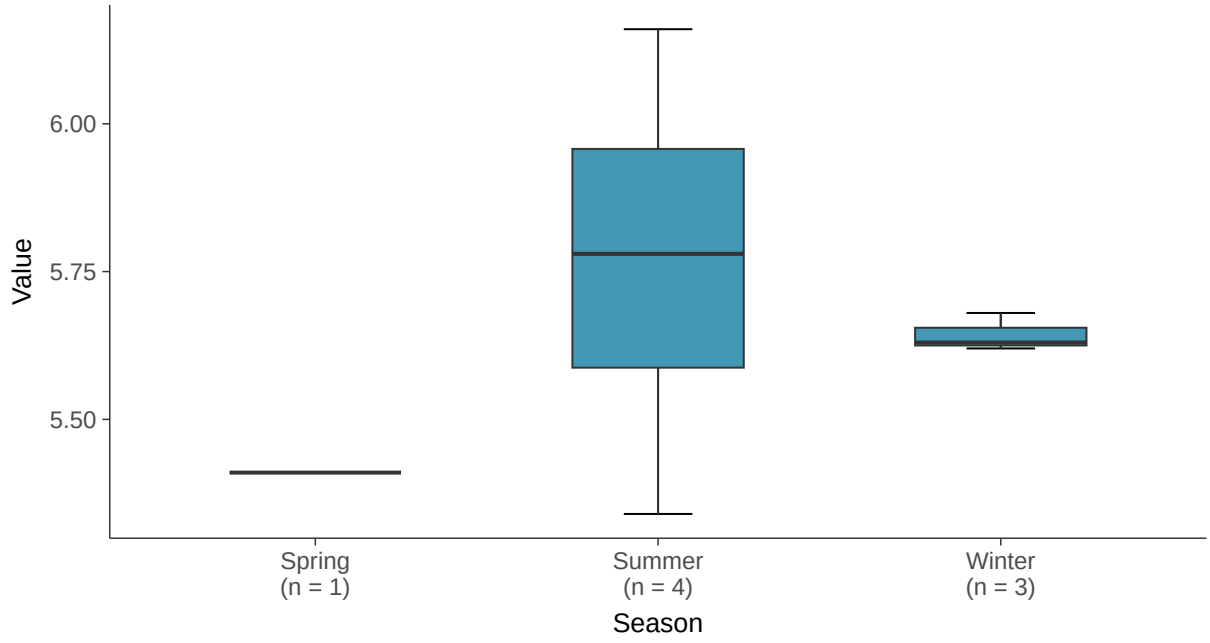
Boxplot

Boron, MW-3 (mg/L)



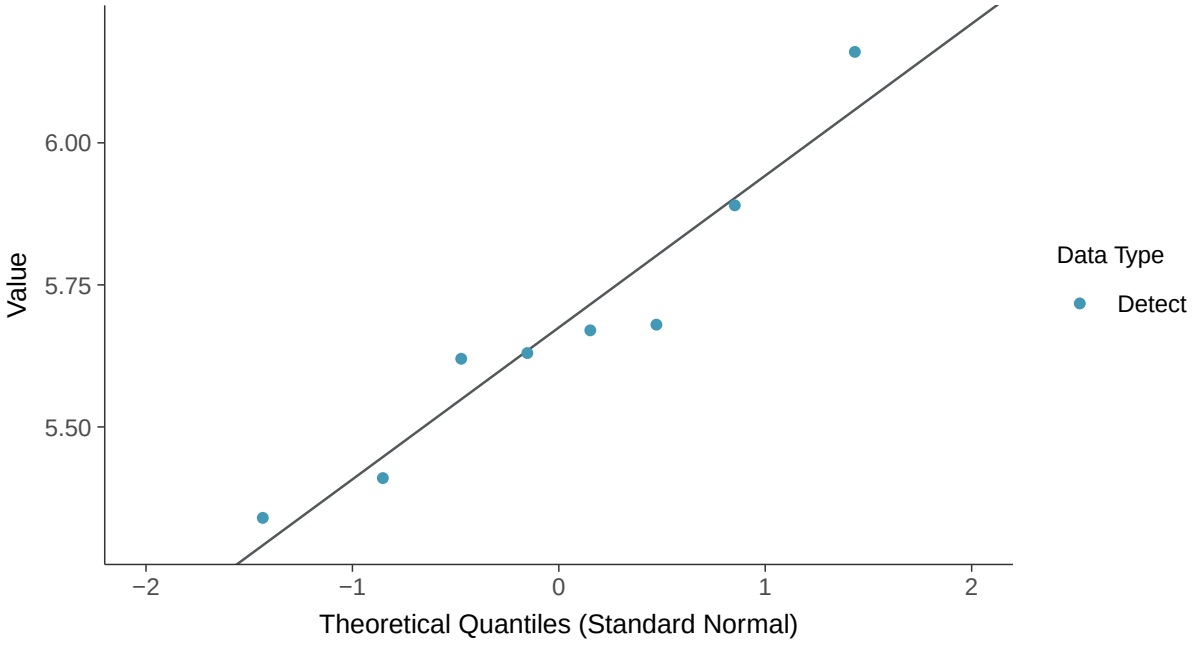
Boxplot by Season

Boron, MW-3 (mg/L)



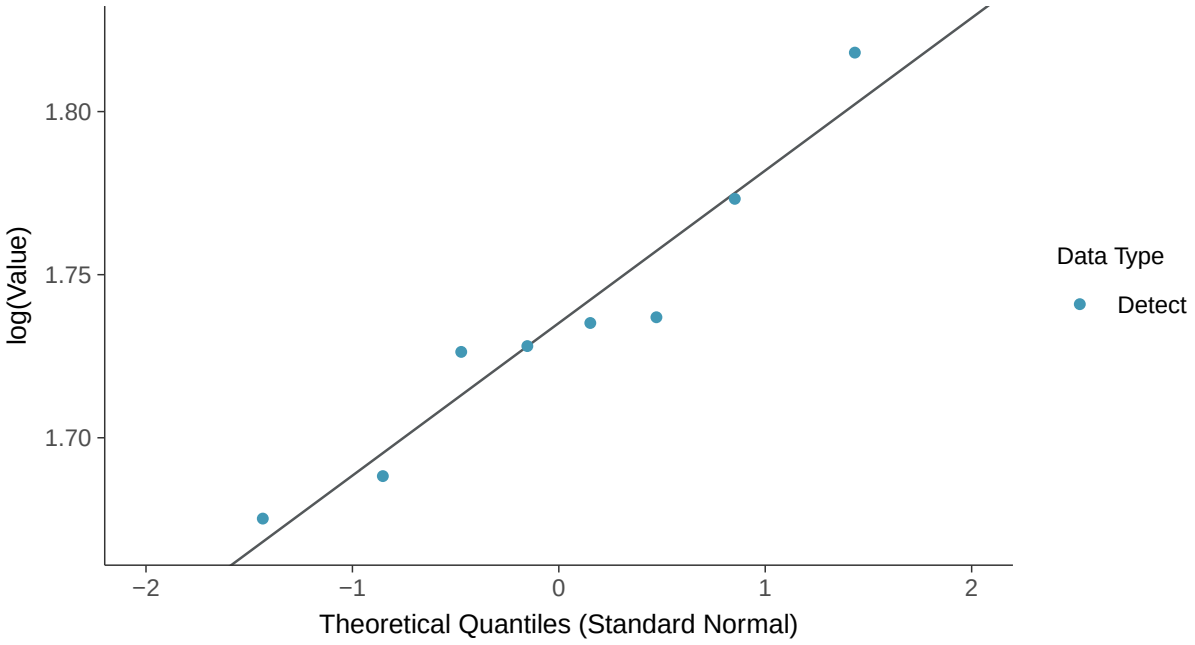
Normal Q-Q plot

Boron, MW-3 (mg/L)



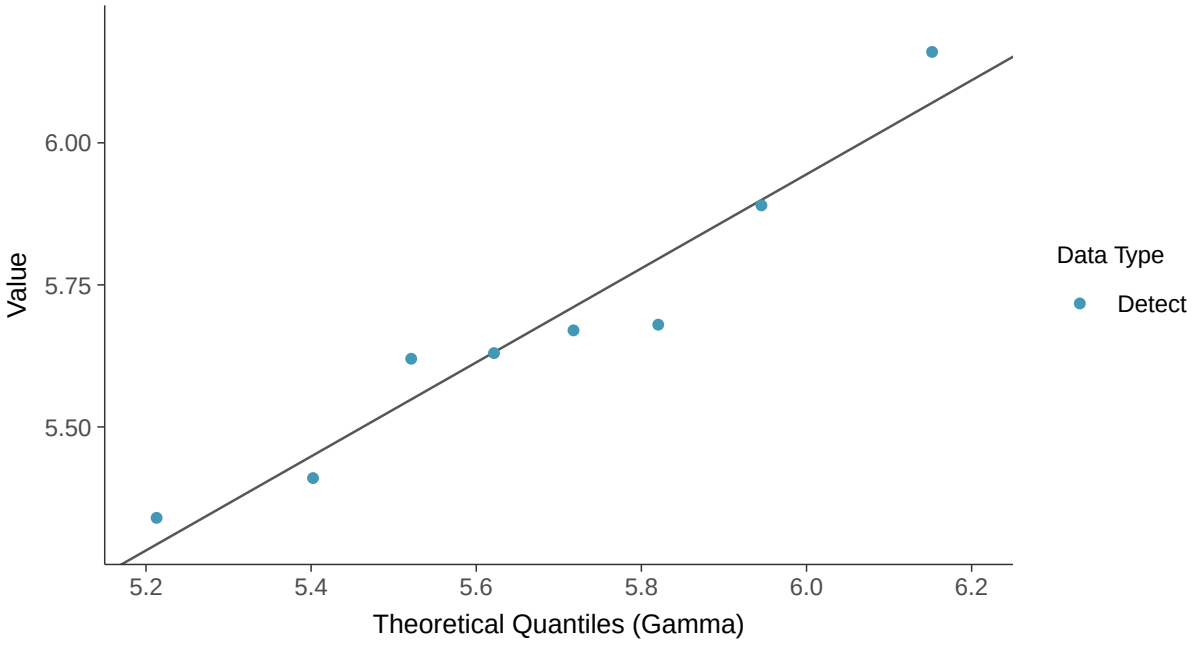
Lognormal Q-Q plot

Boron, MW-3 (mg/L)



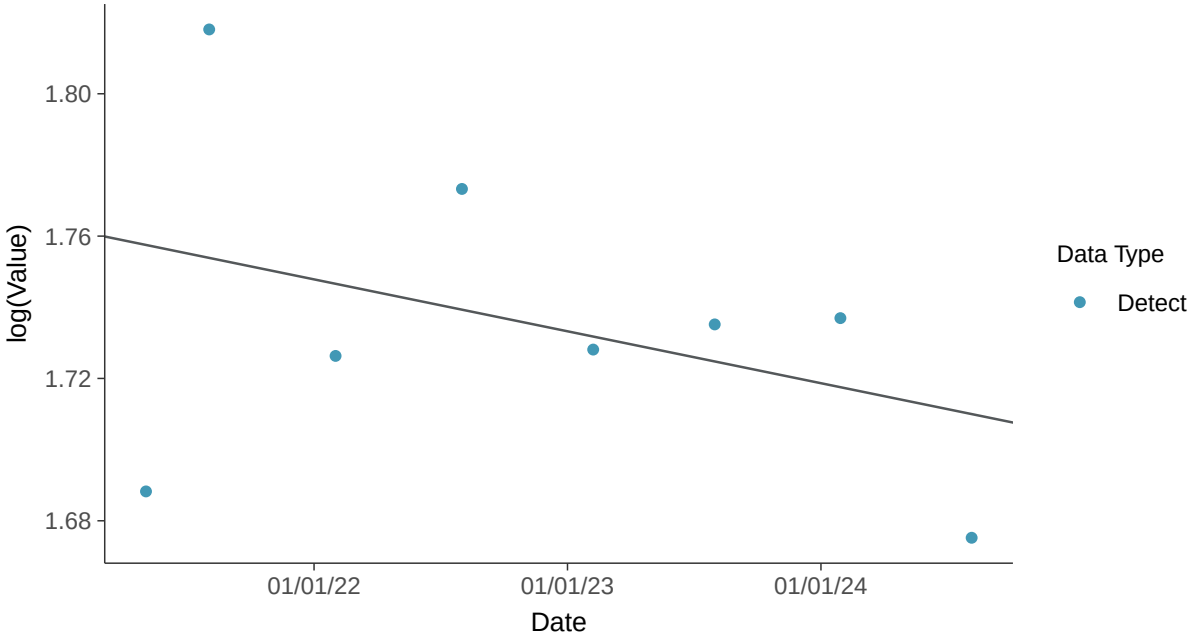
Gamma Q-Q plot

Boron, MW-3 (mg/L)



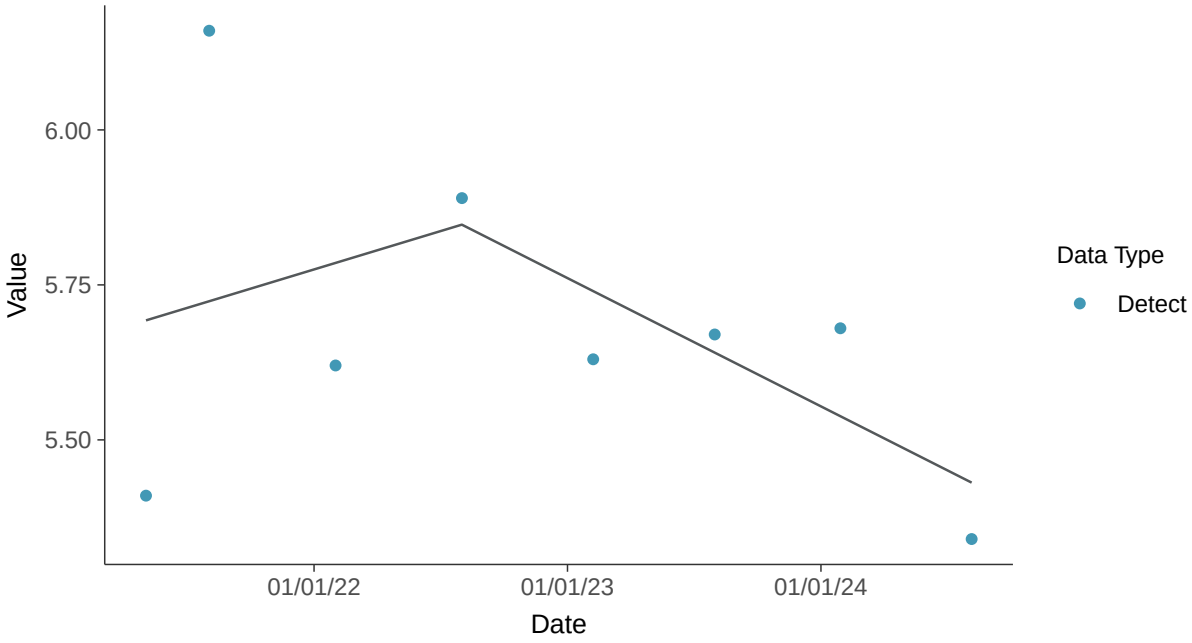
Trend Regression: Lognormal MLE

Boron, MW-3 (mg/L)



Trend Regression: Piecewise Linear-Linear

Boron, MW-3 (mg/L)

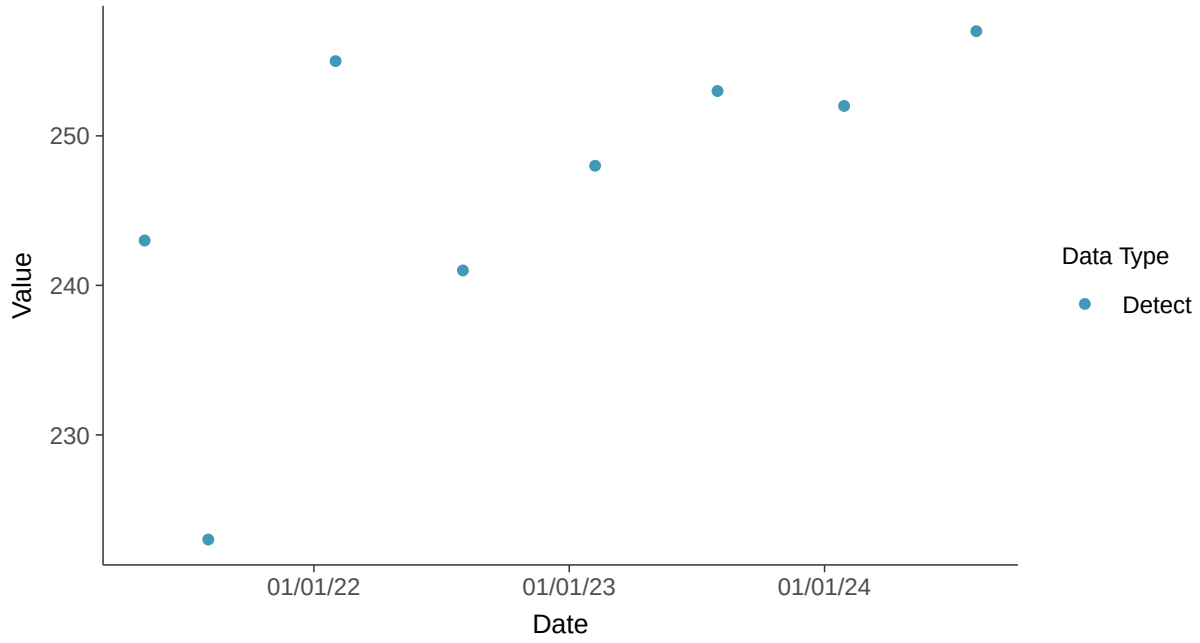


Appendix III: Calcium, MW-3

ID: 03_1_02

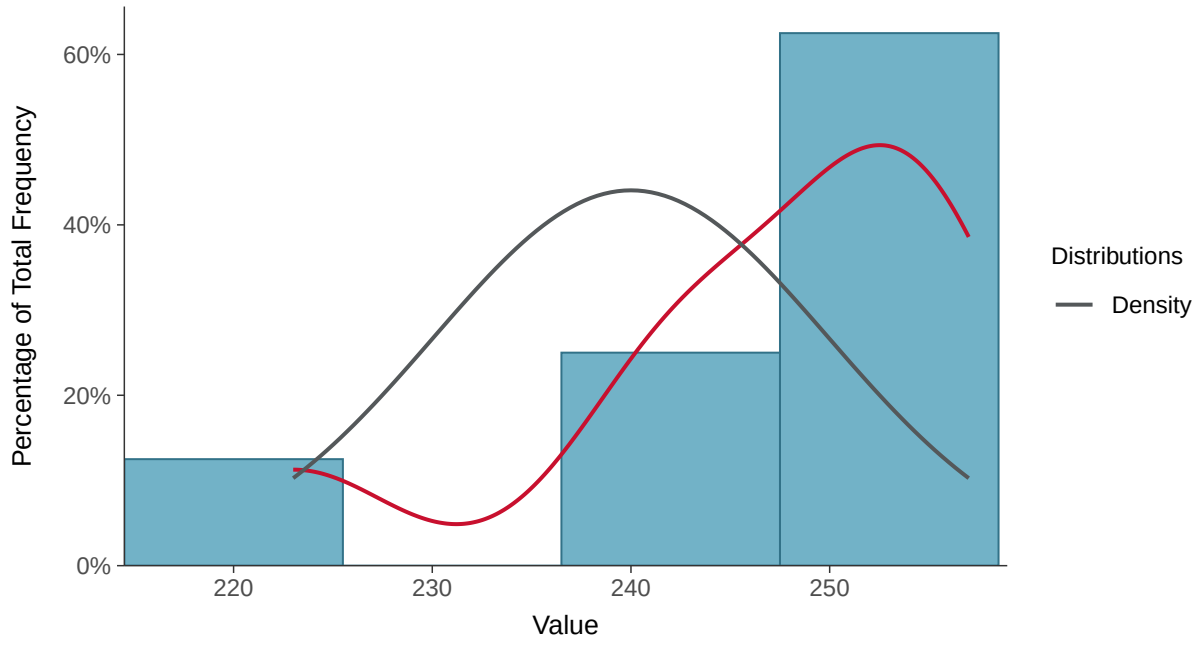
Scatter Plot

Calcium, MW-3 (mg/L)



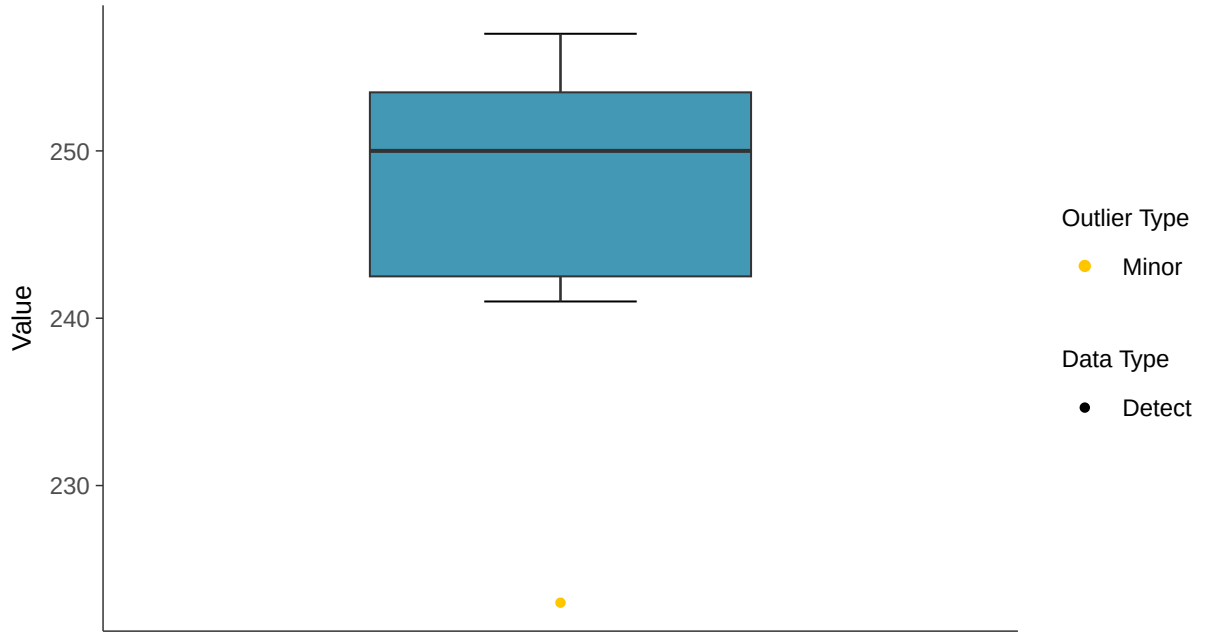
Histogram

Calcium, MW-3 (mg/L)



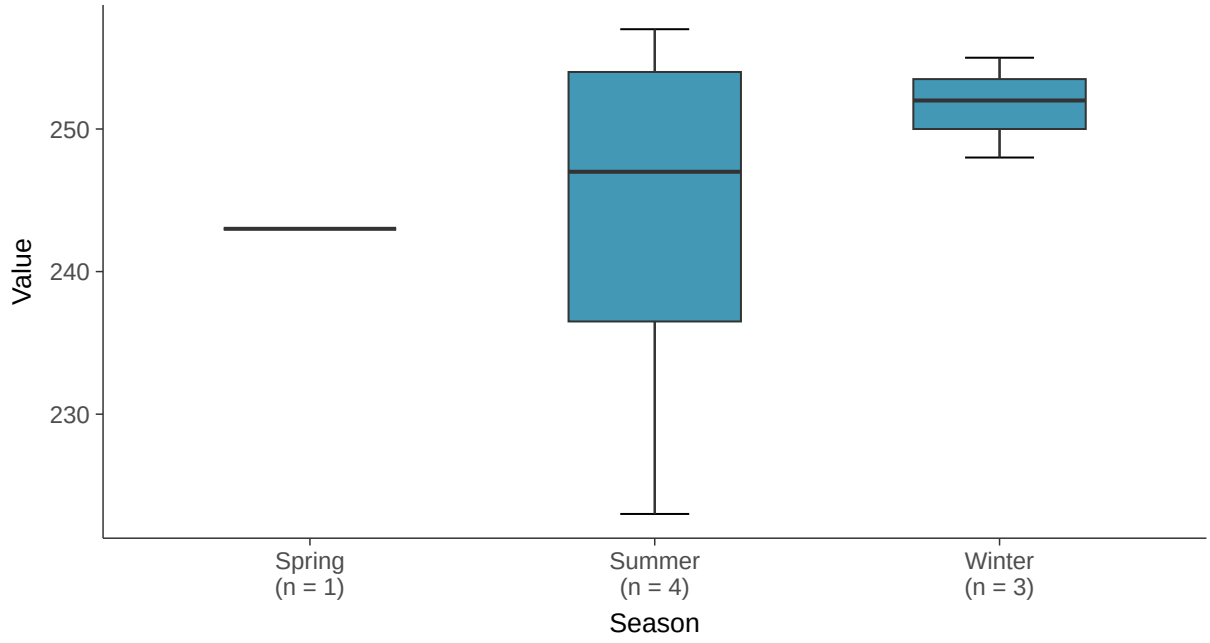
Boxplot

Calcium, MW-3 (mg/L)



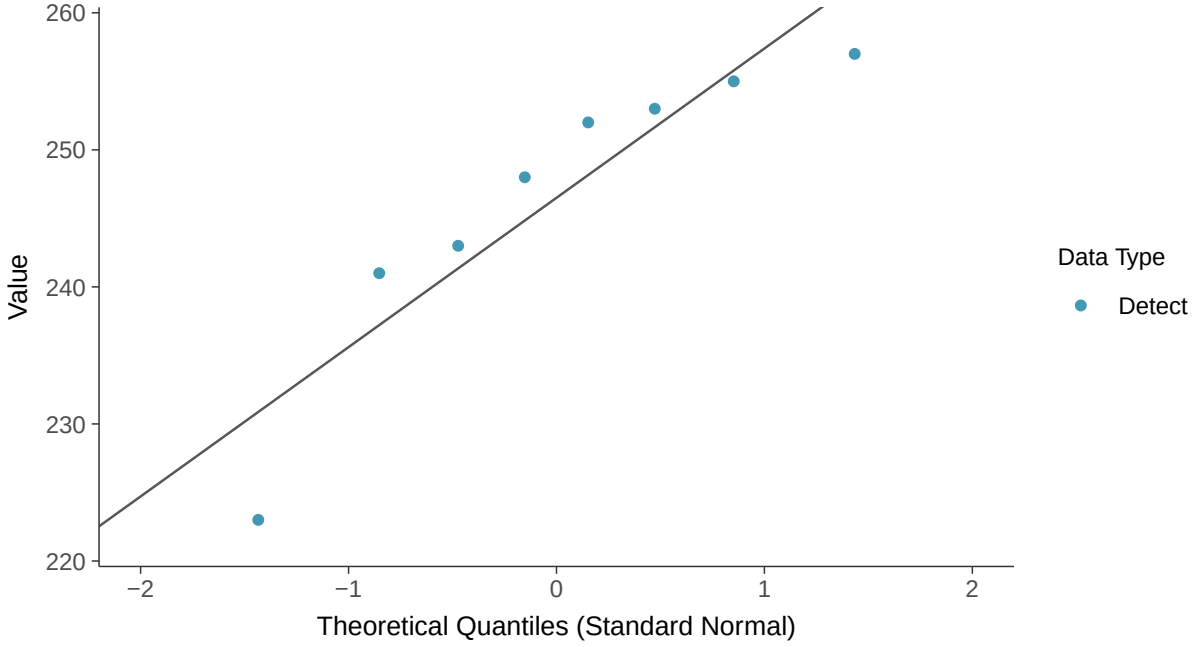
Boxplot by Season

Calcium, MW-3 (mg/L)



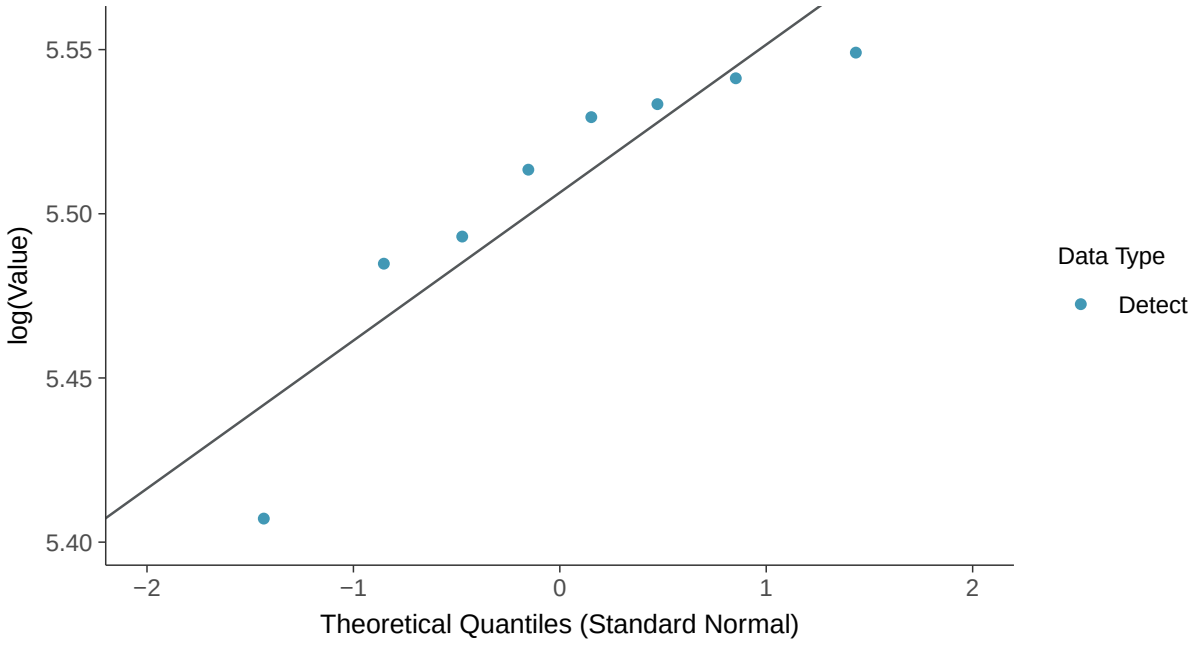
Normal Q-Q plot

Calcium, MW-3 (mg/L)



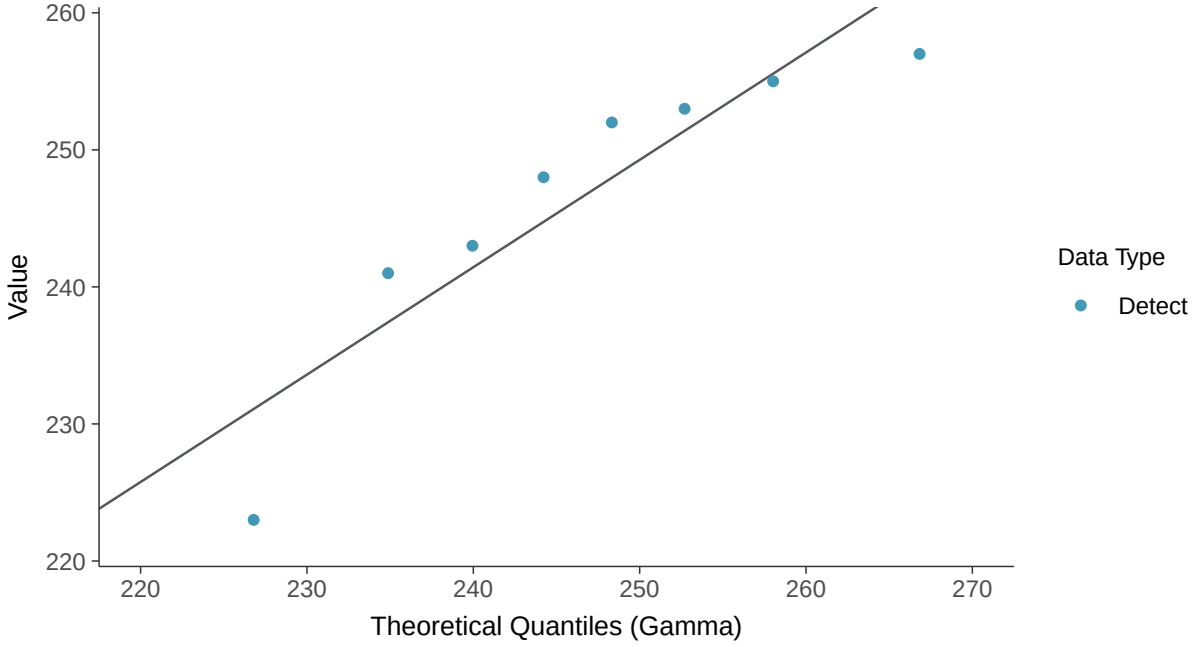
Lognormal Q-Q plot

Calcium, MW-3 (mg/L)



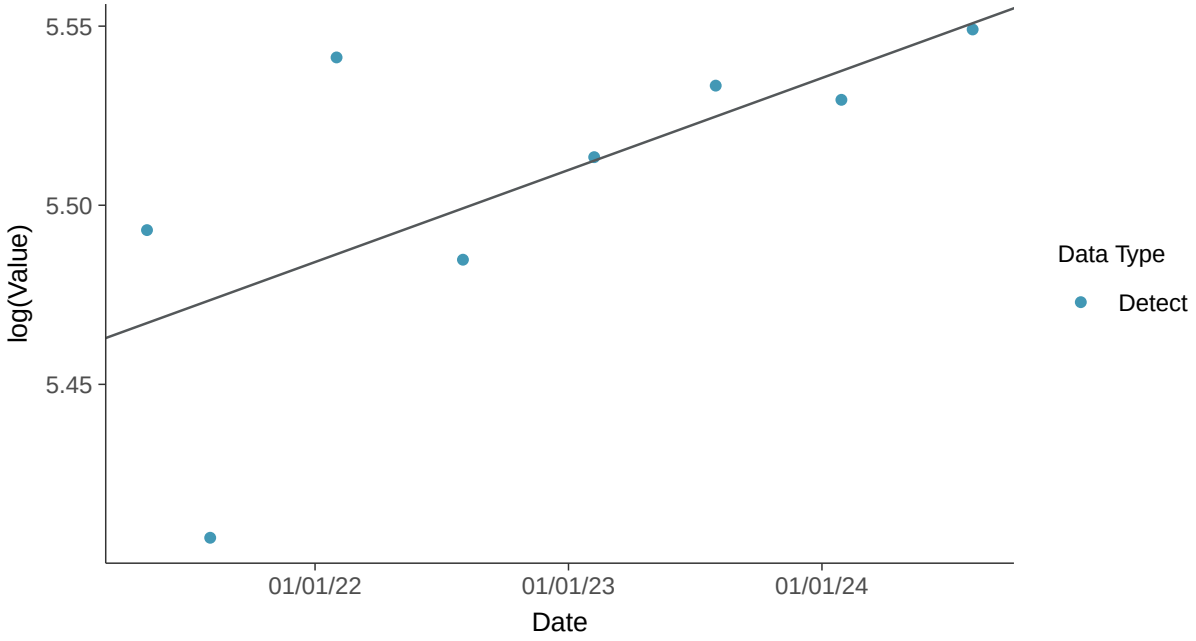
Gamma Q-Q plot

Calcium, MW-3 (mg/L)



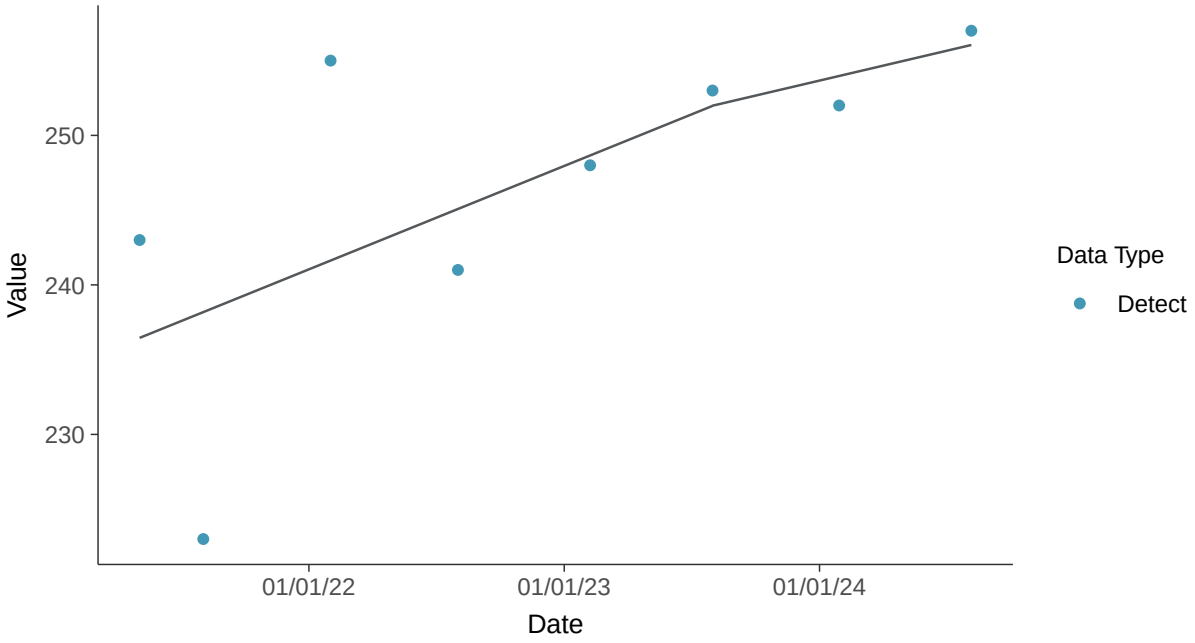
Trend Regression: Lognormal MLE

Calcium, MW-3 (mg/L)



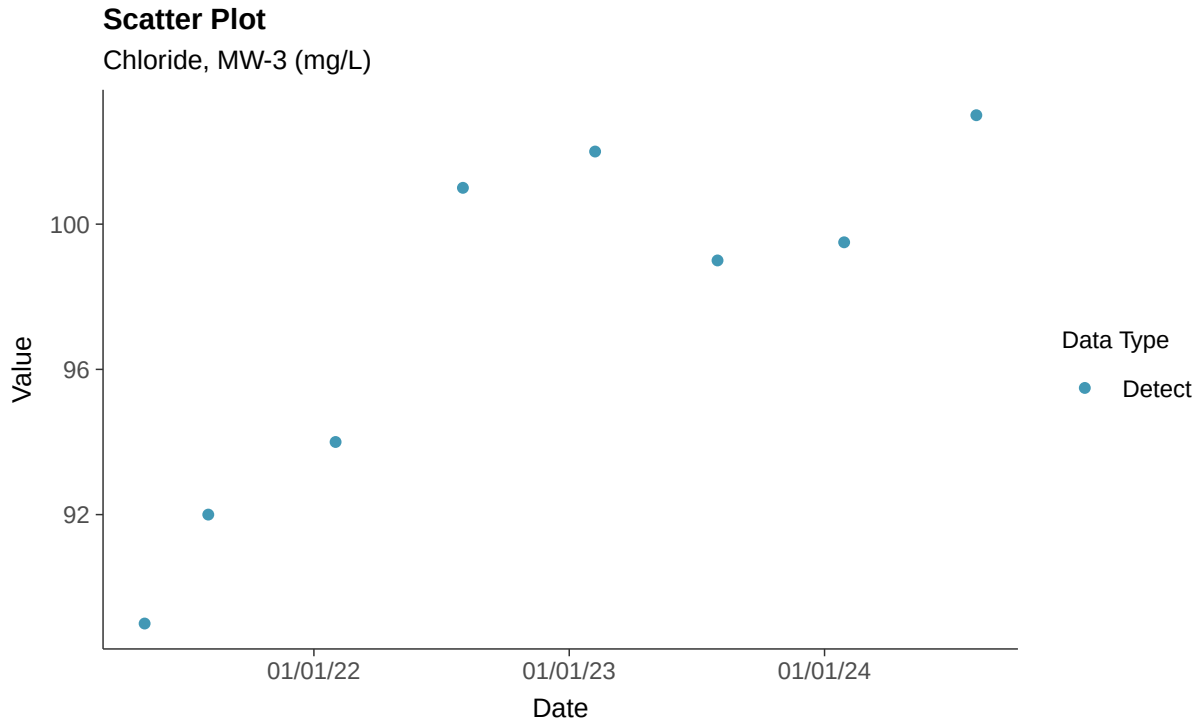
Trend Regression: Piecewise Linear-Linear

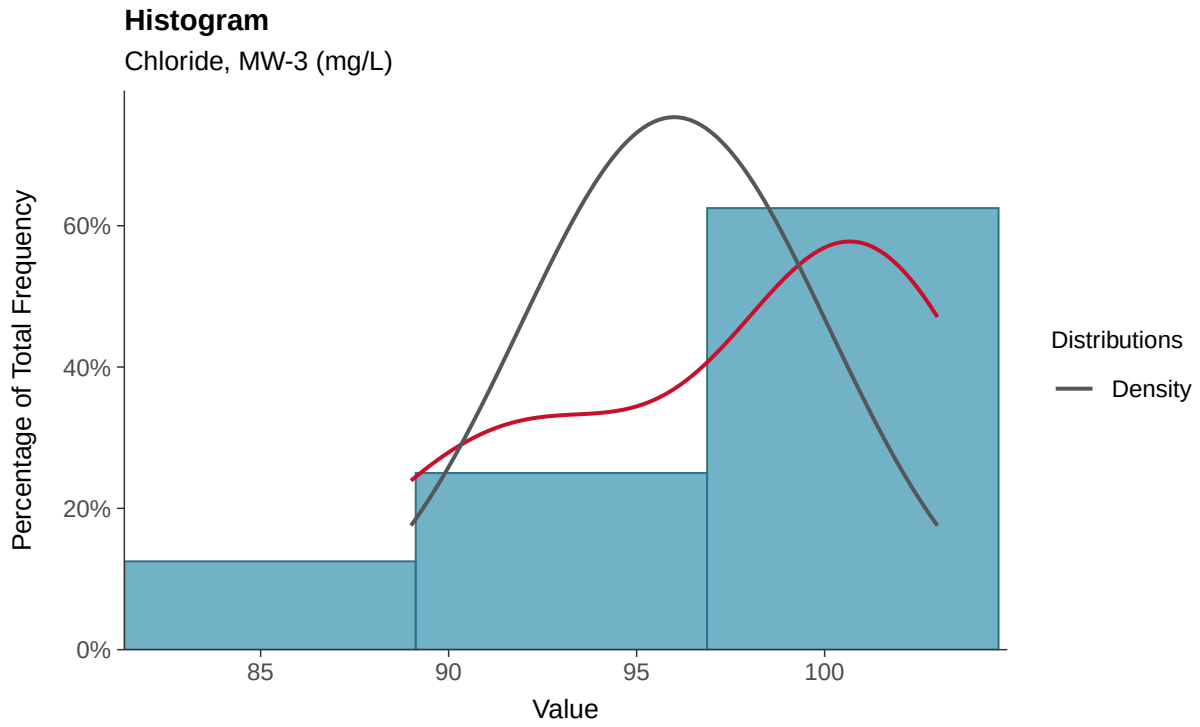
Calcium, MW-3 (mg/L)



Appendix III: Chloride, MW-3

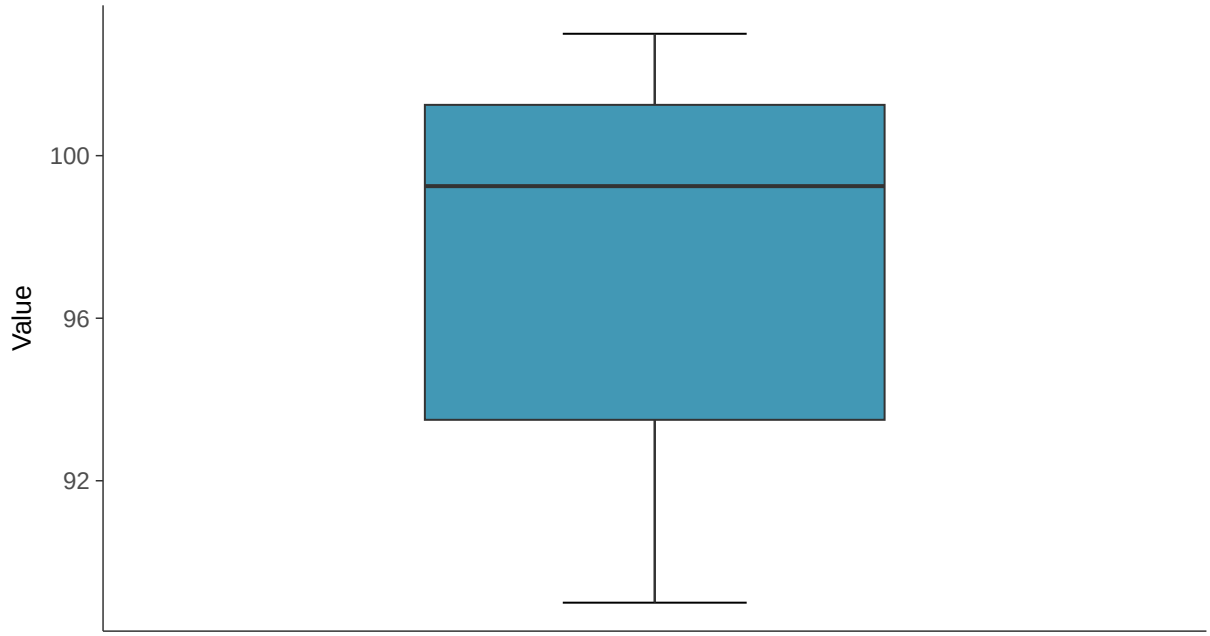
ID: 03_1_03





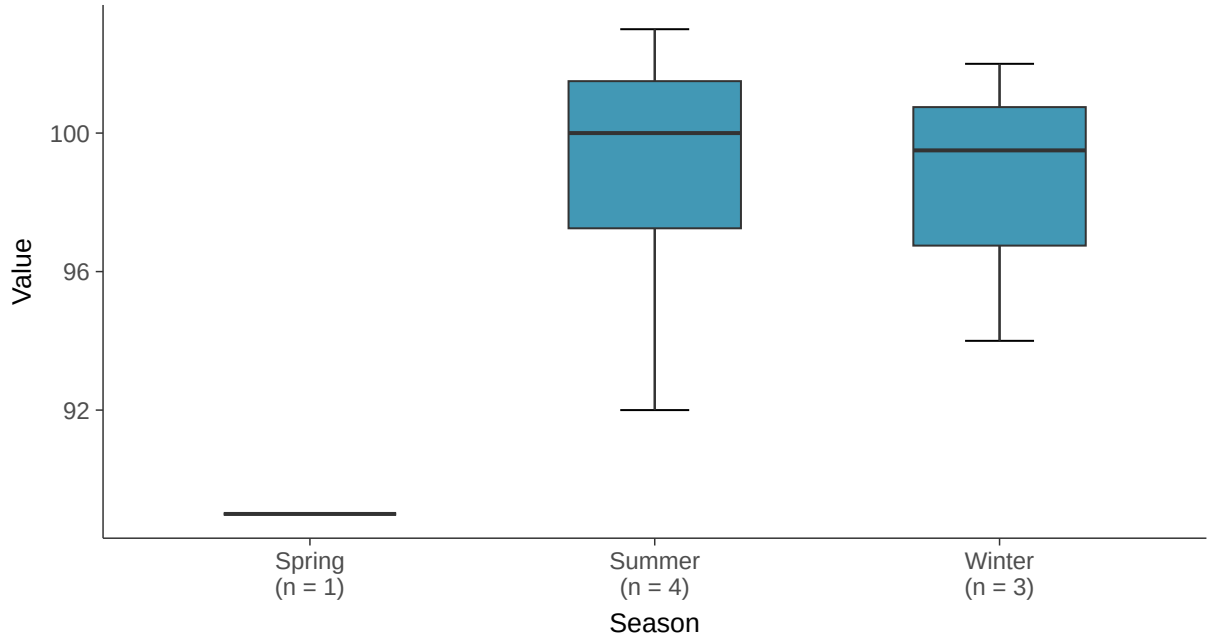
Boxplot

Chloride, MW-3 (mg/L)



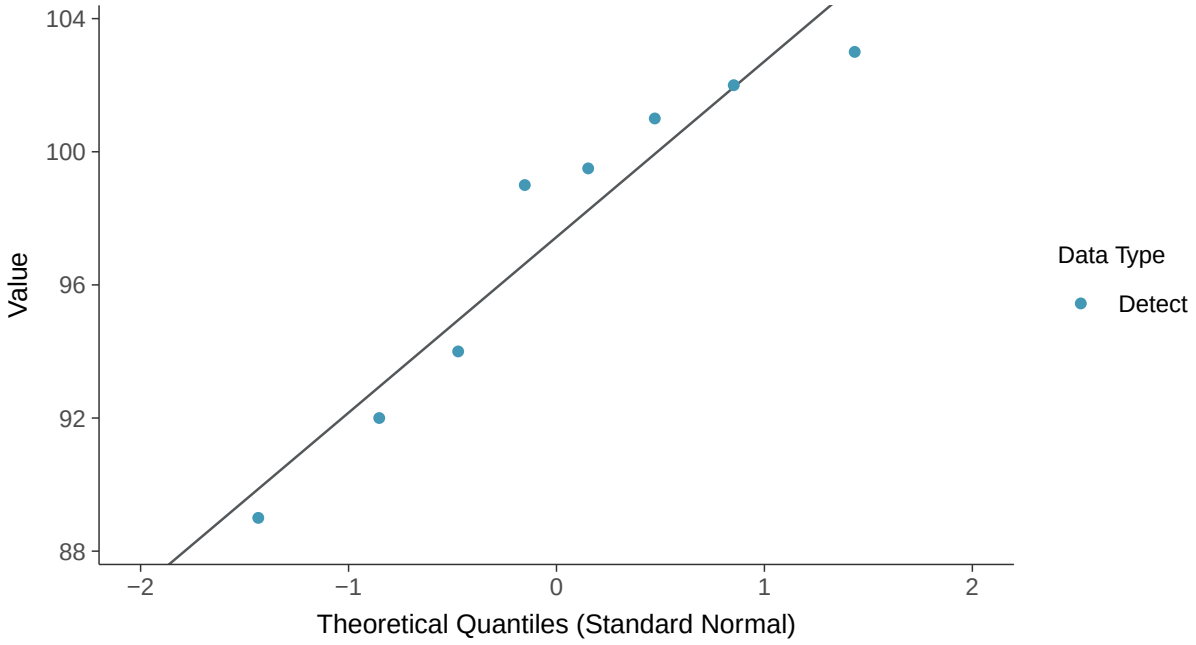
Boxplot by Season

Chloride, MW-3 (mg/L)



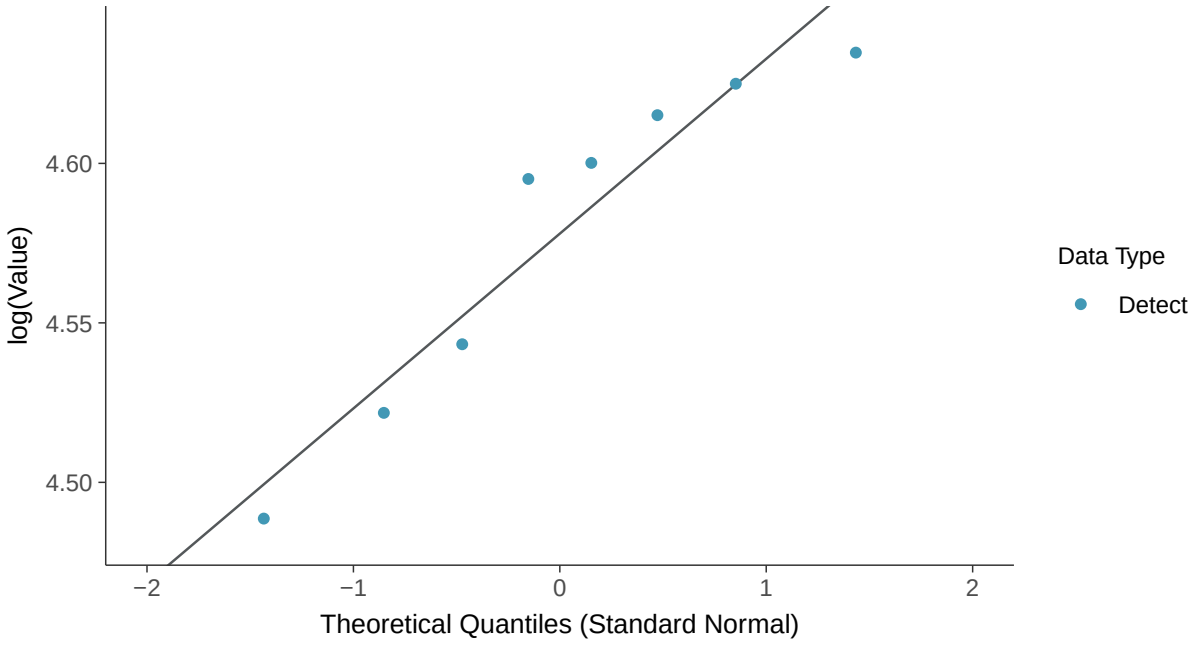
Normal Q-Q plot

Chloride, MW-3 (mg/L)



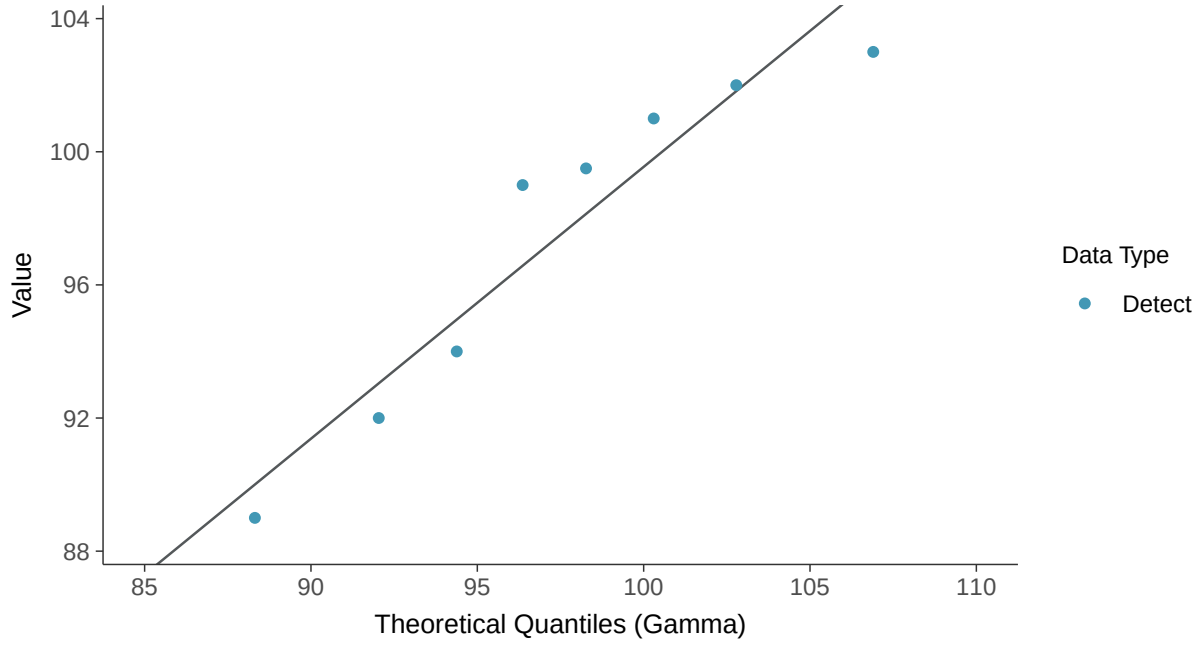
Lognormal Q-Q plot

Chloride, MW-3 (mg/L)



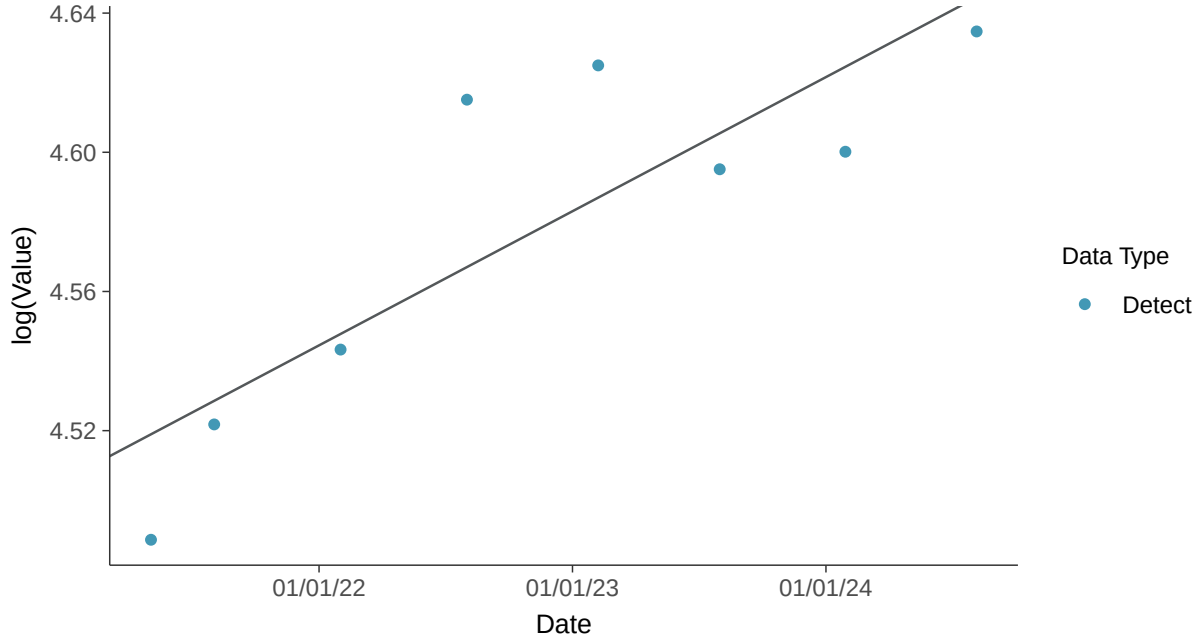
Gamma Q-Q plot

Chloride, MW-3 (mg/L)



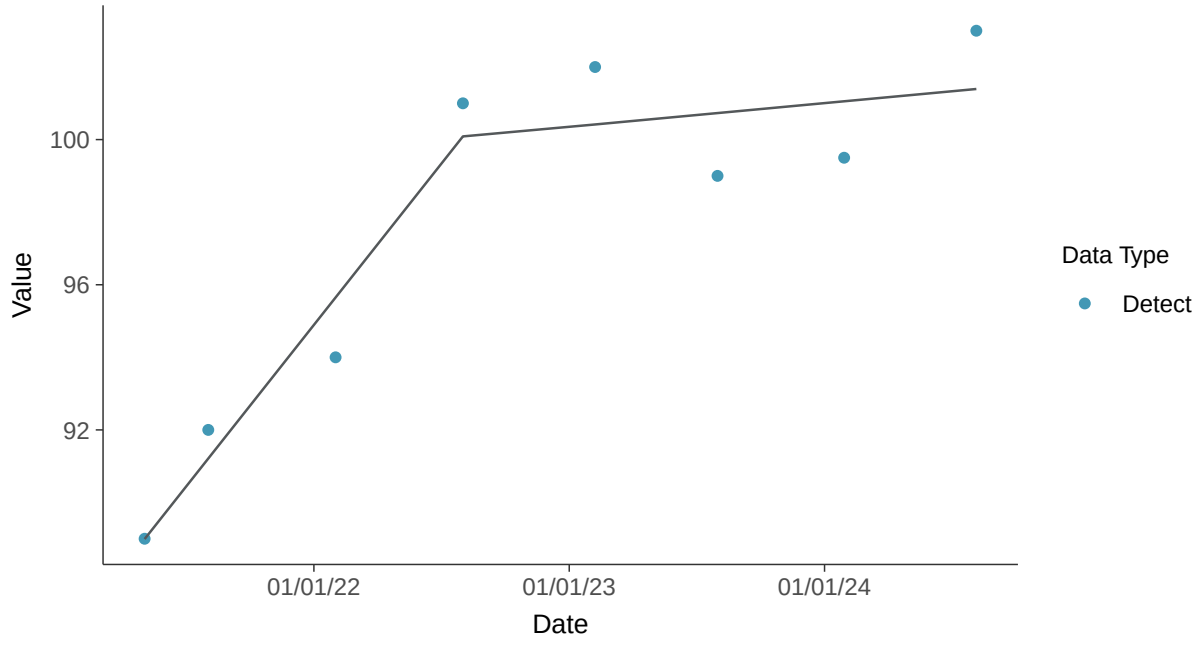
Trend Regression: Lognormal MLE

Chloride, MW-3 (mg/L)



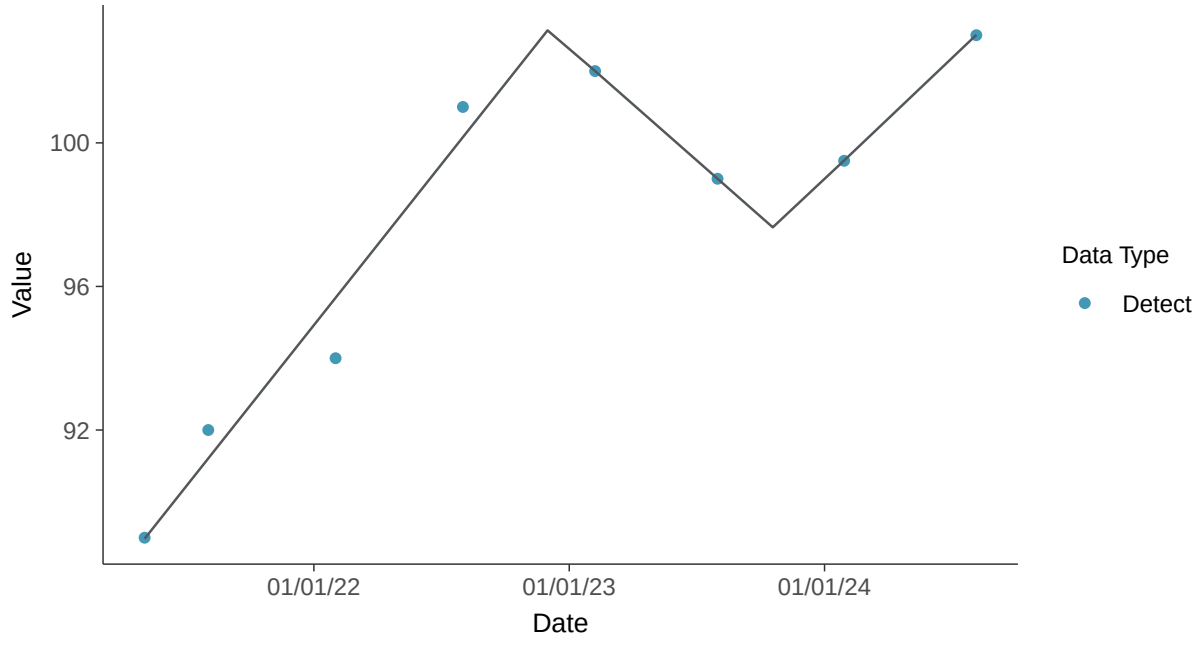
Trend Regression: Piecewise Linear-Linear

Chloride, MW-3 (mg/L)



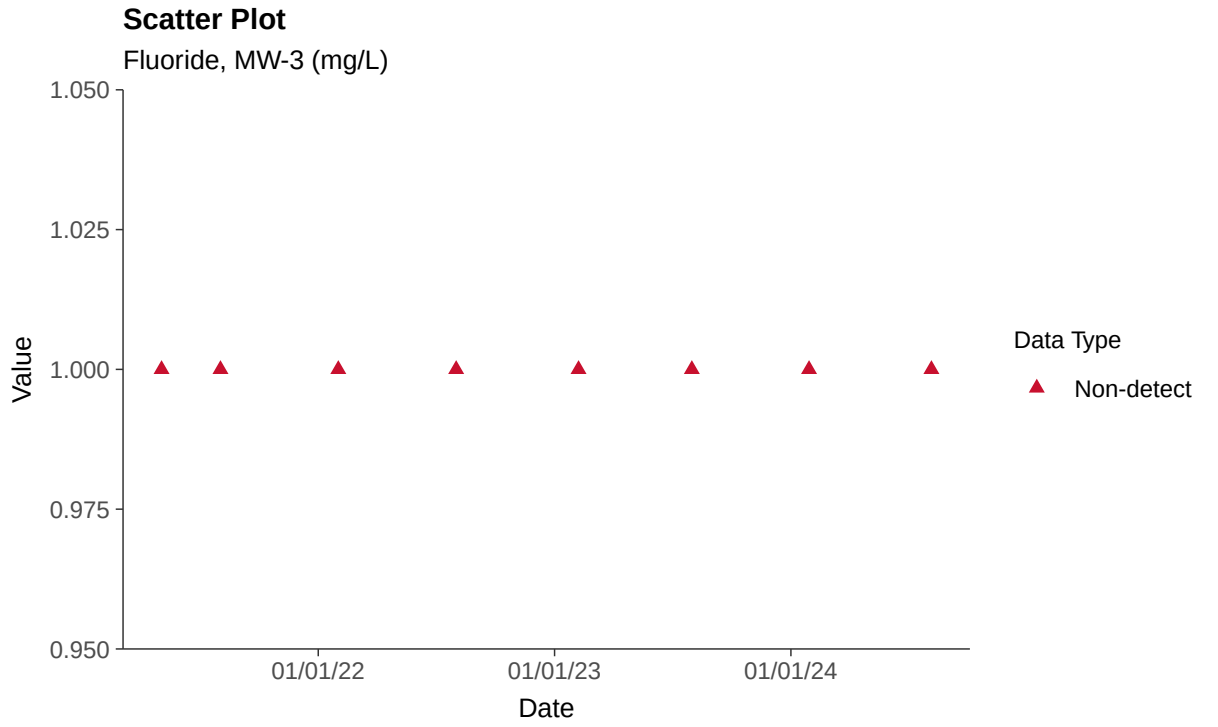
Trend Regression: Piecewise Linear-Linear-Linear

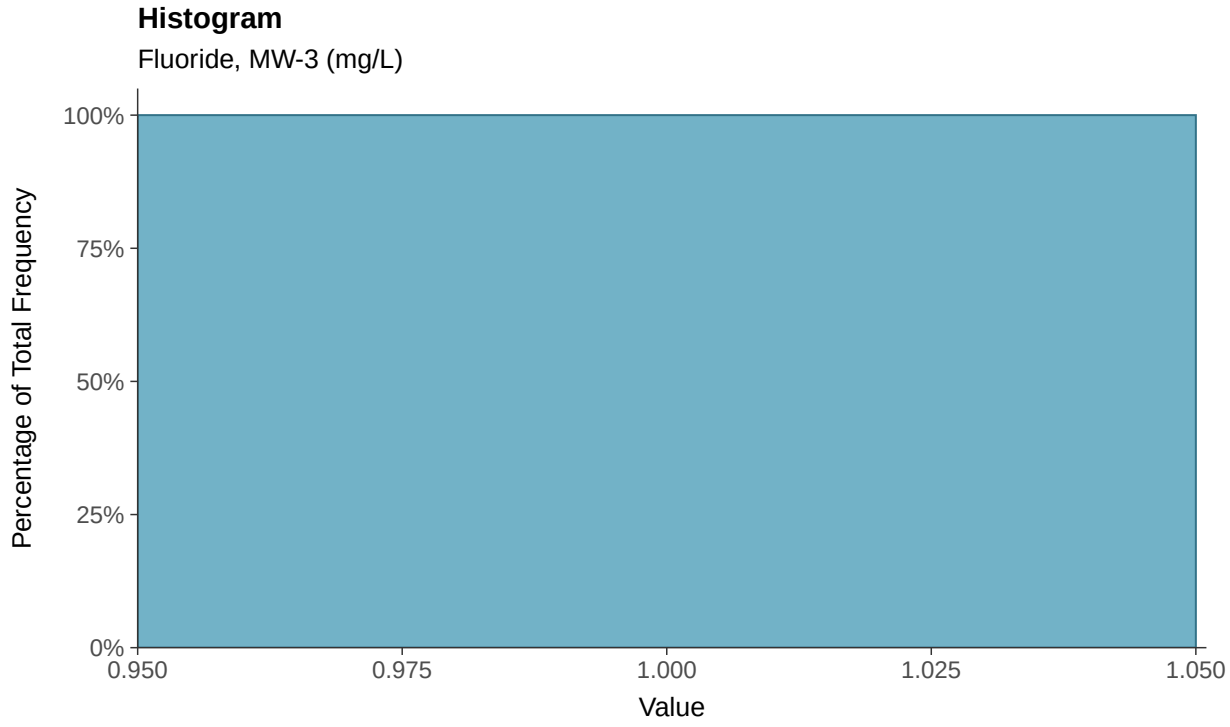
Chloride, MW-3 (mg/L)



Appendix III: Fluoride, MW-3

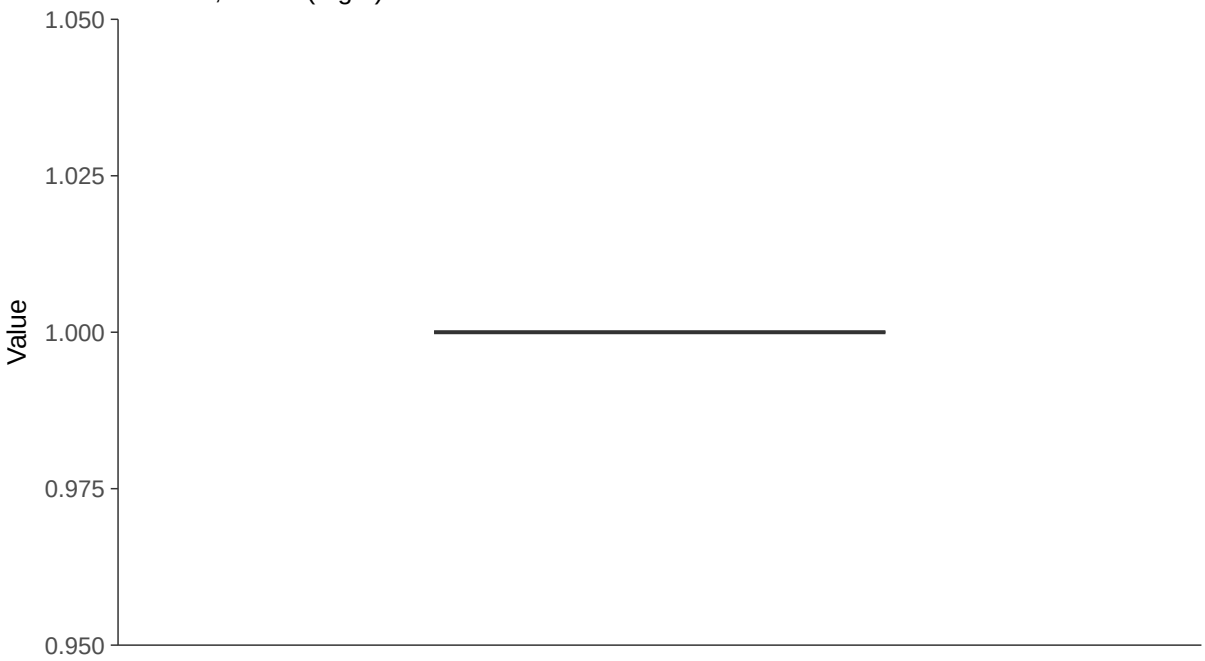
ID: 03_1_04





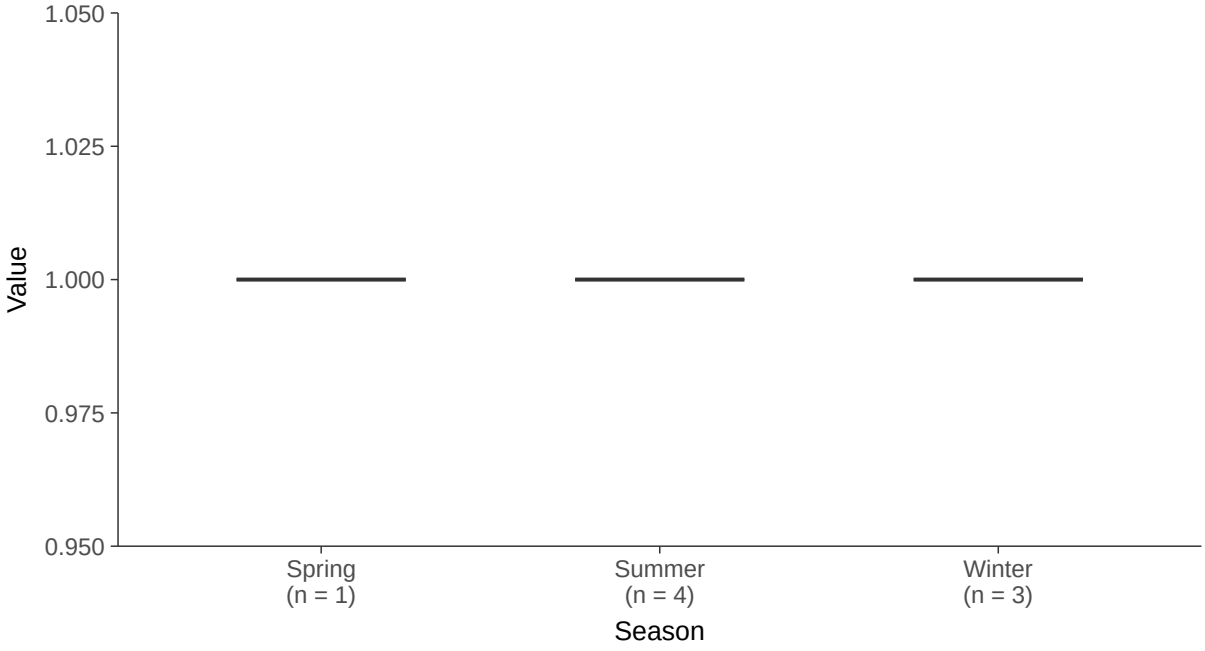
Boxplot

Fluoride, MW-3 (mg/L)



Boxplot by Season

Fluoride, MW-3 (mg/L)

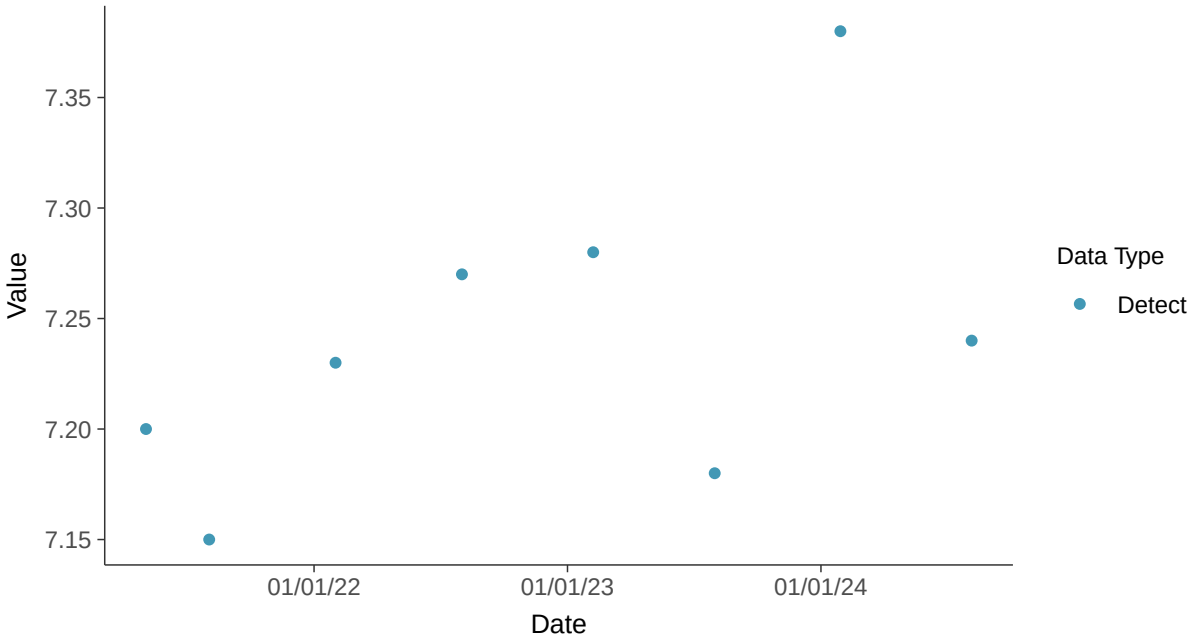


Appendix III: pH, Field, MW-3

ID: 03_1_05

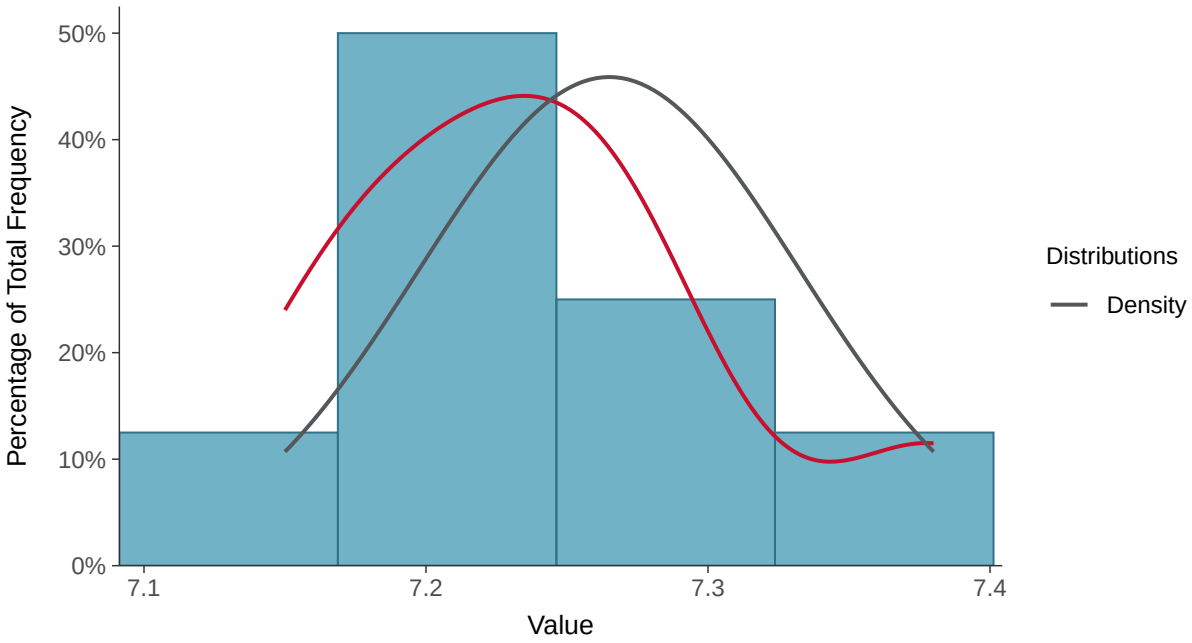
Scatter Plot

pH, Field, MW-3 (su)



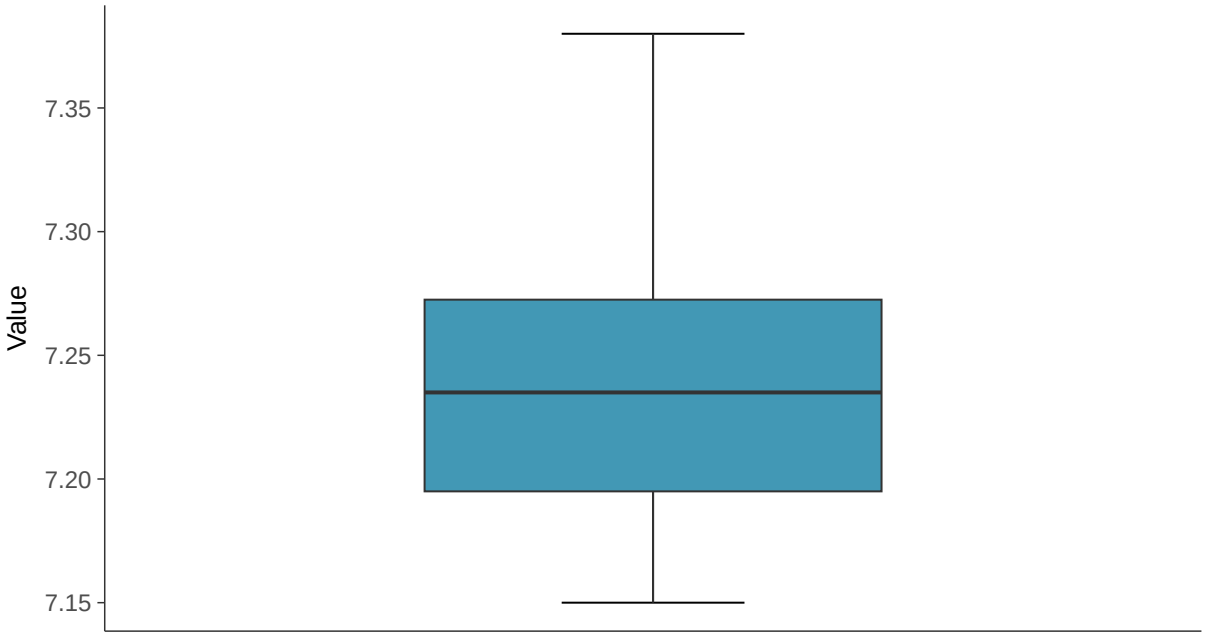
Histogram

pH, Field, MW-3 (su)



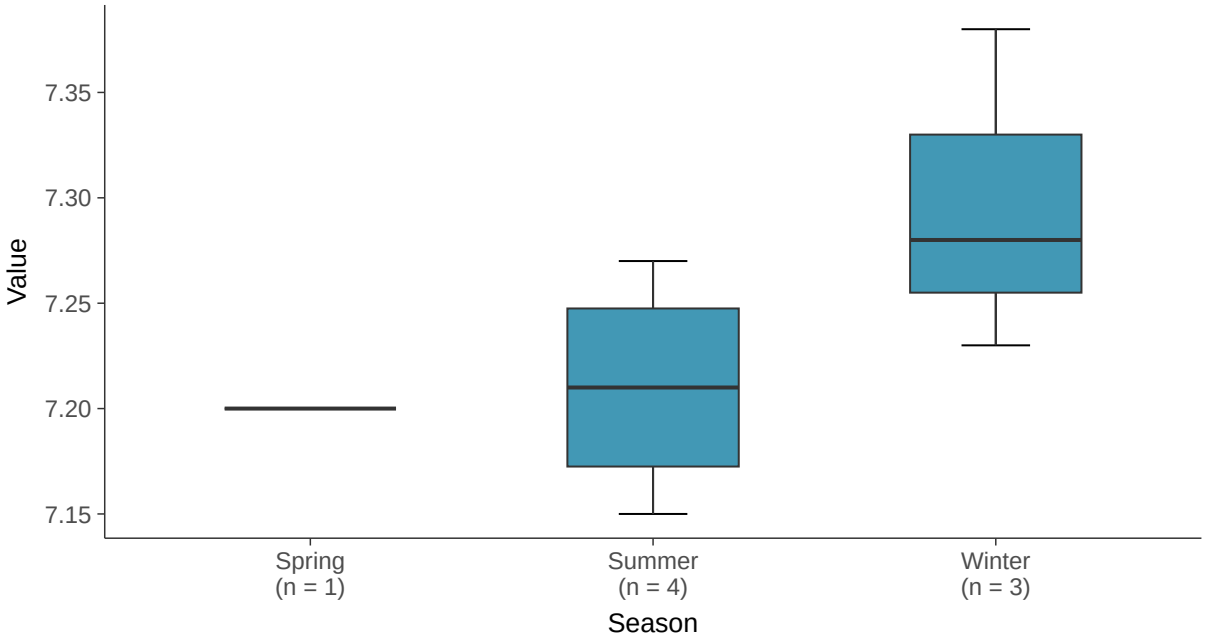
Boxplot

pH, Field, MW-3 (su)



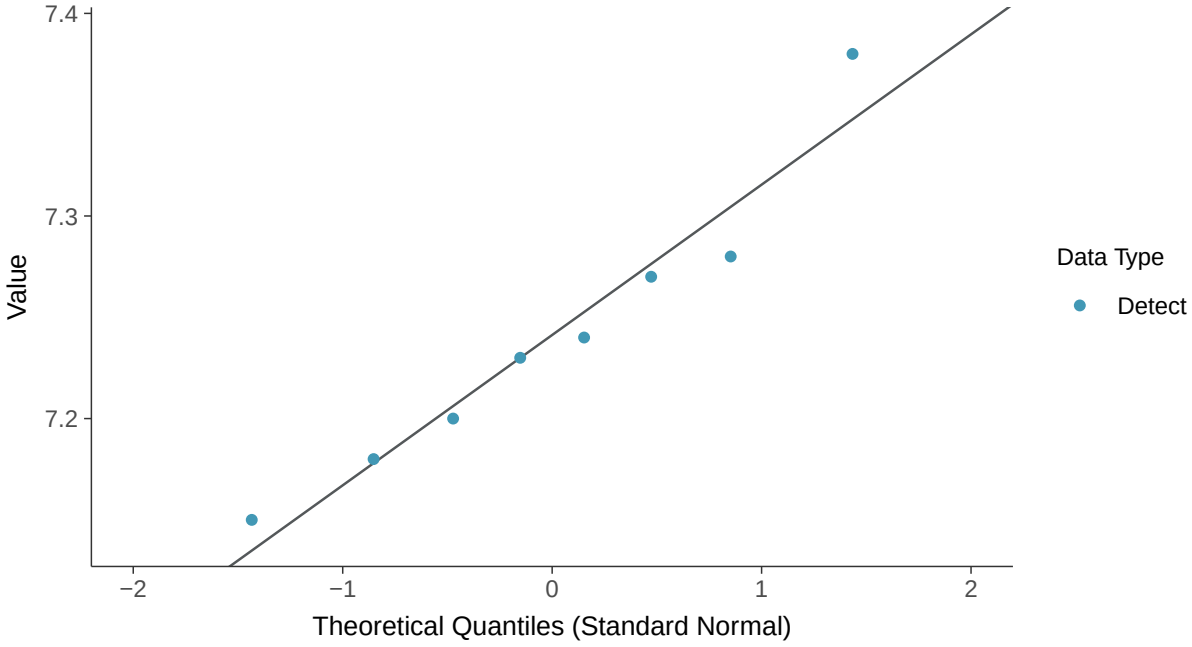
Boxplot by Season

pH, Field, MW-3 (su)



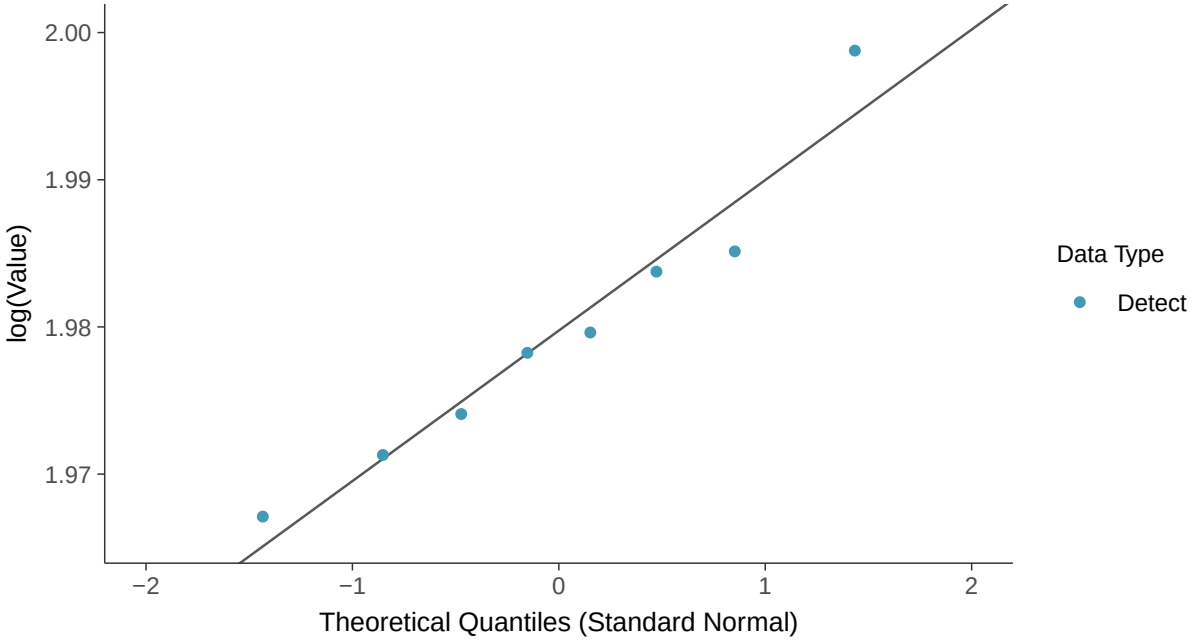
Normal Q-Q plot

pH, Field, MW-3 (su)



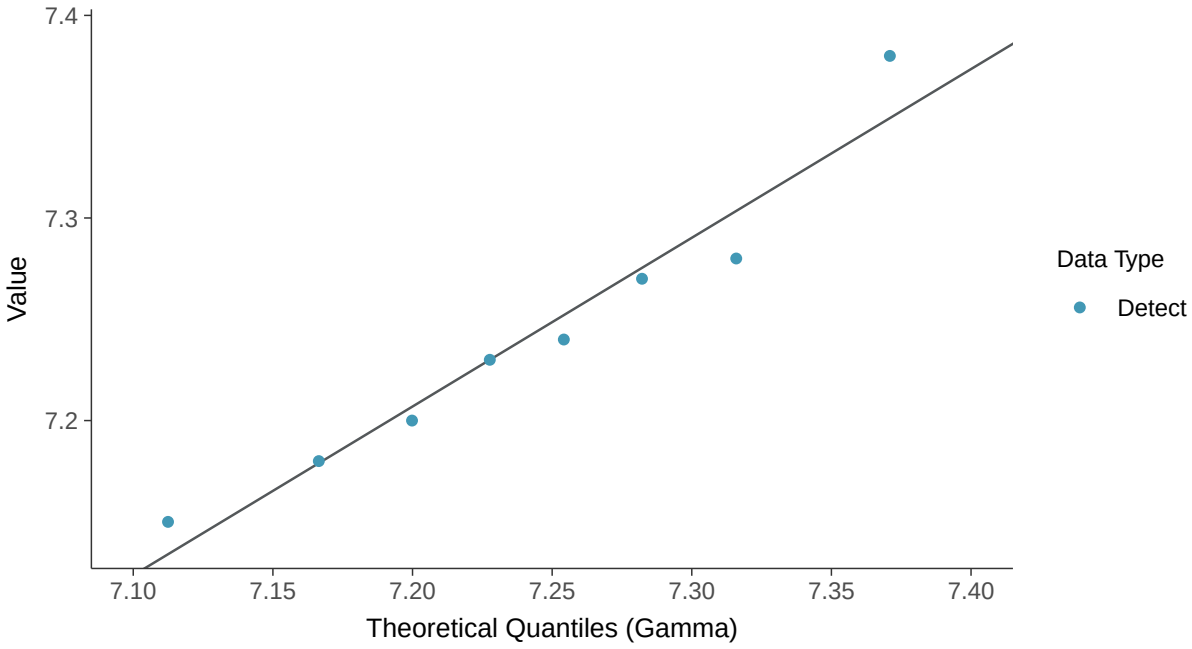
Lognormal Q-Q plot

pH, Field, MW-3 (su)



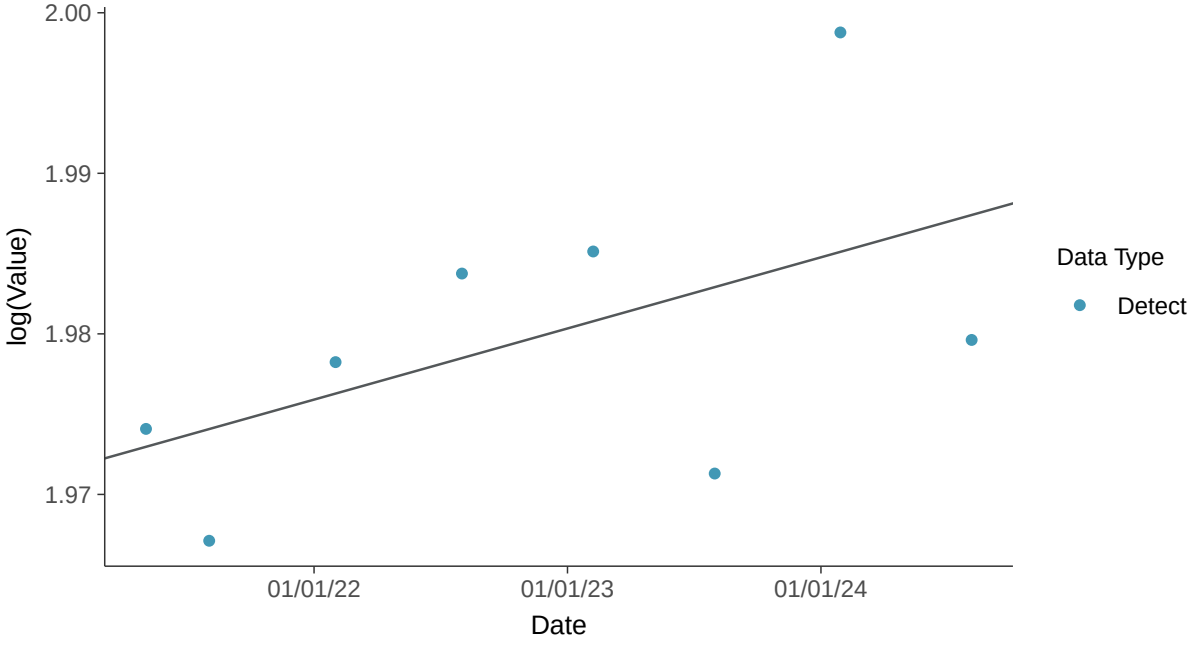
Gamma Q-Q plot

pH, Field, MW-3 (su)



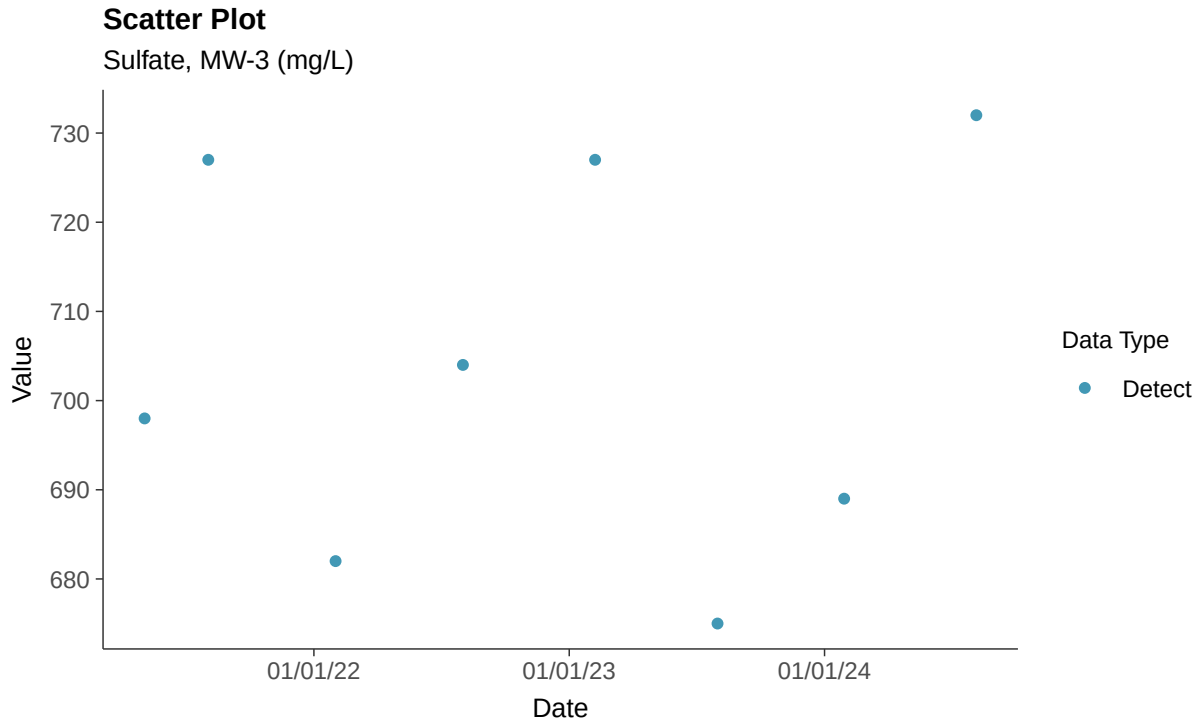
Trend Regression: Lognormal MLE

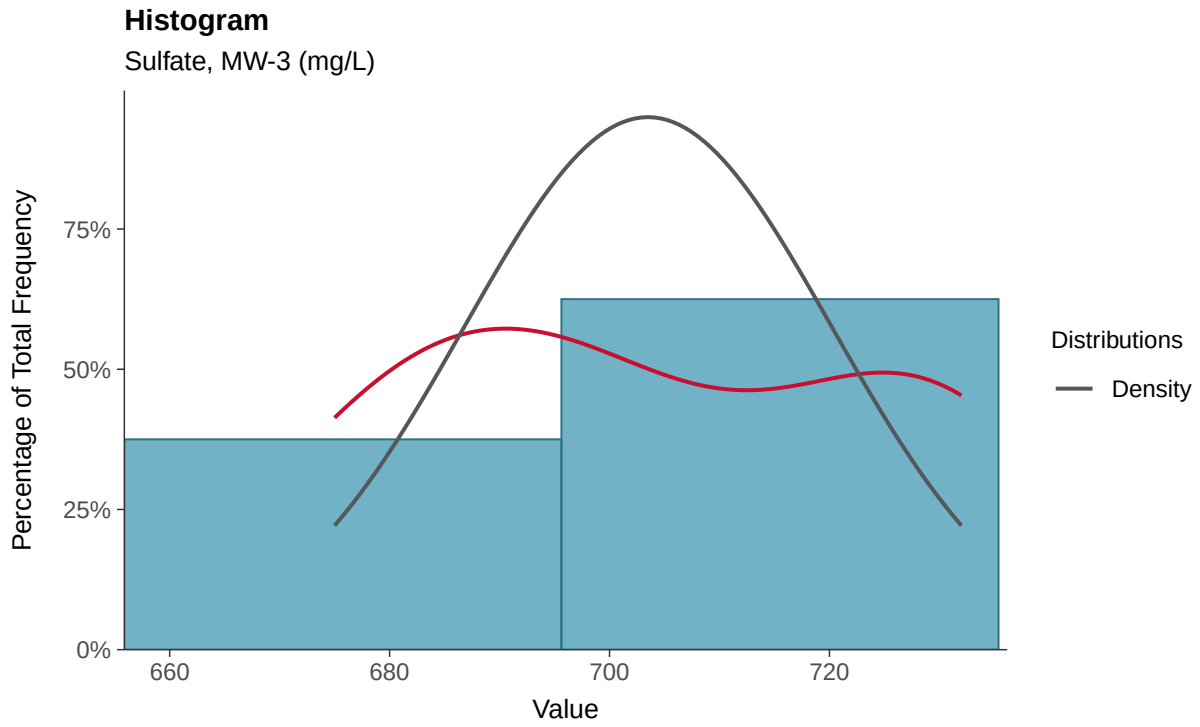
pH, Field, MW-3 (su)



Appendix III: Sulfate, MW-3

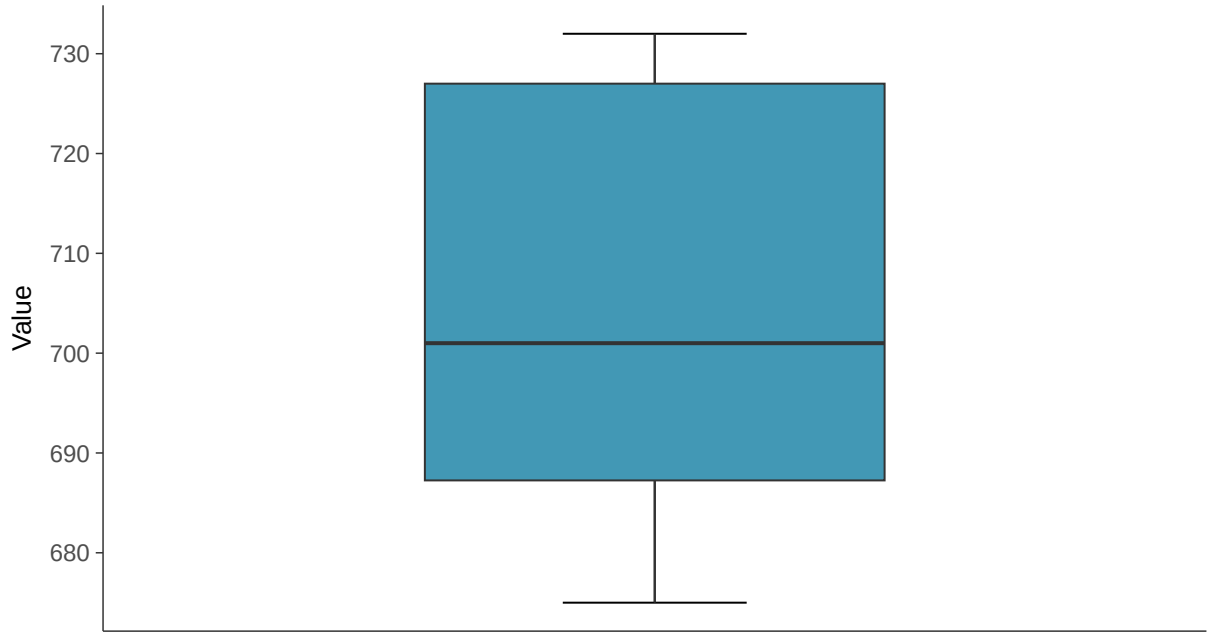
ID: 03_1_06





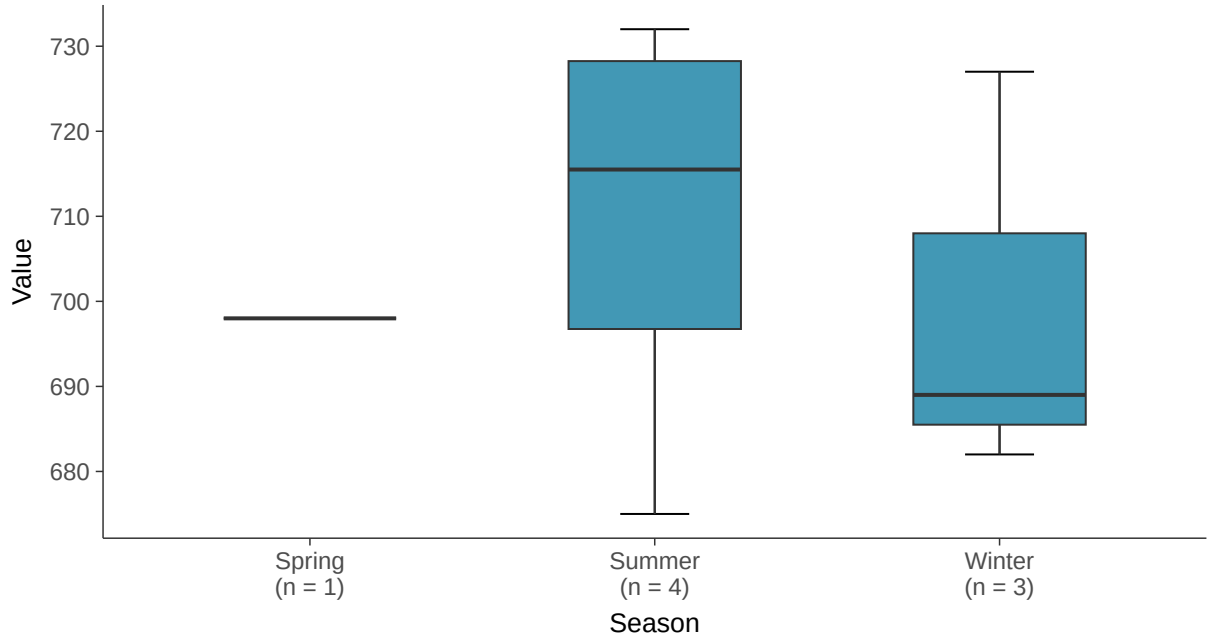
Boxplot

Sulfate, MW-3 (mg/L)



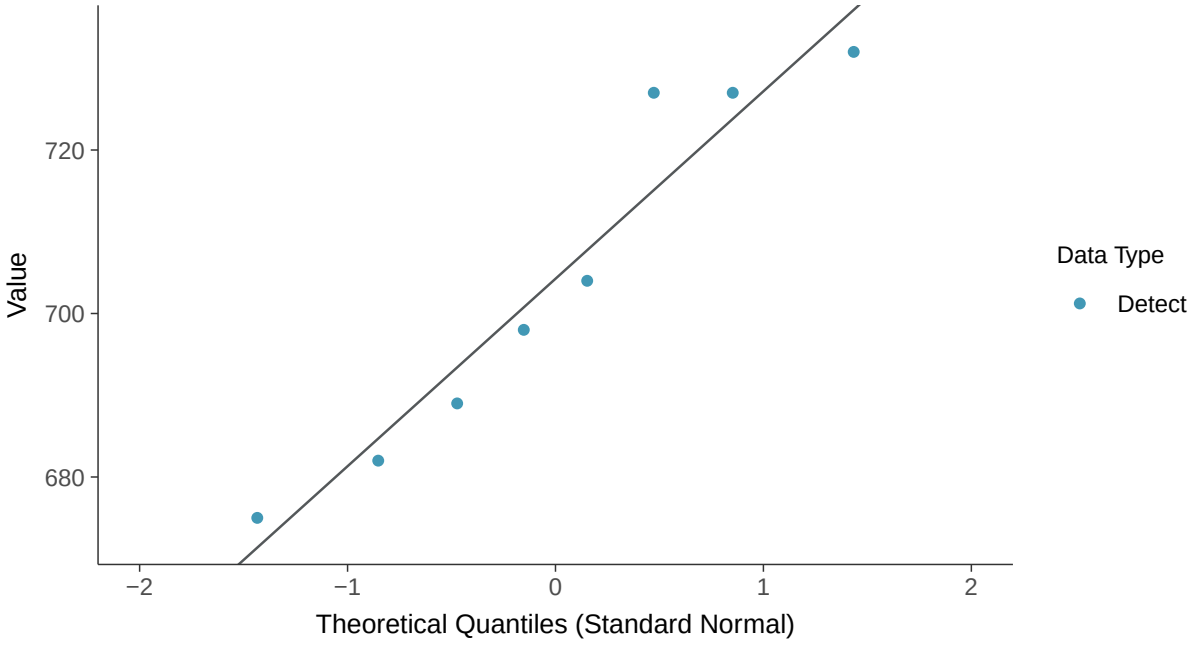
Boxplot by Season

Sulfate, MW-3 (mg/L)



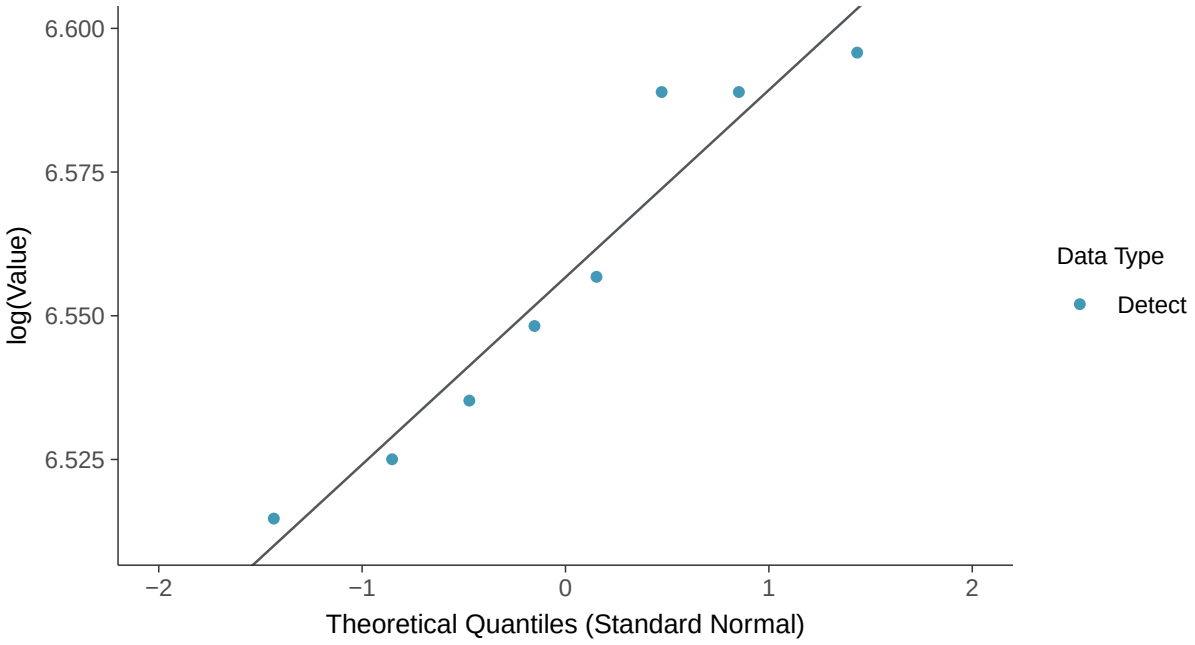
Normal Q-Q plot

Sulfate, MW-3 (mg/L)



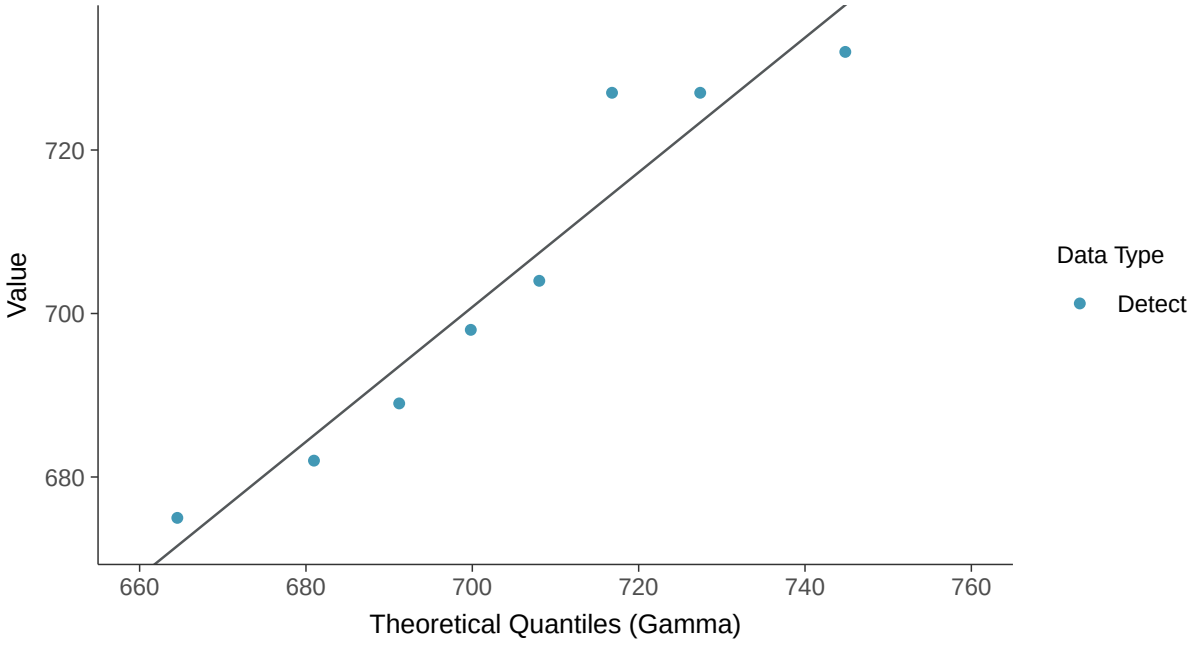
Lognormal Q-Q plot

Sulfate, MW-3 (mg/L)



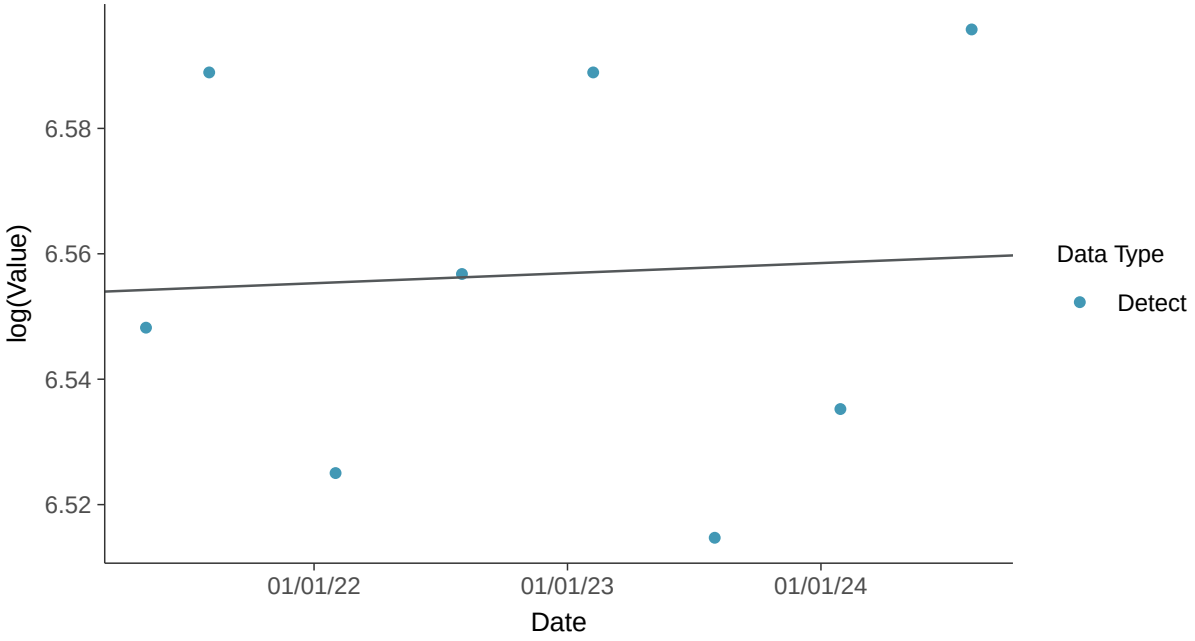
Gamma Q-Q plot

Sulfate, MW-3 (mg/L)



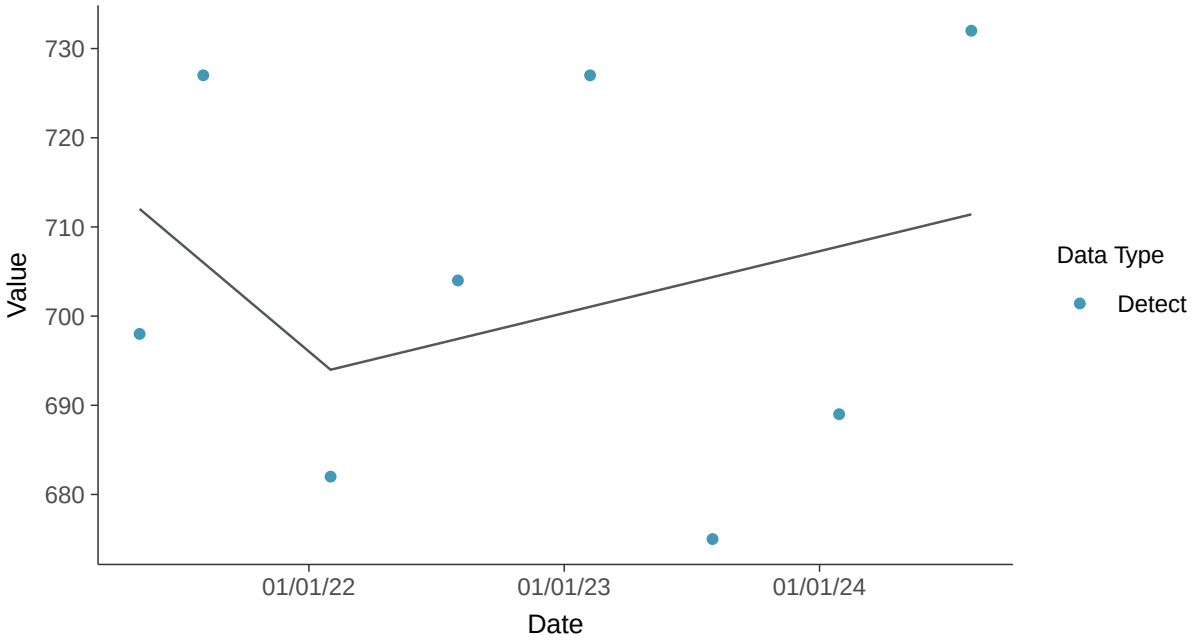
Trend Regression: Lognormal MLE

Sulfate, MW-3 (mg/L)



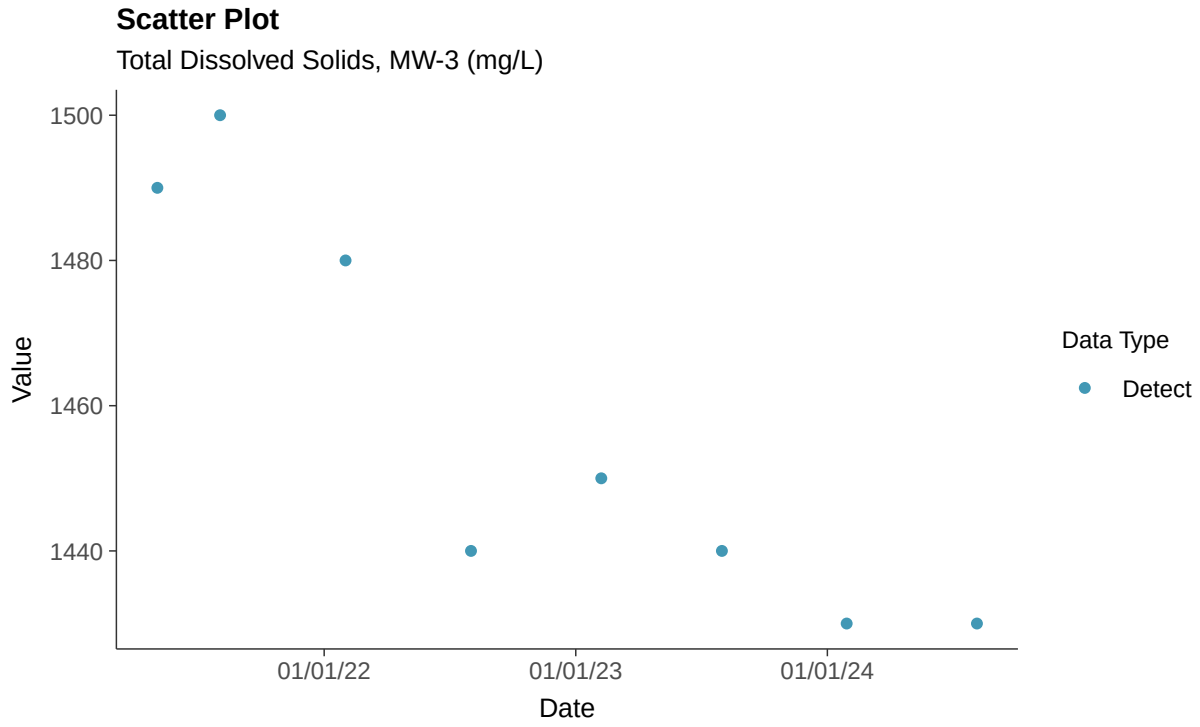
Trend Regression: Piecewise Linear-Linear

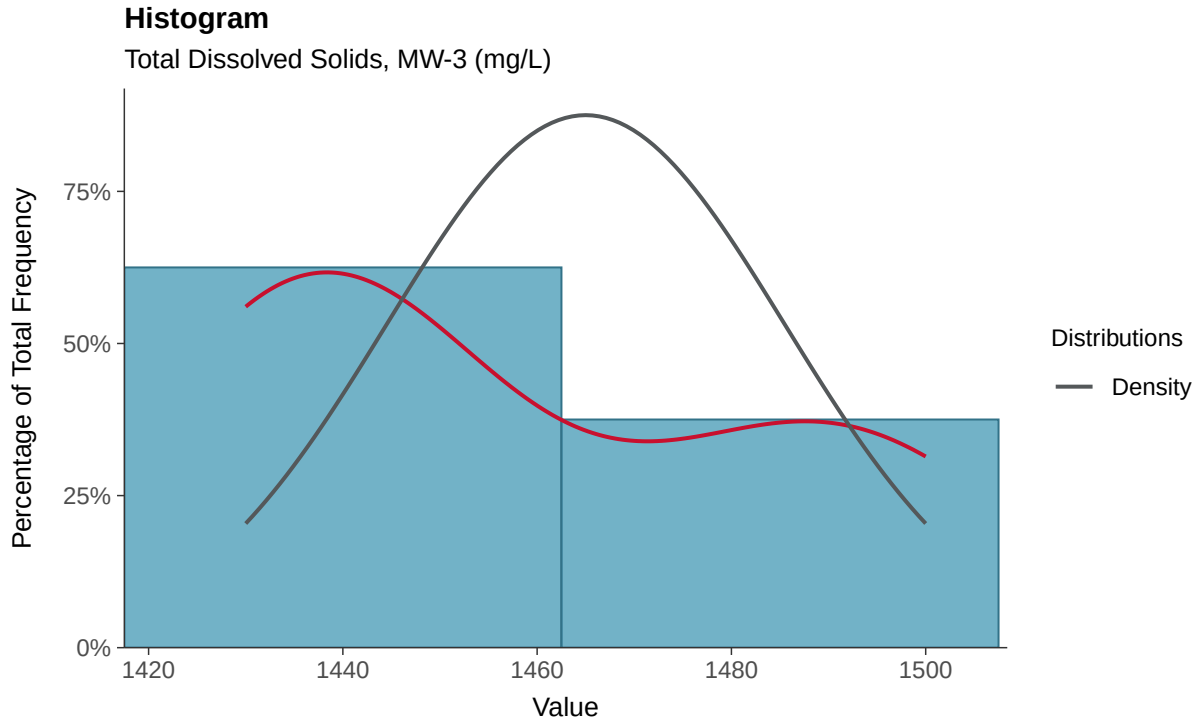
Sulfate, MW-3 (mg/L)



Appendix III: Total Dissolved Solids, MW-3

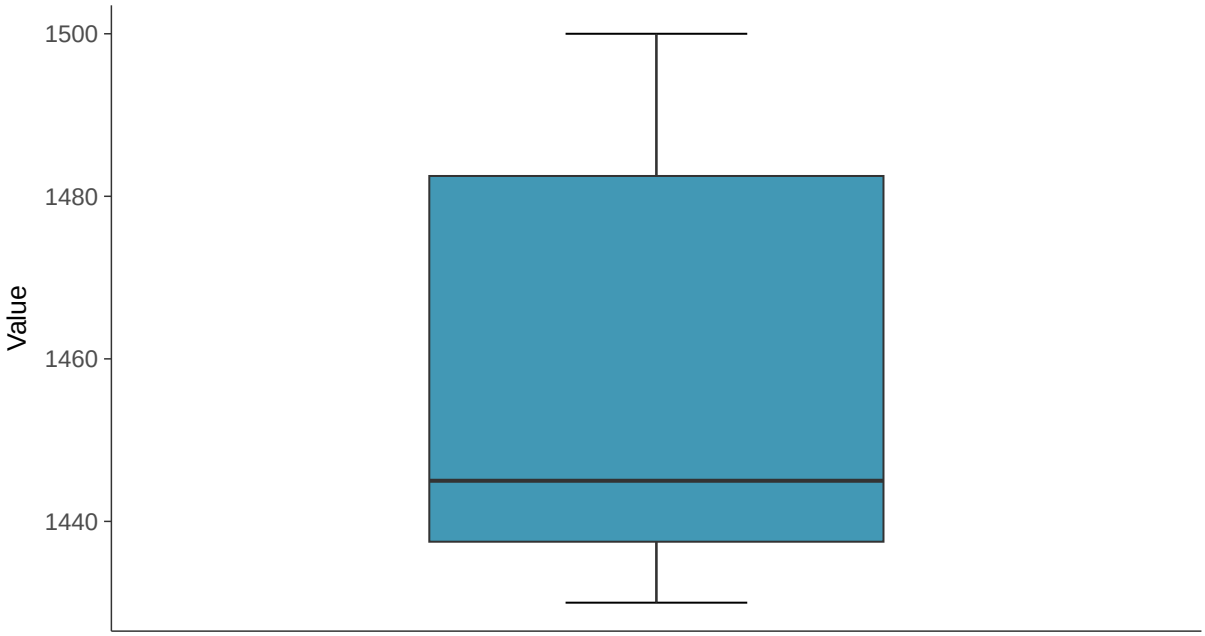
ID: 03_1_07





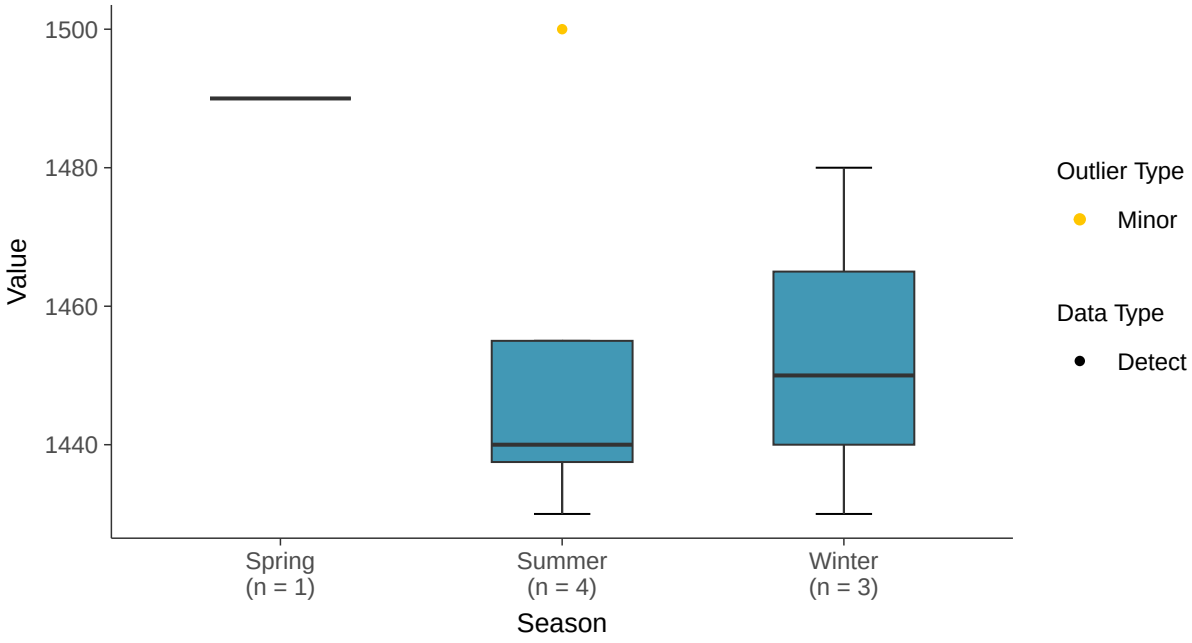
Boxplot

Total Dissolved Solids, MW-3 (mg/L)



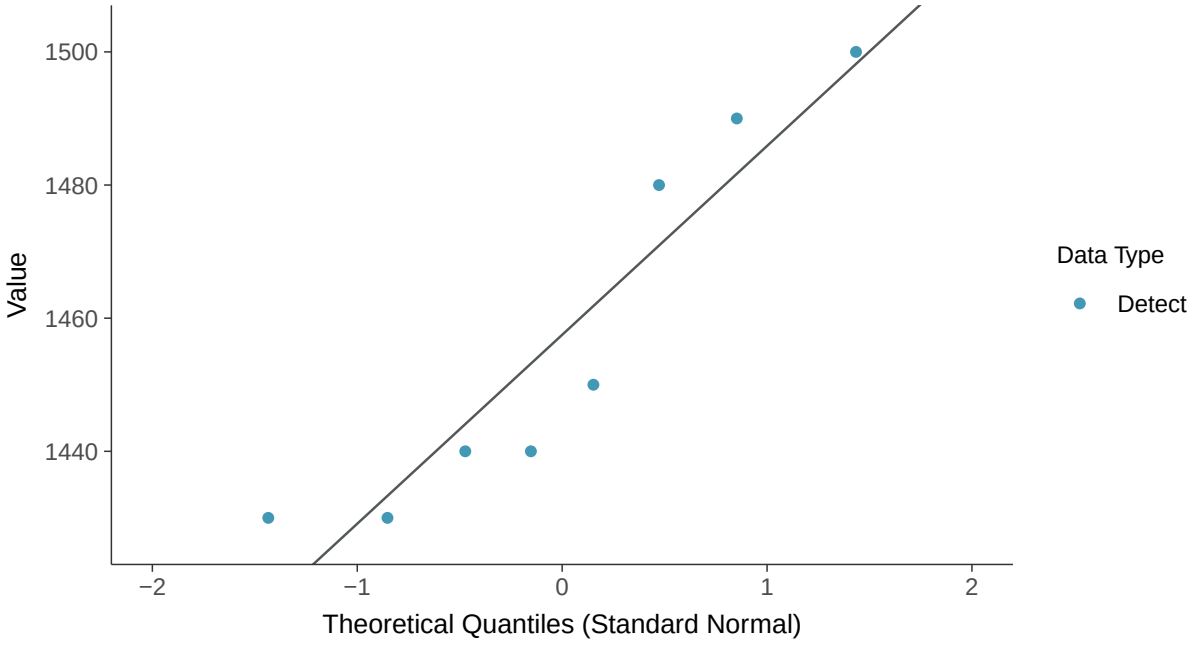
Boxplot by Season

Total Dissolved Solids, MW-3 (mg/L)



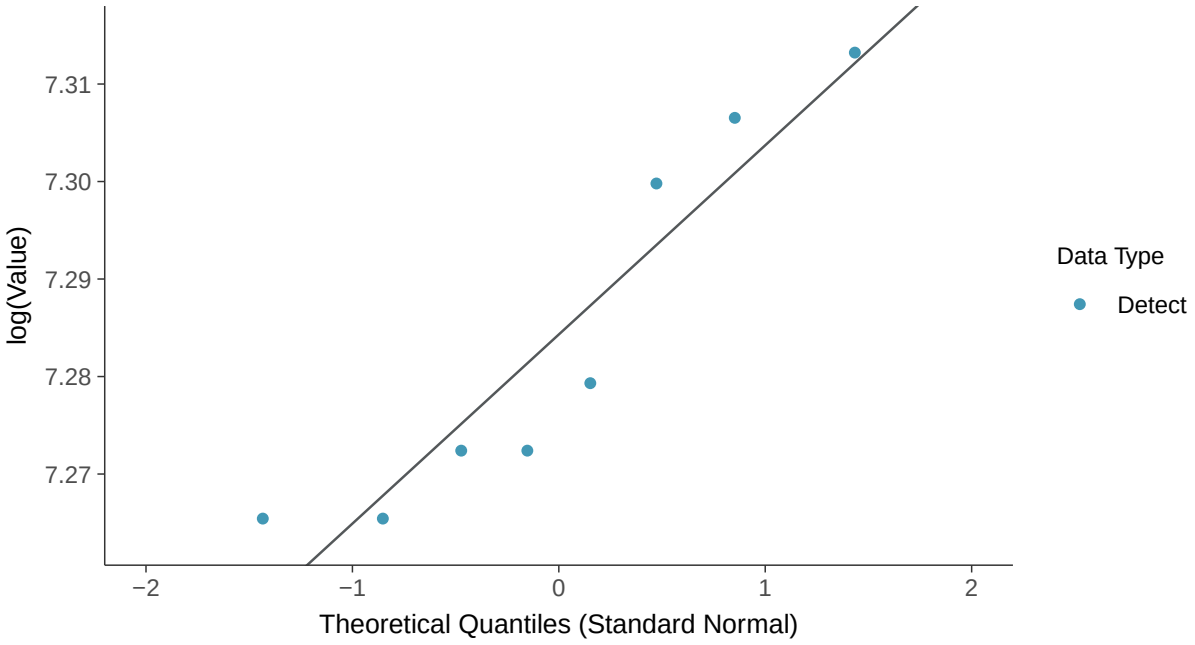
Normal Q-Q plot

Total Dissolved Solids, MW-3 (mg/L)



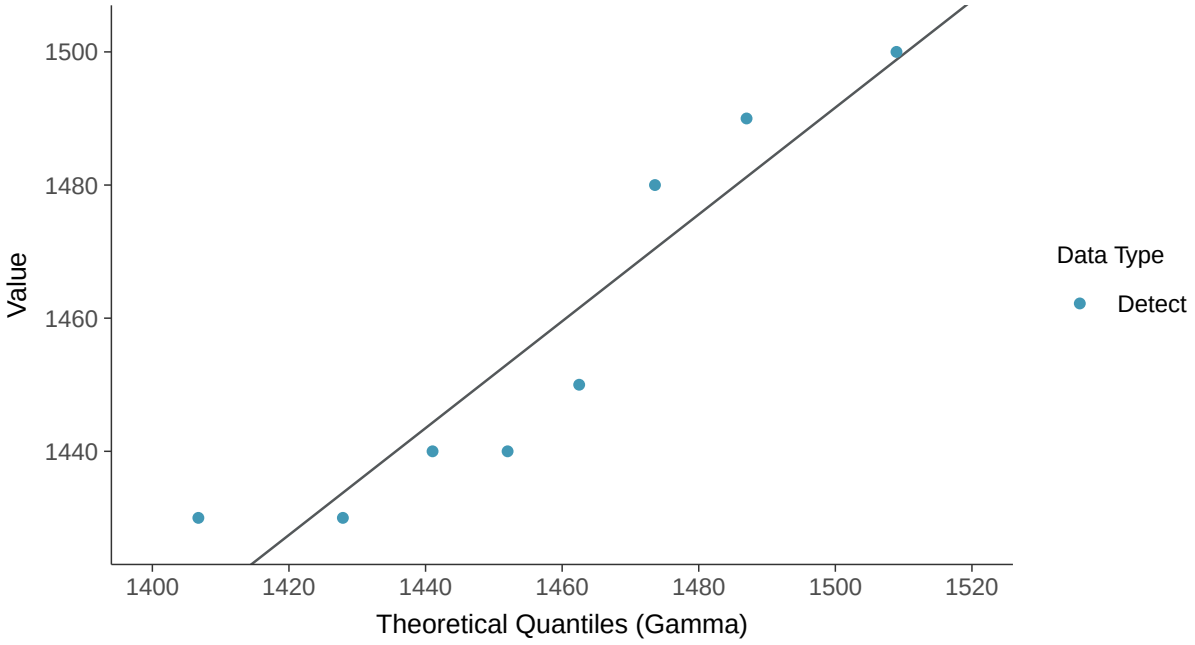
Lognormal Q-Q plot

Total Dissolved Solids, MW-3 (mg/L)



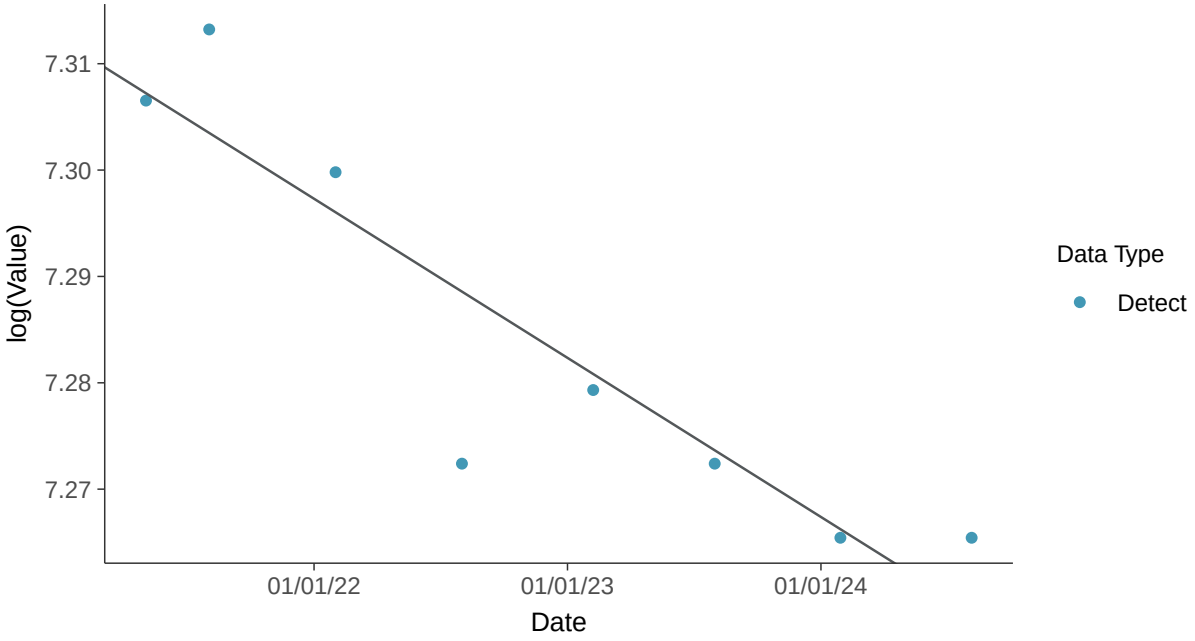
Gamma Q-Q plot

Total Dissolved Solids, MW-3 (mg/L)



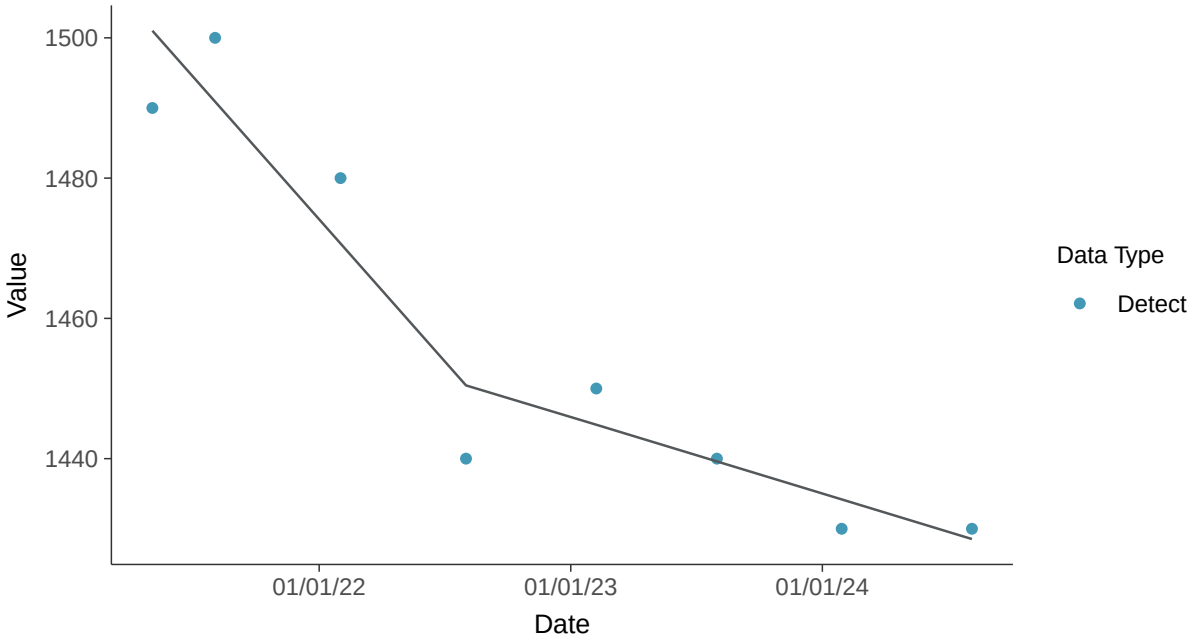
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-3 (mg/L)



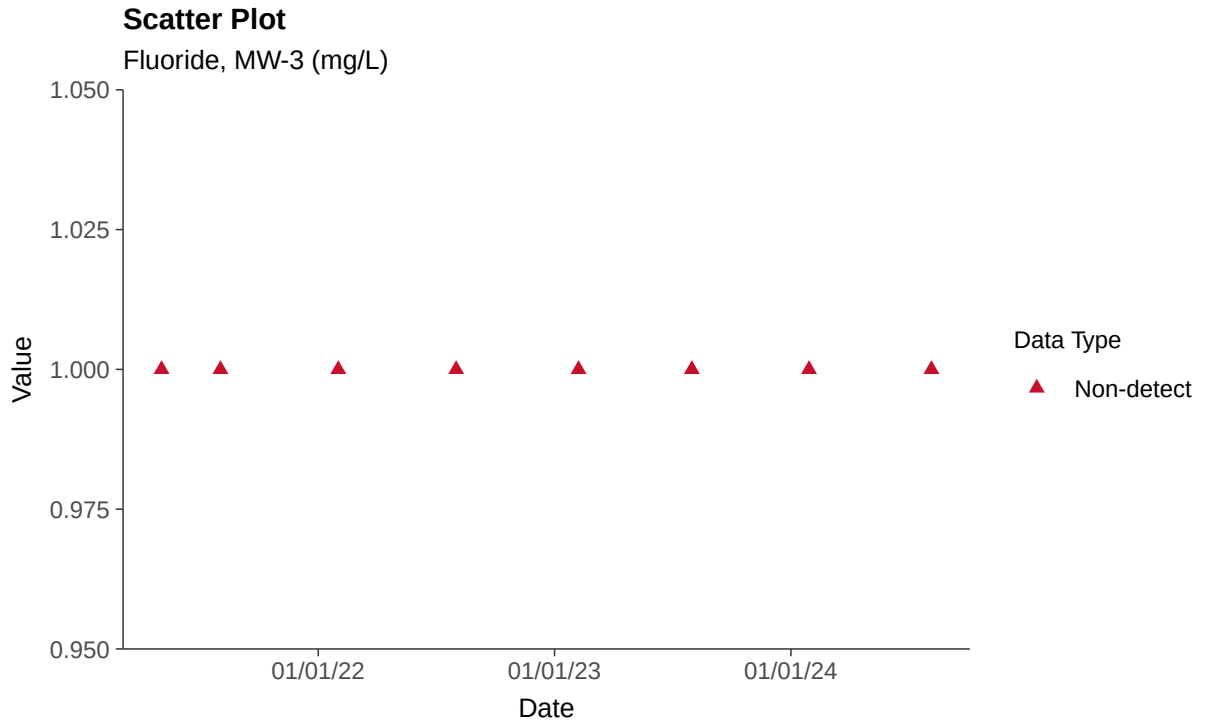
Trend Regression: Piecewise Linear-Linear

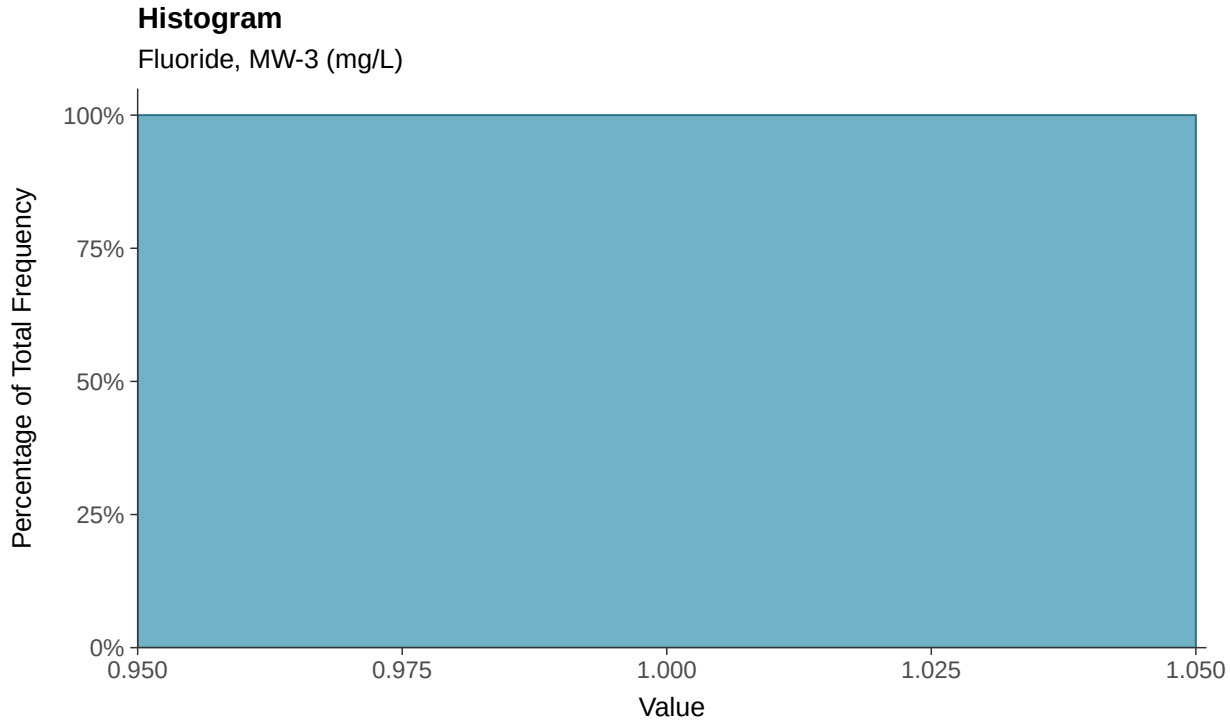
Total Dissolved Solids, MW-3 (mg/L)



Appendix IV: Fluoride, MW-3

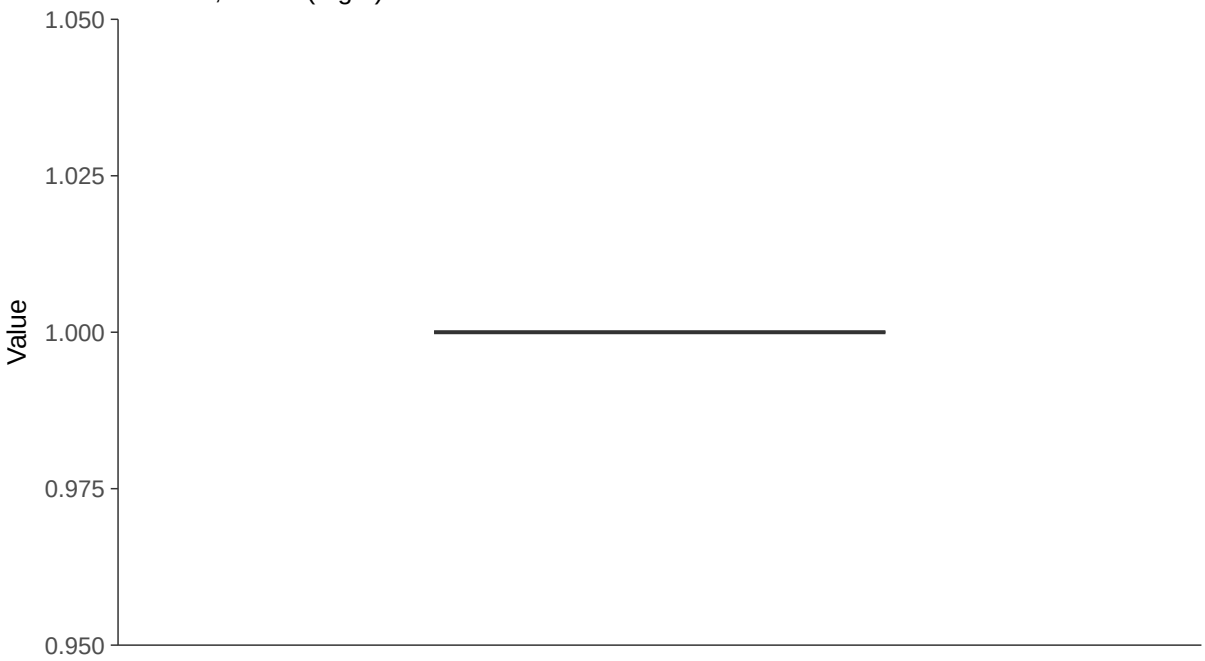
ID: 03_2_04





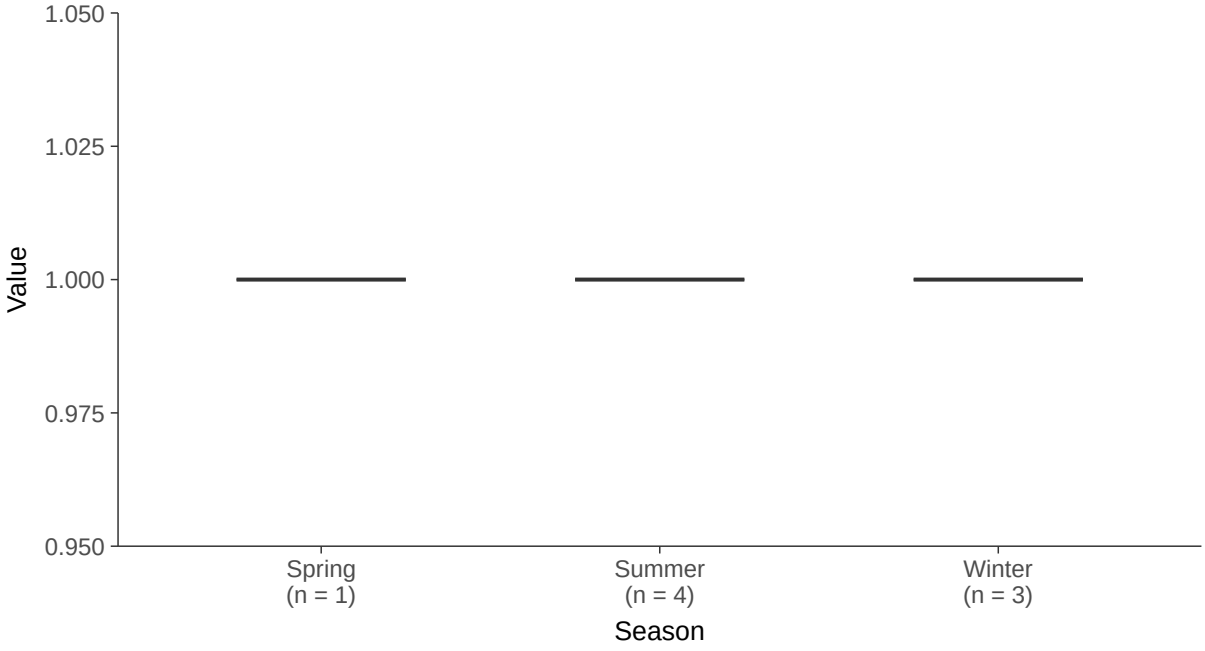
Boxplot

Fluoride, MW-3 (mg/L)



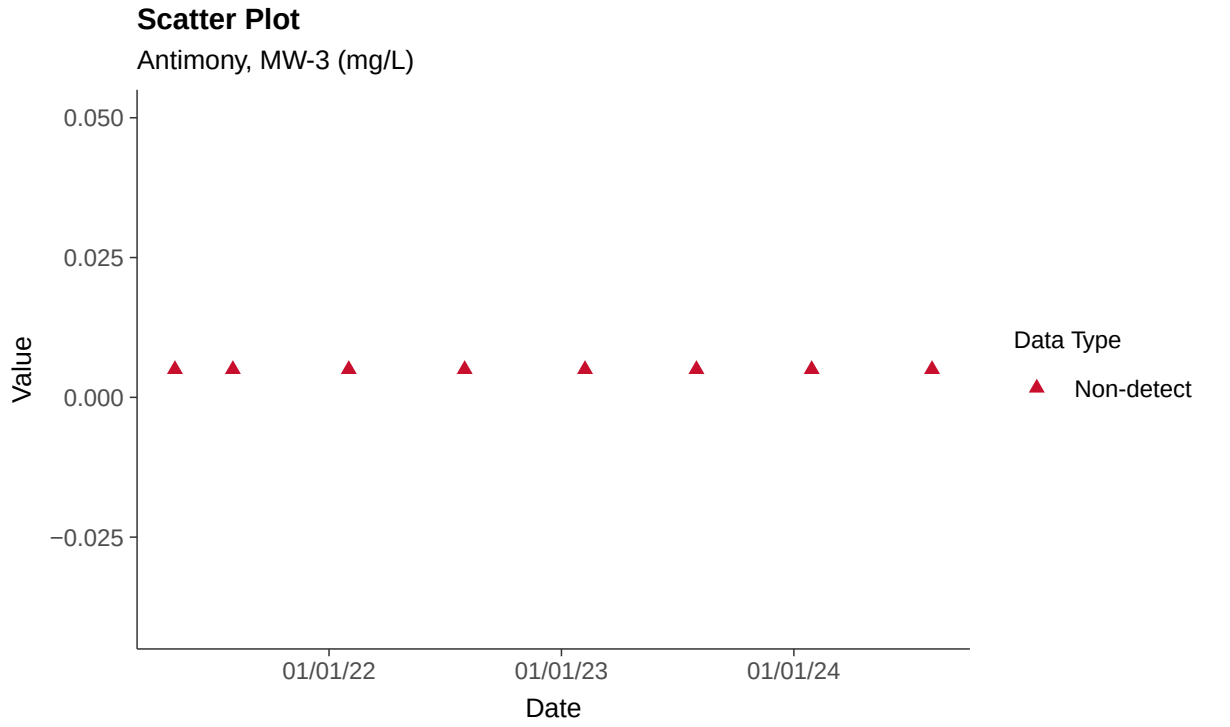
Boxplot by Season

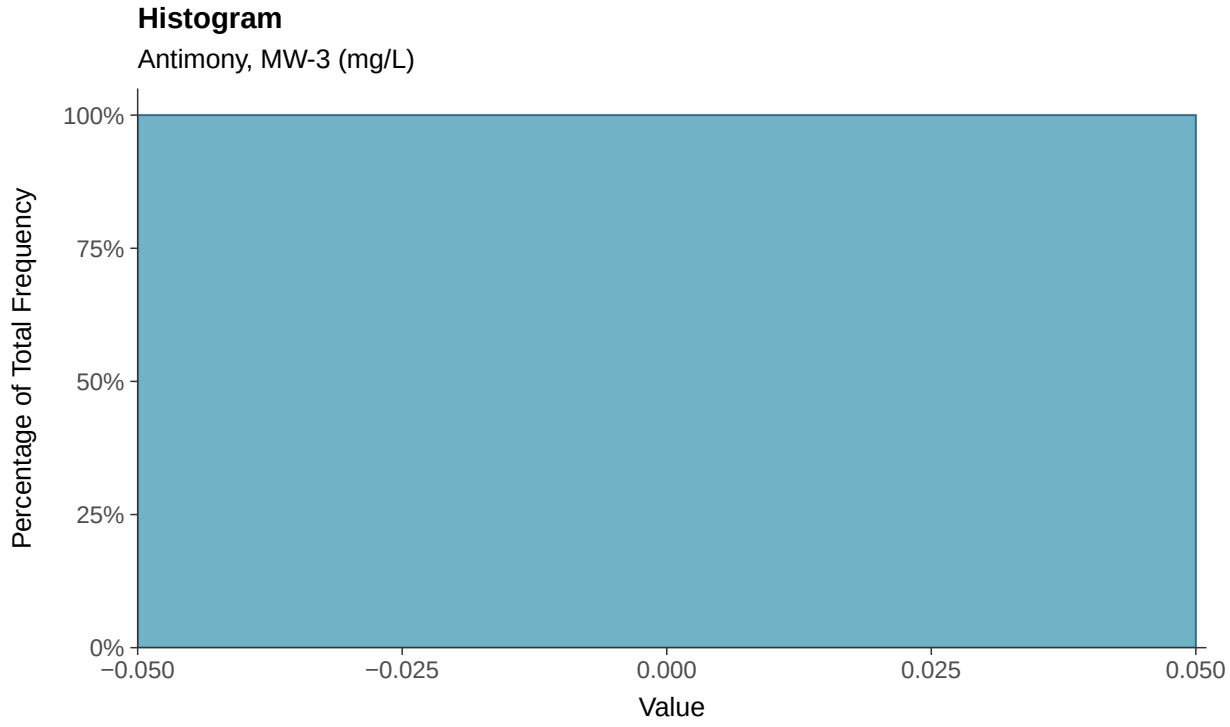
Fluoride, MW-3 (mg/L)



Appendix IV: Antimony, MW-3

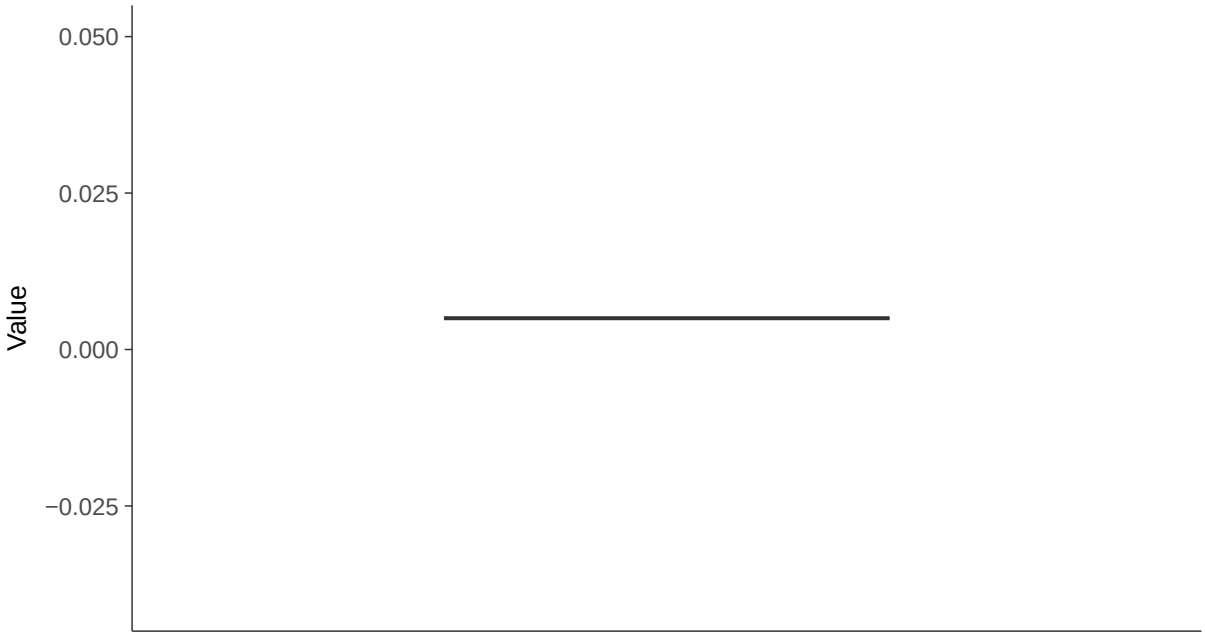
ID: 03_2_08





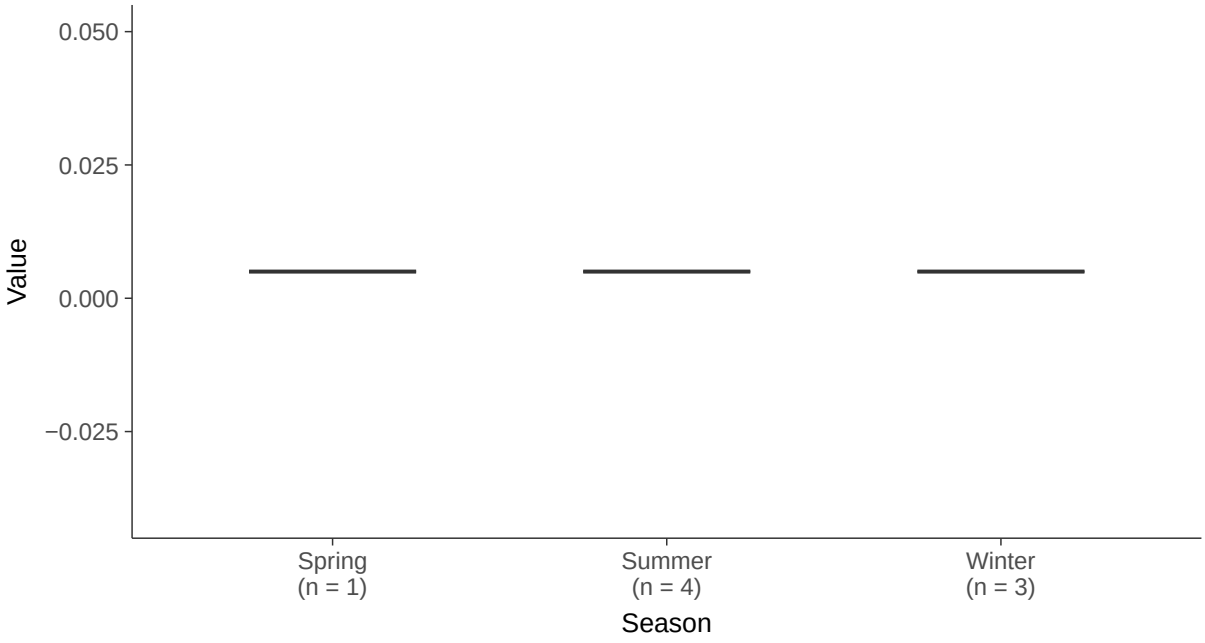
Boxplot

Antimony, MW-3 (mg/L)



Boxplot by Season

Antimony, MW-3 (mg/L)

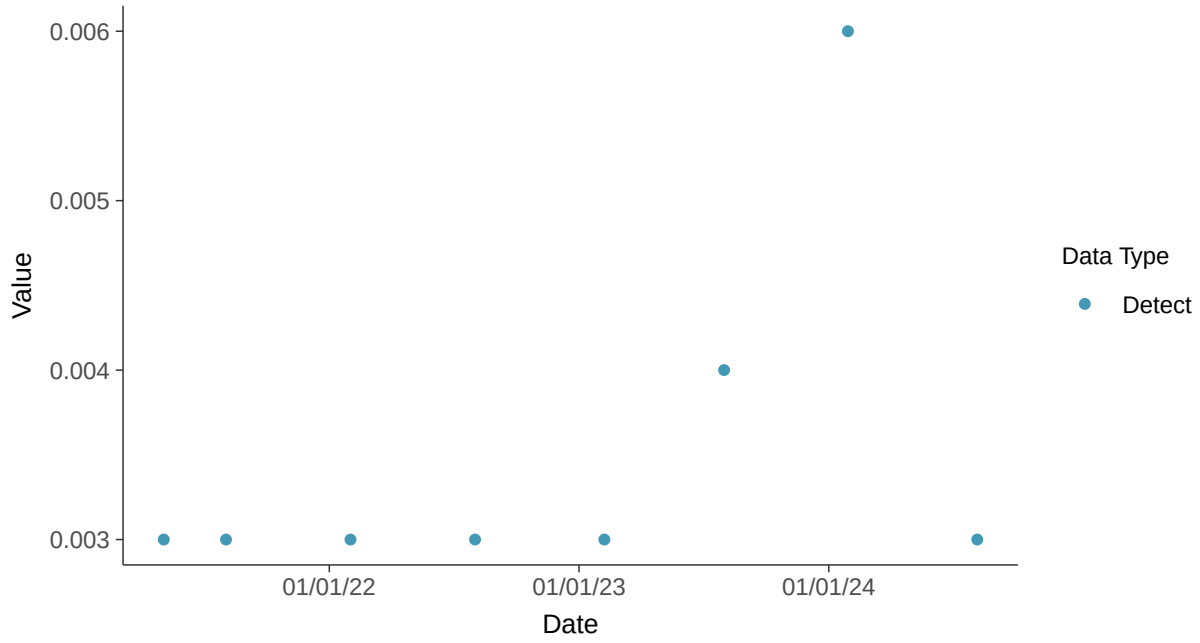


Appendix IV: Arsenic, MW-3

ID: 03_2_09

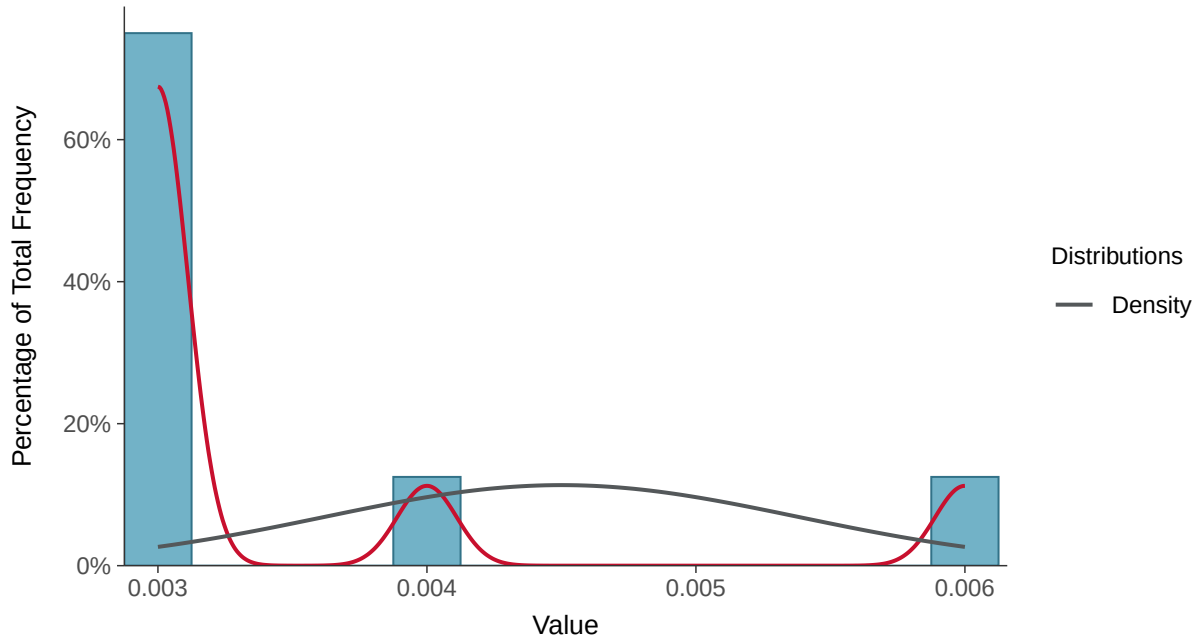
Scatter Plot

Arsenic, MW-3 (mg/L)



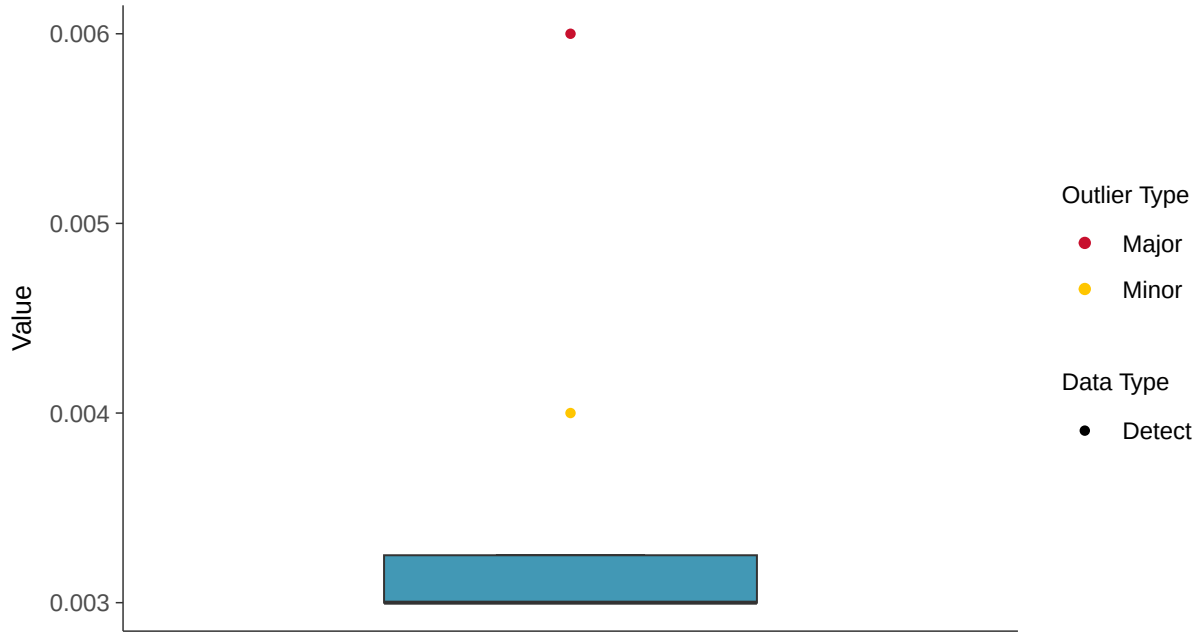
Histogram

Arsenic, MW-3 (mg/L)



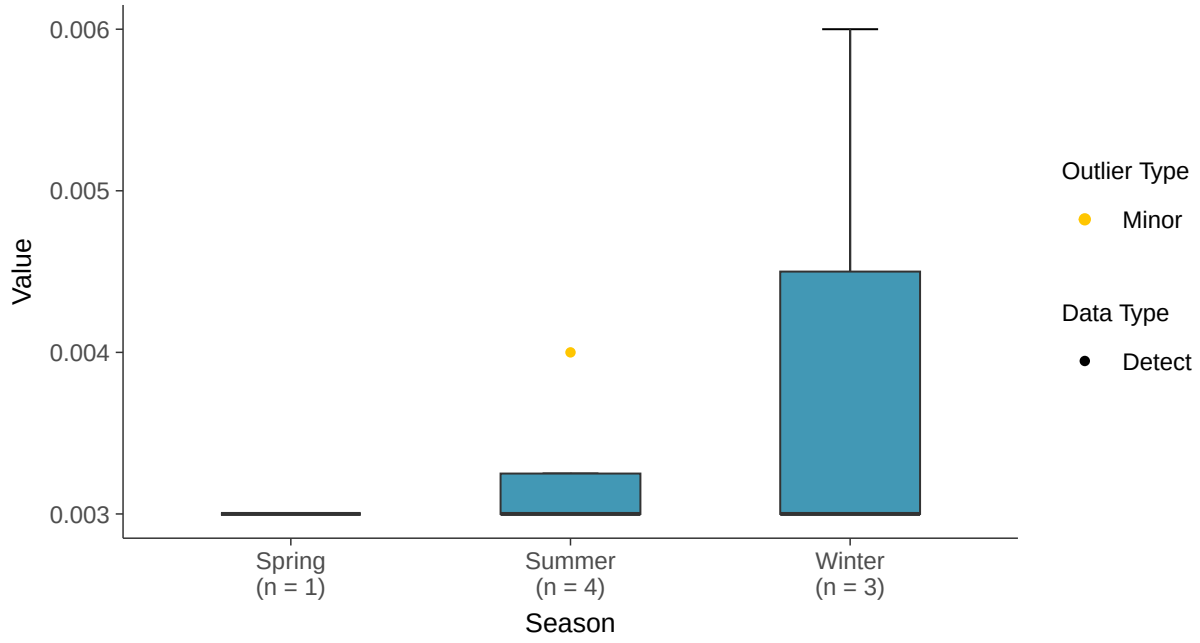
Boxplot

Arsenic, MW-3 (mg/L)



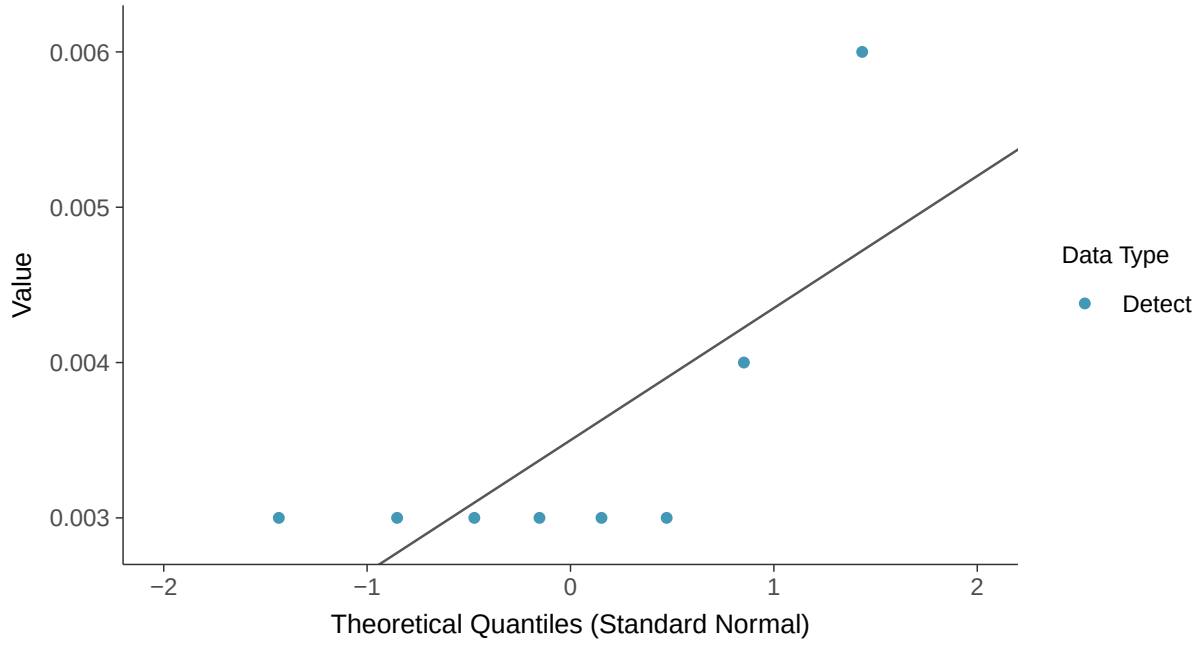
Boxplot by Season

Arsenic, MW-3 (mg/L)



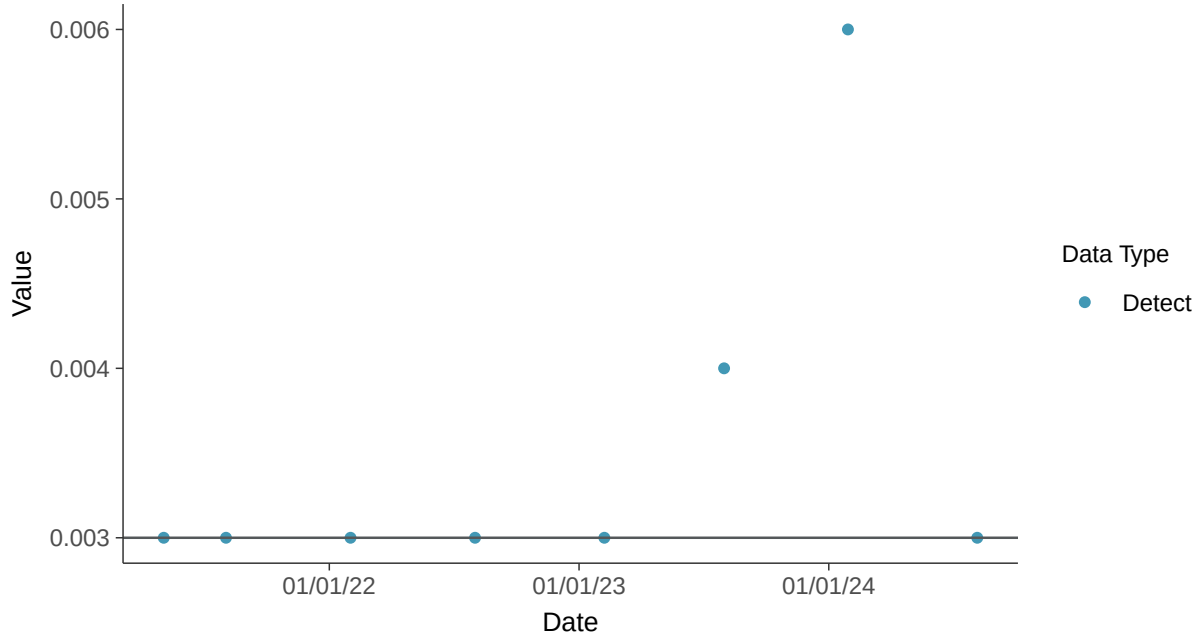
Normal Q-Q plot

Arsenic, MW-3 (mg/L)



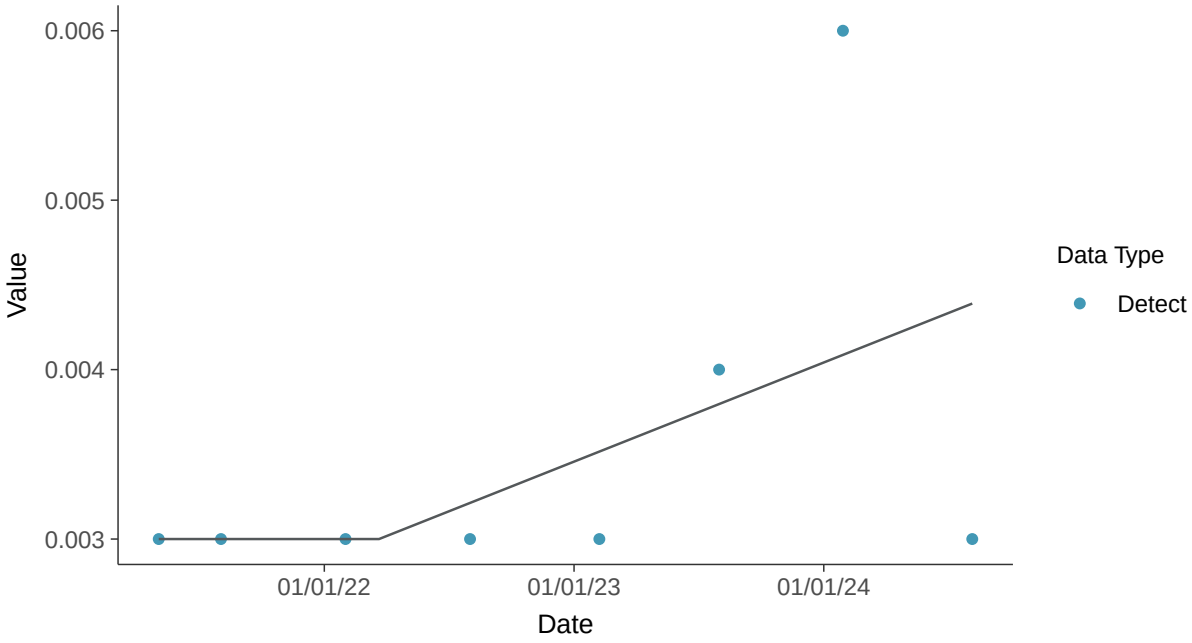
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Arsenic, MW-3 (mg/L)



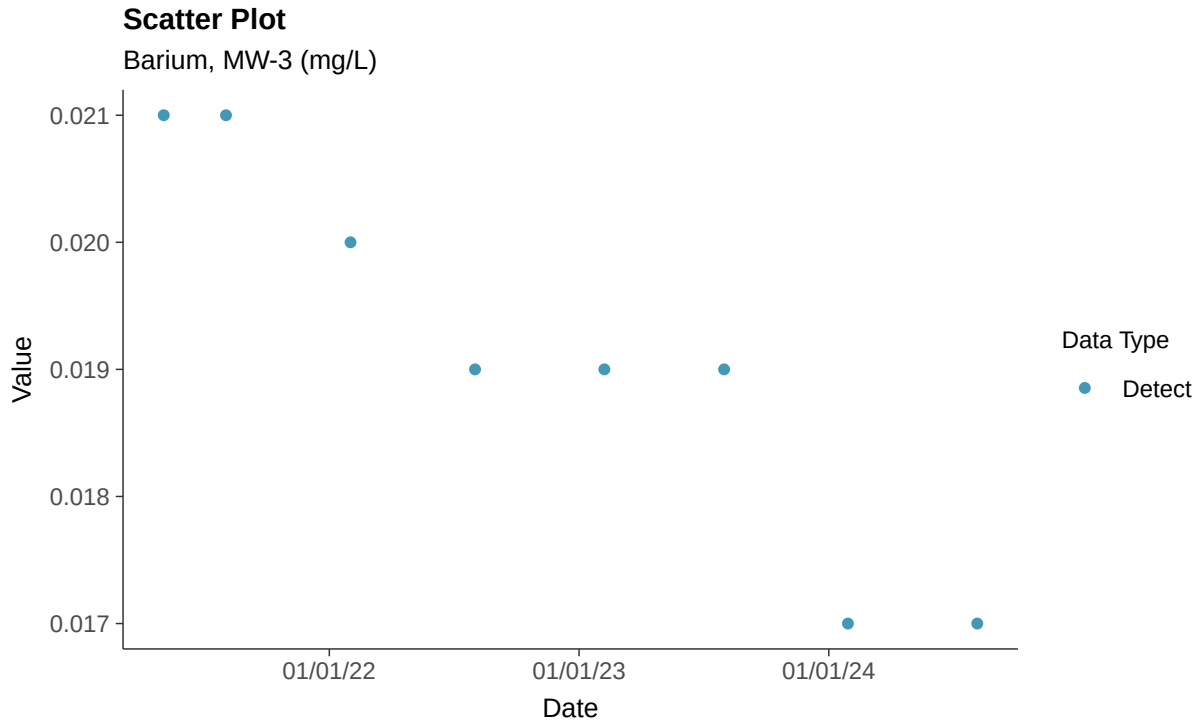
Trend Regression: Piecewise Linear-Linear

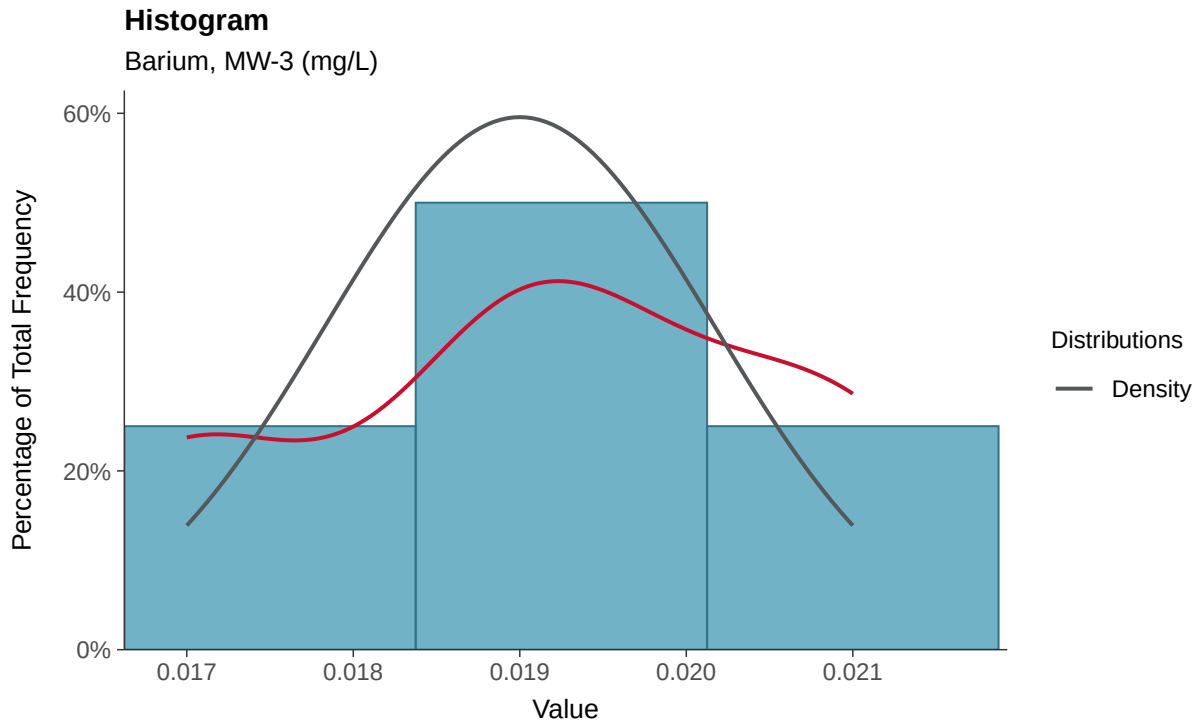
Arsenic, MW-3 (mg/L)



Appendix IV: Barium, MW-3

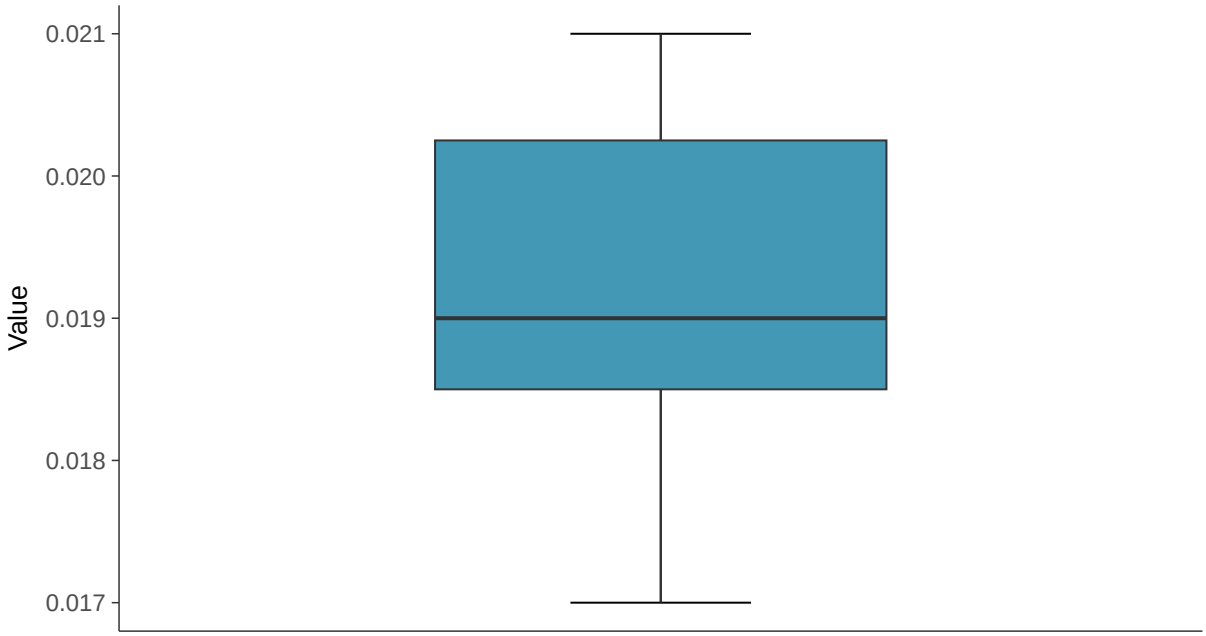
ID: 03_2_10





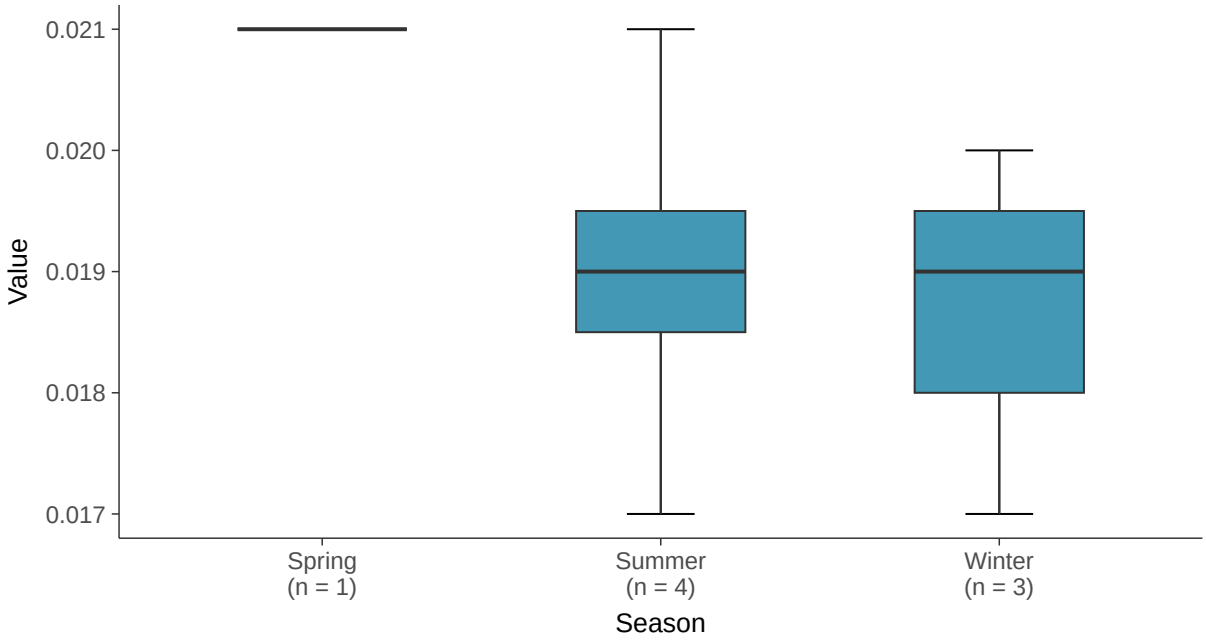
Boxplot

Barium, MW-3 (mg/L)



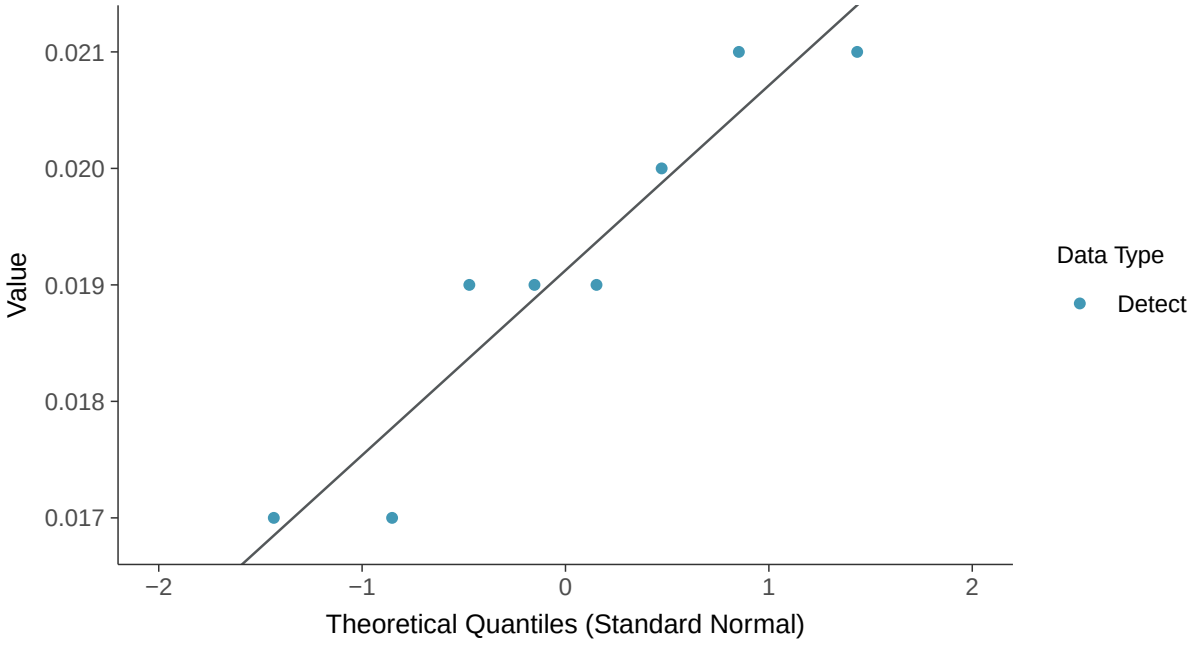
Boxplot by Season

Barium, MW-3 (mg/L)



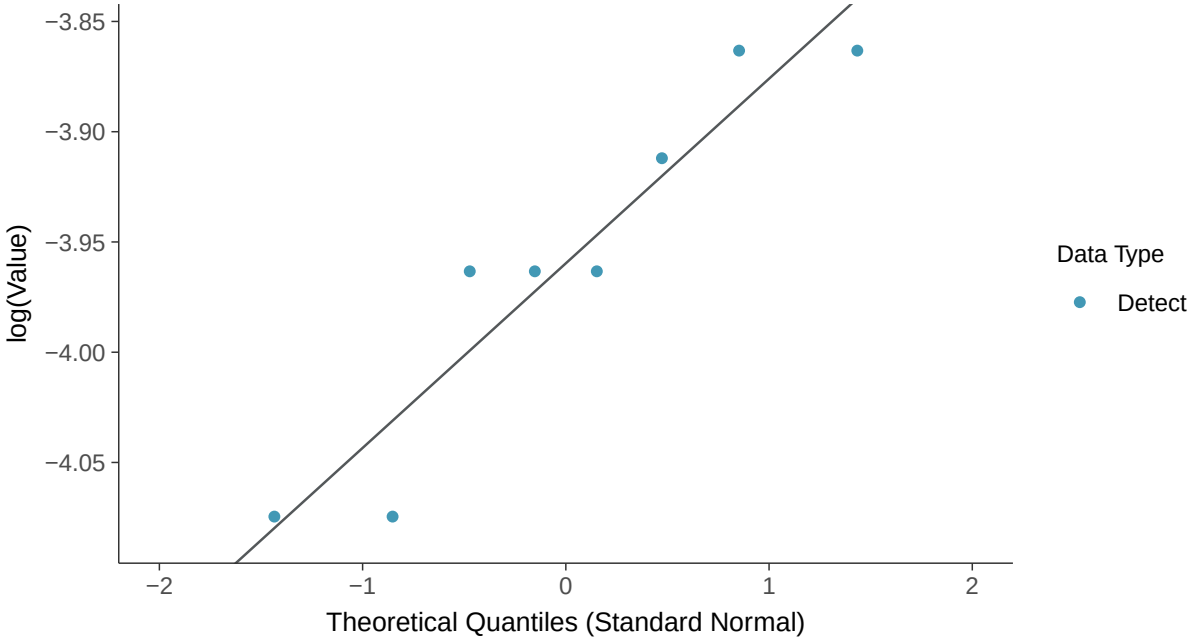
Normal Q-Q plot

Barium, MW-3 (mg/L)



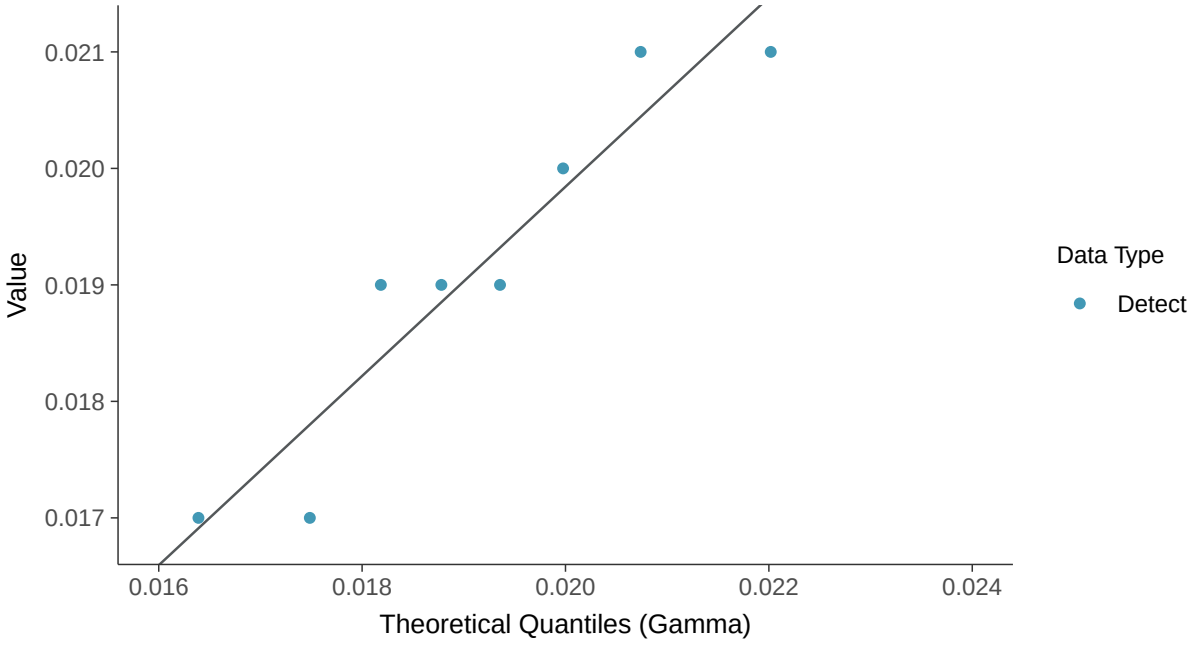
Lognormal Q-Q plot

Barium, MW-3 (mg/L)



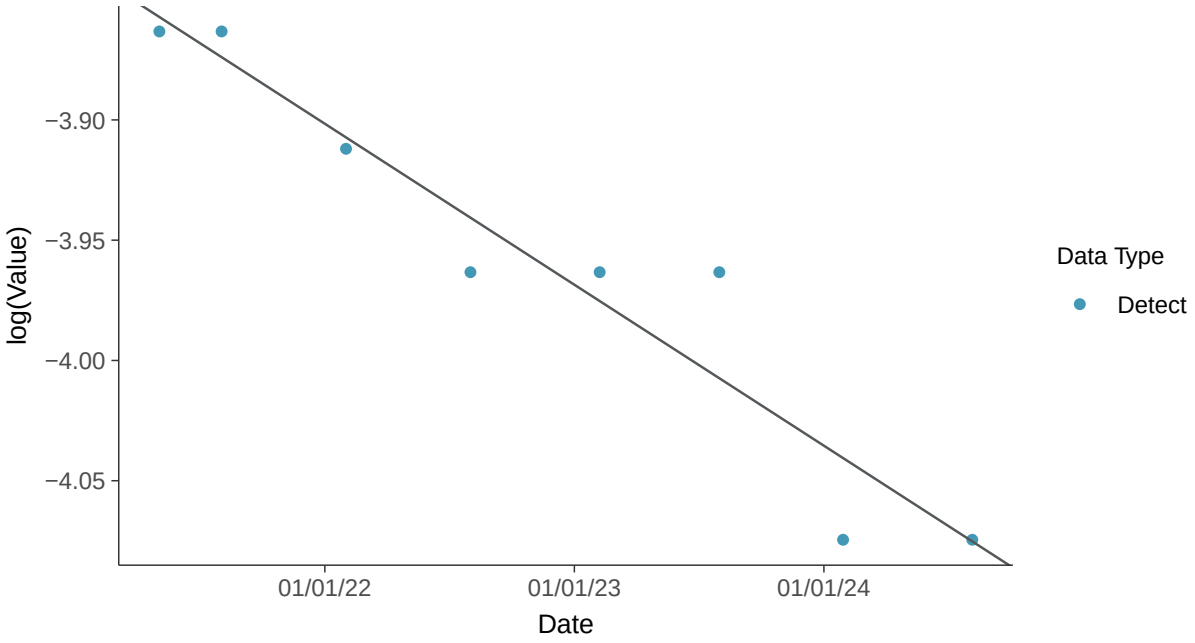
Gamma Q-Q plot

Barium, MW-3 (mg/L)



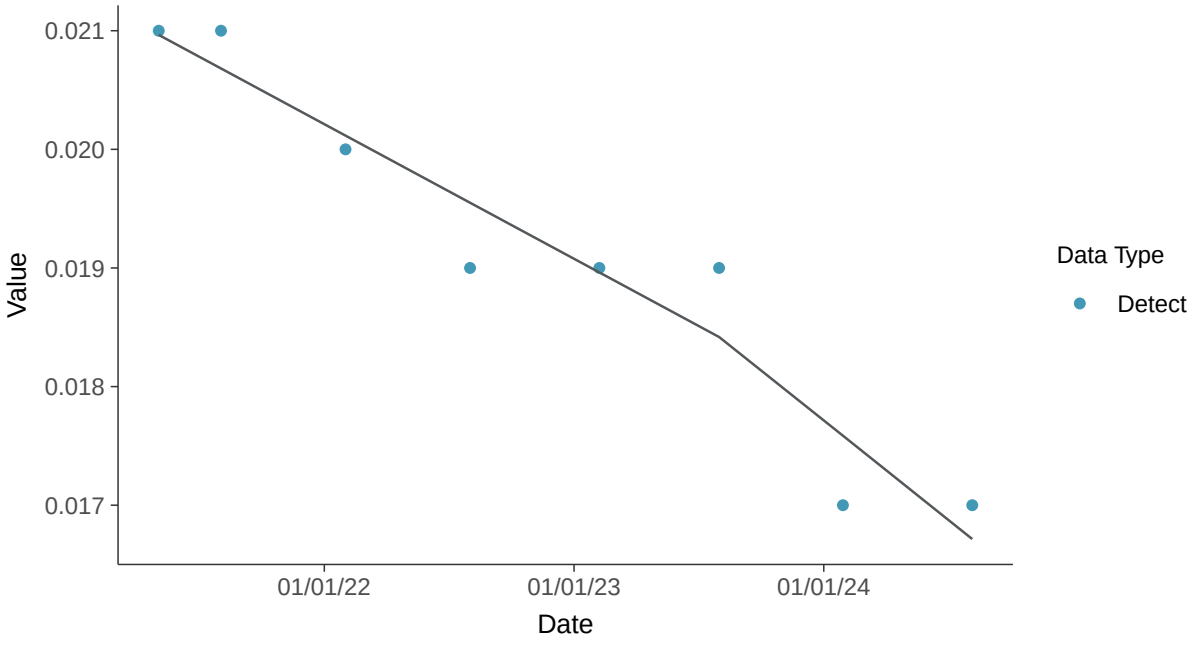
Trend Regression: Lognormal MLE

Barium, MW-3 (mg/L)



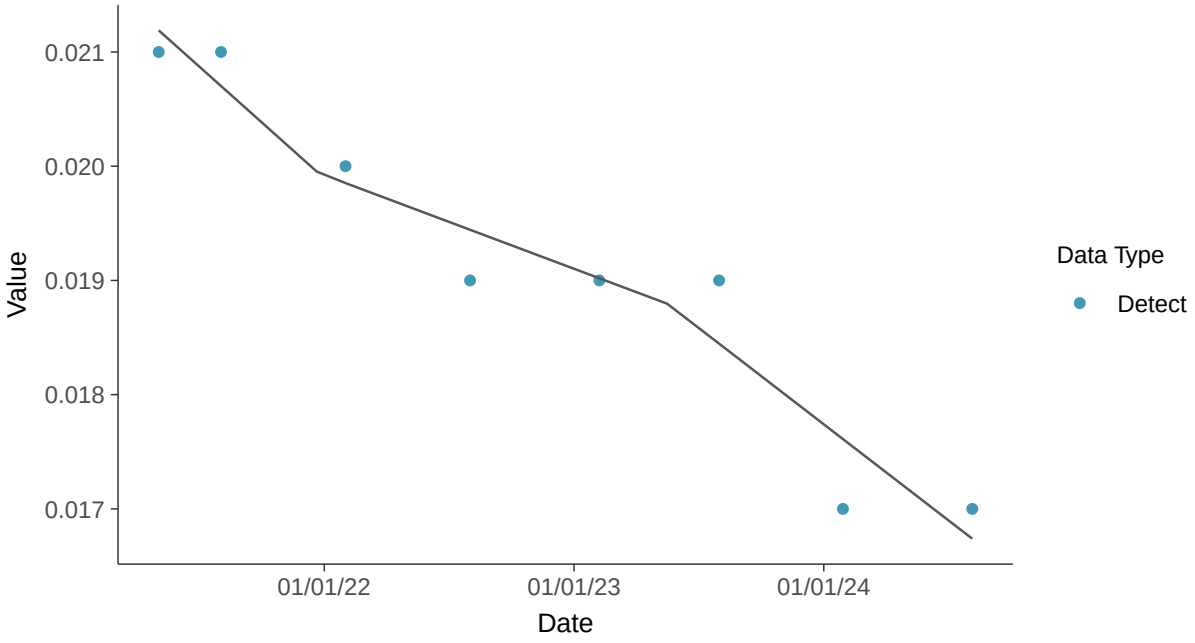
Trend Regression: Piecewise Linear-Linear

Barium, MW-3 (mg/L)



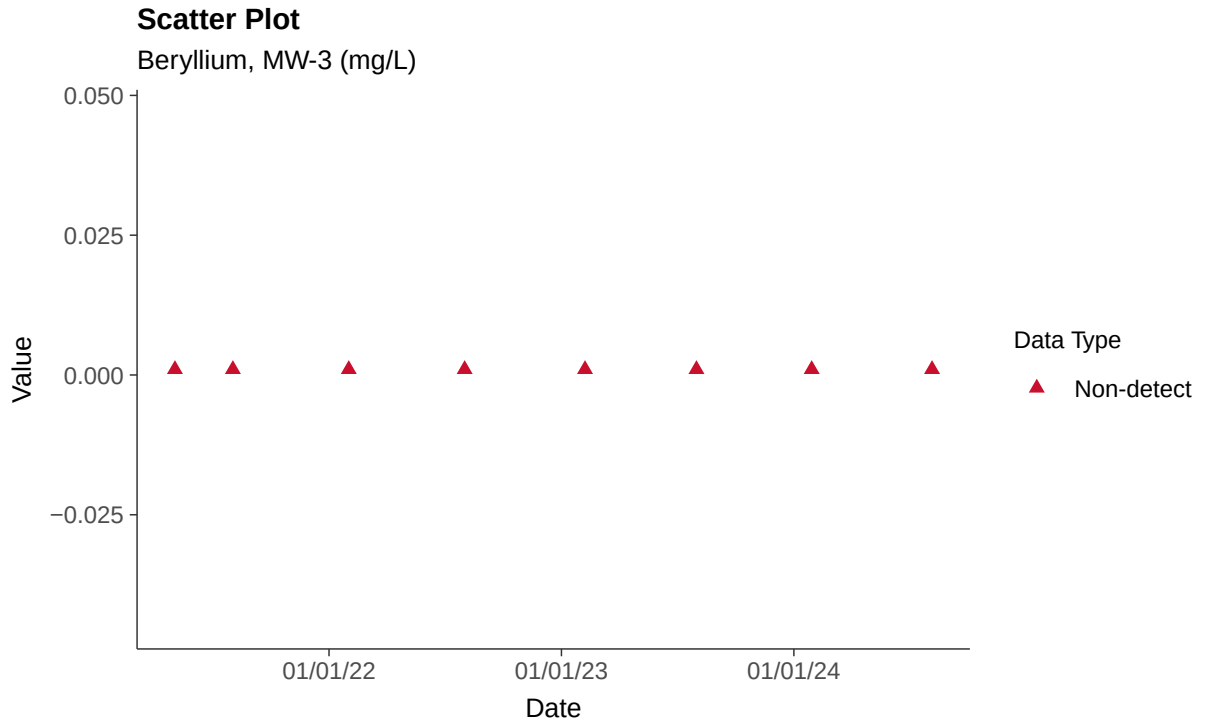
Trend Regression: Piecewise Linear-Linear-Linear

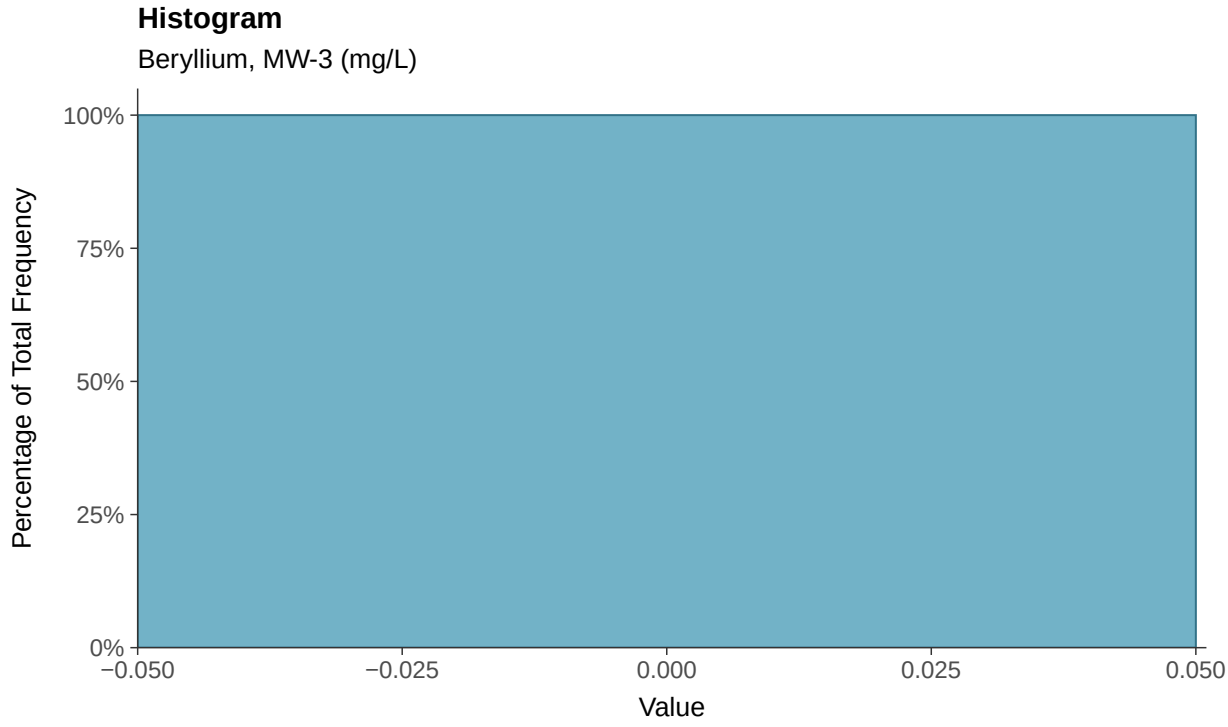
Barium, MW-3 (mg/L)



Appendix IV: Beryllium, MW-3

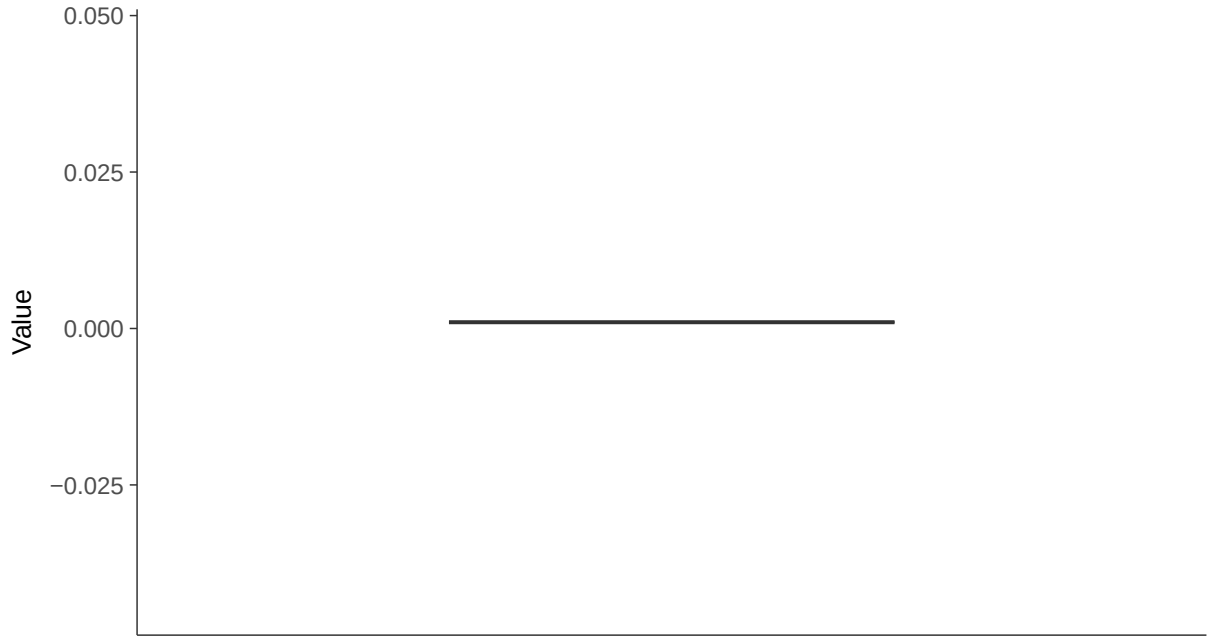
ID: 03_2_11





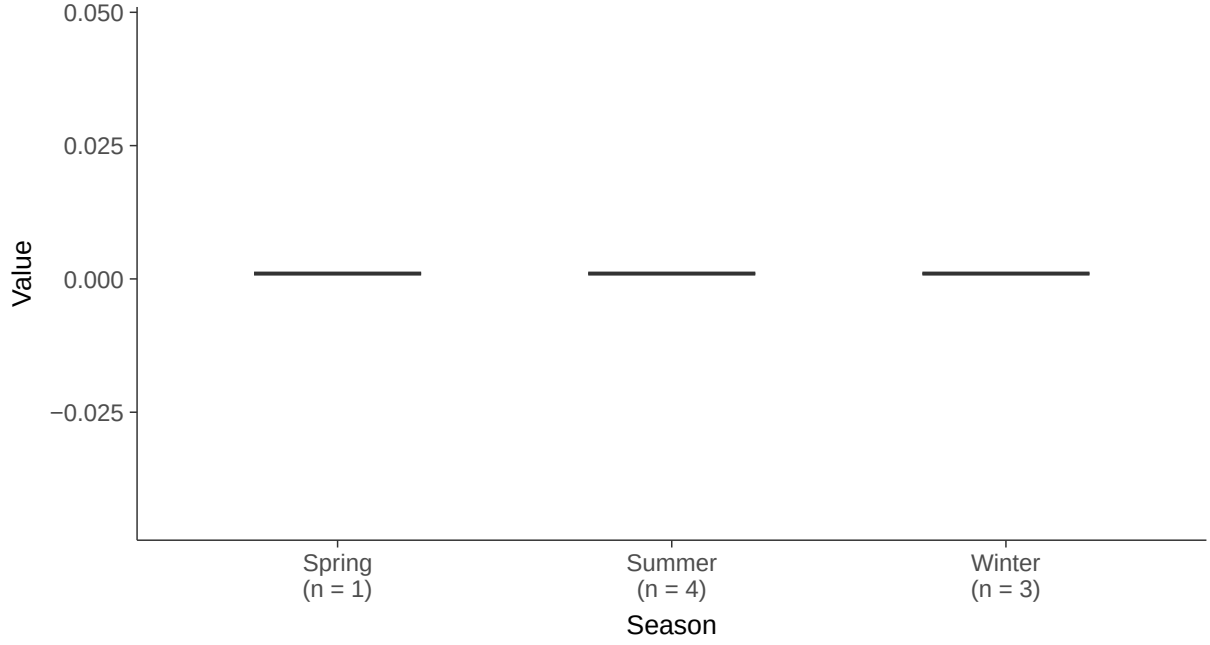
Boxplot

Beryllium, MW-3 (mg/L)



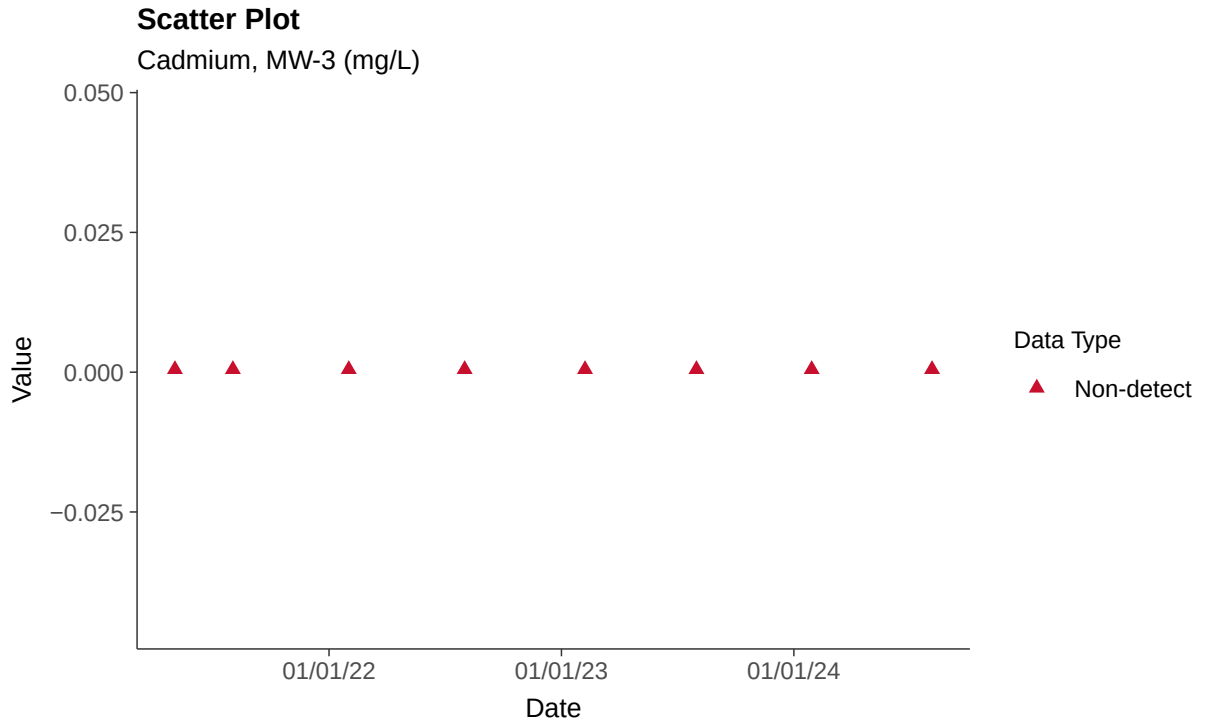
Boxplot by Season

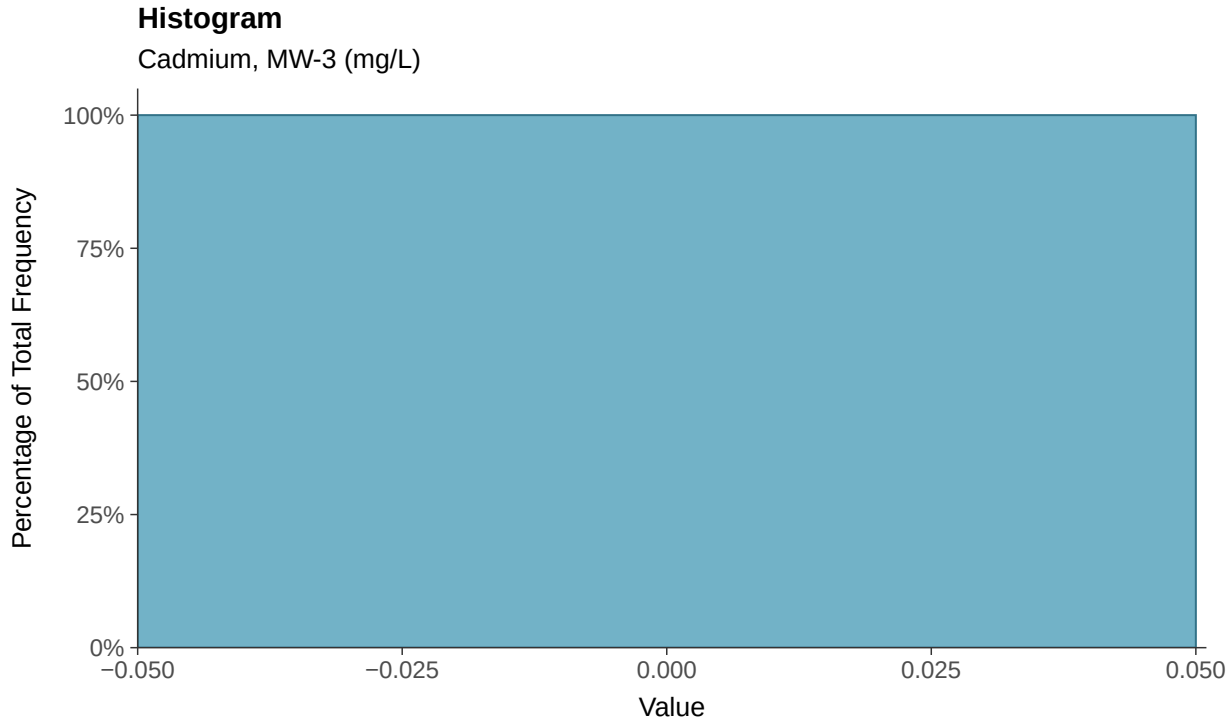
Beryllium, MW-3 (mg/L)



Appendix IV: Cadmium, MW-3

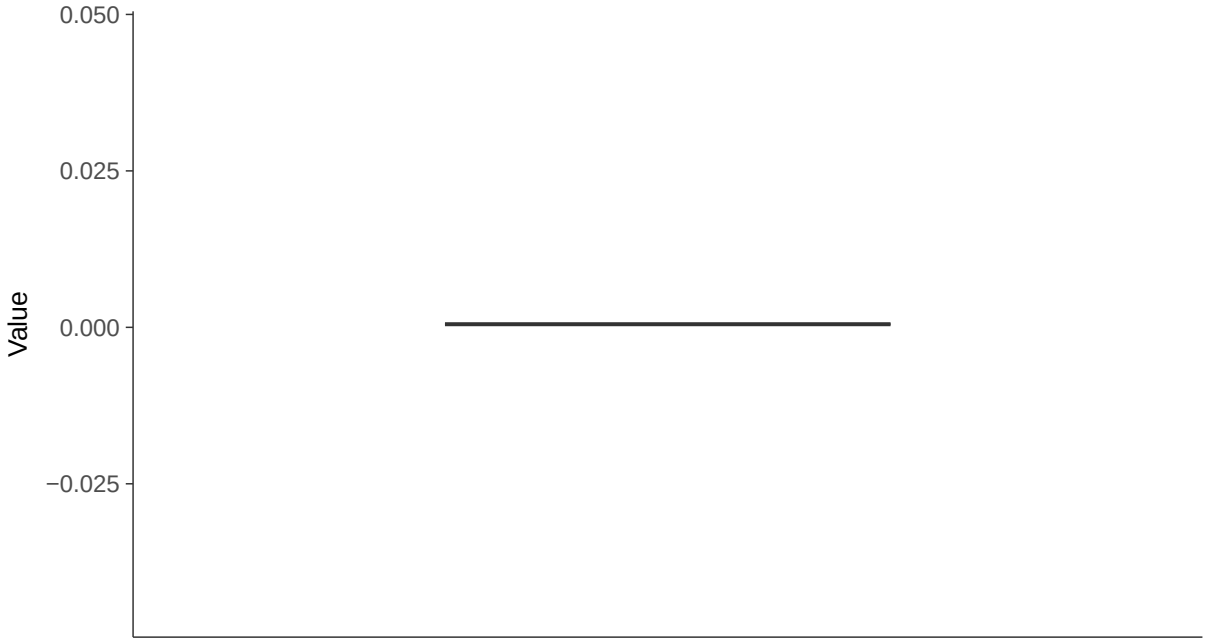
ID: 03_2_12





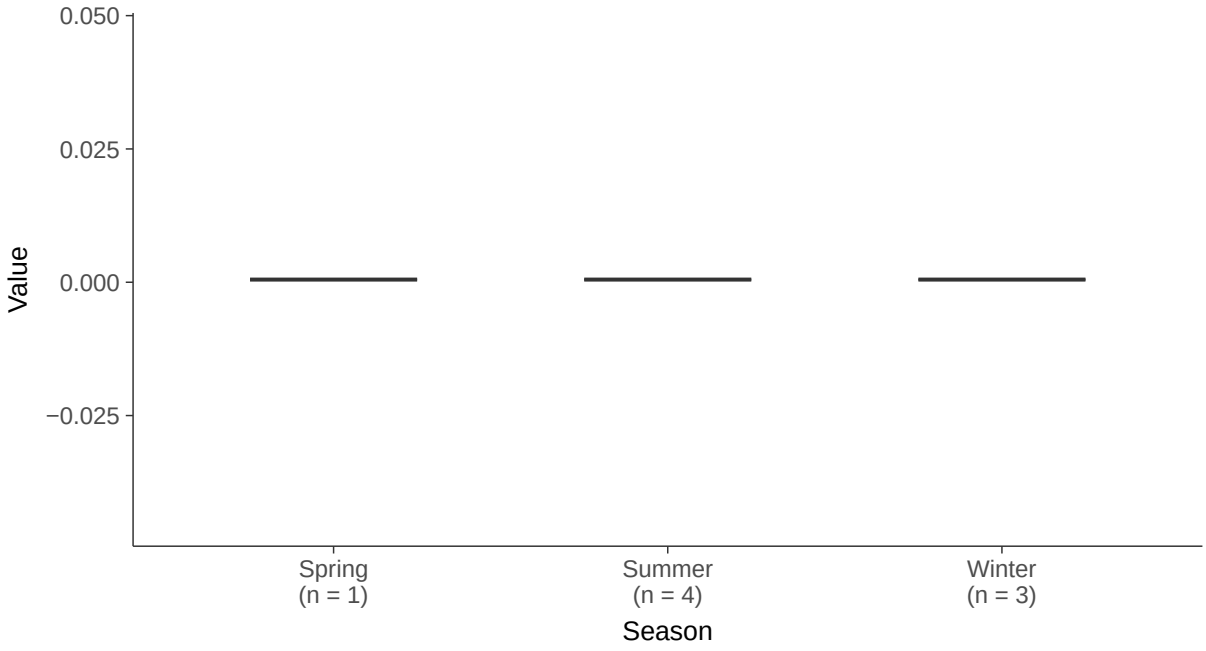
Boxplot

Cadmium, MW-3 (mg/L)



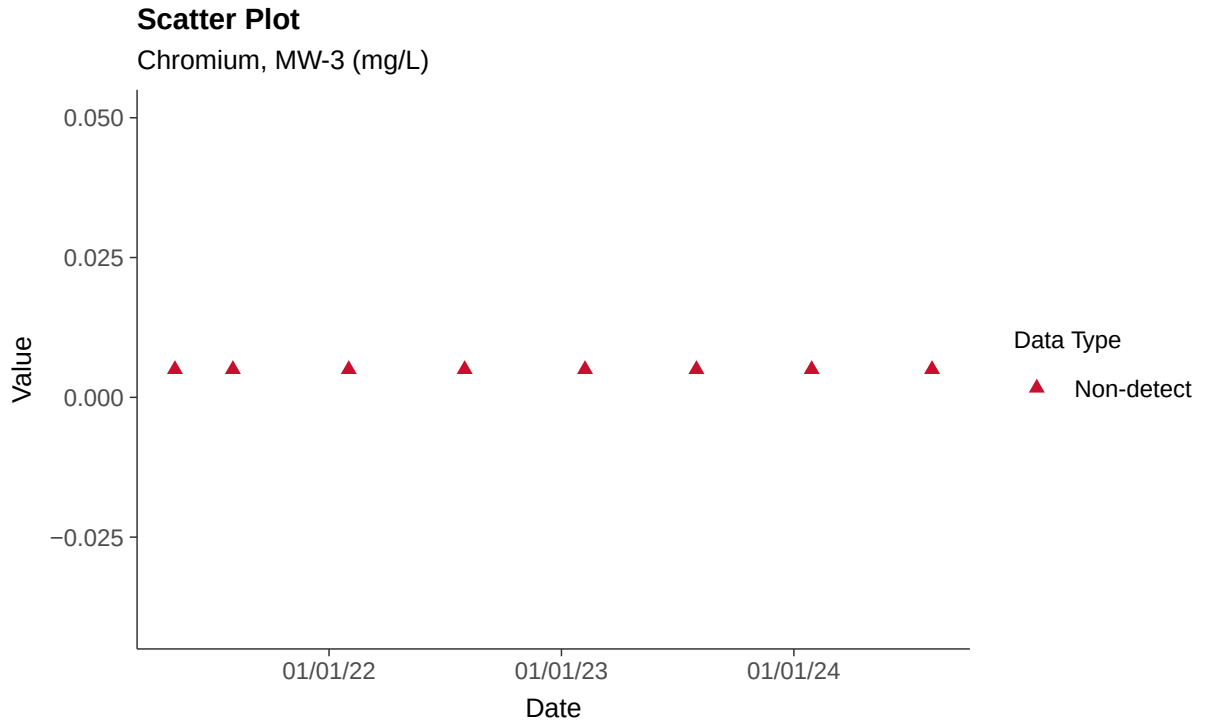
Boxplot by Season

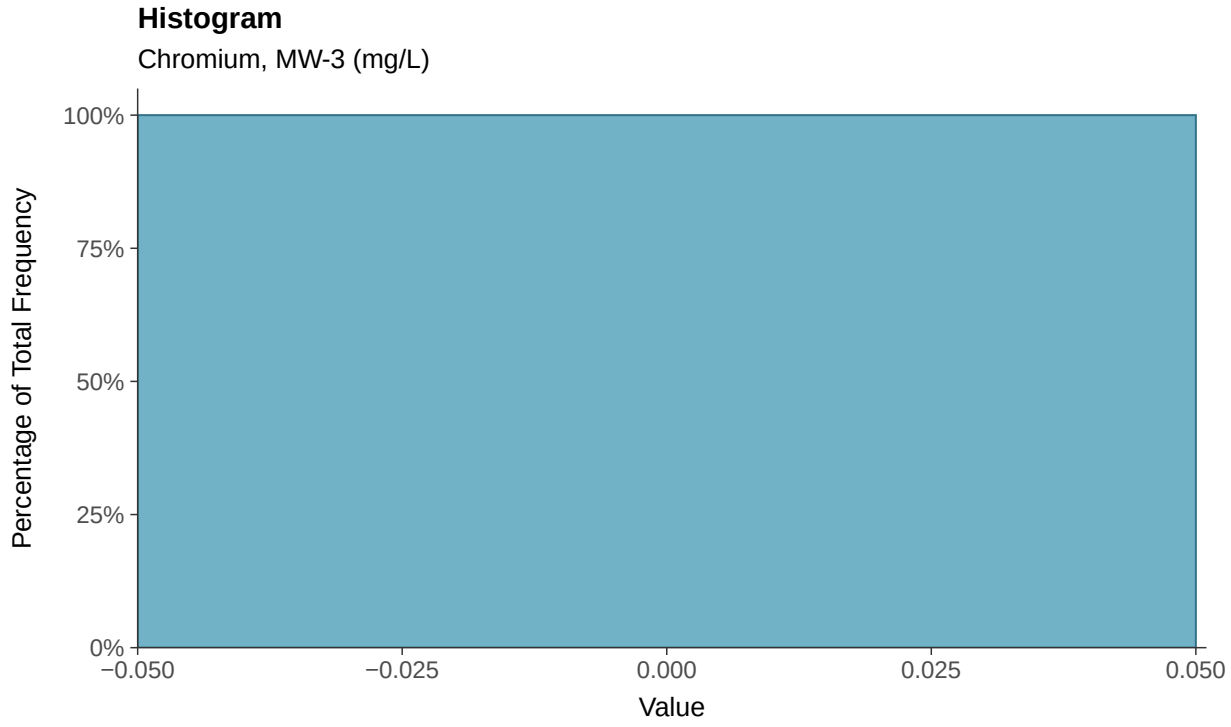
Cadmium, MW-3 (mg/L)



Appendix IV: Chromium, MW-3

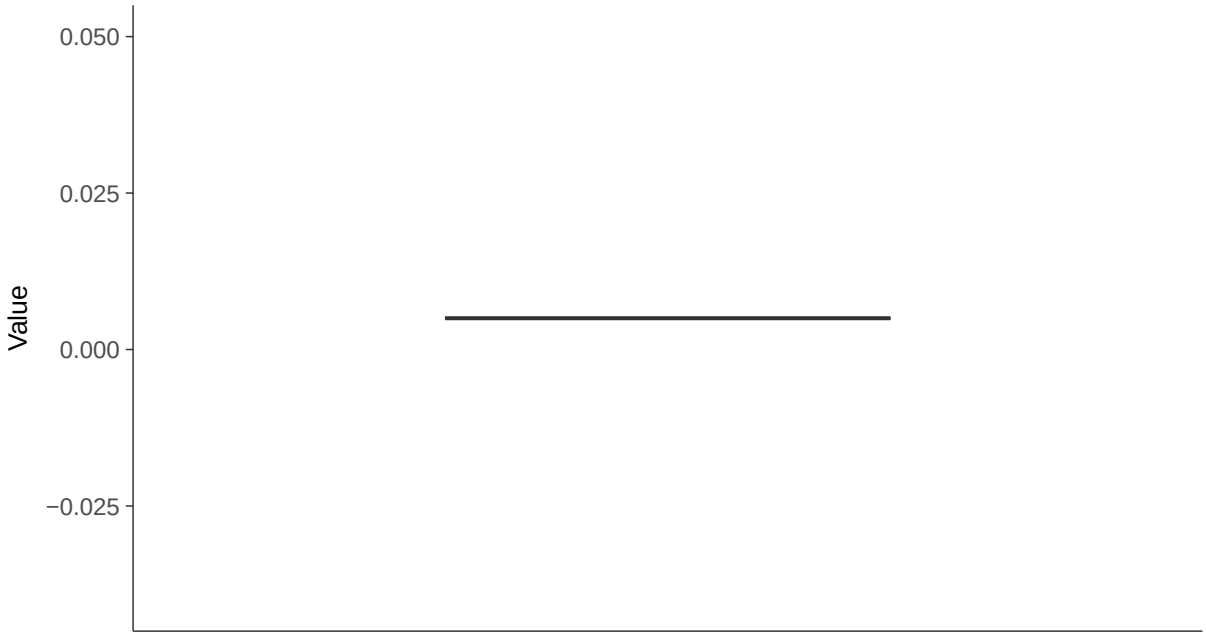
ID: 03_2_13





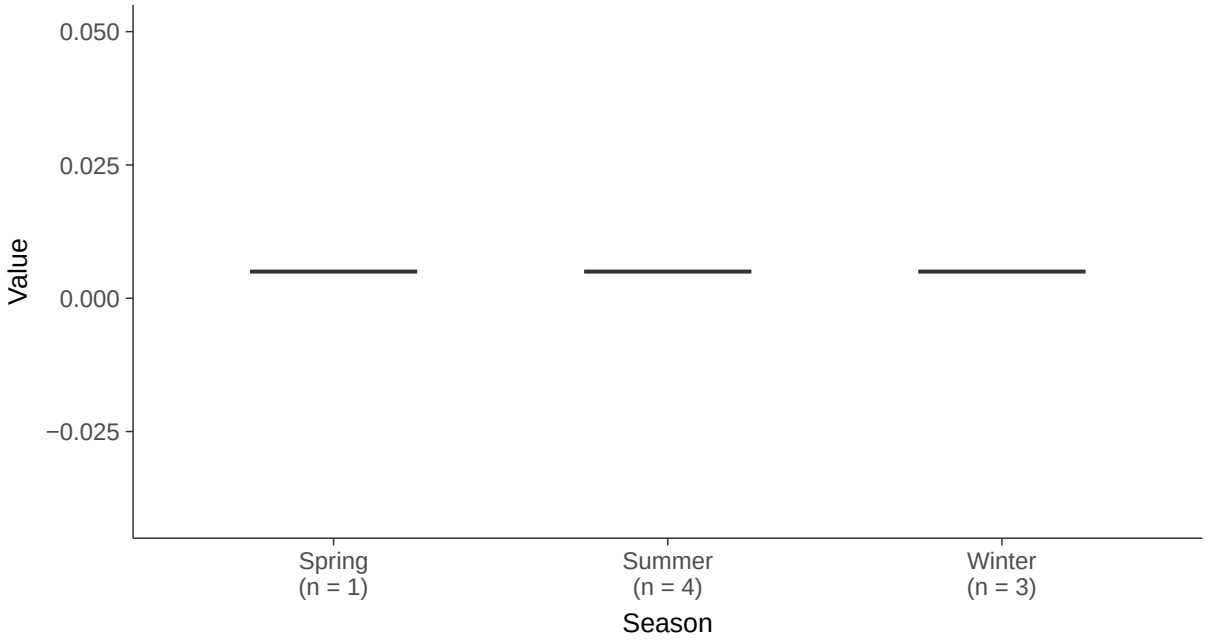
Boxplot

Chromium, MW-3 (mg/L)



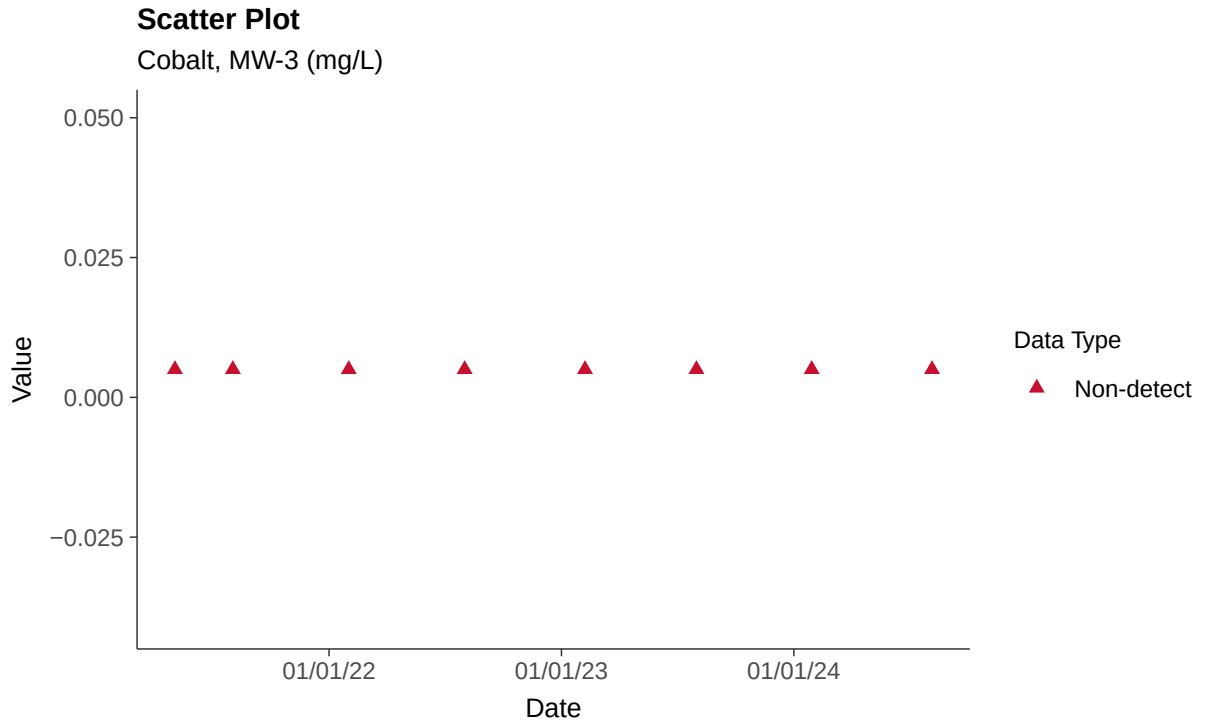
Boxplot by Season

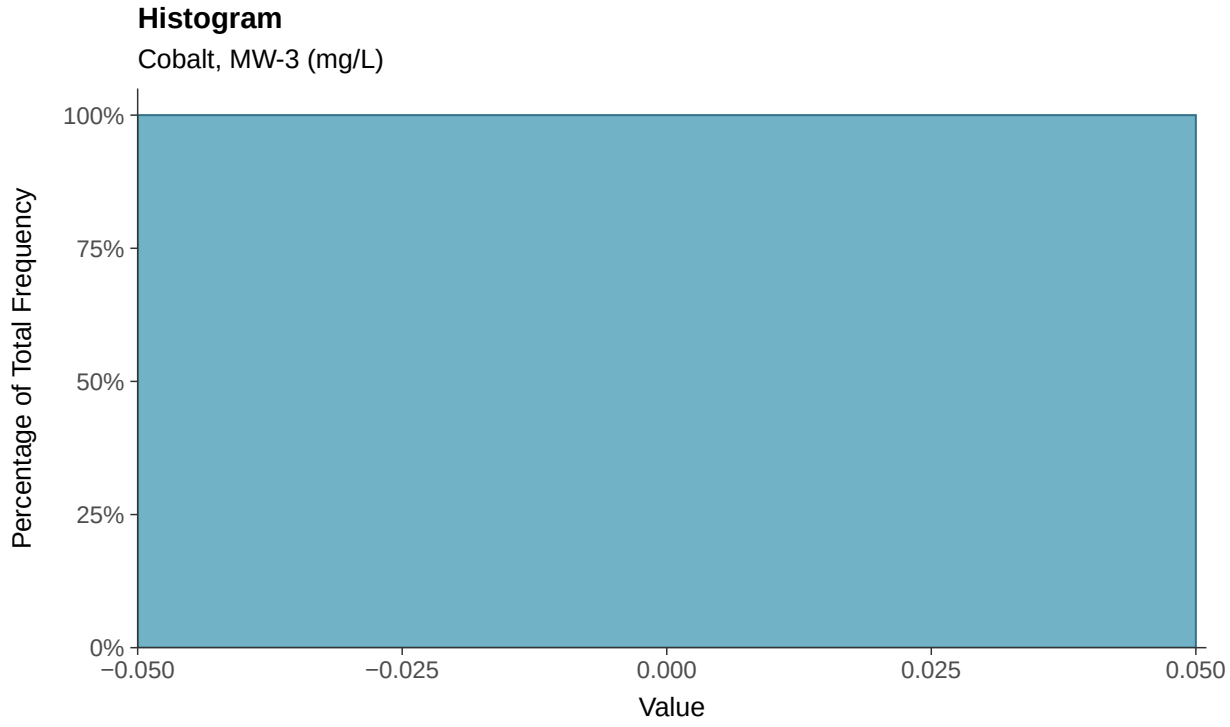
Chromium, MW-3 (mg/L)



Appendix IV: Cobalt, MW-3

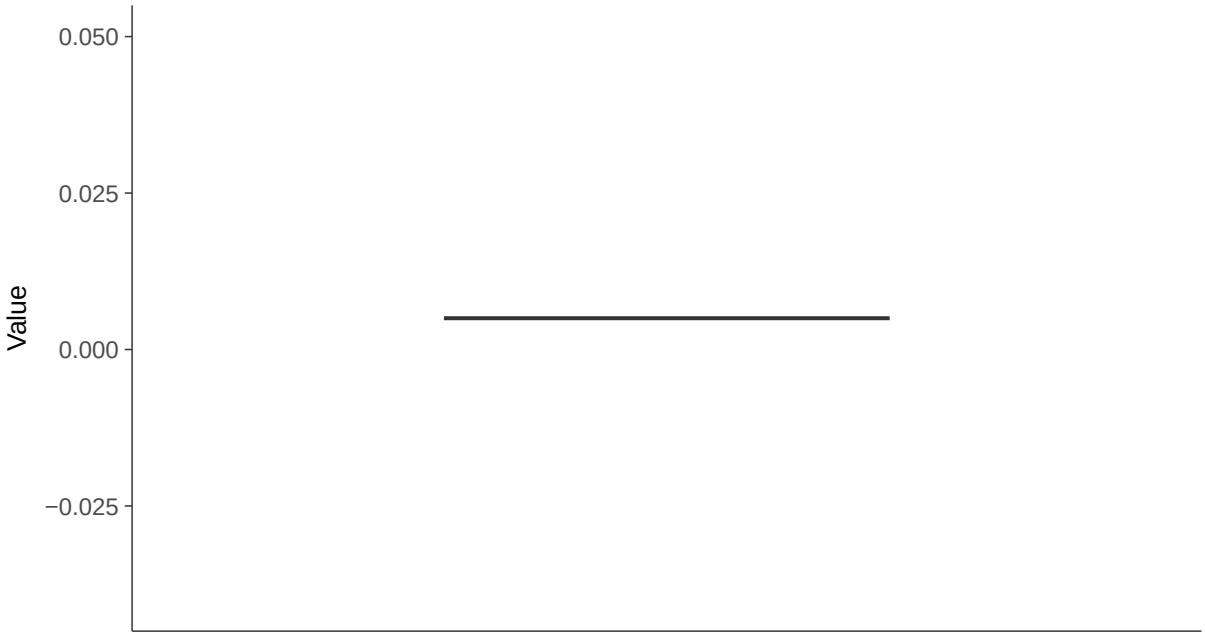
ID: 03_2_14





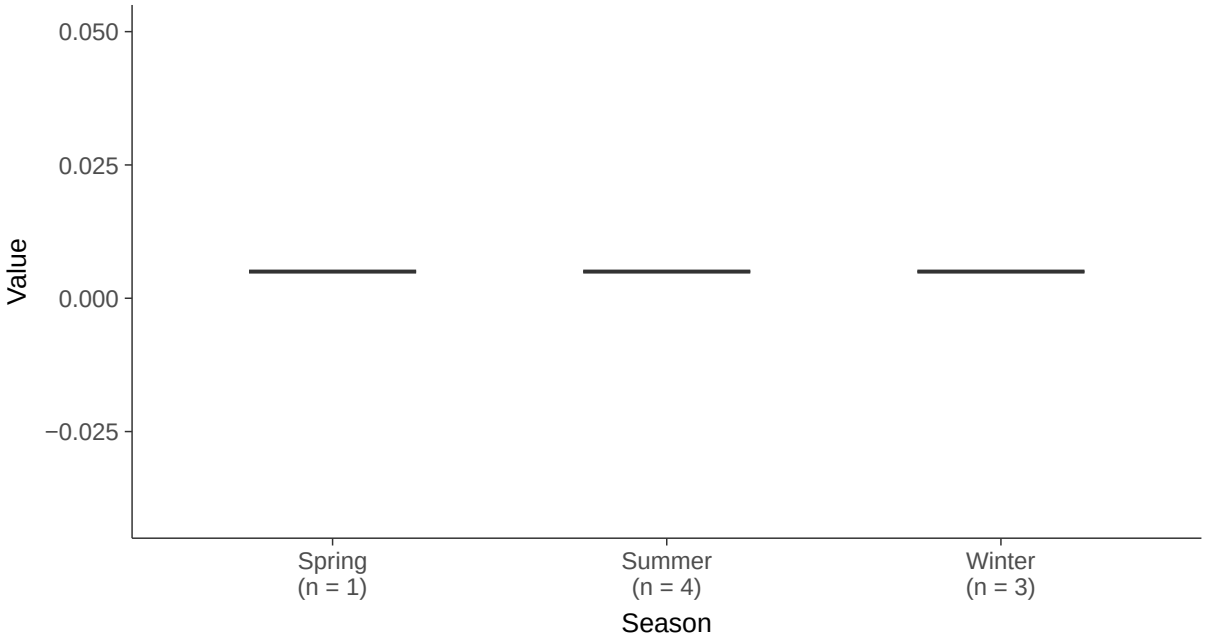
Boxplot

Cobalt, MW-3 (mg/L)



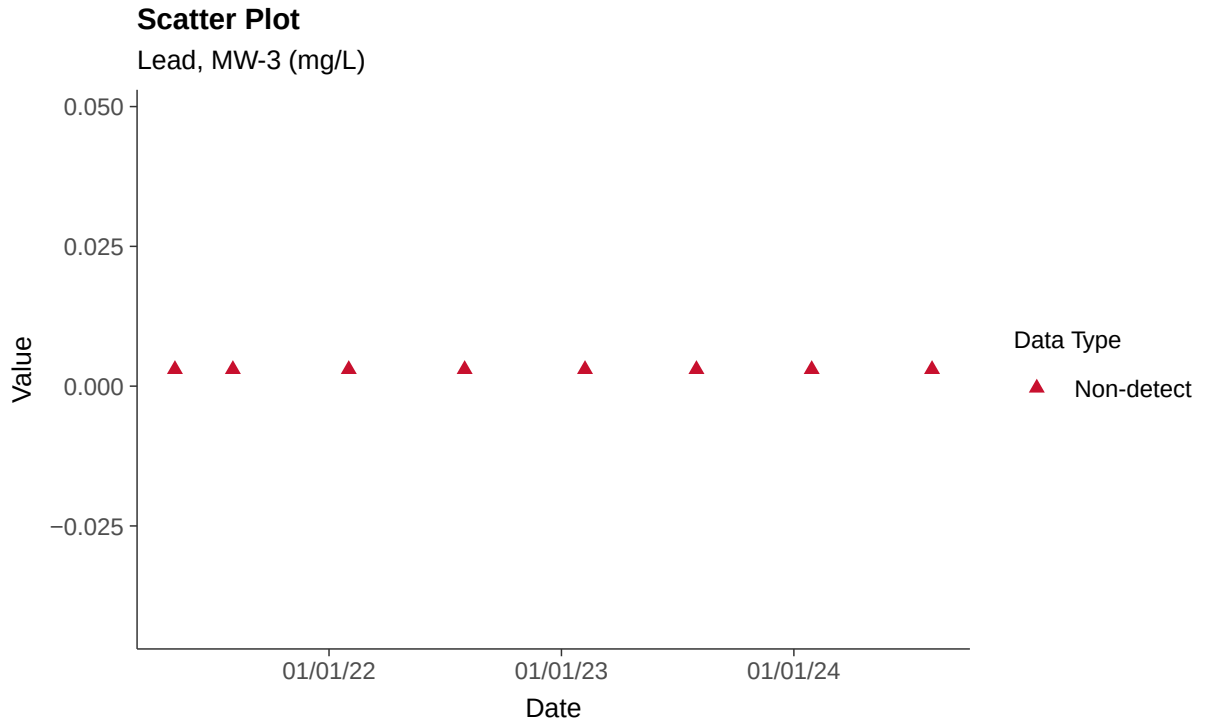
Boxplot by Season

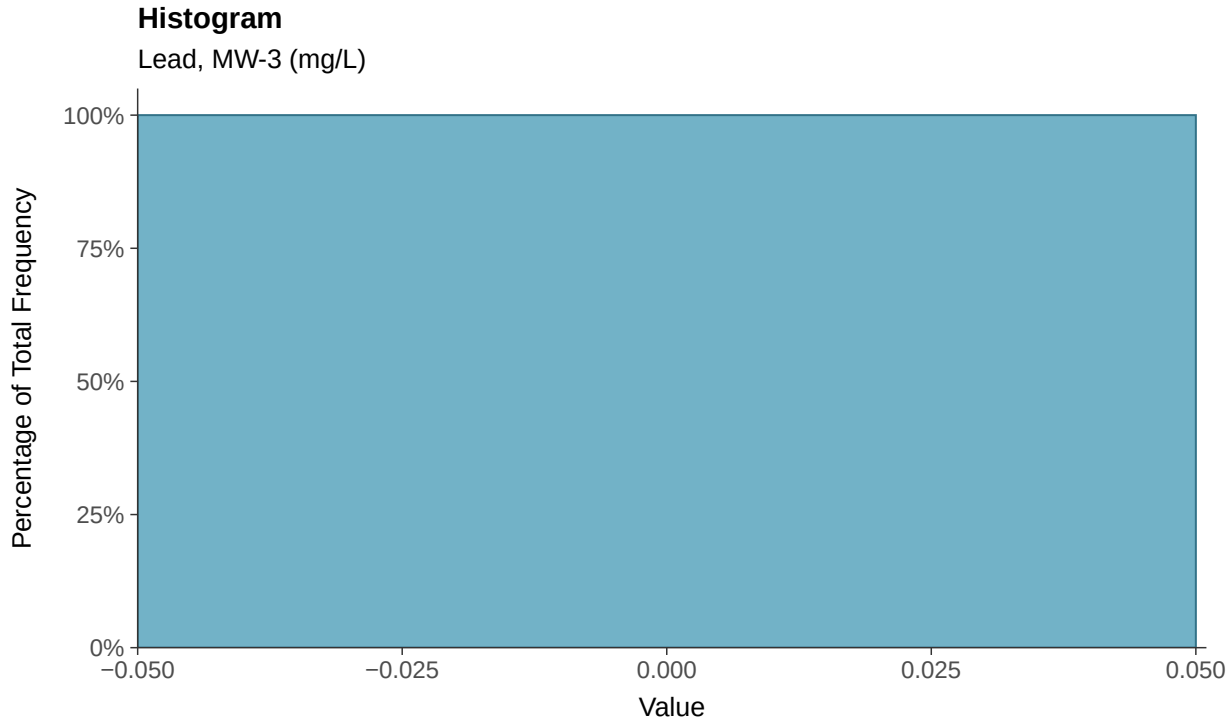
Cobalt, MW-3 (mg/L)



Appendix IV: Lead, MW-3

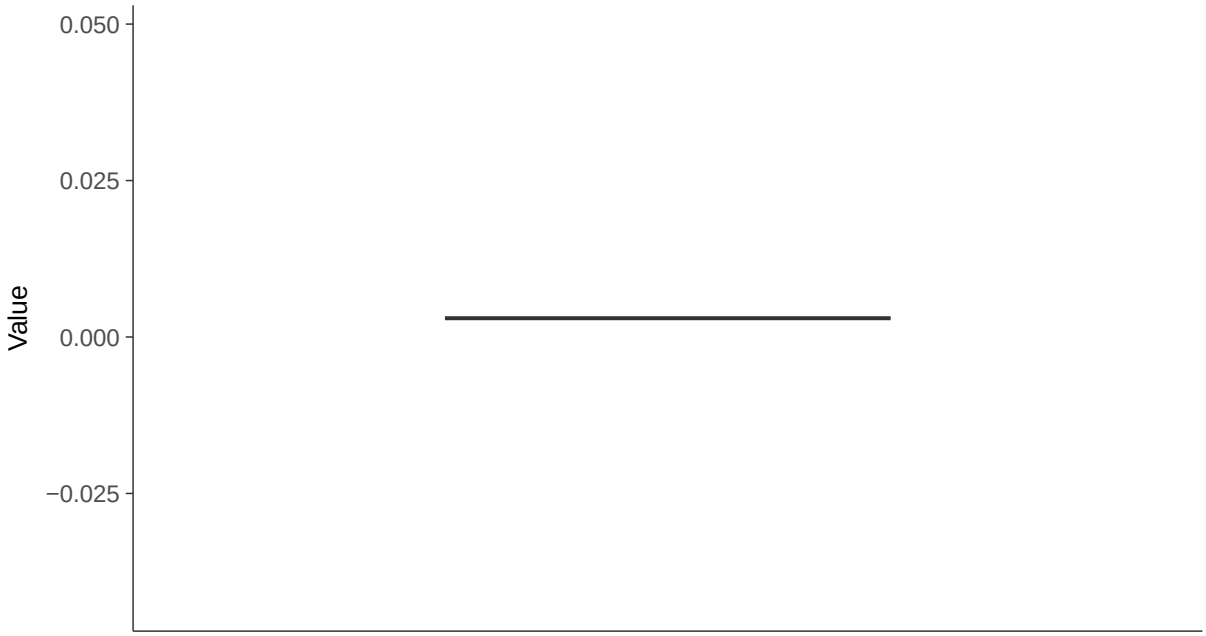
ID: 03_2_15





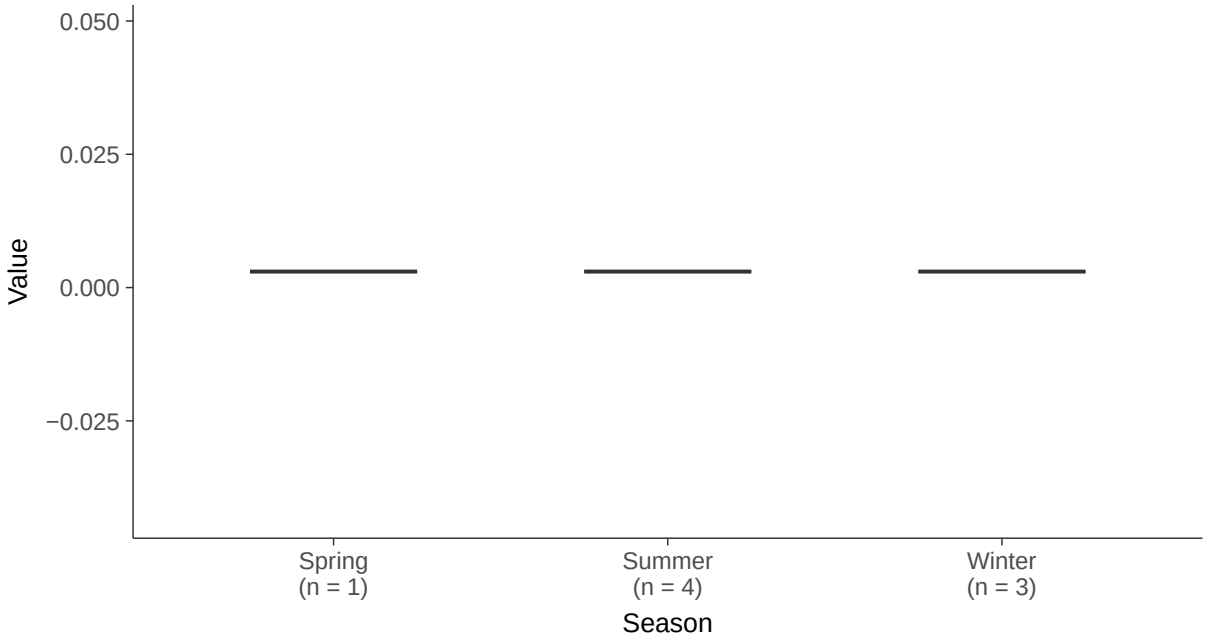
Boxplot

Lead, MW-3 (mg/L)



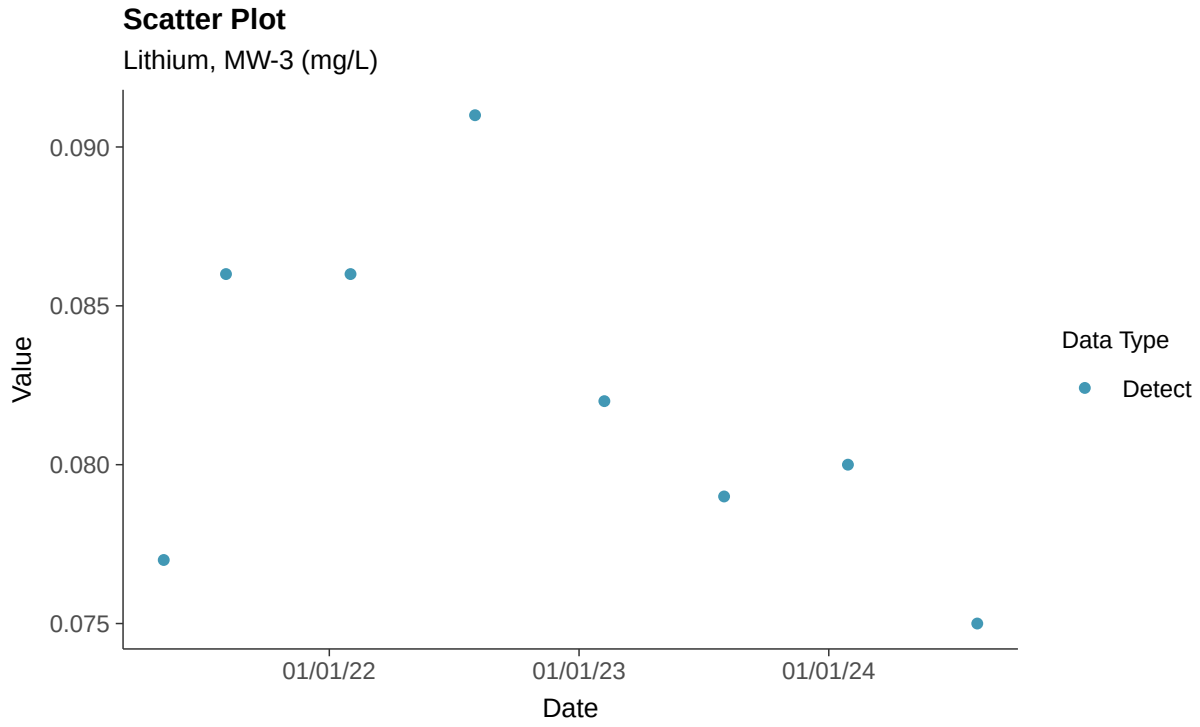
Boxplot by Season

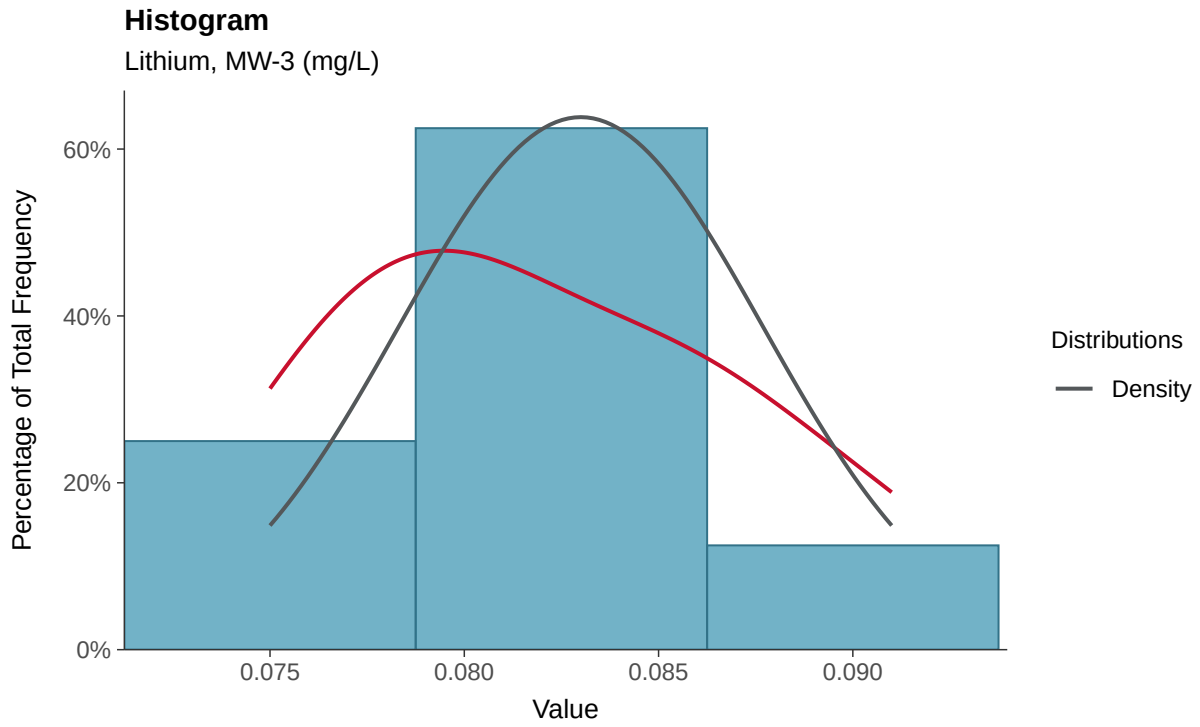
Lead, MW-3 (mg/L)



Appendix IV: Lithium, MW-3

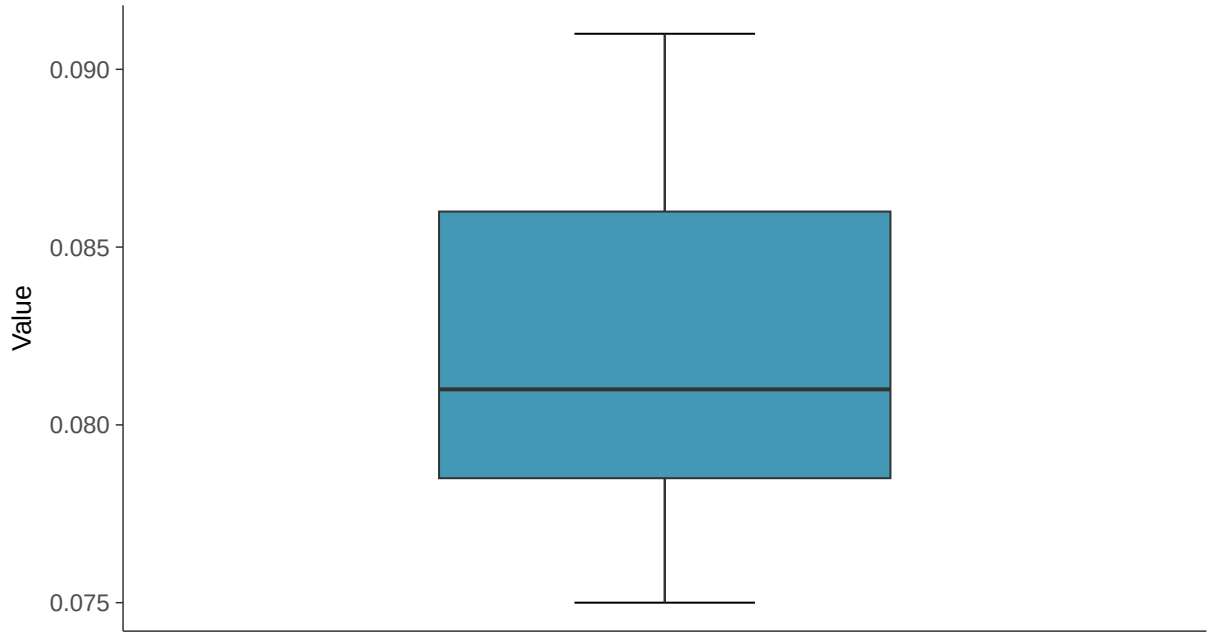
ID: 03_2_16





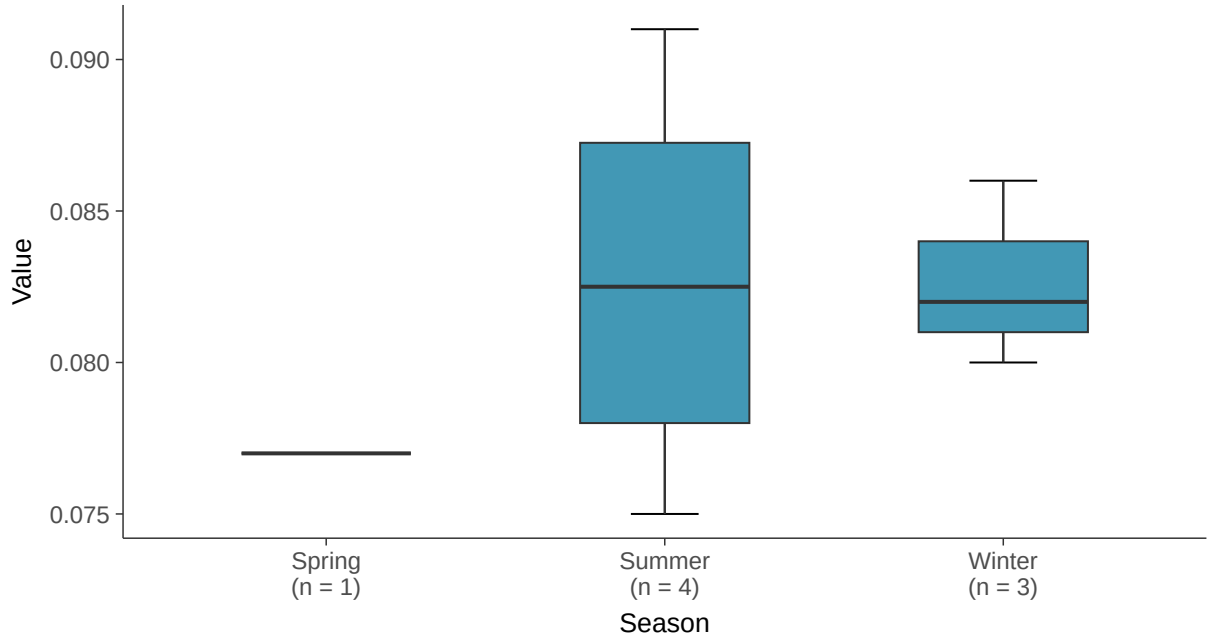
Boxplot

Lithium, MW-3 (mg/L)



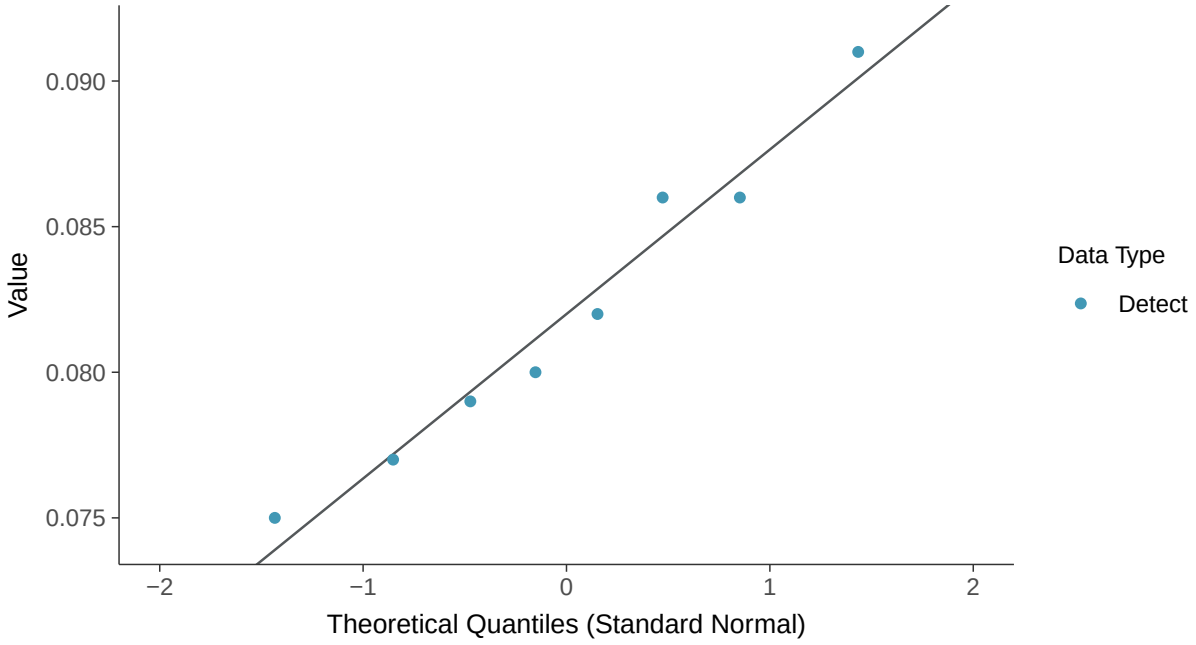
Boxplot by Season

Lithium, MW-3 (mg/L)



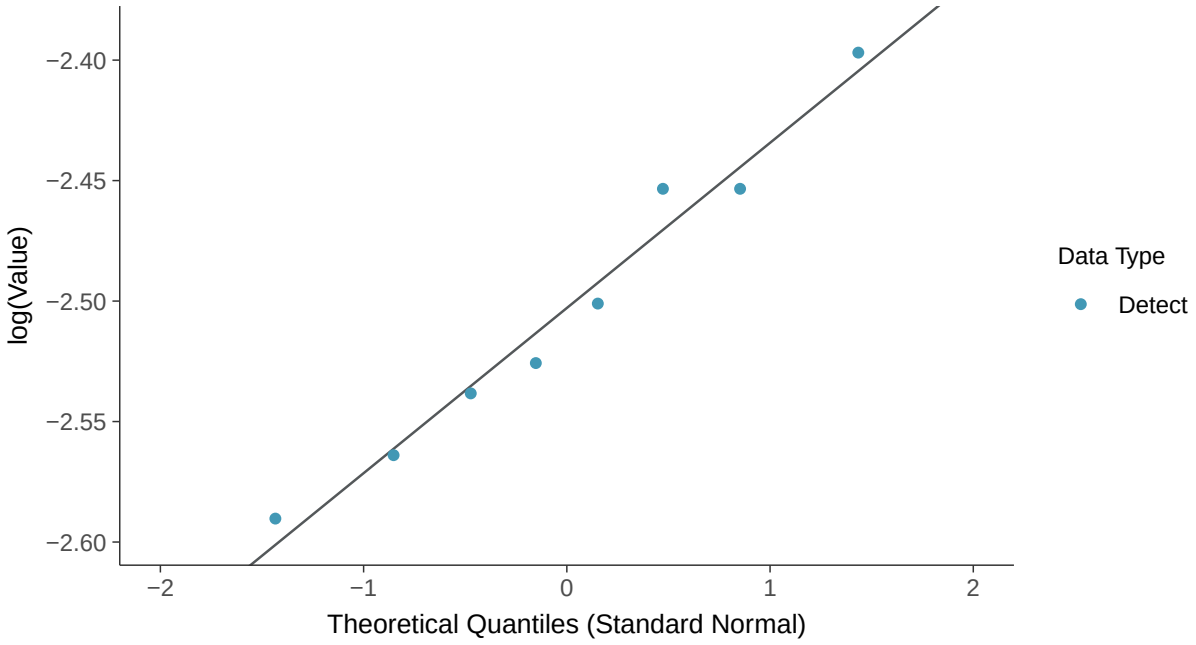
Normal Q-Q plot

Lithium, MW-3 (mg/L)



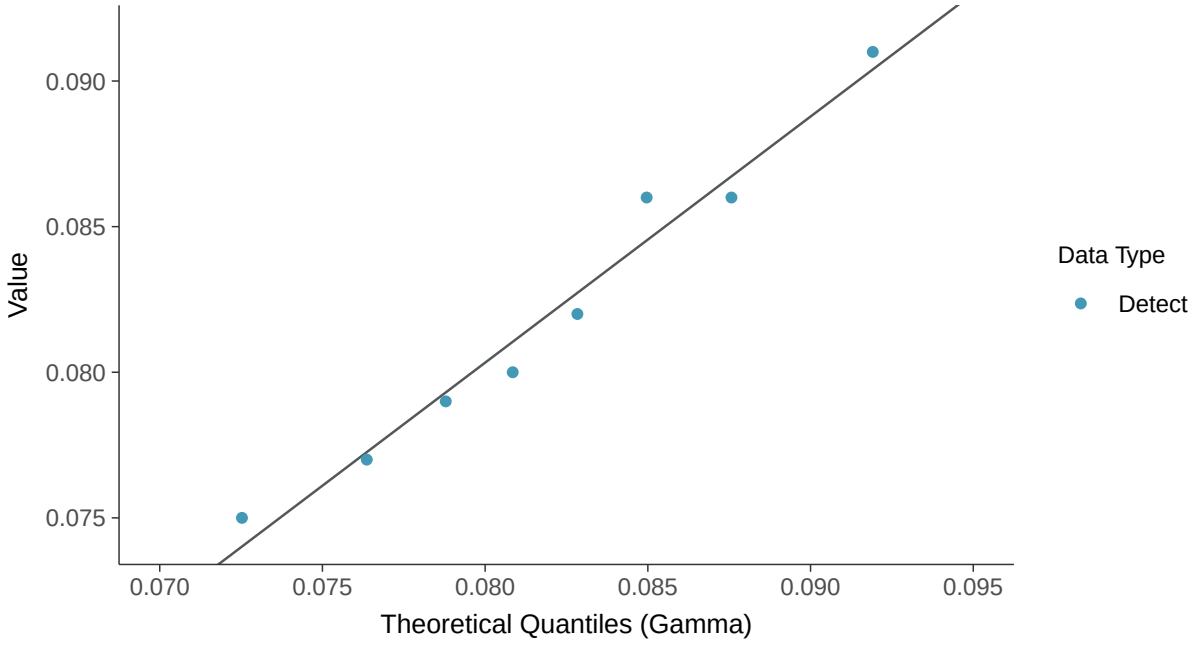
Lognormal Q-Q plot

Lithium, MW-3 (mg/L)



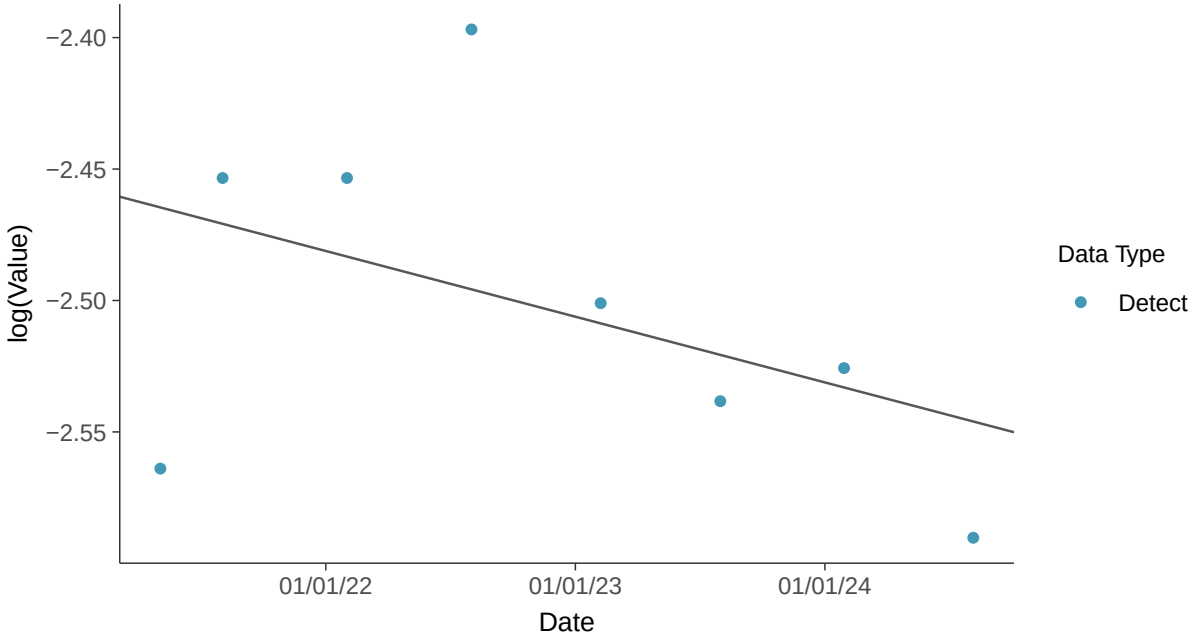
Gamma Q-Q plot

Lithium, MW-3 (mg/L)



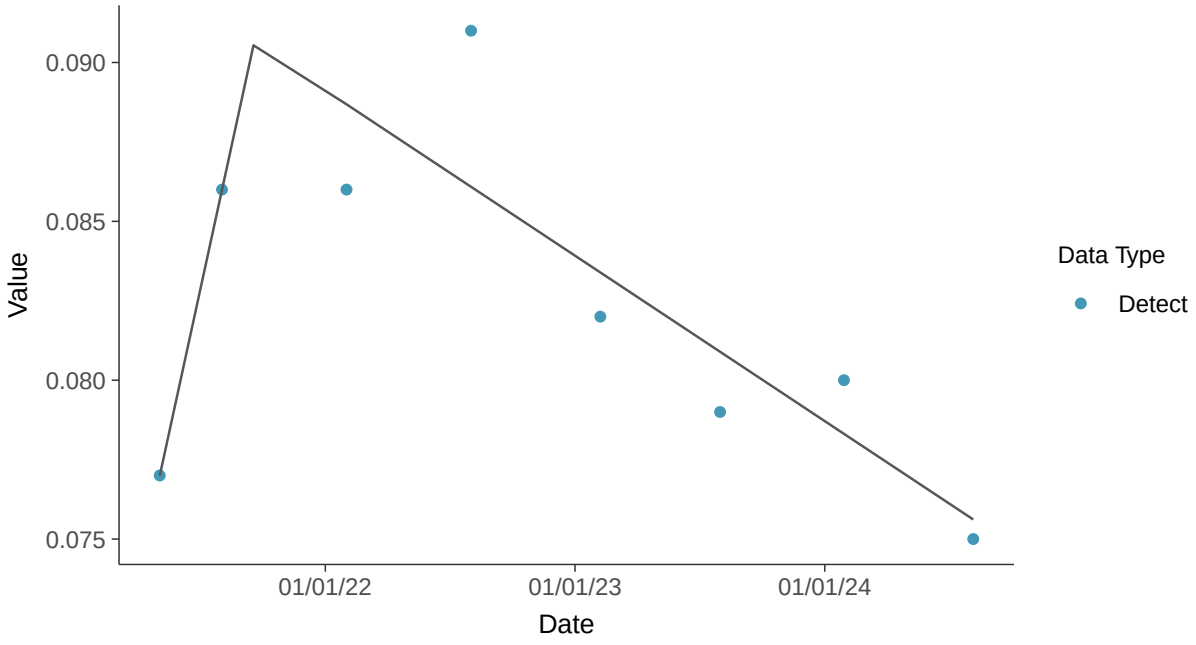
Trend Regression: Lognormal MLE

Lithium, MW-3 (mg/L)



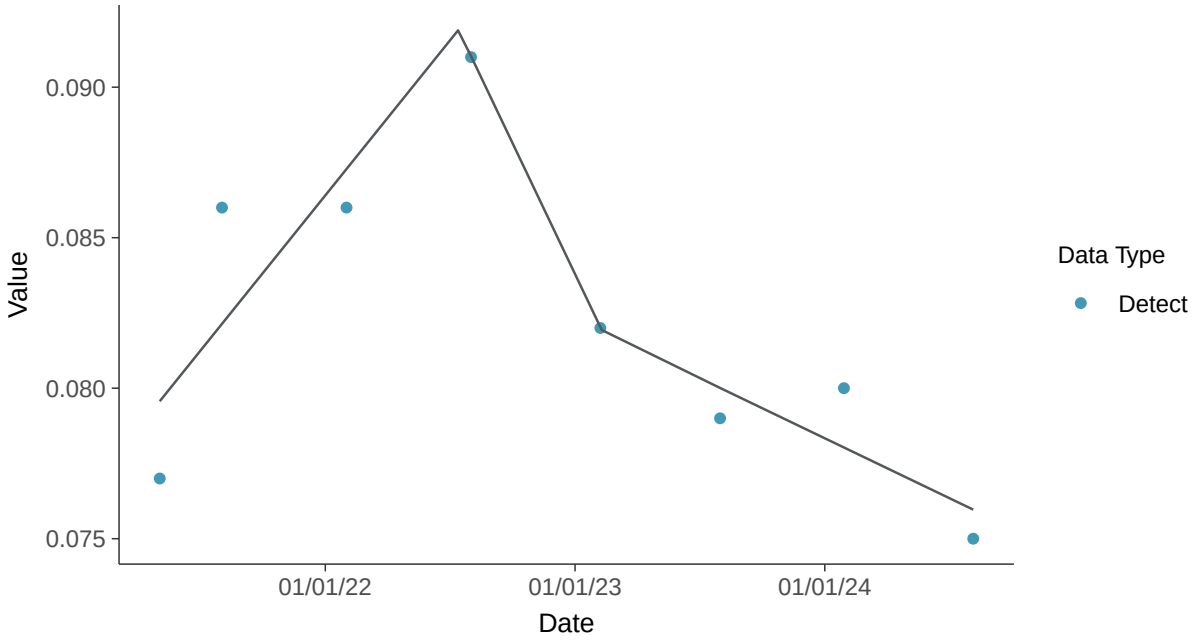
Trend Regression: Piecewise Linear-Linear

Lithium, MW-3 (mg/L)



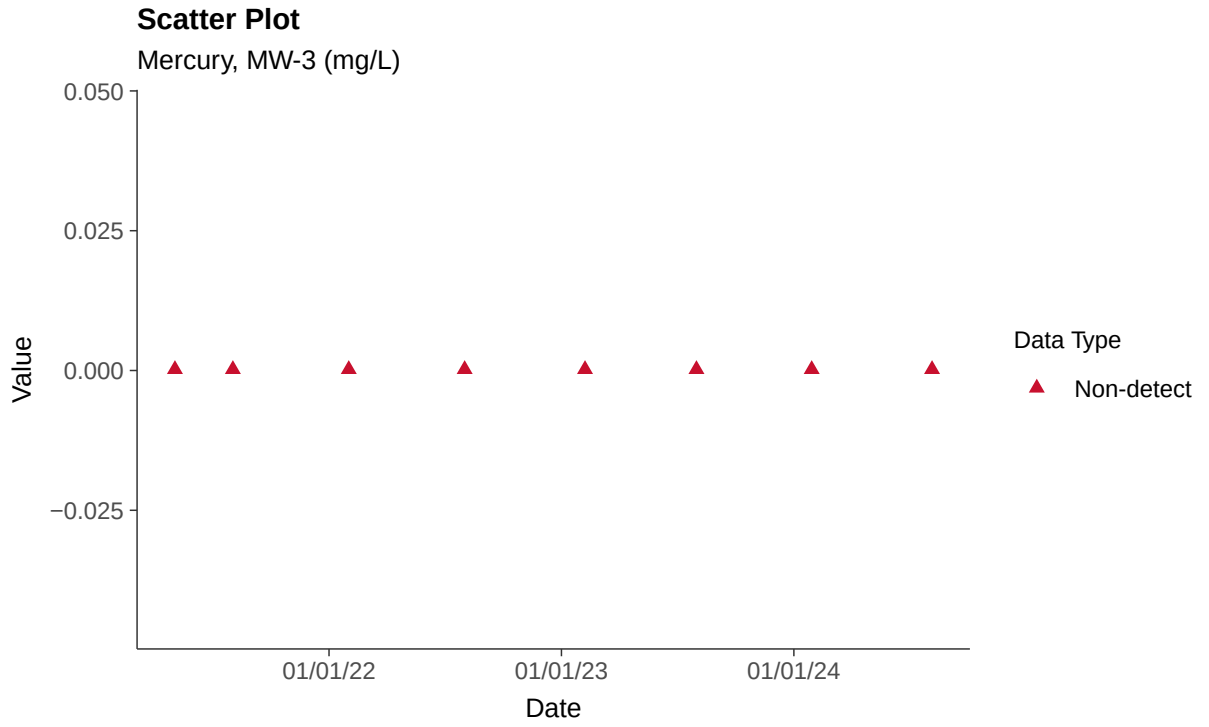
Trend Regression: Piecewise Linear-Linear-Linear

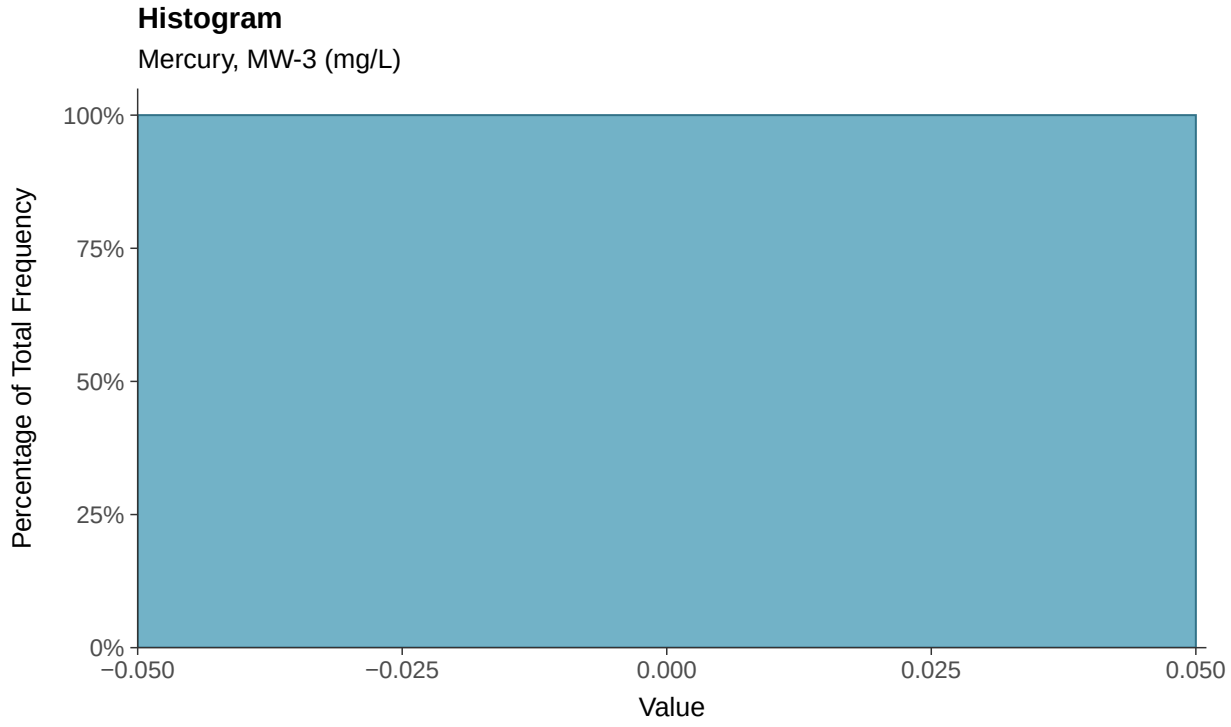
Lithium, MW-3 (mg/L)



Appendix IV: Mercury, MW-3

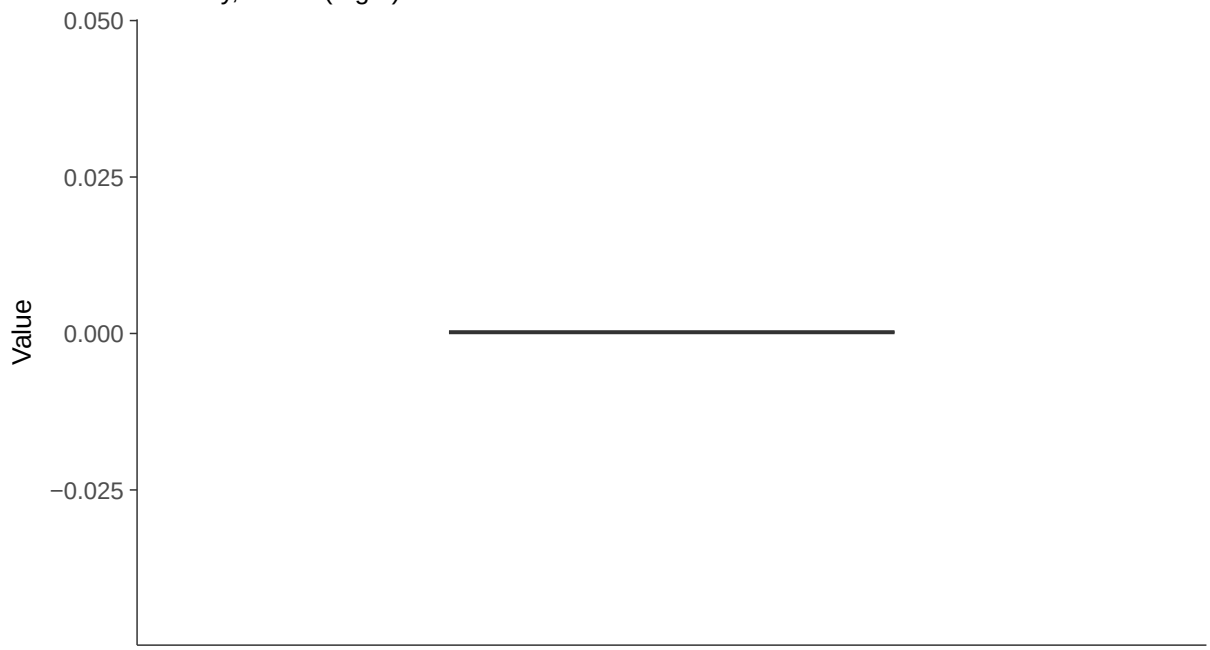
ID: 03_2_17





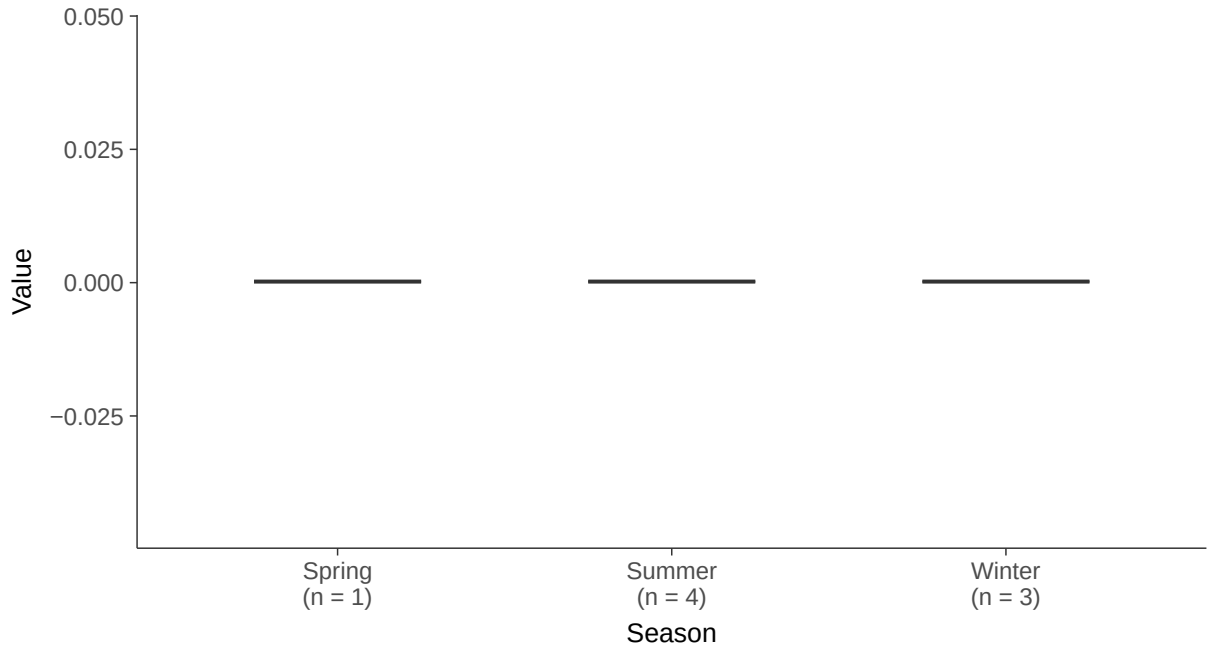
Boxplot

Mercury, MW-3 (mg/L)



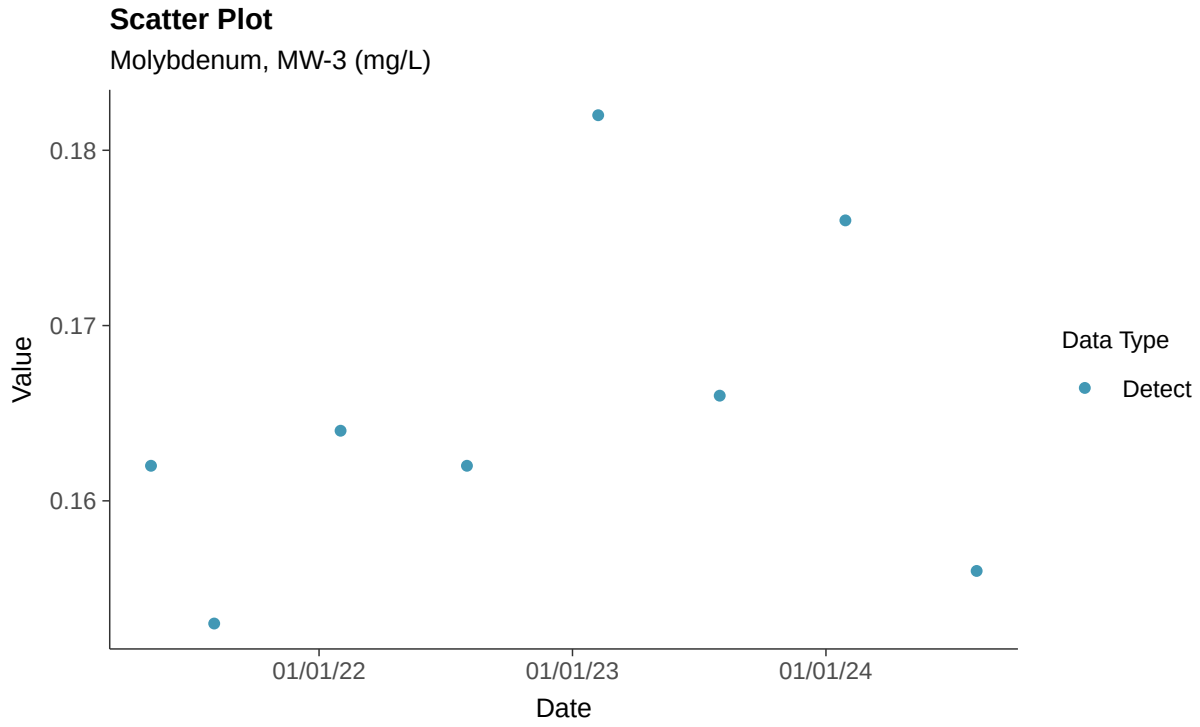
Boxplot by Season

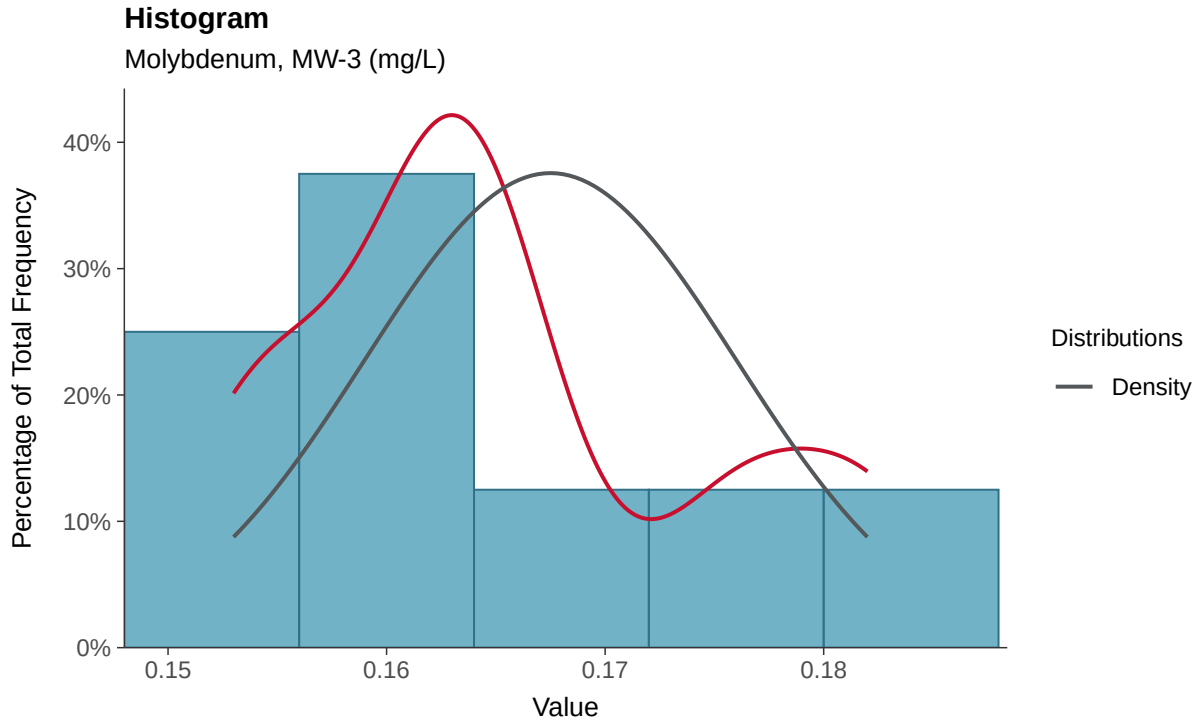
Mercury, MW-3 (mg/L)



Appendix IV: Molybdenum, MW-3

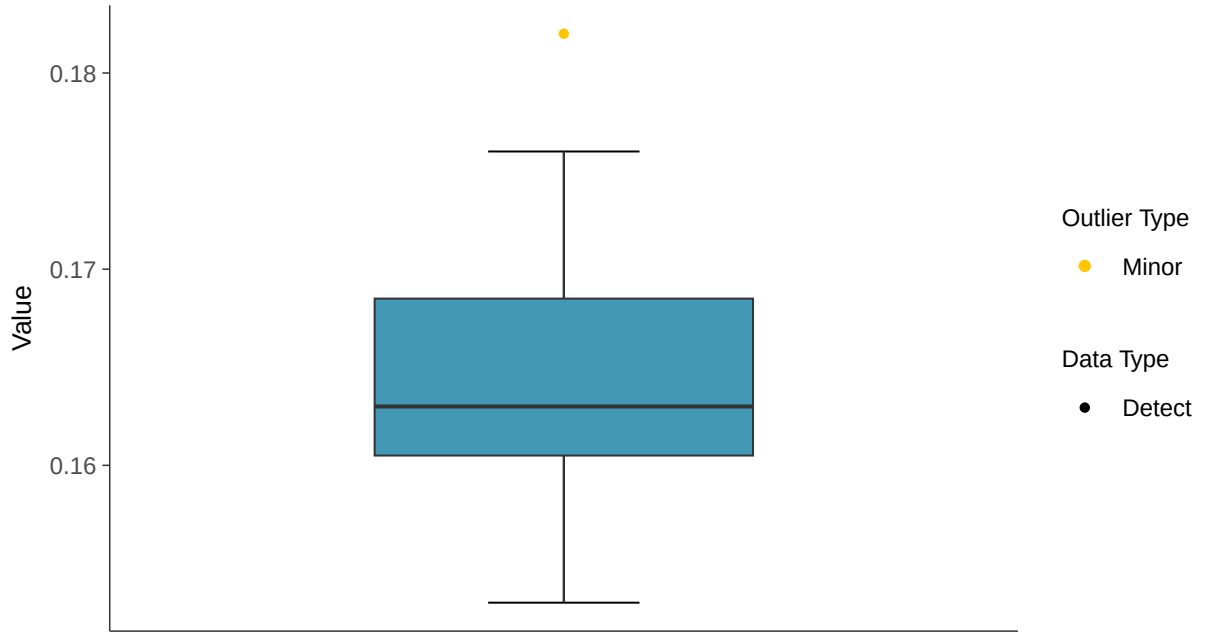
ID: 03_2_18





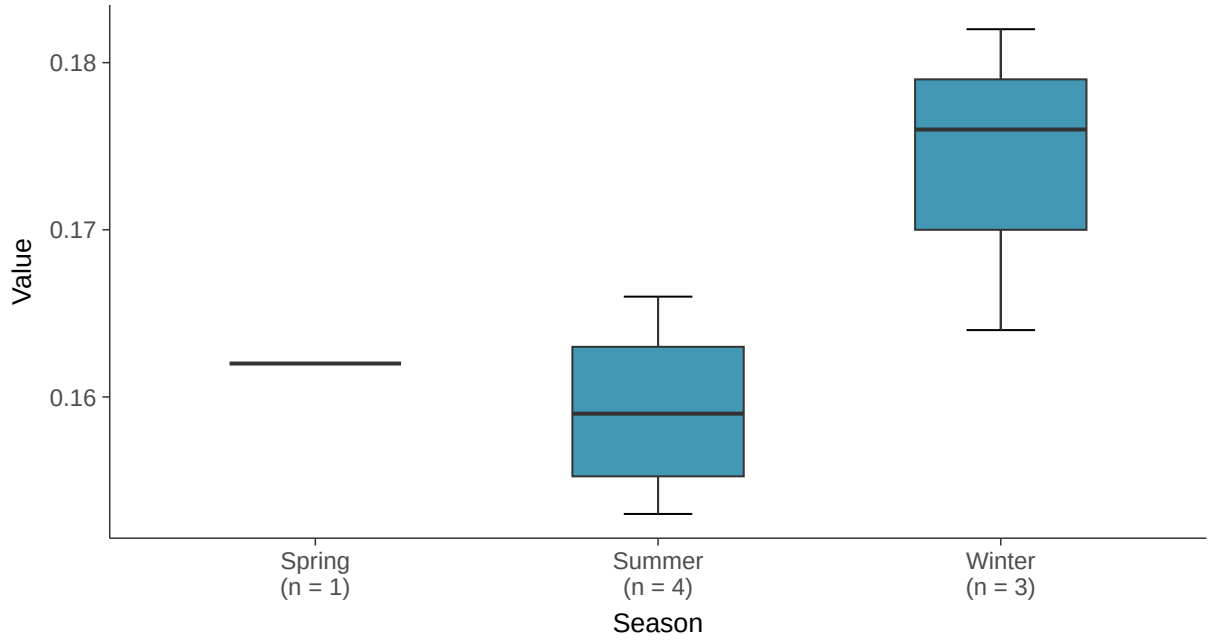
Boxplot

Molybdenum, MW-3 (mg/L)



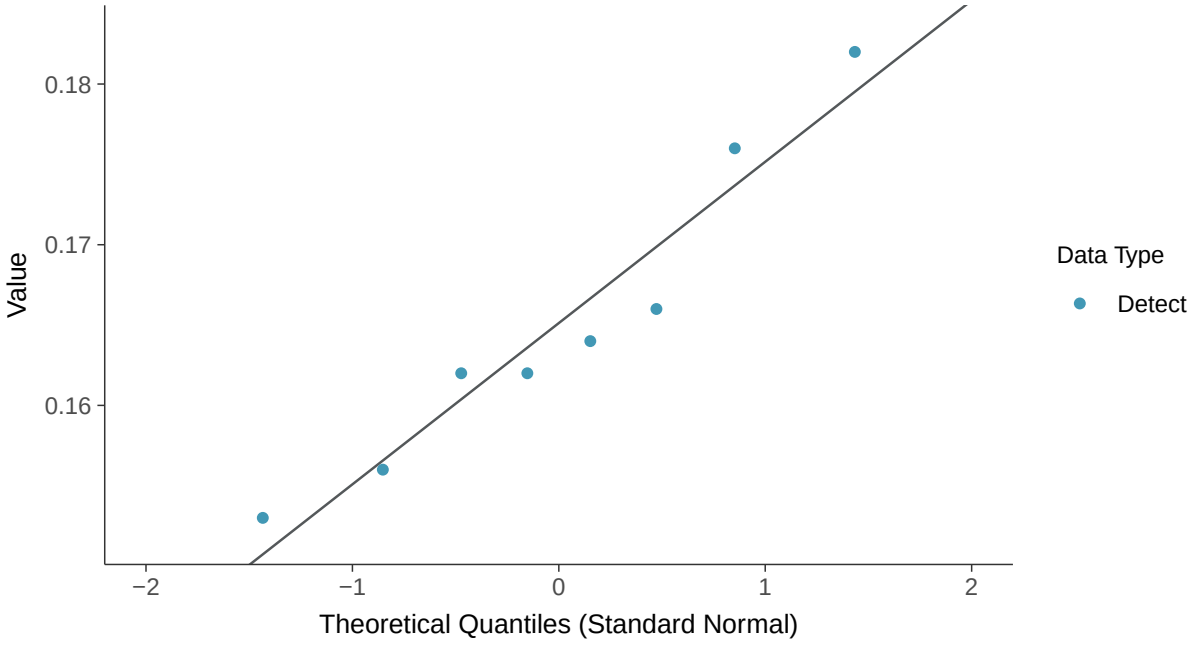
Boxplot by Season

Molybdenum, MW-3 (mg/L)



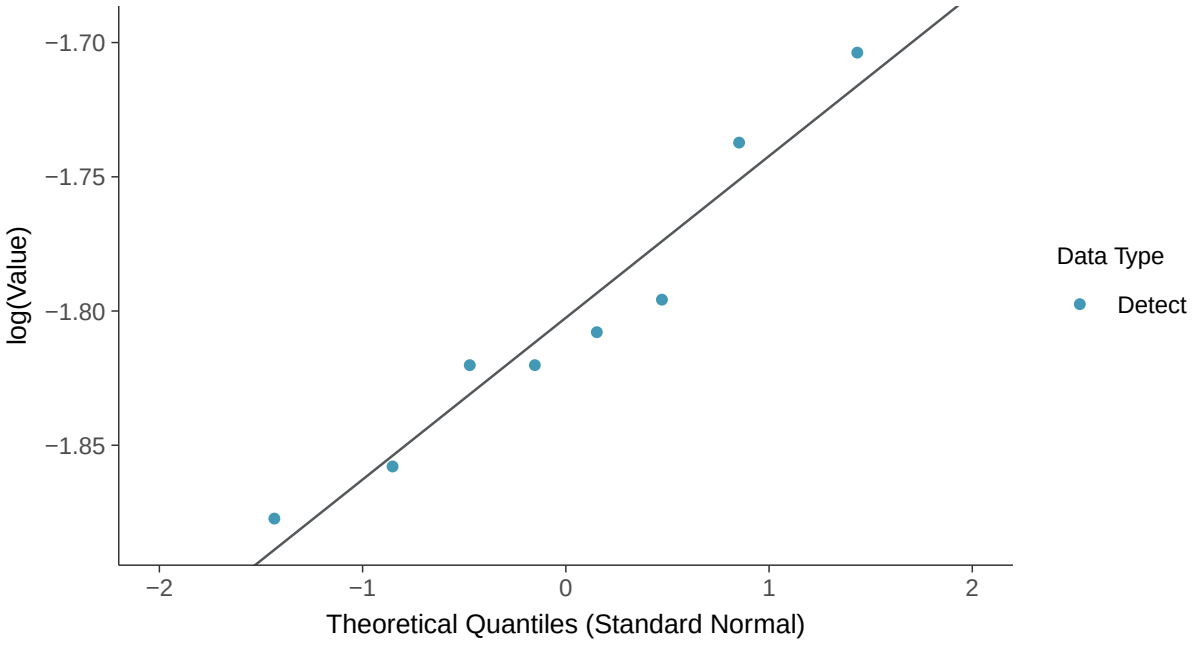
Normal Q-Q plot

Molybdenum, MW-3 (mg/L)



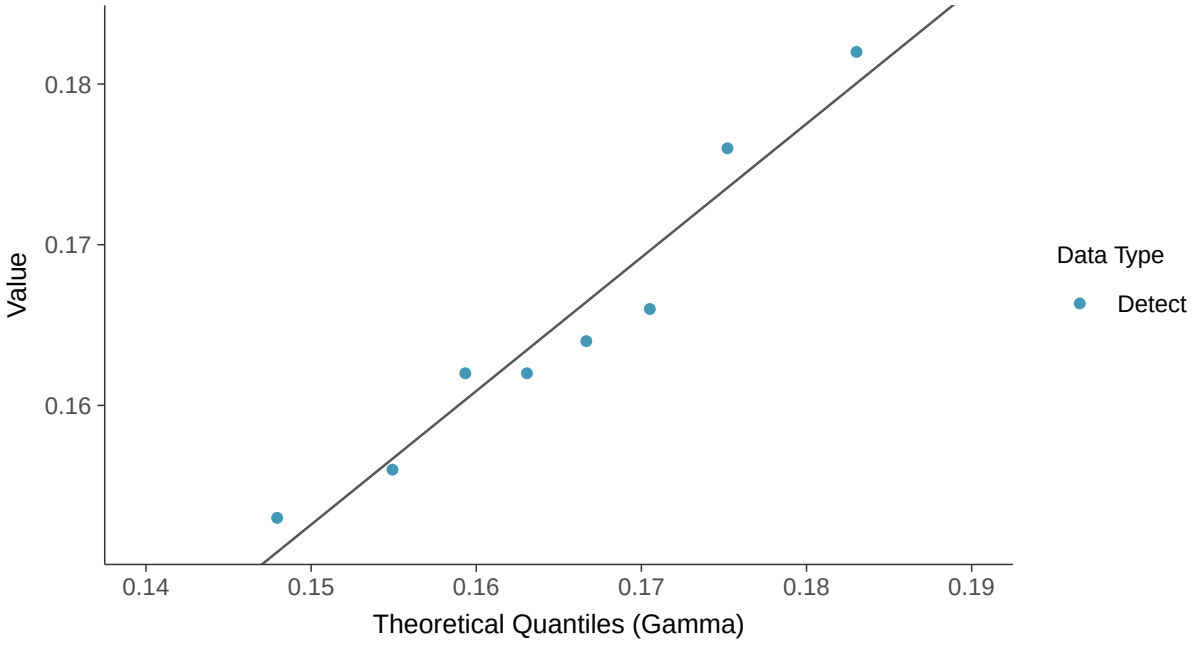
Lognormal Q-Q plot

Molybdenum, MW-3 (mg/L)



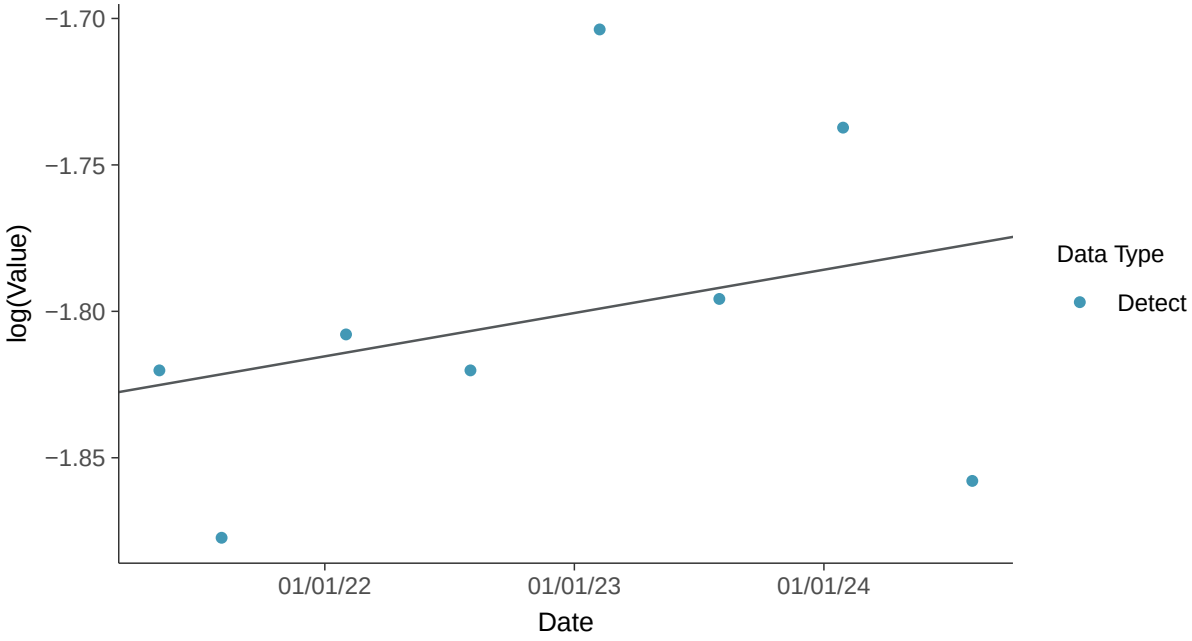
Gamma Q-Q plot

Molybdenum, MW-3 (mg/L)



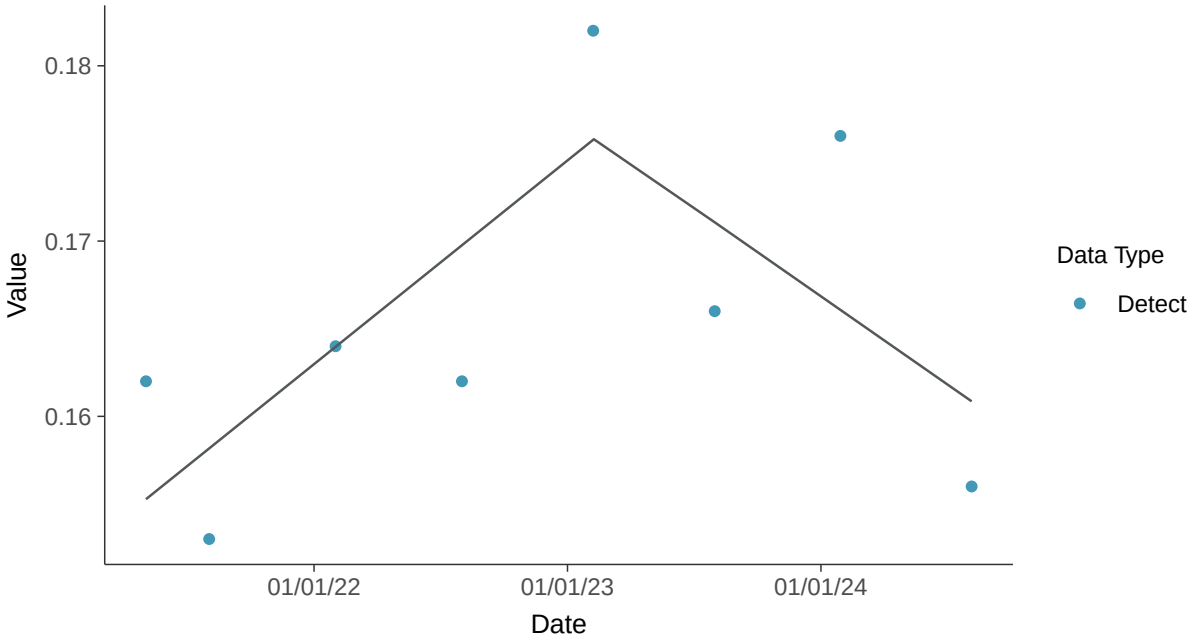
Trend Regression: Lognormal MLE

Molybdenum, MW-3 (mg/L)



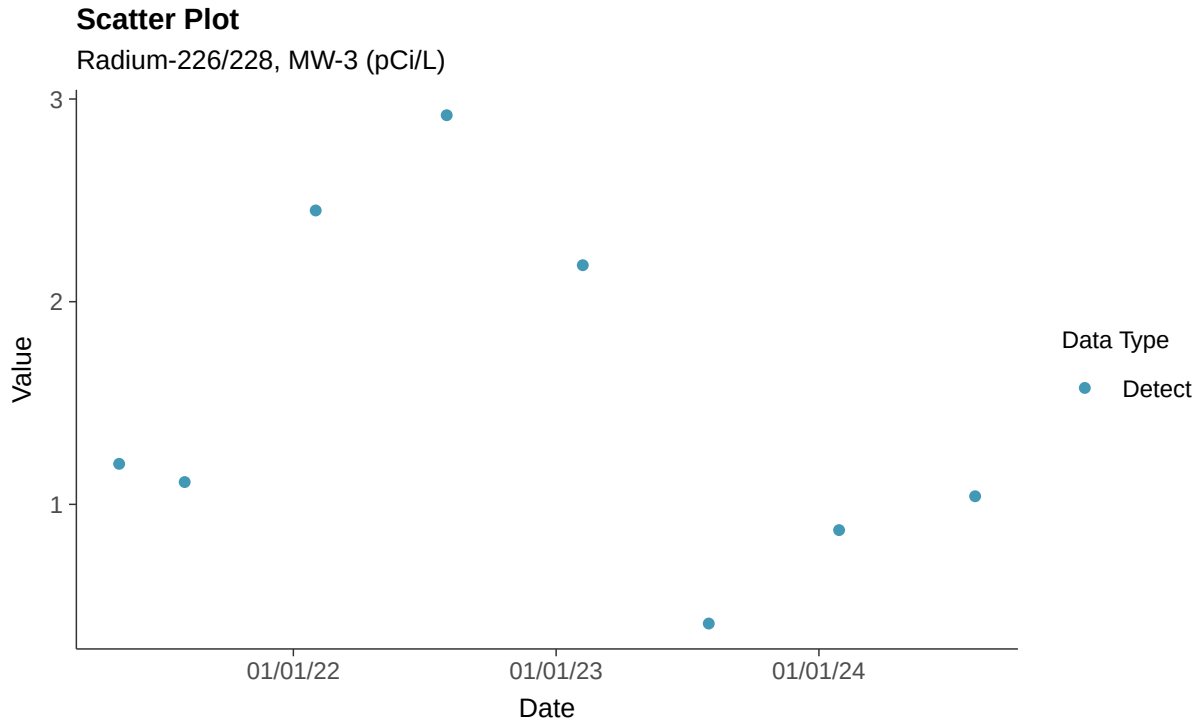
Trend Regression: Piecewise Linear-Linear

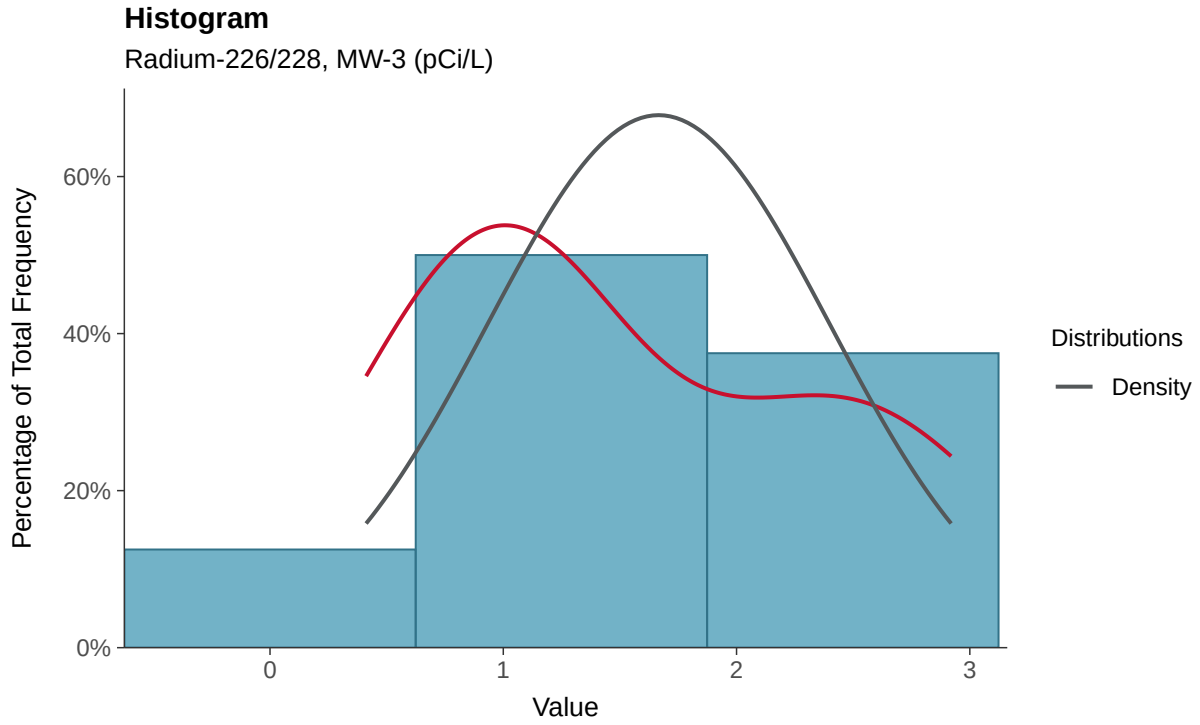
Molybdenum, MW-3 (mg/L)



Appendix IV: Radium-226/228, MW-3

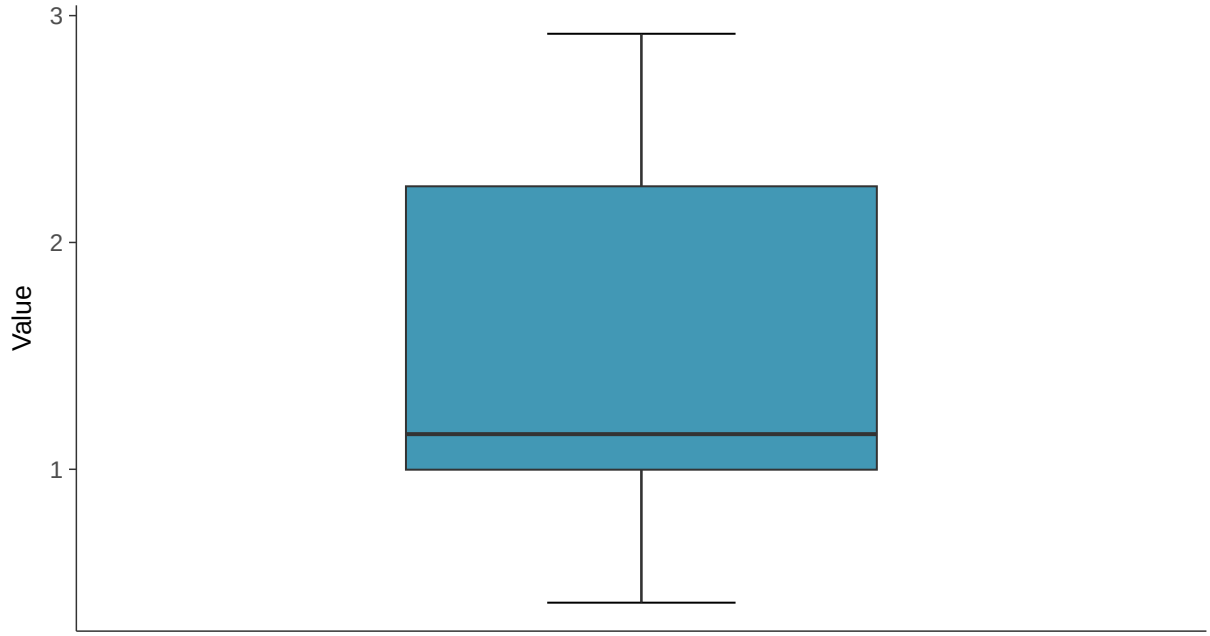
ID: 03_2_21





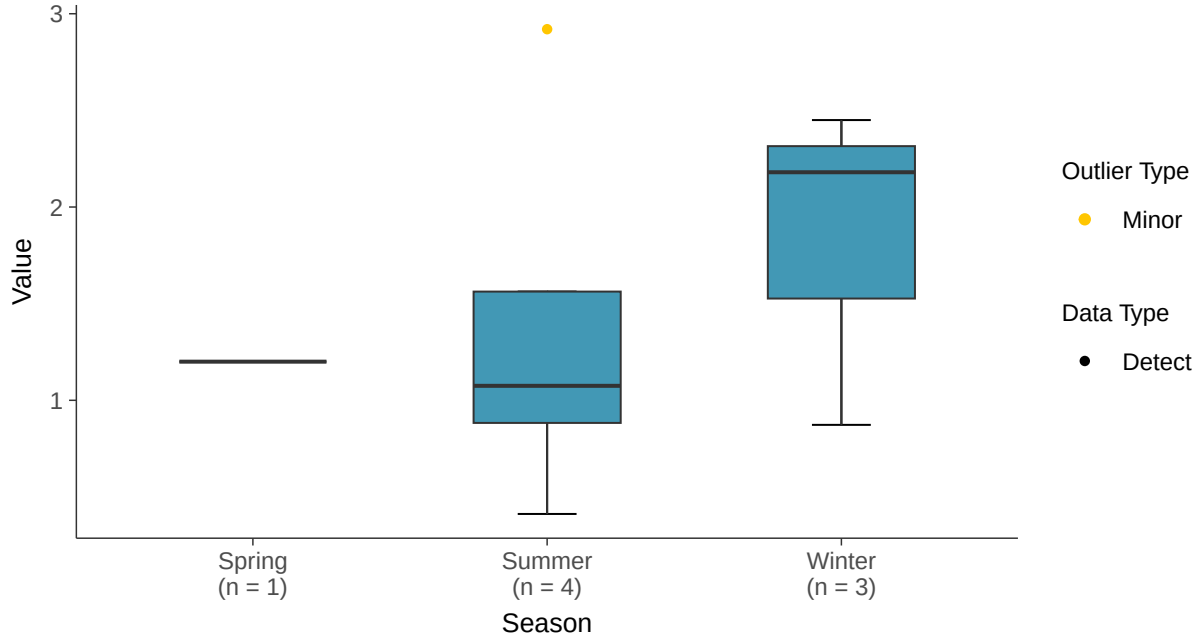
Boxplot

Radium-226/228, MW-3 (pCi/L)



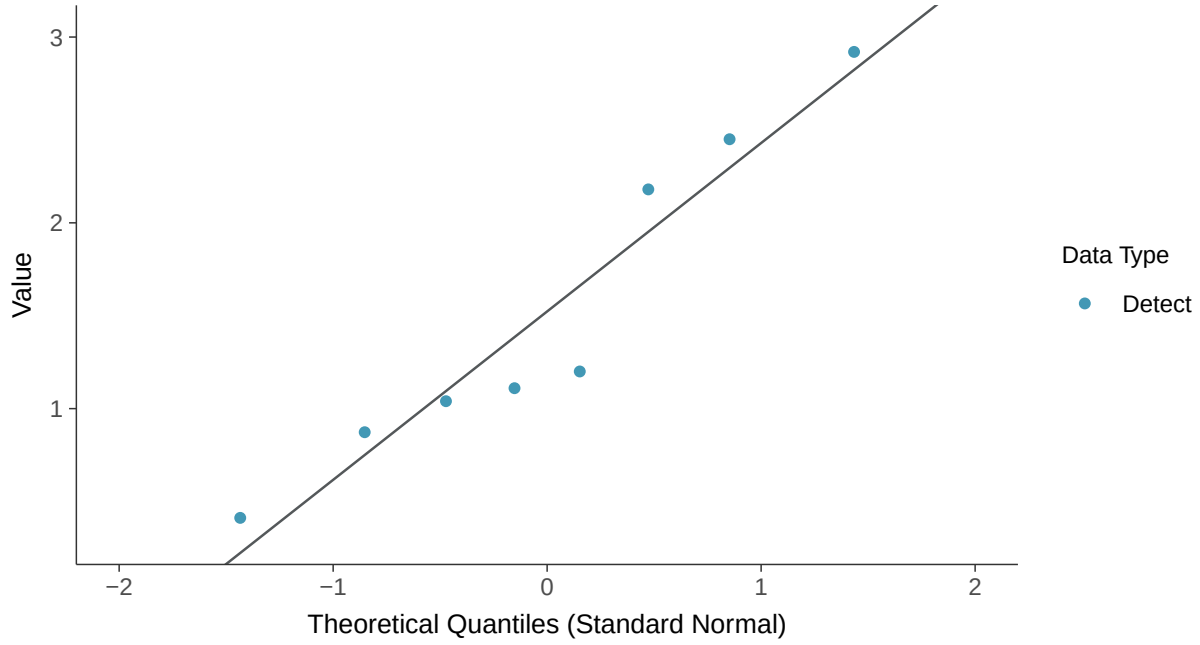
Boxplot by Season

Radium-226/228, MW-3 (pCi/L)



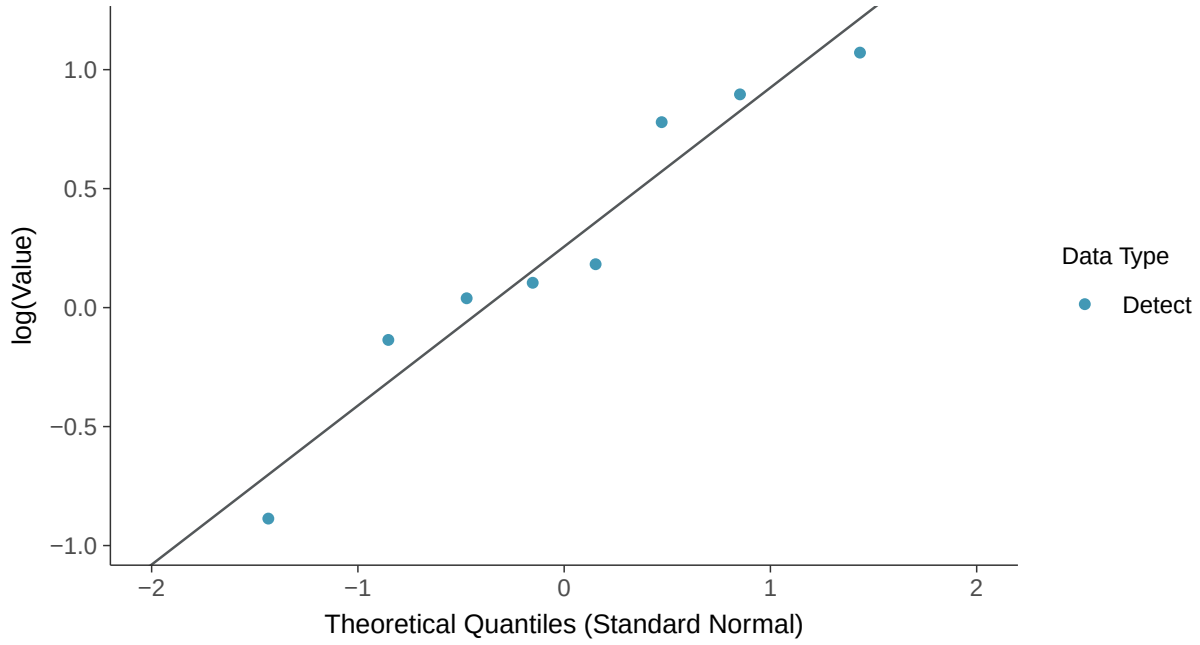
Normal Q-Q plot

Radium-226/228, MW-3 (pCi/L)



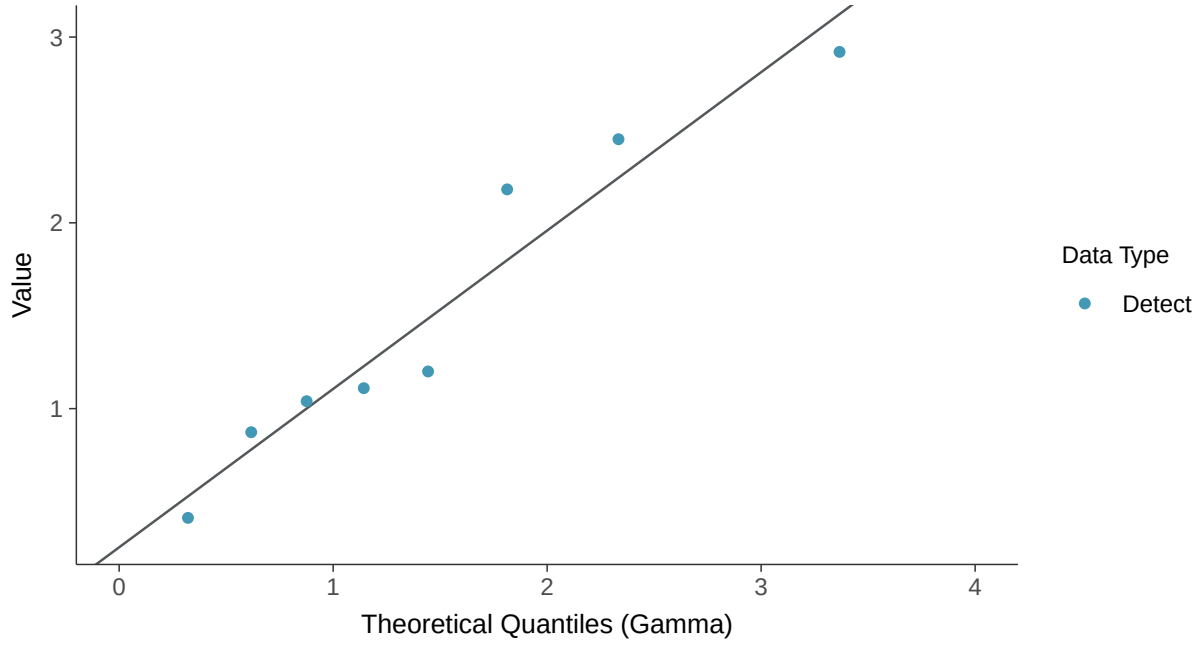
Lognormal Q-Q plot

Radium-226/228, MW-3 (pCi/L)



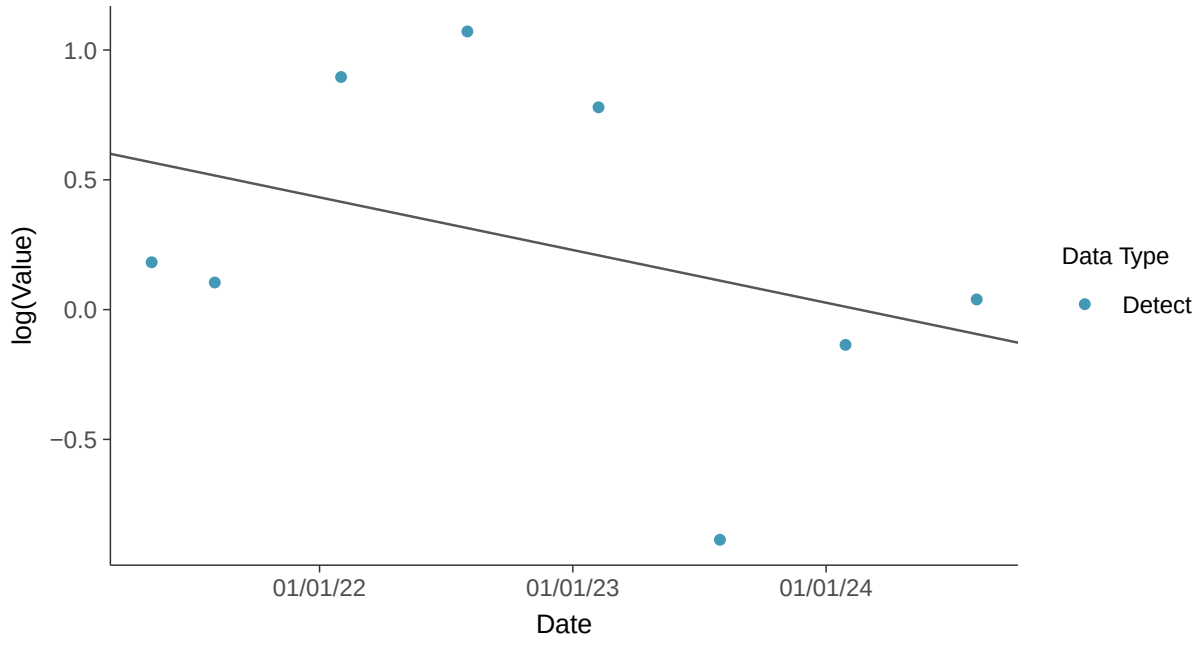
Gamma Q-Q plot

Radium-226/228, MW-3 (pCi/L)



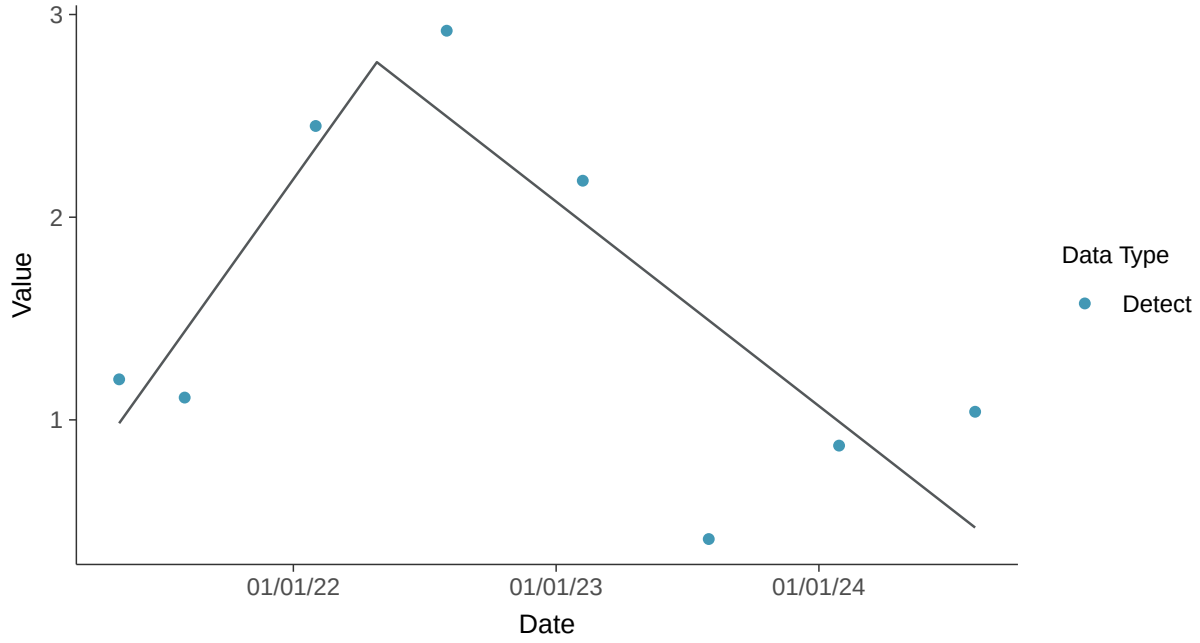
Trend Regression: Lognormal MLE

Radium-226/228, MW-3 (pCi/L)



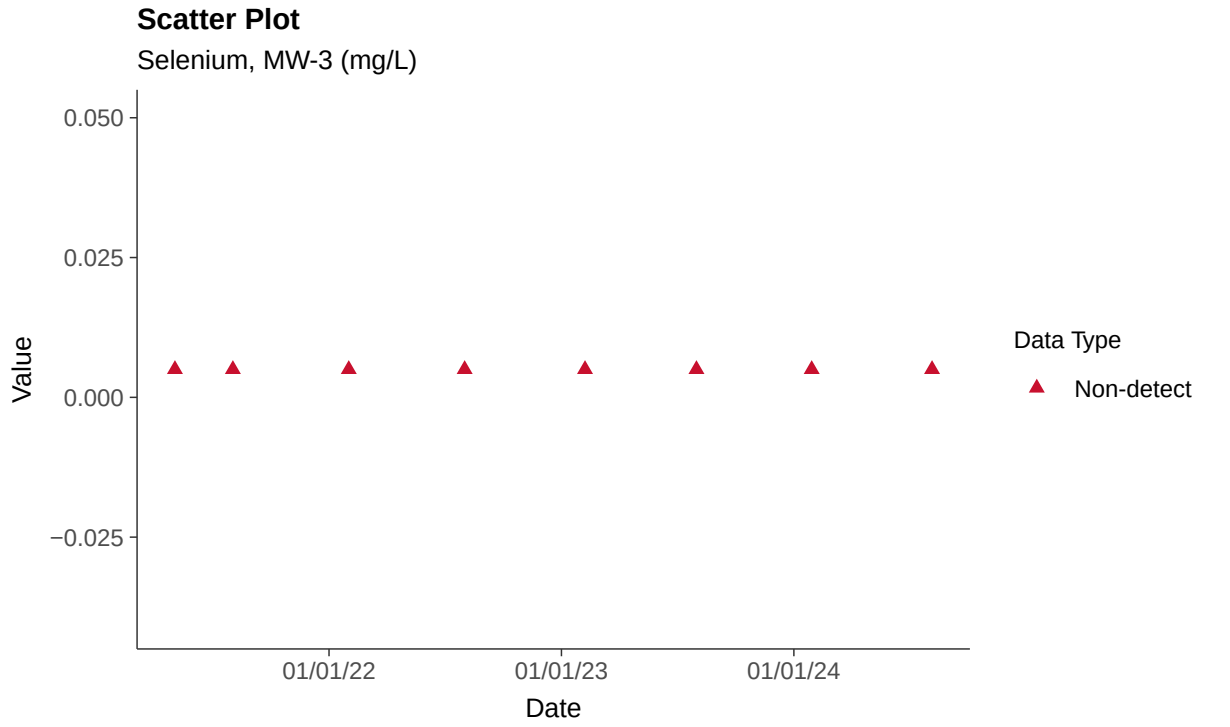
Trend Regression: Piecewise Linear-Linear

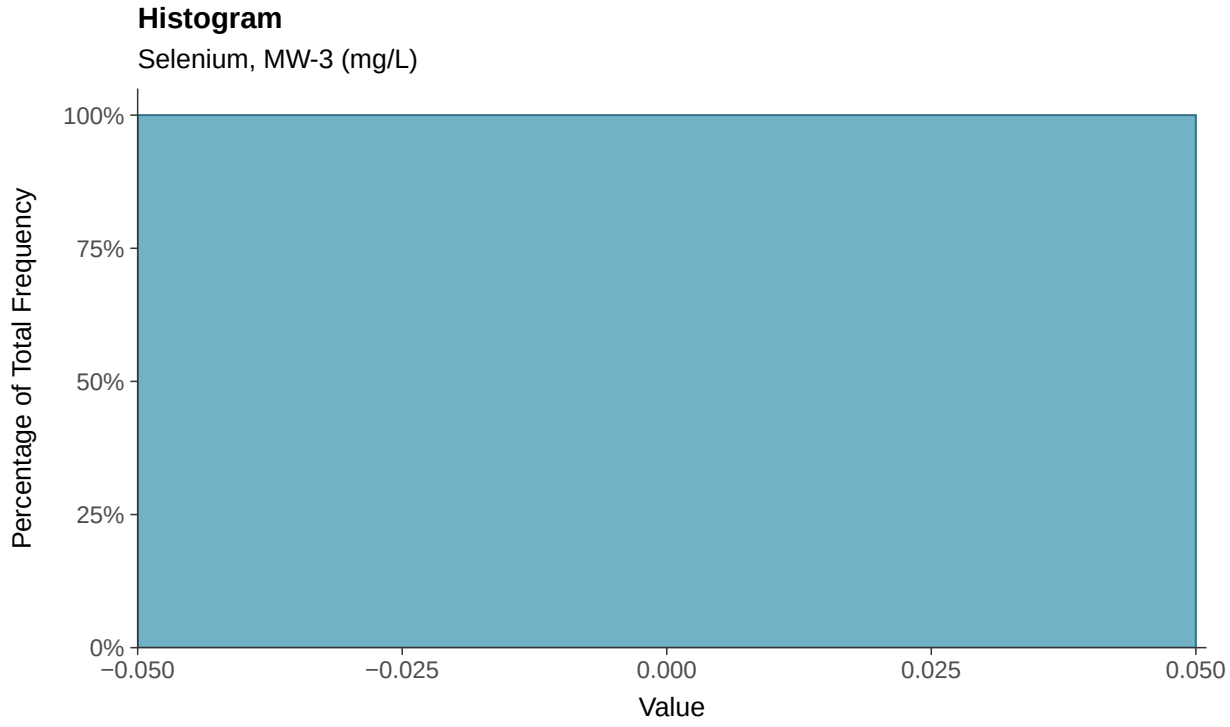
Radium-226/228, MW-3 (pCi/L)



Appendix IV: Selenium, MW-3

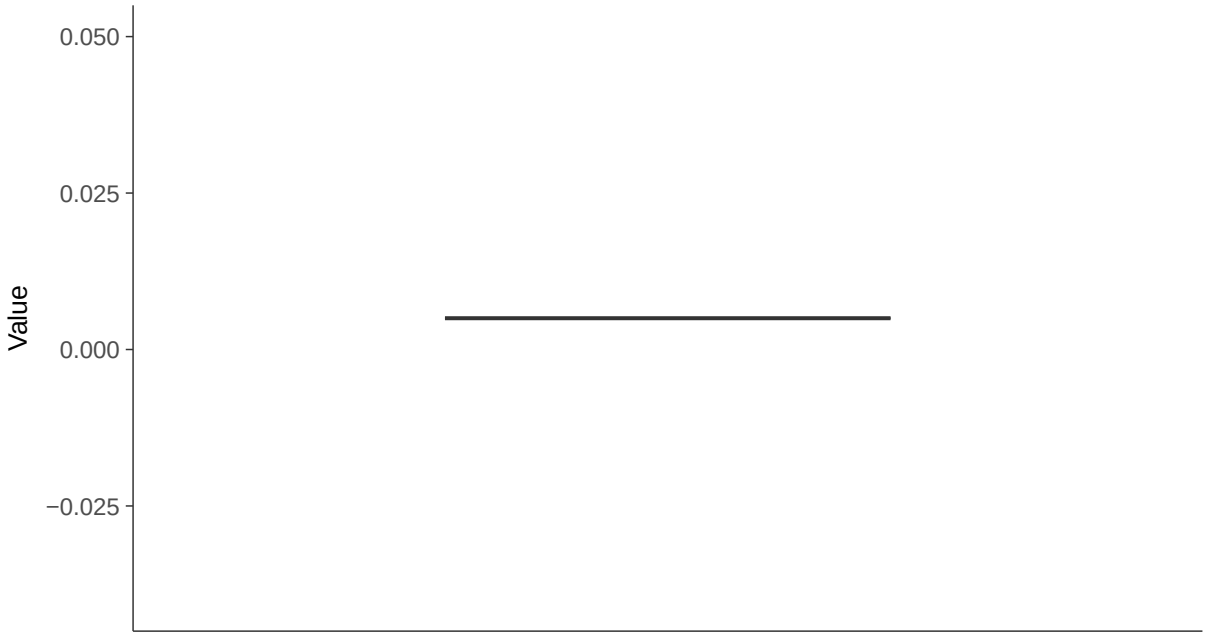
ID: 03_2_22





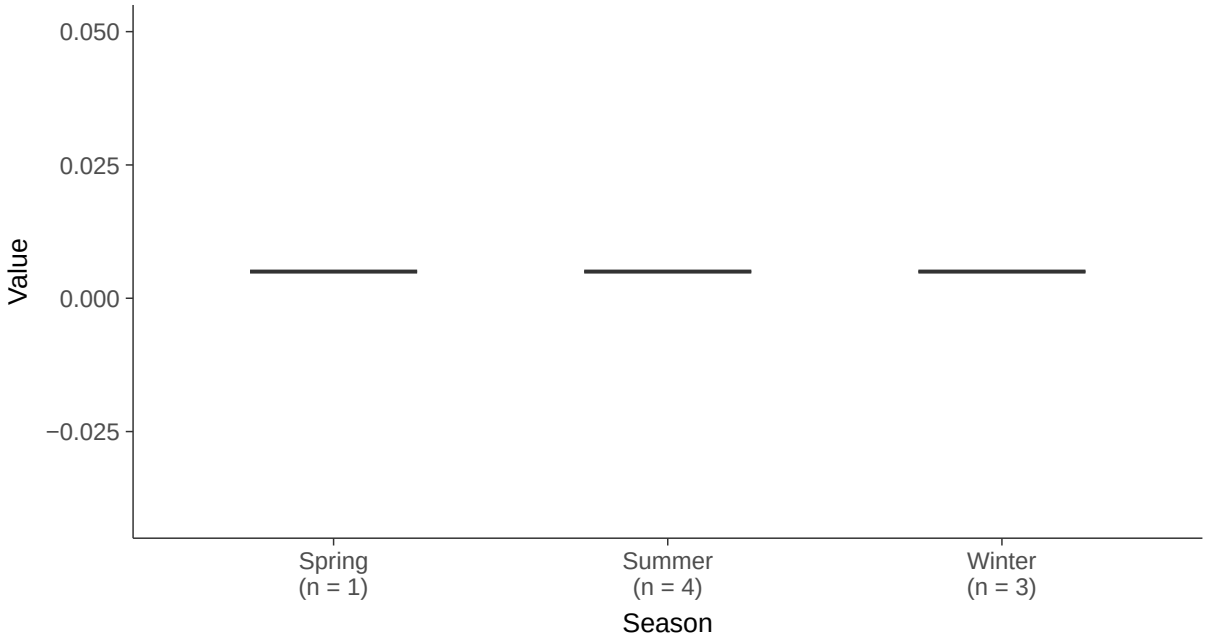
Boxplot

Selenium, MW-3 (mg/L)



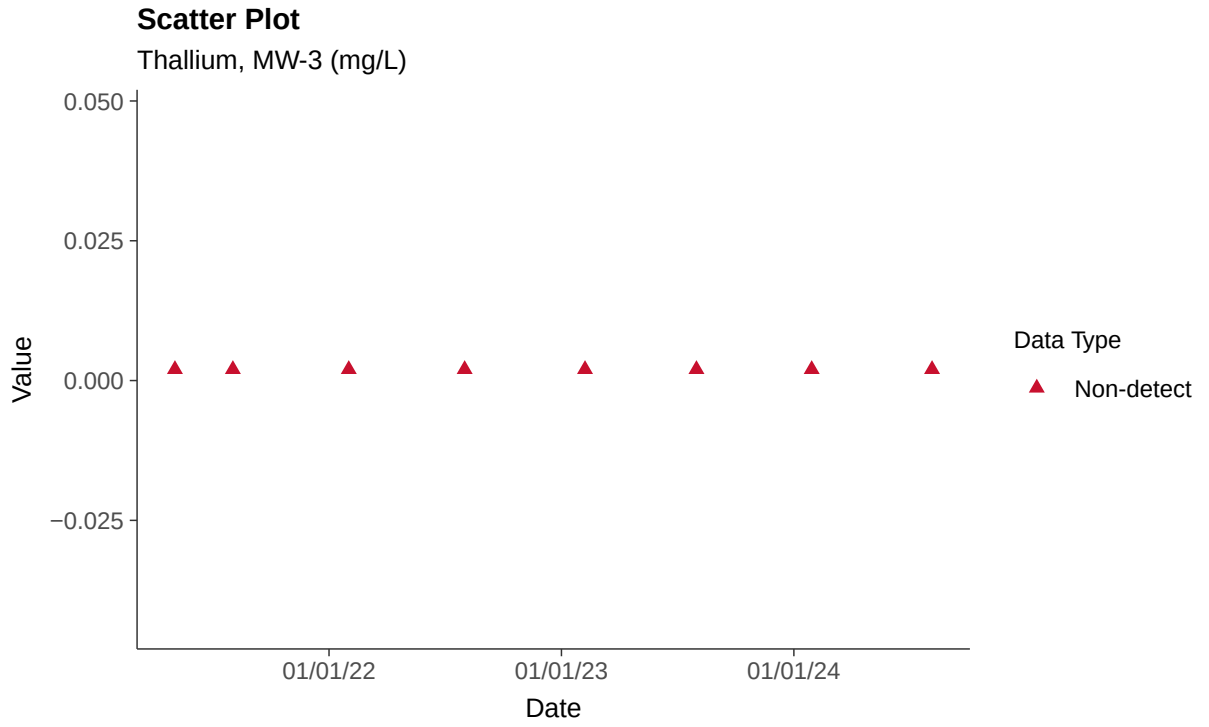
Boxplot by Season

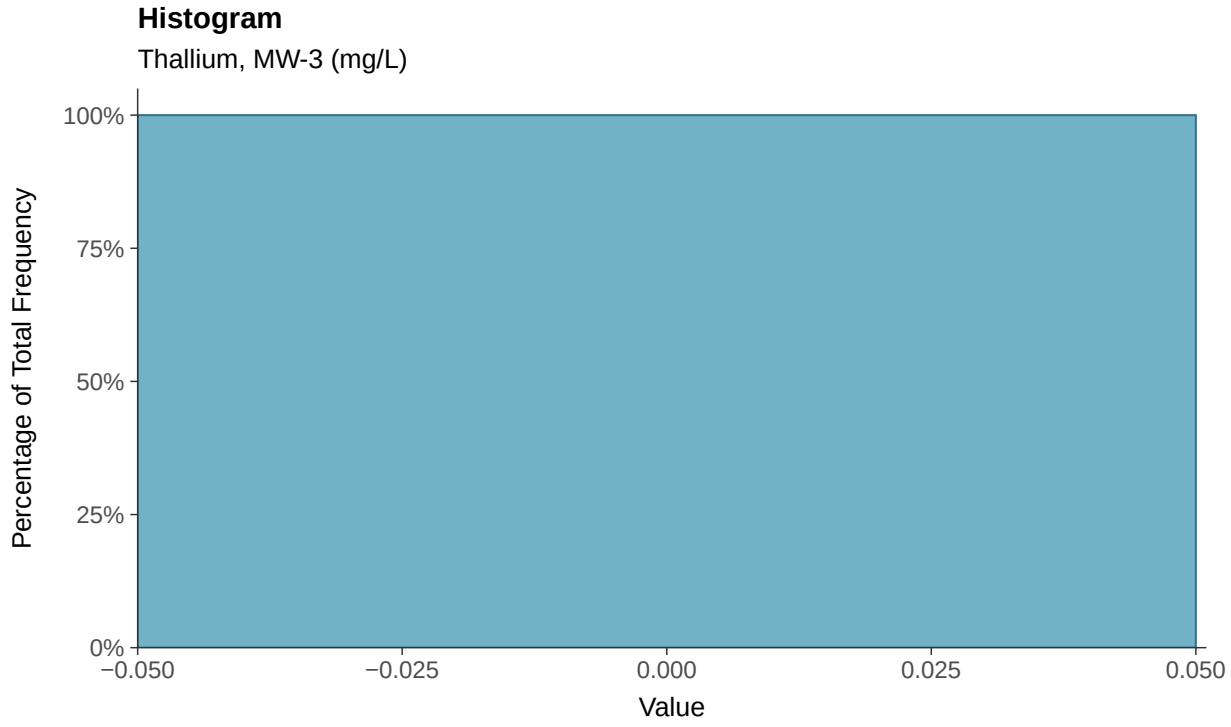
Selenium, MW-3 (mg/L)



Appendix IV: Thallium, MW-3

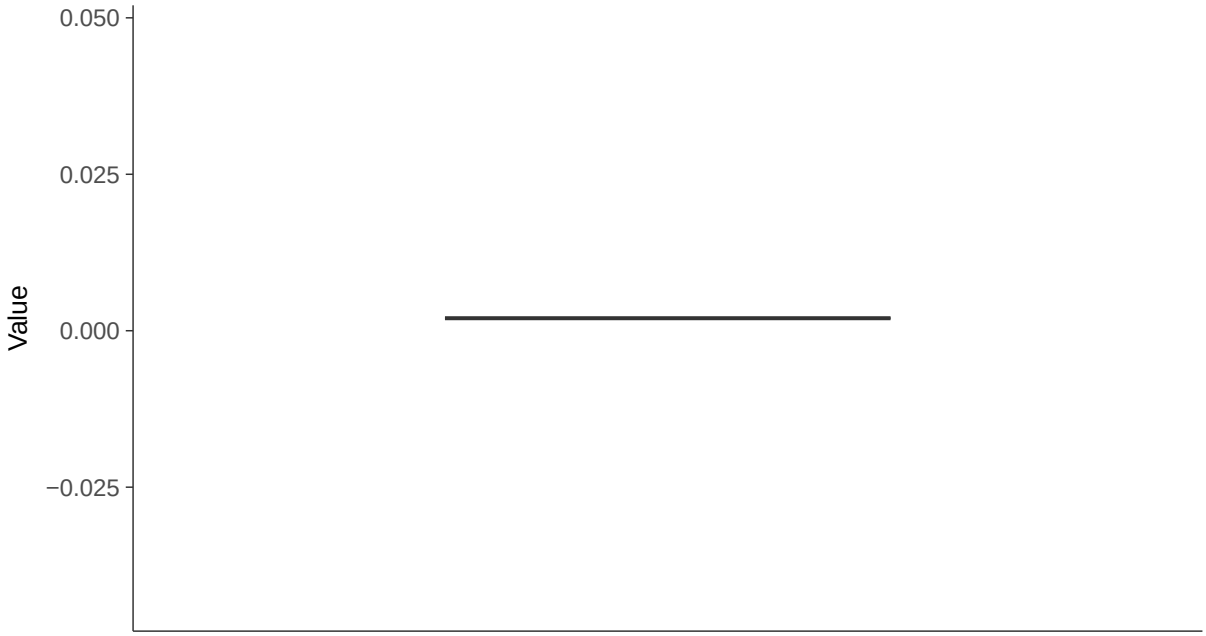
ID: 03_2_23





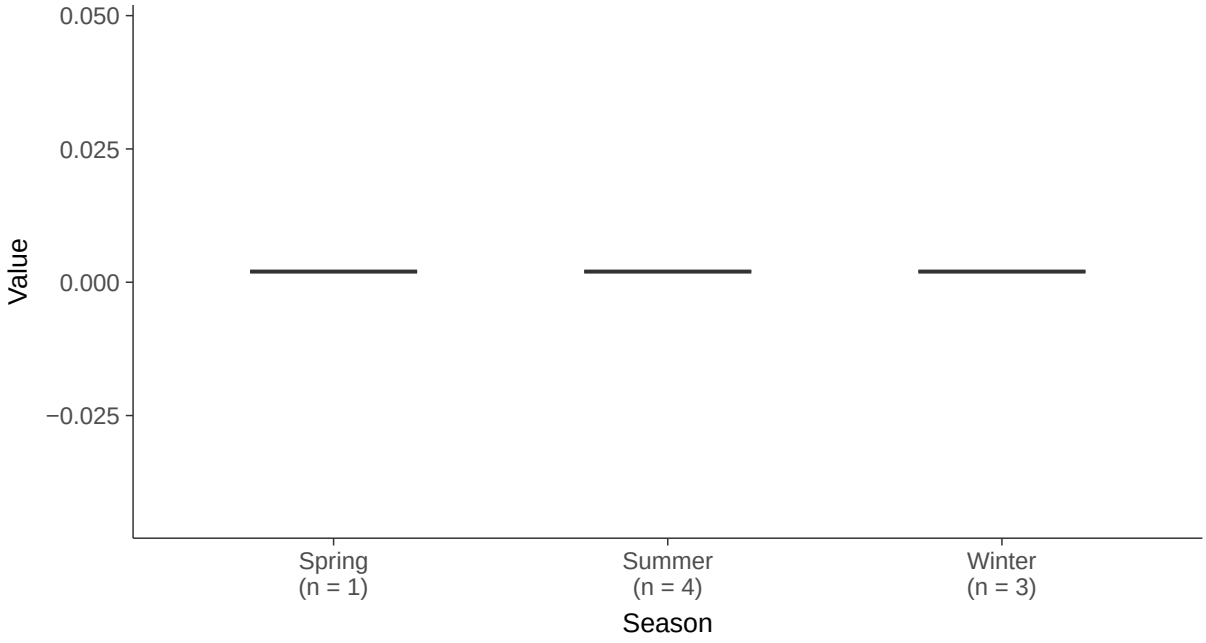
Boxplot

Thallium, MW-3 (mg/L)



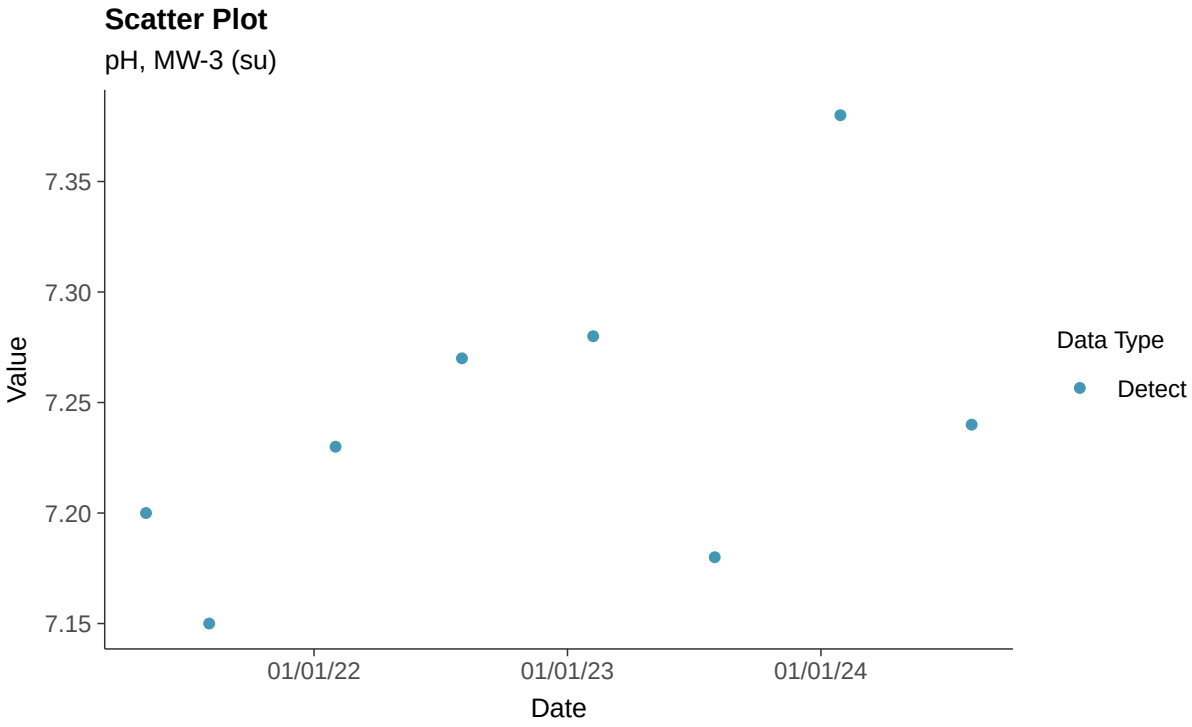
Boxplot by Season

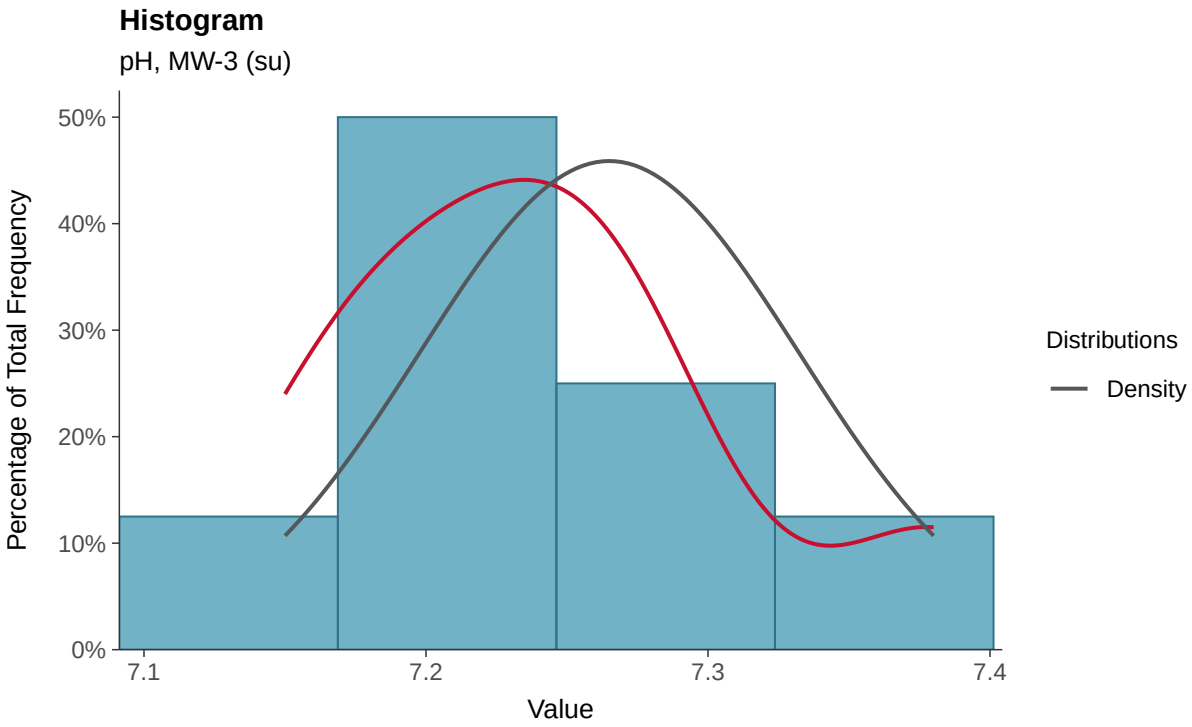
Thallium, MW-3 (mg/L)



Field Parameters: pH, MW-3

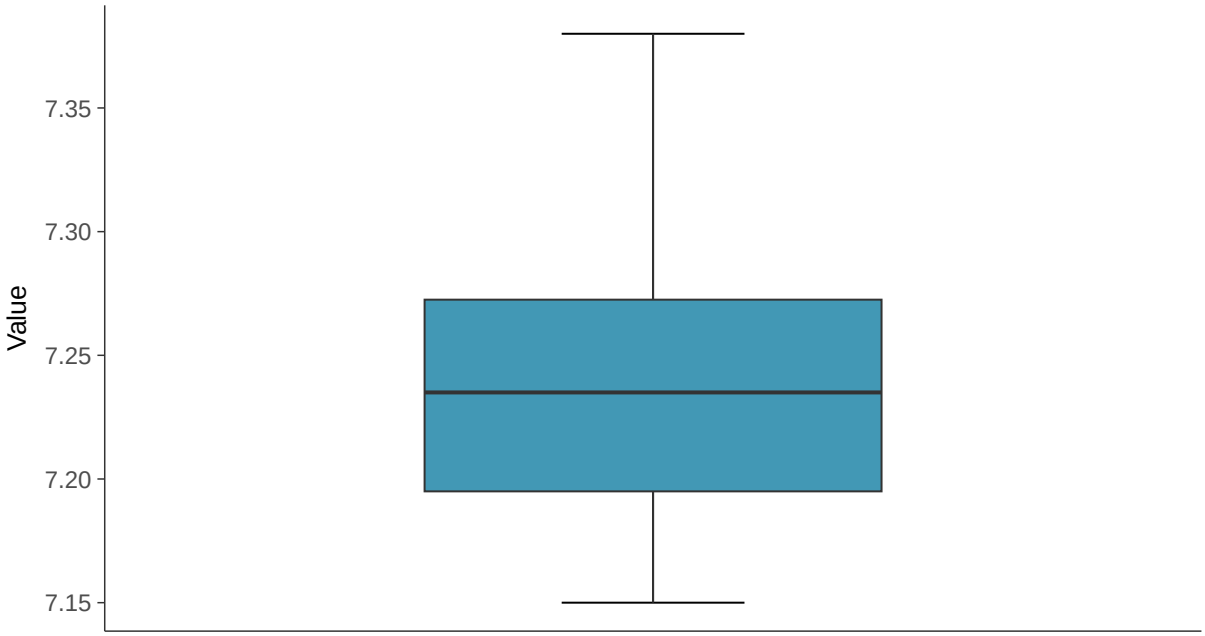
ID: 03_3_24





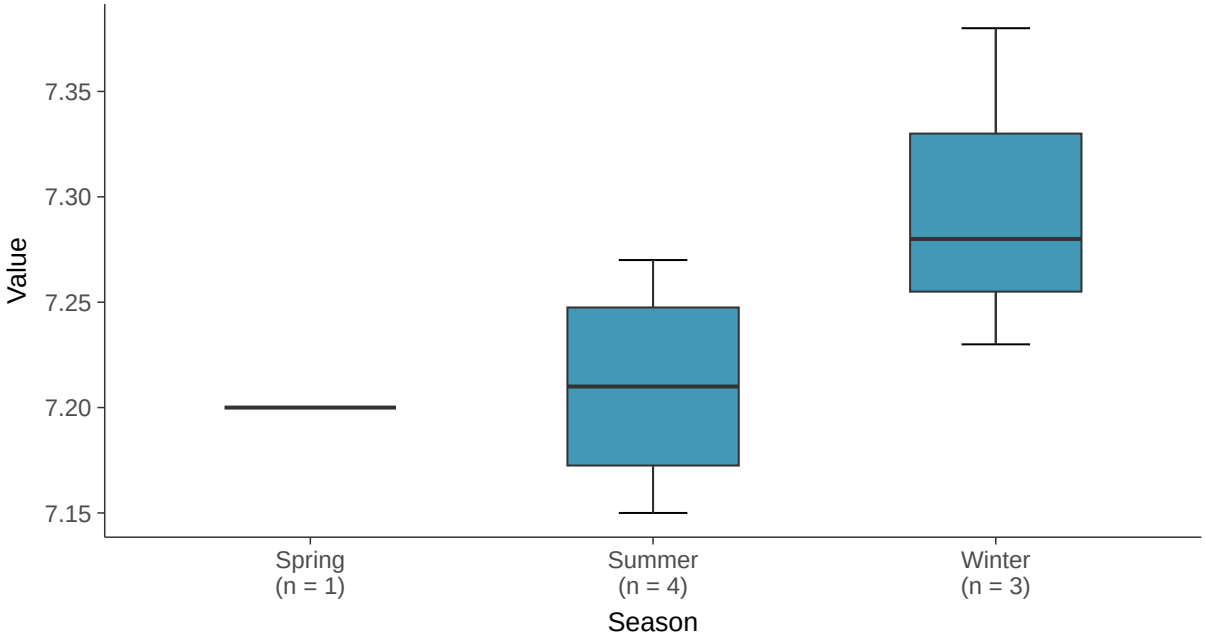
Boxplot

pH, MW-3 (su)



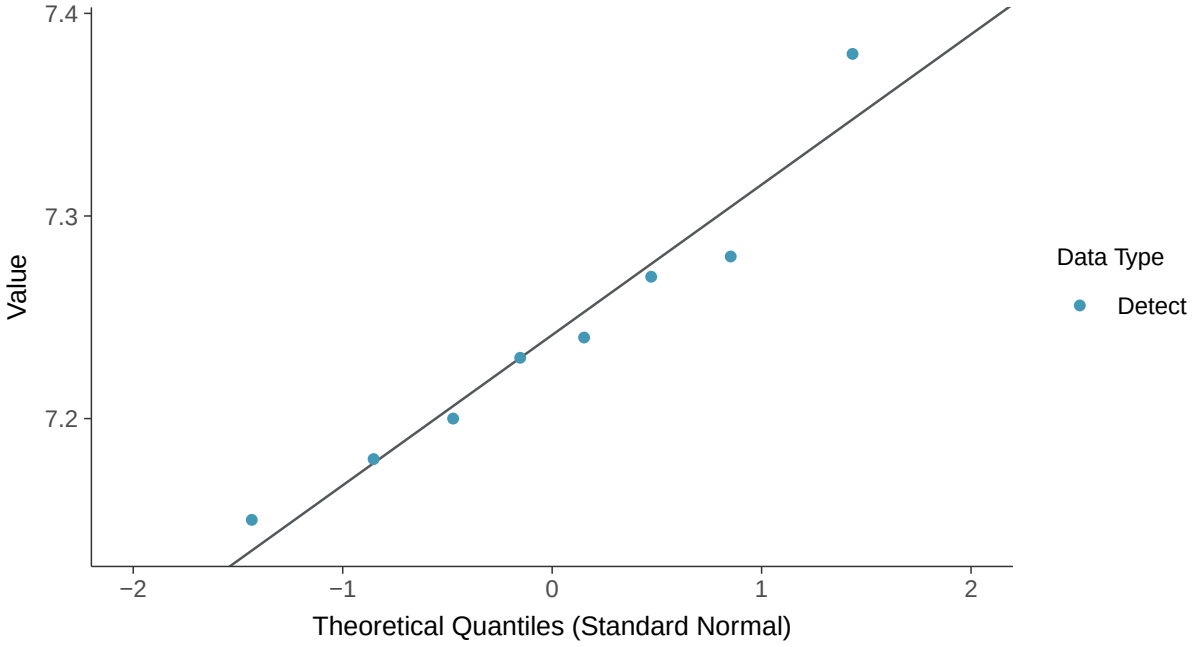
Boxplot by Season

pH, MW-3 (su)



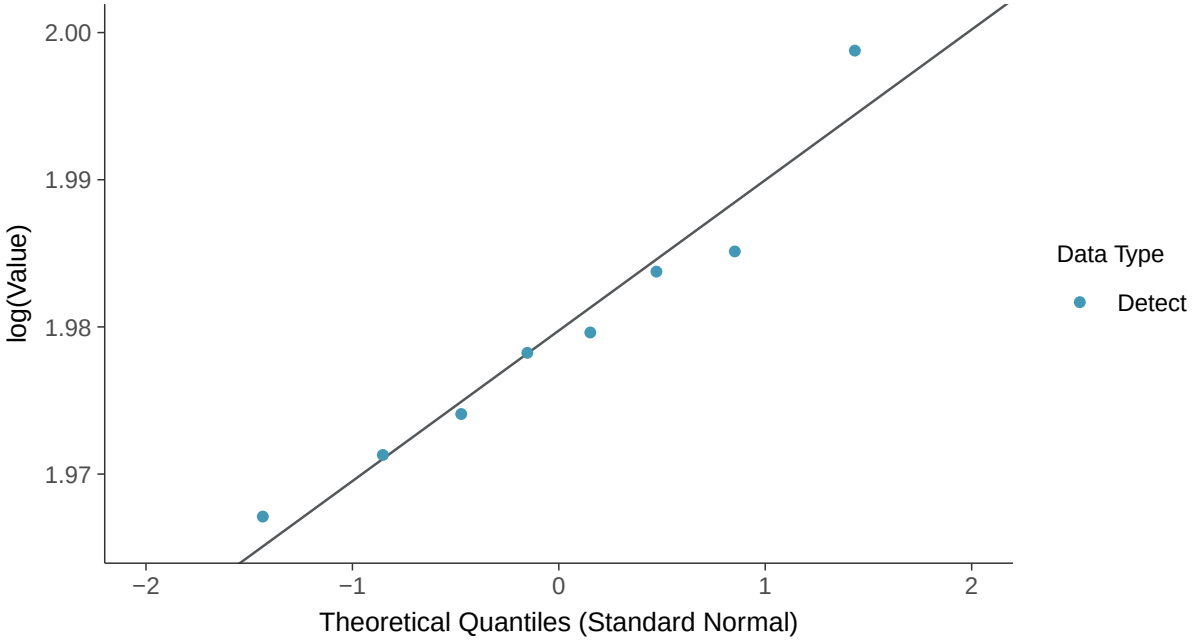
Normal Q-Q plot

pH, MW-3 (su)



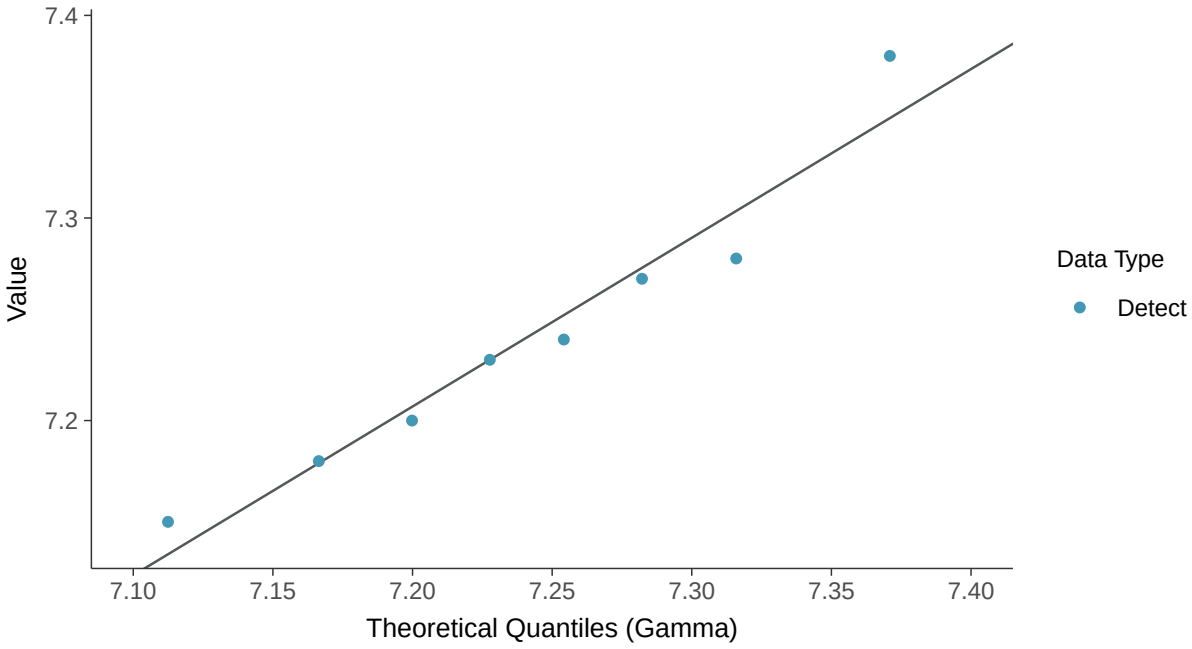
Lognormal Q-Q plot

pH, MW-3 (su)



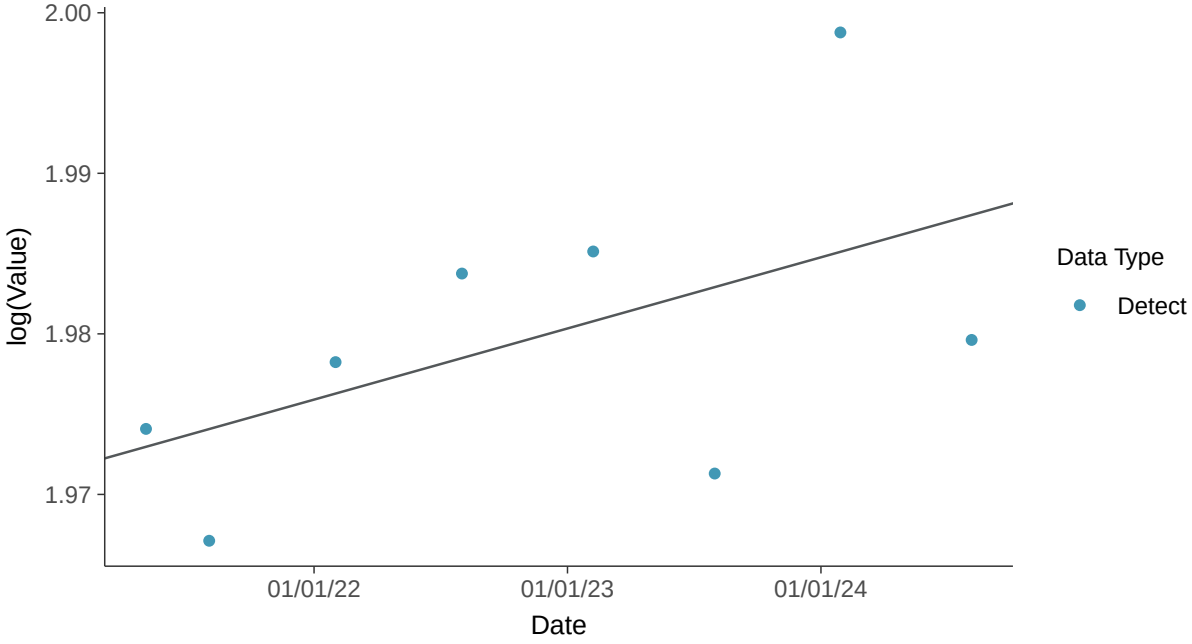
Gamma Q-Q plot

pH, MW-3 (su)



Trend Regression: Lognormal MLE

pH, MW-3 (su)

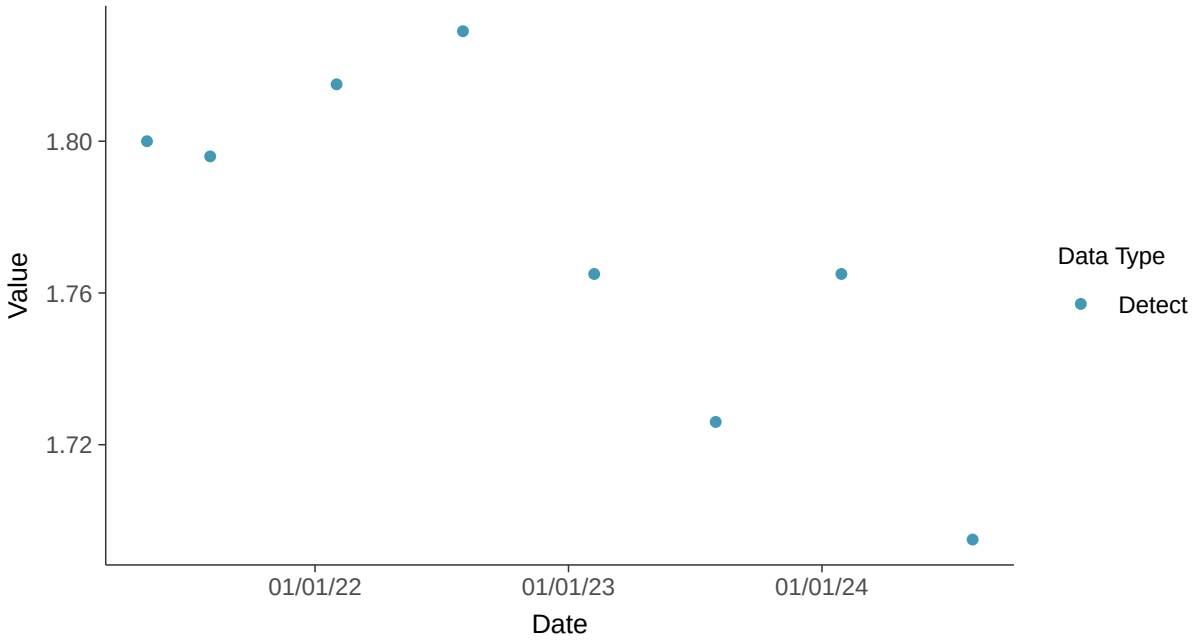


Field Parameters: Conductivity, MW-3

ID: 03_3_25

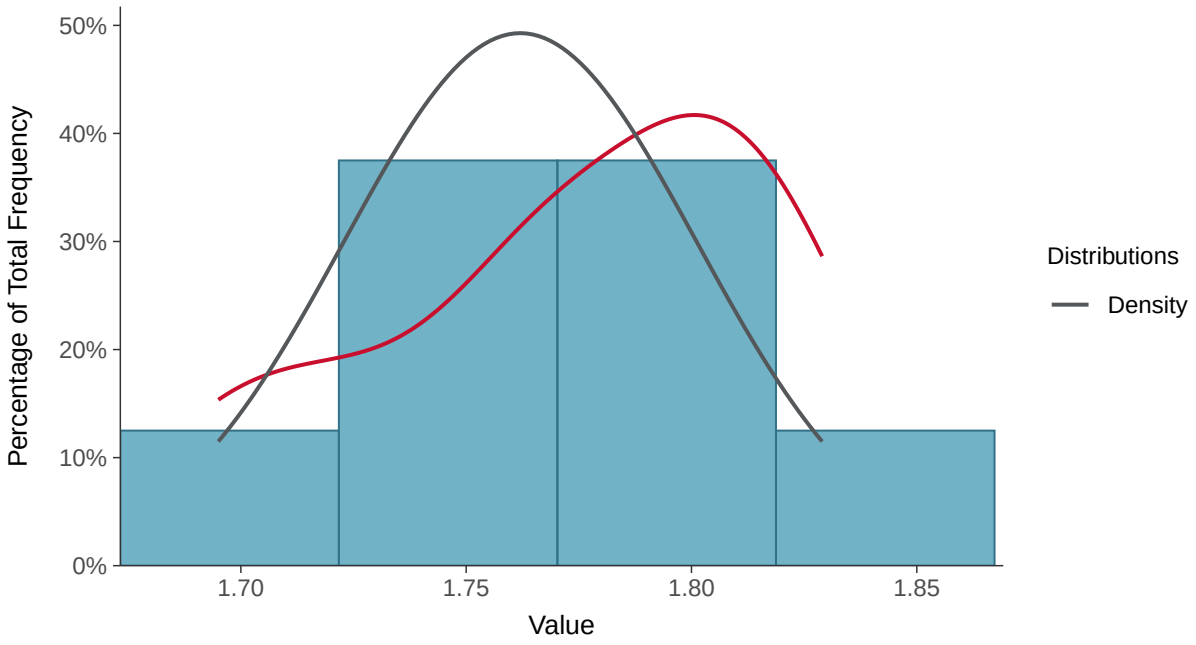
Scatter Plot

Conductivity, MW-3 (mS/cm)



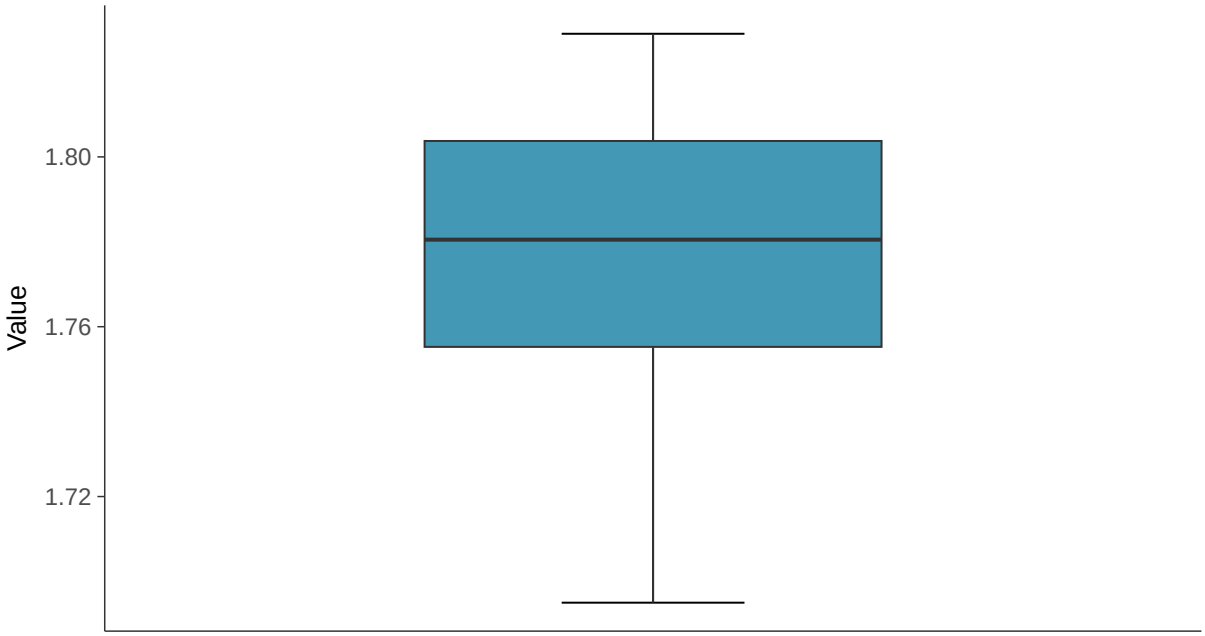
Histogram

Conductivity, MW-3 (mS/cm)



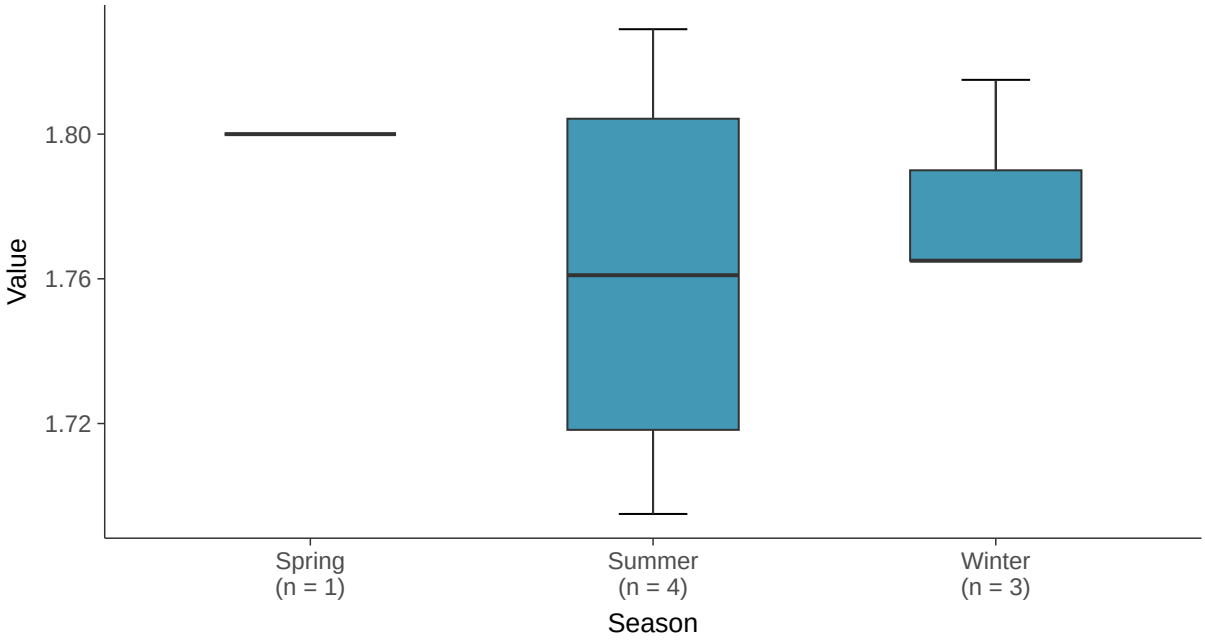
Boxplot

Conductivity, MW-3 (mS/cm)



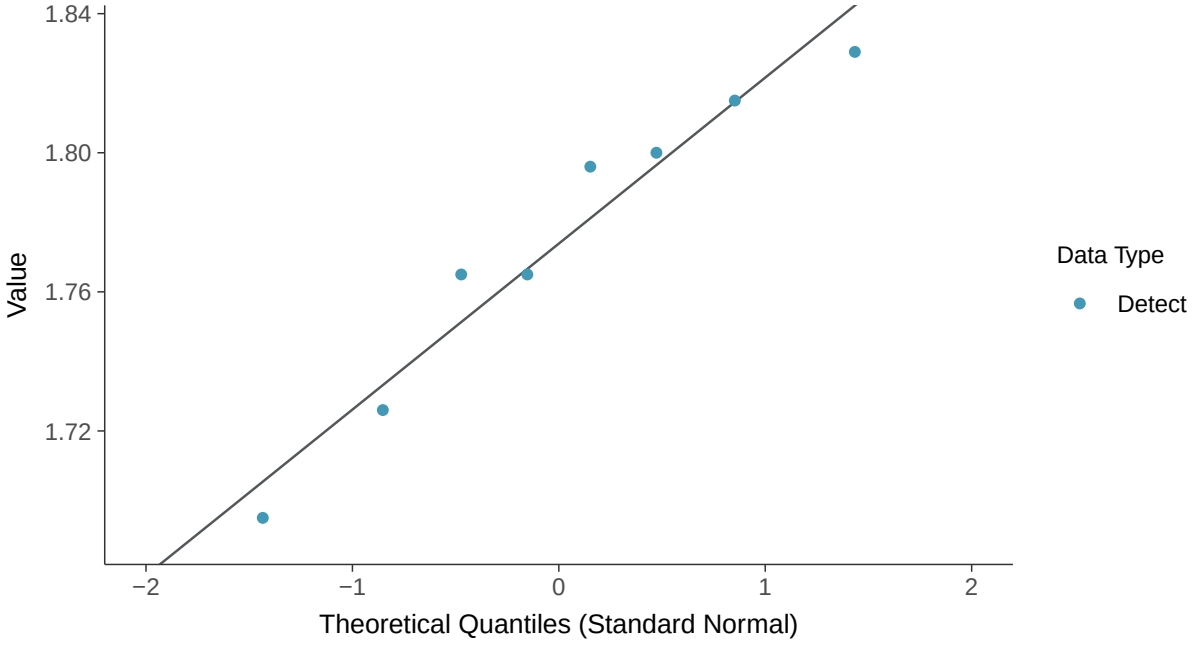
Boxplot by Season

Conductivity, MW-3 (mS/cm)



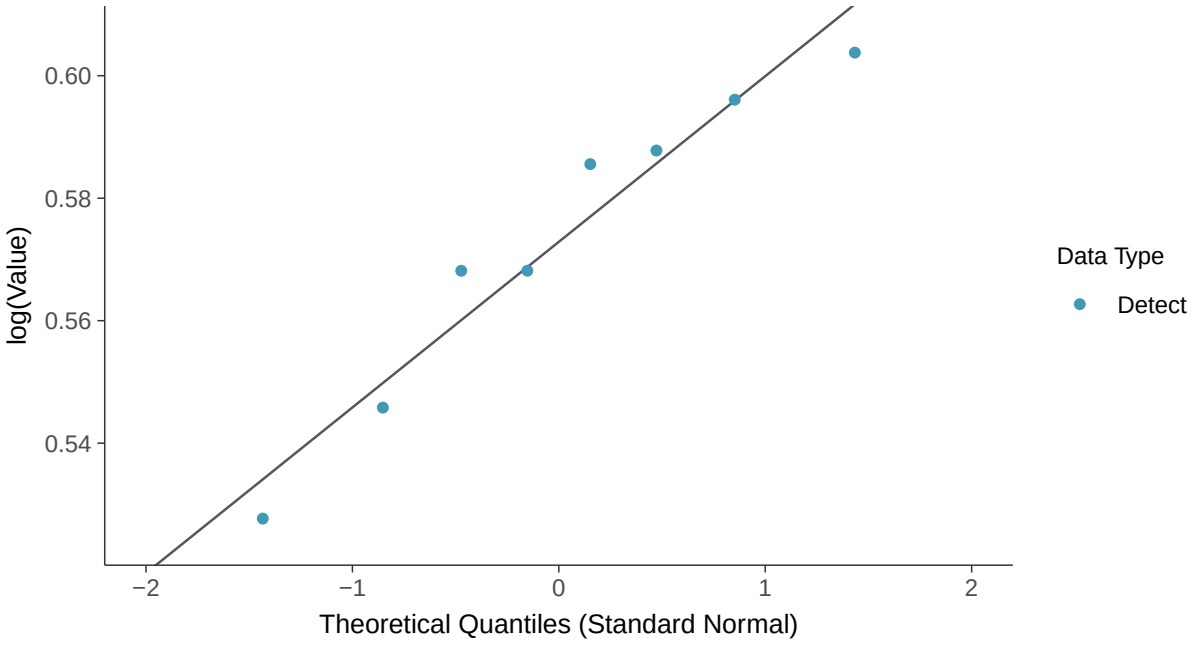
Normal Q-Q plot

Conductivity, MW-3 (mS/cm)



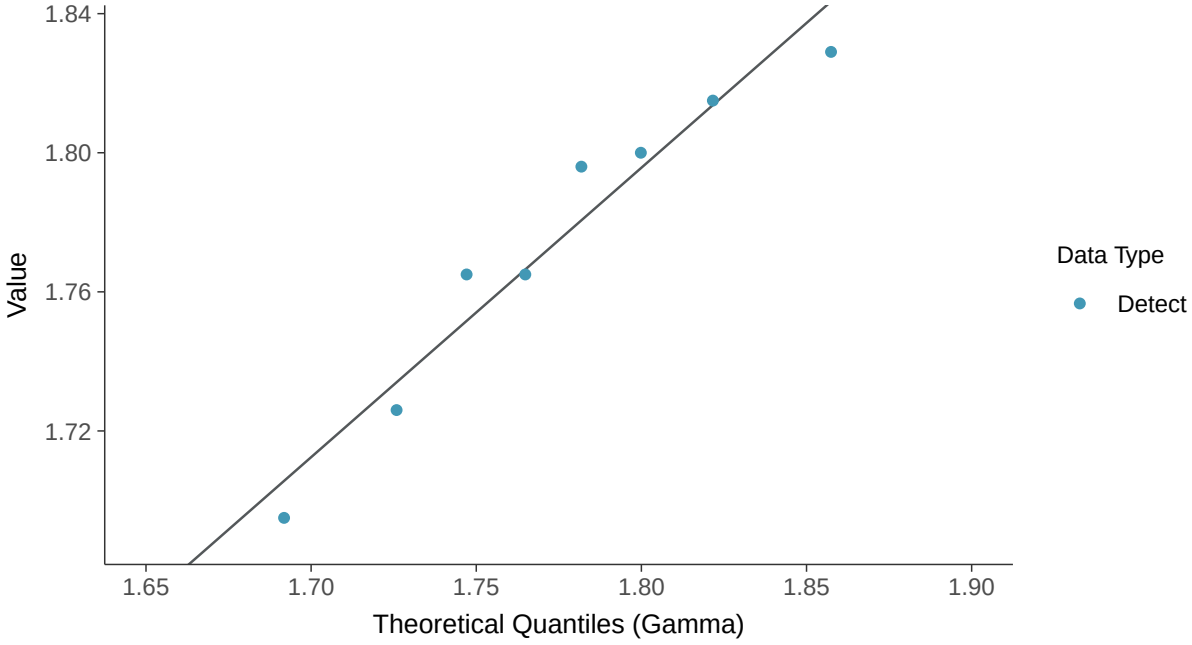
Lognormal Q-Q plot

Conductivity, MW-3 (mS/cm)



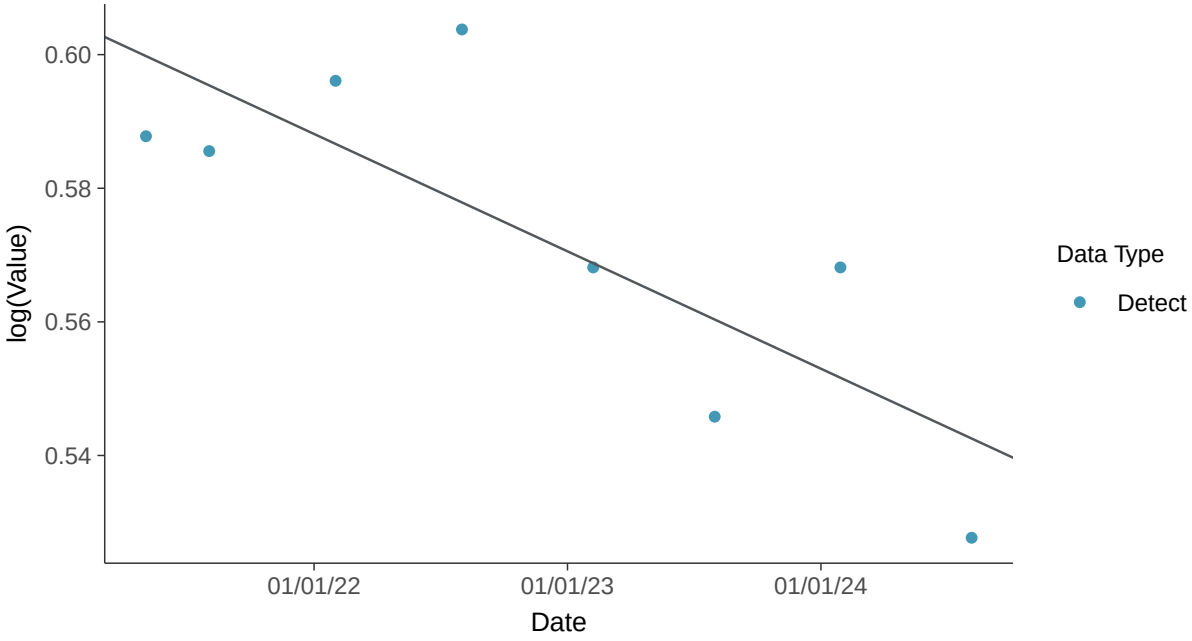
Gamma Q-Q plot

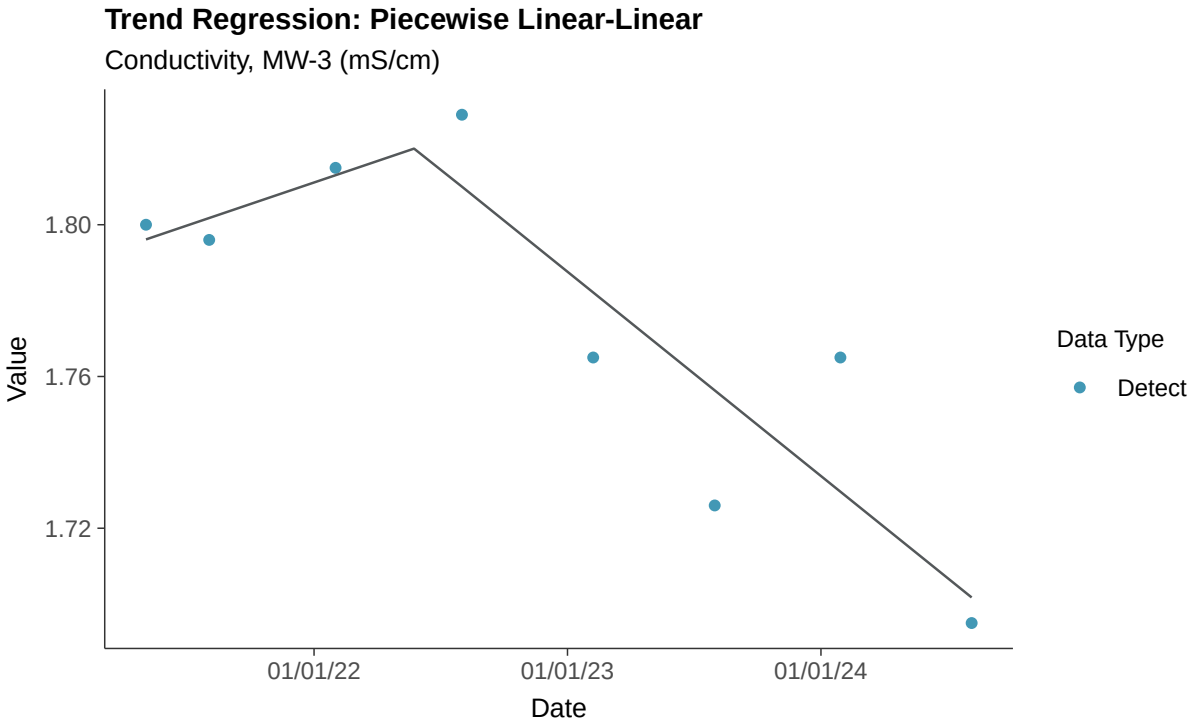
Conductivity, MW-3 (mS/cm)



Trend Regression: Lognormal MLE

Conductivity, MW-3 (mS/cm)



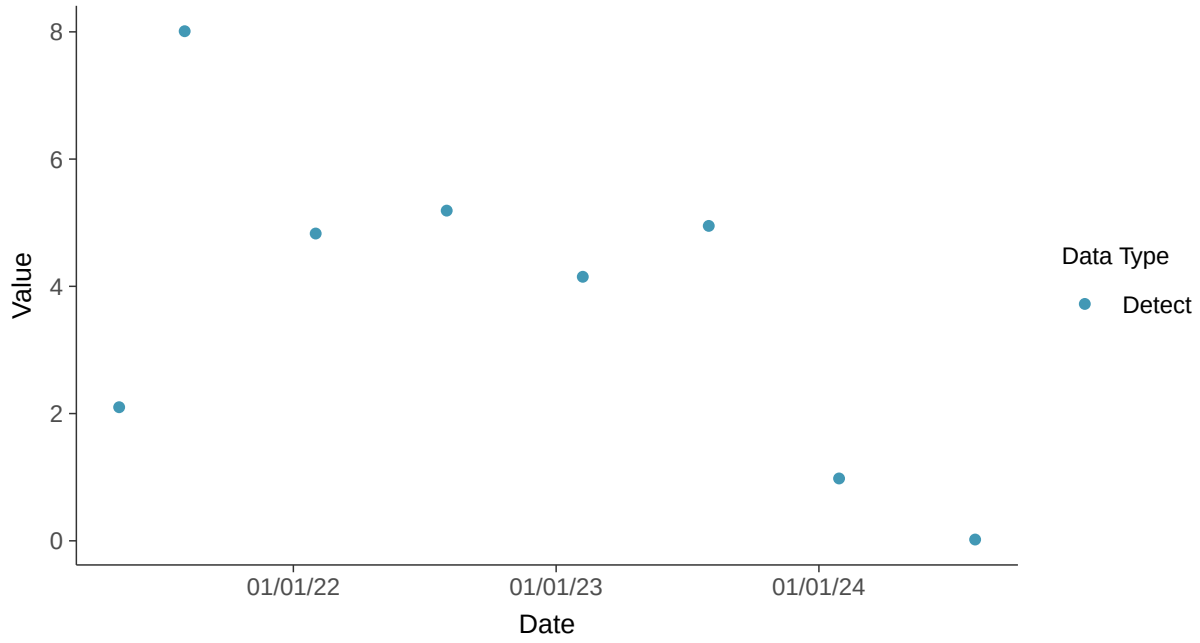

Trend Regression: Piecewise Linear-Linear
Conductivity, MW-3 (mS/cm)
Value
1.80
1.76
1.72
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Field Parameters: Turbidity, MW-3

ID: 03_3_26

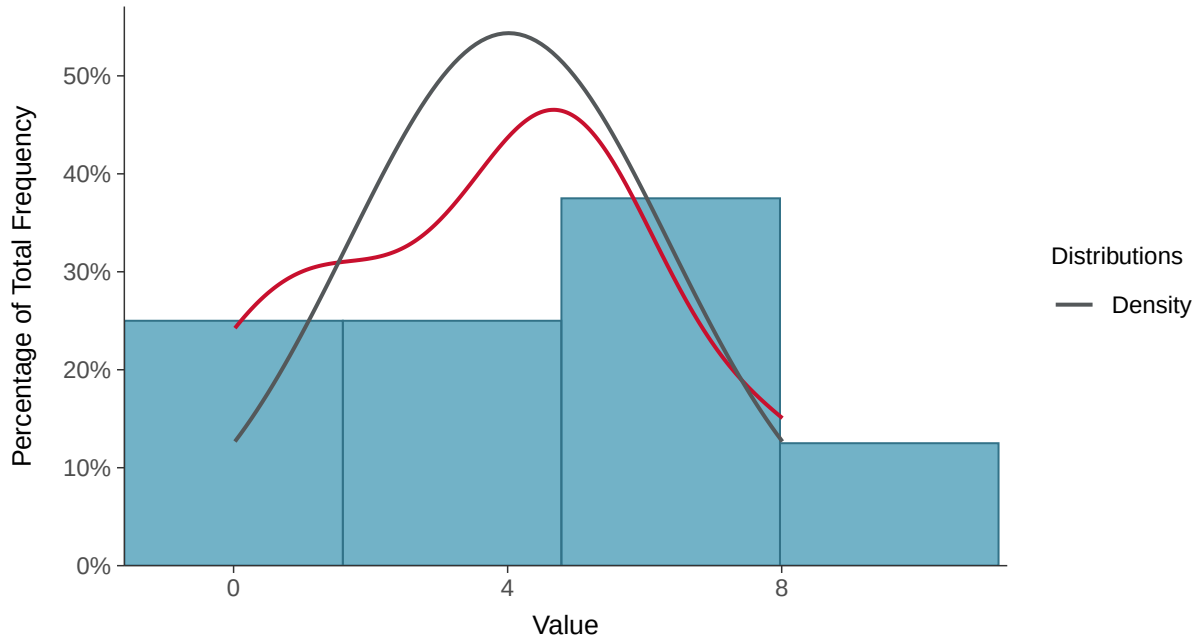
Scatter Plot

Turbidity, MW-3 (NTU)



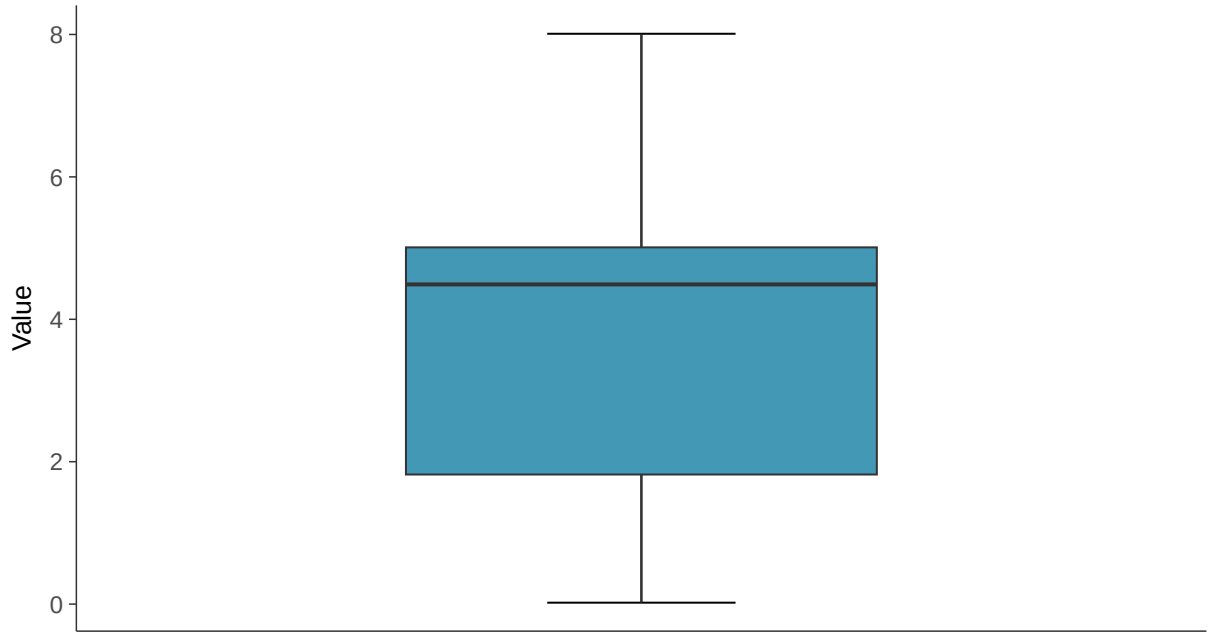
Histogram

Turbidity, MW-3 (NTU)



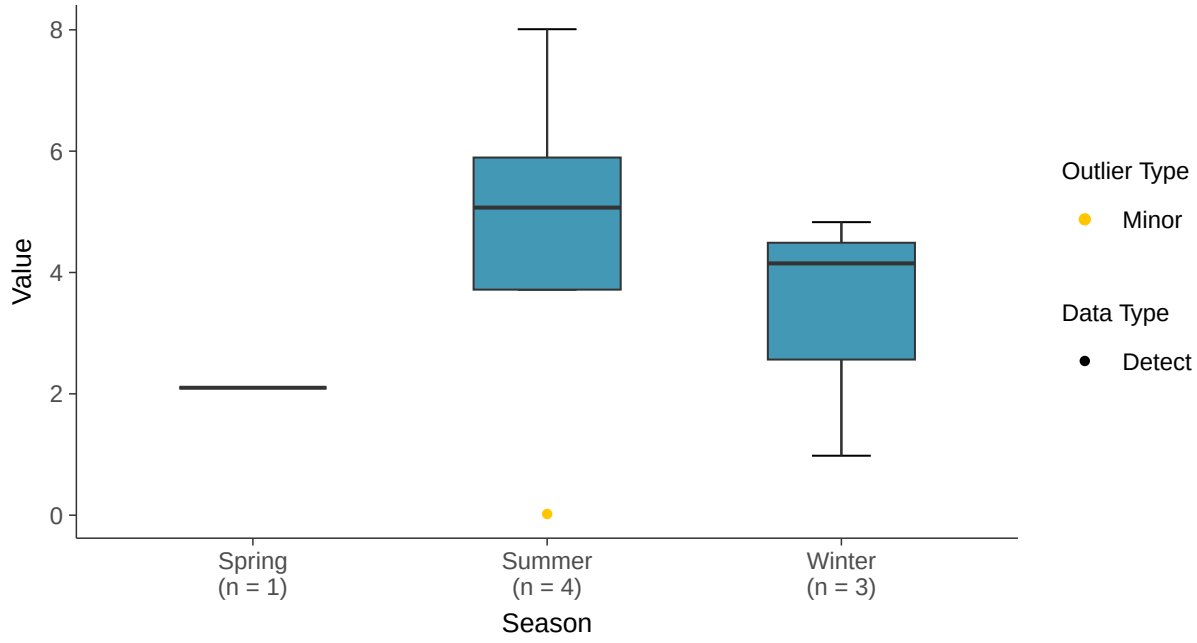
Boxplot

Turbidity, MW-3 (NTU)



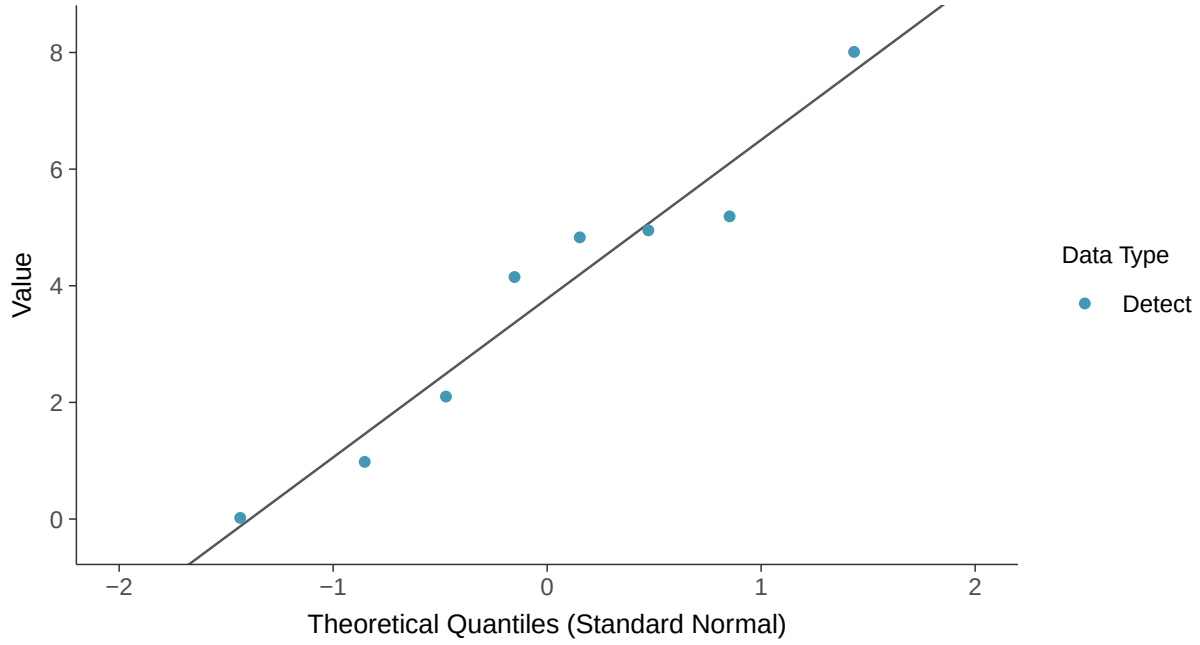
Boxplot by Season

Turbidity, MW-3 (NTU)



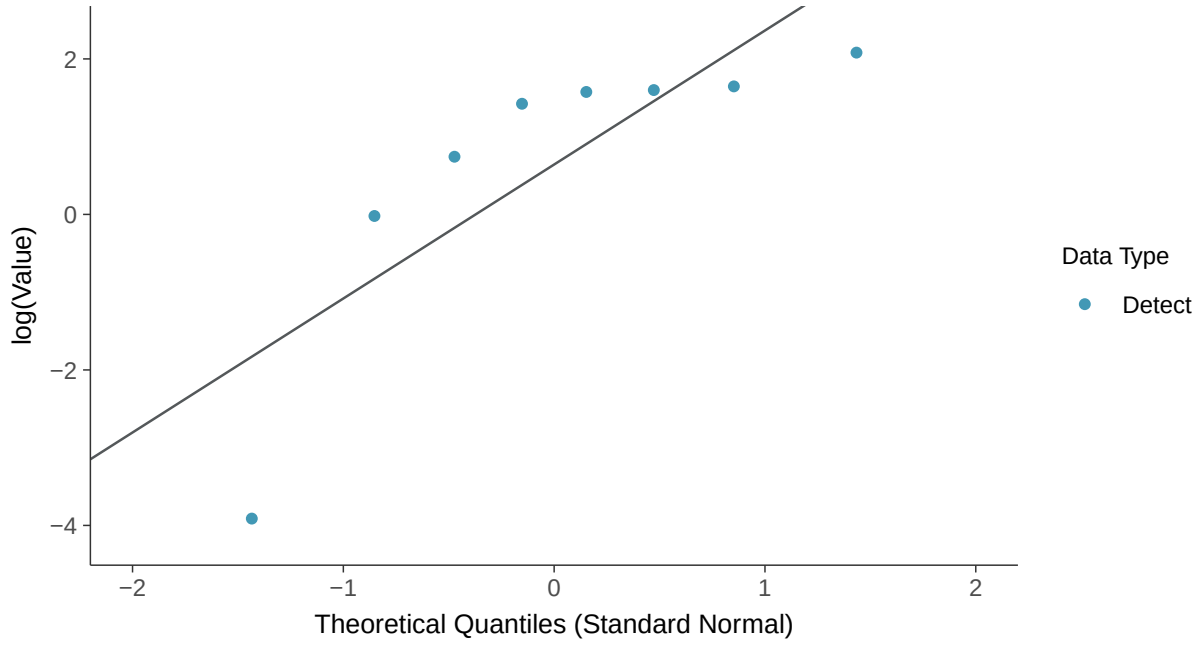
Normal Q-Q plot

Turbidity, MW-3 (NTU)



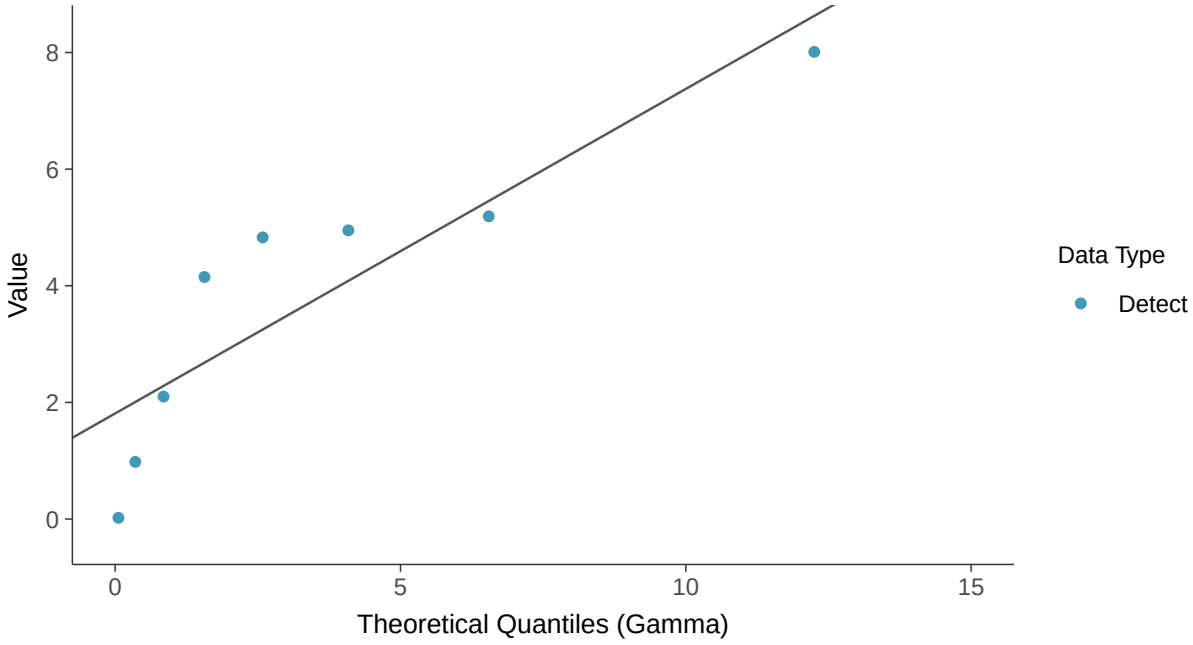
Lognormal Q-Q plot

Turbidity, MW-3 (NTU)



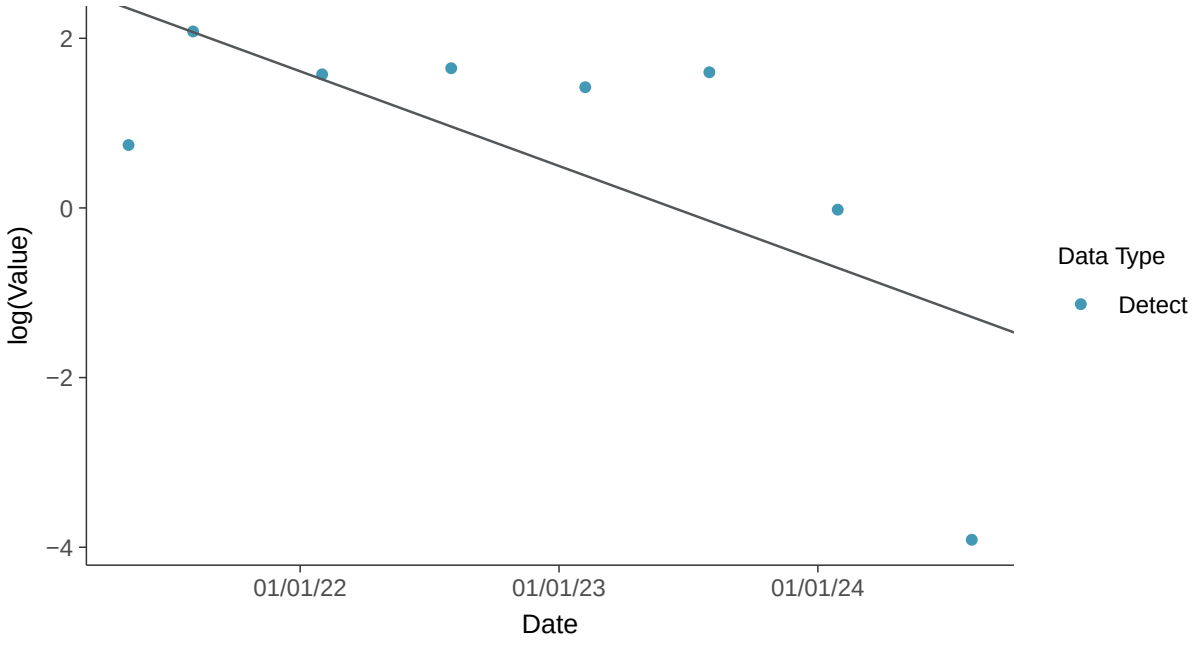
Gamma Q-Q plot

Turbidity, MW-3 (NTU)



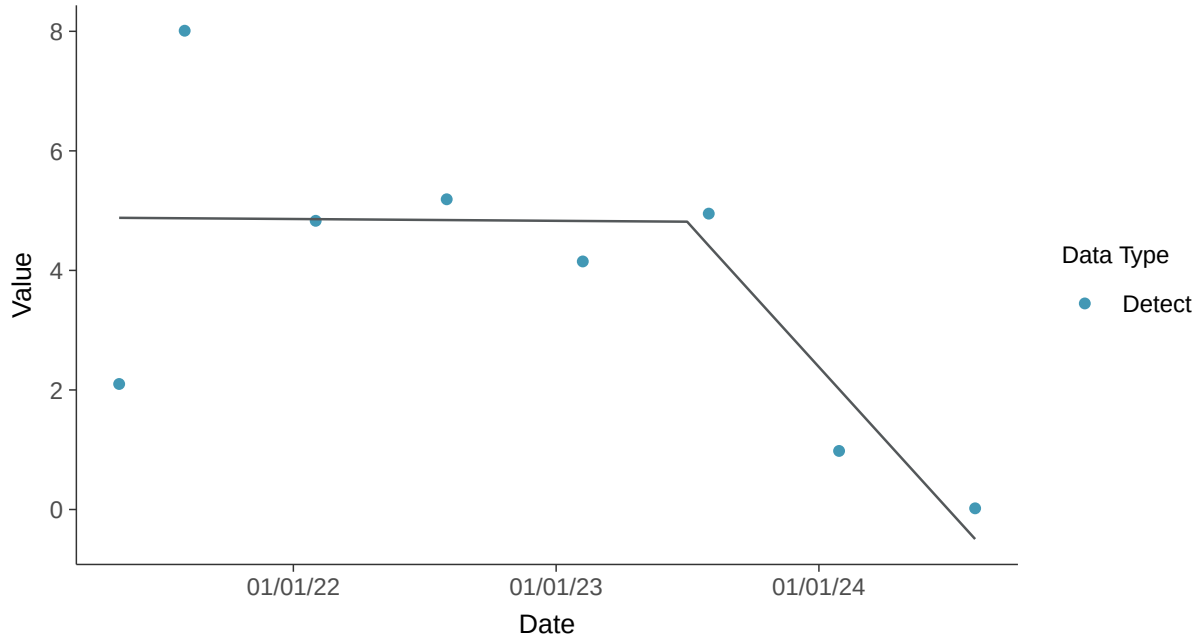
Trend Regression: Lognormal MLE

Turbidity, MW-3 (NTU)



Trend Regression: Piecewise Linear-Linear

Turbidity, MW-3 (NTU)

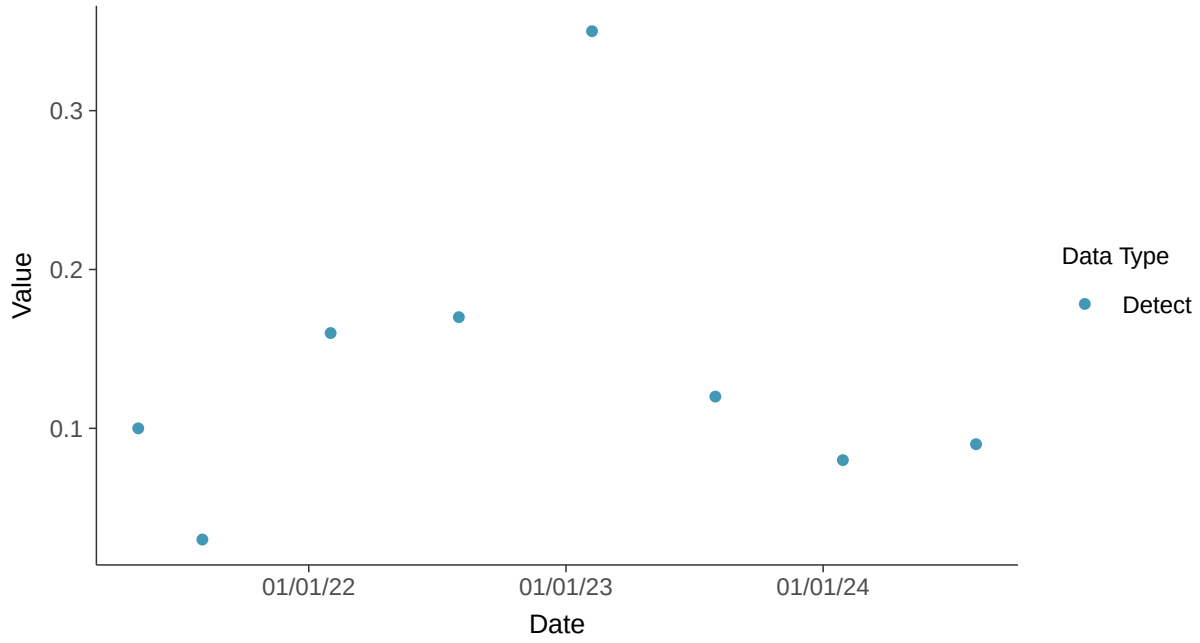


Field Parameters: Dissolved Oxygen, MW-3

ID: 03_3_27

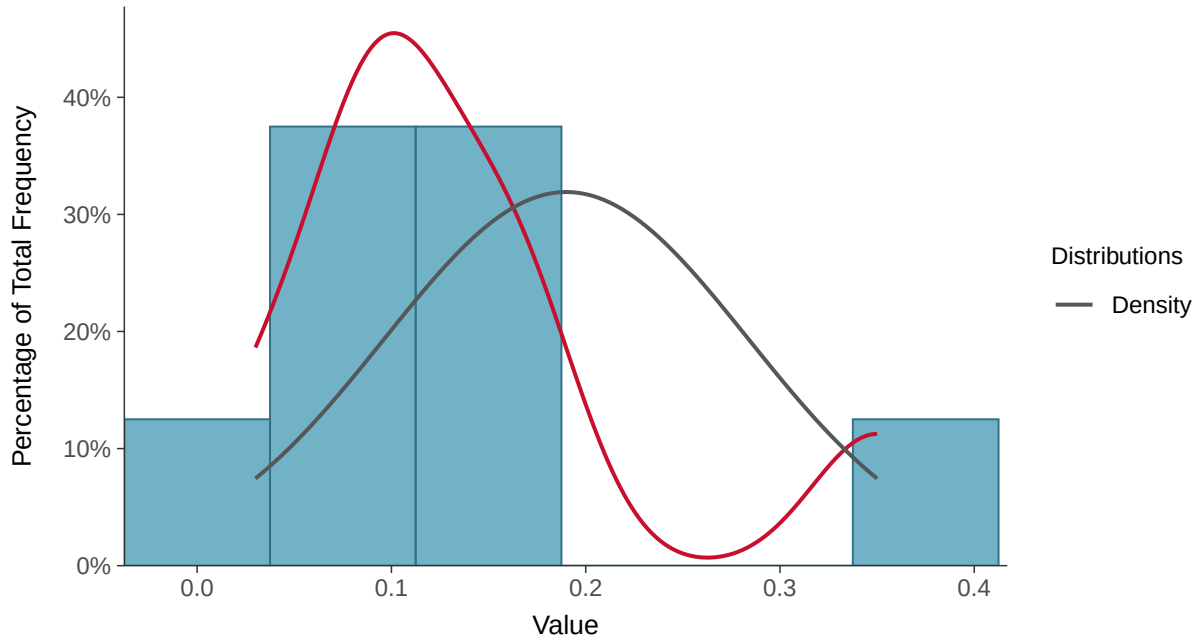
Scatter Plot

Dissolved Oxygen, MW-3 (mg/L)



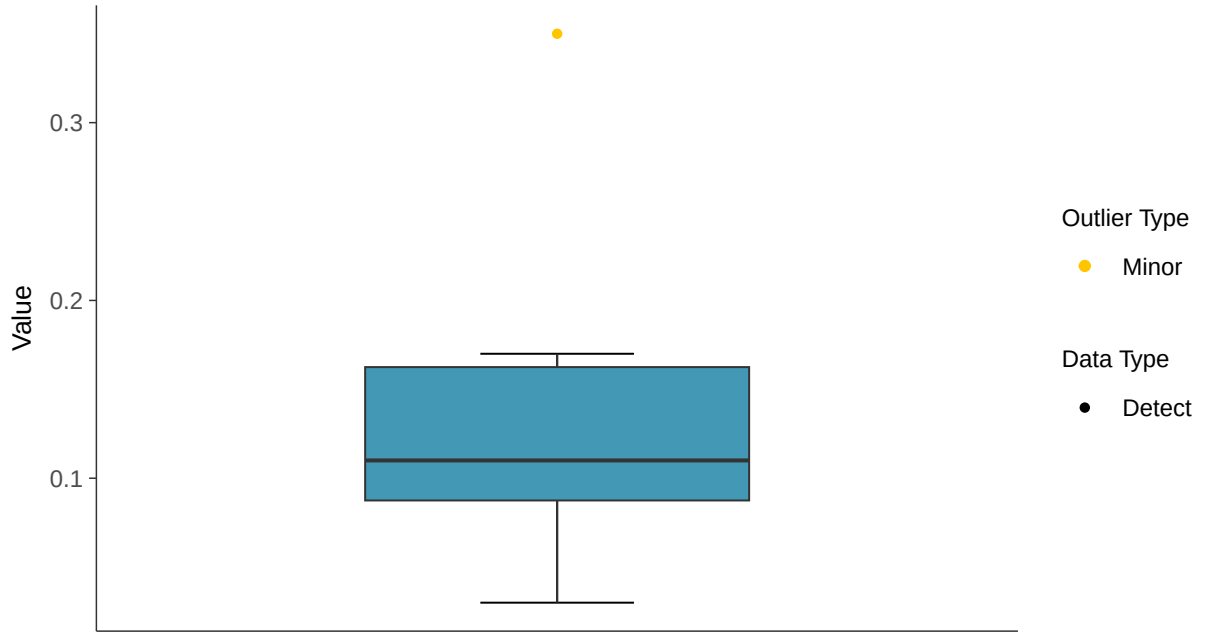
Histogram

Dissolved Oxygen, MW-3 (mg/L)



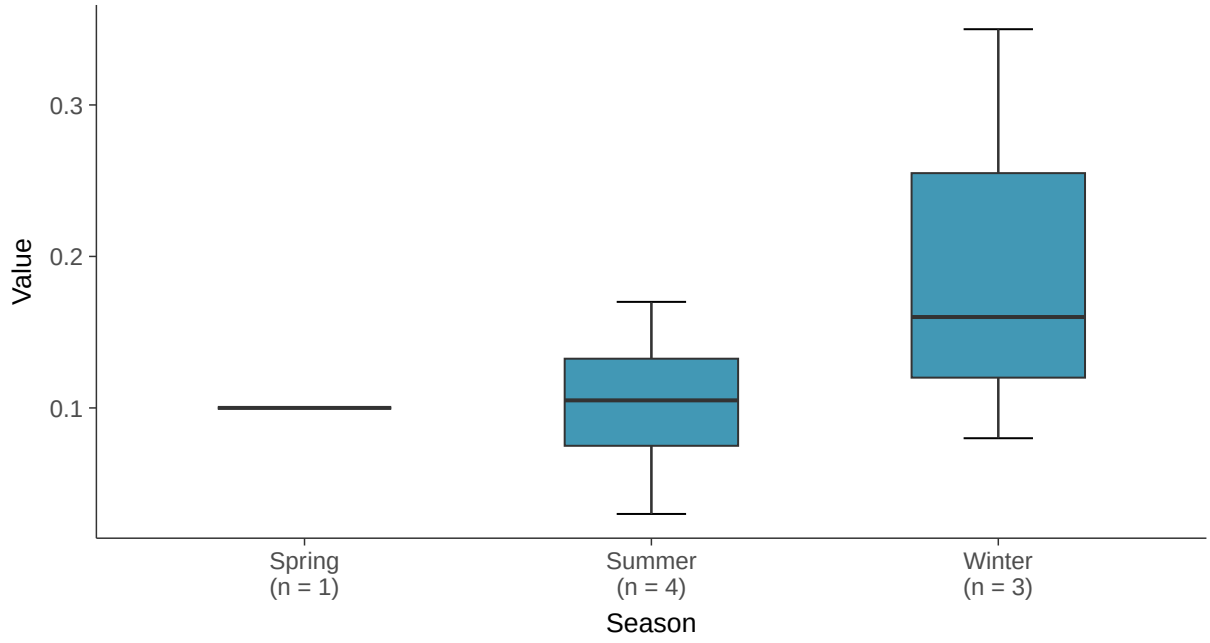
Boxplot

Dissolved Oxygen, MW-3 (mg/L)



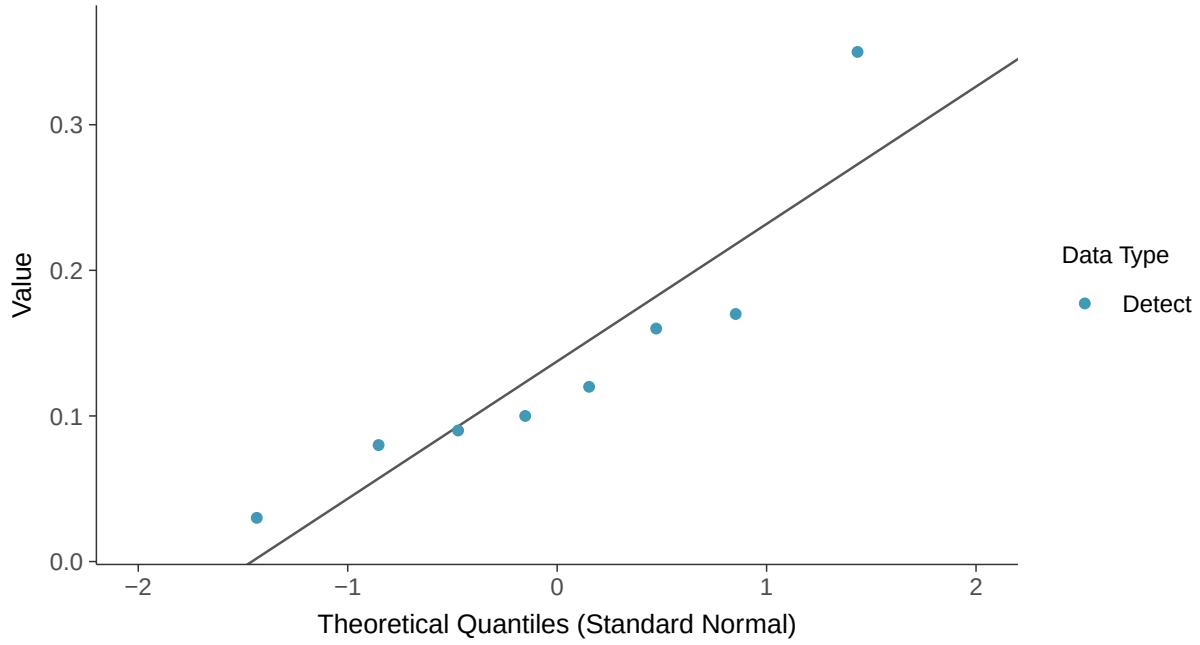
Boxplot by Season

Dissolved Oxygen, MW-3 (mg/L)



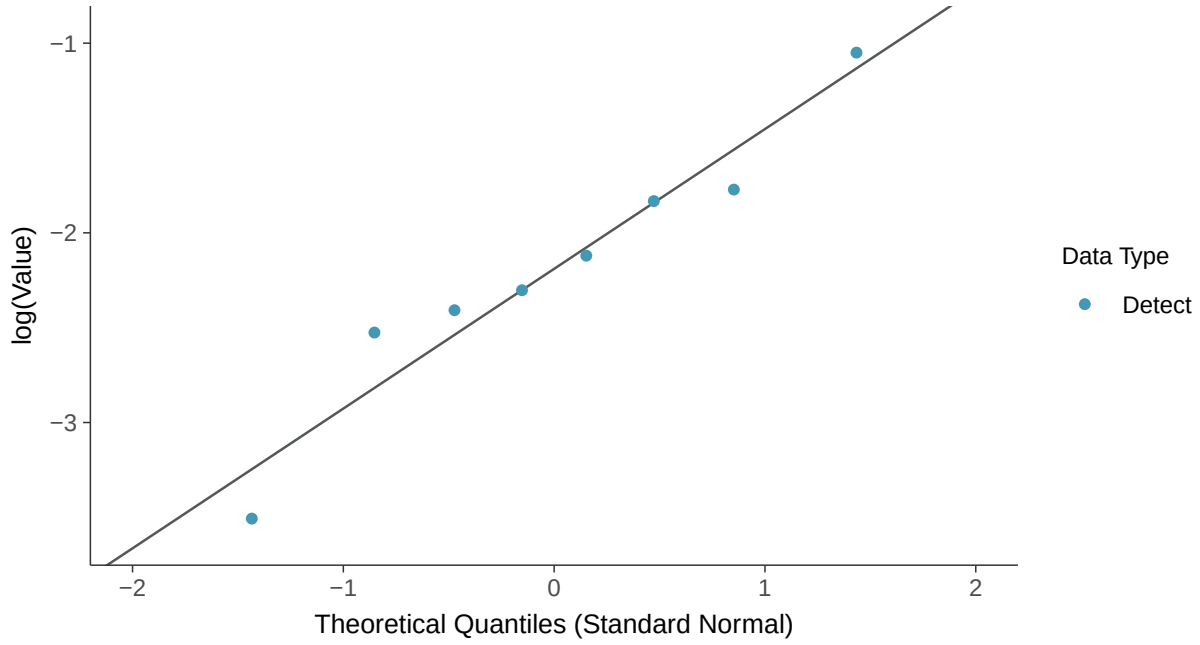
Normal Q-Q plot

Dissolved Oxygen, MW-3 (mg/L)



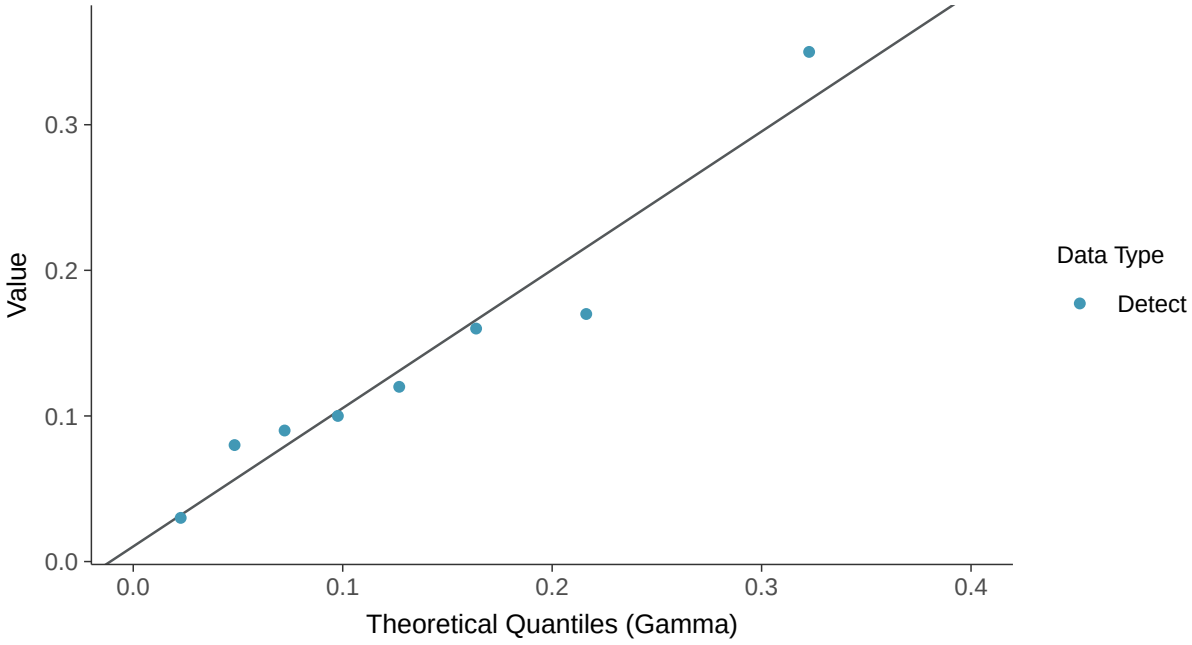
Lognormal Q-Q plot

Dissolved Oxygen, MW-3 (mg/L)



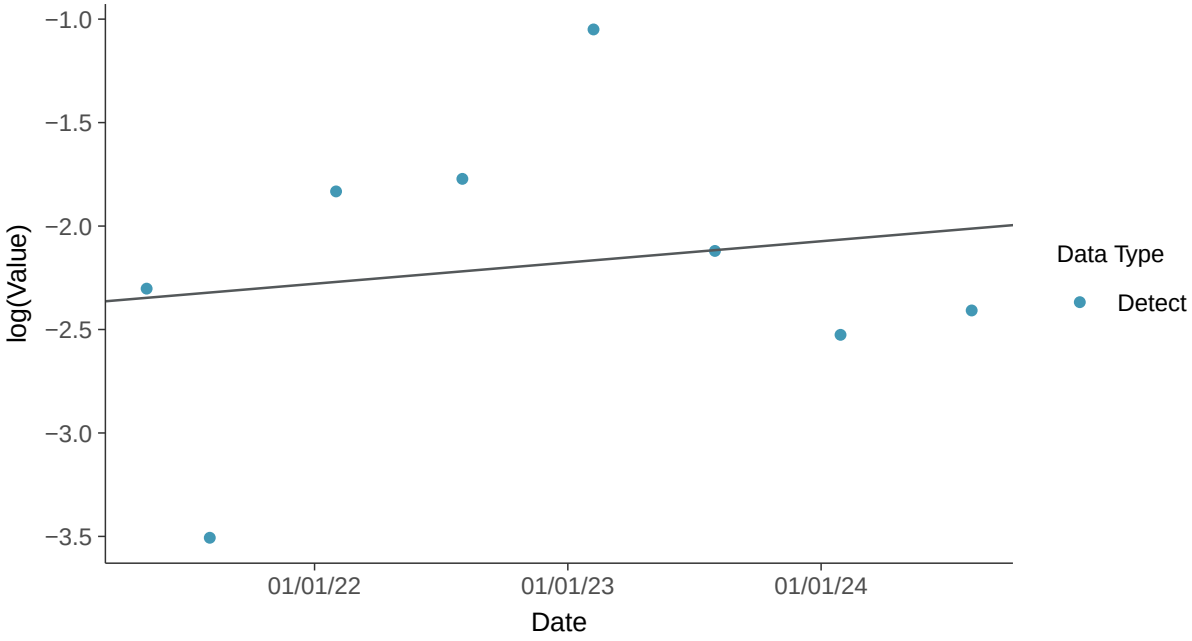
Gamma Q-Q plot

Dissolved Oxygen, MW-3 (mg/L)



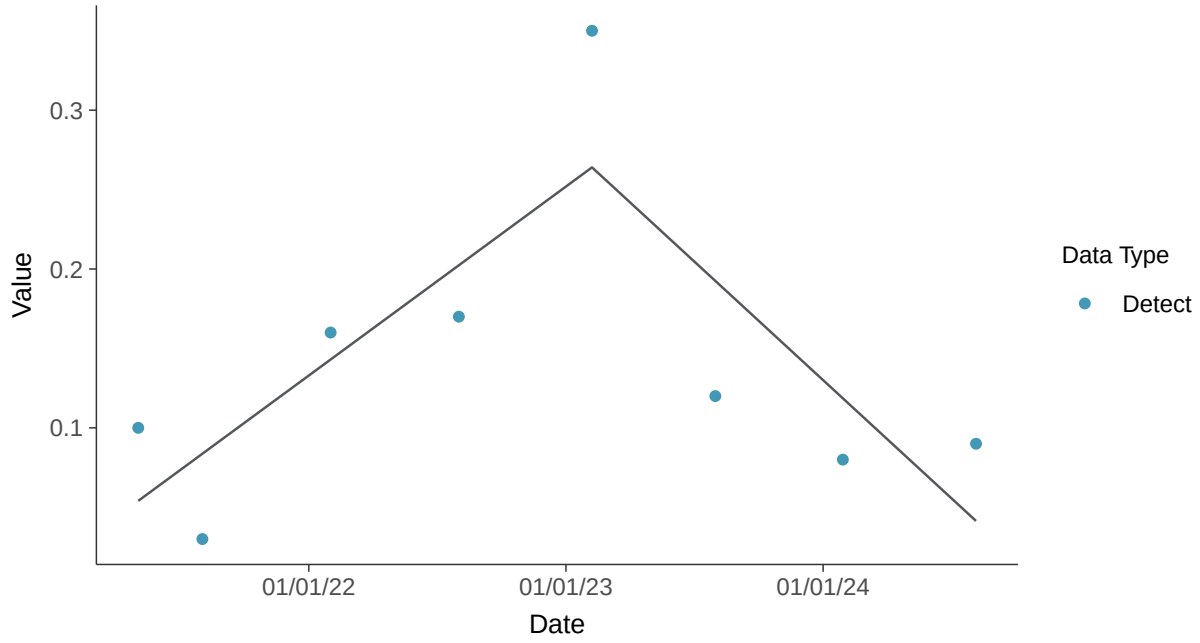
Trend Regression: Lognormal MLE

Dissolved Oxygen, MW-3 (mg/L)



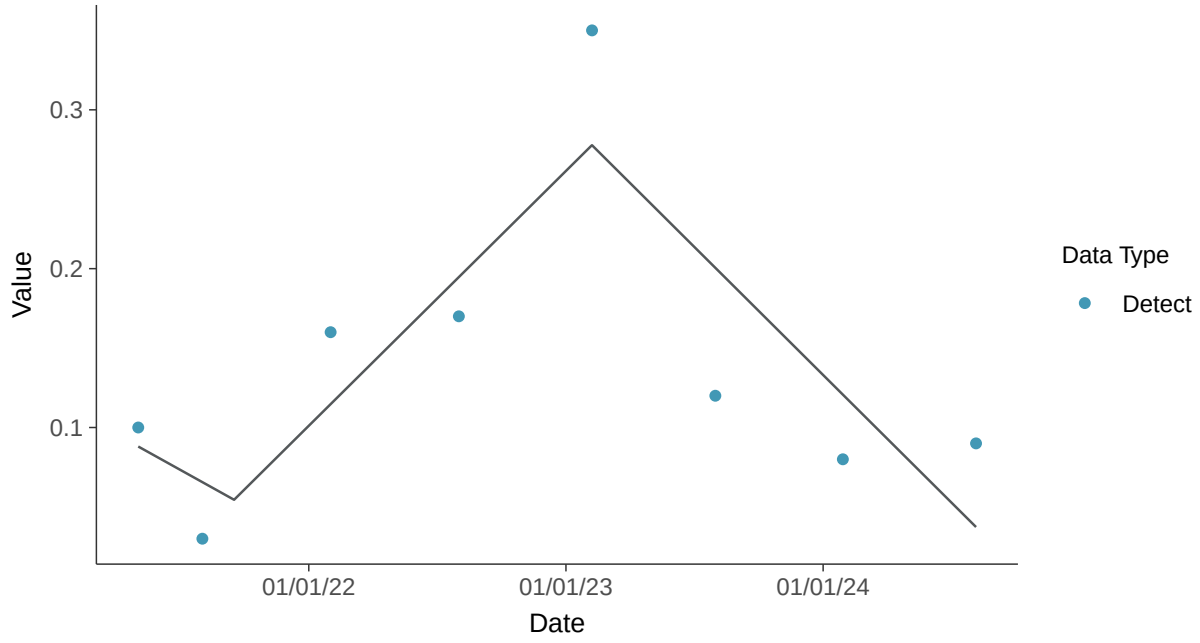
Trend Regression: Piecewise Linear-Linear

Dissolved Oxygen, MW-3 (mg/L)



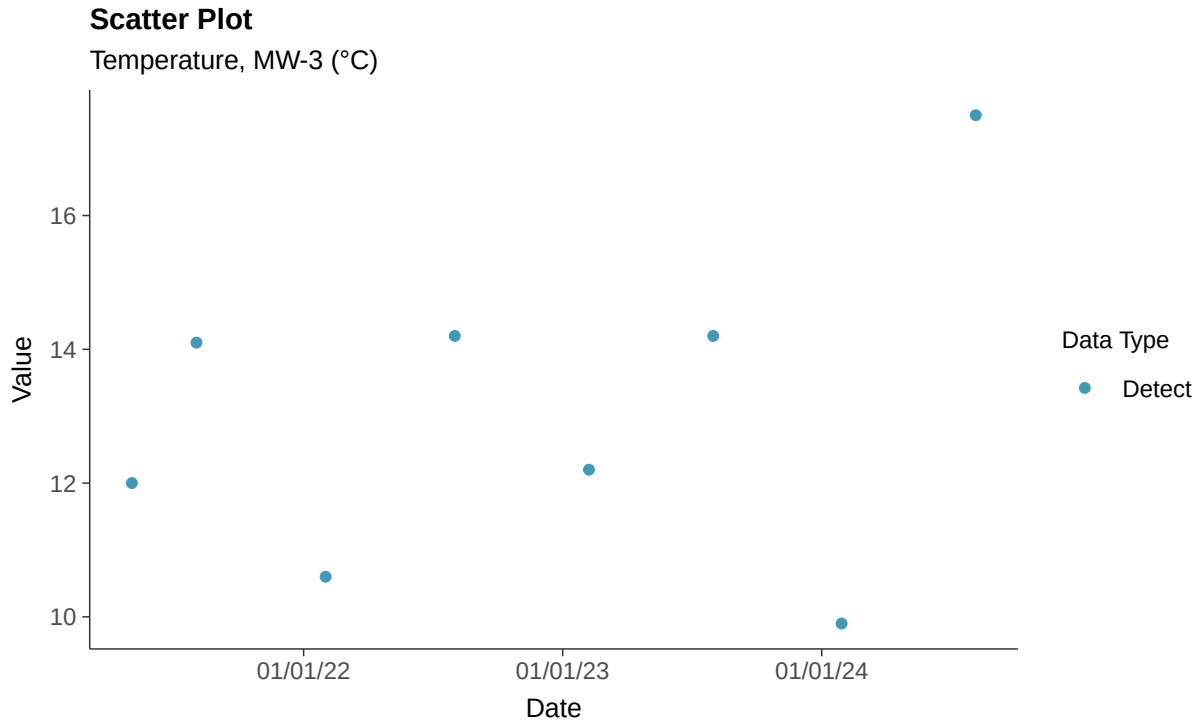
Trend Regression: Piecewise Linear-Linear-Linear

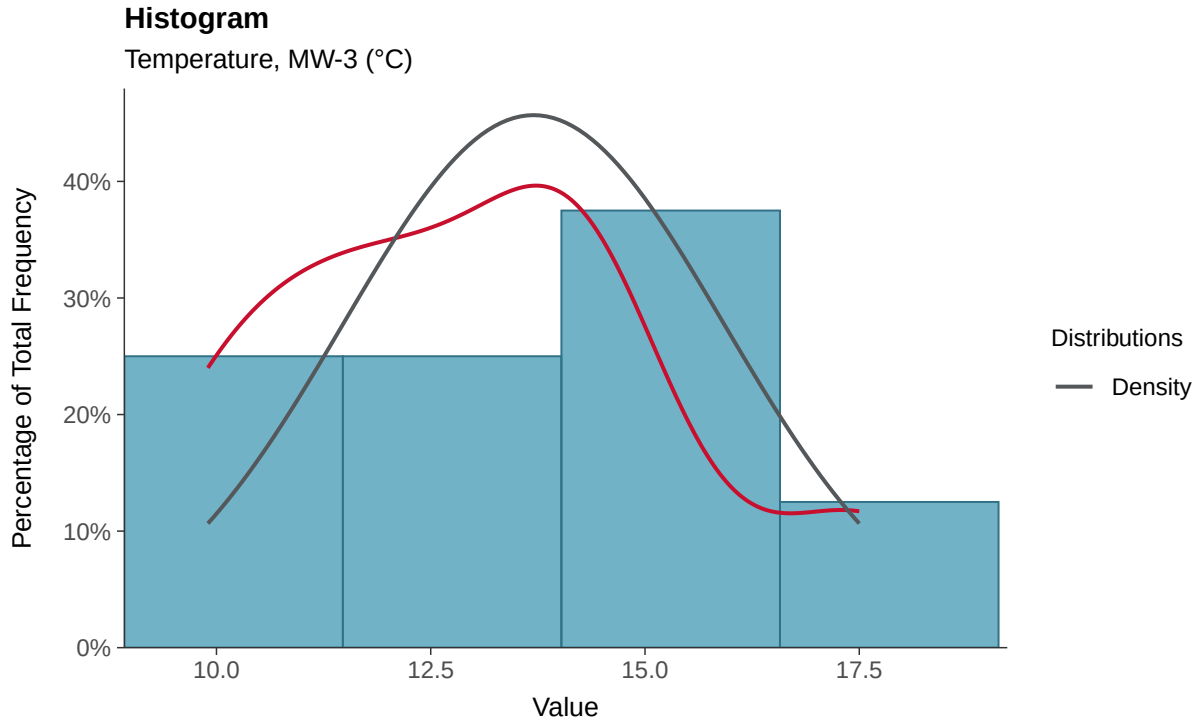
Dissolved Oxygen, MW-3 (mg/L)



Field Parameters: Temperature, MW-3

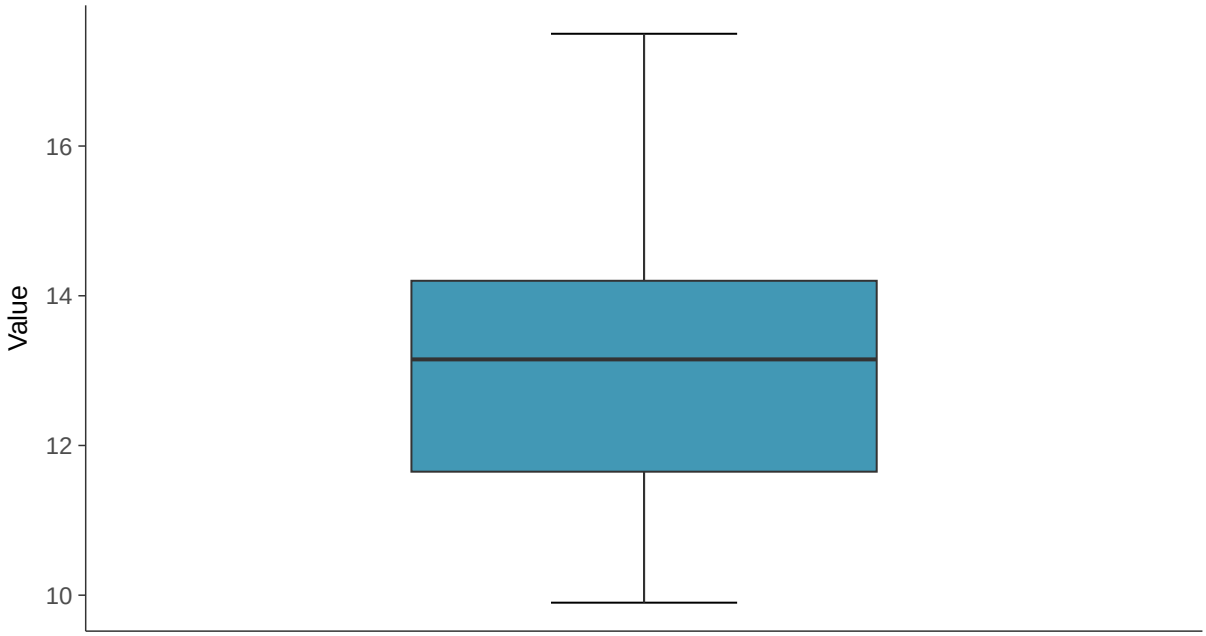
ID: 03_3_28





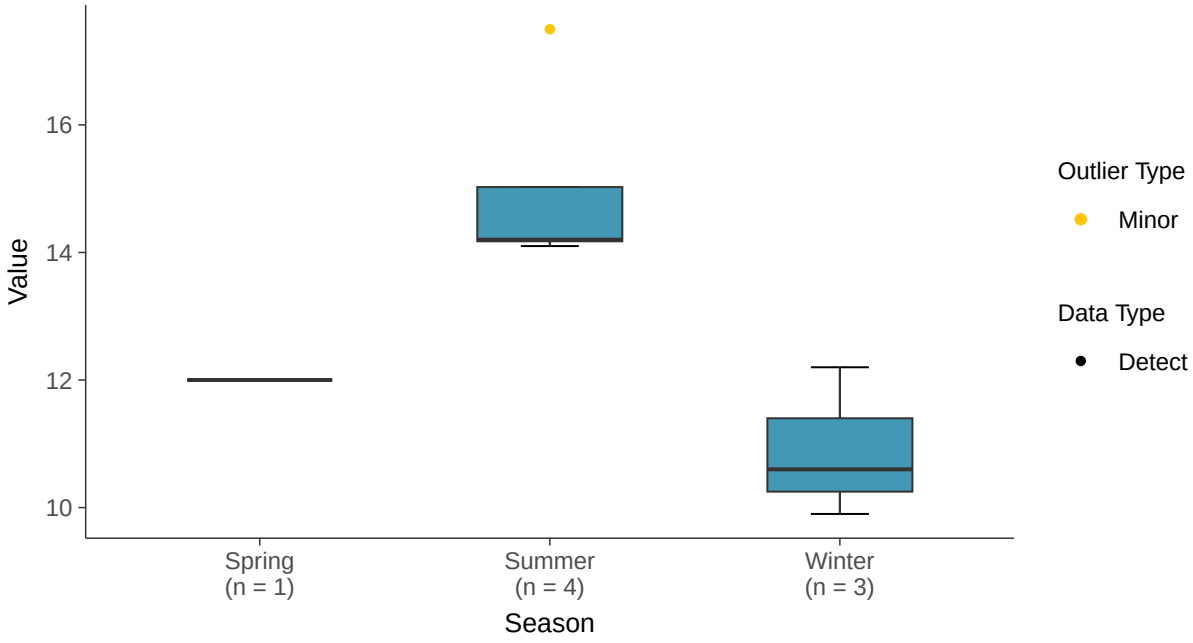
Boxplot

Temperature, MW-3 (°C)



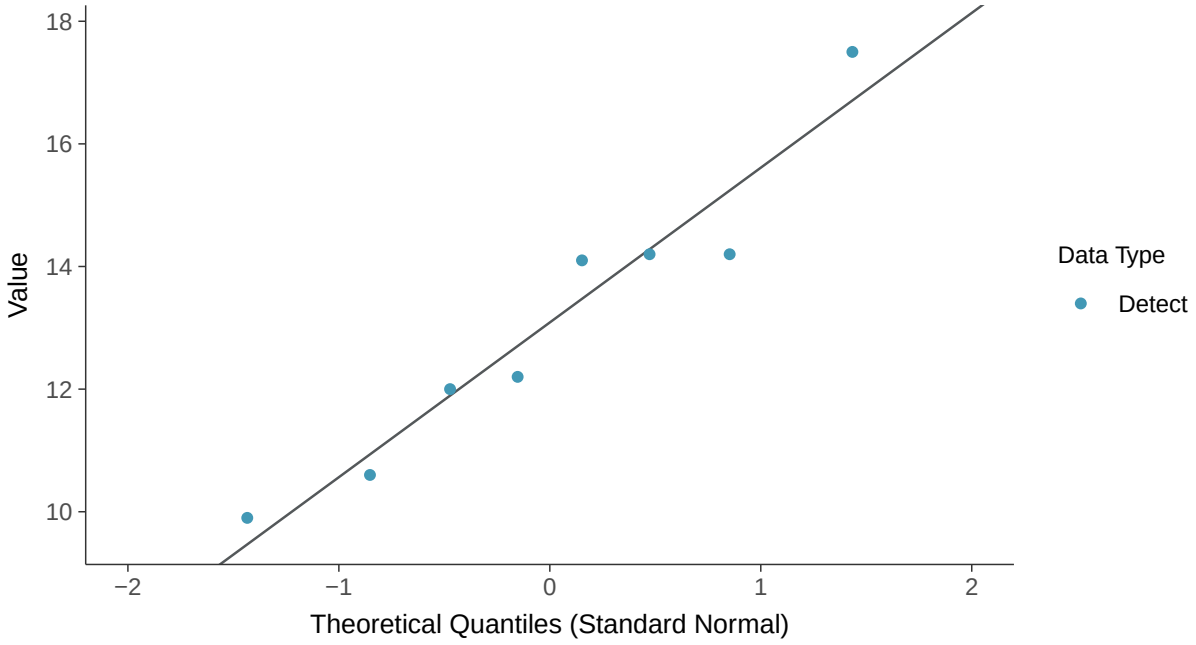
Boxplot by Season

Temperature, MW-3 (°C)



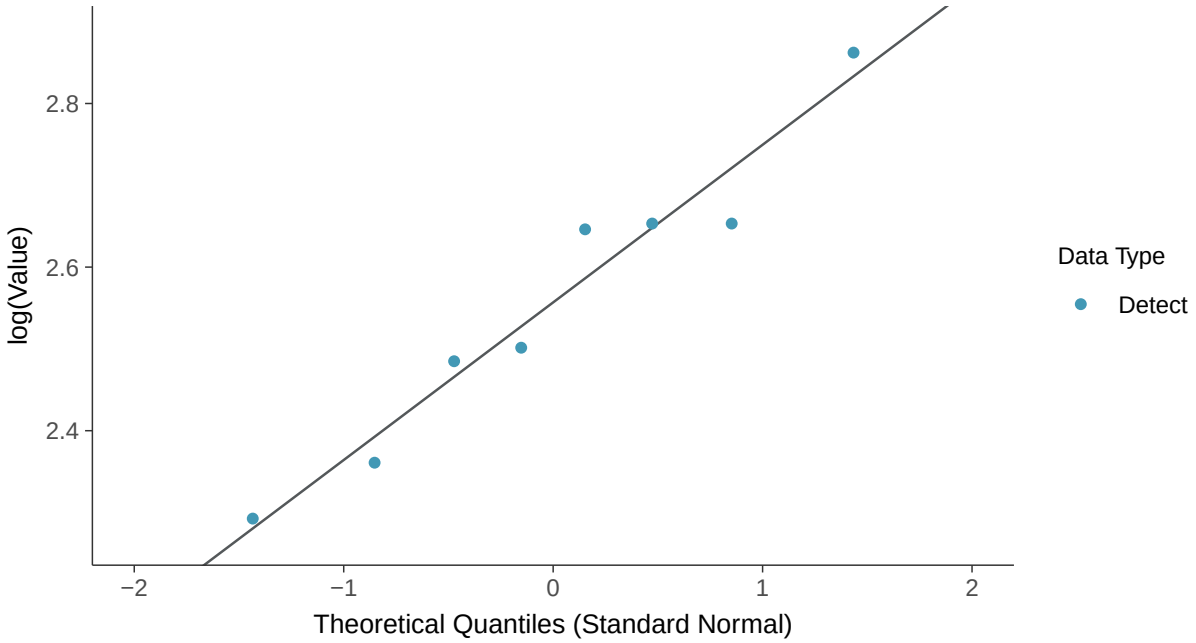
Normal Q-Q plot

Temperature, MW-3 (°C)



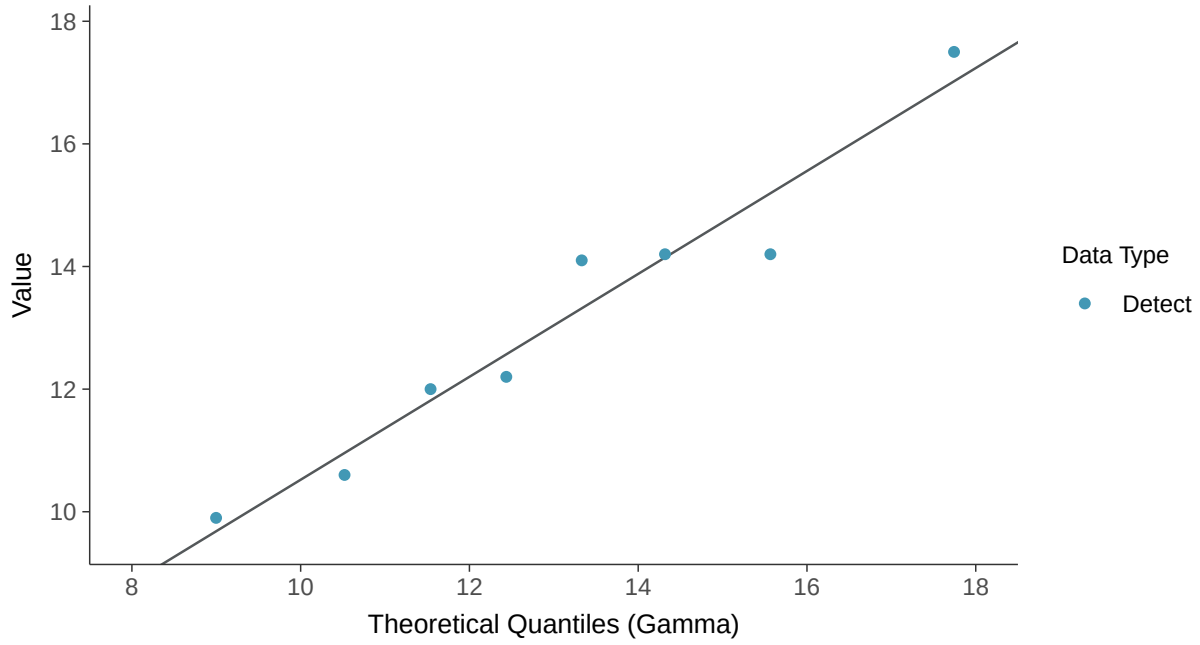
Lognormal Q-Q plot

Temperature, MW-3 (°C)



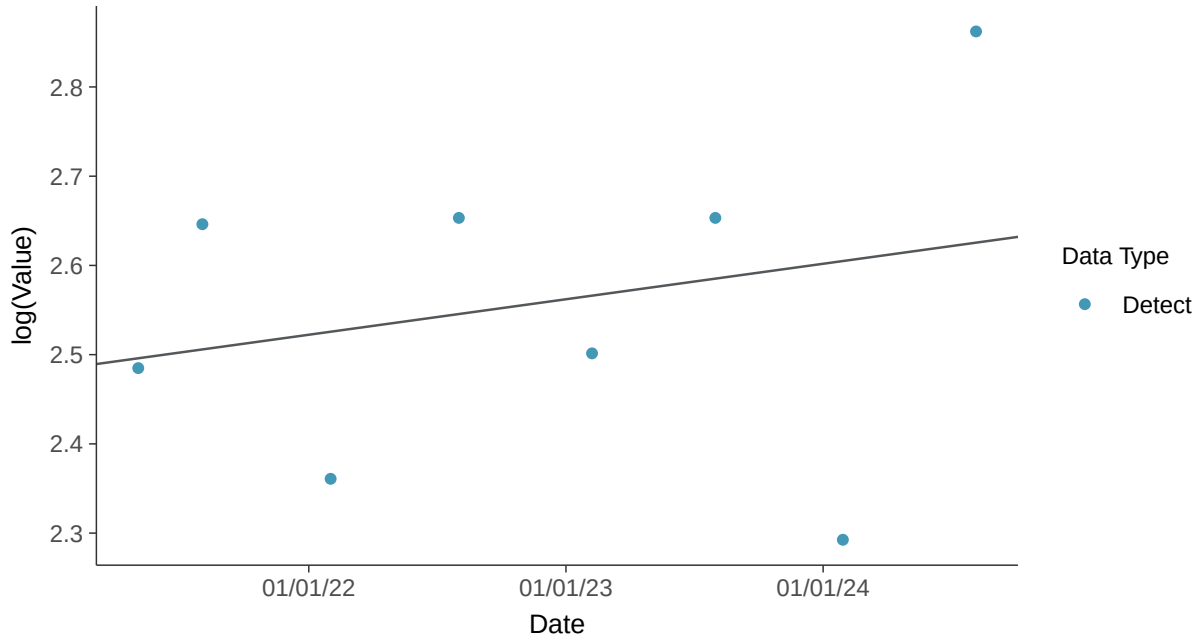
Gamma Q-Q plot

Temperature, MW-3 (°C)



Trend Regression: Lognormal MLE

Temperature, MW-3 (°C)

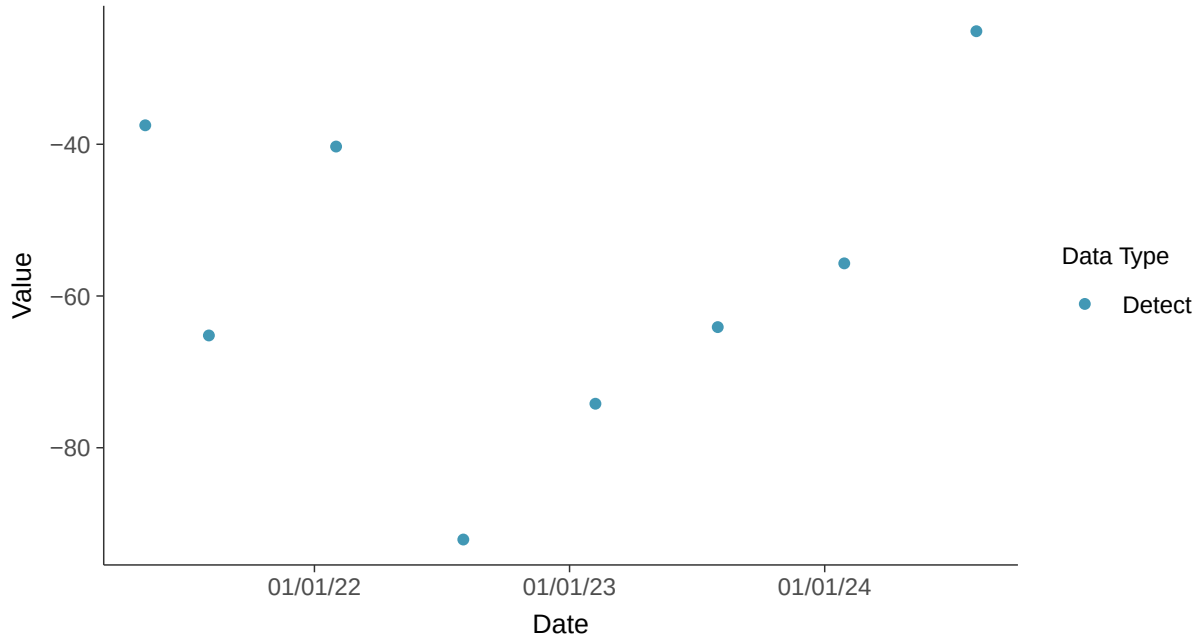


Field Parameters: Oxidation Reduction Potential, MW-3

ID: 03_3_29

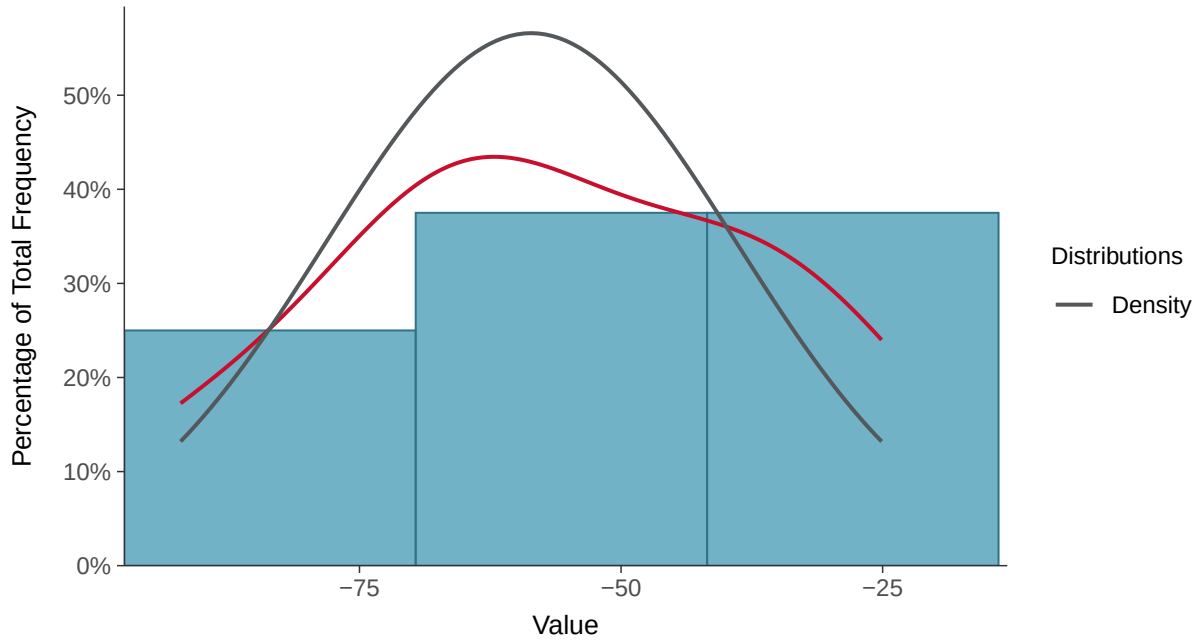
Scatter Plot

Oxidation Reduction Potential, MW-3 (mV)



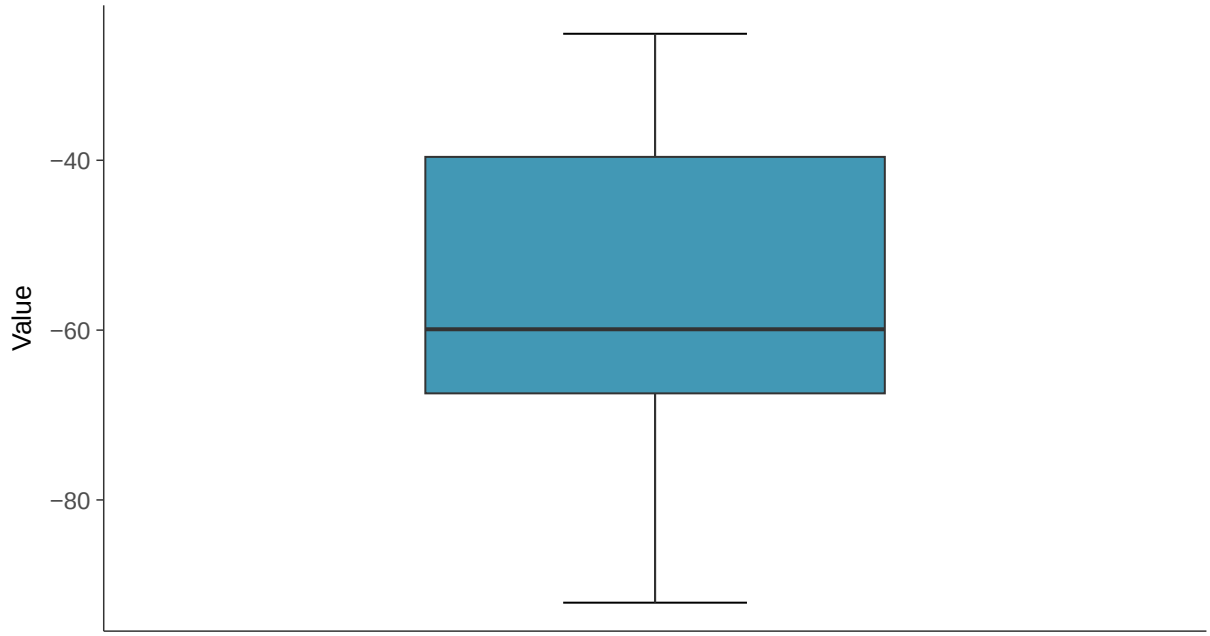
Histogram

Oxidation Reduction Potential, MW-3 (mV)



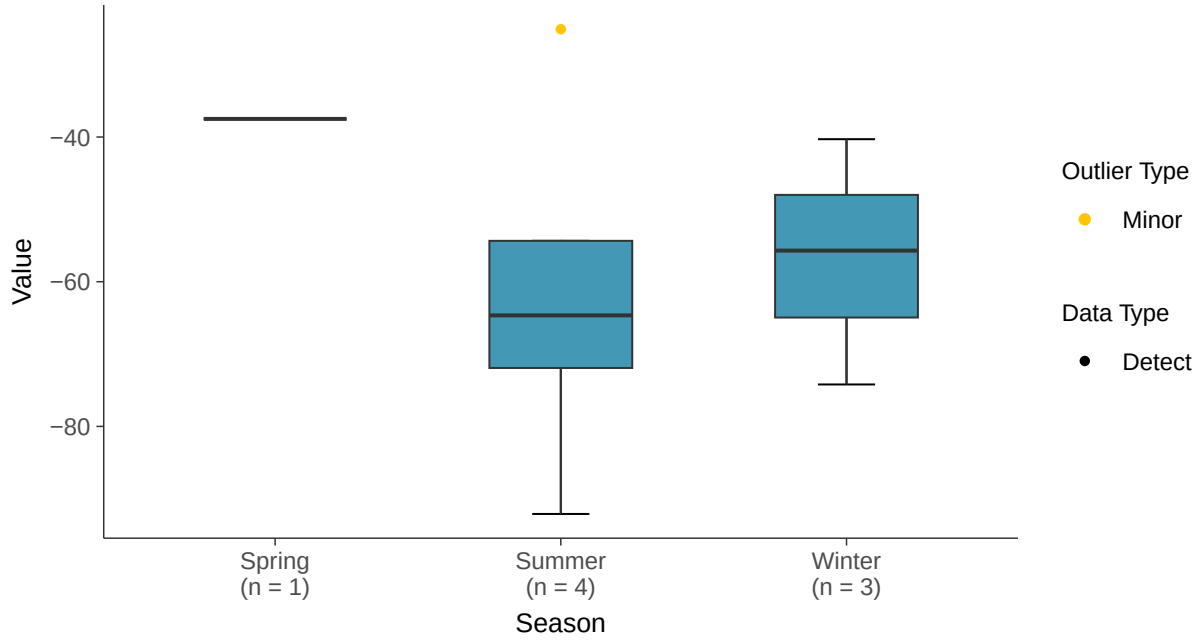
Boxplot

Oxidation Reduction Potential, MW-3 (mV)



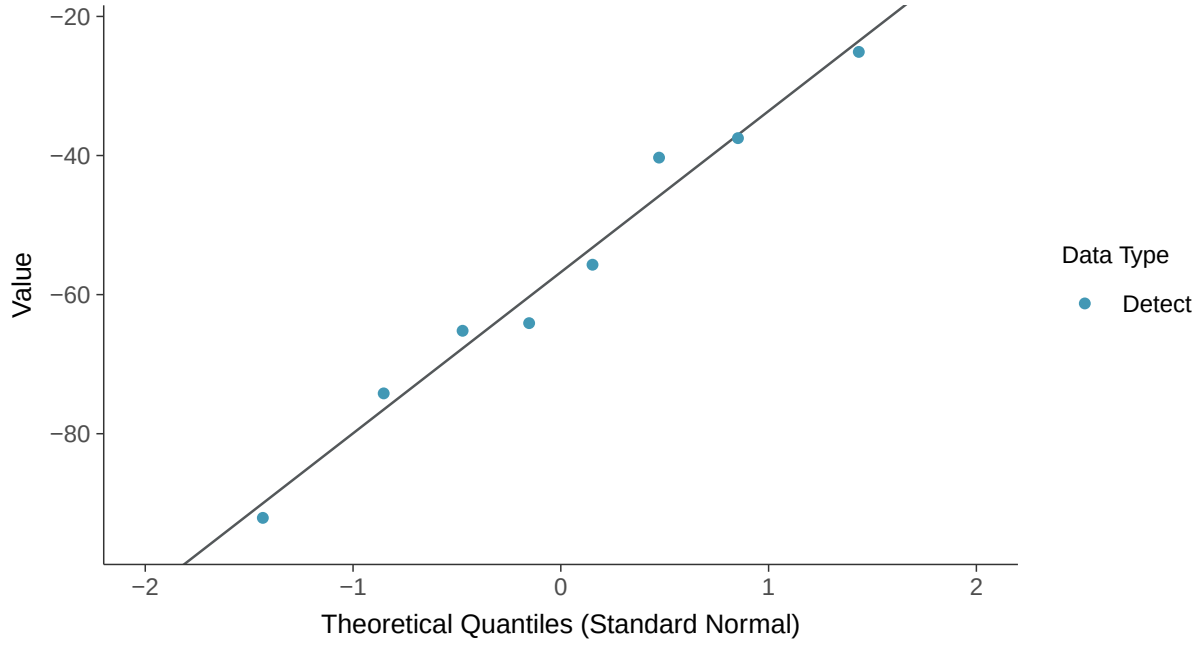
Boxplot by Season

Oxidation Reduction Potential, MW-3 (mV)



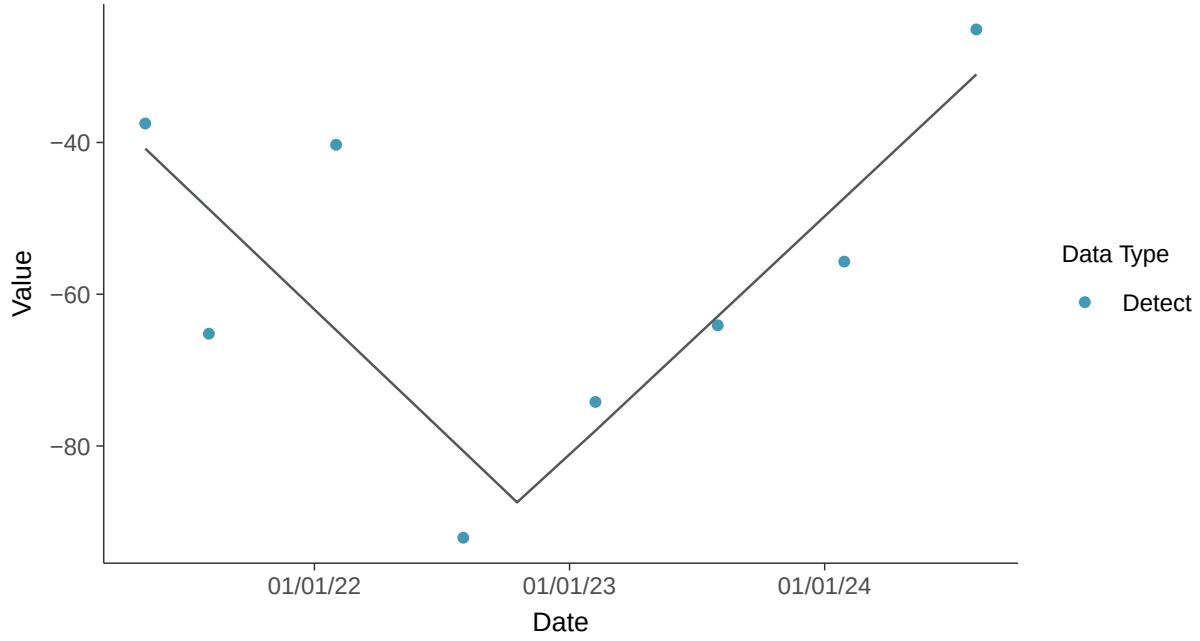
Normal Q-Q plot

Oxidation Reduction Potential, MW-3 (mV)



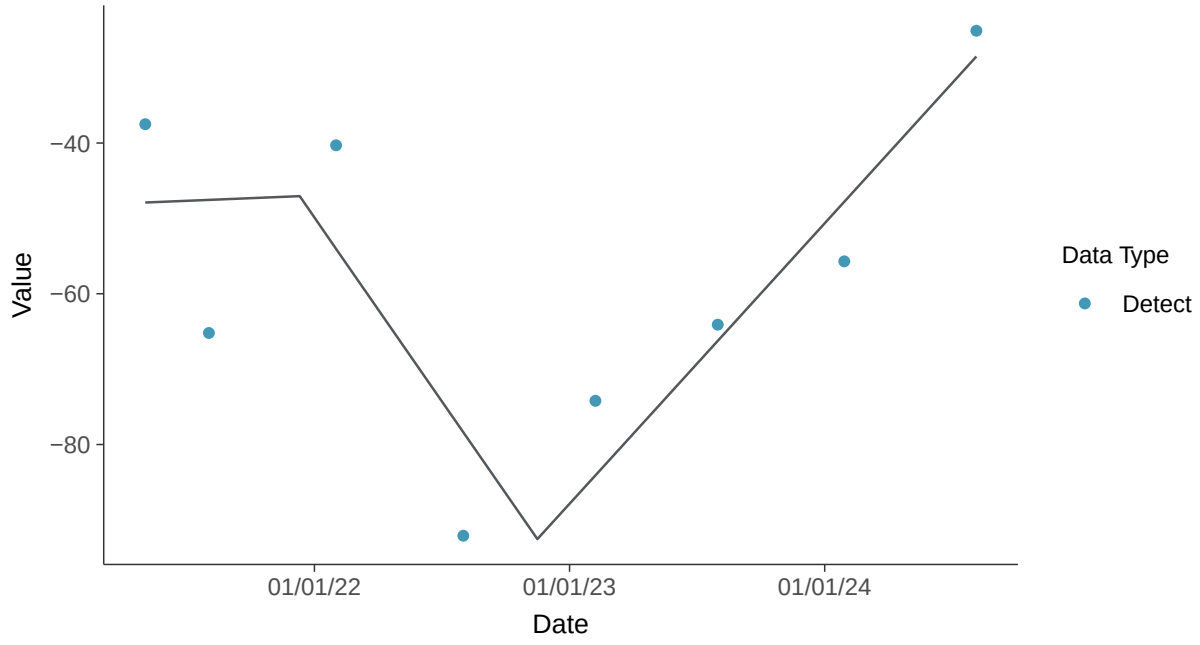
Trend Regression: Piecewise Linear-Linear

Oxidation Reduction Potential, MW-3 (mV)



Trend Regression: Piecewise Linear-Linear-Linear

Oxidation Reduction Potential, MW-3 (mV)

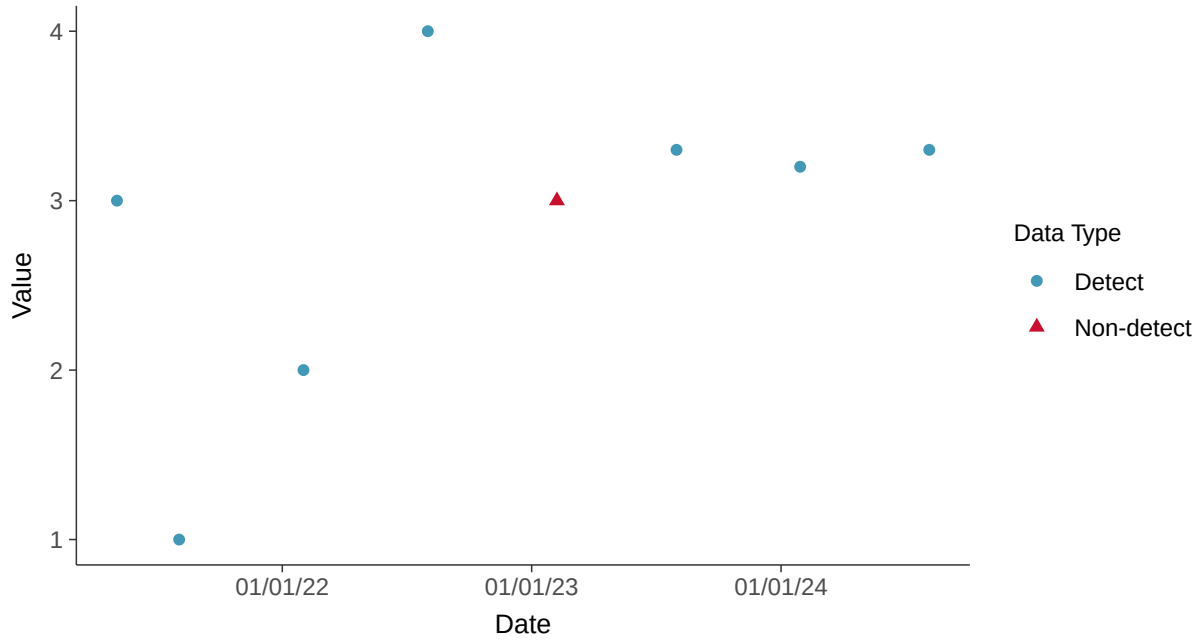


Other: Total Suspended Solids, MW-3

ID: 03_4_30

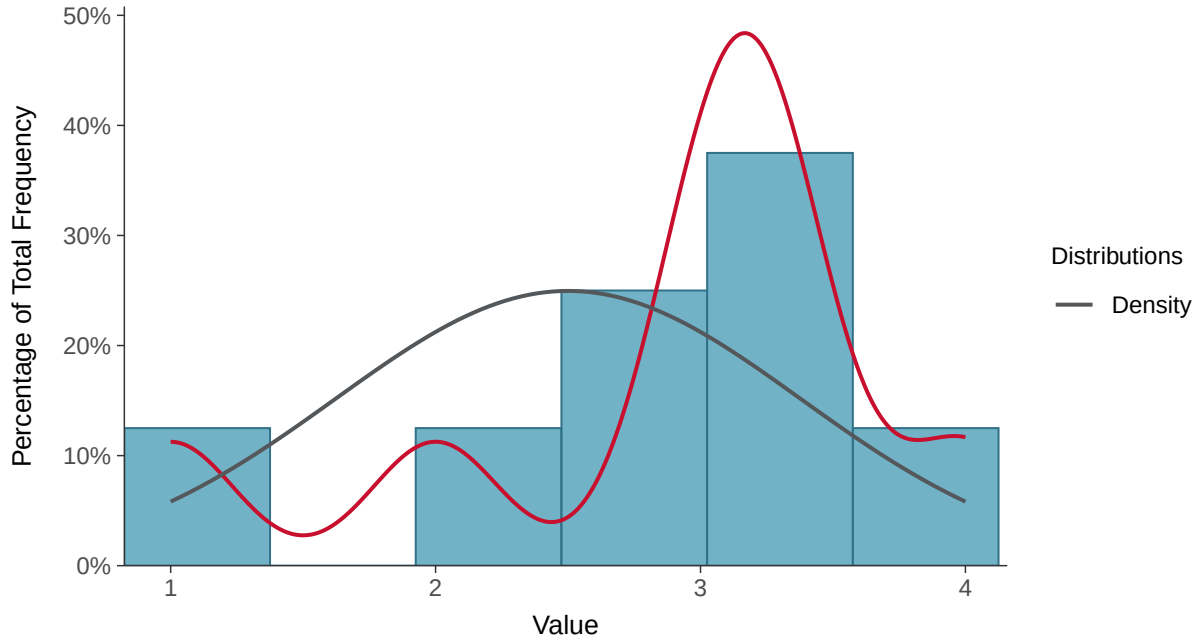
Scatter Plot

Total Suspended Solids, MW-3 (mg/L)



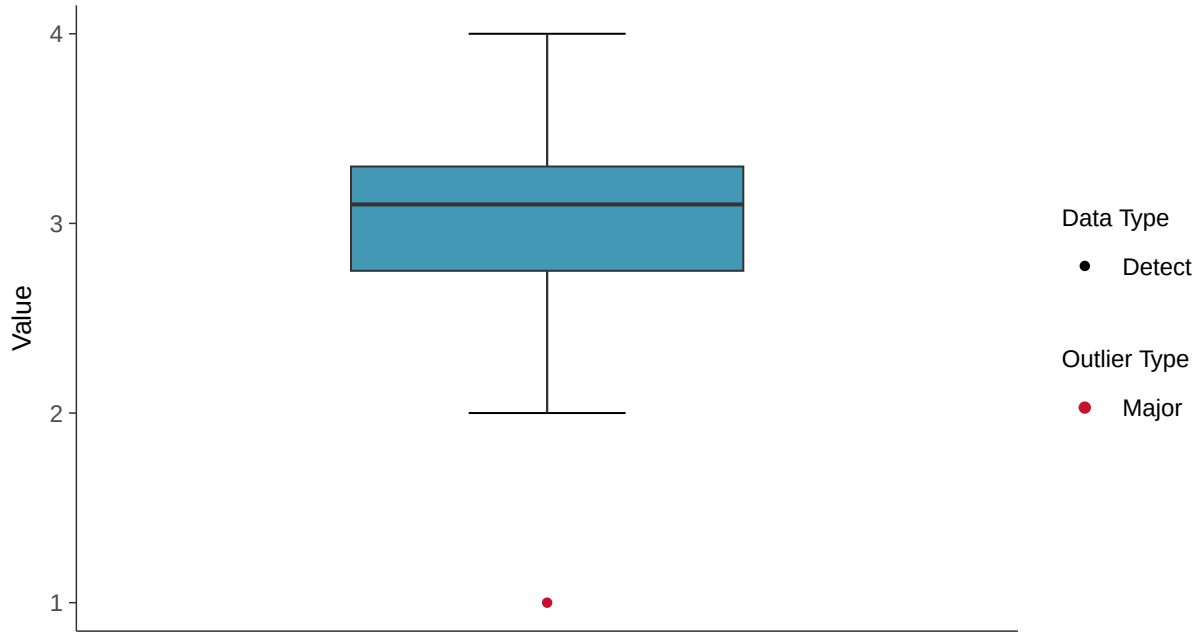
Histogram

Total Suspended Solids, MW-3 (mg/L)



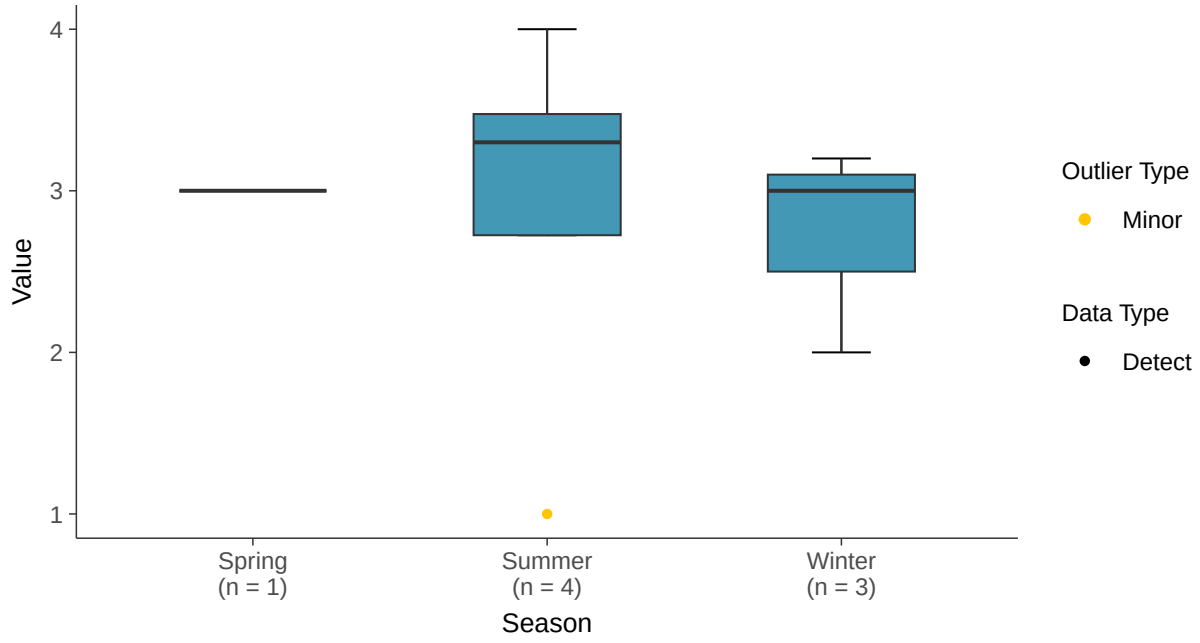
Boxplot

Total Suspended Solids, MW-3 (mg/L)



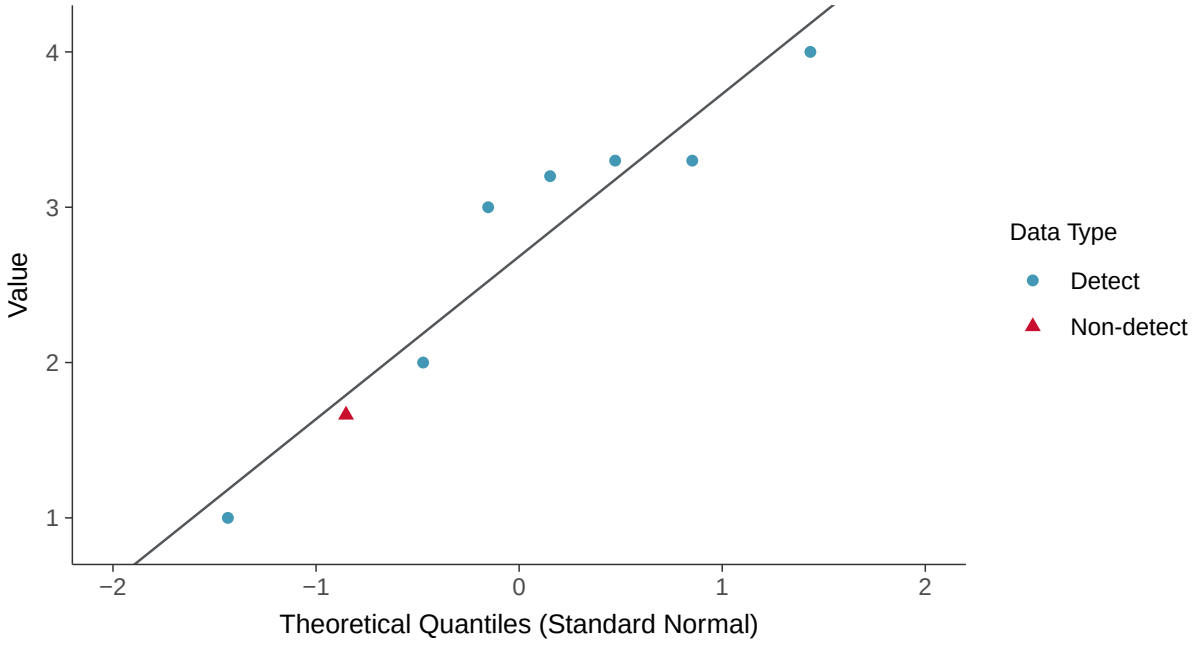
Boxplot by Season

Total Suspended Solids, MW-3 (mg/L)



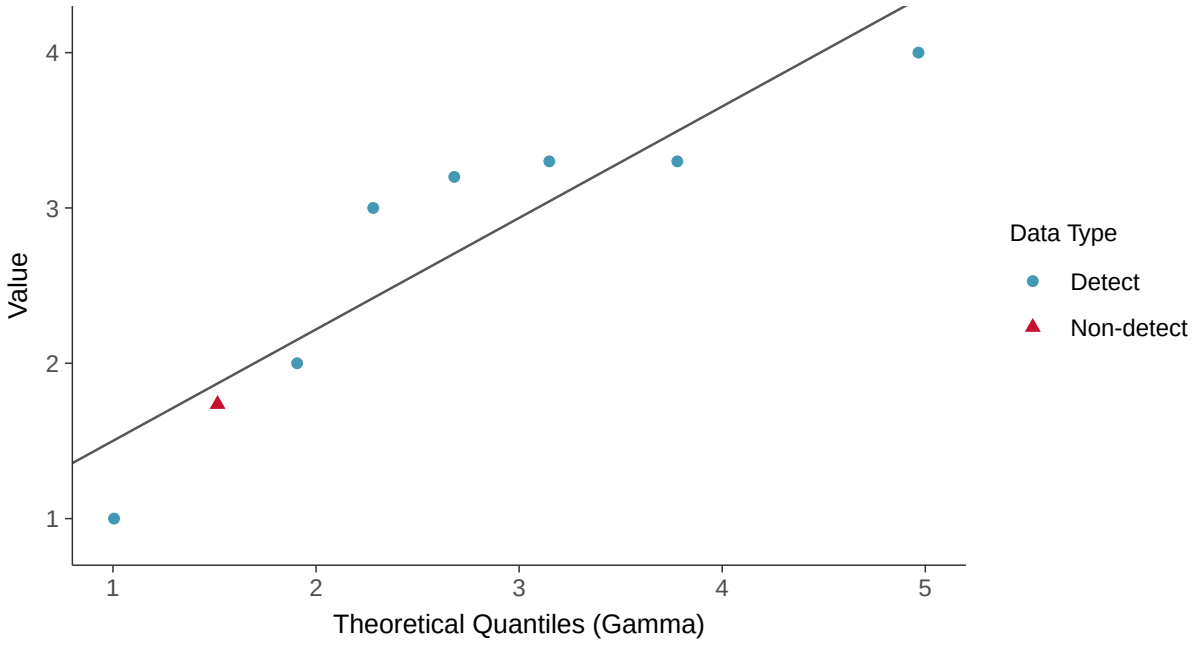
Normal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-3 (mg/L)



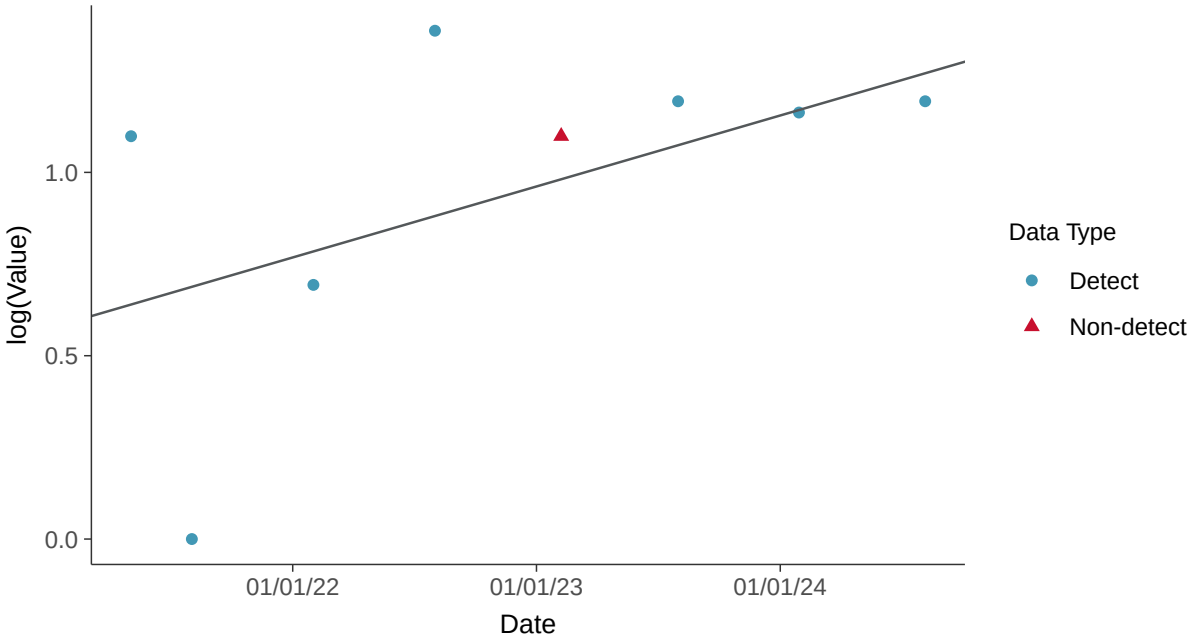
Gamma Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-3 (mg/L)



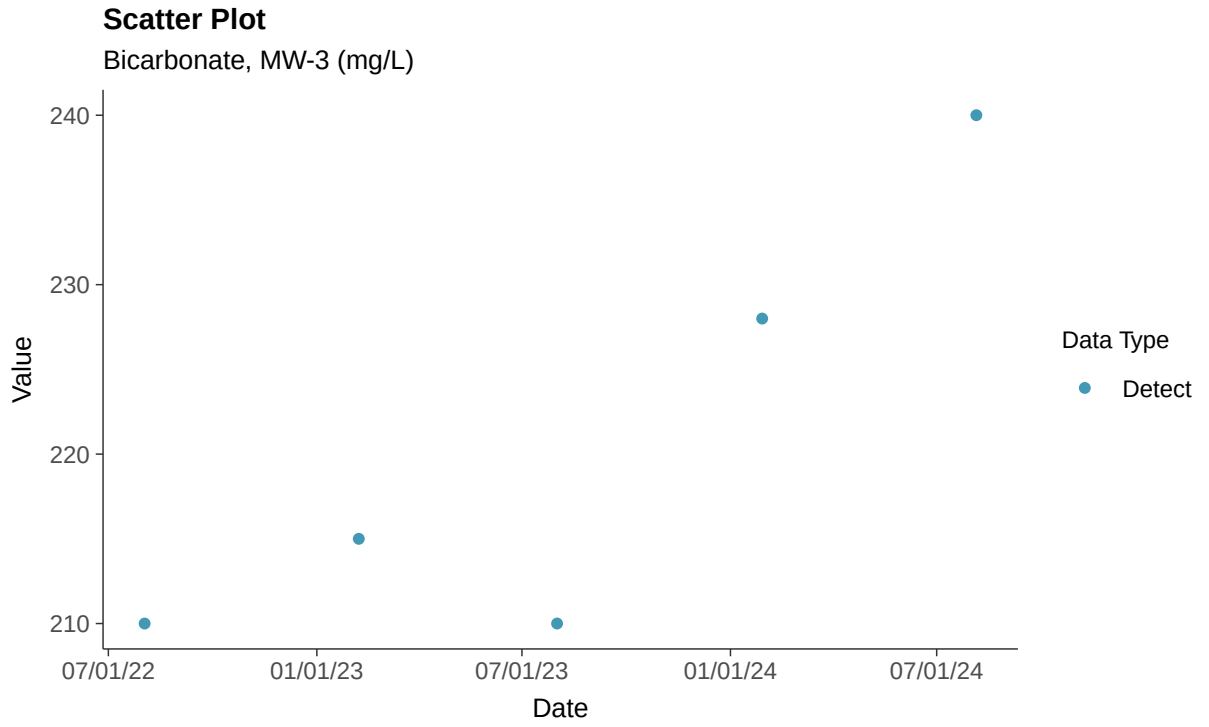
Trend Regression: Lognormal MLE

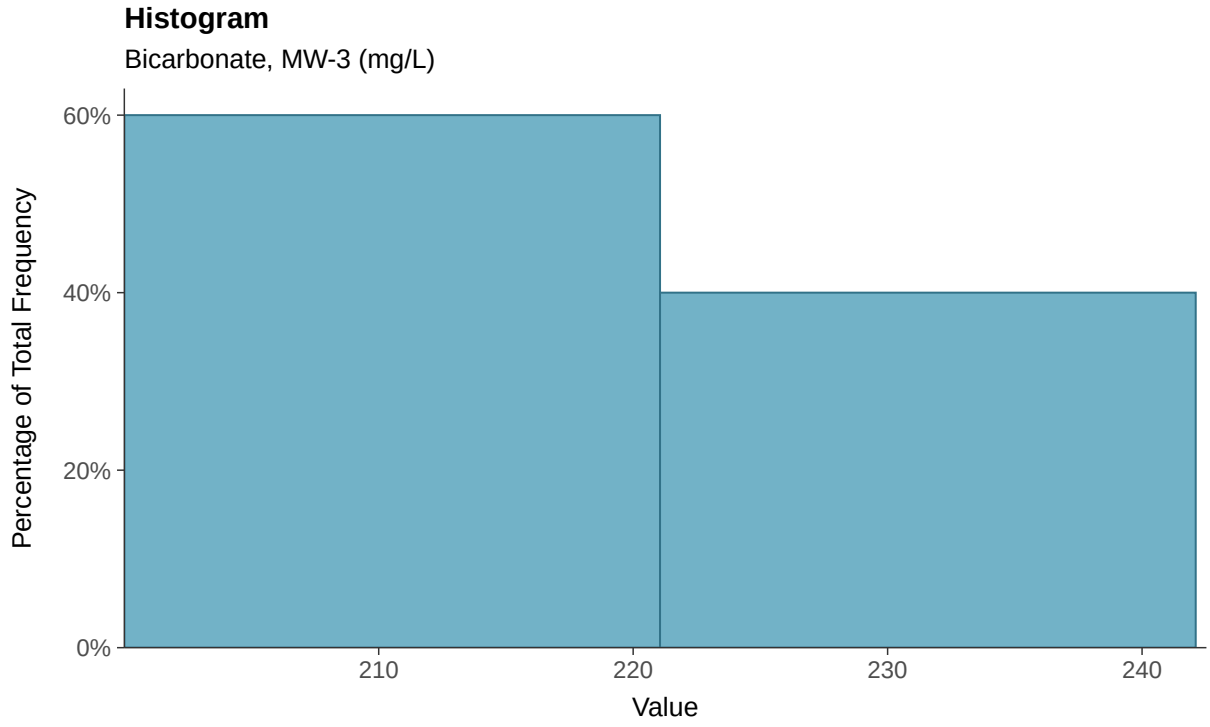
Total Suspended Solids, MW-3 (mg/L)



Other: Bicarbonate, MW-3

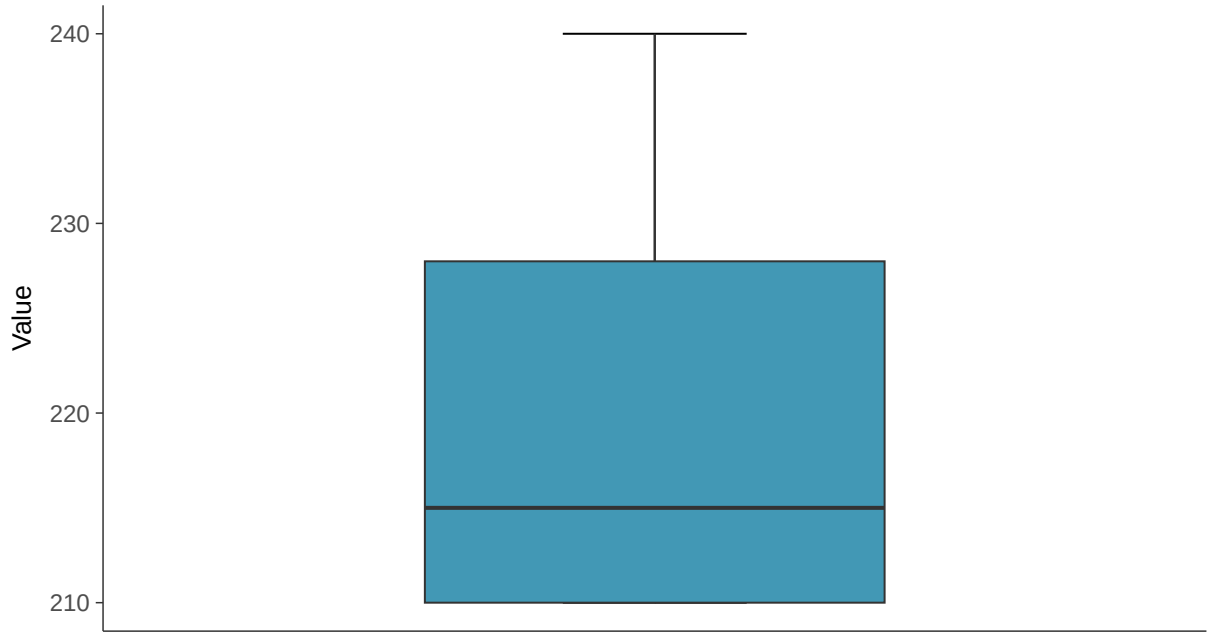
ID: 03_4_31





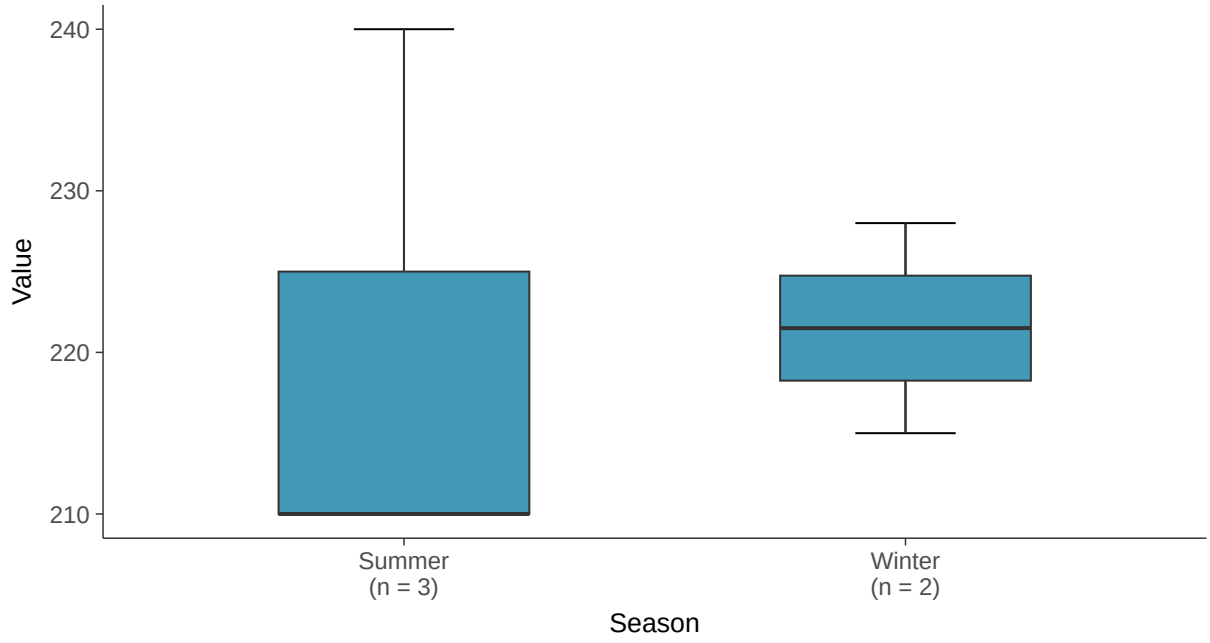
Boxplot

Bicarbonate, MW-3 (mg/L)



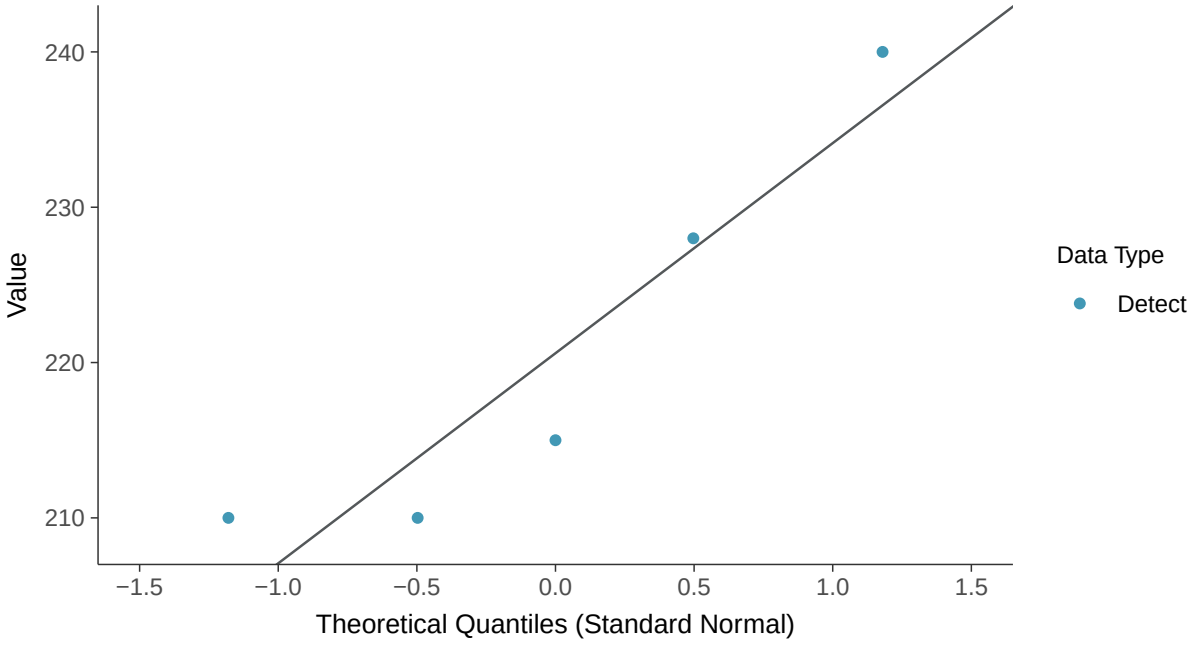
Boxplot by Season

Bicarbonate, MW-3 (mg/L)



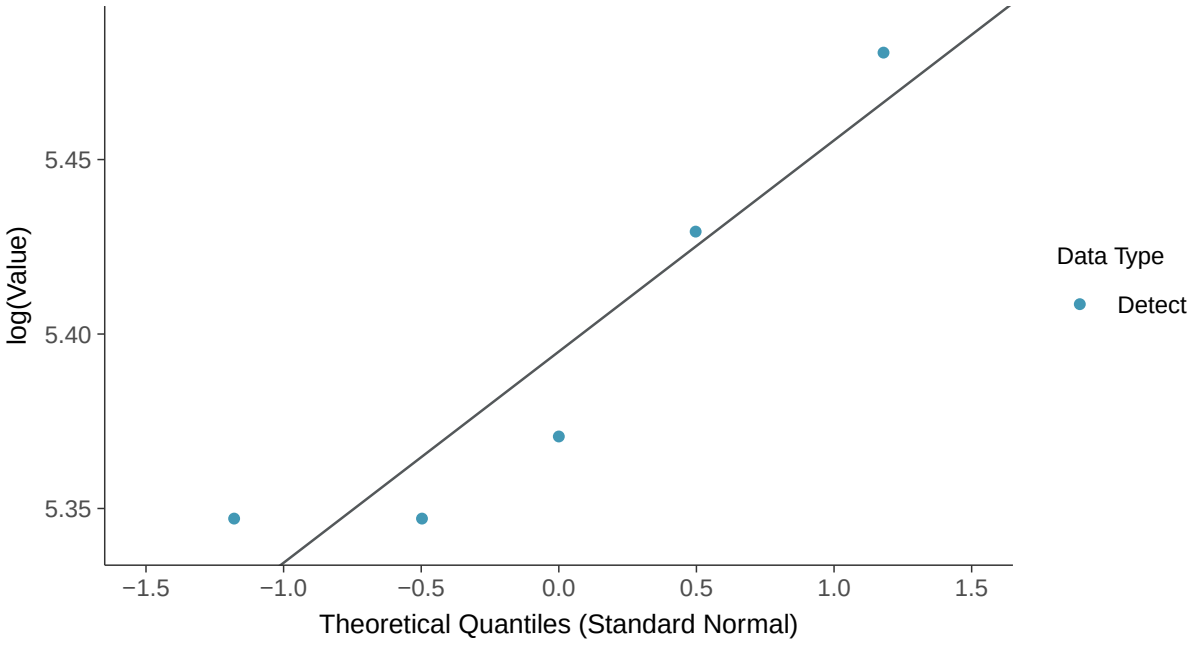
Normal Q-Q plot

Bicarbonate, MW-3 (mg/L)



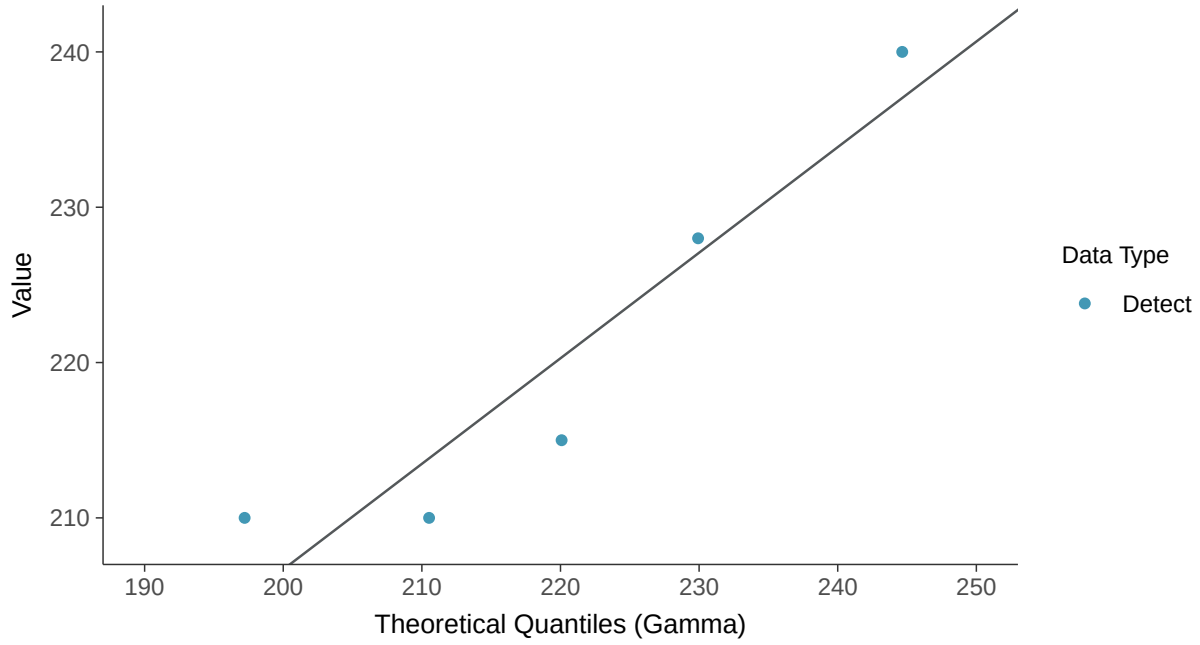
Lognormal Q-Q plot

Bicarbonate, MW-3 (mg/L)



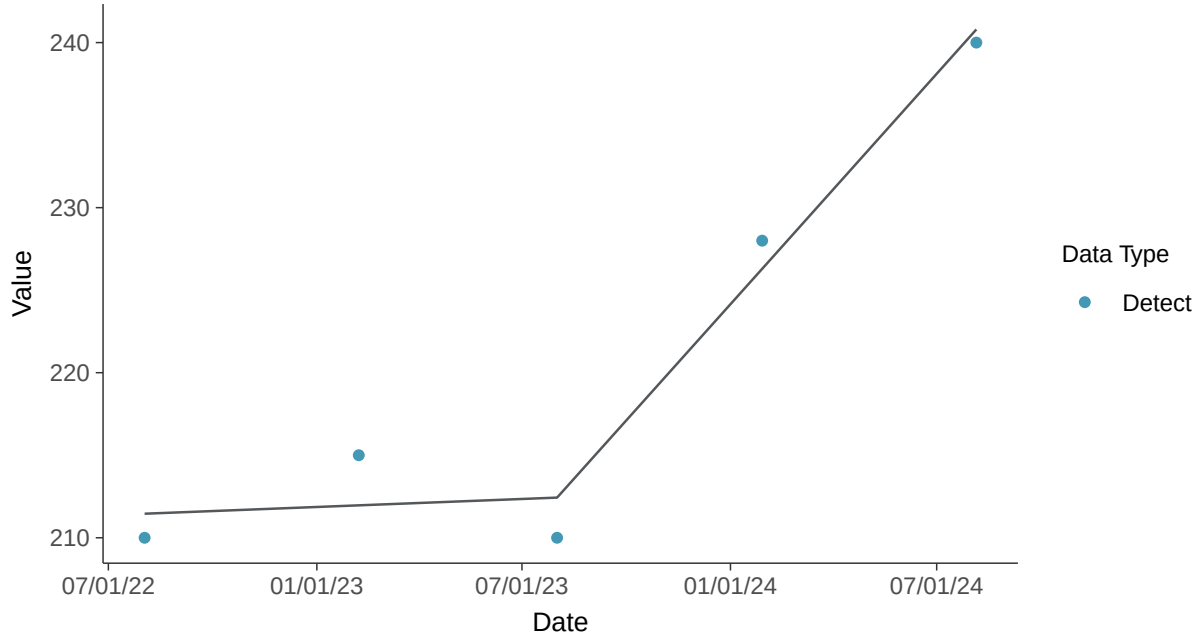
Gamma Q-Q plot

Bicarbonate, MW-3 (mg/L)



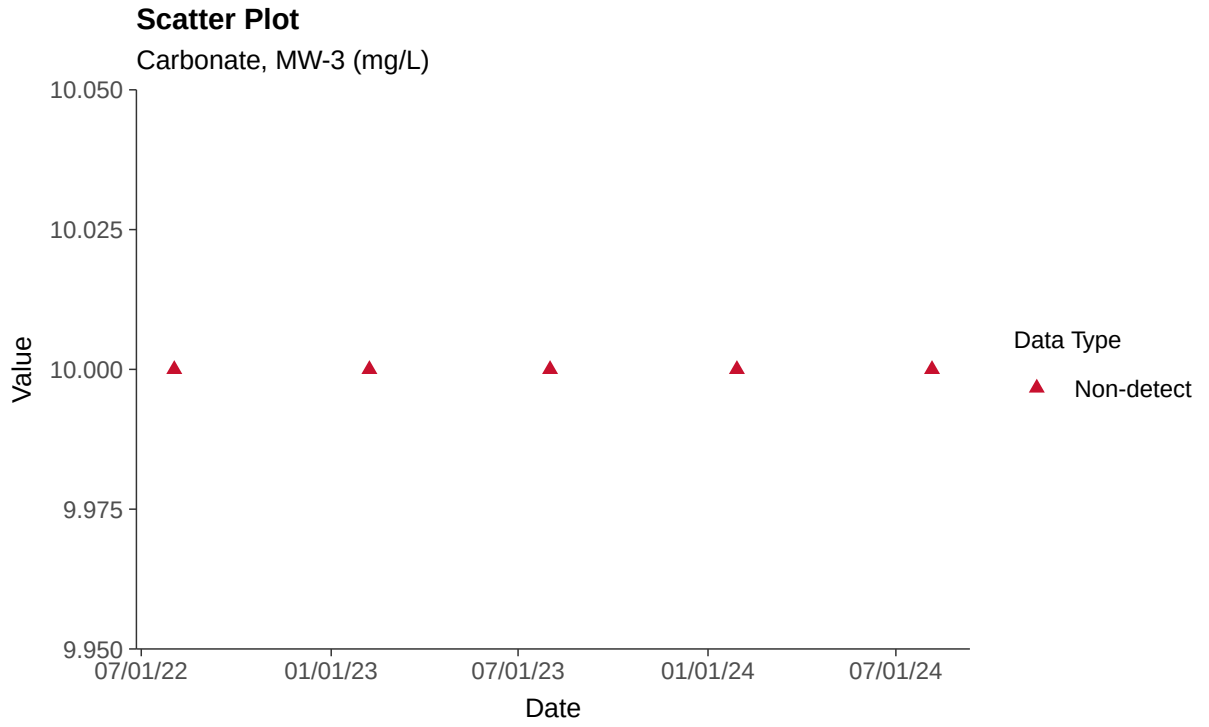
Trend Regression: Piecewise Linear-Linear

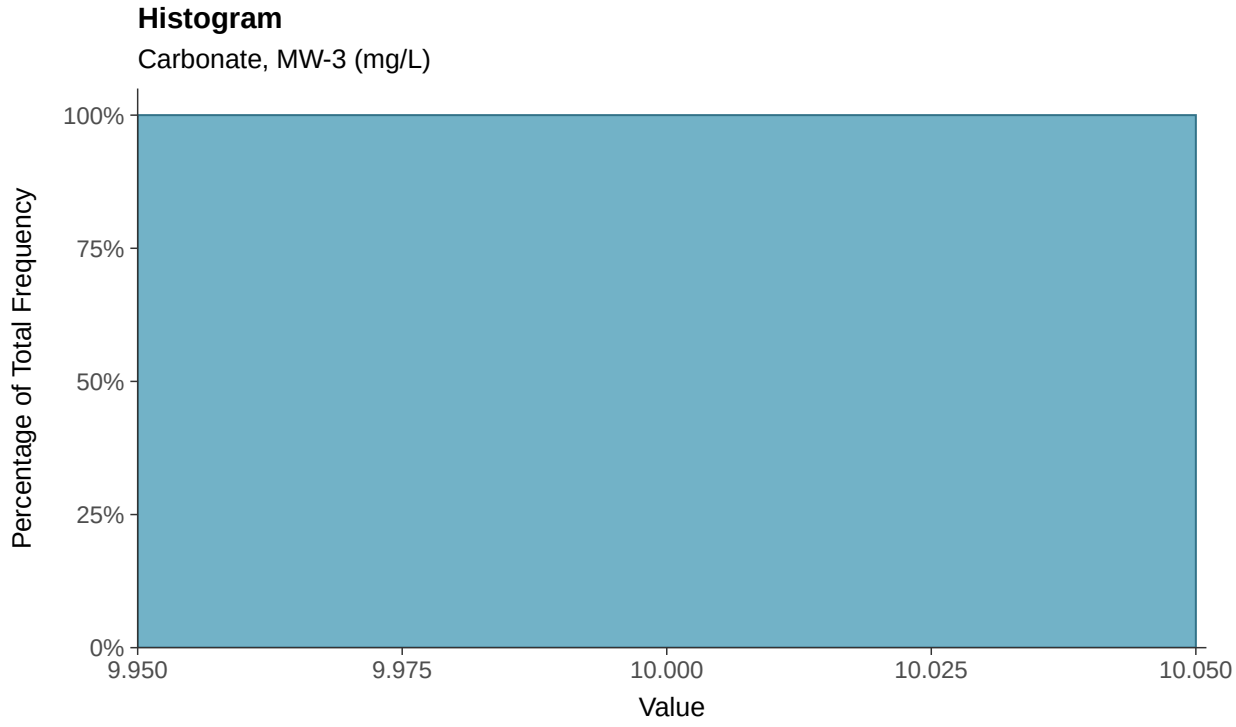
Bicarbonate, MW-3 (mg/L)



Other: Carbonate, MW-3

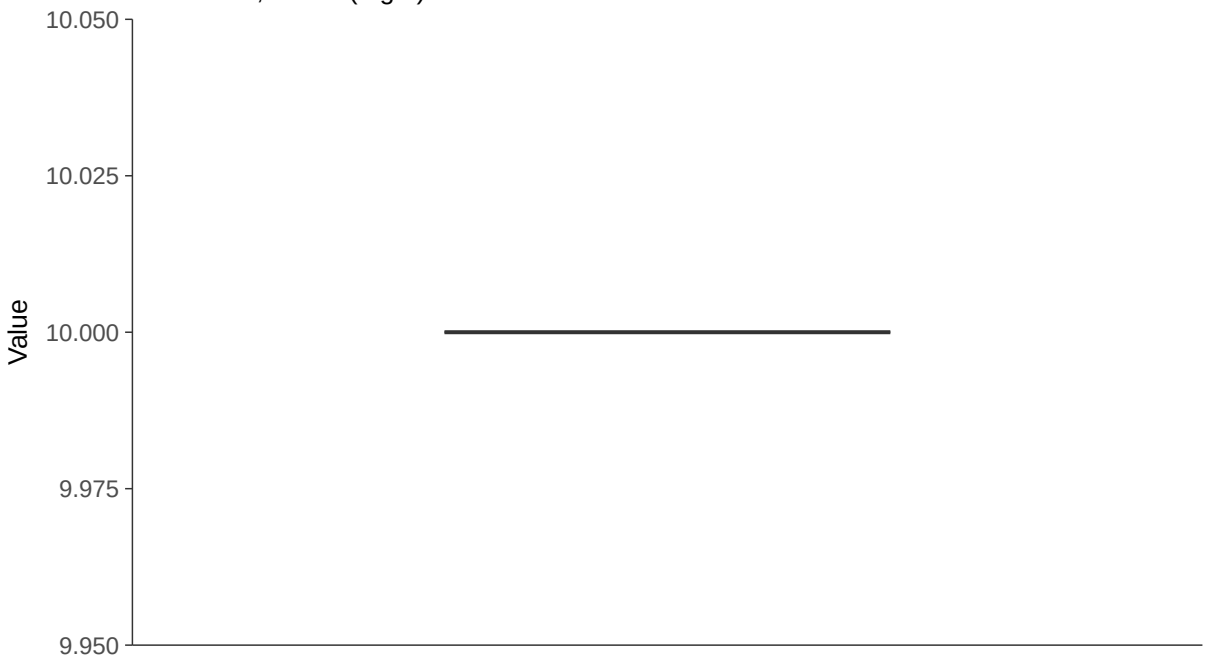
ID: 03_4_32





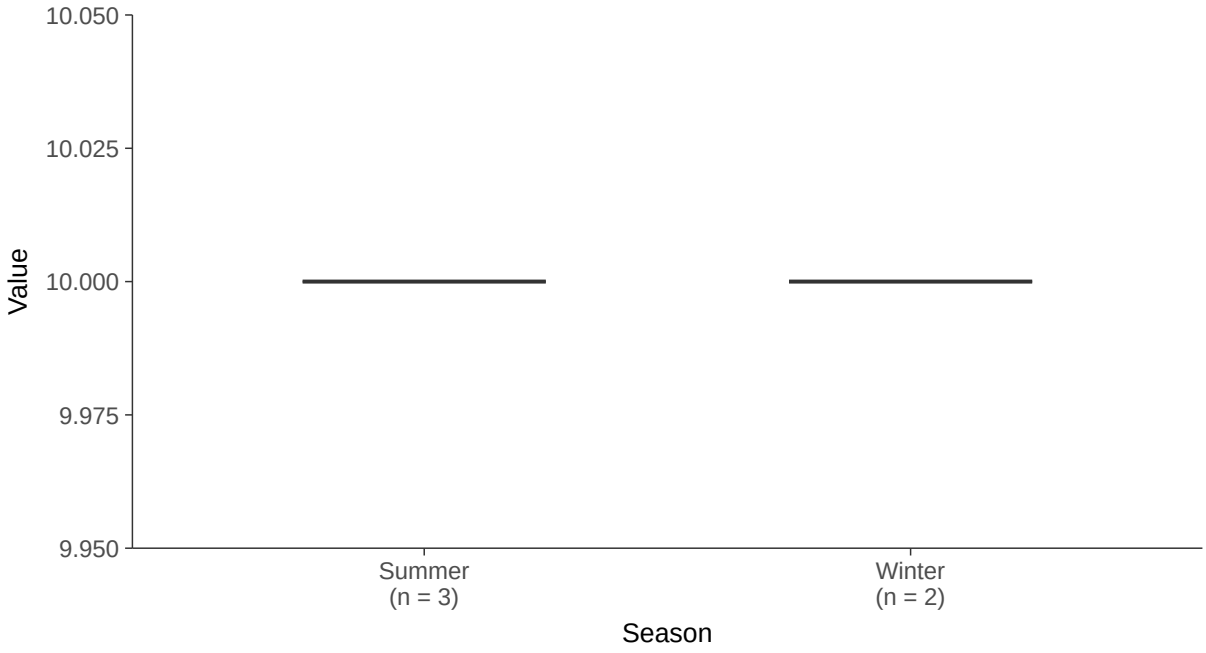
Boxplot

Carbonate, MW-3 (mg/L)



Boxplot by Season

Carbonate, MW-3 (mg/L)

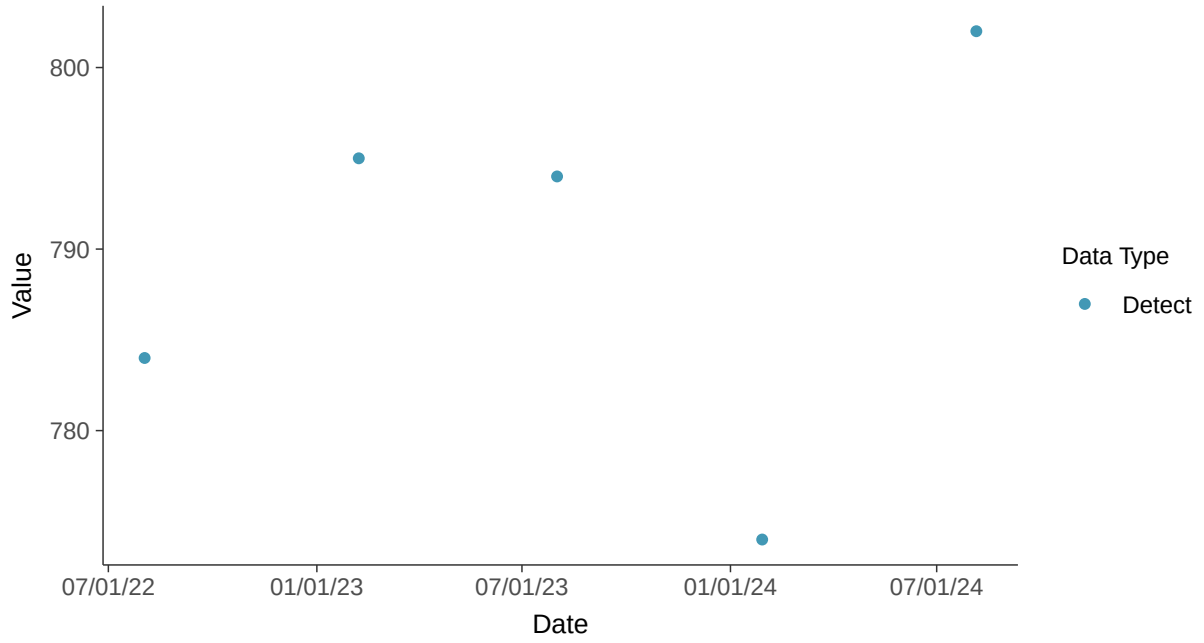


Other: Hardness, MW-3

ID: 03_4_33

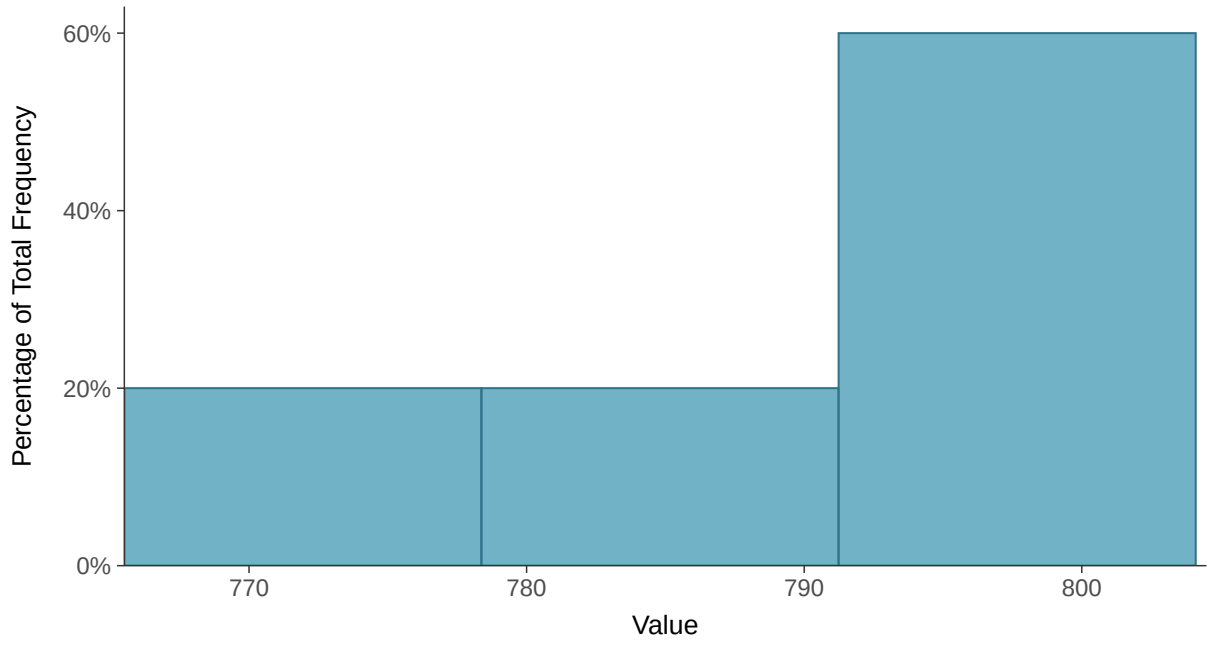
Scatter Plot

Hardness, MW-3 (mg/L)



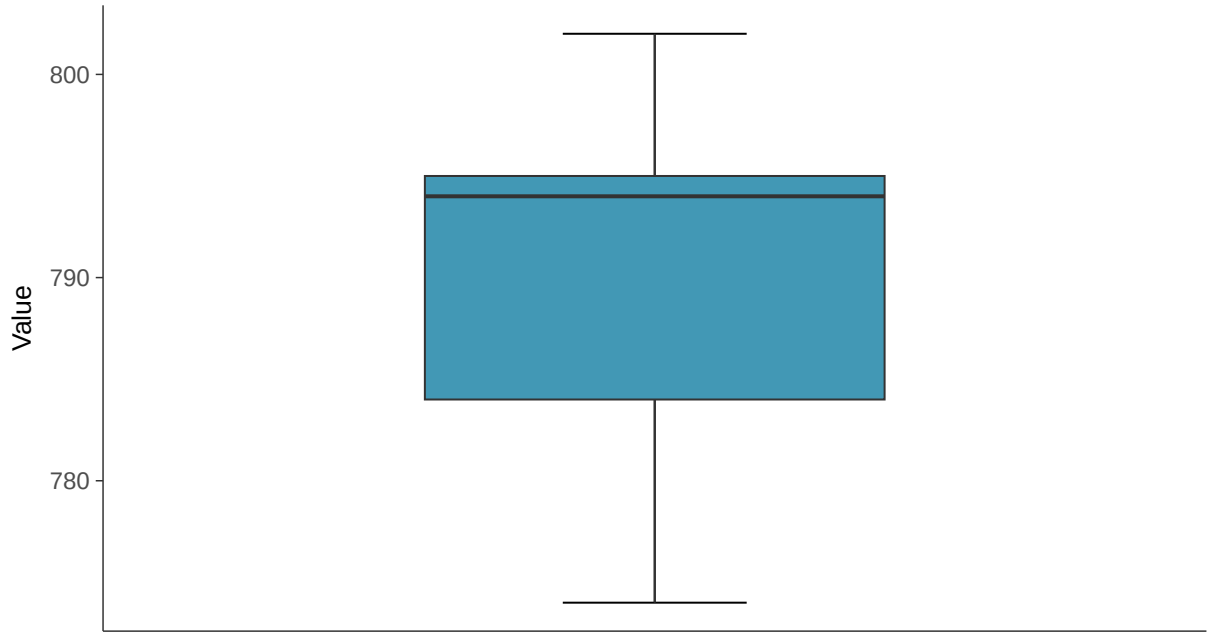
Histogram

Hardness, MW-3 (mg/L)



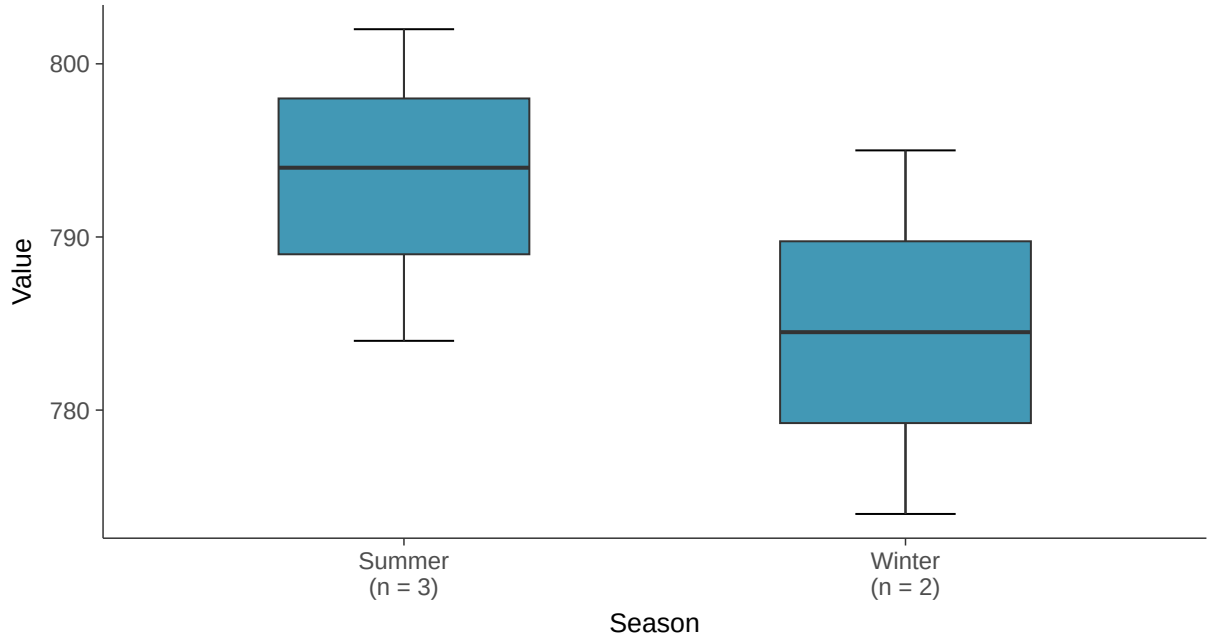
Boxplot

Hardness, MW-3 (mg/L)



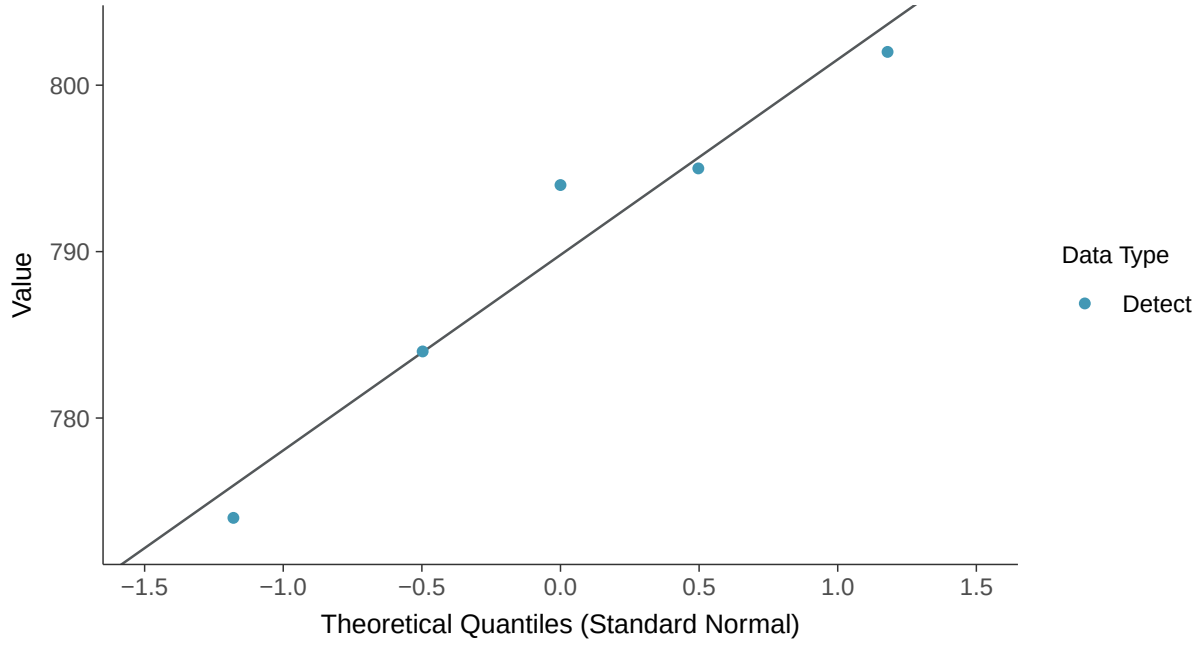
Boxplot by Season

Hardness, MW-3 (mg/L)



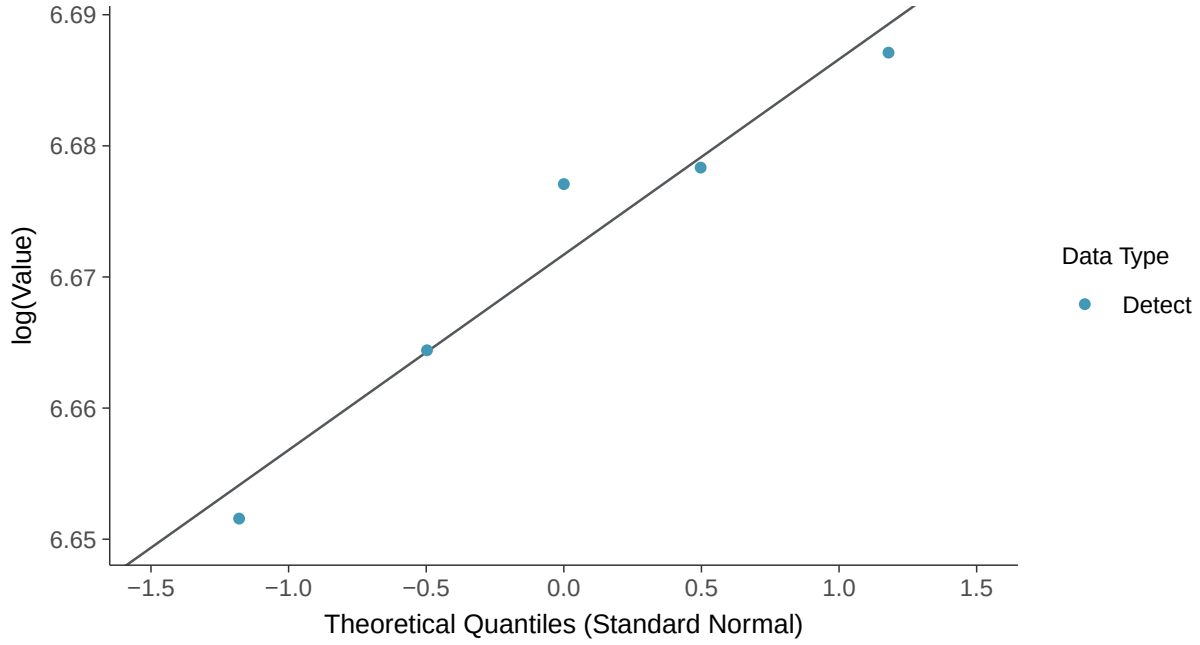
Normal Q-Q plot

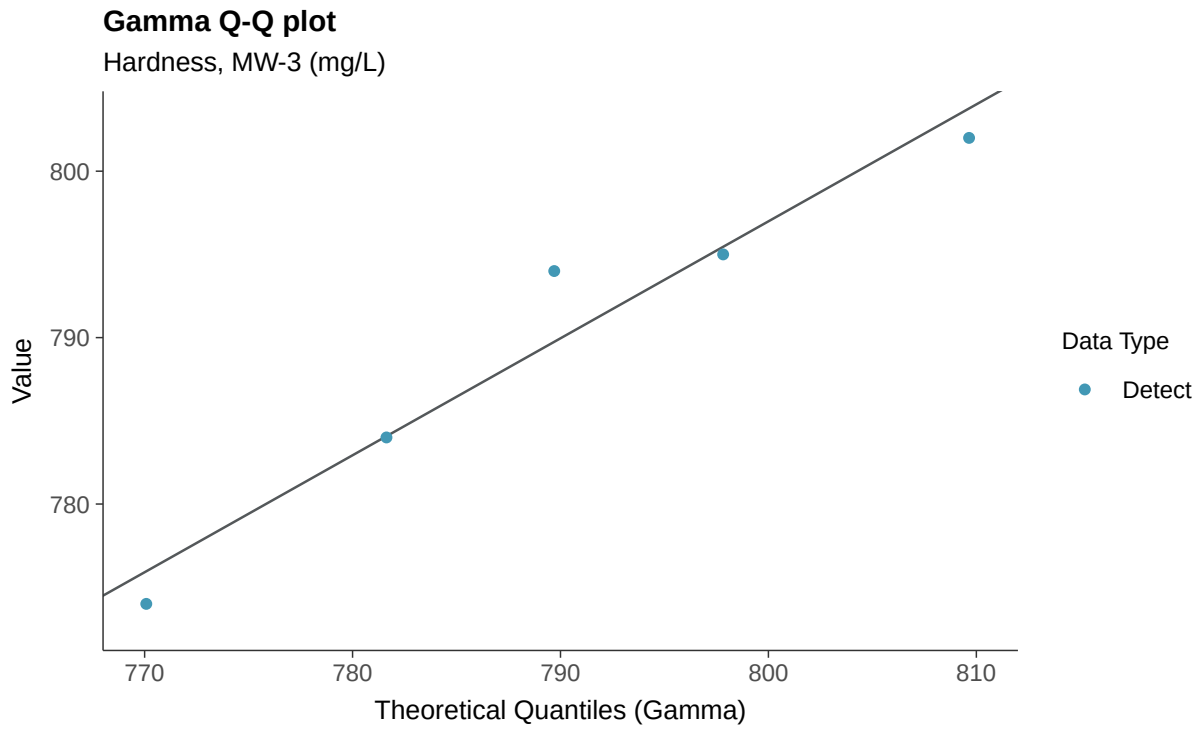
Hardness, MW-3 (mg/L)



Lognormal Q-Q plot

Hardness, MW-3 (mg/L)



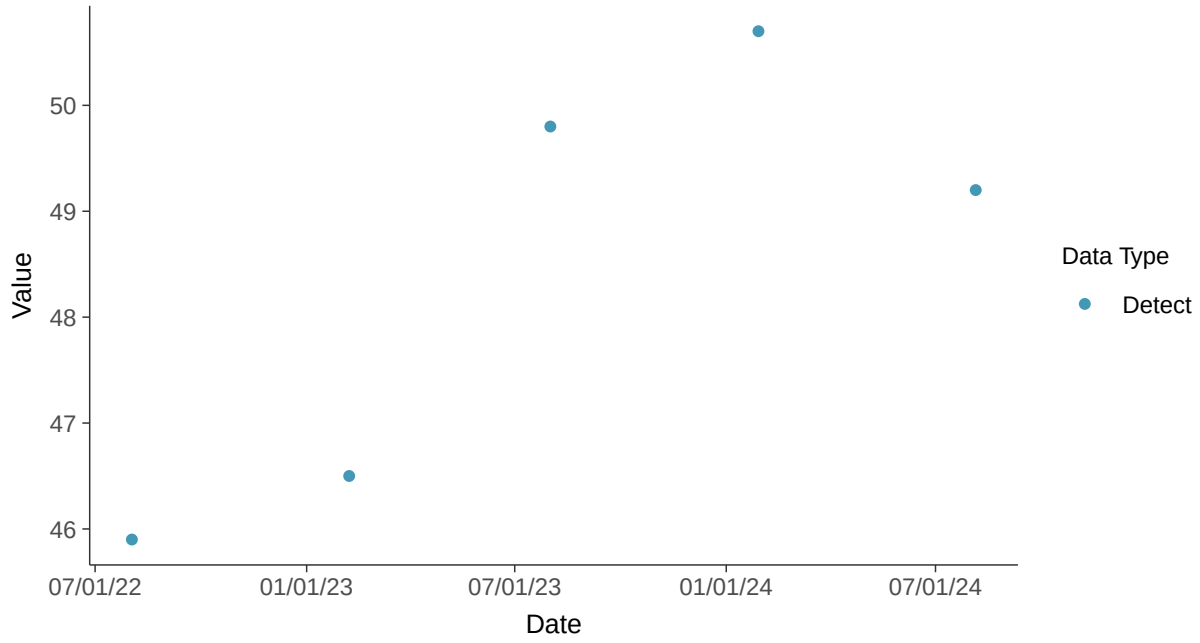

Gamma Q-Q plot
Hardness, MW-3 (mg/L)
Value
800
790
780
770
780
790
800
810
Theoretical Quantiles (Gamma)
Data Type
Detect

Other: Magnesium, MW-3

ID: 03_4_34

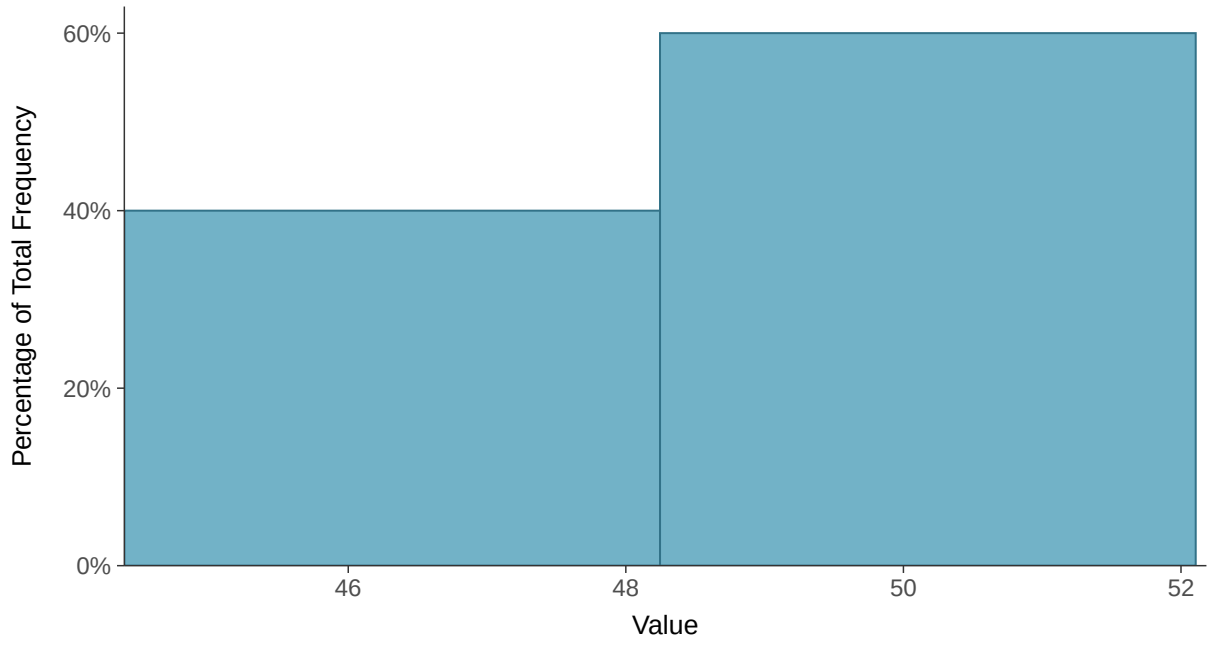
Scatter Plot

Magnesium, MW-3 (mg/L)



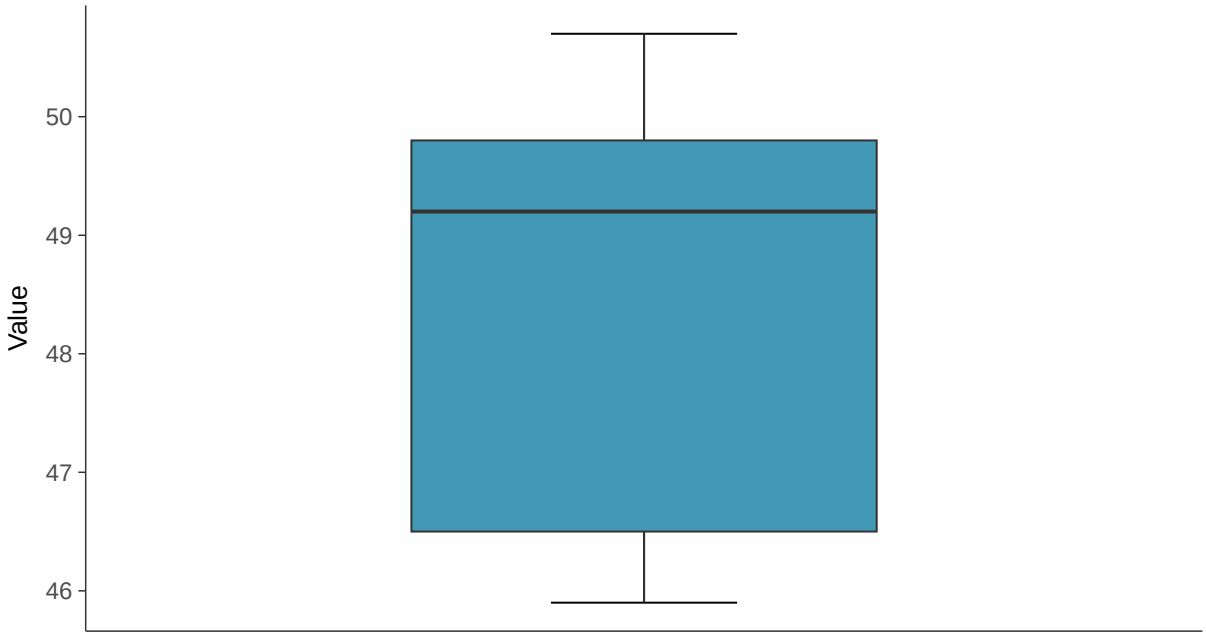
Histogram

Magnesium, MW-3 (mg/L)



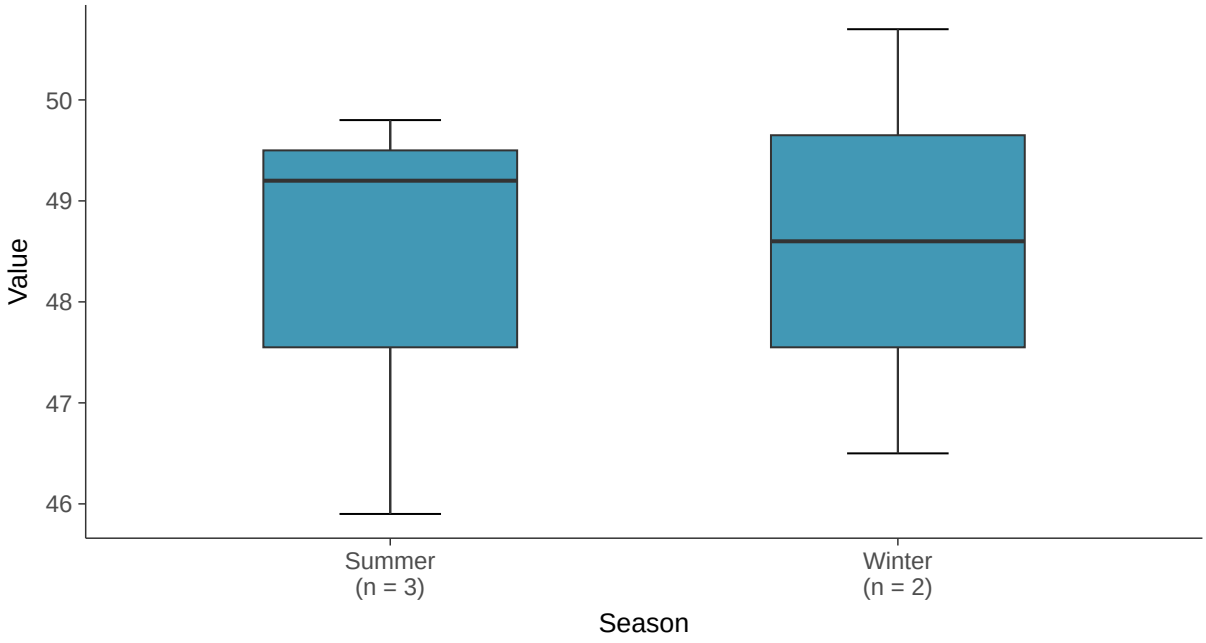
Boxplot

Magnesium, MW-3 (mg/L)



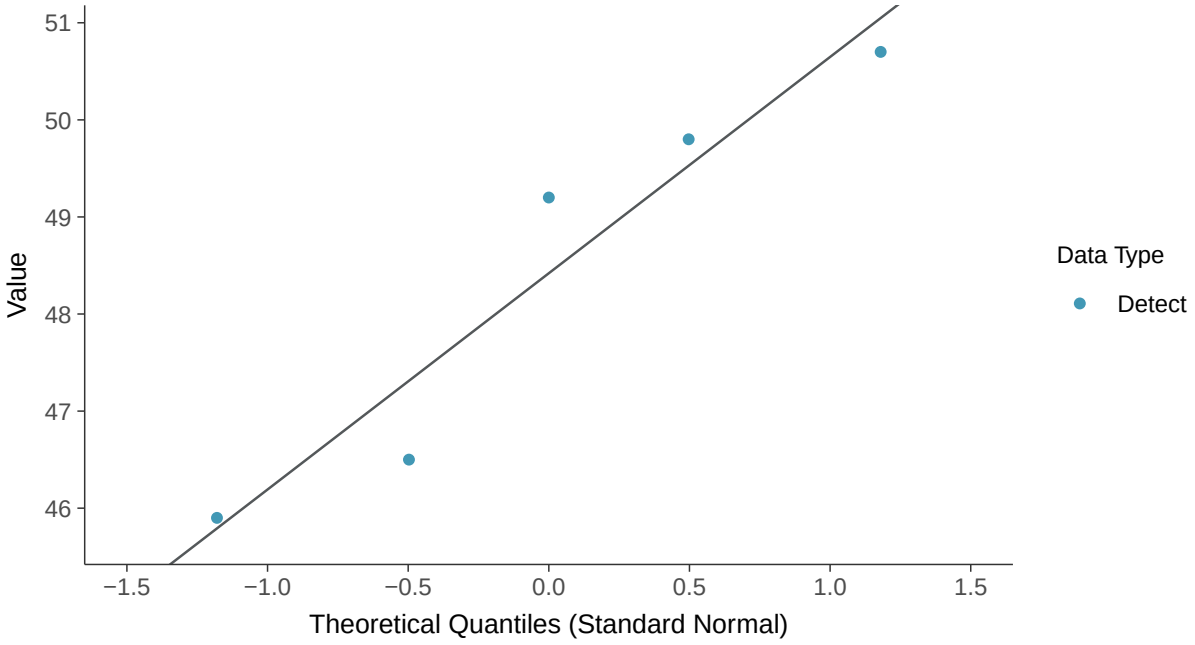
Boxplot by Season

Magnesium, MW-3 (mg/L)



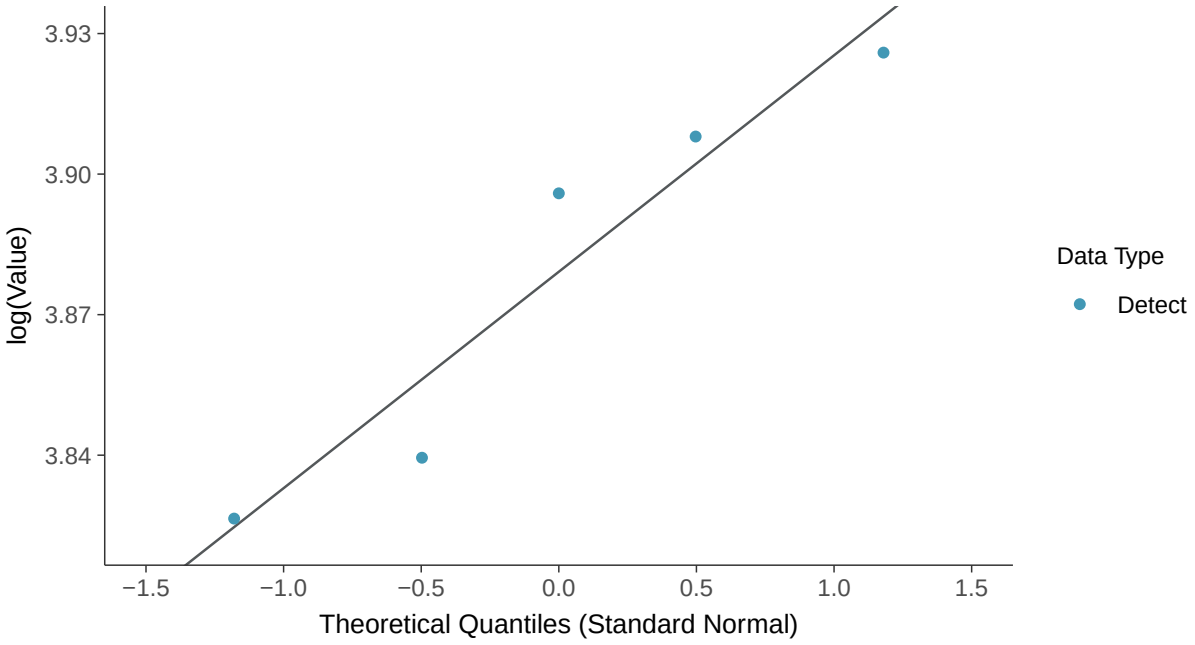
Normal Q-Q plot

Magnesium, MW-3 (mg/L)



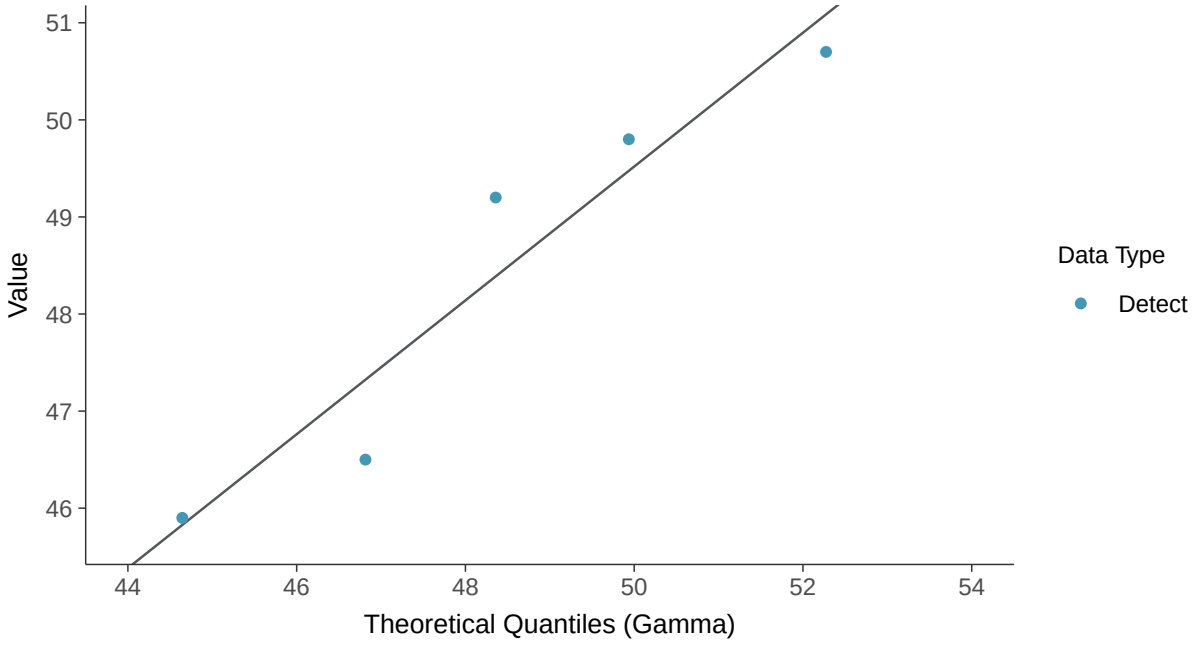
Lognormal Q-Q plot

Magnesium, MW-3 (mg/L)



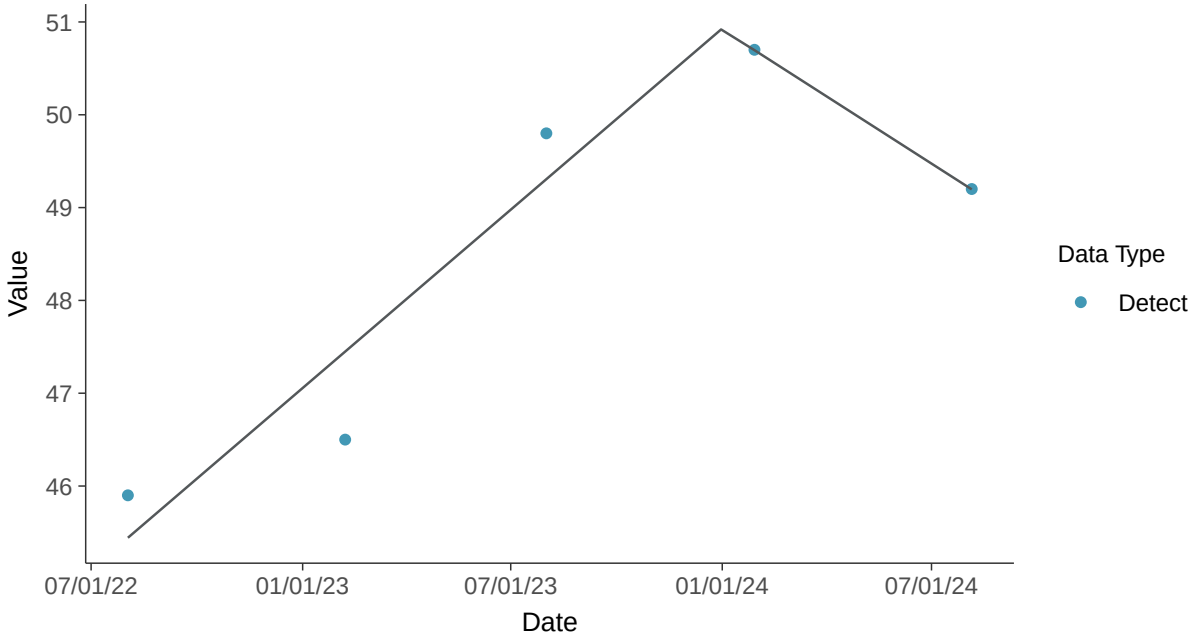
Gamma Q-Q plot

Magnesium, MW-3 (mg/L)



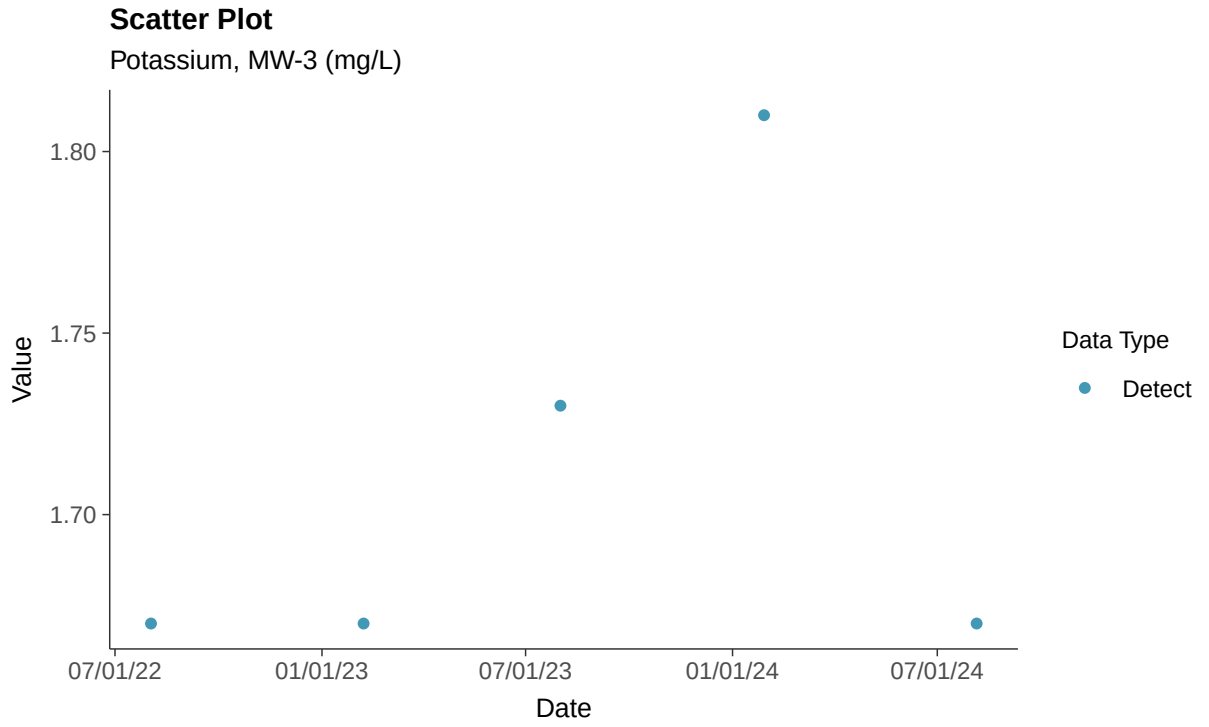
Trend Regression: Piecewise Linear-Linear

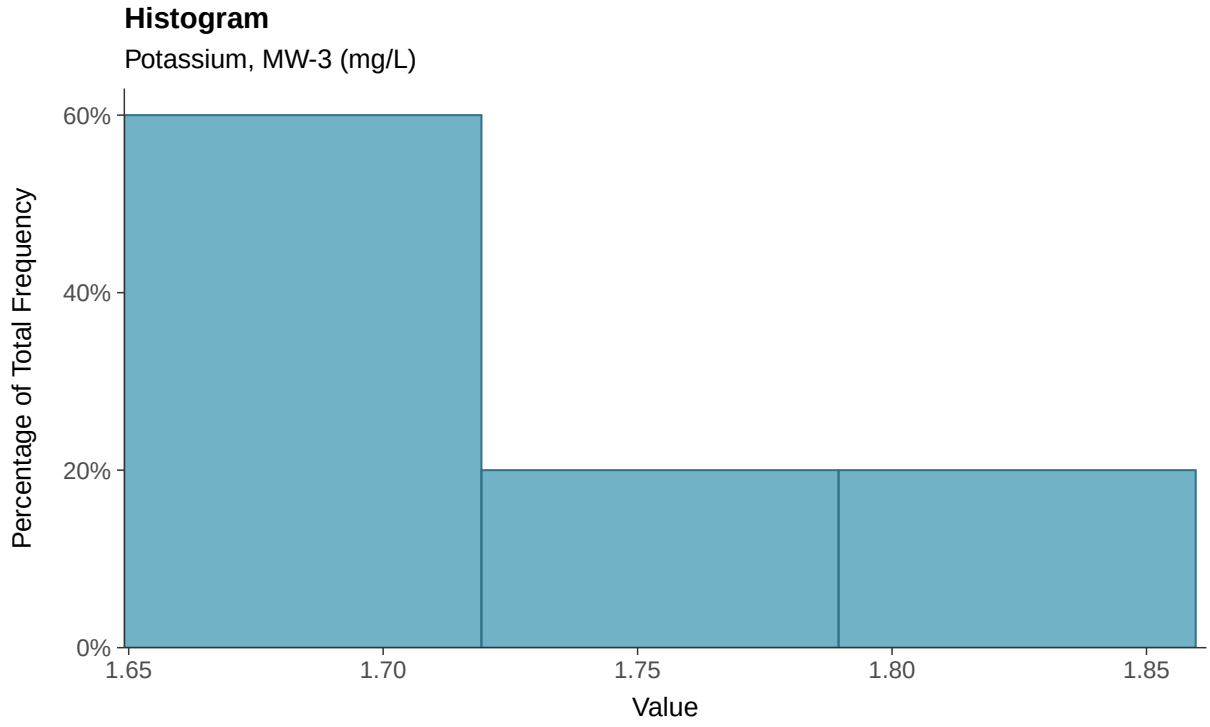
Magnesium, MW-3 (mg/L)



Other: Potassium, MW-3

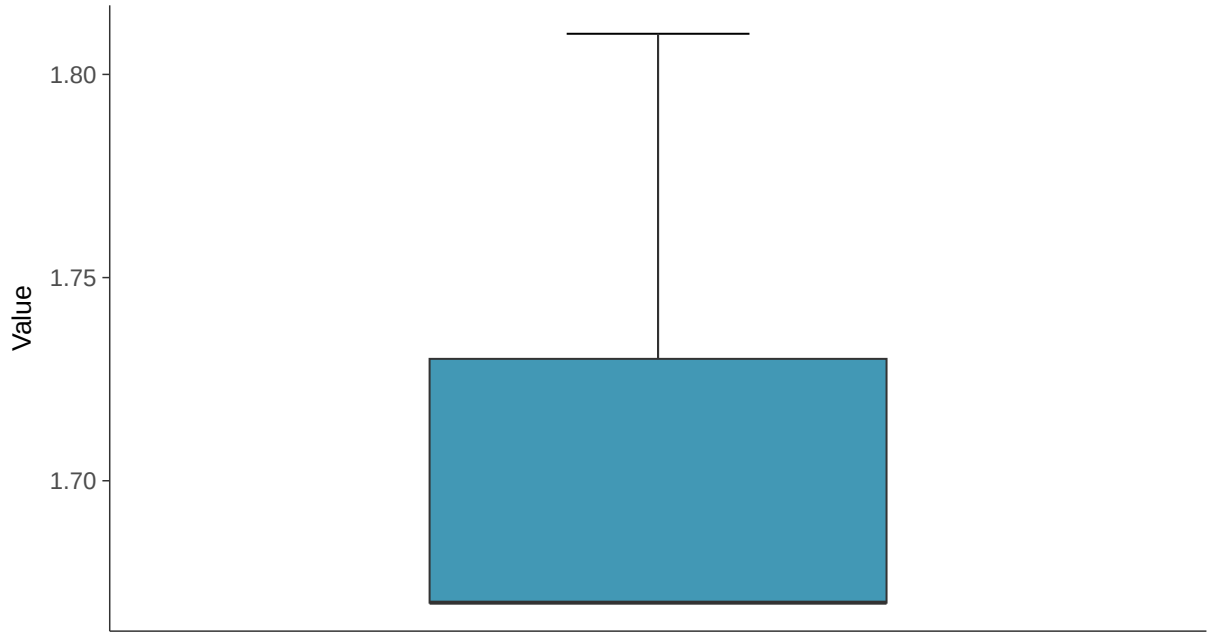
ID: 03_4_35





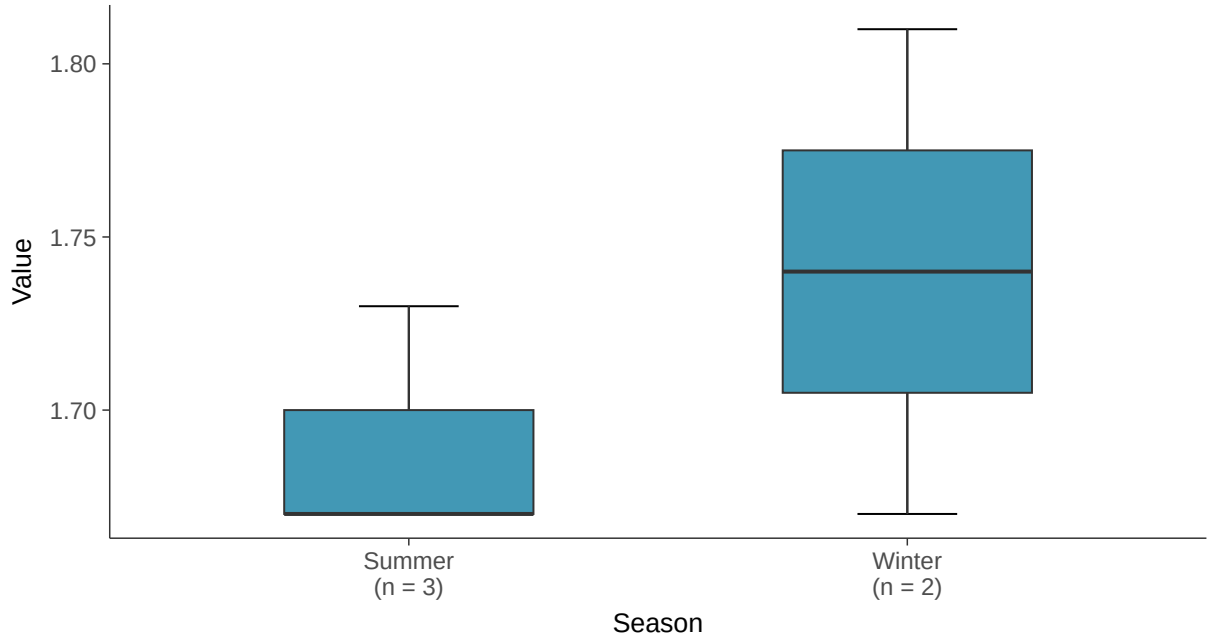
Boxplot

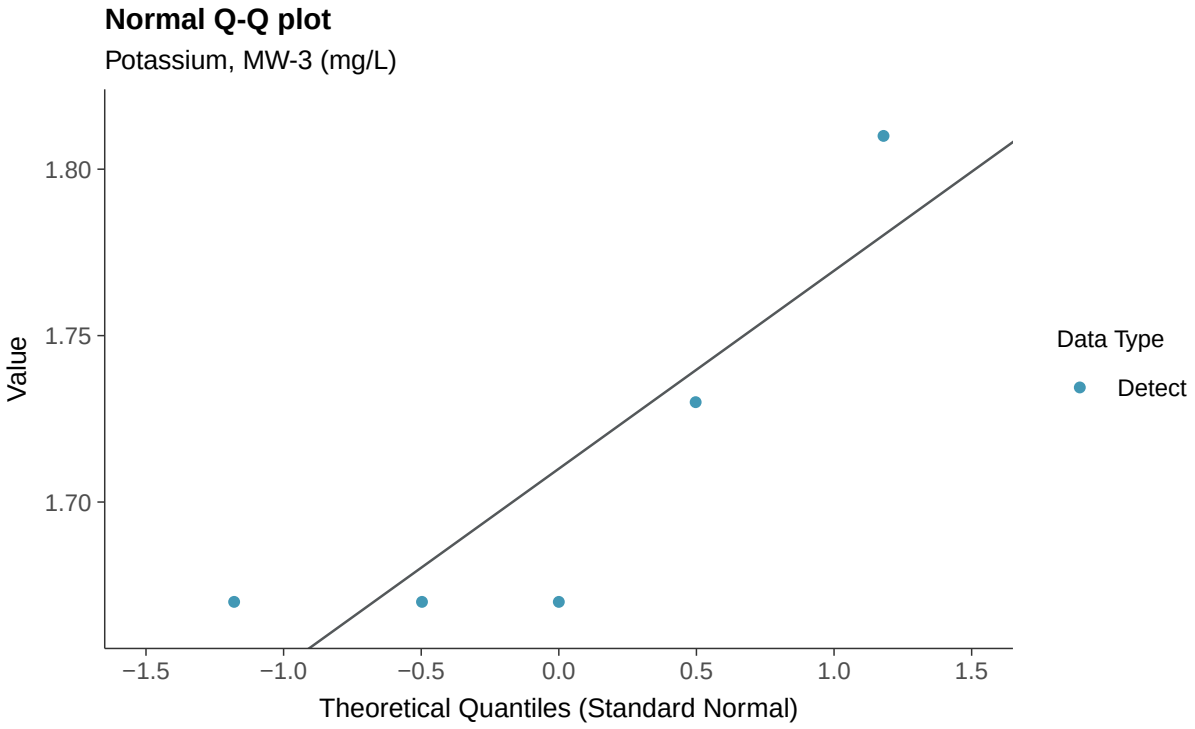
Potassium, MW-3 (mg/L)



Boxplot by Season

Potassium, MW-3 (mg/L)



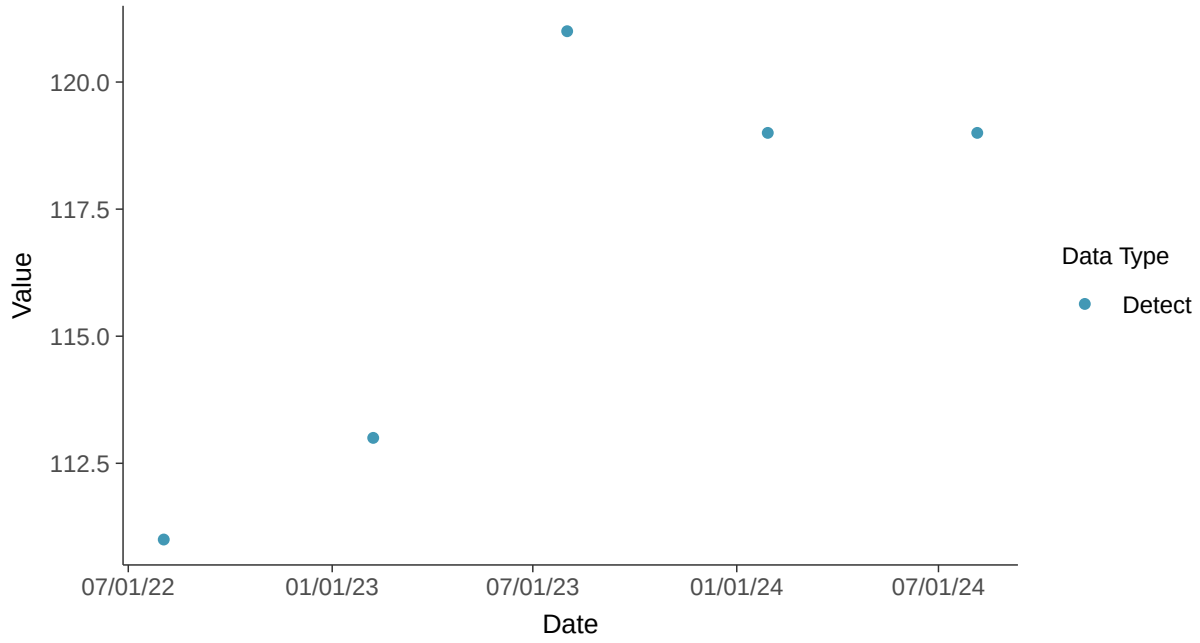

Normal Q-Q plot
Potassium, MW-3 (mg/L)
Value
1.80
1.75
1.70
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
Data Type
Detect

Other: Sodium, MW-3

ID: 03_4_36

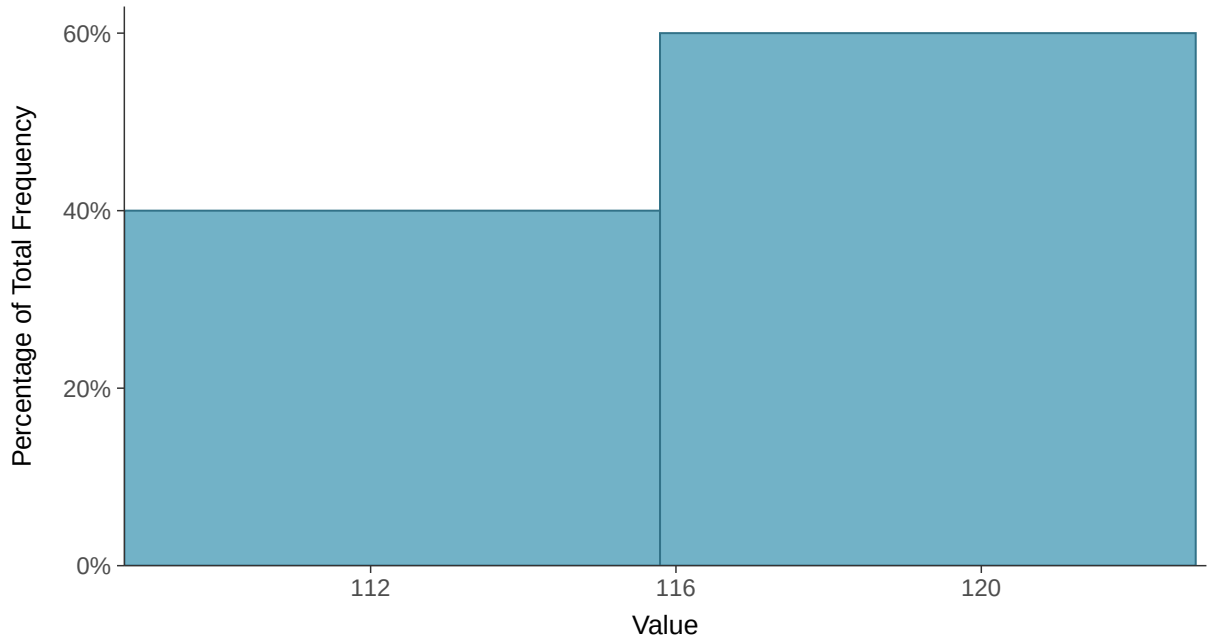
Scatter Plot

Sodium, MW-3 (mg/L)



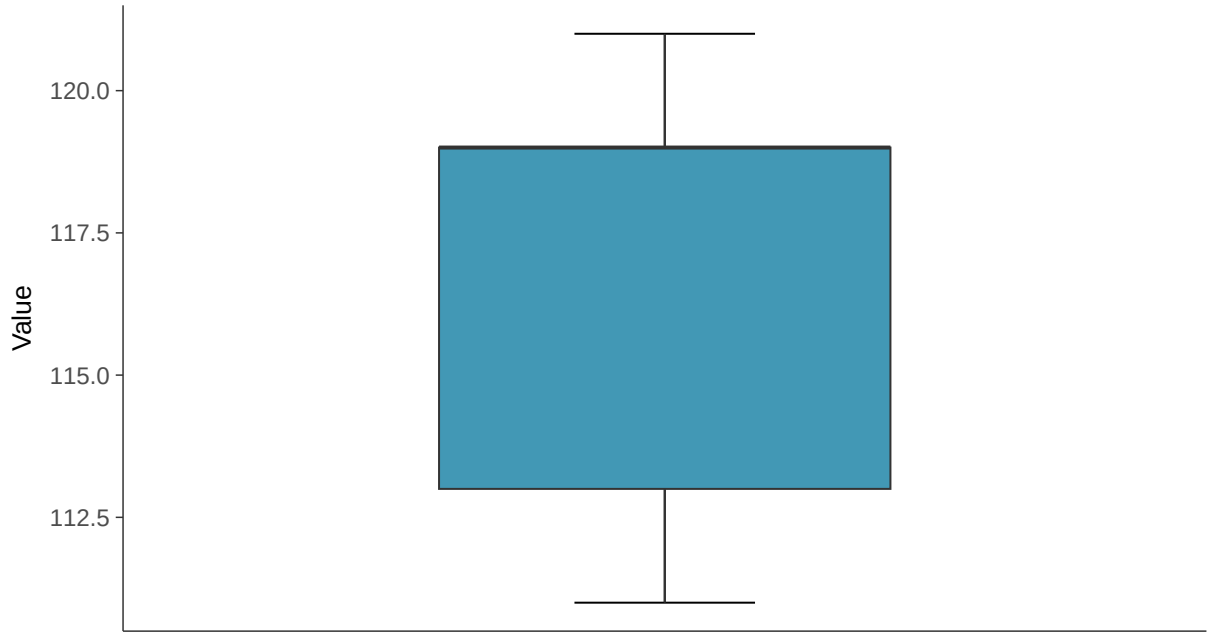
Histogram

Sodium, MW-3 (mg/L)



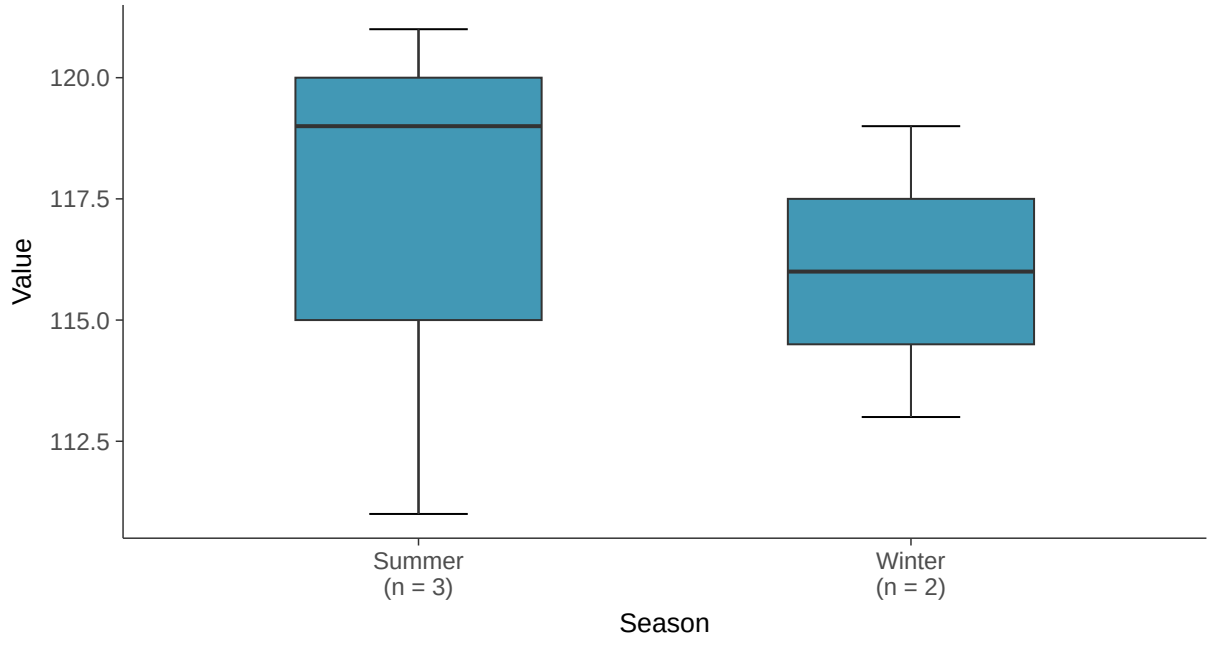
Boxplot

Sodium, MW-3 (mg/L)



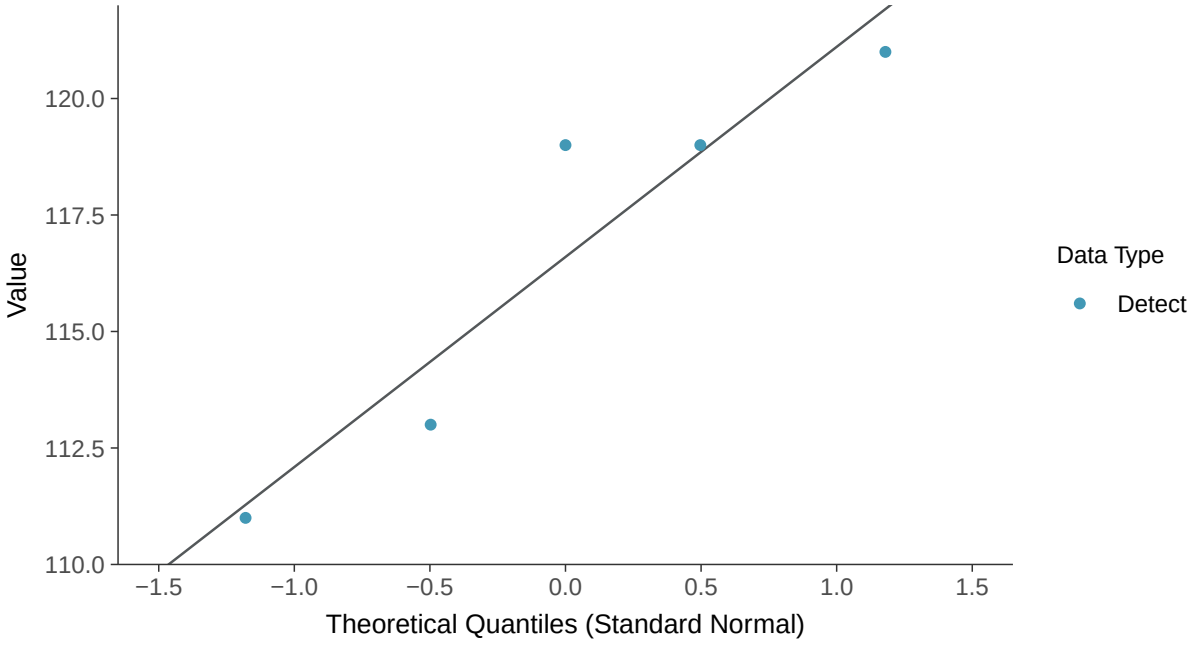
Boxplot by Season

Sodium, MW-3 (mg/L)



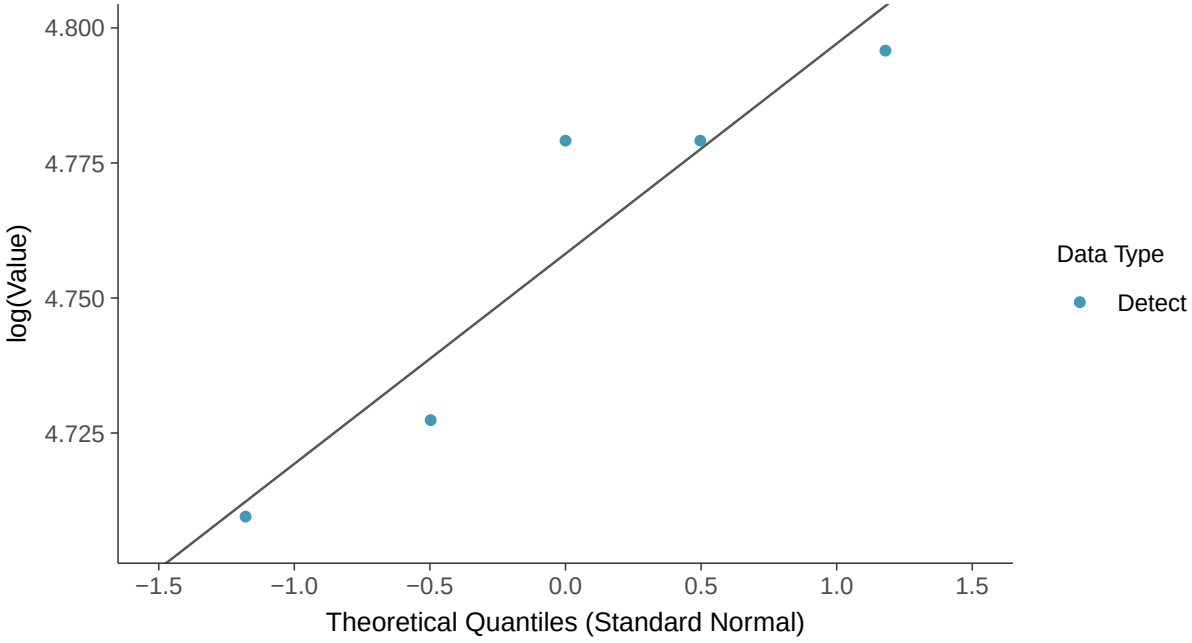
Normal Q-Q plot

Sodium, MW-3 (mg/L)



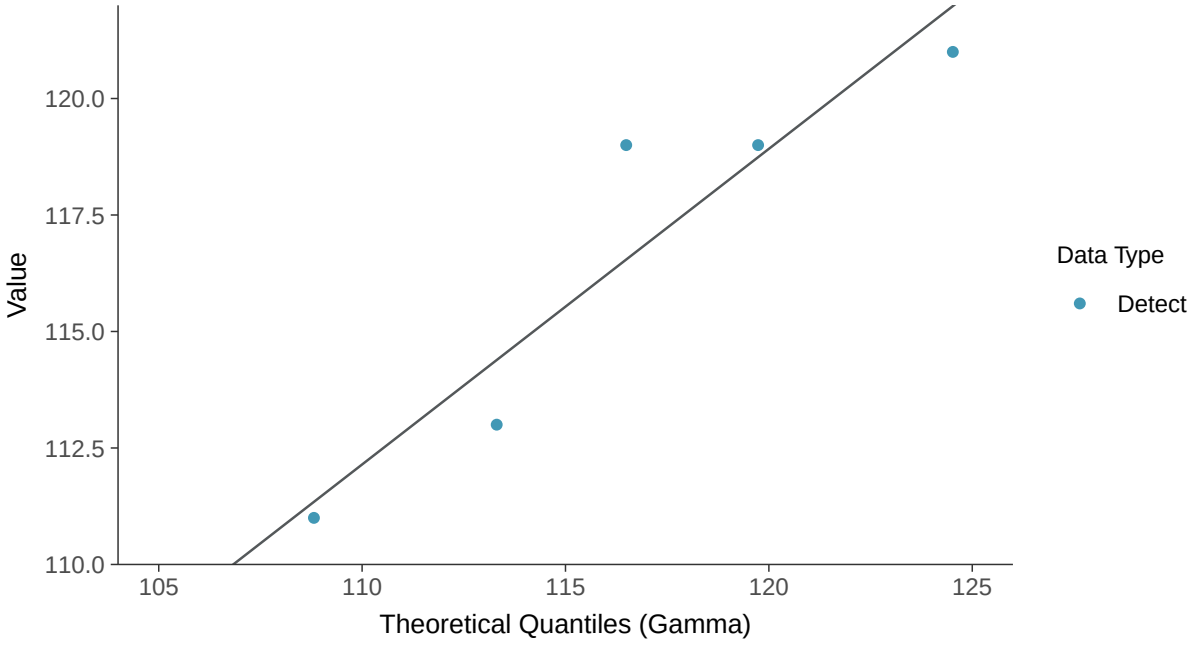
Lognormal Q-Q plot

Sodium, MW-3 (mg/L)



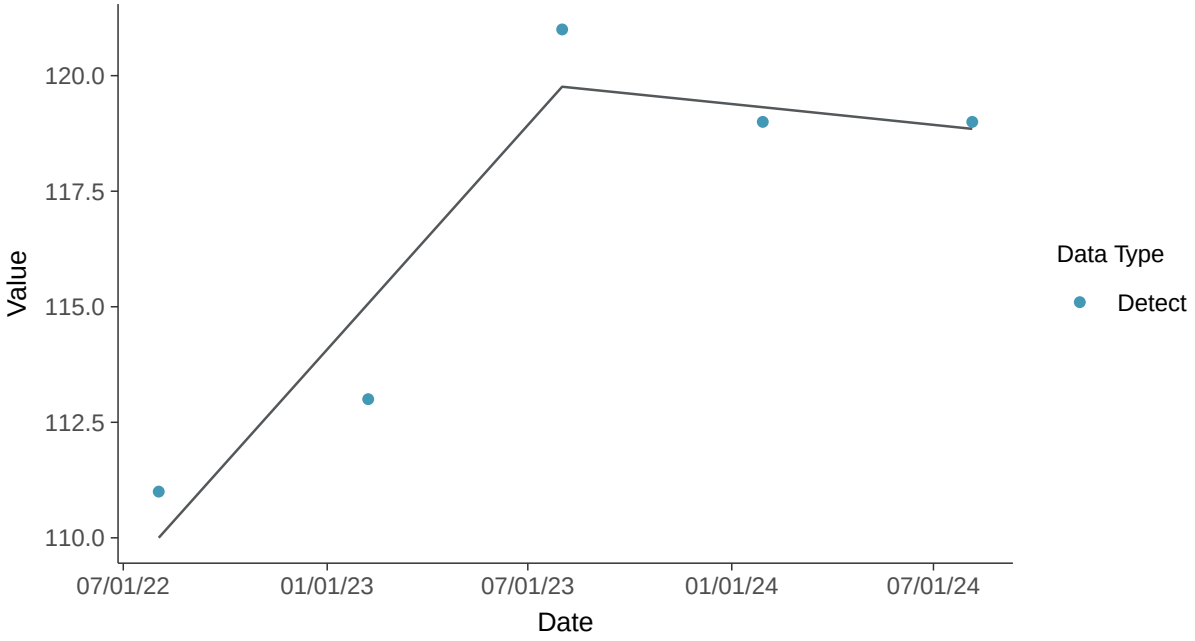
Gamma Q-Q plot

Sodium, MW-3 (mg/L)



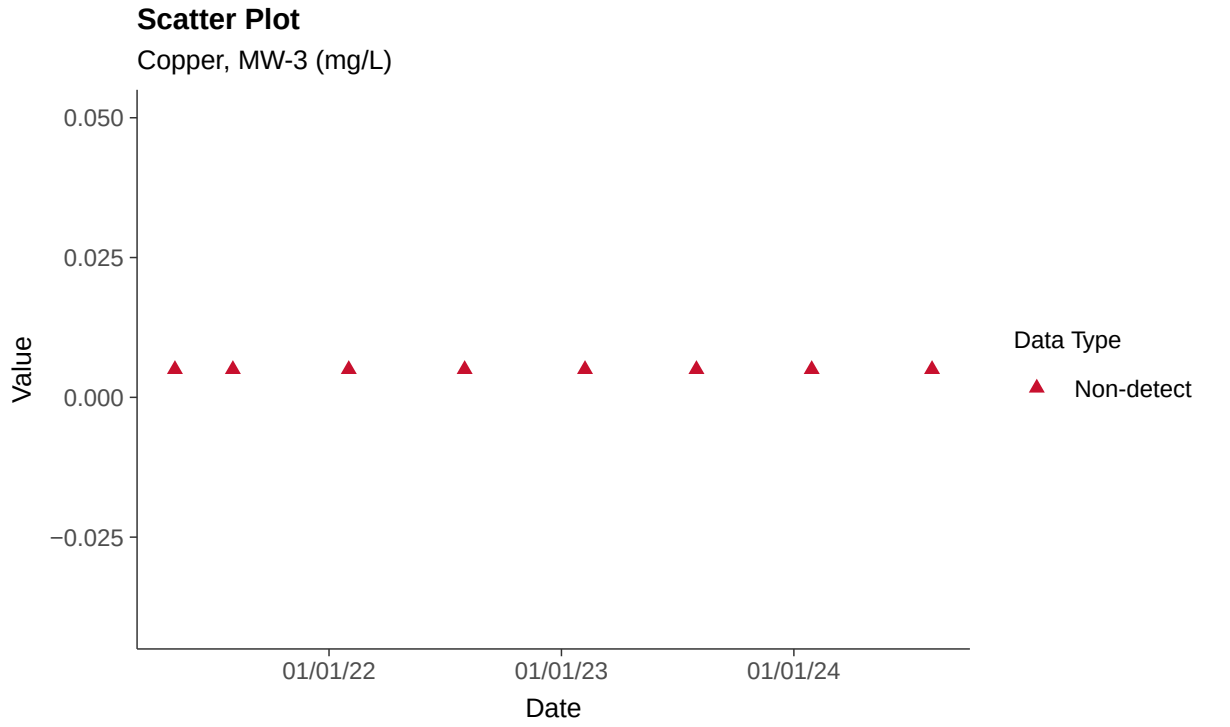
Trend Regression: Piecewise Linear-Linear

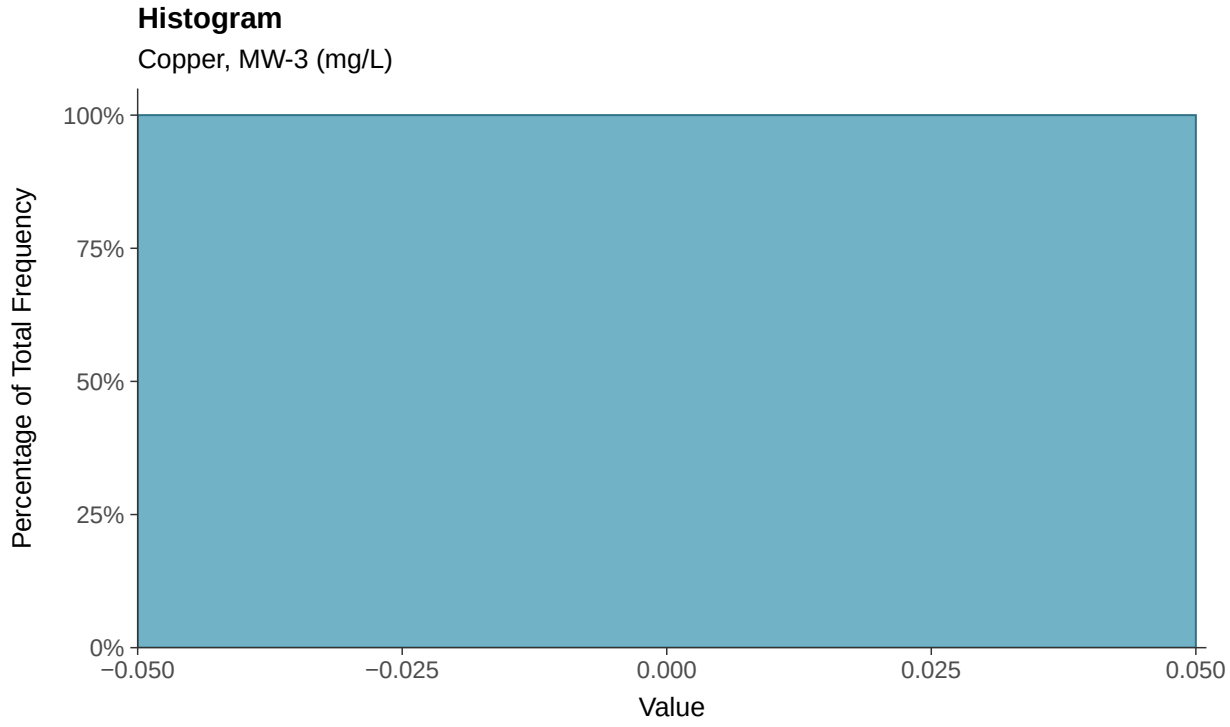
Sodium, MW-3 (mg/L)



Part 115: Copper, MW-3

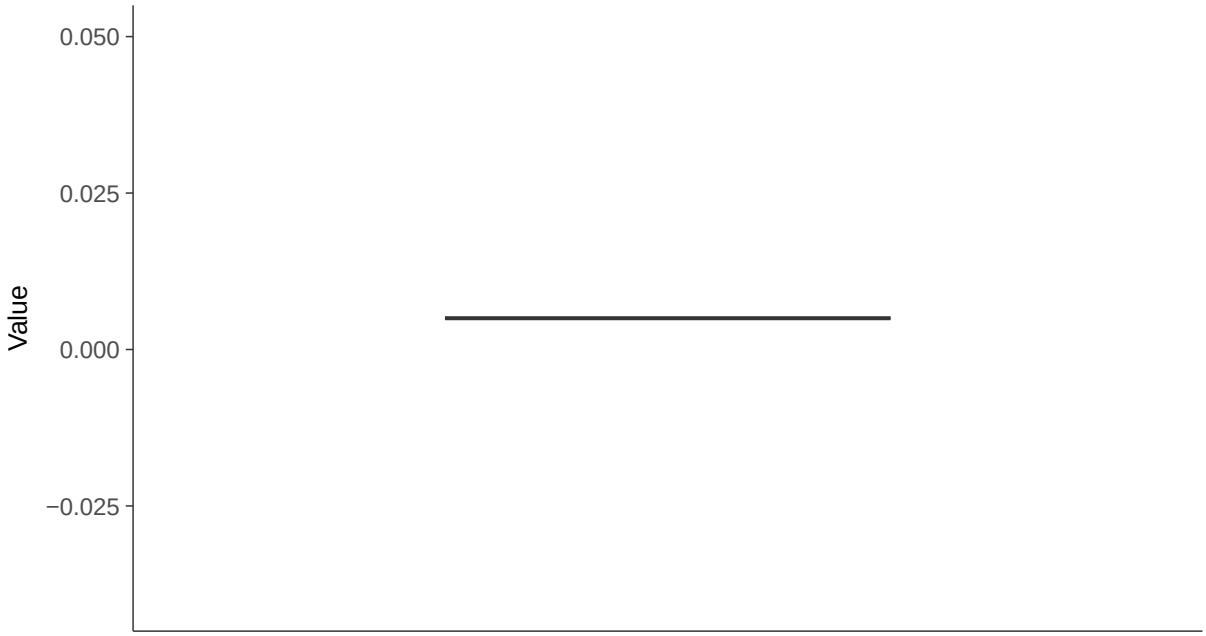
ID: 03_5_37





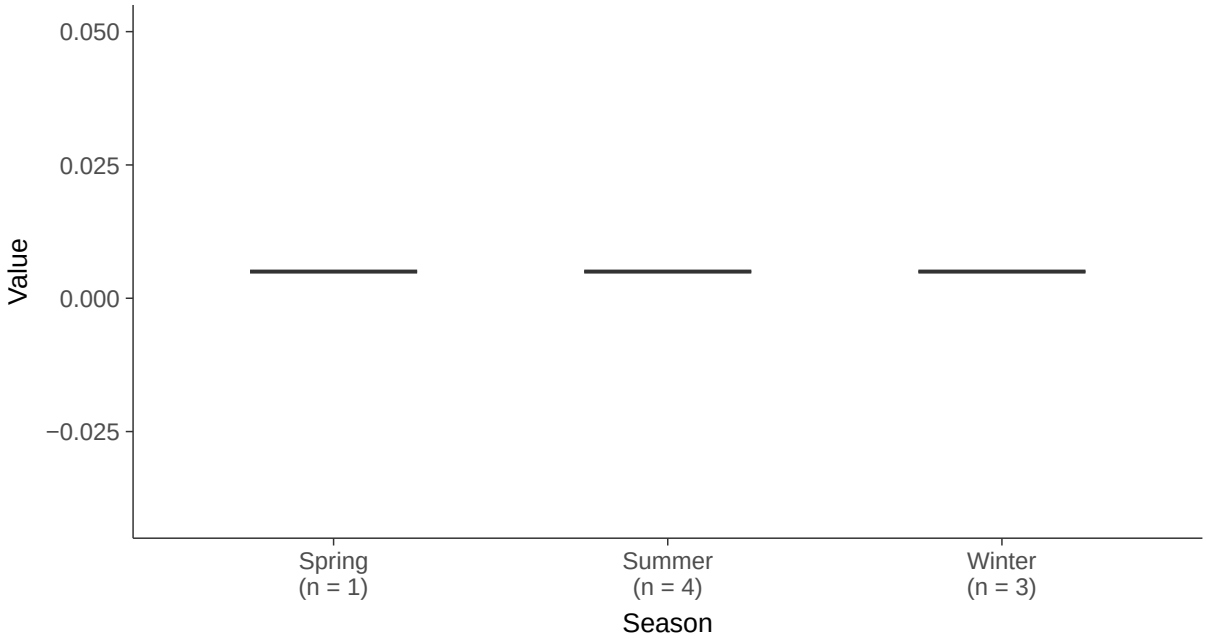
Boxplot

Copper, MW-3 (mg/L)



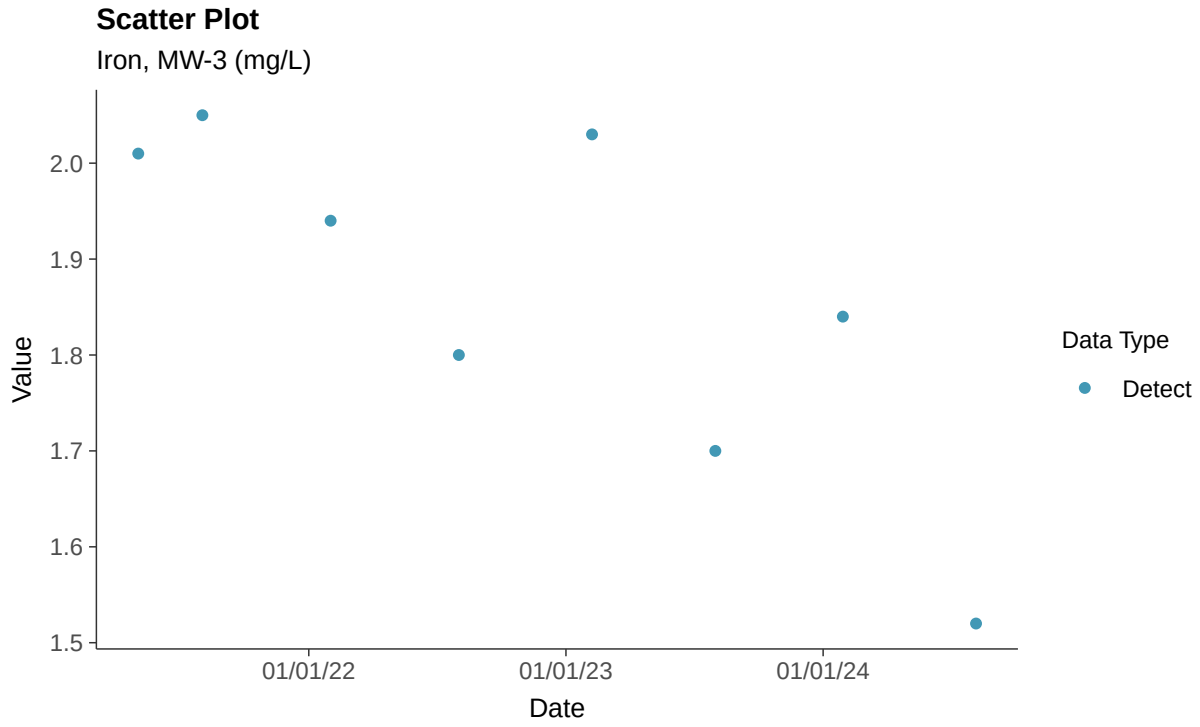
Boxplot by Season

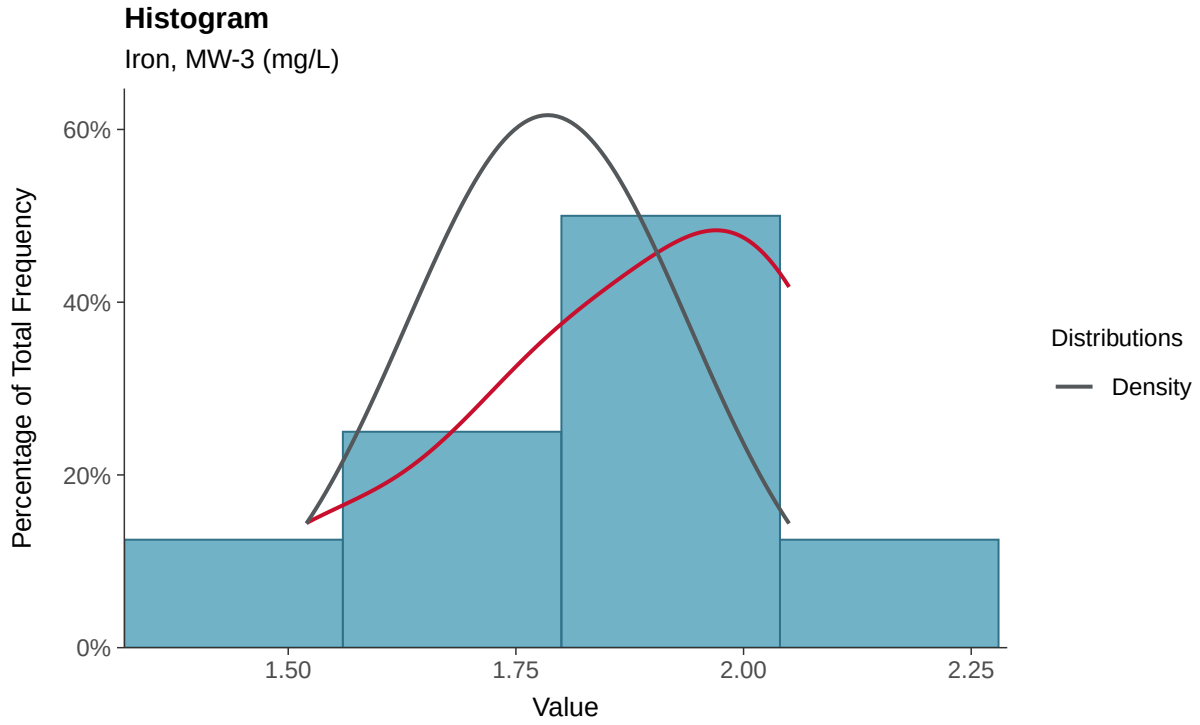
Copper, MW-3 (mg/L)



Part 115: Iron, MW-3

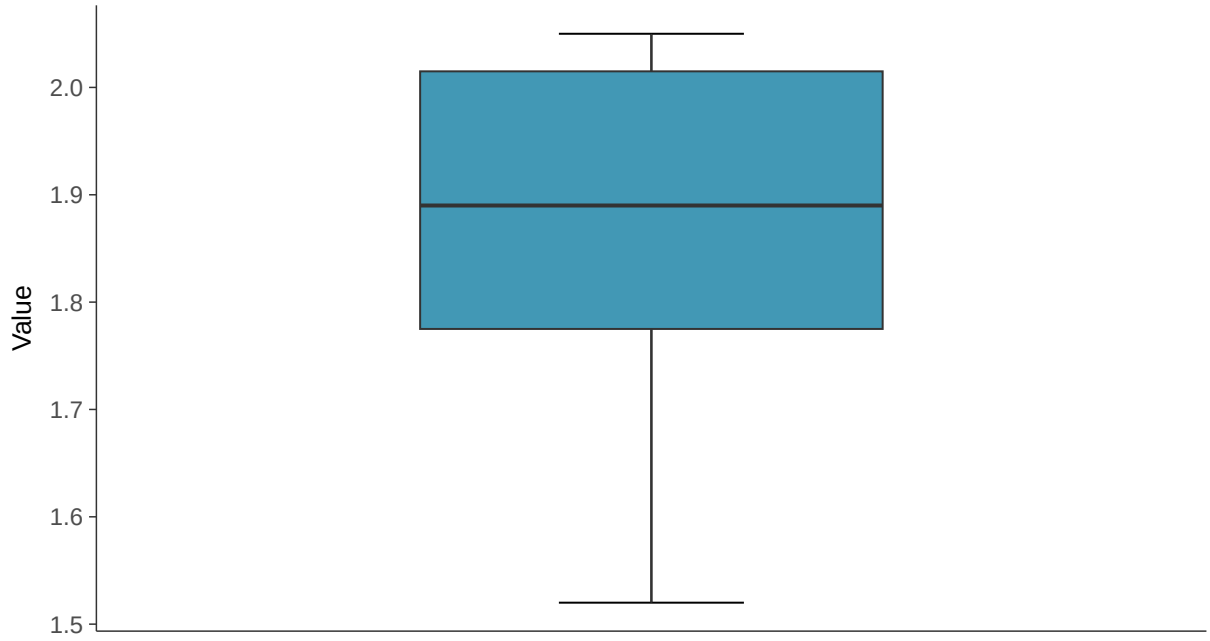
ID: 03_5_38





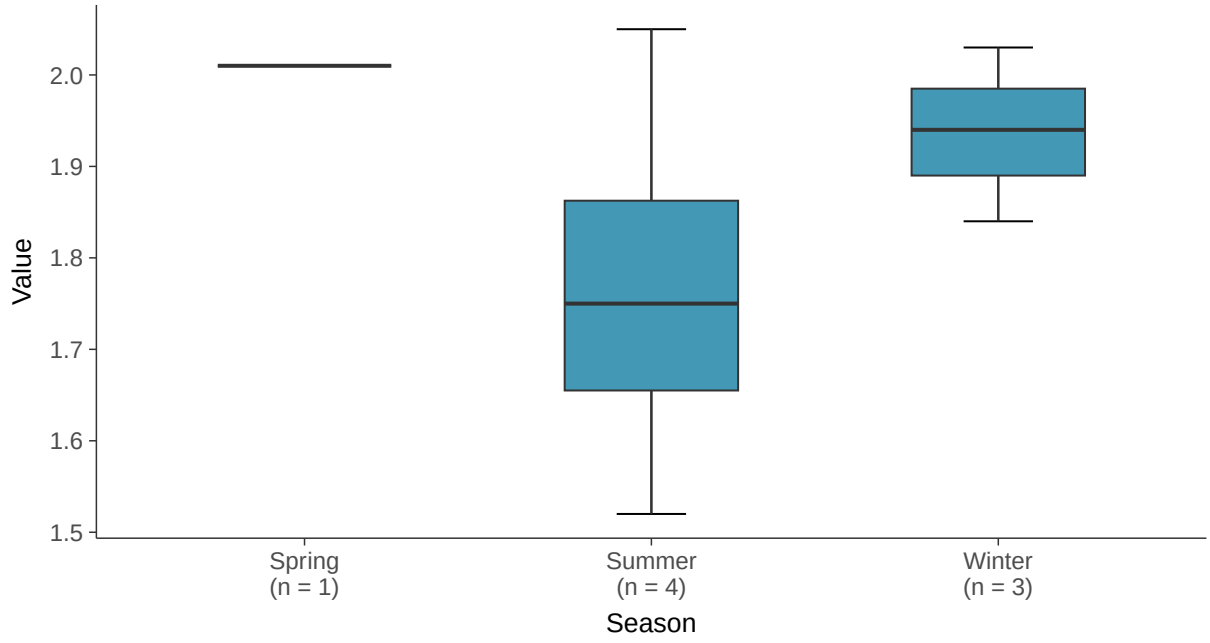
Boxplot

Iron, MW-3 (mg/L)



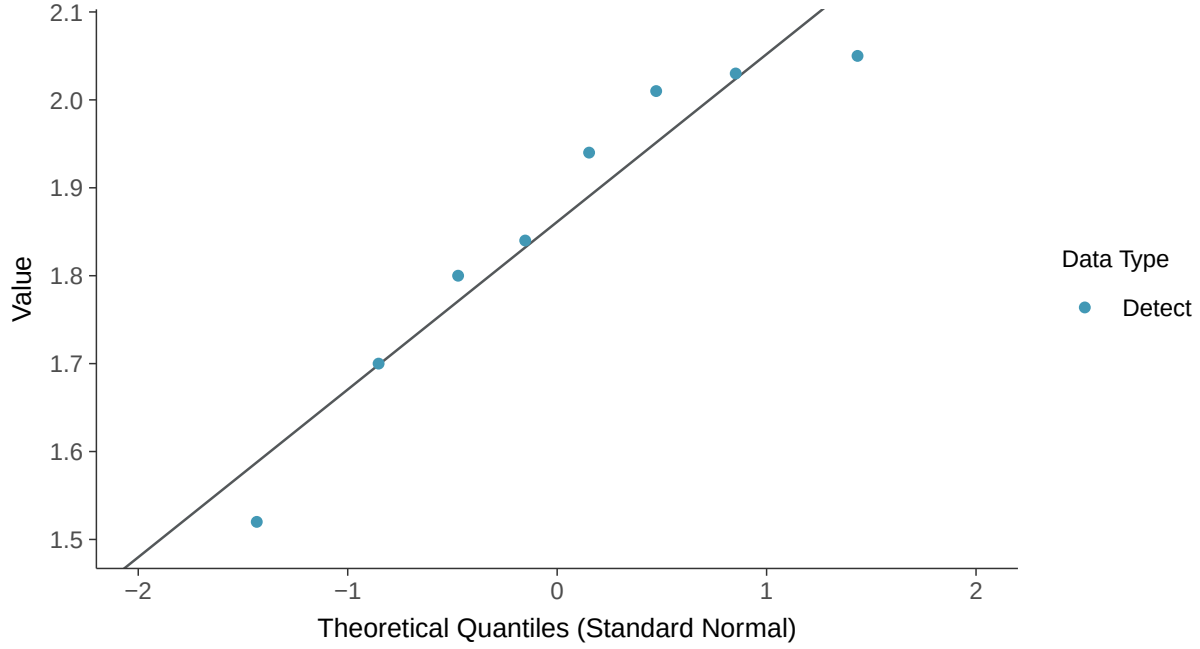
Boxplot by Season

Iron, MW-3 (mg/L)



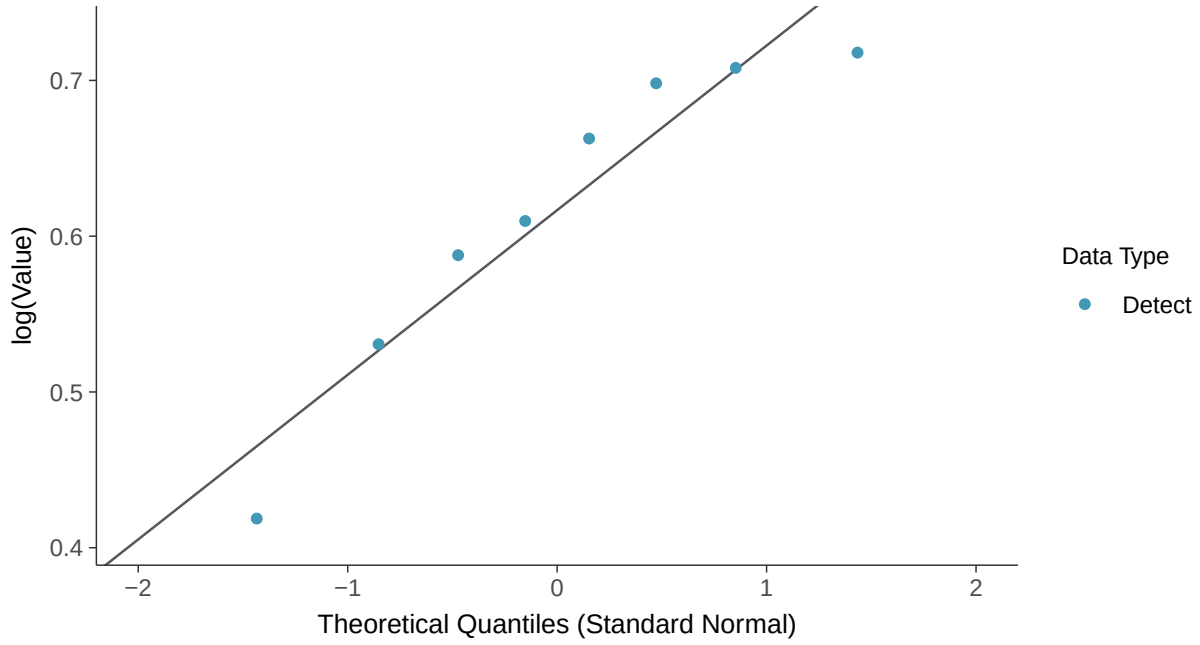
Normal Q-Q plot

Iron, MW-3 (mg/L)



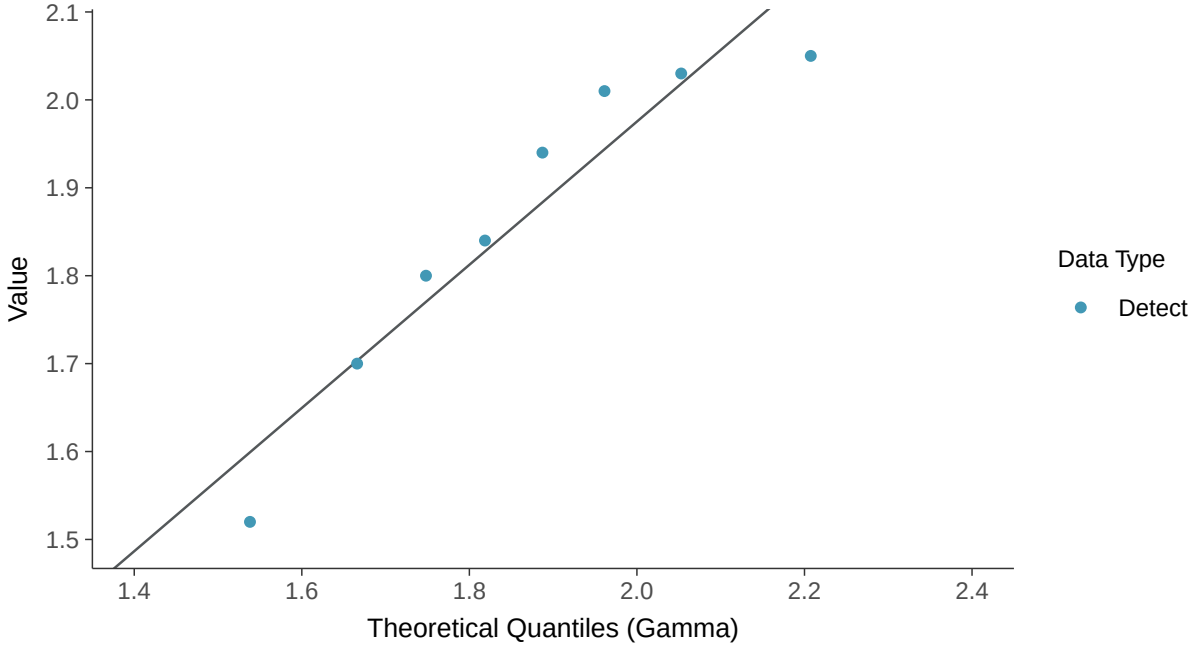
Lognormal Q-Q plot

Iron, MW-3 (mg/L)



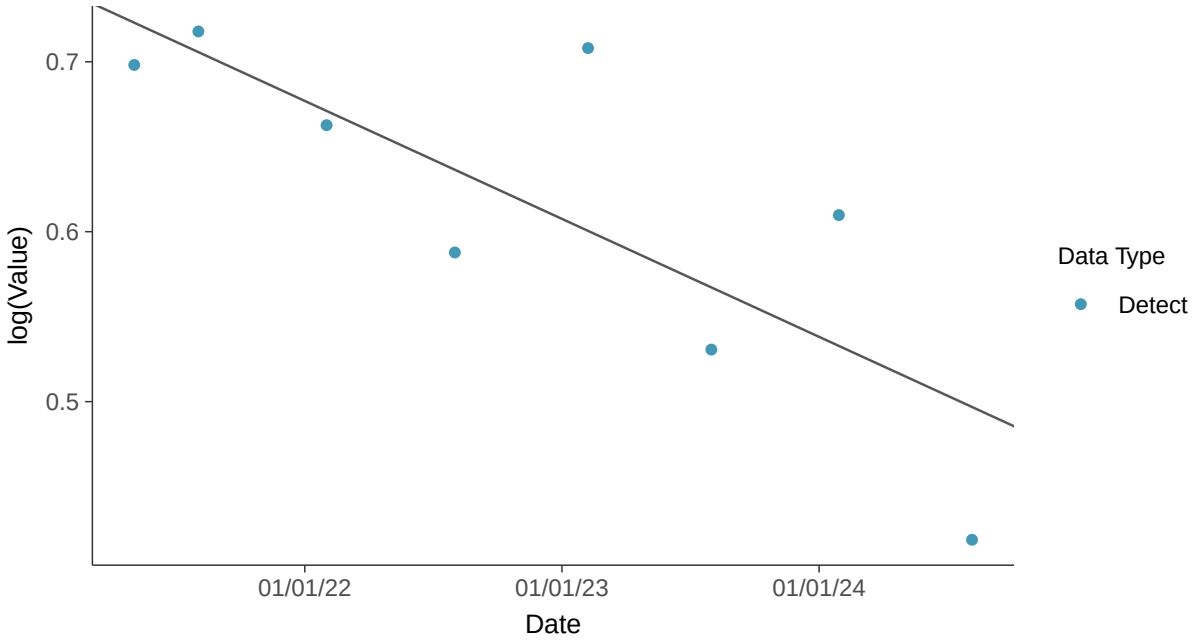
Gamma Q-Q plot

Iron, MW-3 (mg/L)



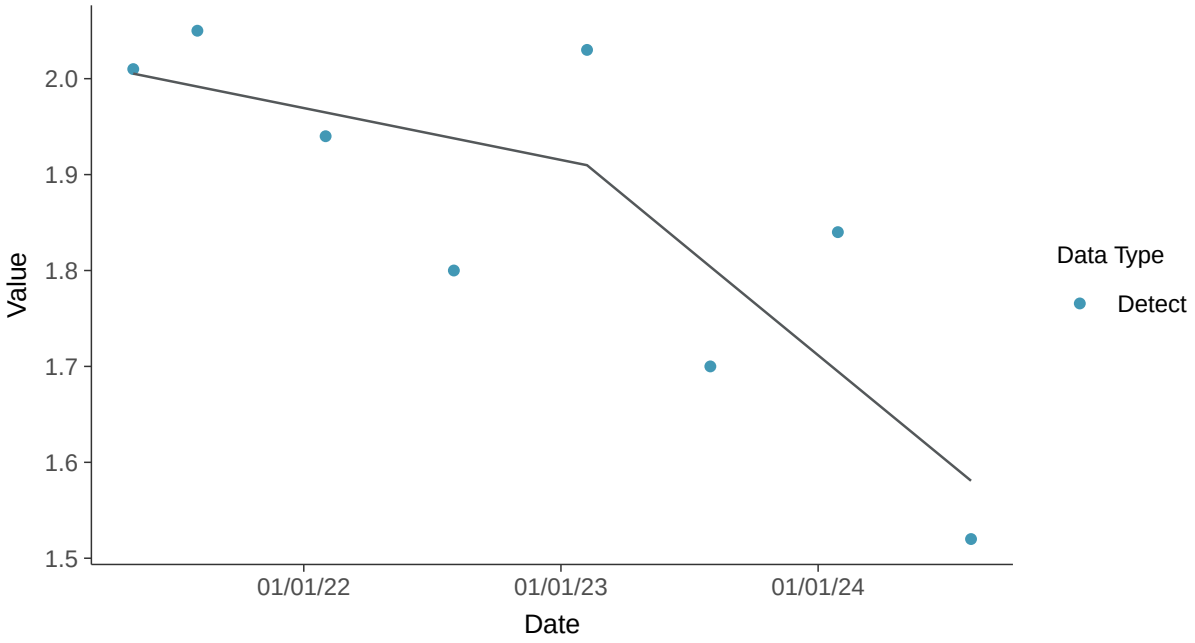
Trend Regression: Lognormal MLE

Iron, MW-3 (mg/L)



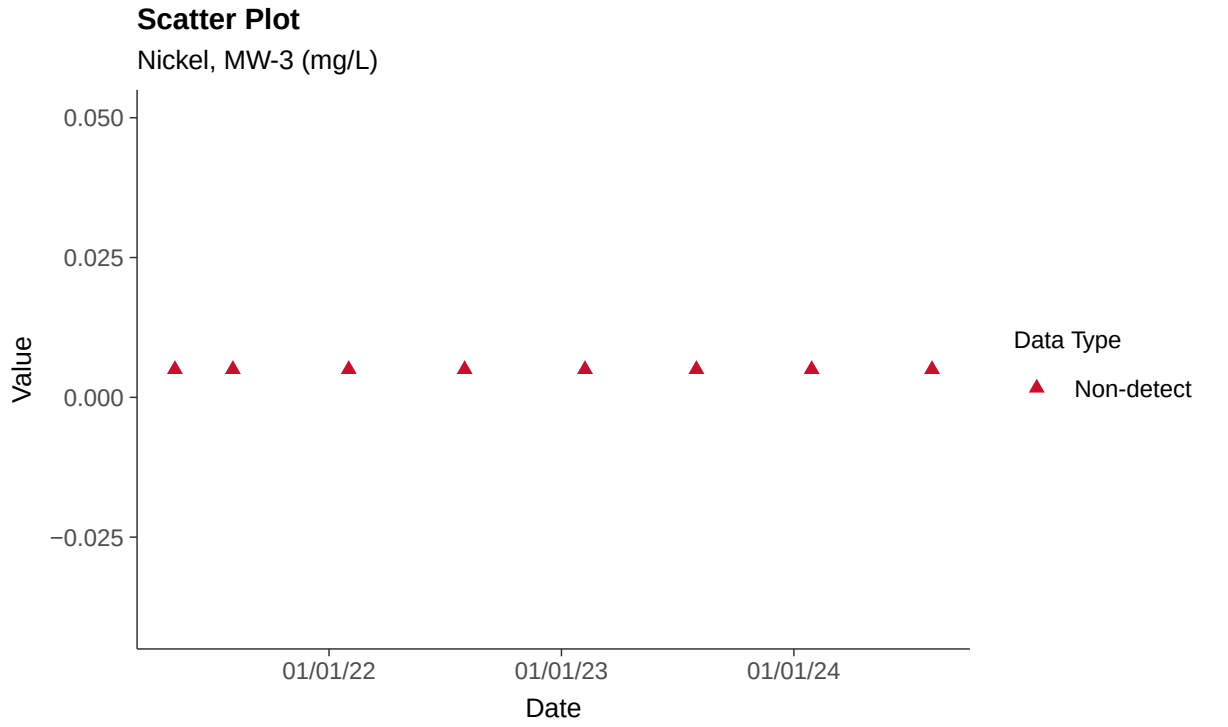
Trend Regression: Piecewise Linear-Linear

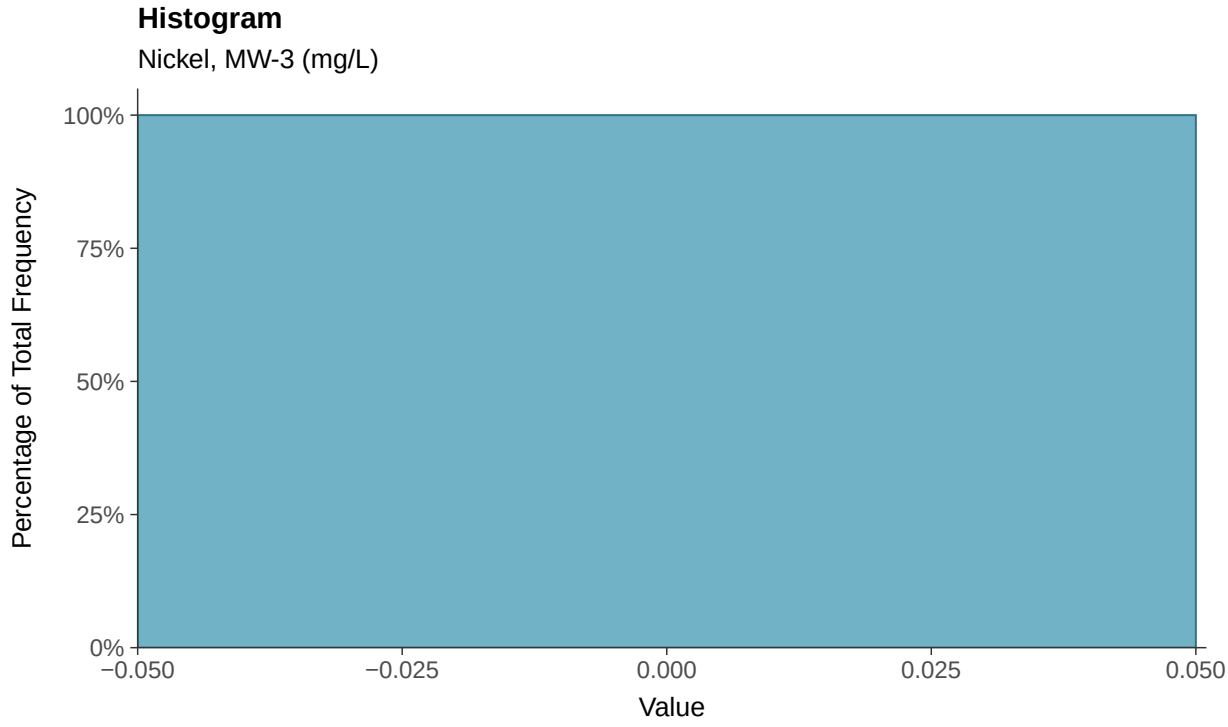
Iron, MW-3 (mg/L)



Part 115: Nickel, MW-3

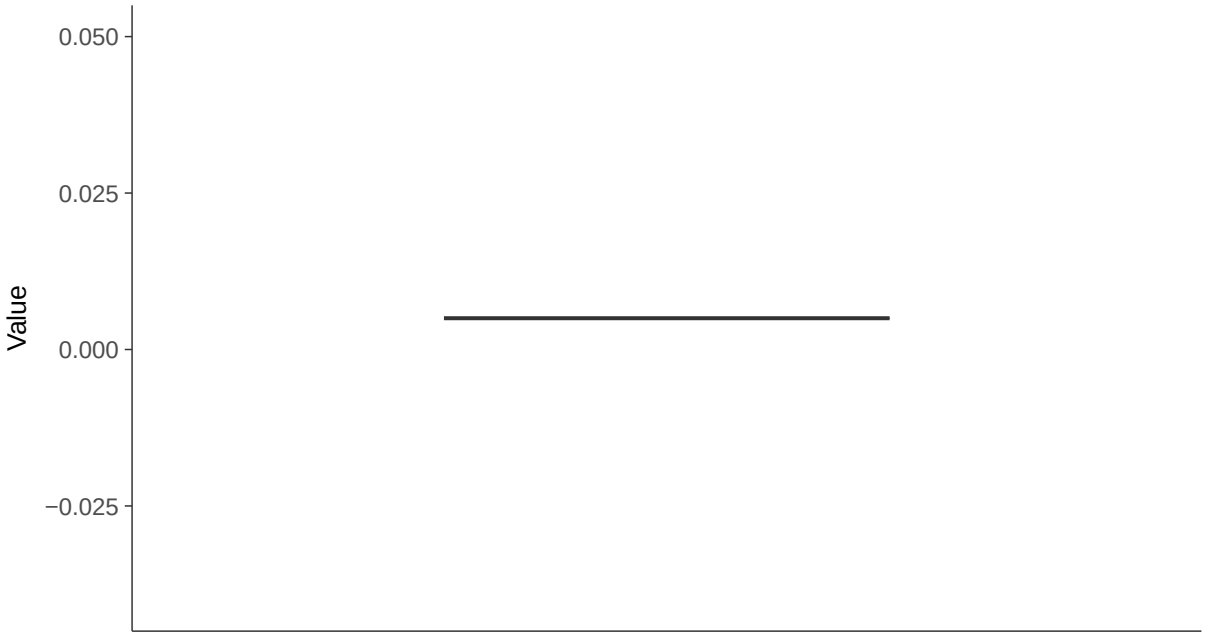
ID: 03_5_39





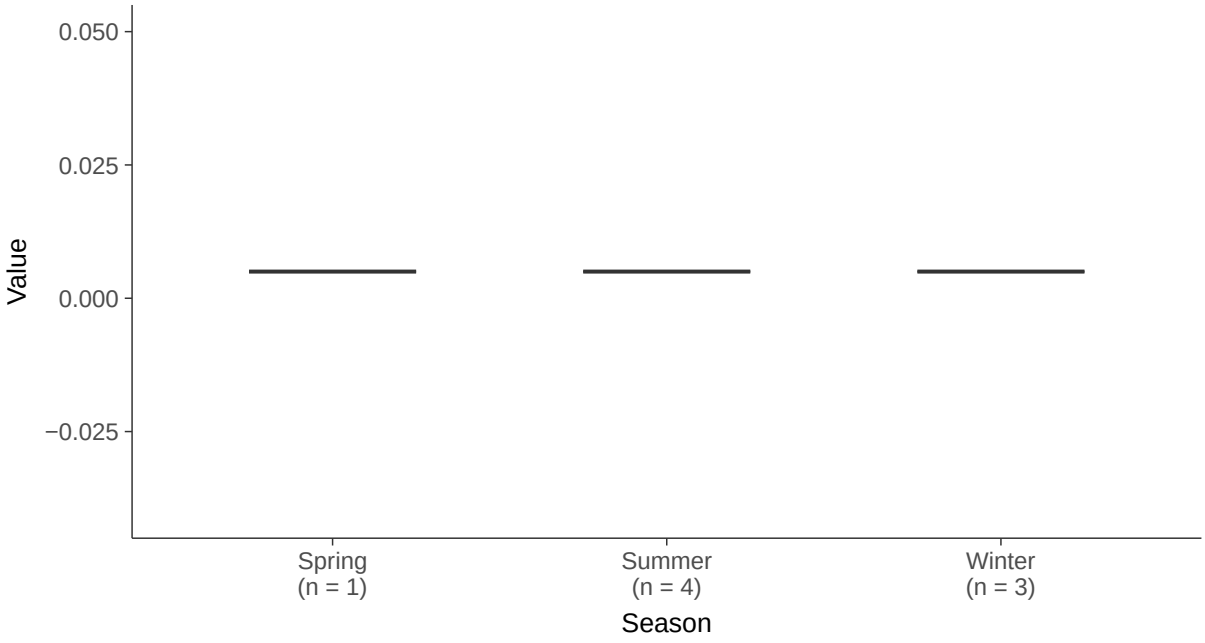
Boxplot

Nickel, MW-3 (mg/L)



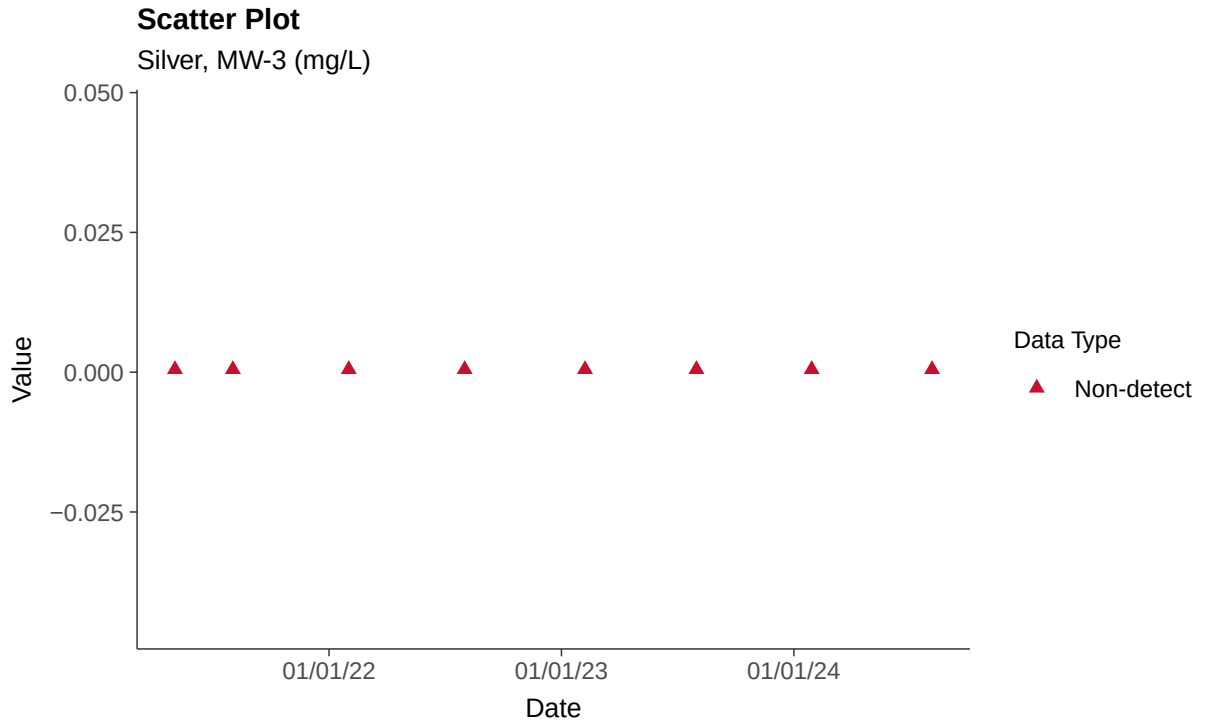
Boxplot by Season

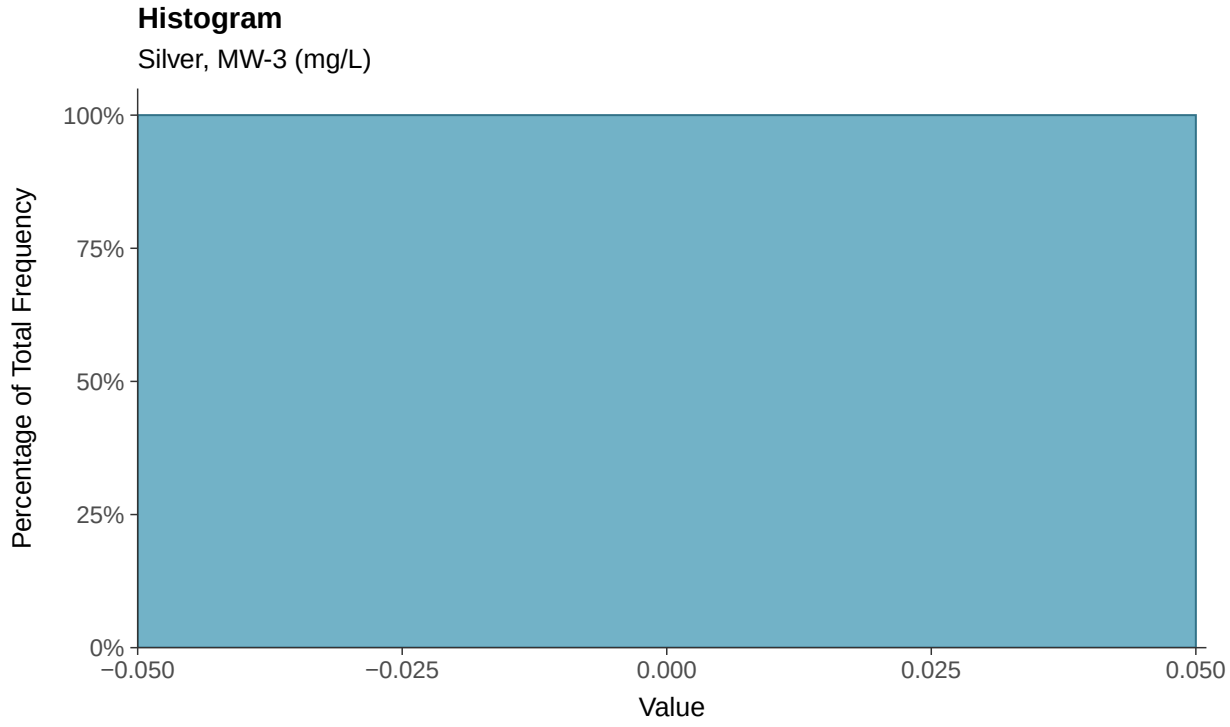
Nickel, MW-3 (mg/L)



Part 115: Silver, MW-3

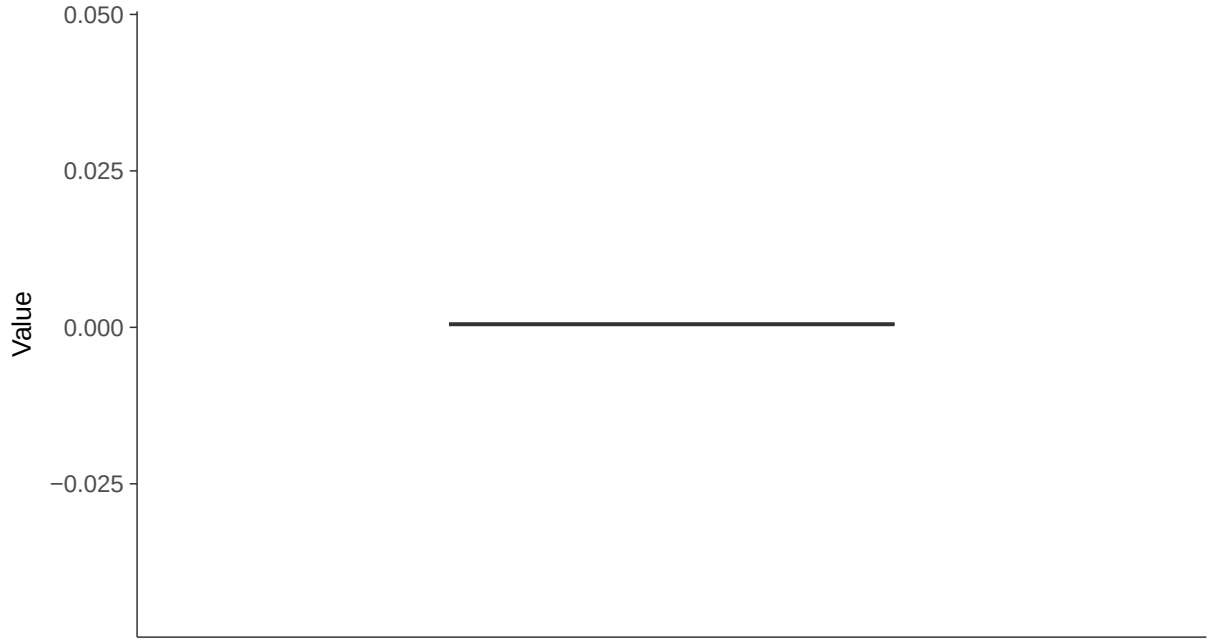
ID: 03_5_40





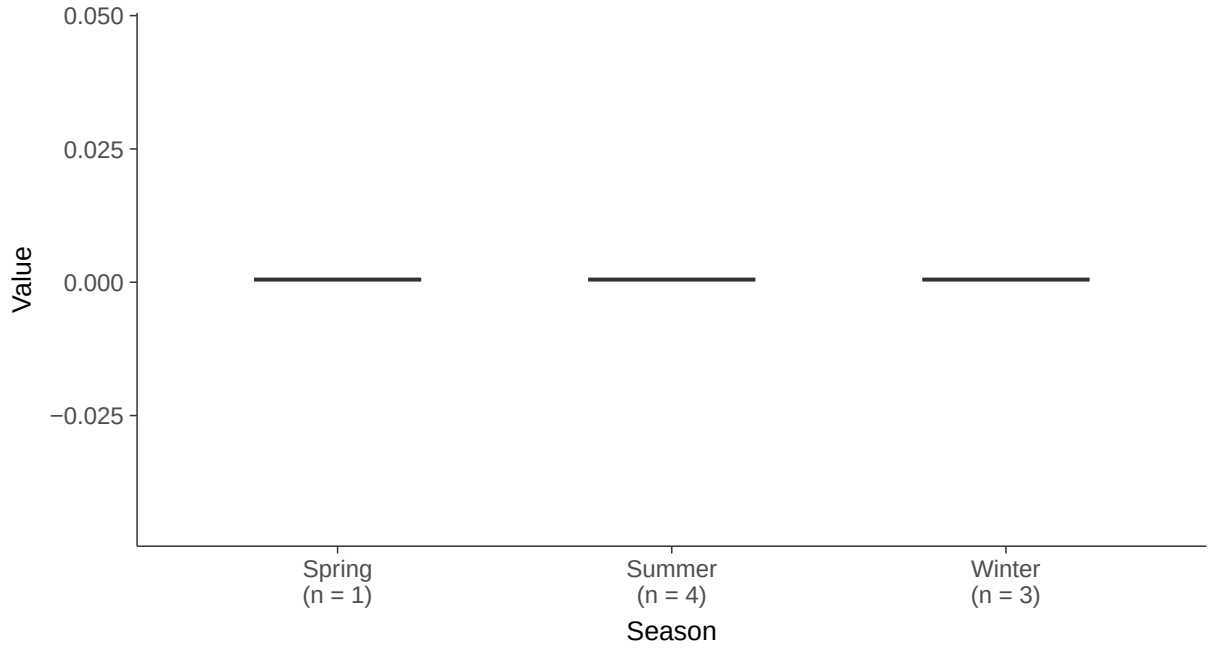
Boxplot

Silver, MW-3 (mg/L)



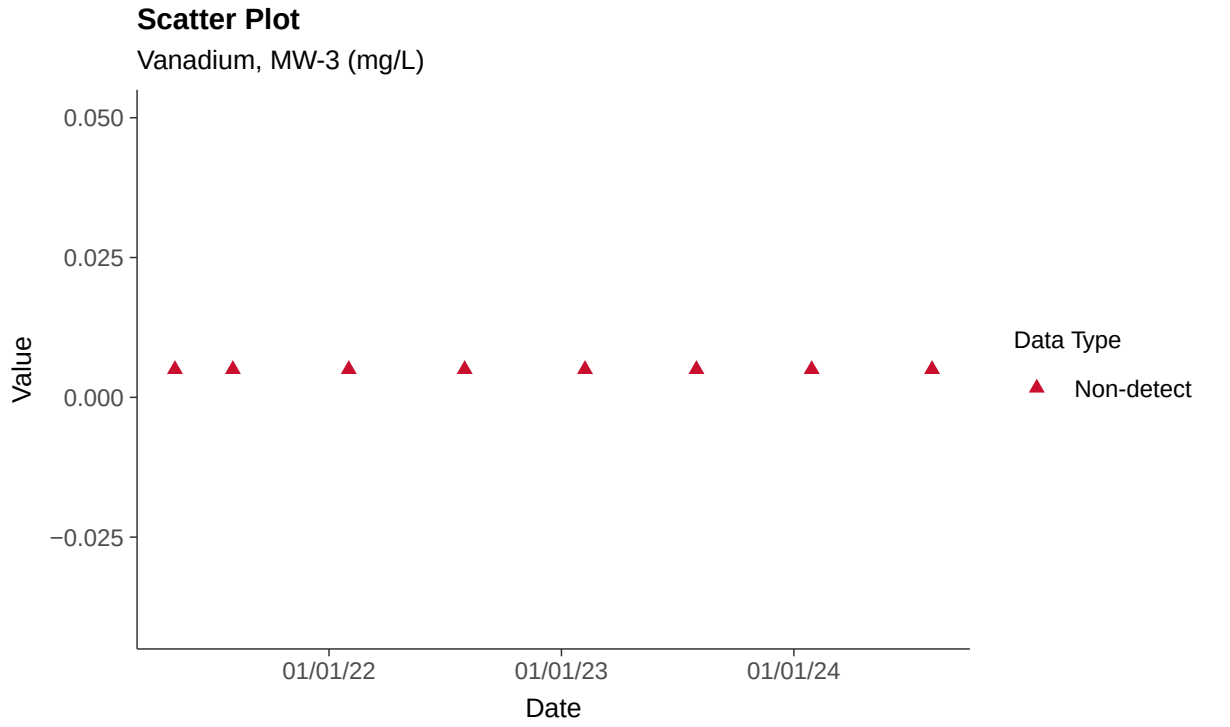
Boxplot by Season

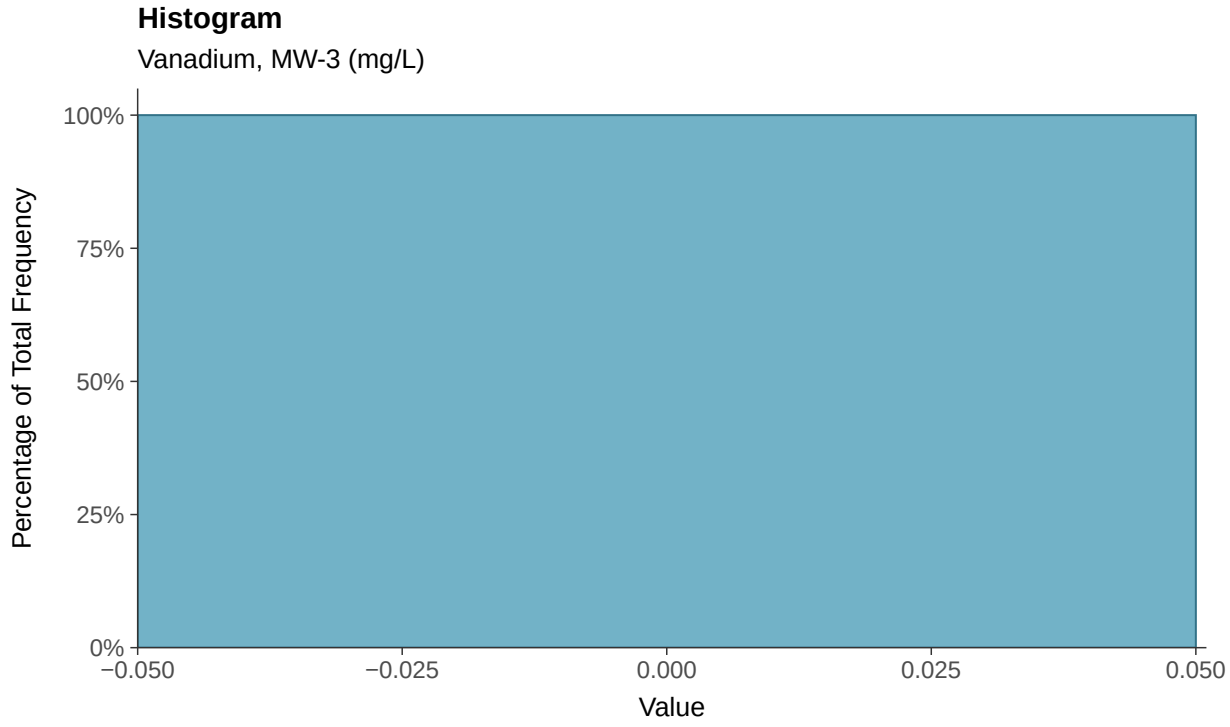
Silver, MW-3 (mg/L)



Part 115: Vanadium, MW-3

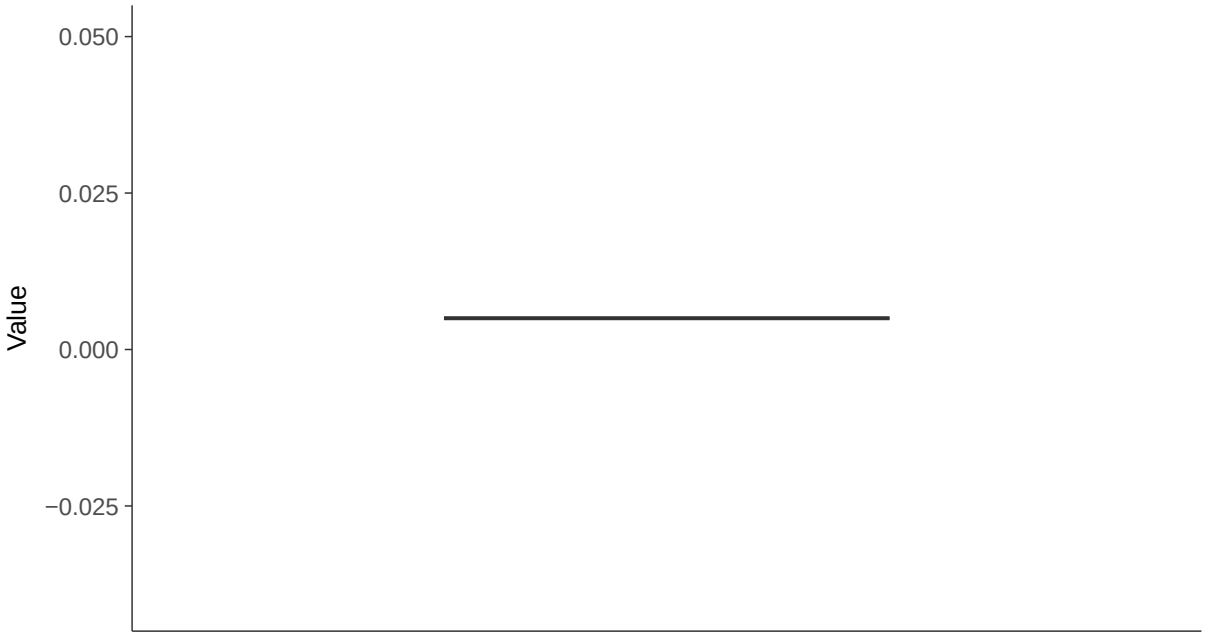
ID: 03_5_41





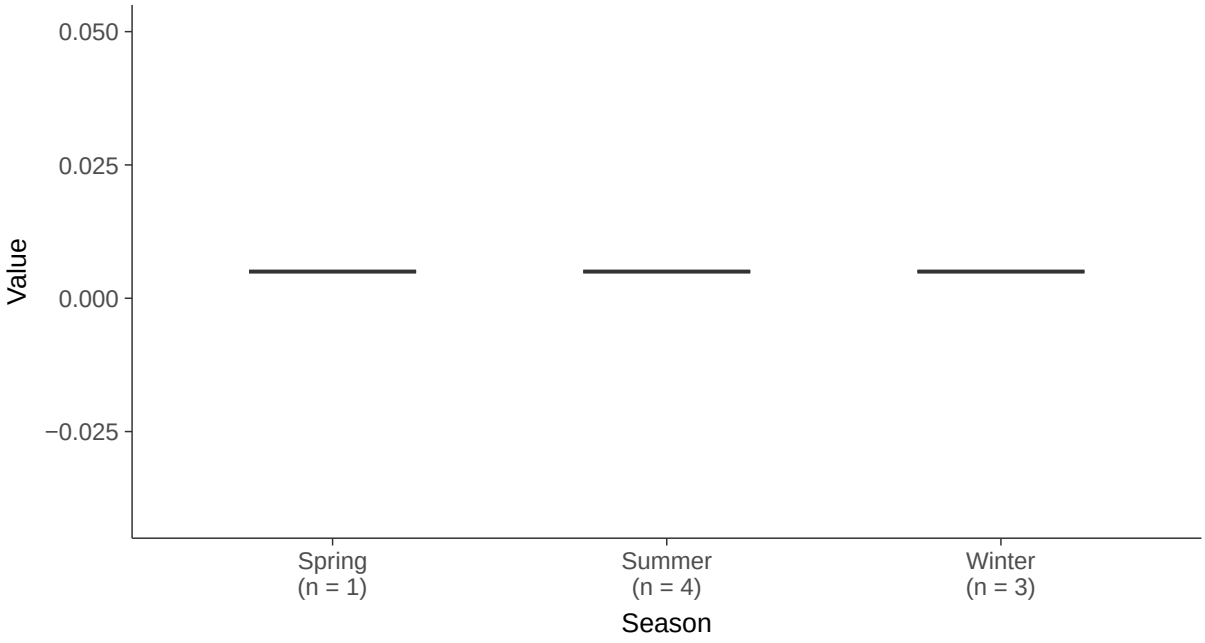
Boxplot

Vanadium, MW-3 (mg/L)



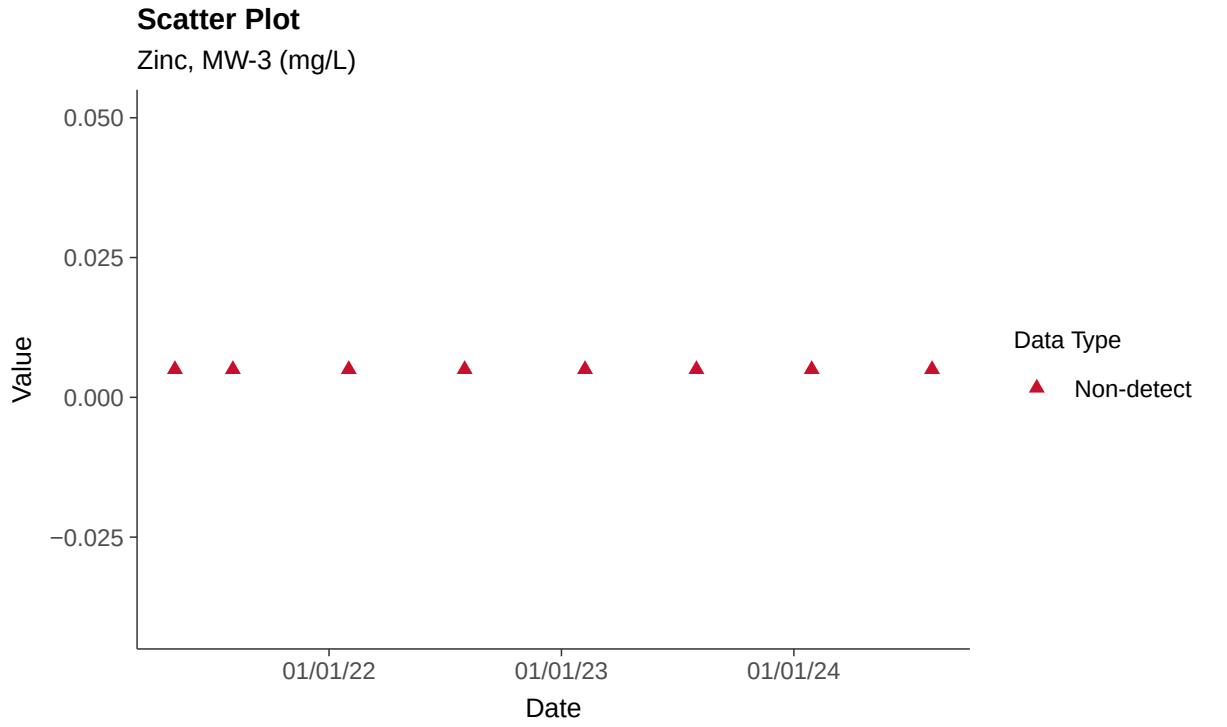
Boxplot by Season

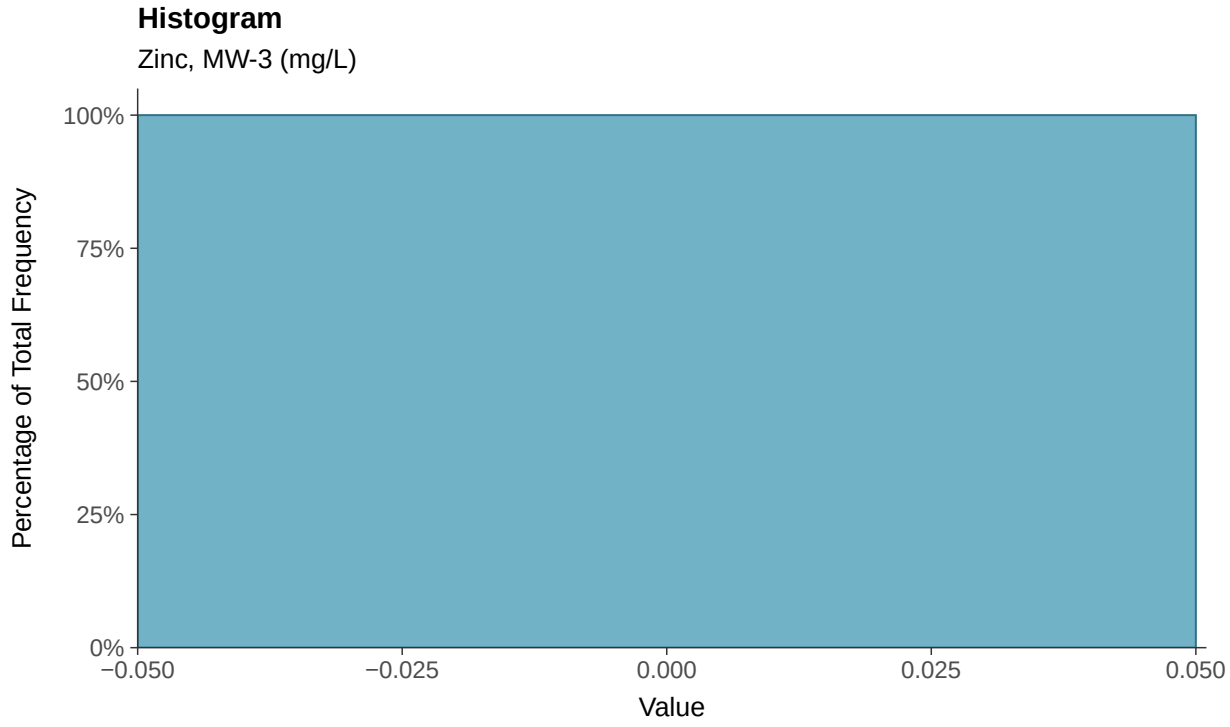
Vanadium, MW-3 (mg/L)



Part 115: Zinc, MW-3

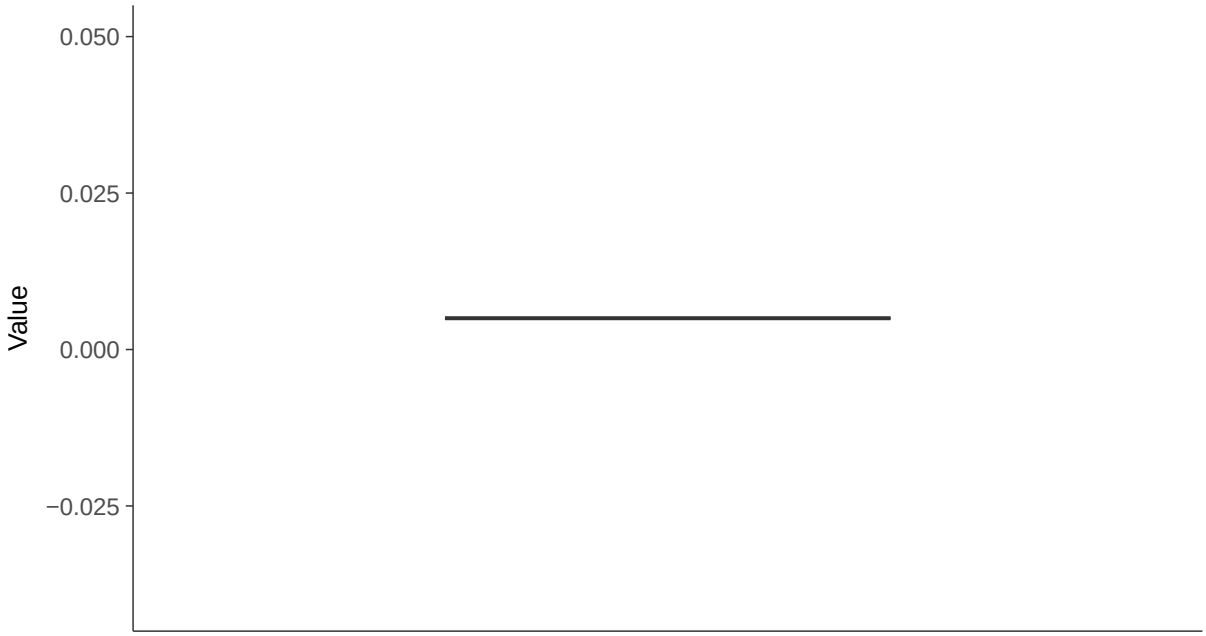
ID: 03_5_42





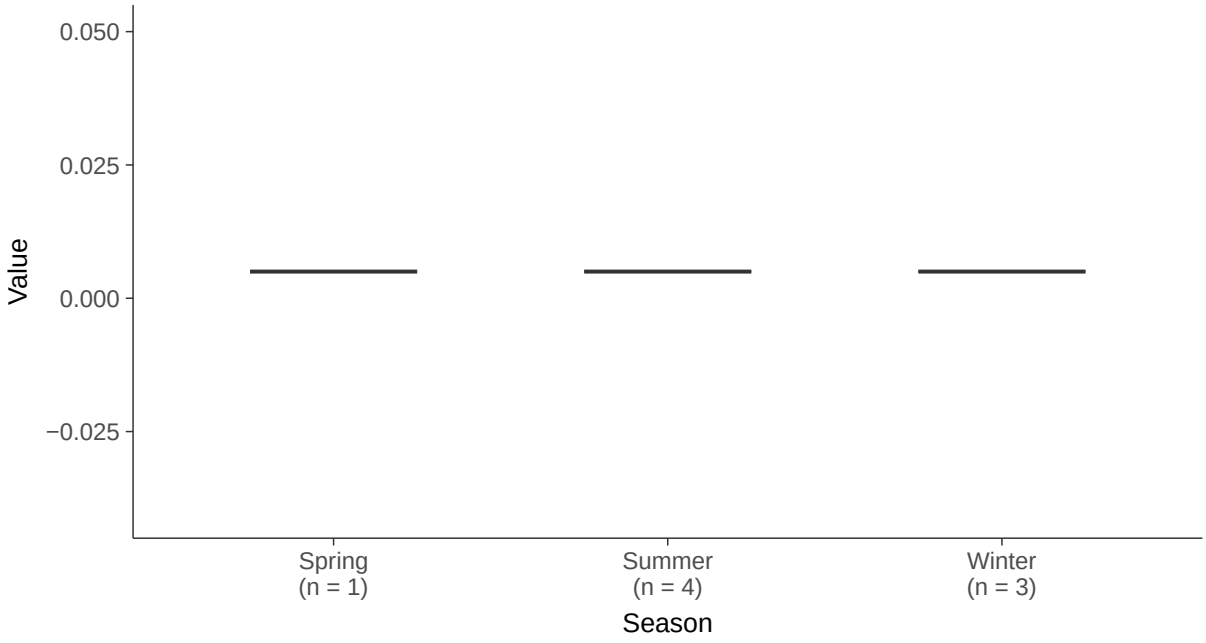
Boxplot

Zinc, MW-3 (mg/L)



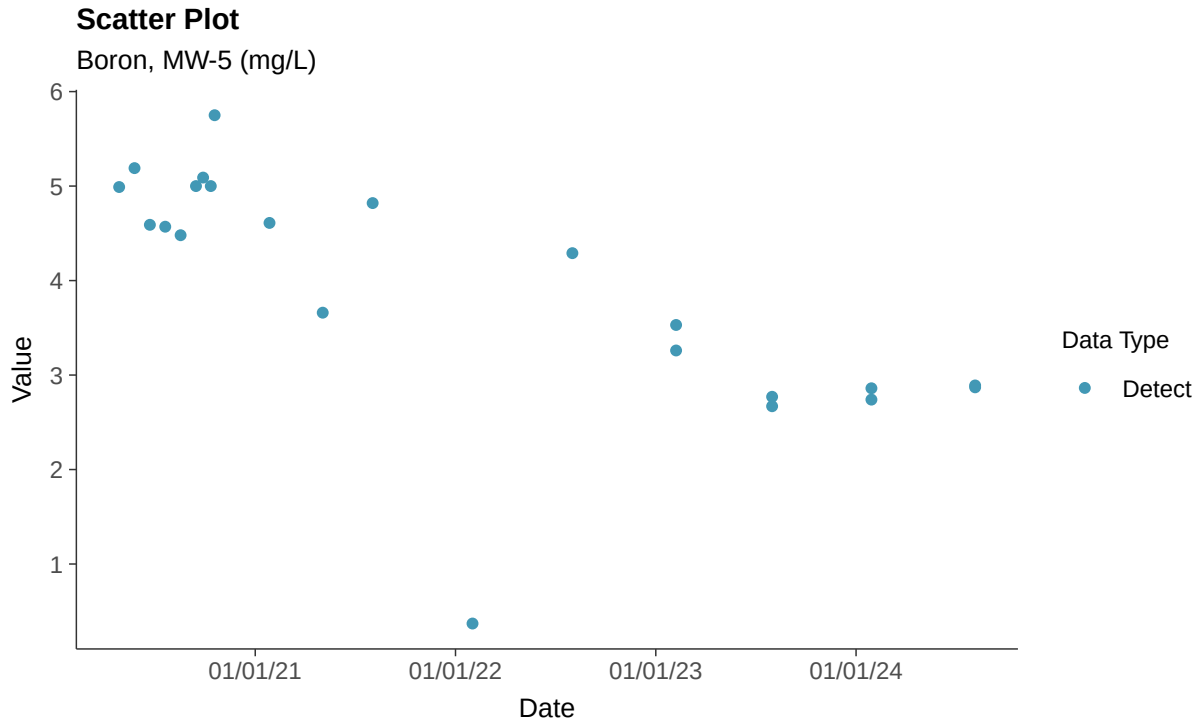
Boxplot by Season

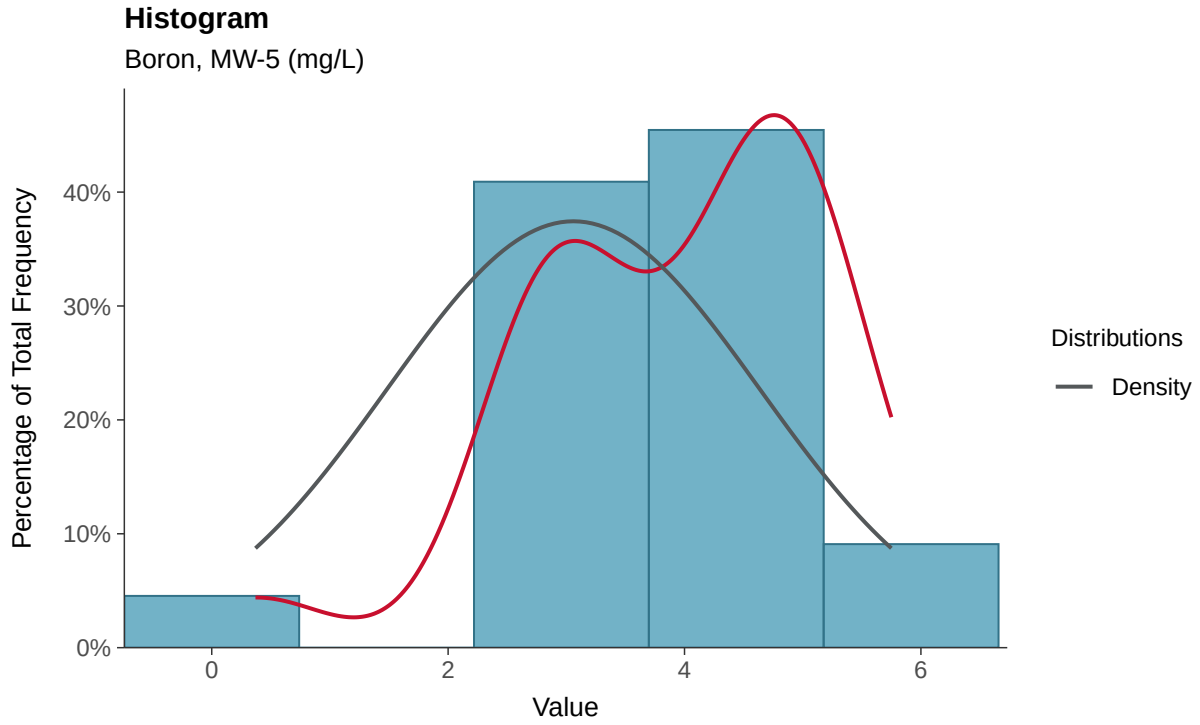
Zinc, MW-3 (mg/L)



Appendix III: Boron, MW-5

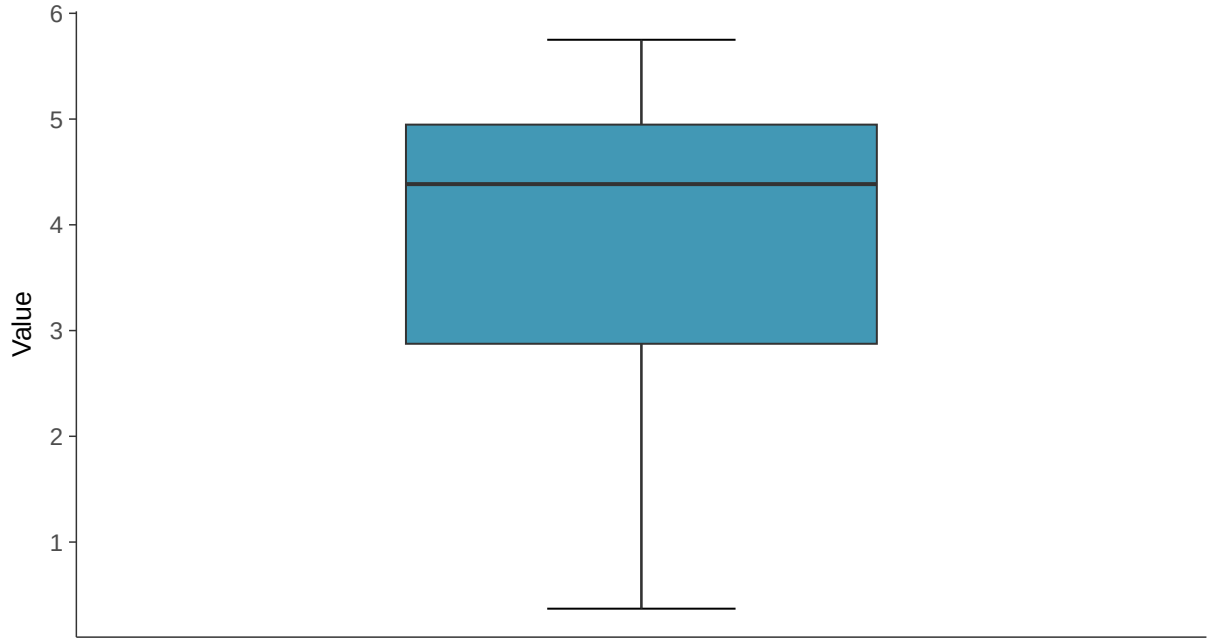
ID: 05_1_01





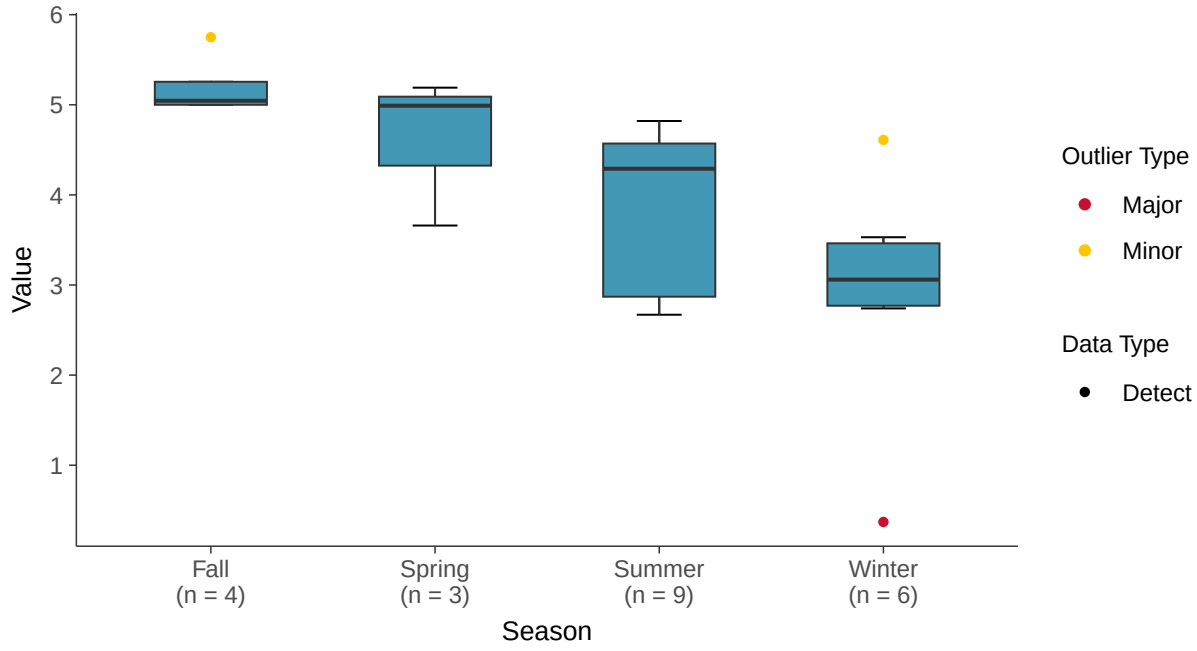
Boxplot

Boron, MW-5 (mg/L)



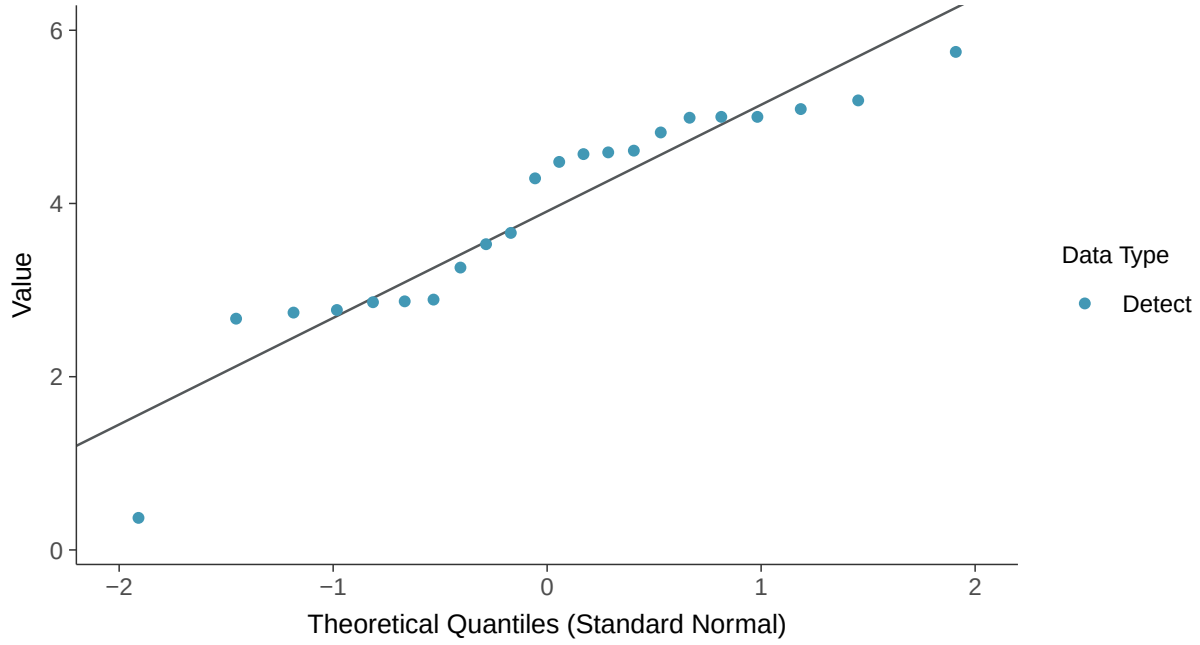
Boxplot by Season

Boron, MW-5 (mg/L)



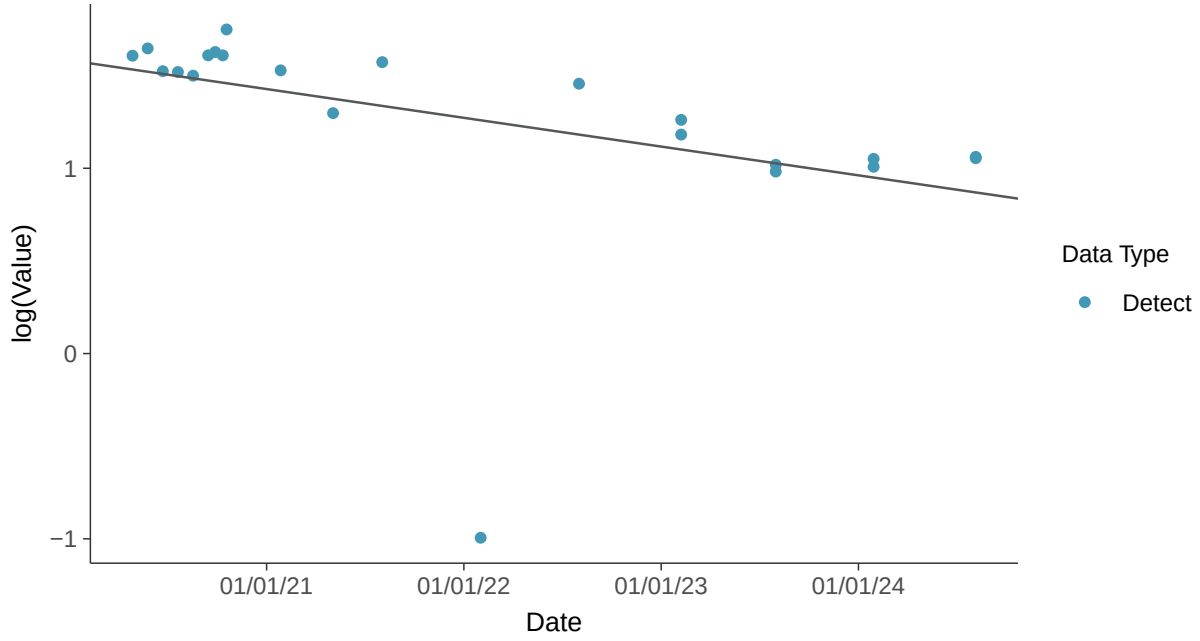
Normal Q-Q plot

Boron, MW-5 (mg/L)



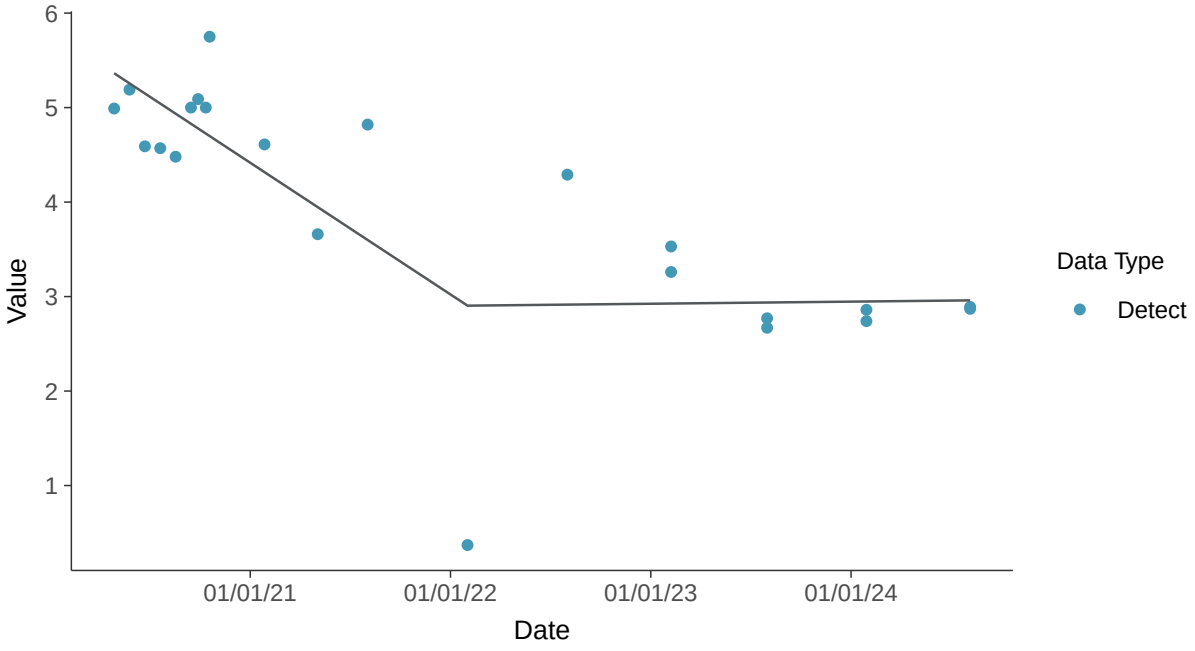
Trend Regression: Lognormal MLE

Boron, MW-5 (mg/L)



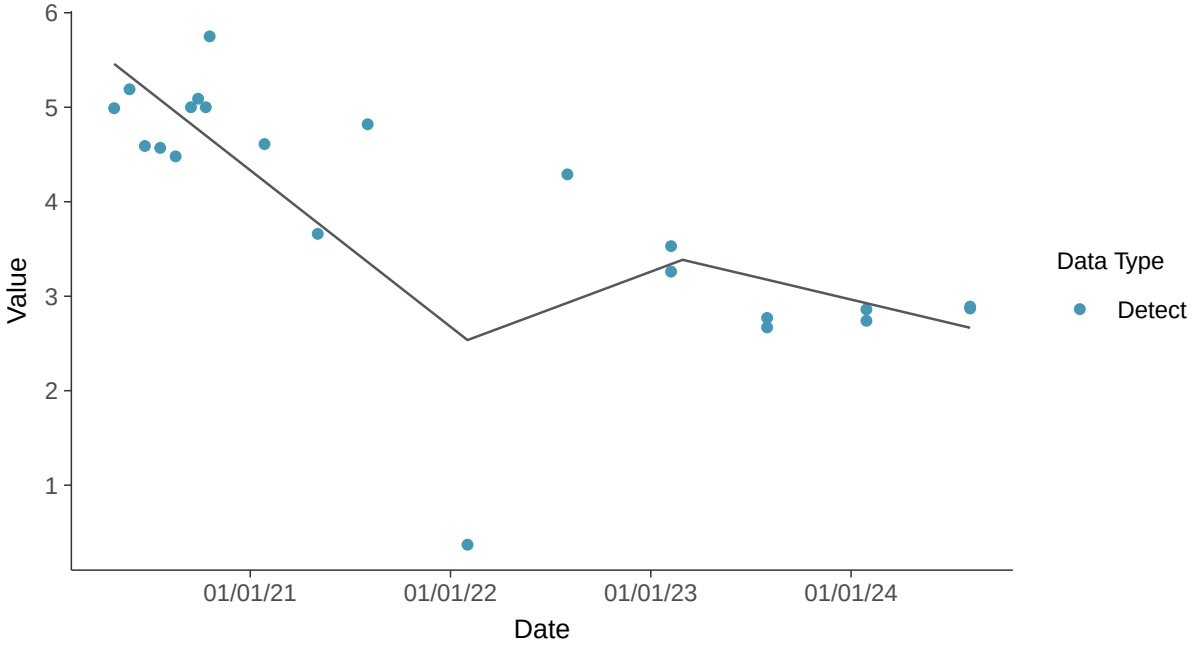
Trend Regression: Piecewise Linear-Linear

Boron, MW-5 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Boron, MW-5 (mg/L)

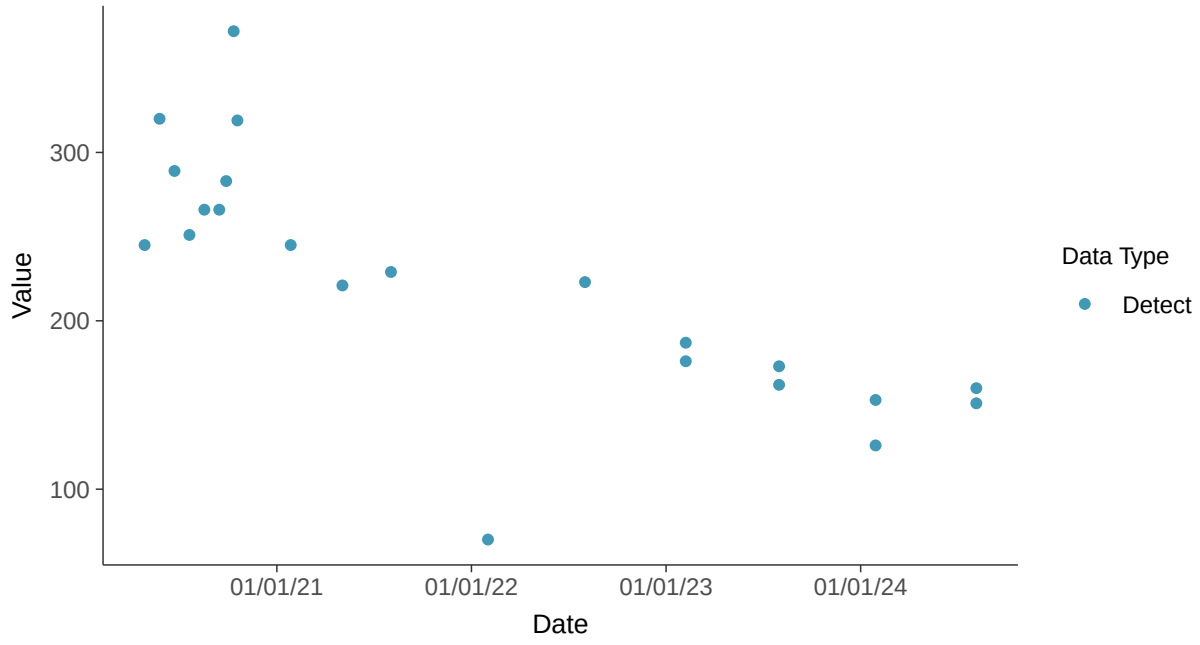


Appendix III: Calcium, MW-5

ID: 05_1_02

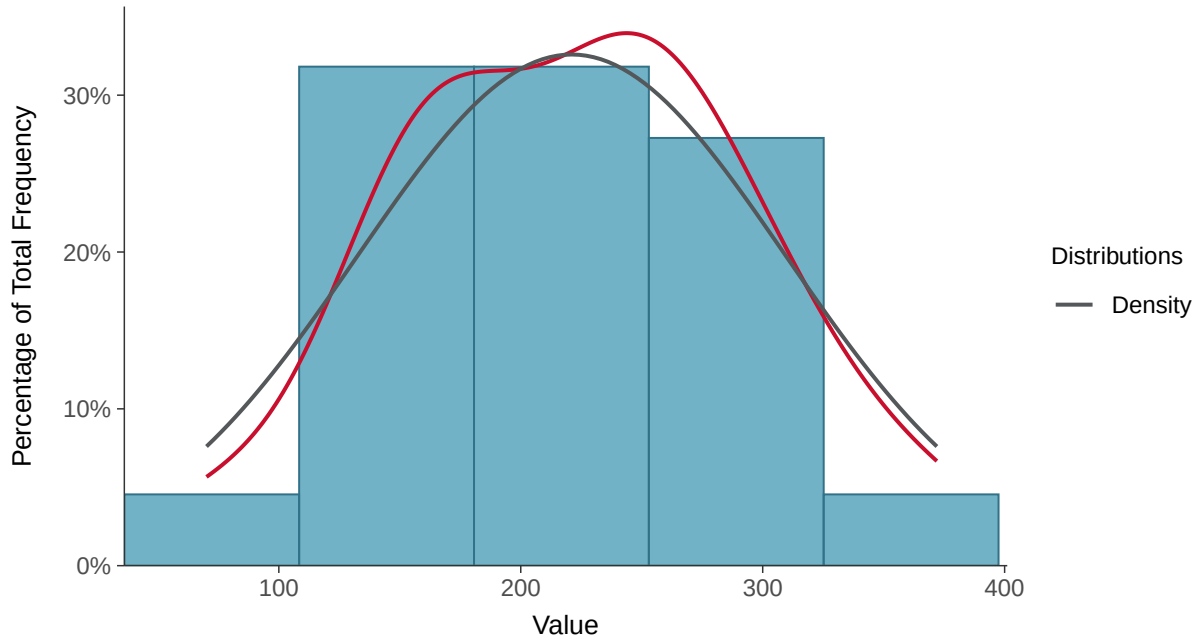
Scatter Plot

Calcium, MW-5 (mg/L)



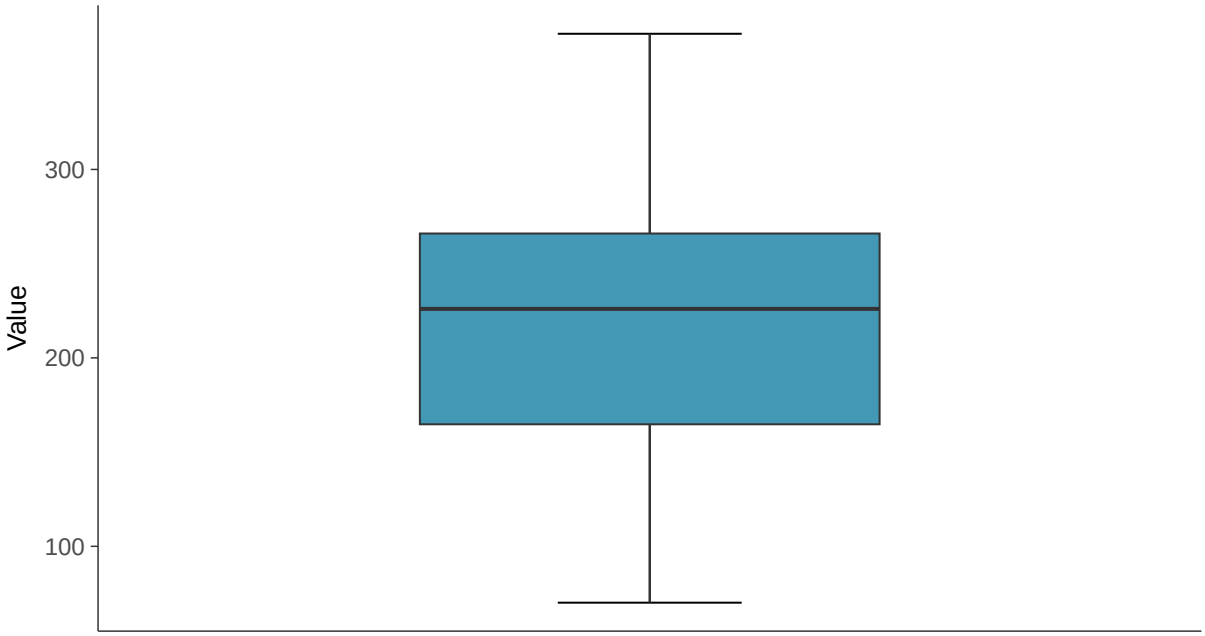
Histogram

Calcium, MW-5 (mg/L)



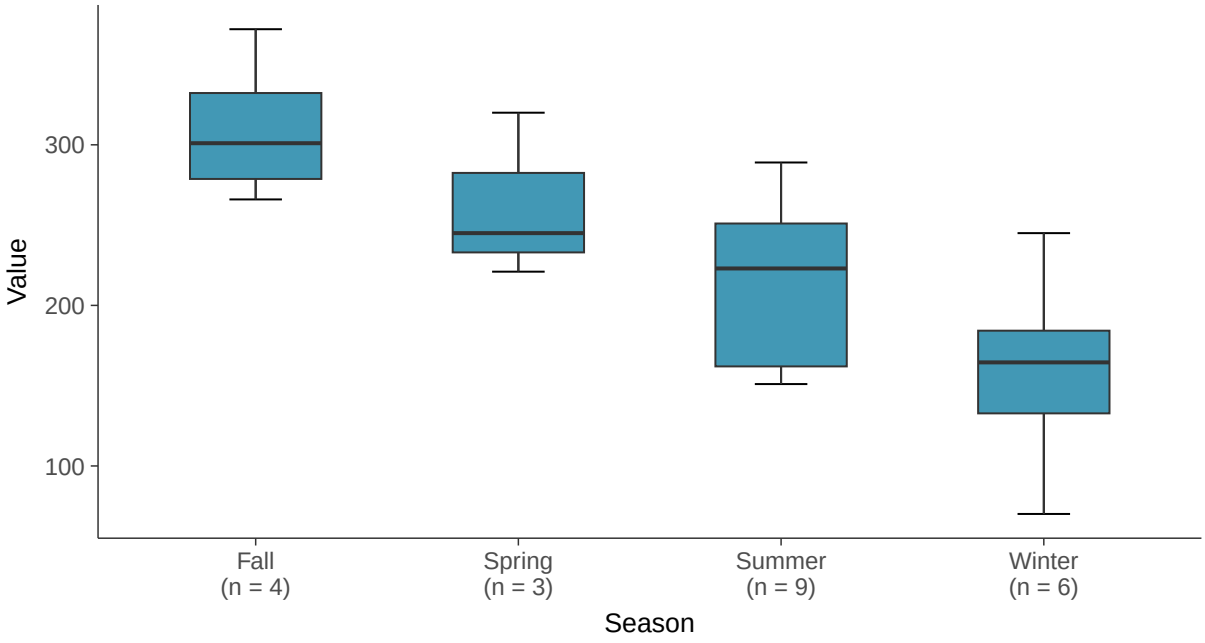
Boxplot

Calcium, MW-5 (mg/L)



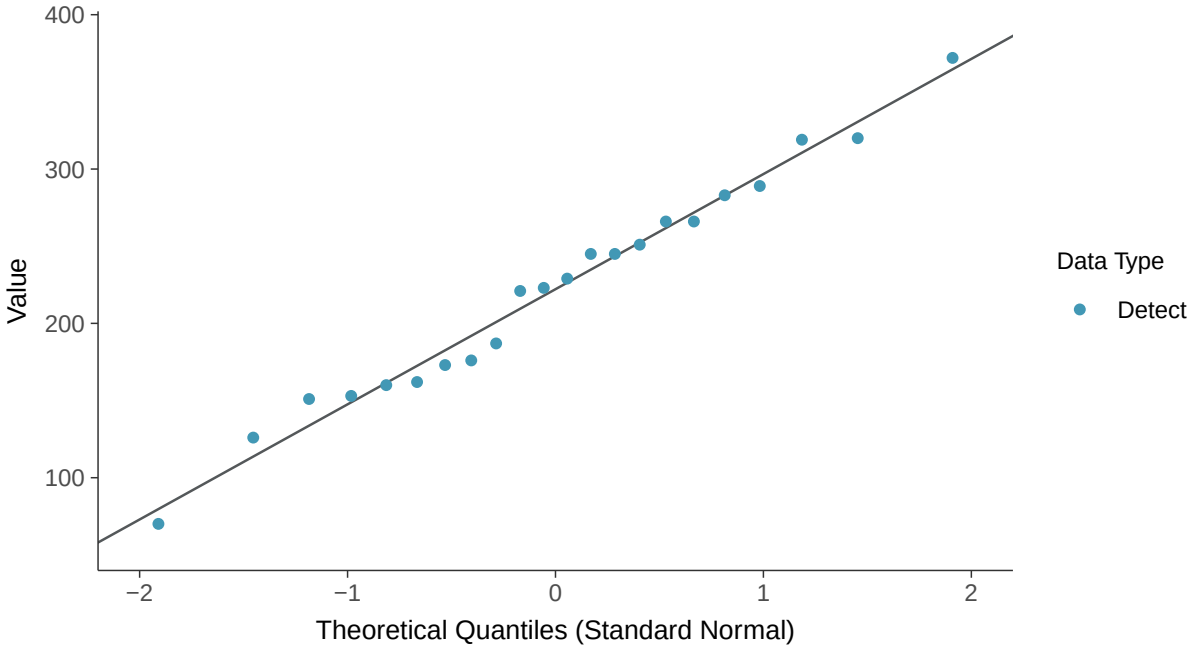
Boxplot by Season

Calcium, MW-5 (mg/L)



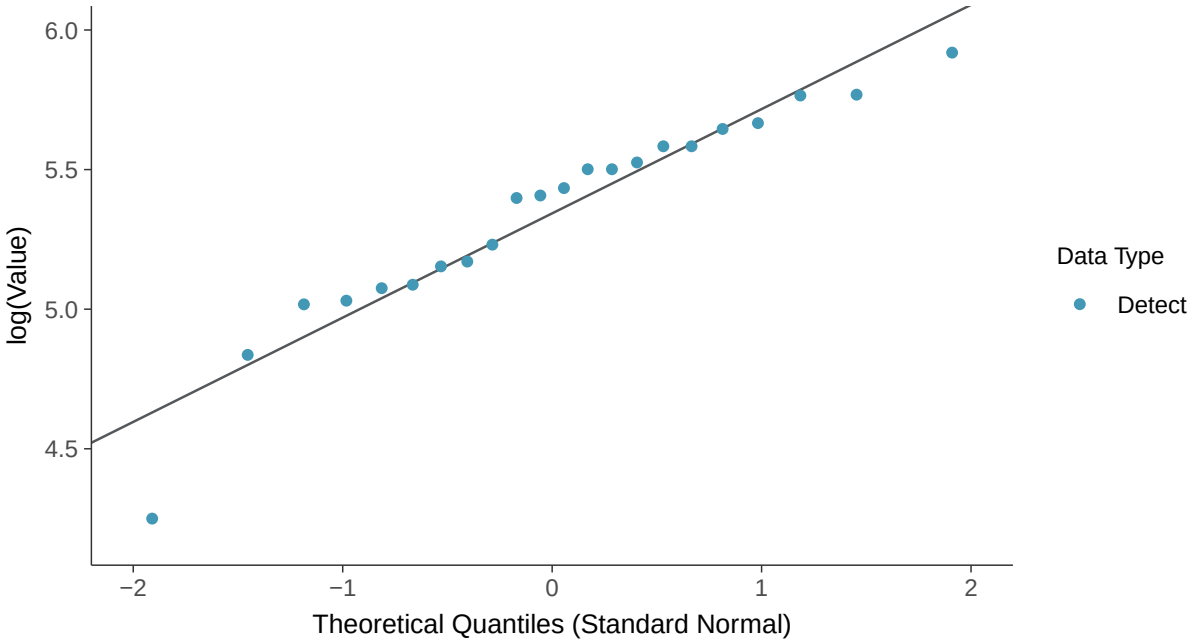
Normal Q-Q plot

Calcium, MW-5 (mg/L)



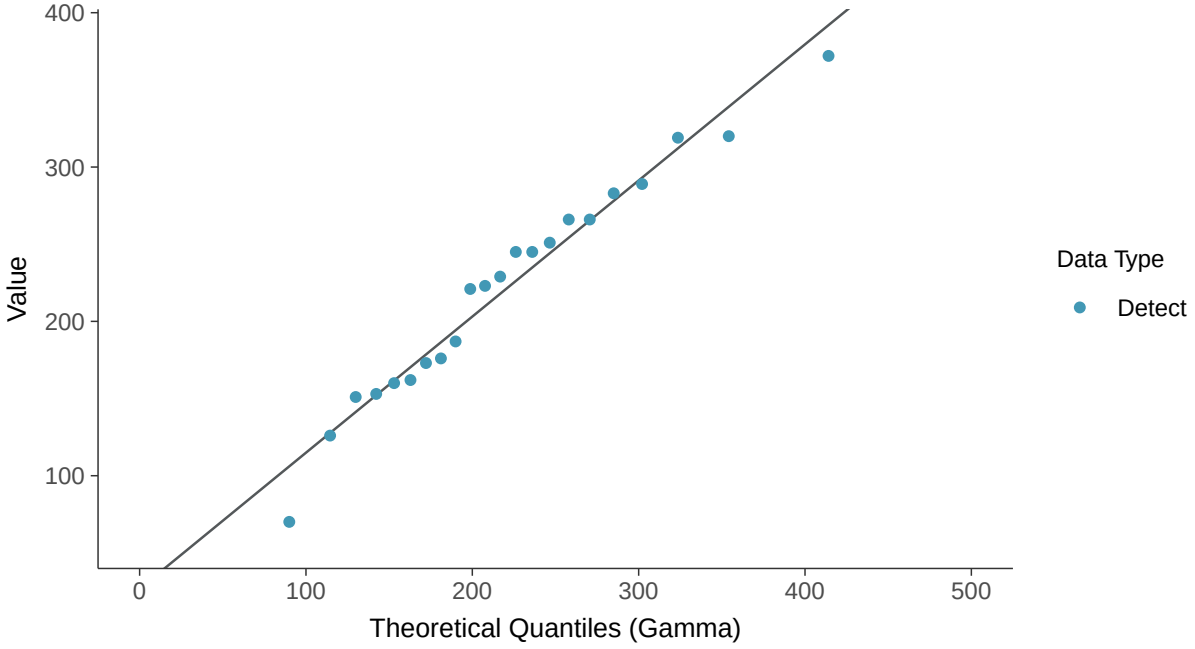
Lognormal Q-Q plot

Calcium, MW-5 (mg/L)



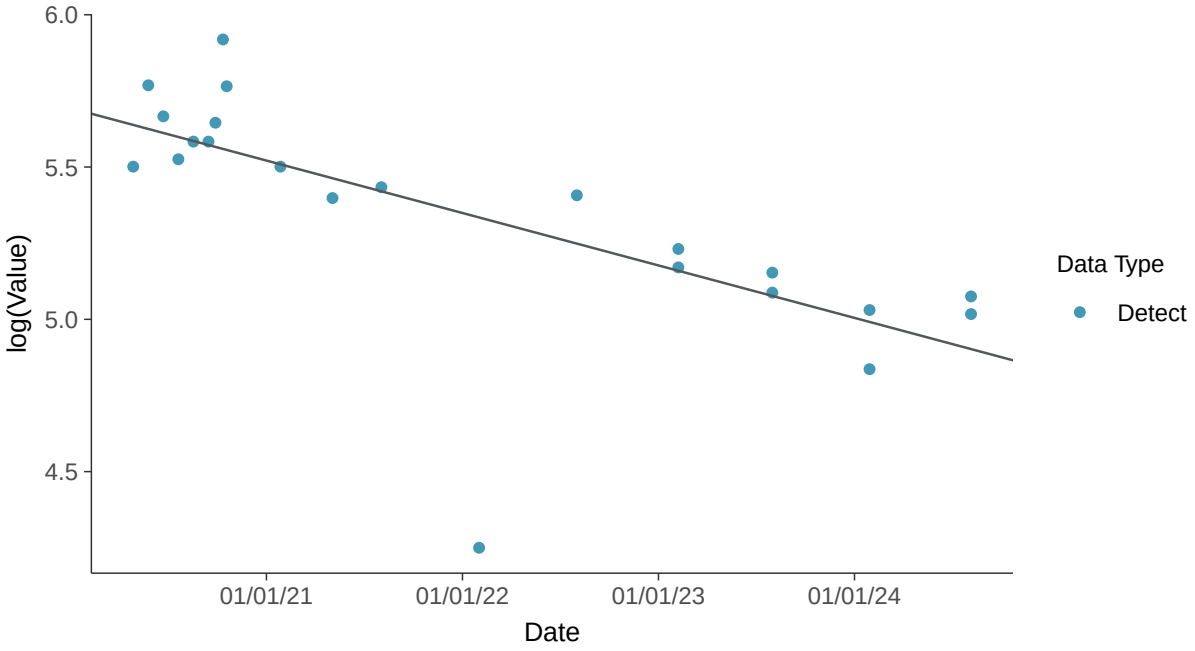
Gamma Q-Q plot

Calcium, MW-5 (mg/L)



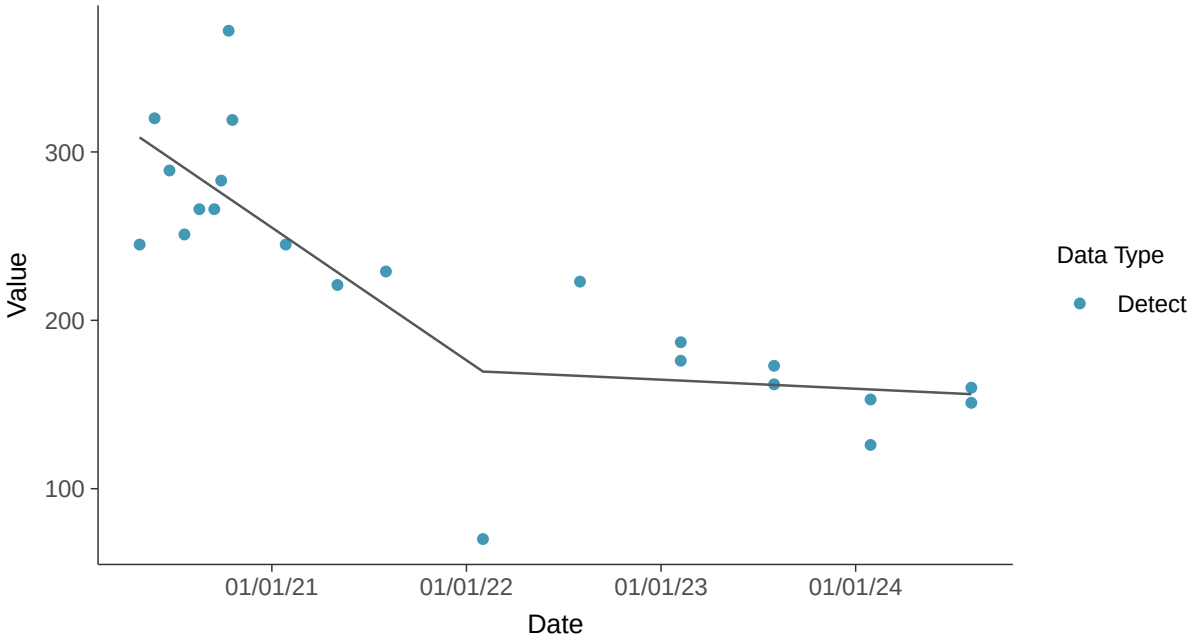
Trend Regression: Lognormal MLE

Calcium, MW-5 (mg/L)



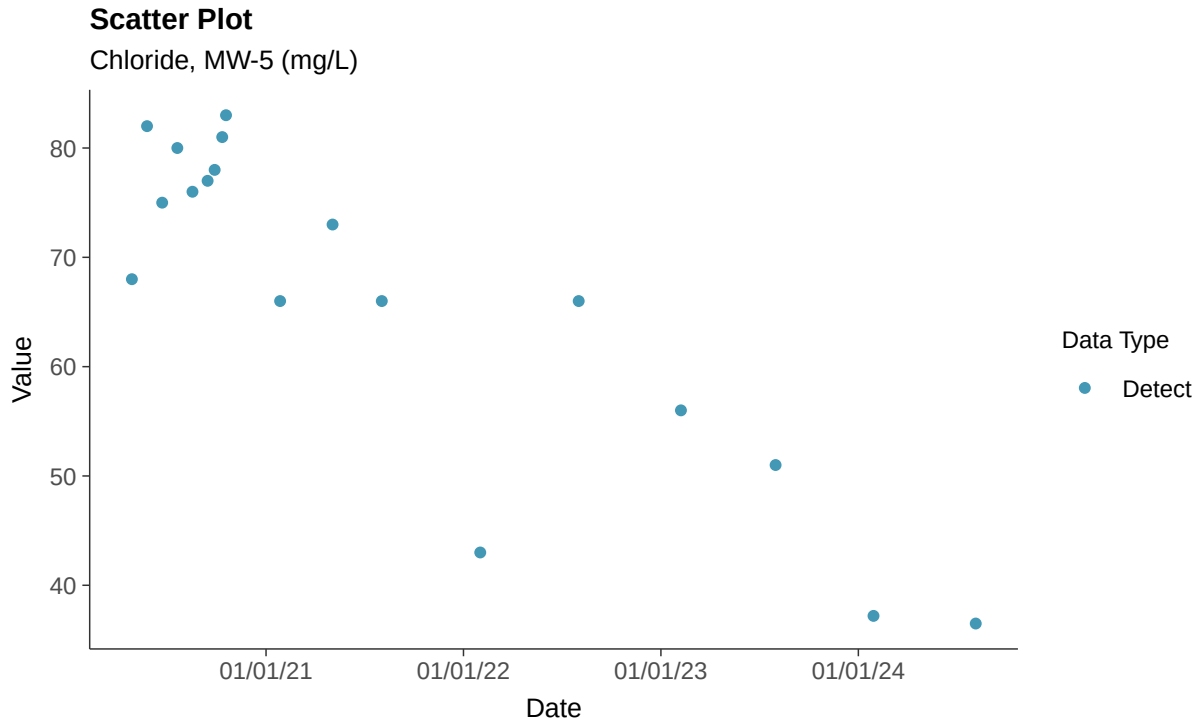
Trend Regression: Piecewise Linear-Linear

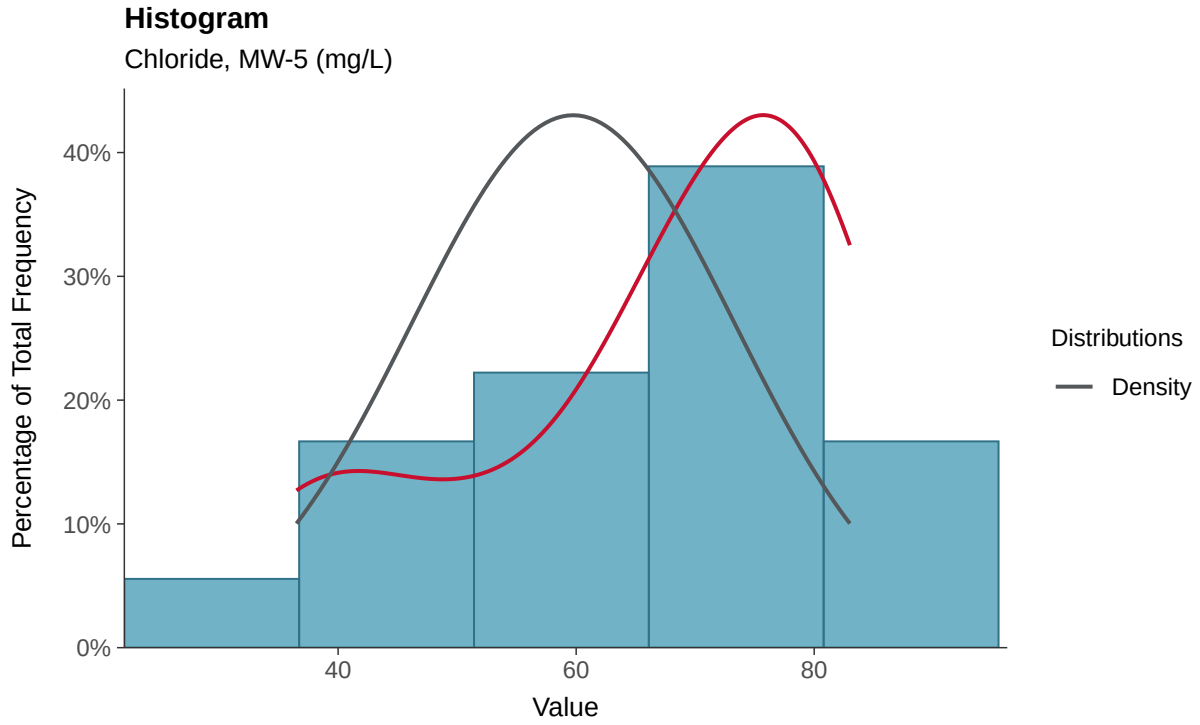
Calcium, MW-5 (mg/L)



Appendix III: Chloride, MW-5

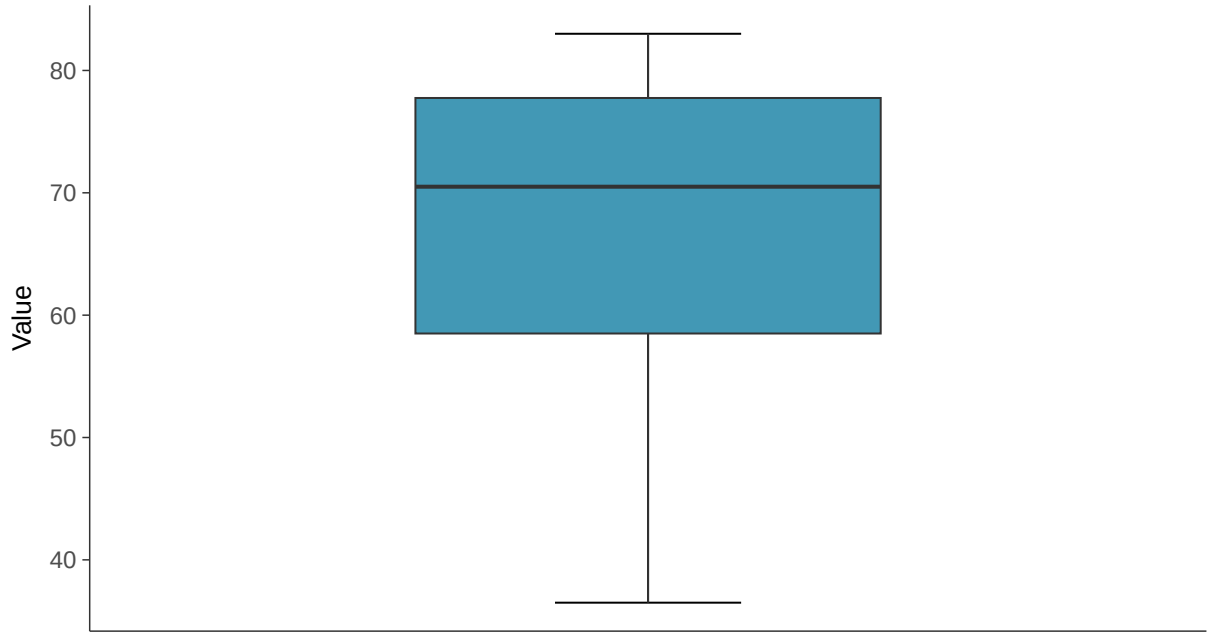
ID: 05_1_03





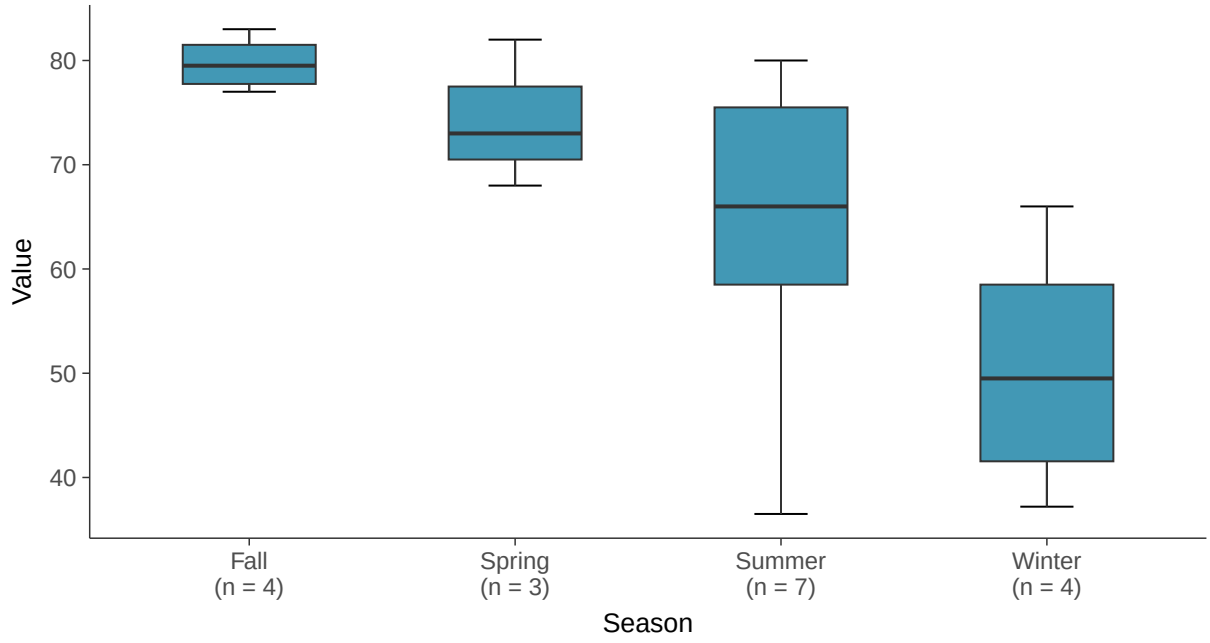
Boxplot

Chloride, MW-5 (mg/L)



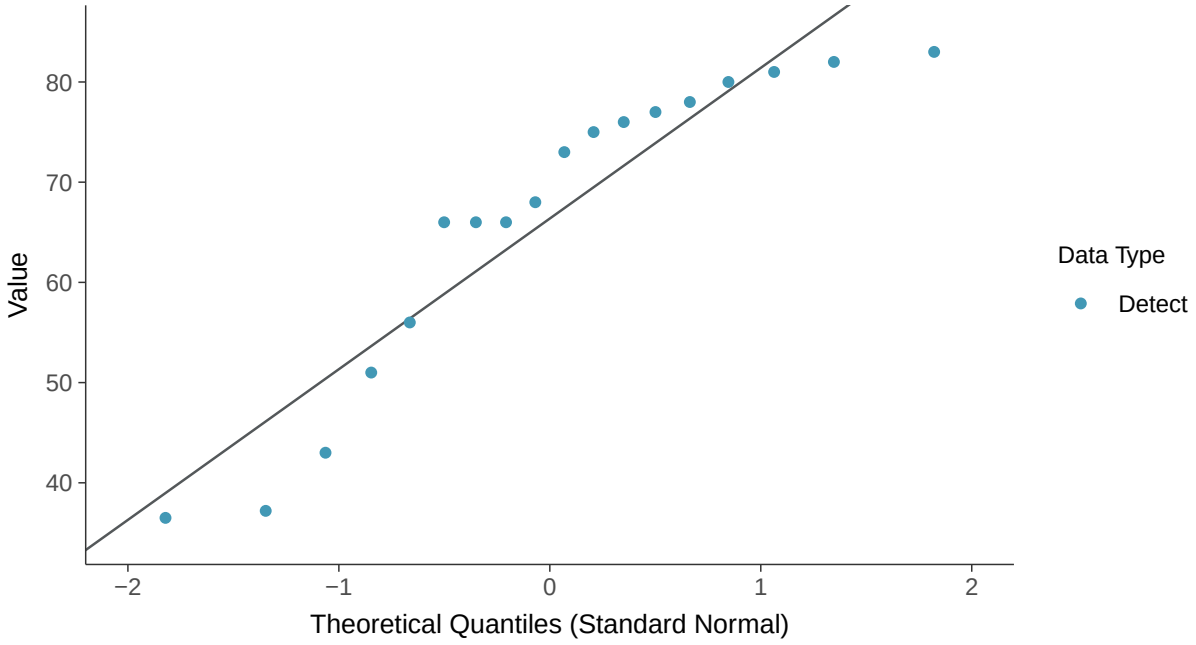
Boxplot by Season

Chloride, MW-5 (mg/L)



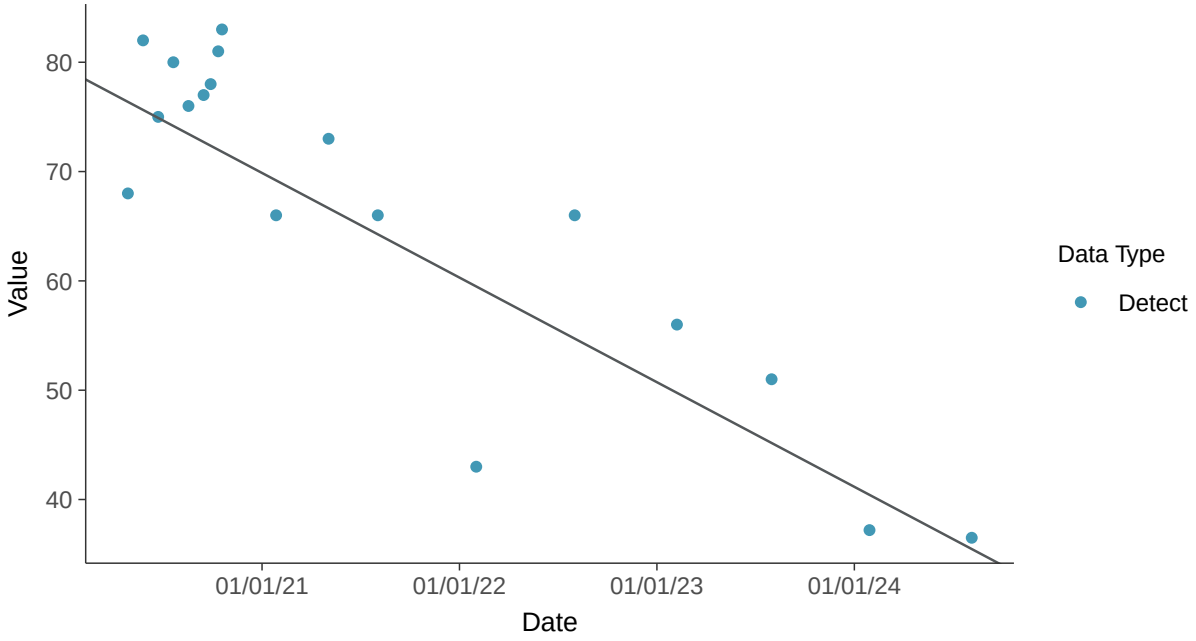
Normal Q-Q plot

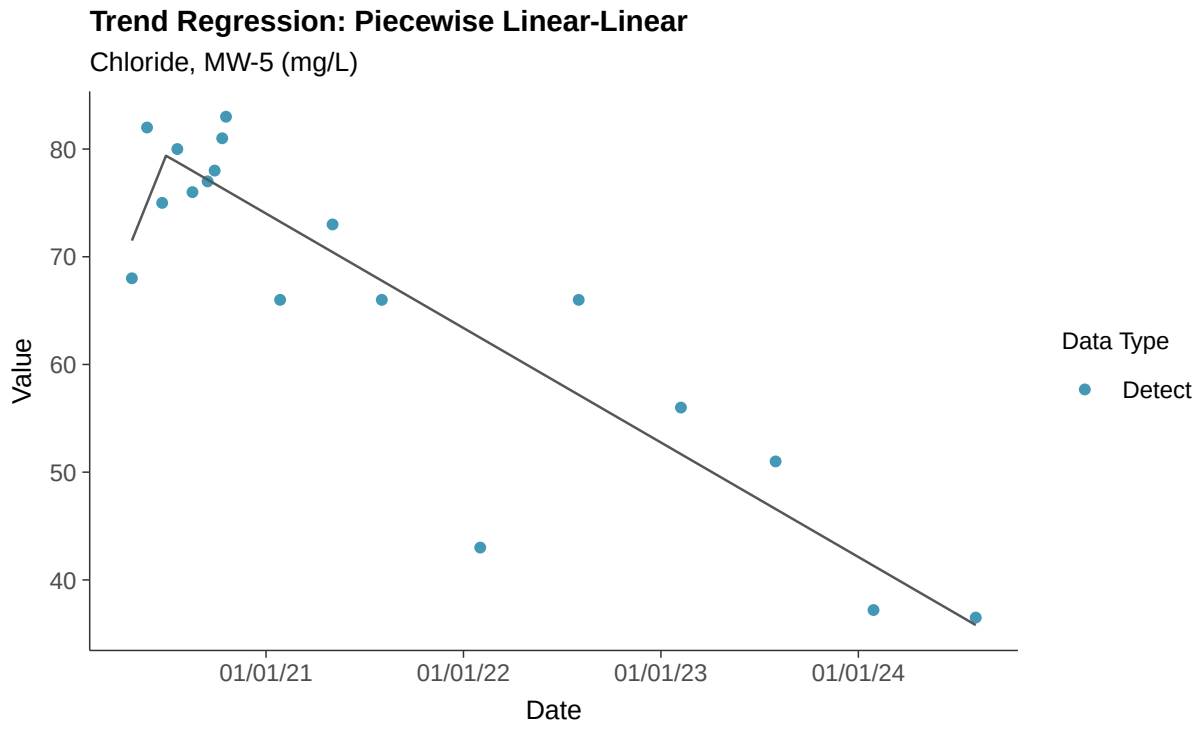
Chloride, MW-5 (mg/L)



Trend Regression: Mann-Kendall/Theil-Sen Estimate

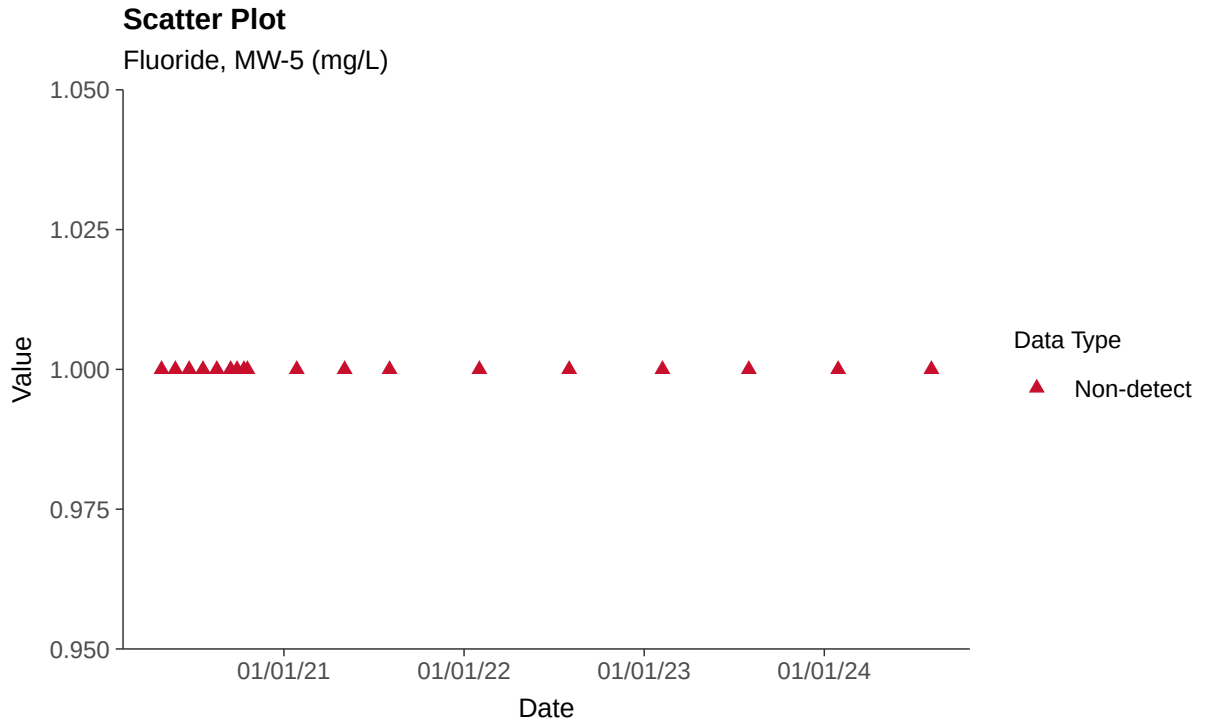
Chloride, MW-5 (mg/L)

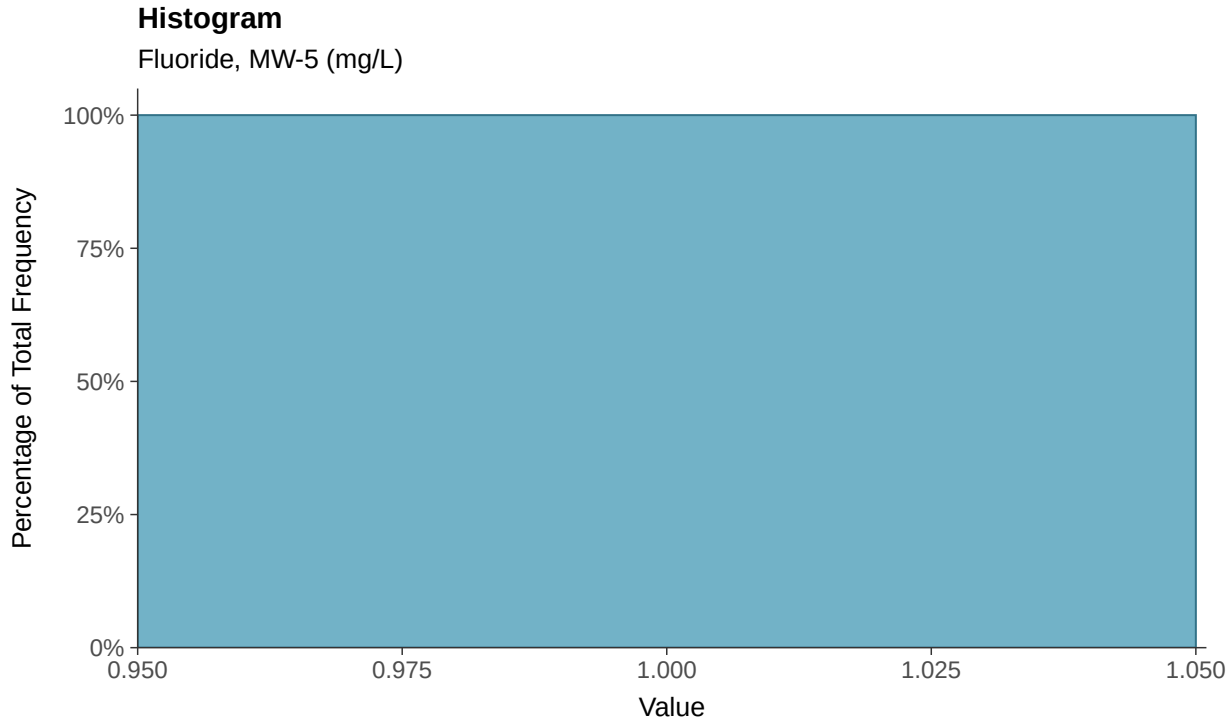



Trend Regression: Piecewise Linear-Linear
Chloride, MW-5 (mg/L)
Value
80
70
60
50
40
01/01/21
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Appendix III: Fluoride, MW-5

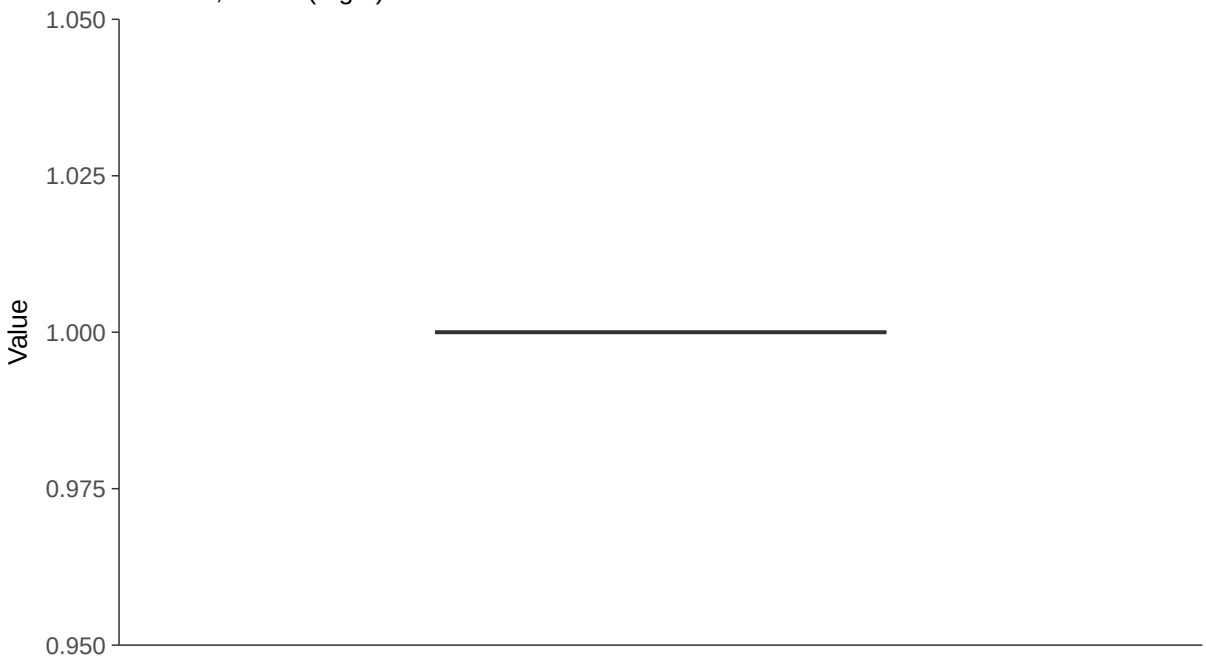
ID: 05_1_04





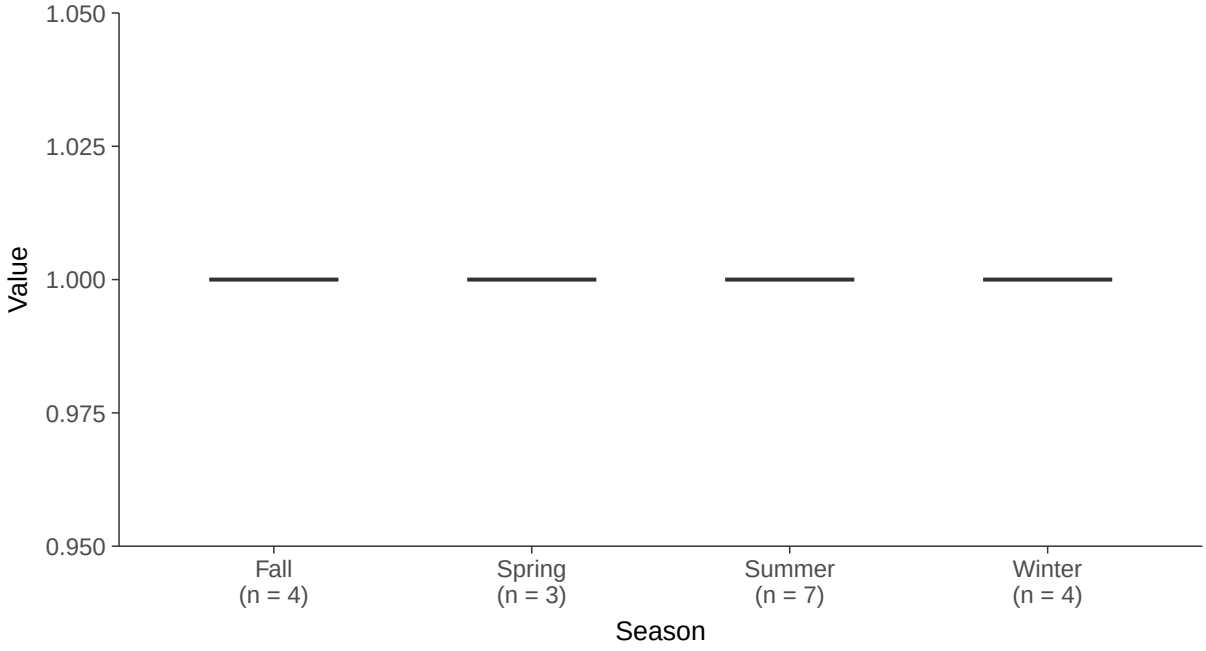
Boxplot

Fluoride, MW-5 (mg/L)



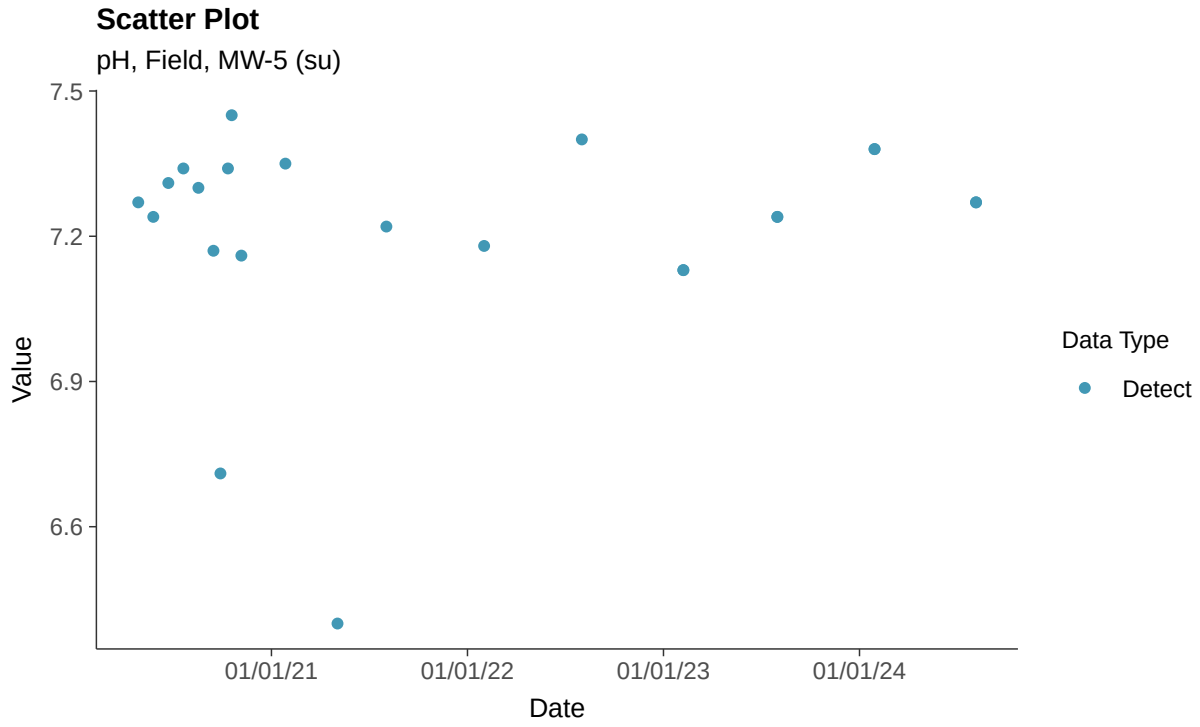
Boxplot by Season

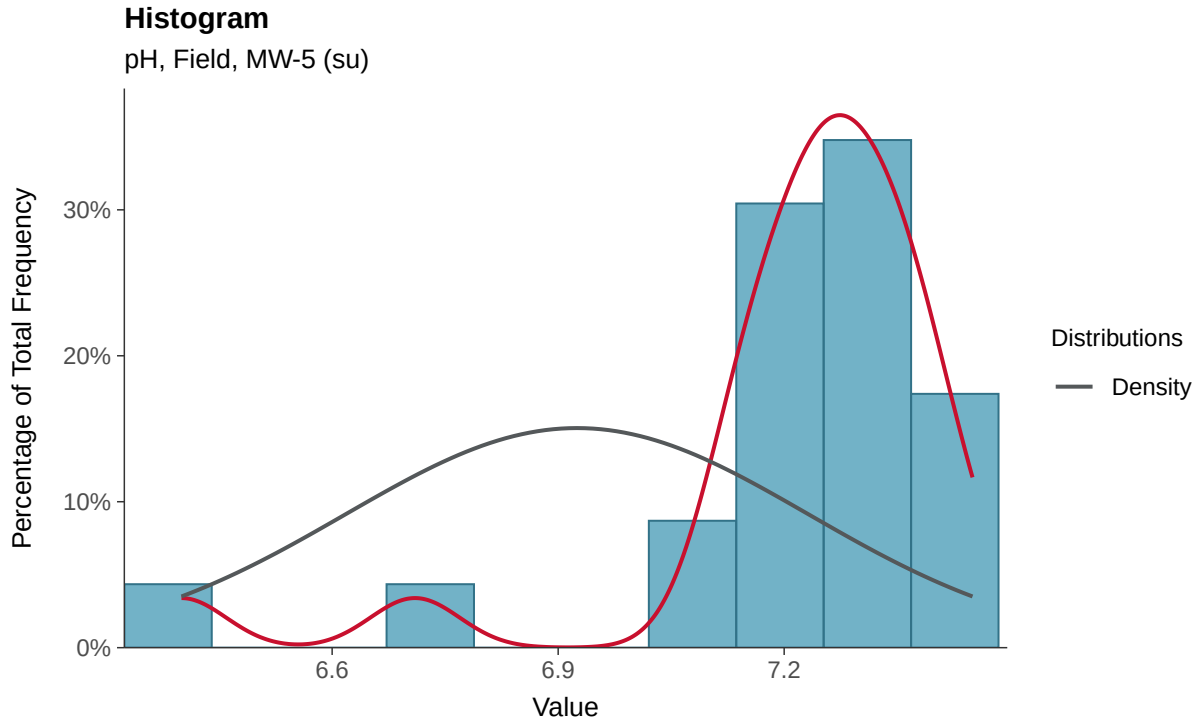
Fluoride, MW-5 (mg/L)



Appendix III: pH, Field, MW-5

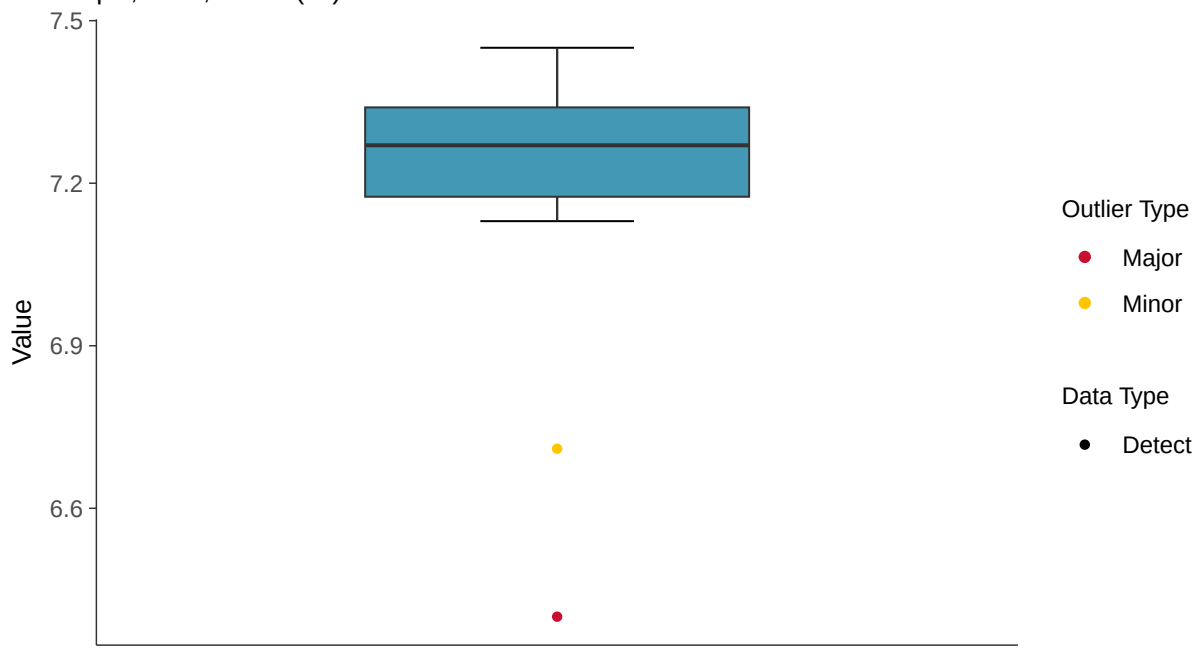
ID: 05_1_05





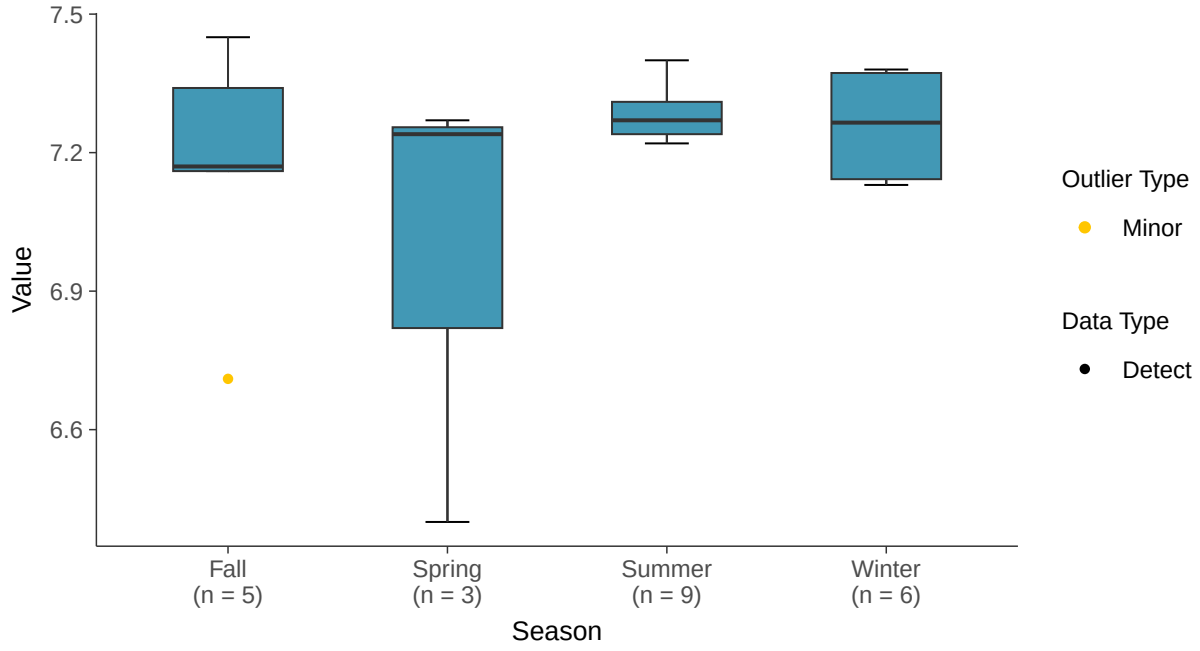
Boxplot

pH, Field, MW-5 (su)



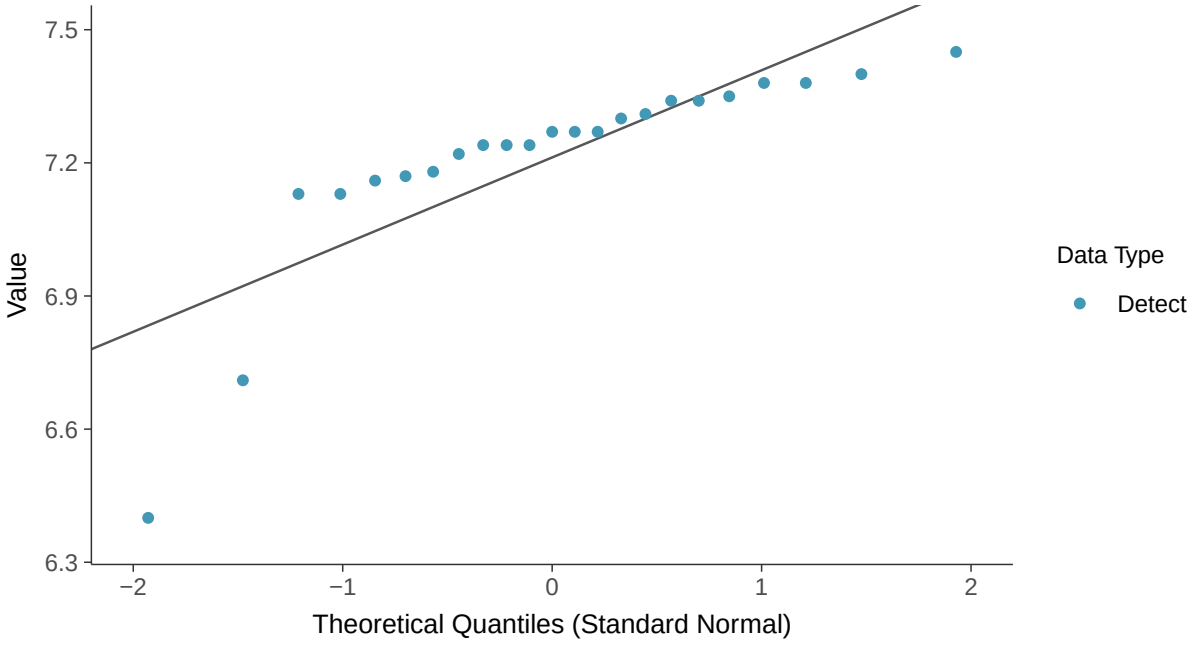
Boxplot by Season

pH, Field, MW-5 (su)



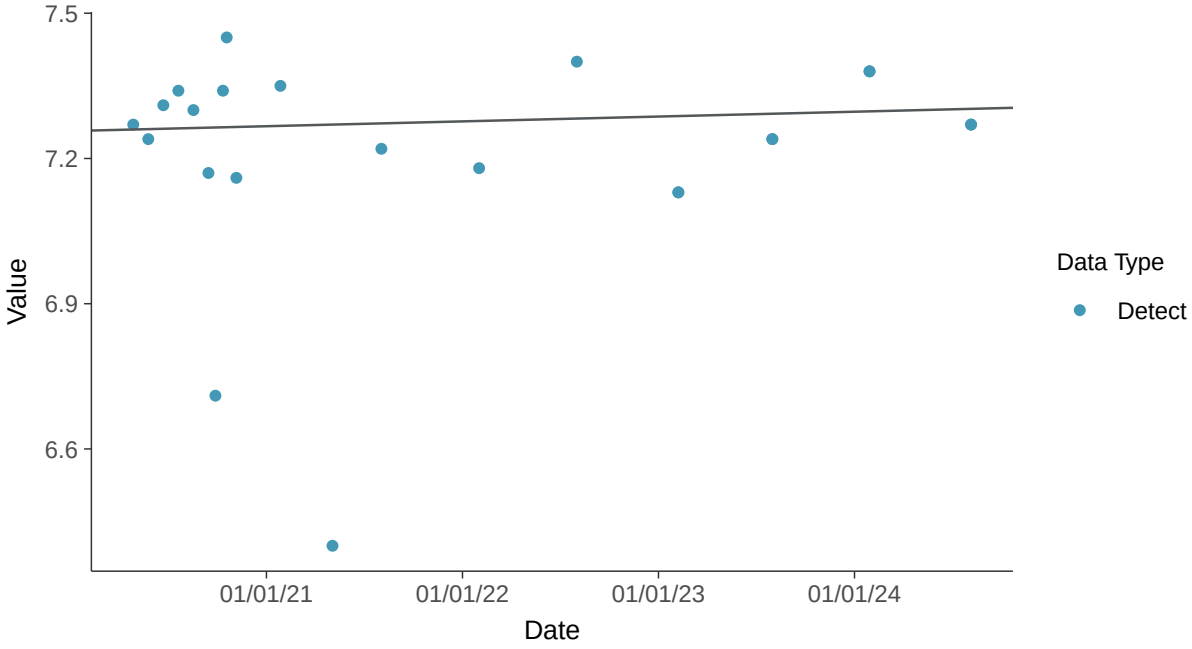
Normal Q-Q plot

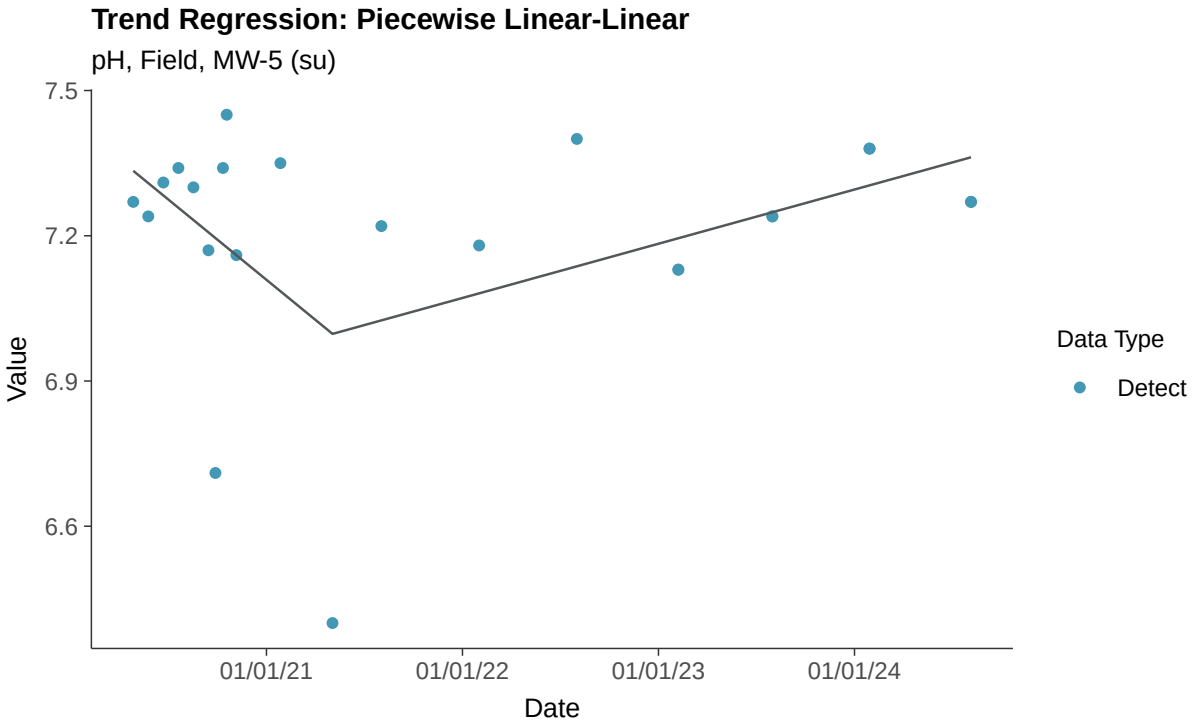
pH, Field, MW-5 (su)



Trend Regression: Mann-Kendall/Theil-Sen Estimate

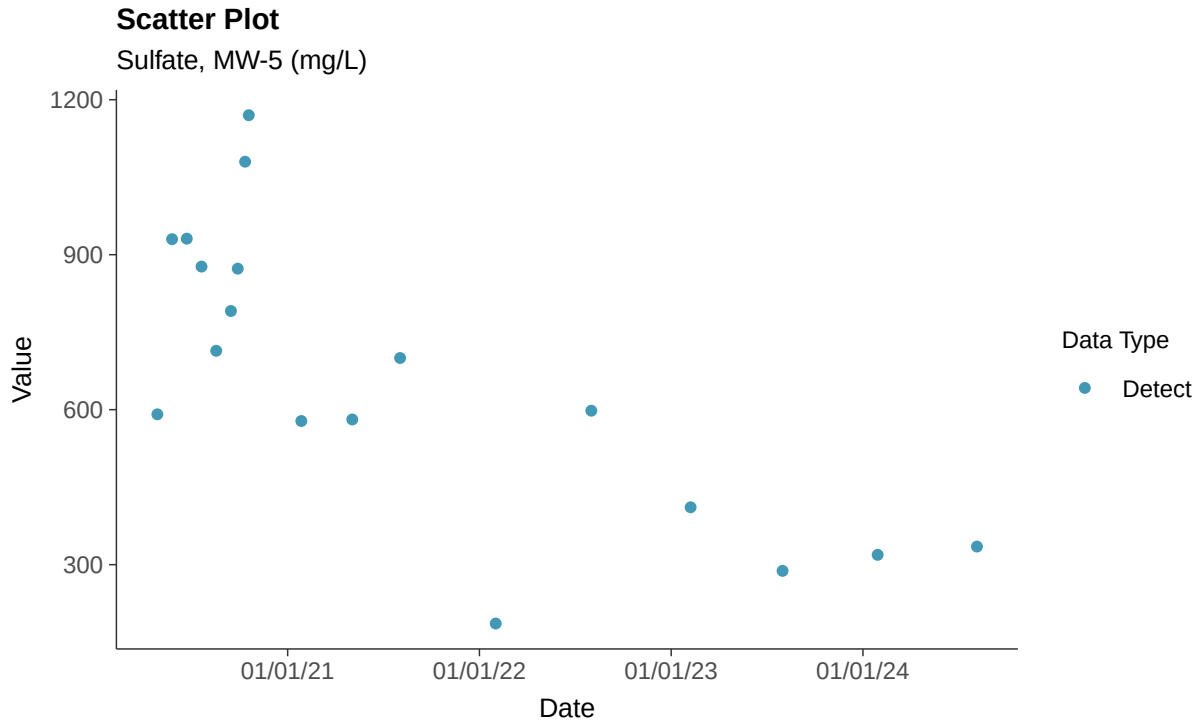
pH, Field, MW-5 (su)

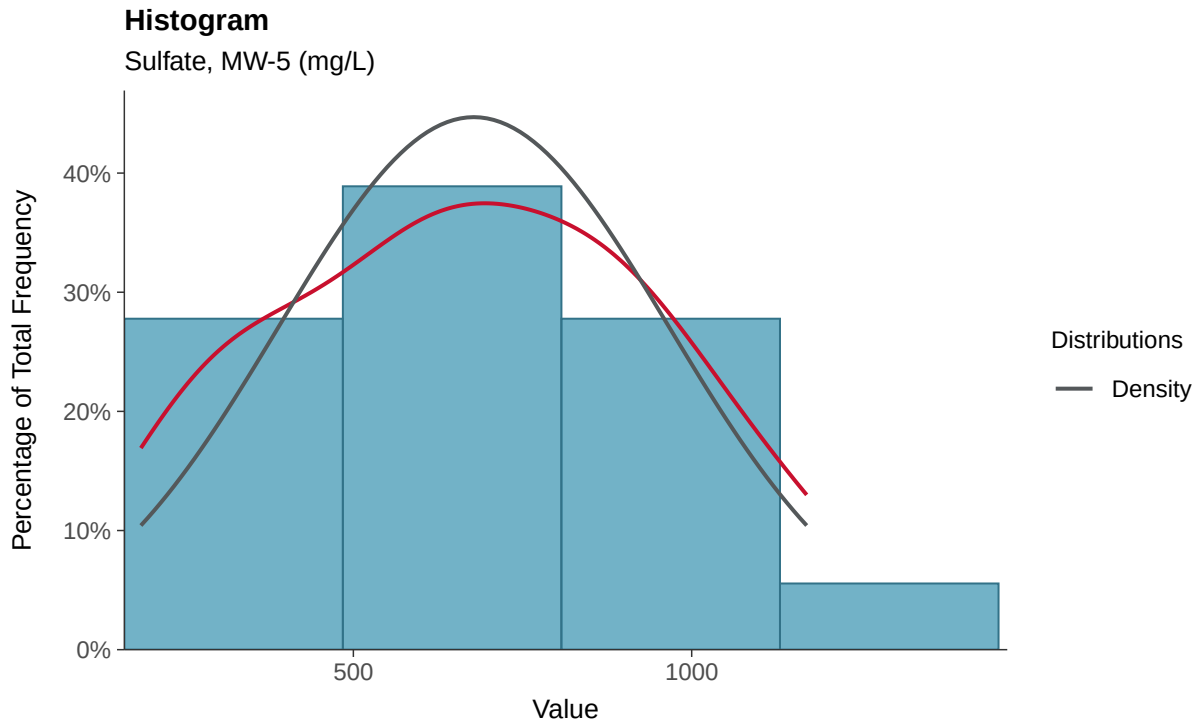



Trend Regression: Piecewise Linear-Linear
pH, Field, MW-5 (su)
7.5
7.2
6.9
6.6
Value
01/01/21
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Appendix III: Sulfate, MW-5

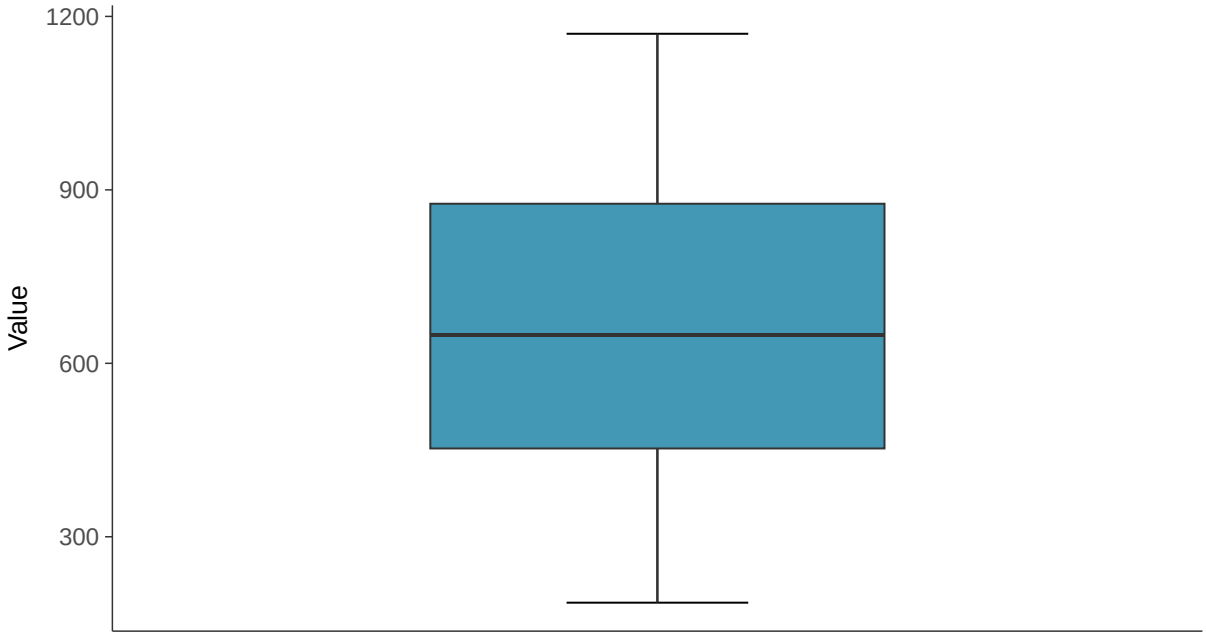
ID: 05_1_06





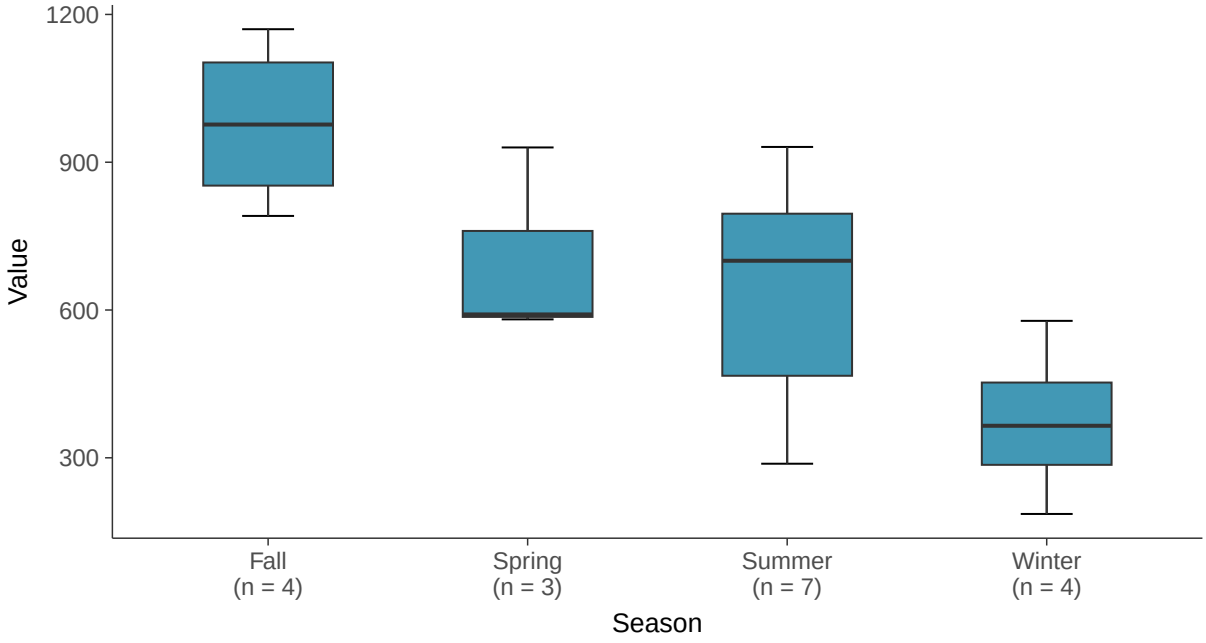
Boxplot

Sulfate, MW-5 (mg/L)



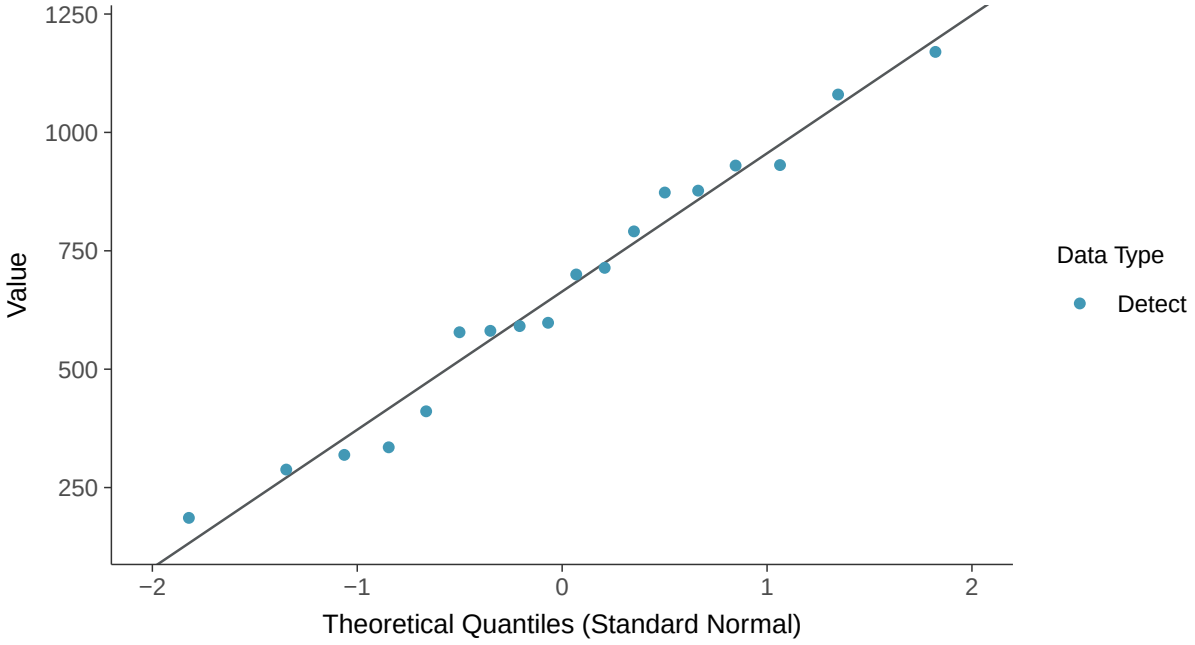
Boxplot by Season

Sulfate, MW-5 (mg/L)



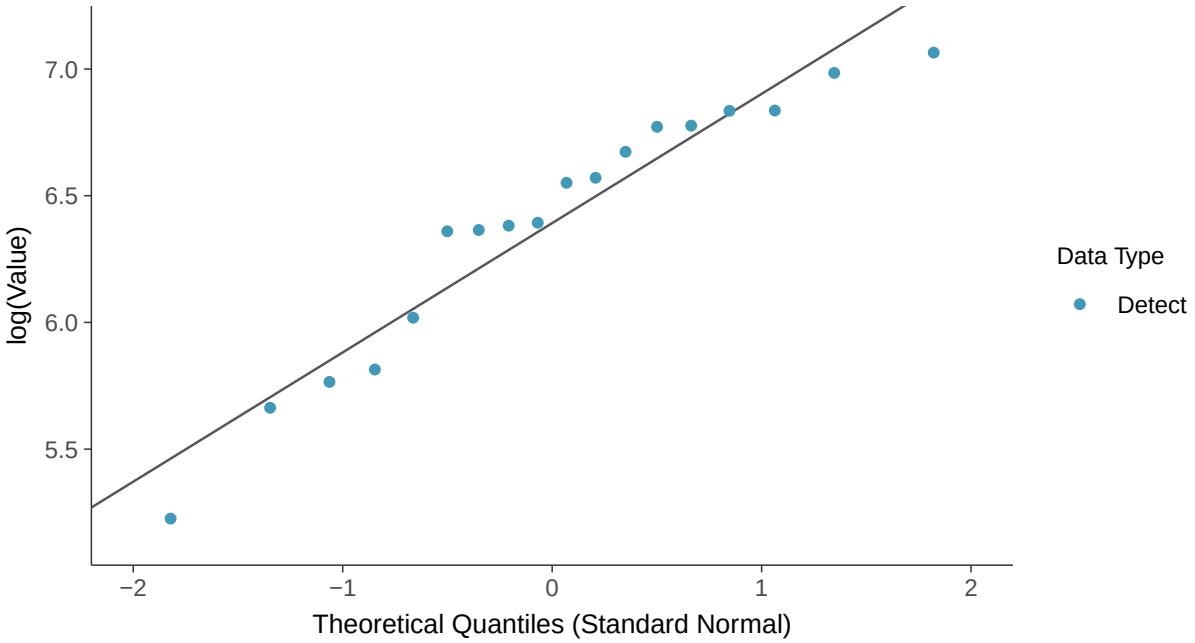
Normal Q-Q plot

Sulfate, MW-5 (mg/L)



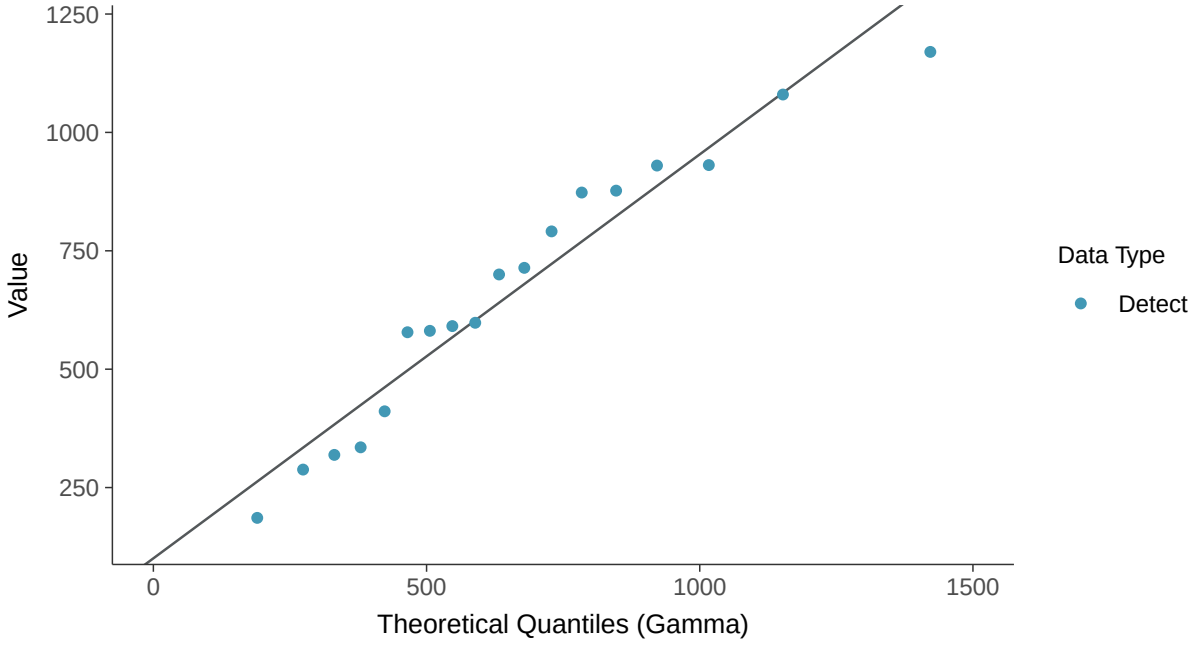
Lognormal Q-Q plot

Sulfate, MW-5 (mg/L)



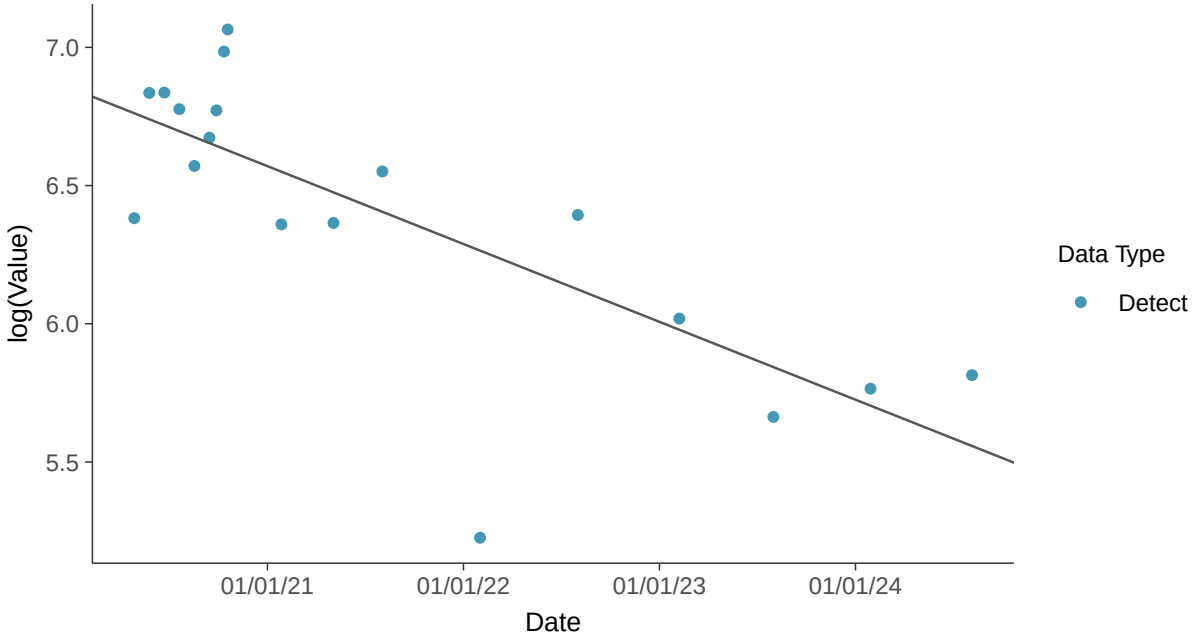
Gamma Q-Q plot

Sulfate, MW-5 (mg/L)



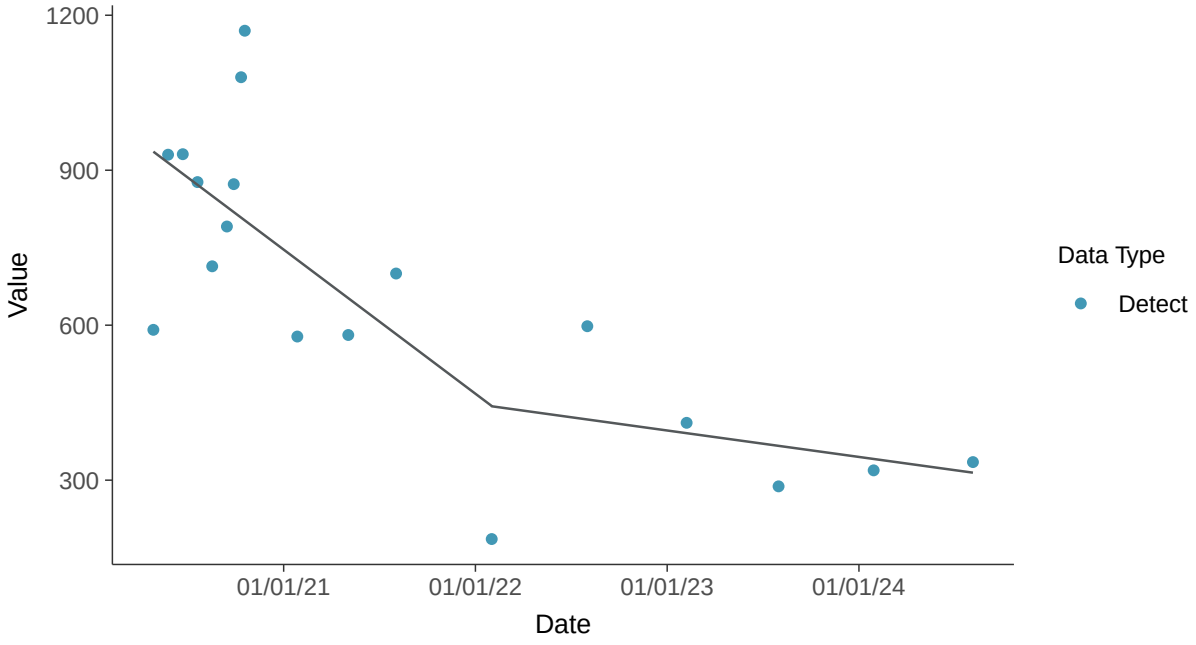
Trend Regression: Lognormal MLE

Sulfate, MW-5 (mg/L)



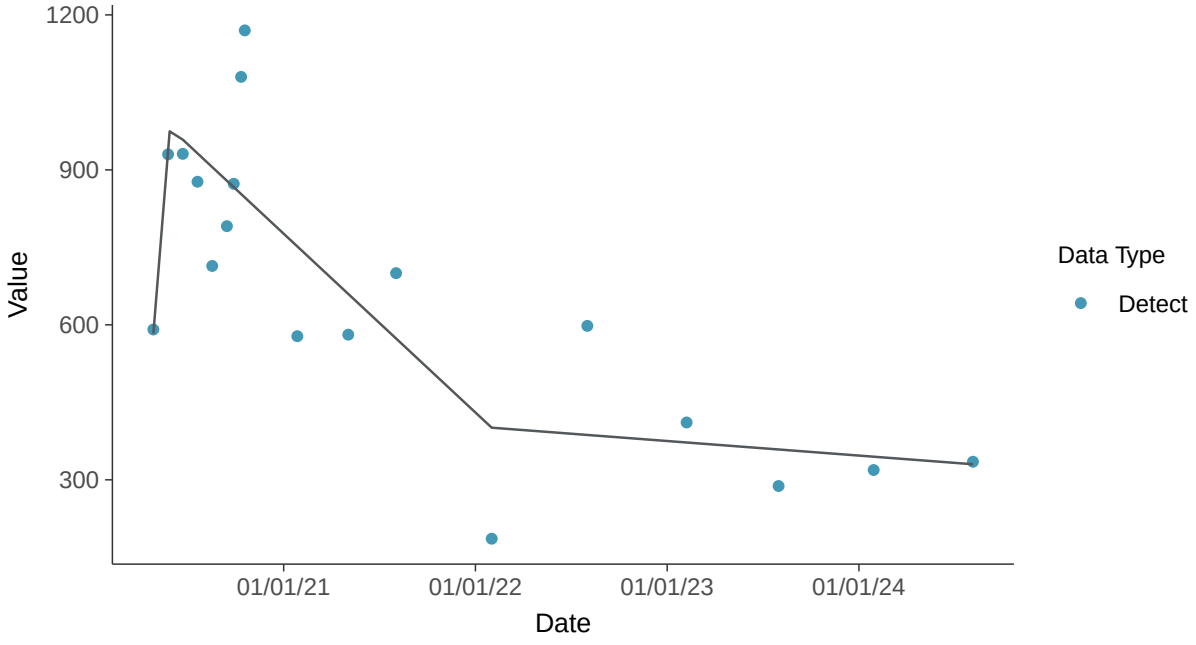
Trend Regression: Piecewise Linear-Linear

Sulfate, MW-5 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Sulfate, MW-5 (mg/L)

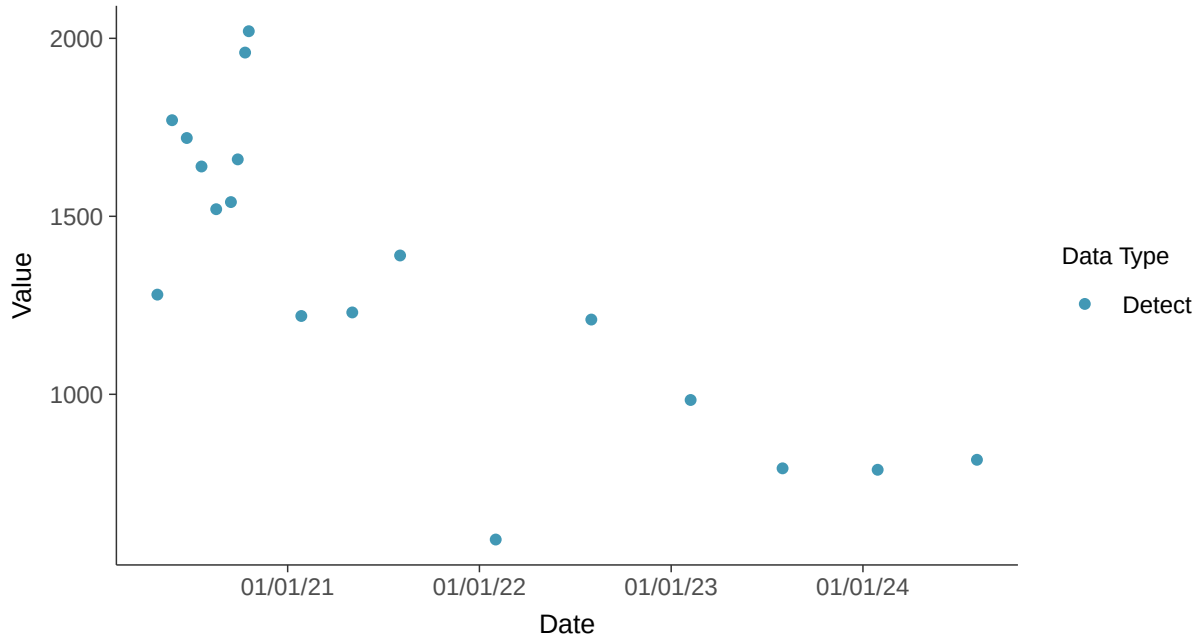


Appendix III: Total Dissolved Solids, MW-5

ID: 05_1_07

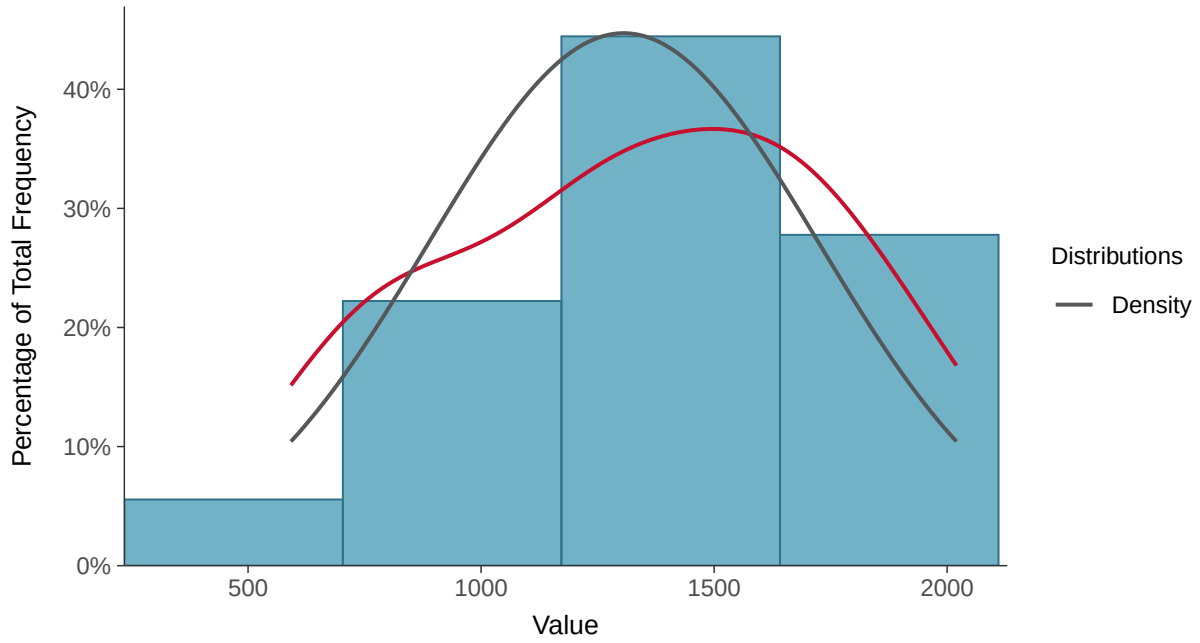
Scatter Plot

Total Dissolved Solids, MW-5 (mg/L)



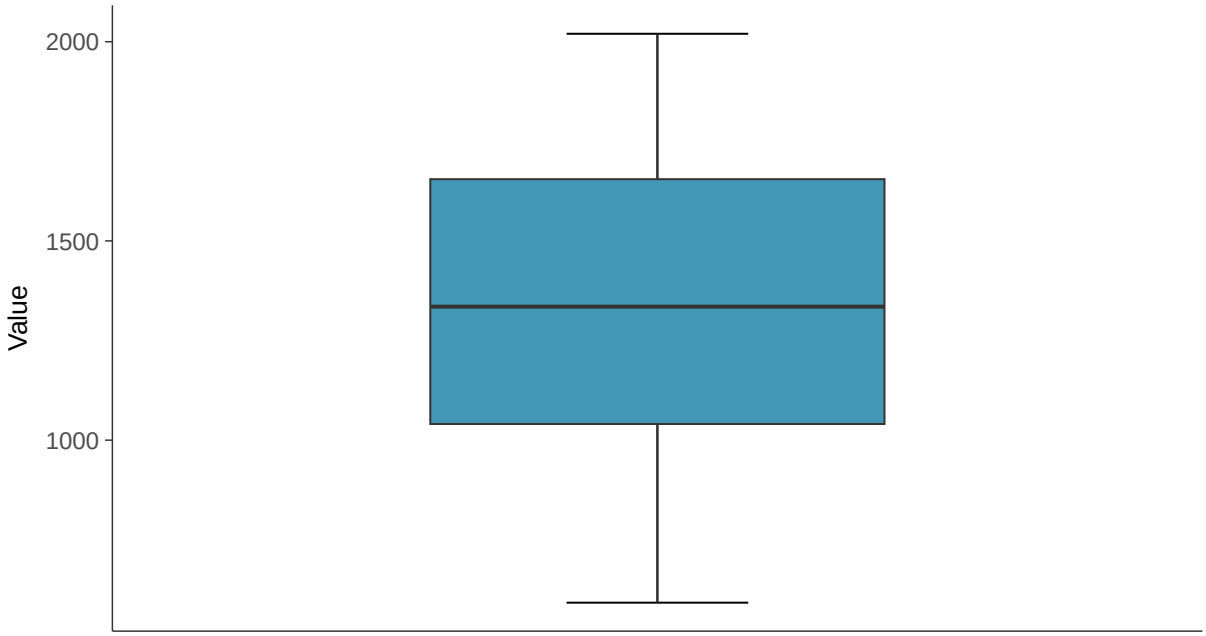
Histogram

Total Dissolved Solids, MW-5 (mg/L)



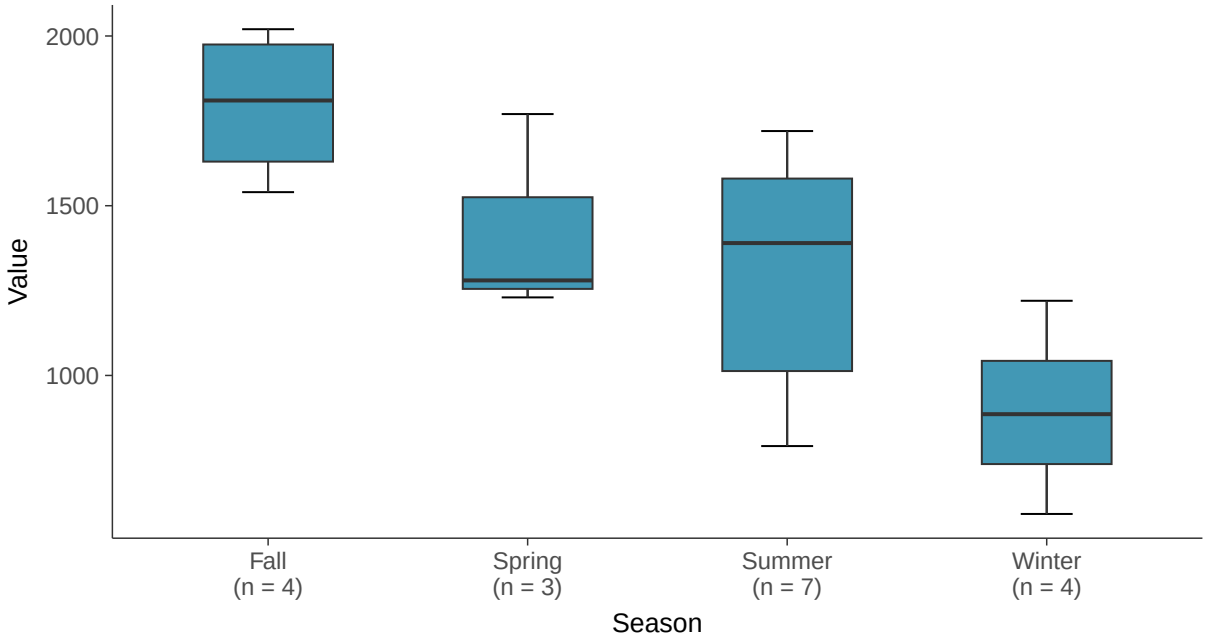
Boxplot

Total Dissolved Solids, MW-5 (mg/L)



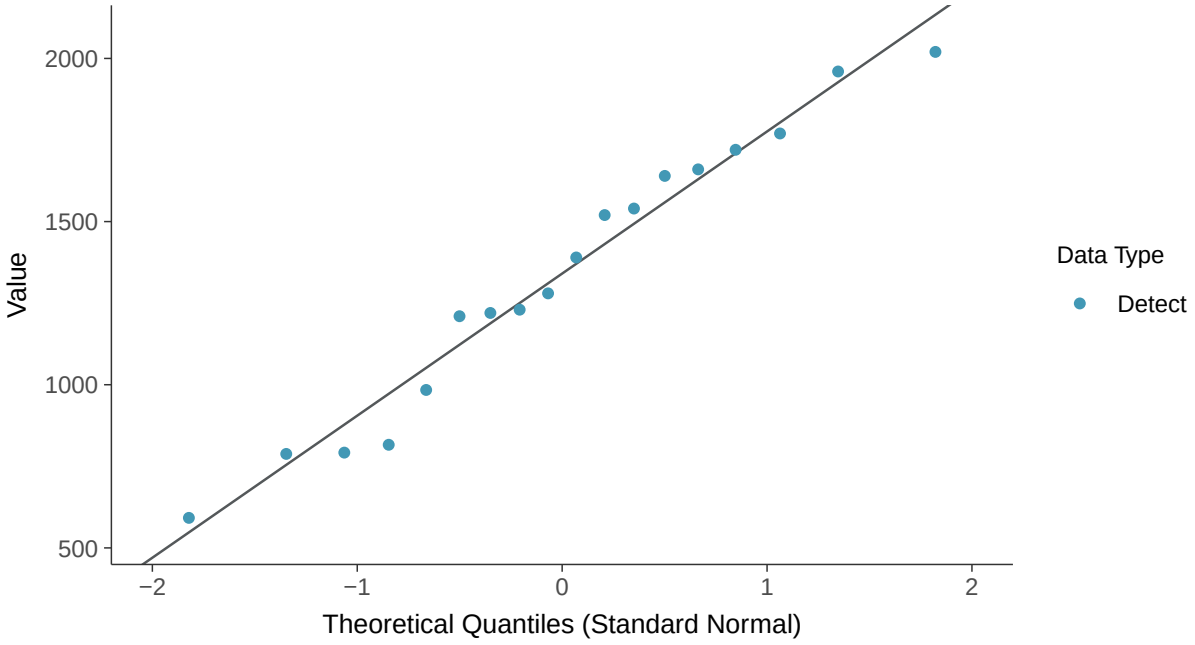
Boxplot by Season

Total Dissolved Solids, MW-5 (mg/L)



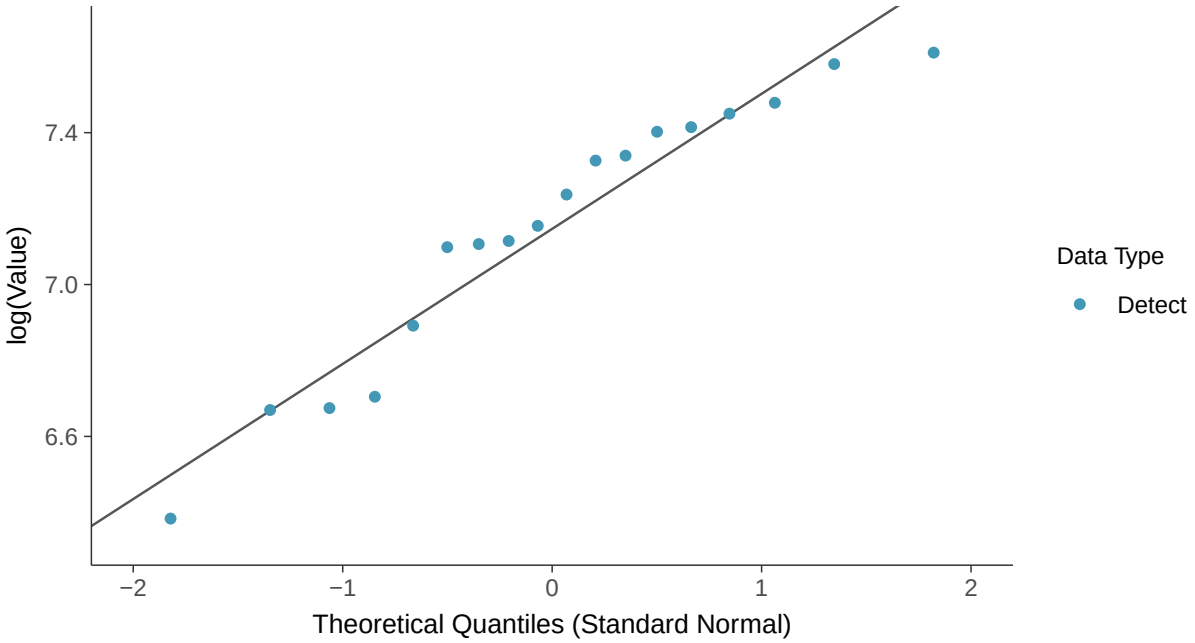
Normal Q-Q plot

Total Dissolved Solids, MW-5 (mg/L)



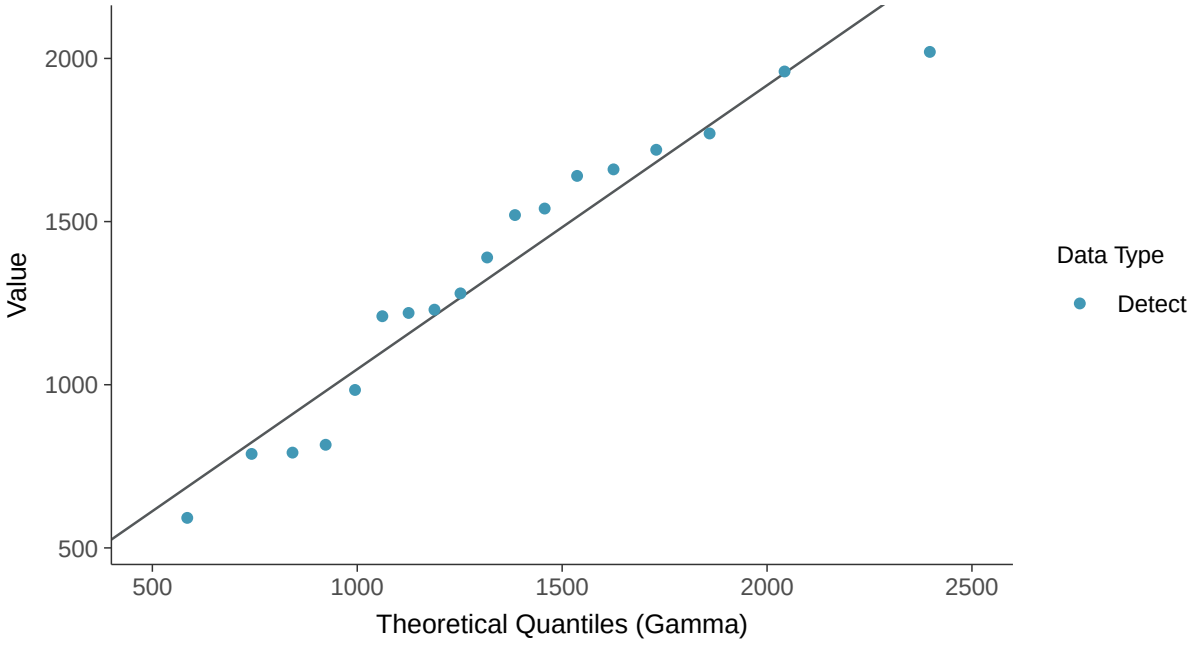
Lognormal Q-Q plot

Total Dissolved Solids, MW-5 (mg/L)



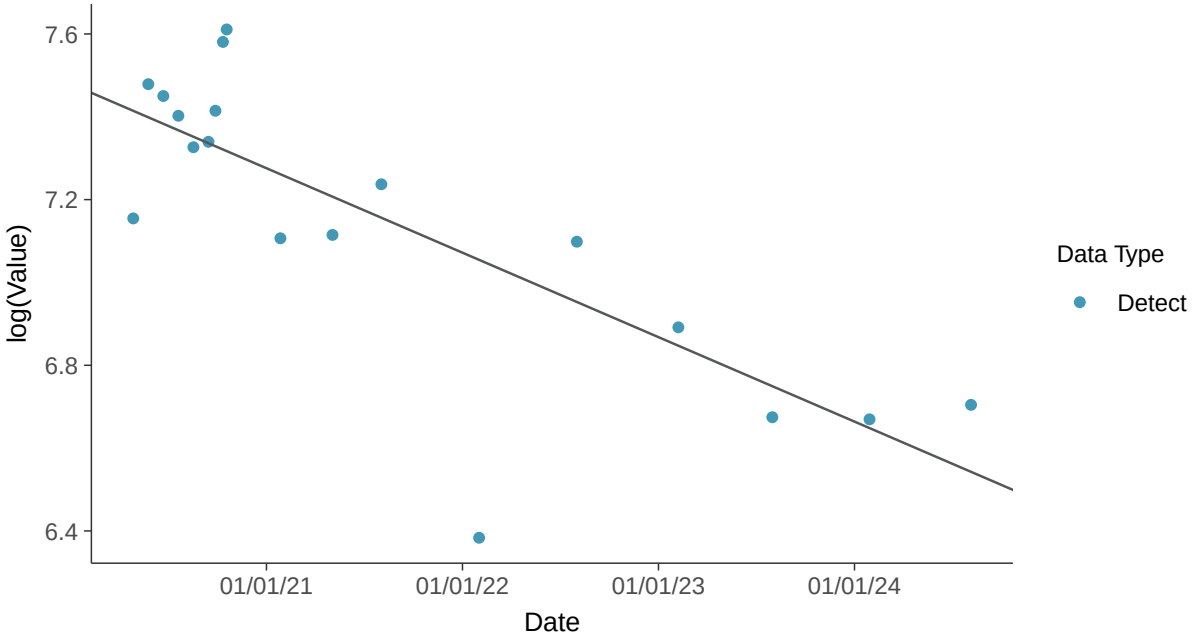
Gamma Q-Q plot

Total Dissolved Solids, MW-5 (mg/L)



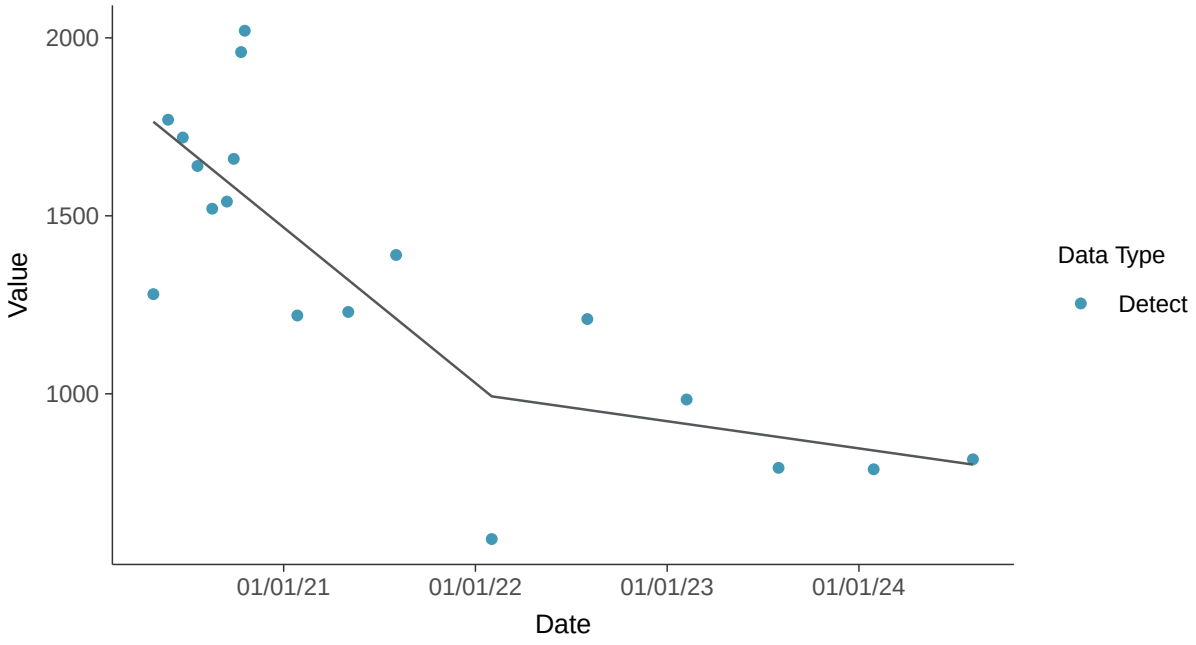
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-5 (mg/L)



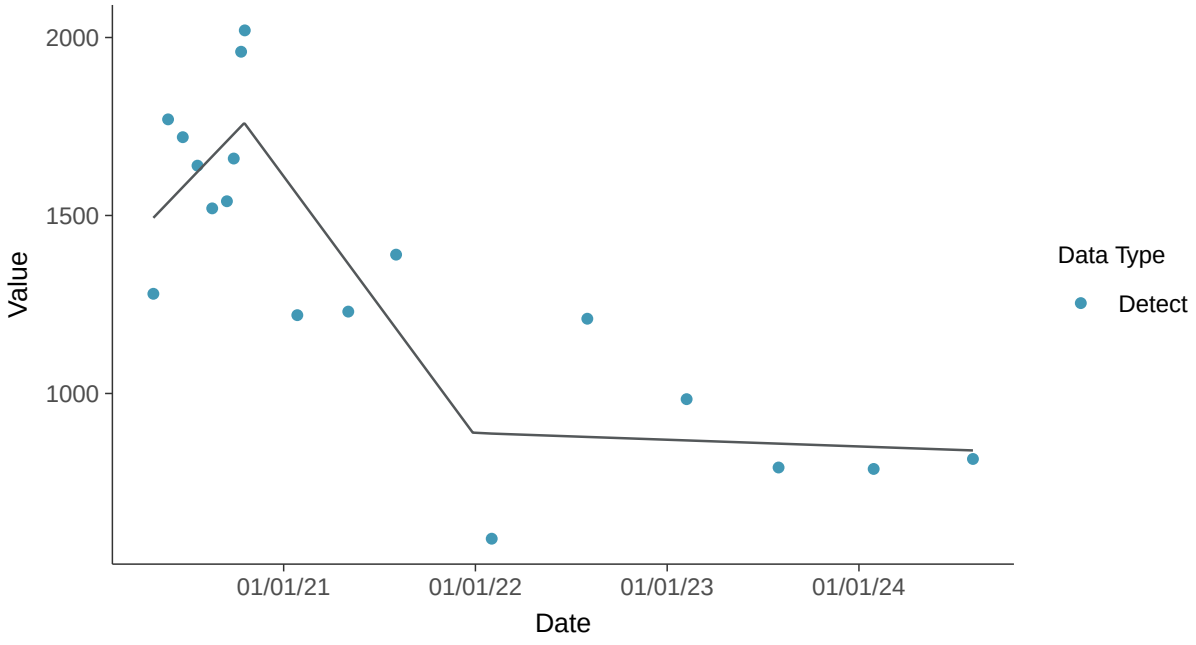
Trend Regression: Piecewise Linear-Linear

Total Dissolved Solids, MW-5 (mg/L)



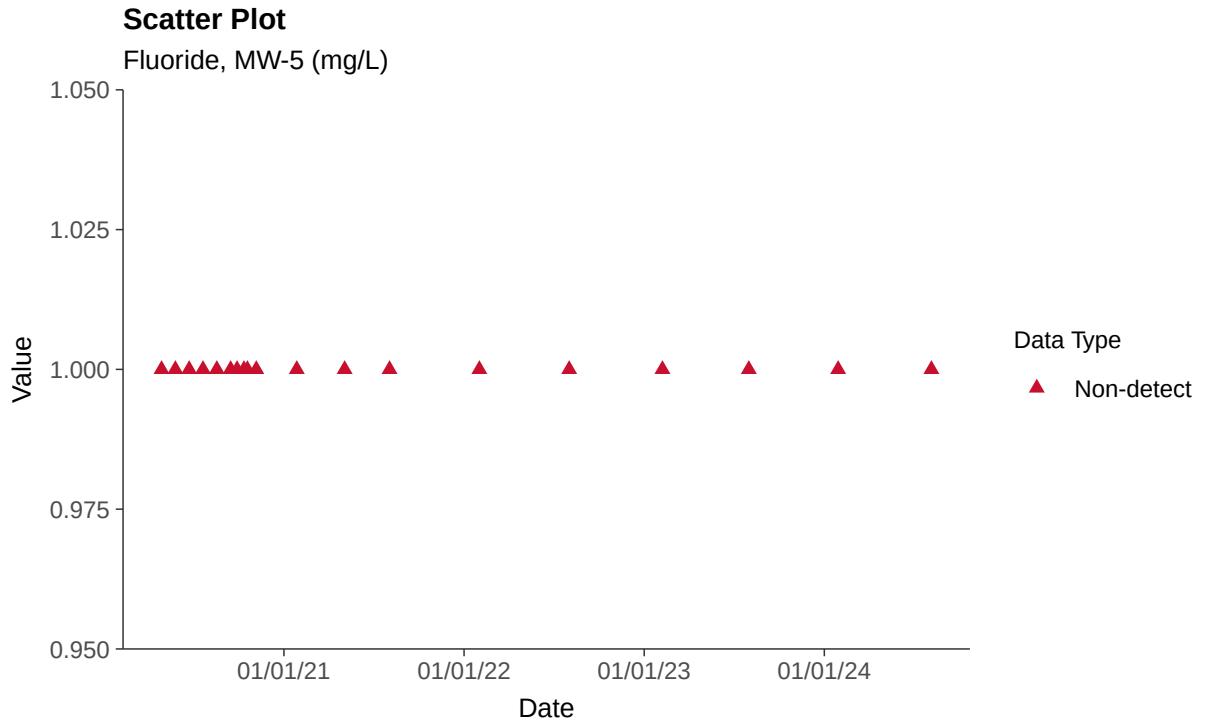
Trend Regression: Piecewise Linear-Linear-Linear

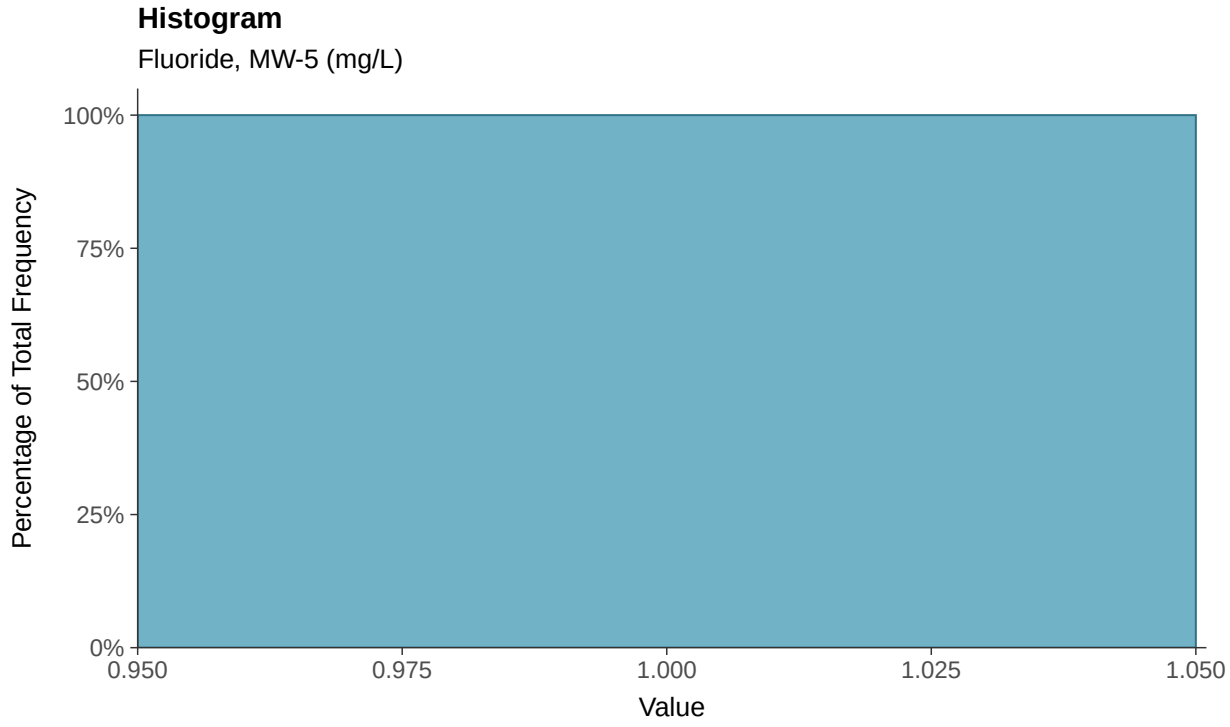
Total Dissolved Solids, MW-5 (mg/L)



Appendix IV: Fluoride, MW-5

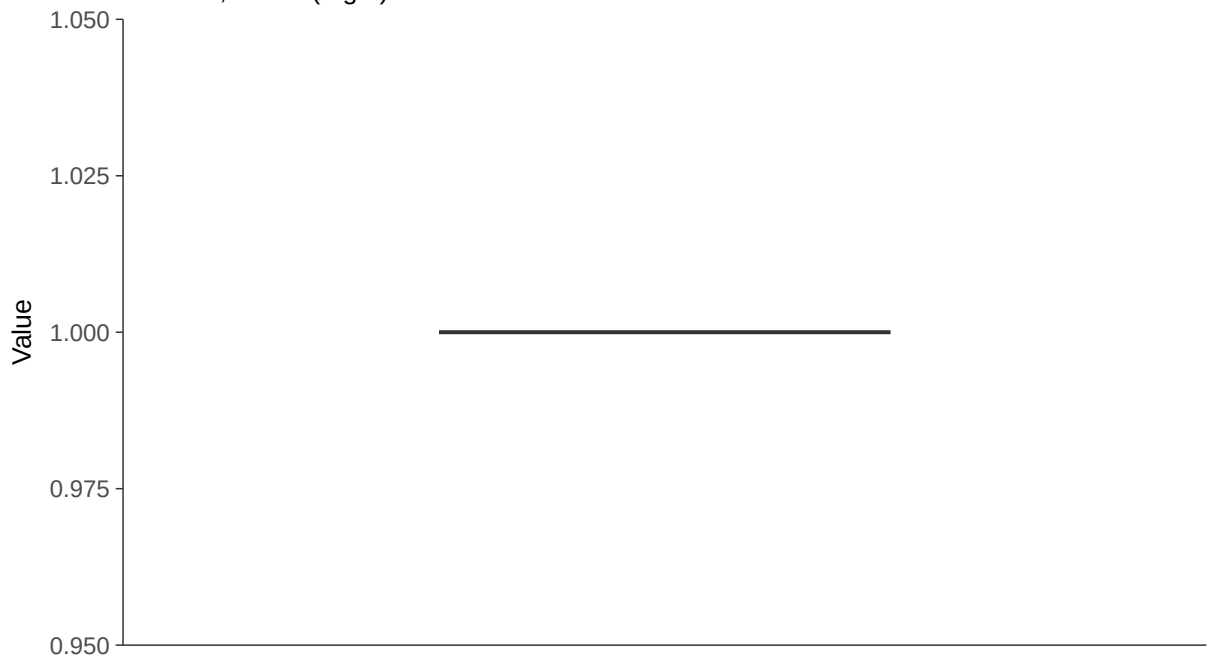
ID: 05_2_04





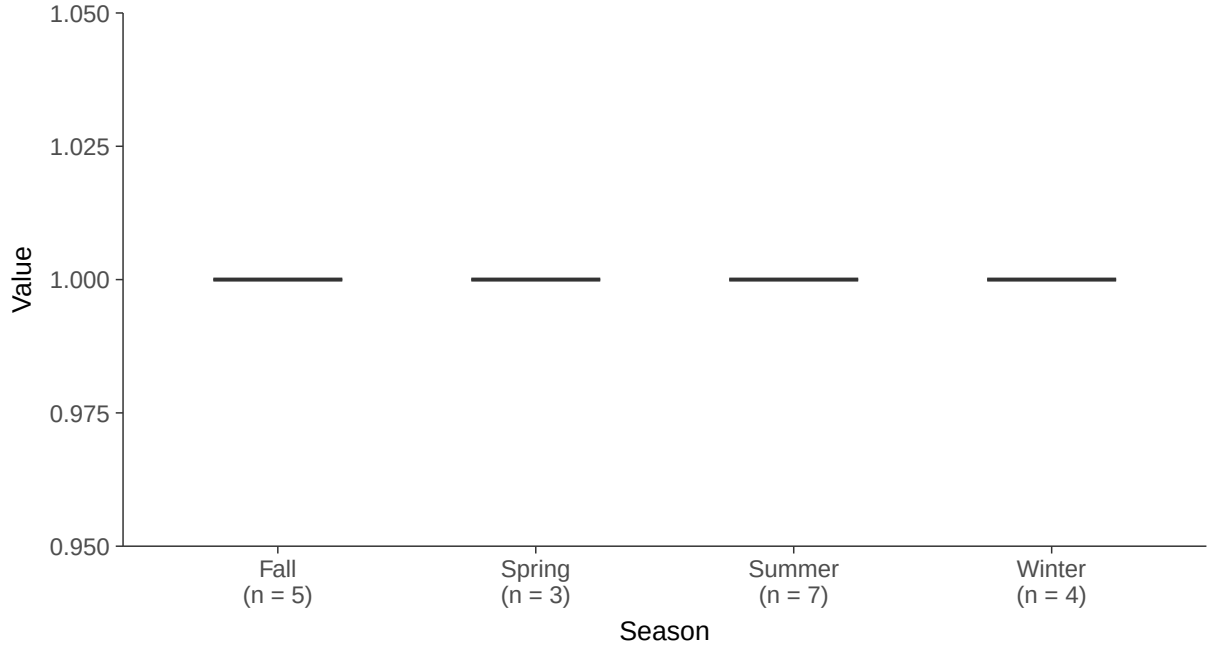
Boxplot

Fluoride, MW-5 (mg/L)



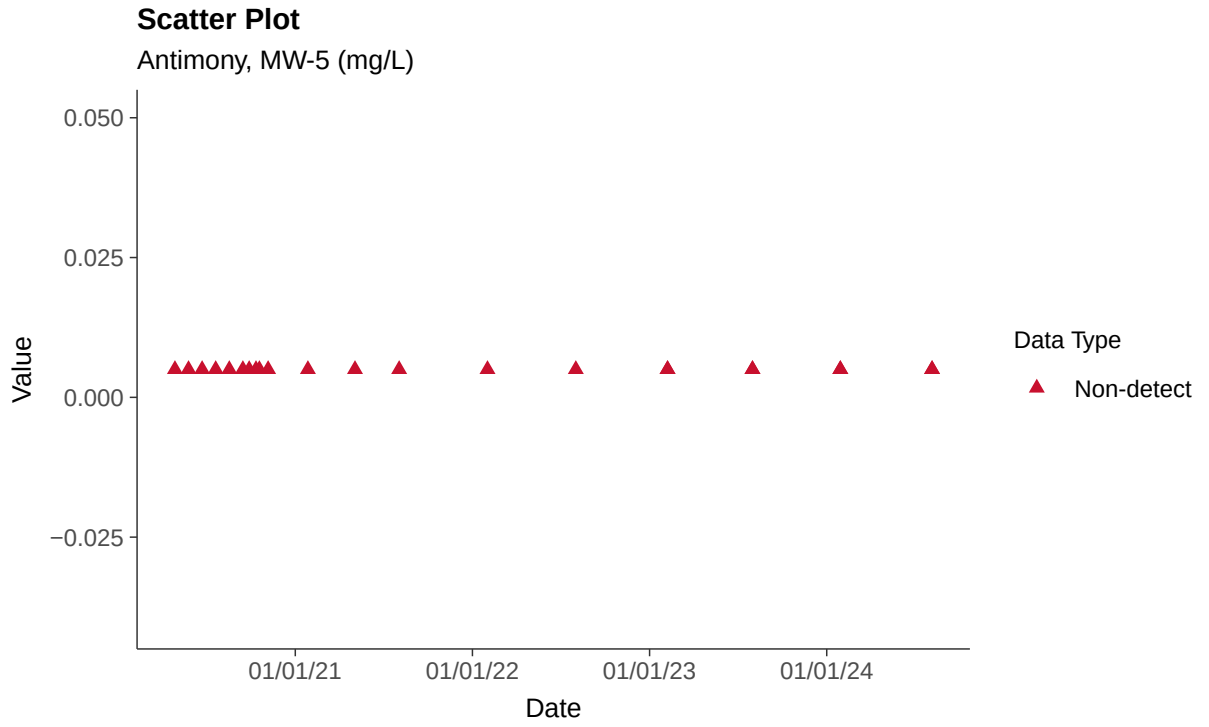
Boxplot by Season

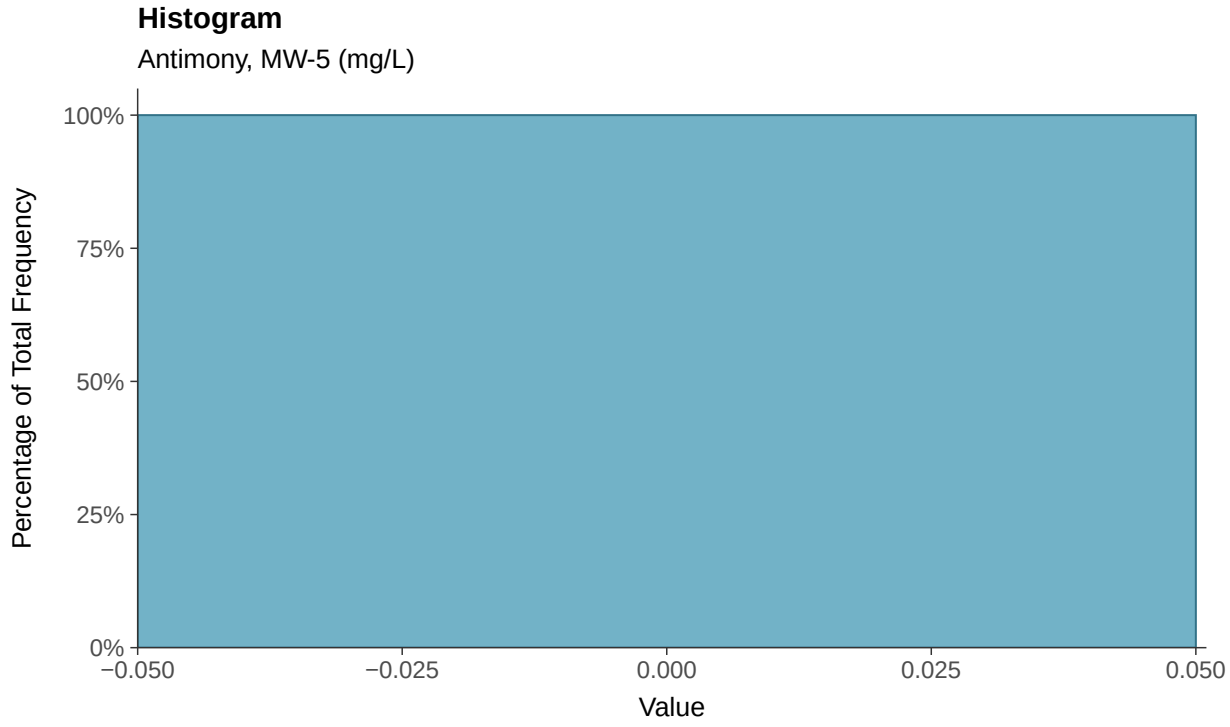
Fluoride, MW-5 (mg/L)



Appendix IV: Antimony, MW-5

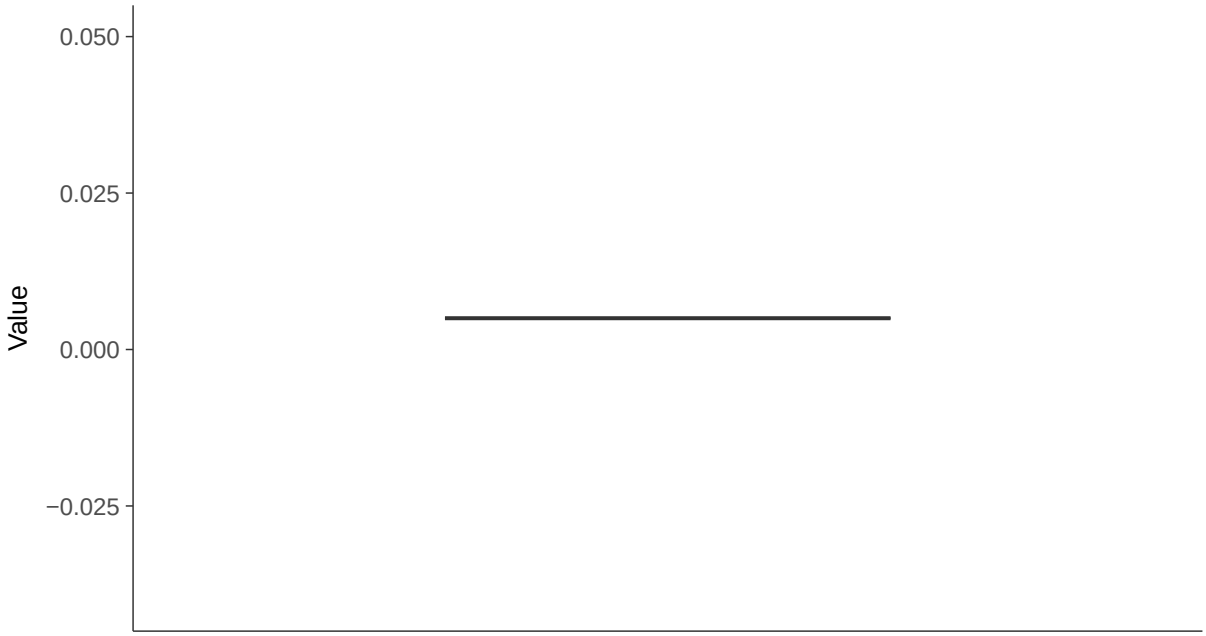
ID: 05_2_08





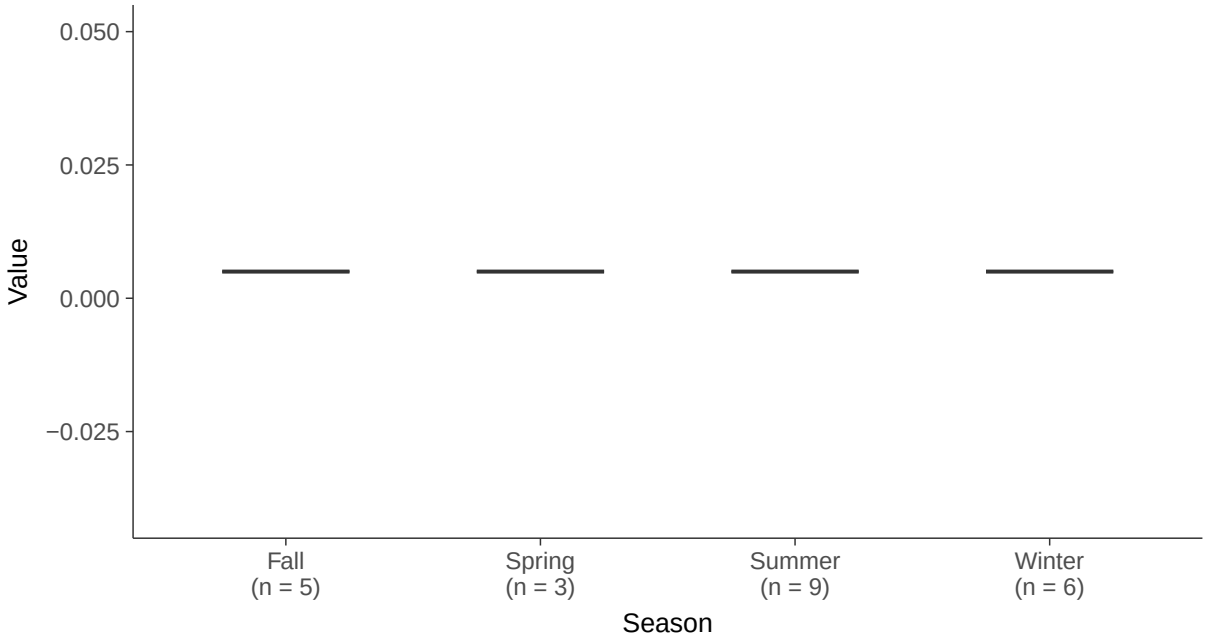
Boxplot

Antimony, MW-5 (mg/L)



Boxplot by Season

Antimony, MW-5 (mg/L)

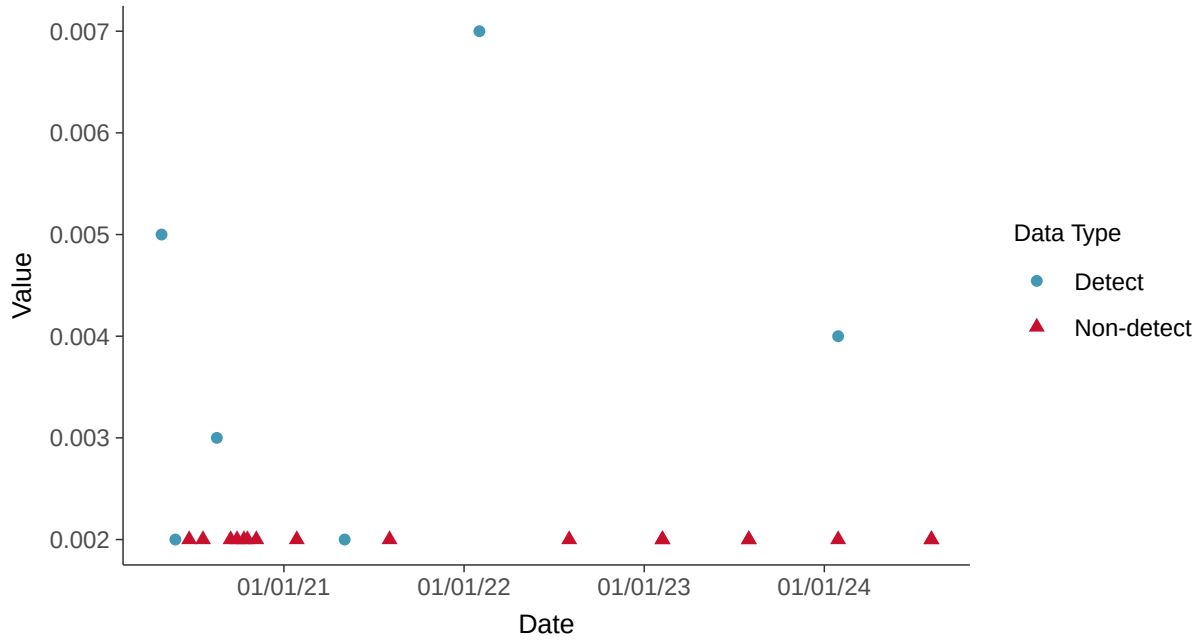


Appendix IV: Arsenic, MW-5

ID: 05_2_09

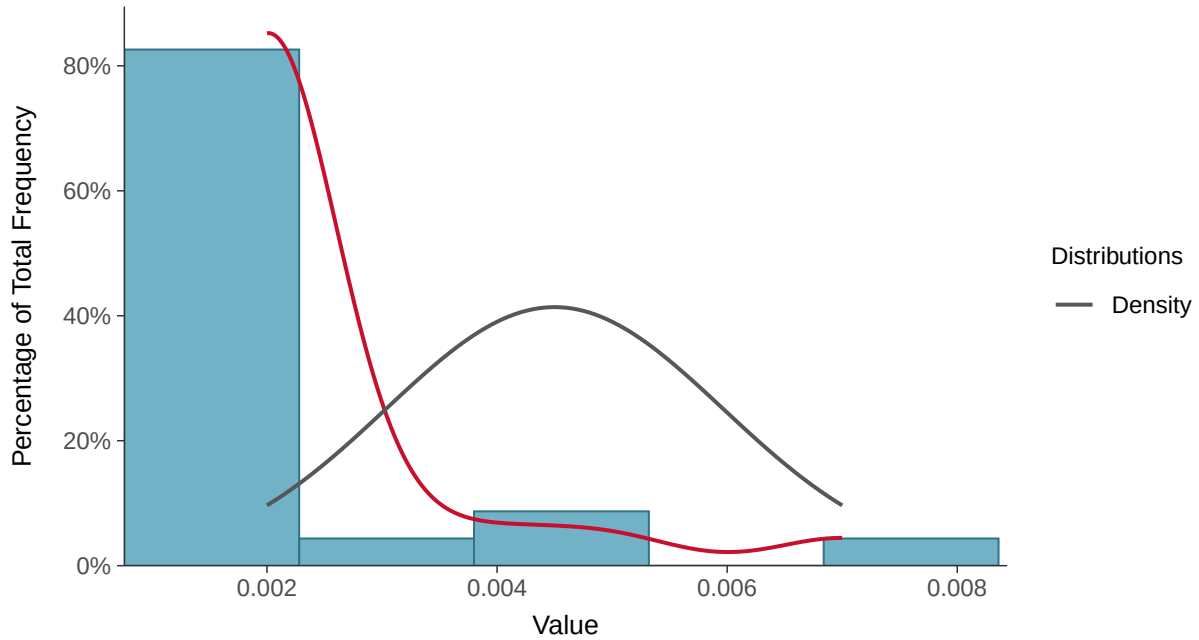
Scatter Plot

Arsenic, MW-5 (mg/L)



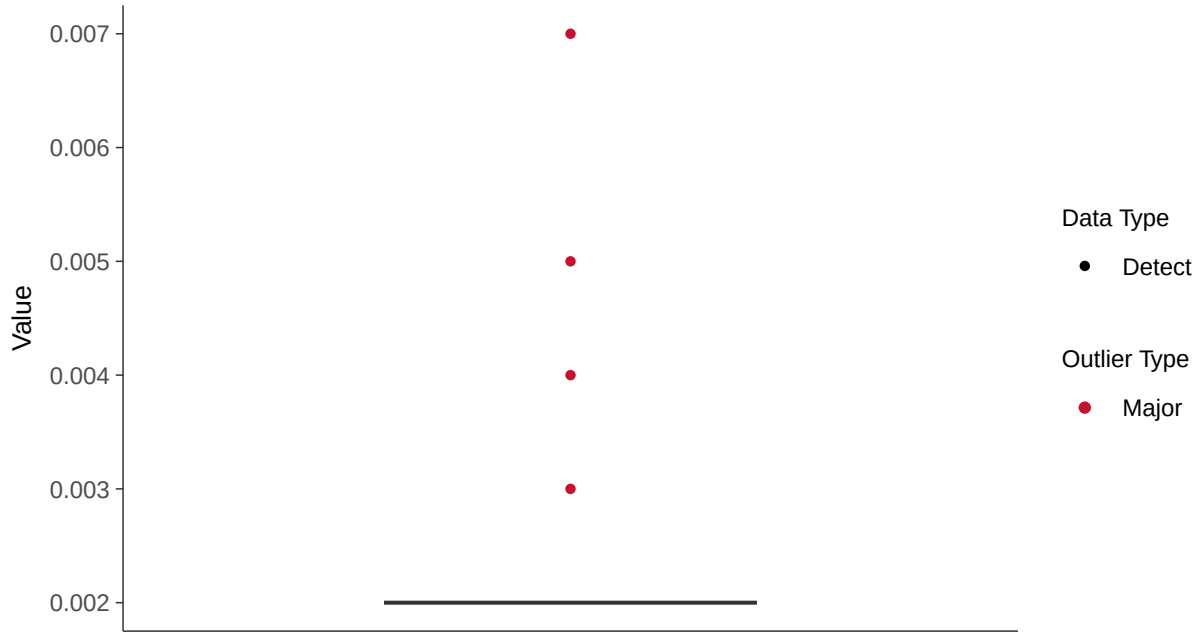
Histogram

Arsenic, MW-5 (mg/L)



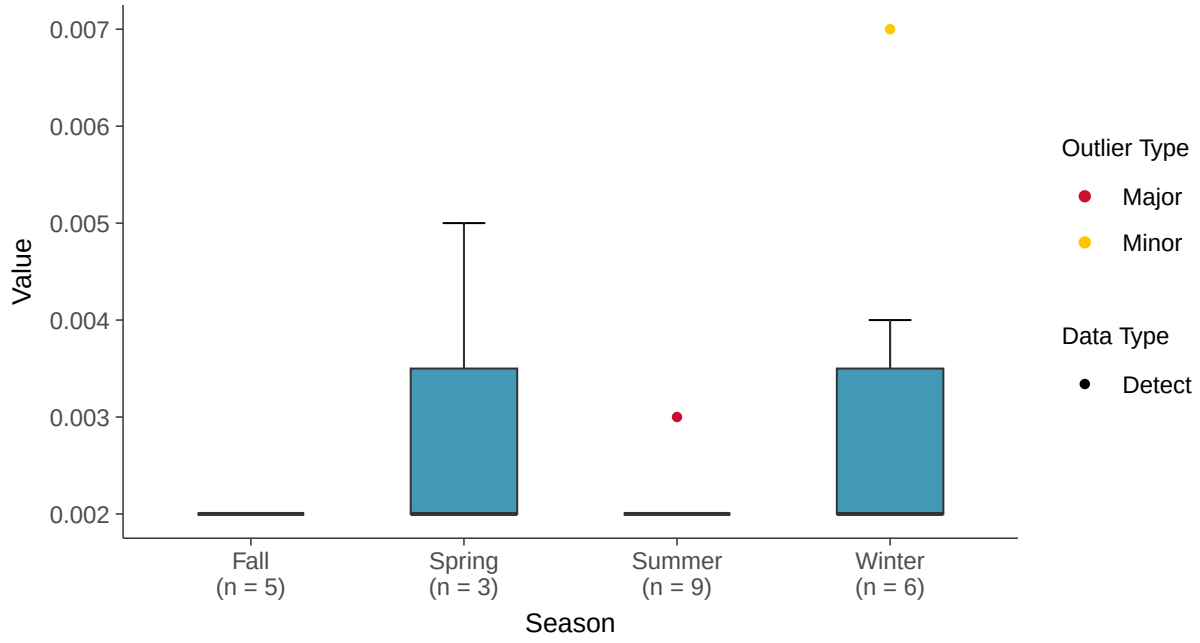
Boxplot

Arsenic, MW-5 (mg/L)



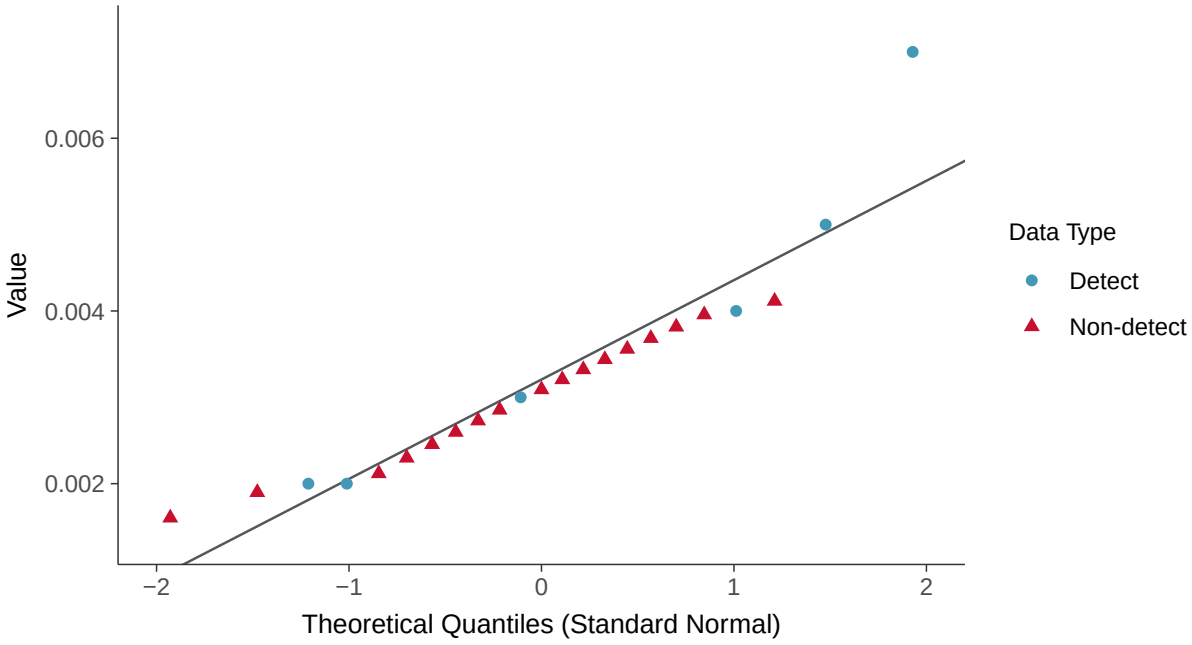
Boxplot by Season

Arsenic, MW-5 (mg/L)



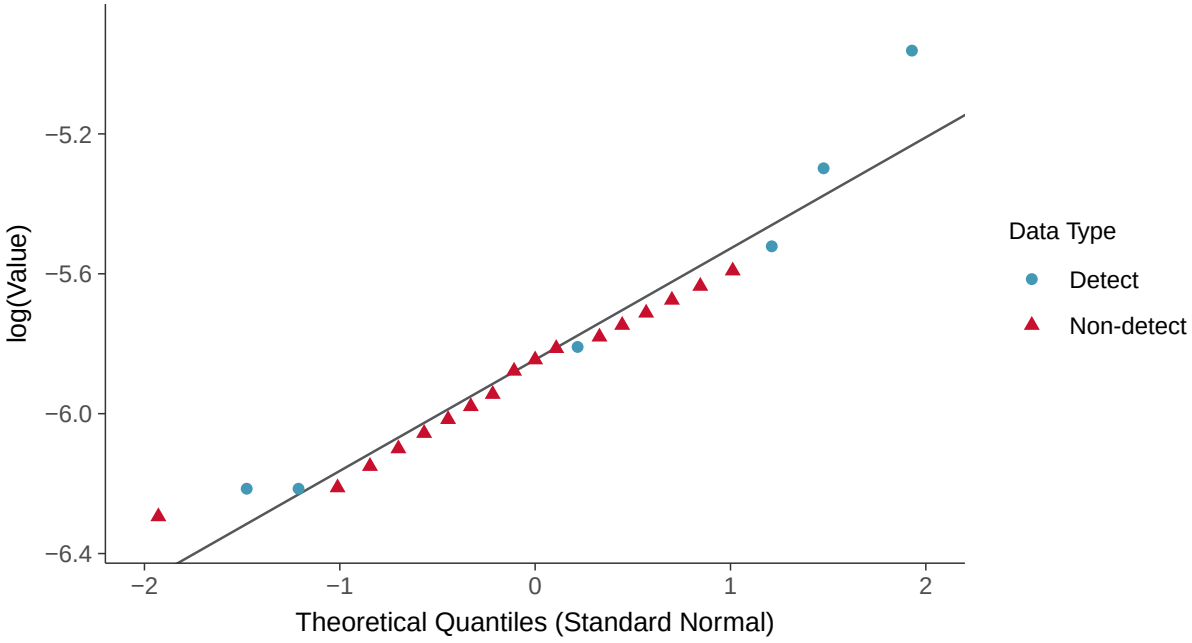
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, MW-5 (mg/L)



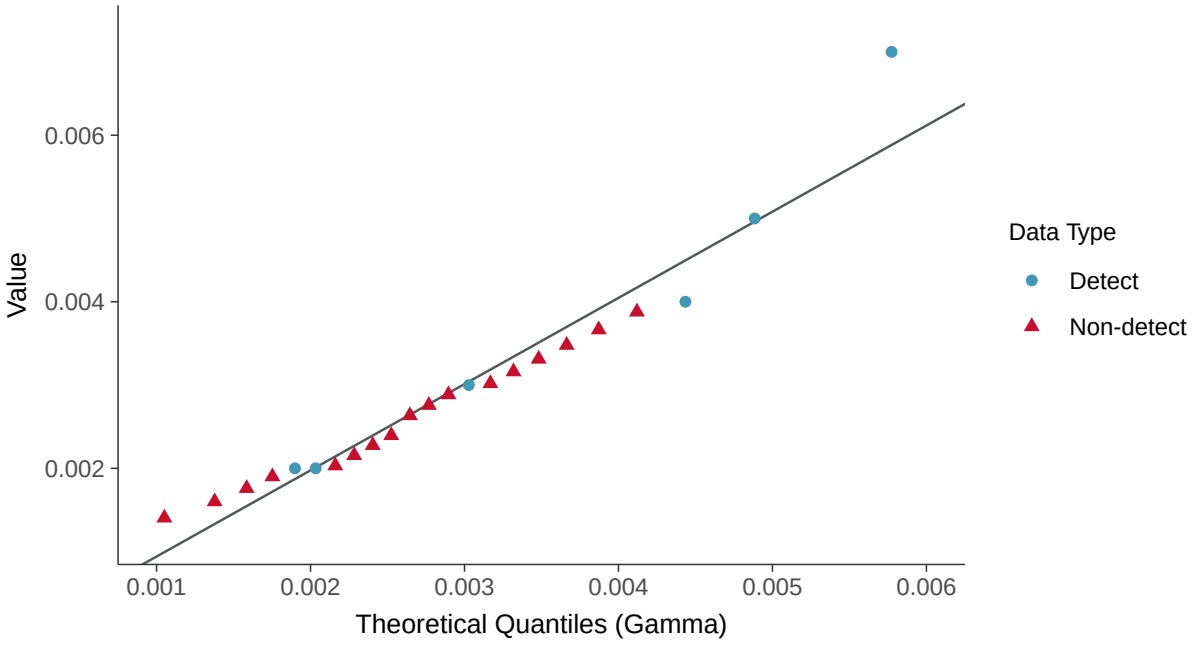
Lognormal Q-Q plot using ROS Imputed Estimates

Arsenic, MW-5 (mg/L)



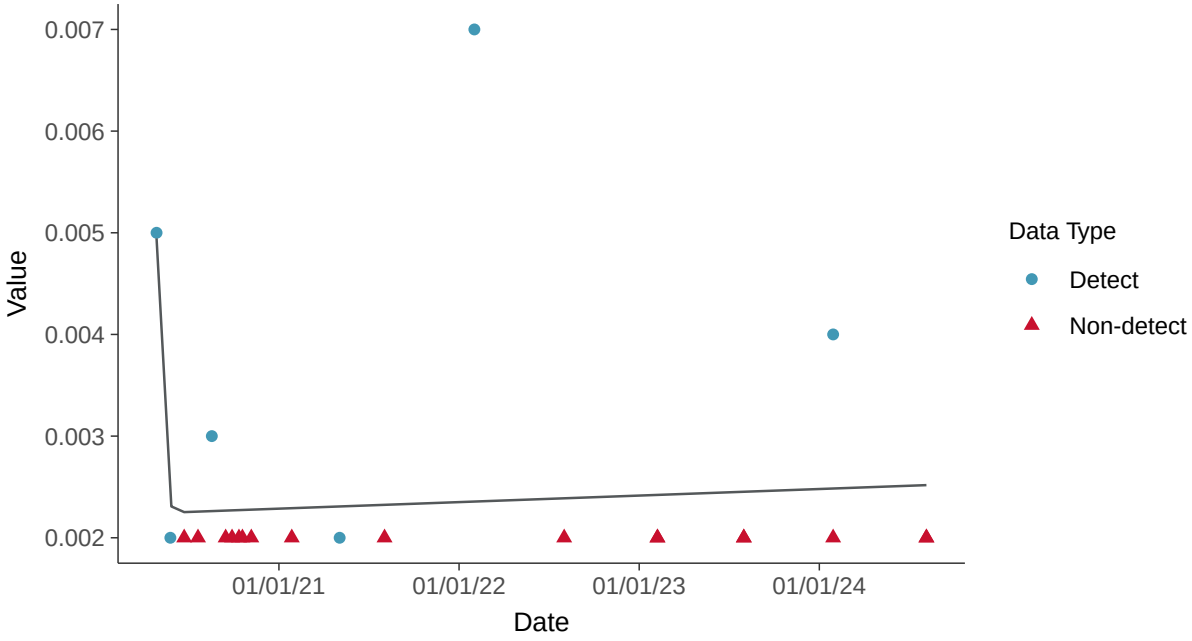
Gamma Q-Q plot using ROS Imputed Estimates

Arsenic, MW-5 (mg/L)



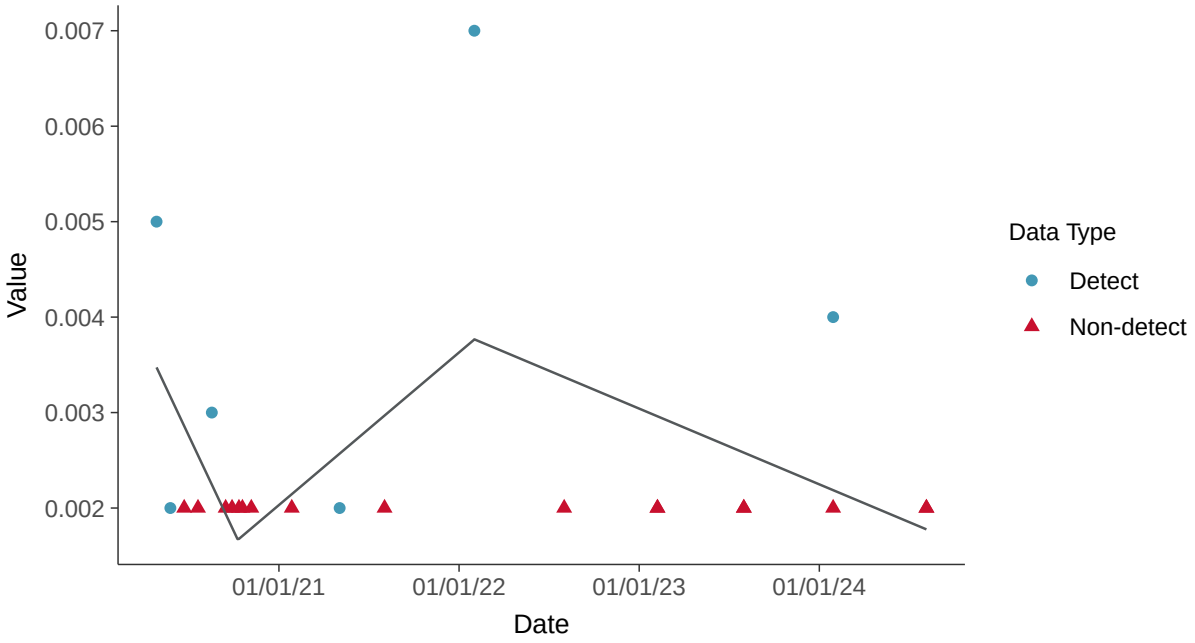
Trend Regression: Piecewise Linear-Linear

Arsenic, MW-5 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Arsenic, MW-5 (mg/L)

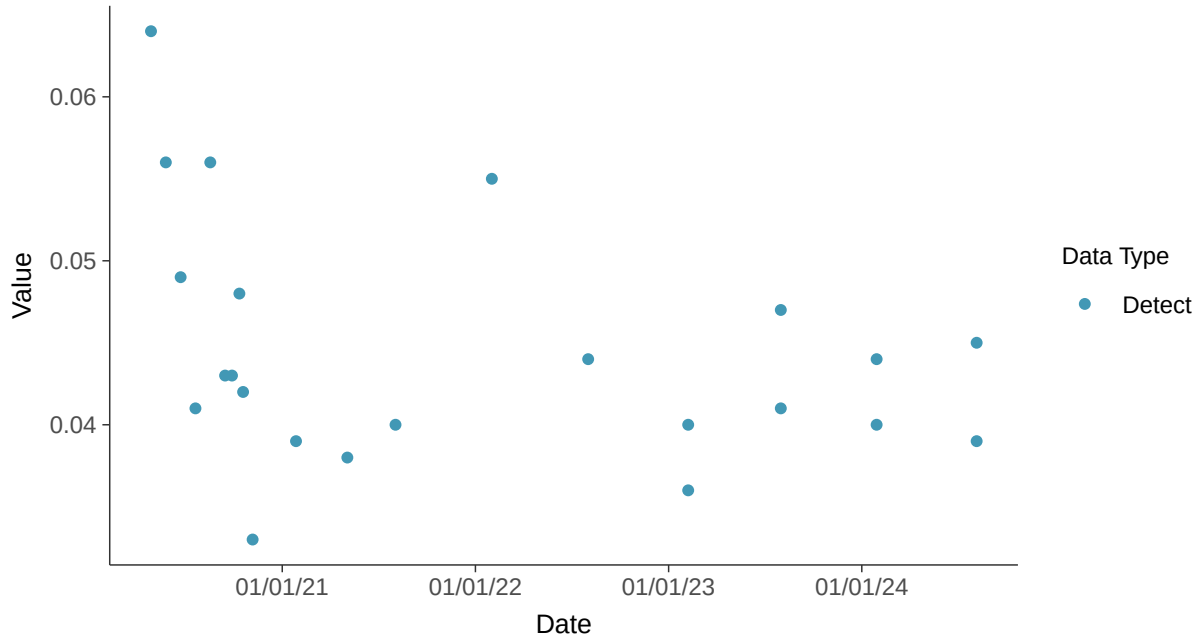


Appendix IV: Barium, MW-5

ID: 05_2_10

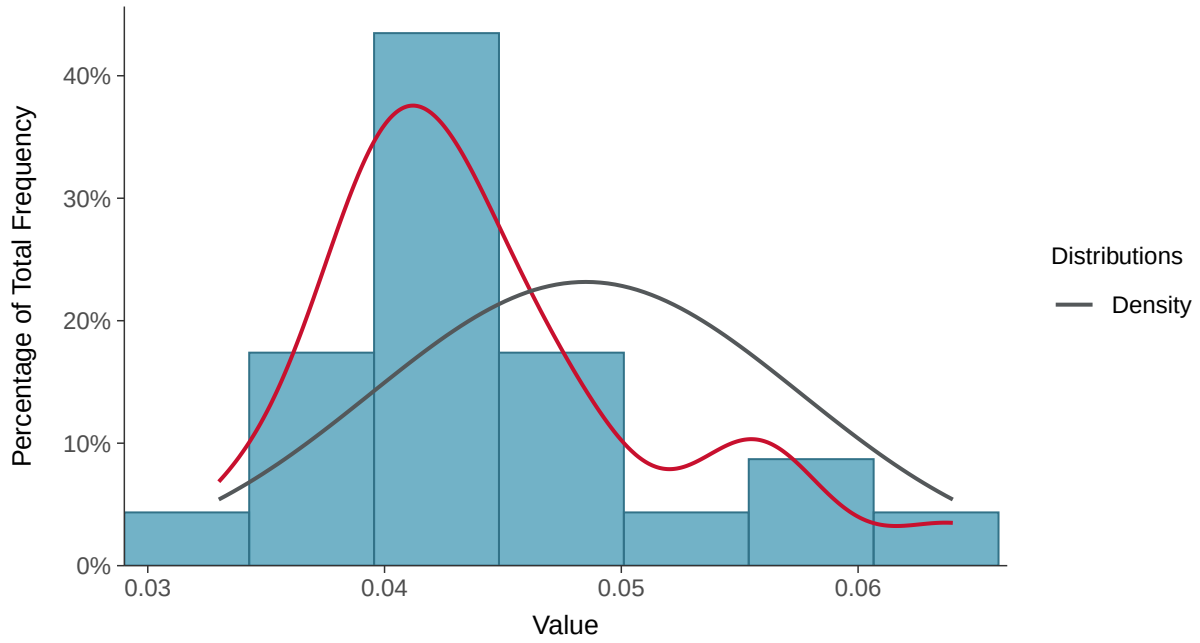
Scatter Plot

Barium, MW-5 (mg/L)



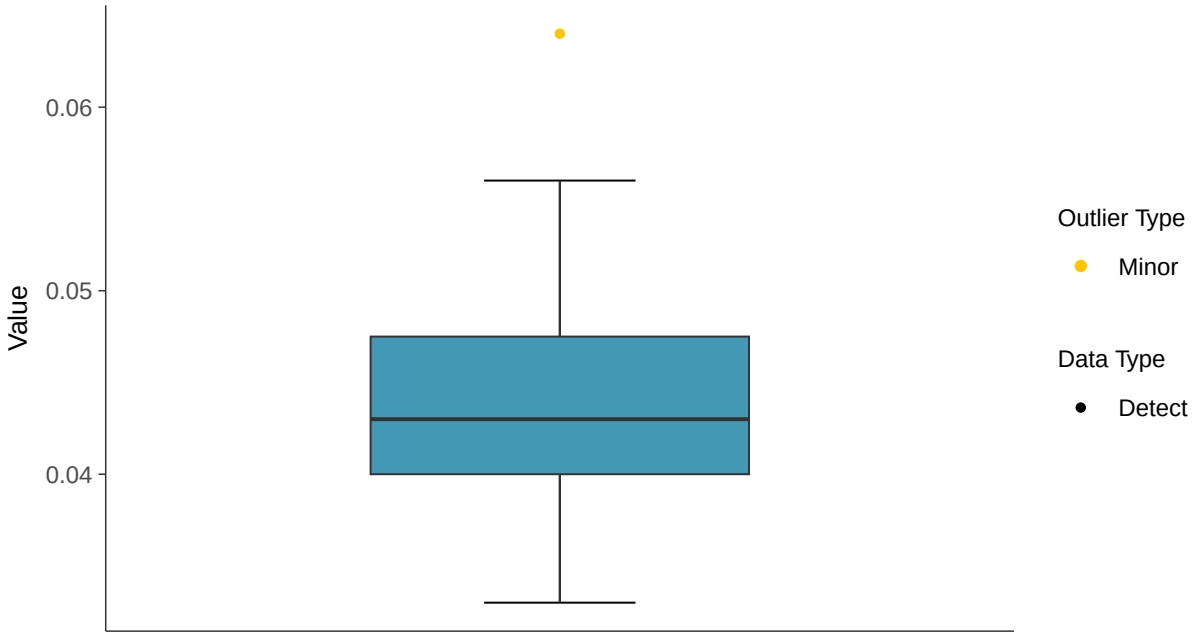
Histogram

Barium, MW-5 (mg/L)



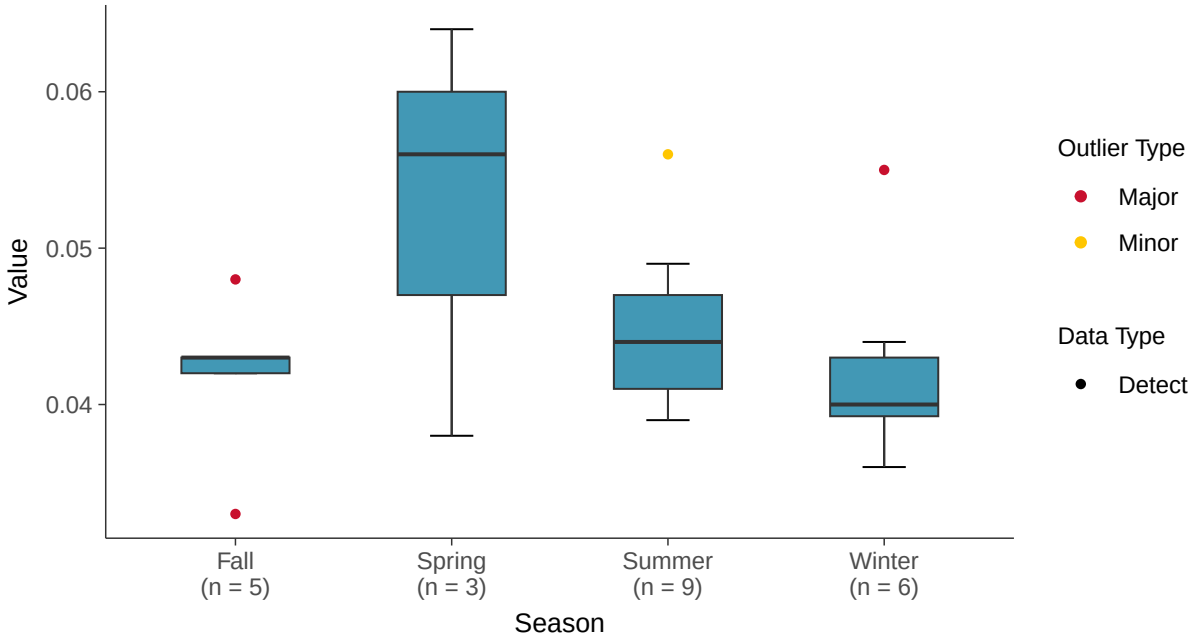
Boxplot

Barium, MW-5 (mg/L)



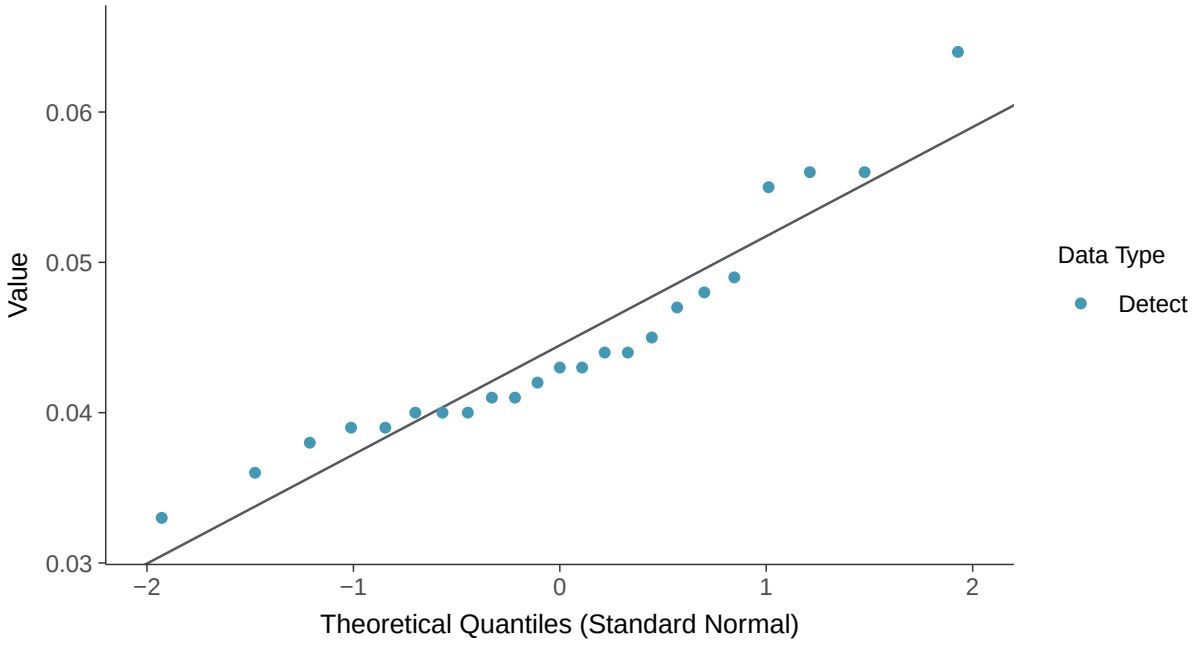
Boxplot by Season

Barium, MW-5 (mg/L)



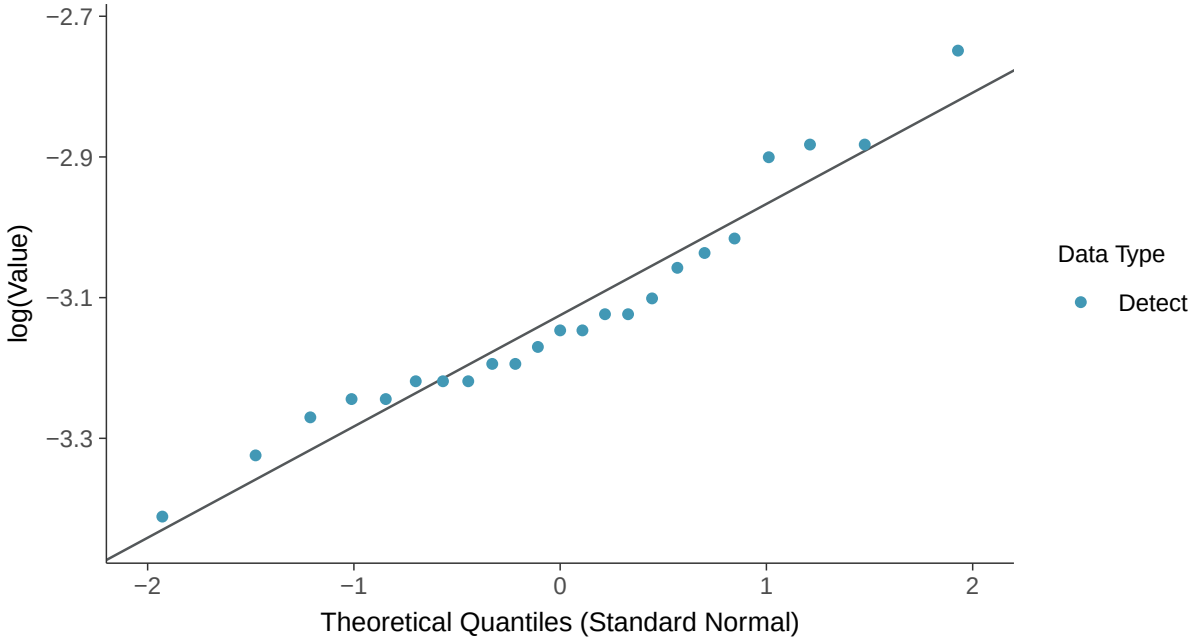
Normal Q-Q plot

Barium, MW-5 (mg/L)



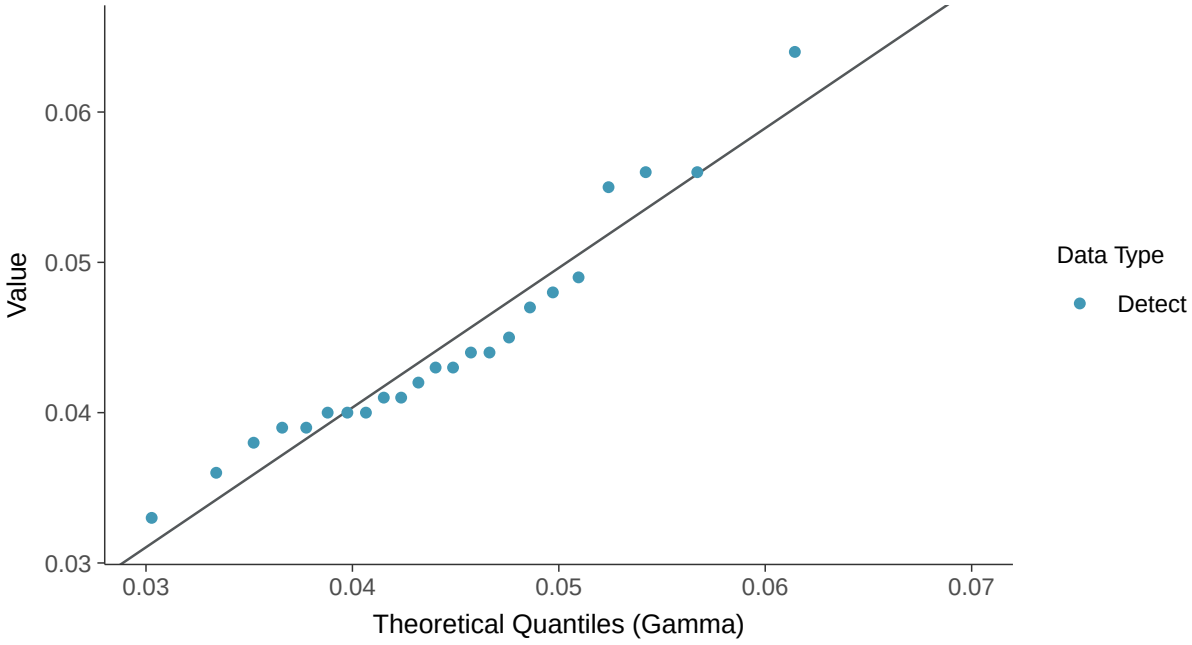
Lognormal Q-Q plot

Barium, MW-5 (mg/L)



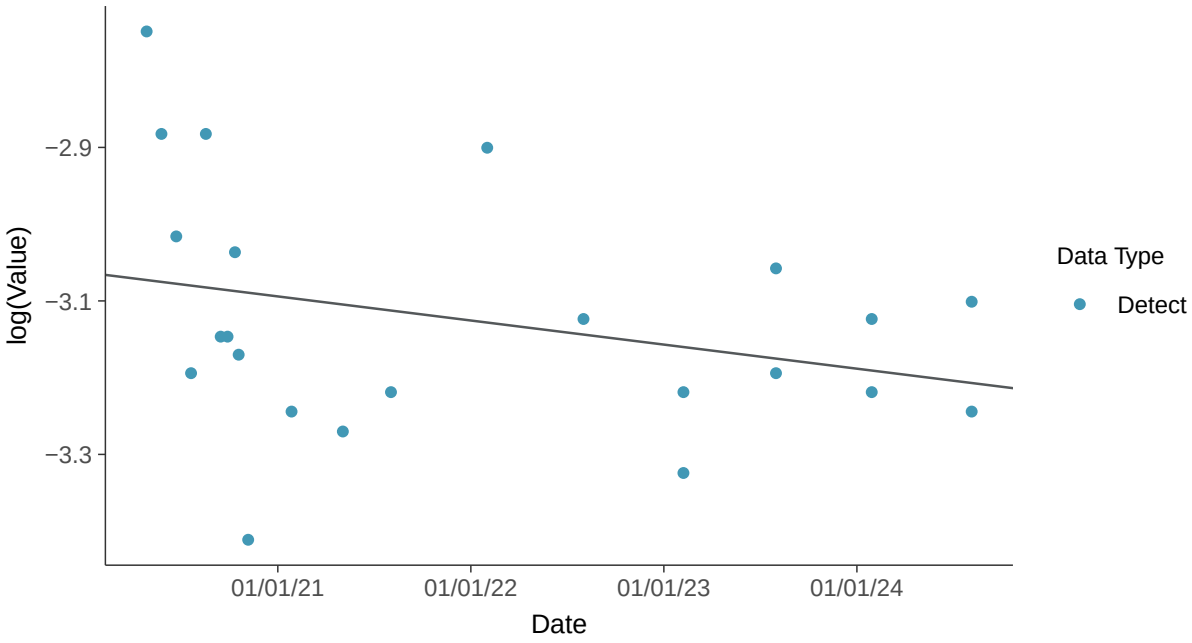
Gamma Q-Q plot

Barium, MW-5 (mg/L)



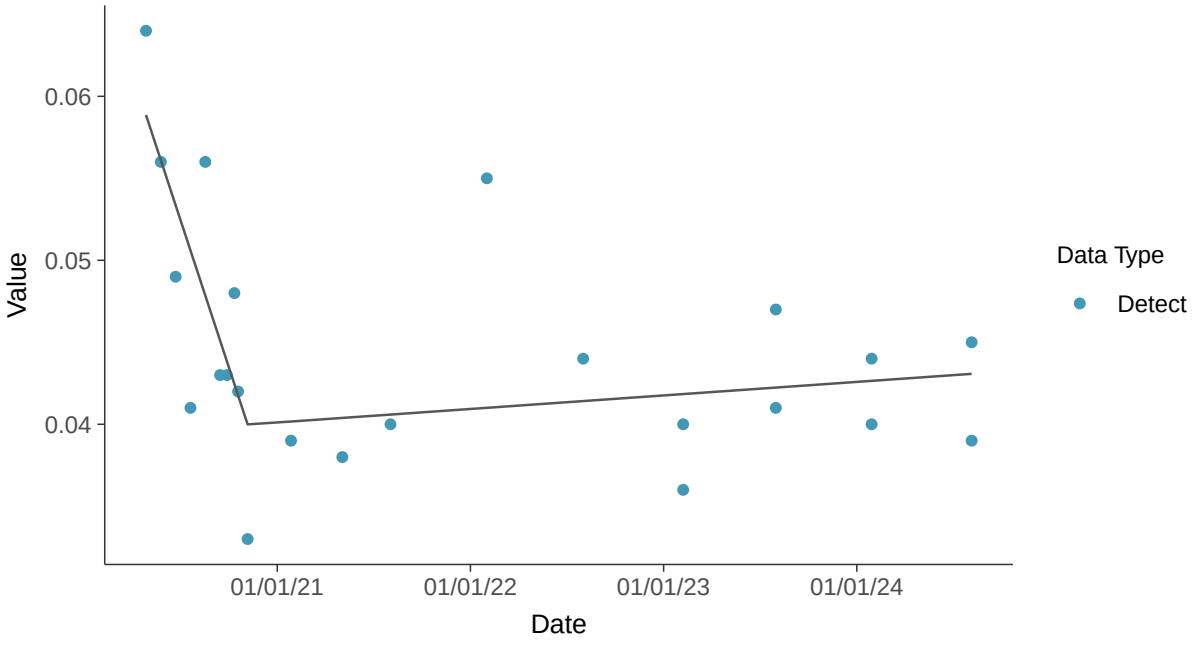
Trend Regression: Lognormal MLE

Barium, MW-5 (mg/L)



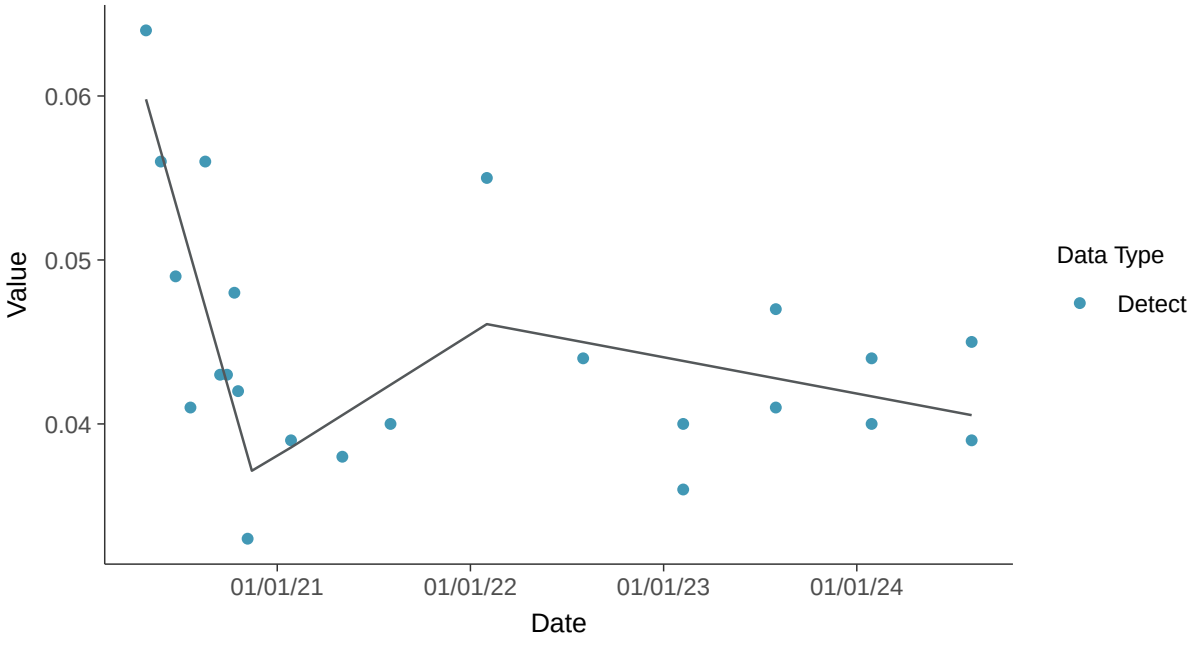
Trend Regression: Piecewise Linear-Linear

Barium, MW-5 (mg/L)



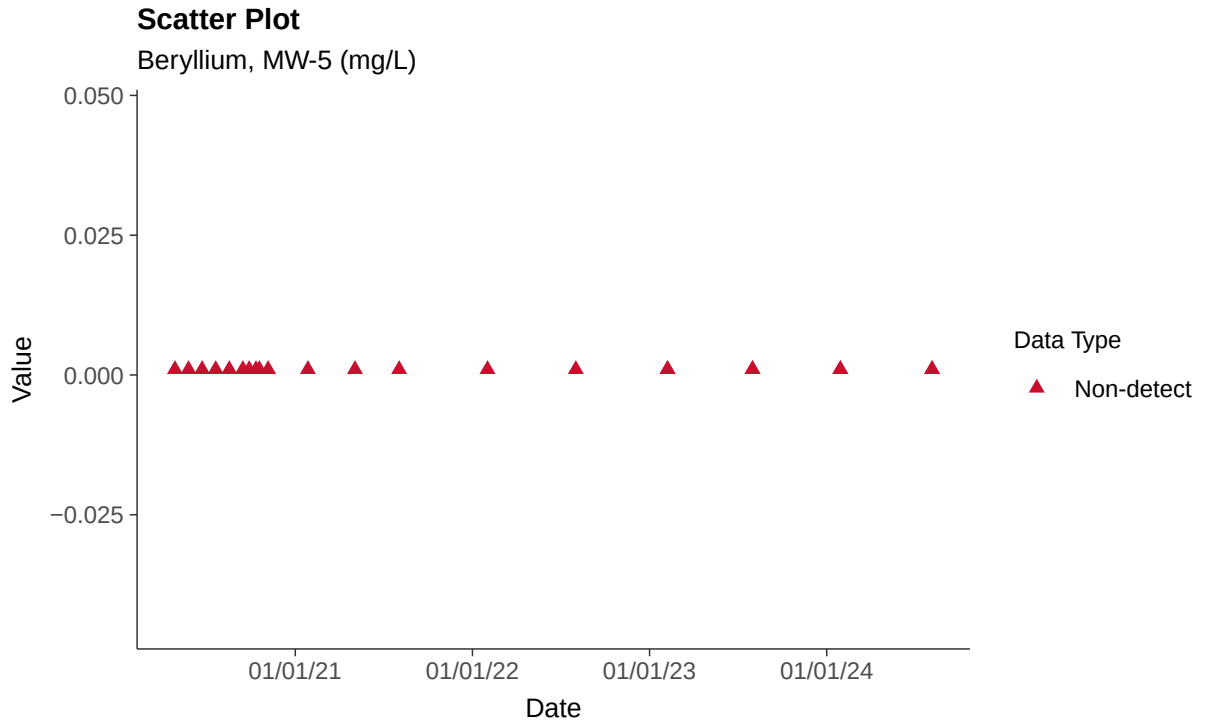
Trend Regression: Piecewise Linear-Linear-Linear

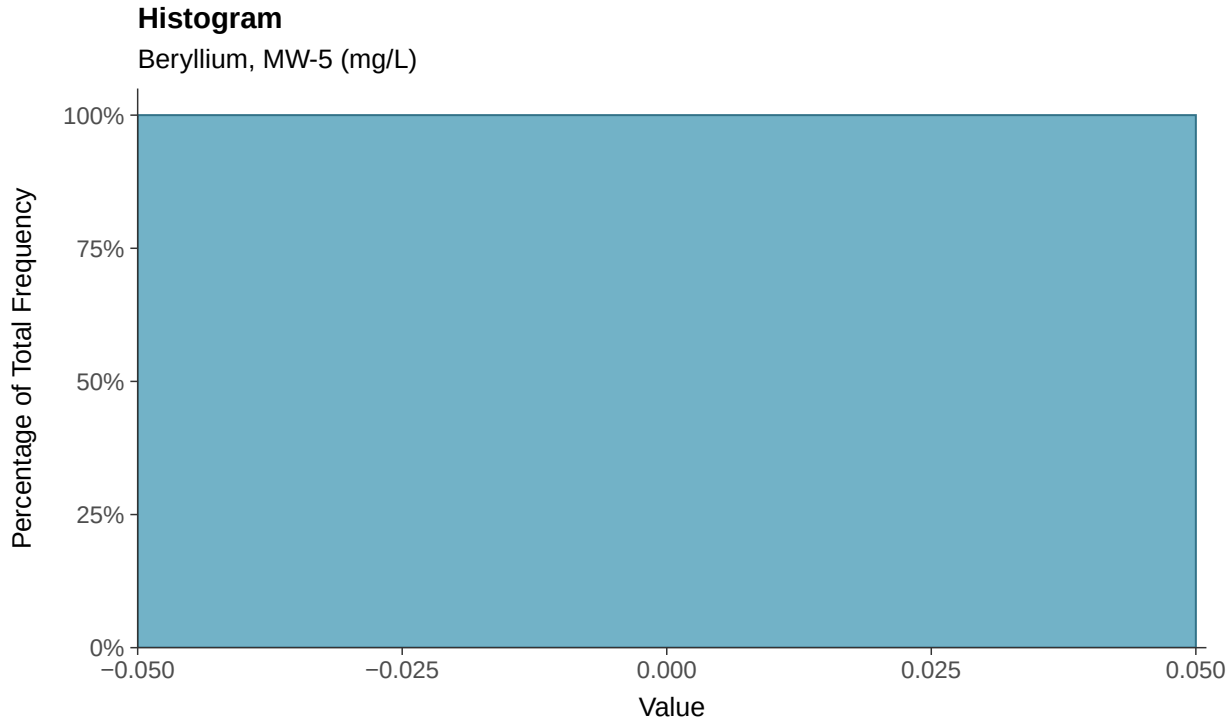
Barium, MW-5 (mg/L)



Appendix IV: Beryllium, MW-5

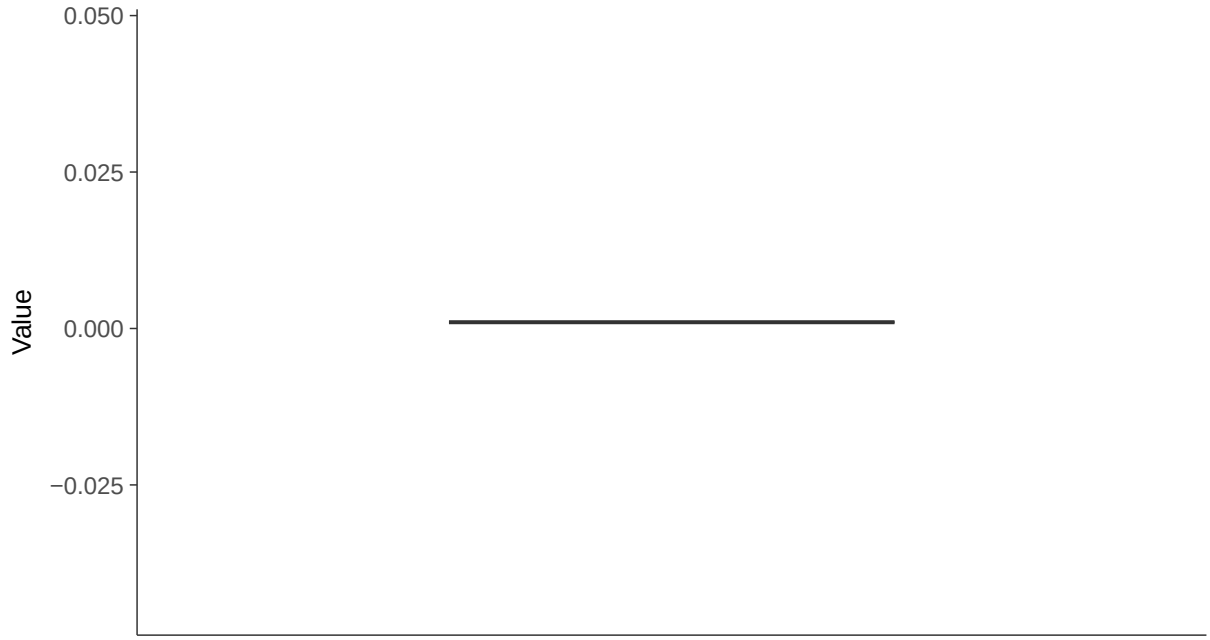
ID: 05_2_11





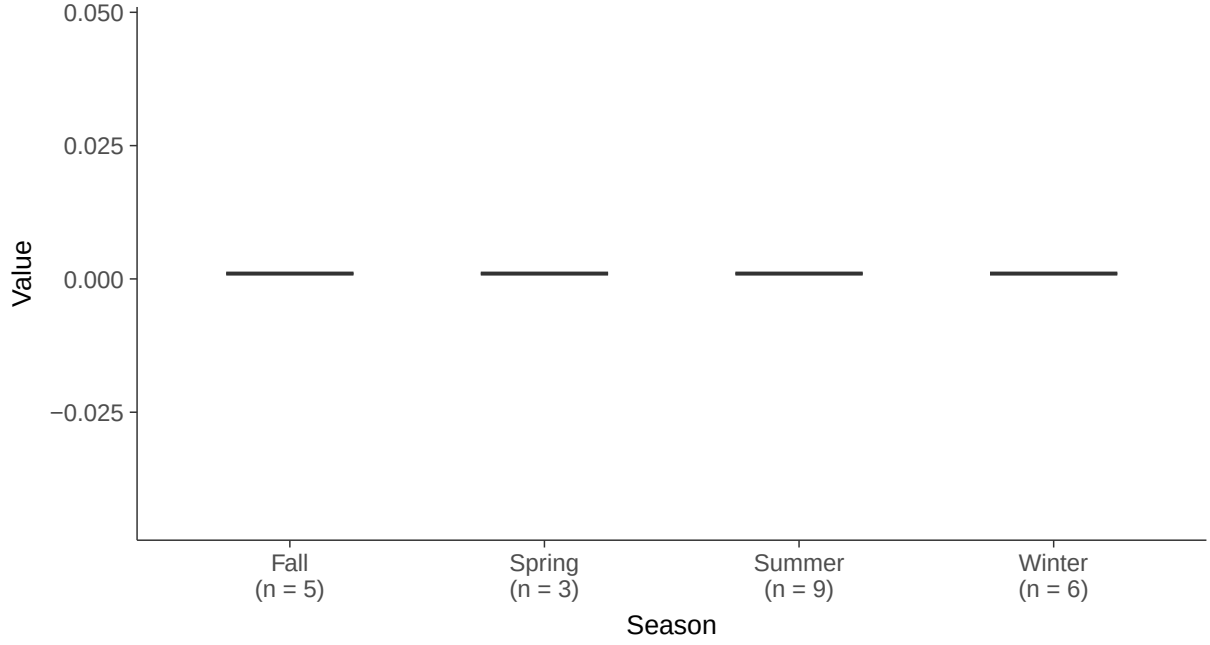
Boxplot

Beryllium, MW-5 (mg/L)



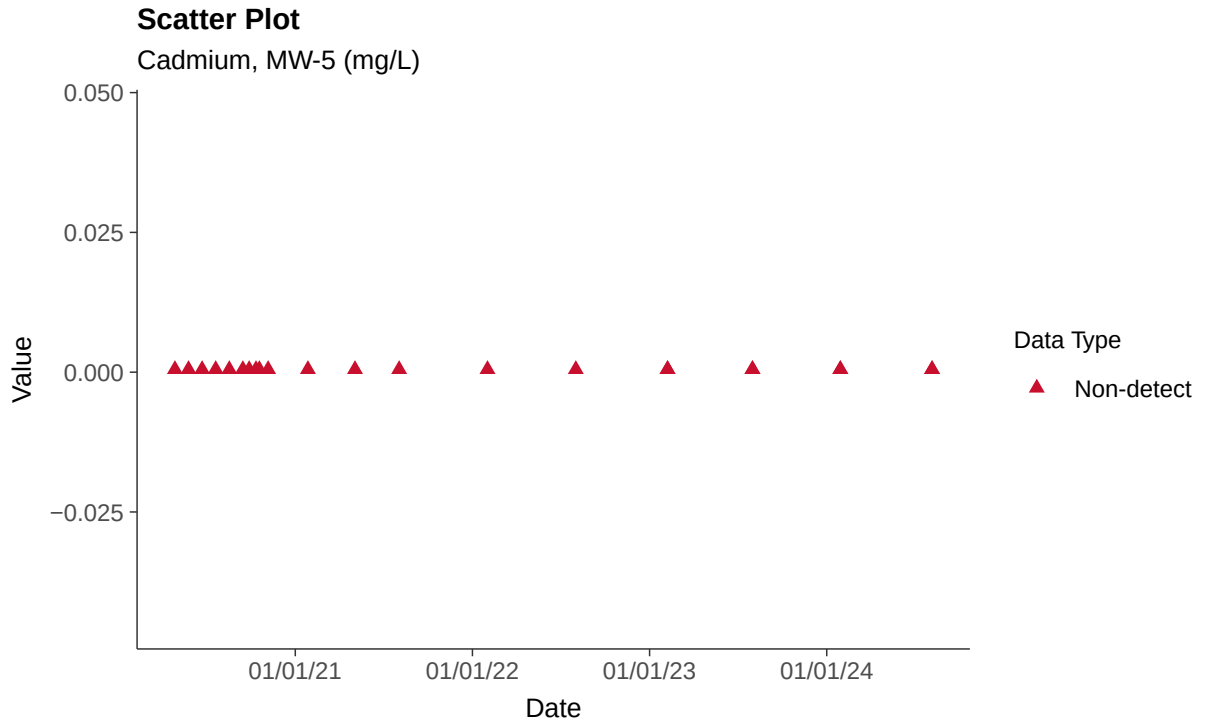
Boxplot by Season

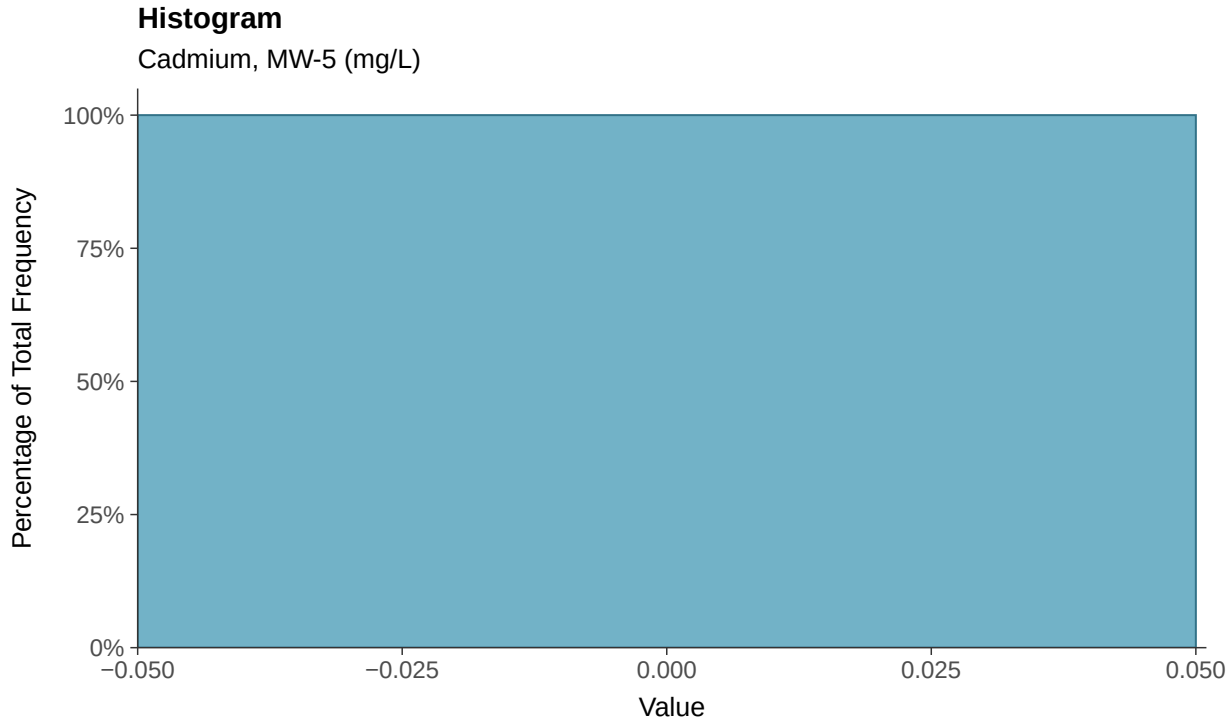
Beryllium, MW-5 (mg/L)



Appendix IV: Cadmium, MW-5

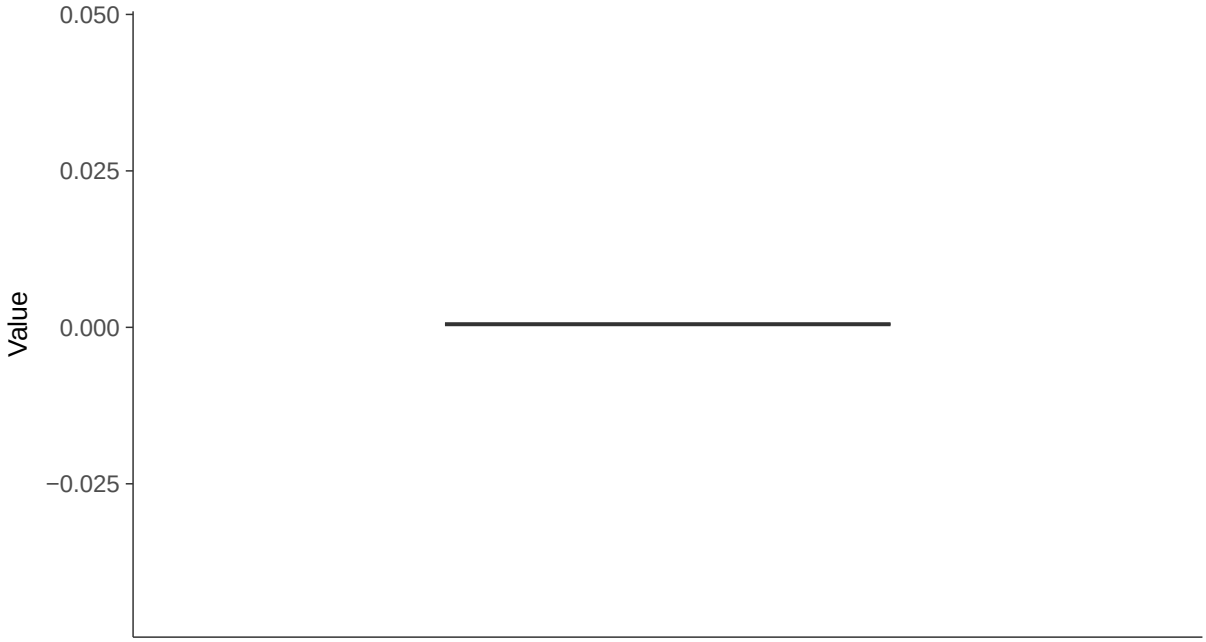
ID: 05_2_12





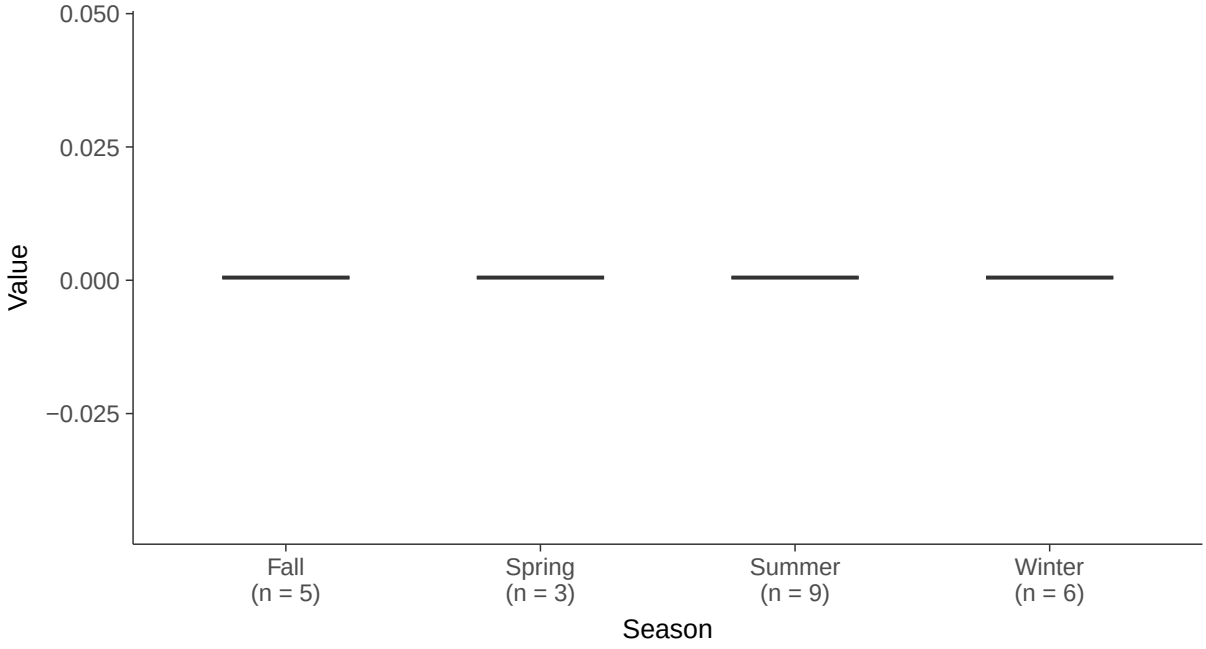
Boxplot

Cadmium, MW-5 (mg/L)



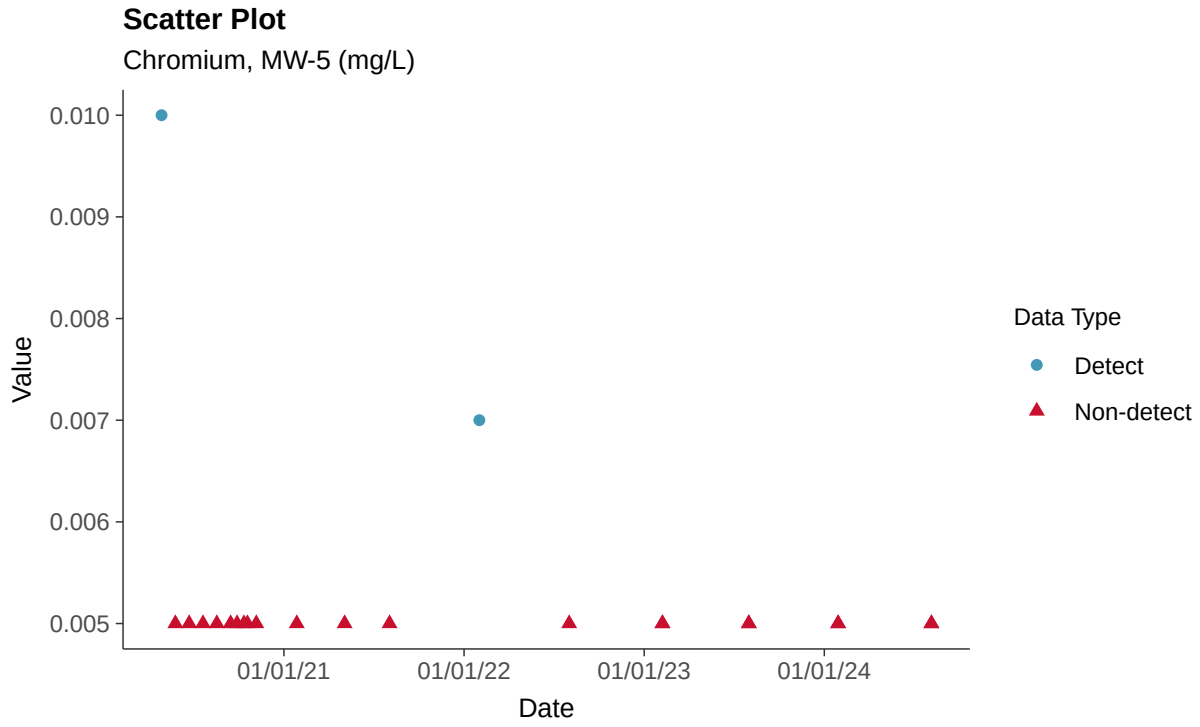
Boxplot by Season

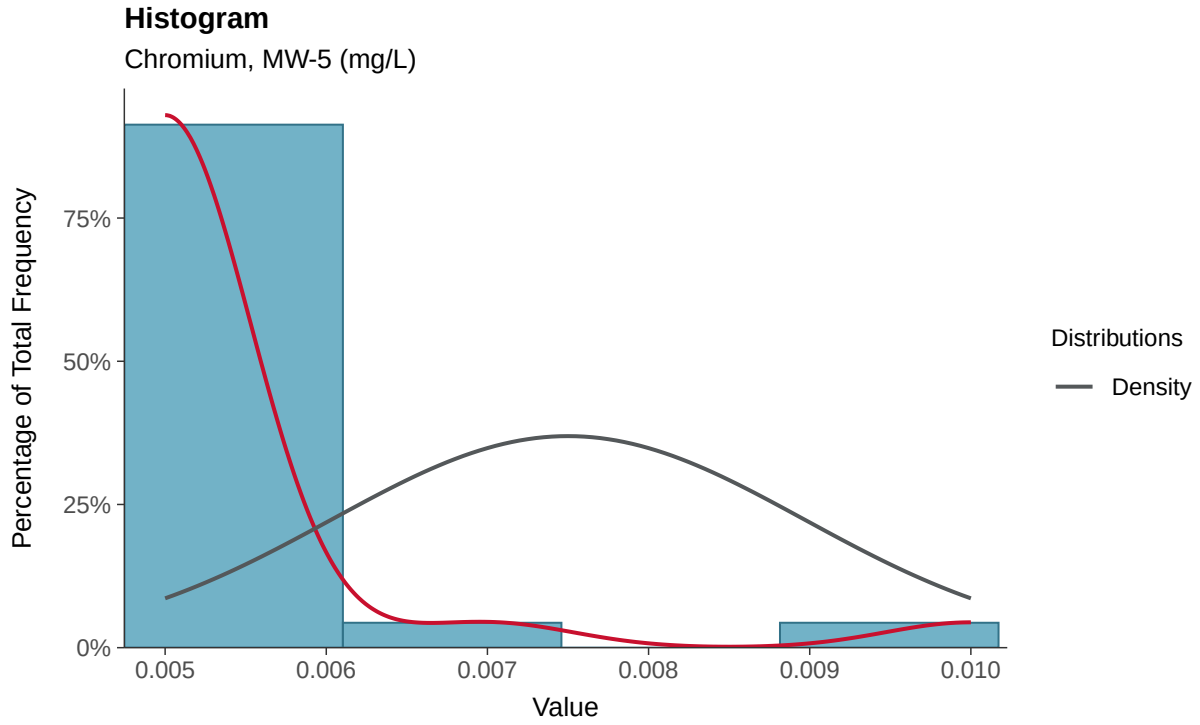
Cadmium, MW-5 (mg/L)



Appendix IV: Chromium, MW-5

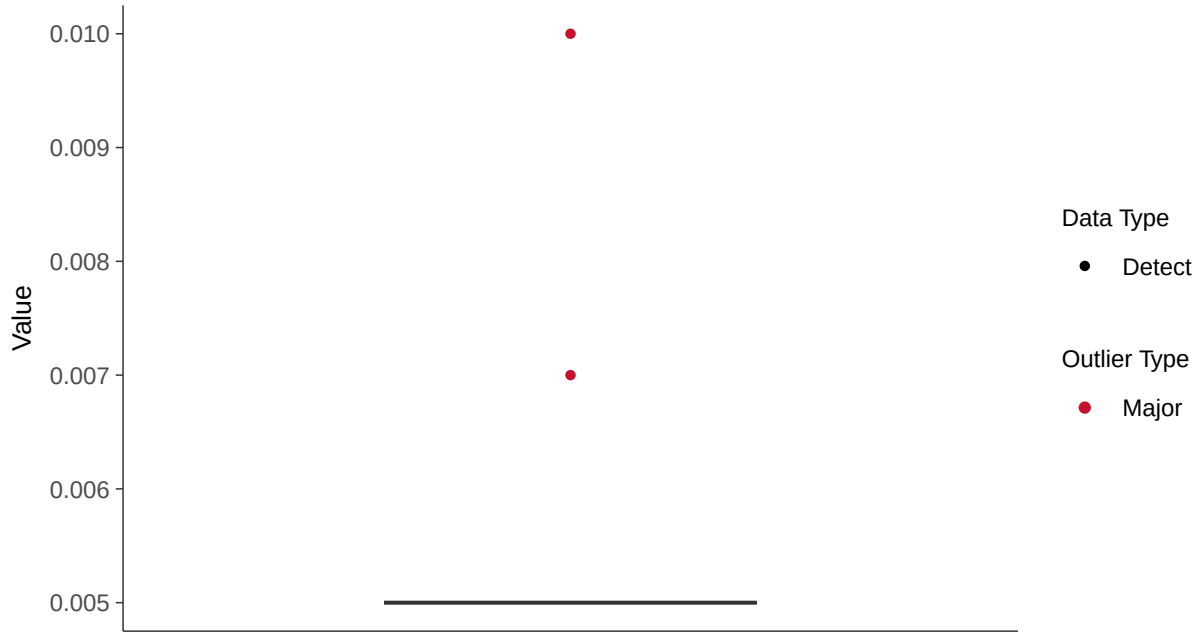
ID: 05_2_13





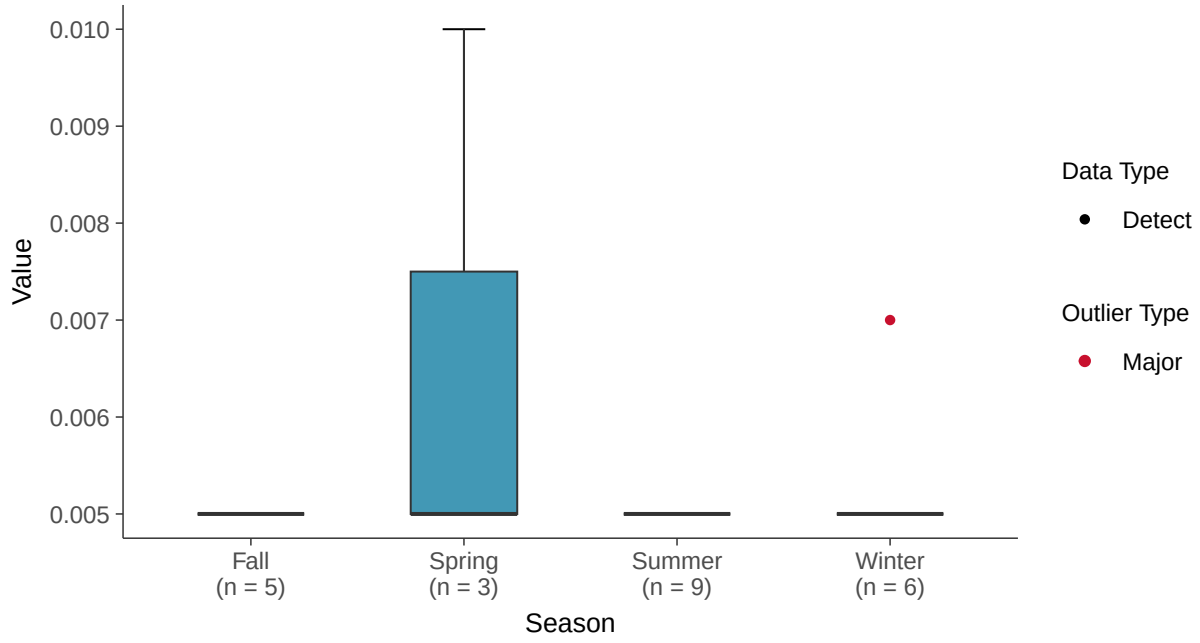
Boxplot

Chromium, MW-5 (mg/L)



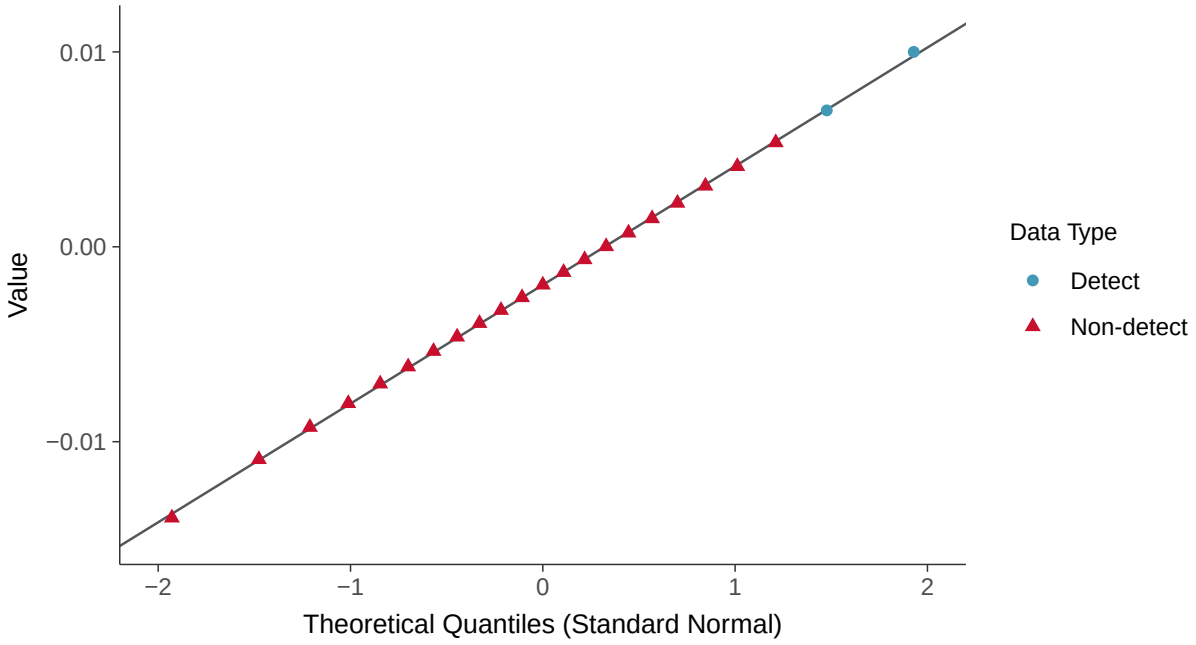
Boxplot by Season

Chromium, MW-5 (mg/L)



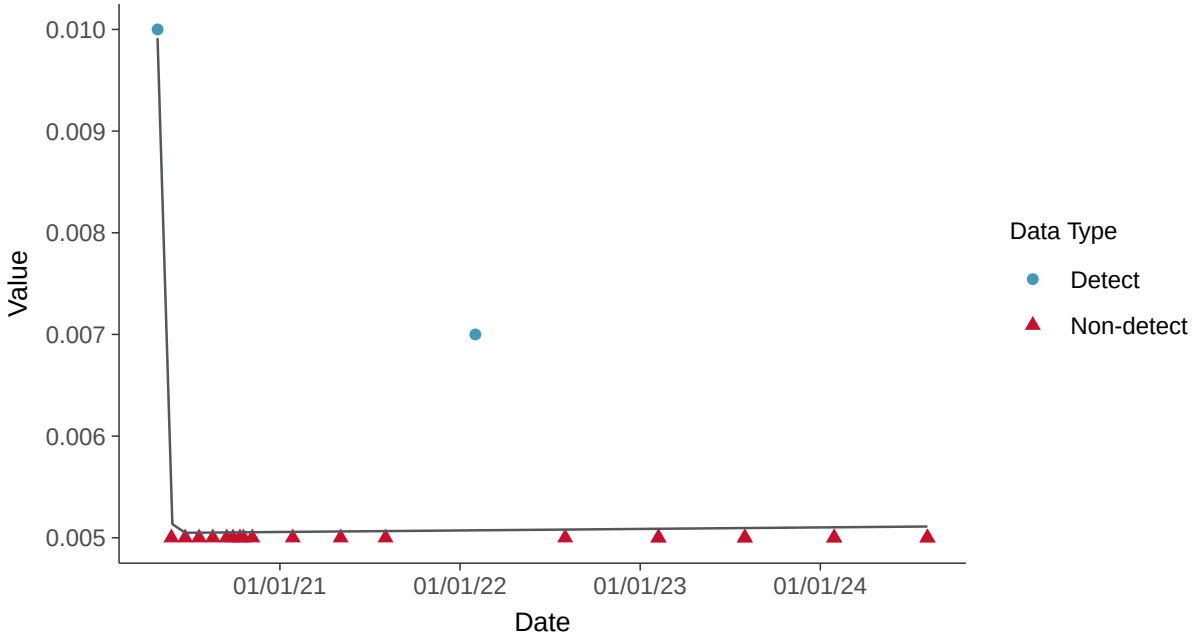
Normal Q-Q plot using ROS Imputed Estimates

Chromium, MW-5 (mg/L)



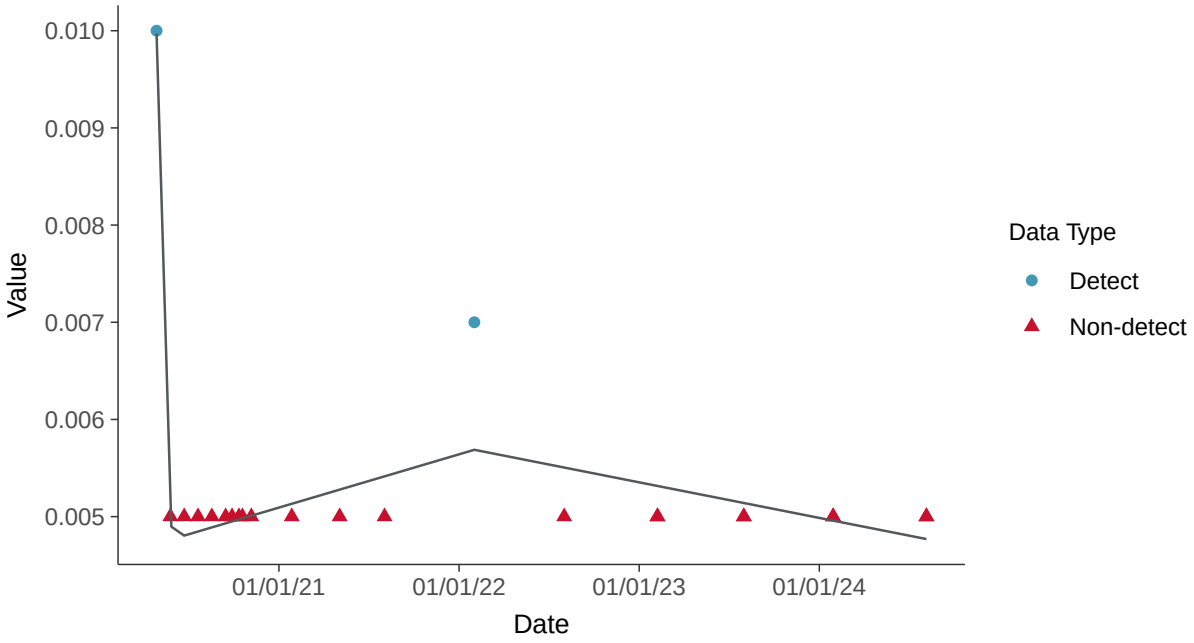
Trend Regression: Piecewise Linear-Linear

Chromium, MW-5 (mg/L)



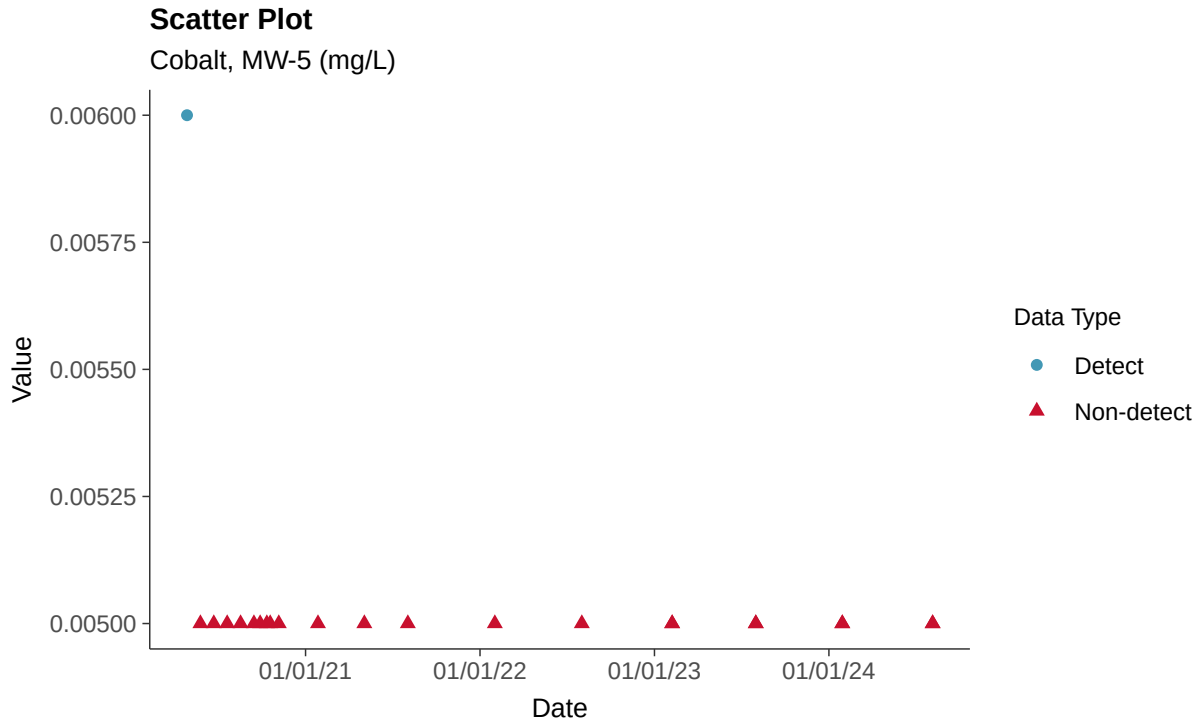
Trend Regression: Piecewise Linear-Linear-Linear

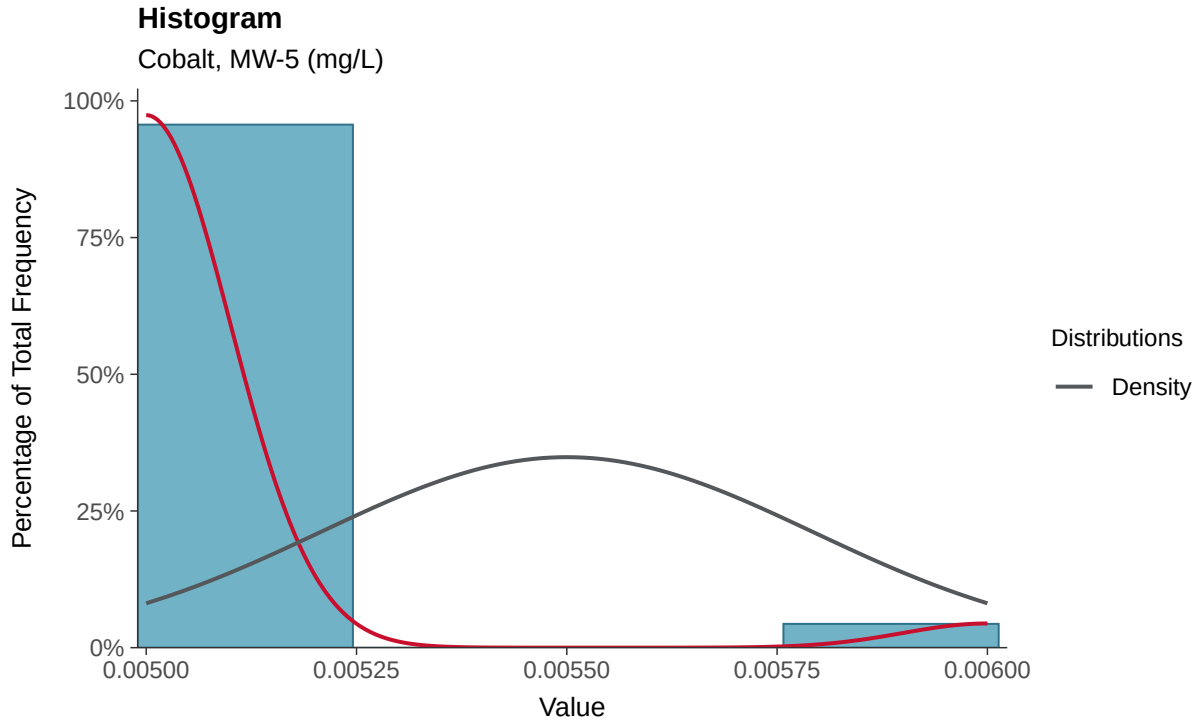
Chromium, MW-5 (mg/L)



Appendix IV: Cobalt, MW-5

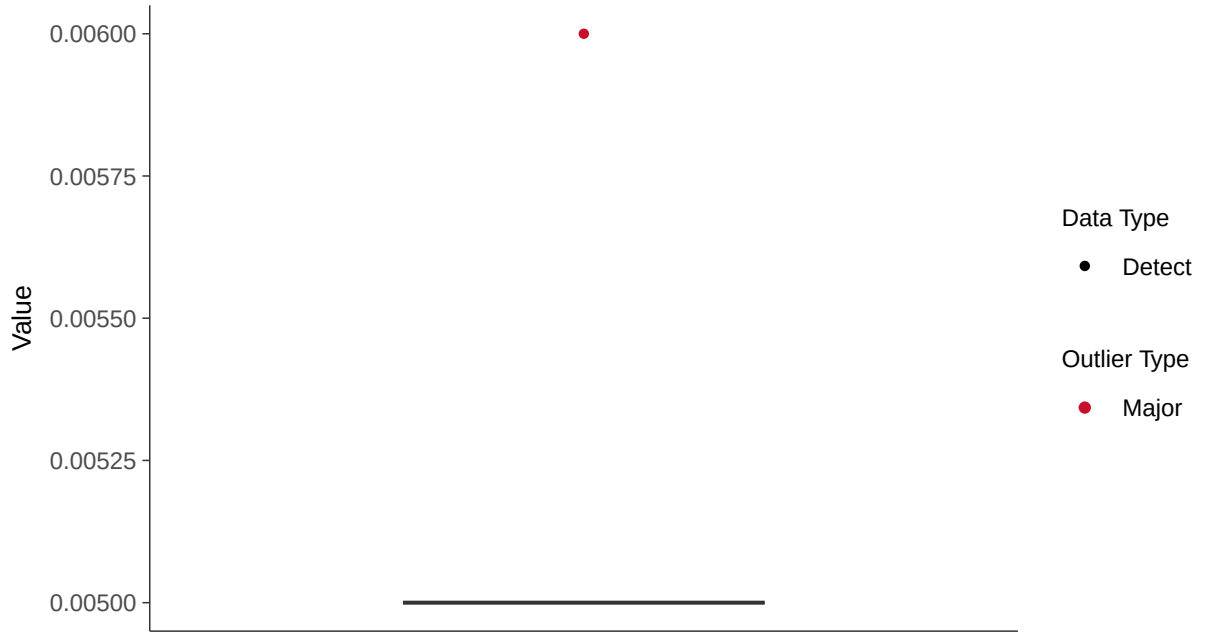
ID: 05_2_14





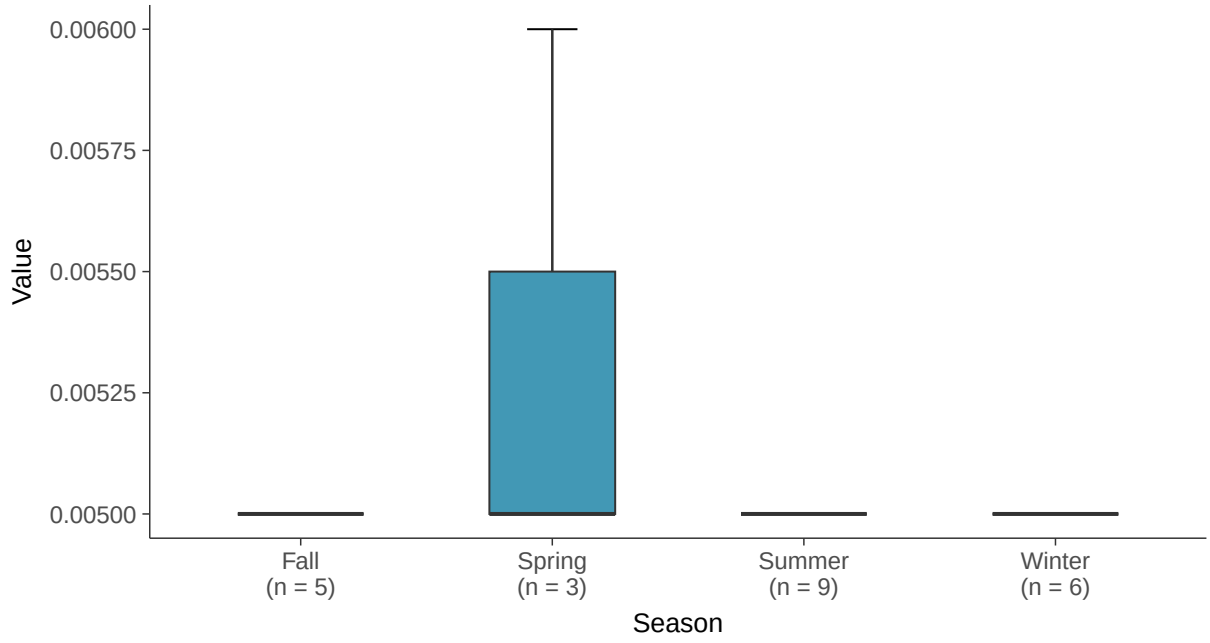
Boxplot

Cobalt, MW-5 (mg/L)



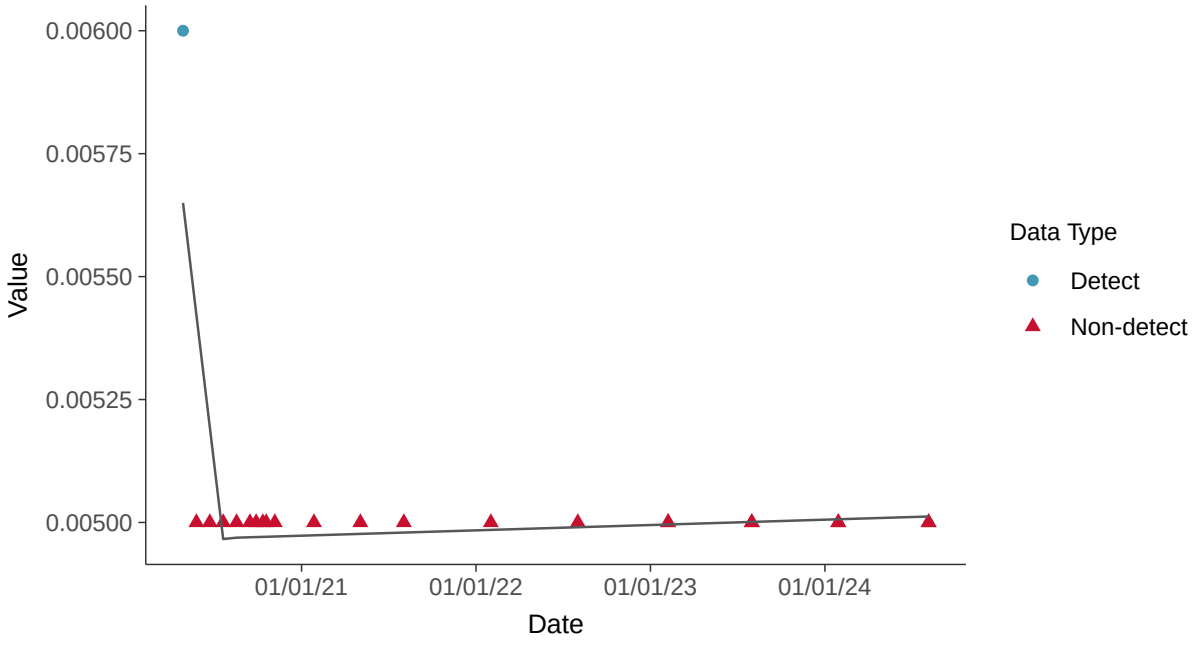
Boxplot by Season

Cobalt, MW-5 (mg/L)



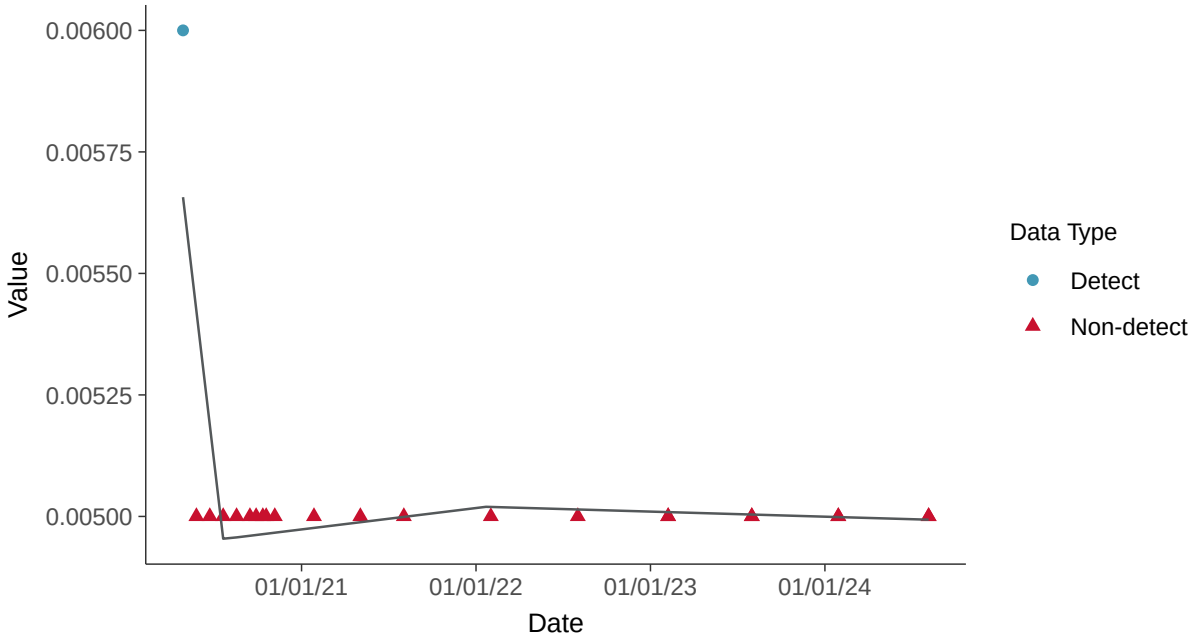
Trend Regression: Piecewise Linear-Linear

Cobalt, MW-5 (mg/L)



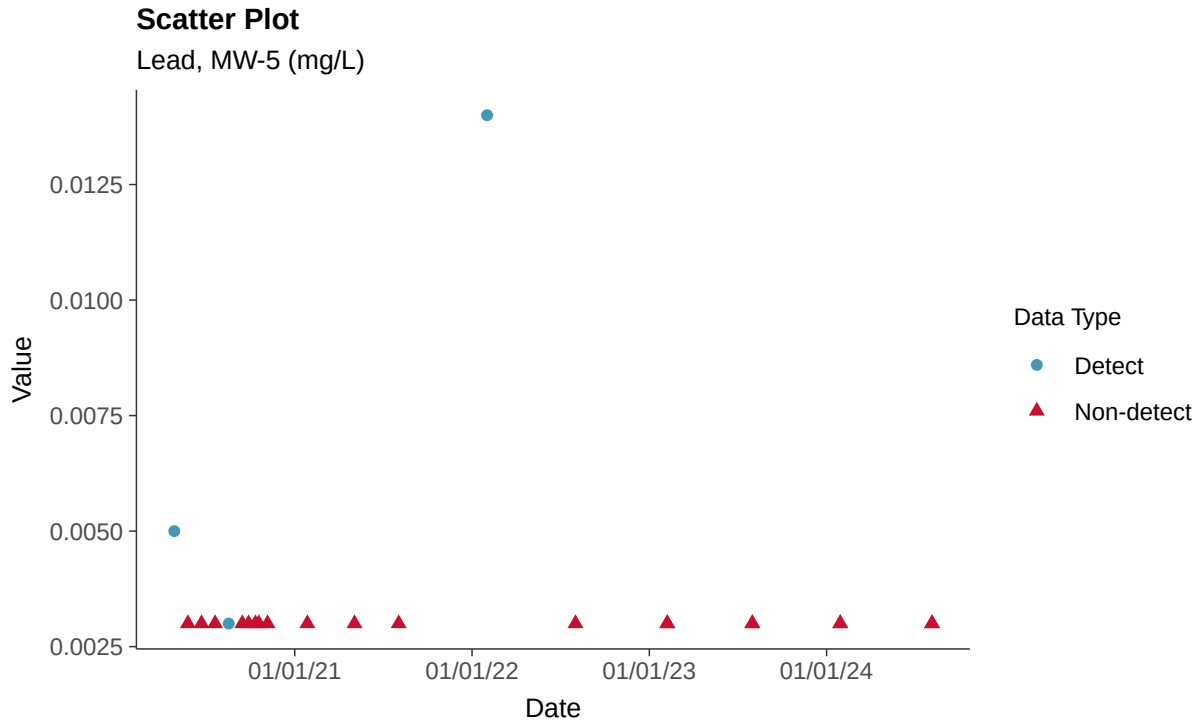
Trend Regression: Piecewise Linear-Linear-Linear

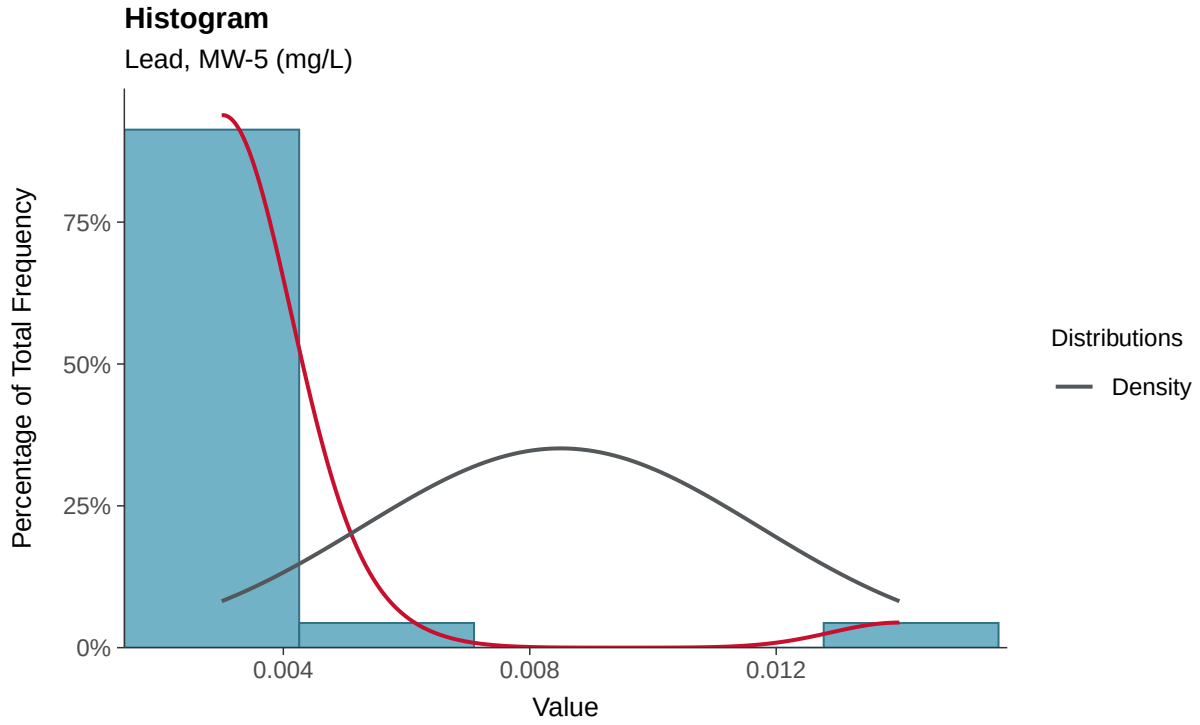
Cobalt, MW-5 (mg/L)



Appendix IV: Lead, MW-5

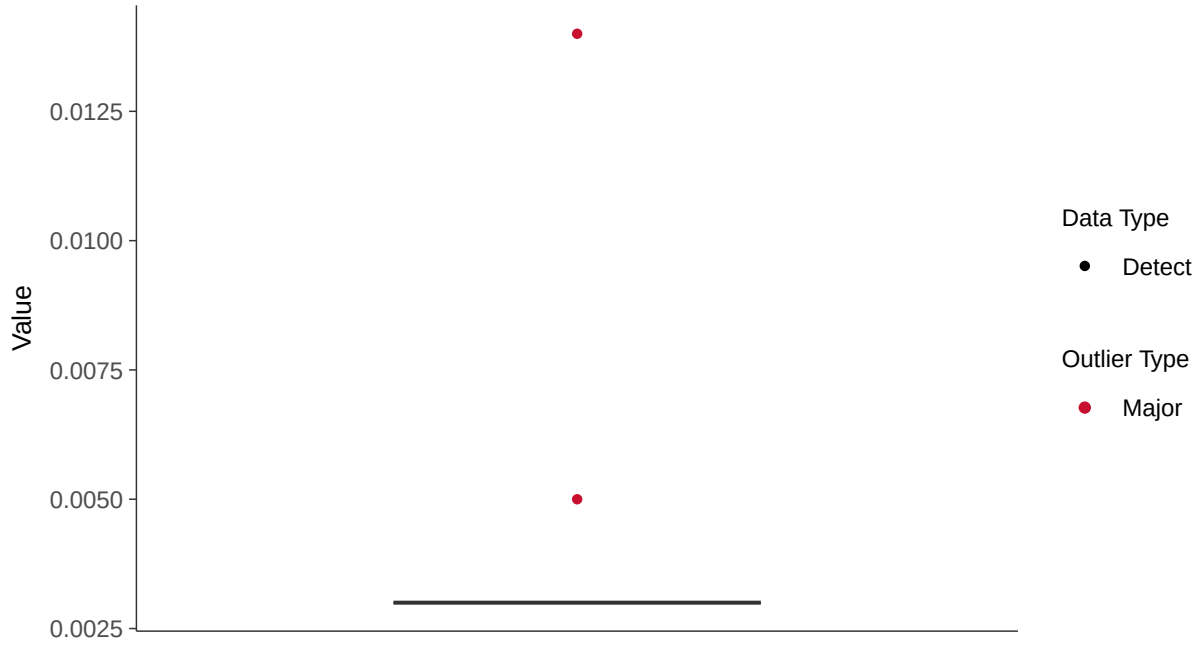
ID: 05_2_15





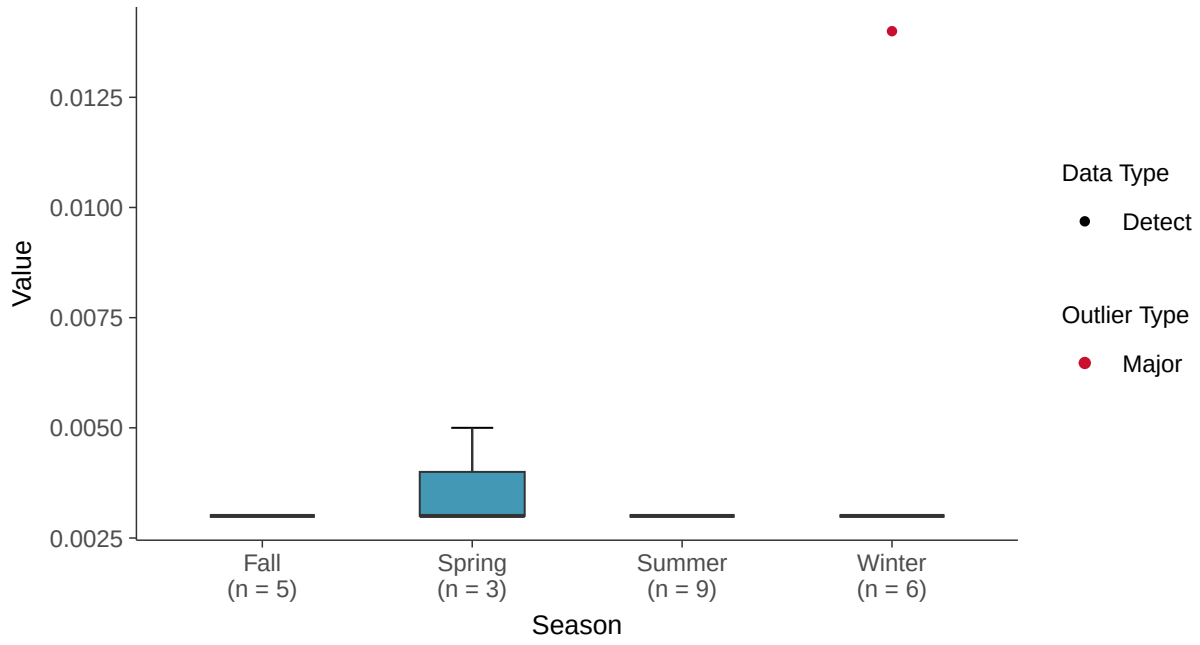
Boxplot

Lead, MW-5 (mg/L)



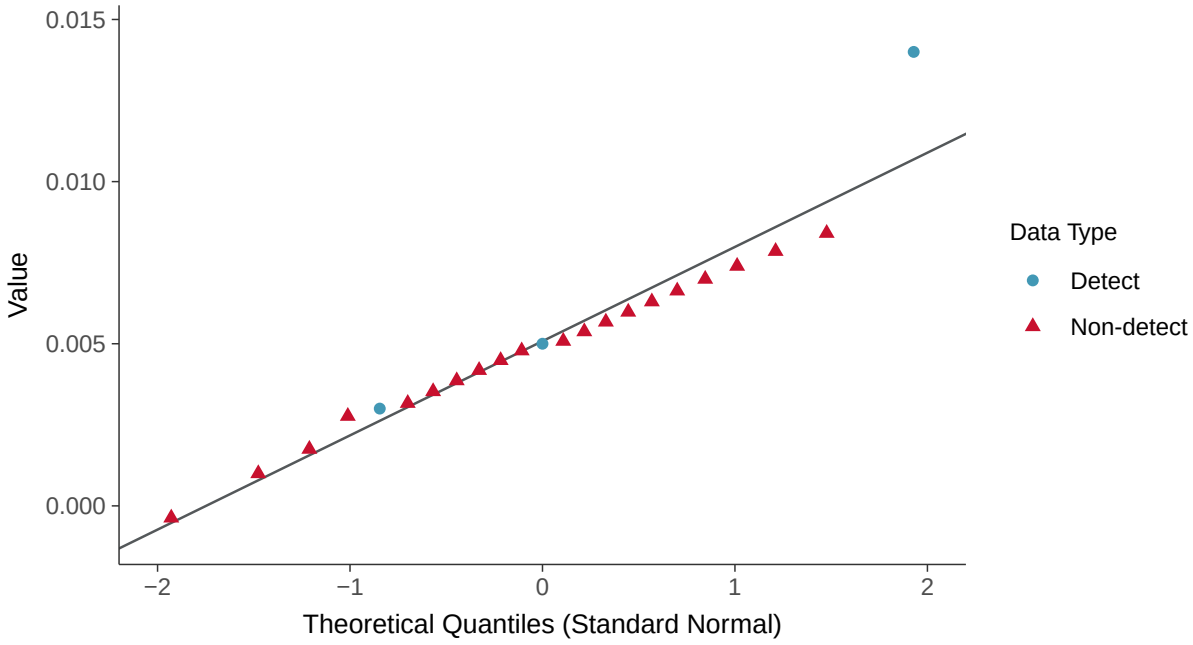
Boxplot by Season

Lead, MW-5 (mg/L)



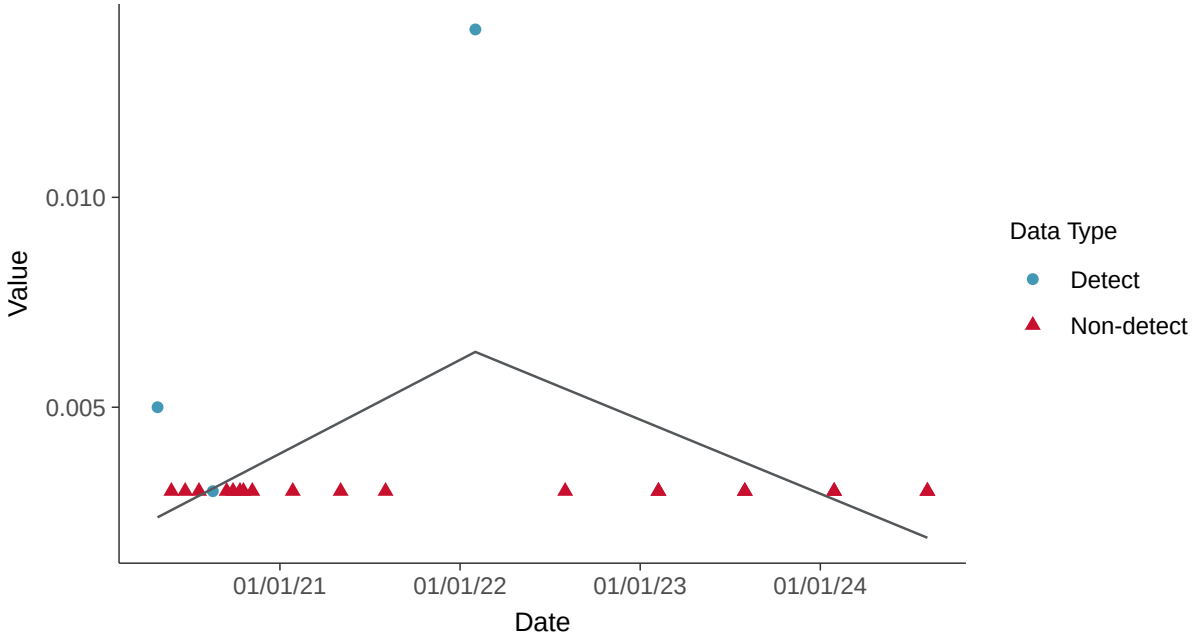
Normal Q-Q plot using ROS Imputed Estimates

Lead, MW-5 (mg/L)



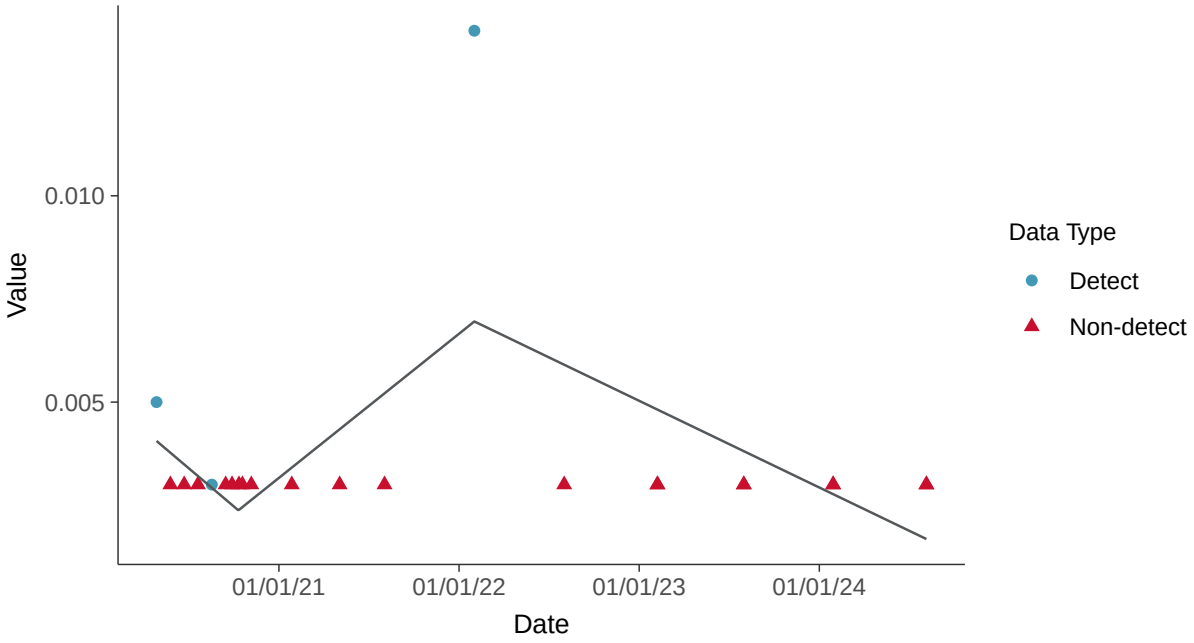
Trend Regression: Piecewise Linear-Linear

Lead, MW-5 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Lead, MW-5 (mg/L)

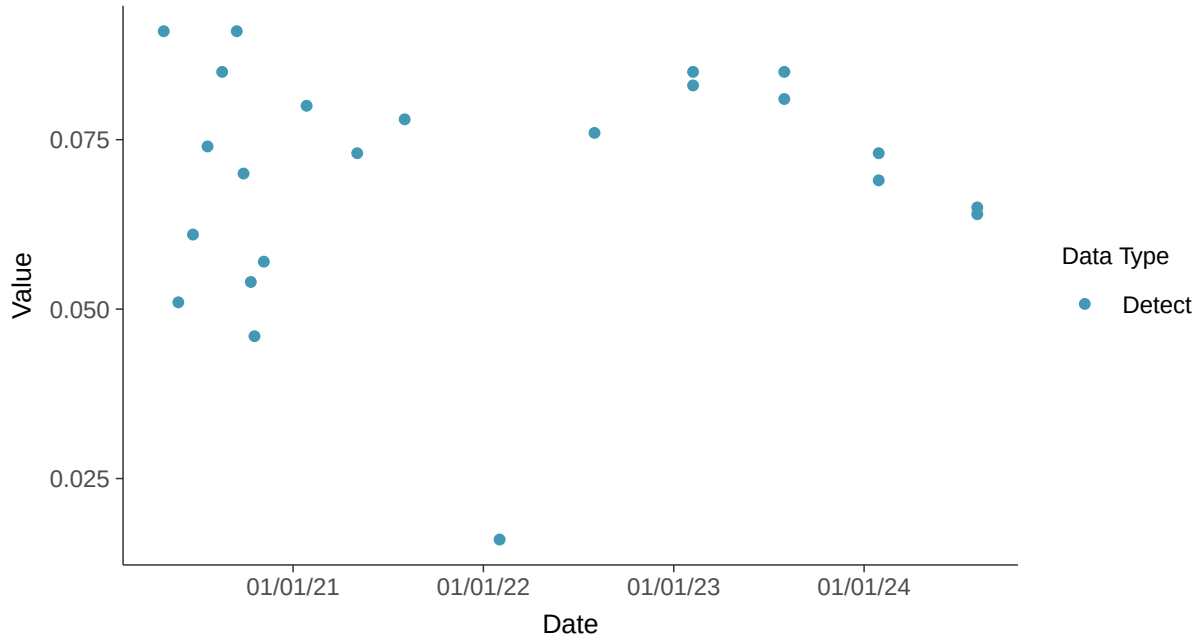


Appendix IV: Lithium, MW-5

ID: 05_2_16

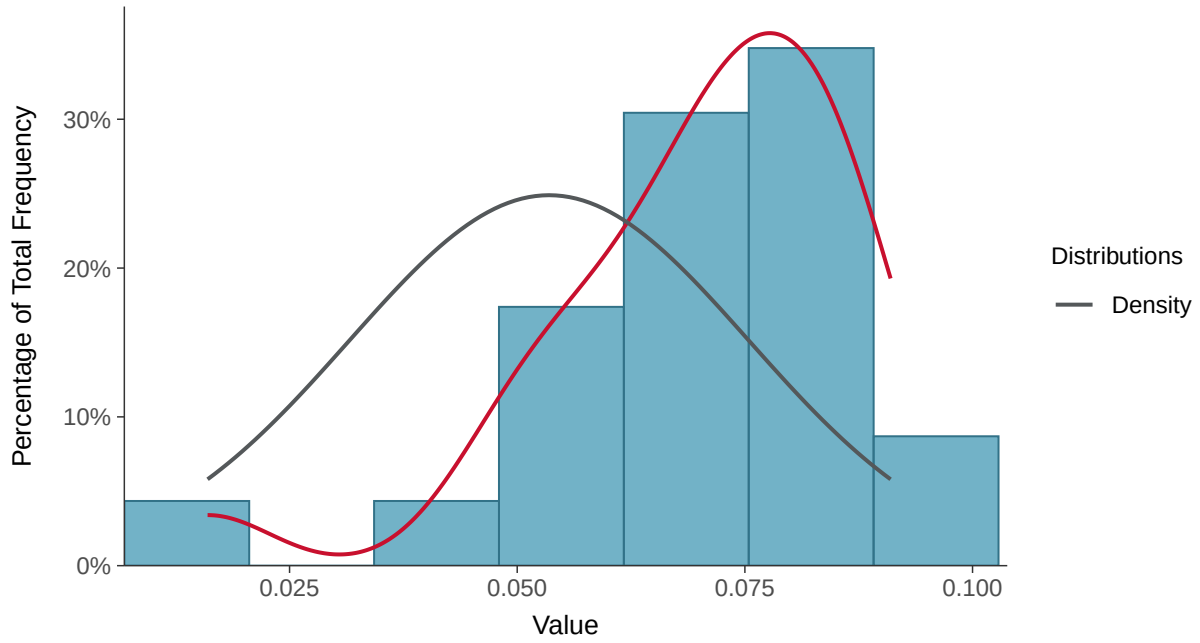
Scatter Plot

Lithium, MW-5 (mg/L)



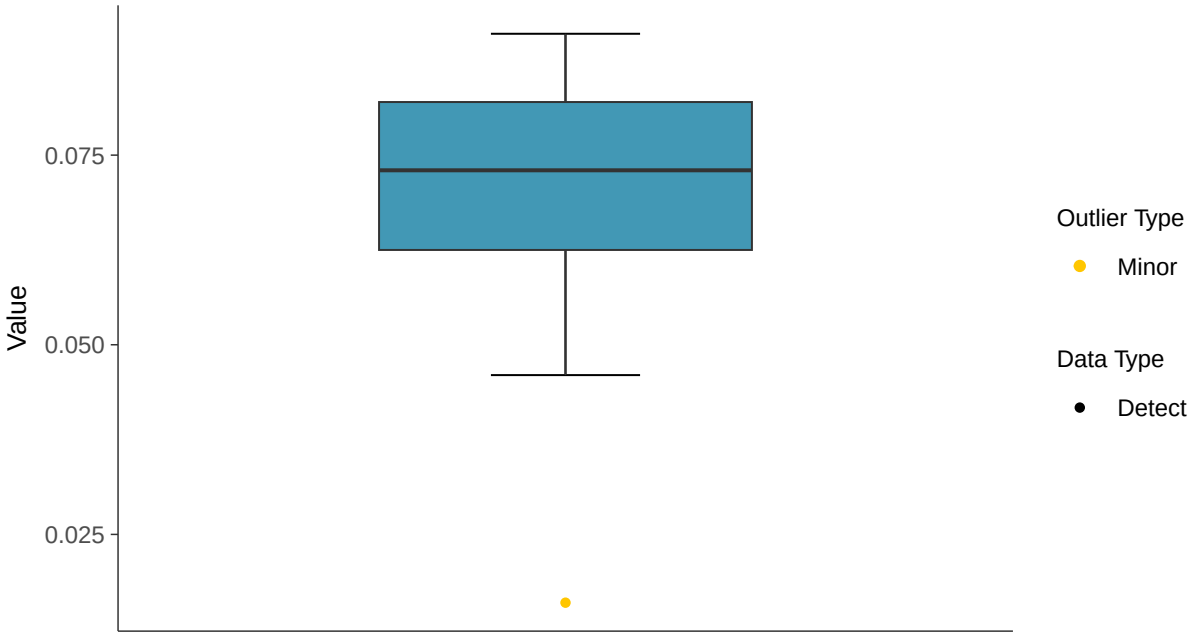
Histogram

Lithium, MW-5 (mg/L)



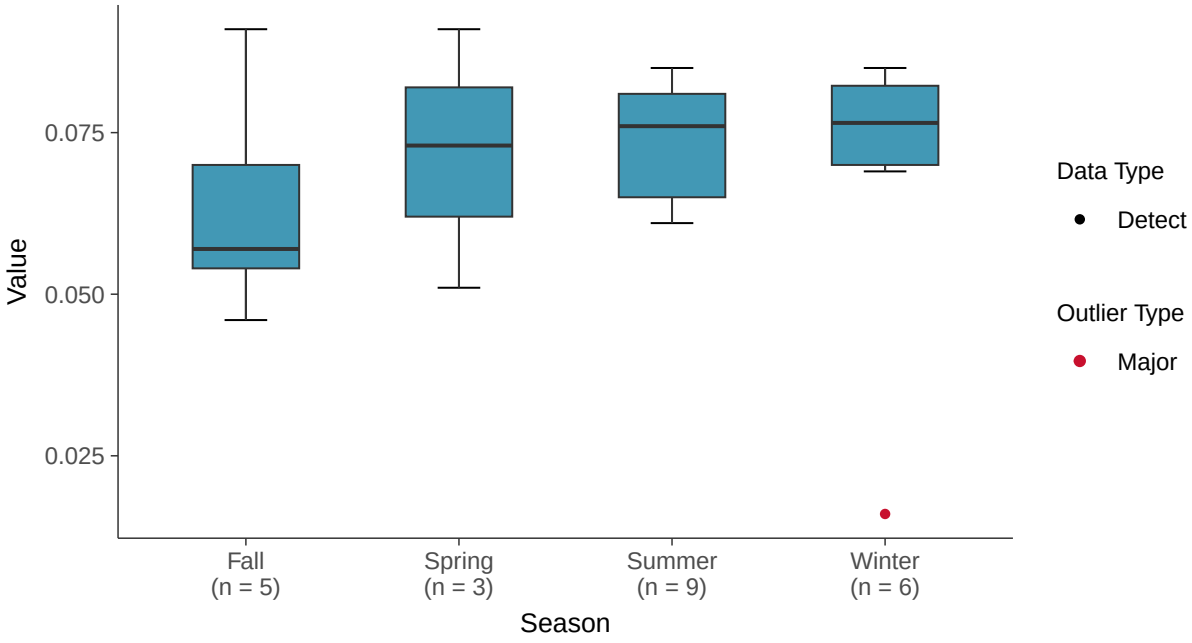
Boxplot

Lithium, MW-5 (mg/L)



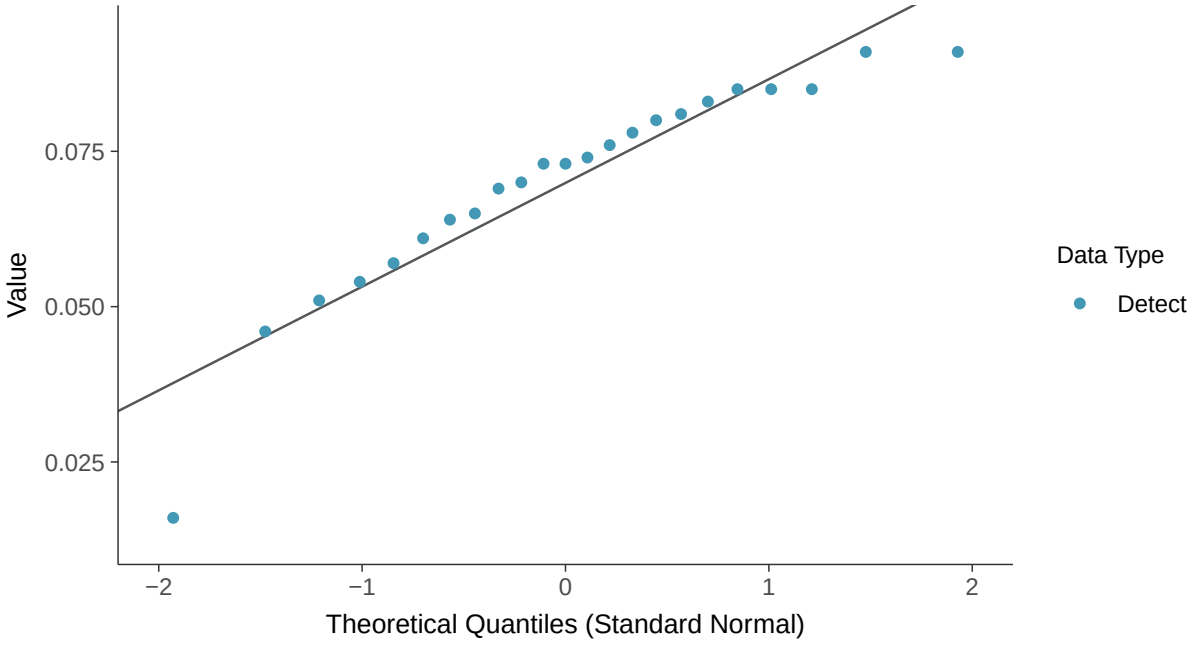
Boxplot by Season

Lithium, MW-5 (mg/L)



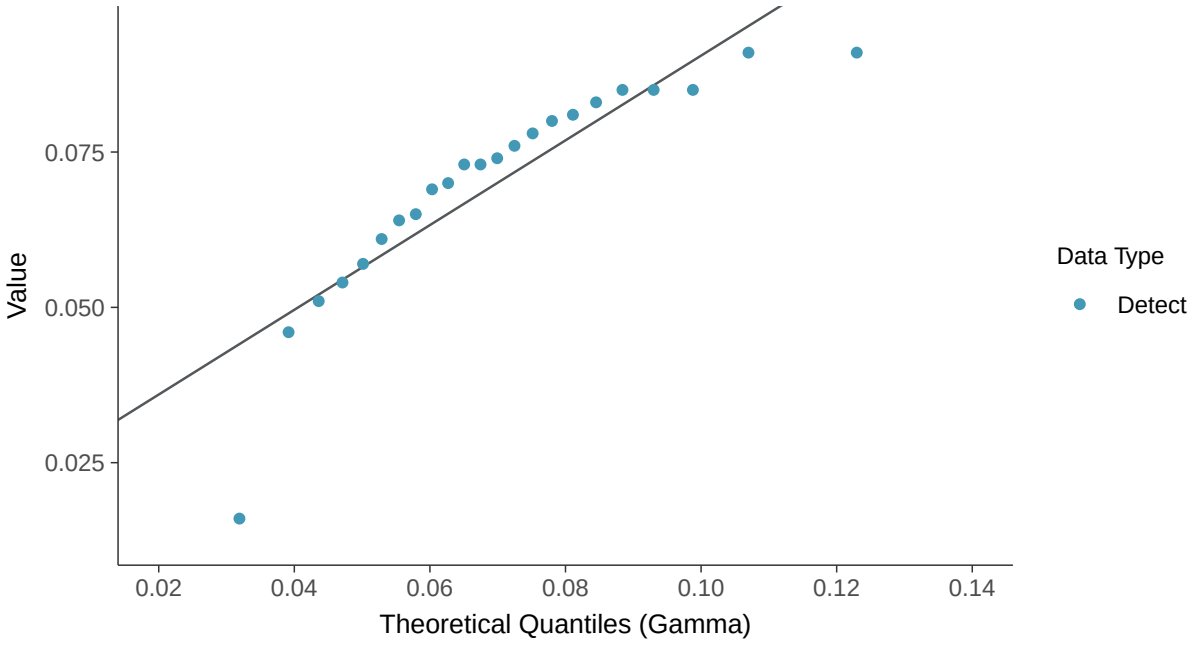
Normal Q-Q plot

Lithium, MW-5 (mg/L)



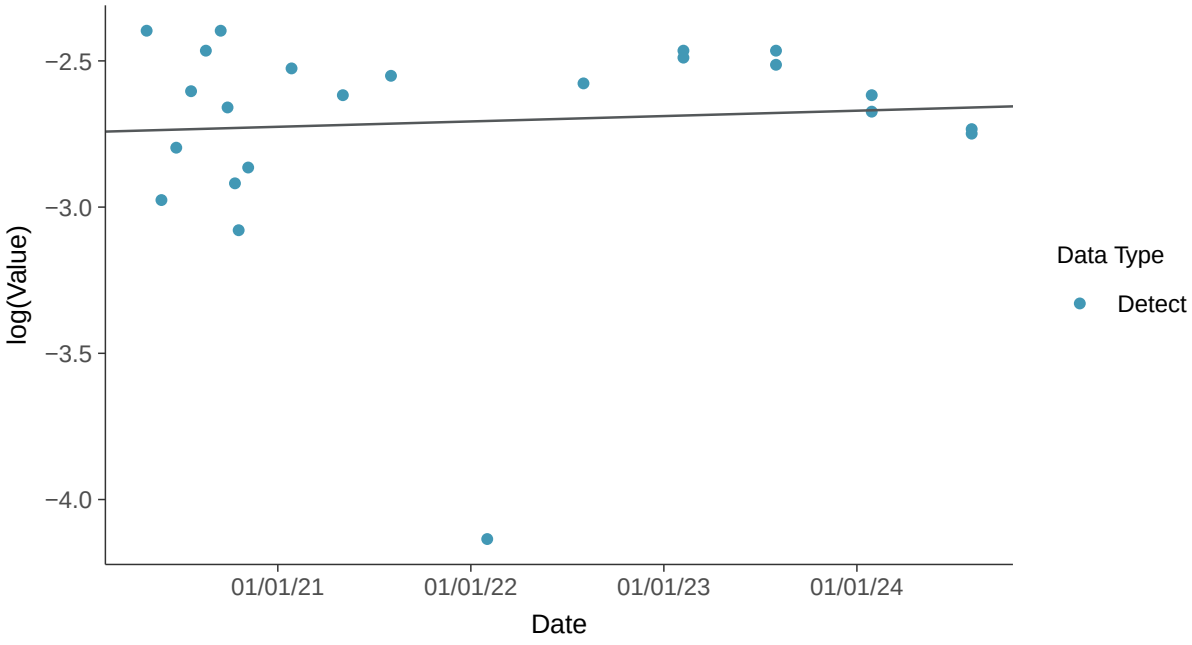
Gamma Q-Q plot

Lithium, MW-5 (mg/L)



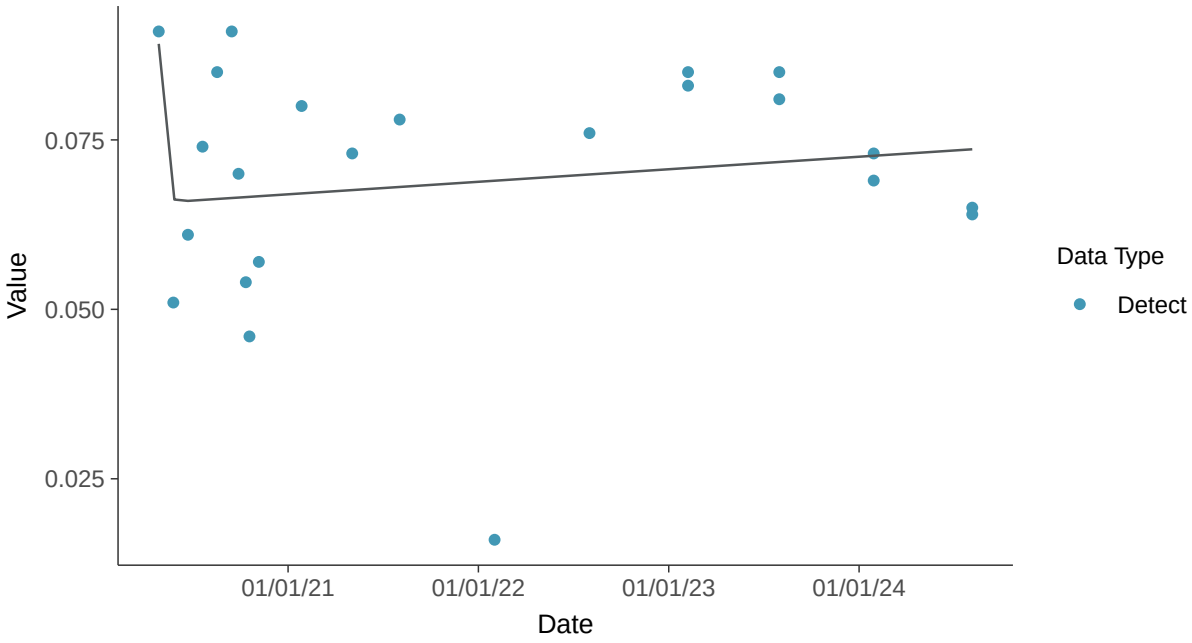
Trend Regression: Lognormal MLE

Lithium, MW-5 (mg/L)



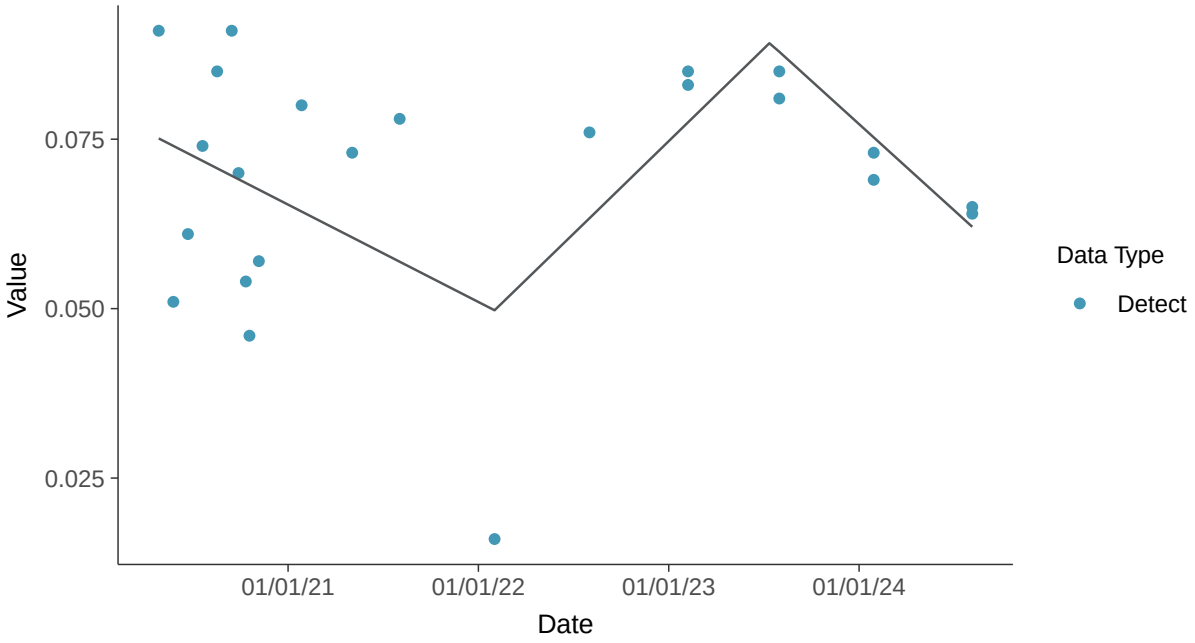
Trend Regression: Piecewise Linear-Linear

Lithium, MW-5 (mg/L)



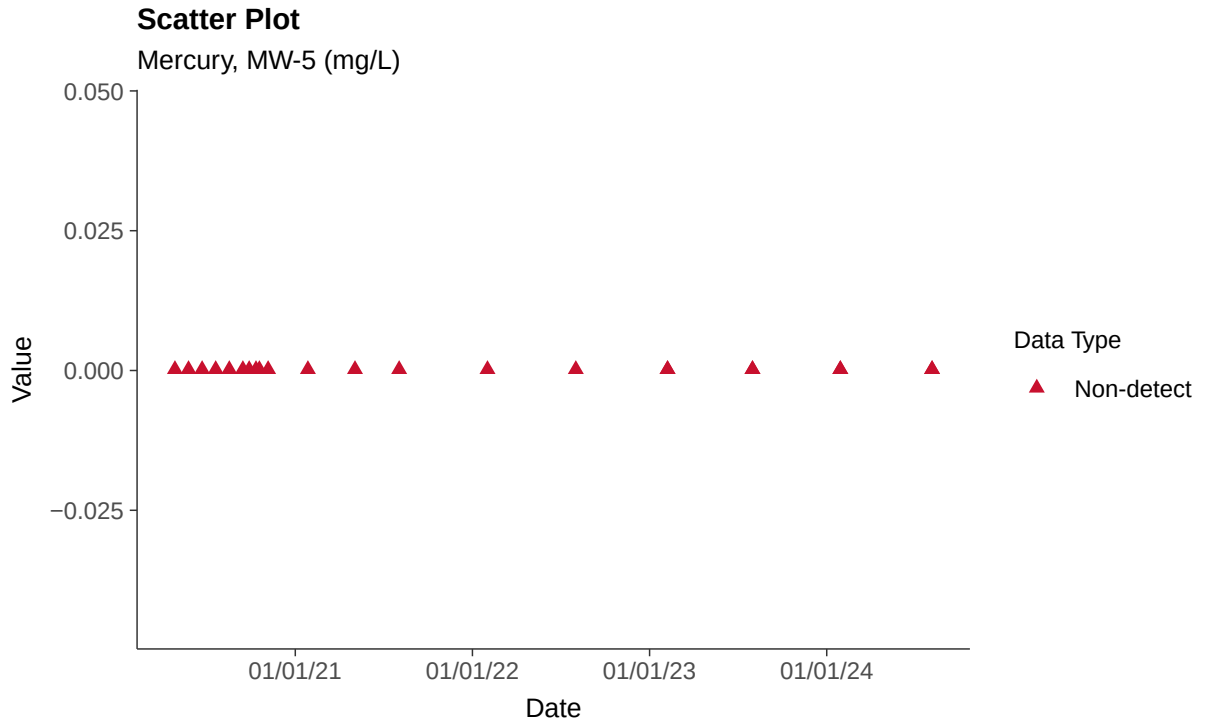
Trend Regression: Piecewise Linear-Linear-Linear

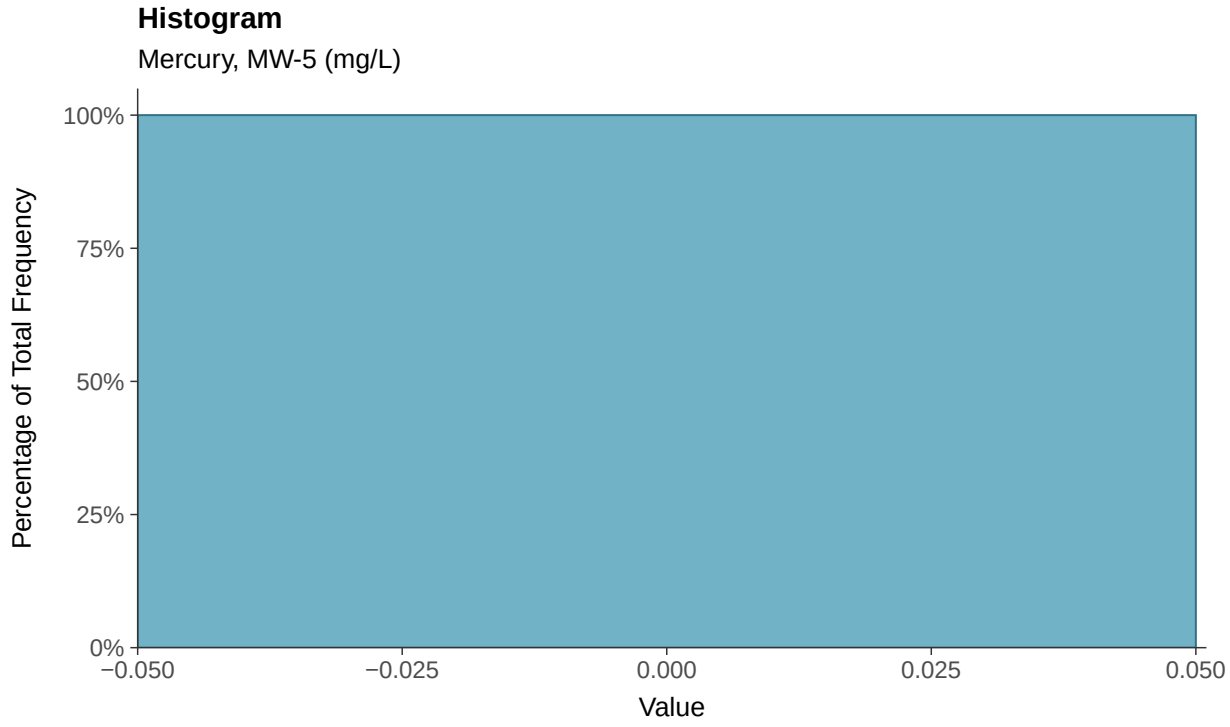
Lithium, MW-5 (mg/L)



Appendix IV: Mercury, MW-5

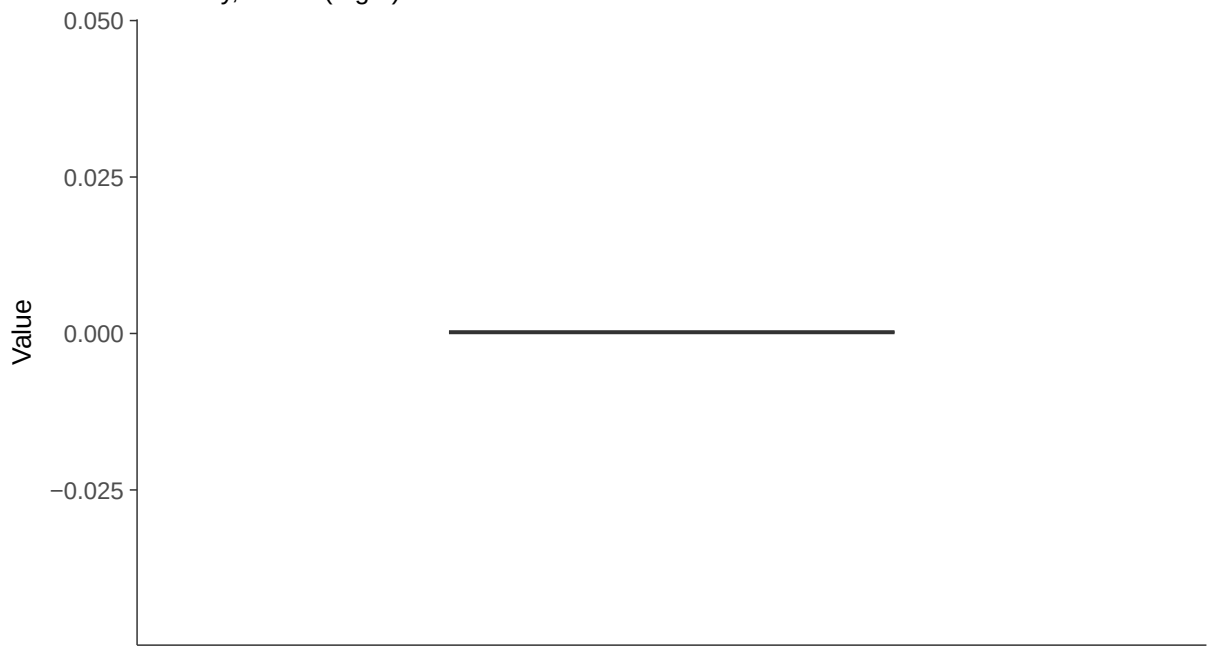
ID: 05_2_17





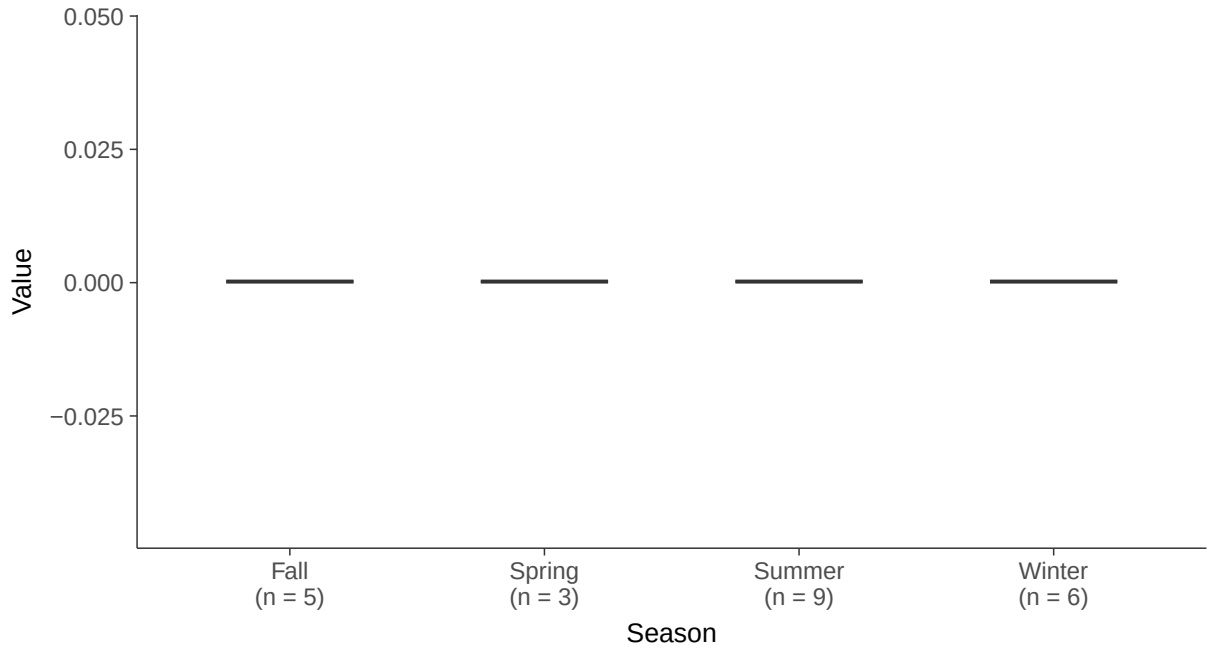
Boxplot

Mercury, MW-5 (mg/L)



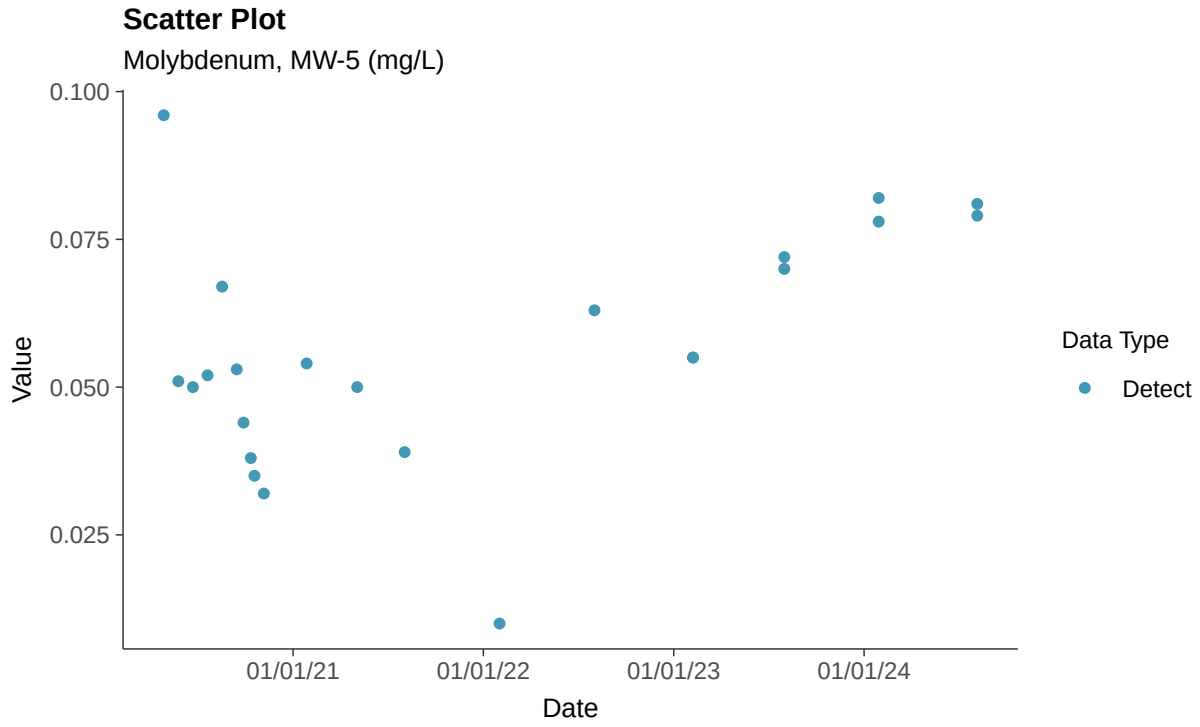
Boxplot by Season

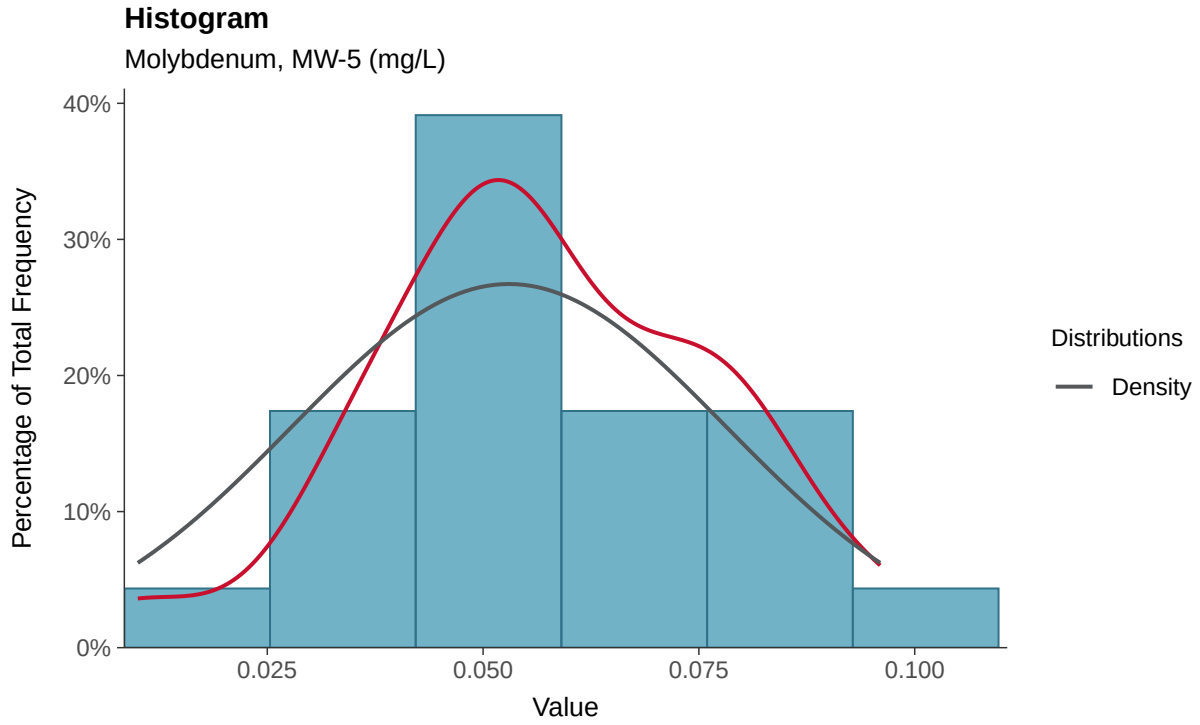
Mercury, MW-5 (mg/L)



Appendix IV: Molybdenum, MW-5

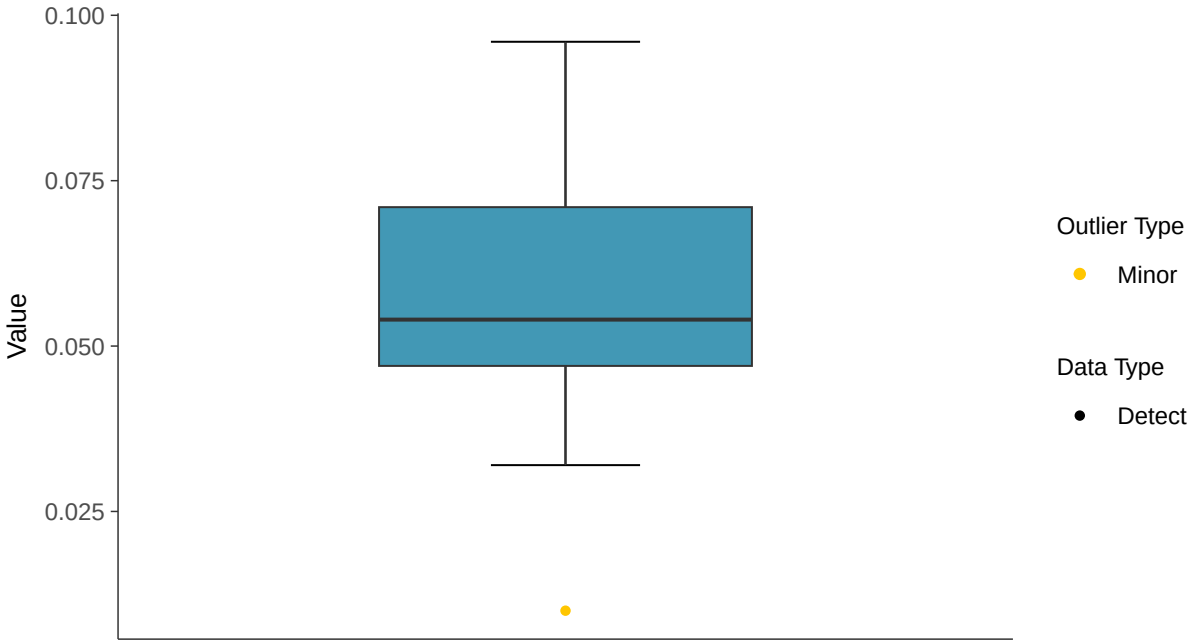
ID: 05_2_18





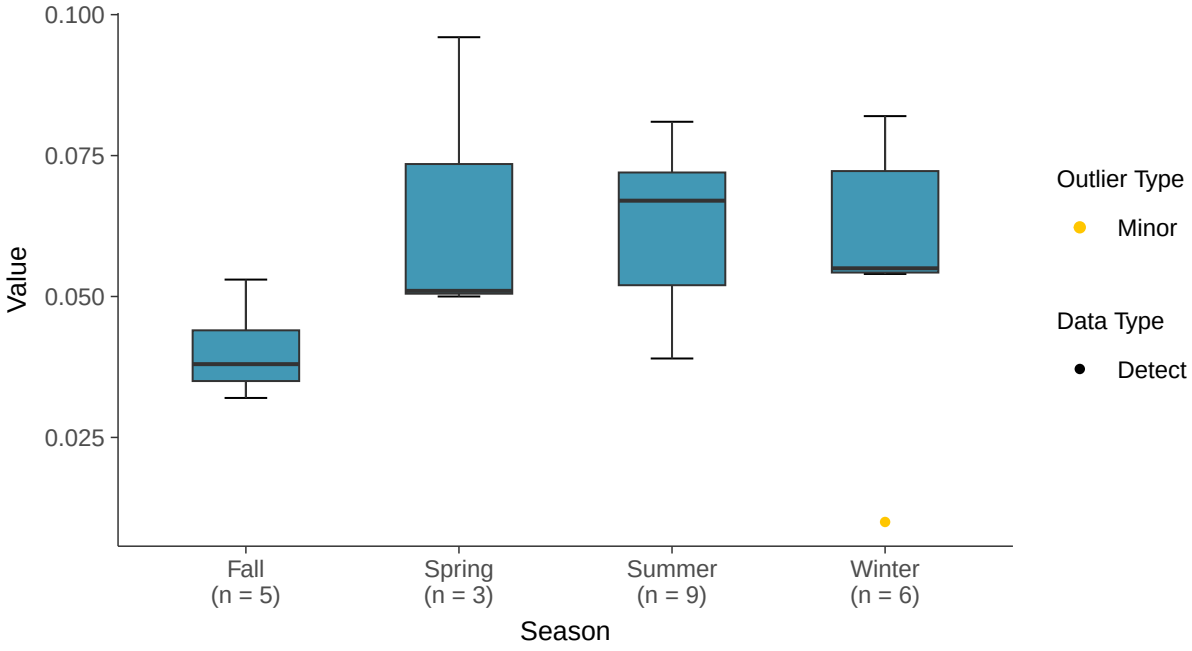
Boxplot

Molybdenum, MW-5 (mg/L)



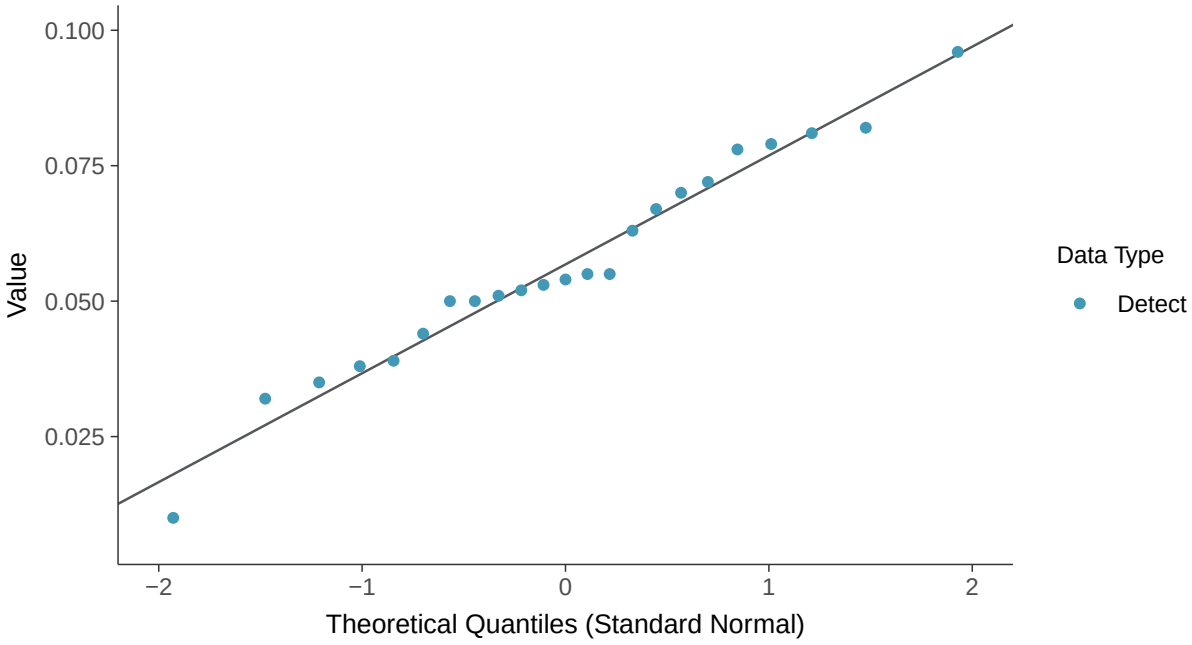
Boxplot by Season

Molybdenum, MW-5 (mg/L)



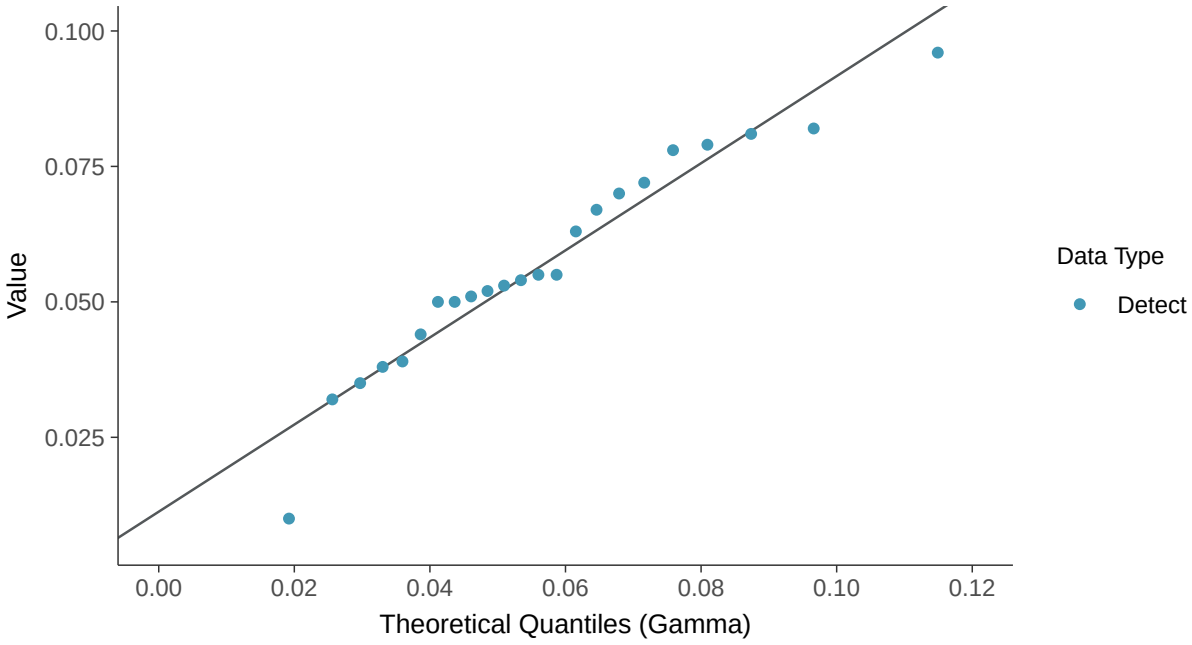
Normal Q-Q plot

Molybdenum, MW-5 (mg/L)



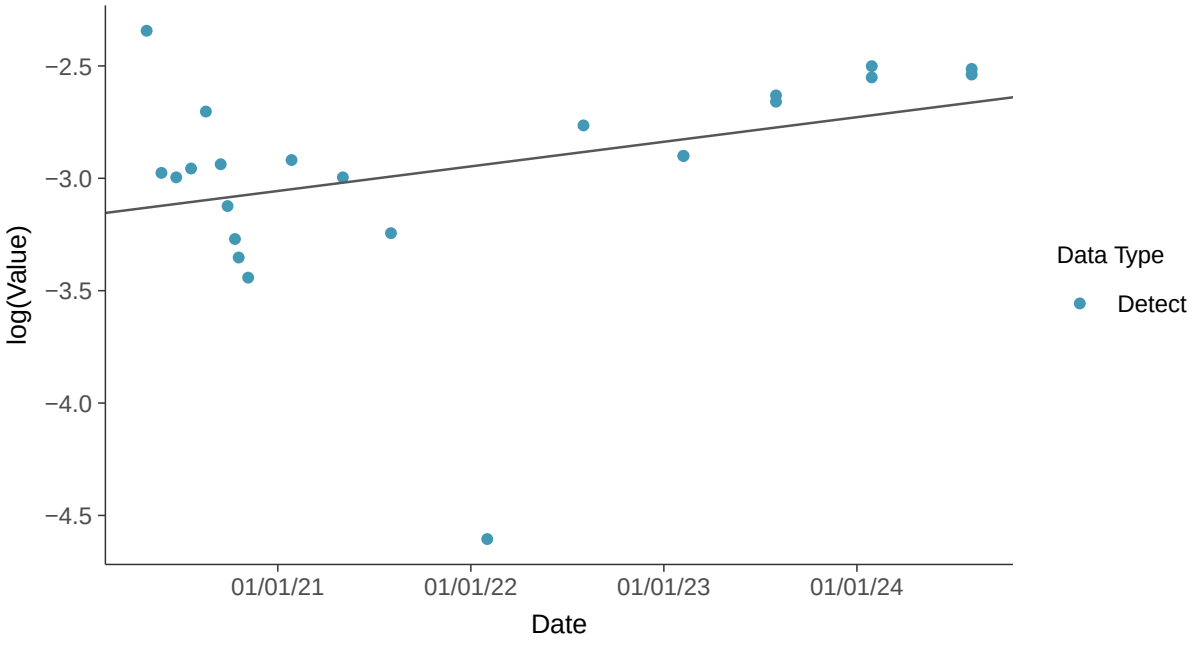
Gamma Q-Q plot

Molybdenum, MW-5 (mg/L)



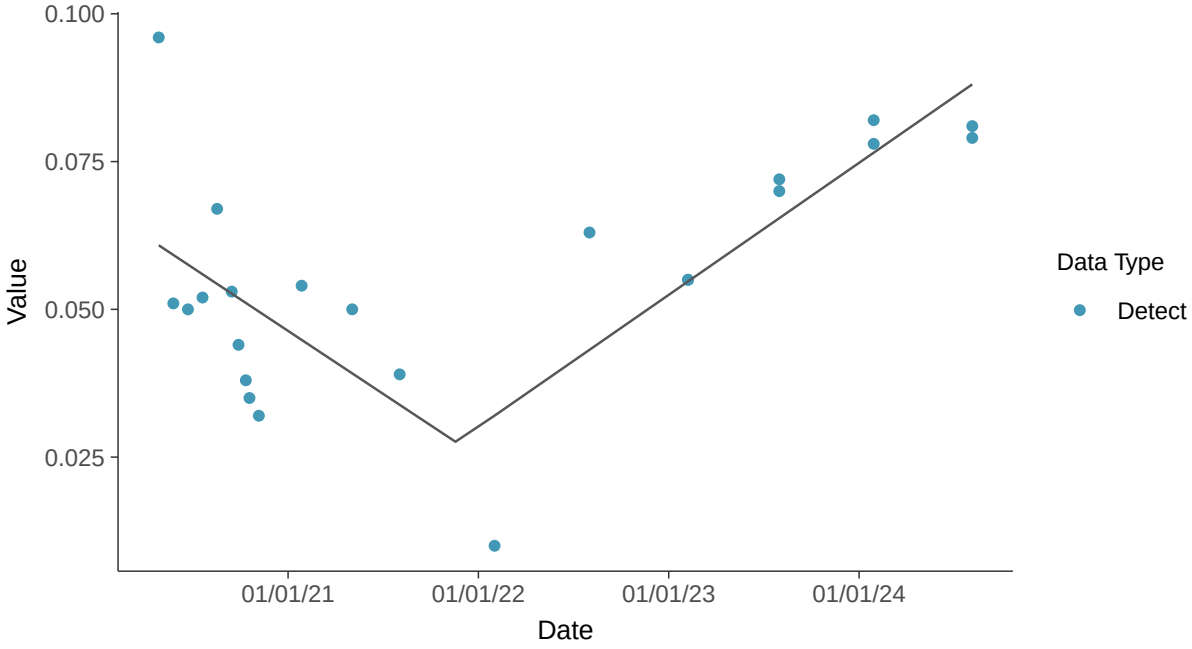
Trend Regression: Lognormal MLE

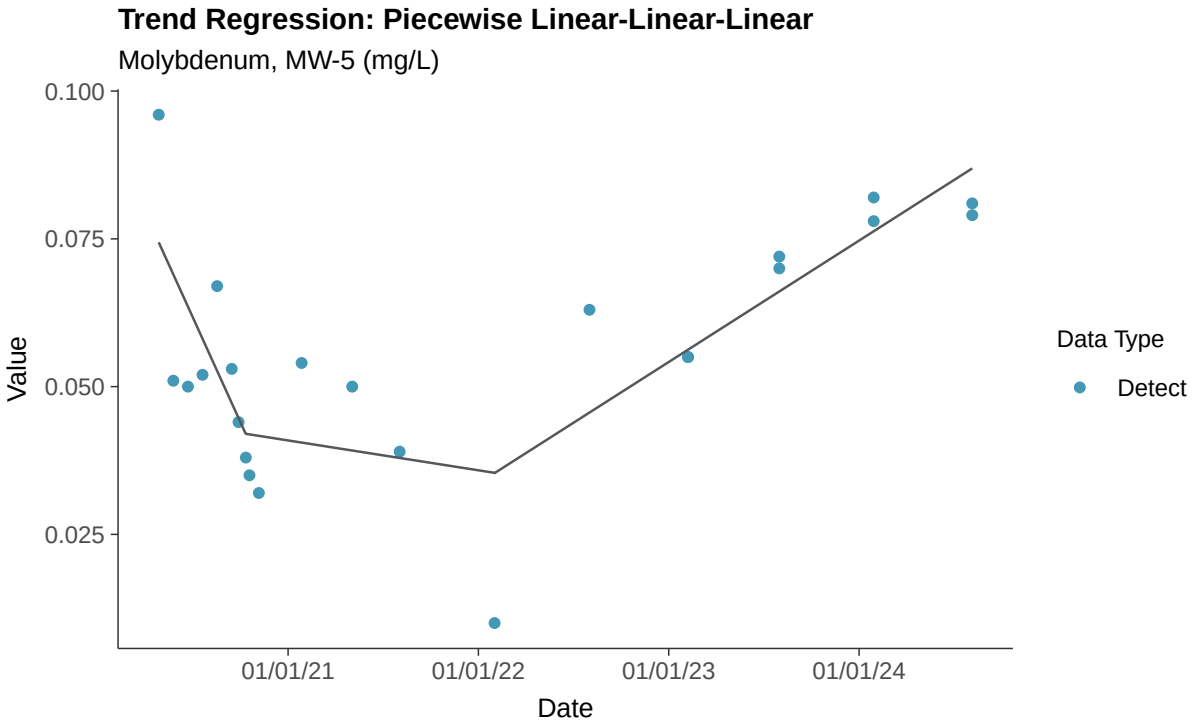
Molybdenum, MW-5 (mg/L)



Trend Regression: Piecewise Linear-Linear

Molybdenum, MW-5 (mg/L)



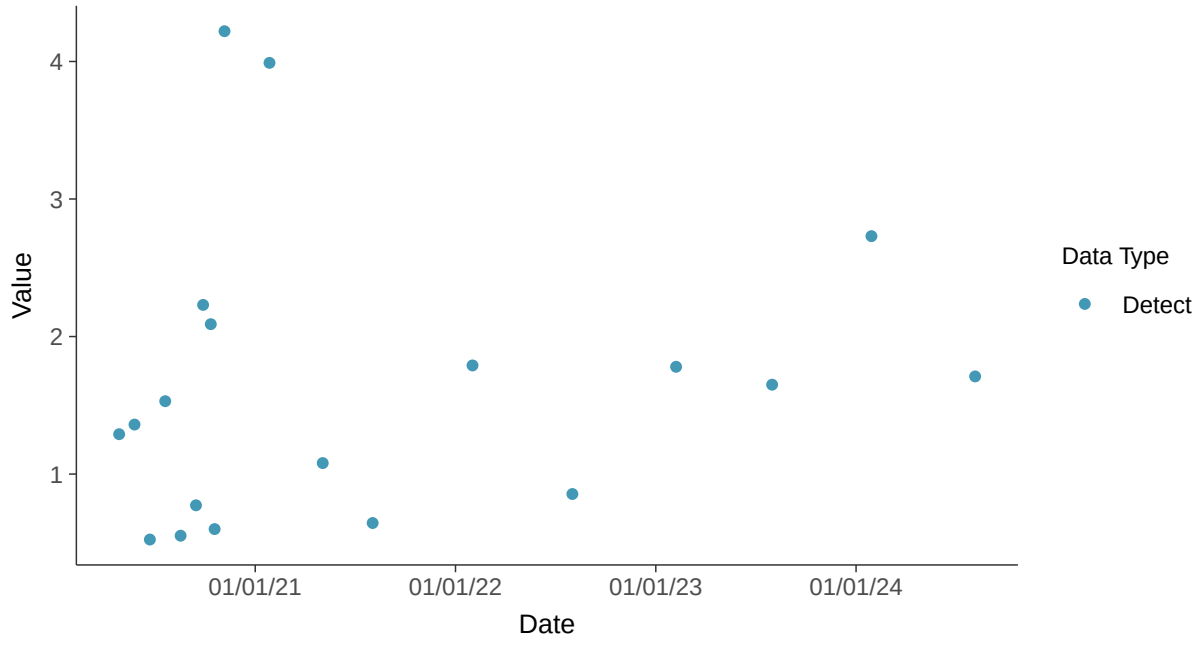

Trend Regression: Piecewise Linear-Linear-Linear
Molybdenum, MW-5 (mg/L)
0.100
0.075
0.050
0.025
Value
01/01/21
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Appendix IV: Radium-226/228, MW-5

ID: 05_2_21

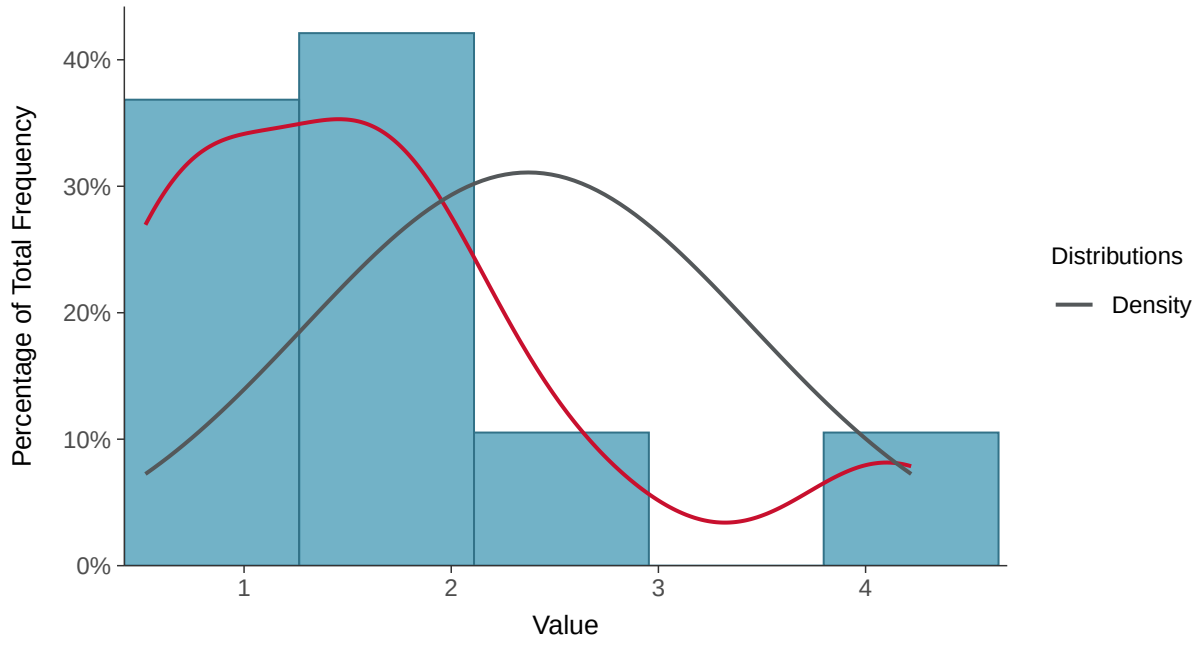
Scatter Plot

Radium-226/228, MW-5 (pCi/L)



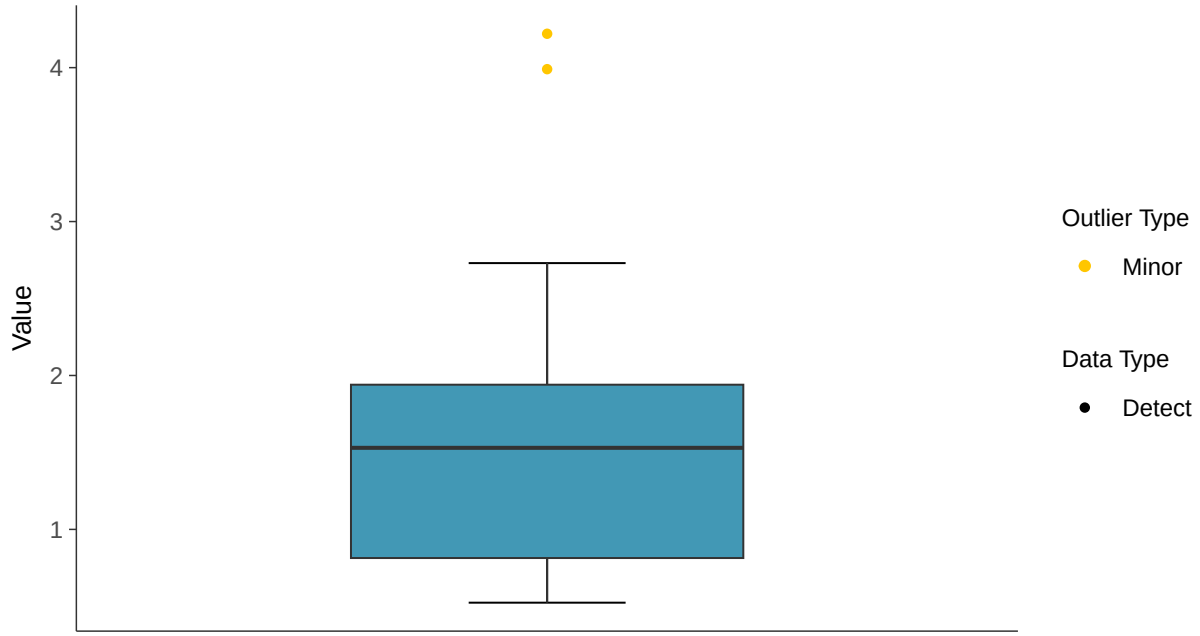
Histogram

Radium-226/228, MW-5 (pCi/L)



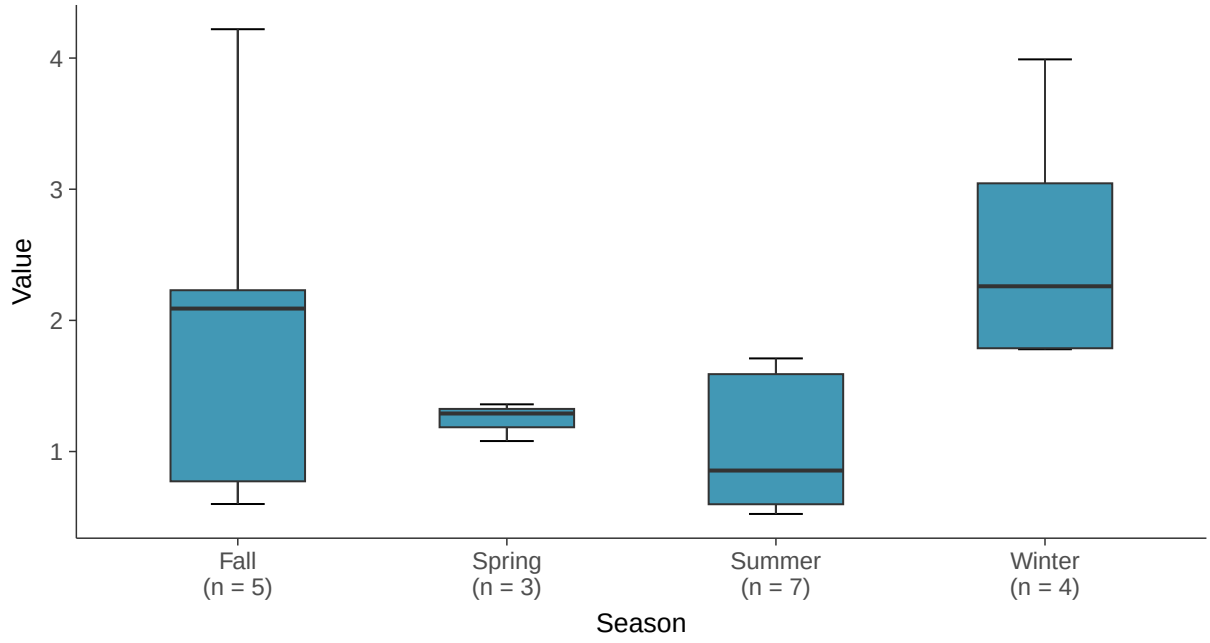
Boxplot

Radium-226/228, MW-5 (pCi/L)



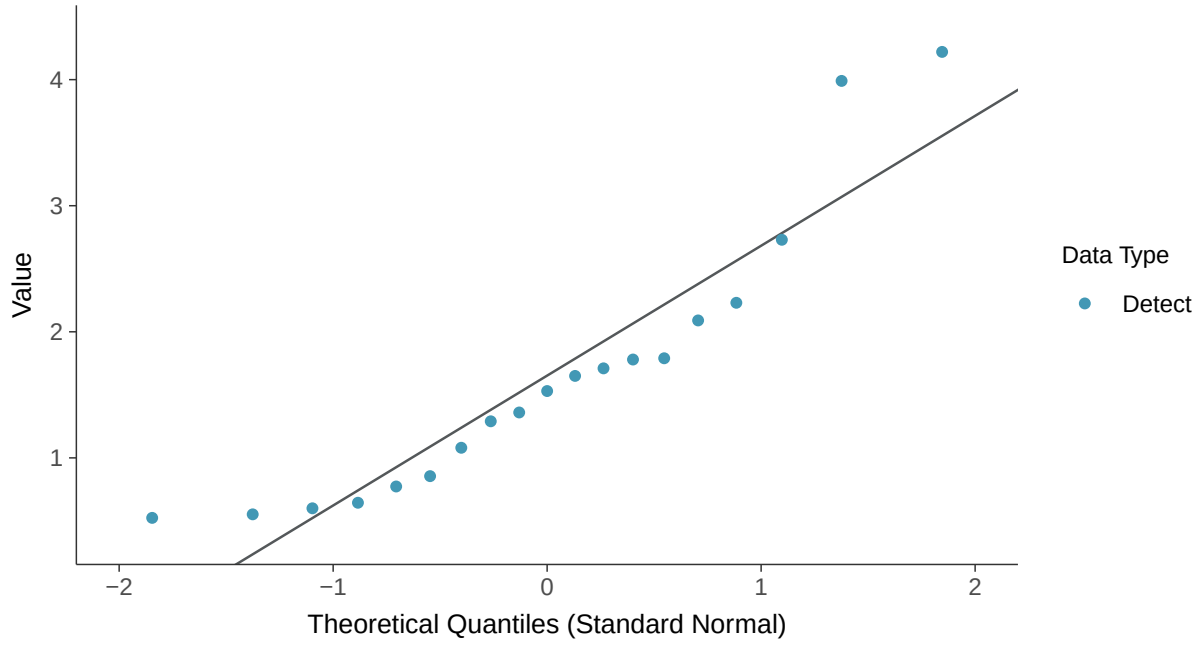
Boxplot by Season

Radium-226/228, MW-5 (pCi/L)



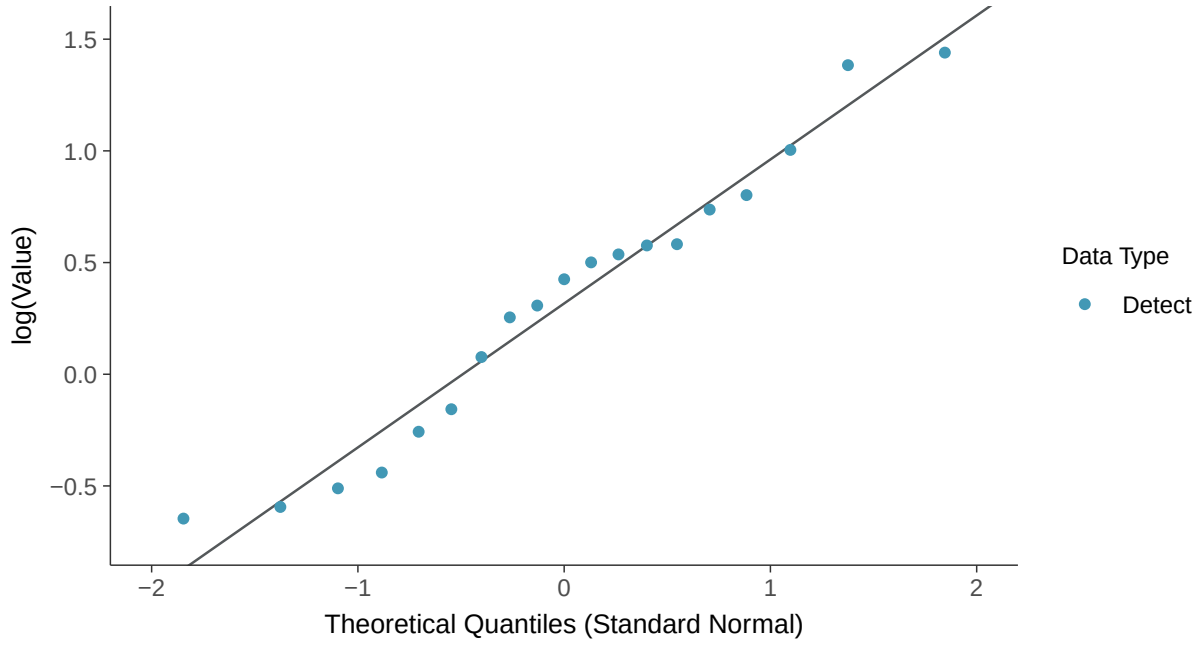
Normal Q-Q plot

Radium-226/228, MW-5 (pCi/L)



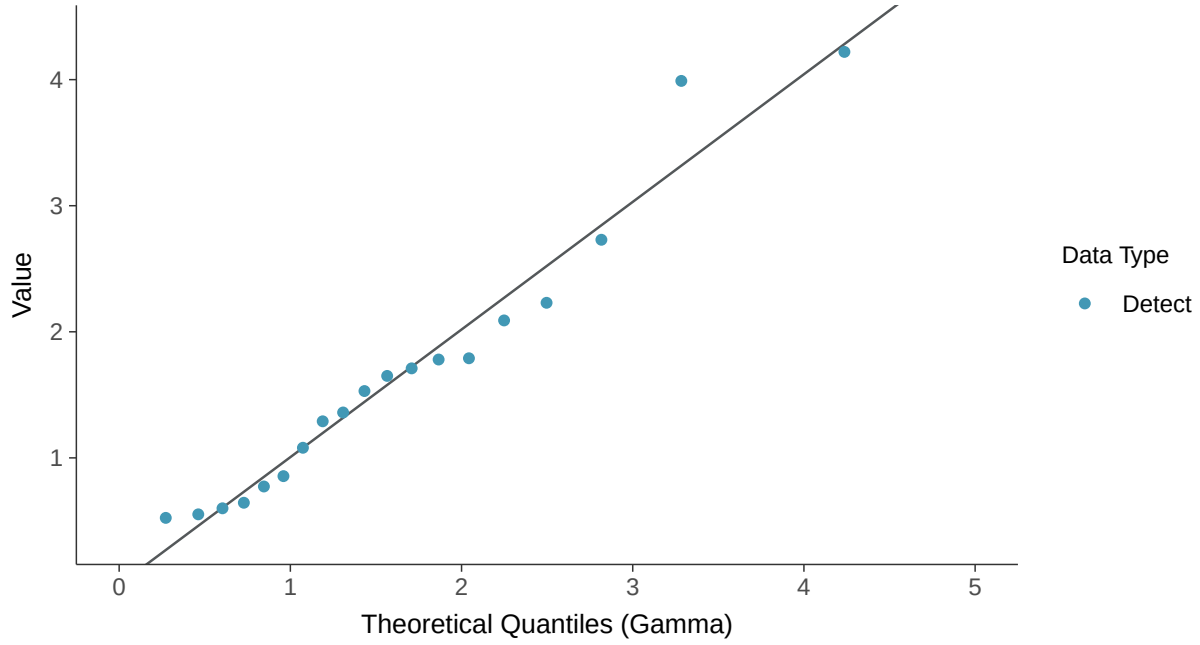
Lognormal Q-Q plot

Radium-226/228, MW-5 (pCi/L)



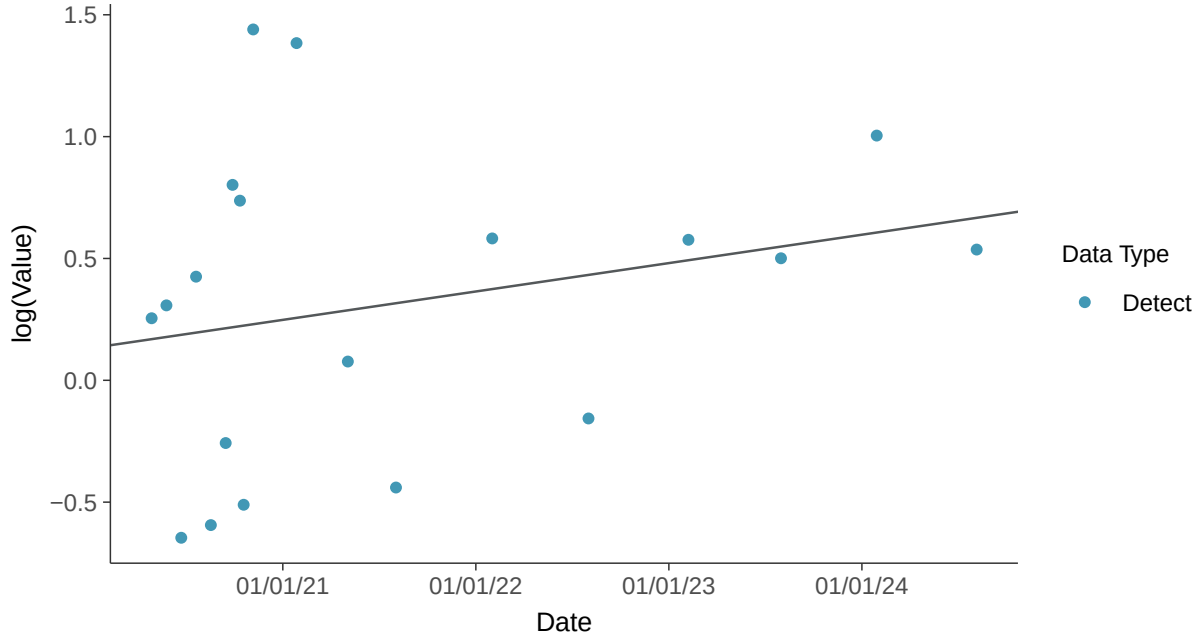
Gamma Q-Q plot

Radium-226/228, MW-5 (pCi/L)



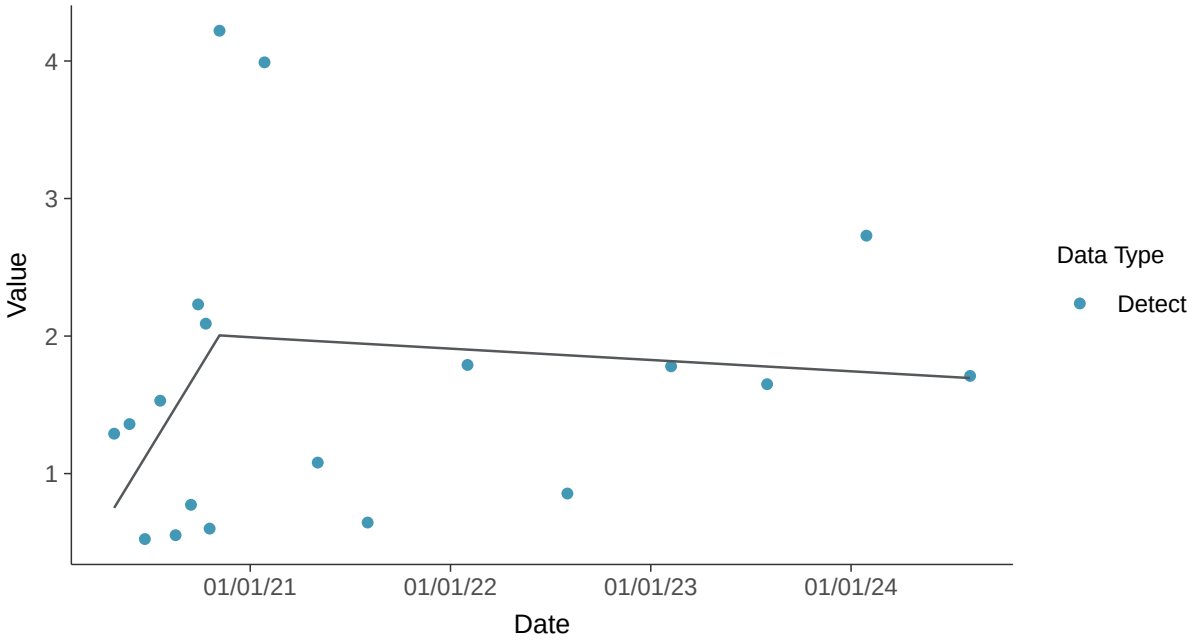
Trend Regression: Lognormal MLE

Radium-226/228, MW-5 (pCi/L)



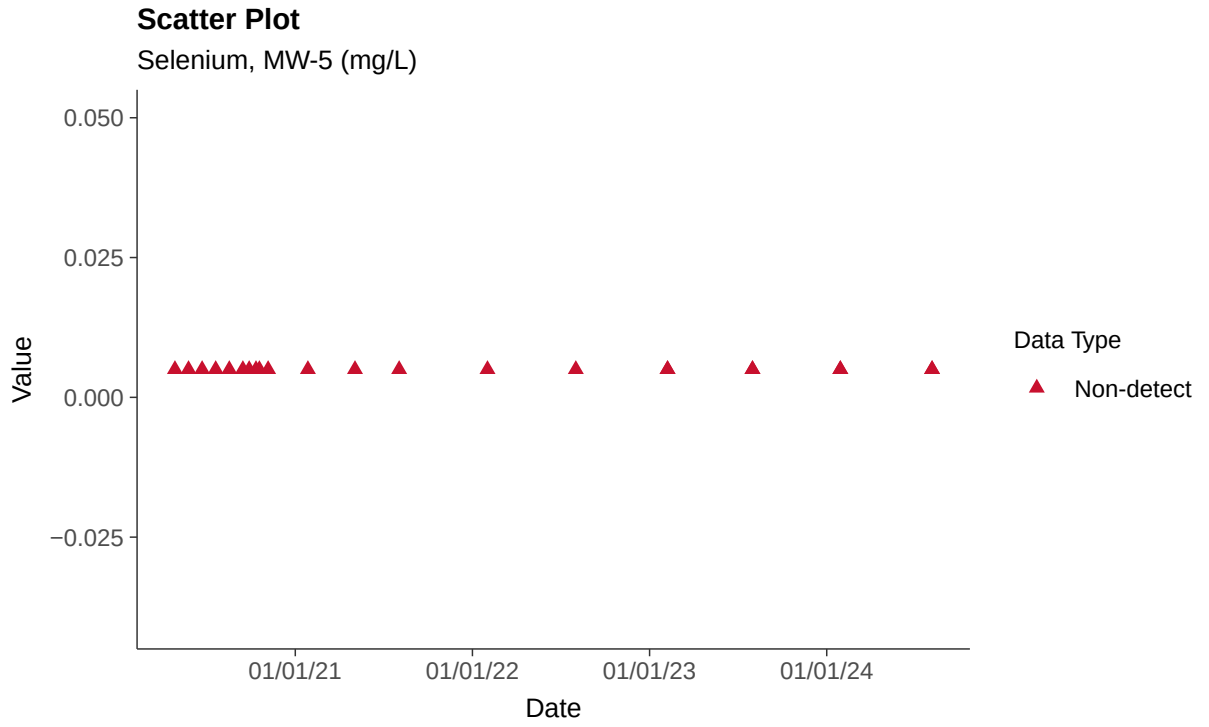
Trend Regression: Piecewise Linear-Linear

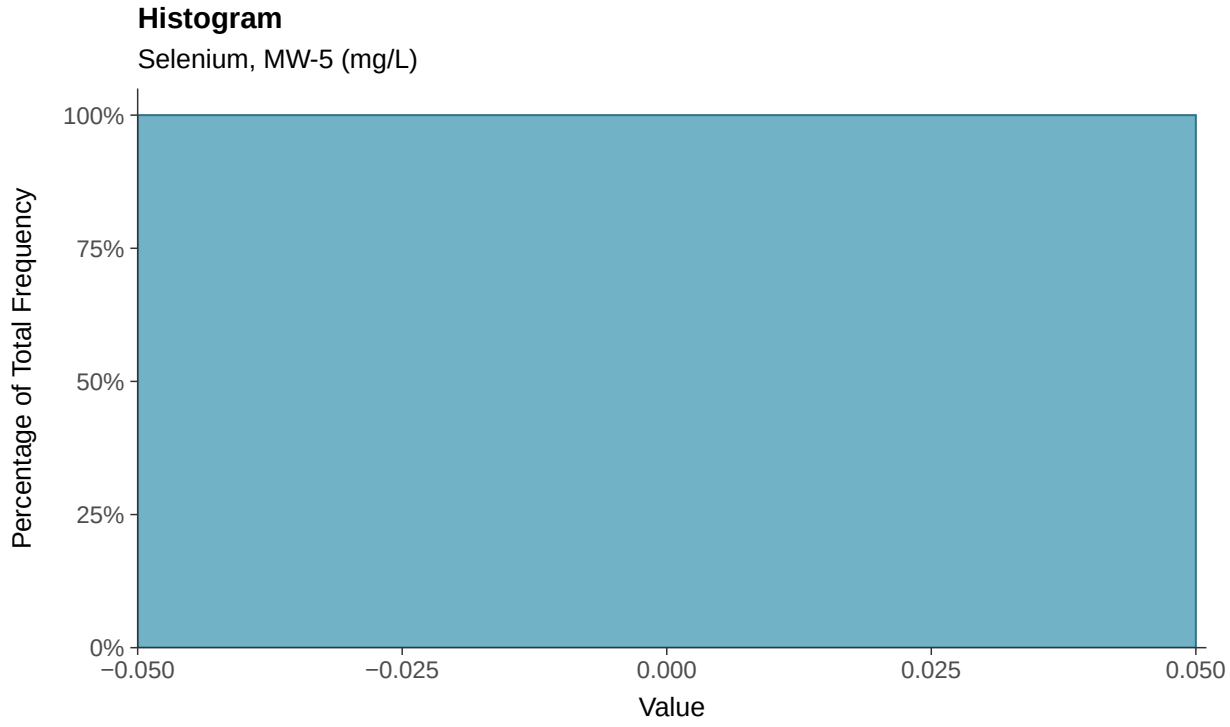
Radium-226/228, MW-5 (pCi/L)



Appendix IV: Selenium, MW-5

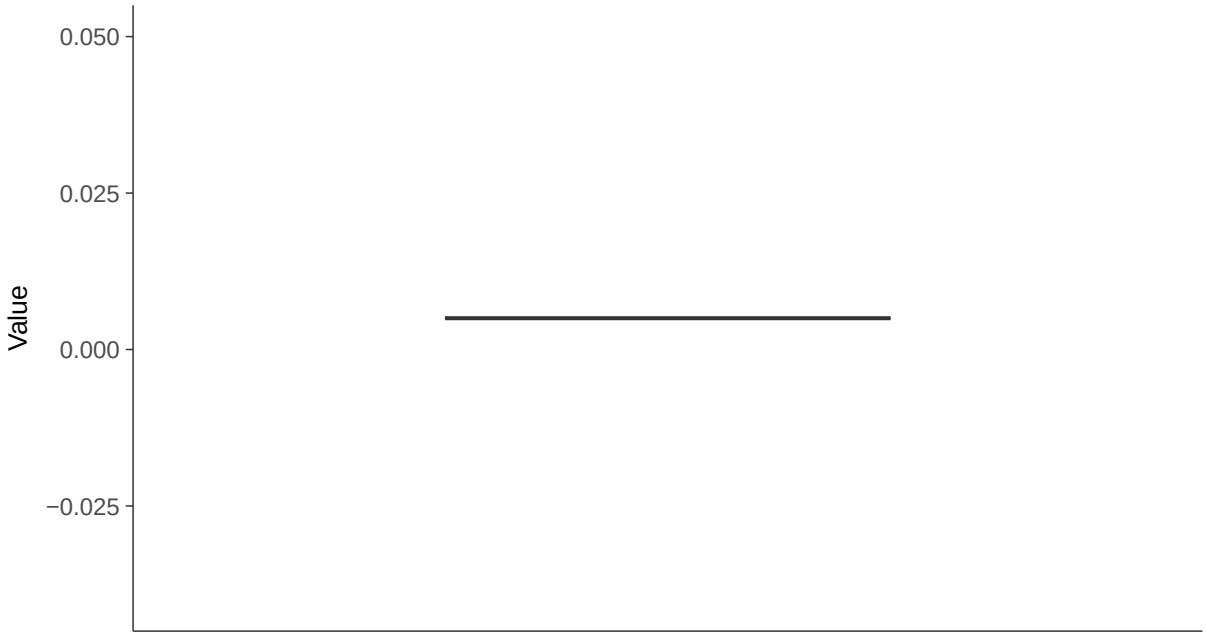
ID: 05_2_22





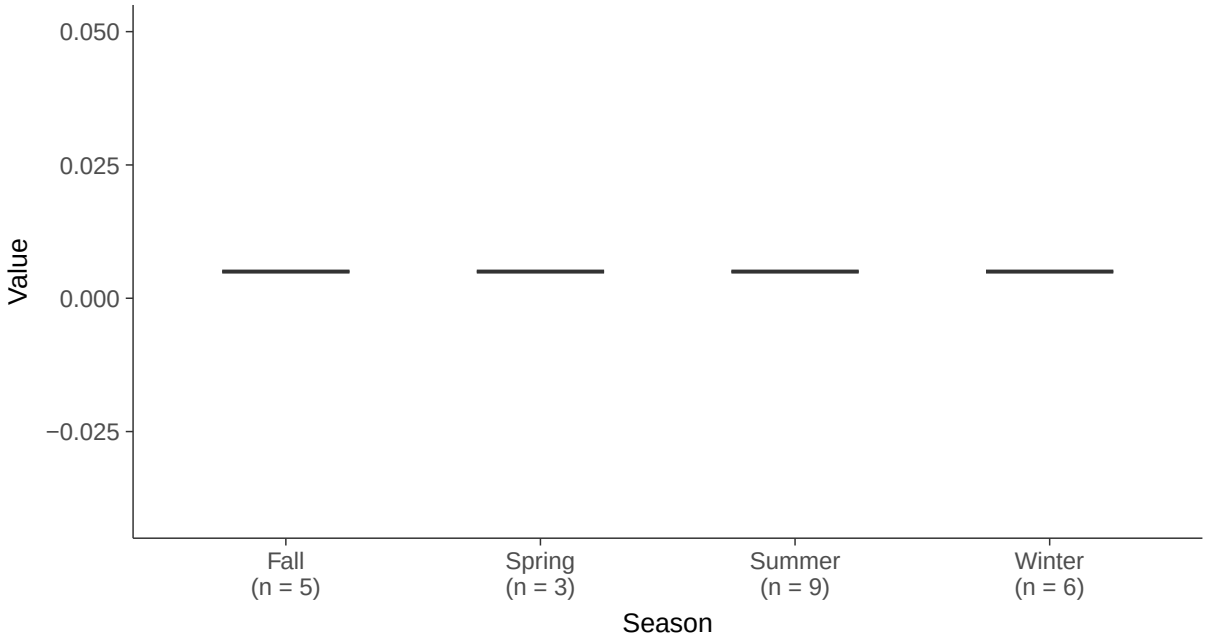
Boxplot

Selenium, MW-5 (mg/L)



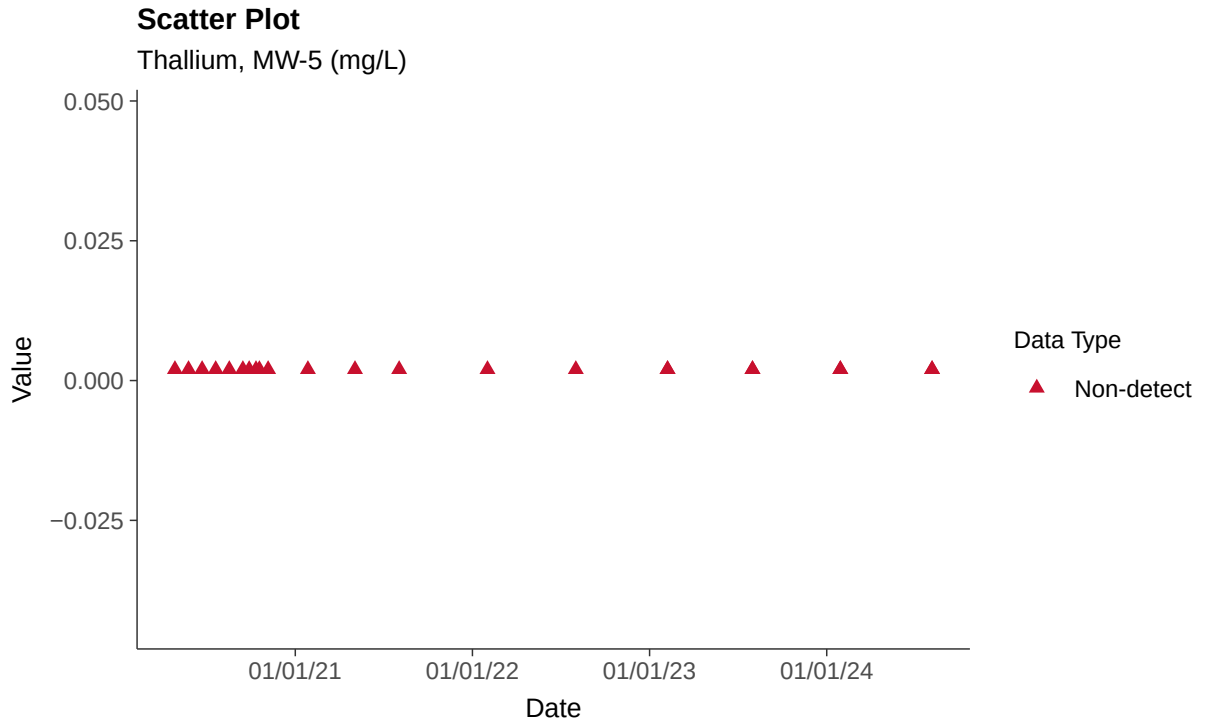
Boxplot by Season

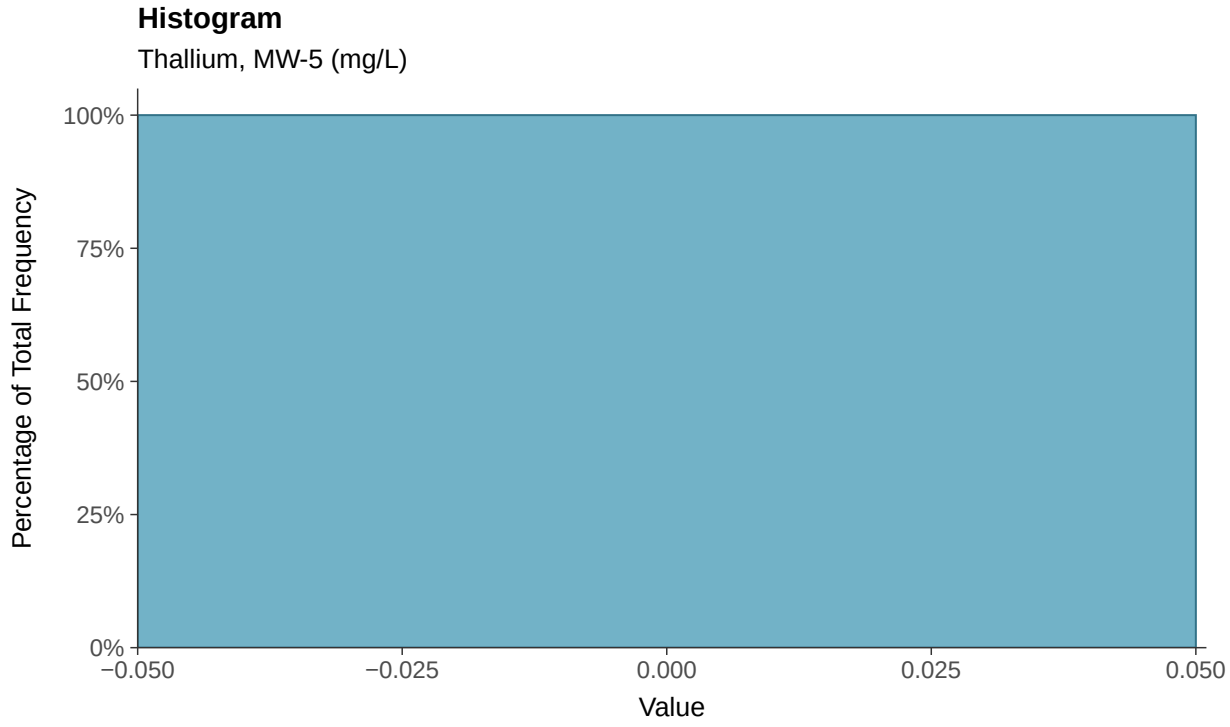
Selenium, MW-5 (mg/L)



Appendix IV: Thallium, MW-5

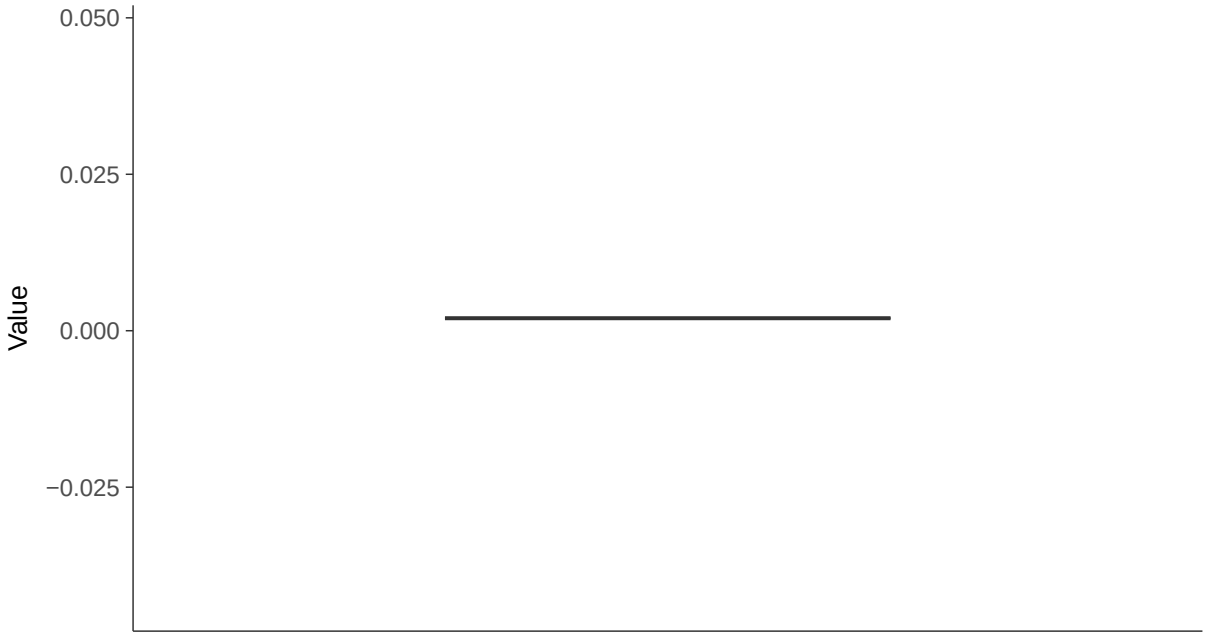
ID: 05_2_23





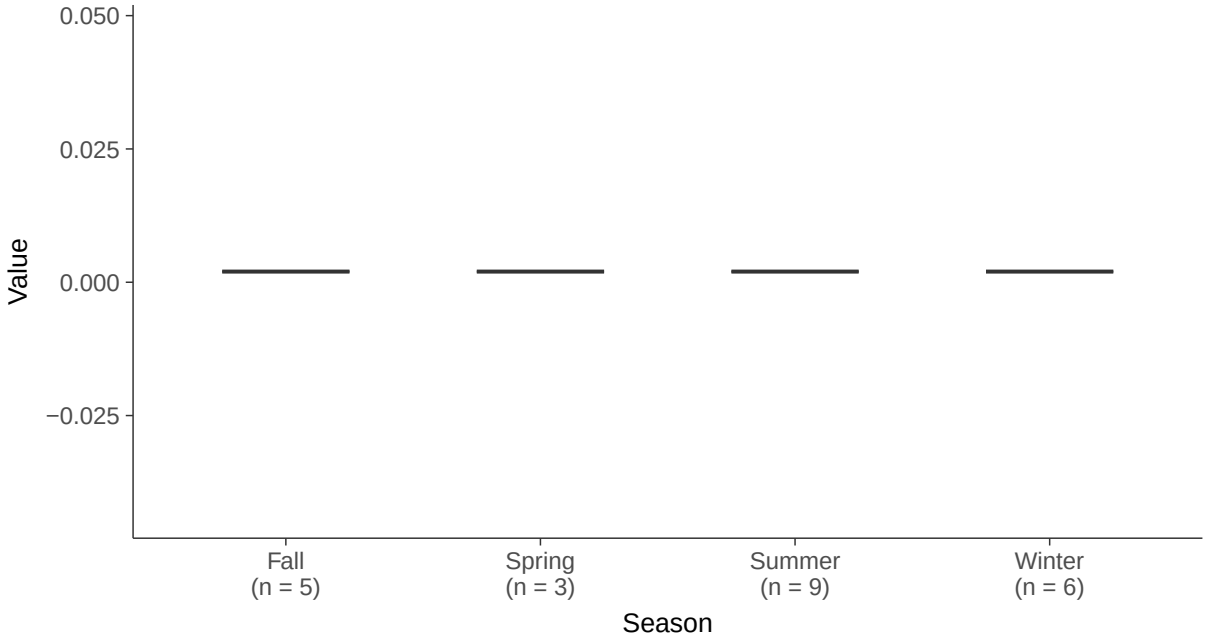
Boxplot

Thallium, MW-5 (mg/L)



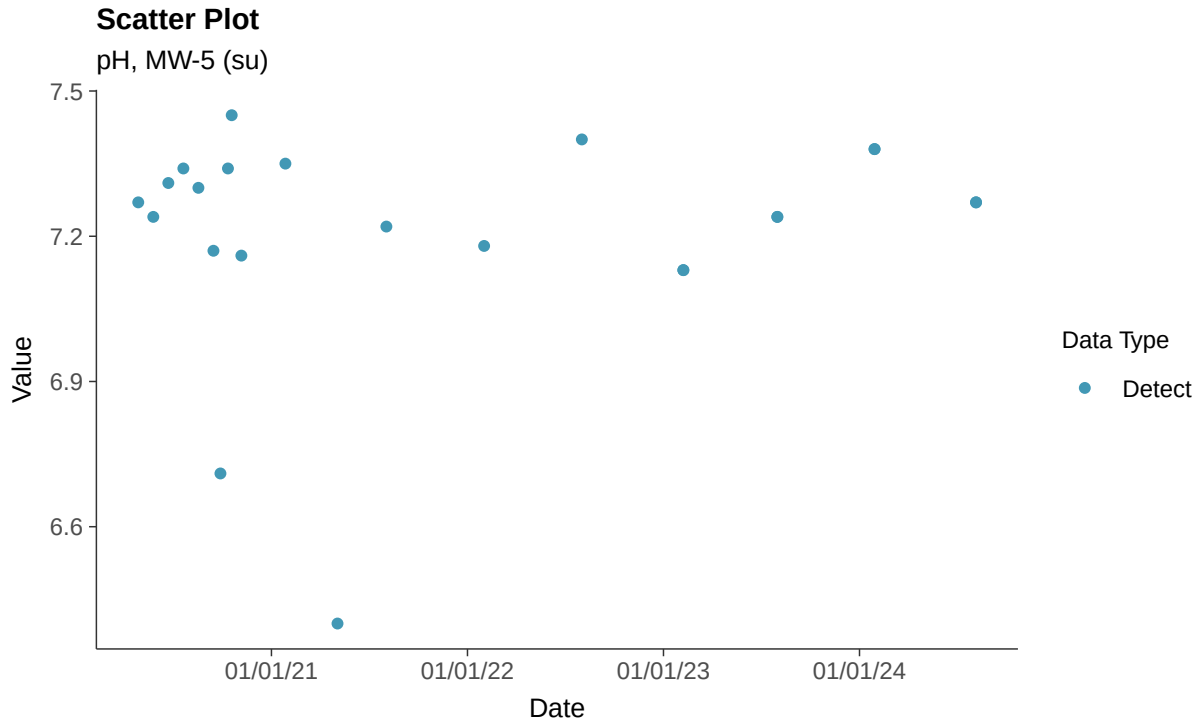
Boxplot by Season

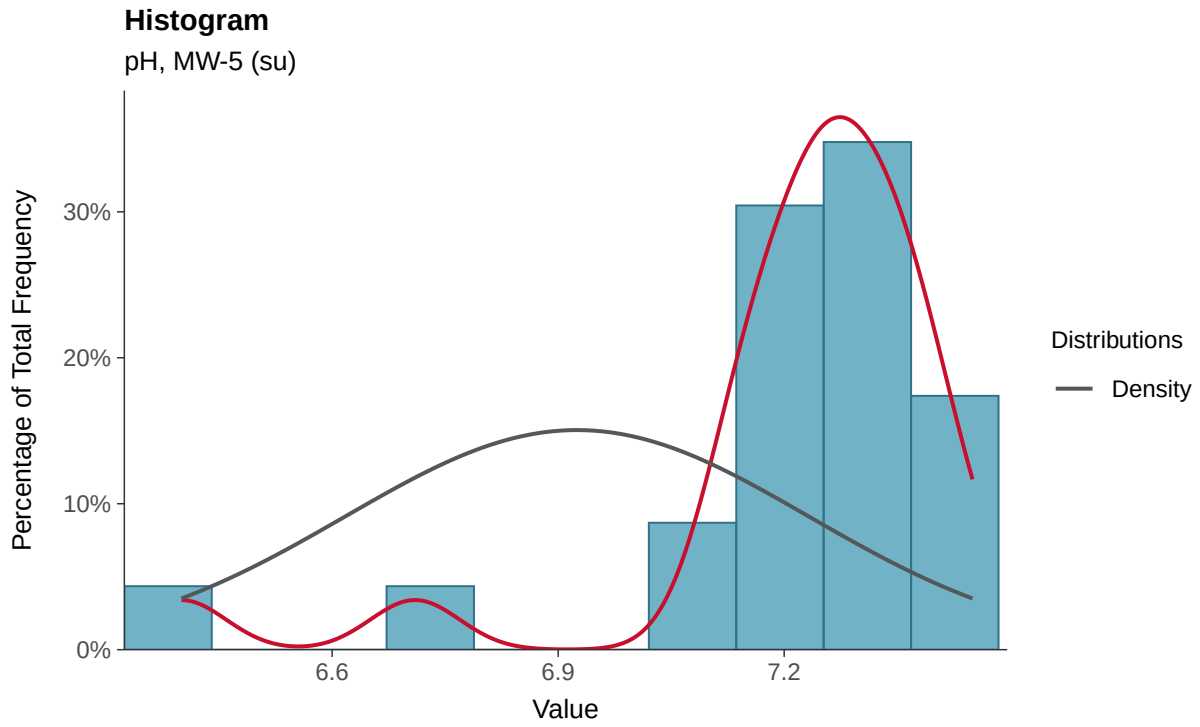
Thallium, MW-5 (mg/L)



Field Parameters: pH, MW-5

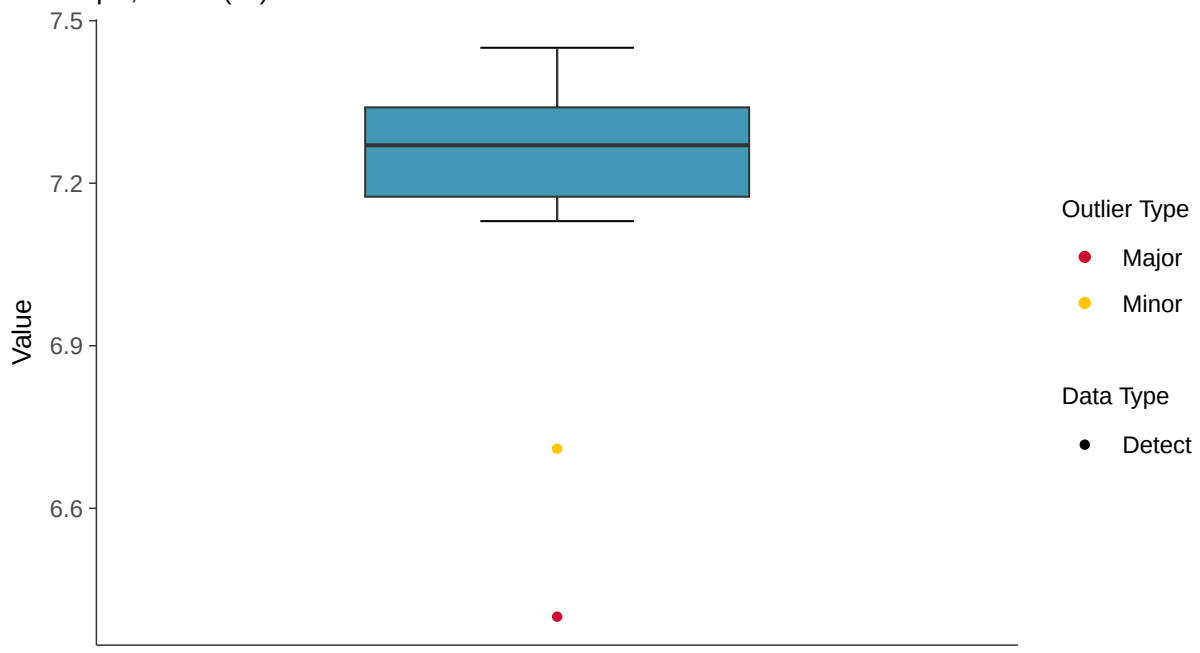
ID: 05_3_24





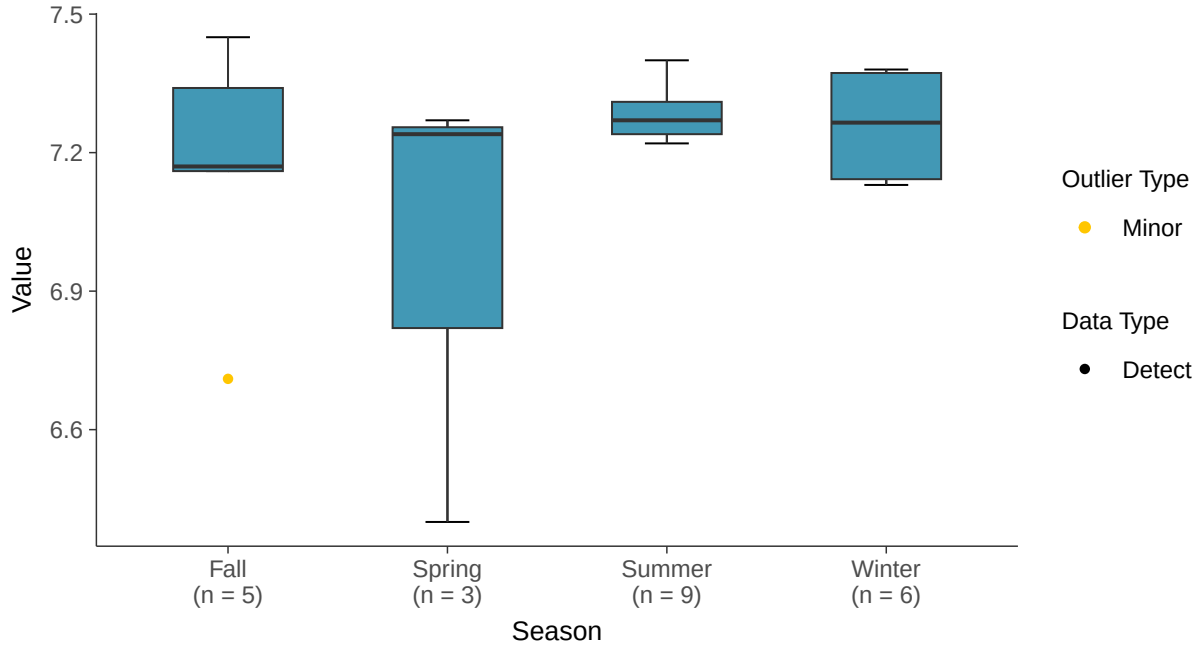
Boxplot

pH, MW-5 (su)



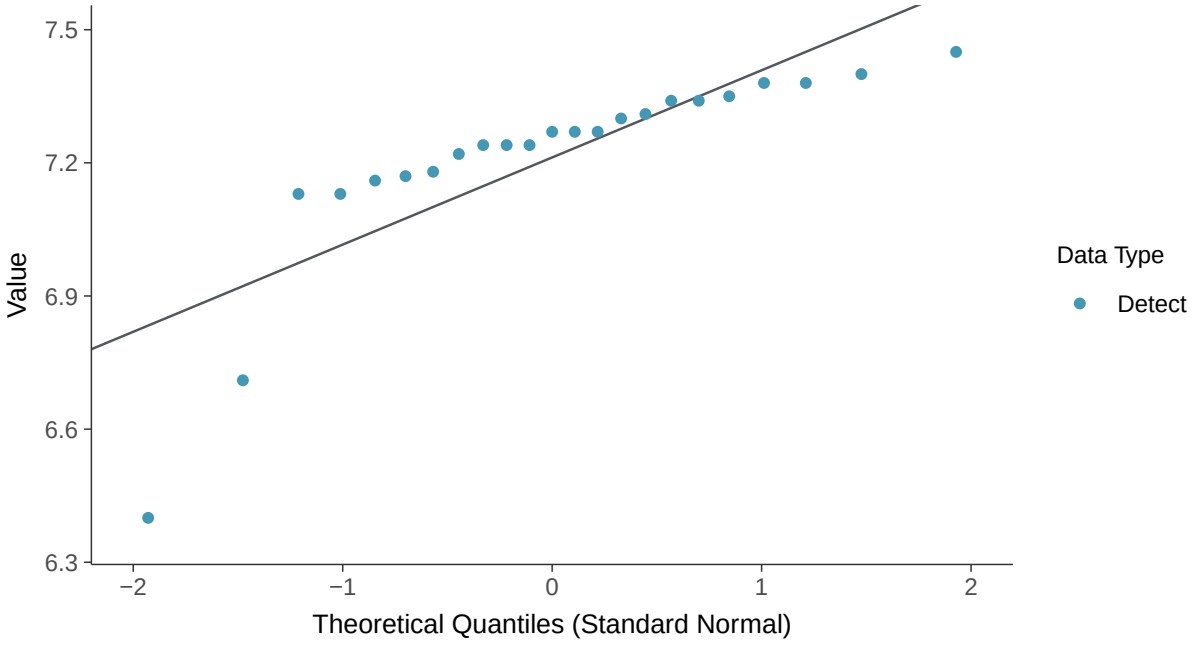
Boxplot by Season

pH, MW-5 (su)



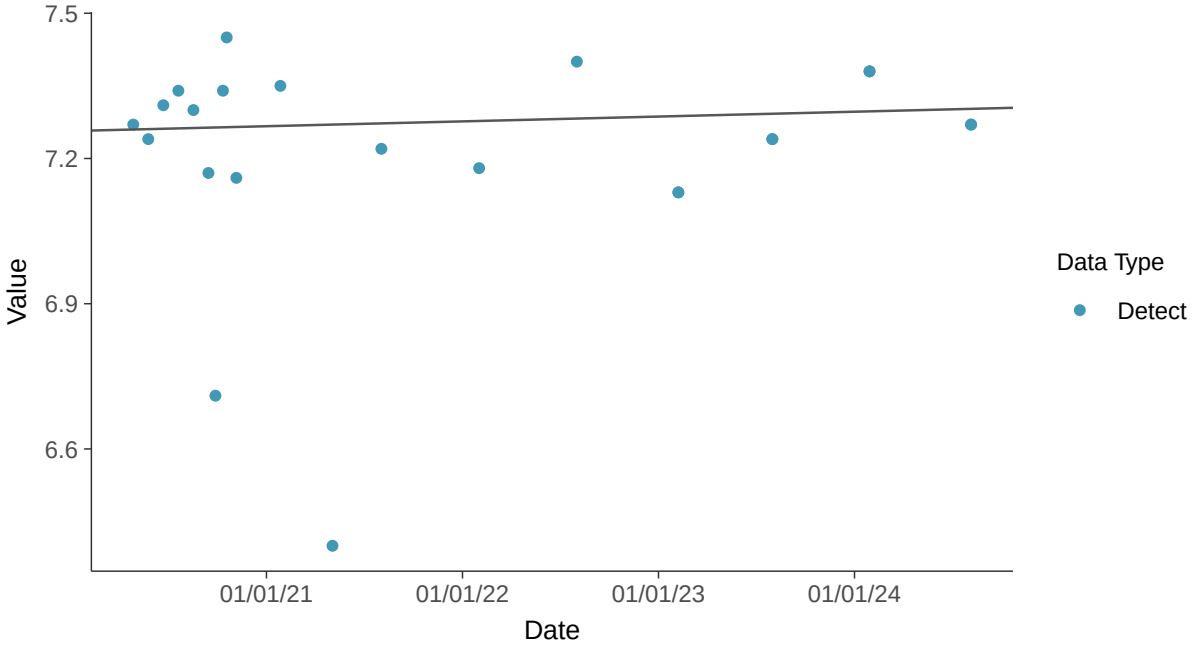
Normal Q-Q plot

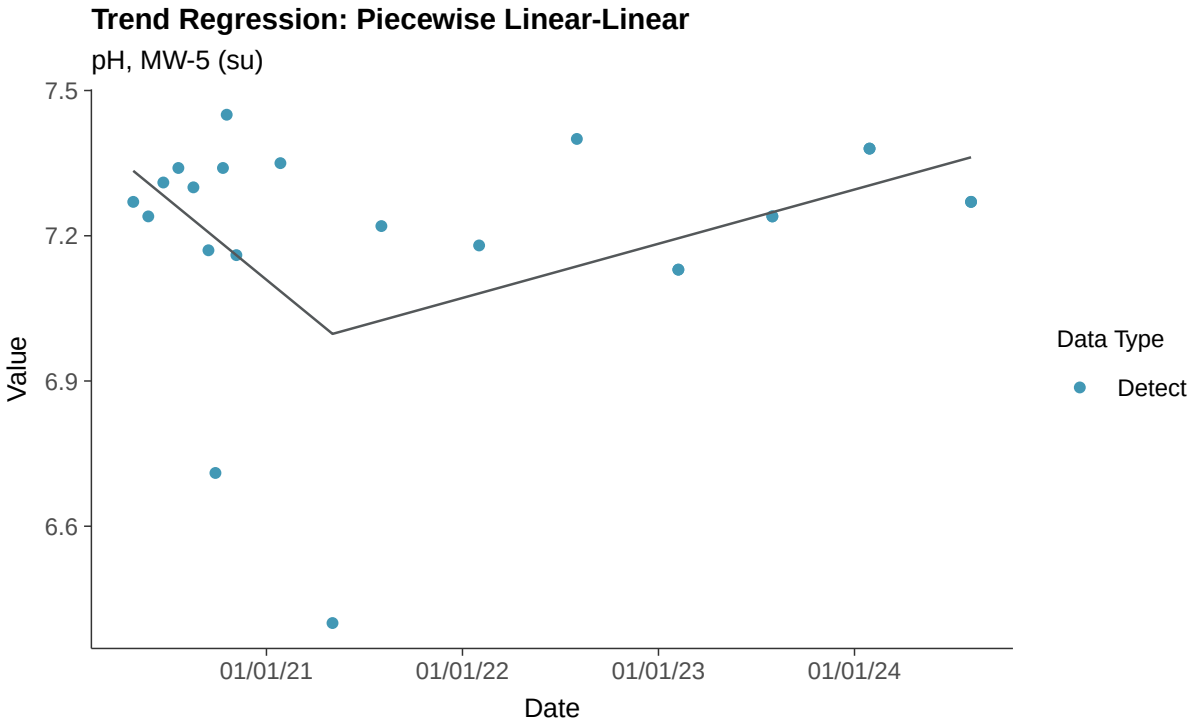
pH, MW-5 (su)



Trend Regression: Mann-Kendall/Theil-Sen Estimate

pH, MW-5 (su)



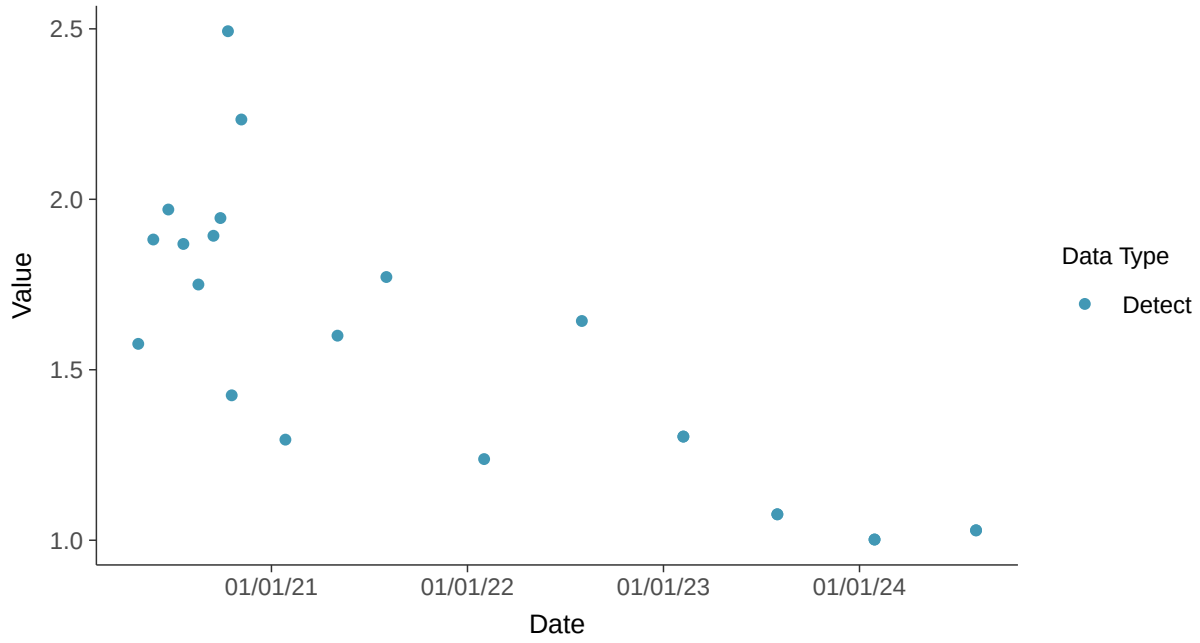

Trend Regression: Piecewise Linear-Linear
pH, MW-5 (su)
7.5
7.2
6.9
6.6
Value
01/01/21
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Field Parameters: Conductivity, MW-5

ID: 05_3_25

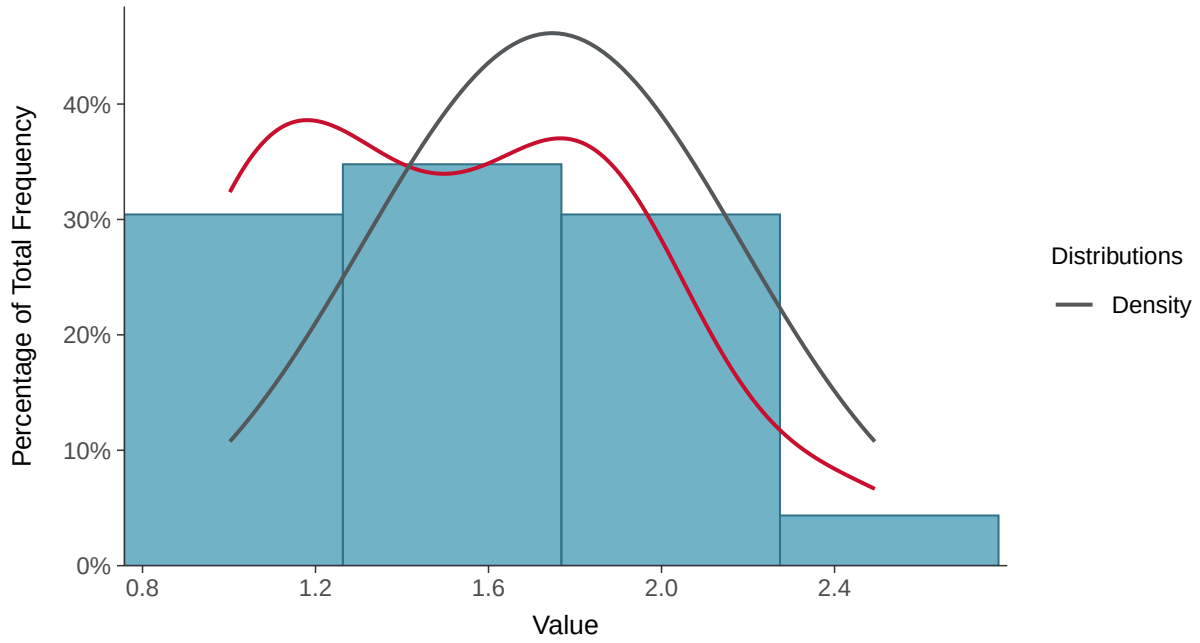
Scatter Plot

Conductivity, MW-5 (mS/cm)



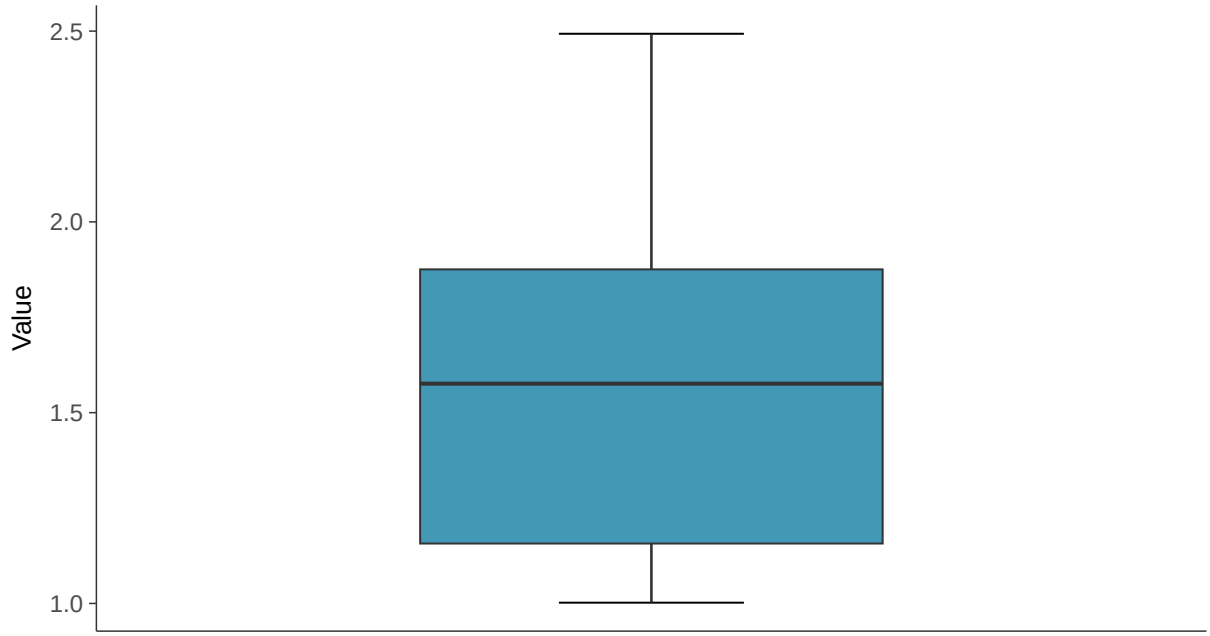
Histogram

Conductivity, MW-5 (mS/cm)



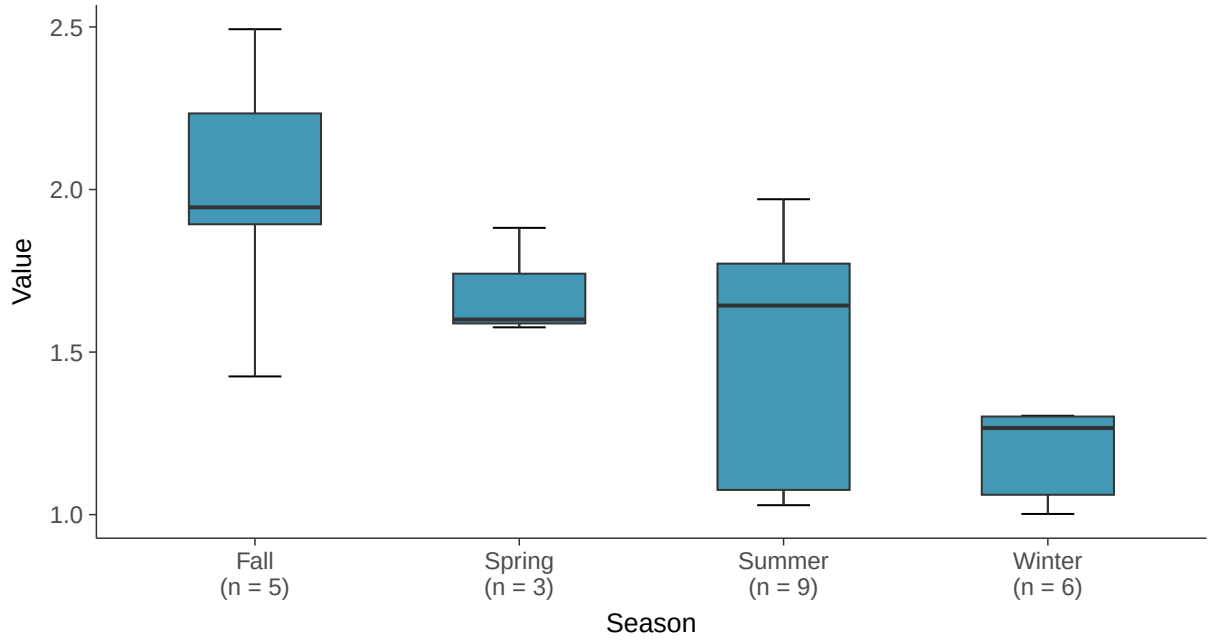
Boxplot

Conductivity, MW-5 (mS/cm)



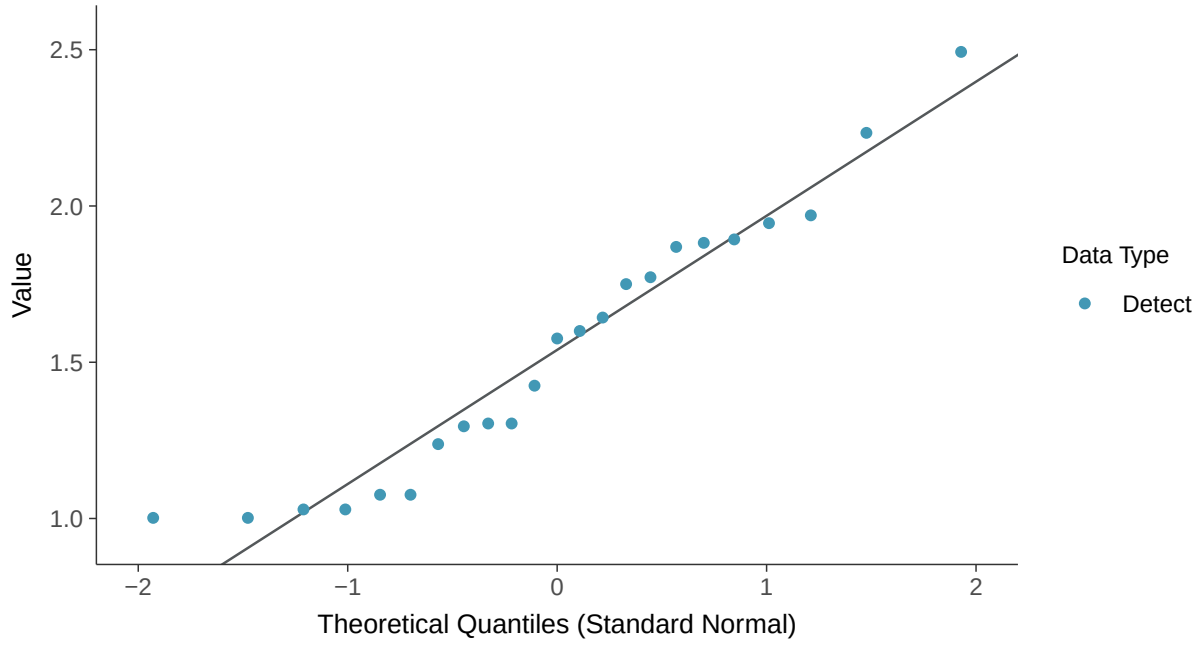
Boxplot by Season

Conductivity, MW-5 (mS/cm)



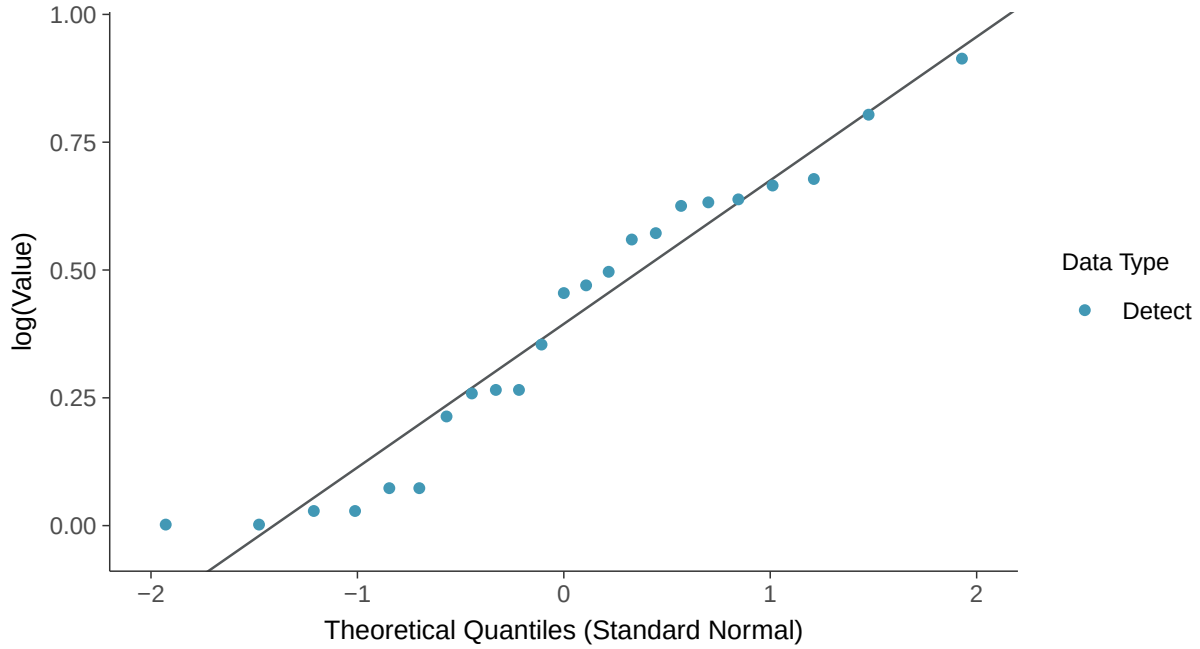
Normal Q-Q plot

Conductivity, MW-5 (mS/cm)



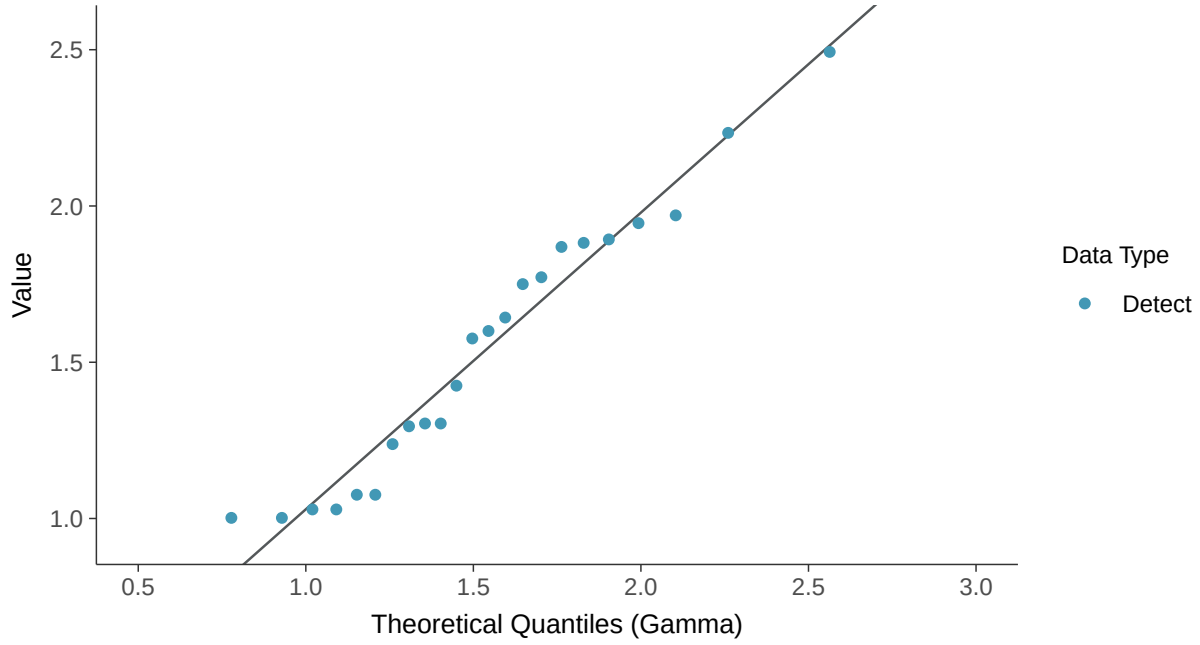
Lognormal Q-Q plot

Conductivity, MW-5 (mS/cm)



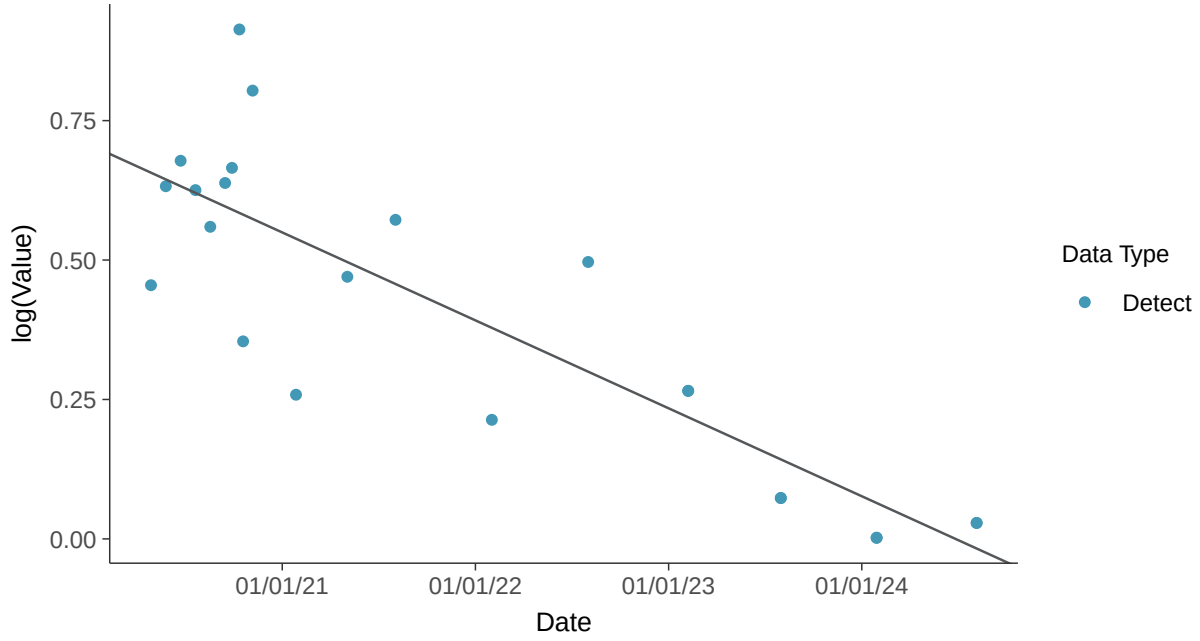
Gamma Q-Q plot

Conductivity, MW-5 (mS/cm)



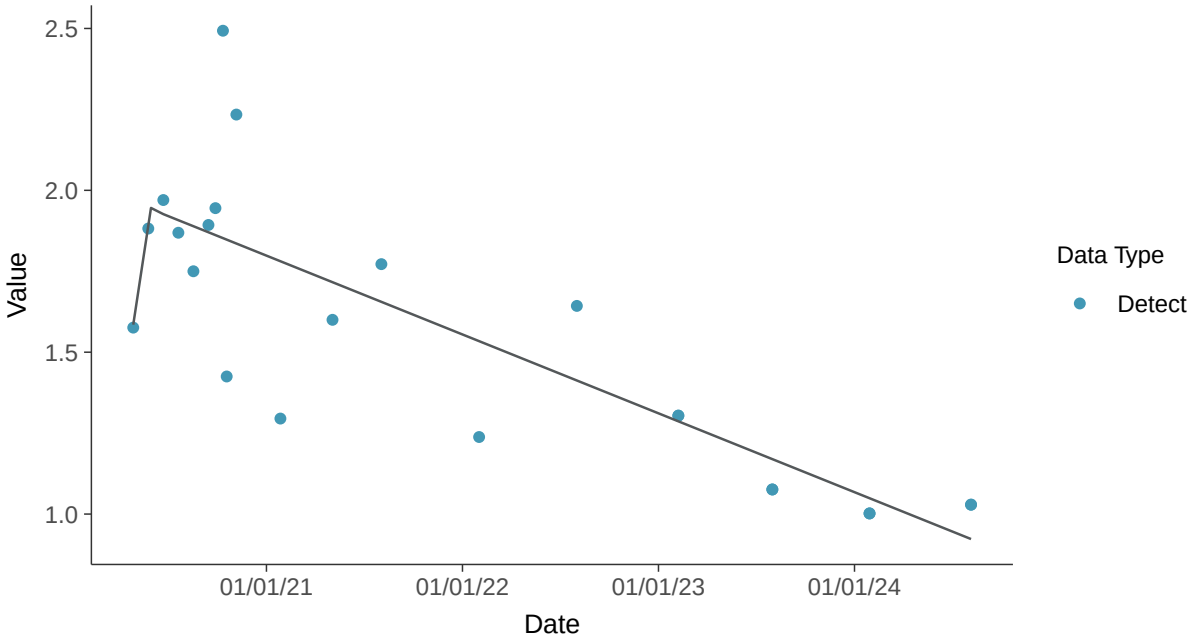
Trend Regression: Lognormal MLE

Conductivity, MW-5 (mS/cm)



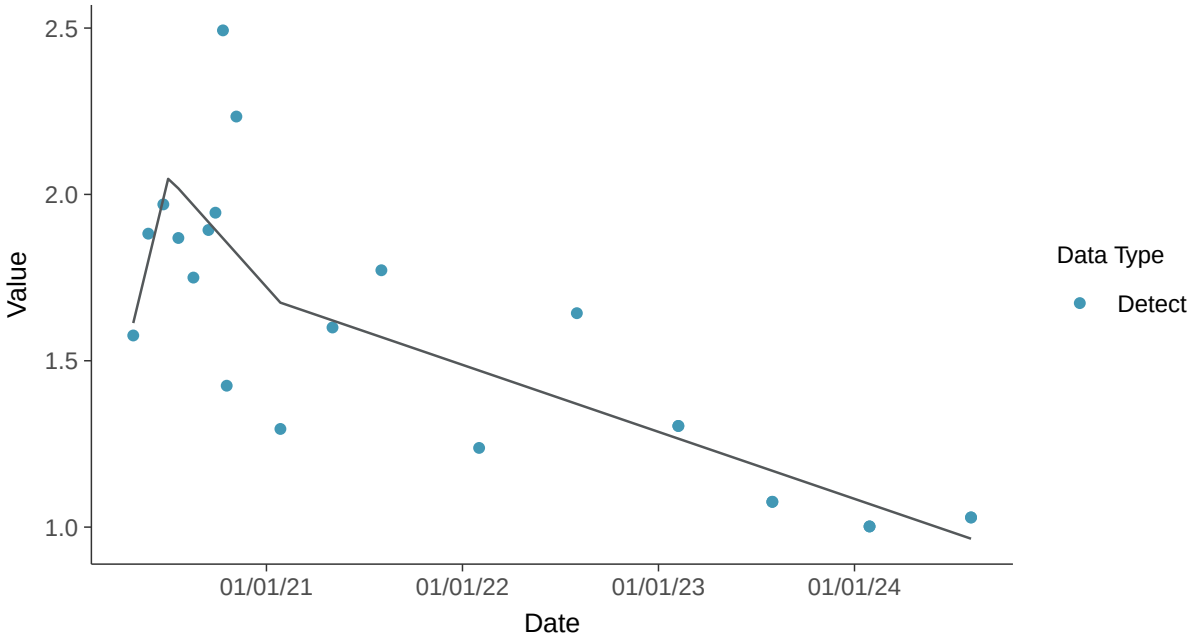
Trend Regression: Piecewise Linear-Linear

Conductivity, MW-5 (mS/cm)



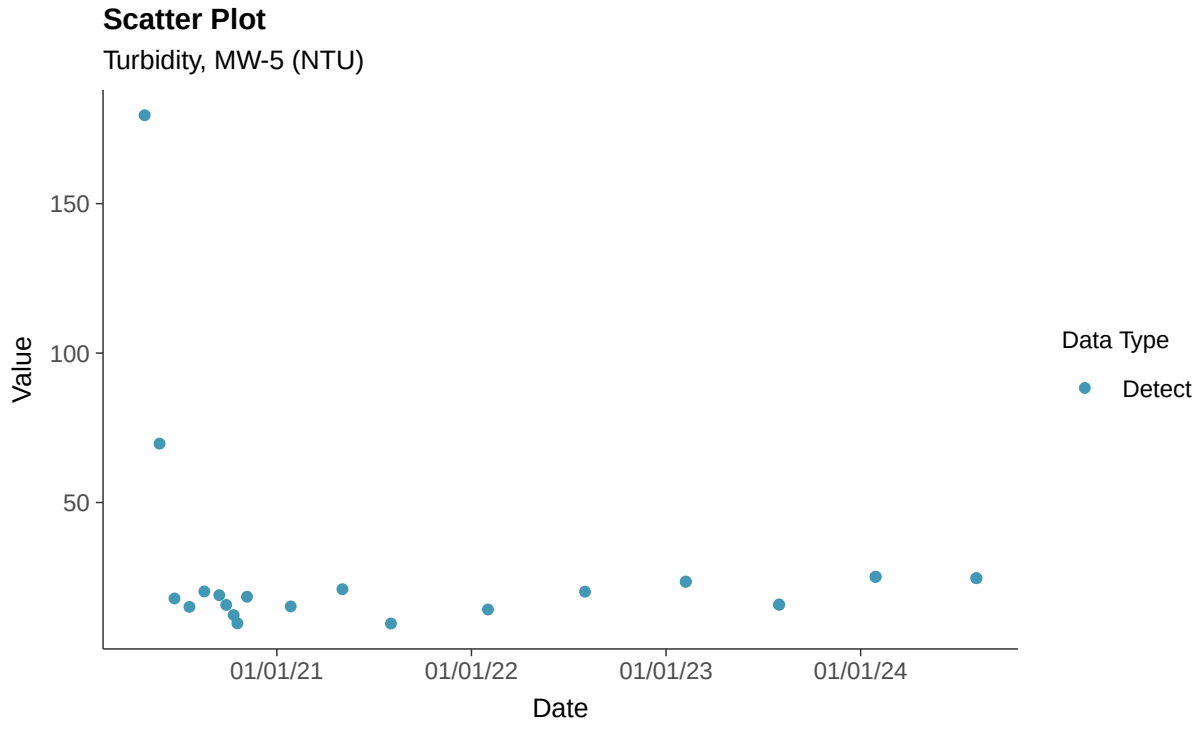
Trend Regression: Piecewise Linear-Linear-Linear

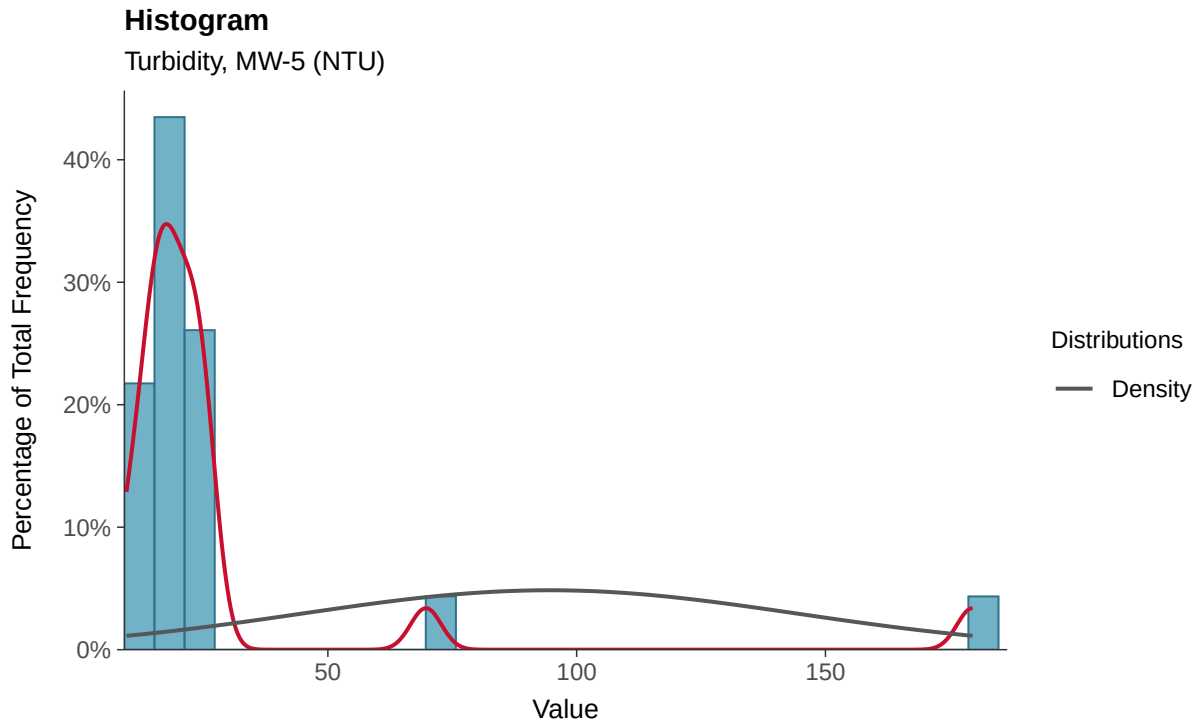
Conductivity, MW-5 (mS/cm)



Field Parameters: Turbidity, MW-5

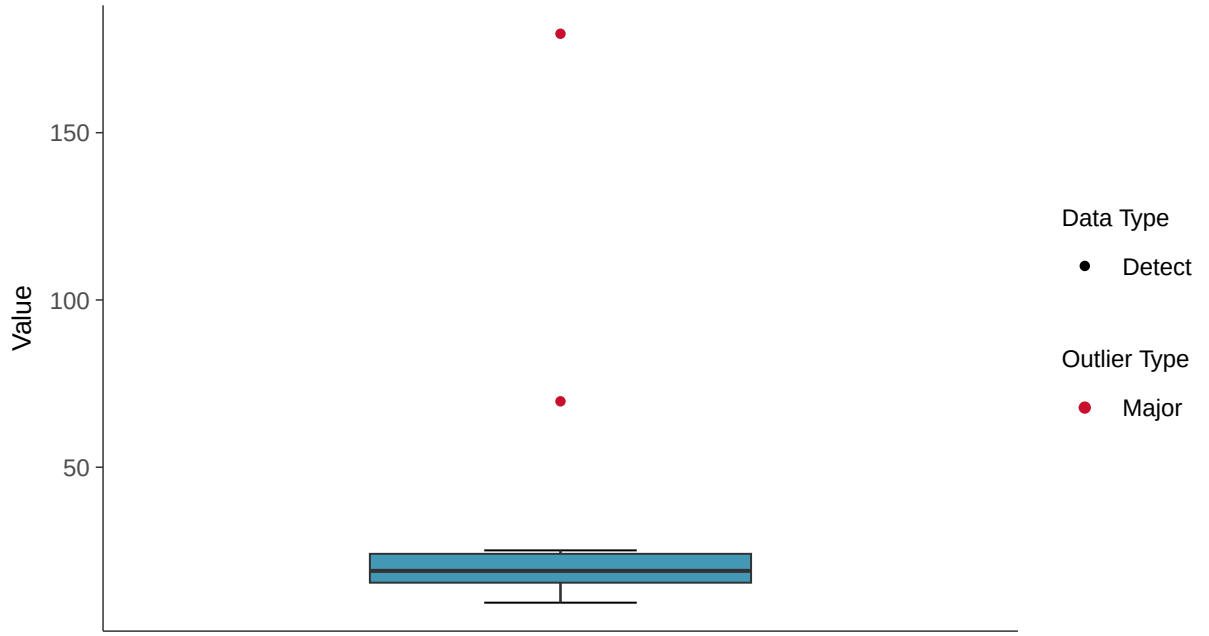
ID: 05_3_26





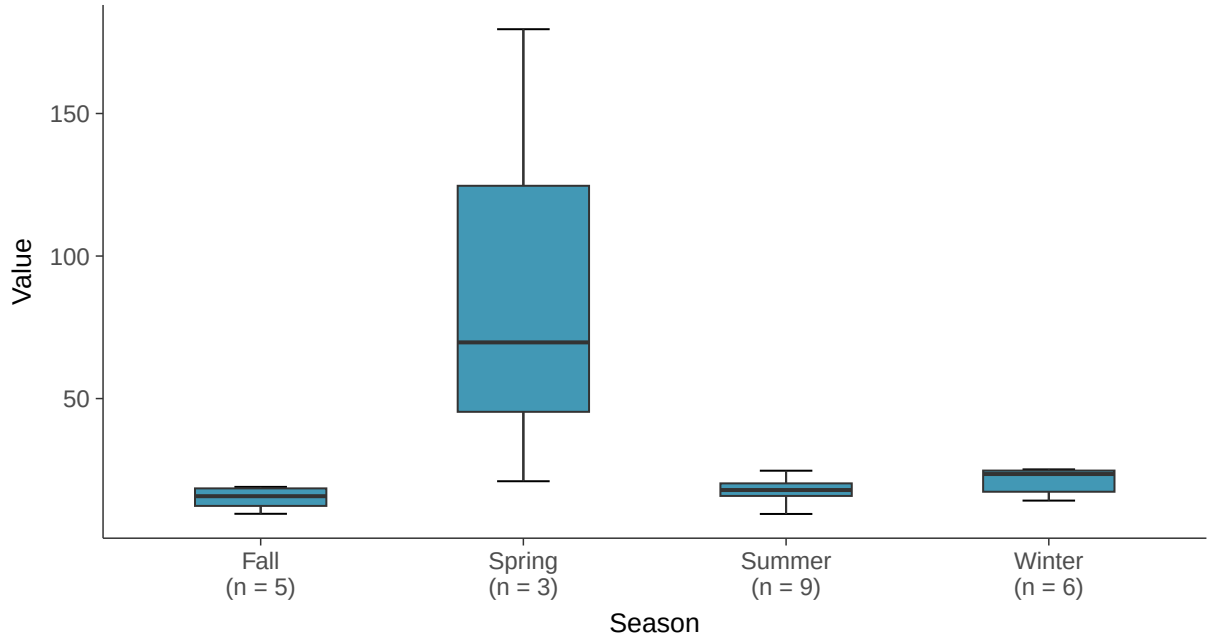
Boxplot

Turbidity, MW-5 (NTU)



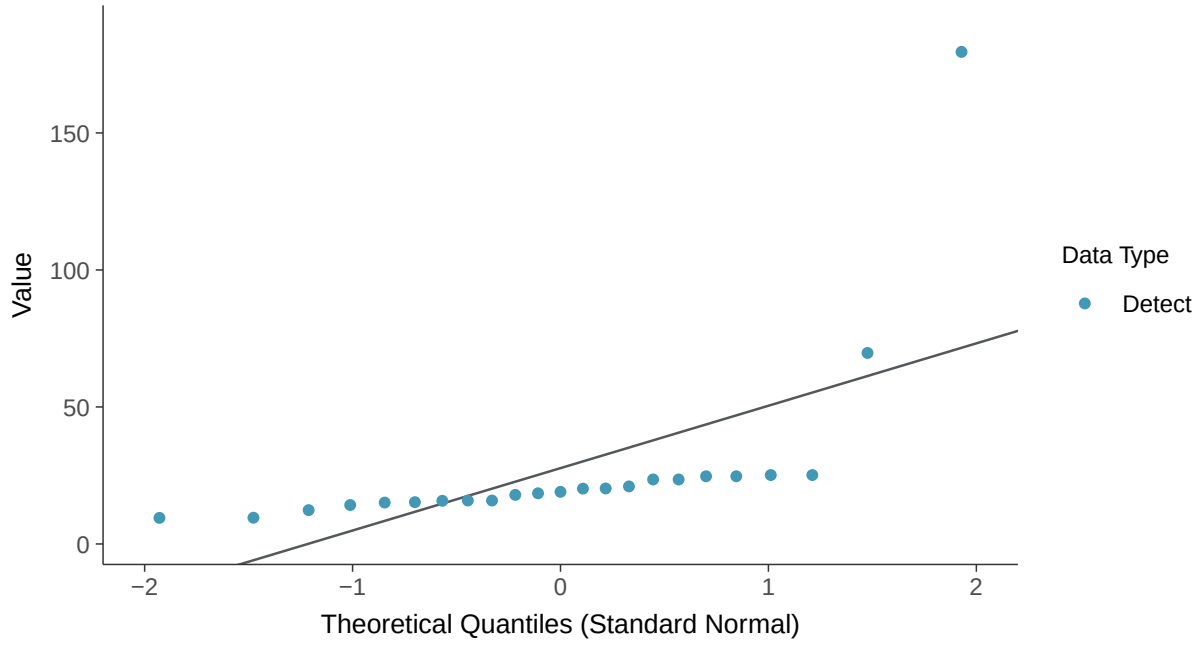
Boxplot by Season

Turbidity, MW-5 (NTU)



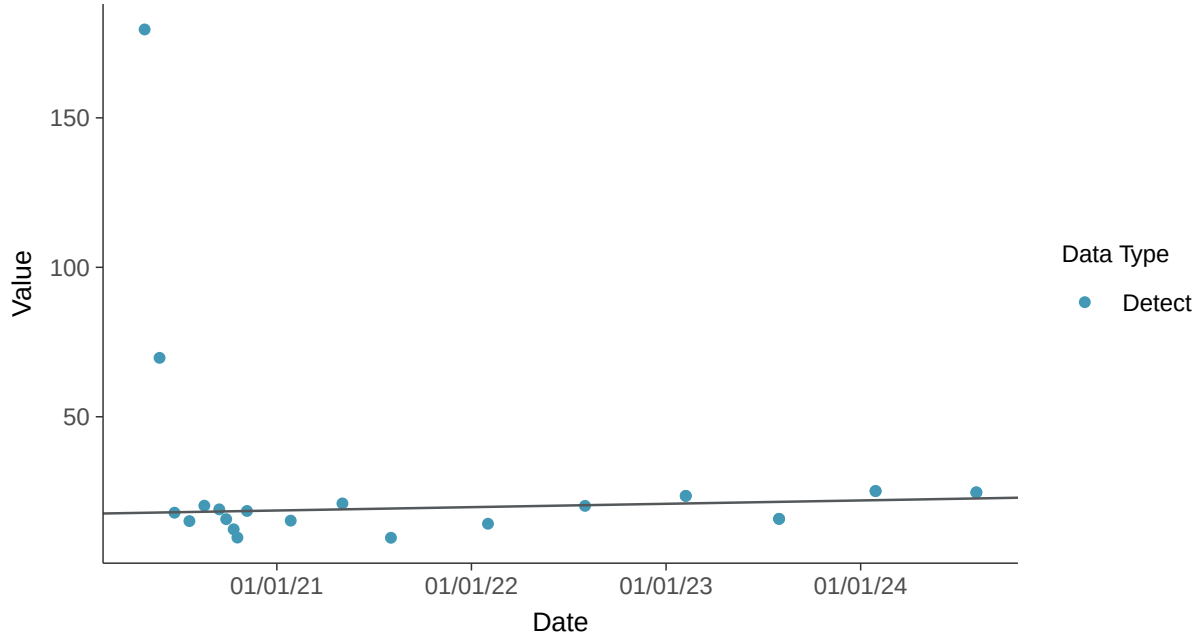
Normal Q-Q plot

Turbidity, MW-5 (NTU)



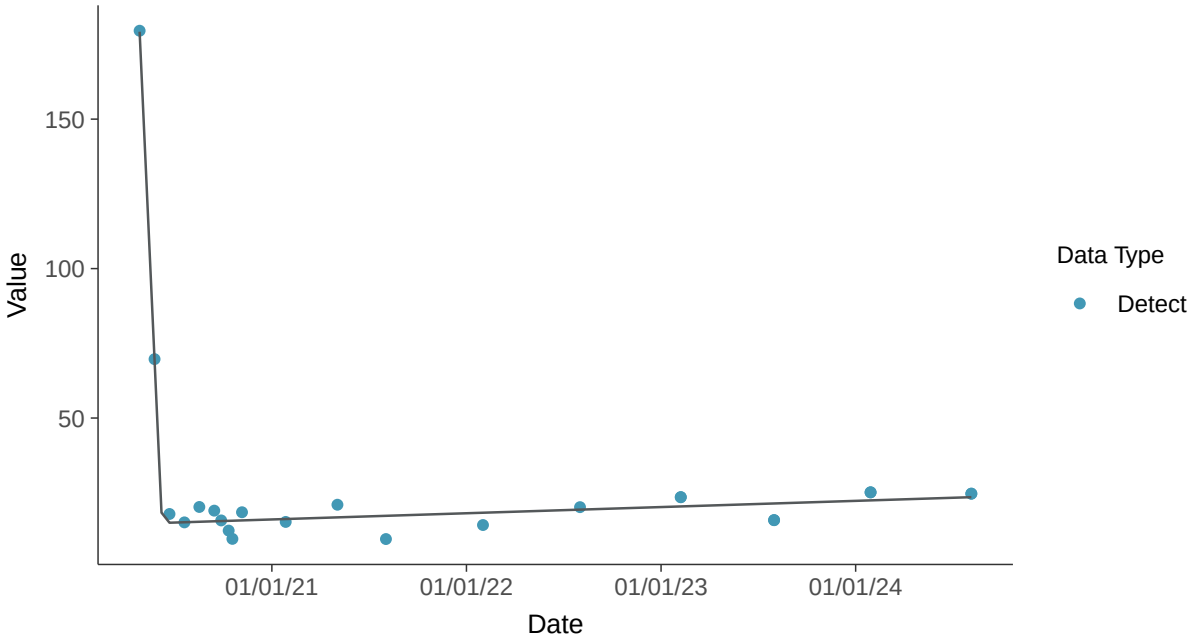
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Turbidity, MW-5 (NTU)



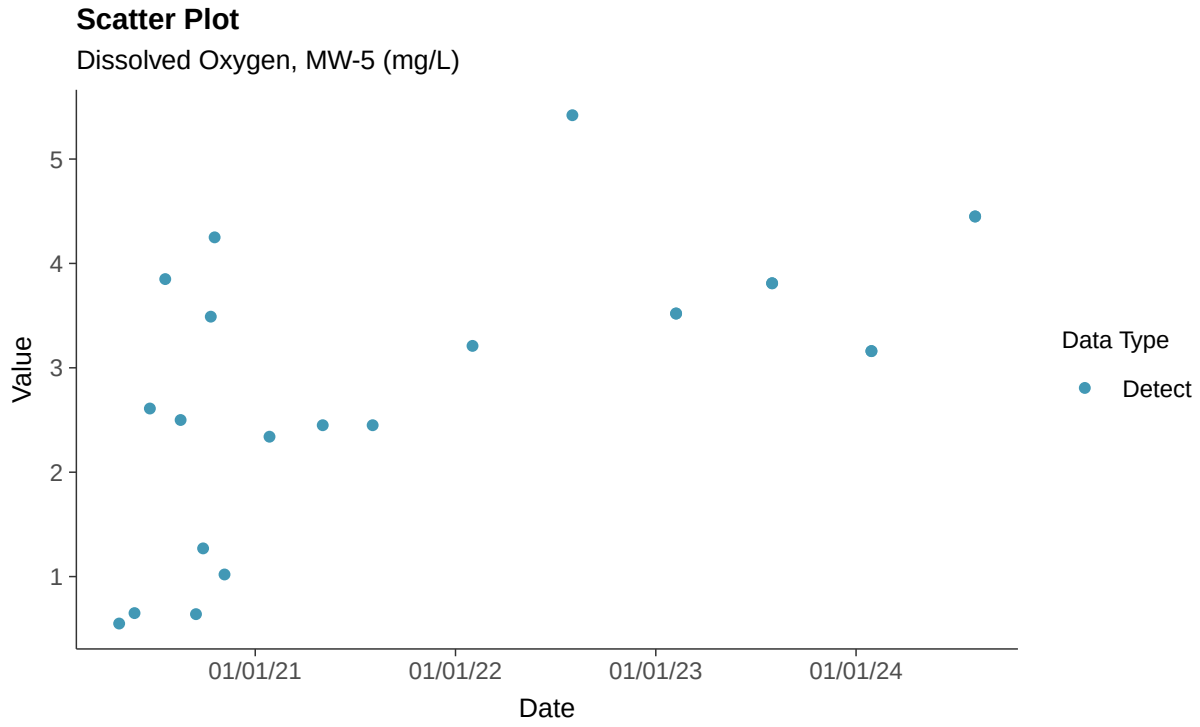
Trend Regression: Piecewise Linear-Linear

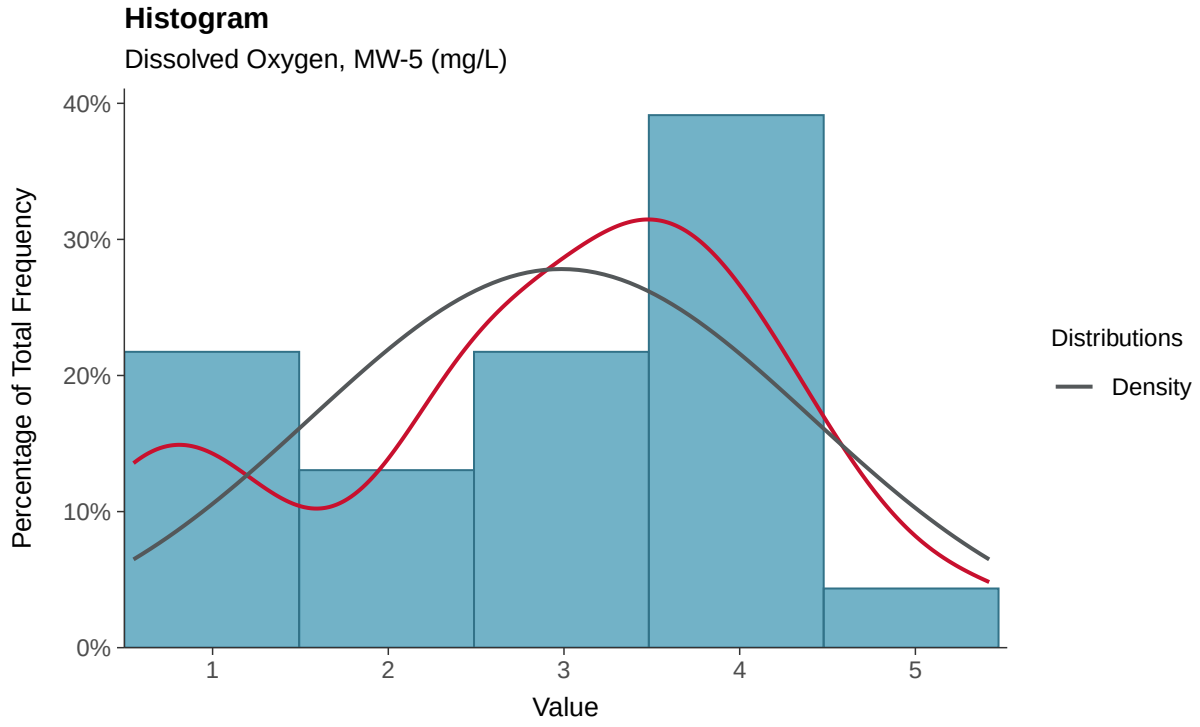
Turbidity, MW-5 (NTU)



Field Parameters: Dissolved Oxygen, MW-5

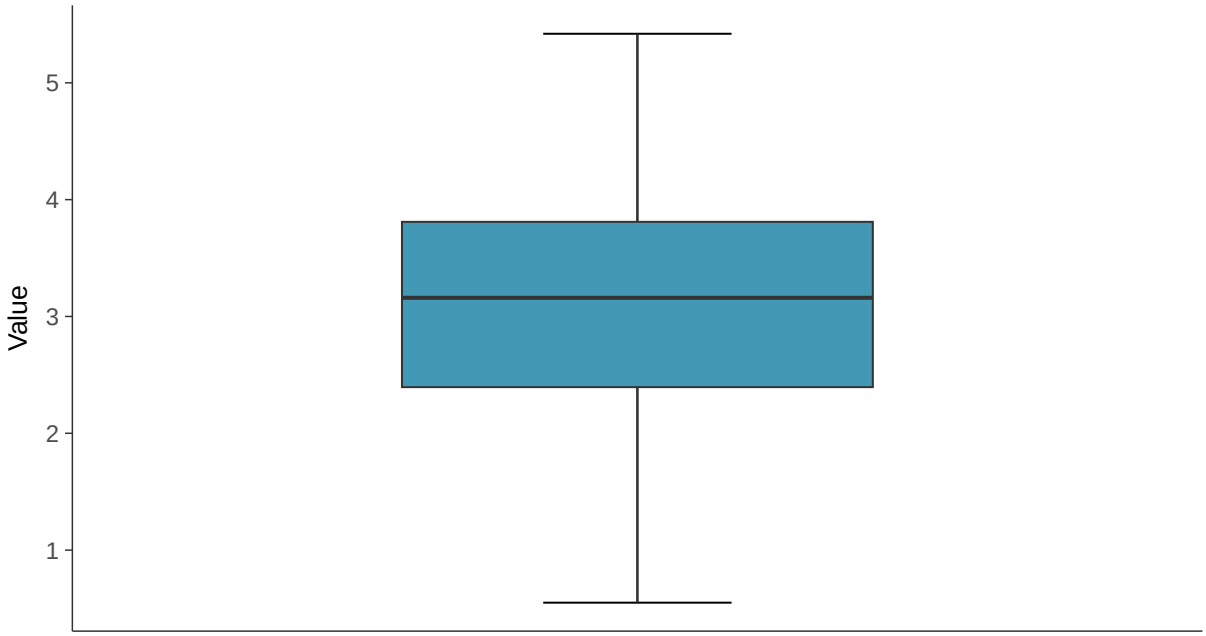
ID: 05_3_27





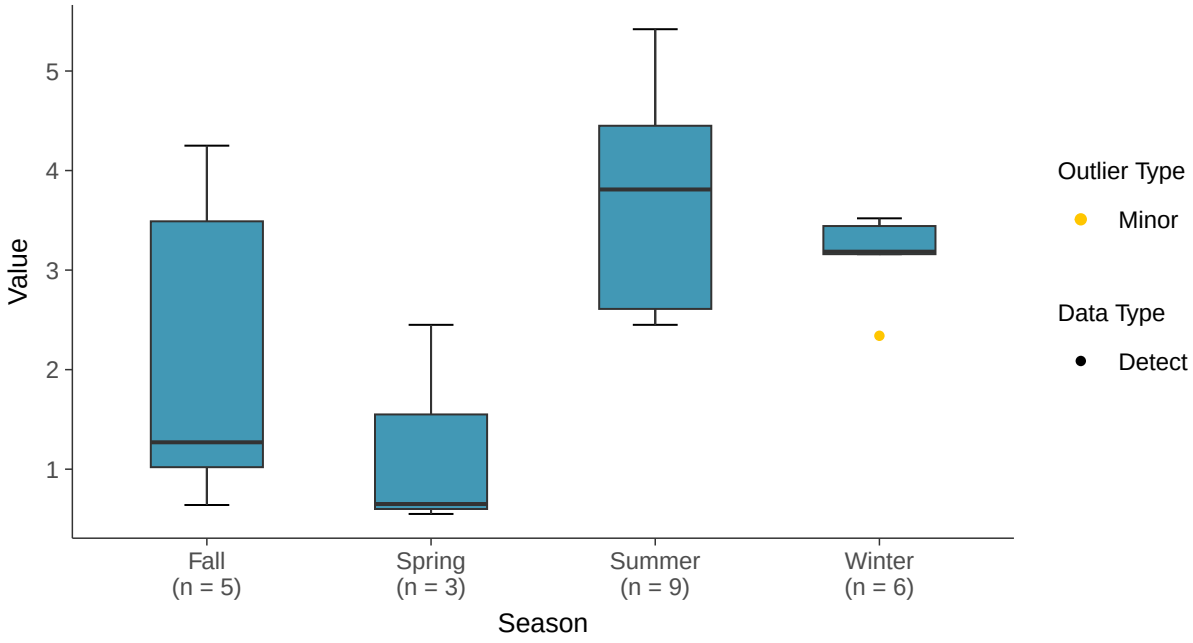
Boxplot

Dissolved Oxygen, MW-5 (mg/L)



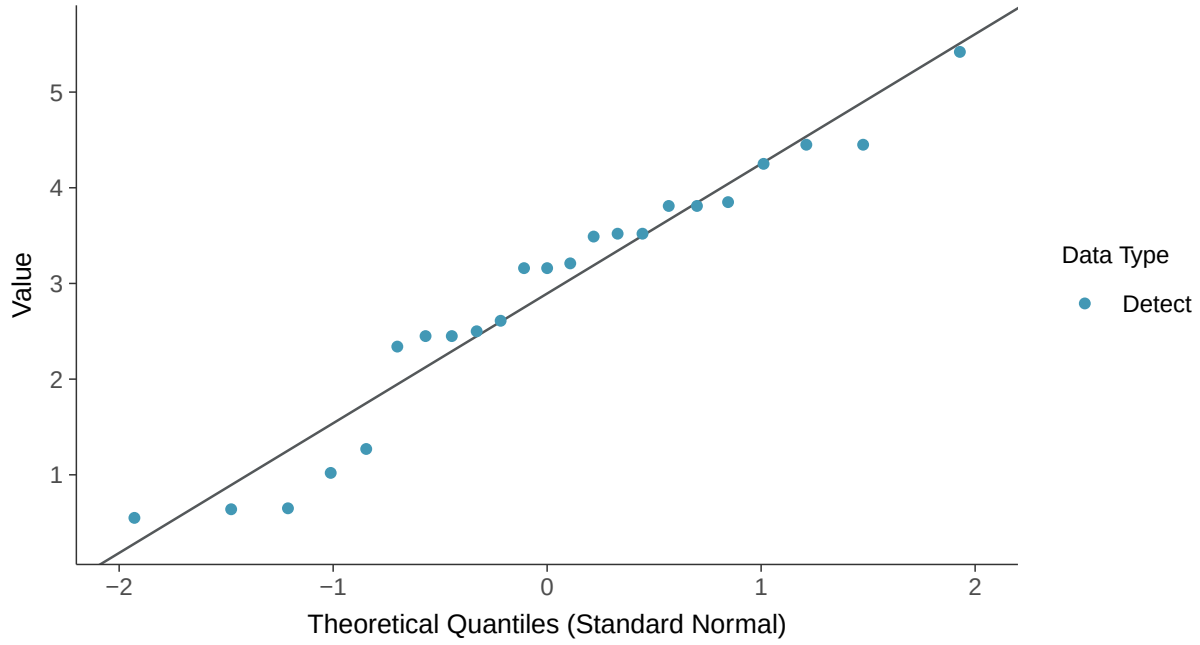
Boxplot by Season

Dissolved Oxygen, MW-5 (mg/L)



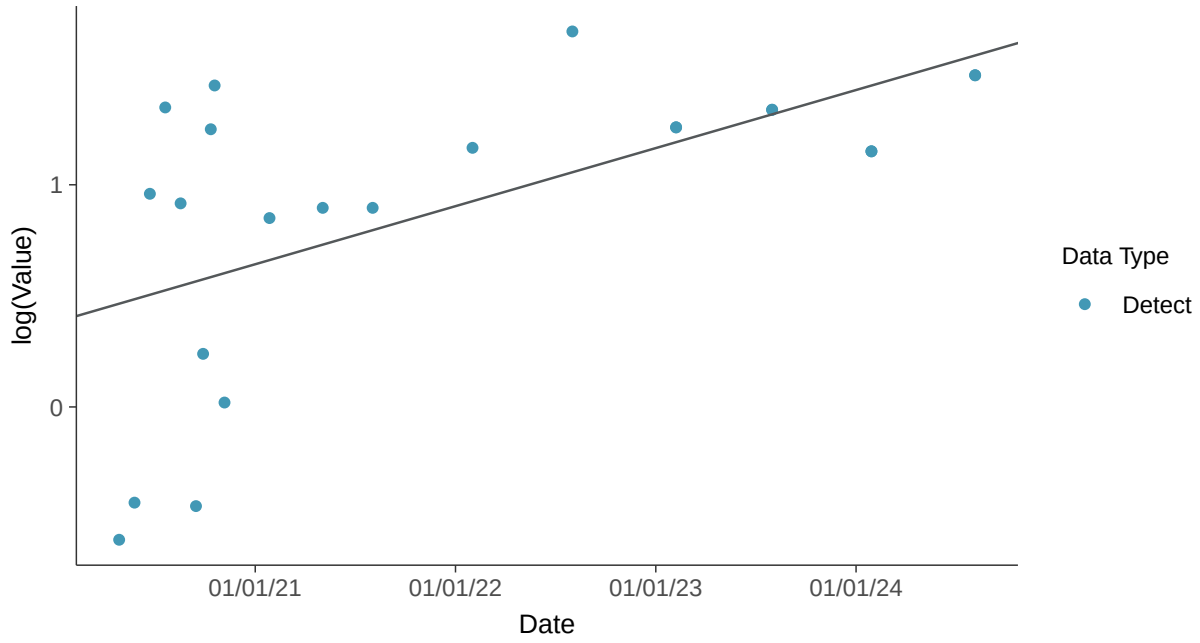
Normal Q-Q plot

Dissolved Oxygen, MW-5 (mg/L)



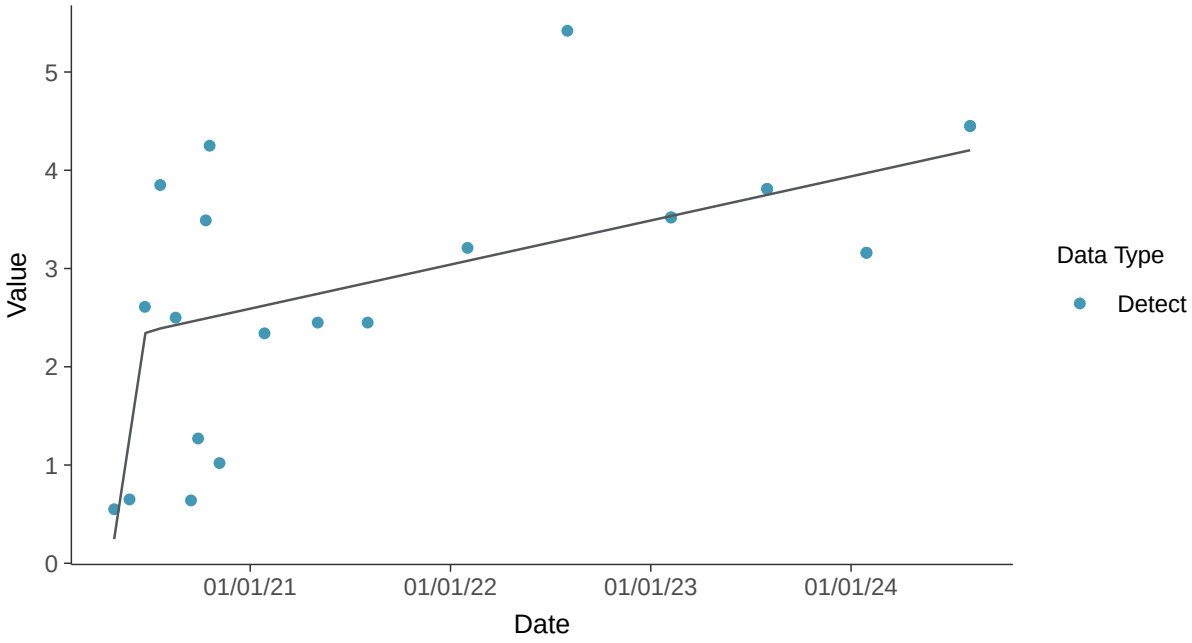
Trend Regression: Lognormal MLE

Dissolved Oxygen, MW-5 (mg/L)



Trend Regression: Piecewise Linear-Linear

Dissolved Oxygen, MW-5 (mg/L)

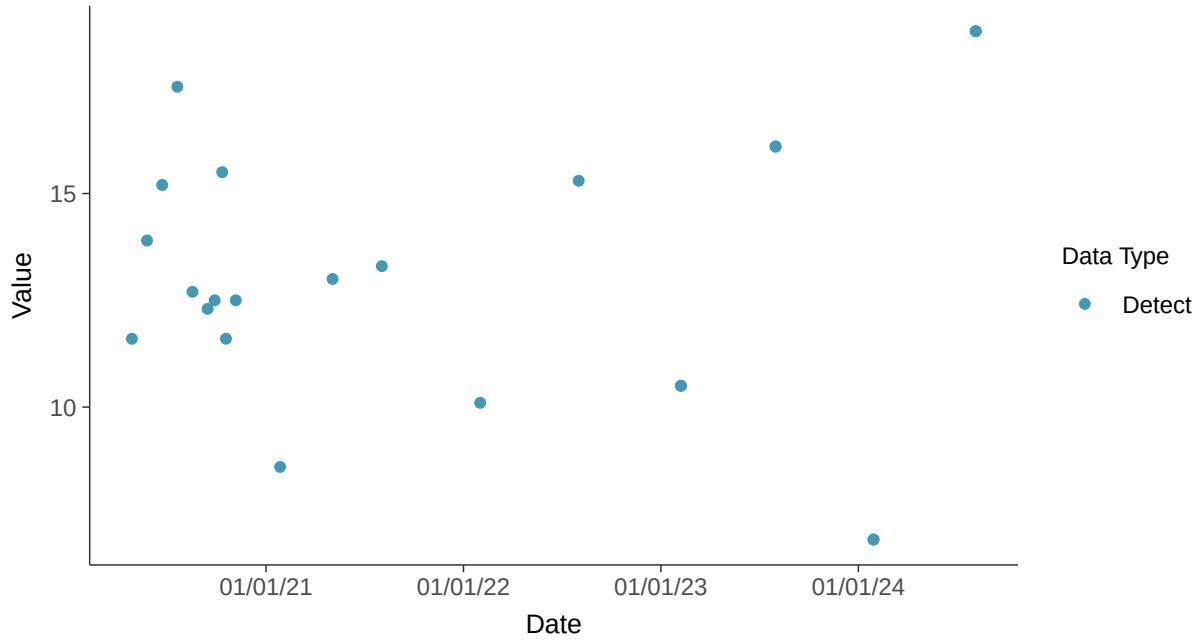


Field Parameters: Temperature, MW-5

ID: 05_3_28

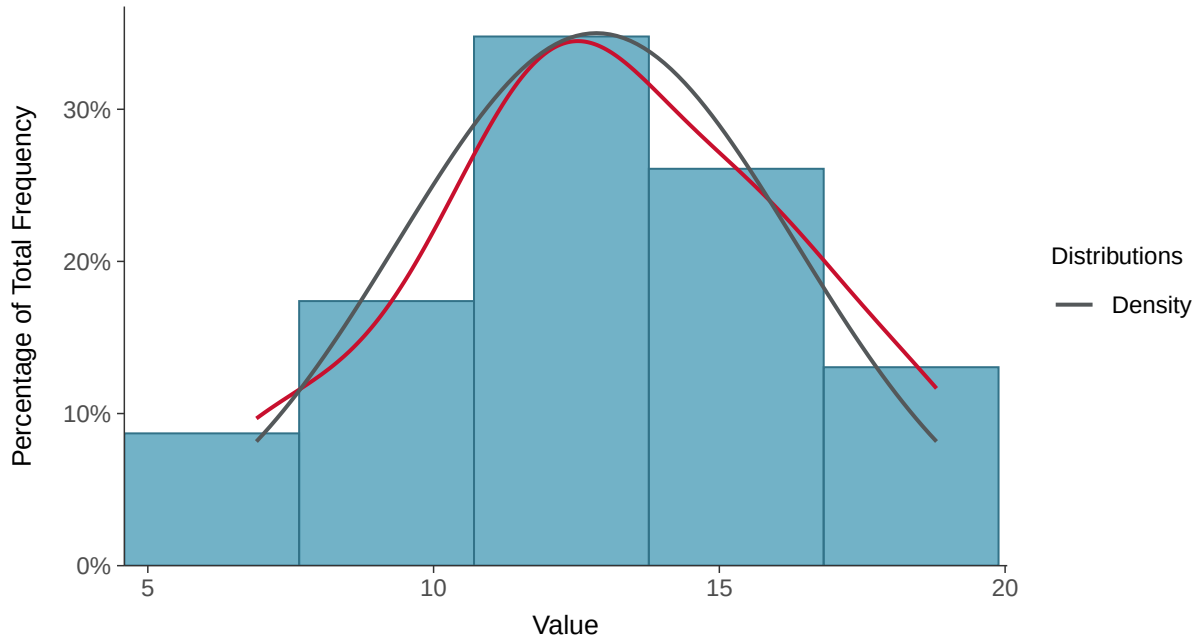
Scatter Plot

Temperature, MW-5 (°C)



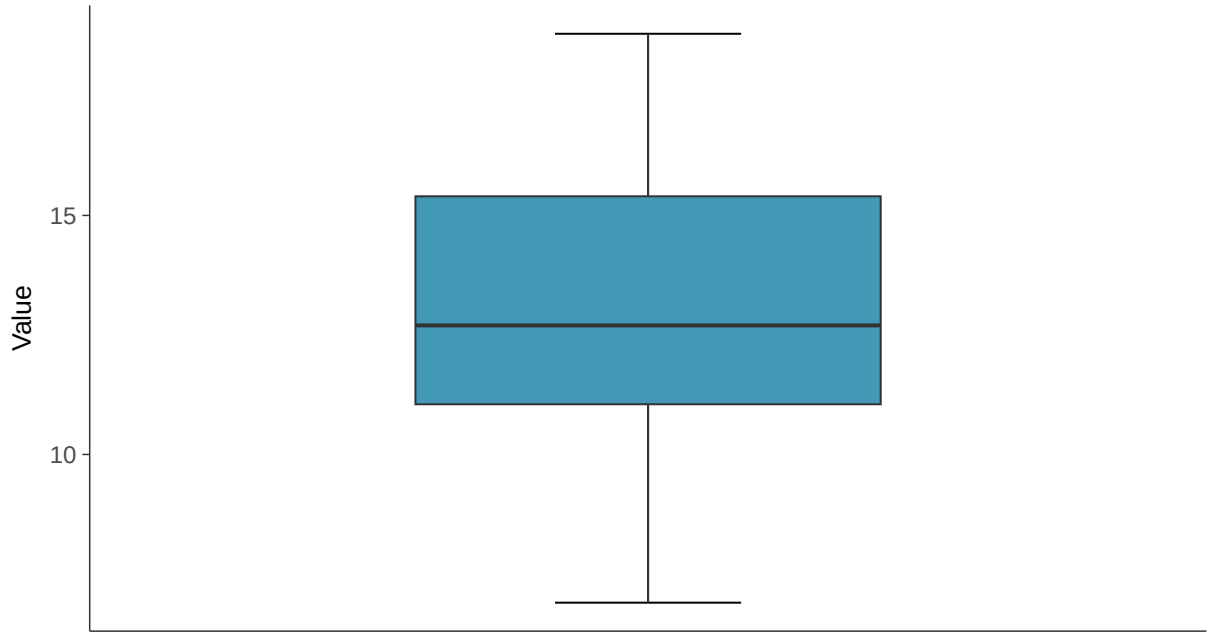
Histogram

Temperature, MW-5 (°C)



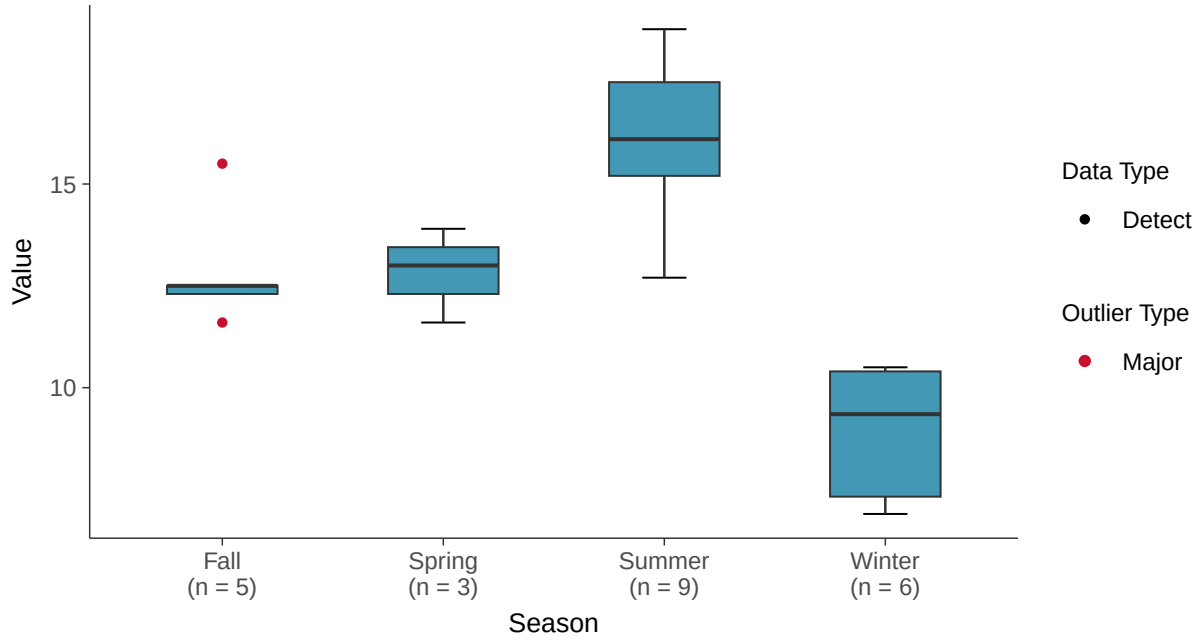
Boxplot

Temperature, MW-5 (°C)



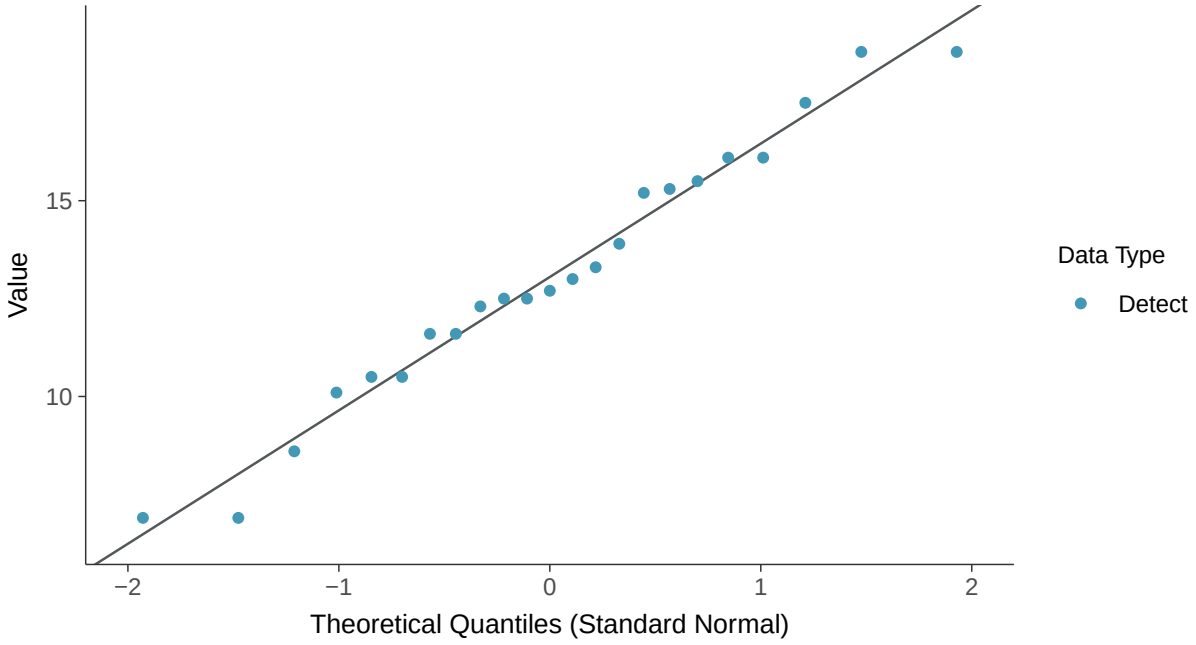
Boxplot by Season

Temperature, MW-5 (°C)



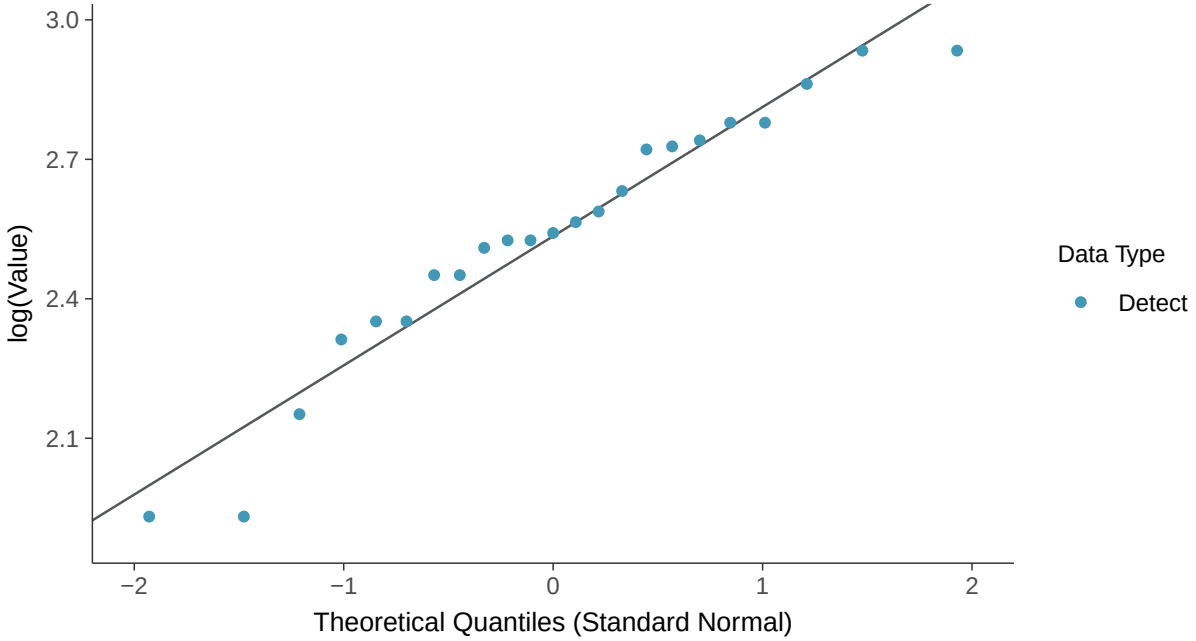
Normal Q-Q plot

Temperature, MW-5 (°C)



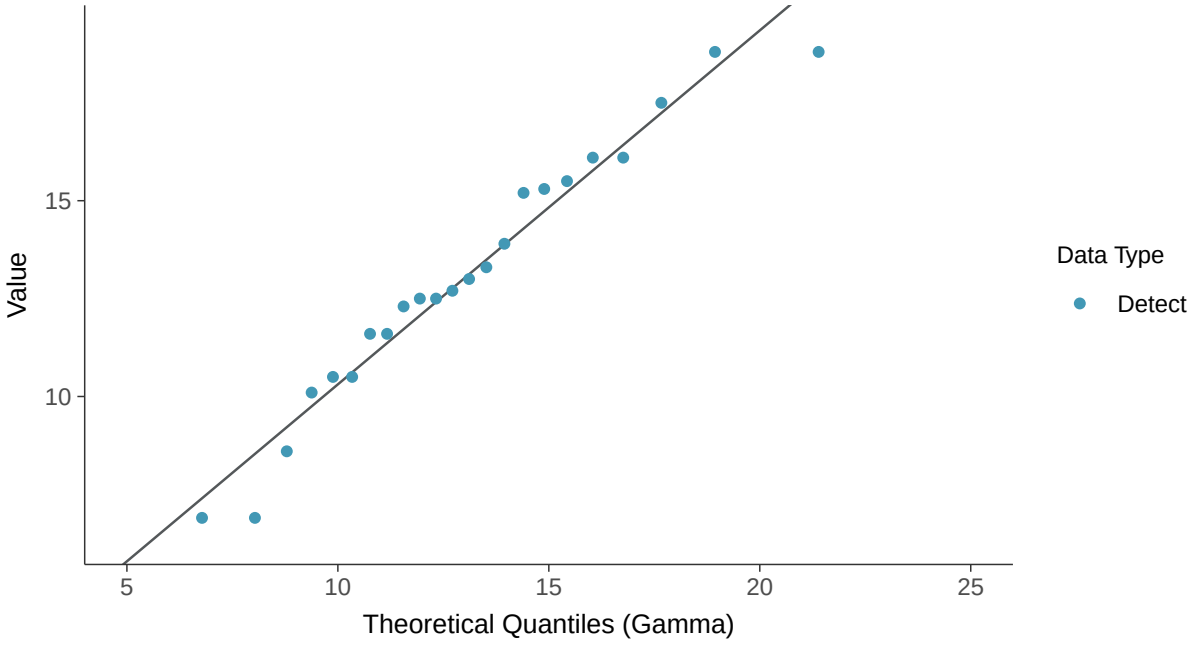
Lognormal Q-Q plot

Temperature, MW-5 (°C)



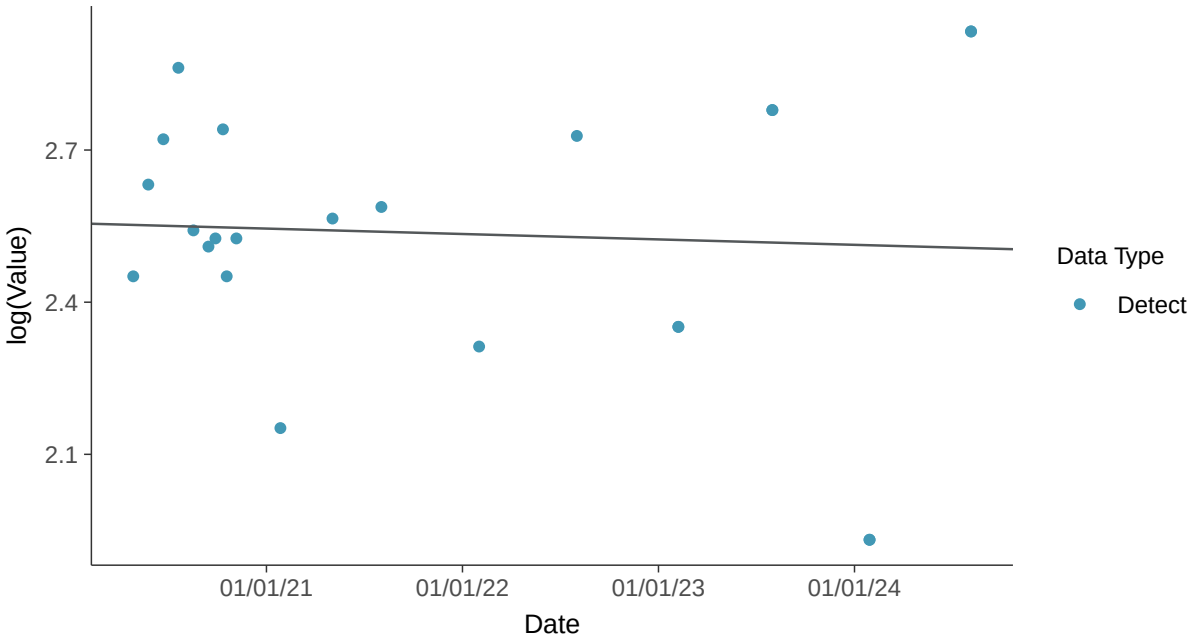
Gamma Q-Q plot

Temperature, MW-5 (°C)



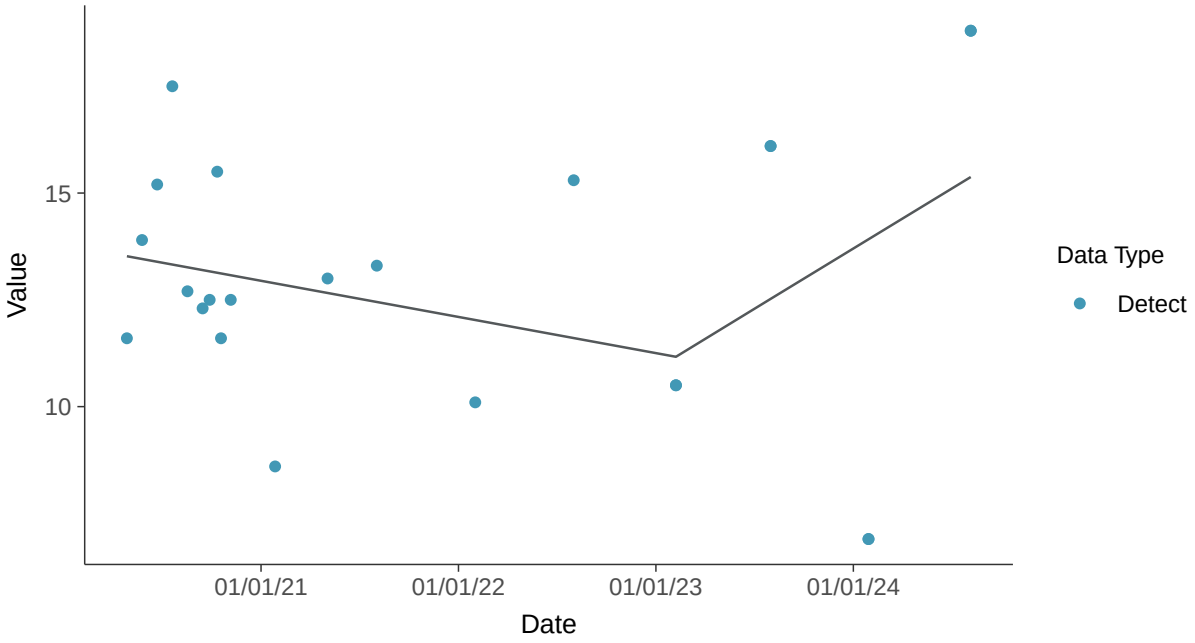
Trend Regression: Lognormal MLE

Temperature, MW-5 (°C)



Trend Regression: Piecewise Linear-Linear

Temperature, MW-5 (°C)

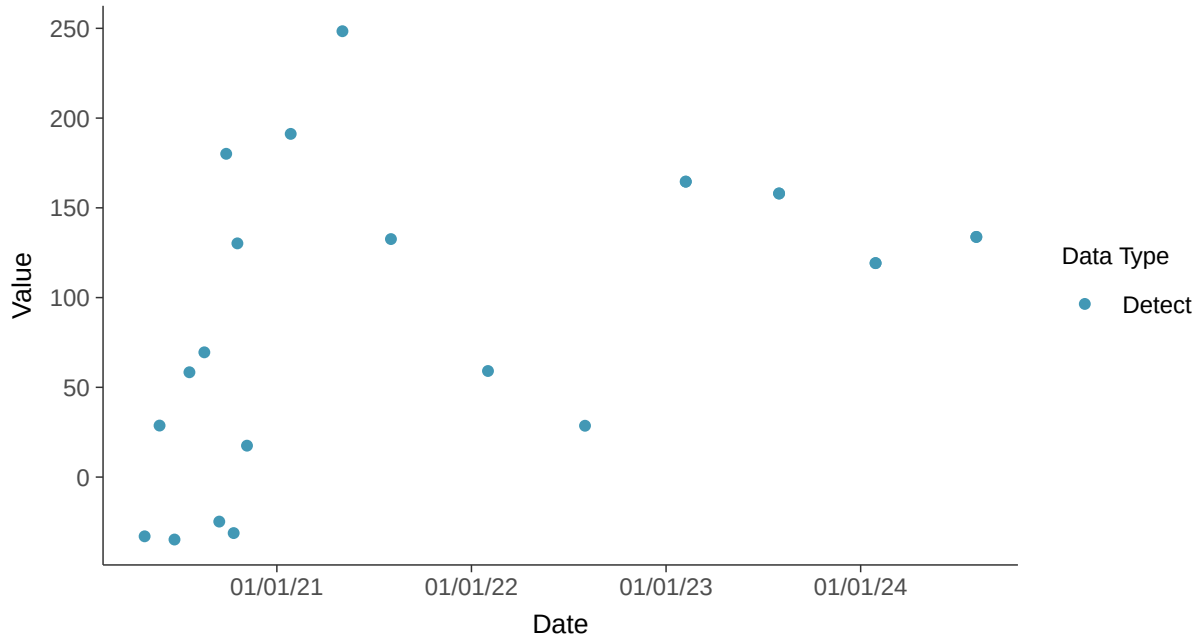


Field Parameters: Oxidation Reduction Potential, MW-5

ID: 05_3_29

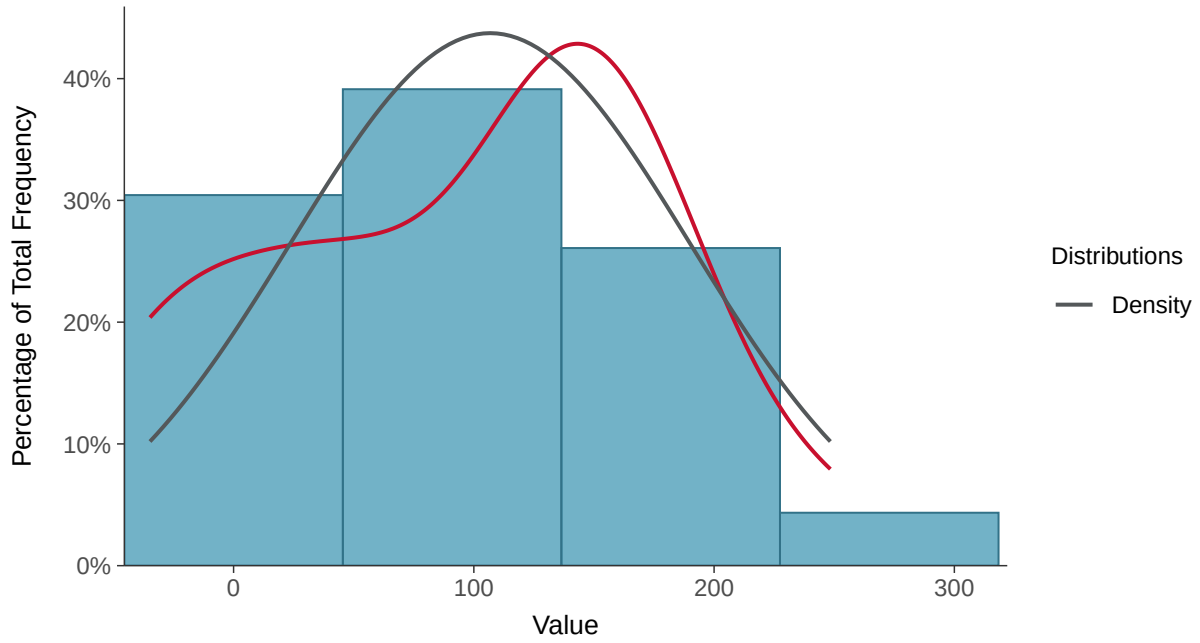
Scatter Plot

Oxidation Reduction Potential, MW-5 (mV)



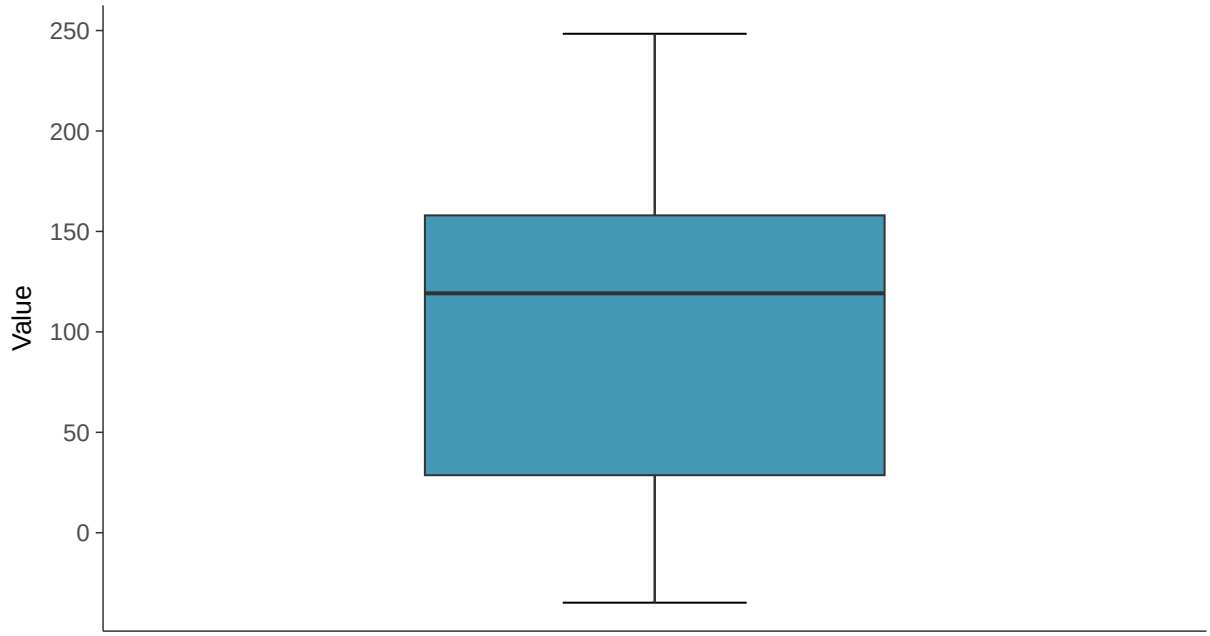
Histogram

Oxidation Reduction Potential, MW-5 (mV)



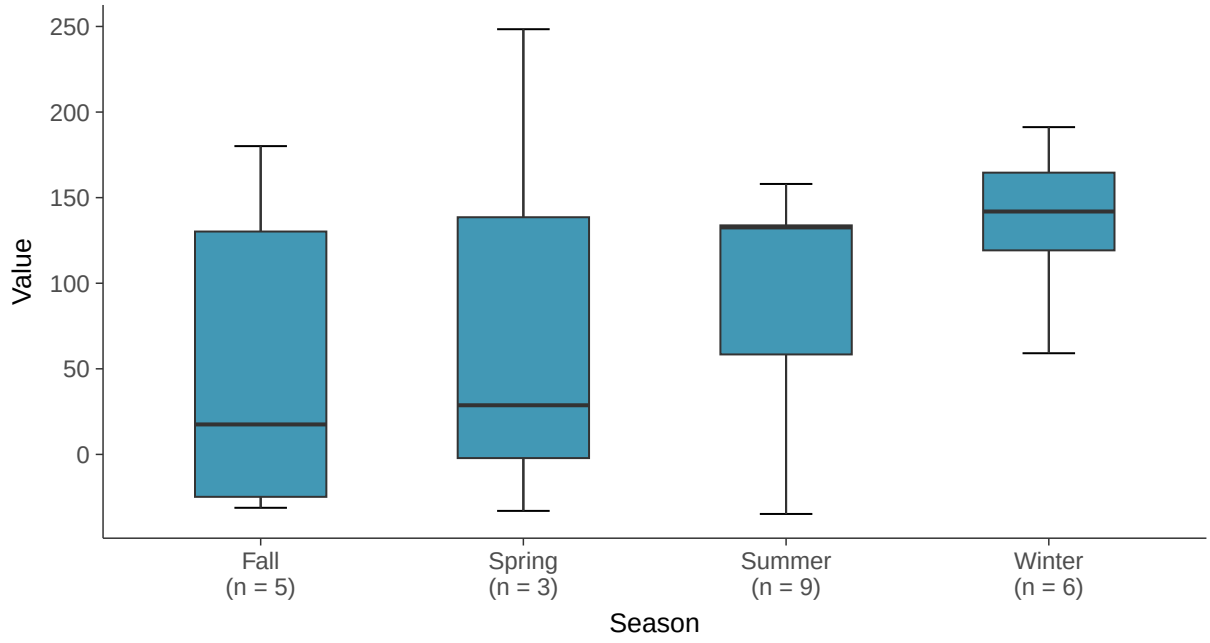
Boxplot

Oxidation Reduction Potential, MW-5 (mV)



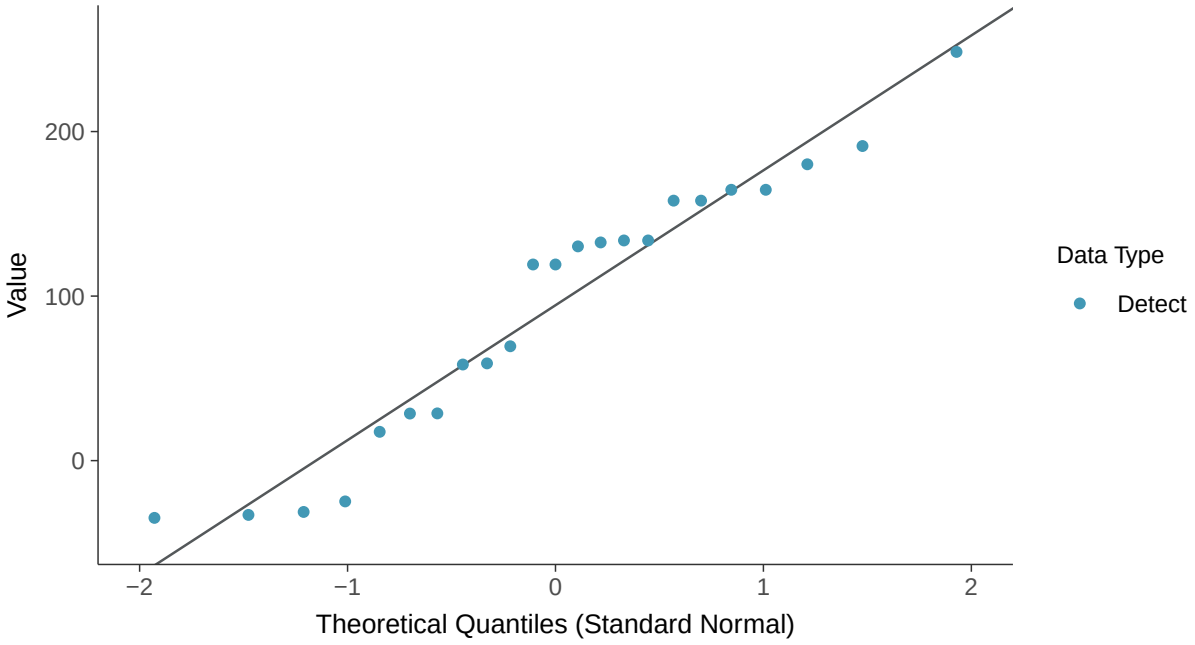
Boxplot by Season

Oxidation Reduction Potential, MW-5 (mV)



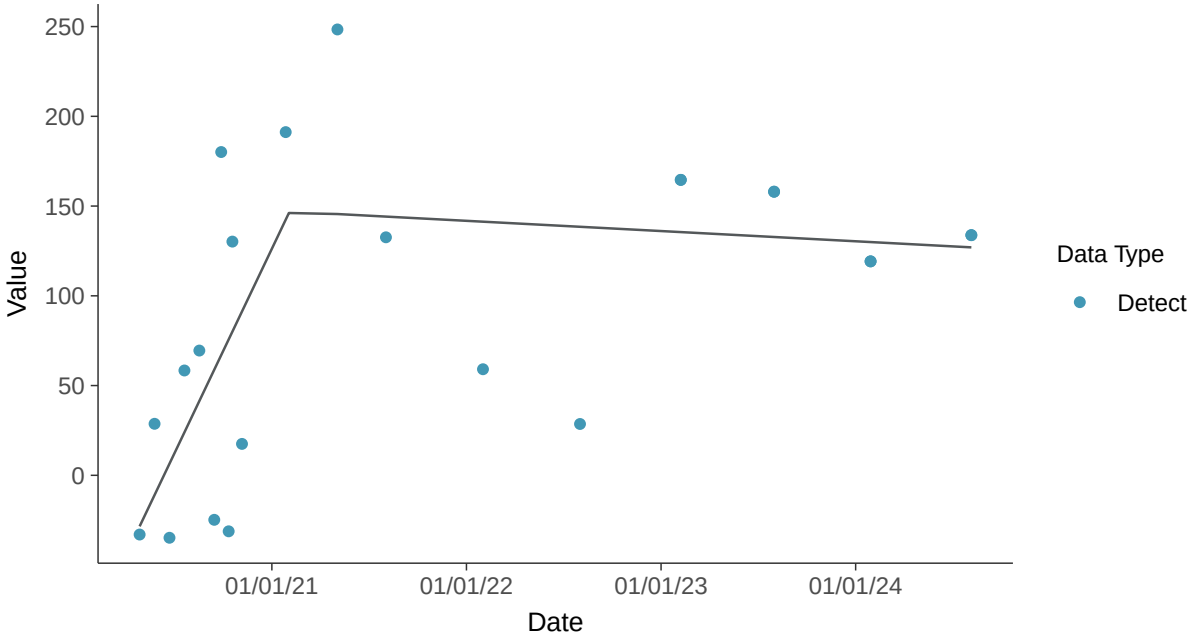
Normal Q-Q plot

Oxidation Reduction Potential, MW-5 (mV)



Trend Regression: Piecewise Linear-Linear

Oxidation Reduction Potential, MW-5 (mV)

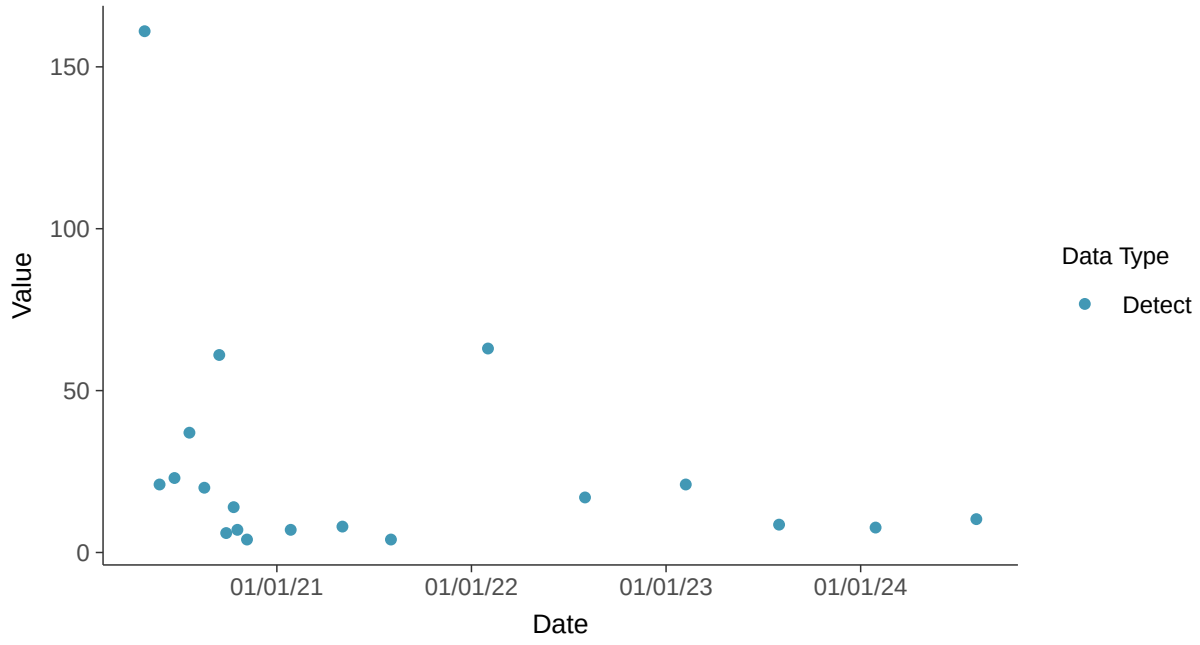


Other: Total Suspended Solids, MW-5

ID: 05_4_30

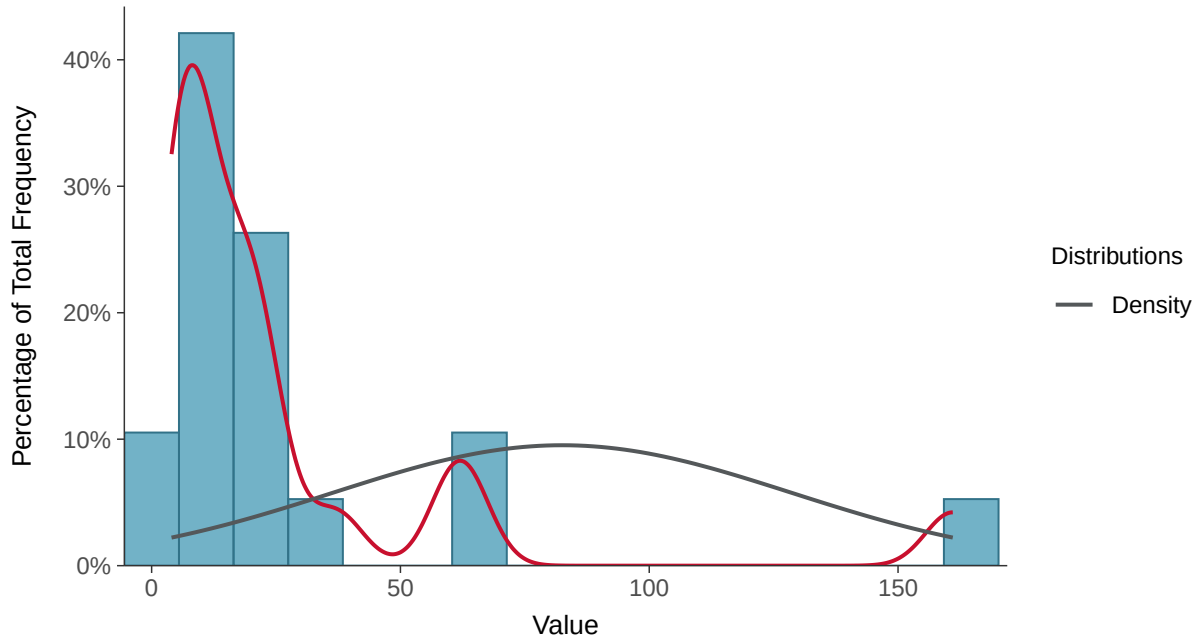
Scatter Plot

Total Suspended Solids, MW-5 (mg/L)



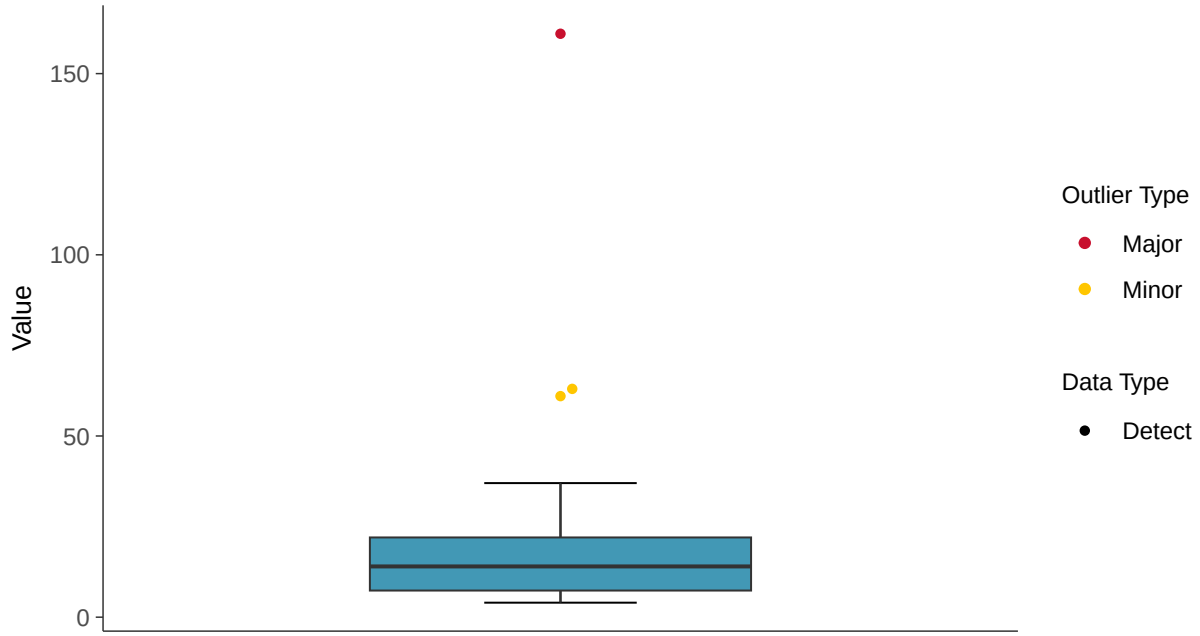
Histogram

Total Suspended Solids, MW-5 (mg/L)



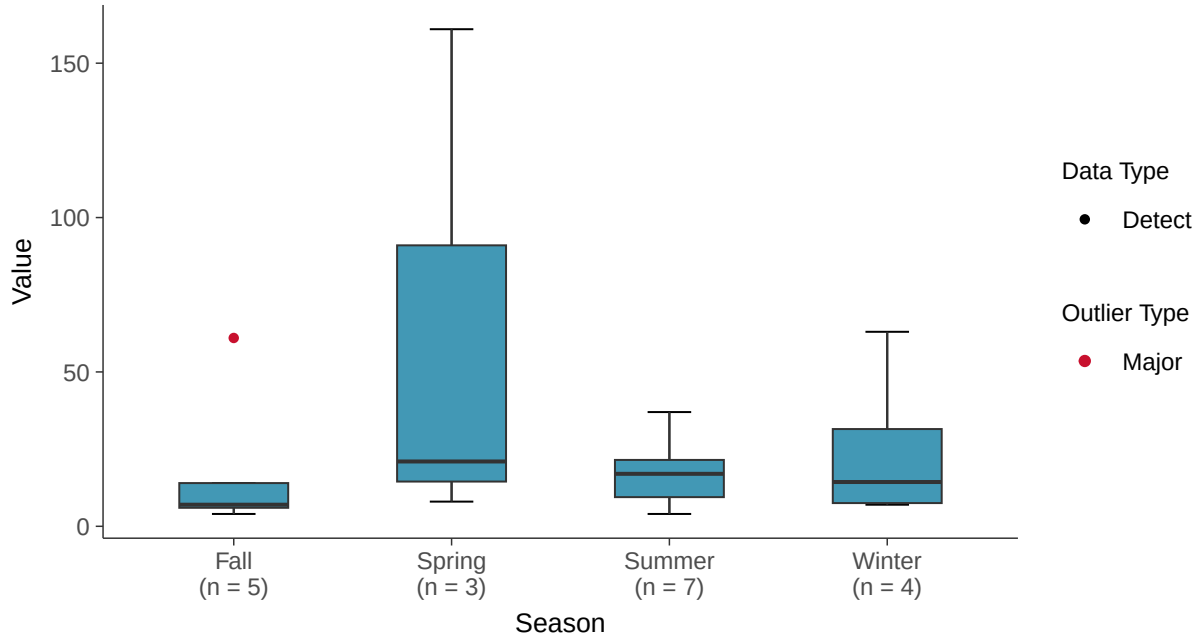
Boxplot

Total Suspended Solids, MW-5 (mg/L)



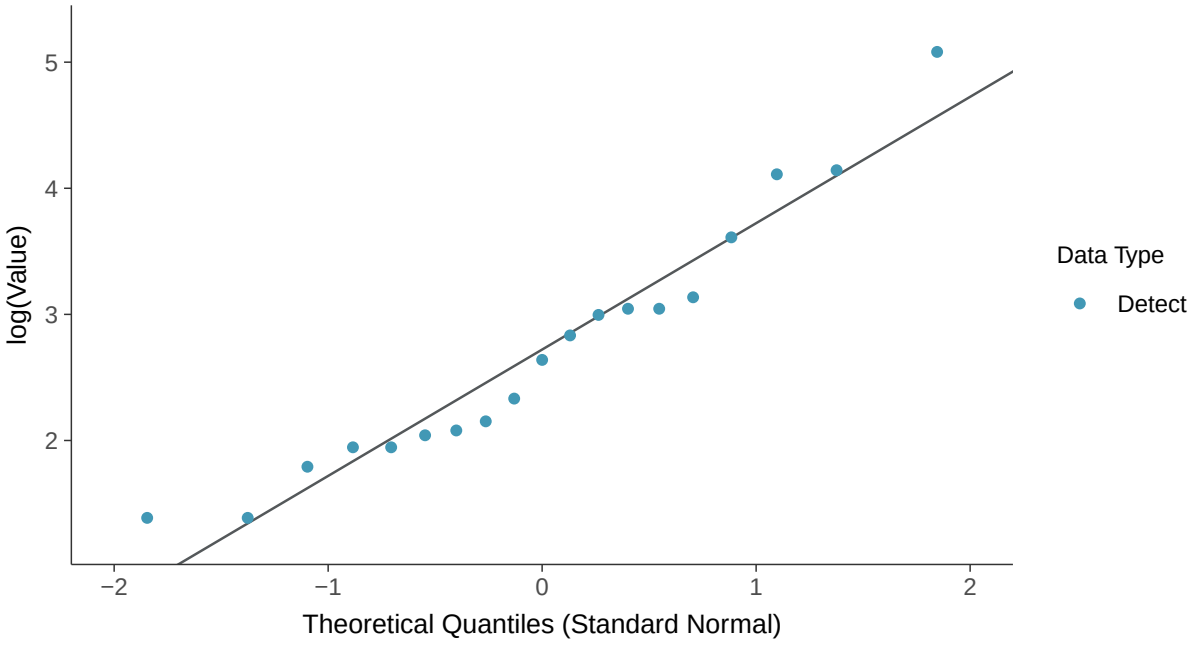
Boxplot by Season

Total Suspended Solids, MW-5 (mg/L)



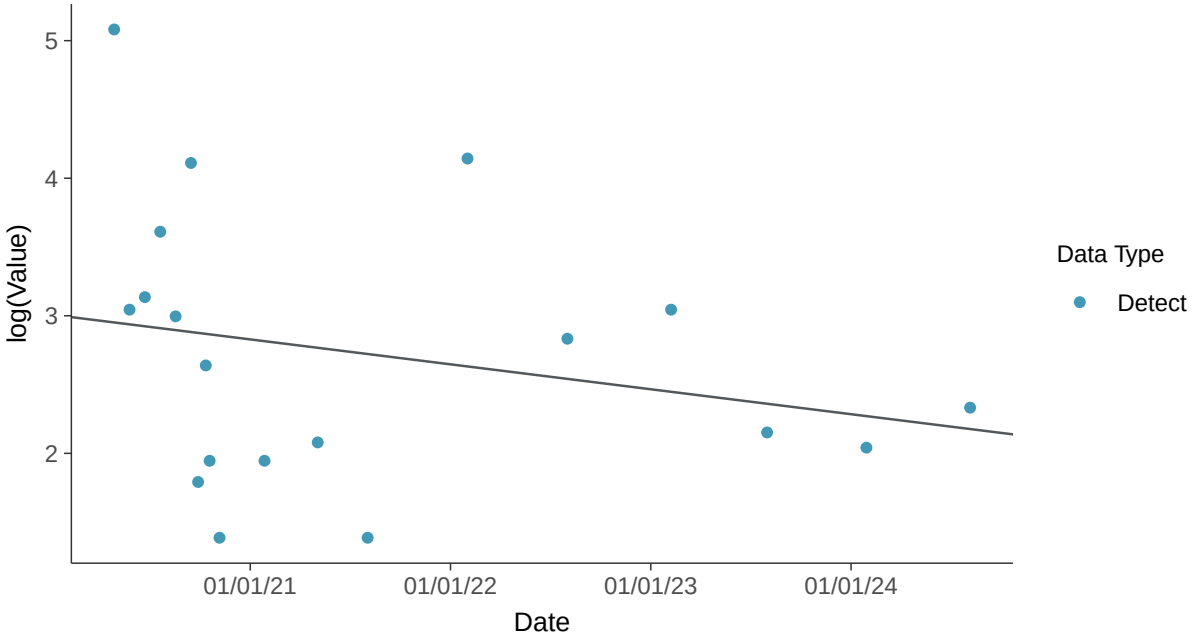
Lognormal Q-Q plot

Total Suspended Solids, MW-5 (mg/L)



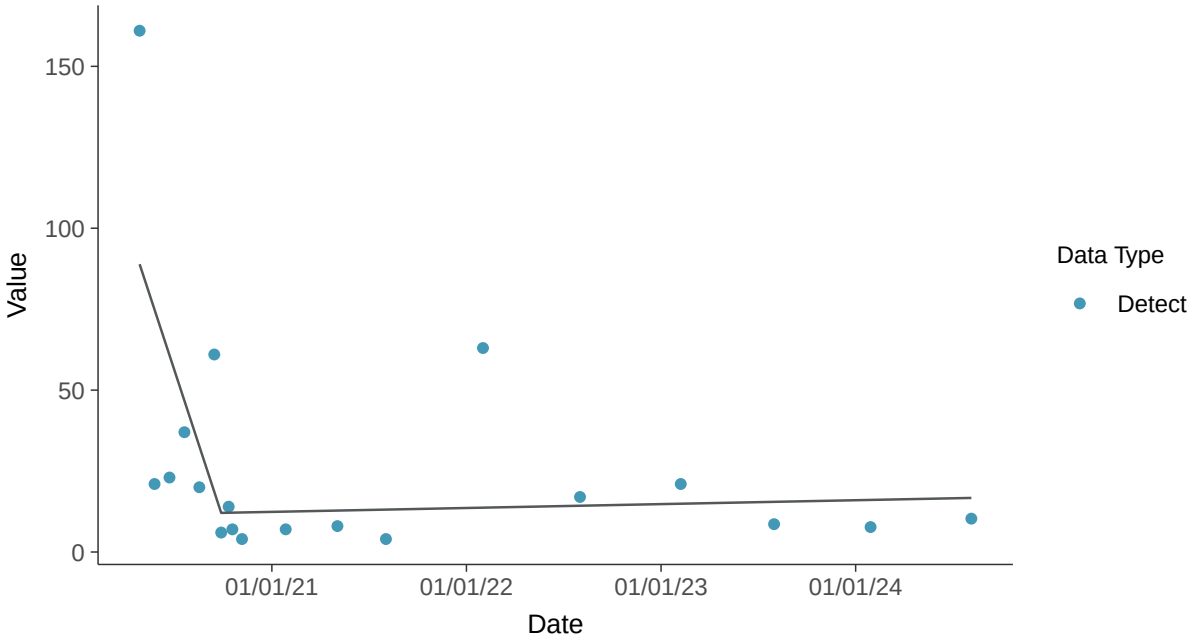
Trend Regression: Lognormal MLE

Total Suspended Solids, MW-5 (mg/L)



Trend Regression: Piecewise Linear-Linear

Total Suspended Solids, MW-5 (mg/L)

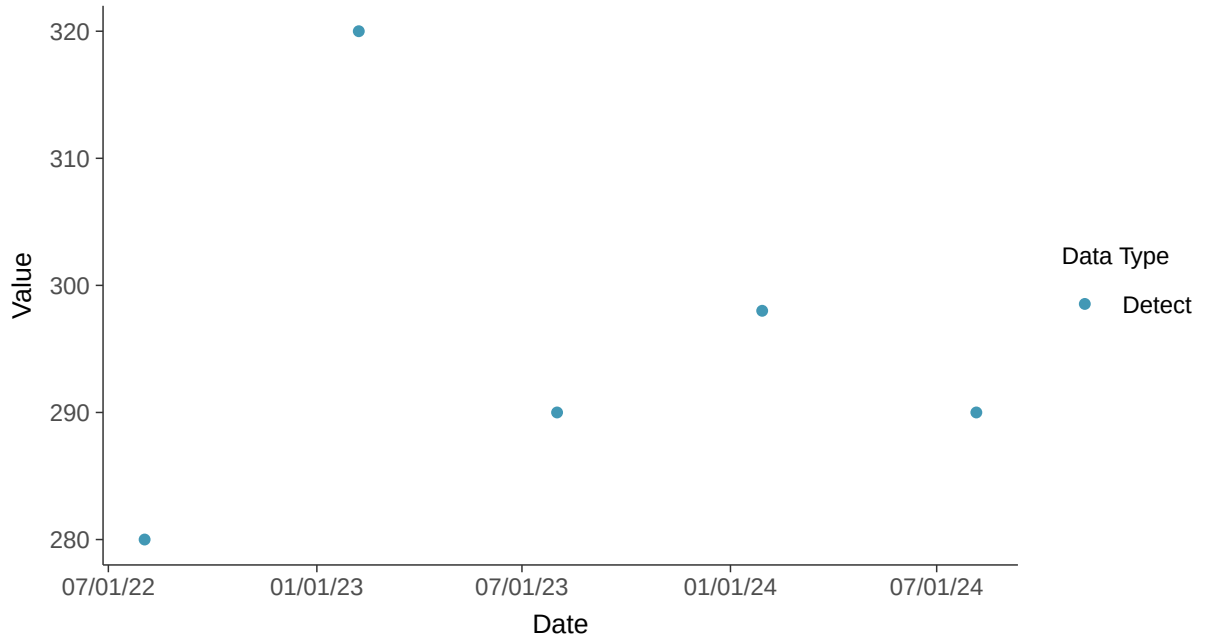


Other: Bicarbonate, MW-5

ID: 05_4_31

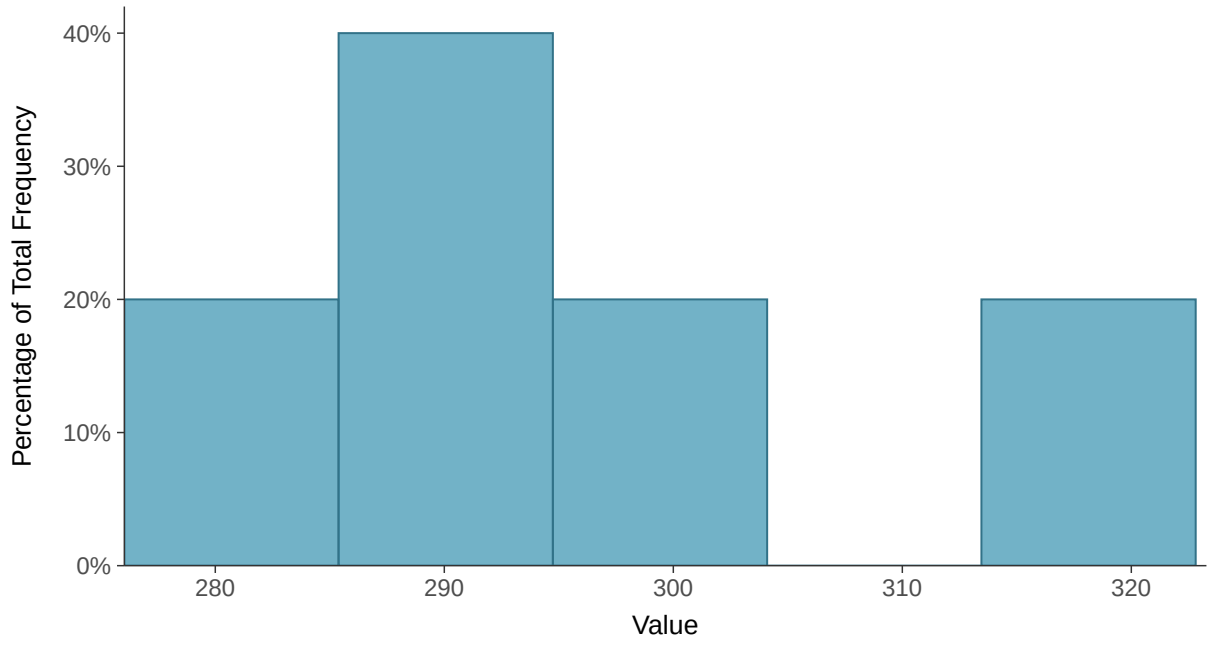
Scatter Plot

Bicarbonate, MW-5 (mg/L)



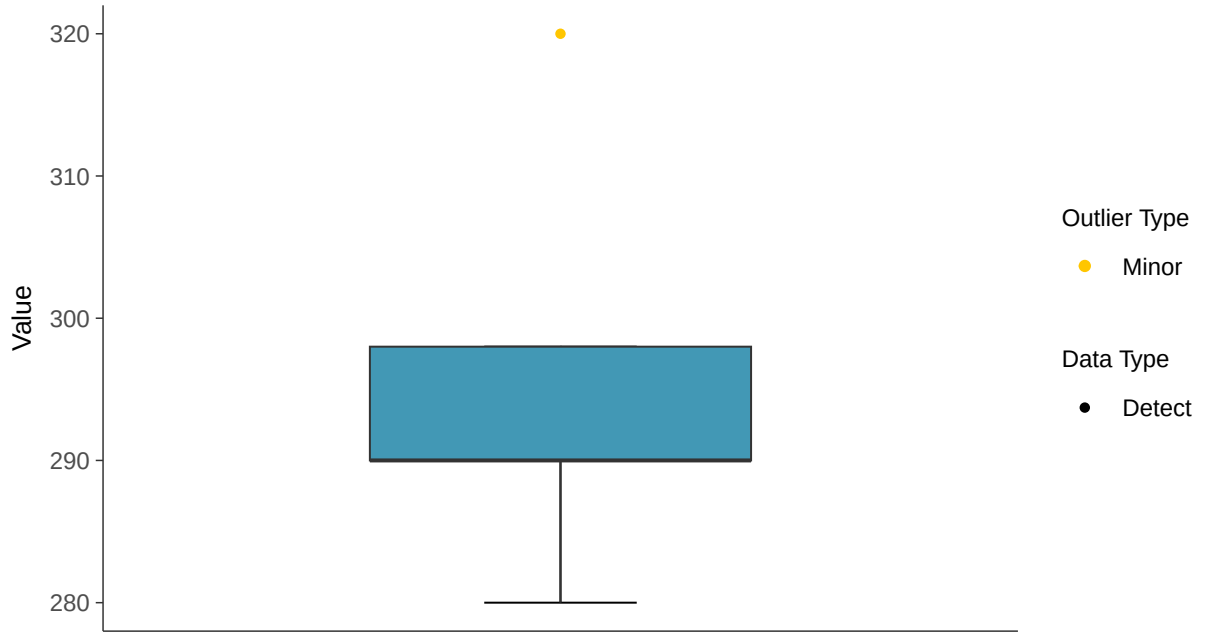
Histogram

Bicarbonate, MW-5 (mg/L)



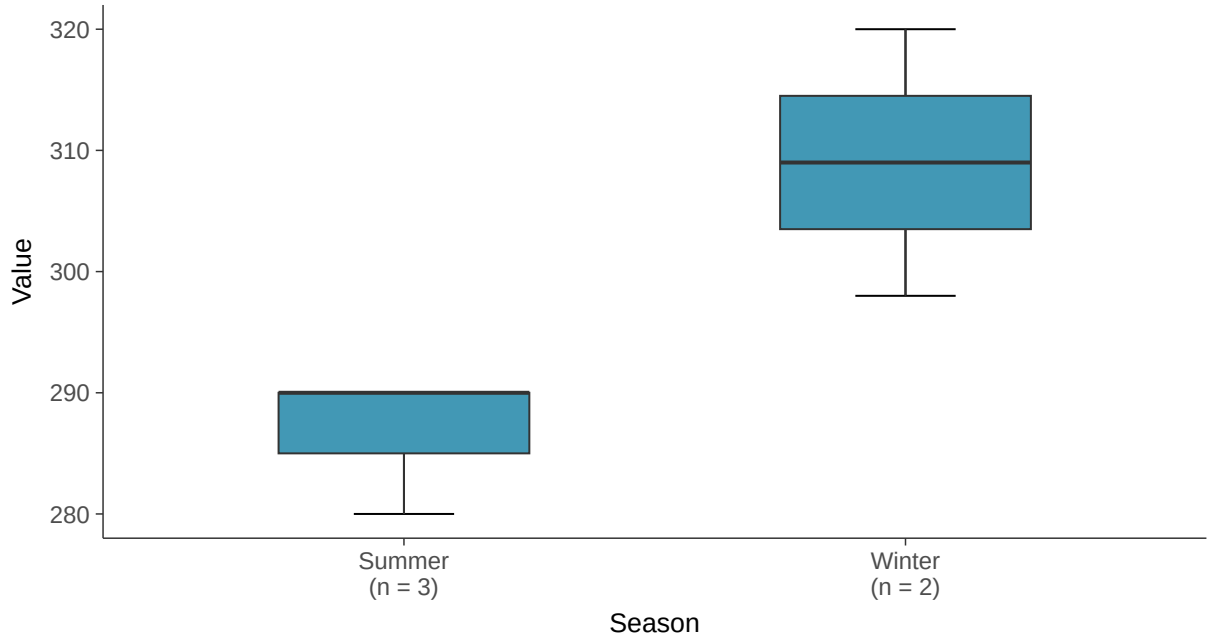
Boxplot

Bicarbonate, MW-5 (mg/L)



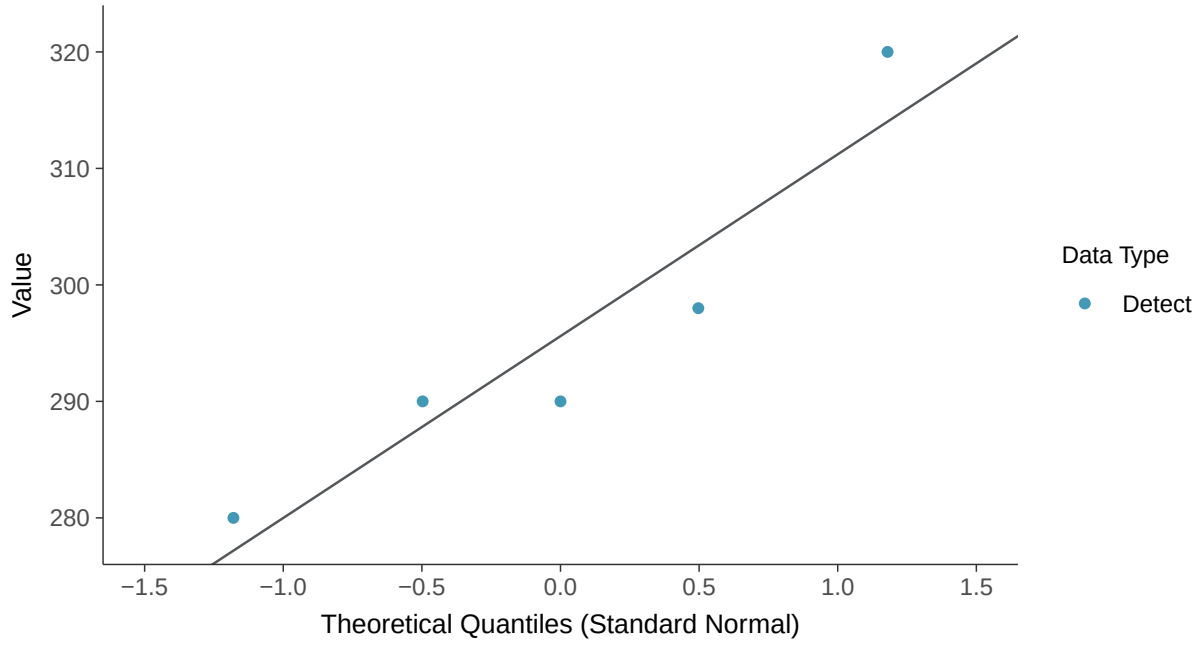
Boxplot by Season

Bicarbonate, MW-5 (mg/L)



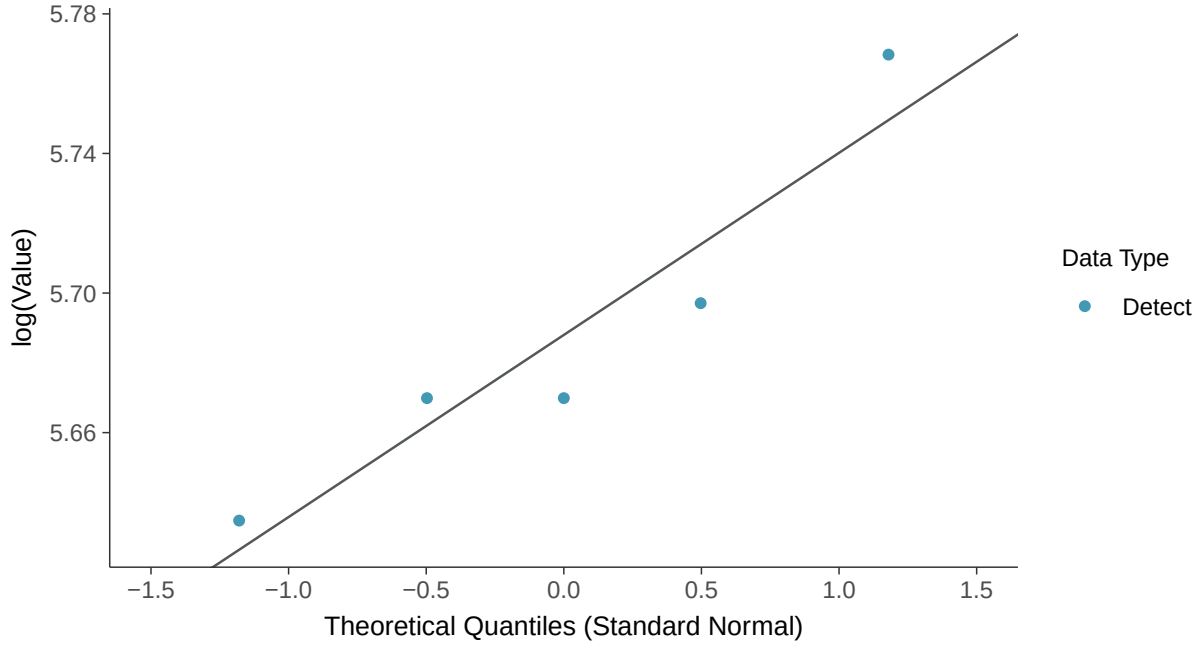
Normal Q-Q plot

Bicarbonate, MW-5 (mg/L)



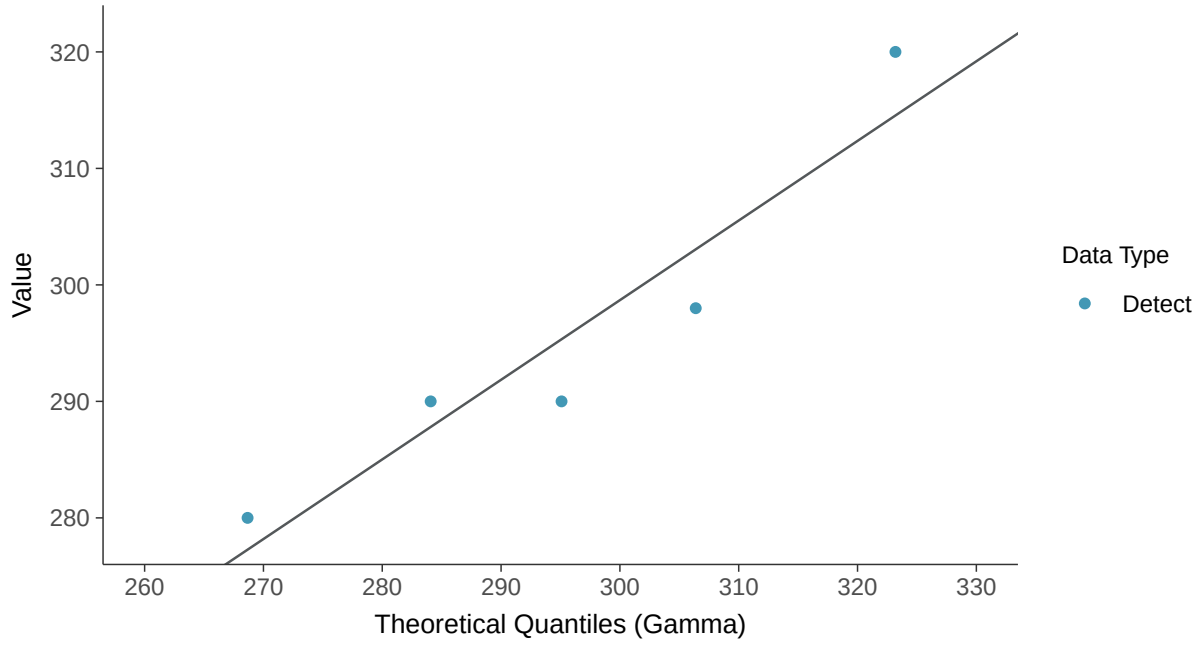
Lognormal Q-Q plot

Bicarbonate, MW-5 (mg/L)



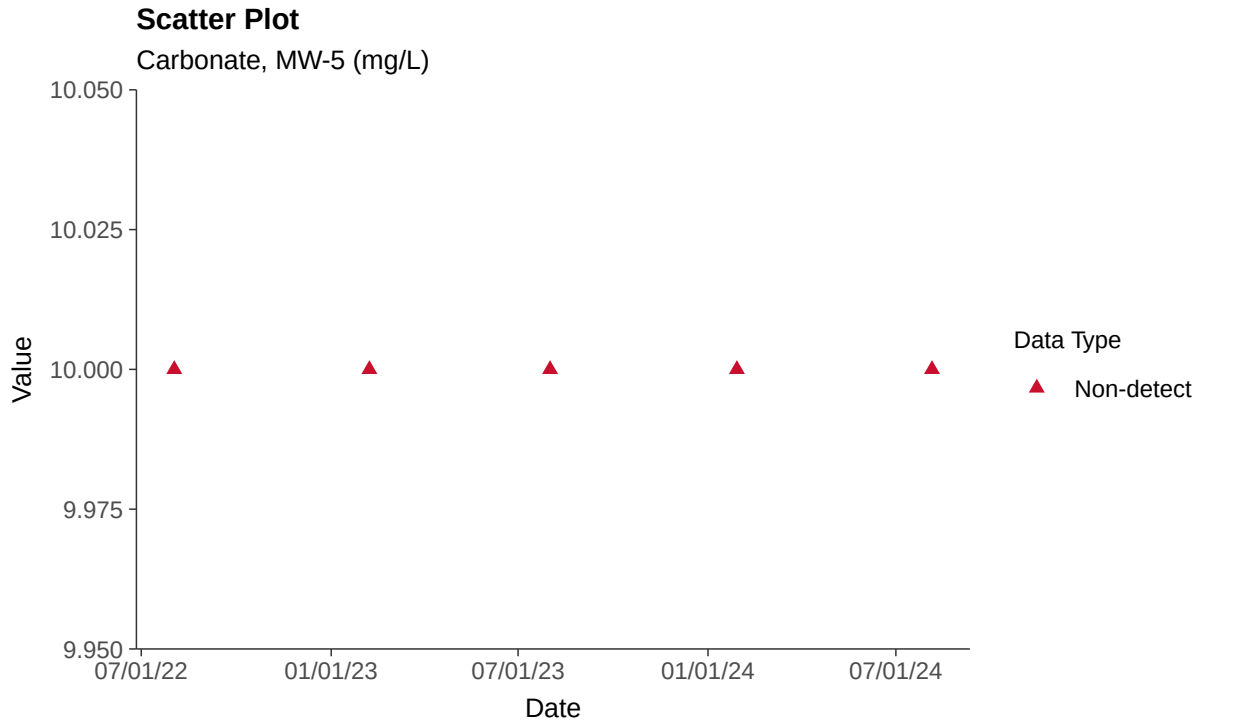
Gamma Q-Q plot

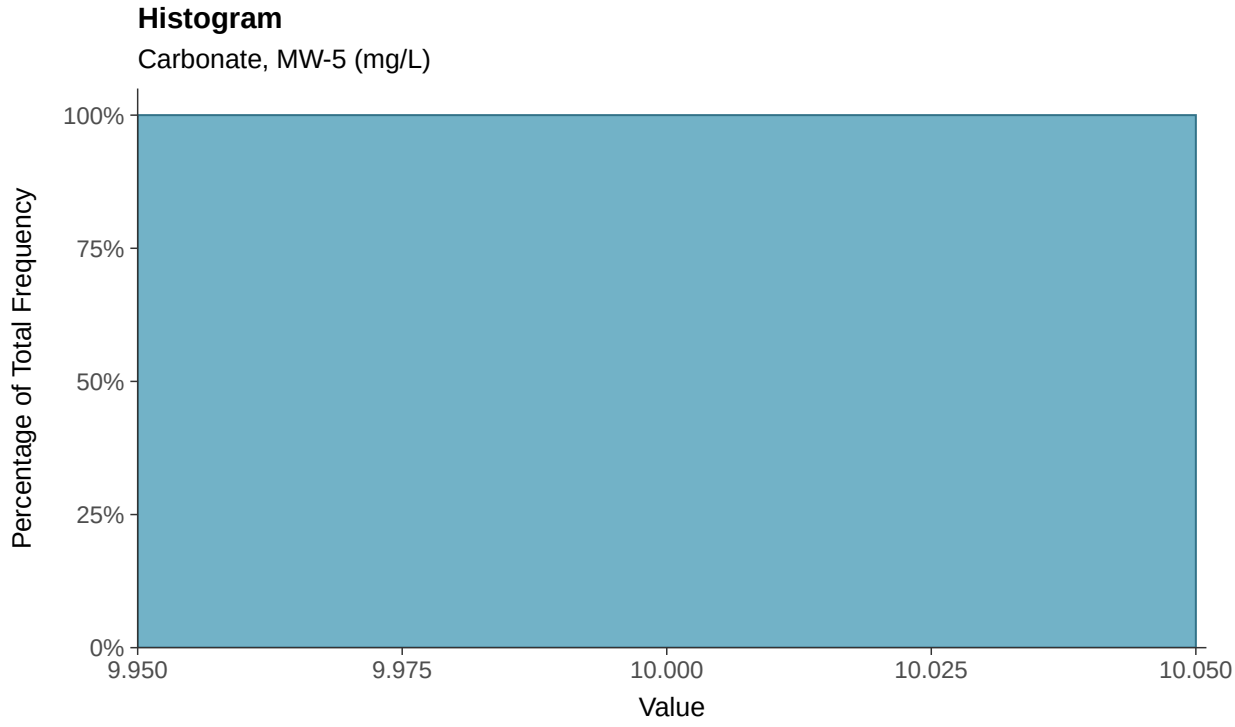
Bicarbonate, MW-5 (mg/L)



Other: Carbonate, MW-5

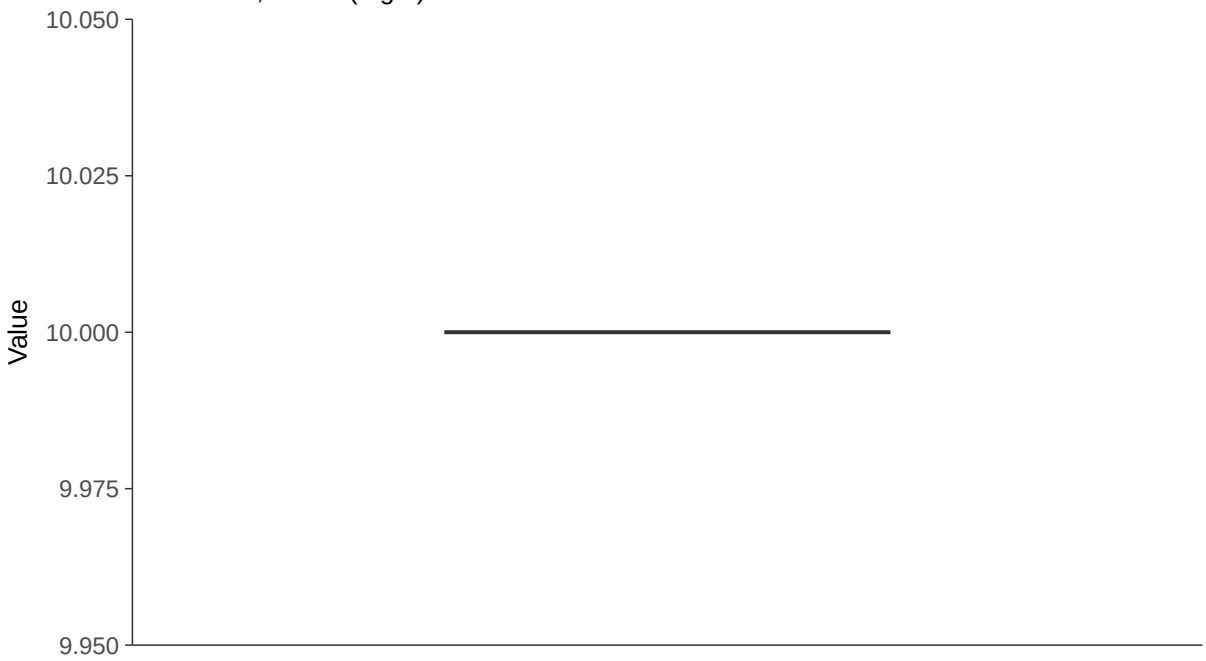
ID: 05_4_32





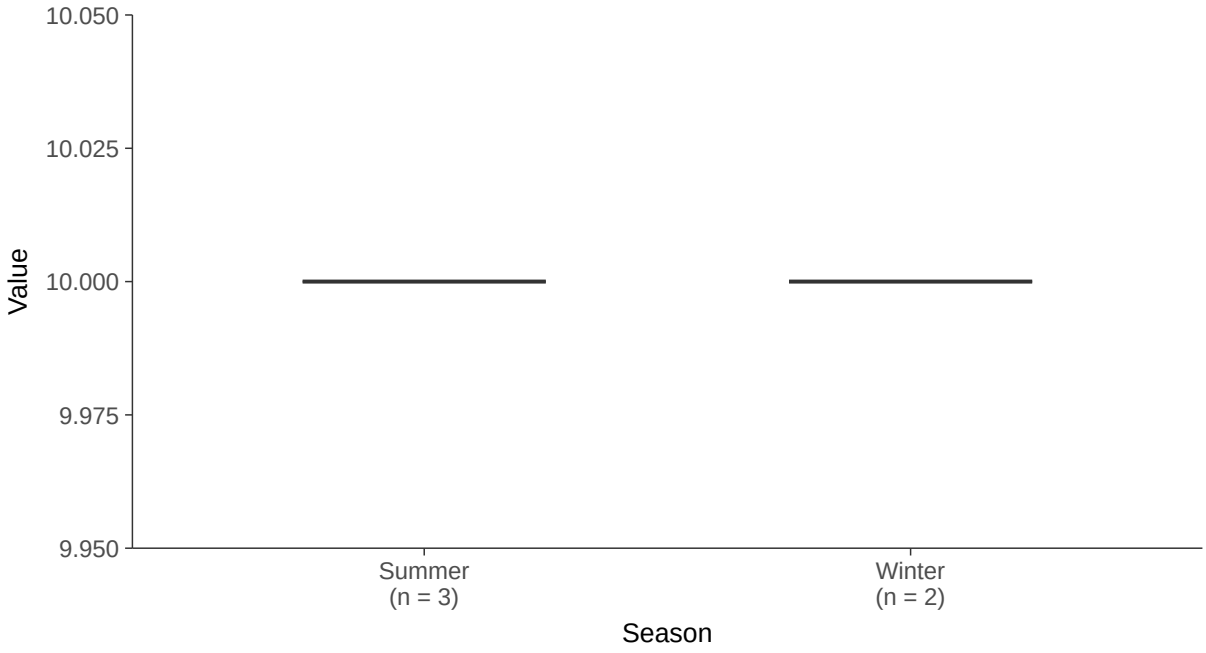
Boxplot

Carbonate, MW-5 (mg/L)



Boxplot by Season

Carbonate, MW-5 (mg/L)

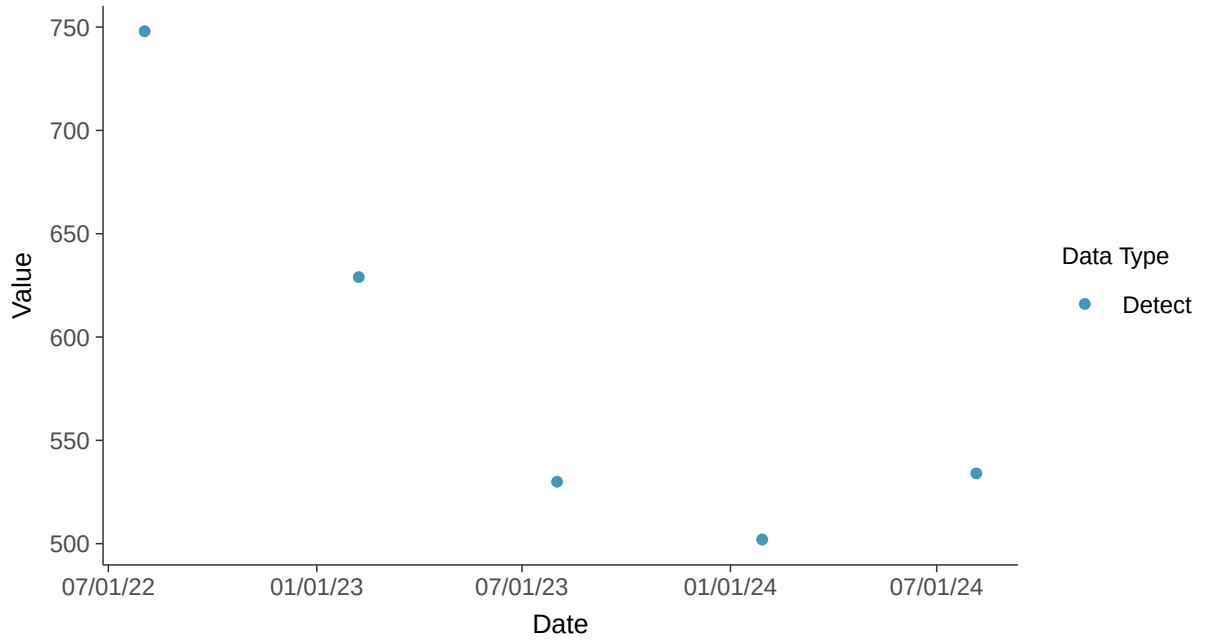


Other: Hardness, MW-5

ID: 05_4_33

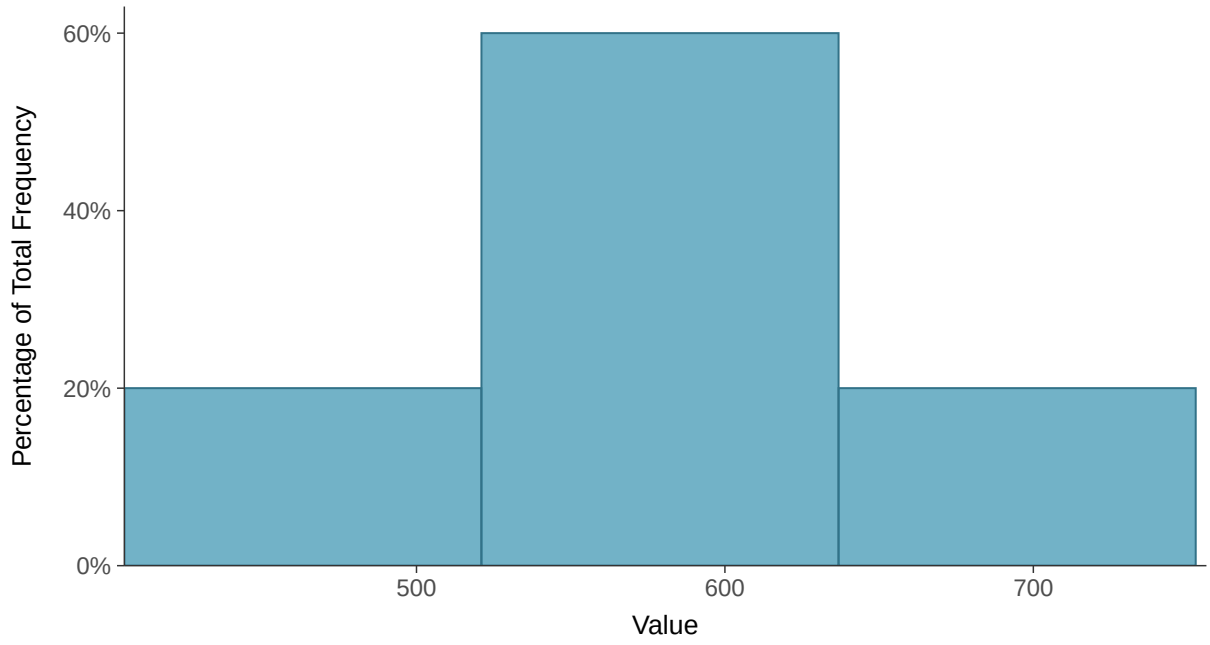
Scatter Plot

Hardness, MW-5 (mg/L)



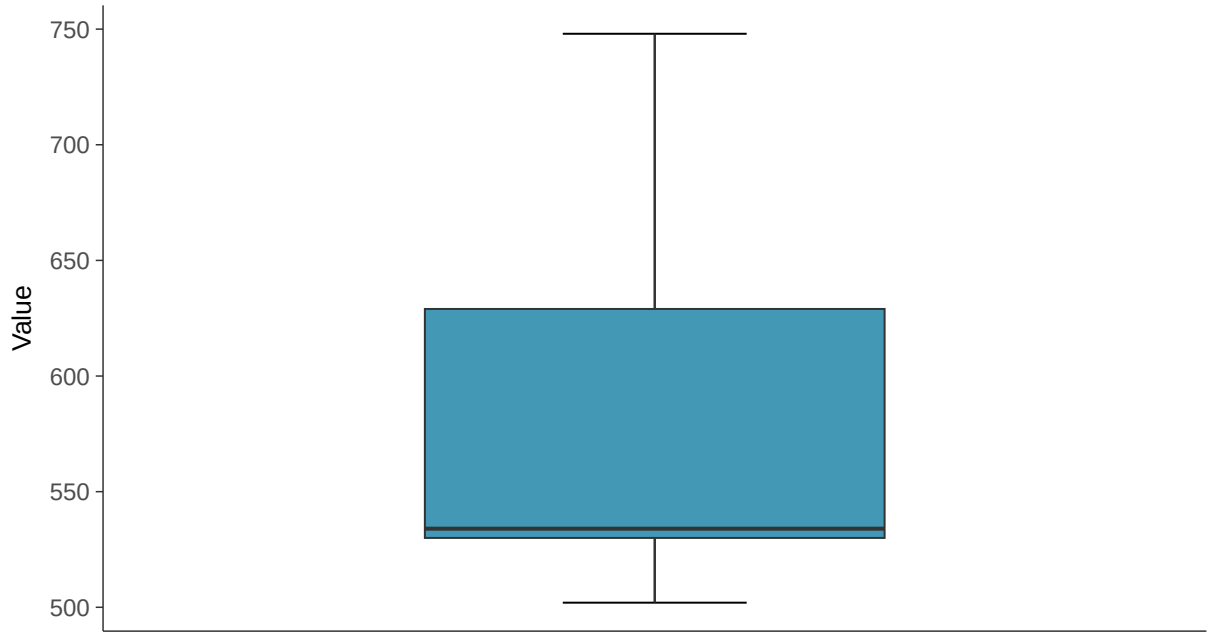
Histogram

Hardness, MW-5 (mg/L)



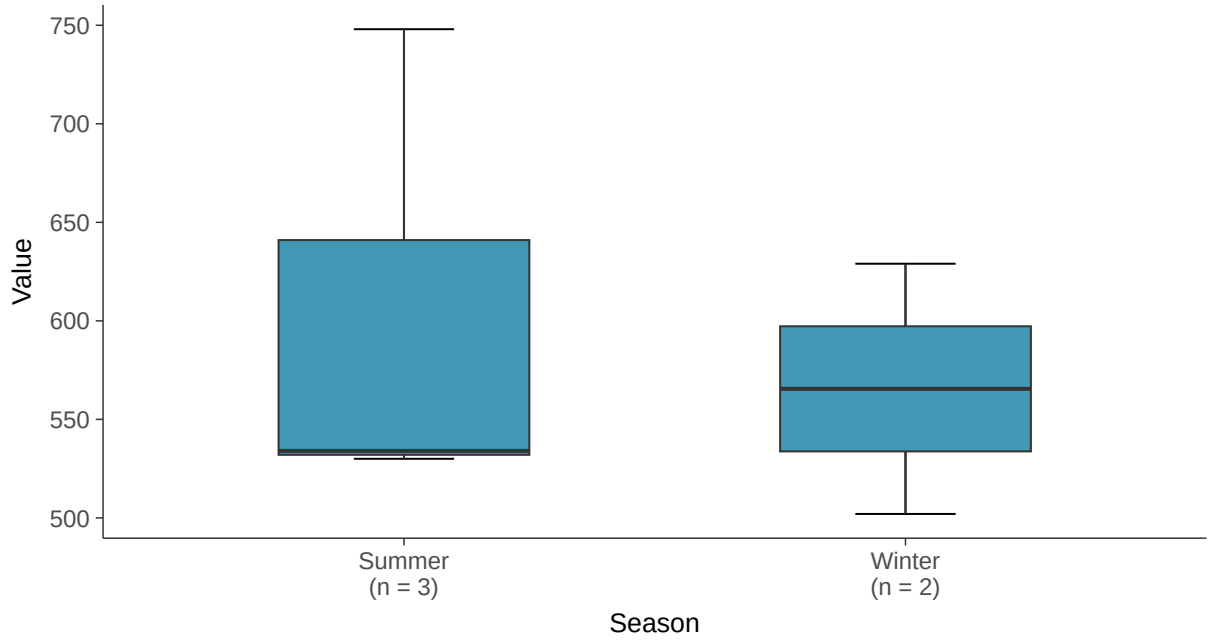
Boxplot

Hardness, MW-5 (mg/L)



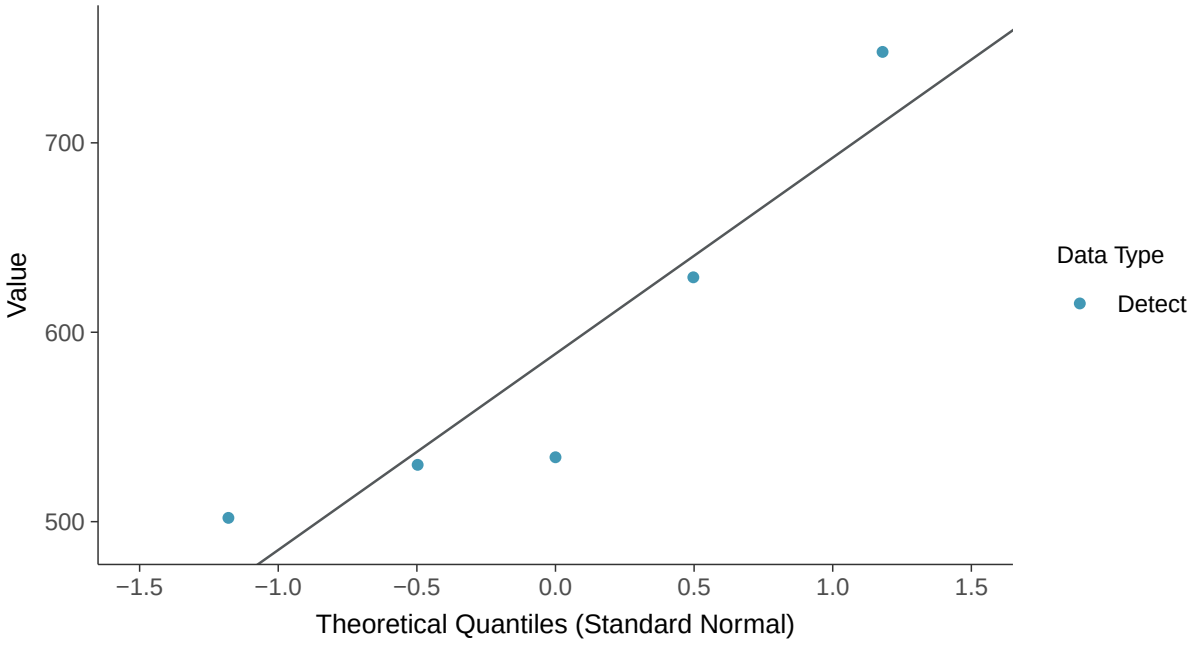
Boxplot by Season

Hardness, MW-5 (mg/L)



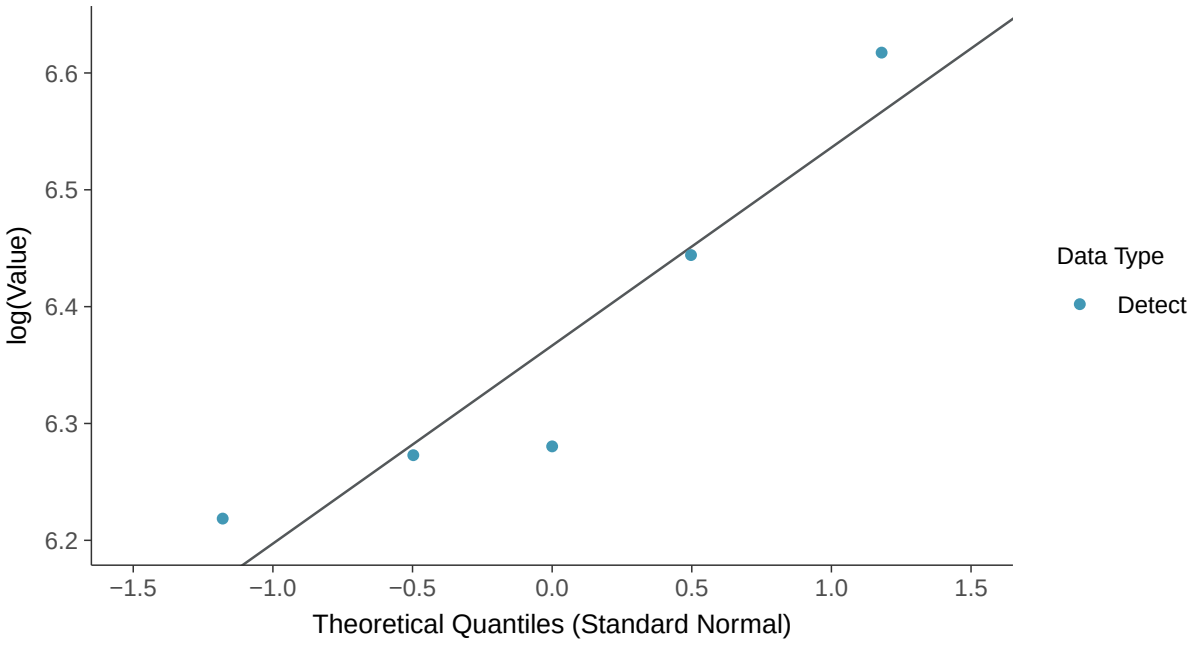
Normal Q-Q plot

Hardness, MW-5 (mg/L)



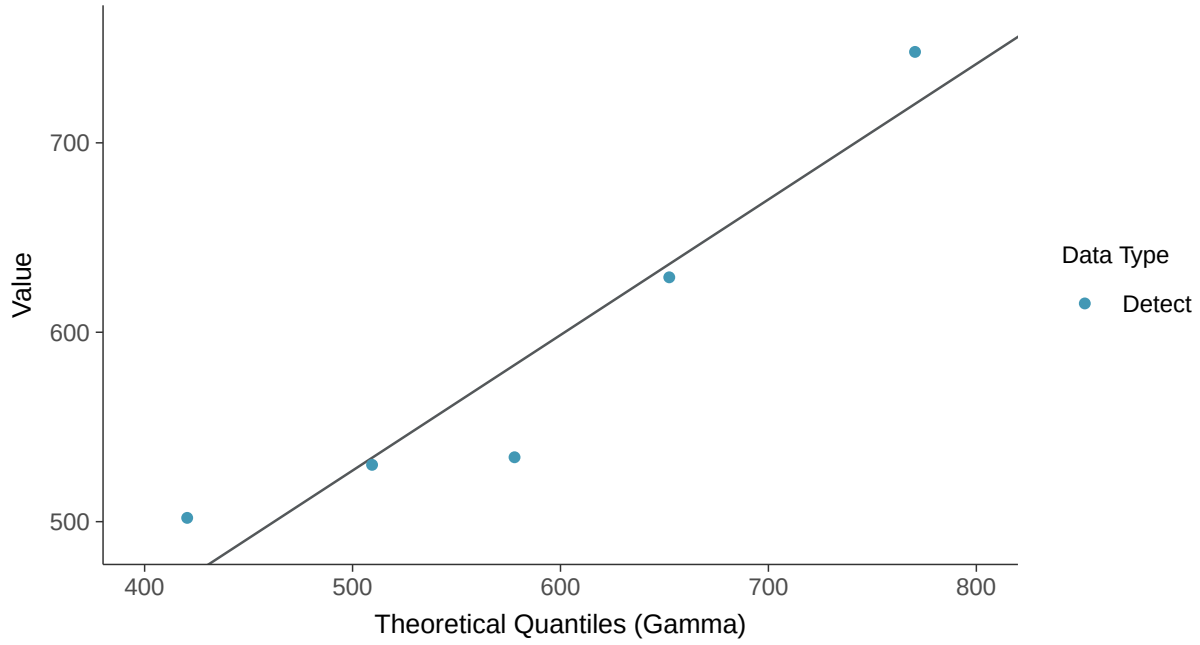
Lognormal Q-Q plot

Hardness, MW-5 (mg/L)



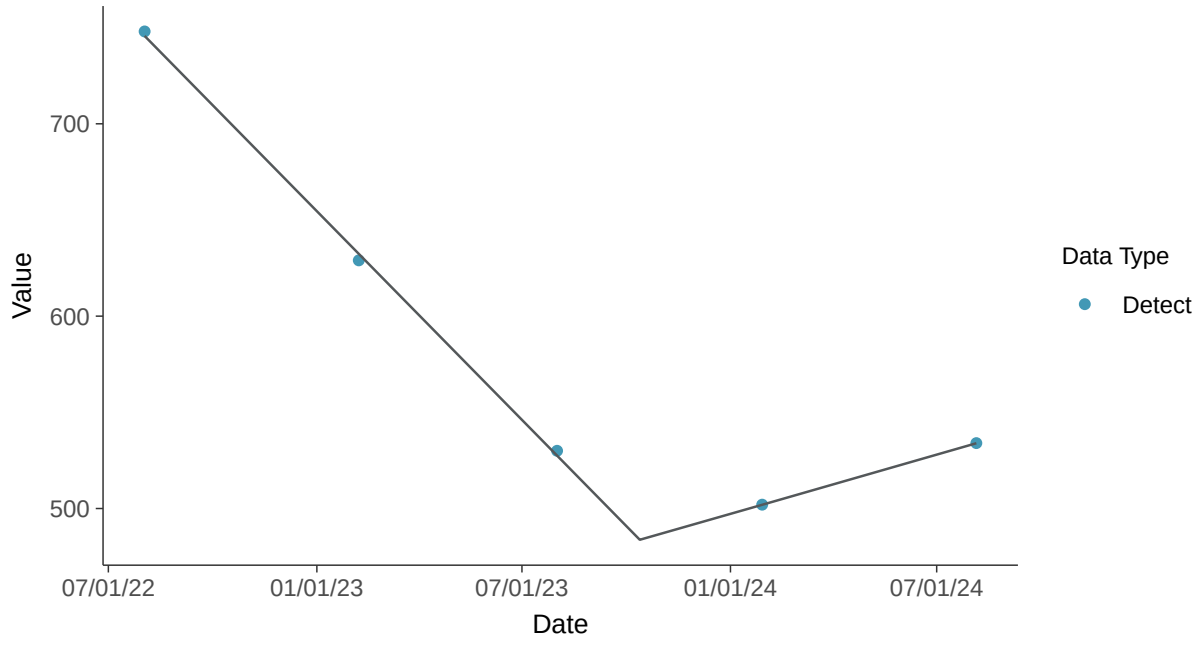
Gamma Q-Q plot

Hardness, MW-5 (mg/L)



Trend Regression: Piecewise Linear-Linear

Hardness, MW-5 (mg/L)

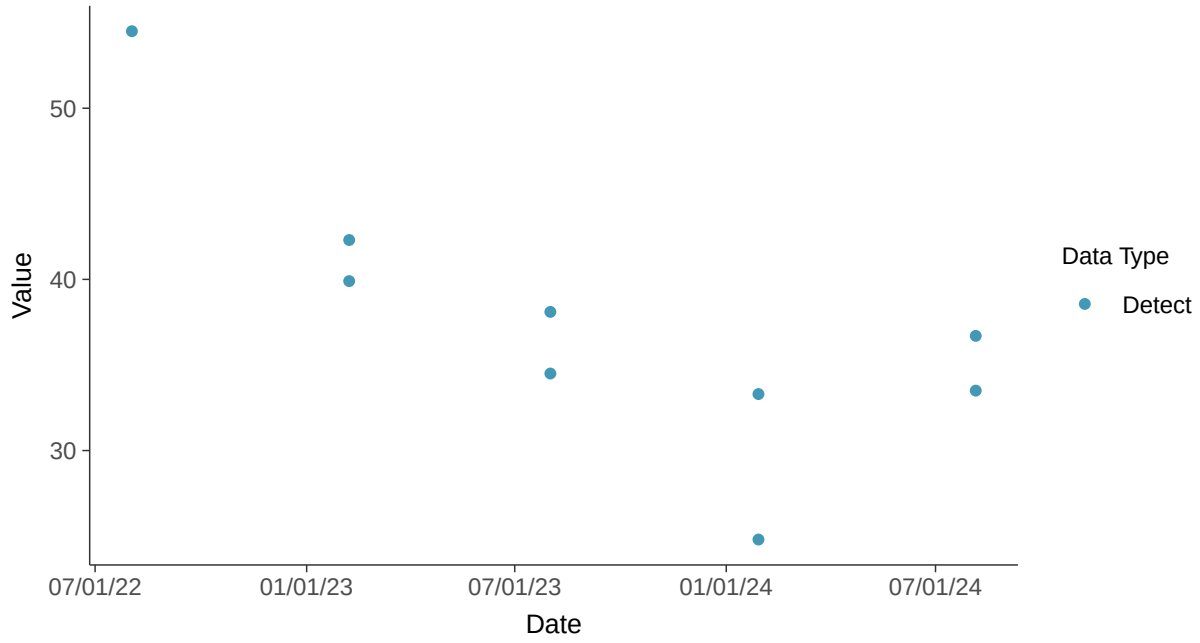


Other: Magnesium, MW-5

ID: 05_4_34

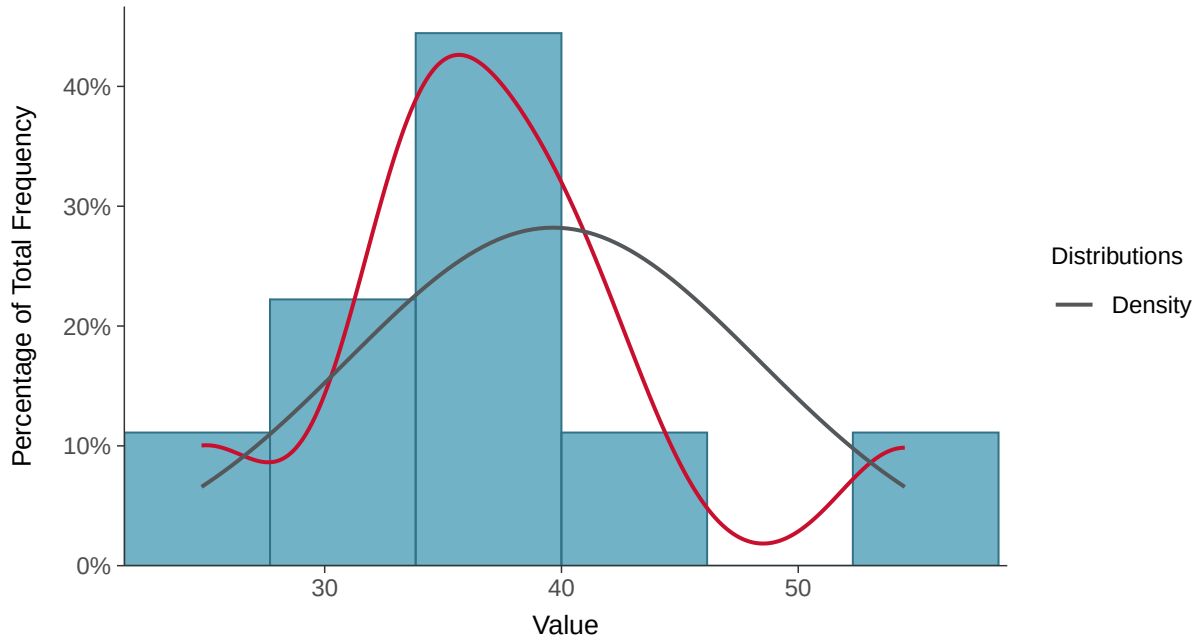
Scatter Plot

Magnesium, MW-5 (mg/L)



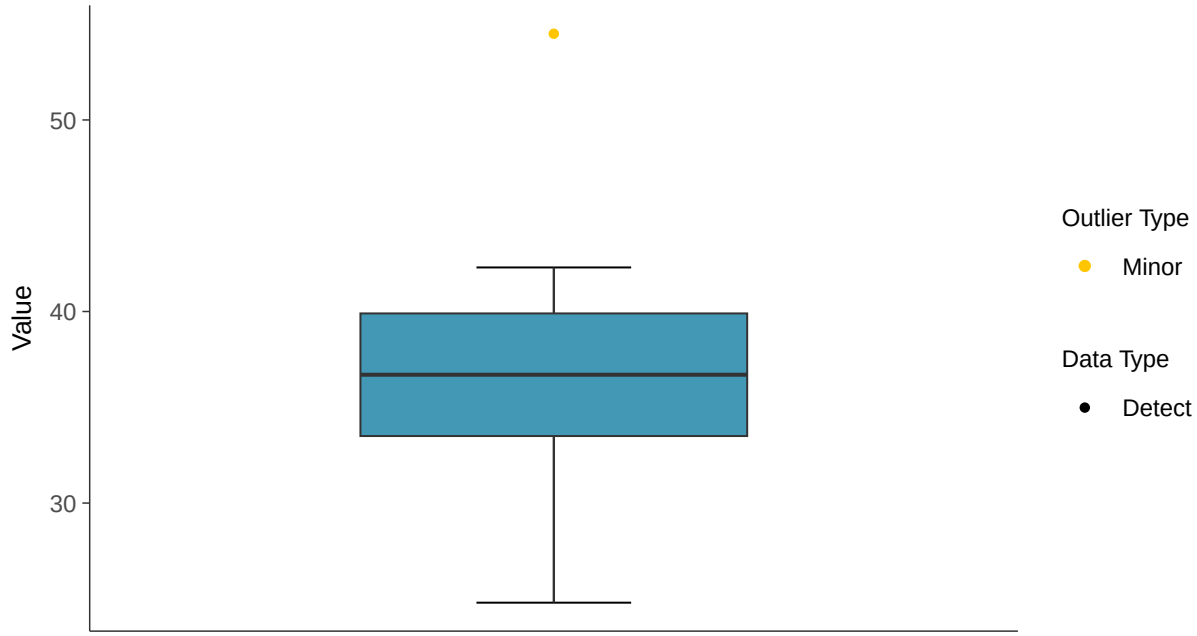
Histogram

Magnesium, MW-5 (mg/L)



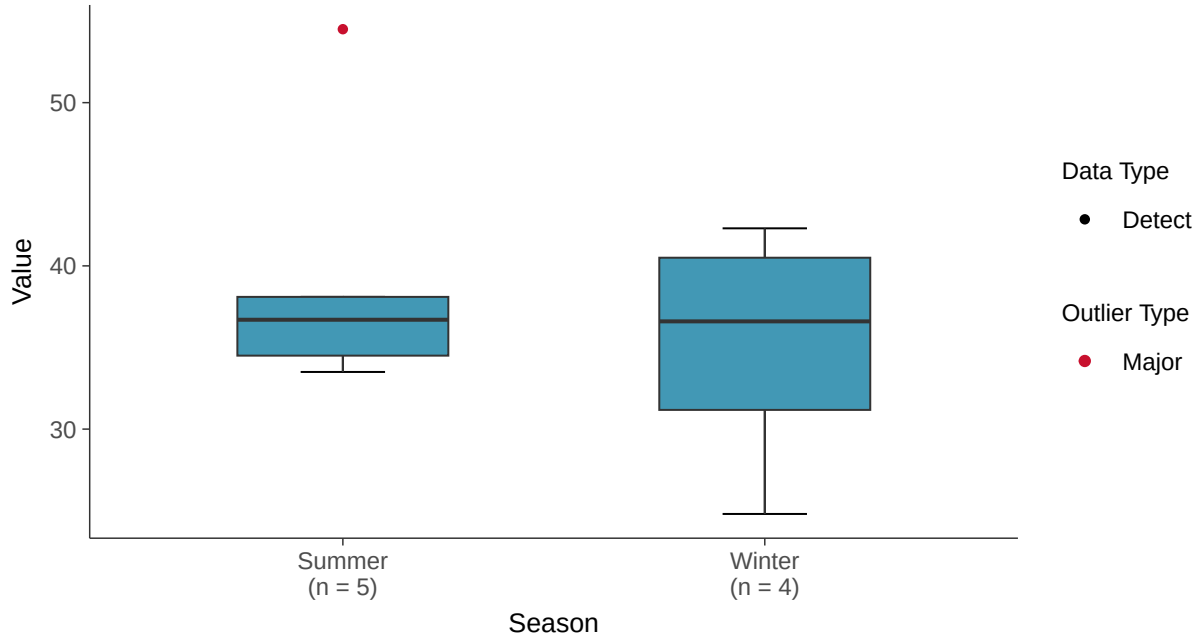
Boxplot

Magnesium, MW-5 (mg/L)



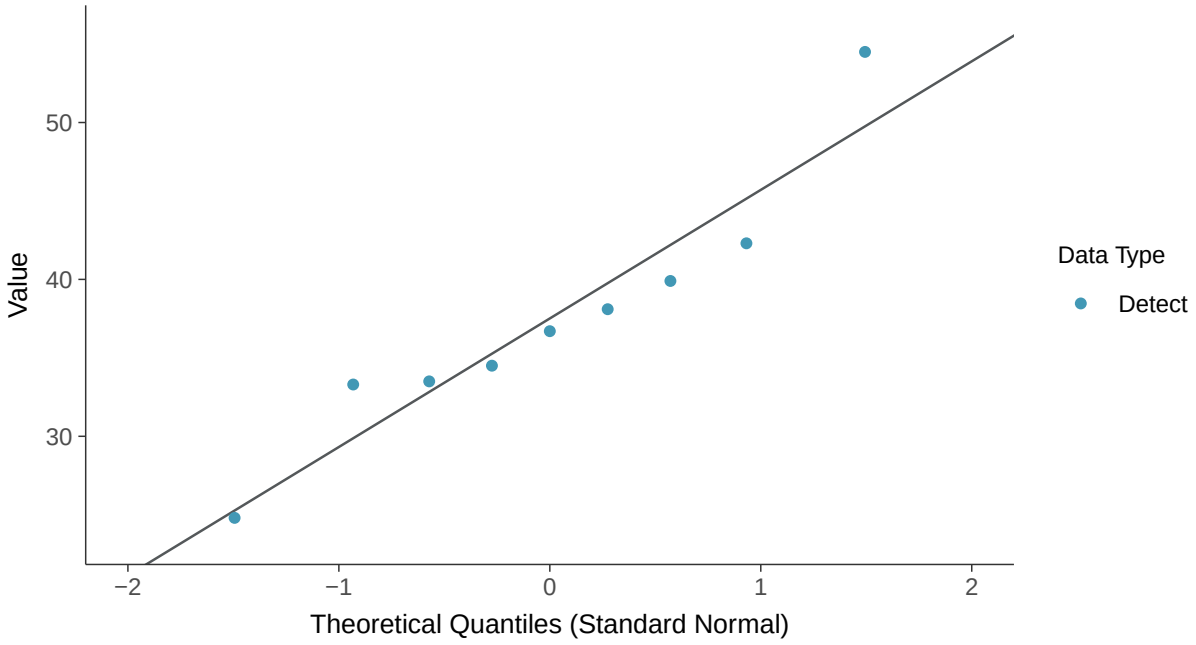
Boxplot by Season

Magnesium, MW-5 (mg/L)



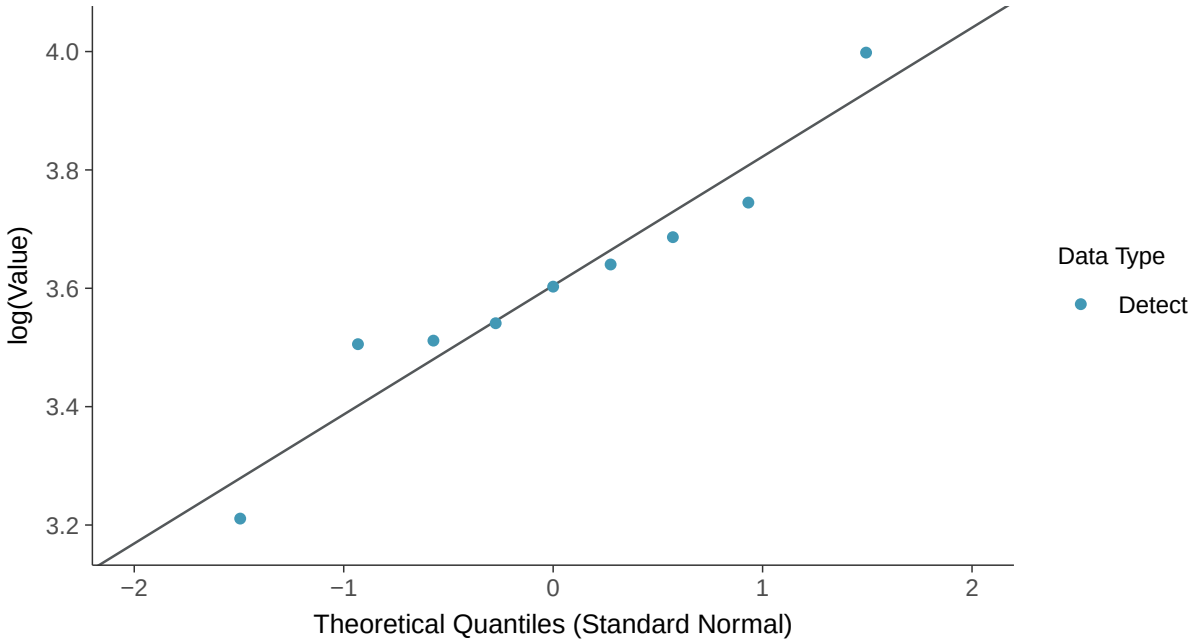
Normal Q-Q plot

Magnesium, MW-5 (mg/L)



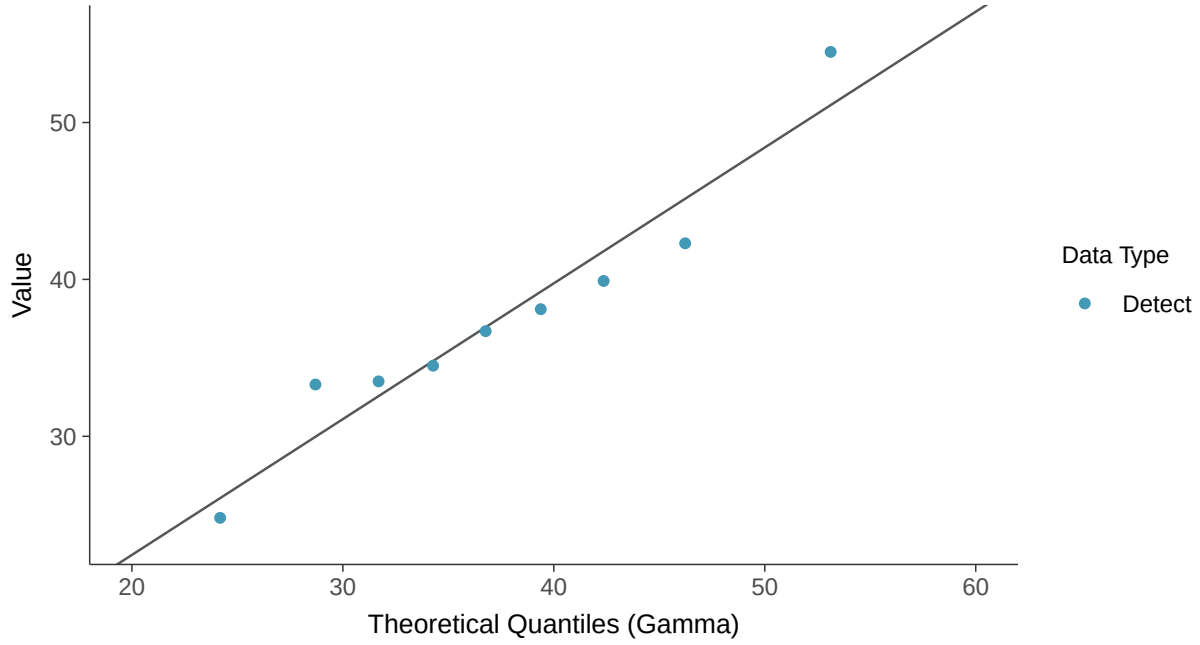
Lognormal Q-Q plot

Magnesium, MW-5 (mg/L)



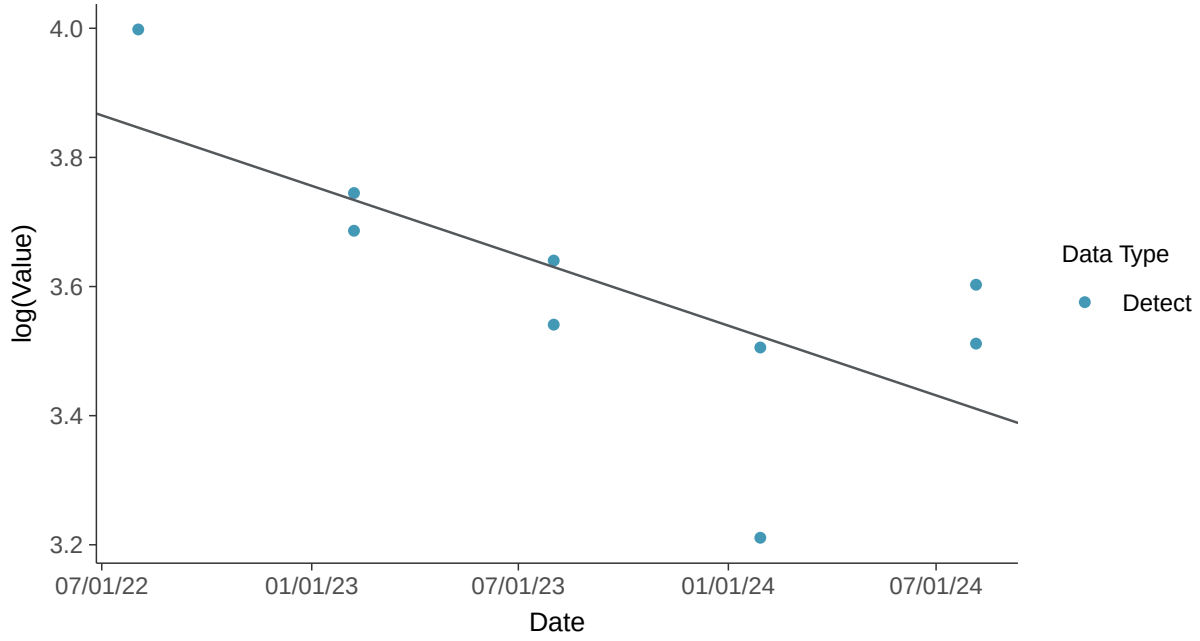
Gamma Q-Q plot

Magnesium, MW-5 (mg/L)



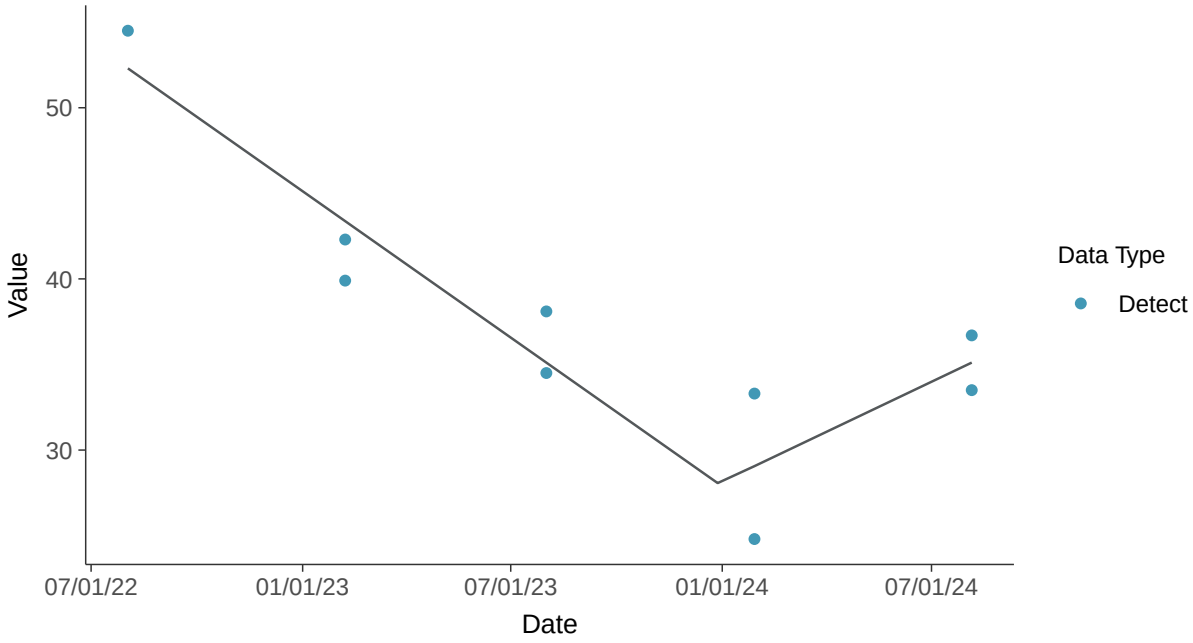
Trend Regression: Lognormal MLE

Magnesium, MW-5 (mg/L)



Trend Regression: Piecewise Linear-Linear

Magnesium, MW-5 (mg/L)

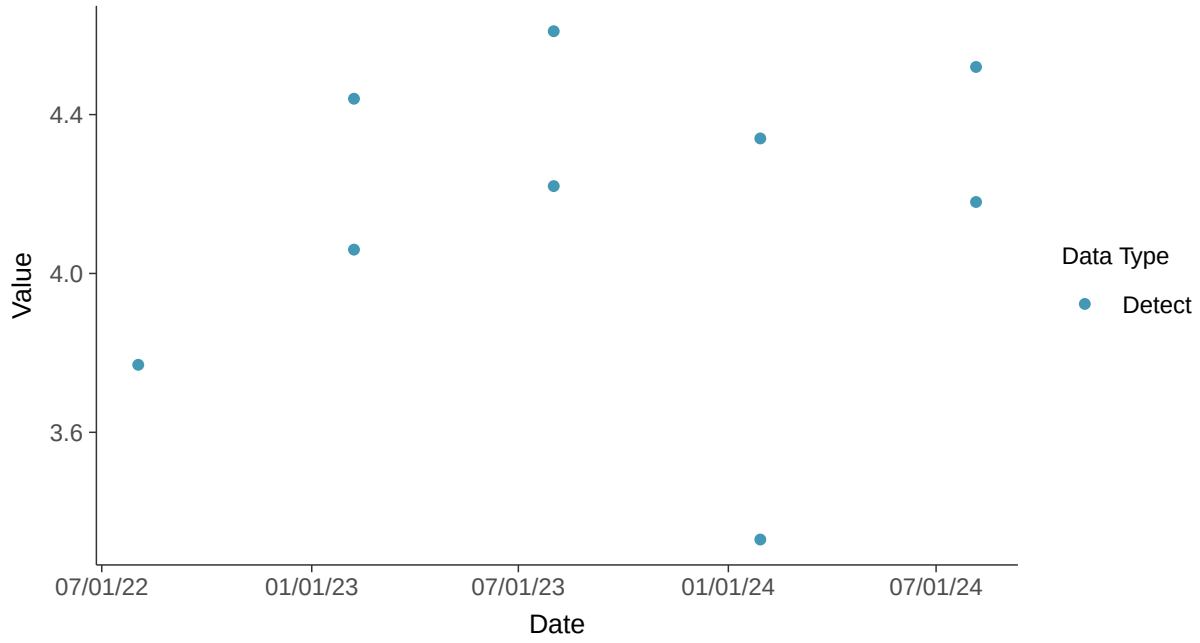


Other: Potassium, MW-5

ID: 05_4_35

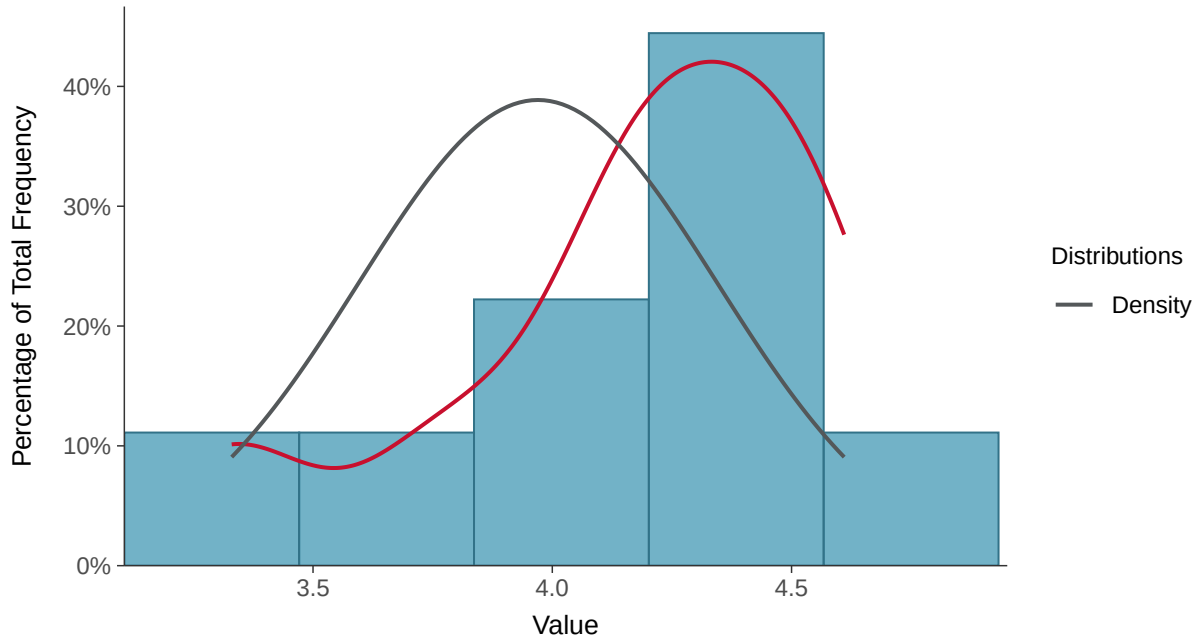
Scatter Plot

Potassium, MW-5 (mg/L)



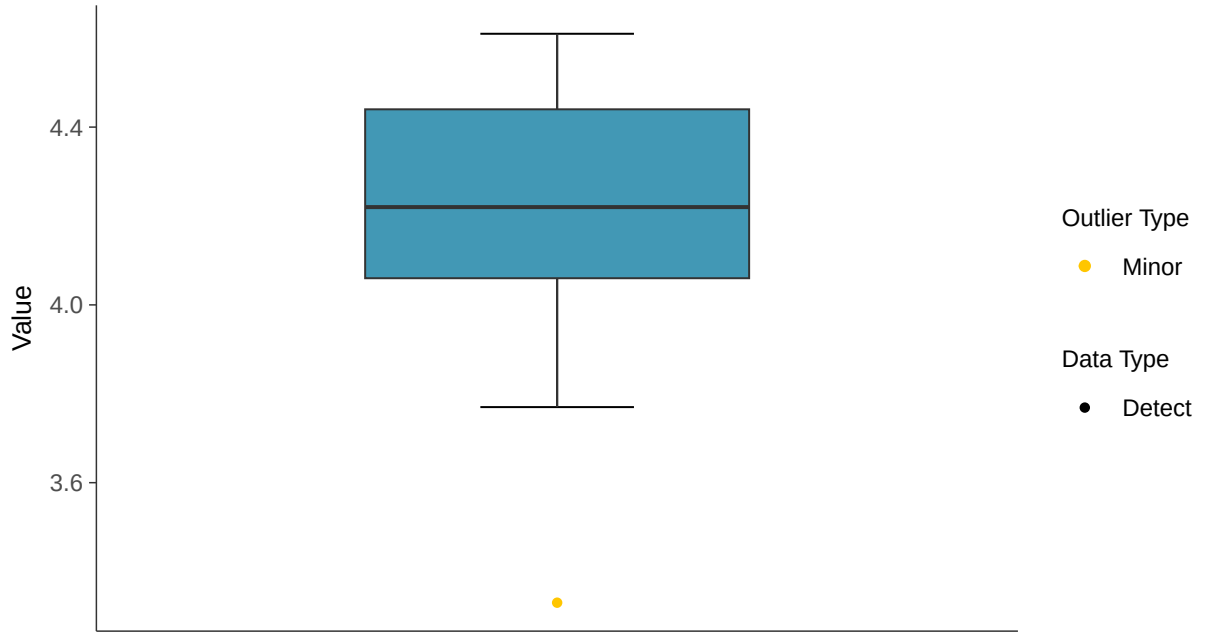
Histogram

Potassium, MW-5 (mg/L)



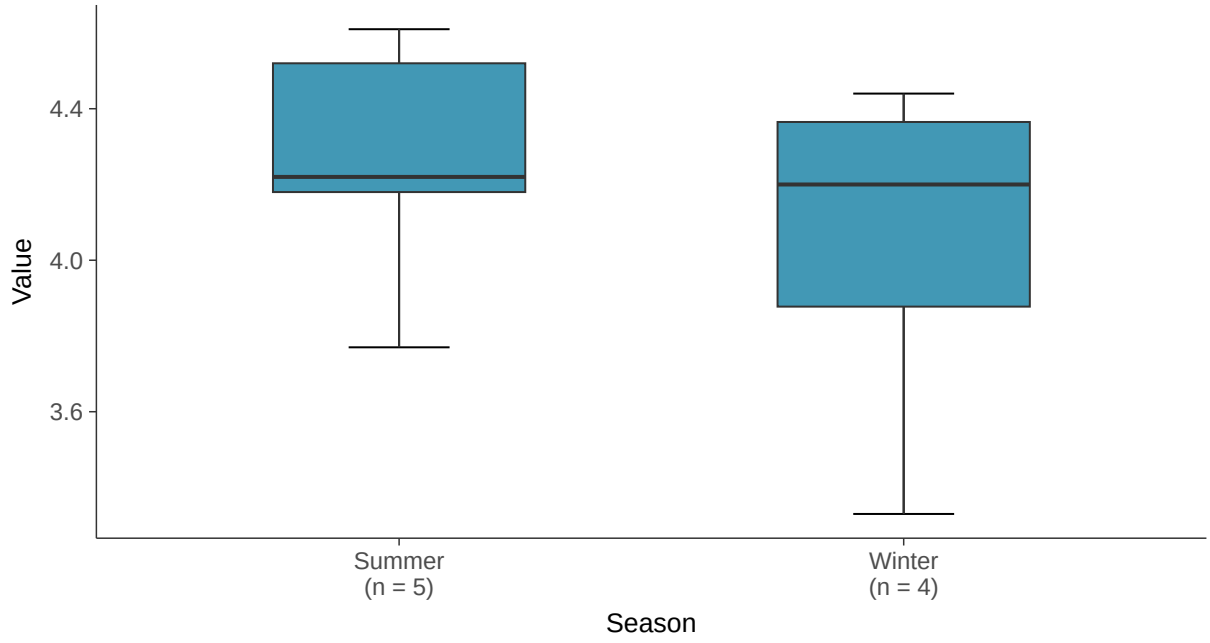
Boxplot

Potassium, MW-5 (mg/L)



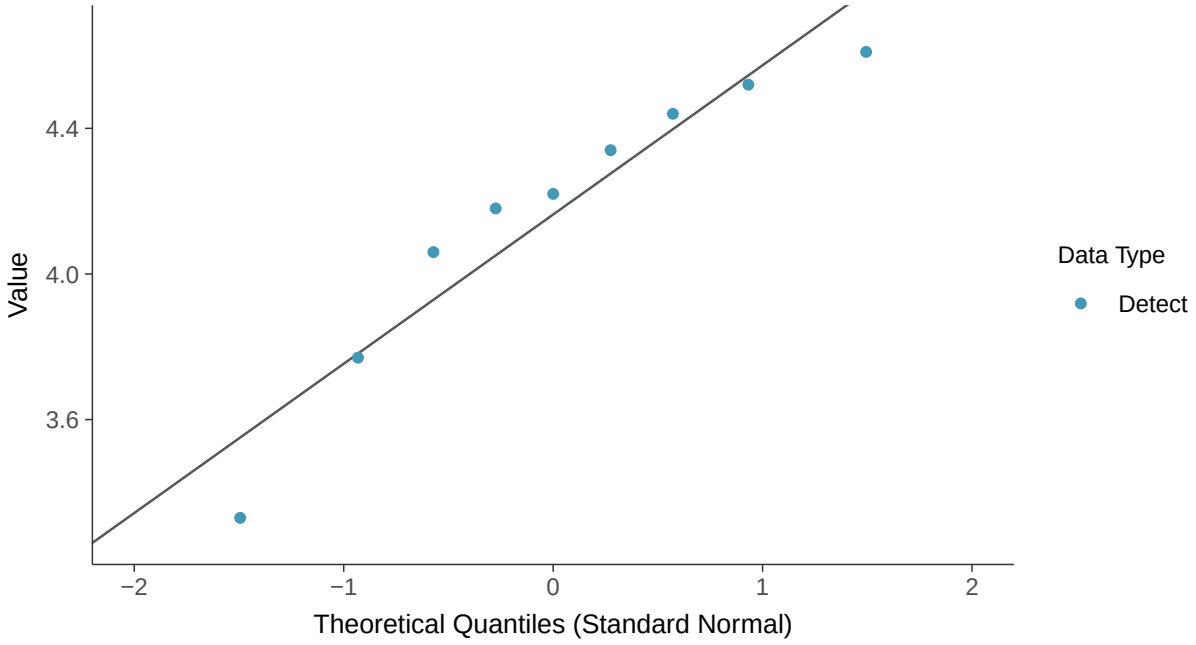
Boxplot by Season

Potassium, MW-5 (mg/L)



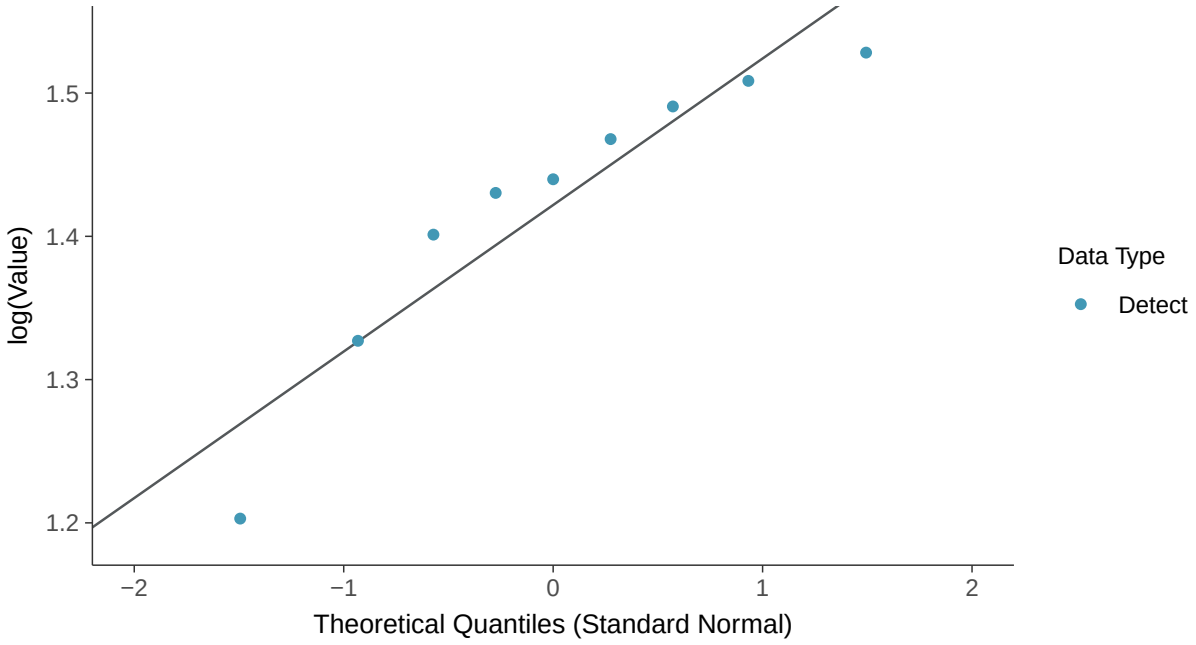
Normal Q-Q plot

Potassium, MW-5 (mg/L)



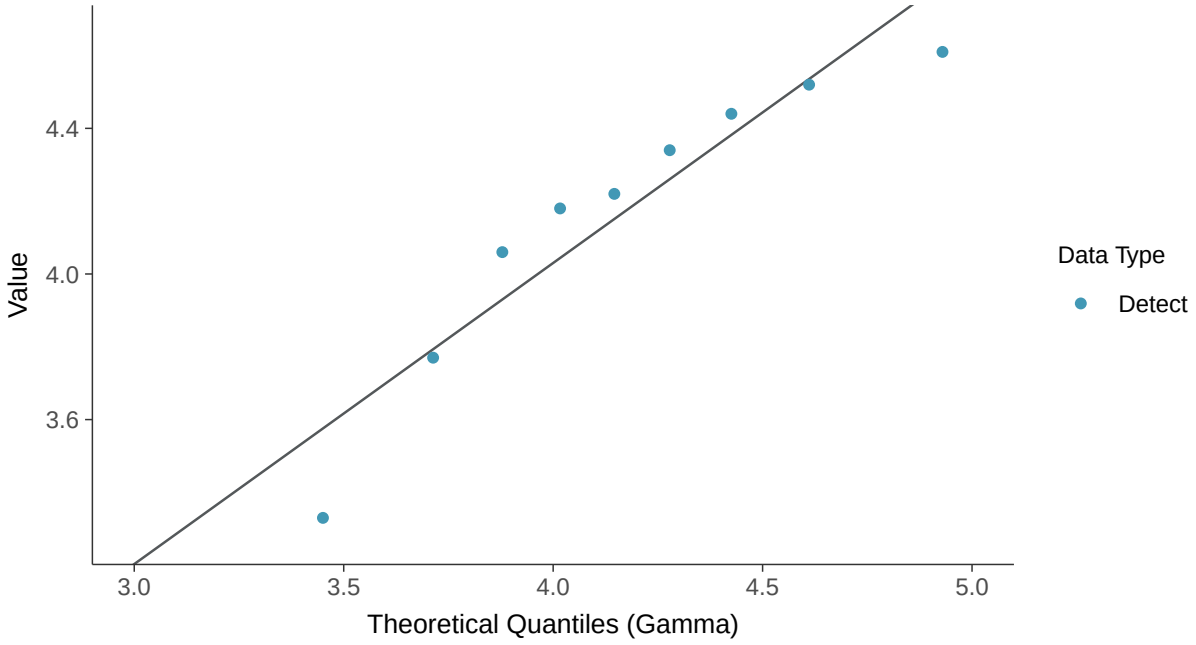
Lognormal Q-Q plot

Potassium, MW-5 (mg/L)



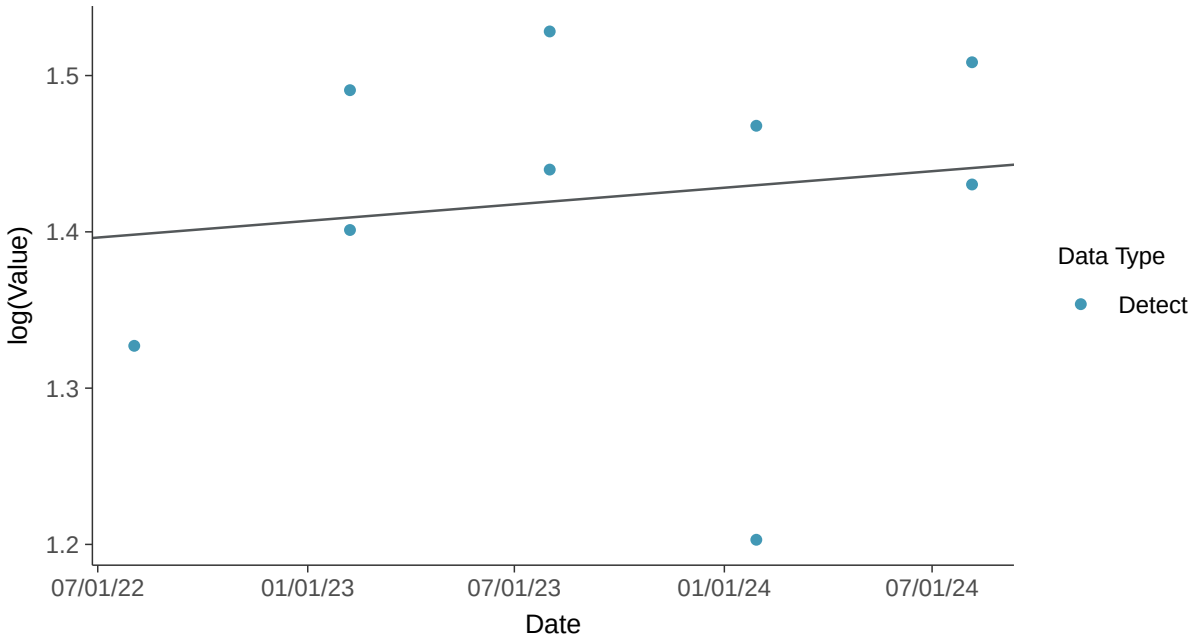
Gamma Q-Q plot

Potassium, MW-5 (mg/L)



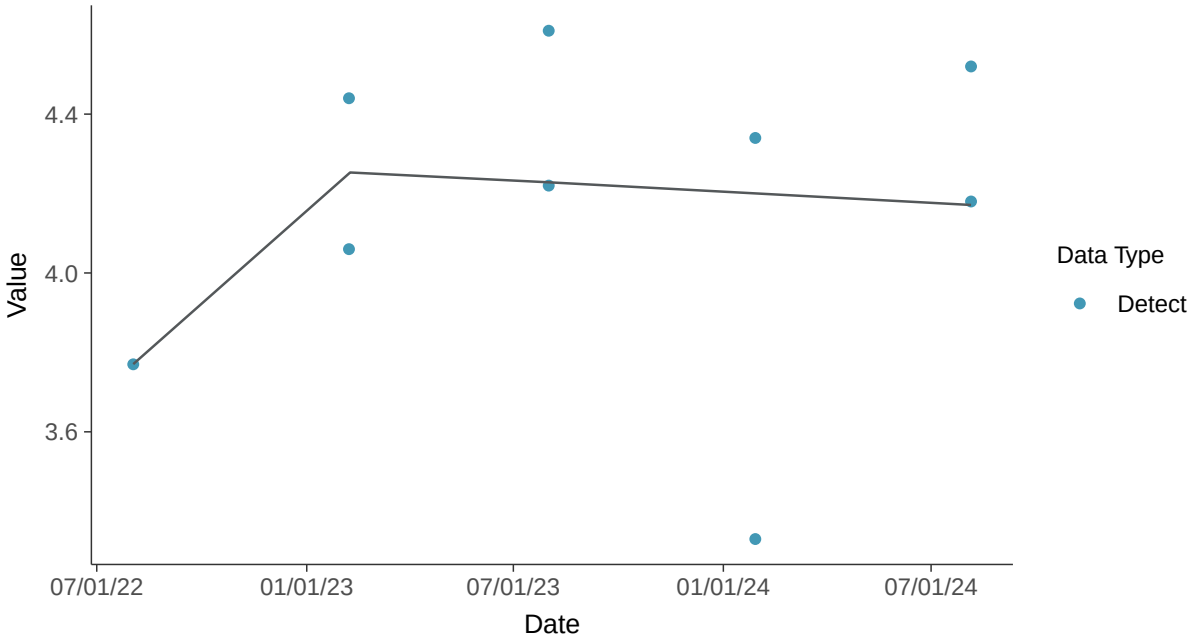
Trend Regression: Lognormal MLE

Potassium, MW-5 (mg/L)



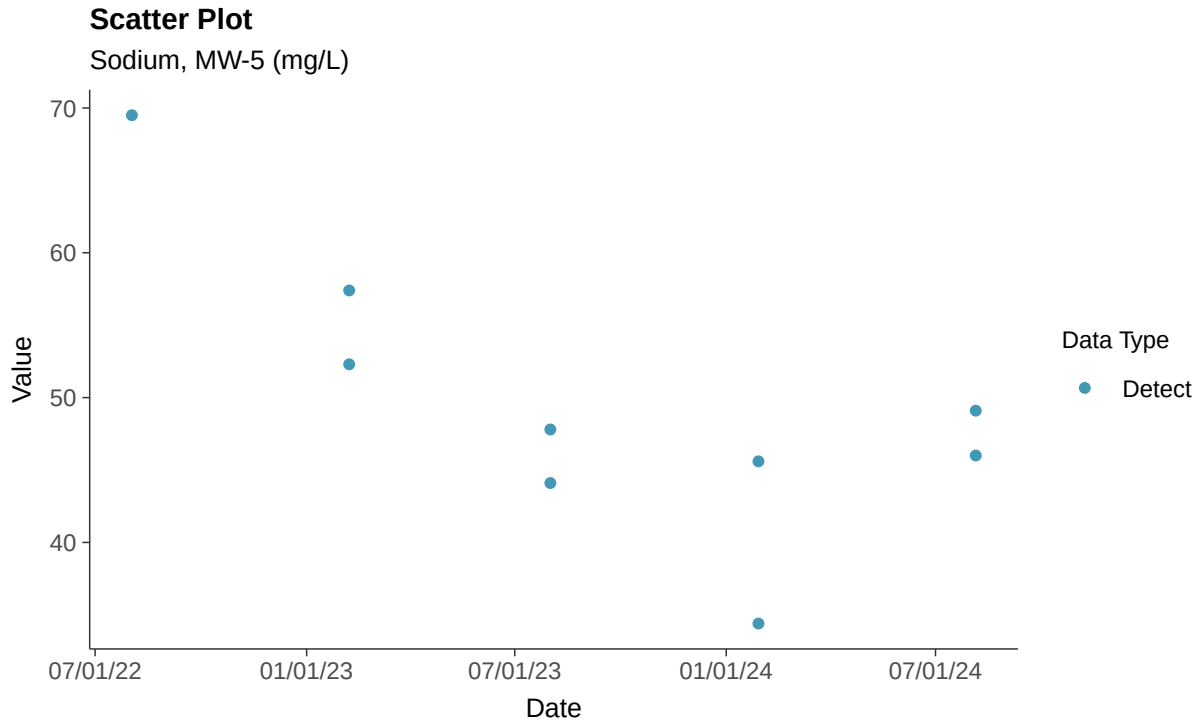
Trend Regression: Piecewise Linear-Linear

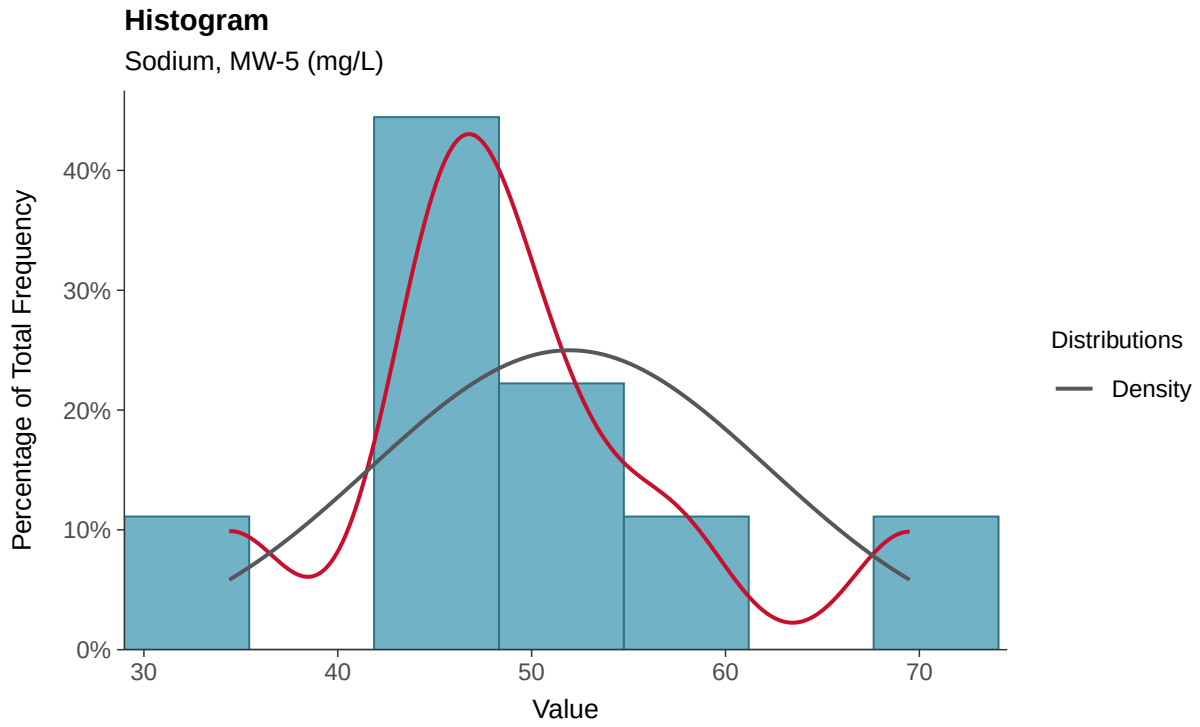
Potassium, MW-5 (mg/L)



Other: Sodium, MW-5

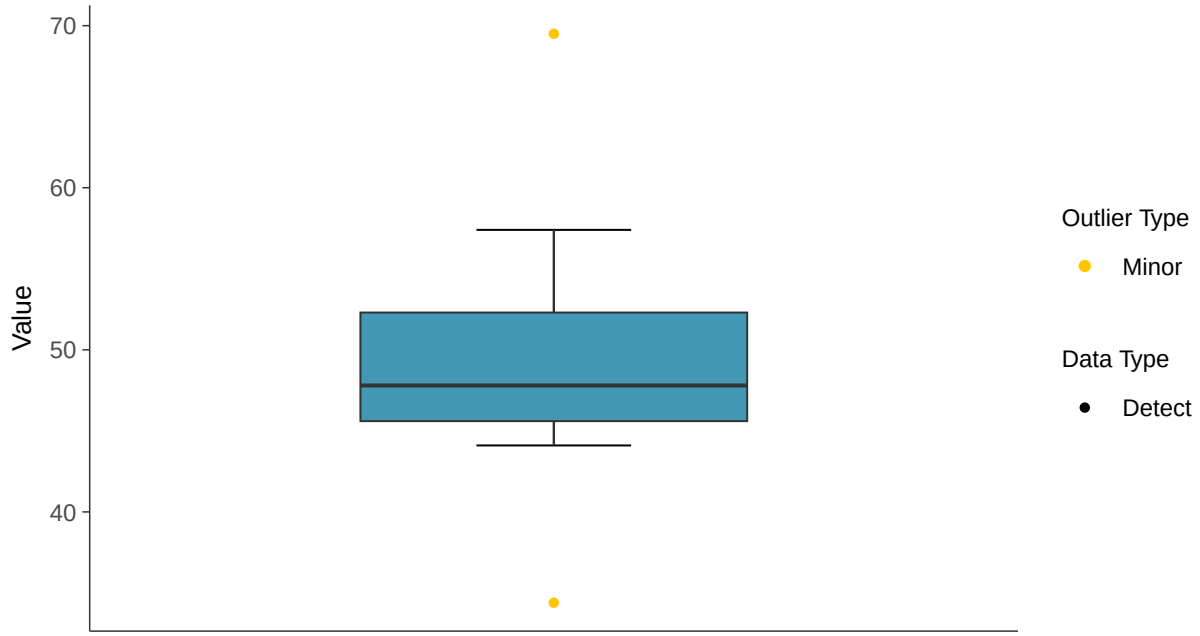
ID: 05_4_36





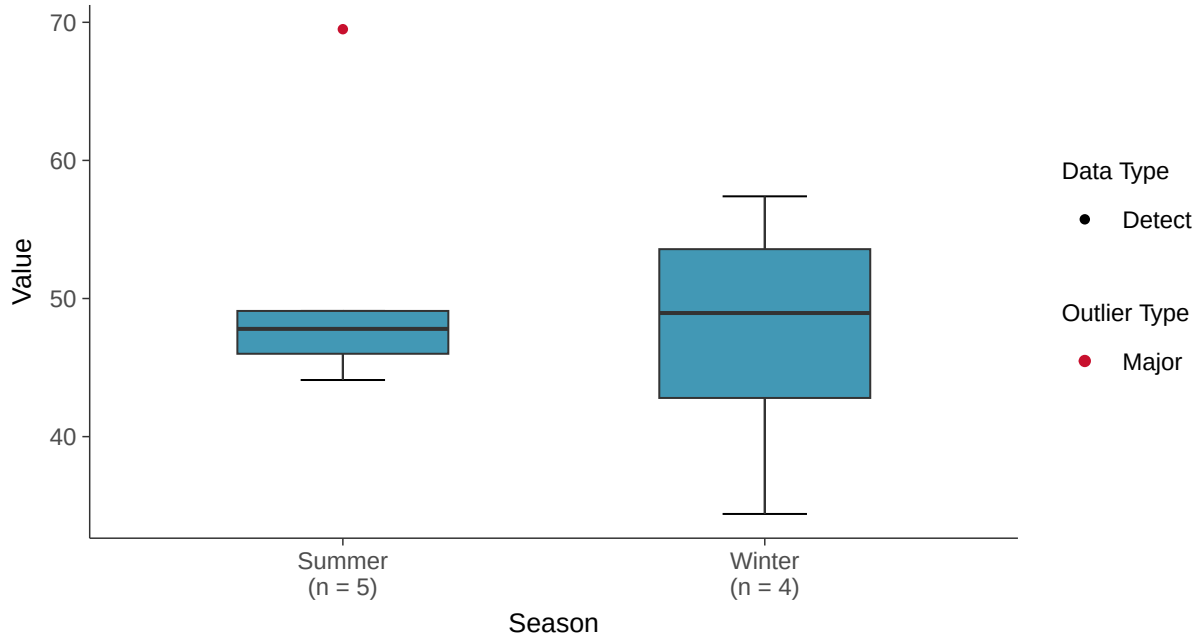
Boxplot

Sodium, MW-5 (mg/L)



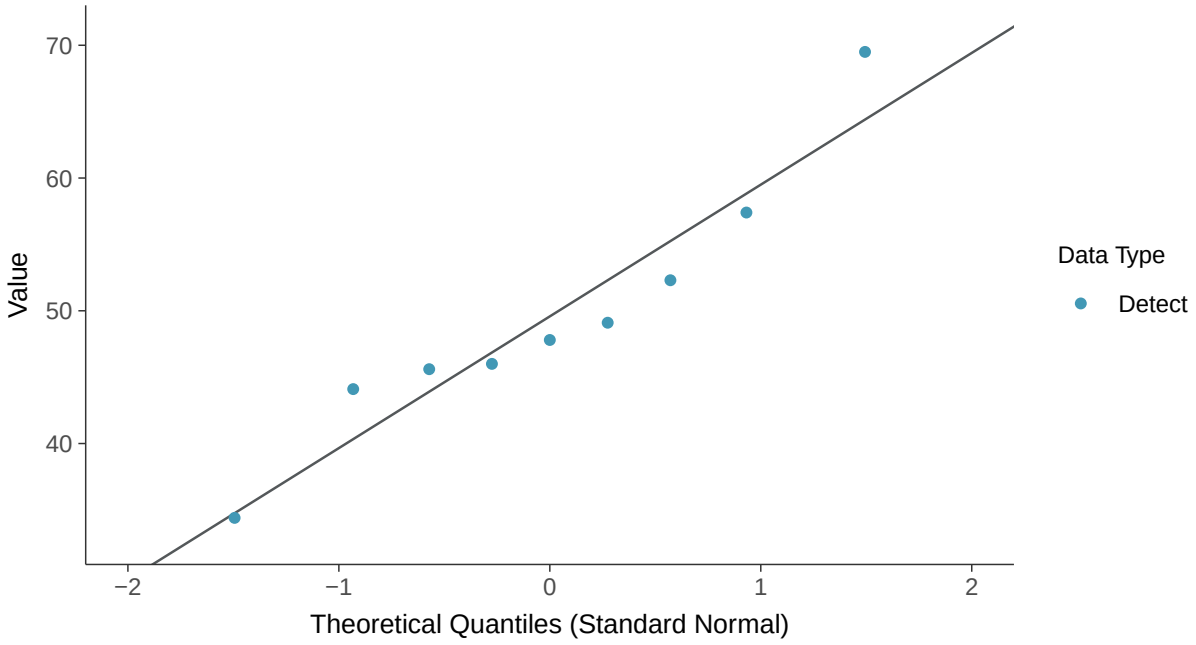
Boxplot by Season

Sodium, MW-5 (mg/L)



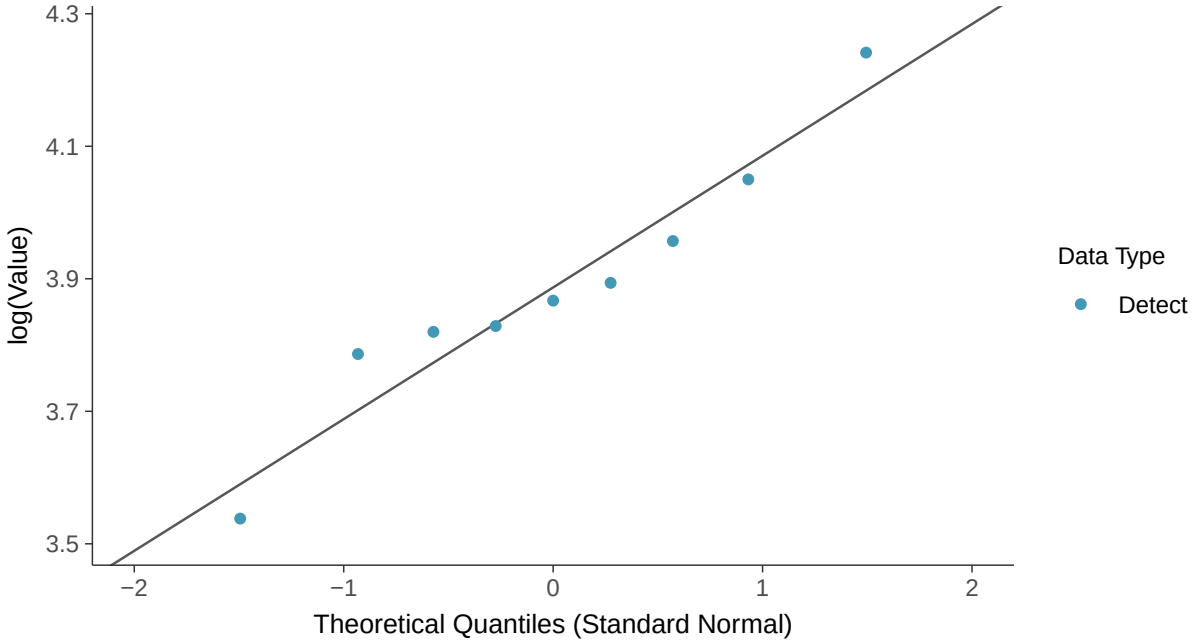
Normal Q-Q plot

Sodium, MW-5 (mg/L)



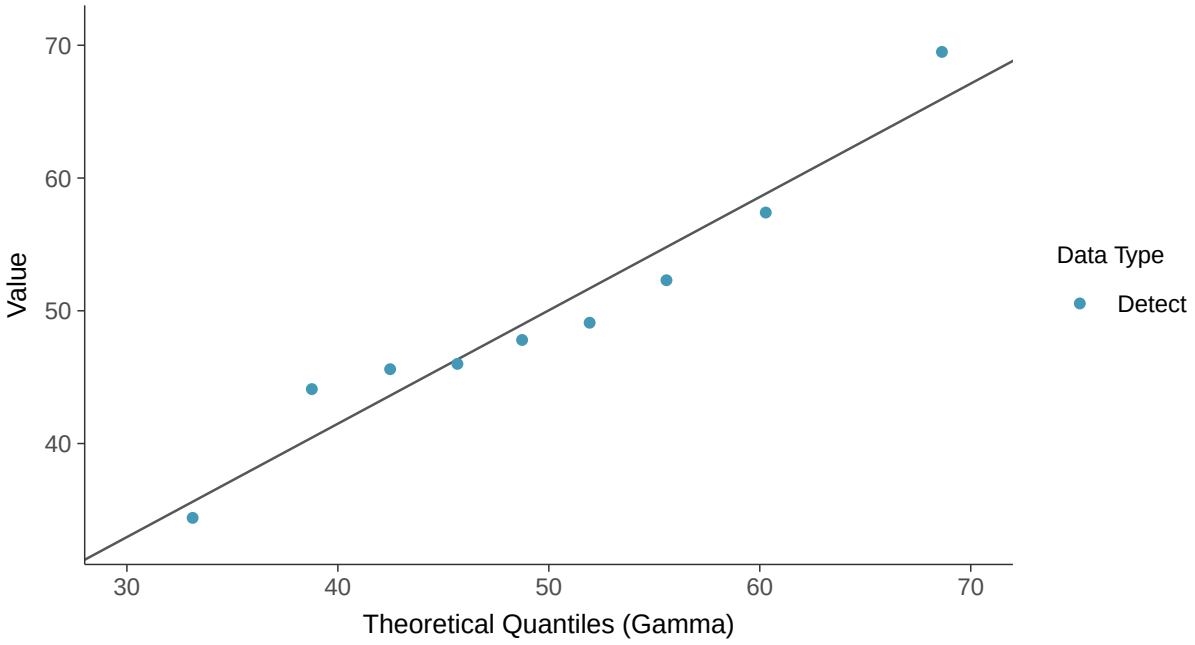
Lognormal Q-Q plot

Sodium, MW-5 (mg/L)



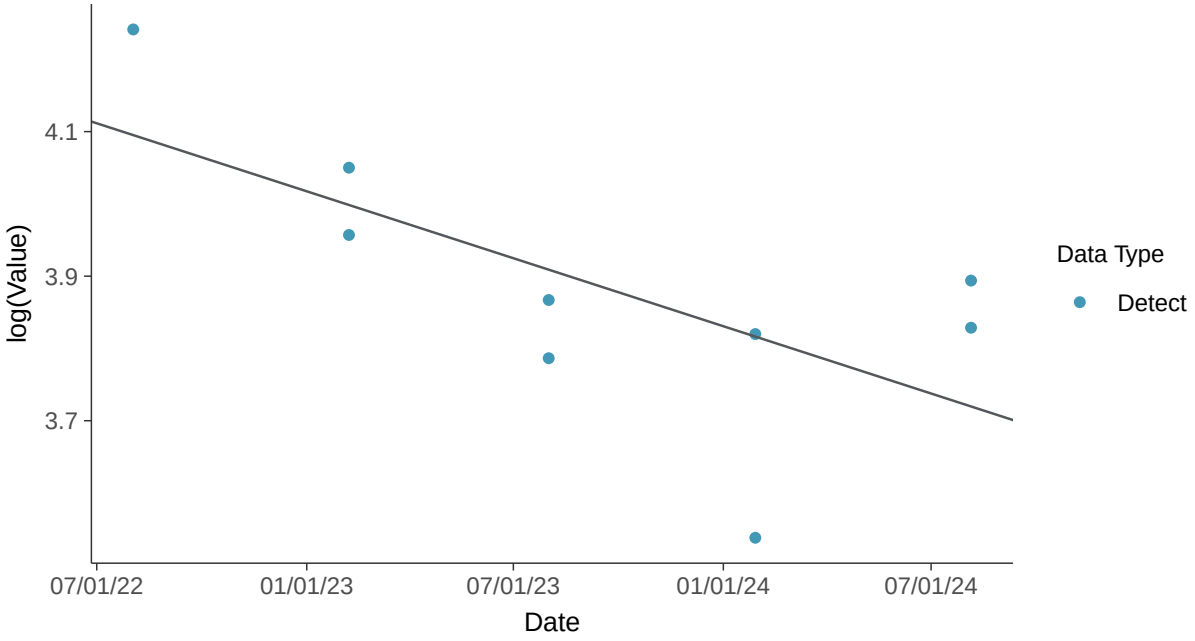
Gamma Q-Q plot

Sodium, MW-5 (mg/L)



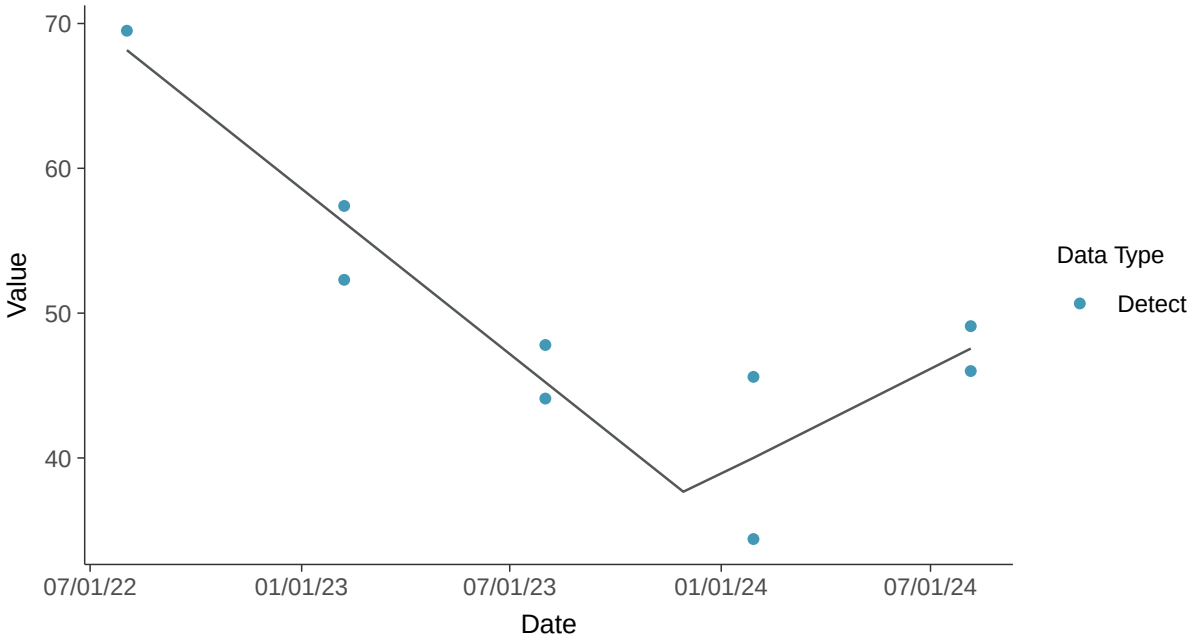
Trend Regression: Lognormal MLE

Sodium, MW-5 (mg/L)



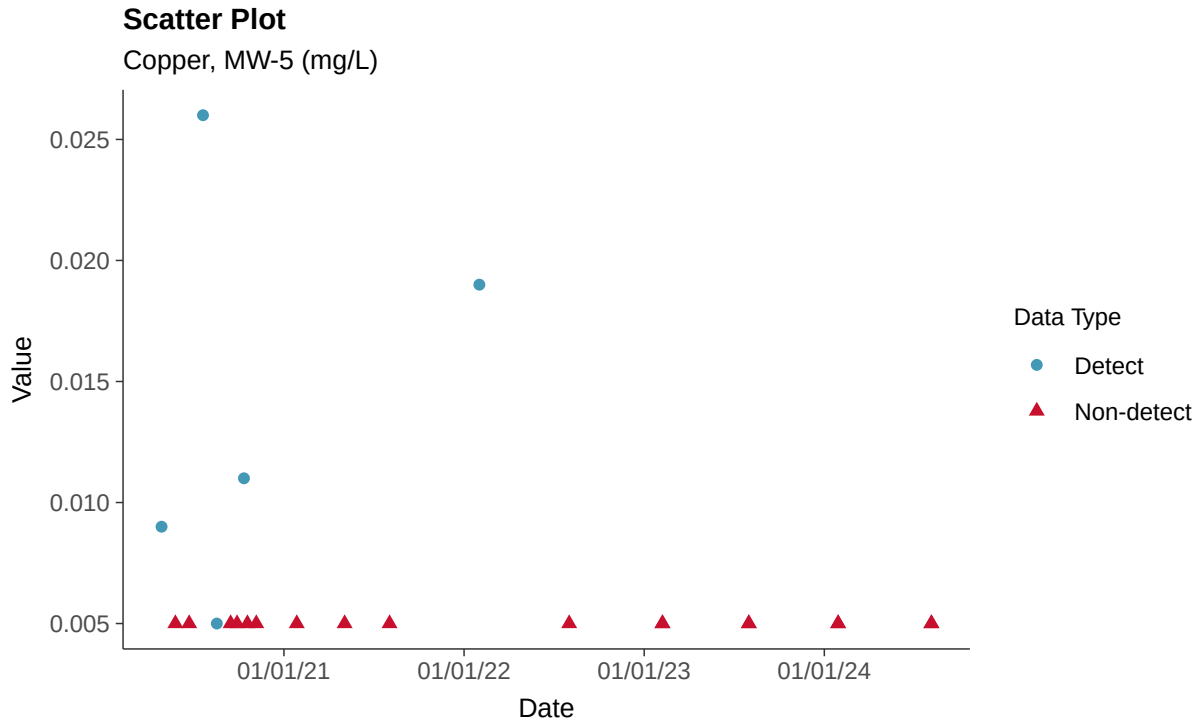
Trend Regression: Piecewise Linear-Linear

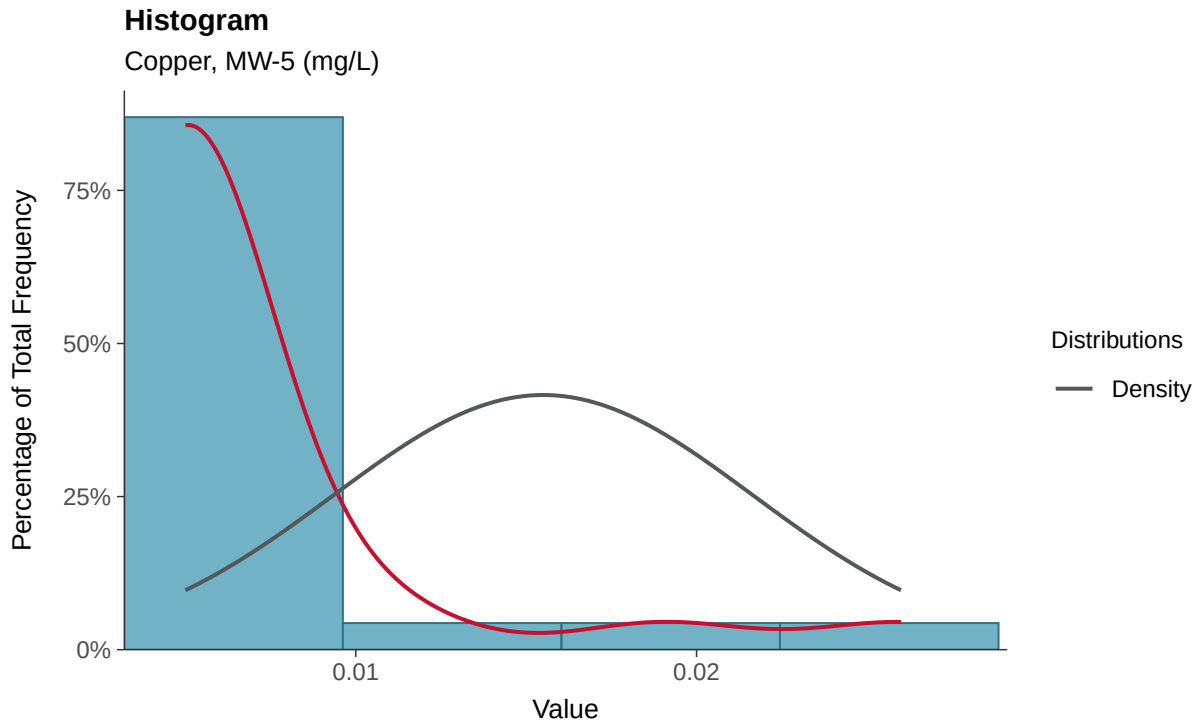
Sodium, MW-5 (mg/L)



Part 115: Copper, MW-5

ID: 05_5_37



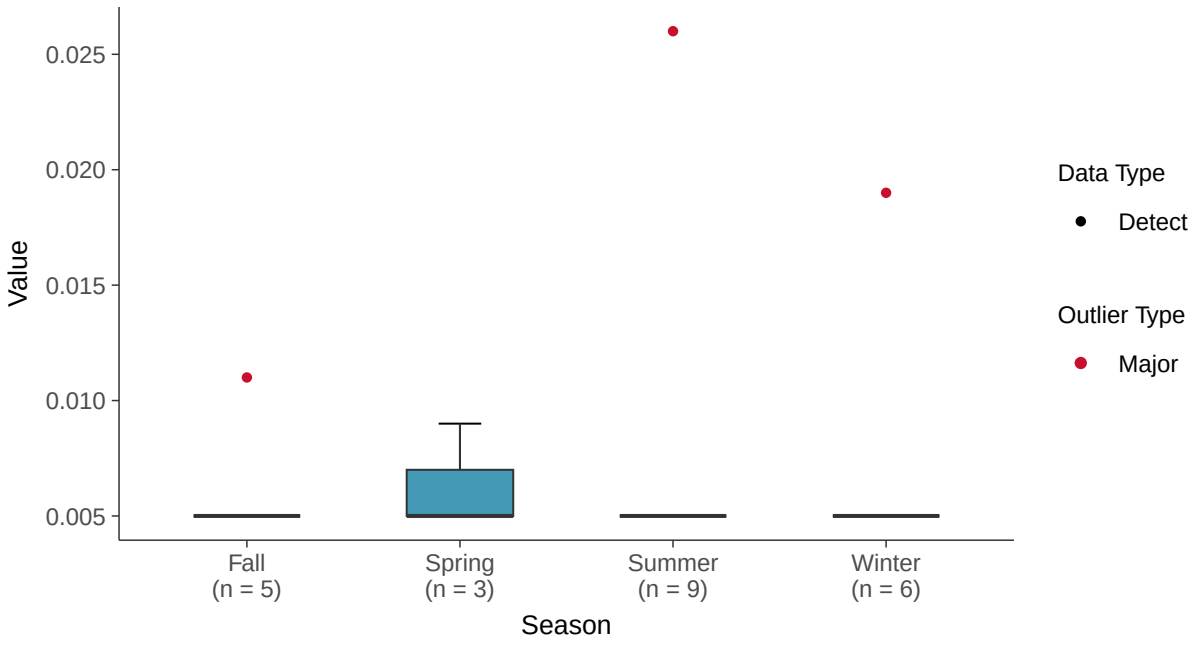


Boxplot

Copper, MW-5 (mg/L)

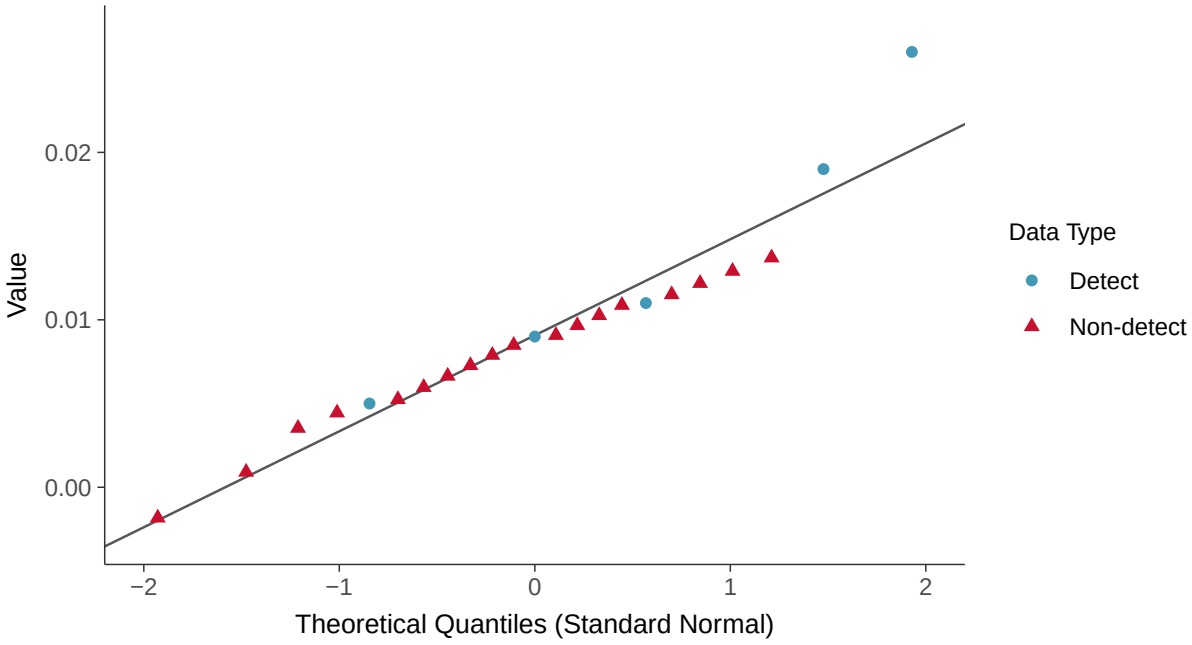
Boxplot by Season

Copper, MW-5 (mg/L)



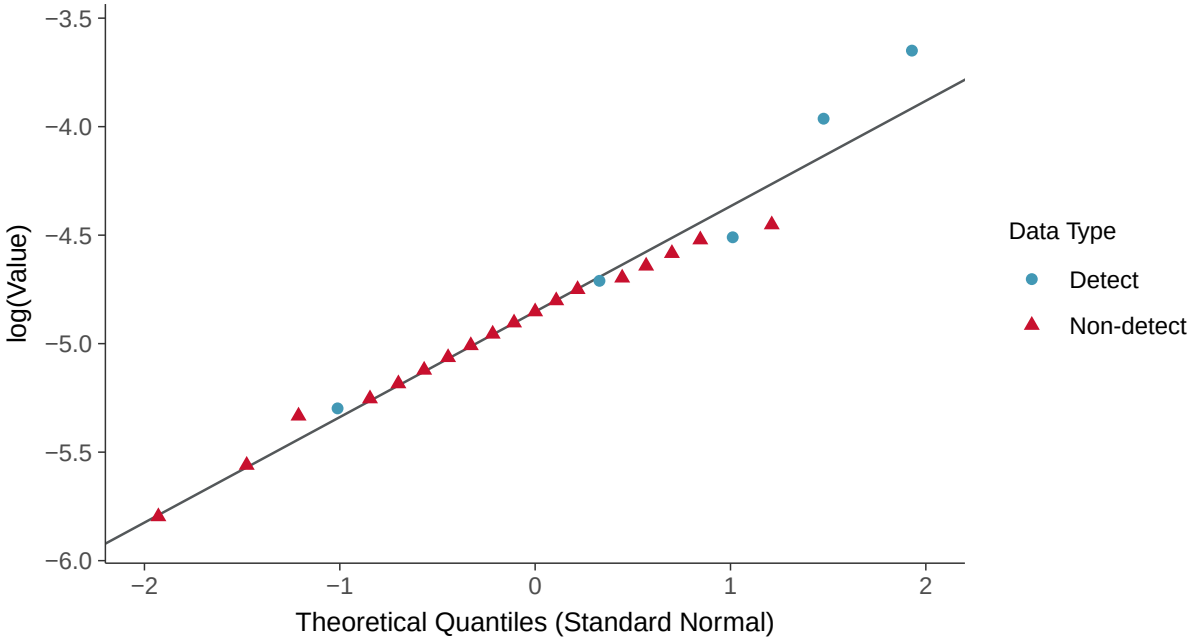
Normal Q-Q plot using ROS Imputed Estimates

Copper, MW-5 (mg/L)



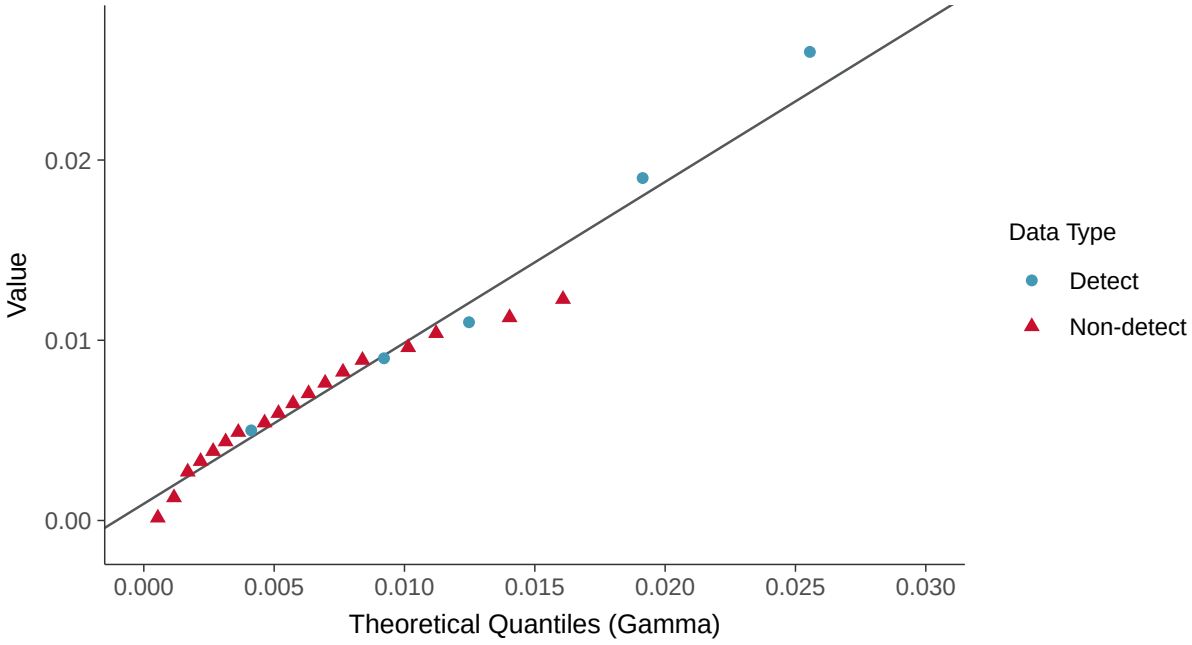
Lognormal Q-Q plot using ROS Imputed Estimates

Copper, MW-5 (mg/L)



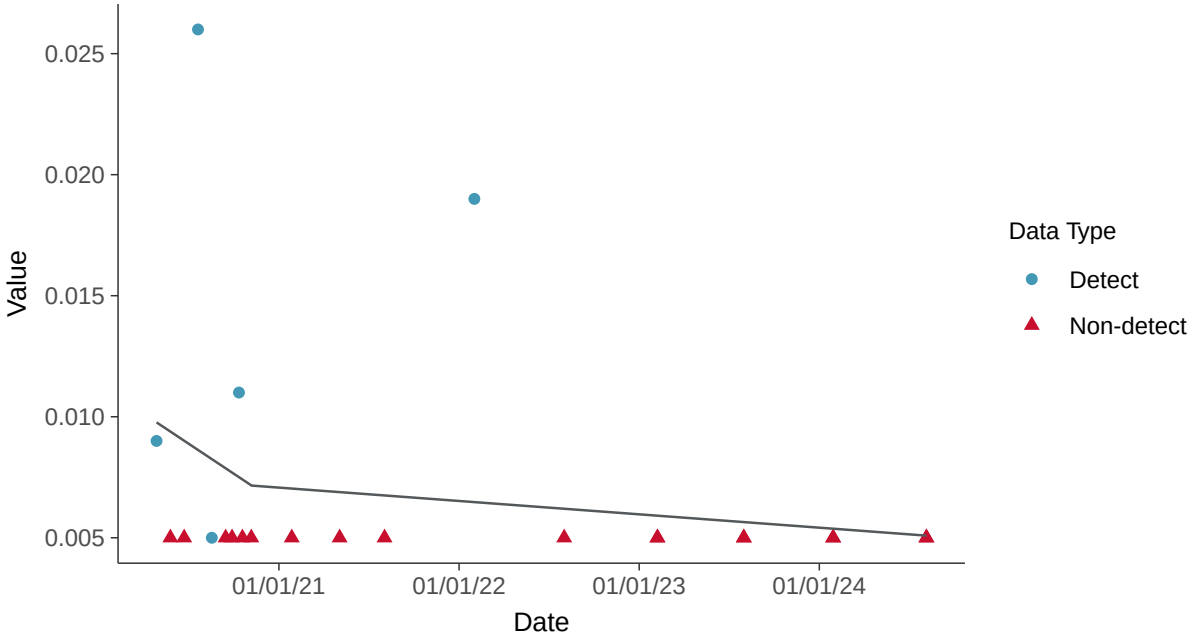
Gamma Q-Q plot using ROS Imputed Estimates

Copper, MW-5 (mg/L)



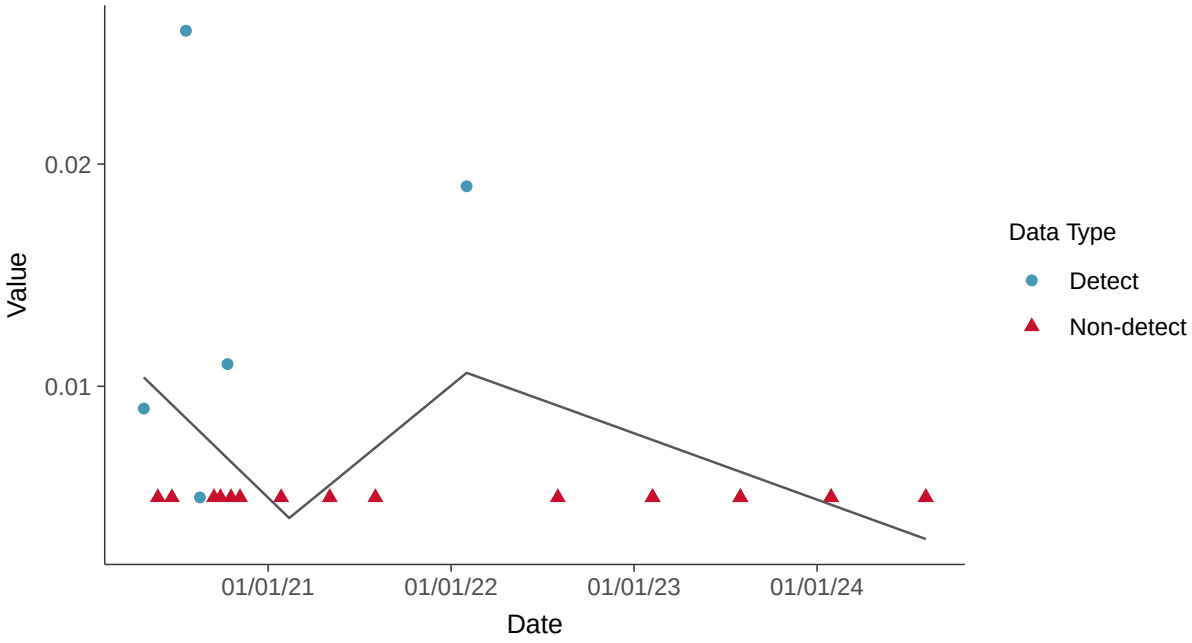
Trend Regression: Piecewise Linear-Linear

Copper, MW-5 (mg/L)



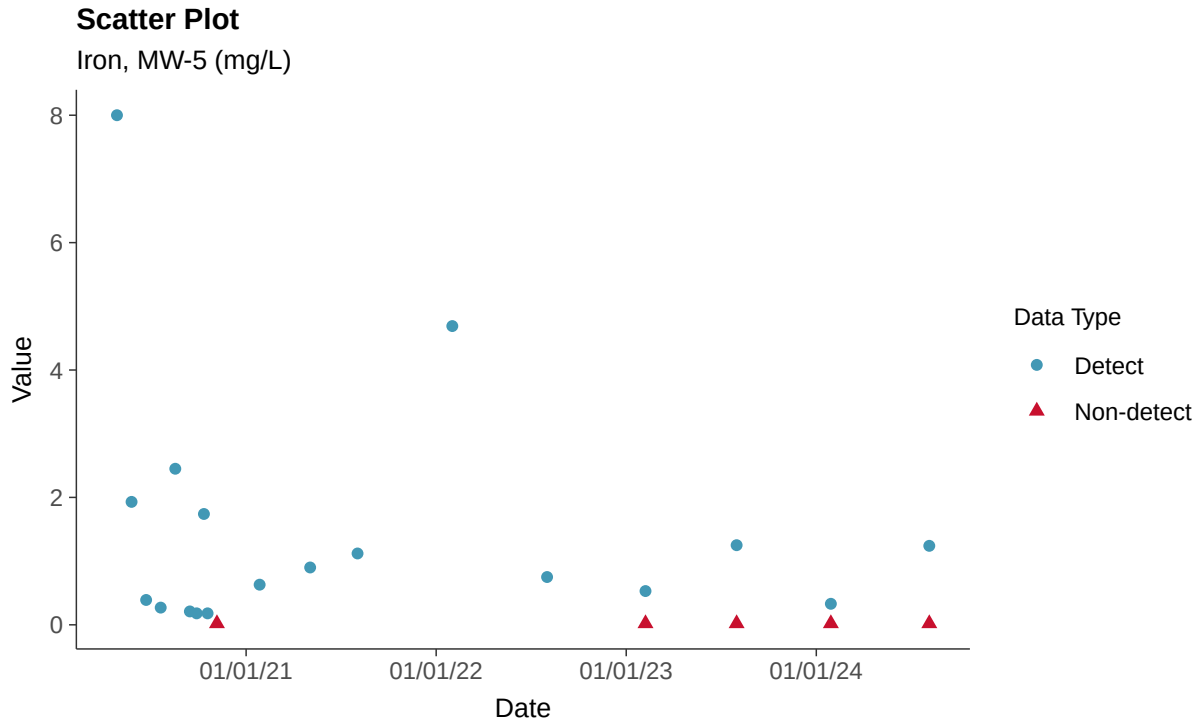
Trend Regression: Piecewise Linear-Linear-Linear

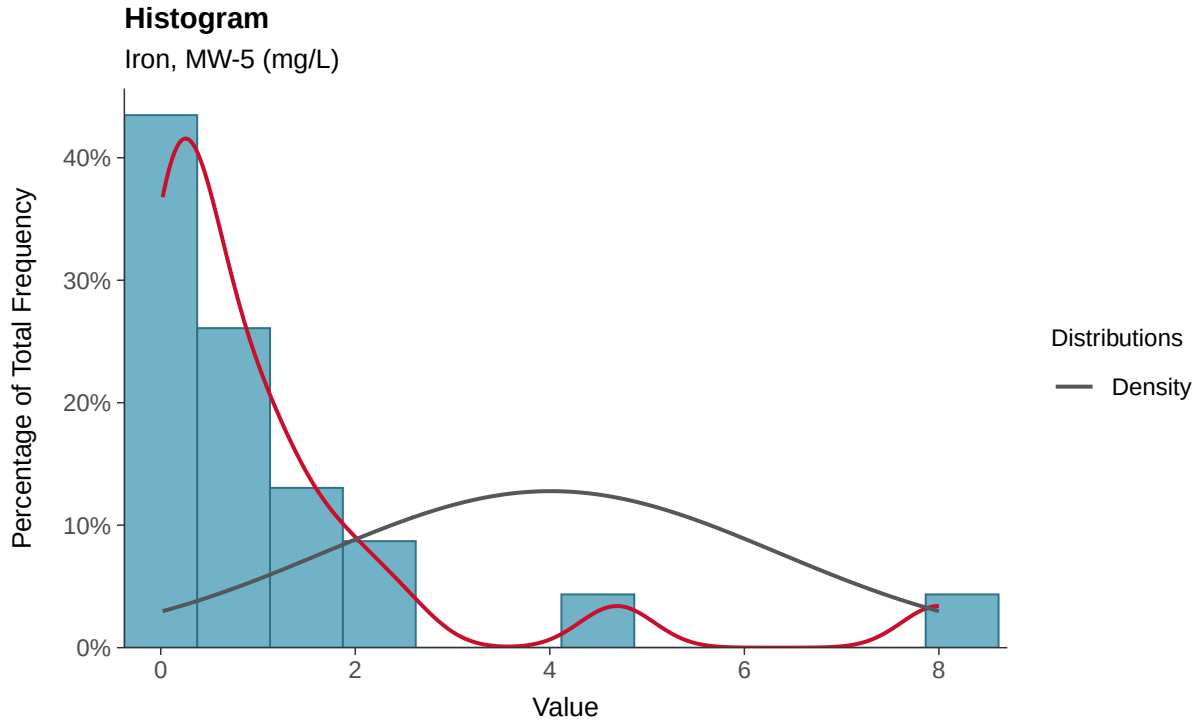
Copper, MW-5 (mg/L)



Part 115: Iron, MW-5

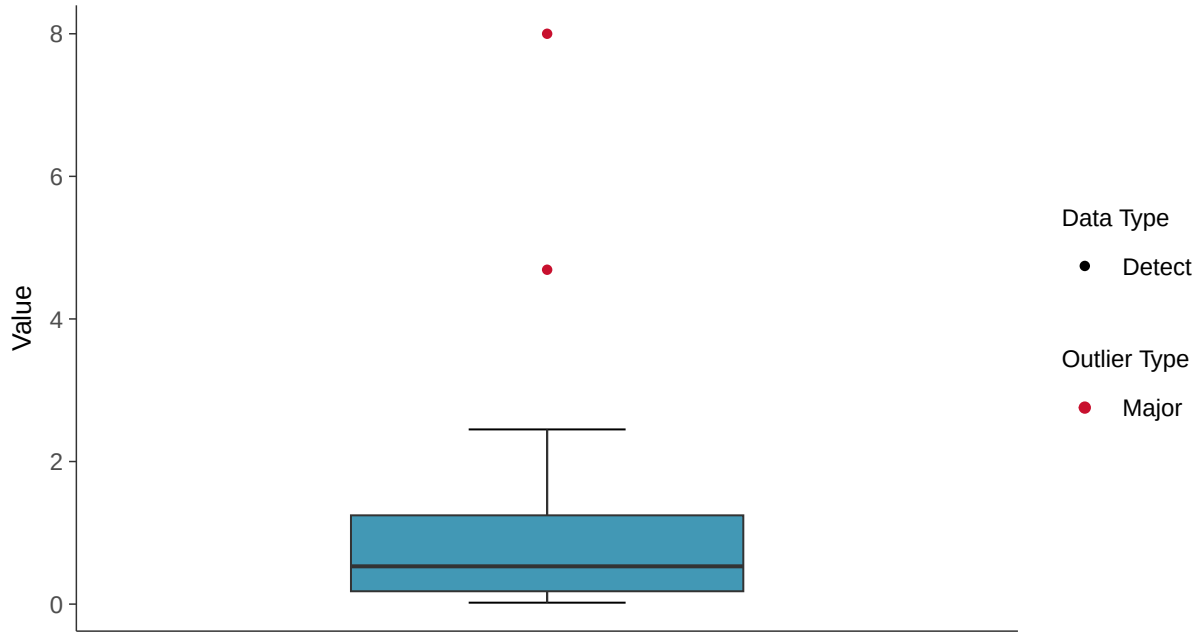
ID: 05_5_38





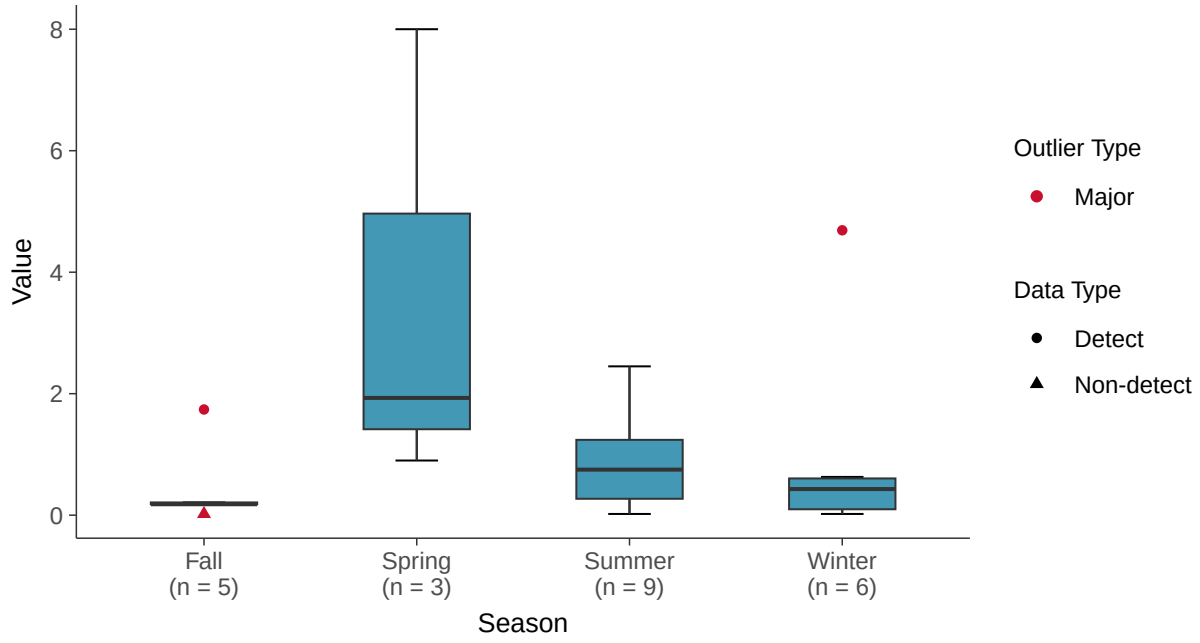
Boxplot

Iron, MW-5 (mg/L)



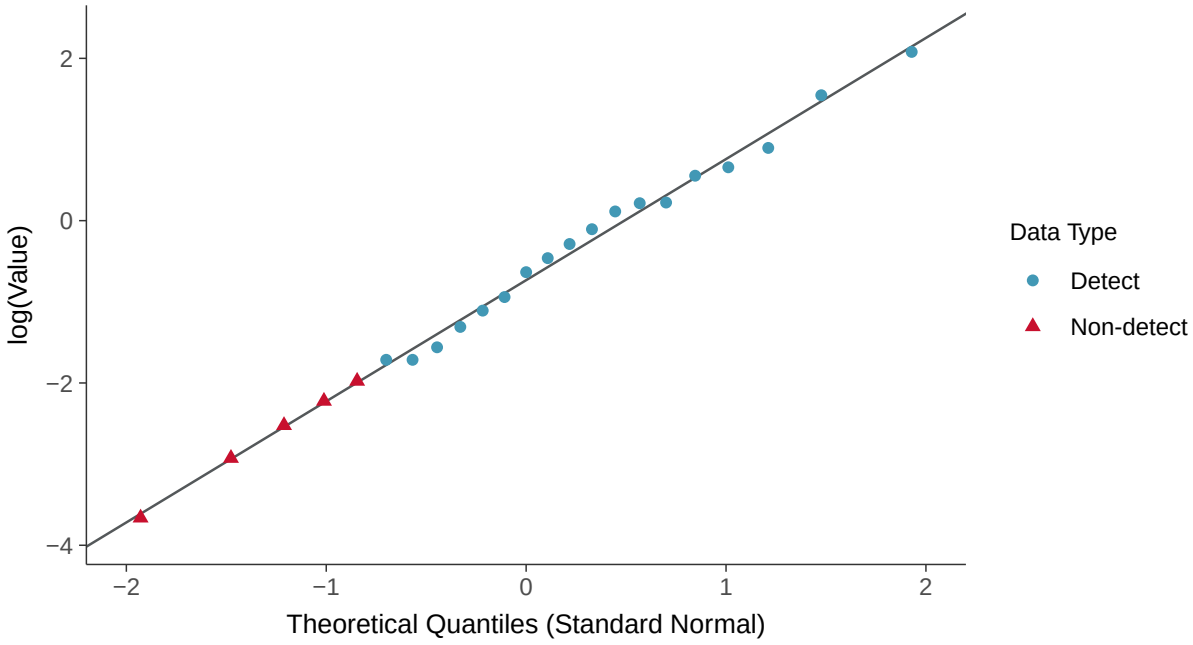
Boxplot by Season

Iron, MW-5 (mg/L)



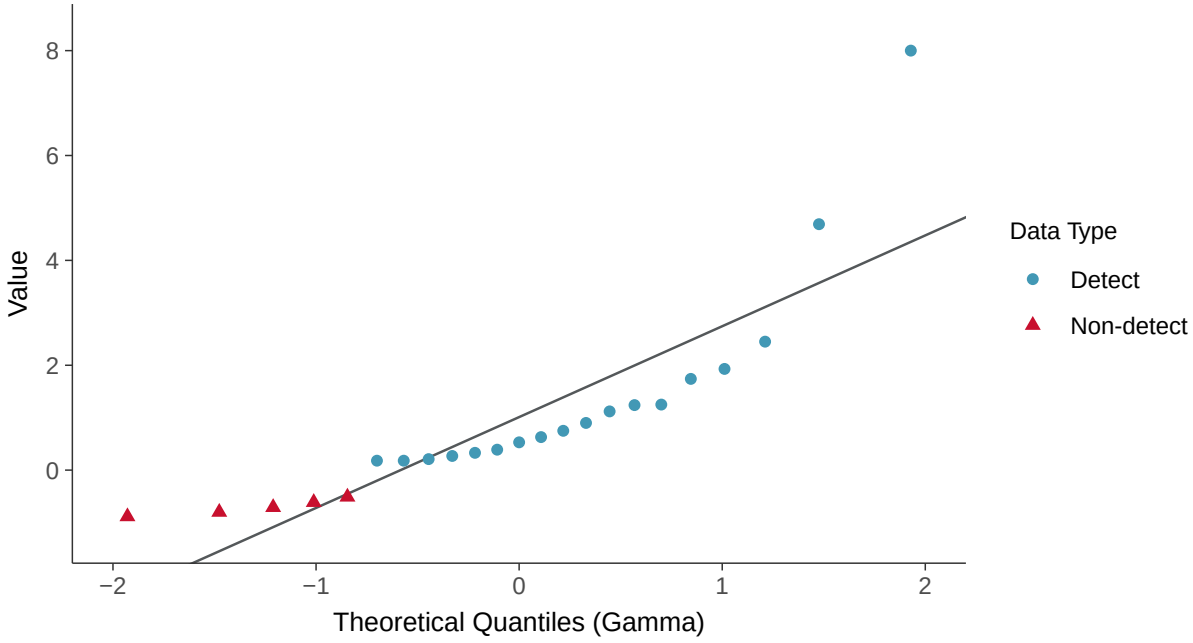
Lognormal Q-Q plot using ROS Imputed Estimates

Iron, MW-5 (mg/L)



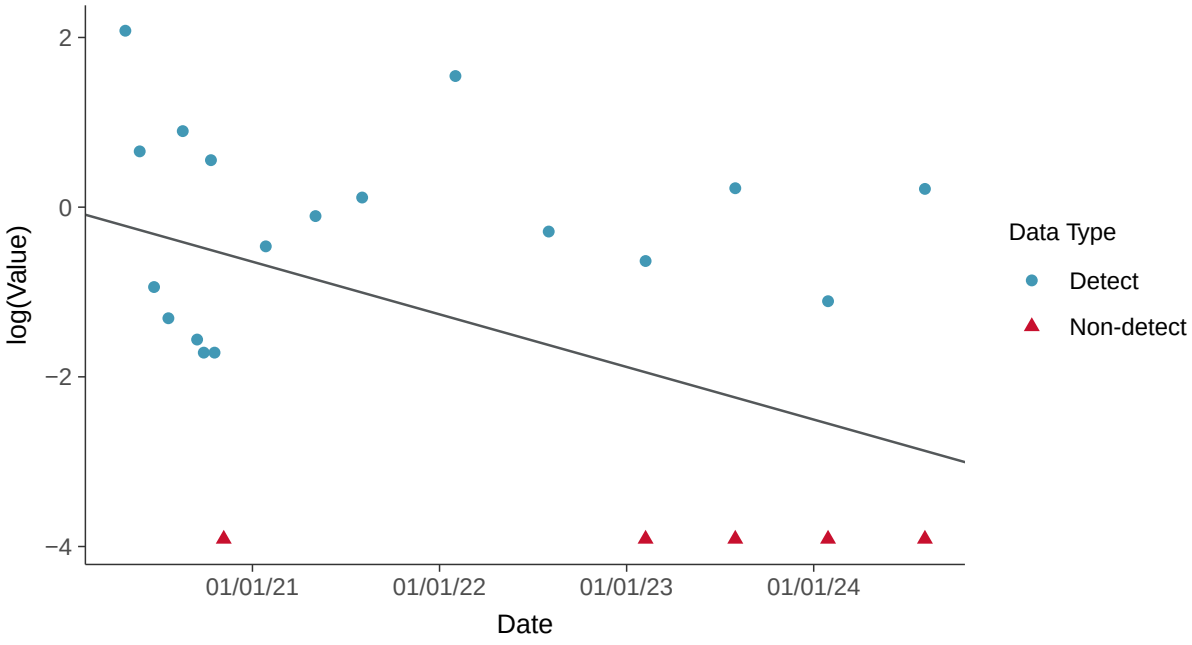
Gamma Q-Q plot using ROS Imputed Estimates

Iron, MW-5 (mg/L)



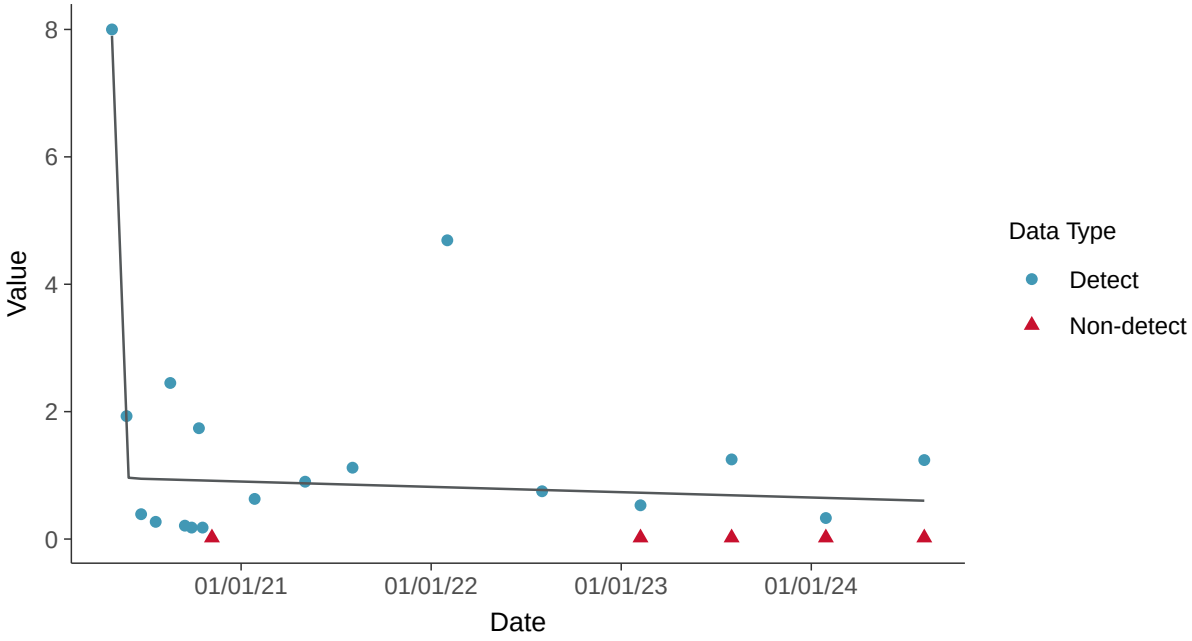
Trend Regression: Lognormal MLE

Iron, MW-5 (mg/L)



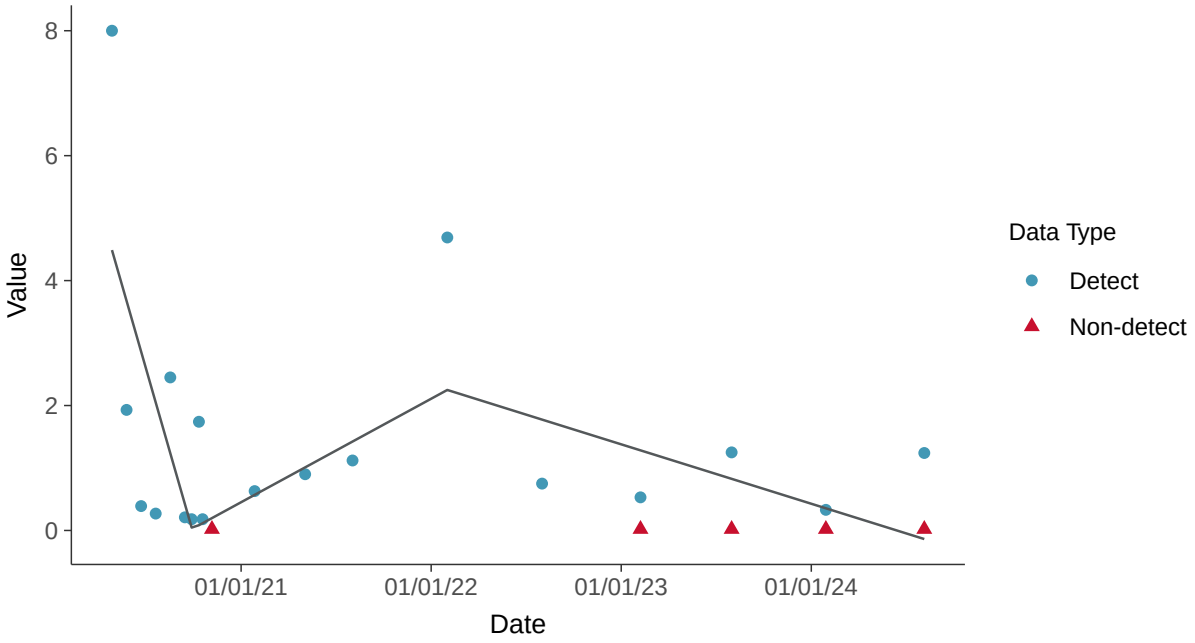
Trend Regression: Piecewise Linear-Linear

Iron, MW-5 (mg/L)



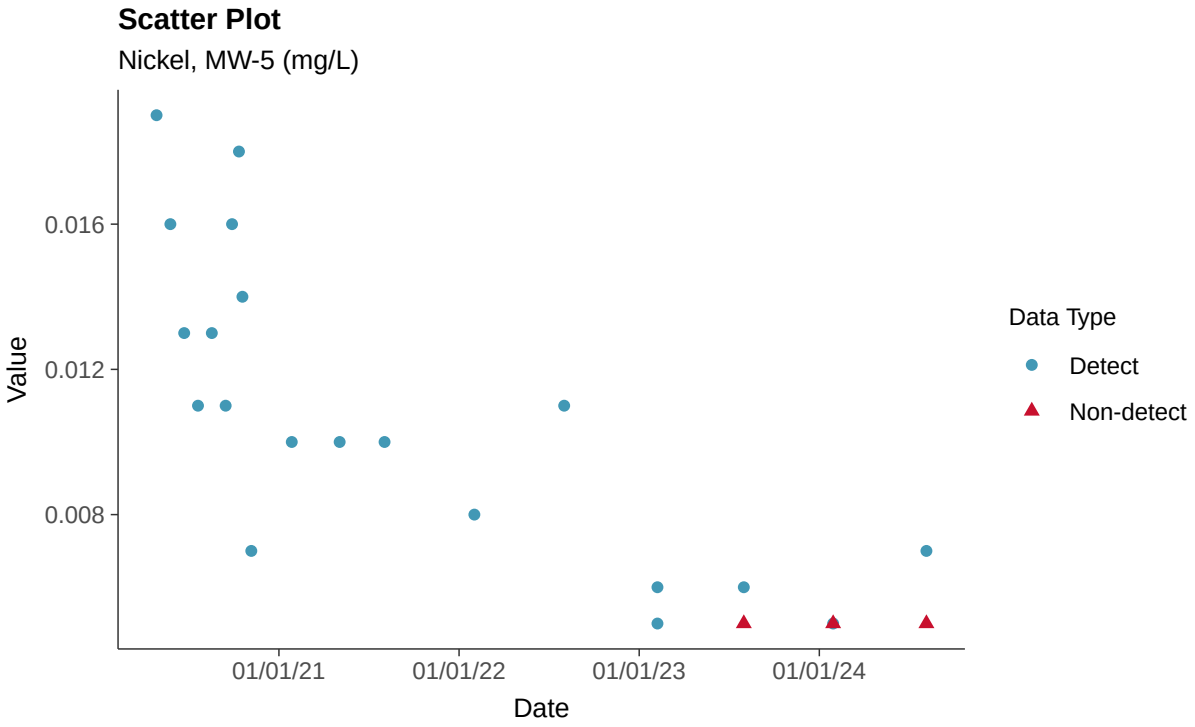
Trend Regression: Piecewise Linear-Linear-Linear

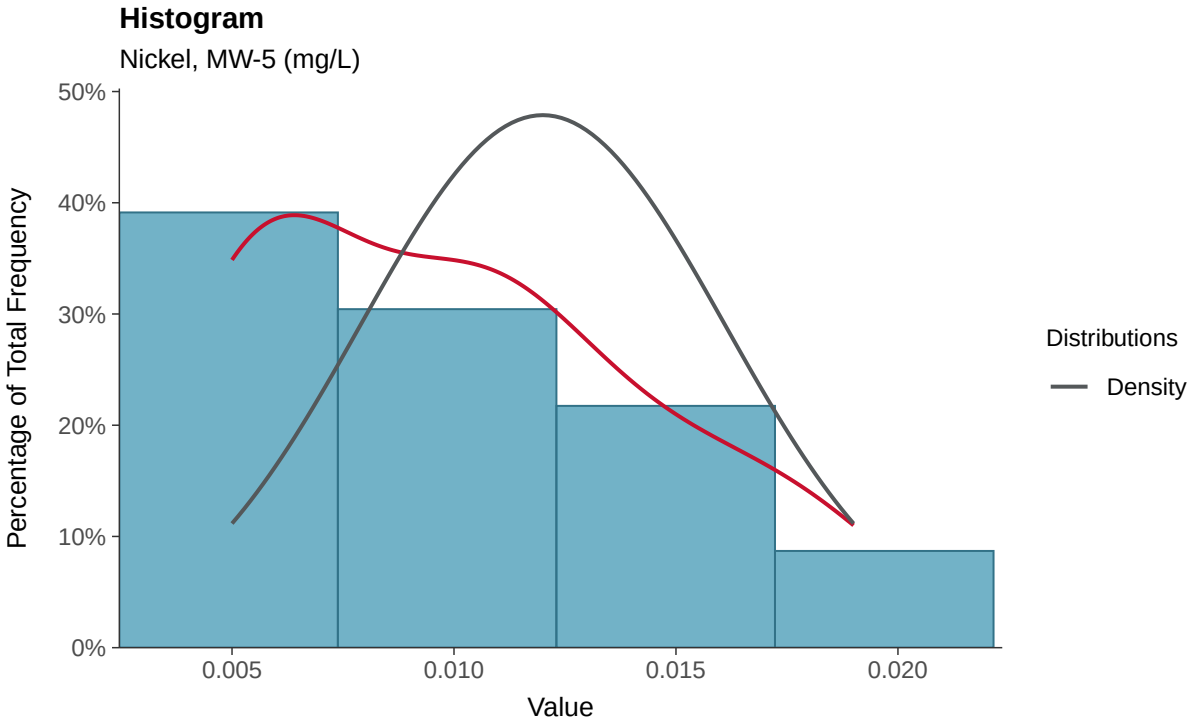
Iron, MW-5 (mg/L)



Part 115: Nickel, MW-5

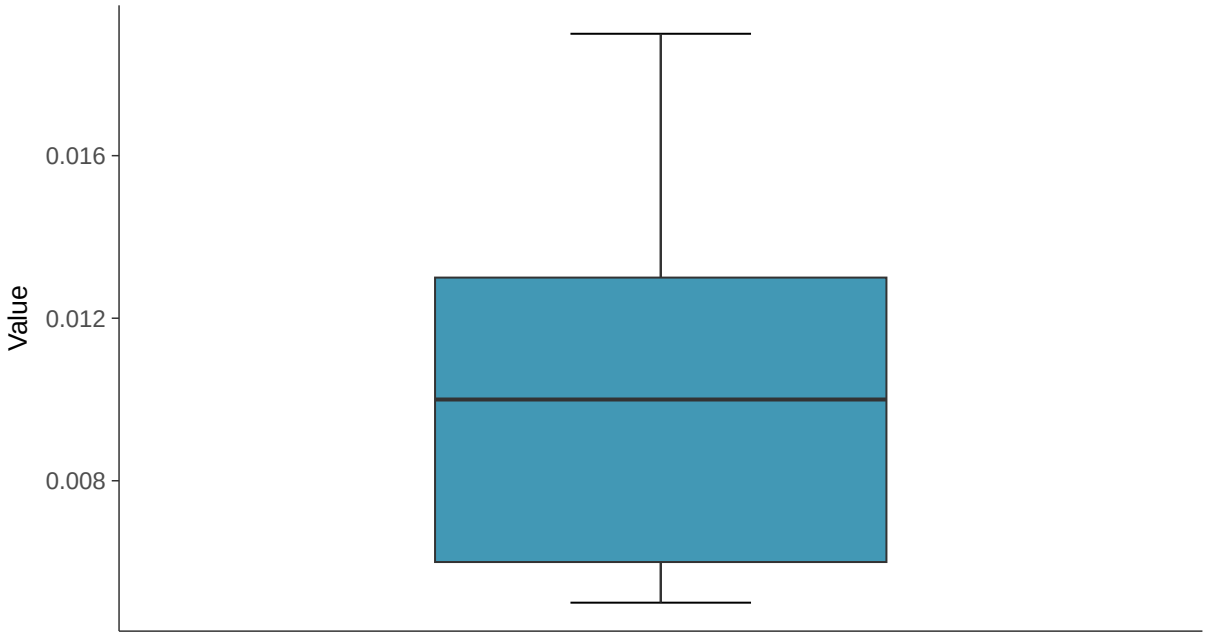
ID: 05_5_39





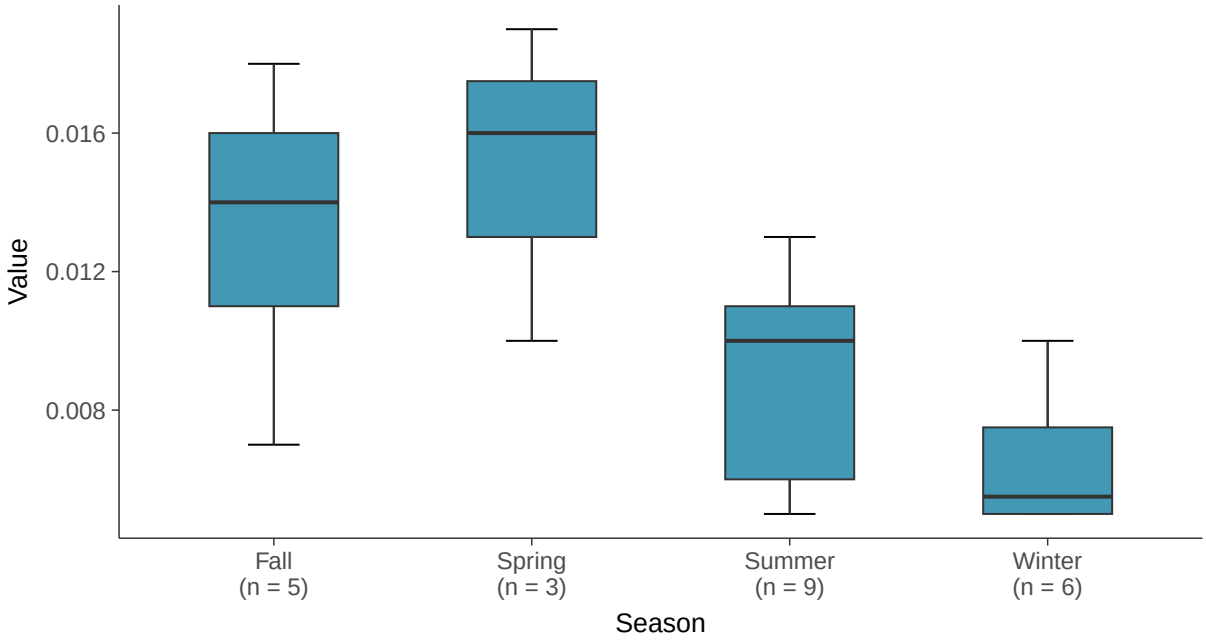
Boxplot

Nickel, MW-5 (mg/L)



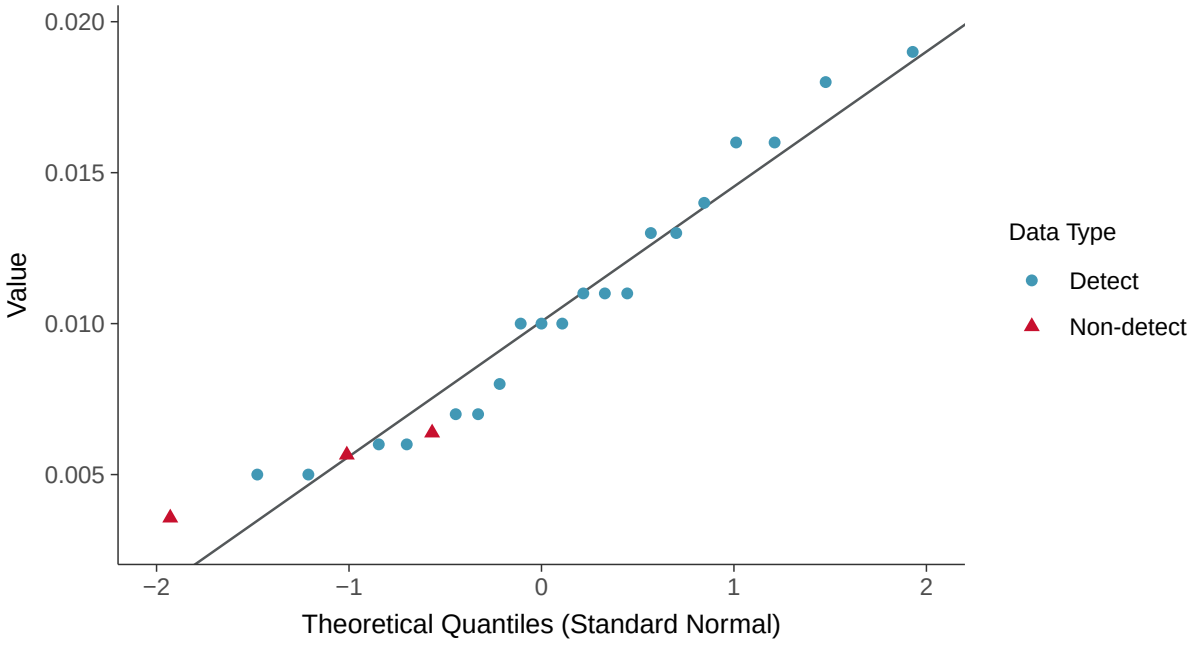
Boxplot by Season

Nickel, MW-5 (mg/L)



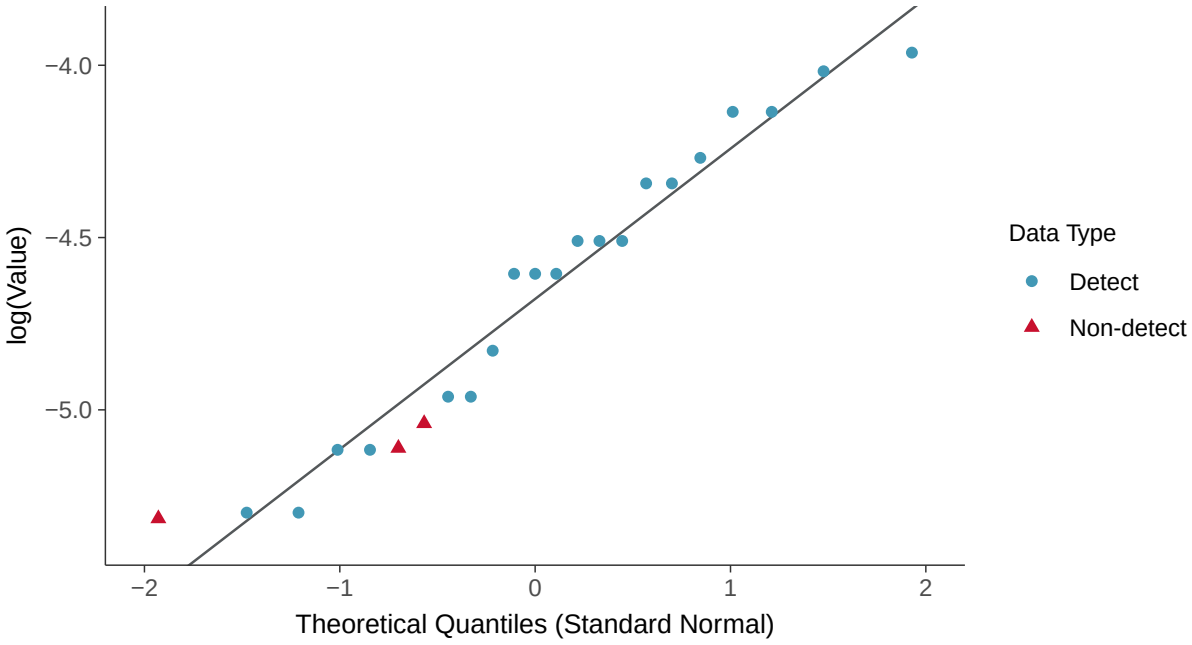
Normal Q-Q plot using ROS Imputed Estimates

Nickel, MW-5 (mg/L)



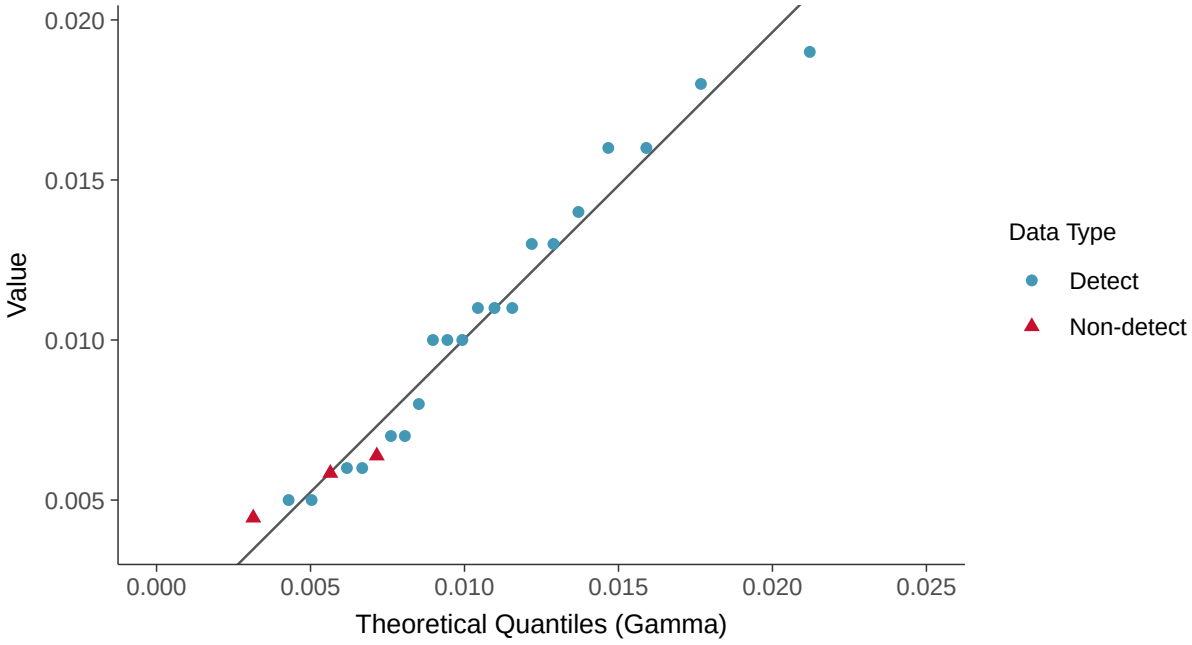
Lognormal Q-Q plot using ROS Imputed Estimates

Nickel, MW-5 (mg/L)



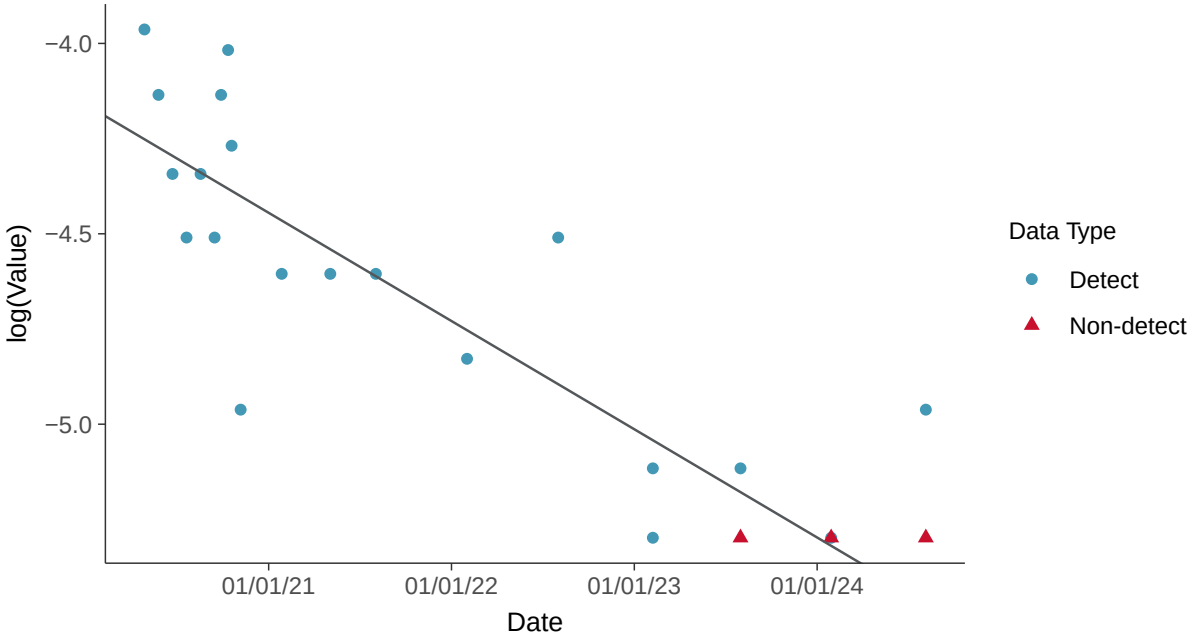
Gamma Q-Q plot using ROS Imputed Estimates

Nickel, MW-5 (mg/L)



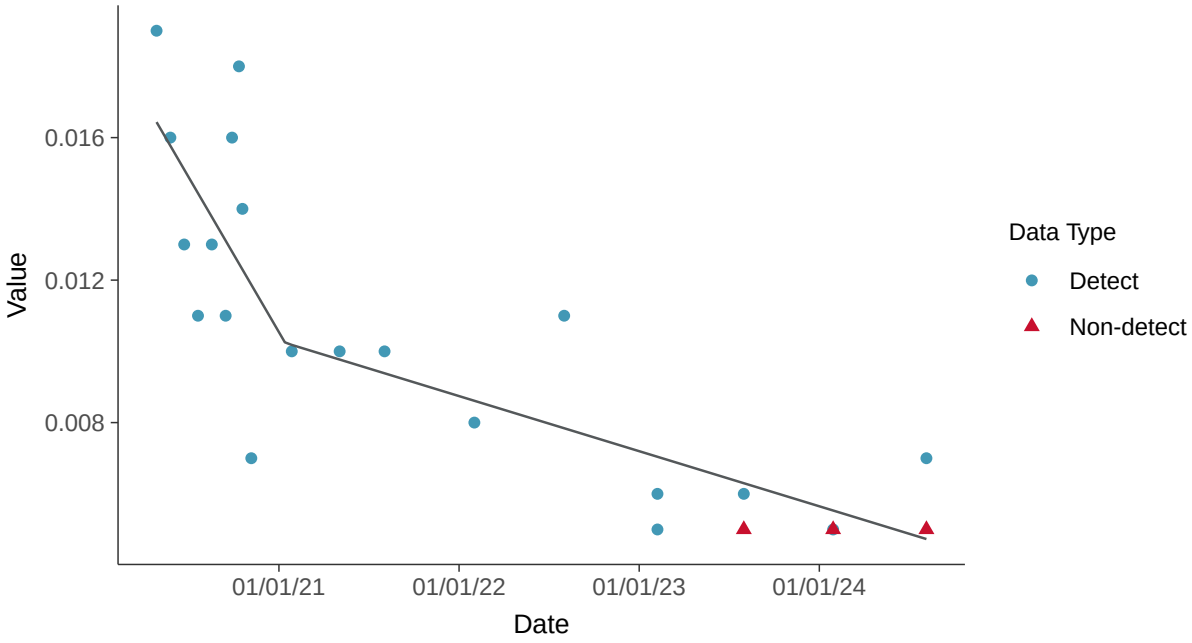
Trend Regression: Lognormal MLE

Nickel, MW-5 (mg/L)



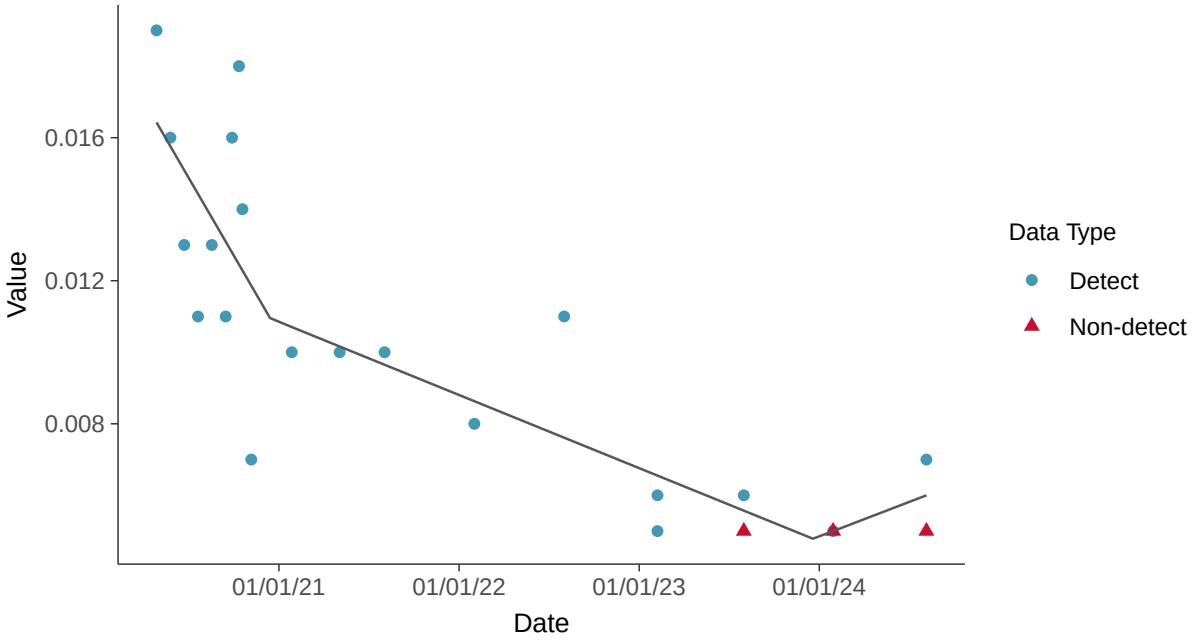
Trend Regression: Piecewise Linear-Linear

Nickel, MW-5 (mg/L)



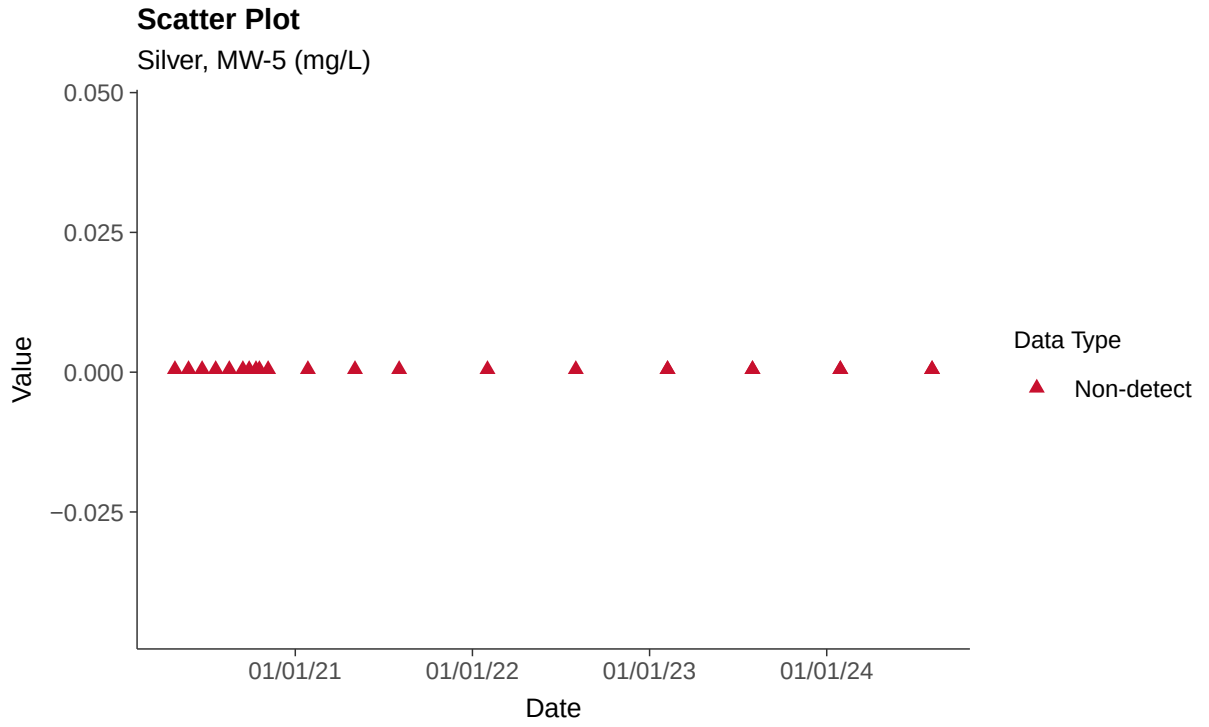
Trend Regression: Piecewise Linear-Linear-Linear

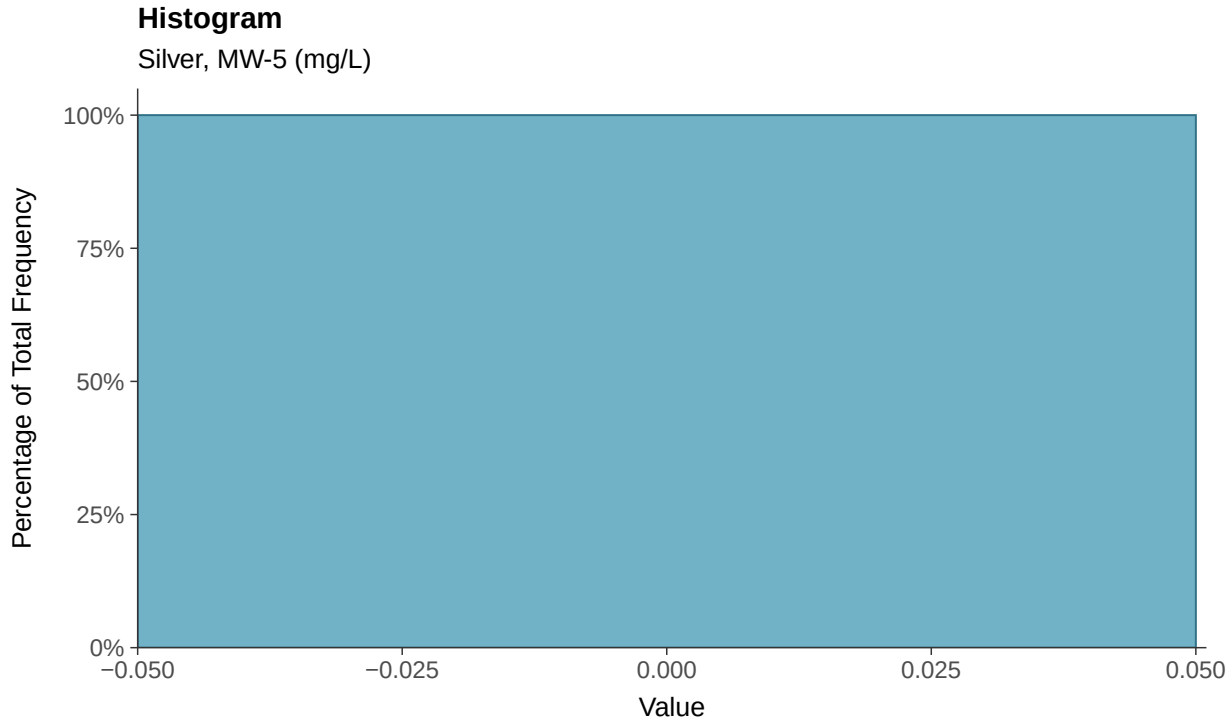
Nickel, MW-5 (mg/L)



Part 115: Silver, MW-5

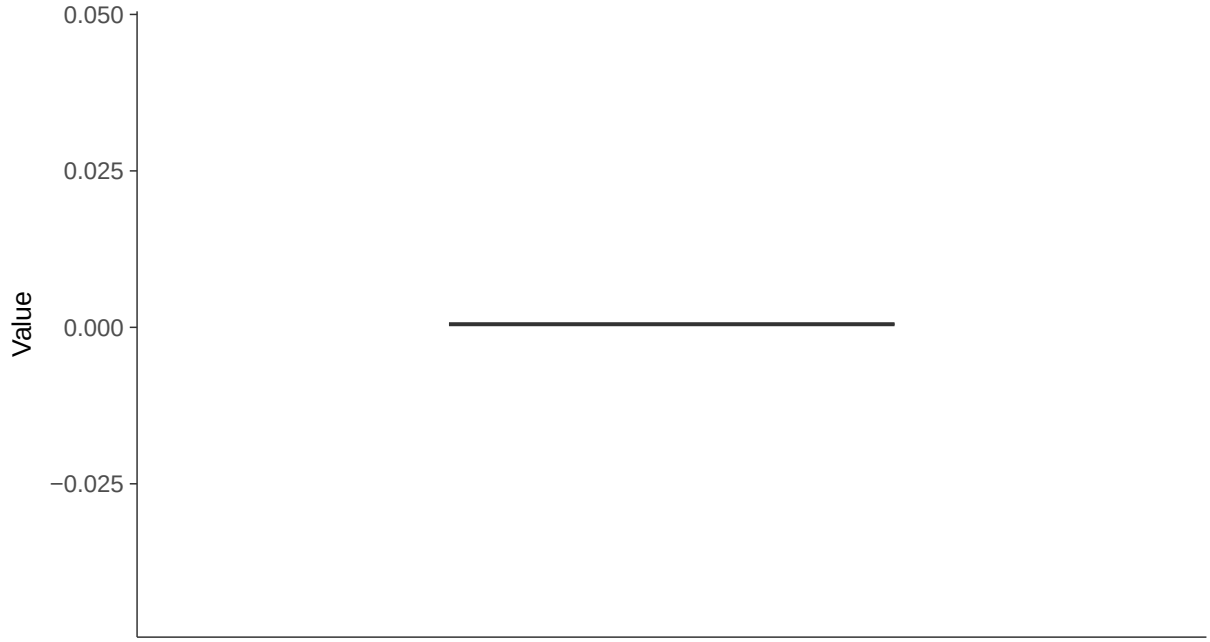
ID: 05_5_40





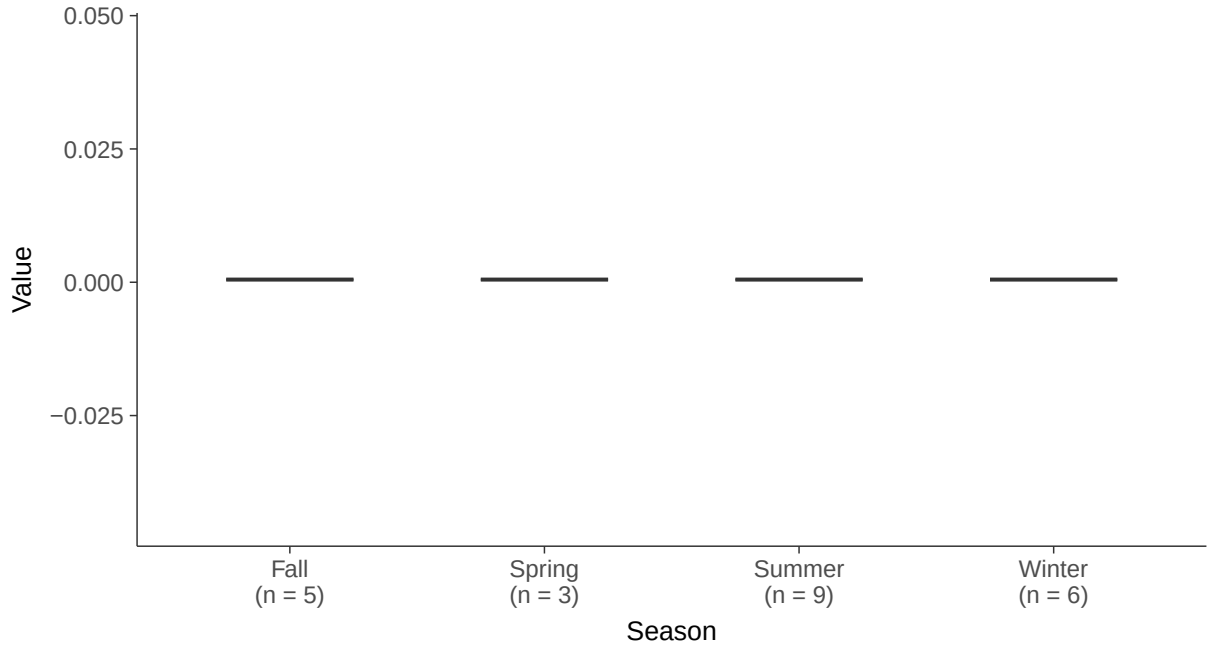
Boxplot

Silver, MW-5 (mg/L)



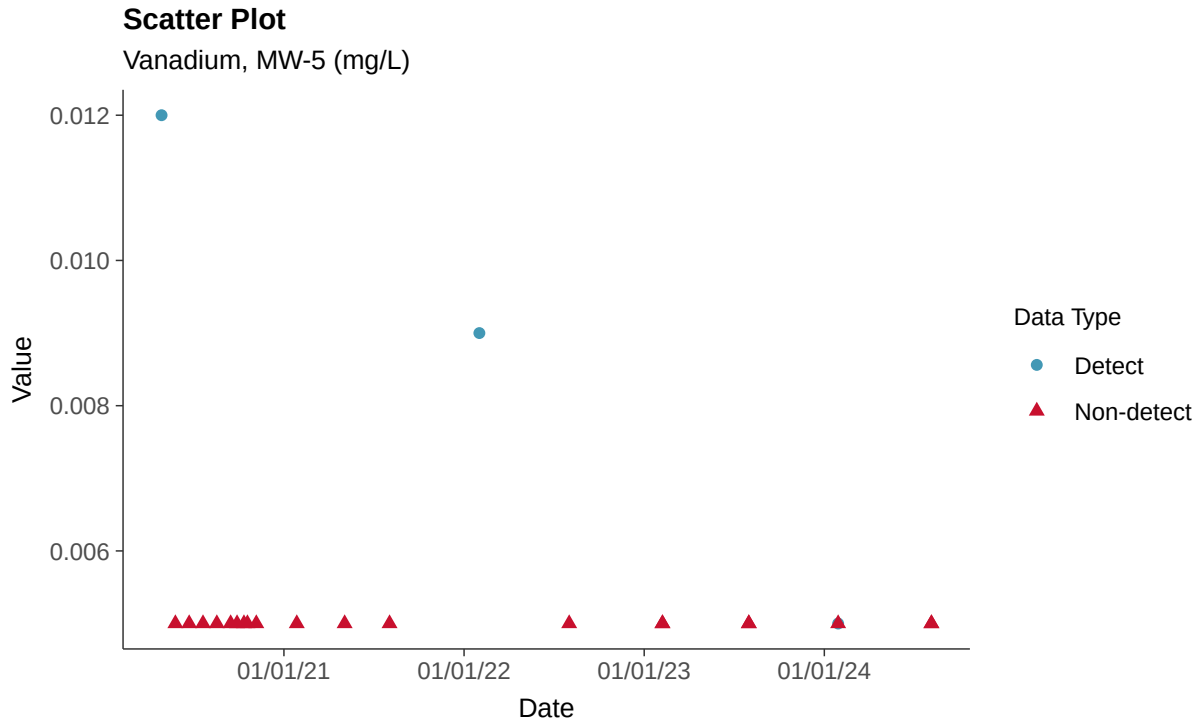
Boxplot by Season

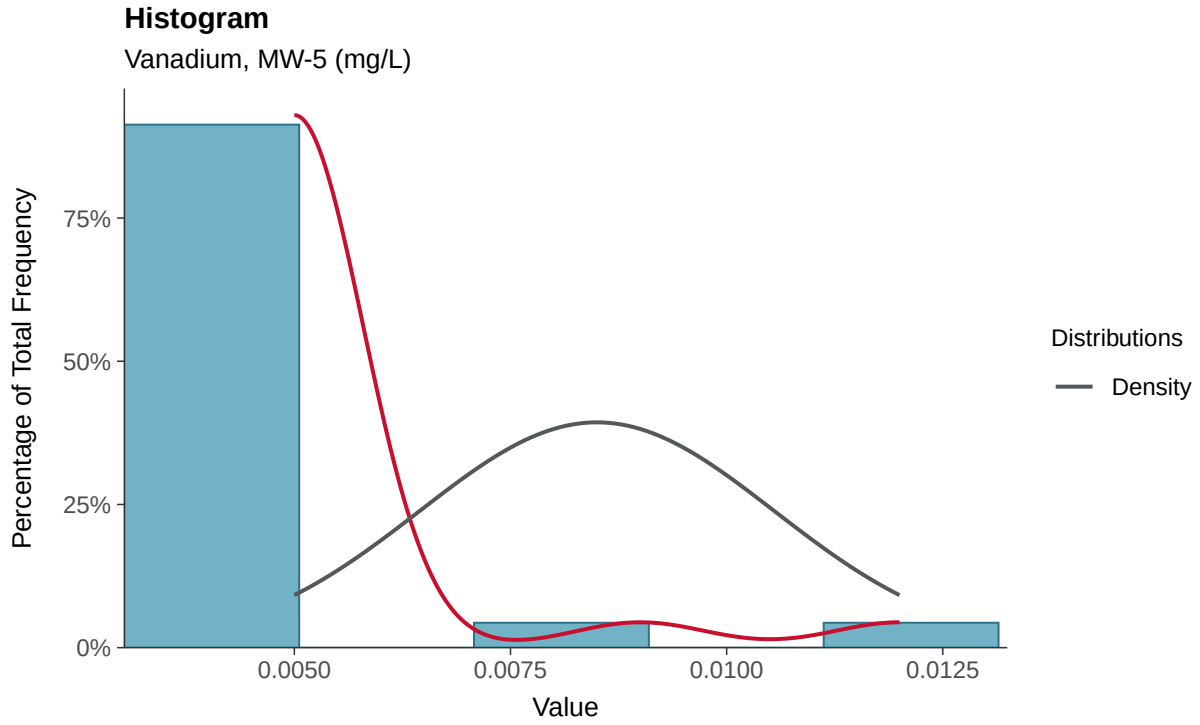
Silver, MW-5 (mg/L)



Part 115: Vanadium, MW-5

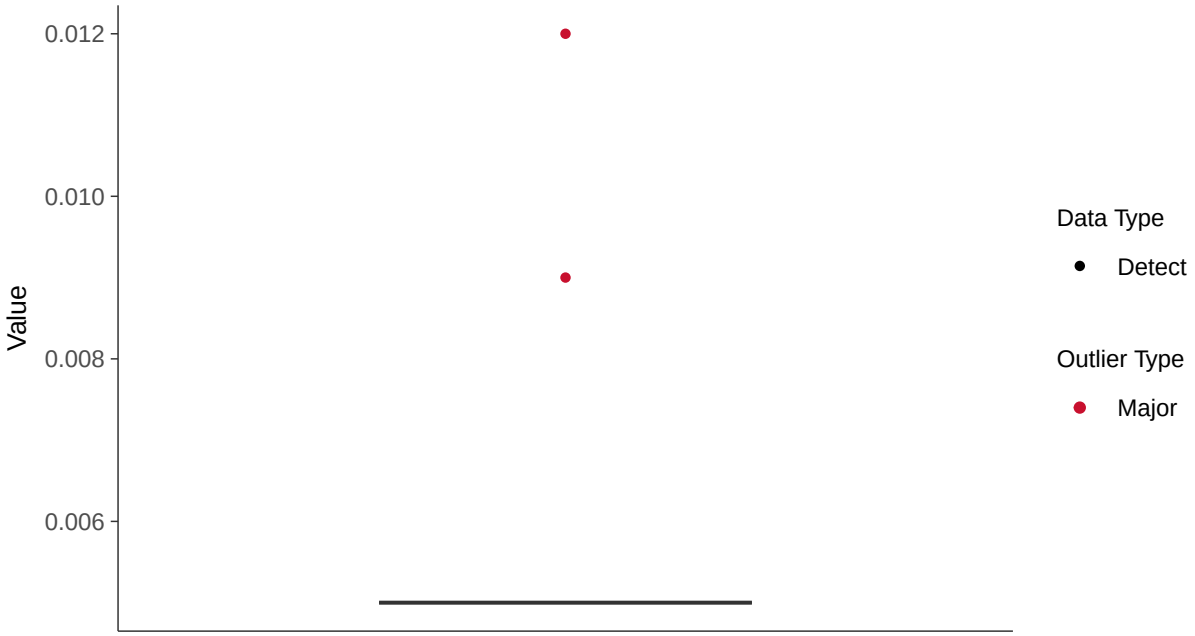
ID: 05_5_41





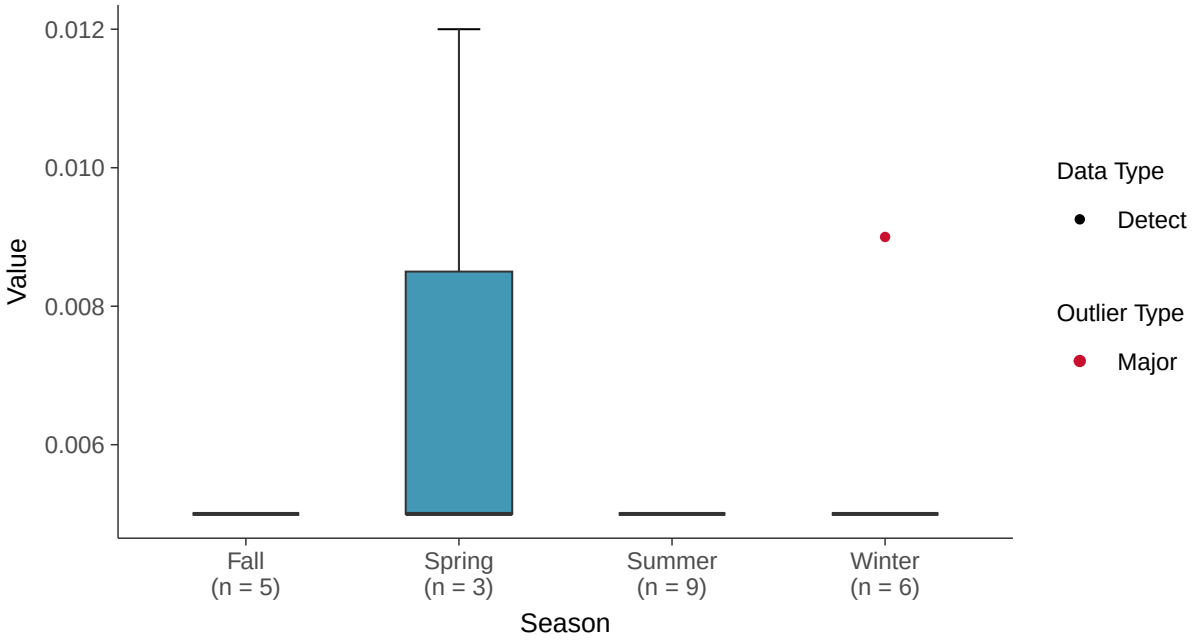
Boxplot

Vanadium, MW-5 (mg/L)



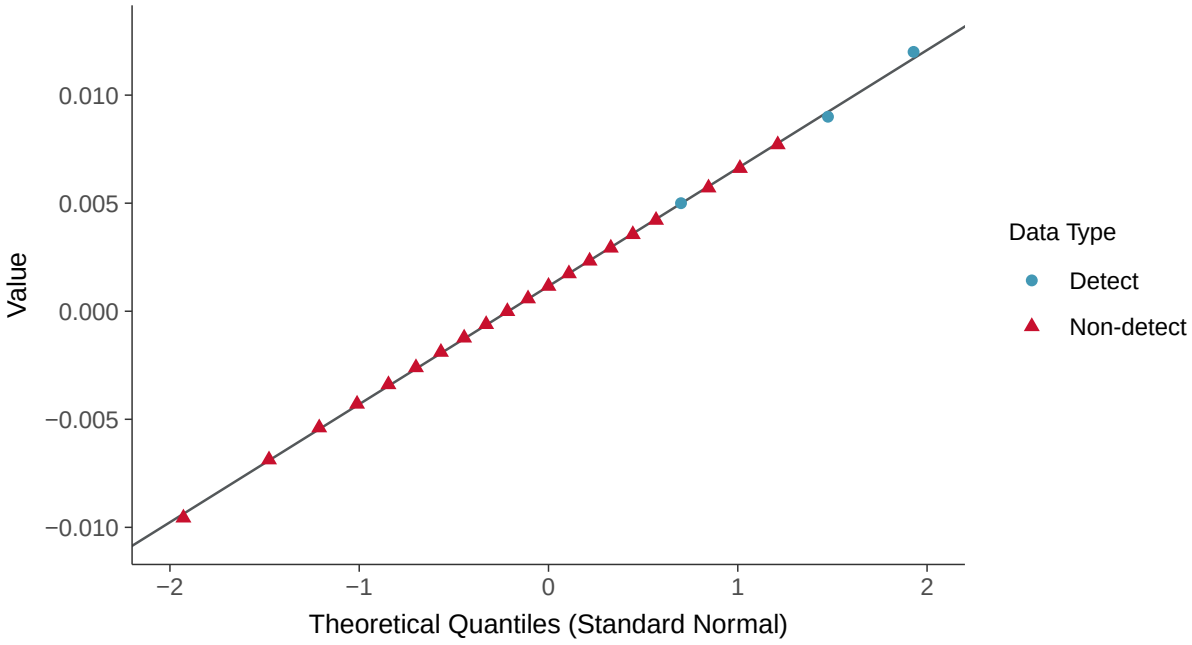
Boxplot by Season

Vanadium, MW-5 (mg/L)



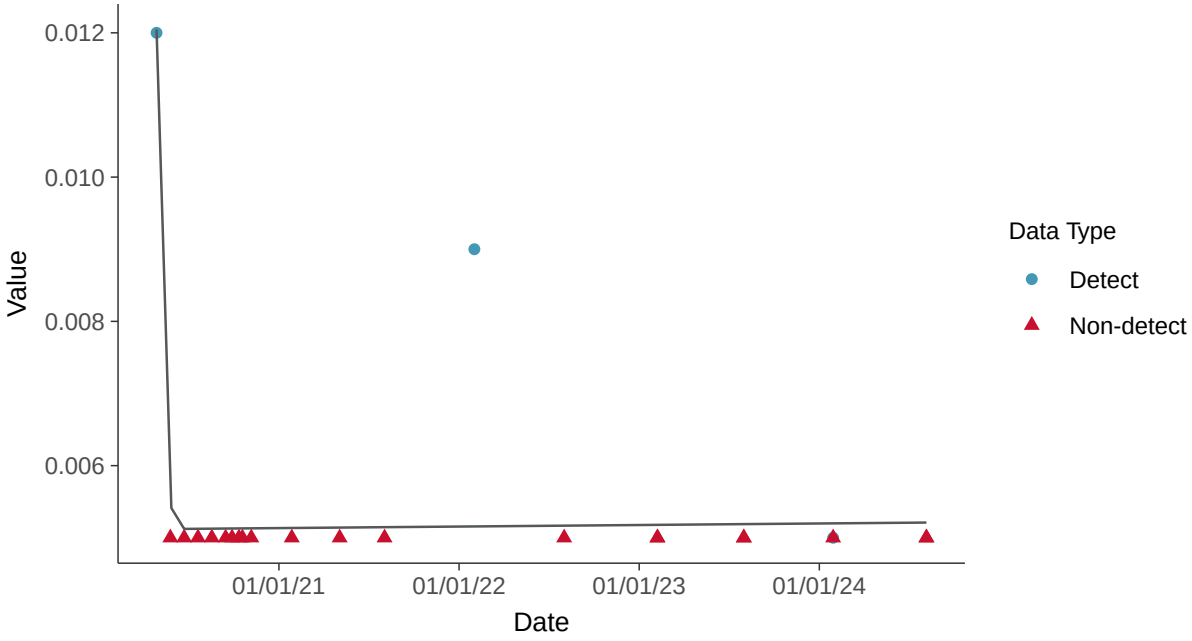
Normal Q-Q plot using ROS Imputed Estimates

Vanadium, MW-5 (mg/L)



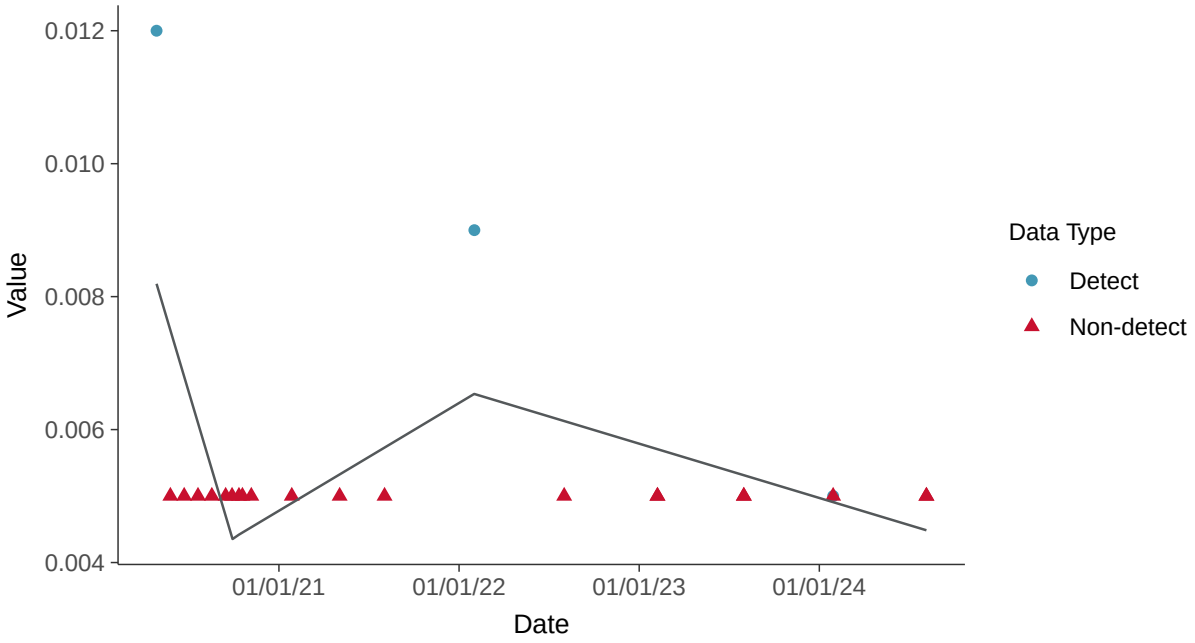
Trend Regression: Piecewise Linear-Linear

Vanadium, MW-5 (mg/L)



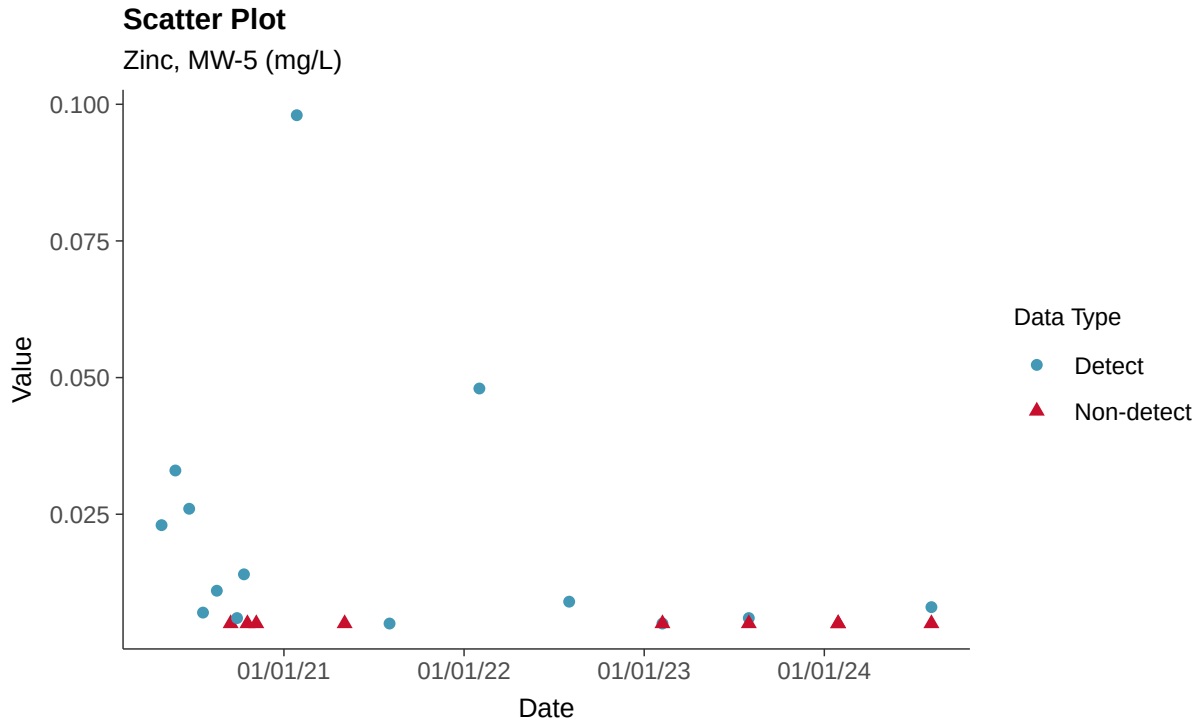
Trend Regression: Piecewise Linear-Linear-Linear

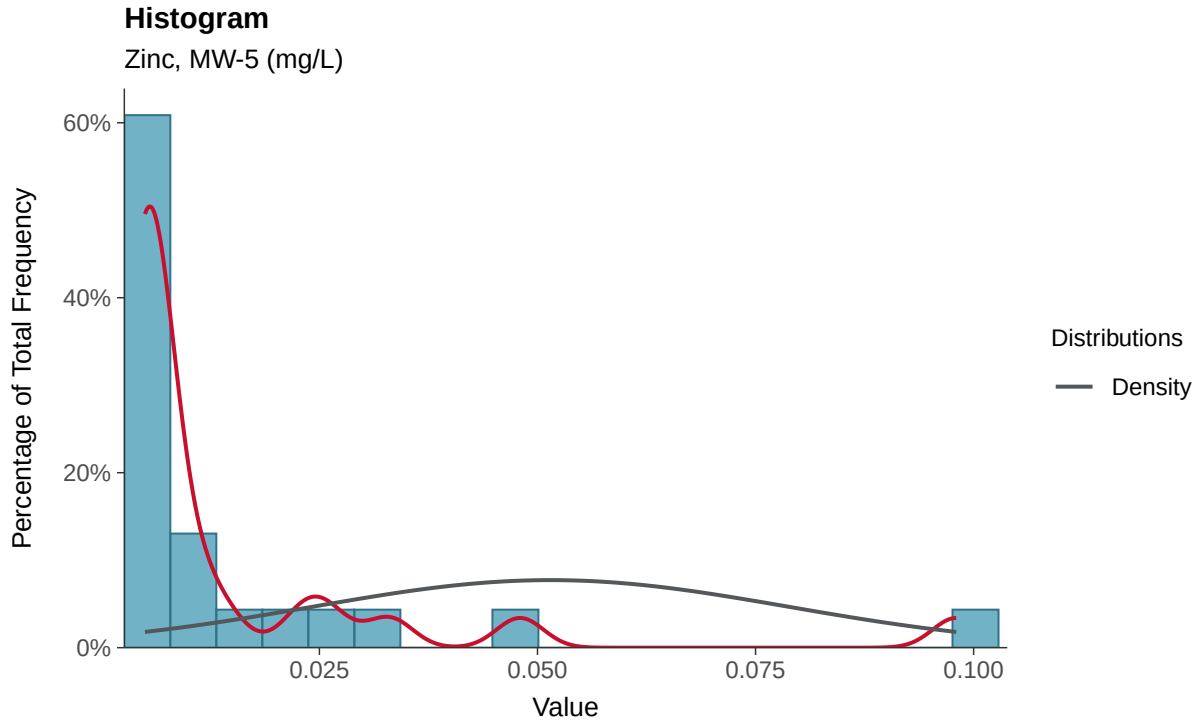
Vanadium, MW-5 (mg/L)



Part 115: Zinc, MW-5

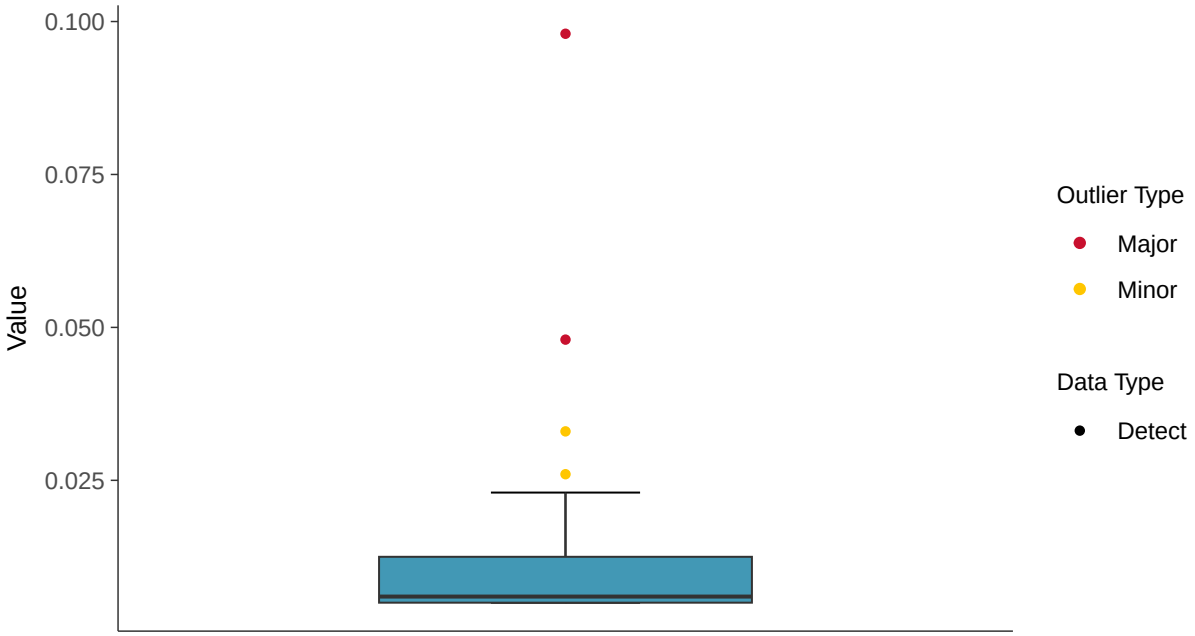
ID: 05_5_42





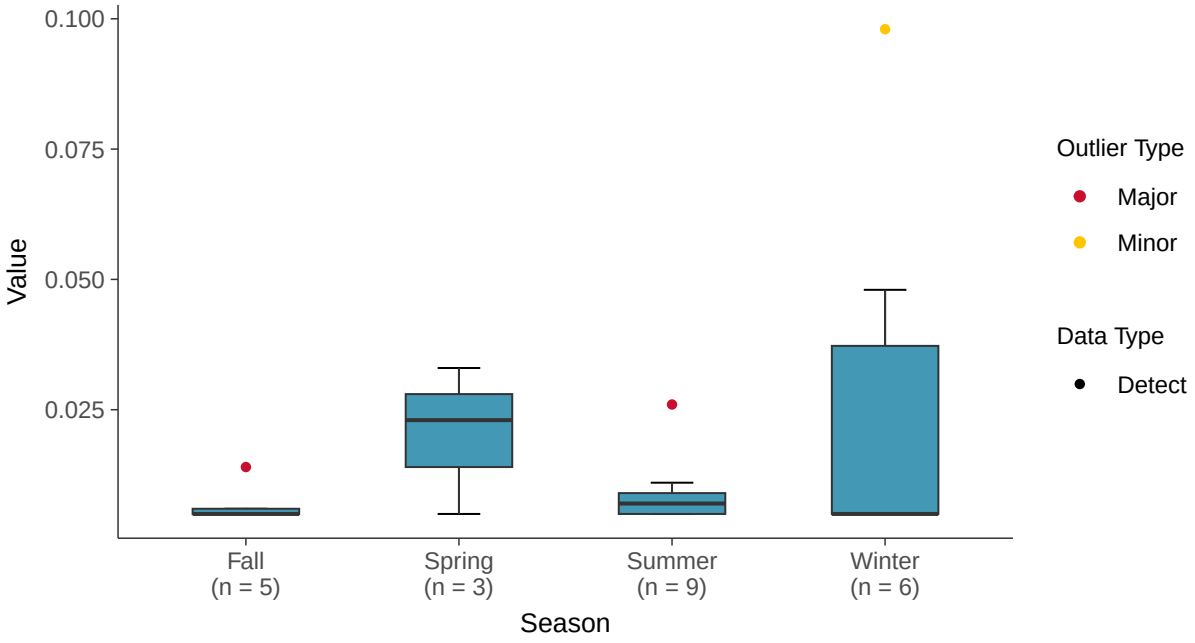
Boxplot

Zinc, MW-5 (mg/L)



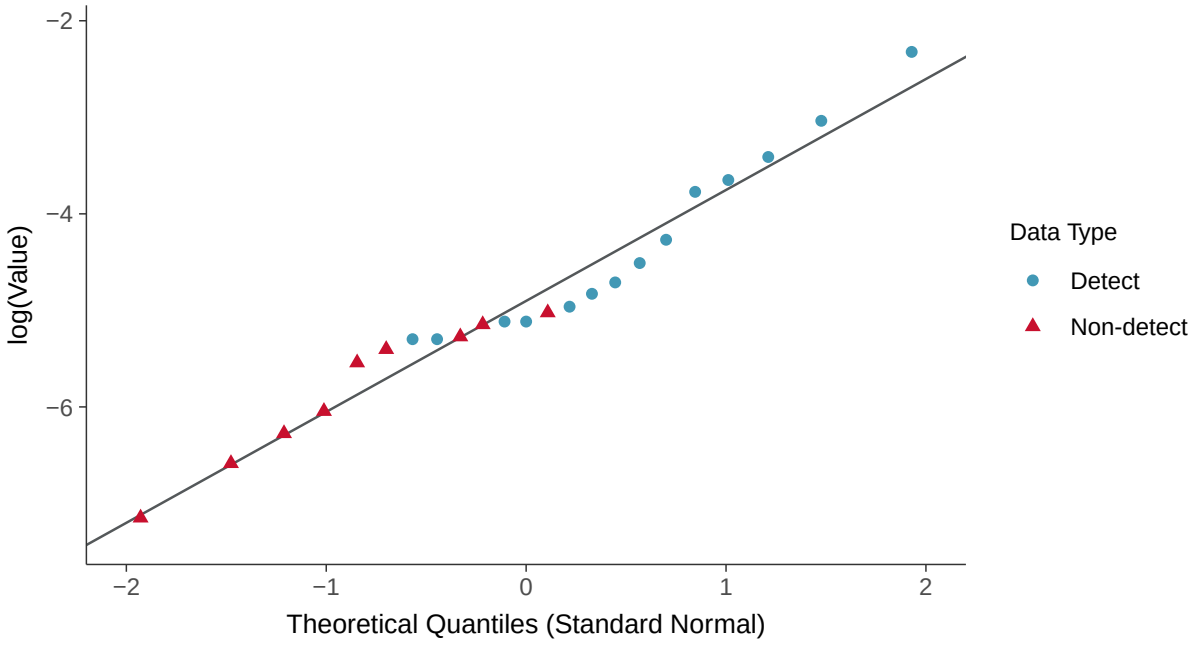
Boxplot by Season

Zinc, MW-5 (mg/L)



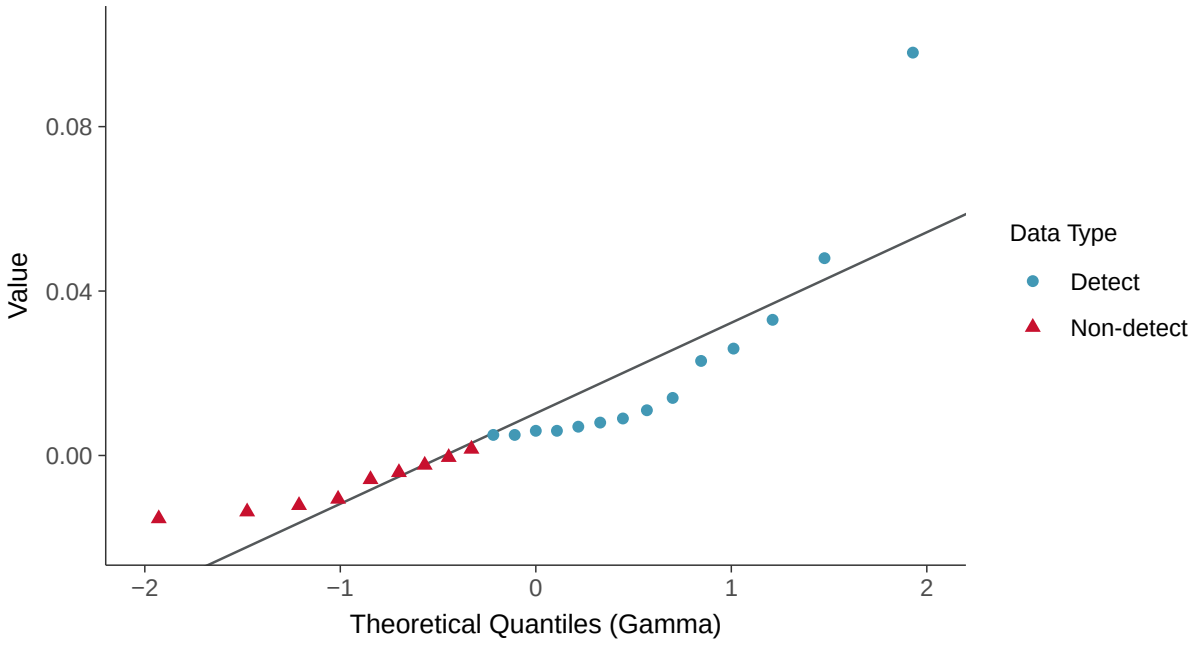
Lognormal Q-Q plot using ROS Imputed Estimates

Zinc, MW-5 (mg/L)



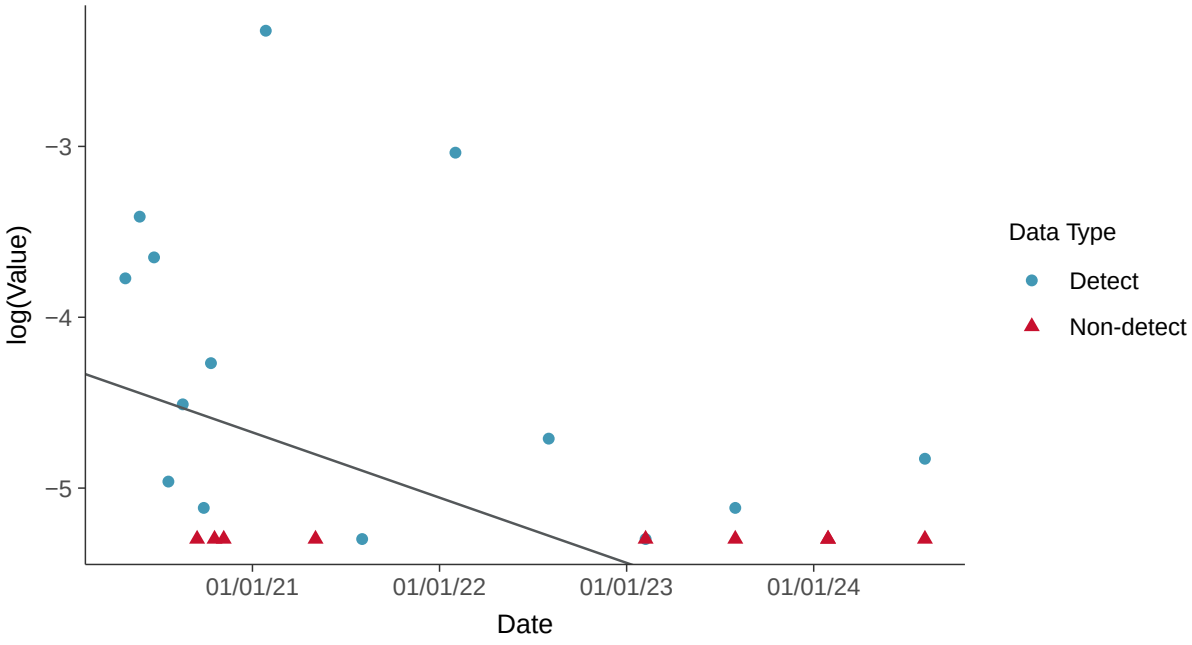
Gamma Q-Q plot using ROS Imputed Estimates

Zinc, MW-5 (mg/L)



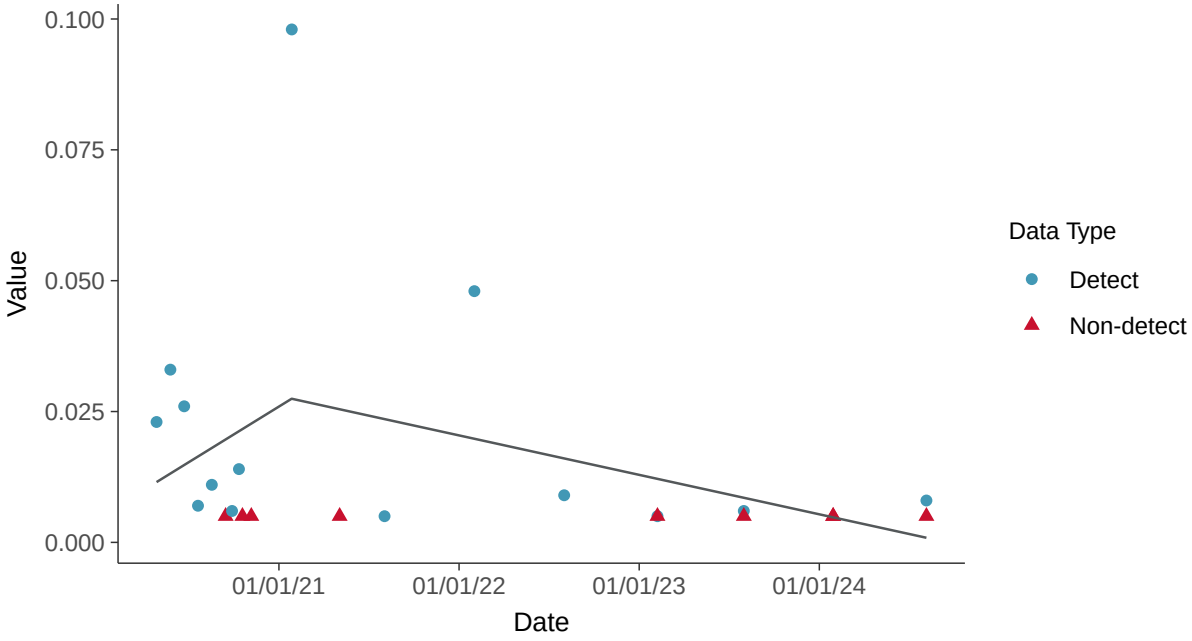
Trend Regression: Lognormal MLE

Zinc, MW-5 (mg/L)



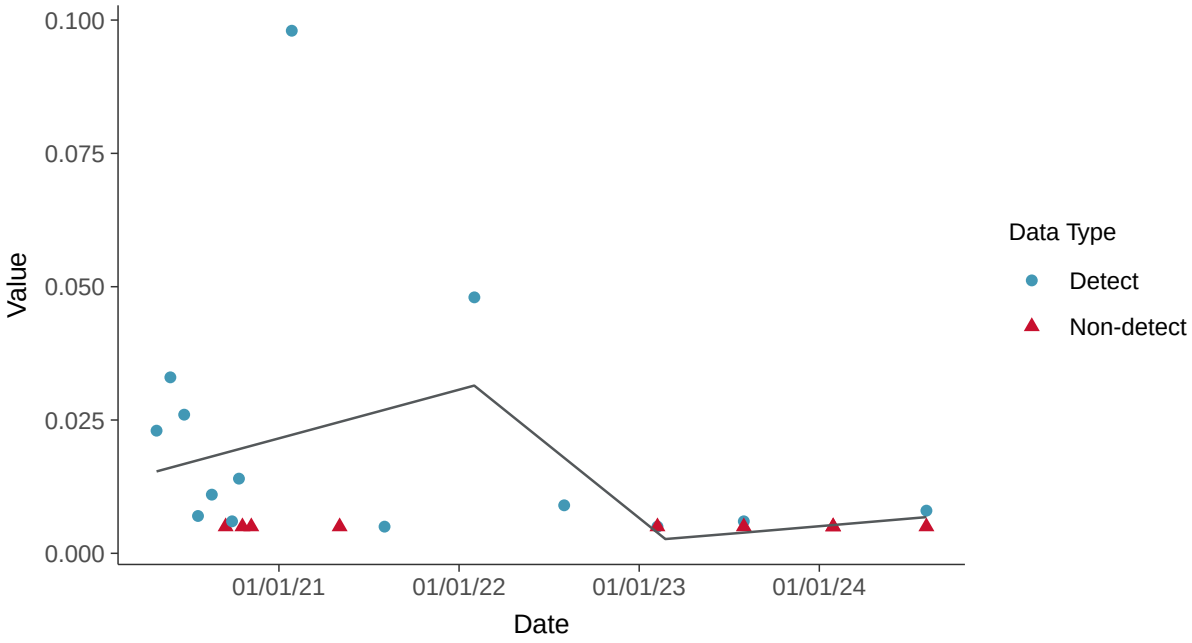
Trend Regression: Piecewise Linear-Linear

Zinc, MW-5 (mg/L)



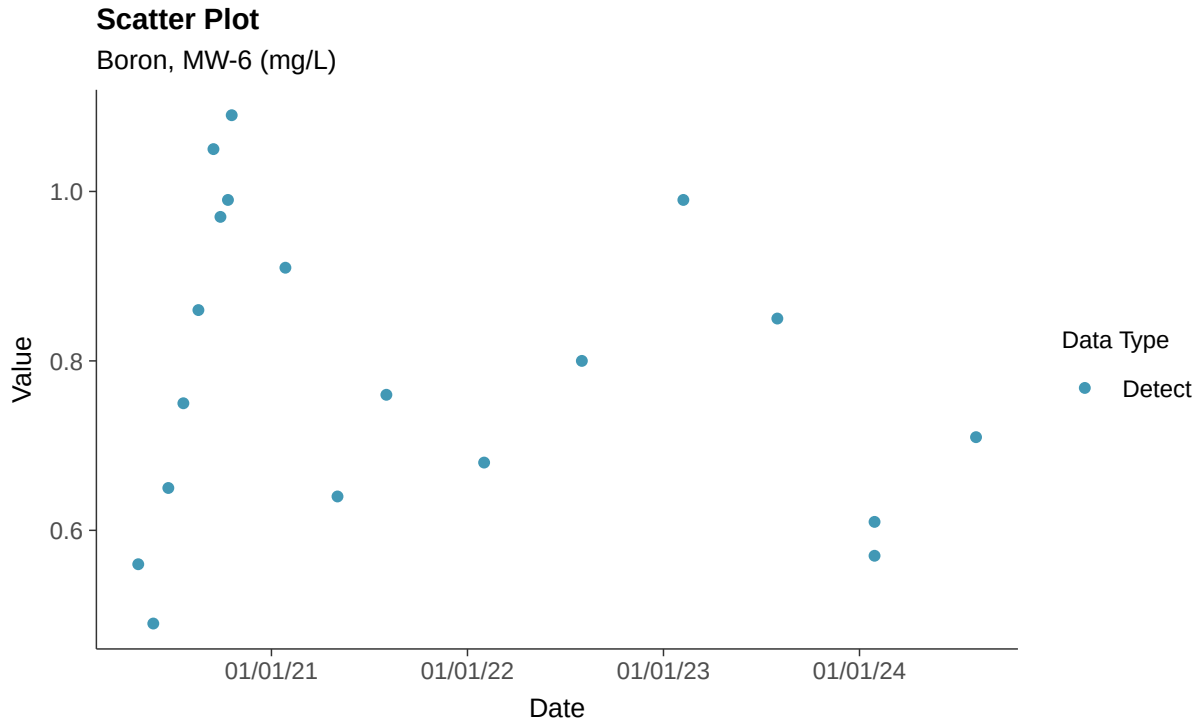
Trend Regression: Piecewise Linear-Linear-Linear

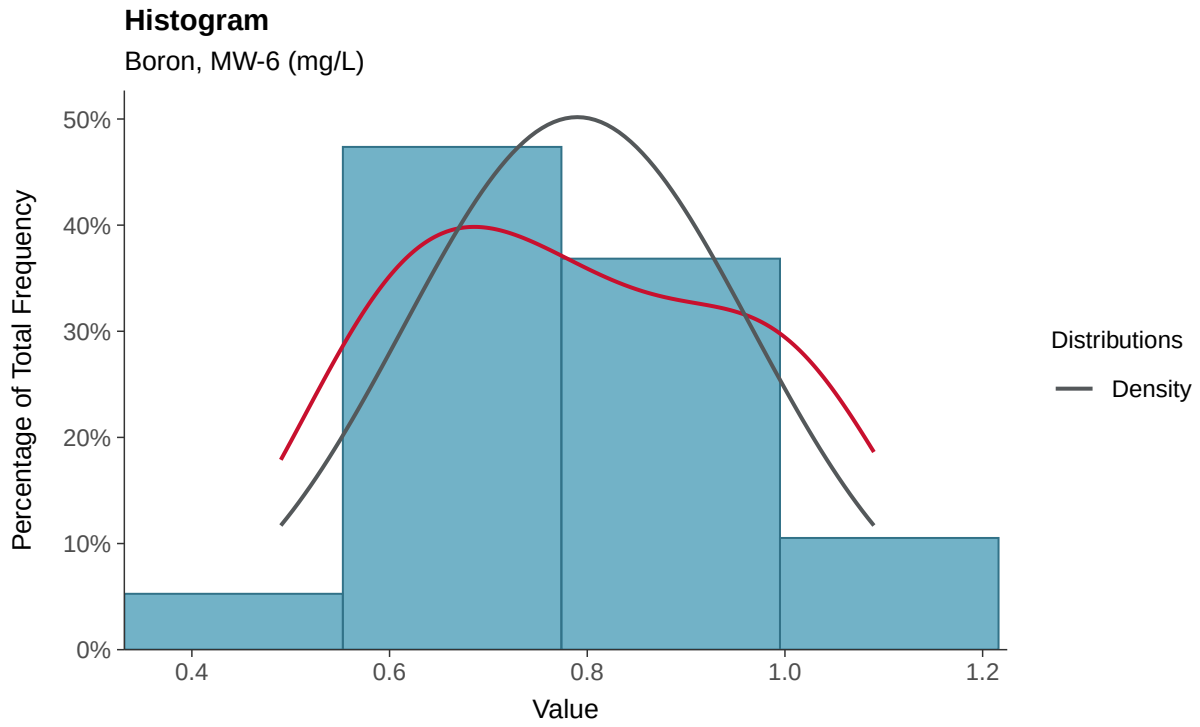
Zinc, MW-5 (mg/L)



Appendix III: Boron, MW-6

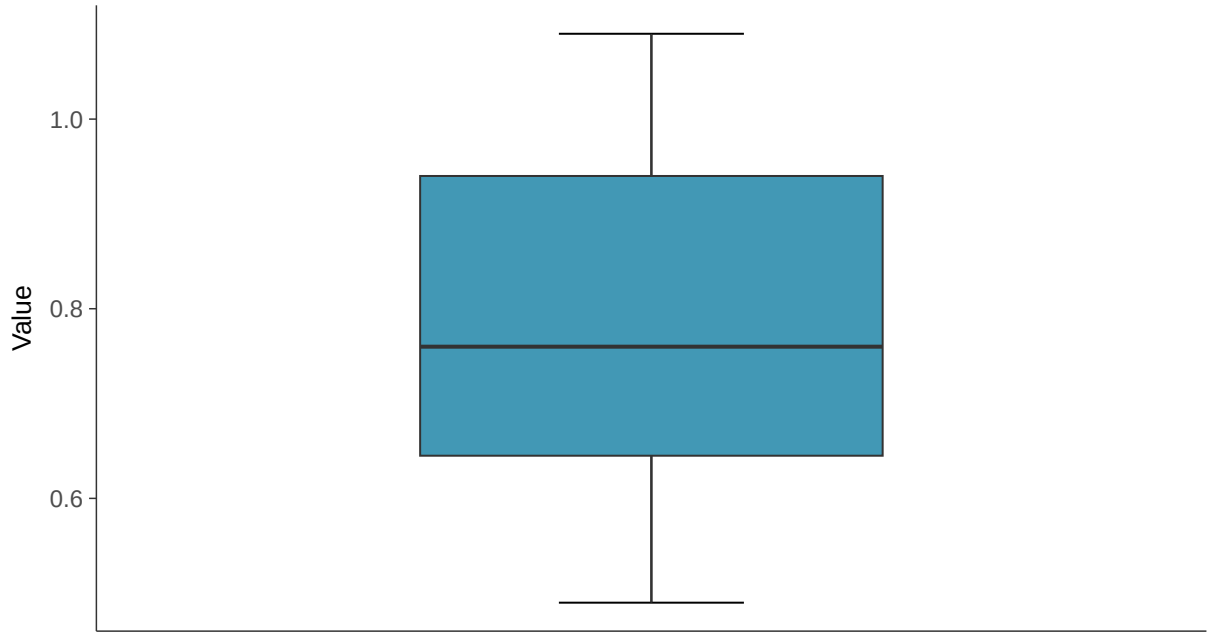
ID: 06_1_01





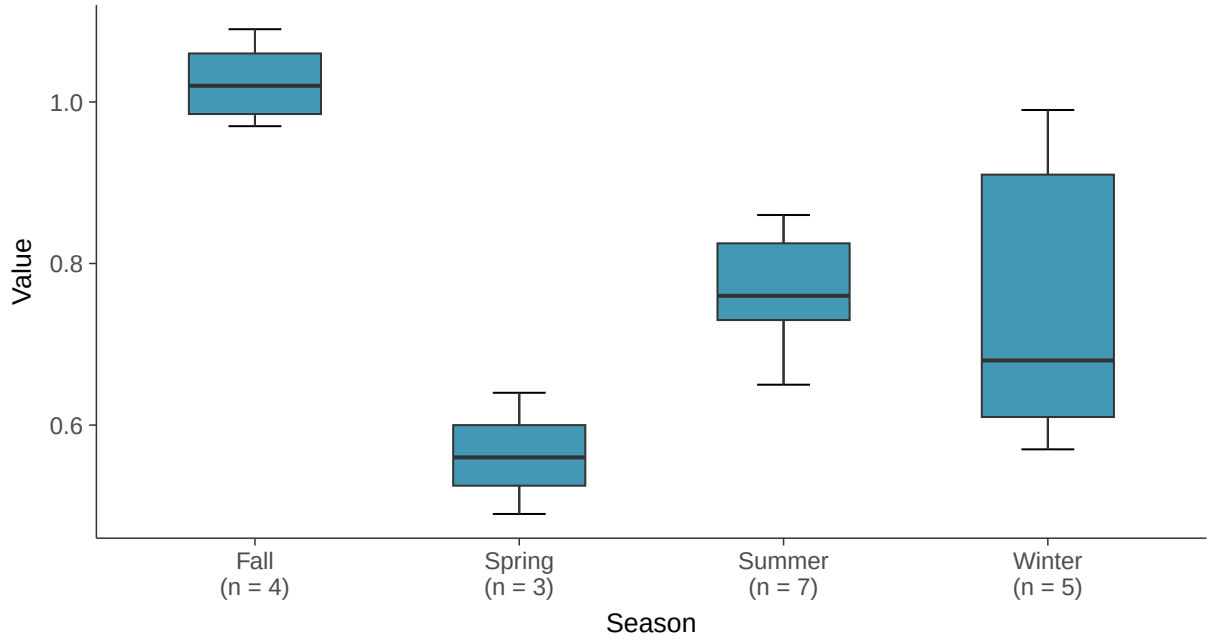
Boxplot

Boron, MW-6 (mg/L)



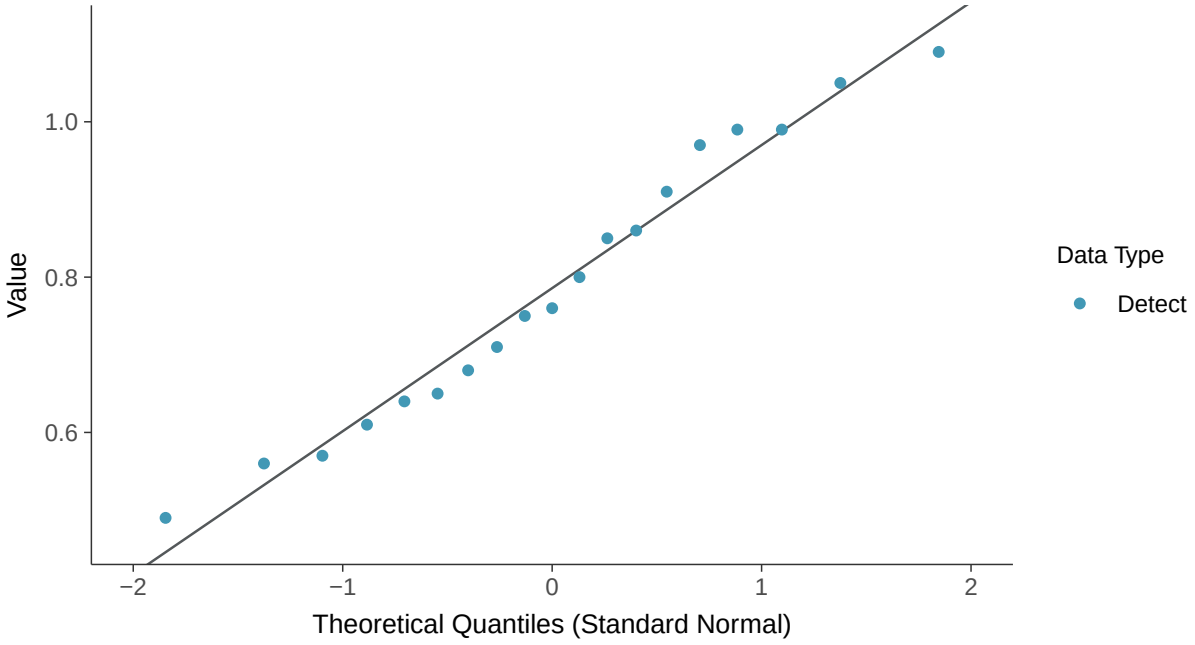
Boxplot by Season

Boron, MW-6 (mg/L)



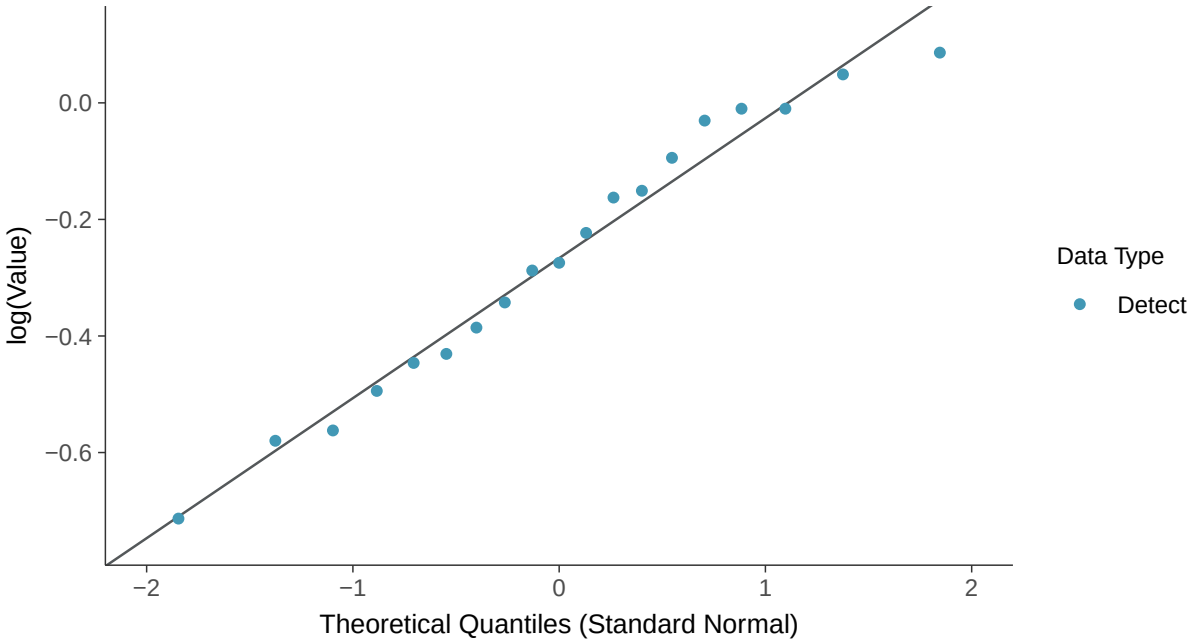
Normal Q-Q plot

Boron, MW-6 (mg/L)



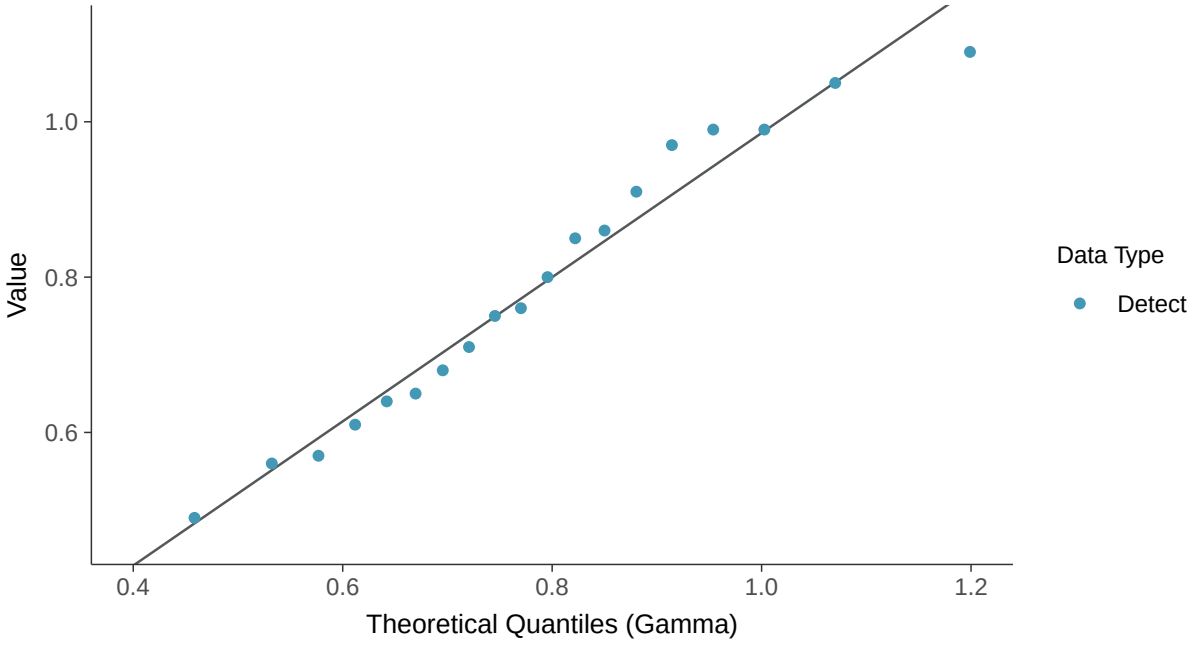
Lognormal Q-Q plot

Boron, MW-6 (mg/L)



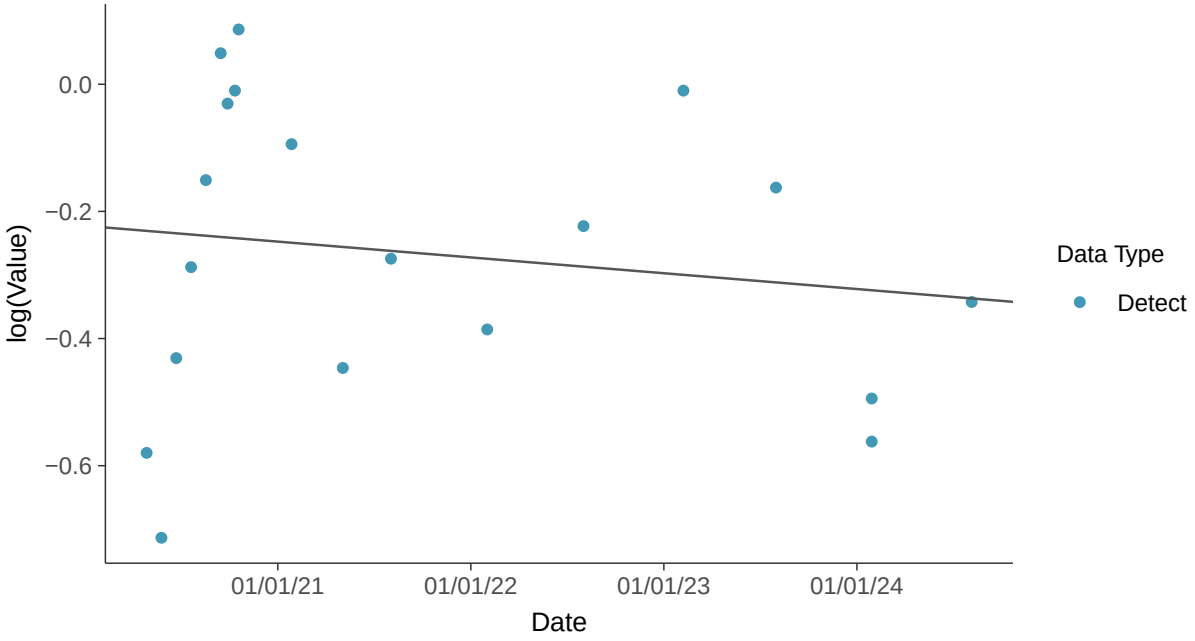
Gamma Q-Q plot

Boron, MW-6 (mg/L)



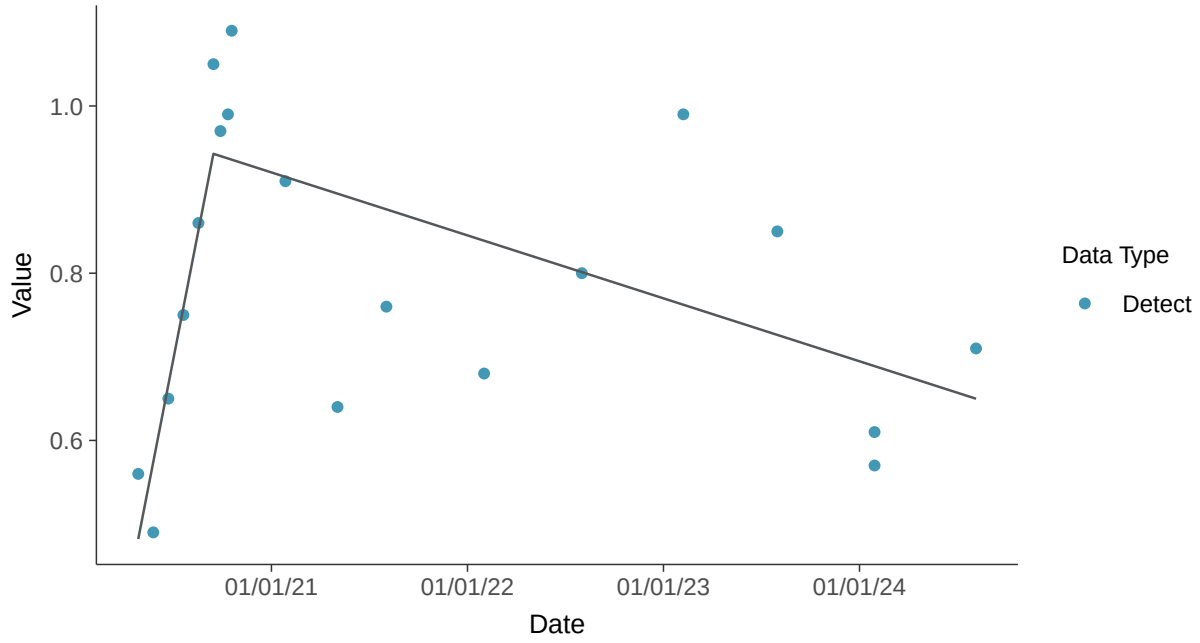
Trend Regression: Lognormal MLE

Boron, MW-6 (mg/L)



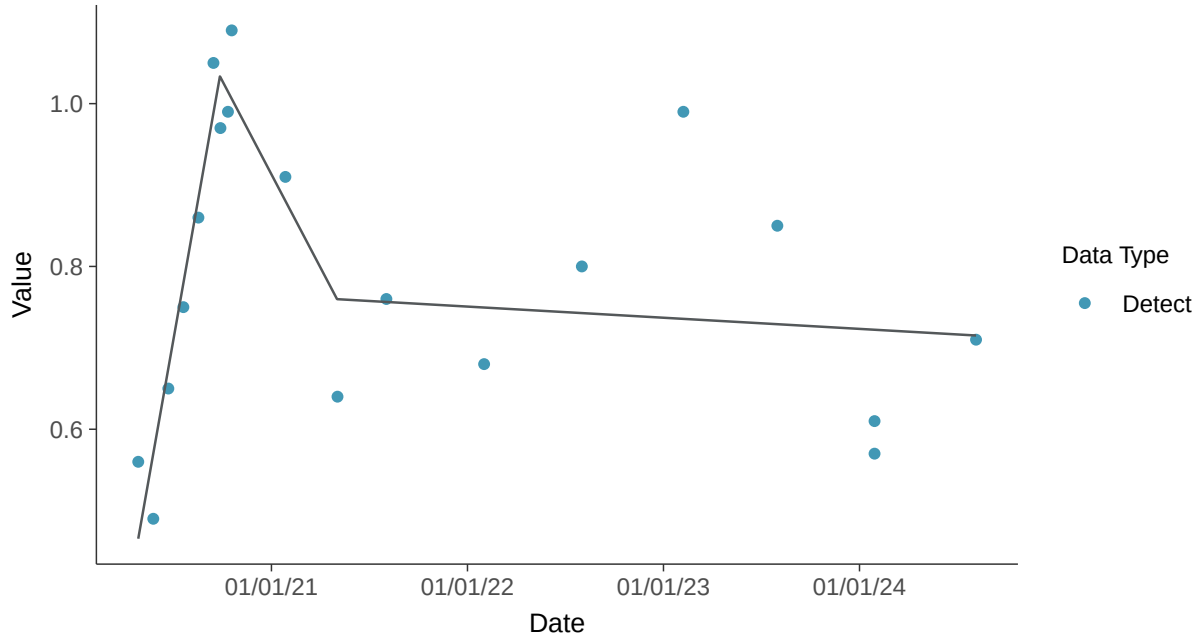
Trend Regression: Piecewise Linear-Linear

Boron, MW-6 (mg/L)



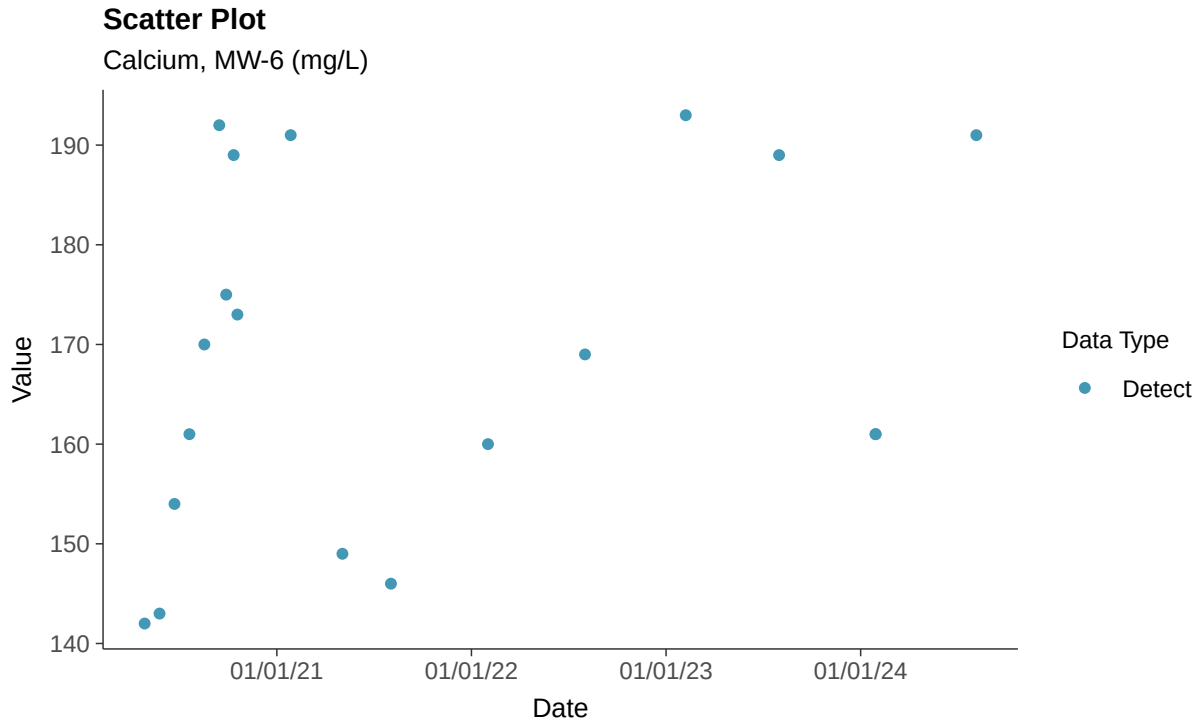
Trend Regression: Piecewise Linear-Linear-Linear

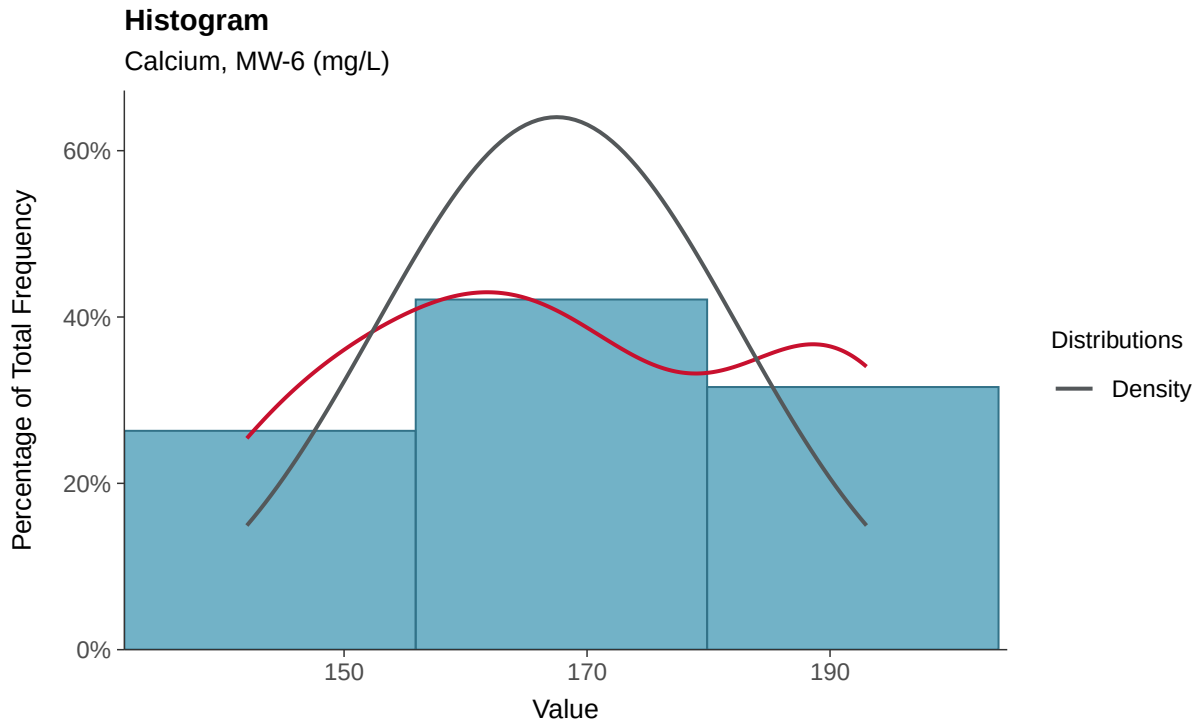
Boron, MW-6 (mg/L)



Appendix III: Calcium, MW-6

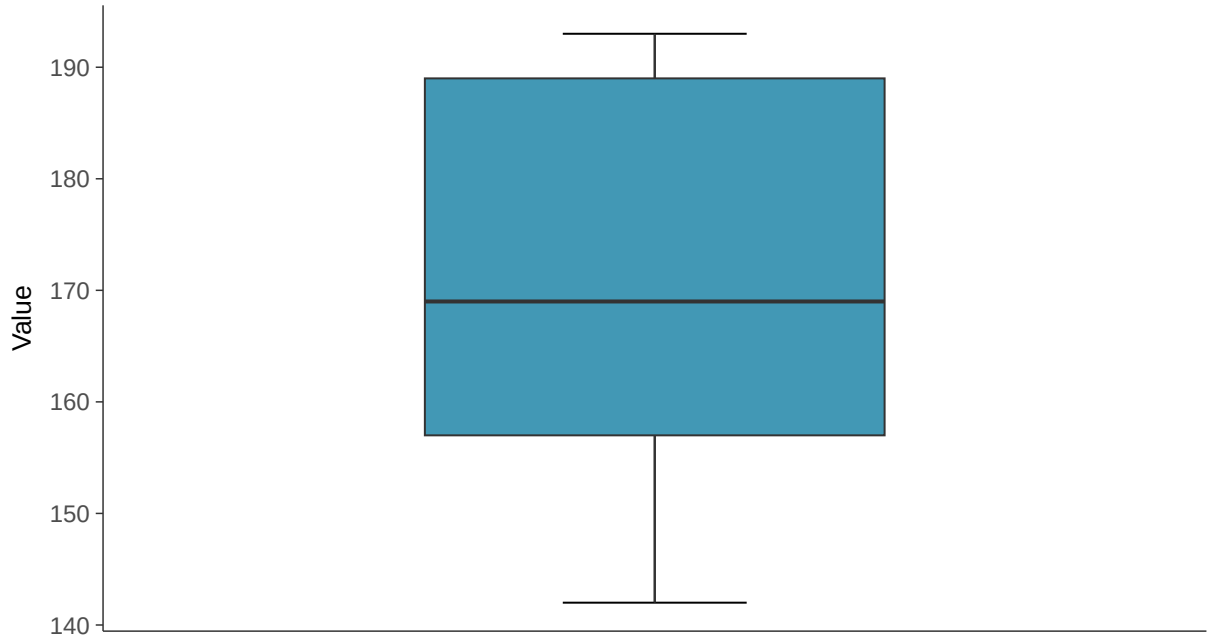
ID: 06_1_02





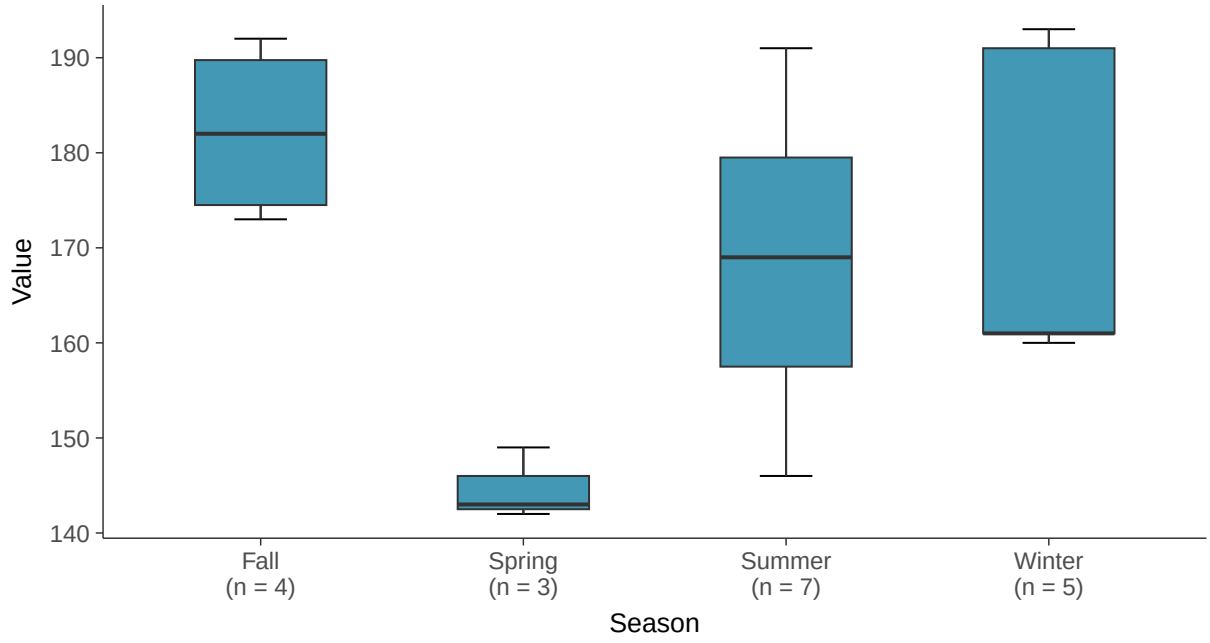
Boxplot

Calcium, MW-6 (mg/L)



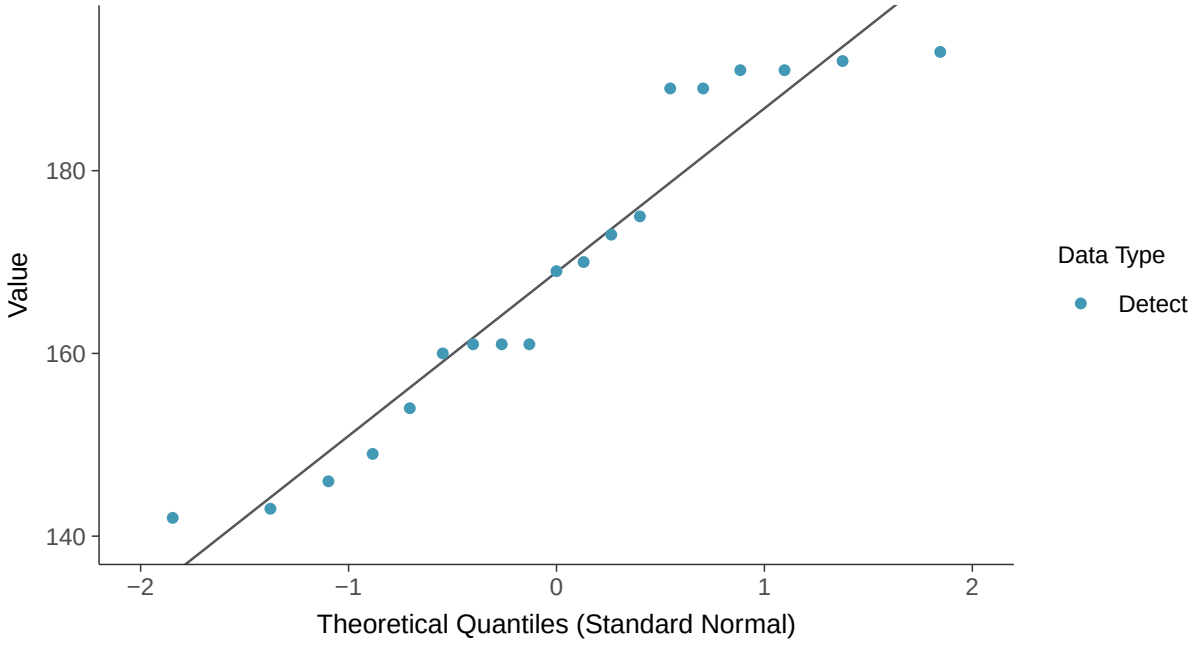
Boxplot by Season

Calcium, MW-6 (mg/L)



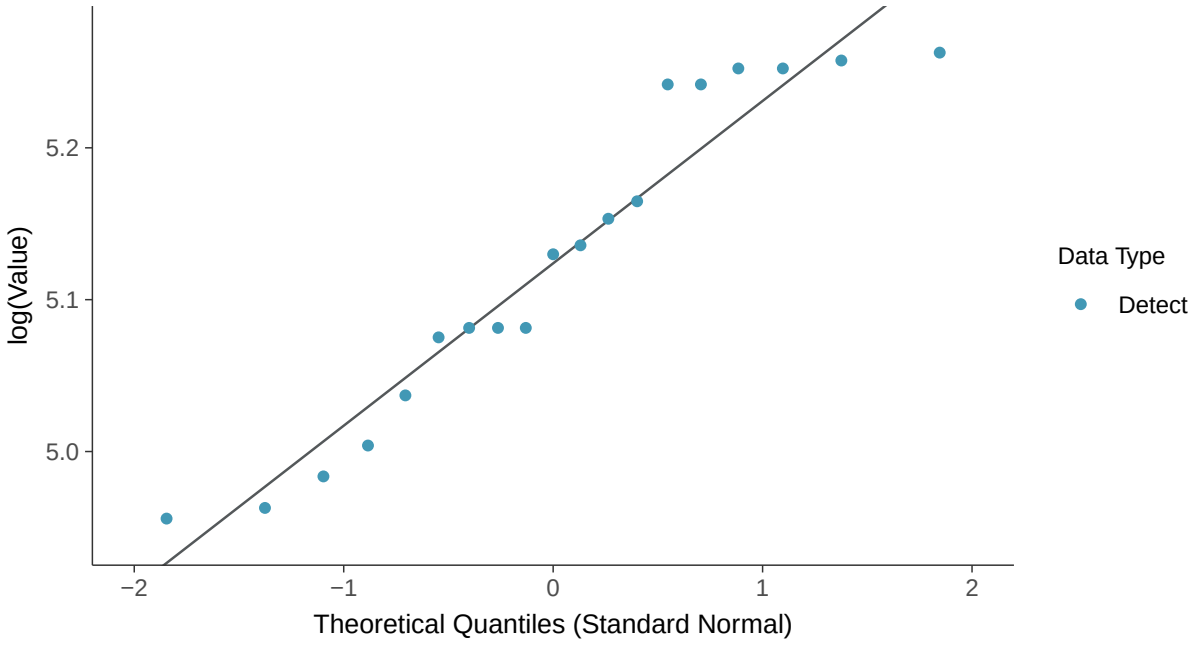
Normal Q-Q plot

Calcium, MW-6 (mg/L)



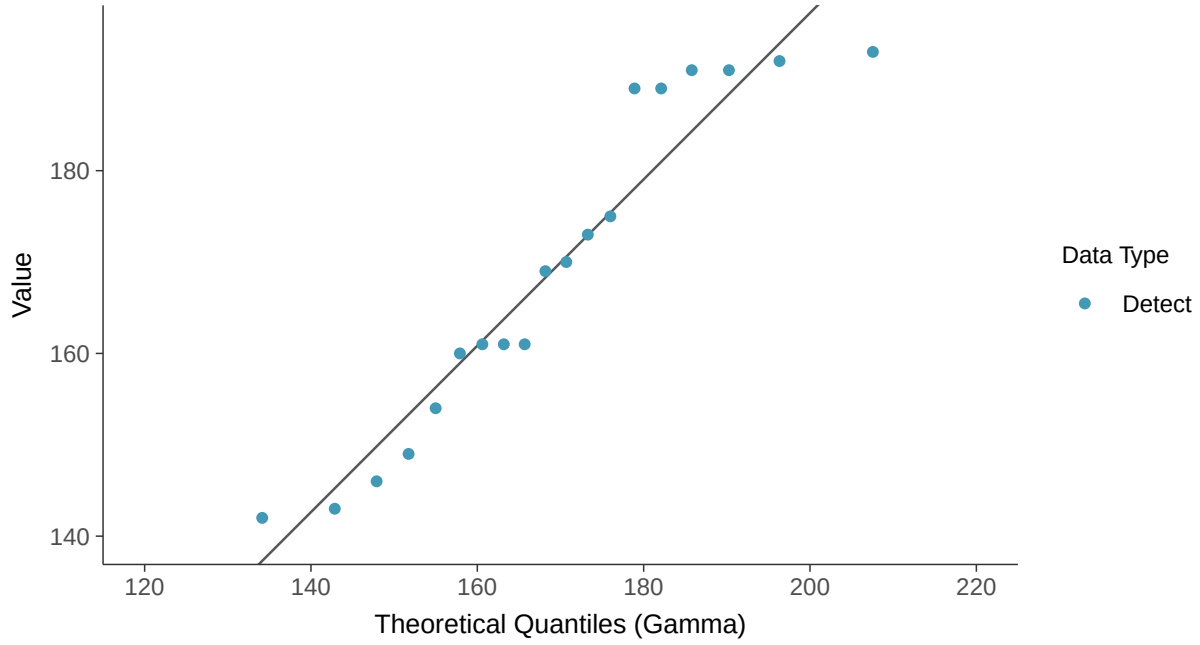
Lognormal Q-Q plot

Calcium, MW-6 (mg/L)



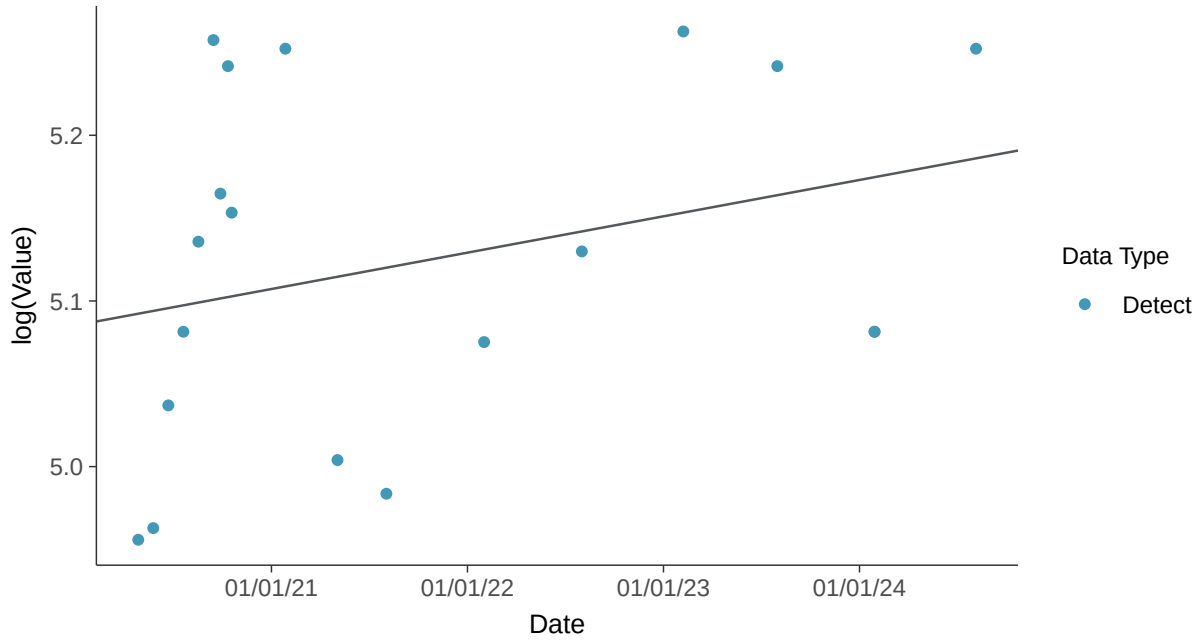
Gamma Q-Q plot

Calcium, MW-6 (mg/L)



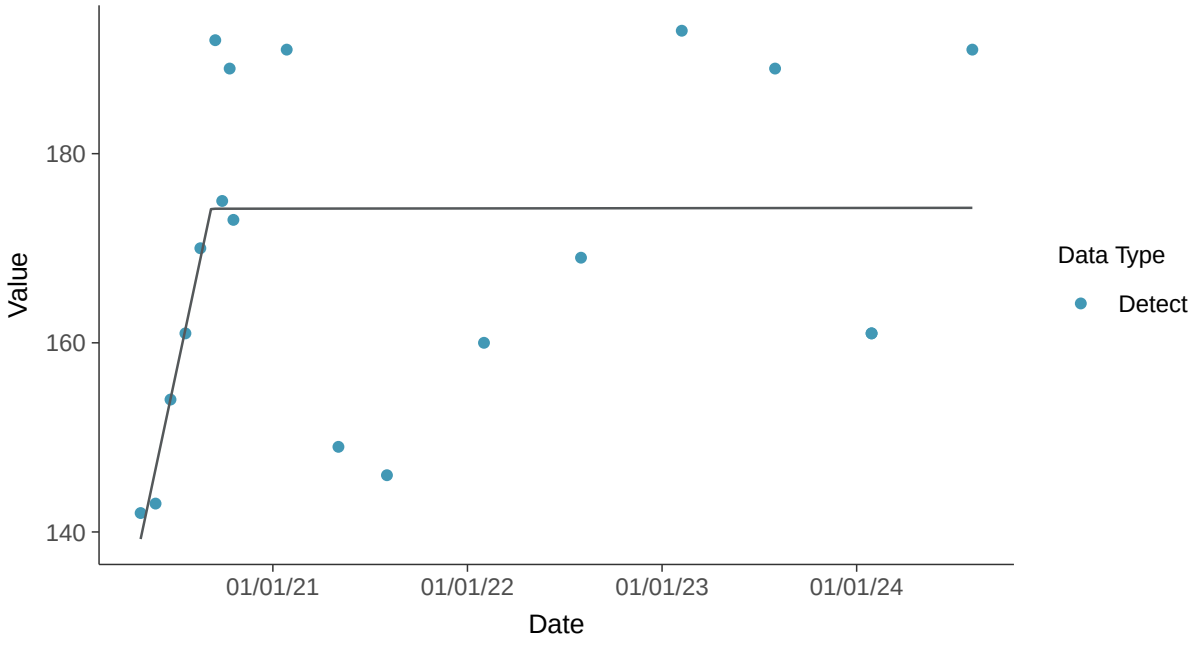
Trend Regression: Lognormal MLE

Calcium, MW-6 (mg/L)



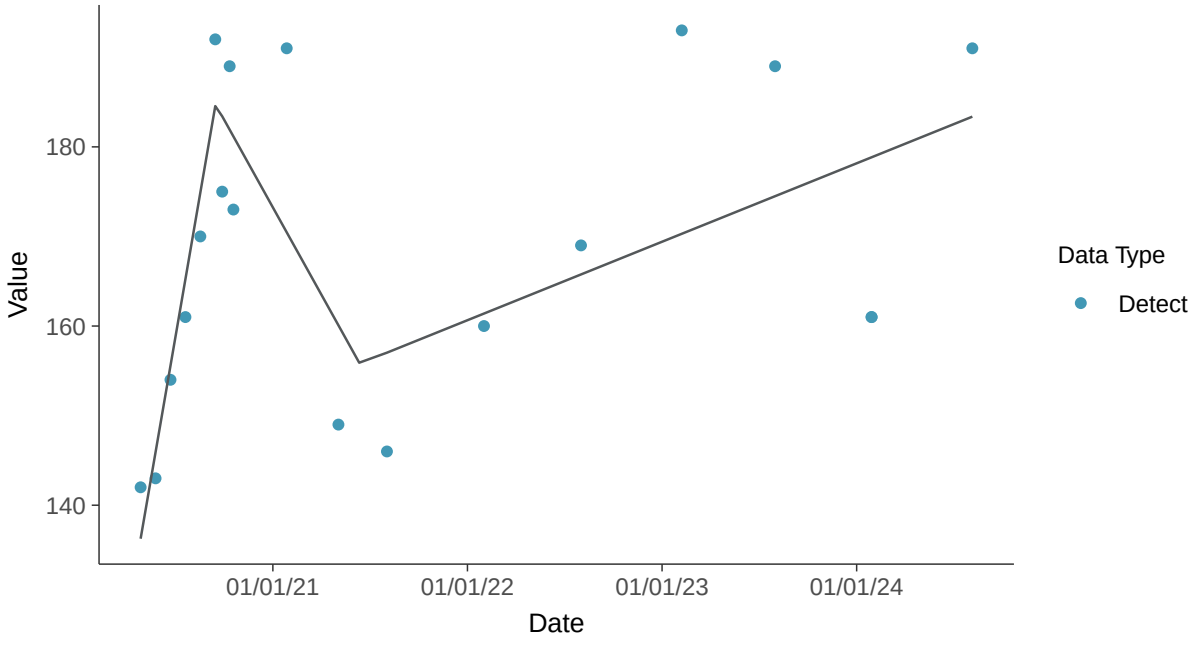
Trend Regression: Piecewise Linear-Linear

Calcium, MW-6 (mg/L)



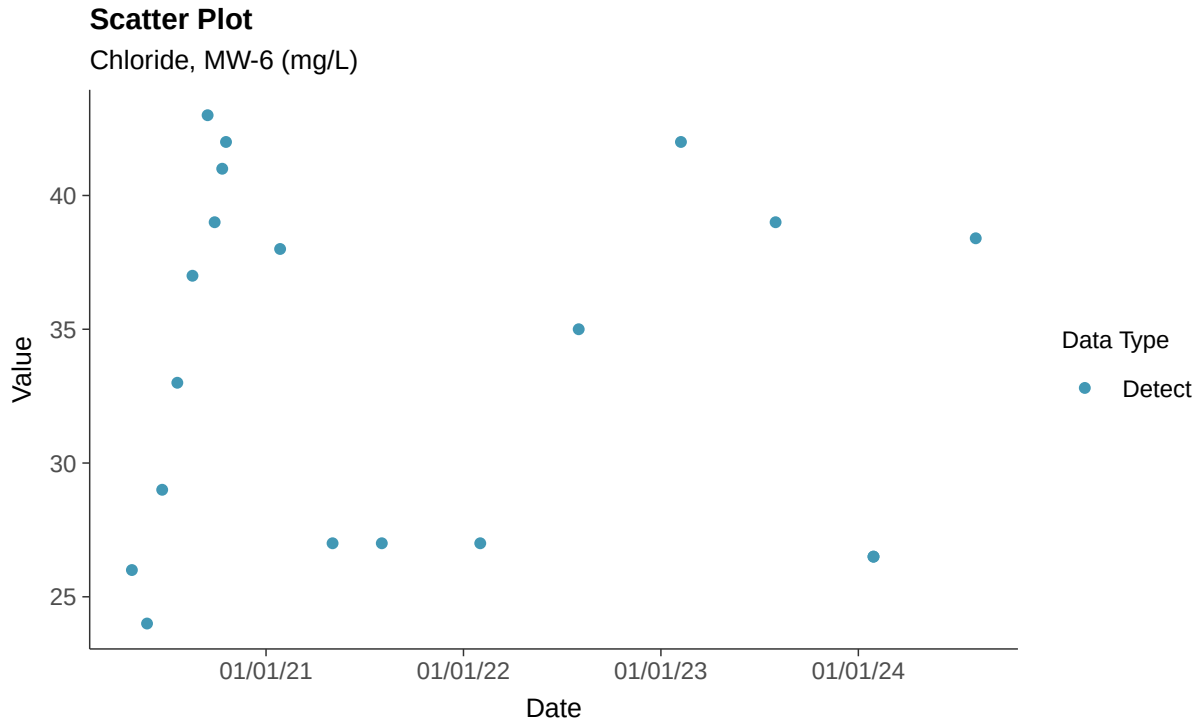
Trend Regression: Piecewise Linear-Linear-Linear

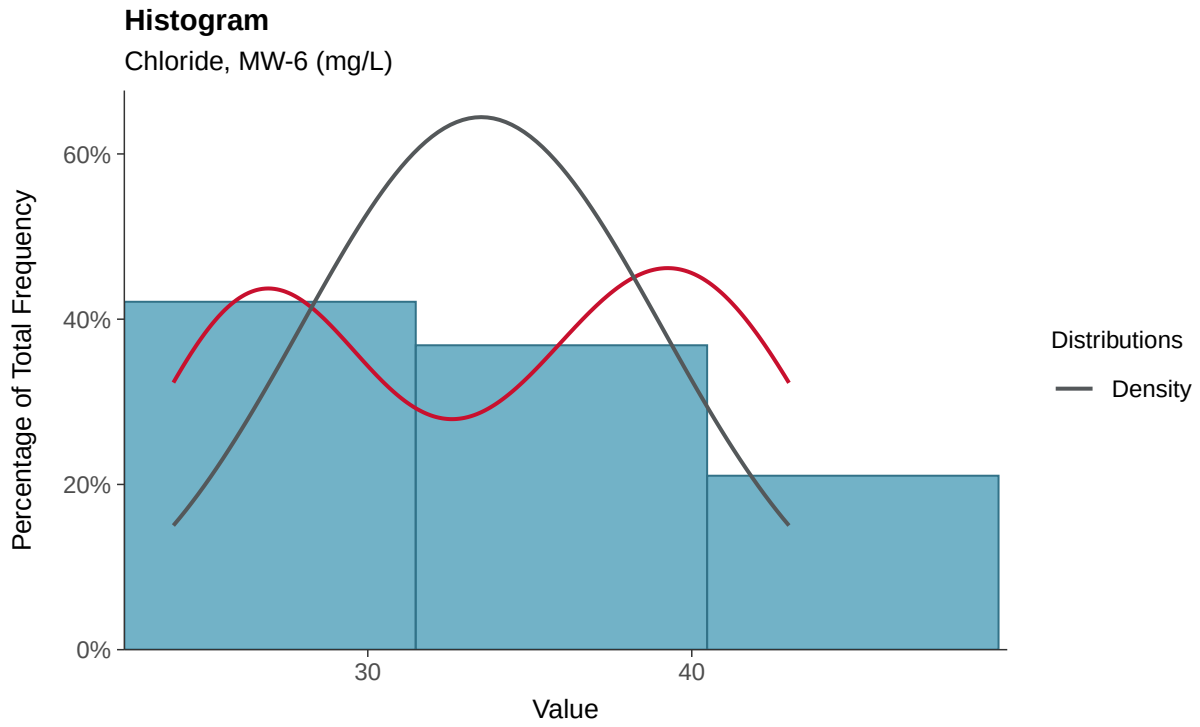
Calcium, MW-6 (mg/L)



Appendix III: Chloride, MW-6

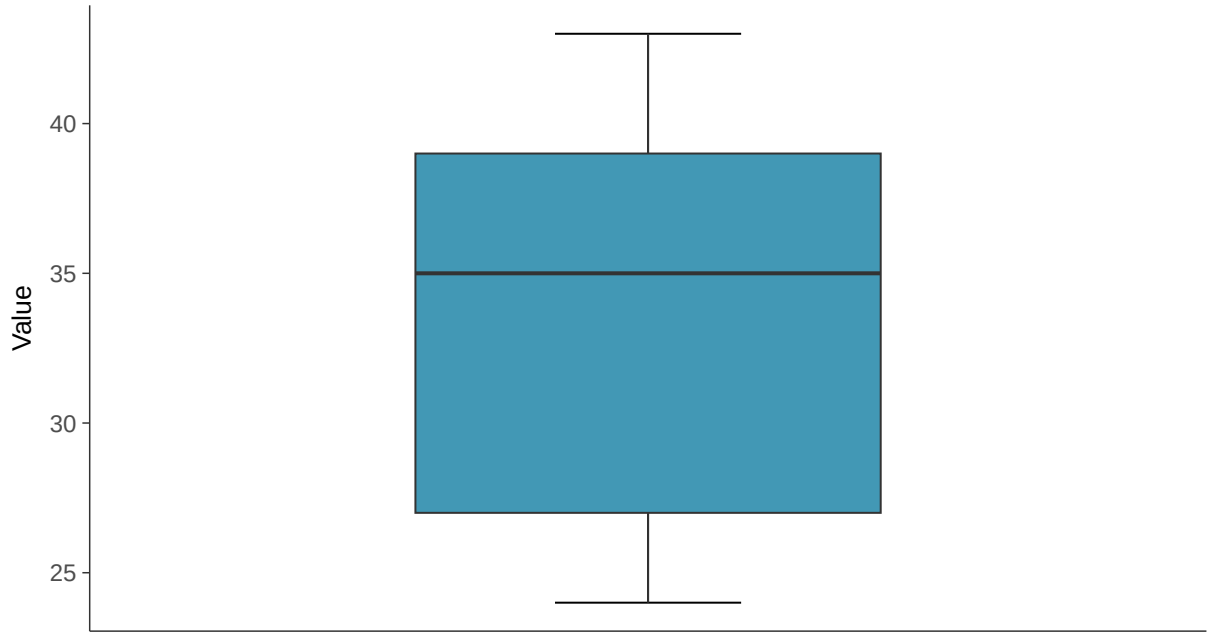
ID: 06_1_03





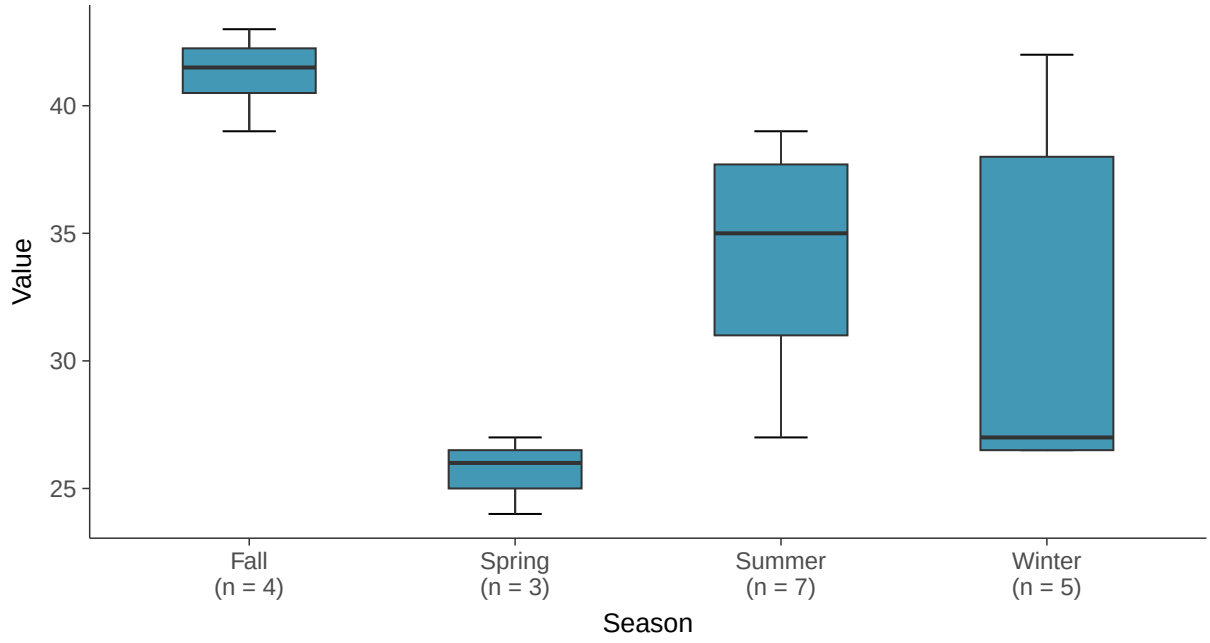
Boxplot

Chloride, MW-6 (mg/L)



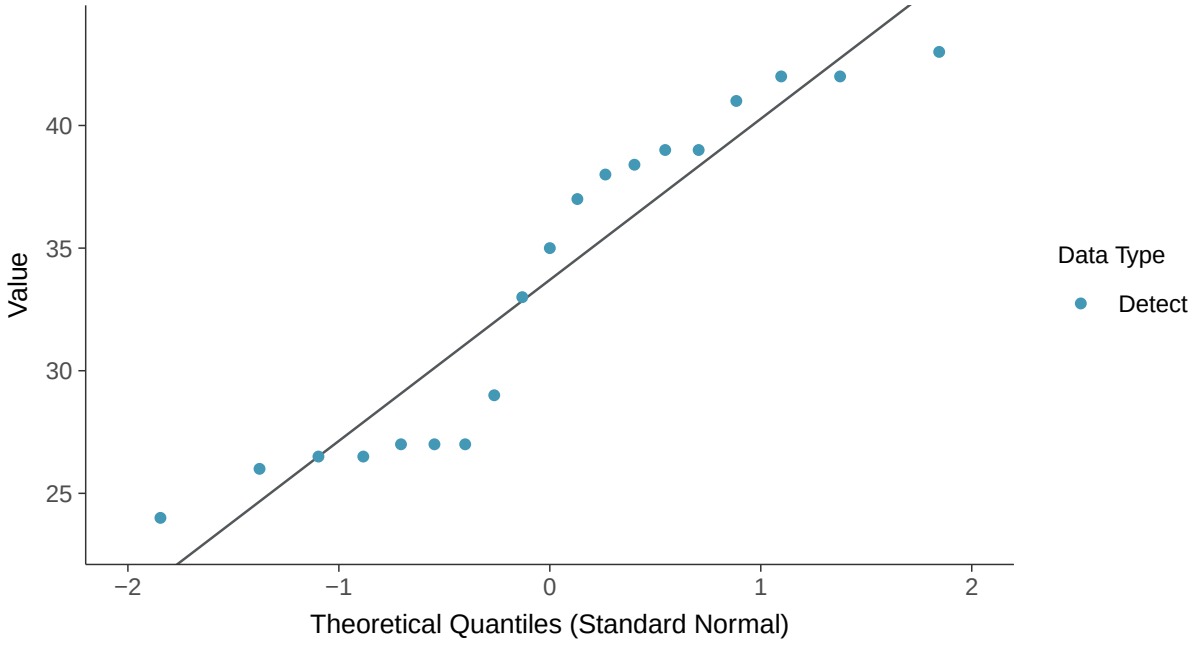
Boxplot by Season

Chloride, MW-6 (mg/L)



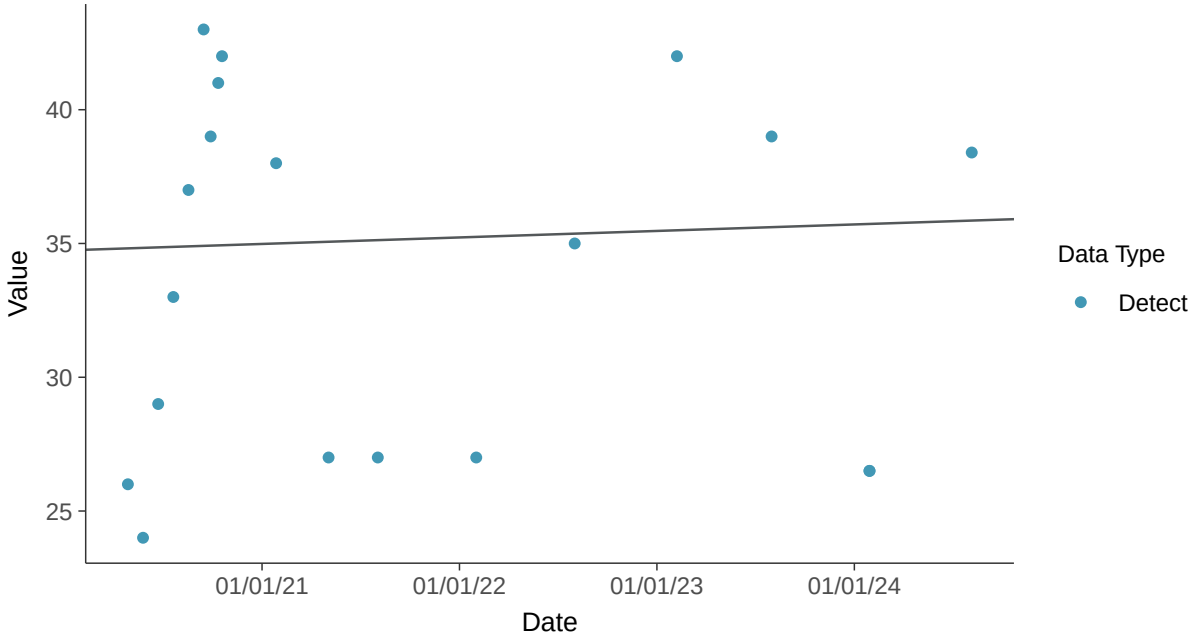
Normal Q-Q plot

Chloride, MW-6 (mg/L)



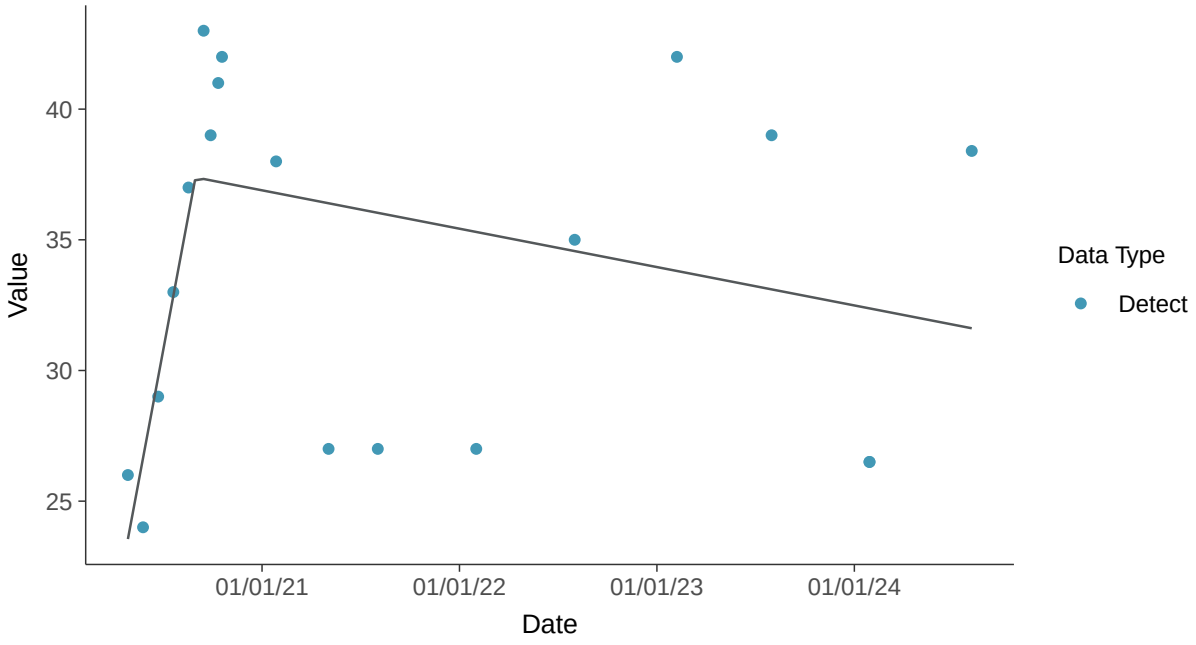
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Chloride, MW-6 (mg/L)



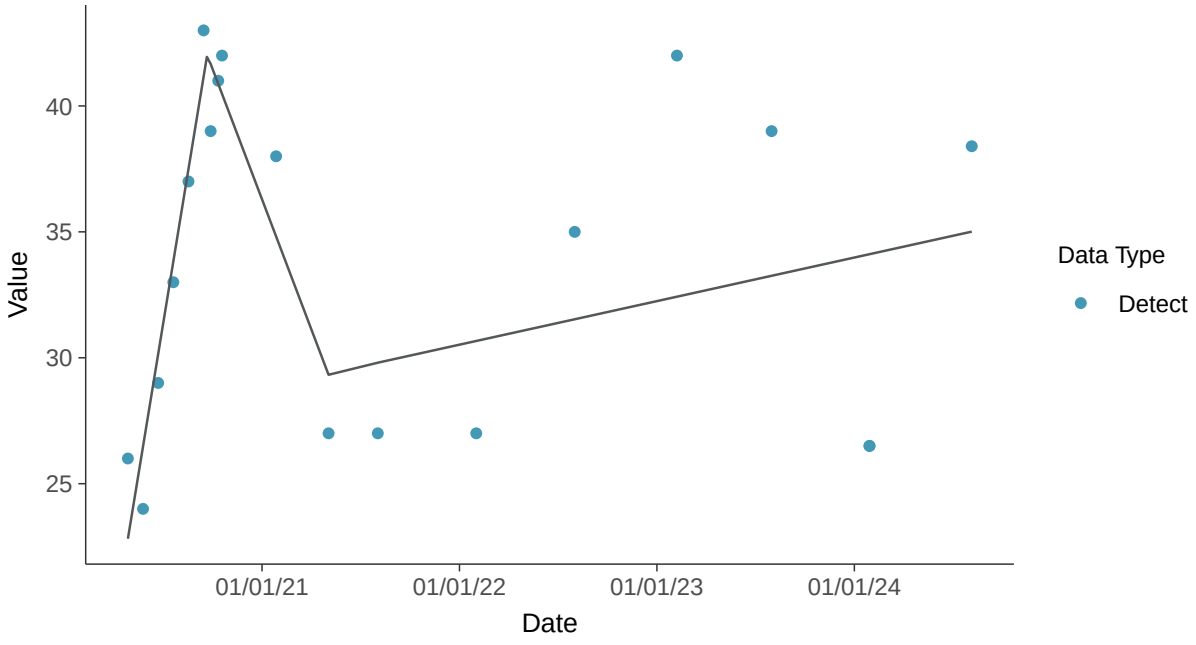
Trend Regression: Piecewise Linear-Linear

Chloride, MW-6 (mg/L)



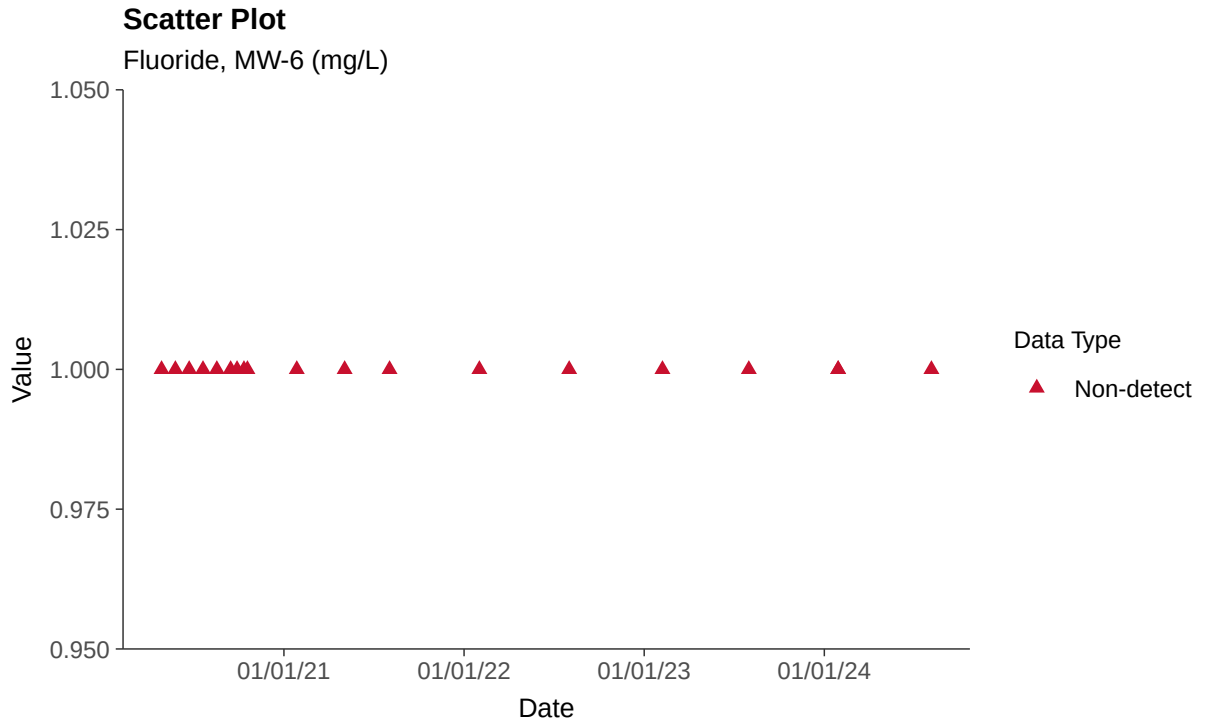
Trend Regression: Piecewise Linear-Linear-Linear

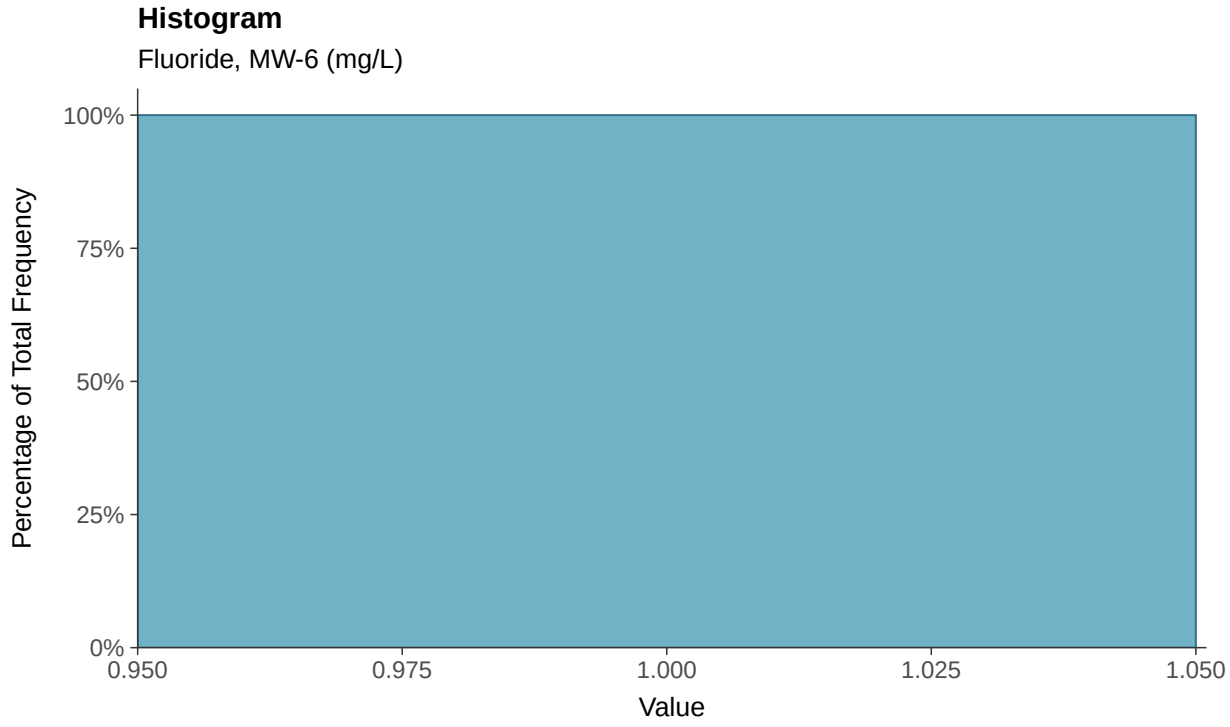
Chloride, MW-6 (mg/L)



Appendix III: Fluoride, MW-6

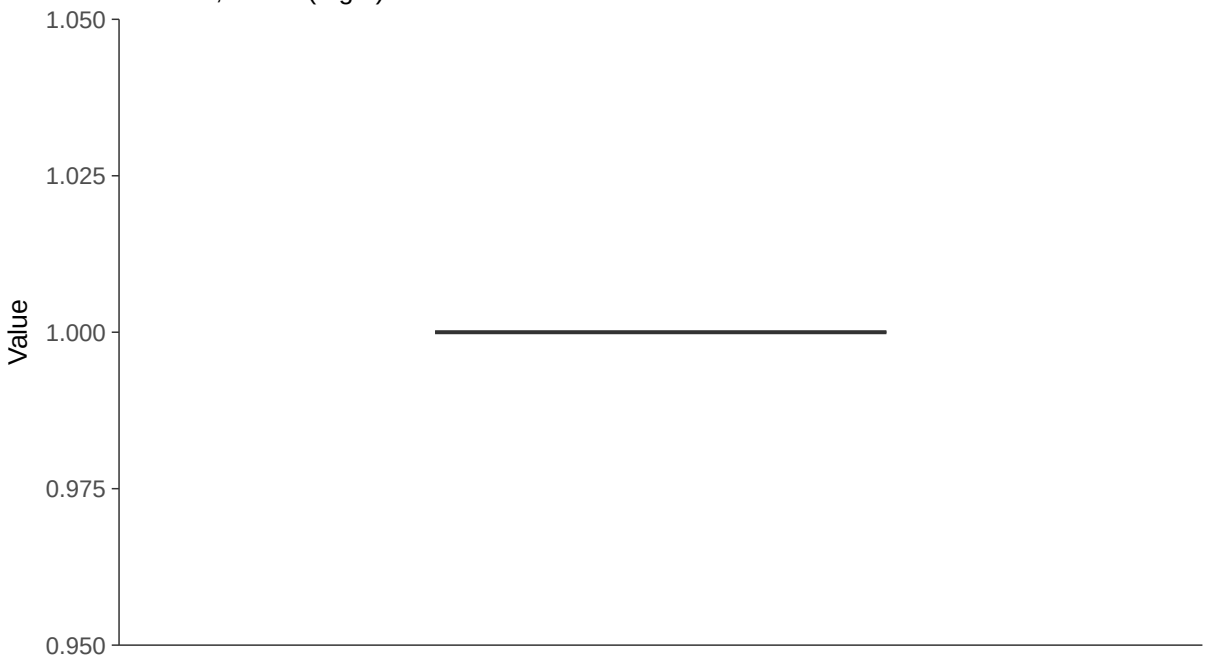
ID: 06_1_04





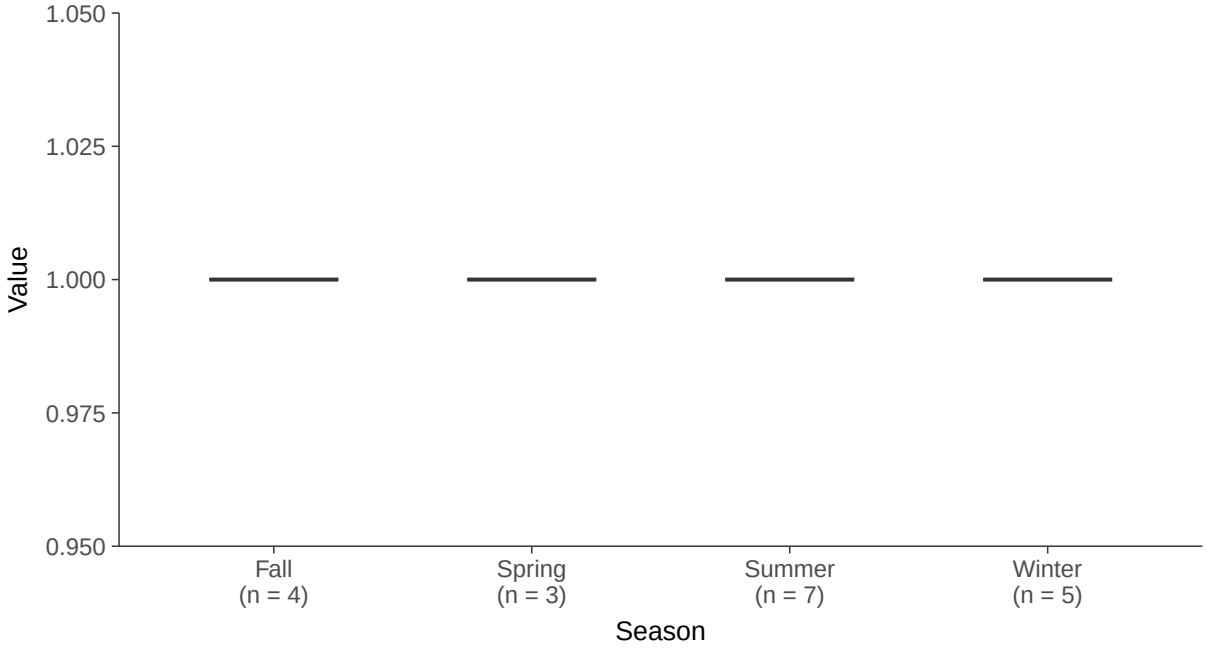
Boxplot

Fluoride, MW-6 (mg/L)



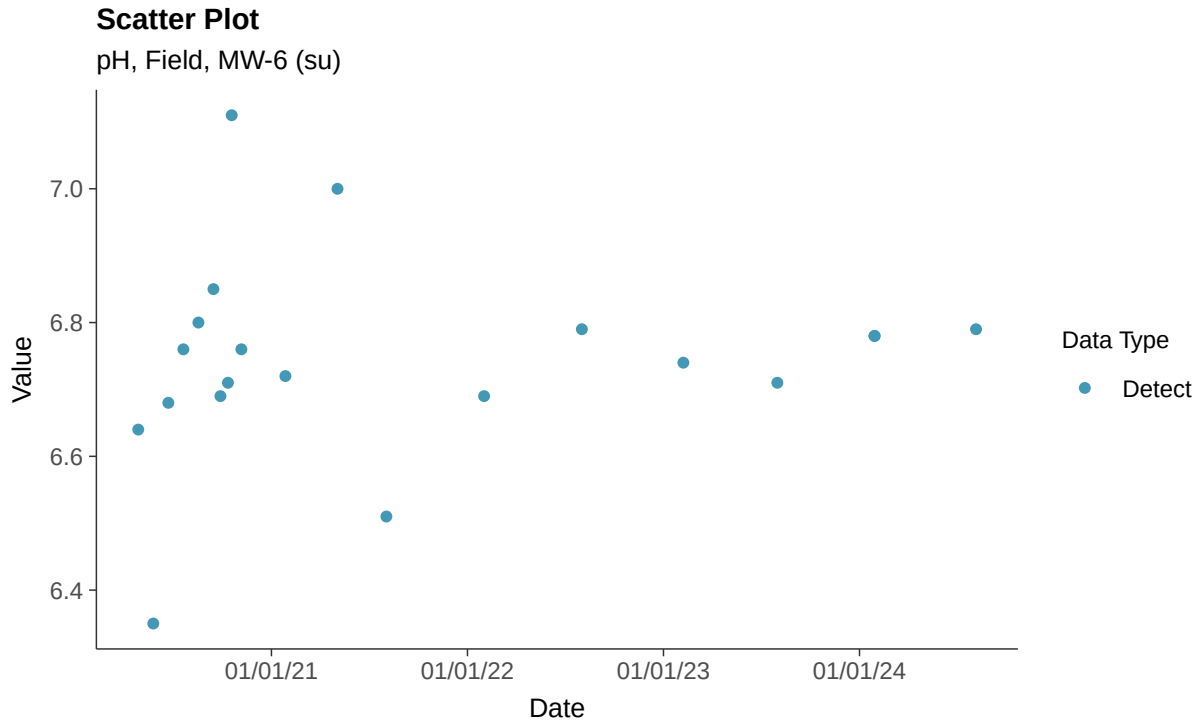
Boxplot by Season

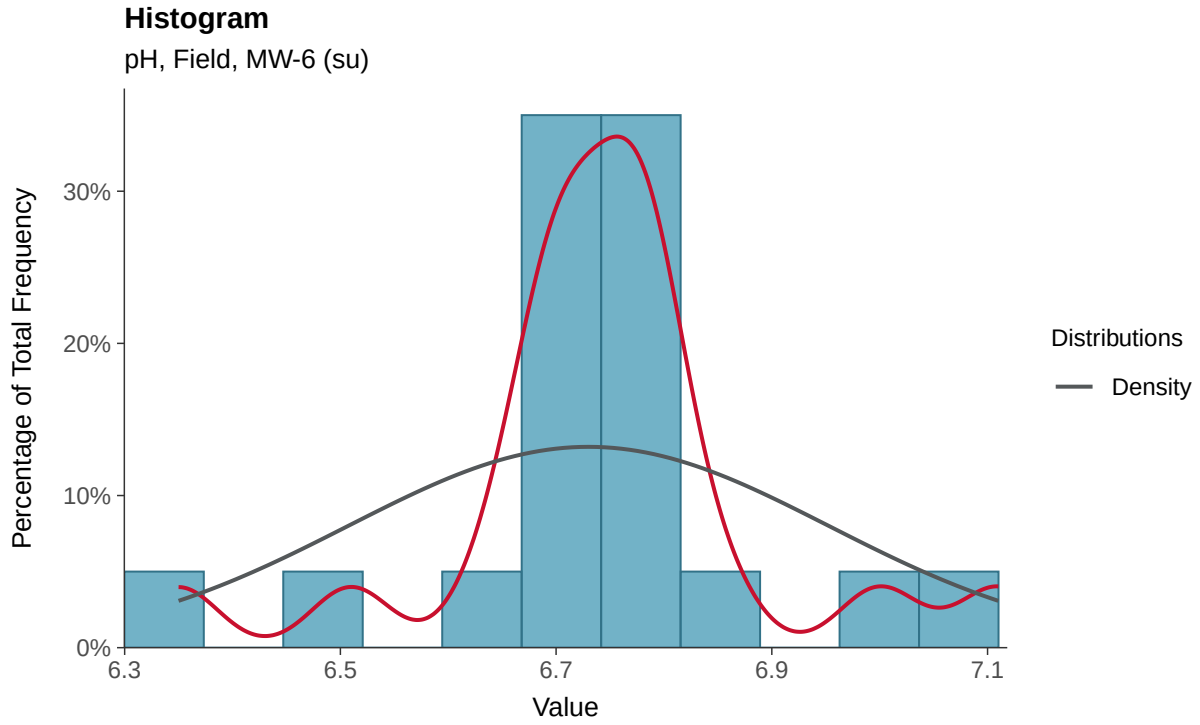
Fluoride, MW-6 (mg/L)



Appendix III: pH, Field, MW-6

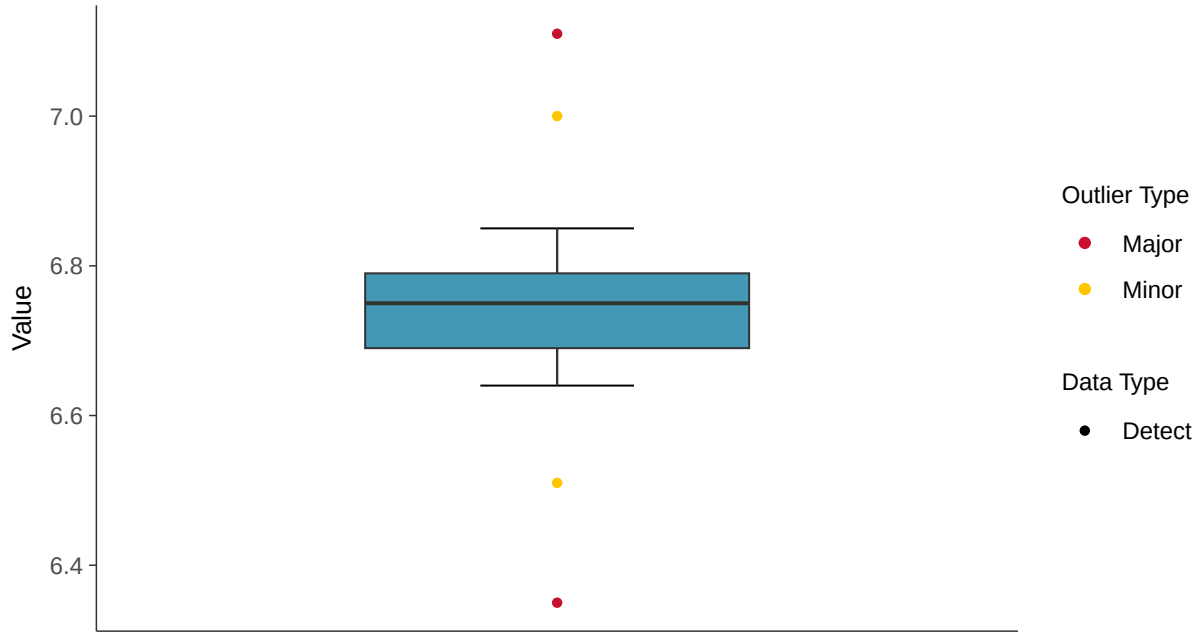
ID: 06_1_05





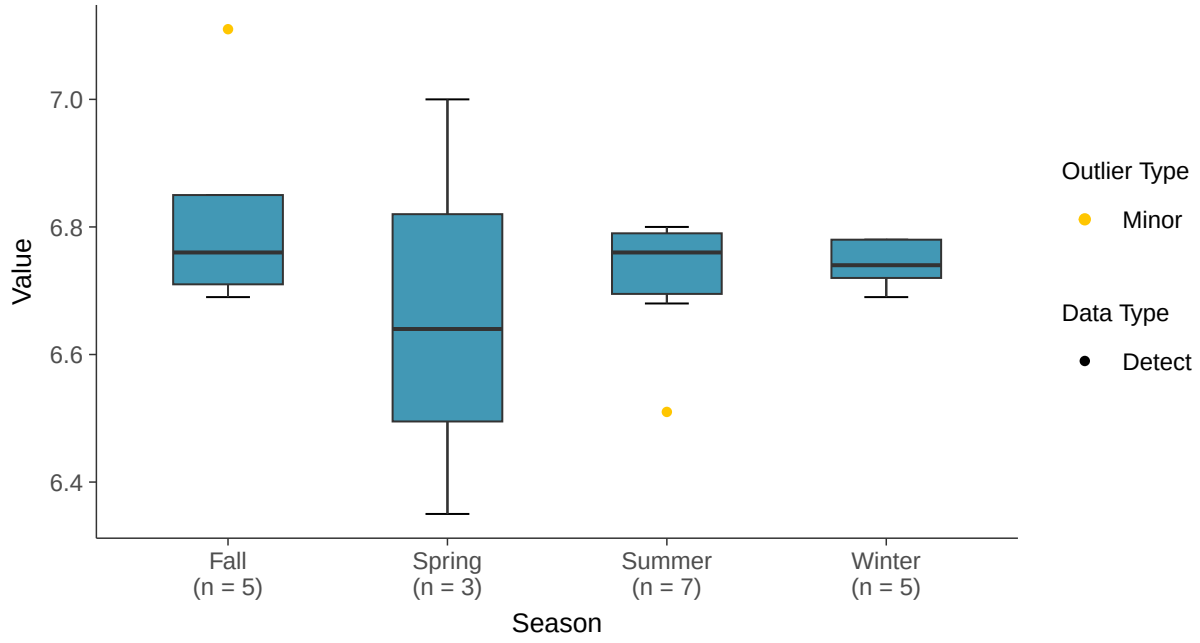
Boxplot

pH, Field, MW-6 (su)



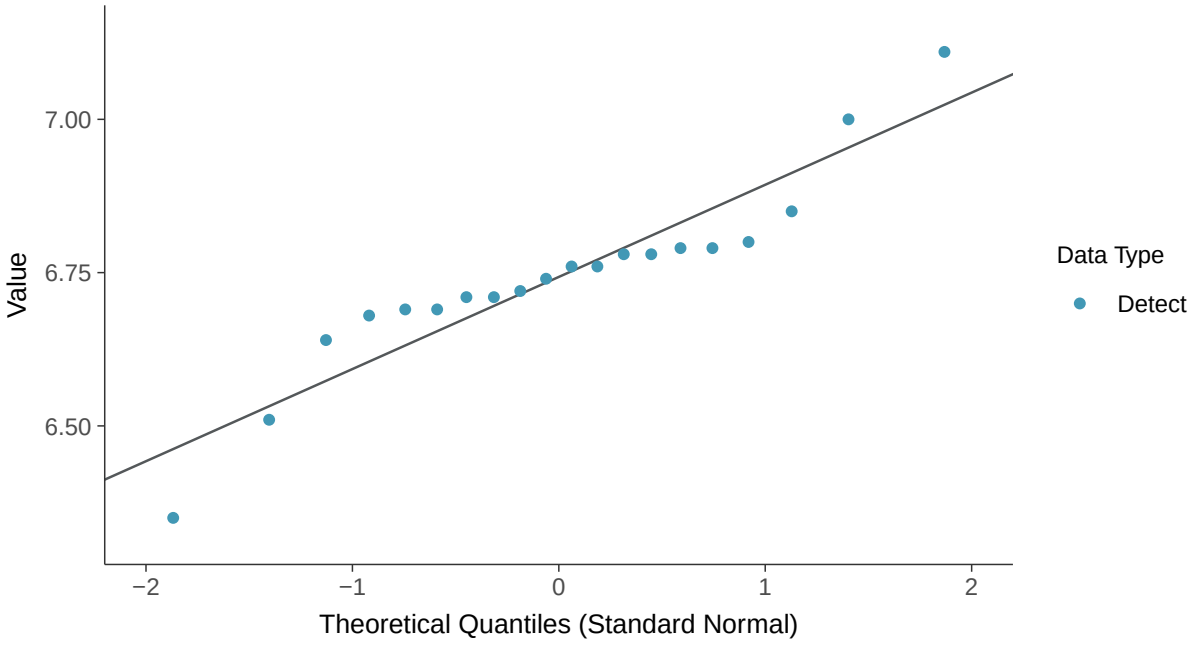
Boxplot by Season

pH, Field, MW-6 (su)



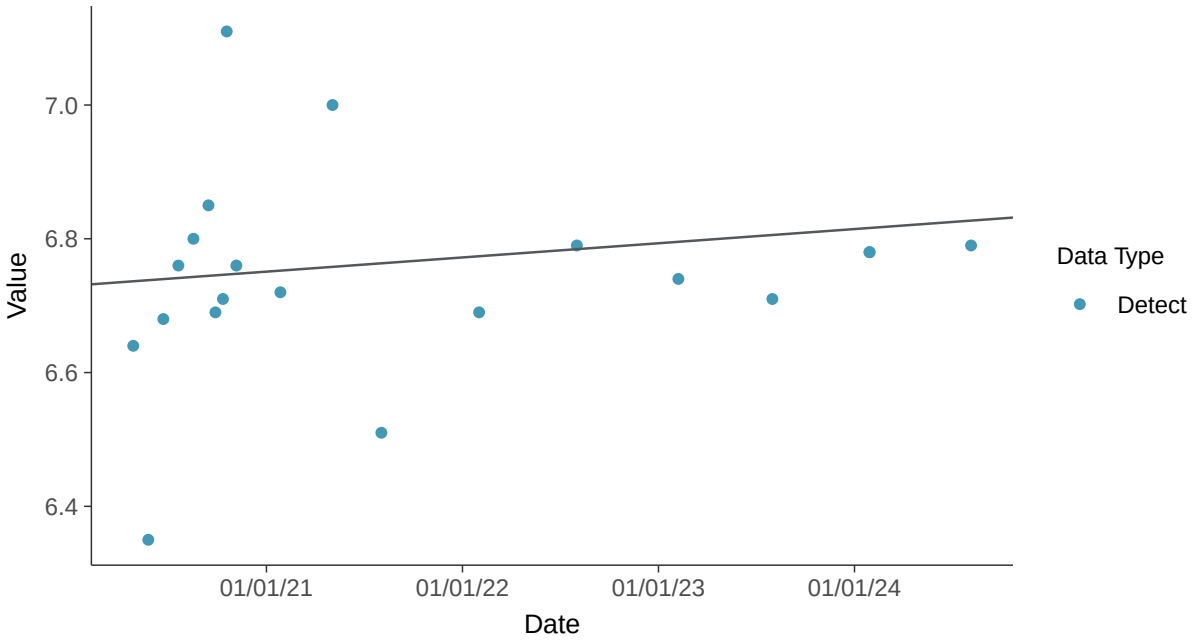
Normal Q-Q plot

pH, Field, MW-6 (su)



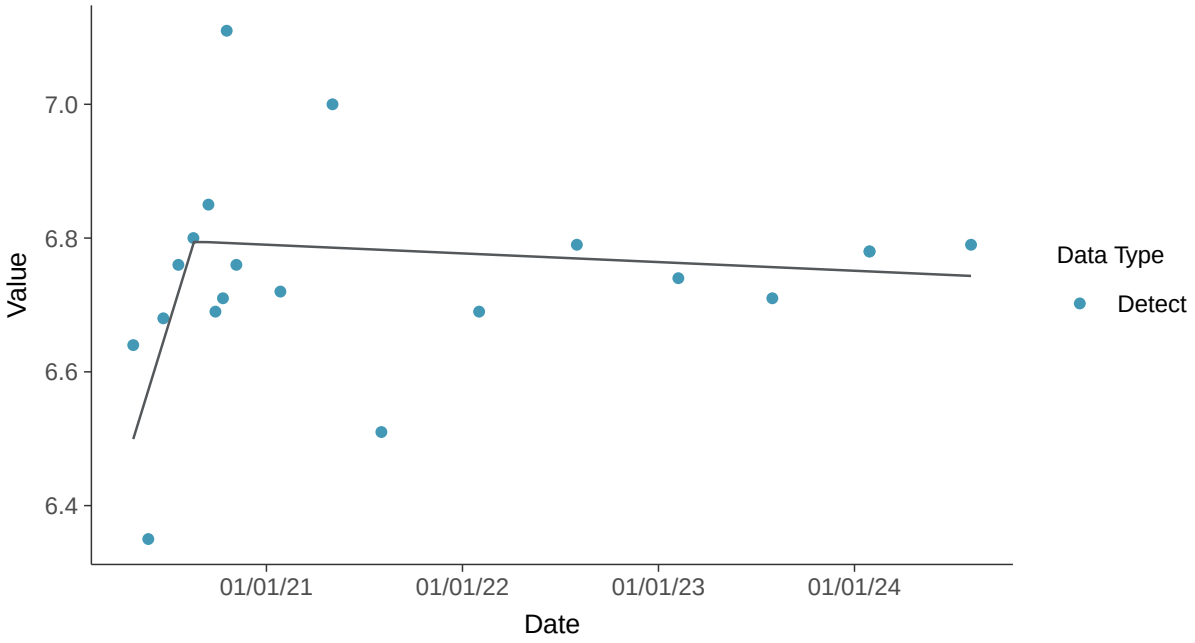
Trend Regression: Mann-Kendall/Theil-Sen Estimate

pH, Field, MW-6 (su)



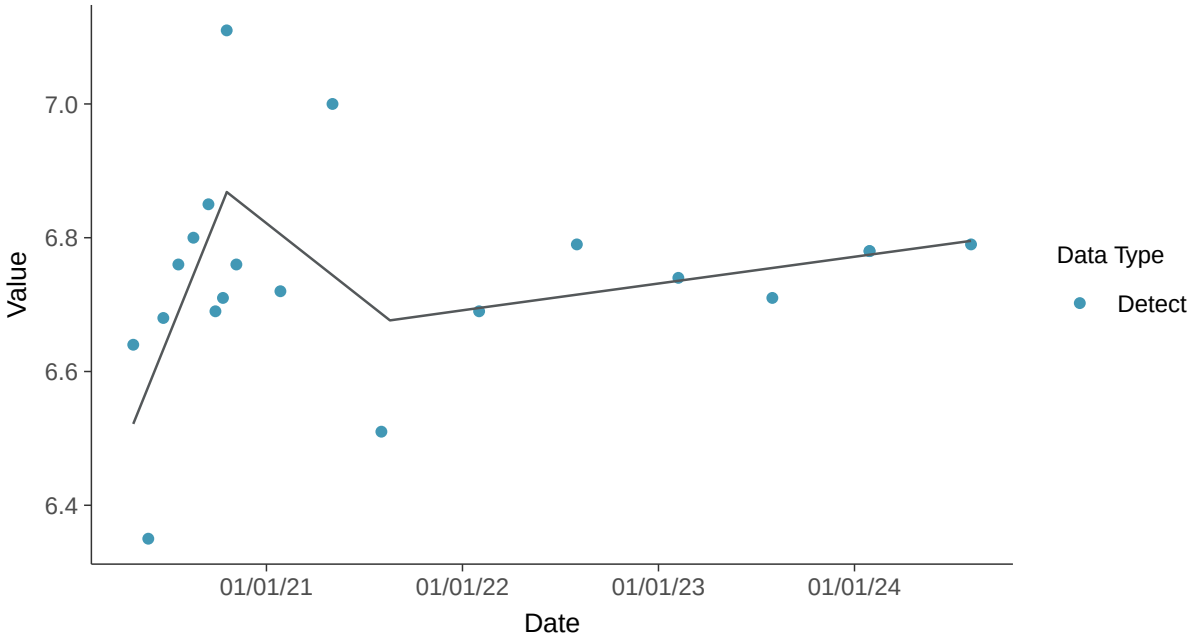
Trend Regression: Piecewise Linear-Linear

pH, Field, MW-6 (su)



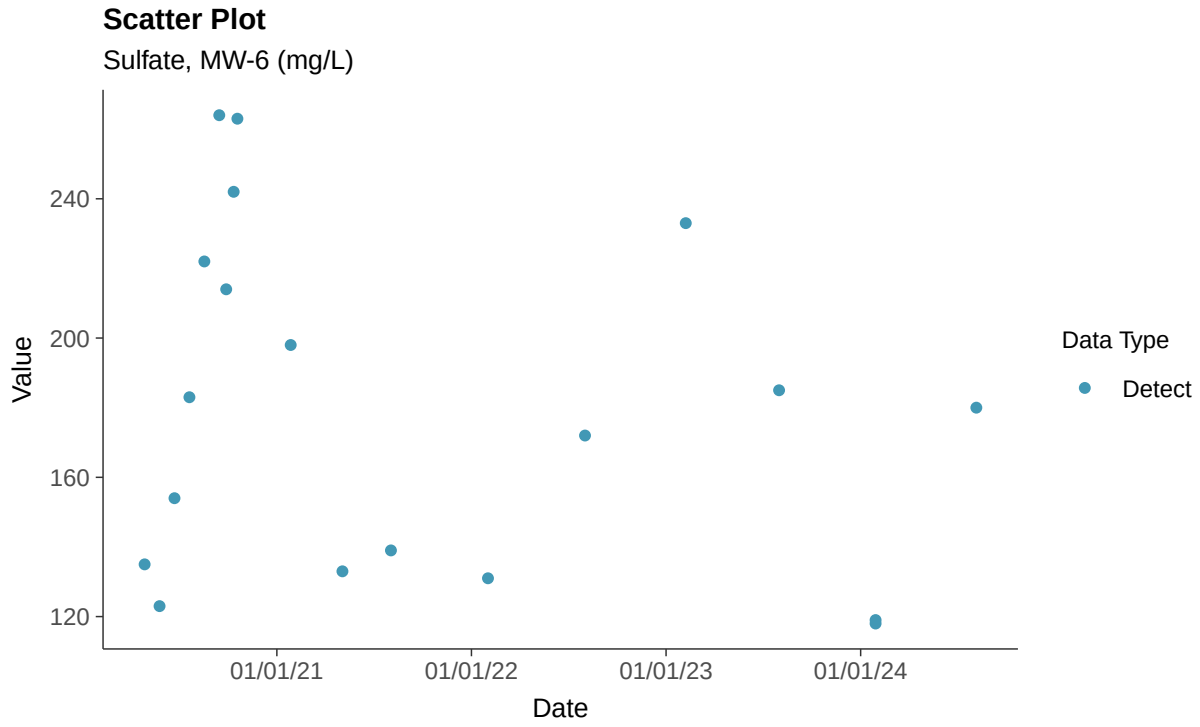
Trend Regression: Piecewise Linear-Linear-Linear

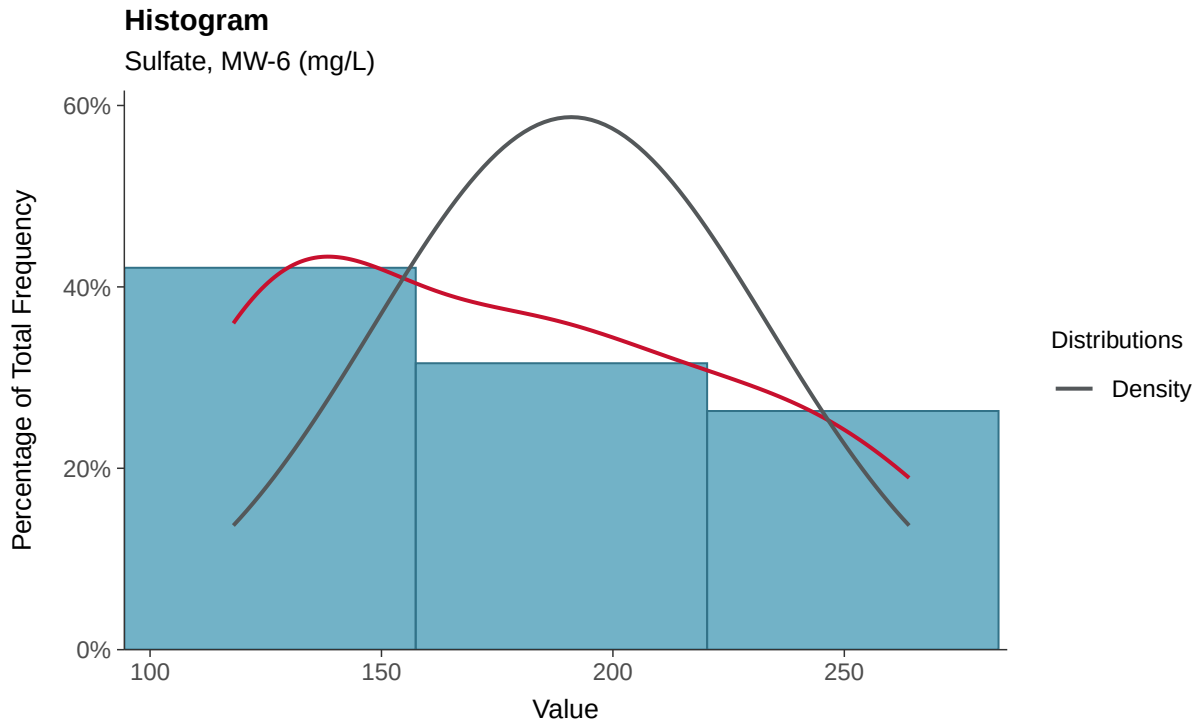
pH, Field, MW-6 (su)



Appendix III: Sulfate, MW-6

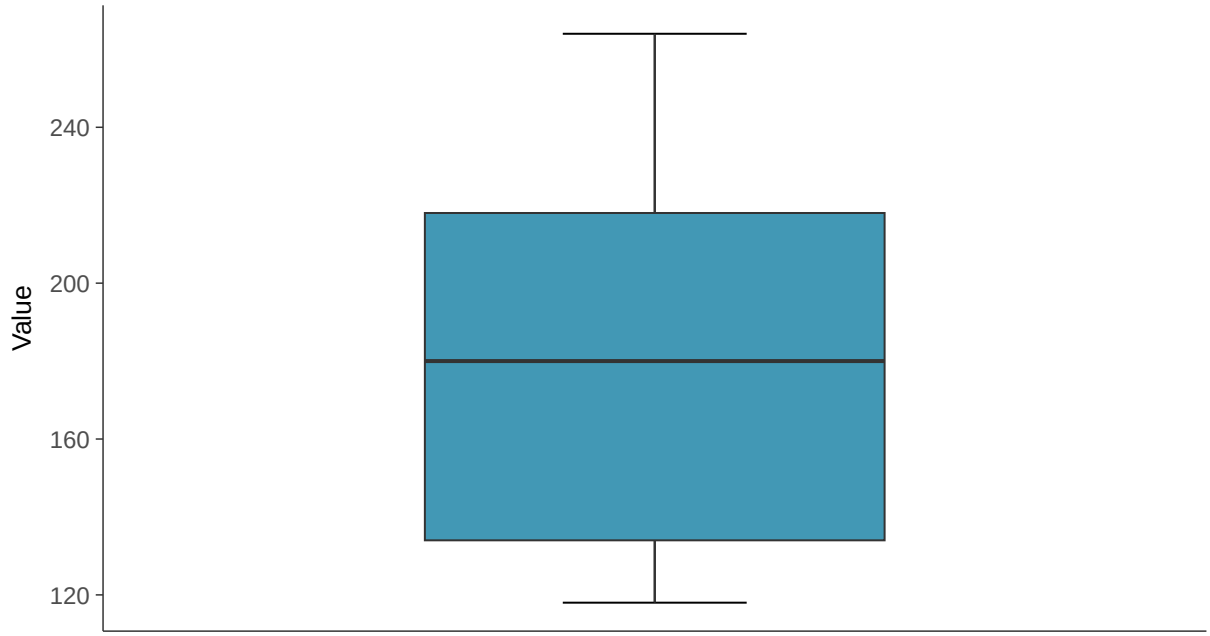
ID: 06_1_06





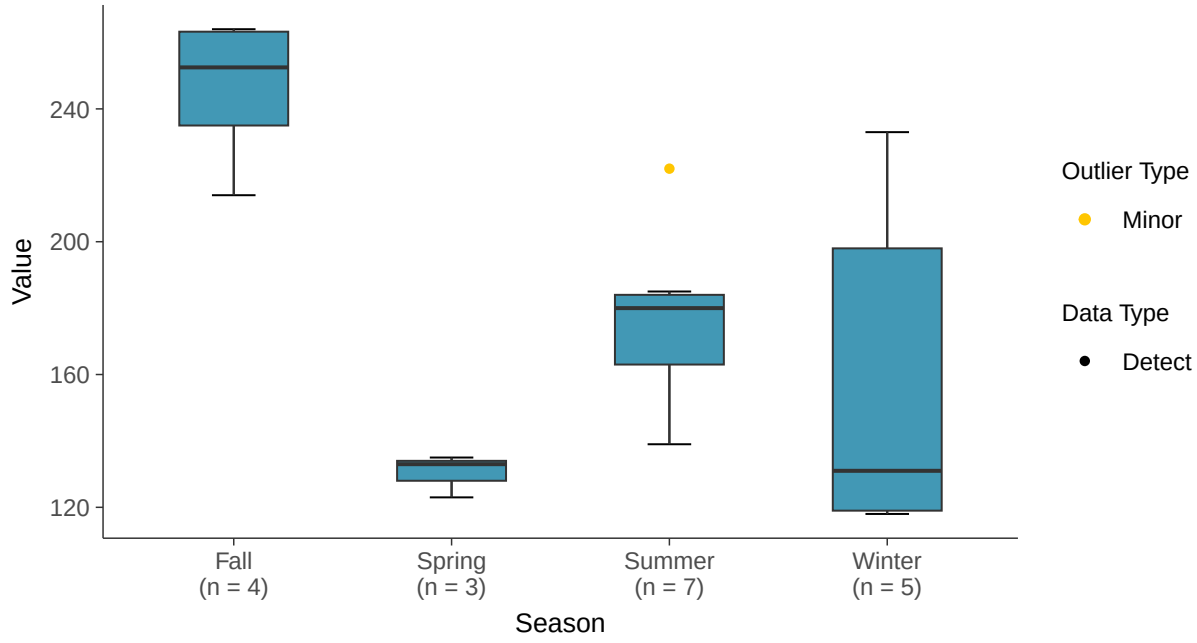
Boxplot

Sulfate, MW-6 (mg/L)



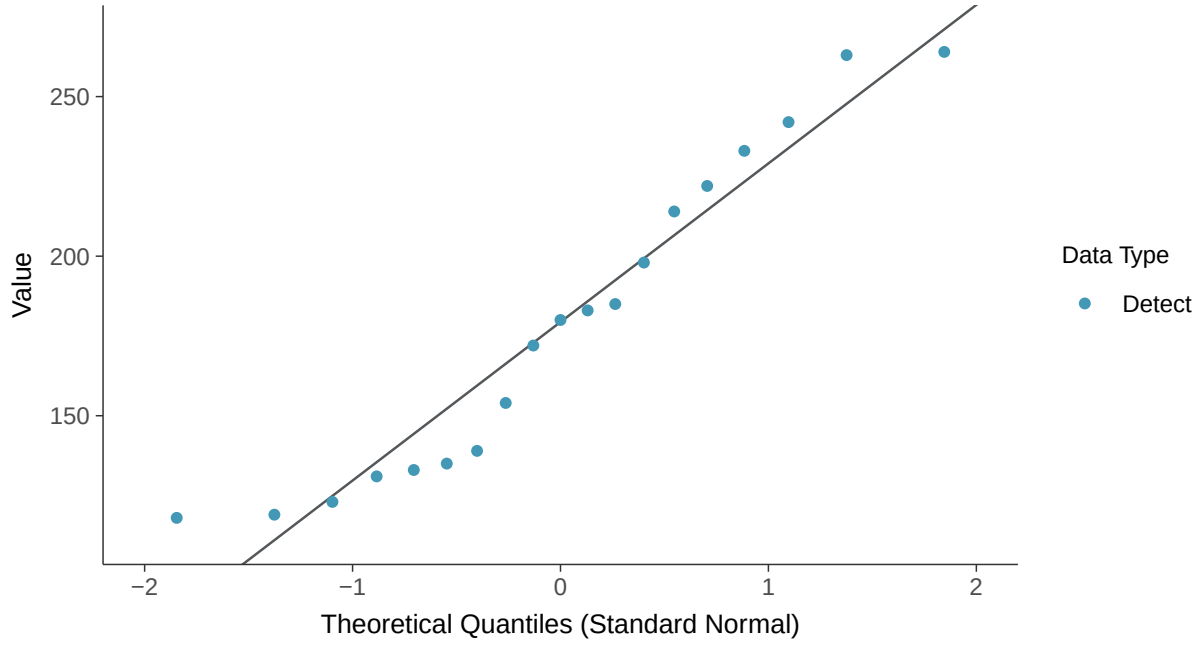
Boxplot by Season

Sulfate, MW-6 (mg/L)



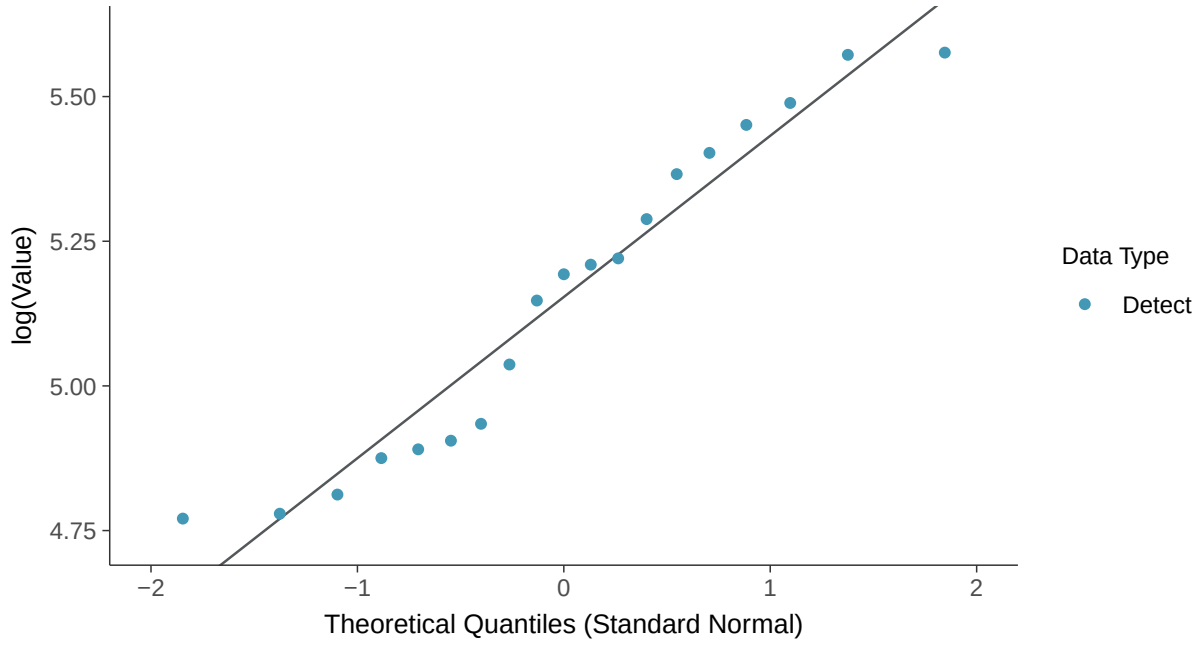
Normal Q-Q plot

Sulfate, MW-6 (mg/L)



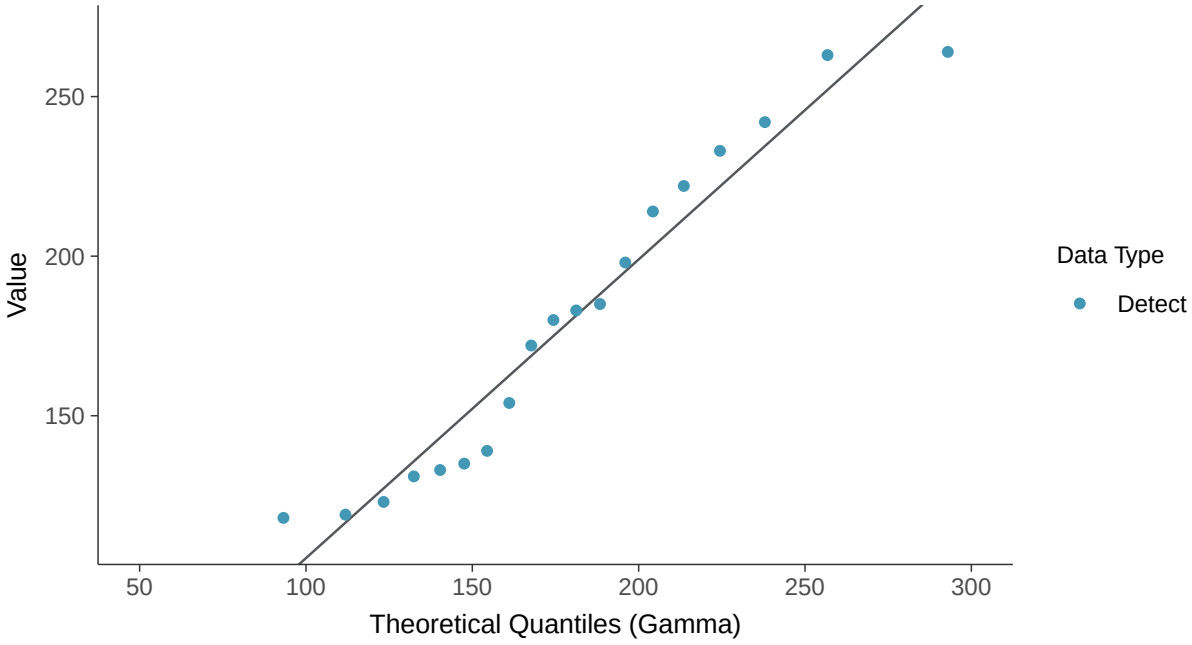
Lognormal Q-Q plot

Sulfate, MW-6 (mg/L)



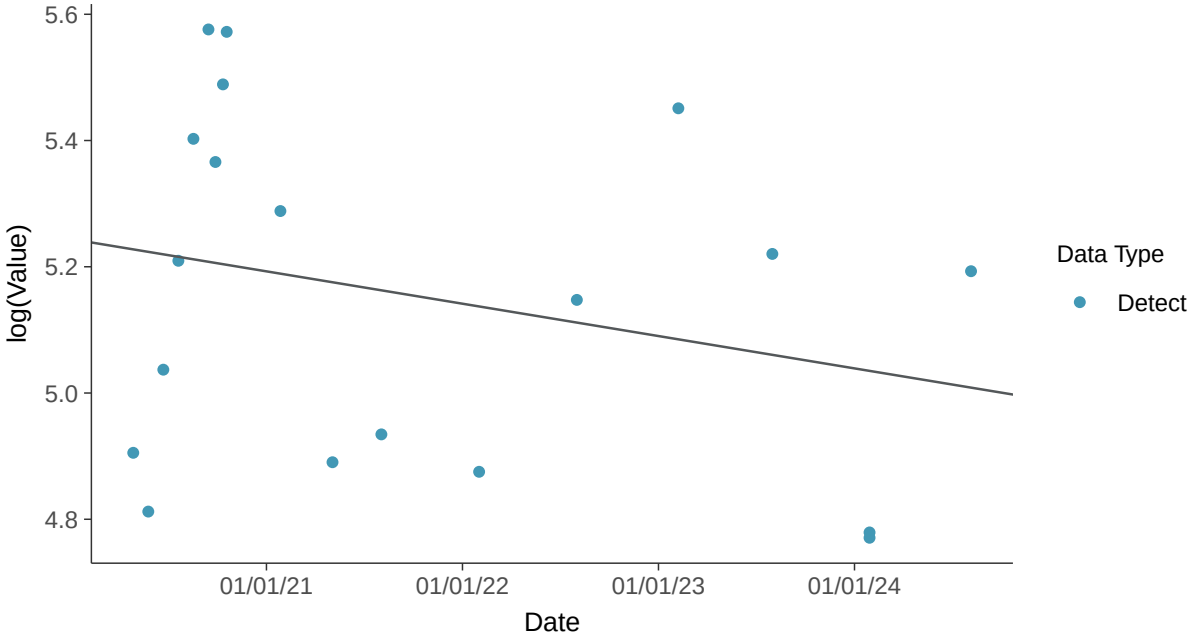
Gamma Q-Q plot

Sulfate, MW-6 (mg/L)



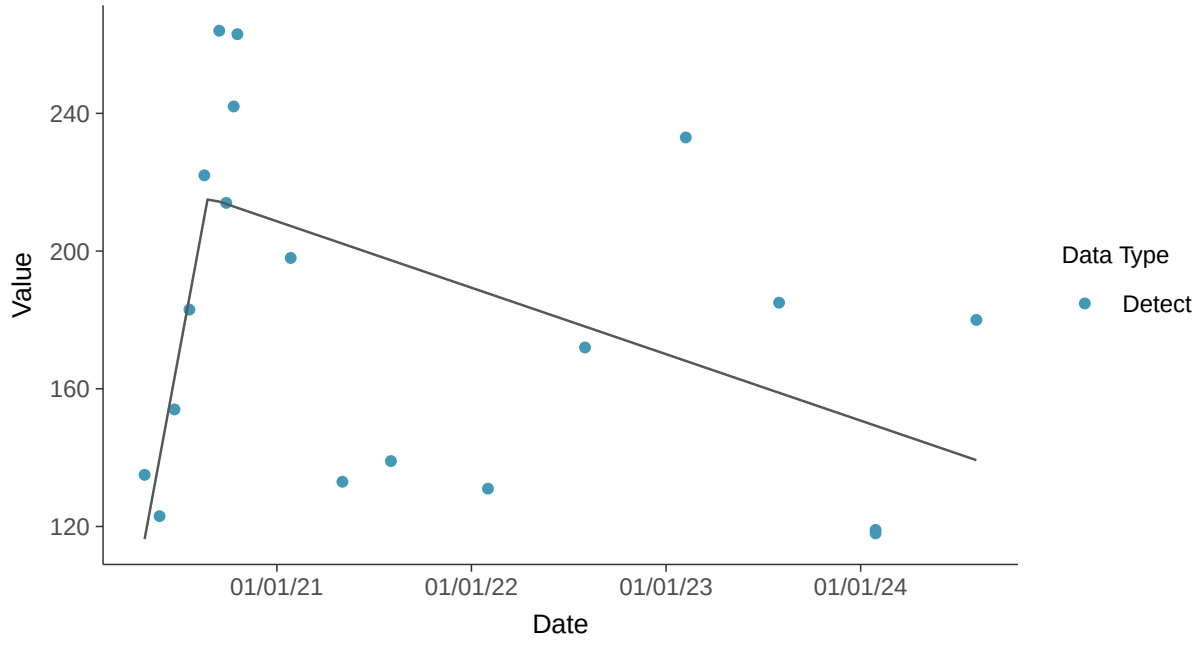
Trend Regression: Lognormal MLE

Sulfate, MW-6 (mg/L)



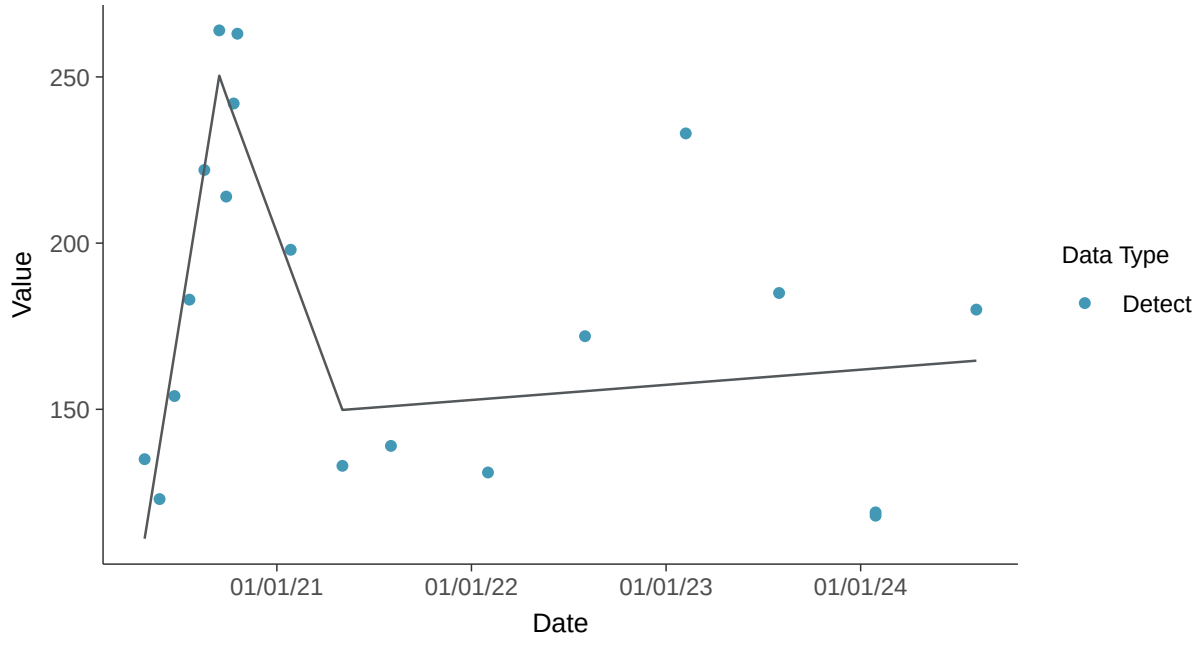
Trend Regression: Piecewise Linear-Linear

Sulfate, MW-6 (mg/L)



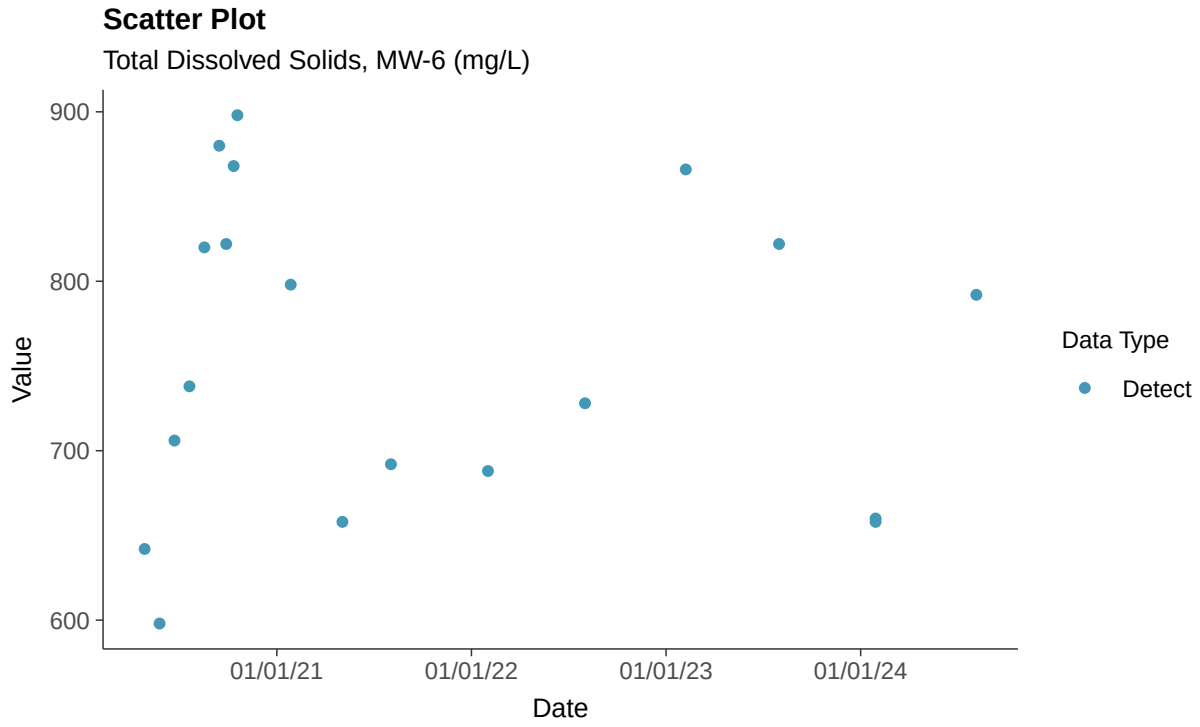
Trend Regression: Piecewise Linear-Linear-Linear

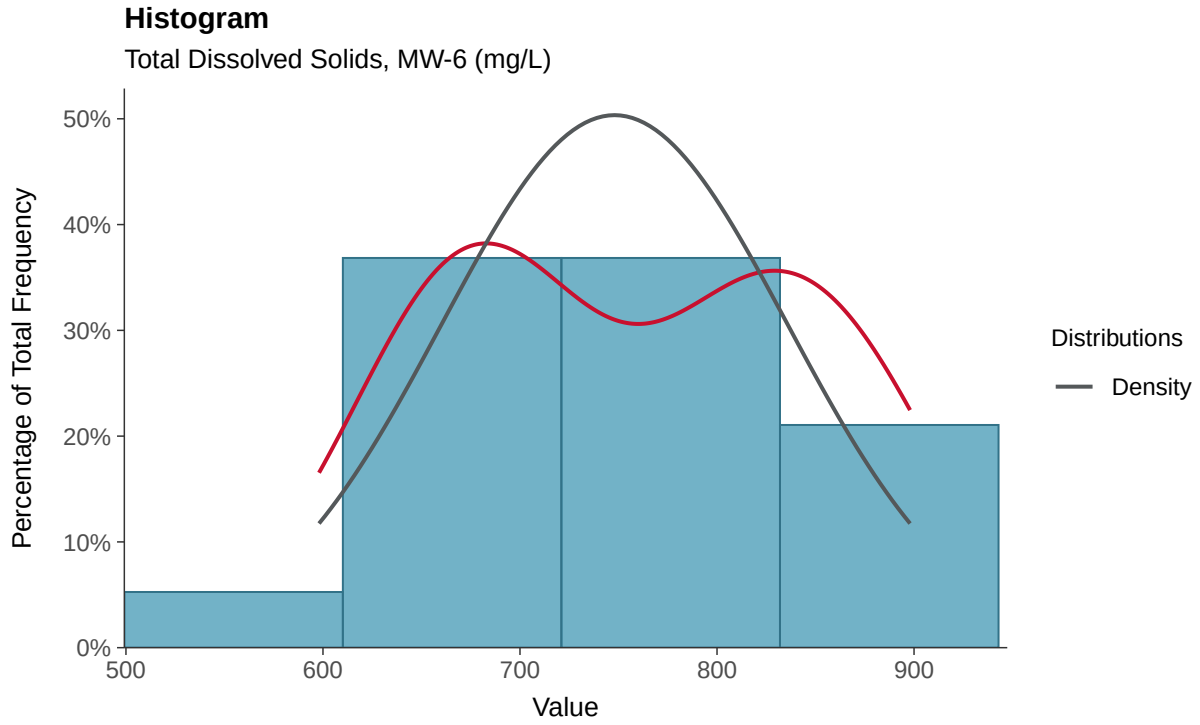
Sulfate, MW-6 (mg/L)



Appendix III: Total Dissolved Solids, MW-6

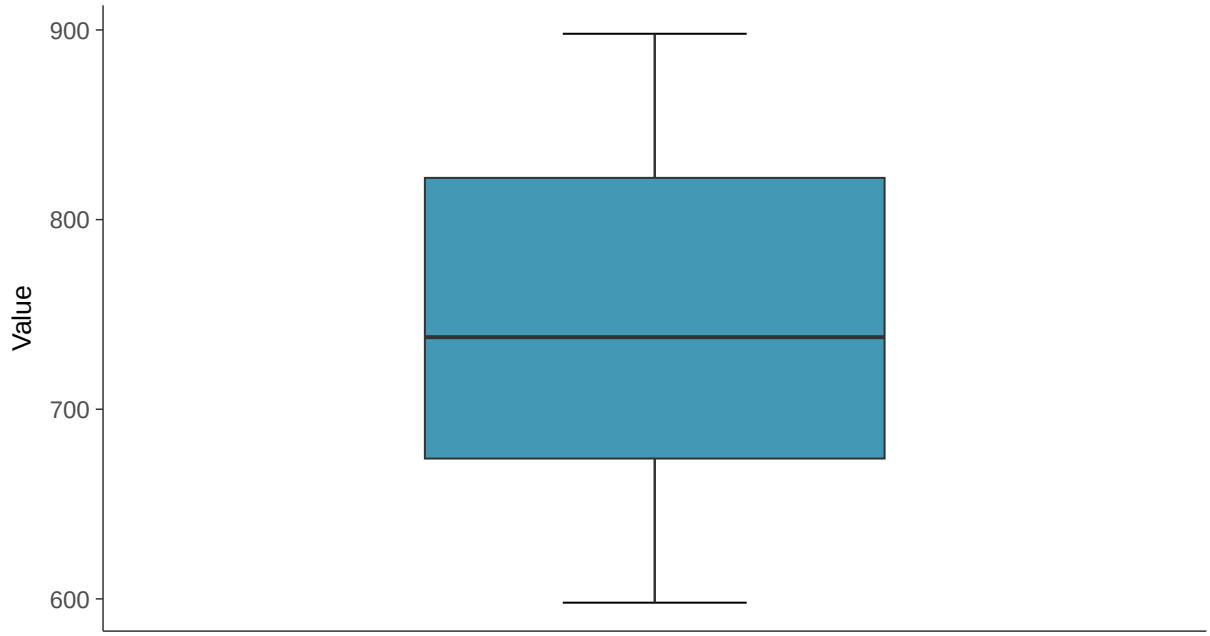
ID: 06_1_07





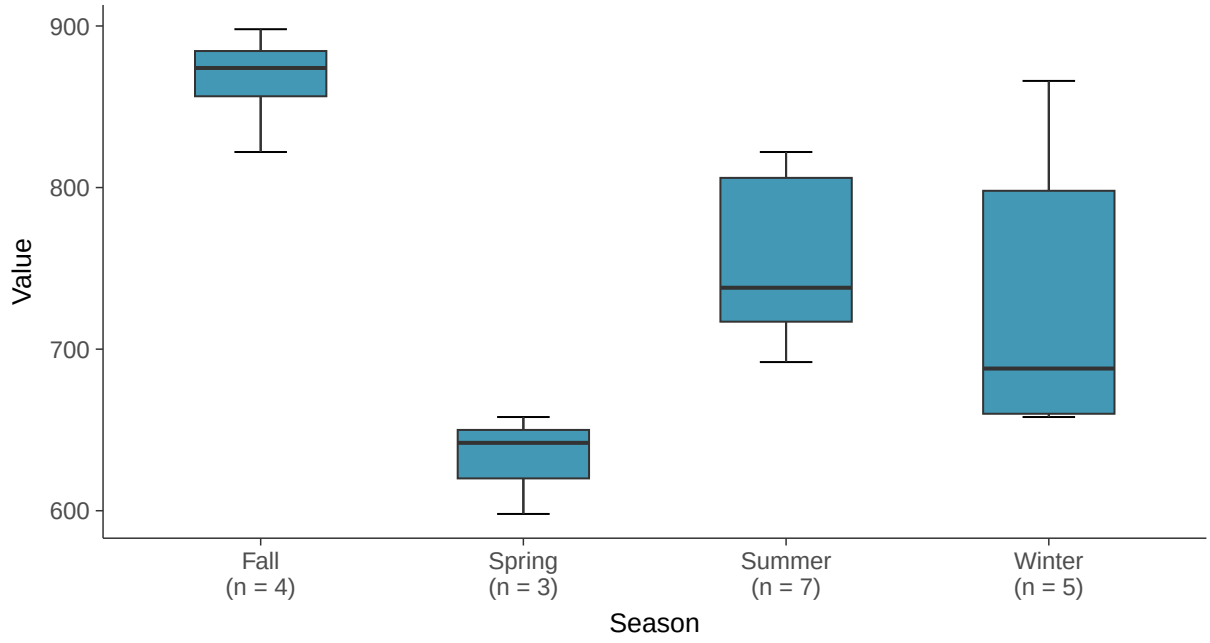
Boxplot

Total Dissolved Solids, MW-6 (mg/L)



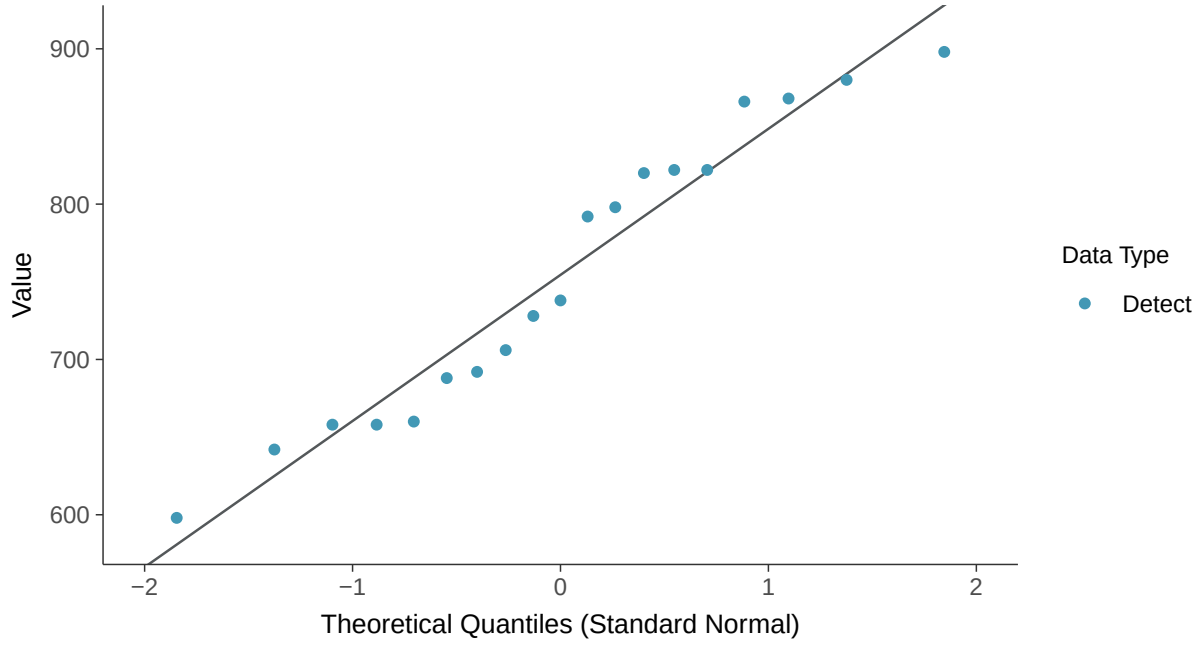
Boxplot by Season

Total Dissolved Solids, MW-6 (mg/L)



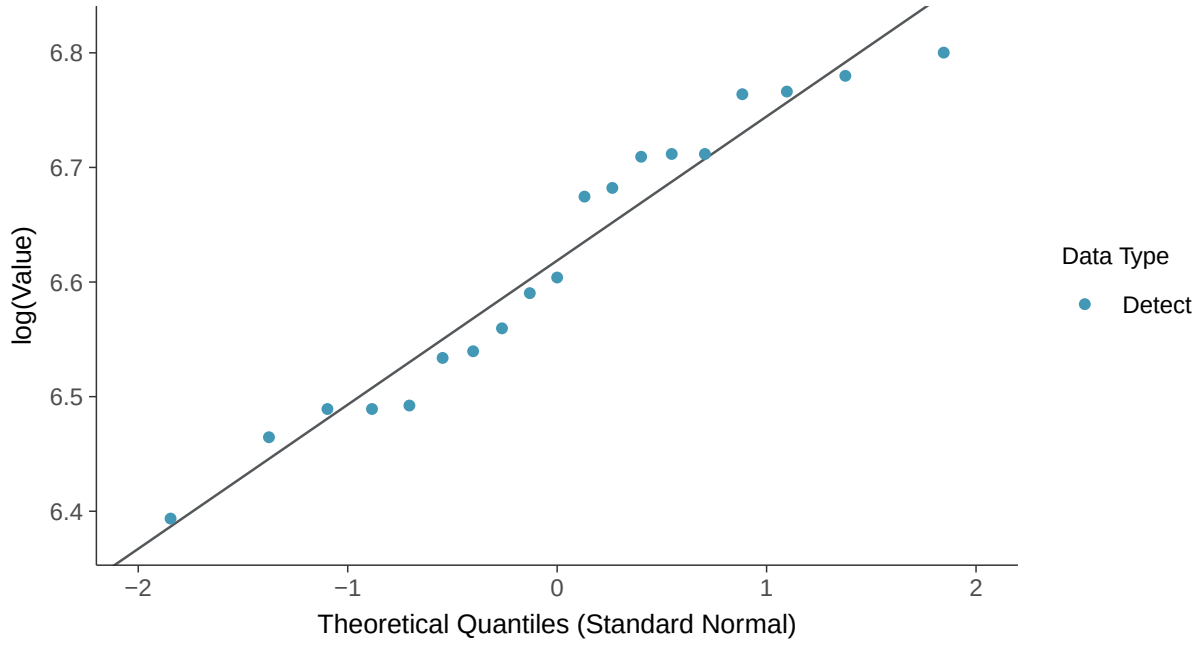
Normal Q-Q plot

Total Dissolved Solids, MW-6 (mg/L)



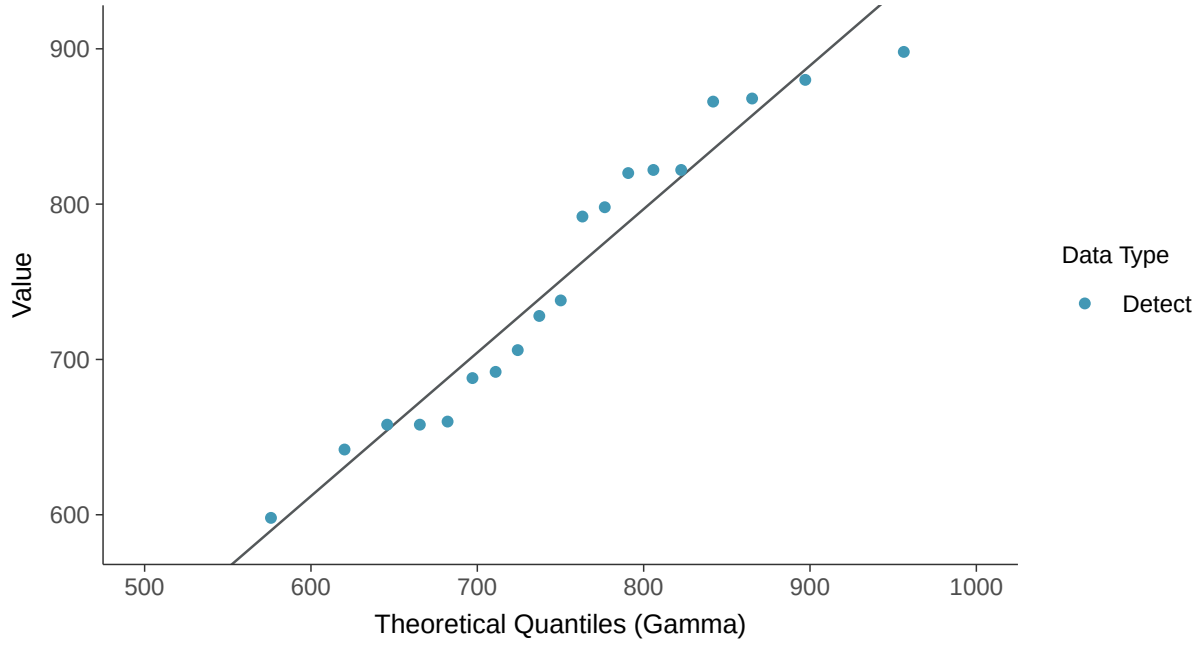
Lognormal Q-Q plot

Total Dissolved Solids, MW-6 (mg/L)



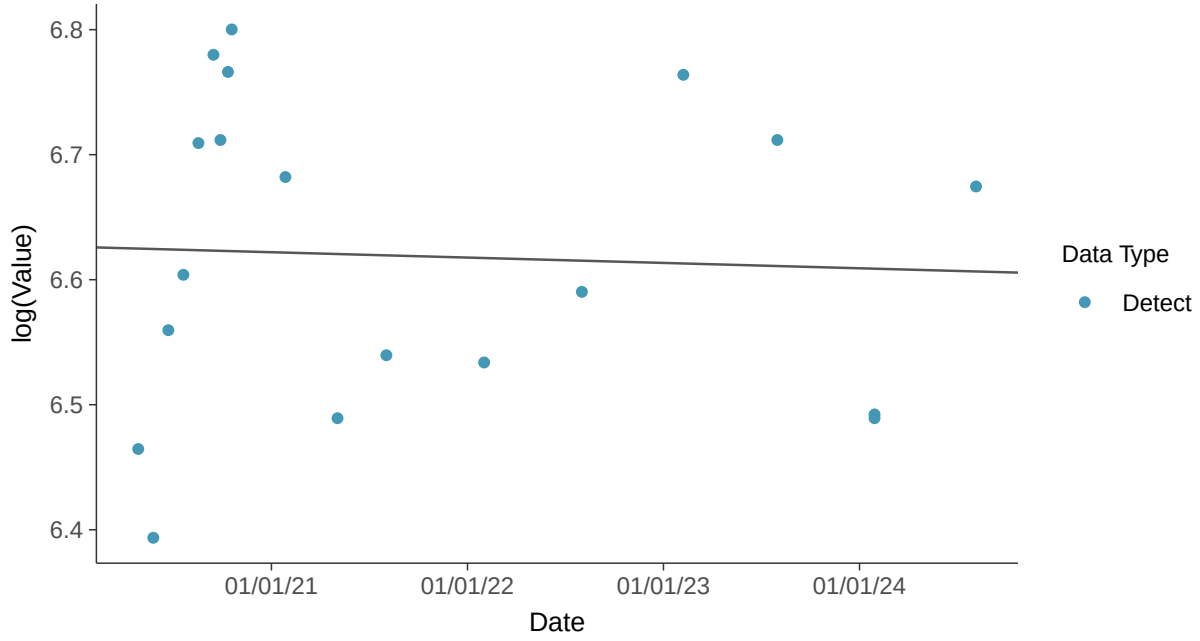
Gamma Q-Q plot

Total Dissolved Solids, MW-6 (mg/L)



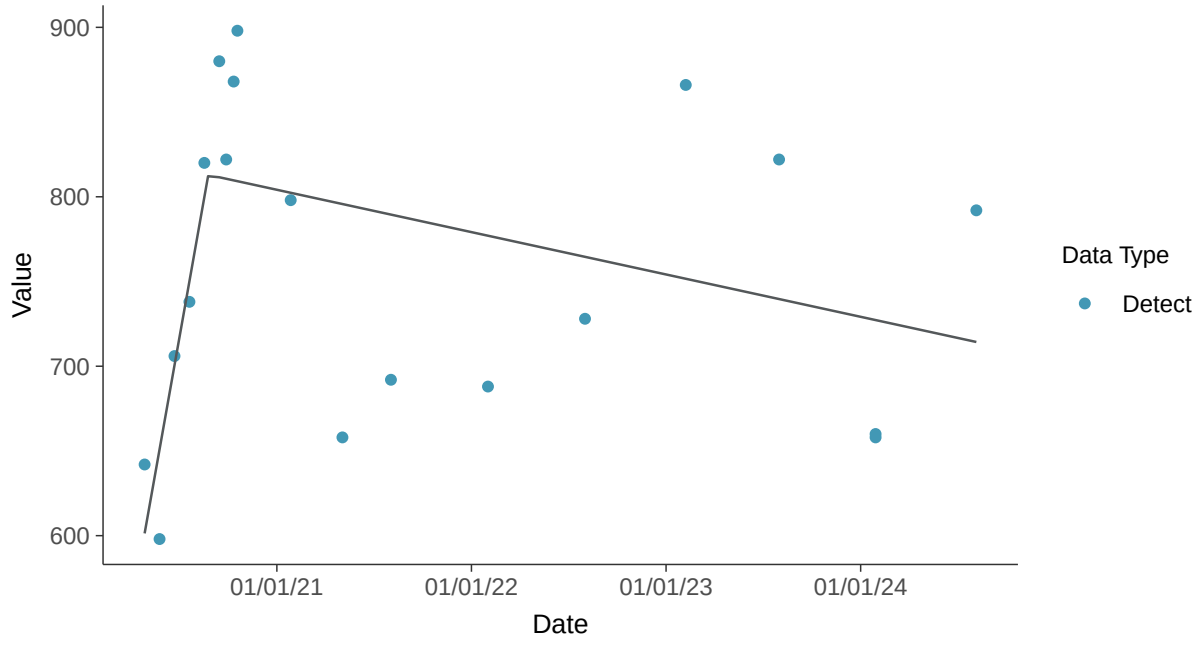
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-6 (mg/L)



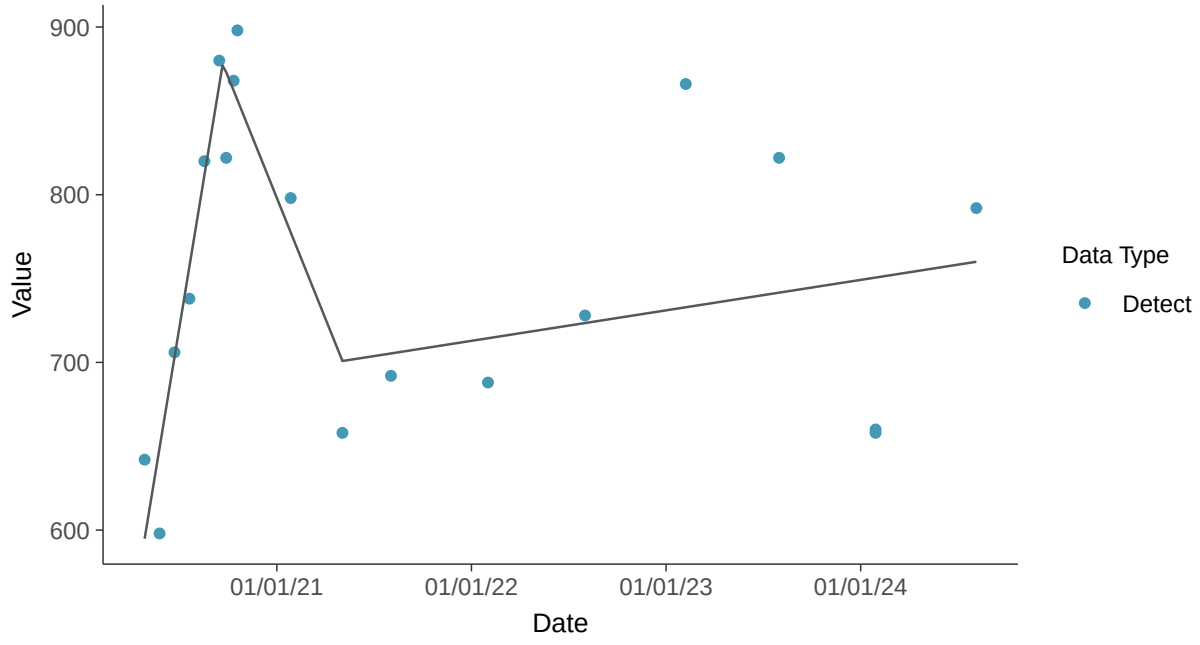
Trend Regression: Piecewise Linear-Linear

Total Dissolved Solids, MW-6 (mg/L)



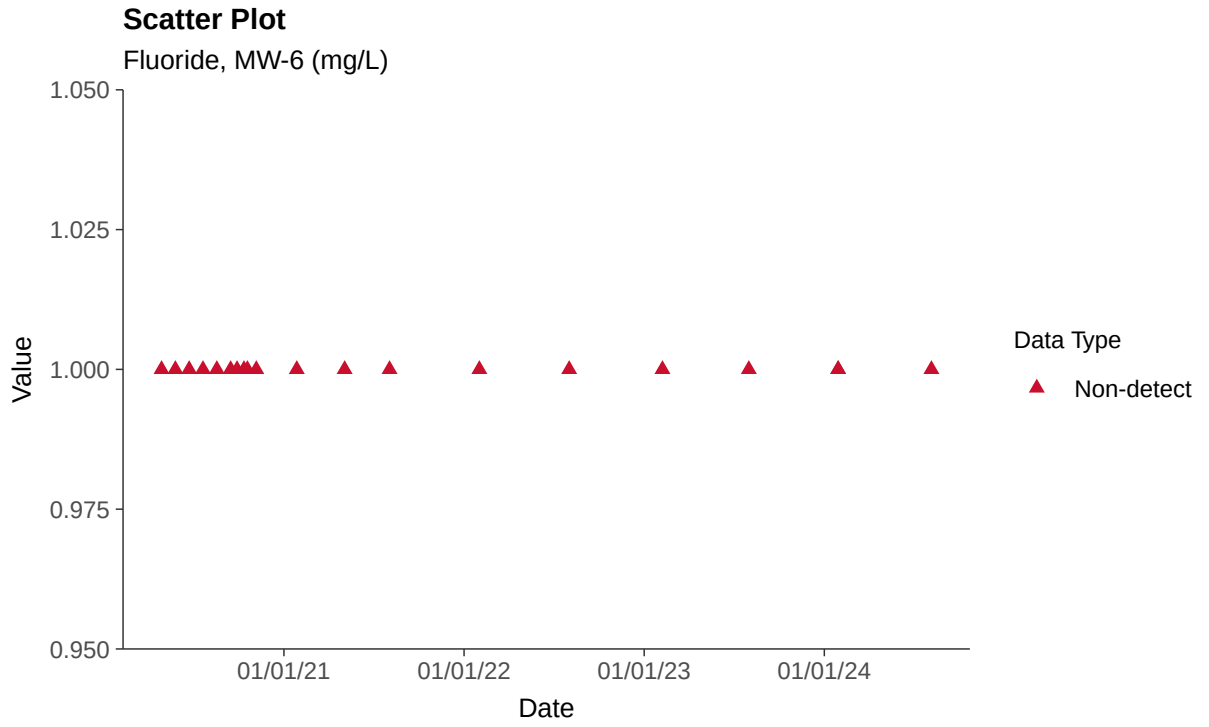
Trend Regression: Piecewise Linear-Linear-Linear

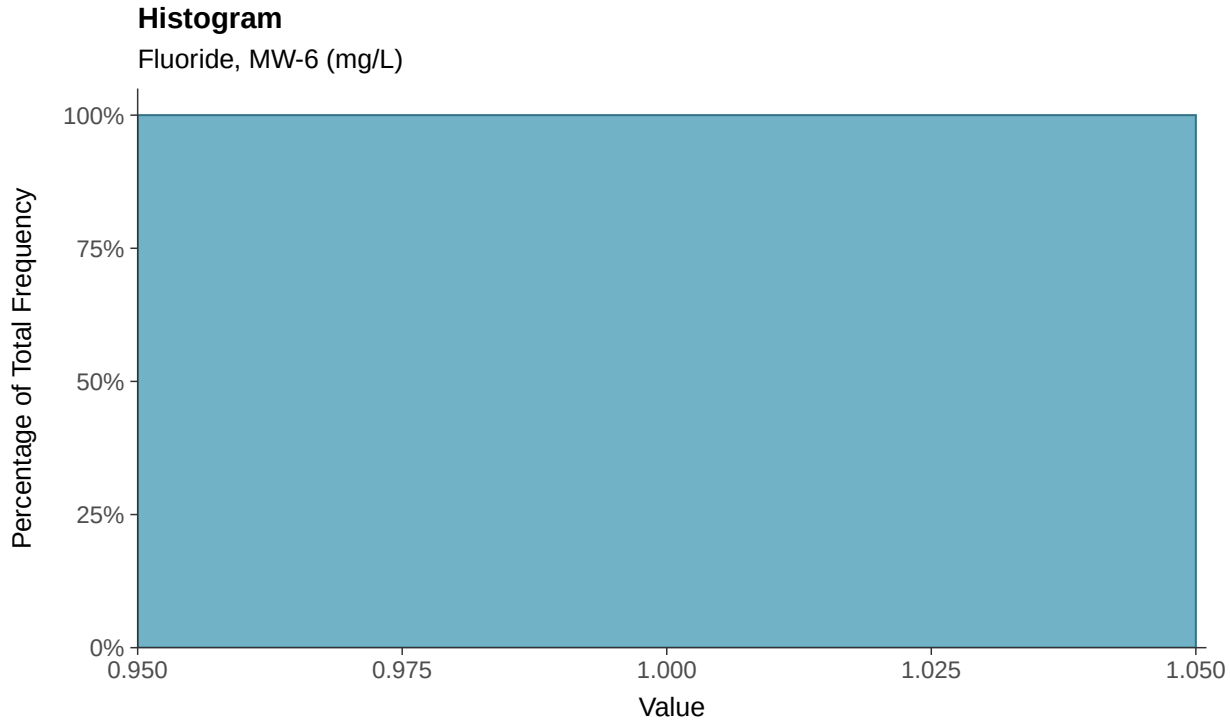
Total Dissolved Solids, MW-6 (mg/L)



Appendix IV: Fluoride, MW-6

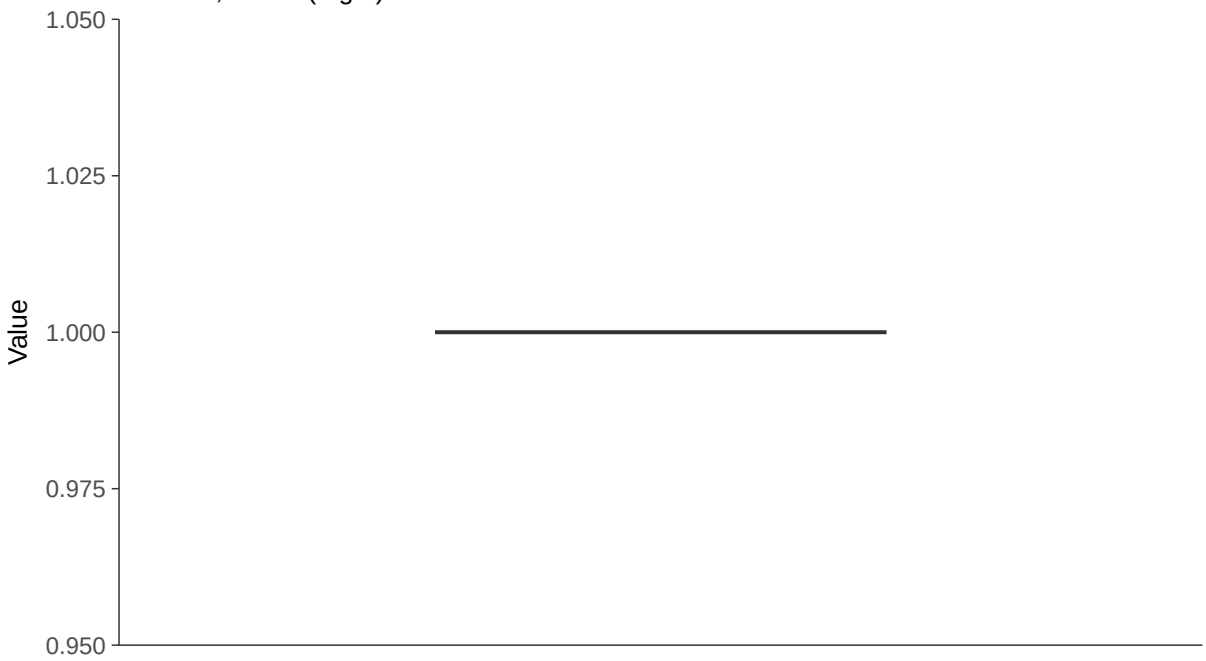
ID: 06_2_04





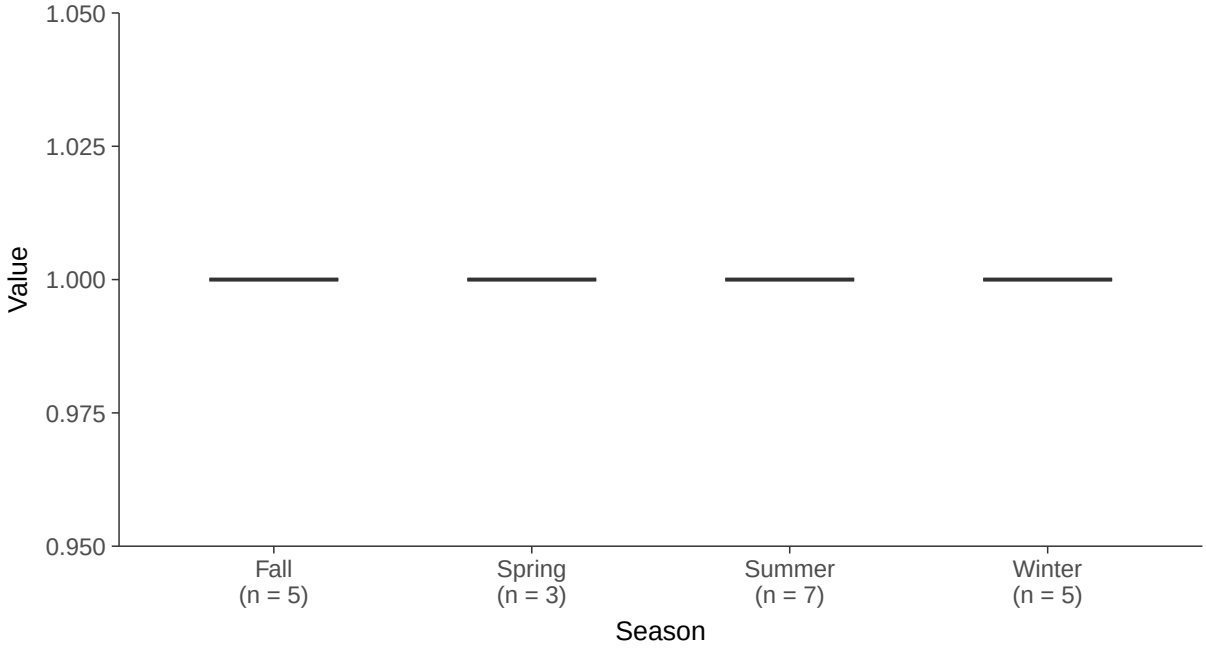
Boxplot

Fluoride, MW-6 (mg/L)



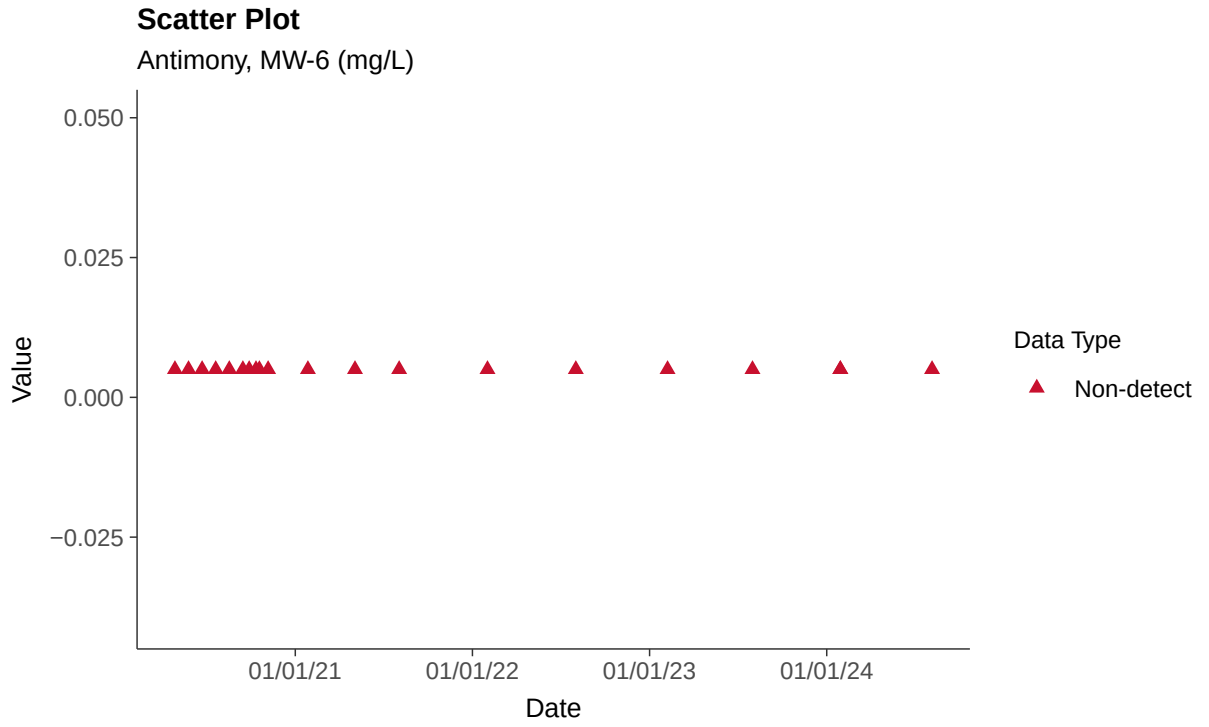
Boxplot by Season

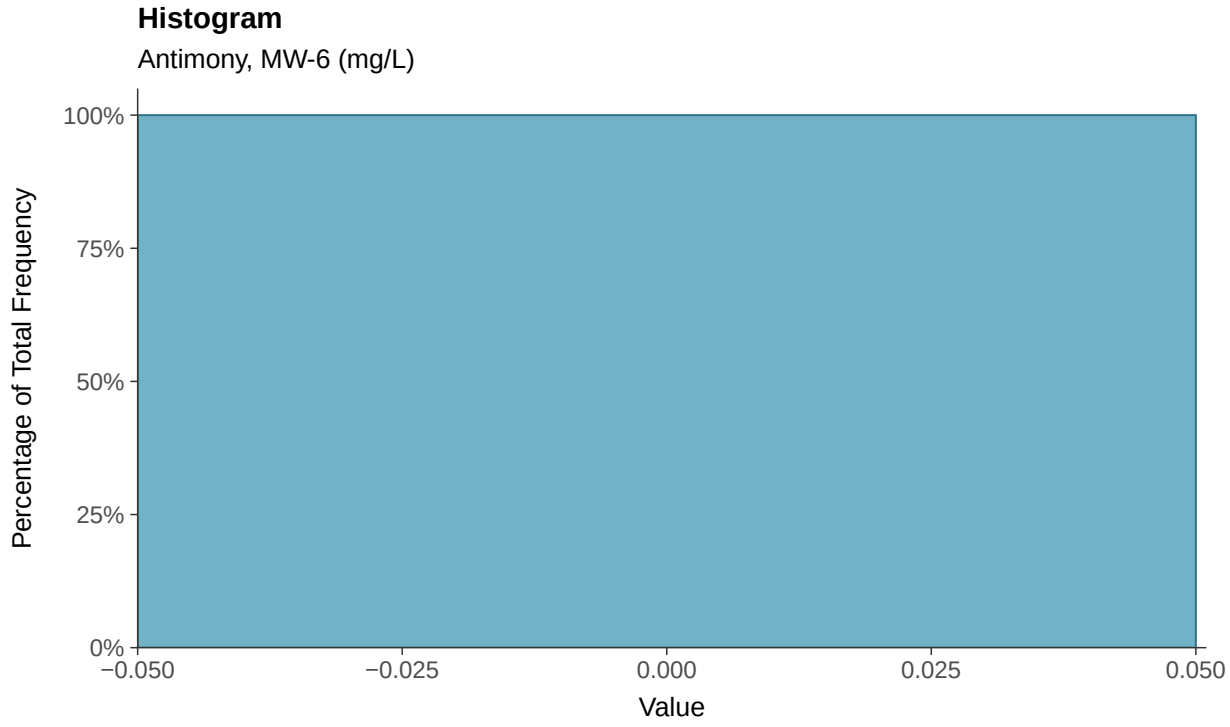
Fluoride, MW-6 (mg/L)



Appendix IV: Antimony, MW-6

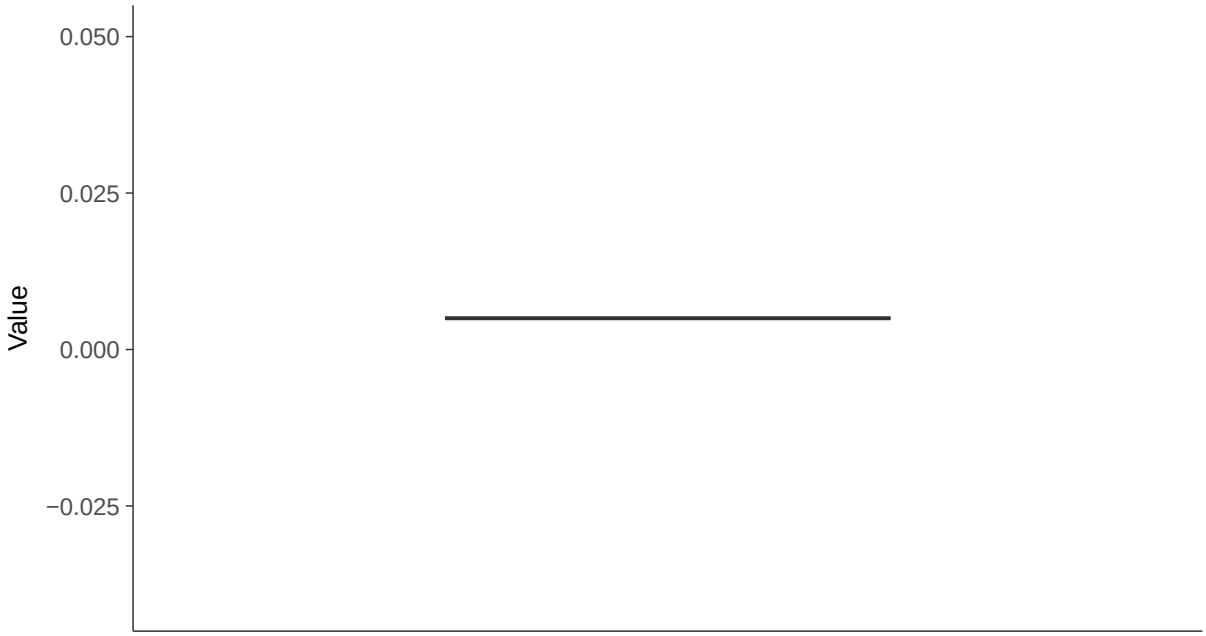
ID: 06_2_08





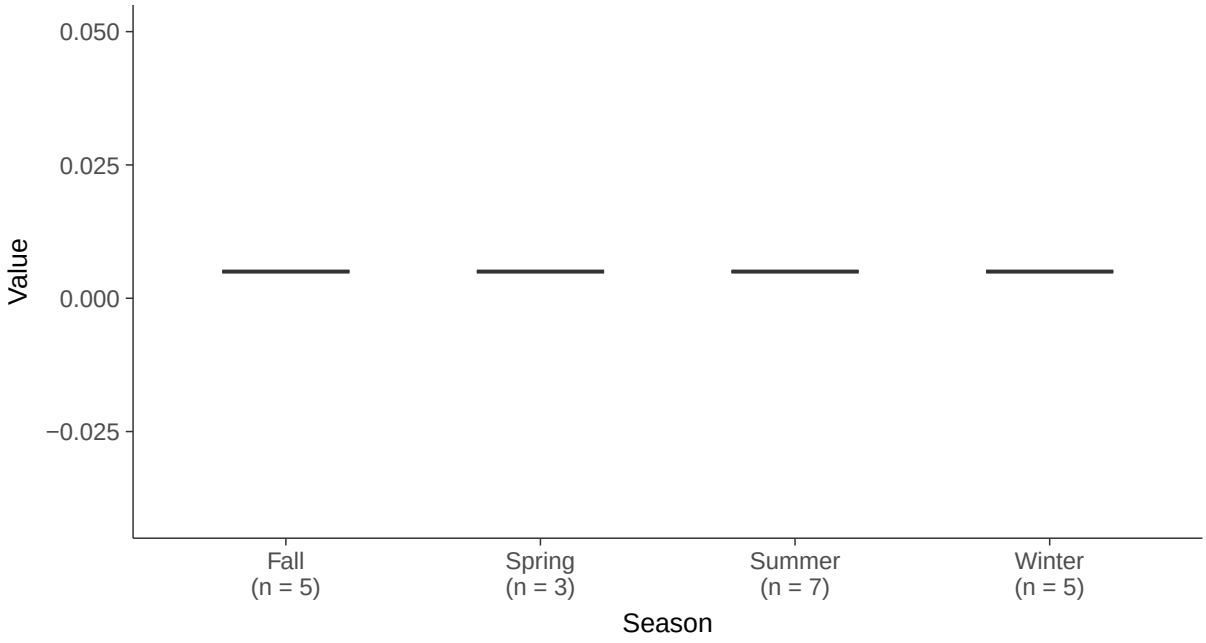
Boxplot

Antimony, MW-6 (mg/L)



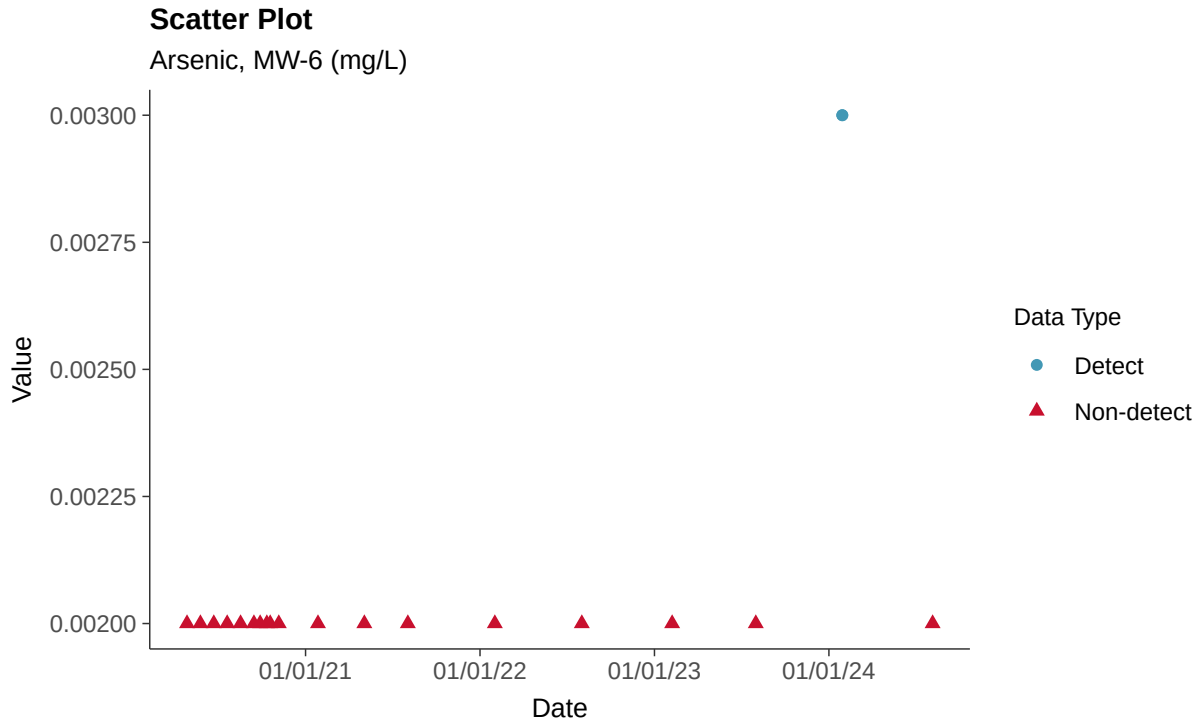
Boxplot by Season

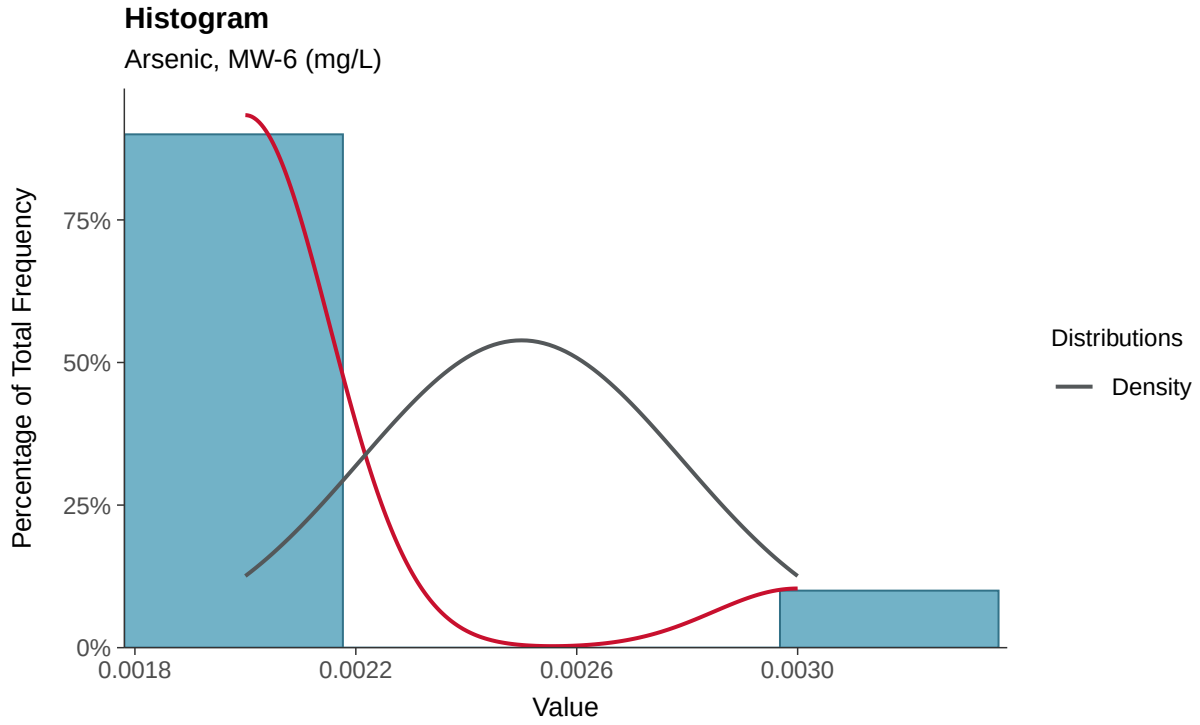
Antimony, MW-6 (mg/L)



Appendix IV: Arsenic, MW-6

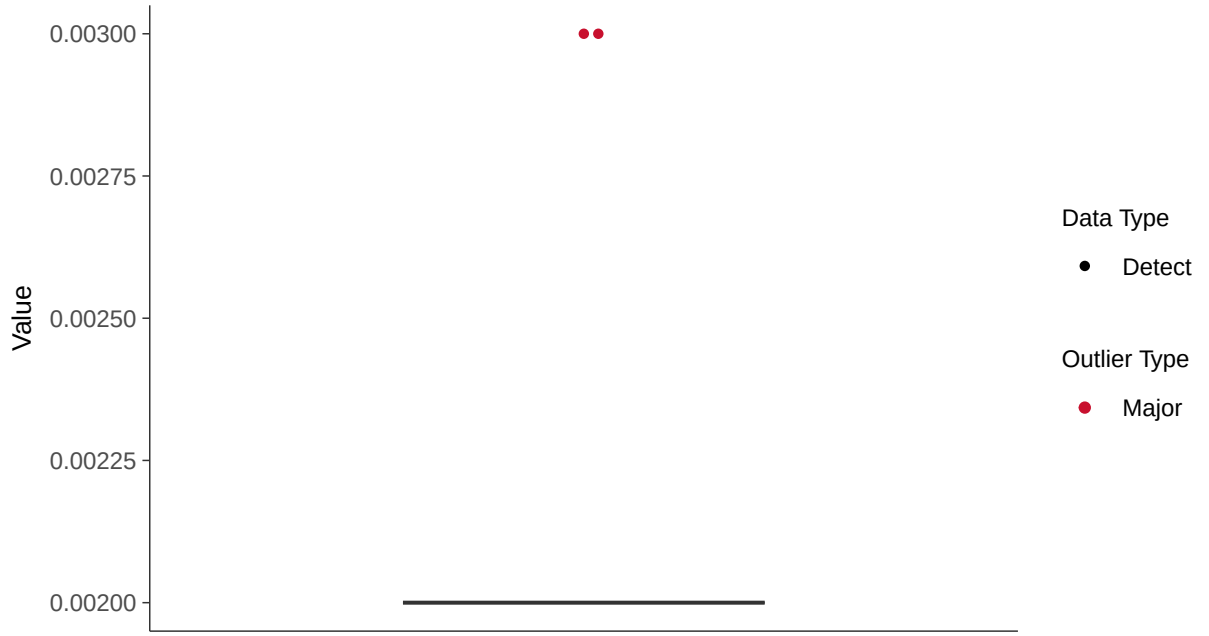
ID: 06_2_09





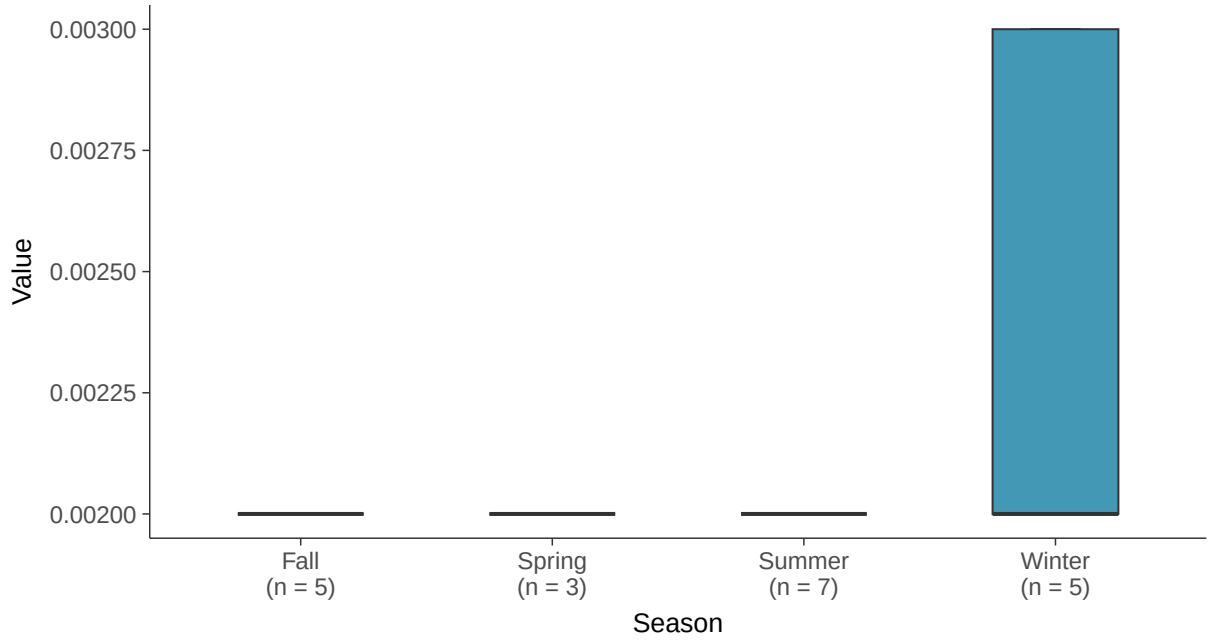
Boxplot

Arsenic, MW-6 (mg/L)



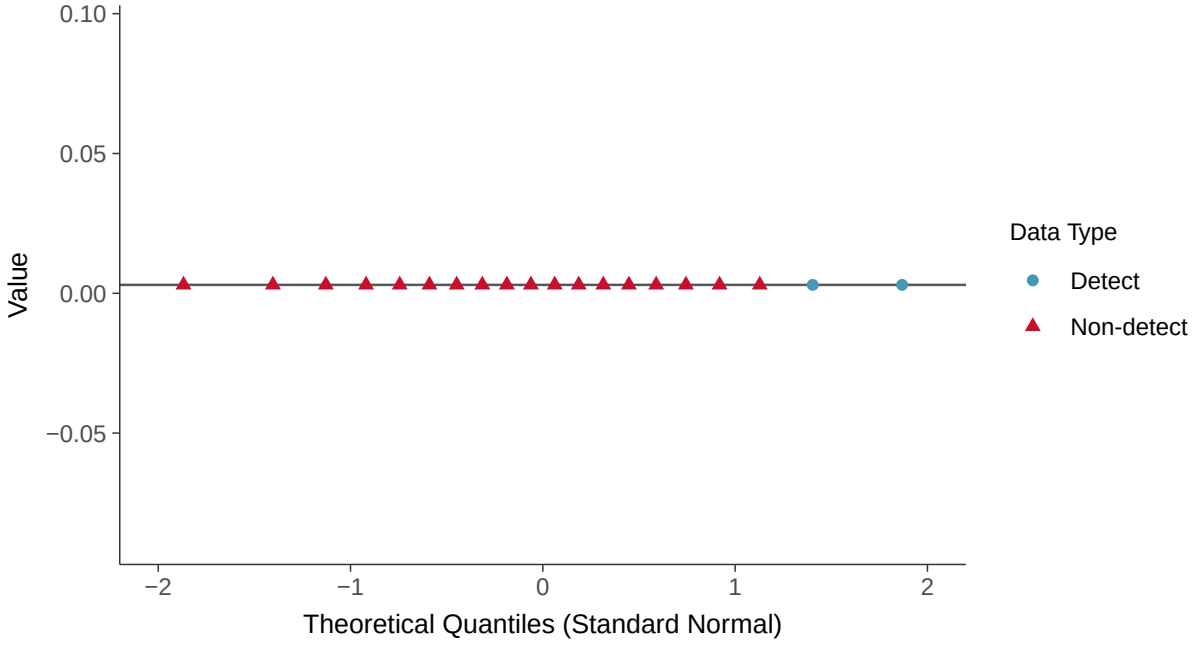
Boxplot by Season

Arsenic, MW-6 (mg/L)



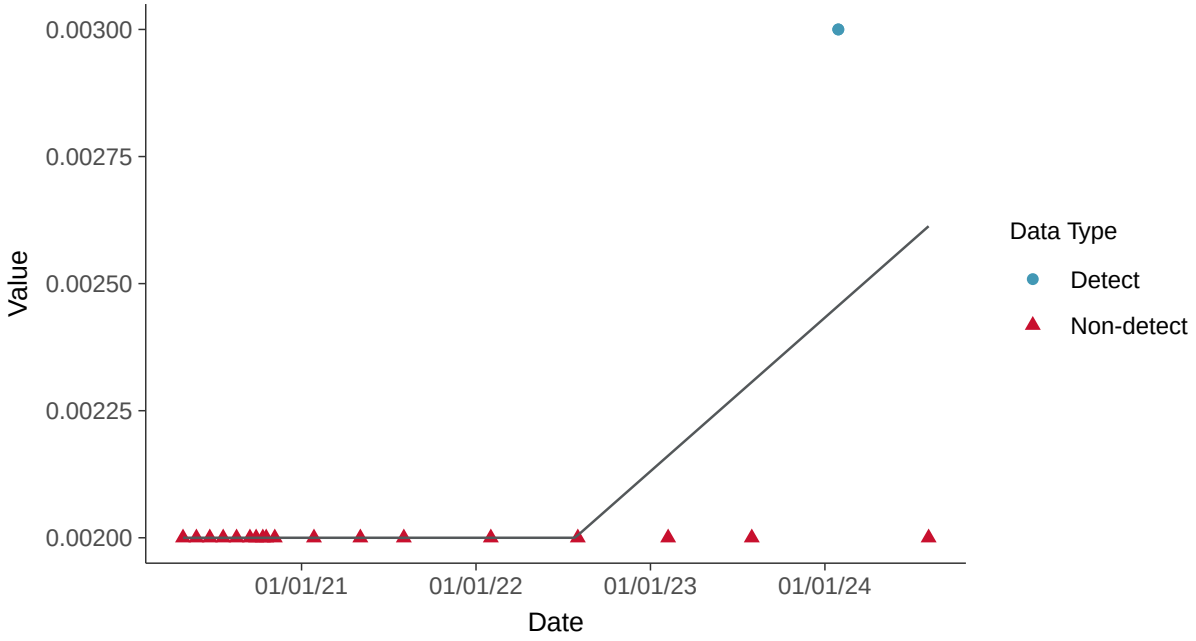
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, MW-6 (mg/L)



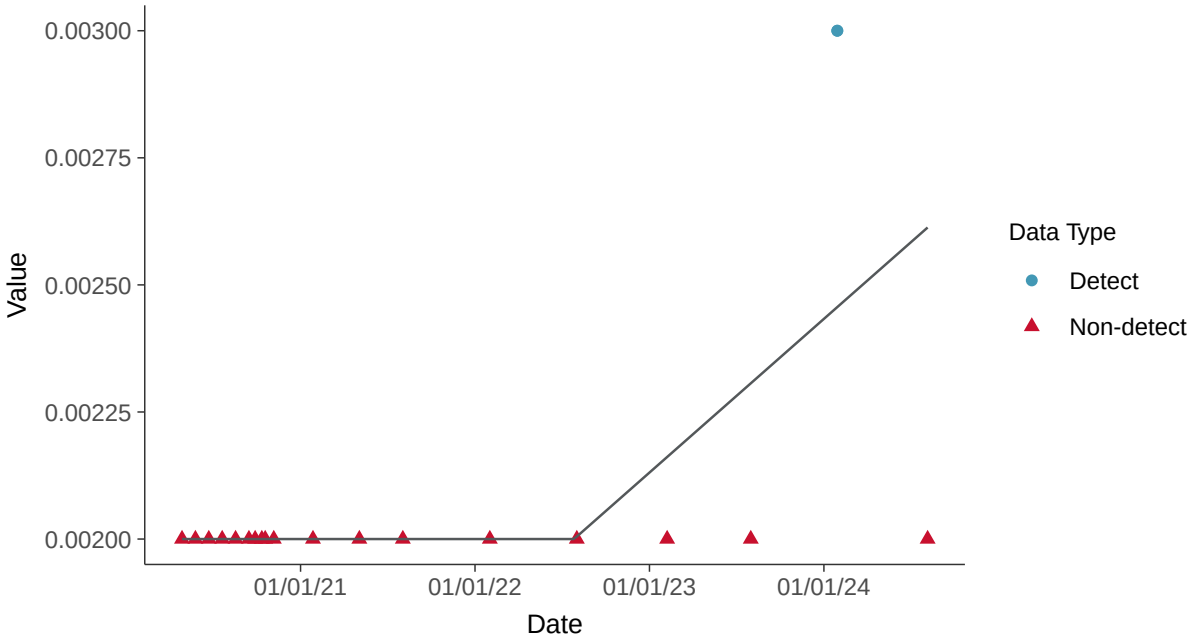
Trend Regression: Piecewise Linear-Linear

Arsenic, MW-6 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Arsenic, MW-6 (mg/L)

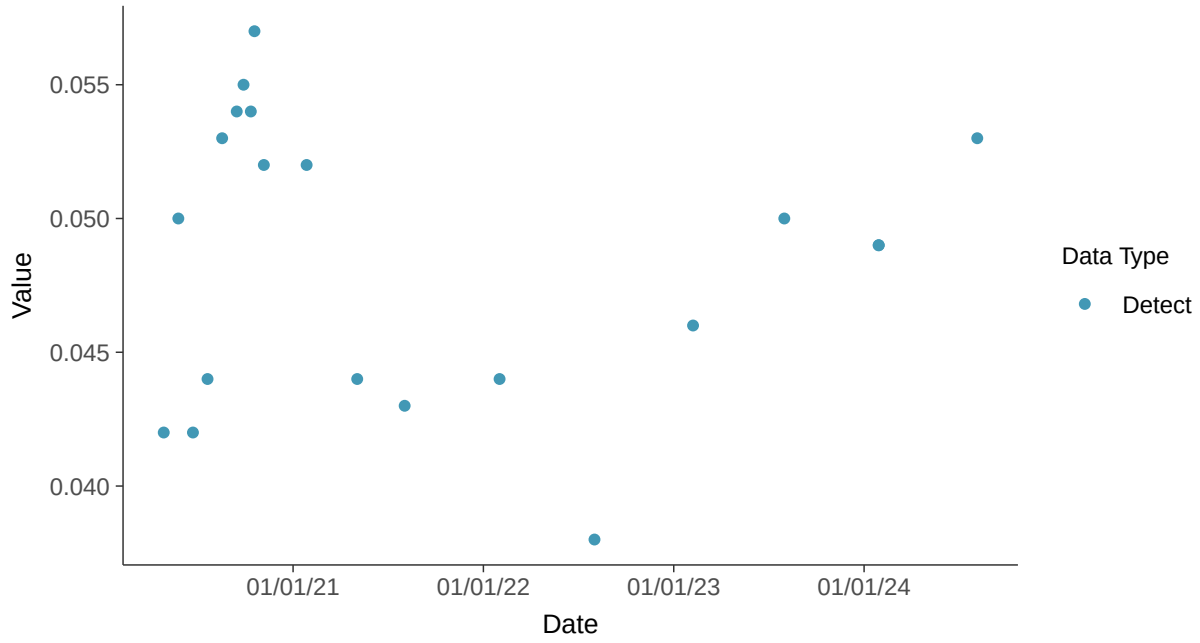


Appendix IV: Barium, MW-6

ID: 06_2_10

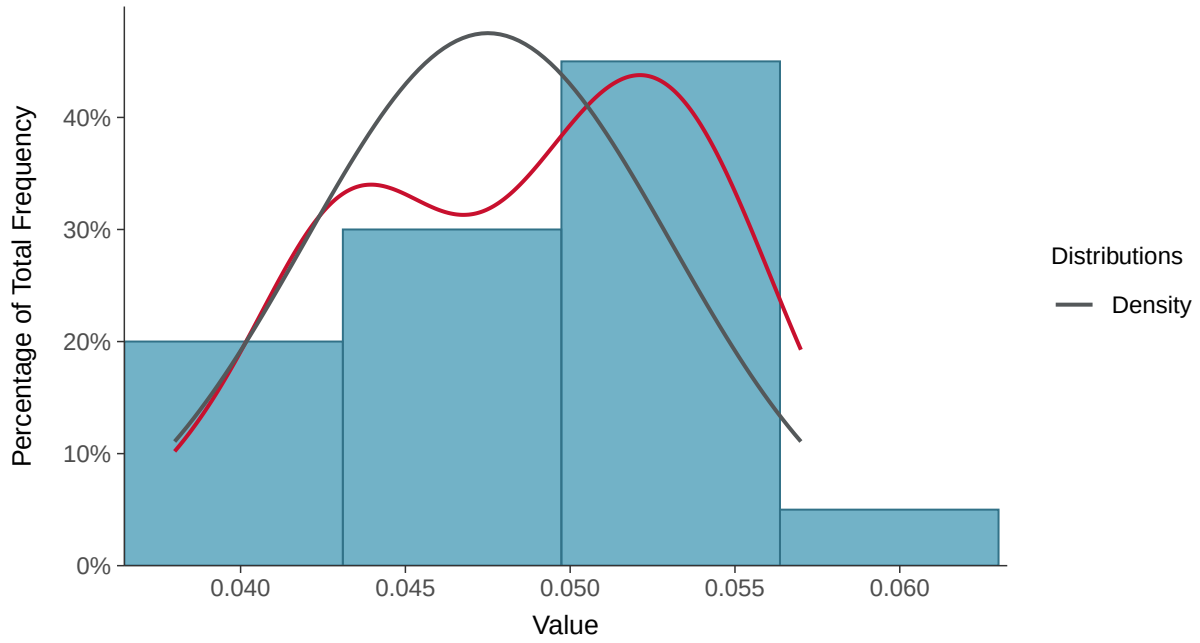
Scatter Plot

Barium, MW-6 (mg/L)



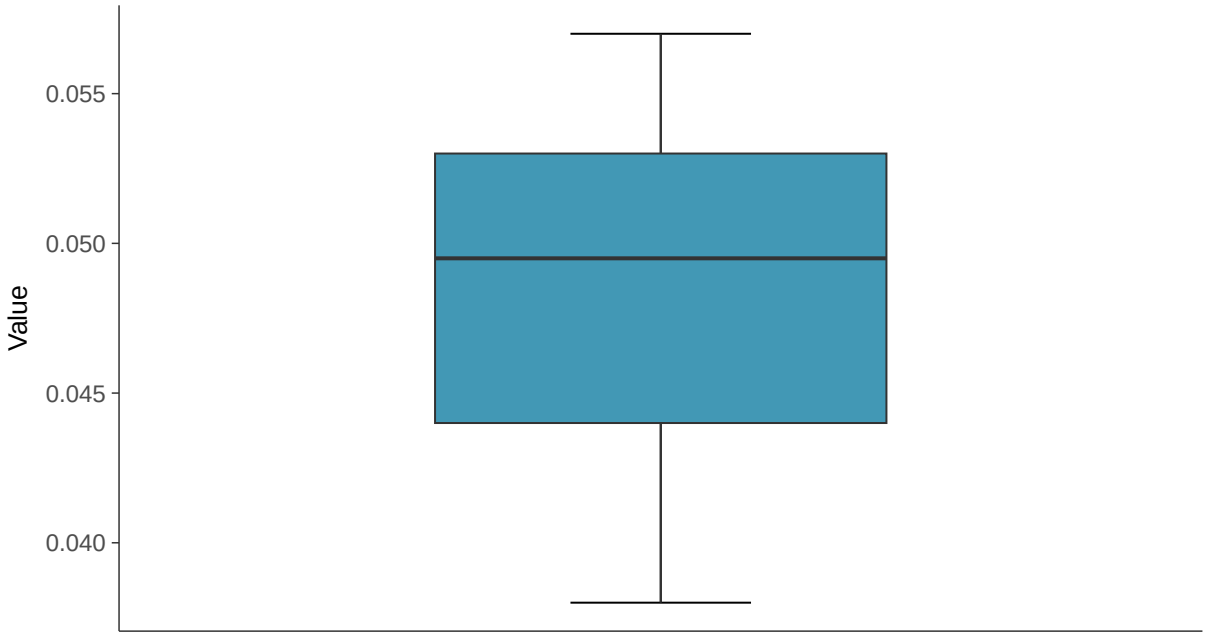
Histogram

Barium, MW-6 (mg/L)



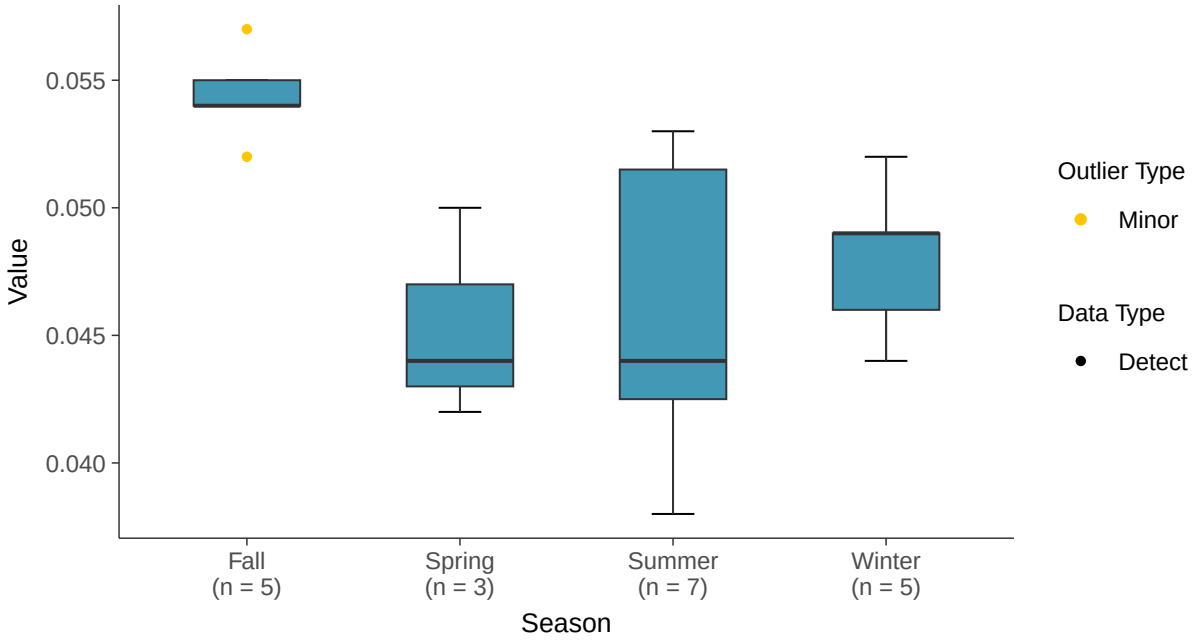
Boxplot

Barium, MW-6 (mg/L)



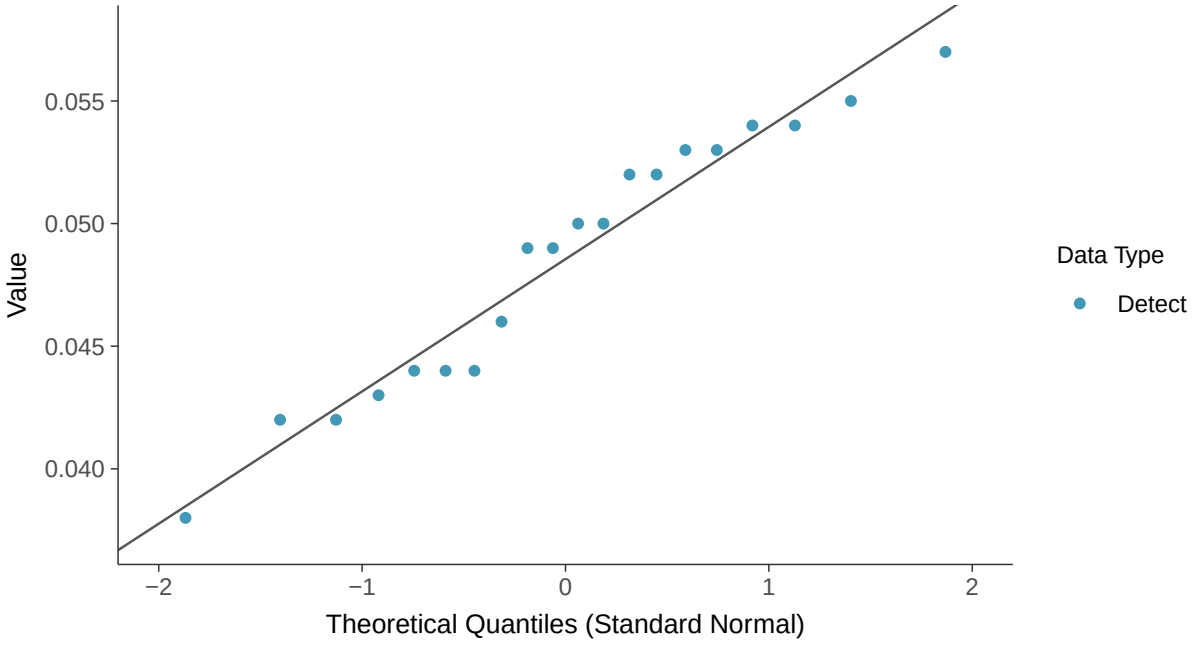
Boxplot by Season

Barium, MW-6 (mg/L)



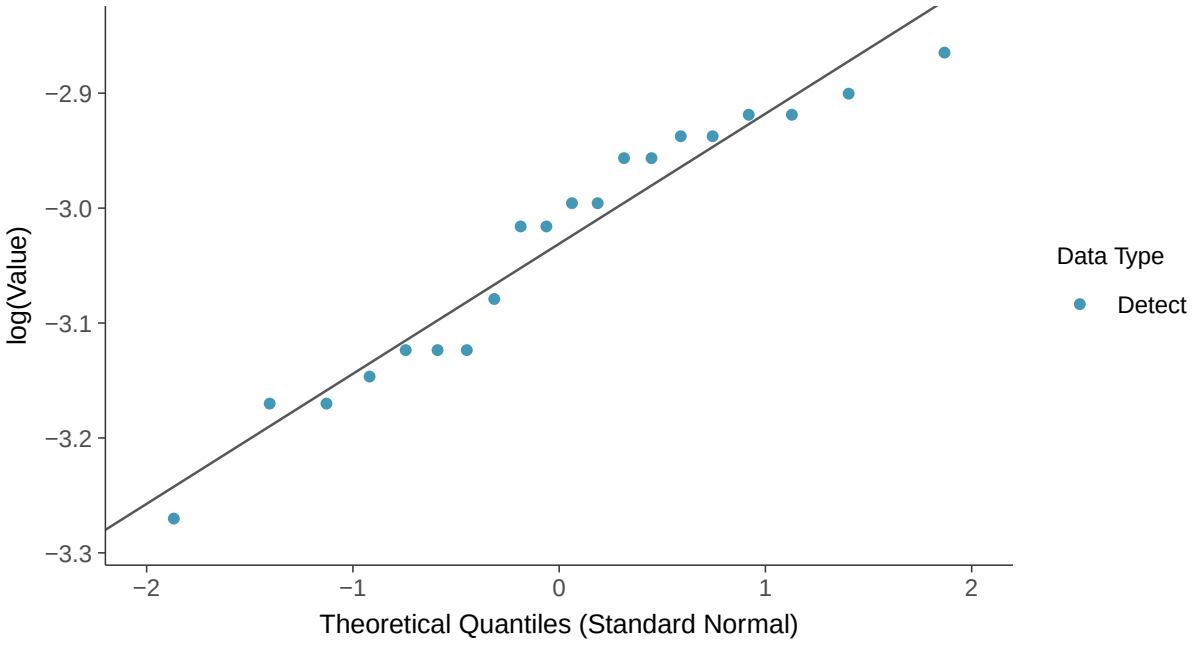
Normal Q-Q plot

Barium, MW-6 (mg/L)



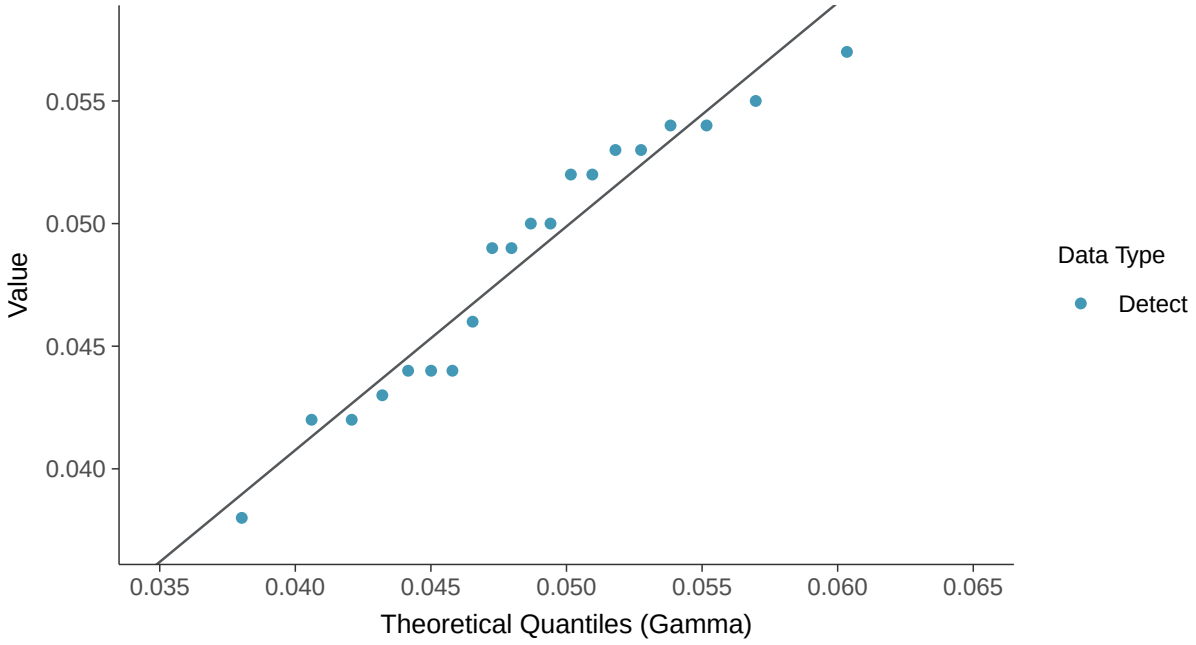
Lognormal Q-Q plot

Barium, MW-6 (mg/L)



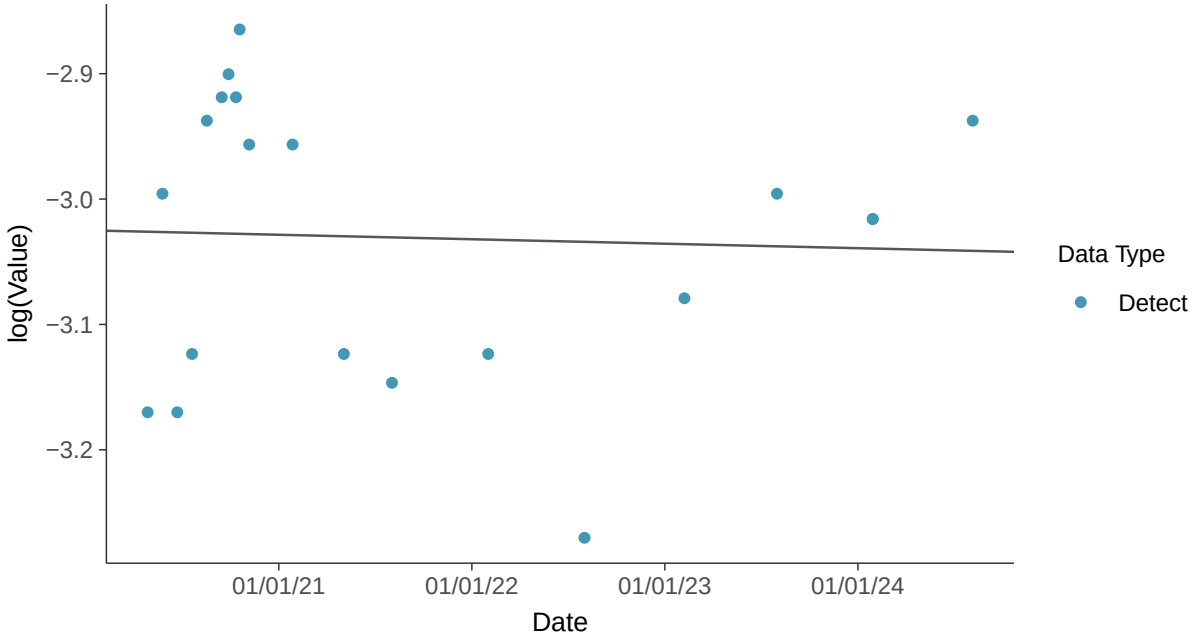
Gamma Q-Q plot

Barium, MW-6 (mg/L)



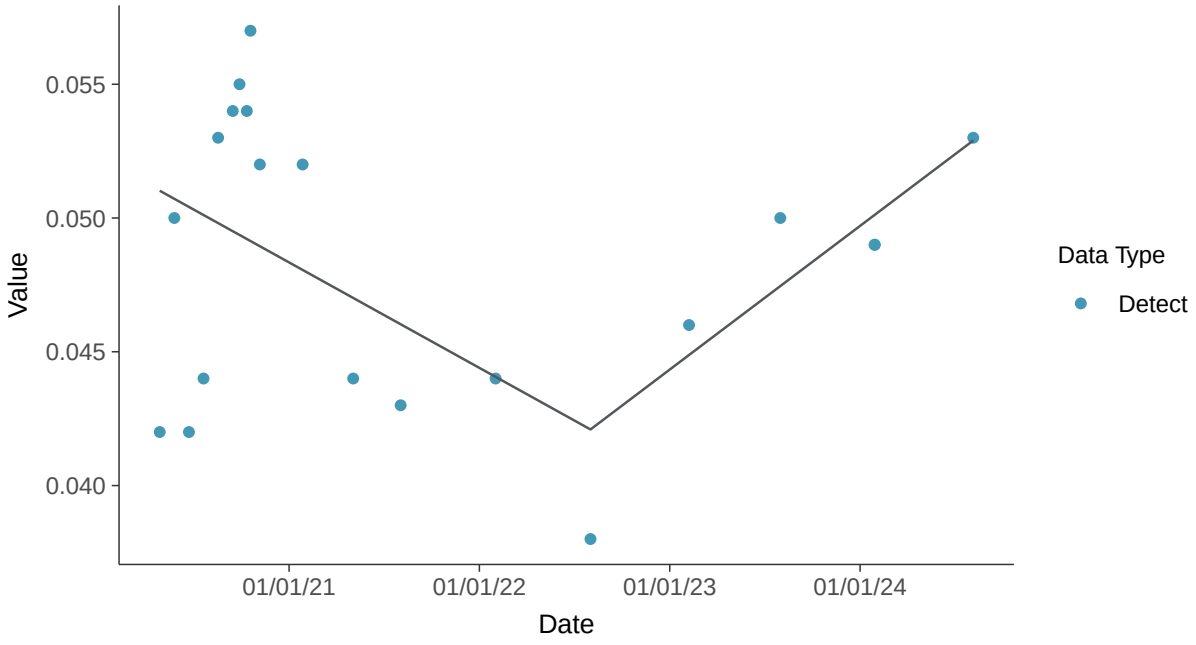
Trend Regression: Lognormal MLE

Barium, MW-6 (mg/L)



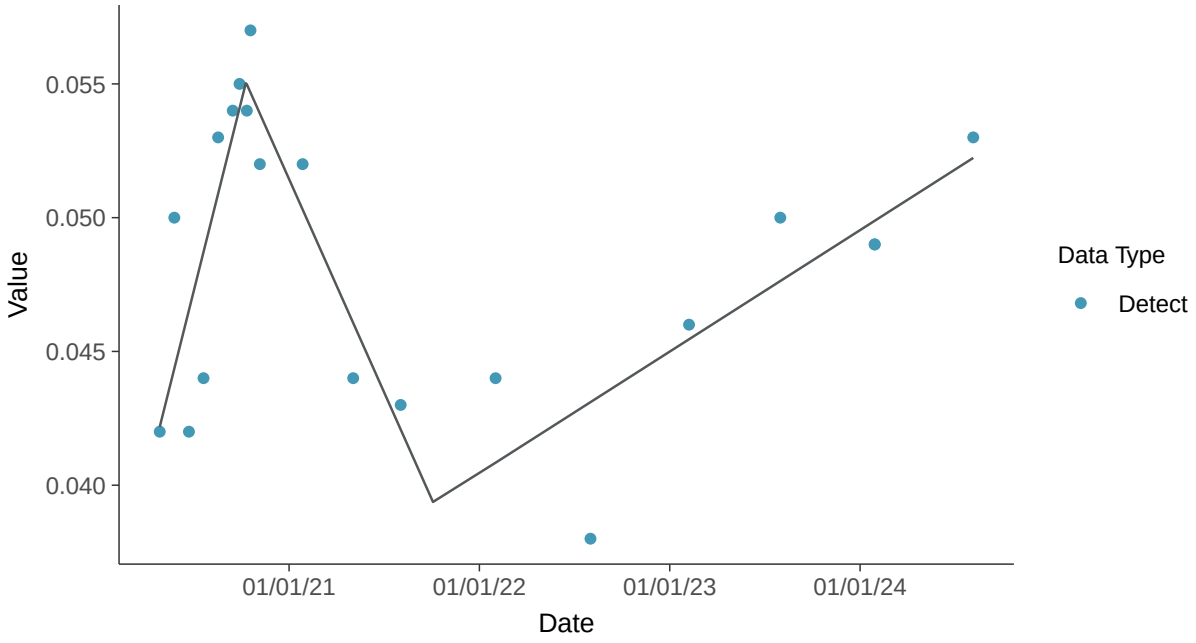
Trend Regression: Piecewise Linear-Linear

Barium, MW-6 (mg/L)



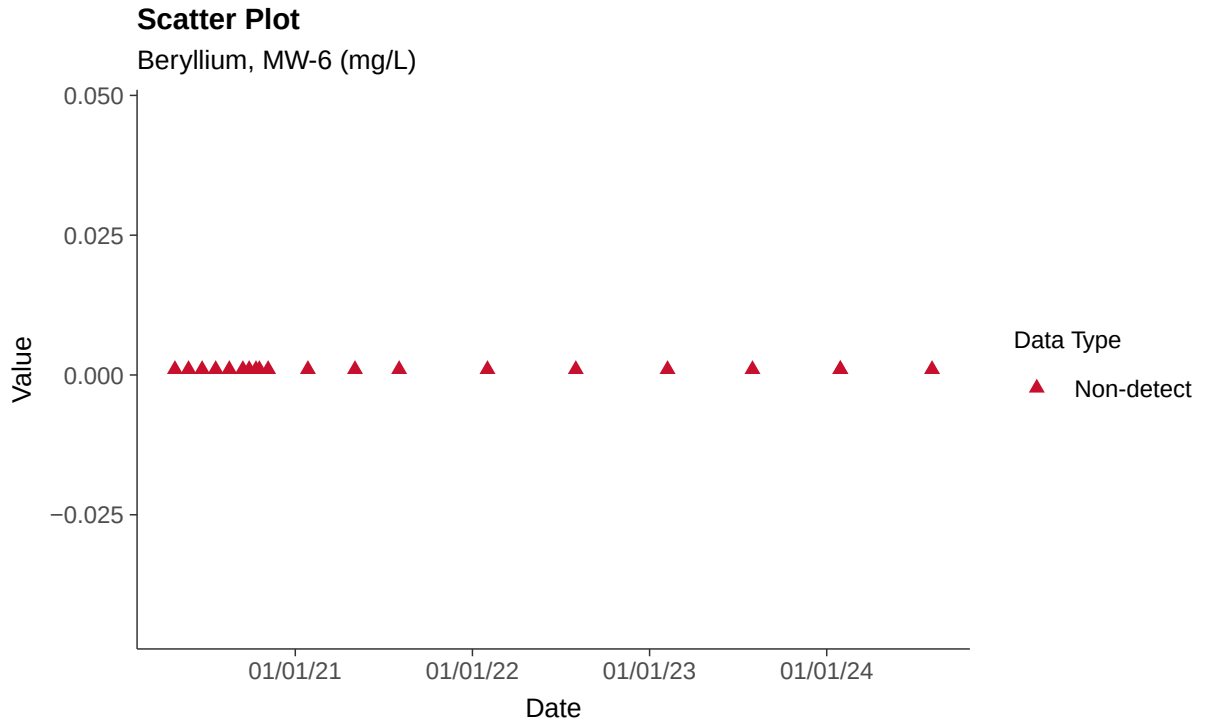
Trend Regression: Piecewise Linear-Linear-Linear

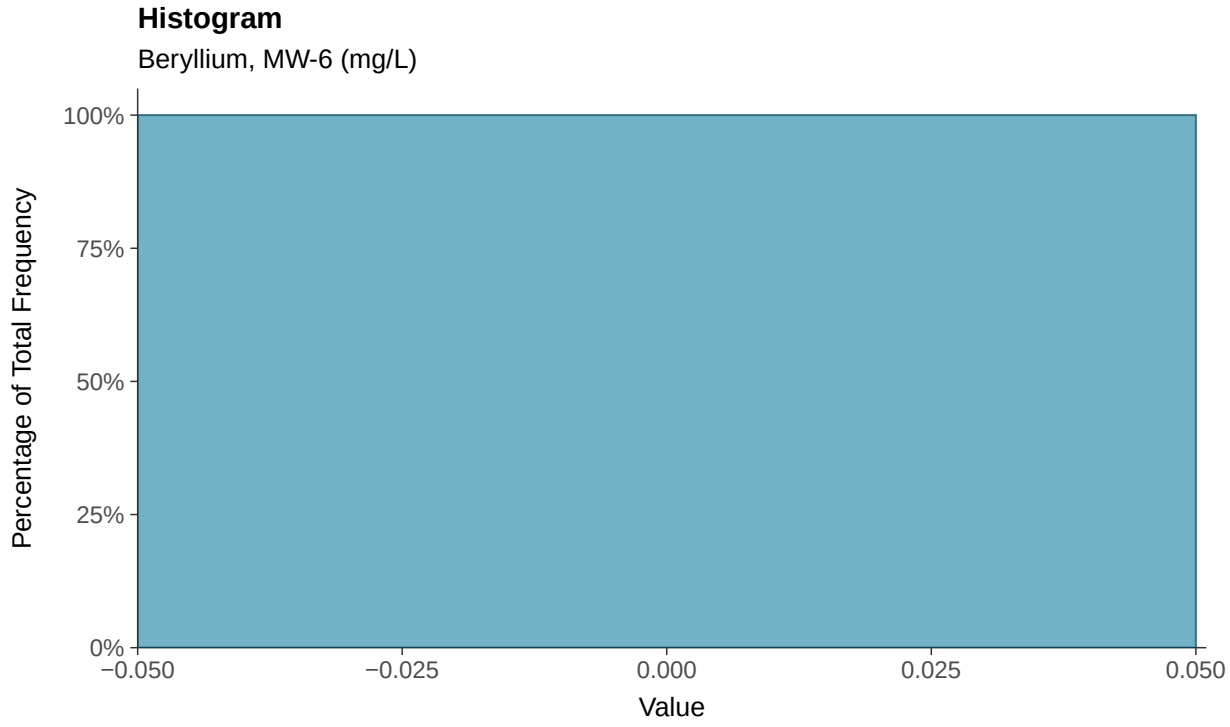
Barium, MW-6 (mg/L)



Appendix IV: Beryllium, MW-6

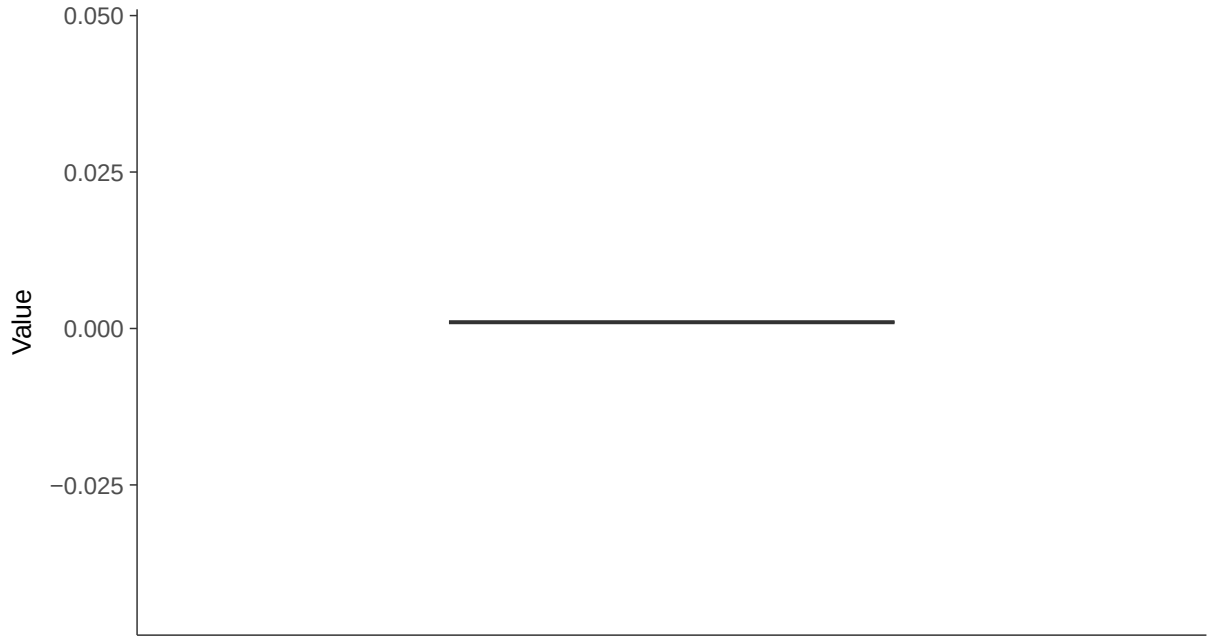
ID: 06_2_11





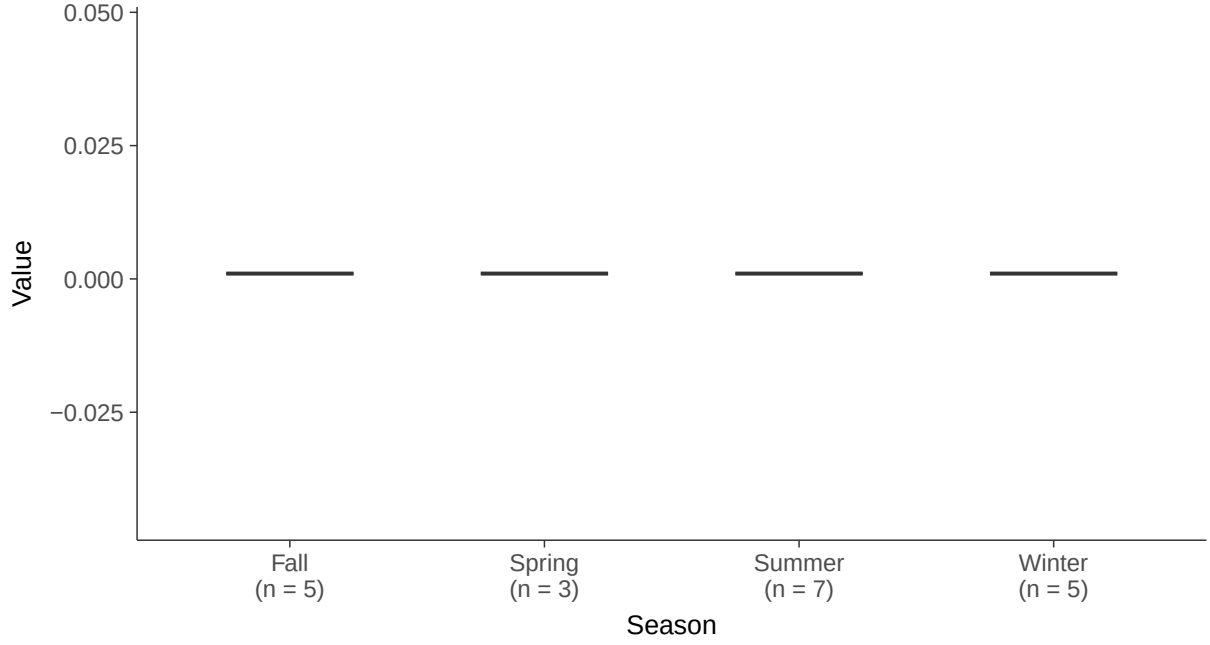
Boxplot

Beryllium, MW-6 (mg/L)



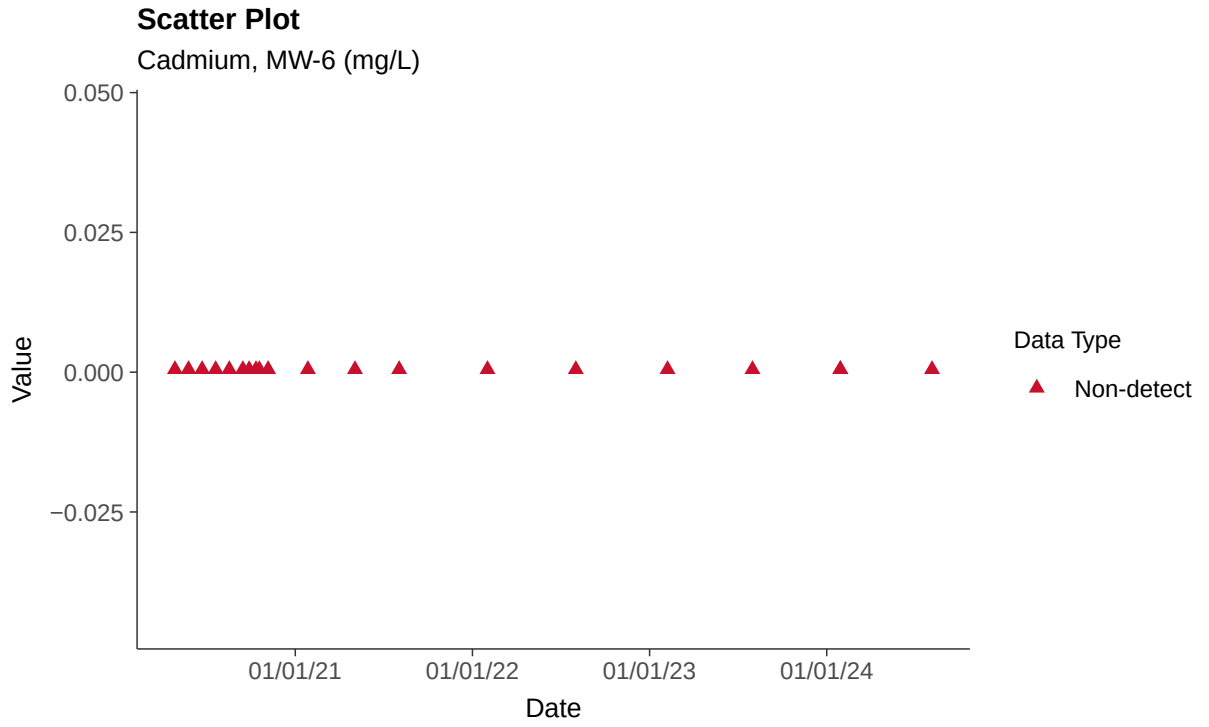
Boxplot by Season

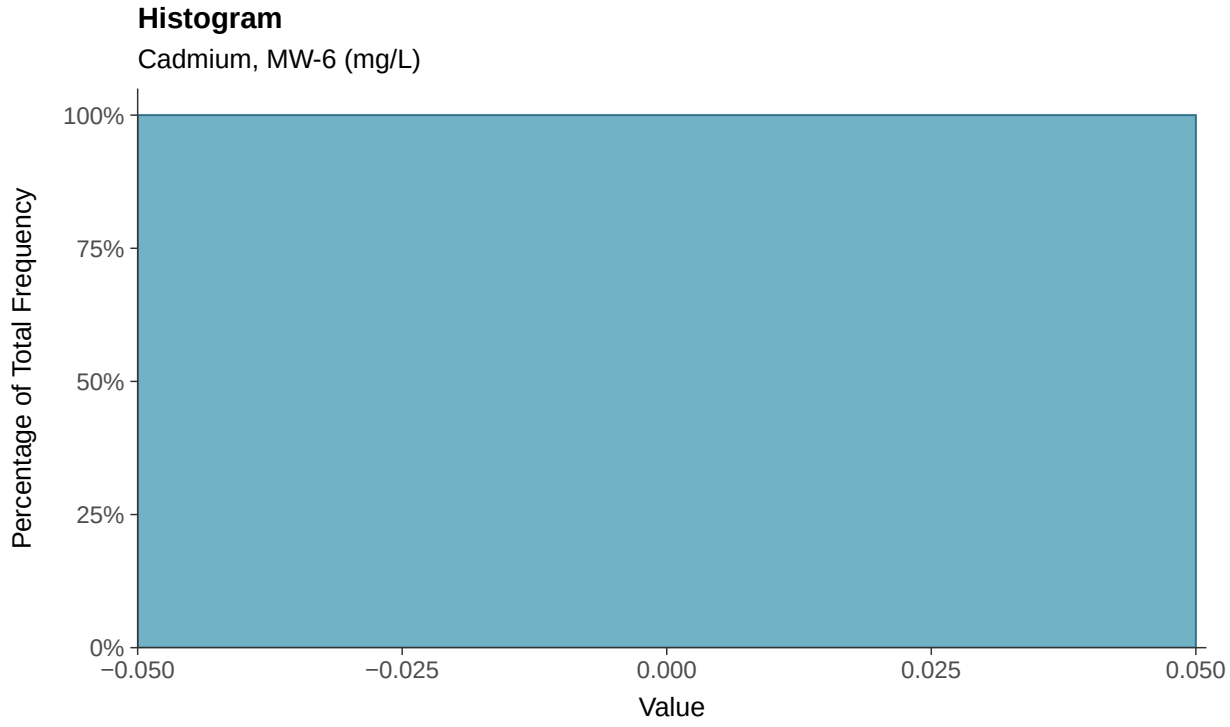
Beryllium, MW-6 (mg/L)



Appendix IV: Cadmium, MW-6

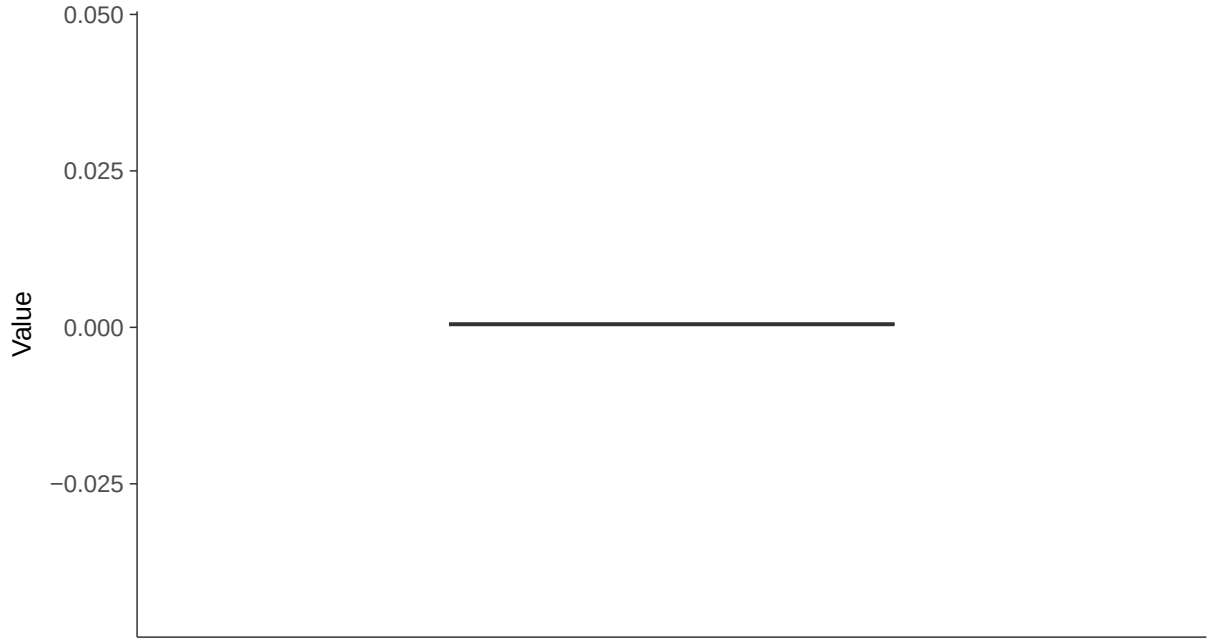
ID: 06_2_12





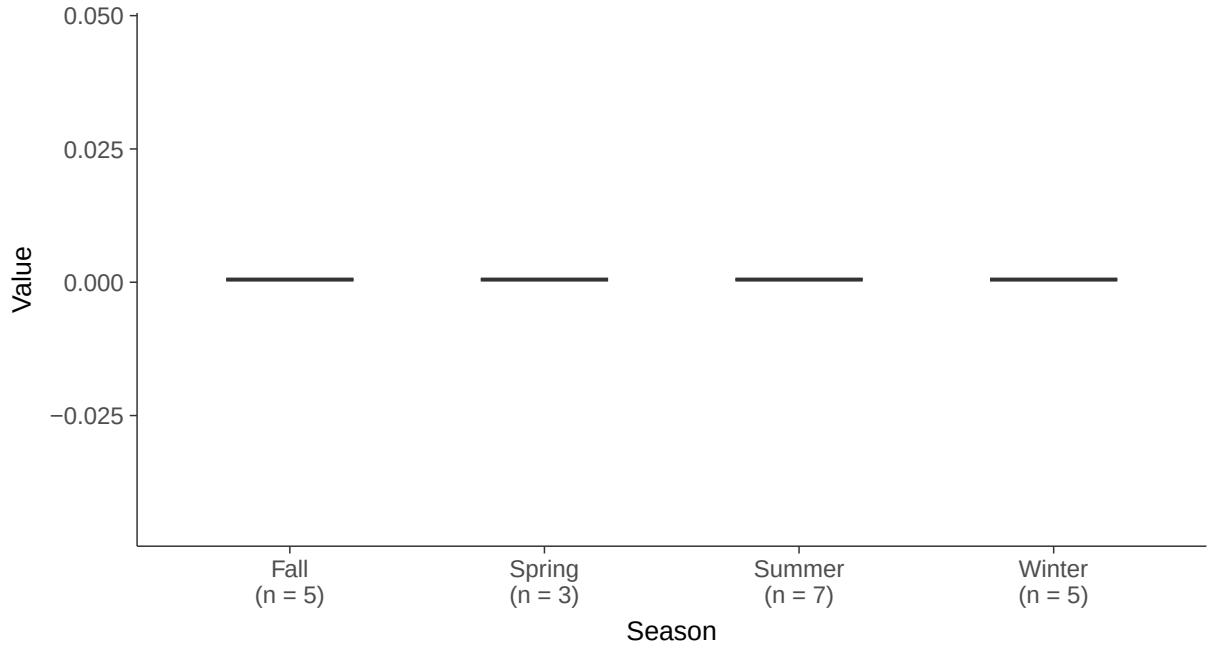
Boxplot

Cadmium, MW-6 (mg/L)



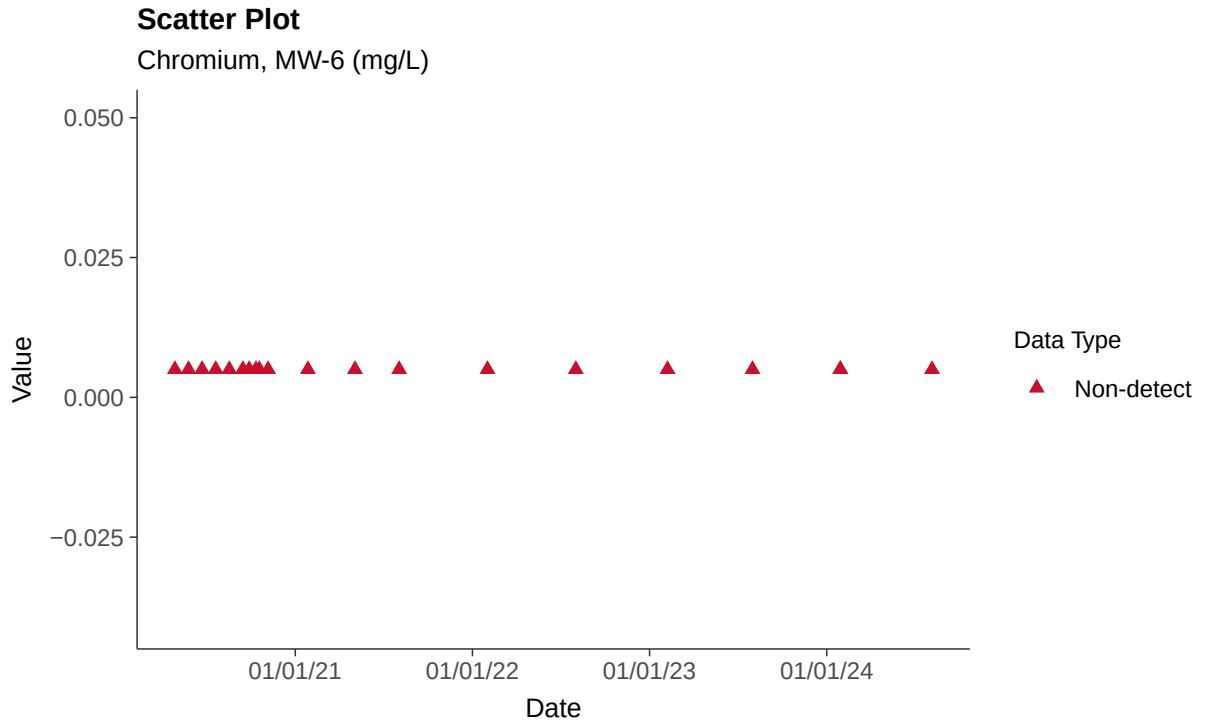
Boxplot by Season

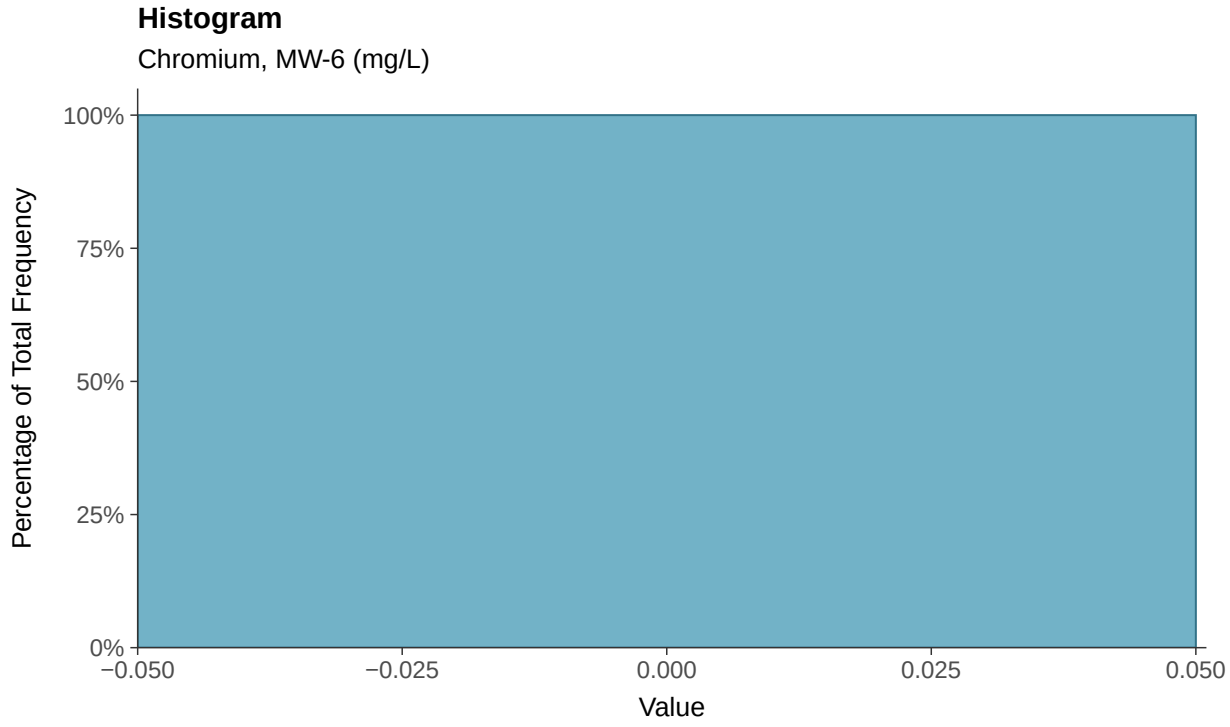
Cadmium, MW-6 (mg/L)



Appendix IV: Chromium, MW-6

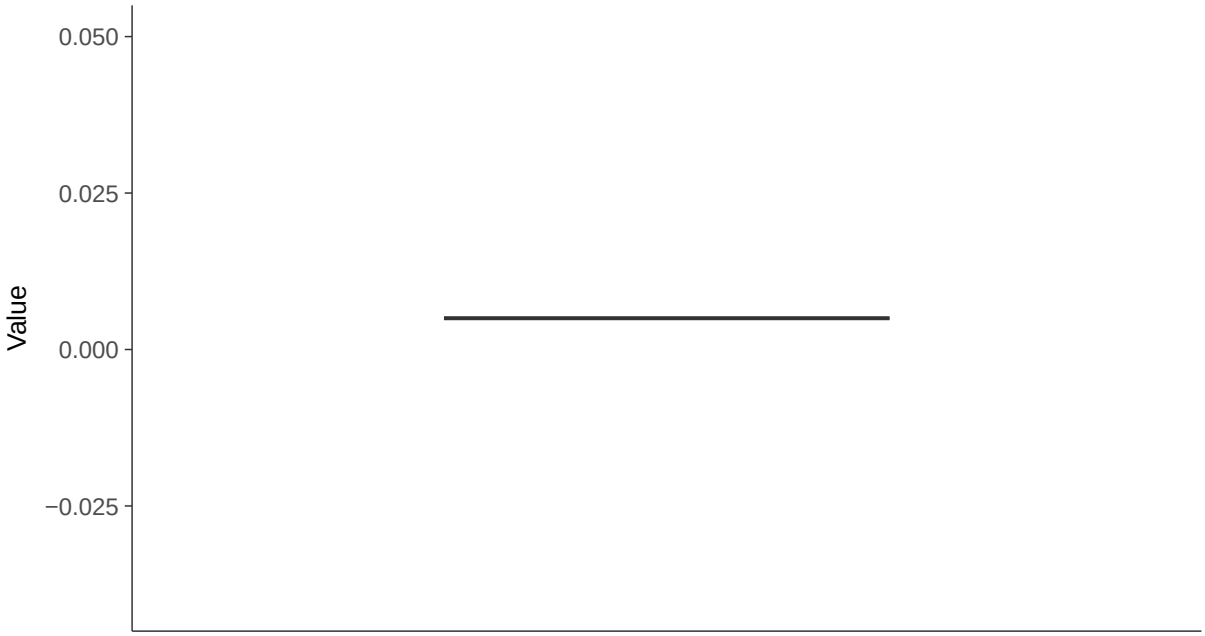
ID: 06_2_13





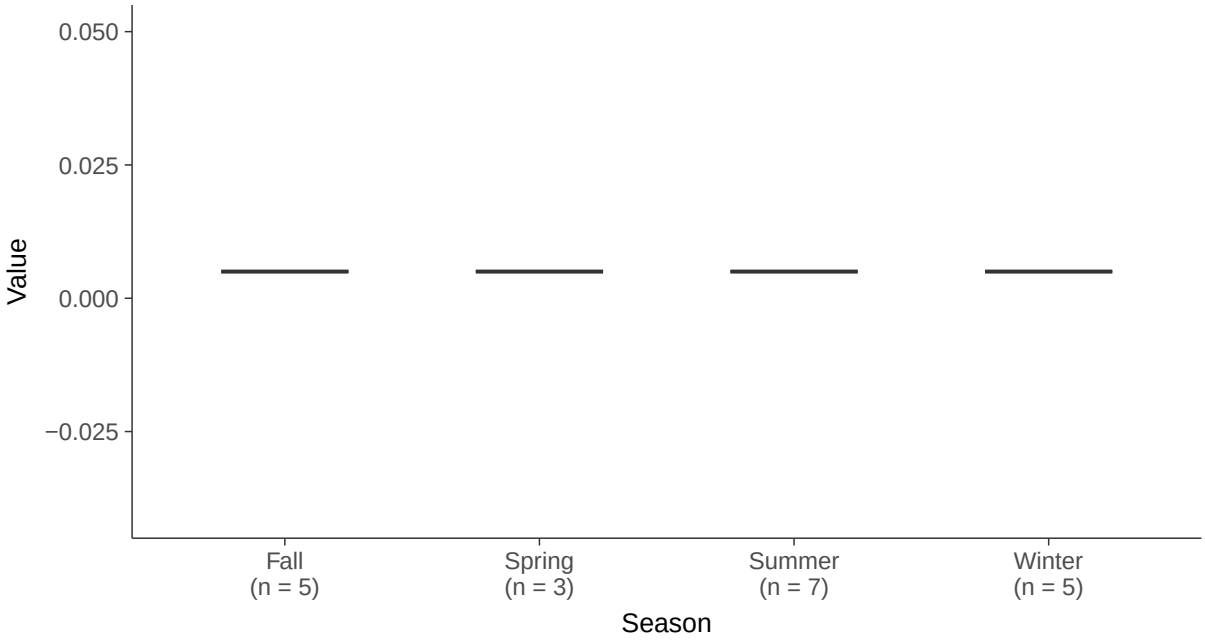
Boxplot

Chromium, MW-6 (mg/L)



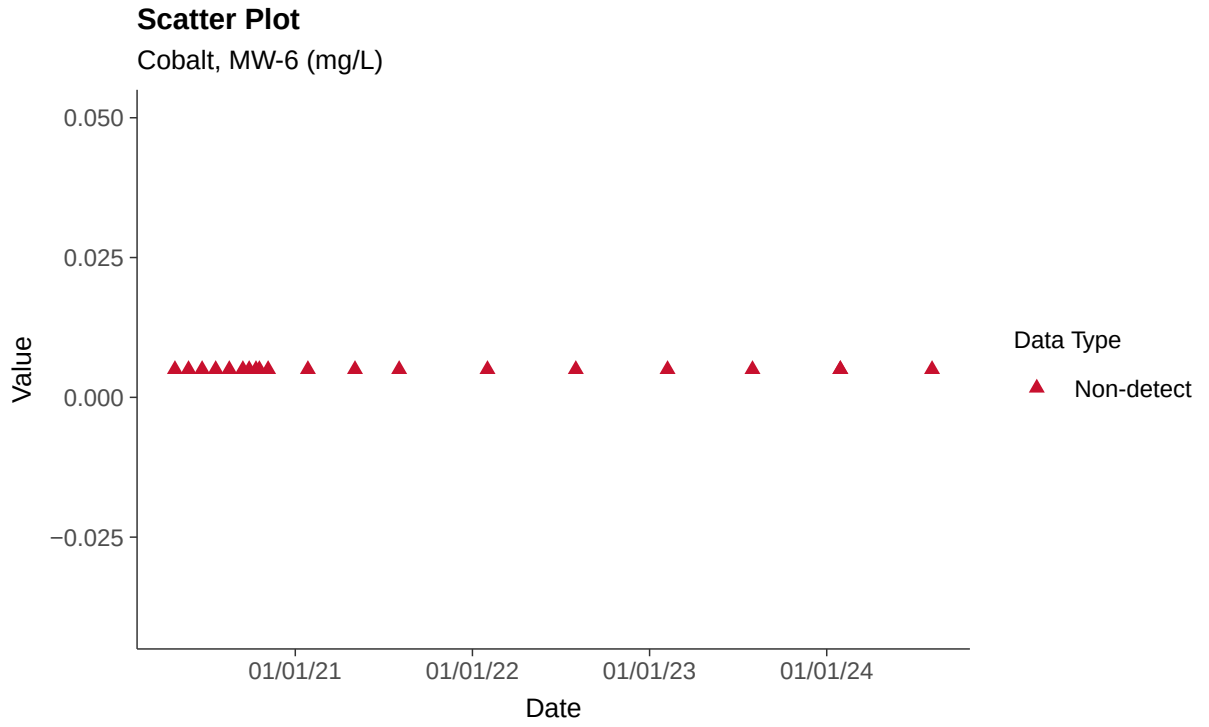
Boxplot by Season

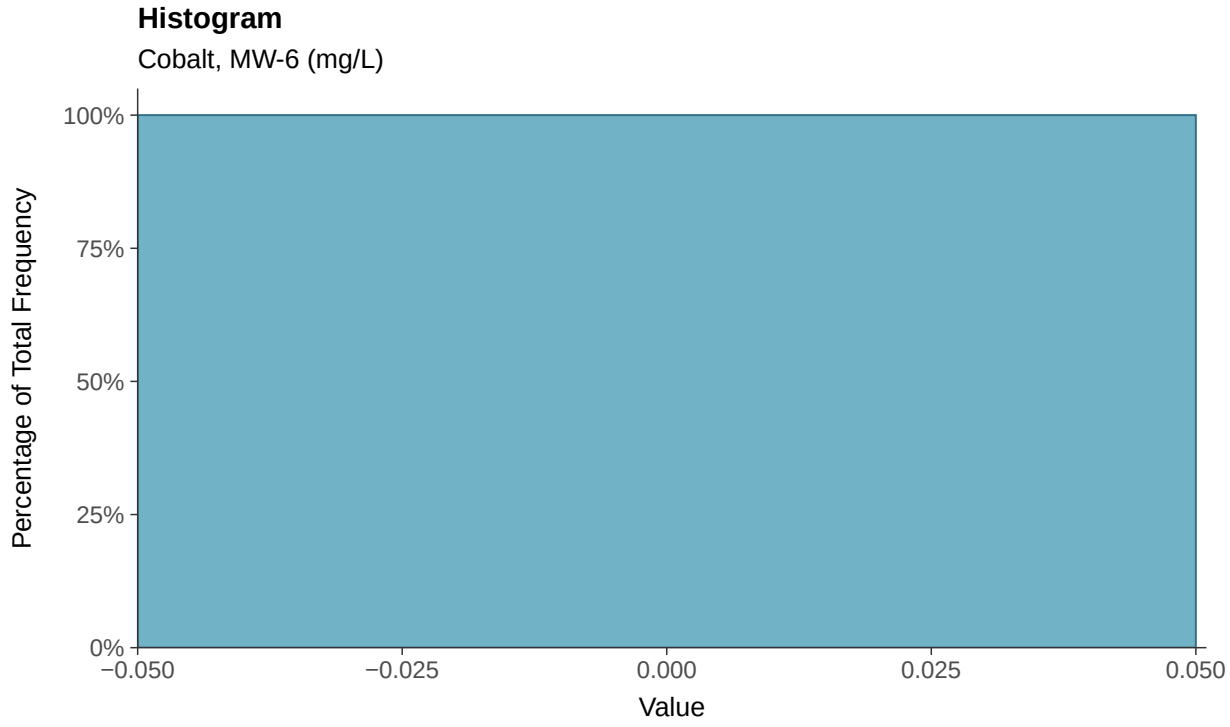
Chromium, MW-6 (mg/L)



Appendix IV: Cobalt, MW-6

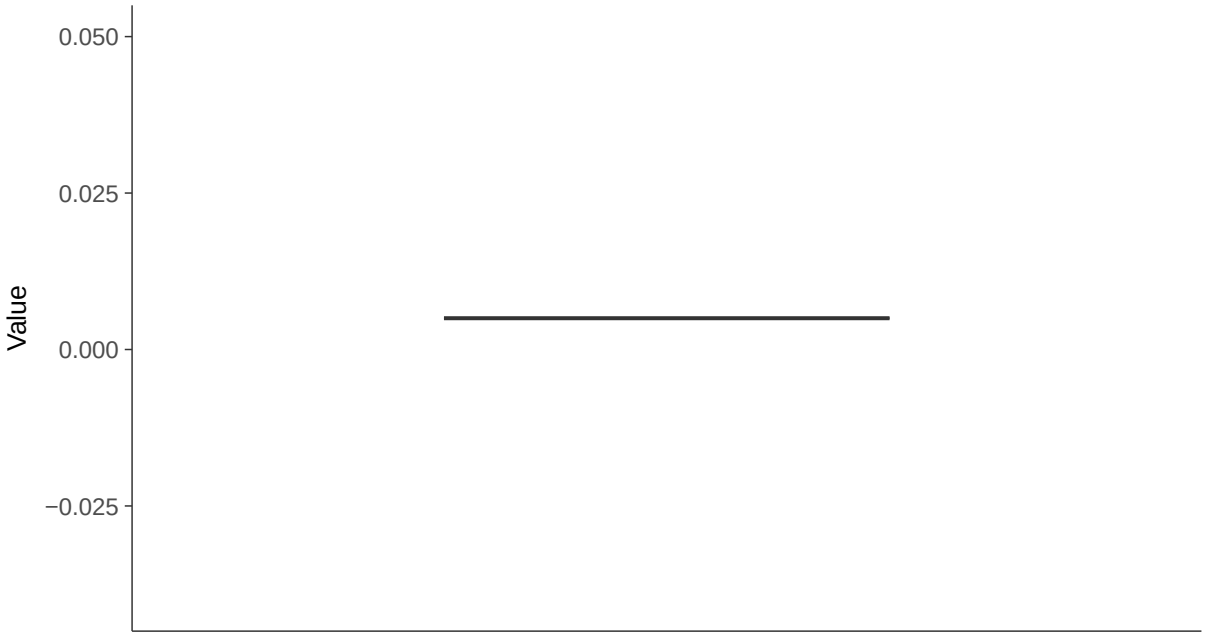
ID: 06_2_14





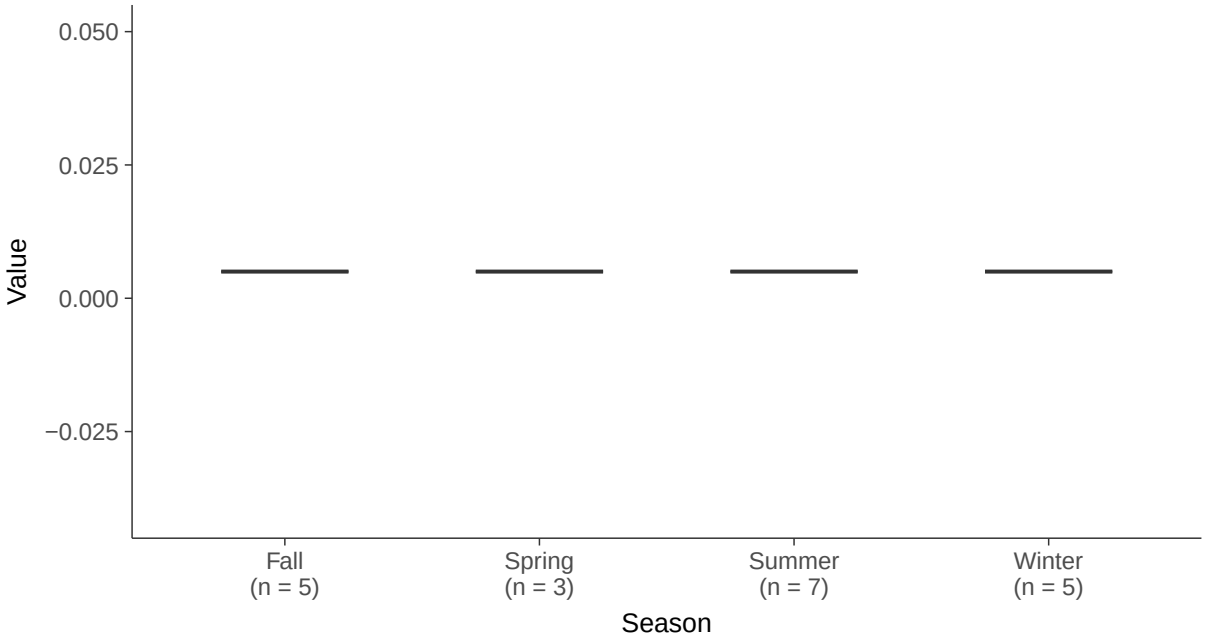
Boxplot

Cobalt, MW-6 (mg/L)



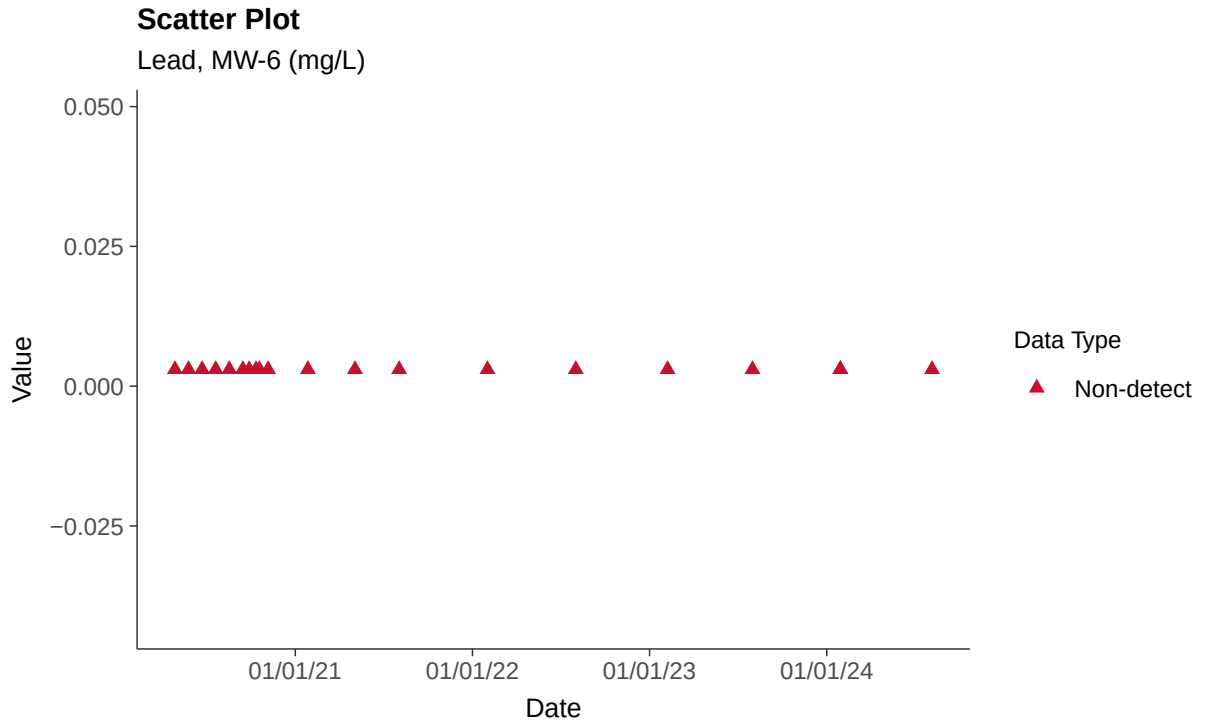
Boxplot by Season

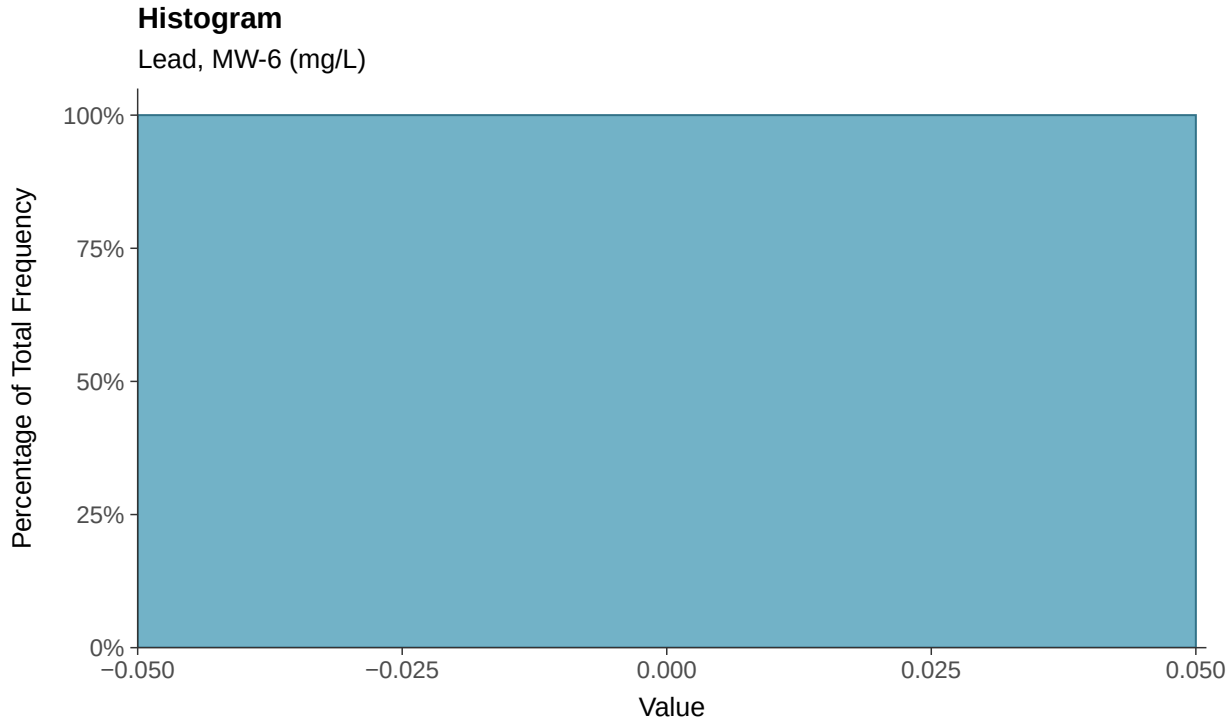
Cobalt, MW-6 (mg/L)



Appendix IV: Lead, MW-6

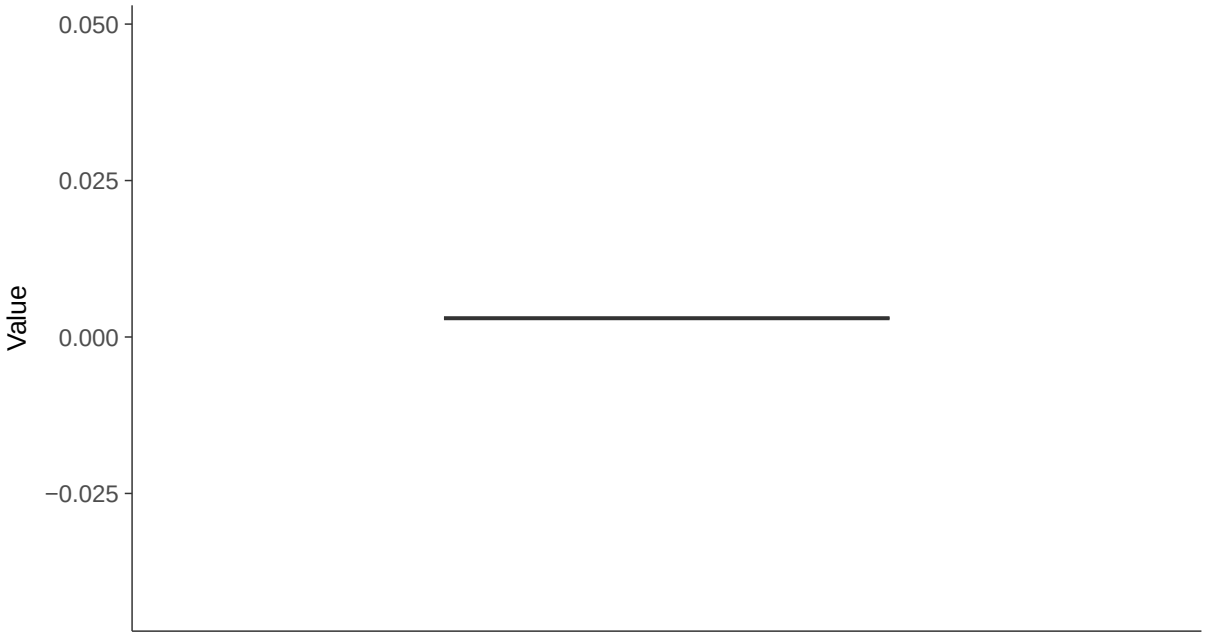
ID: 06_2_15





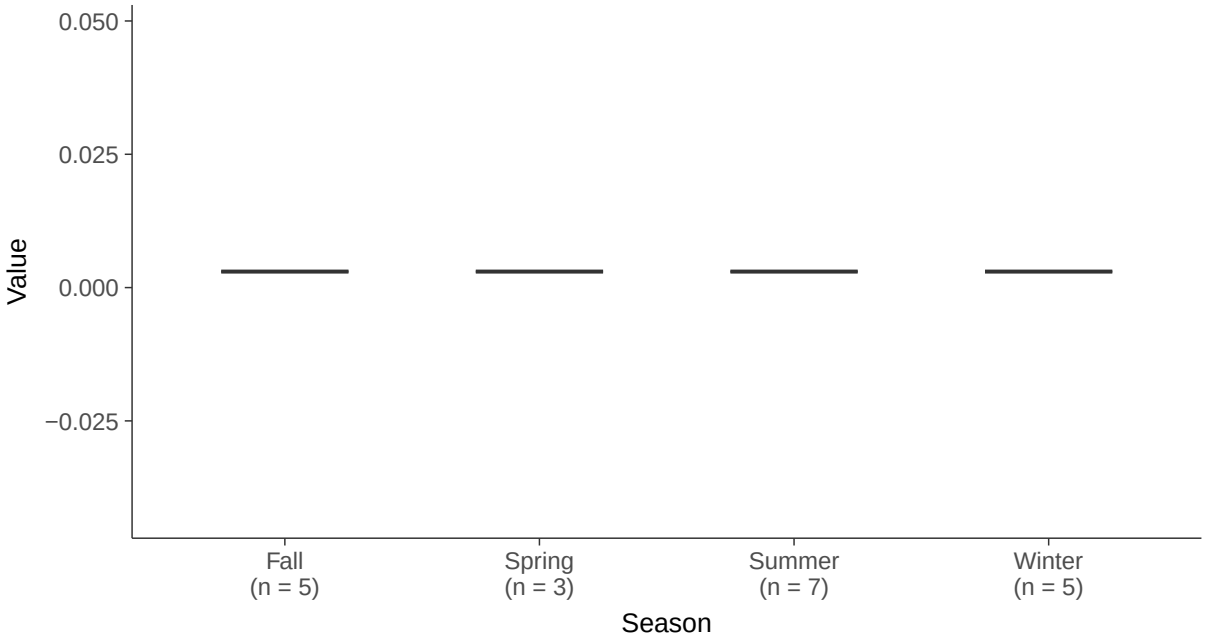
Boxplot

Lead, MW-6 (mg/L)



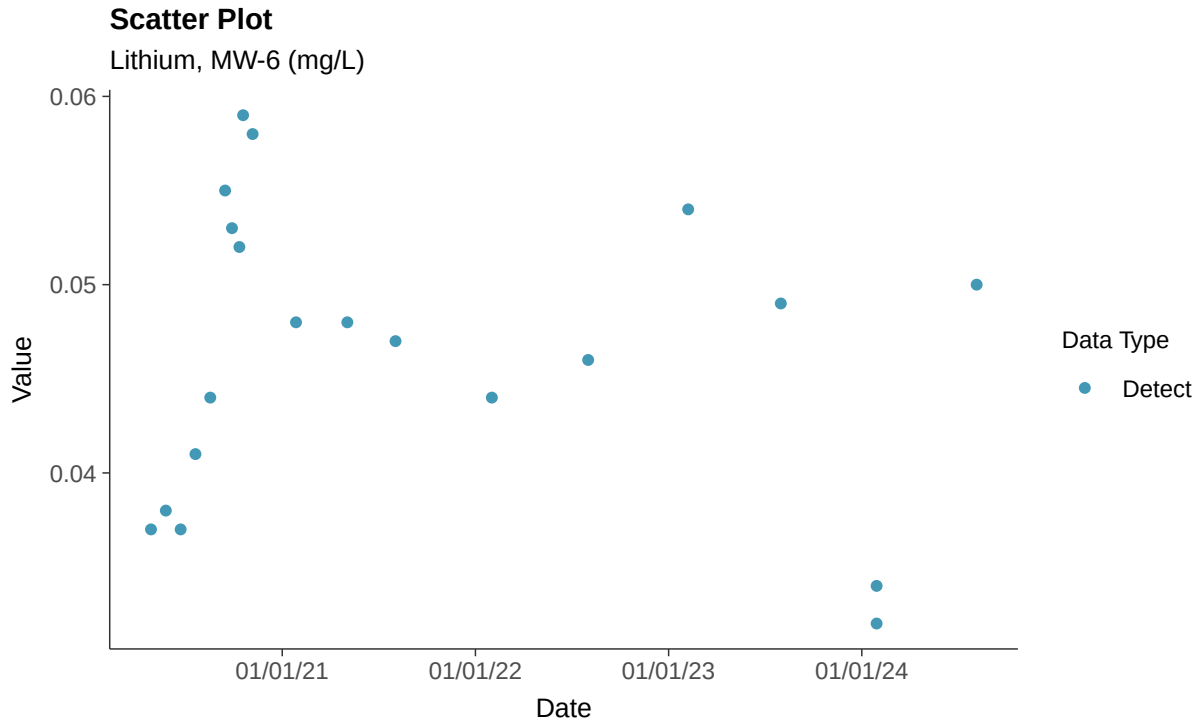
Boxplot by Season

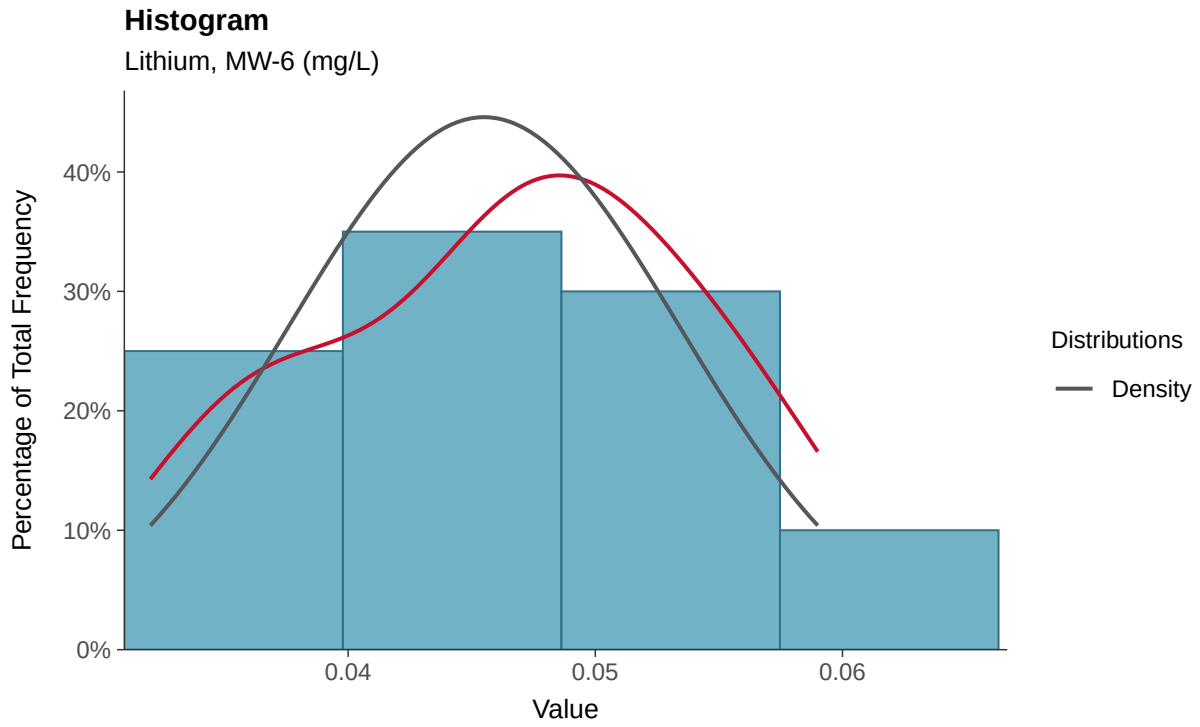
Lead, MW-6 (mg/L)



Appendix IV: Lithium, MW-6

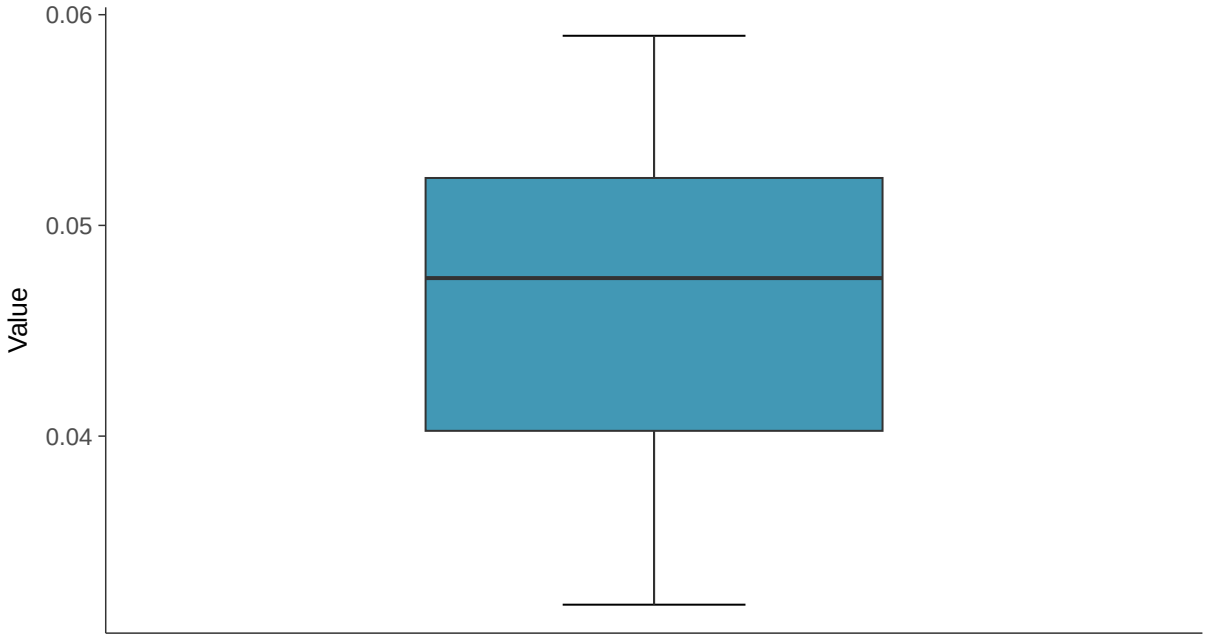
ID: 06_2_16





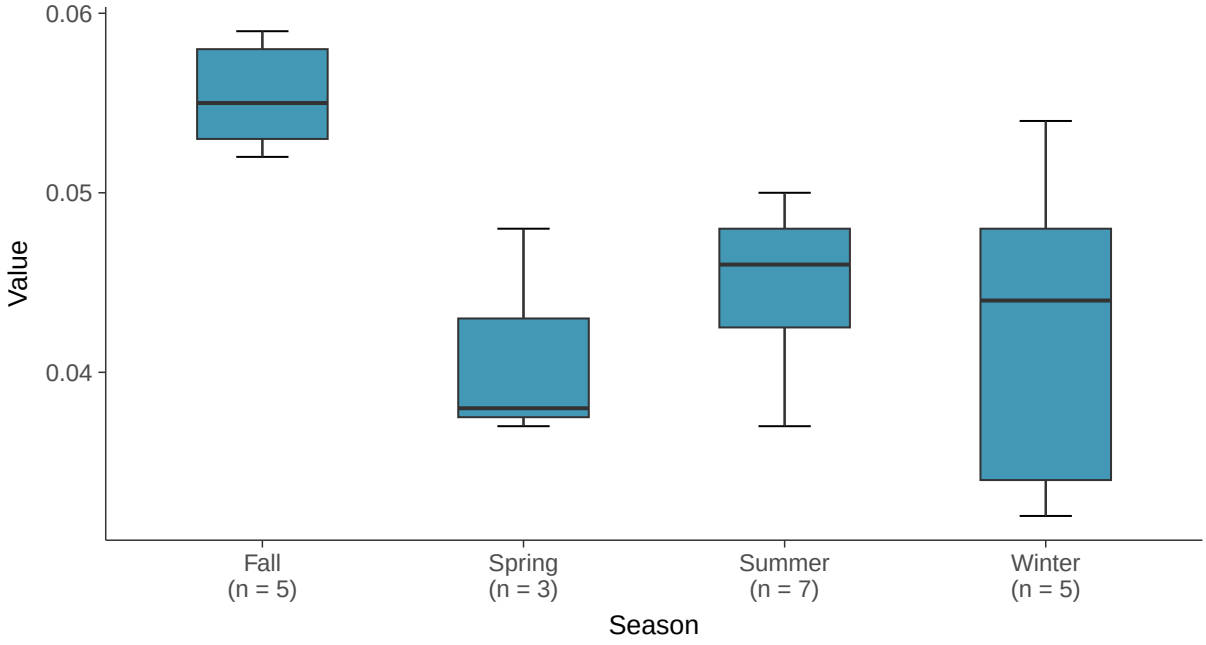
Boxplot

Lithium, MW-6 (mg/L)



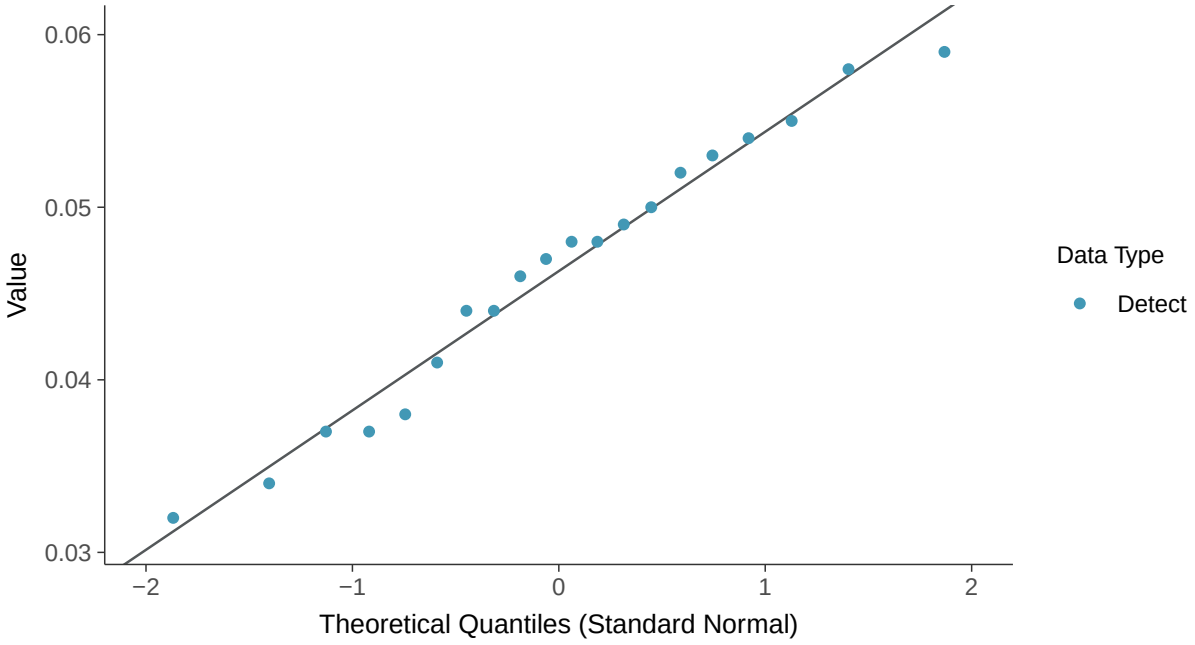
Boxplot by Season

Lithium, MW-6 (mg/L)



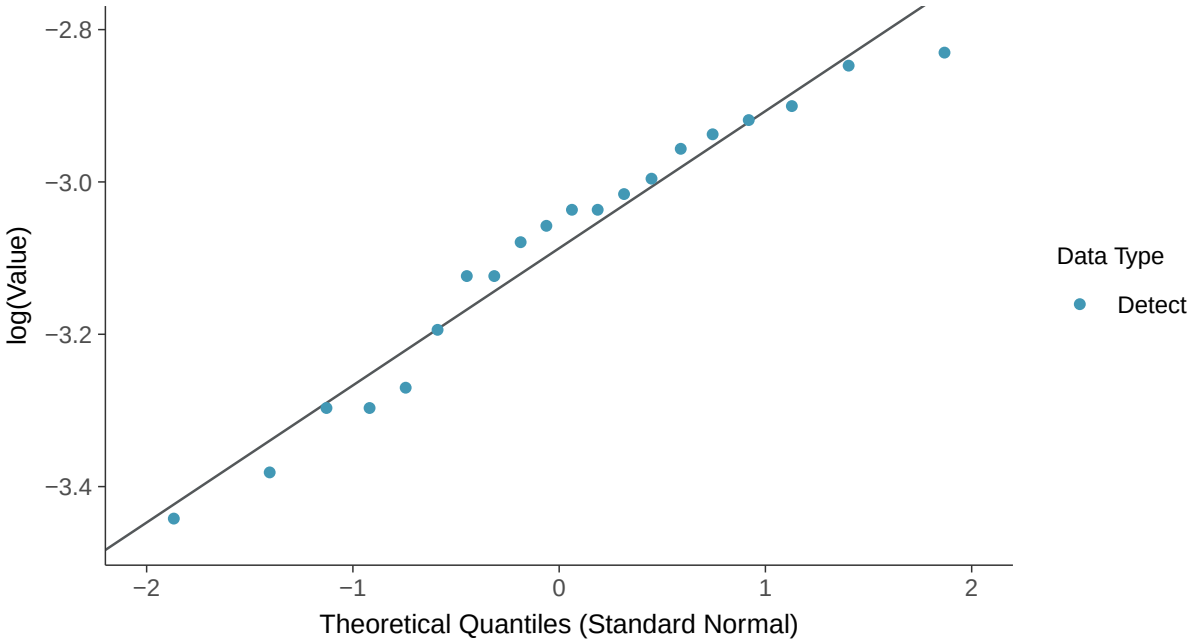
Normal Q-Q plot

Lithium, MW-6 (mg/L)



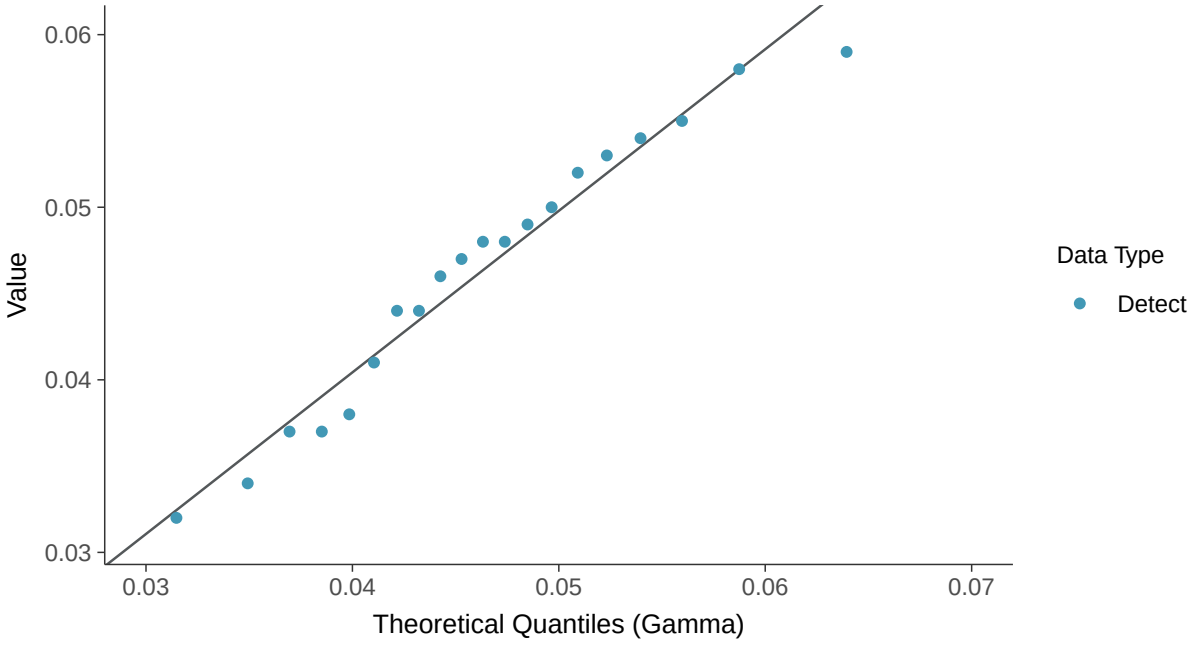
Lognormal Q-Q plot

Lithium, MW-6 (mg/L)



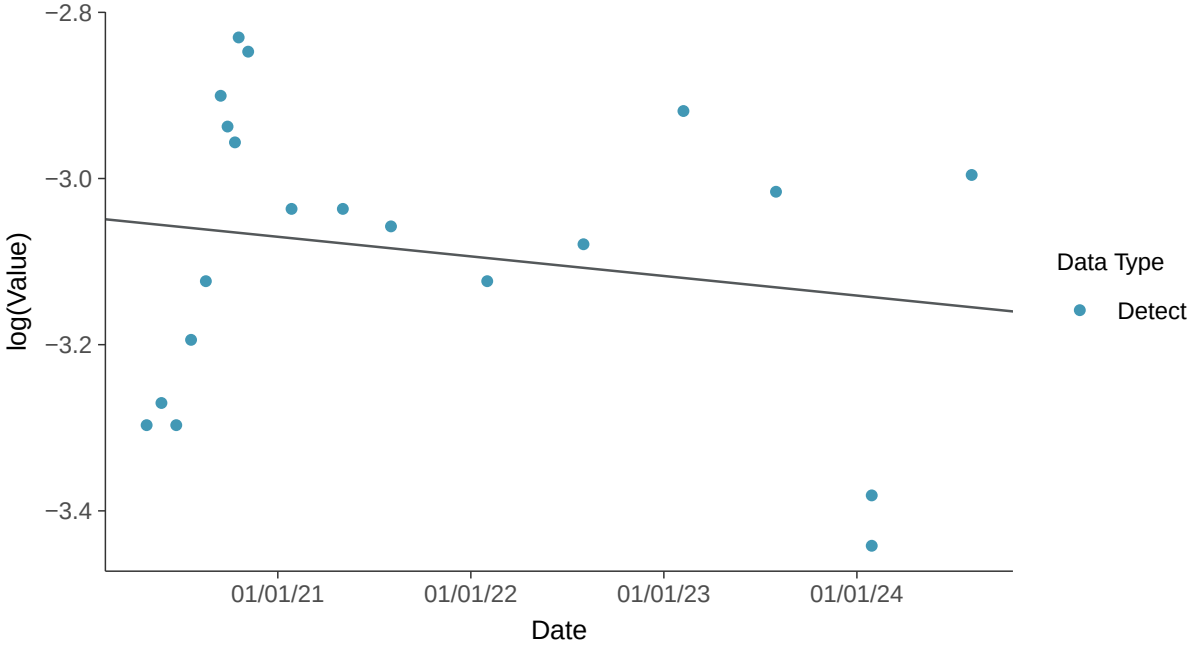
Gamma Q-Q plot

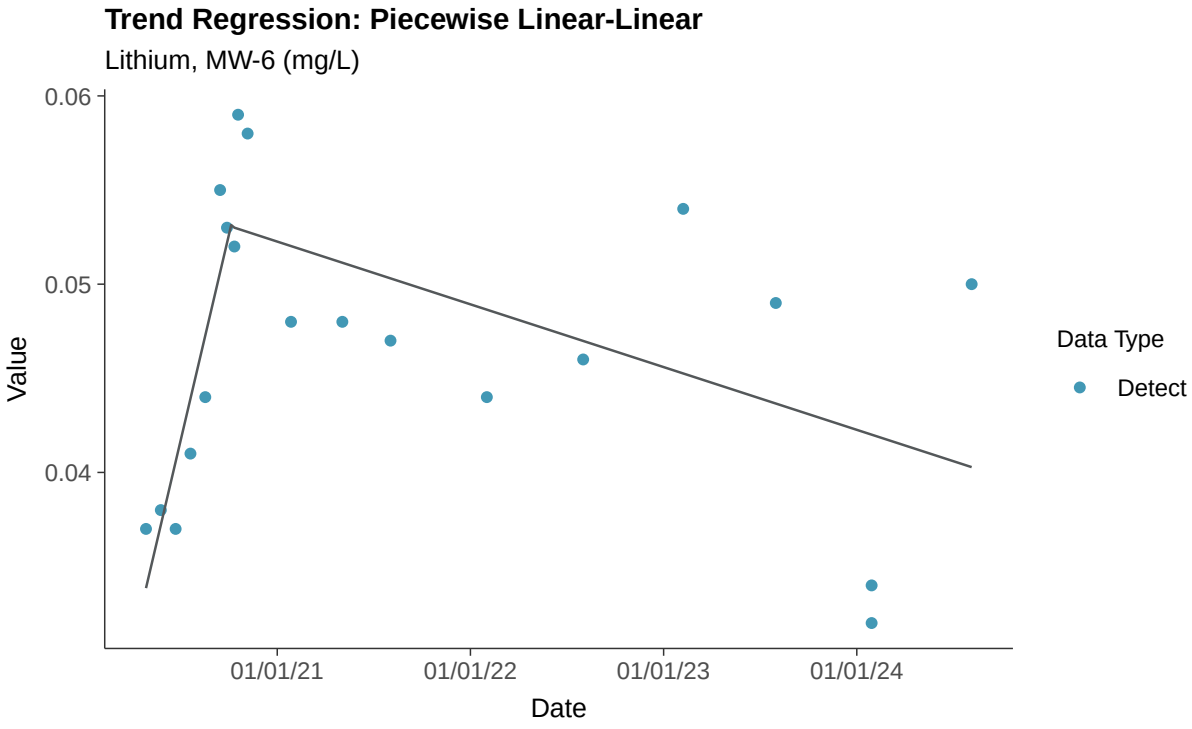
Lithium, MW-6 (mg/L)



Trend Regression: Lognormal MLE

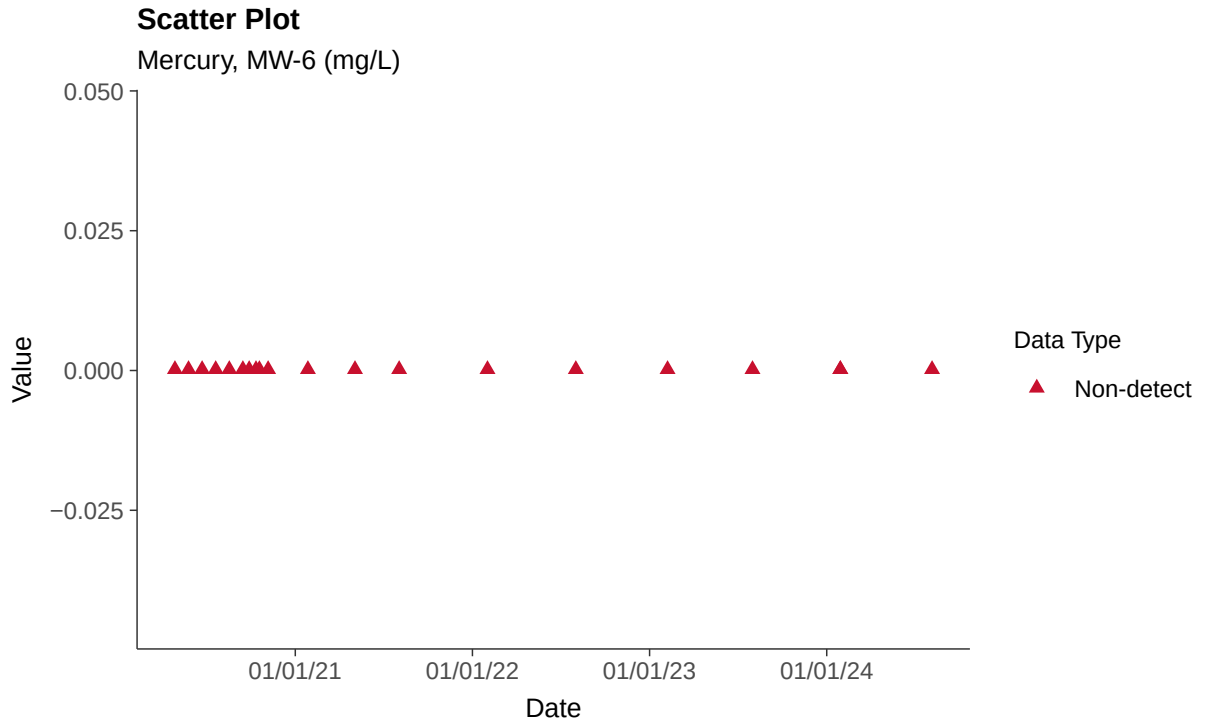
Lithium, MW-6 (mg/L)

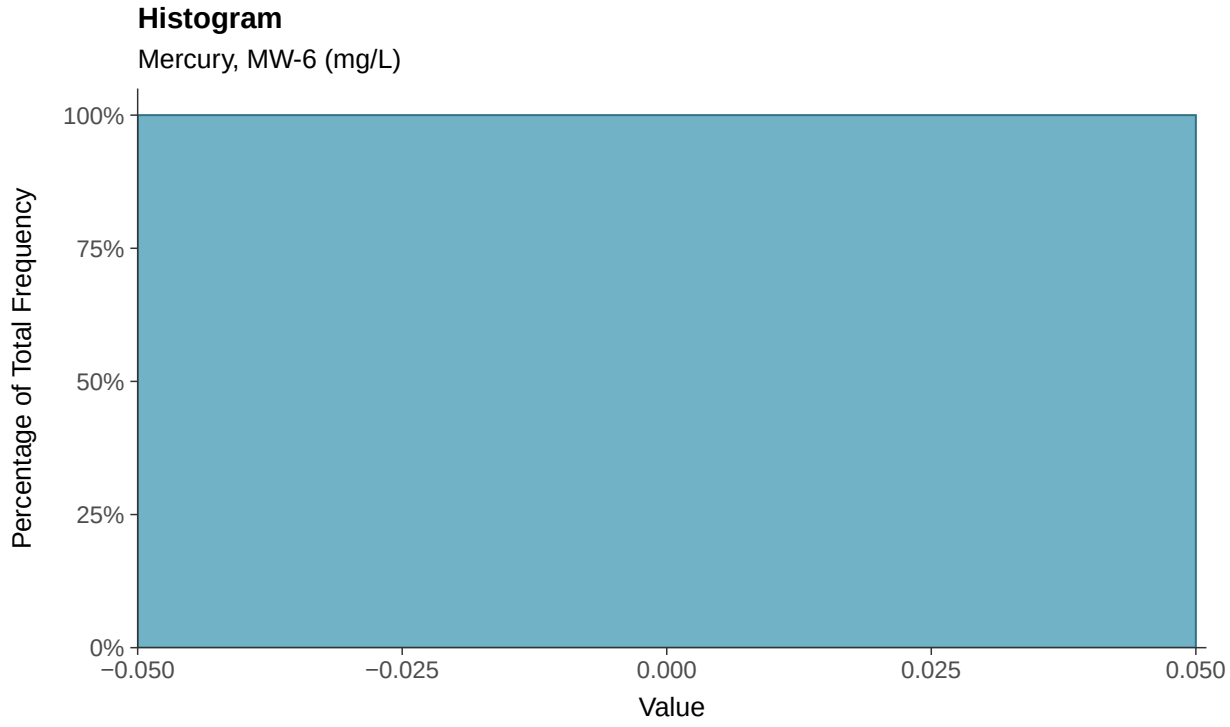



Trend Regression: Piecewise Linear-Linear
Lithium, MW-6 (mg/L)
0.06
0.05
0.04
Value
01/01/21
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Appendix IV: Mercury, MW-6

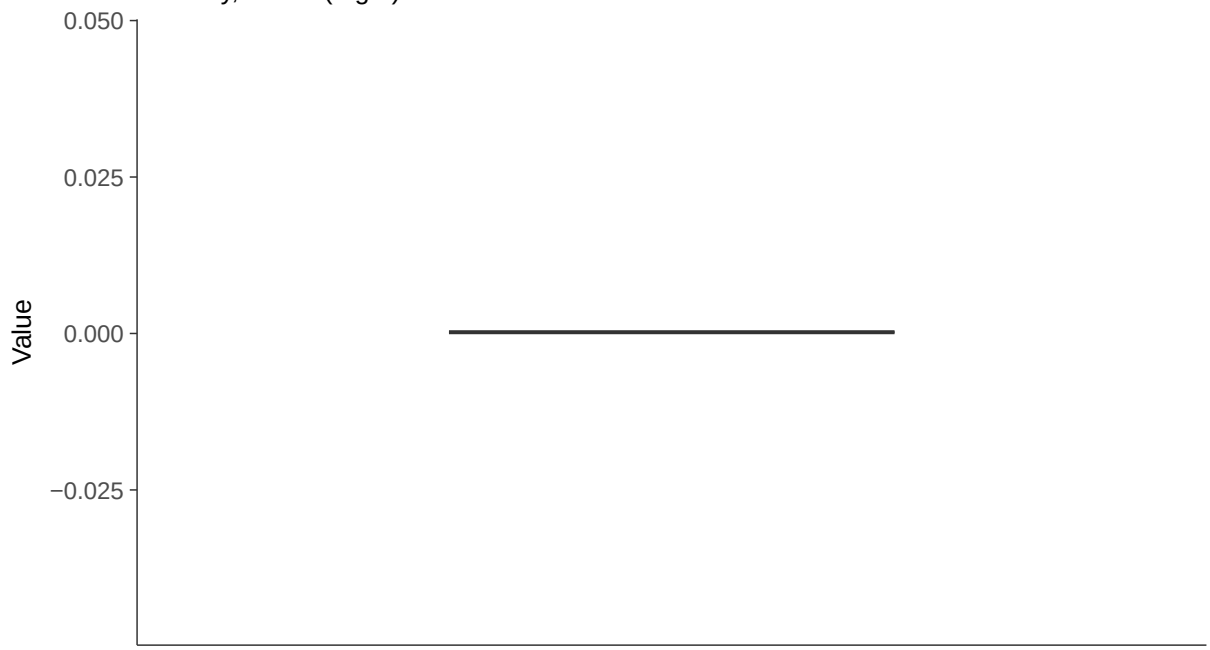
ID: 06_2_17





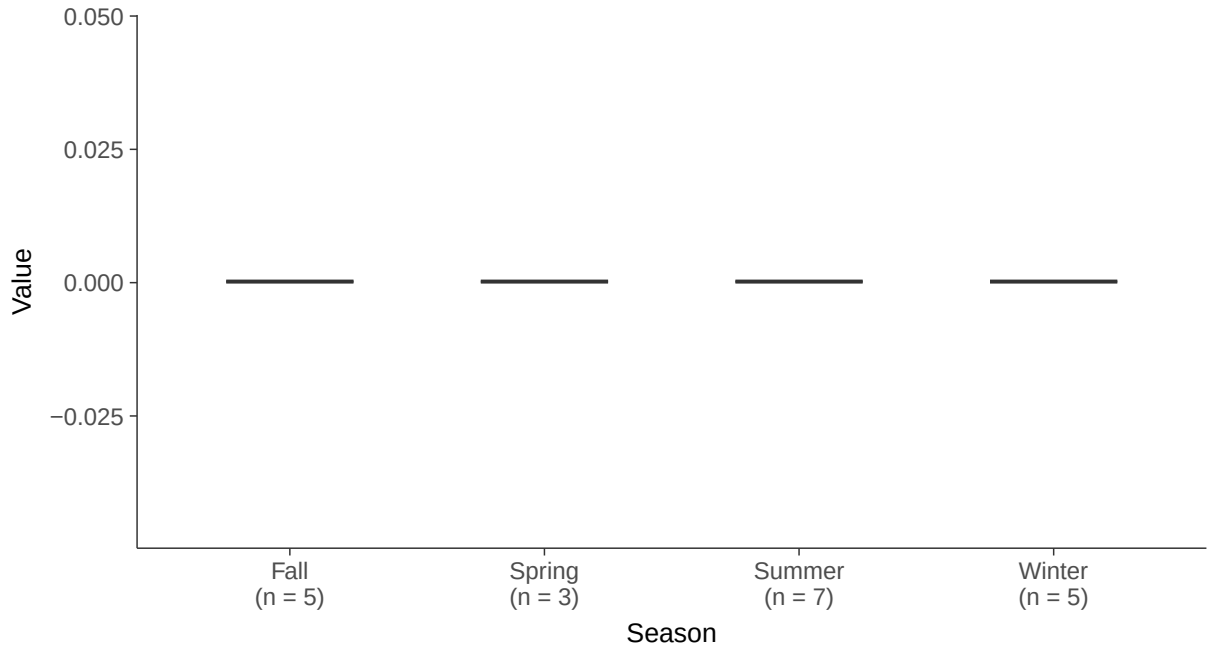
Boxplot

Mercury, MW-6 (mg/L)



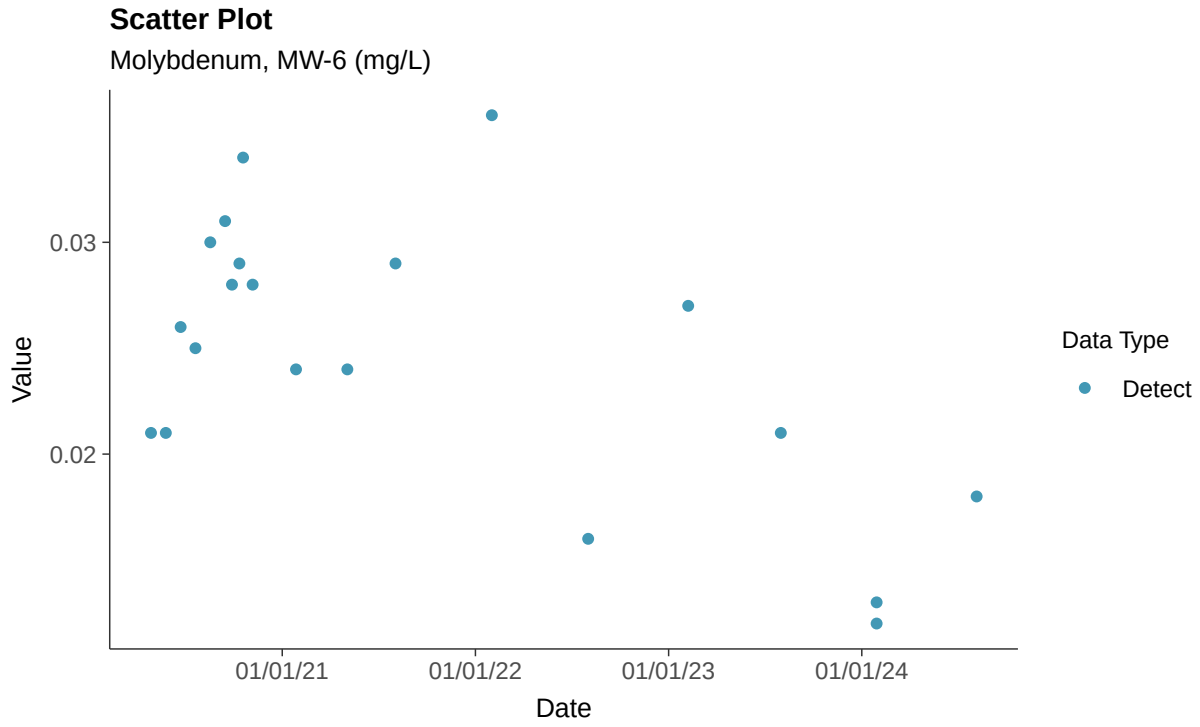
Boxplot by Season

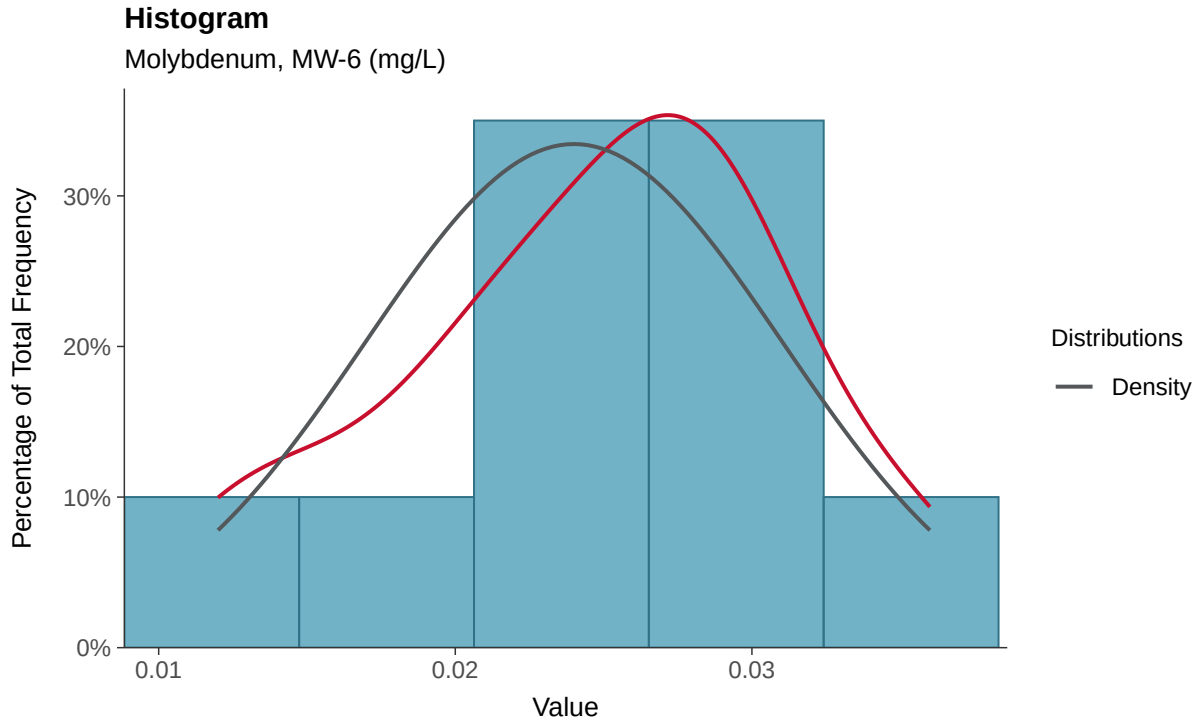
Mercury, MW-6 (mg/L)



Appendix IV: Molybdenum, MW-6

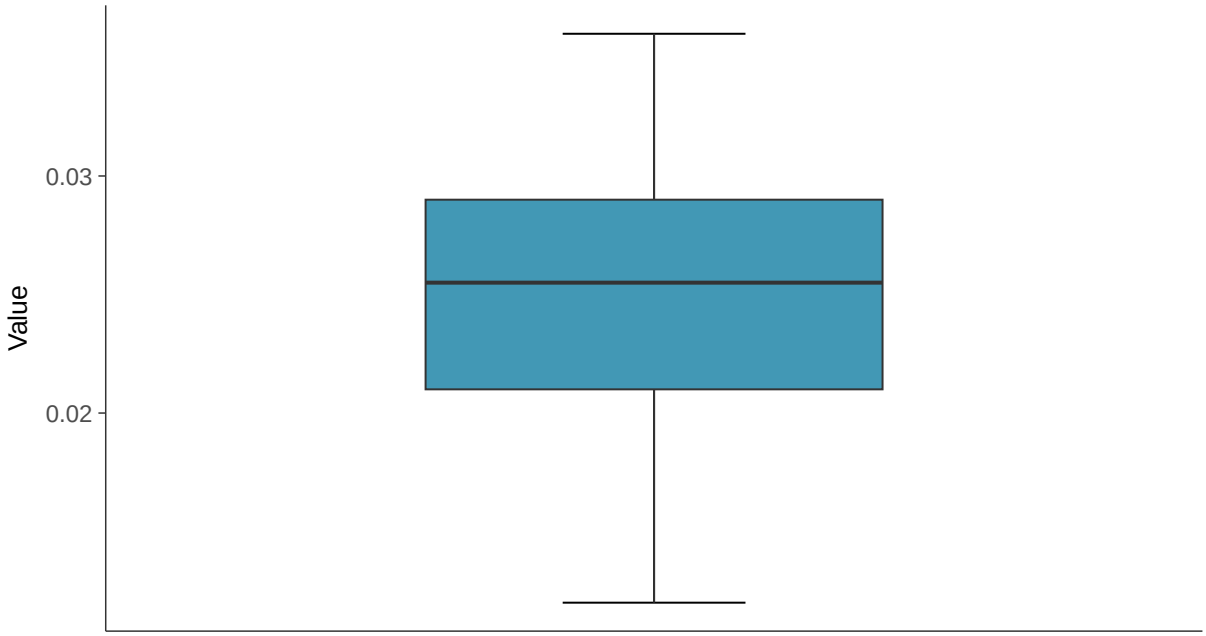
ID: 06_2_18





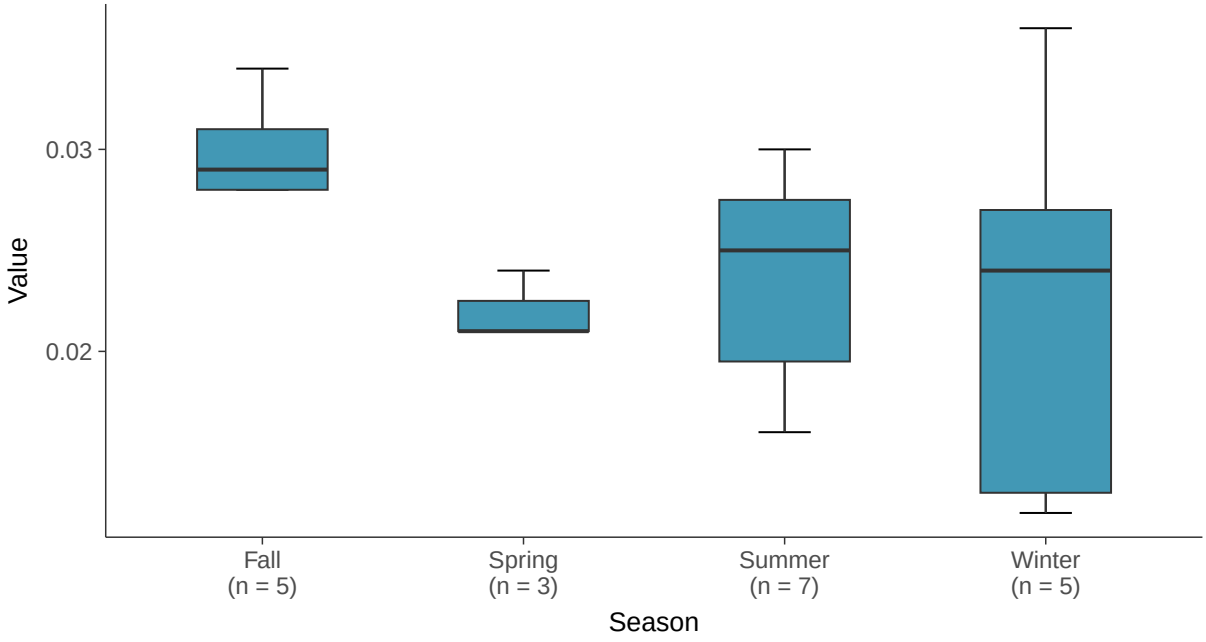
Boxplot

Molybdenum, MW-6 (mg/L)



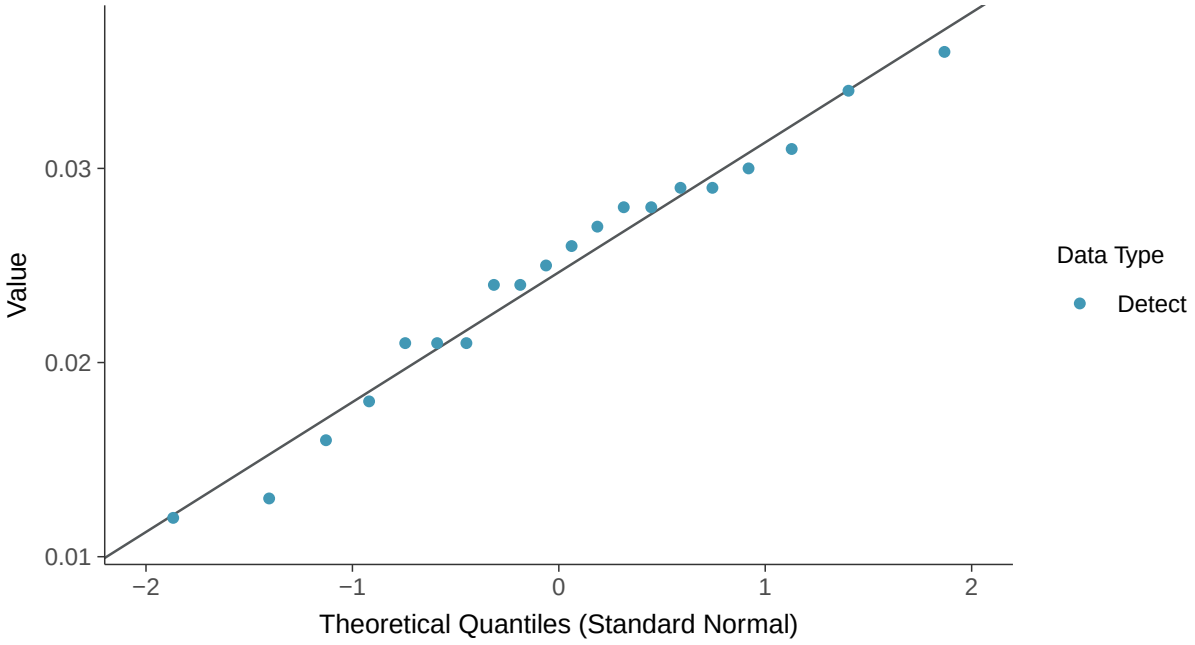
Boxplot by Season

Molybdenum, MW-6 (mg/L)



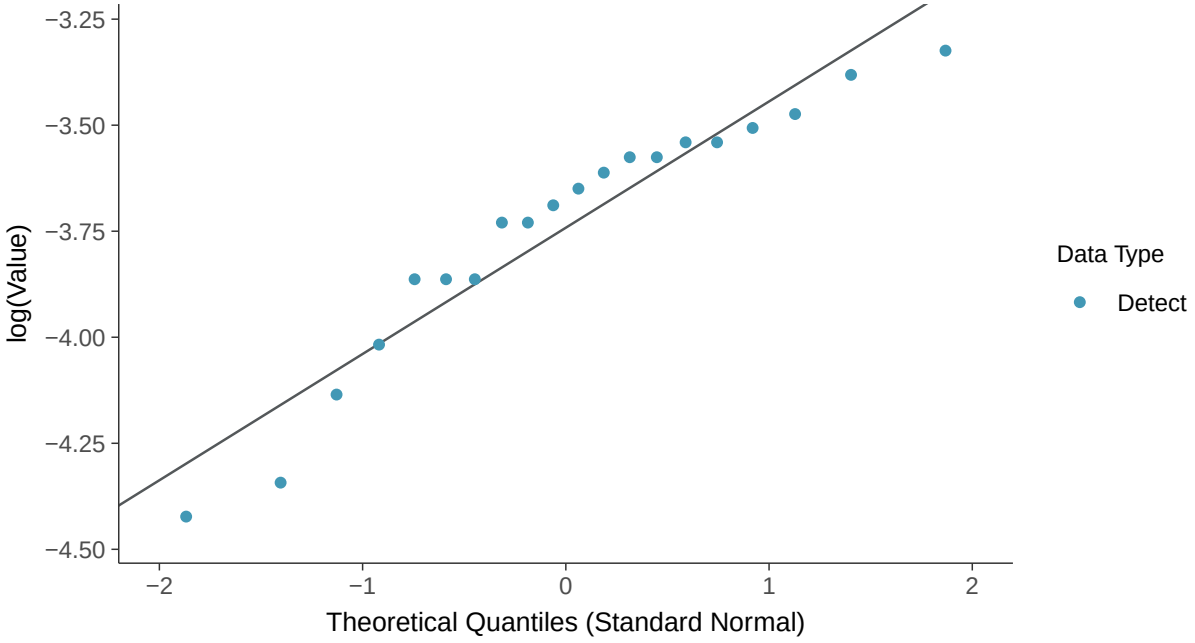
Normal Q-Q plot

Molybdenum, MW-6 (mg/L)



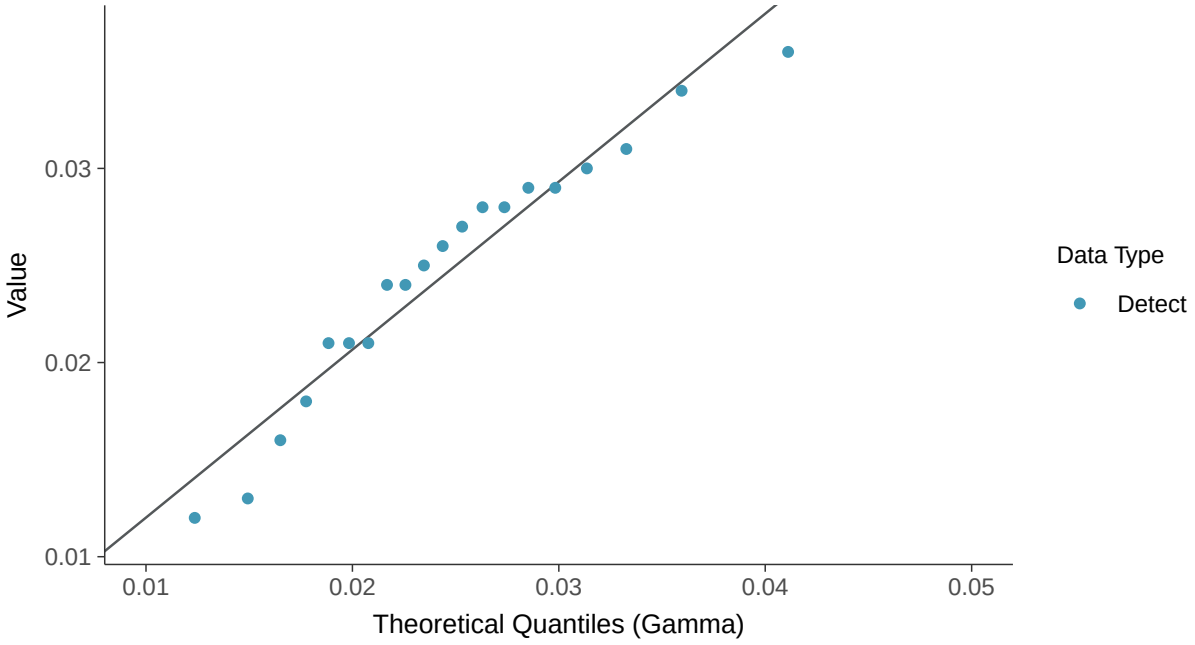
Lognormal Q-Q plot

Molybdenum, MW-6 (mg/L)



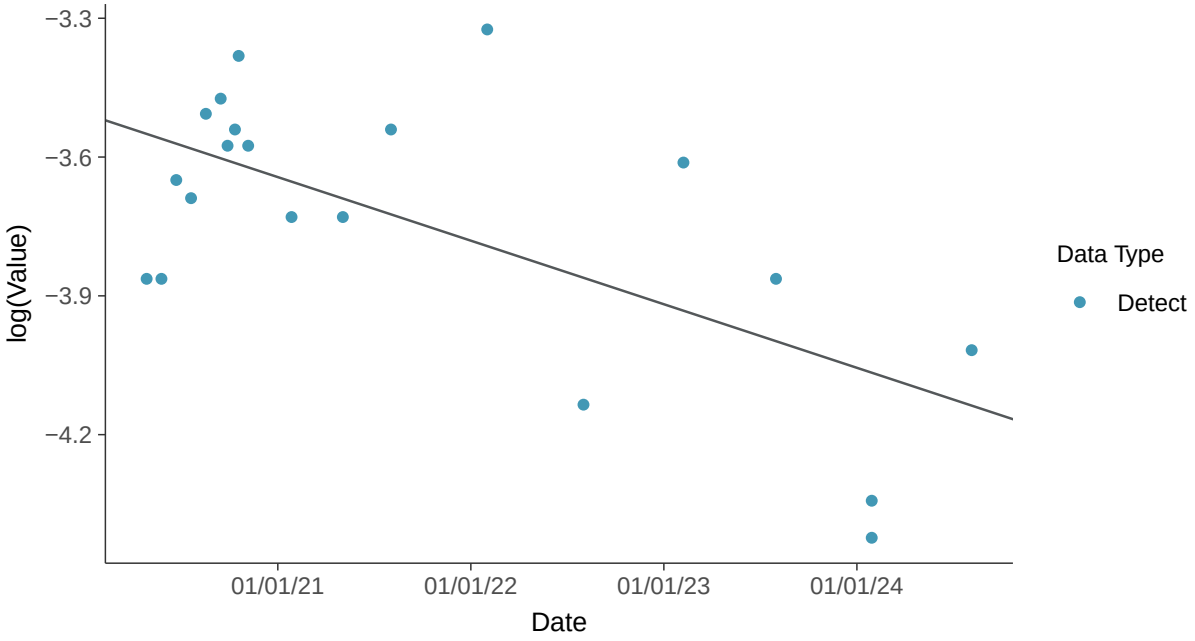
Gamma Q-Q plot

Molybdenum, MW-6 (mg/L)



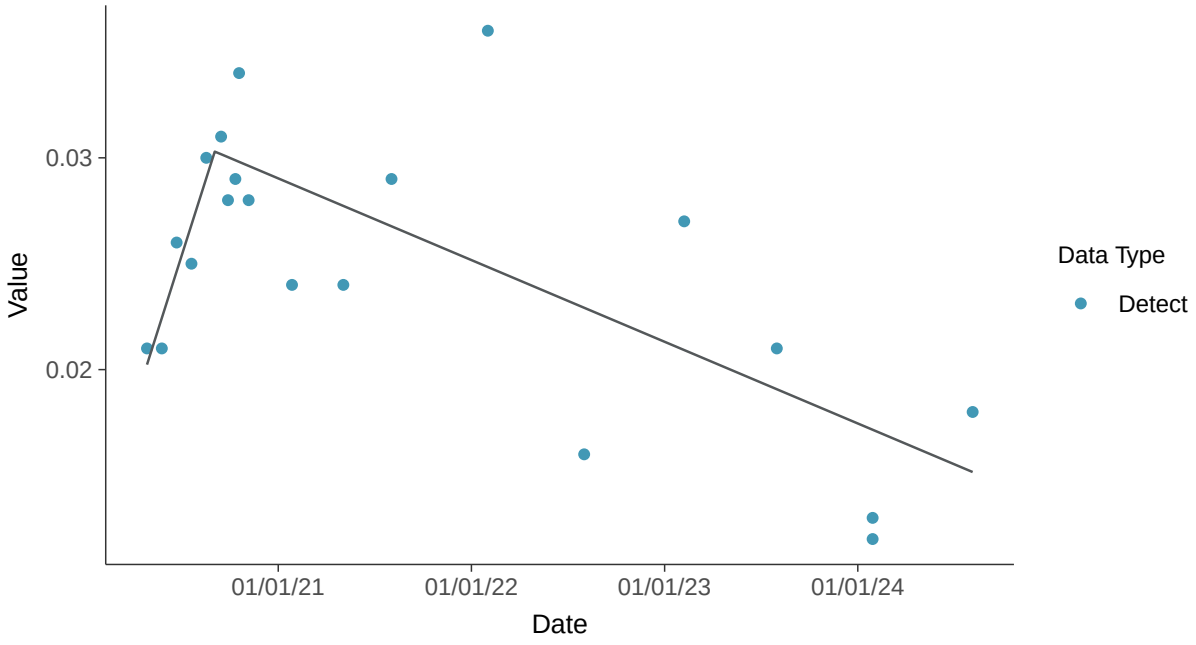
Trend Regression: Lognormal MLE

Molybdenum, MW-6 (mg/L)



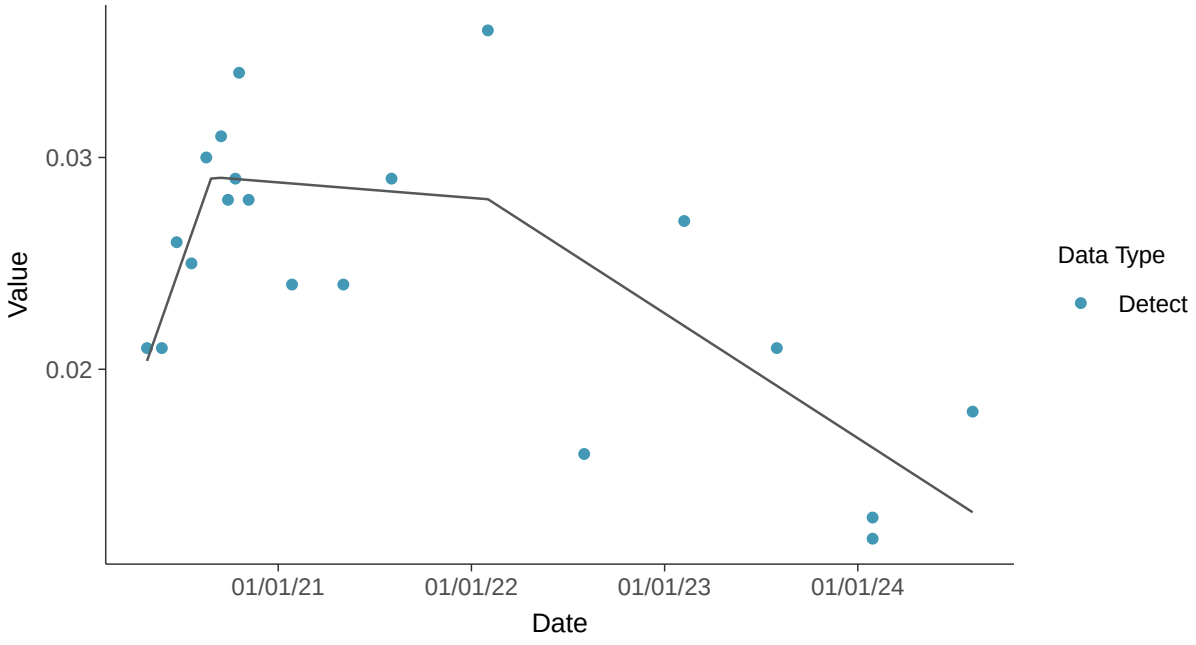
Trend Regression: Piecewise Linear-Linear

Molybdenum, MW-6 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Molybdenum, MW-6 (mg/L)

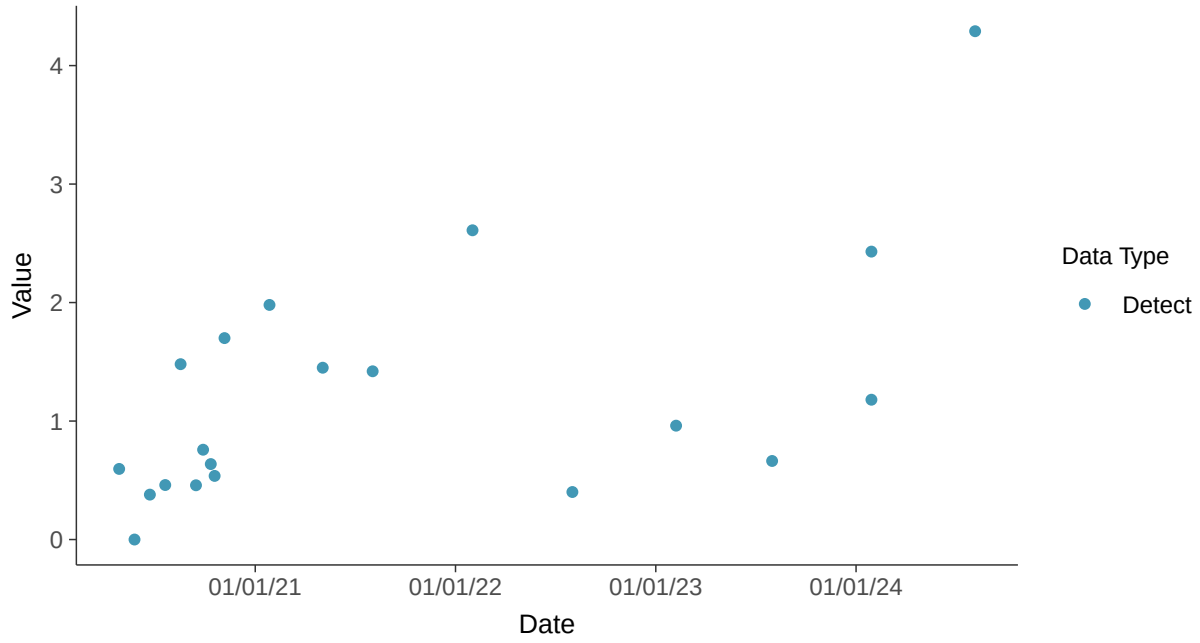


Appendix IV: Radium-226/228, MW-6

ID: 06_2_21

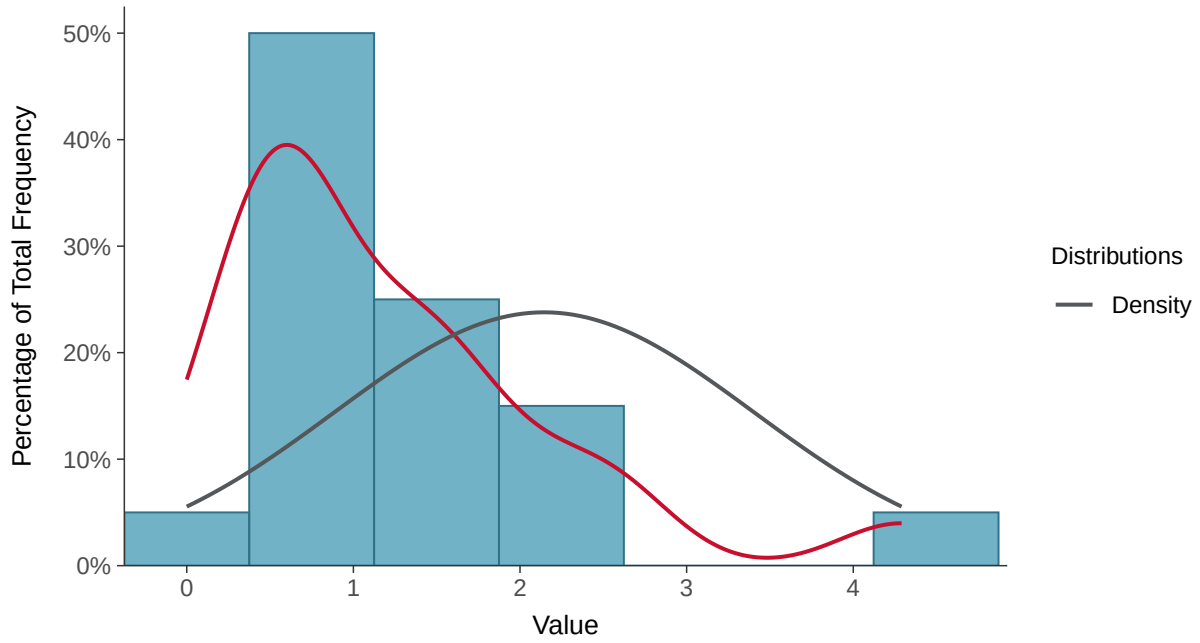
Scatter Plot

Radium-226/228, MW-6 (pCi/L)



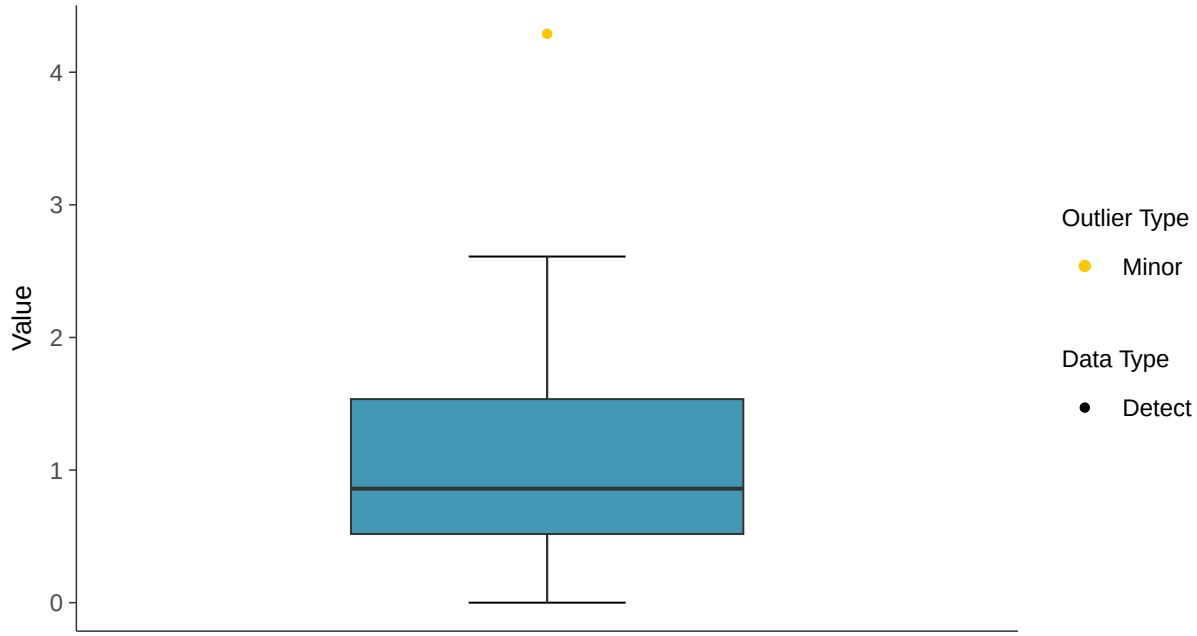
Histogram

Radium-226/228, MW-6 (pCi/L)



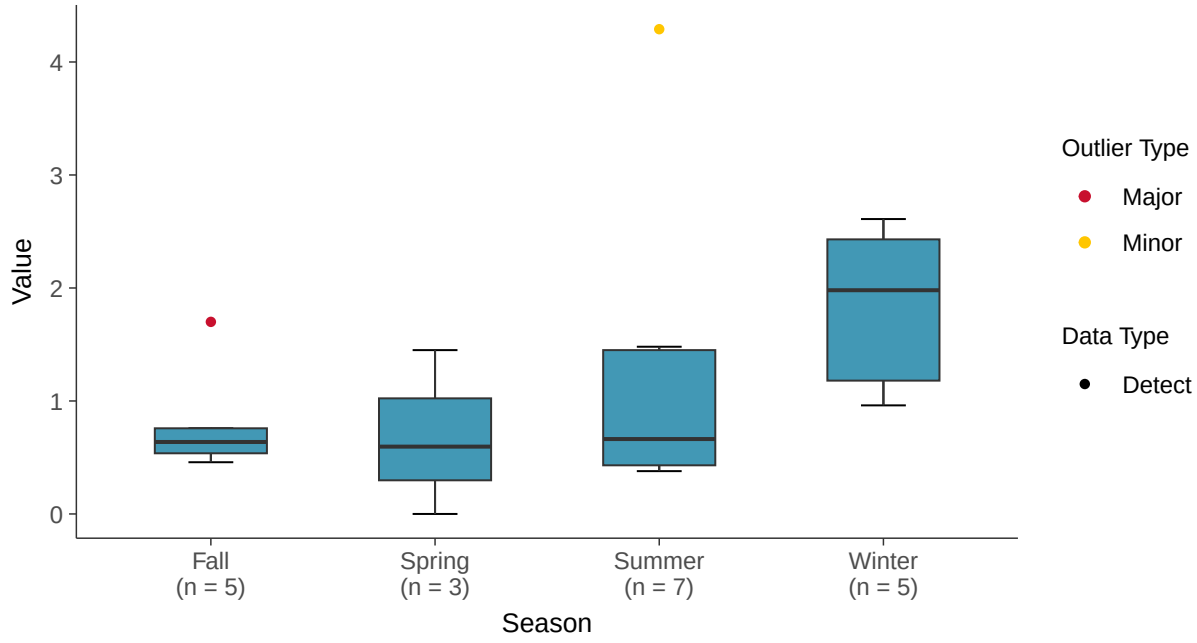
Boxplot

Radium-226/228, MW-6 (pCi/L)



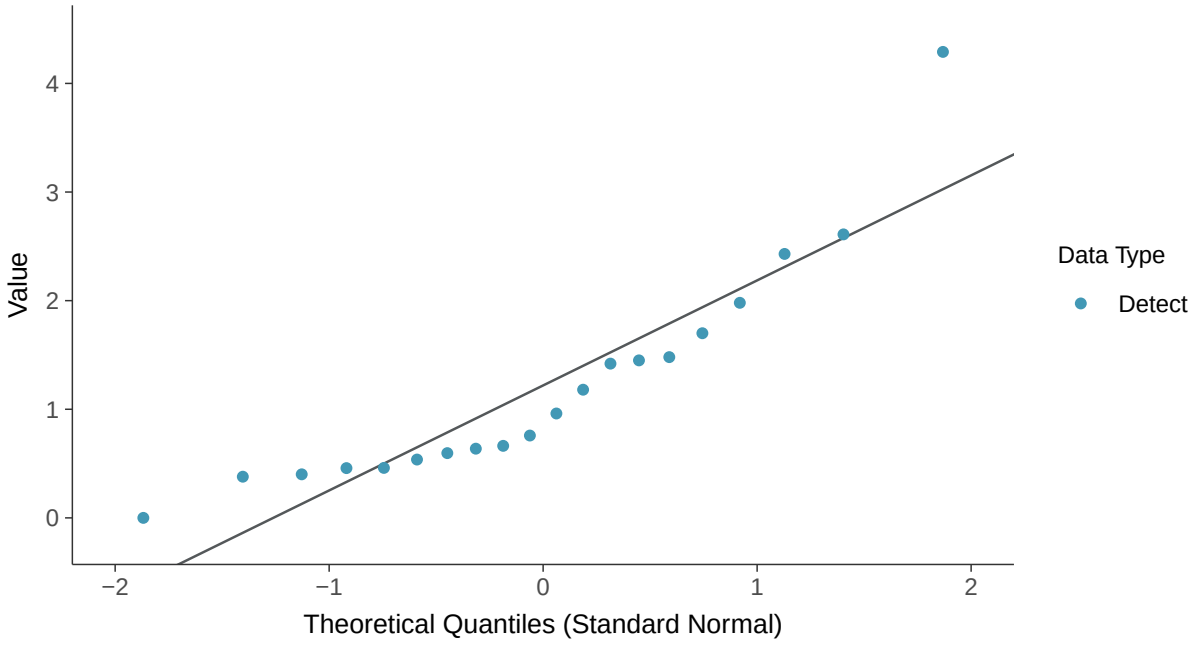
Boxplot by Season

Radium-226/228, MW-6 (pCi/L)



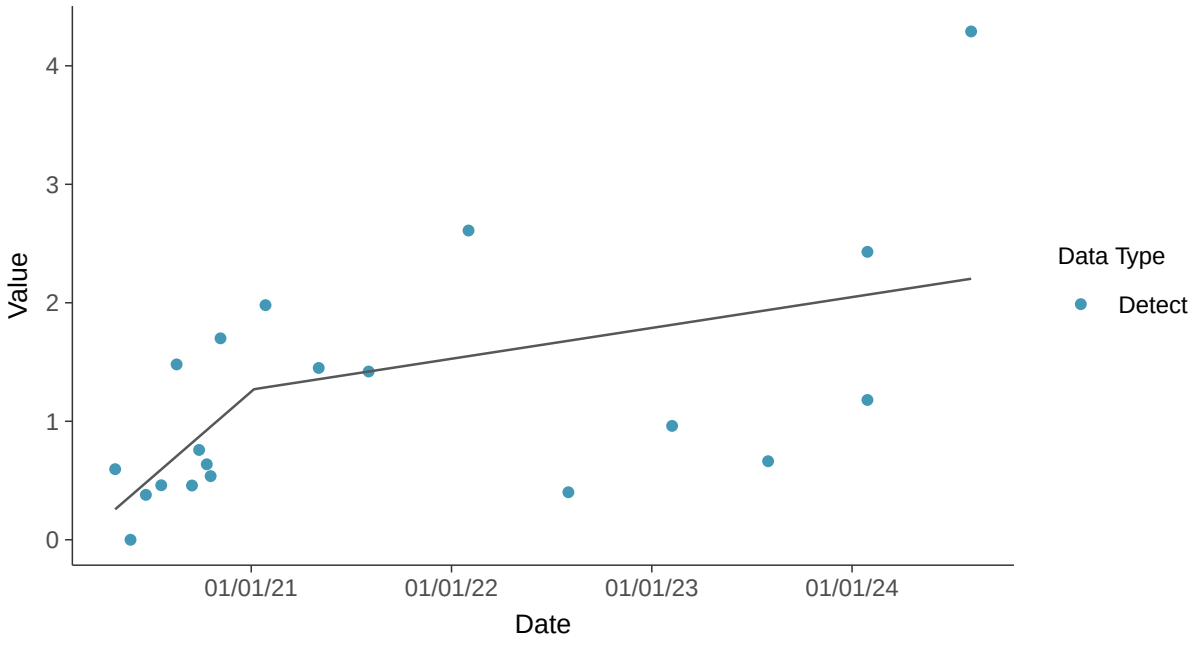
Normal Q-Q plot

Radium-226/228, MW-6 (pCi/L)



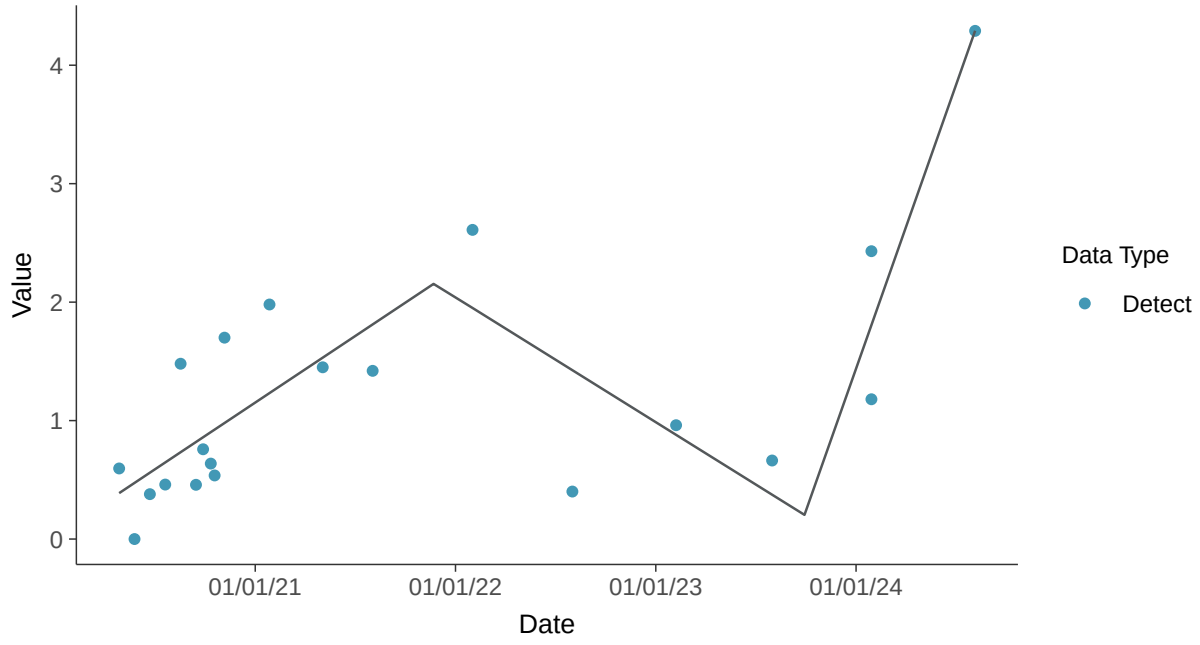
Trend Regression: Piecewise Linear-Linear

Radium-226/228, MW-6 (pCi/L)



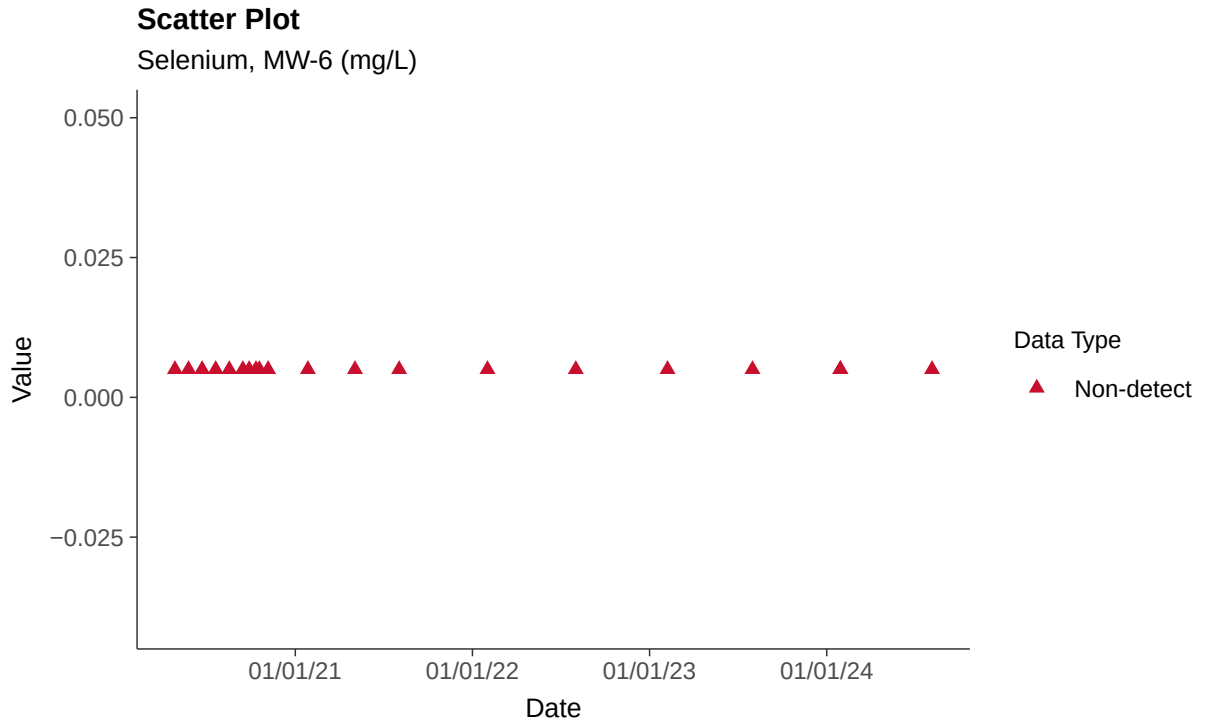
Trend Regression: Piecewise Linear-Linear-Linear

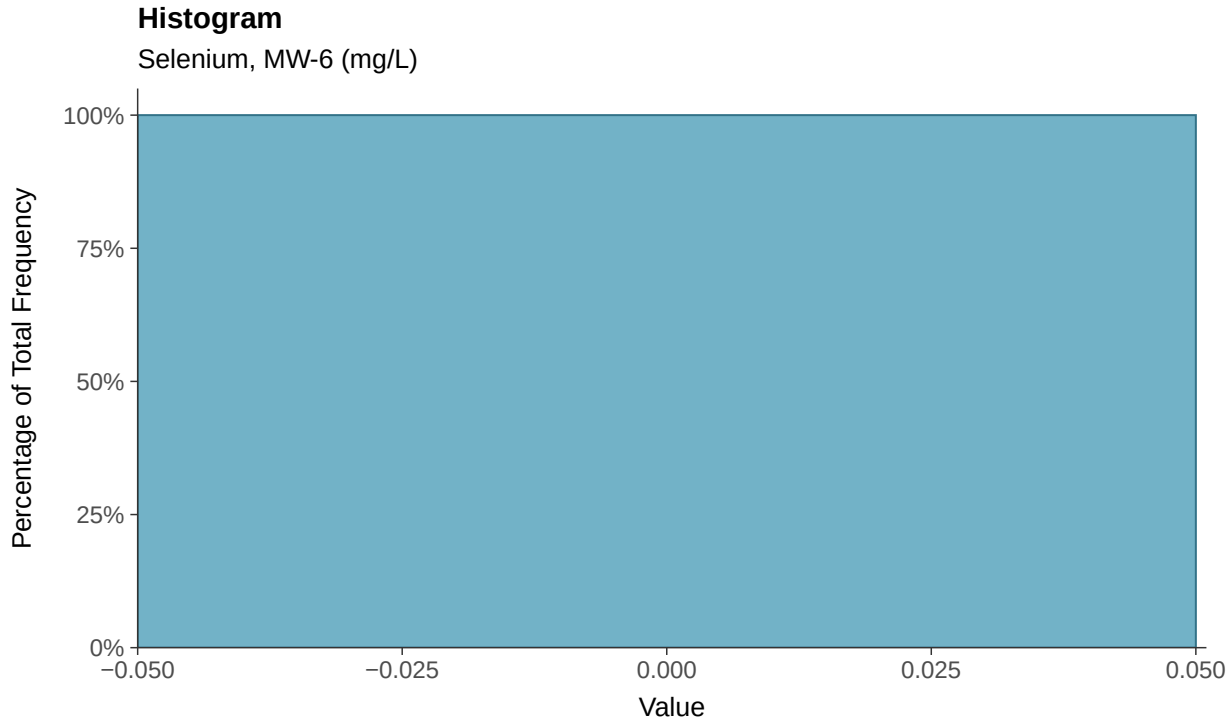
Radium-226/228, MW-6 (pCi/L)



Appendix IV: Selenium, MW-6

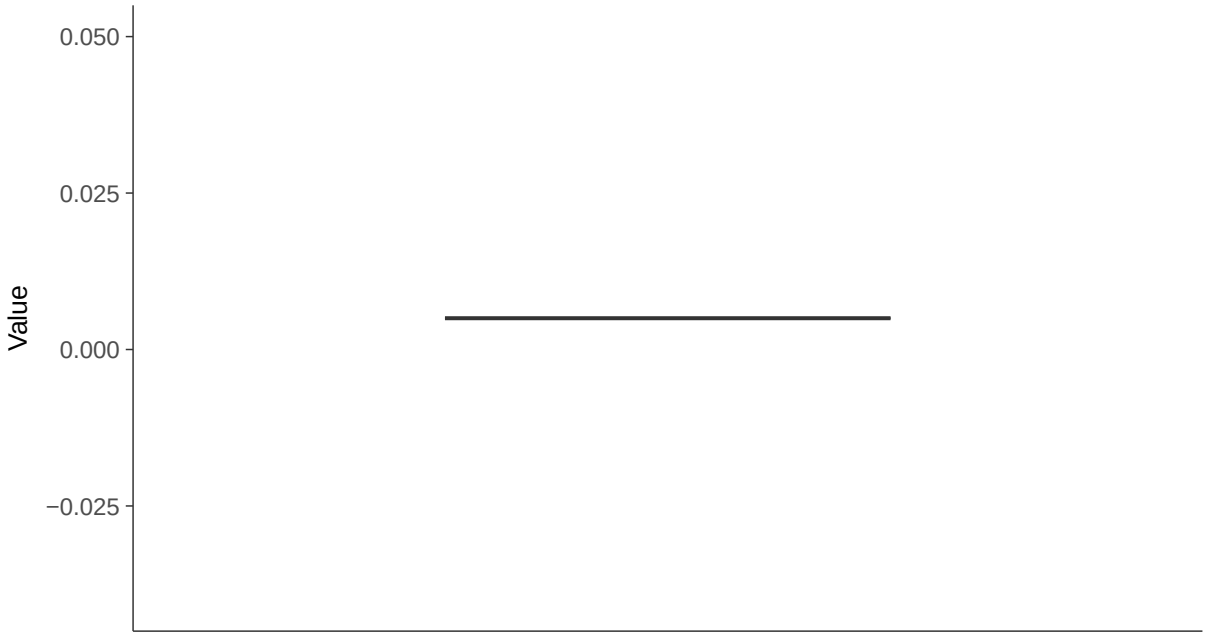
ID: 06_2_22





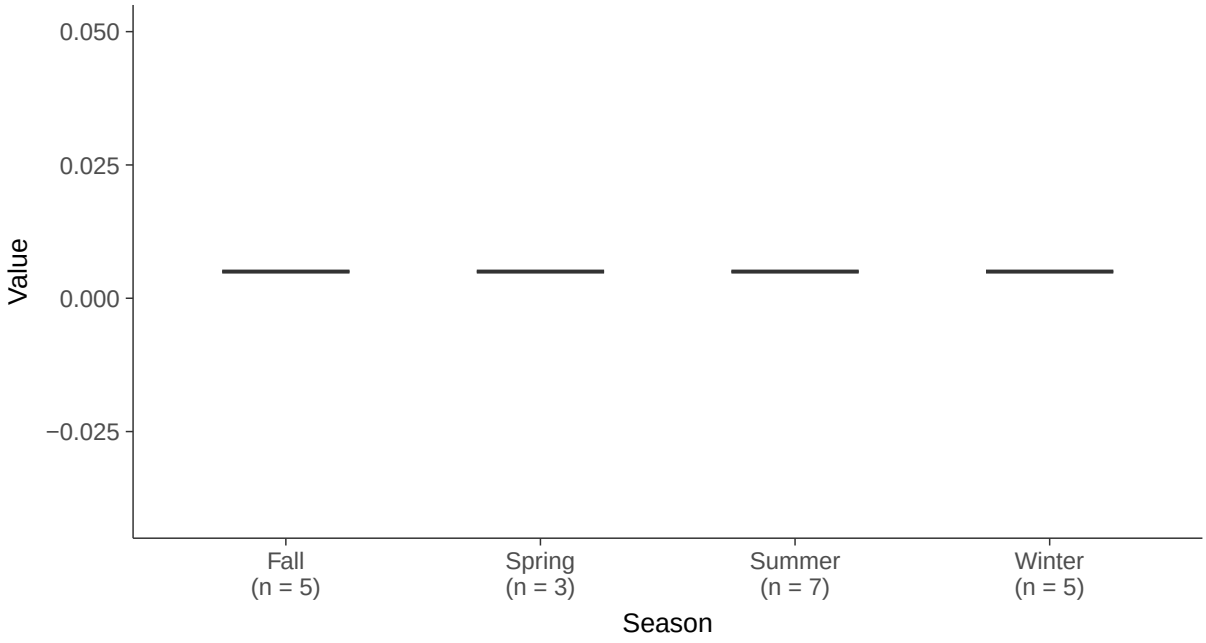
Boxplot

Selenium, MW-6 (mg/L)



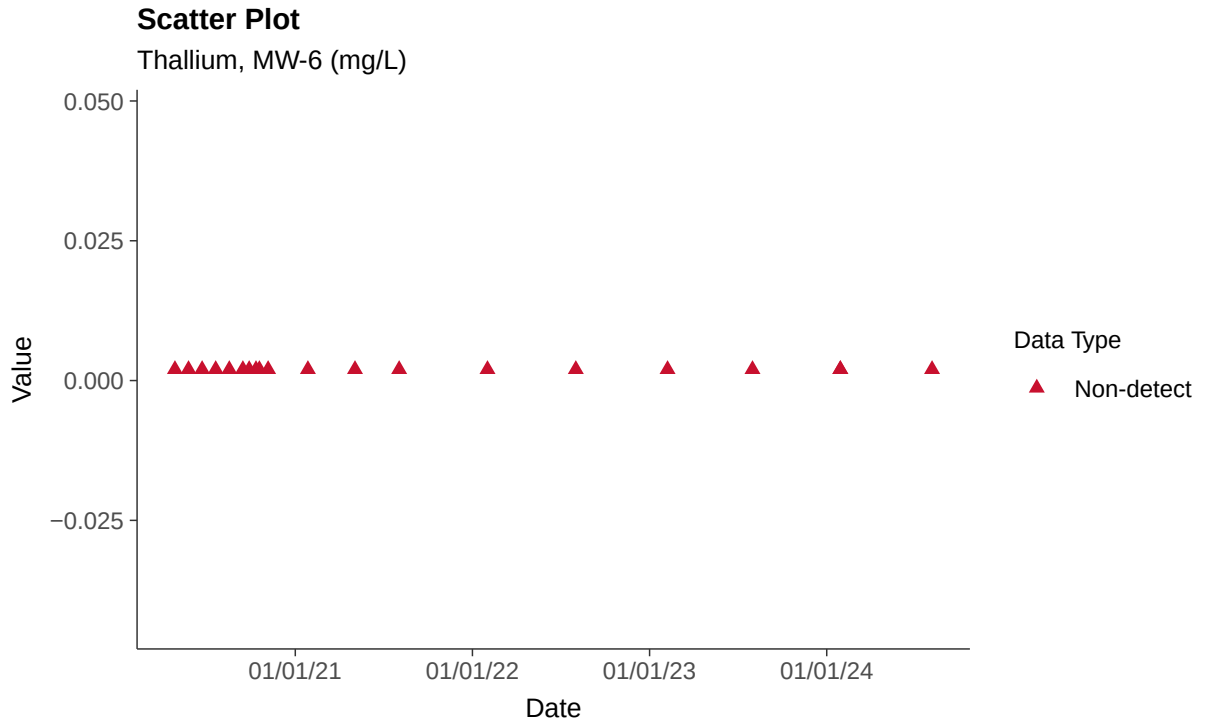
Boxplot by Season

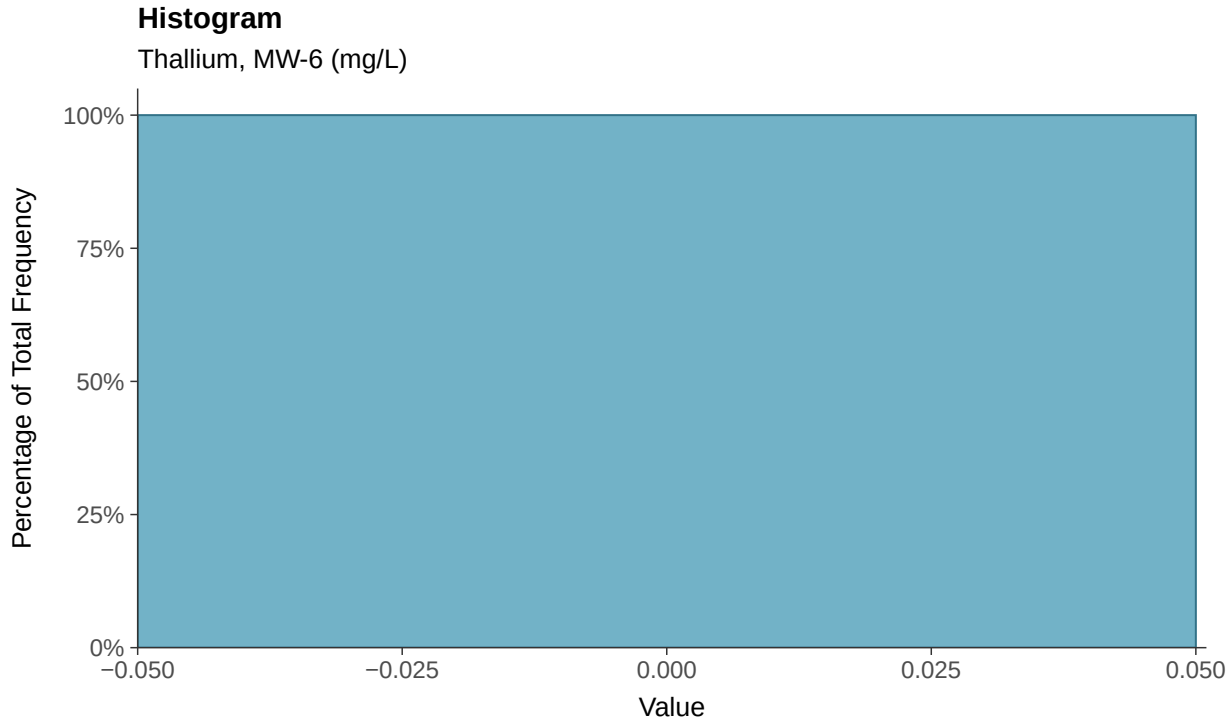
Selenium, MW-6 (mg/L)



Appendix IV: Thallium, MW-6

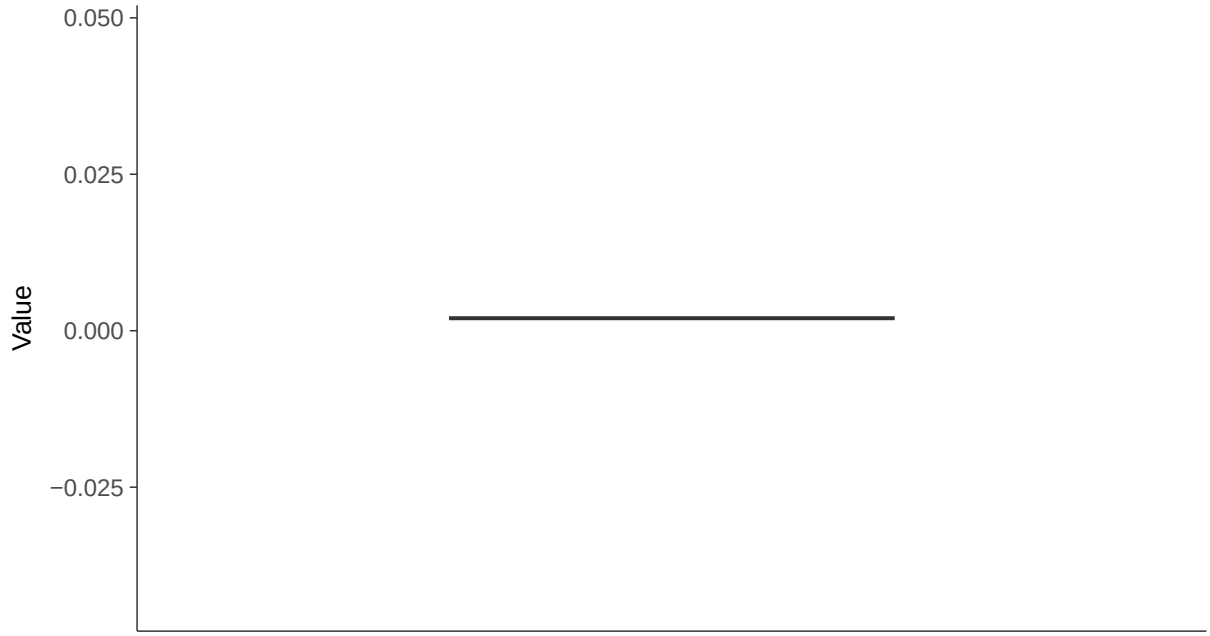
ID: 06_2_23





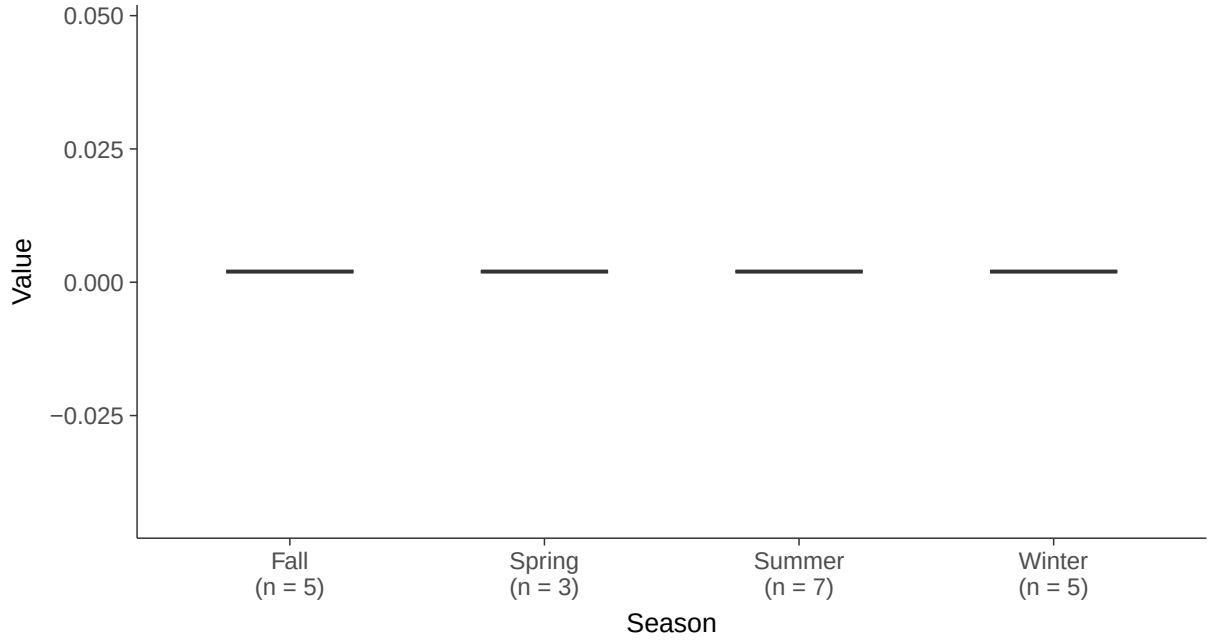
Boxplot

Thallium, MW-6 (mg/L)



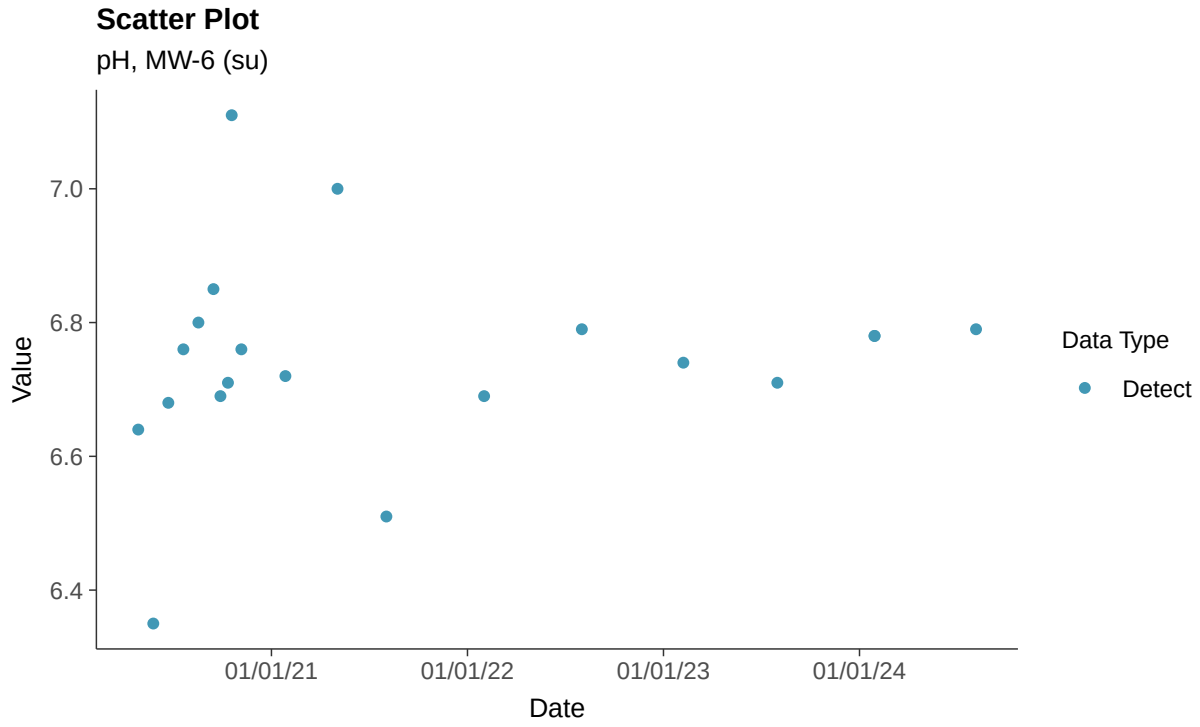
Boxplot by Season

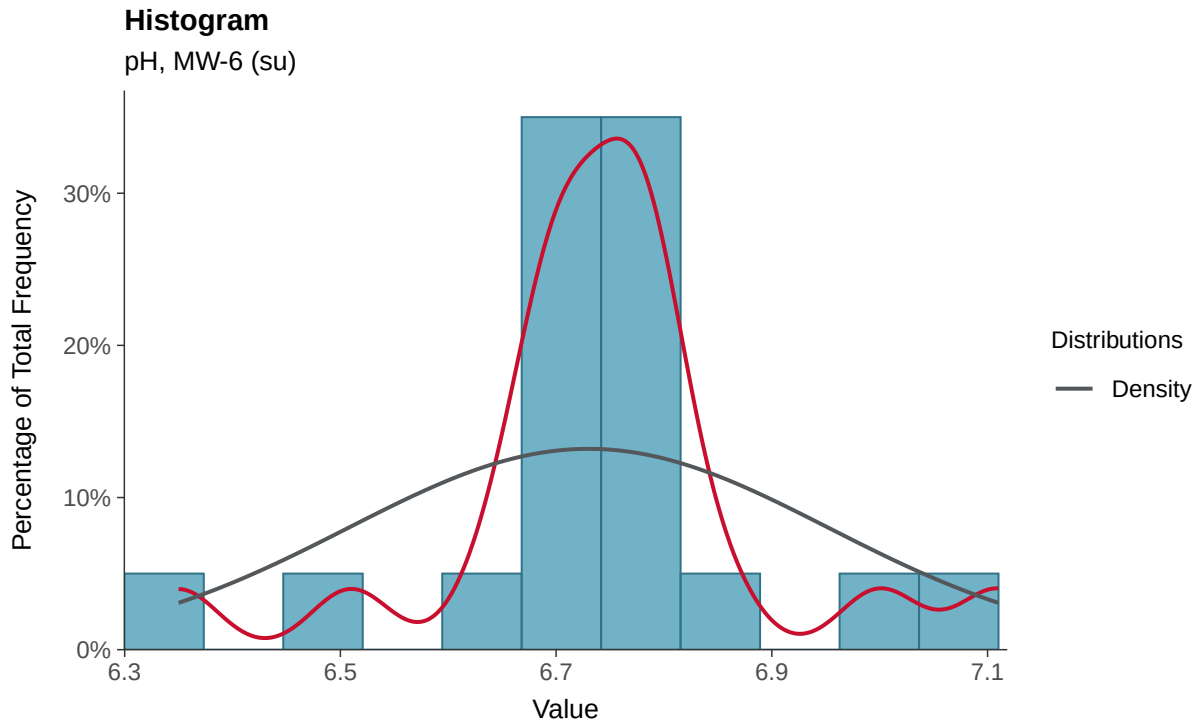
Thallium, MW-6 (mg/L)



Field Parameters: pH, MW-6

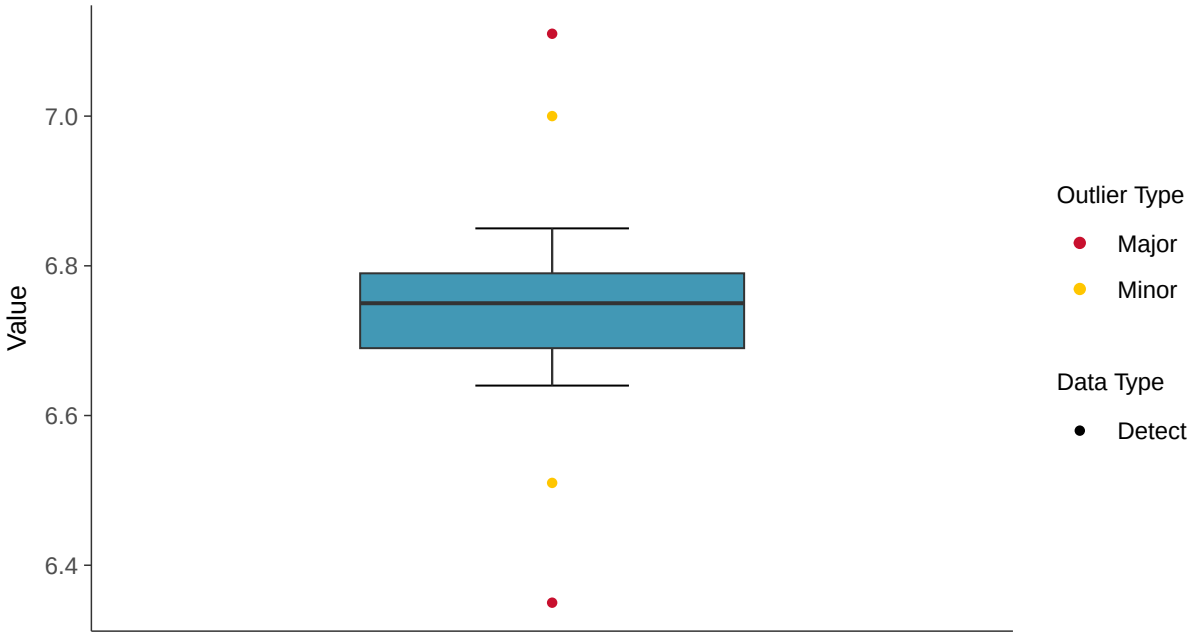
ID: 06_3_24





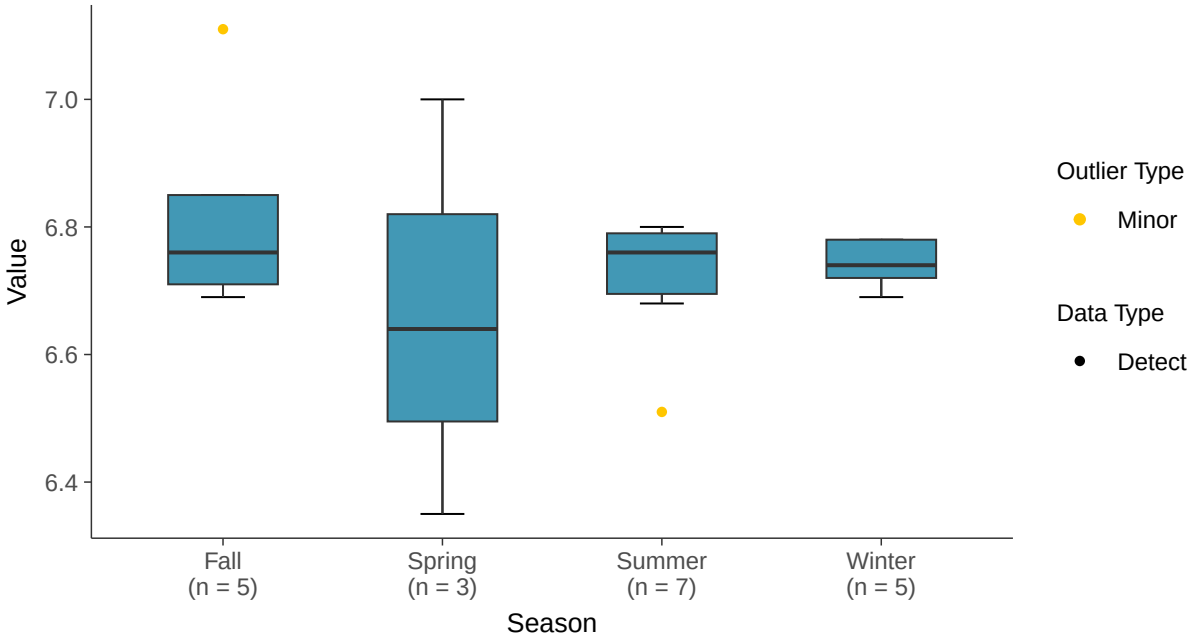
Boxplot

pH, MW-6 (su)



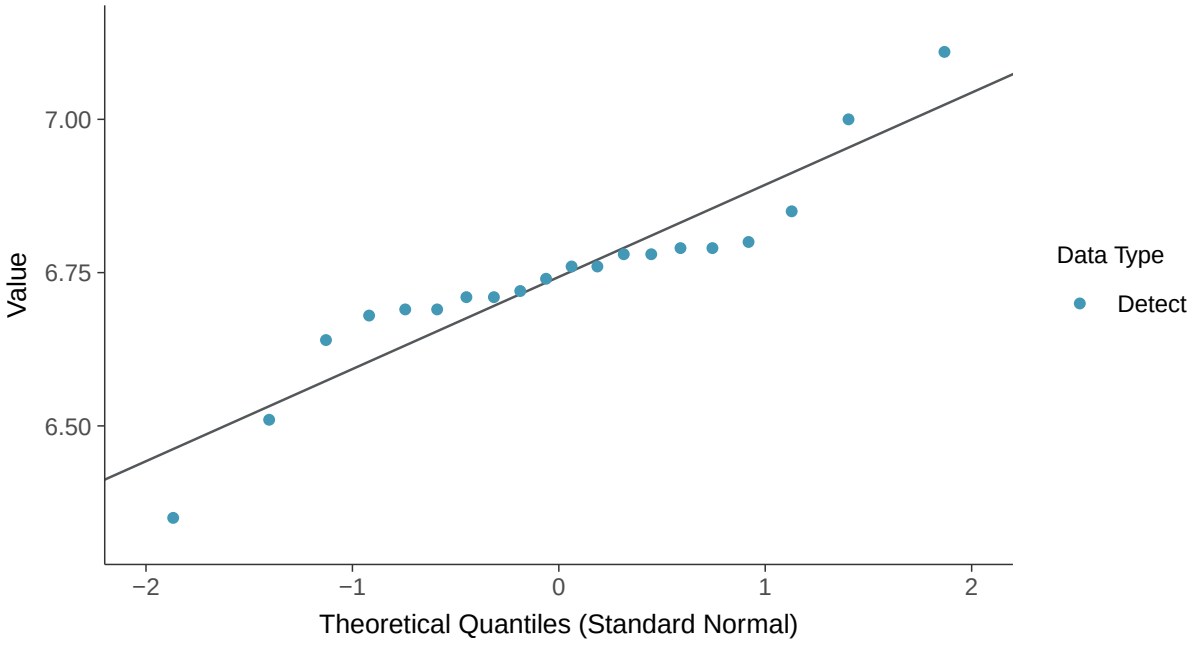
Boxplot by Season

pH, MW-6 (su)



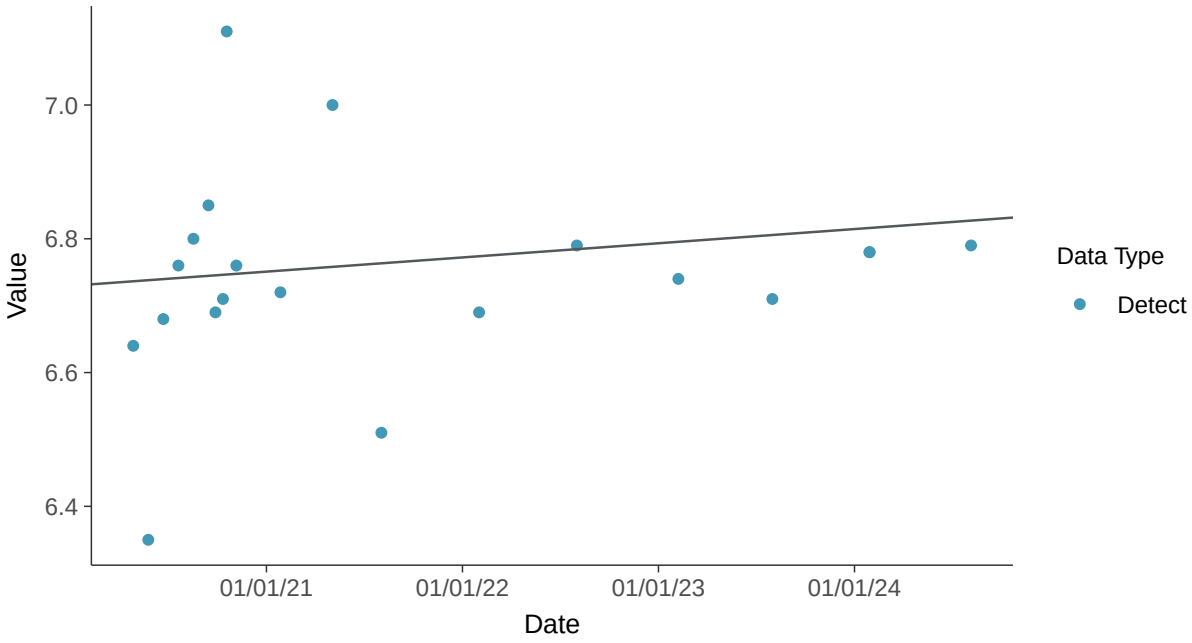
Normal Q-Q plot

pH, MW-6 (su)



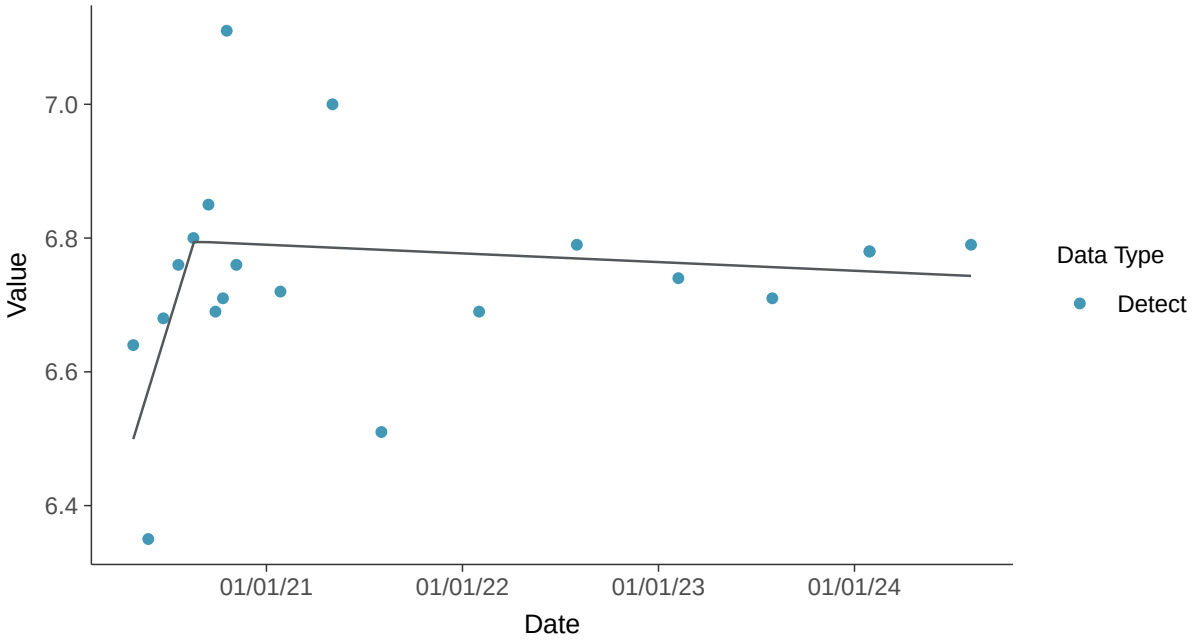
Trend Regression: Mann-Kendall/Theil-Sen Estimate

pH, MW-6 (su)



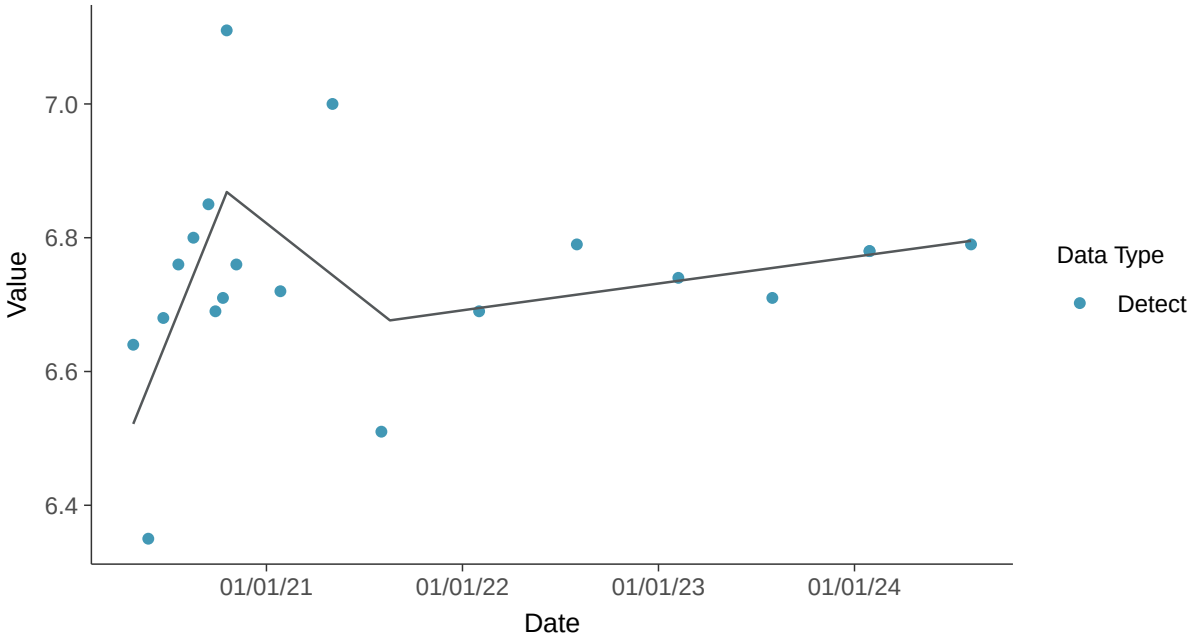
Trend Regression: Piecewise Linear-Linear

pH, MW-6 (su)



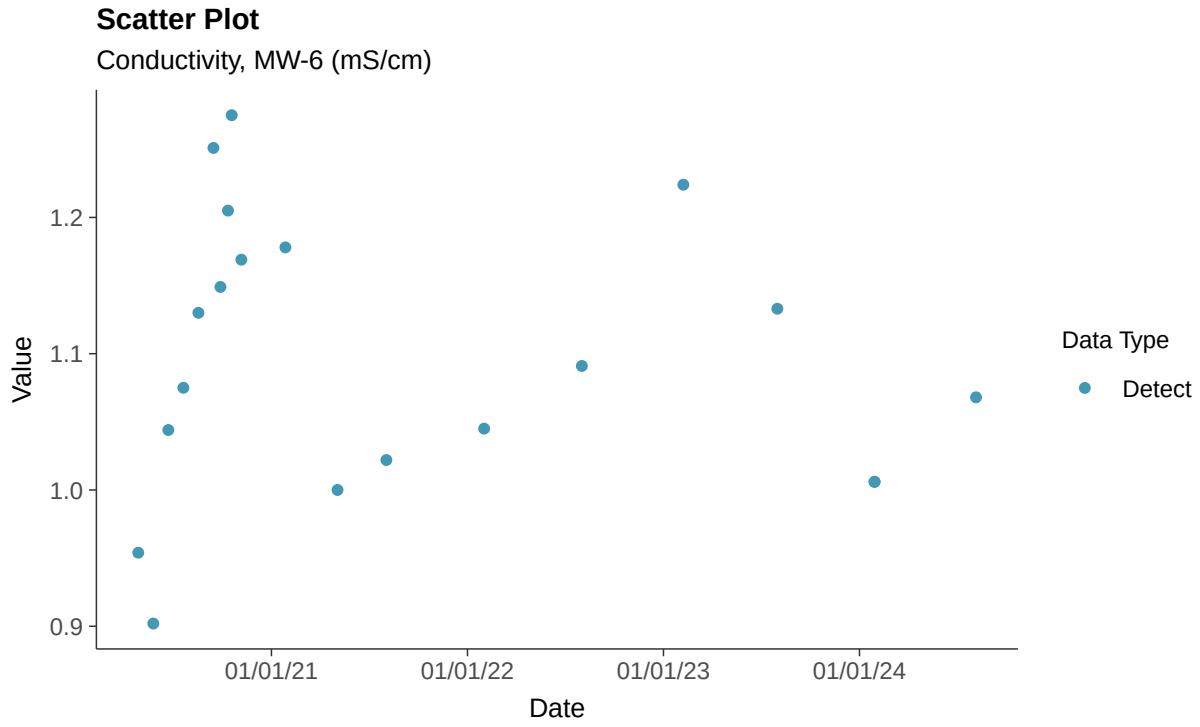
Trend Regression: Piecewise Linear-Linear-Linear

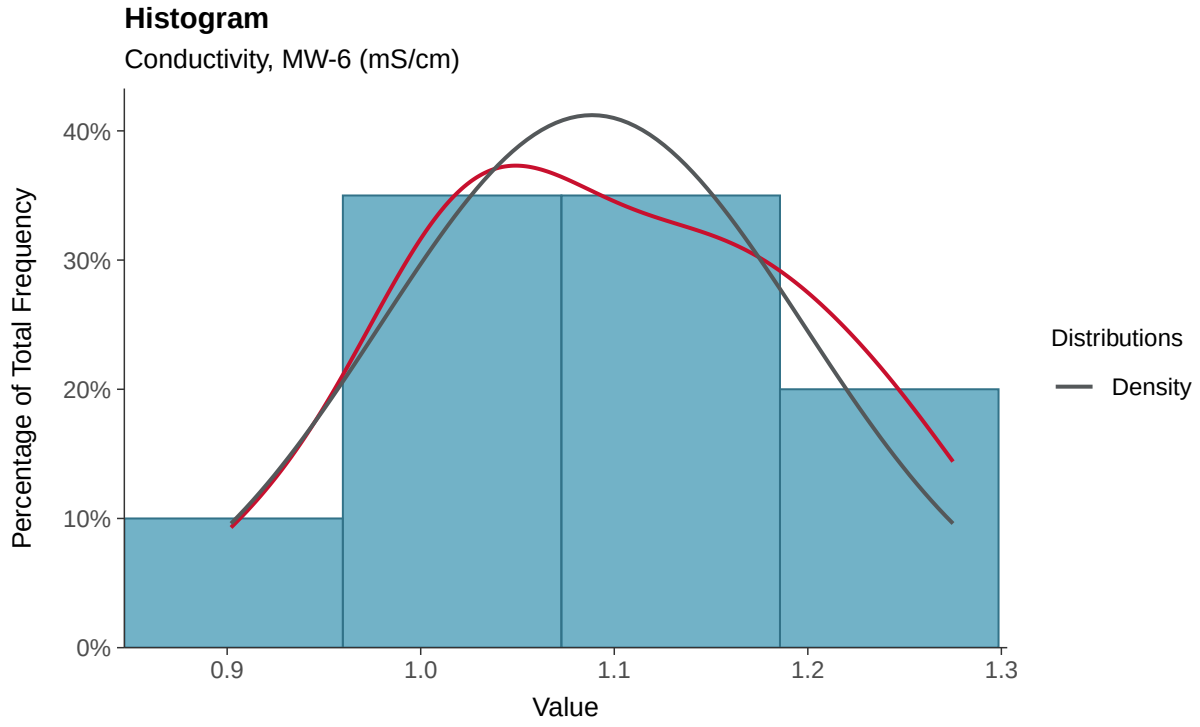
pH, MW-6 (su)



Field Parameters: Conductivity, MW-6

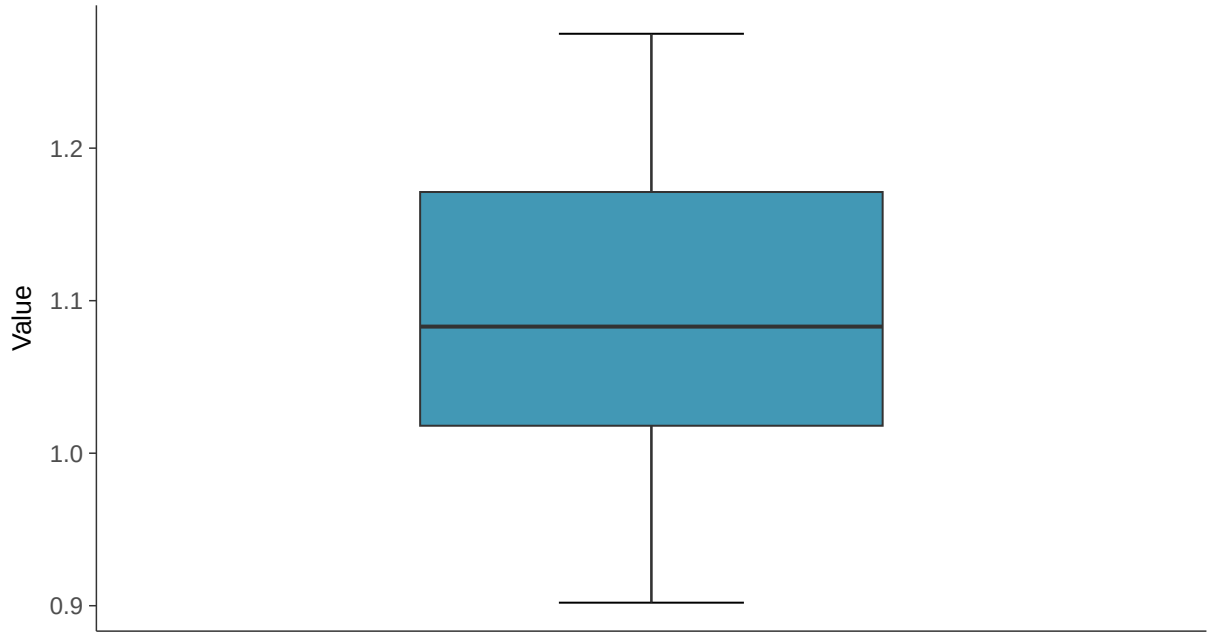
ID: 06_3_25





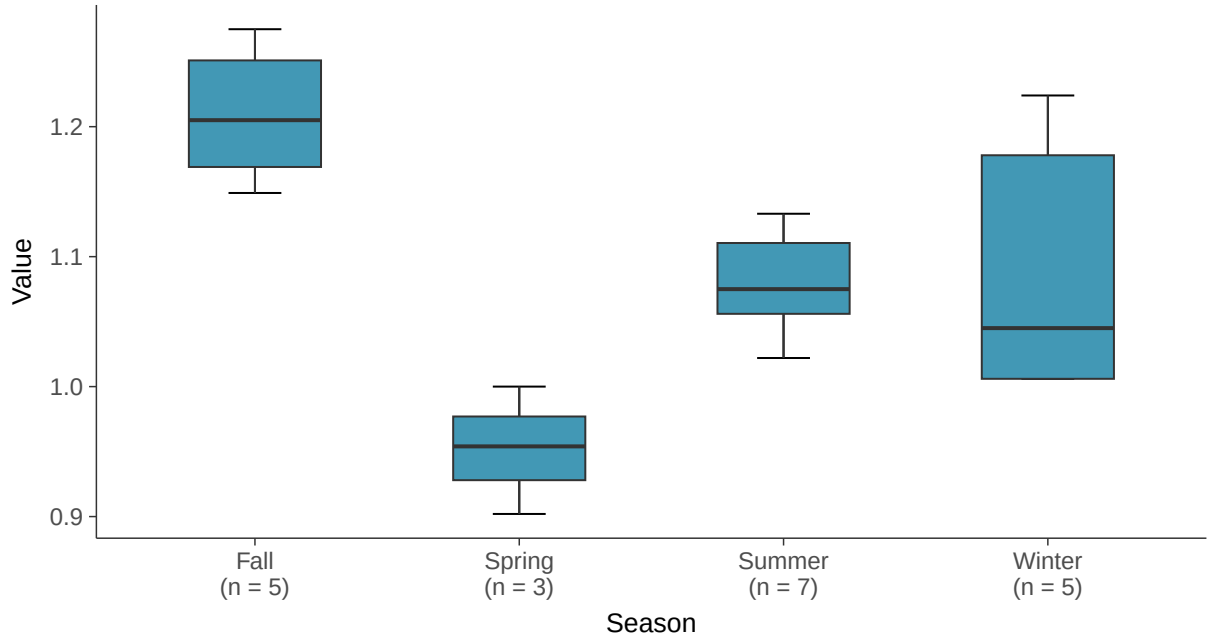
Boxplot

Conductivity, MW-6 (mS/cm)



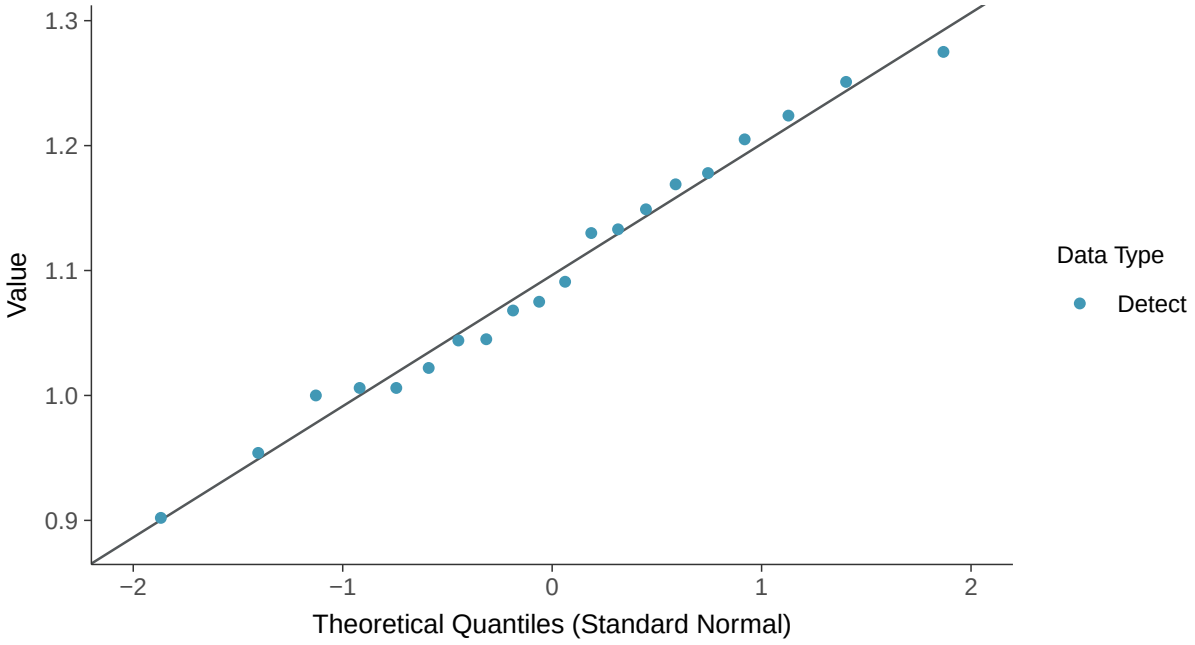
Boxplot by Season

Conductivity, MW-6 (mS/cm)



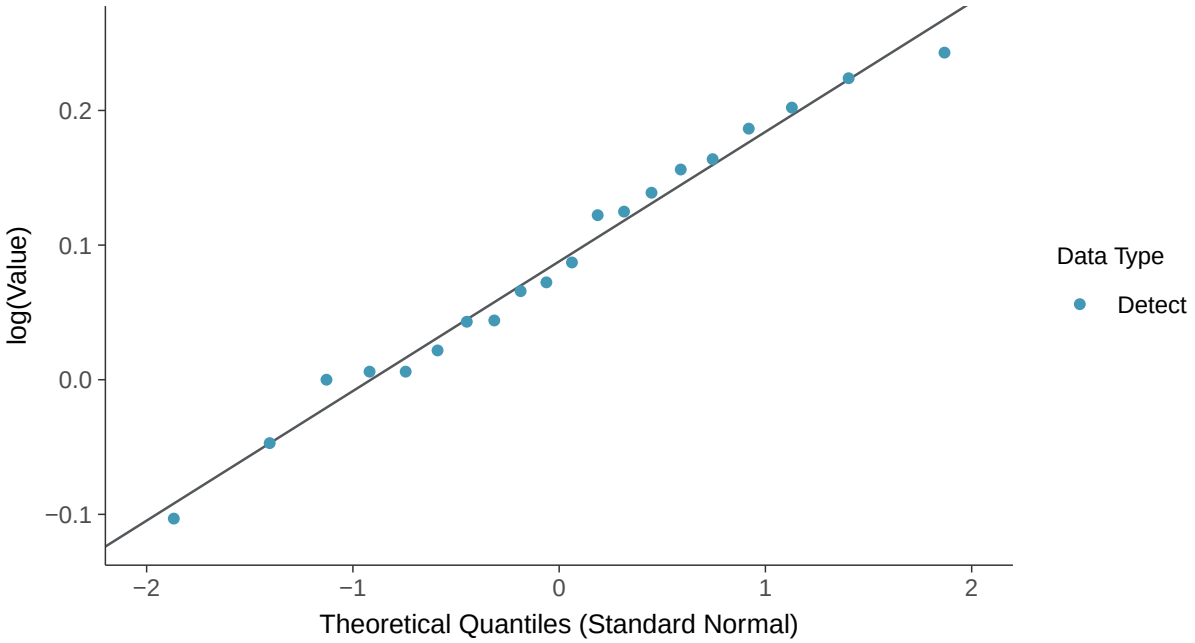
Normal Q-Q plot

Conductivity, MW-6 (mS/cm)



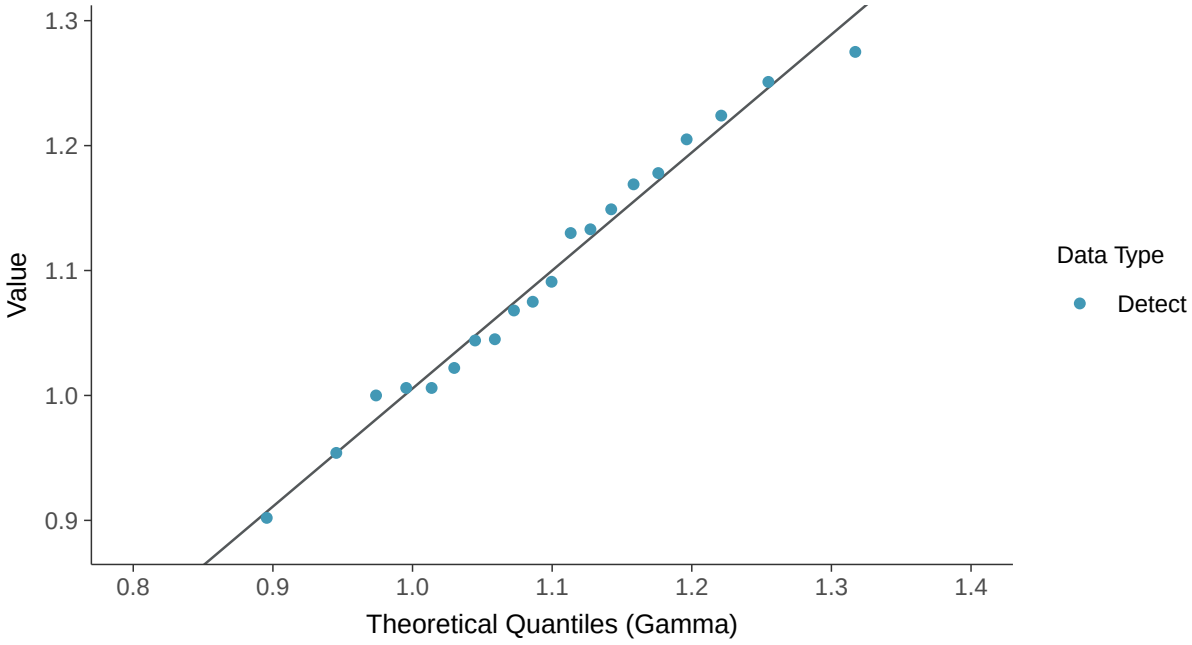
Lognormal Q-Q plot

Conductivity, MW-6 (mS/cm)



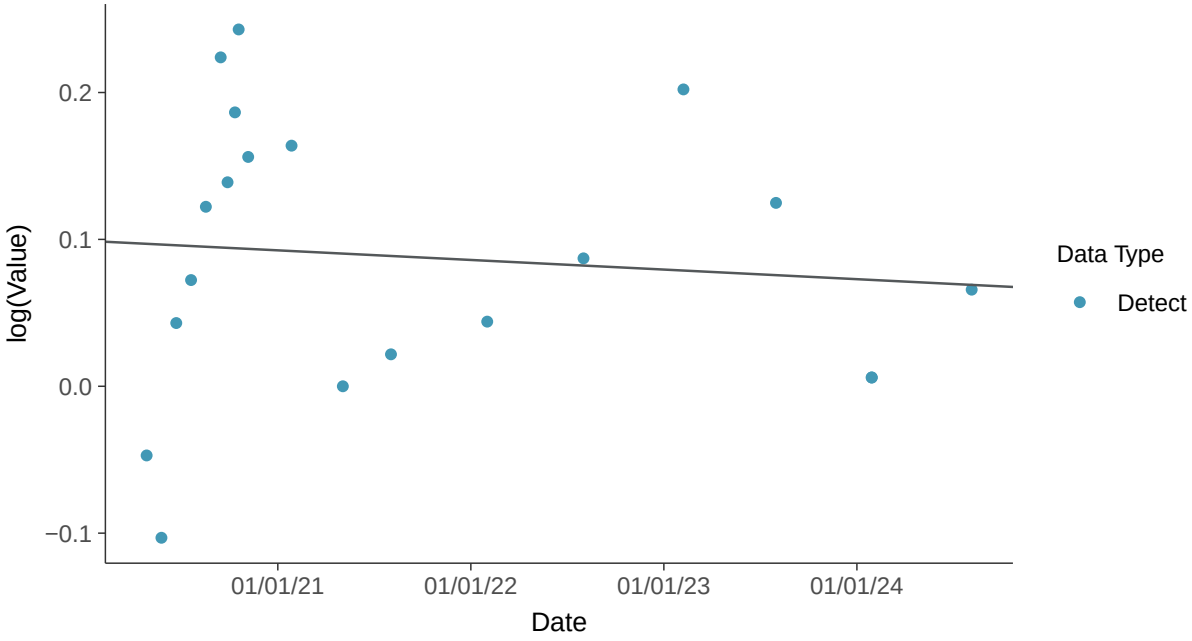
Gamma Q-Q plot

Conductivity, MW-6 (mS/cm)



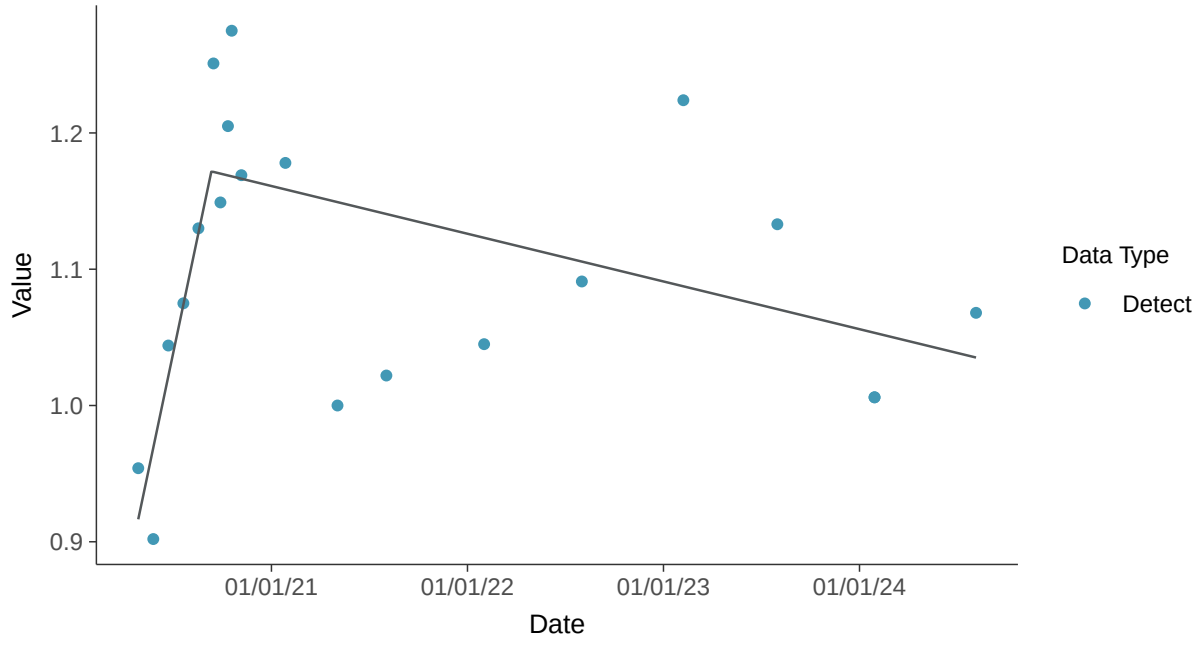
Trend Regression: Lognormal MLE

Conductivity, MW-6 (mS/cm)



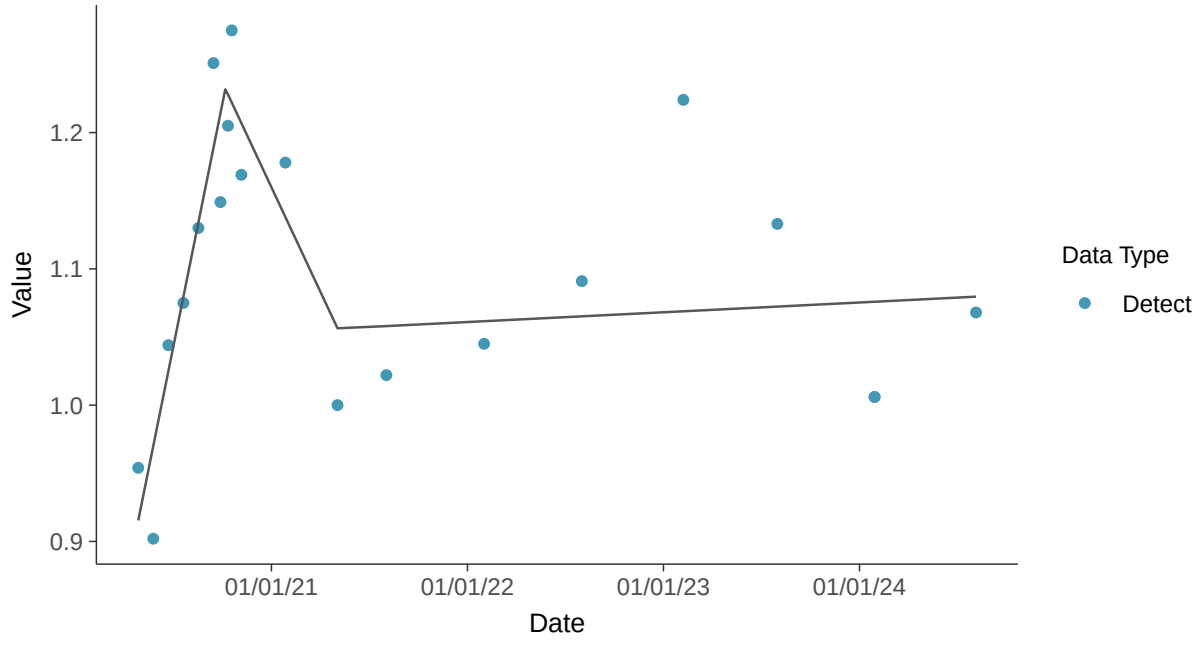
Trend Regression: Piecewise Linear-Linear

Conductivity, MW-6 (mS/cm)



Trend Regression: Piecewise Linear-Linear-Linear

Conductivity, MW-6 (mS/cm)

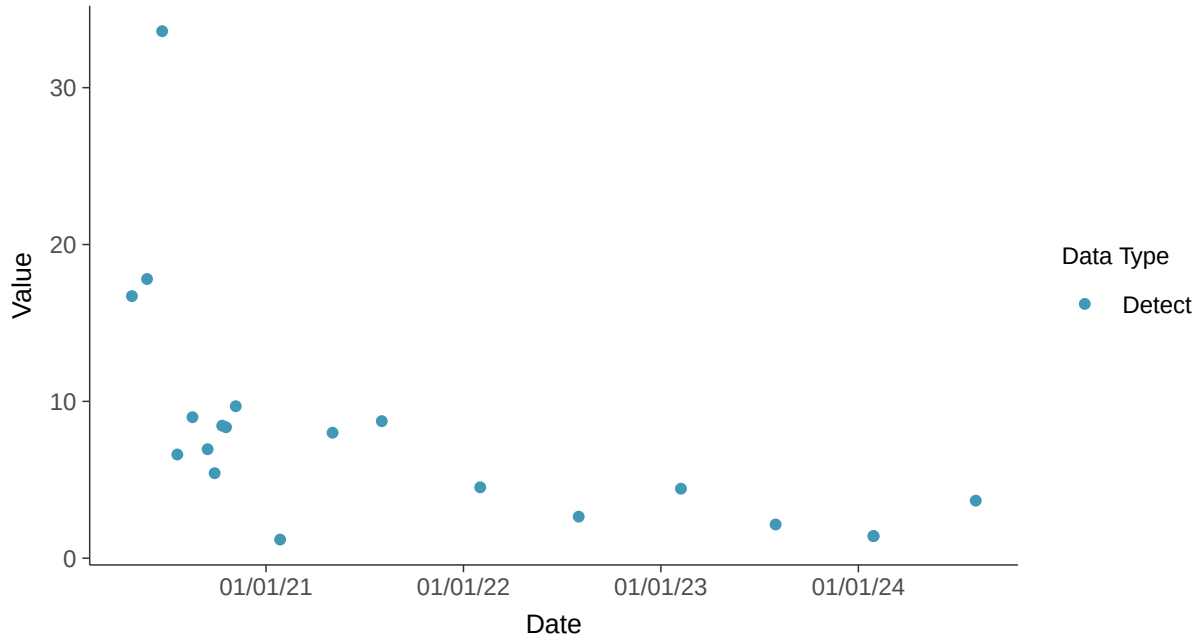


Field Parameters: Turbidity, MW-6

ID: 06_3_26

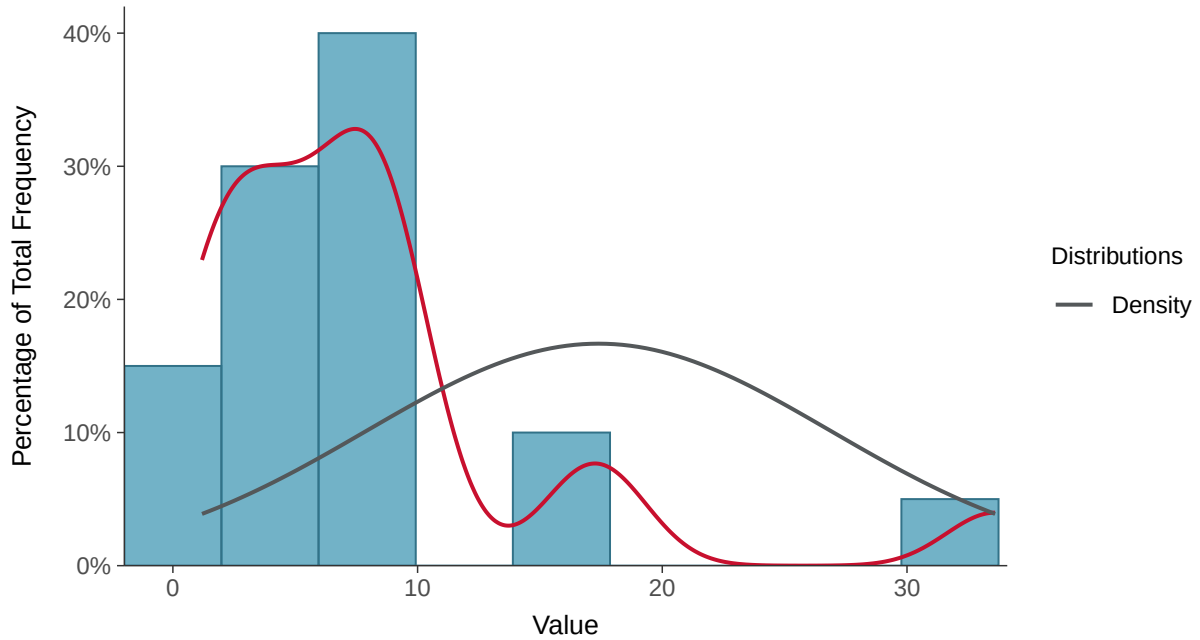
Scatter Plot

Turbidity, MW-6 (NTU)



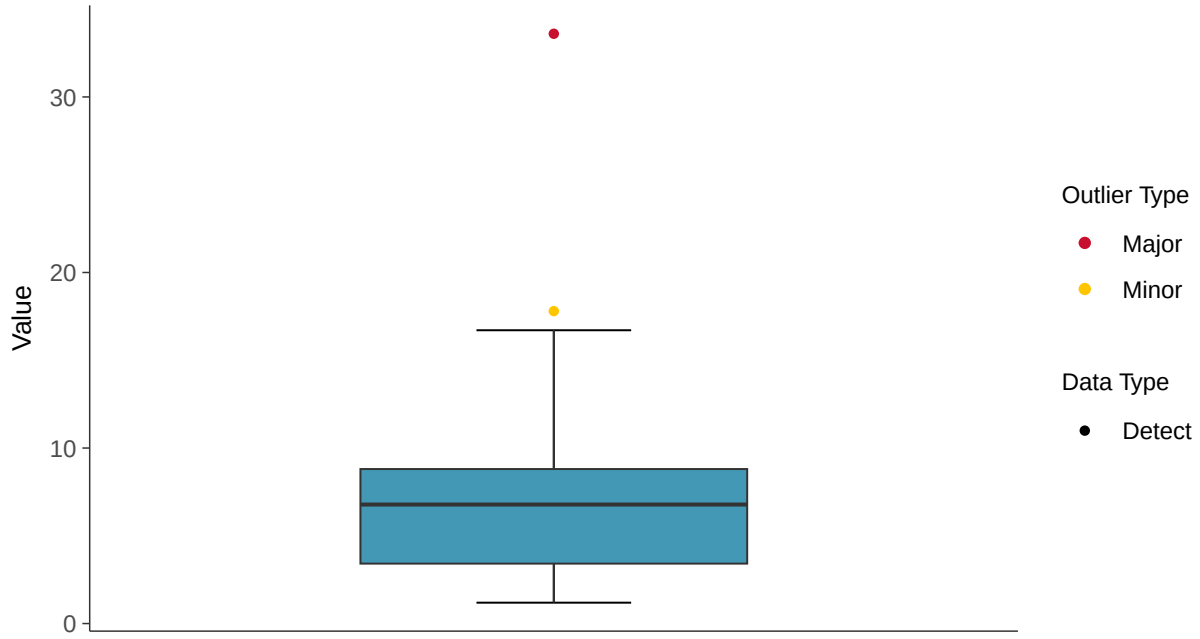
Histogram

Turbidity, MW-6 (NTU)



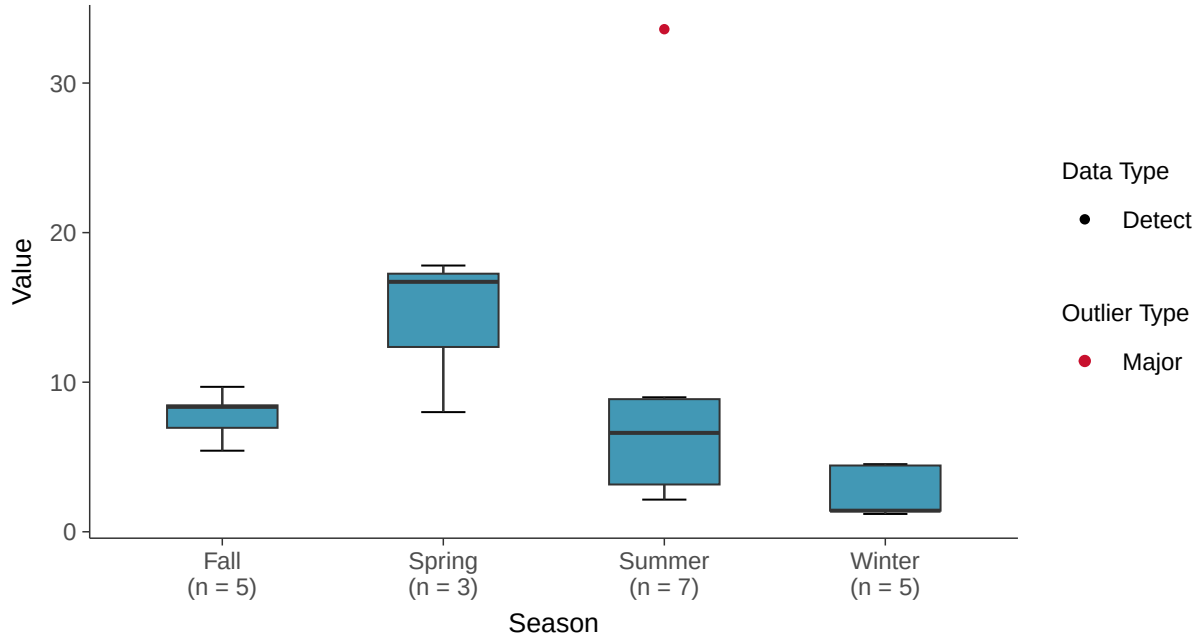
Boxplot

Turbidity, MW-6 (NTU)



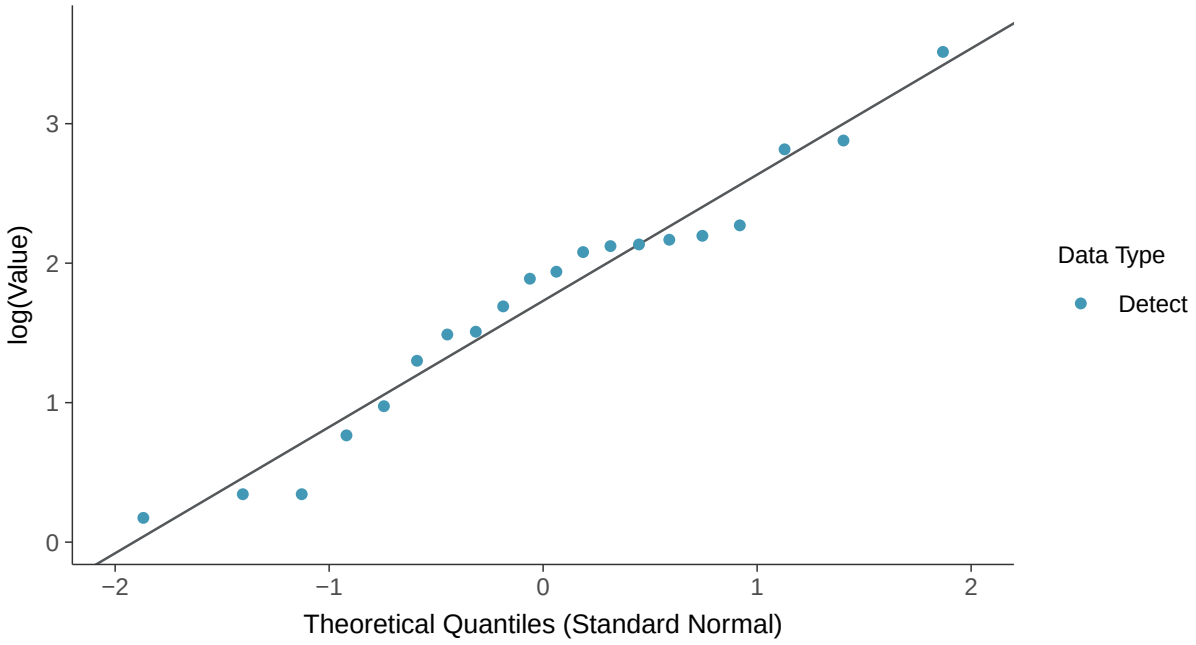
Boxplot by Season

Turbidity, MW-6 (NTU)



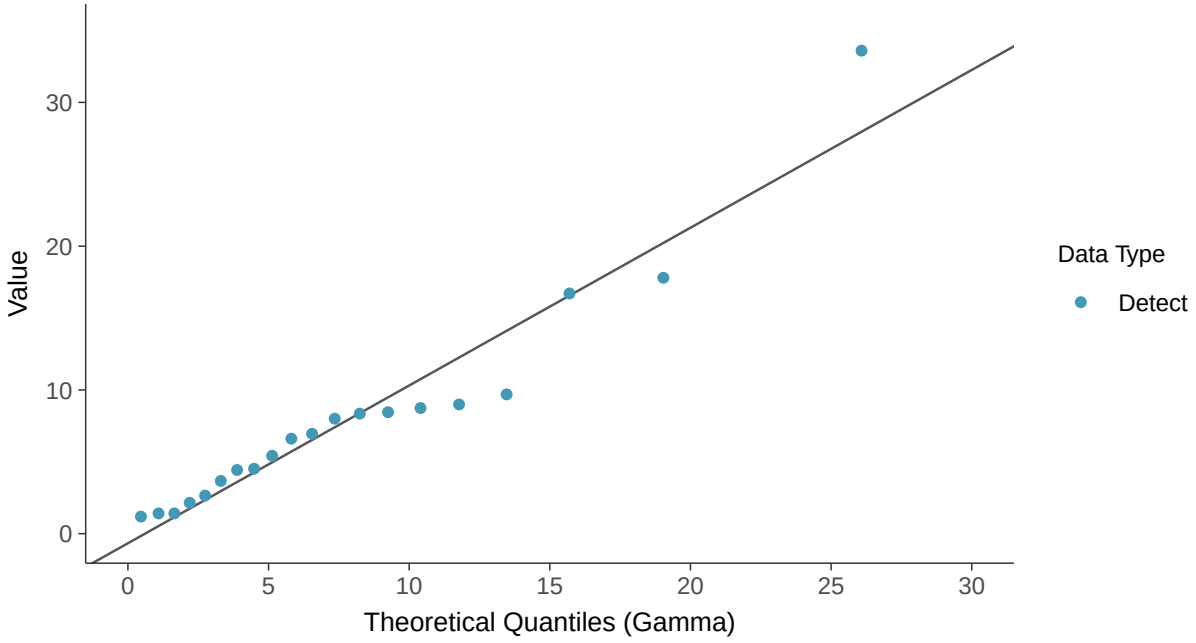
Lognormal Q-Q plot

Turbidity, MW-6 (NTU)



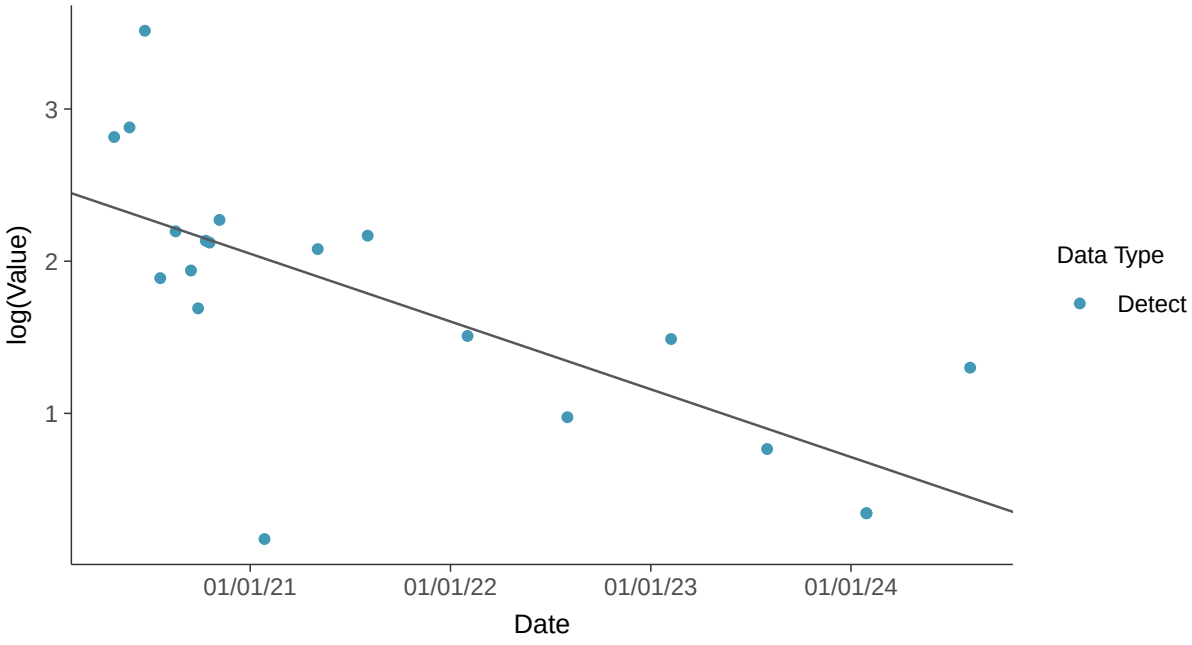
Gamma Q-Q plot

Turbidity, MW-6 (NTU)



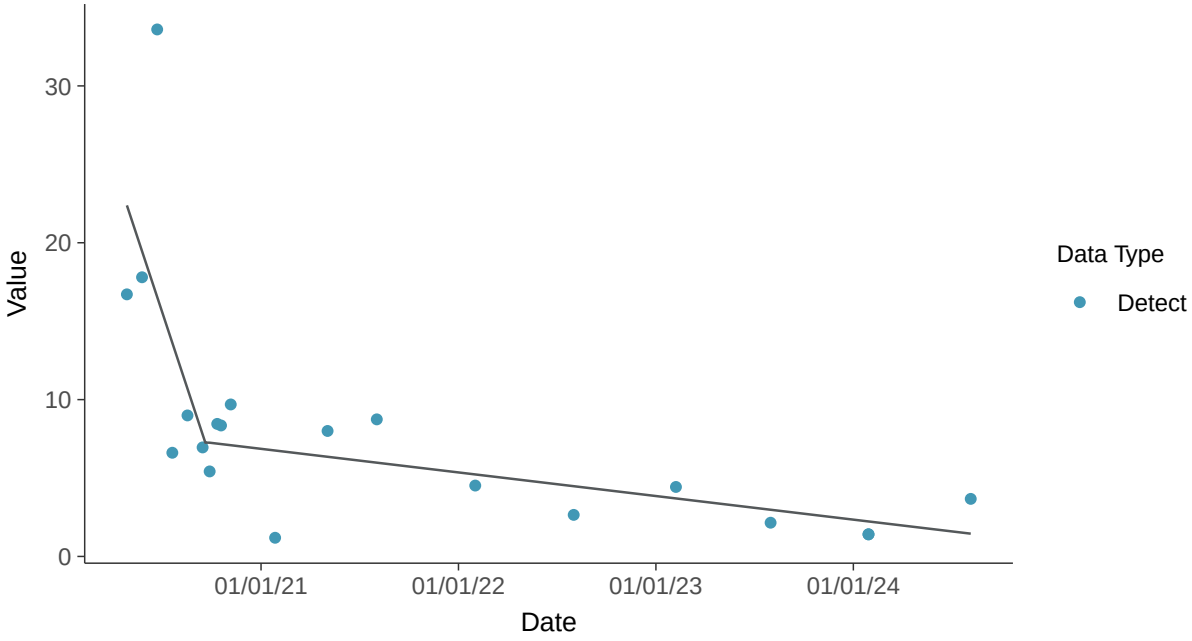
Trend Regression: Lognormal MLE

Turbidity, MW-6 (NTU)



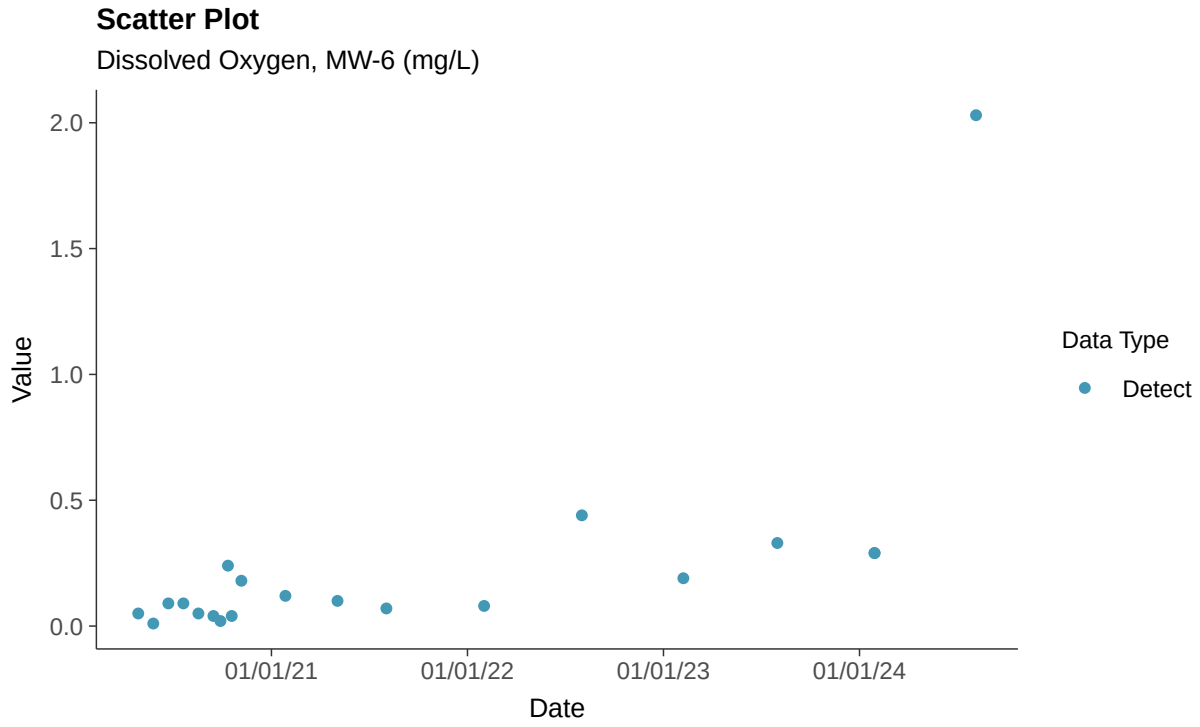
Trend Regression: Piecewise Linear-Linear

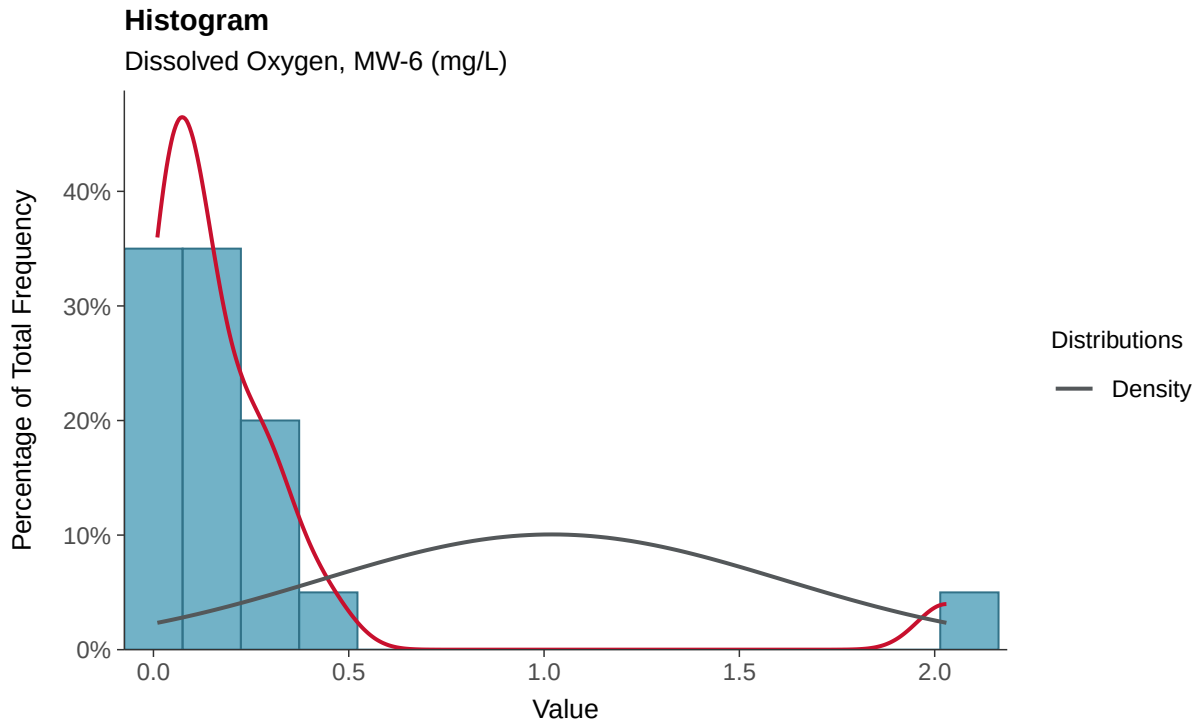
Turbidity, MW-6 (NTU)



Field Parameters: Dissolved Oxygen, MW-6

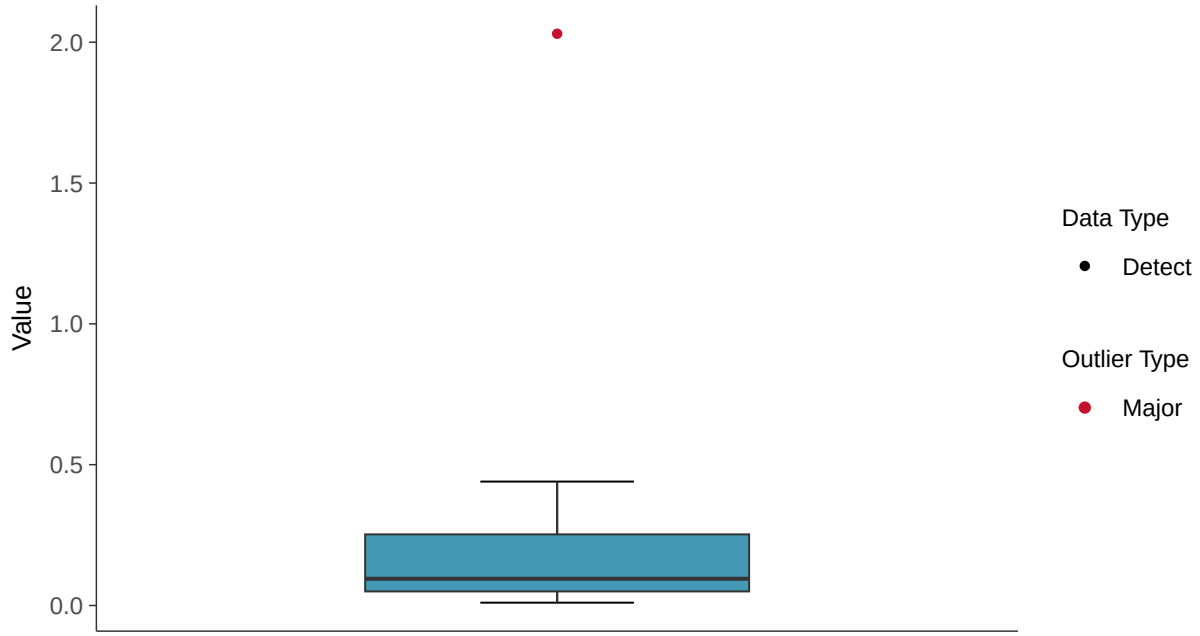
ID: 06_3_27





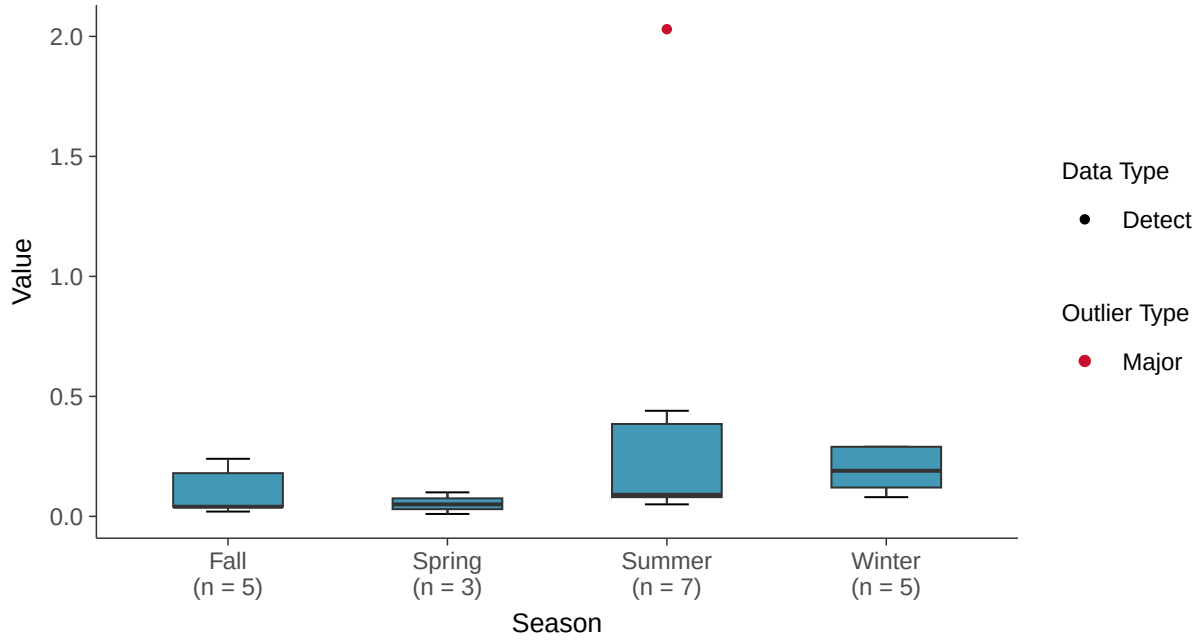
Boxplot

Dissolved Oxygen, MW-6 (mg/L)



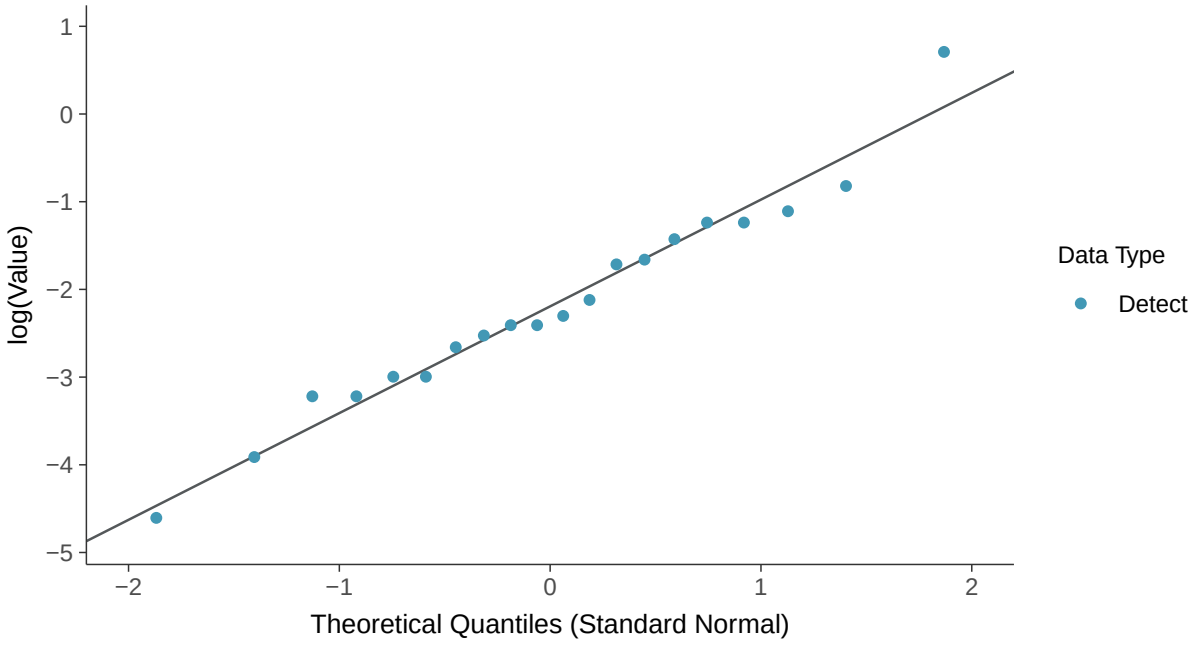
Boxplot by Season

Dissolved Oxygen, MW-6 (mg/L)



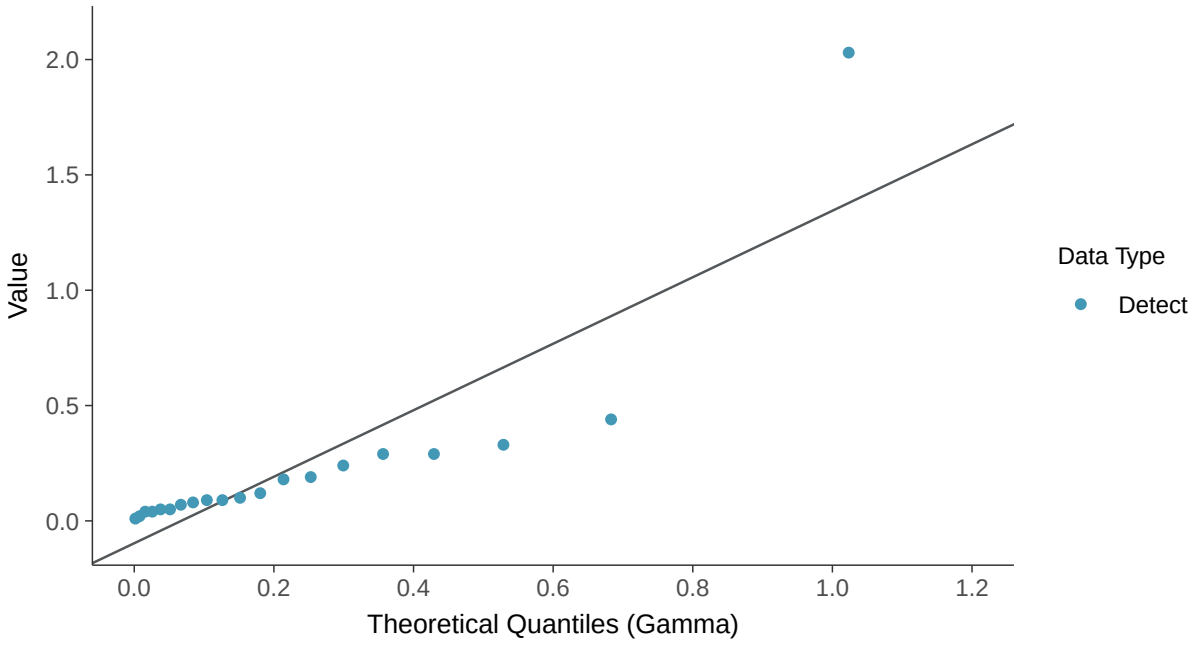
Lognormal Q-Q plot

Dissolved Oxygen, MW-6 (mg/L)



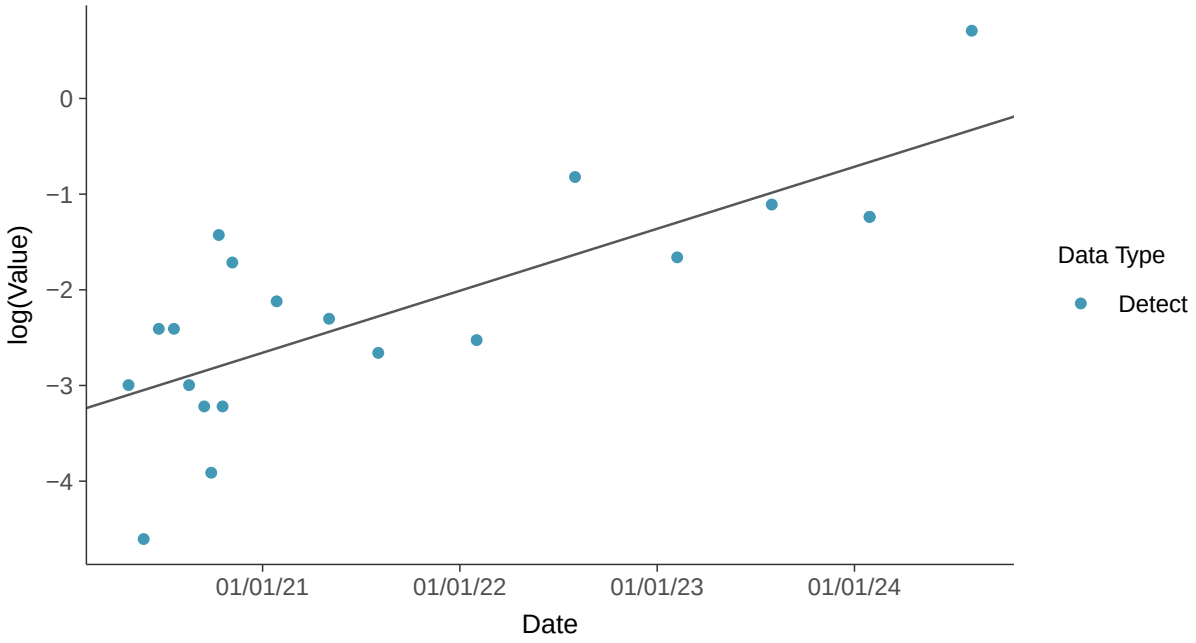
Gamma Q-Q plot

Dissolved Oxygen, MW-6 (mg/L)



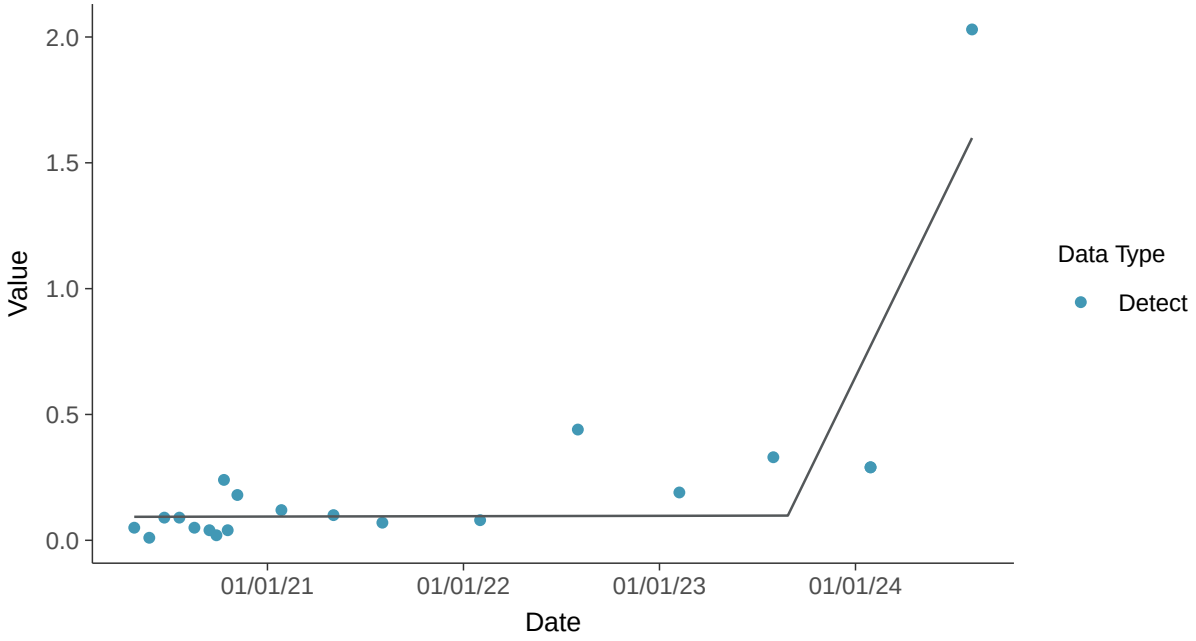
Trend Regression: Lognormal MLE

Dissolved Oxygen, MW-6 (mg/L)



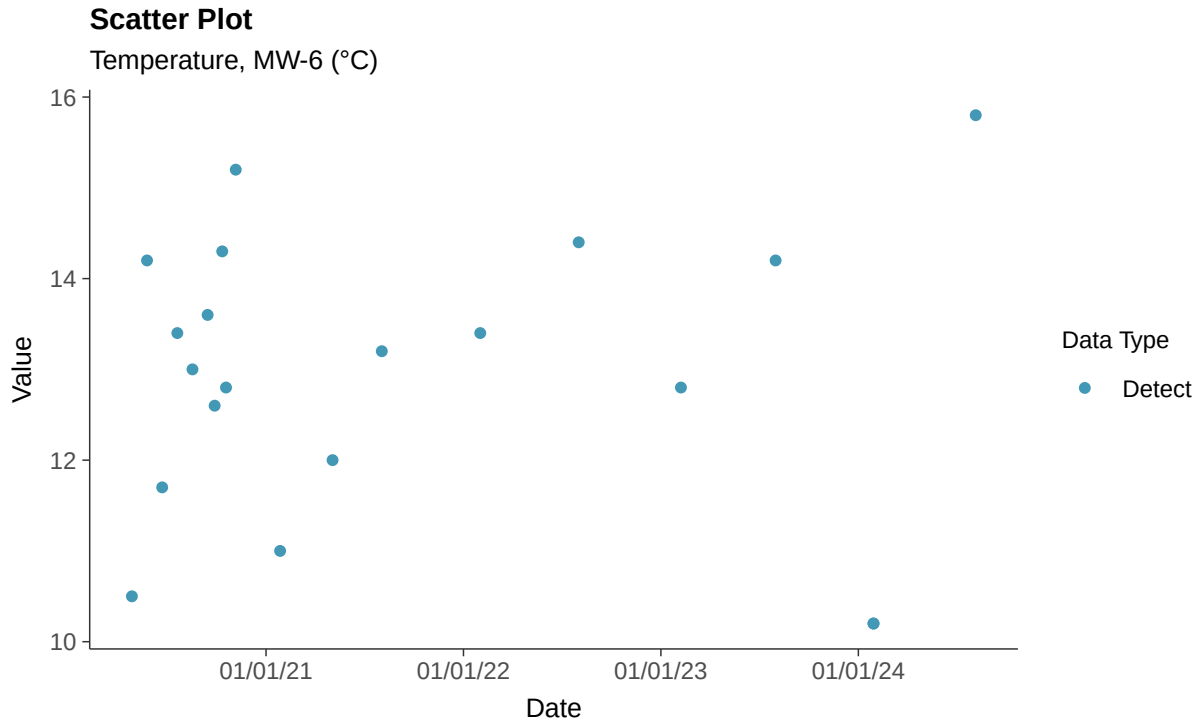
Trend Regression: Piecewise Linear-Linear

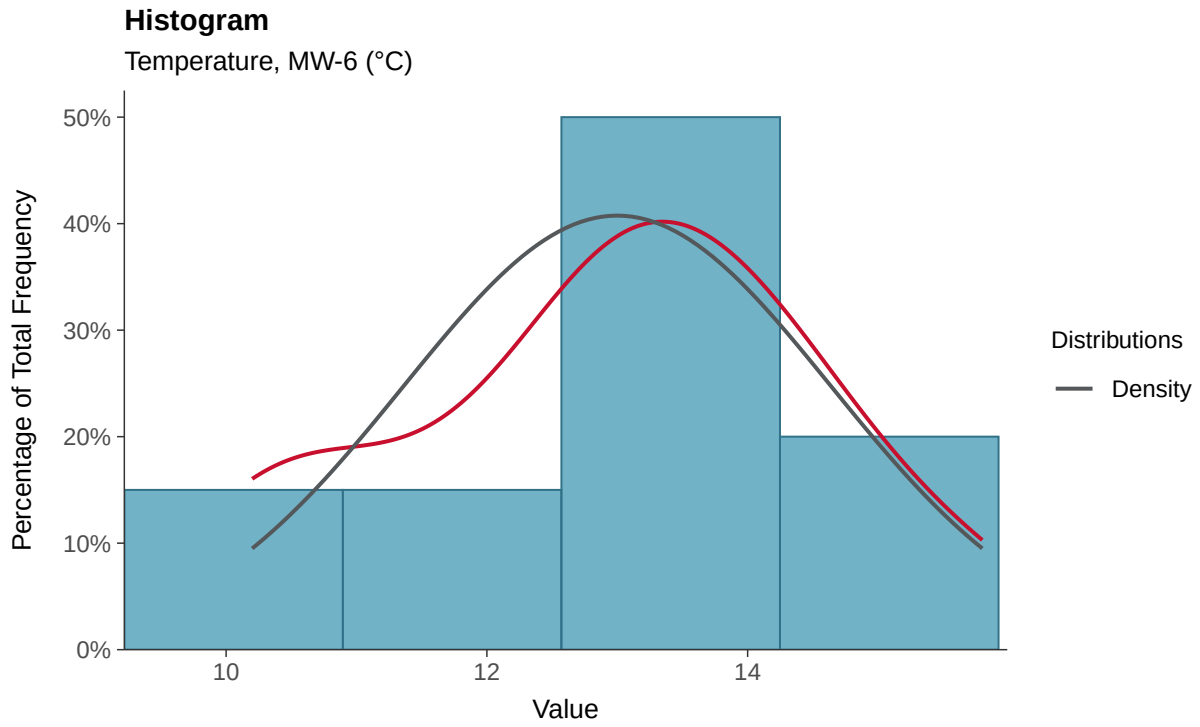
Dissolved Oxygen, MW-6 (mg/L)



Field Parameters: Temperature, MW-6

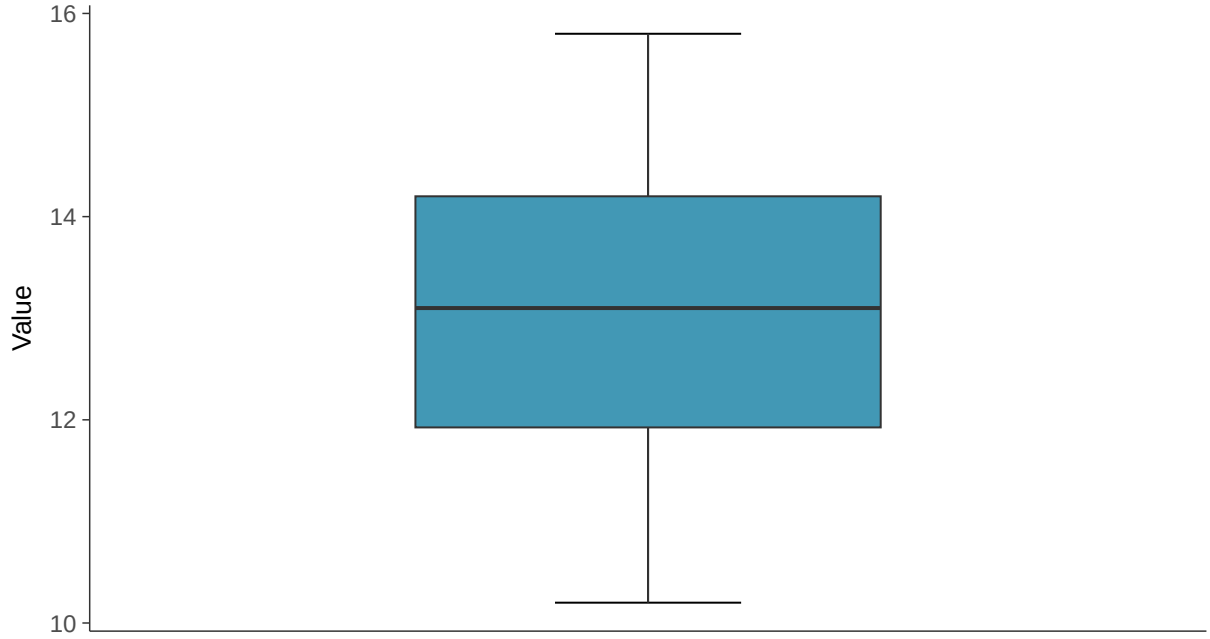
ID: 06_3_28





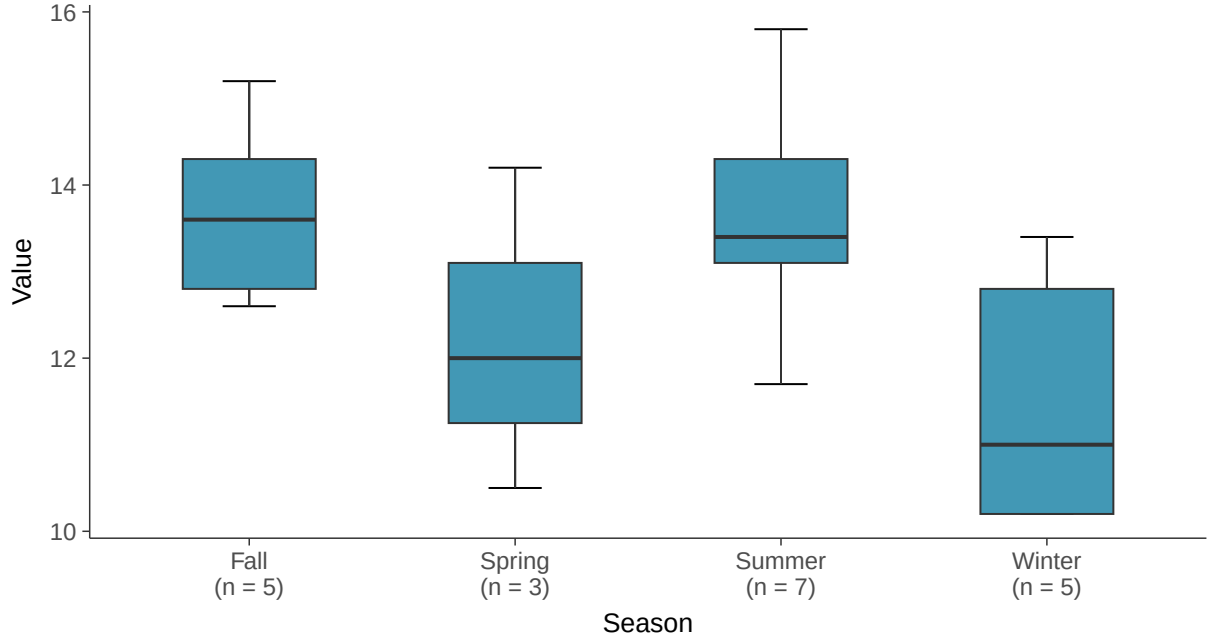
Boxplot

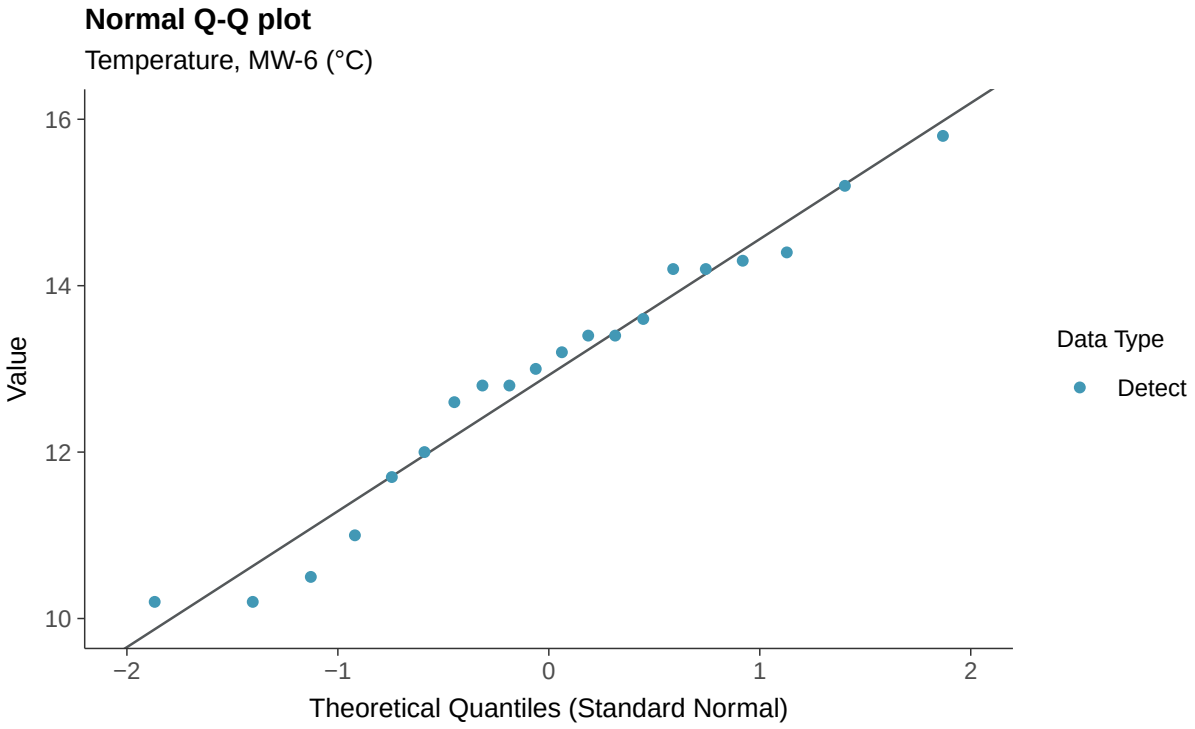
Temperature, MW-6 (°C)

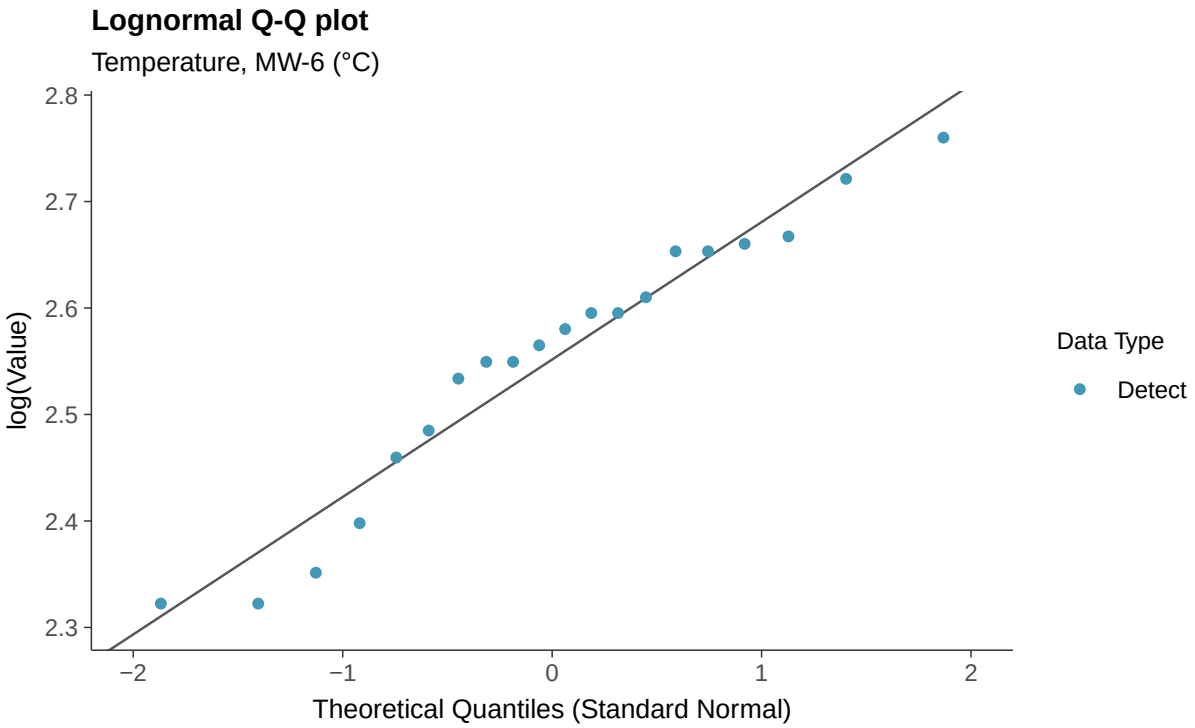


Boxplot by Season

Temperature, MW-6 (°C)

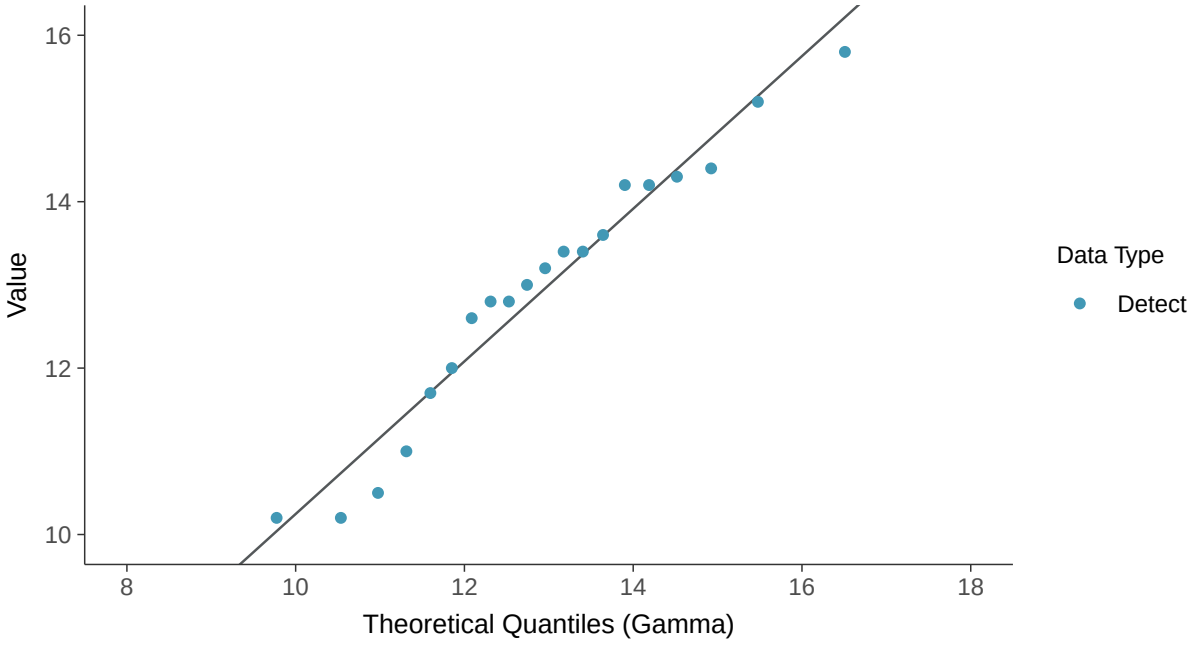



Normal Q-Q plot
Temperature, MW-6 (°C)
Value
16
14
12
10
−2
−1
0
1
2
Theoretical Quantiles (Standard Normal)
Data Type
Detect


Lognormal Q-Q plot
Temperature, MW-6 (°C)
log(Value)
2.8
2.7
2.6
2.5
2.4
2.3
−2
−1
0
1
2
Theoretical Quantiles (Standard Normal)
Data Type
Detect

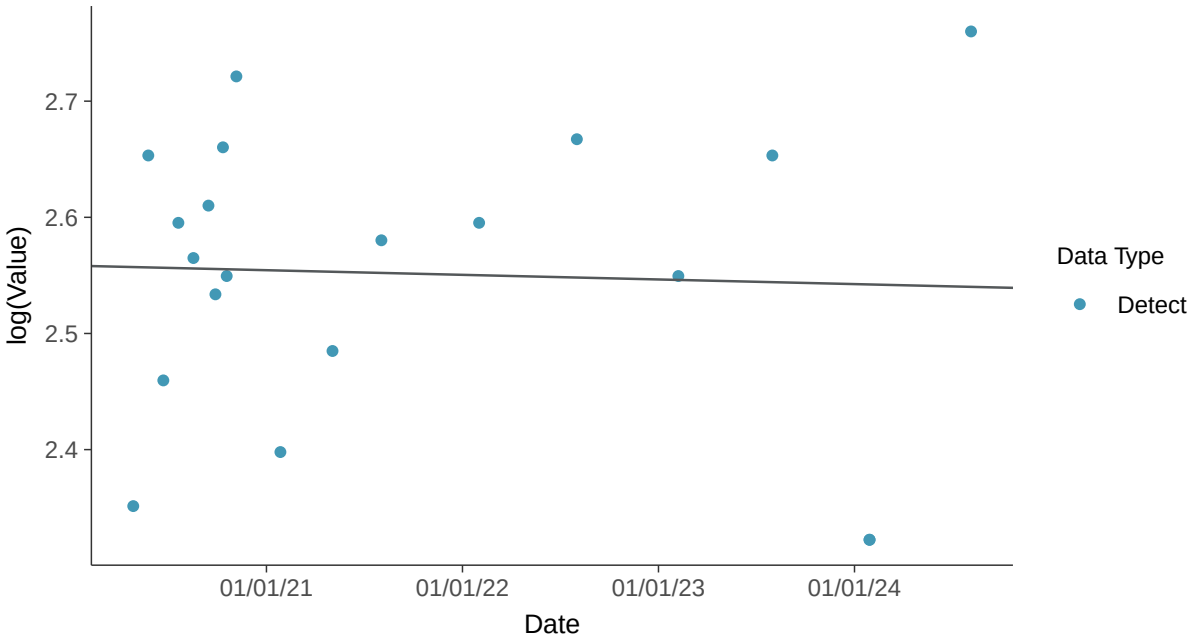
Gamma Q-Q plot

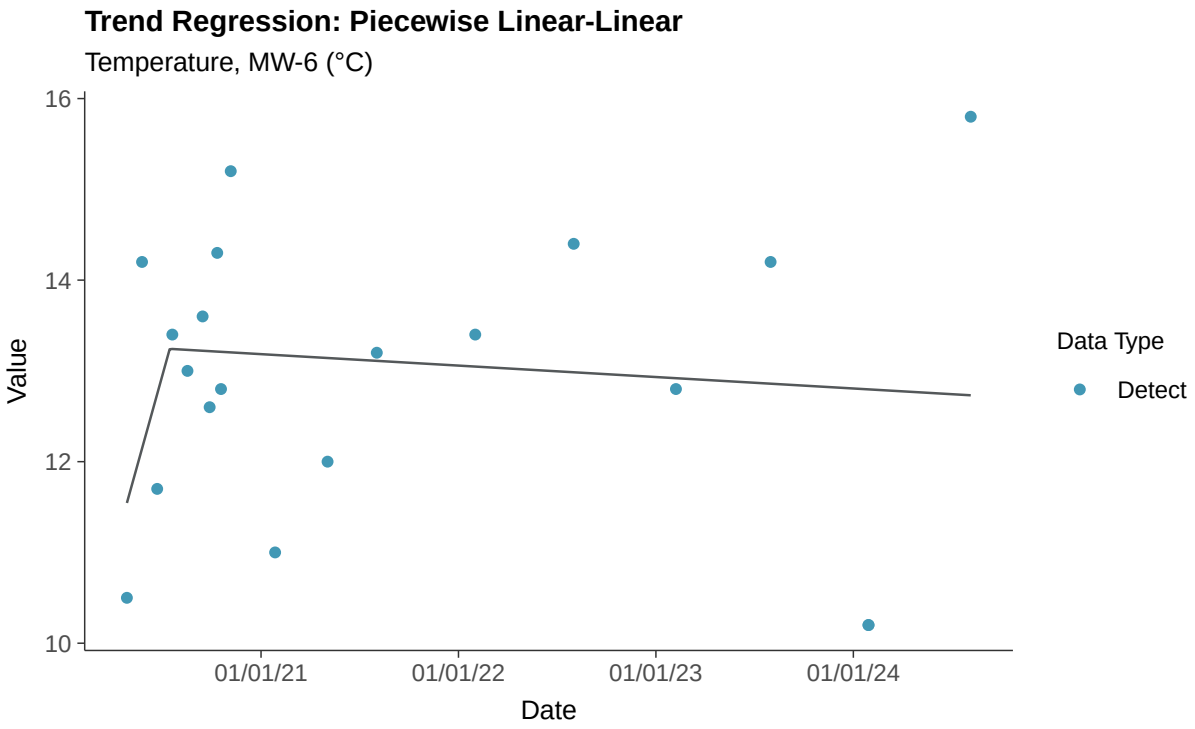
Temperature, MW-6 (°C)



Trend Regression: Lognormal MLE

Temperature, MW-6 (°C)



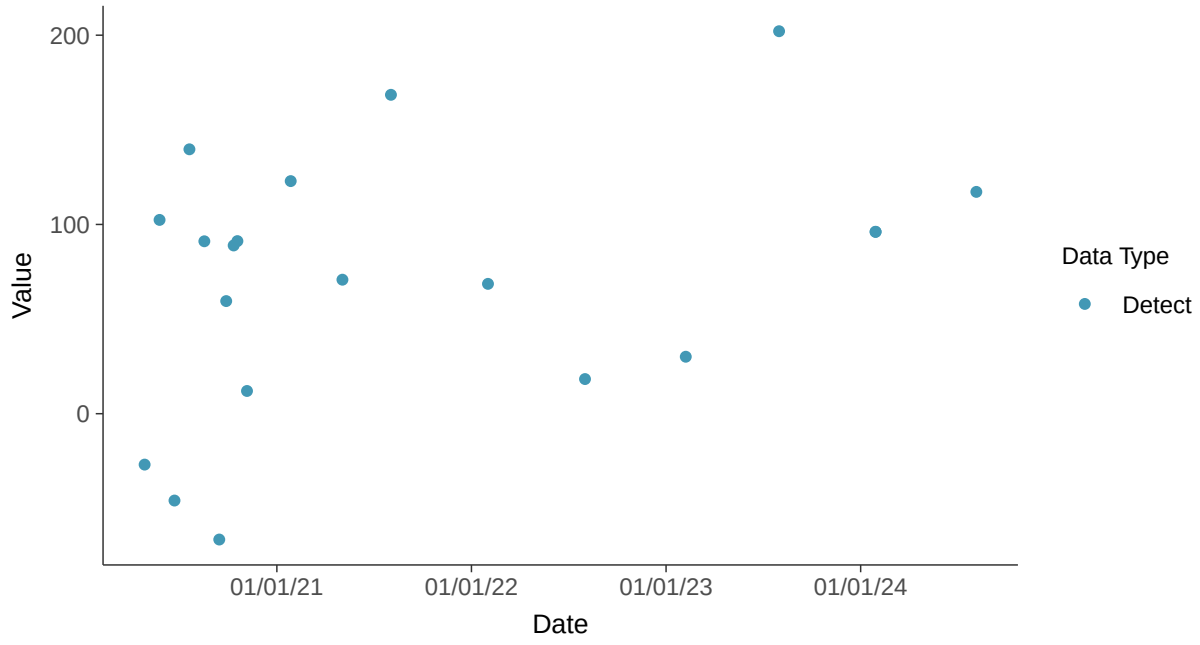

Trend Regression: Piecewise Linear-Linear
Temperature, MW-6 (°C)
Value
16
14
12
10
01/01/21
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Field Parameters: Oxidation Reduction Potential, MW-6

ID: 06_3_29

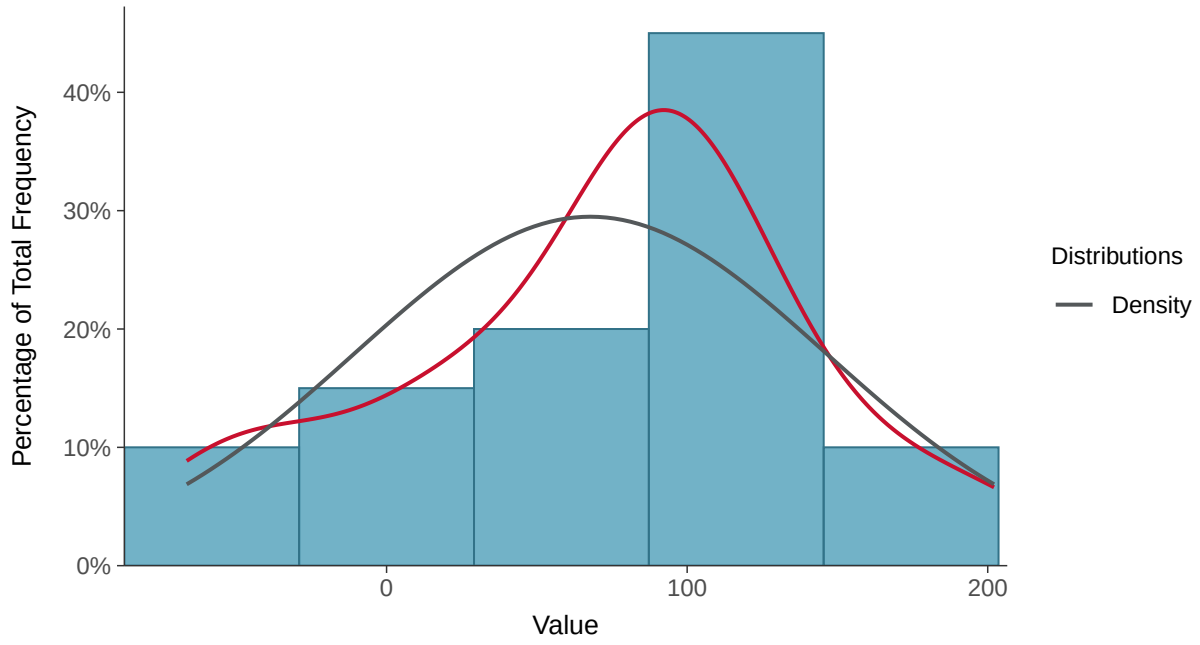
Scatter Plot

Oxidation Reduction Potential, MW-6 (mV)



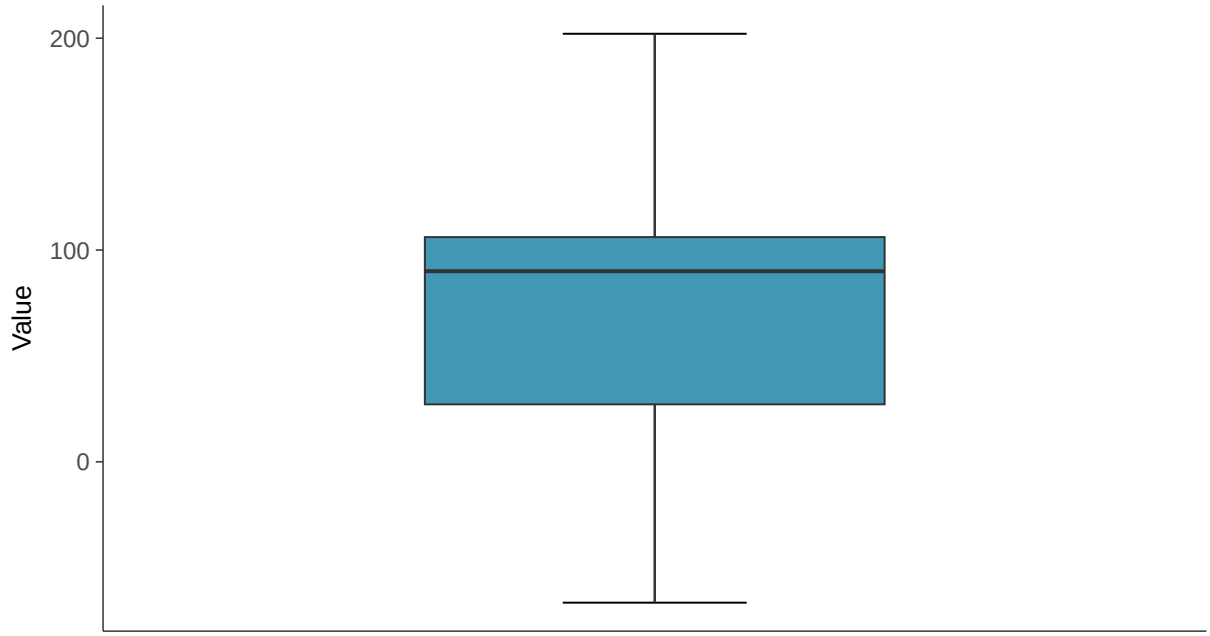
Histogram

Oxidation Reduction Potential, MW-6 (mV)



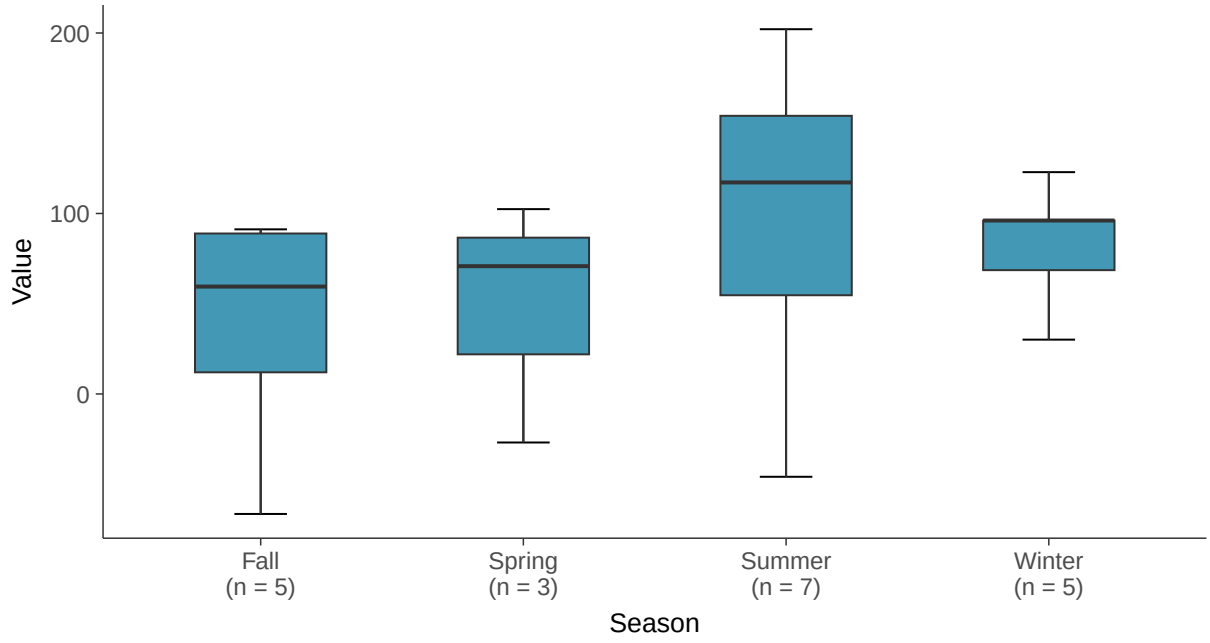
Boxplot

Oxidation Reduction Potential, MW-6 (mV)



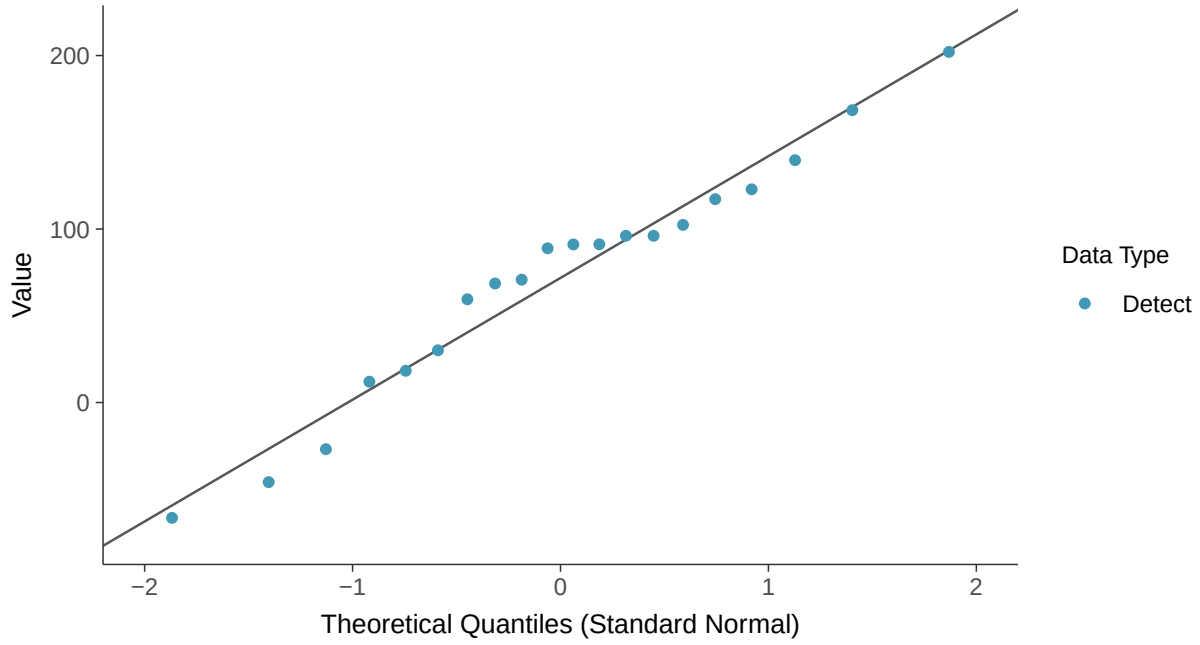
Boxplot by Season

Oxidation Reduction Potential, MW-6 (mV)



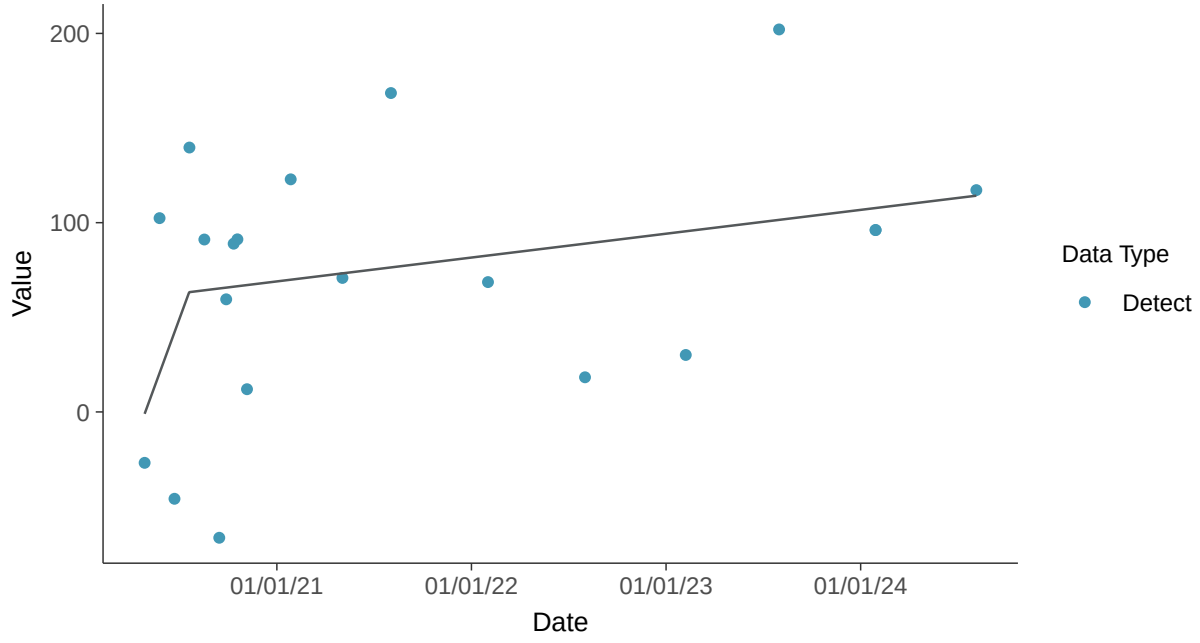
Normal Q-Q plot

Oxidation Reduction Potential, MW-6 (mV)



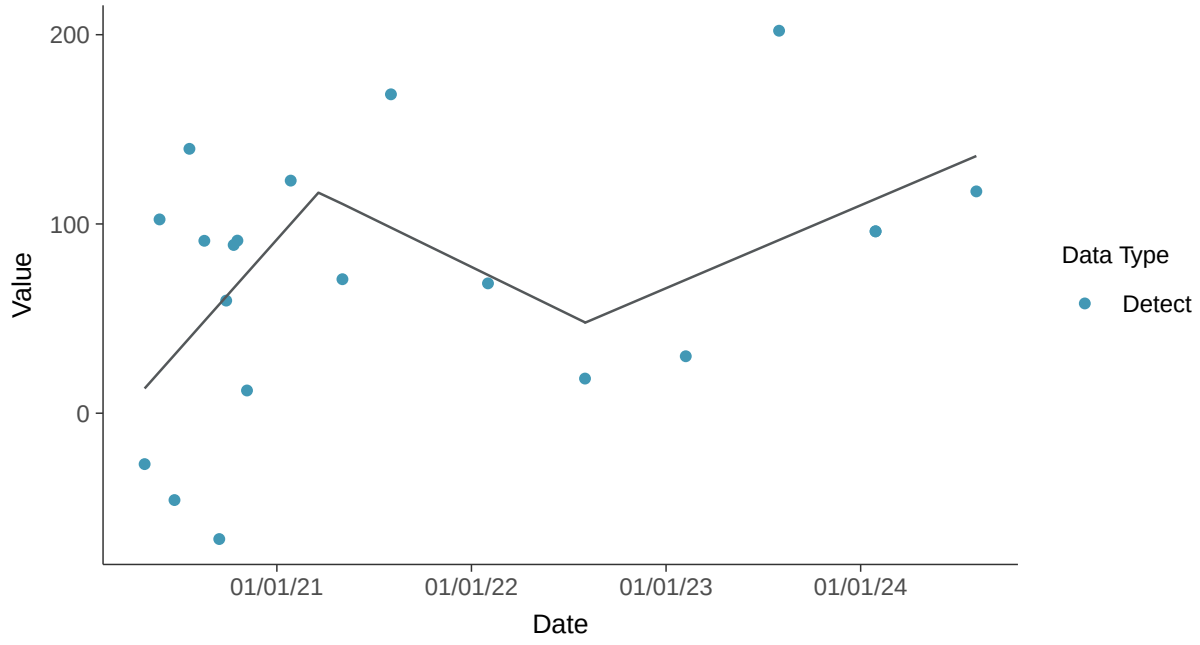
Trend Regression: Piecewise Linear-Linear

Oxidation Reduction Potential, MW-6 (mV)



Trend Regression: Piecewise Linear-Linear-Linear

Oxidation Reduction Potential, MW-6 (mV)

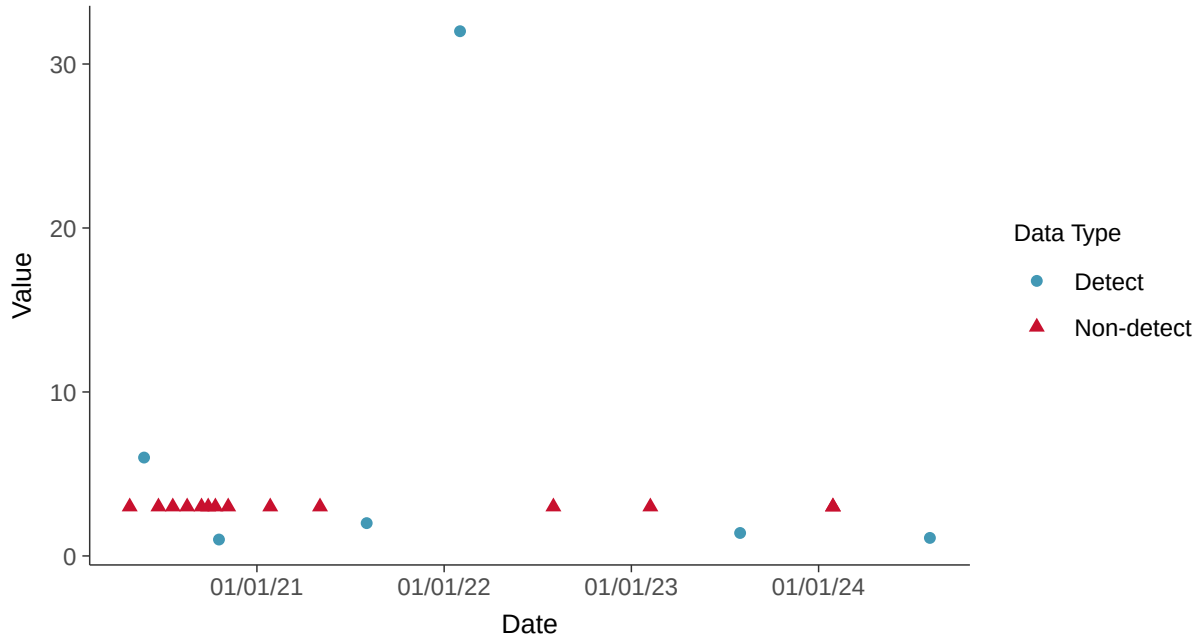


Other: Total Suspended Solids, MW-6

ID: 06_4_30

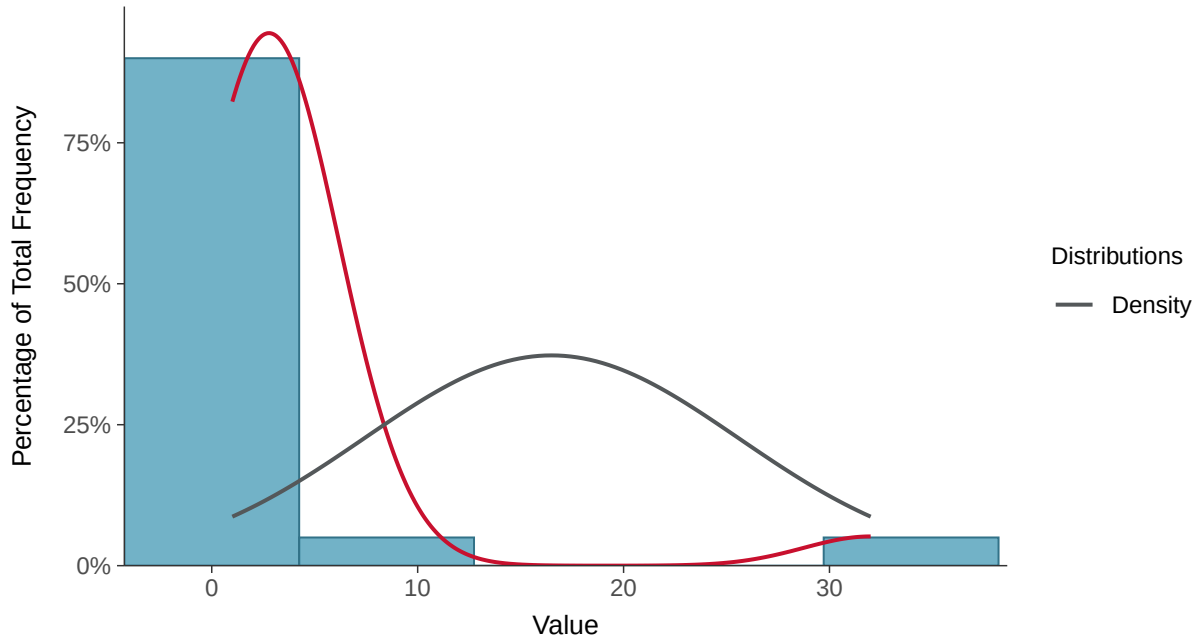
Scatter Plot

Total Suspended Solids, MW-6 (mg/L)



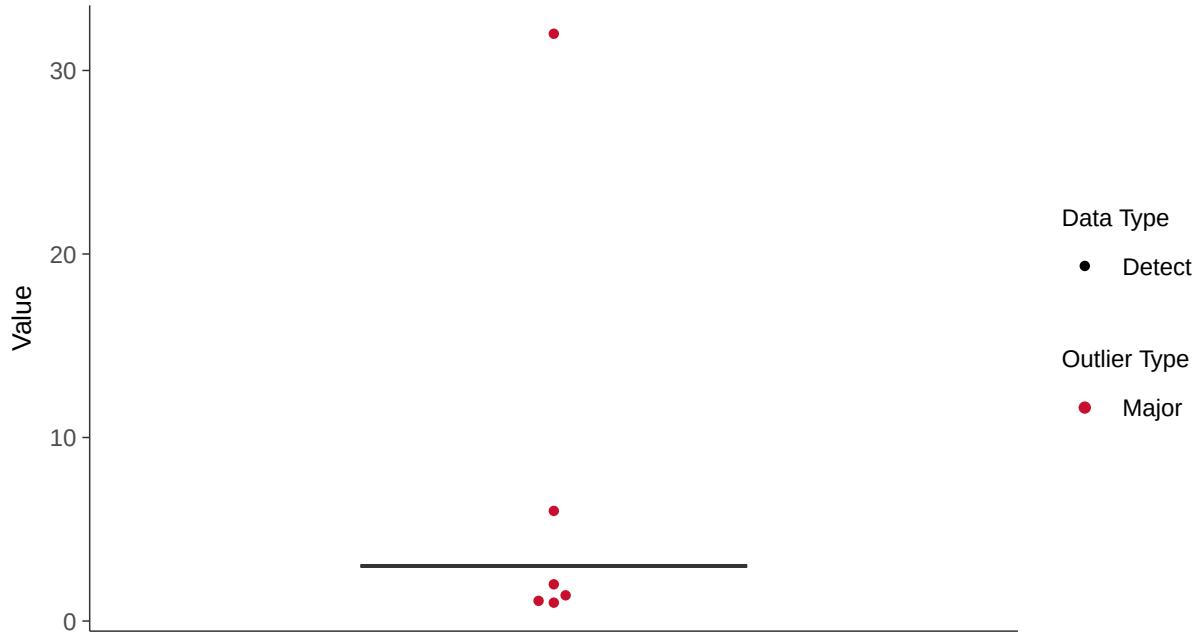
Histogram

Total Suspended Solids, MW-6 (mg/L)



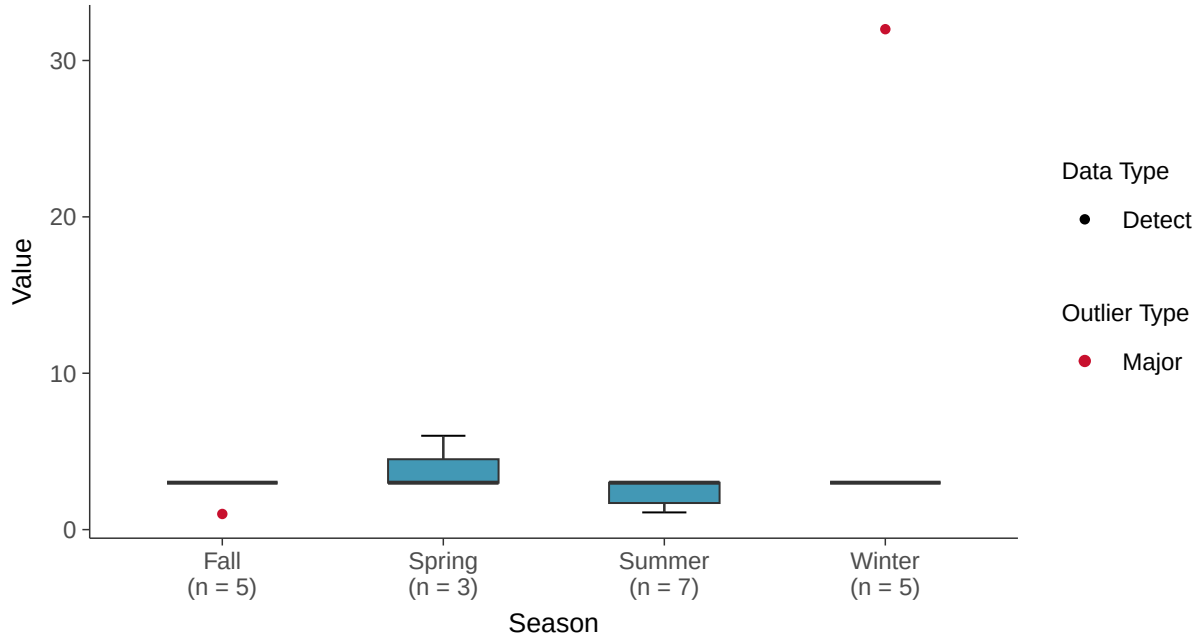
Boxplot

Total Suspended Solids, MW-6 (mg/L)



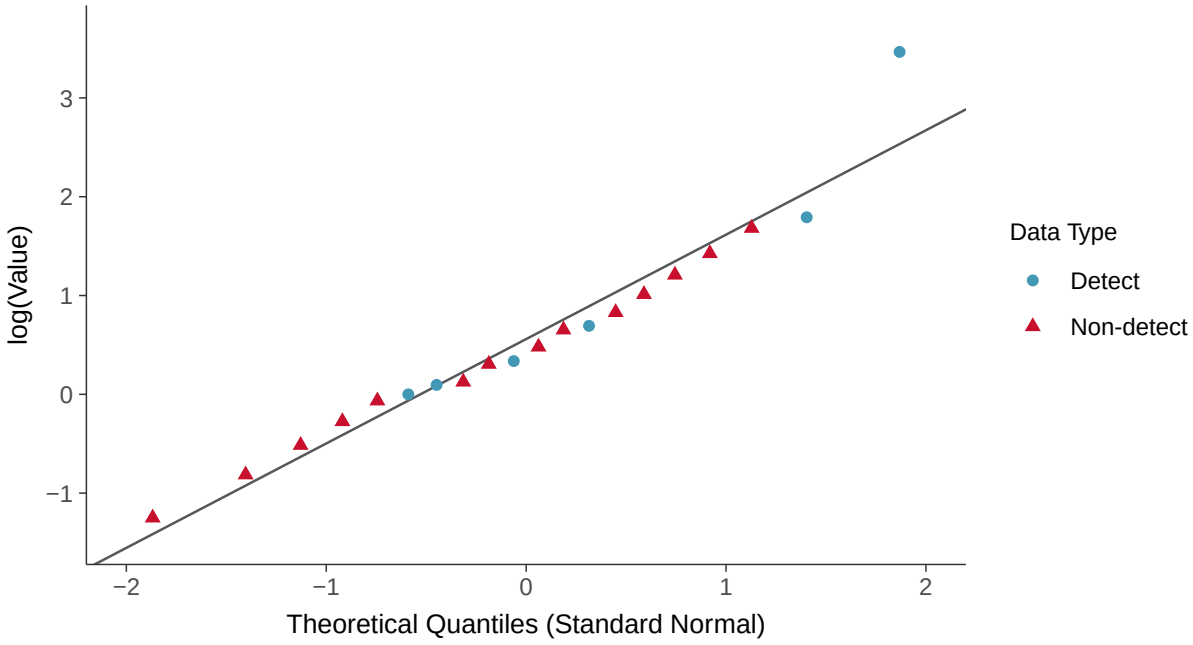
Boxplot by Season

Total Suspended Solids, MW-6 (mg/L)



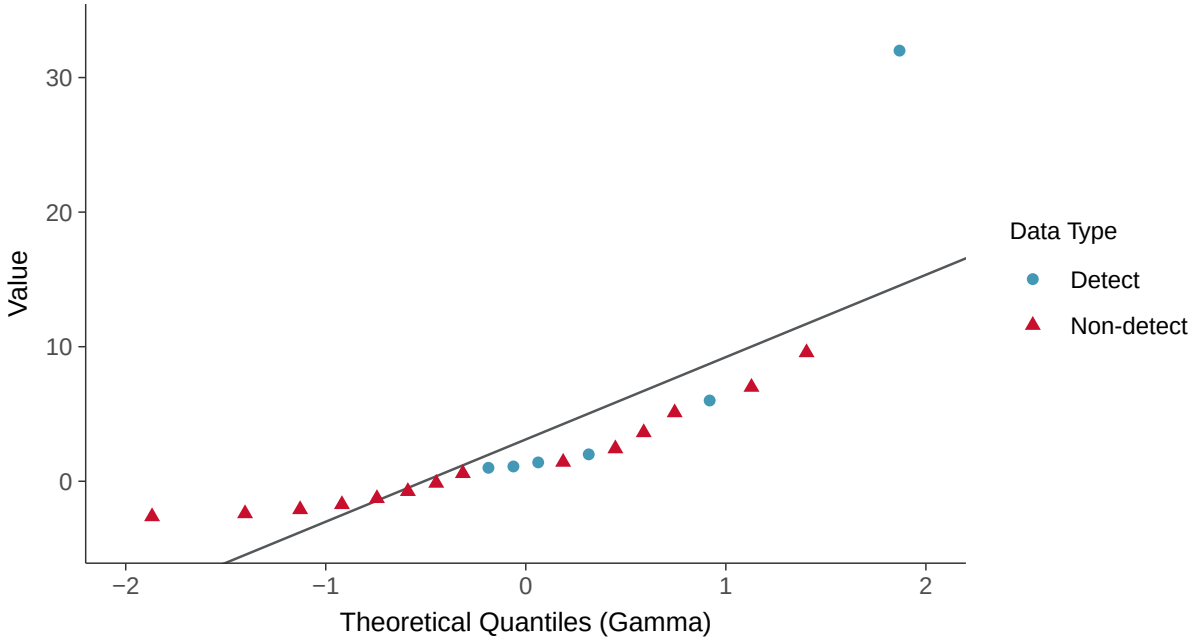
Lognormal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-6 (mg/L)



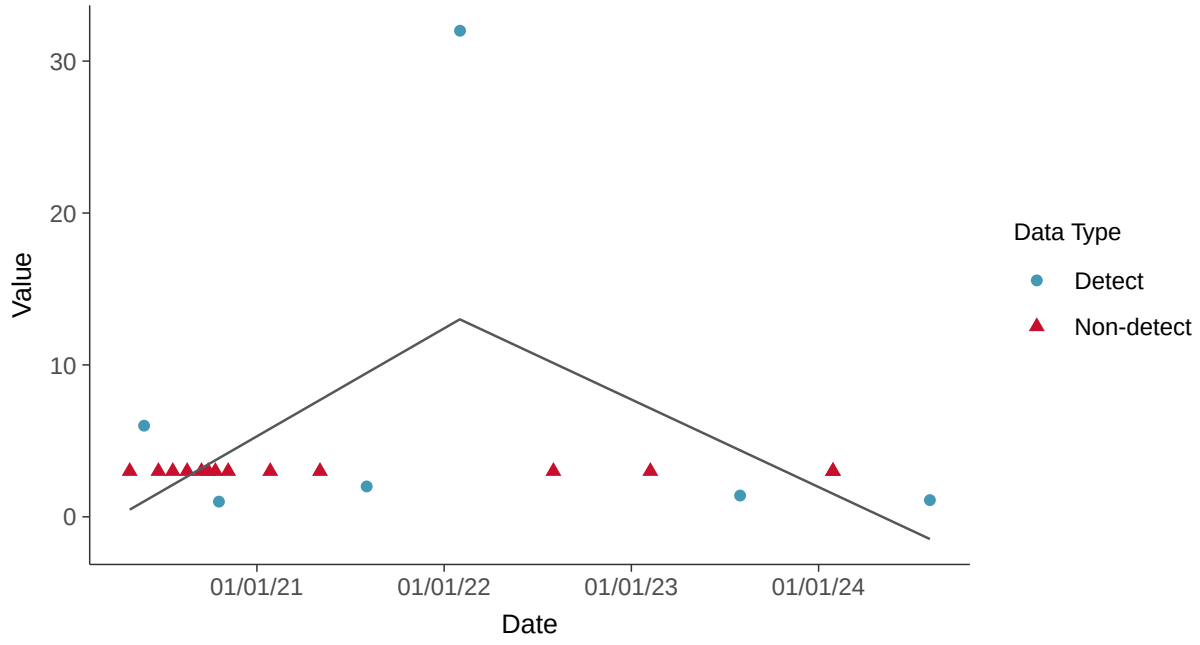
Gamma Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-6 (mg/L)



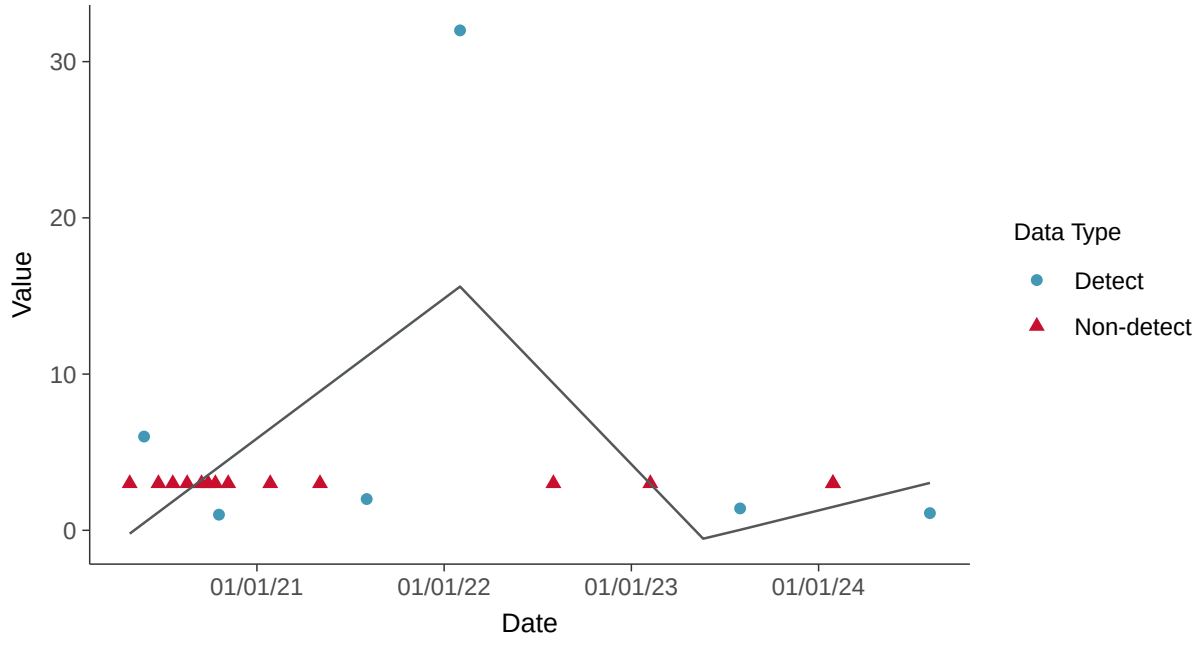
Trend Regression: Piecewise Linear-Linear

Total Suspended Solids, MW-6 (mg/L)



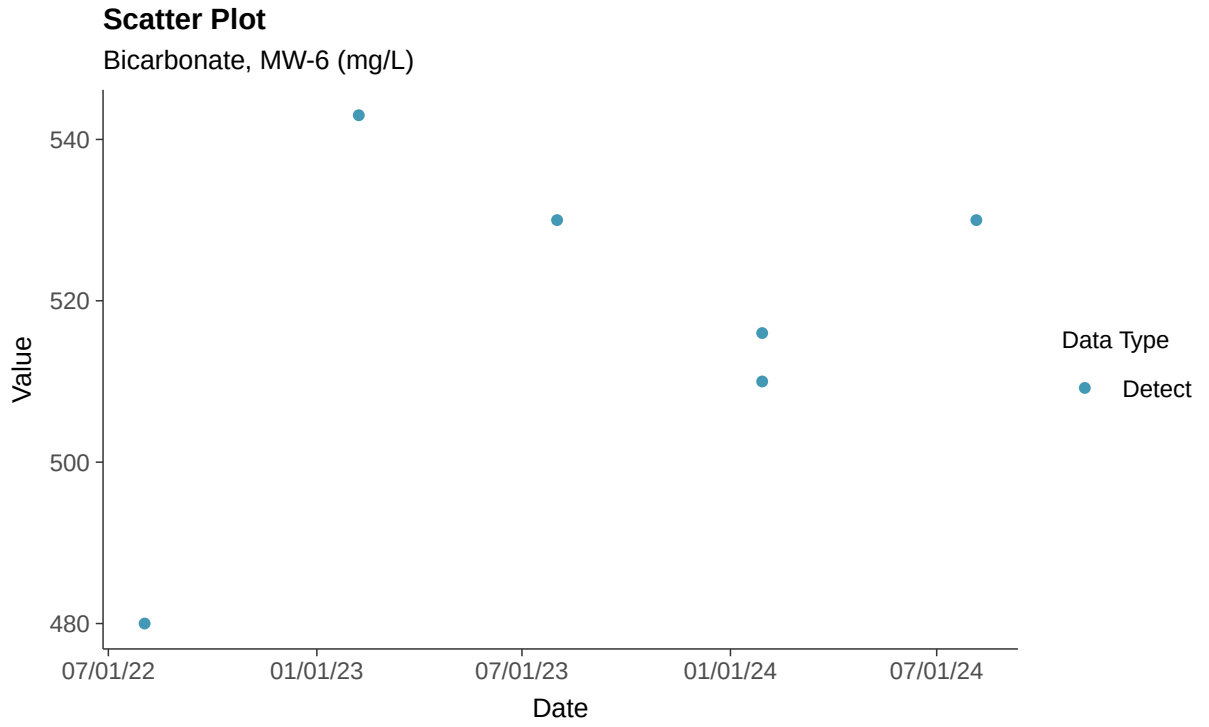
Trend Regression: Piecewise Linear-Linear-Linear

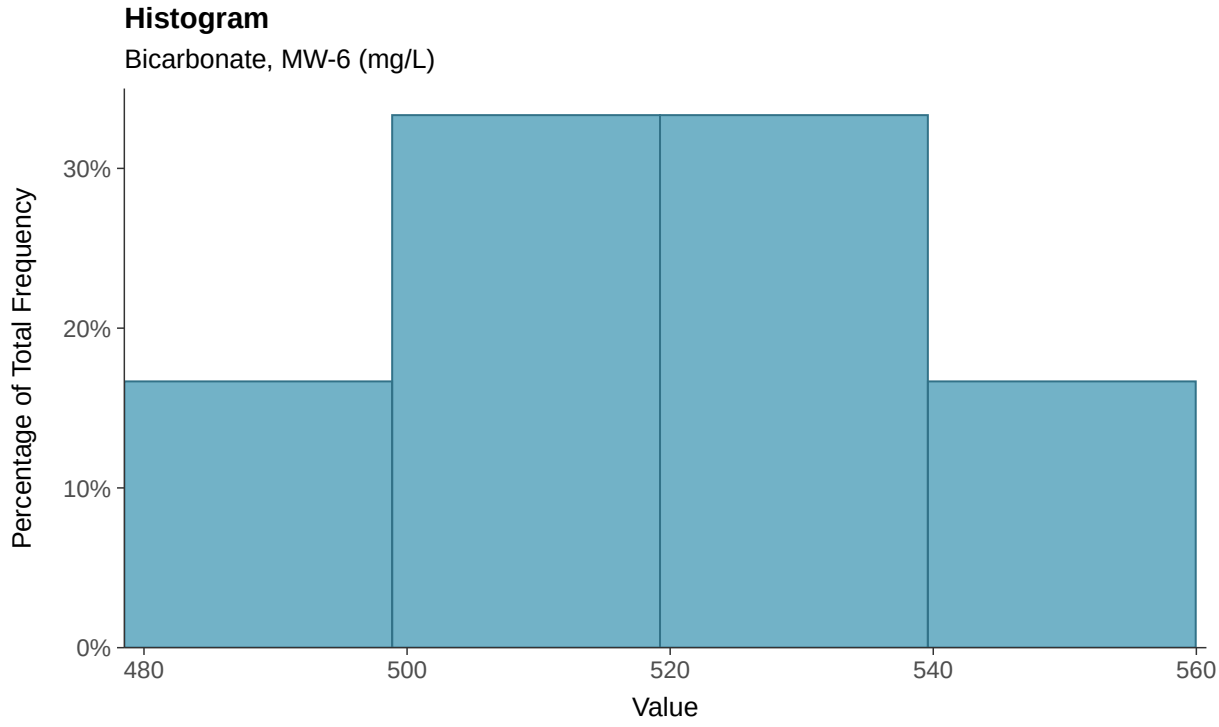
Total Suspended Solids, MW-6 (mg/L)



Other: Bicarbonate, MW-6

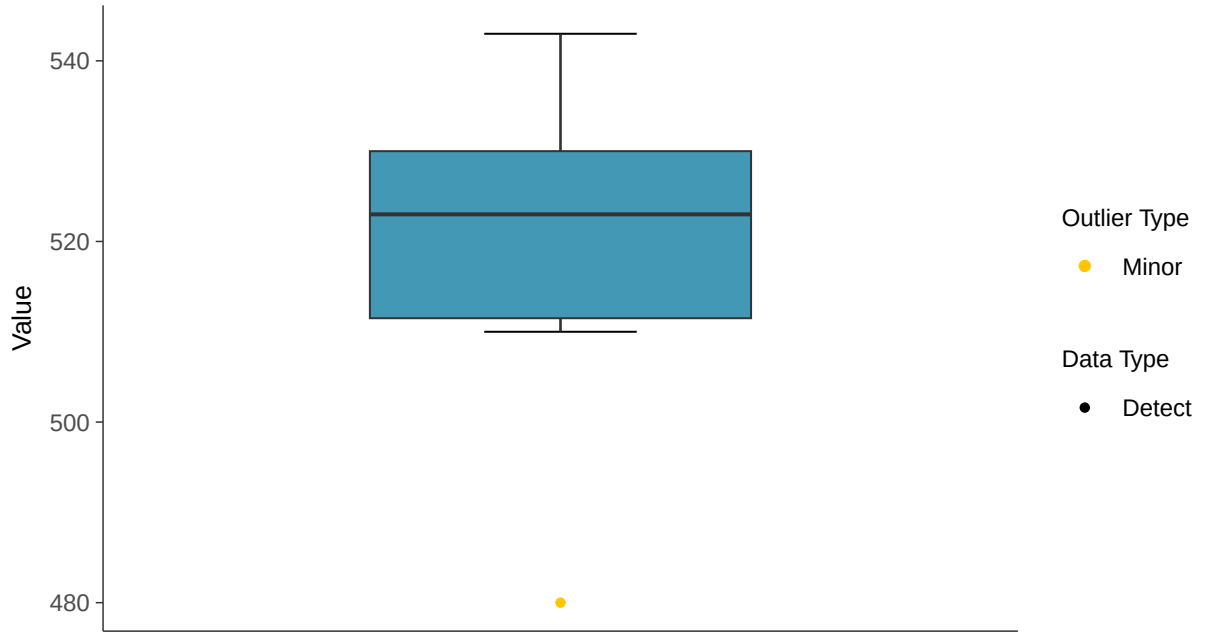
ID: 06_4_31





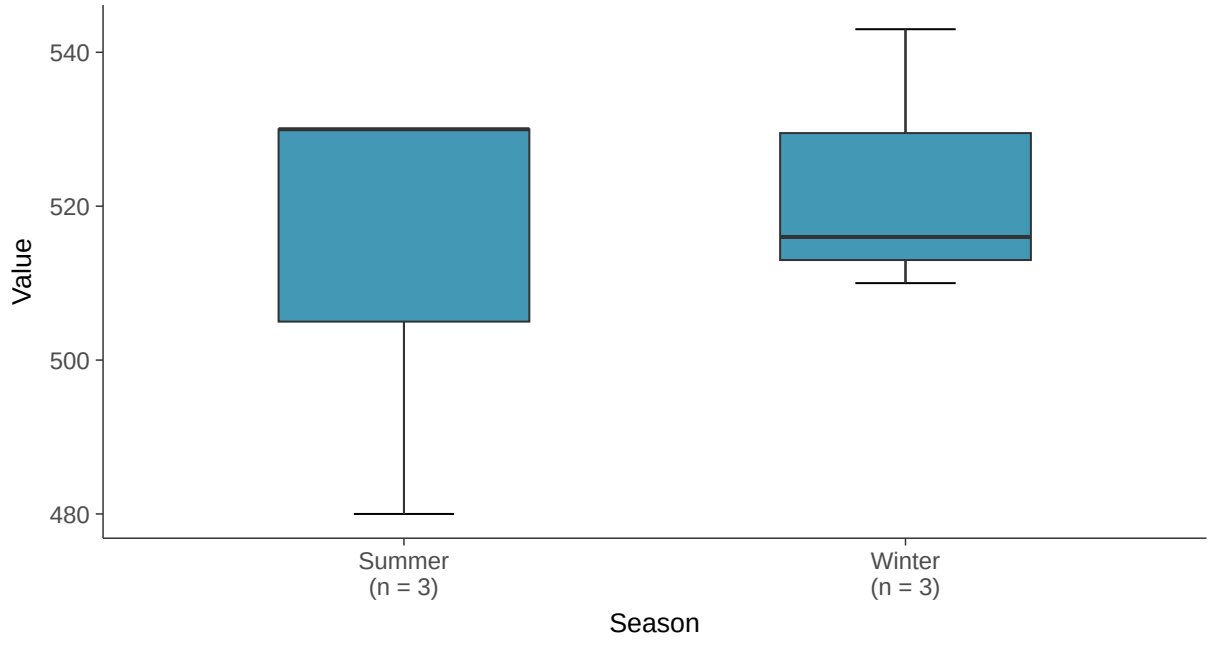
Boxplot

Bicarbonate, MW-6 (mg/L)



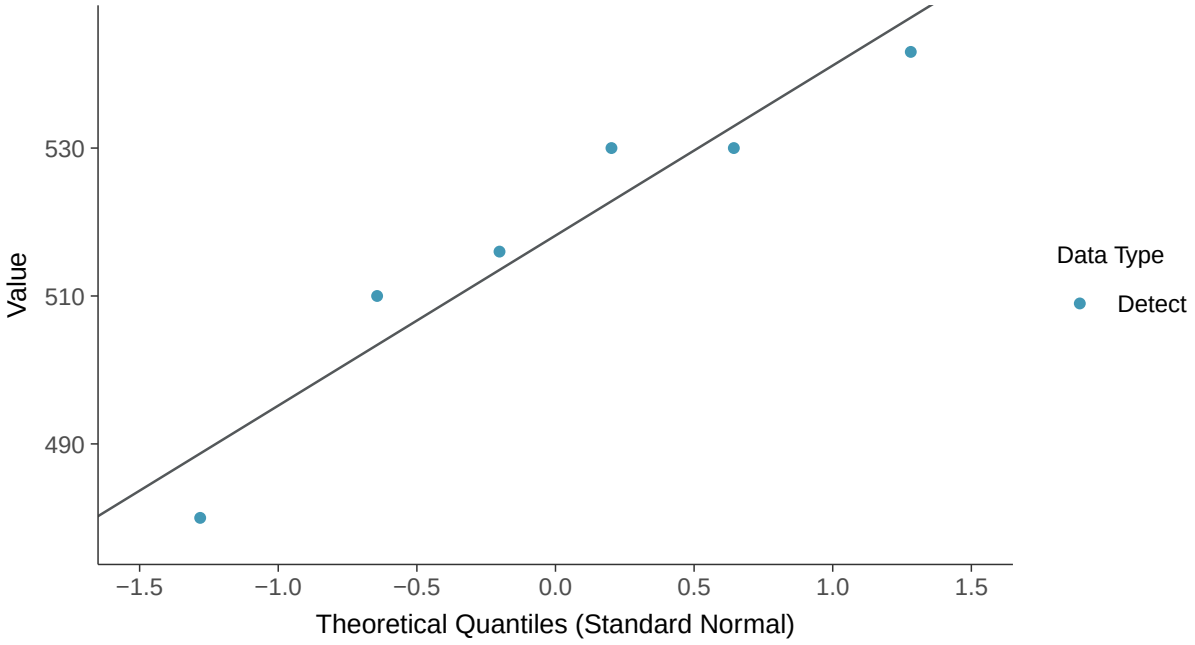
Boxplot by Season

Bicarbonate, MW-6 (mg/L)



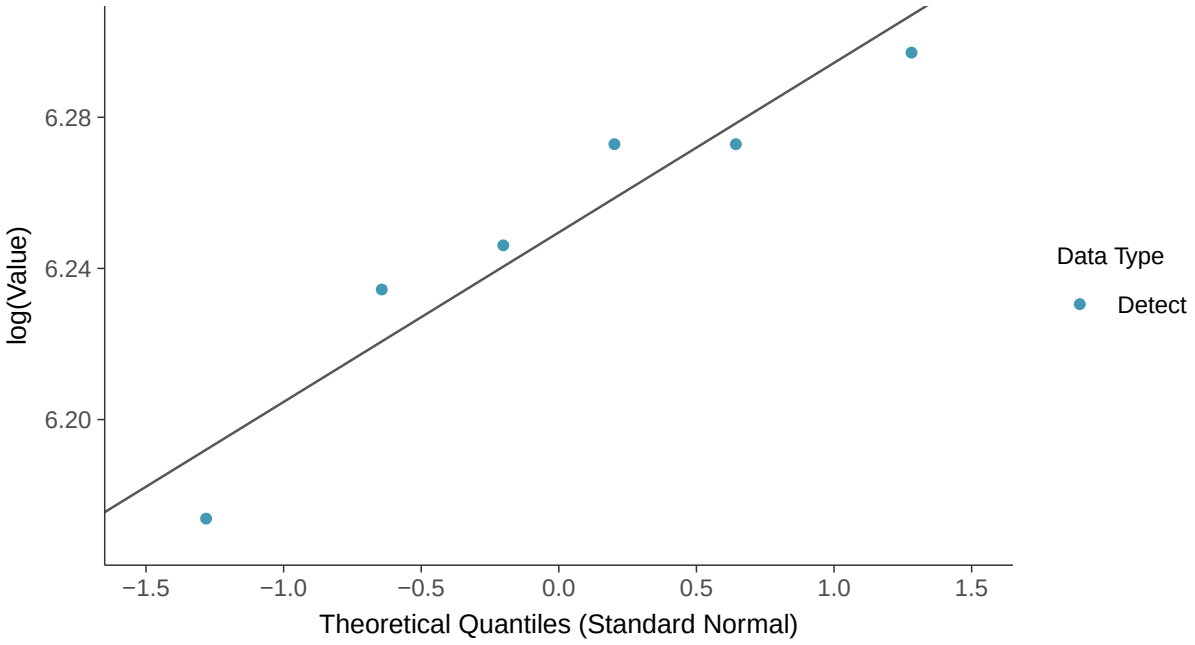
Normal Q-Q plot

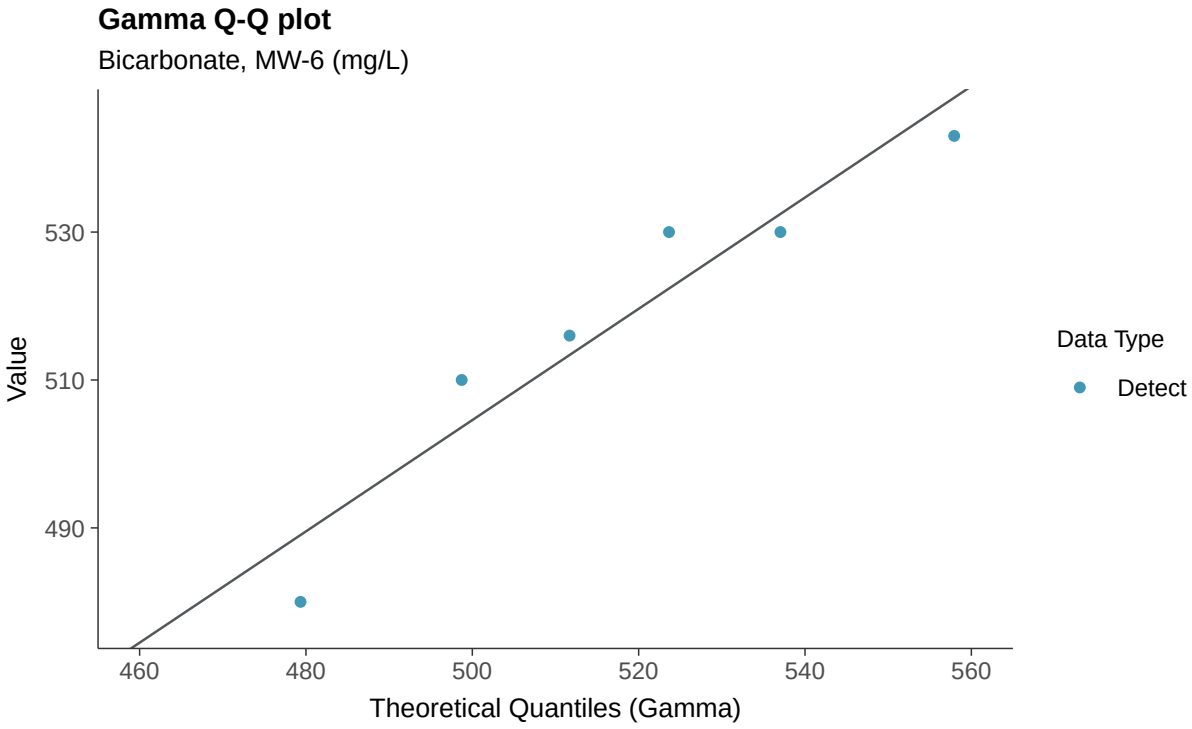
Bicarbonate, MW-6 (mg/L)



Lognormal Q-Q plot

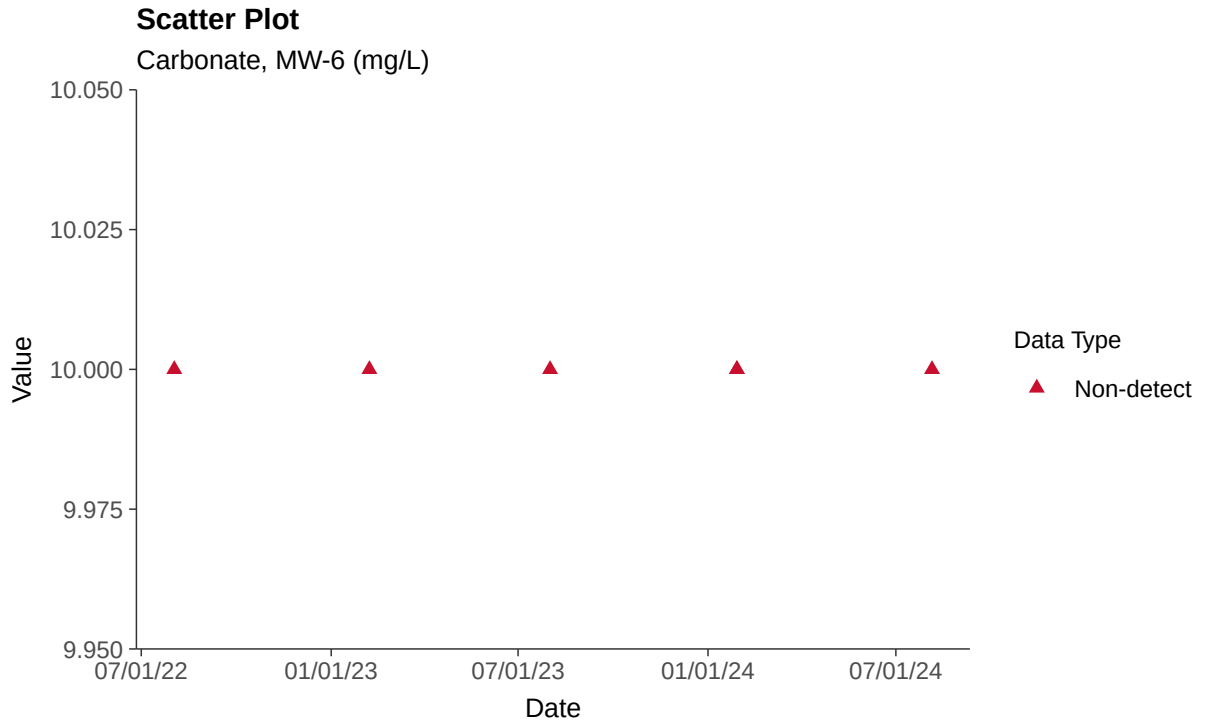
Bicarbonate, MW-6 (mg/L)

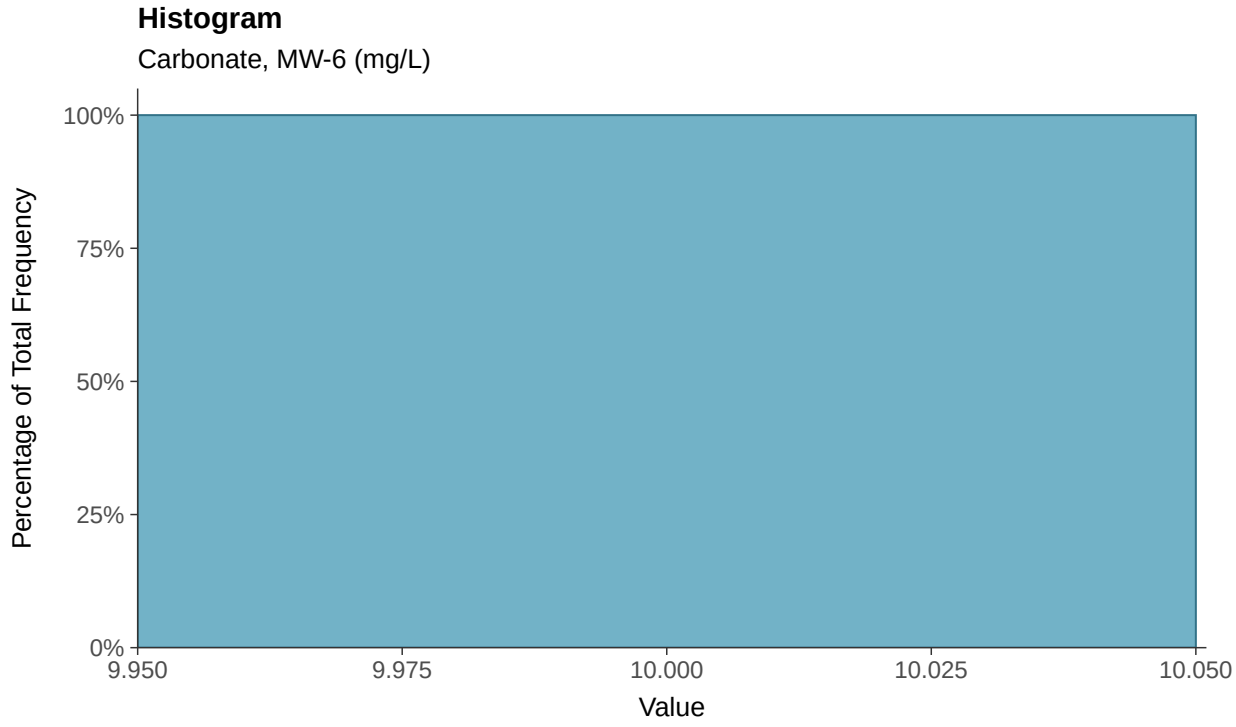



Gamma Q-Q plot
Bicarbonate, MW-6 (mg/L)
Value
530
510
490
460
480
500
520
540
560
Theoretical Quantiles (Gamma)
Data Type
Detect

Other: Carbonate, MW-6

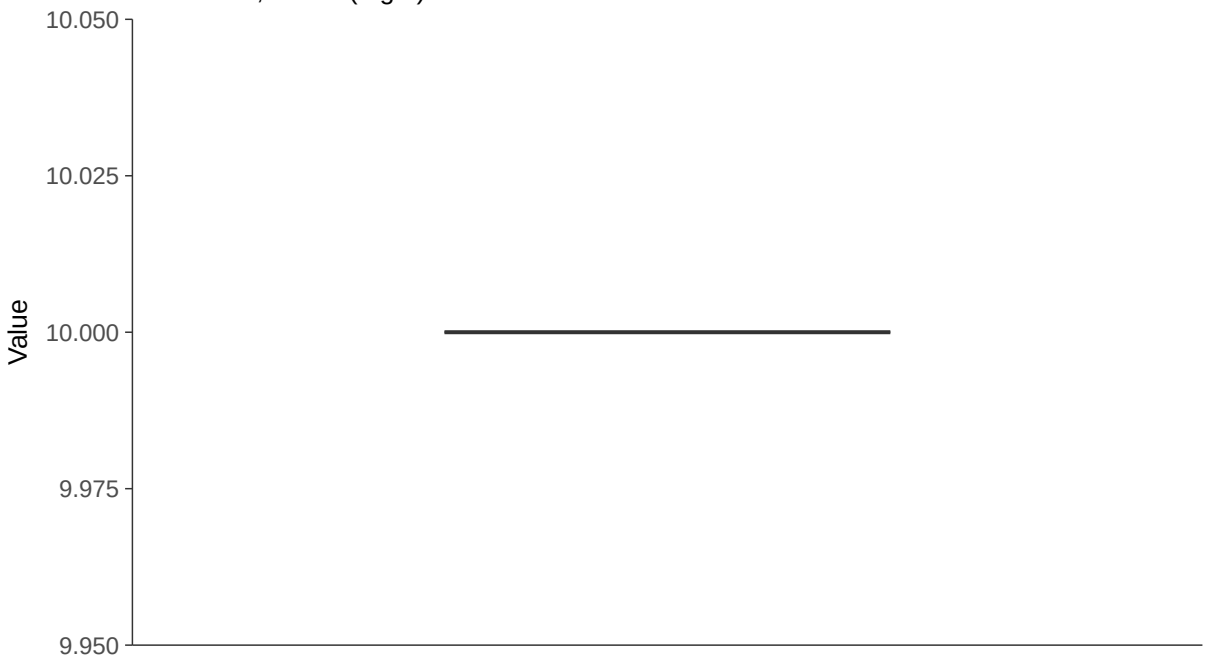
ID: 06_4_32





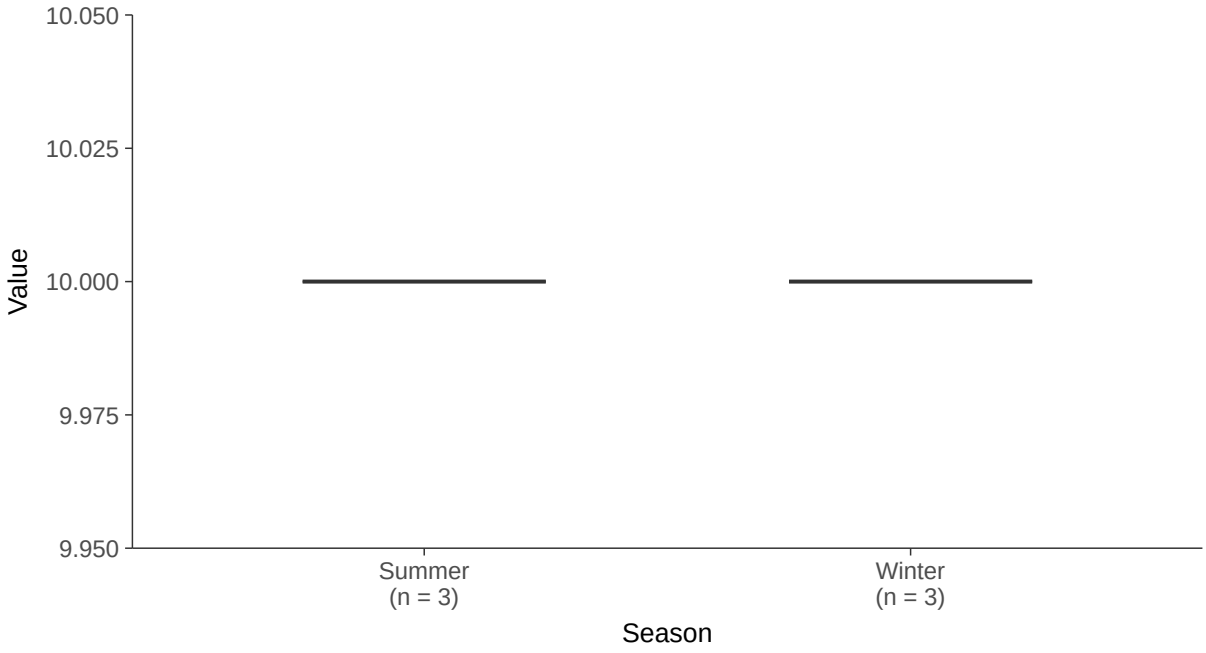
Boxplot

Carbonate, MW-6 (mg/L)



Boxplot by Season

Carbonate, MW-6 (mg/L)

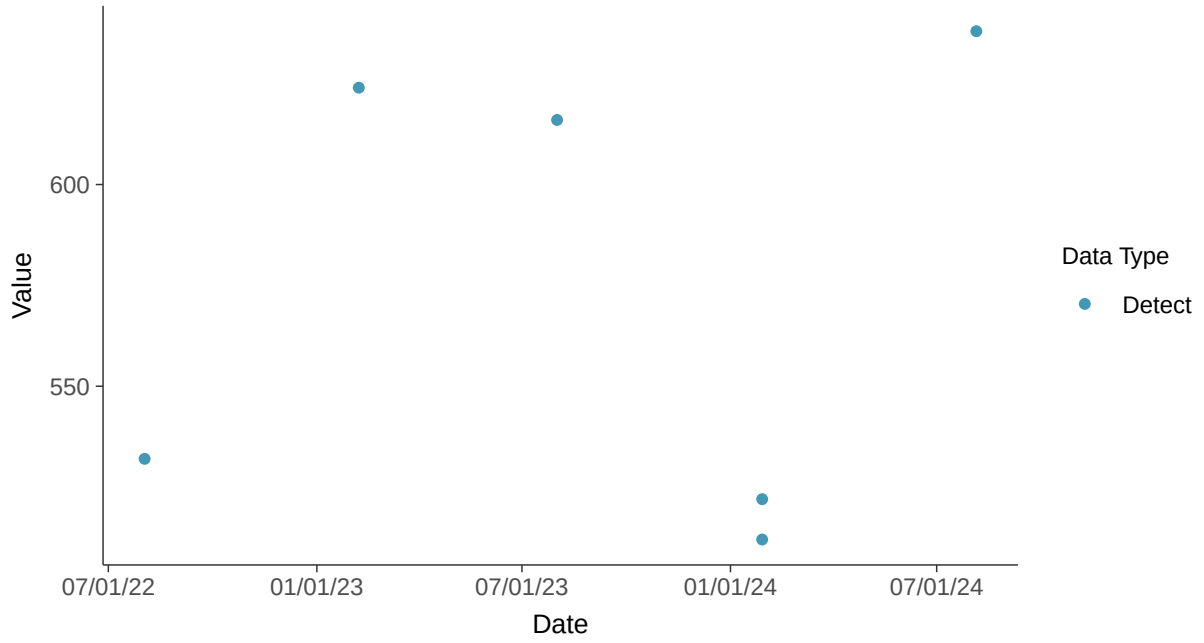


Other: Hardness, MW-6

ID: 06_4_33

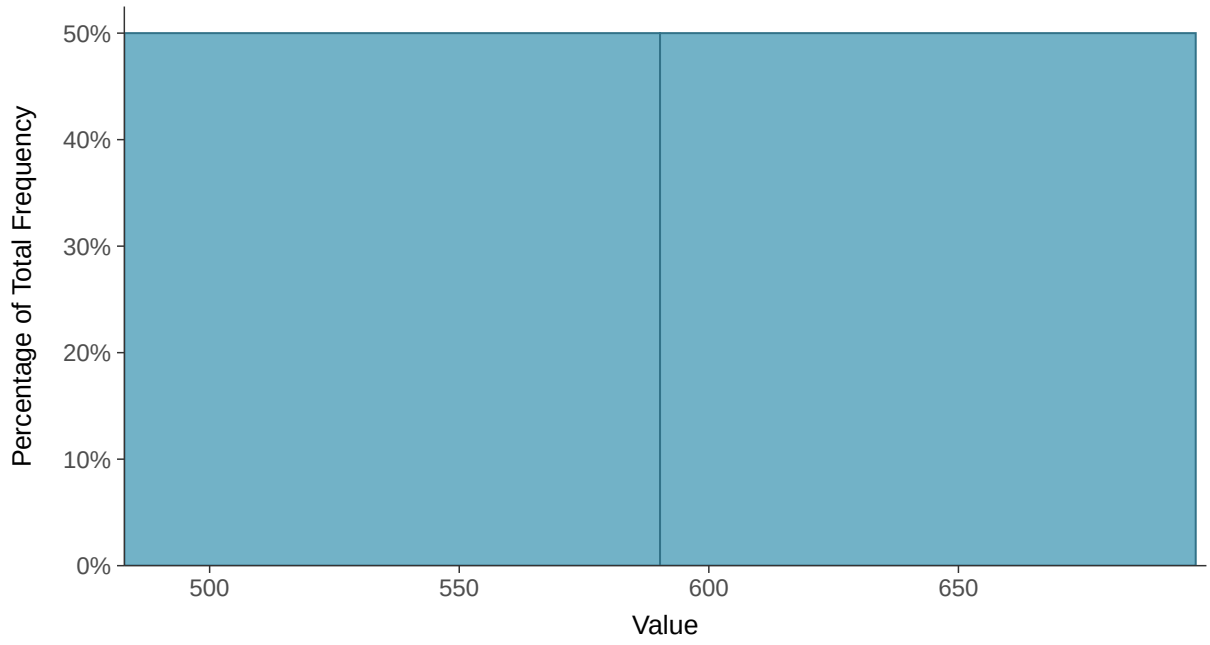
Scatter Plot

Hardness, MW-6 (mg/L)



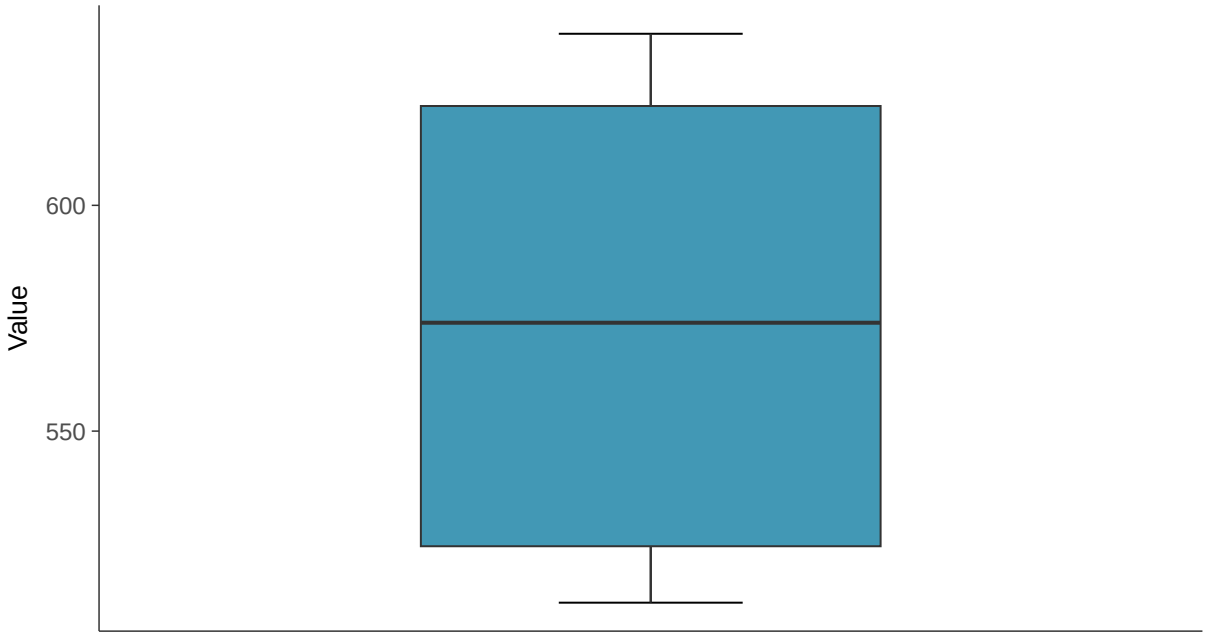
Histogram

Hardness, MW-6 (mg/L)



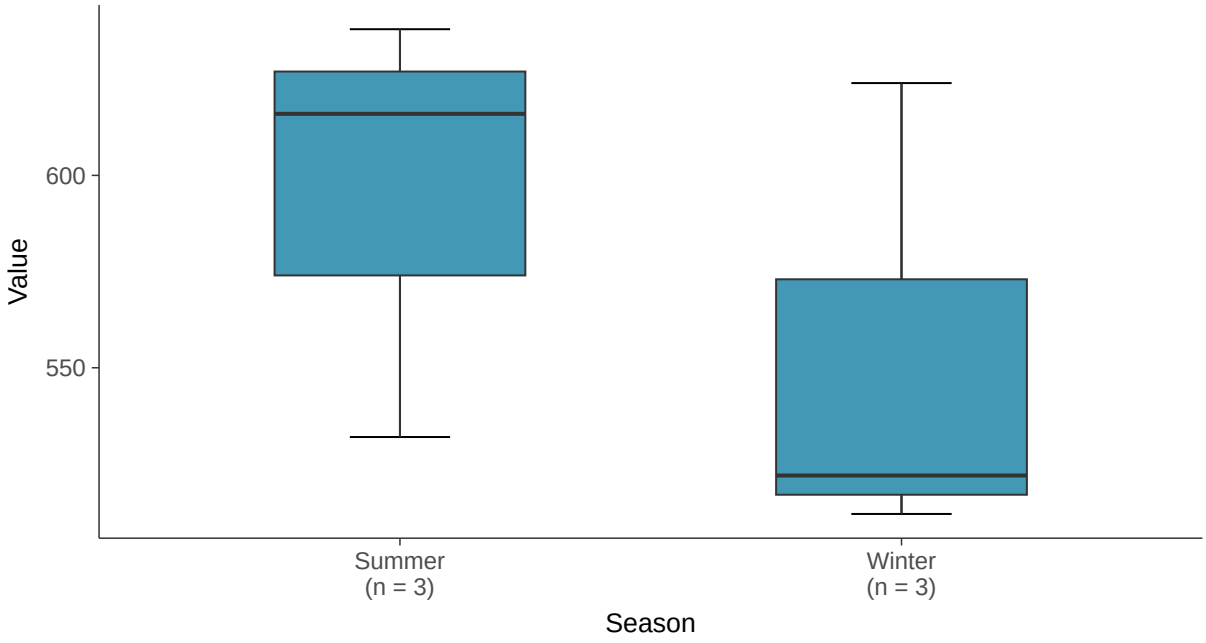
Boxplot

Hardness, MW-6 (mg/L)



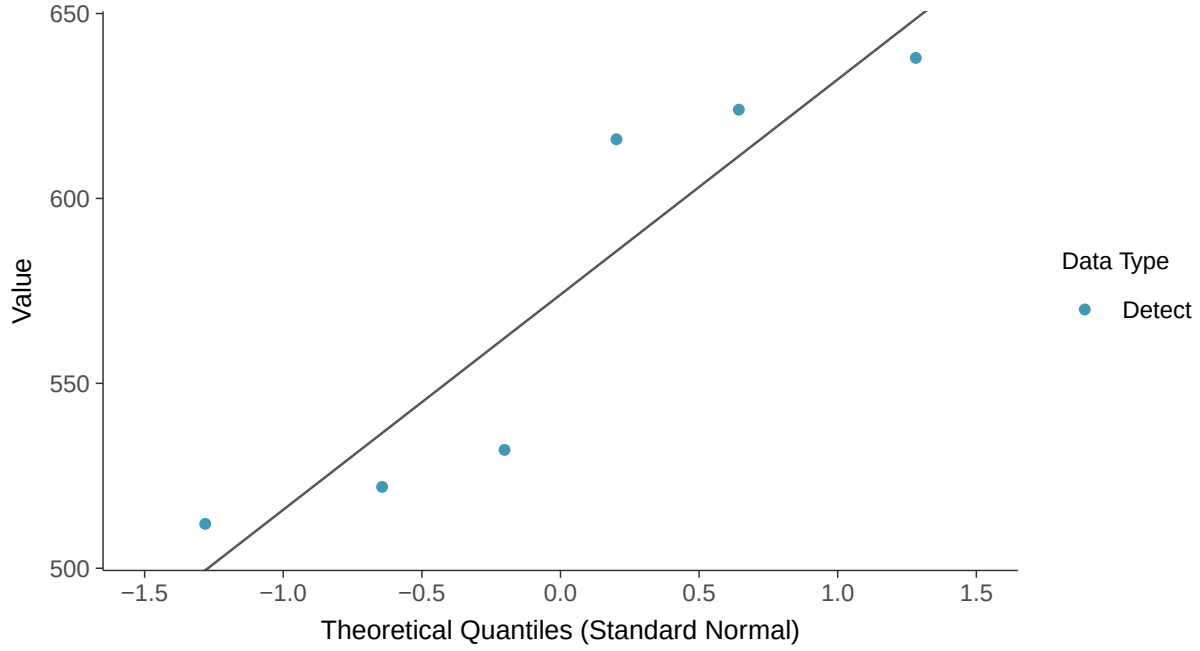
Boxplot by Season

Hardness, MW-6 (mg/L)



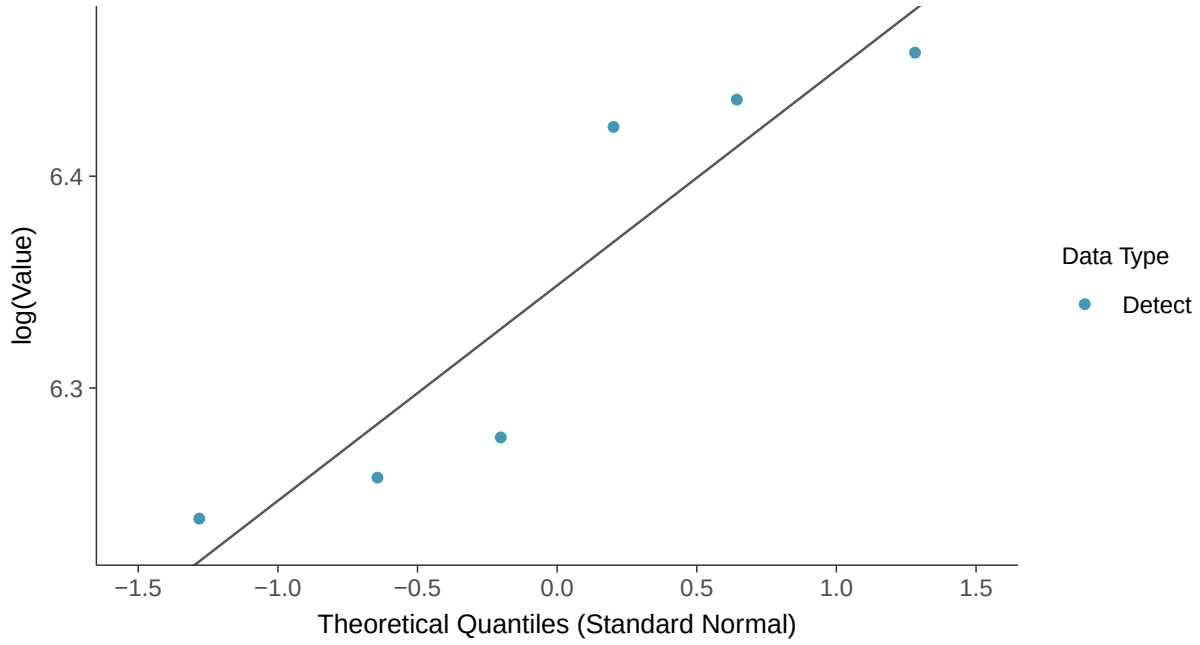
Normal Q-Q plot

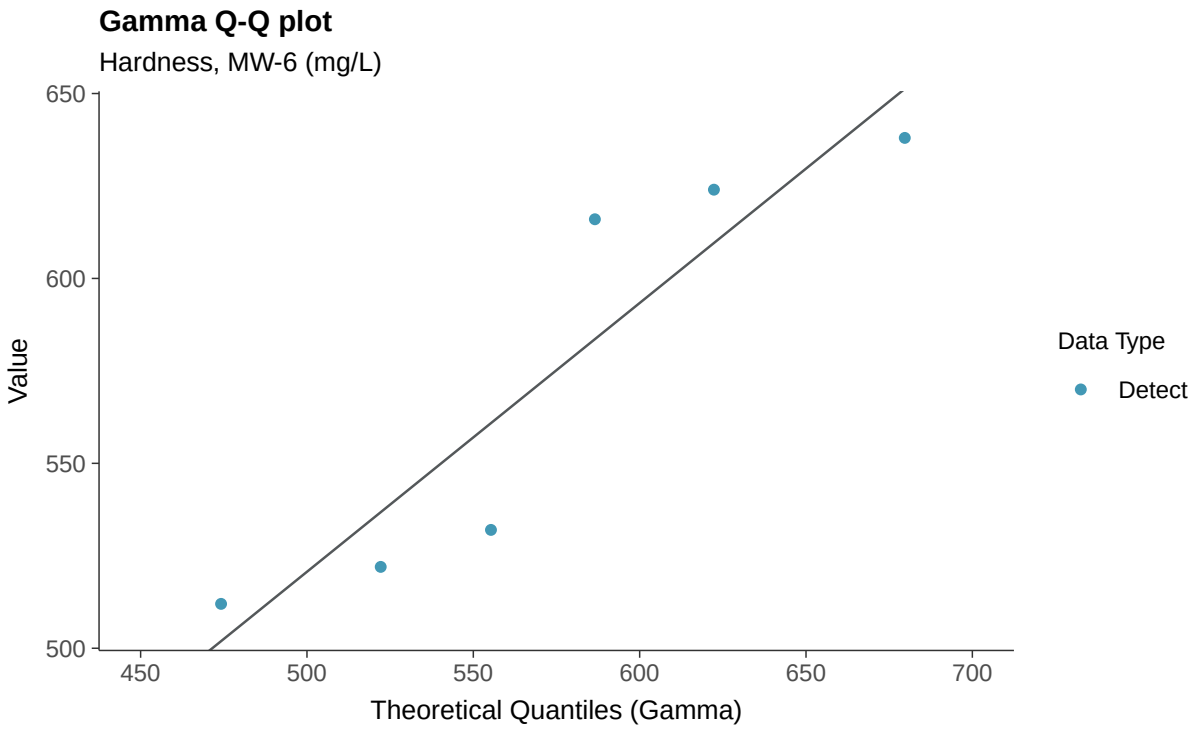
Hardness, MW-6 (mg/L)



Lognormal Q-Q plot

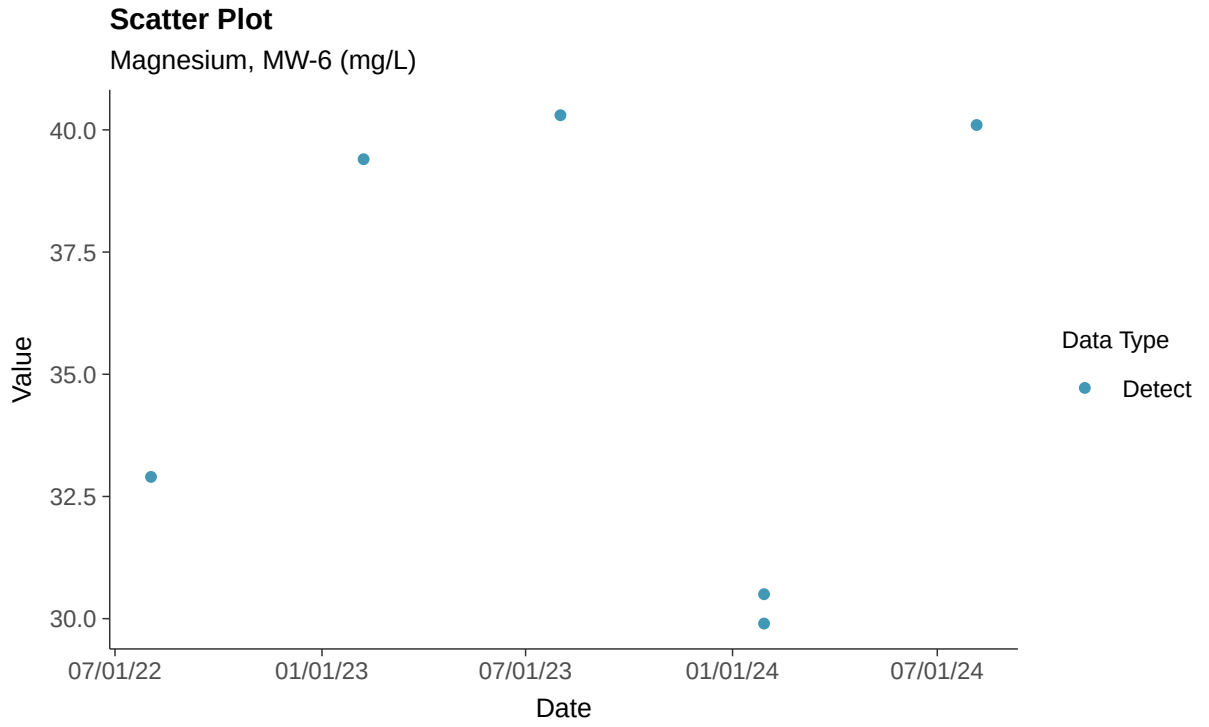
Hardness, MW-6 (mg/L)

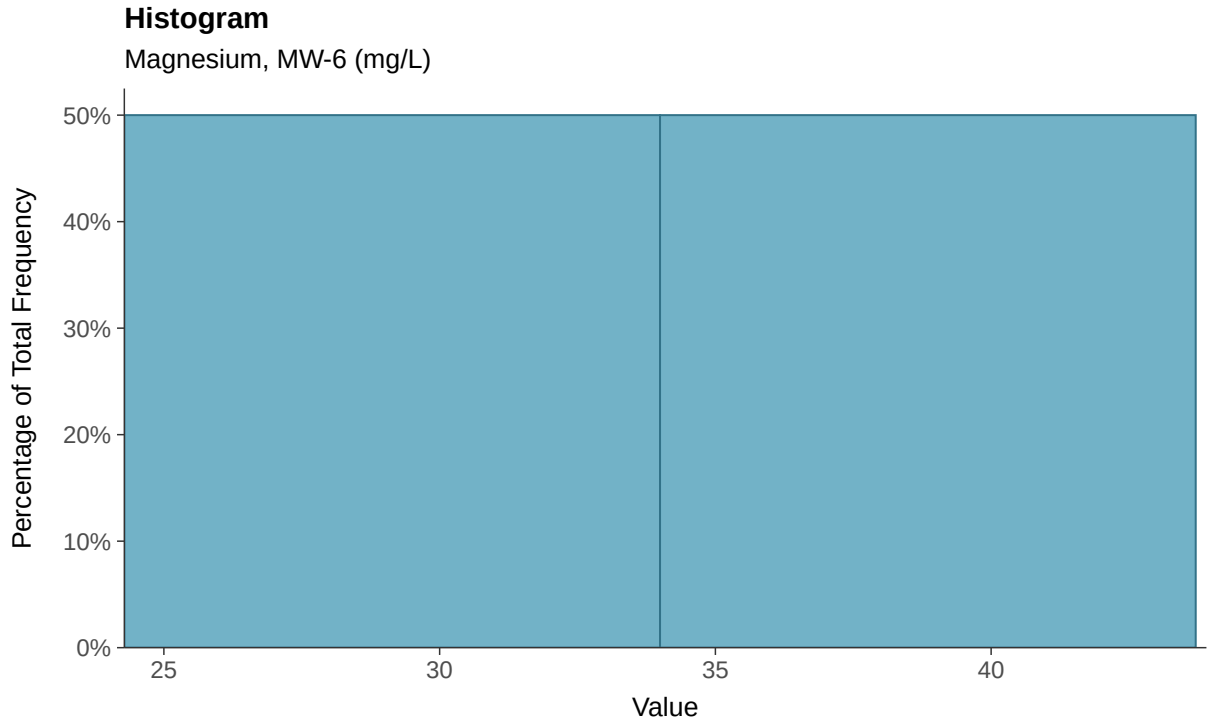



Gamma Q-Q plot
Hardness, MW-6 (mg/L)
650
600
550
500
Value
450
500
550
600
650
700
Theoretical Quantiles (Gamma)
Data Type
Detect

Other: Magnesium, MW-6

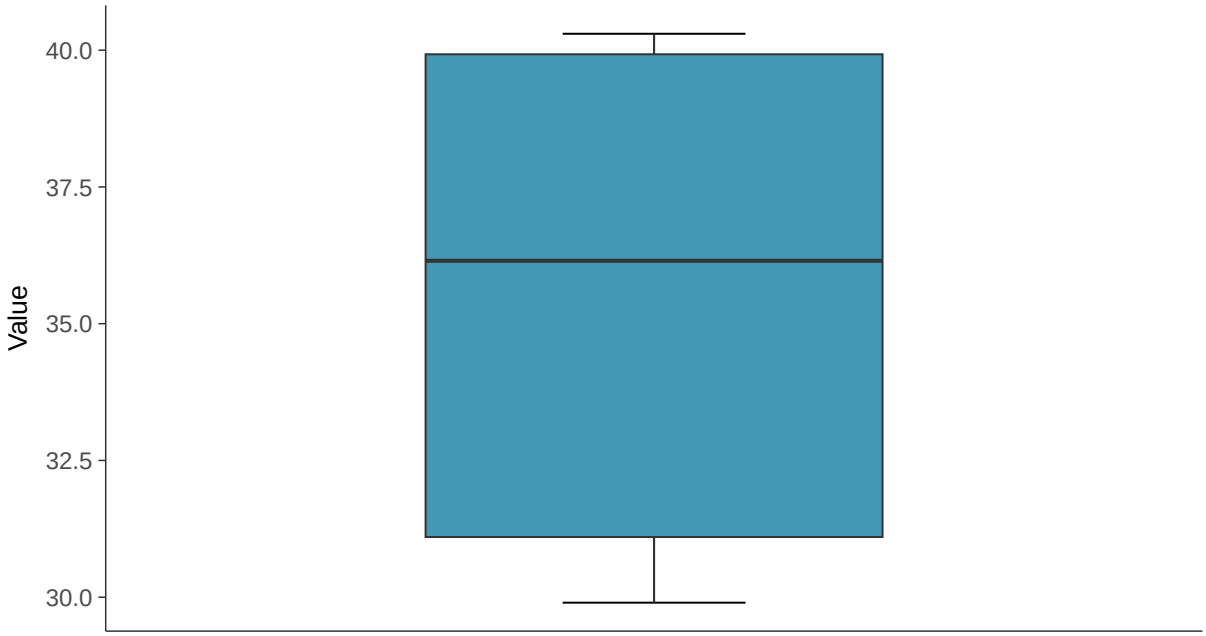
ID: 06_4_34





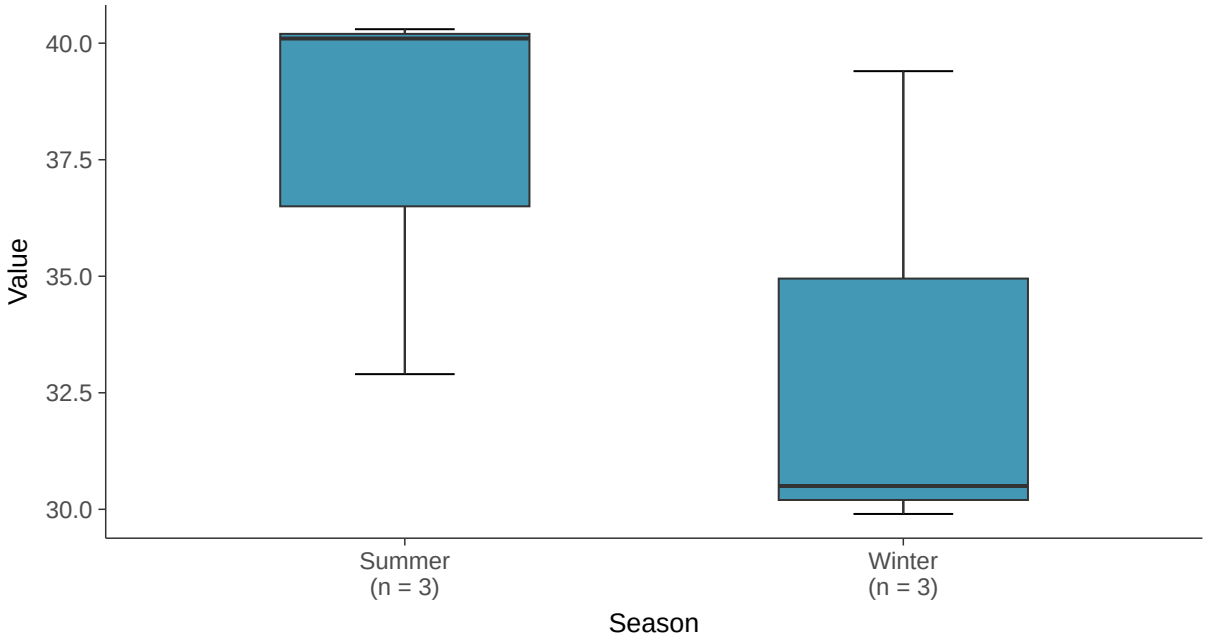
Boxplot

Magnesium, MW-6 (mg/L)



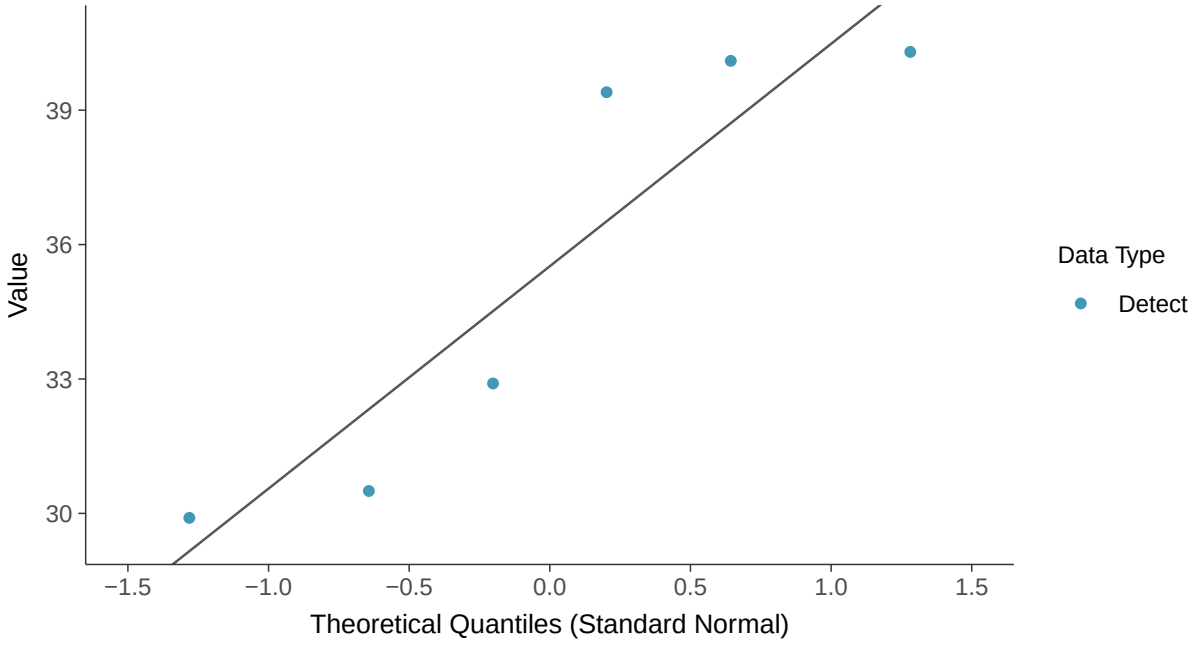
Boxplot by Season

Magnesium, MW-6 (mg/L)



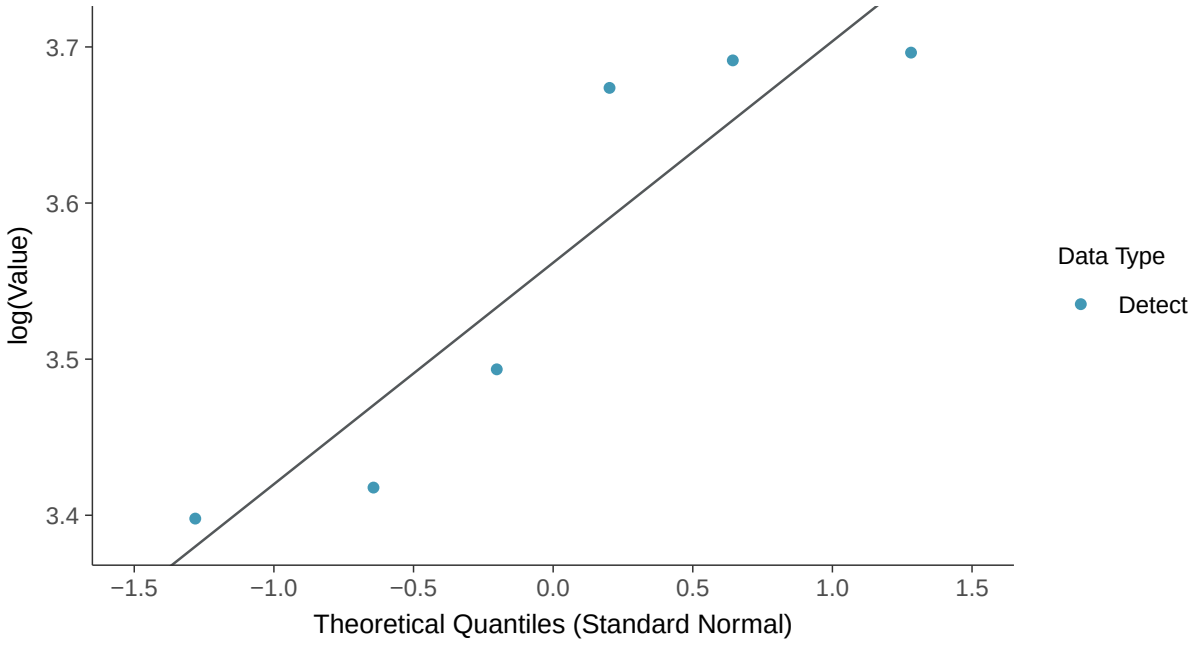
Normal Q-Q plot

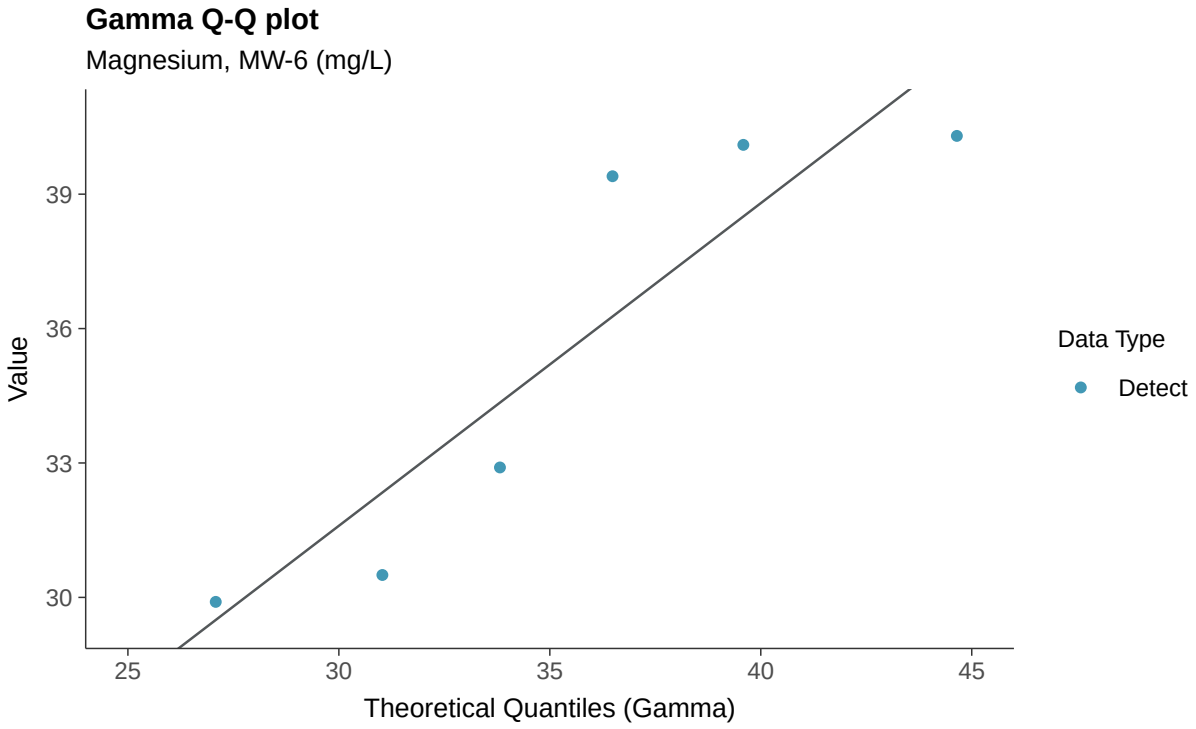
Magnesium, MW-6 (mg/L)



Lognormal Q-Q plot

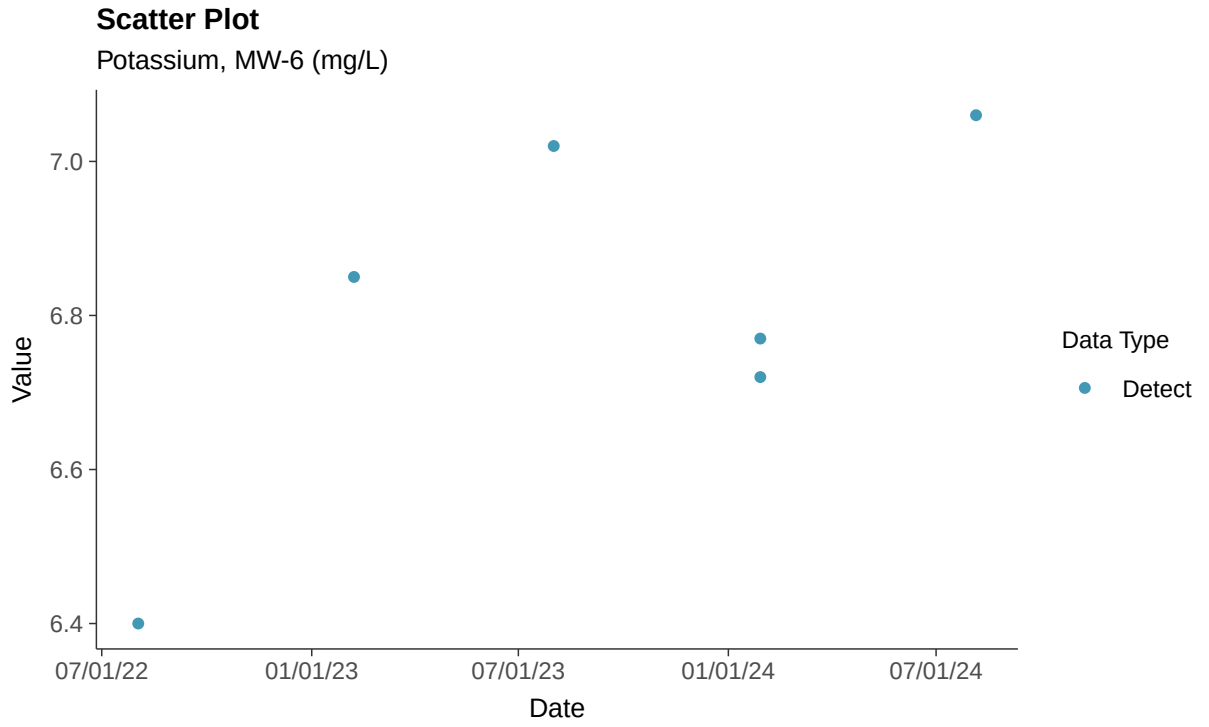
Magnesium, MW-6 (mg/L)

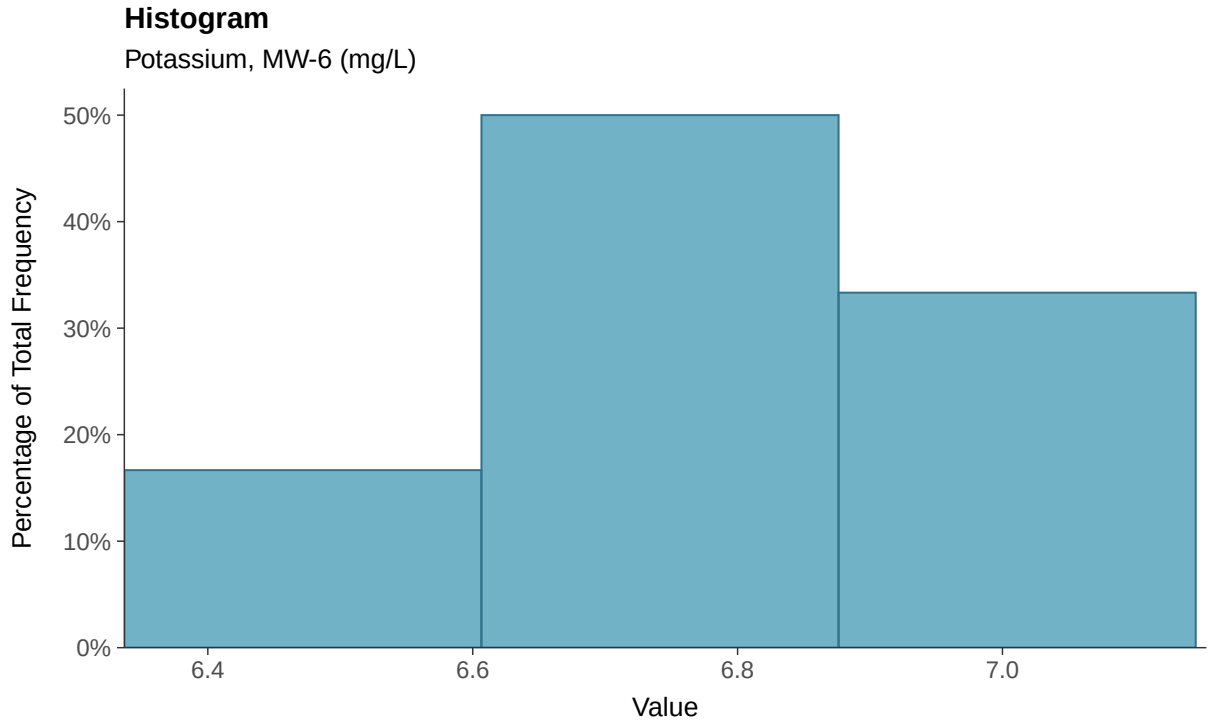



Gamma Q-Q plot
Magnesium, MW-6 (mg/L)
Value
39
36
33
30
25
30
35
40
45
Theoretical Quantiles (Gamma)
Data Type
Detect

Other: Potassium, MW-6

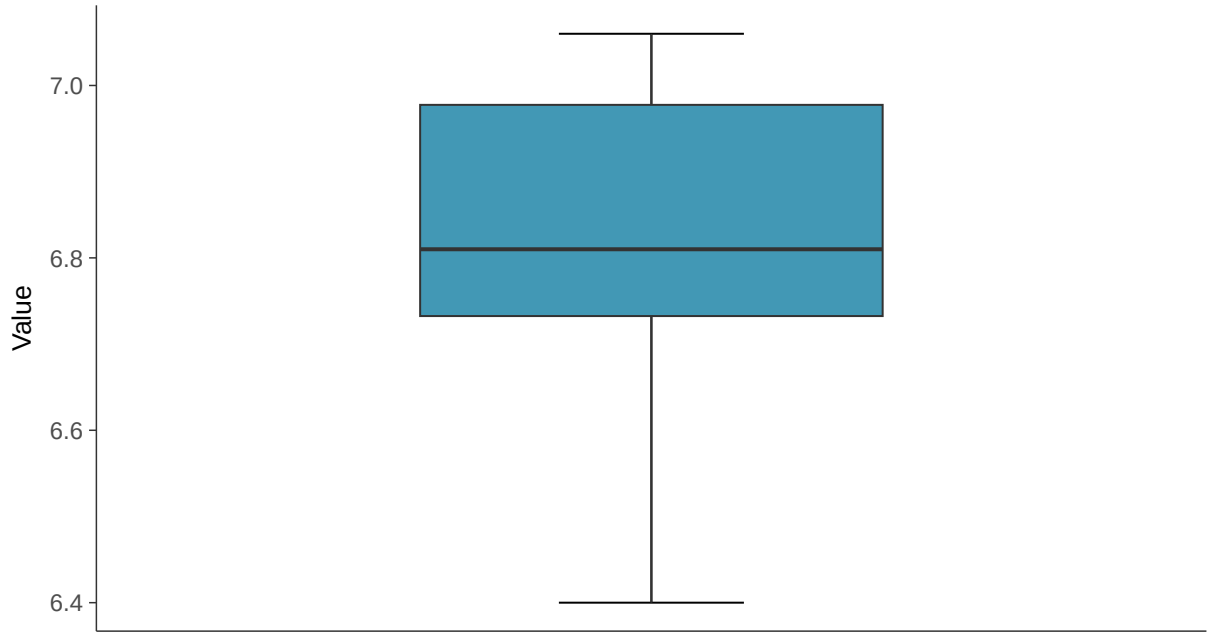
ID: 06_4_35





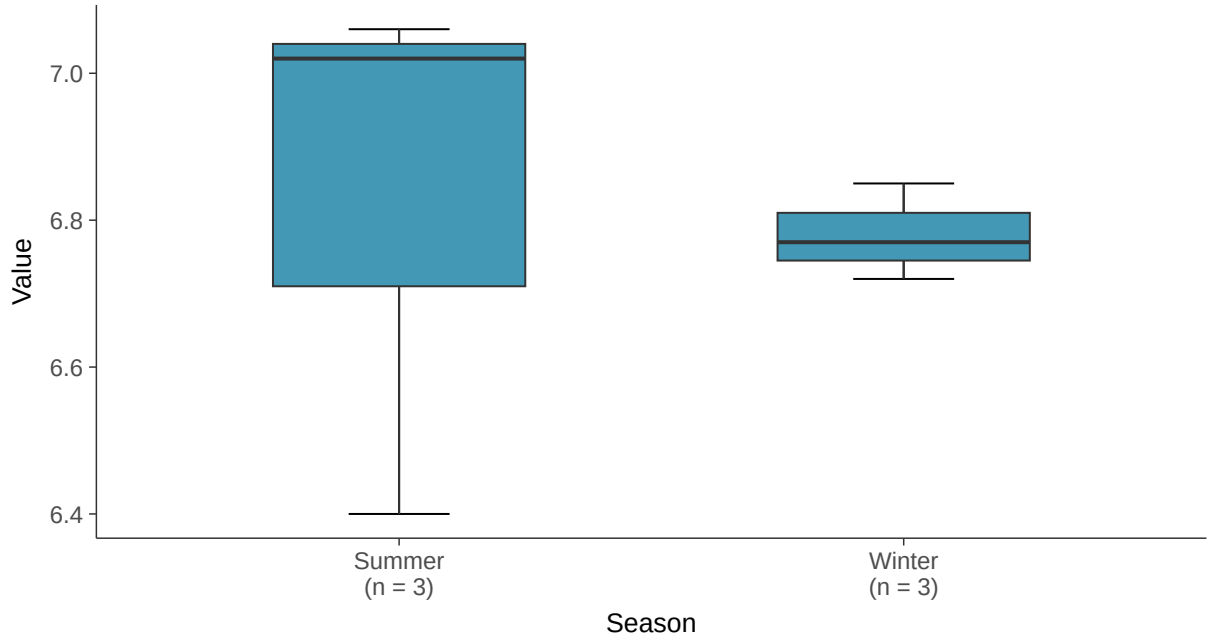
Boxplot

Potassium, MW-6 (mg/L)



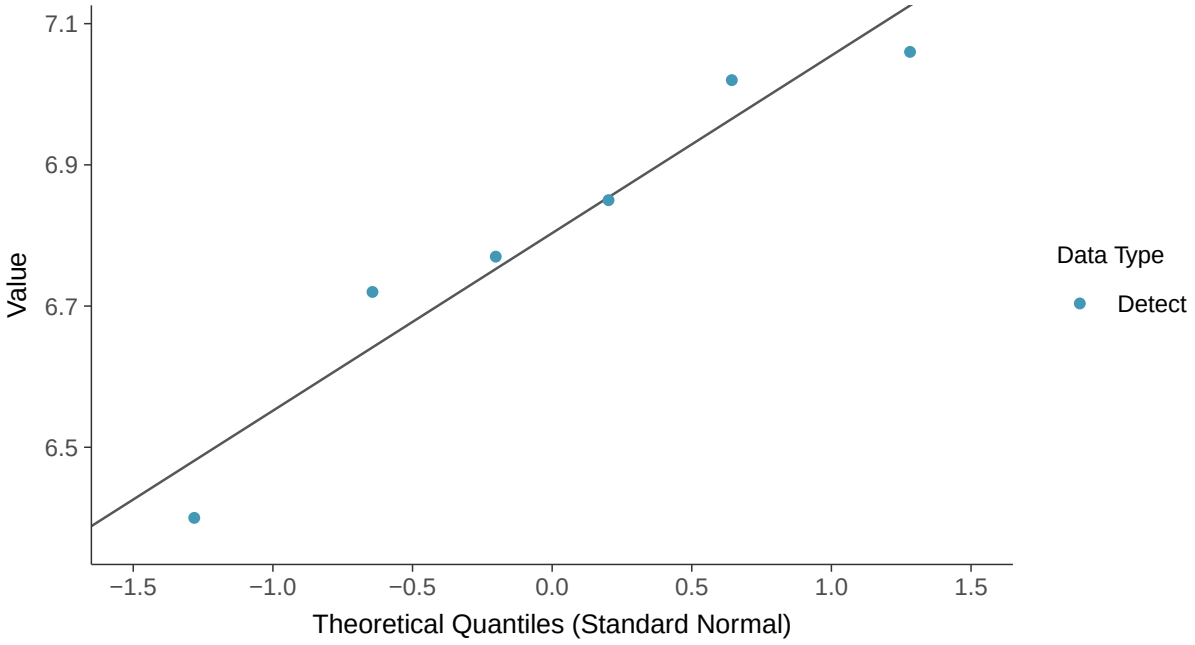
Boxplot by Season

Potassium, MW-6 (mg/L)



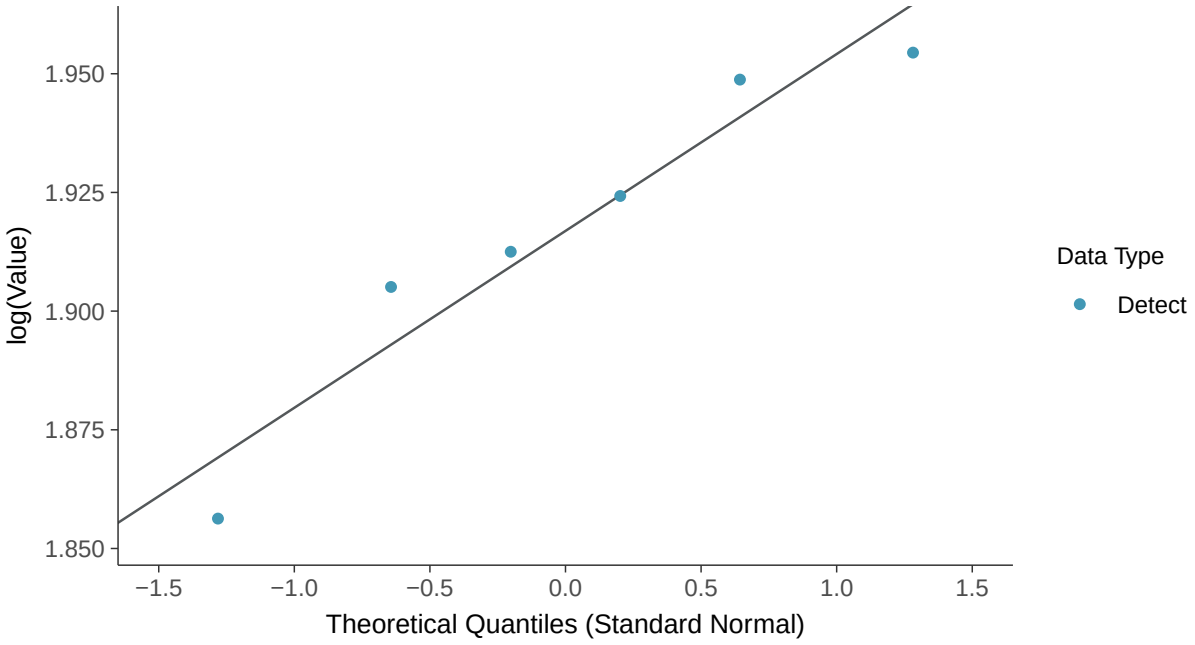
Normal Q-Q plot

Potassium, MW-6 (mg/L)



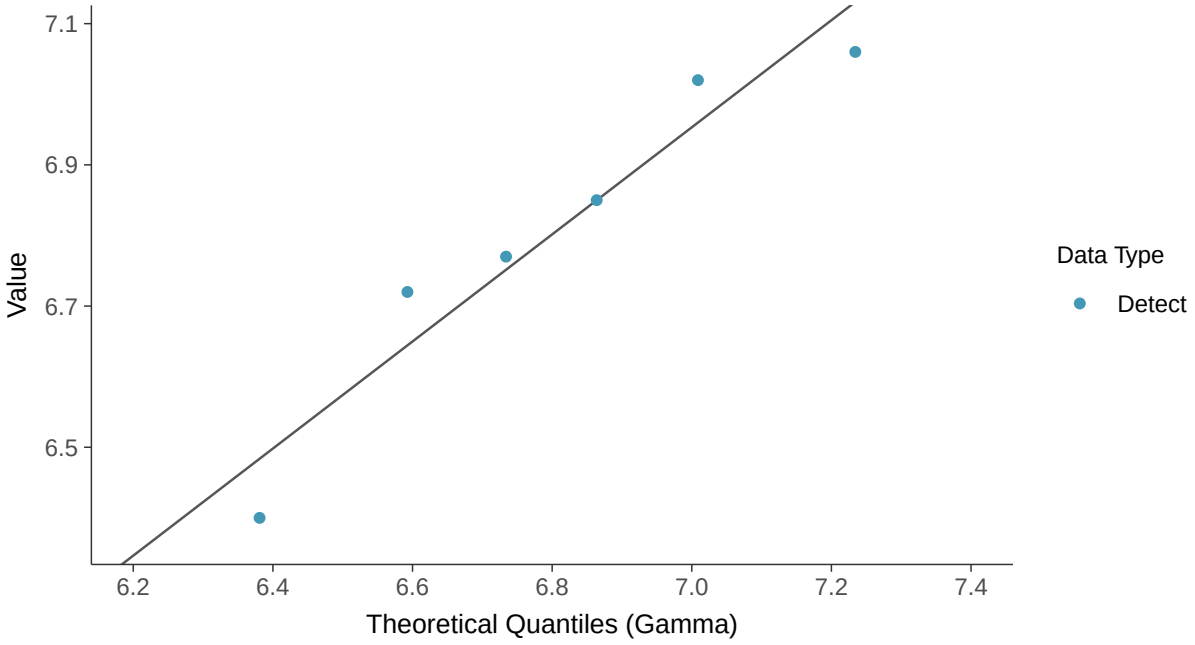
Lognormal Q-Q plot

Potassium, MW-6 (mg/L)



Gamma Q-Q plot

Potassium, MW-6 (mg/L)

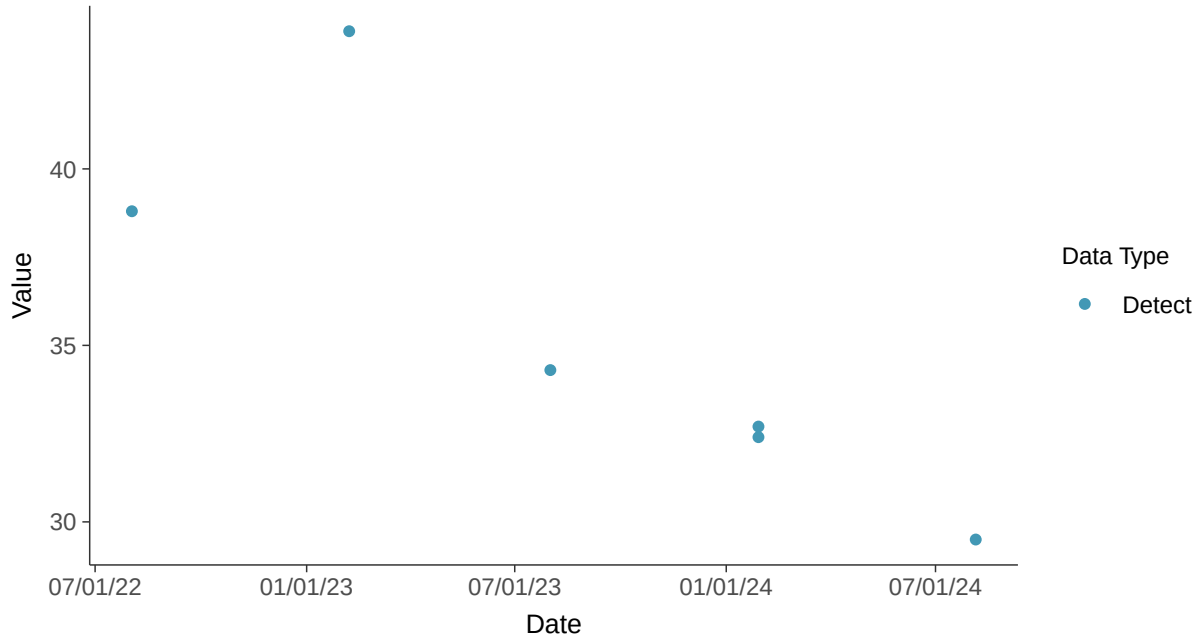


Other: Sodium, MW-6

ID: 06_4_36

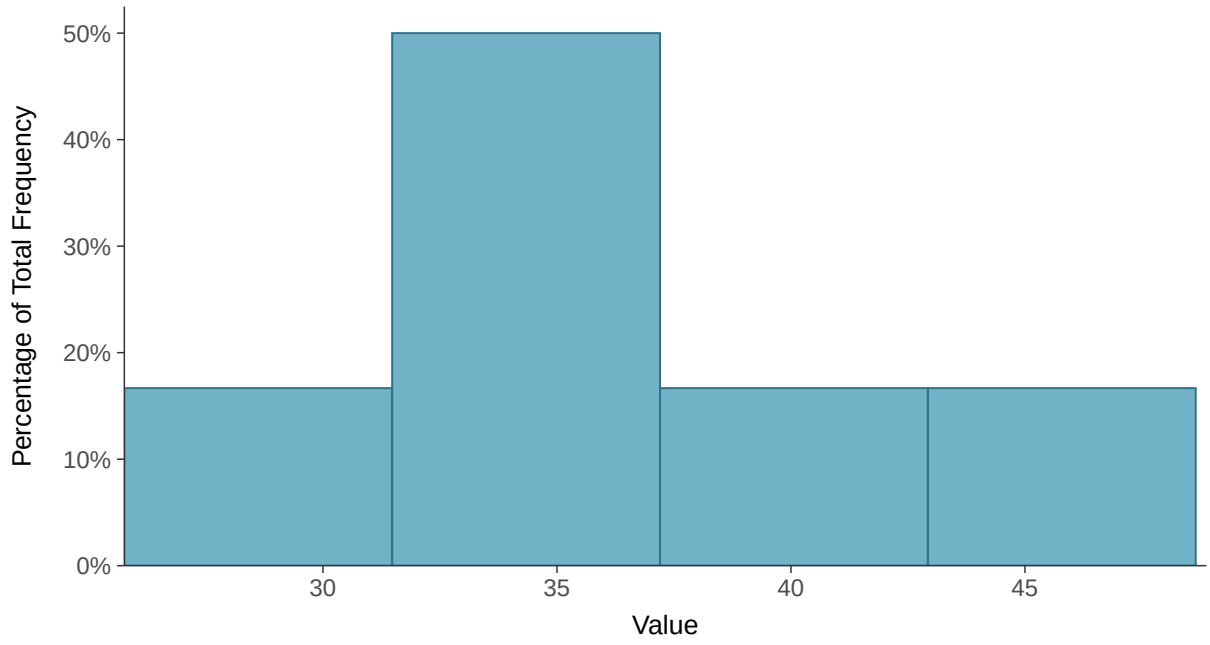
Scatter Plot

Sodium, MW-6 (mg/L)



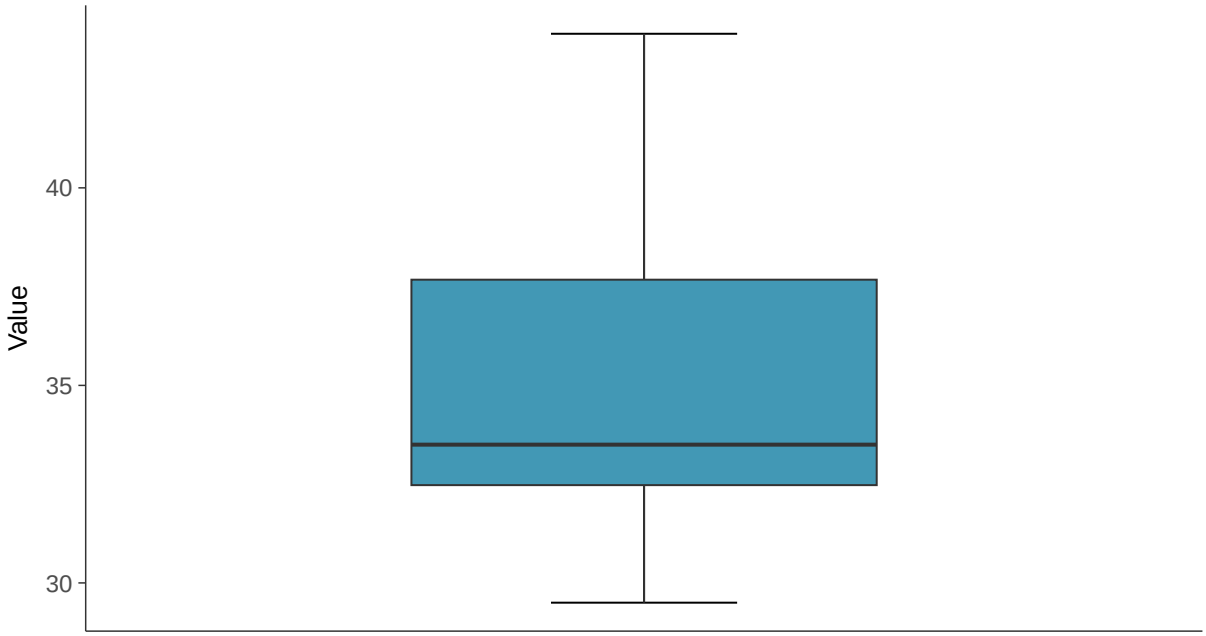
Histogram

Sodium, MW-6 (mg/L)



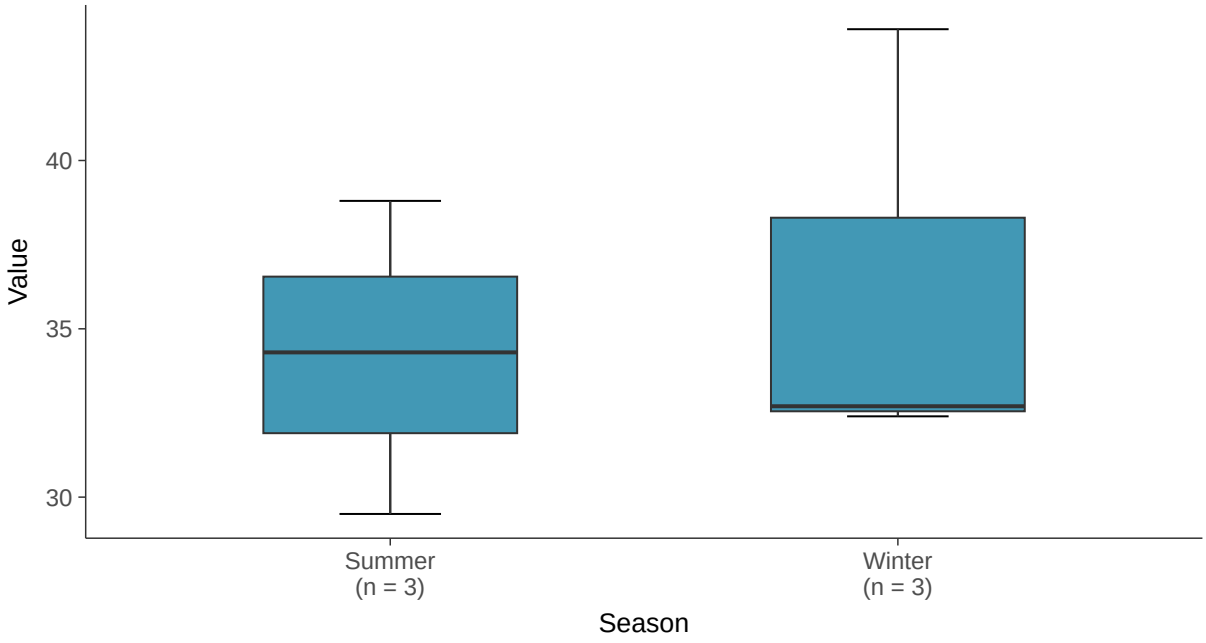
Boxplot

Sodium, MW-6 (mg/L)



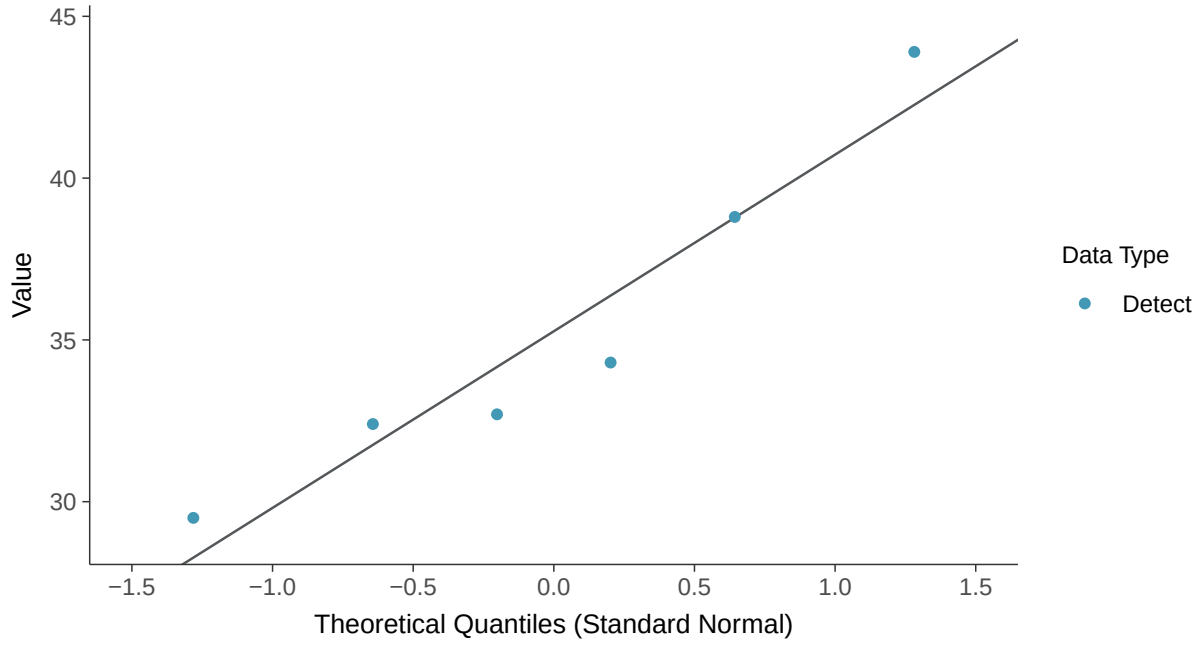
Boxplot by Season

Sodium, MW-6 (mg/L)



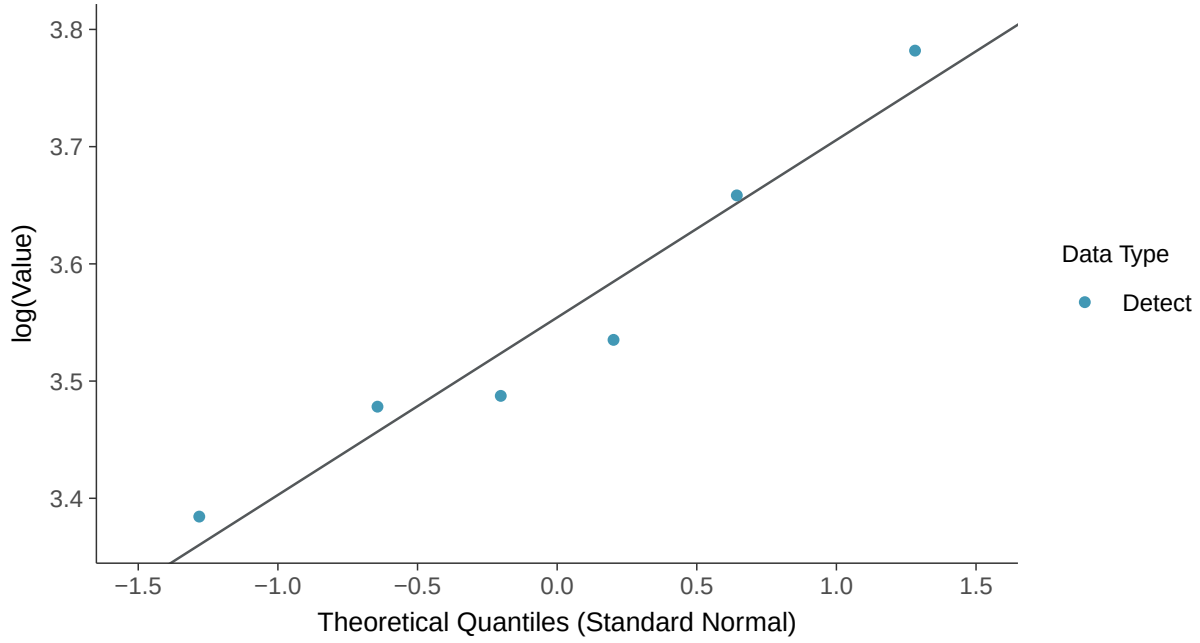
Normal Q-Q plot

Sodium, MW-6 (mg/L)



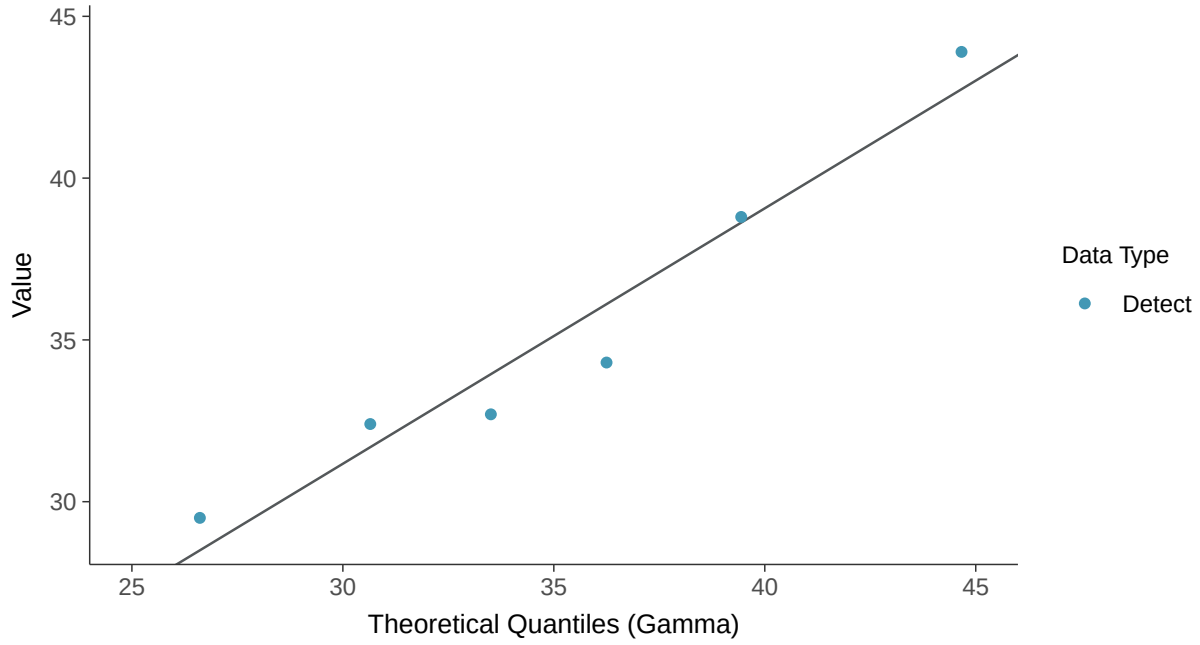
Lognormal Q-Q plot

Sodium, MW-6 (mg/L)



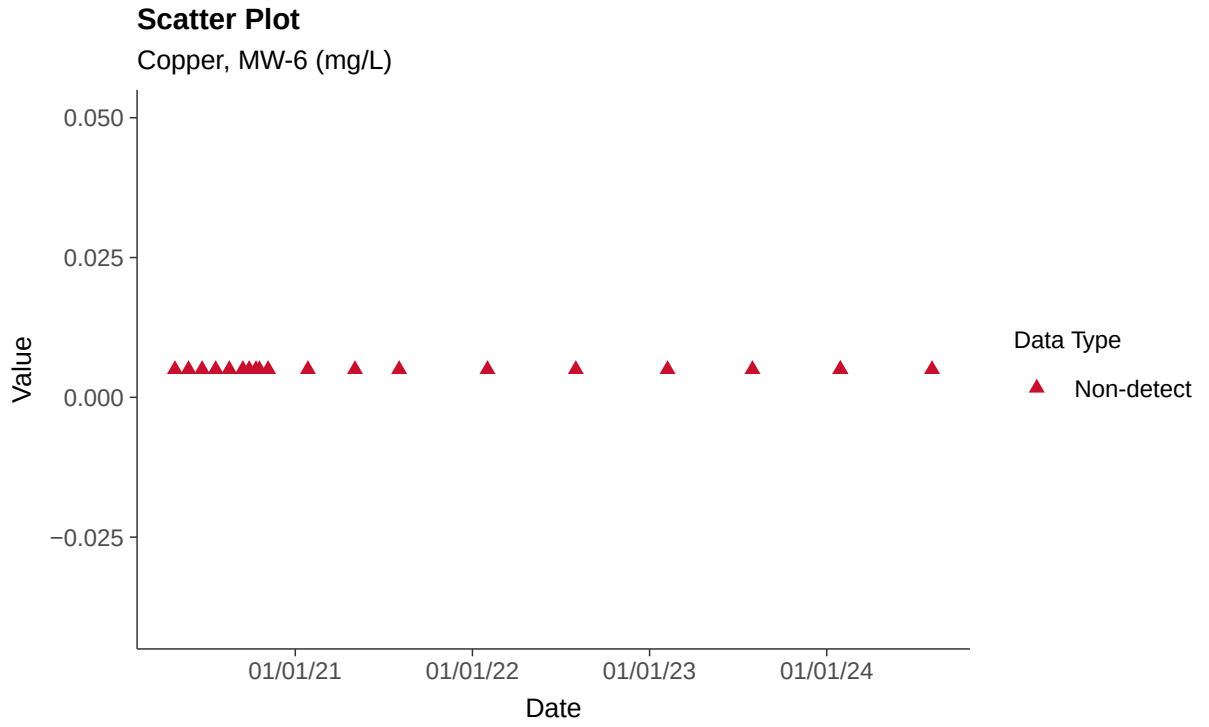
Gamma Q-Q plot

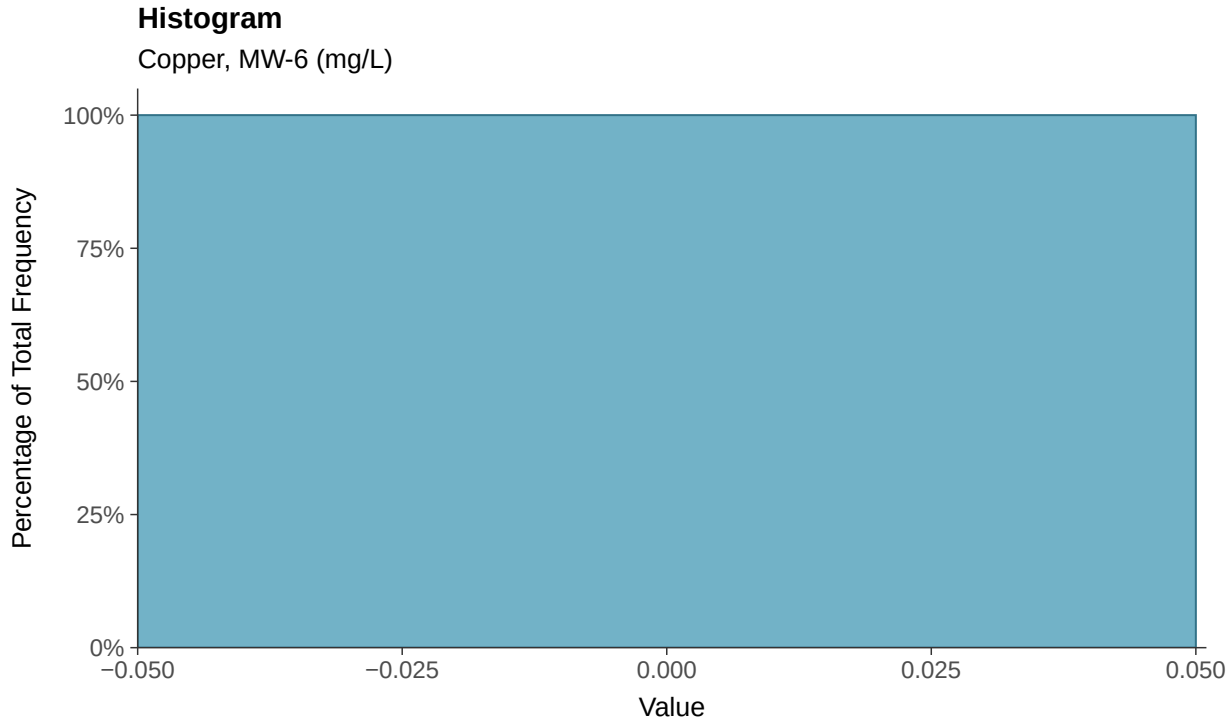
Sodium, MW-6 (mg/L)



Part 115: Copper, MW-6

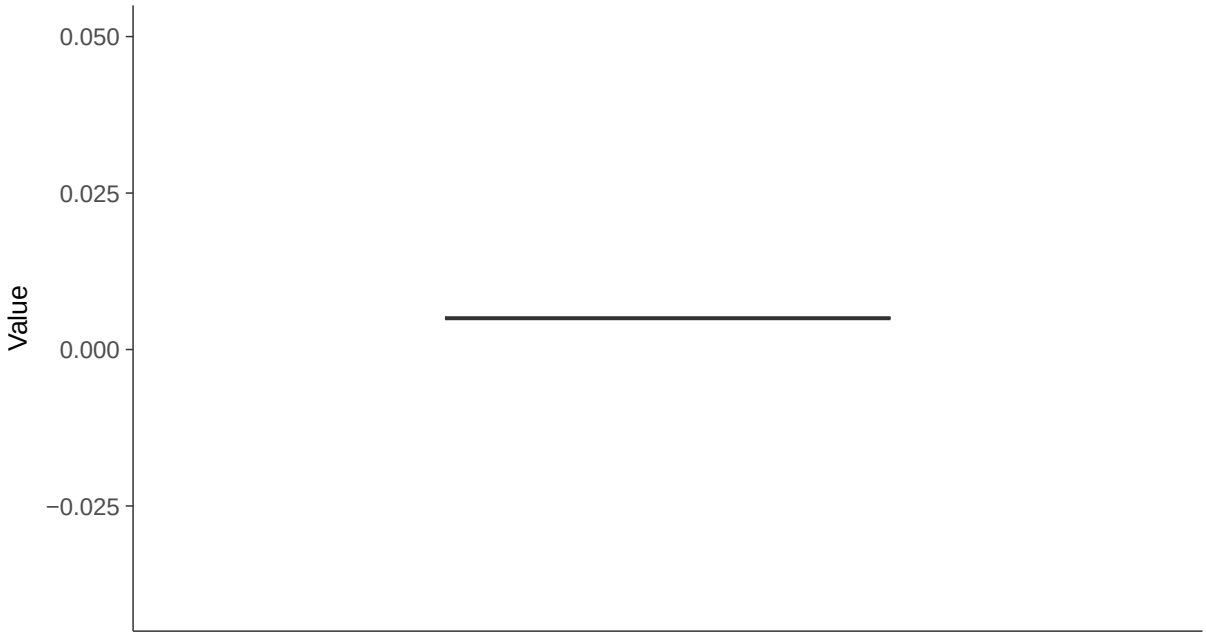
ID: 06_5_37





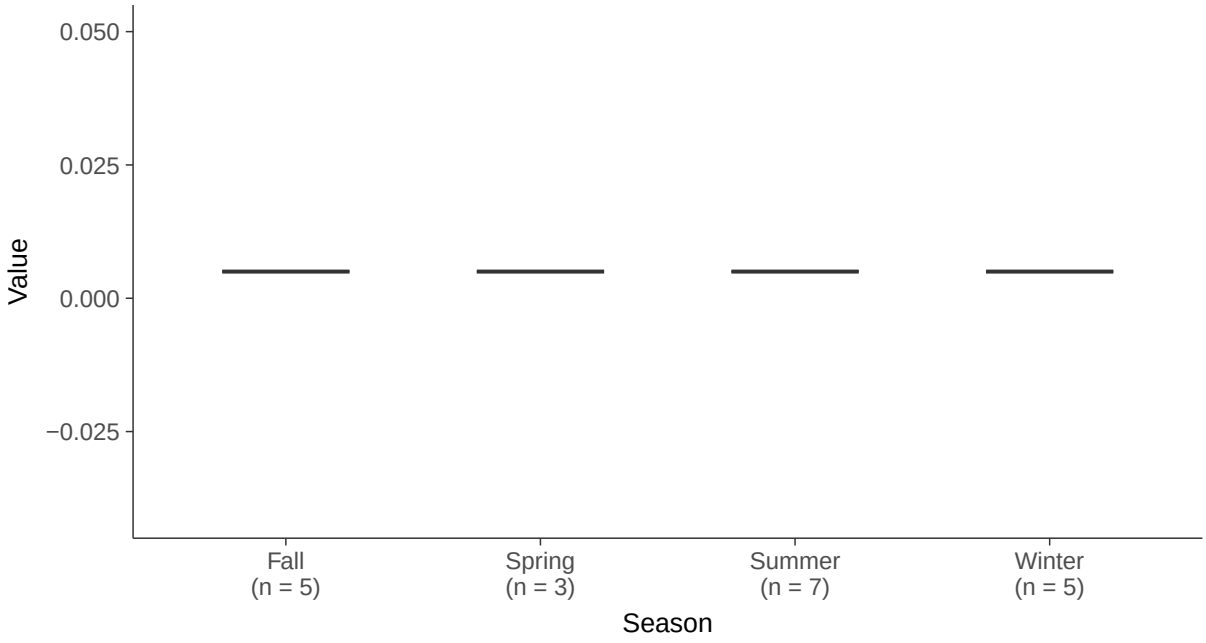
Boxplot

Copper, MW-6 (mg/L)



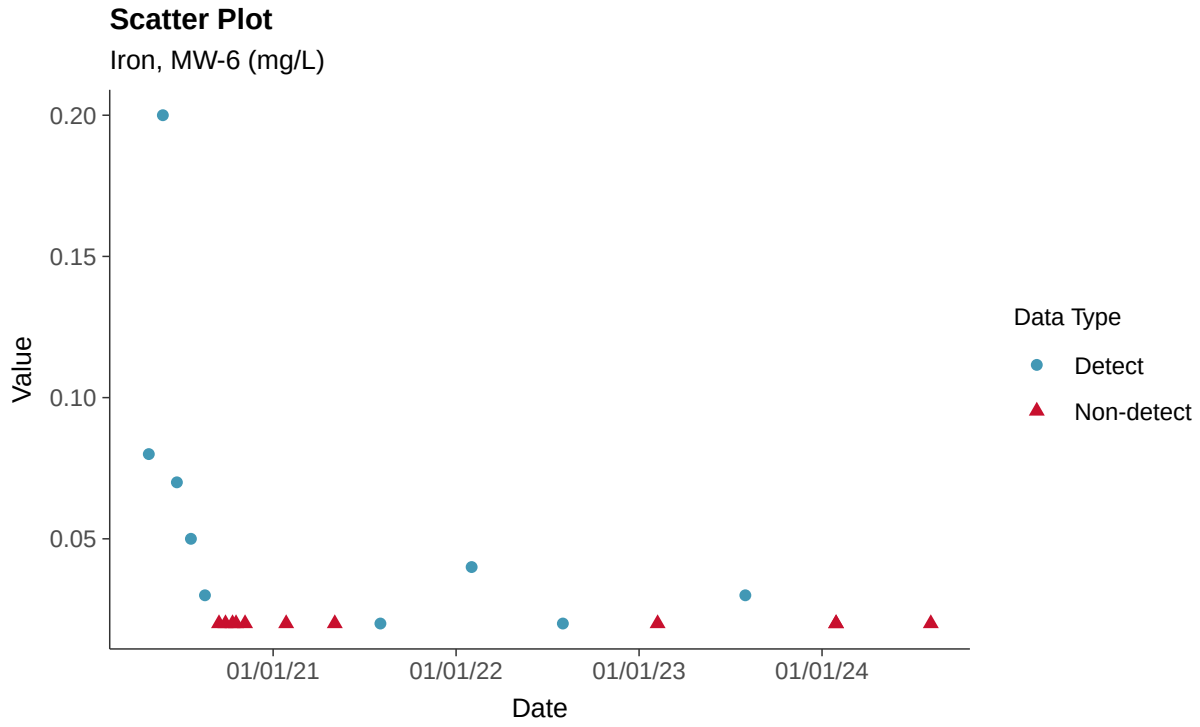
Boxplot by Season

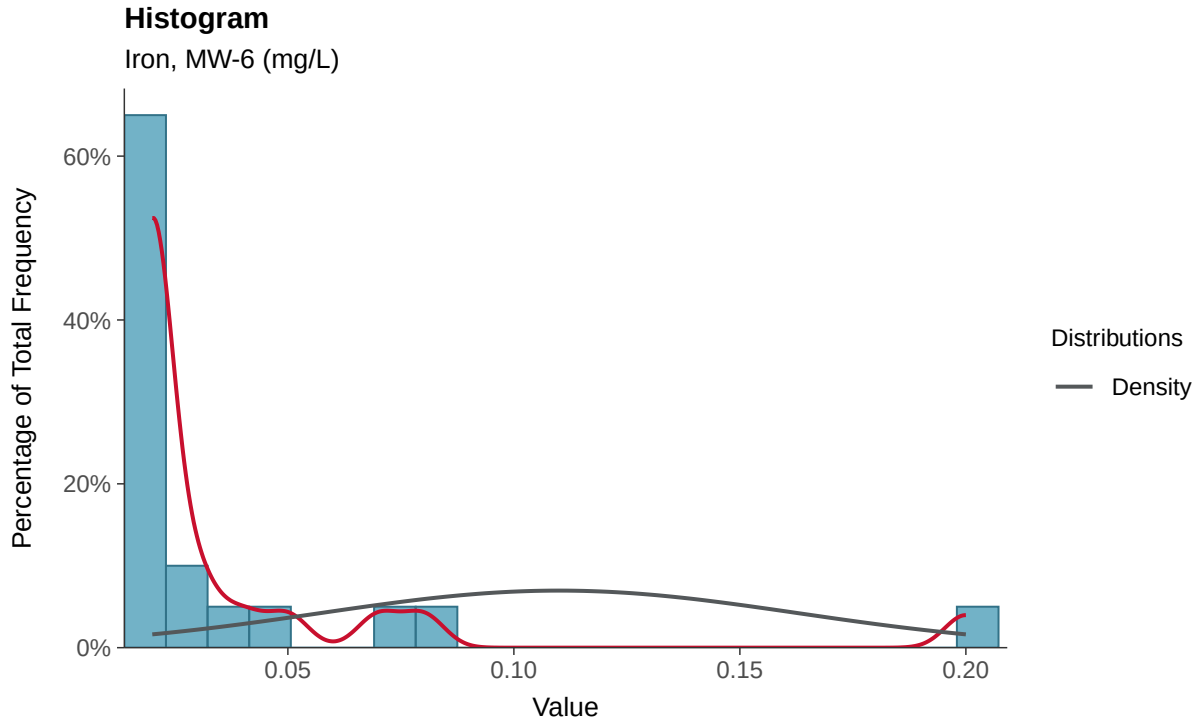
Copper, MW-6 (mg/L)



Part 115: Iron, MW-6

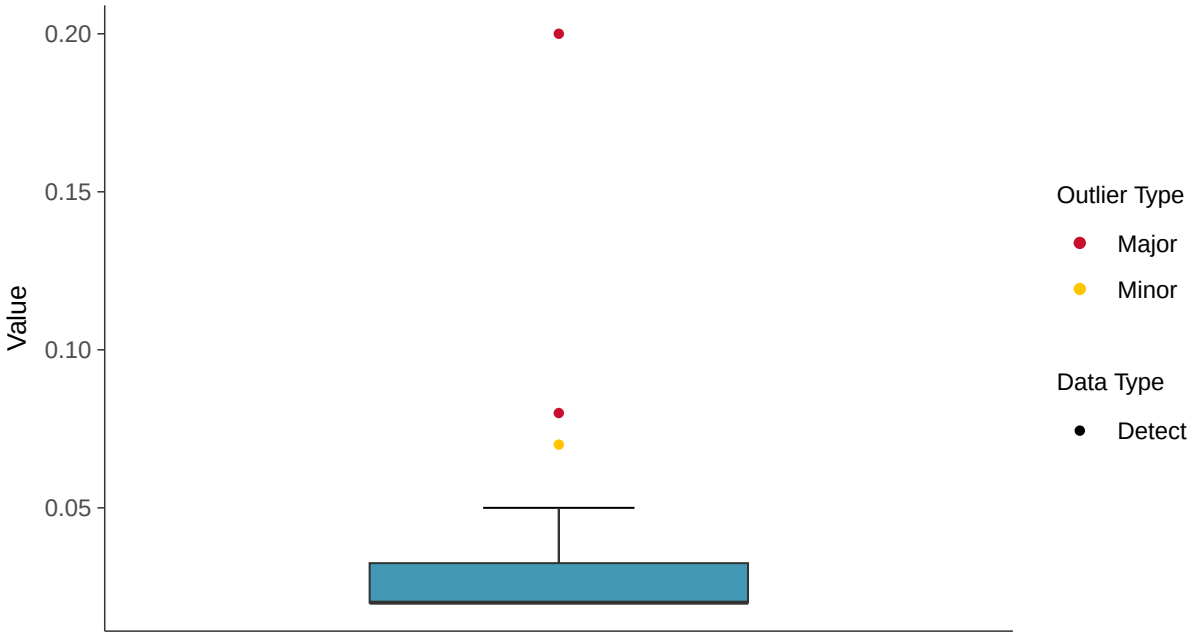
ID: 06_5_38





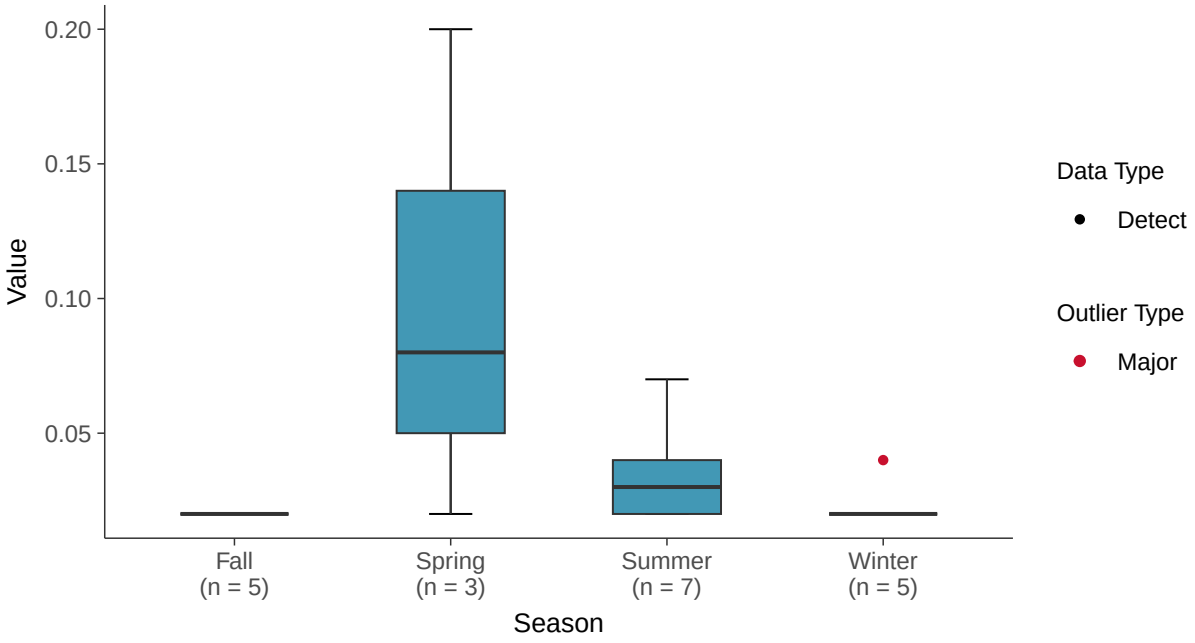
Boxplot

Iron, MW-6 (mg/L)



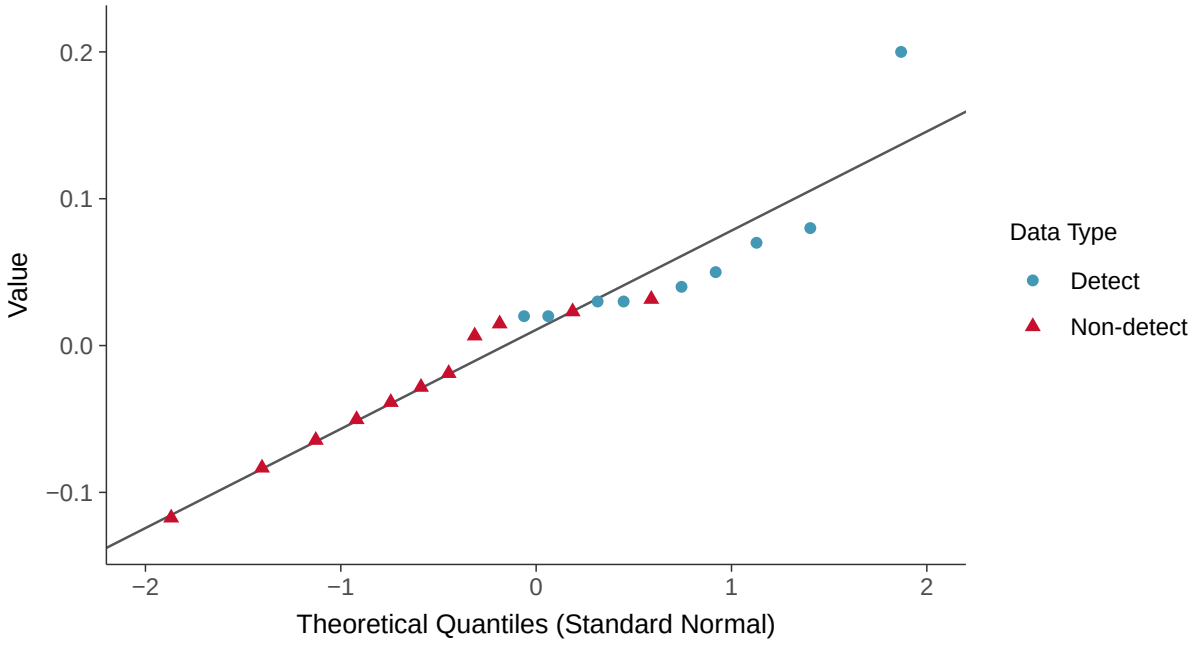
Boxplot by Season

Iron, MW-6 (mg/L)



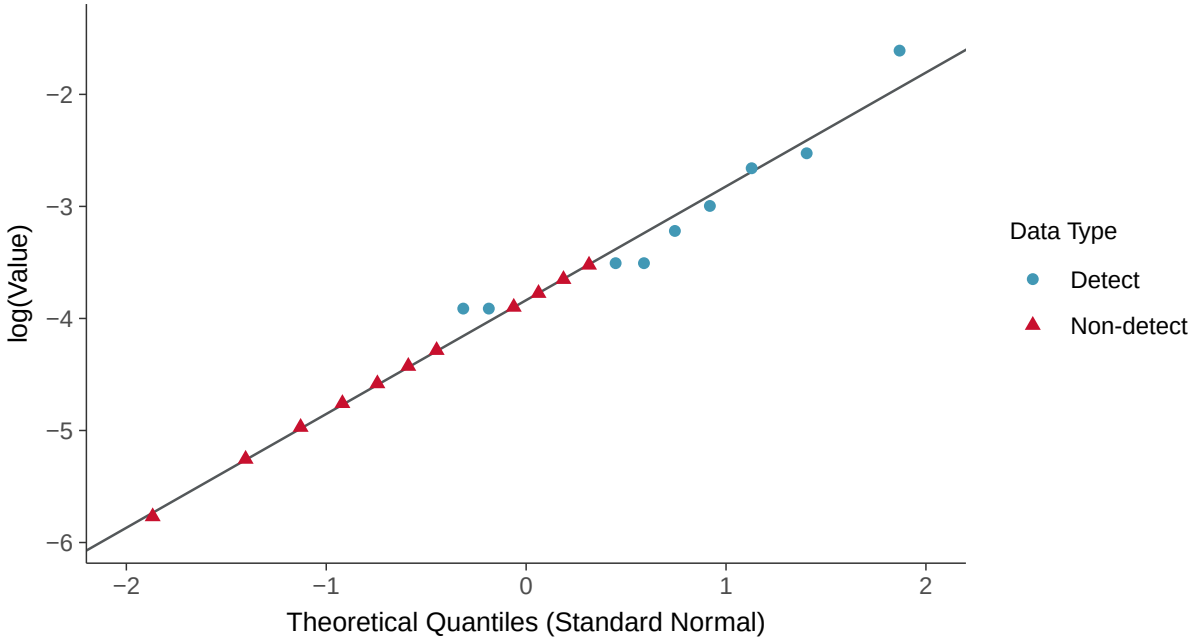
Normal Q-Q plot using ROS Imputed Estimates

Iron, MW-6 (mg/L)



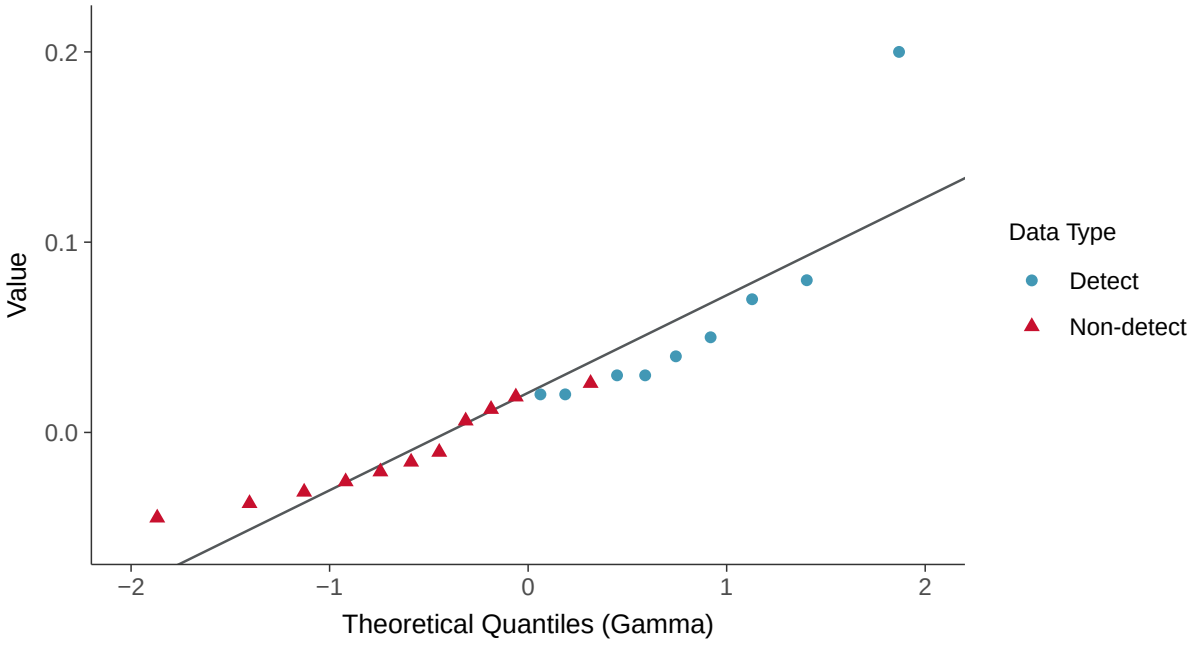
Lognormal Q-Q plot using ROS Imputed Estimates

Iron, MW-6 (mg/L)



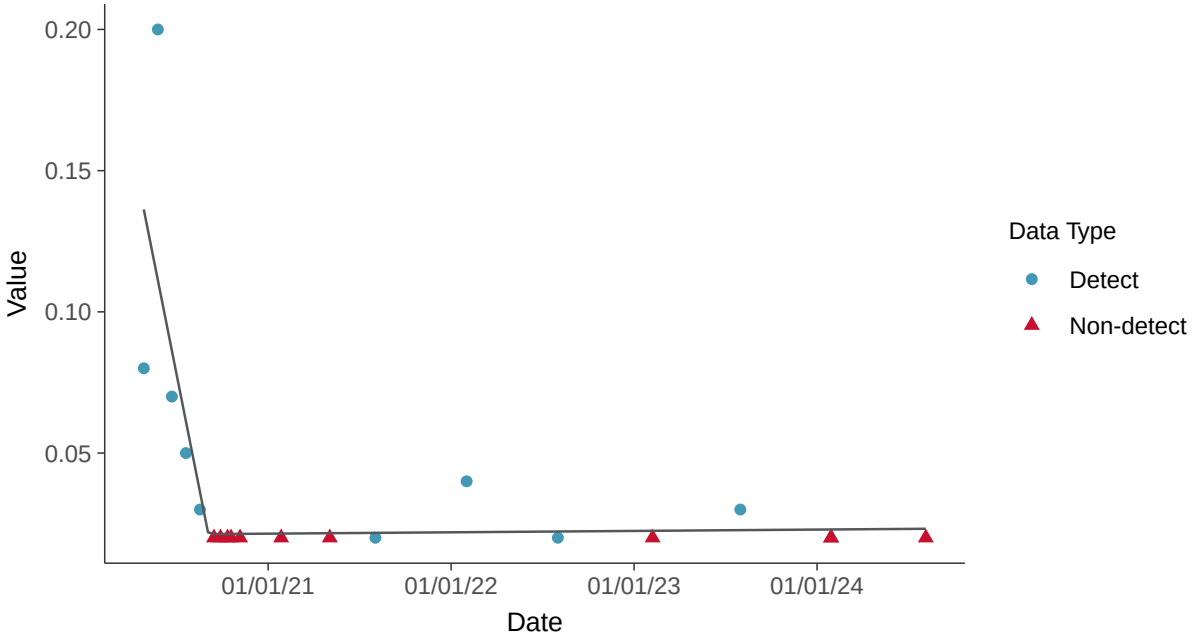
Gamma Q-Q plot using ROS Imputed Estimates

Iron, MW-6 (mg/L)



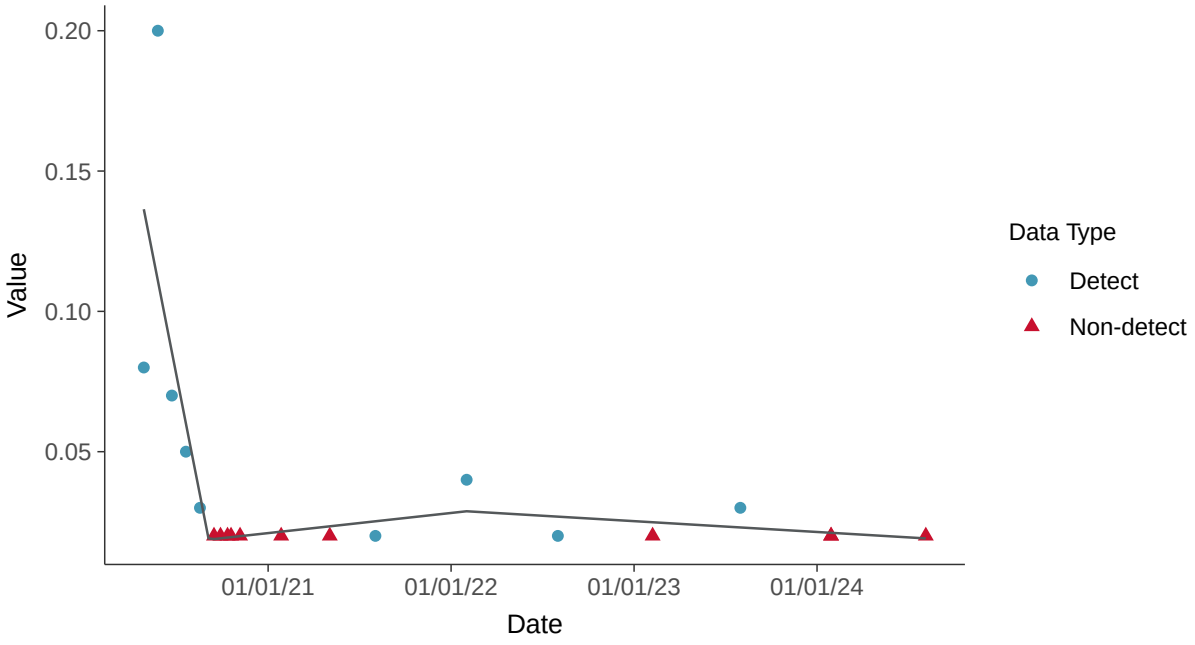
Trend Regression: Piecewise Linear-Linear

Iron, MW-6 (mg/L)



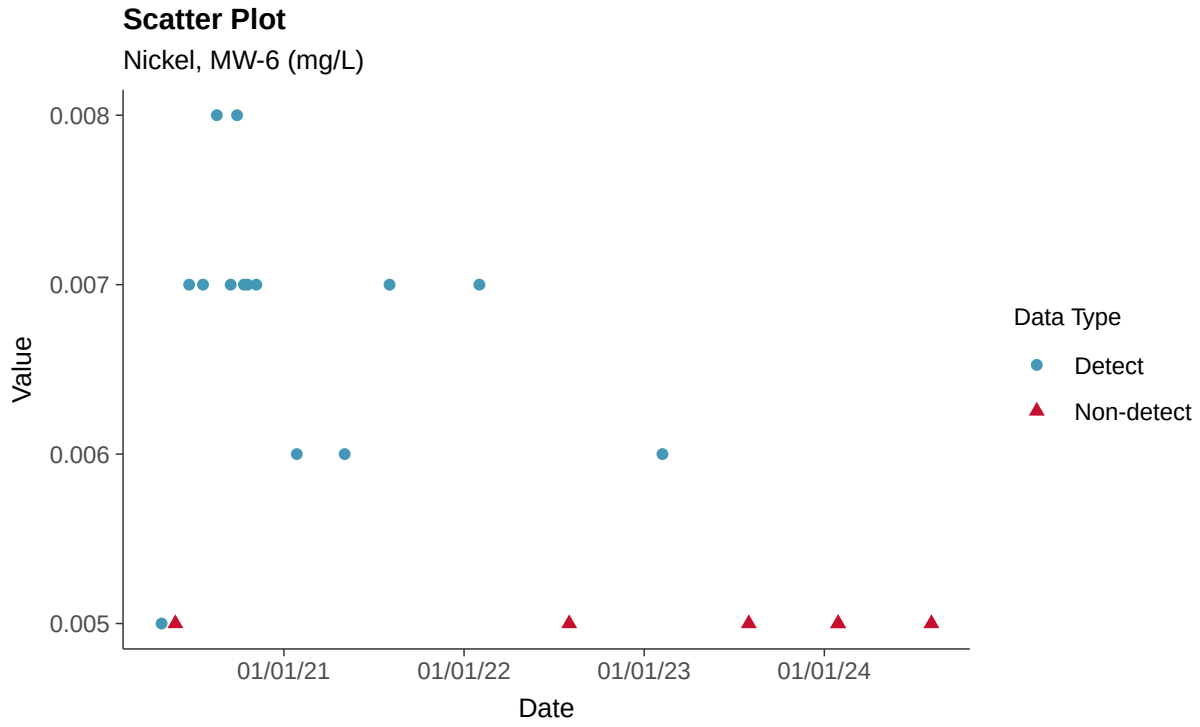
Trend Regression: Piecewise Linear-Linear-Linear

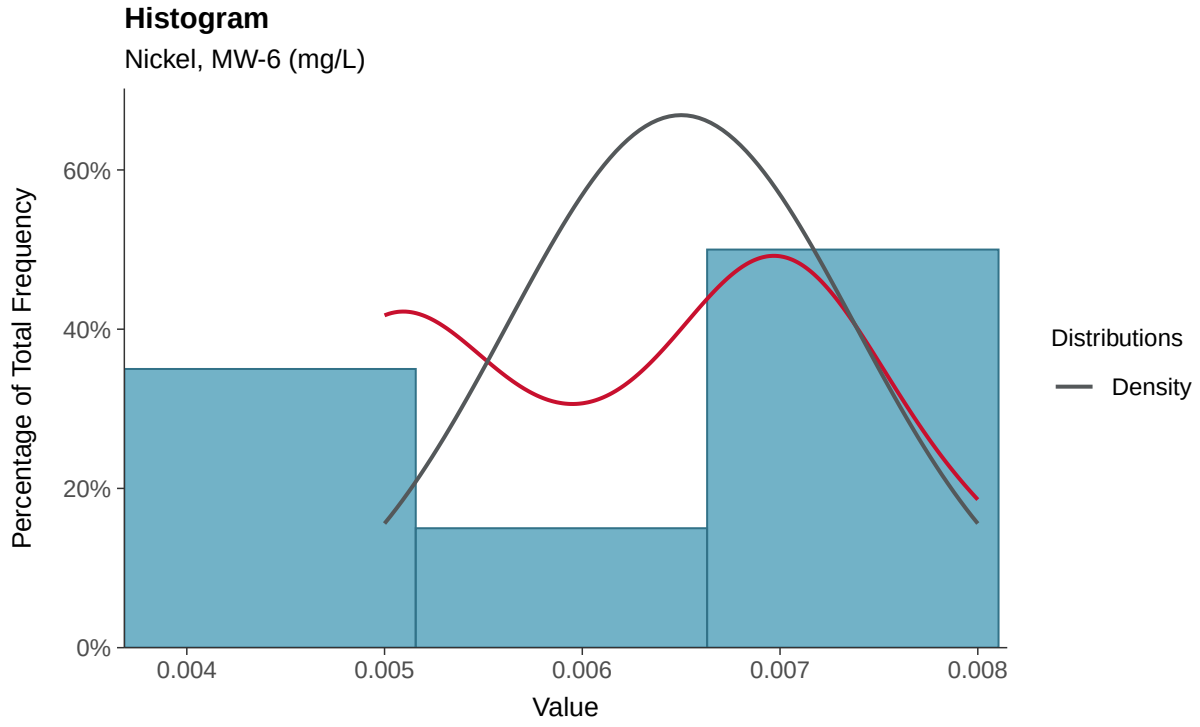
Iron, MW-6 (mg/L)



Part 115: Nickel, MW-6

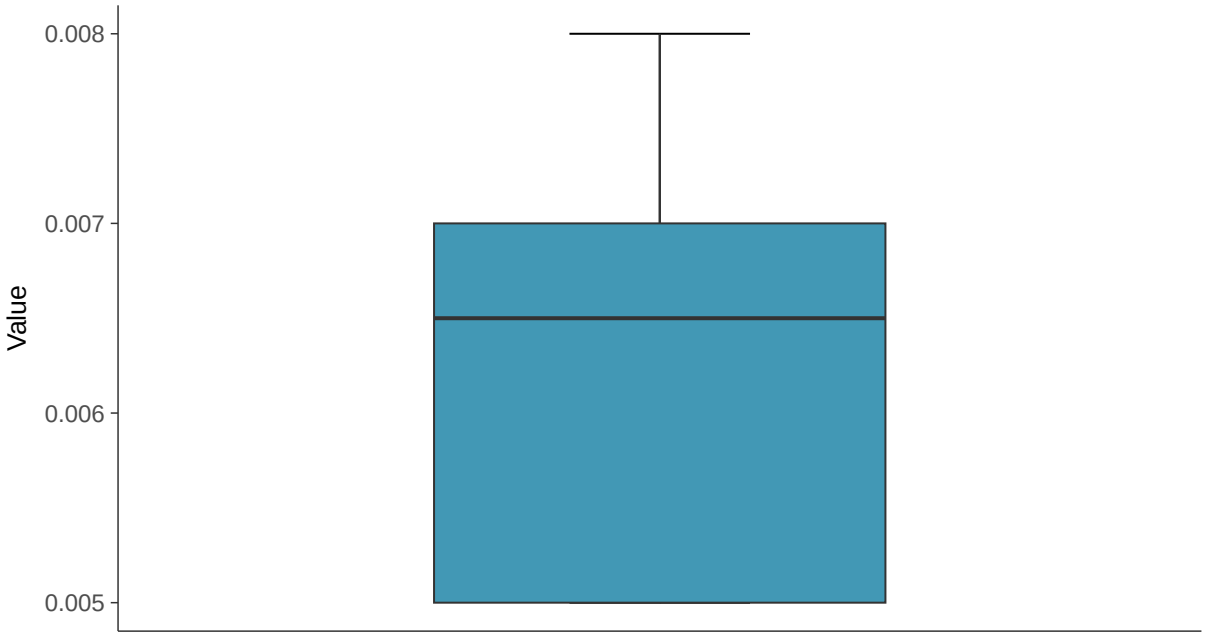
ID: 06_5_39





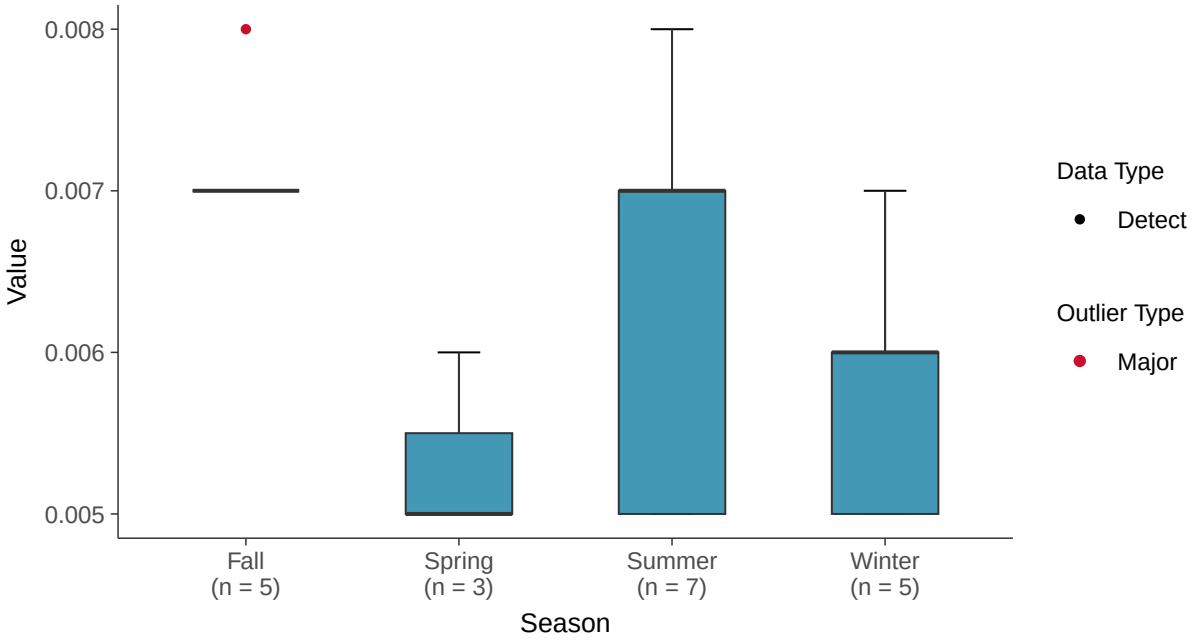
Boxplot

Nickel, MW-6 (mg/L)



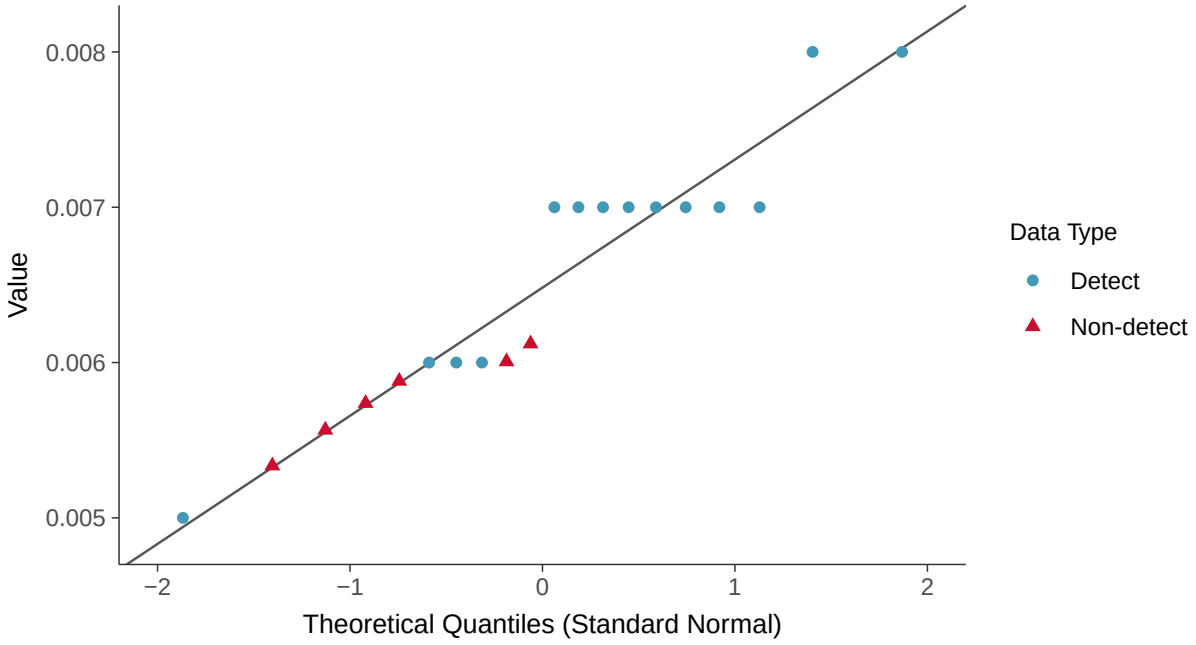
Boxplot by Season

Nickel, MW-6 (mg/L)



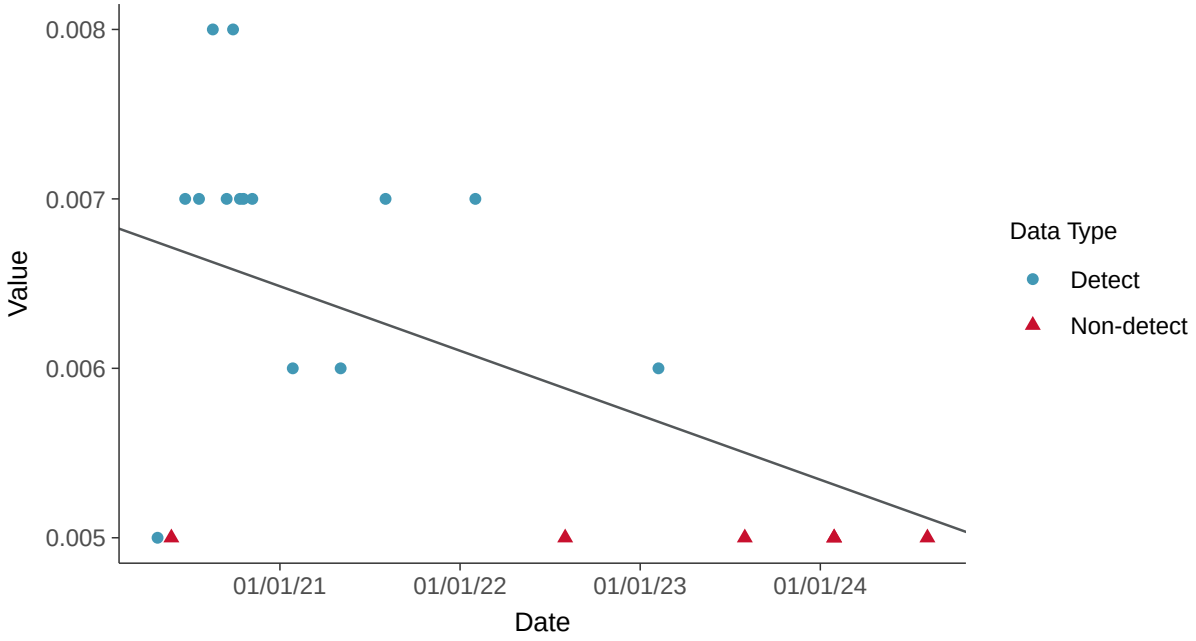
Normal Q-Q plot using ROS Imputed Estimates

Nickel, MW-6 (mg/L)



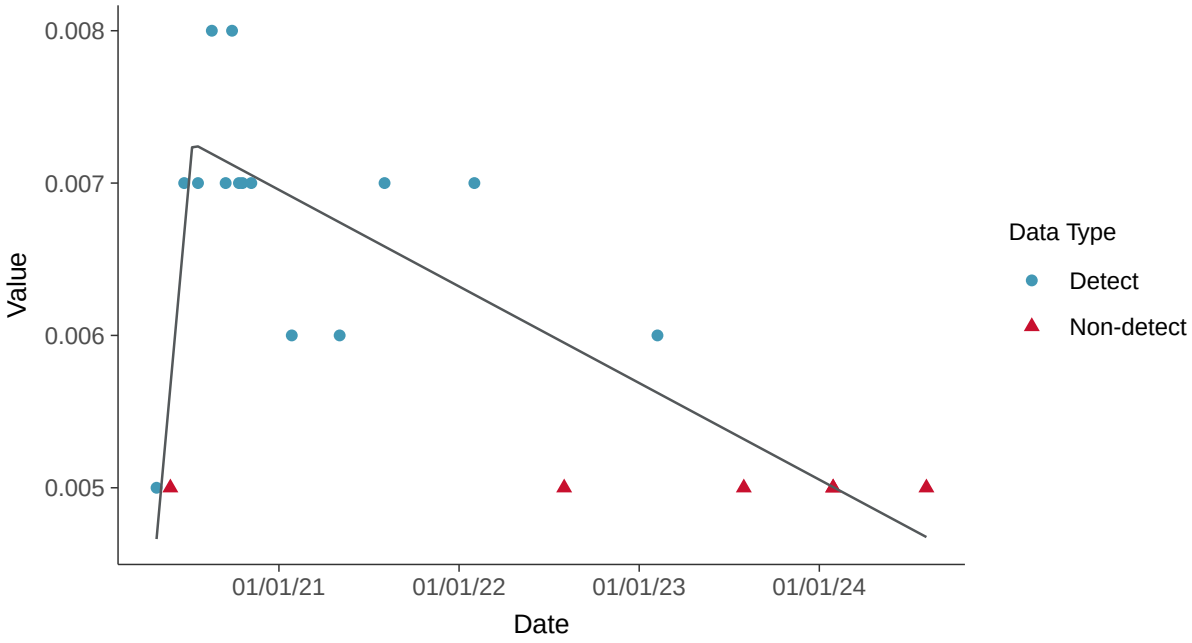
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Nickel, MW-6 (mg/L)



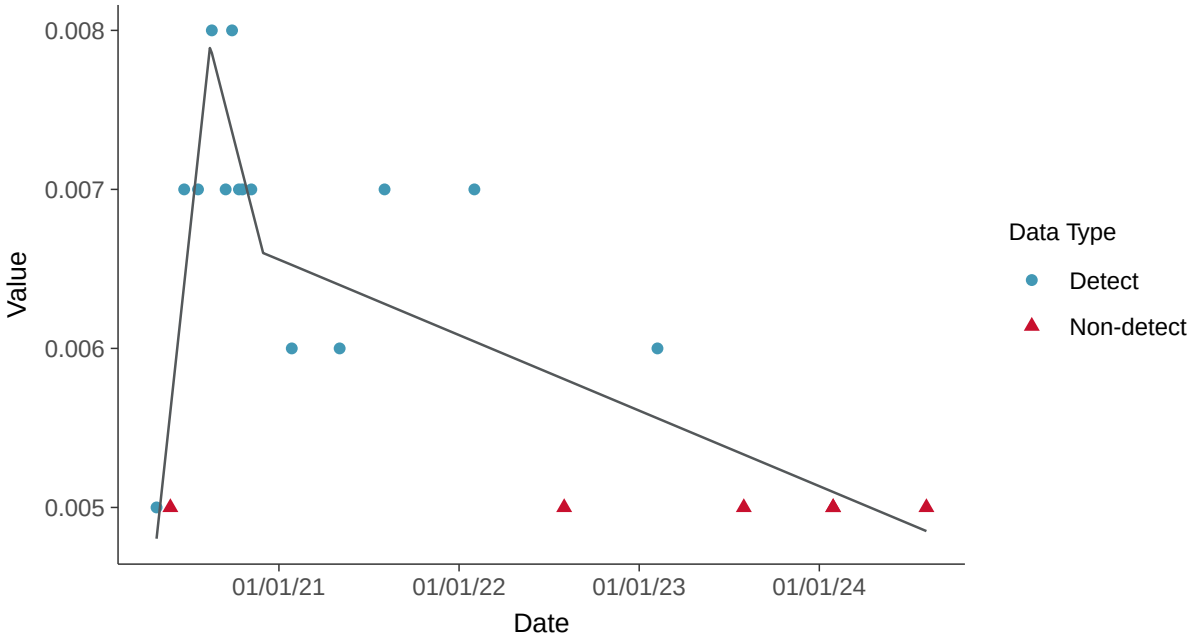
Trend Regression: Piecewise Linear-Linear

Nickel, MW-6 (mg/L)



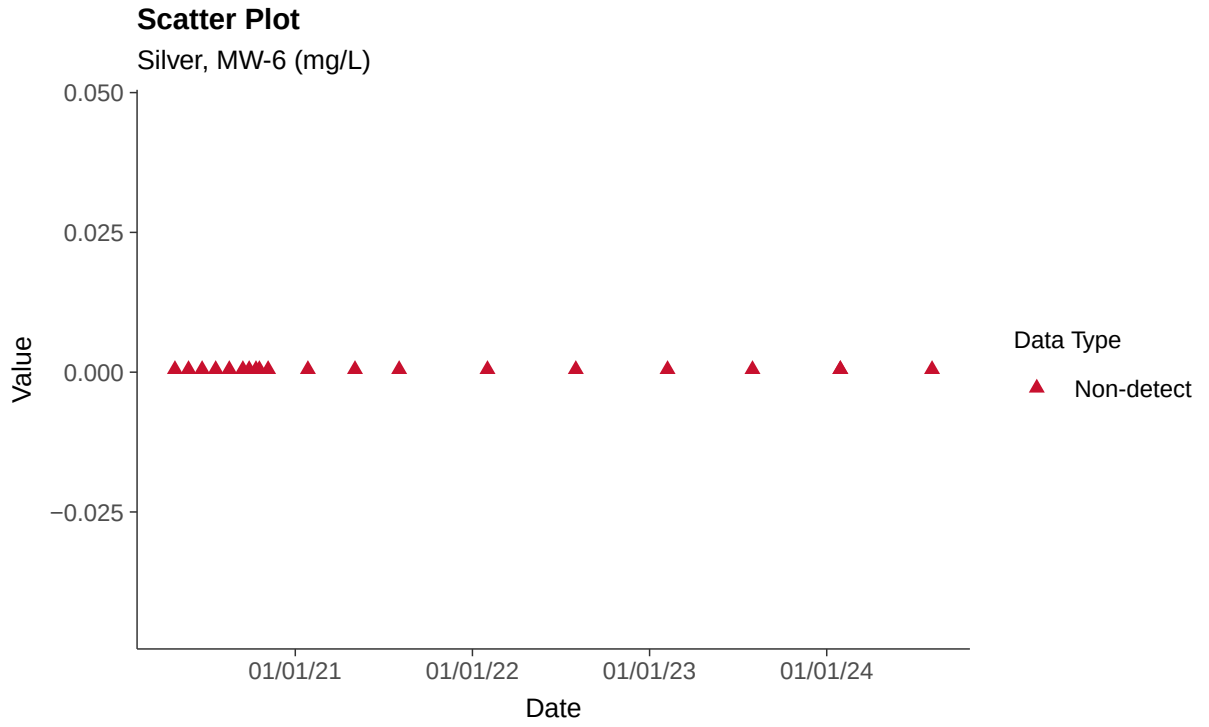
Trend Regression: Piecewise Linear-Linear-Linear

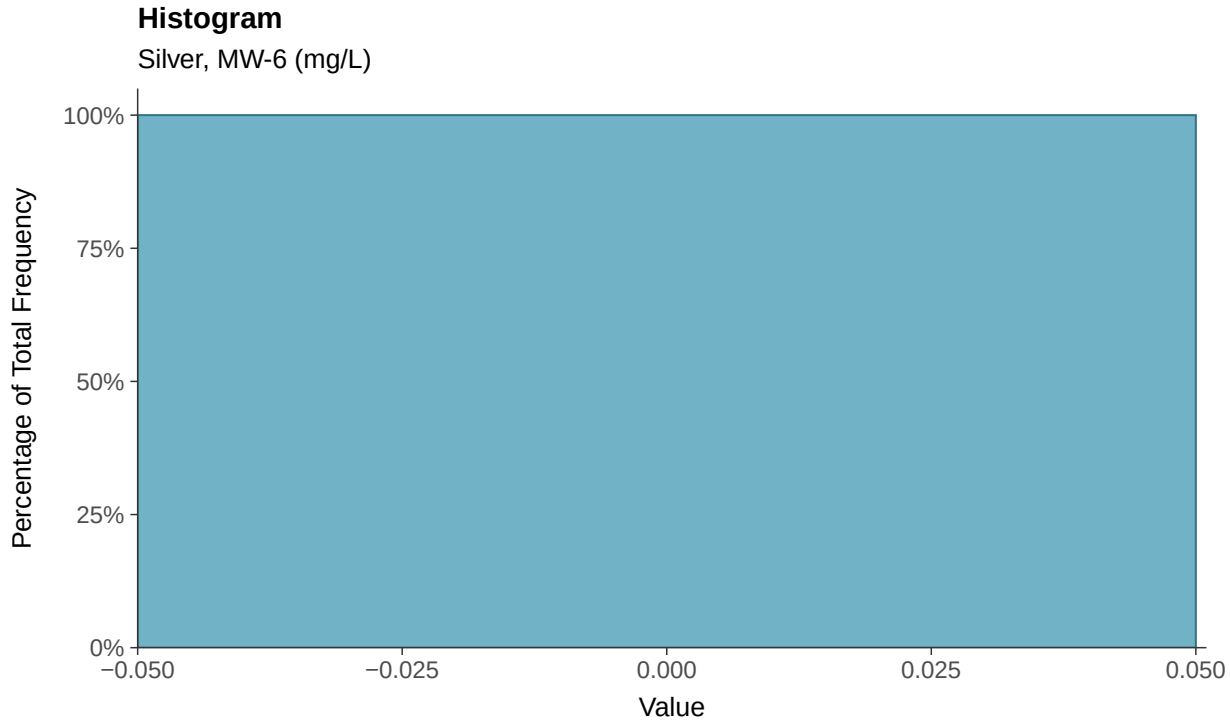
Nickel, MW-6 (mg/L)



Part 115: Silver, MW-6

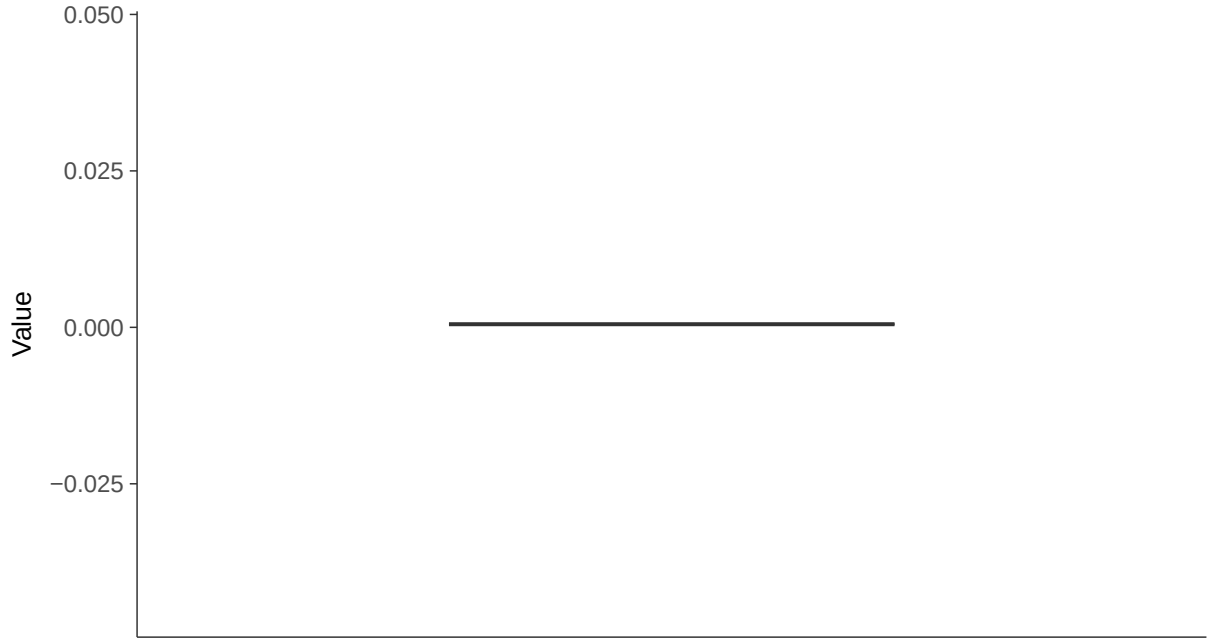
ID: 06_5_40





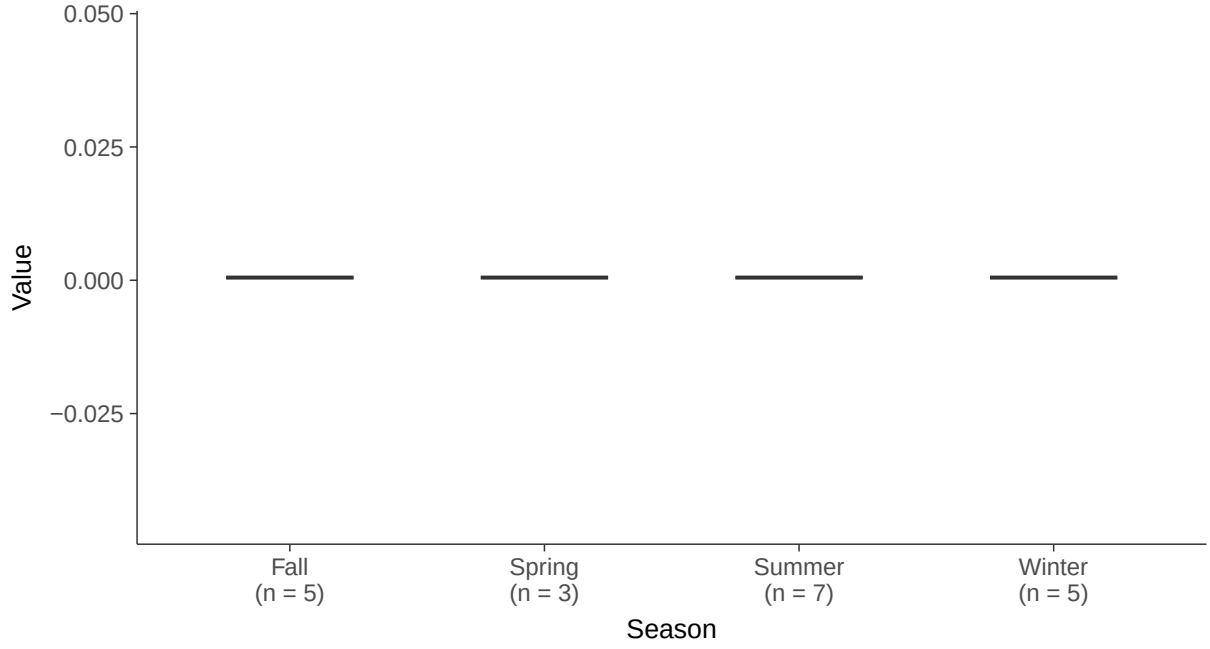
Boxplot

Silver, MW-6 (mg/L)



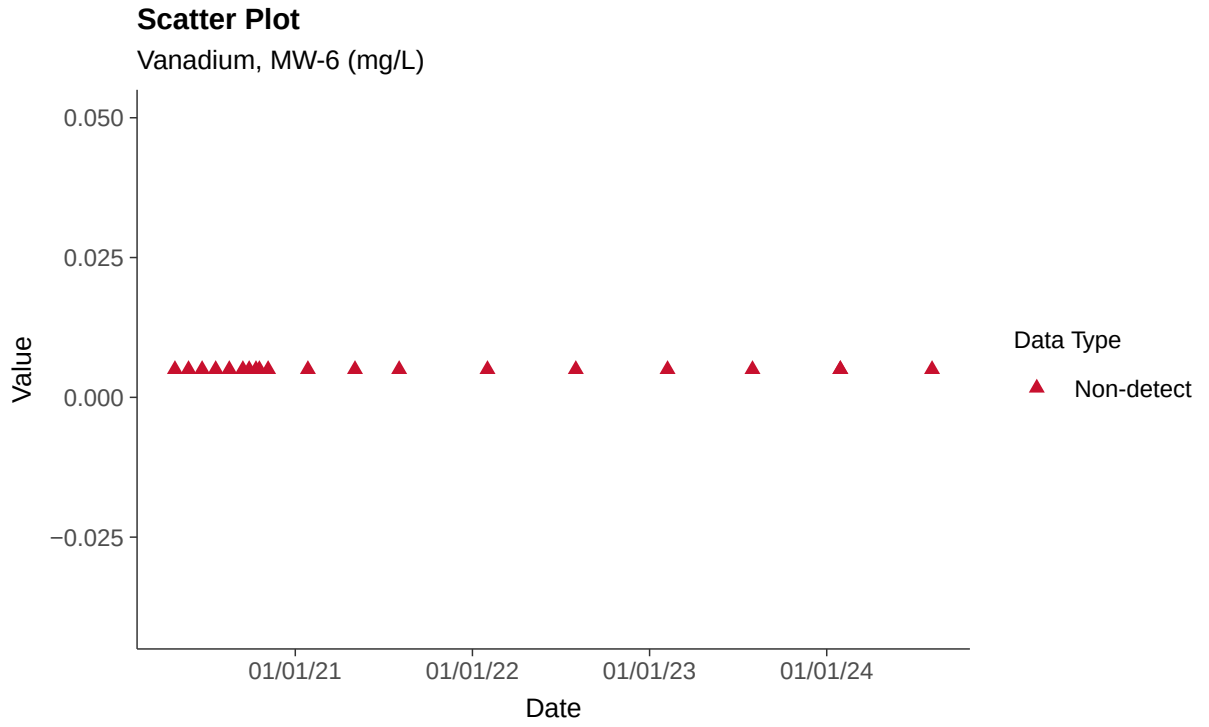
Boxplot by Season

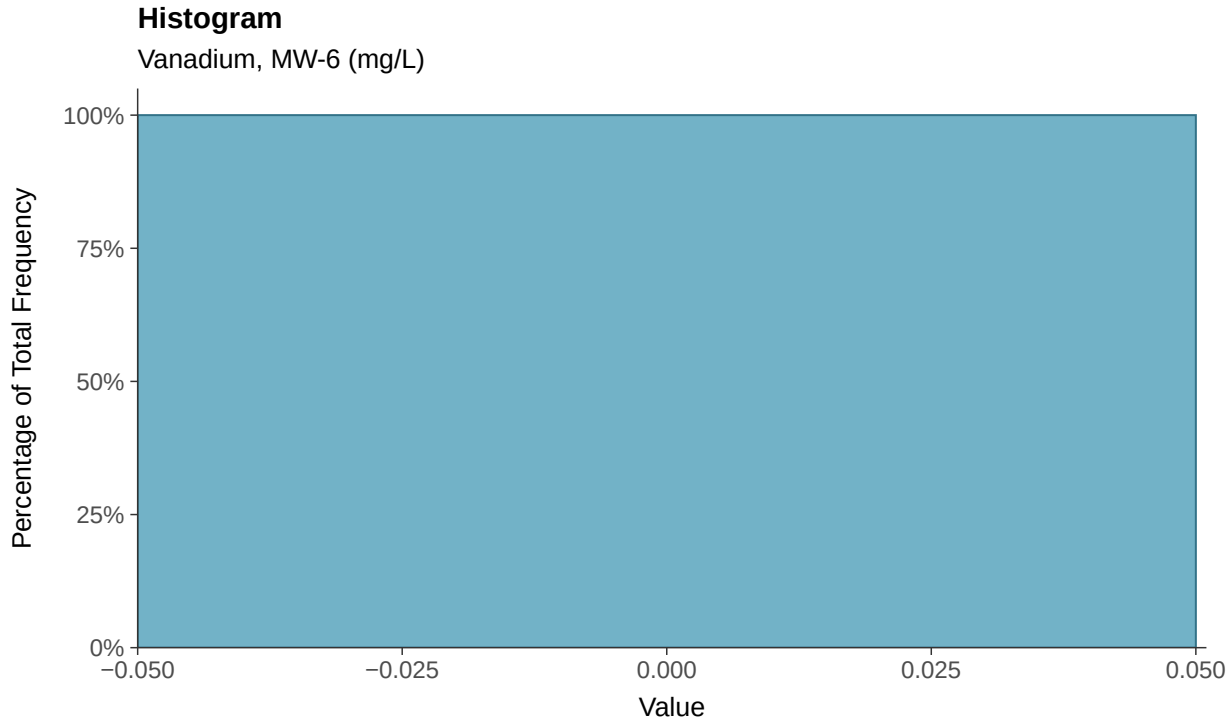
Silver, MW-6 (mg/L)



Part 115: Vanadium, MW-6

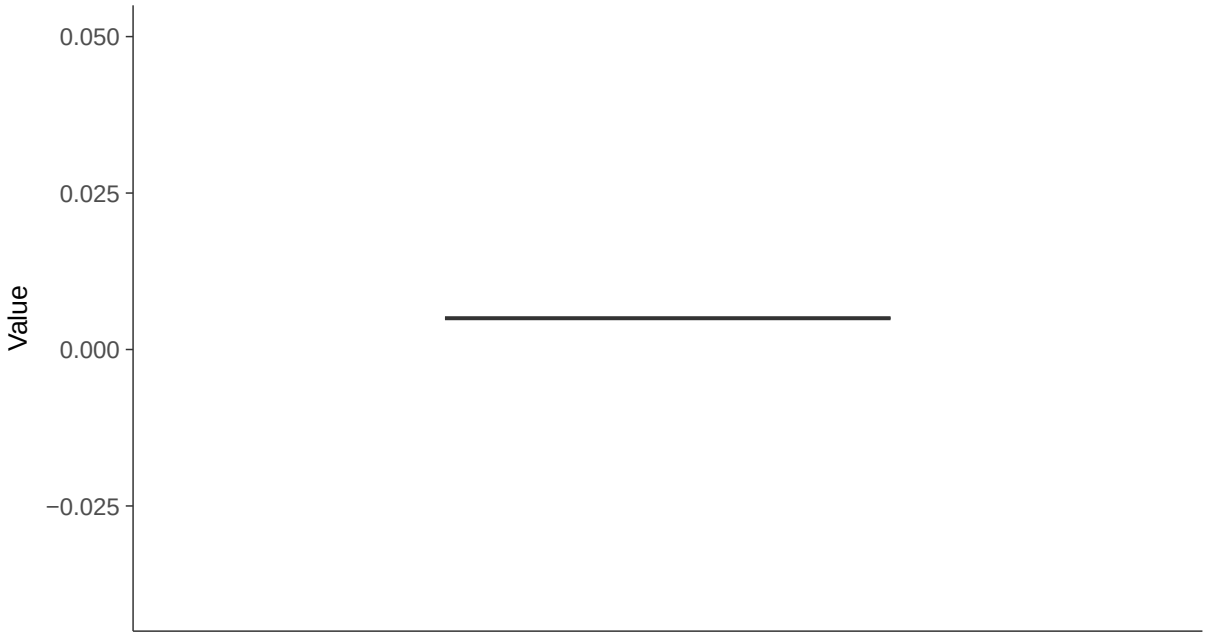
ID: 06_5_41





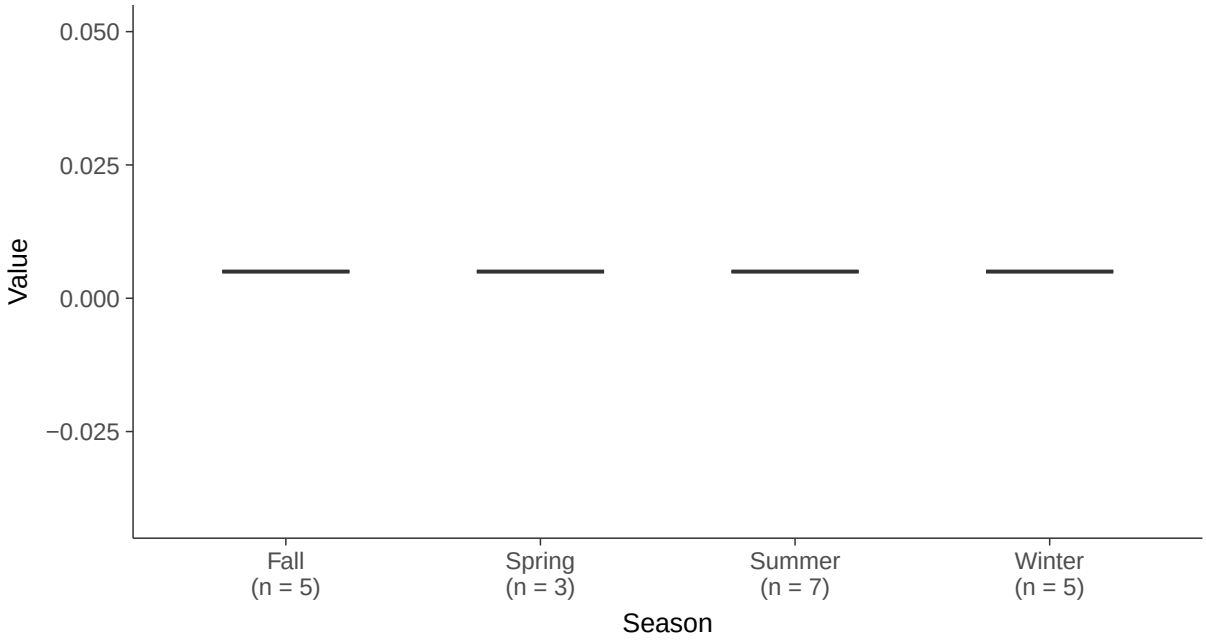
Boxplot

Vanadium, MW-6 (mg/L)



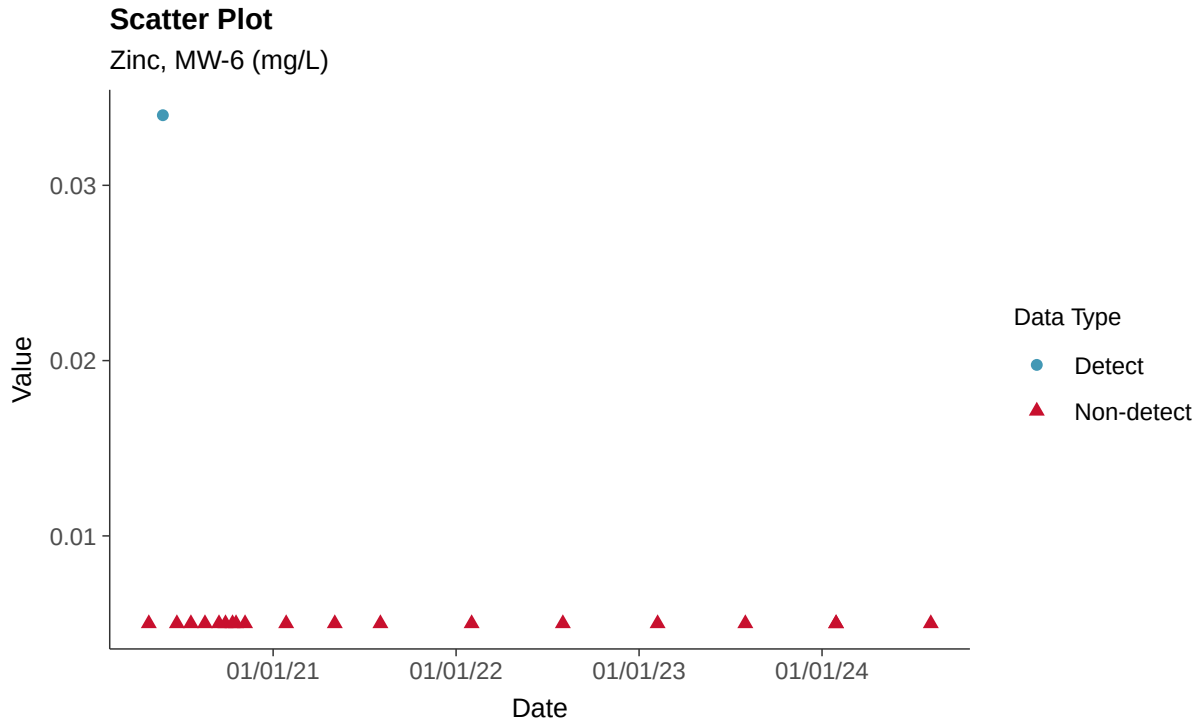
Boxplot by Season

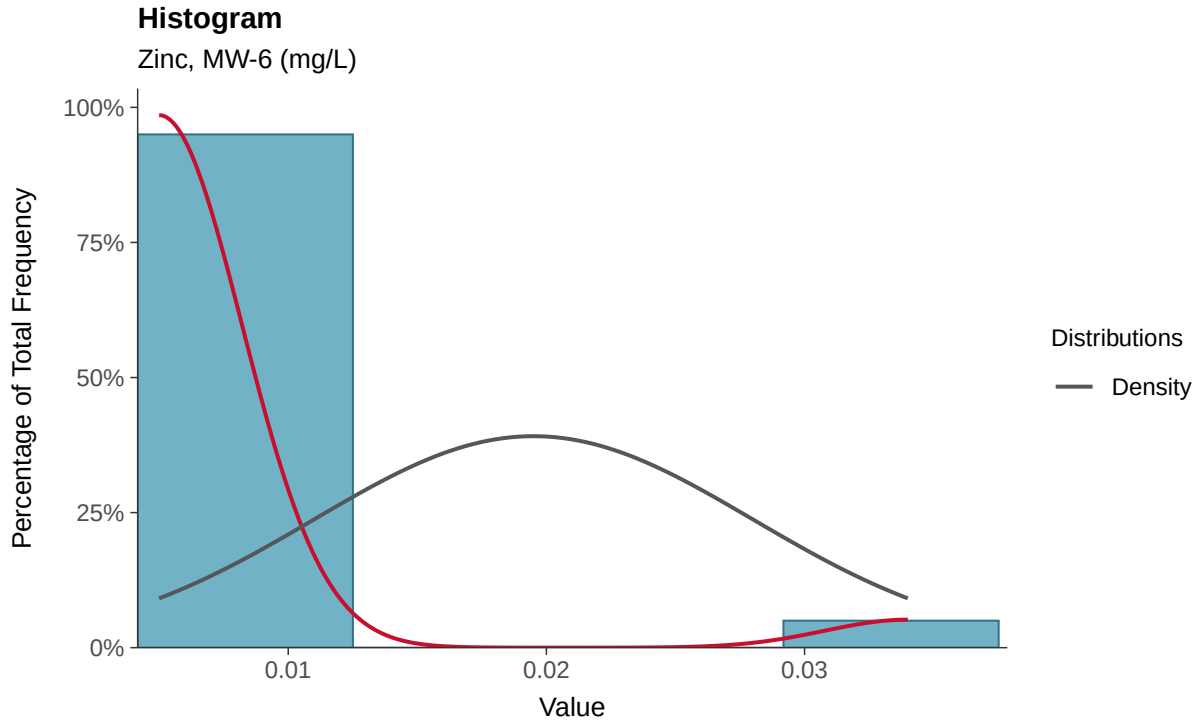
Vanadium, MW-6 (mg/L)



Part 115: Zinc, MW-6

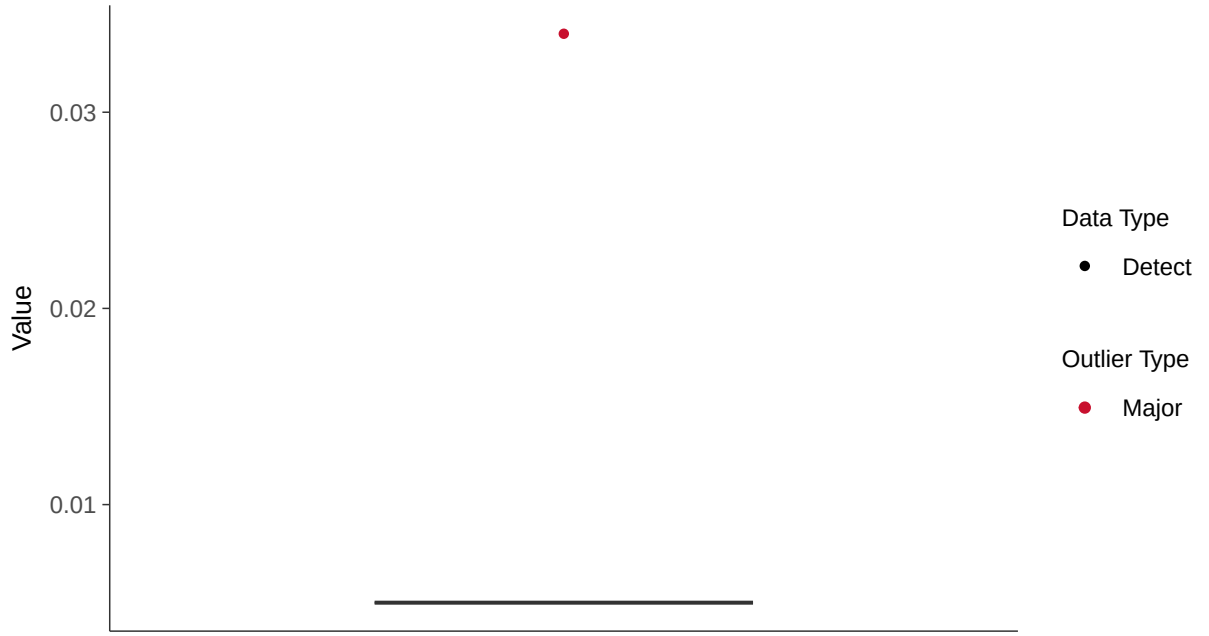
ID: 06_5_42





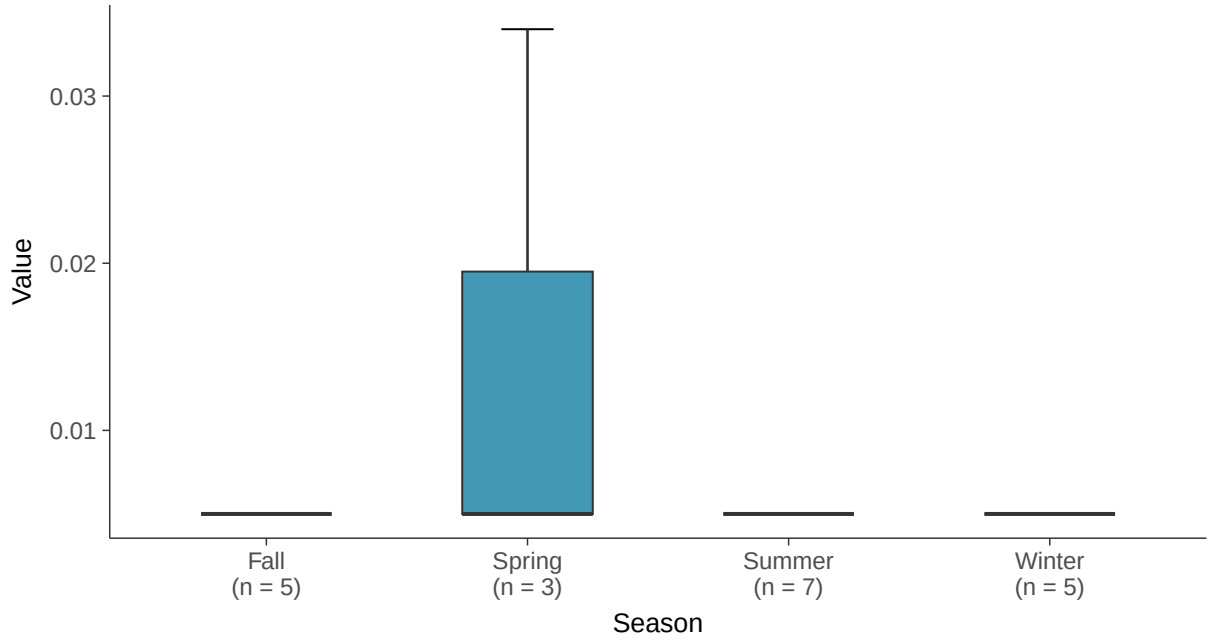
Boxplot

Zinc, MW-6 (mg/L)



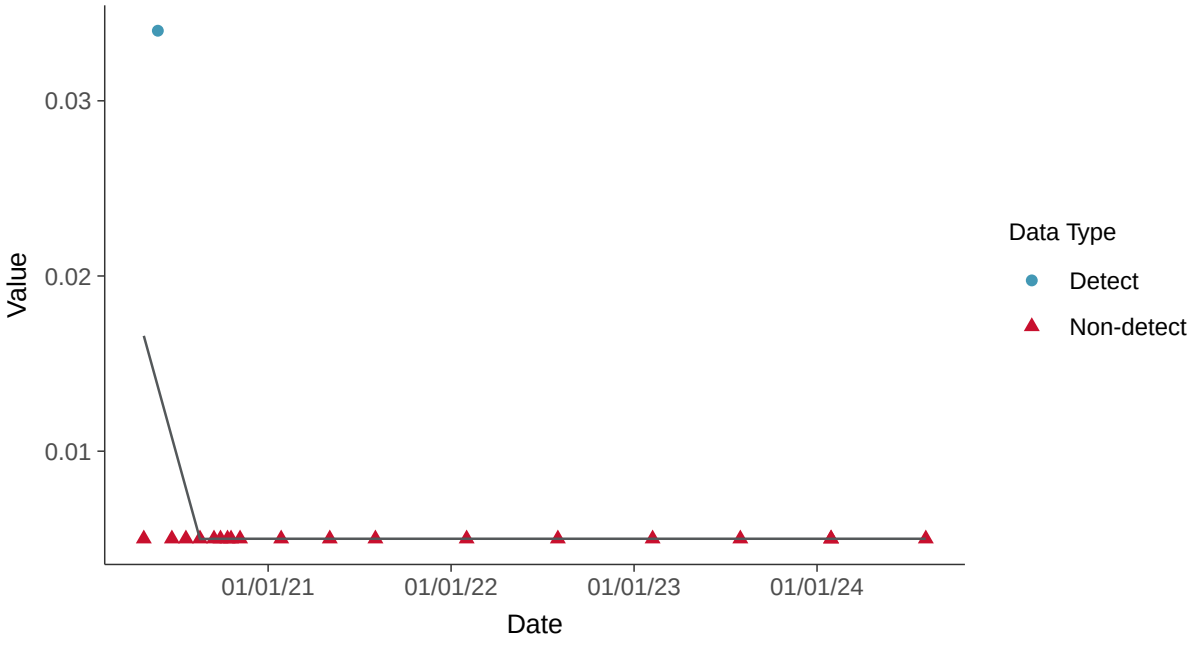
Boxplot by Season

Zinc, MW-6 (mg/L)



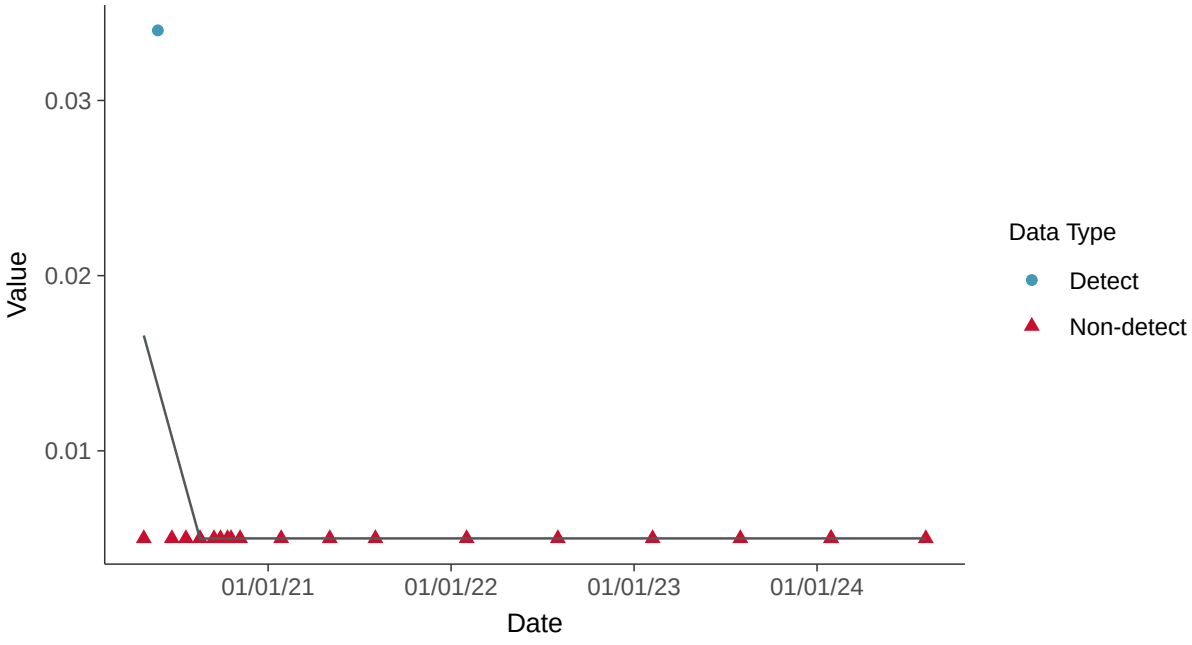
Trend Regression: Piecewise Linear-Linear

Zinc, MW-6 (mg/L)



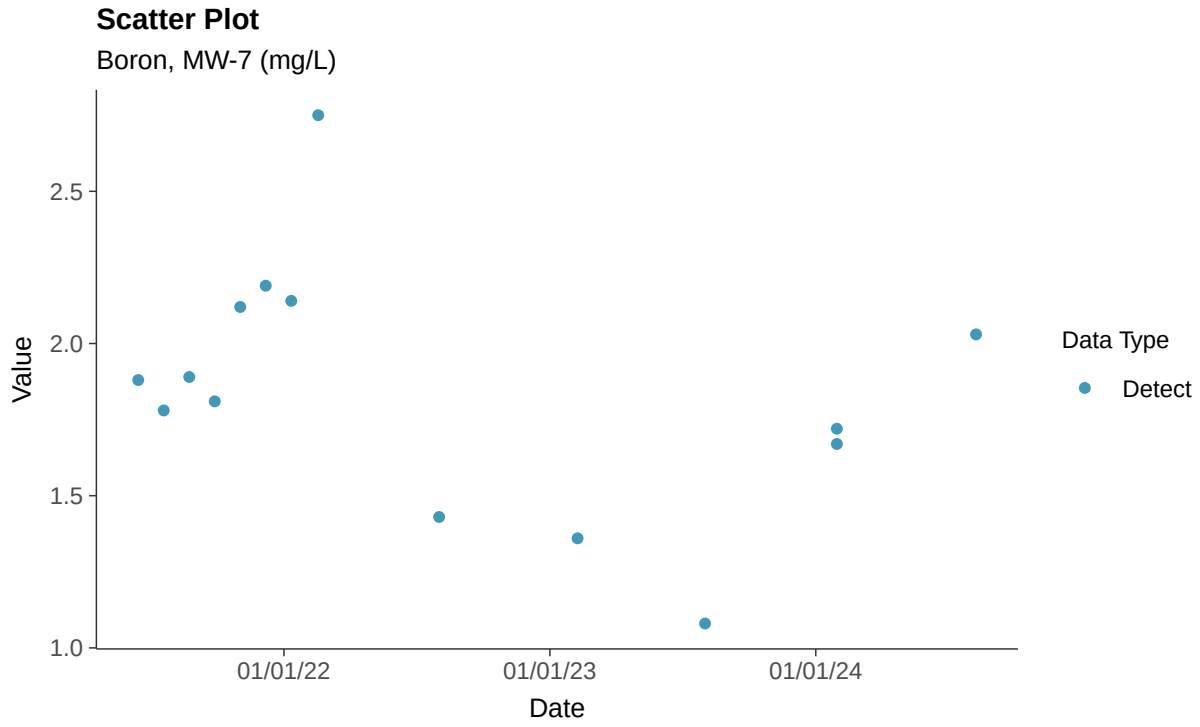
Trend Regression: Piecewise Linear-Linear-Linear

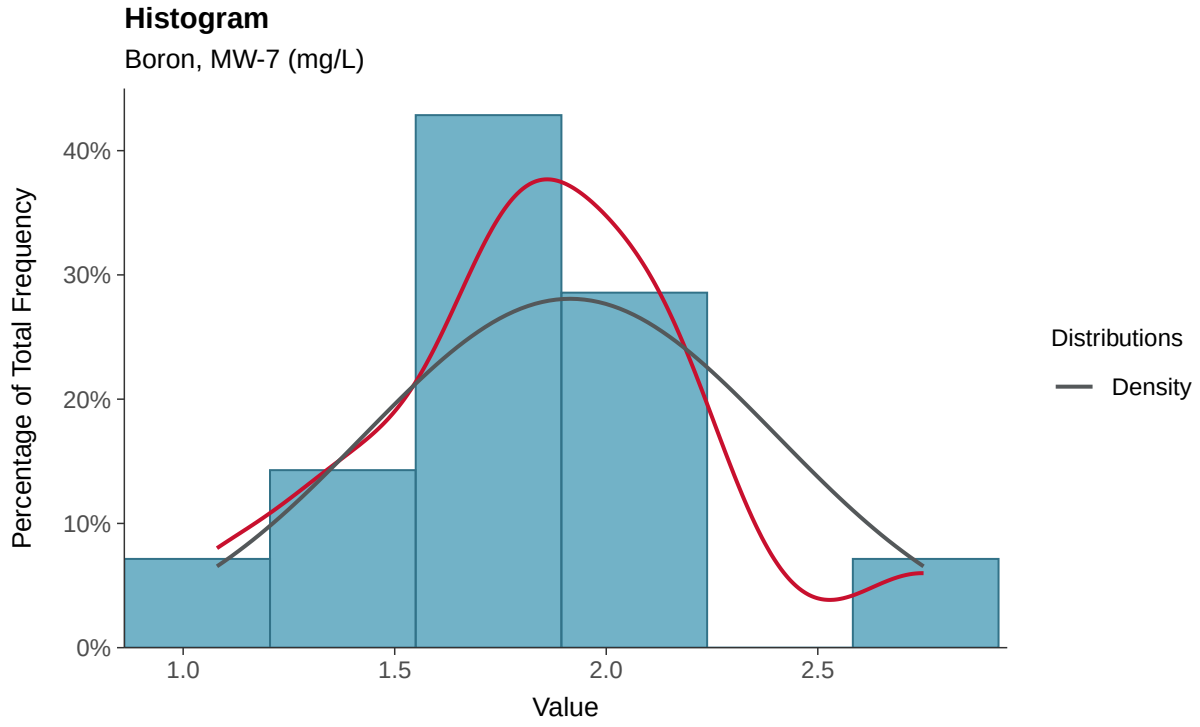
Zinc, MW-6 (mg/L)



Appendix III: Boron, MW-7

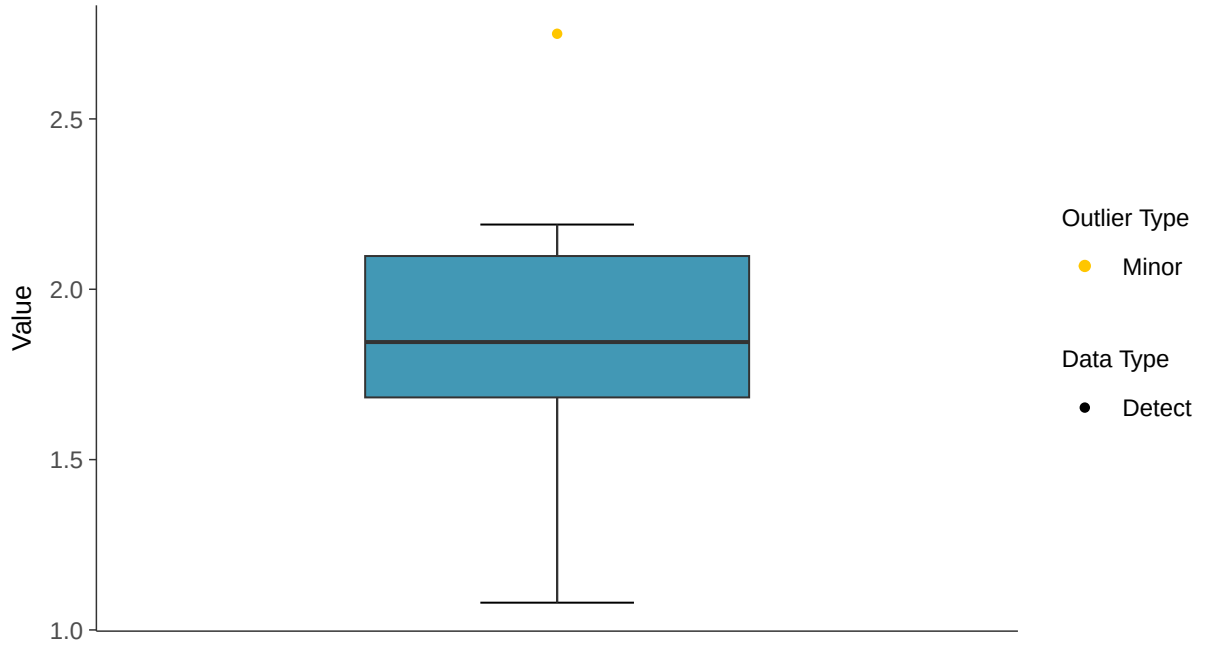
ID: 07_1_01





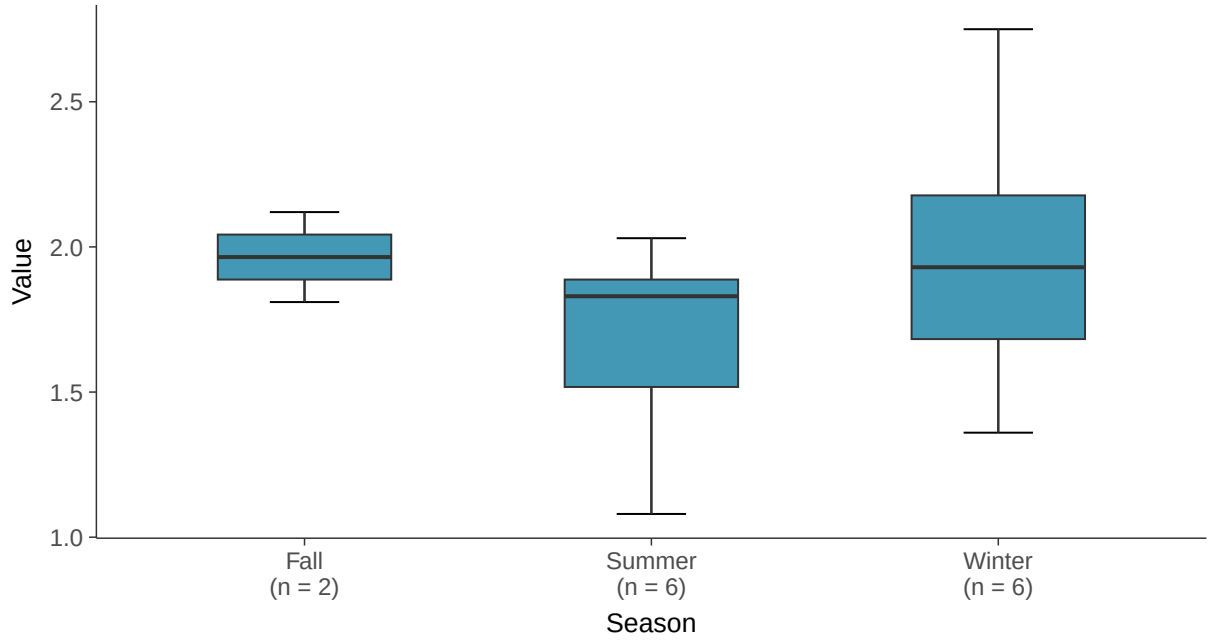
Boxplot

Boron, MW-7 (mg/L)



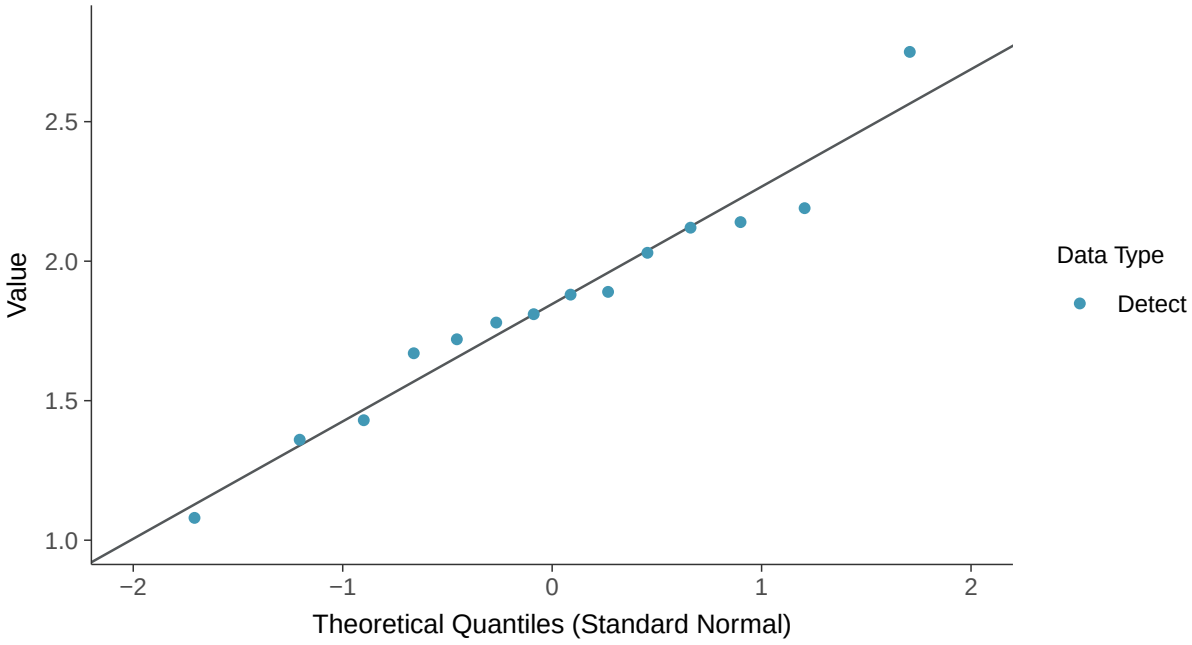
Boxplot by Season

Boron, MW-7 (mg/L)



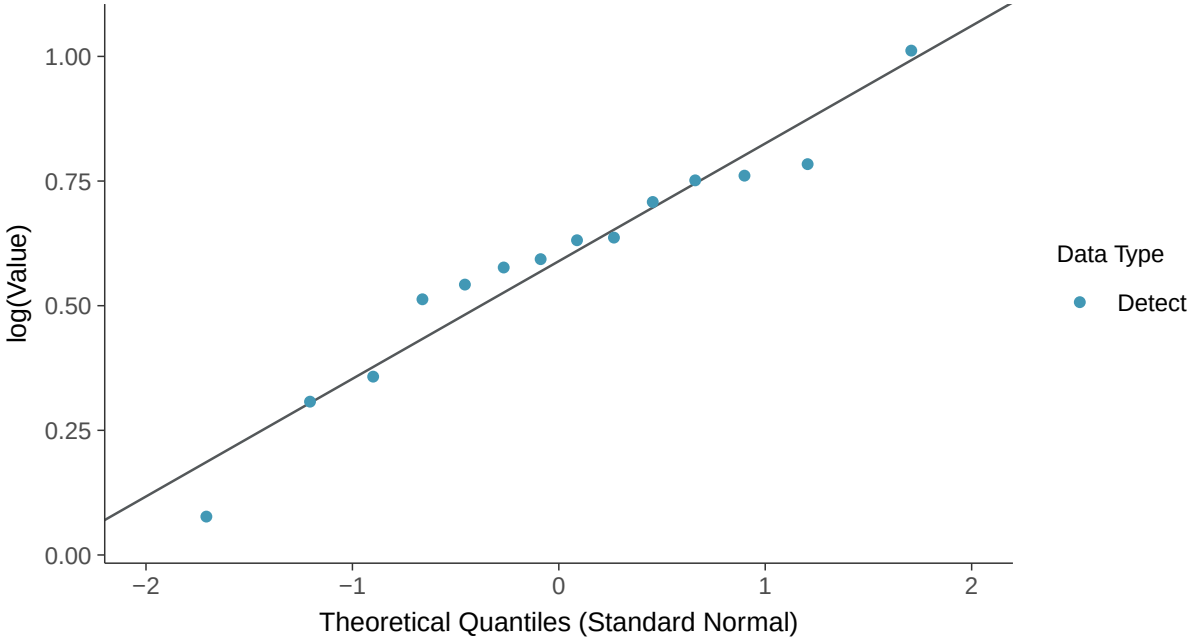
Normal Q-Q plot

Boron, MW-7 (mg/L)



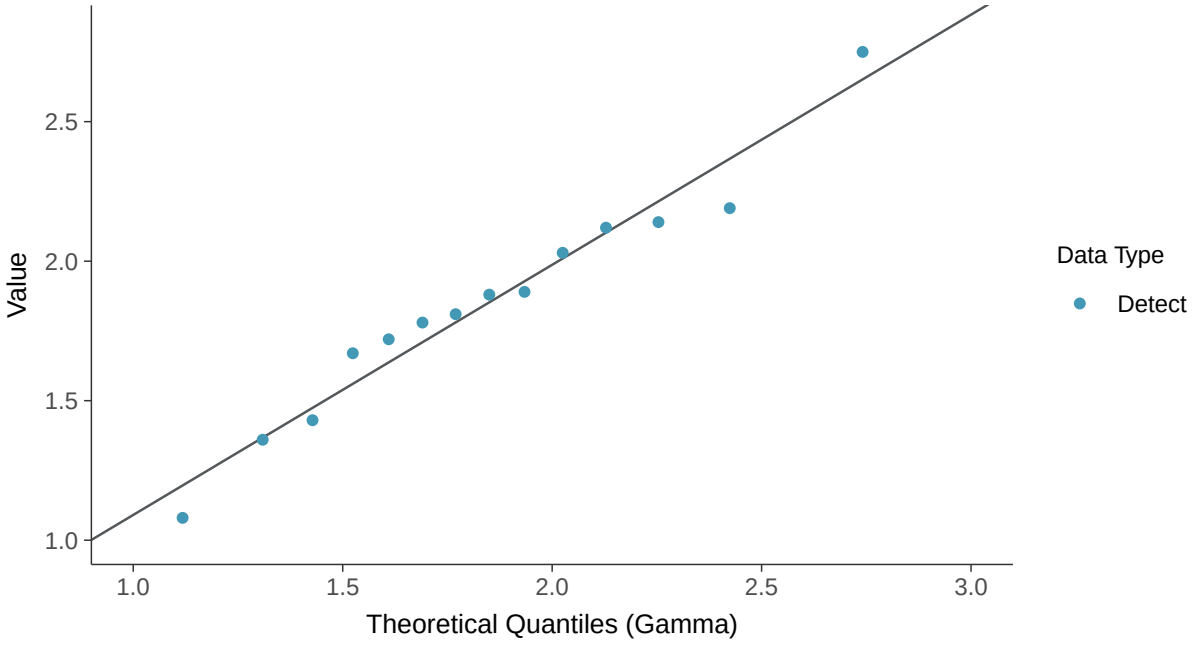
Lognormal Q-Q plot

Boron, MW-7 (mg/L)



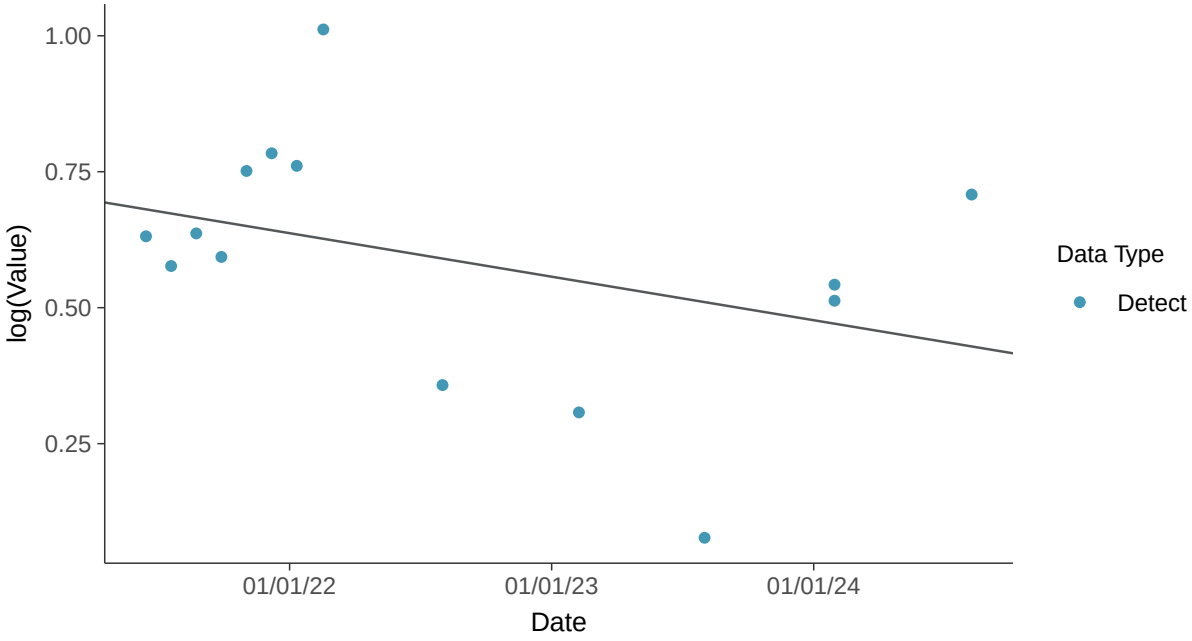
Gamma Q-Q plot

Boron, MW-7 (mg/L)



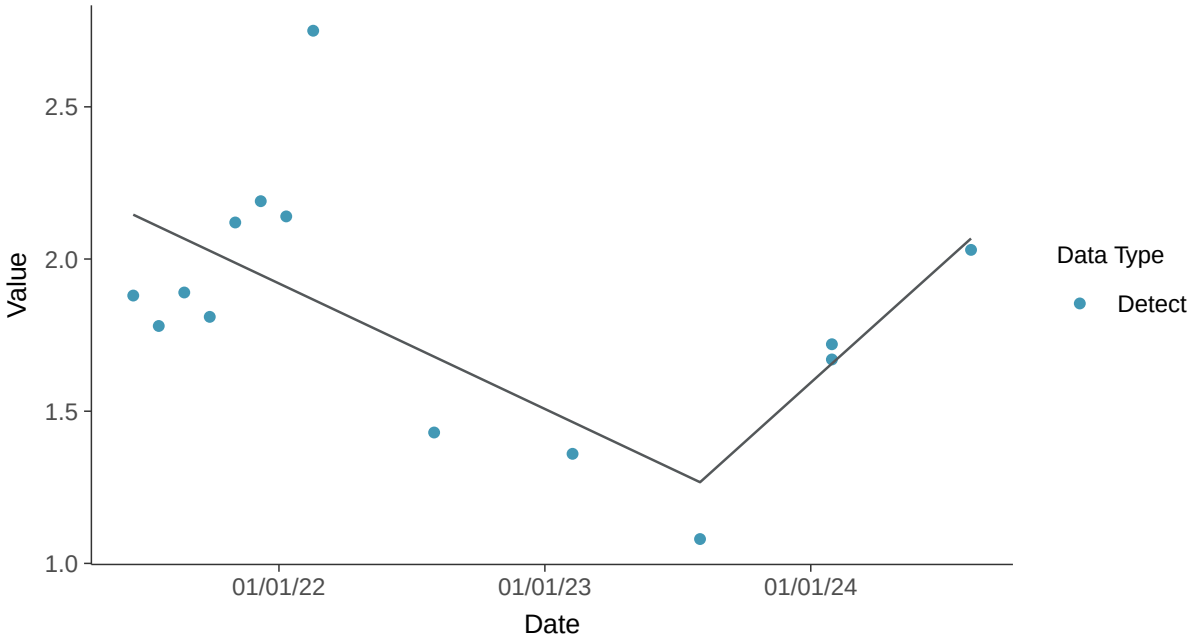
Trend Regression: Lognormal MLE

Boron, MW-7 (mg/L)



Trend Regression: Piecewise Linear-Linear

Boron, MW-7 (mg/L)

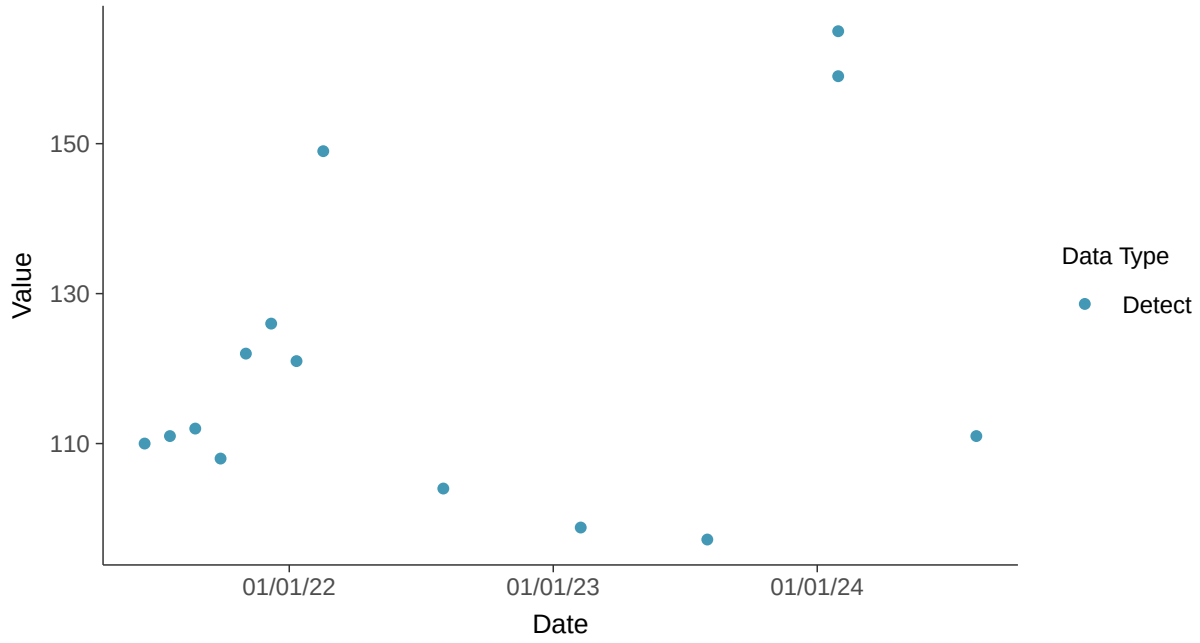


Appendix III: Calcium, MW-7

ID: 07_1_02

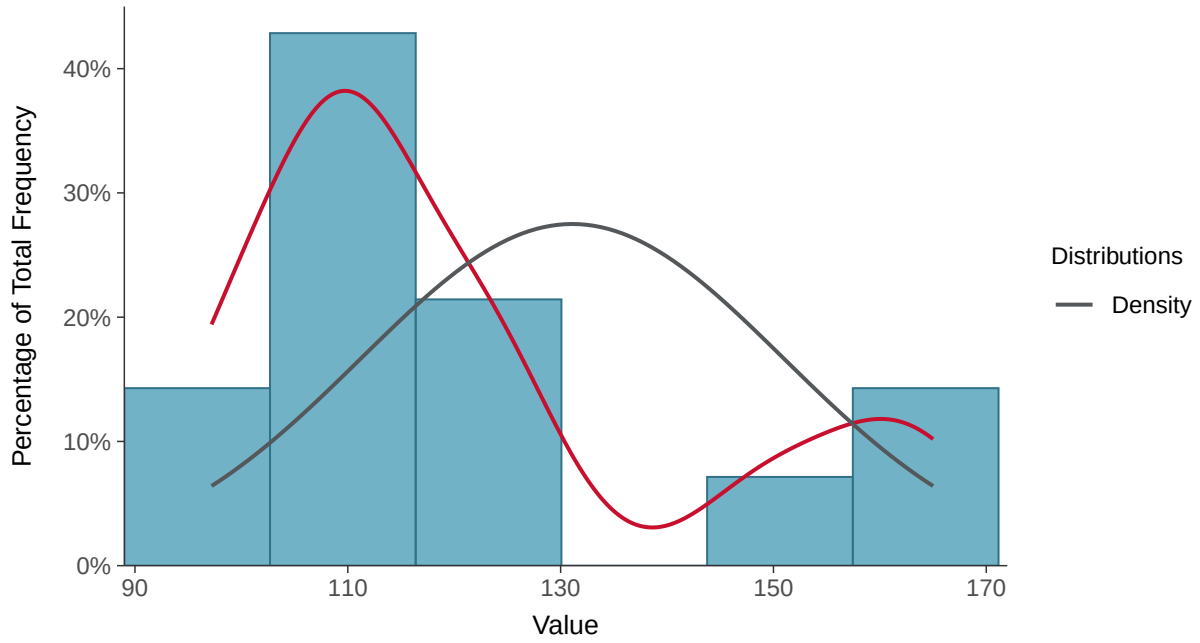
Scatter Plot

Calcium, MW-7 (mg/L)



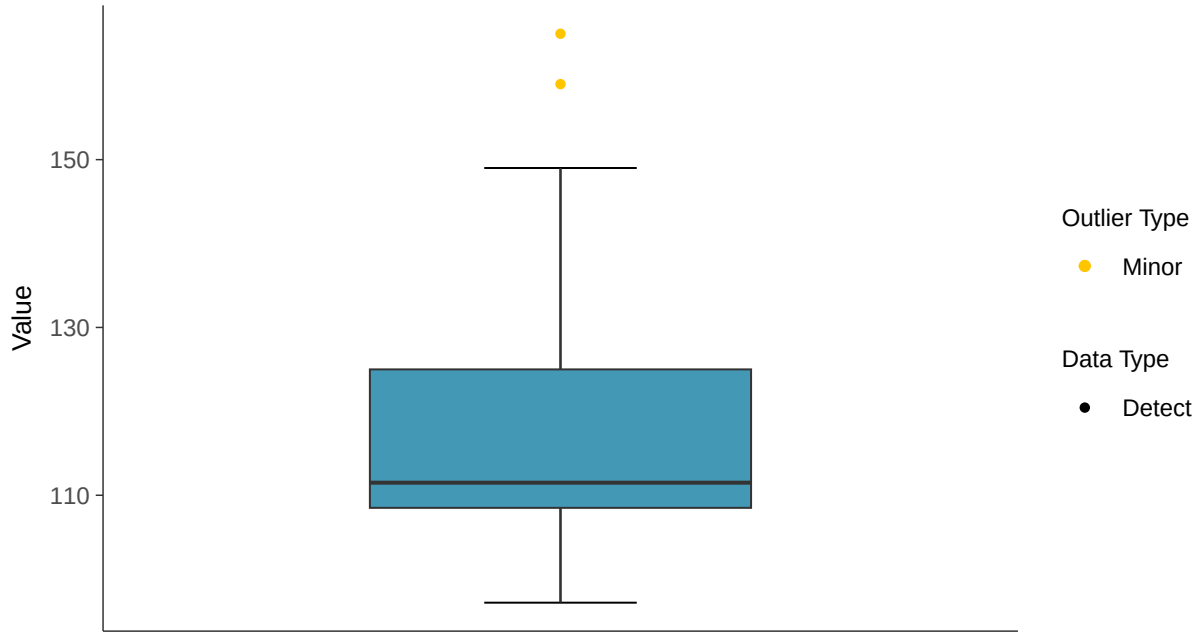
Histogram

Calcium, MW-7 (mg/L)



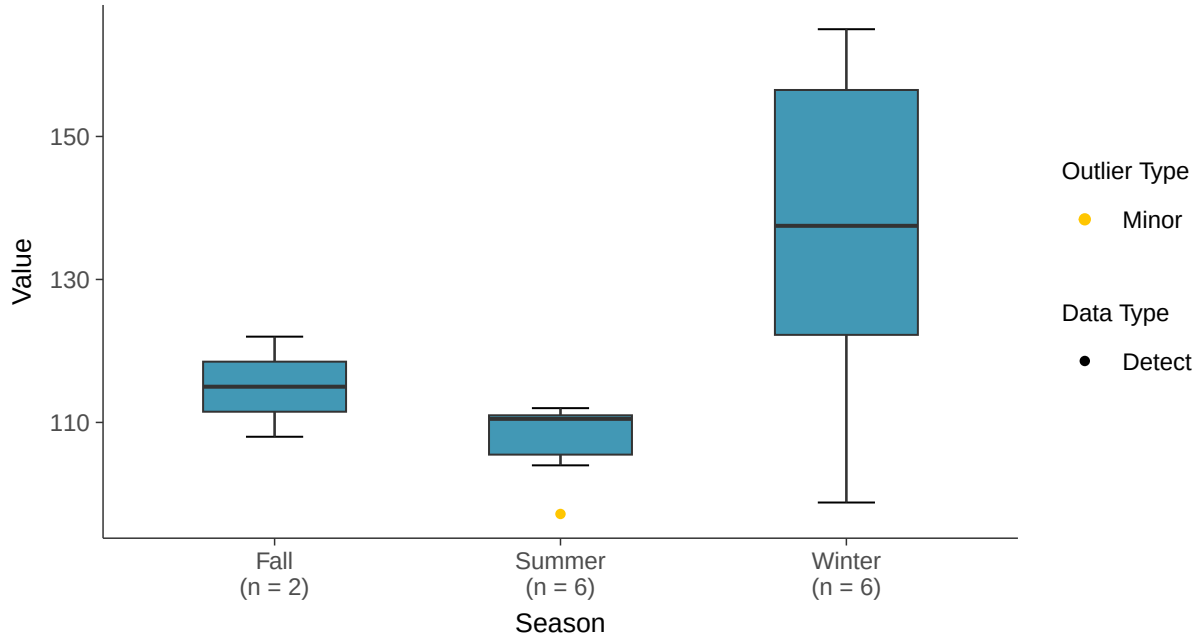
Boxplot

Calcium, MW-7 (mg/L)



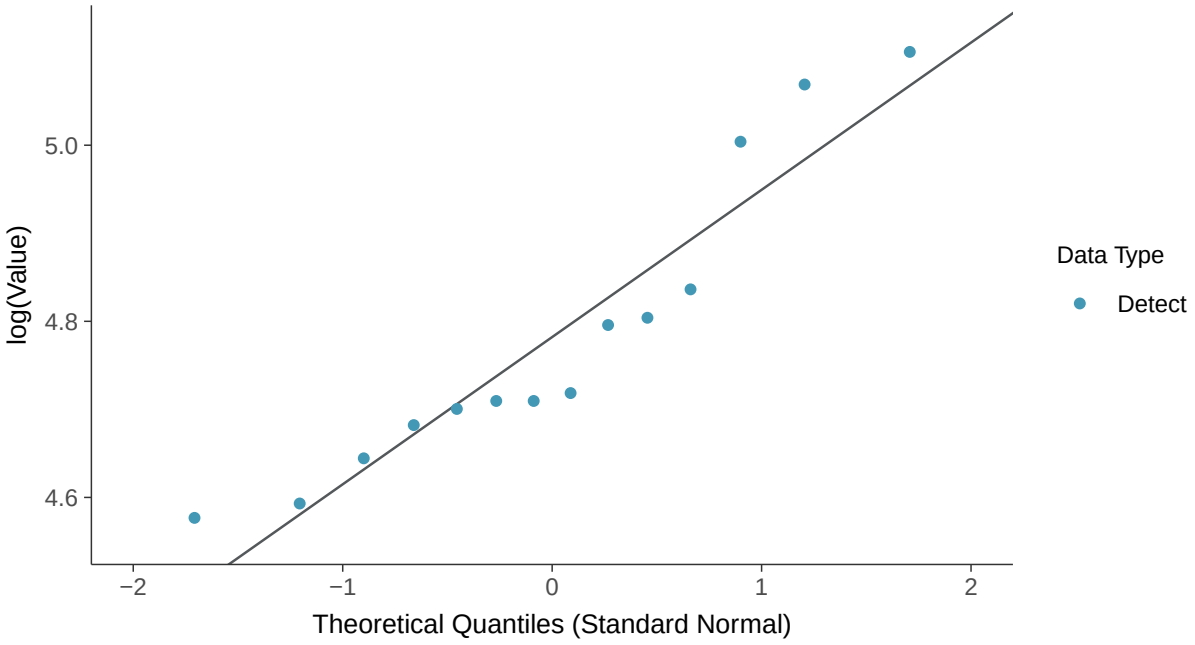
Boxplot by Season

Calcium, MW-7 (mg/L)



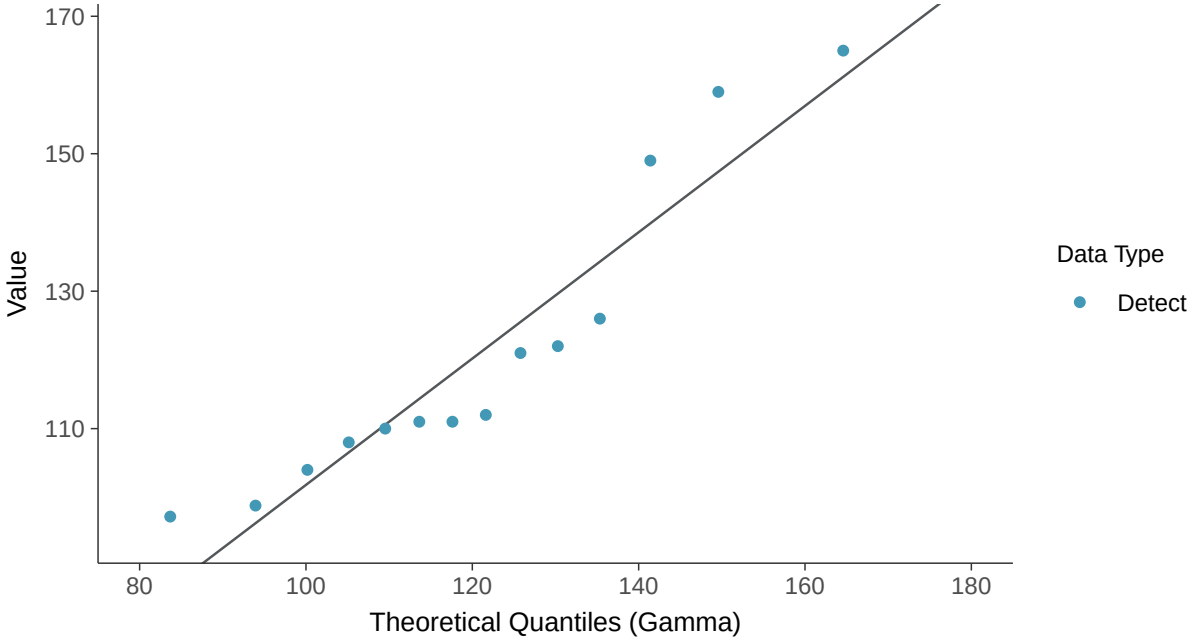
Lognormal Q-Q plot

Calcium, MW-7 (mg/L)



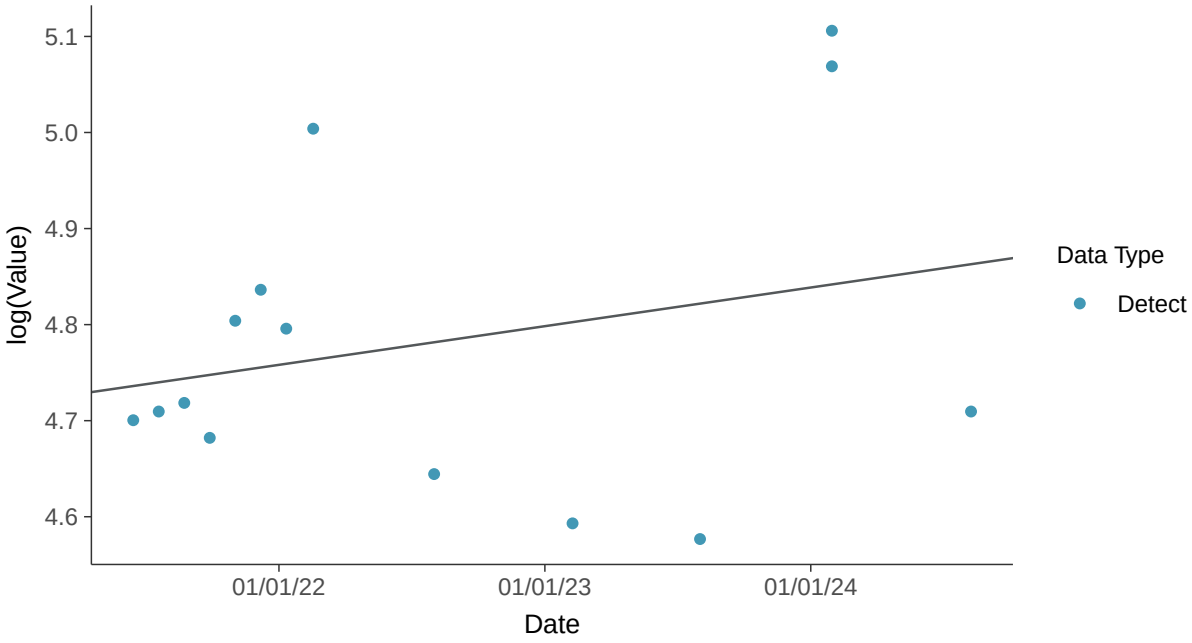
Gamma Q-Q plot

Calcium, MW-7 (mg/L)



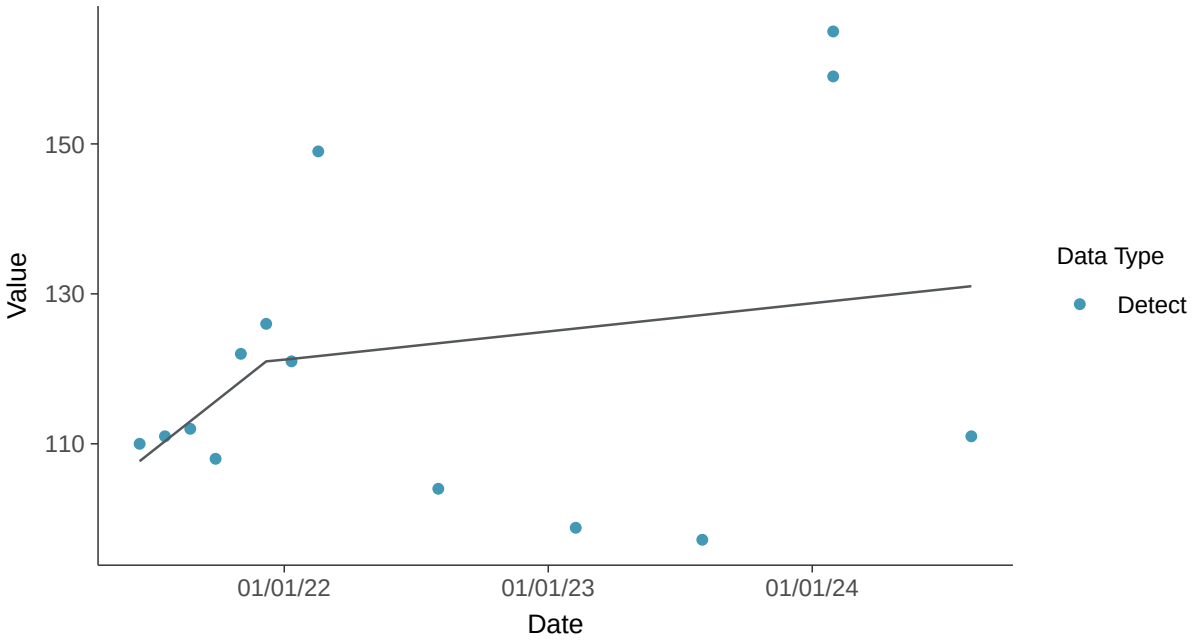
Trend Regression: Lognormal MLE

Calcium, MW-7 (mg/L)



Trend Regression: Piecewise Linear-Linear

Calcium, MW-7 (mg/L)

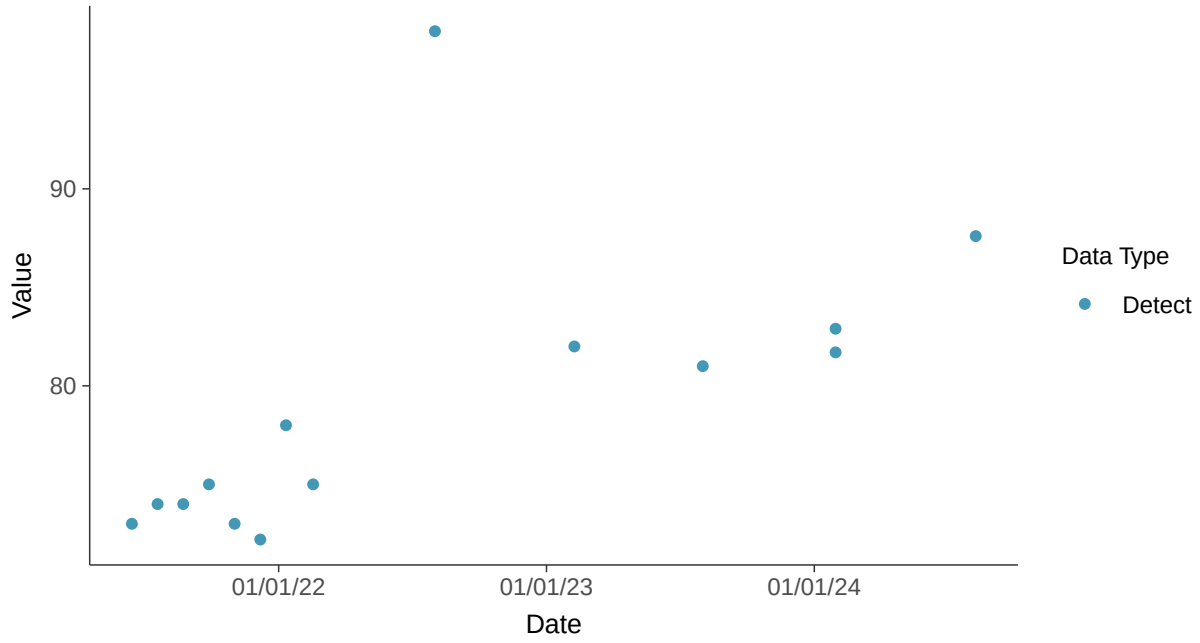


Appendix III: Chloride, MW-7

ID: 07_1_03

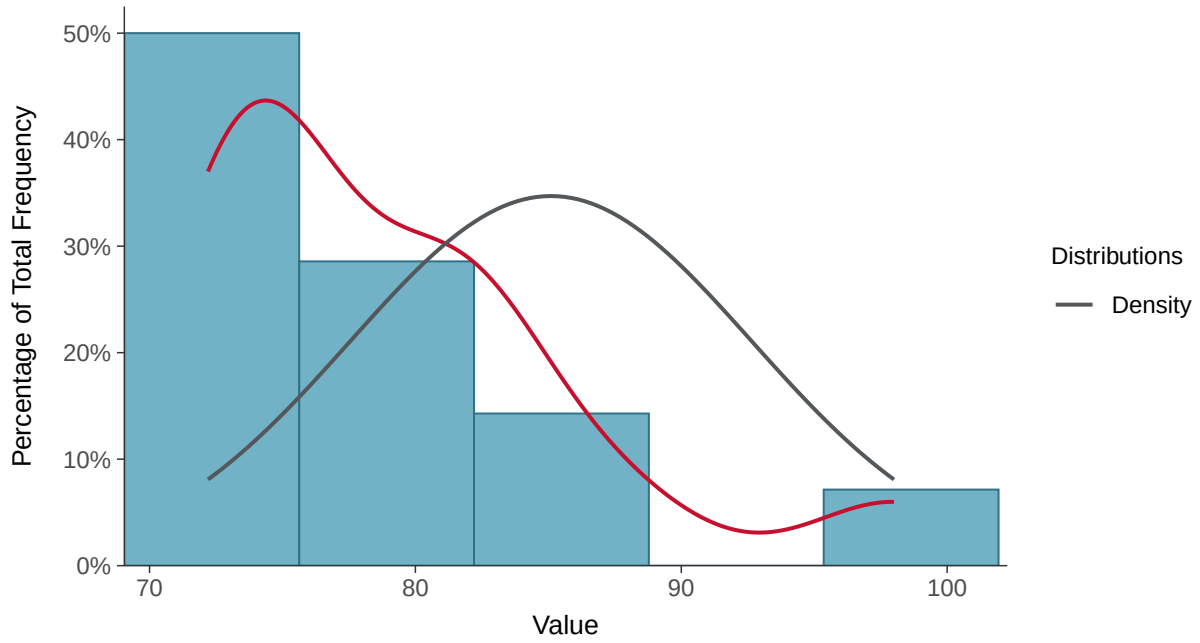
Scatter Plot

Chloride, MW-7 (mg/L)



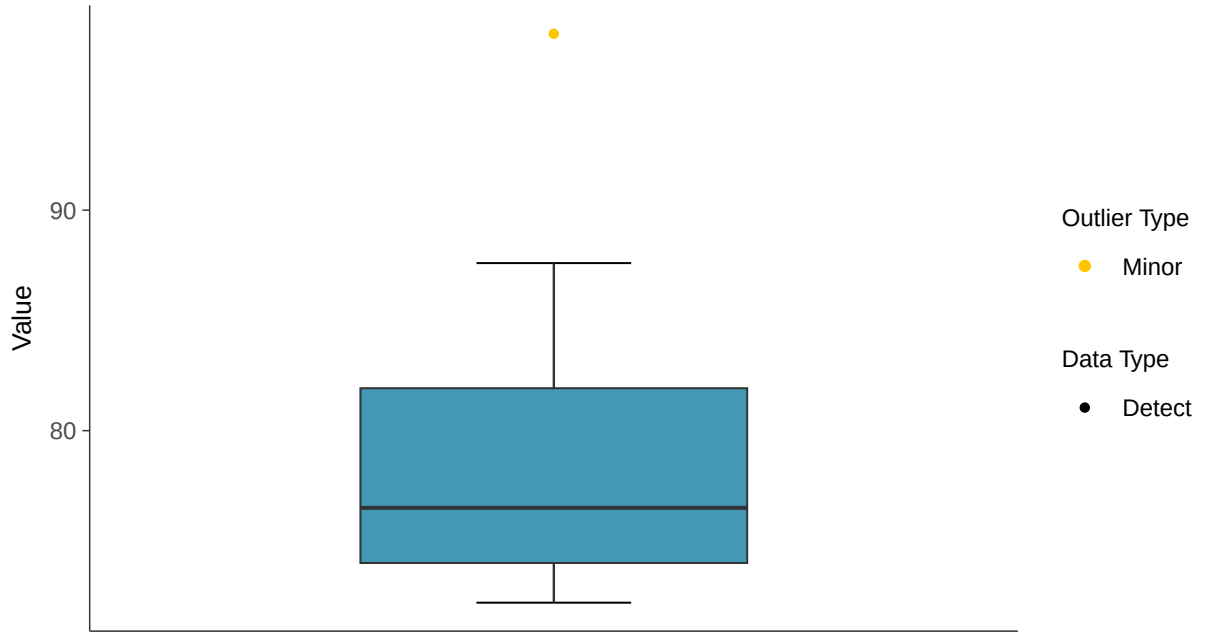
Histogram

Chloride, MW-7 (mg/L)



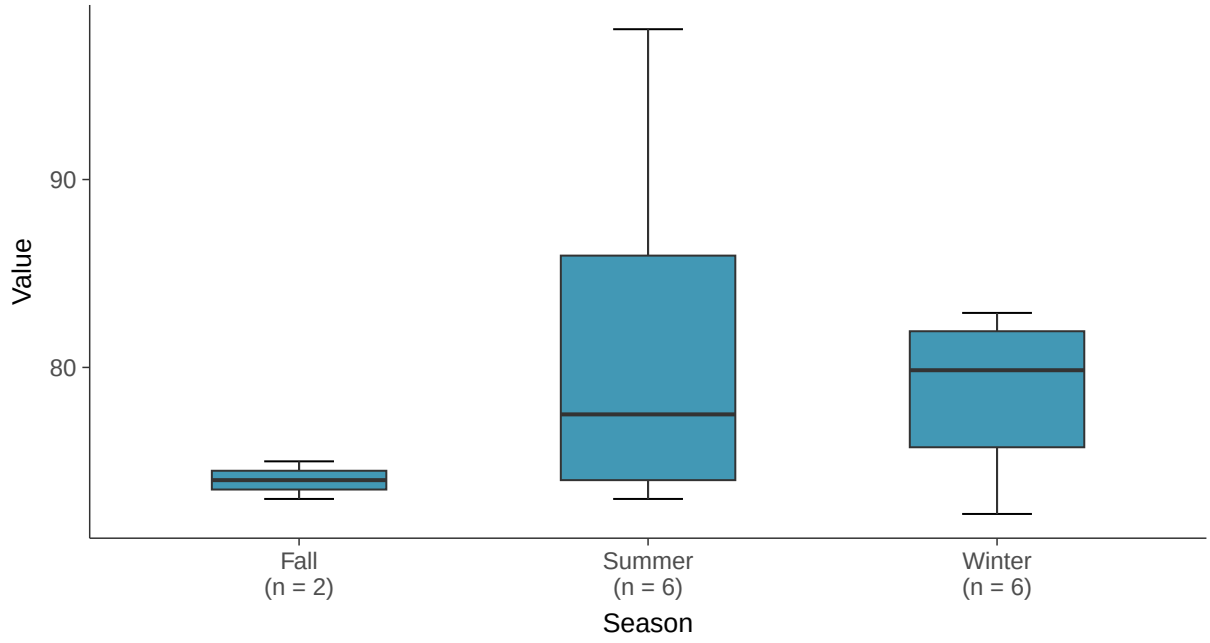
Boxplot

Chloride, MW-7 (mg/L)



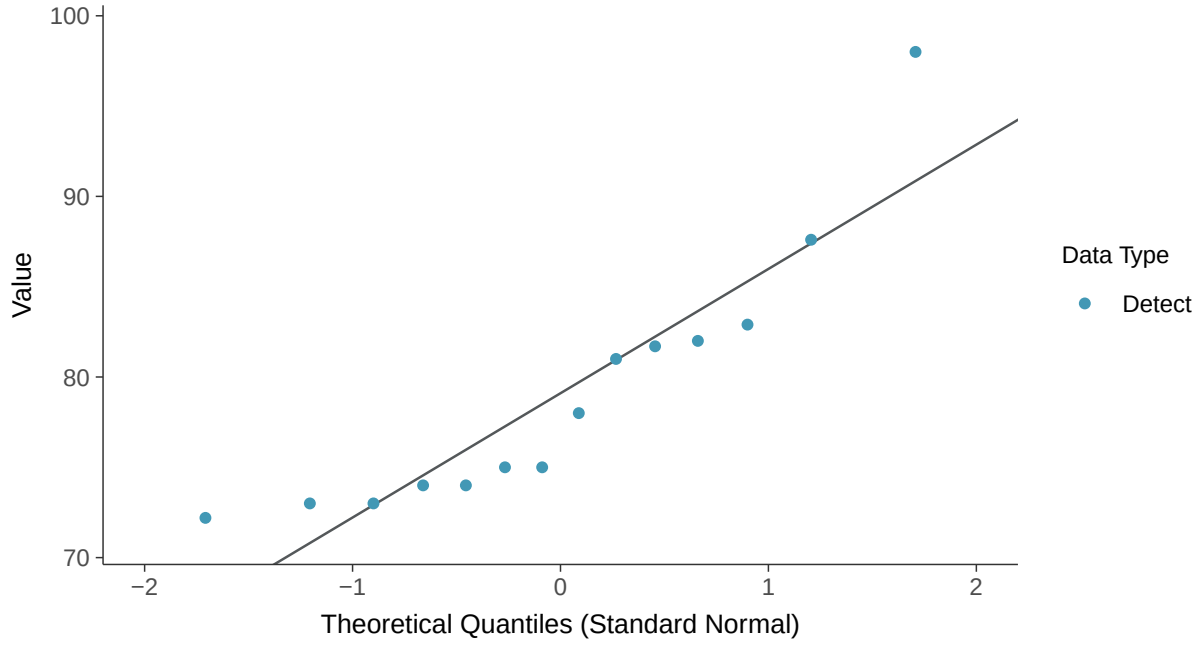
Boxplot by Season

Chloride, MW-7 (mg/L)



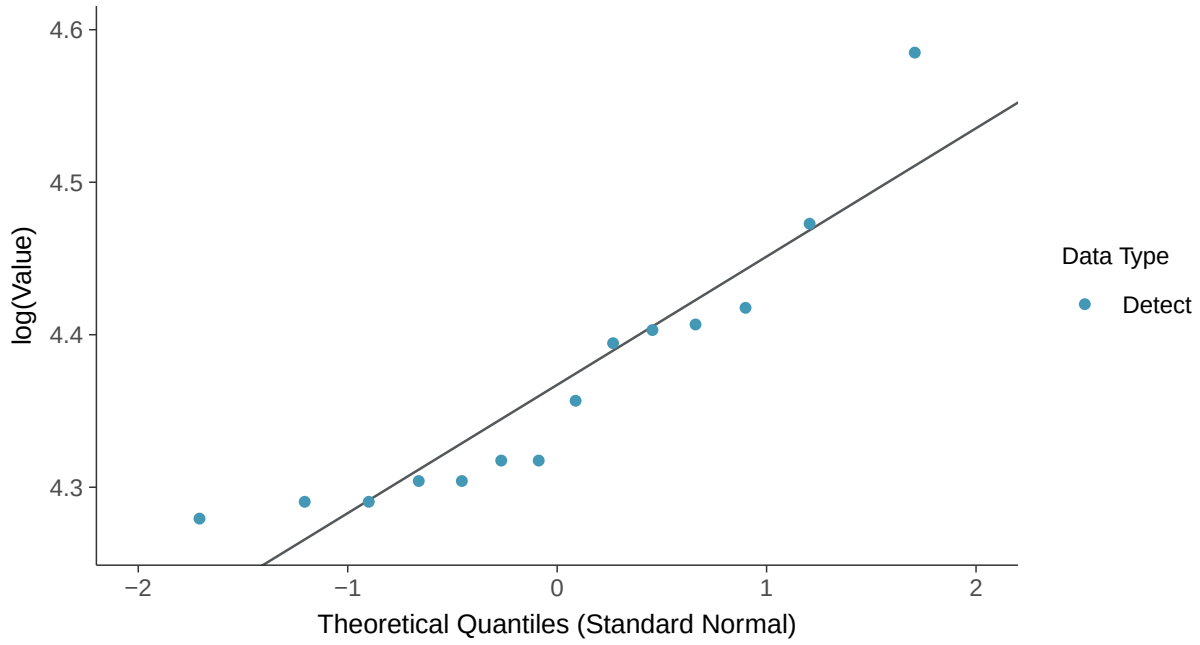
Normal Q-Q plot

Chloride, MW-7 (mg/L)



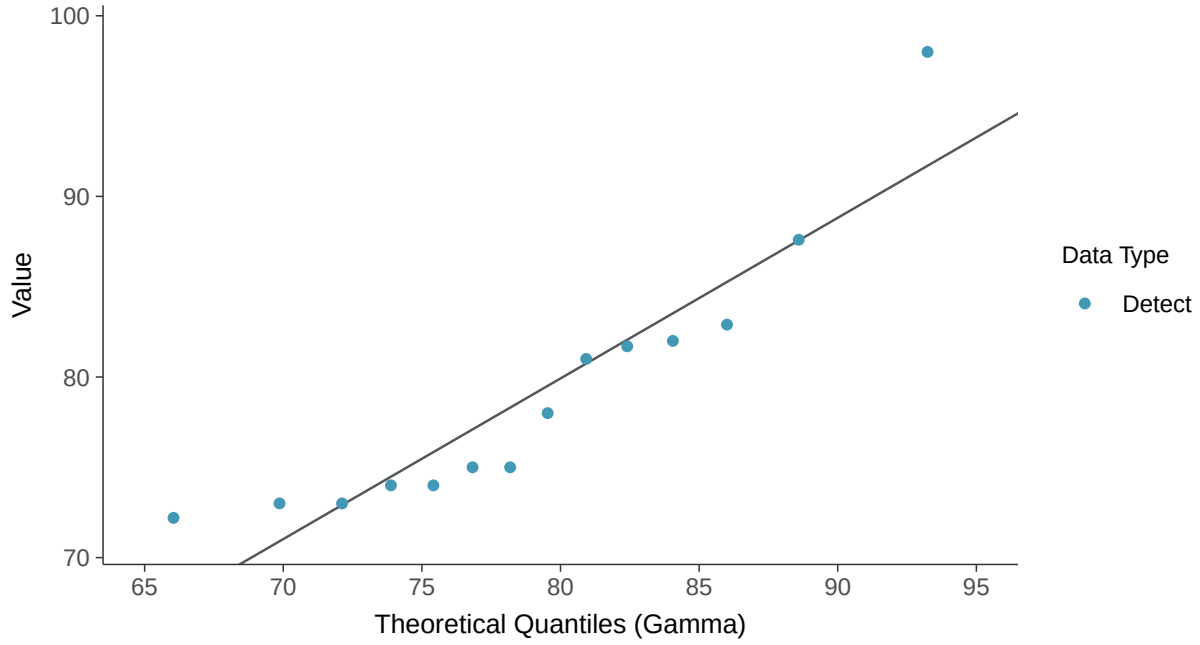
Lognormal Q-Q plot

Chloride, MW-7 (mg/L)



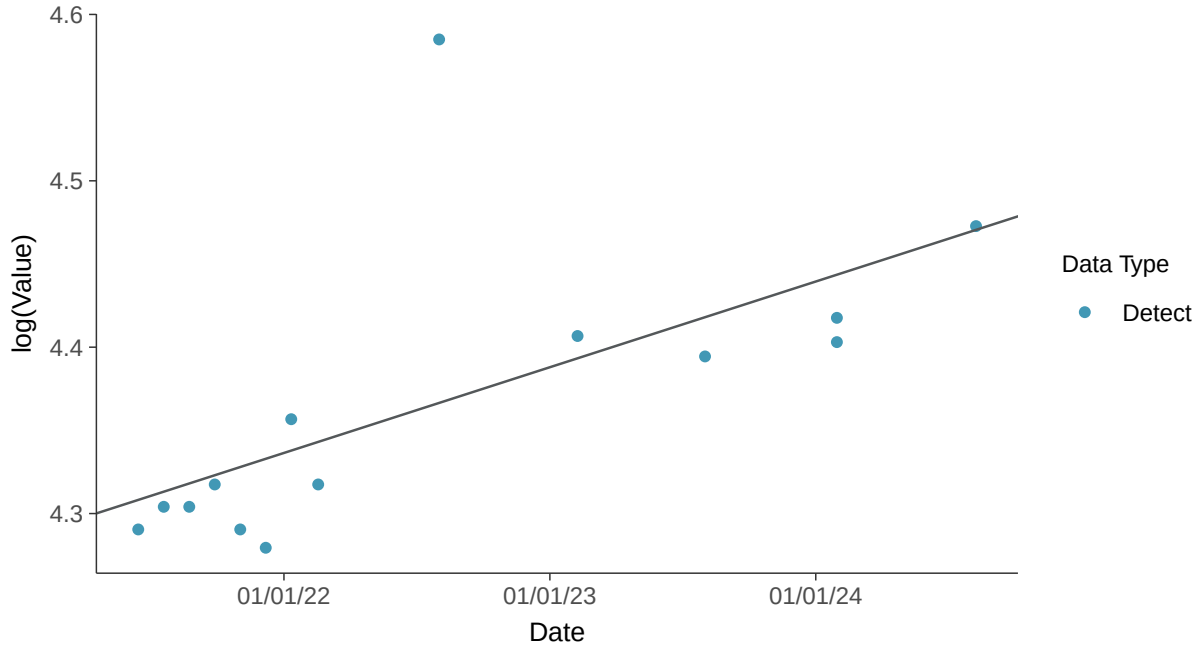
Gamma Q-Q plot

Chloride, MW-7 (mg/L)



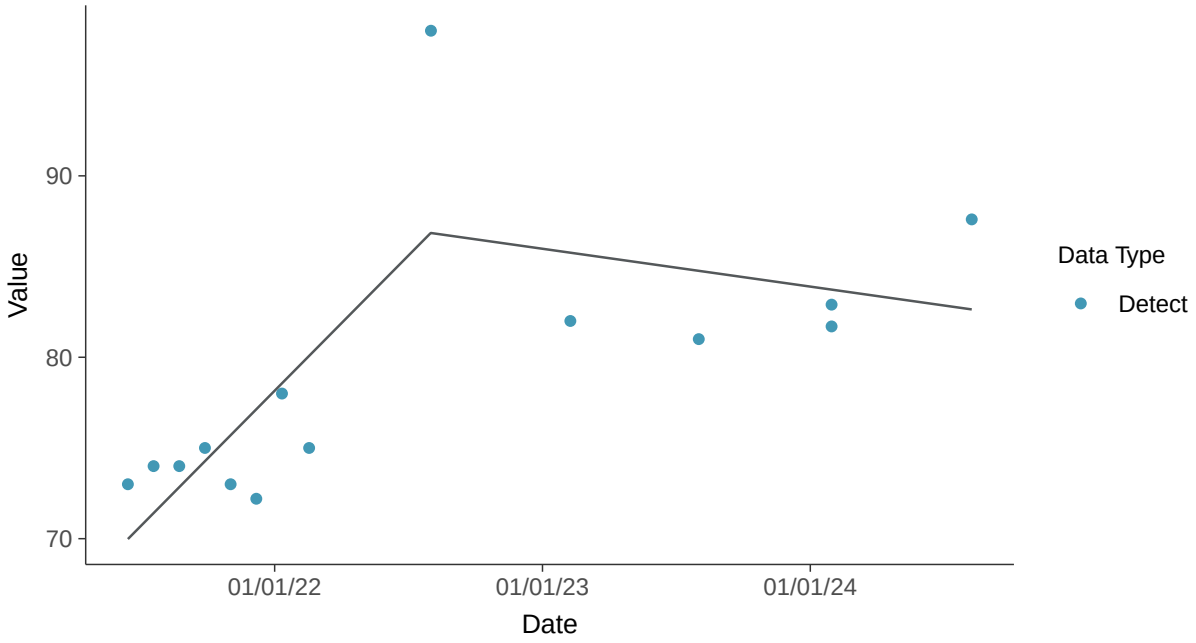
Trend Regression: Lognormal MLE

Chloride, MW-7 (mg/L)



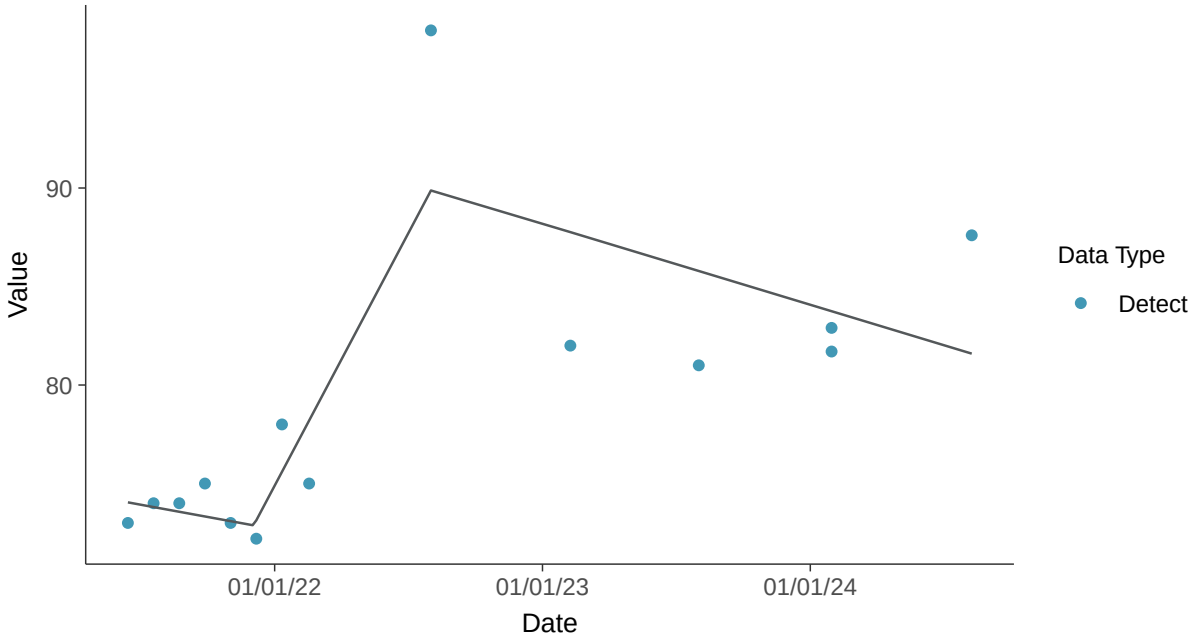
Trend Regression: Piecewise Linear-Linear

Chloride, MW-7 (mg/L)



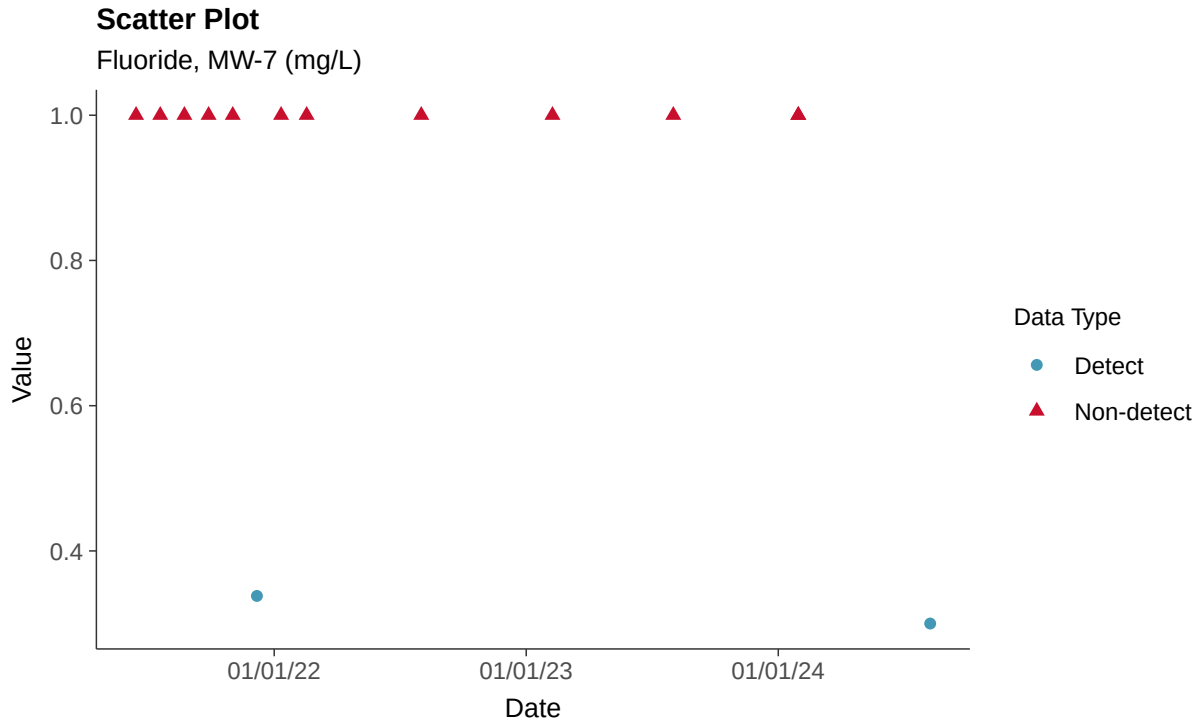
Trend Regression: Piecewise Linear-Linear-Linear

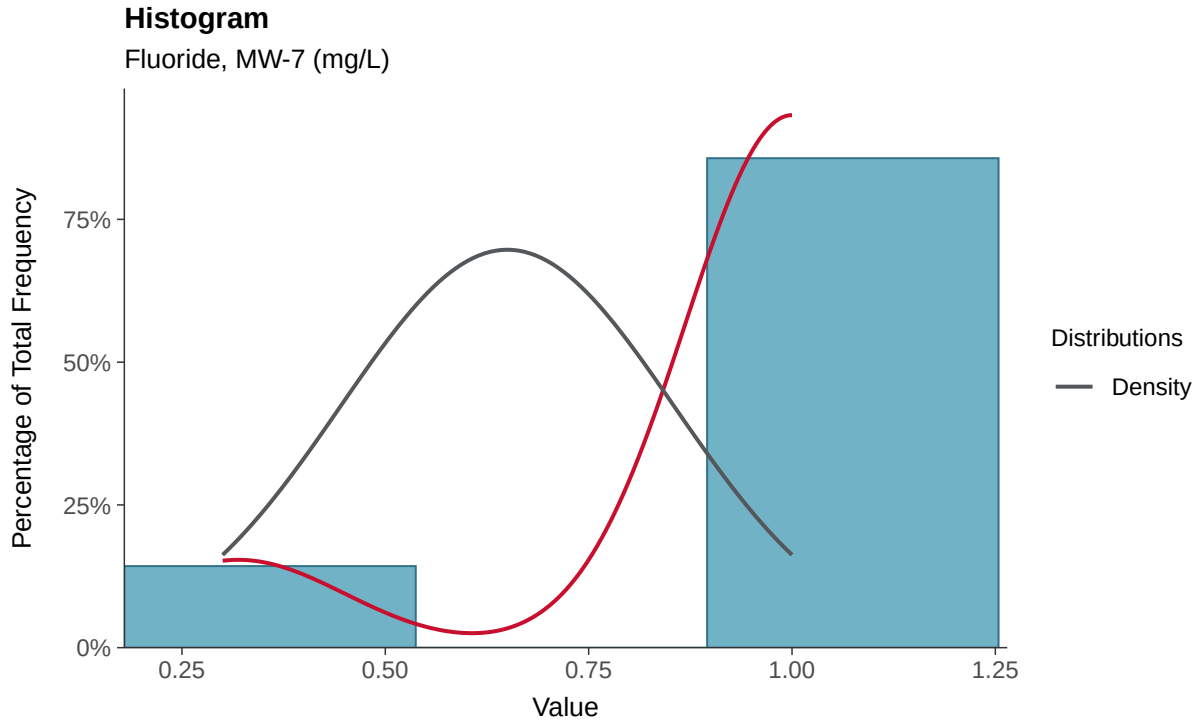
Chloride, MW-7 (mg/L)



Appendix III: Fluoride, MW-7

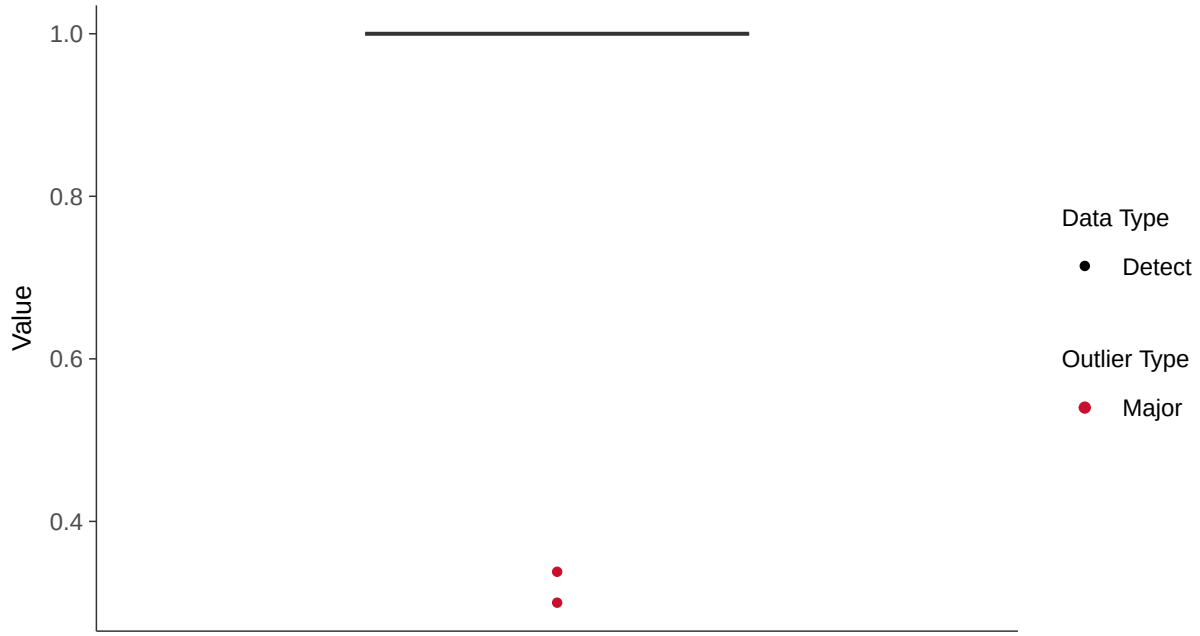
ID: 07_1_04





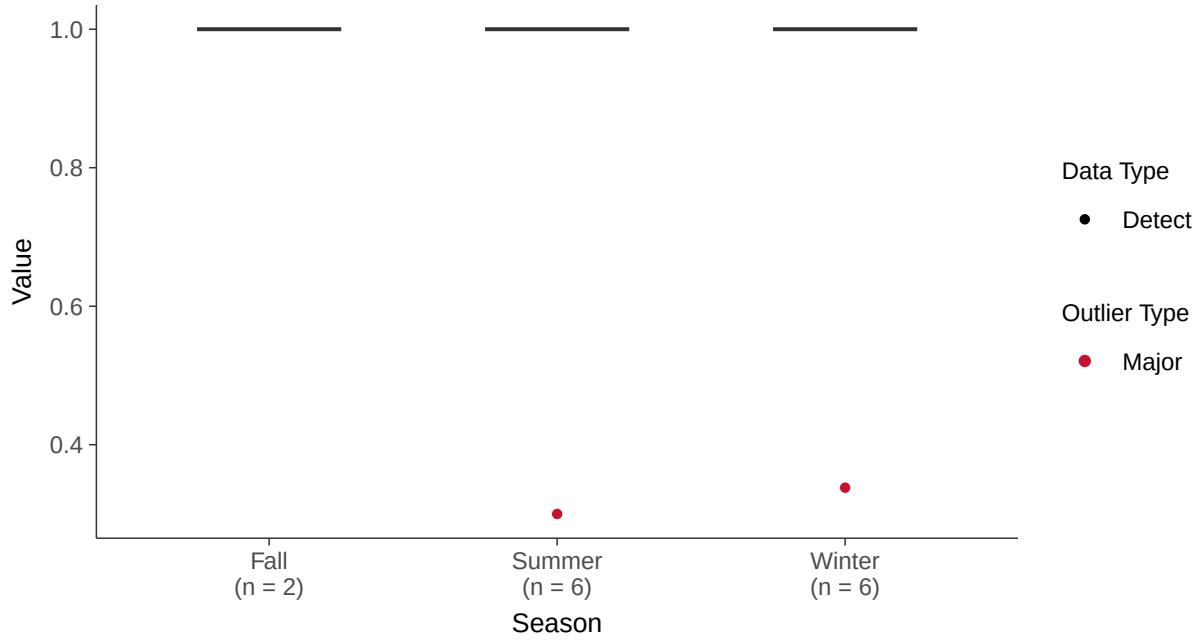
Boxplot

Fluoride, MW-7 (mg/L)



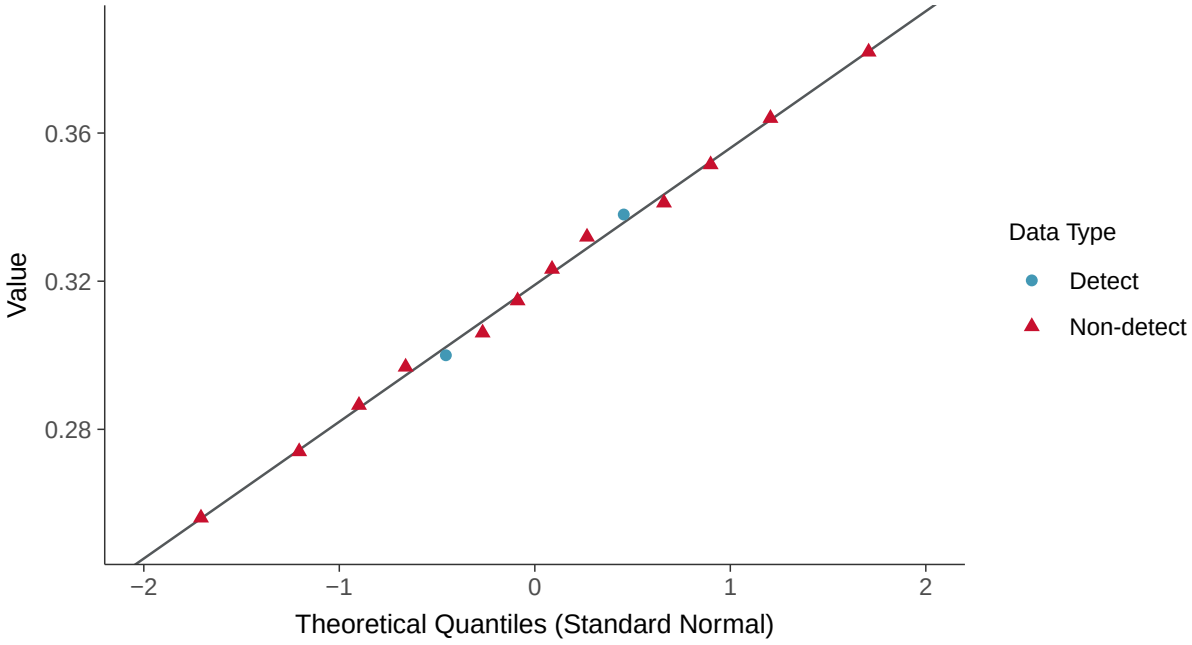
Boxplot by Season

Fluoride, MW-7 (mg/L)



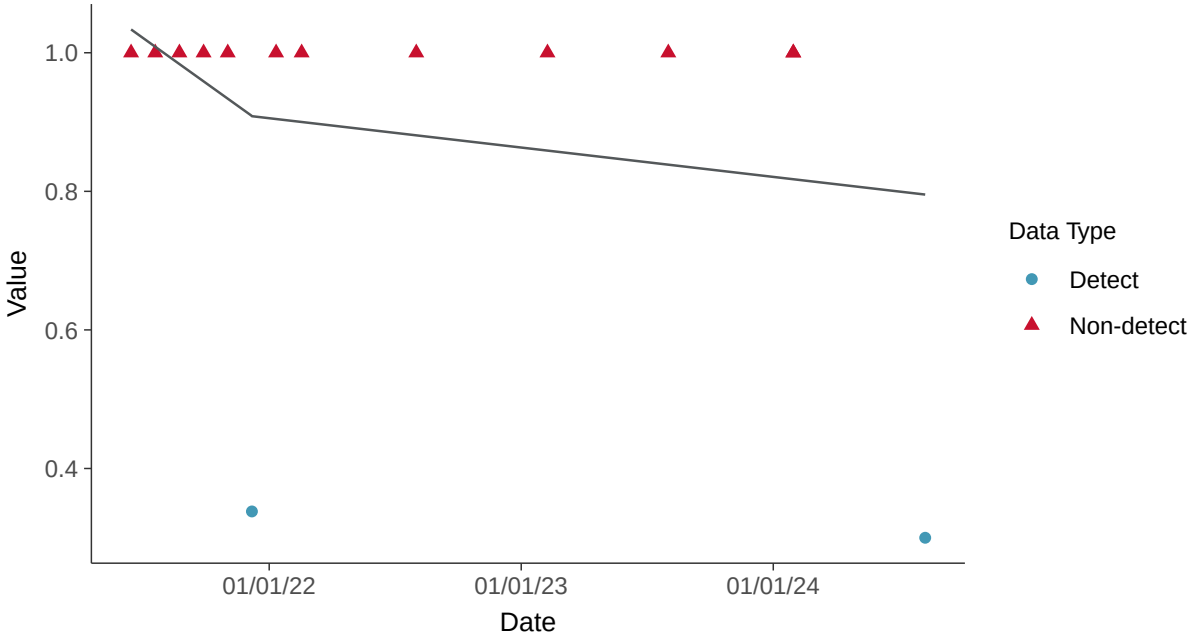
Normal Q-Q plot using ROS Imputed Estimates

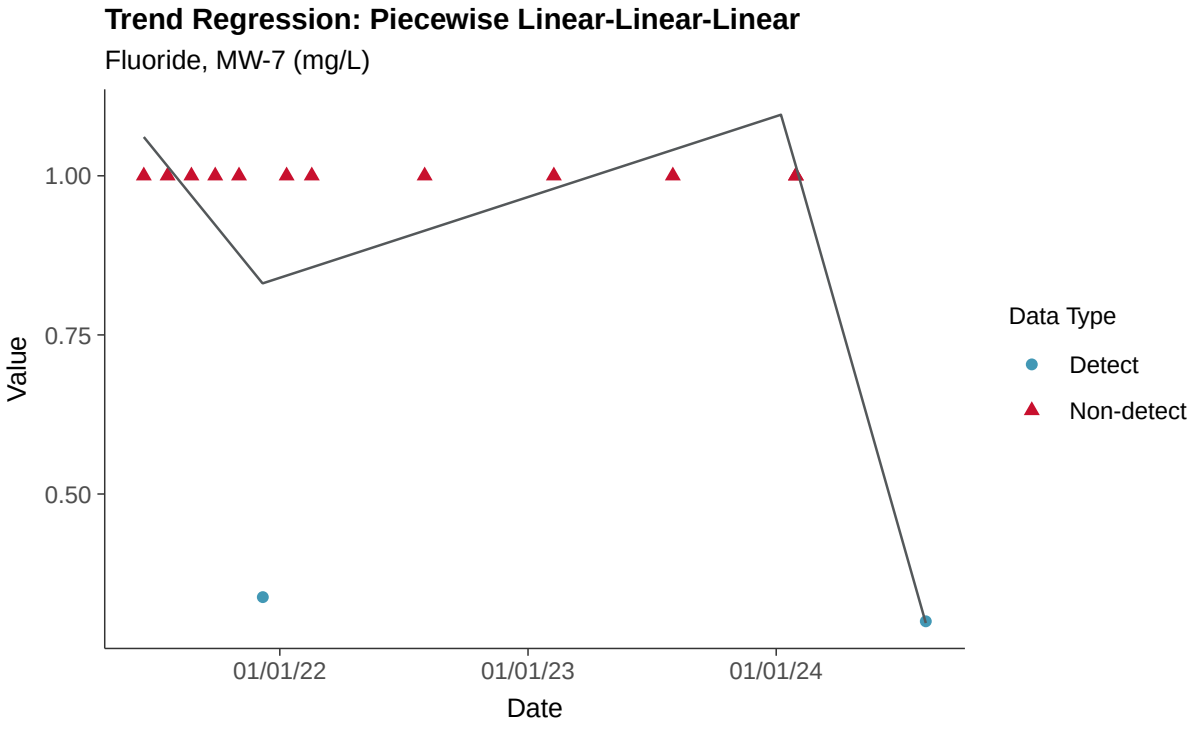
Fluoride, MW-7 (mg/L)



Trend Regression: Piecewise Linear-Linear

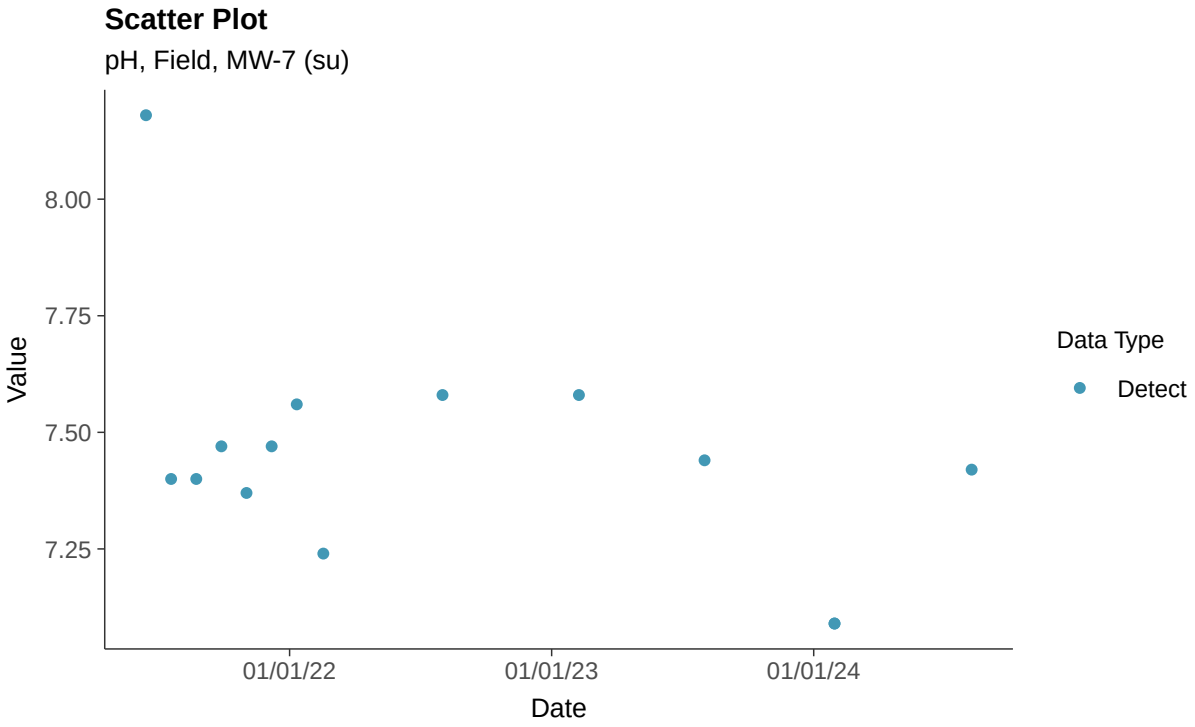
Fluoride, MW-7 (mg/L)

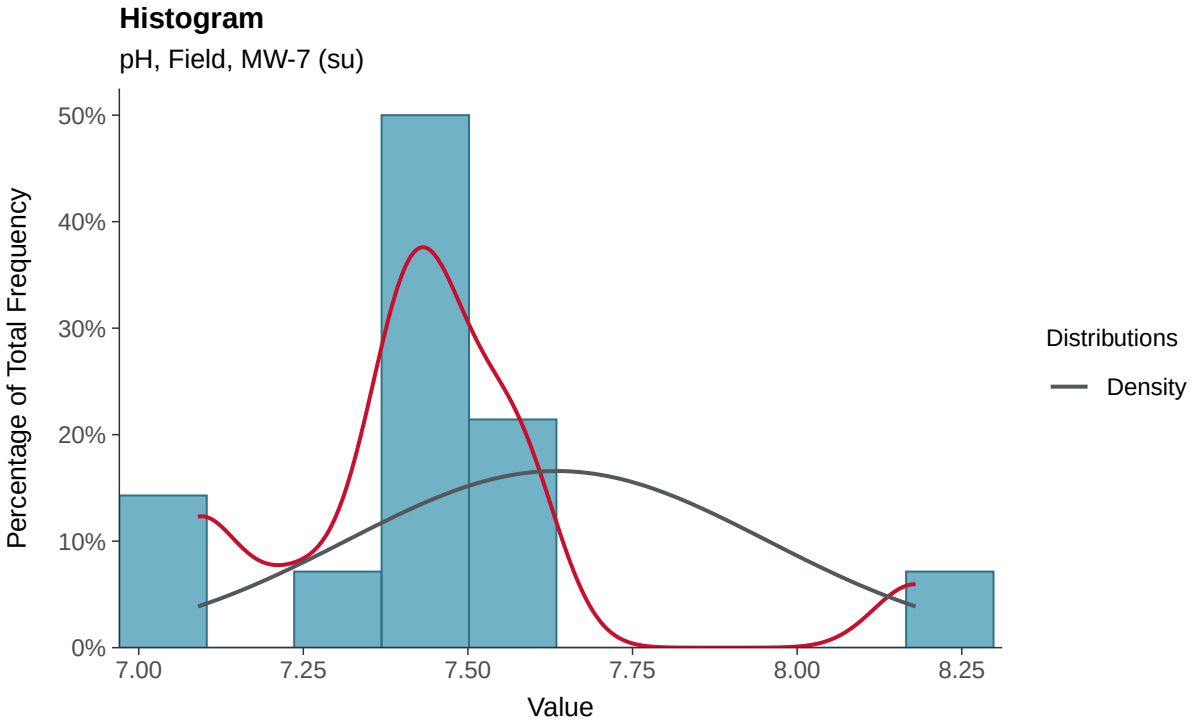



Trend Regression: Piecewise Linear-Linear-Linear
Fluoride, MW-7 (mg/L)
1.00
0.75
0.50
Value
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect
Non-detect

Appendix III: pH, Field, MW-7

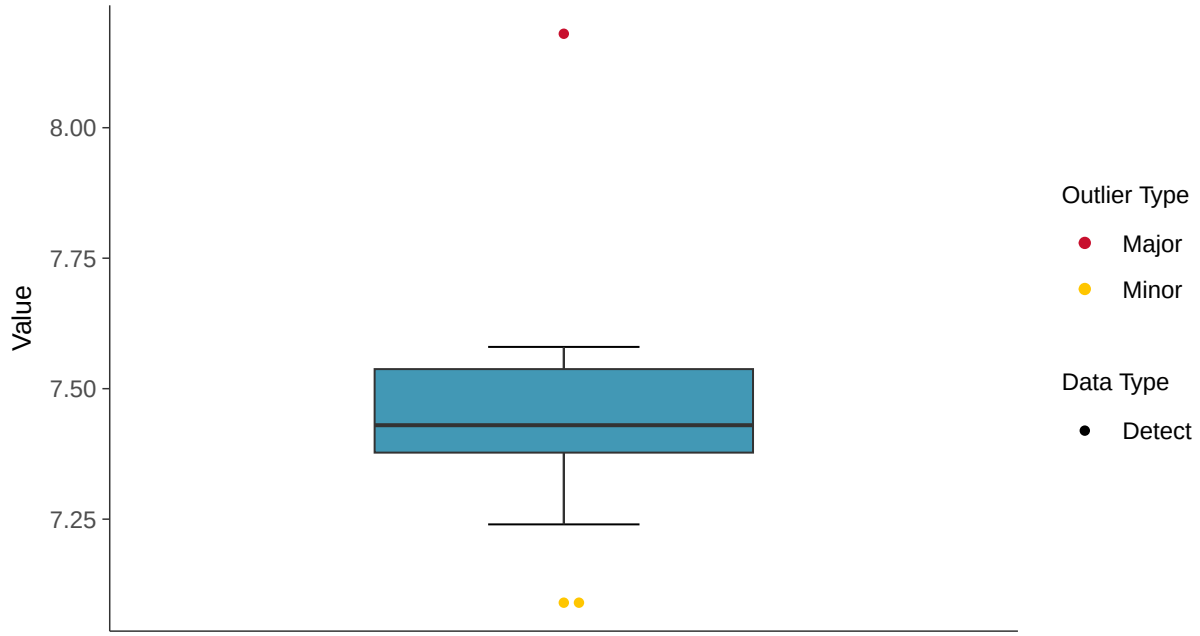
ID: 07_1_05





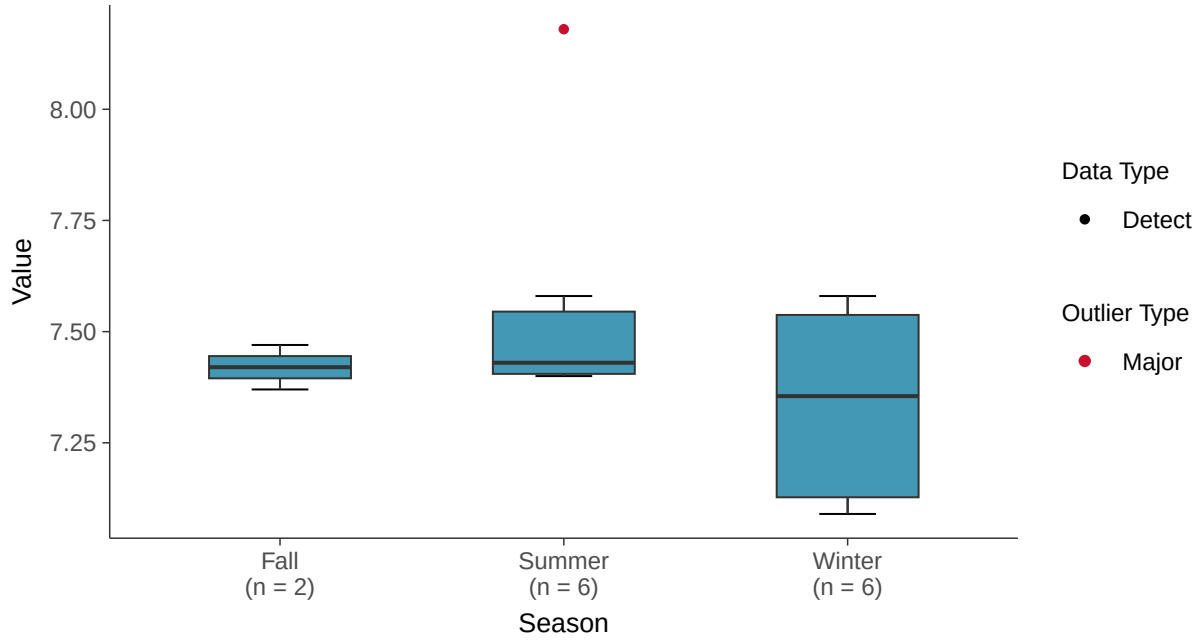
Boxplot

pH, Field, MW-7 (su)



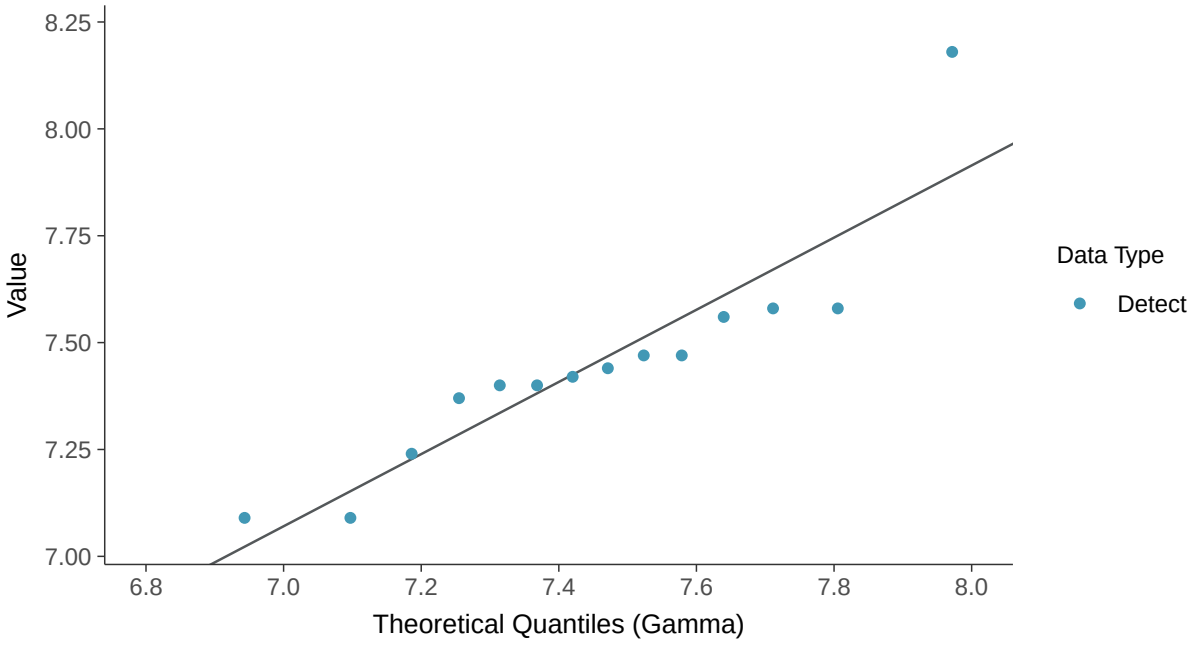
Boxplot by Season

pH, Field, MW-7 (su)



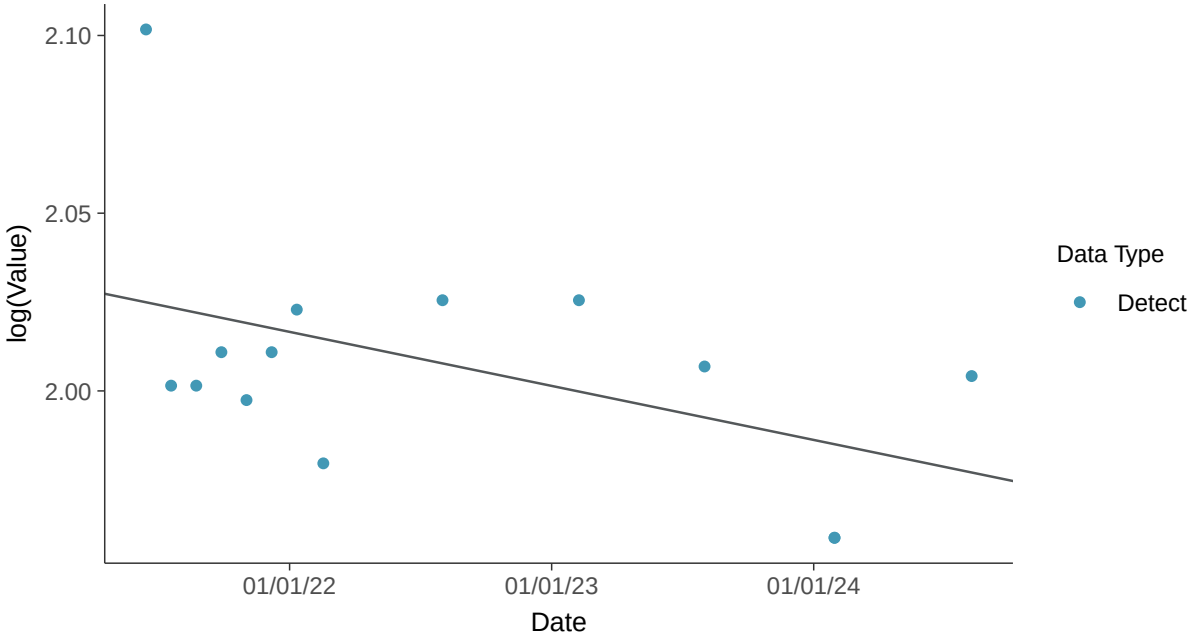
Gamma Q-Q plot

pH, Field, MW-7 (su)



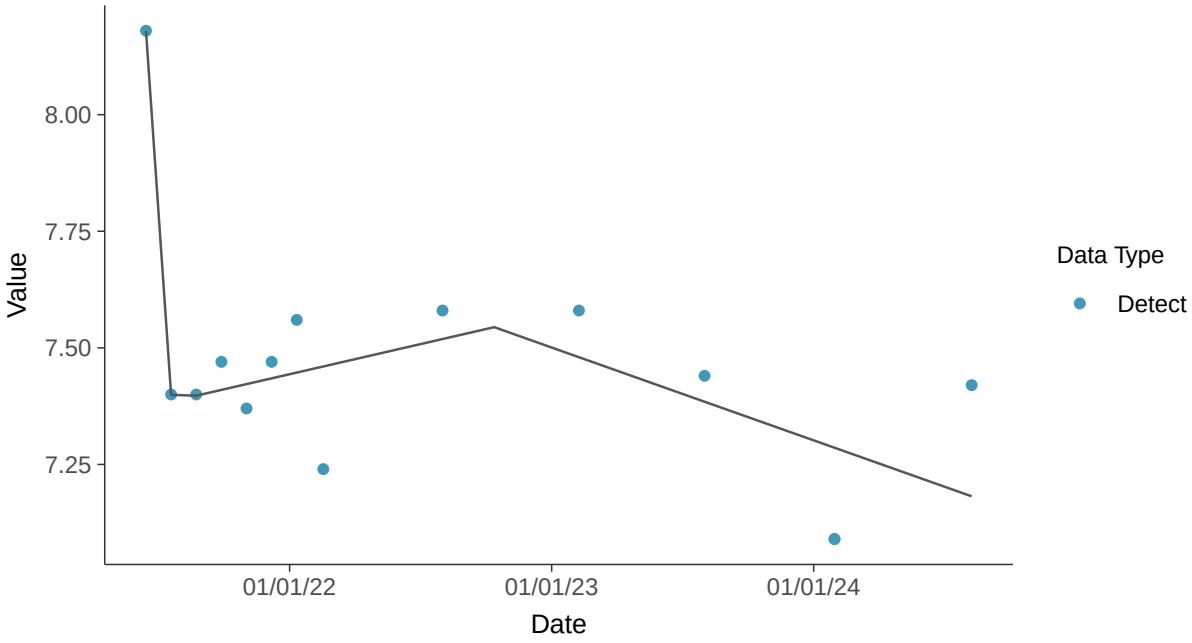
Trend Regression: Lognormal MLE

pH, Field, MW-7 (su)



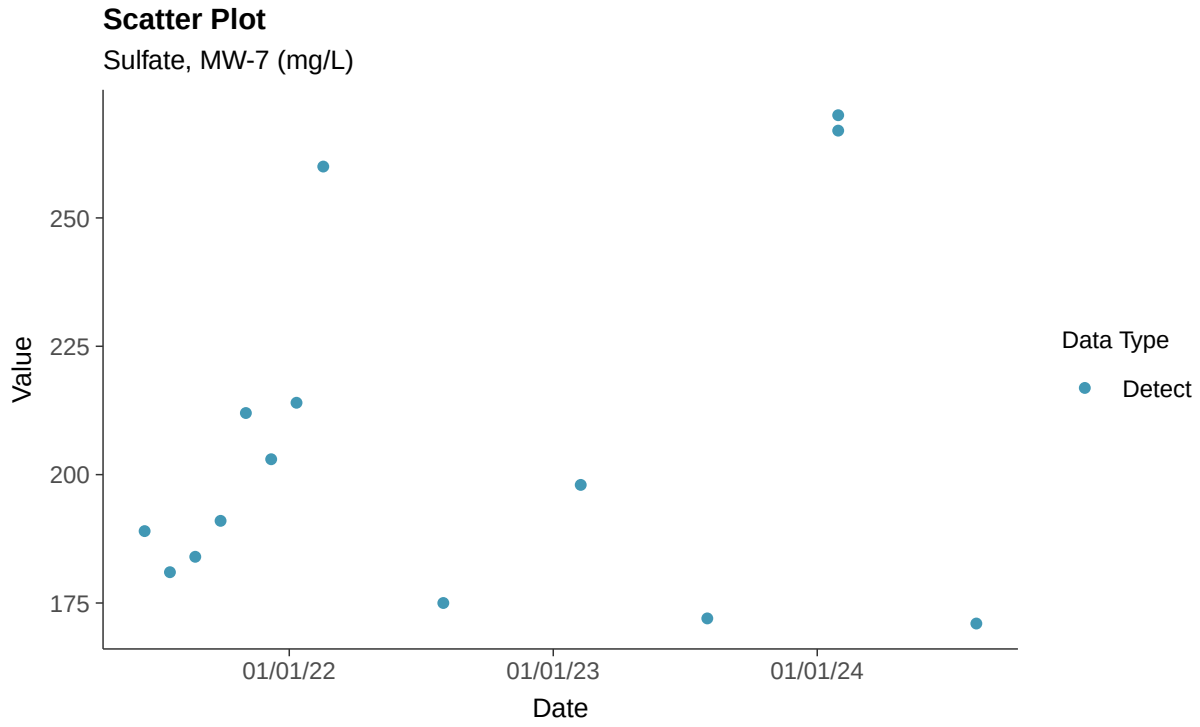
Trend Regression: Piecewise Linear-Linear-Linear

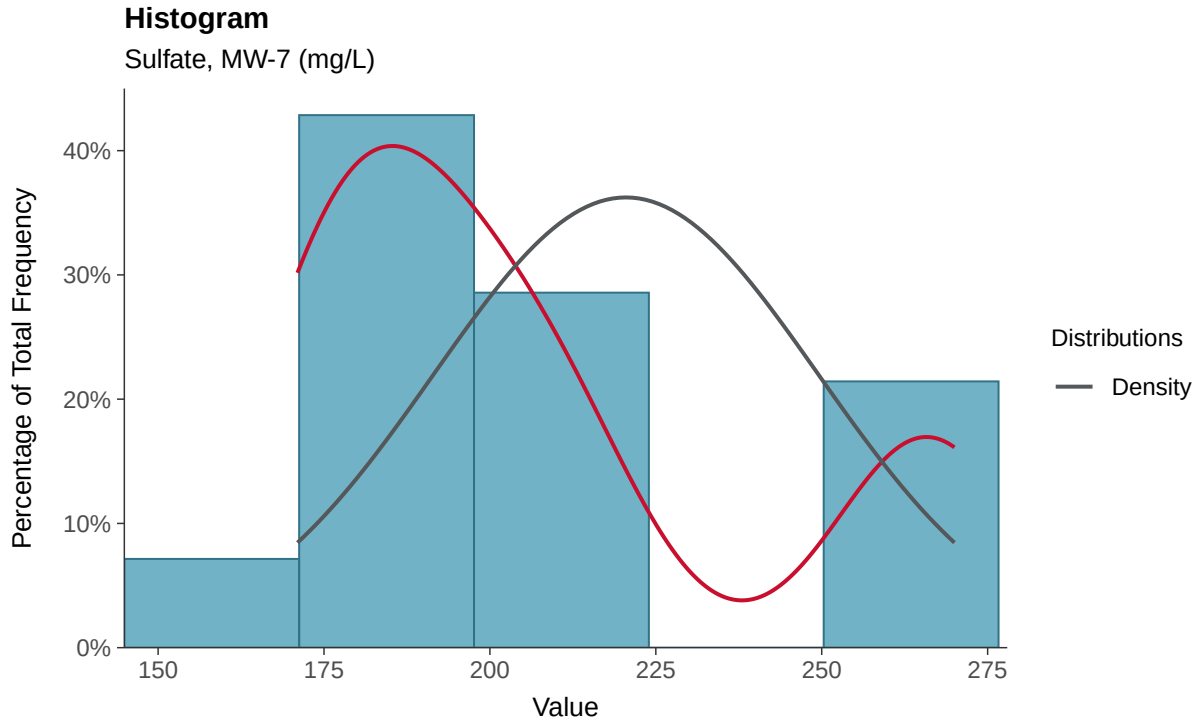
pH, Field, MW-7 (su)



Appendix III: Sulfate, MW-7

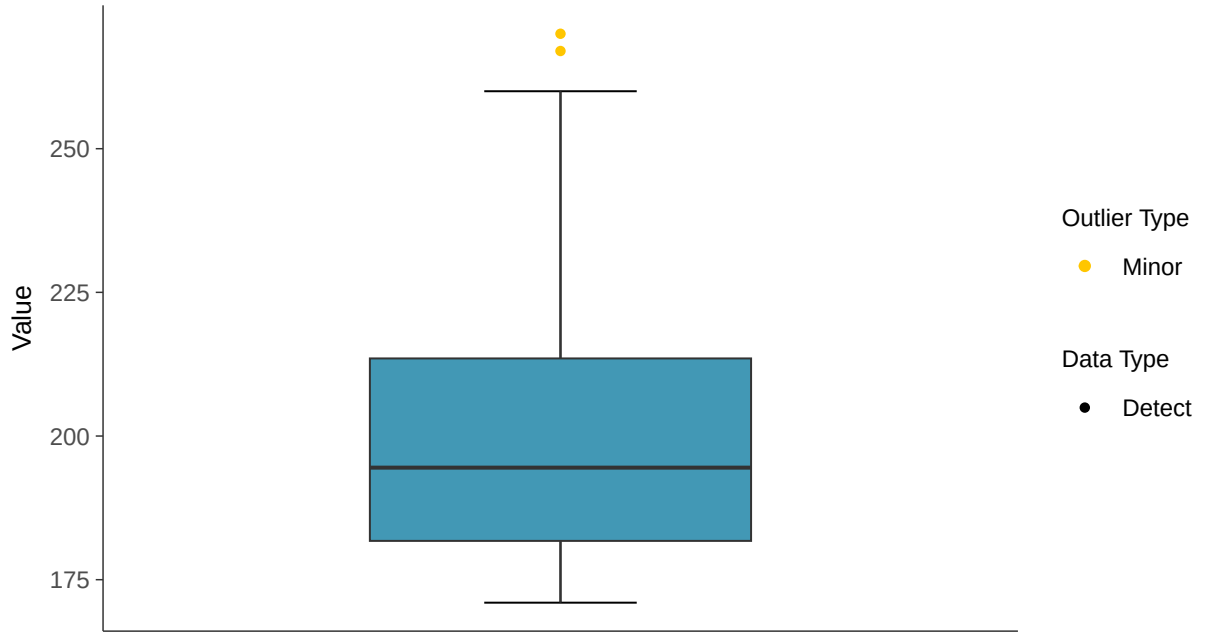
ID: 07_1_06





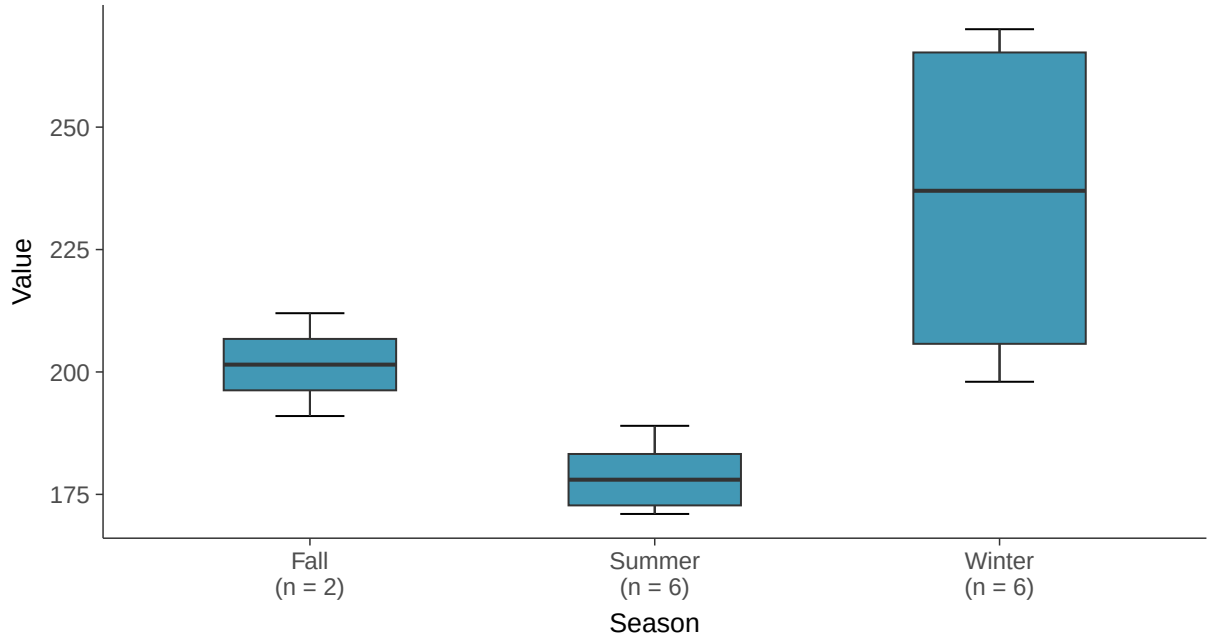
Boxplot

Sulfate, MW-7 (mg/L)



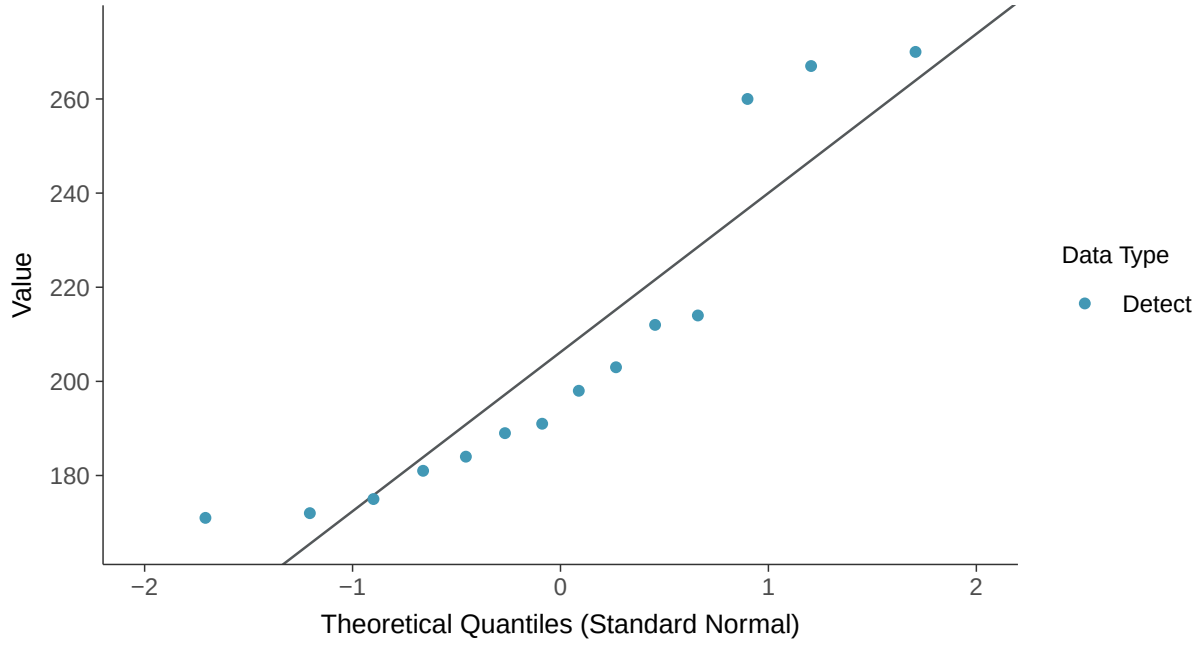
Boxplot by Season

Sulfate, MW-7 (mg/L)



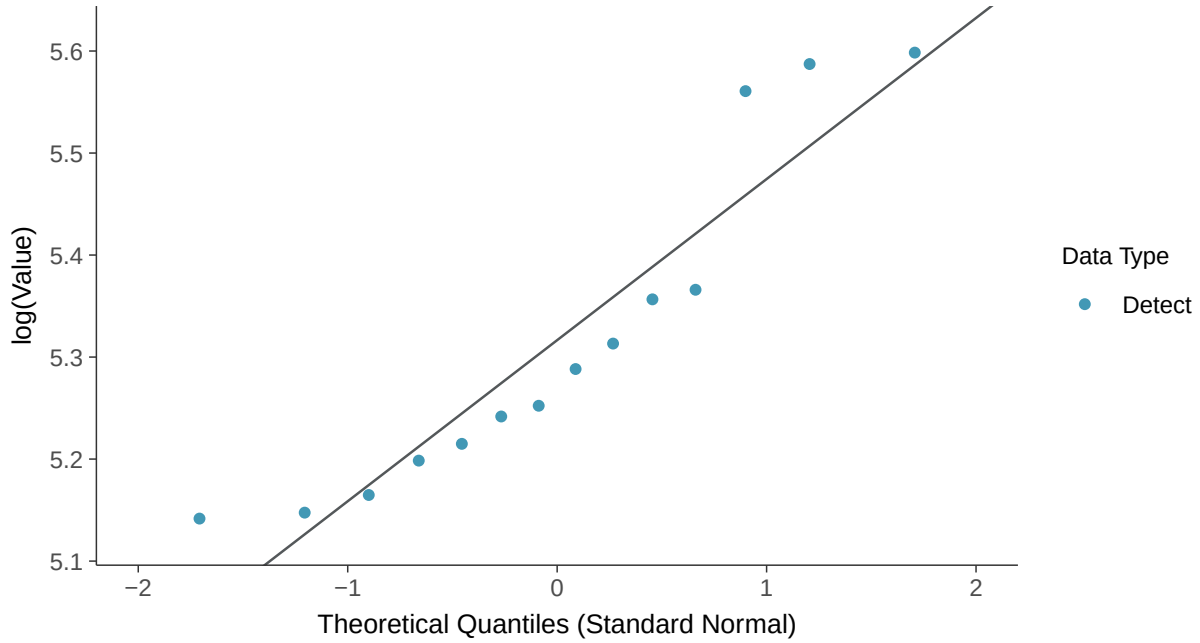
Normal Q-Q plot

Sulfate, MW-7 (mg/L)



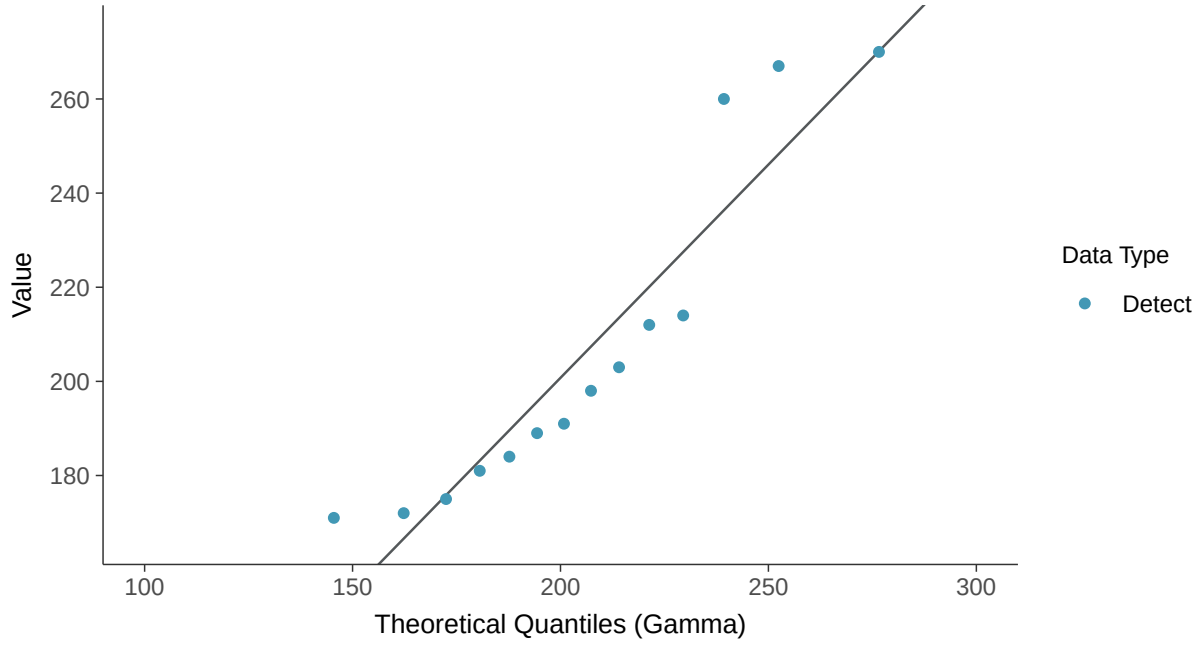
Lognormal Q-Q plot

Sulfate, MW-7 (mg/L)



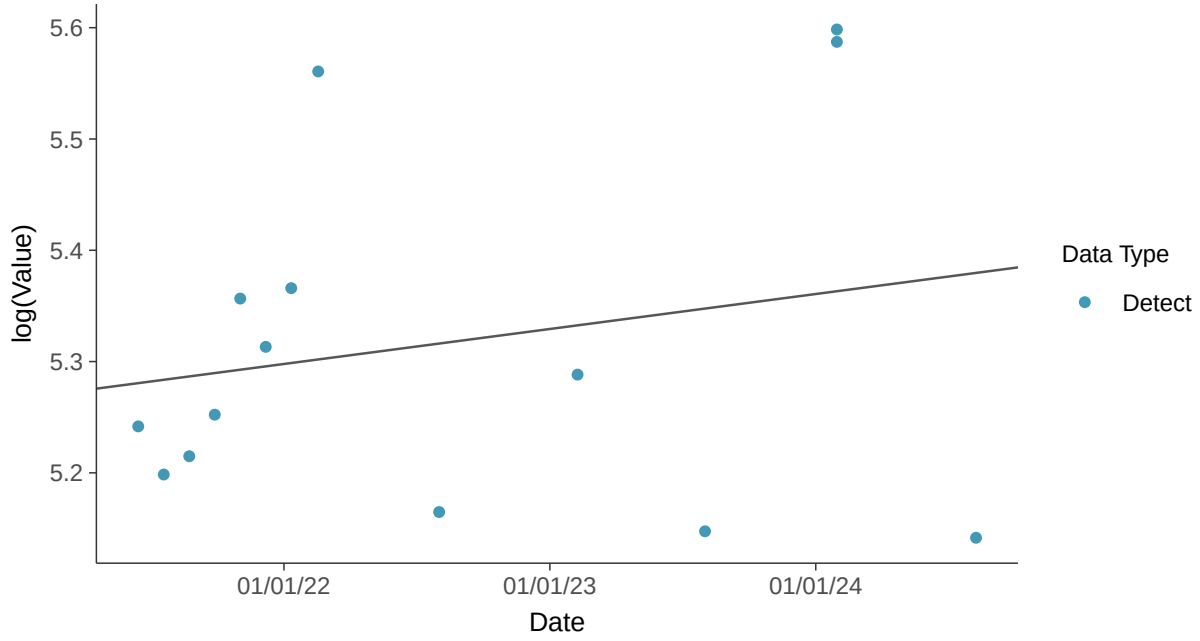
Gamma Q-Q plot

Sulfate, MW-7 (mg/L)



Trend Regression: Lognormal MLE

Sulfate, MW-7 (mg/L)

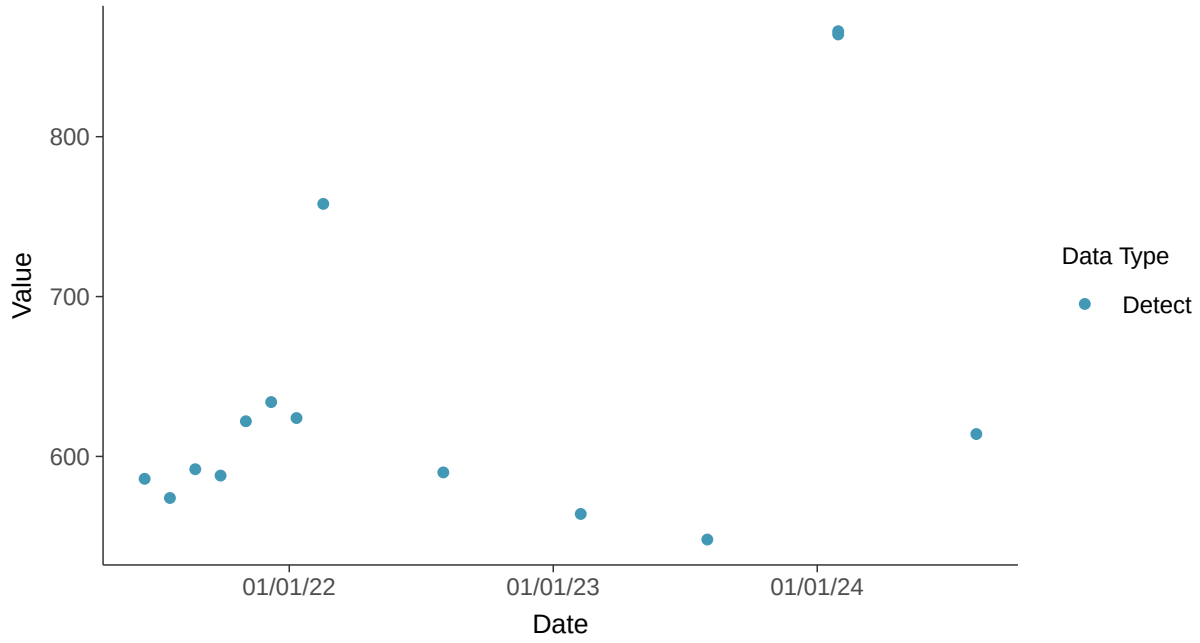


Appendix III: Total Dissolved Solids, MW-7

ID: 07_1_07

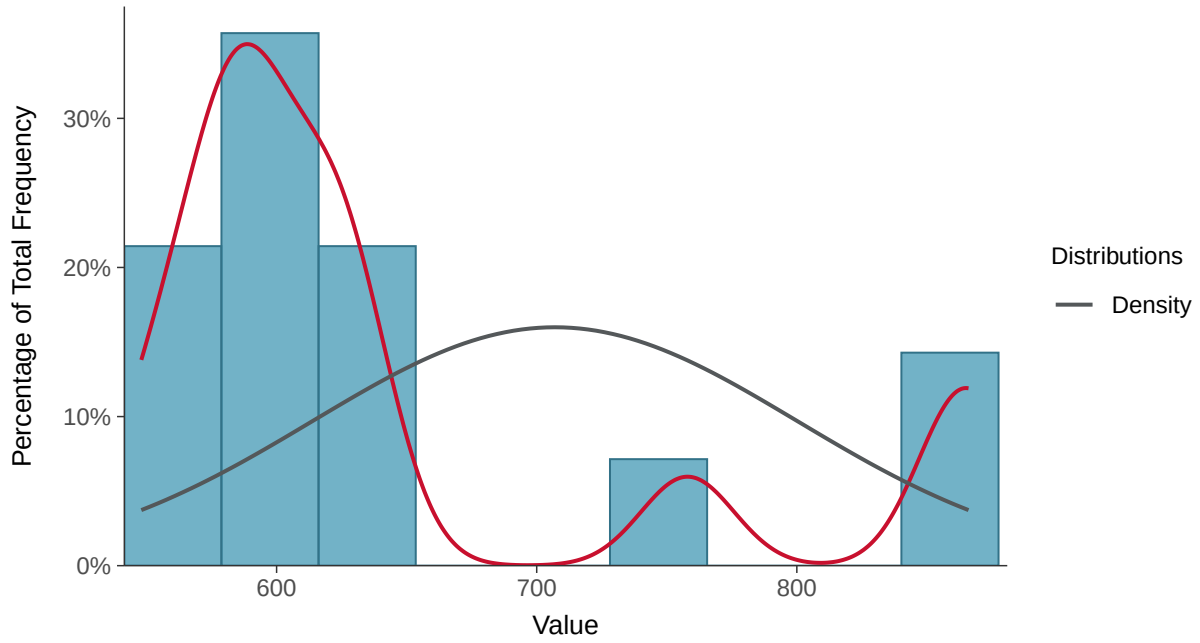
Scatter Plot

Total Dissolved Solids, MW-7 (mg/L)



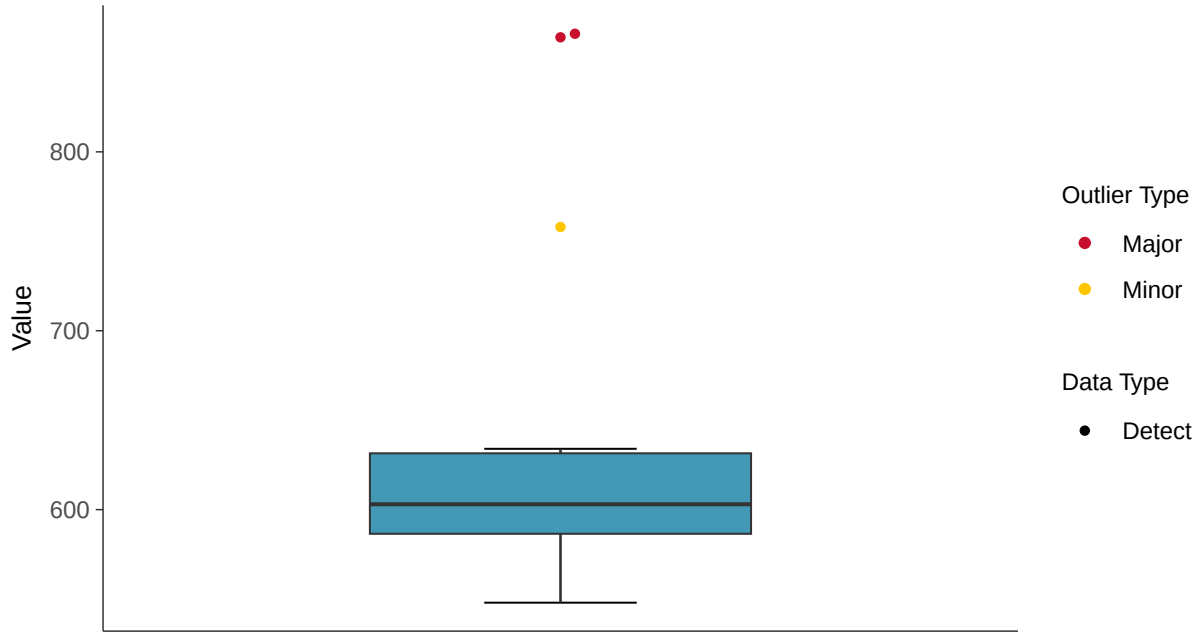
Histogram

Total Dissolved Solids, MW-7 (mg/L)



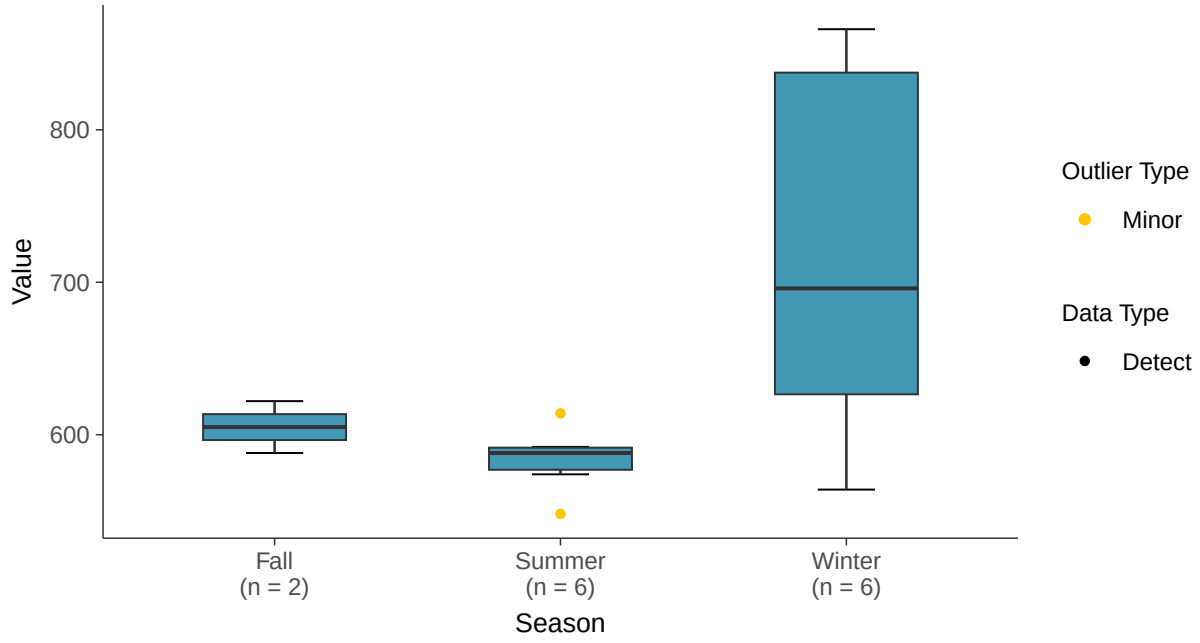
Boxplot

Total Dissolved Solids, MW-7 (mg/L)



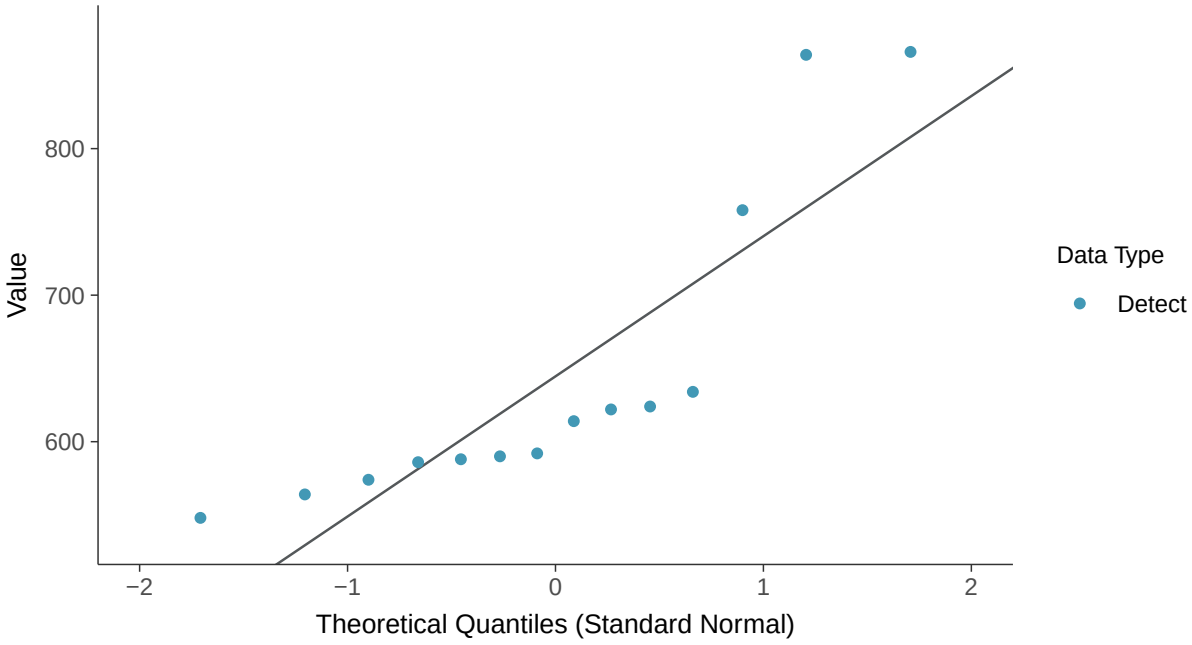
Boxplot by Season

Total Dissolved Solids, MW-7 (mg/L)



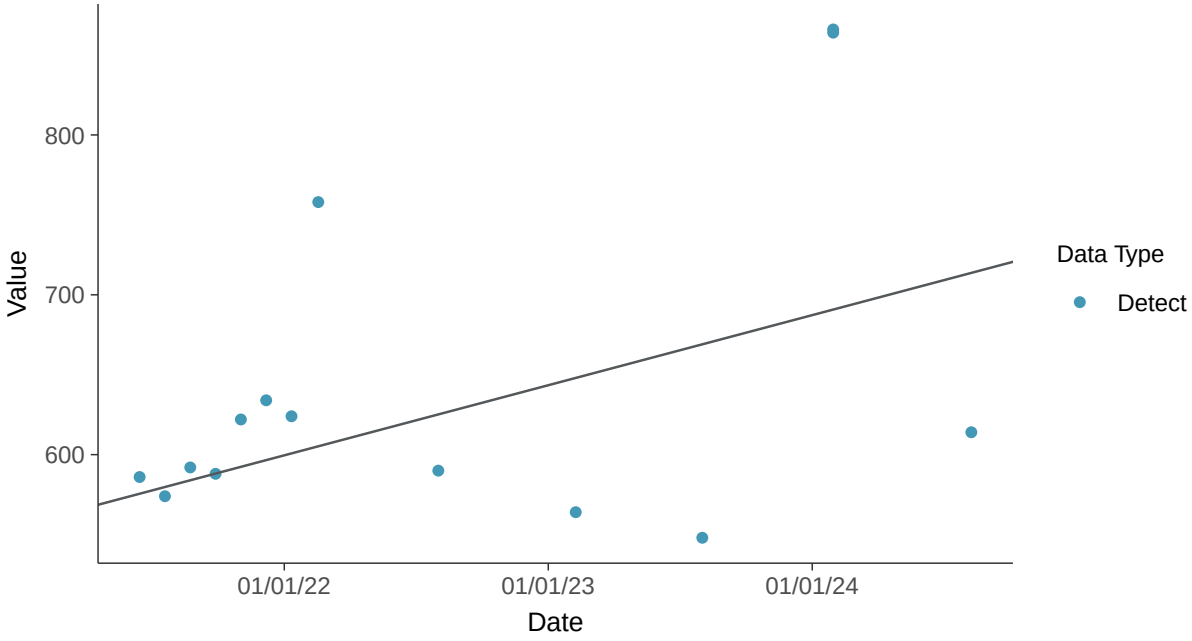
Normal Q-Q plot

Total Dissolved Solids, MW-7 (mg/L)



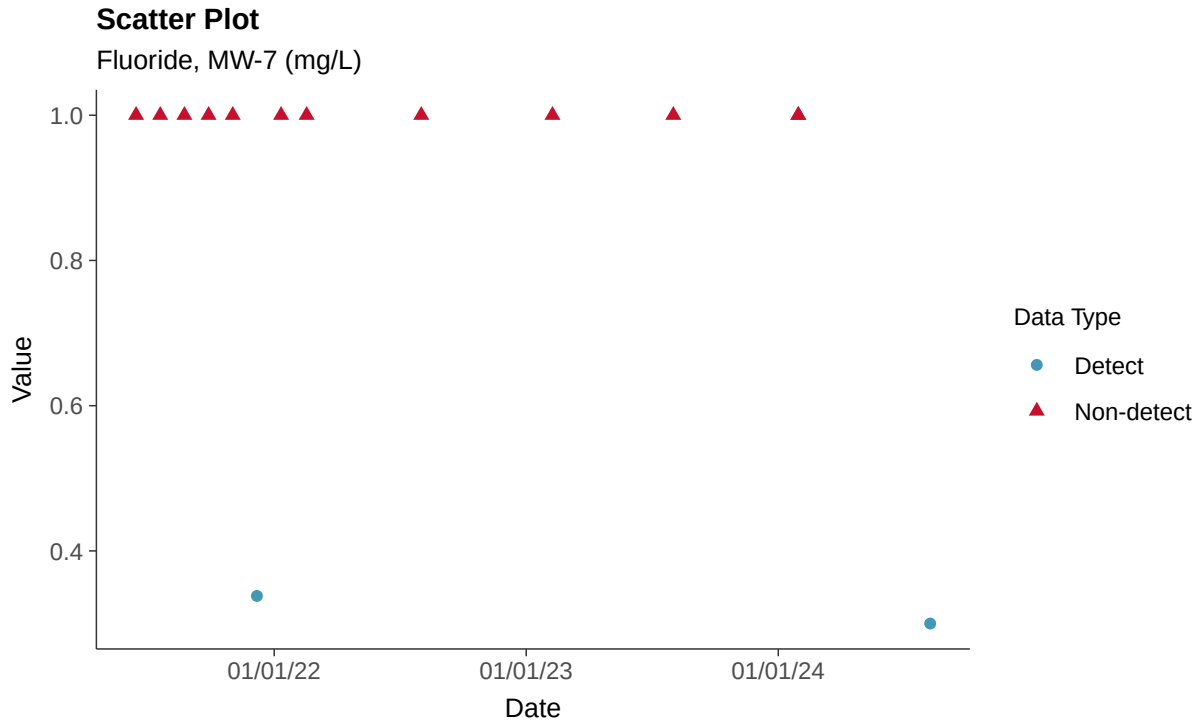
Trend Regression: Mann-Kendall/Theil-Sen Estimate

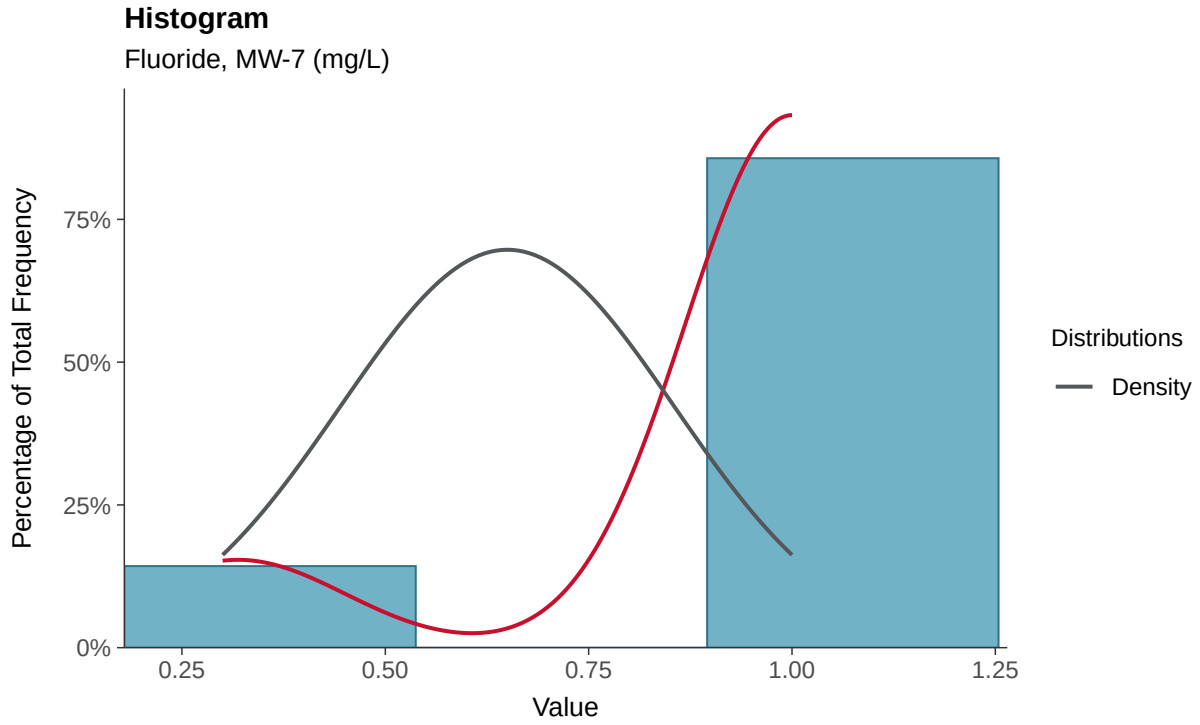
Total Dissolved Solids, MW-7 (mg/L)



Appendix IV: Fluoride, MW-7

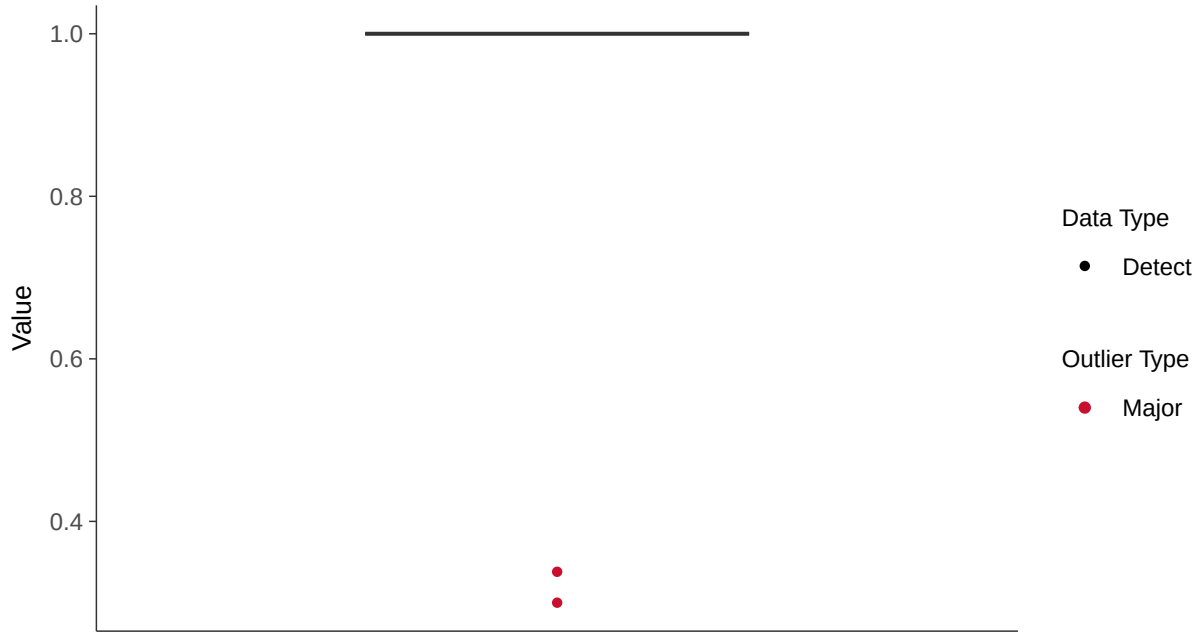
ID: 07_2_04





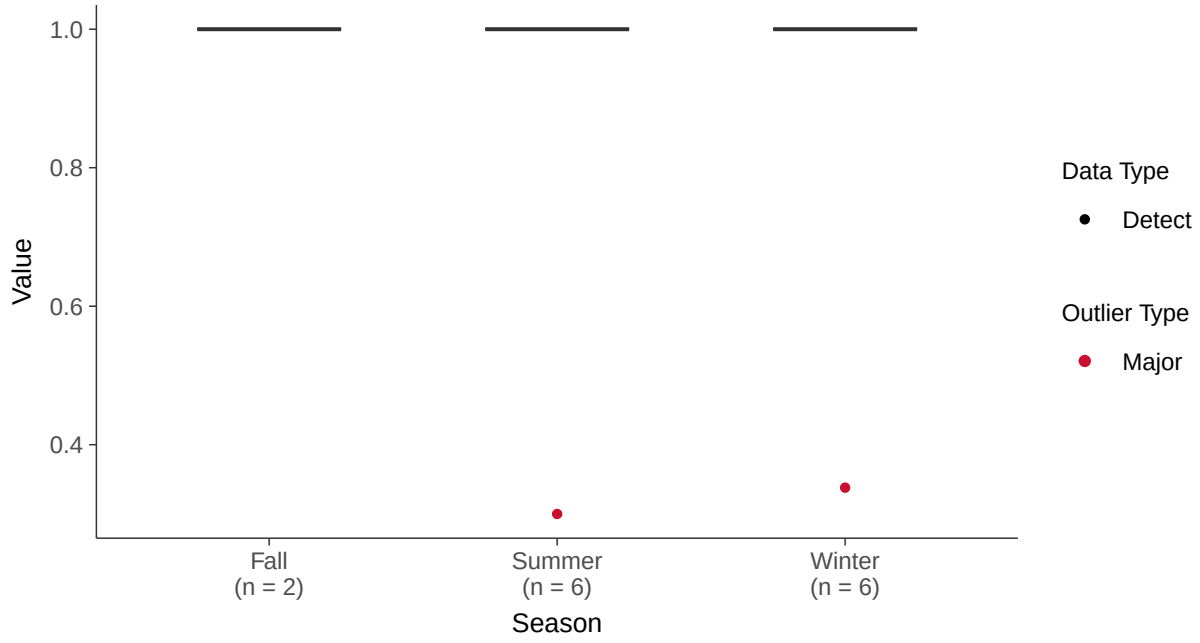
Boxplot

Fluoride, MW-7 (mg/L)



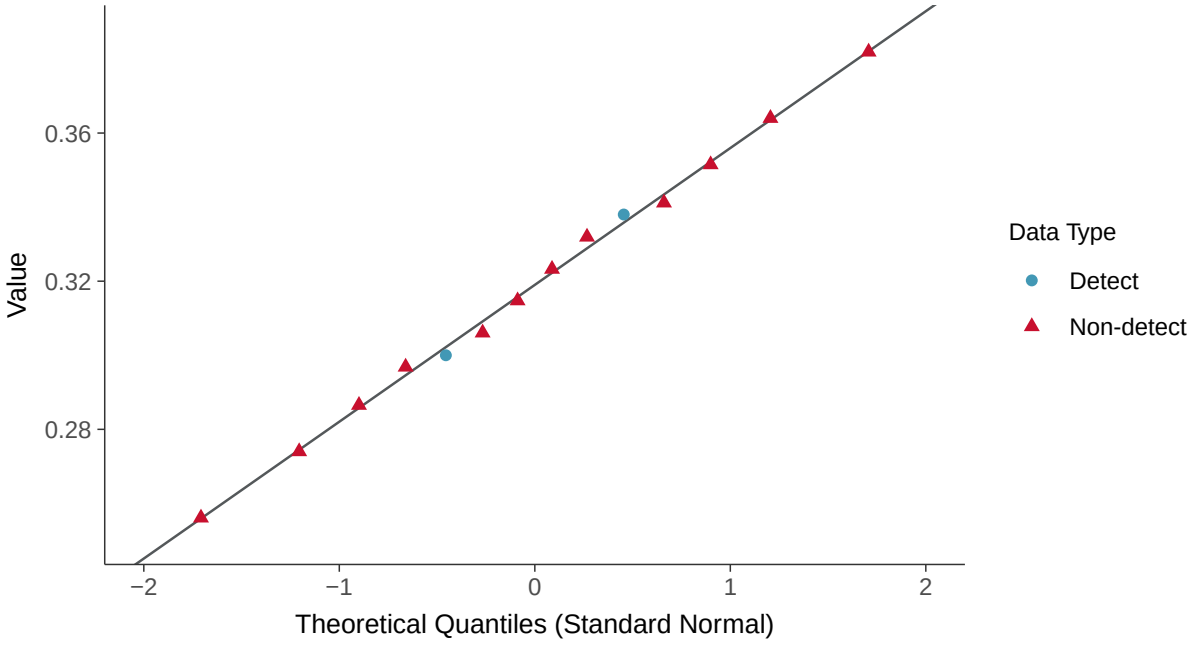
Boxplot by Season

Fluoride, MW-7 (mg/L)



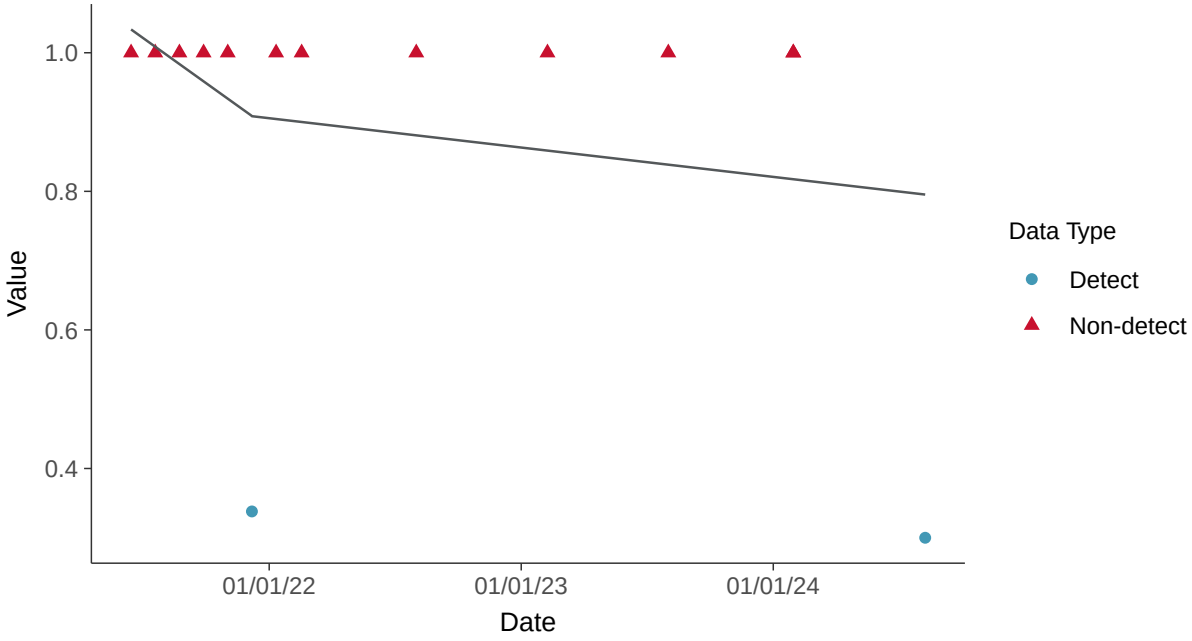
Normal Q-Q plot using ROS Imputed Estimates

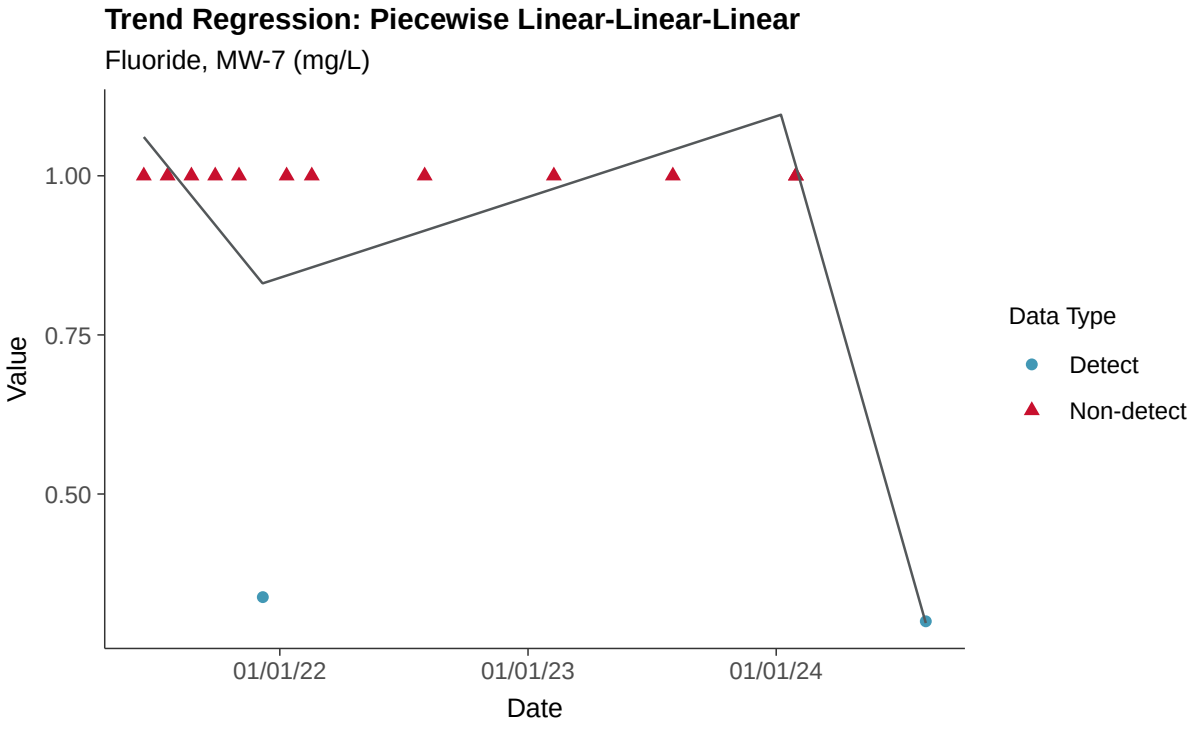
Fluoride, MW-7 (mg/L)



Trend Regression: Piecewise Linear-Linear

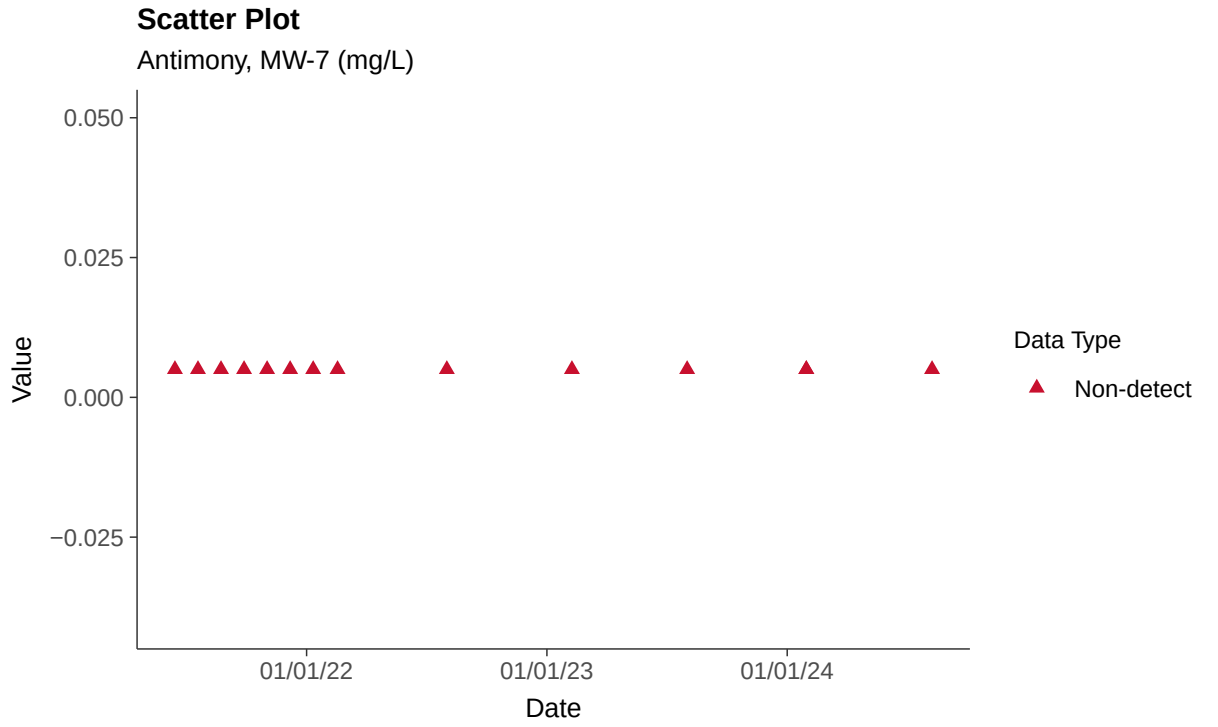
Fluoride, MW-7 (mg/L)

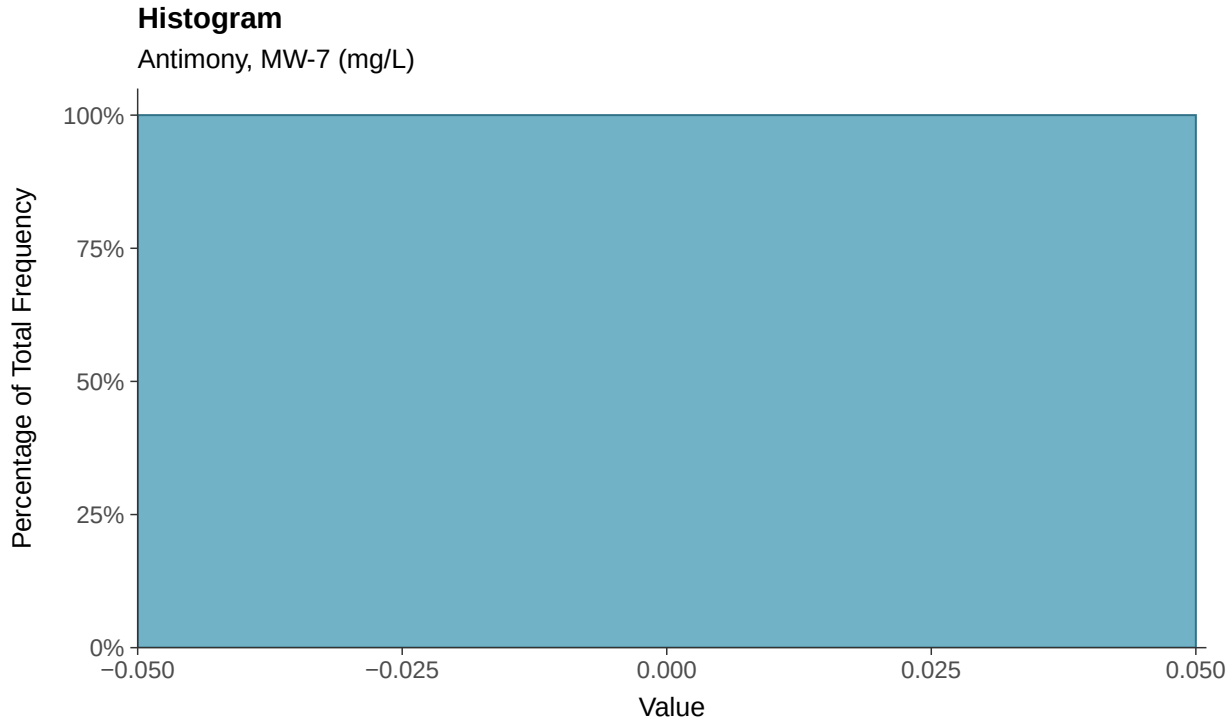



Trend Regression: Piecewise Linear-Linear-Linear
Fluoride, MW-7 (mg/L)
1.00
0.75
0.50
Value
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect
Non-detect

Appendix IV: Antimony, MW-7

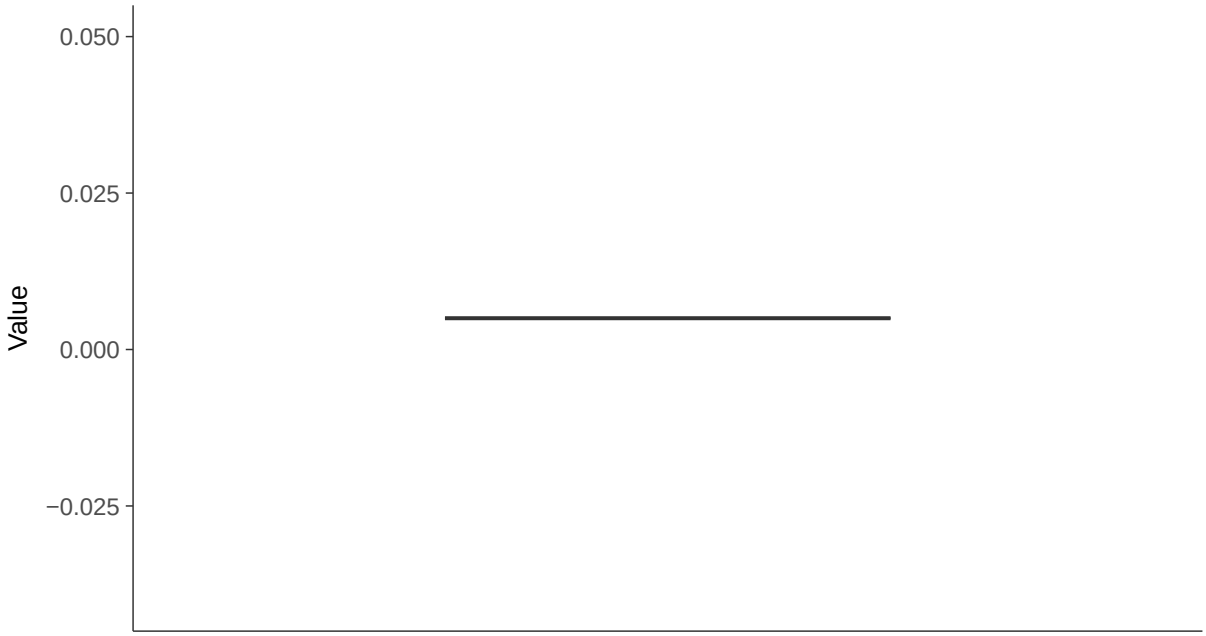
ID: 07_2_08





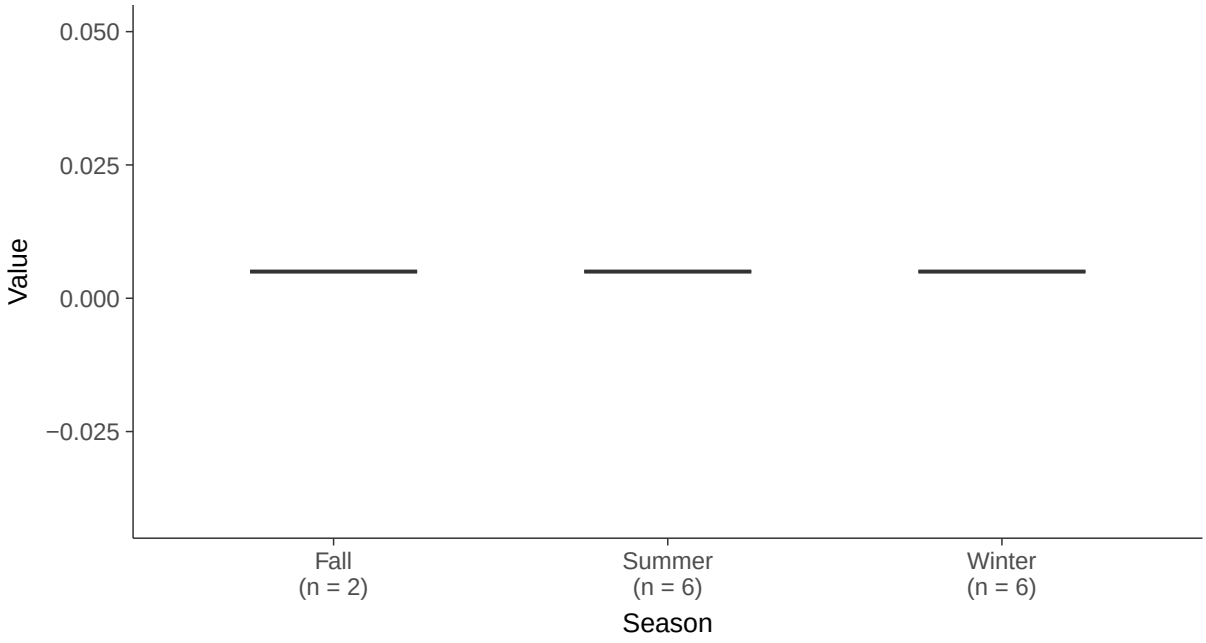
Boxplot

Antimony, MW-7 (mg/L)



Boxplot by Season

Antimony, MW-7 (mg/L)

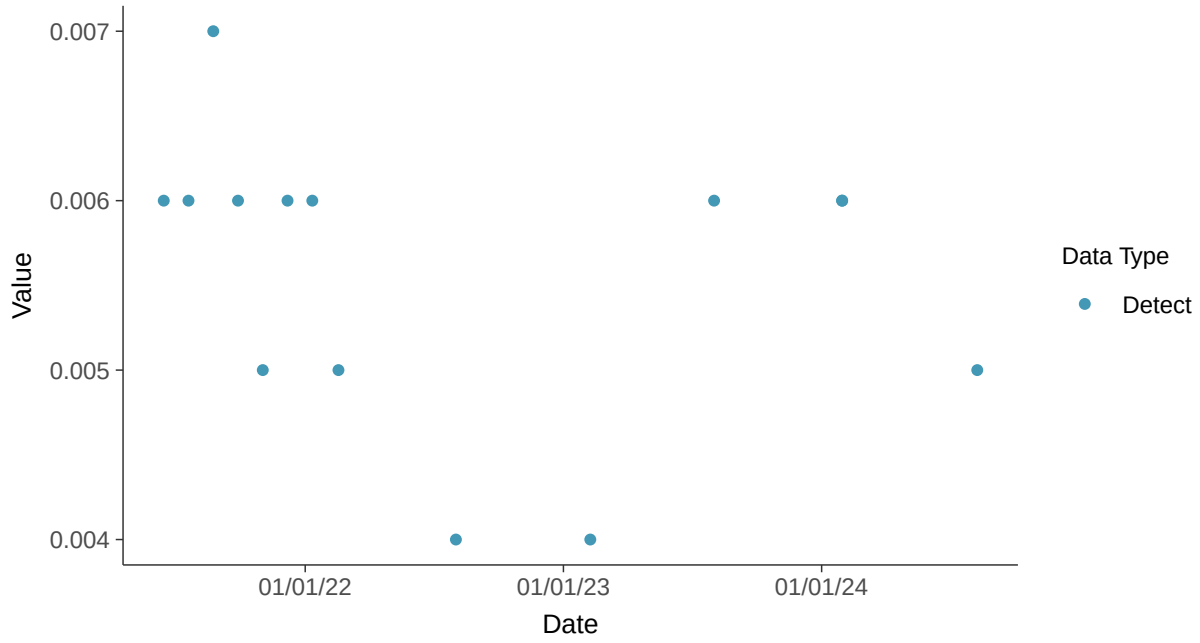


Appendix IV: Arsenic, MW-7

ID: 07_2_09

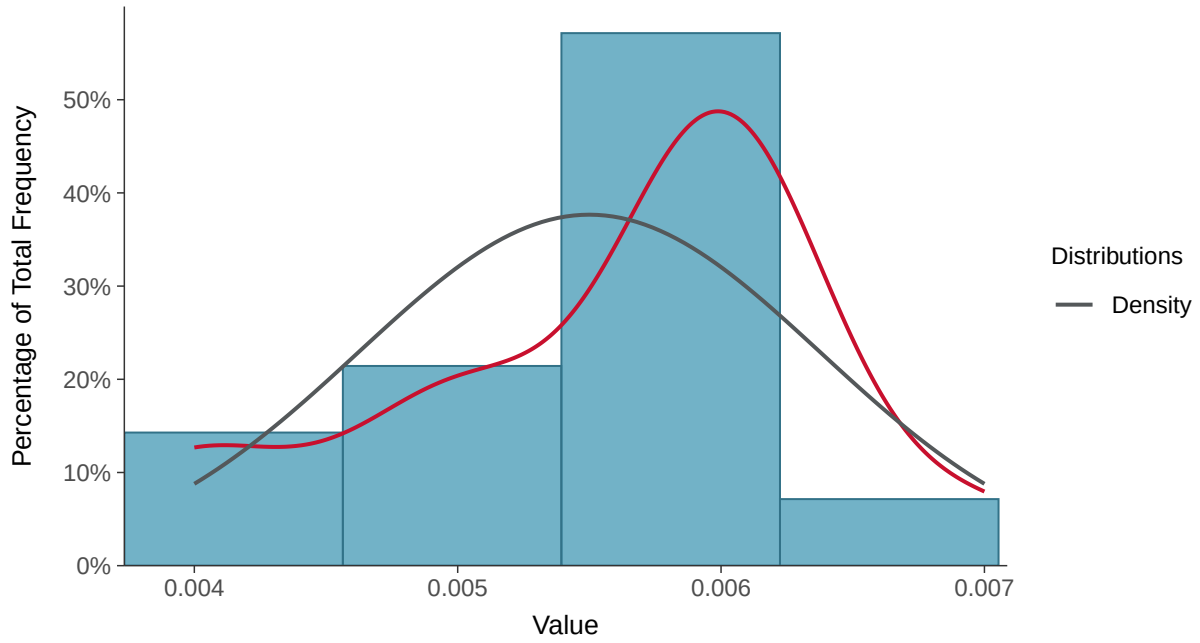
Scatter Plot

Arsenic, MW-7 (mg/L)



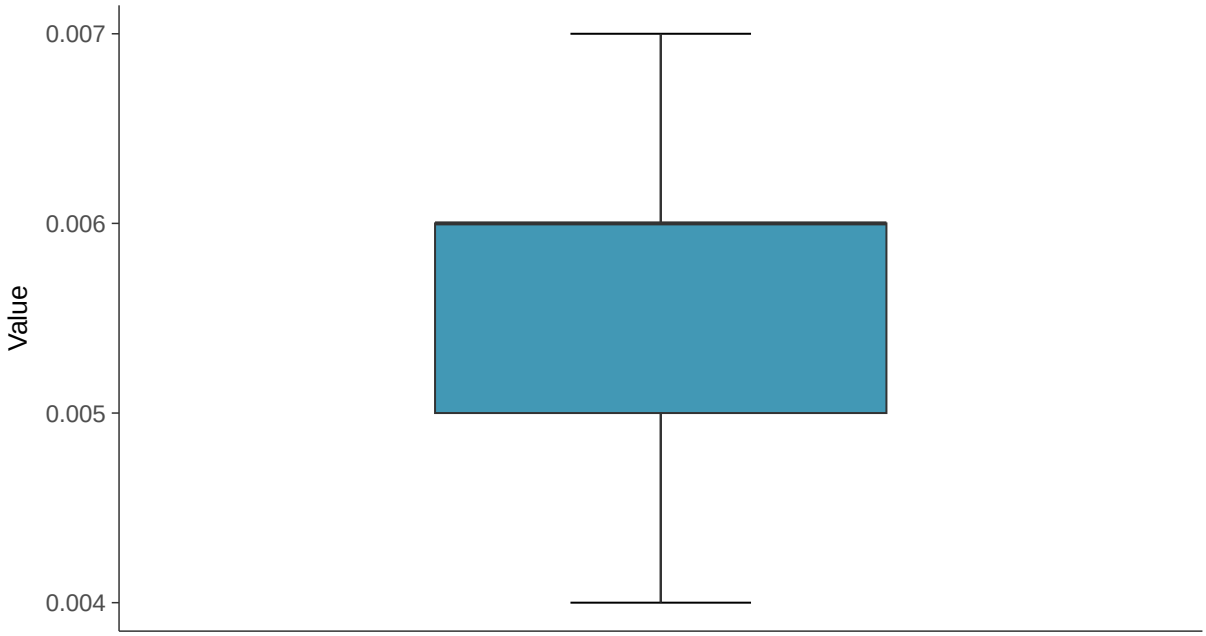
Histogram

Arsenic, MW-7 (mg/L)



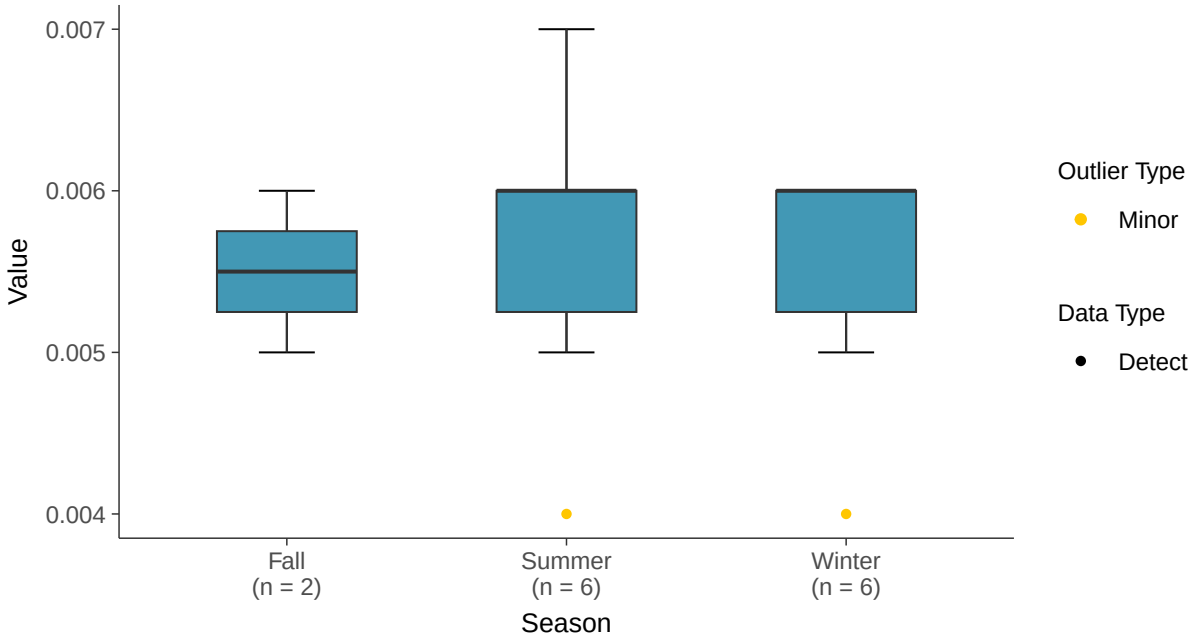
Boxplot

Arsenic, MW-7 (mg/L)



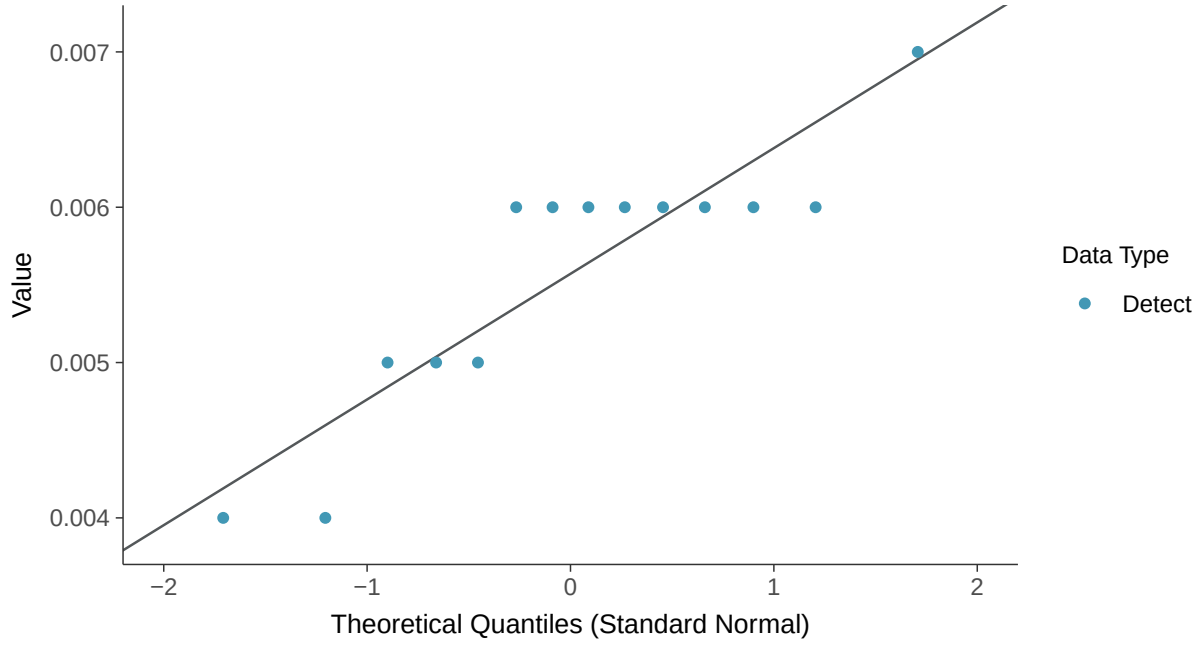
Boxplot by Season

Arsenic, MW-7 (mg/L)



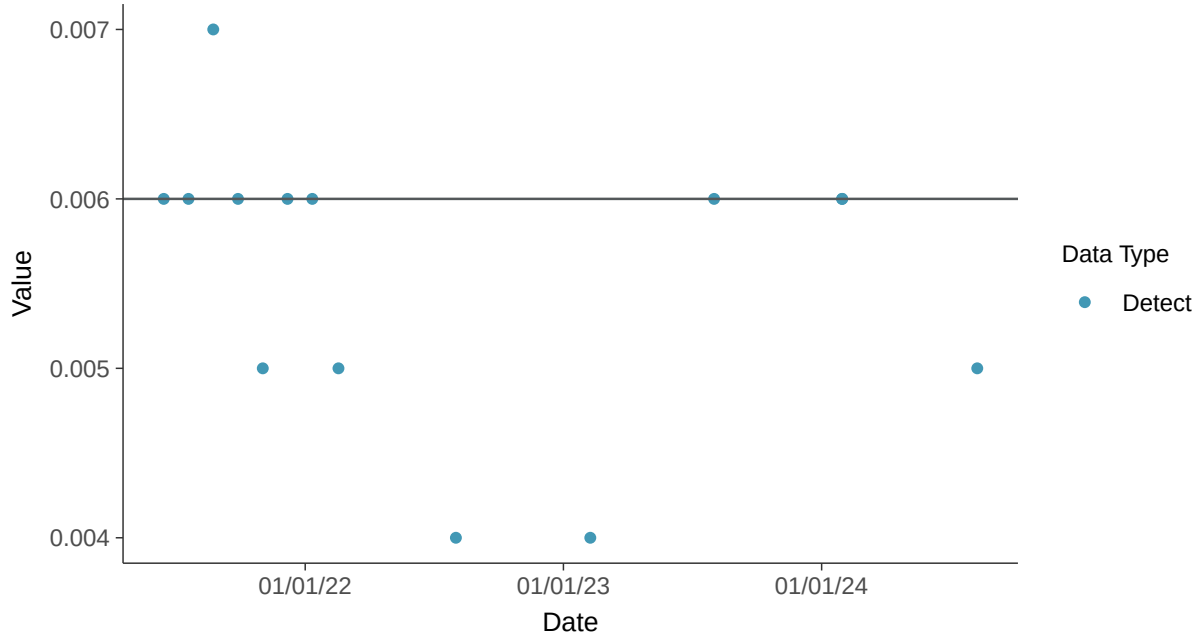
Normal Q-Q plot

Arsenic, MW-7 (mg/L)



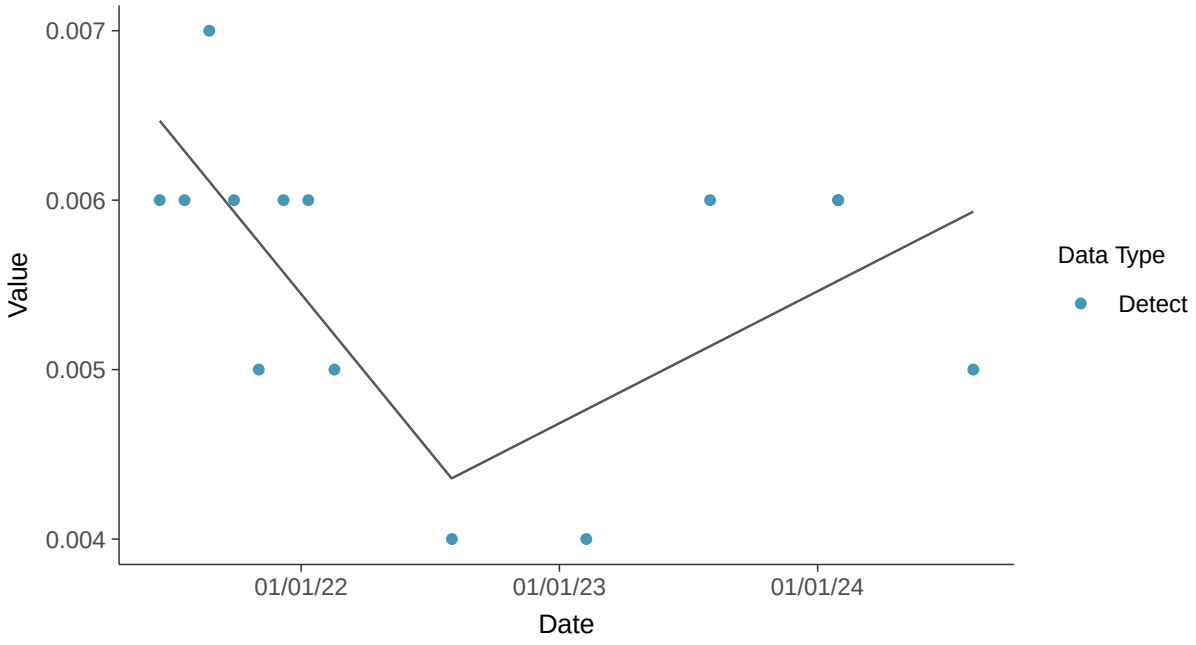
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Arsenic, MW-7 (mg/L)



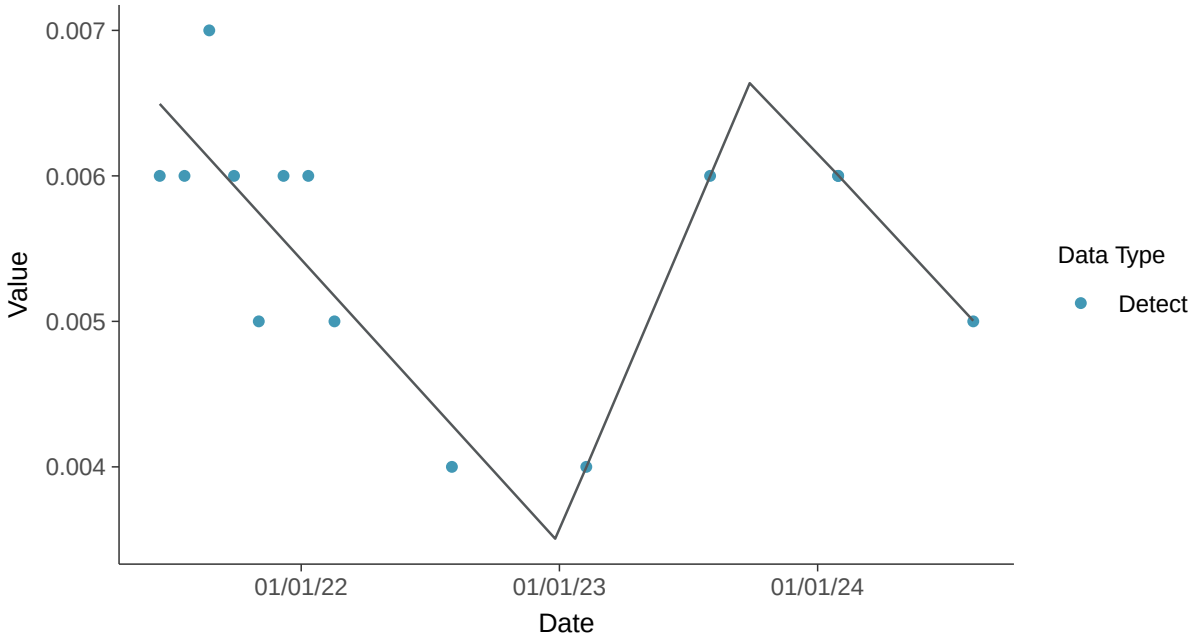
Trend Regression: Piecewise Linear-Linear

Arsenic, MW-7 (mg/L)



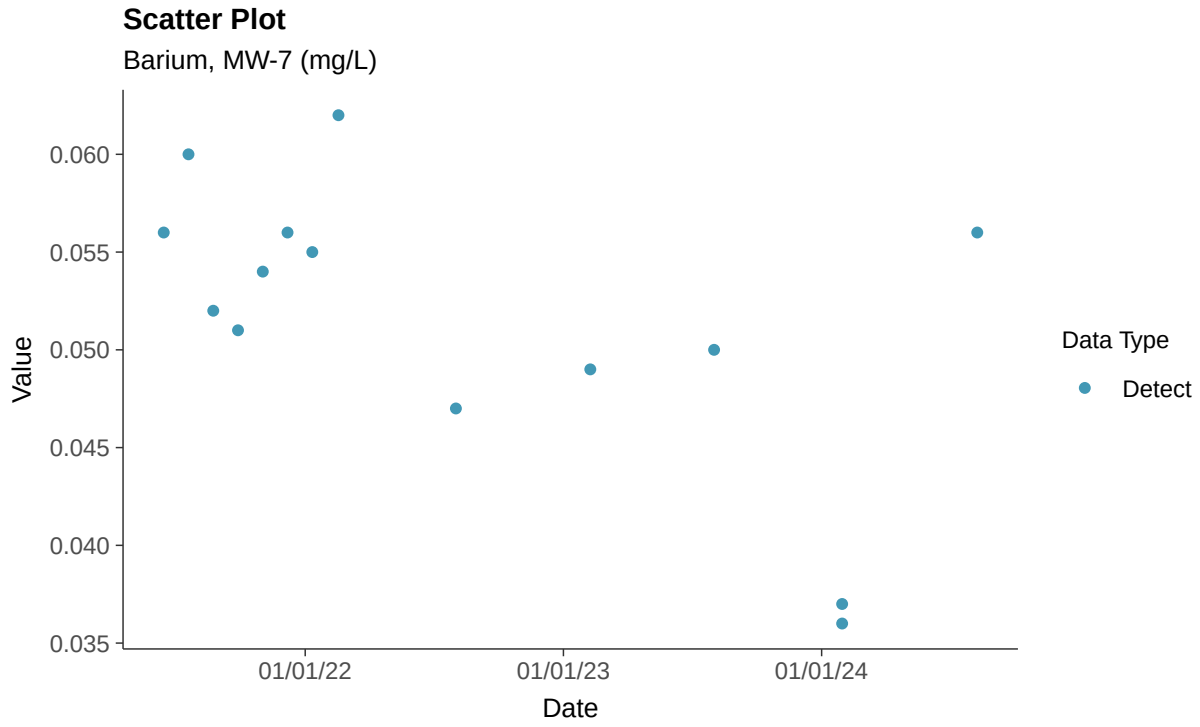
Trend Regression: Piecewise Linear-Linear-Linear

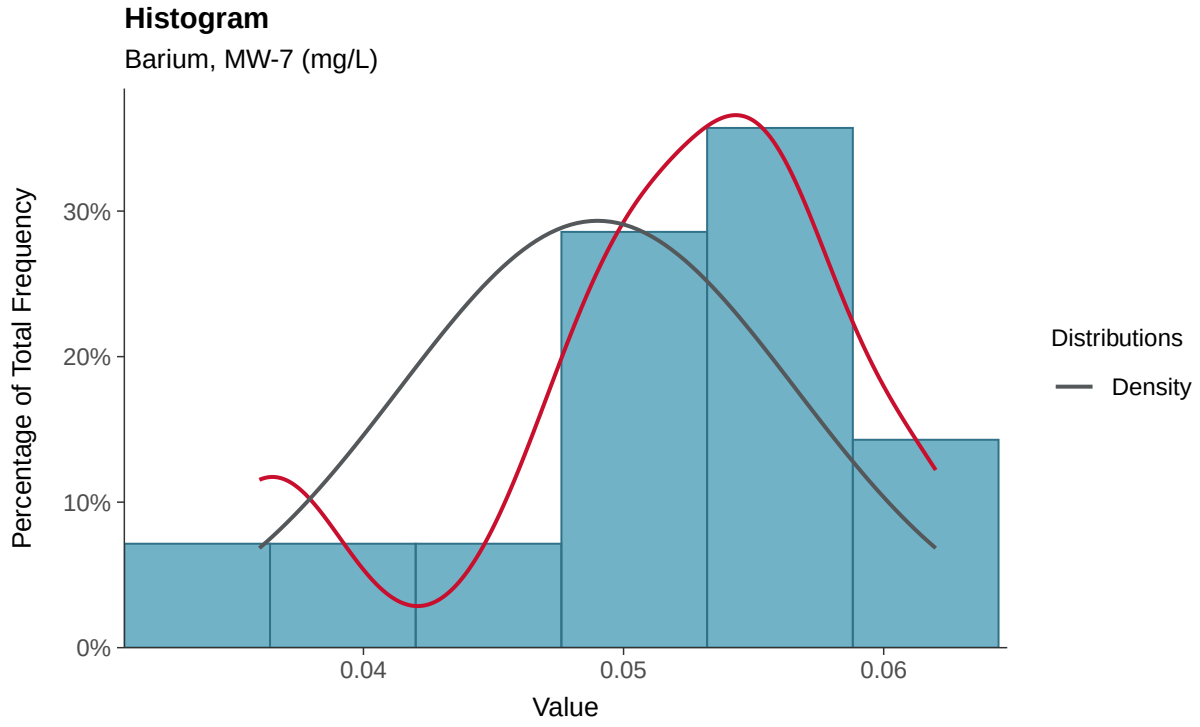
Arsenic, MW-7 (mg/L)



Appendix IV: Barium, MW-7

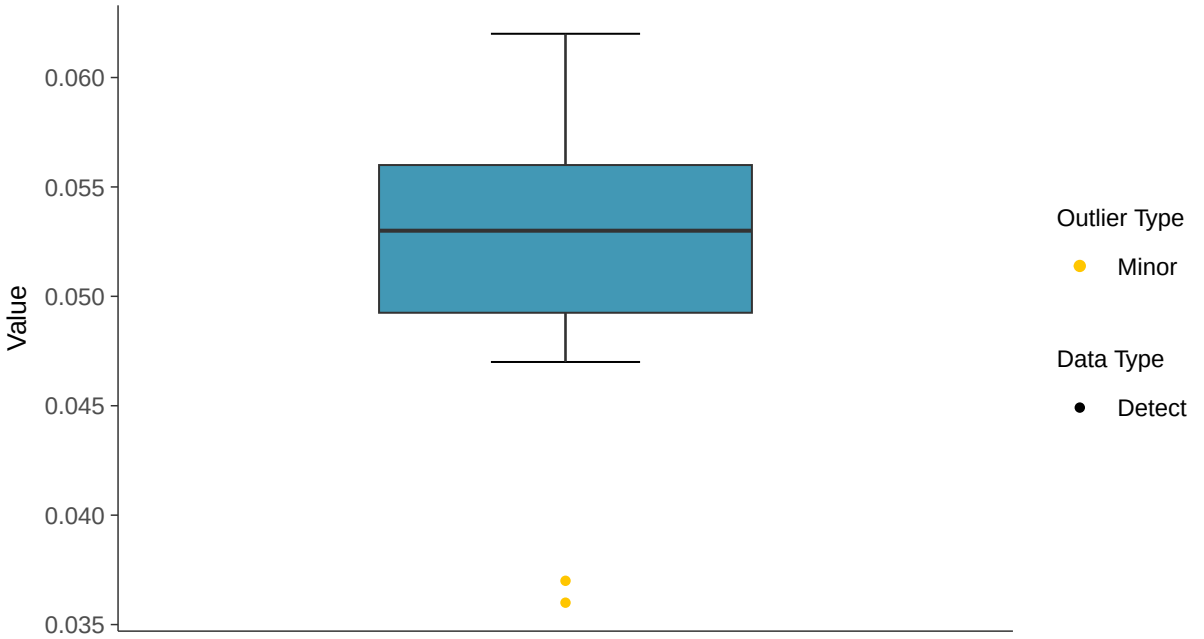
ID: 07_2_10





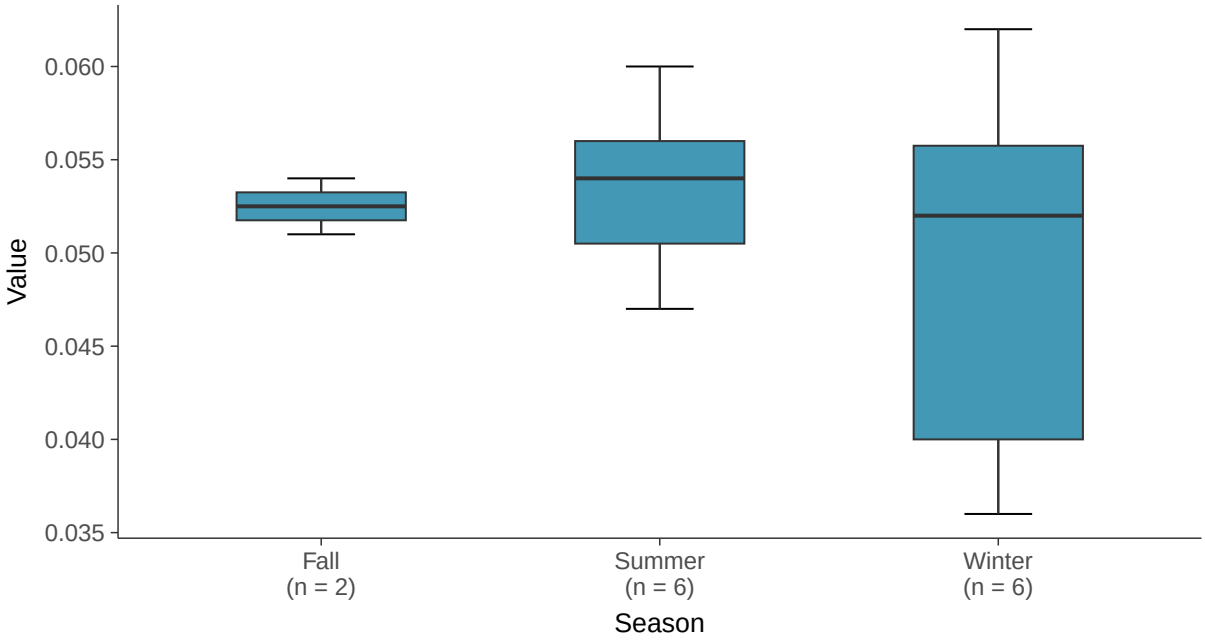
Boxplot

Barium, MW-7 (mg/L)



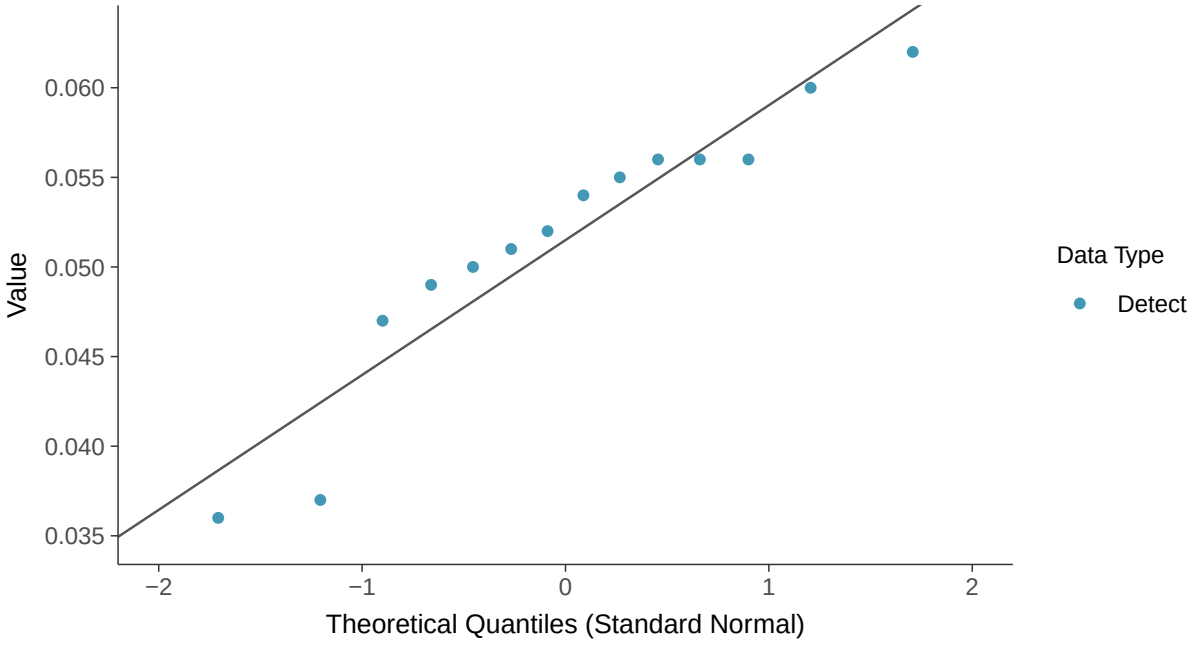
Boxplot by Season

Barium, MW-7 (mg/L)



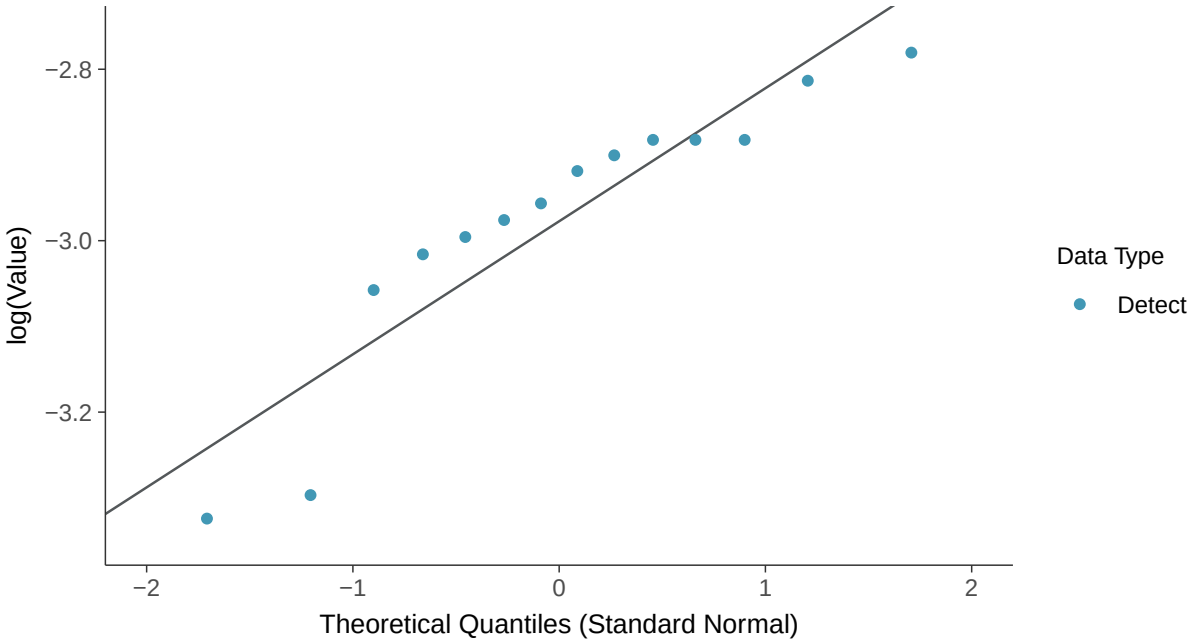
Normal Q-Q plot

Barium, MW-7 (mg/L)



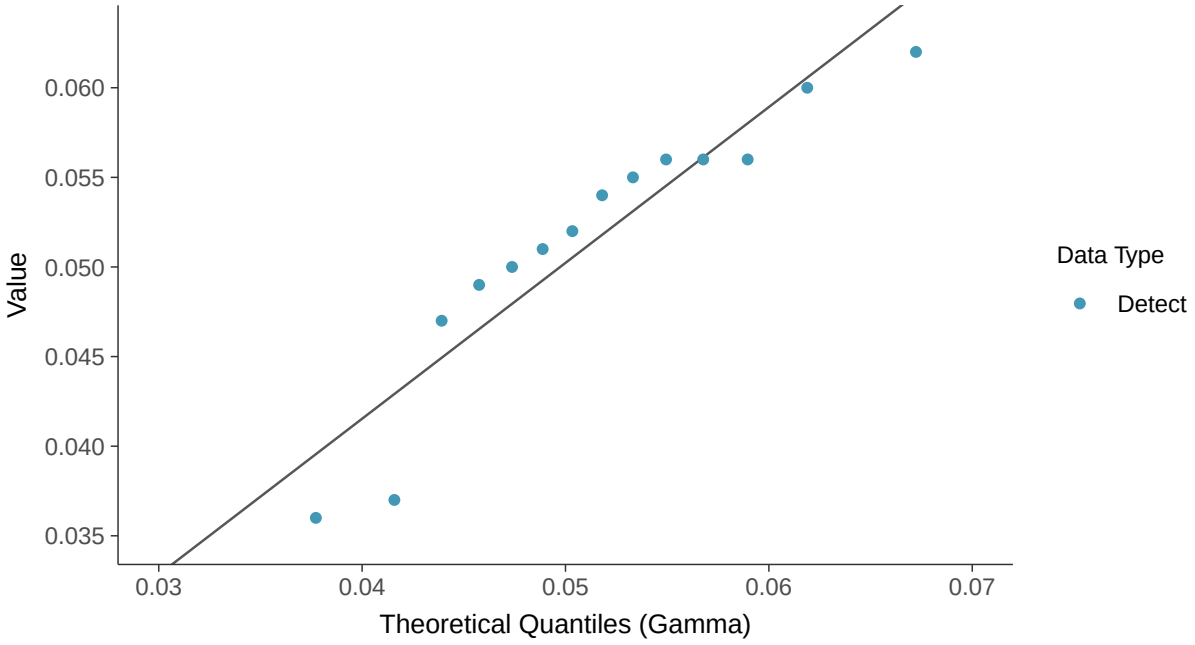
Lognormal Q-Q plot

Barium, MW-7 (mg/L)



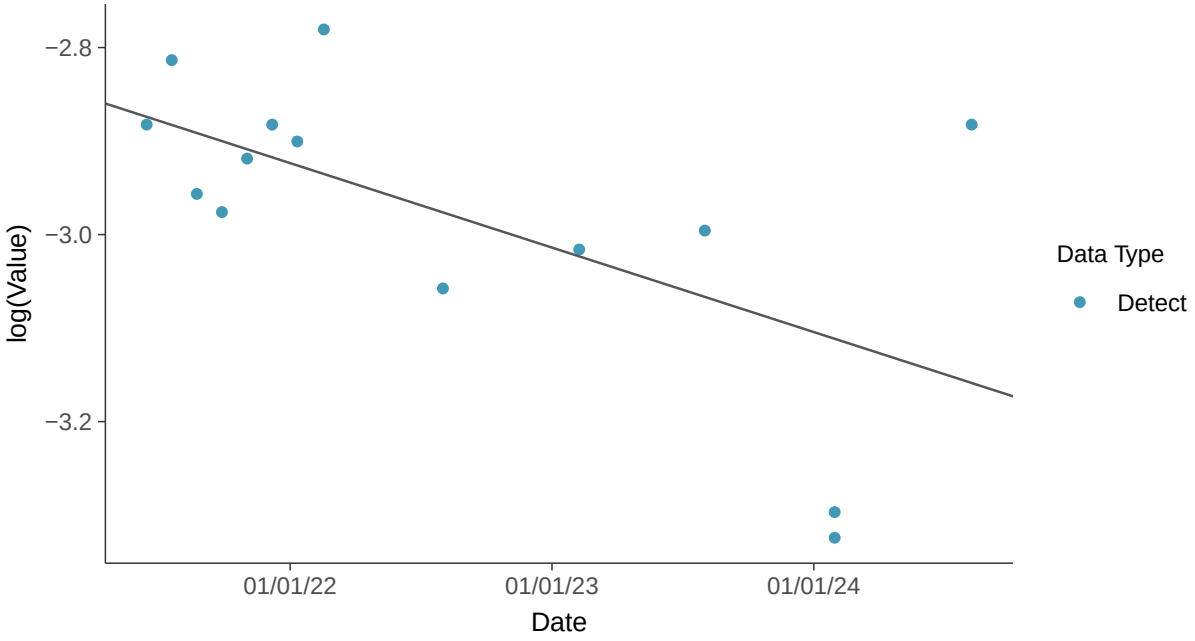
Gamma Q-Q plot

Barium, MW-7 (mg/L)



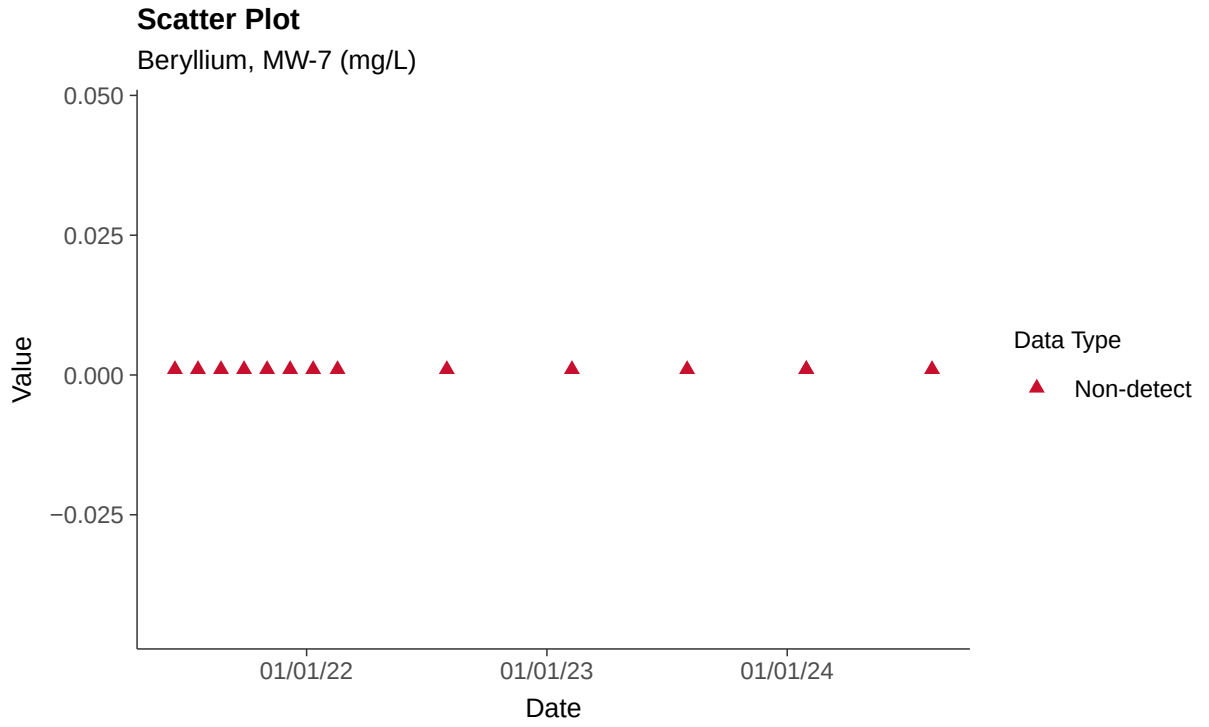
Trend Regression: Lognormal MLE

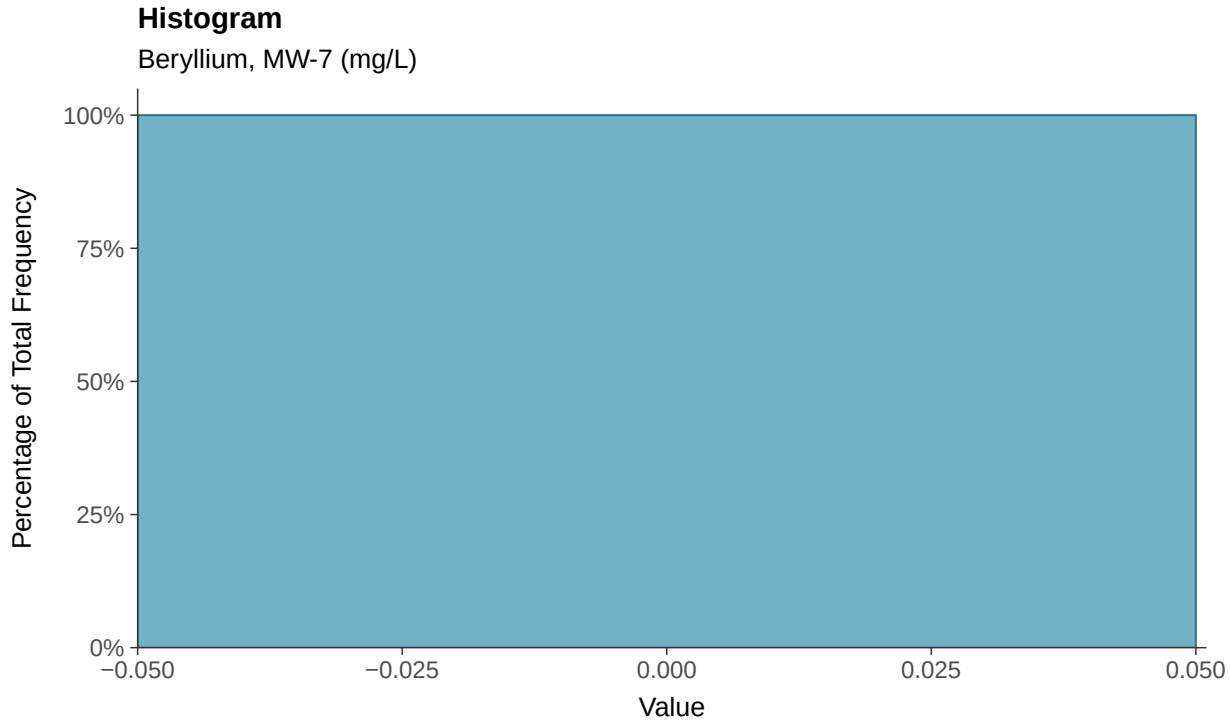
Barium, MW-7 (mg/L)



Appendix IV: Beryllium, MW-7

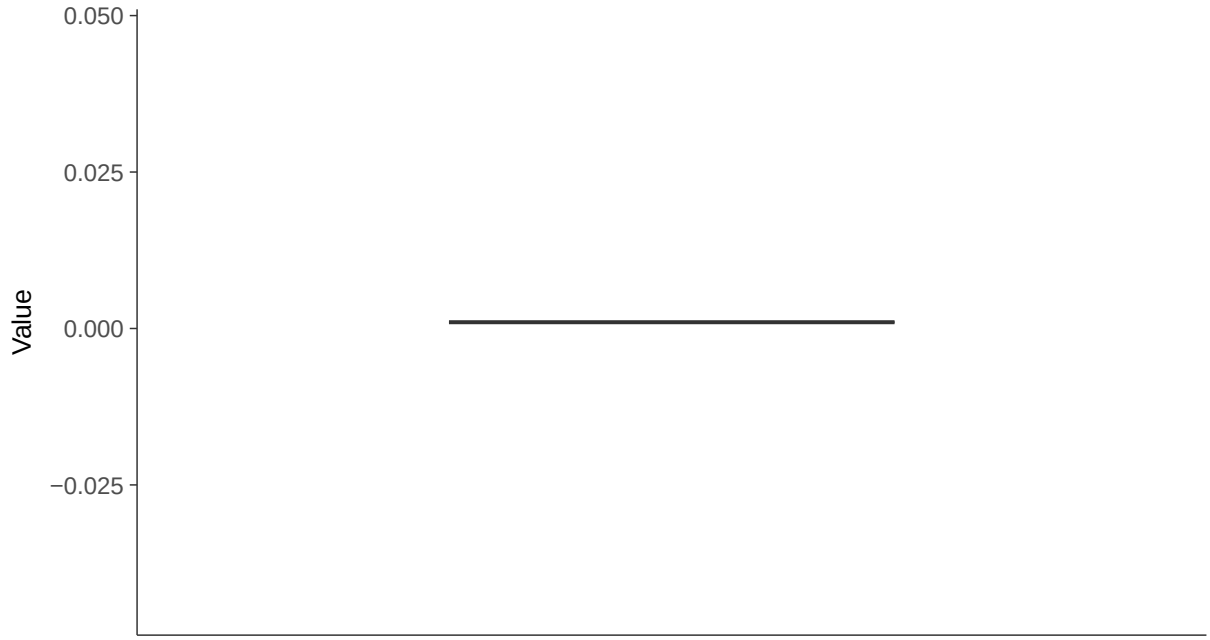
ID: 07_2_11





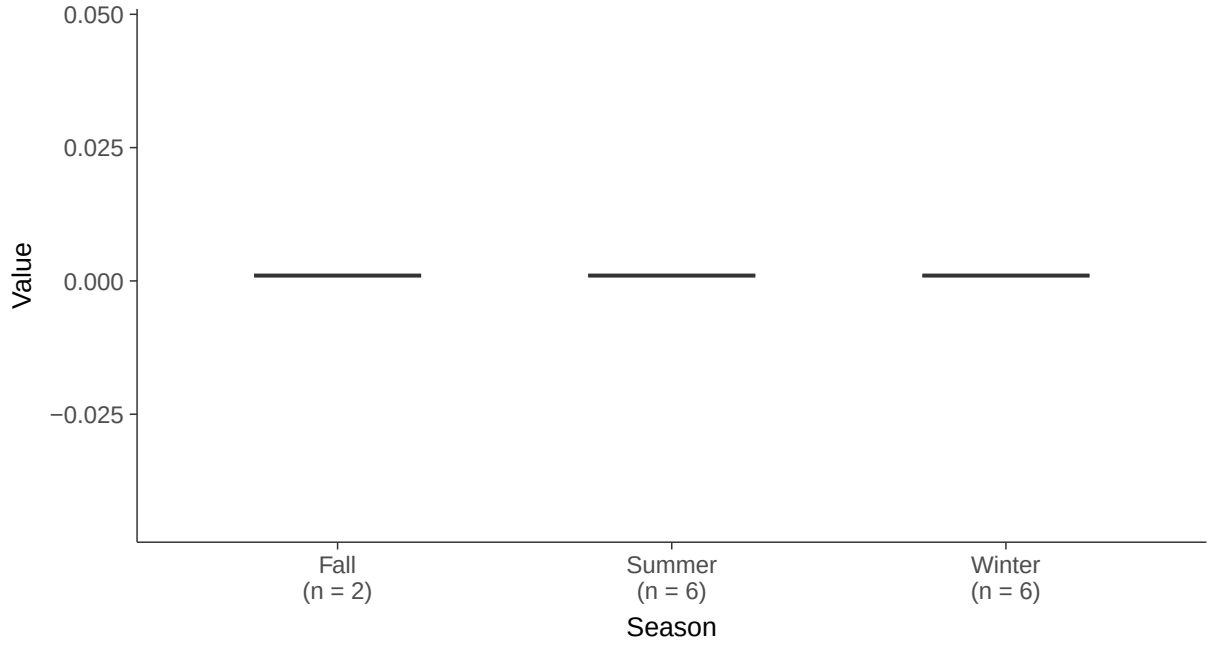
Boxplot

Beryllium, MW-7 (mg/L)



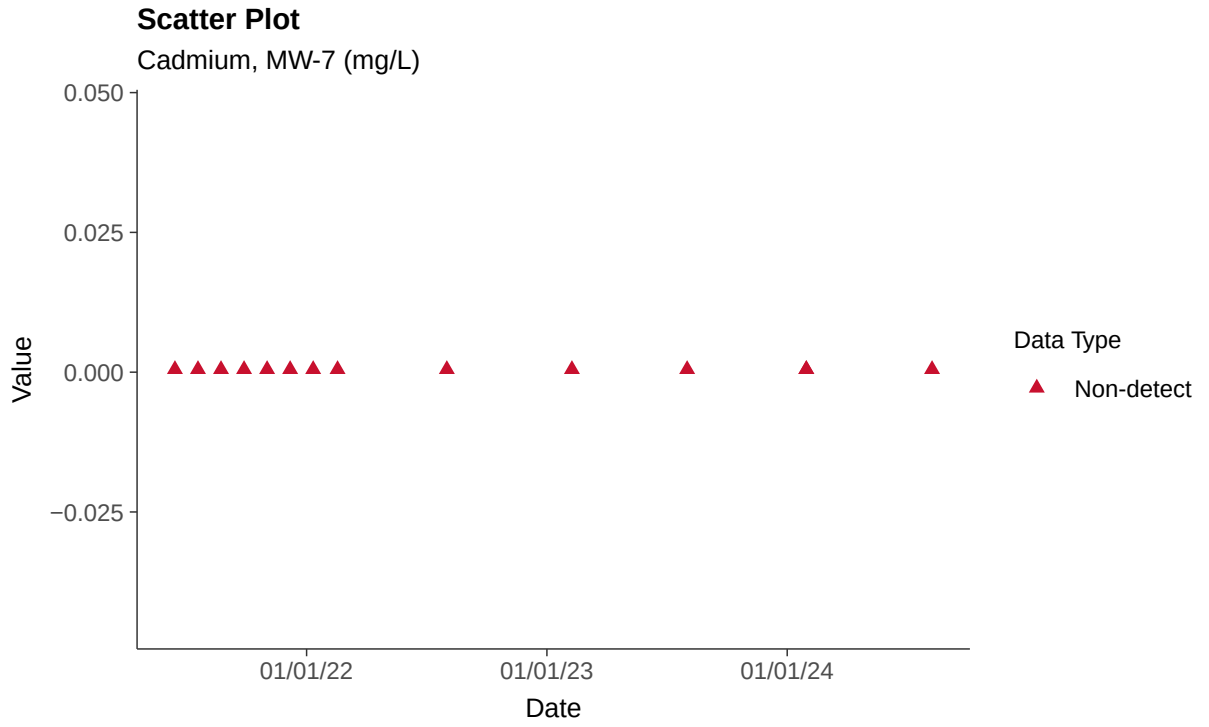
Boxplot by Season

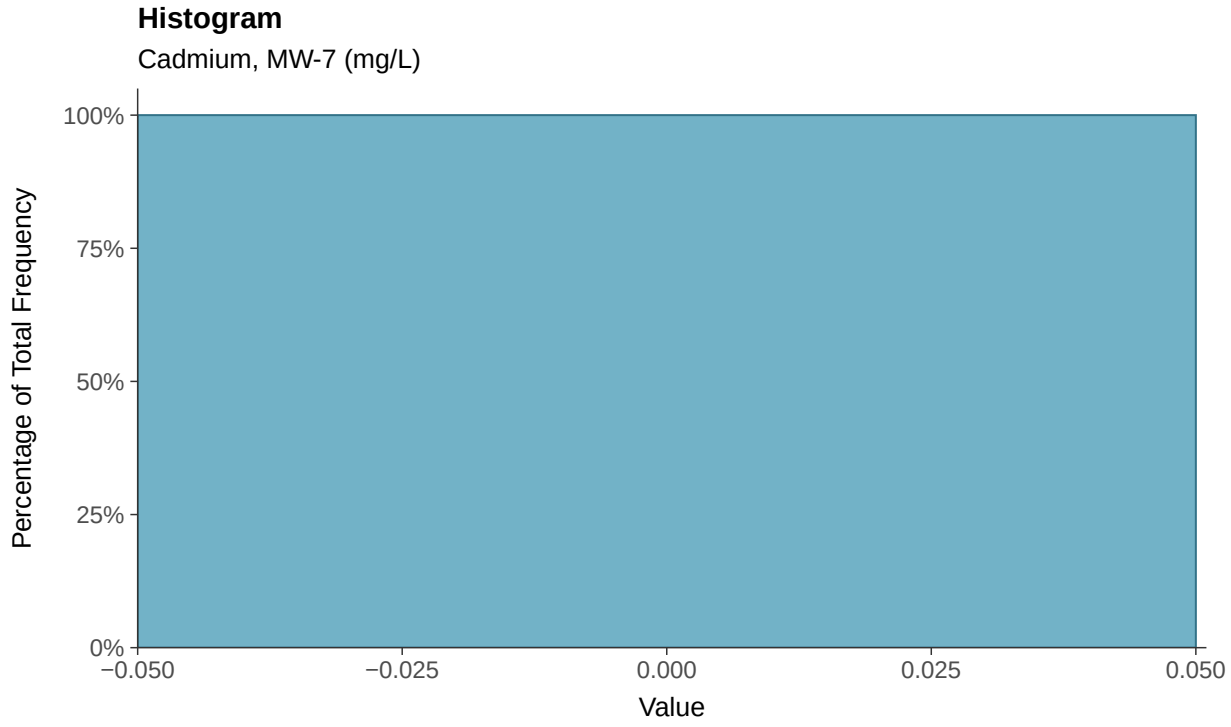
Beryllium, MW-7 (mg/L)



Appendix IV: Cadmium, MW-7

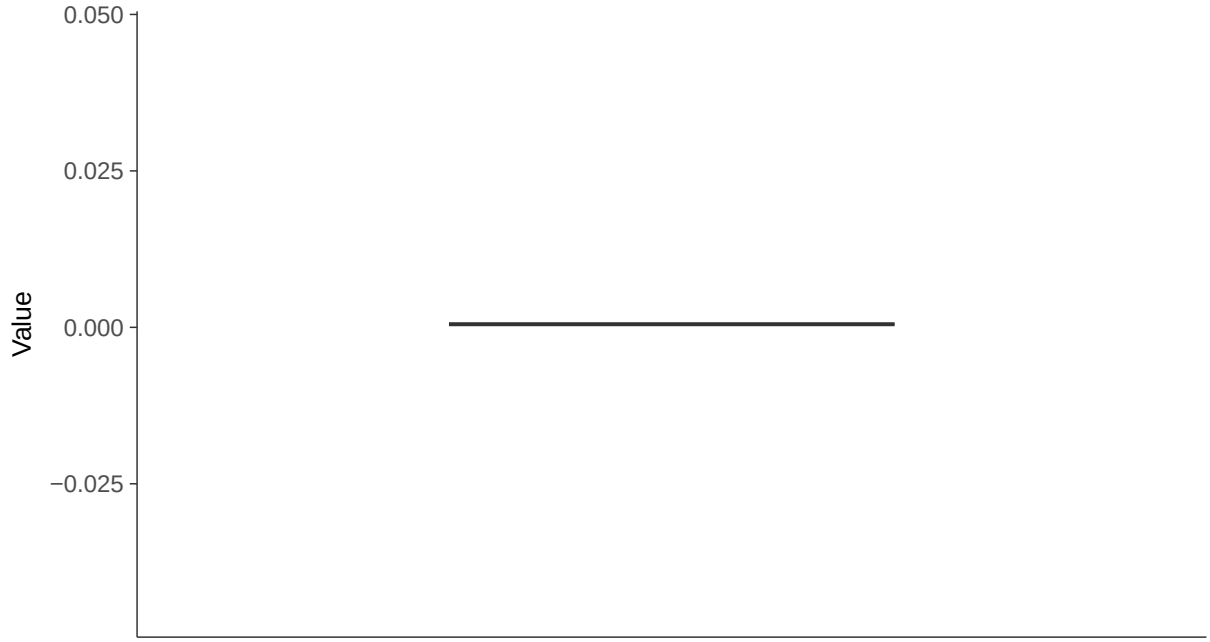
ID: 07_2_12





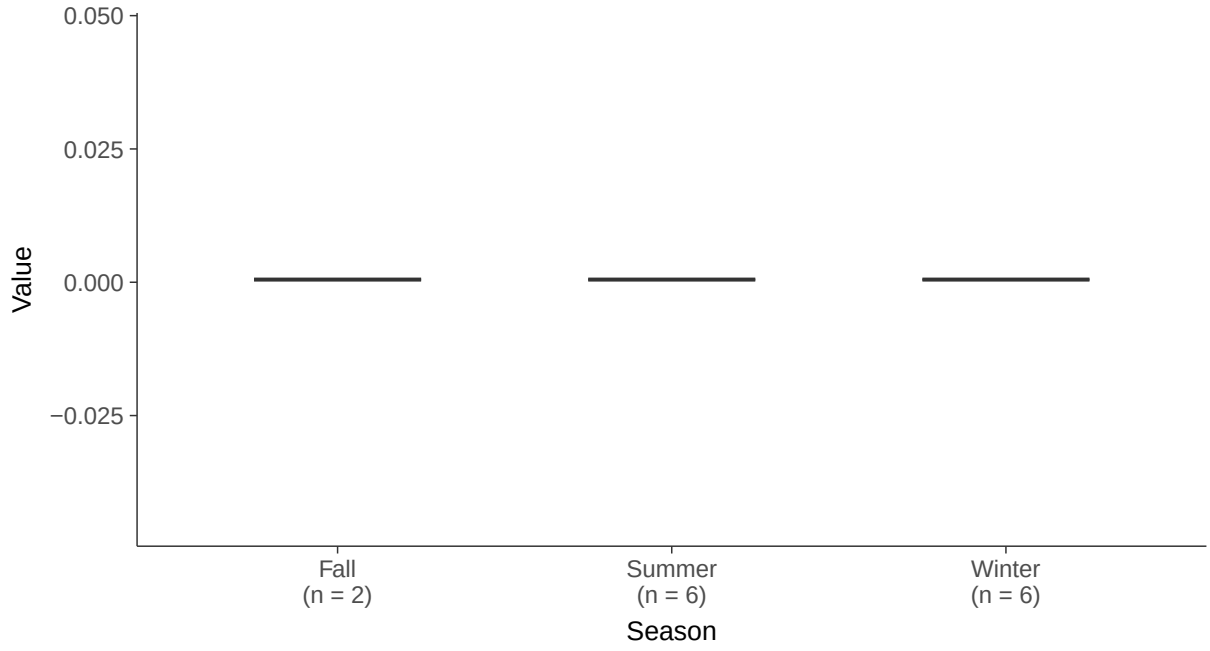
Boxplot

Cadmium, MW-7 (mg/L)



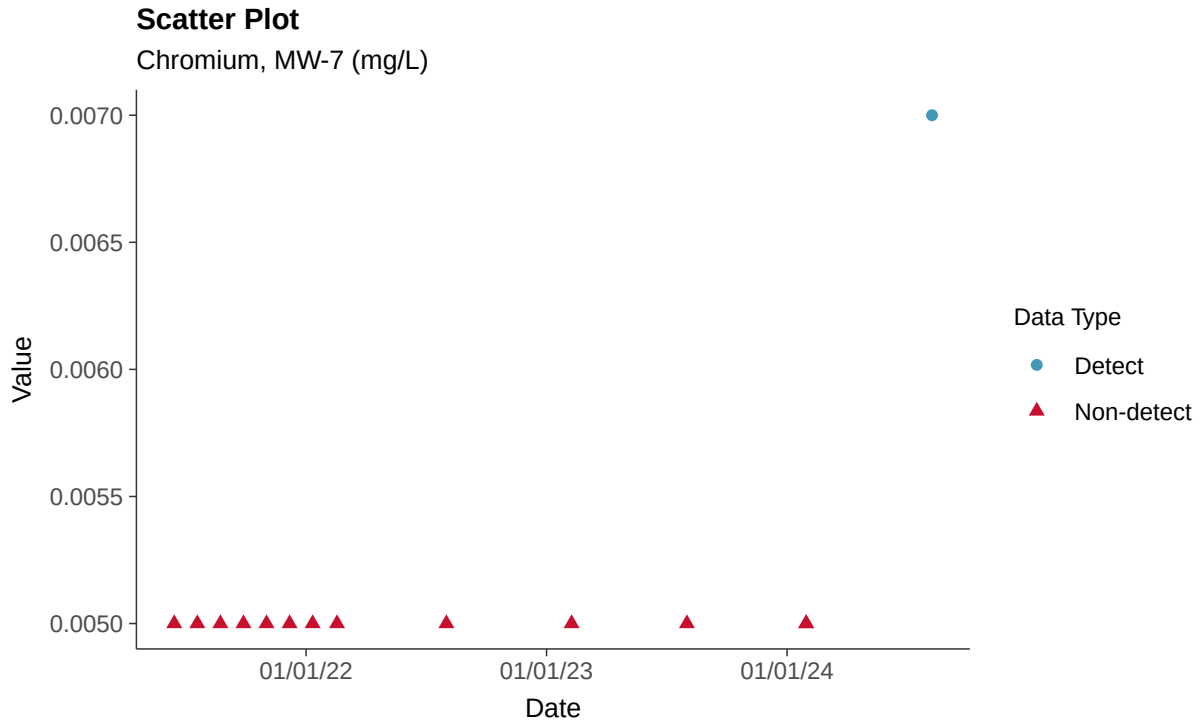
Boxplot by Season

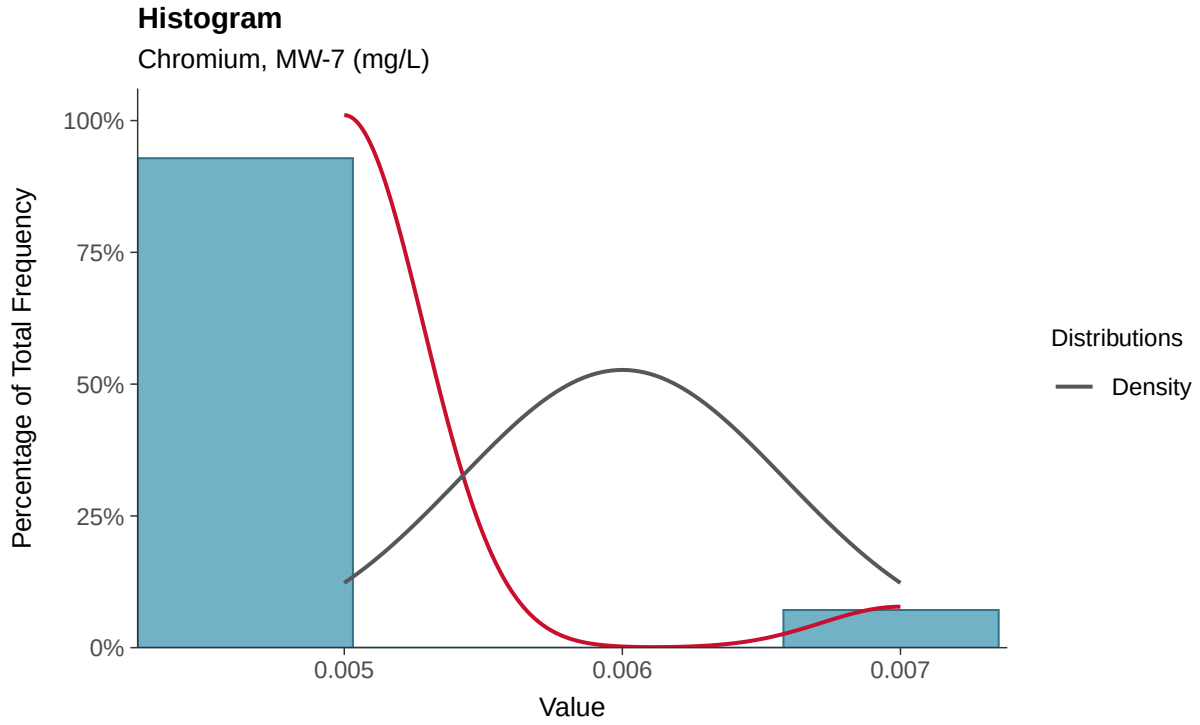
Cadmium, MW-7 (mg/L)



Appendix IV: Chromium, MW-7

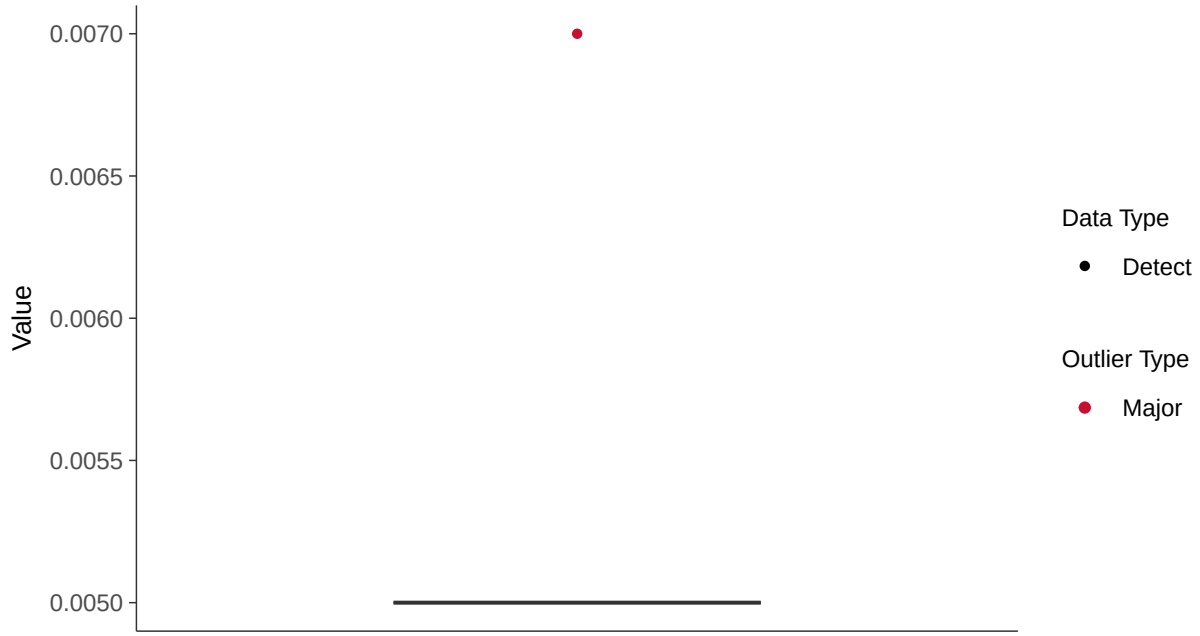
ID: 07_2_13





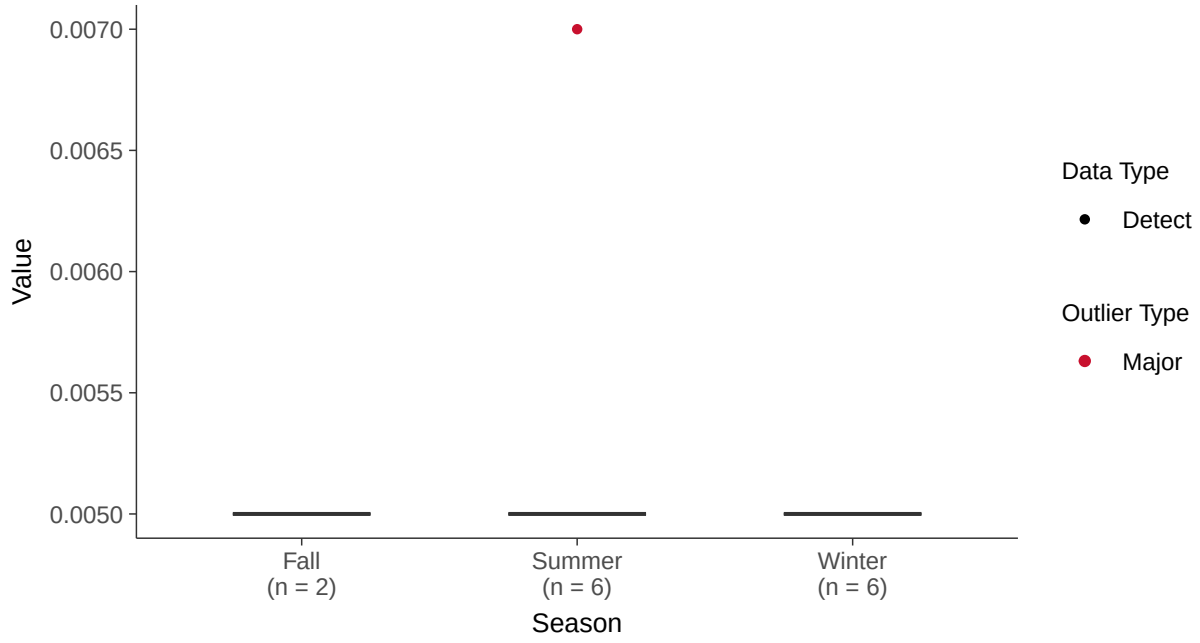
Boxplot

Chromium, MW-7 (mg/L)



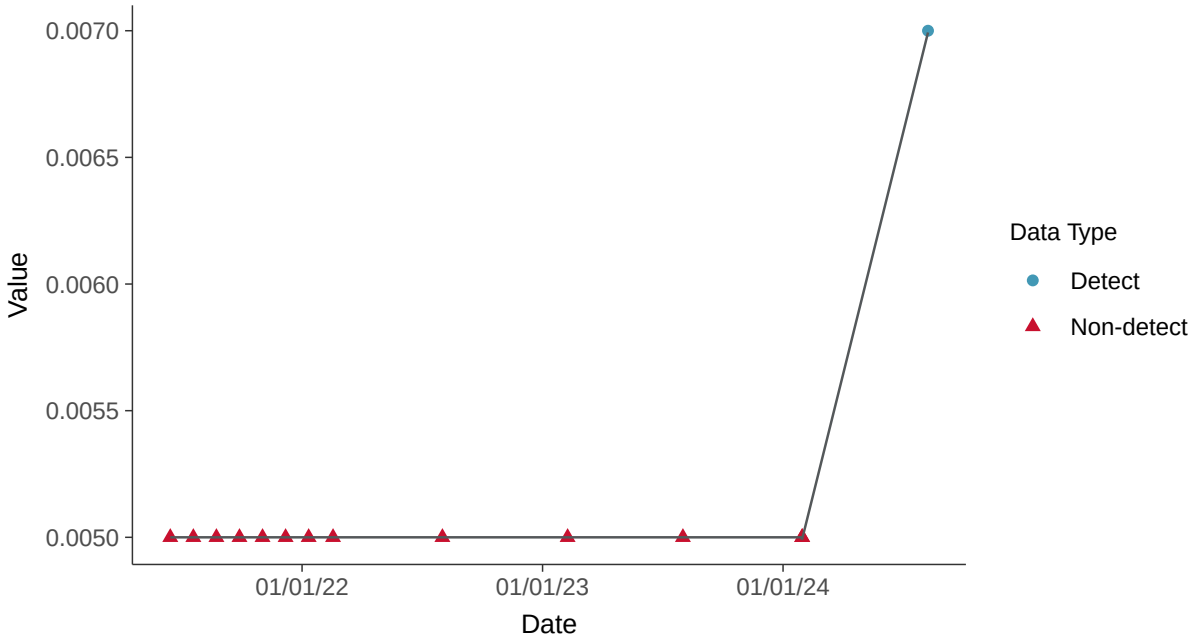
Boxplot by Season

Chromium, MW-7 (mg/L)



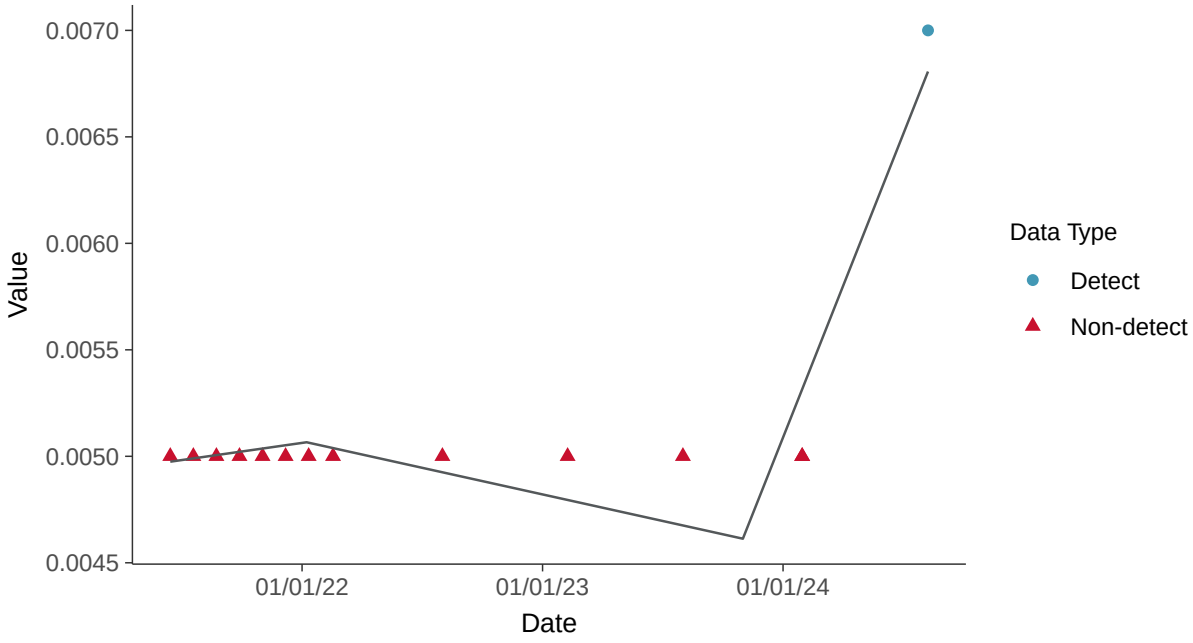
Trend Regression: Piecewise Linear-Linear

Chromium, MW-7 (mg/L)



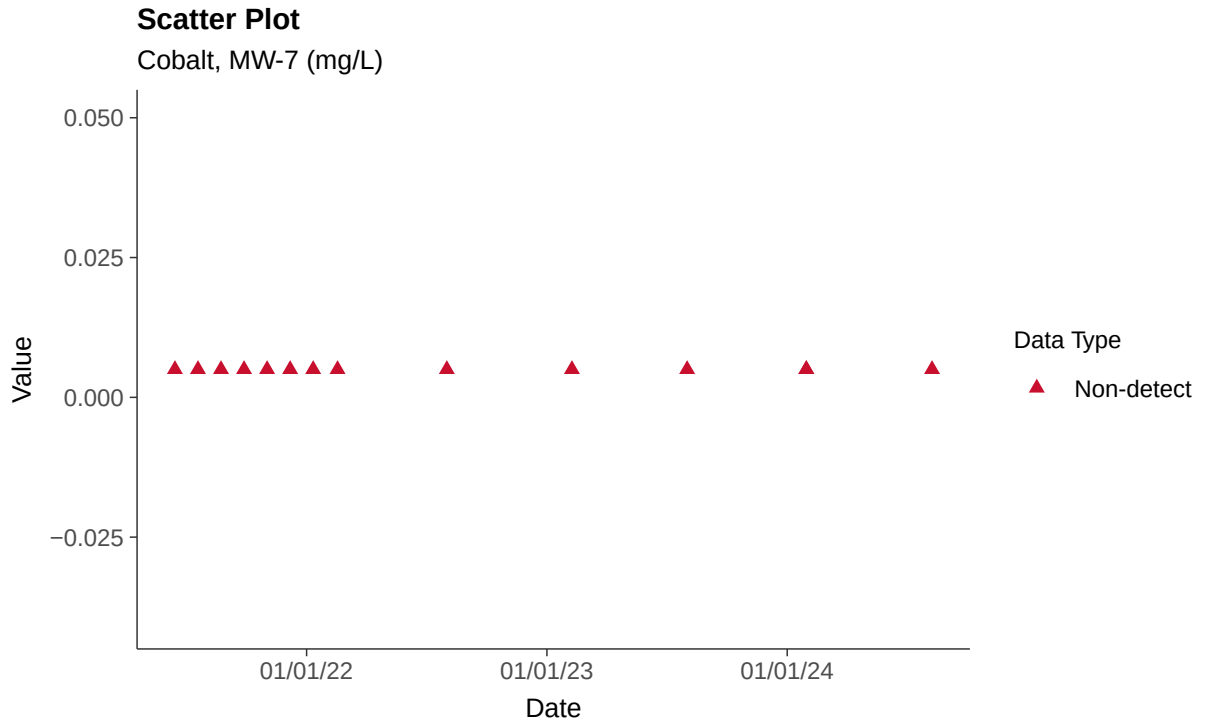
Trend Regression: Piecewise Linear-Linear-Linear

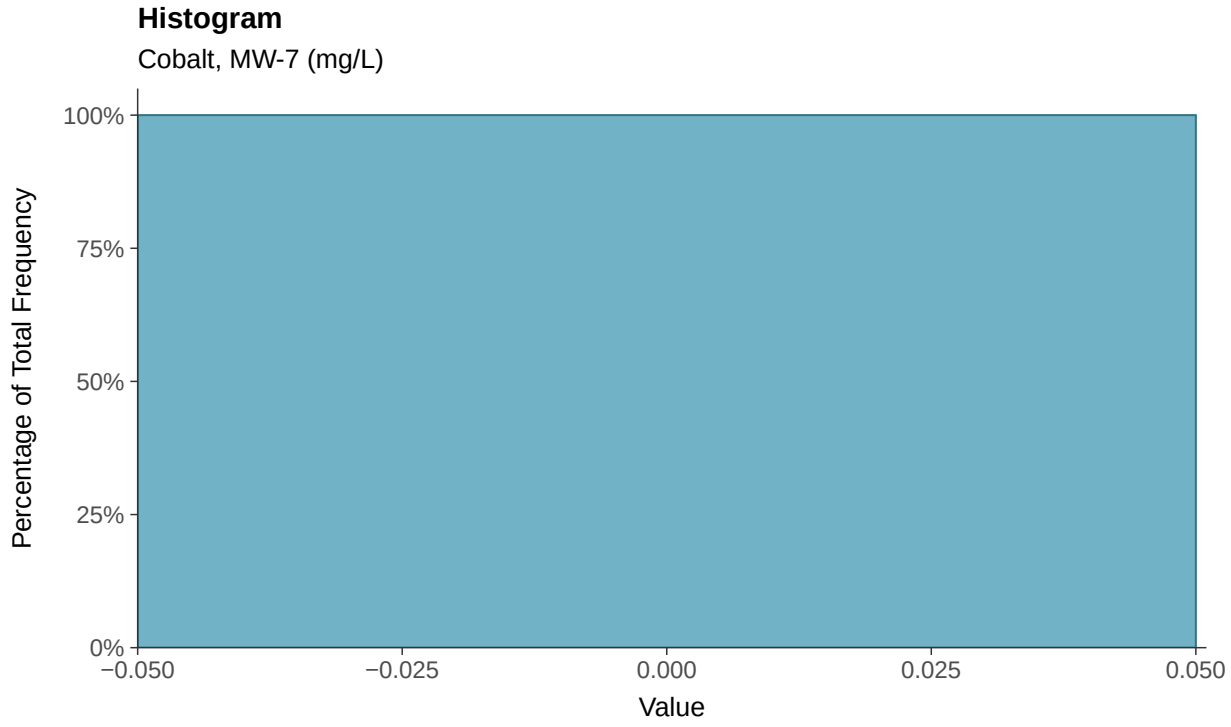
Chromium, MW-7 (mg/L)



Appendix IV: Cobalt, MW-7

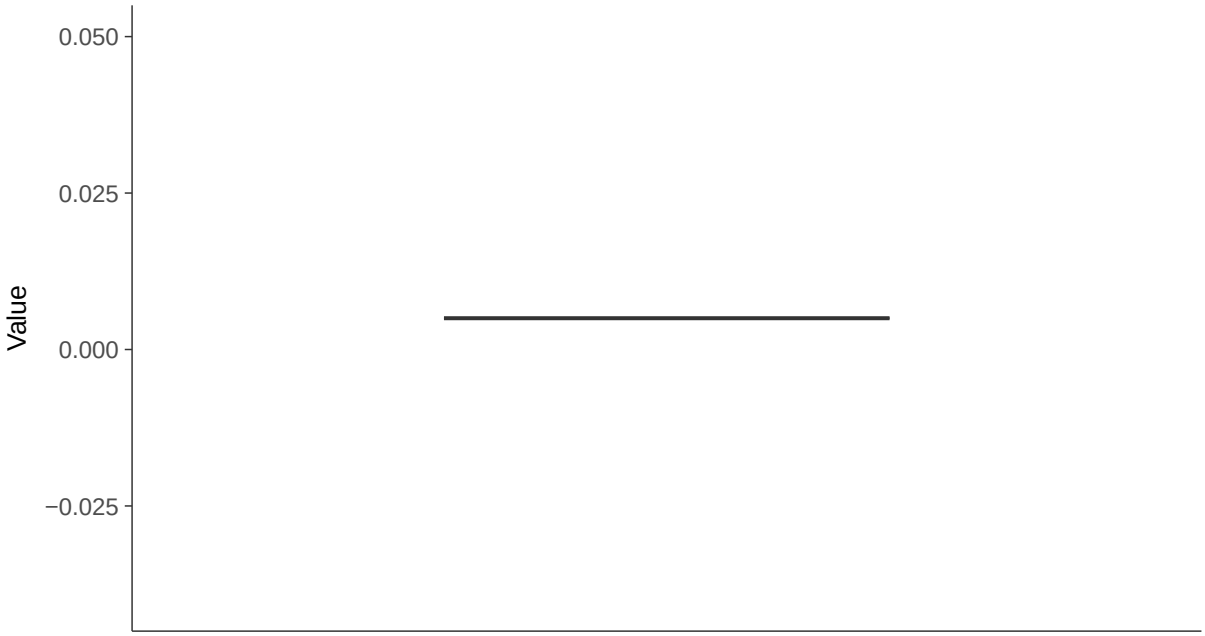
ID: 07_2_14





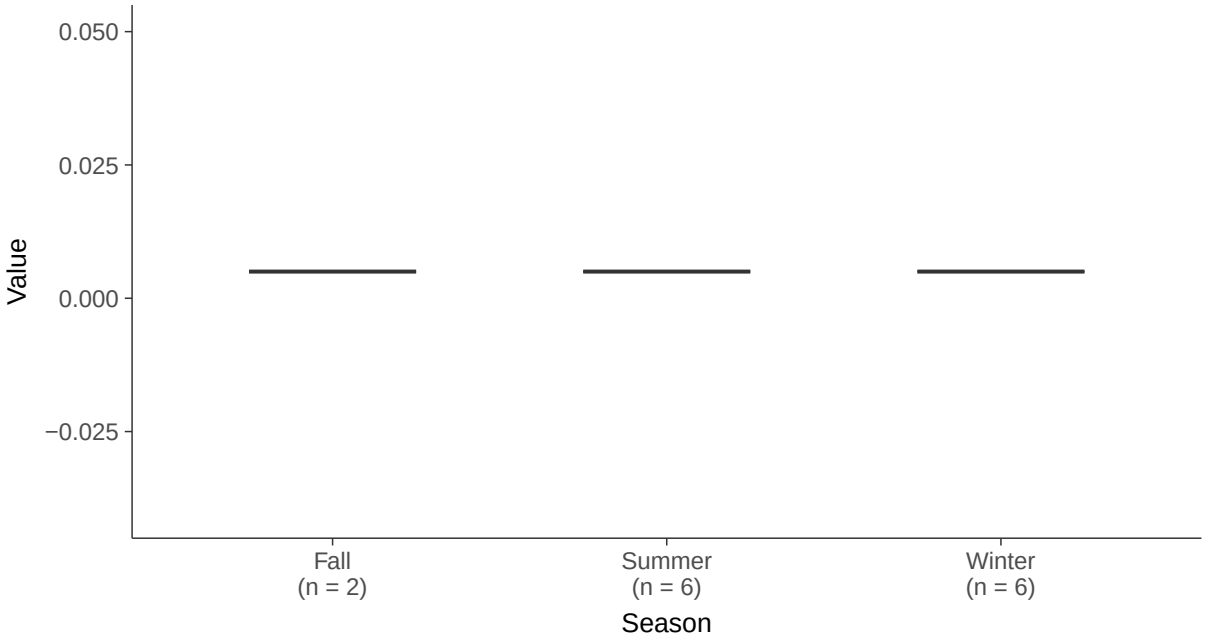
Boxplot

Cobalt, MW-7 (mg/L)



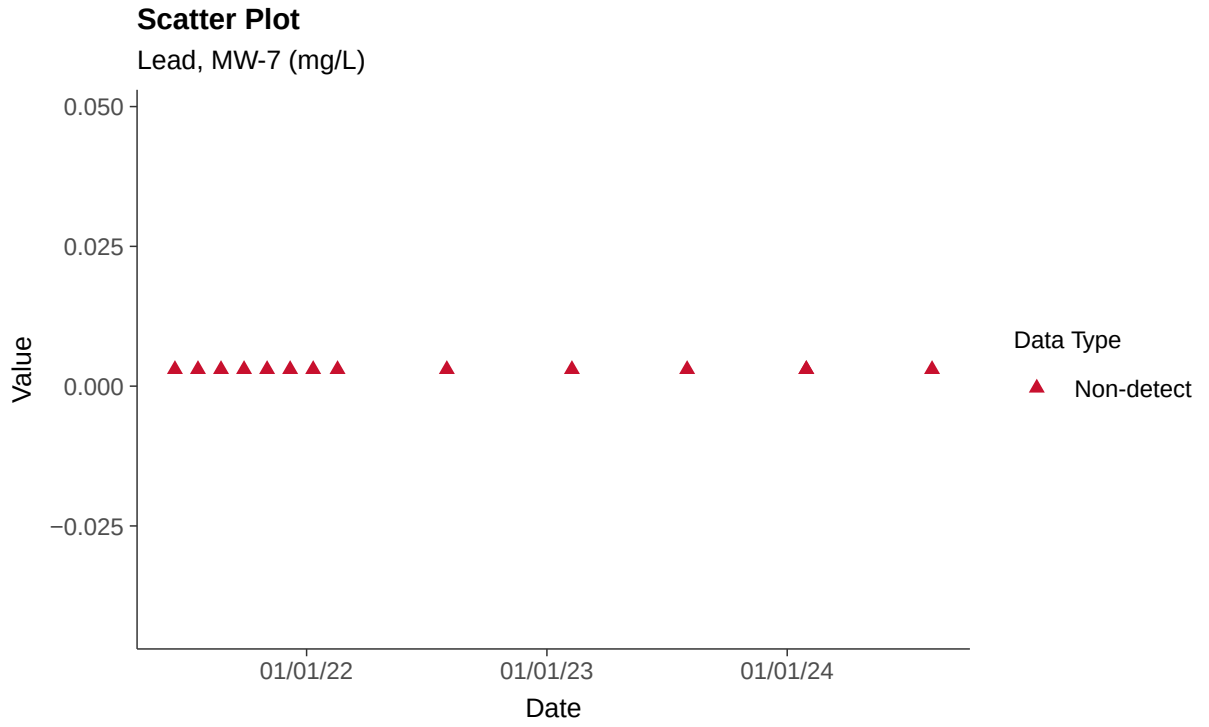
Boxplot by Season

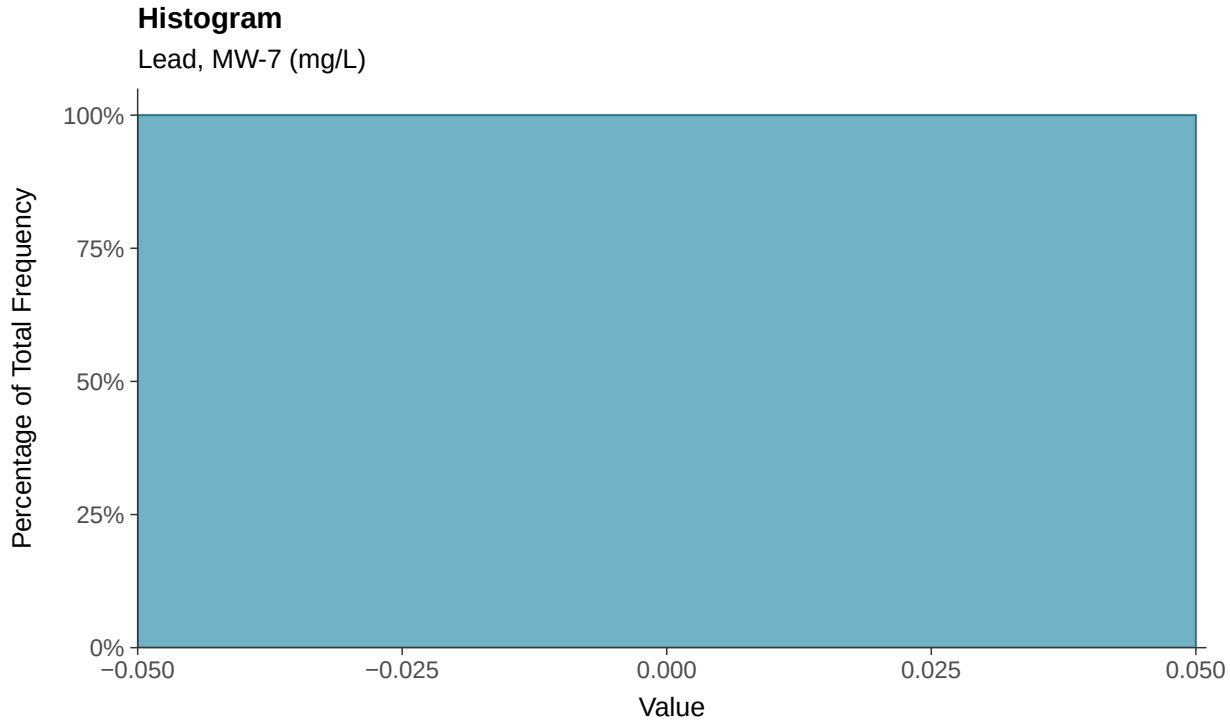
Cobalt, MW-7 (mg/L)



Appendix IV: Lead, MW-7

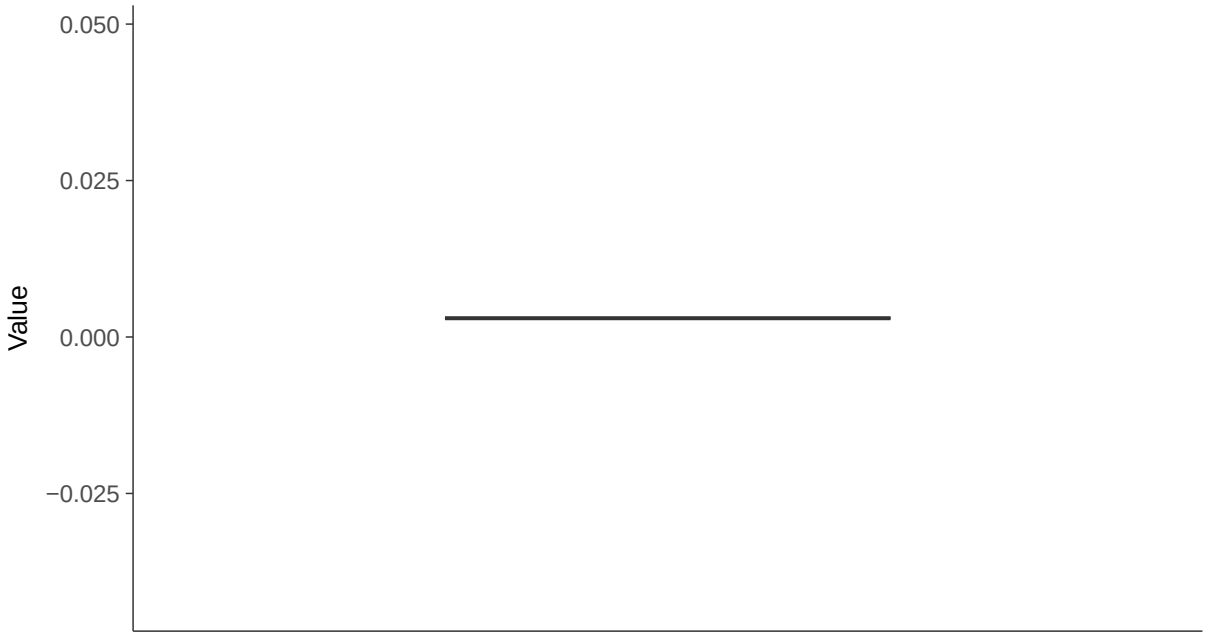
ID: 07_2_15





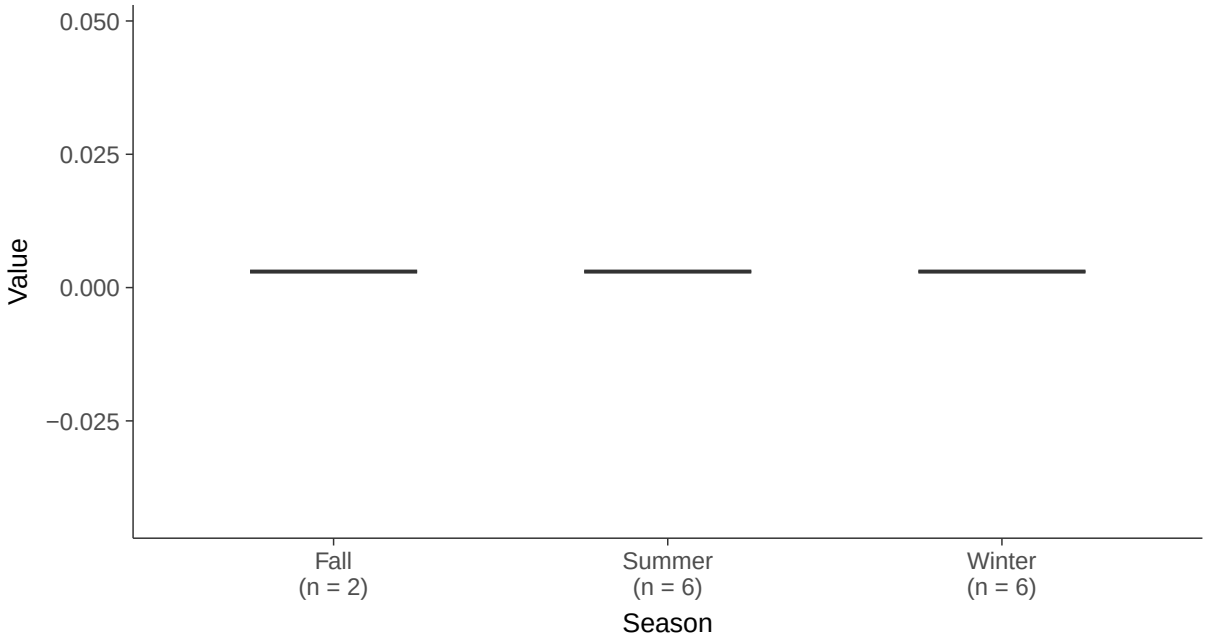
Boxplot

Lead, MW-7 (mg/L)



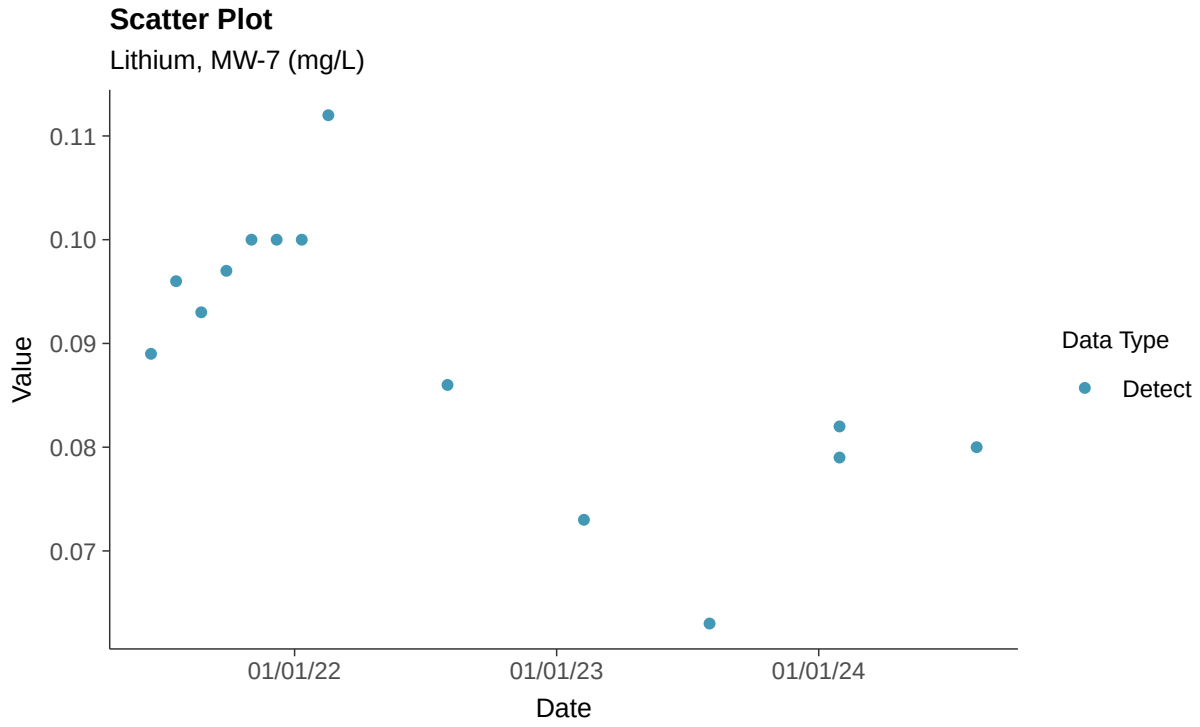
Boxplot by Season

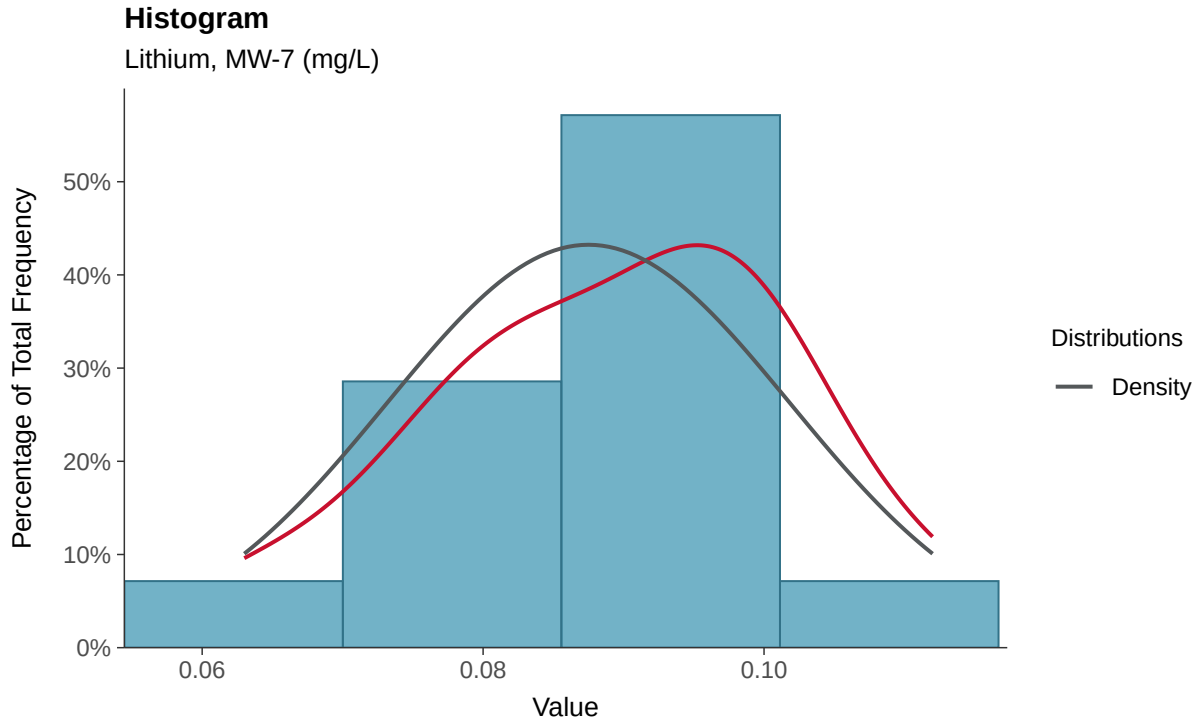
Lead, MW-7 (mg/L)



Appendix IV: Lithium, MW-7

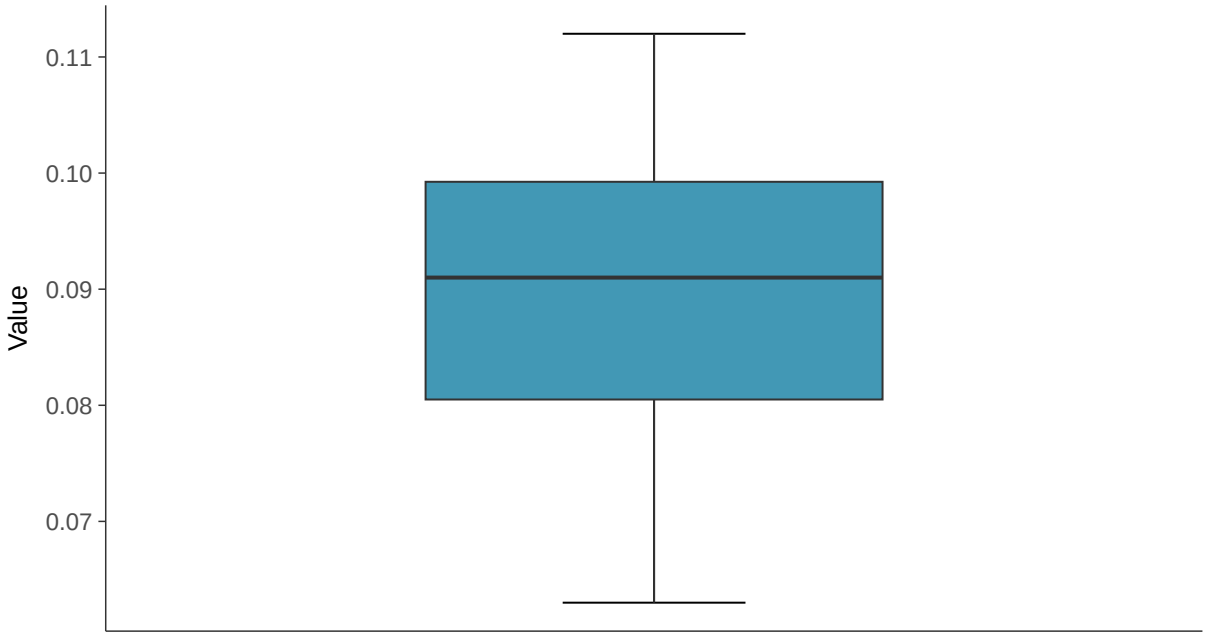
ID: 07_2_16





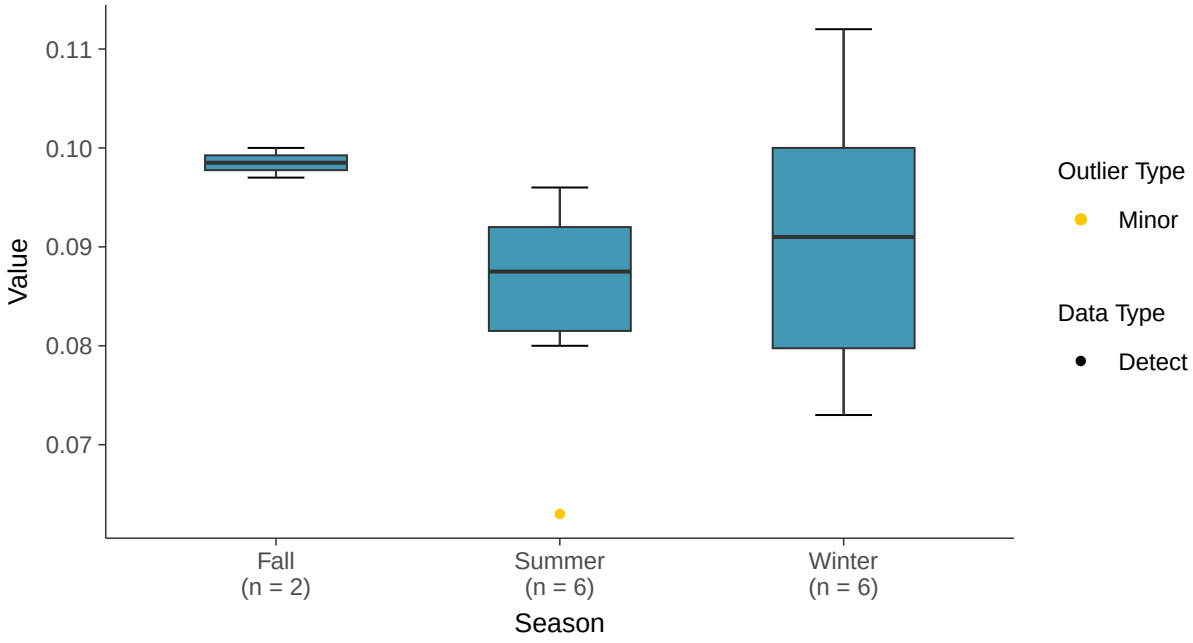
Boxplot

Lithium, MW-7 (mg/L)



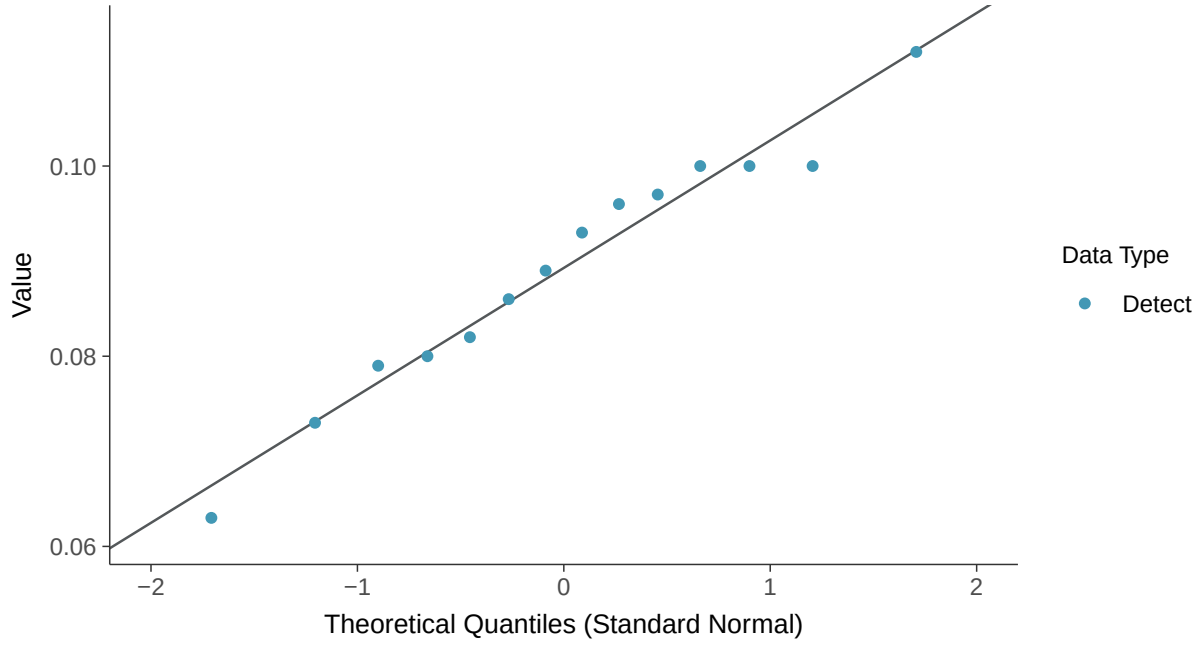
Boxplot by Season

Lithium, MW-7 (mg/L)



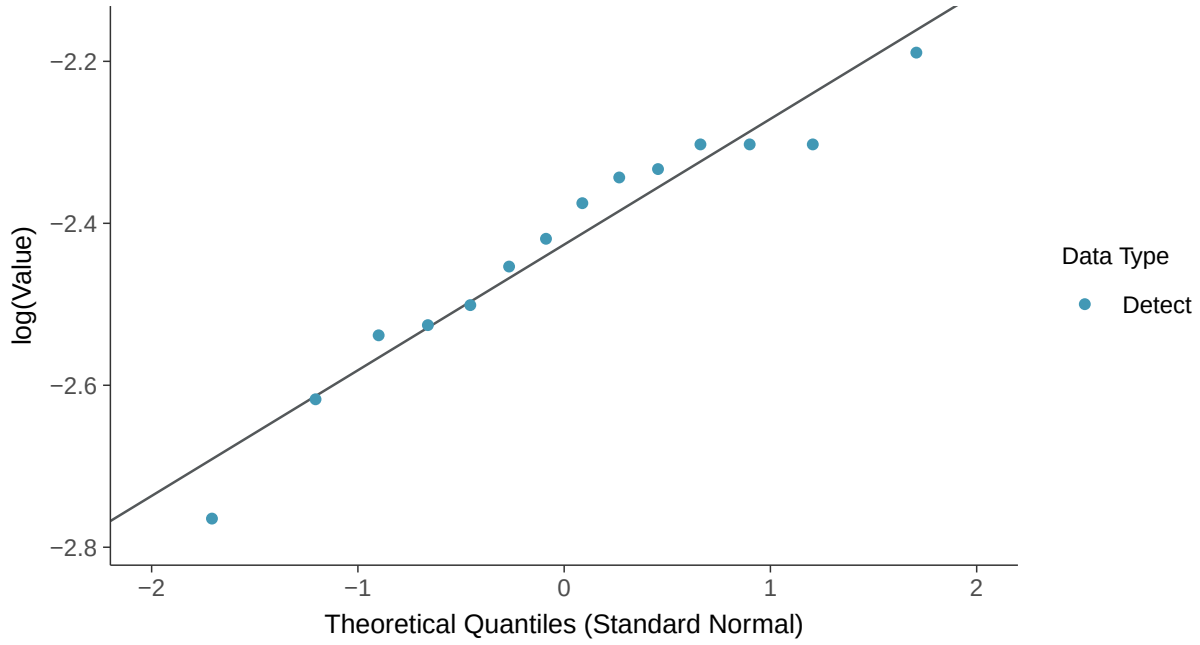
Normal Q-Q plot

Lithium, MW-7 (mg/L)



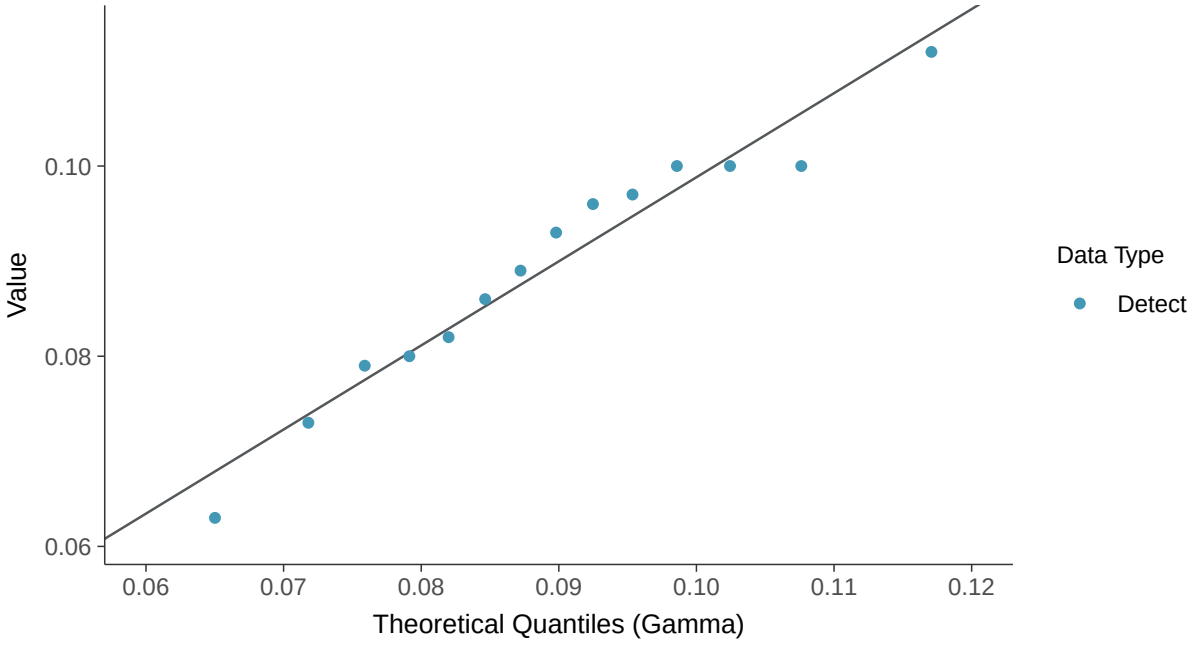
Lognormal Q-Q plot

Lithium, MW-7 (mg/L)



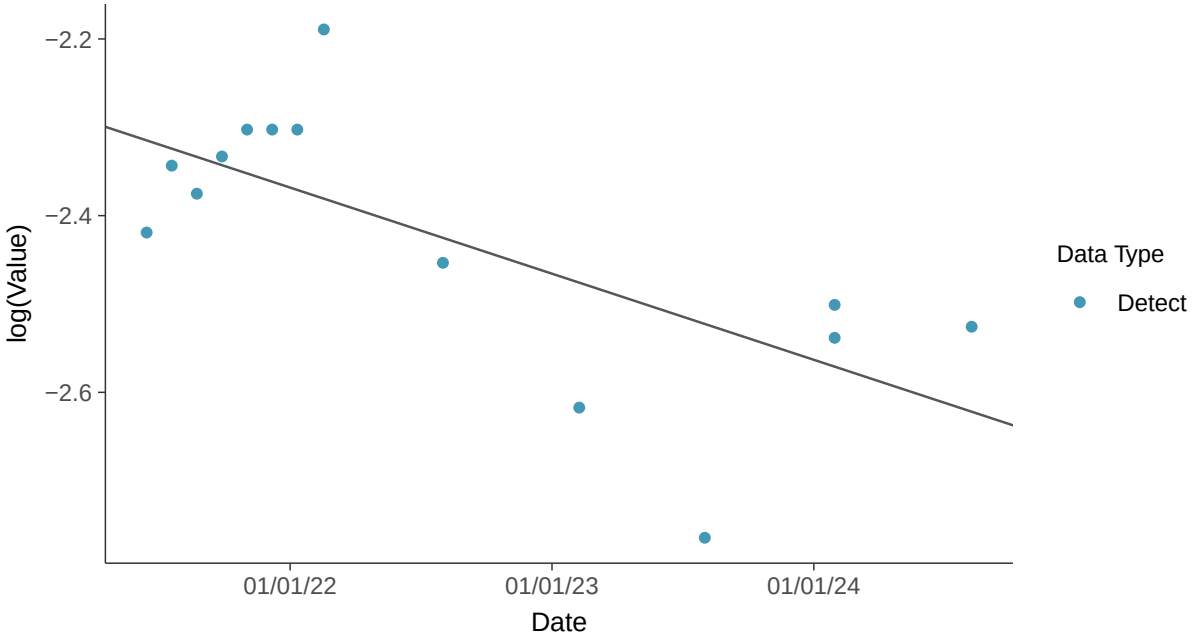
Gamma Q-Q plot

Lithium, MW-7 (mg/L)



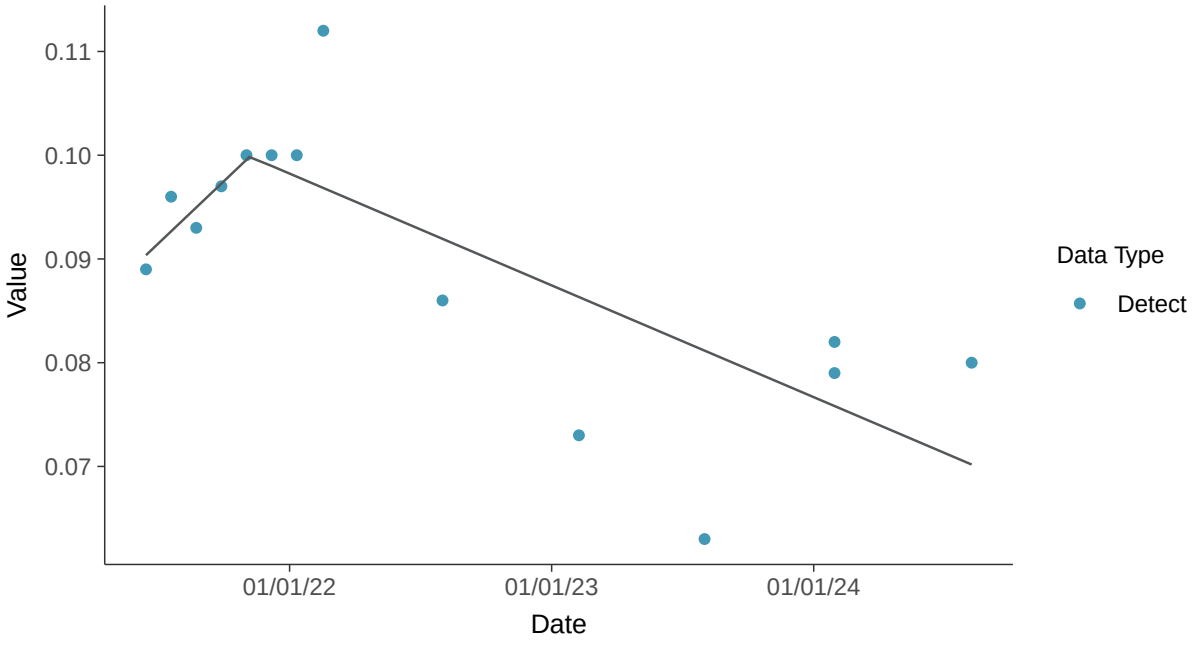
Trend Regression: Lognormal MLE

Lithium, MW-7 (mg/L)



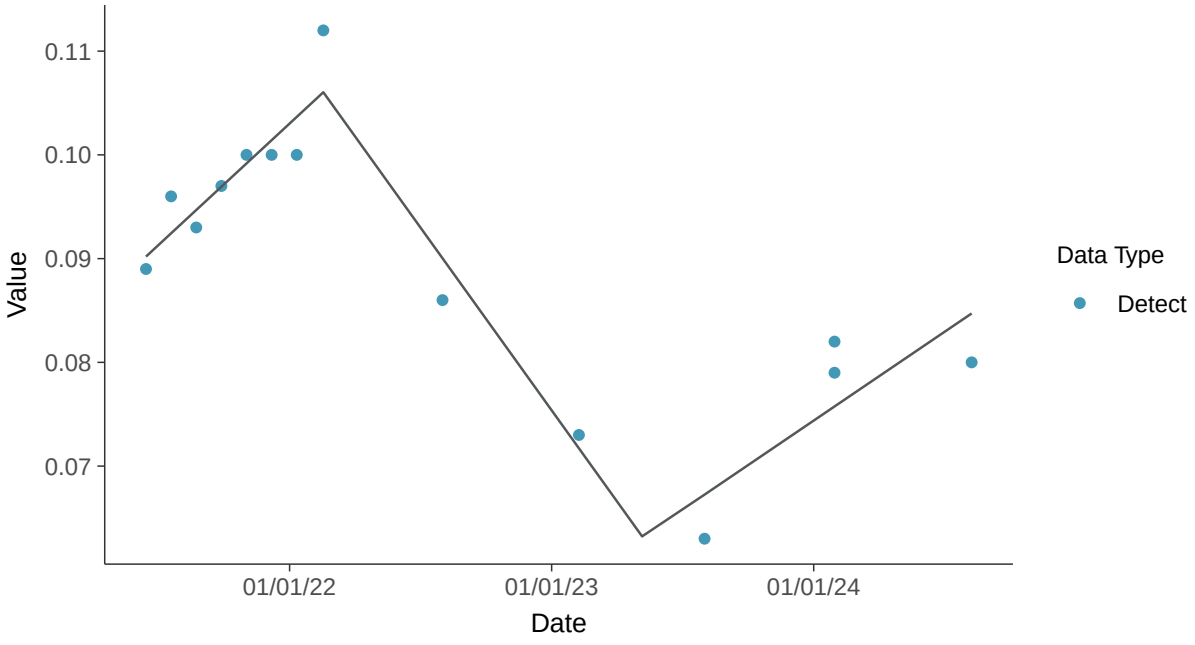
Trend Regression: Piecewise Linear-Linear

Lithium, MW-7 (mg/L)



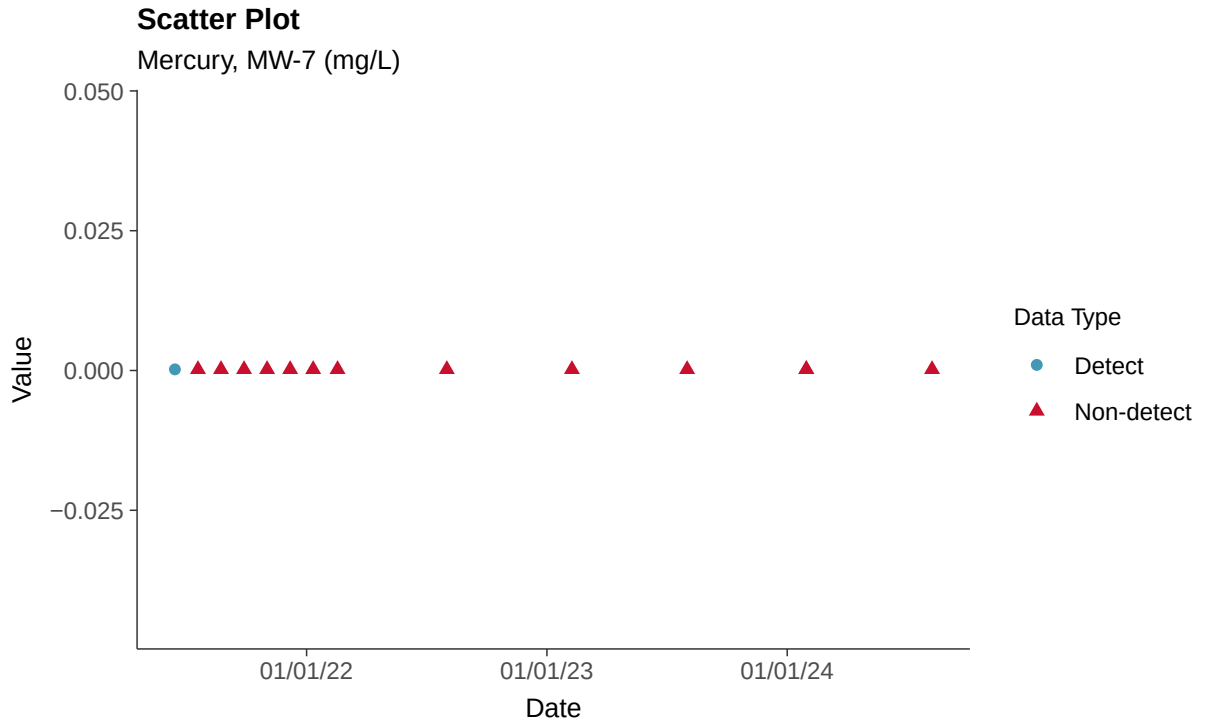
Trend Regression: Piecewise Linear-Linear-Linear

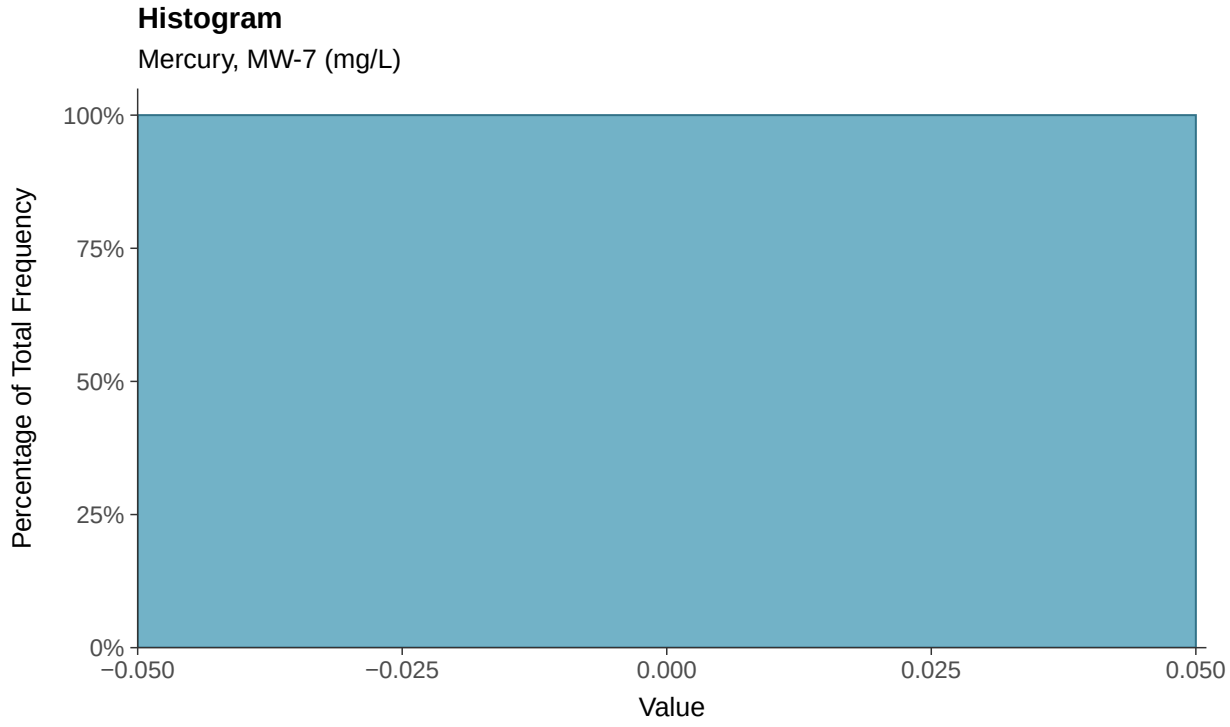
Lithium, MW-7 (mg/L)



Appendix IV: Mercury, MW-7

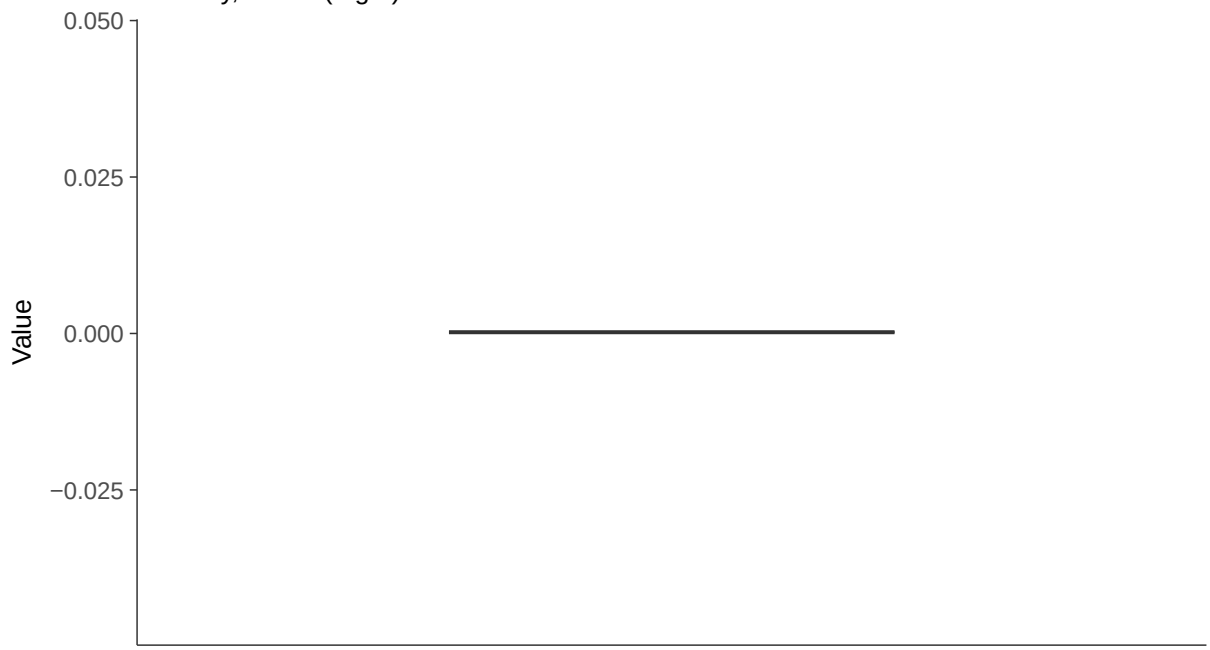
ID: 07_2_17





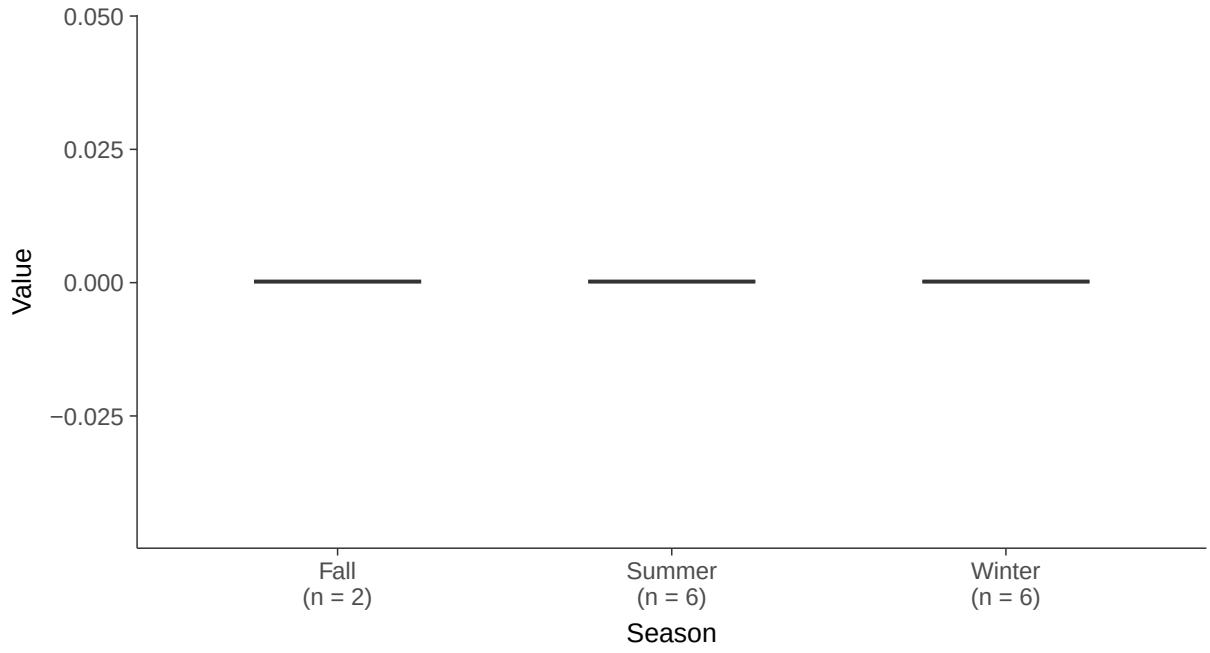
Boxplot

Mercury, MW-7 (mg/L)



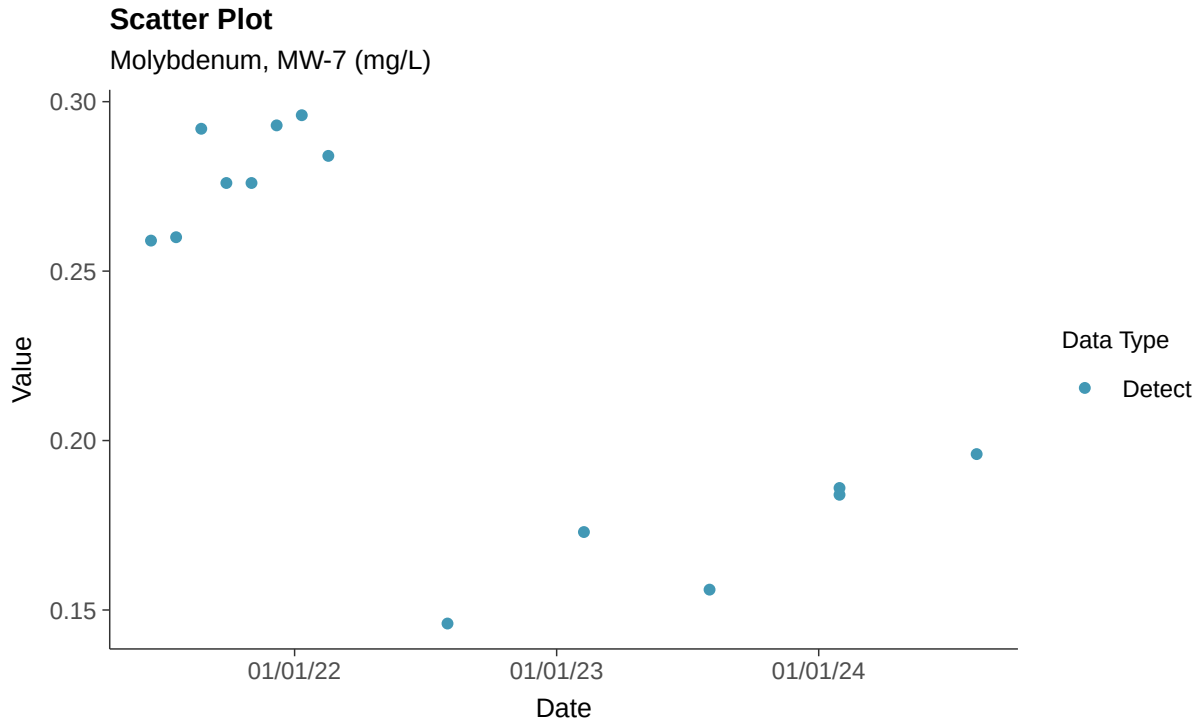
Boxplot by Season

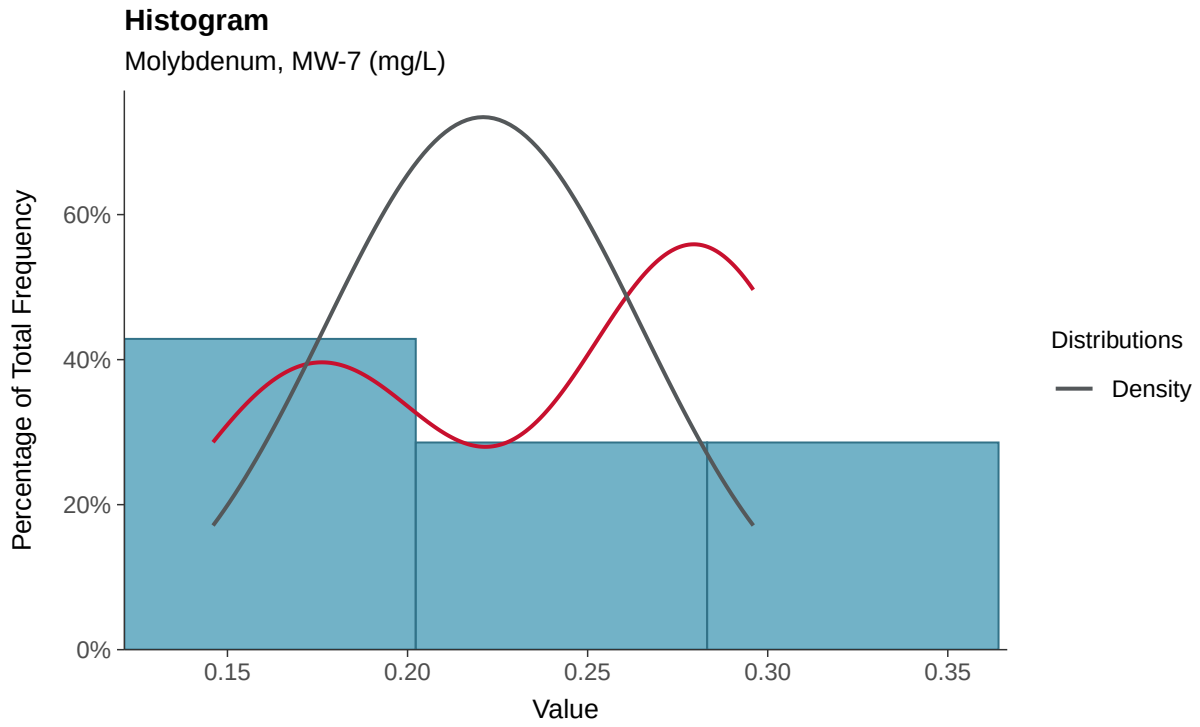
Mercury, MW-7 (mg/L)



Appendix IV: Molybdenum, MW-7

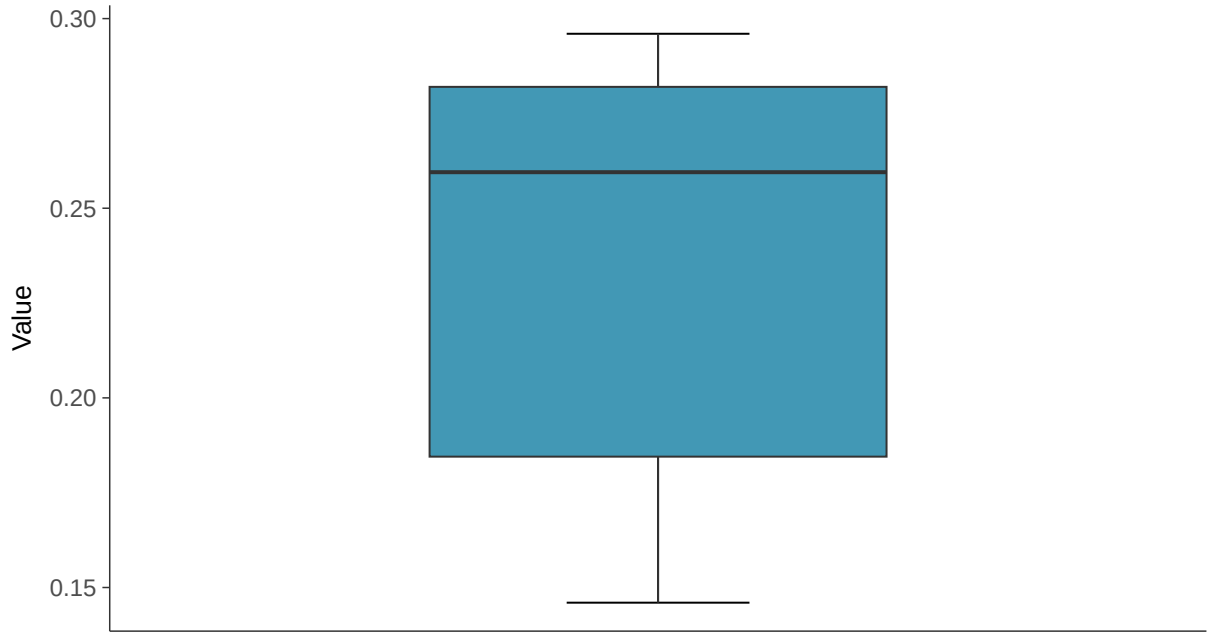
ID: 07_2_18





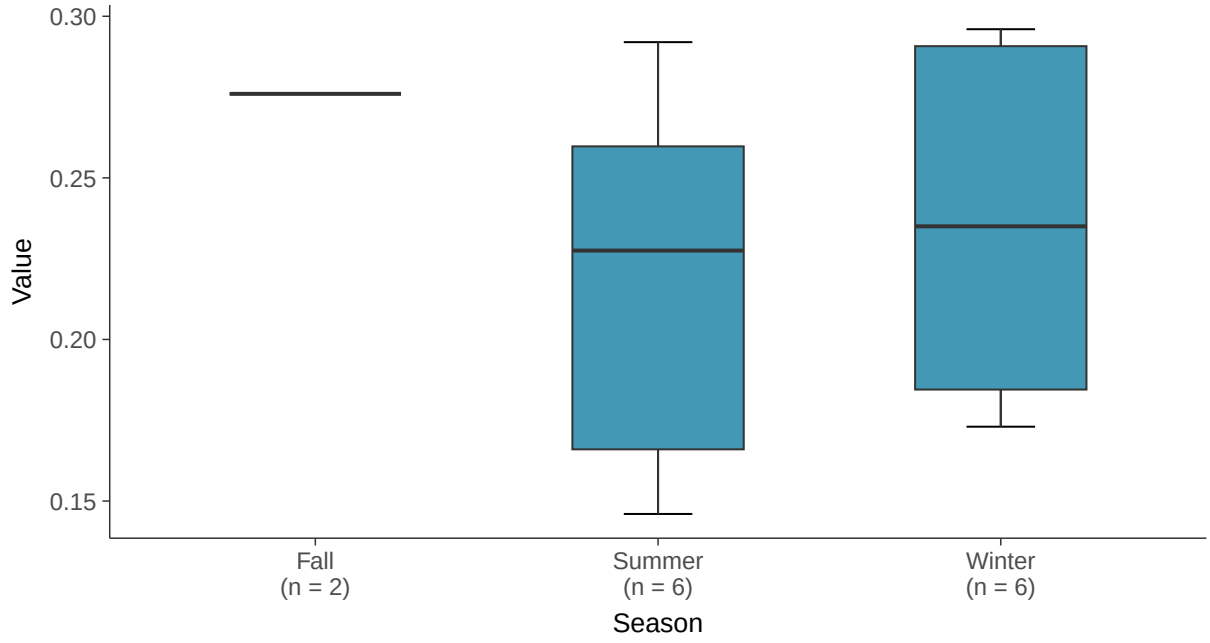
Boxplot

Molybdenum, MW-7 (mg/L)



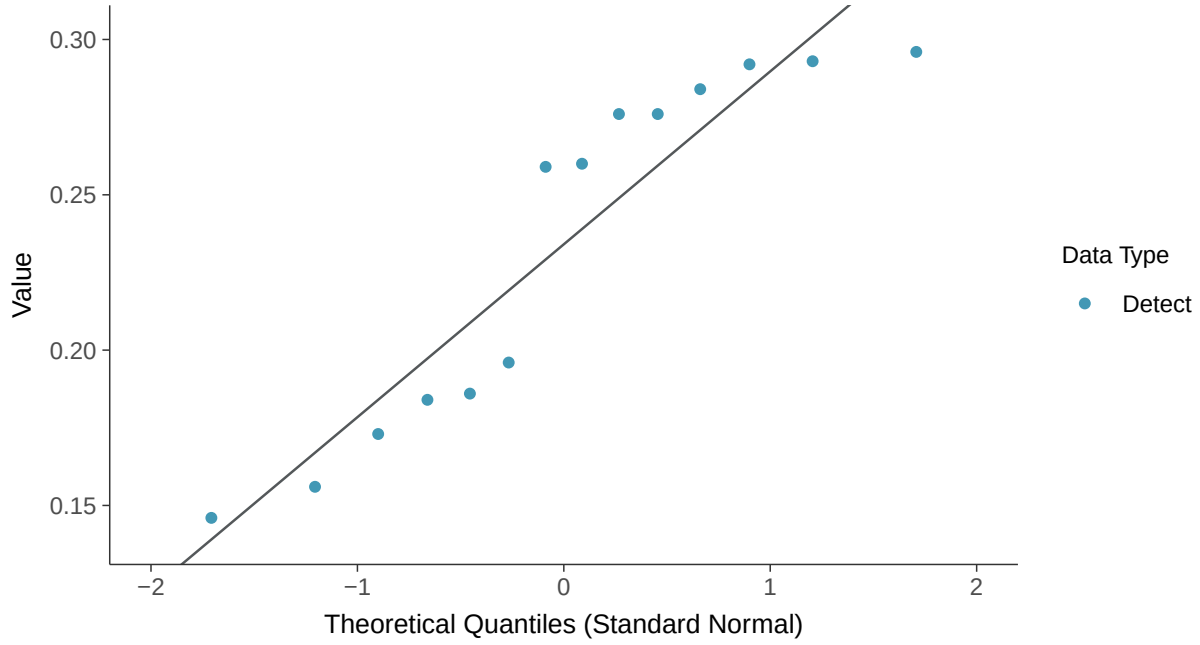
Boxplot by Season

Molybdenum, MW-7 (mg/L)



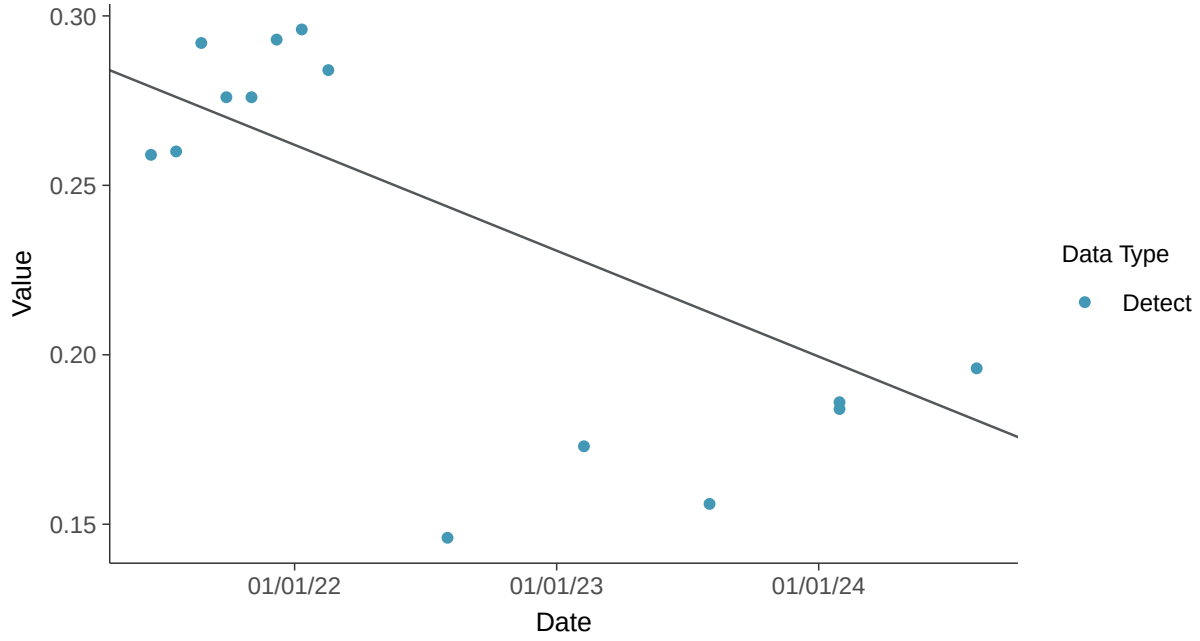
Normal Q-Q plot

Molybdenum, MW-7 (mg/L)



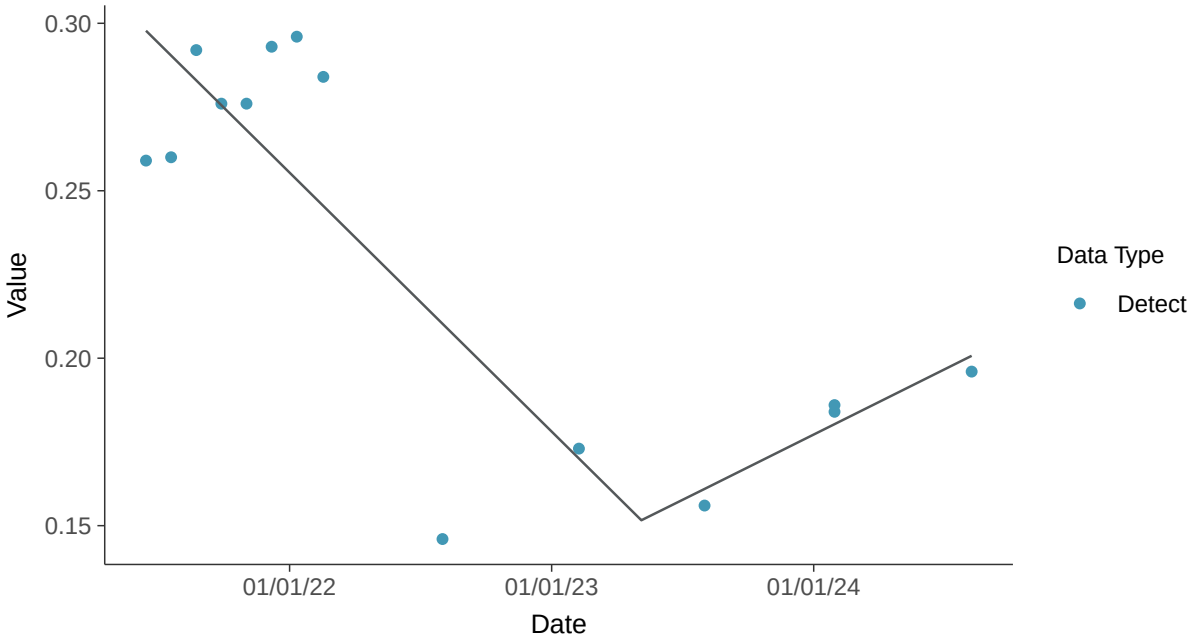
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Molybdenum, MW-7 (mg/L)



Trend Regression: Piecewise Linear-Linear

Molybdenum, MW-7 (mg/L)

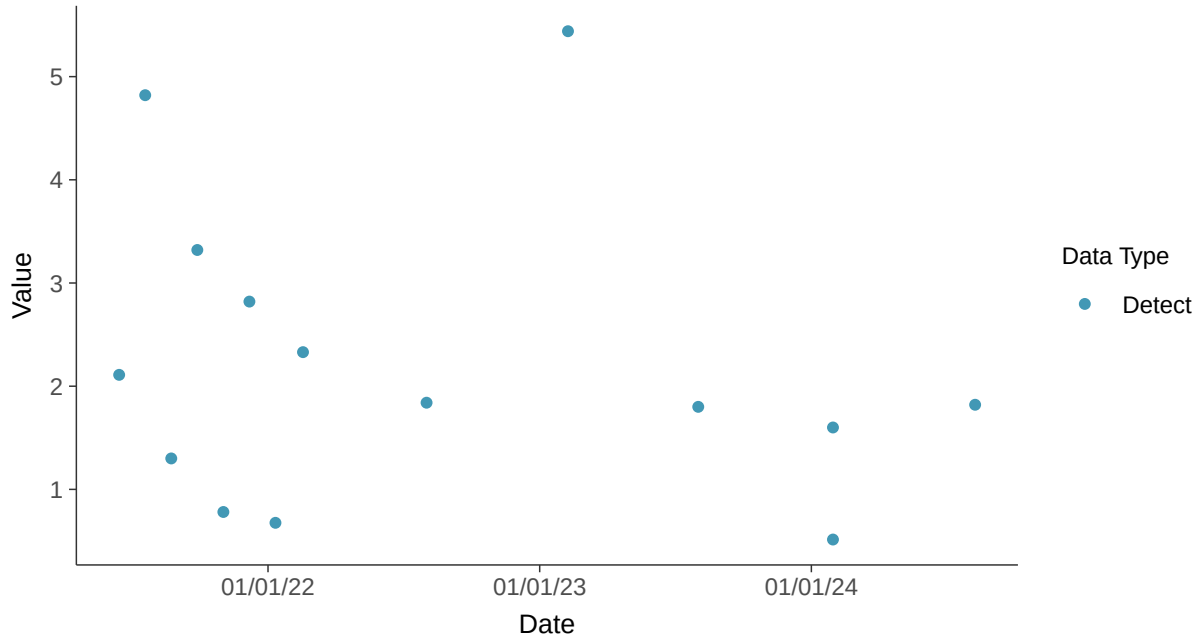


Appendix IV: Radium-226/228, MW-7

ID: 07_2_21

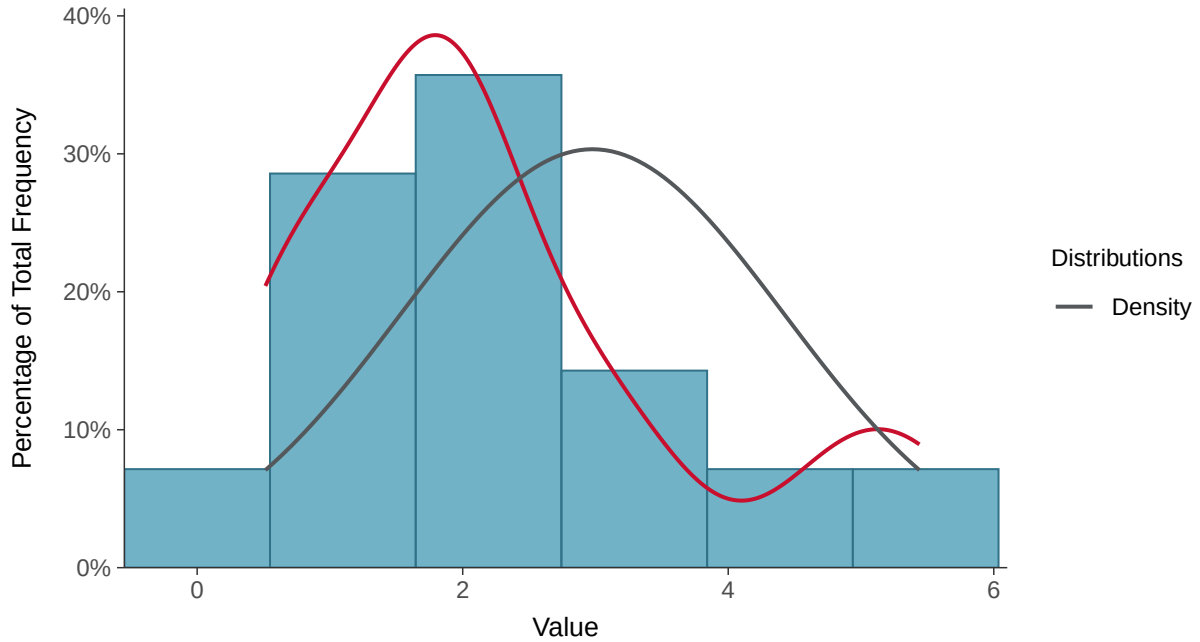
Scatter Plot

Radium-226/228, MW-7 (pCi/L)



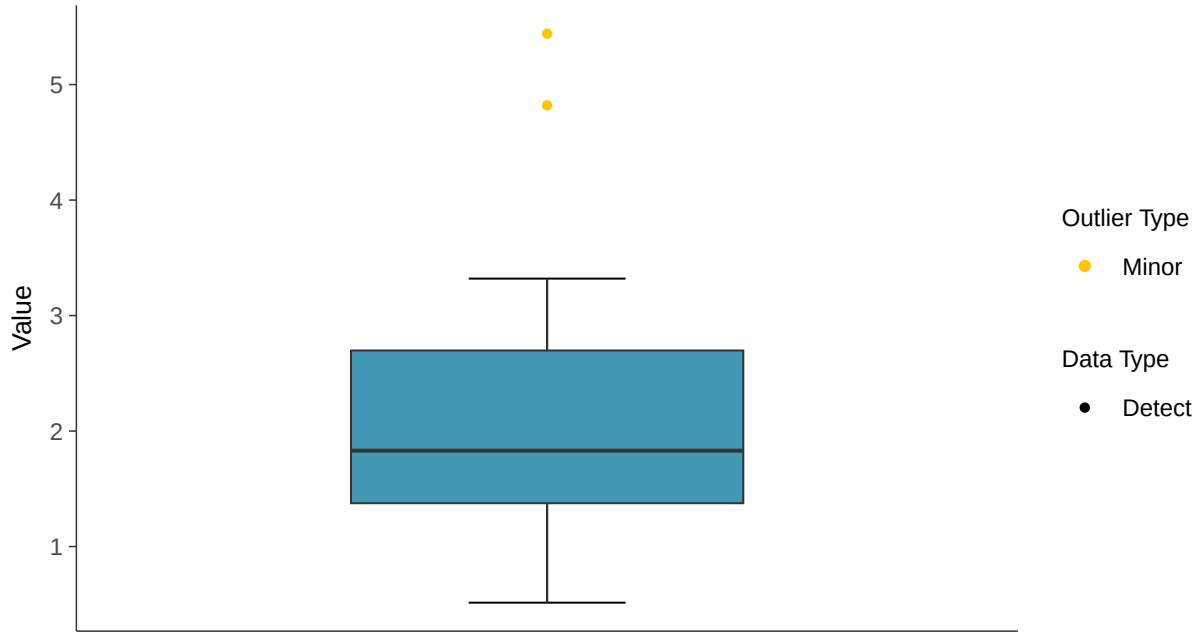
Histogram

Radium-226/228, MW-7 (pCi/L)



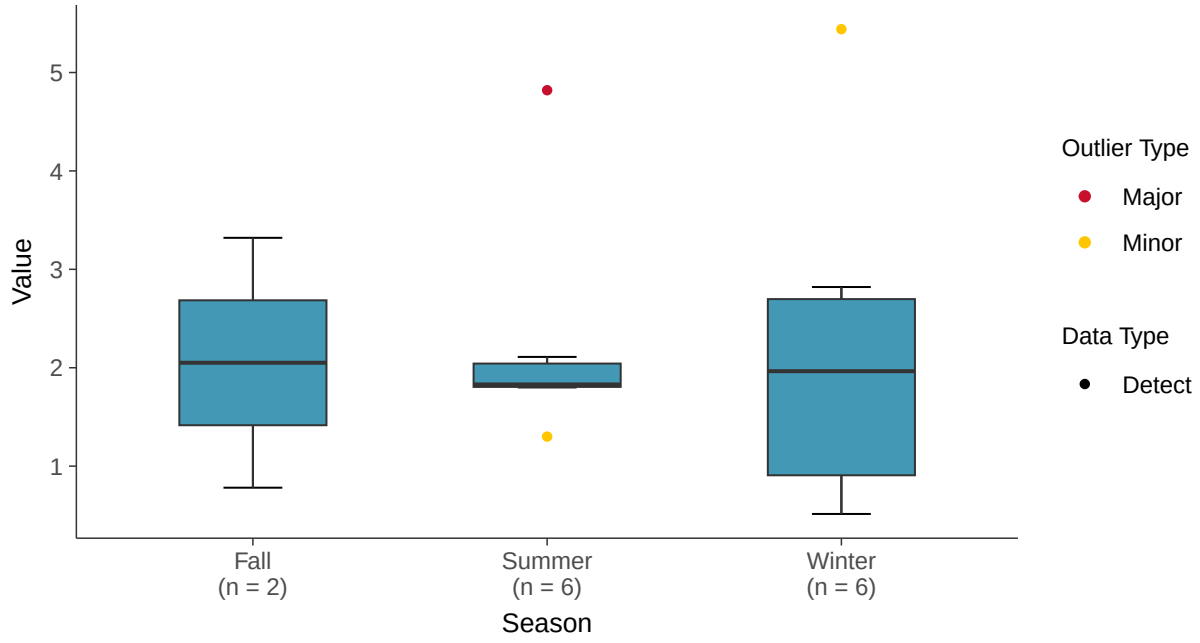
Boxplot

Radium-226/228, MW-7 (pCi/L)



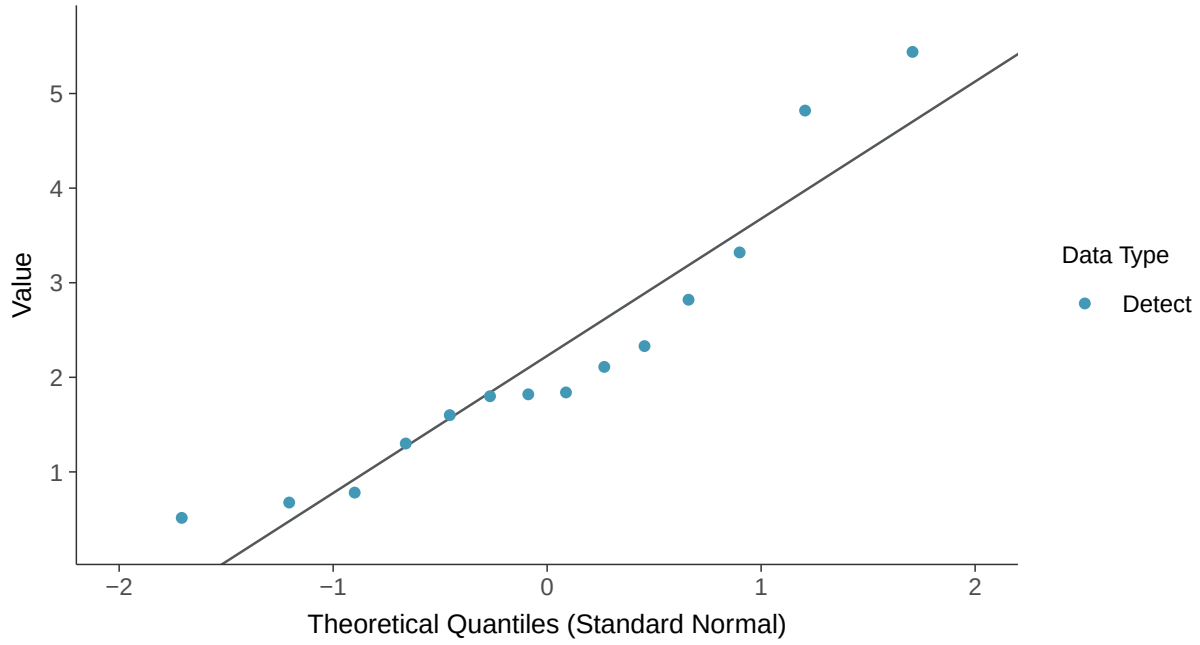
Boxplot by Season

Radium-226/228, MW-7 (pCi/L)



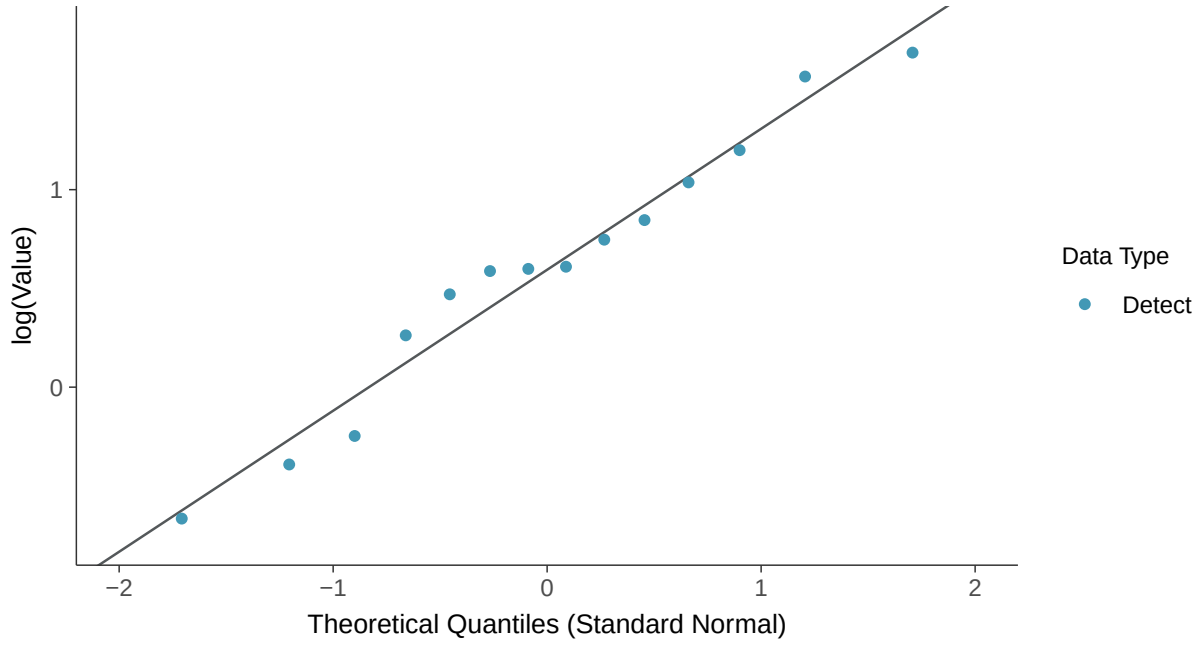
Normal Q-Q plot

Radium-226/228, MW-7 (pCi/L)



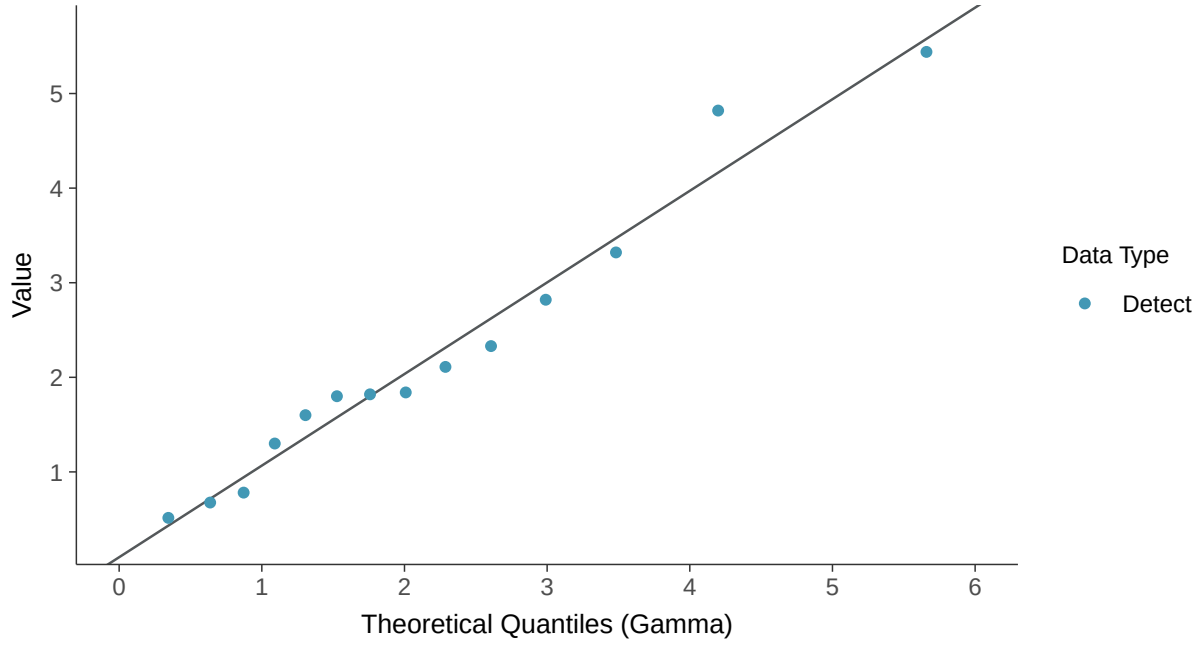
Lognormal Q-Q plot

Radium-226/228, MW-7 (pCi/L)



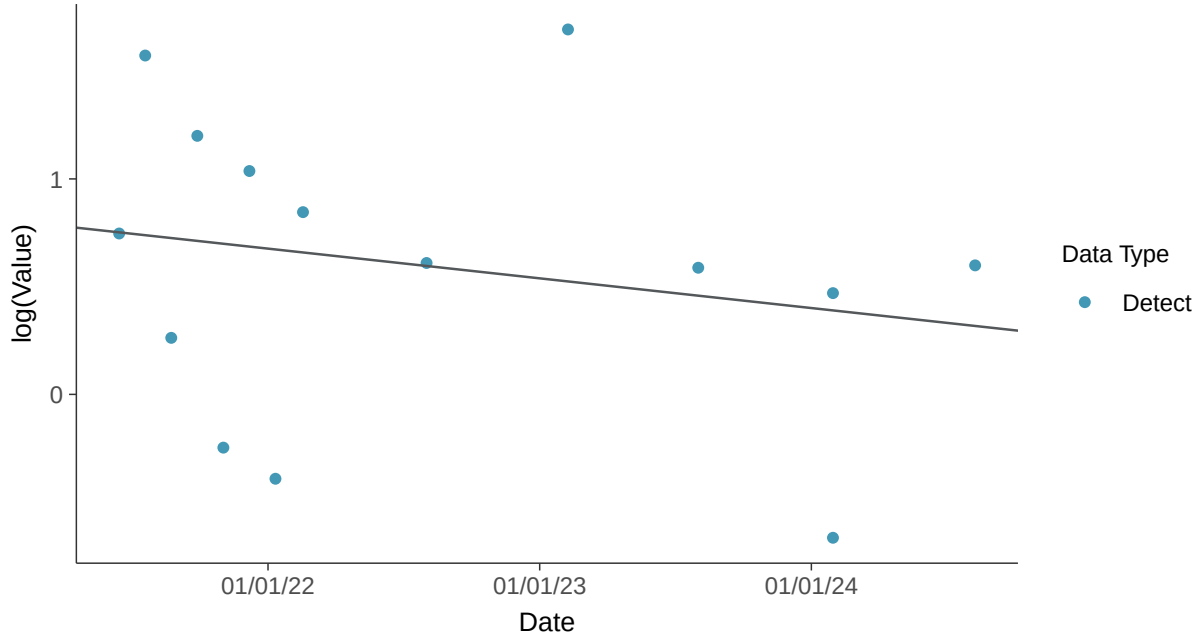
Gamma Q-Q plot

Radium-226/228, MW-7 (pCi/L)



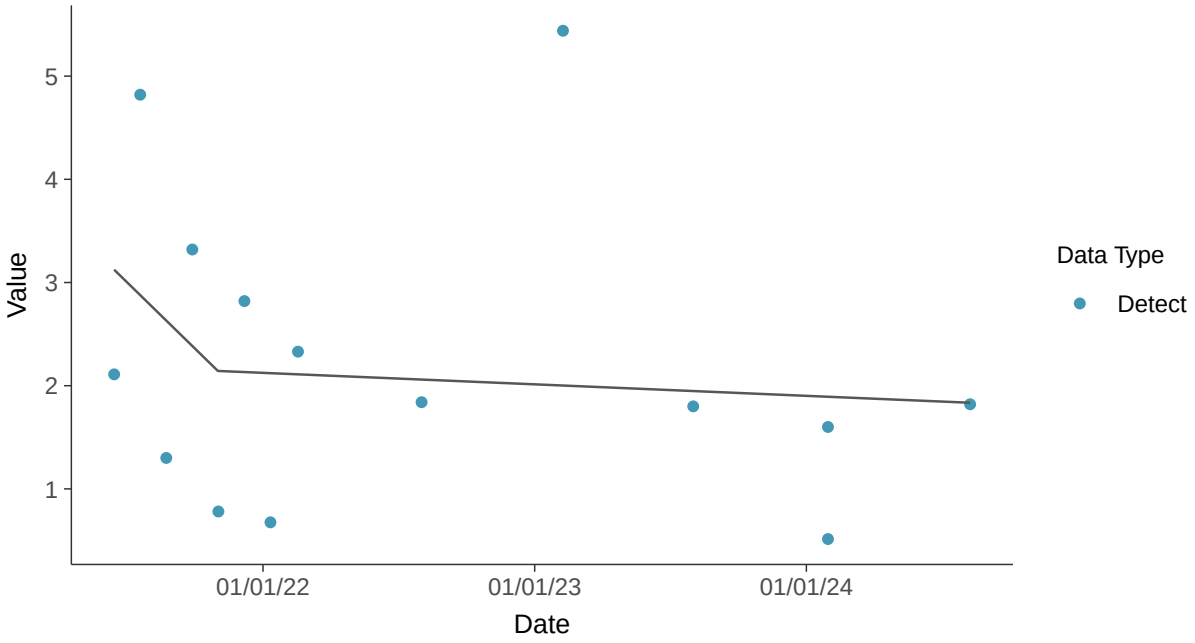
Trend Regression: Lognormal MLE

Radium-226/228, MW-7 (pCi/L)



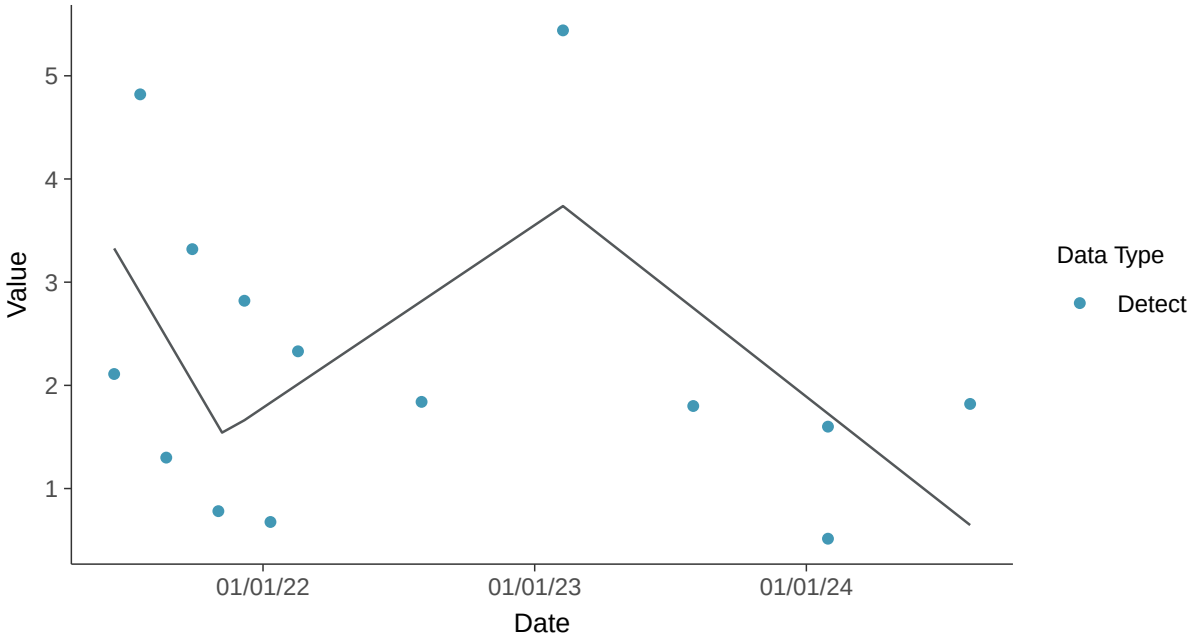
Trend Regression: Piecewise Linear-Linear

Radium-226/228, MW-7 (pCi/L)



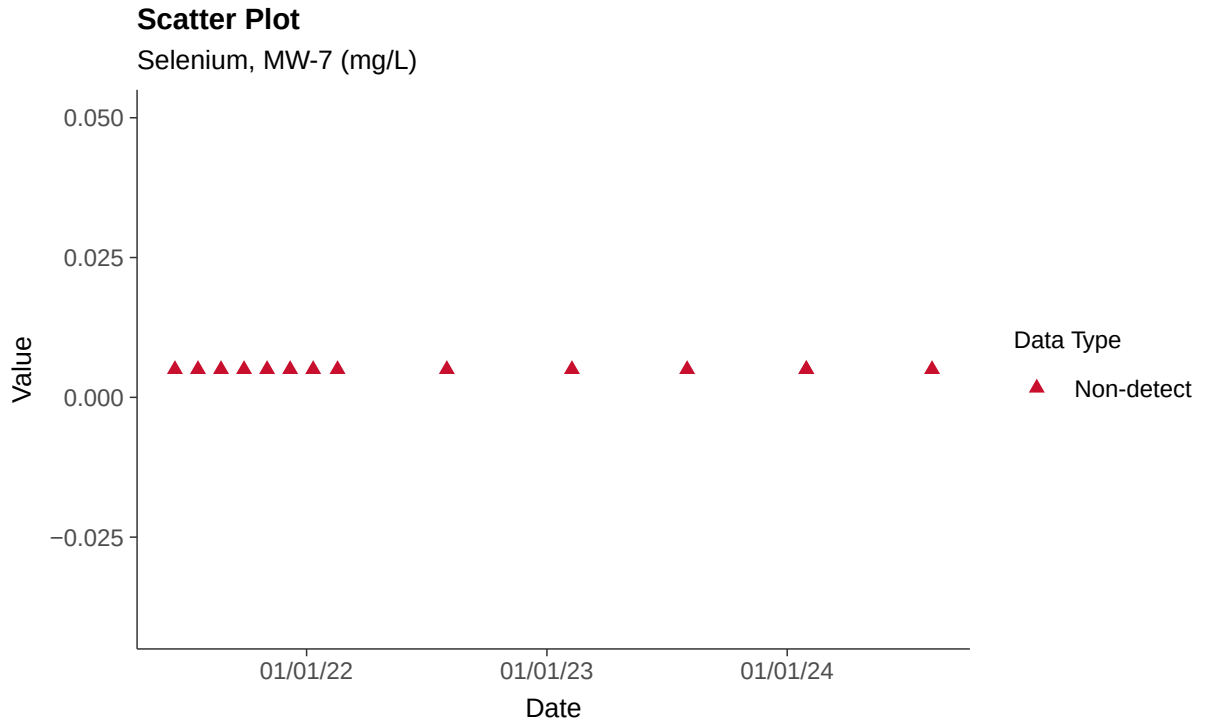
Trend Regression: Piecewise Linear-Linear-Linear

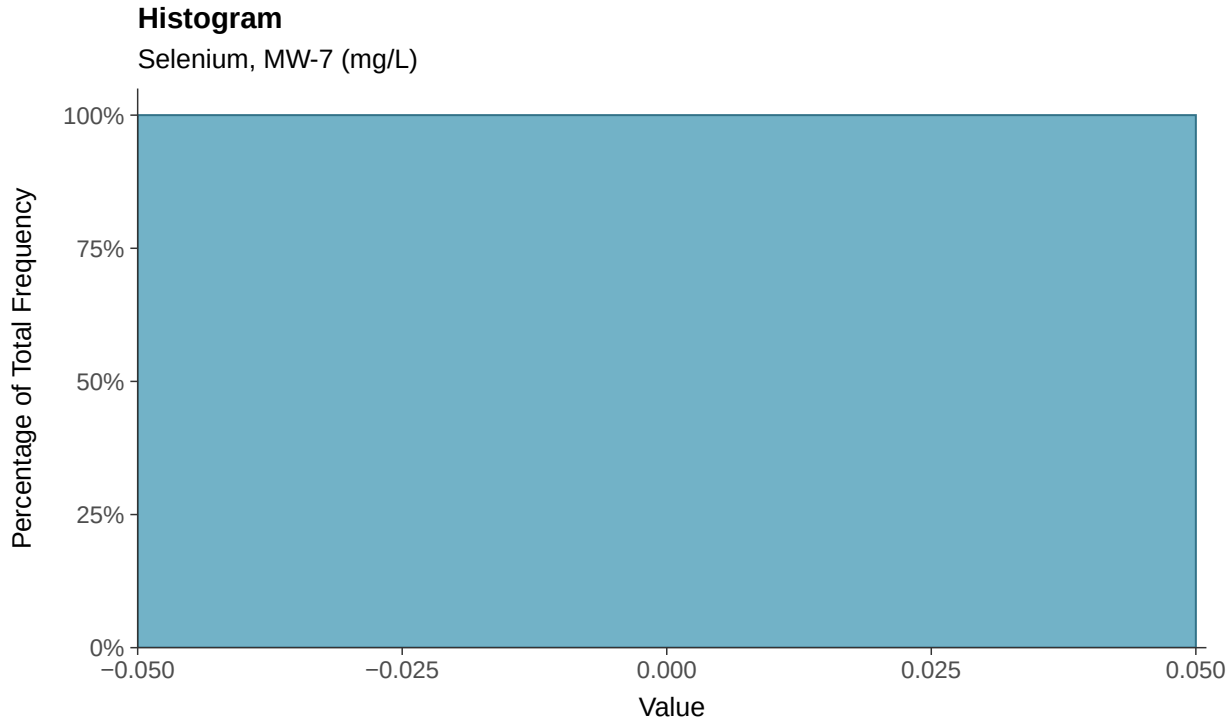
Radium-226/228, MW-7 (pCi/L)



Appendix IV: Selenium, MW-7

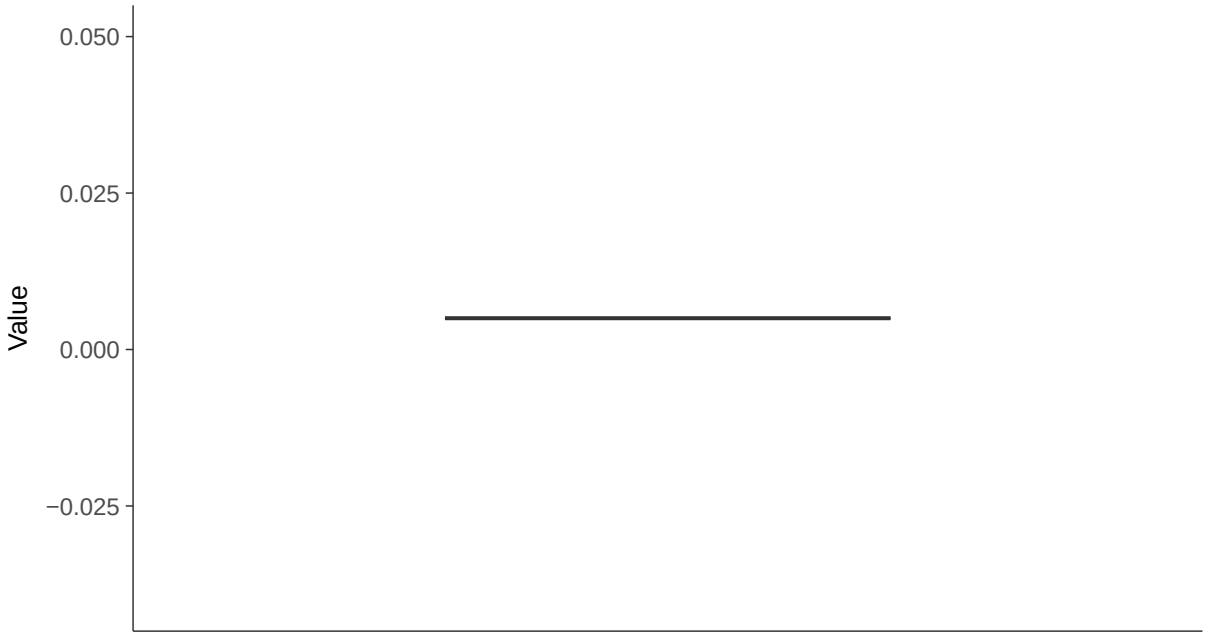
ID: 07_2_22





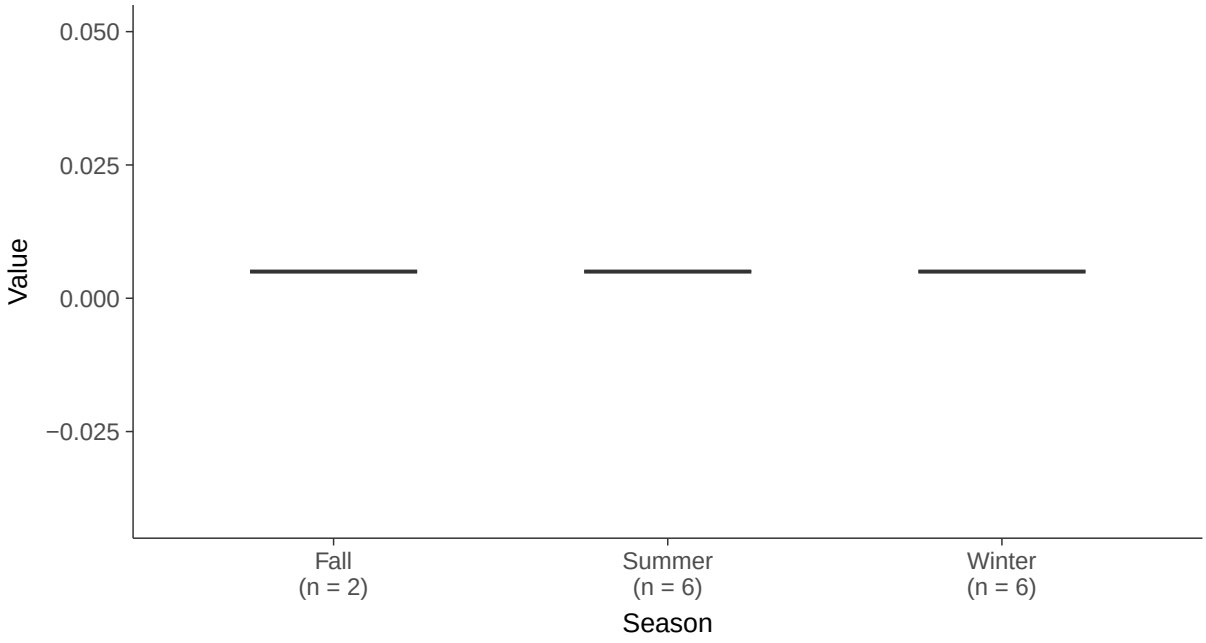
Boxplot

Selenium, MW-7 (mg/L)



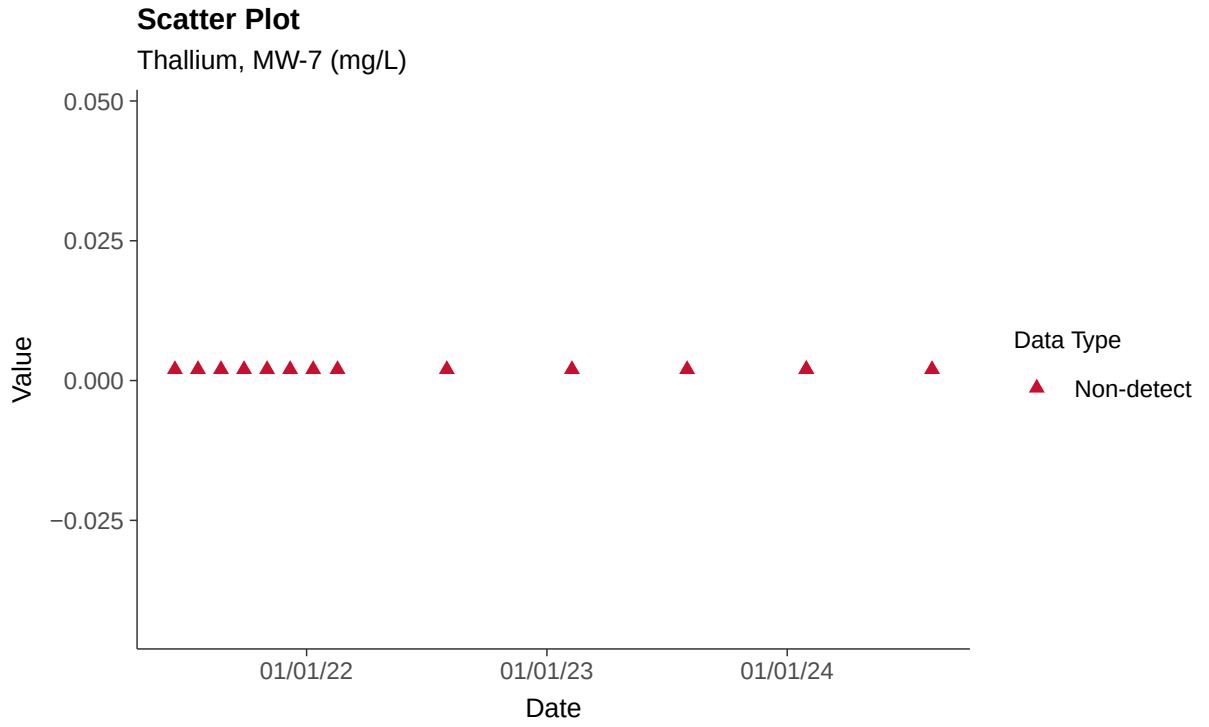
Boxplot by Season

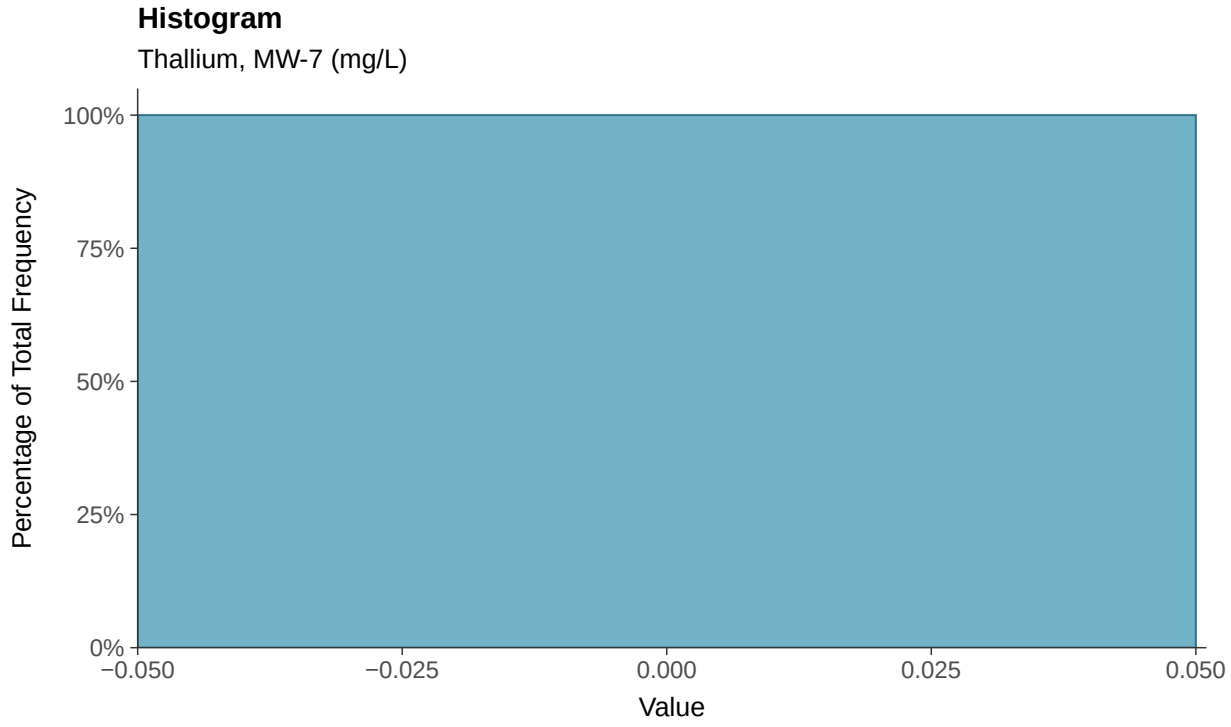
Selenium, MW-7 (mg/L)



Appendix IV: Thallium, MW-7

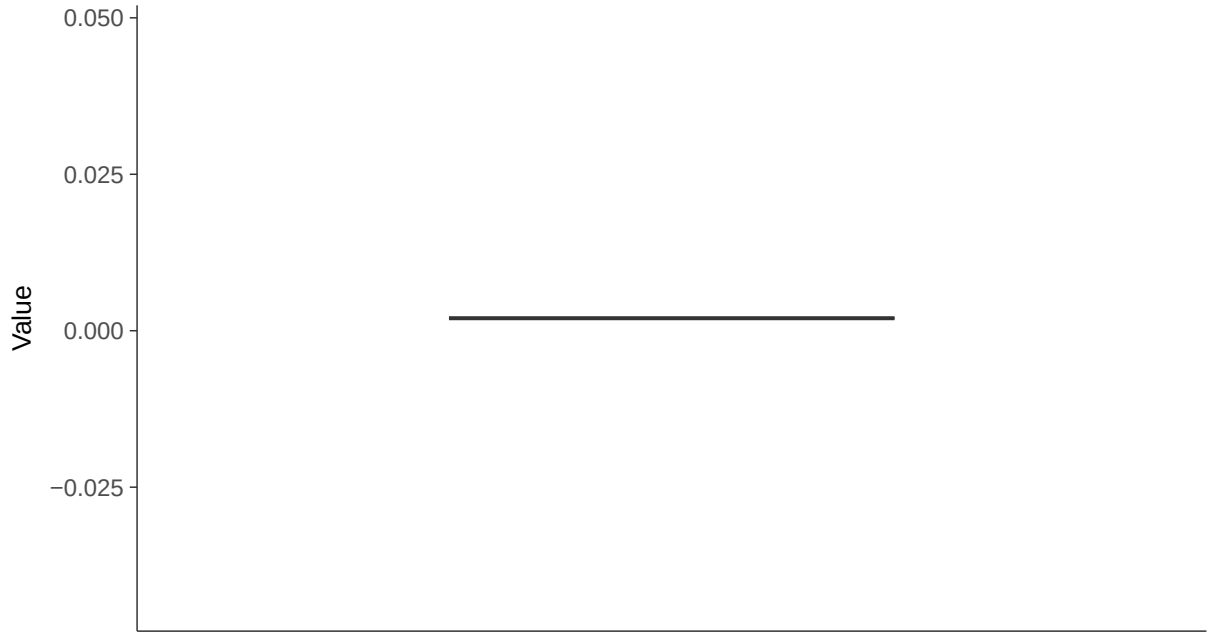
ID: 07_2_23





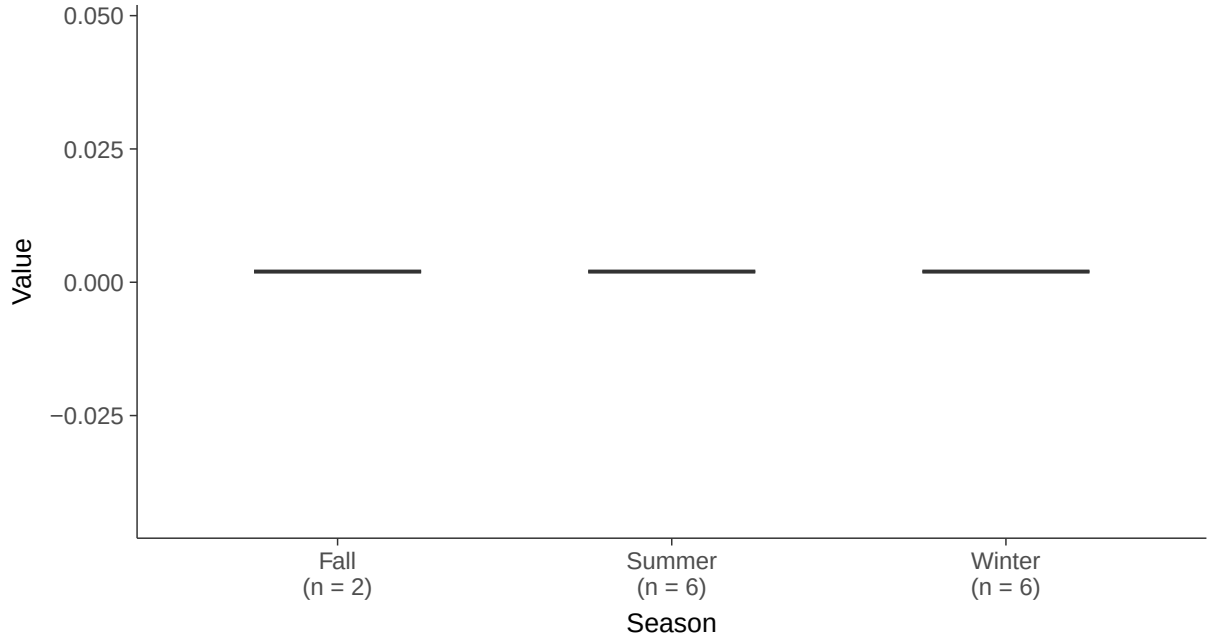
Boxplot

Thallium, MW-7 (mg/L)



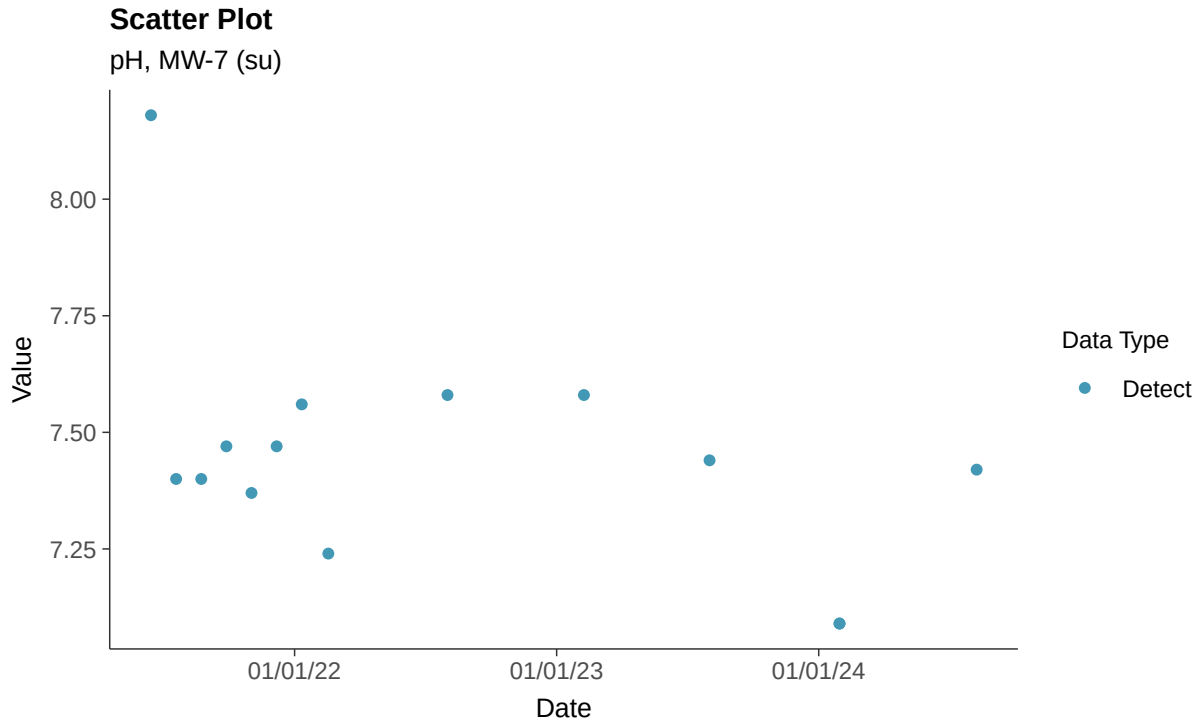
Boxplot by Season

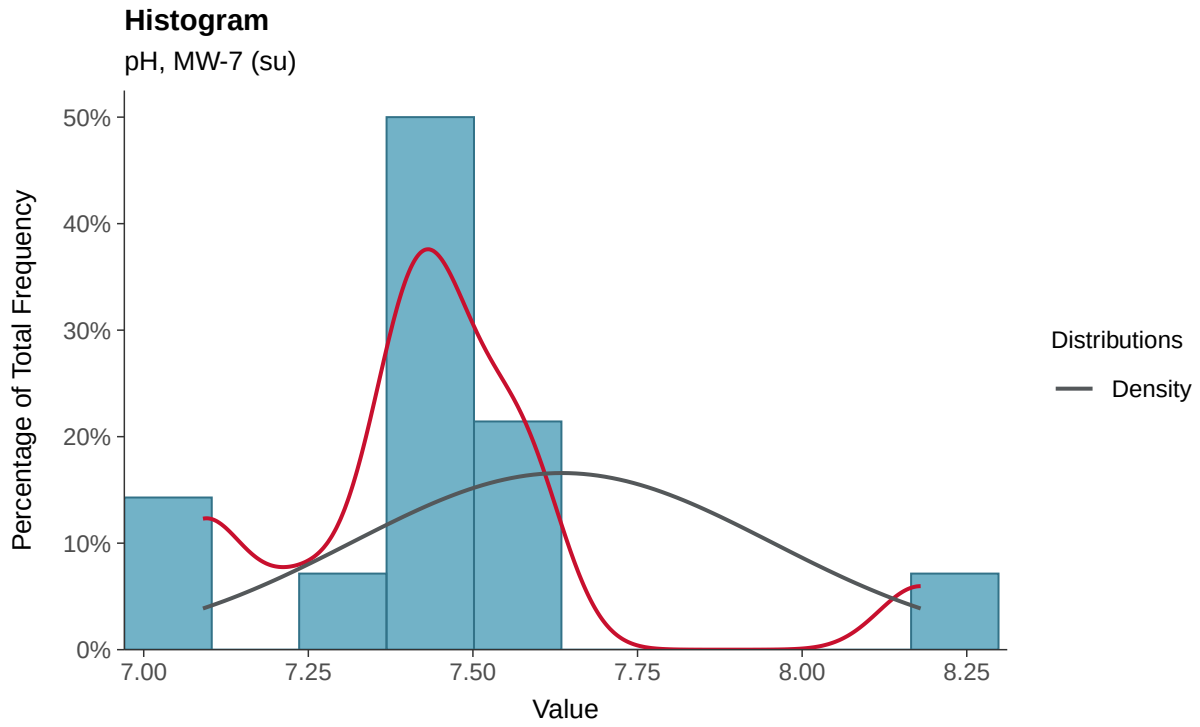
Thallium, MW-7 (mg/L)



Field Parameters: pH, MW-7

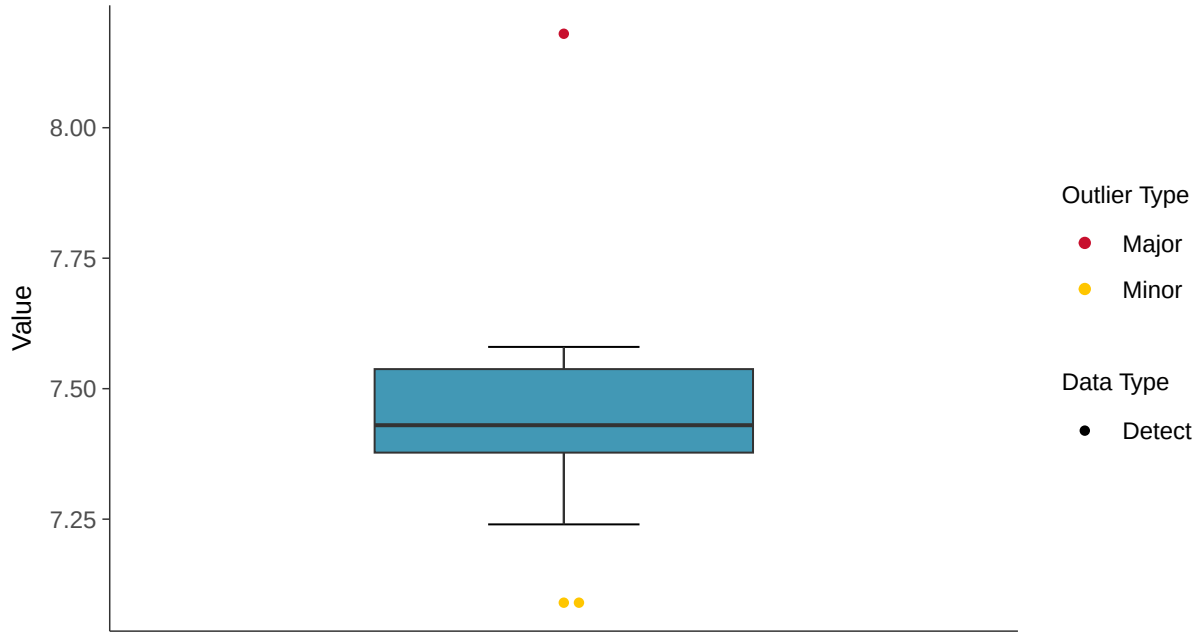
ID: 07_3_24





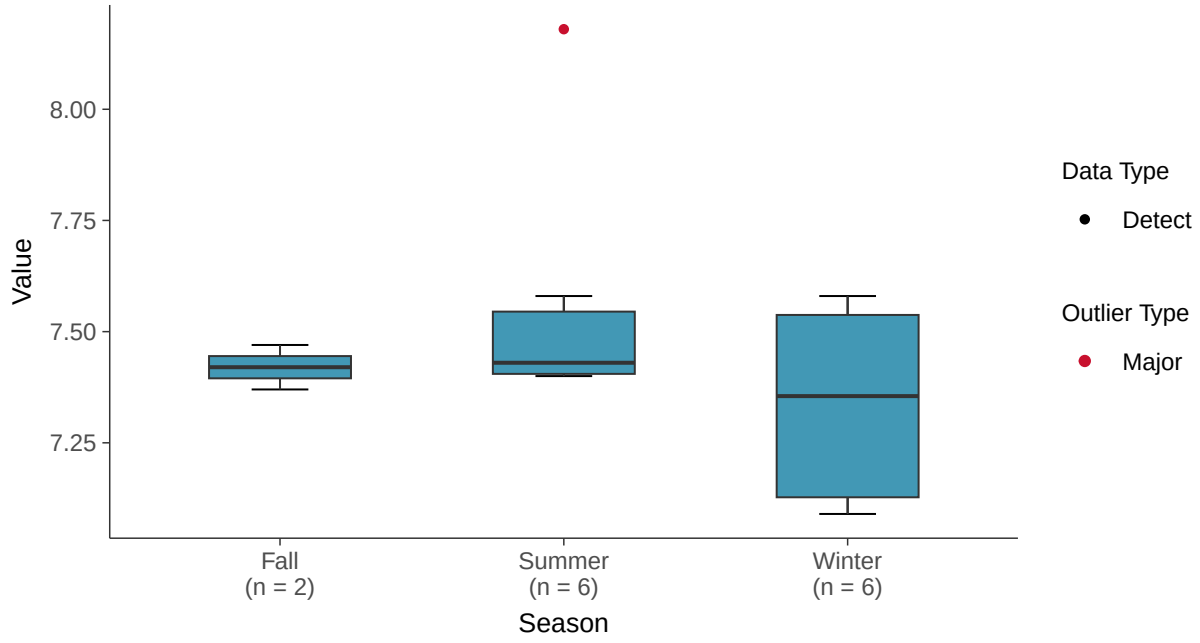
Boxplot

pH, MW-7 (su)



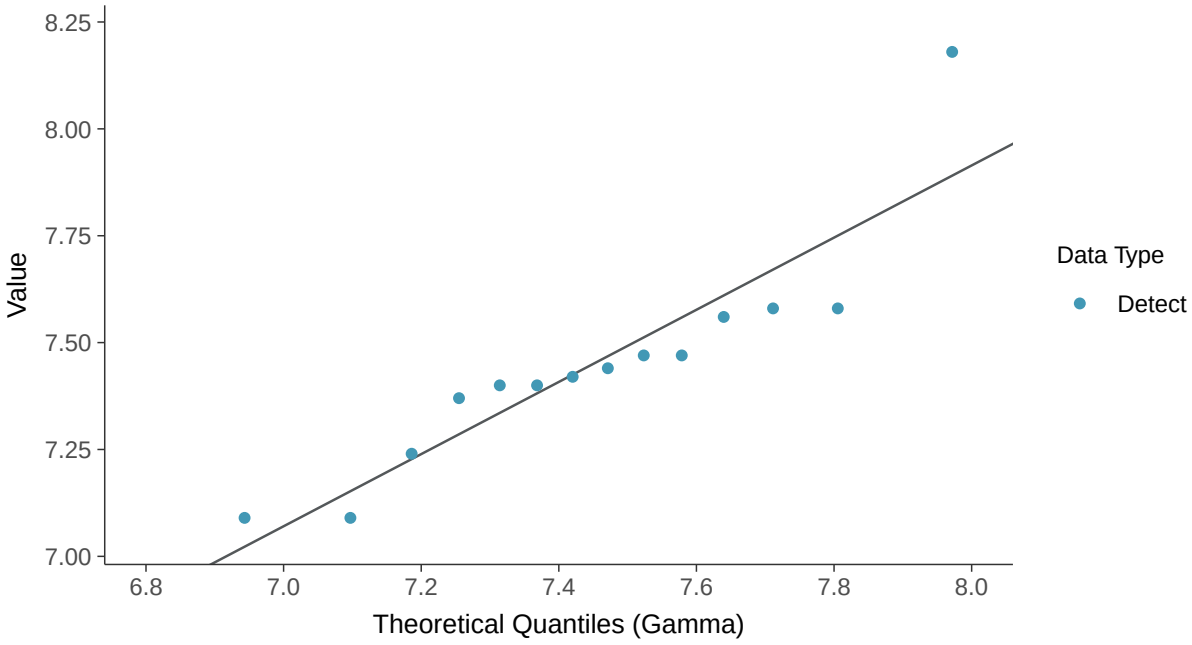
Boxplot by Season

pH, MW-7 (su)



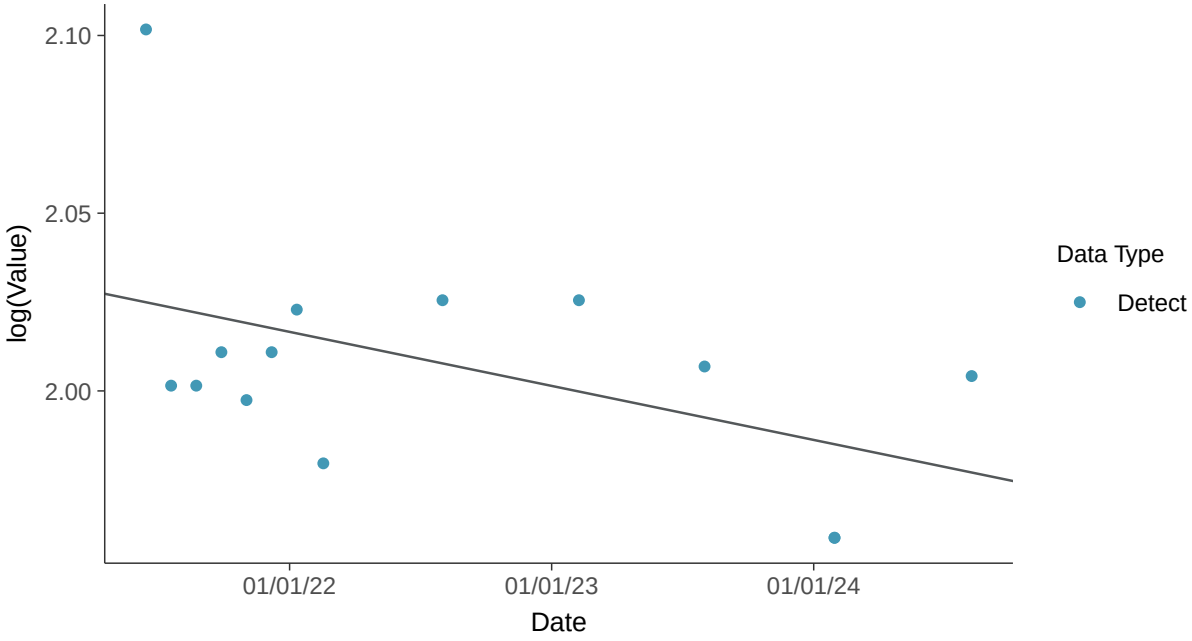
Gamma Q-Q plot

pH, MW-7 (su)



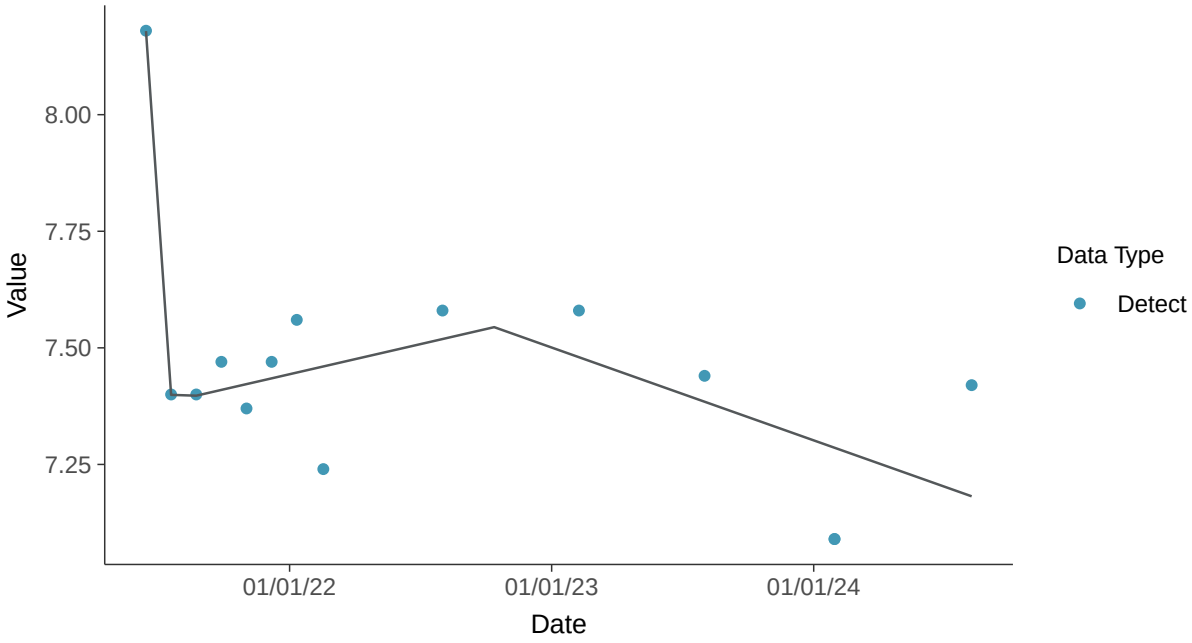
Trend Regression: Lognormal MLE

pH, MW-7 (su)



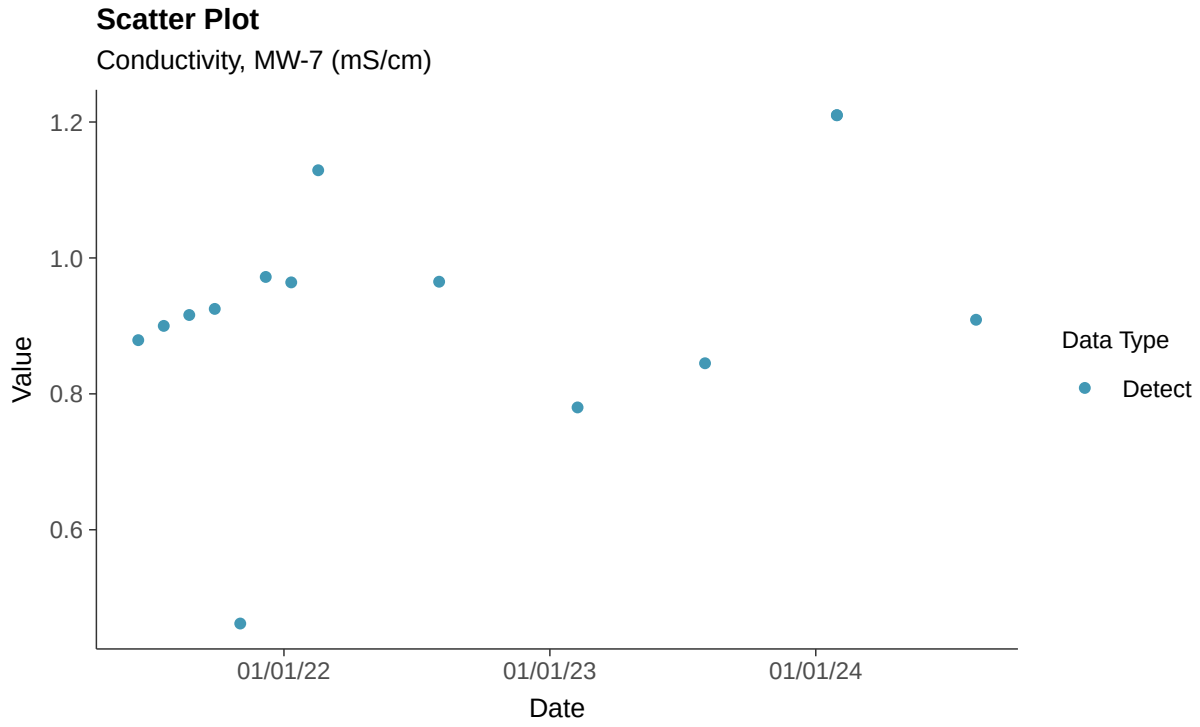
Trend Regression: Piecewise Linear-Linear-Linear

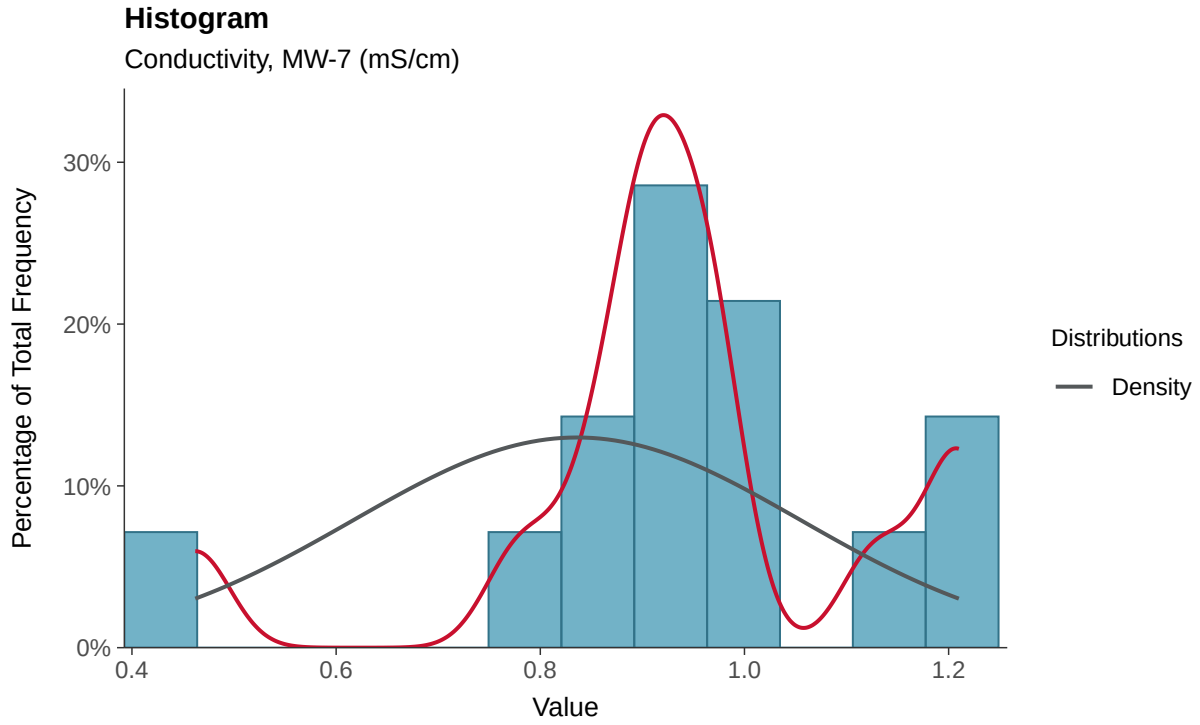
pH, MW-7 (su)



Field Parameters: Conductivity, MW-7

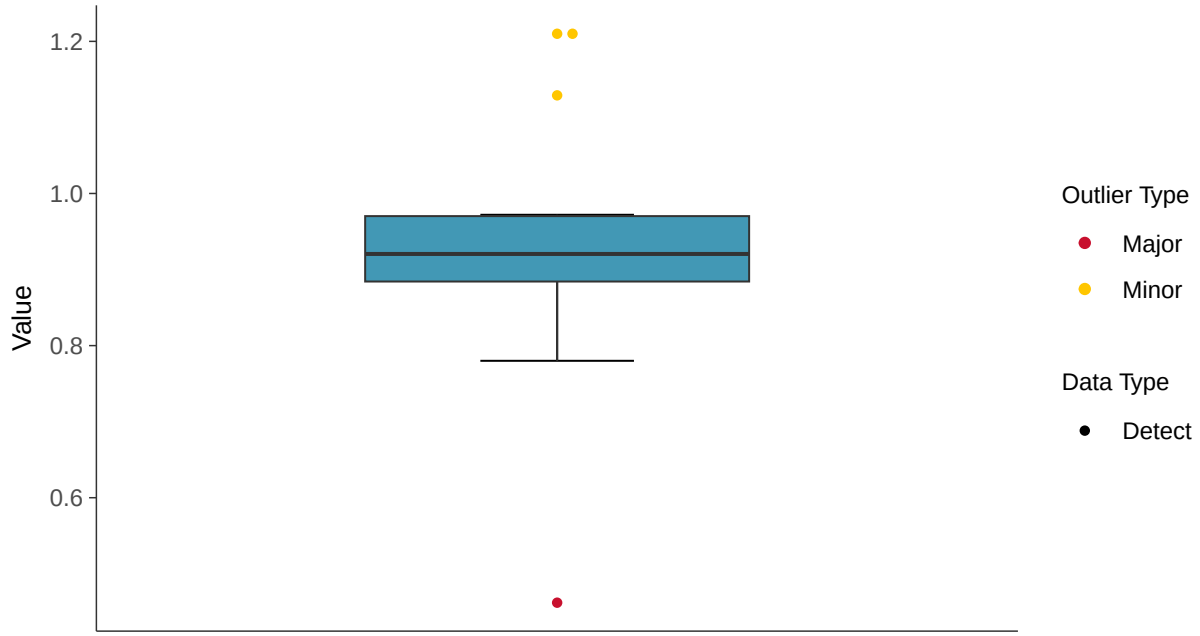
ID: 07_3_25





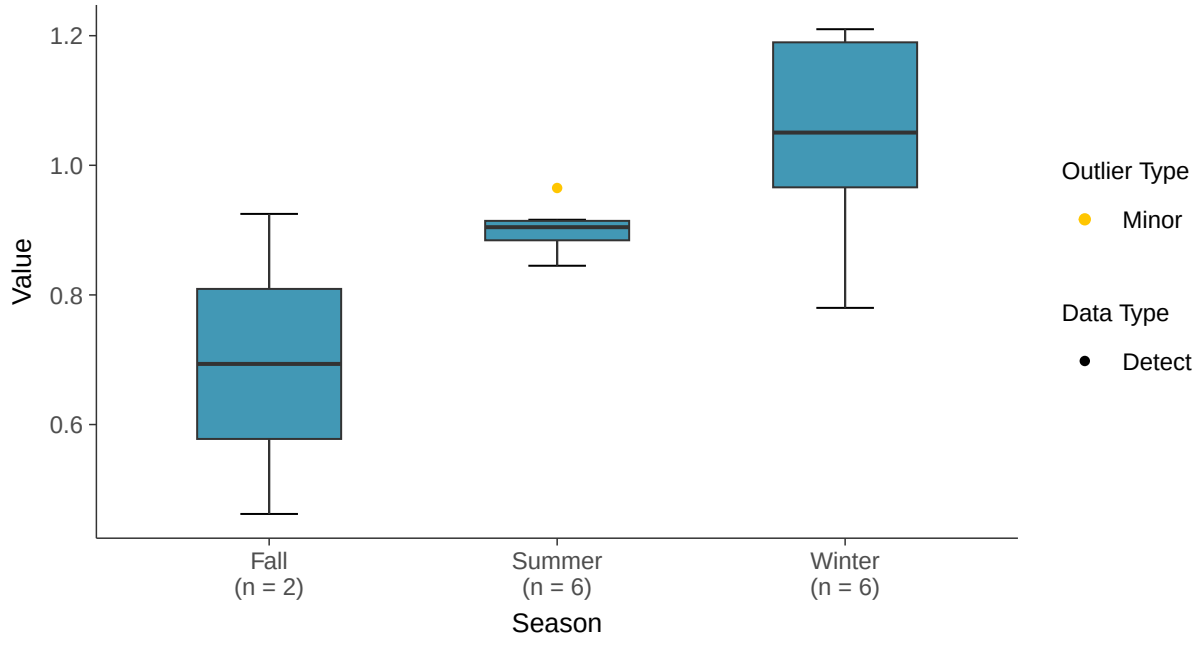
Boxplot

Conductivity, MW-7 (mS/cm)



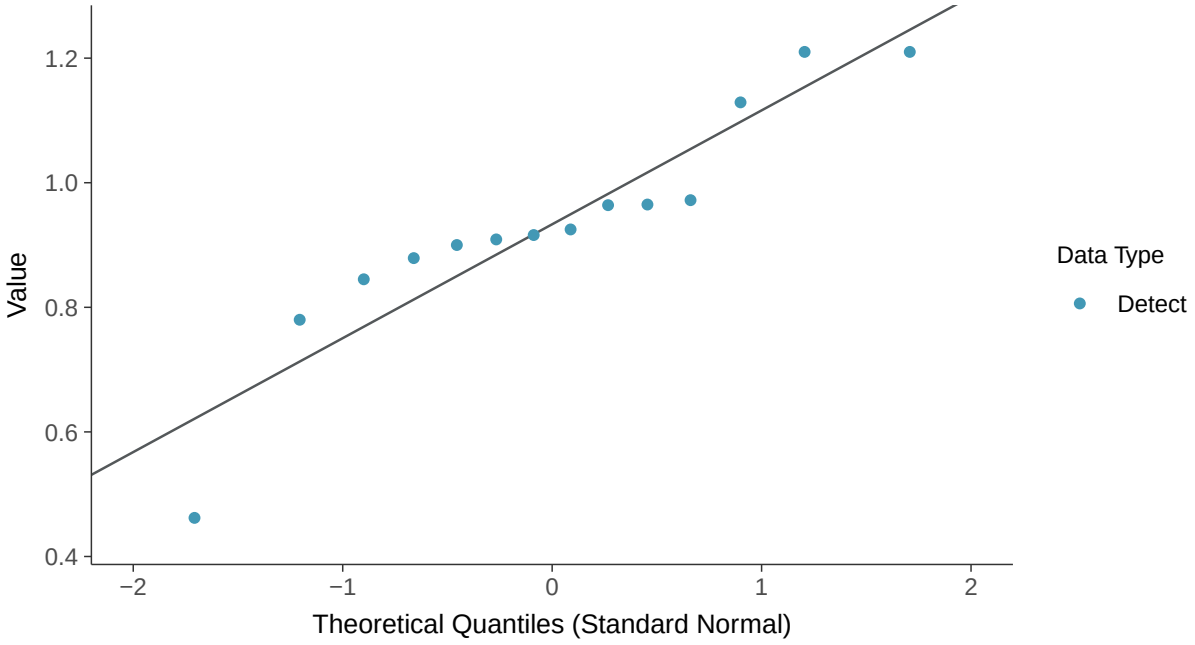
Boxplot by Season

Conductivity, MW-7 (mS/cm)



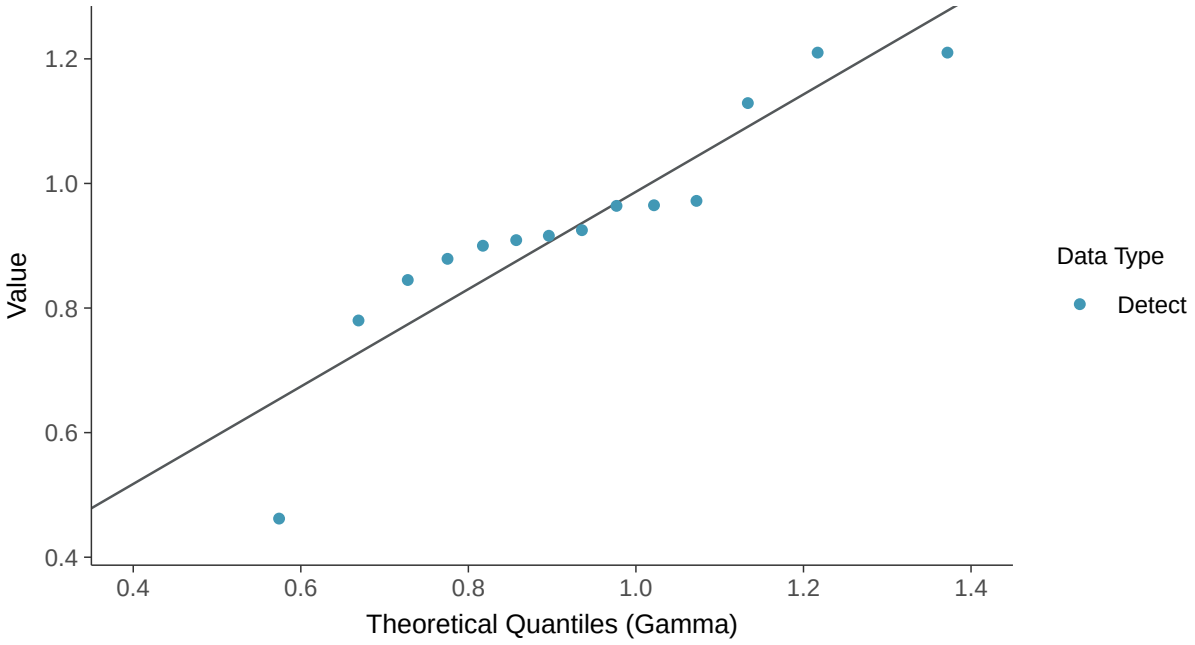
Normal Q-Q plot

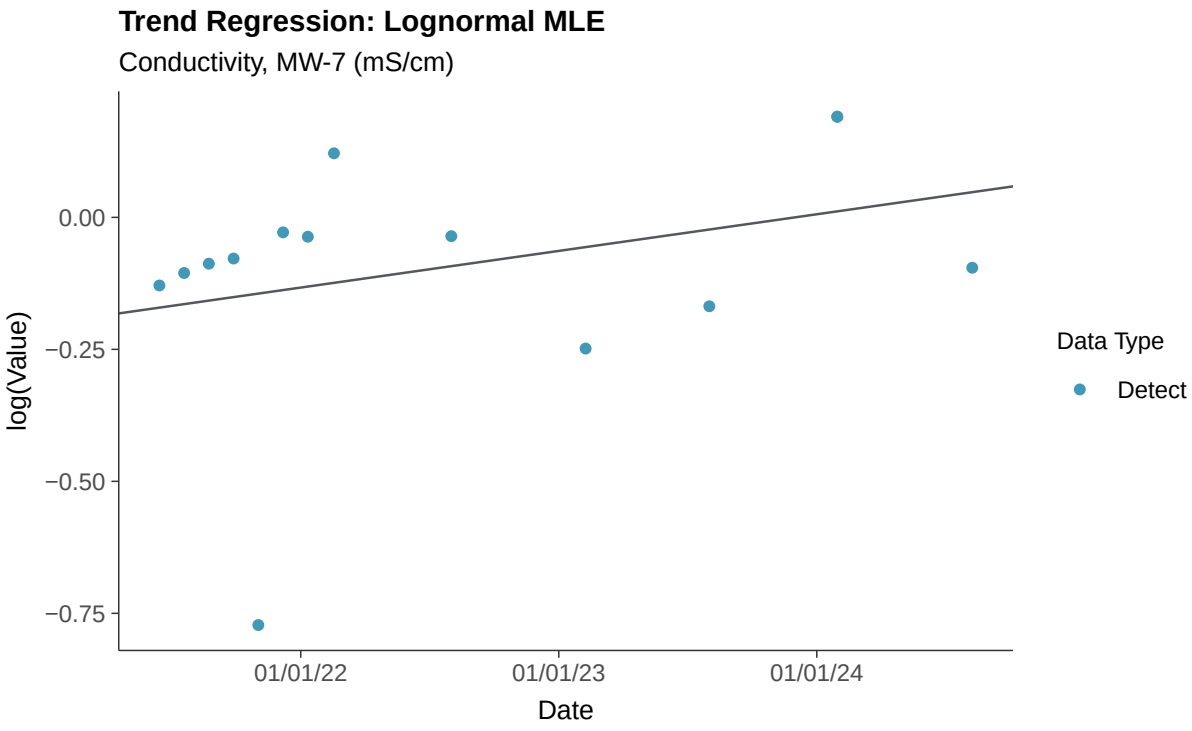
Conductivity, MW-7 (mS/cm)



Gamma Q-Q plot

Conductivity, MW-7 (mS/cm)



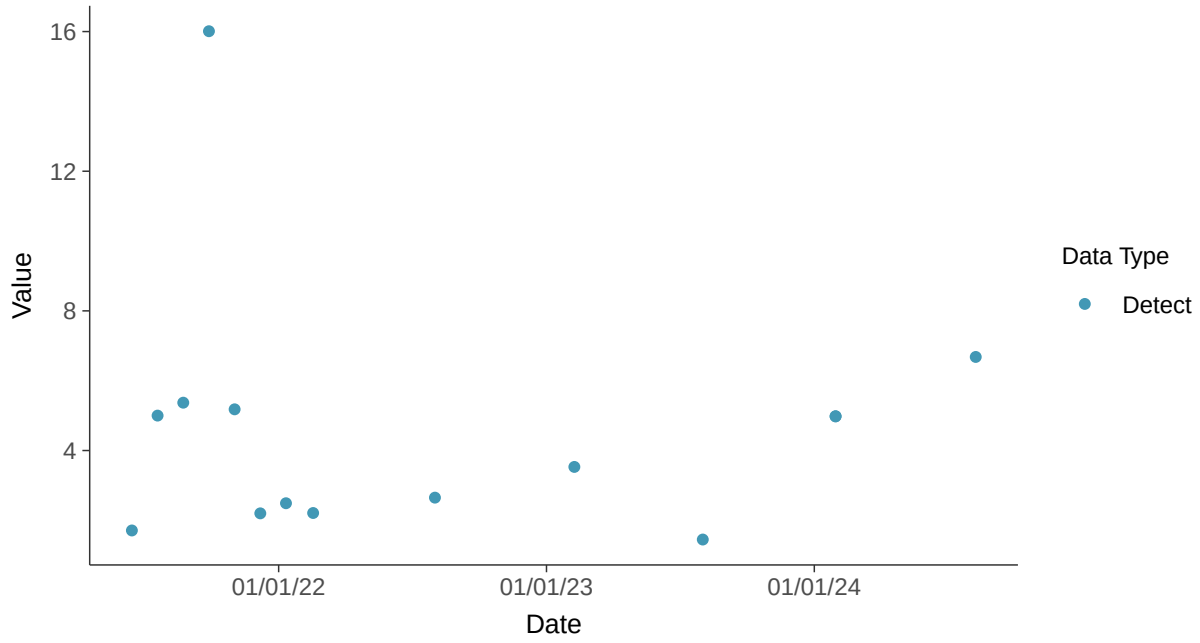

Trend Regression: Lognormal MLE
Conductivity, MW-7 (mS/cm)
log(Value)
0.00
−0.25
−0.50
−0.75
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Field Parameters: Turbidity, MW-7

ID: 07_3_26

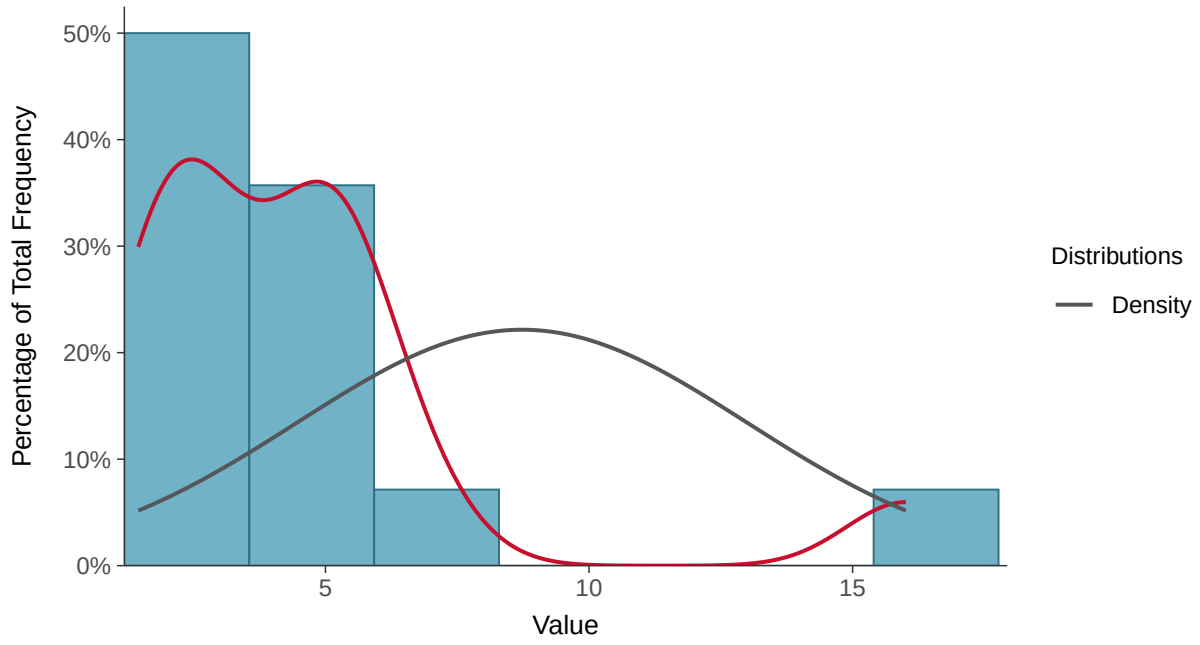
Scatter Plot

Turbidity, MW-7 (NTU)



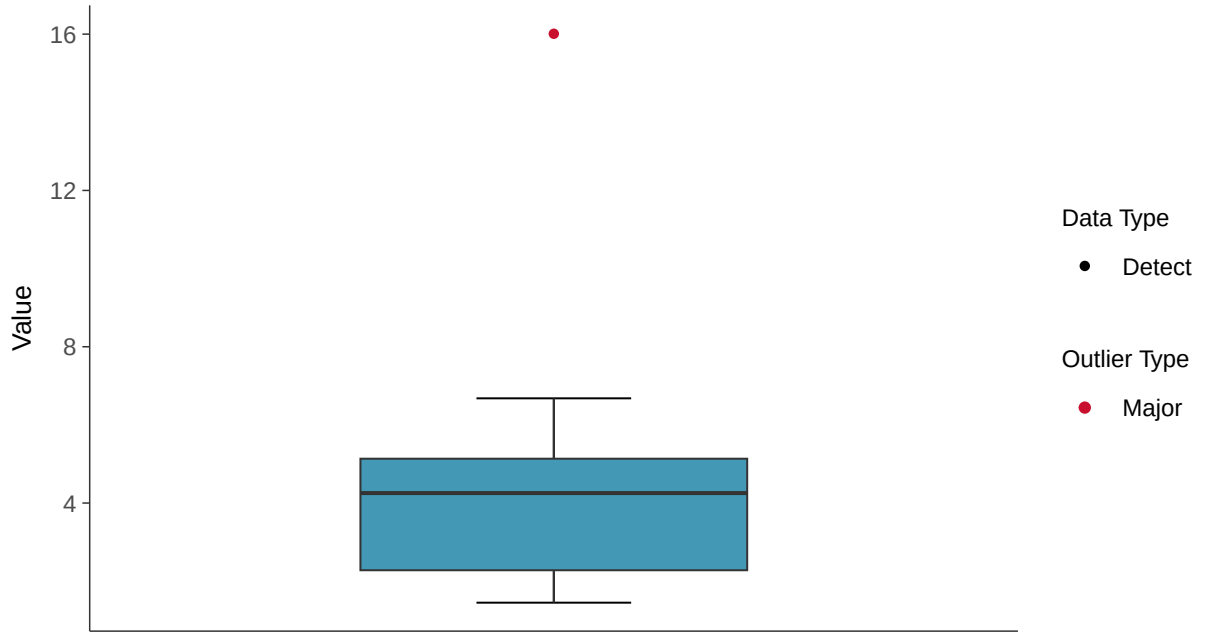
Histogram

Turbidity, MW-7 (NTU)



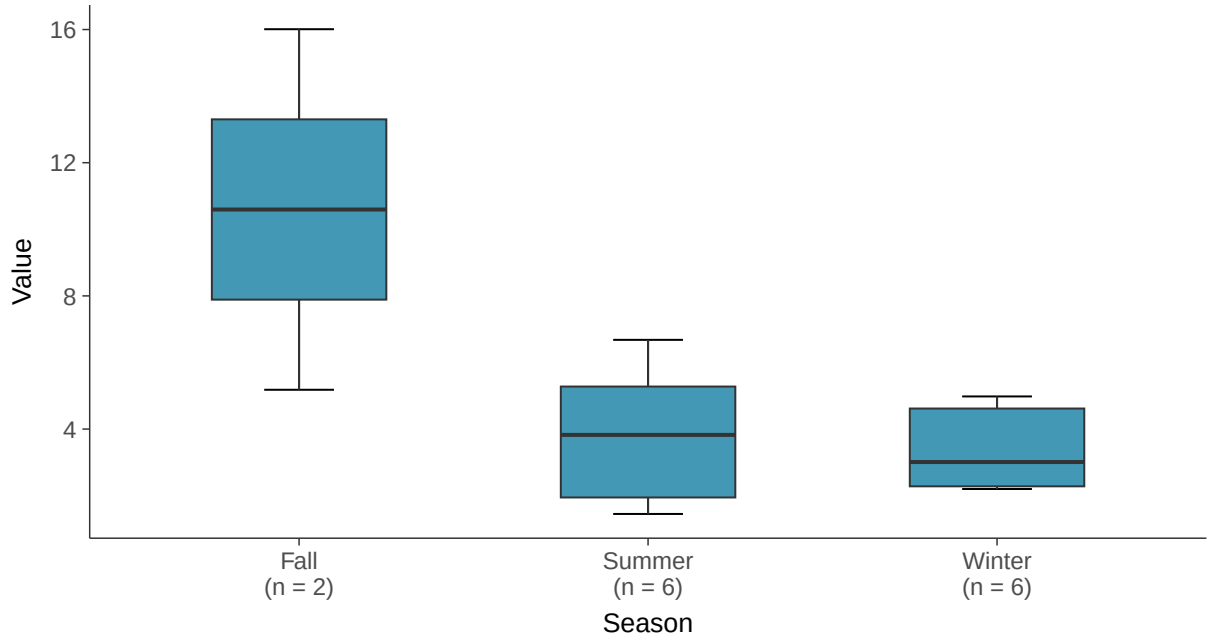
Boxplot

Turbidity, MW-7 (NTU)



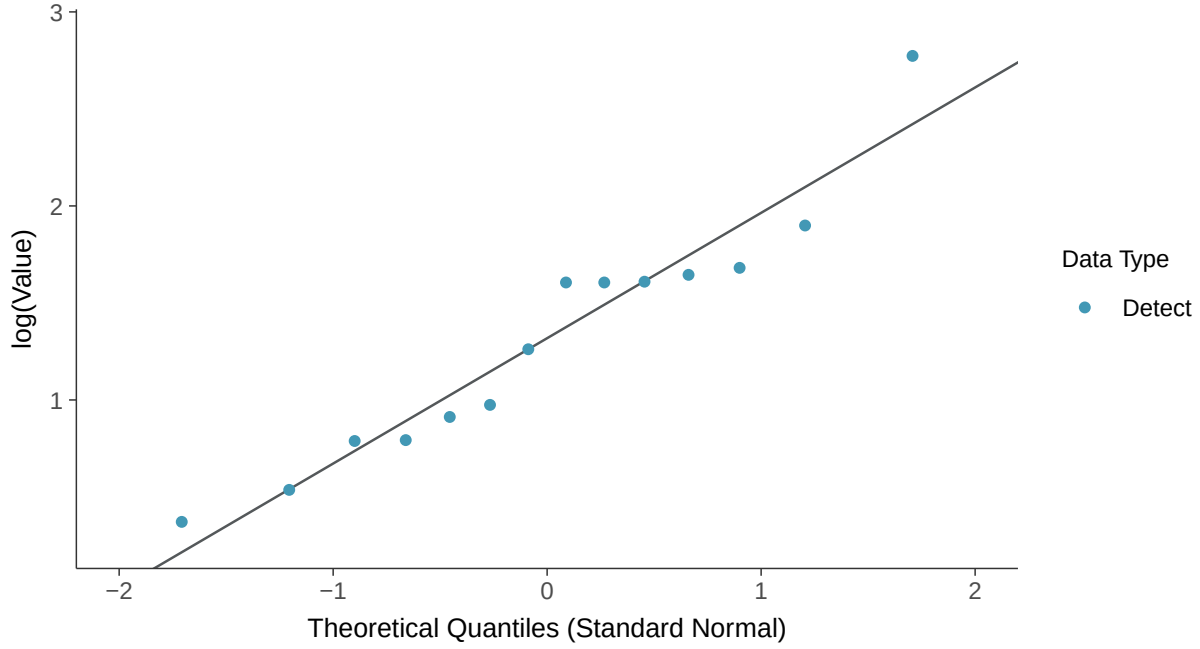
Boxplot by Season

Turbidity, MW-7 (NTU)



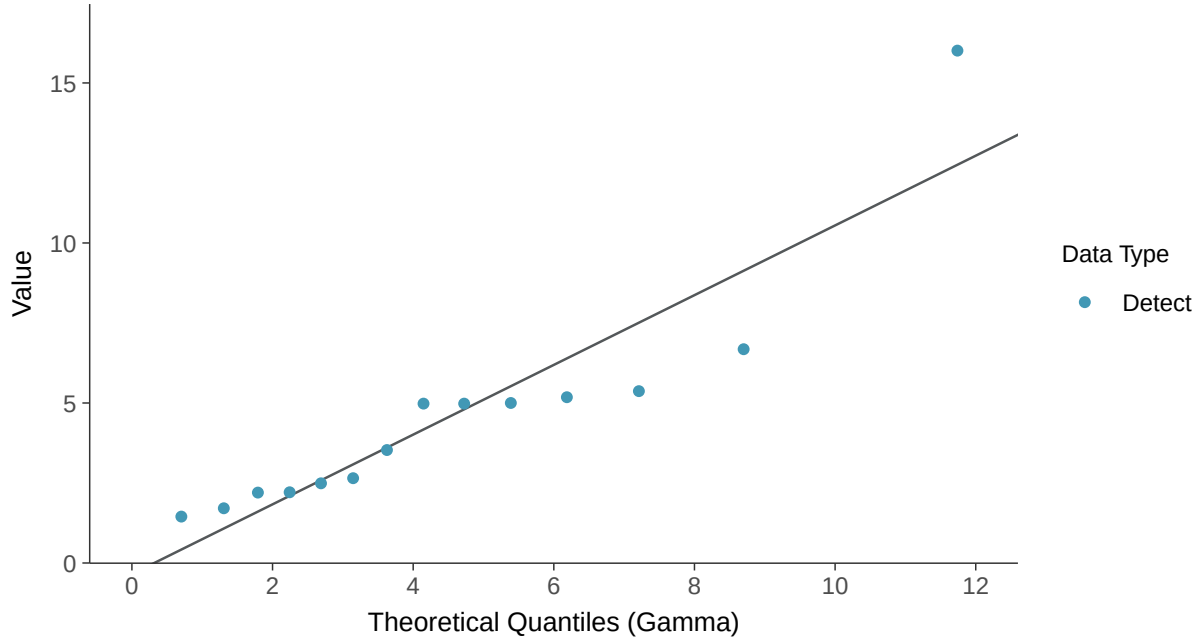
Lognormal Q-Q plot

Turbidity, MW-7 (NTU)



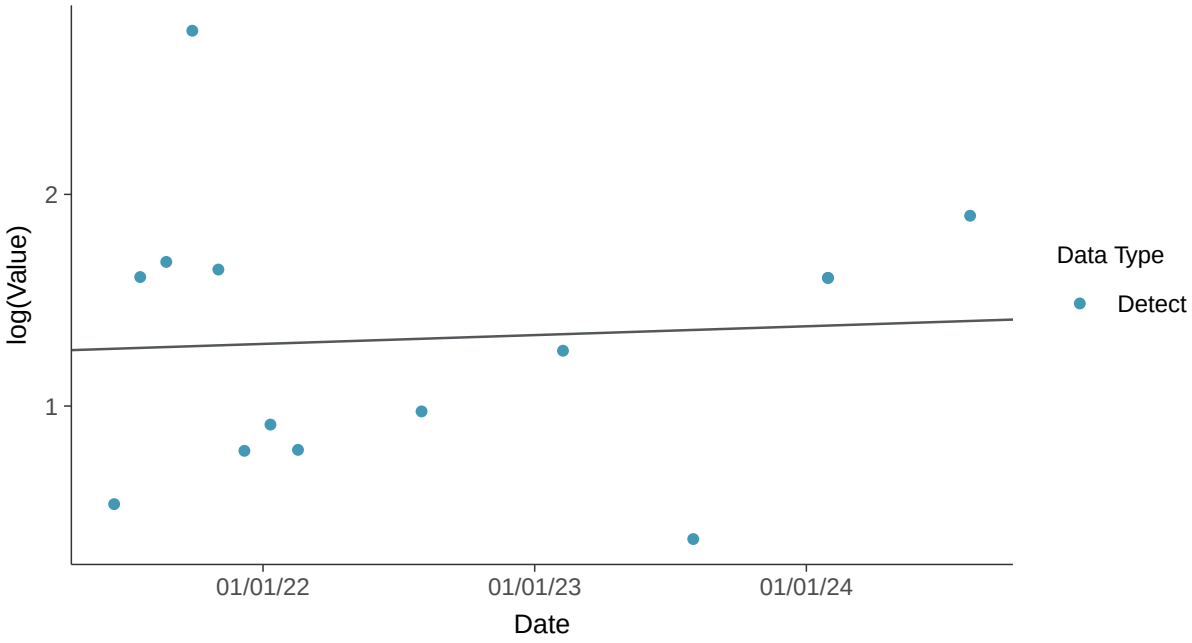
Gamma Q-Q plot

Turbidity, MW-7 (NTU)



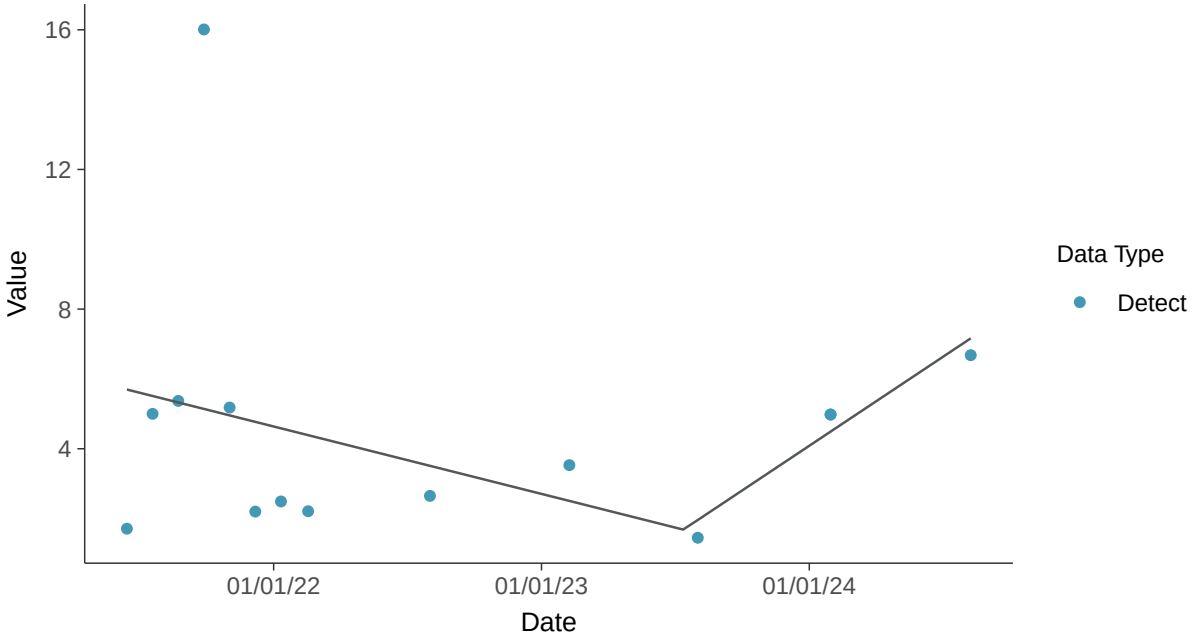
Trend Regression: Lognormal MLE

Turbidity, MW-7 (NTU)



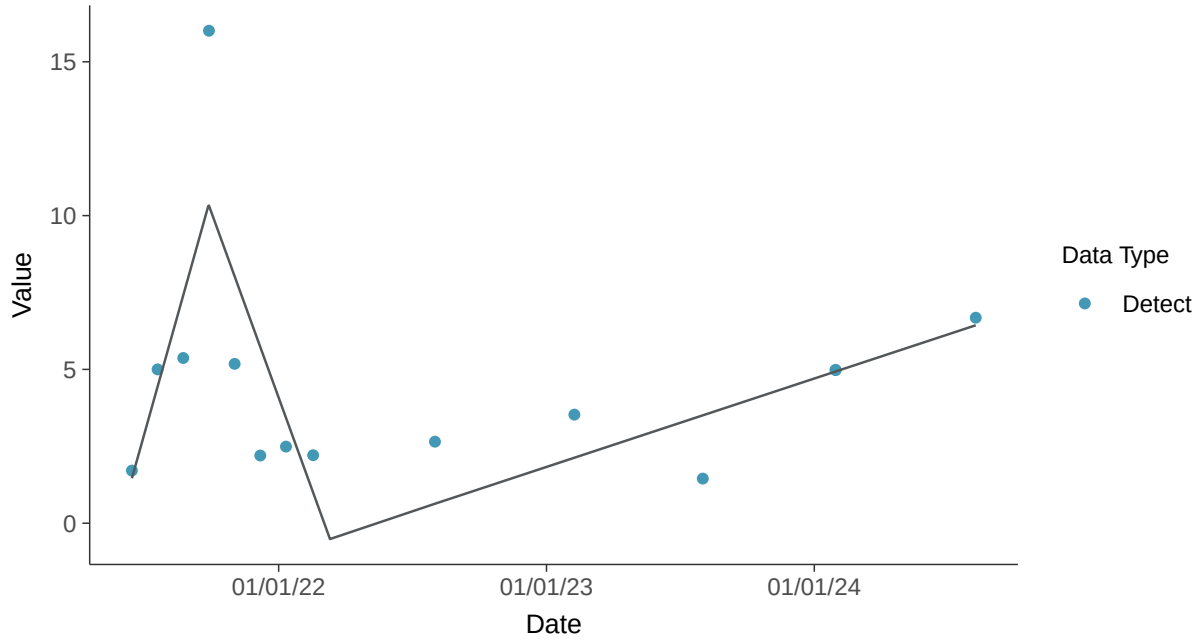
Trend Regression: Piecewise Linear-Linear

Turbidity, MW-7 (NTU)



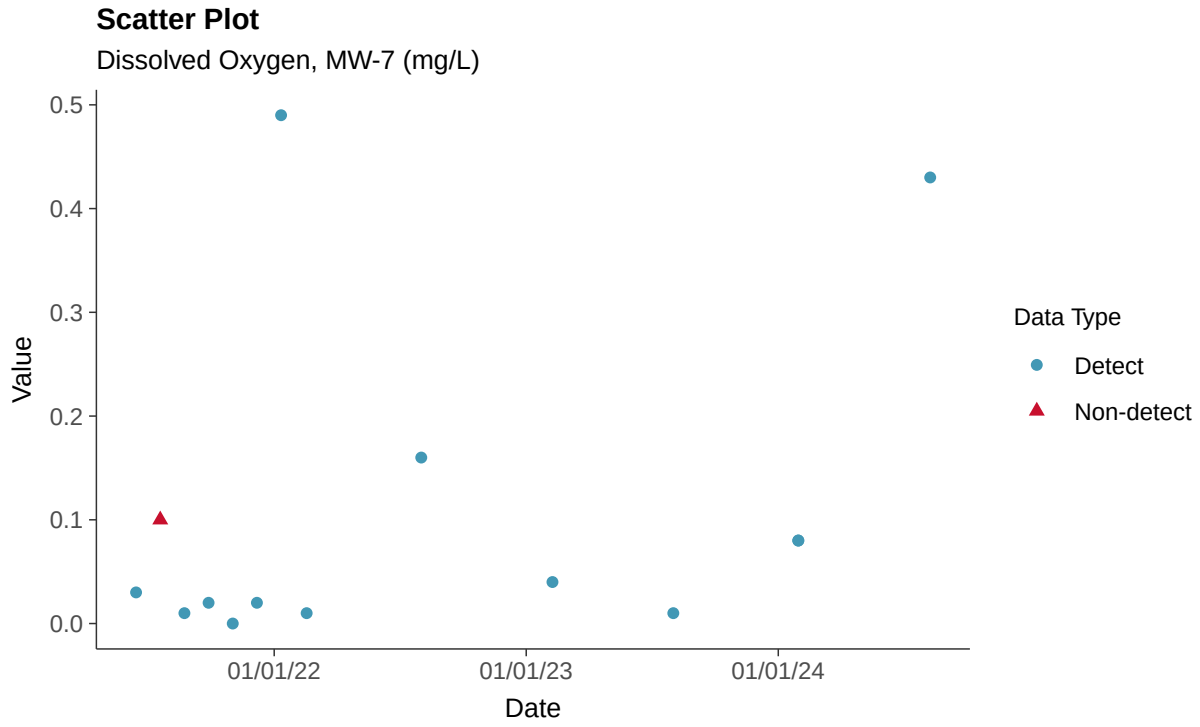
Trend Regression: Piecewise Linear-Linear-Linear

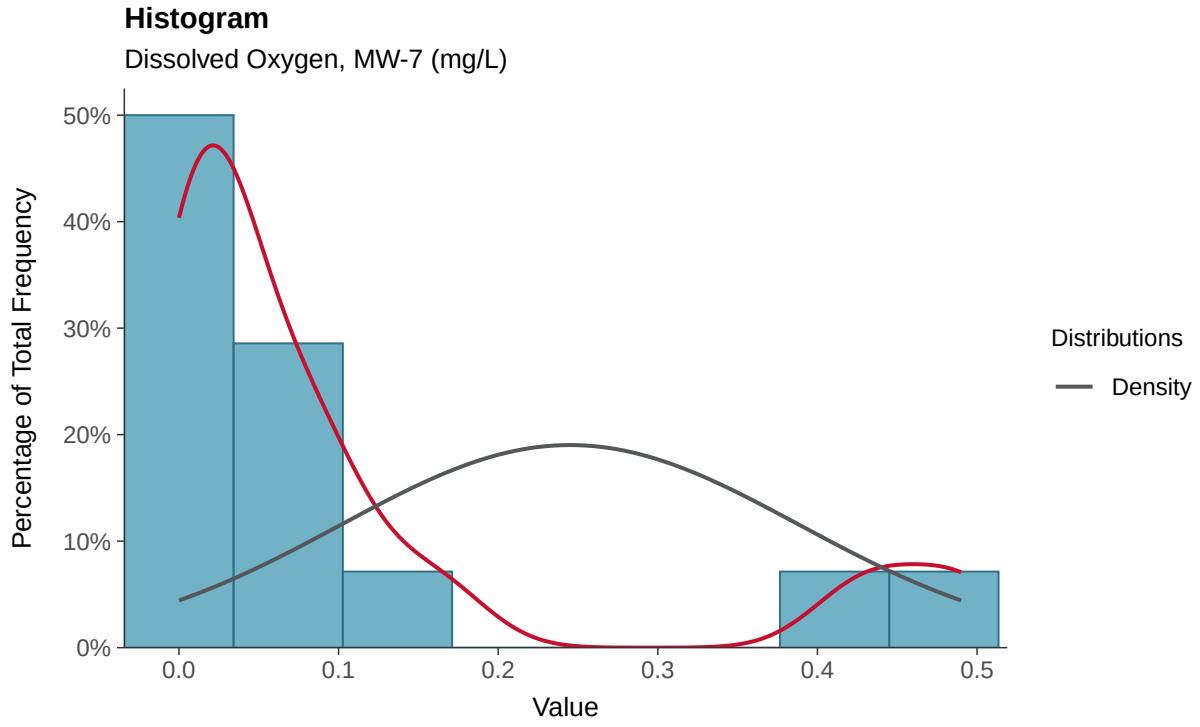
Turbidity, MW-7 (NTU)



Field Parameters: Dissolved Oxygen, MW-7

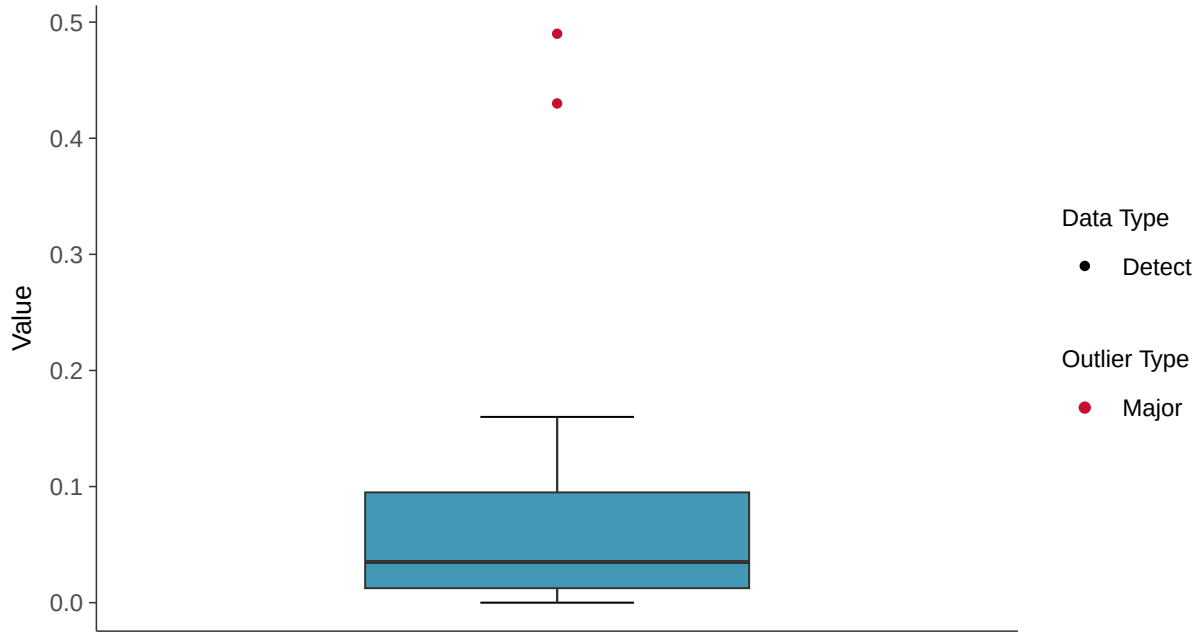
ID: 07_3_27





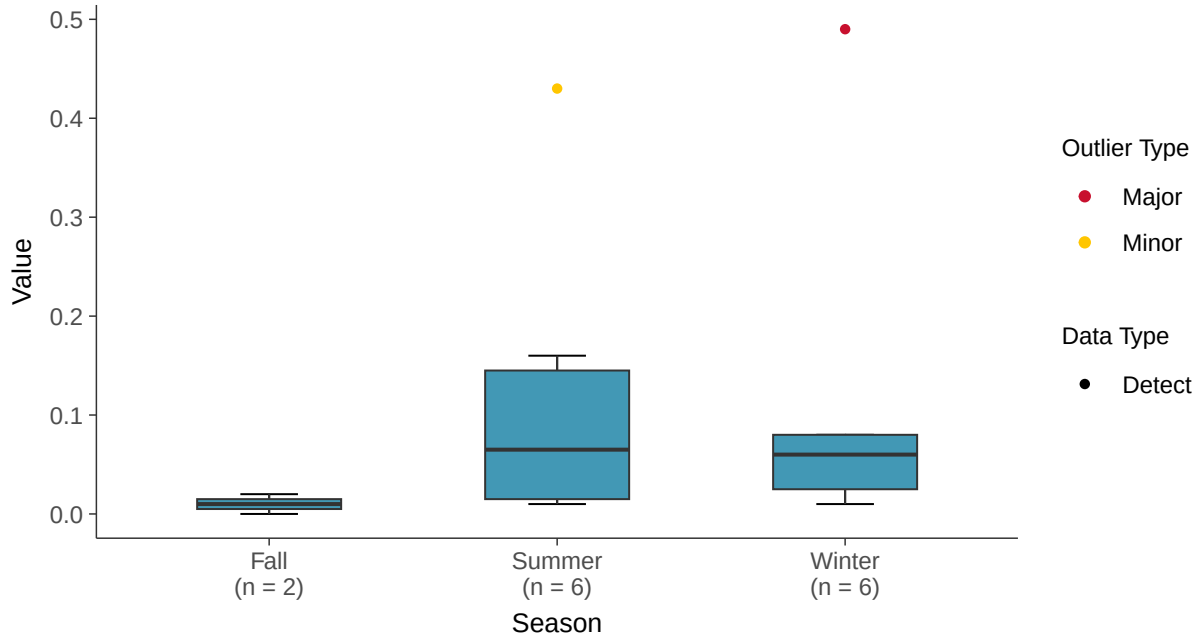
Boxplot

Dissolved Oxygen, MW-7 (mg/L)



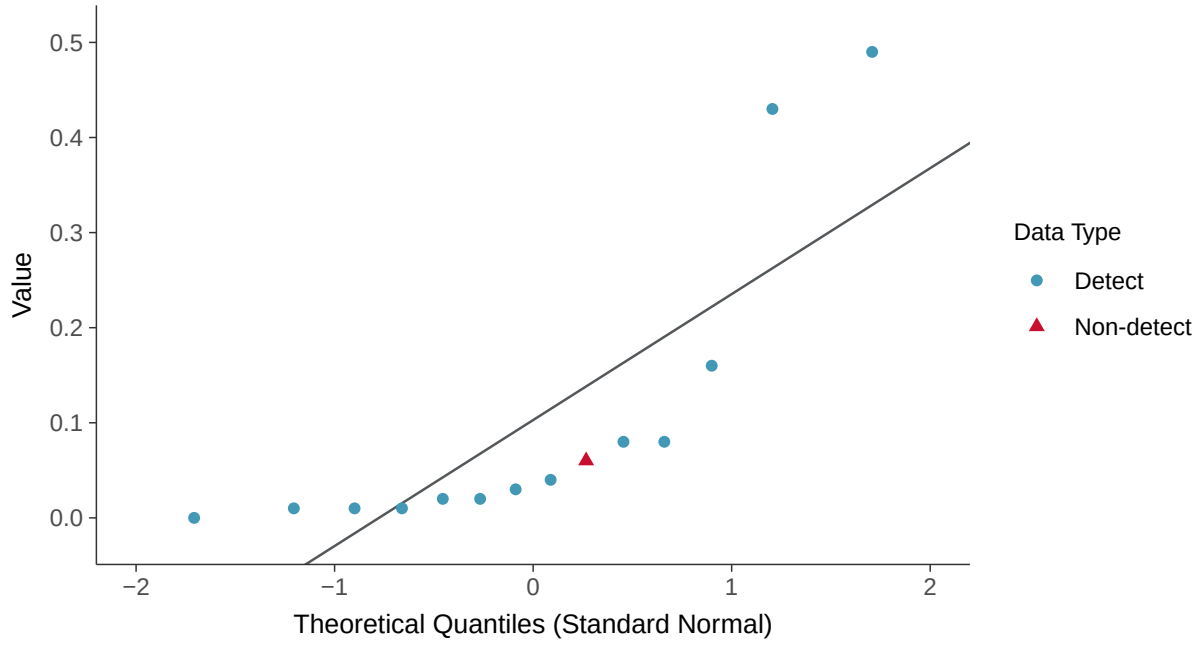
Boxplot by Season

Dissolved Oxygen, MW-7 (mg/L)



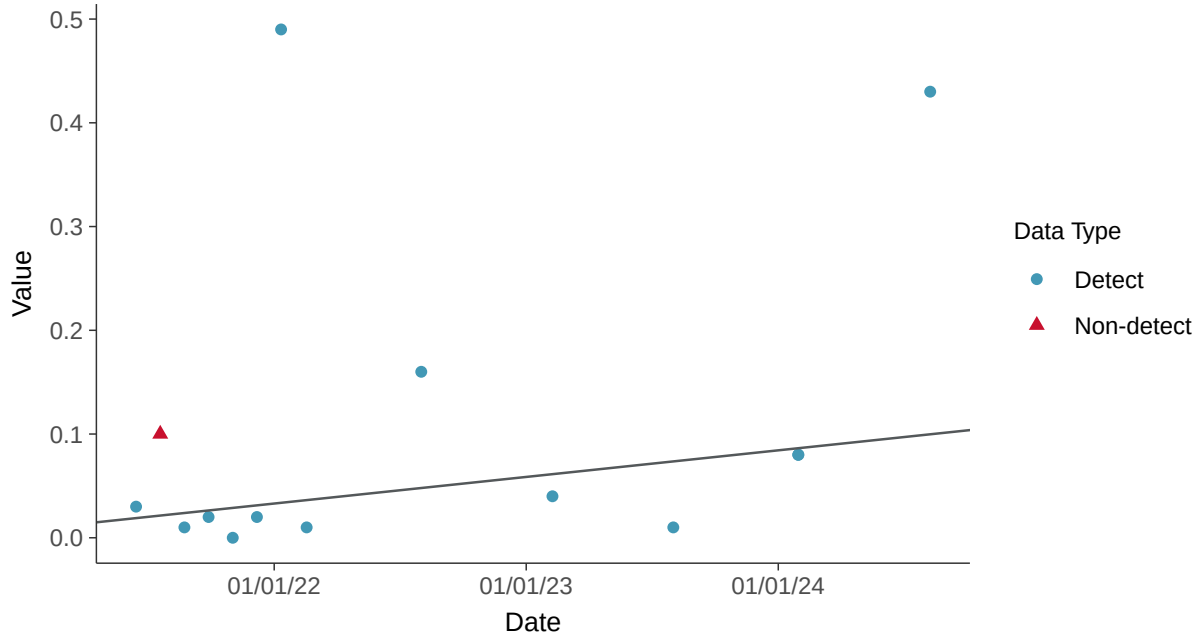
Normal Q-Q plot using ROS Imputed Estimates

Dissolved Oxygen, MW-7 (mg/L)



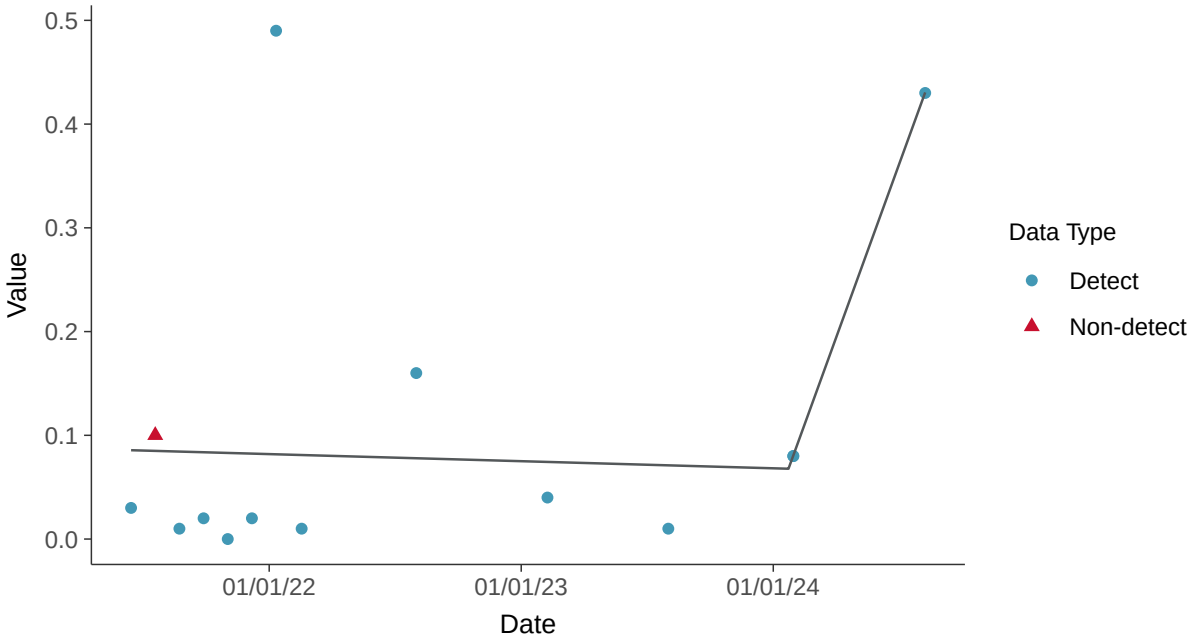
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Dissolved Oxygen, MW-7 (mg/L)



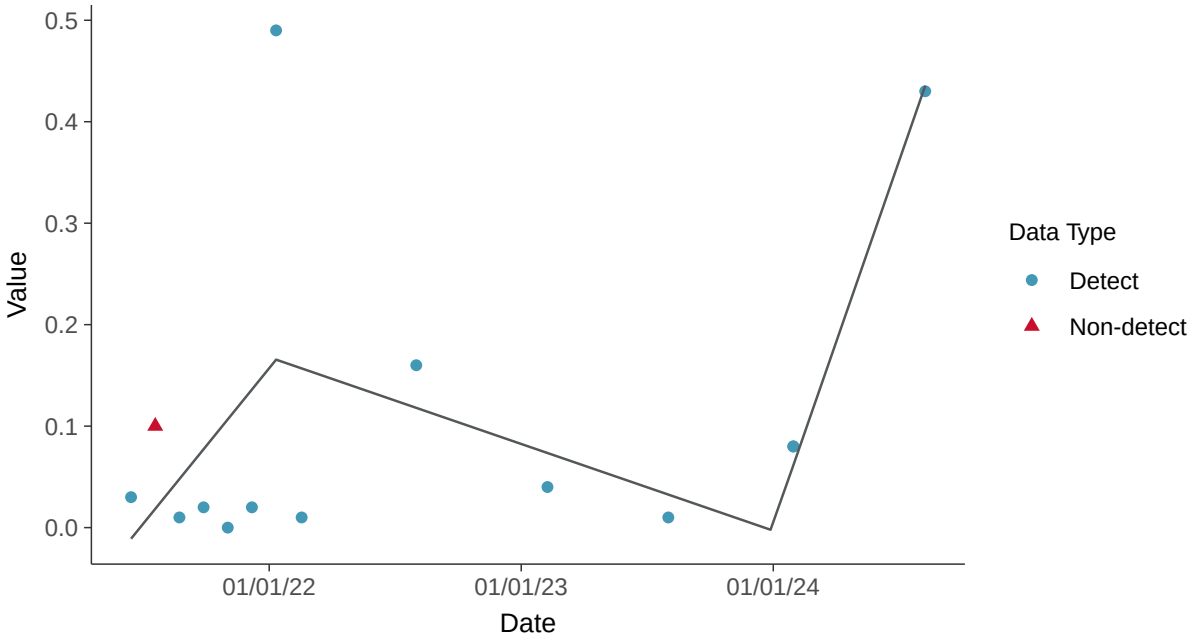
Trend Regression: Piecewise Linear-Linear

Dissolved Oxygen, MW-7 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Dissolved Oxygen, MW-7 (mg/L)

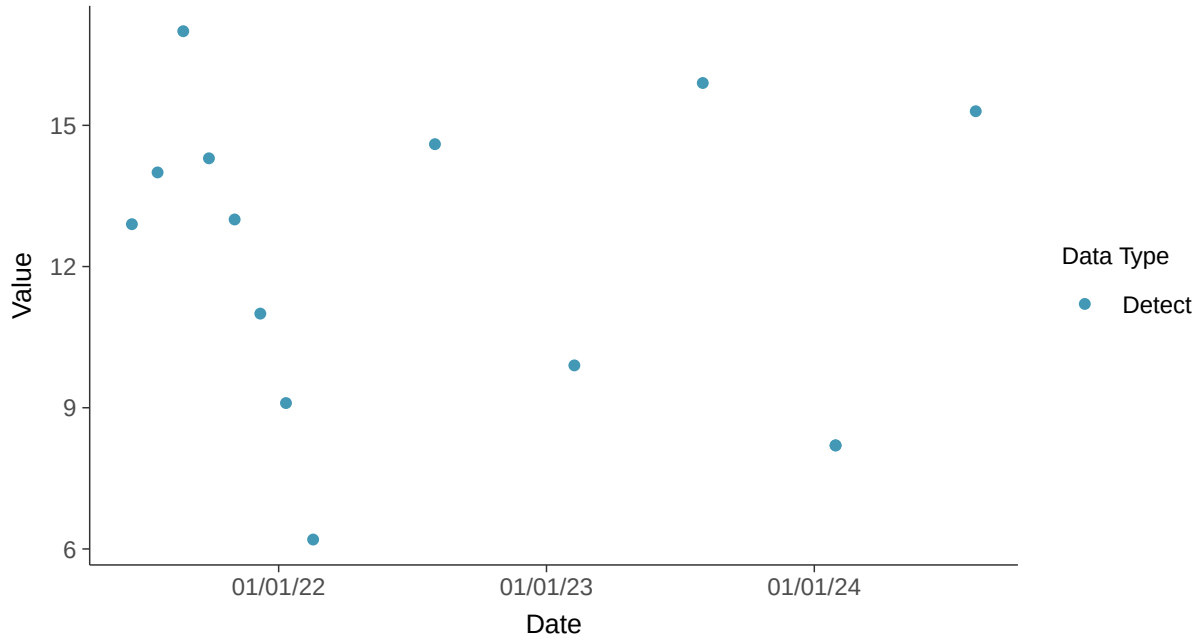


Field Parameters: Temperature, MW-7

ID: 07_3_28

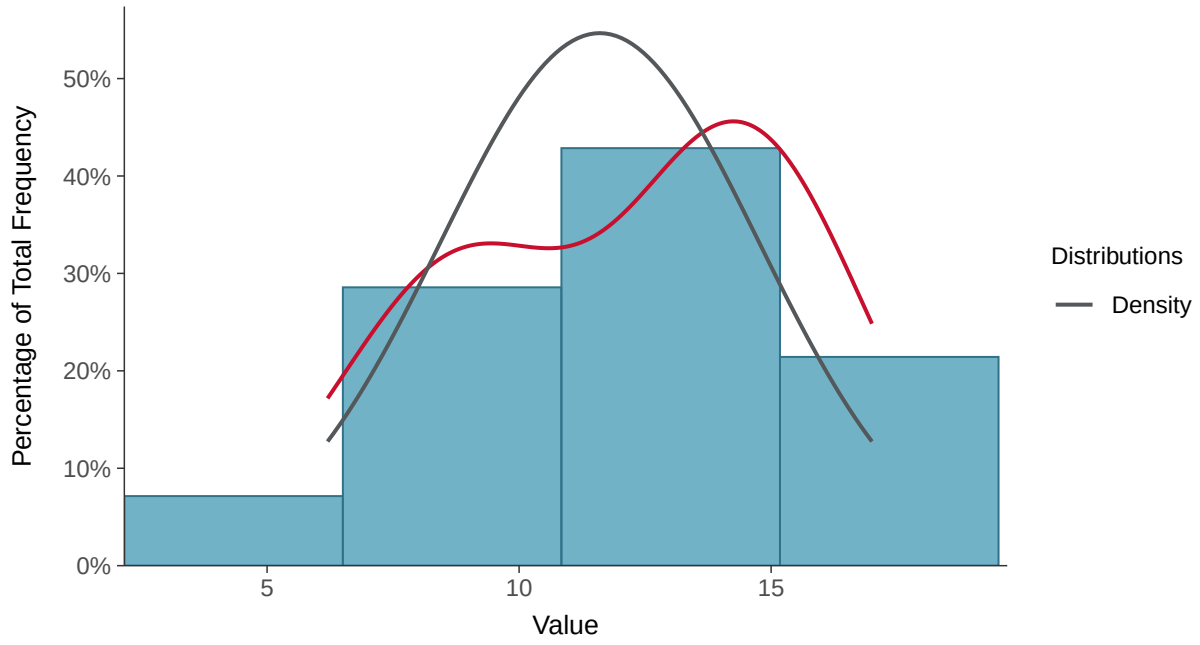
Scatter Plot

Temperature, MW-7 (°C)



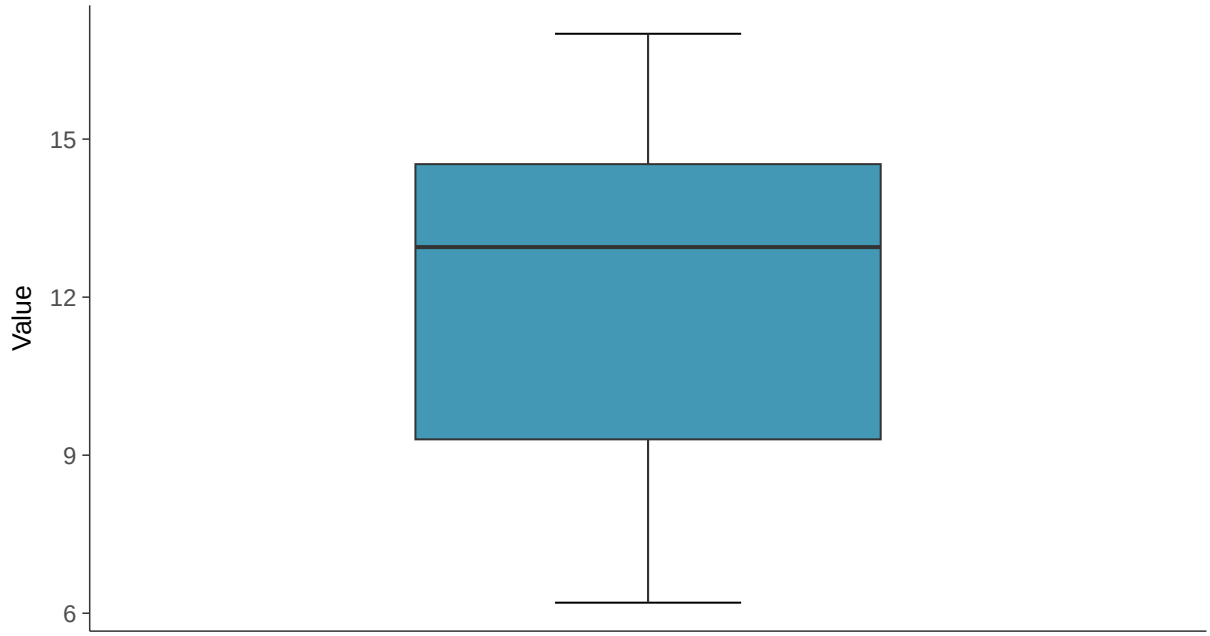
Histogram

Temperature, MW-7 (°C)



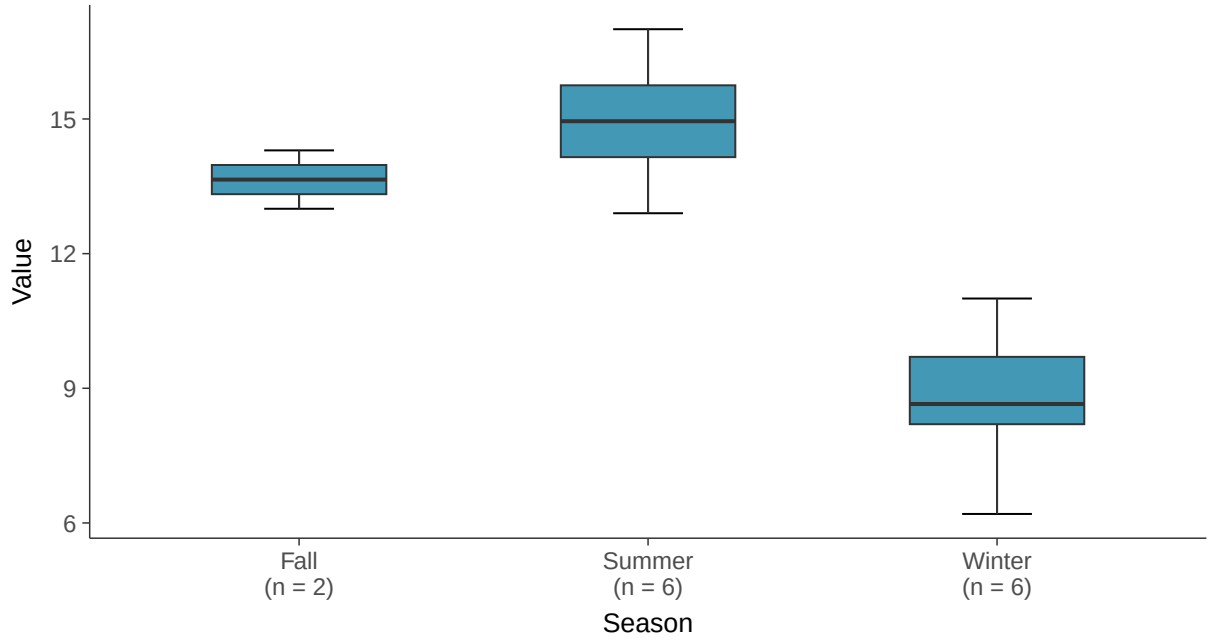
Boxplot

Temperature, MW-7 (°C)



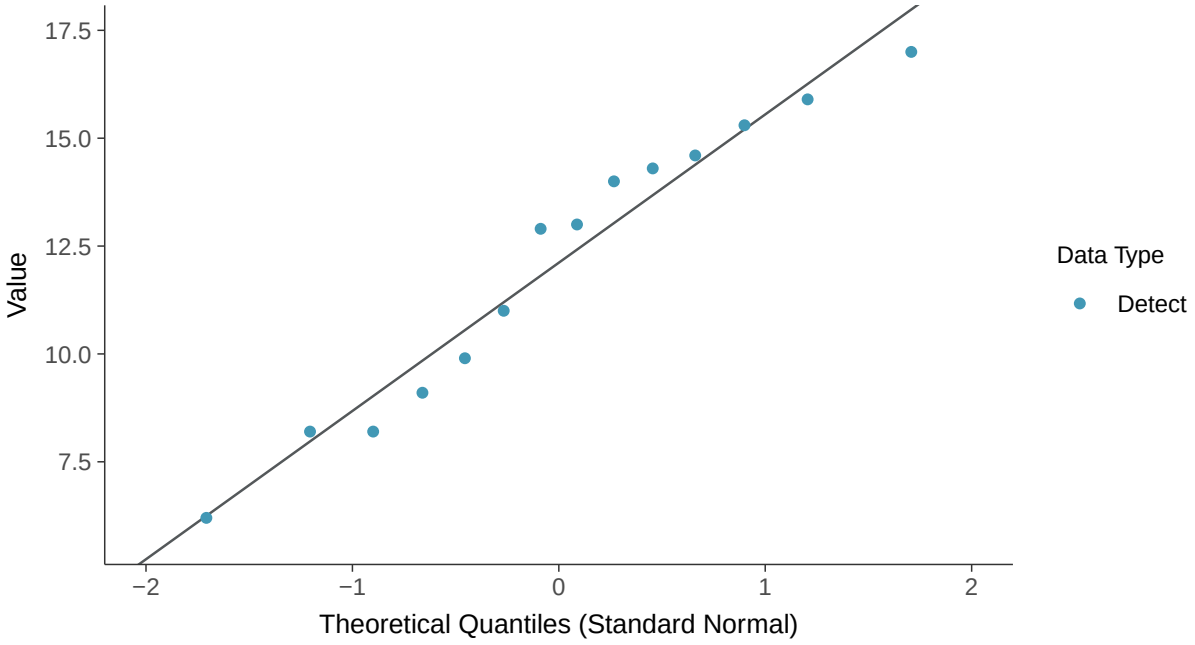
Boxplot by Season

Temperature, MW-7 (°C)



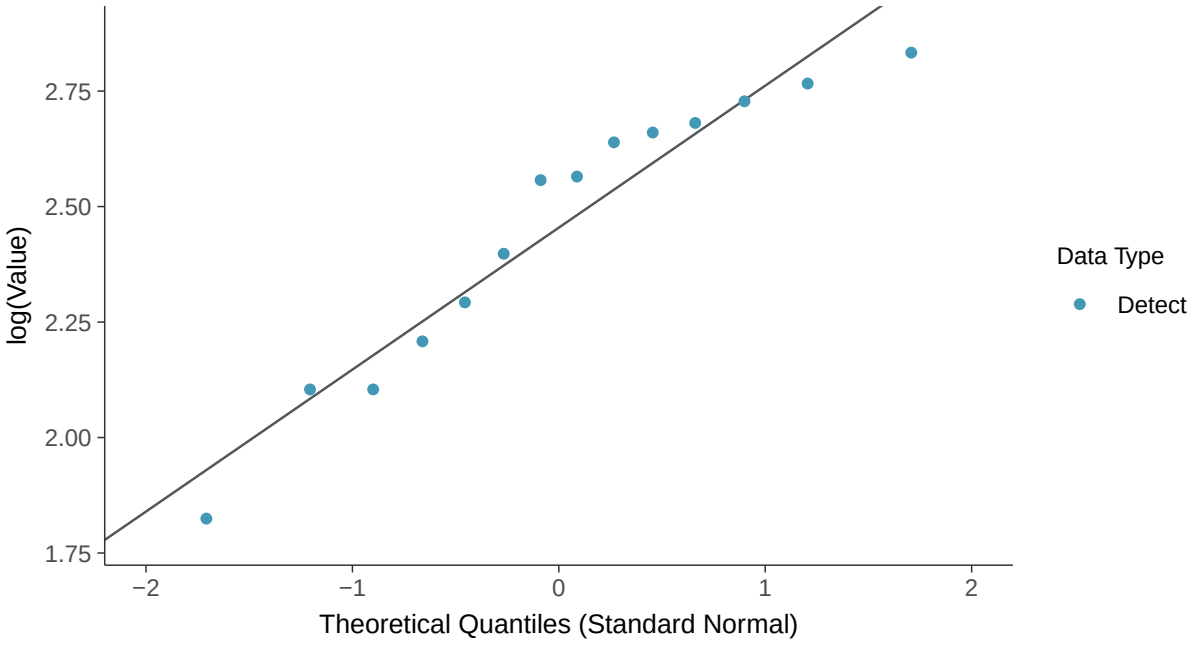
Normal Q-Q plot

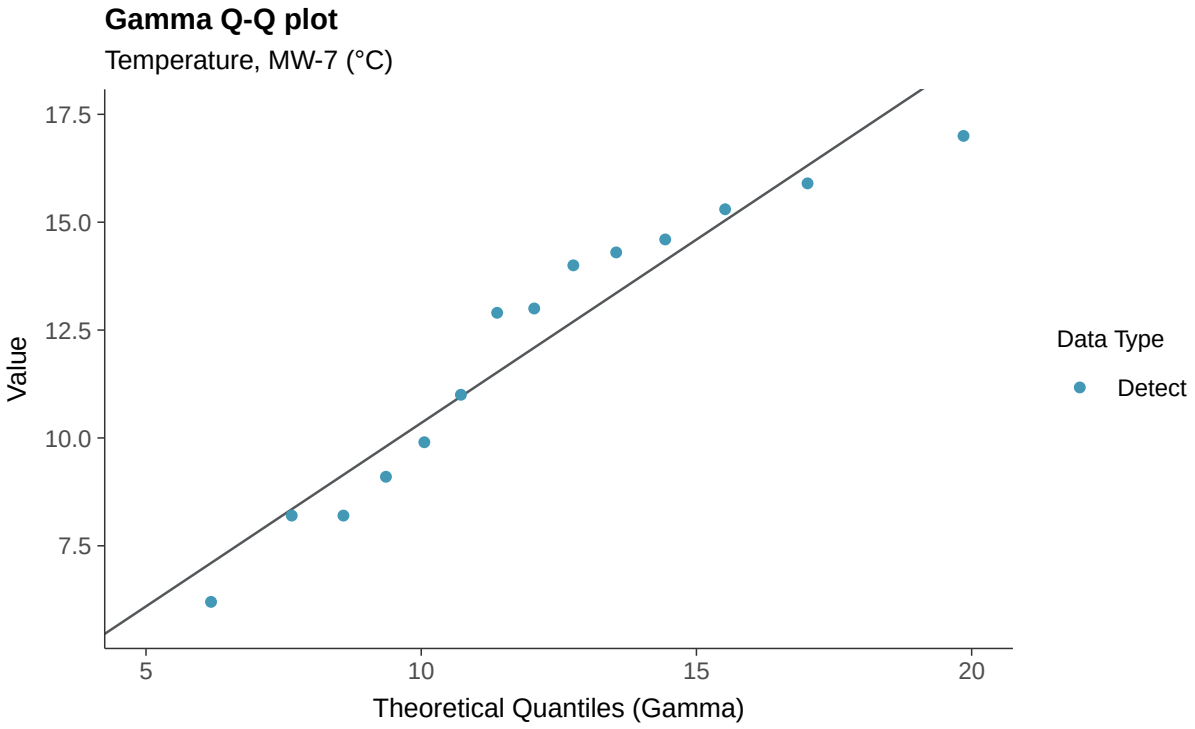
Temperature, MW-7 (°C)

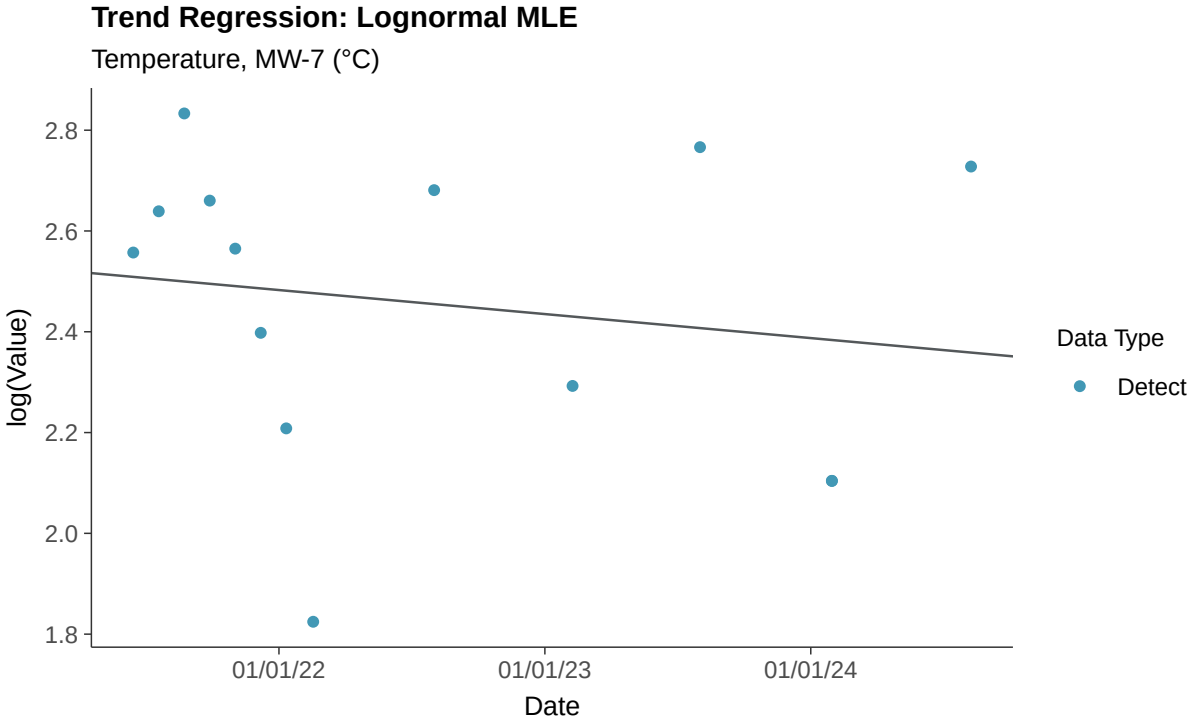


Lognormal Q-Q plot

Temperature, MW-7 (°C)

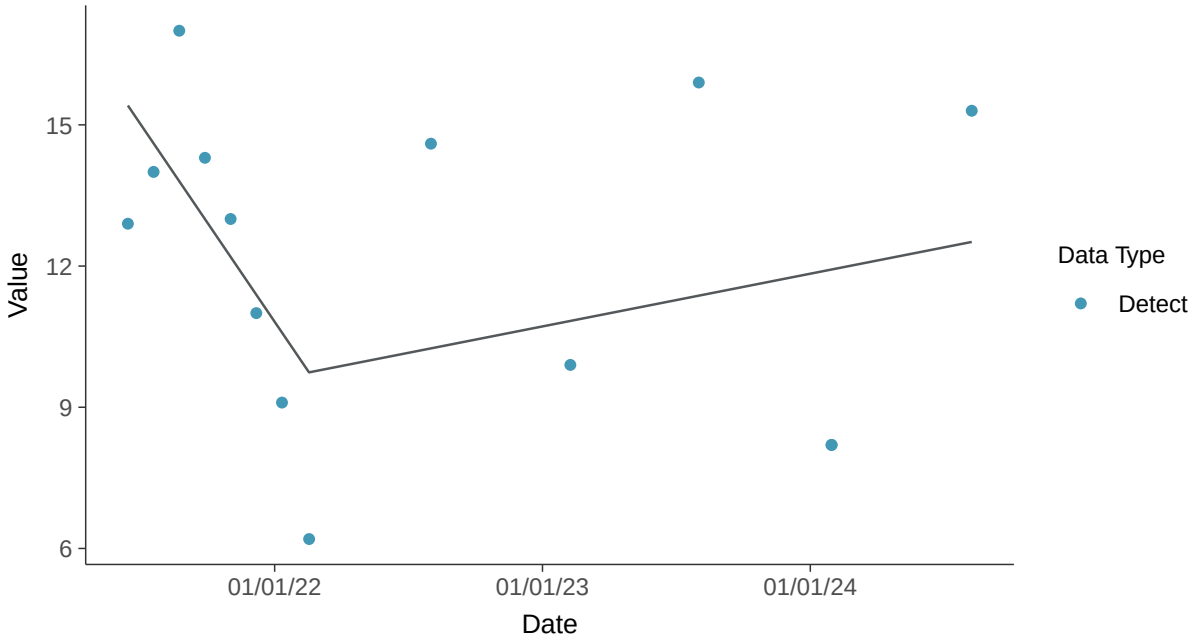



Gamma Q-Q plot
Temperature, MW-7 (°C)
Value
17.5
15.0
12.5
10.0
7.5
5
10
15
20
Theoretical Quantiles (Gamma)
Data Type
Detect


Trend Regression: Lognormal MLE
Temperature, MW-7 (°C)
log(Value)
2.8
2.6
2.4
2.2
2.0
1.8
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

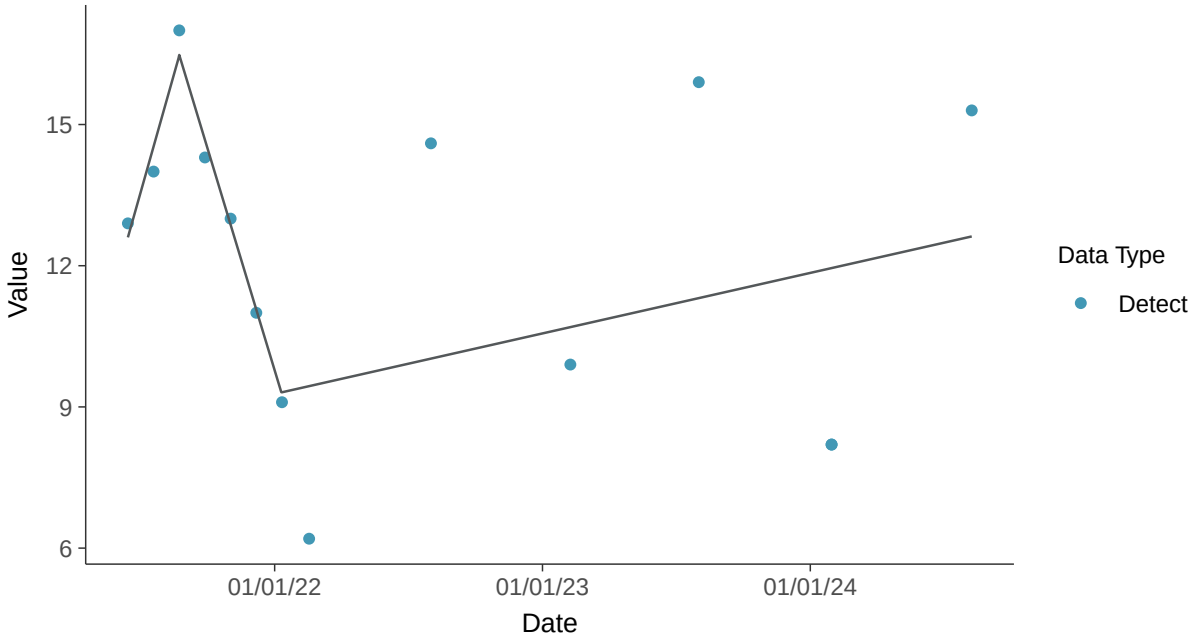
Trend Regression: Piecewise Linear-Linear

Temperature, MW-7 (°C)



Trend Regression: Piecewise Linear-Linear-Linear

Temperature, MW-7 (°C)

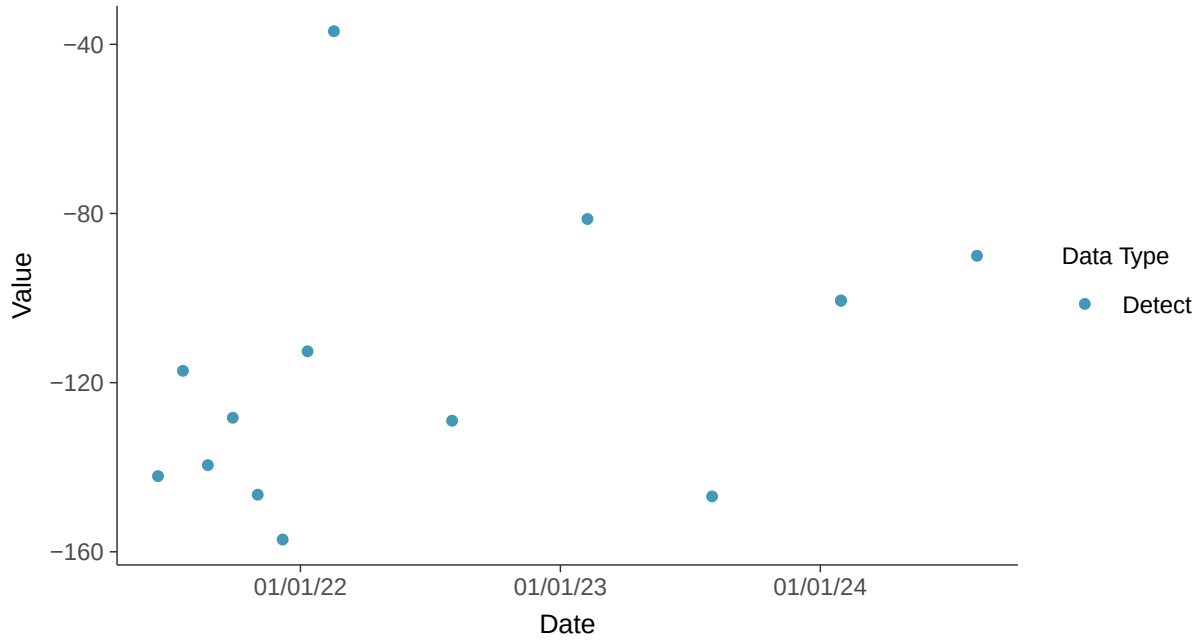


Field Parameters: Oxidation Reduction Potential, MW-7

ID: 07_3_29

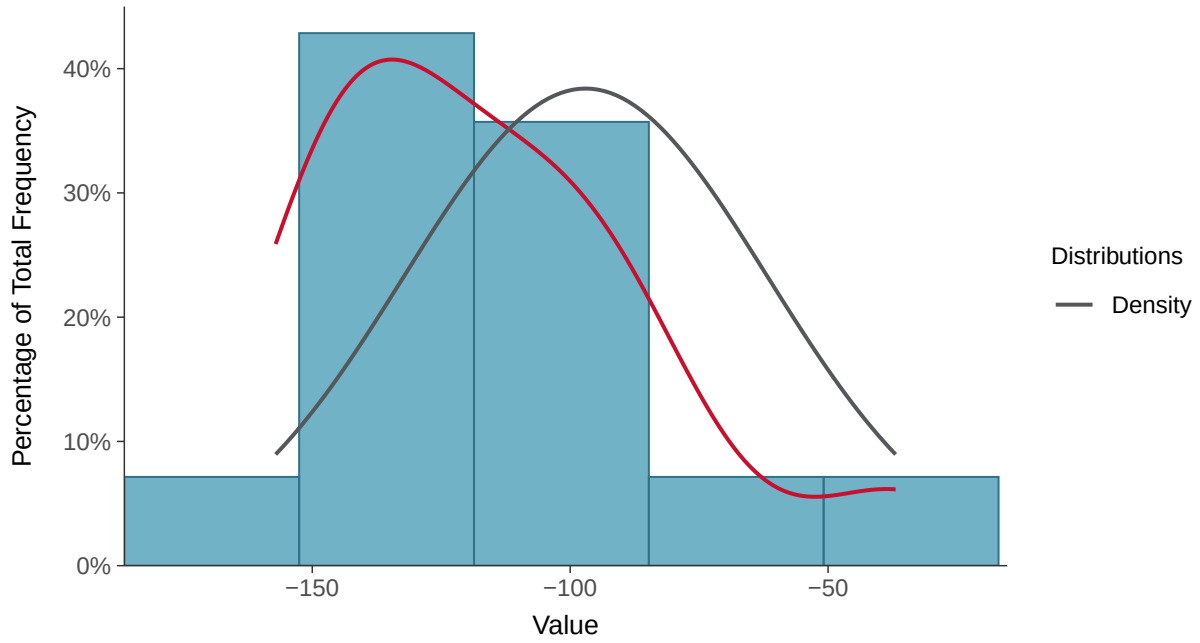
Scatter Plot

Oxidation Reduction Potential, MW-7 (mV)



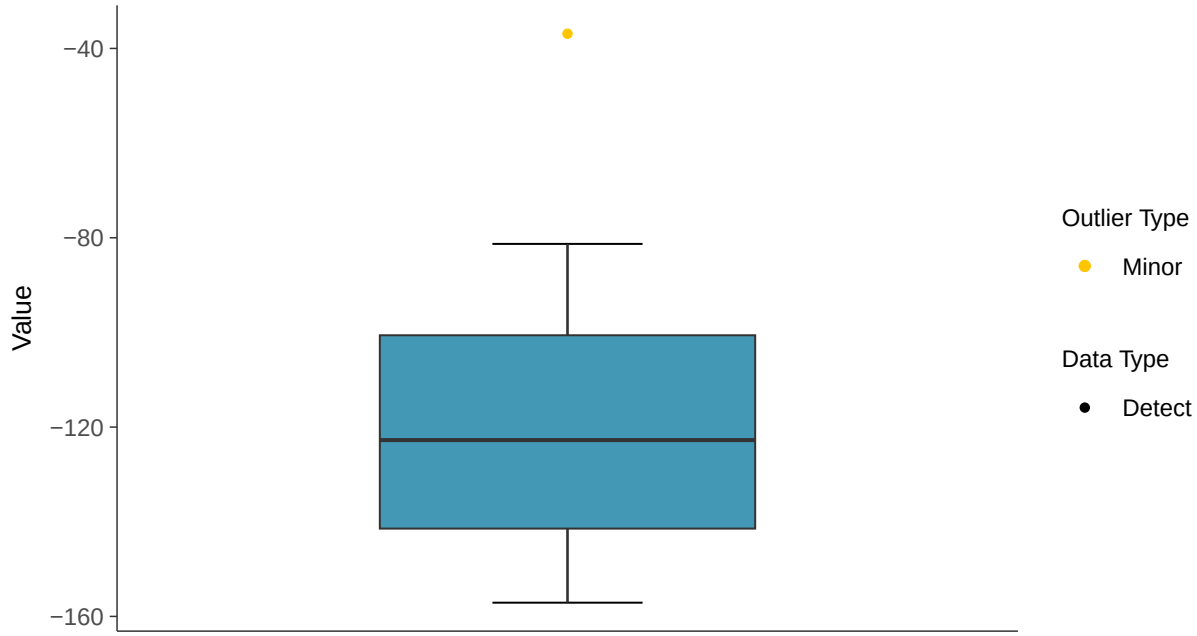
Histogram

Oxidation Reduction Potential, MW-7 (mV)



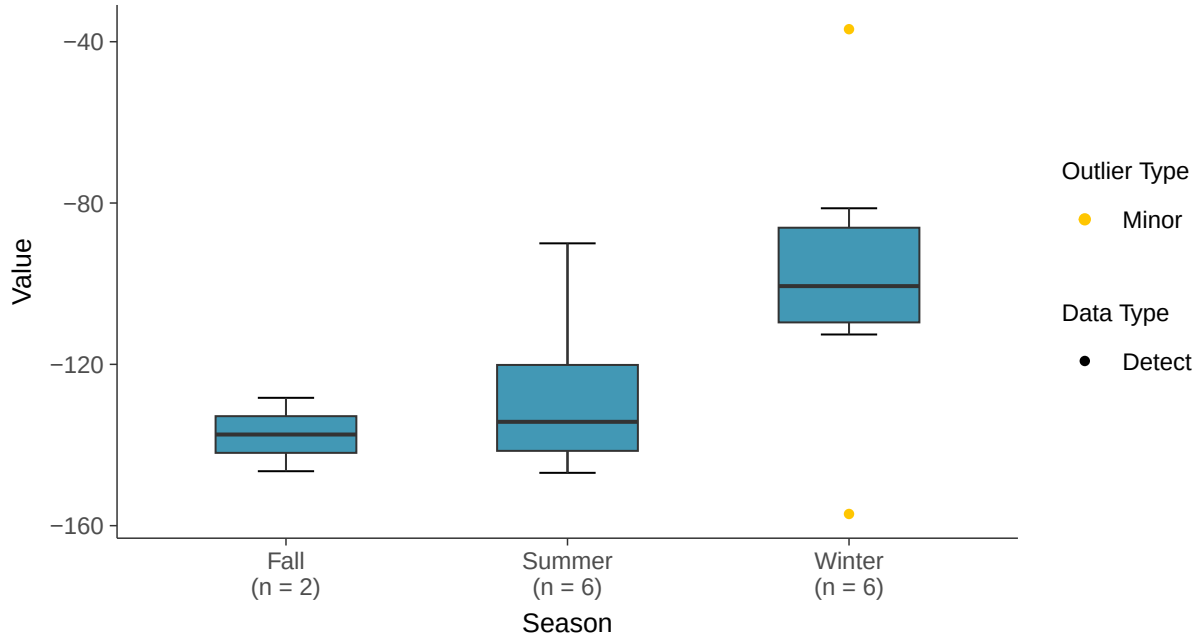
Boxplot

Oxidation Reduction Potential, MW-7 (mV)



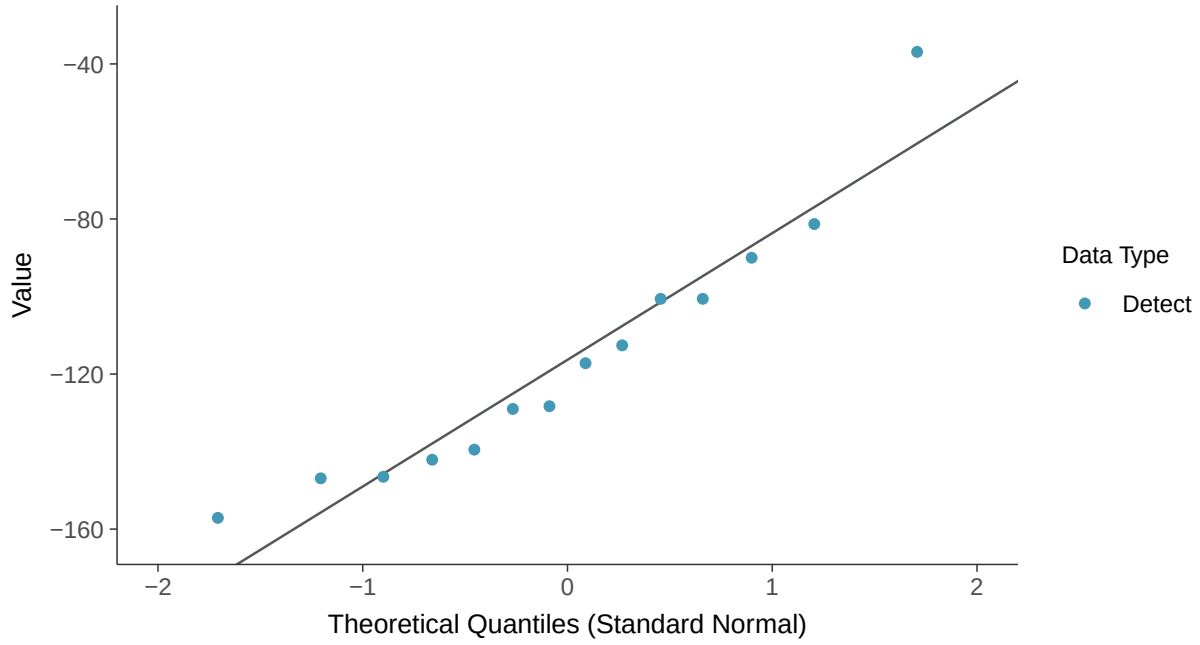
Boxplot by Season

Oxidation Reduction Potential, MW-7 (mV)



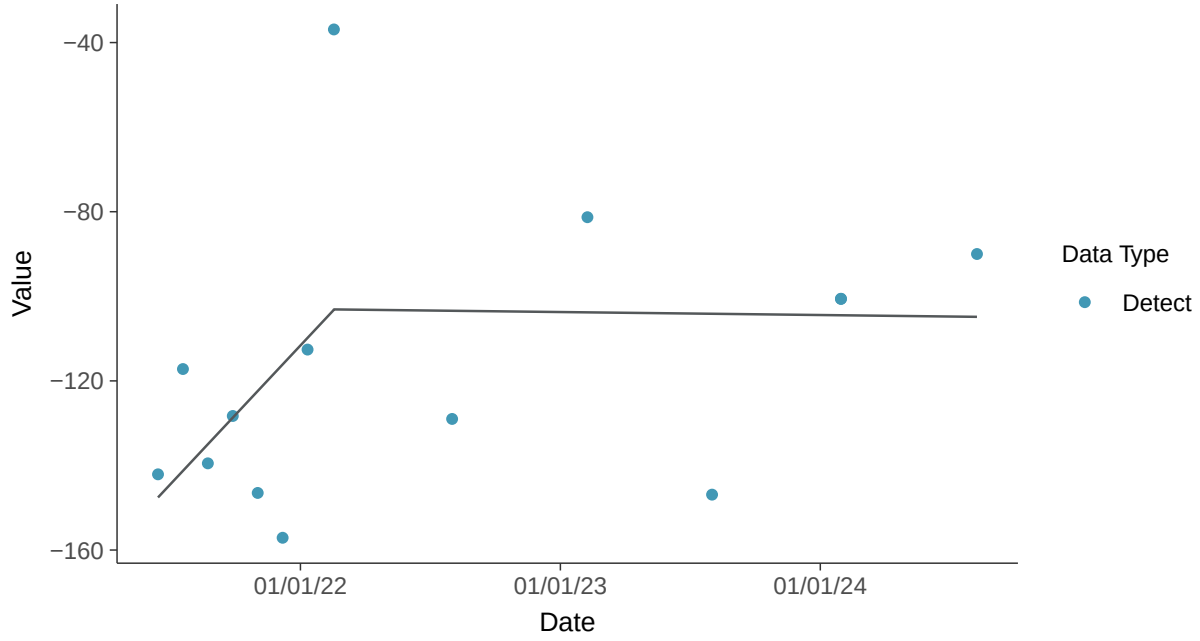
Normal Q-Q plot

Oxidation Reduction Potential, MW-7 (mV)



Trend Regression: Piecewise Linear-Linear

Oxidation Reduction Potential, MW-7 (mV)

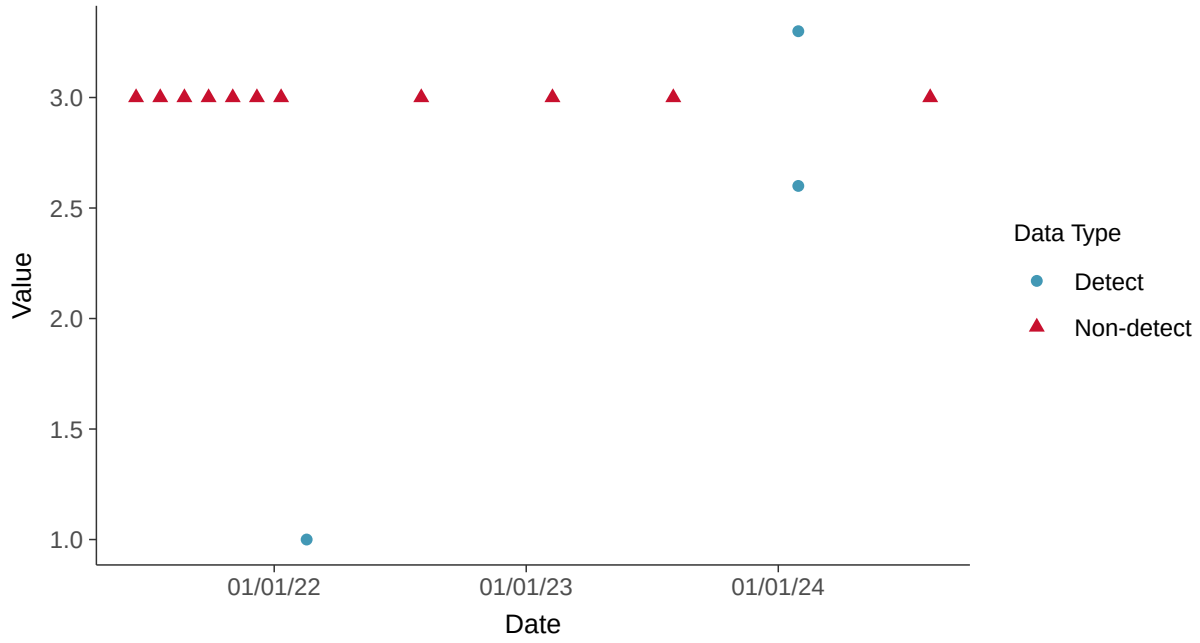


Other: Total Suspended Solids, MW-7

ID: 07_4_30

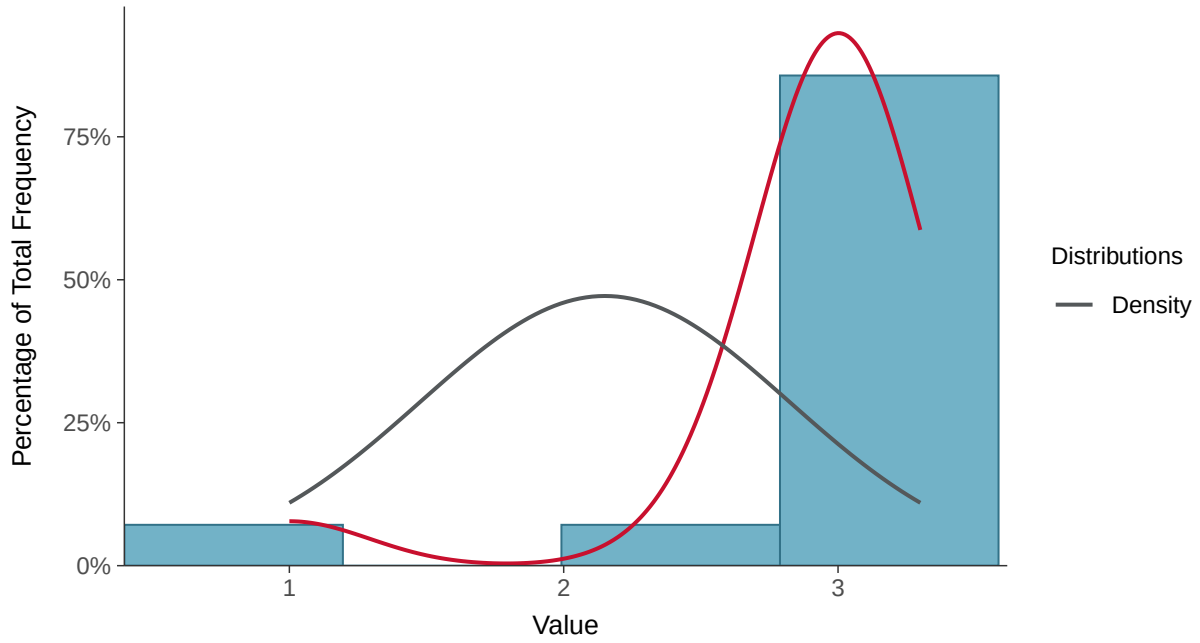
Scatter Plot

Total Suspended Solids, MW-7 (mg/L)



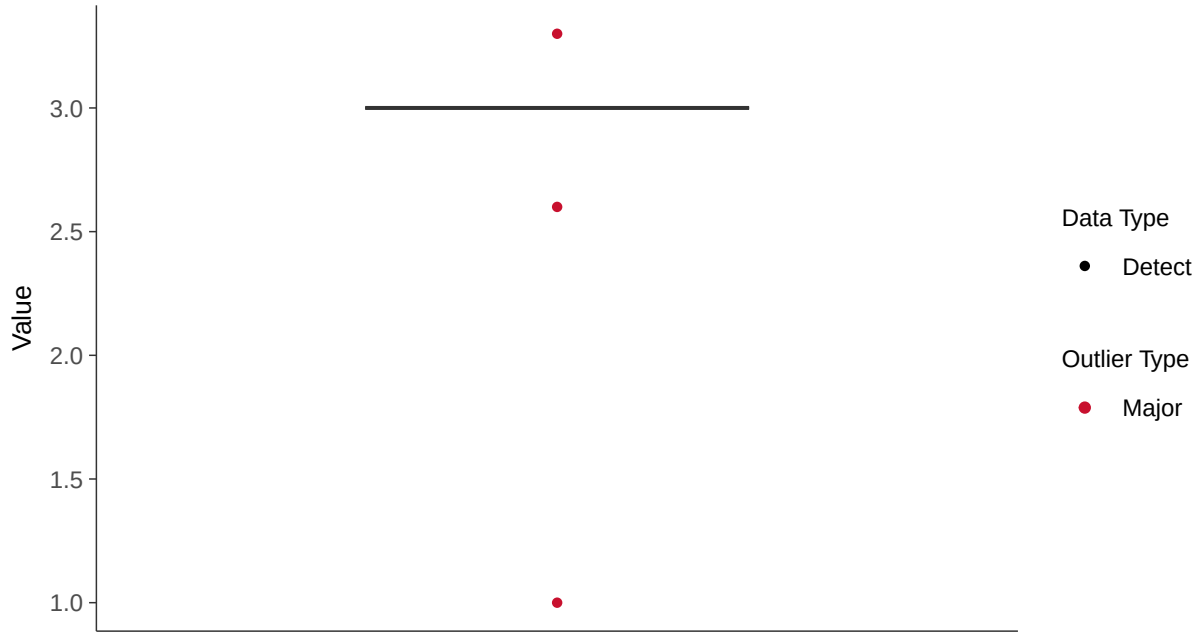
Histogram

Total Suspended Solids, MW-7 (mg/L)



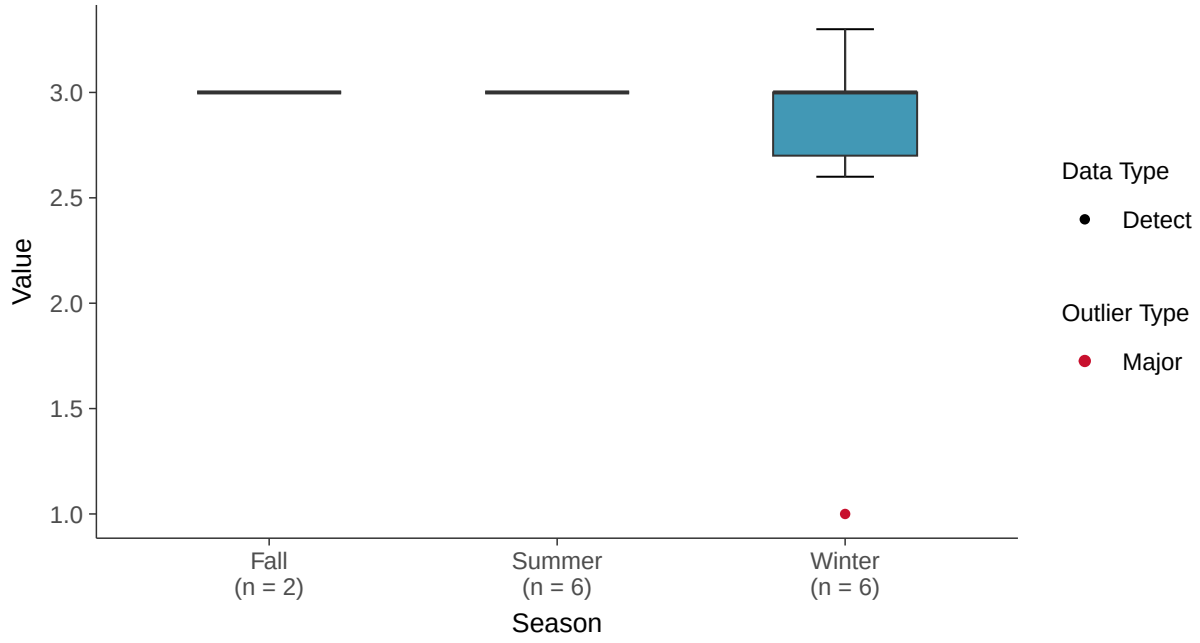
Boxplot

Total Suspended Solids, MW-7 (mg/L)



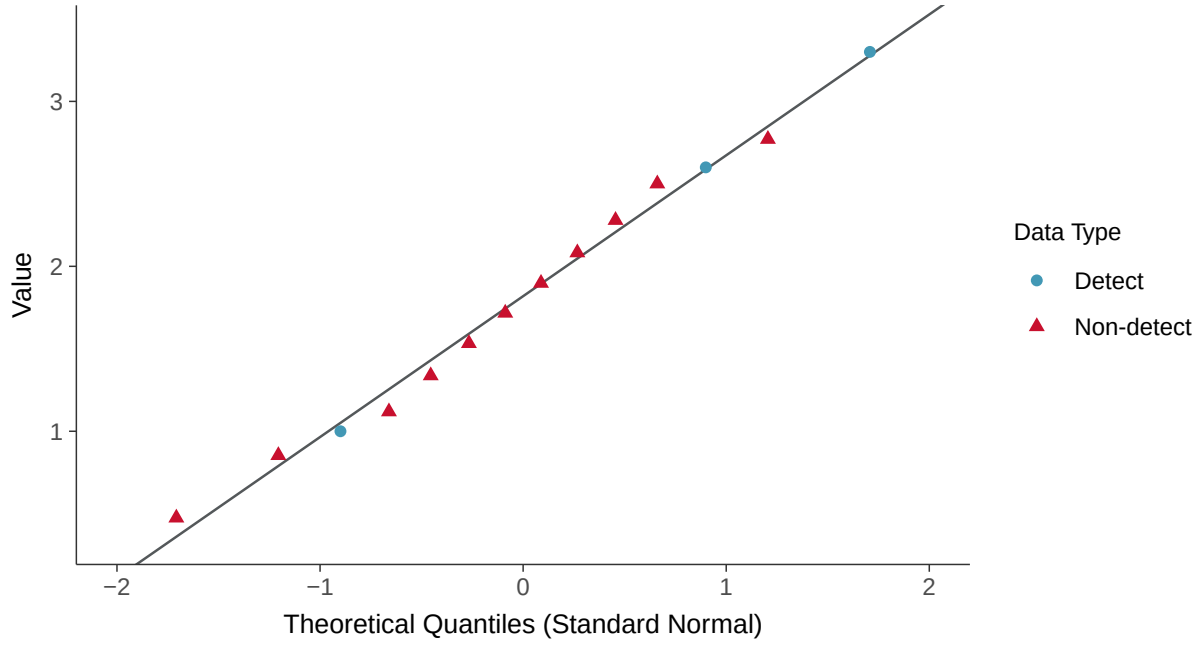
Boxplot by Season

Total Suspended Solids, MW-7 (mg/L)



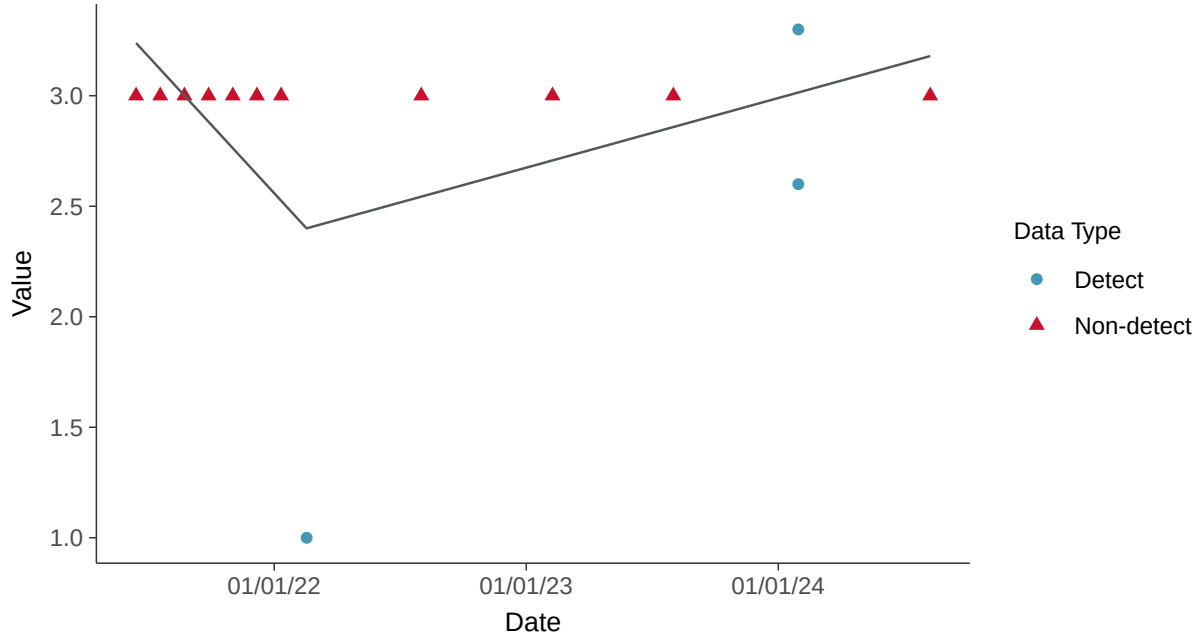
Normal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-7 (mg/L)



Trend Regression: Piecewise Linear-Linear

Total Suspended Solids, MW-7 (mg/L)

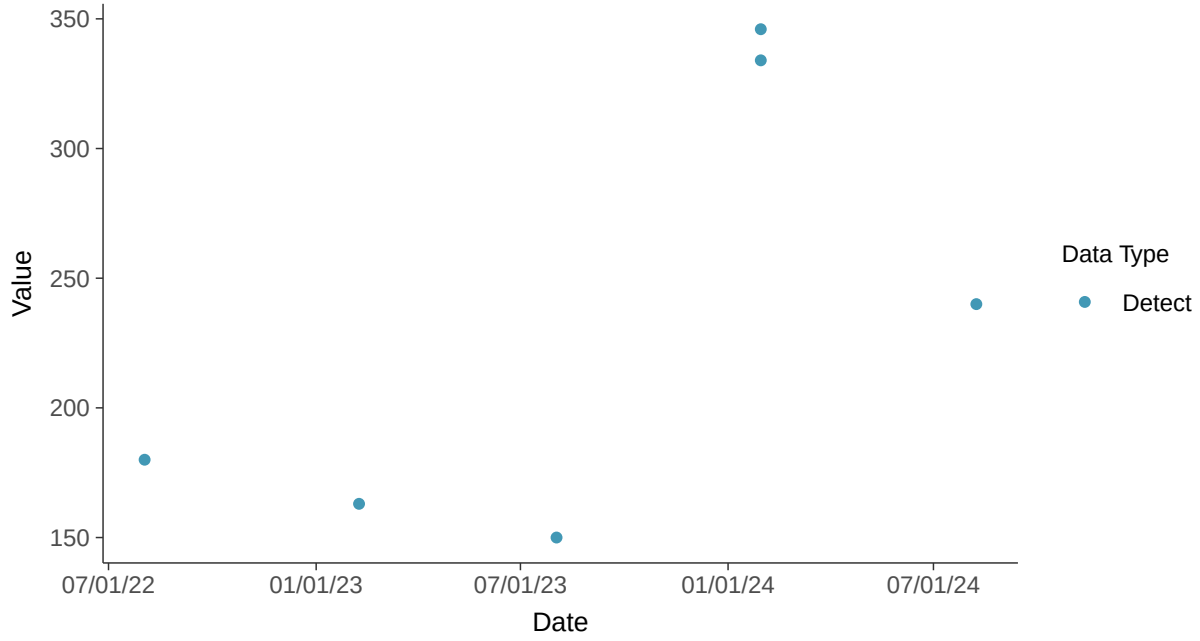


Other: Bicarbonate, MW-7

ID: 07_4_31

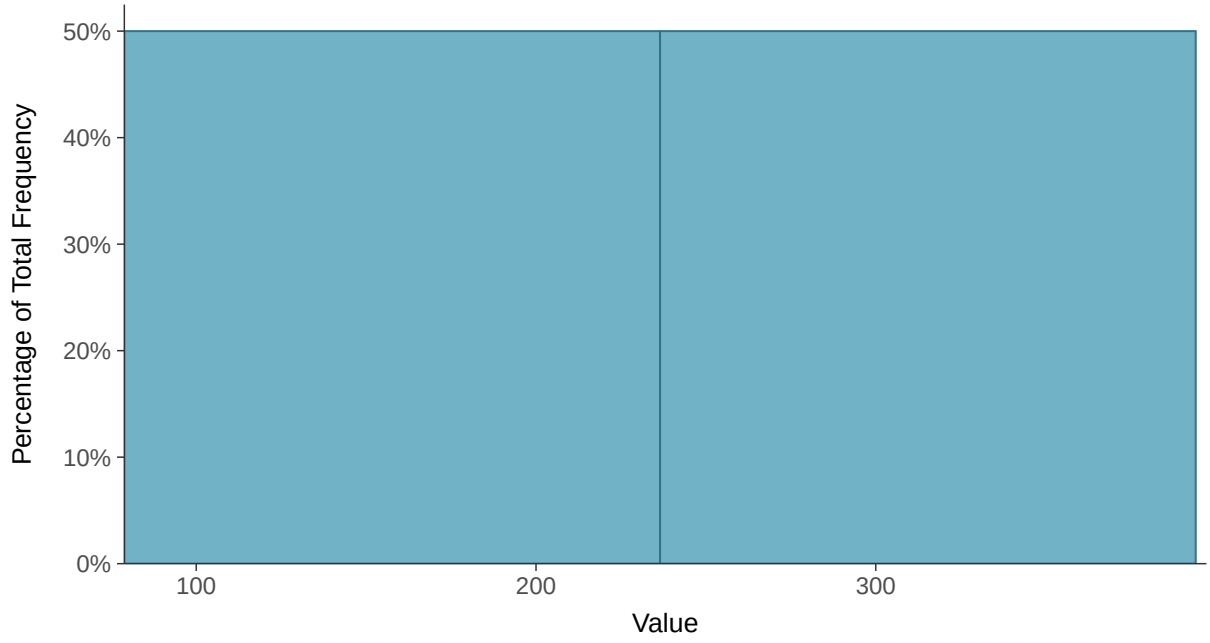
Scatter Plot

Bicarbonate, MW-7 (mg/L)



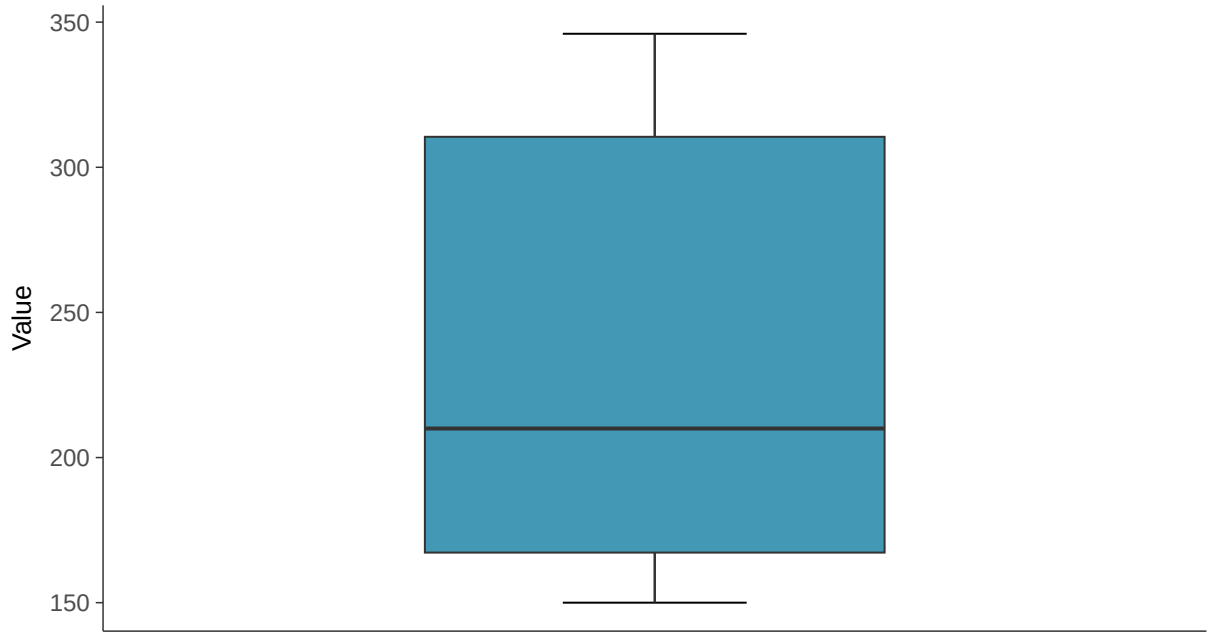
Histogram

Bicarbonate, MW-7 (mg/L)



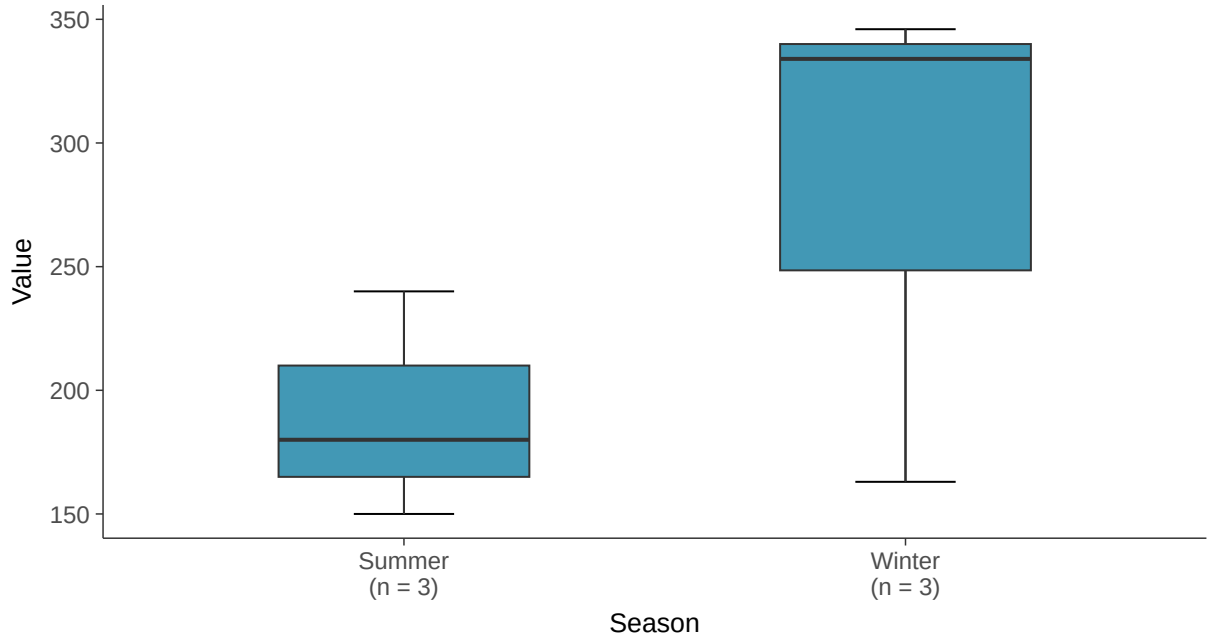
Boxplot

Bicarbonate, MW-7 (mg/L)



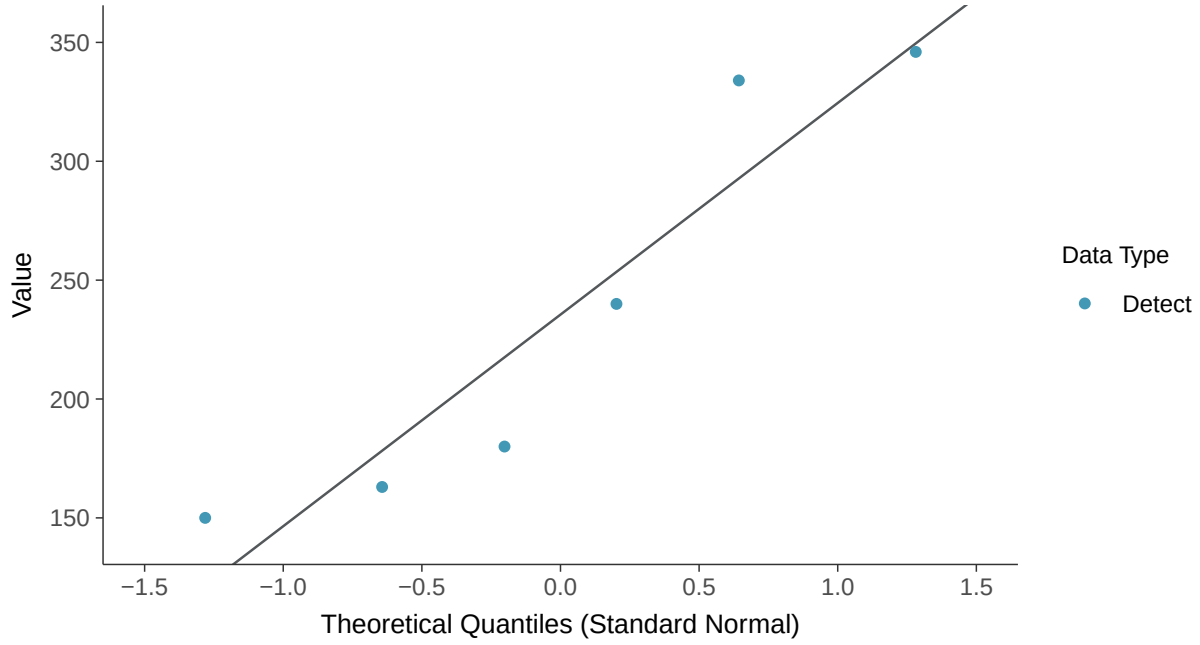
Boxplot by Season

Bicarbonate, MW-7 (mg/L)



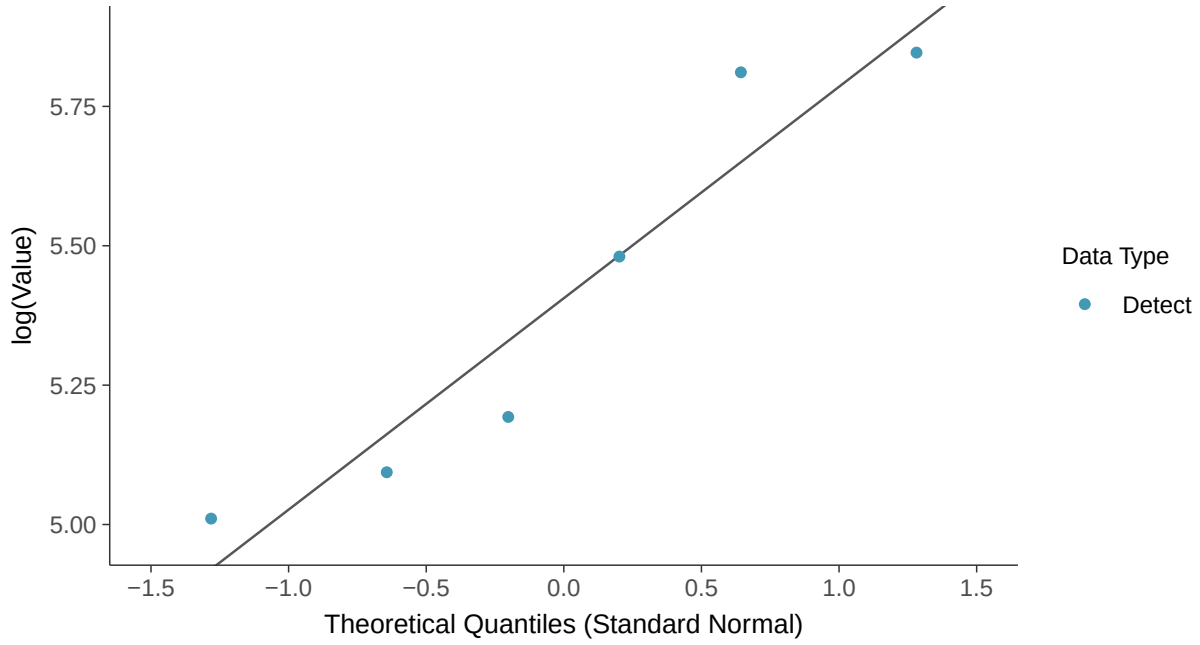
Normal Q-Q plot

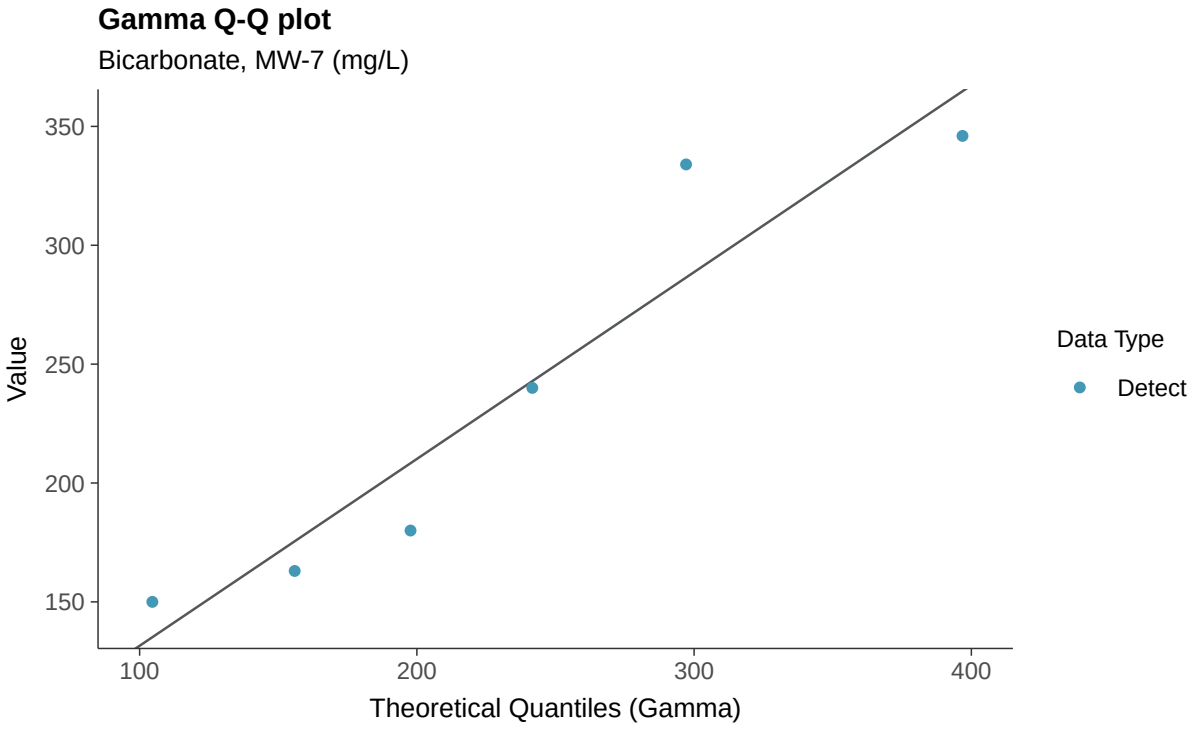
Bicarbonate, MW-7 (mg/L)



Lognormal Q-Q plot

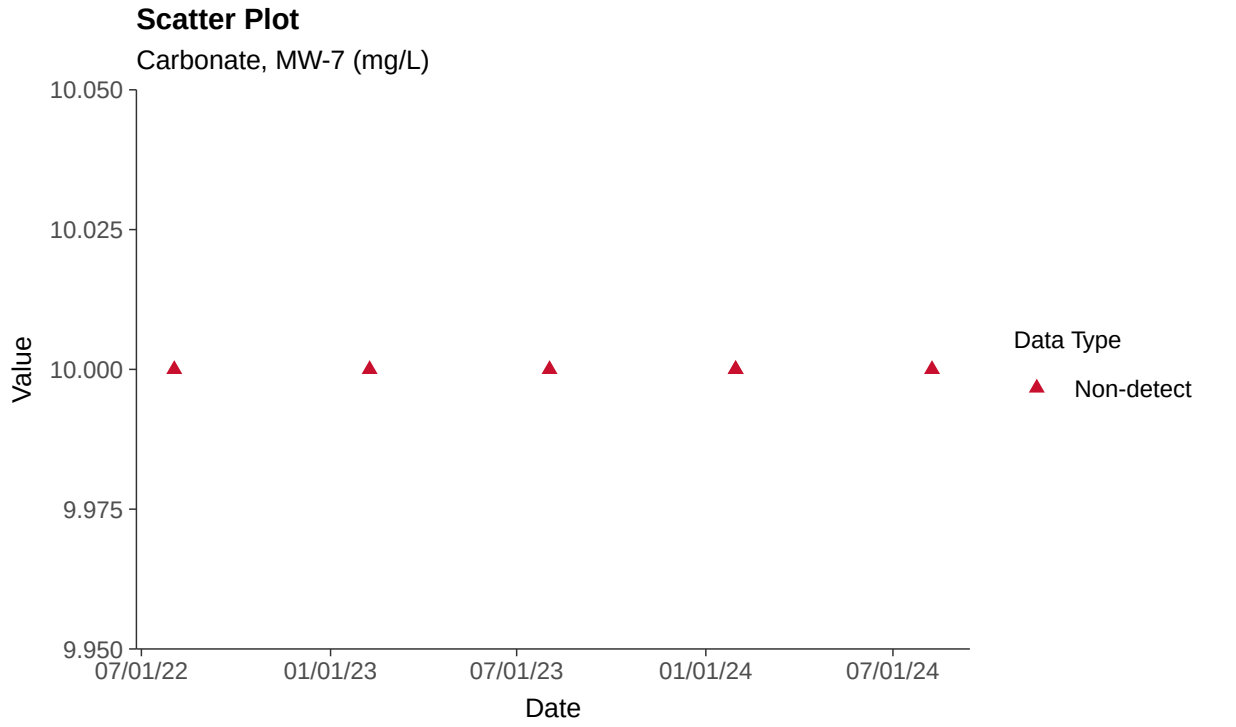
Bicarbonate, MW-7 (mg/L)

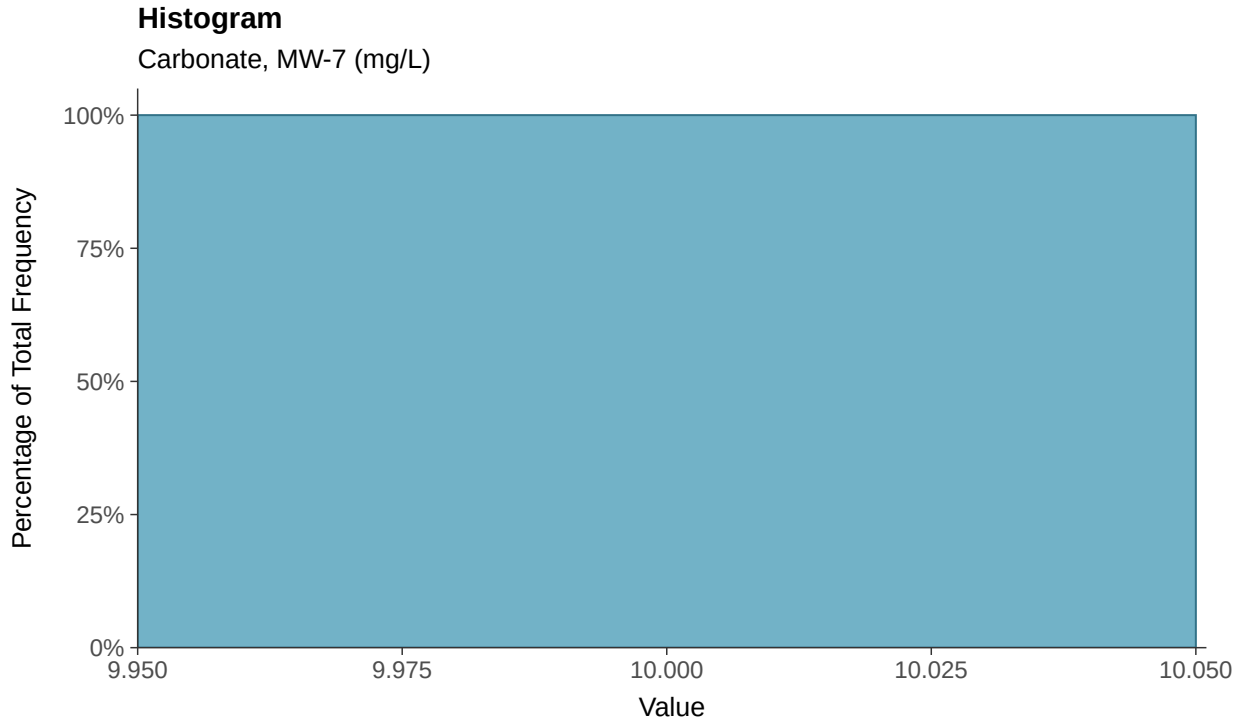



Gamma Q-Q plot
Bicarbonate, MW-7 (mg/L)
Value
350
300
250
200
150
100
200
300
400
Theoretical Quantiles (Gamma)
Data Type
Detect

Other: Carbonate, MW-7

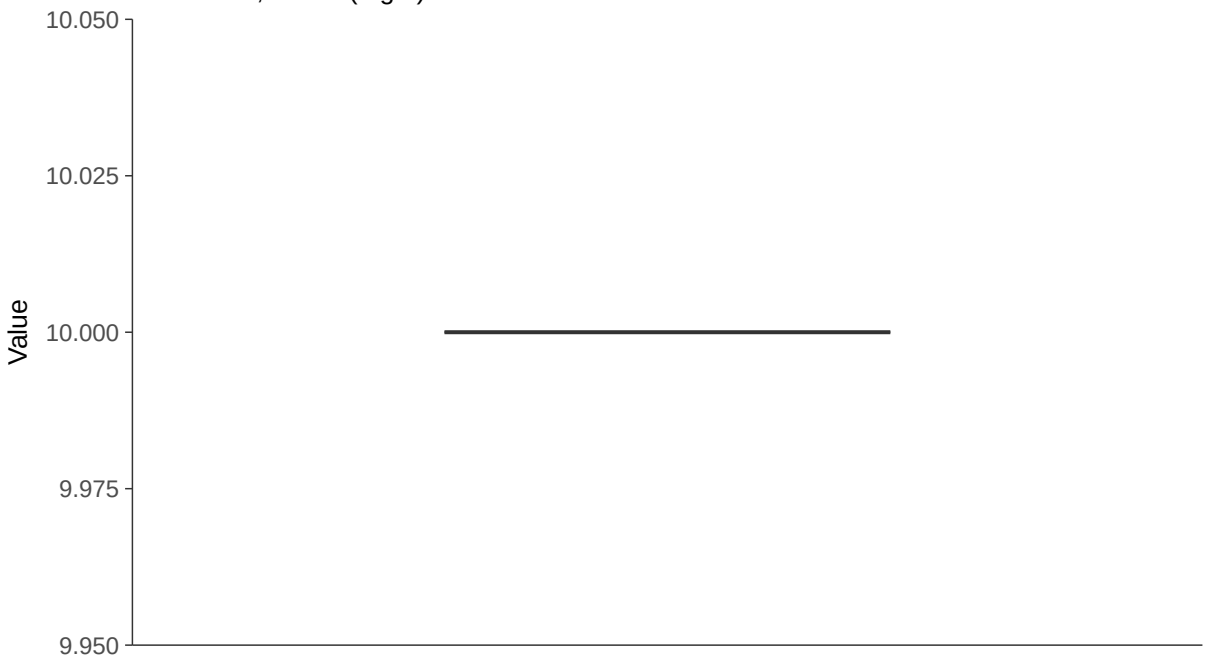
ID: 07_4_32





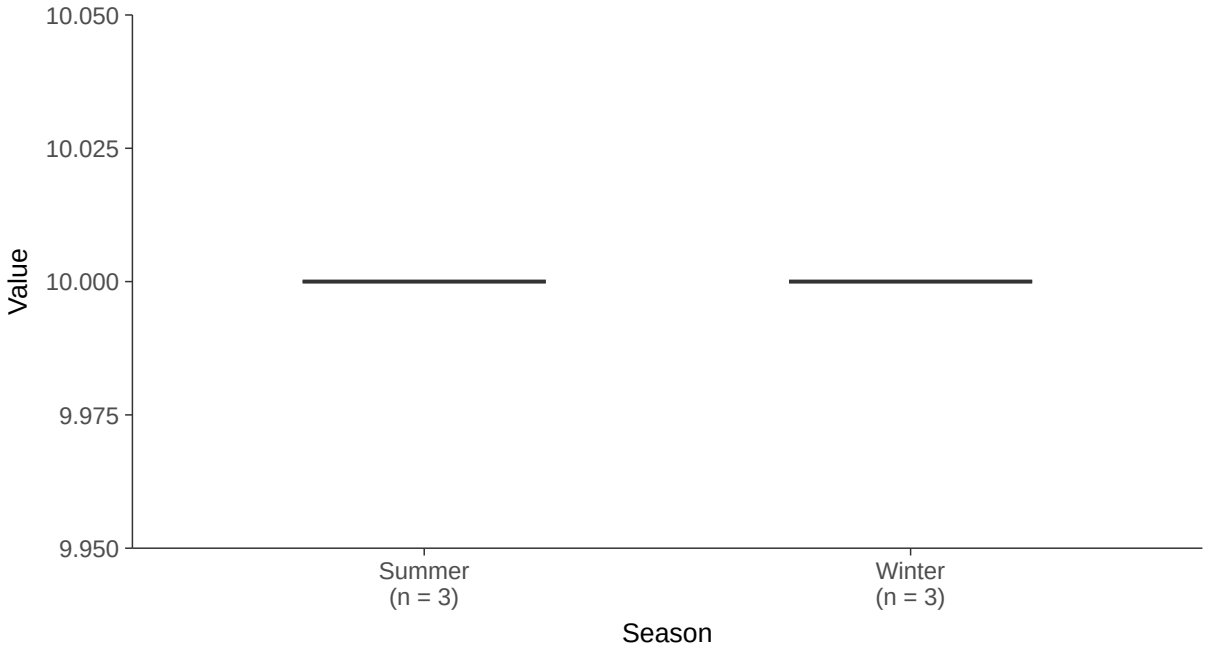
Boxplot

Carbonate, MW-7 (mg/L)



Boxplot by Season

Carbonate, MW-7 (mg/L)

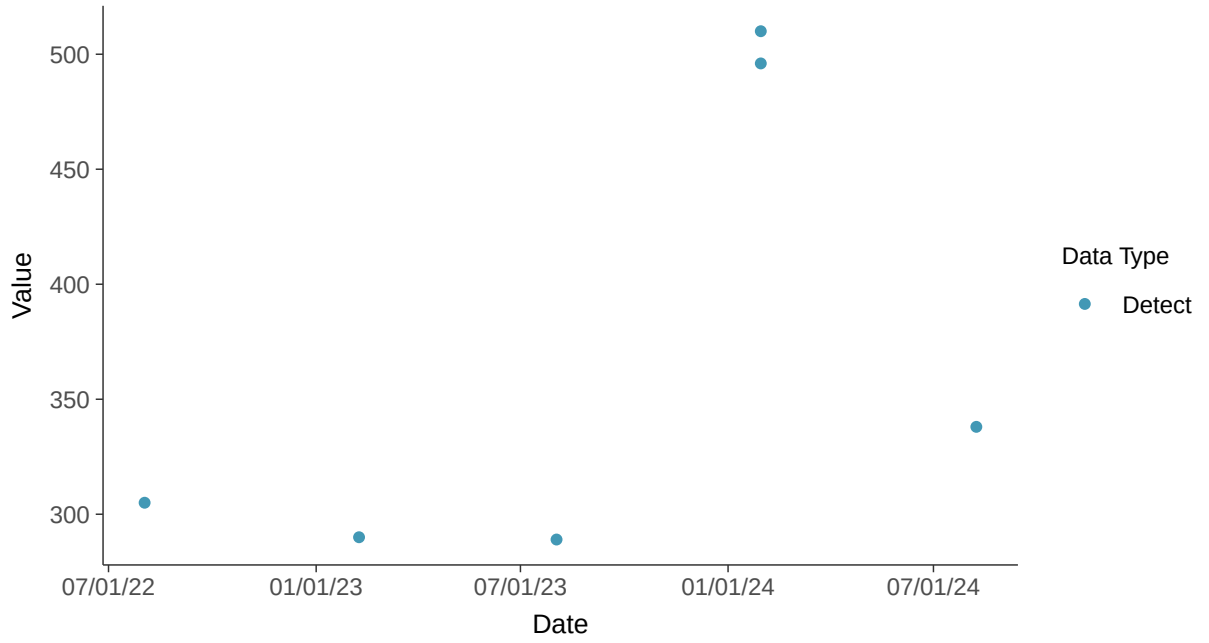


Other: Hardness, MW-7

ID: 07_4_33

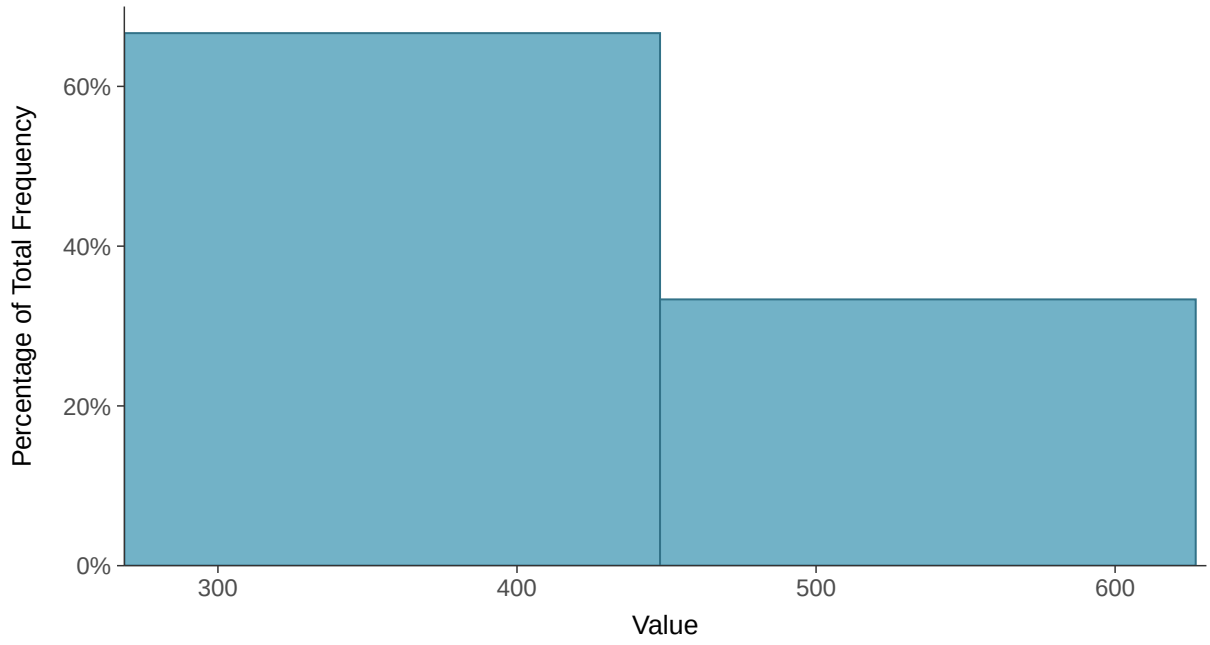
Scatter Plot

Hardness, MW-7 (mg/L)



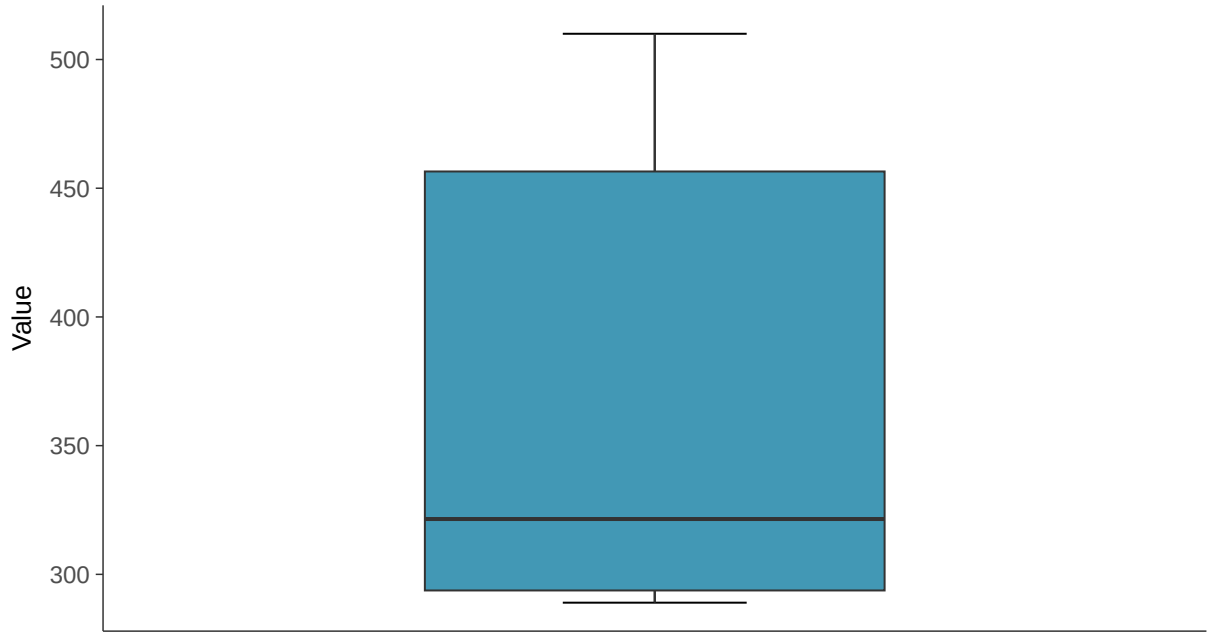
Histogram

Hardness, MW-7 (mg/L)



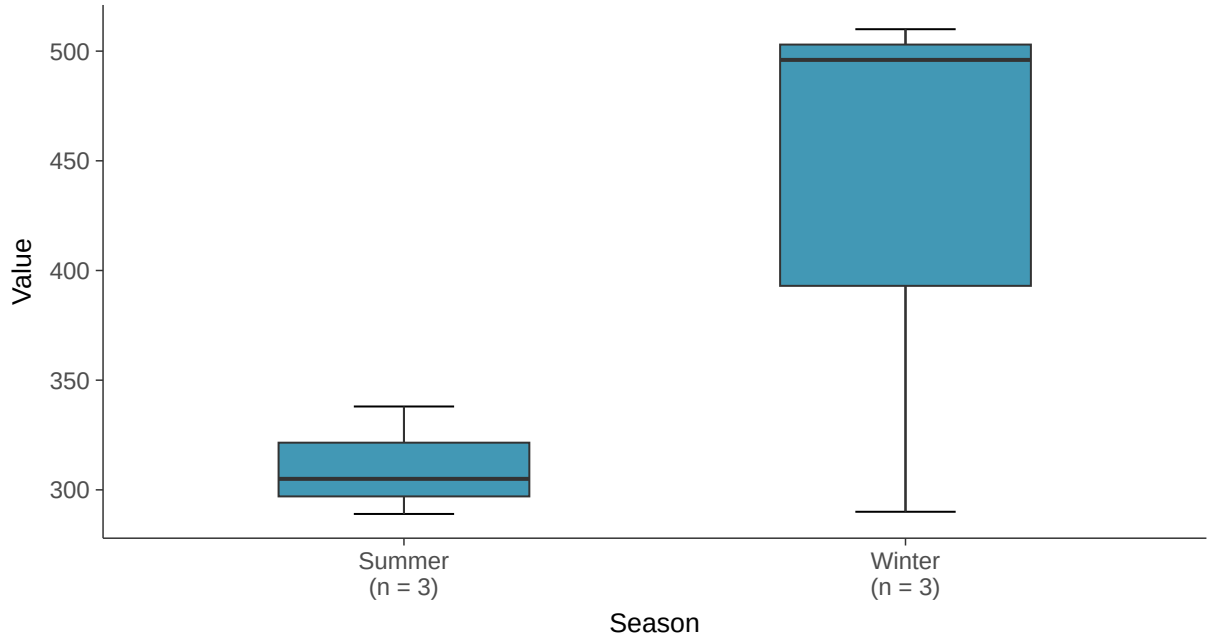
Boxplot

Hardness, MW-7 (mg/L)



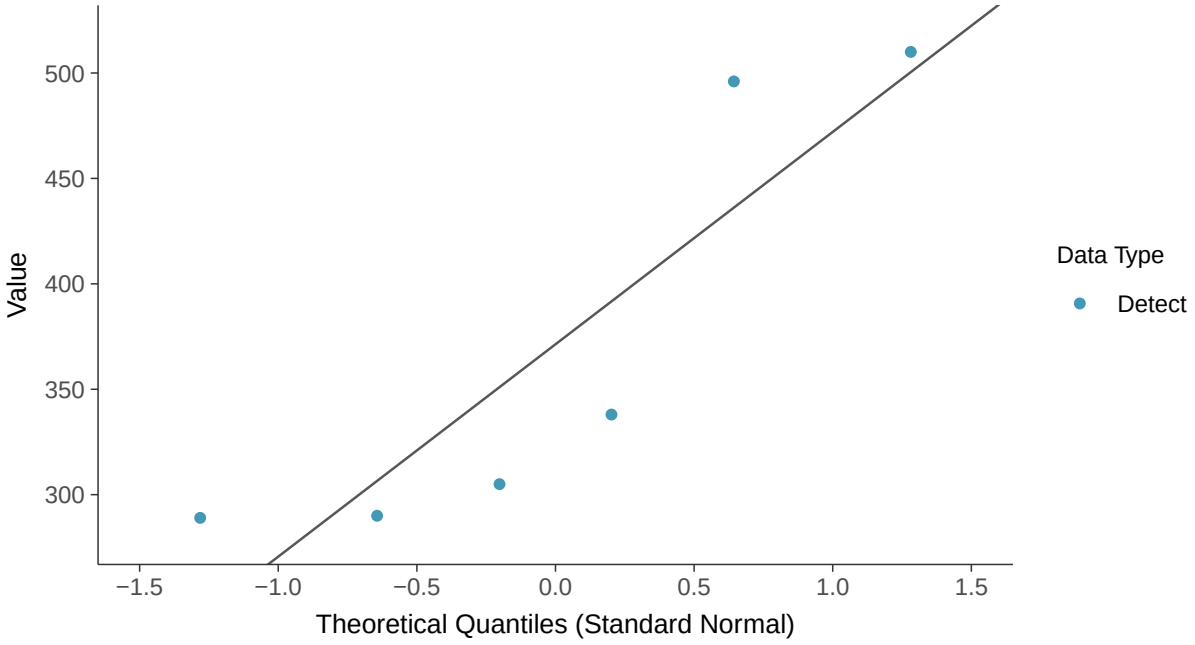
Boxplot by Season

Hardness, MW-7 (mg/L)



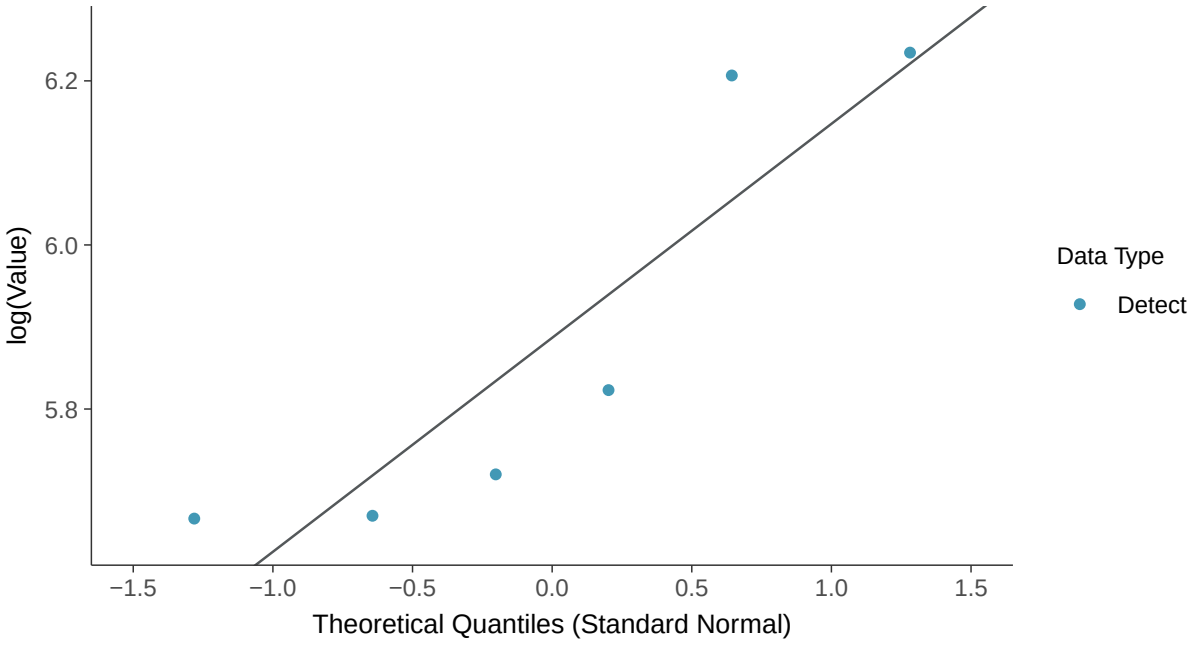
Normal Q-Q plot

Hardness, MW-7 (mg/L)



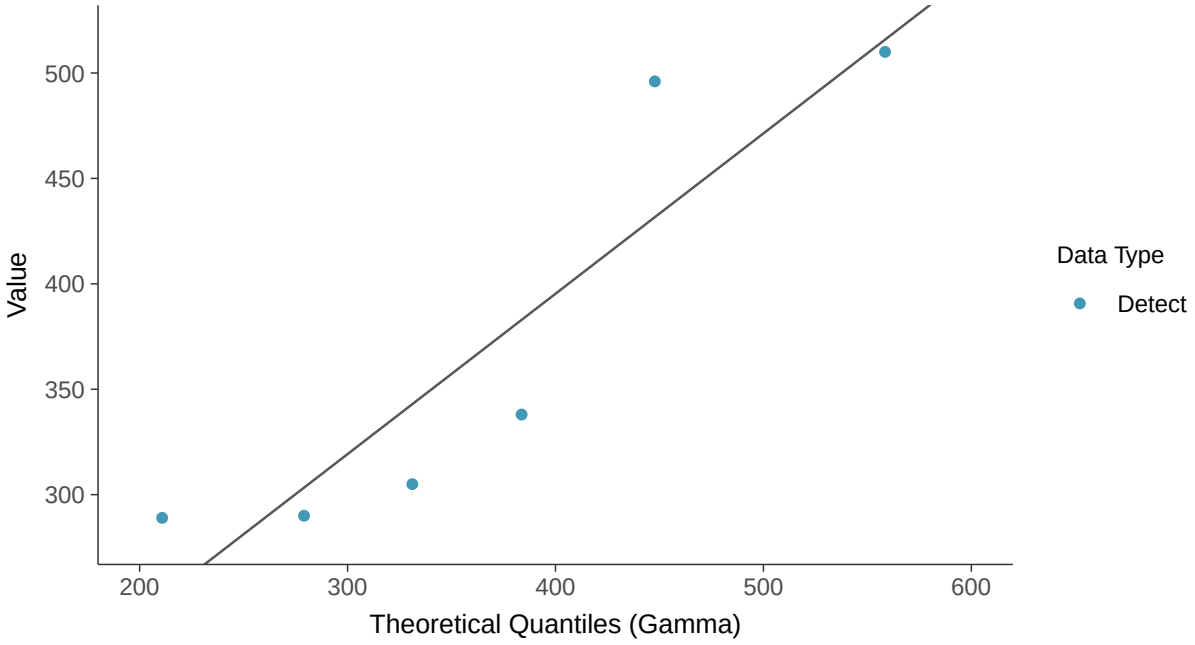
Lognormal Q-Q plot

Hardness, MW-7 (mg/L)



Gamma Q-Q plot

Hardness, MW-7 (mg/L)

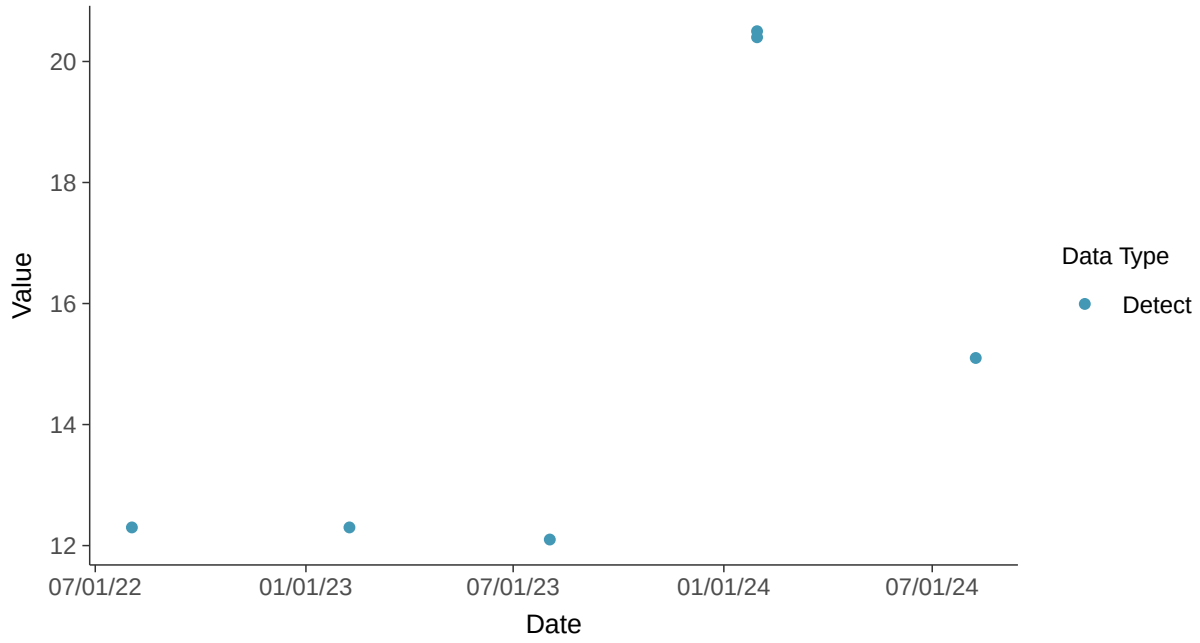


Other: Magnesium, MW-7

ID: 07_4_34

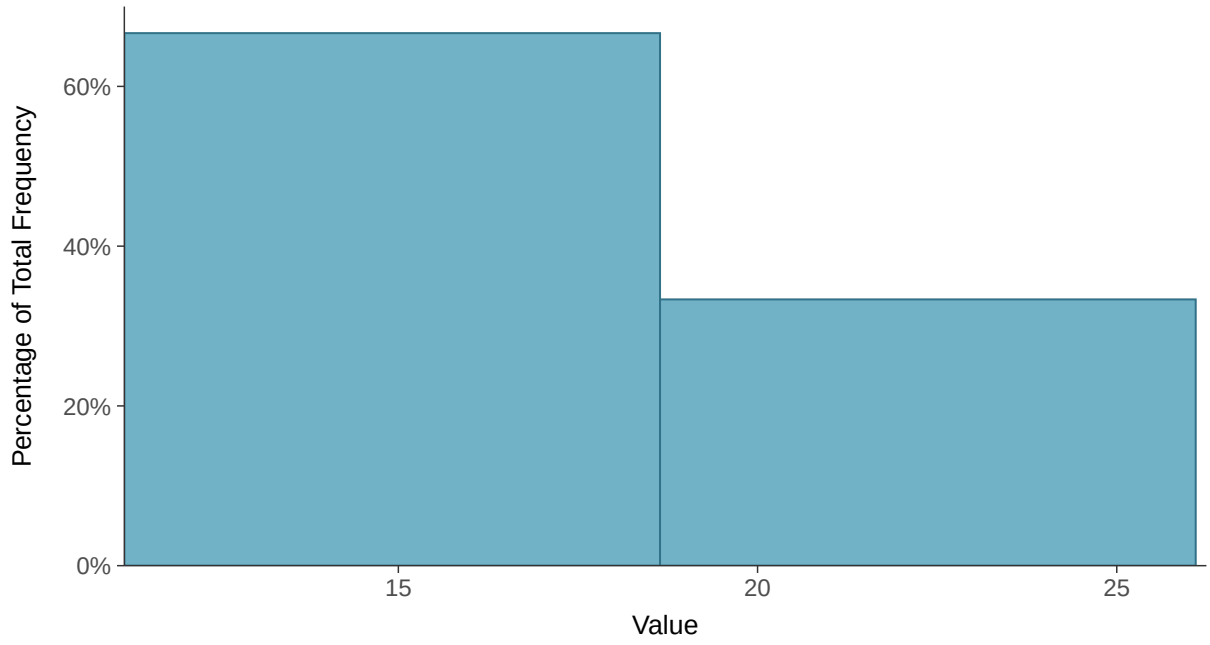
Scatter Plot

Magnesium, MW-7 (mg/L)



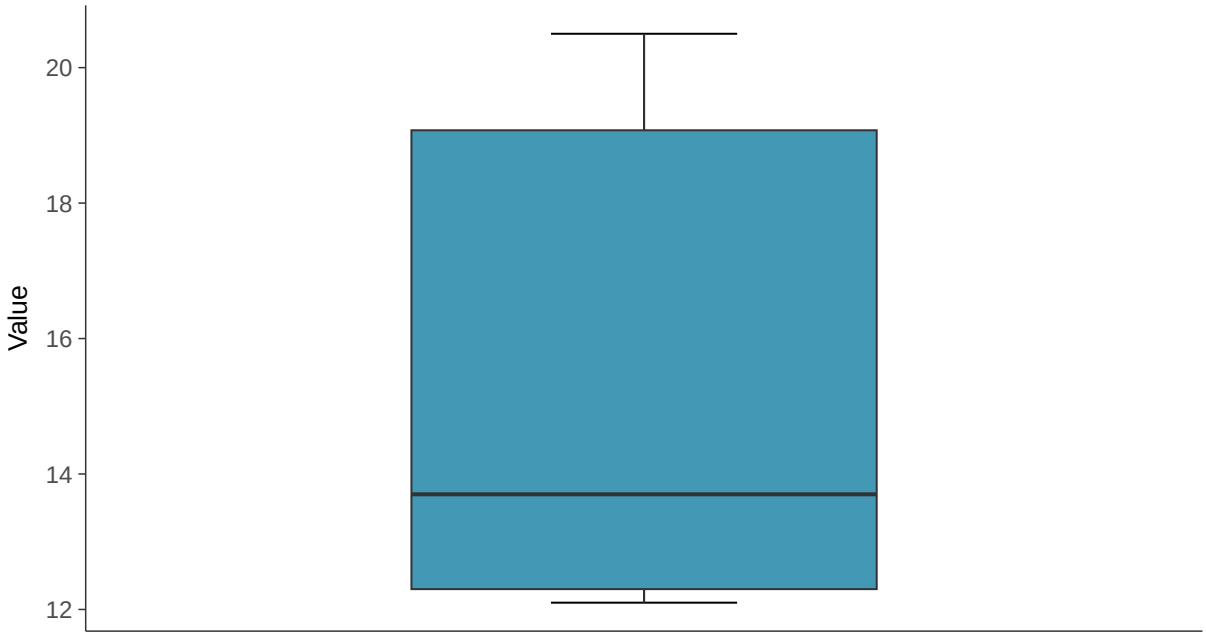
Histogram

Magnesium, MW-7 (mg/L)



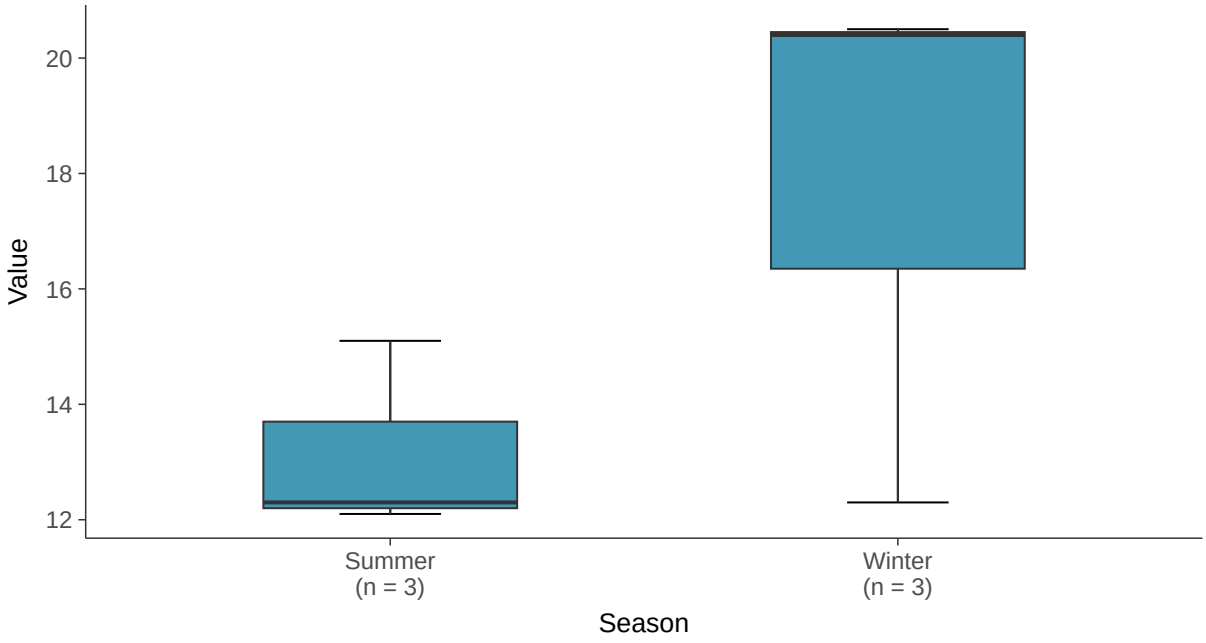
Boxplot

Magnesium, MW-7 (mg/L)



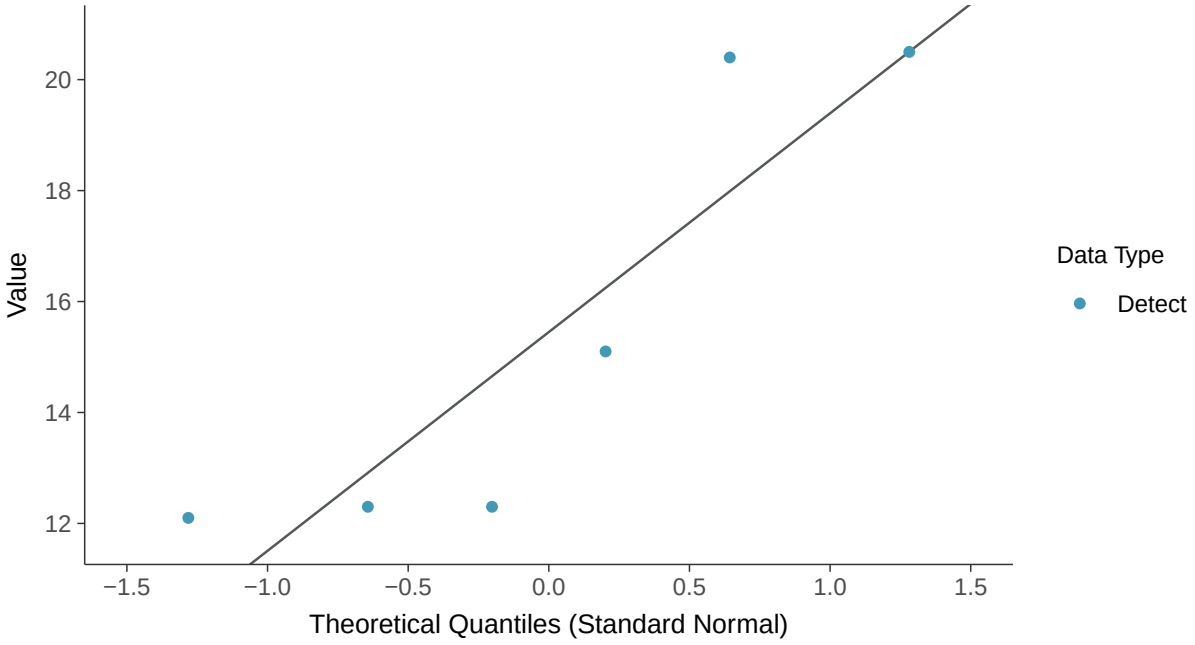
Boxplot by Season

Magnesium, MW-7 (mg/L)



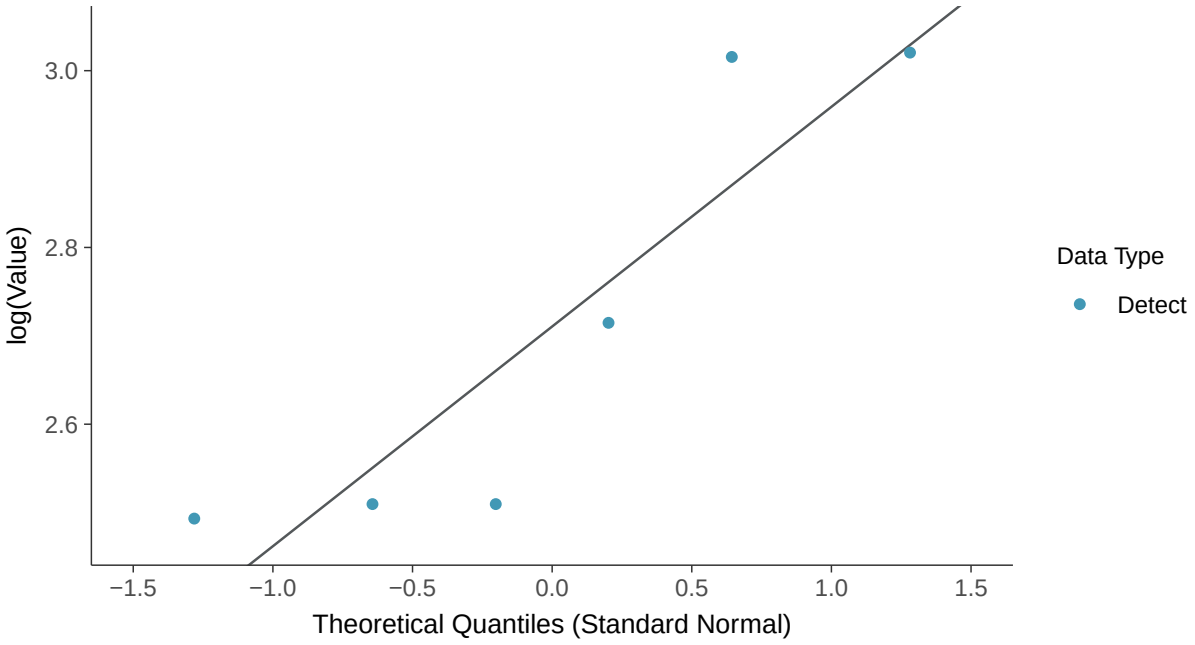
Normal Q-Q plot

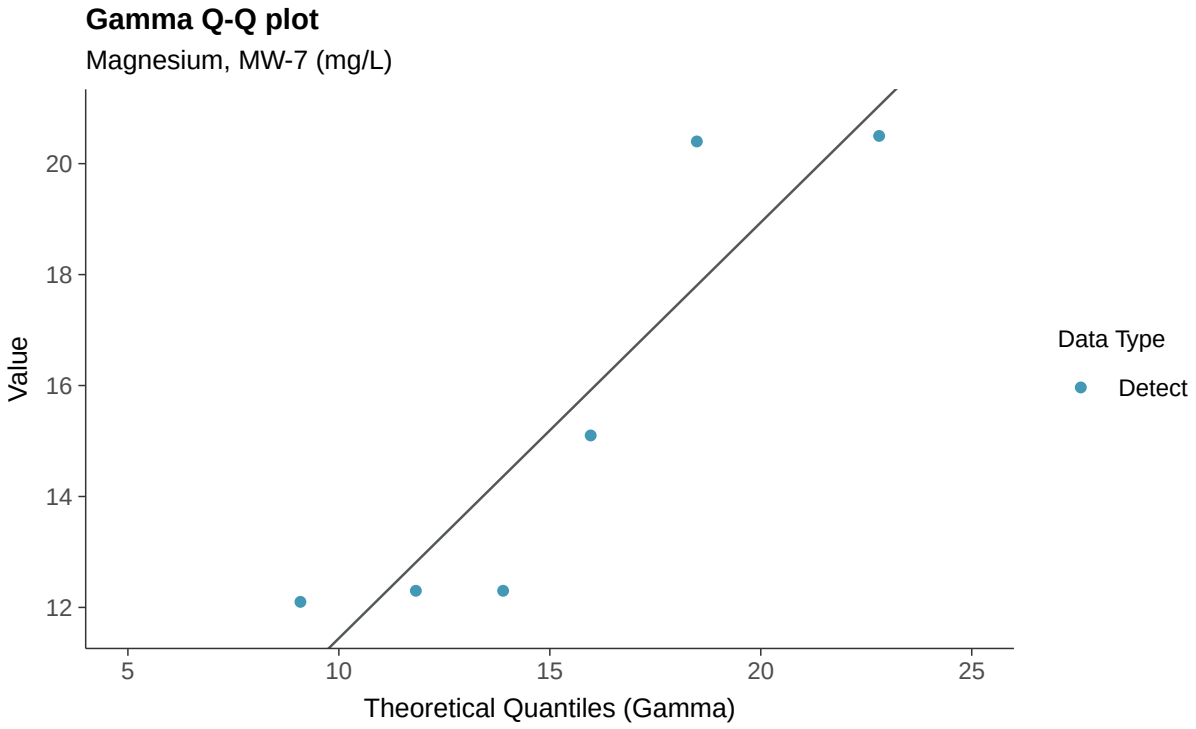
Magnesium, MW-7 (mg/L)



Lognormal Q-Q plot

Magnesium, MW-7 (mg/L)



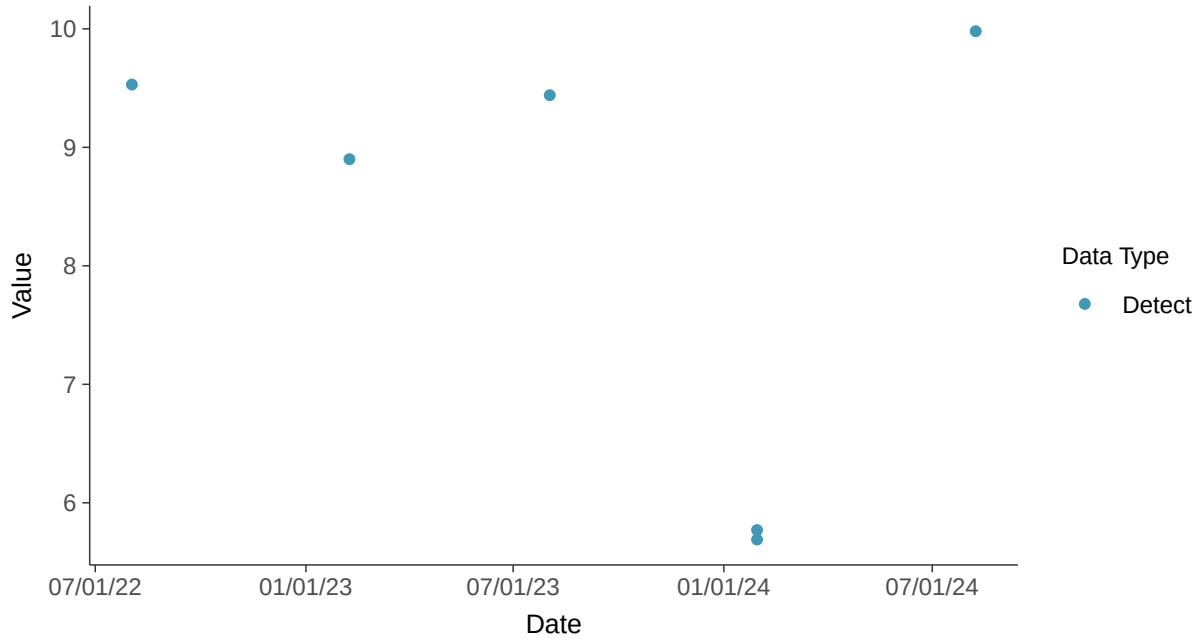

Gamma Q-Q plot
Magnesium, MW-7 (mg/L)
Value
20
18
16
14
12
5
10
15
20
25
Theoretical Quantiles (Gamma)
Data Type
Detect

Other: Potassium, MW-7

ID: 07_4_35

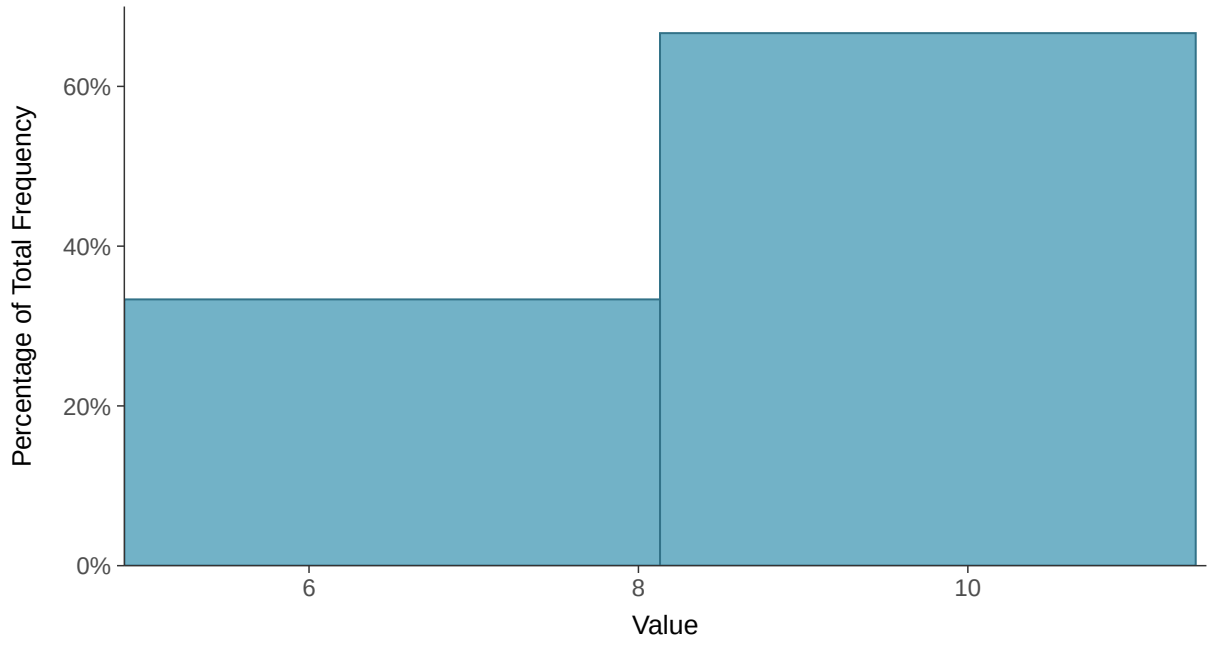
Scatter Plot

Potassium, MW-7 (mg/L)



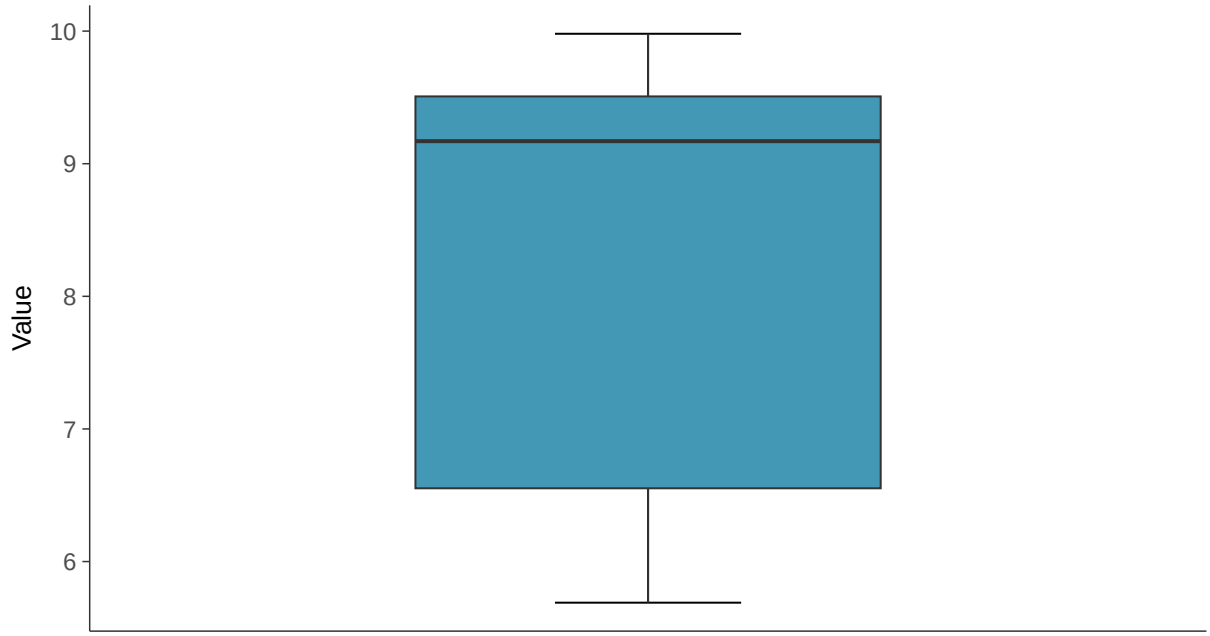
Histogram

Potassium, MW-7 (mg/L)



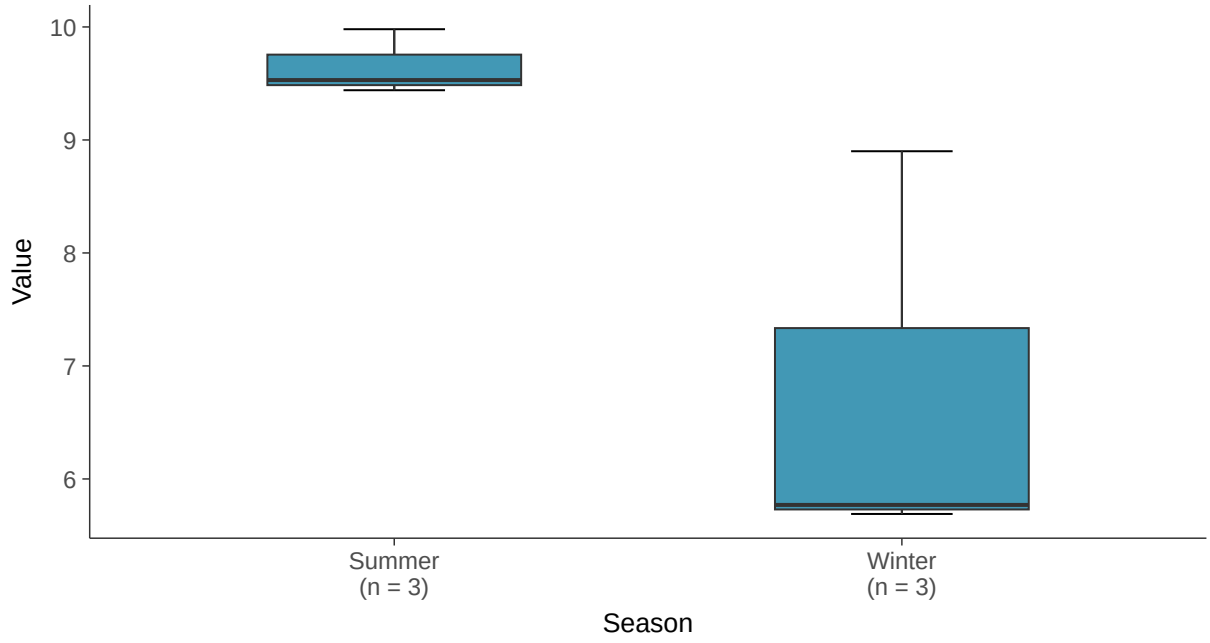
Boxplot

Potassium, MW-7 (mg/L)



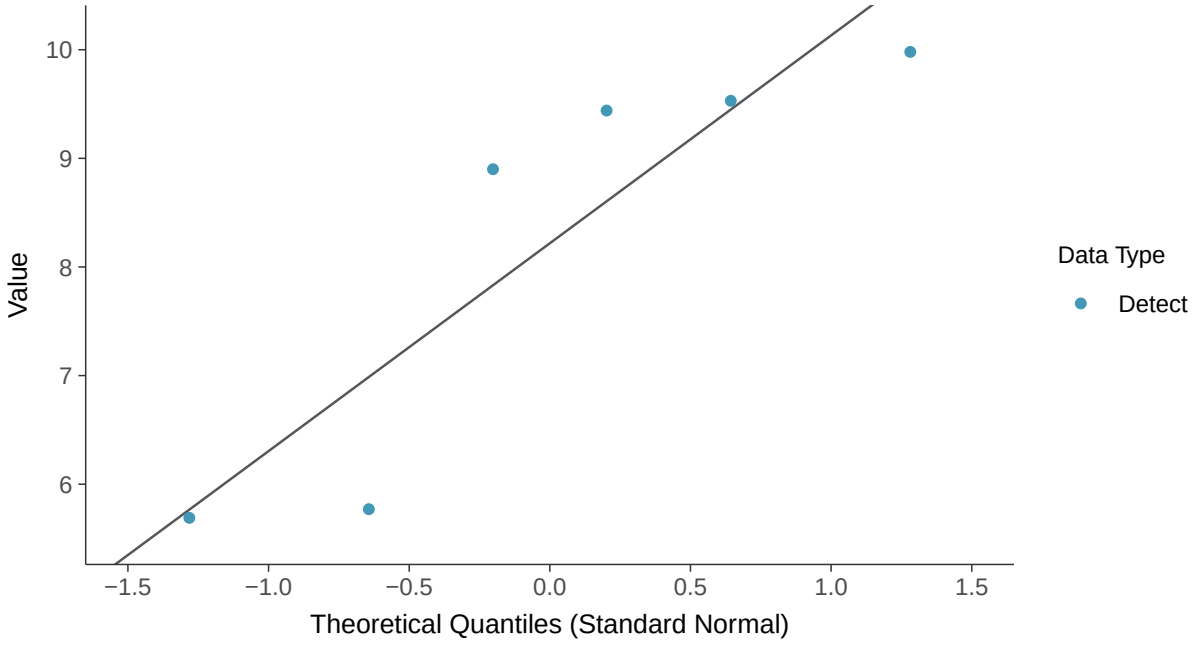
Boxplot by Season

Potassium, MW-7 (mg/L)



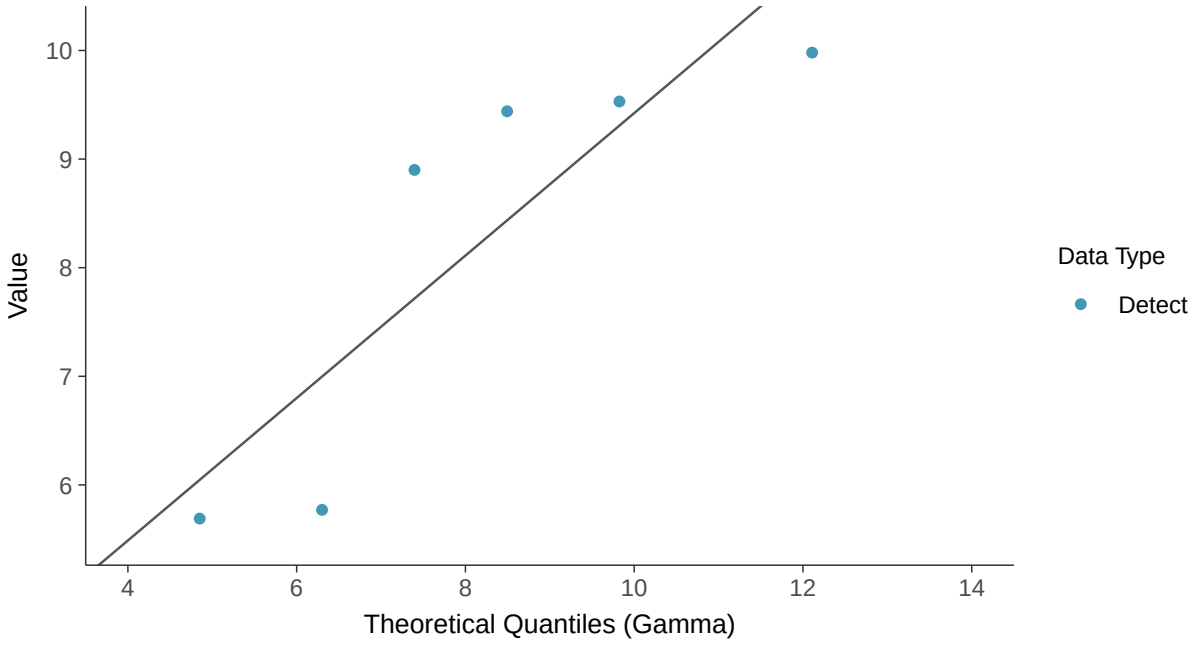
Normal Q-Q plot

Potassium, MW-7 (mg/L)



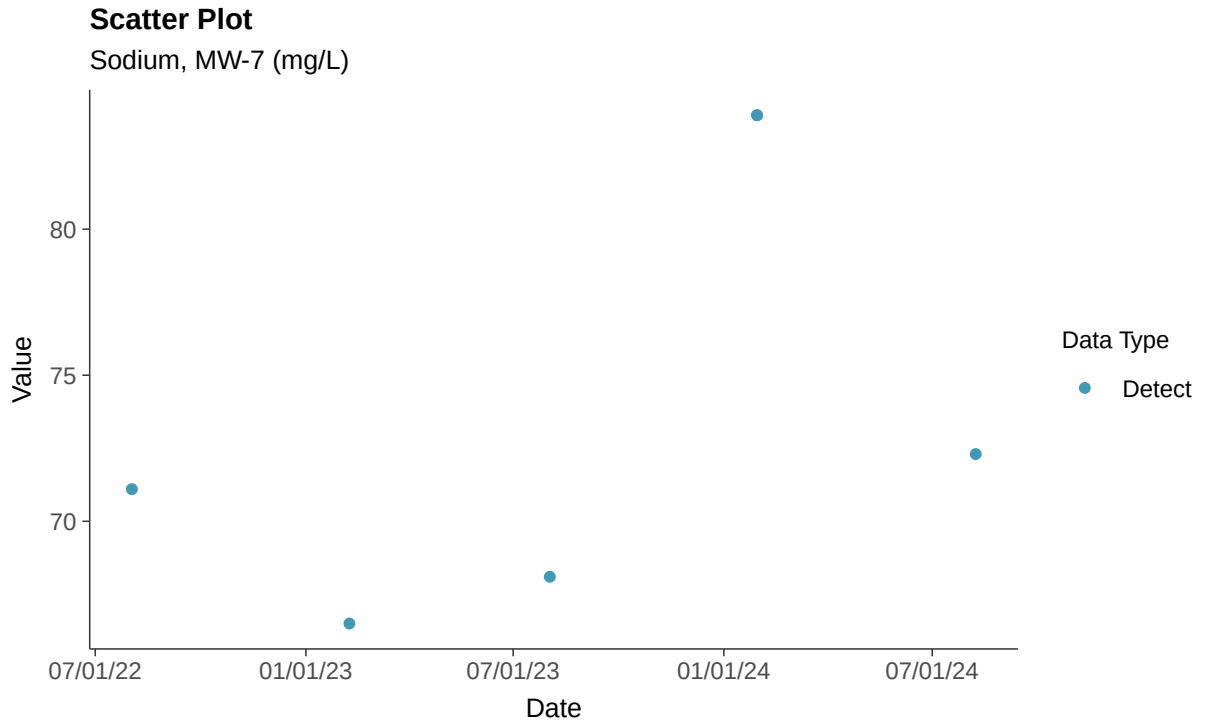
Gamma Q-Q plot

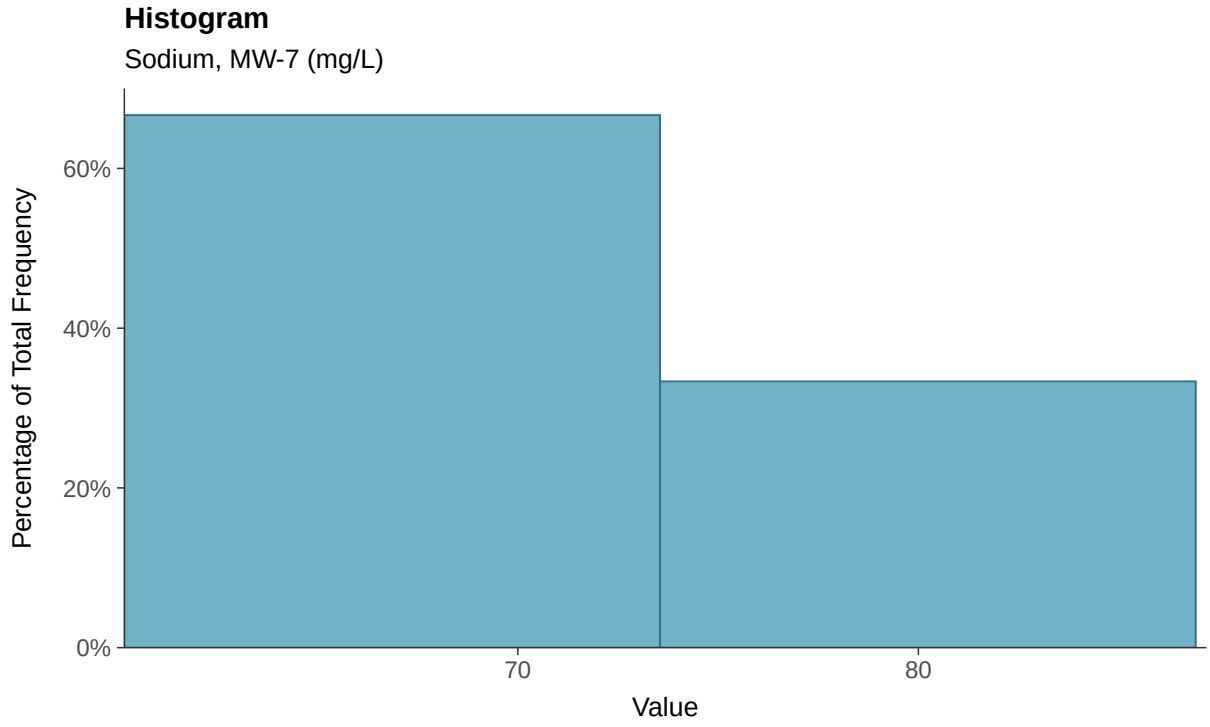
Potassium, MW-7 (mg/L)



Other: Sodium, MW-7

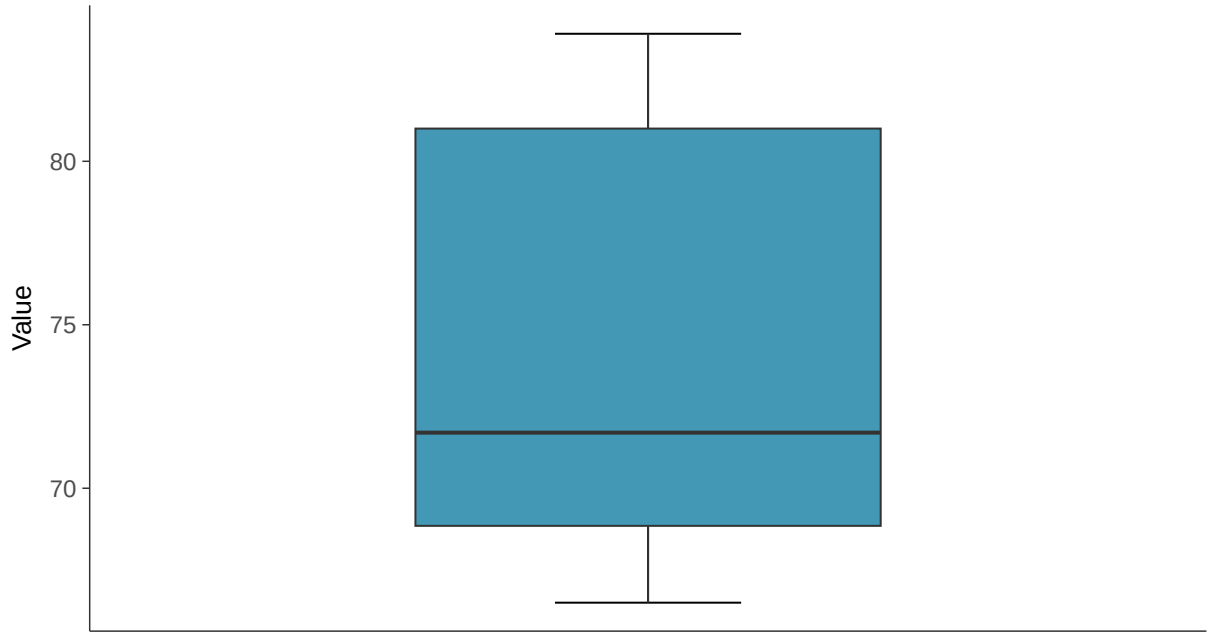
ID: 07_4_36





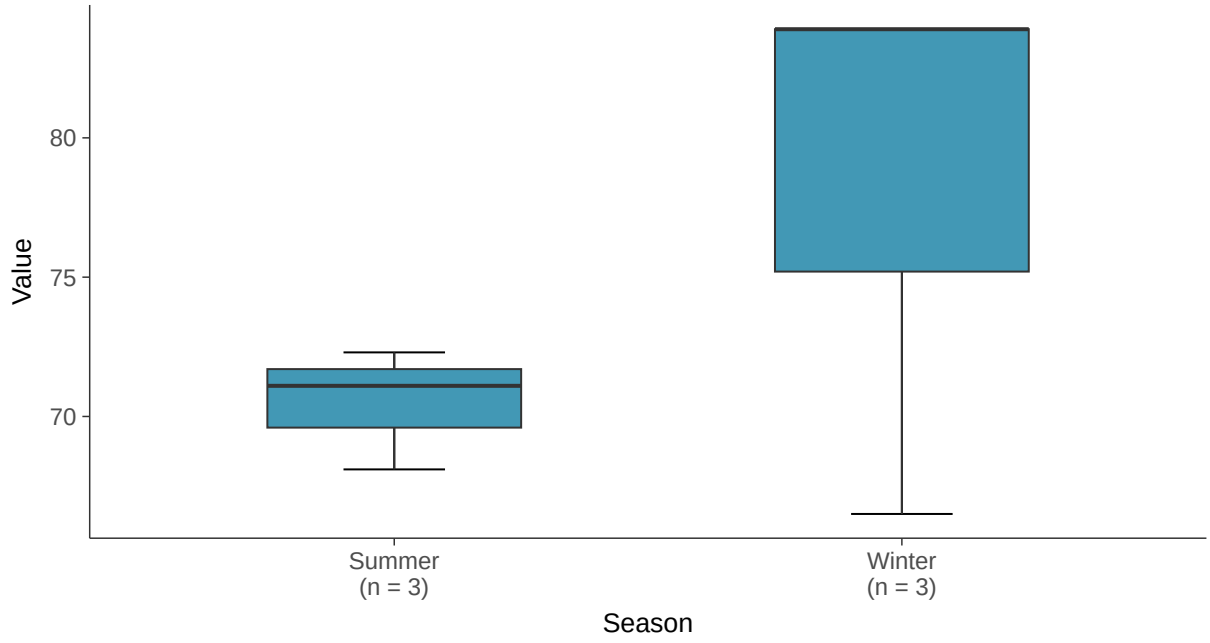
Boxplot

Sodium, MW-7 (mg/L)



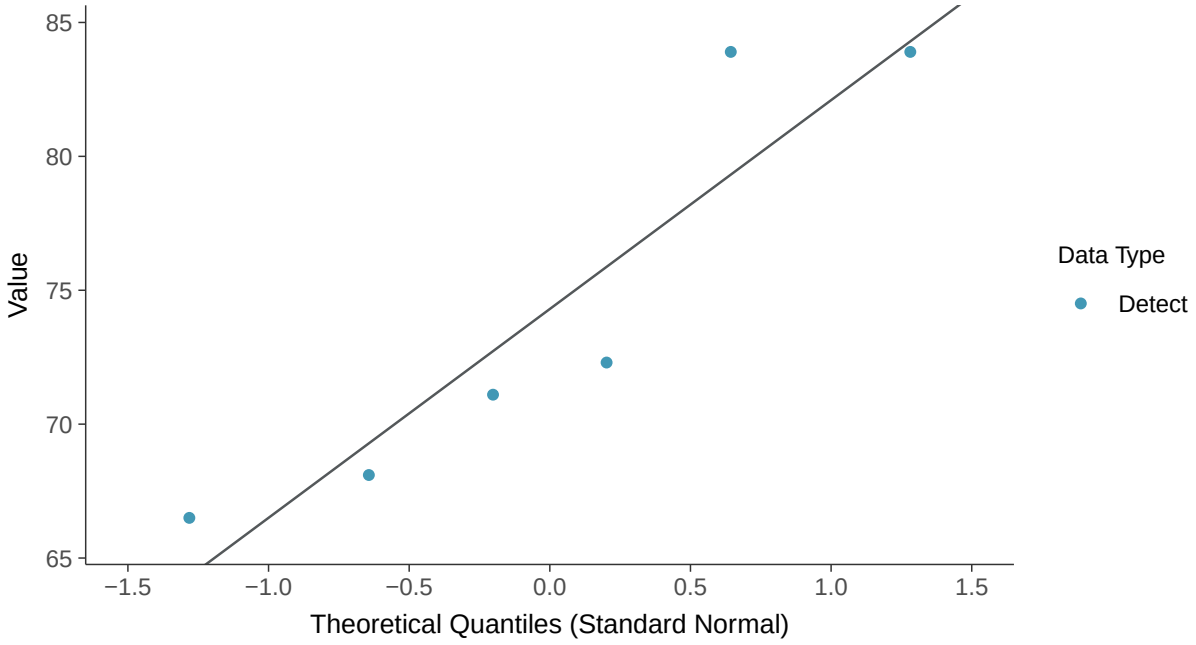
Boxplot by Season

Sodium, MW-7 (mg/L)



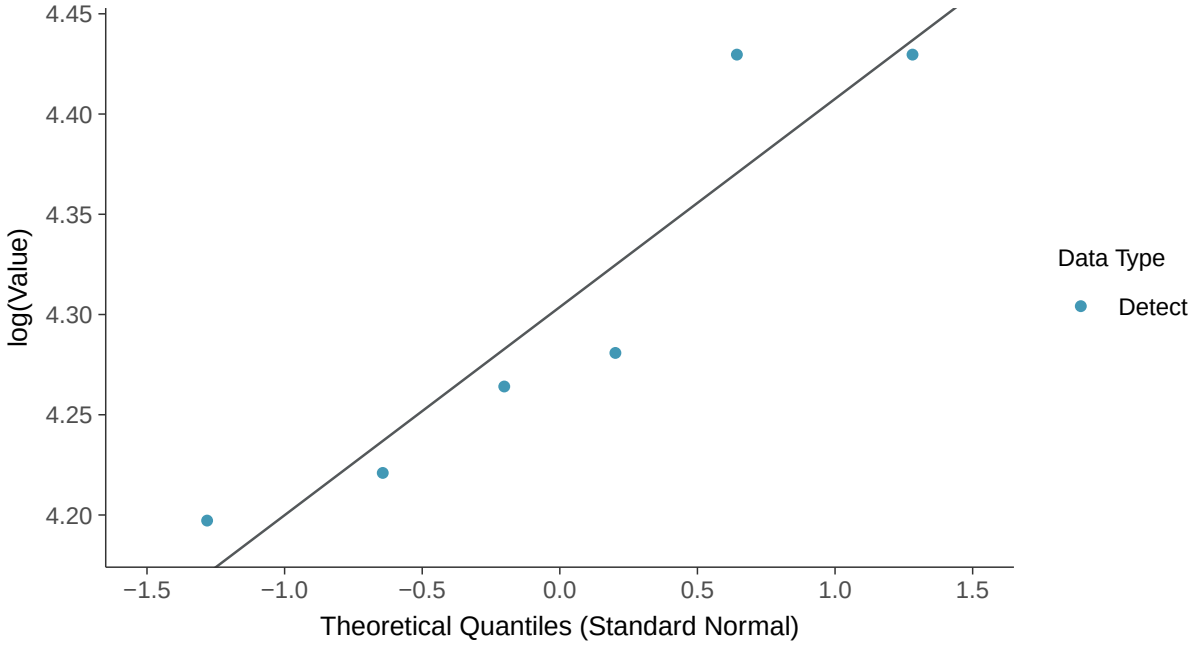
Normal Q-Q plot

Sodium, MW-7 (mg/L)



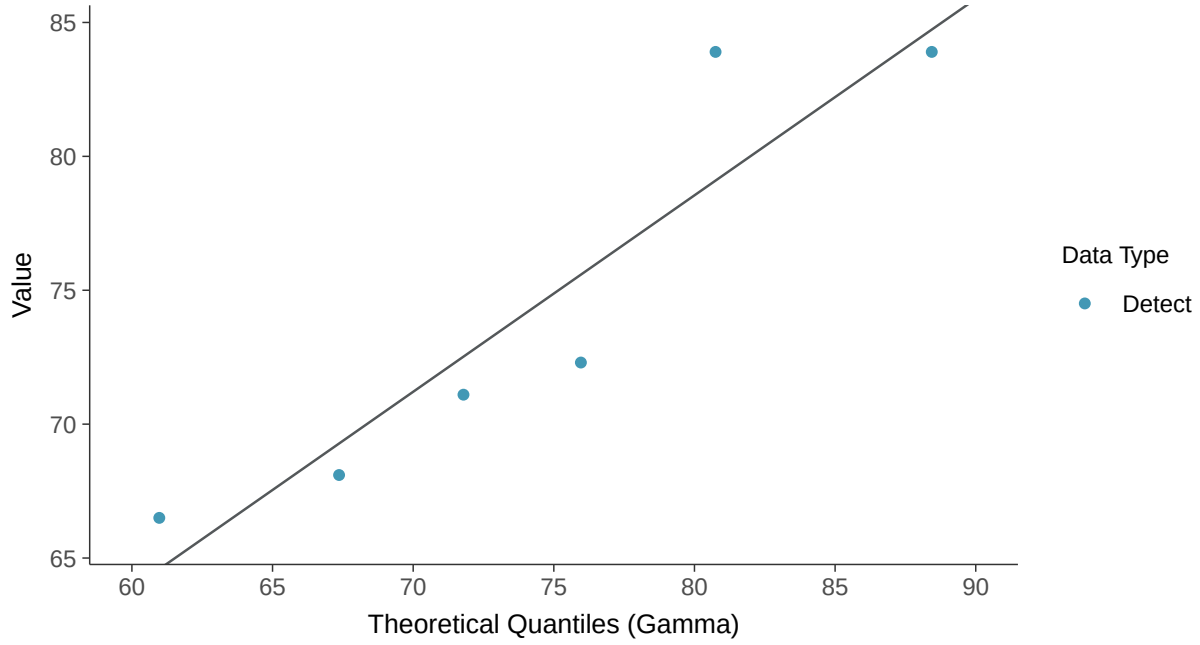
Lognormal Q-Q plot

Sodium, MW-7 (mg/L)



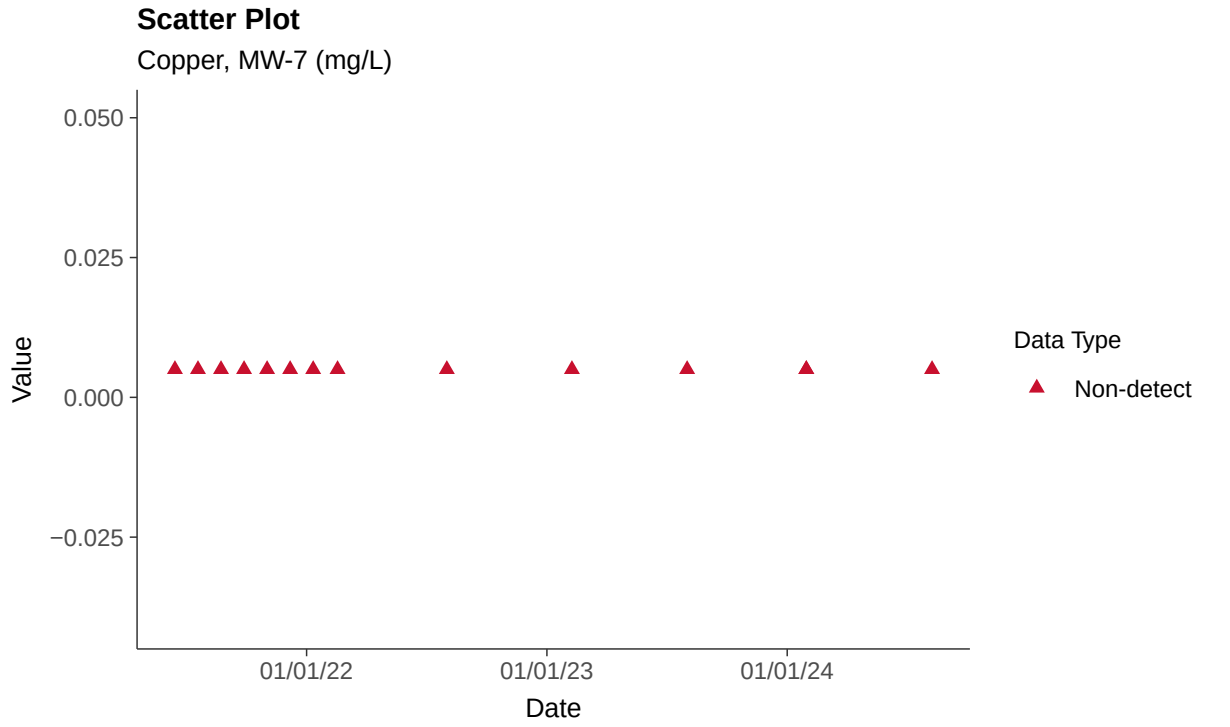
Gamma Q-Q plot

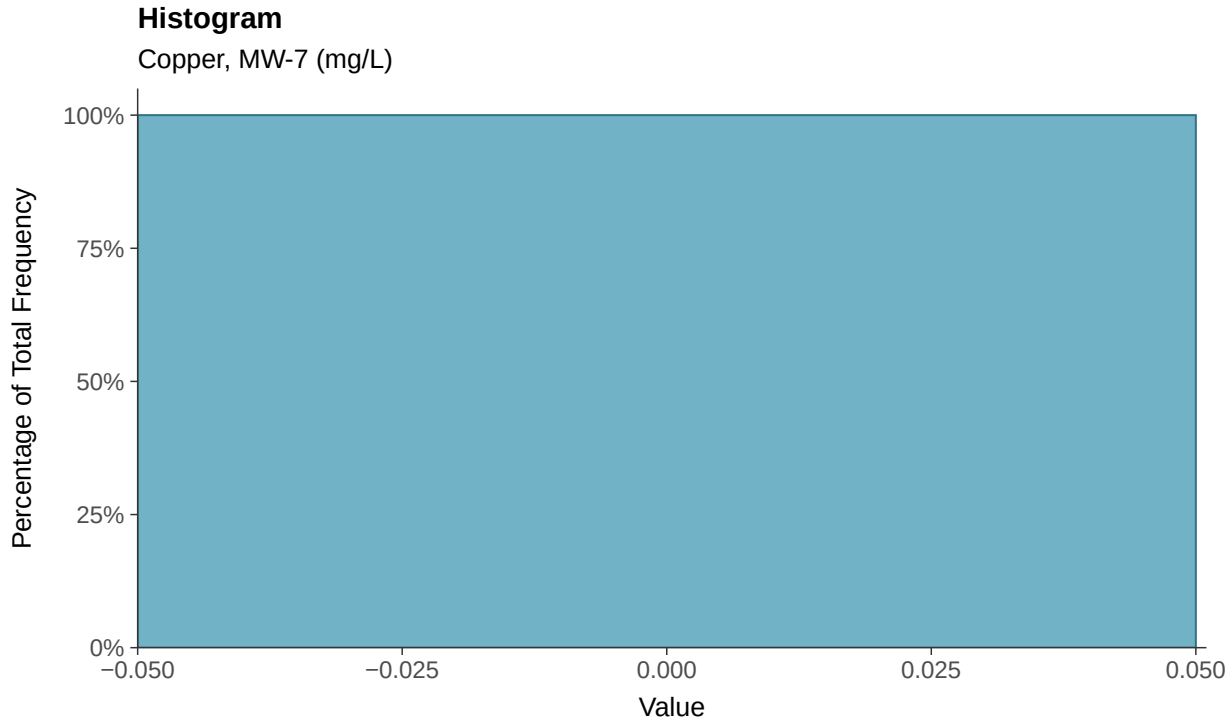
Sodium, MW-7 (mg/L)



Part 115: Copper, MW-7

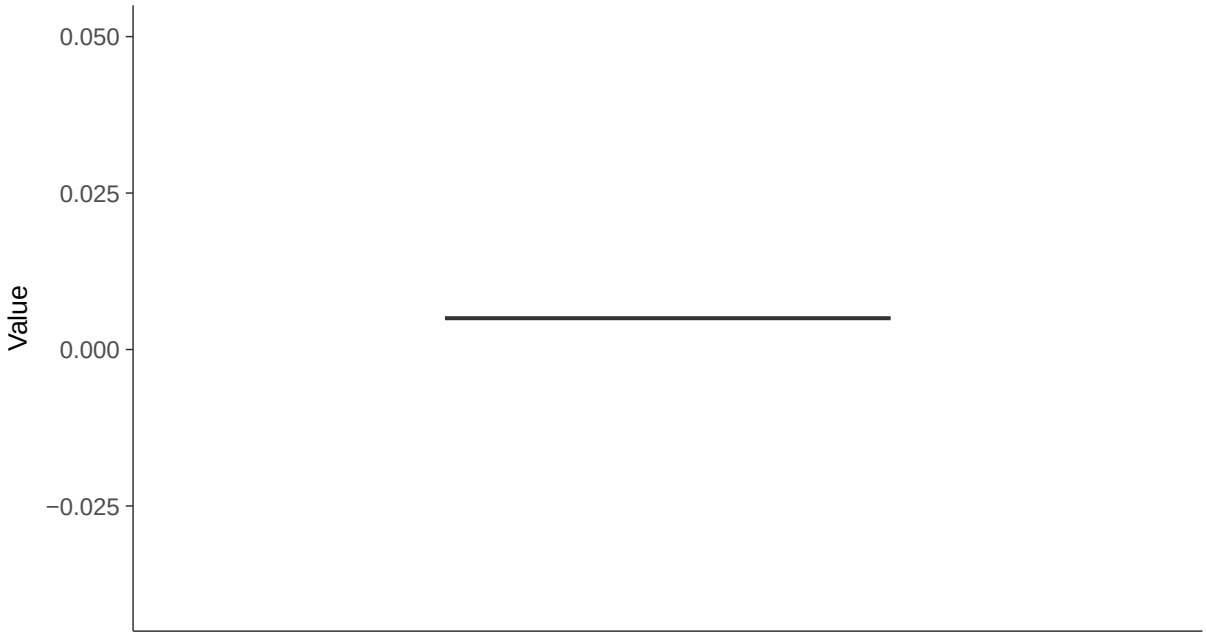
ID: 07_5_37





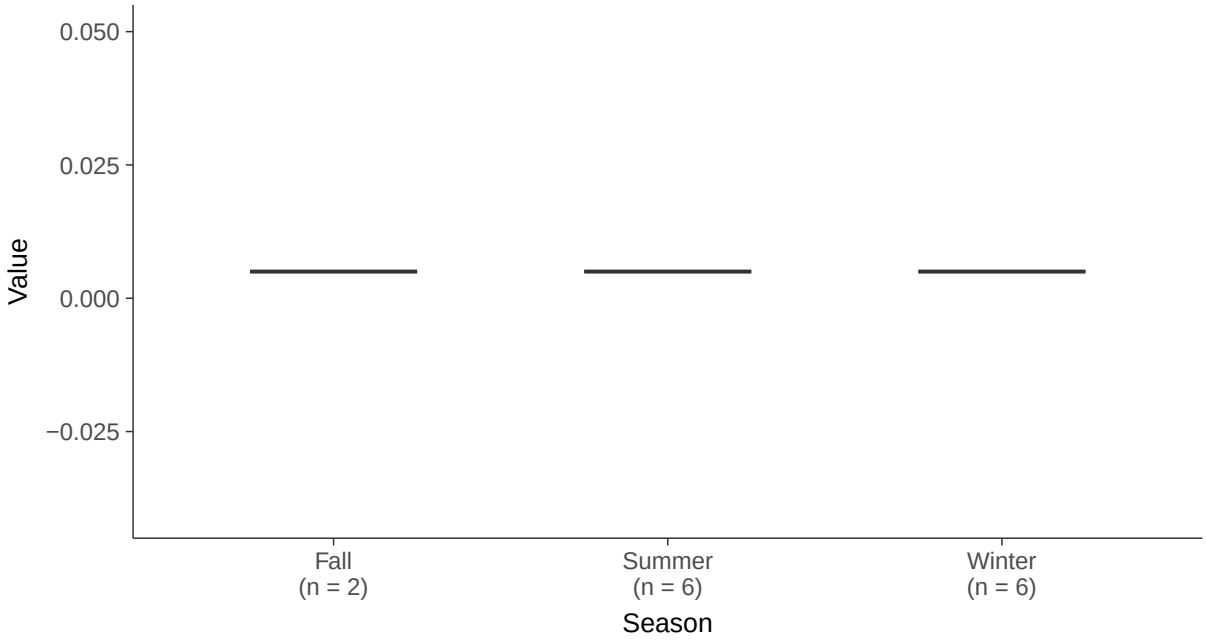
Boxplot

Copper, MW-7 (mg/L)



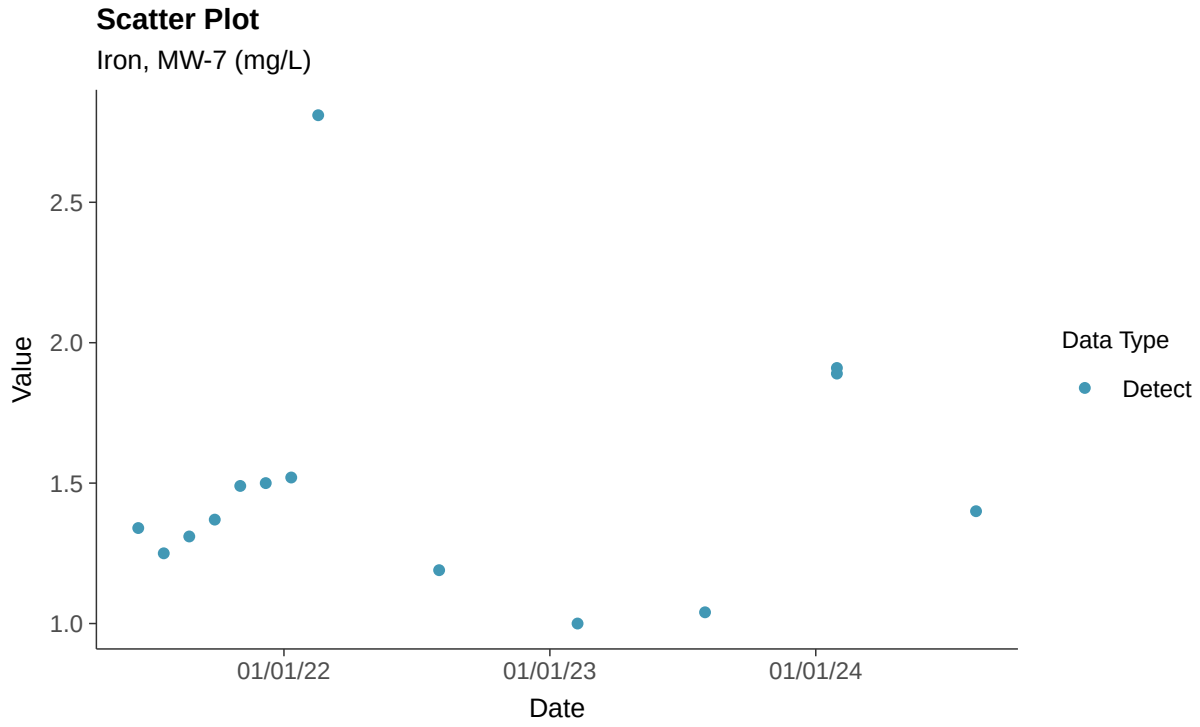
Boxplot by Season

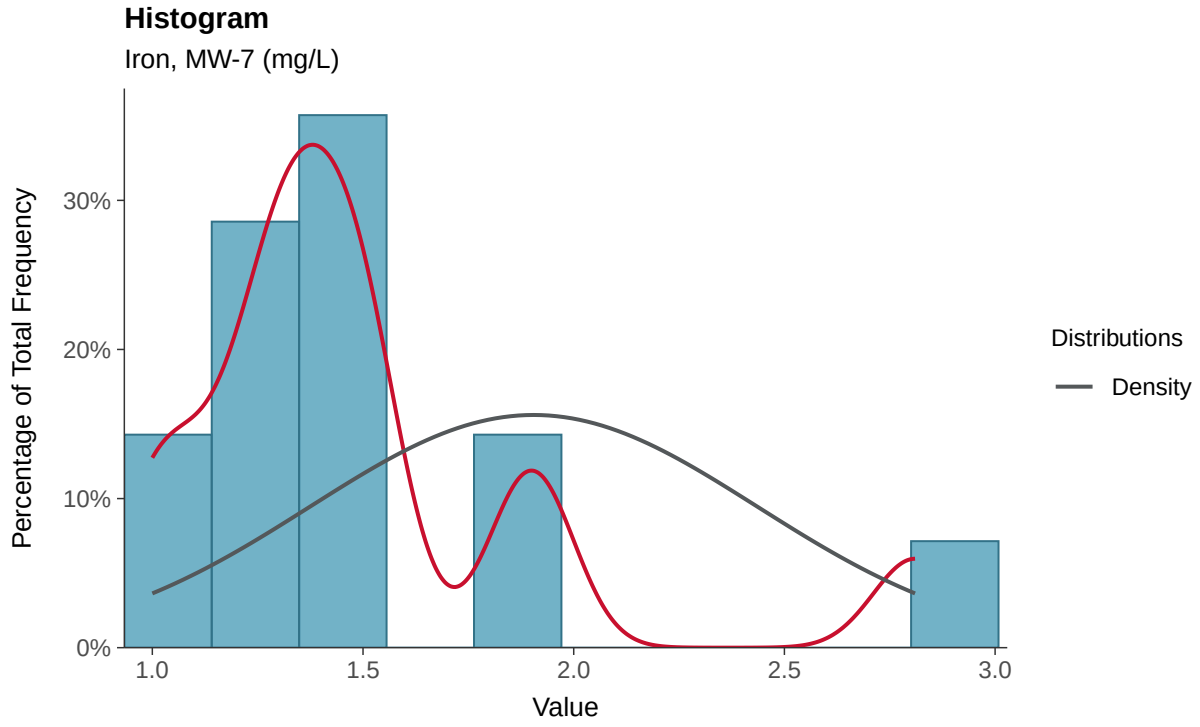
Copper, MW-7 (mg/L)



Part 115: Iron, MW-7

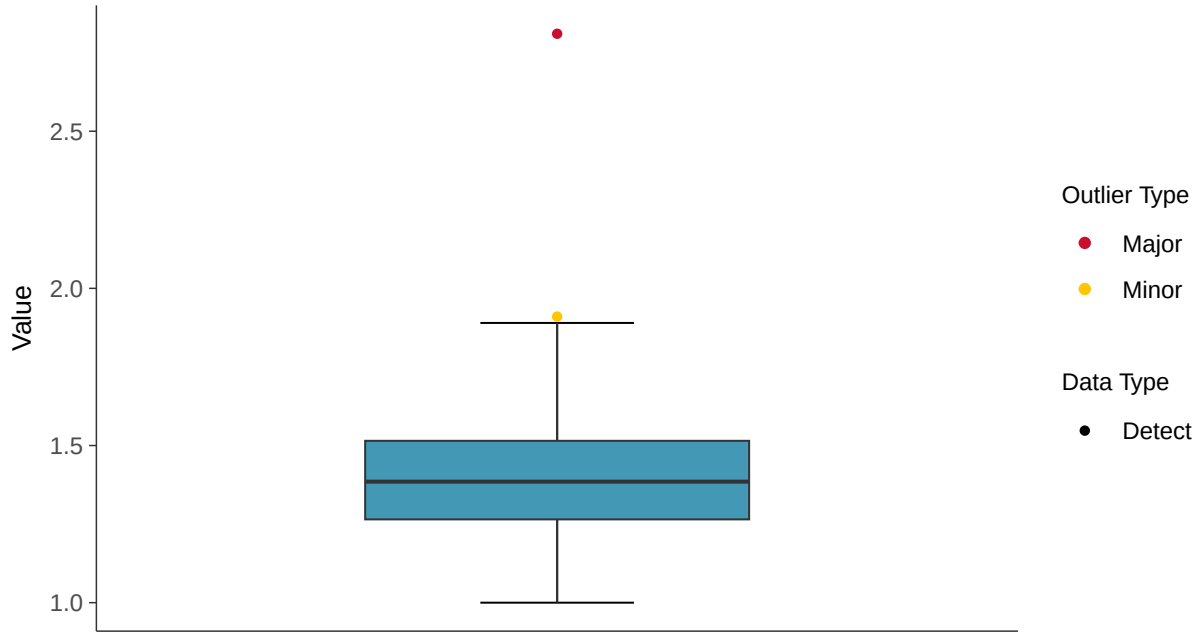
ID: 07_5_38





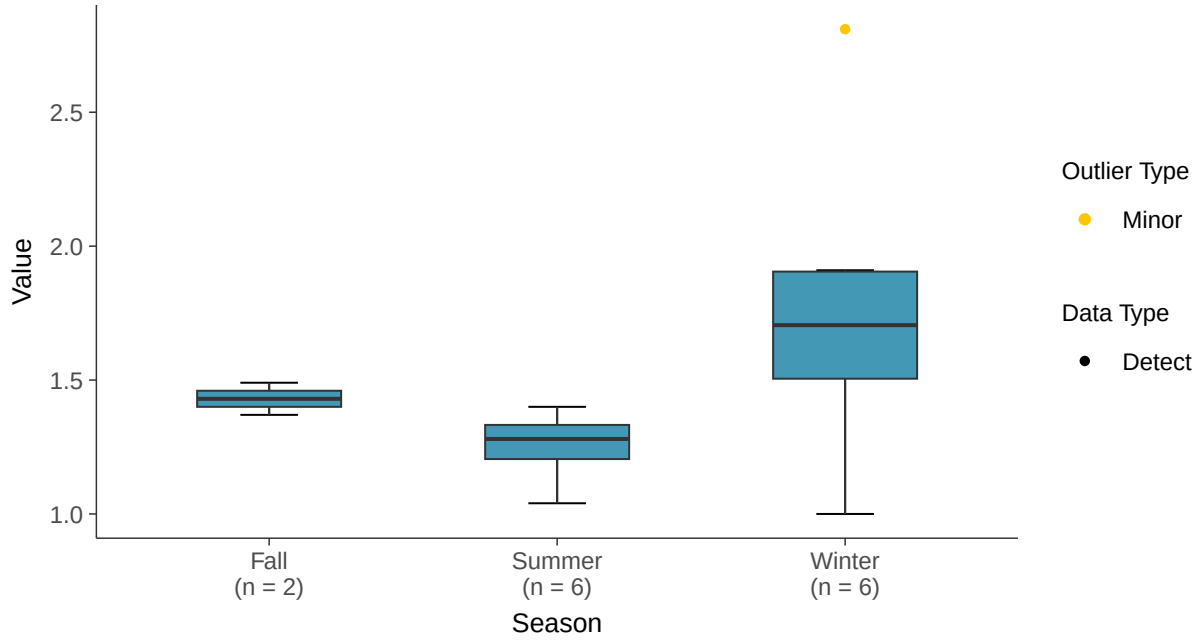
Boxplot

Iron, MW-7 (mg/L)



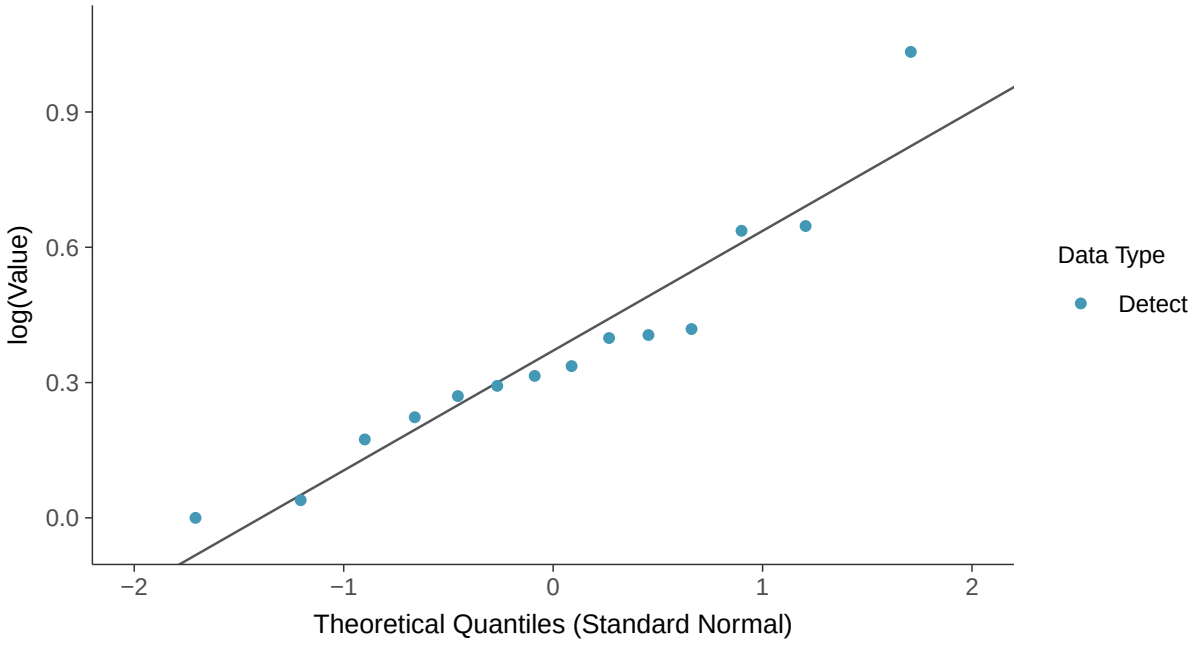
Boxplot by Season

Iron, MW-7 (mg/L)



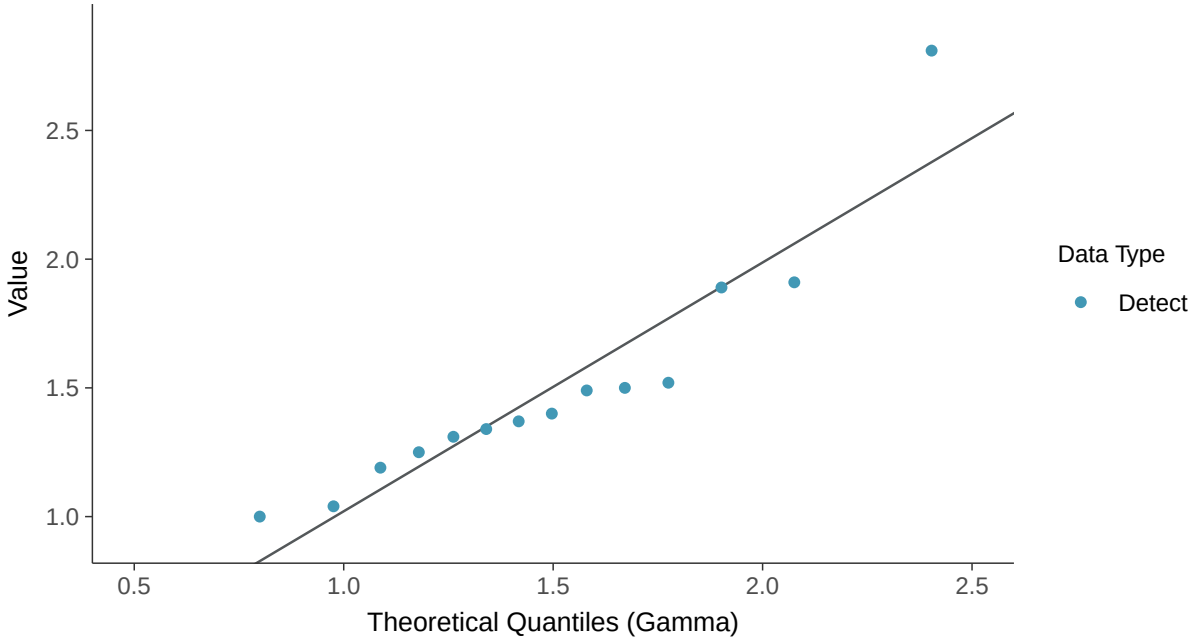
Lognormal Q-Q plot

Iron, MW-7 (mg/L)



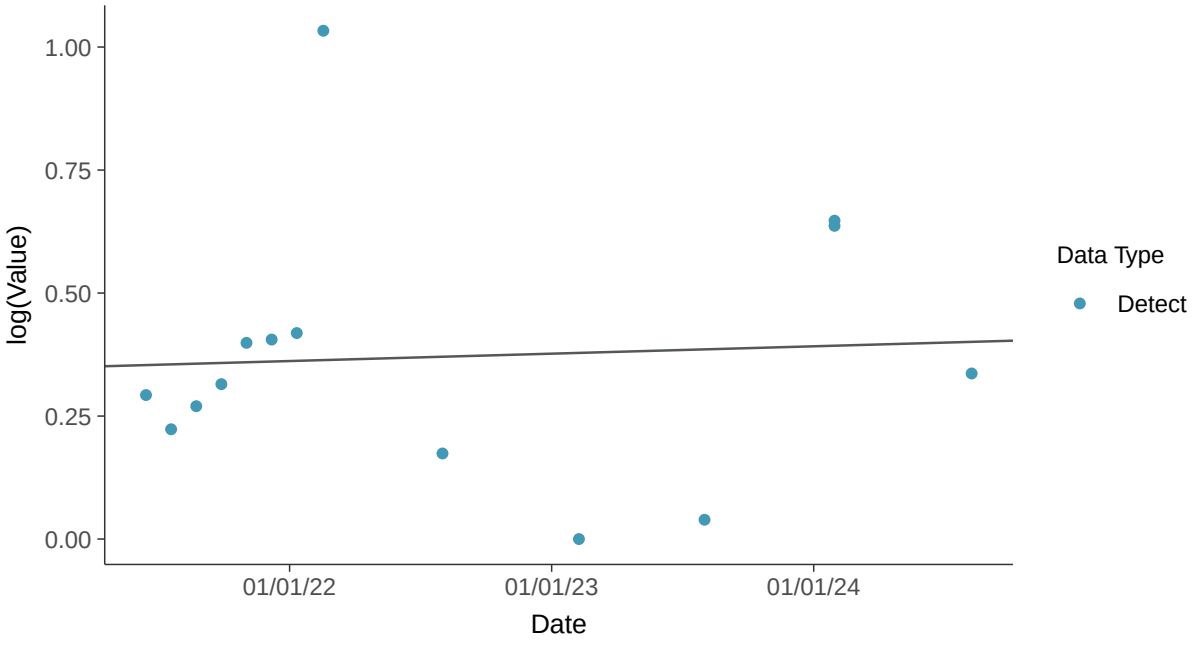
Gamma Q-Q plot

Iron, MW-7 (mg/L)



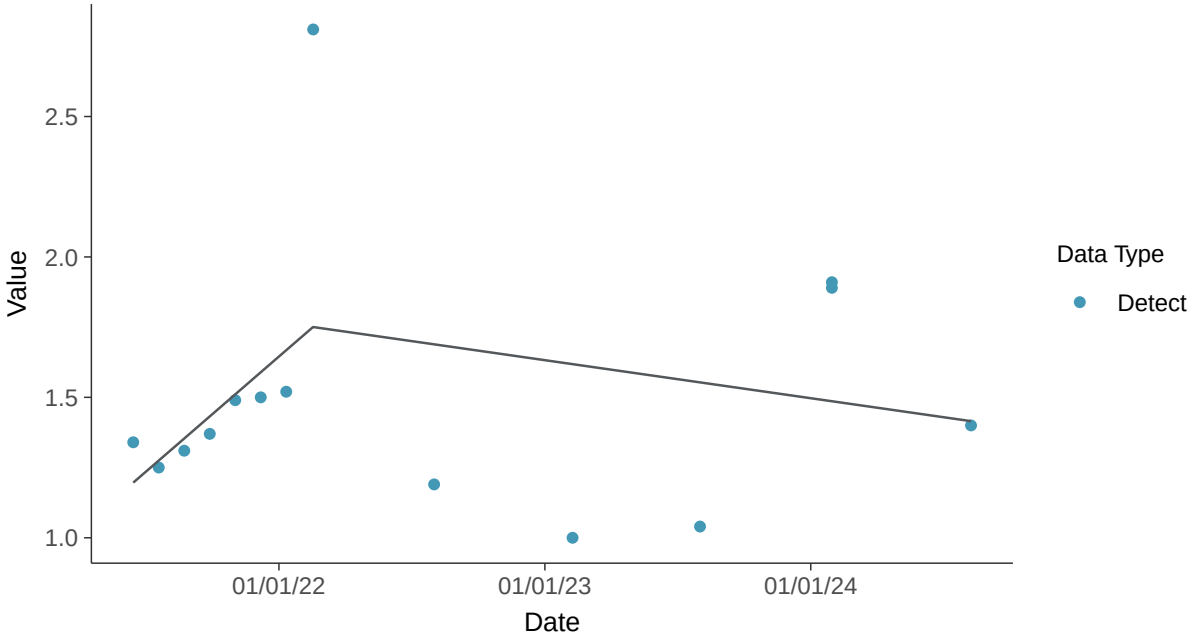
Trend Regression: Lognormal MLE

Iron, MW-7 (mg/L)



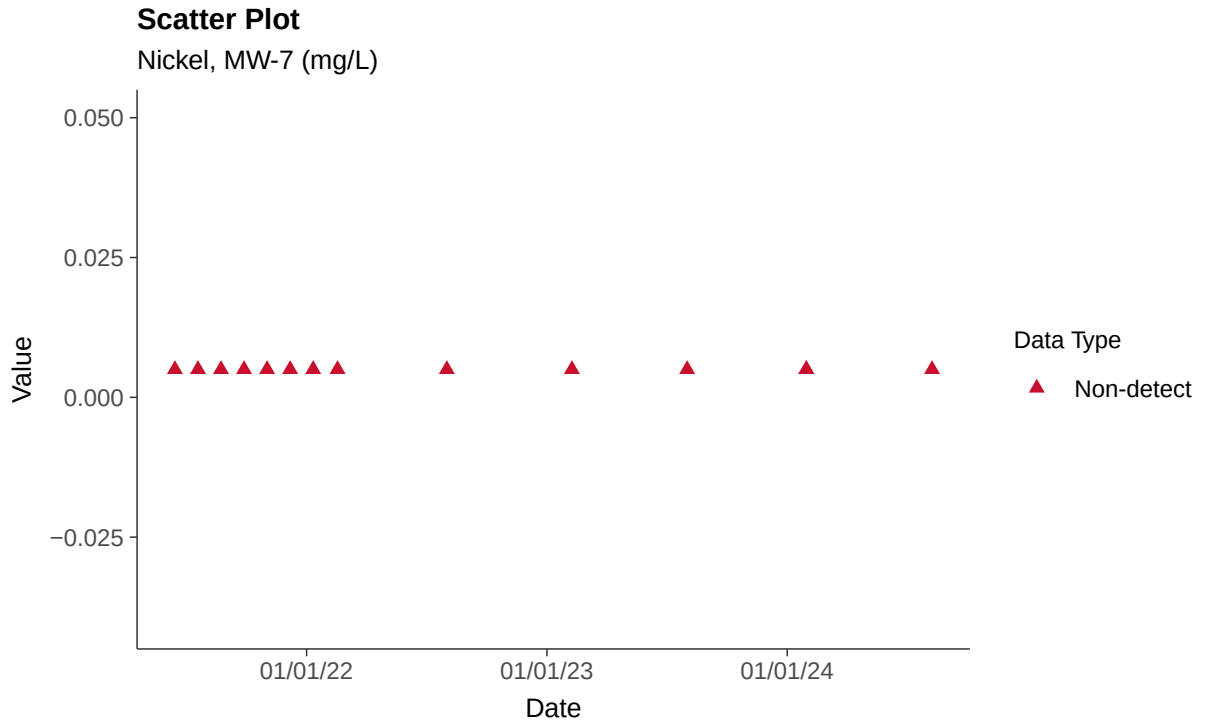
Trend Regression: Piecewise Linear-Linear

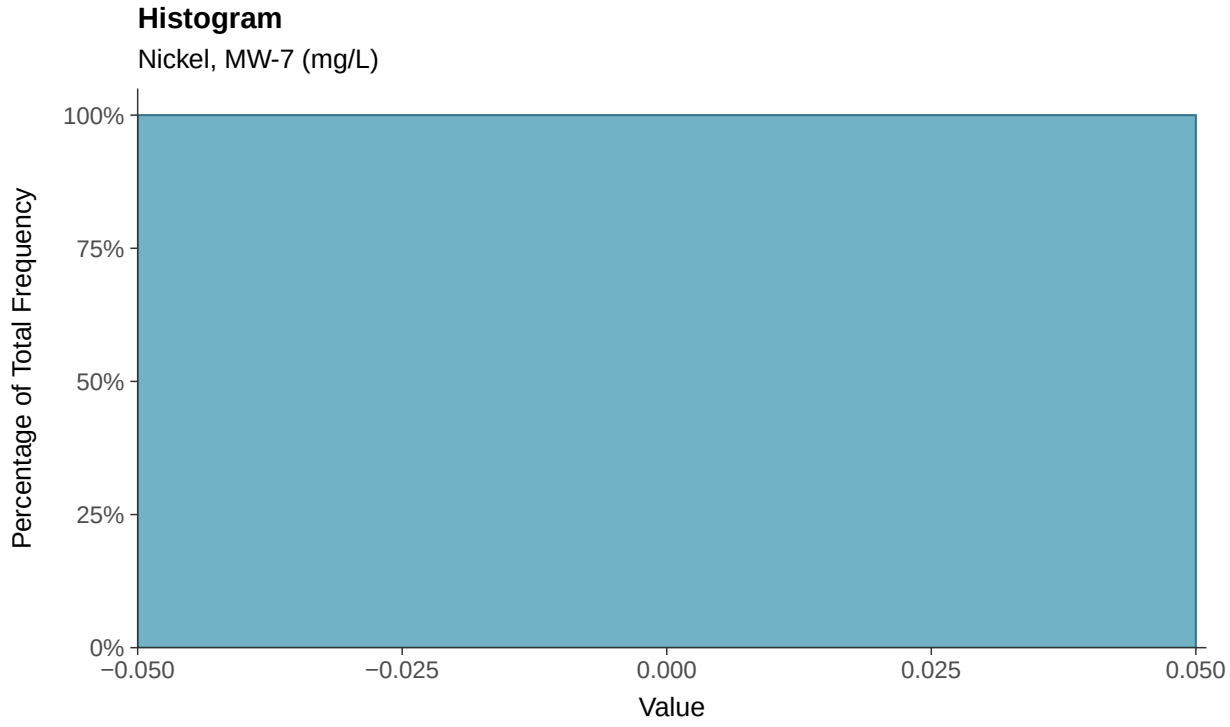
Iron, MW-7 (mg/L)



Part 115: Nickel, MW-7

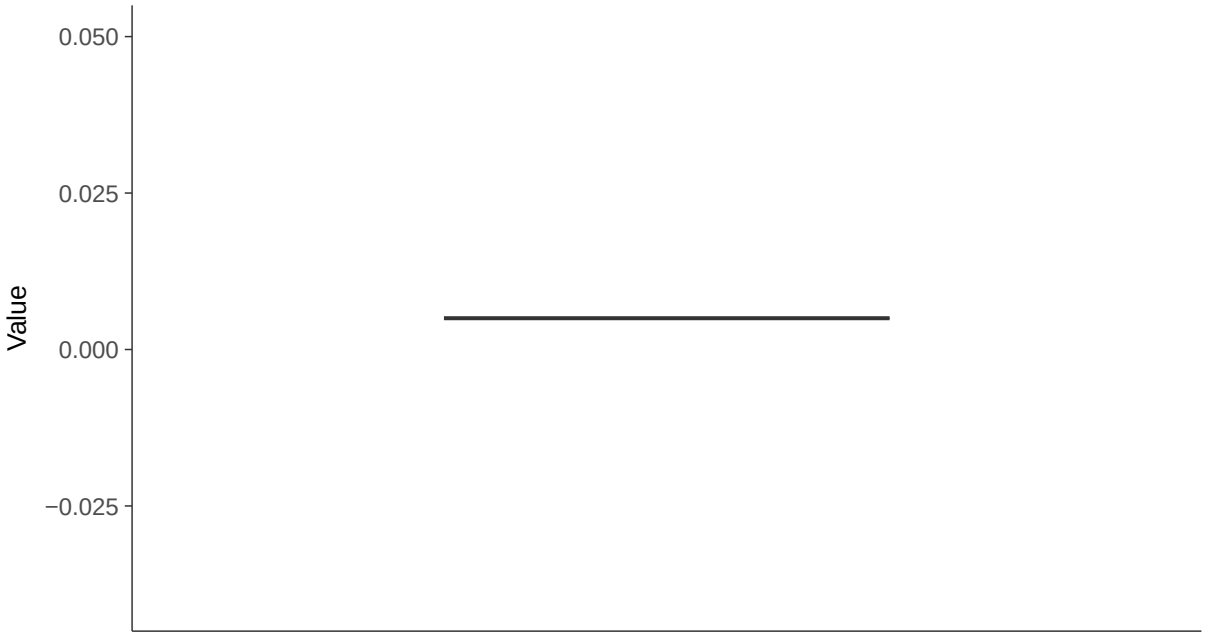
ID: 07_5_39





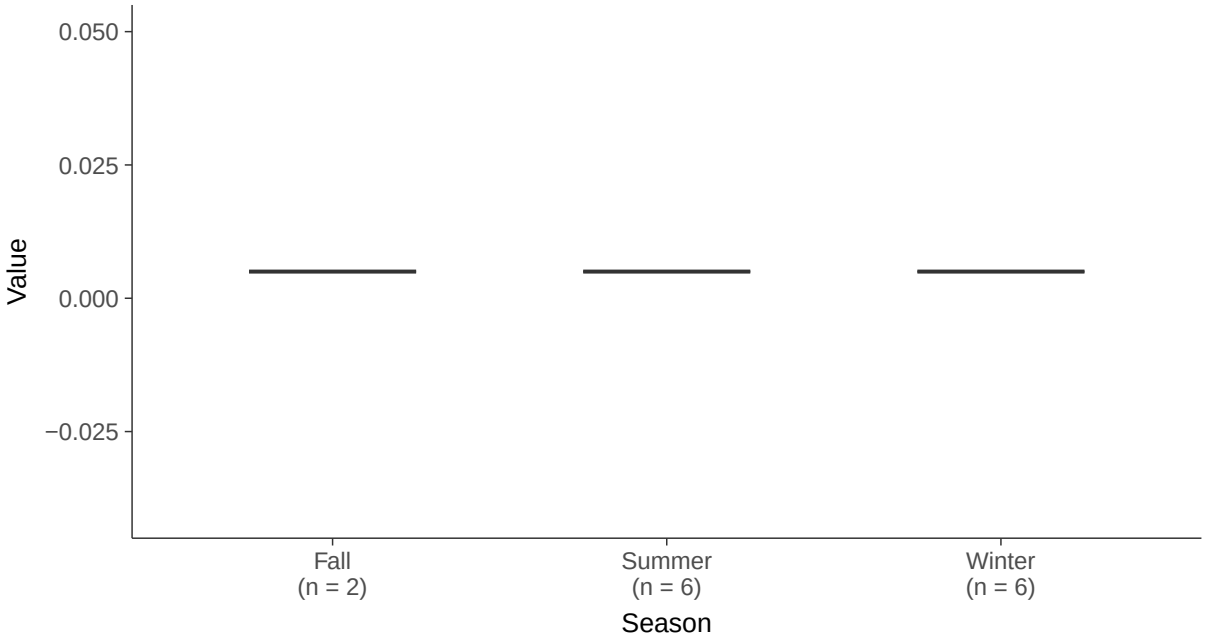
Boxplot

Nickel, MW-7 (mg/L)



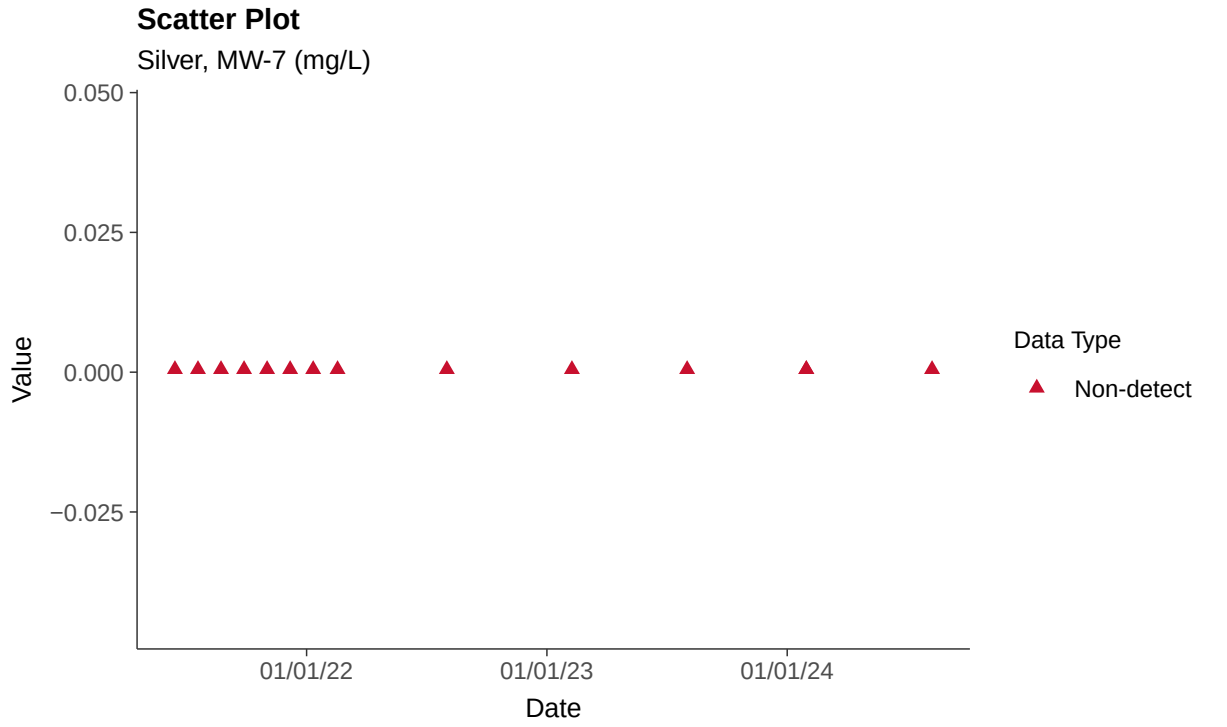
Boxplot by Season

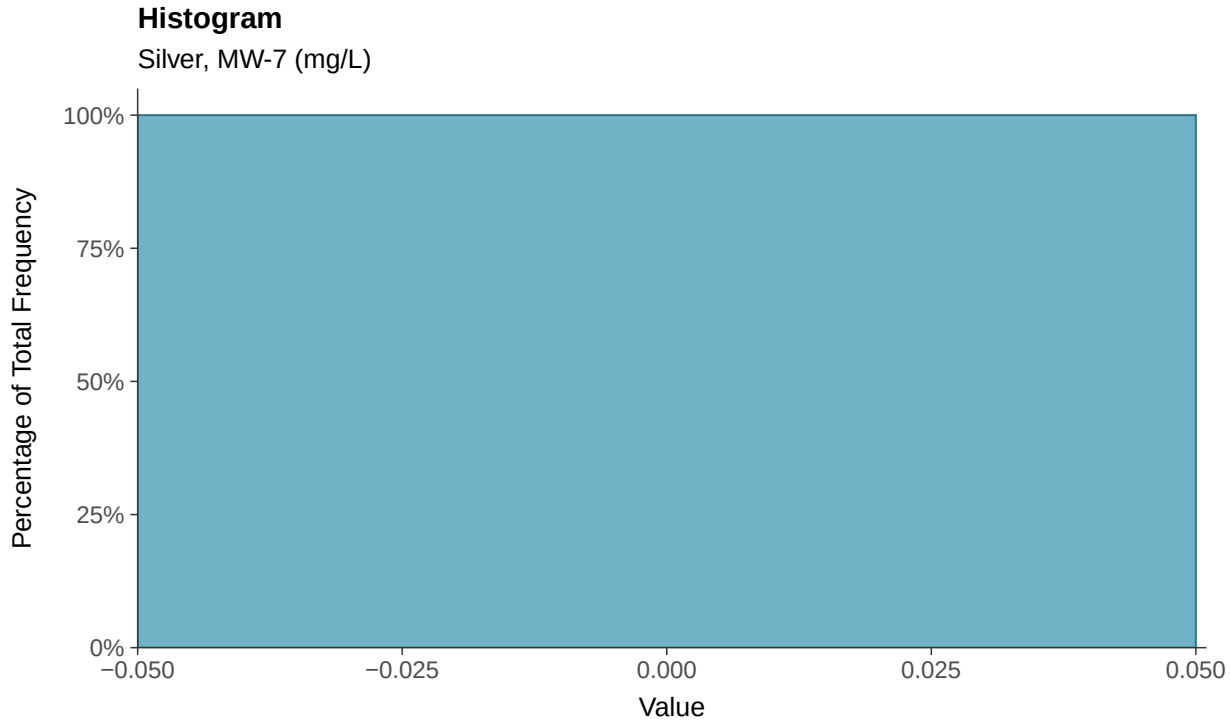
Nickel, MW-7 (mg/L)



Part 115: Silver, MW-7

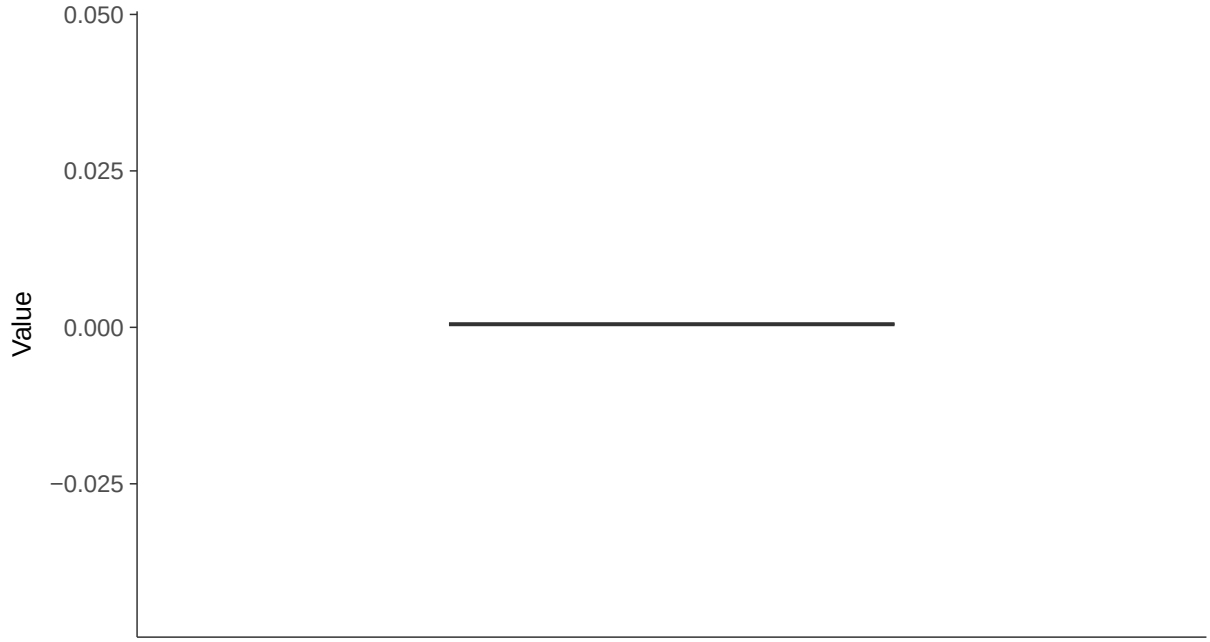
ID: 07_5_40





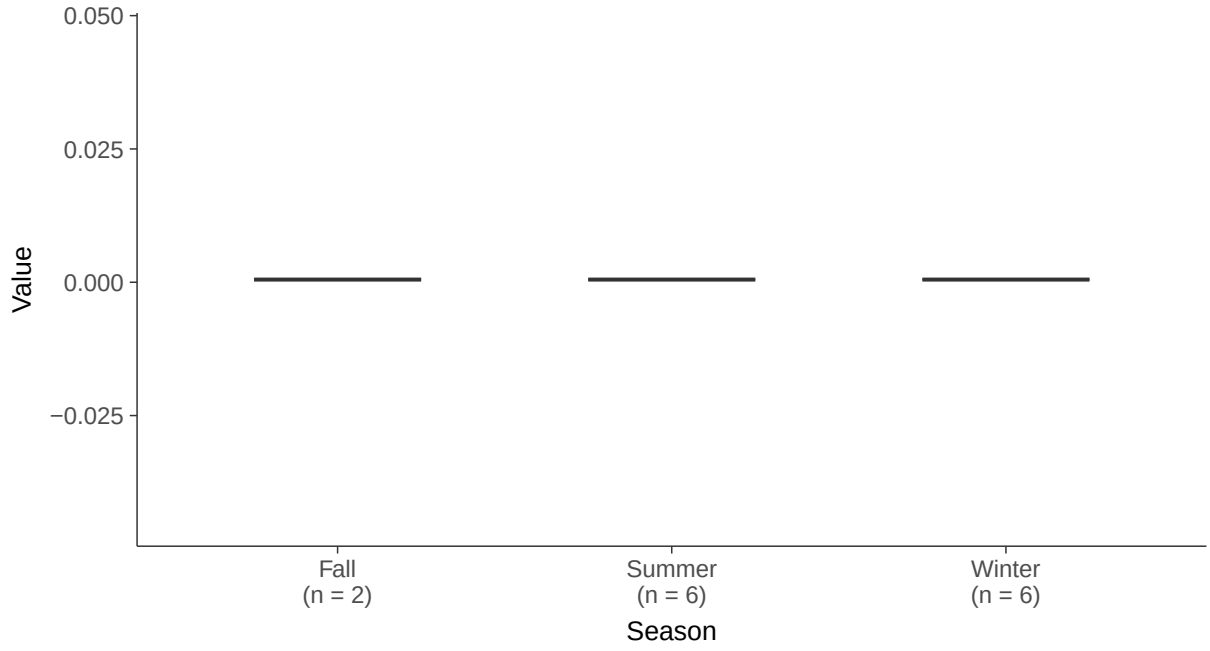
Boxplot

Silver, MW-7 (mg/L)



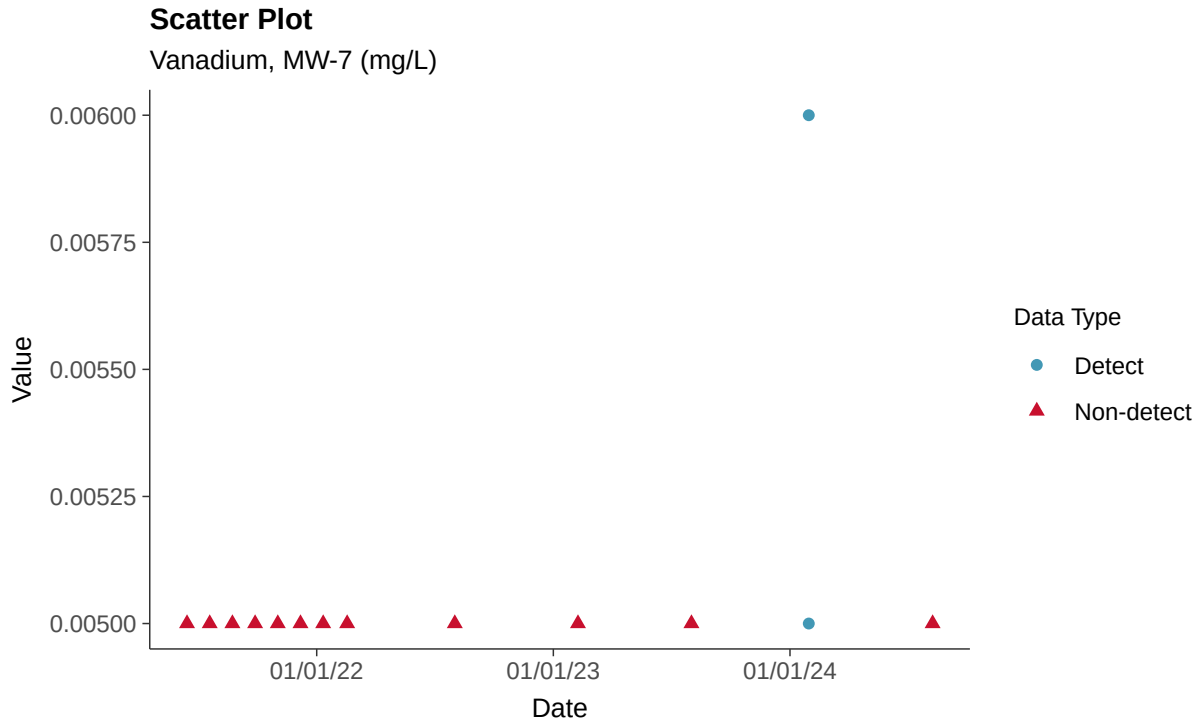
Boxplot by Season

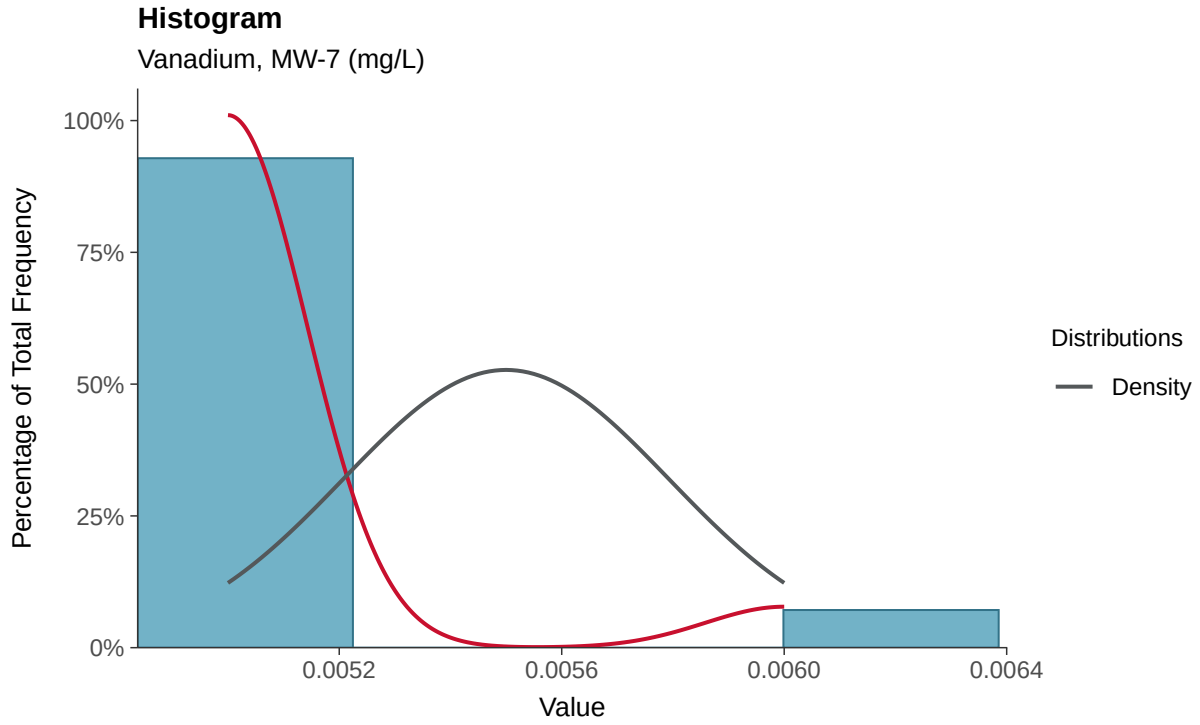
Silver, MW-7 (mg/L)



Part 115: Vanadium, MW-7

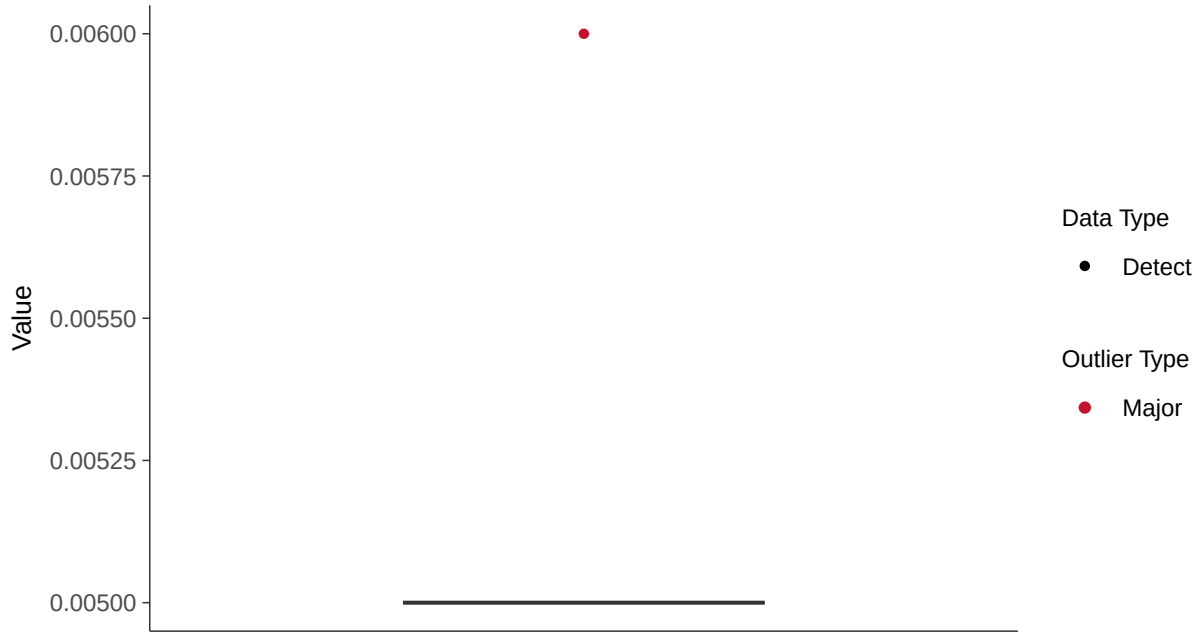
ID: 07_5_41





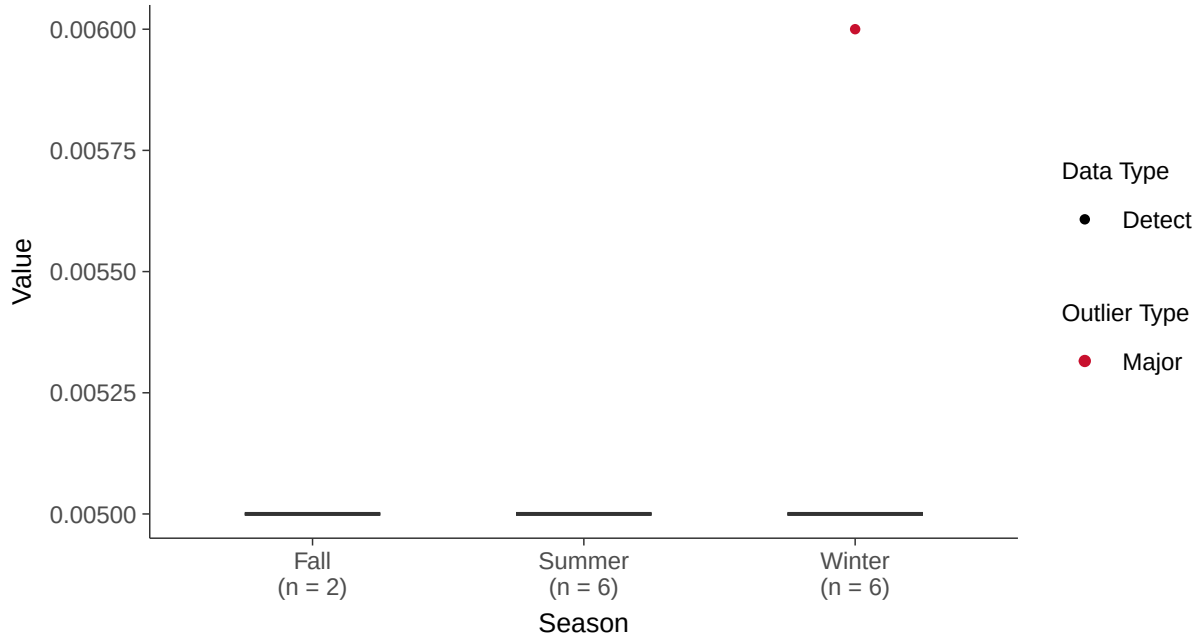
Boxplot

Vanadium, MW-7 (mg/L)



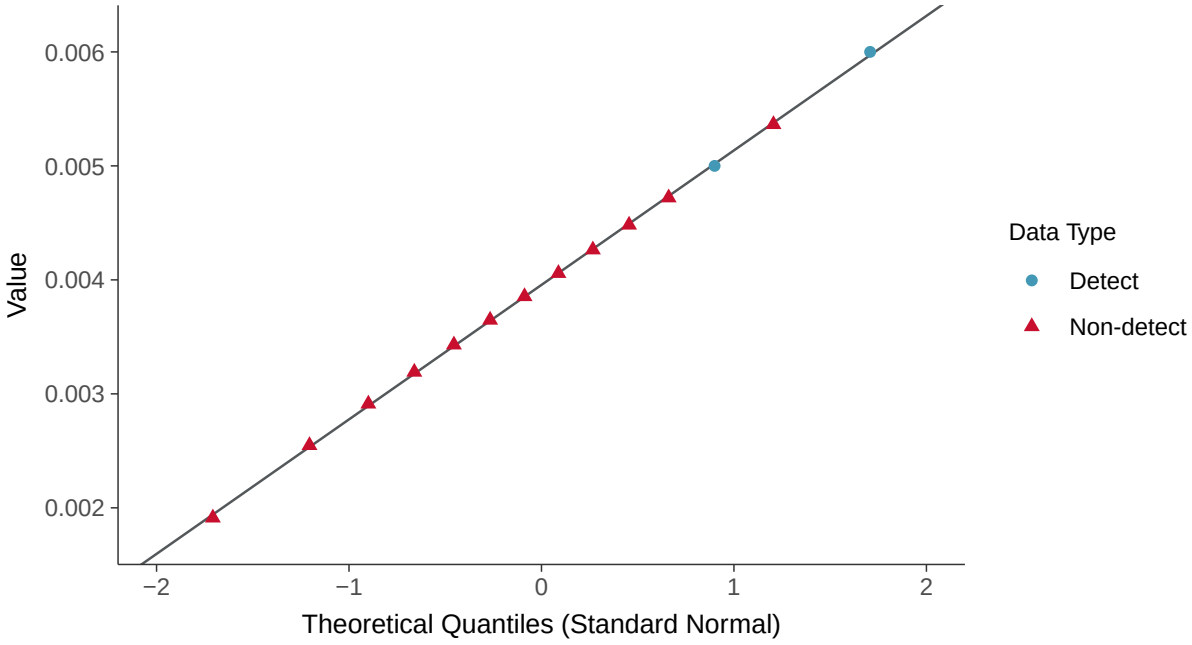
Boxplot by Season

Vanadium, MW-7 (mg/L)



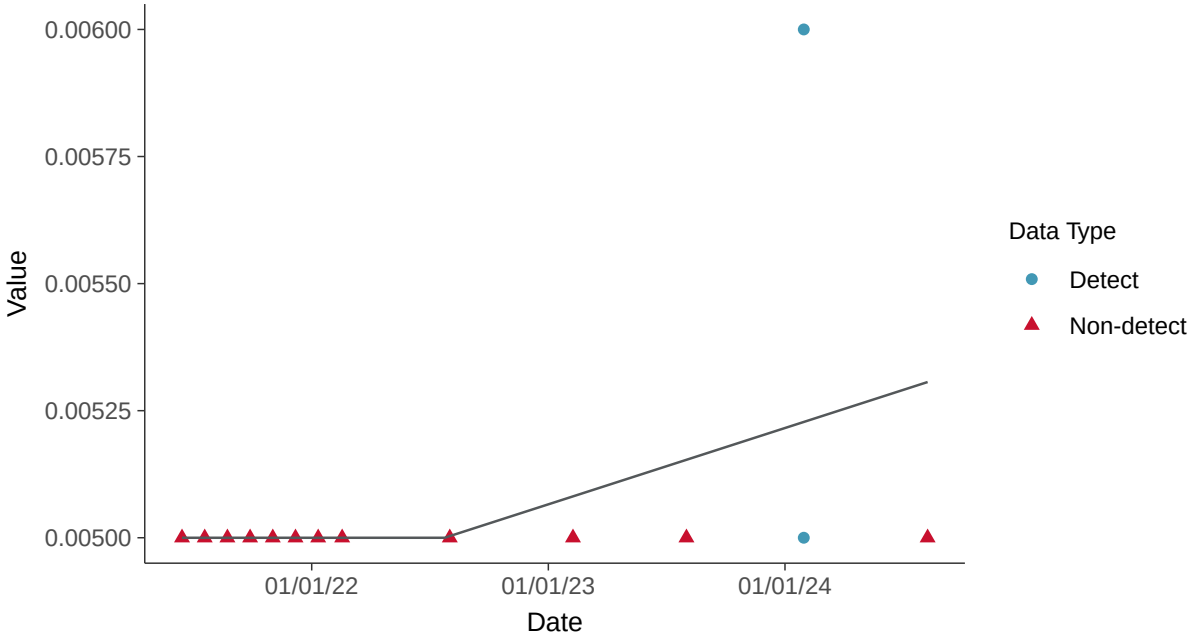
Normal Q-Q plot using ROS Imputed Estimates

Vanadium, MW-7 (mg/L)



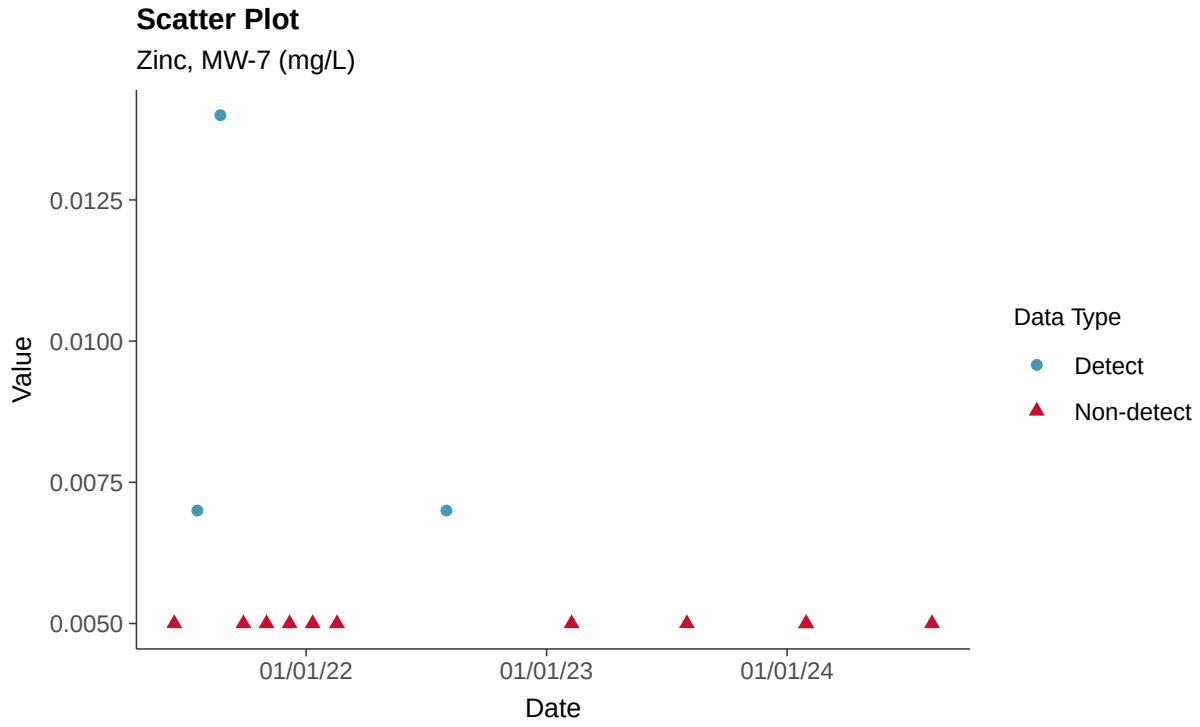
Trend Regression: Piecewise Linear-Linear

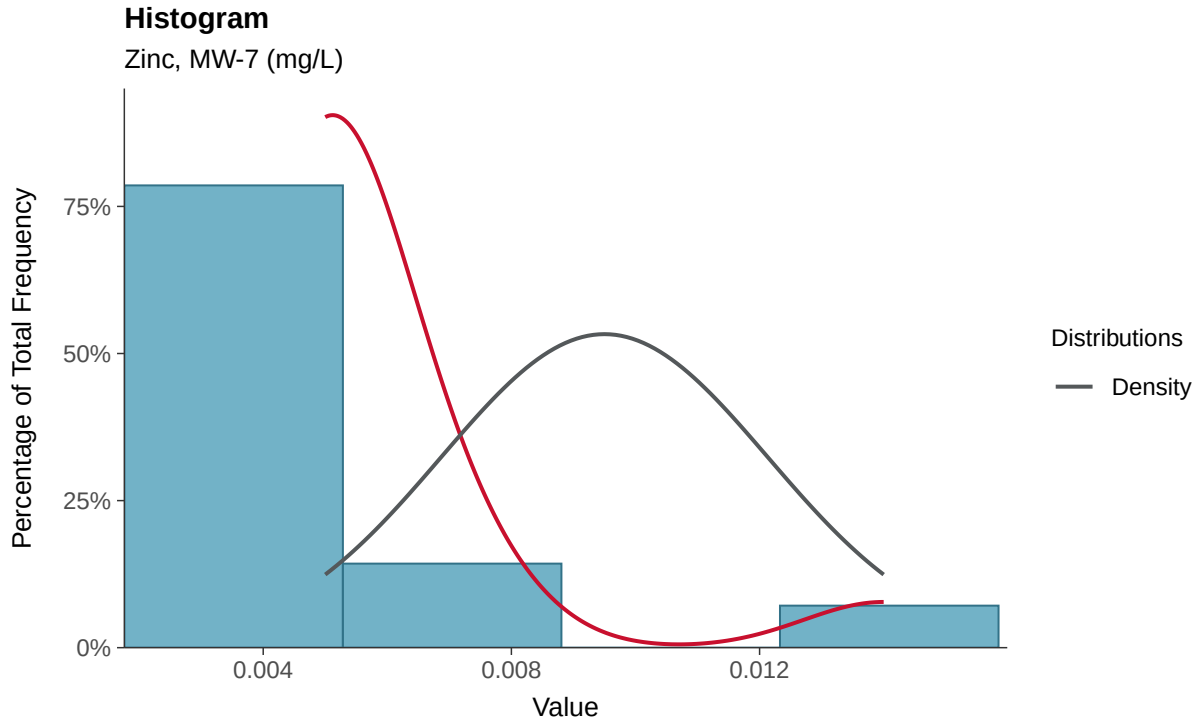
Vanadium, MW-7 (mg/L)



Part 115: Zinc, MW-7

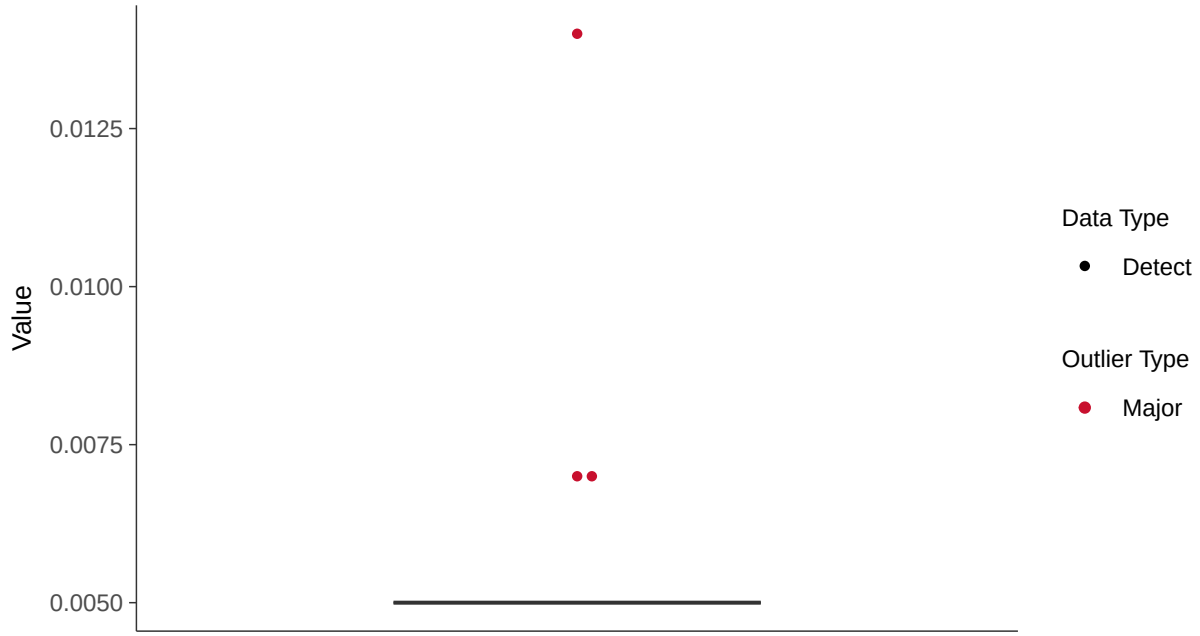
ID: 07_5_42





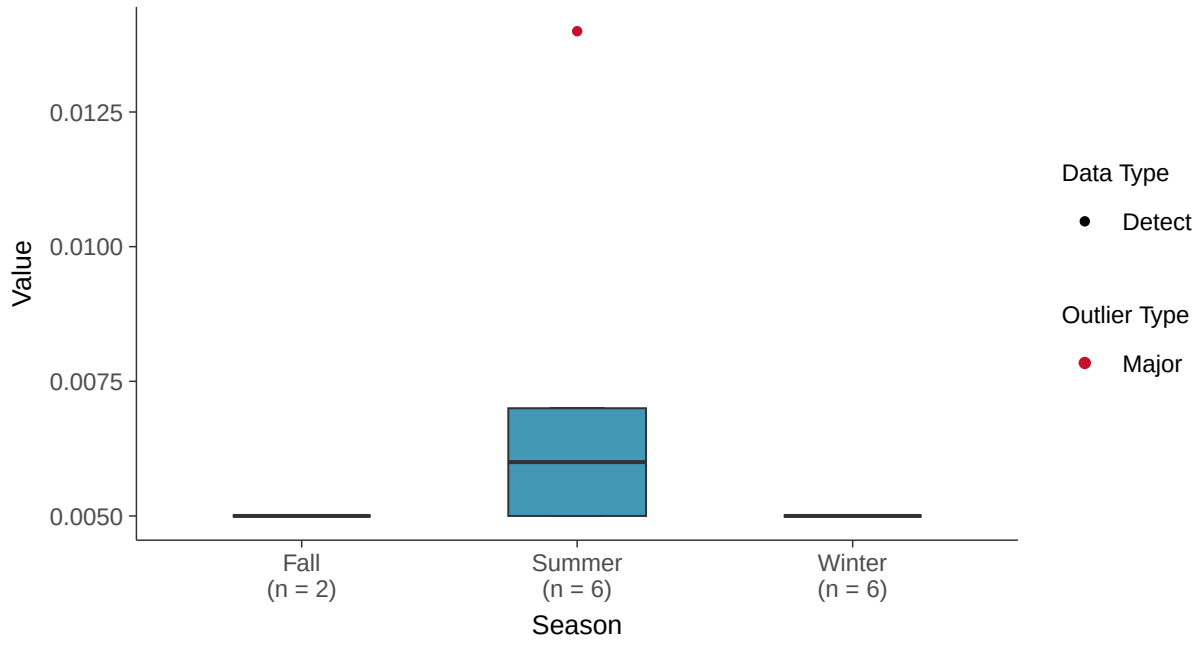
Boxplot

Zinc, MW-7 (mg/L)



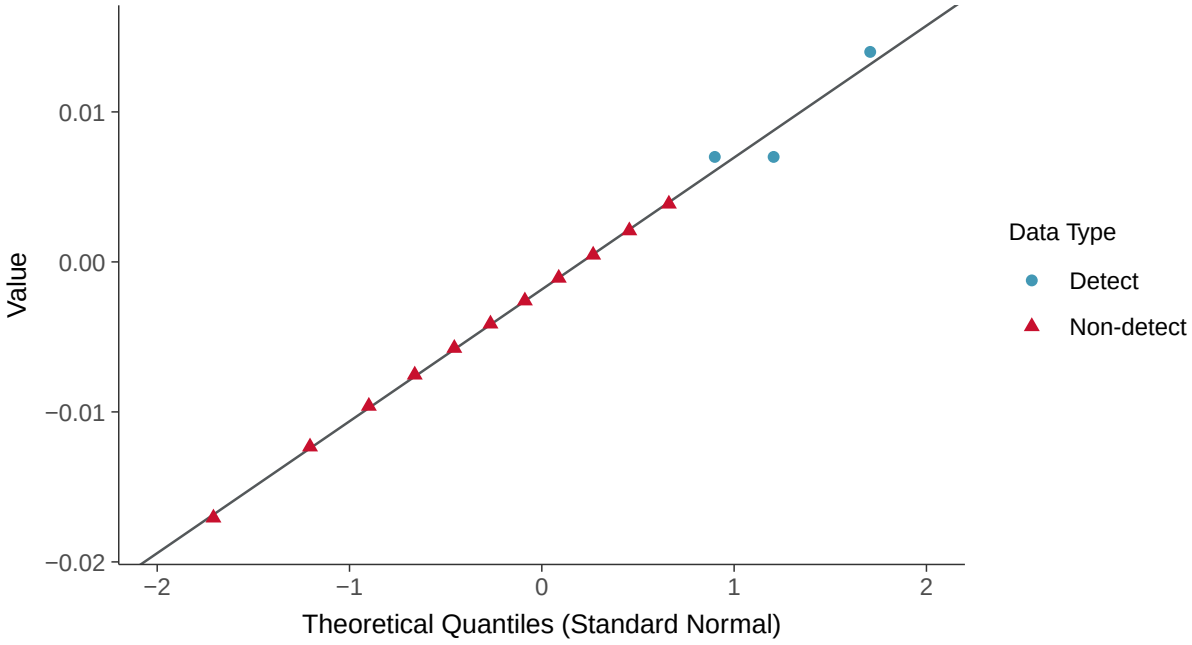
Boxplot by Season

Zinc, MW-7 (mg/L)



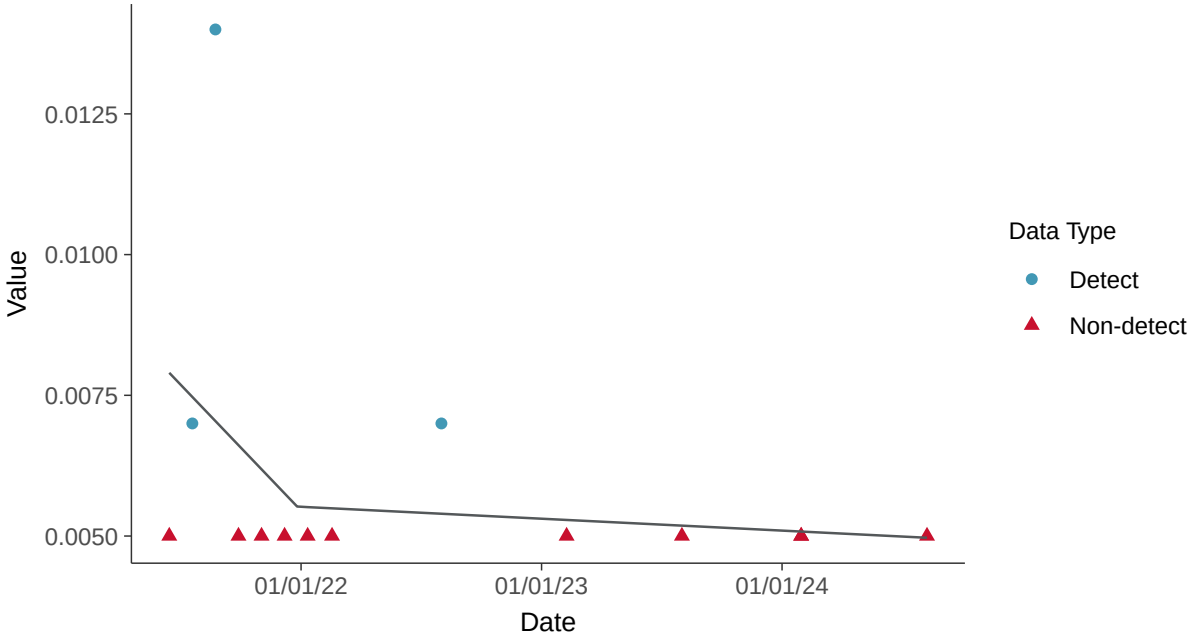
Normal Q-Q plot using ROS Imputed Estimates

Zinc, MW-7 (mg/L)



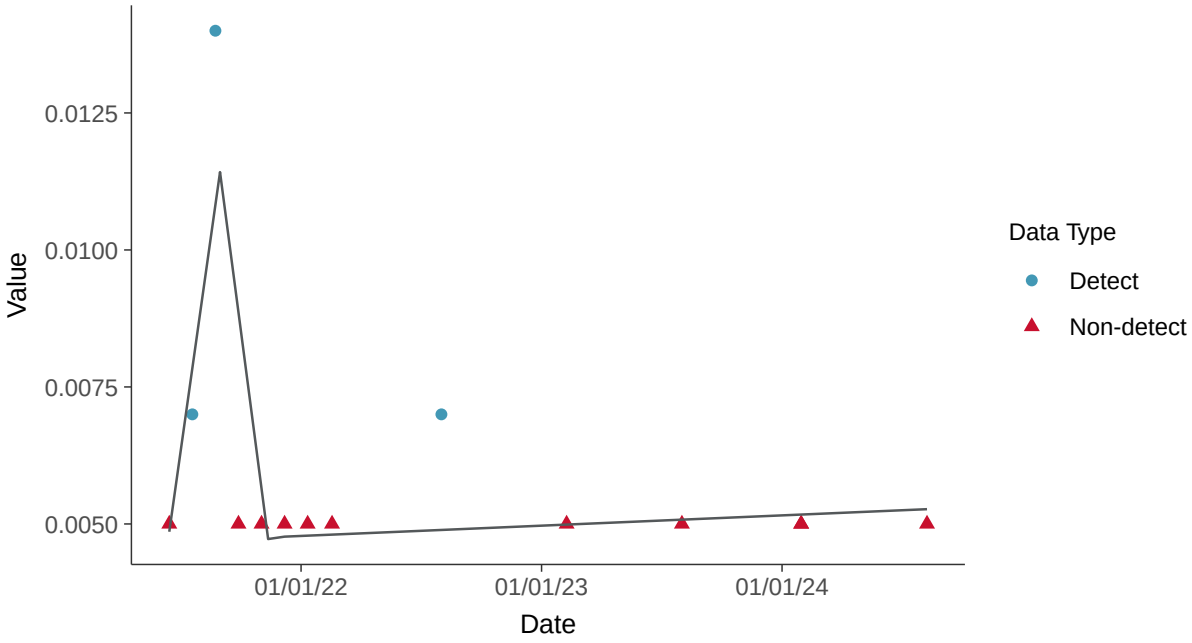
Trend Regression: Piecewise Linear-Linear

Zinc, MW-7 (mg/L)



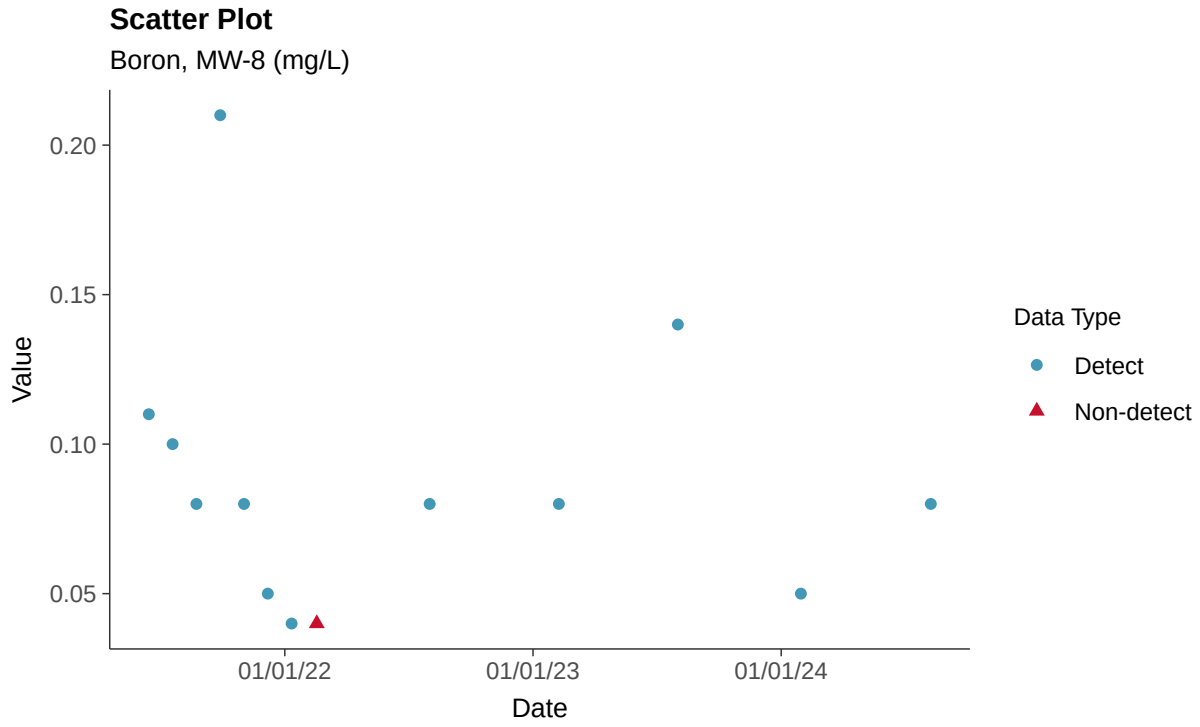
Trend Regression: Piecewise Linear-Linear-Linear

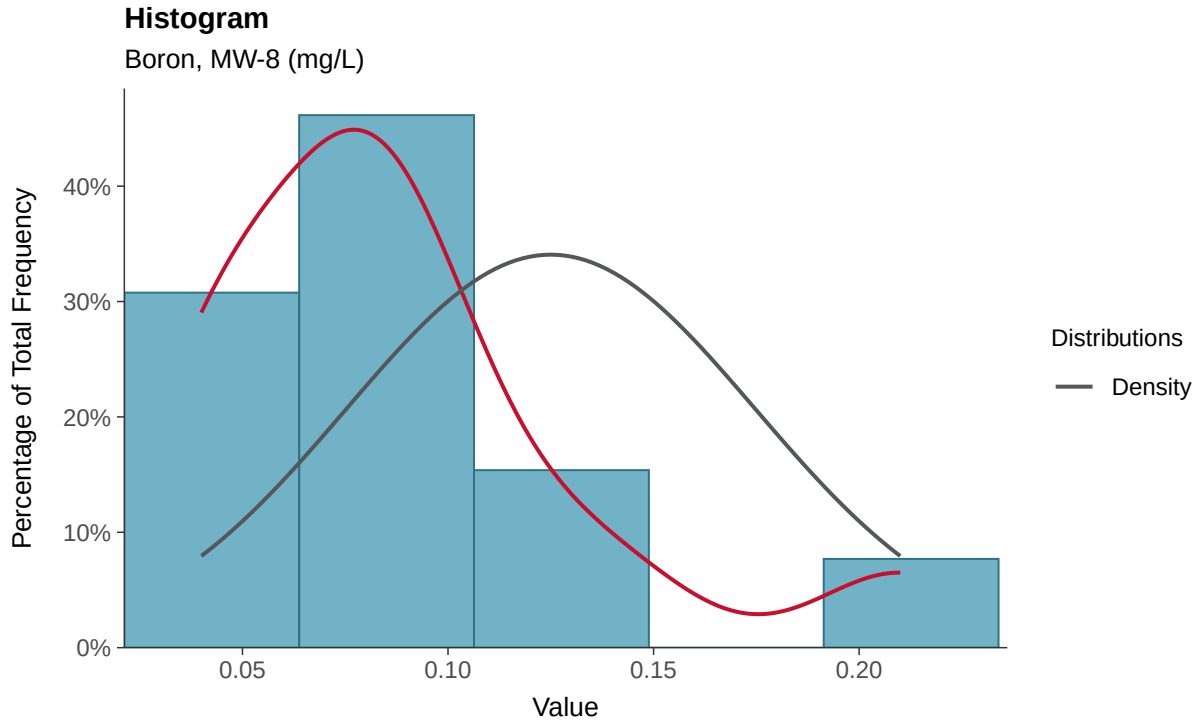
Zinc, MW-7 (mg/L)



Appendix III: Boron, MW-8

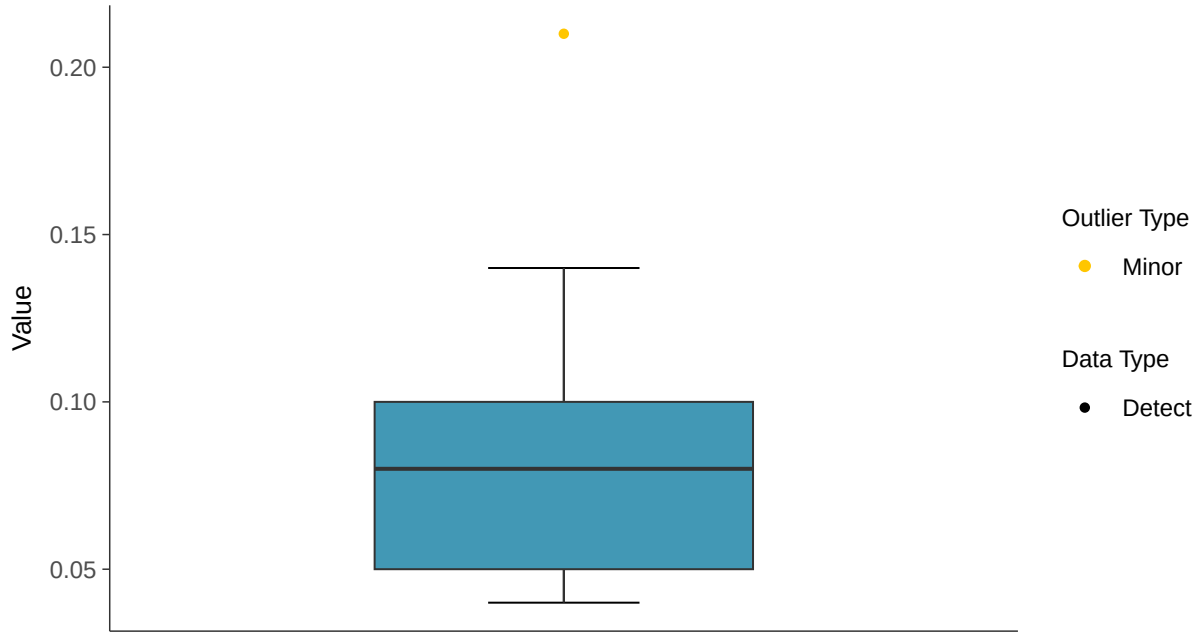
ID: 08_1_01





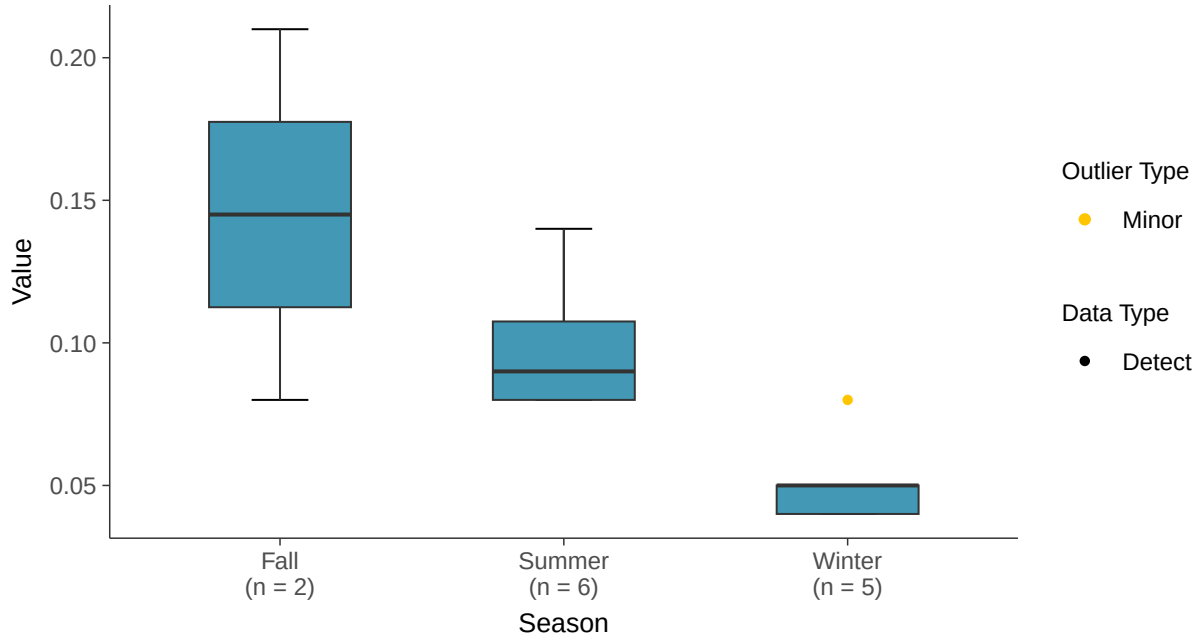
Boxplot

Boron, MW-8 (mg/L)



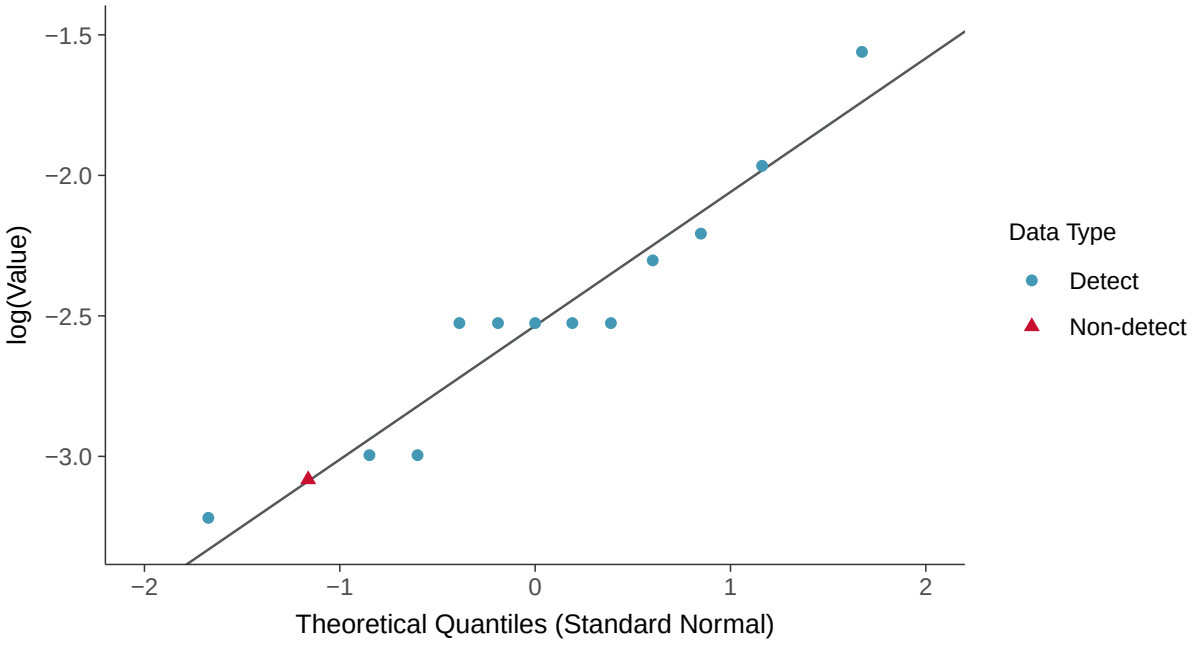
Boxplot by Season

Boron, MW-8 (mg/L)



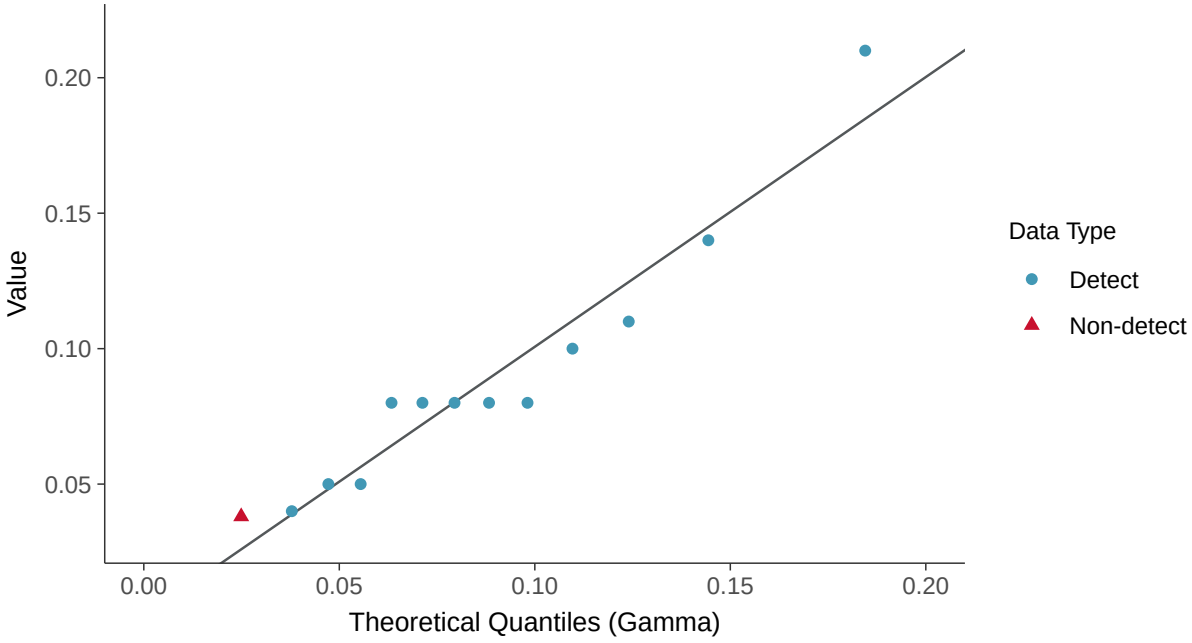
Lognormal Q-Q plot using ROS Imputed Estimates

Boron, MW-8 (mg/L)



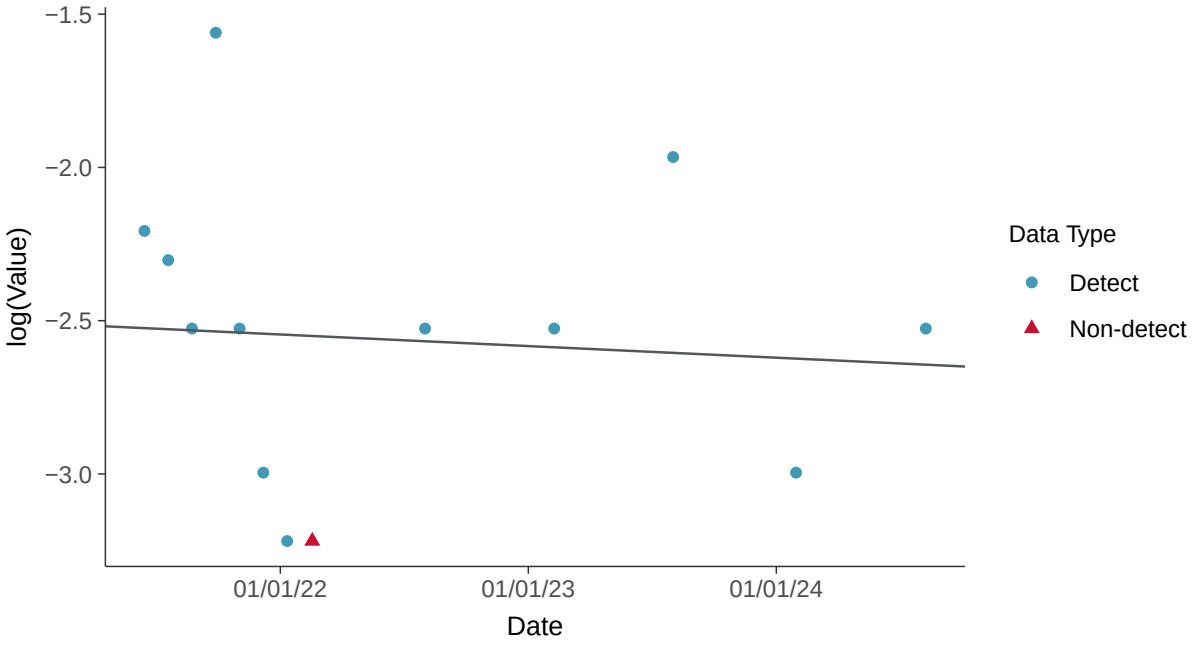
Gamma Q-Q plot using ROS Imputed Estimates

Boron, MW-8 (mg/L)



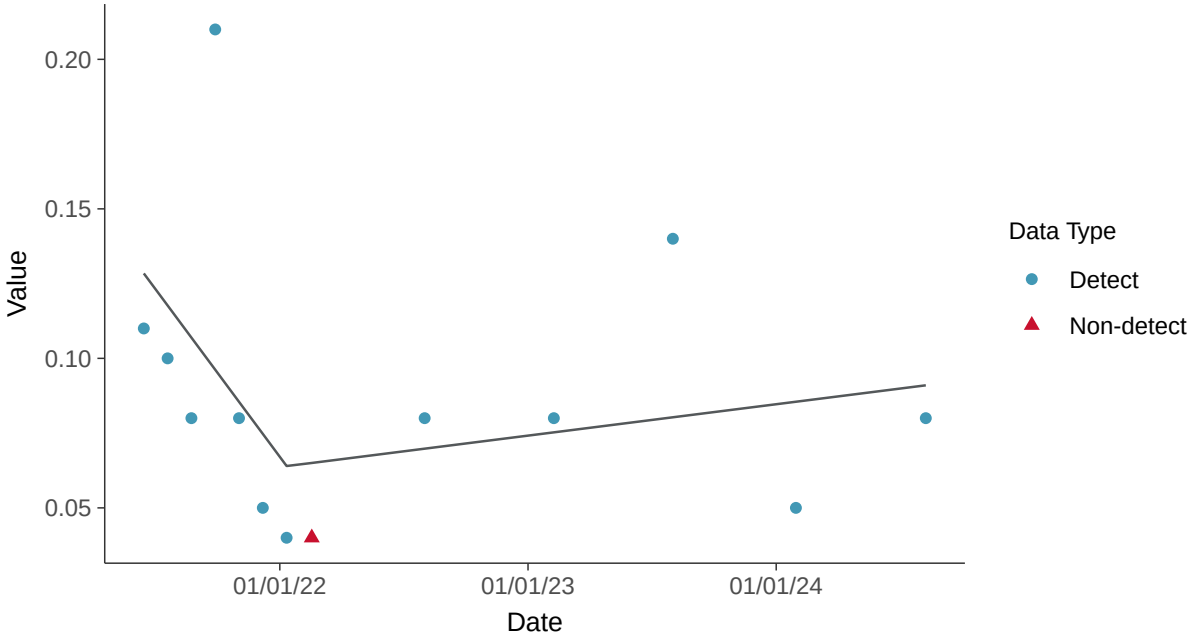
Trend Regression: Lognormal MLE

Boron, MW-8 (mg/L)



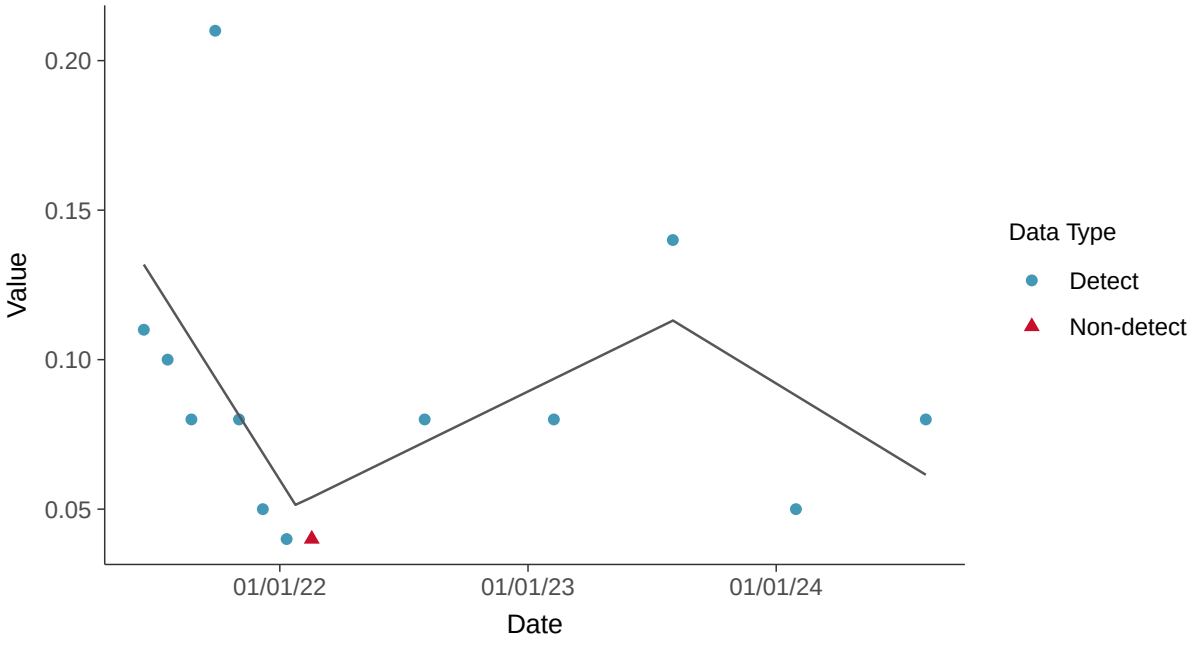
Trend Regression: Piecewise Linear-Linear

Boron, MW-8 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Boron, MW-8 (mg/L)

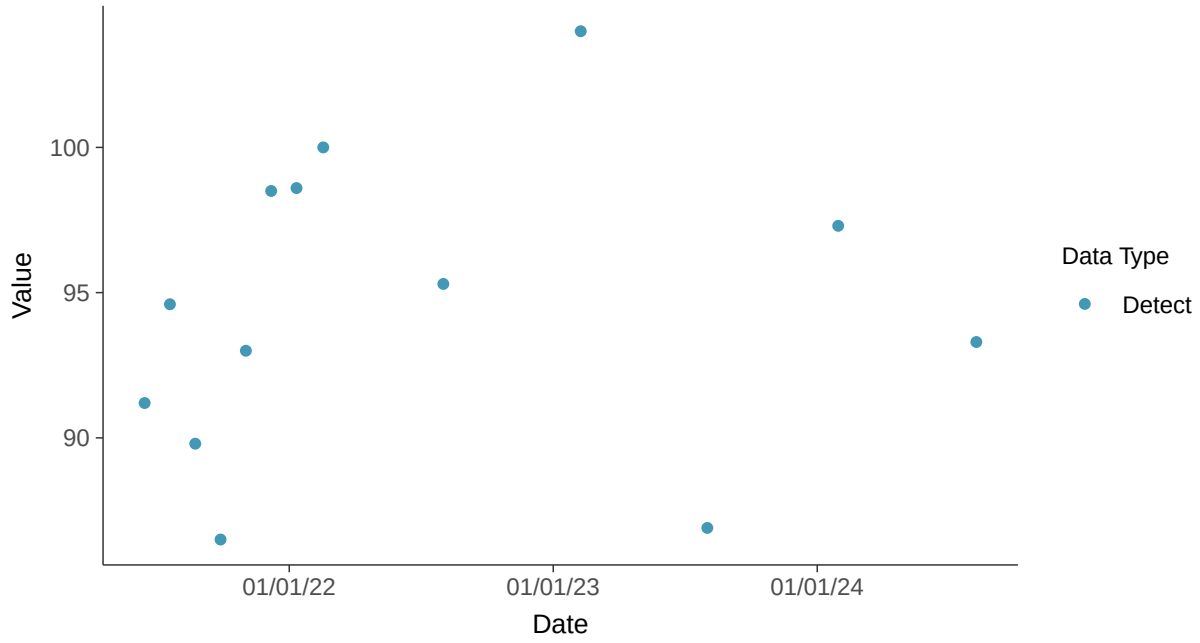


Appendix III: Calcium, MW-8

ID: 08_1_02

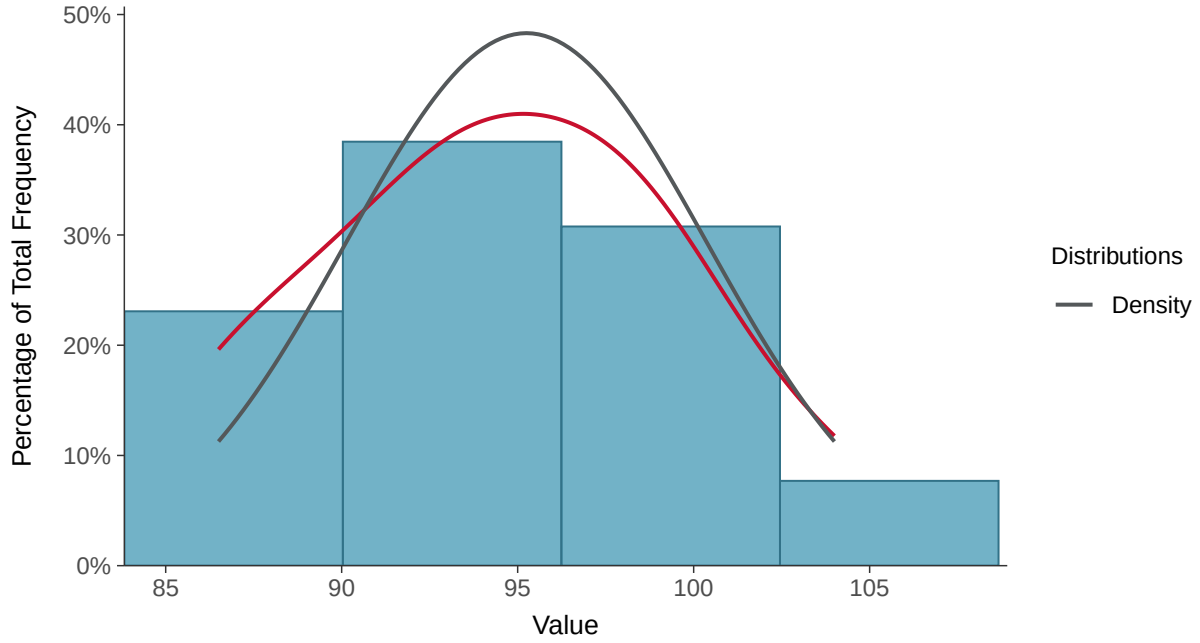
Scatter Plot

Calcium, MW-8 (mg/L)



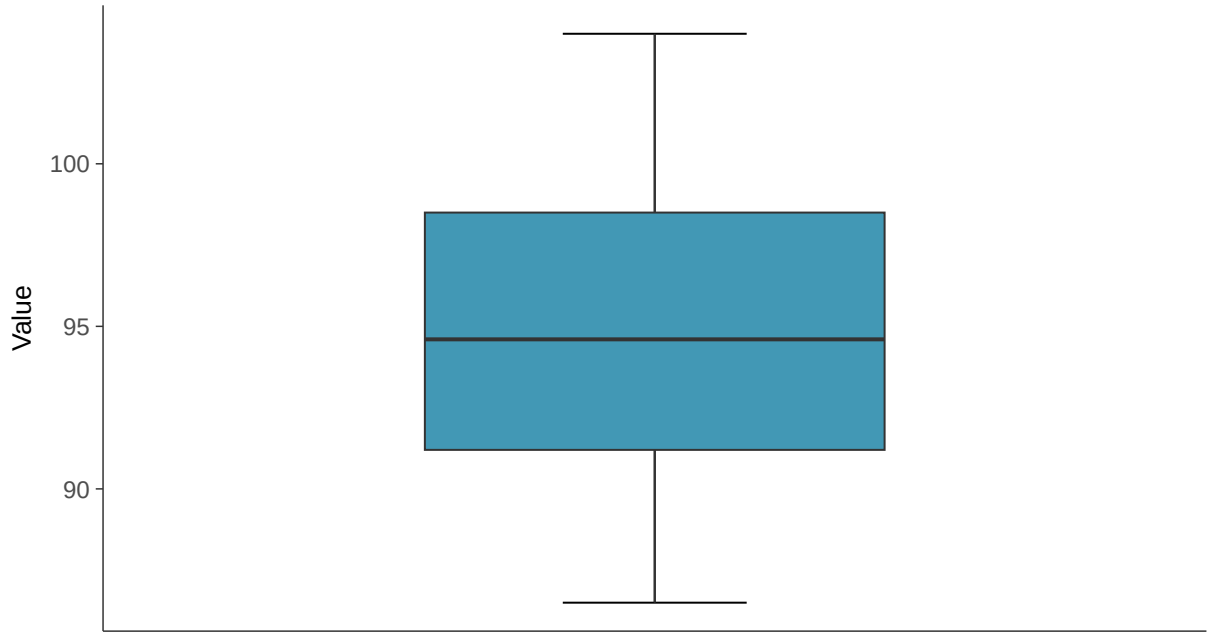
Histogram

Calcium, MW-8 (mg/L)



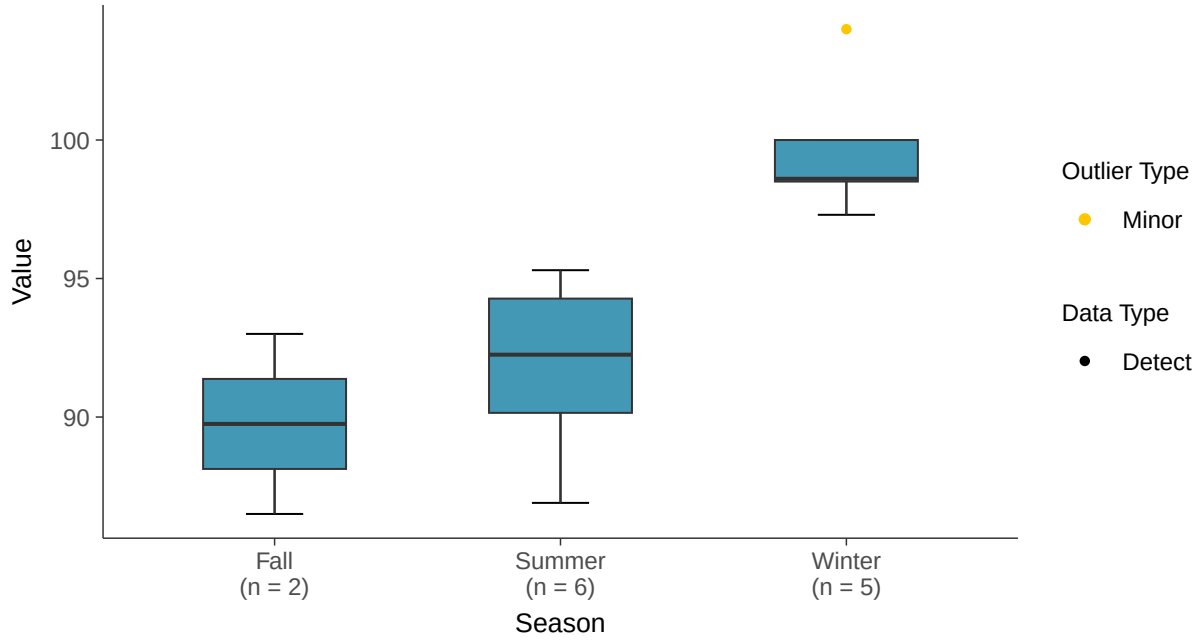
Boxplot

Calcium, MW-8 (mg/L)



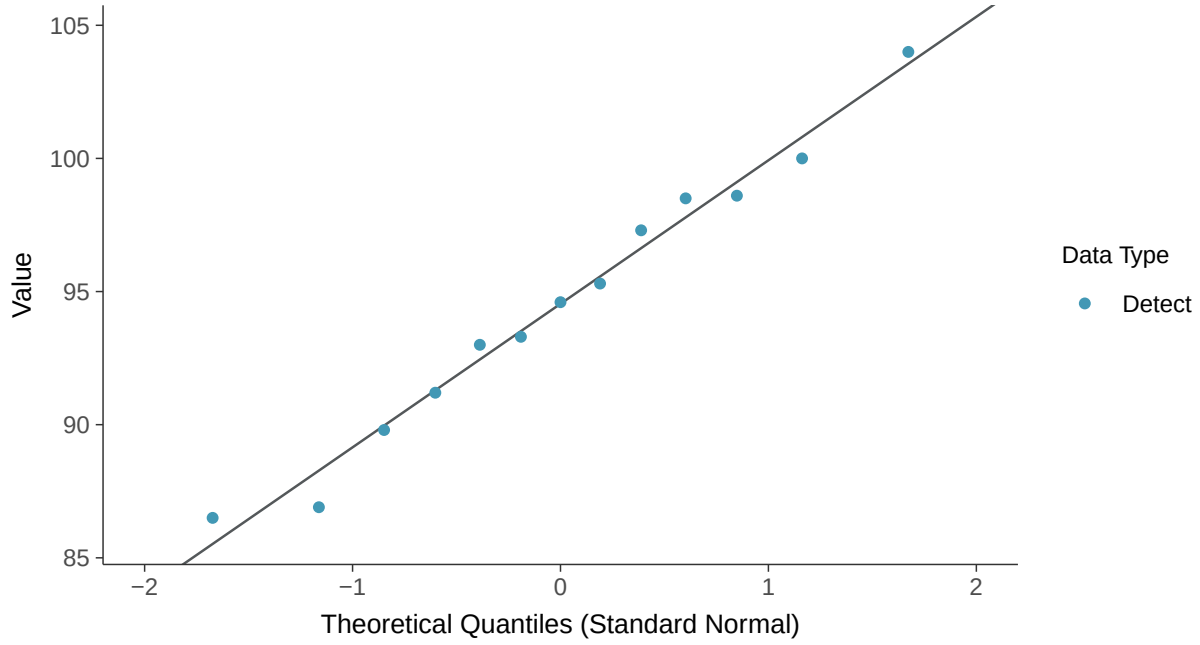
Boxplot by Season

Calcium, MW-8 (mg/L)



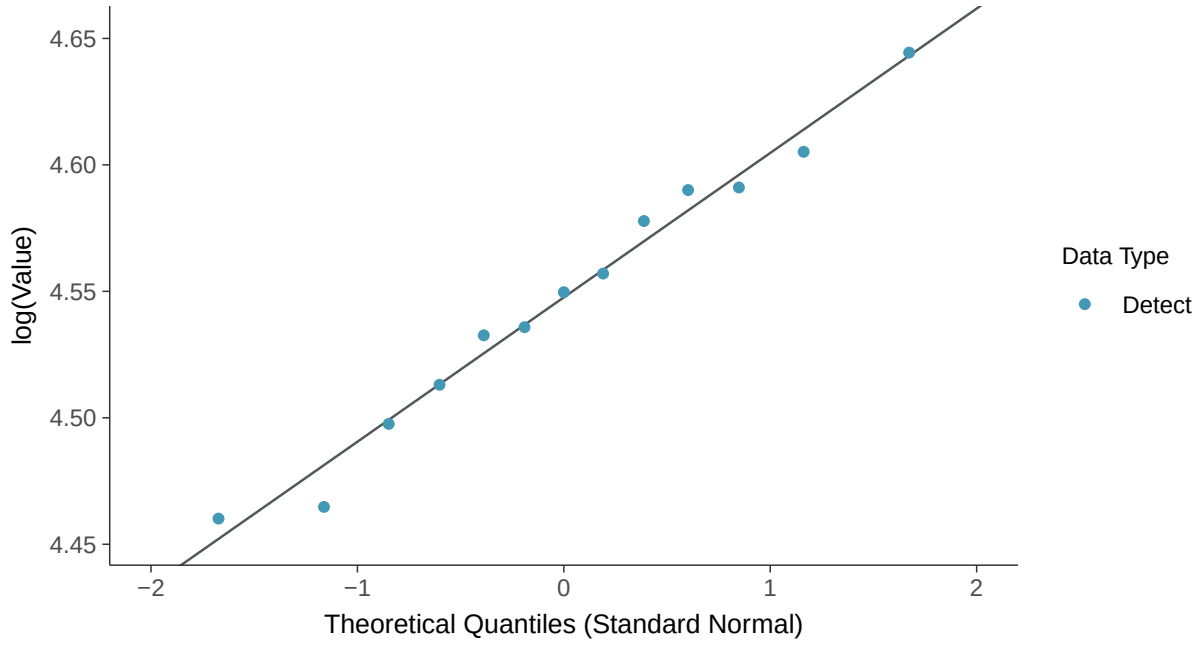
Normal Q-Q plot

Calcium, MW-8 (mg/L)



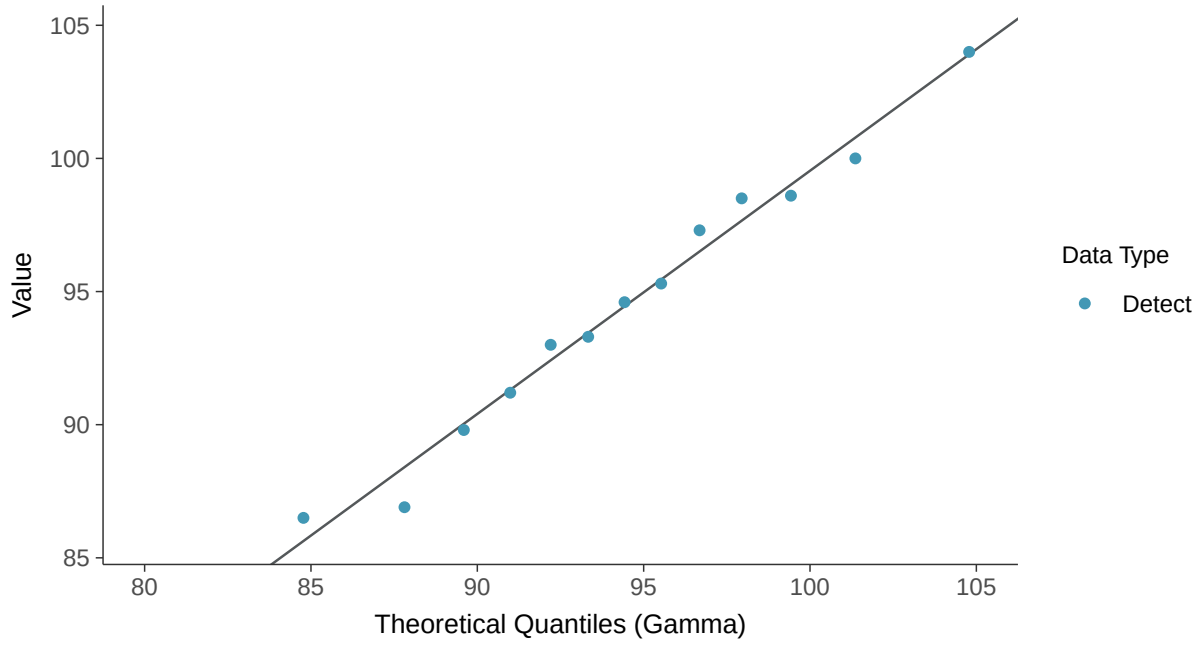
Lognormal Q-Q plot

Calcium, MW-8 (mg/L)



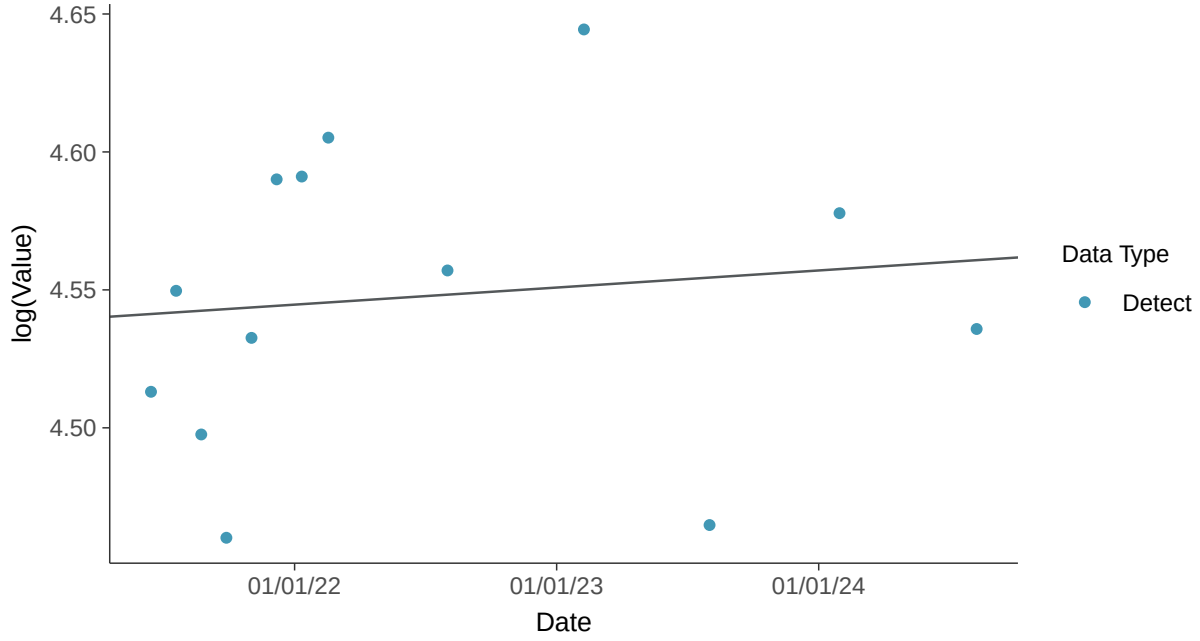
Gamma Q-Q plot

Calcium, MW-8 (mg/L)



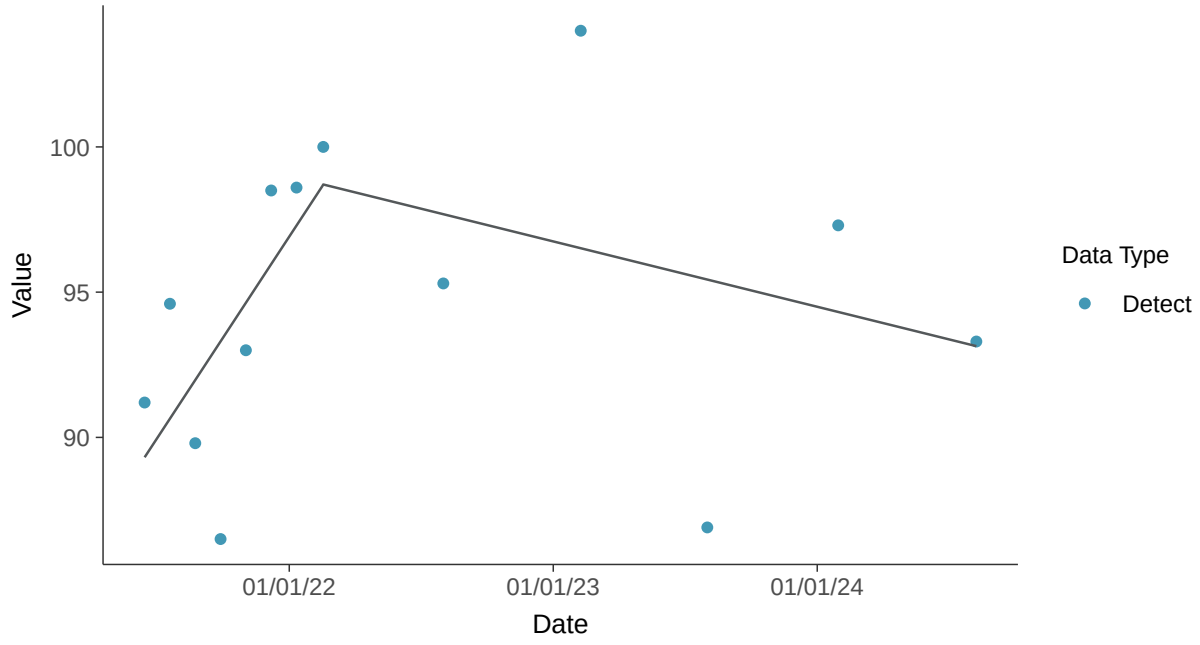
Trend Regression: Lognormal MLE

Calcium, MW-8 (mg/L)



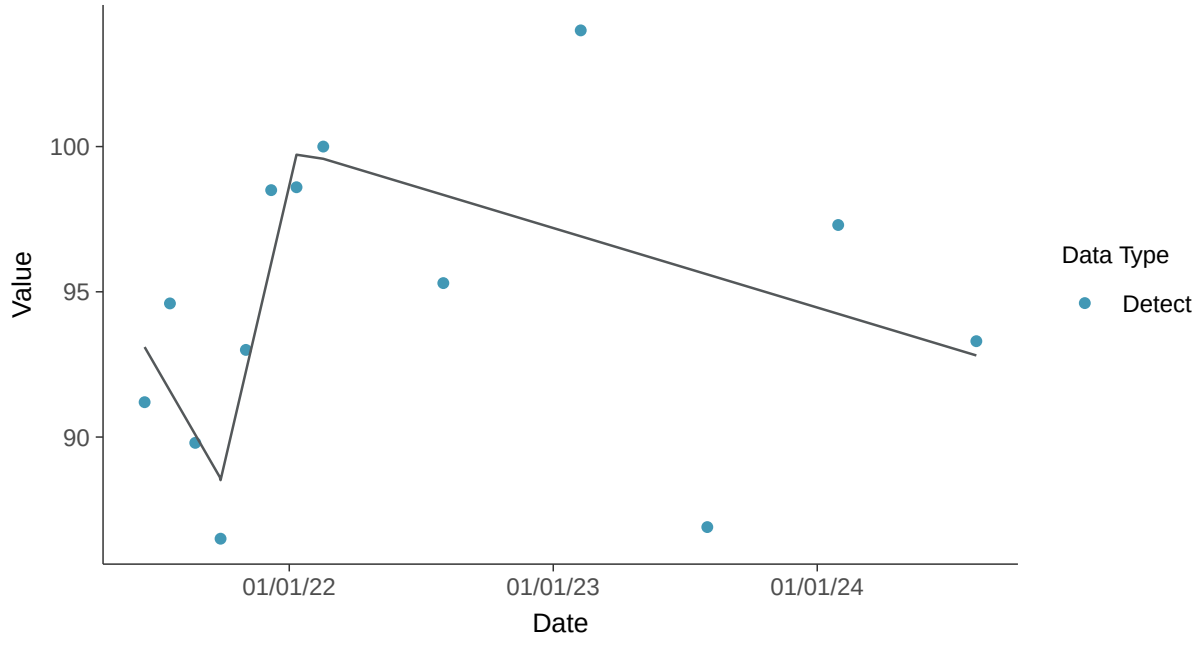
Trend Regression: Piecewise Linear-Linear

Calcium, MW-8 (mg/L)



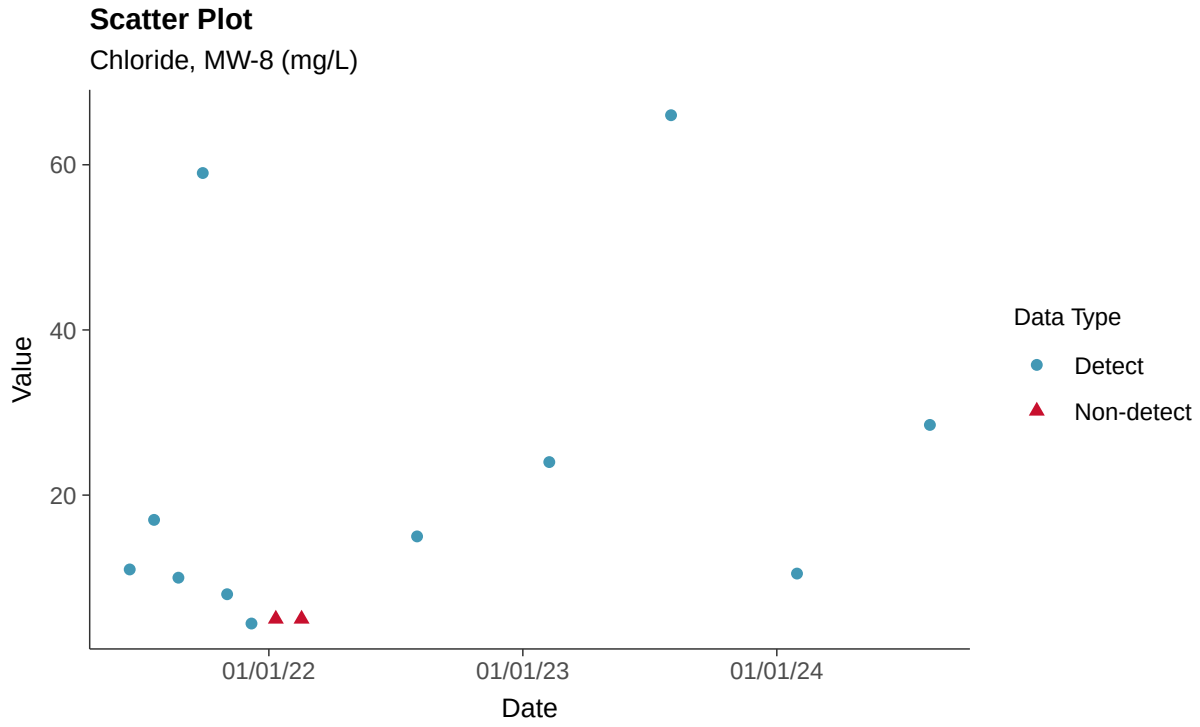
Trend Regression: Piecewise Linear-Linear-Linear

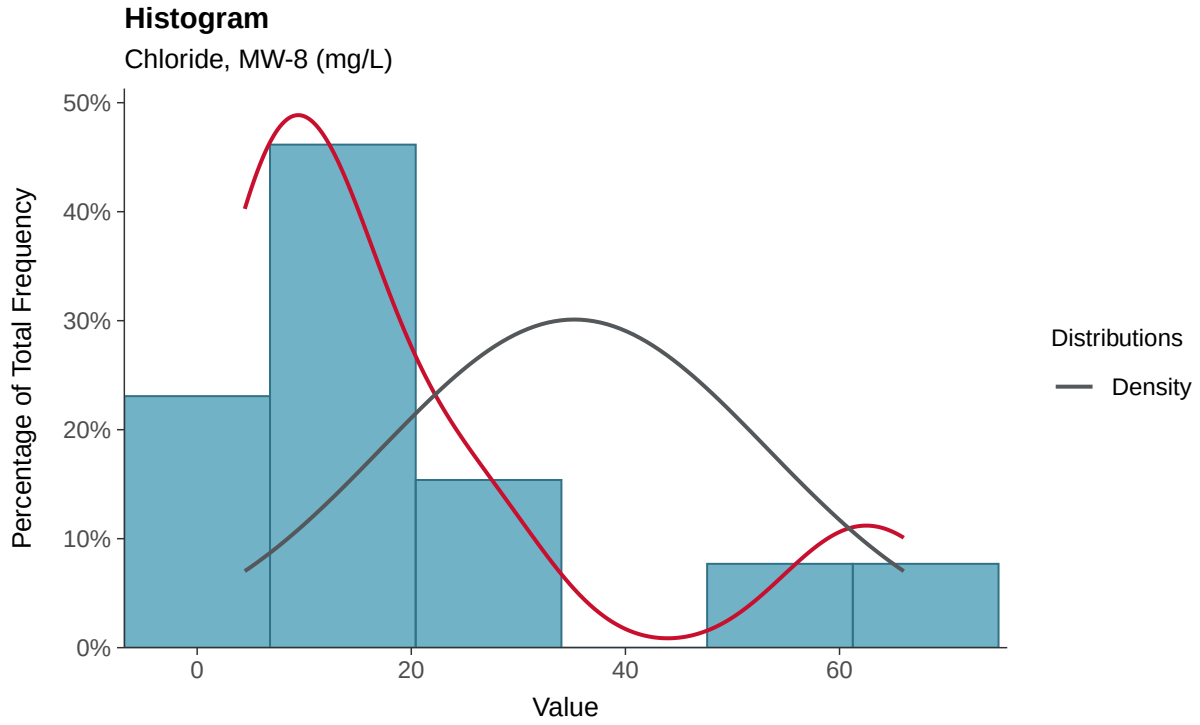
Calcium, MW-8 (mg/L)



Appendix III: Chloride, MW-8

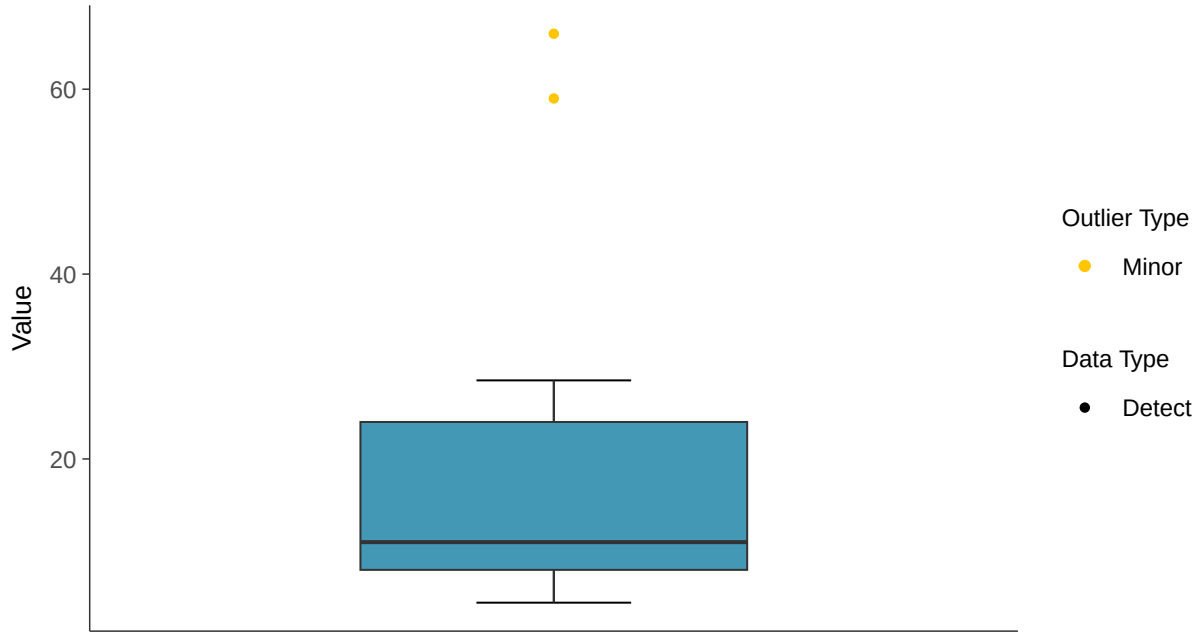
ID: 08_1_03





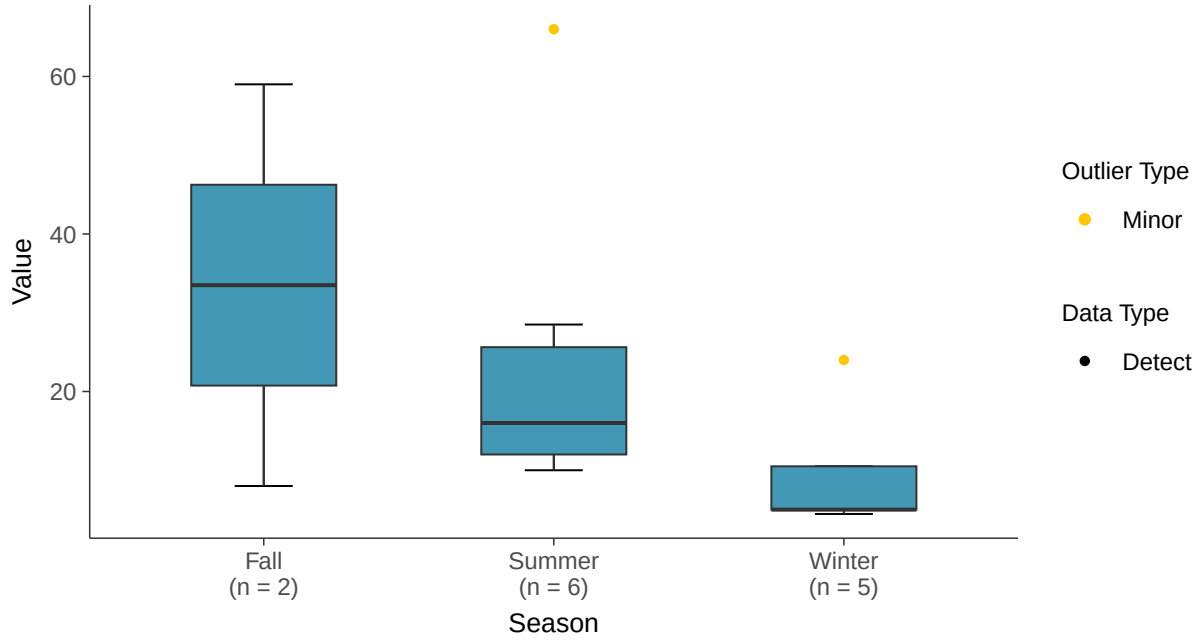
Boxplot

Chloride, MW-8 (mg/L)



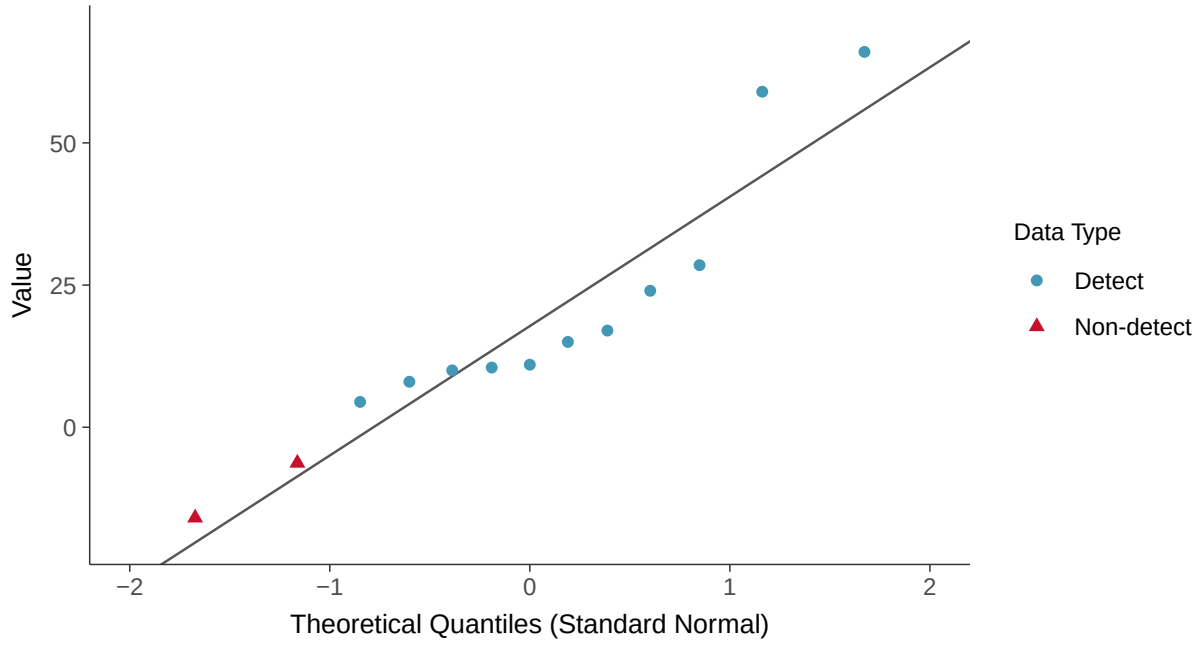
Boxplot by Season

Chloride, MW-8 (mg/L)



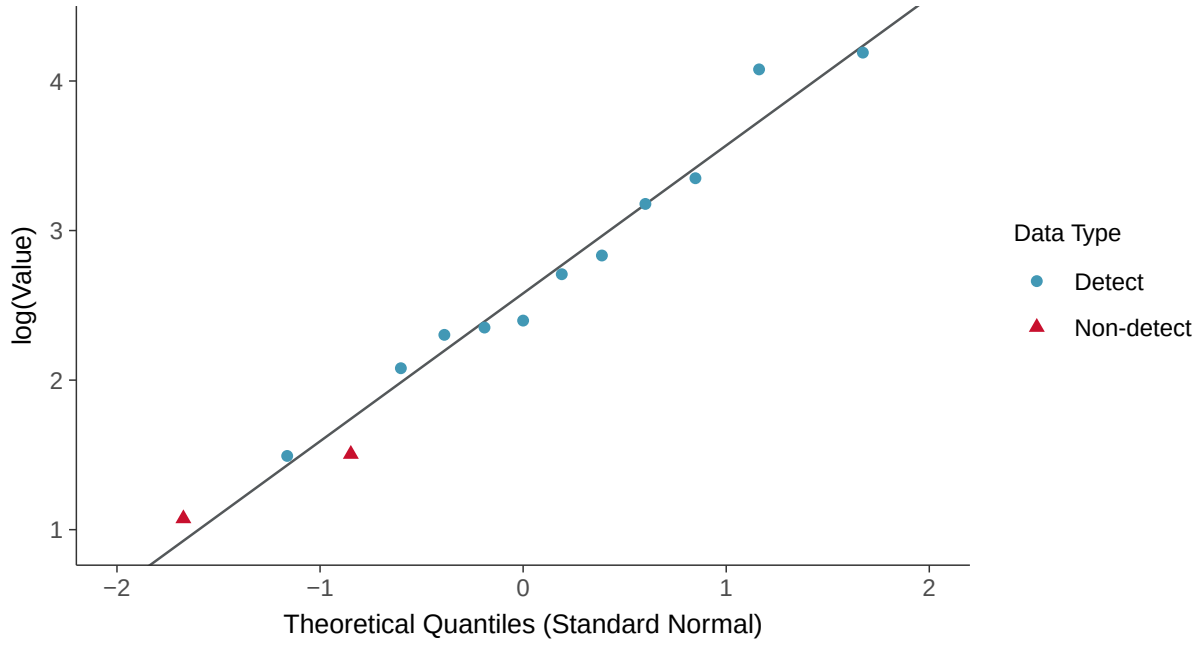
Normal Q-Q plot using ROS Imputed Estimates

Chloride, MW-8 (mg/L)



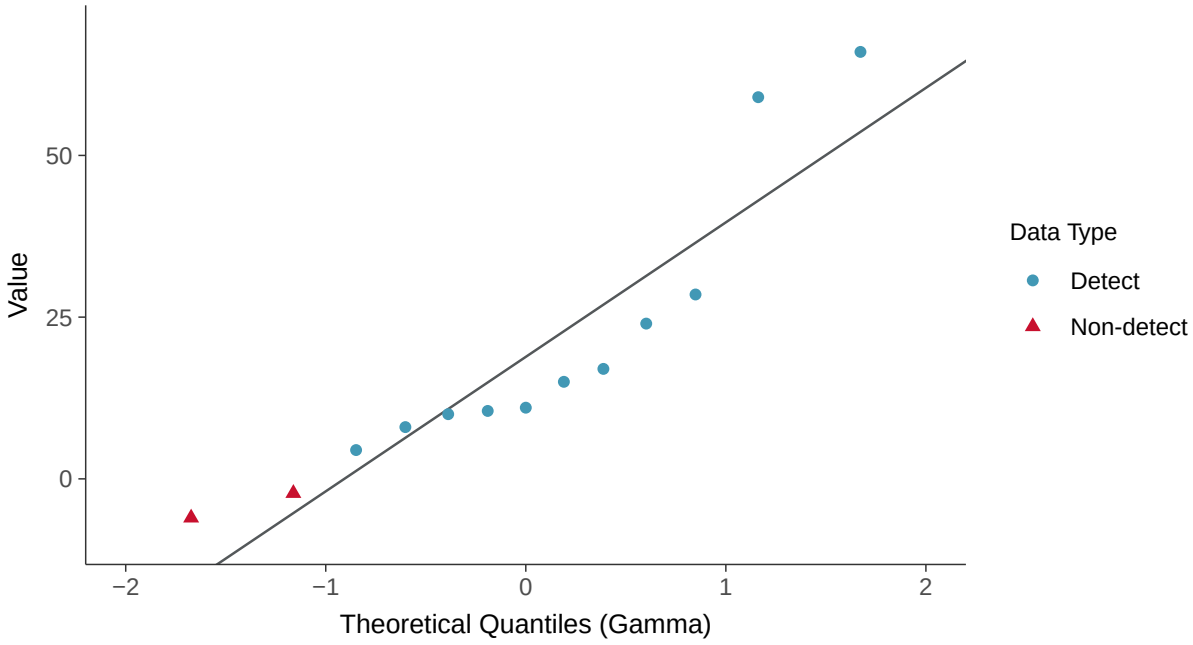
Lognormal Q-Q plot using ROS Imputed Estimates

Chloride, MW-8 (mg/L)



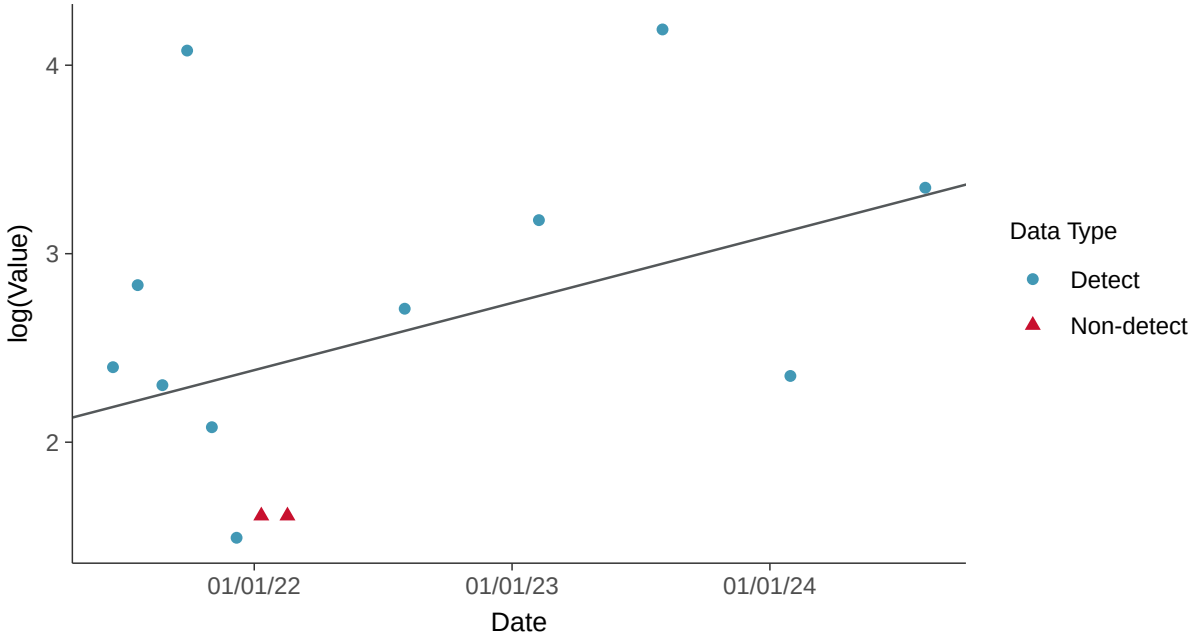
Gamma Q-Q plot using ROS Imputed Estimates

Chloride, MW-8 (mg/L)



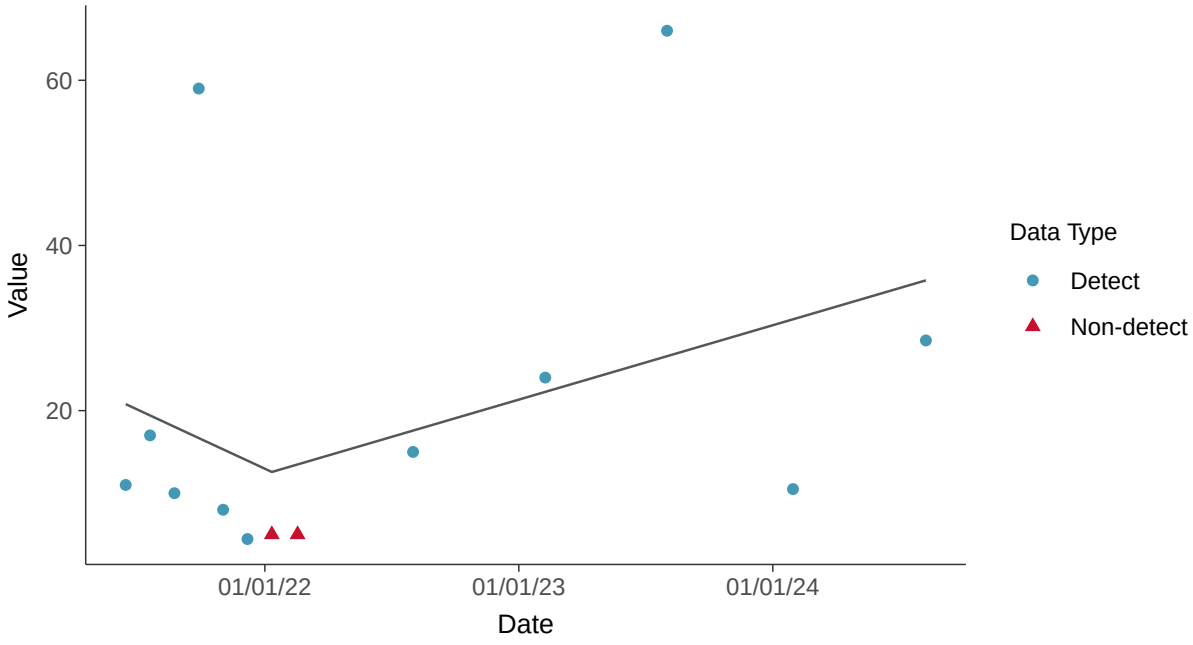
Trend Regression: Lognormal MLE

Chloride, MW-8 (mg/L)



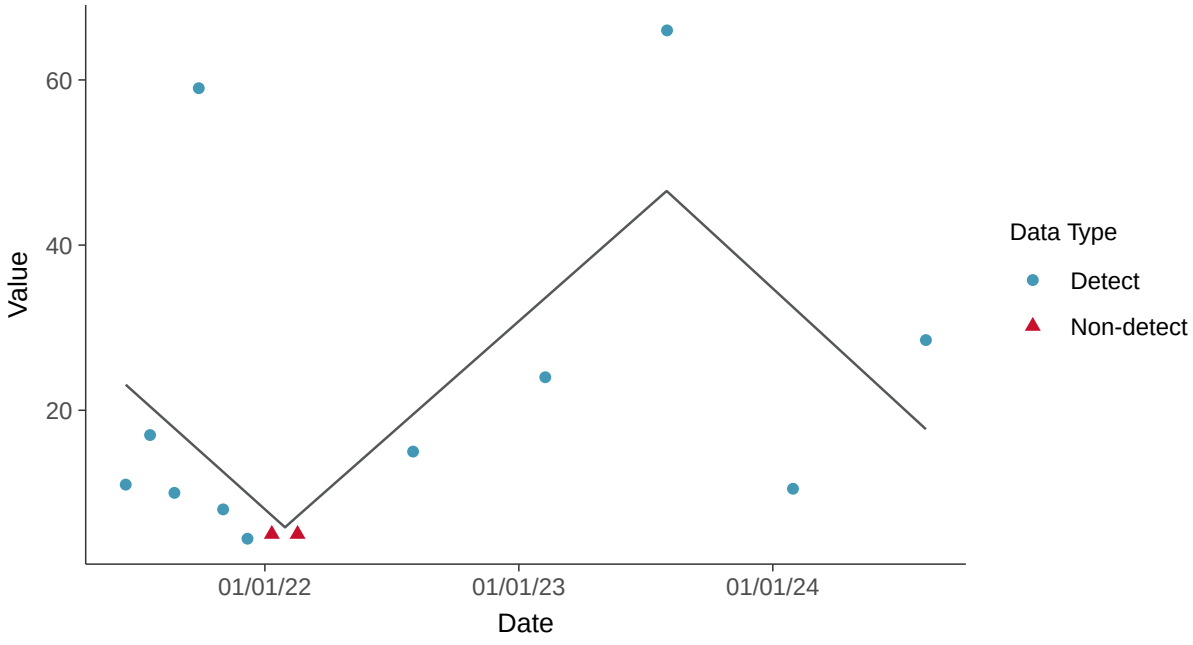
Trend Regression: Piecewise Linear-Linear

Chloride, MW-8 (mg/L)



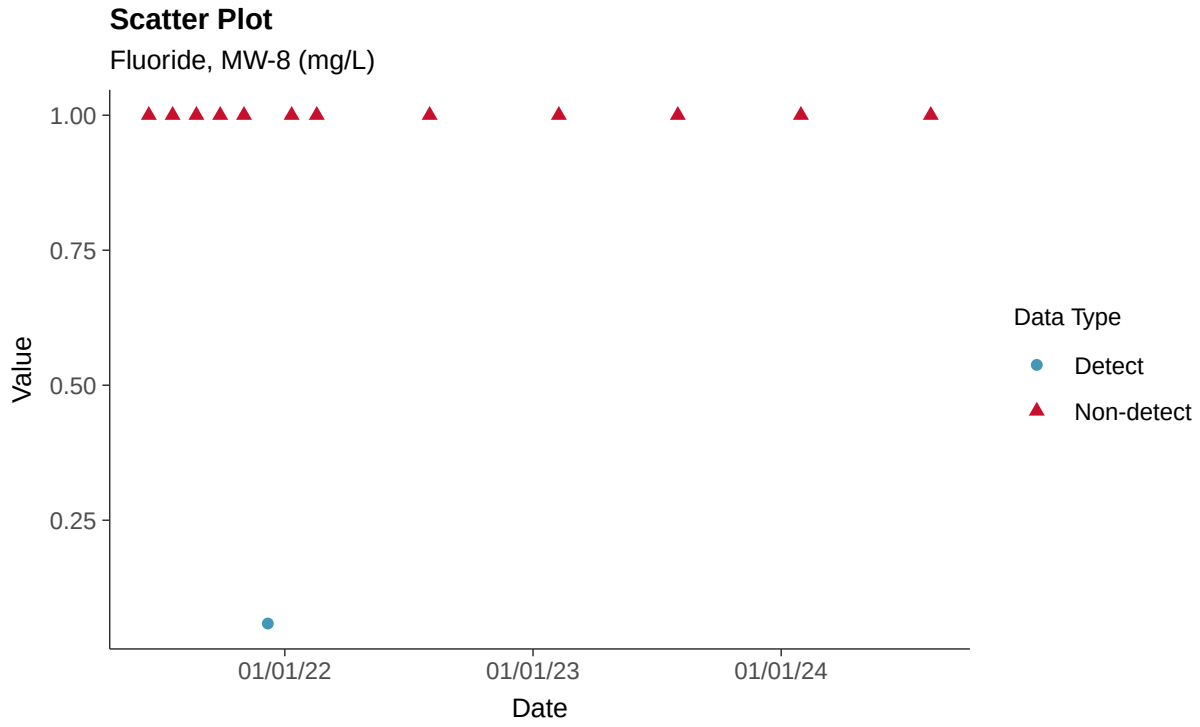
Trend Regression: Piecewise Linear-Linear-Linear

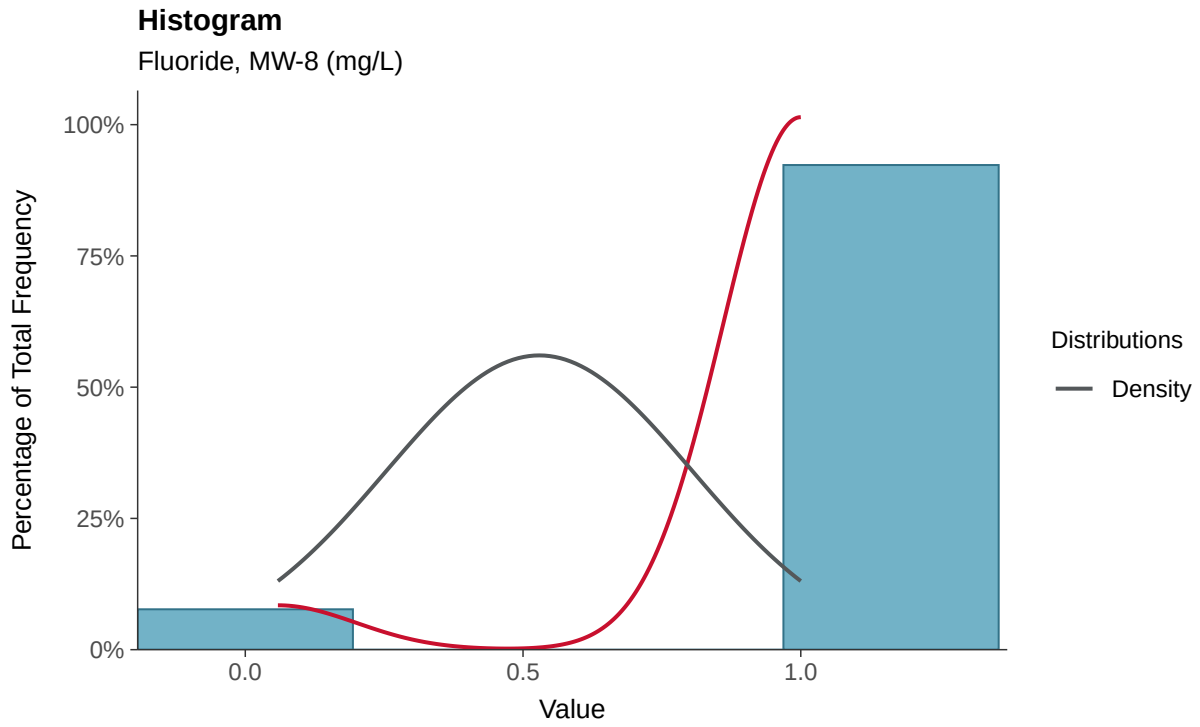
Chloride, MW-8 (mg/L)



Appendix III: Fluoride, MW-8

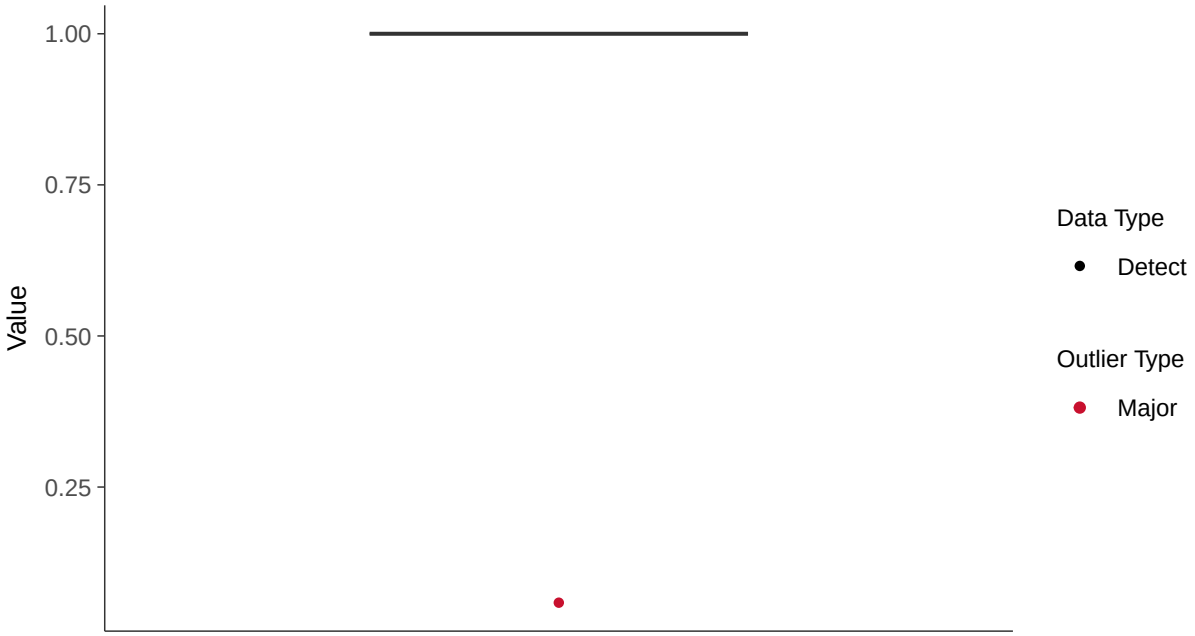
ID: 08_1_04





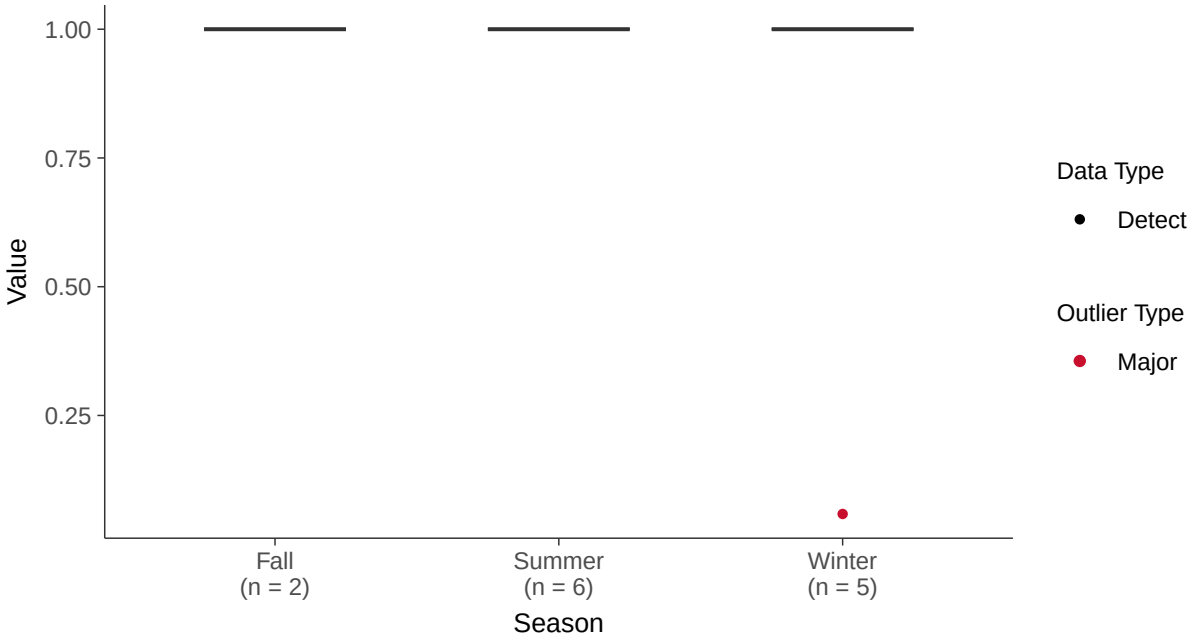
Boxplot

Fluoride, MW-8 (mg/L)



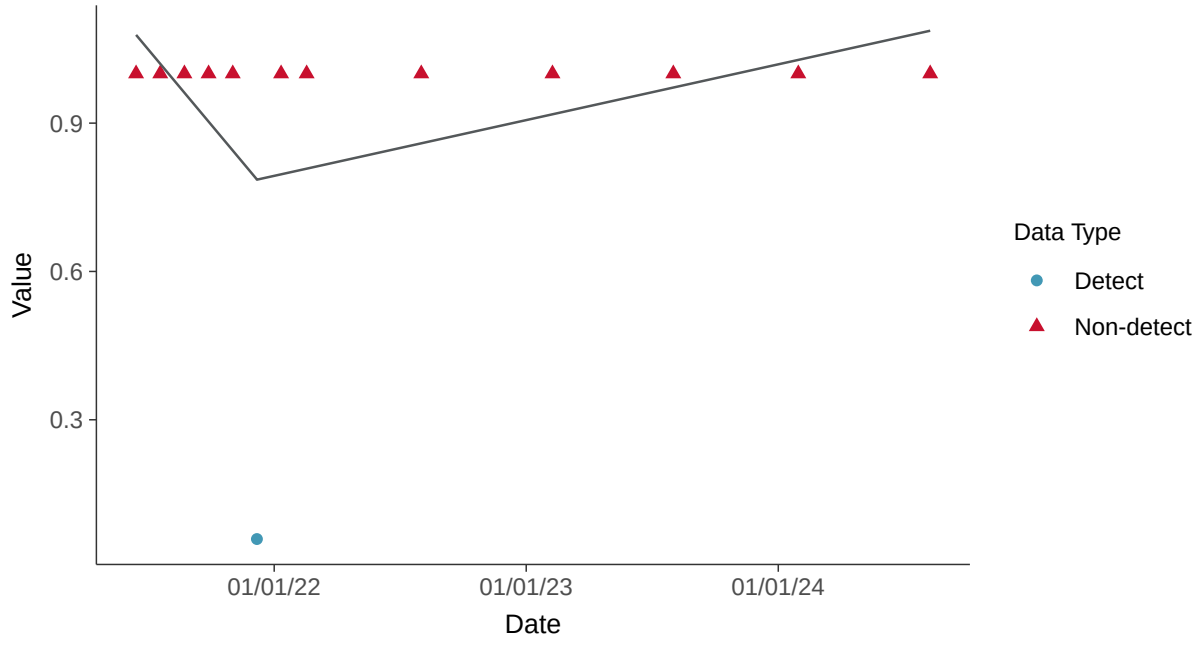
Boxplot by Season

Fluoride, MW-8 (mg/L)



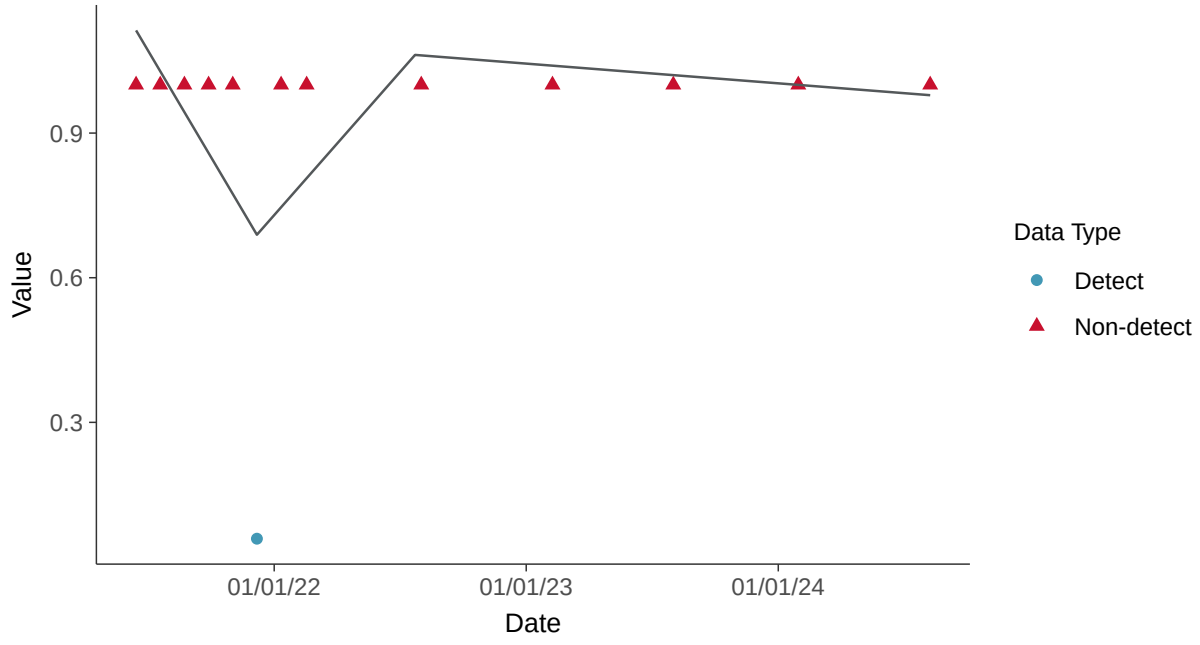
Trend Regression: Piecewise Linear-Linear

Fluoride, MW-8 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Fluoride, MW-8 (mg/L)

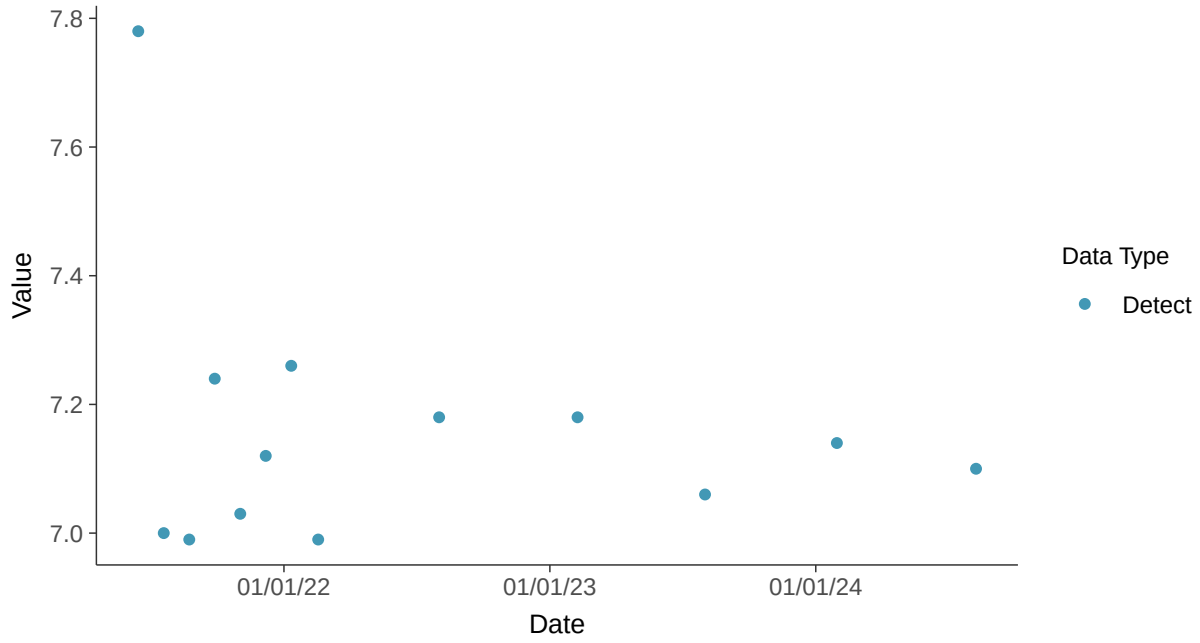


Appendix III: pH, Field, MW-8

ID: 08_1_05

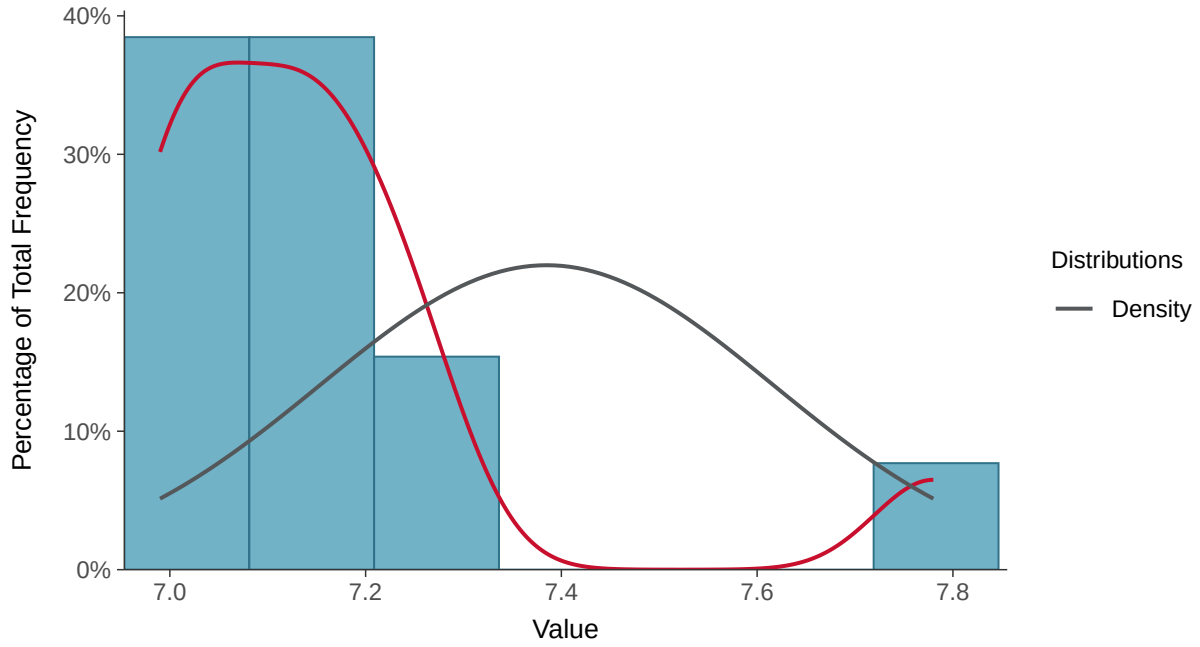
Scatter Plot

pH, Field, MW-8 (su)



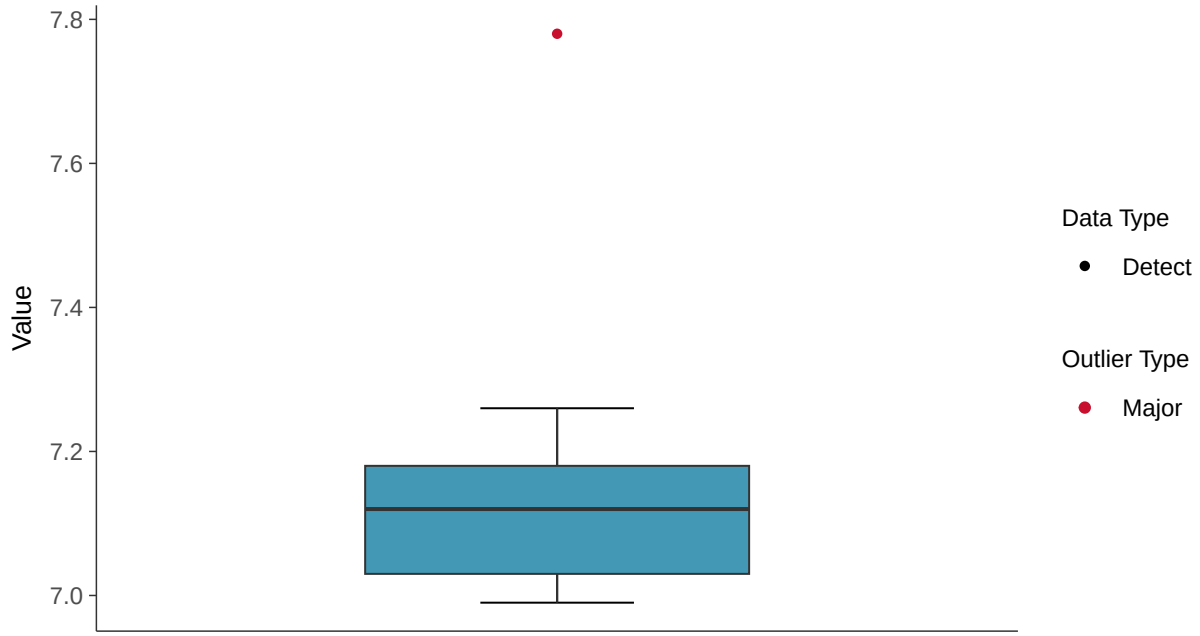
Histogram

pH, Field, MW-8 (su)



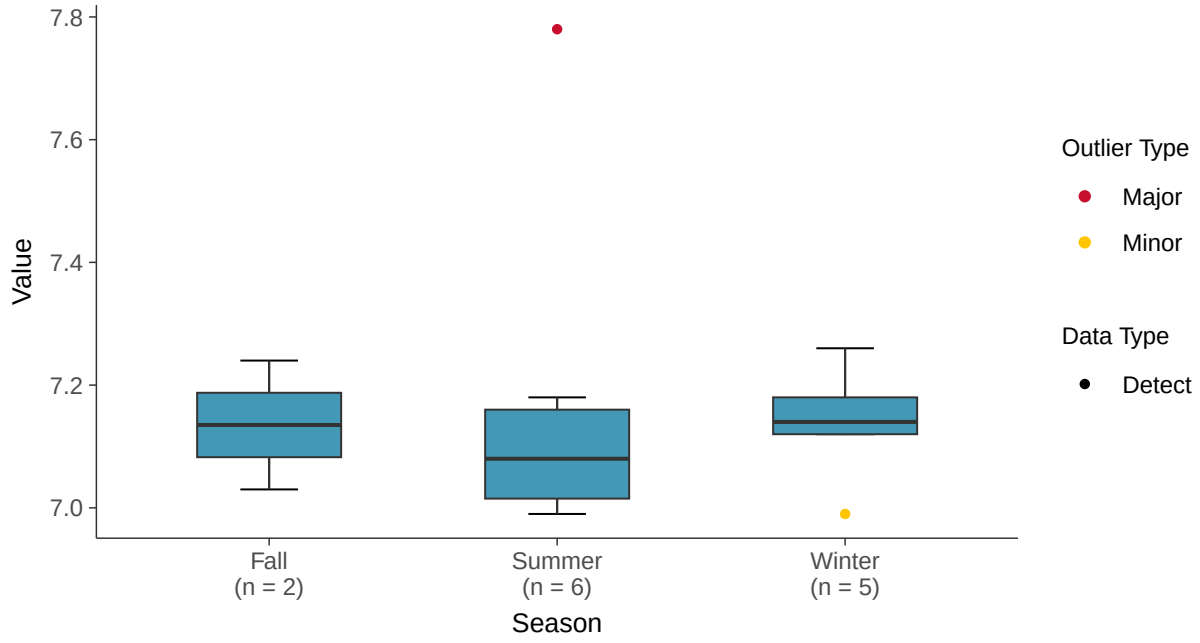
Boxplot

pH, Field, MW-8 (su)



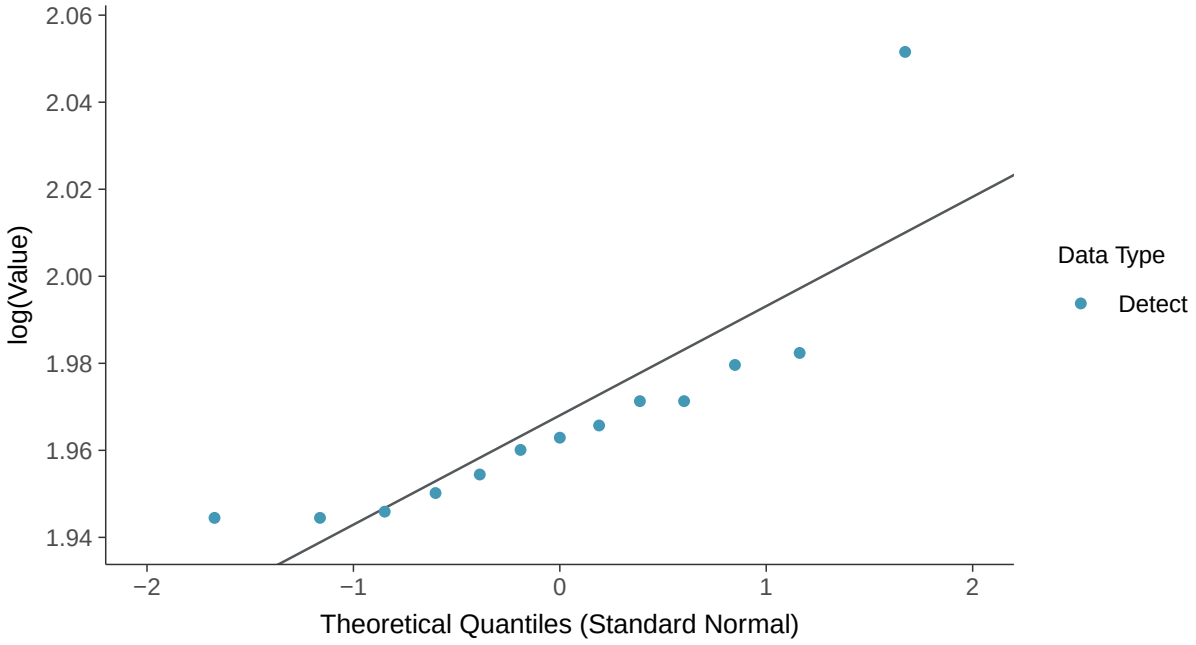
Boxplot by Season

pH, Field, MW-8 (su)



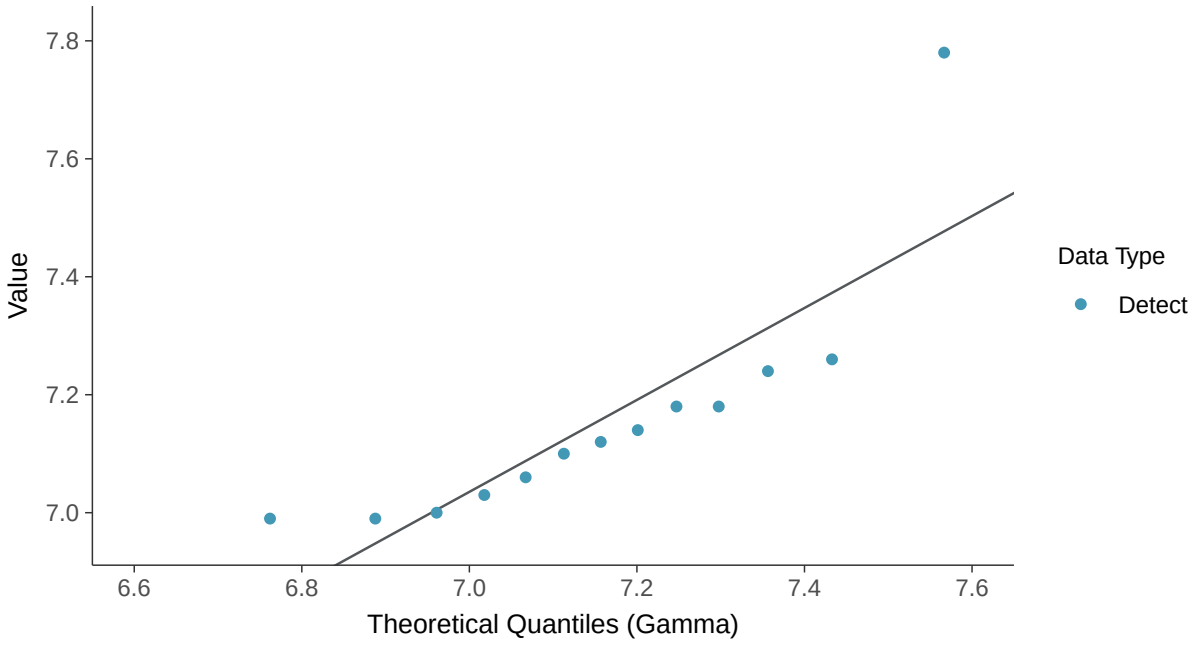
Lognormal Q-Q plot

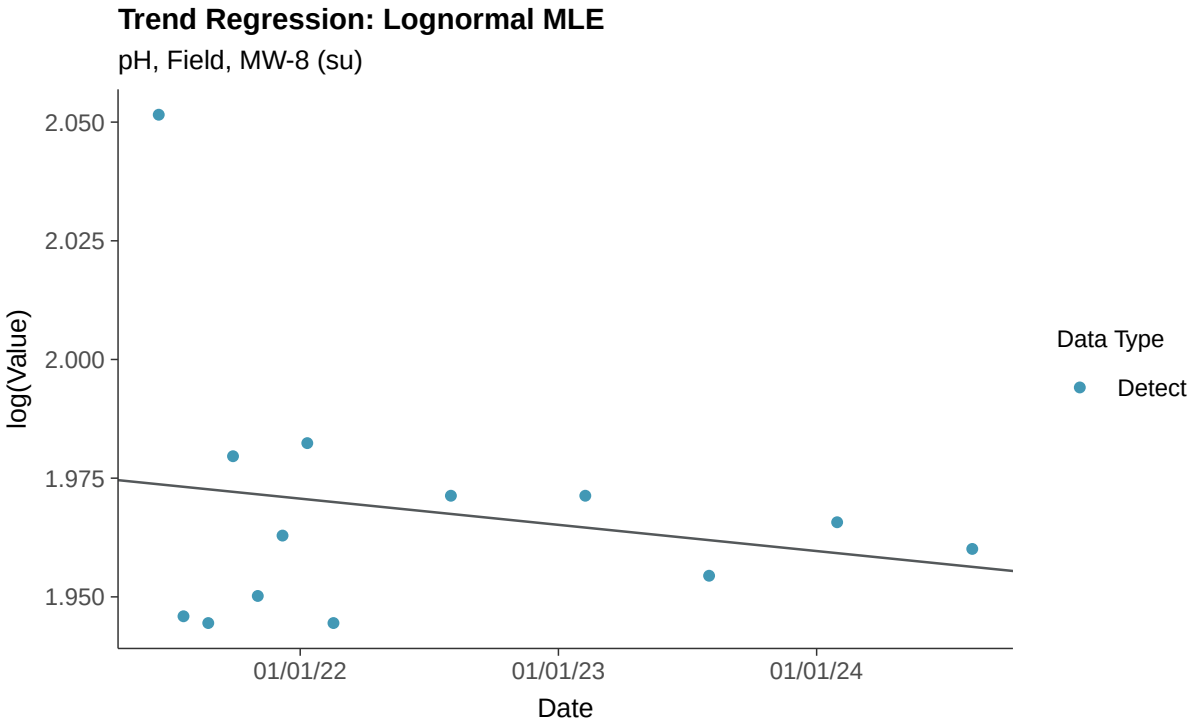
pH, Field, MW-8 (su)



Gamma Q-Q plot

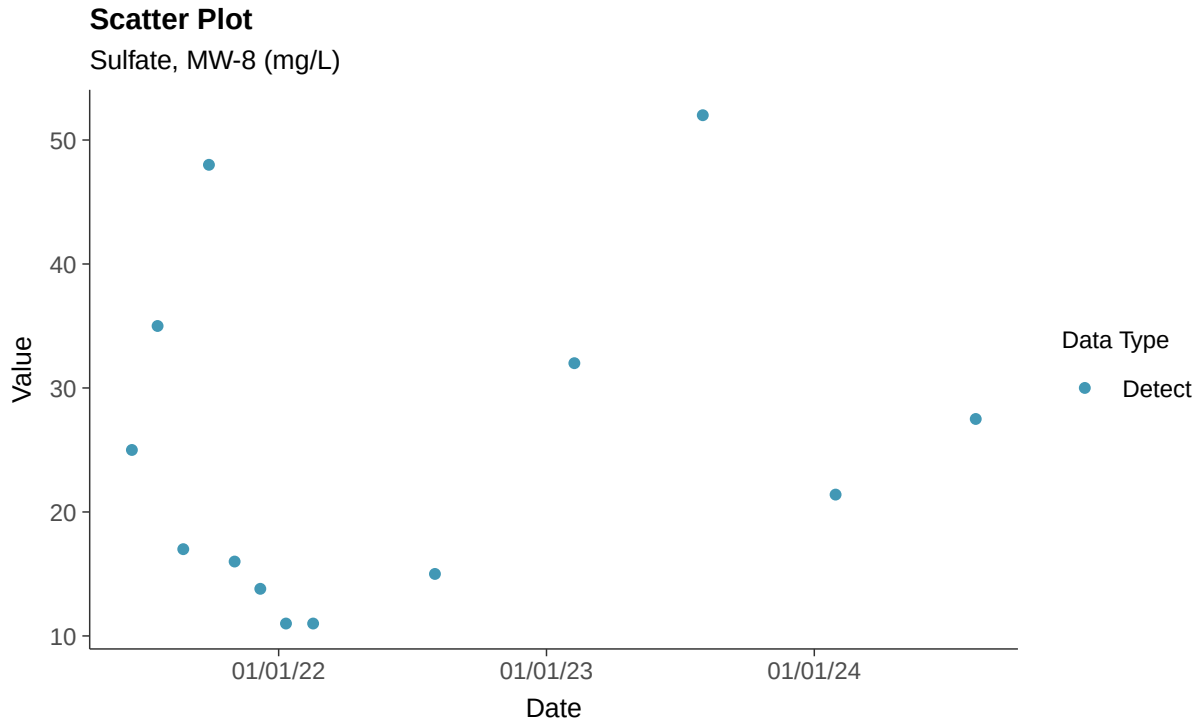
pH, Field, MW-8 (su)

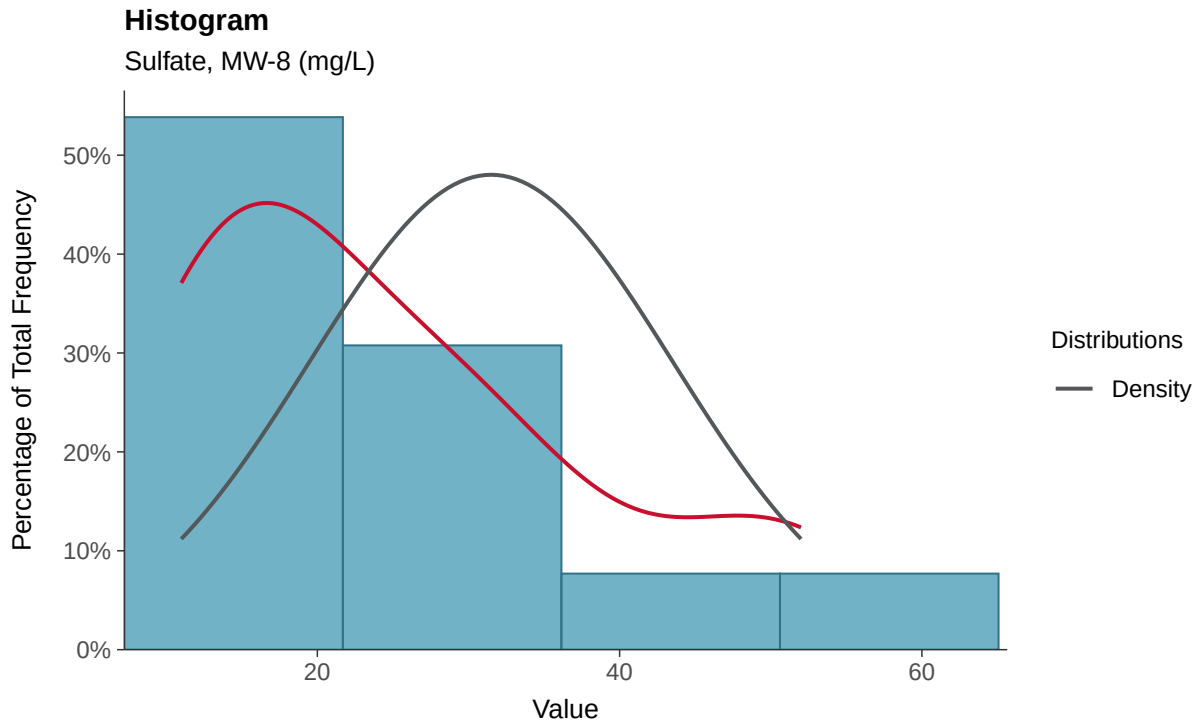



Trend Regression: Lognormal MLE
pH, Field, MW-8 (su)
log(Value)
2.050
2.025
2.000
1.975
1.950
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Appendix III: Sulfate, MW-8

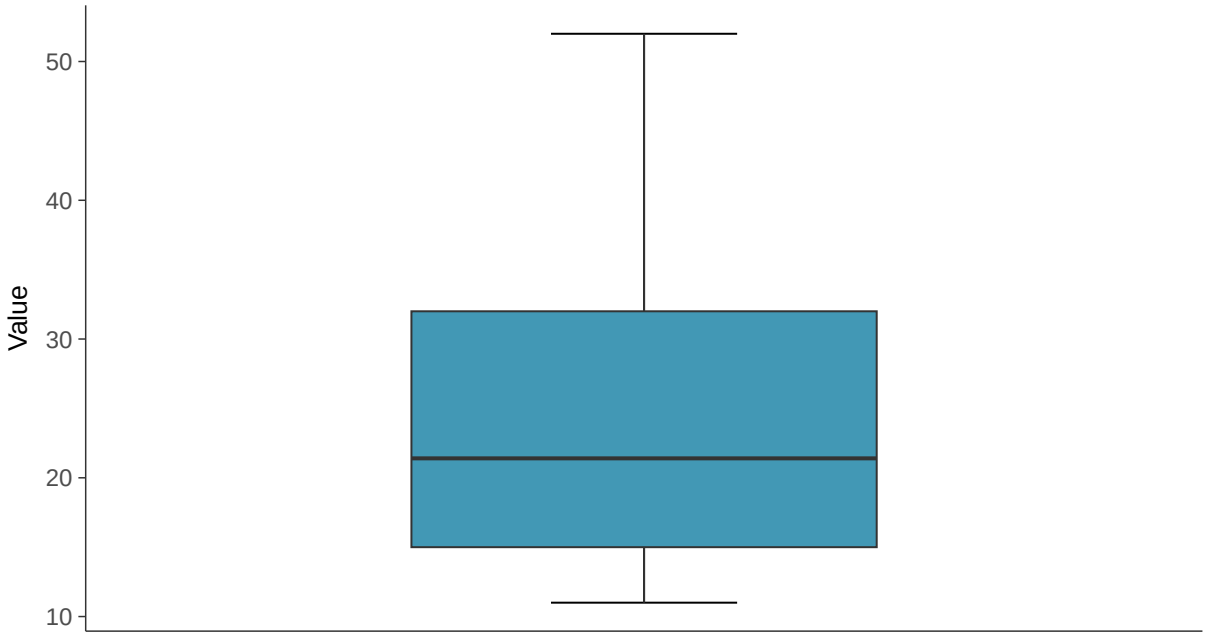
ID: 08_1_06





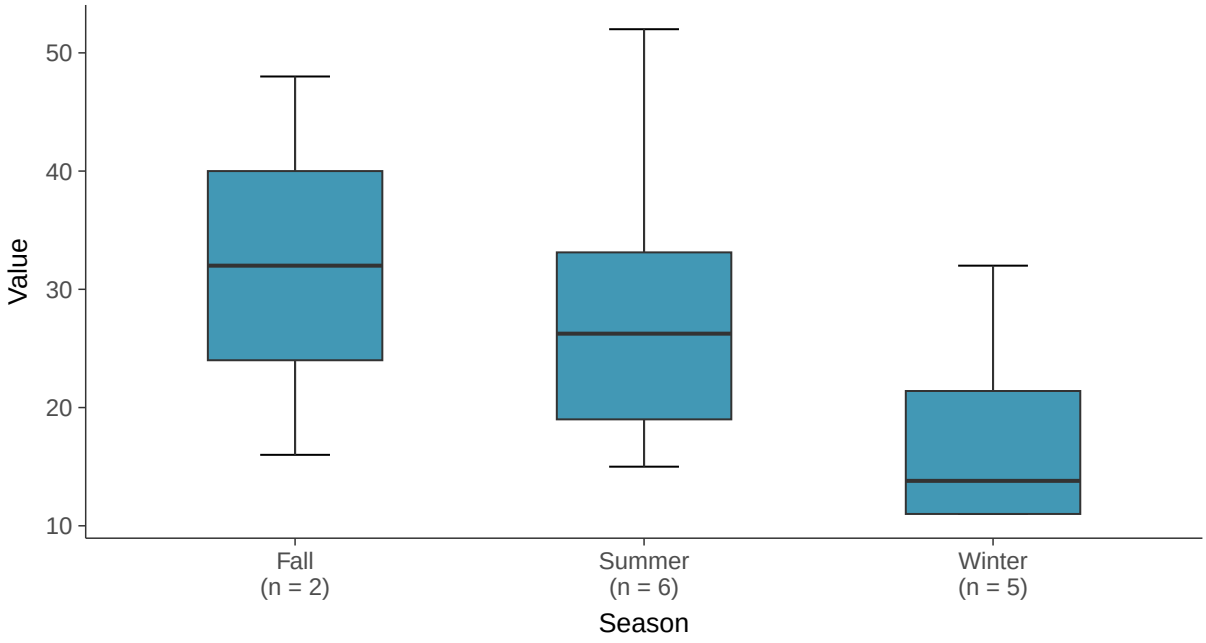
Boxplot

Sulfate, MW-8 (mg/L)



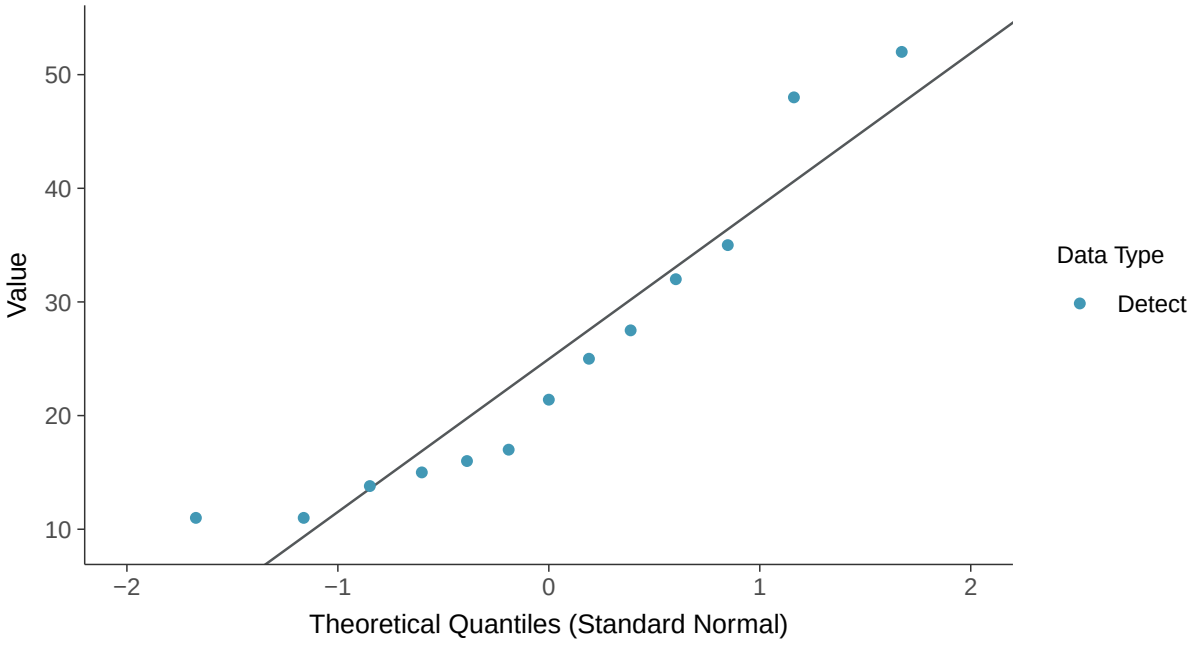
Boxplot by Season

Sulfate, MW-8 (mg/L)



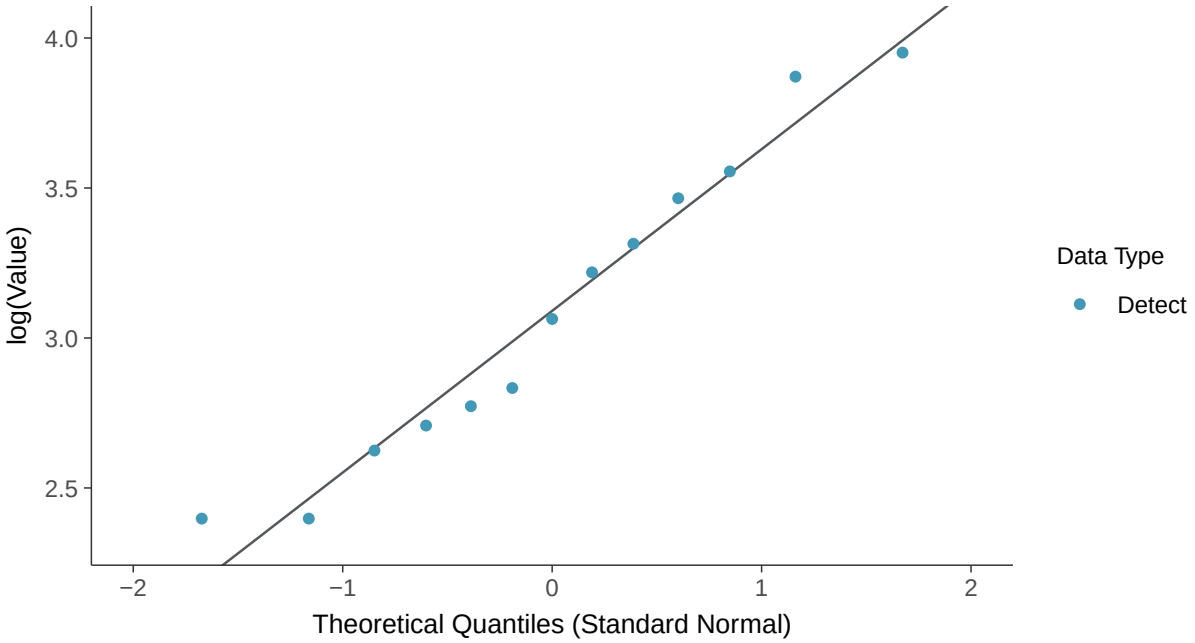
Normal Q-Q plot

Sulfate, MW-8 (mg/L)



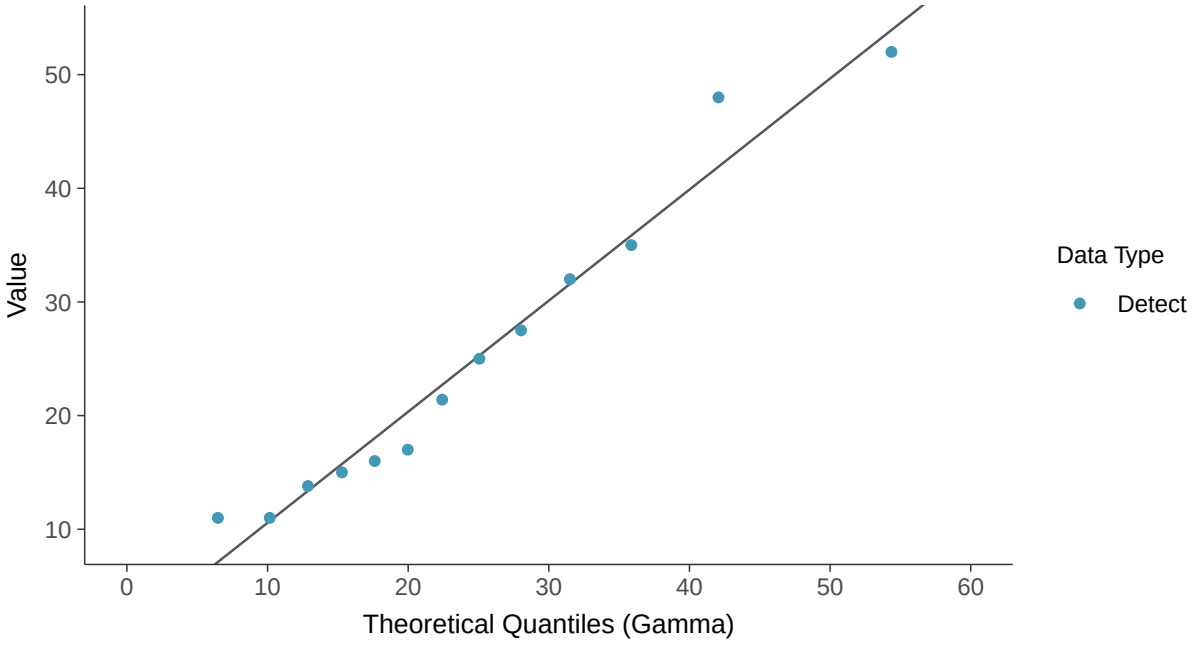
Lognormal Q-Q plot

Sulfate, MW-8 (mg/L)



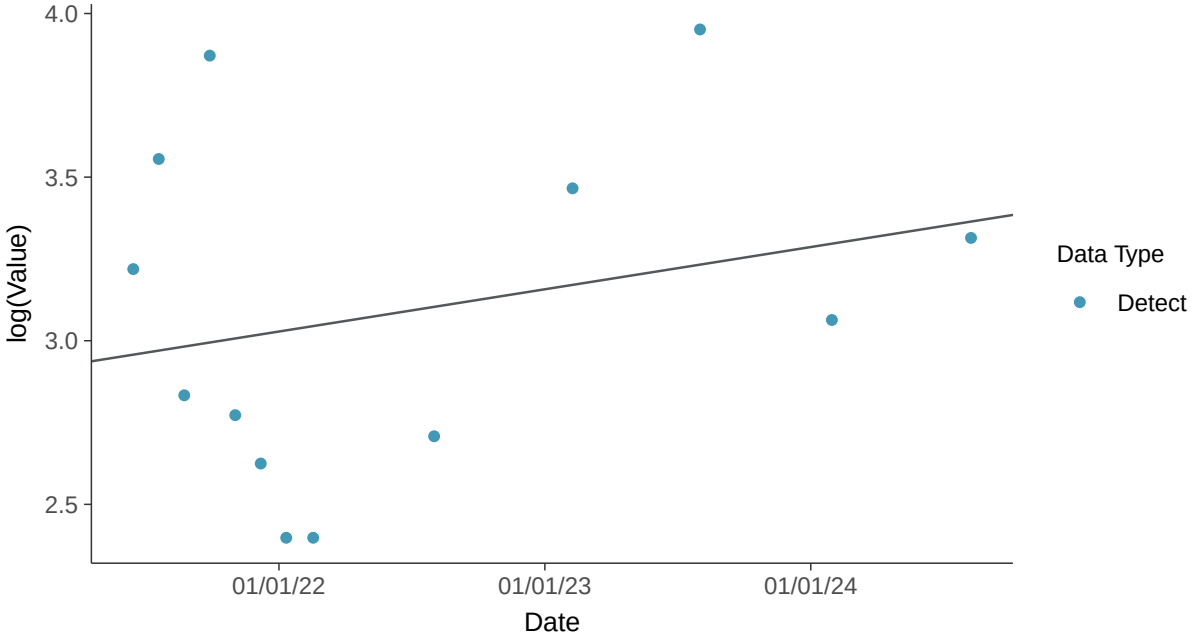
Gamma Q-Q plot

Sulfate, MW-8 (mg/L)



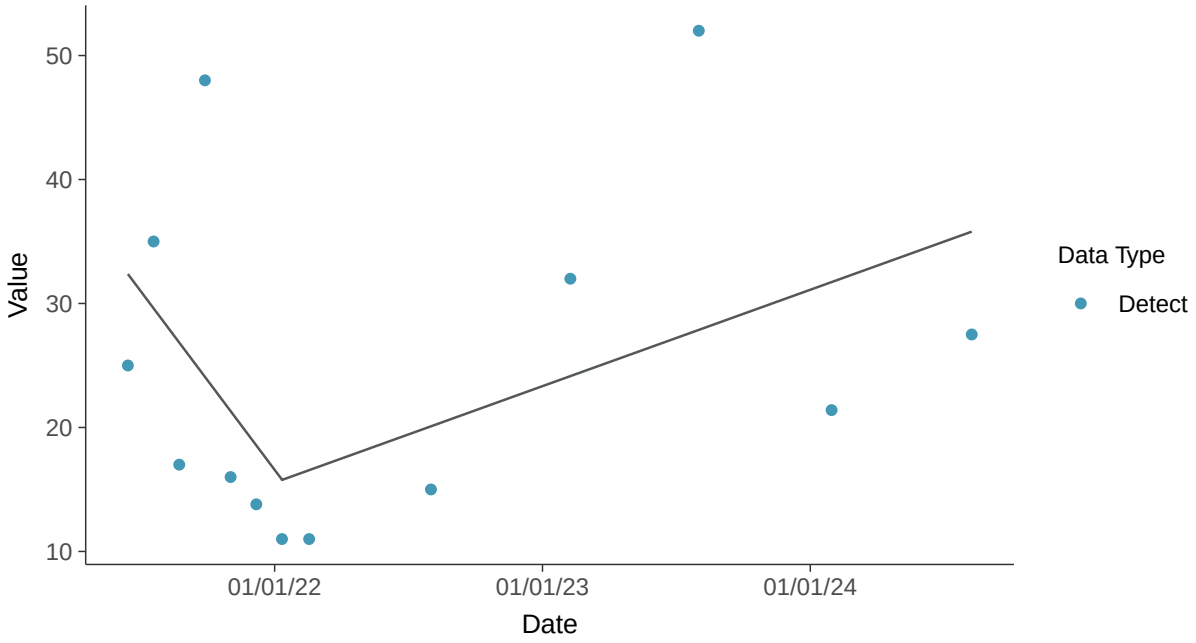
Trend Regression: Lognormal MLE

Sulfate, MW-8 (mg/L)



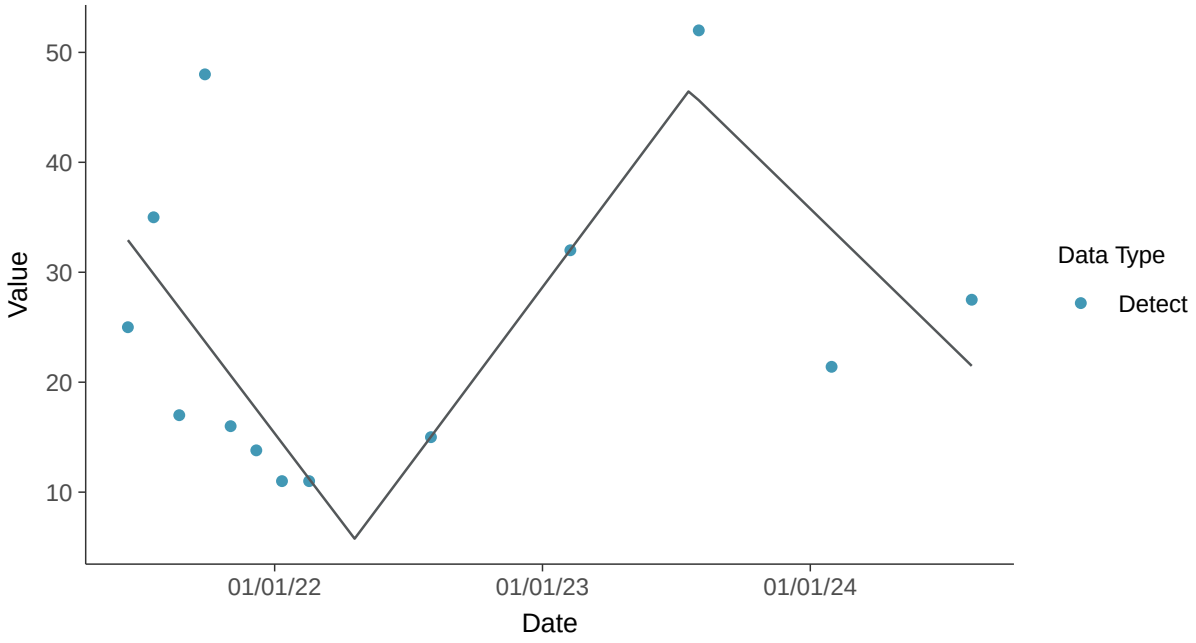
Trend Regression: Piecewise Linear-Linear

Sulfate, MW-8 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Sulfate, MW-8 (mg/L)

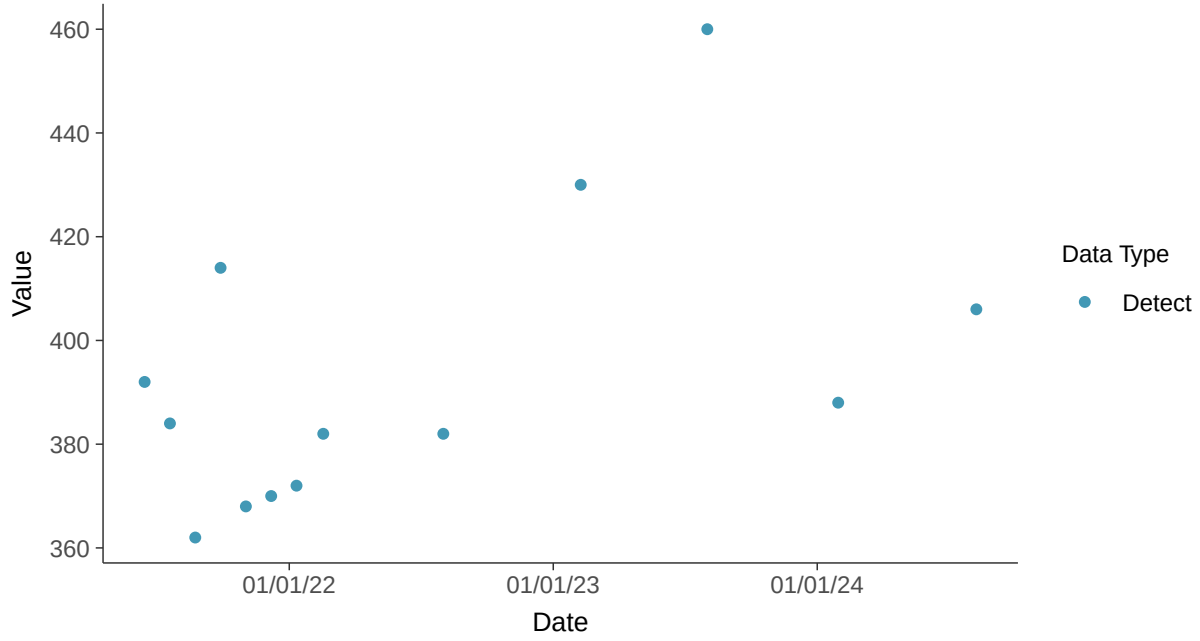


Appendix III: Total Dissolved Solids, MW-8

ID: 08_1_07

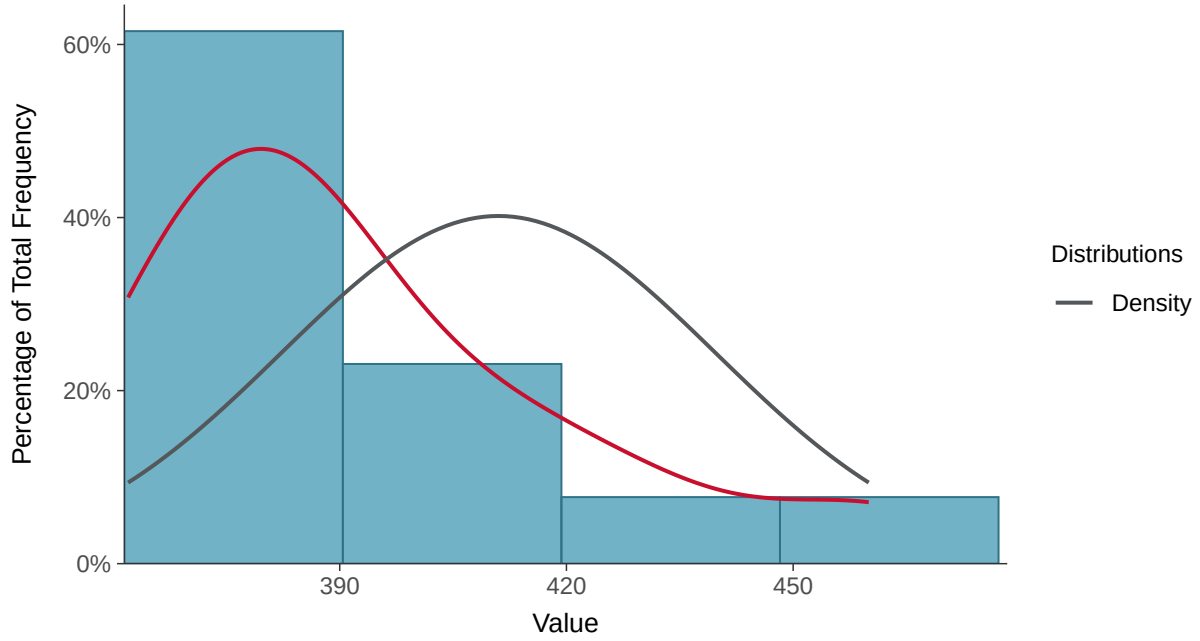
Scatter Plot

Total Dissolved Solids, MW-8 (mg/L)



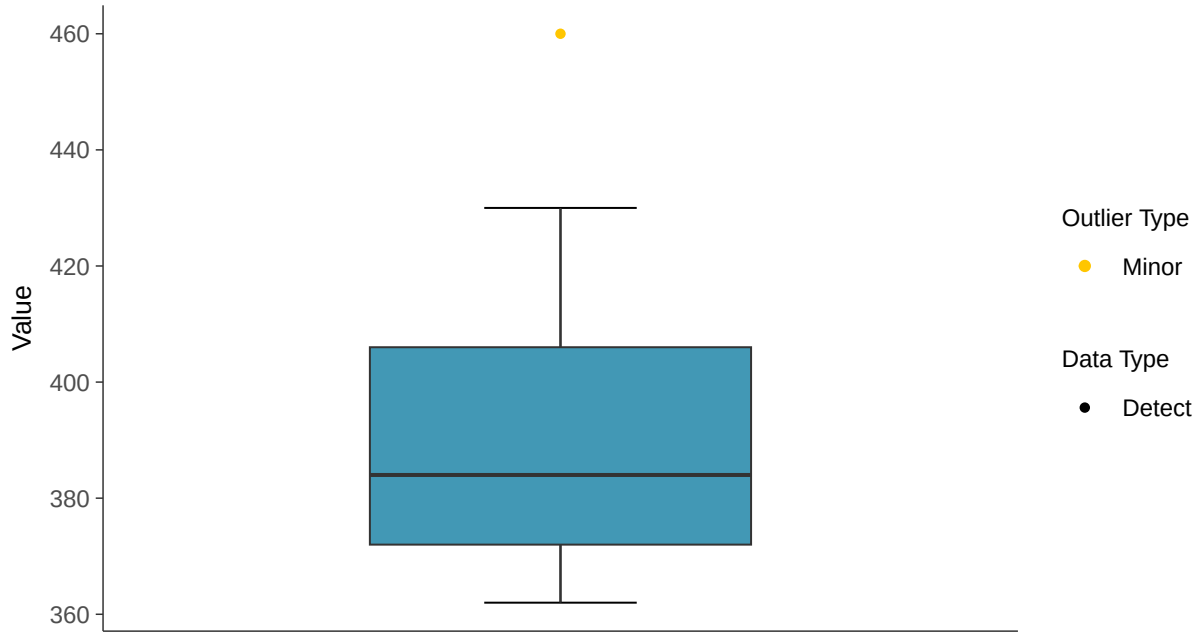
Histogram

Total Dissolved Solids, MW-8 (mg/L)



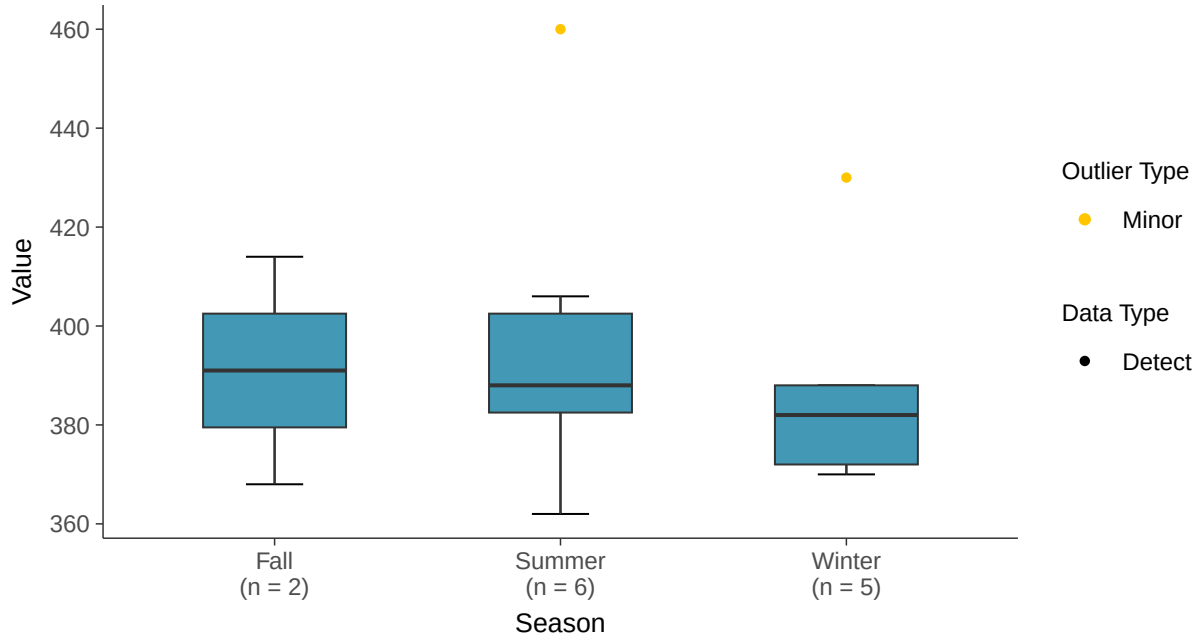
Boxplot

Total Dissolved Solids, MW-8 (mg/L)



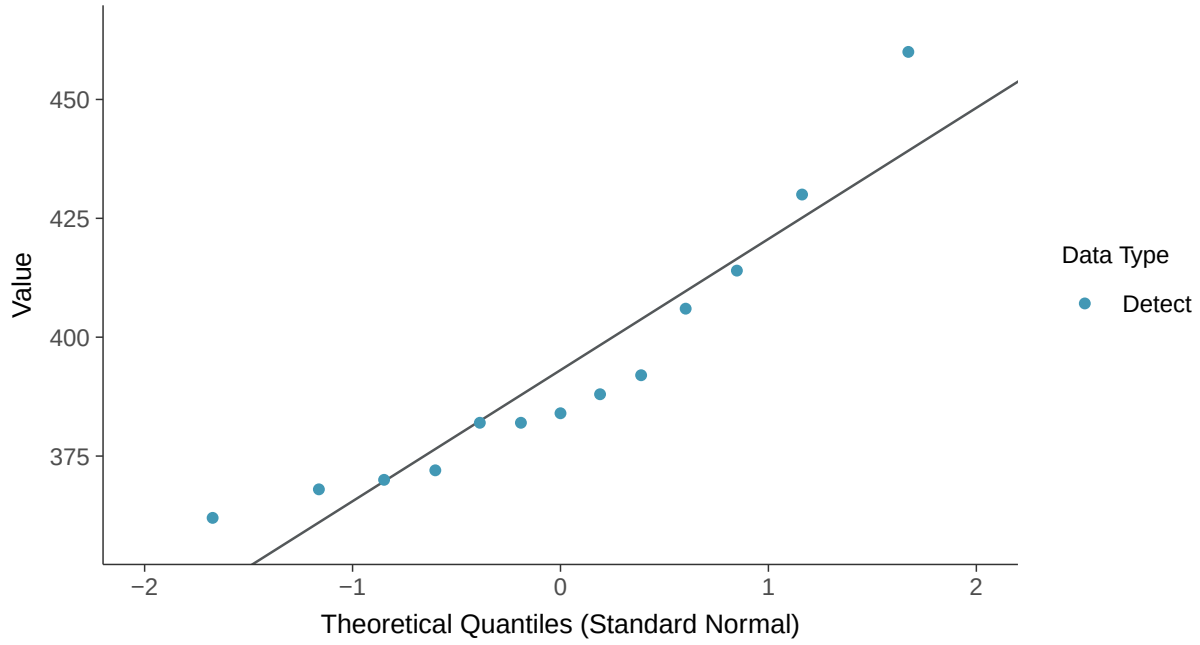
Boxplot by Season

Total Dissolved Solids, MW-8 (mg/L)



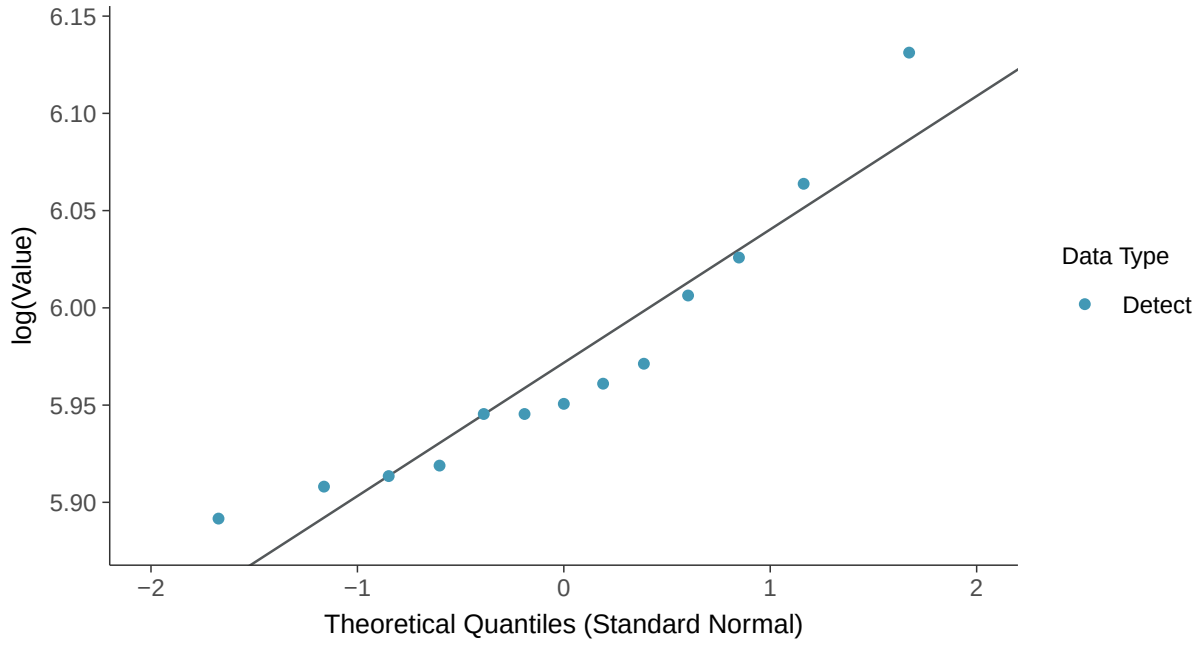
Normal Q-Q plot

Total Dissolved Solids, MW-8 (mg/L)



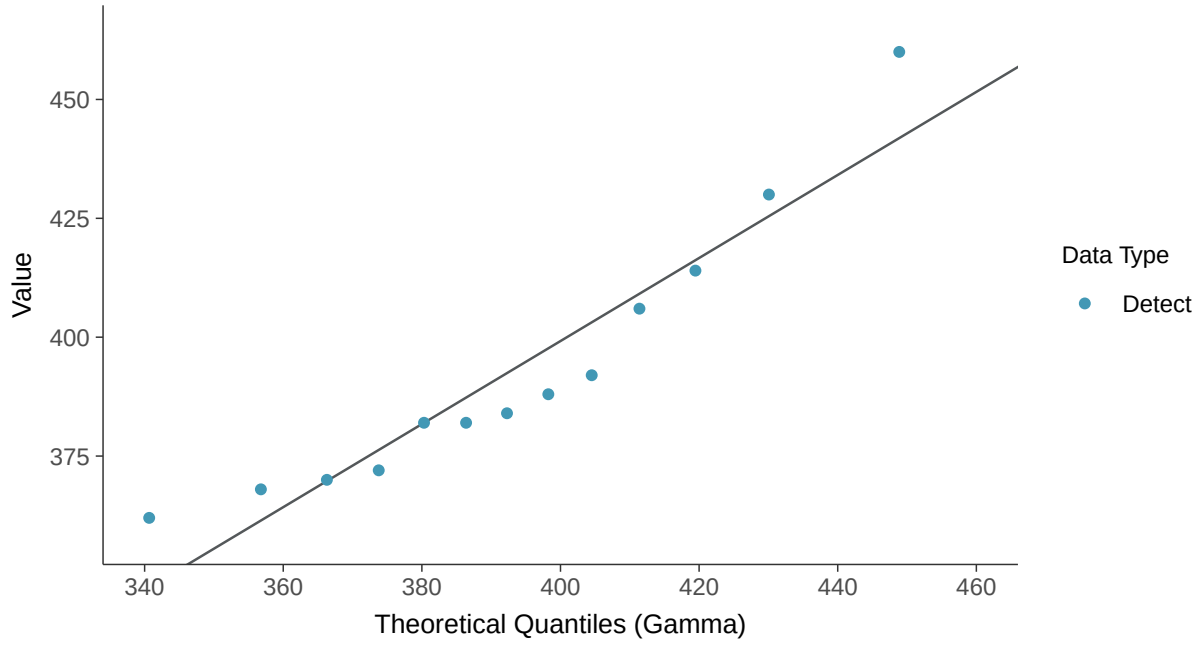
Lognormal Q-Q plot

Total Dissolved Solids, MW-8 (mg/L)



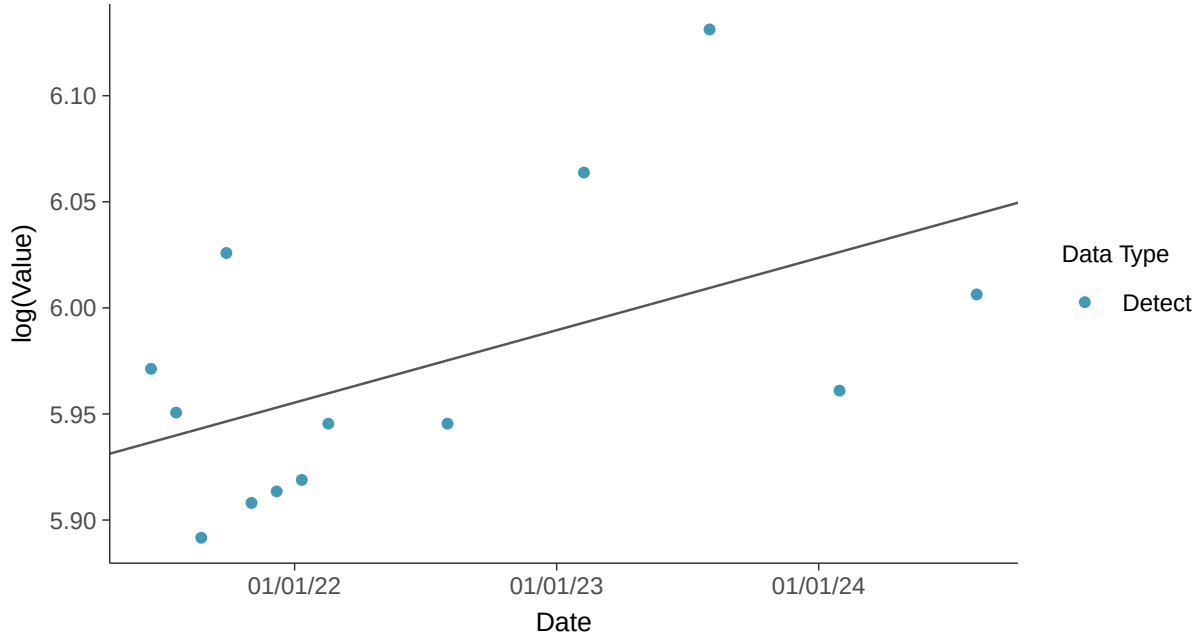
Gamma Q-Q plot

Total Dissolved Solids, MW-8 (mg/L)



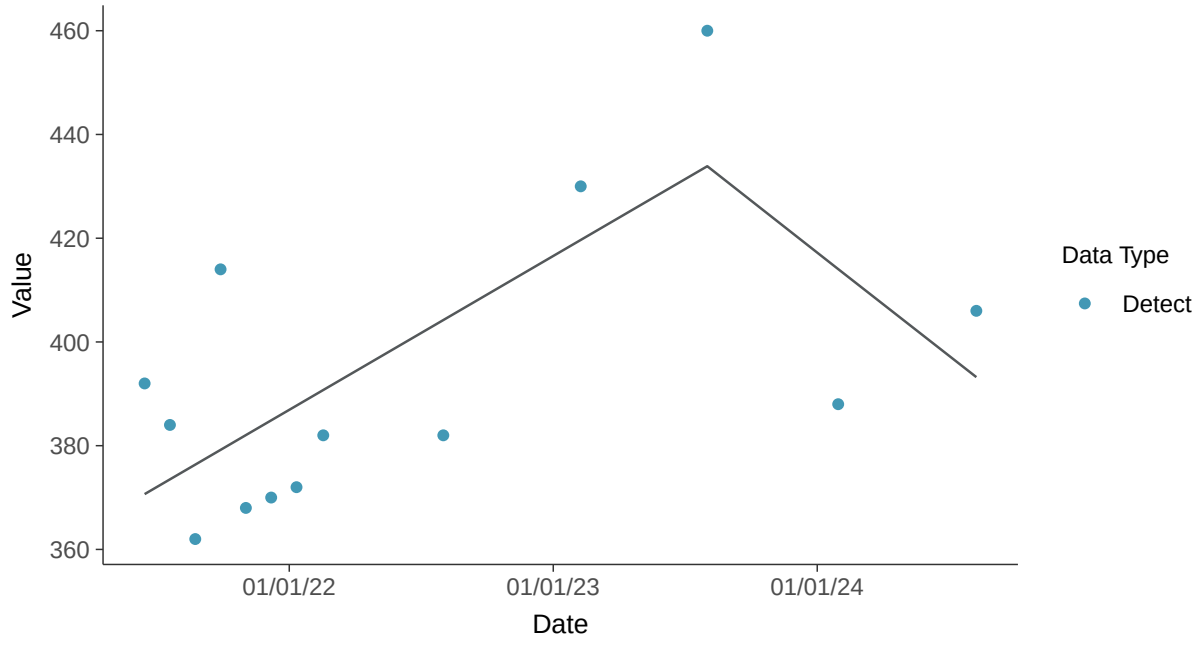
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-8 (mg/L)



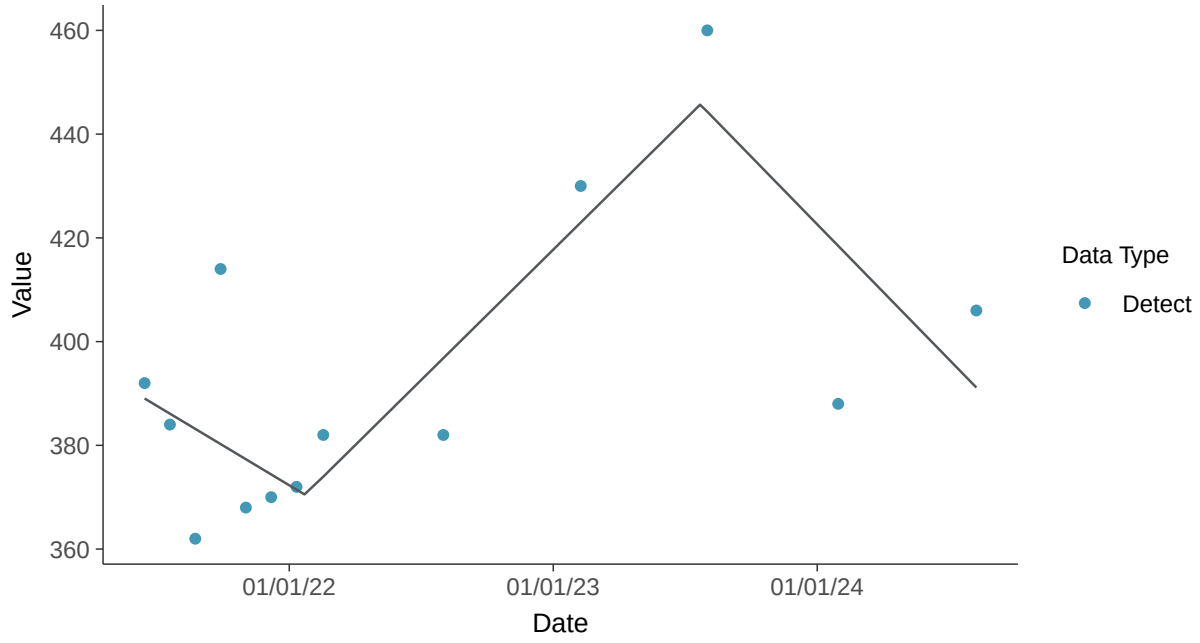
Trend Regression: Piecewise Linear-Linear

Total Dissolved Solids, MW-8 (mg/L)



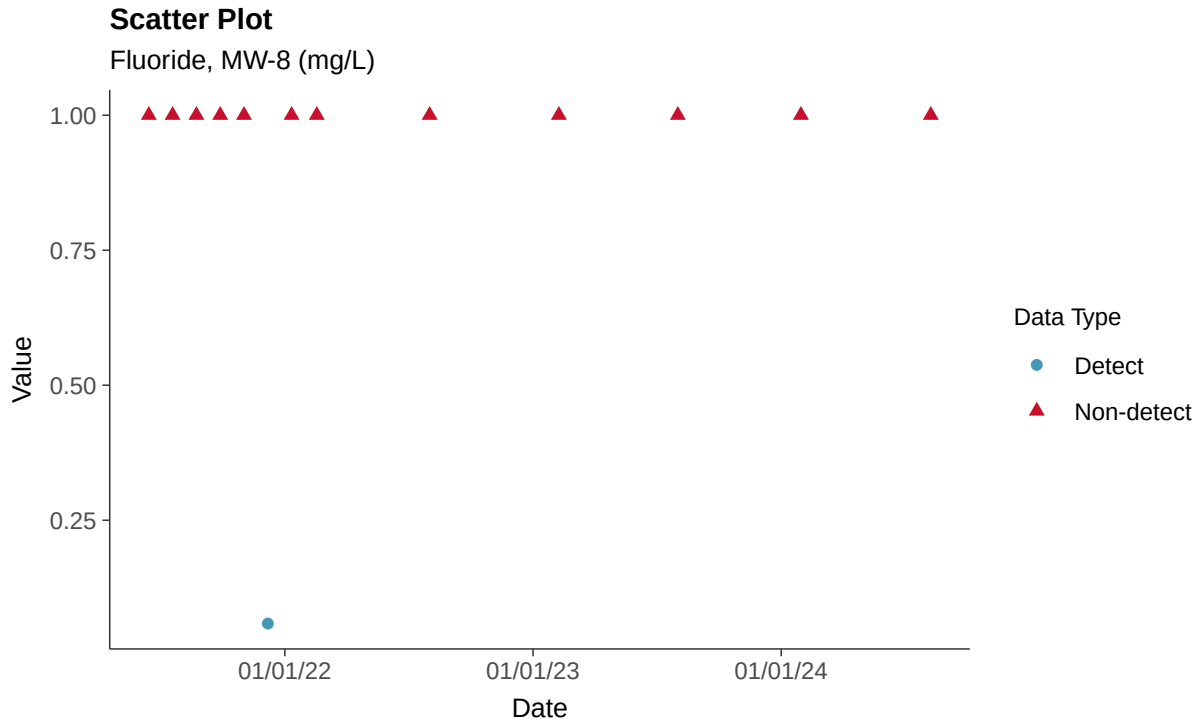
Trend Regression: Piecewise Linear-Linear-Linear

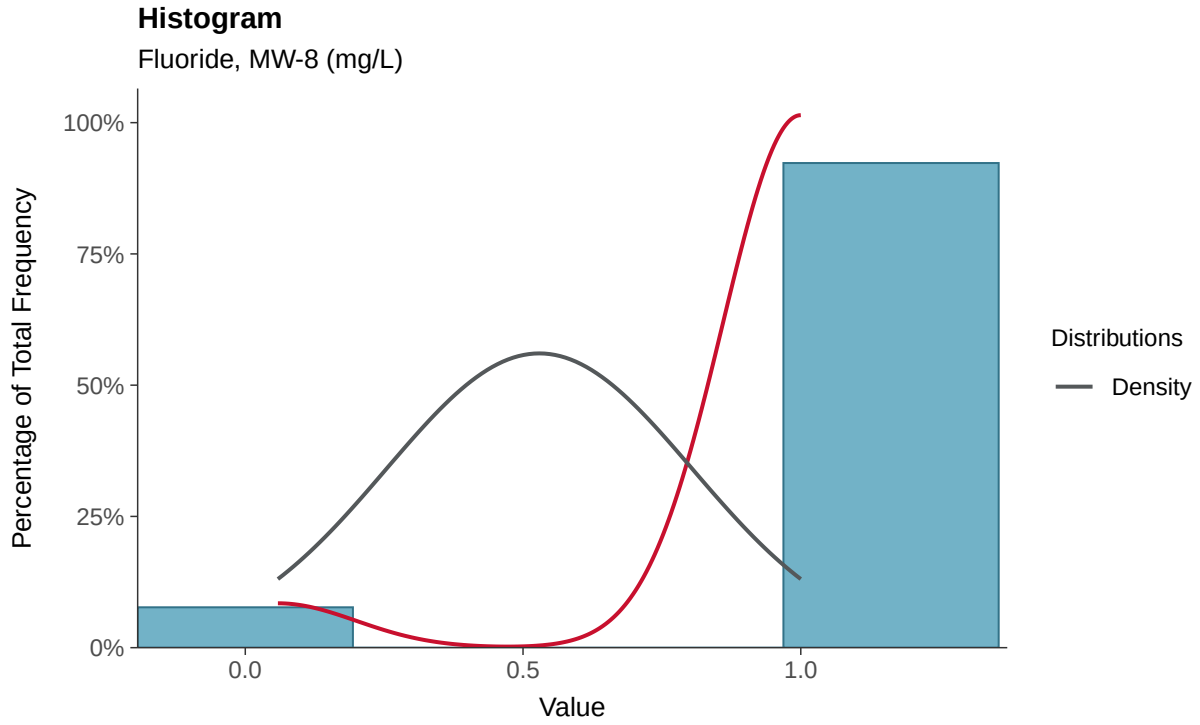
Total Dissolved Solids, MW-8 (mg/L)



Appendix IV: Fluoride, MW-8

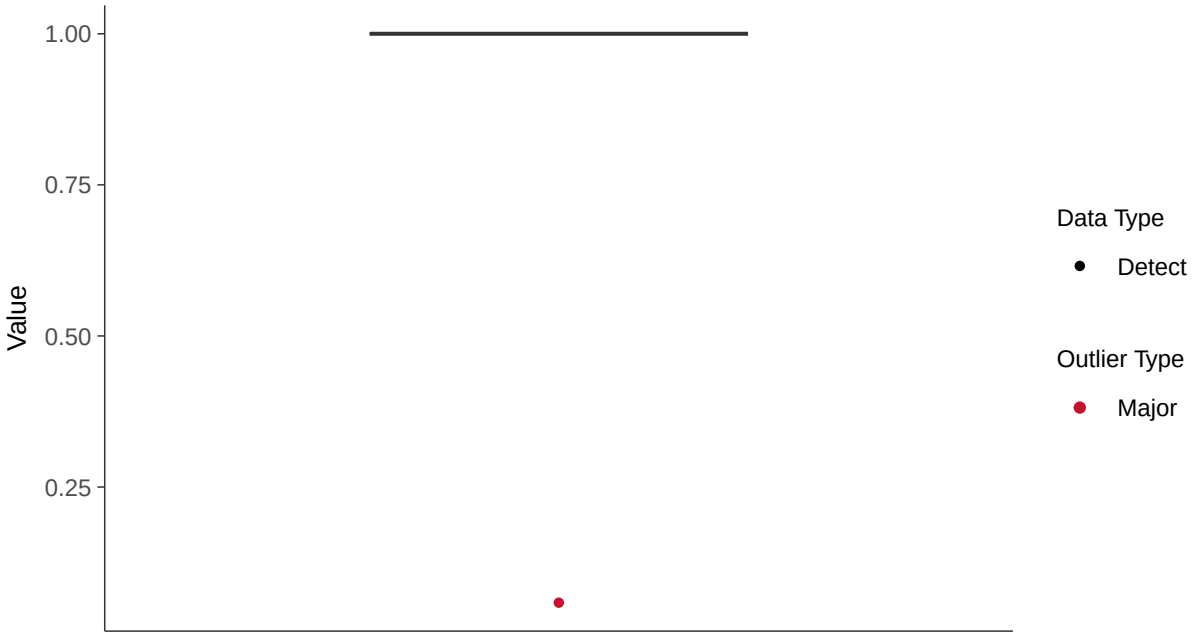
ID: 08_2_04





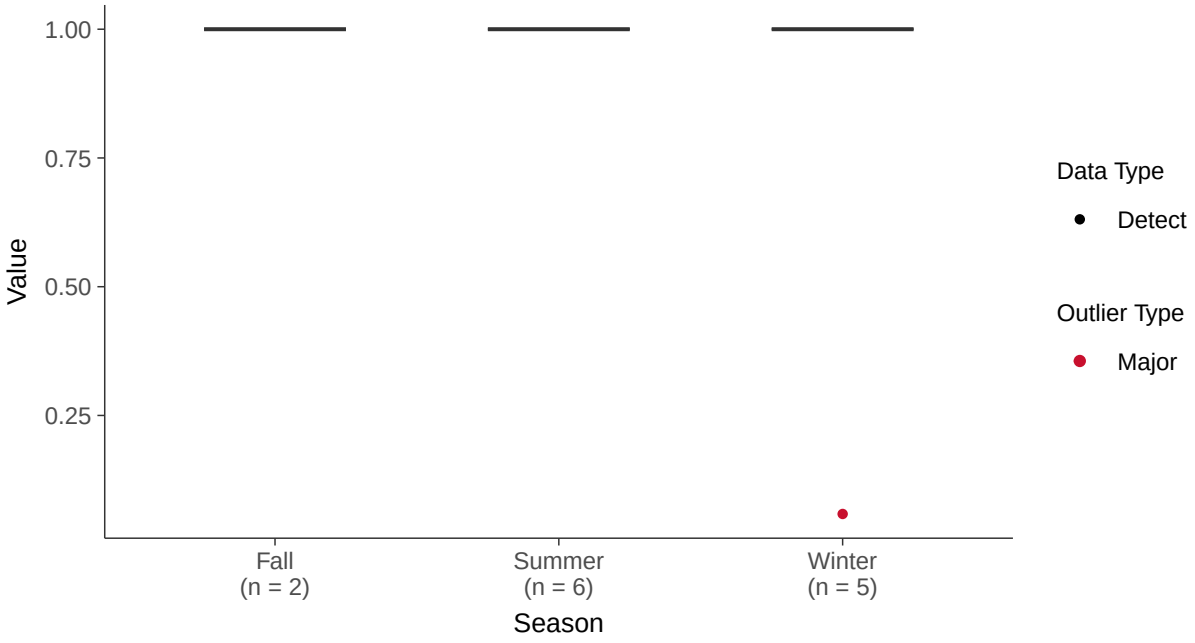
Boxplot

Fluoride, MW-8 (mg/L)



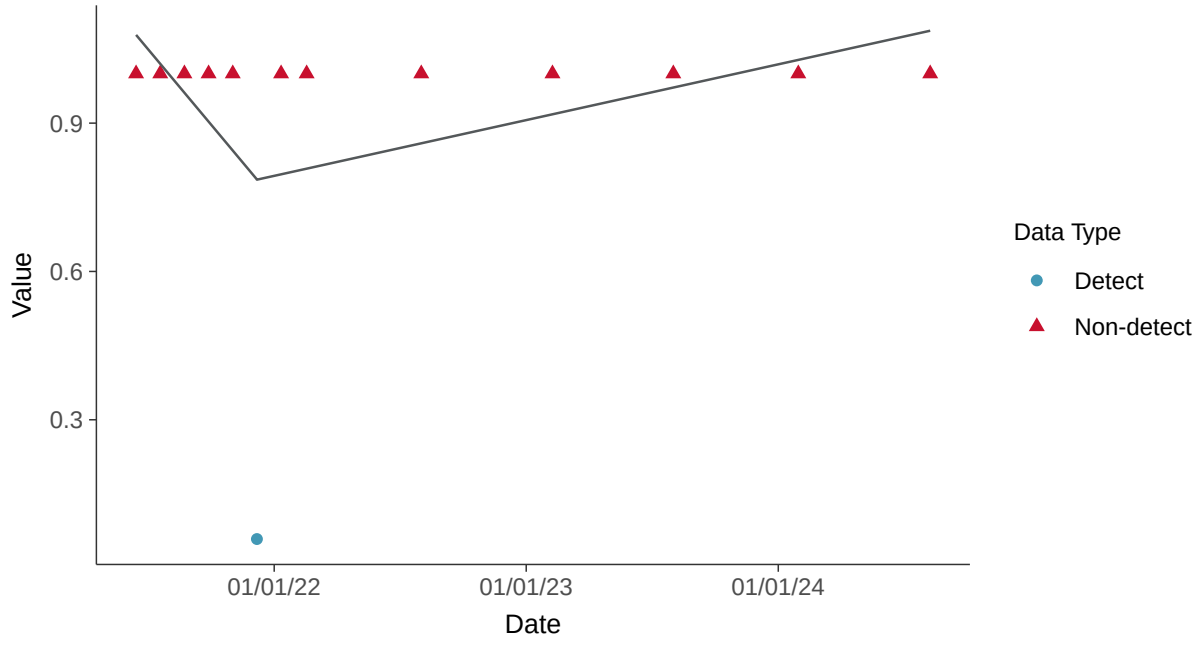
Boxplot by Season

Fluoride, MW-8 (mg/L)



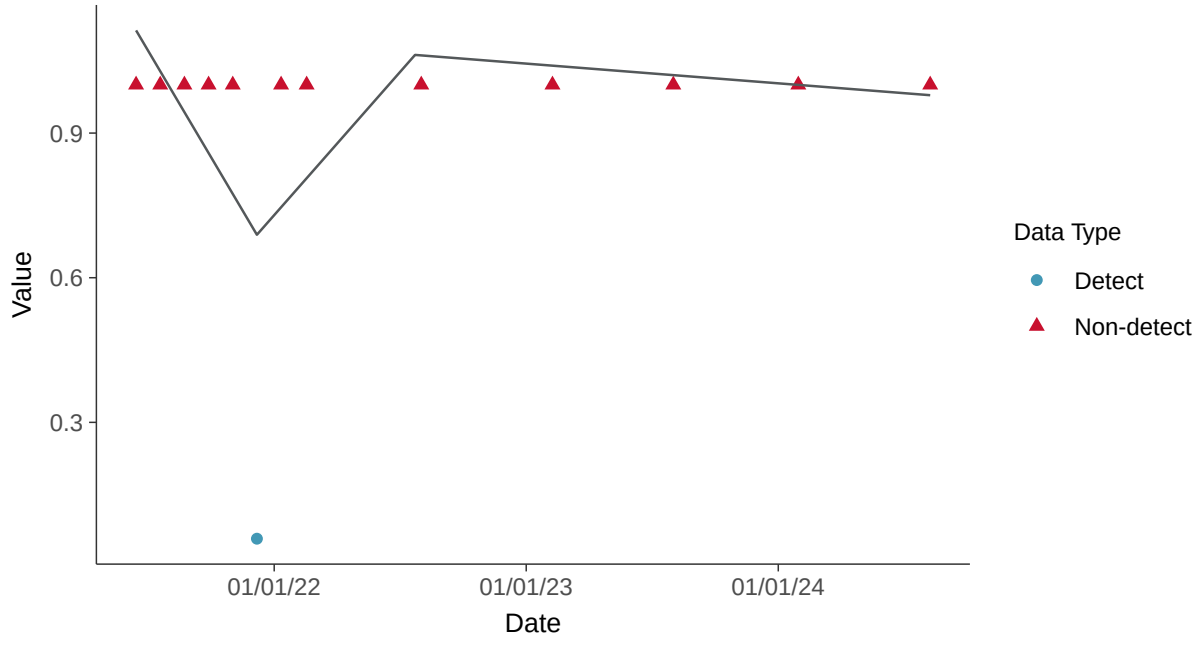
Trend Regression: Piecewise Linear-Linear

Fluoride, MW-8 (mg/L)



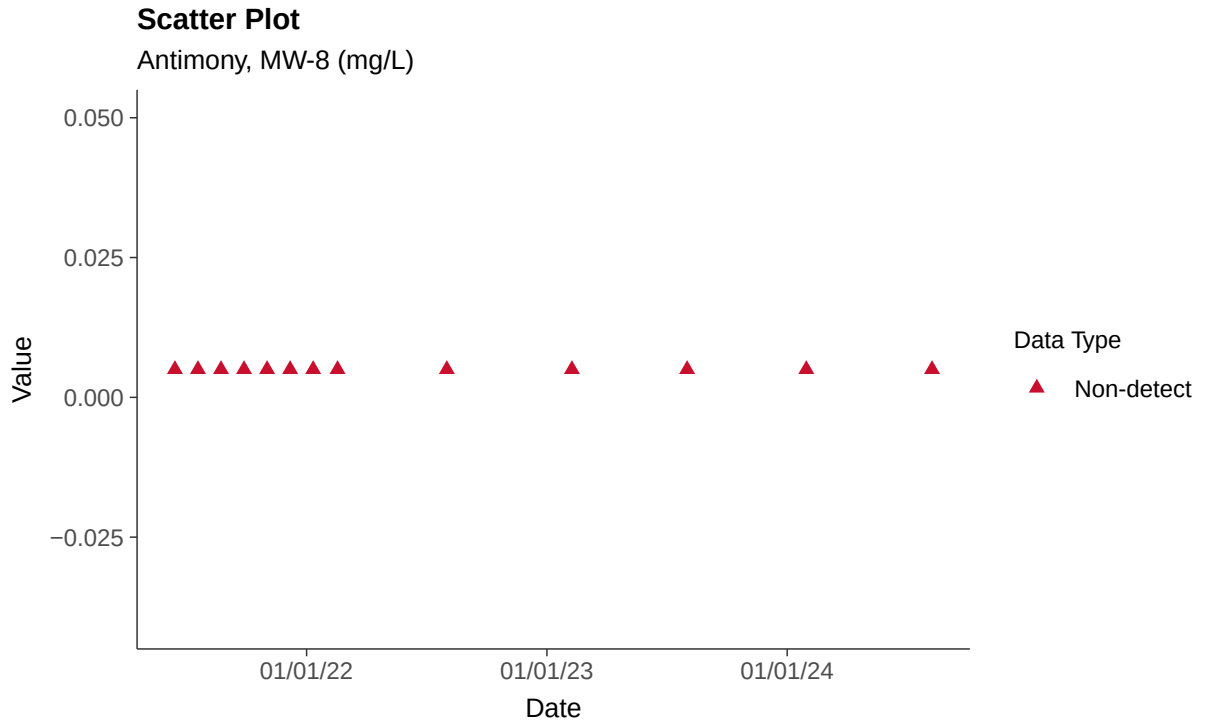
Trend Regression: Piecewise Linear-Linear-Linear

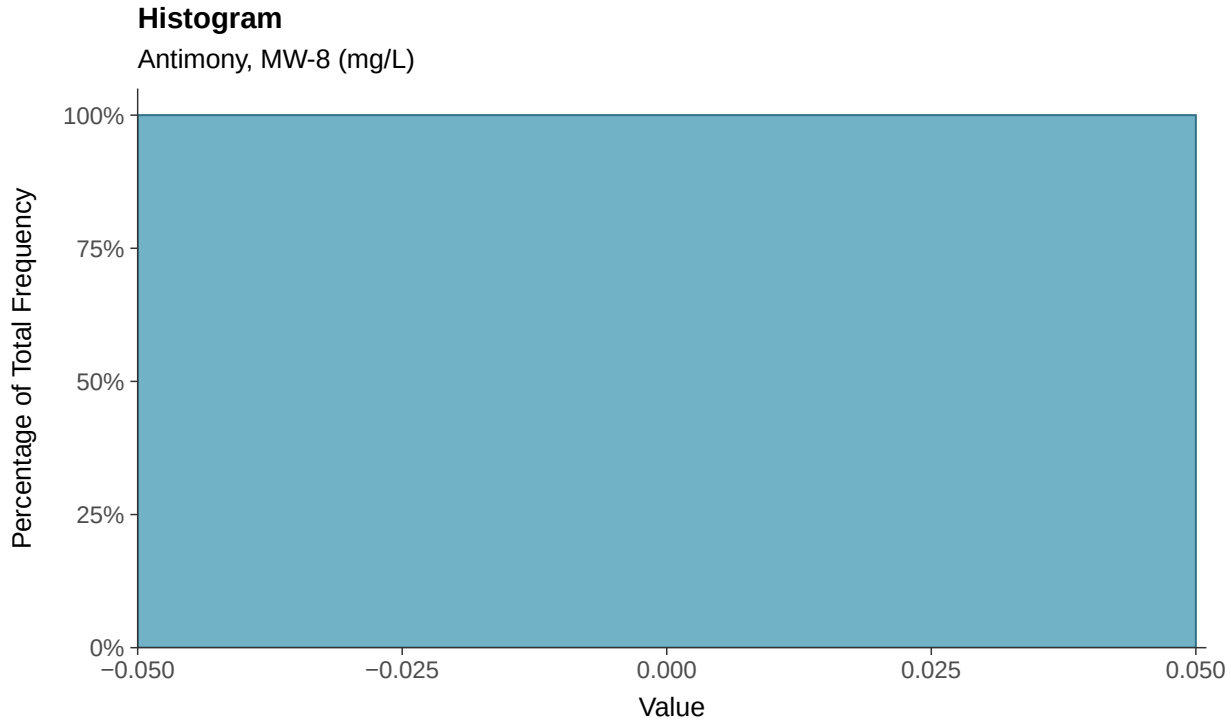
Fluoride, MW-8 (mg/L)



Appendix IV: Antimony, MW-8

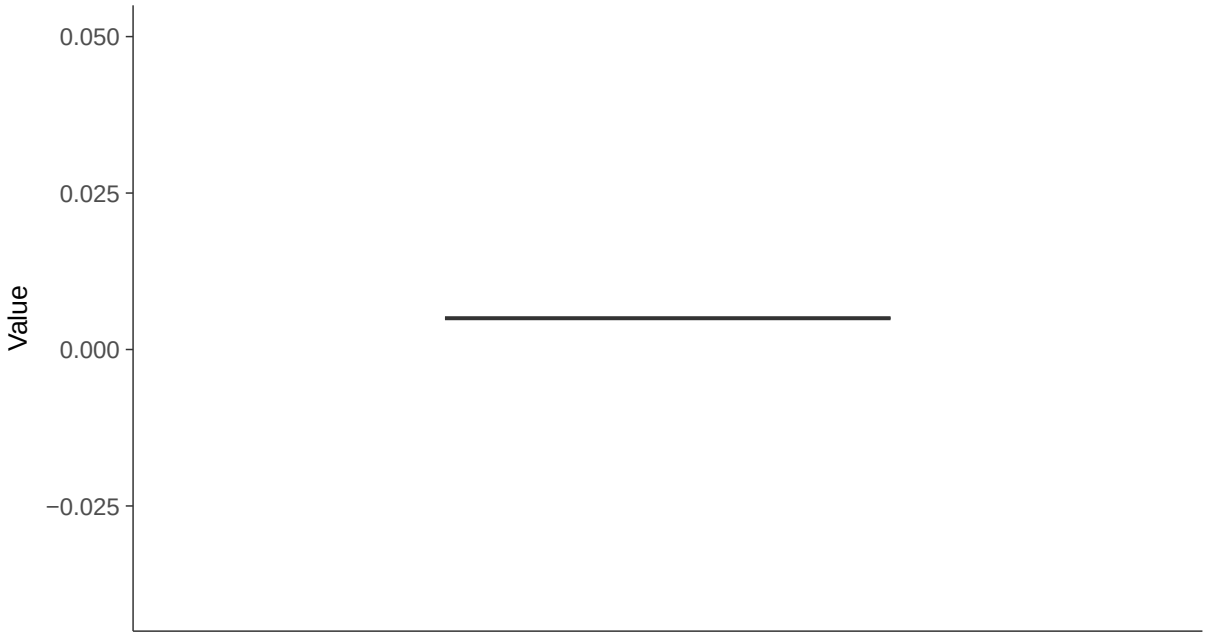
ID: 08_2_08





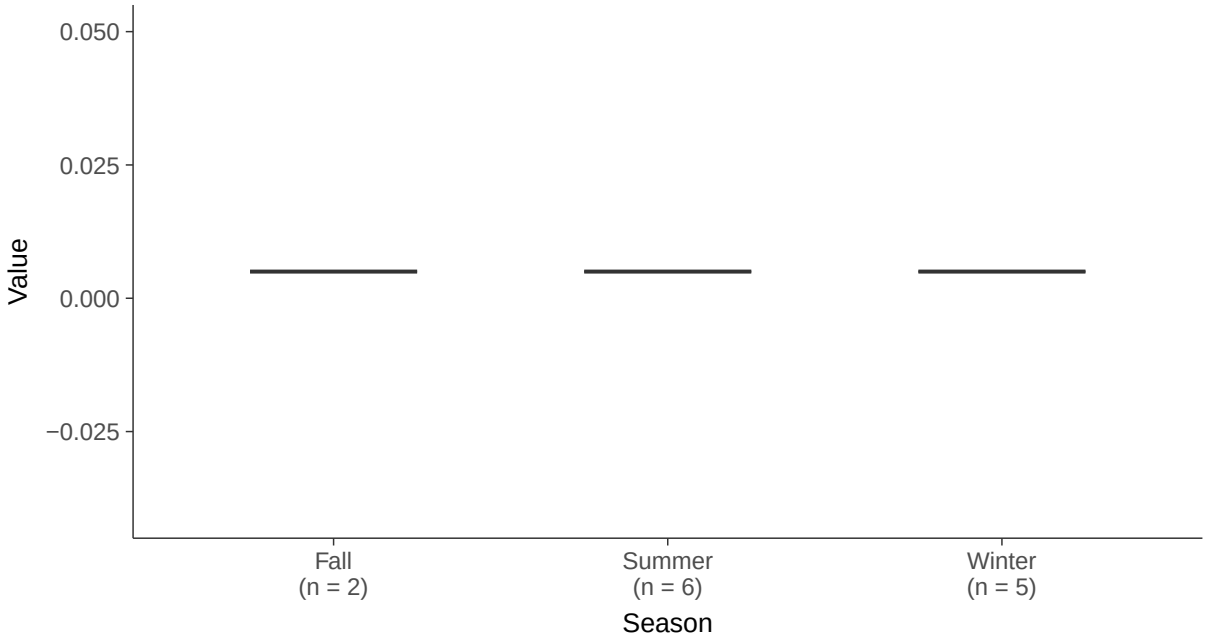
Boxplot

Antimony, MW-8 (mg/L)



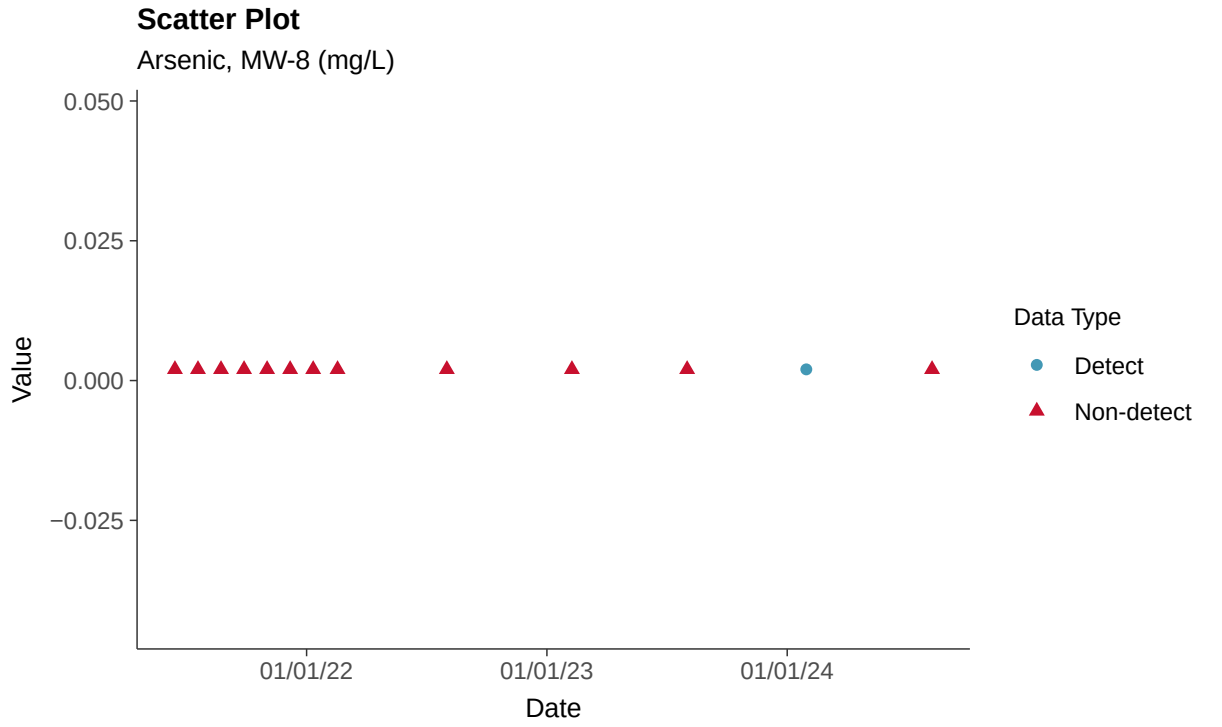
Boxplot by Season

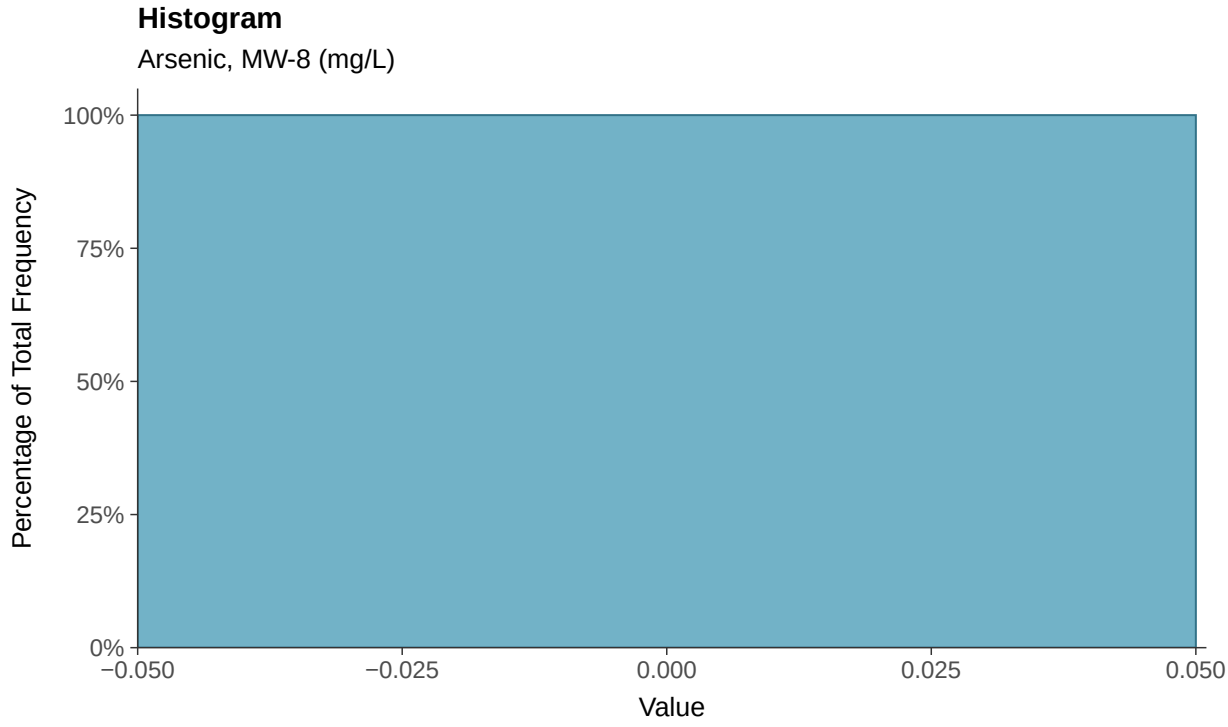
Antimony, MW-8 (mg/L)



Appendix IV: Arsenic, MW-8

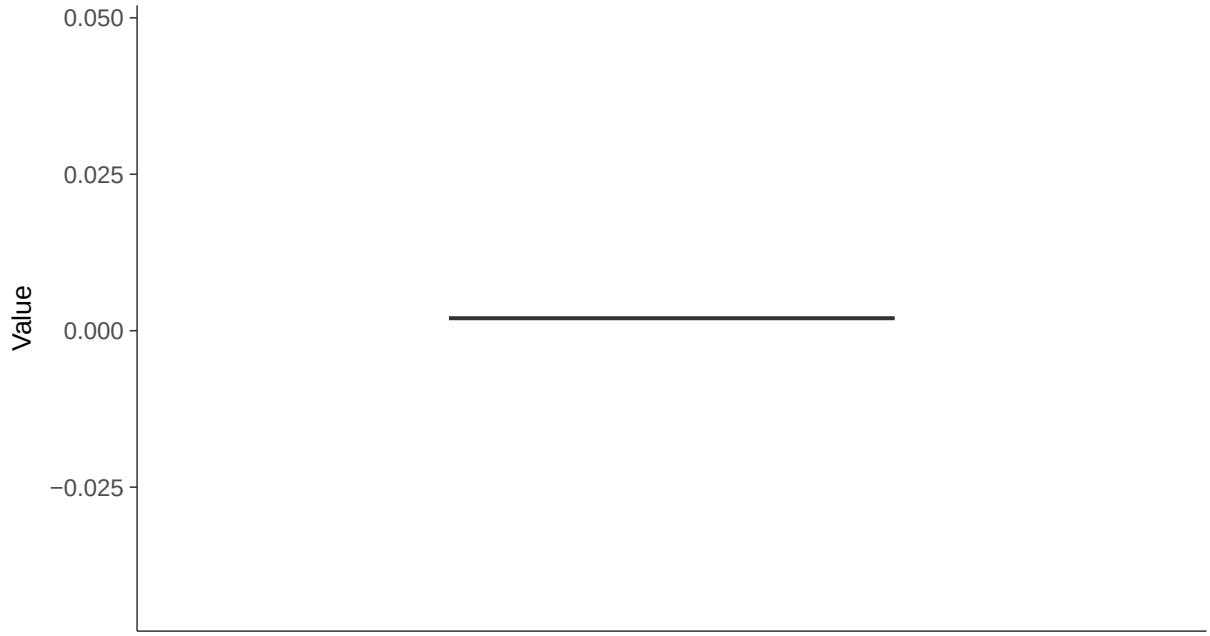
ID: 08_2_09





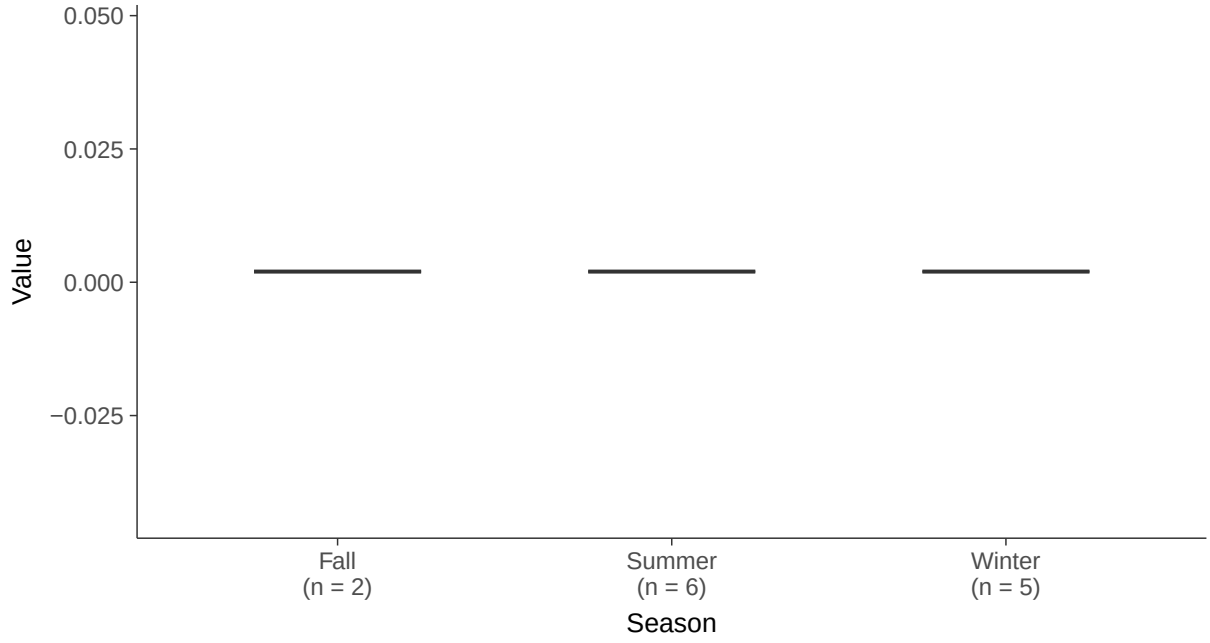
Boxplot

Arsenic, MW-8 (mg/L)



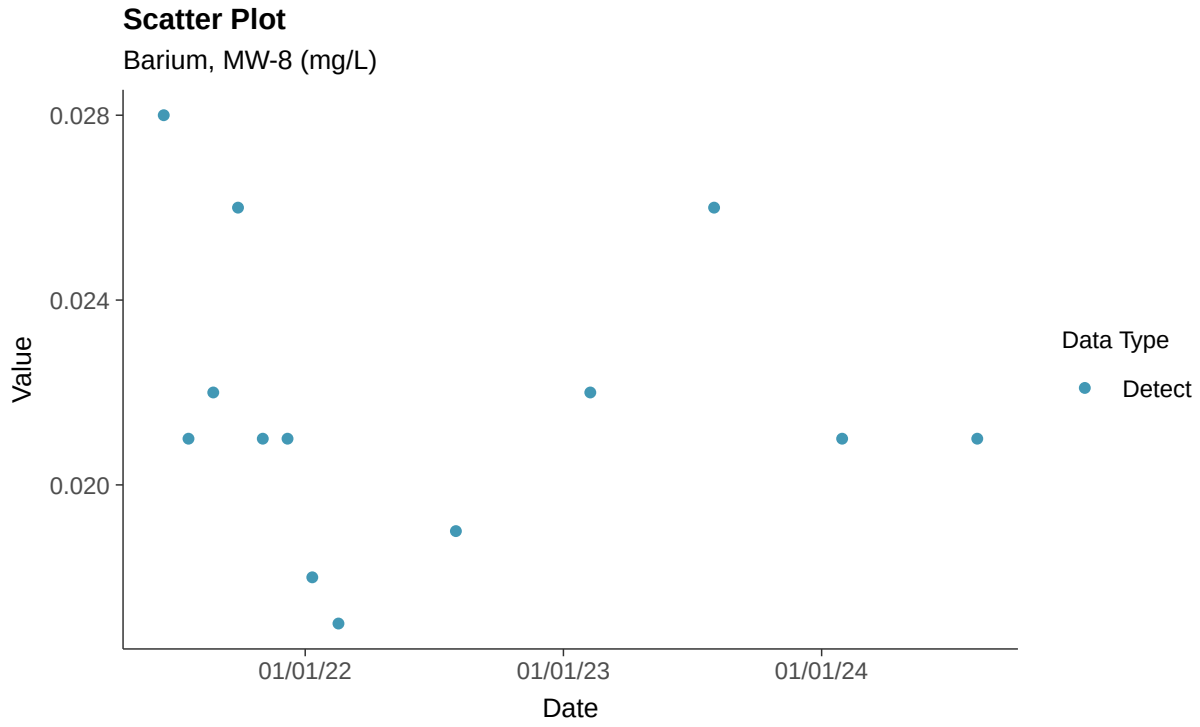
Boxplot by Season

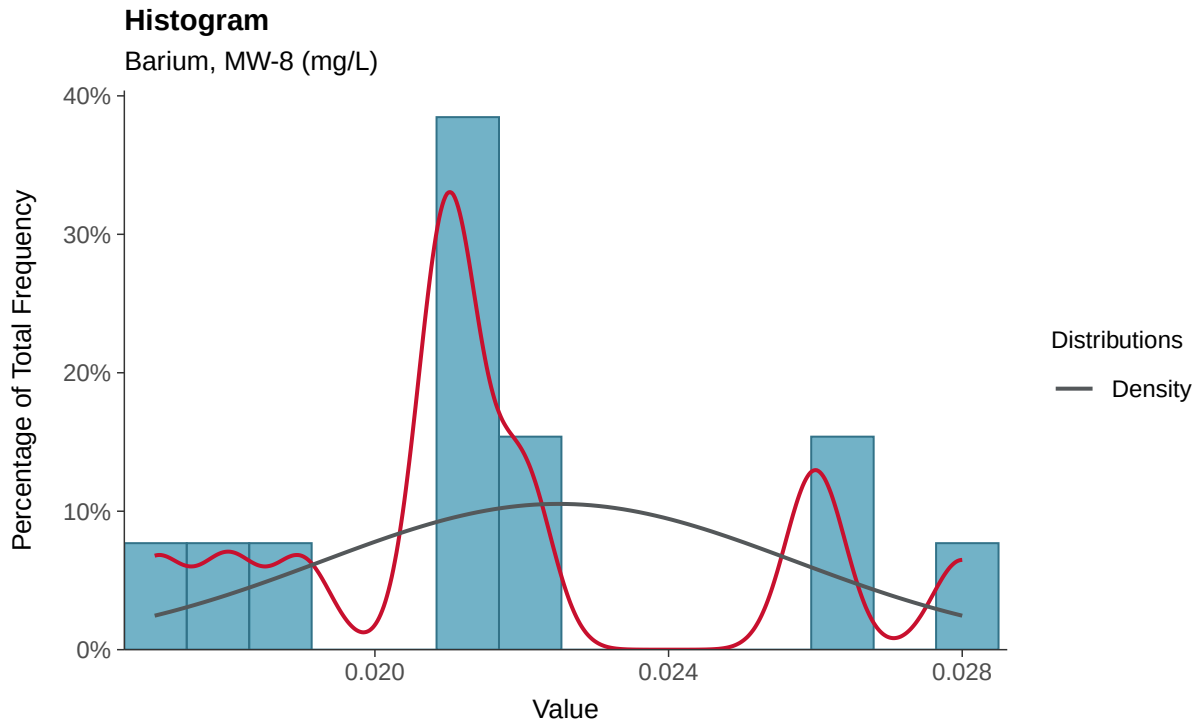
Arsenic, MW-8 (mg/L)



Appendix IV: Barium, MW-8

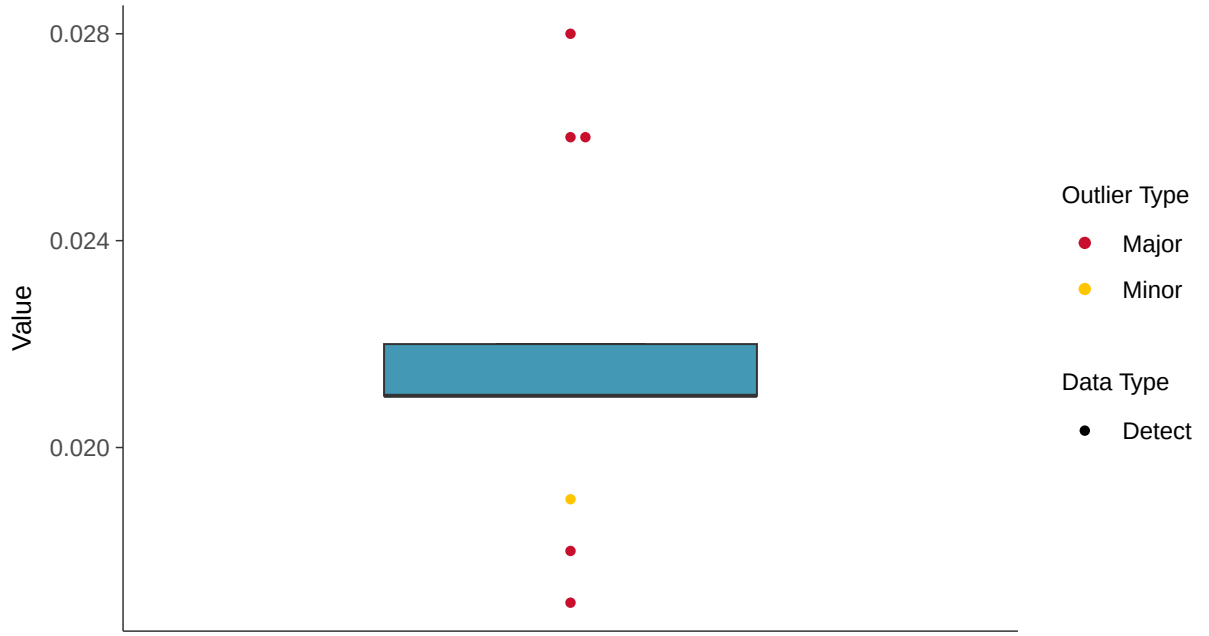
ID: 08_2_10





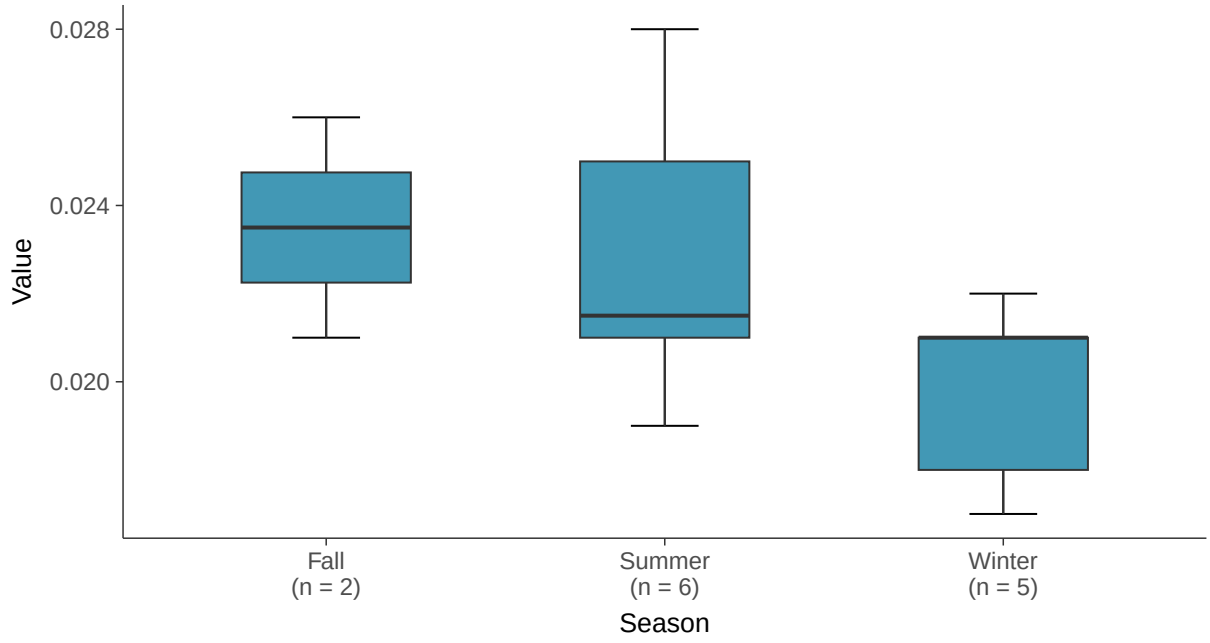
Boxplot

Barium, MW-8 (mg/L)



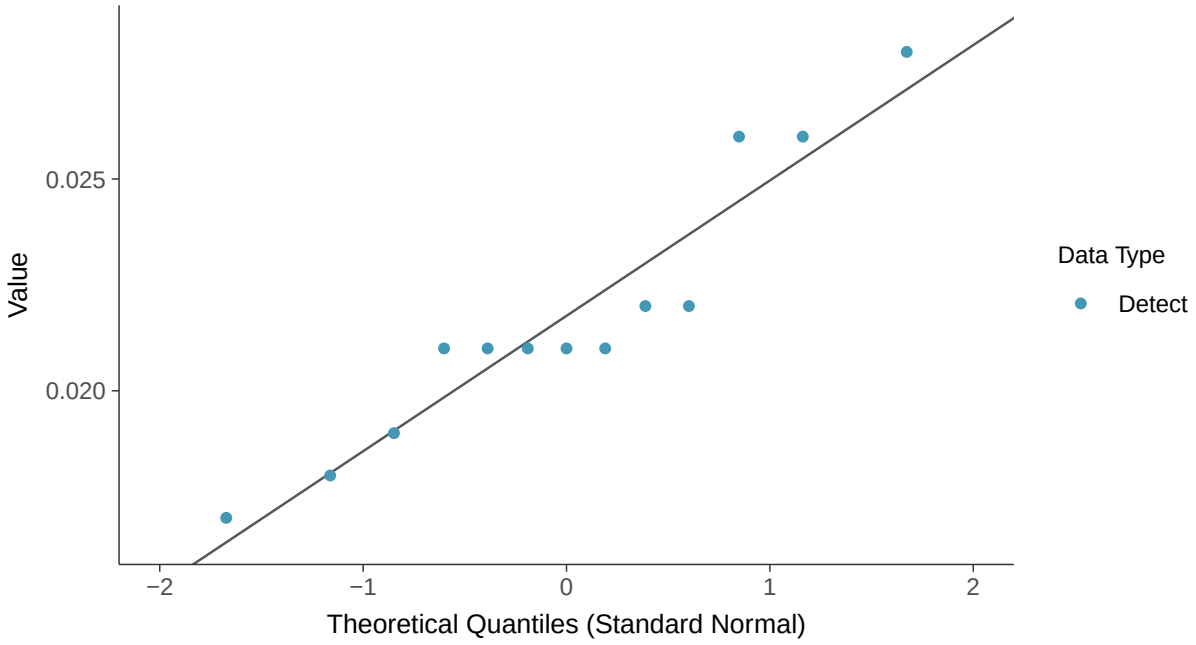
Boxplot by Season

Barium, MW-8 (mg/L)



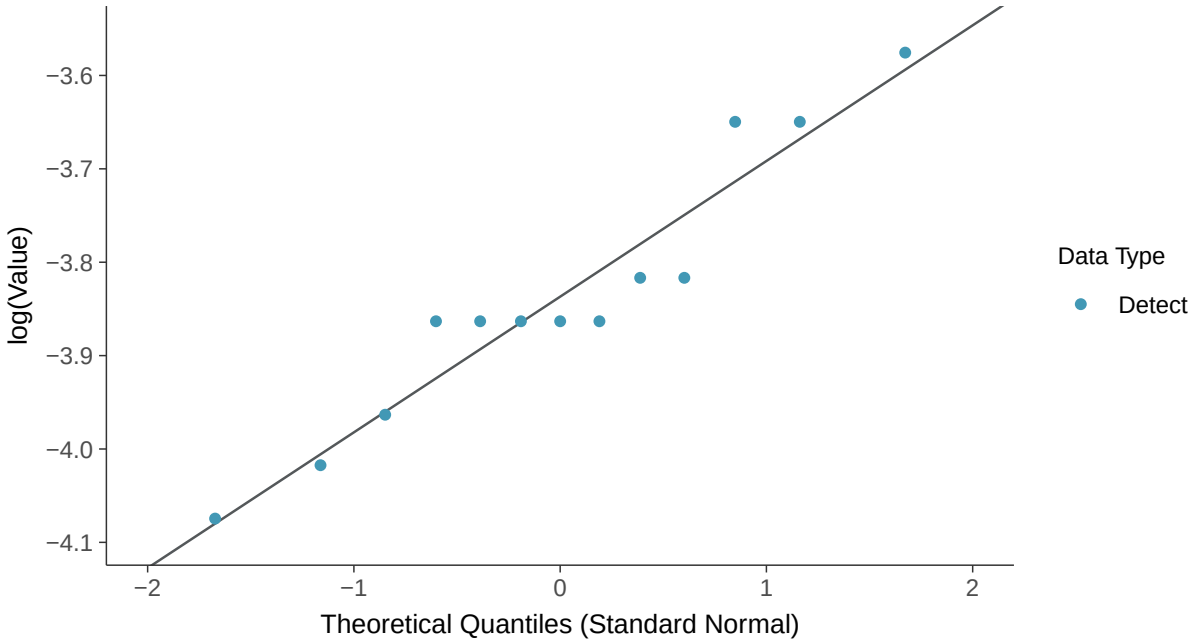
Normal Q-Q plot

Barium, MW-8 (mg/L)



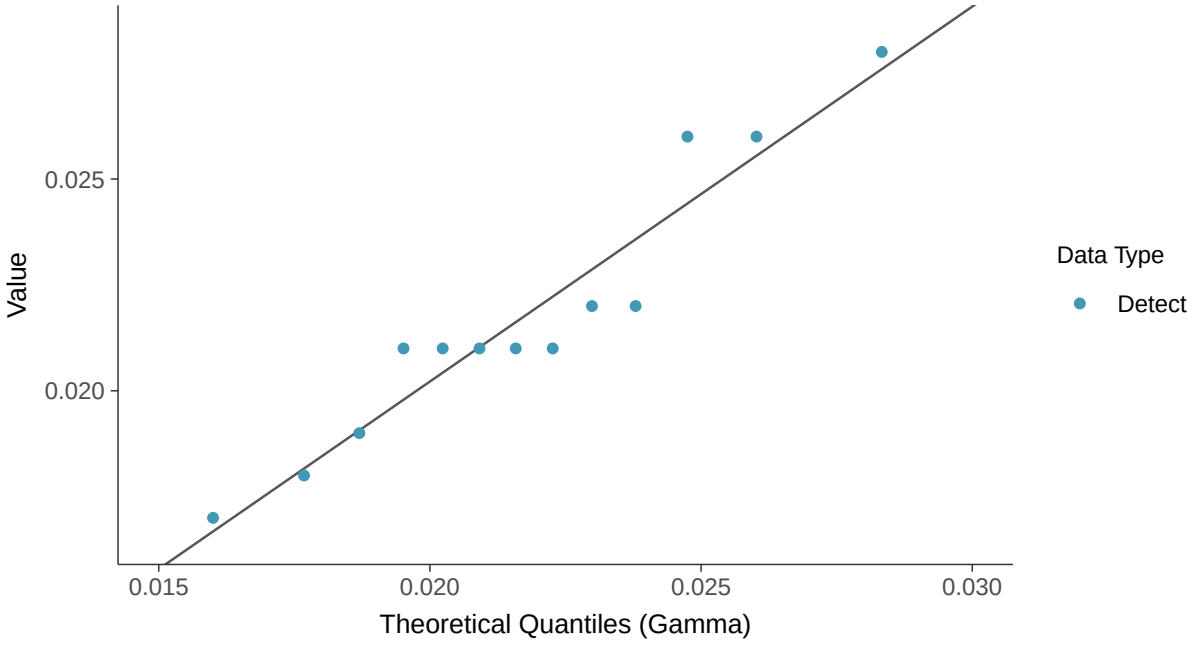
Lognormal Q-Q plot

Barium, MW-8 (mg/L)



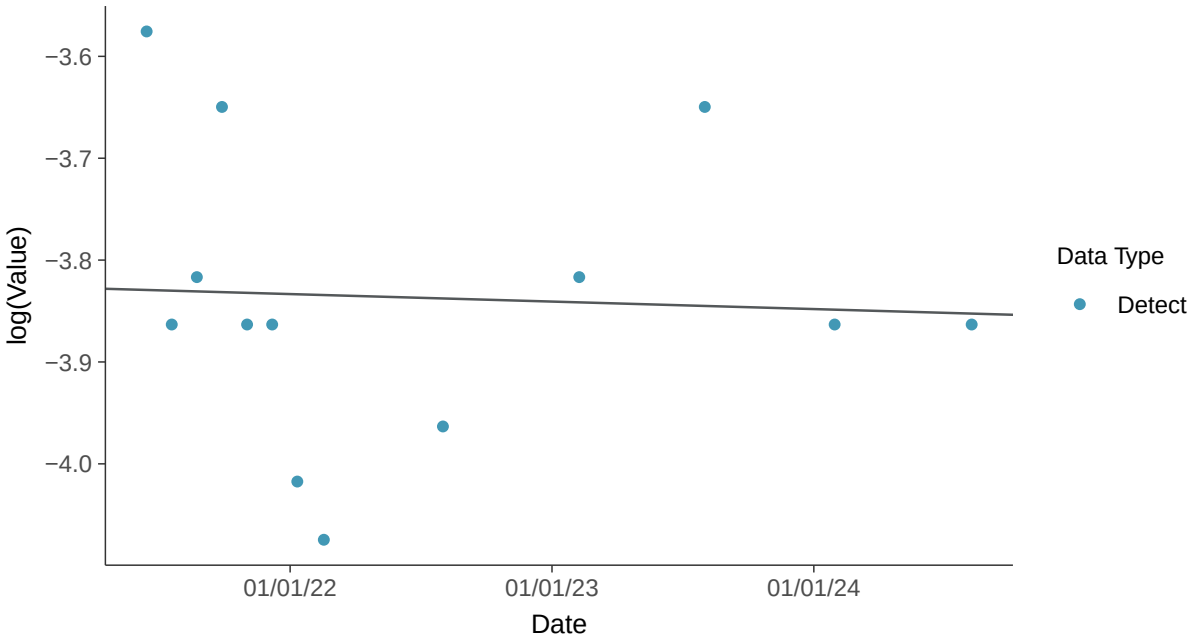
Gamma Q-Q plot

Barium, MW-8 (mg/L)



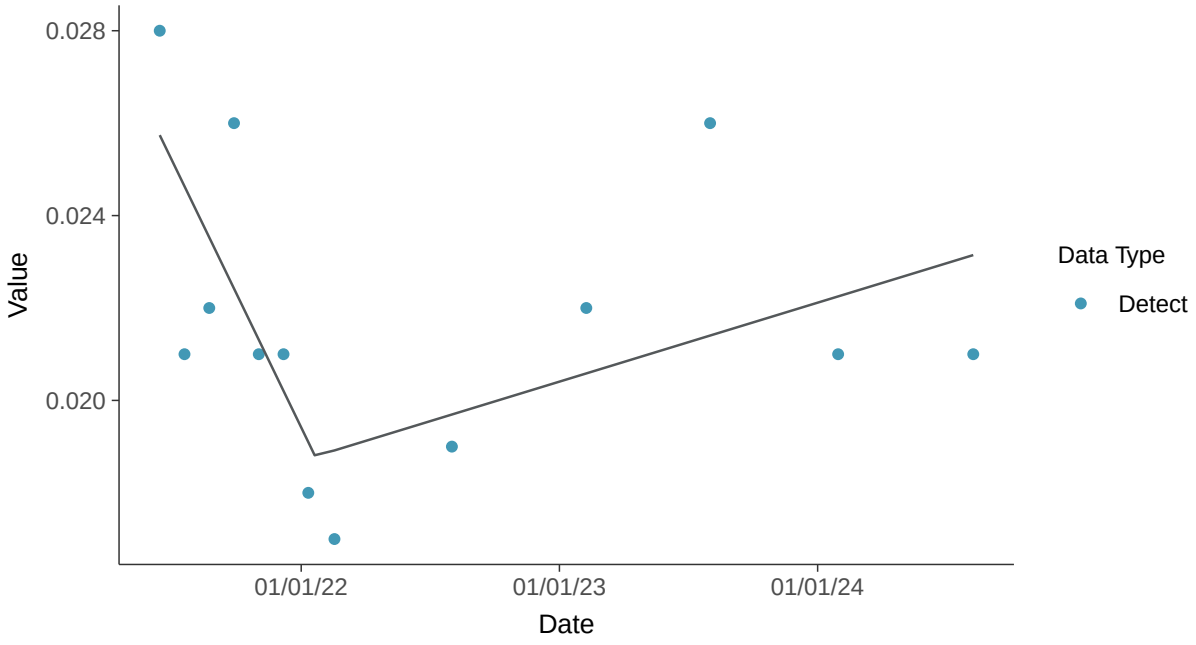
Trend Regression: Lognormal MLE

Barium, MW-8 (mg/L)



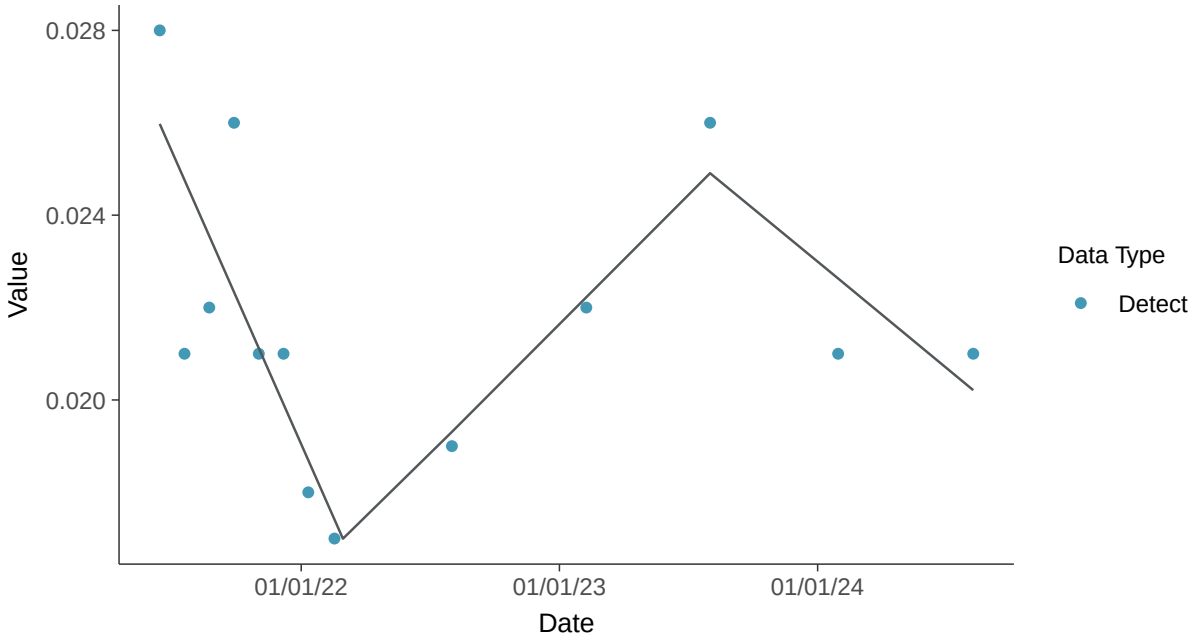
Trend Regression: Piecewise Linear-Linear

Barium, MW-8 (mg/L)



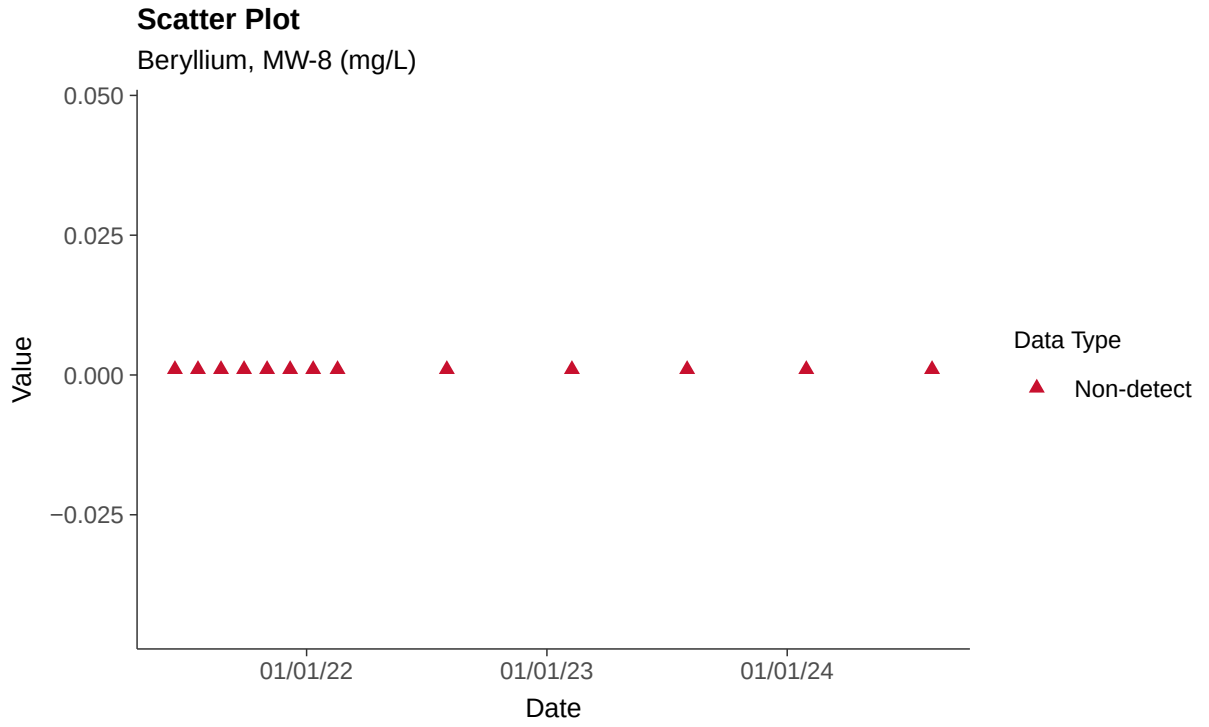
Trend Regression: Piecewise Linear-Linear-Linear

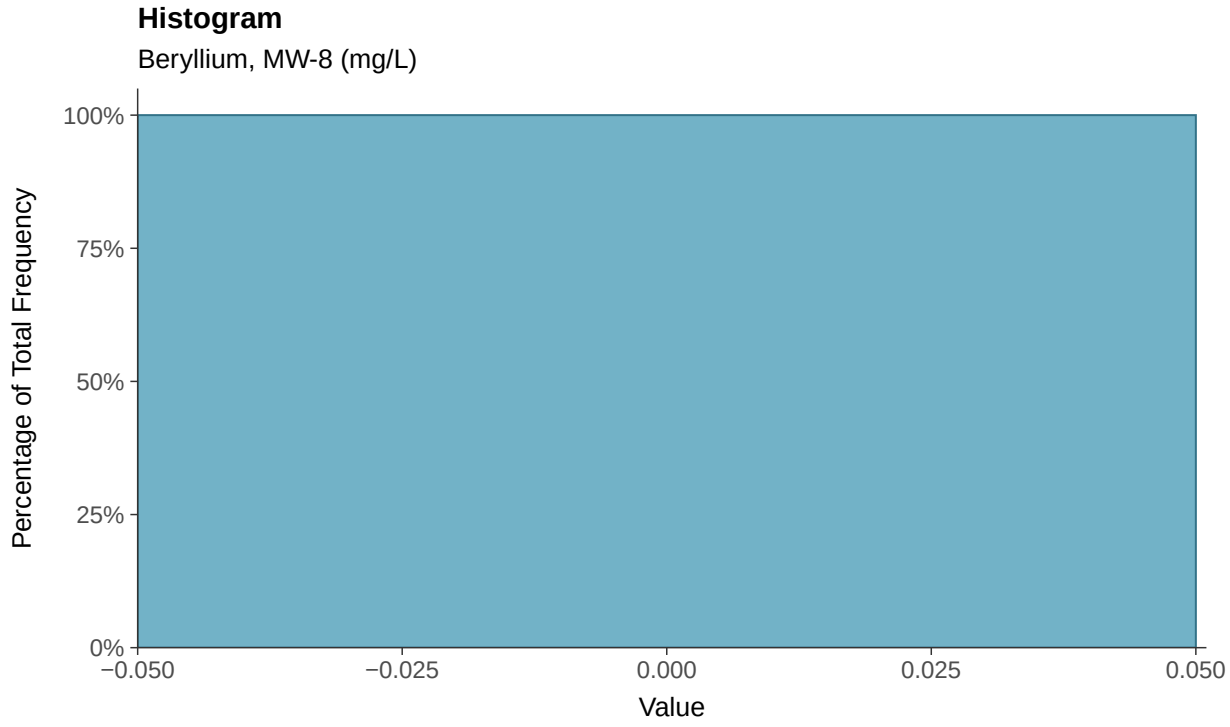
Barium, MW-8 (mg/L)



Appendix IV: Beryllium, MW-8

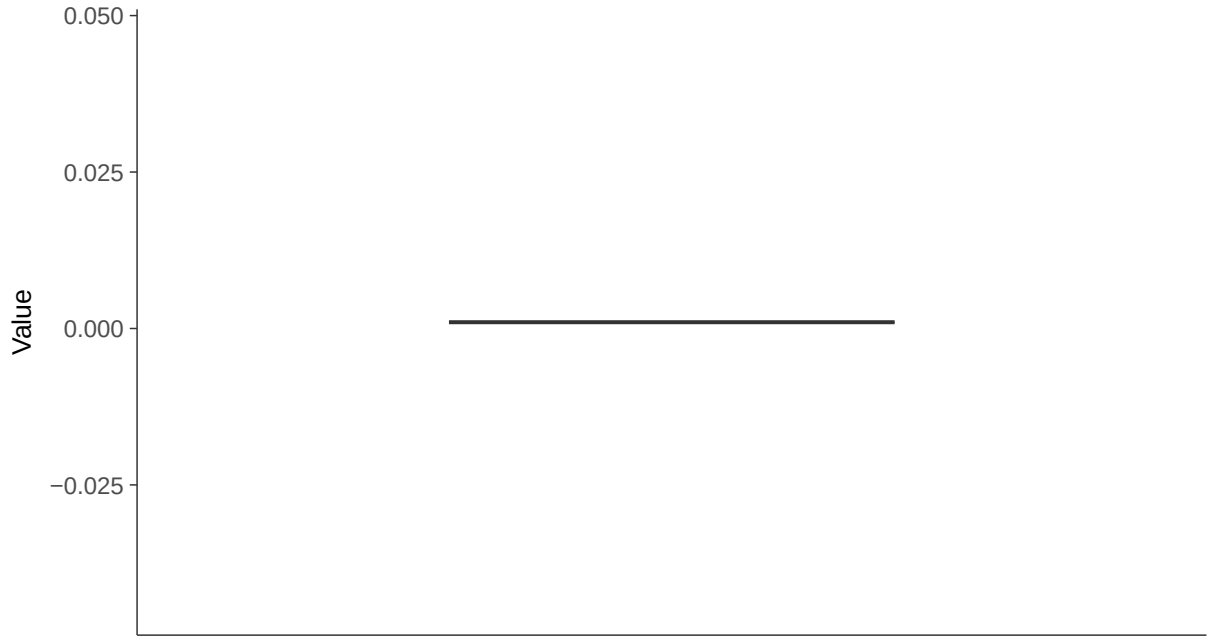
ID: 08_2_11





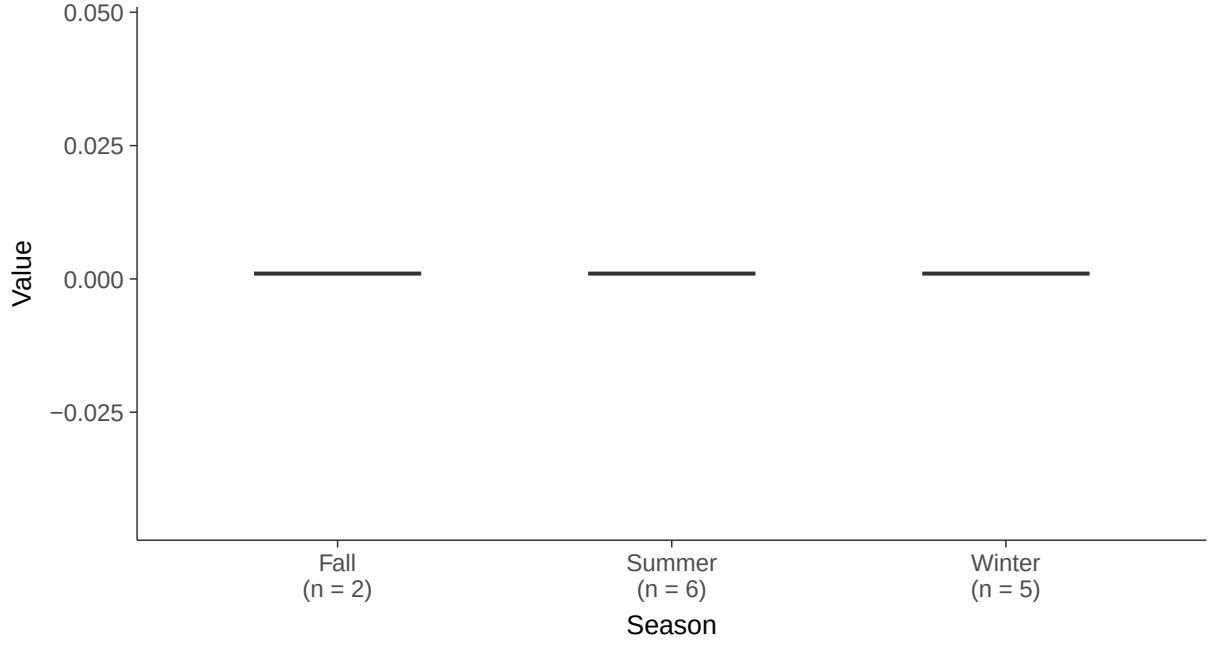
Boxplot

Beryllium, MW-8 (mg/L)



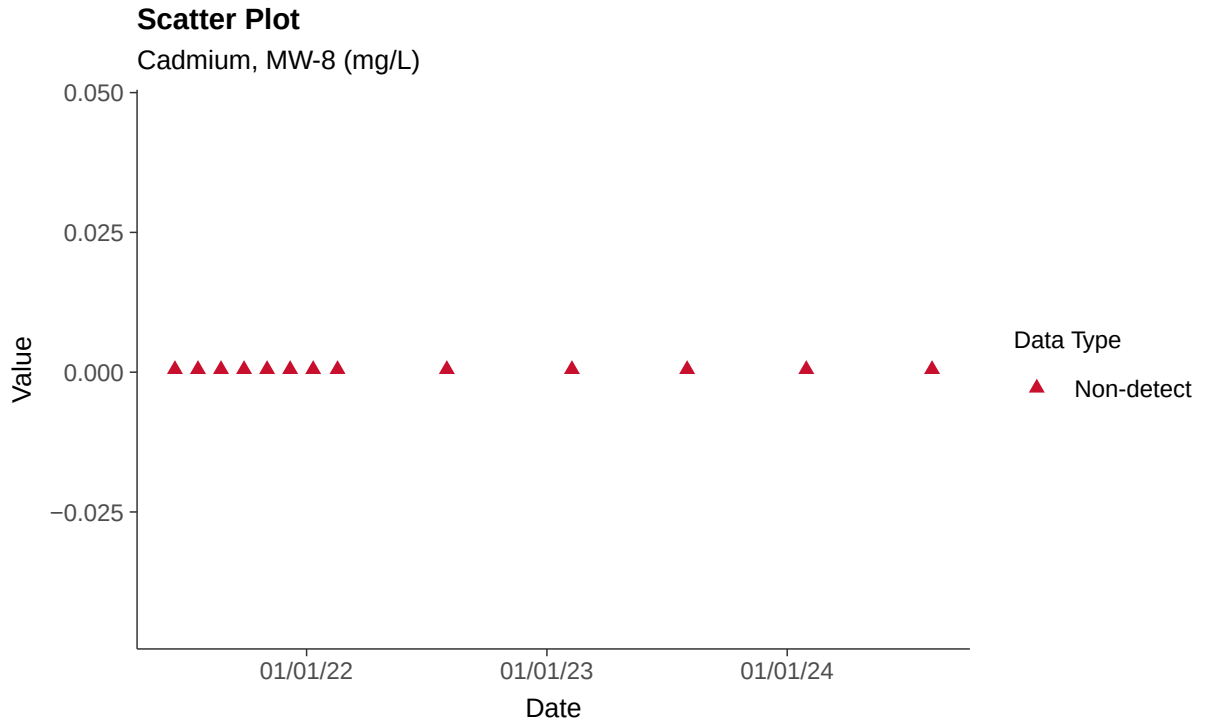
Boxplot by Season

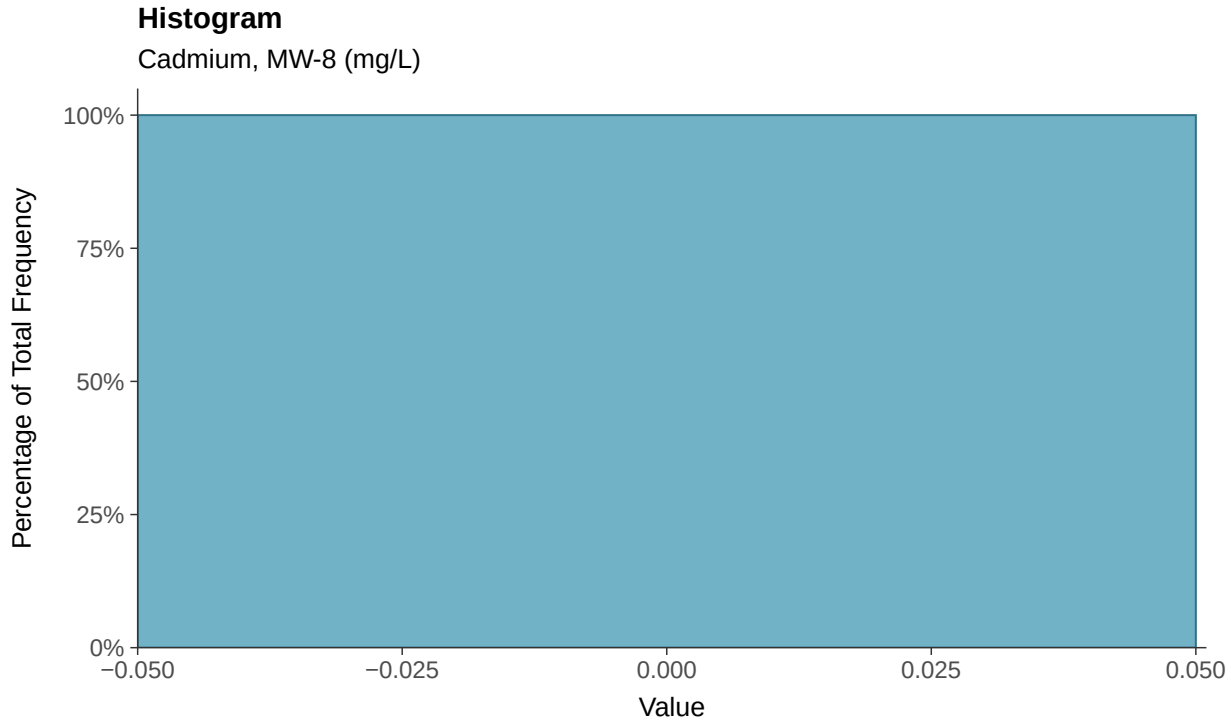
Beryllium, MW-8 (mg/L)



Appendix IV: Cadmium, MW-8

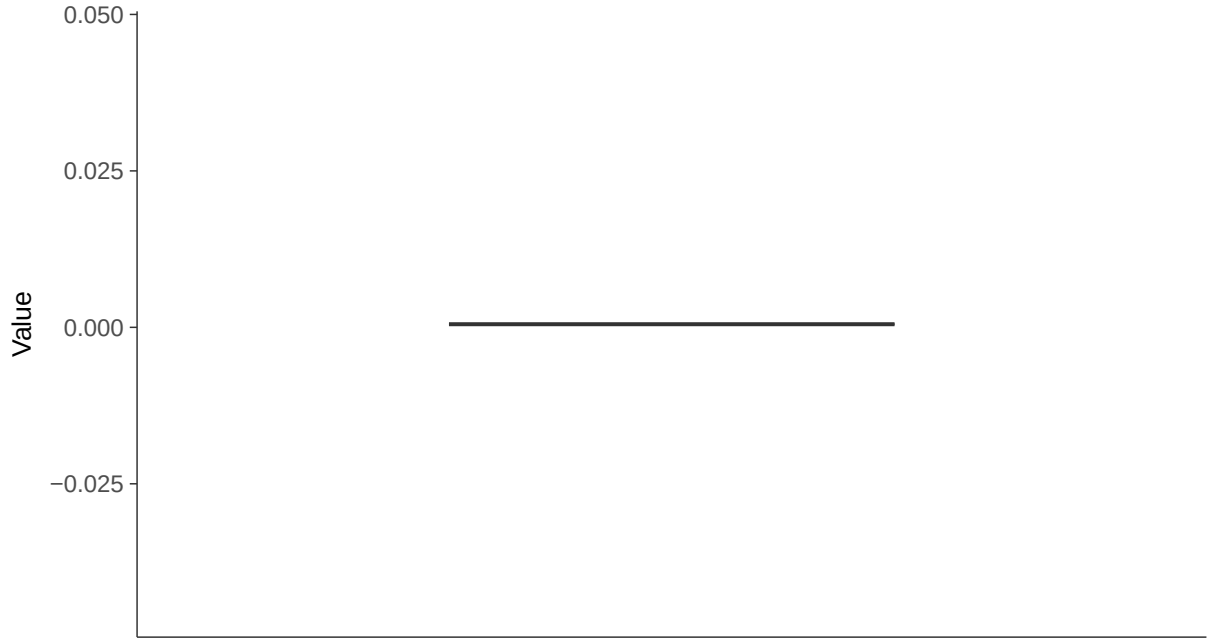
ID: 08_2_12





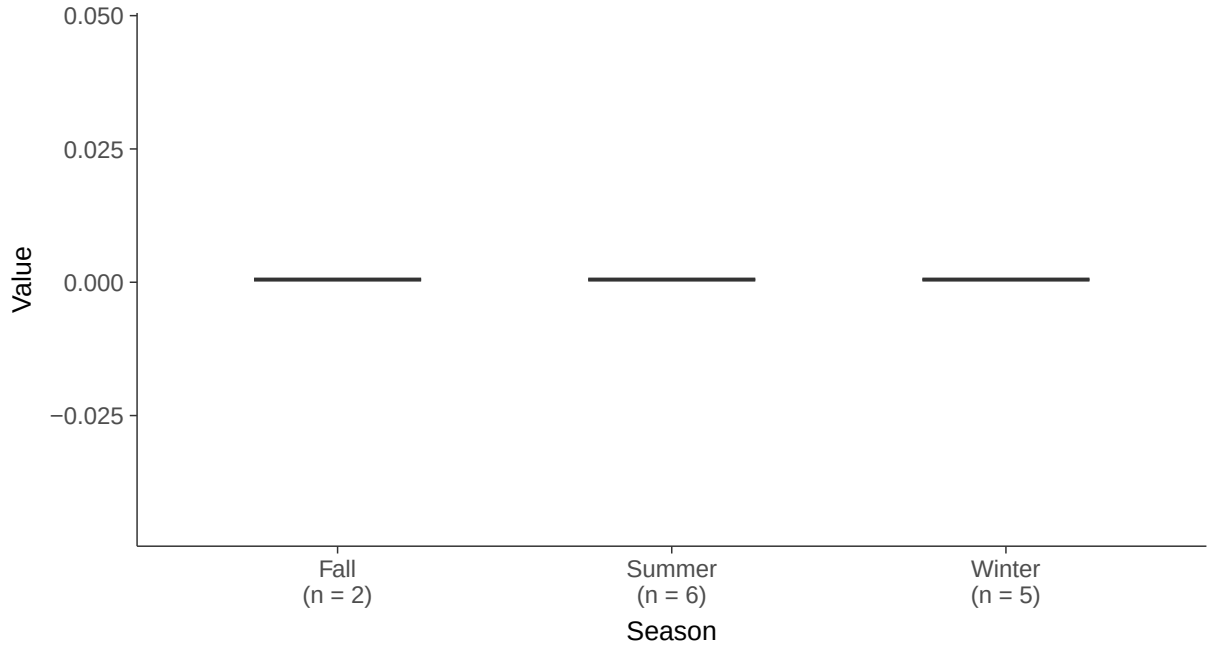
Boxplot

Cadmium, MW-8 (mg/L)



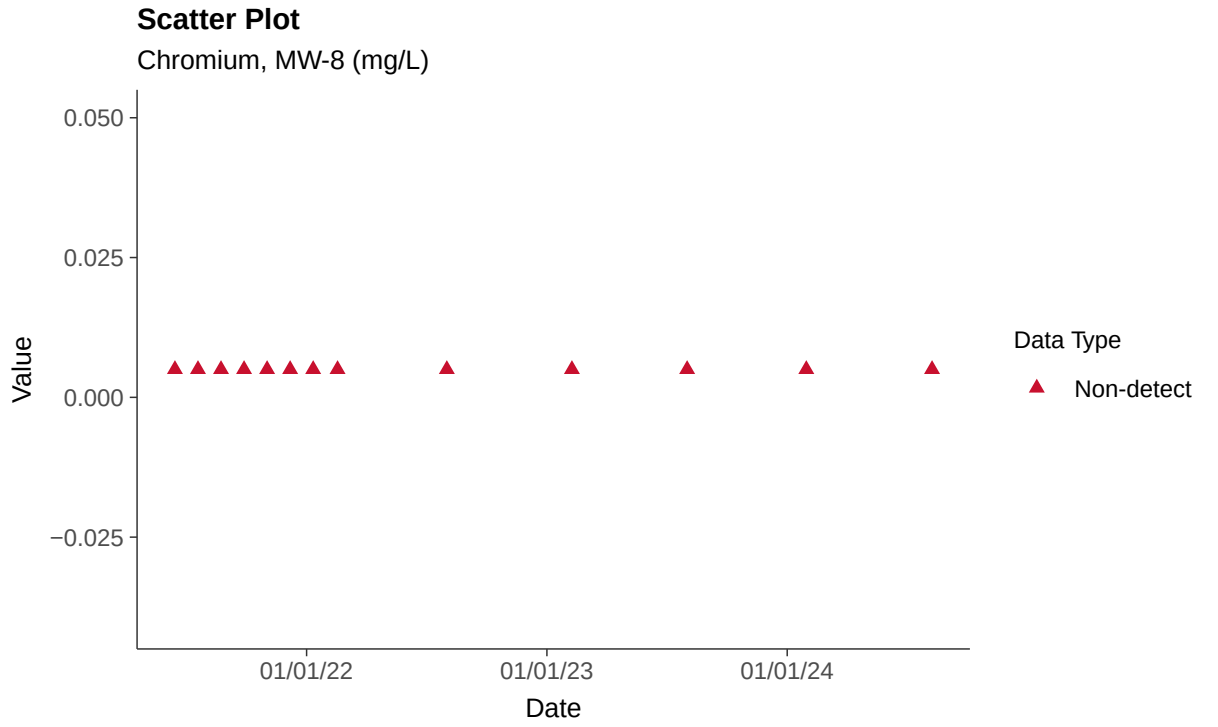
Boxplot by Season

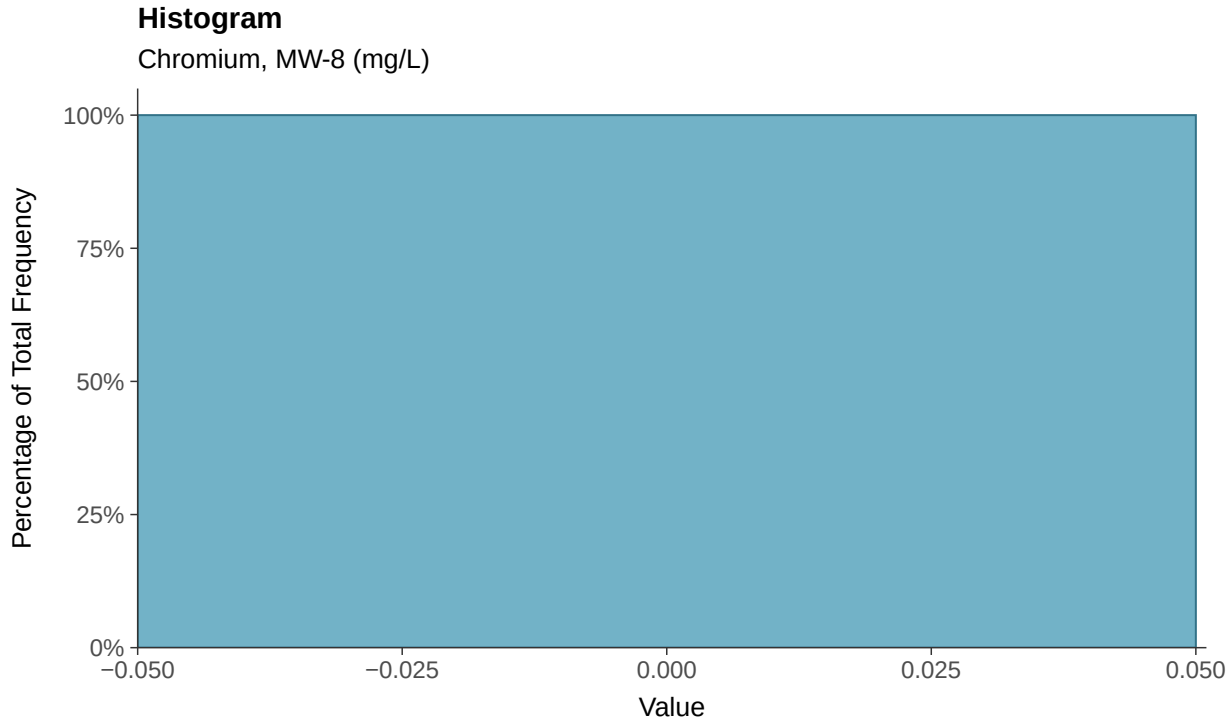
Cadmium, MW-8 (mg/L)



Appendix IV: Chromium, MW-8

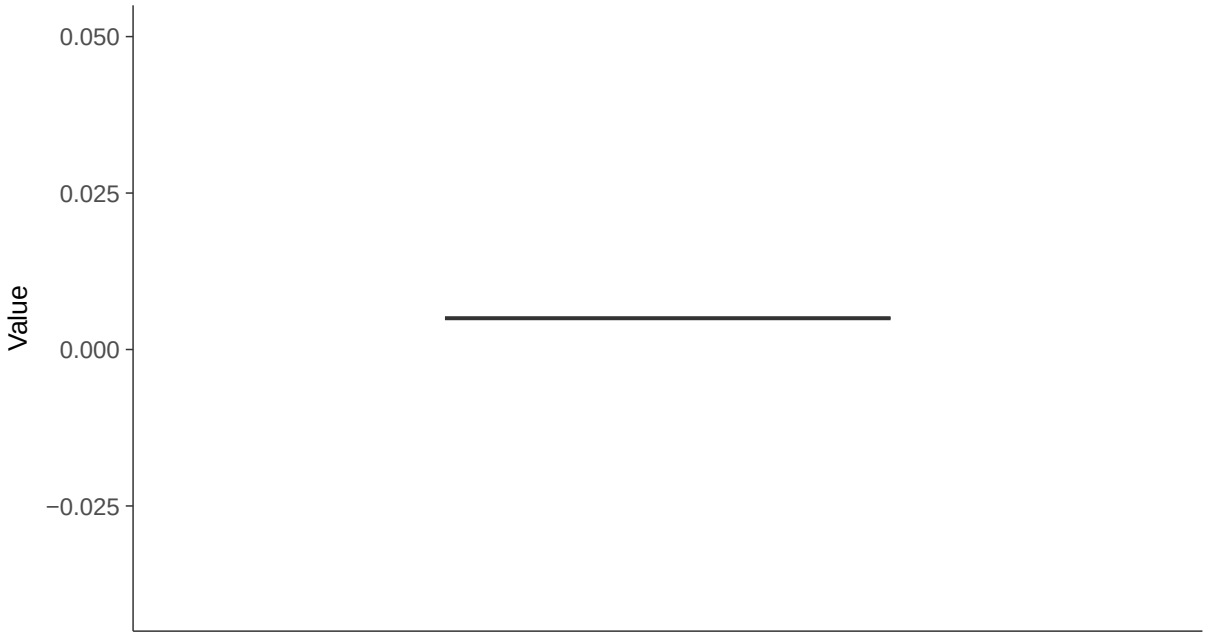
ID: 08_2_13





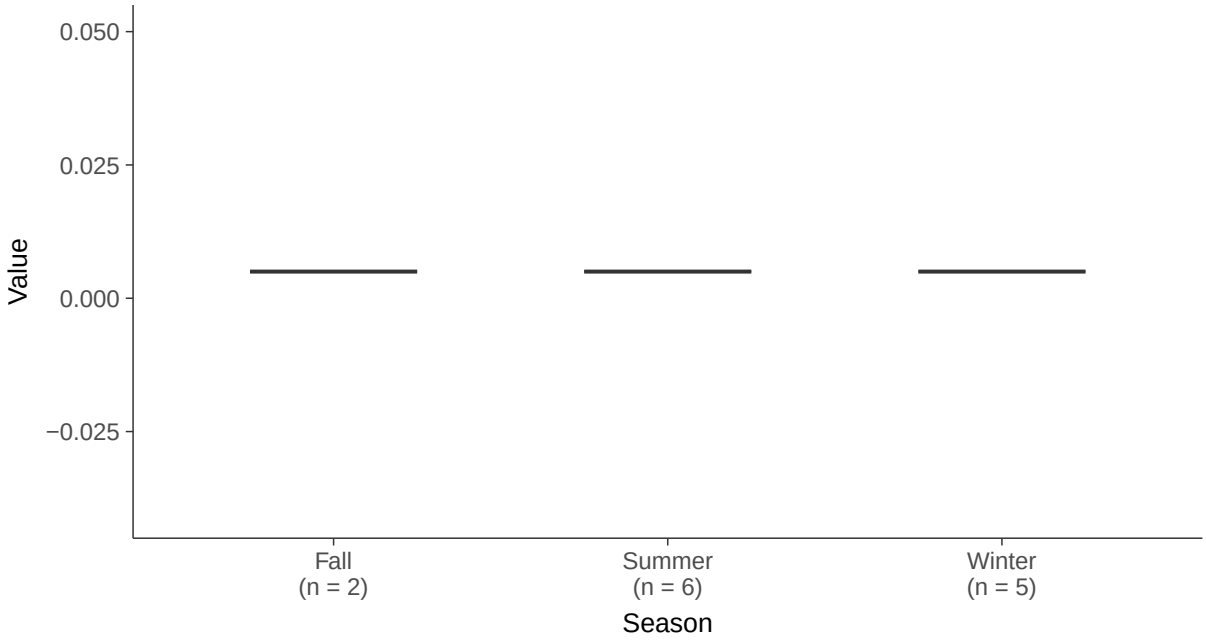
Boxplot

Chromium, MW-8 (mg/L)



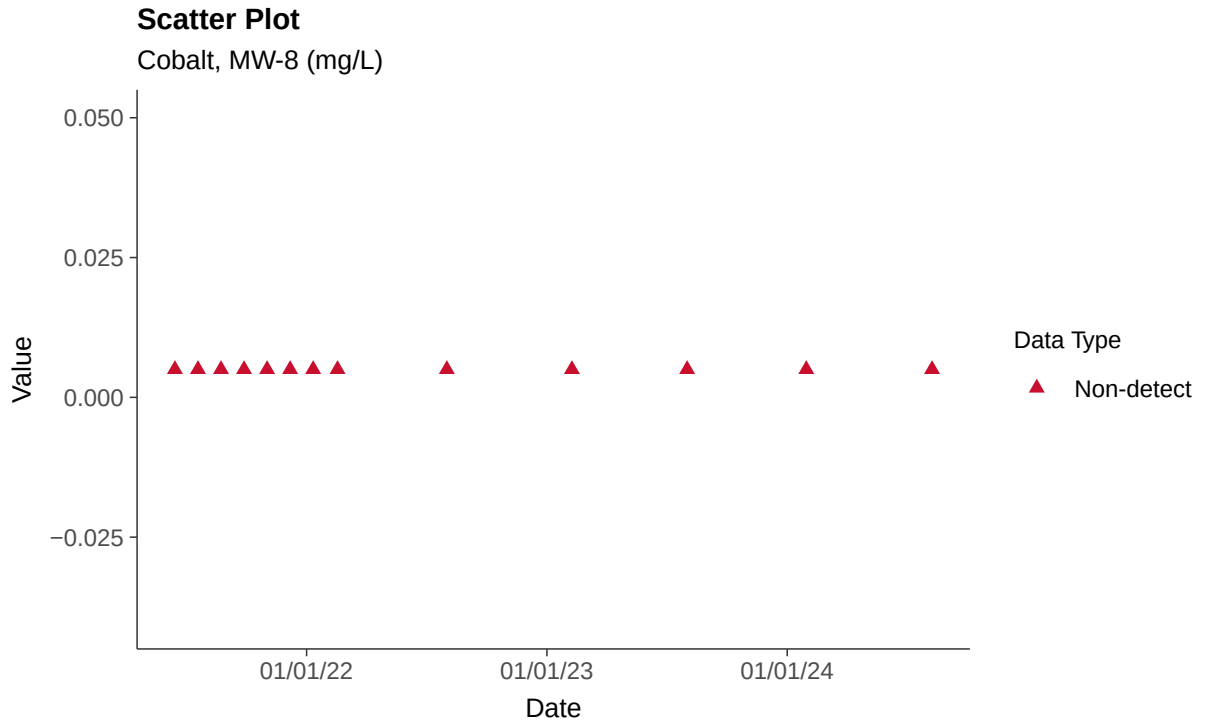
Boxplot by Season

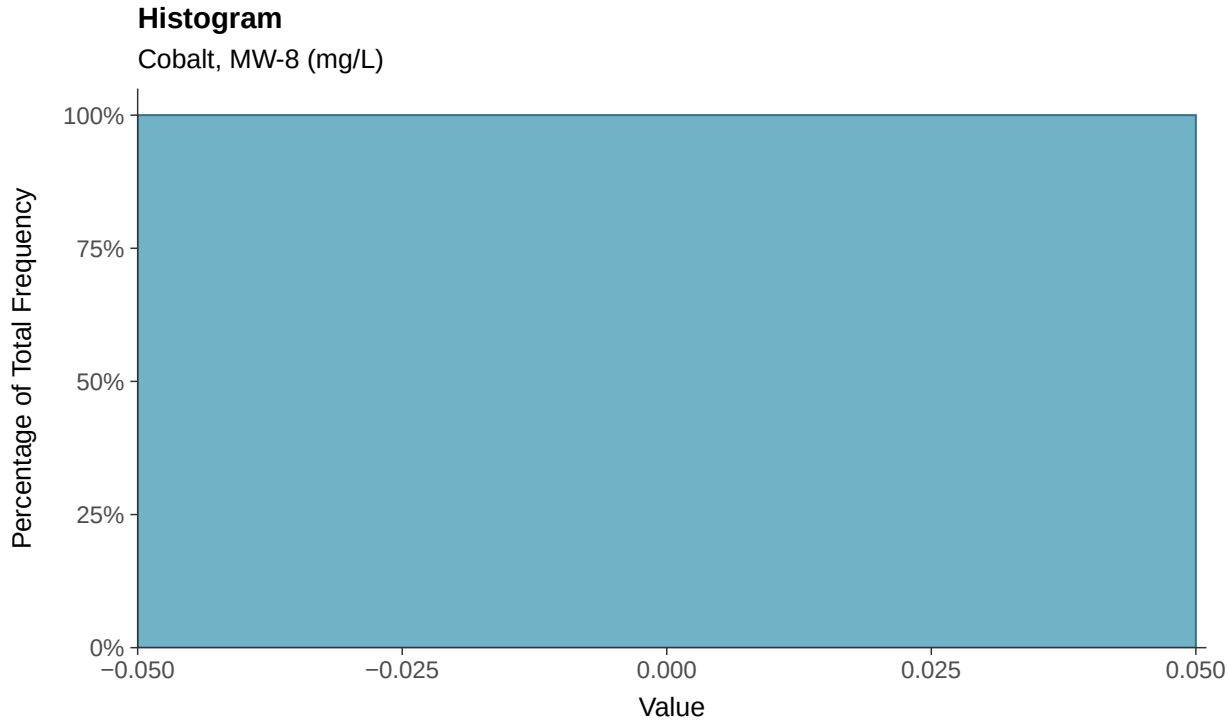
Chromium, MW-8 (mg/L)



Appendix IV: Cobalt, MW-8

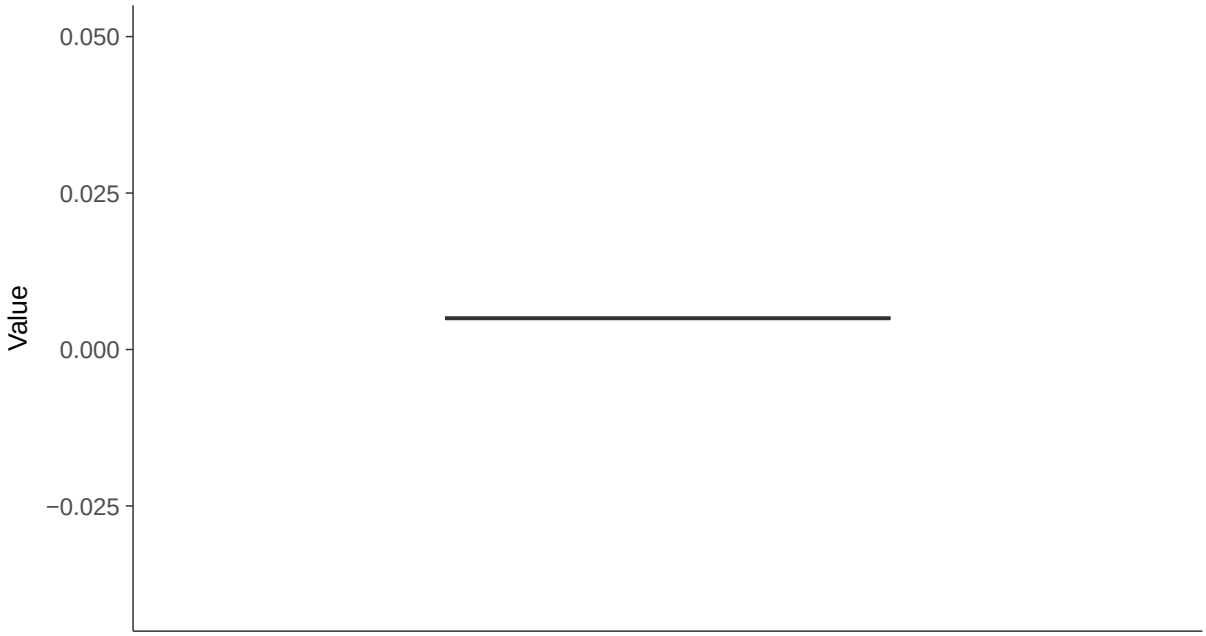
ID: 08_2_14





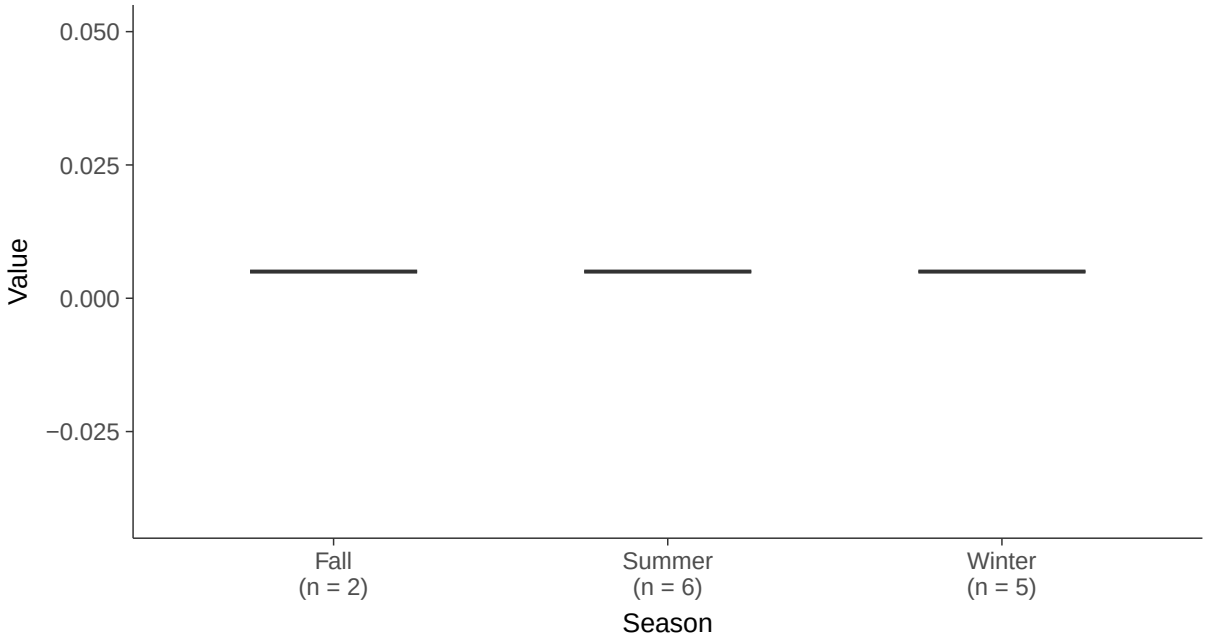
Boxplot

Cobalt, MW-8 (mg/L)



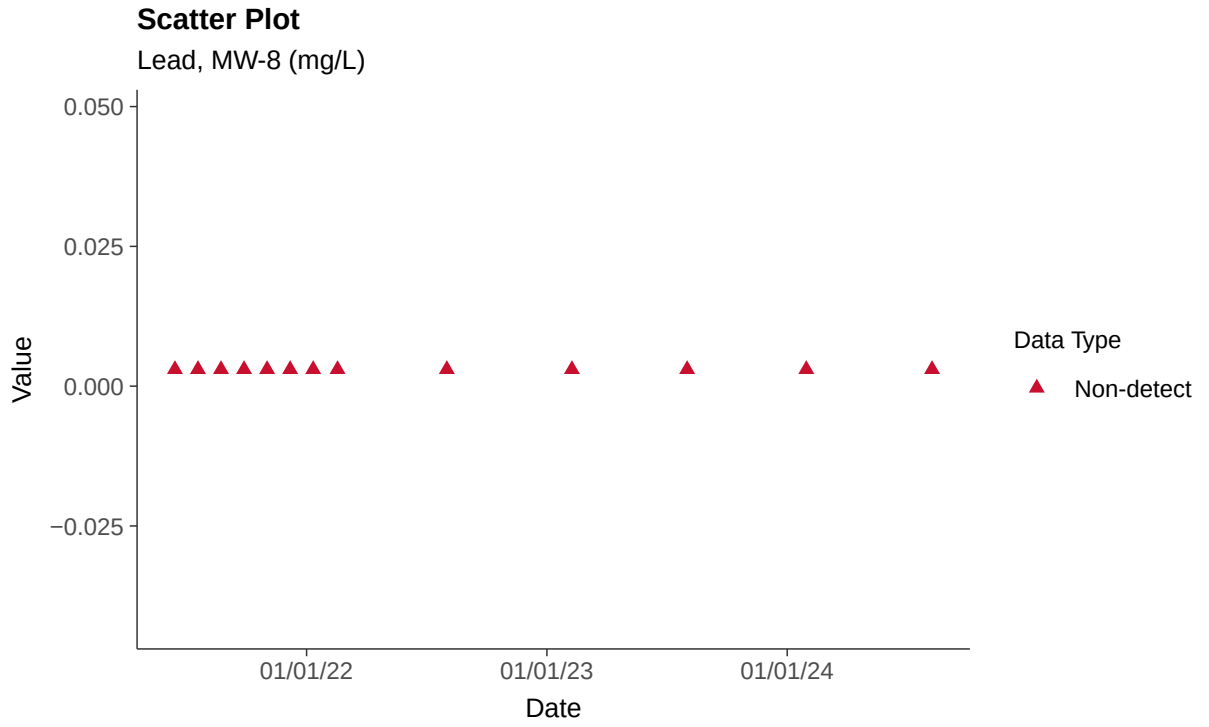
Boxplot by Season

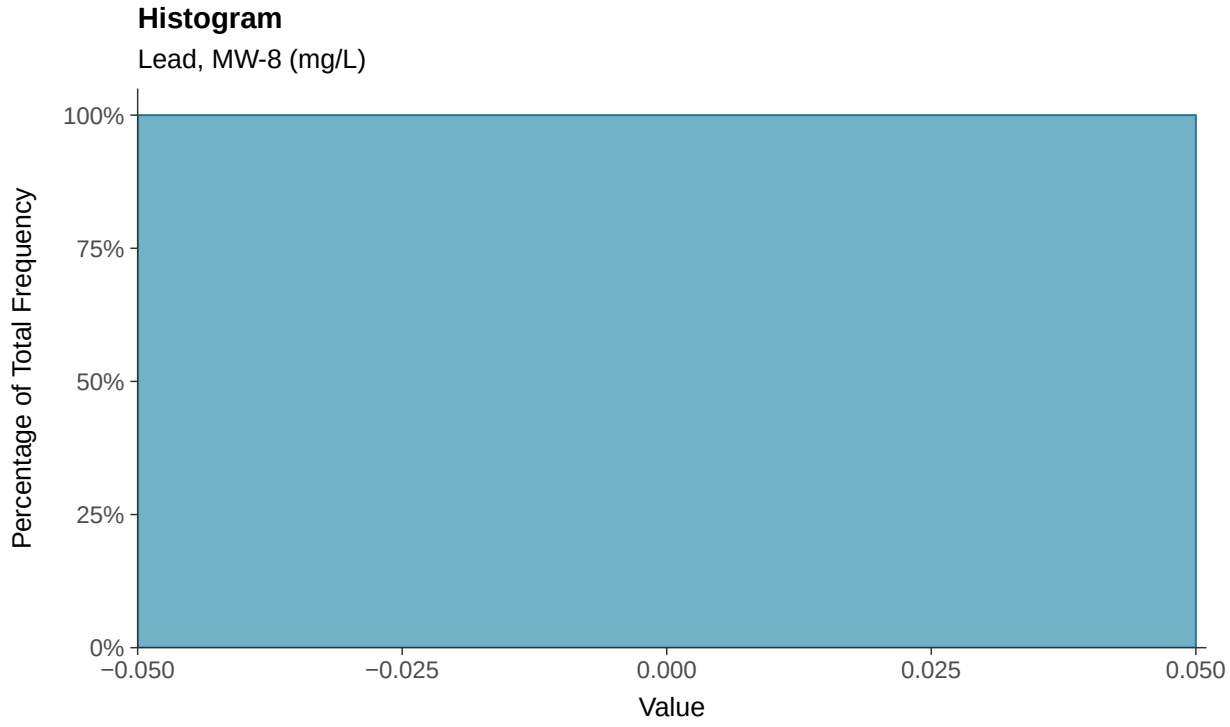
Cobalt, MW-8 (mg/L)



Appendix IV: Lead, MW-8

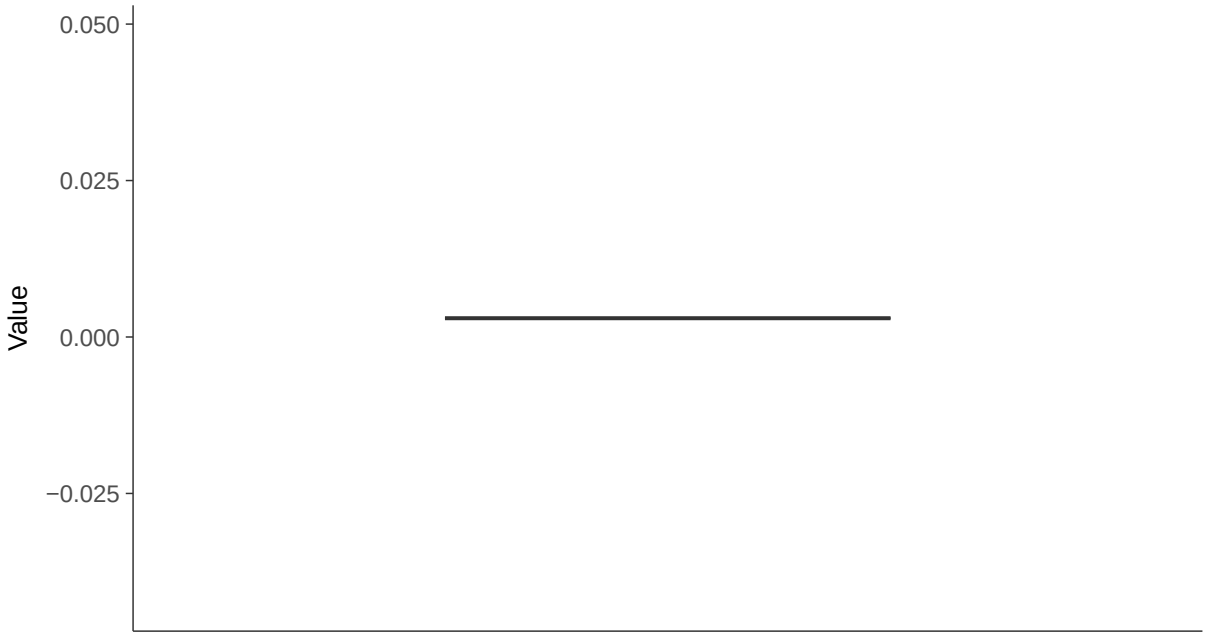
ID: 08_2_15





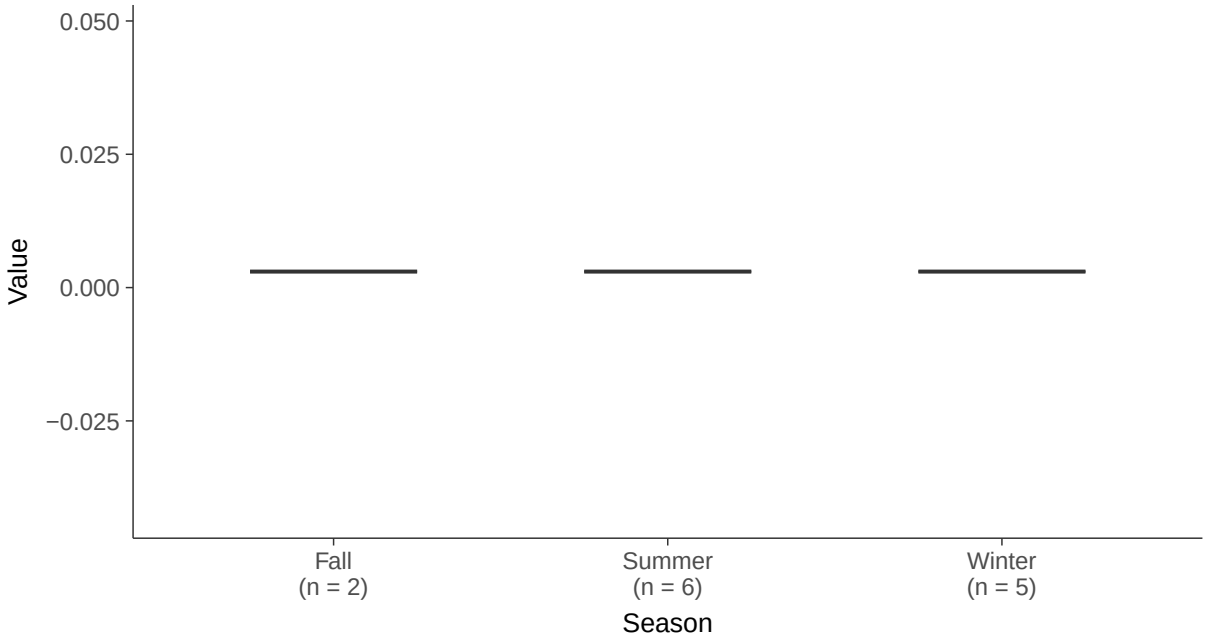
Boxplot

Lead, MW-8 (mg/L)



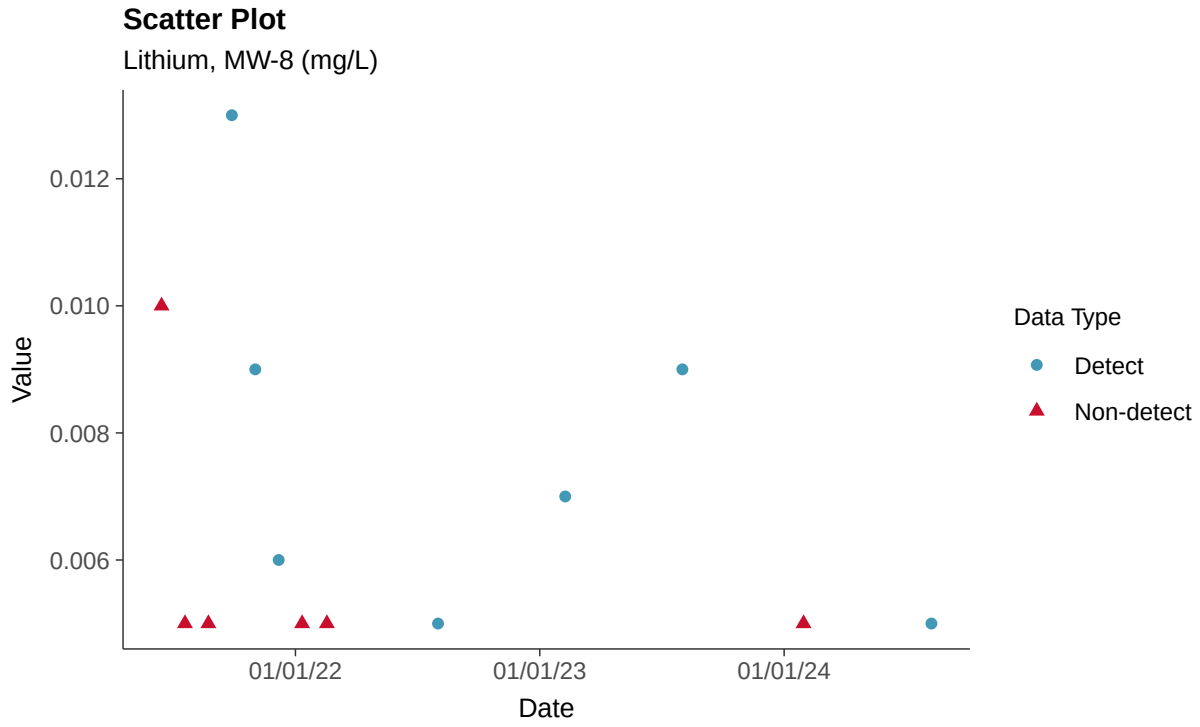
Boxplot by Season

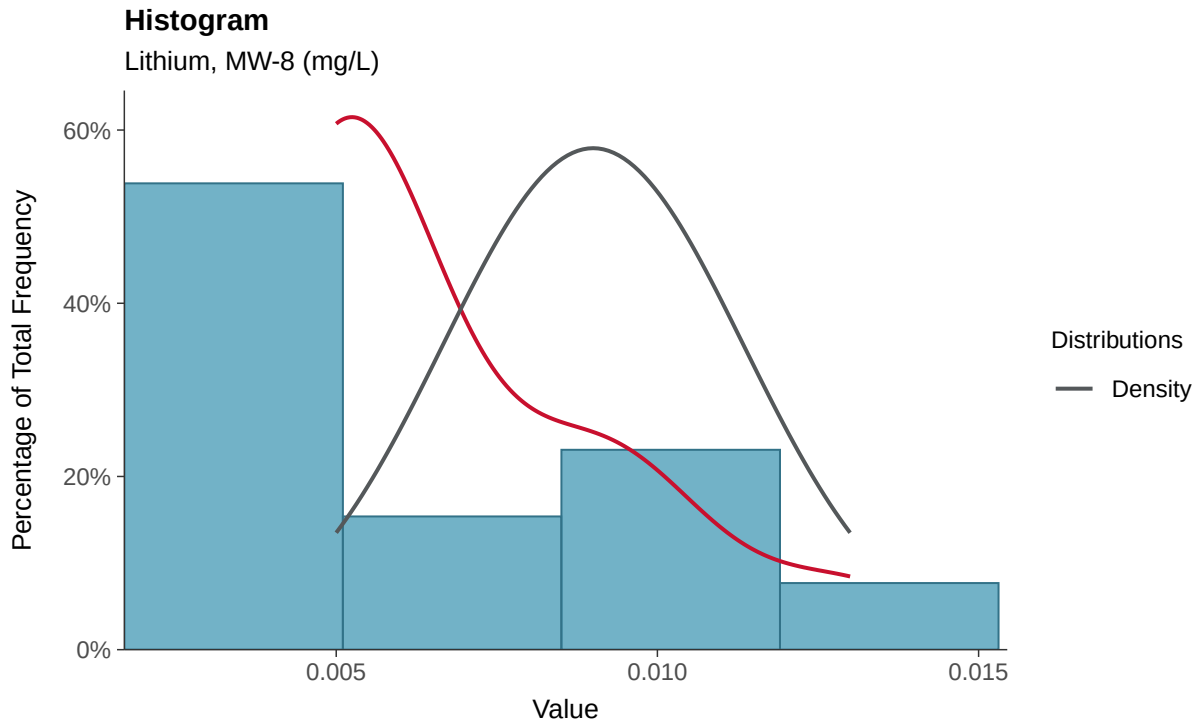
Lead, MW-8 (mg/L)



Appendix IV: Lithium, MW-8

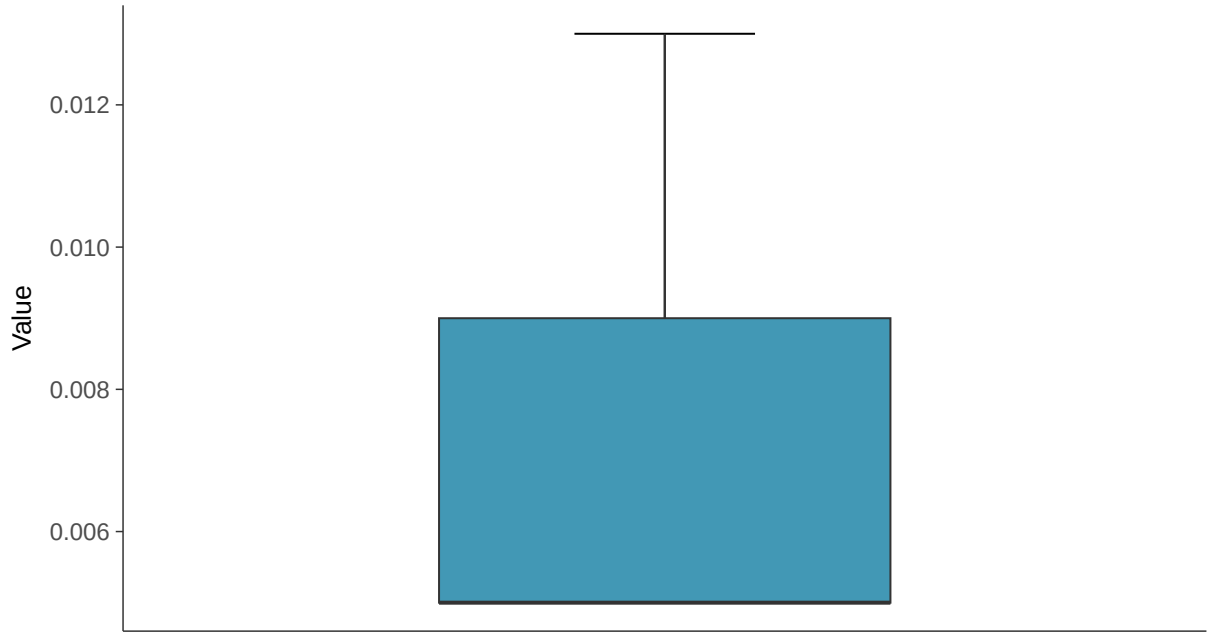
ID: 08_2_16





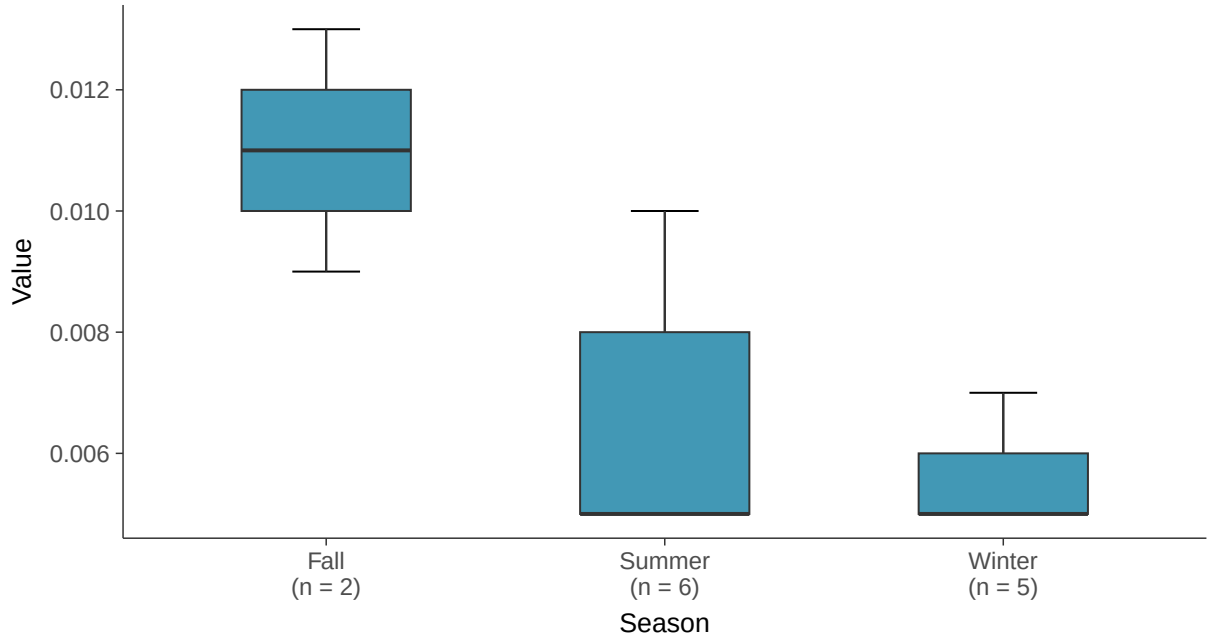
Boxplot

Lithium, MW-8 (mg/L)



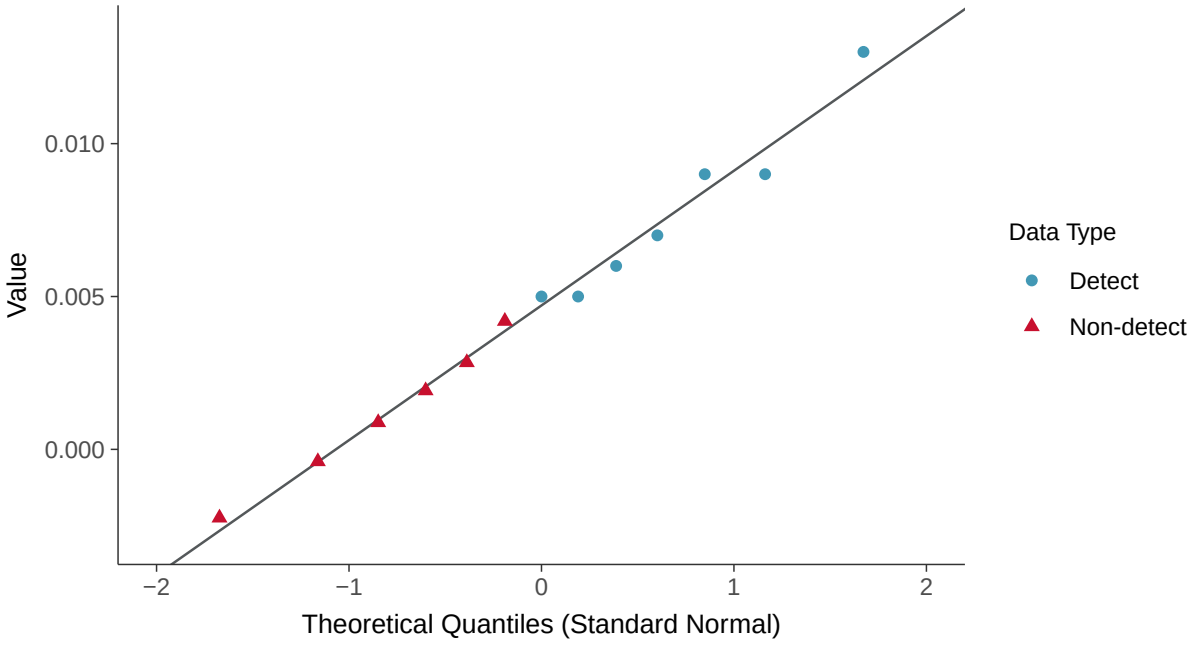
Boxplot by Season

Lithium, MW-8 (mg/L)



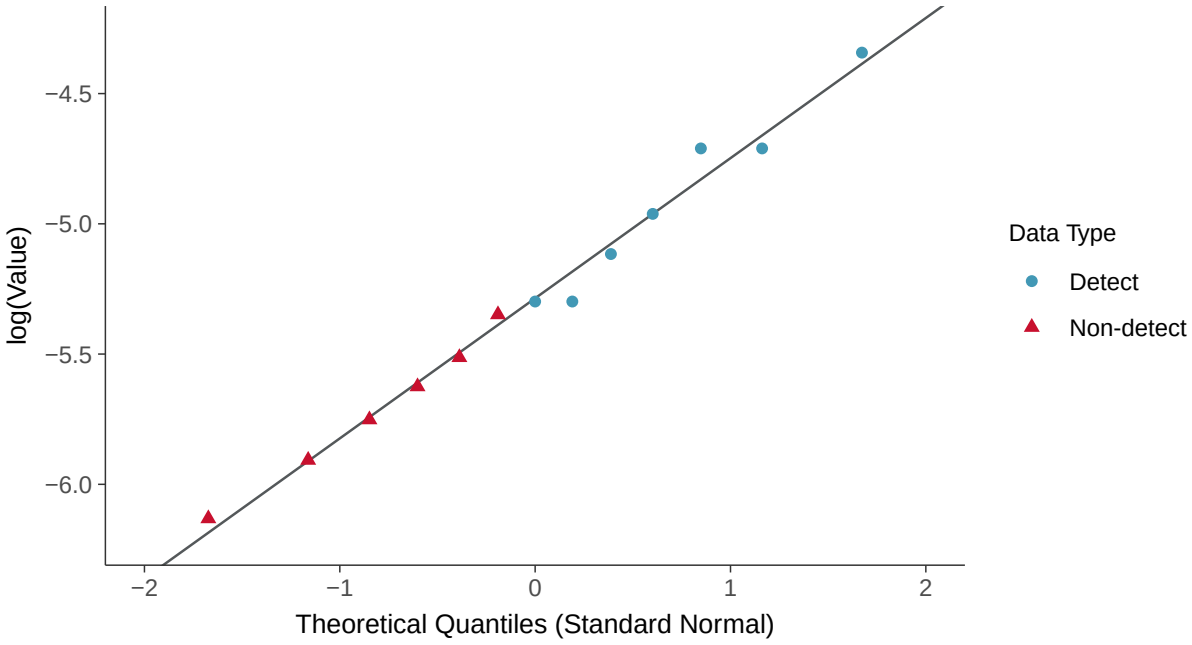
Normal Q-Q plot using ROS Imputed Estimates

Lithium, MW-8 (mg/L)



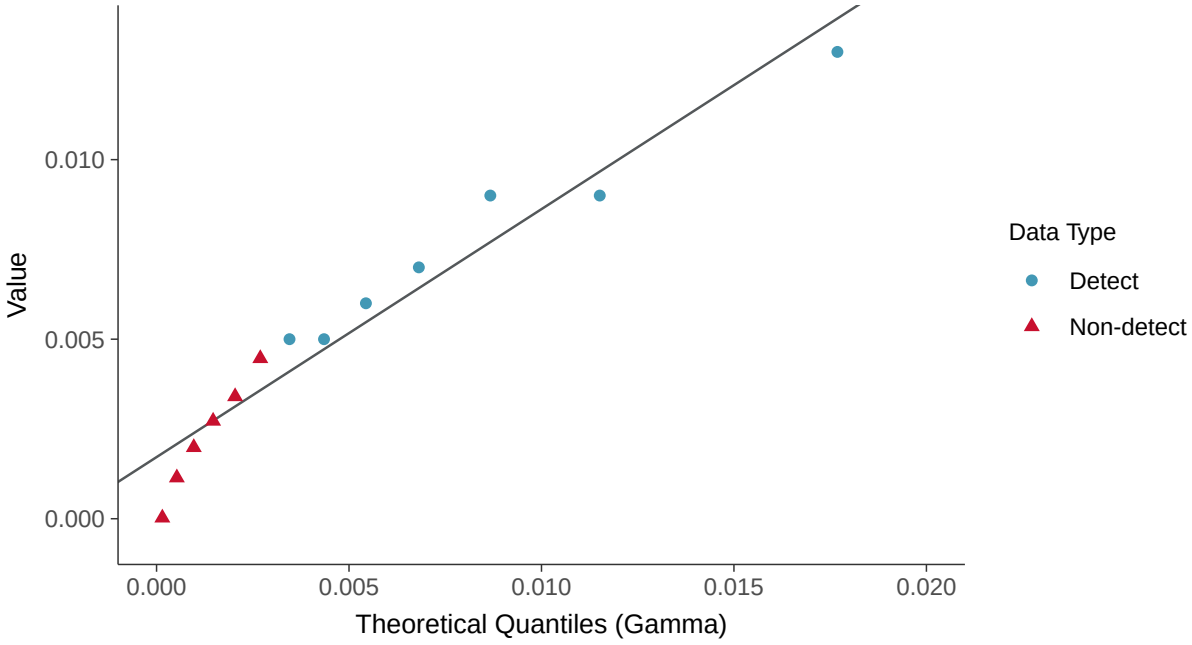
Lognormal Q-Q plot using ROS Imputed Estimates

Lithium, MW-8 (mg/L)



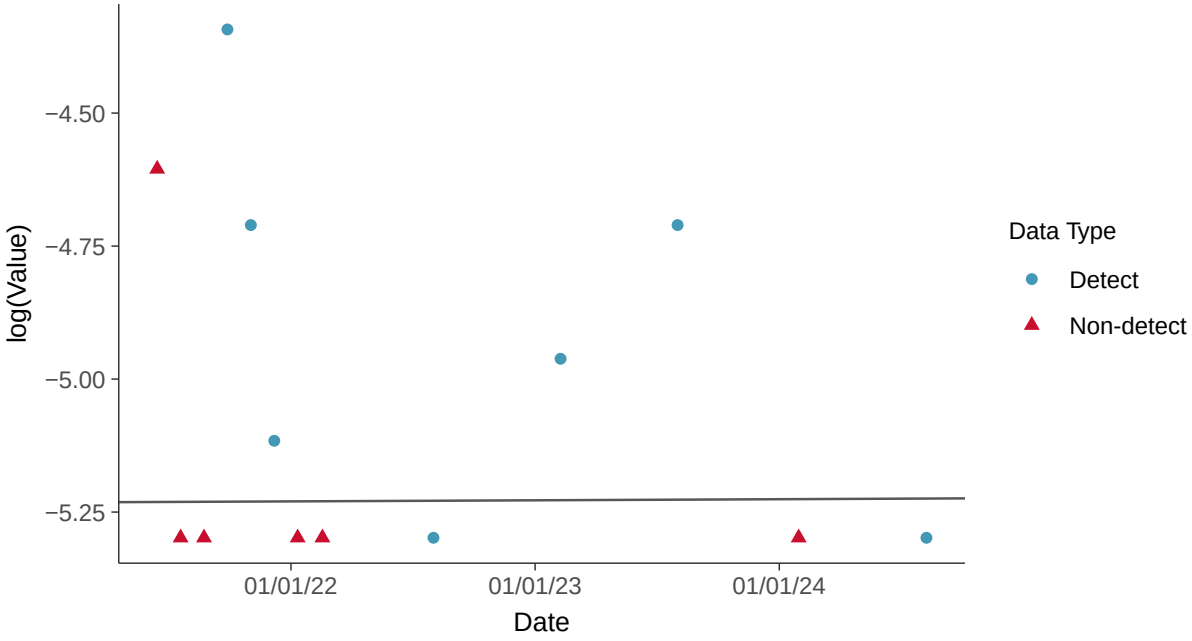
Gamma Q-Q plot using ROS Imputed Estimates

Lithium, MW-8 (mg/L)



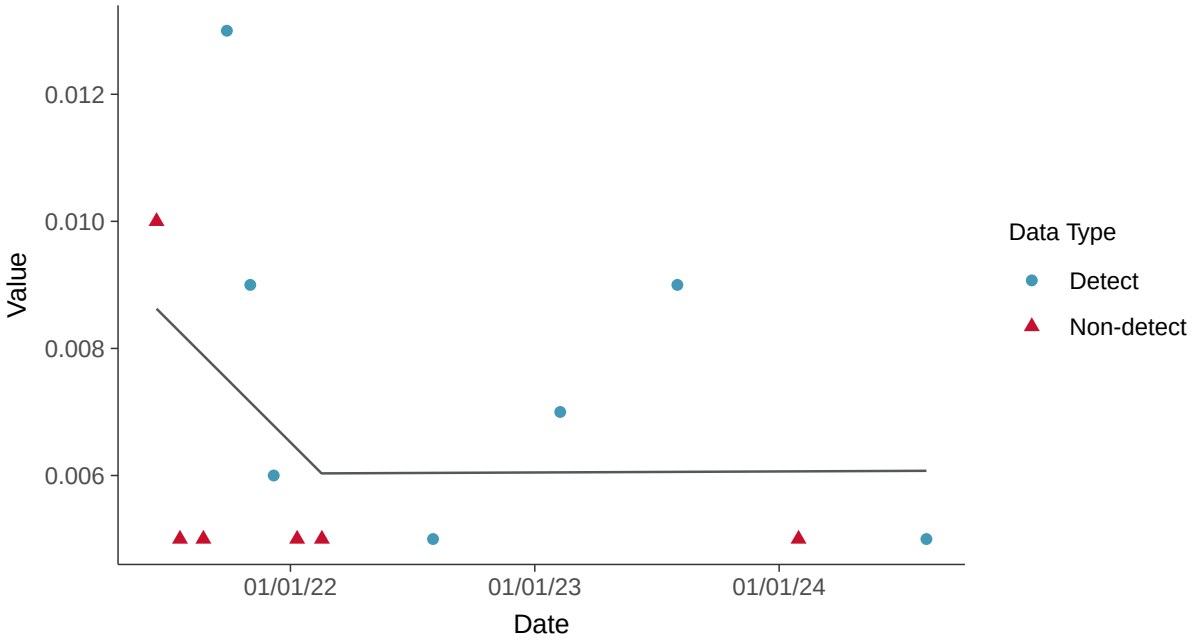
Trend Regression: Lognormal MLE

Lithium, MW-8 (mg/L)



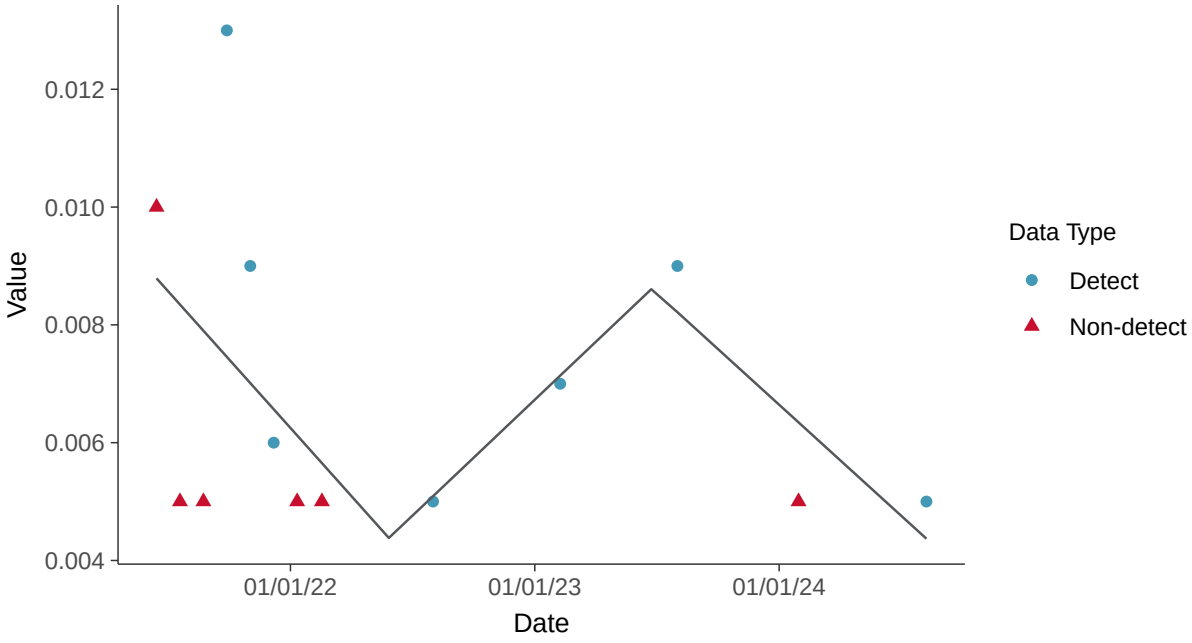
Trend Regression: Piecewise Linear-Linear

Lithium, MW-8 (mg/L)



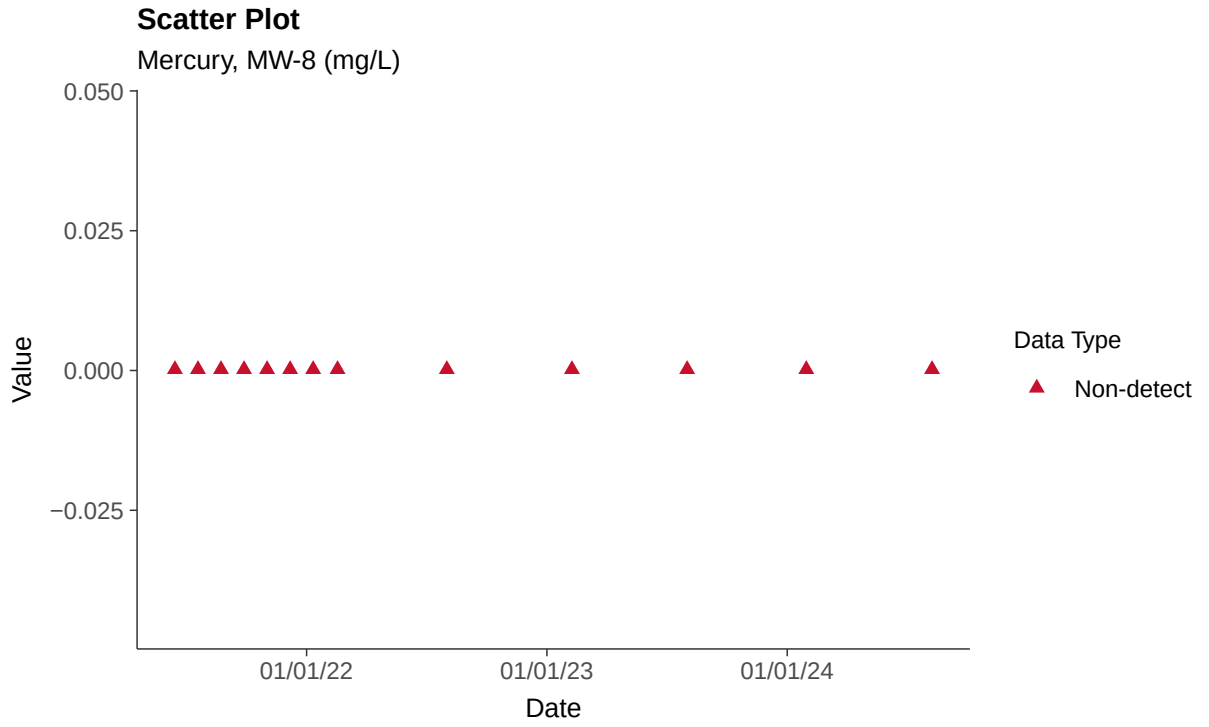
Trend Regression: Piecewise Linear-Linear-Linear

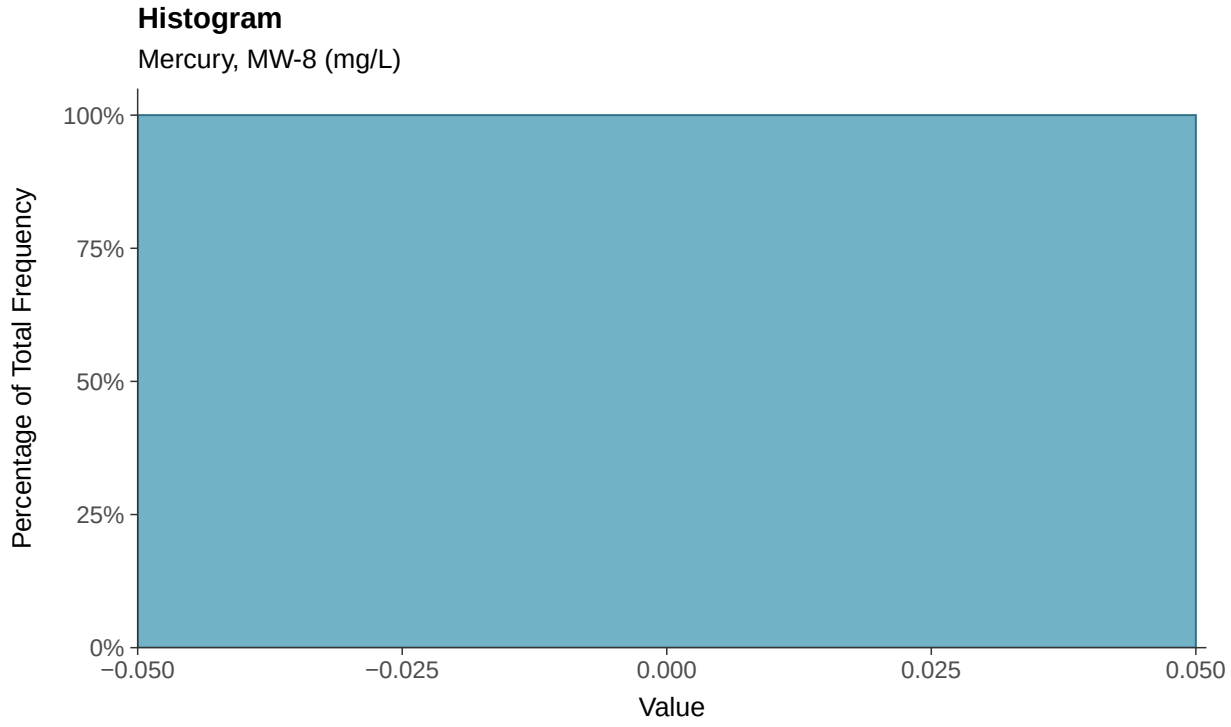
Lithium, MW-8 (mg/L)



Appendix IV: Mercury, MW-8

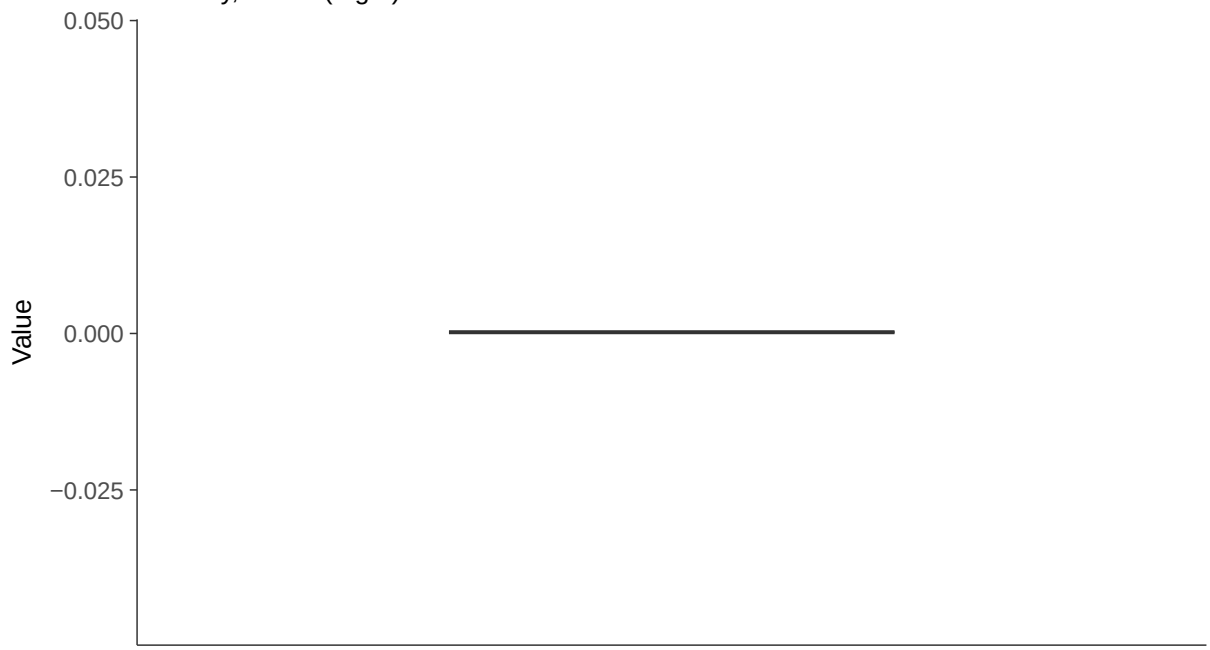
ID: 08_2_17





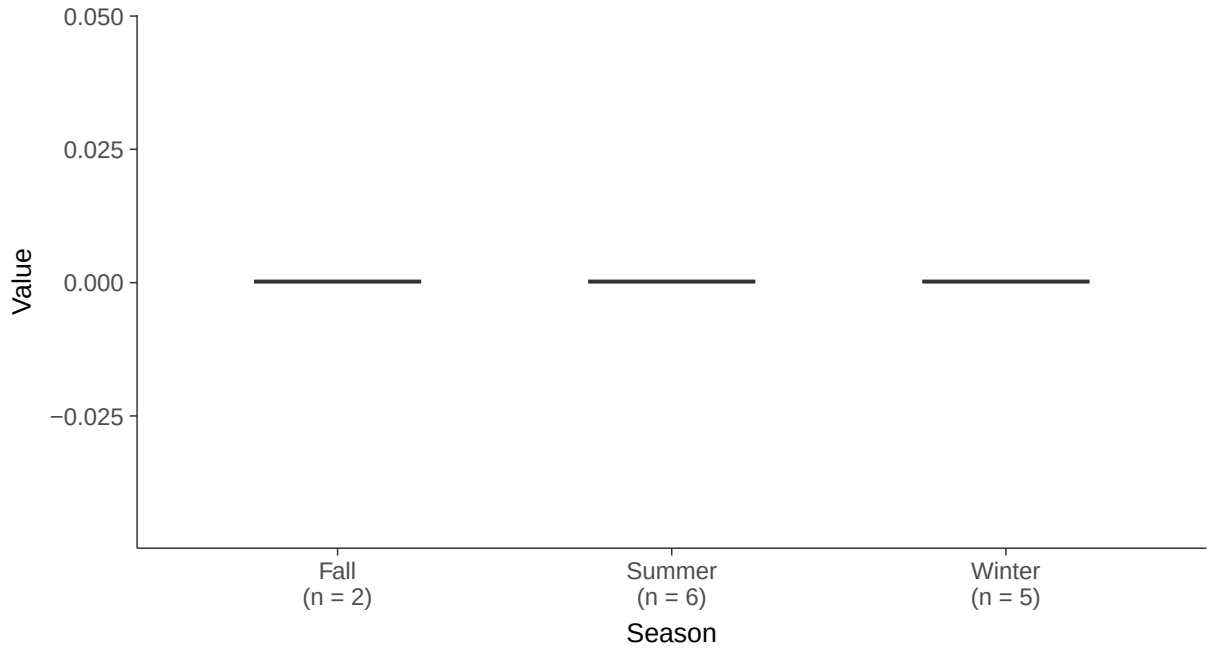
Boxplot

Mercury, MW-8 (mg/L)



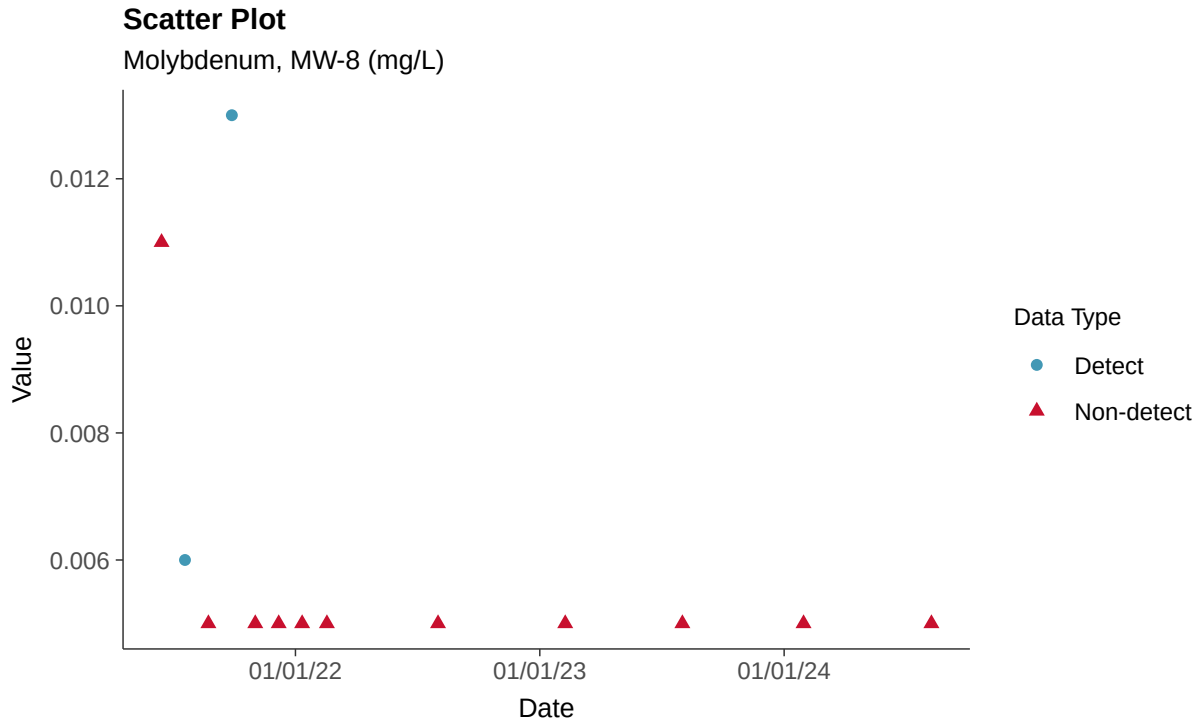
Boxplot by Season

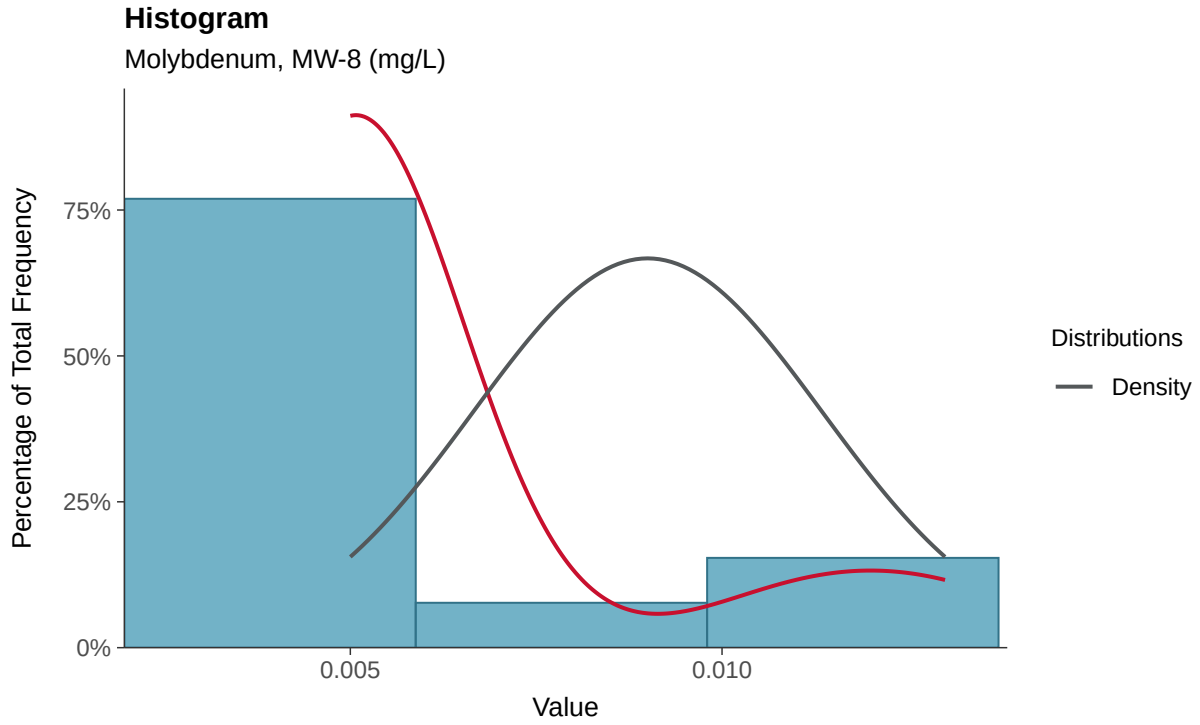
Mercury, MW-8 (mg/L)



Appendix IV: Molybdenum, MW-8

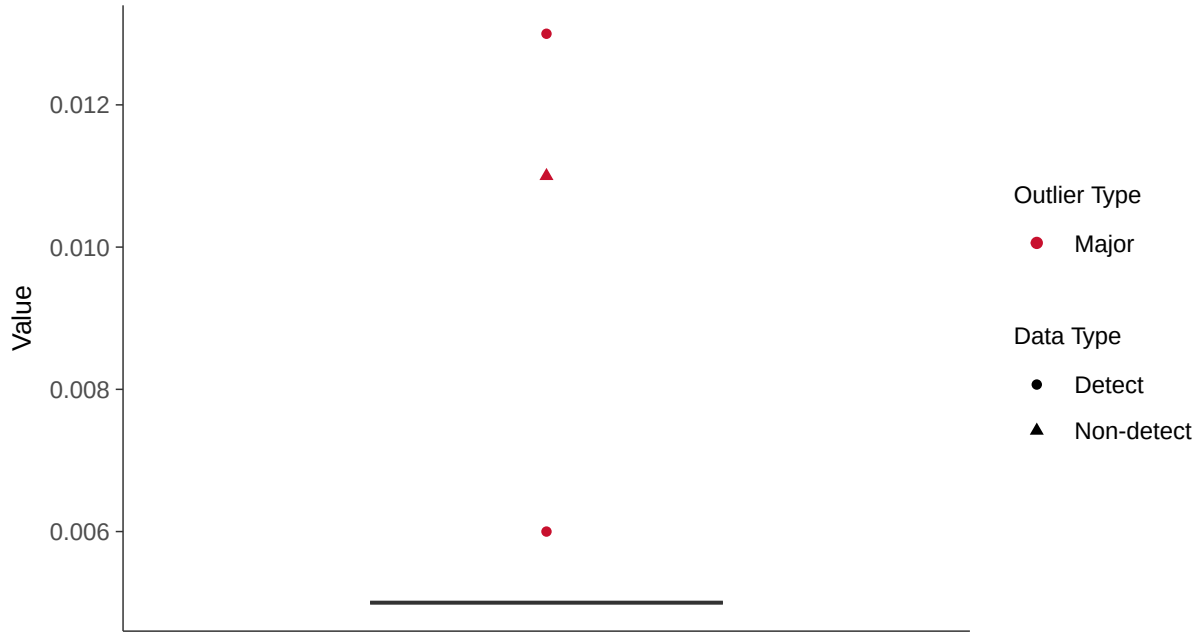
ID: 08_2_18





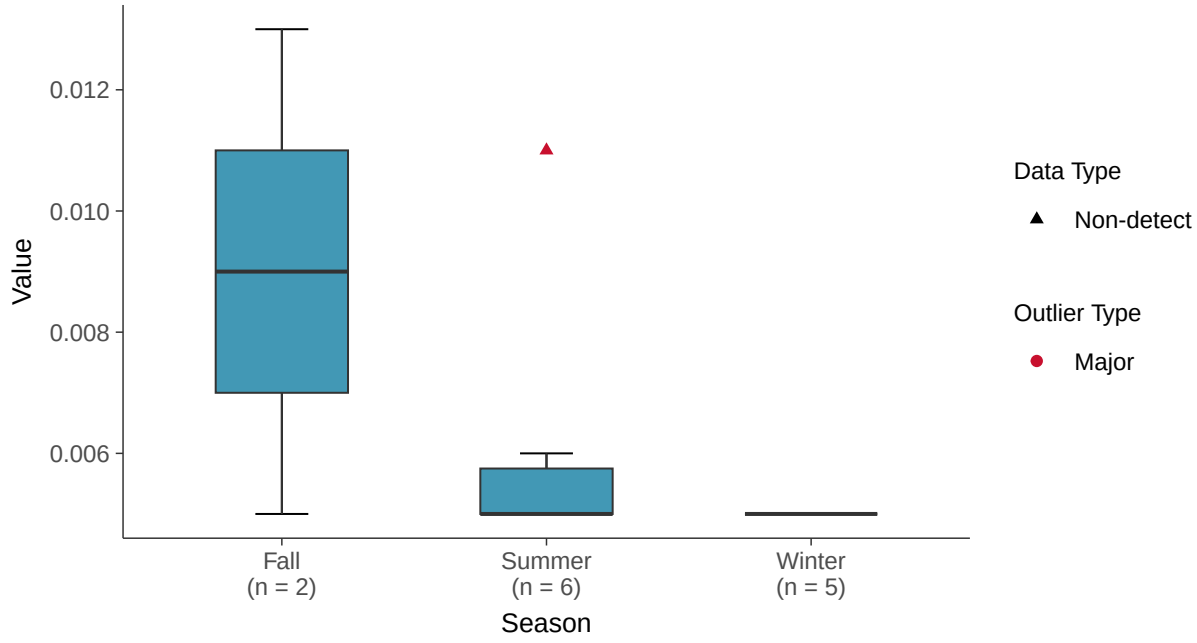
Boxplot

Molybdenum, MW-8 (mg/L)



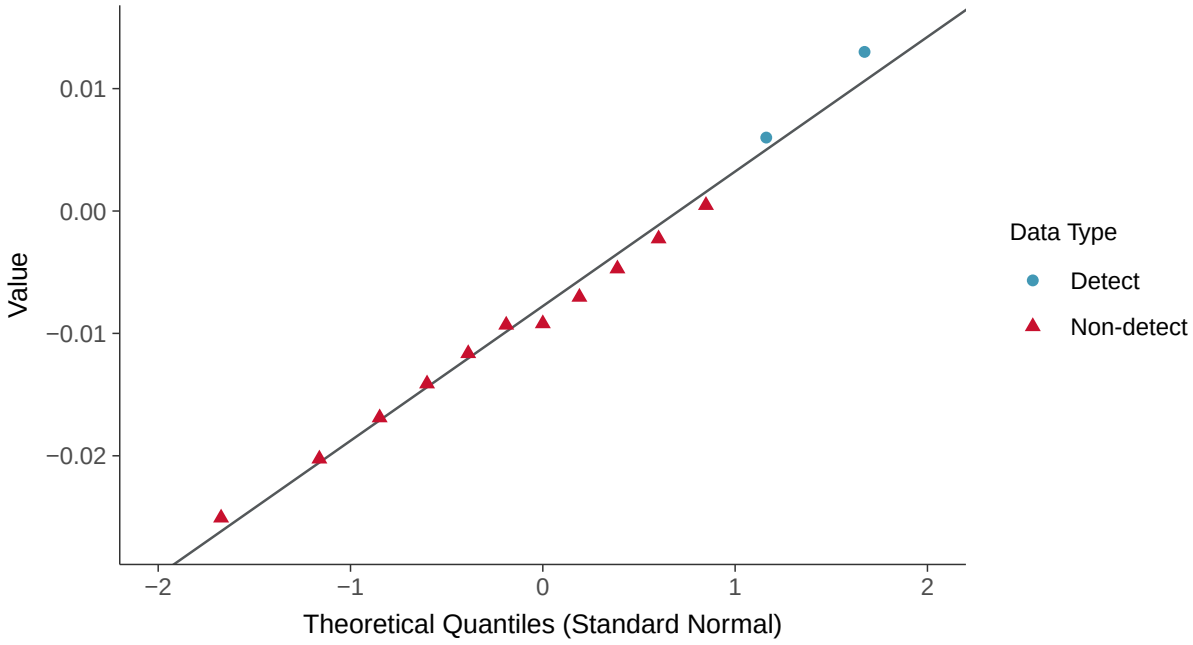
Boxplot by Season

Molybdenum, MW-8 (mg/L)



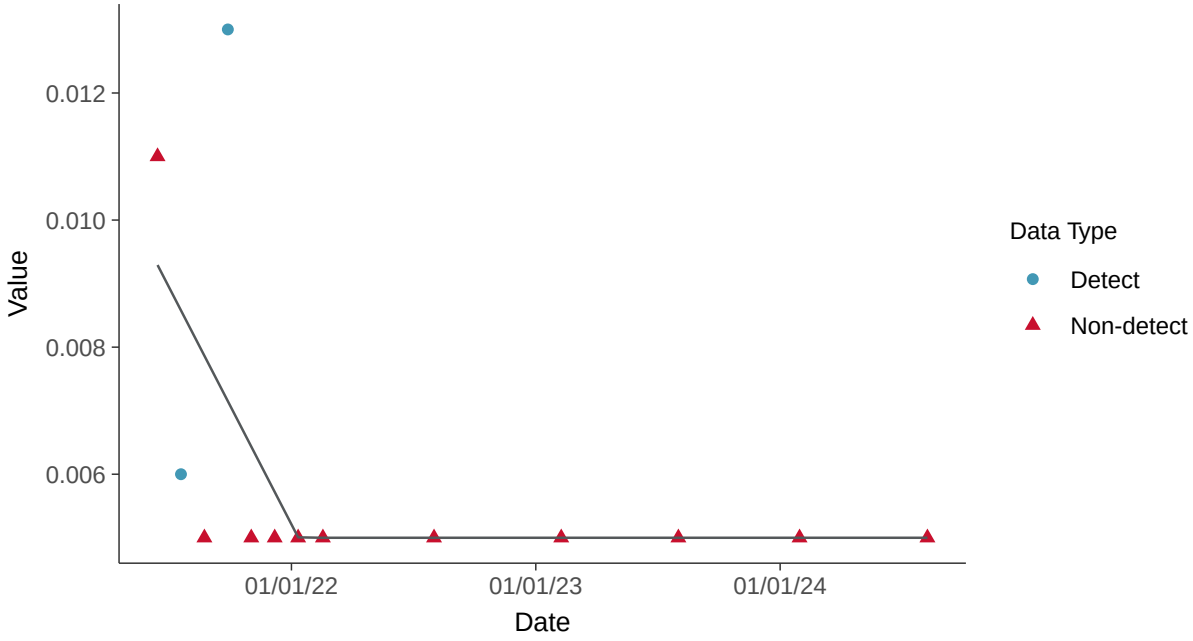
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, MW-8 (mg/L)



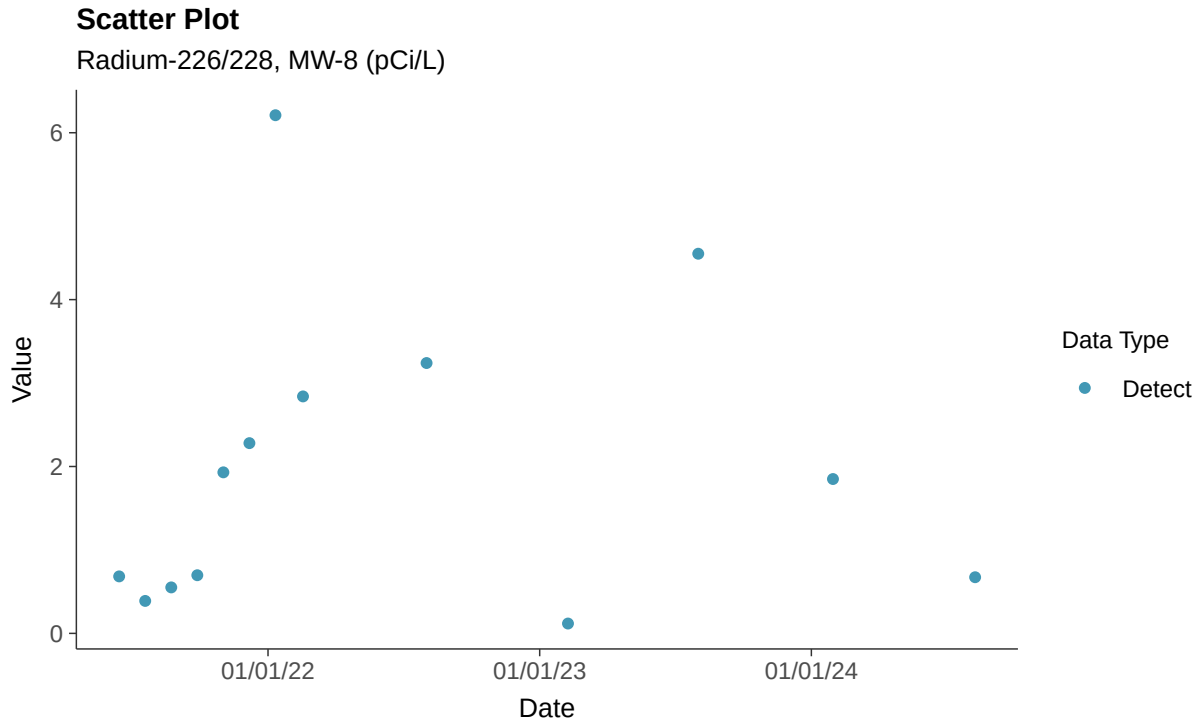
Trend Regression: Piecewise Linear-Linear

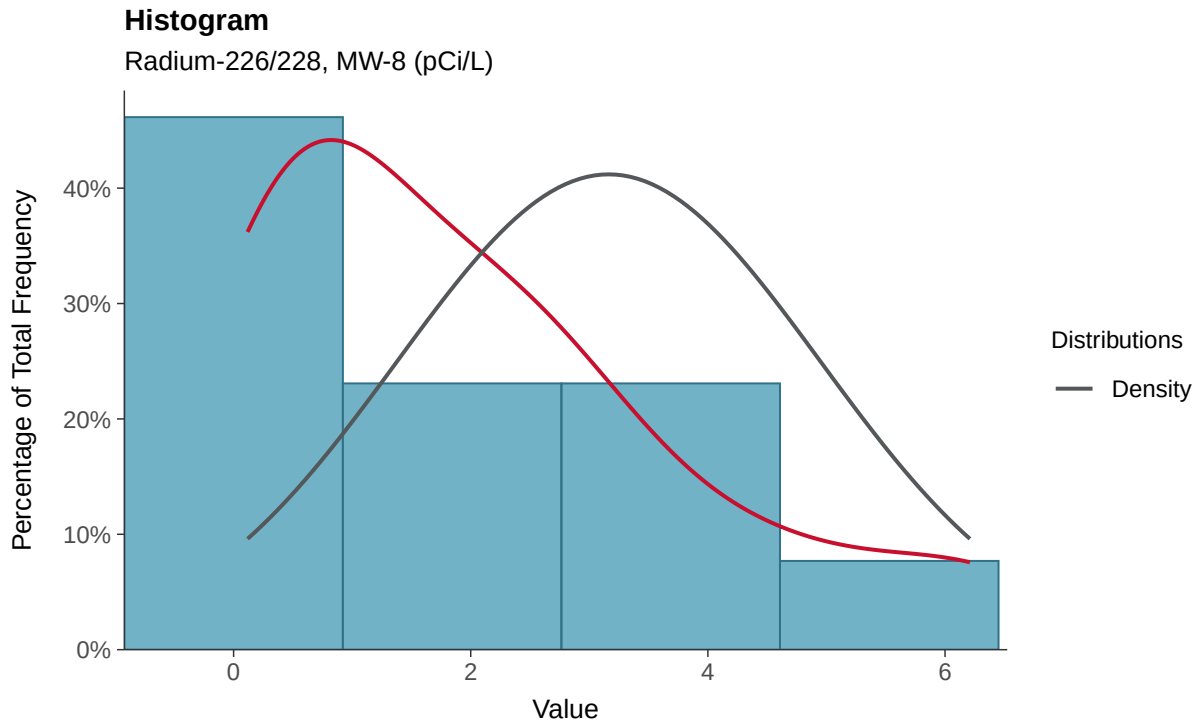
Molybdenum, MW-8 (mg/L)



Appendix IV: Radium-226/228, MW-8

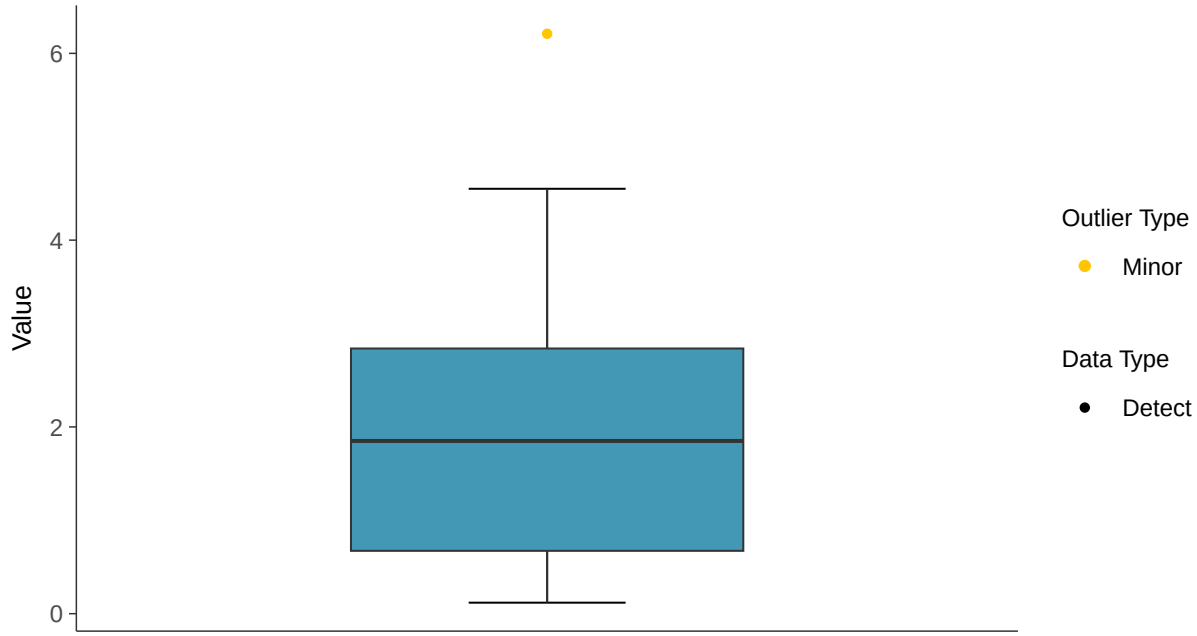
ID: 08_2_21





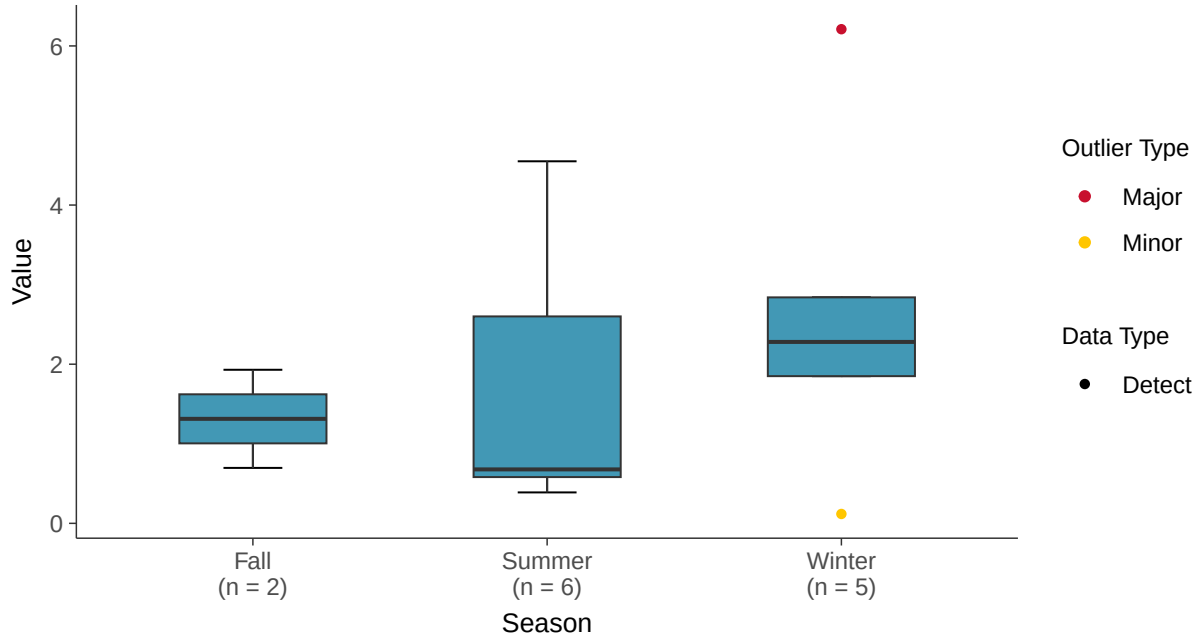
Boxplot

Radium-226/228, MW-8 (pCi/L)



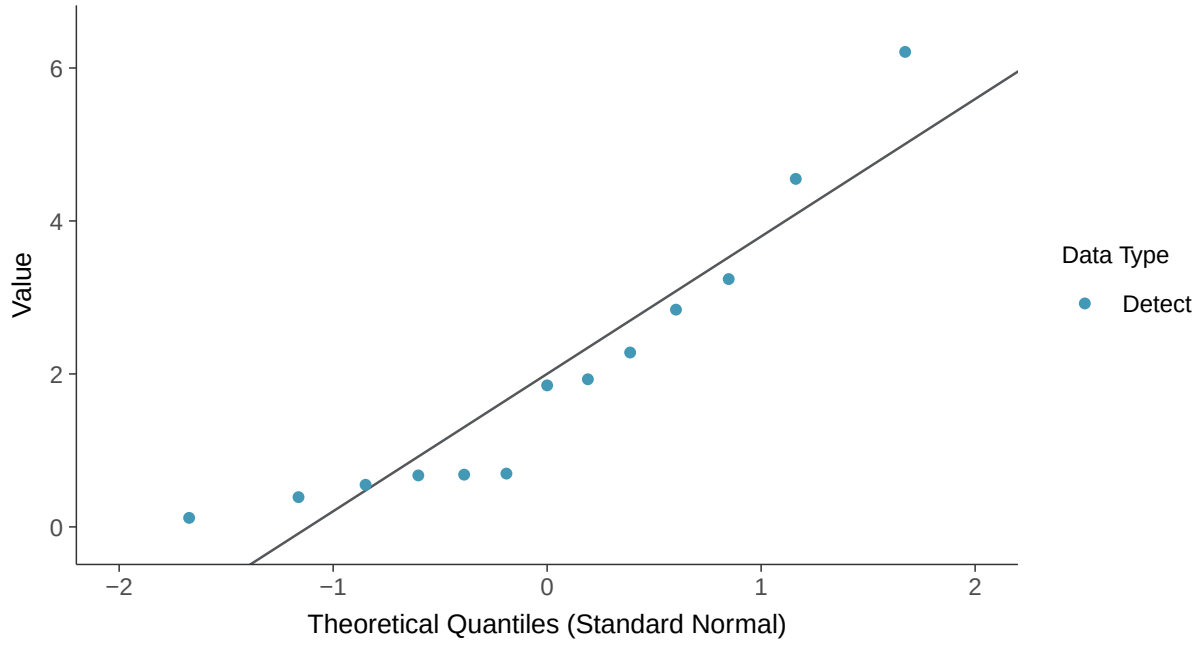
Boxplot by Season

Radium-226/228, MW-8 (pCi/L)



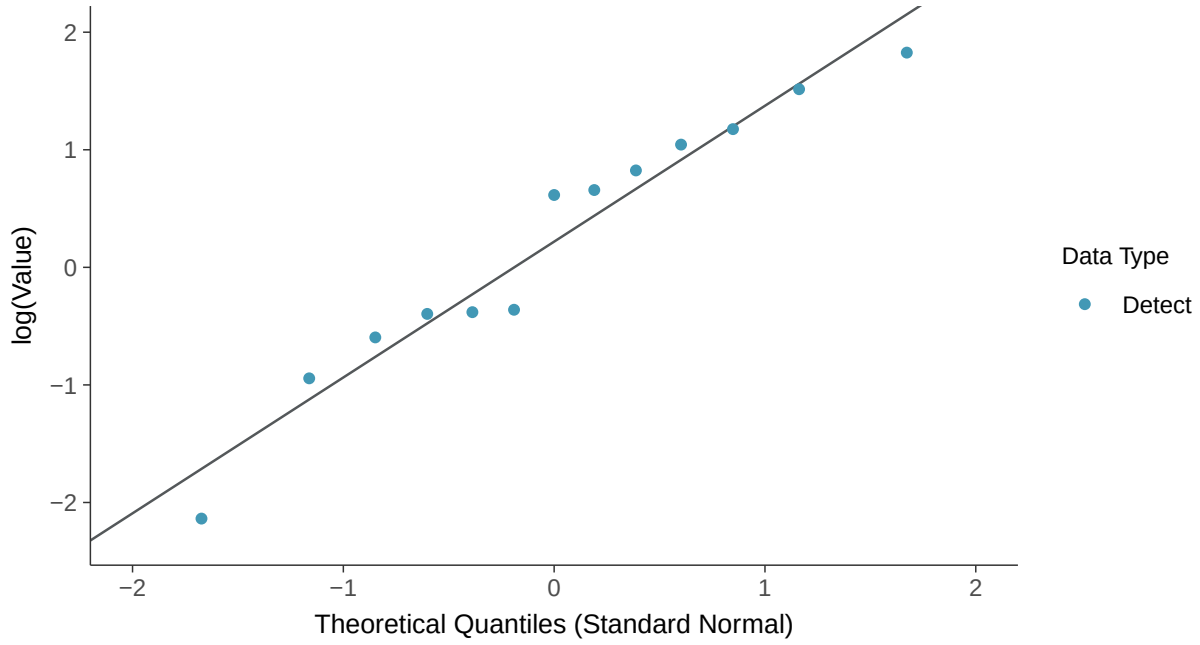
Normal Q-Q plot

Radium-226/228, MW-8 (pCi/L)



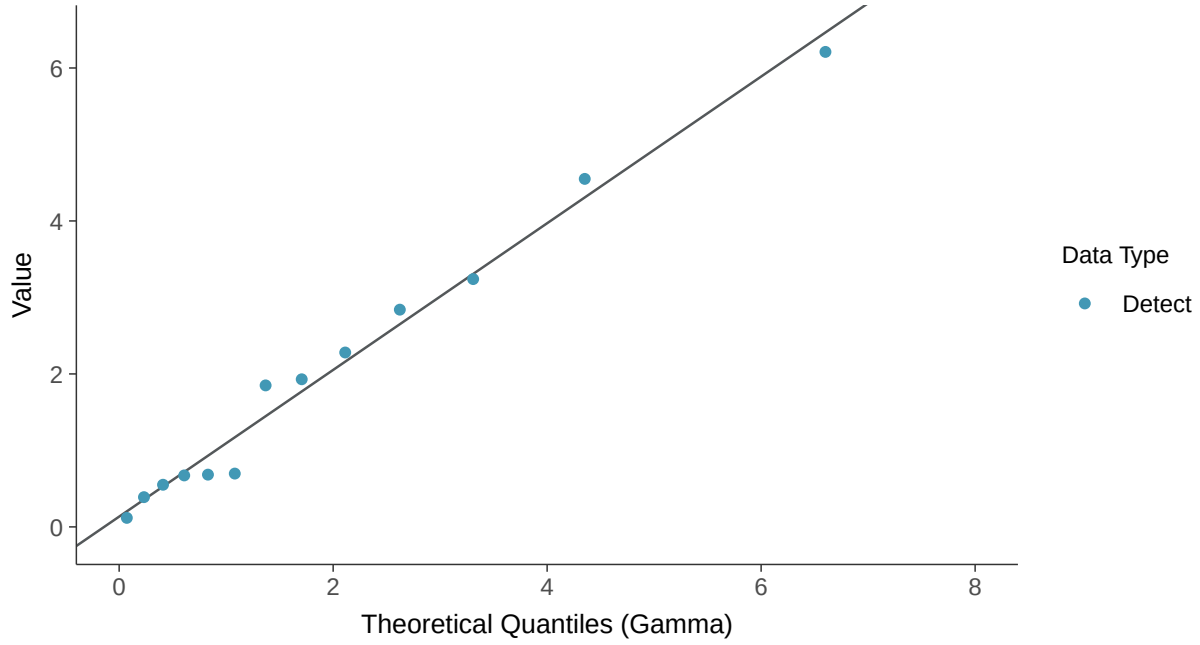
Lognormal Q-Q plot

Radium-226/228, MW-8 (pCi/L)



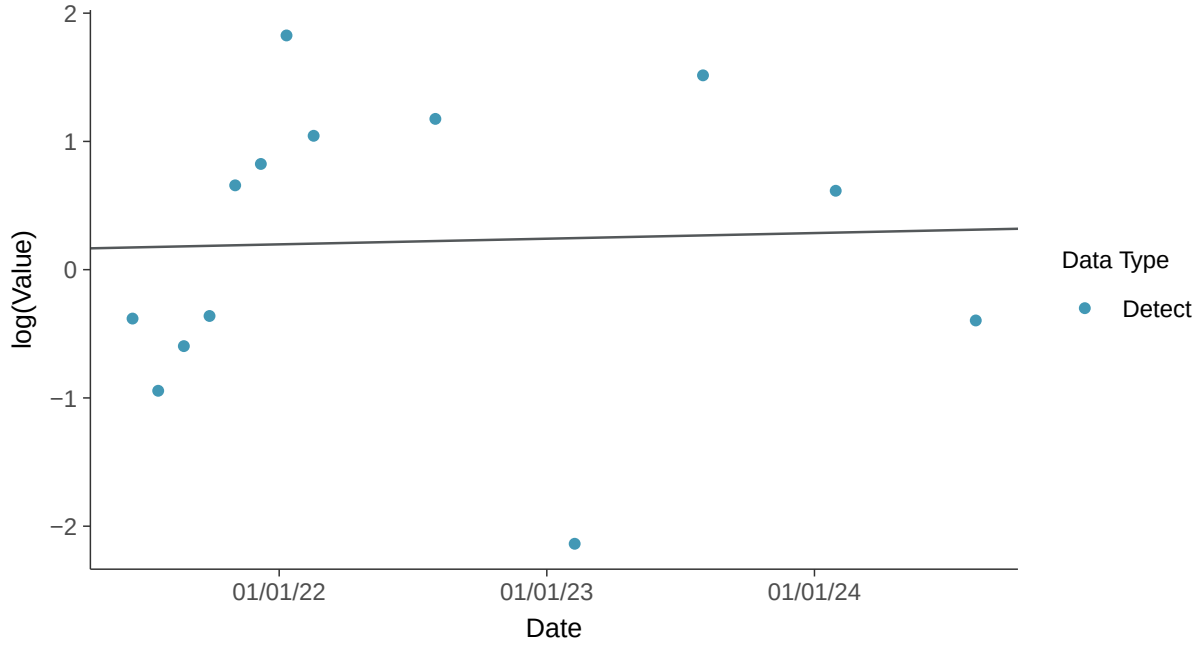
Gamma Q-Q plot

Radium-226/228, MW-8 (pCi/L)



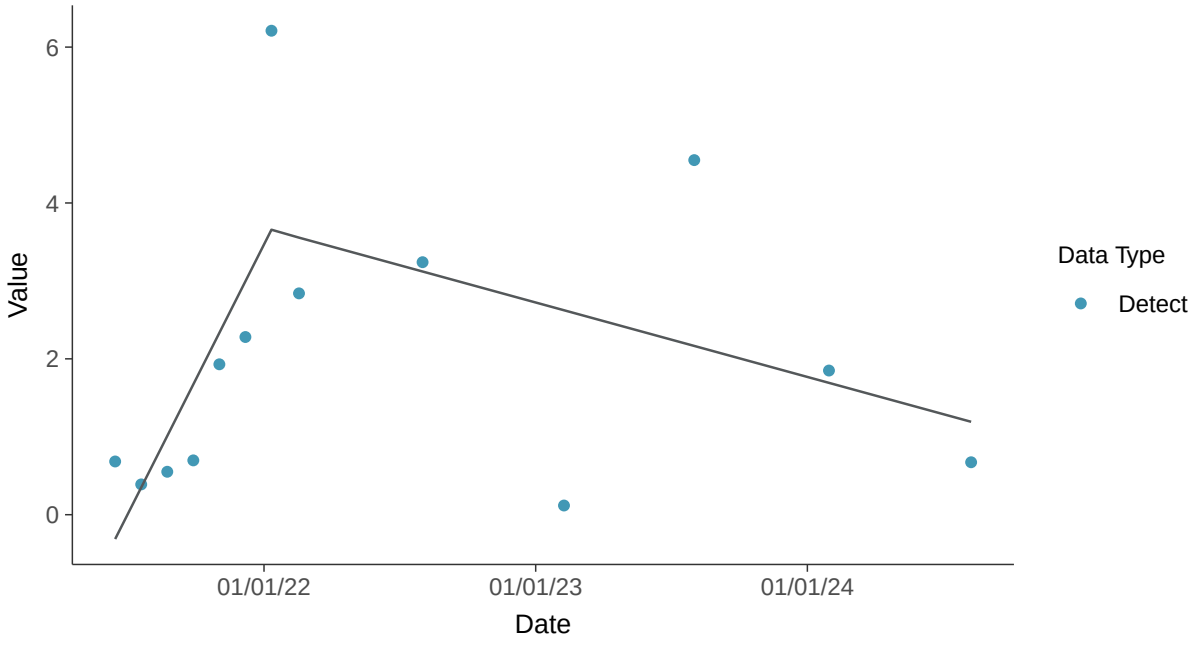
Trend Regression: Lognormal MLE

Radium-226/228, MW-8 (pCi/L)



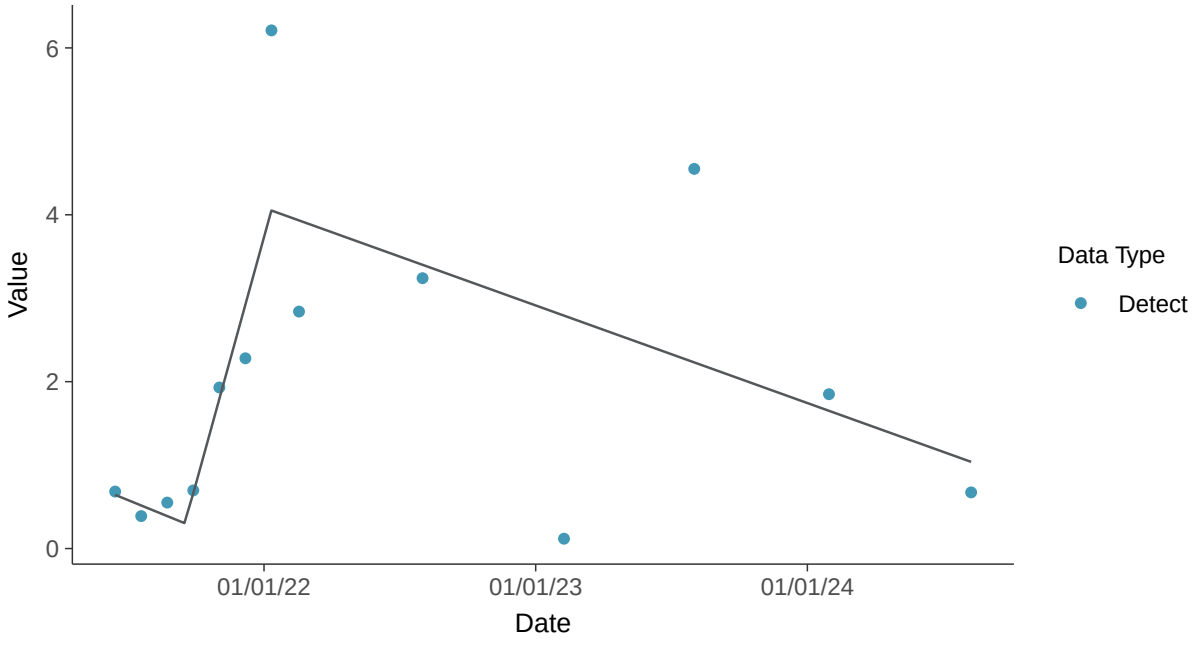
Trend Regression: Piecewise Linear-Linear

Radium-226/228, MW-8 (pCi/L)



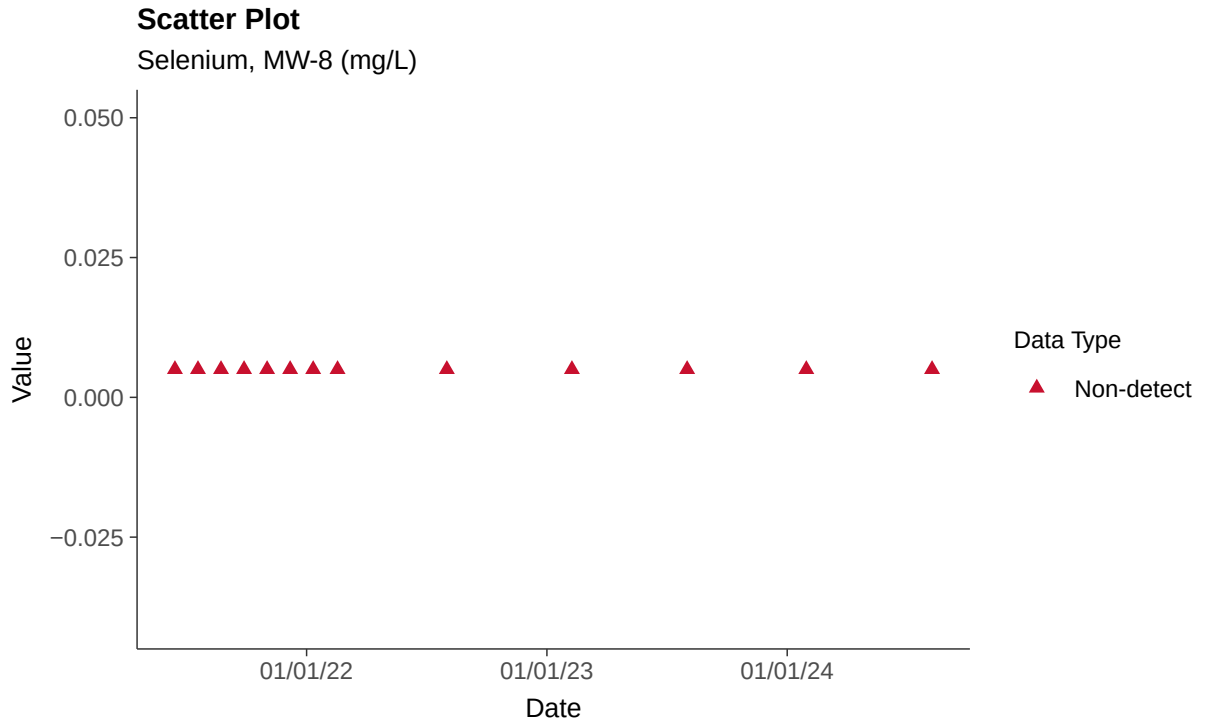
Trend Regression: Piecewise Linear-Linear-Linear

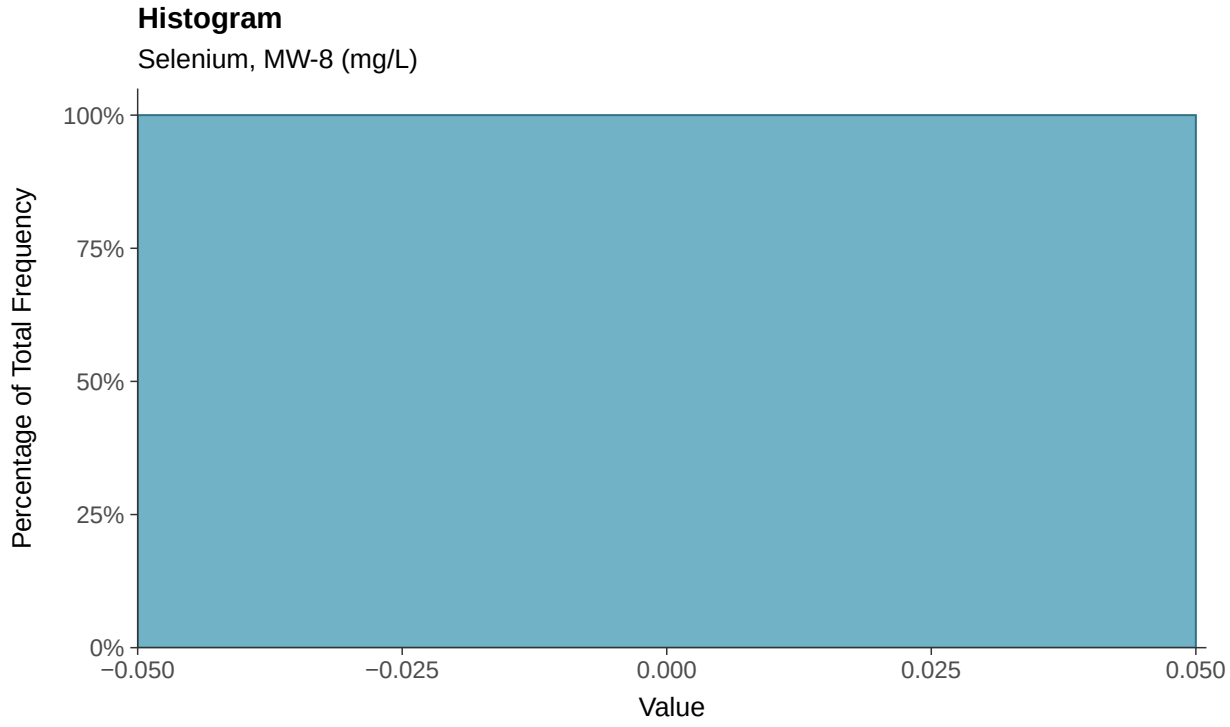
Radium-226/228, MW-8 (pCi/L)



Appendix IV: Selenium, MW-8

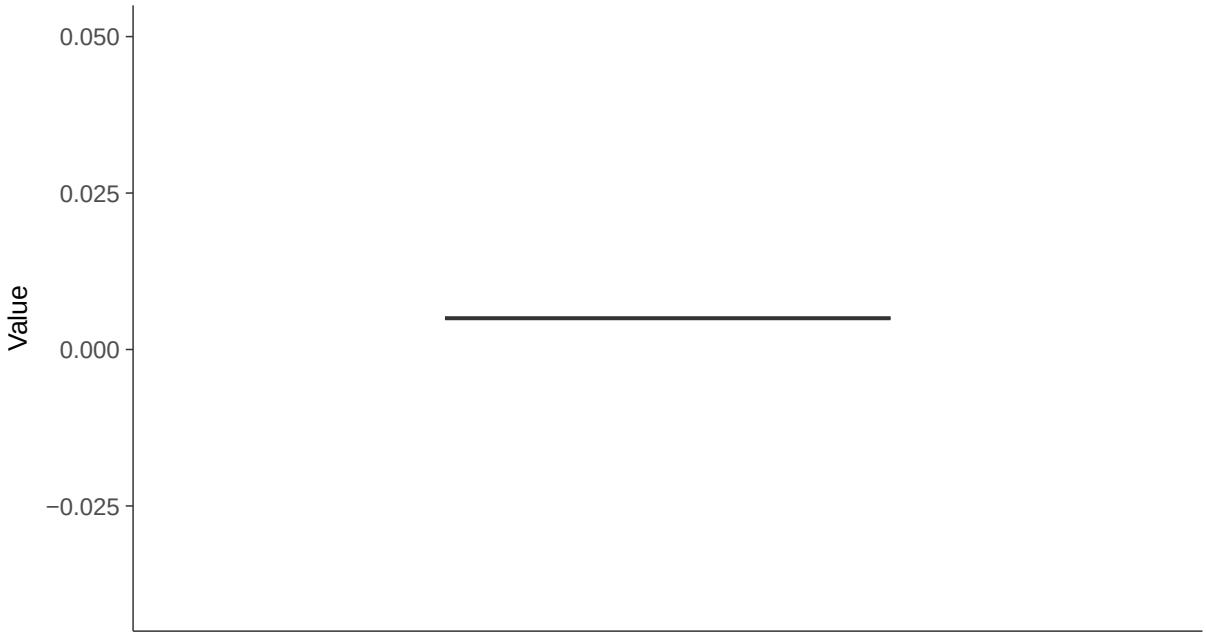
ID: 08_2_22





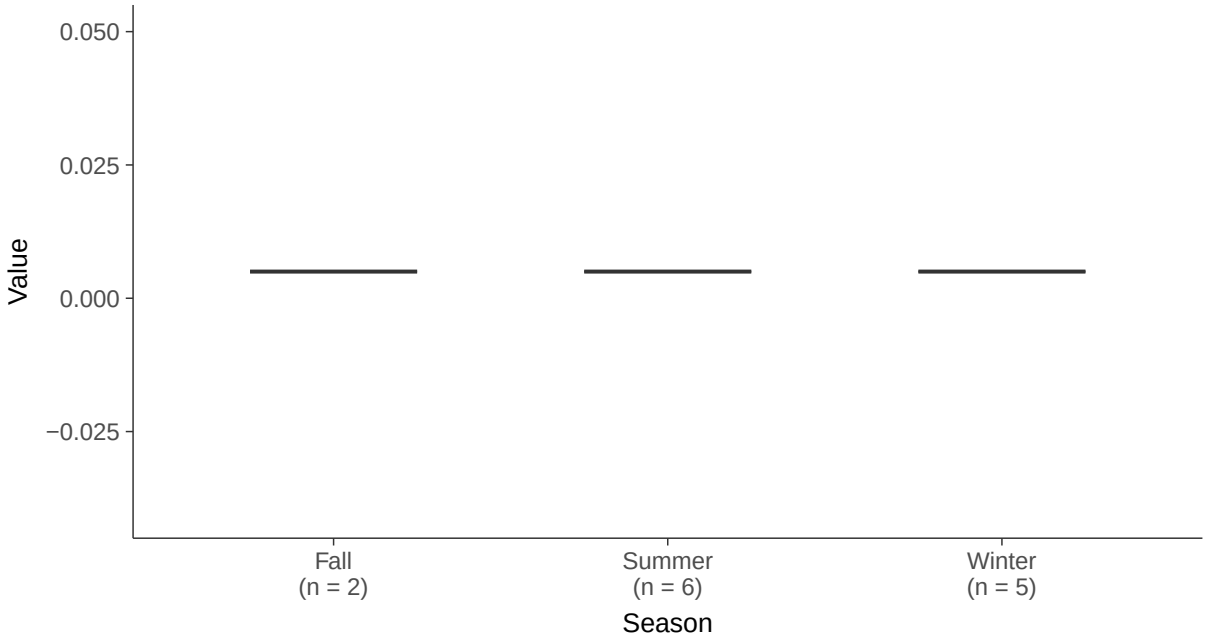
Boxplot

Selenium, MW-8 (mg/L)



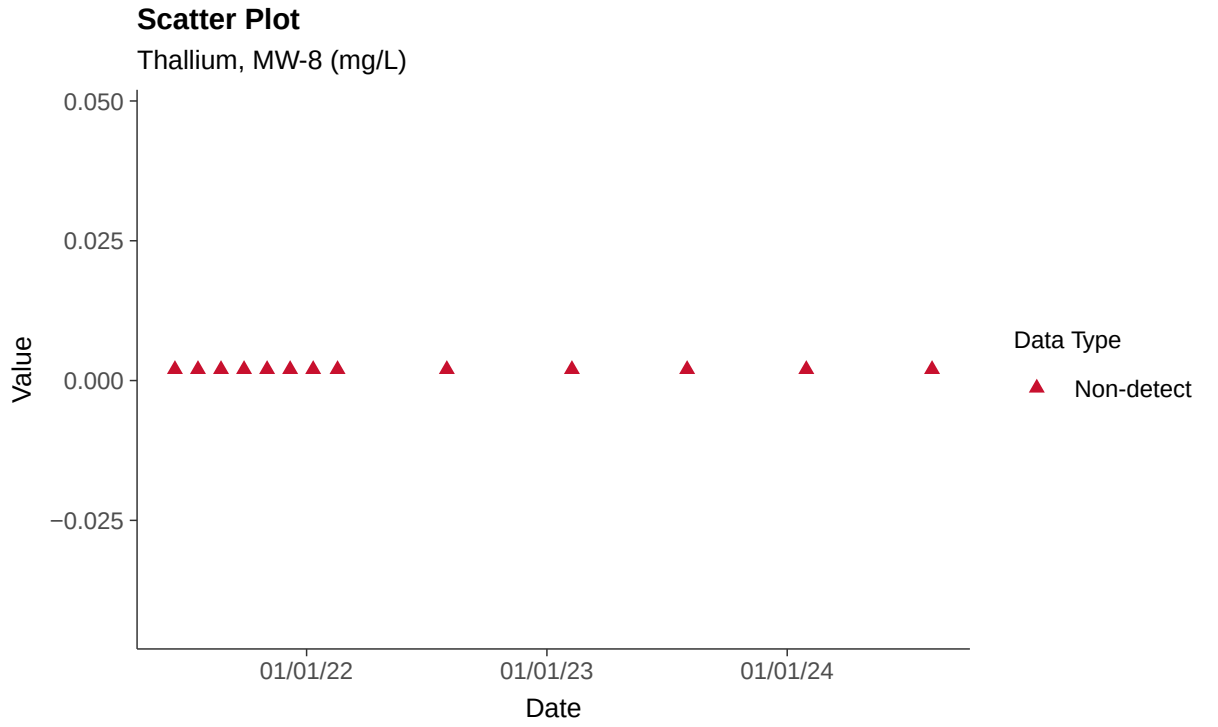
Boxplot by Season

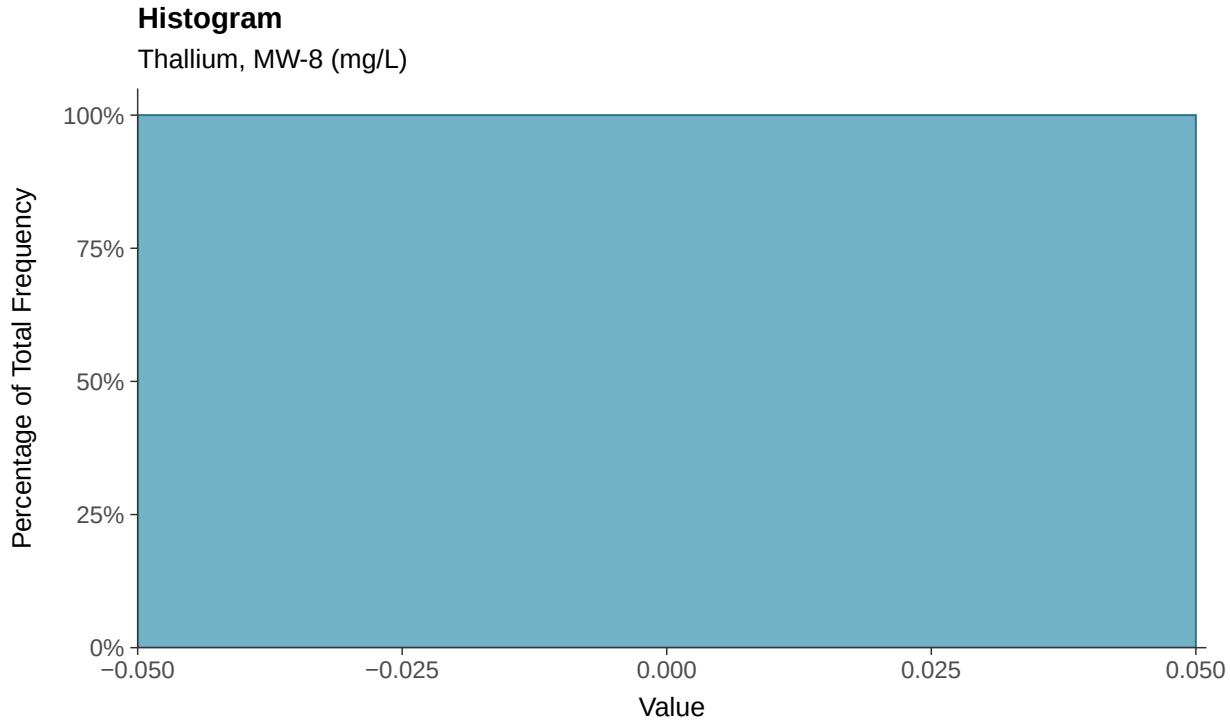
Selenium, MW-8 (mg/L)



Appendix IV: Thallium, MW-8

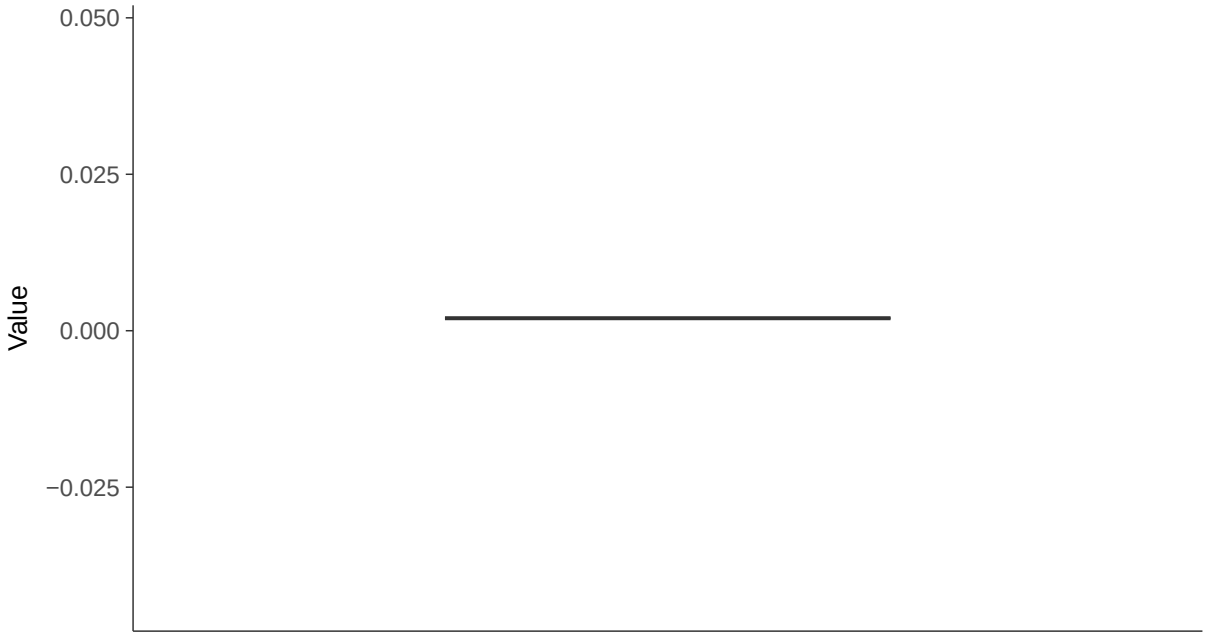
ID: 08_2_23





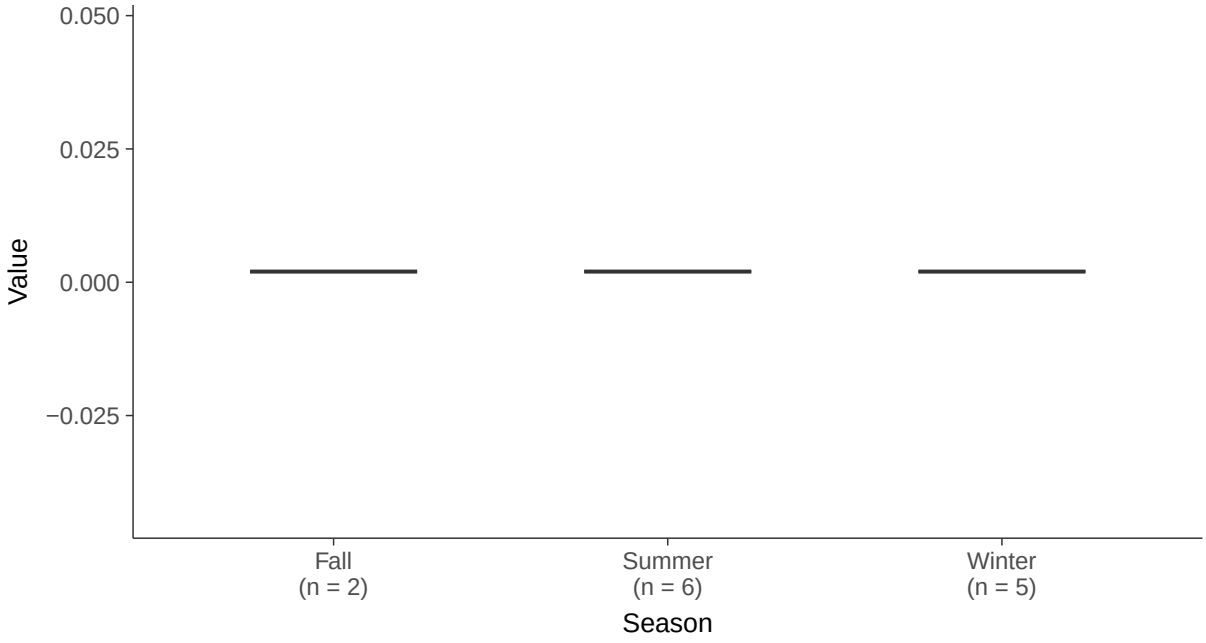
Boxplot

Thallium, MW-8 (mg/L)



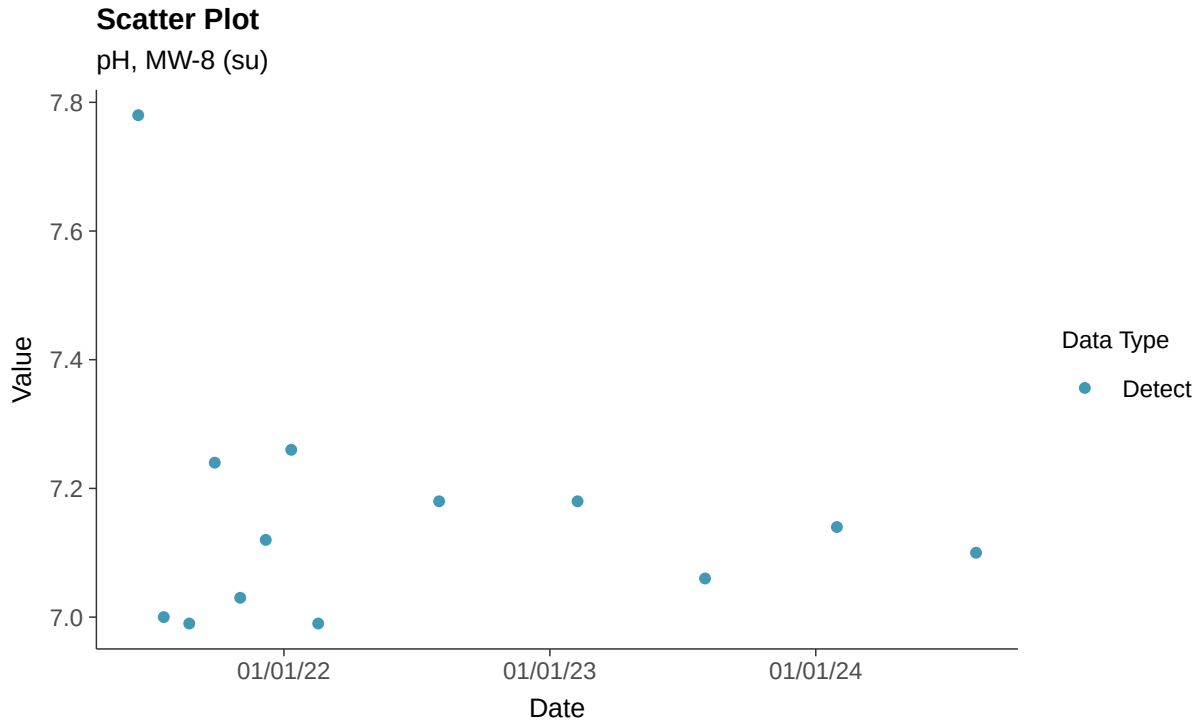
Boxplot by Season

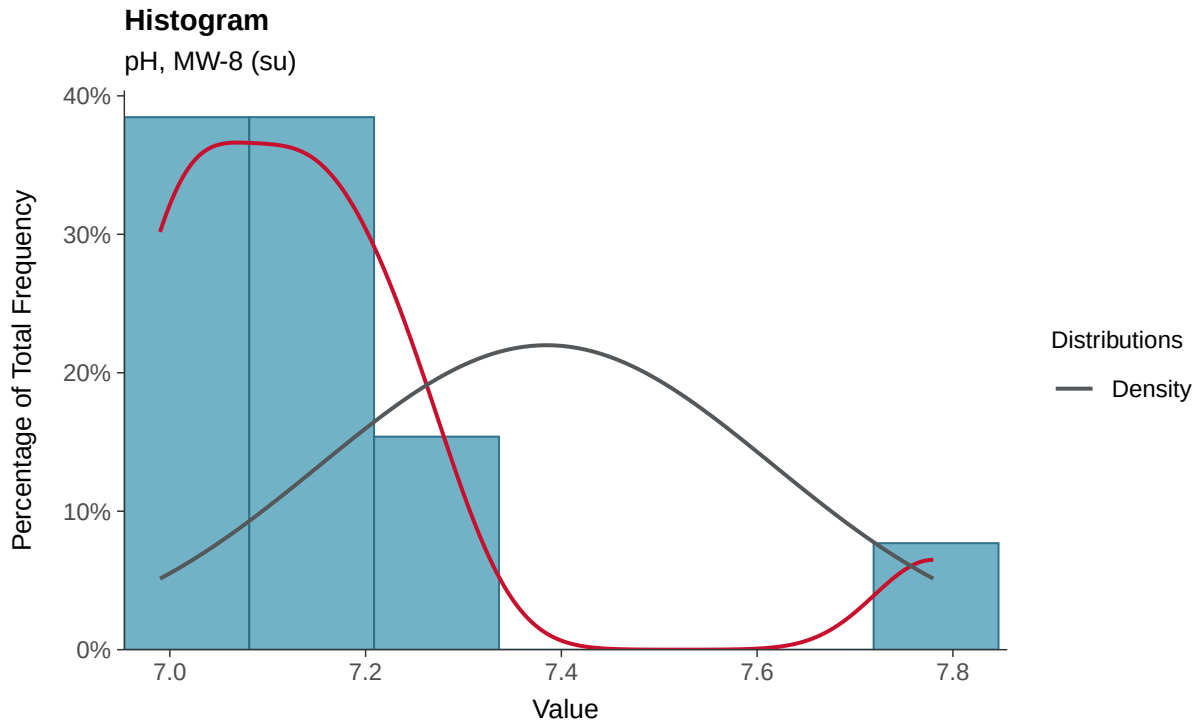
Thallium, MW-8 (mg/L)



Field Parameters: pH, MW-8

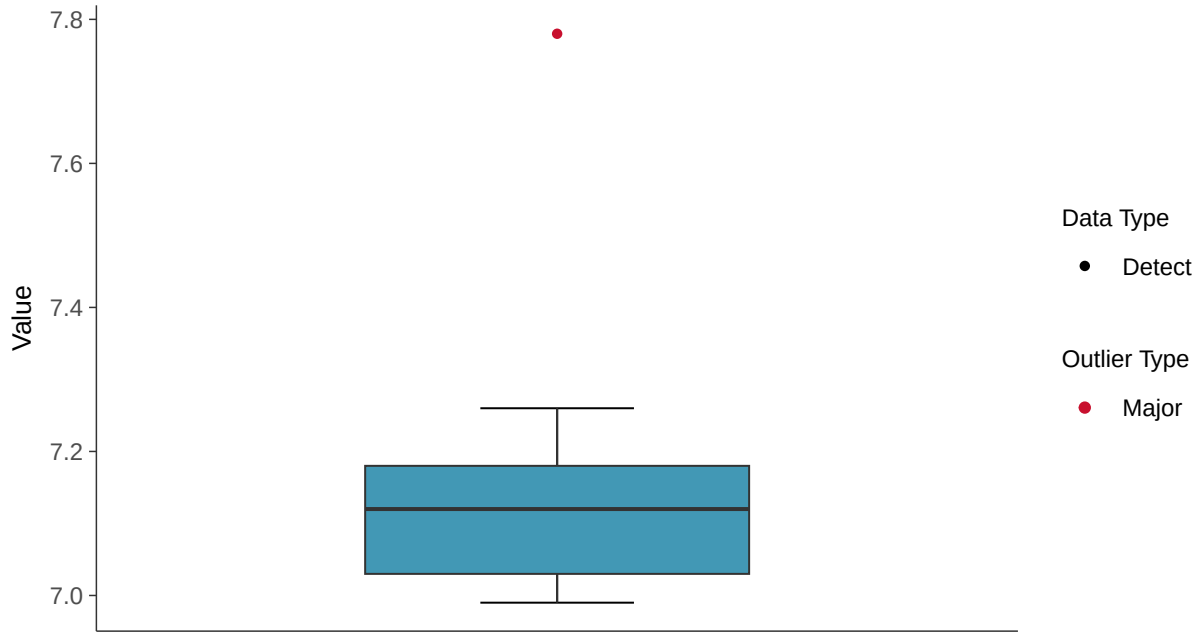
ID: 08_3_24





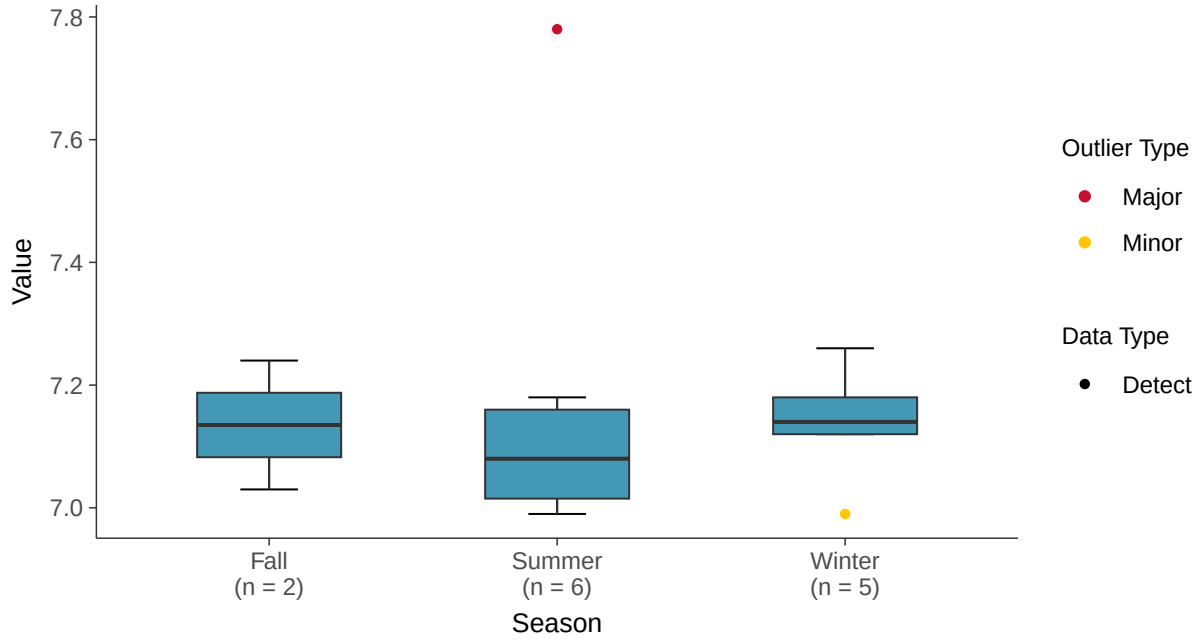
Boxplot

pH, MW-8 (su)



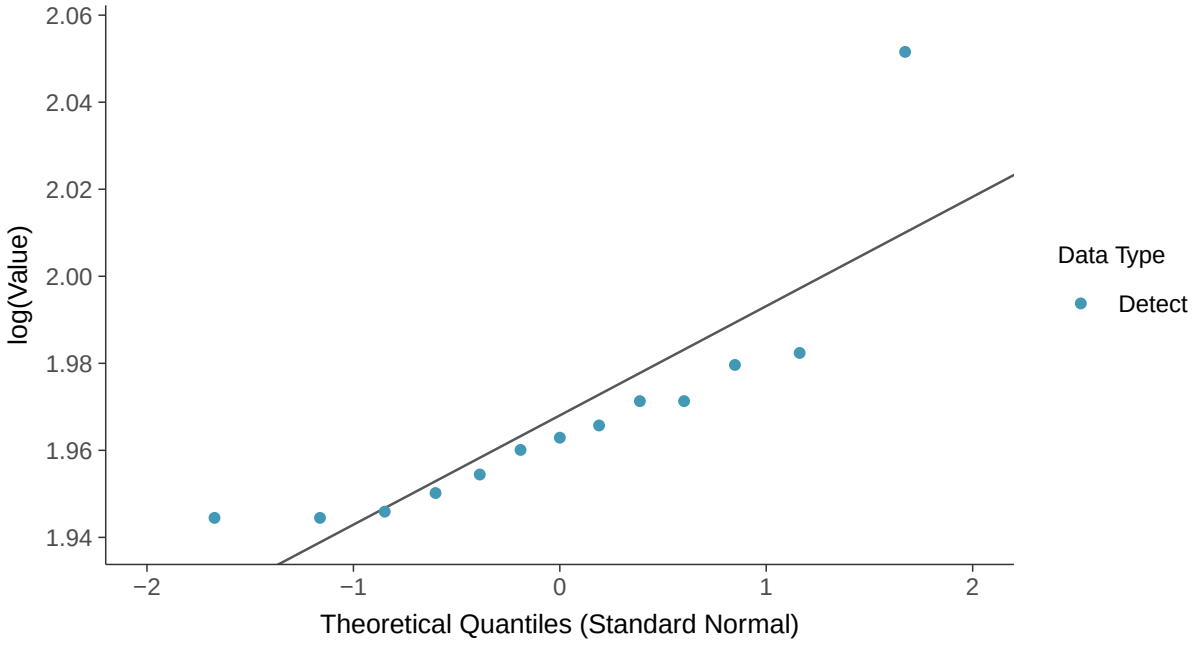
Boxplot by Season

pH, MW-8 (su)



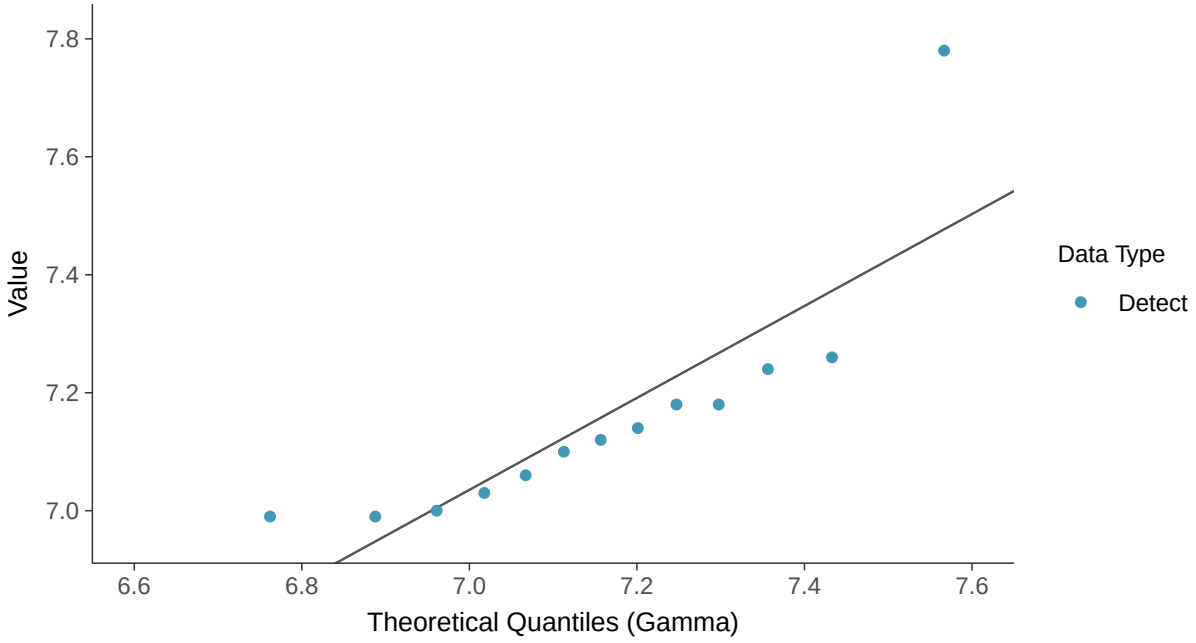
Lognormal Q-Q plot

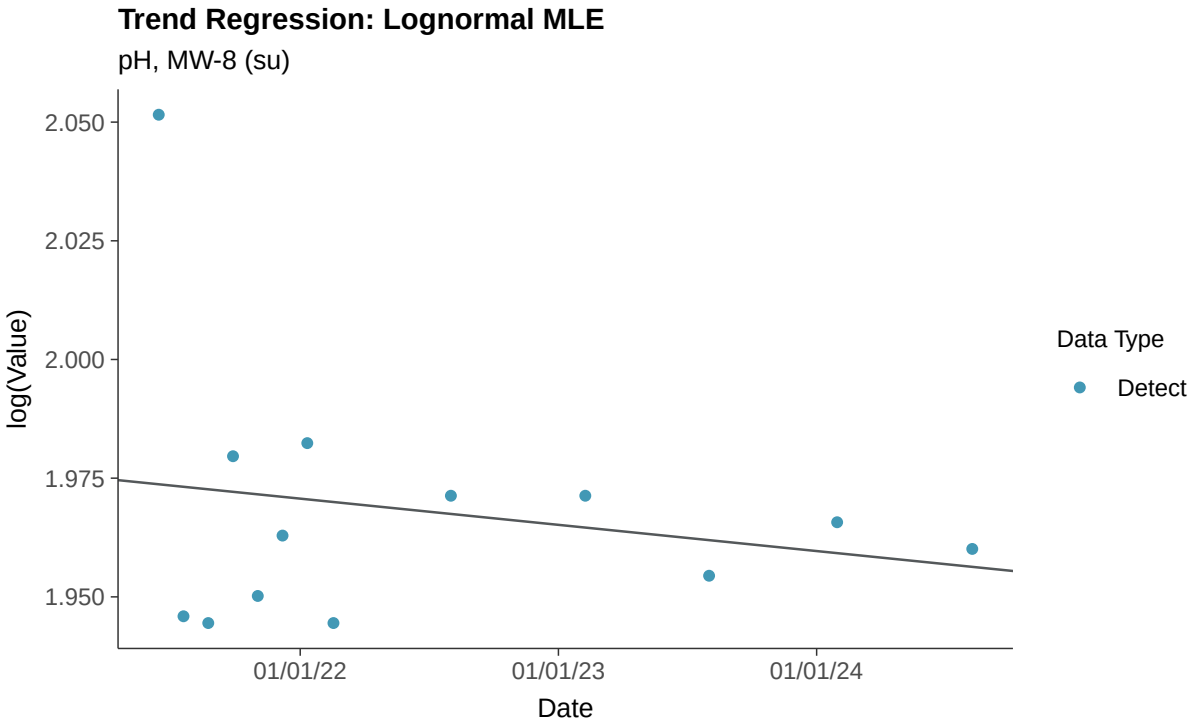
pH, MW-8 (su)



Gamma Q-Q plot

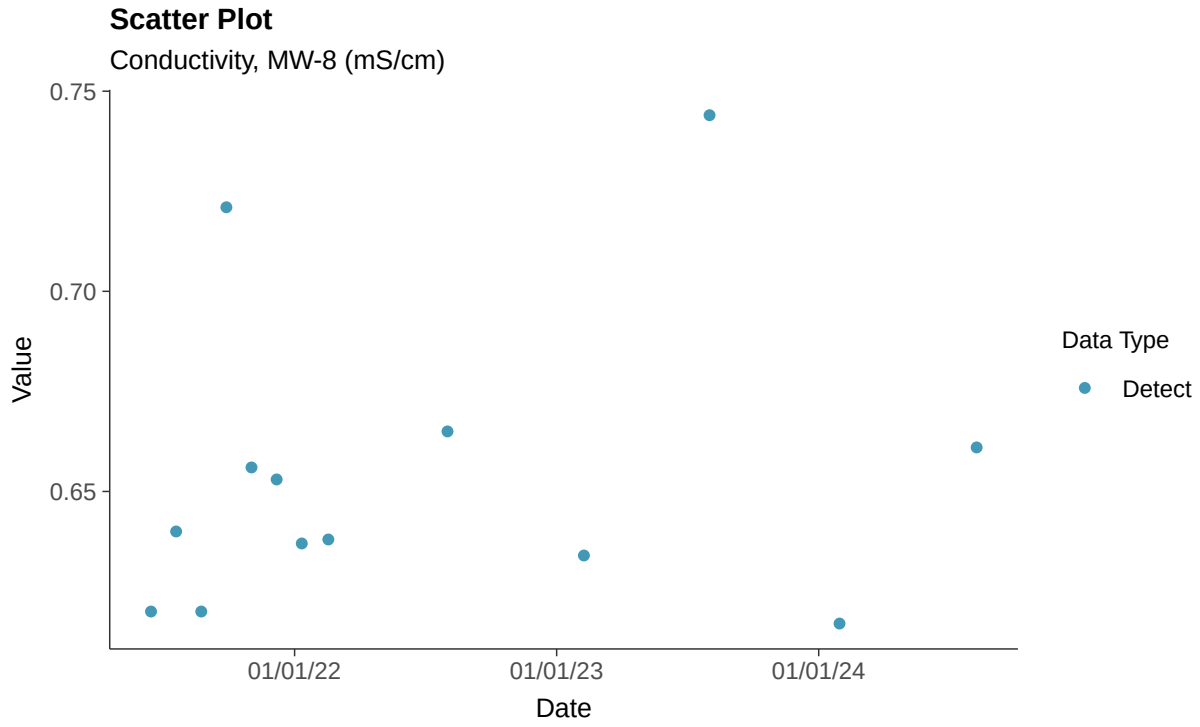
pH, MW-8 (su)

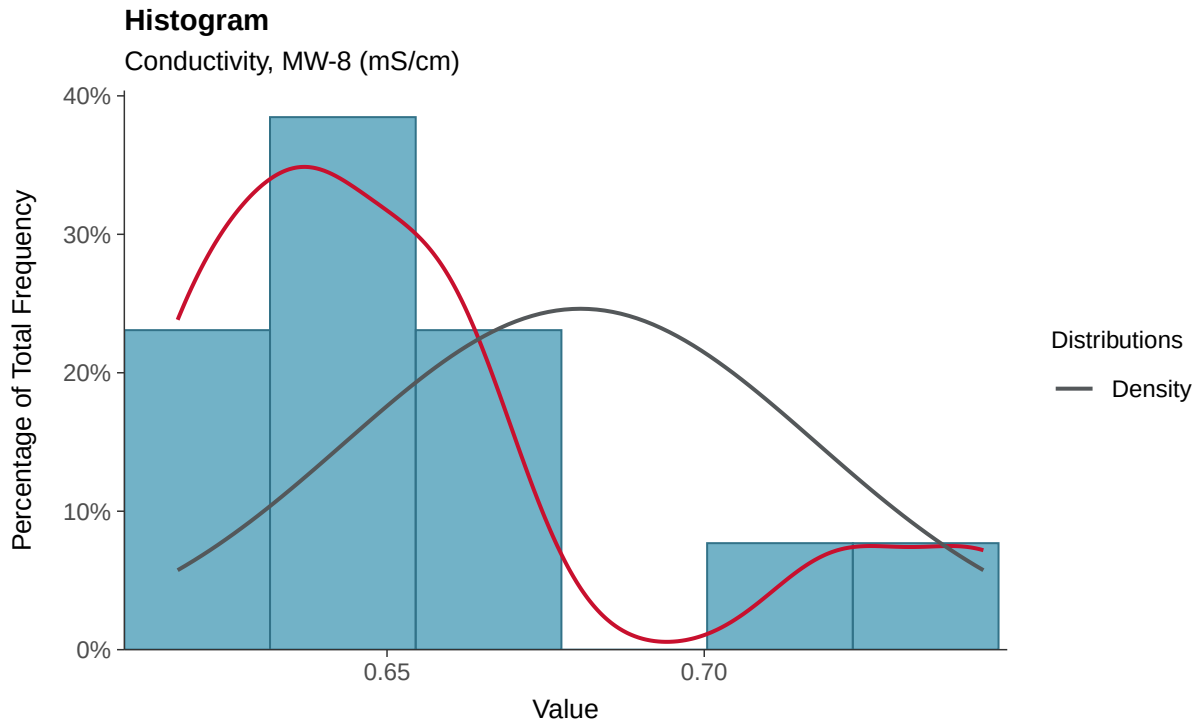



Trend Regression: Lognormal MLE
pH, MW-8 (su)
log(Value)
2.050
2.025
2.000
1.975
1.950
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Field Parameters: Conductivity, MW-8

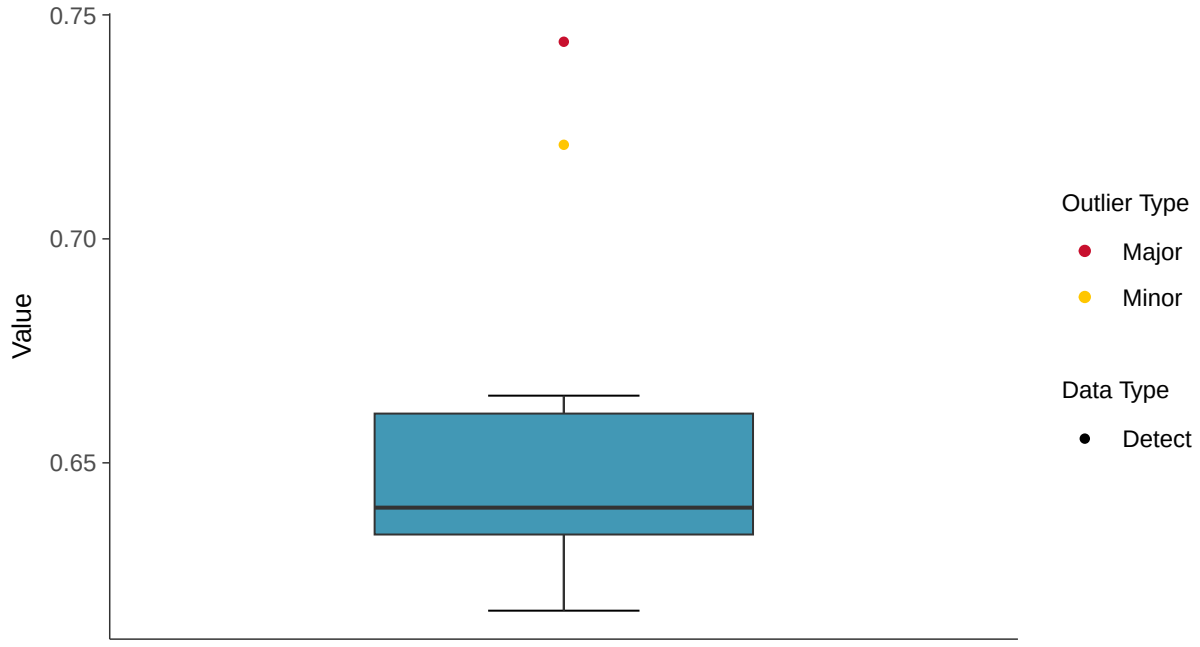
ID: 08_3_25





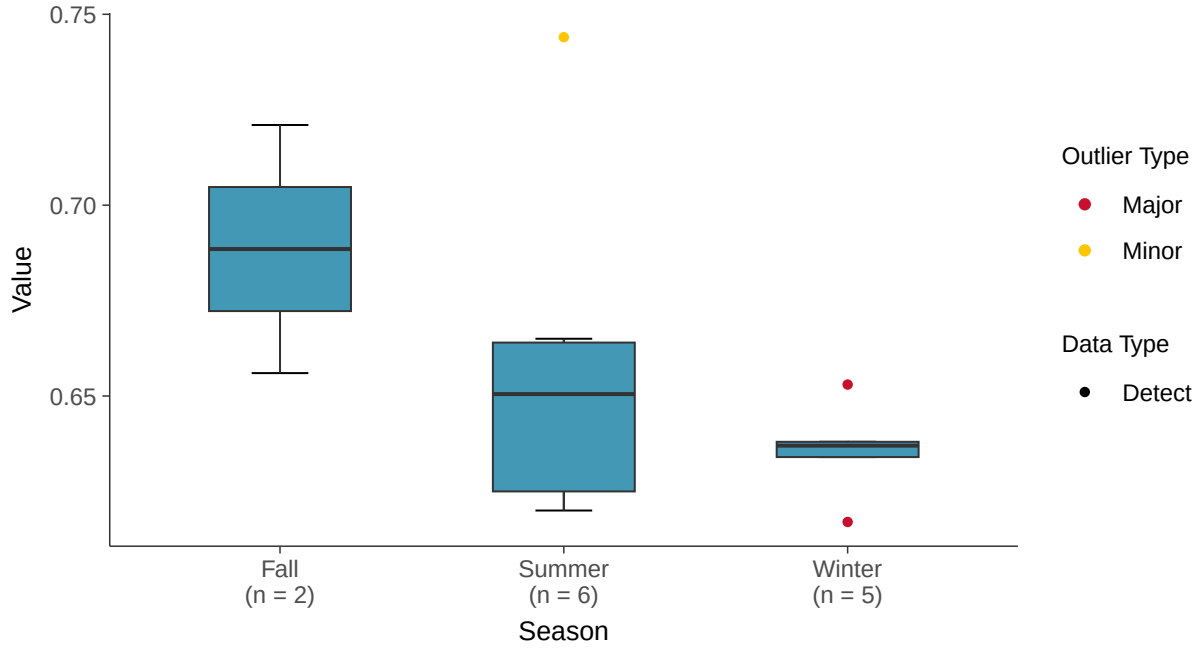
Boxplot

Conductivity, MW-8 (mS/cm)



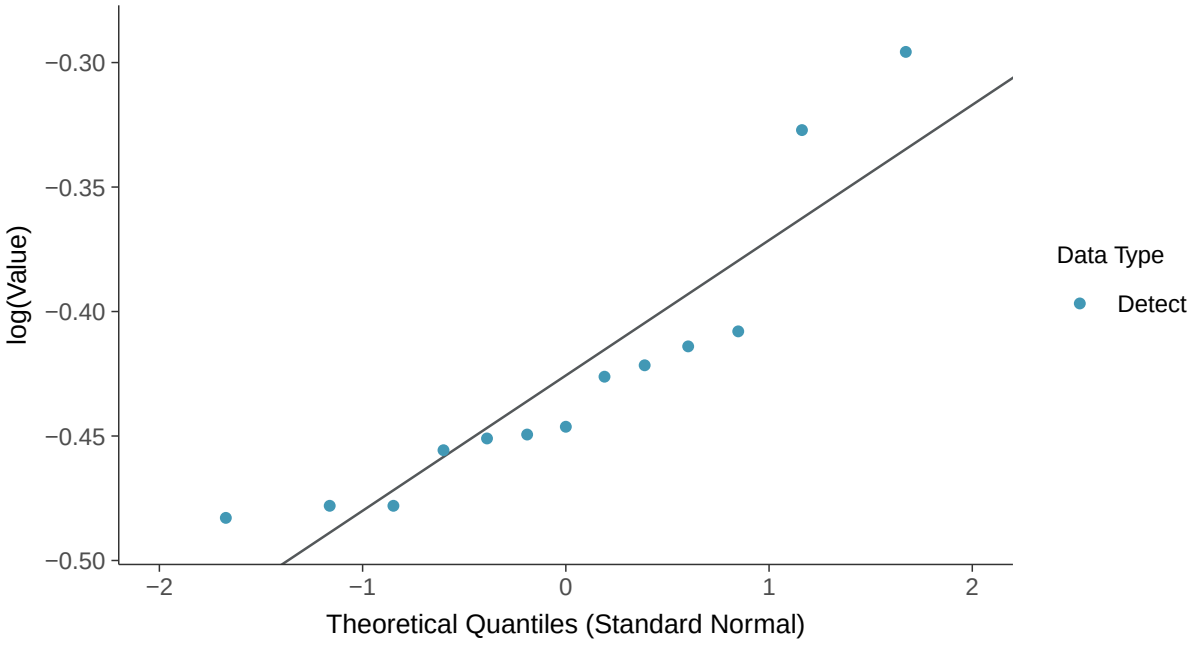
Boxplot by Season

Conductivity, MW-8 (mS/cm)



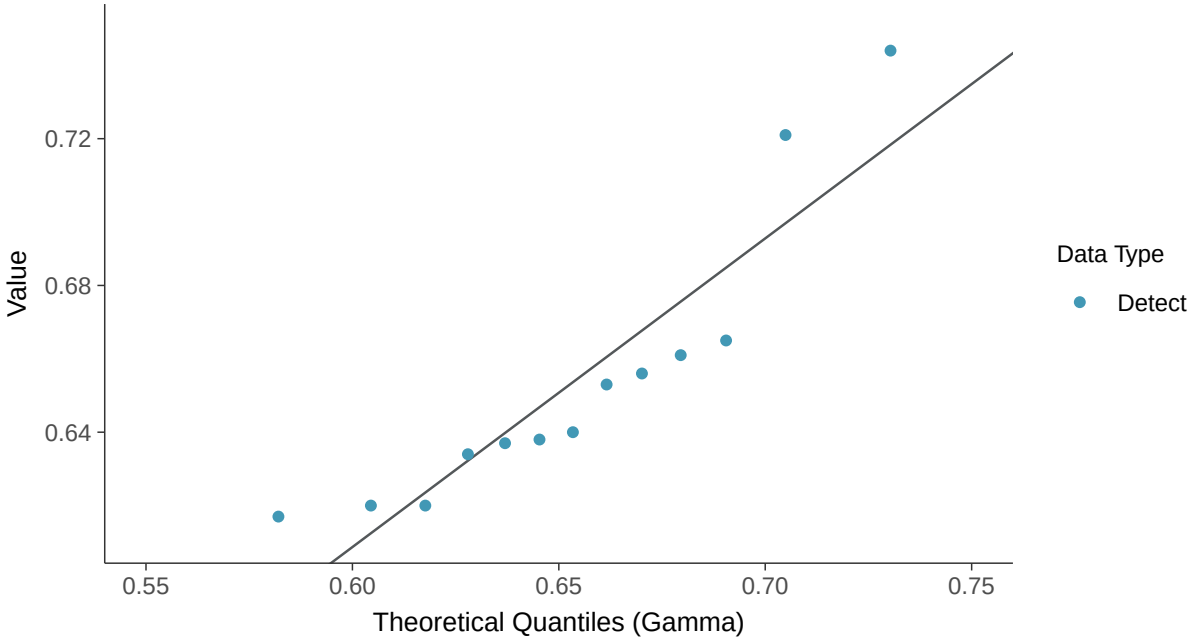
Lognormal Q-Q plot

Conductivity, MW-8 (mS/cm)



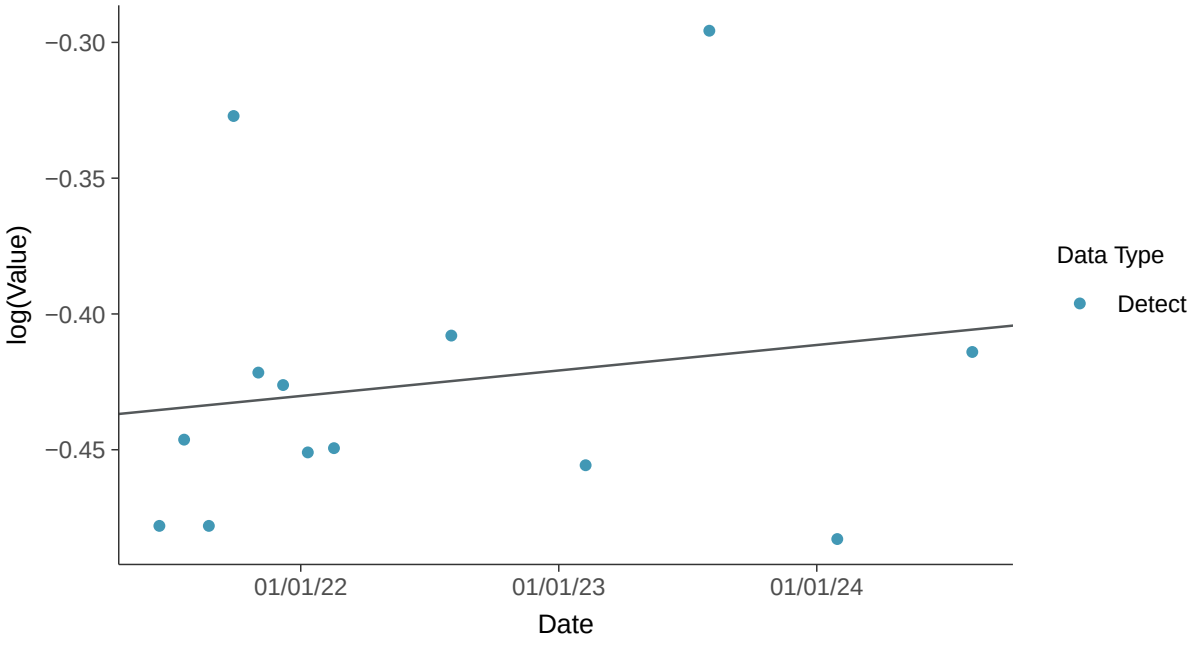
Gamma Q-Q plot

Conductivity, MW-8 (mS/cm)



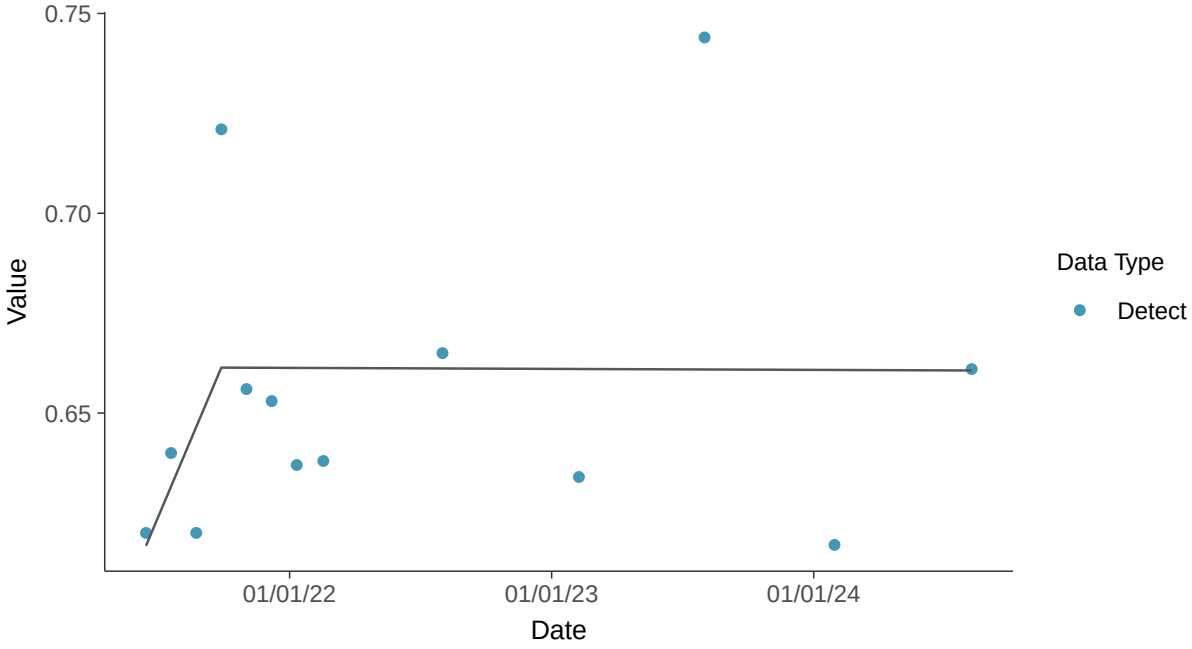
Trend Regression: Lognormal MLE

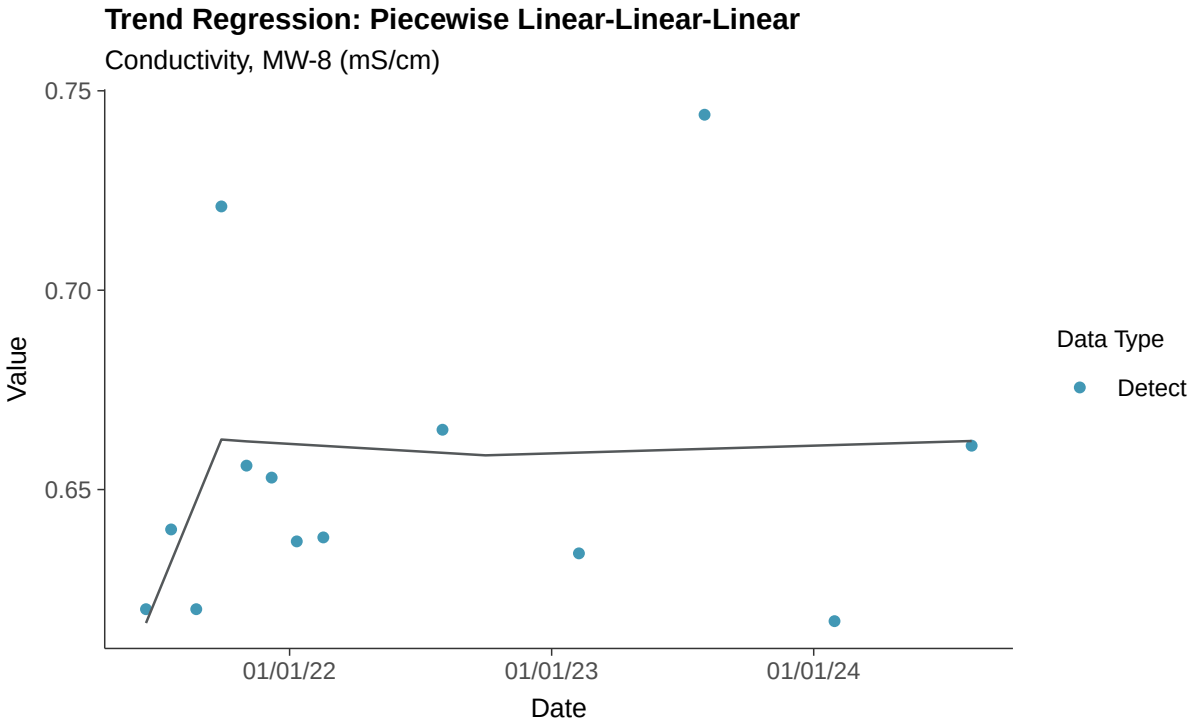
Conductivity, MW-8 (mS/cm)



Trend Regression: Piecewise Linear-Linear

Conductivity, MW-8 (mS/cm)



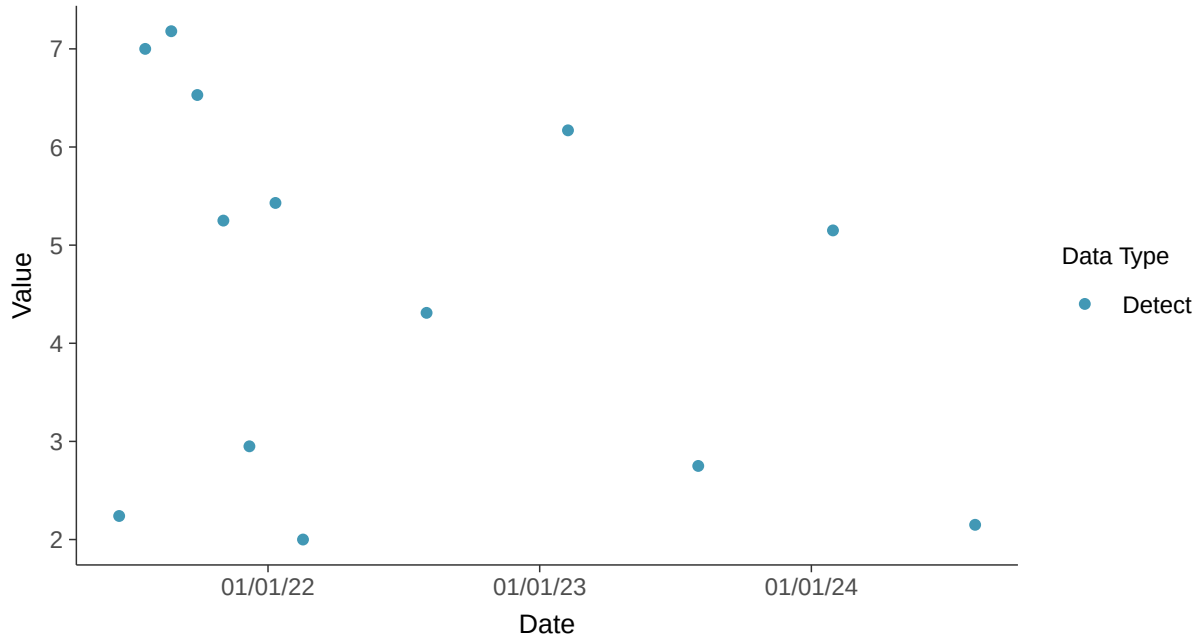

Trend Regression: Piecewise Linear-Linear-Linear
Conductivity, MW-8 (mS/cm)
0.75
0.70
0.65
Value
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Field Parameters: Turbidity, MW-8

ID: 08_3_26

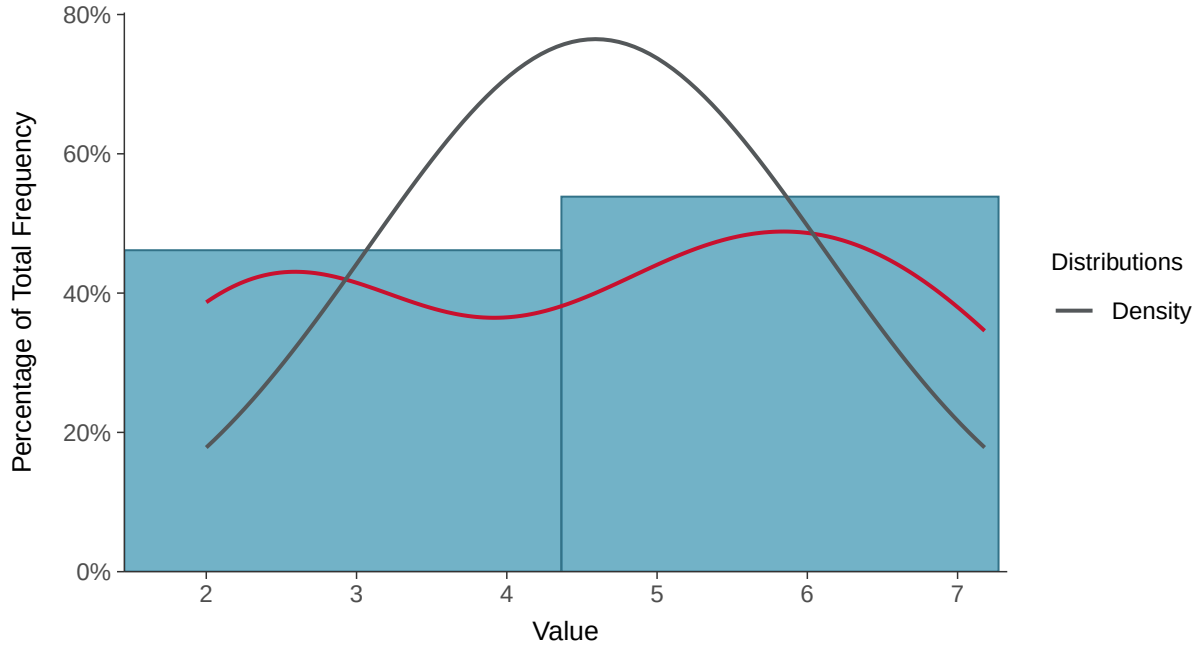
Scatter Plot

Turbidity, MW-8 (NTU)



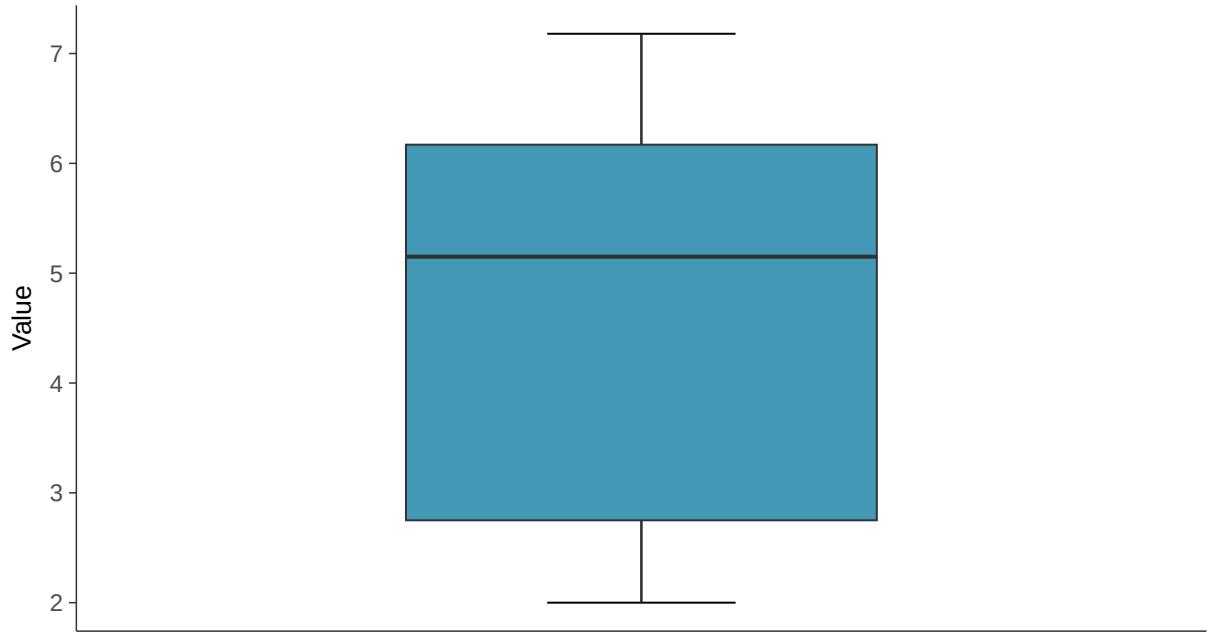
Histogram

Turbidity, MW-8 (NTU)



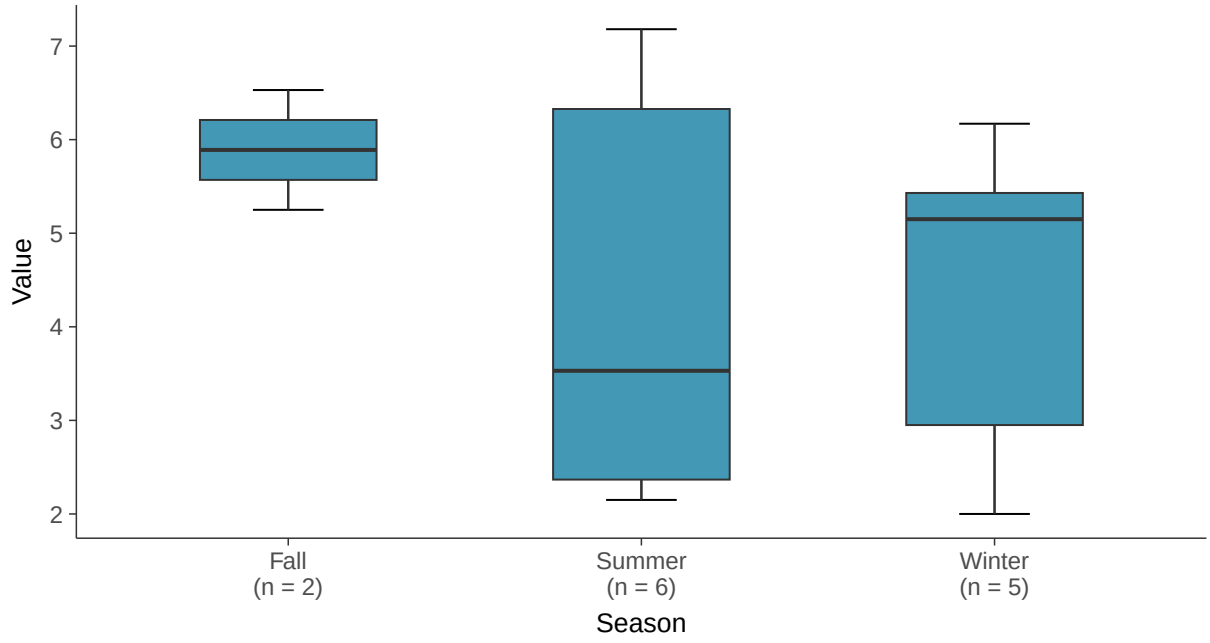
Boxplot

Turbidity, MW-8 (NTU)



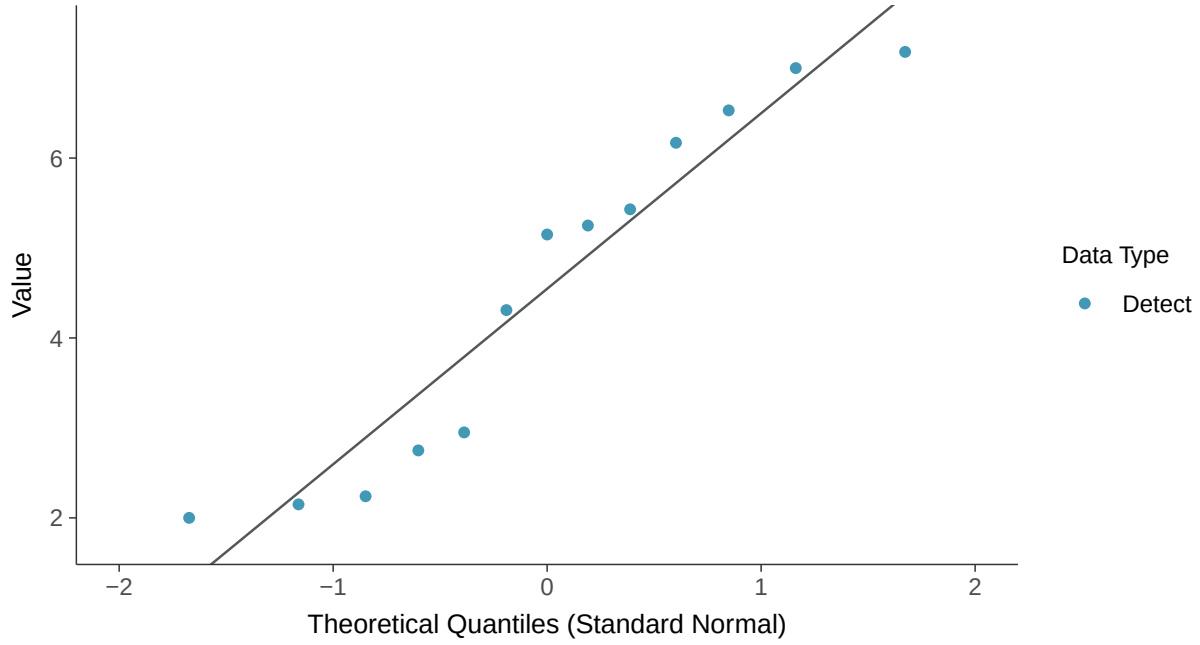
Boxplot by Season

Turbidity, MW-8 (NTU)



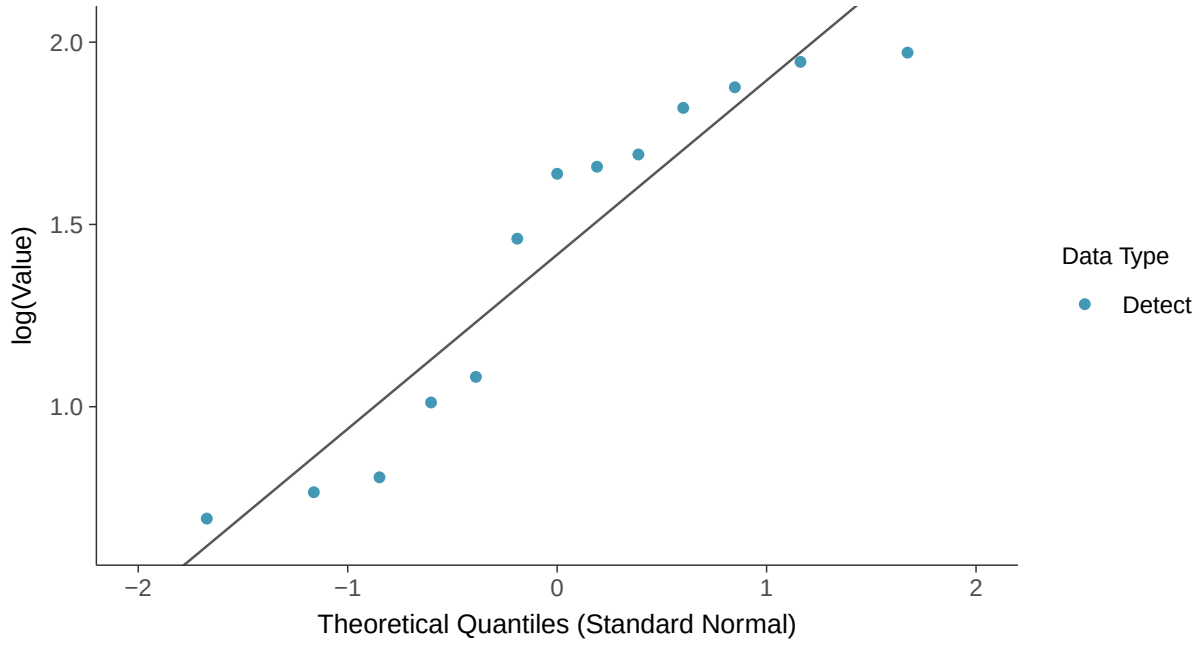
Normal Q-Q plot

Turbidity, MW-8 (NTU)



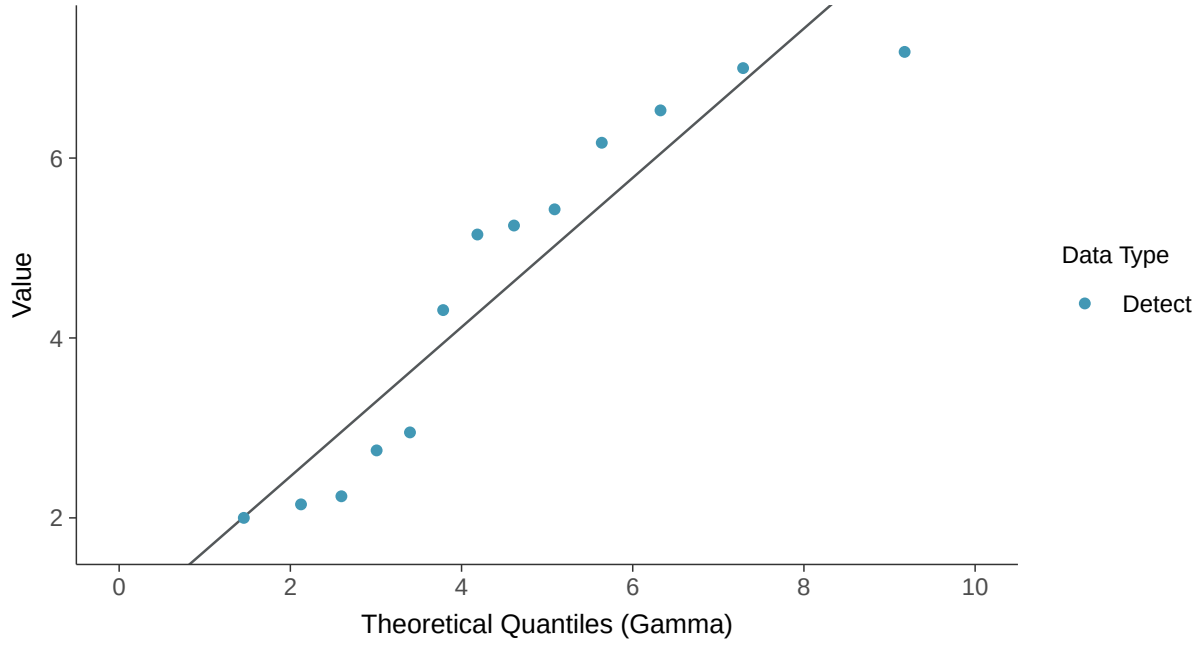
Lognormal Q-Q plot

Turbidity, MW-8 (NTU)



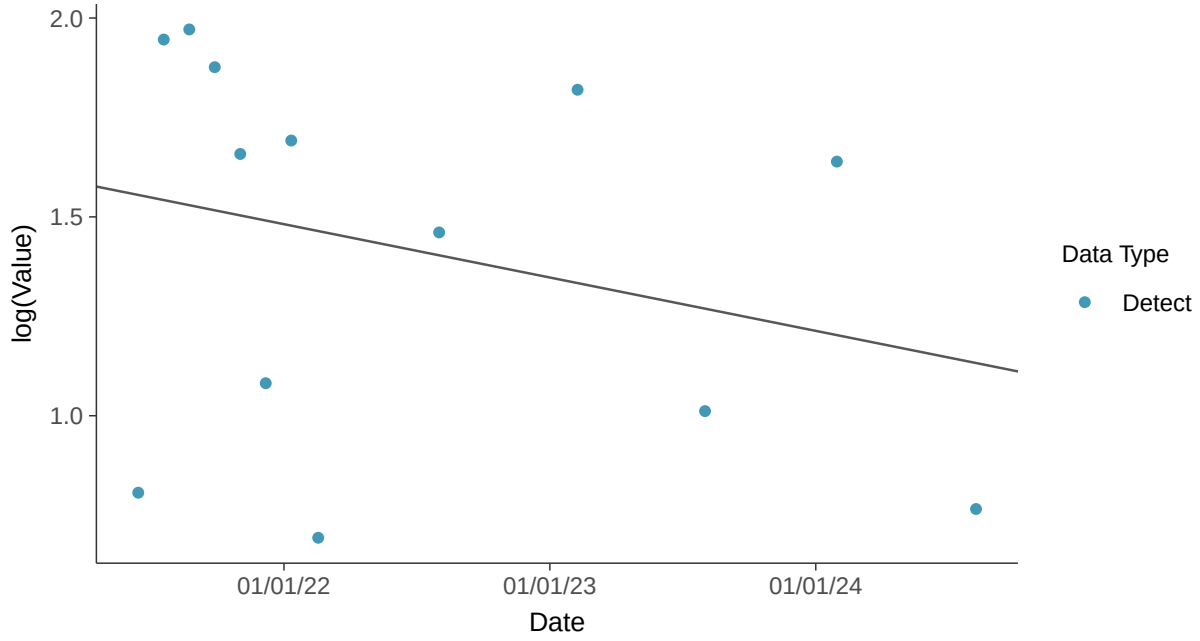
Gamma Q-Q plot

Turbidity, MW-8 (NTU)



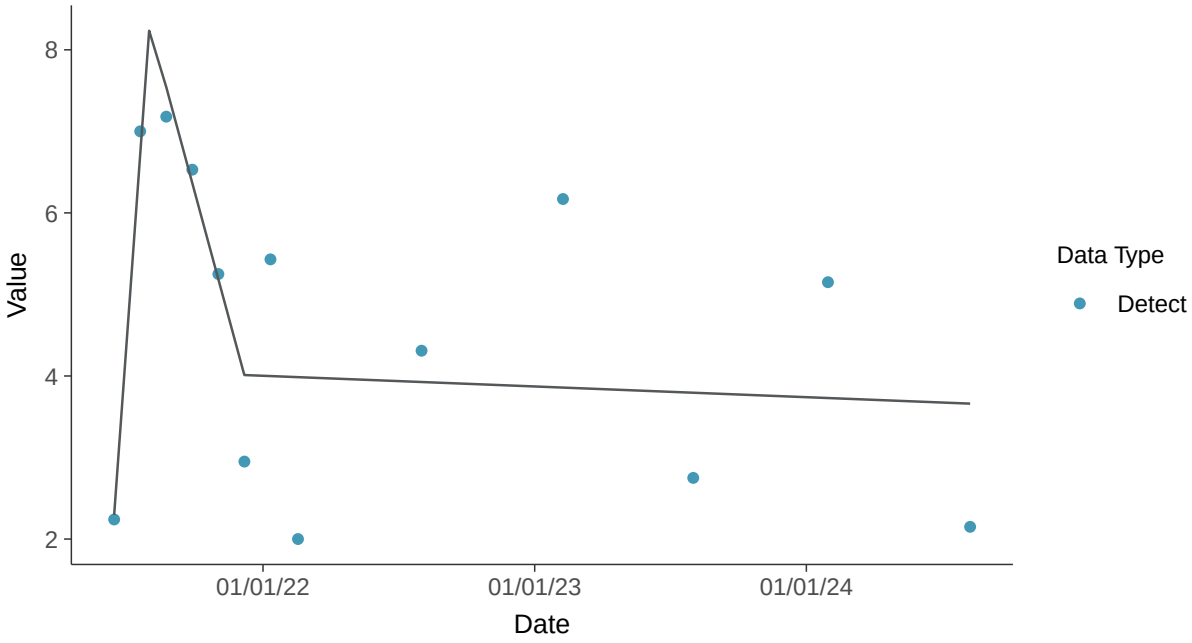
Trend Regression: Lognormal MLE

Turbidity, MW-8 (NTU)



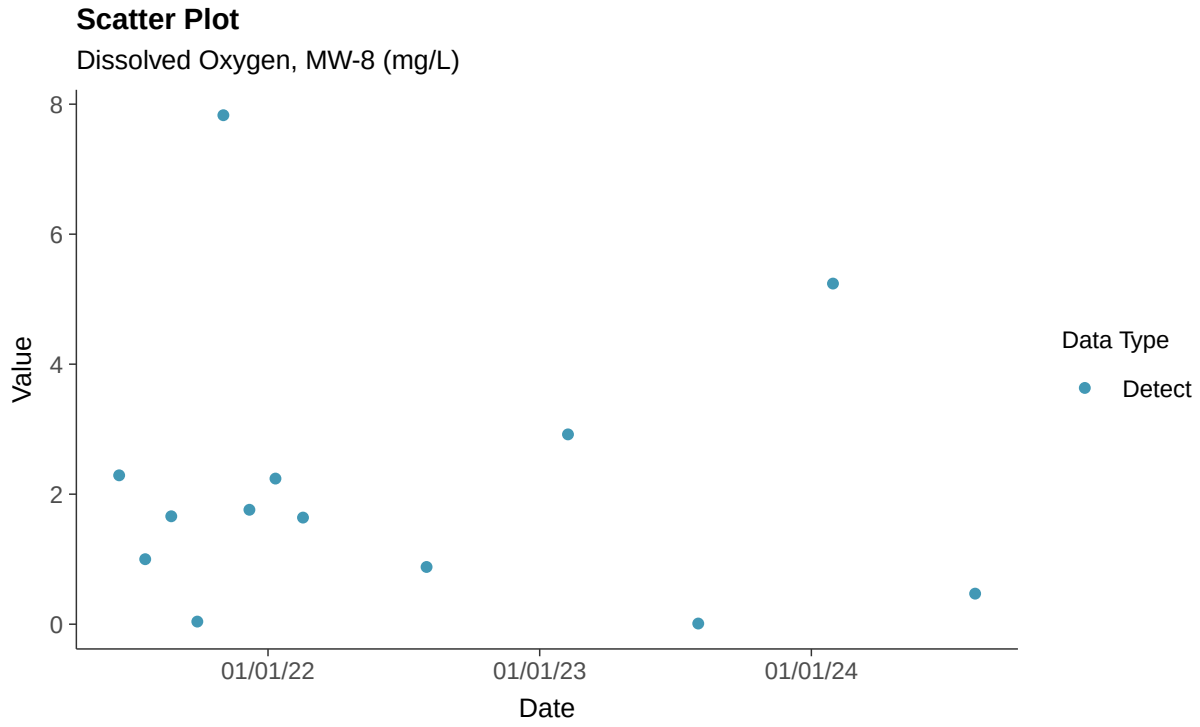
Trend Regression: Piecewise Linear-Linear-Linear

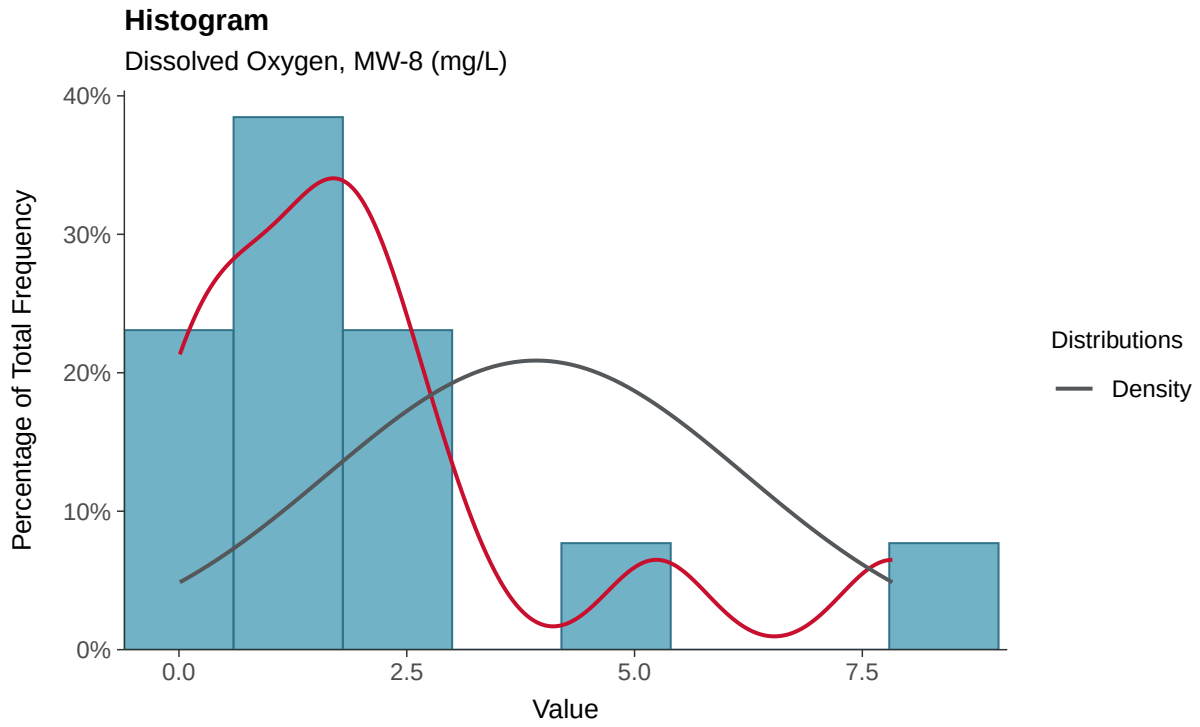
Turbidity, MW-8 (NTU)



Field Parameters: Dissolved Oxygen, MW-8

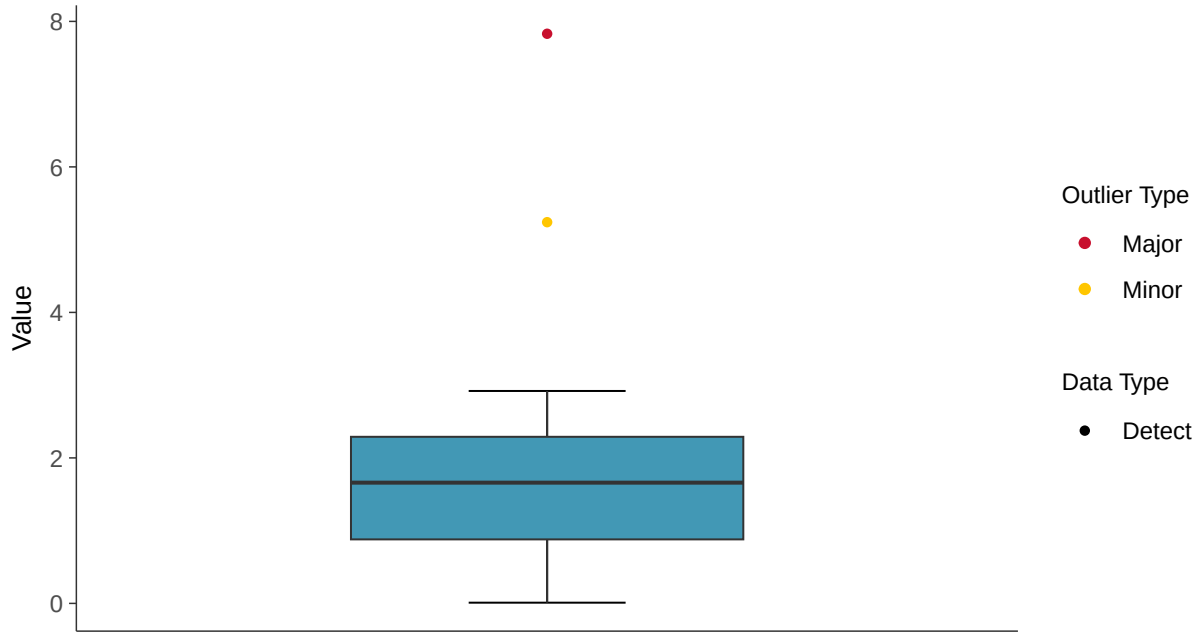
ID: 08_3_27





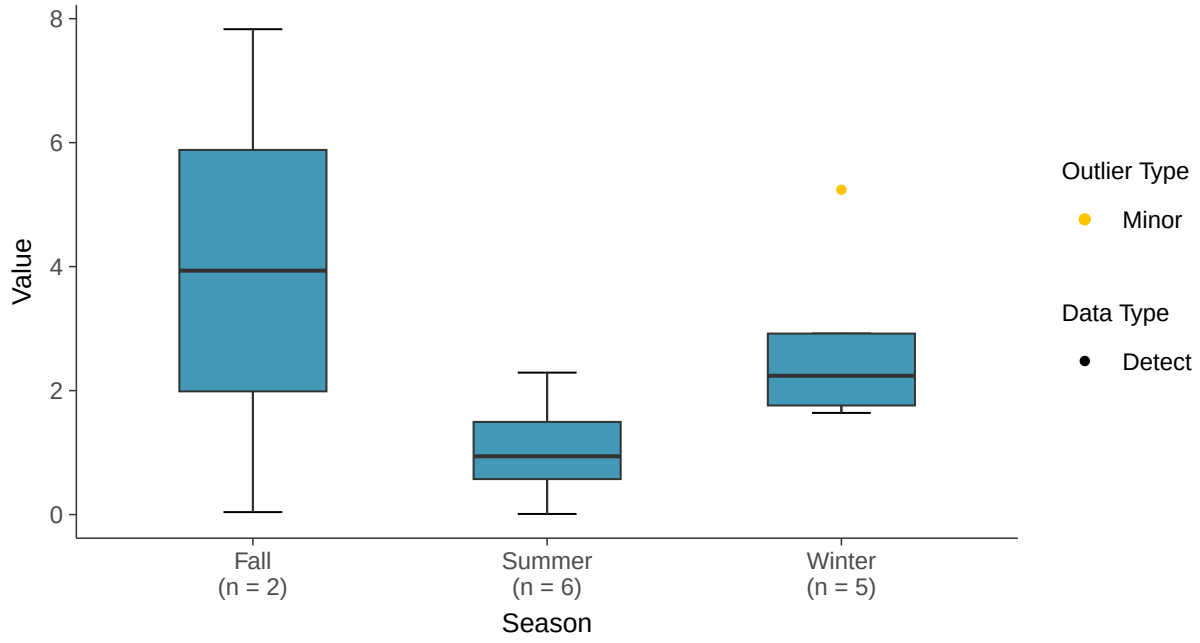
Boxplot

Dissolved Oxygen, MW-8 (mg/L)



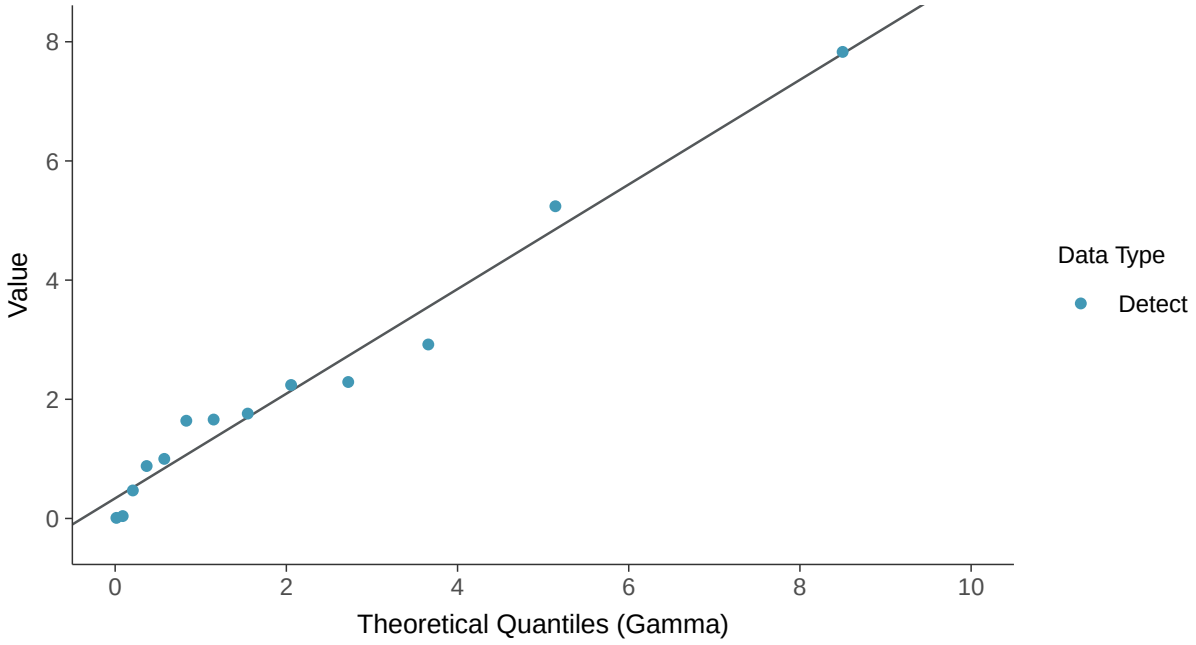
Boxplot by Season

Dissolved Oxygen, MW-8 (mg/L)



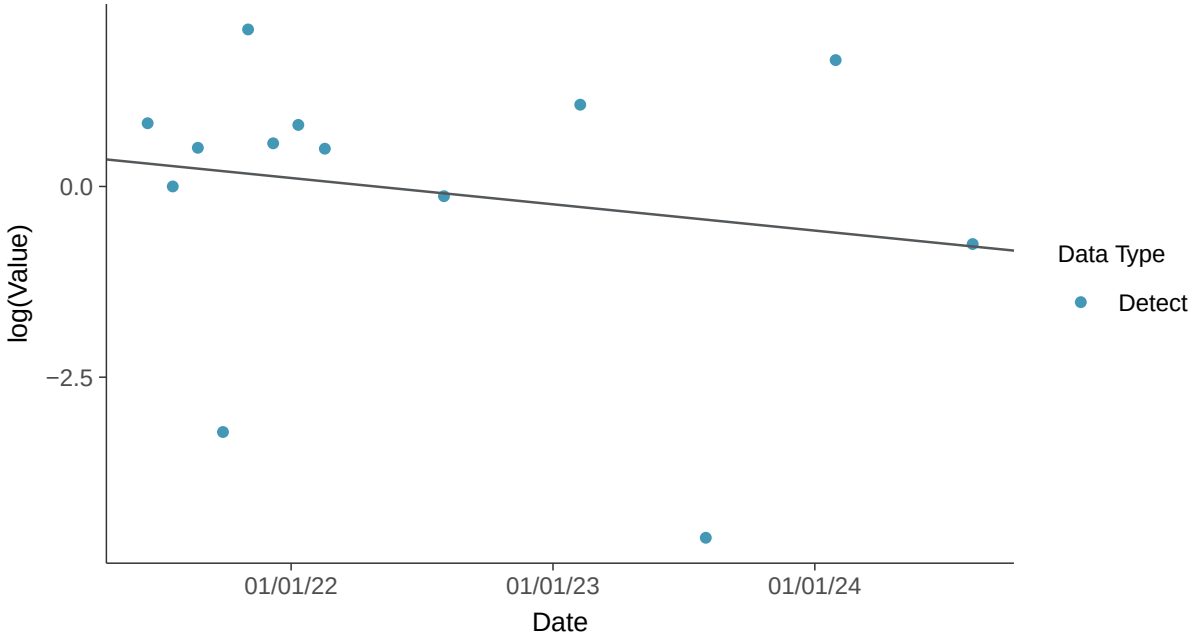
Gamma Q-Q plot

Dissolved Oxygen, MW-8 (mg/L)



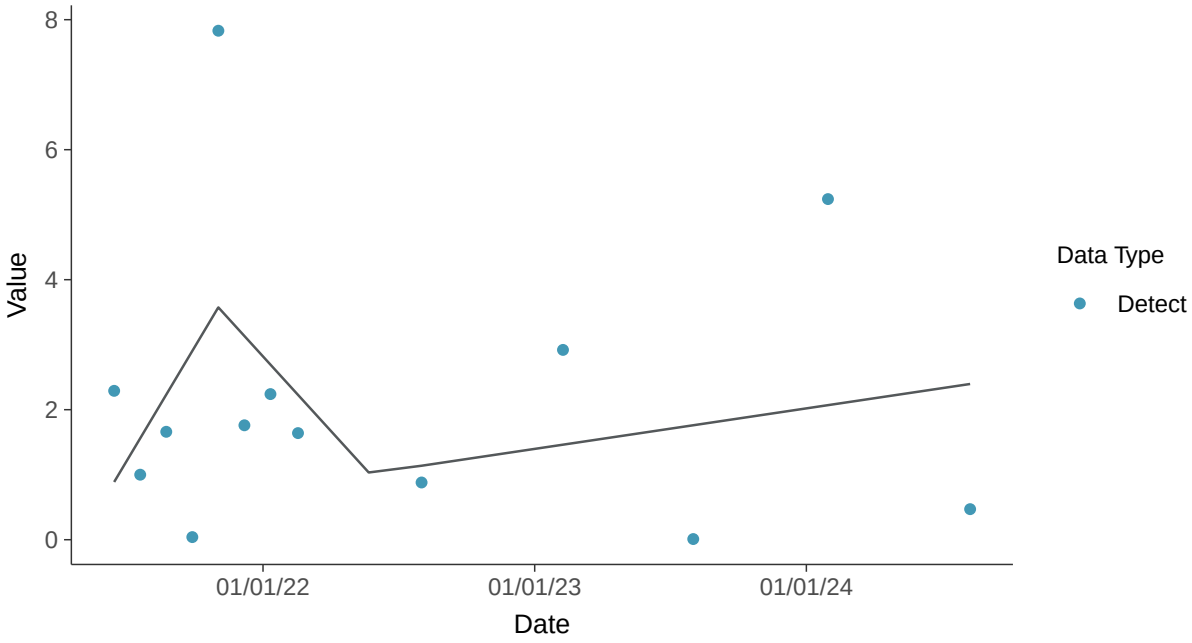
Trend Regression: Lognormal MLE

Dissolved Oxygen, MW-8 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Dissolved Oxygen, MW-8 (mg/L)

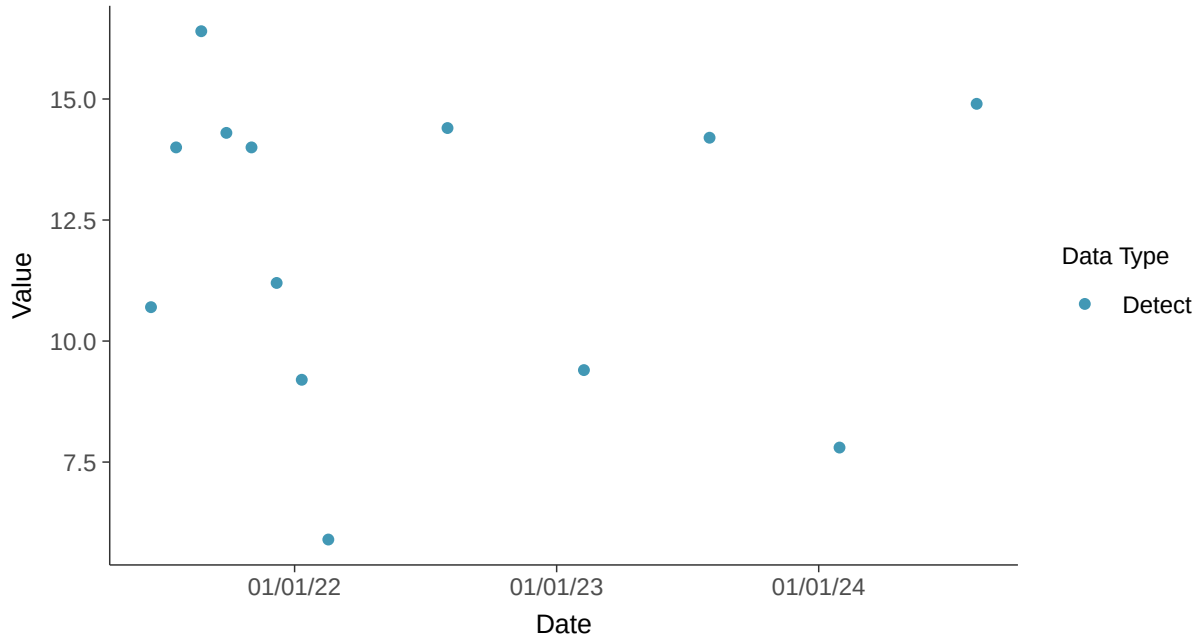


Field Parameters: Temperature, MW-8

ID: 08_3_28

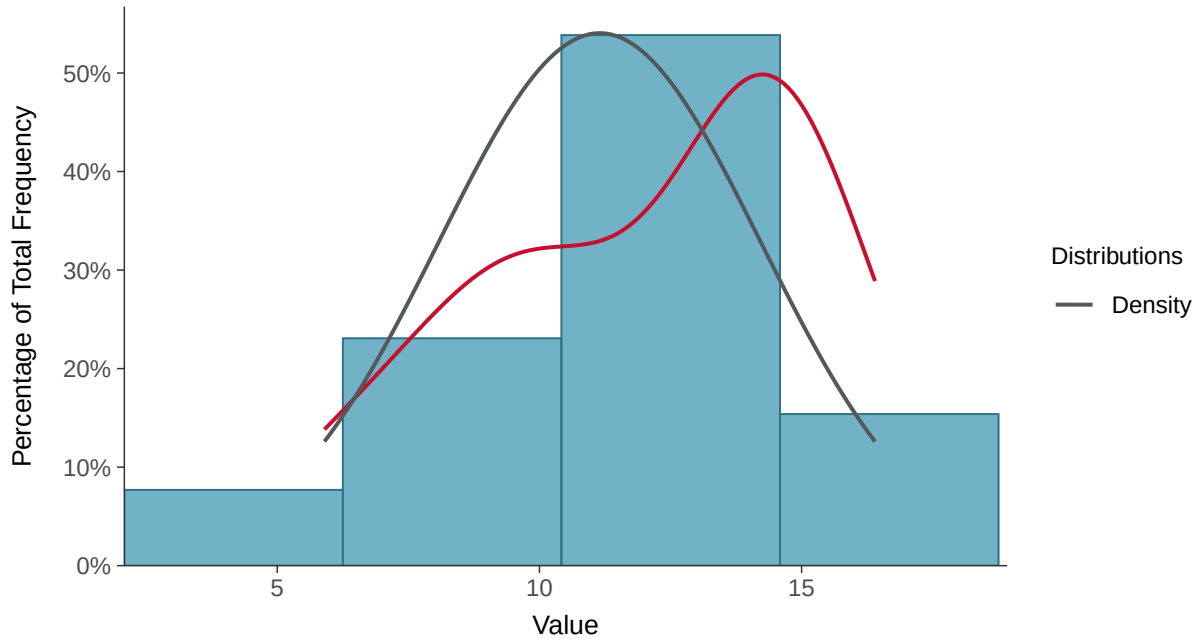
Scatter Plot

Temperature, MW-8 (°C)



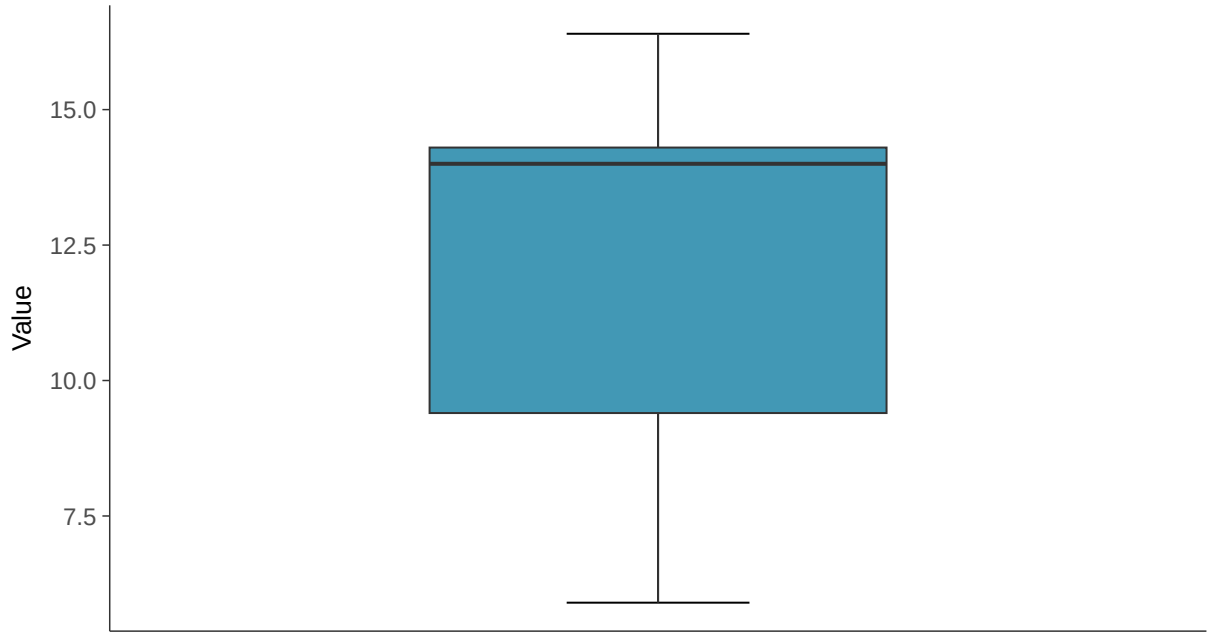
Histogram

Temperature, MW-8 (°C)



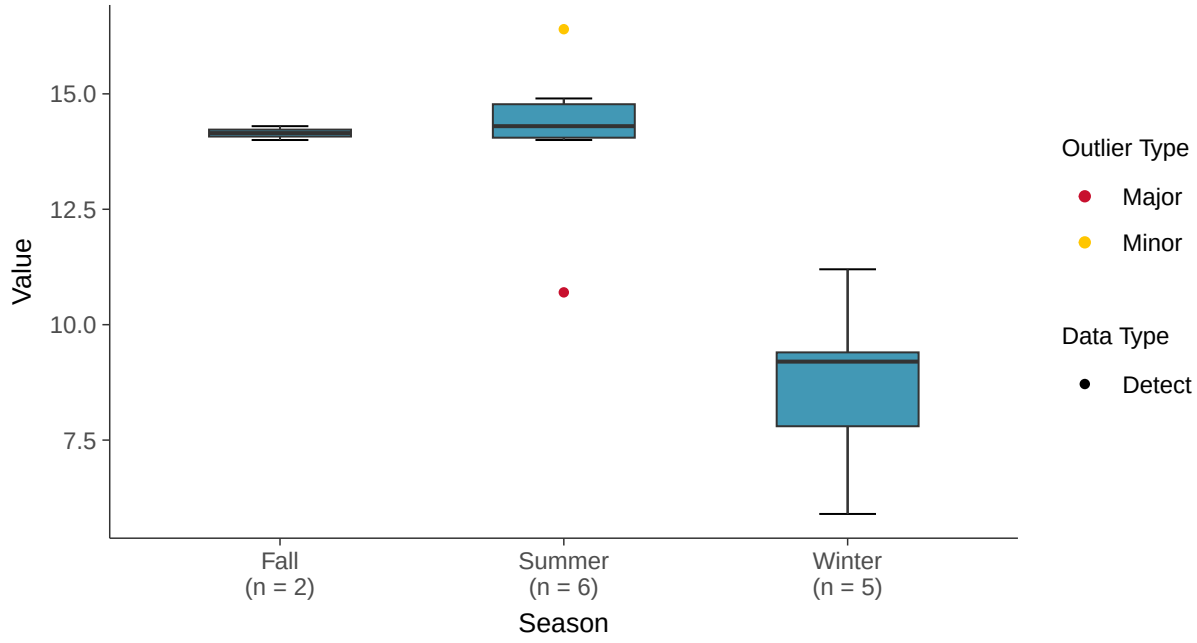
Boxplot

Temperature, MW-8 (°C)



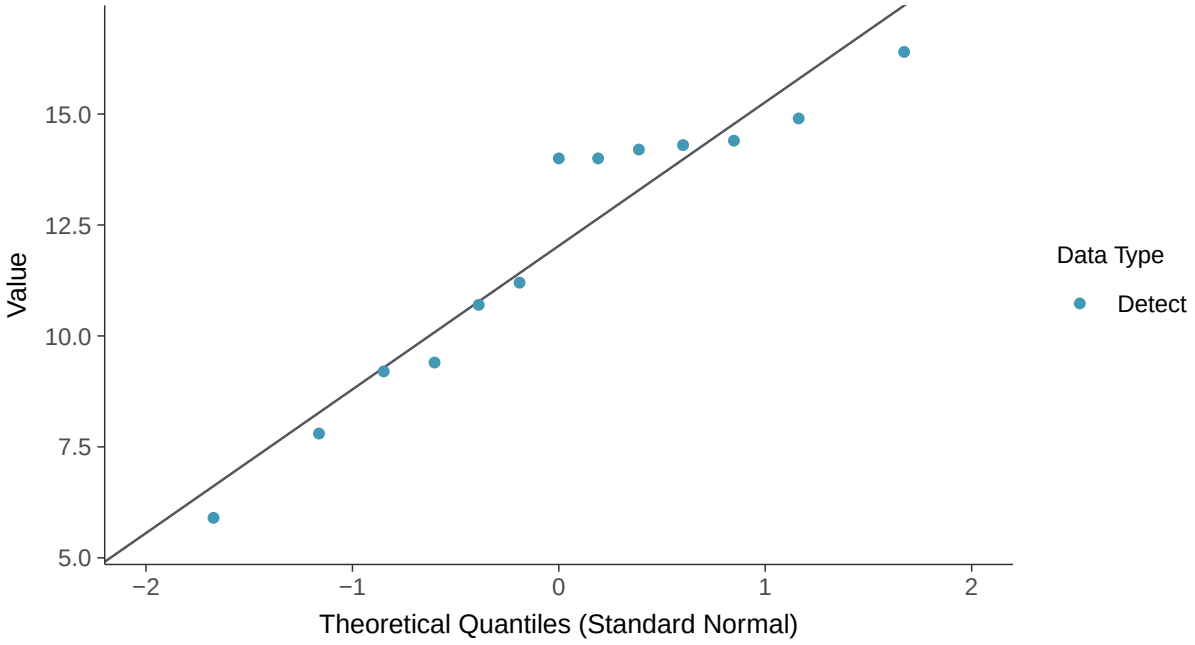
Boxplot by Season

Temperature, MW-8 (°C)



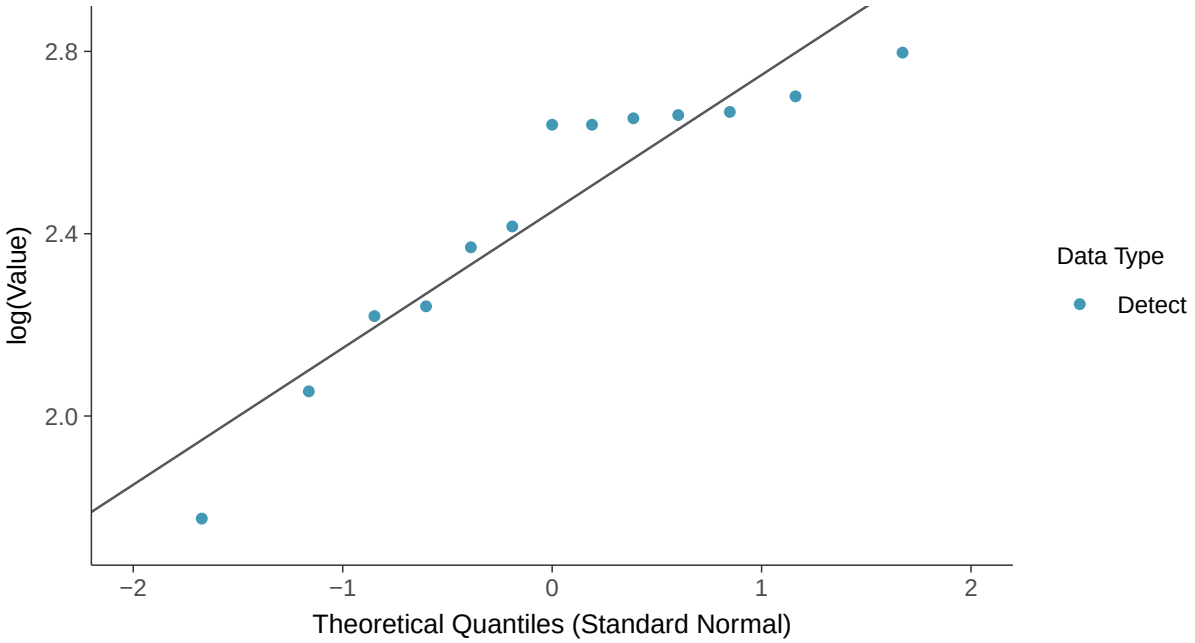
Normal Q-Q plot

Temperature, MW-8 (°C)



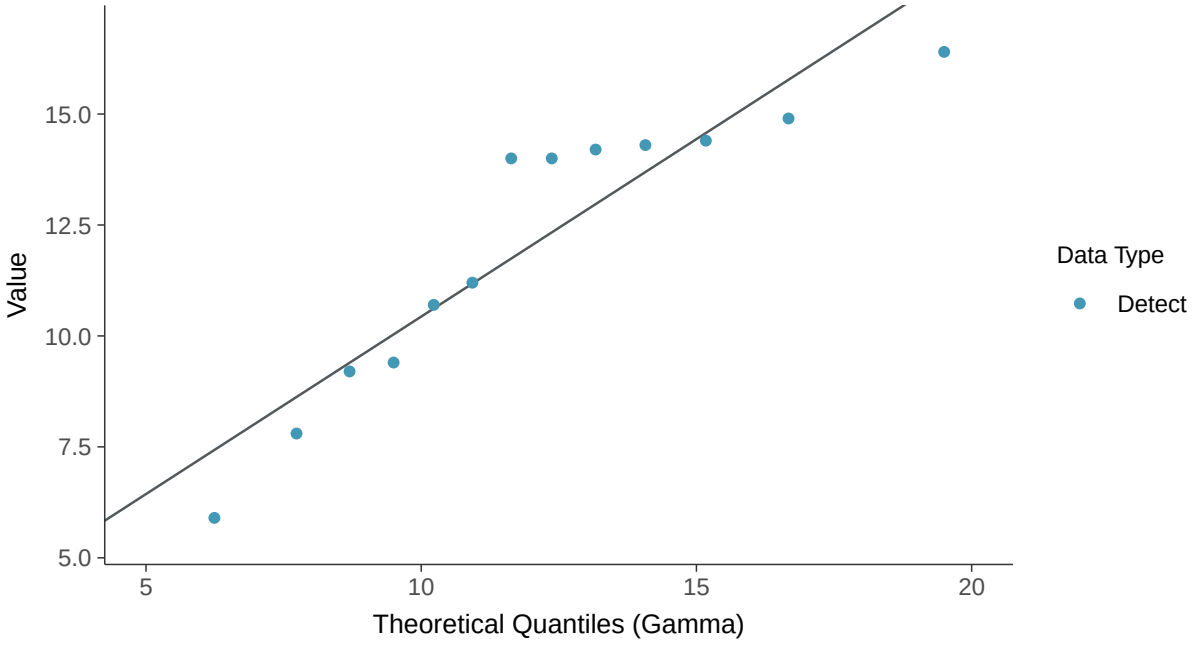
Lognormal Q-Q plot

Temperature, MW-8 (°C)



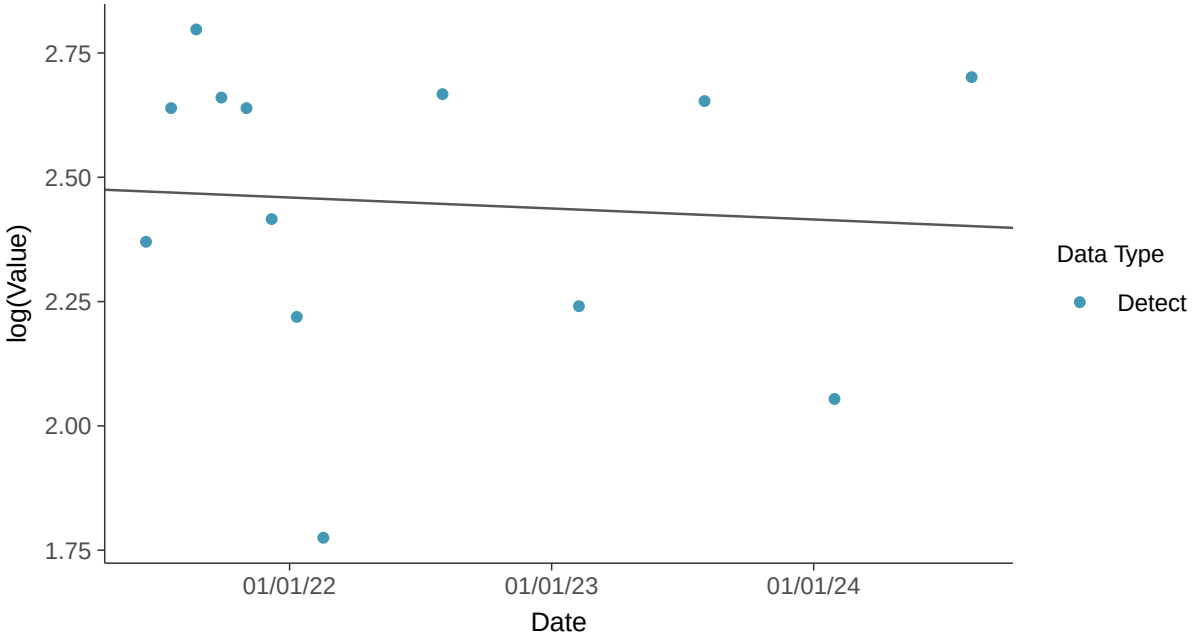
Gamma Q-Q plot

Temperature, MW-8 (°C)



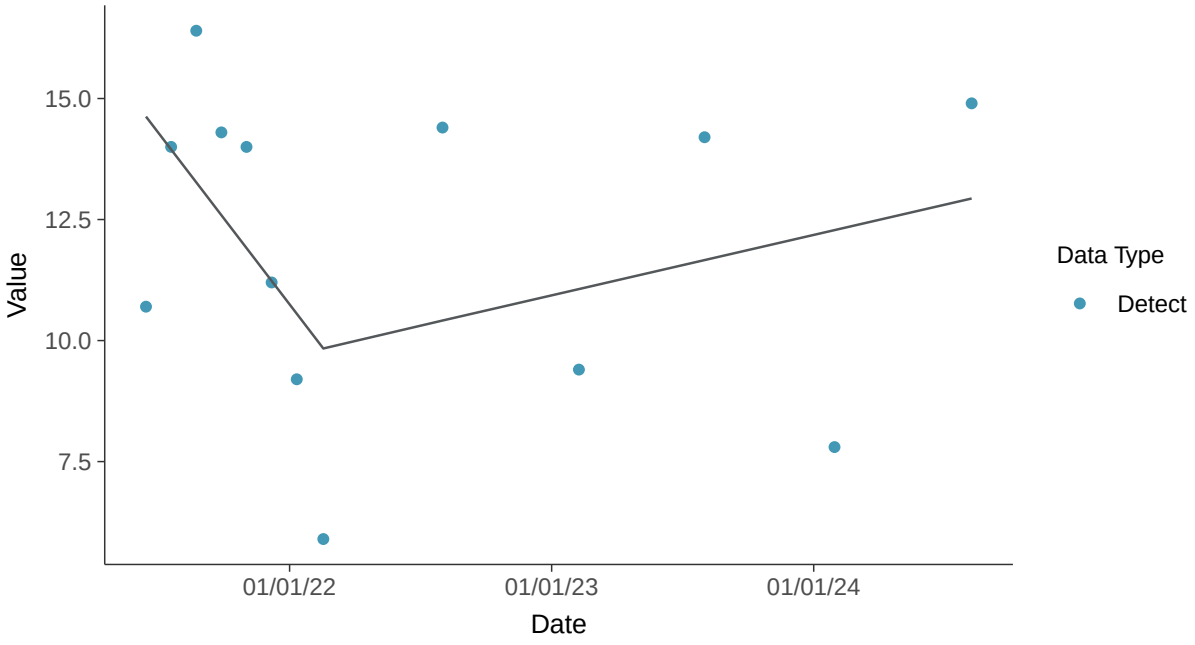
Trend Regression: Lognormal MLE

Temperature, MW-8 (°C)



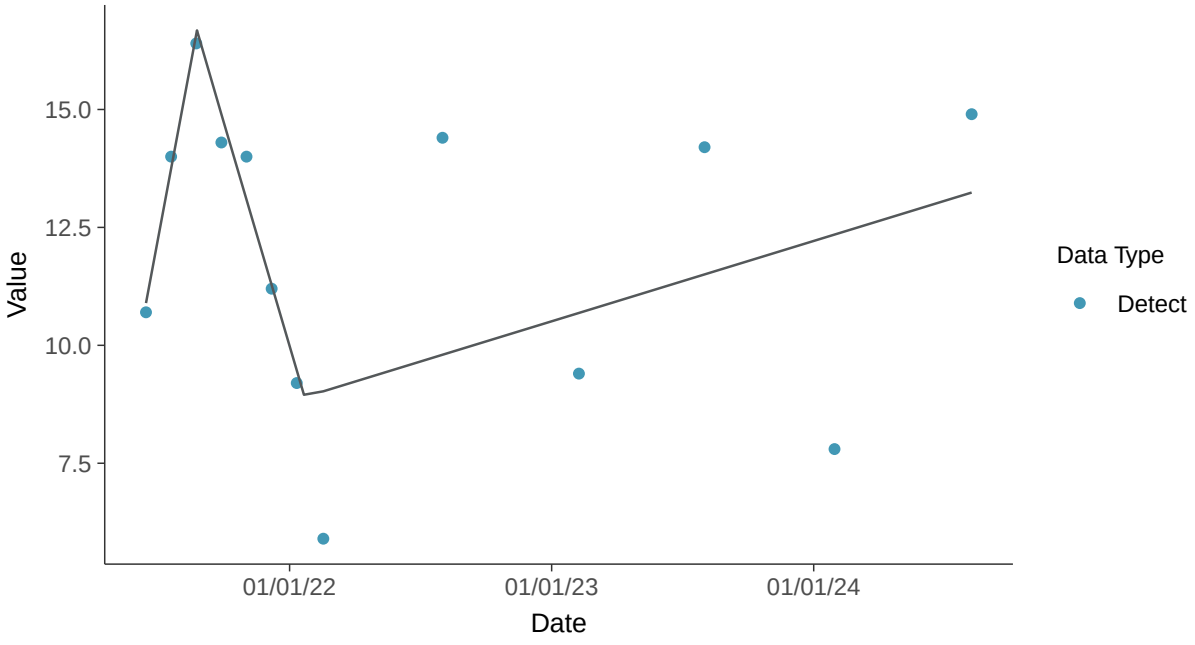
Trend Regression: Piecewise Linear-Linear

Temperature, MW-8 (°C)



Trend Regression: Piecewise Linear-Linear-Linear

Temperature, MW-8 (°C)

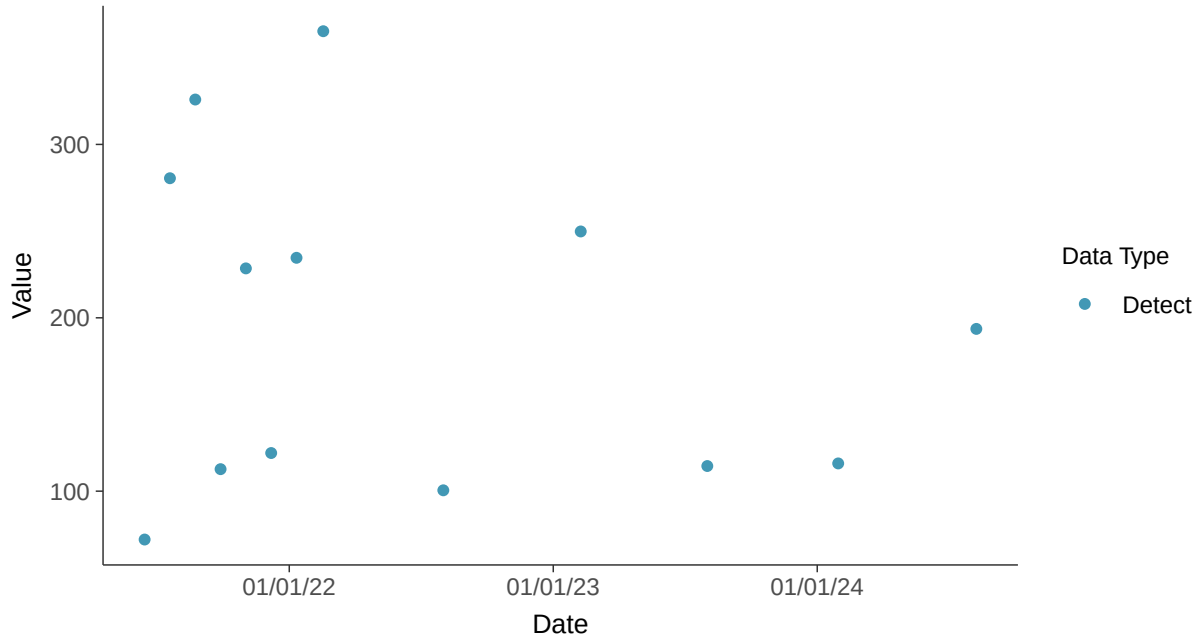


Field Parameters: Oxidation Reduction Potential, MW-8

ID: 08_3_29

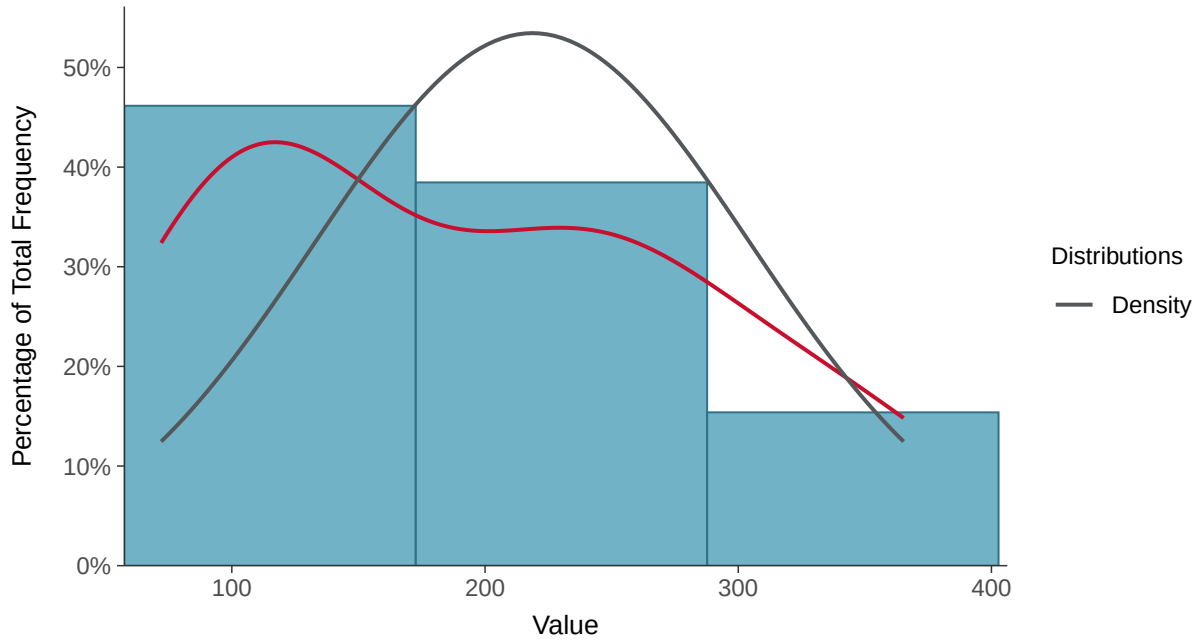
Scatter Plot

Oxidation Reduction Potential, MW-8 (mV)



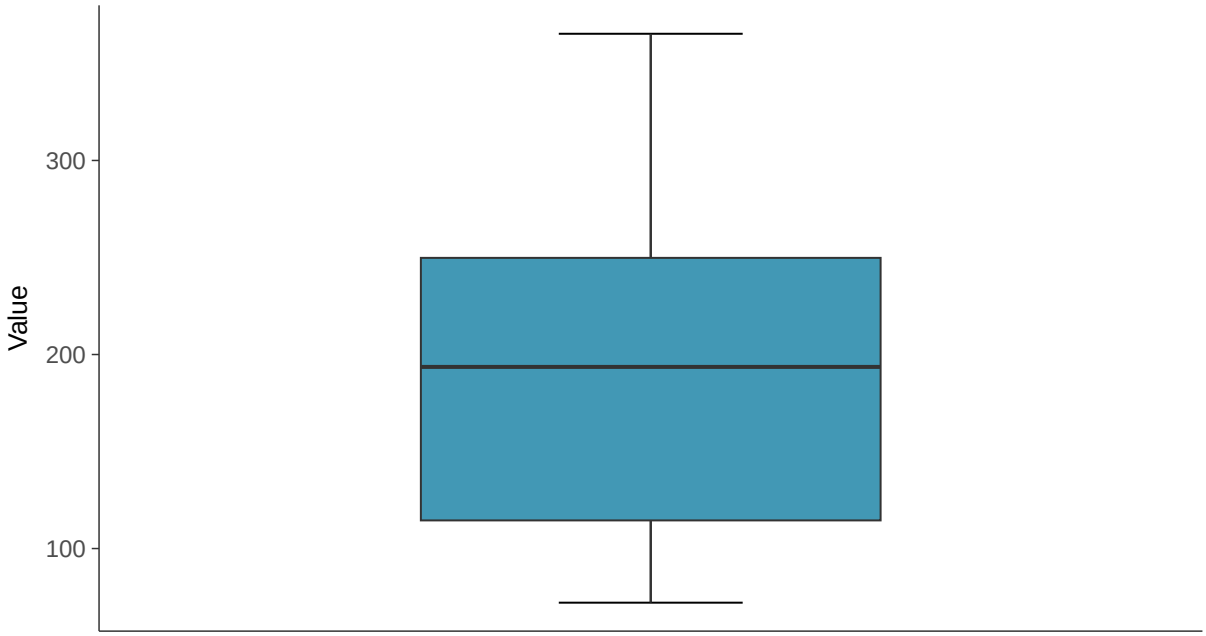
Histogram

Oxidation Reduction Potential, MW-8 (mV)



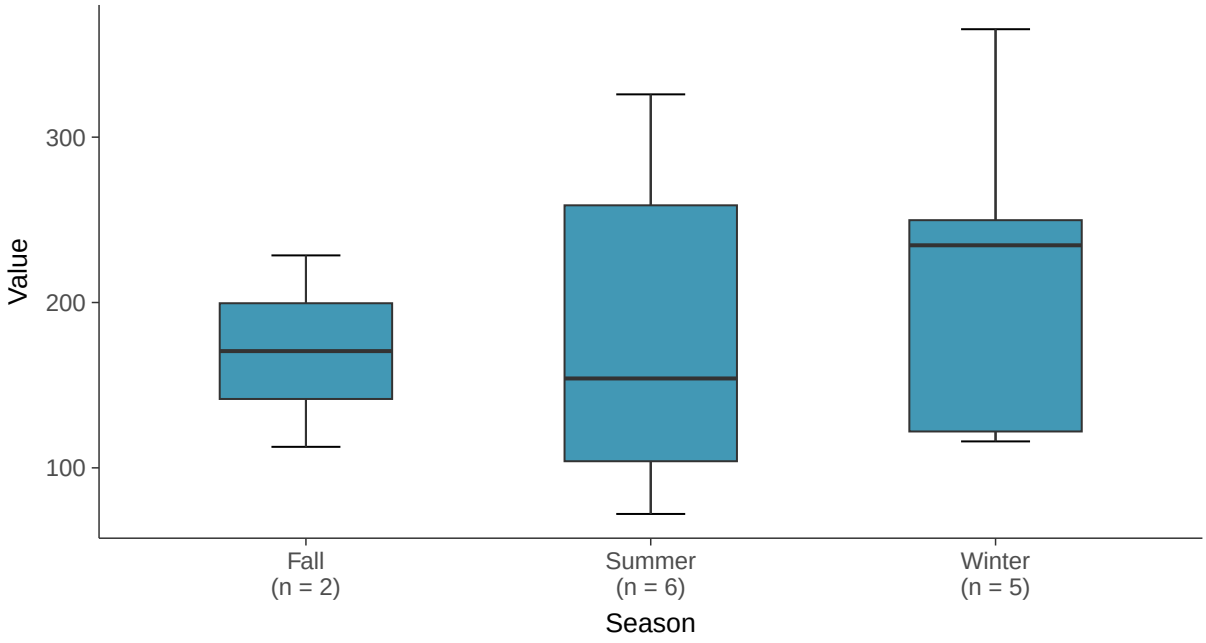
Boxplot

Oxidation Reduction Potential, MW-8 (mV)



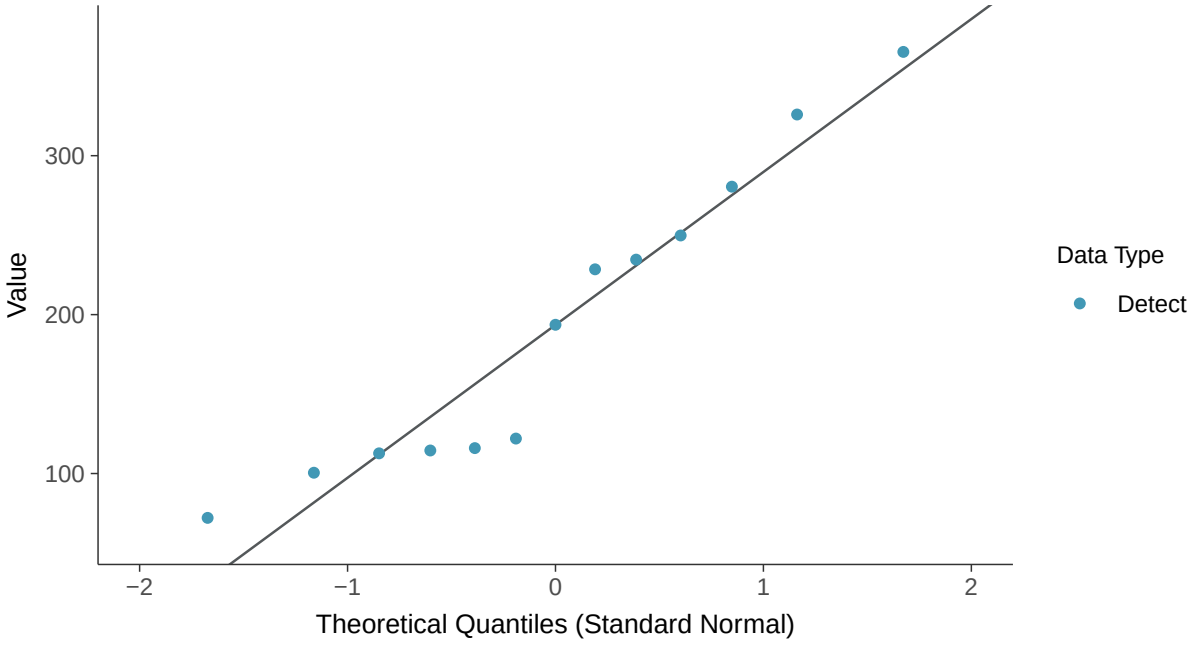
Boxplot by Season

Oxidation Reduction Potential, MW-8 (mV)



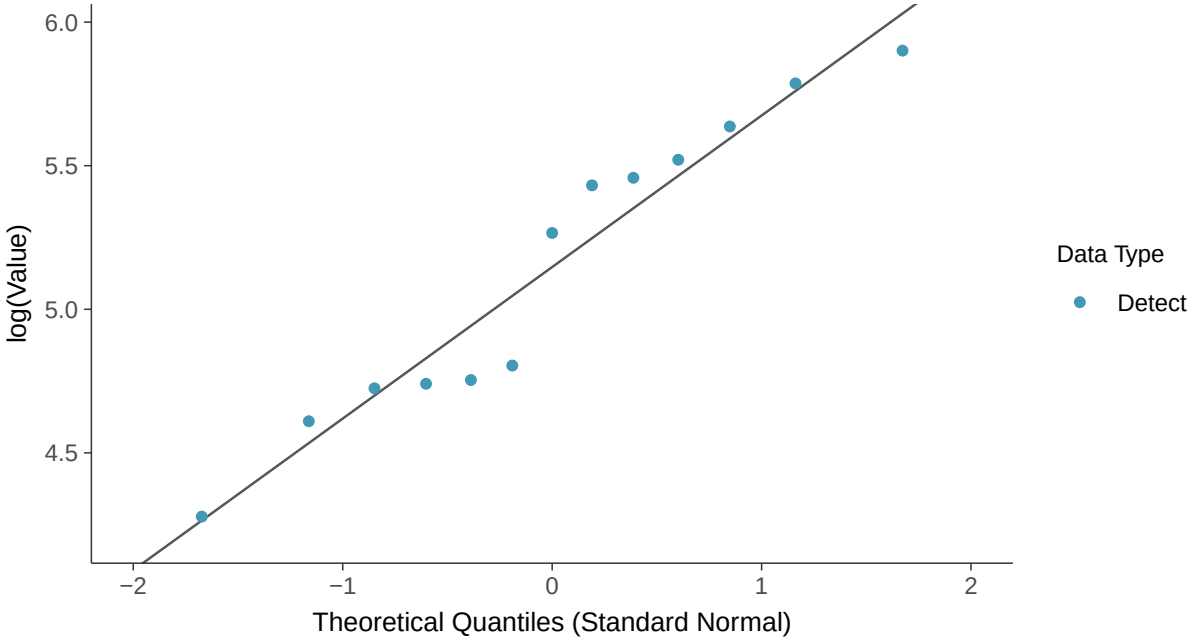
Normal Q-Q plot

Oxidation Reduction Potential, MW-8 (mV)



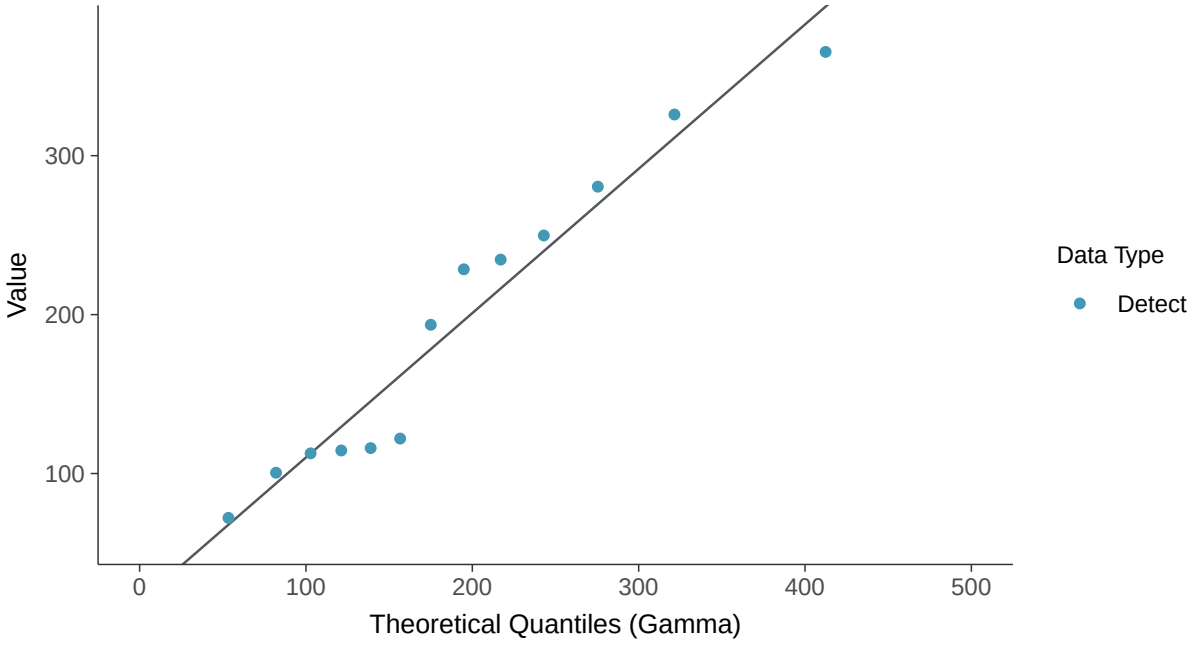
Lognormal Q-Q plot

Oxidation Reduction Potential, MW-8 (mV)



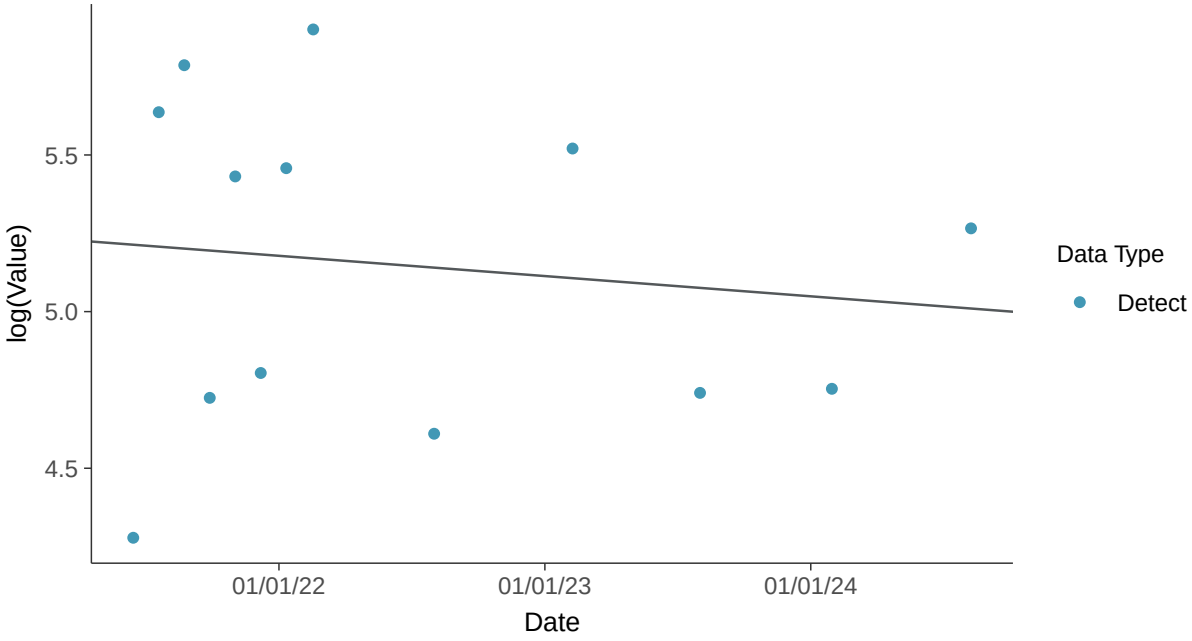
Gamma Q-Q plot

Oxidation Reduction Potential, MW-8 (mV)



Trend Regression: Lognormal MLE

Oxidation Reduction Potential, MW-8 (mV)

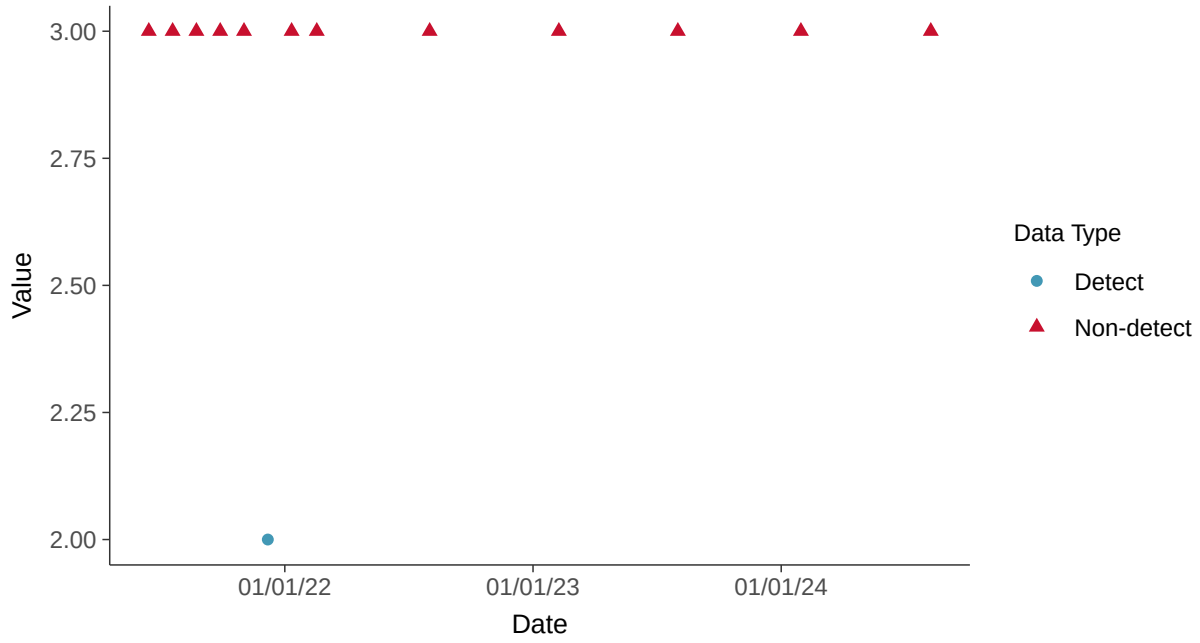


Other: Total Suspended Solids, MW-8

ID: 08_4_30

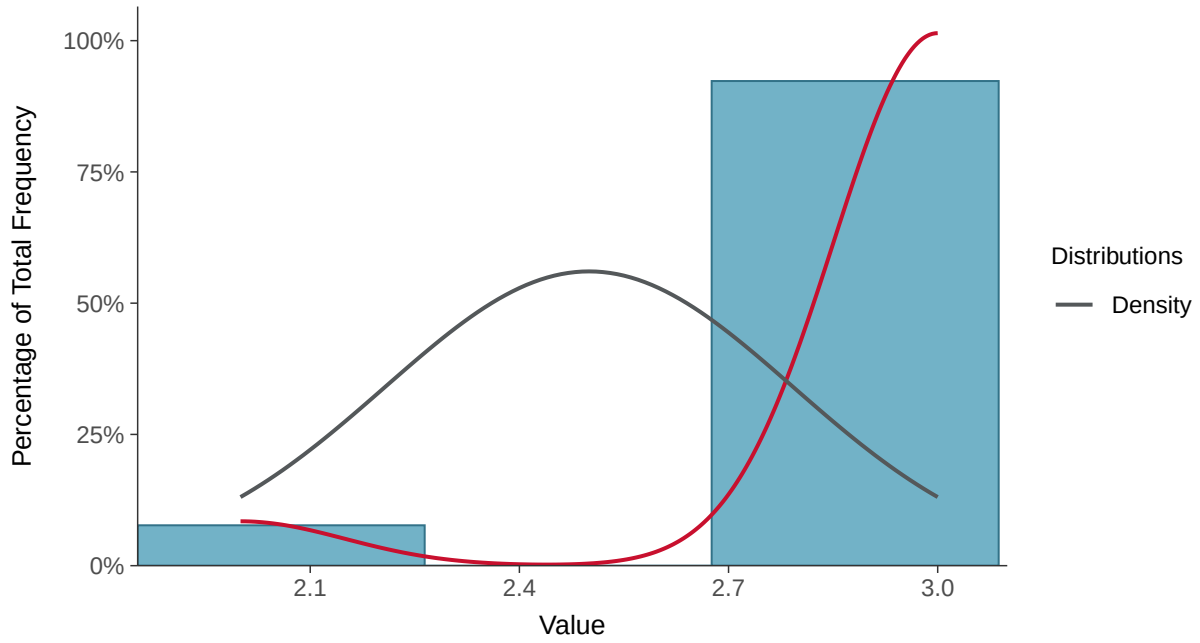
Scatter Plot

Total Suspended Solids, MW-8 (mg/L)



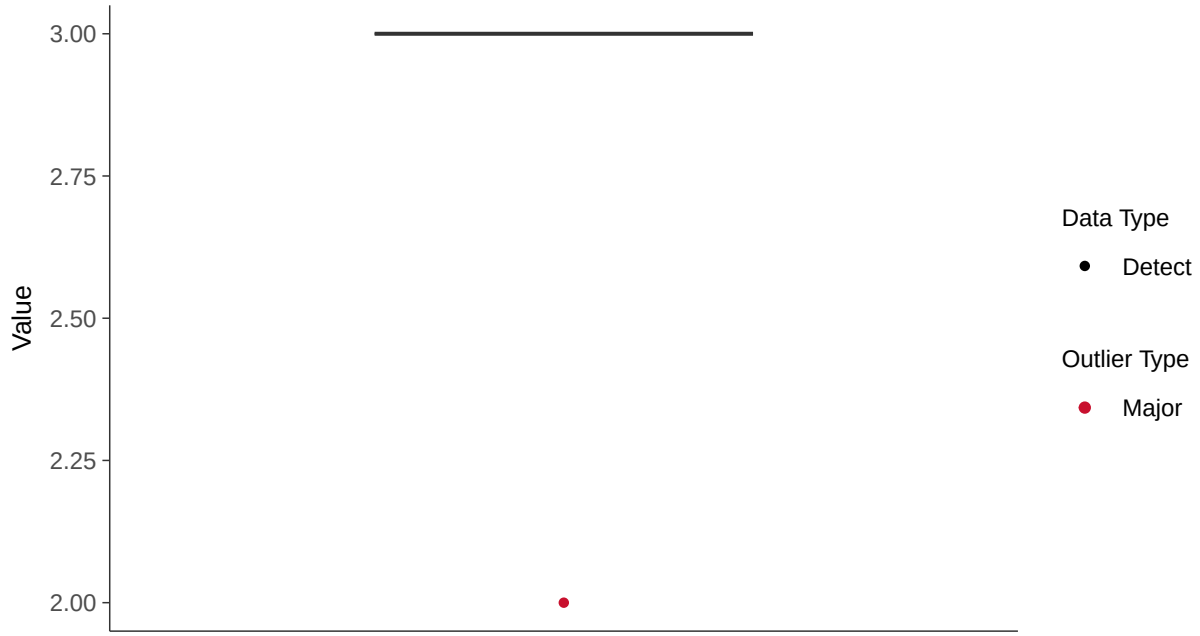
Histogram

Total Suspended Solids, MW-8 (mg/L)



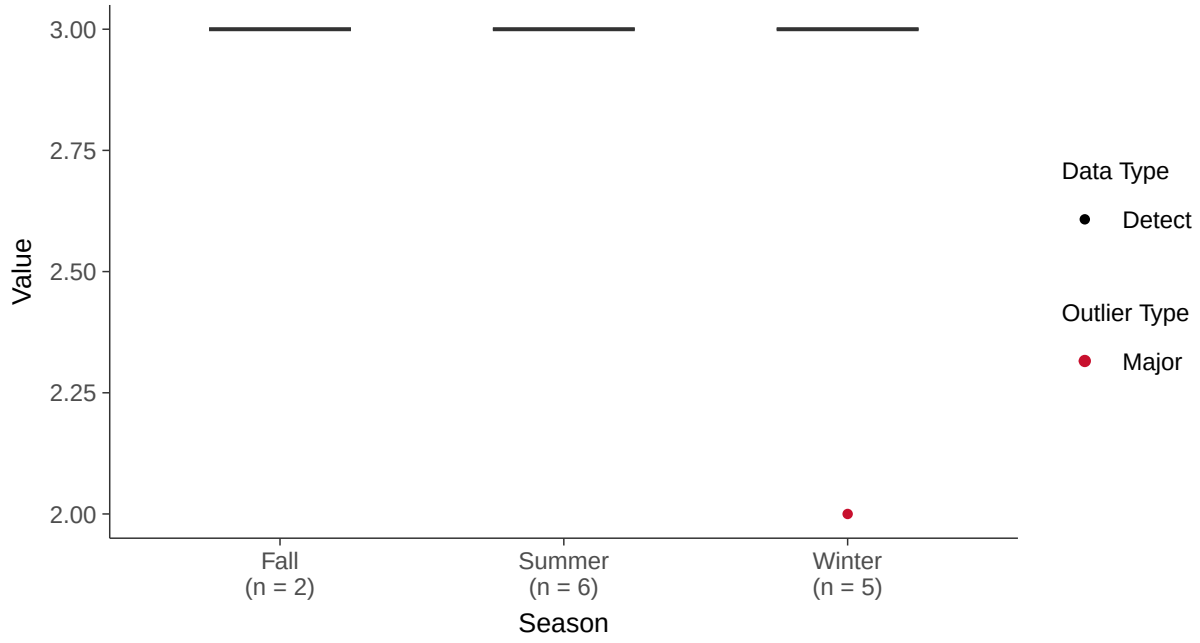
Boxplot

Total Suspended Solids, MW-8 (mg/L)



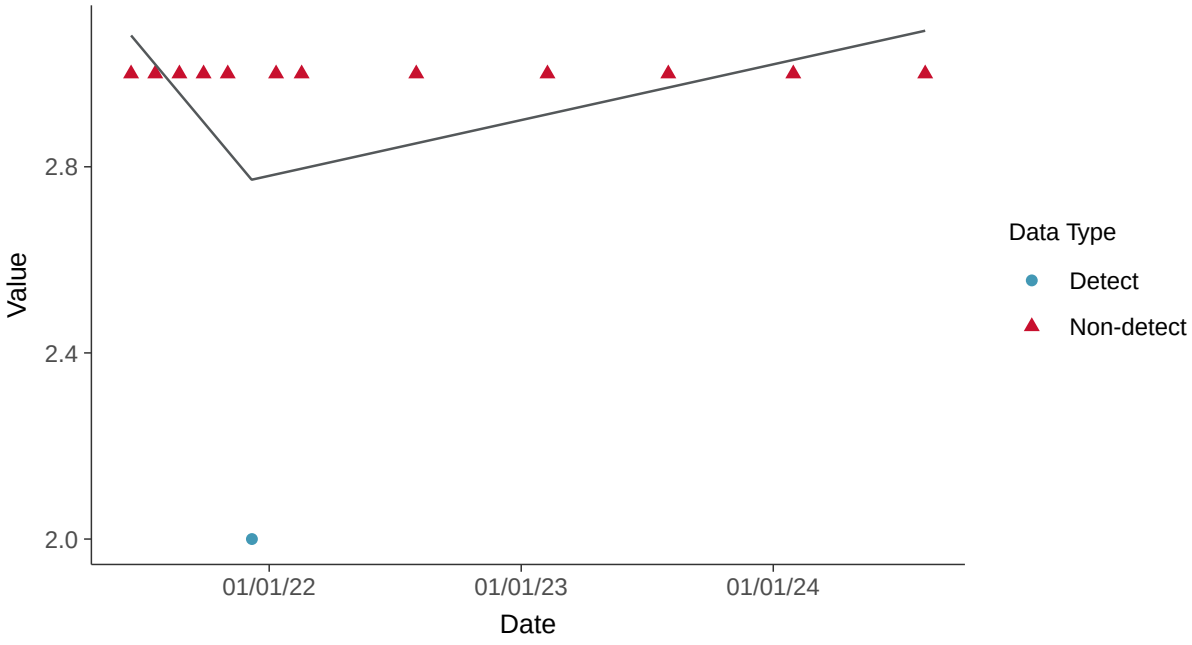
Boxplot by Season

Total Suspended Solids, MW-8 (mg/L)



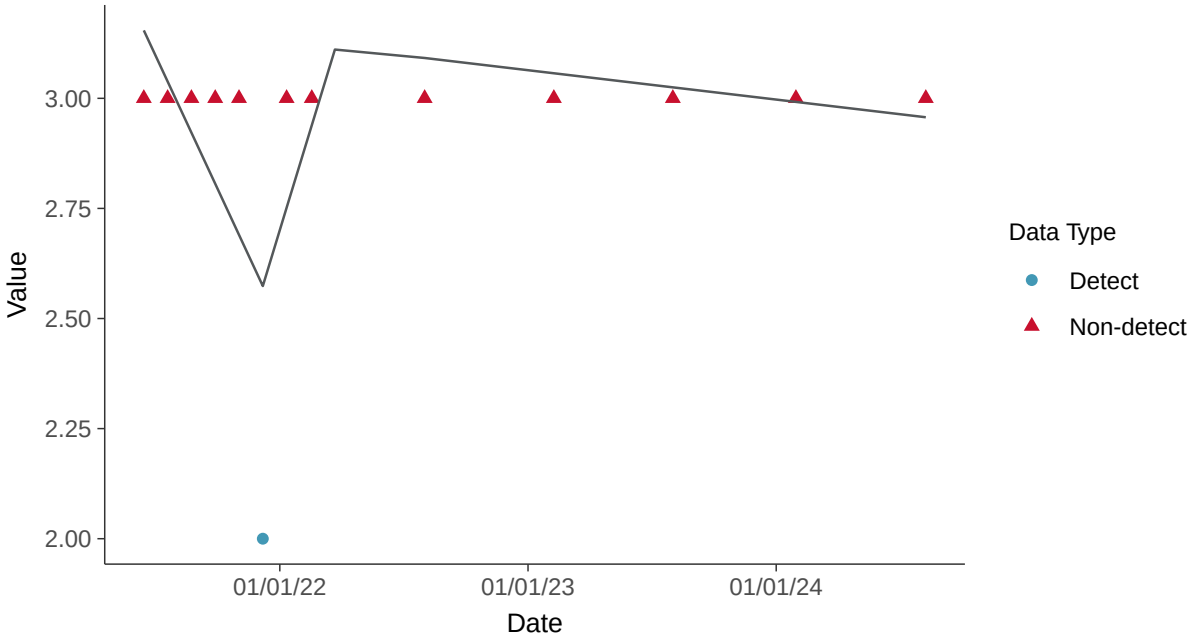
Trend Regression: Piecewise Linear-Linear

Total Suspended Solids, MW-8 (mg/L)



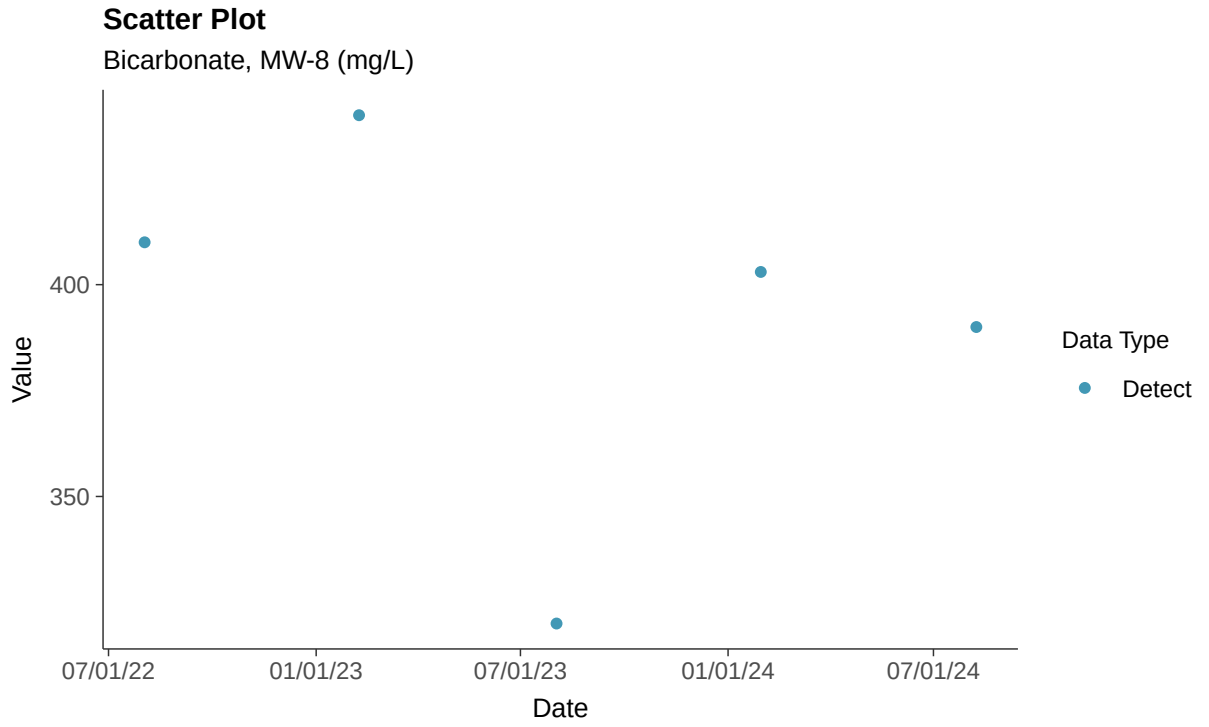
Trend Regression: Piecewise Linear-Linear-Linear

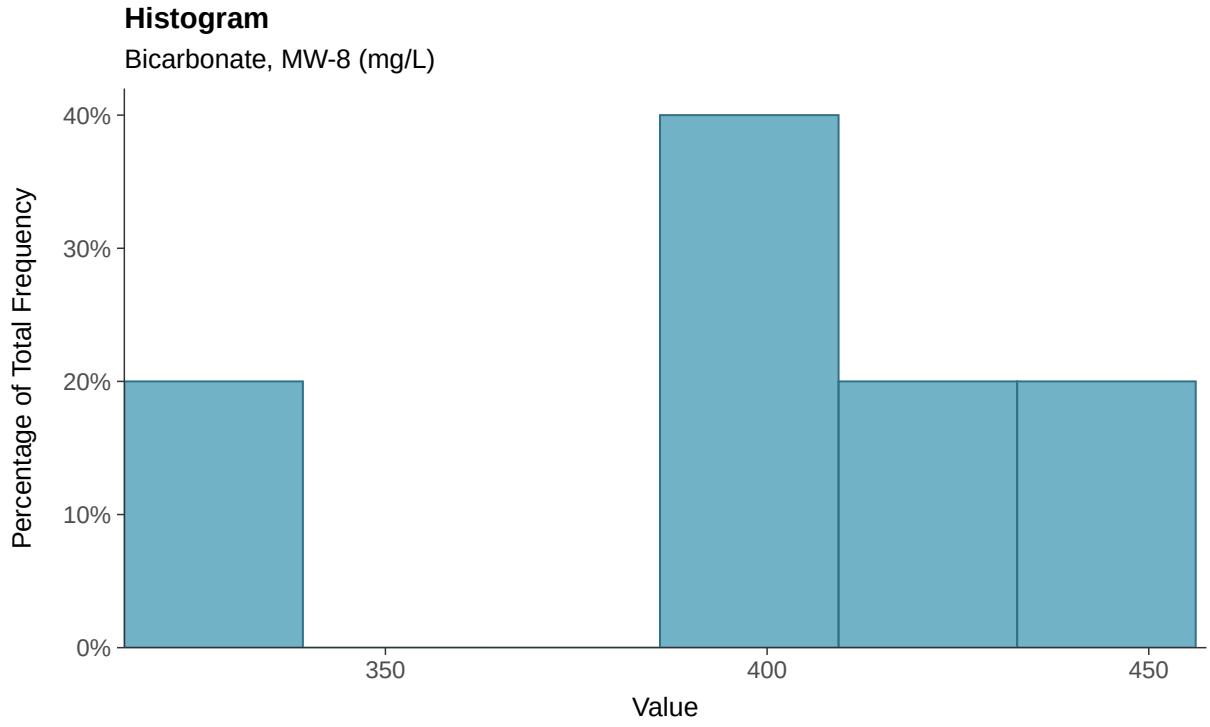
Total Suspended Solids, MW-8 (mg/L)



Other: Bicarbonate, MW-8

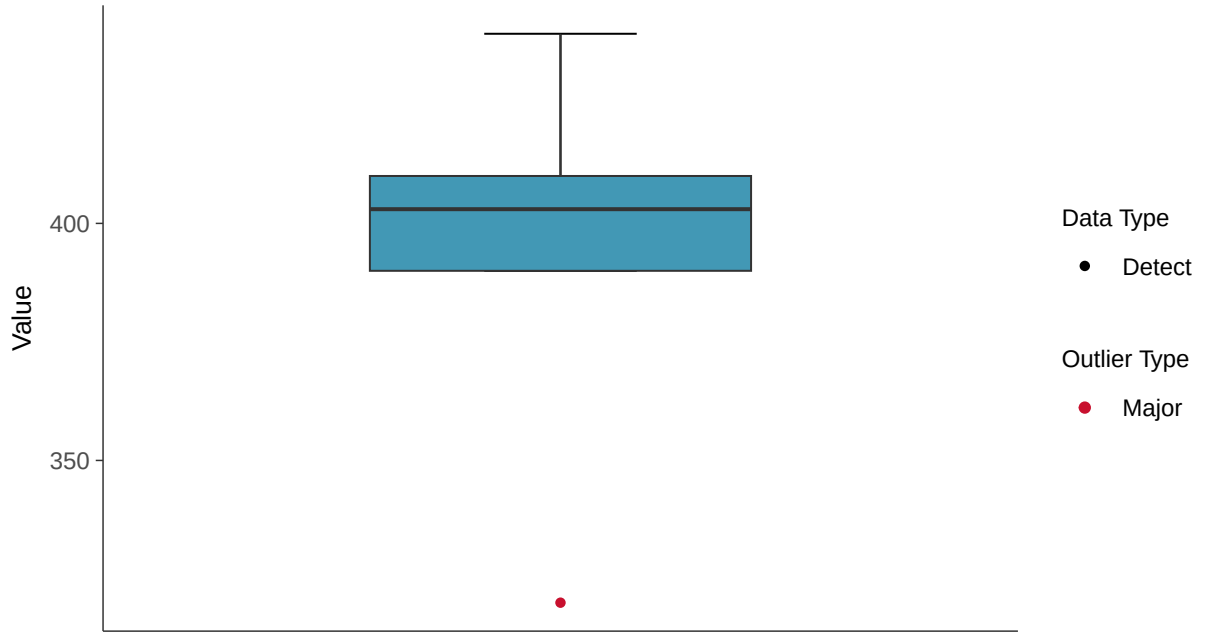
ID: 08_4_31





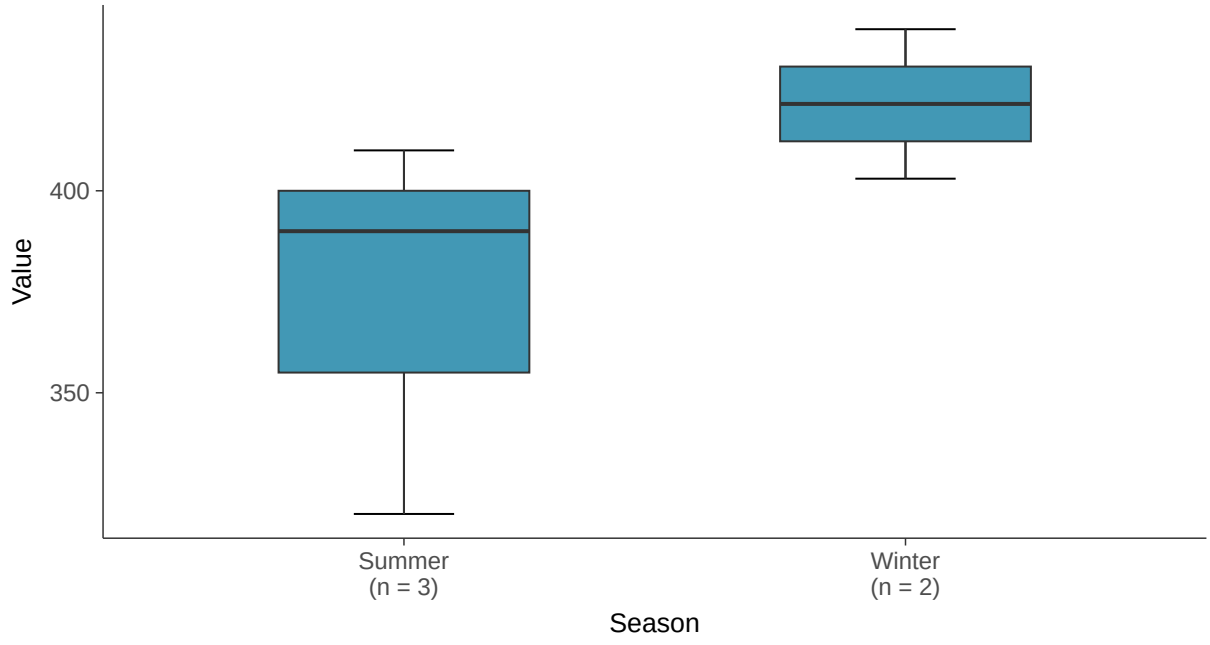
Boxplot

Bicarbonate, MW-8 (mg/L)



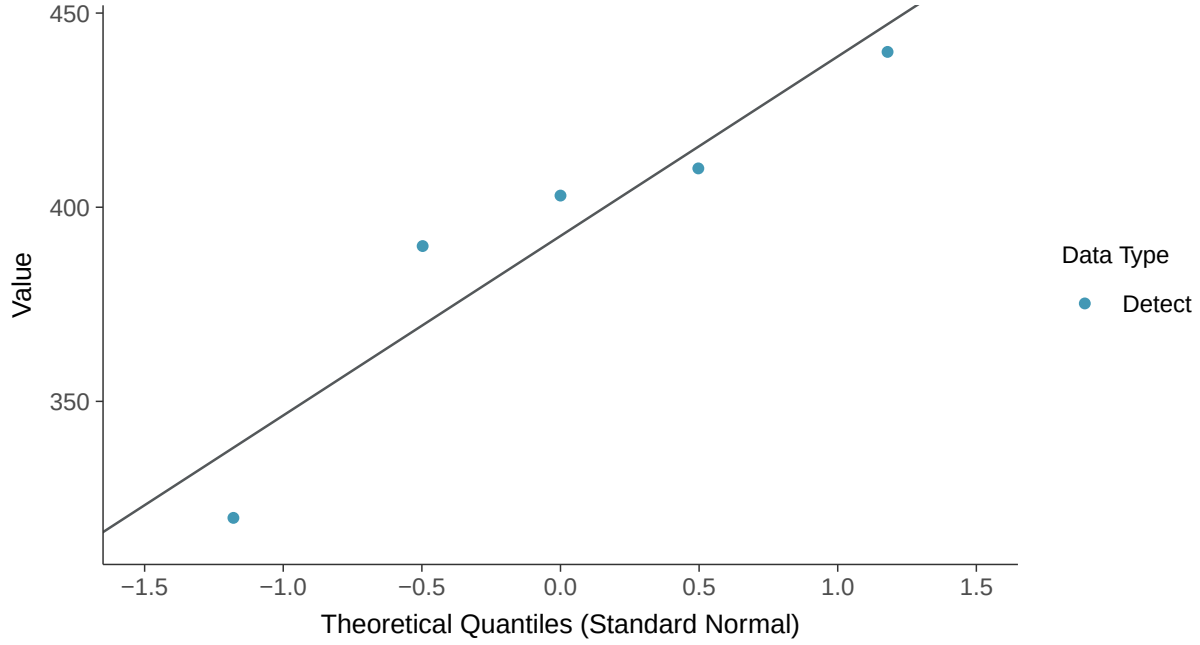
Boxplot by Season

Bicarbonate, MW-8 (mg/L)



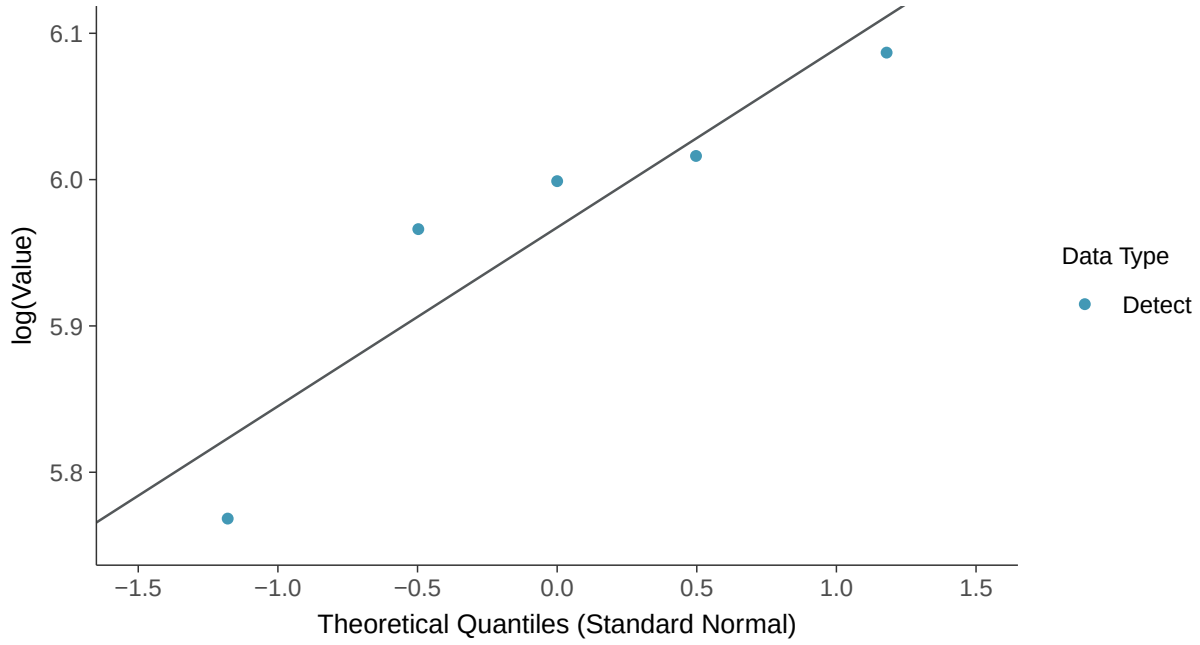
Normal Q-Q plot

Bicarbonate, MW-8 (mg/L)



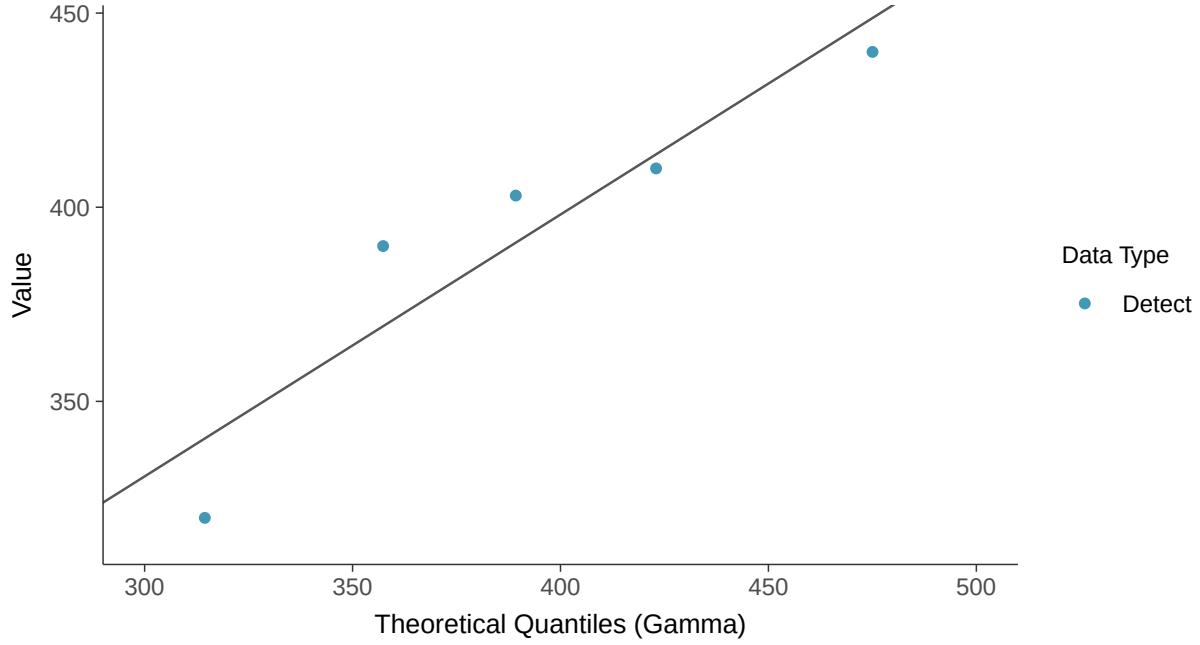
Lognormal Q-Q plot

Bicarbonate, MW-8 (mg/L)



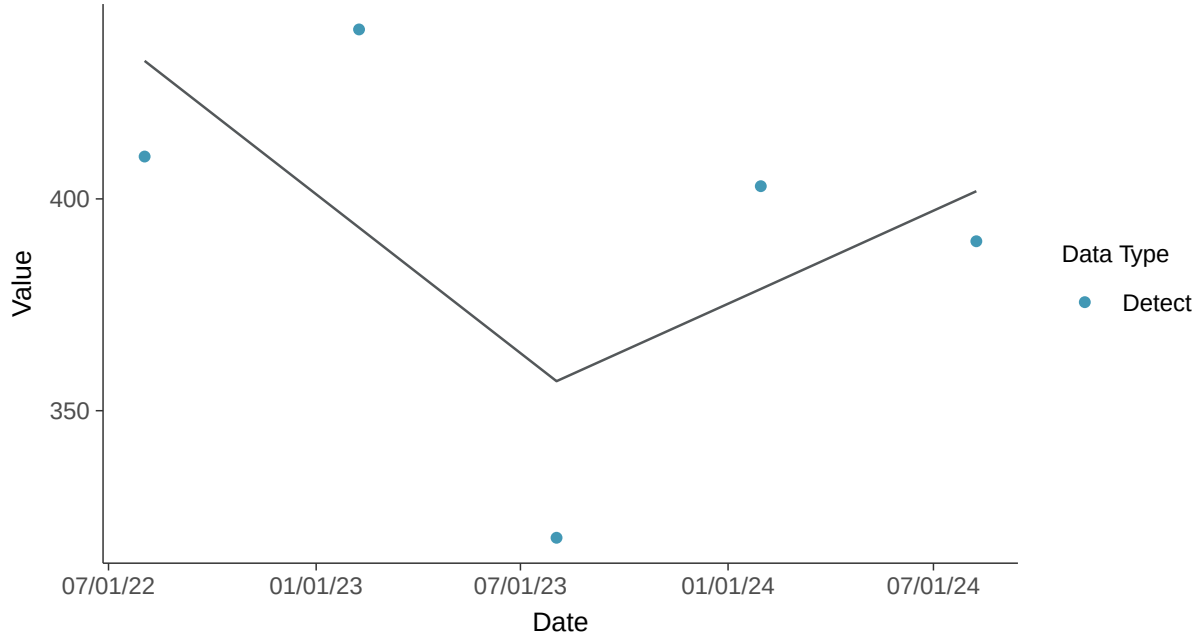
Gamma Q-Q plot

Bicarbonate, MW-8 (mg/L)



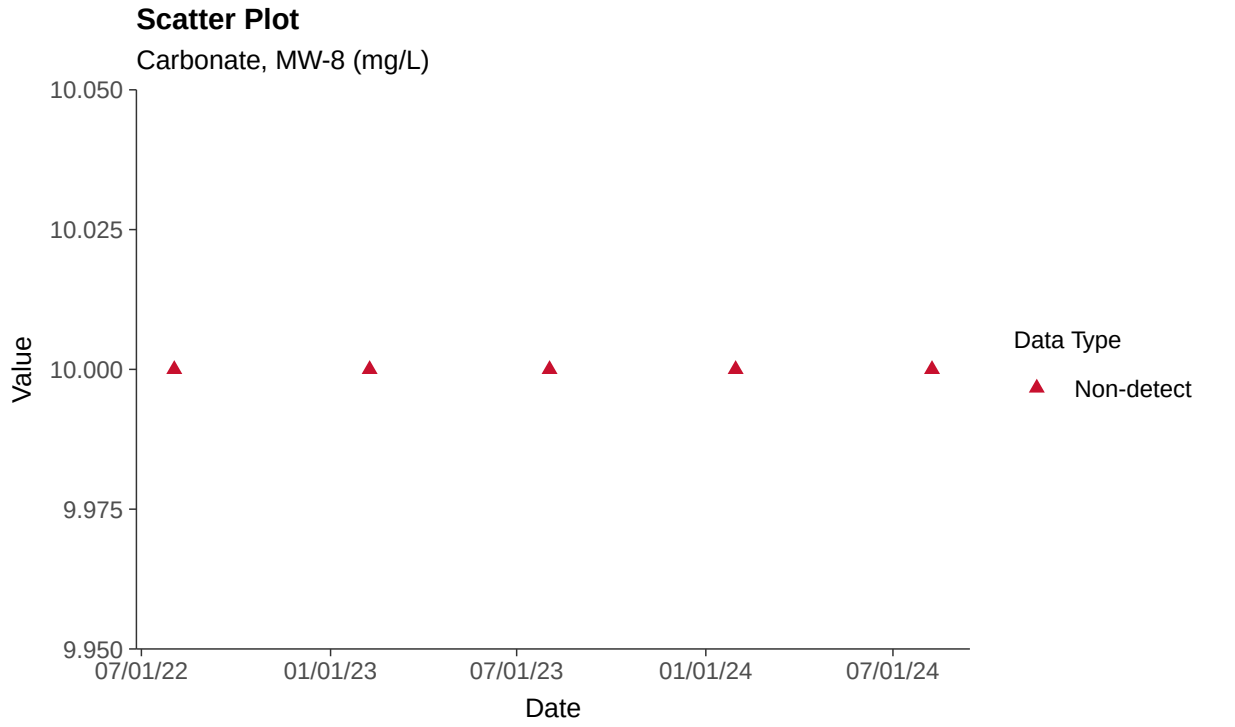
Trend Regression: Piecewise Linear-Linear

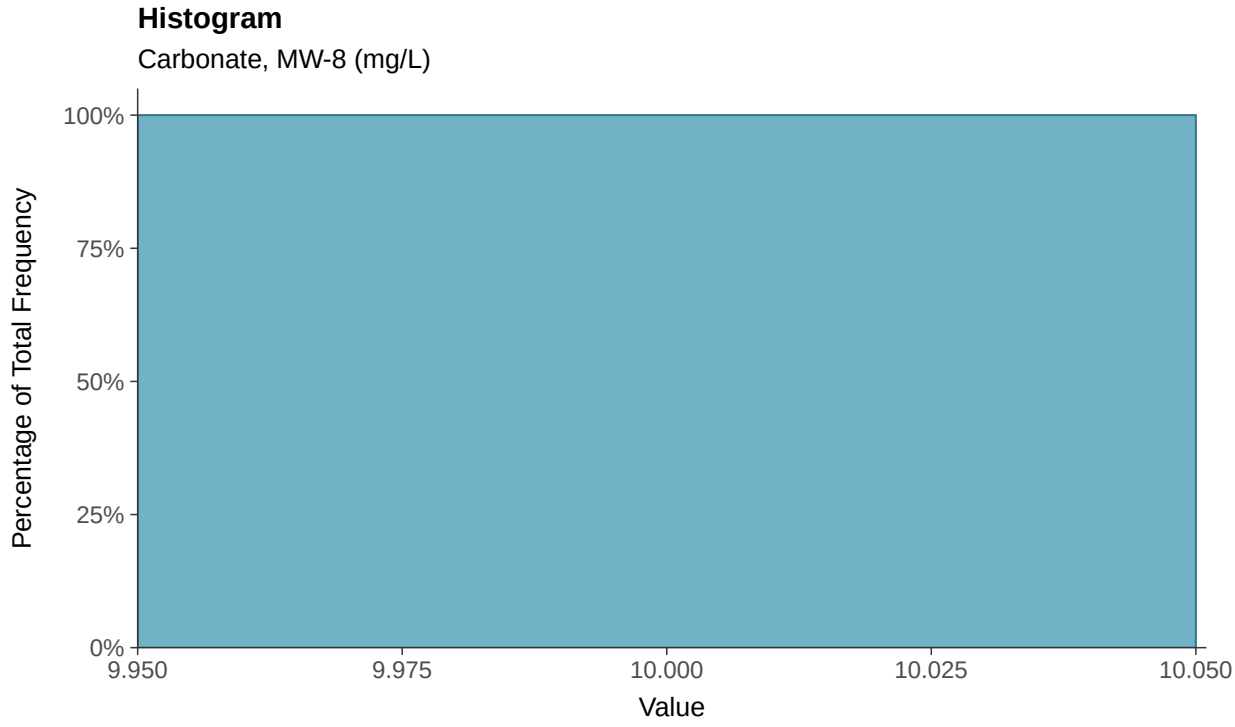
Bicarbonate, MW-8 (mg/L)



Other: Carbonate, MW-8

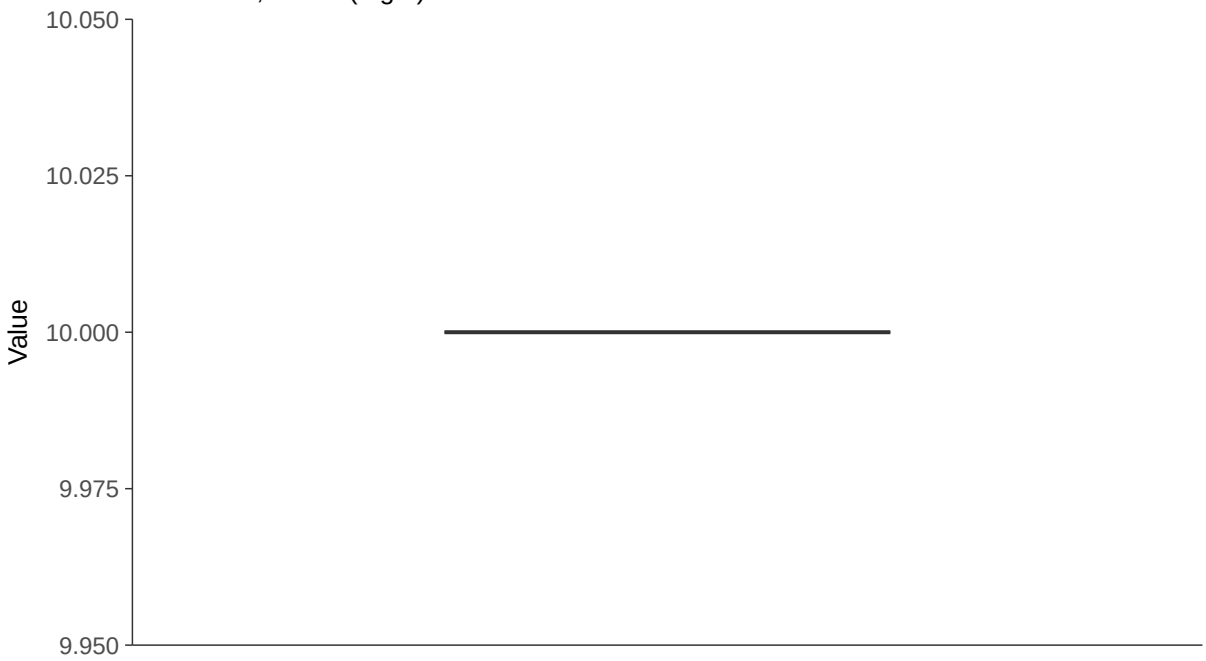
ID: 08_4_32





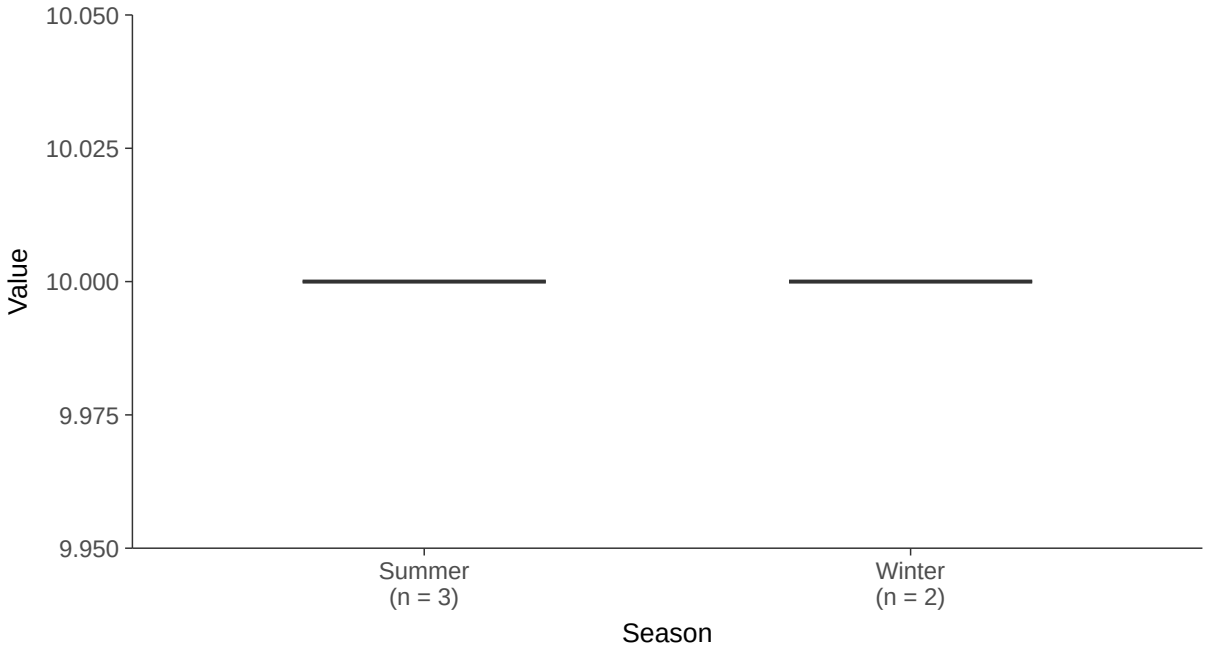
Boxplot

Carbonate, MW-8 (mg/L)



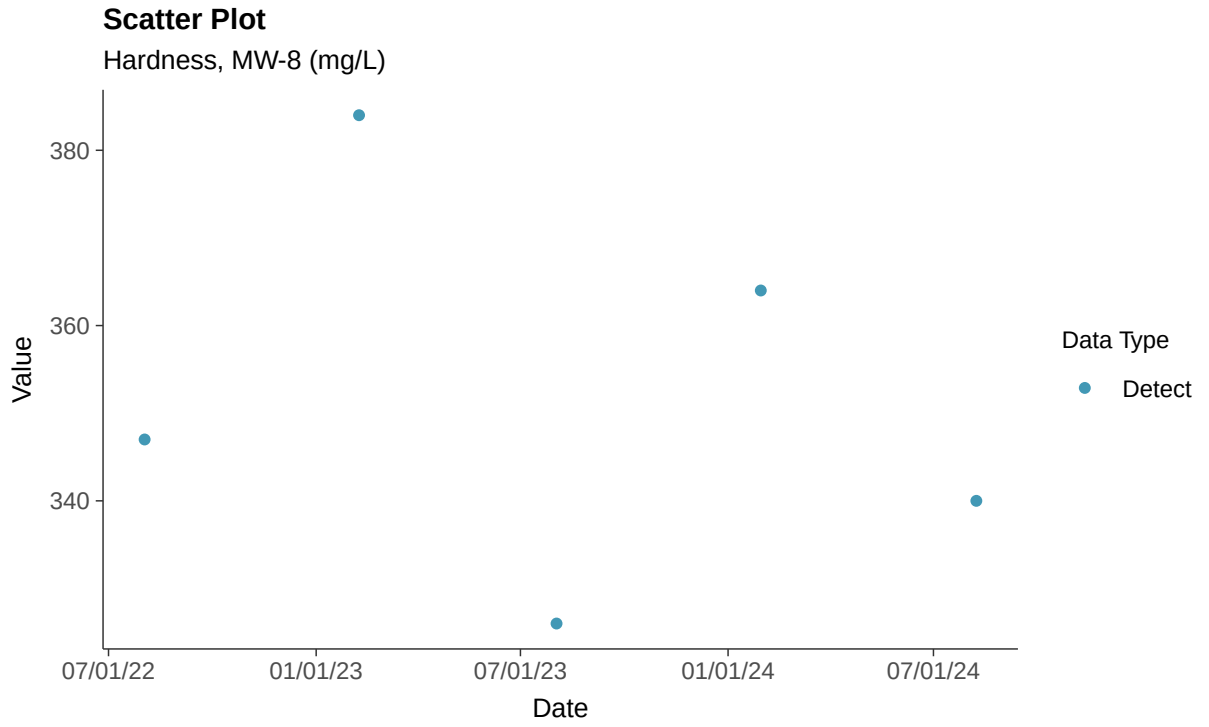
Boxplot by Season

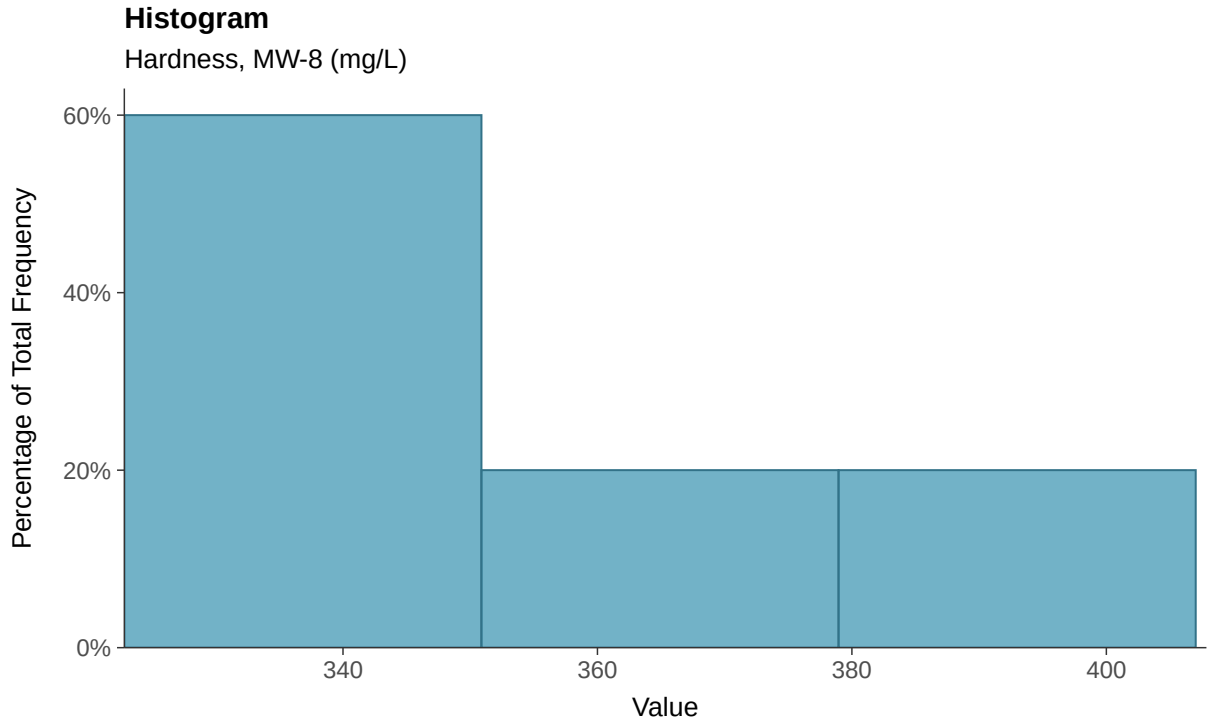
Carbonate, MW-8 (mg/L)



Other: Hardness, MW-8

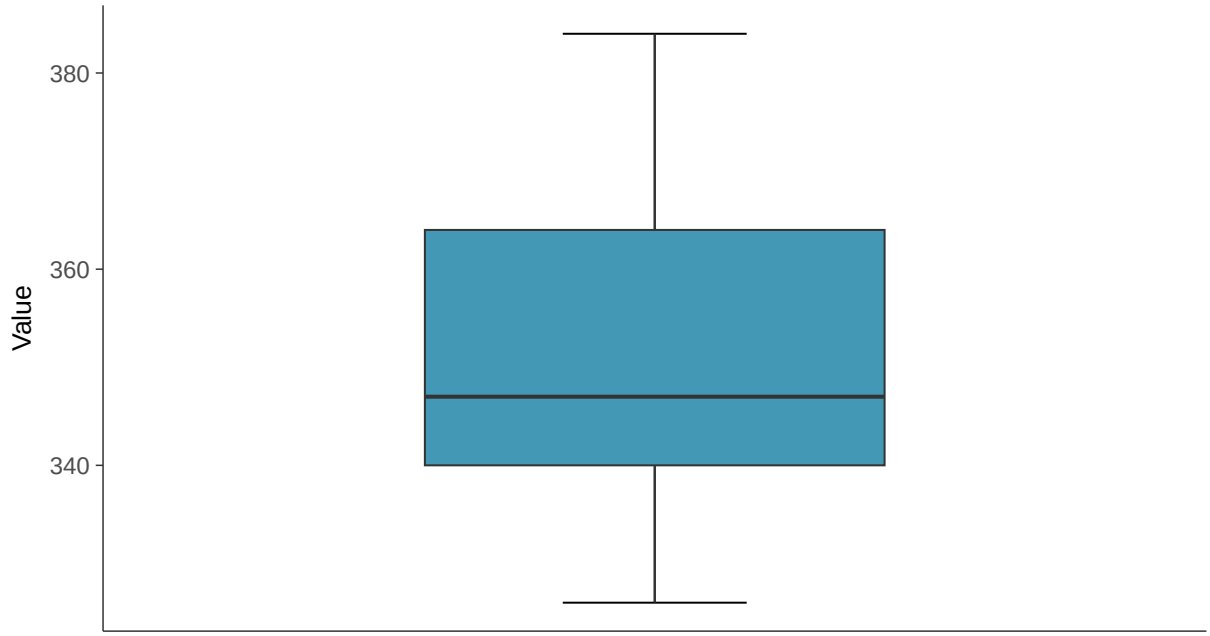
ID: 08_4_33





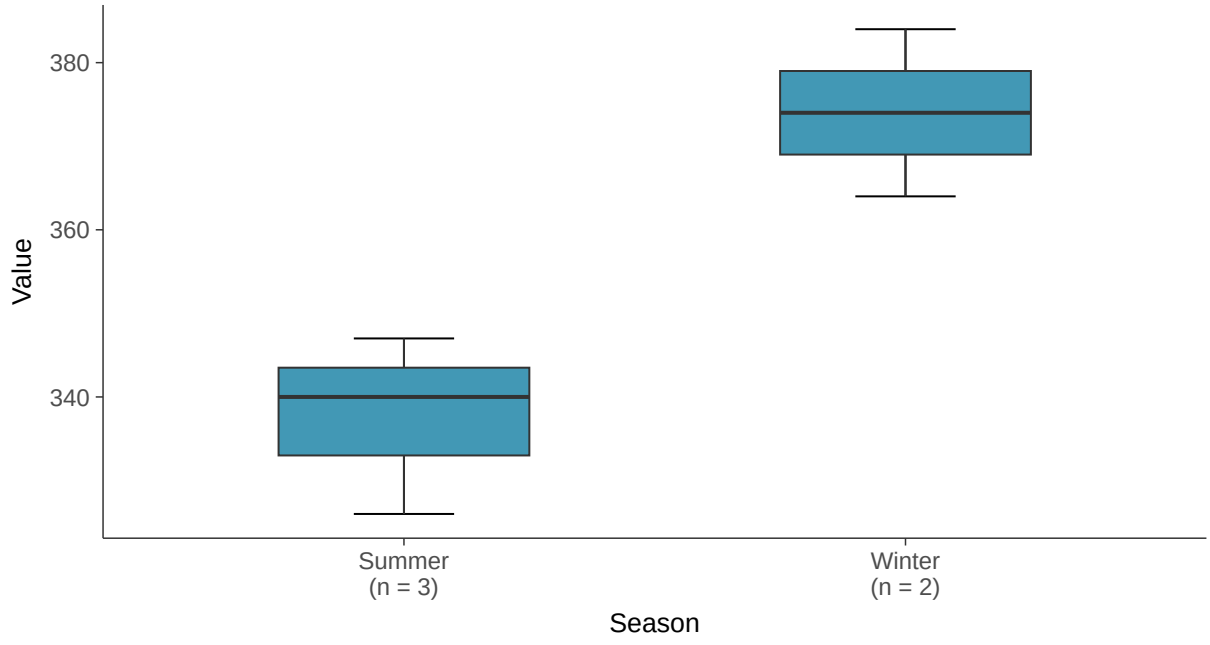
Boxplot

Hardness, MW-8 (mg/L)



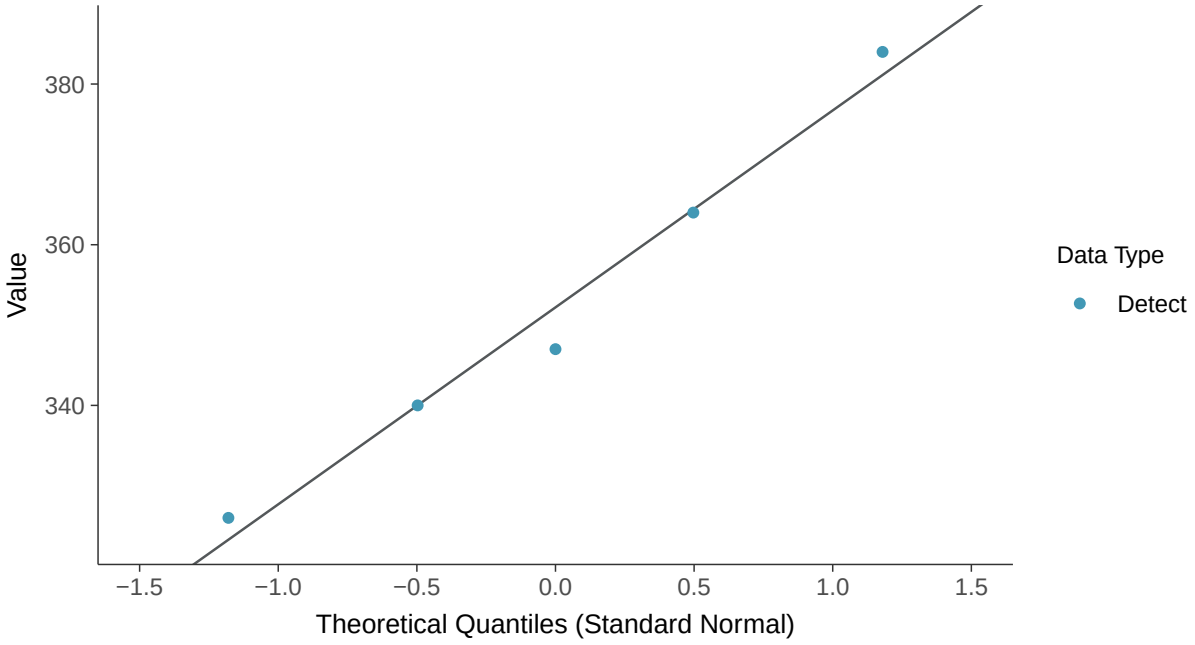
Boxplot by Season

Hardness, MW-8 (mg/L)



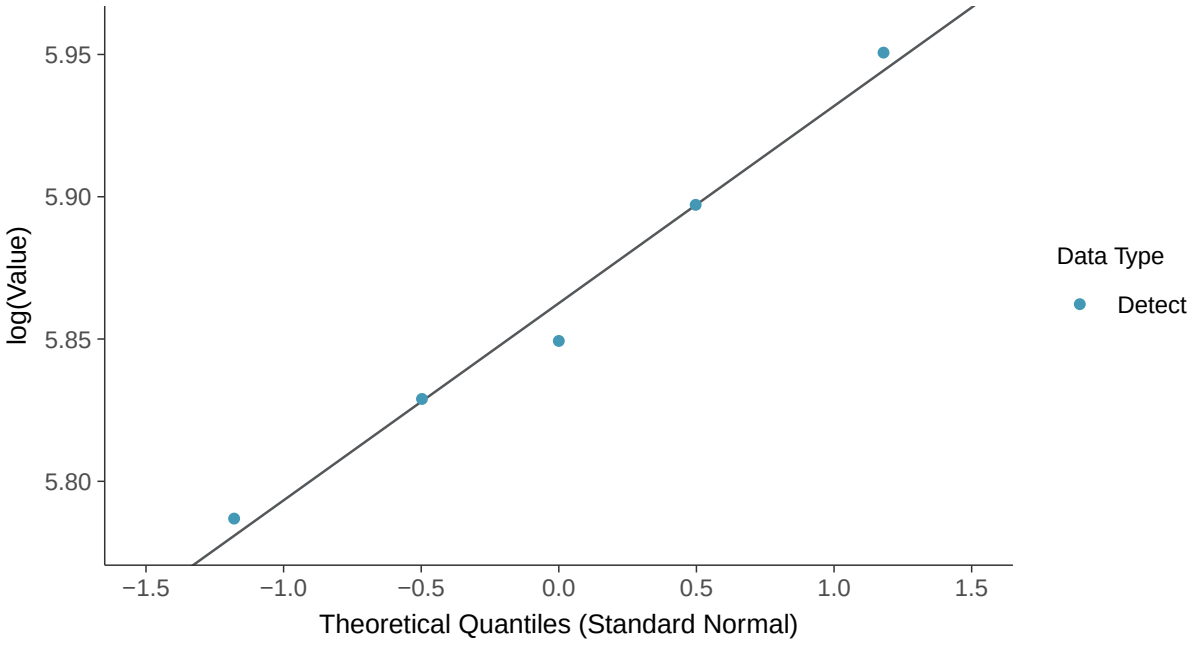
Normal Q-Q plot

Hardness, MW-8 (mg/L)



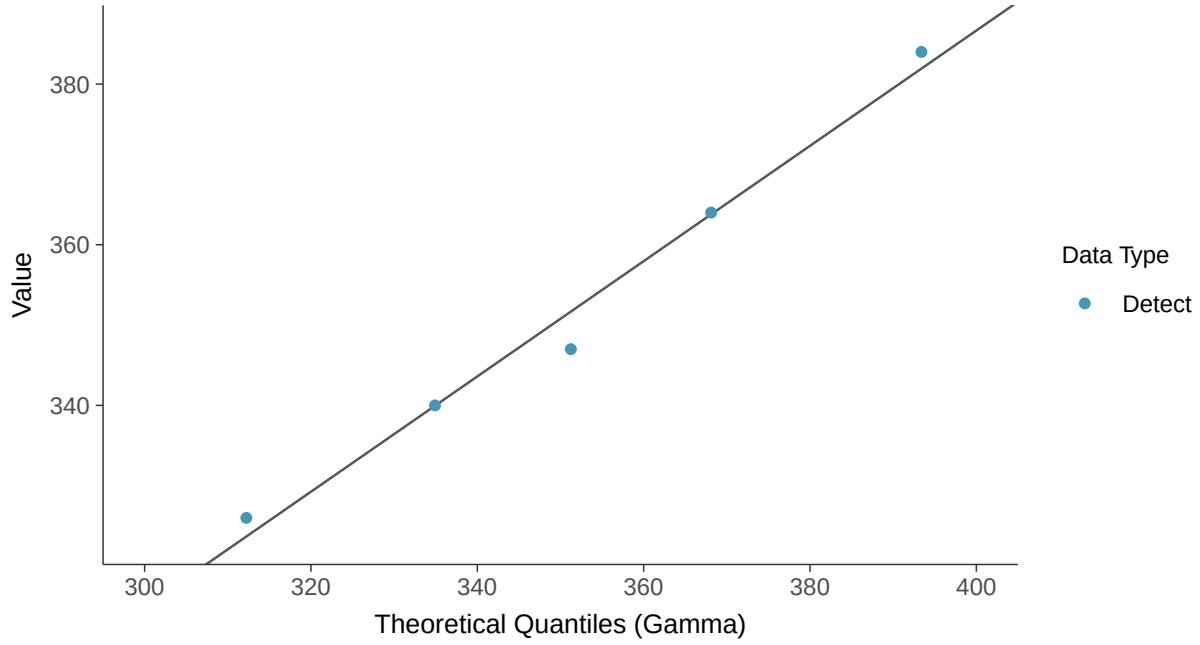
Lognormal Q-Q plot

Hardness, MW-8 (mg/L)



Gamma Q-Q plot

Hardness, MW-8 (mg/L)

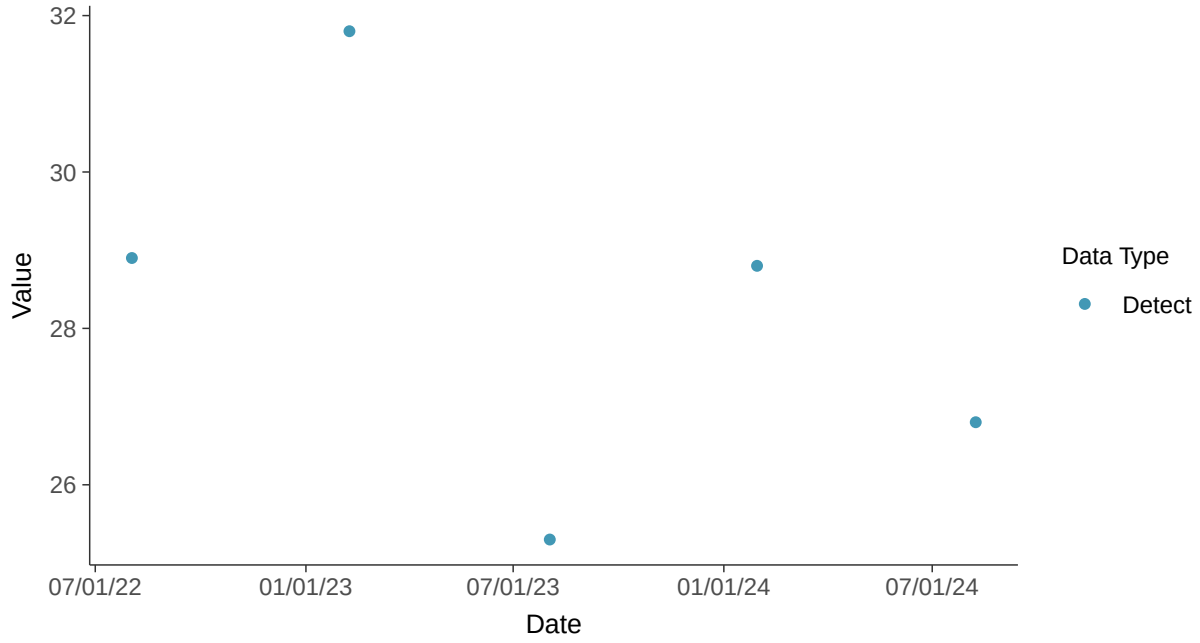


Other: Magnesium, MW-8

ID: 08_4_34

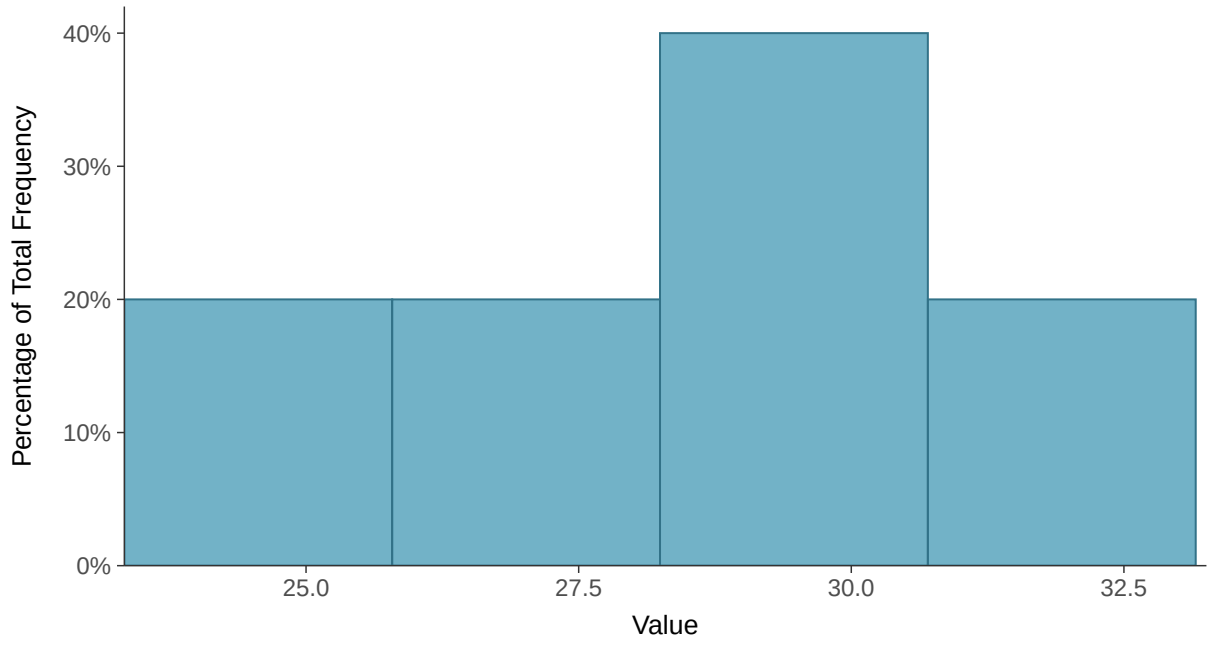
Scatter Plot

Magnesium, MW-8 (mg/L)



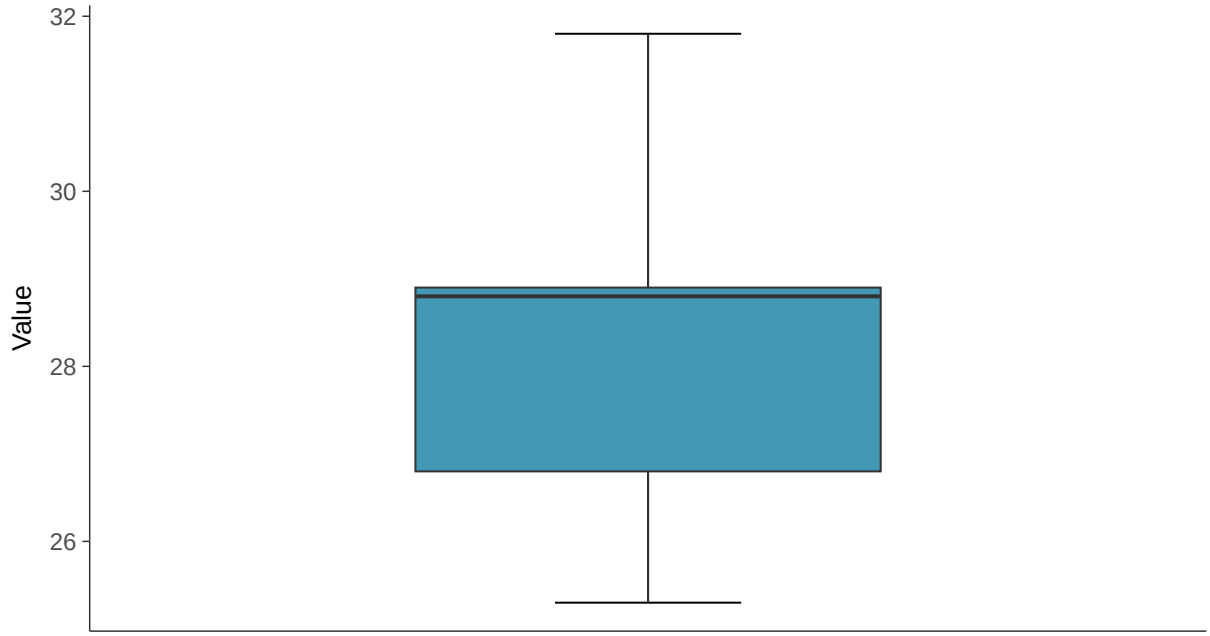
Histogram

Magnesium, MW-8 (mg/L)



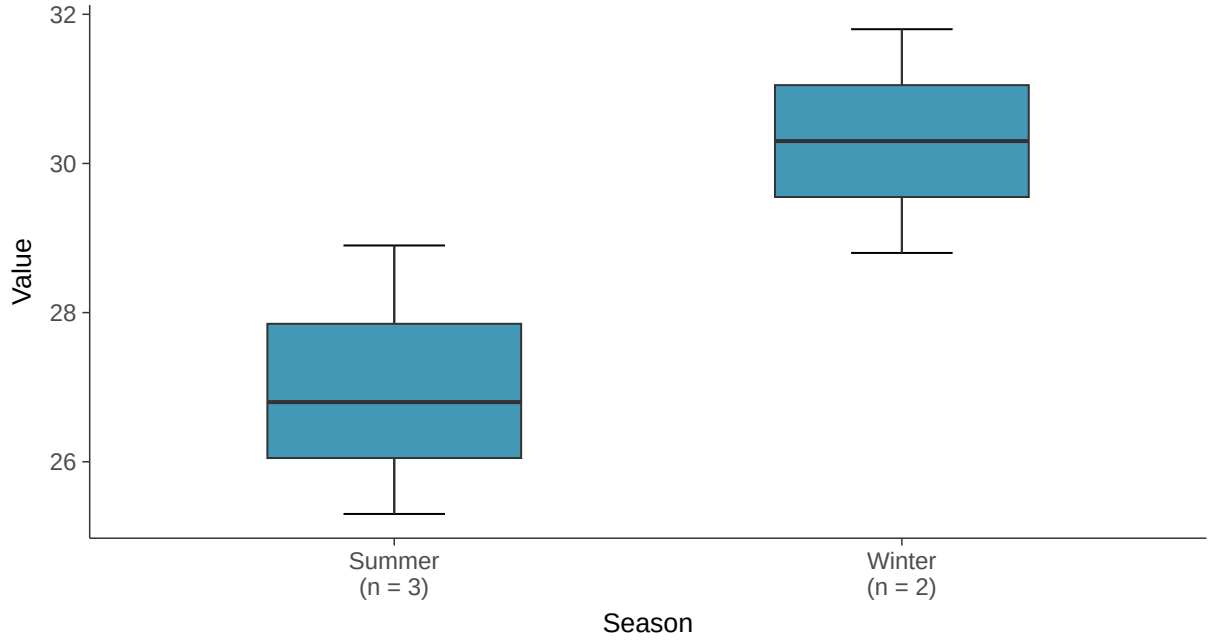
Boxplot

Magnesium, MW-8 (mg/L)



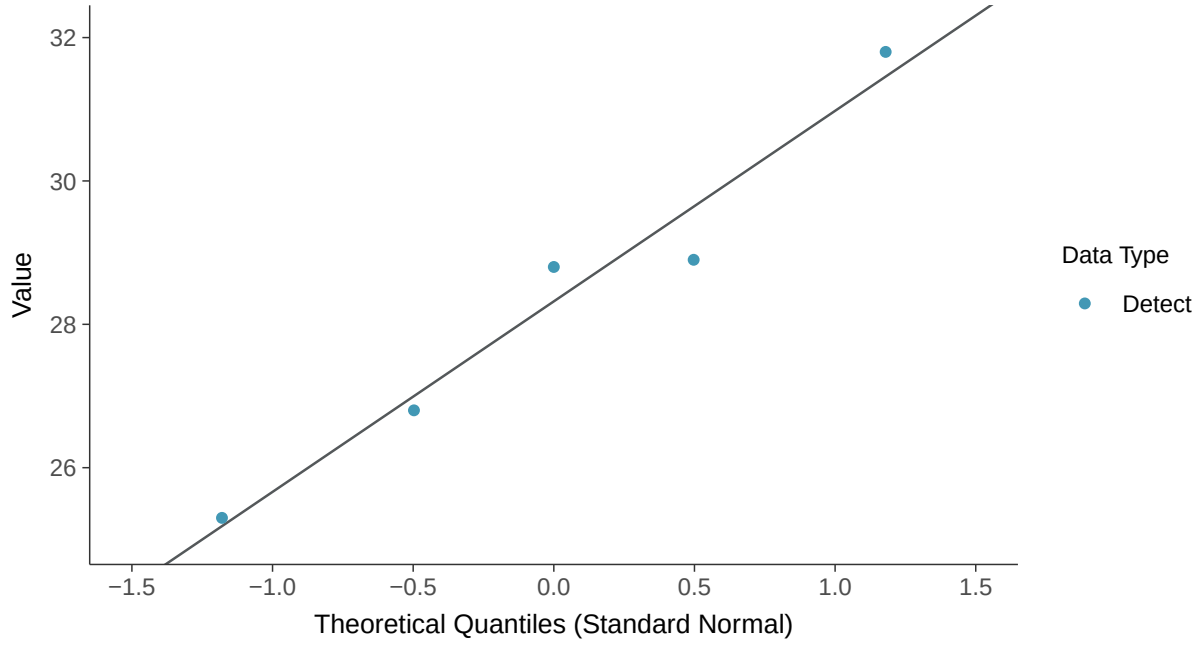
Boxplot by Season

Magnesium, MW-8 (mg/L)



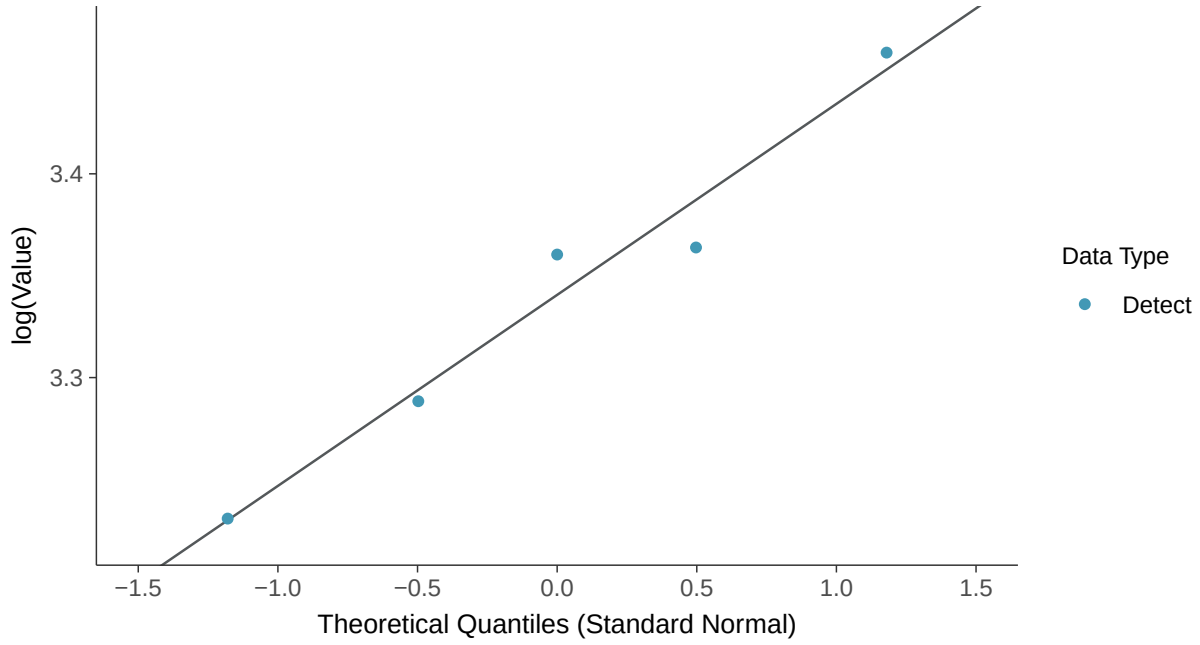
Normal Q-Q plot

Magnesium, MW-8 (mg/L)



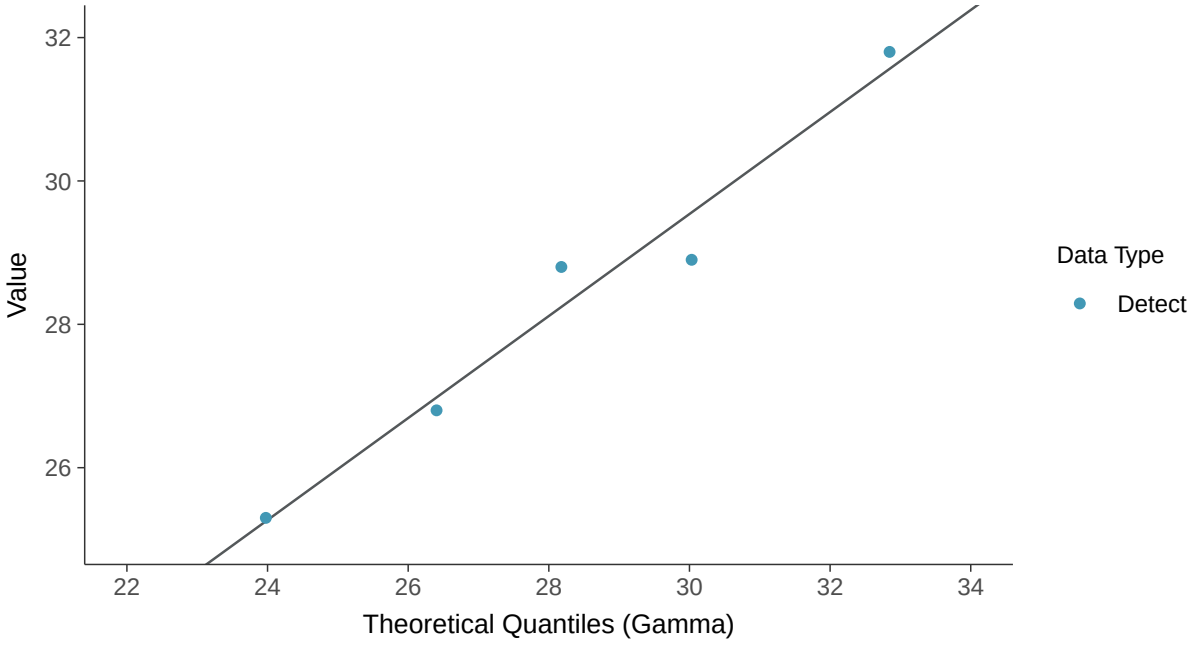
Lognormal Q-Q plot

Magnesium, MW-8 (mg/L)



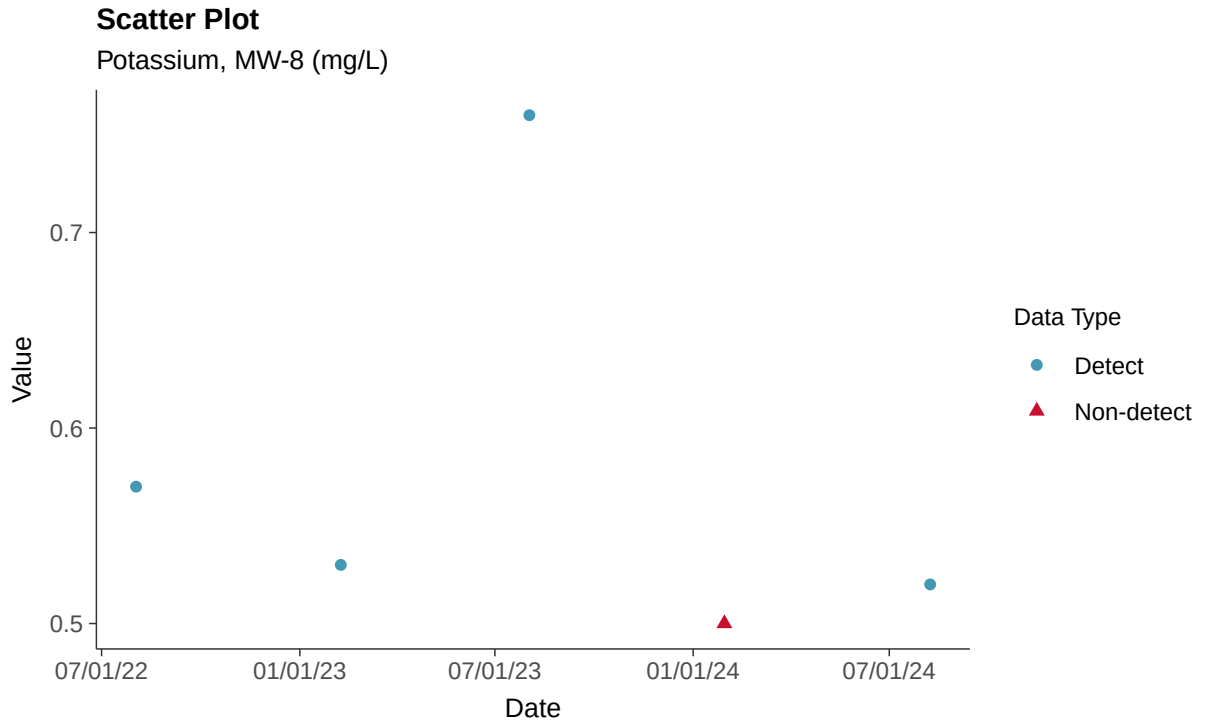
Gamma Q-Q plot

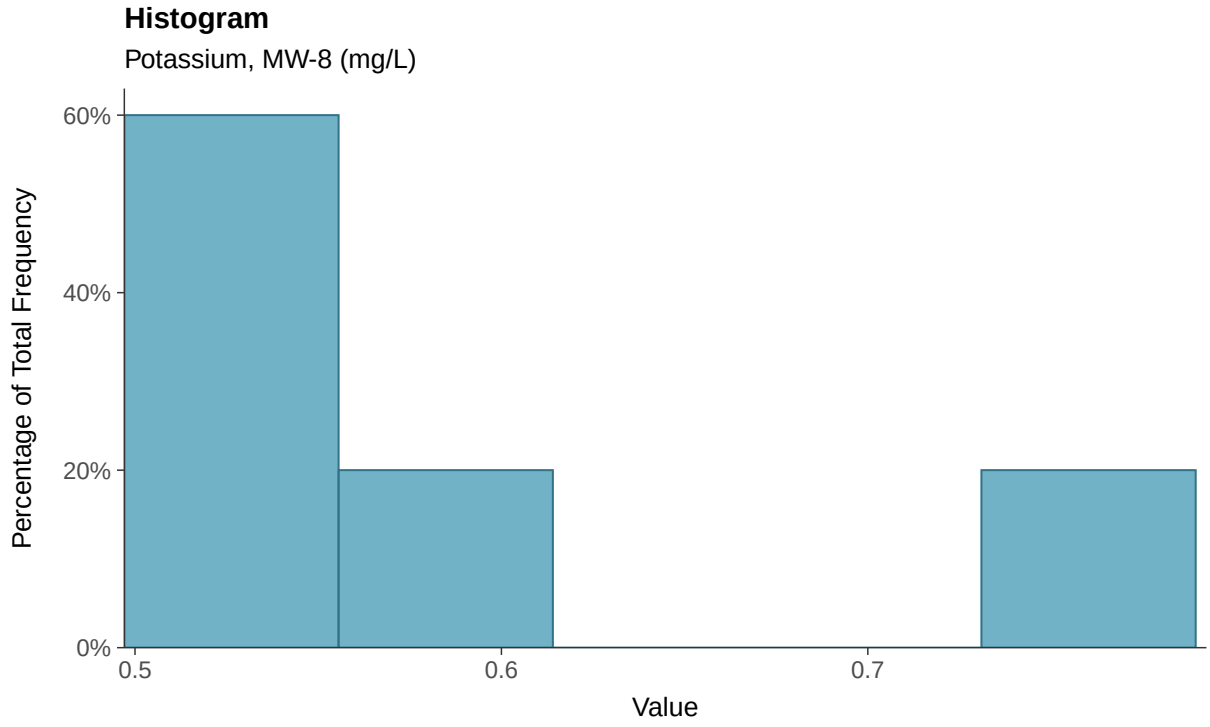
Magnesium, MW-8 (mg/L)



Other: Potassium, MW-8

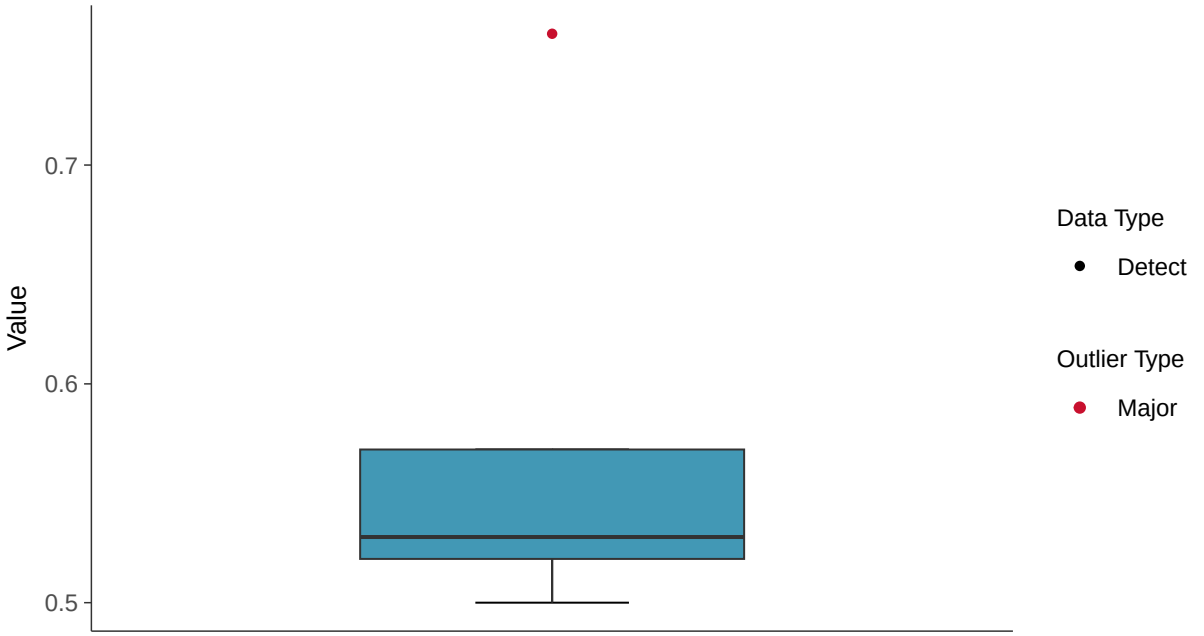
ID: 08_4_35





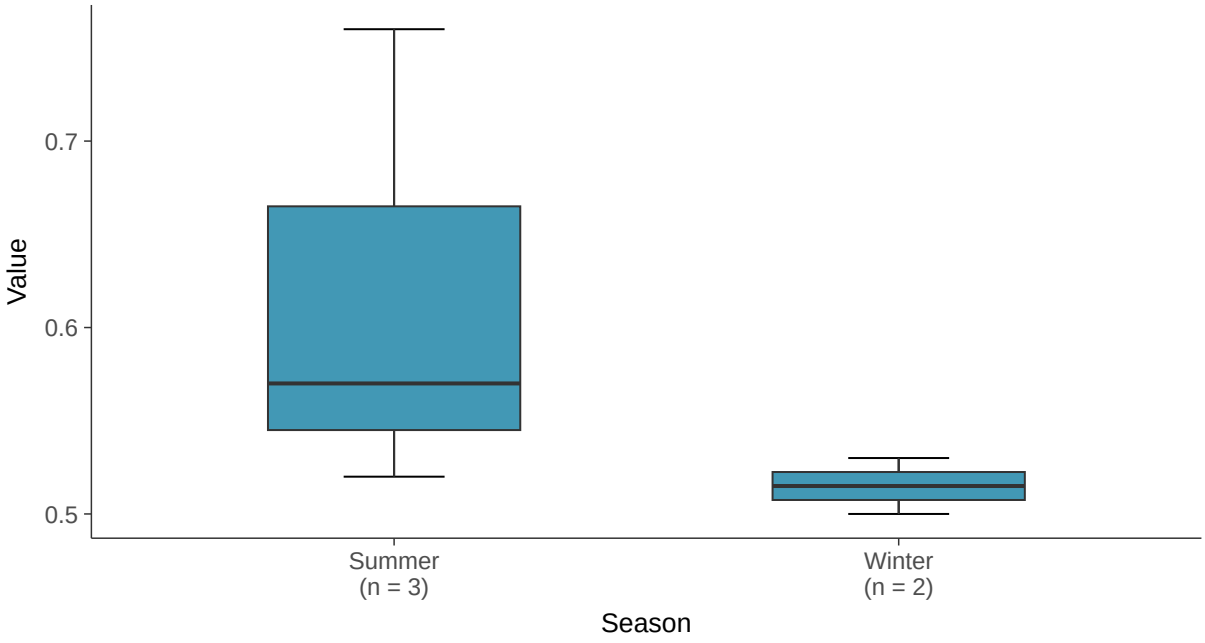
Boxplot

Potassium, MW-8 (mg/L)



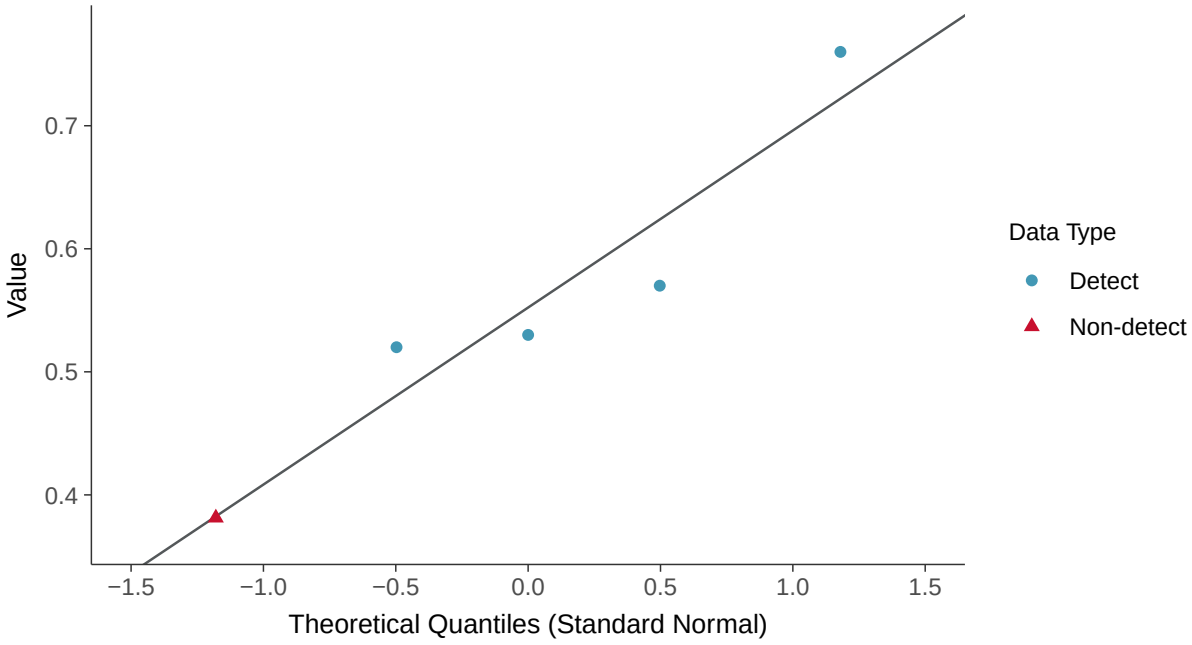
Boxplot by Season

Potassium, MW-8 (mg/L)



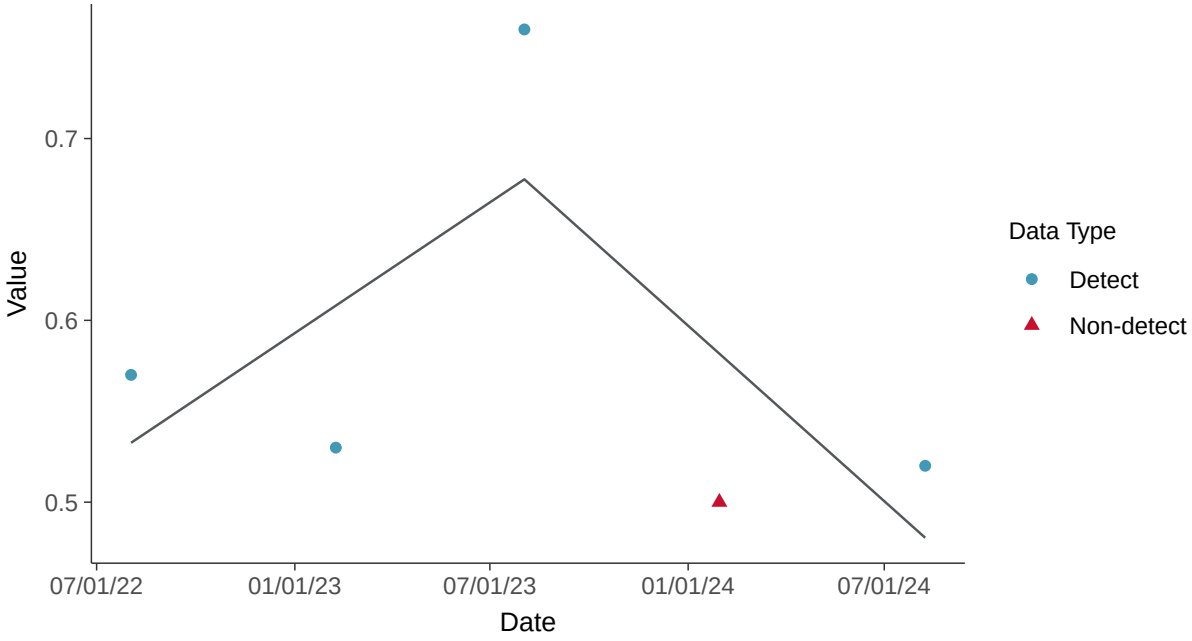
Normal Q-Q plot using ROS Imputed Estimates

Potassium, MW-8 (mg/L)



Trend Regression: Piecewise Linear-Linear

Potassium, MW-8 (mg/L)

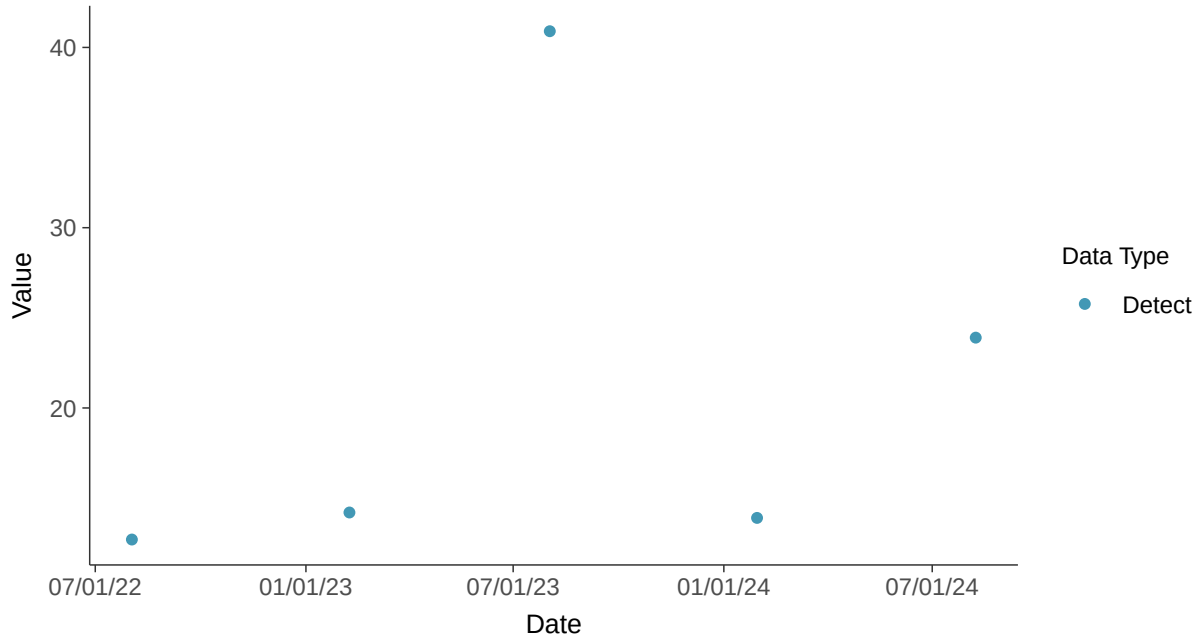


Other: Sodium, MW-8

ID: 08_4_36

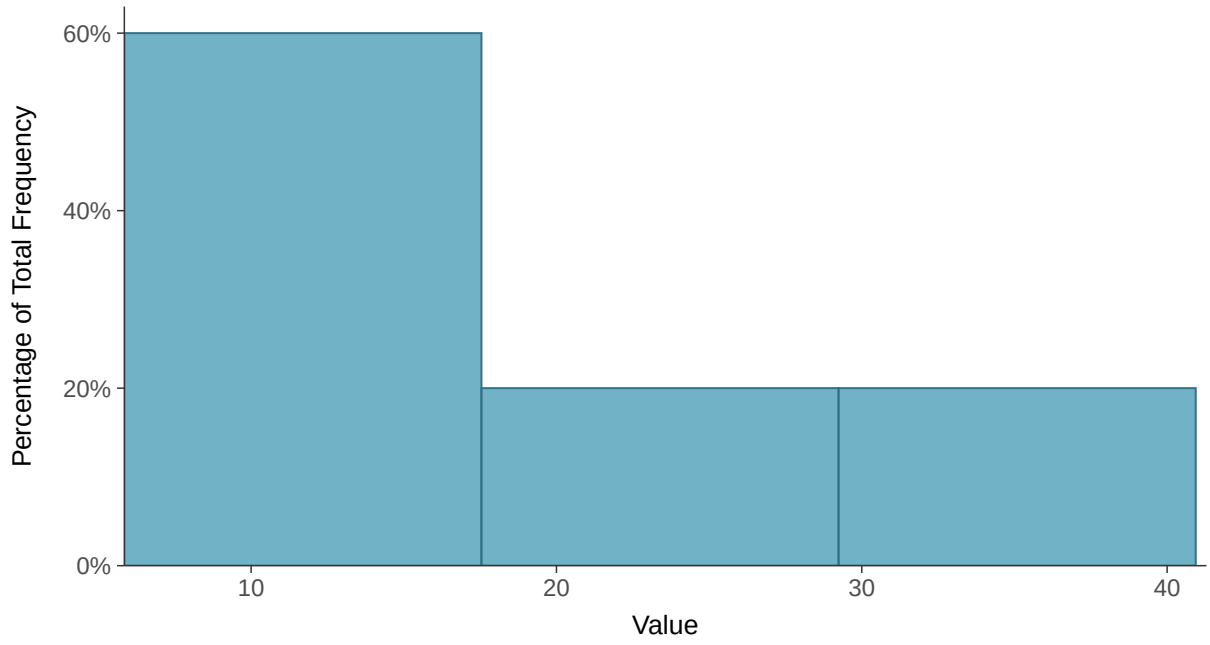
Scatter Plot

Sodium, MW-8 (mg/L)



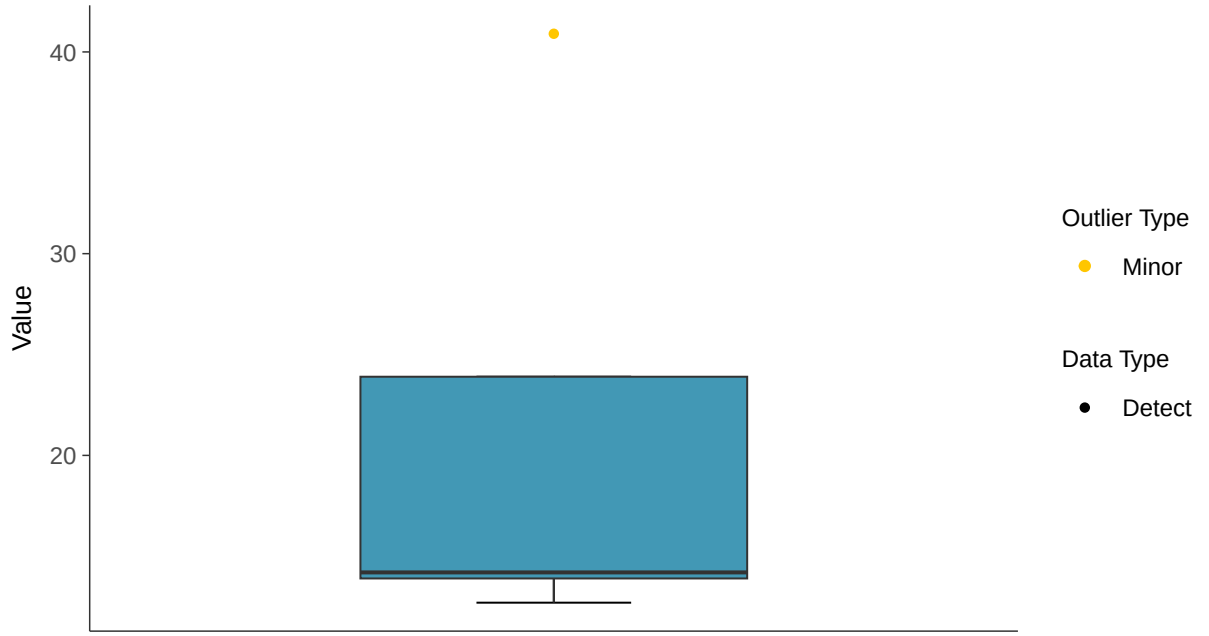
Histogram

Sodium, MW-8 (mg/L)



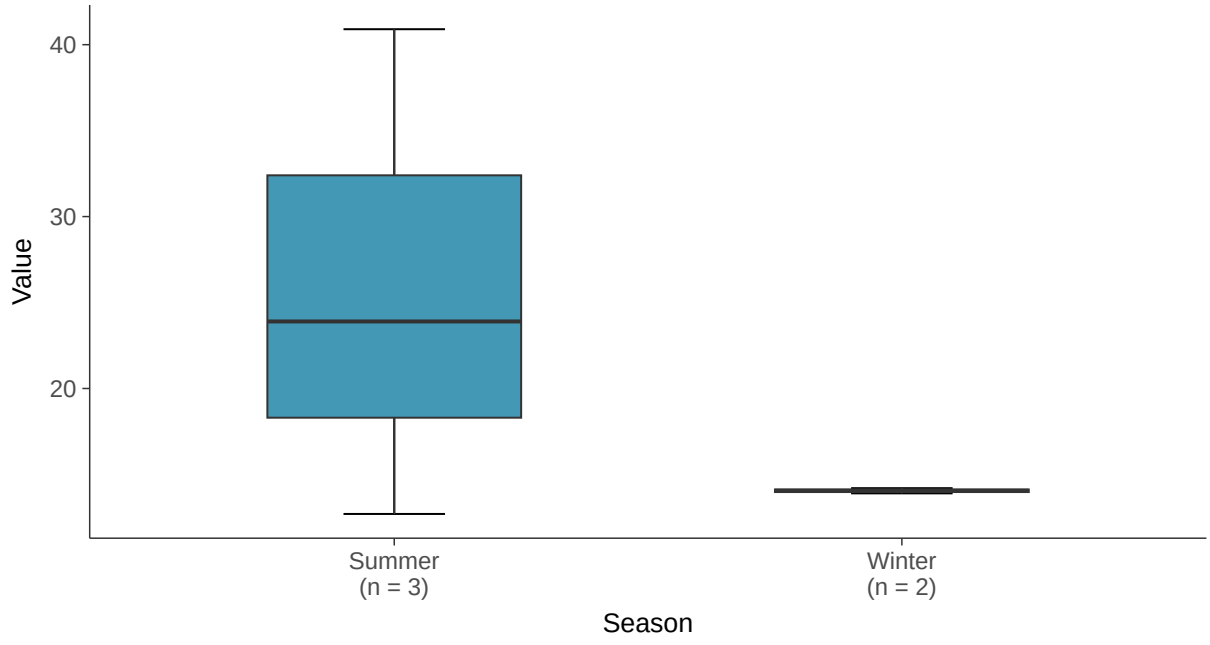
Boxplot

Sodium, MW-8 (mg/L)



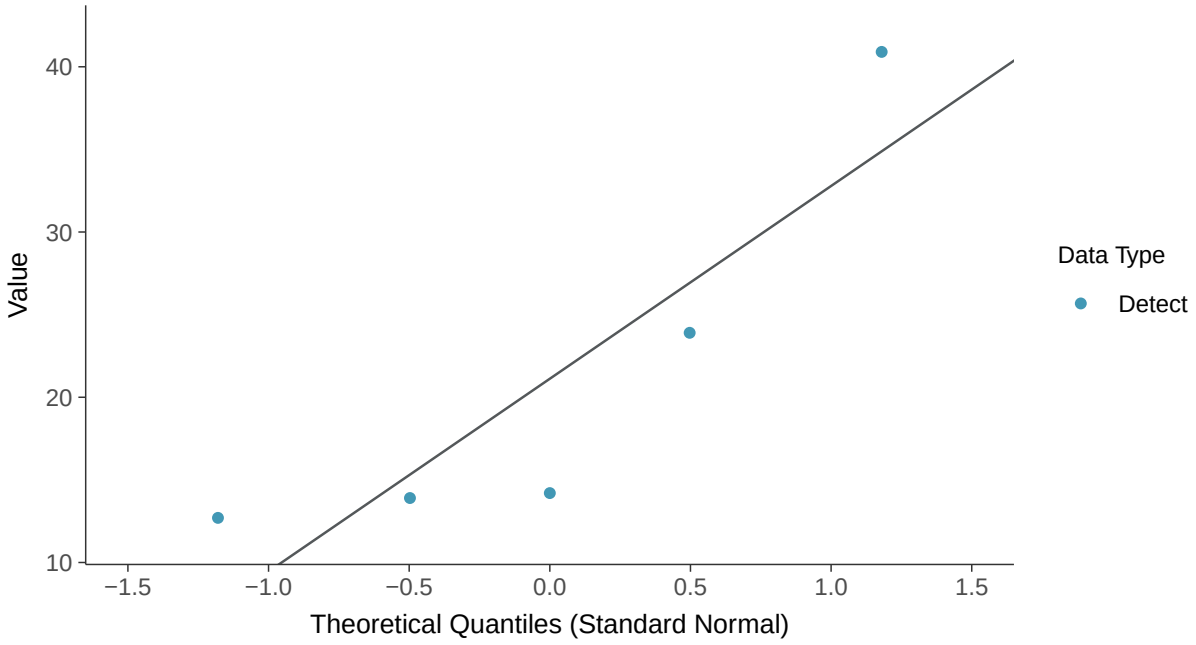
Boxplot by Season

Sodium, MW-8 (mg/L)



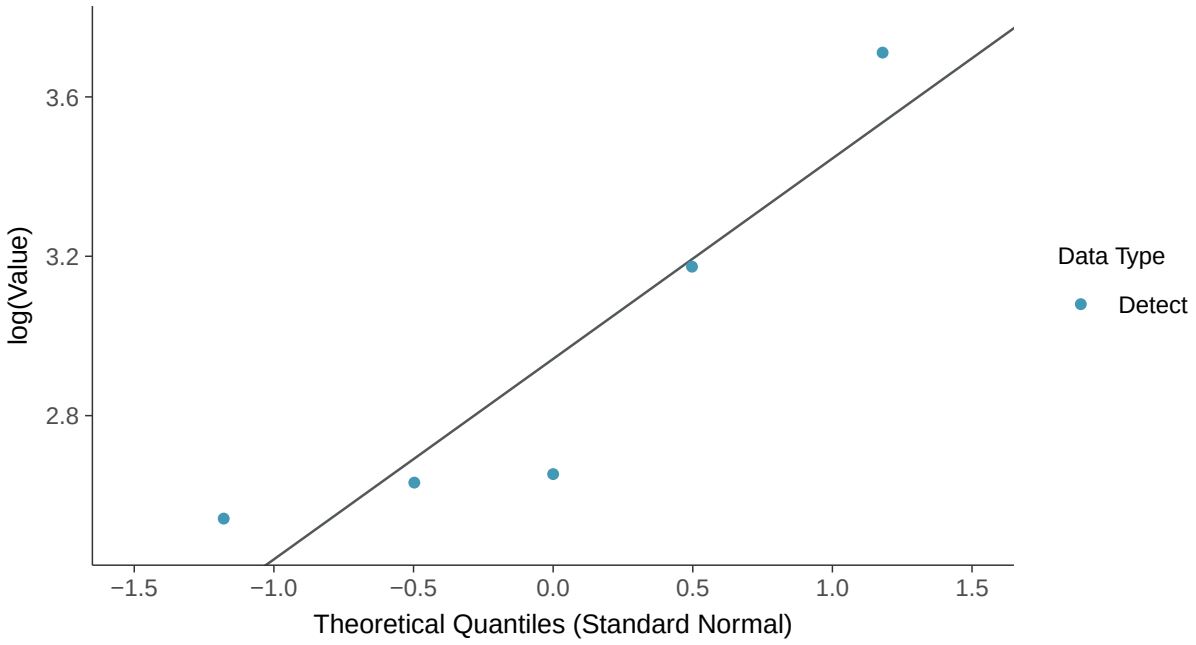
Normal Q-Q plot

Sodium, MW-8 (mg/L)



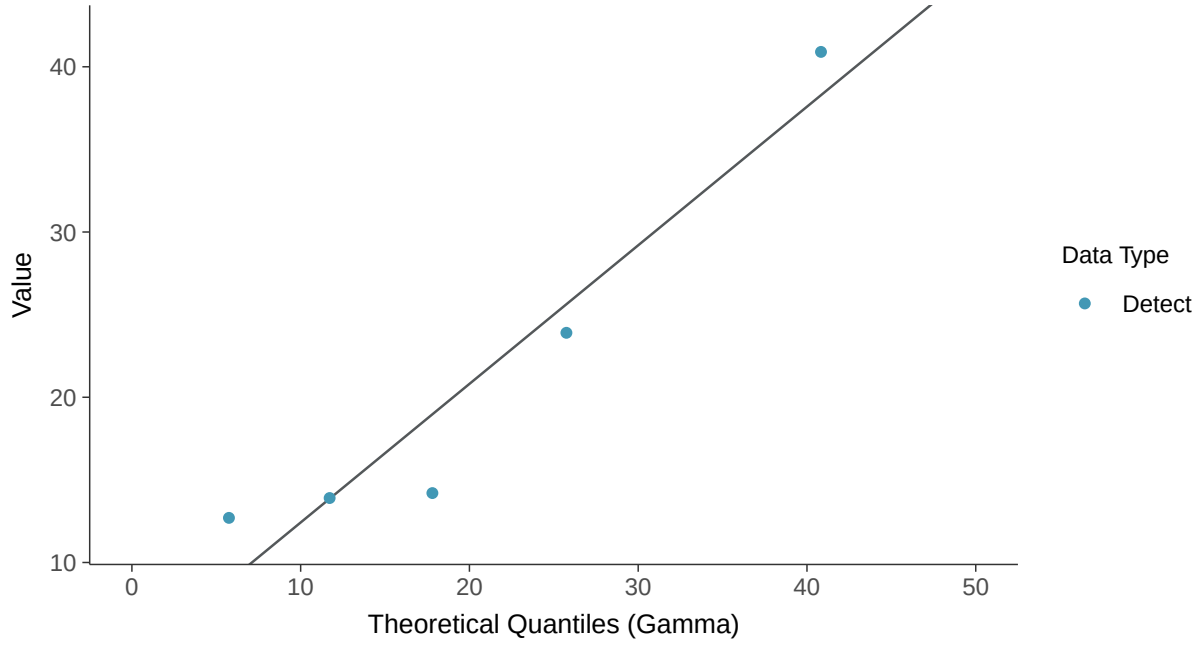
Lognormal Q-Q plot

Sodium, MW-8 (mg/L)



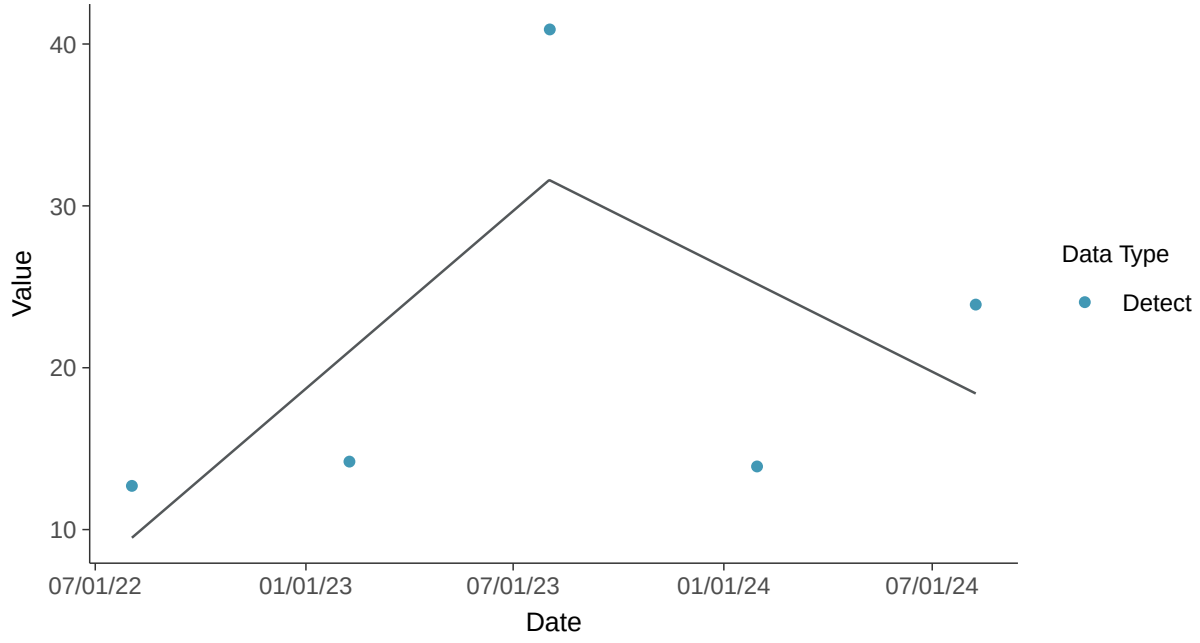
Gamma Q-Q plot

Sodium, MW-8 (mg/L)



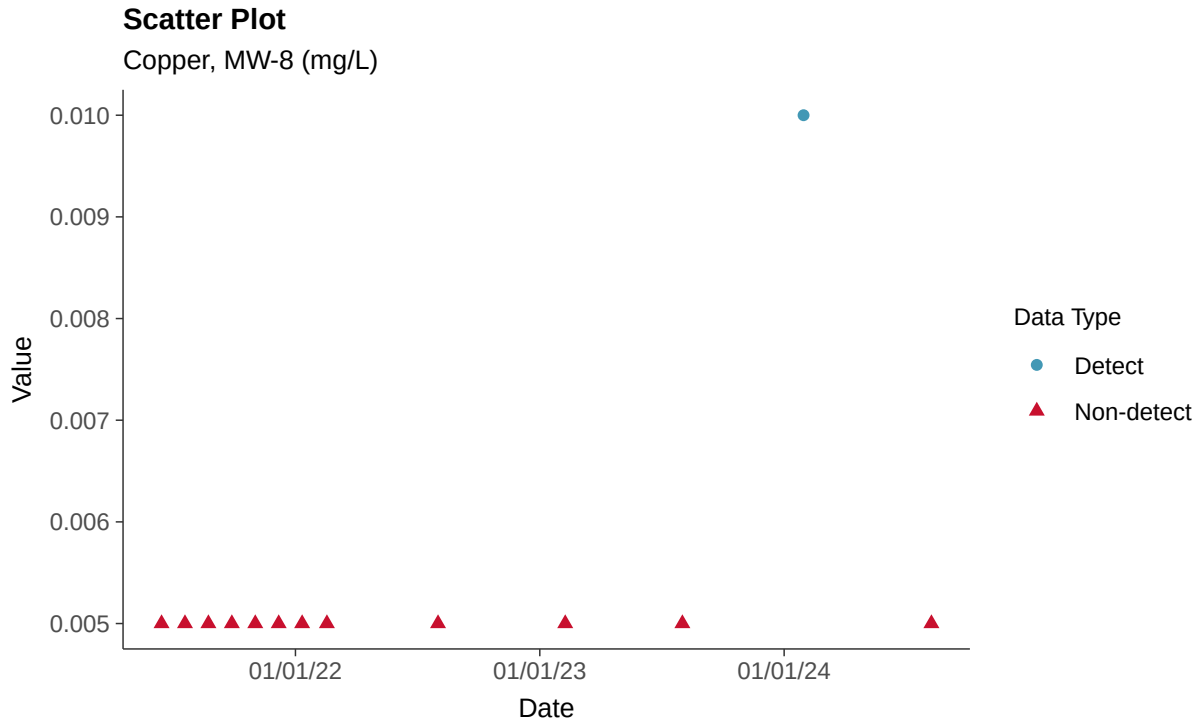
Trend Regression: Piecewise Linear-Linear

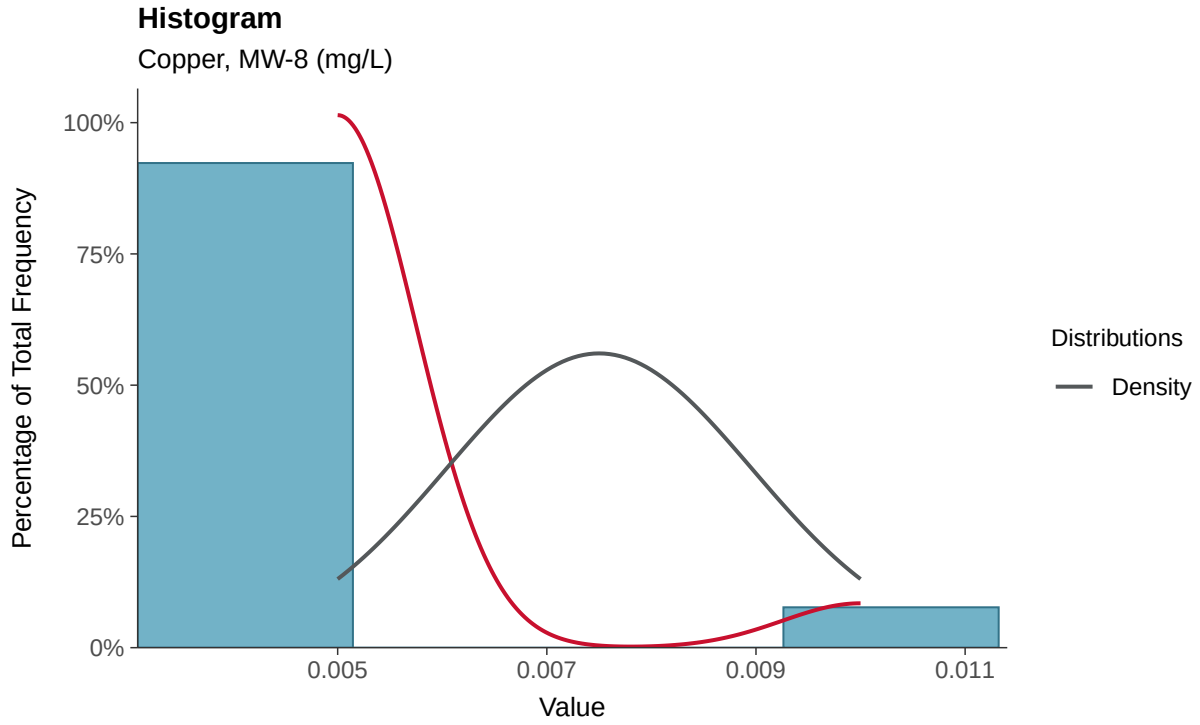
Sodium, MW-8 (mg/L)



Part 115: Copper, MW-8

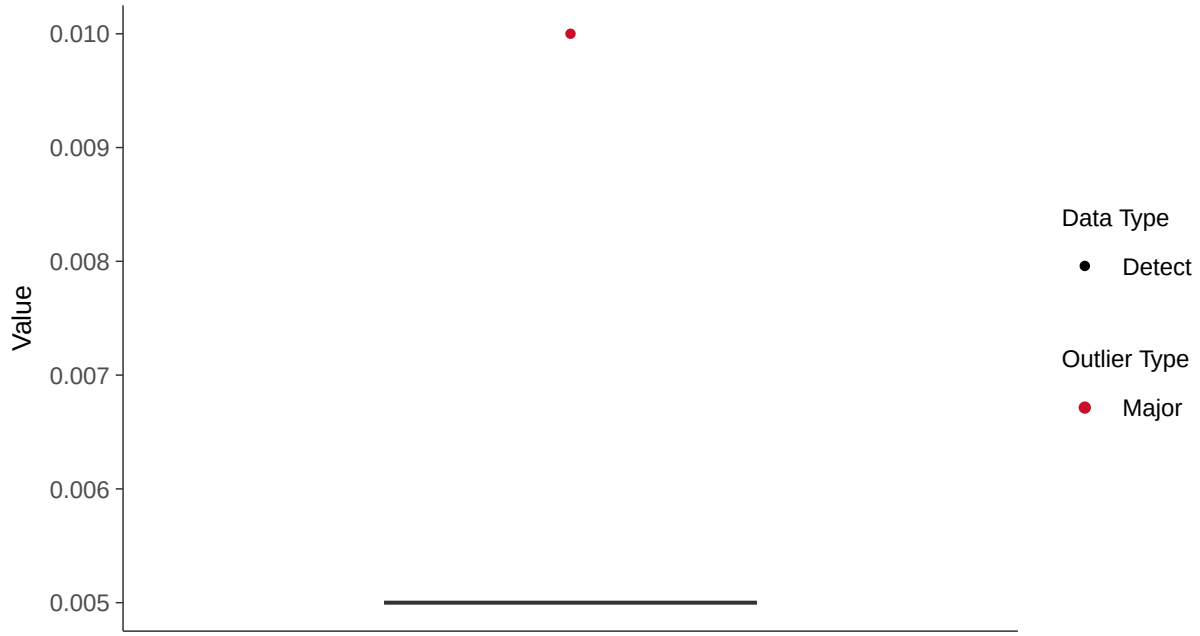
ID: 08_5_37





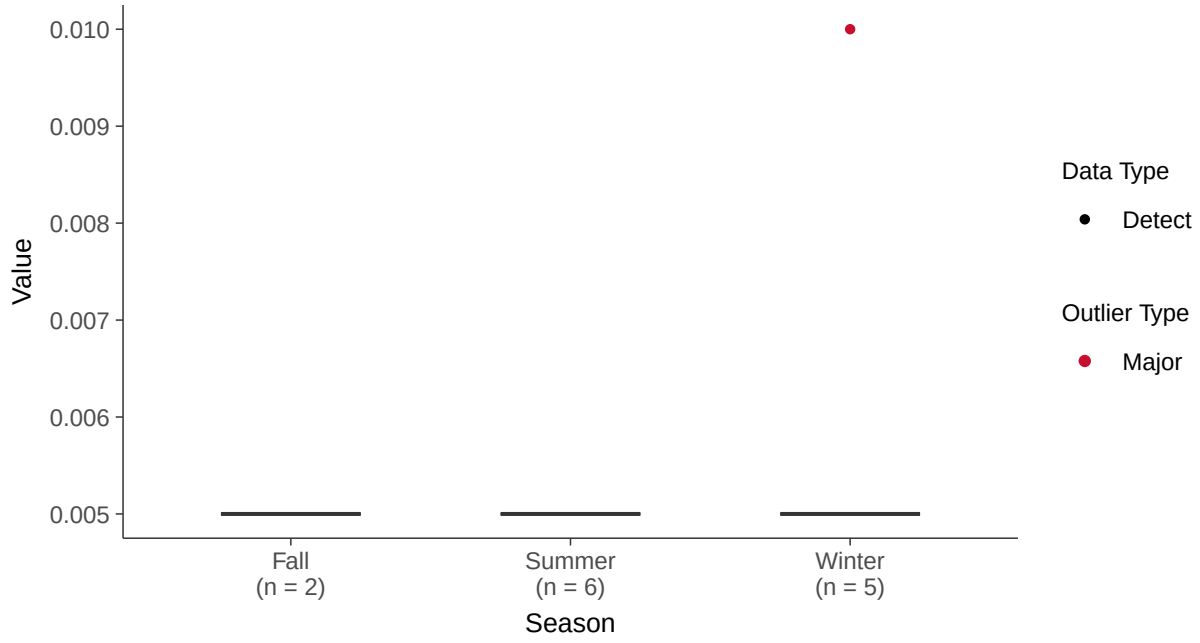
Boxplot

Copper, MW-8 (mg/L)



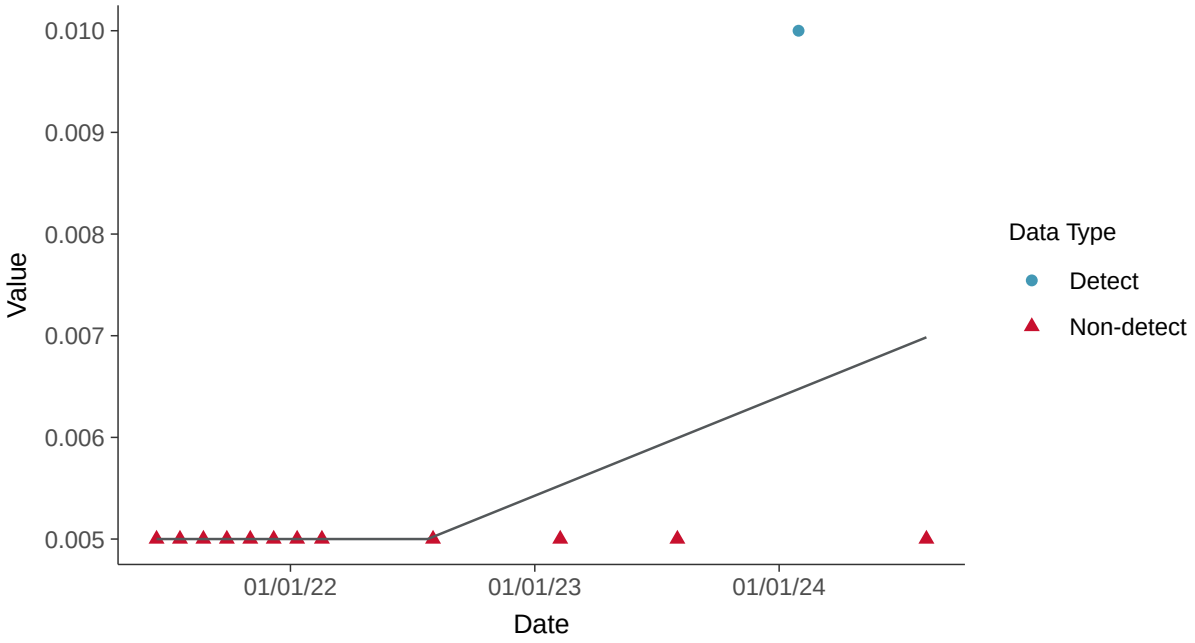
Boxplot by Season

Copper, MW-8 (mg/L)



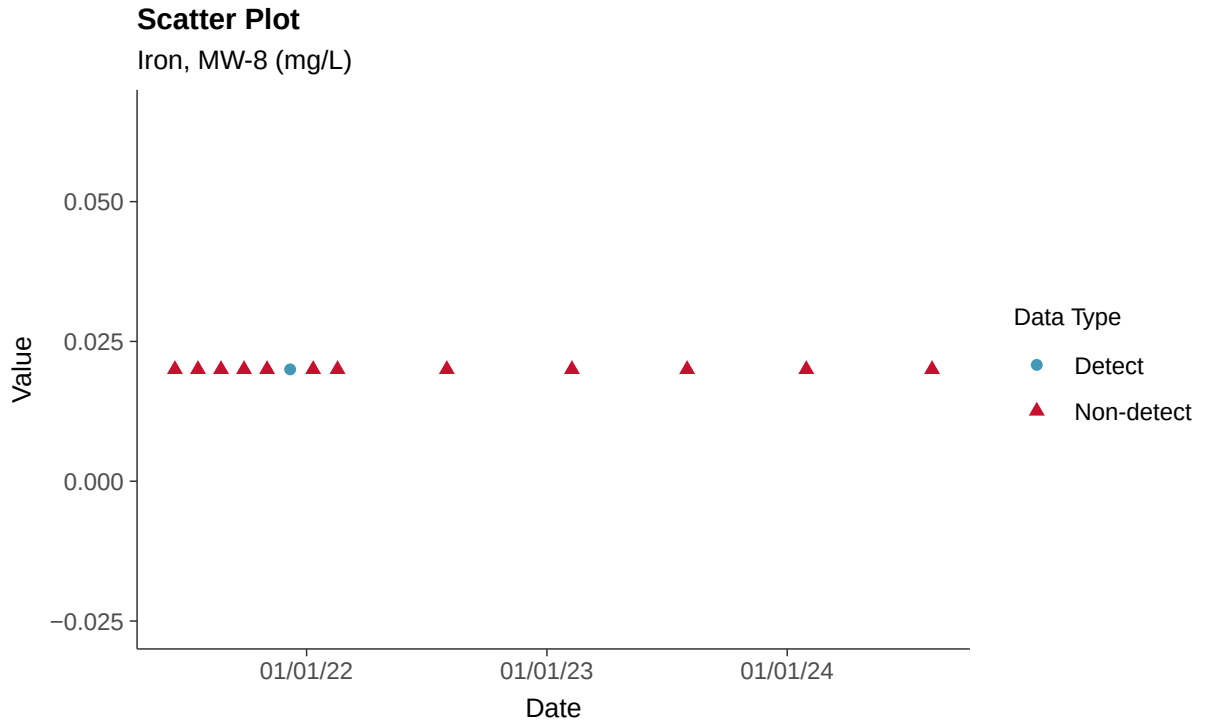
Trend Regression: Piecewise Linear-Linear

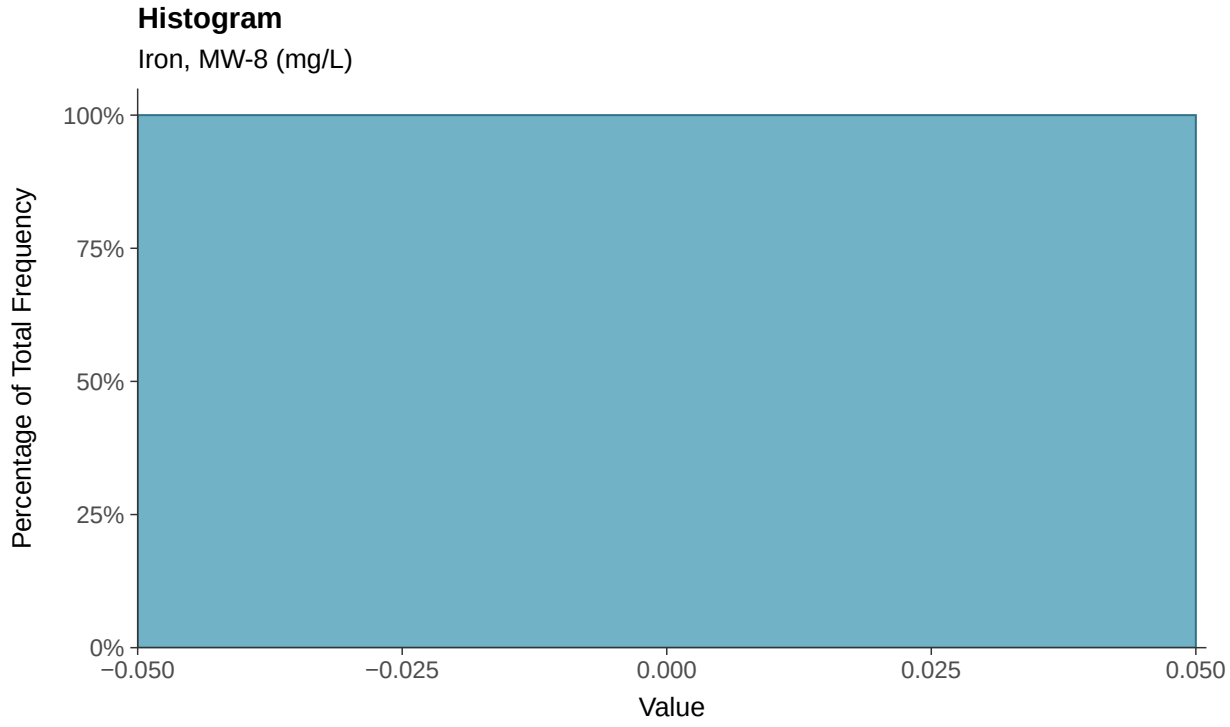
Copper, MW-8 (mg/L)



Part 115: Iron, MW-8

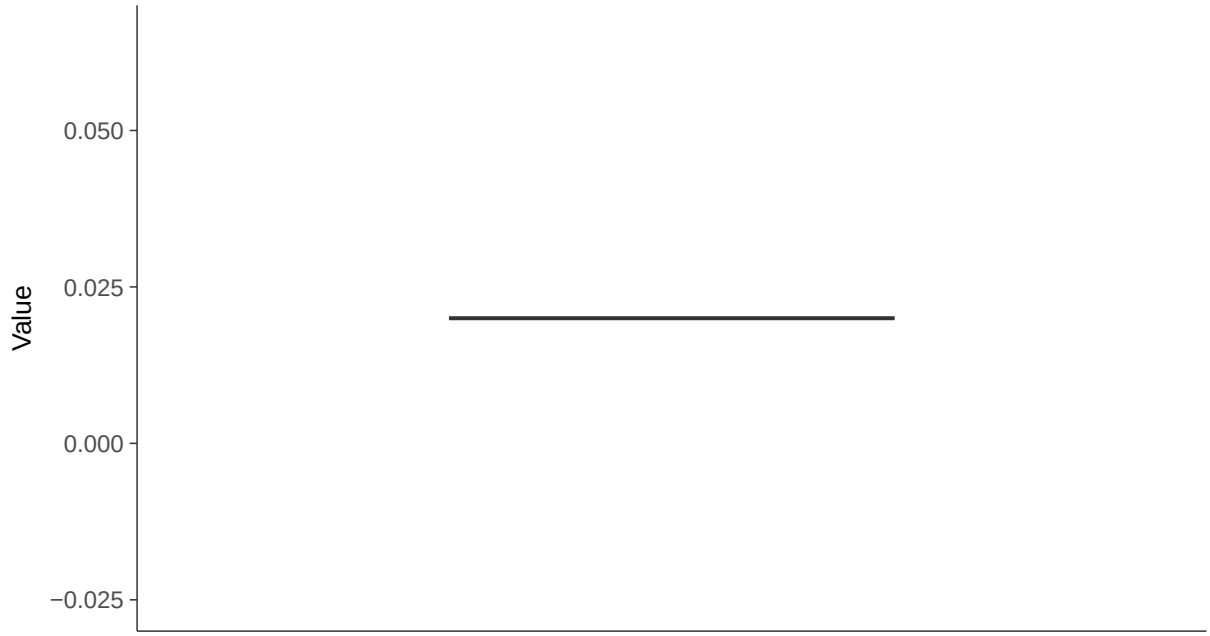
ID: 08_5_38





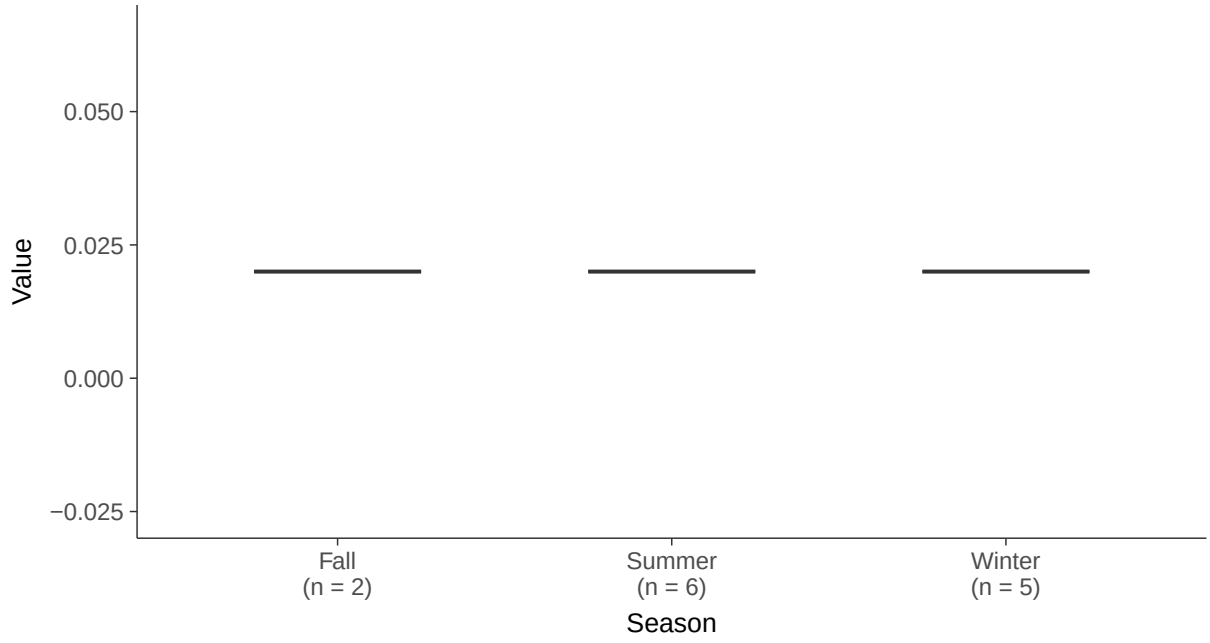
Boxplot

Iron, MW-8 (mg/L)



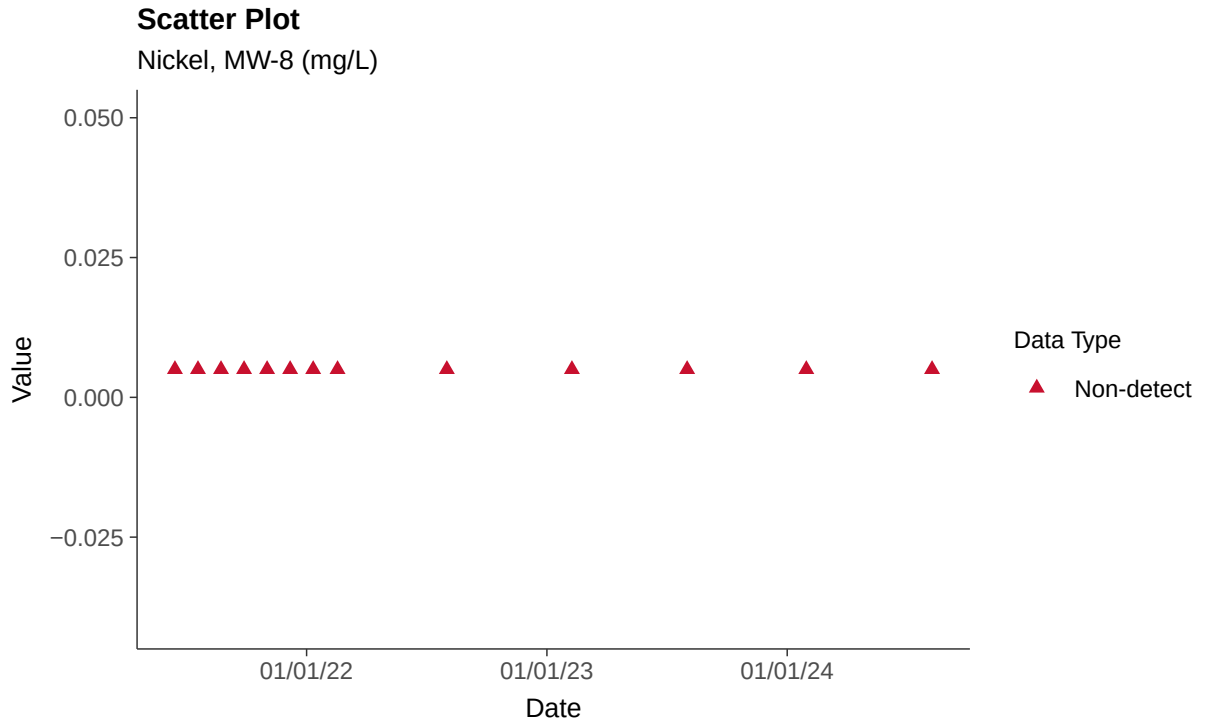
Boxplot by Season

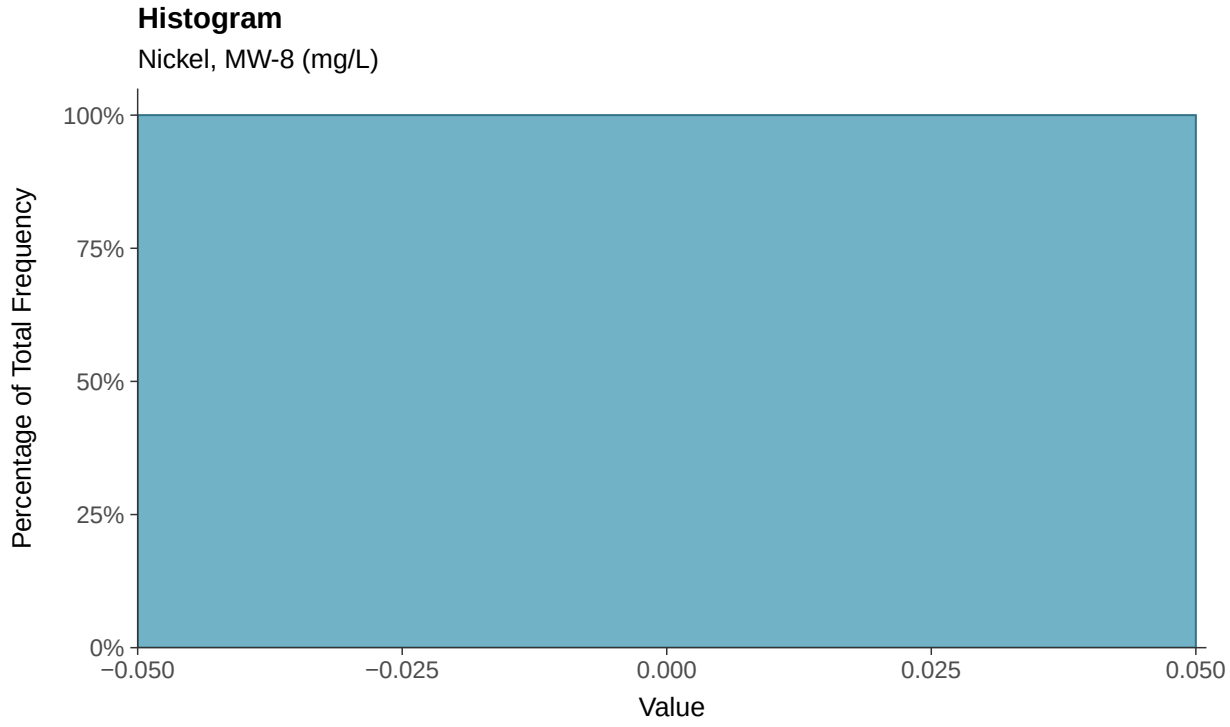
Iron, MW-8 (mg/L)



Part 115: Nickel, MW-8

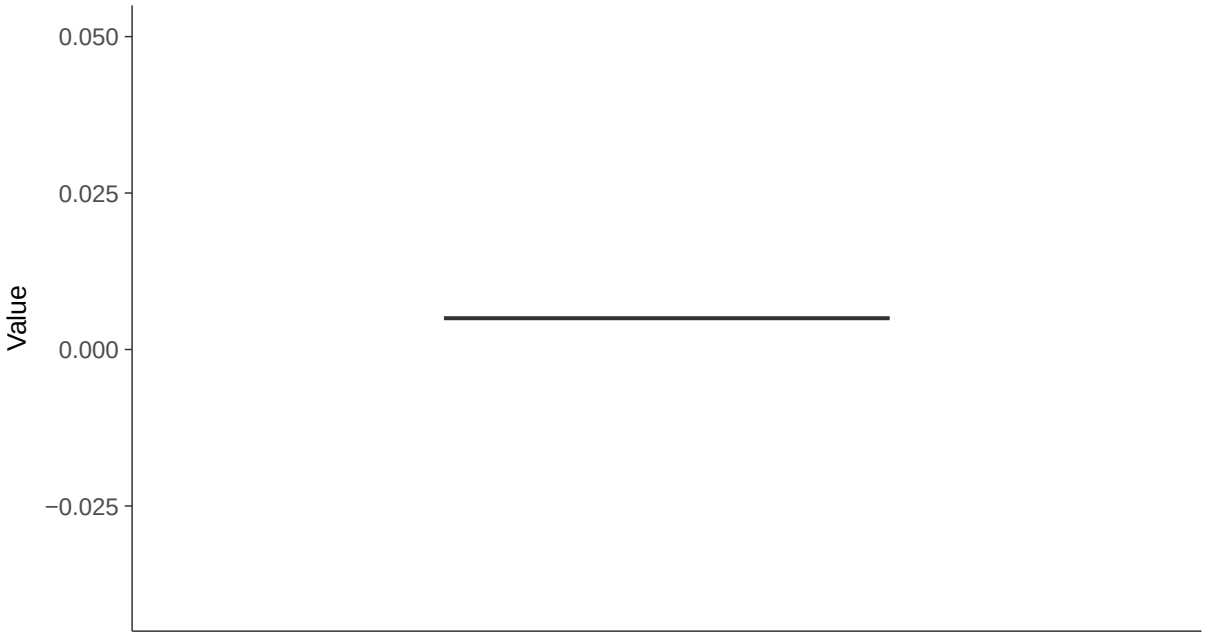
ID: 08_5_39





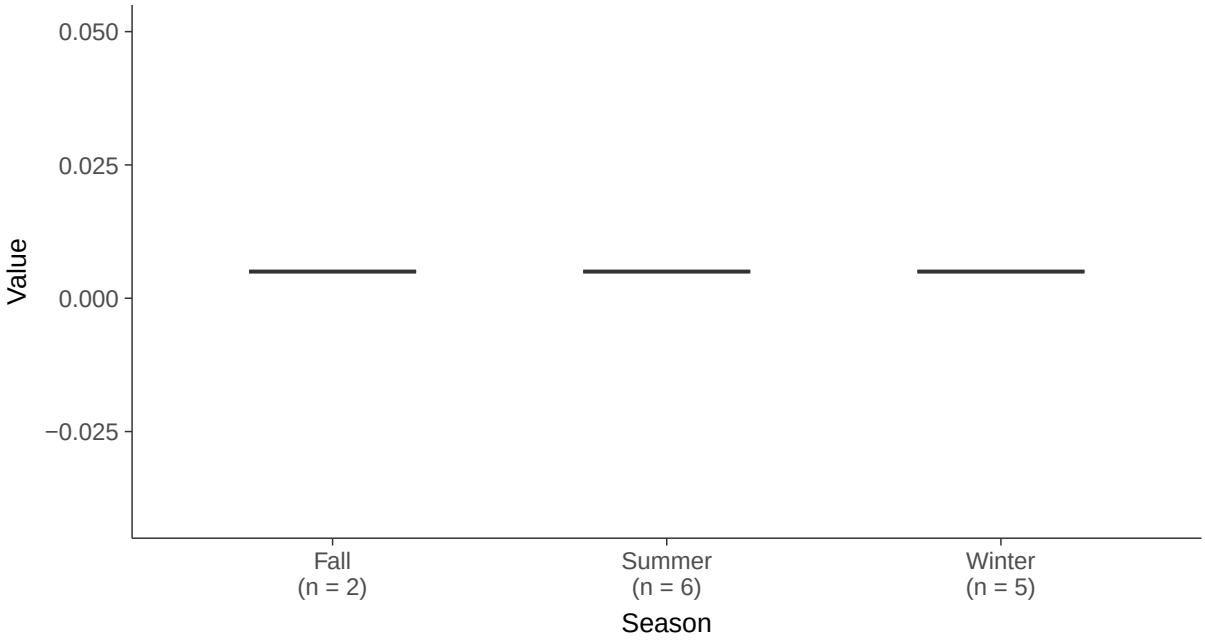
Boxplot

Nickel, MW-8 (mg/L)



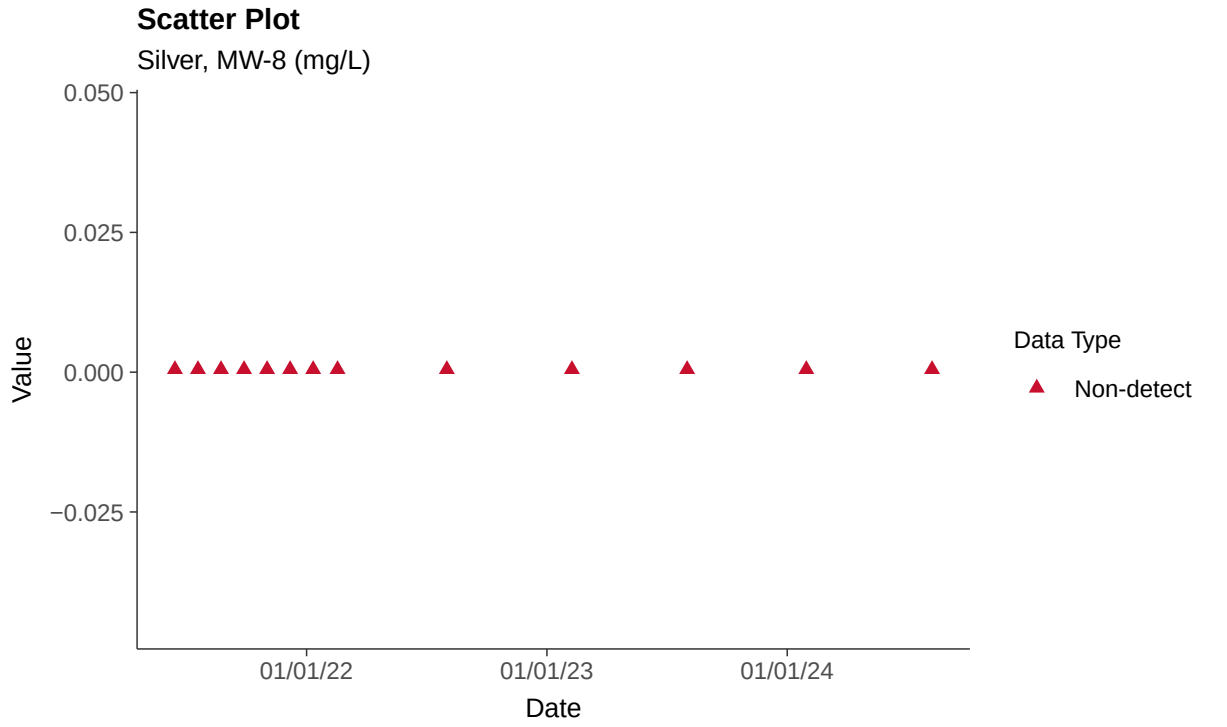
Boxplot by Season

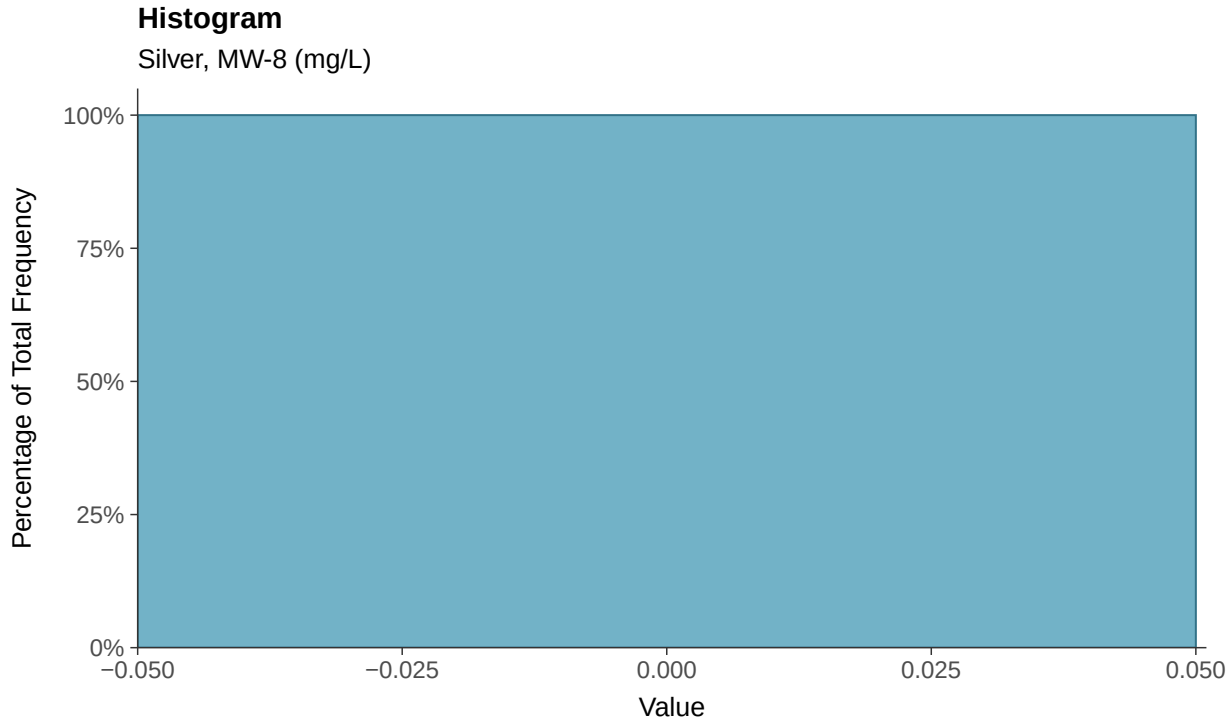
Nickel, MW-8 (mg/L)



Part 115: Silver, MW-8

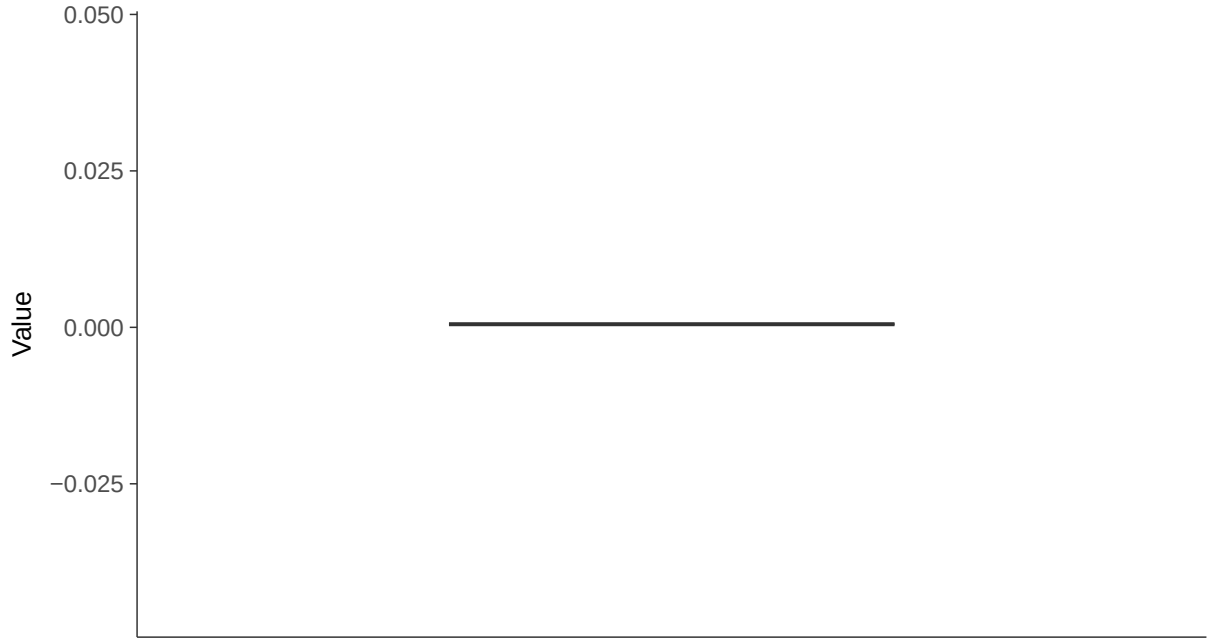
ID: 08_5_40





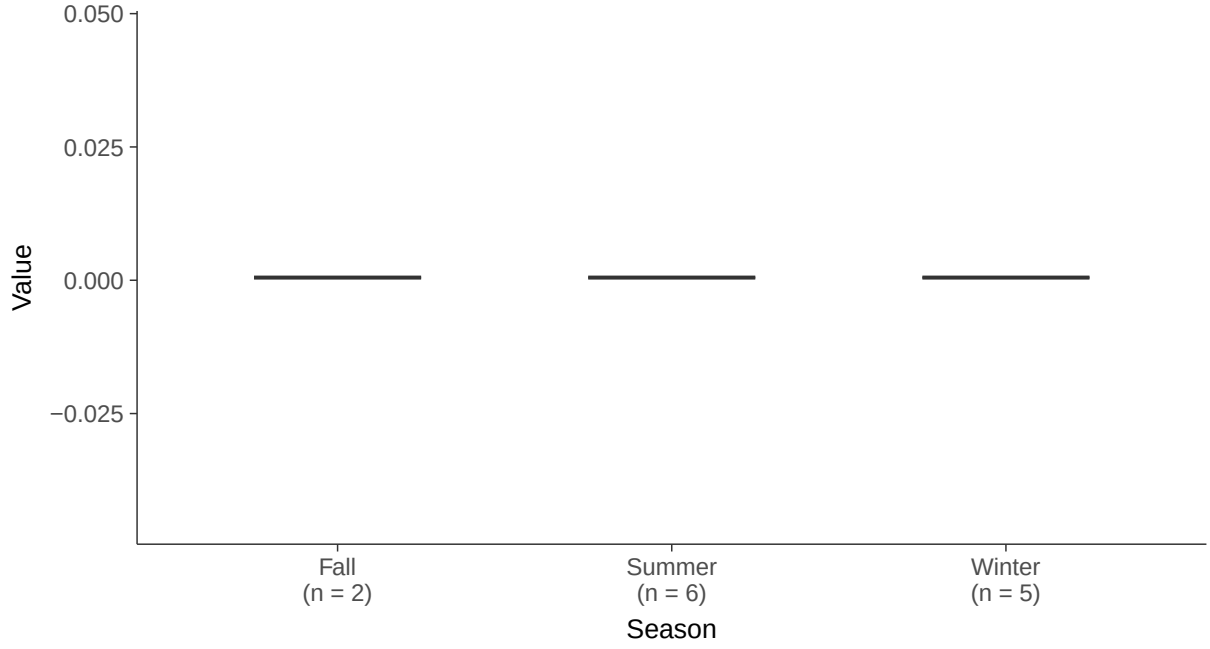
Boxplot

Silver, MW-8 (mg/L)



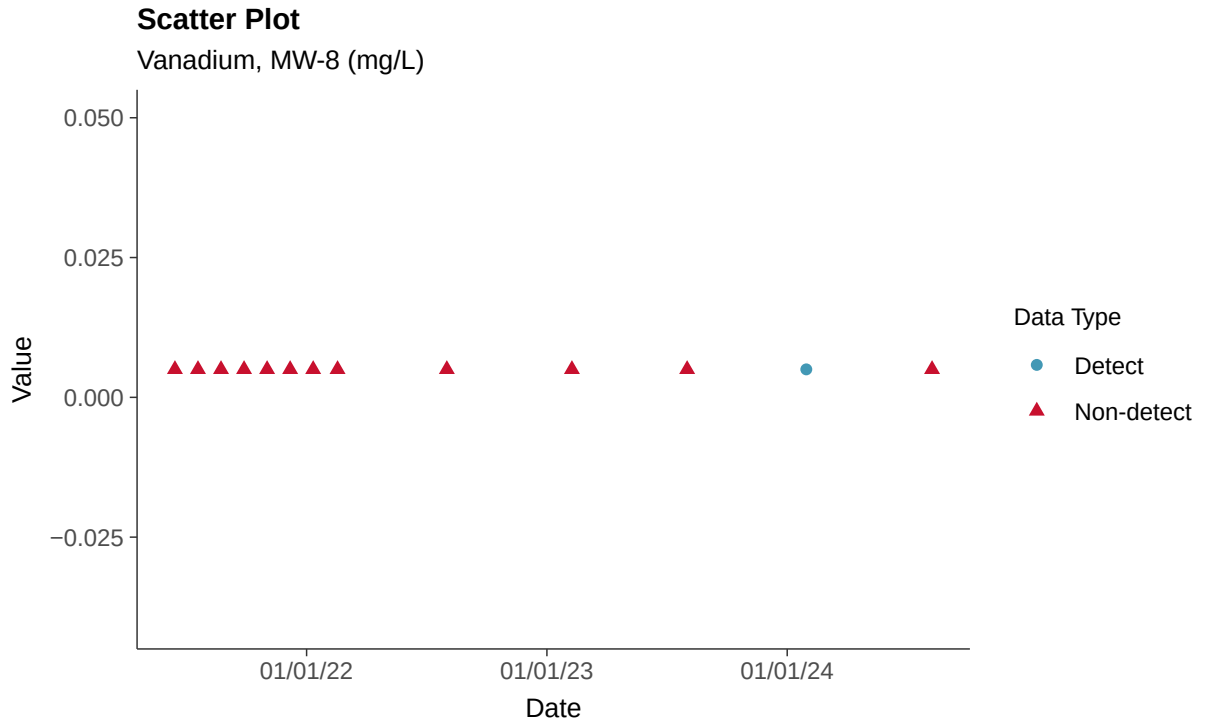
Boxplot by Season

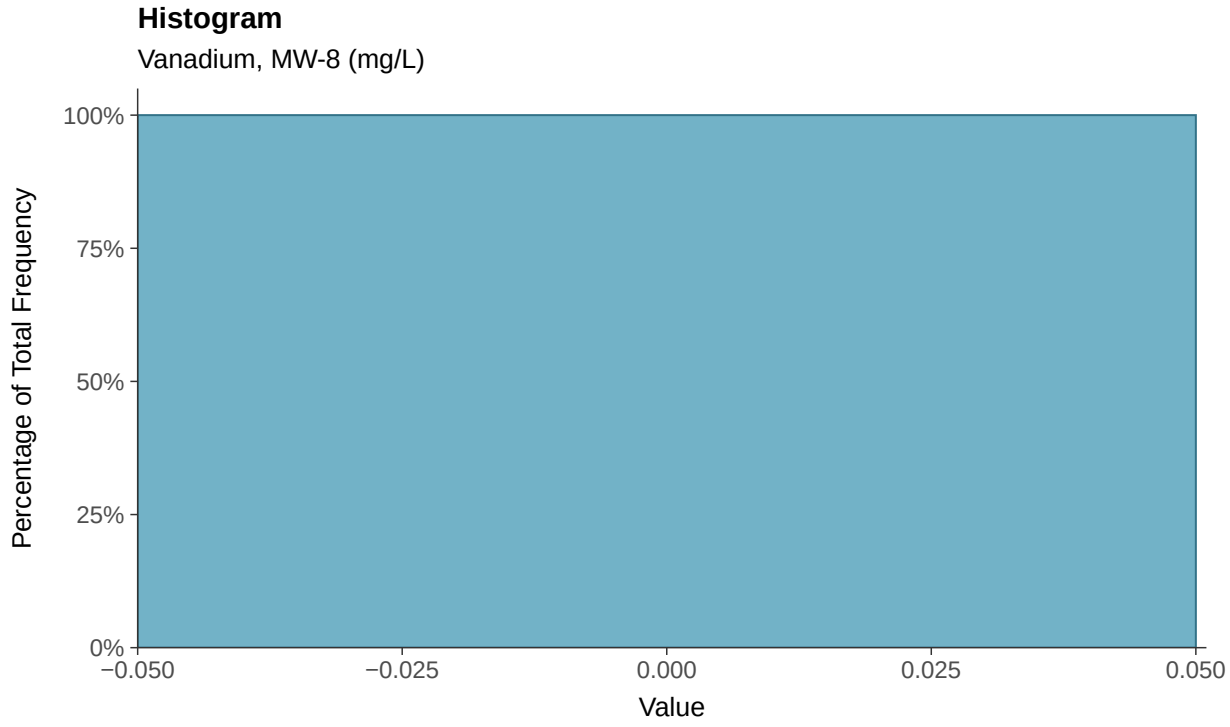
Silver, MW-8 (mg/L)



Part 115: Vanadium, MW-8

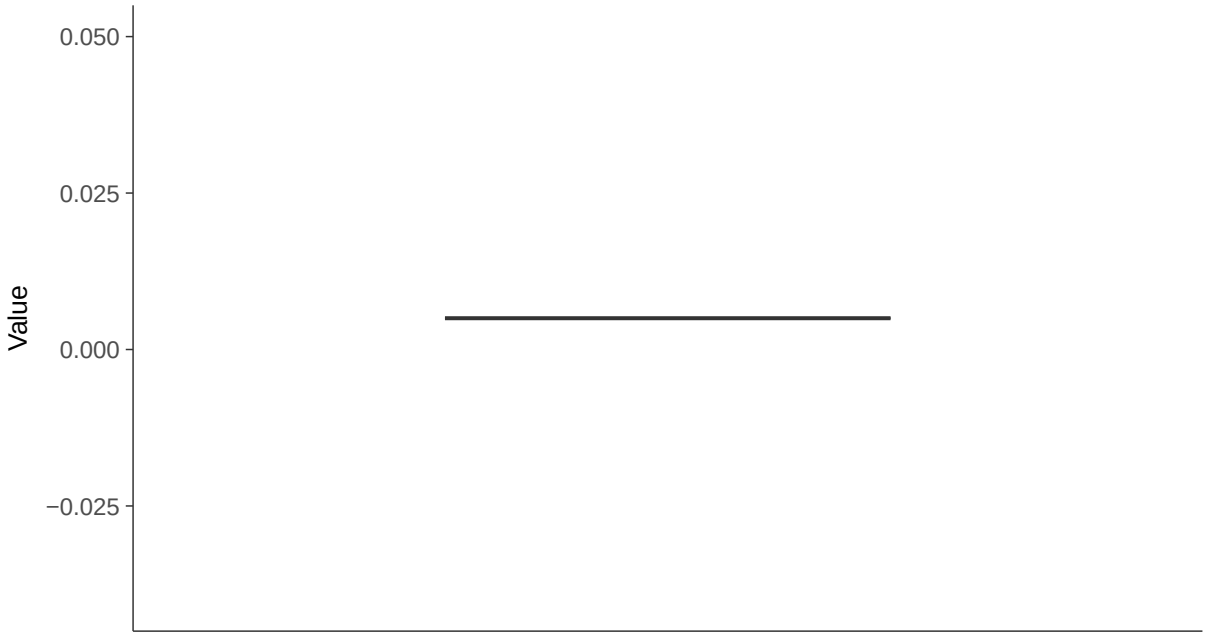
ID: 08_5_41





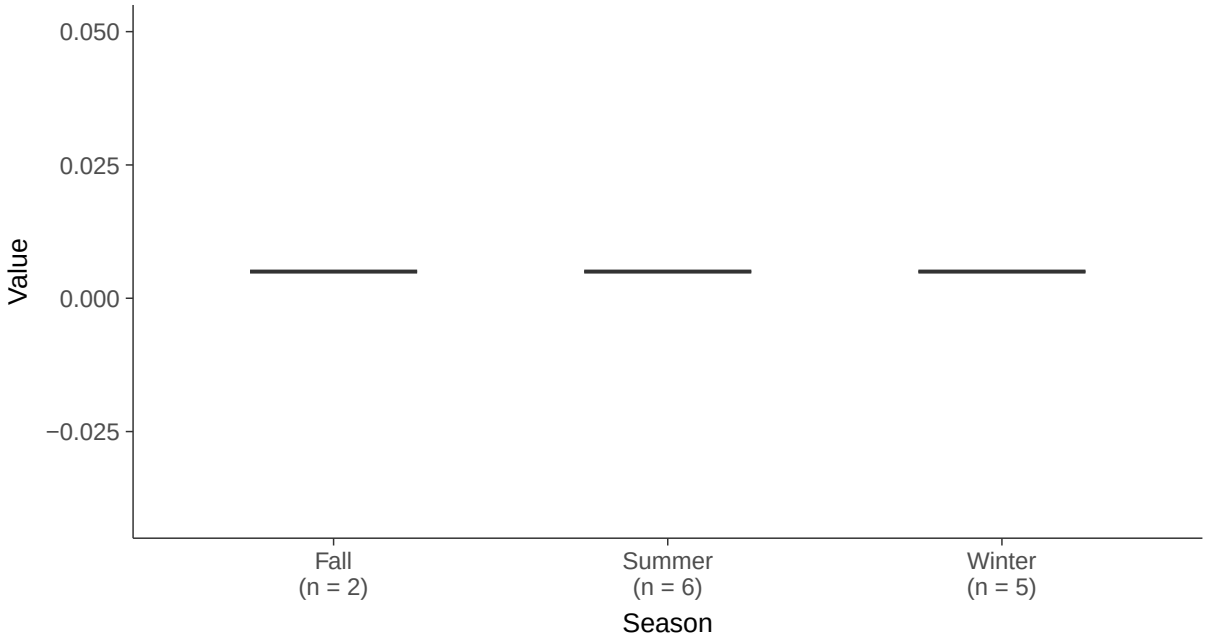
Boxplot

Vanadium, MW-8 (mg/L)



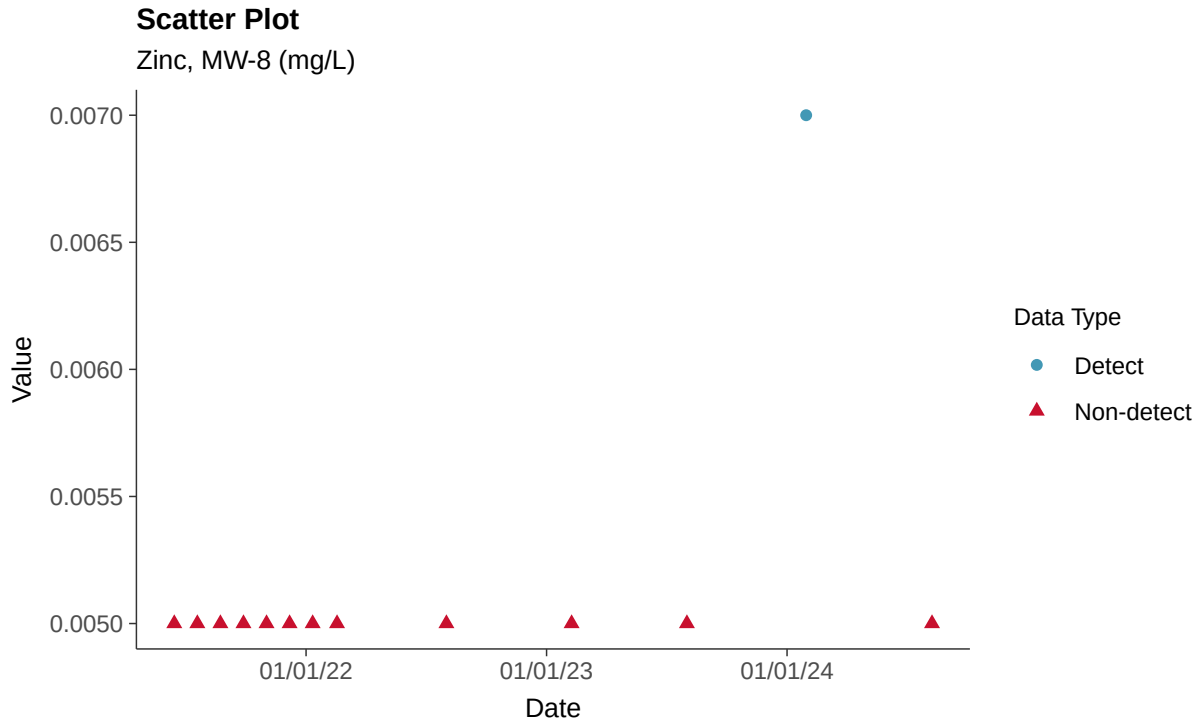
Boxplot by Season

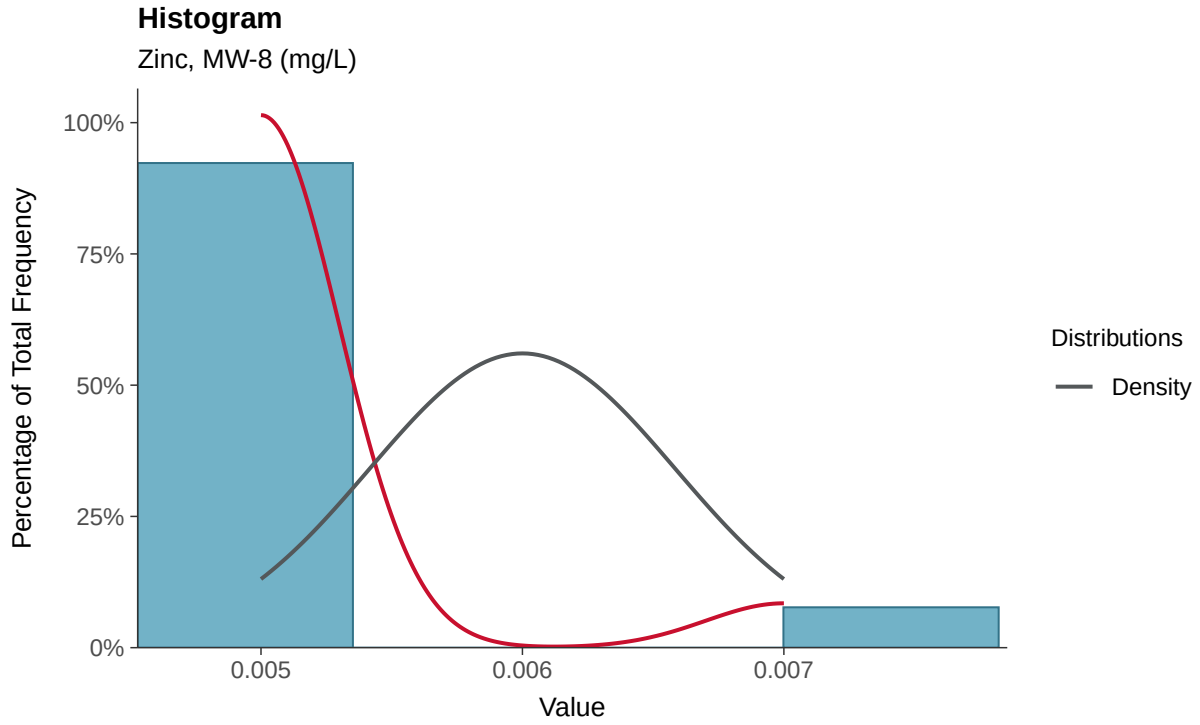
Vanadium, MW-8 (mg/L)



Part 115: Zinc, MW-8

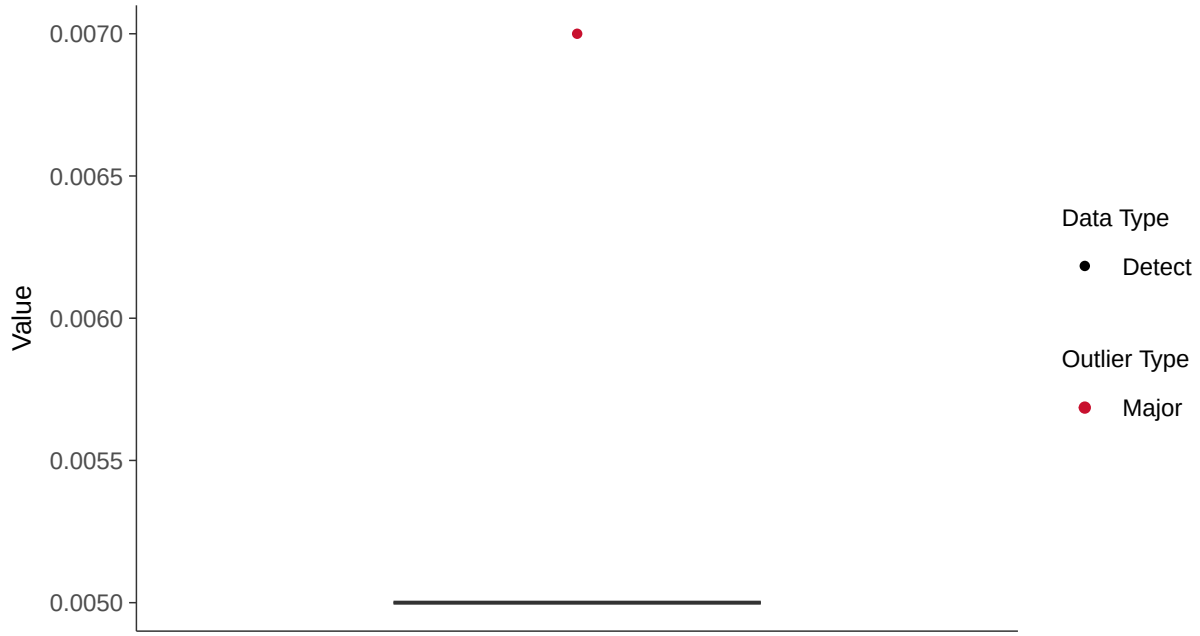
ID: 08_5_42





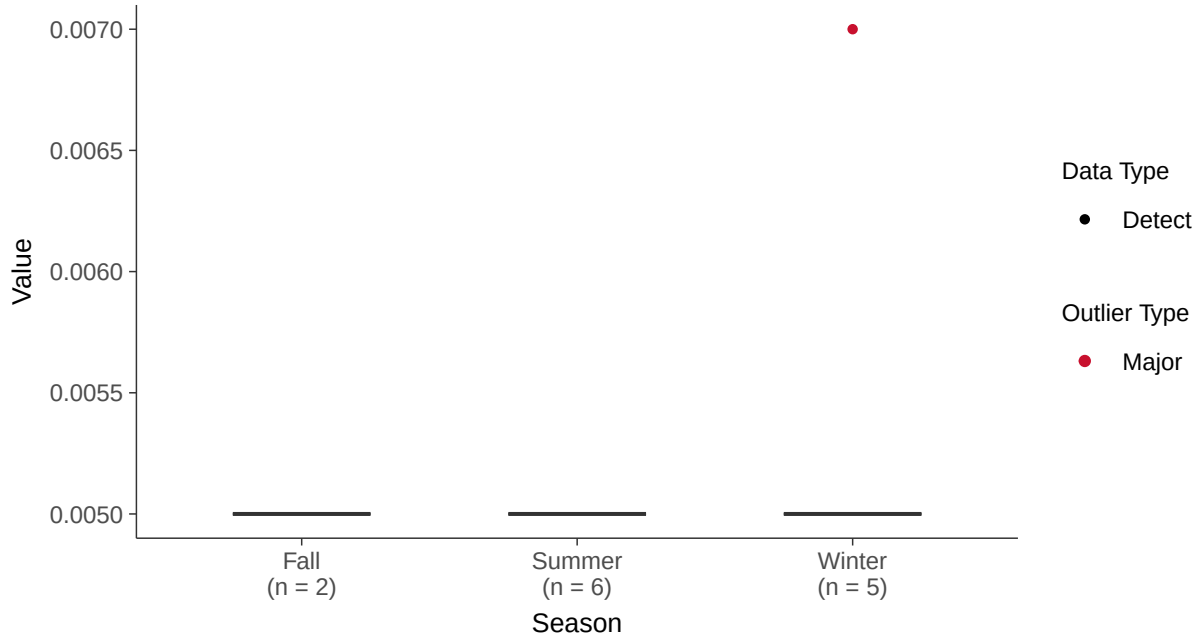
Boxplot

Zinc, MW-8 (mg/L)



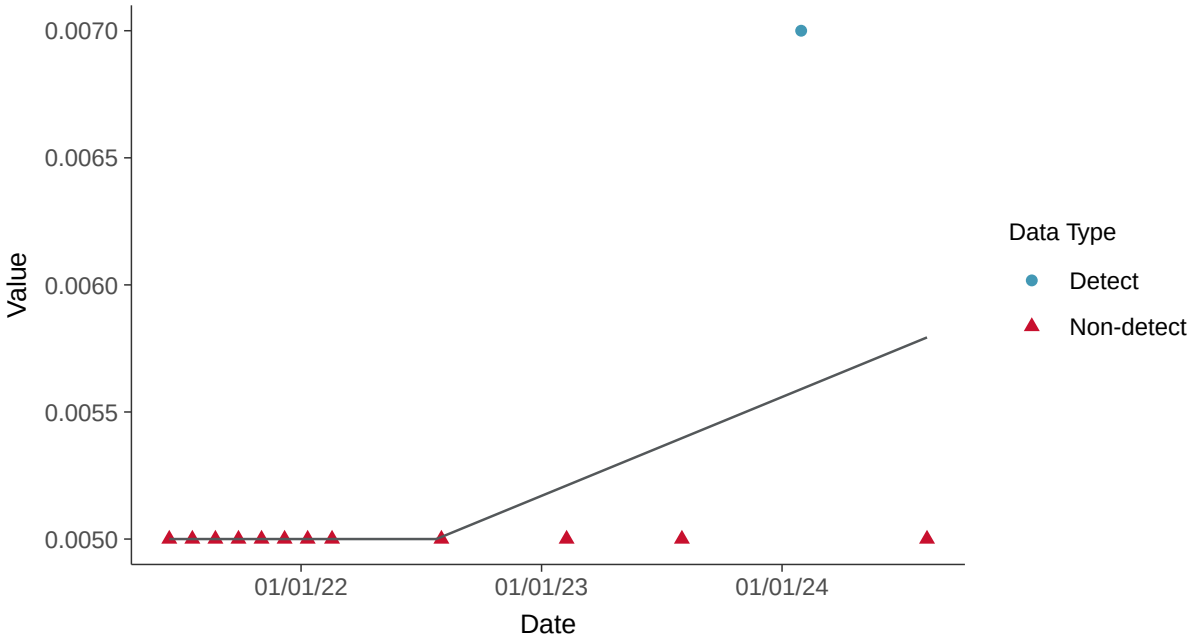
Boxplot by Season

Zinc, MW-8 (mg/L)



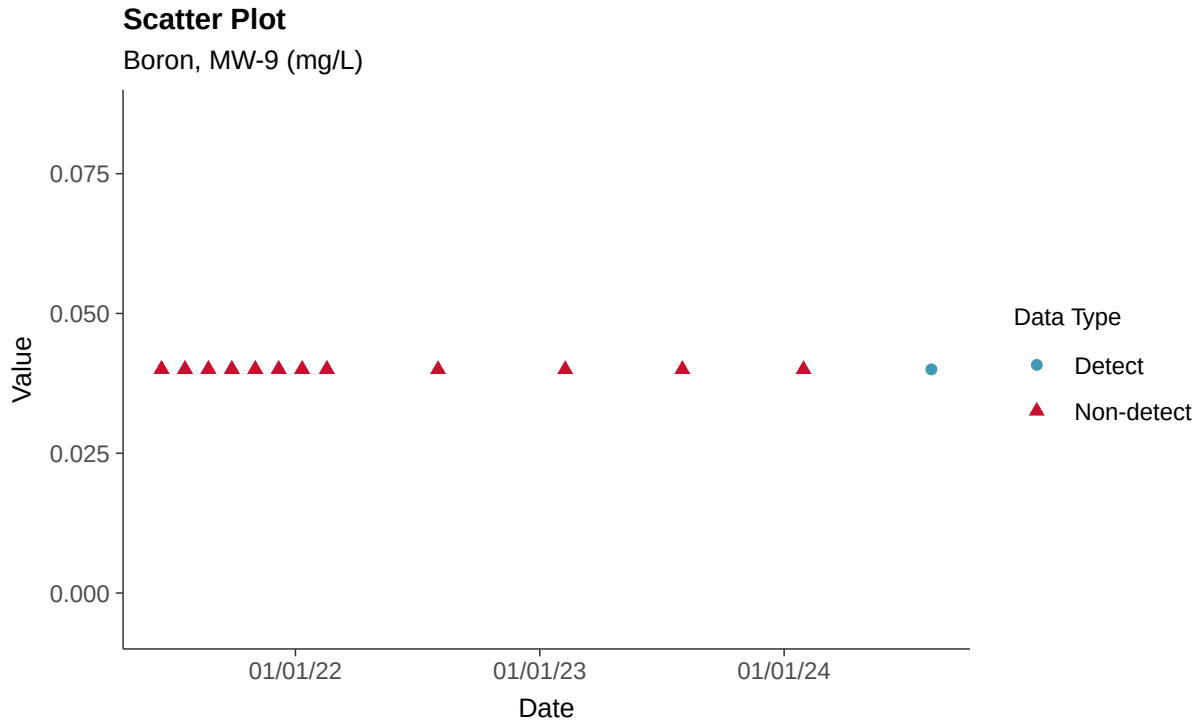
Trend Regression: Piecewise Linear-Linear

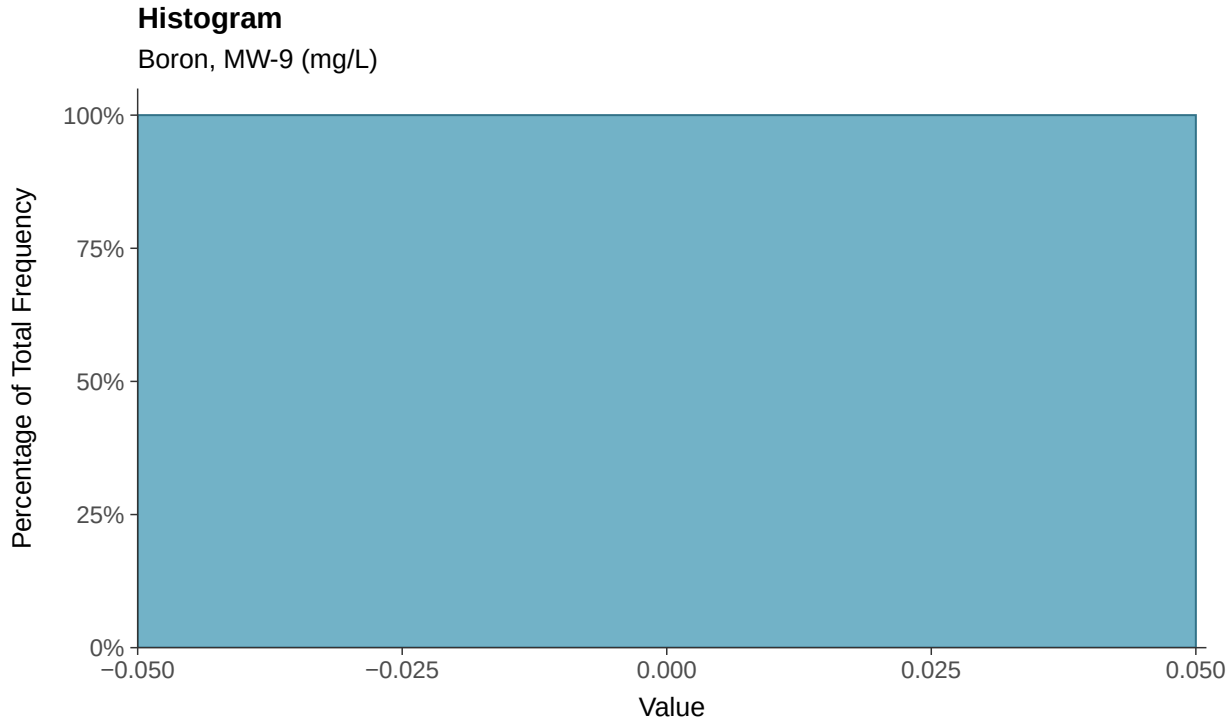
Zinc, MW-8 (mg/L)



Appendix III: Boron, MW-9

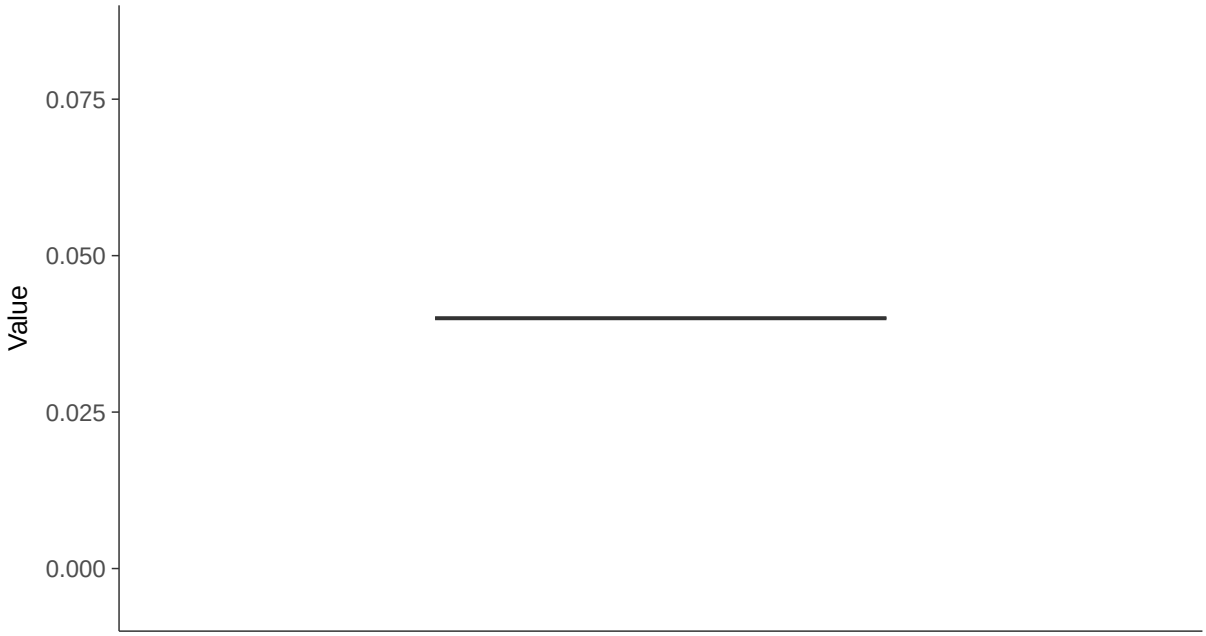
ID: 09_1_01





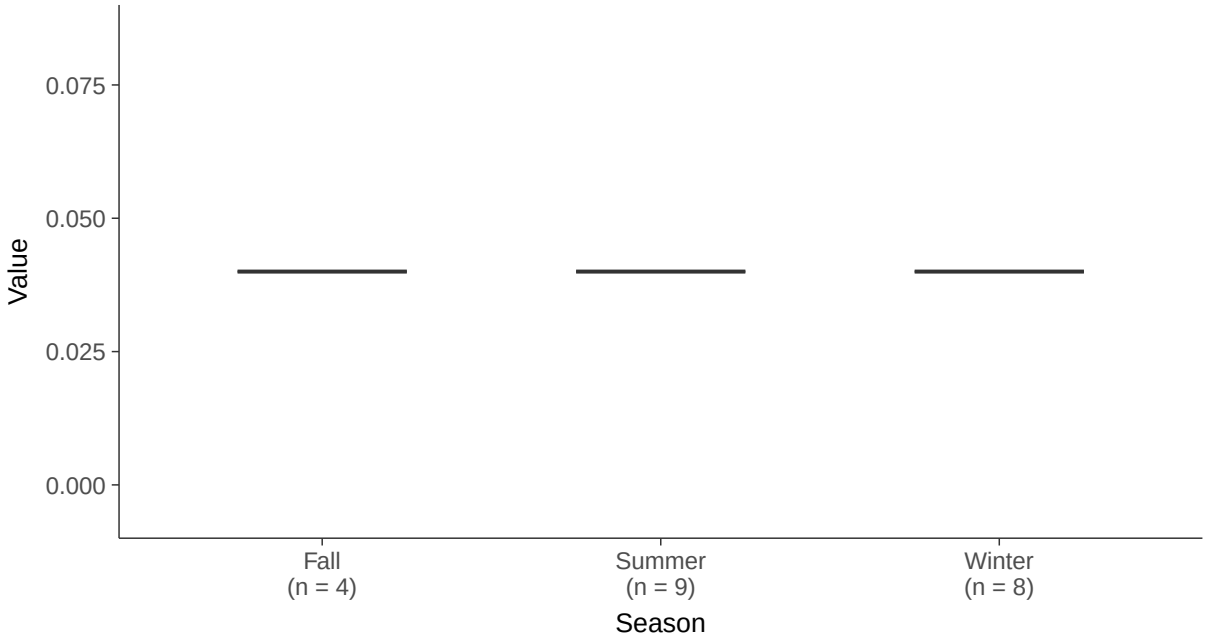
Boxplot

Boron, MW-9 (mg/L)



Boxplot by Season

Boron, MW-9 (mg/L)

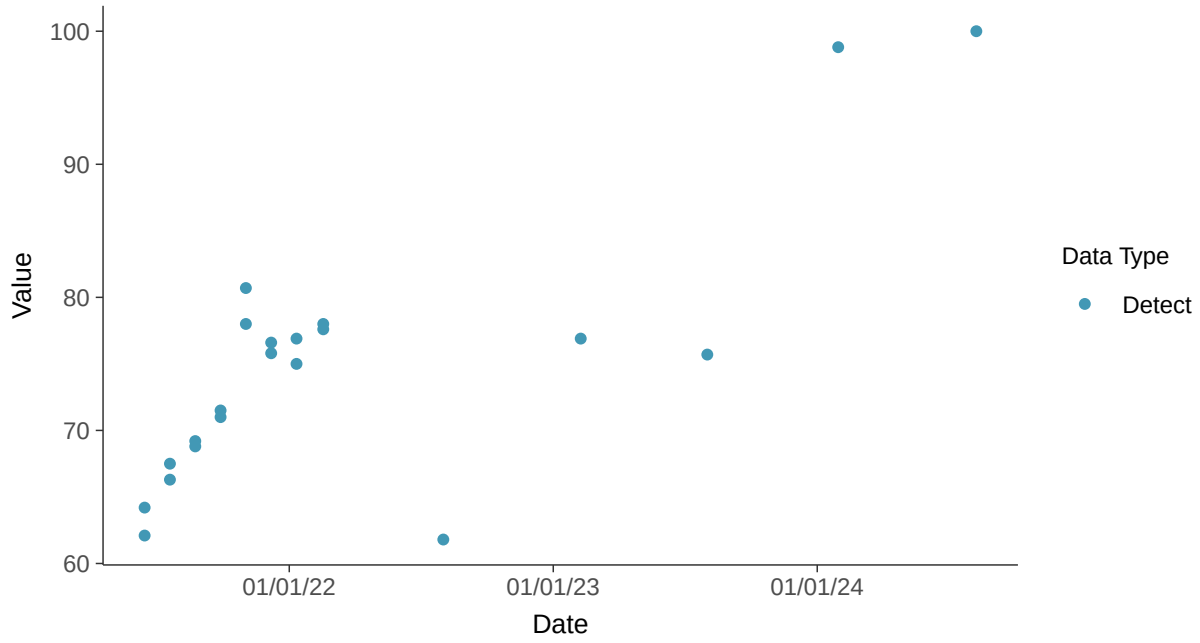


Appendix III: Calcium, MW-9

ID: 09_1_02

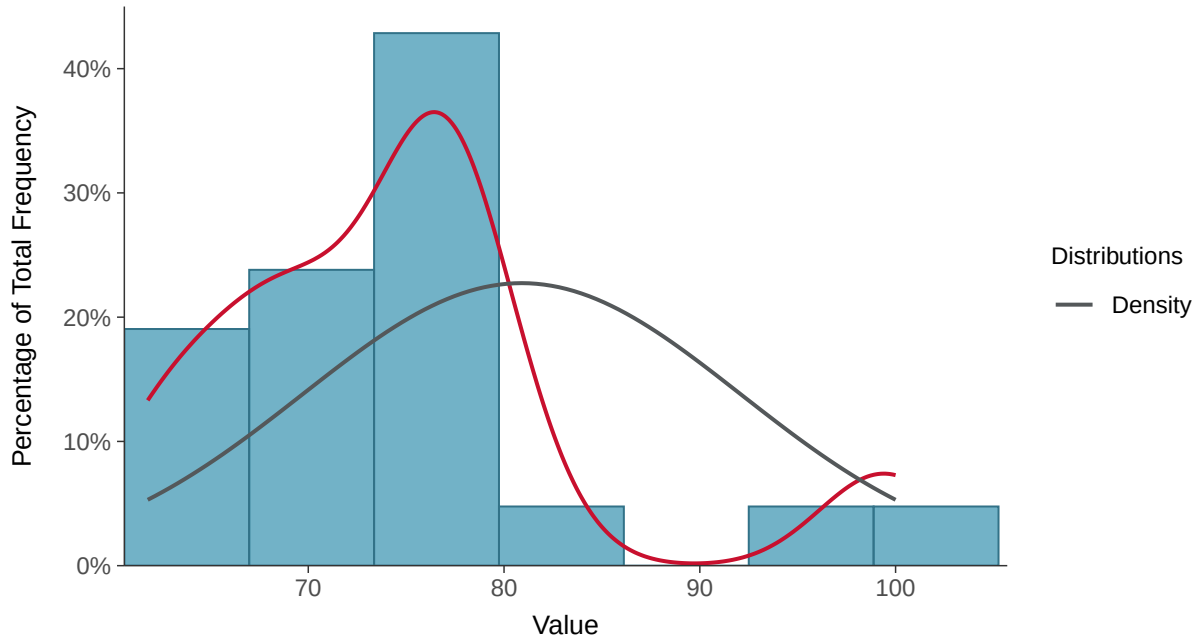
Scatter Plot

Calcium, MW-9 (mg/L)



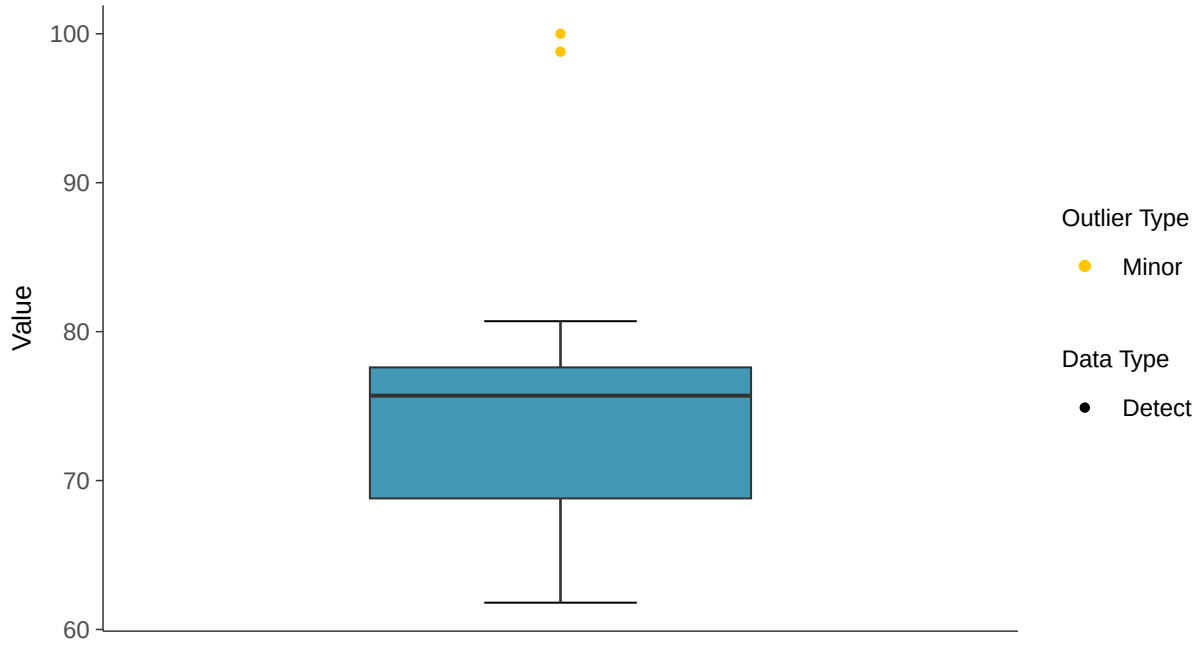
Histogram

Calcium, MW-9 (mg/L)



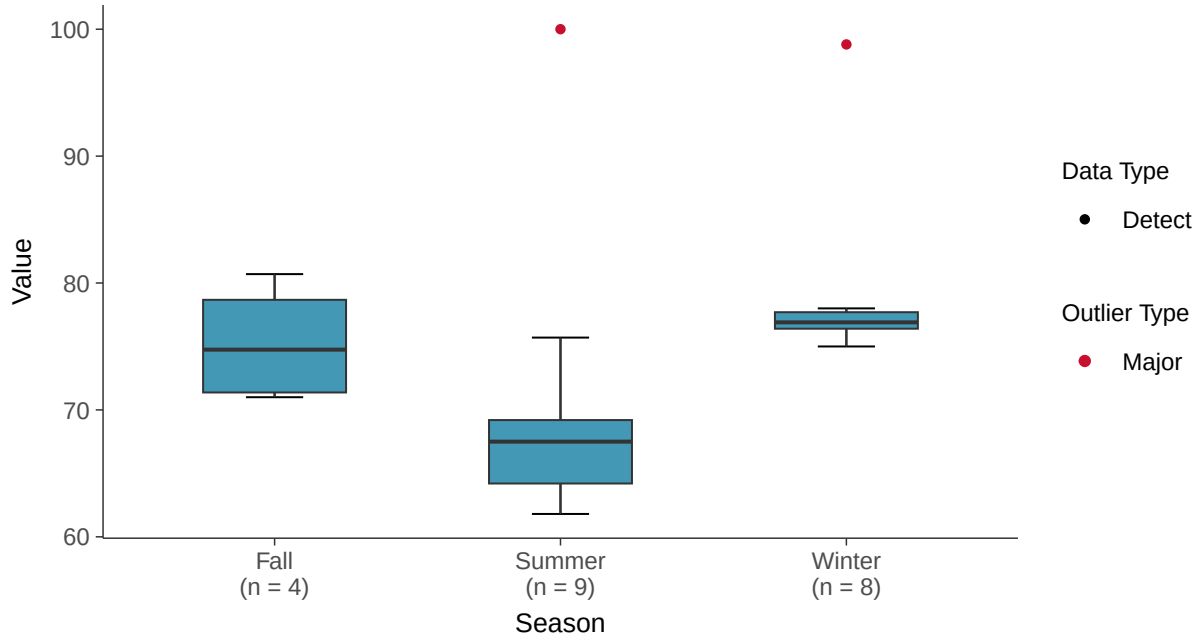
Boxplot

Calcium, MW-9 (mg/L)



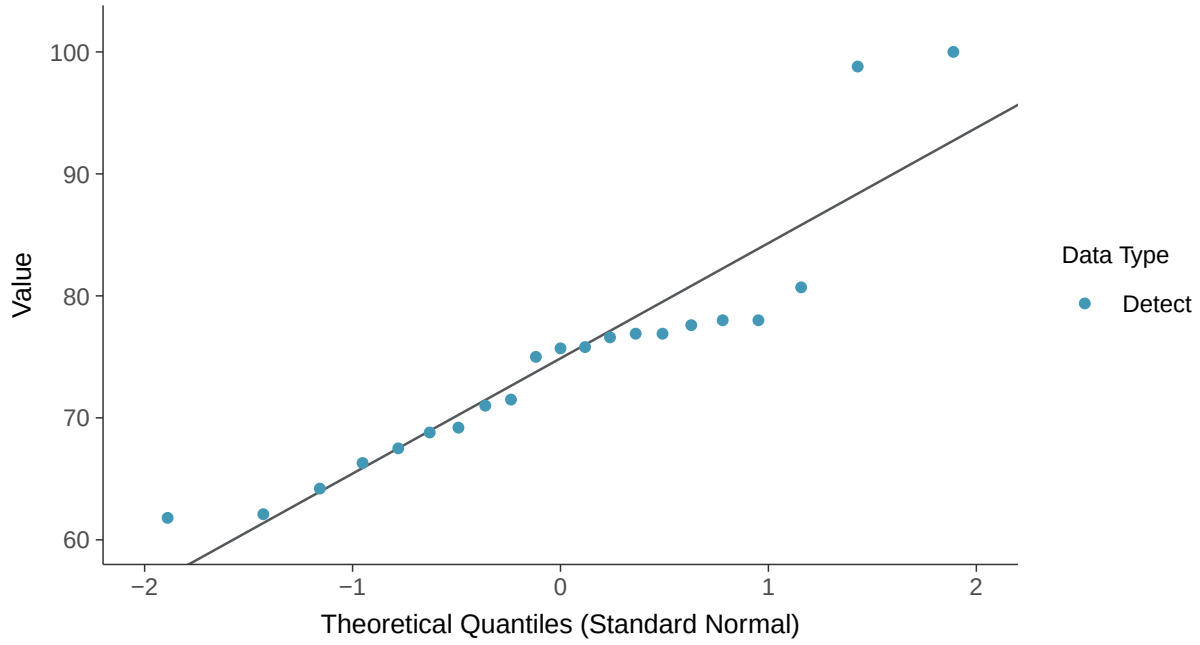
Boxplot by Season

Calcium, MW-9 (mg/L)



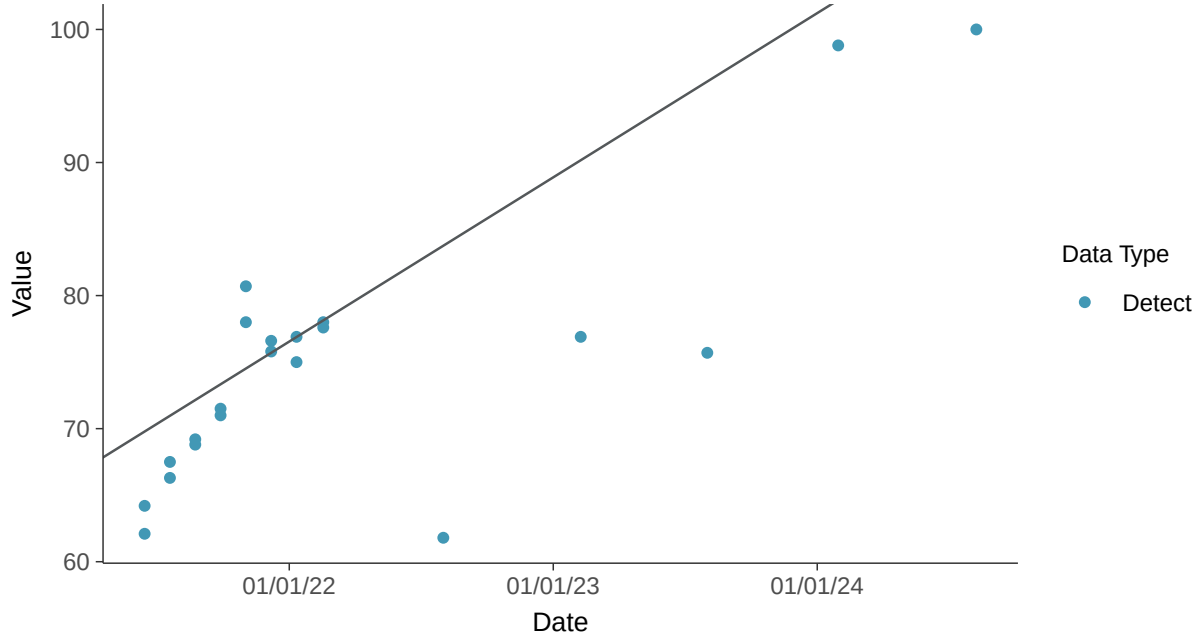
Normal Q-Q plot

Calcium, MW-9 (mg/L)



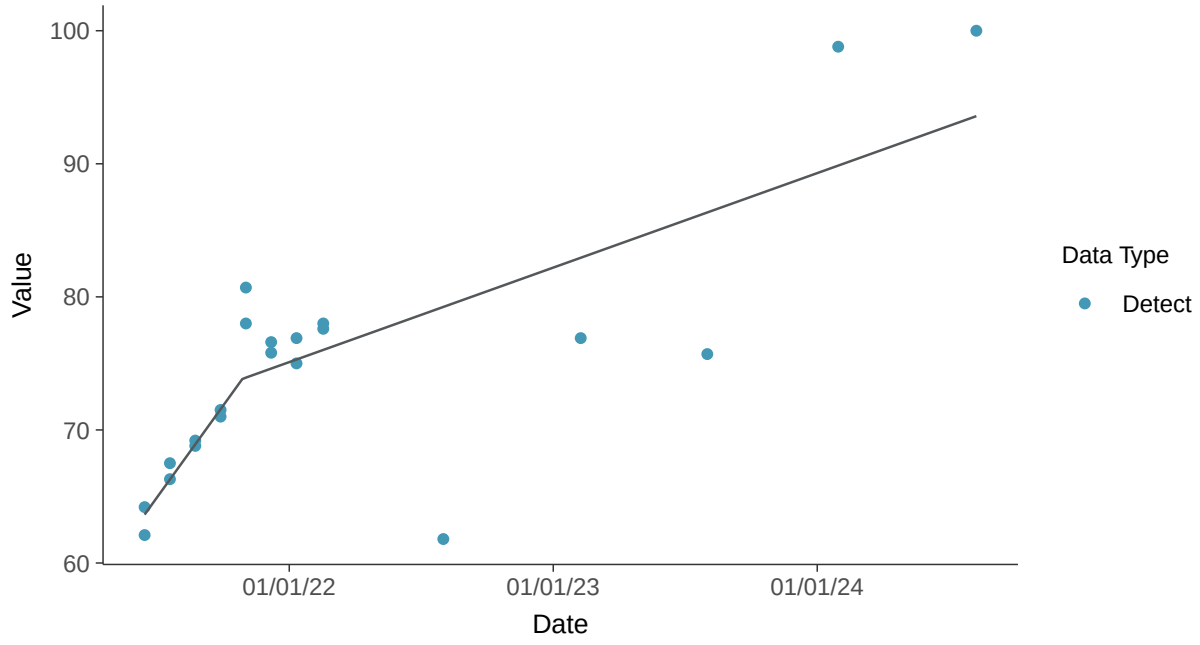
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Calcium, MW-9 (mg/L)



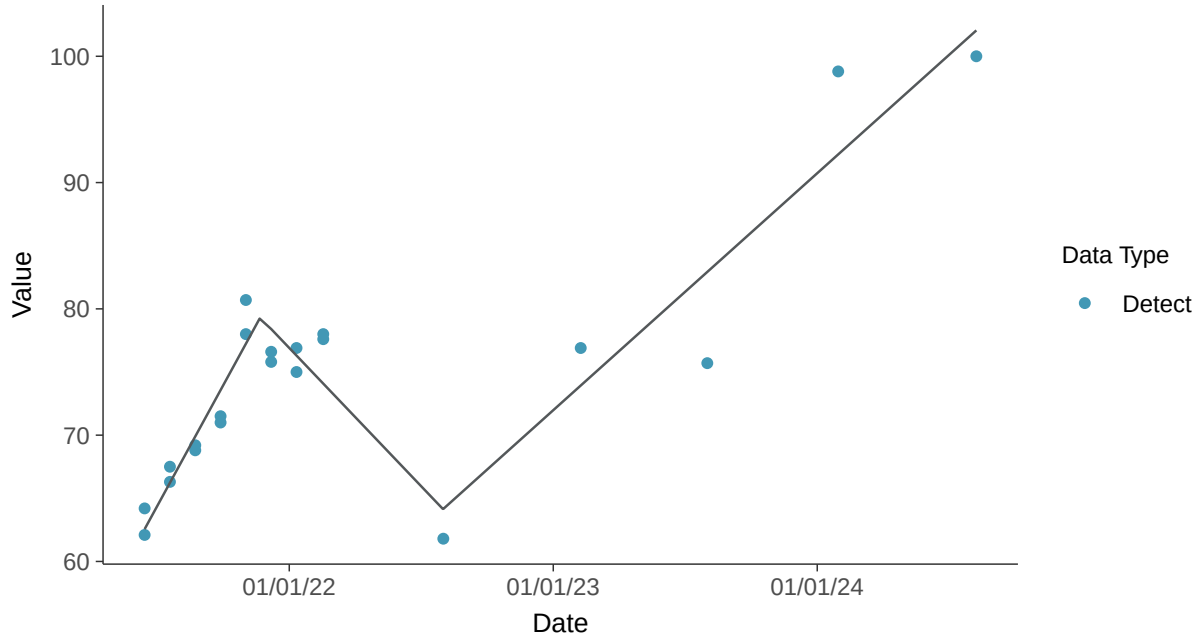
Trend Regression: Piecewise Linear-Linear

Calcium, MW-9 (mg/L)



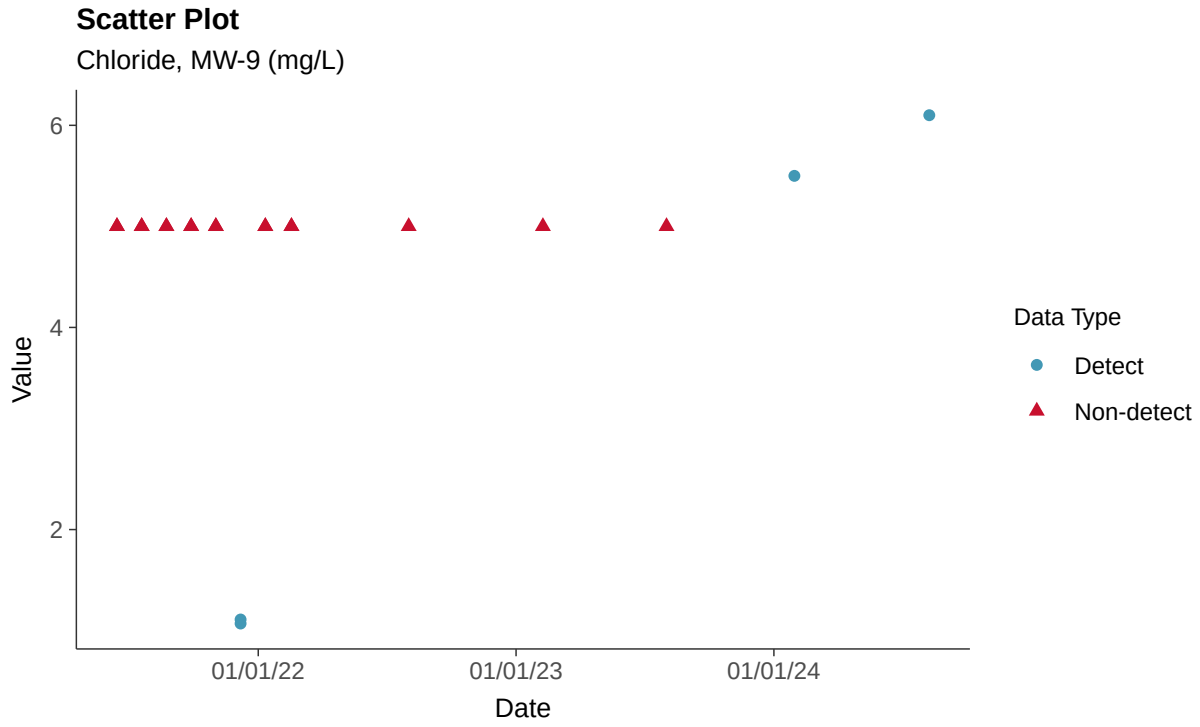
Trend Regression: Piecewise Linear-Linear-Linear

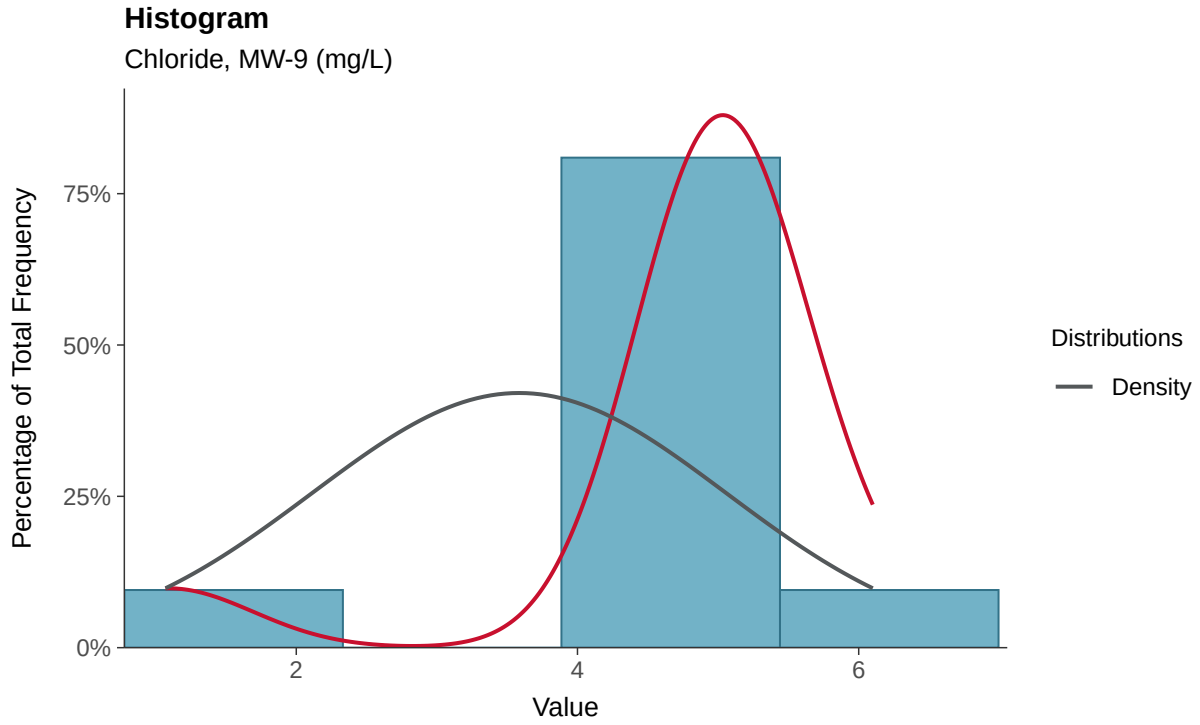
Calcium, MW-9 (mg/L)



Appendix III: Chloride, MW-9

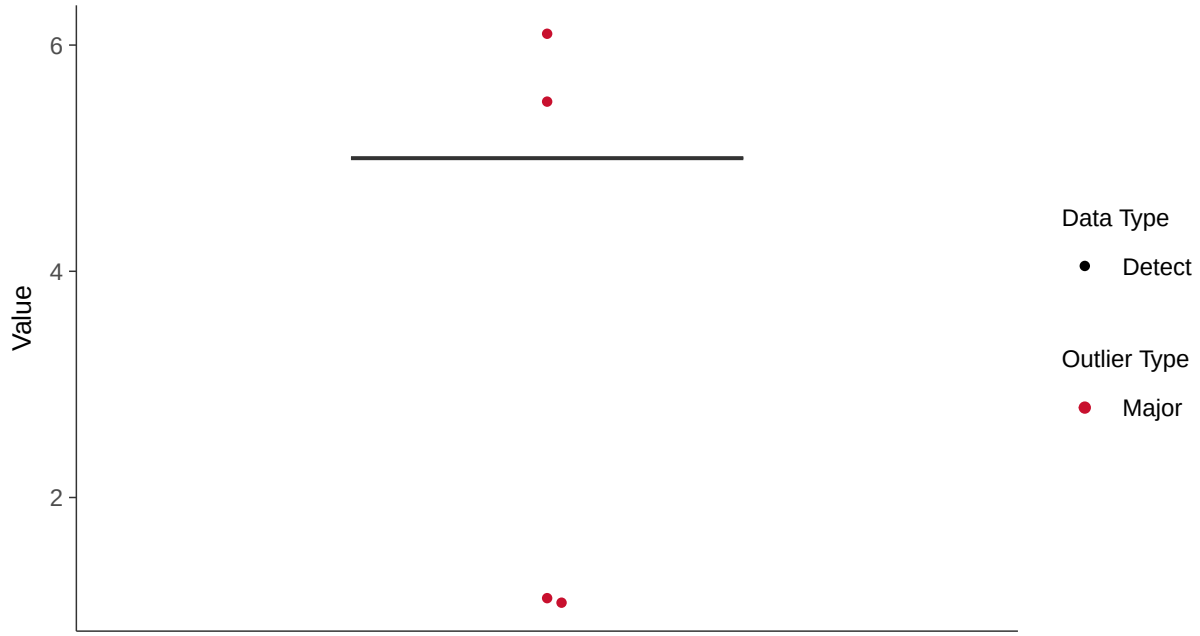
ID: 09_1_03





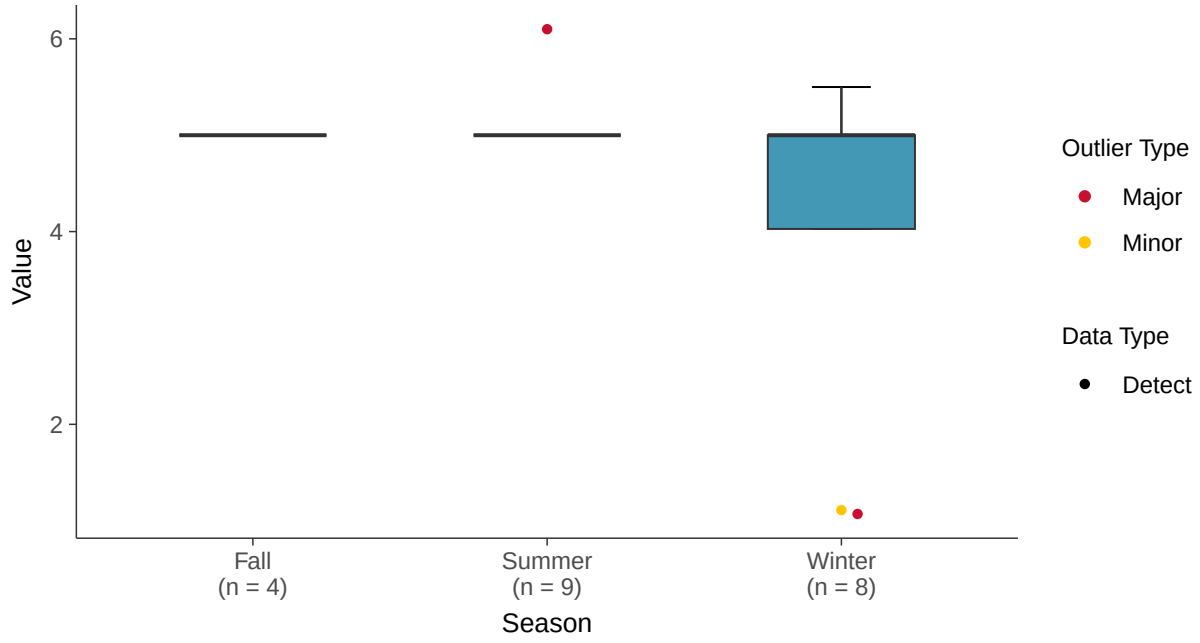
Boxplot

Chloride, MW-9 (mg/L)



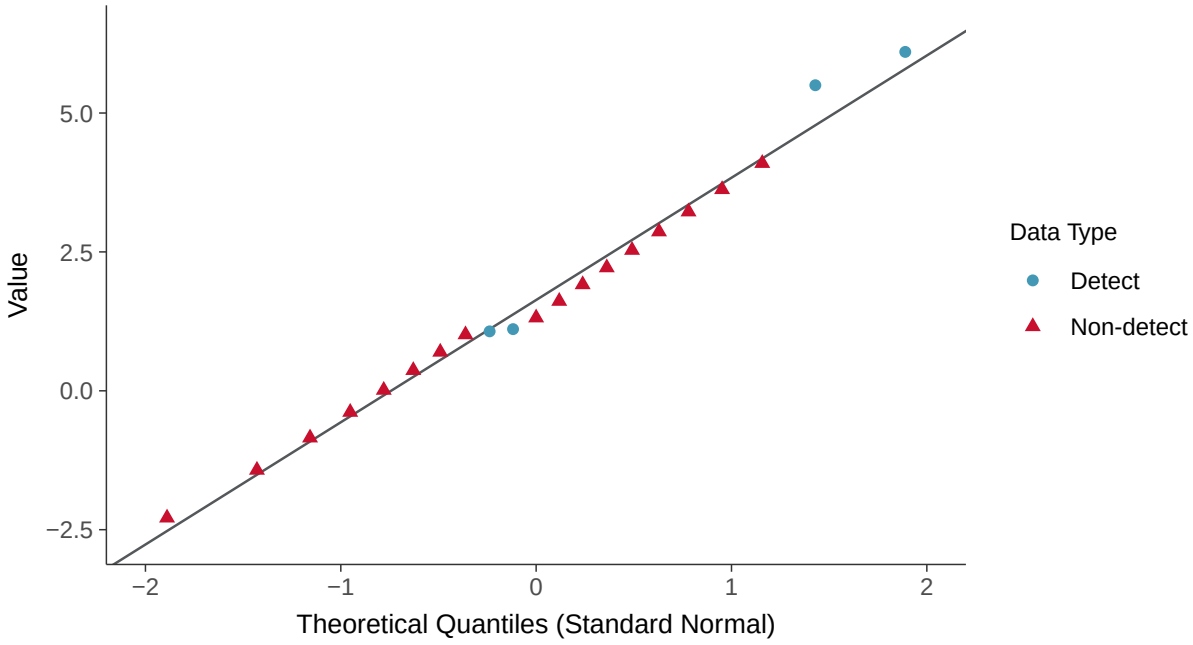
Boxplot by Season

Chloride, MW-9 (mg/L)



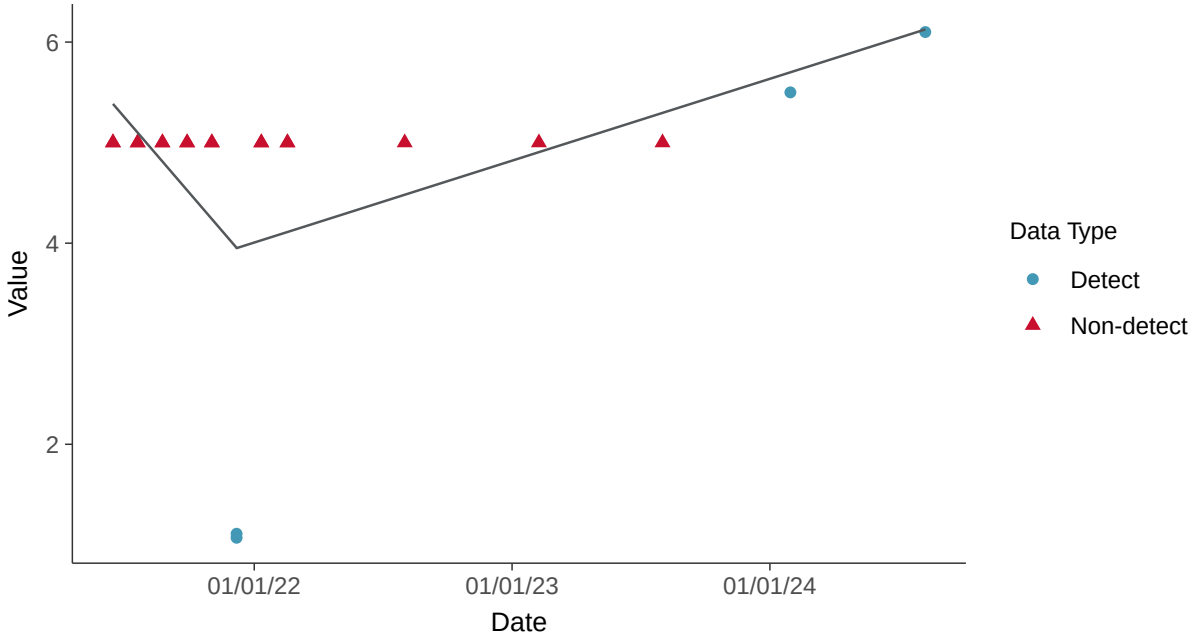
Normal Q-Q plot using ROS Imputed Estimates

Chloride, MW-9 (mg/L)



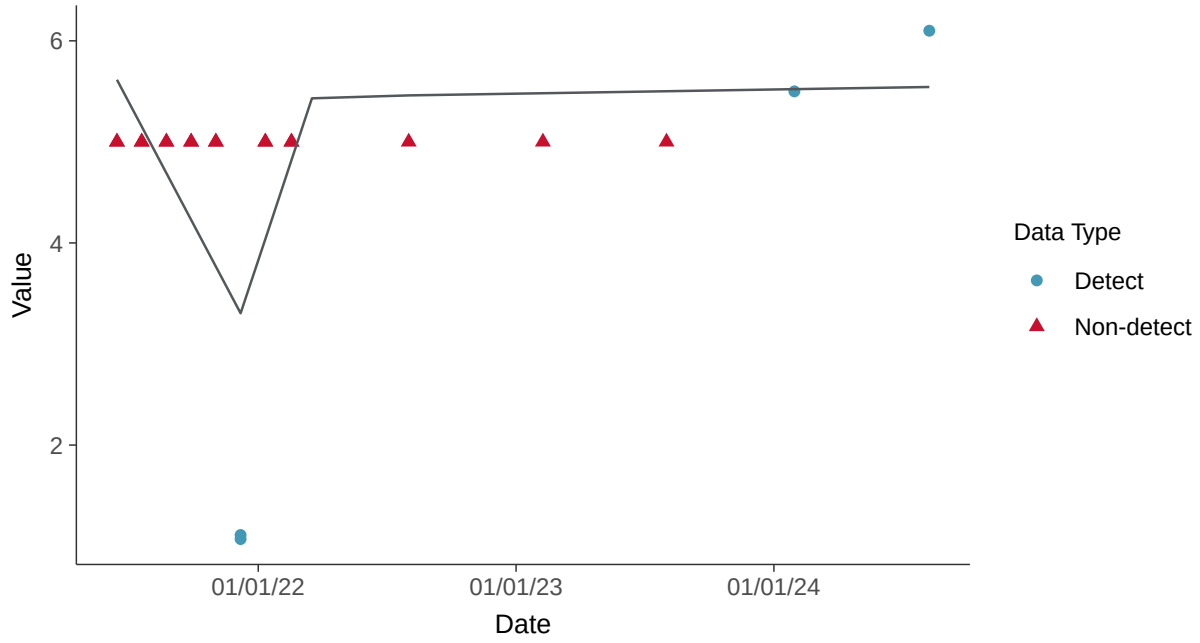
Trend Regression: Piecewise Linear-Linear

Chloride, MW-9 (mg/L)



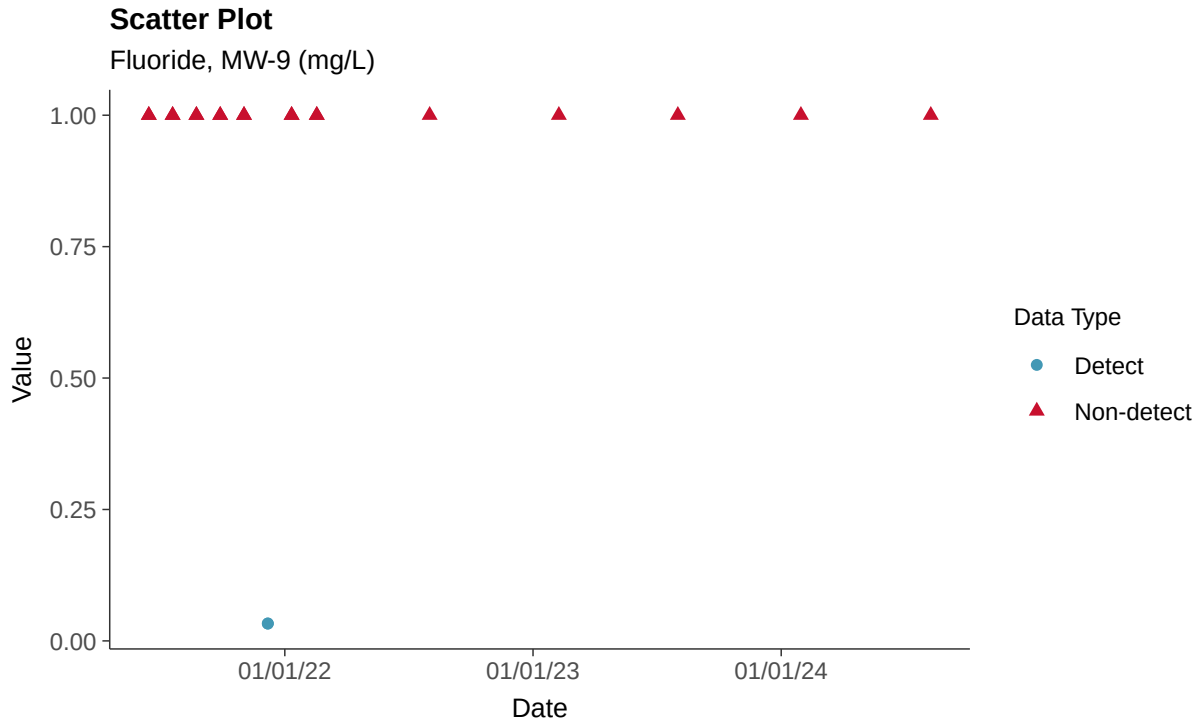
Trend Regression: Piecewise Linear-Linear-Linear

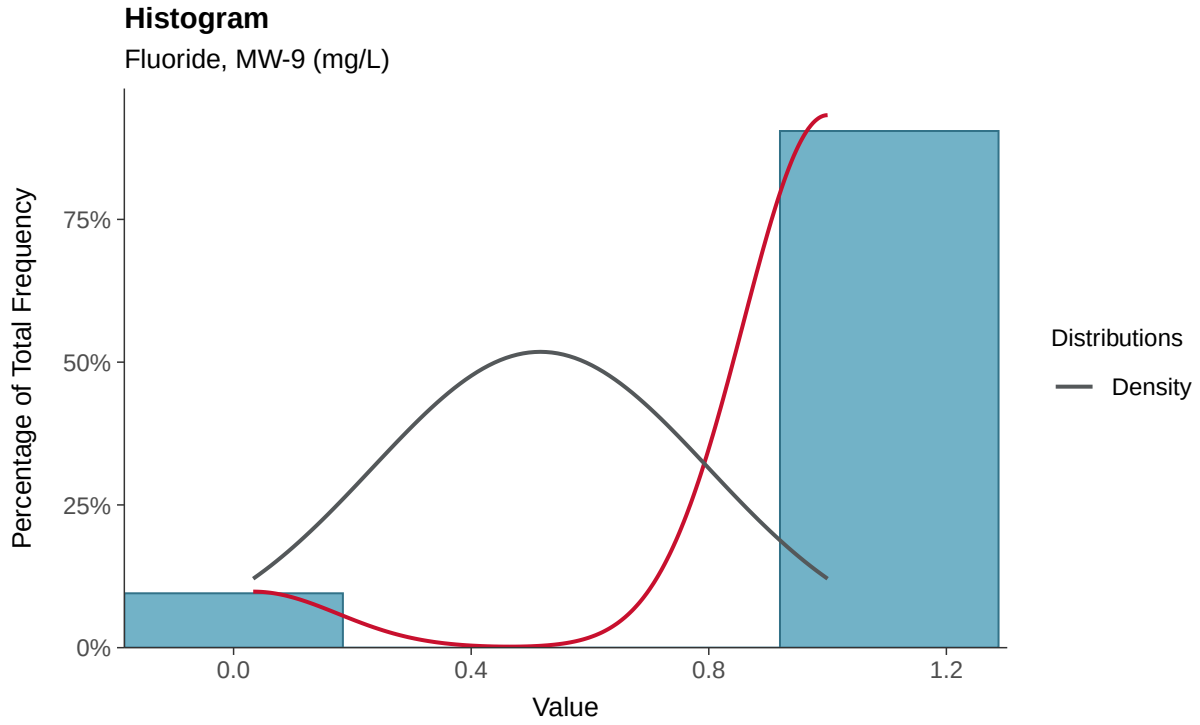
Chloride, MW-9 (mg/L)



Appendix III: Fluoride, MW-9

ID: 09_1_04



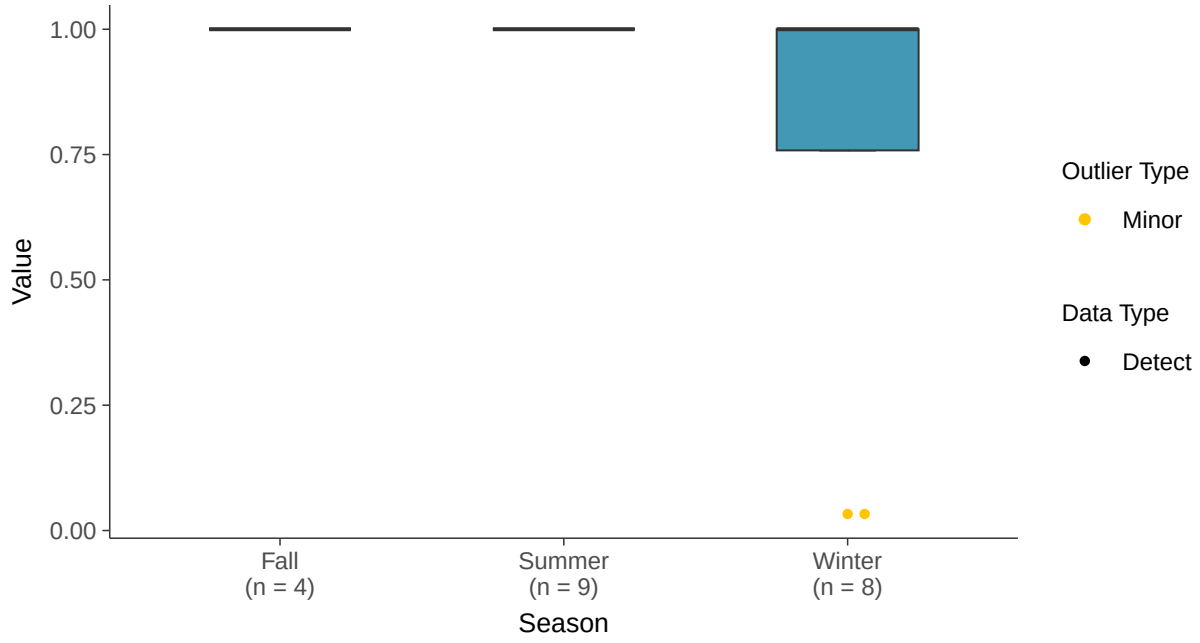


Boxplot

Fluoride, MW-9 (mg/L)

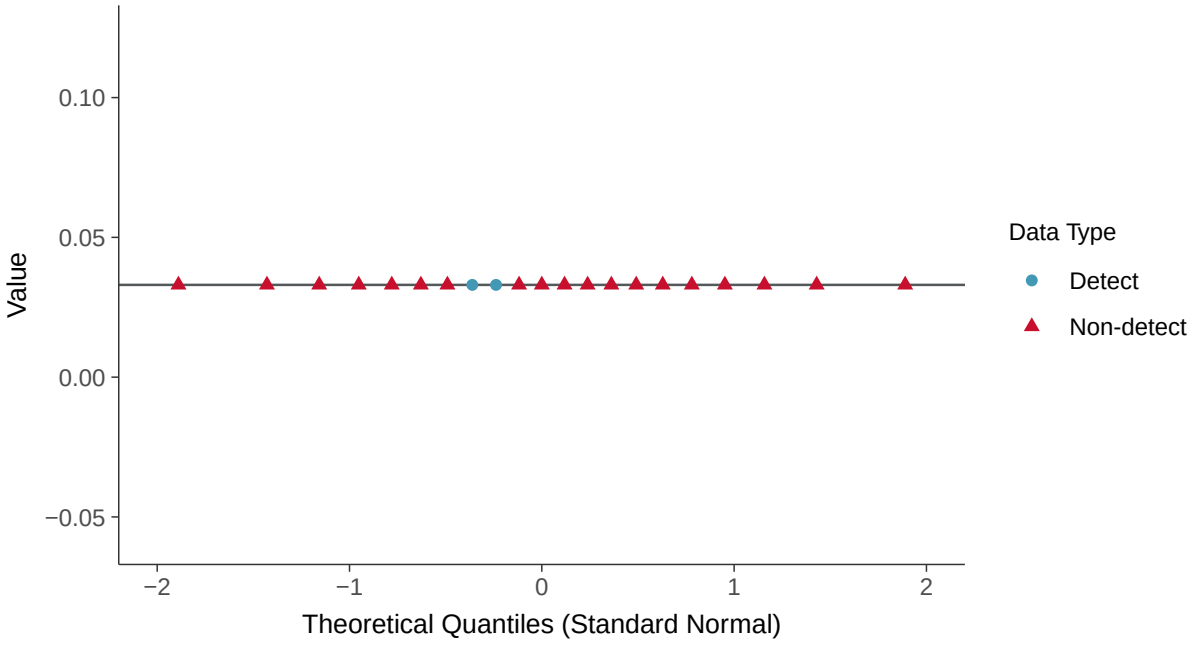
Boxplot by Season

Fluoride, MW-9 (mg/L)



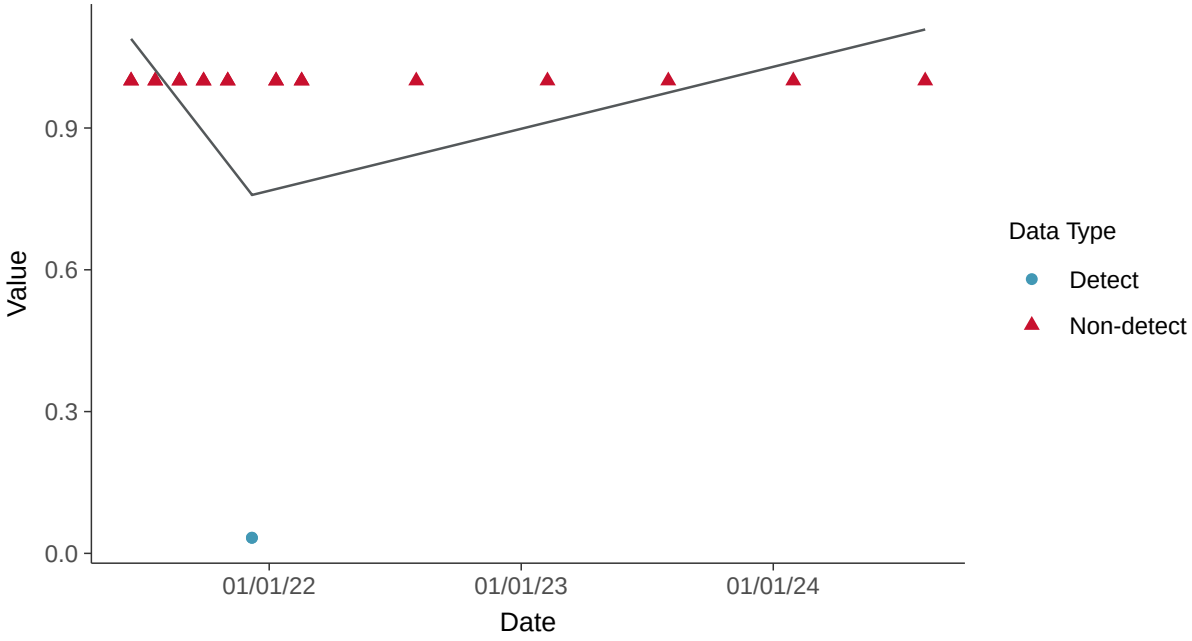
Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-9 (mg/L)



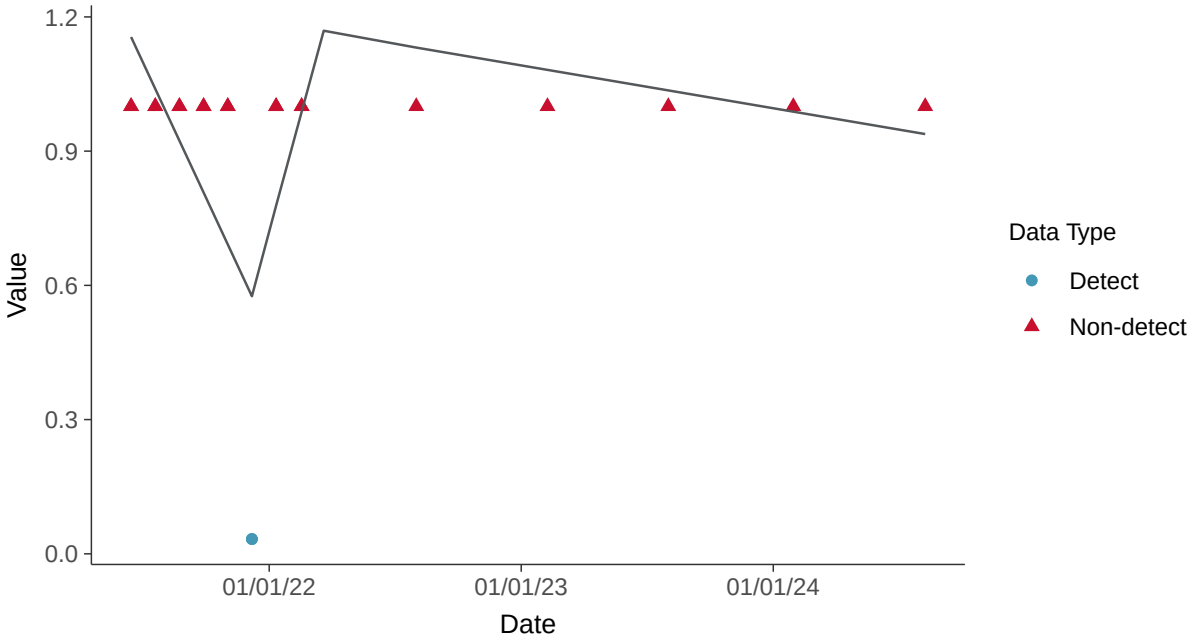
Trend Regression: Piecewise Linear-Linear

Fluoride, MW-9 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Fluoride, MW-9 (mg/L)

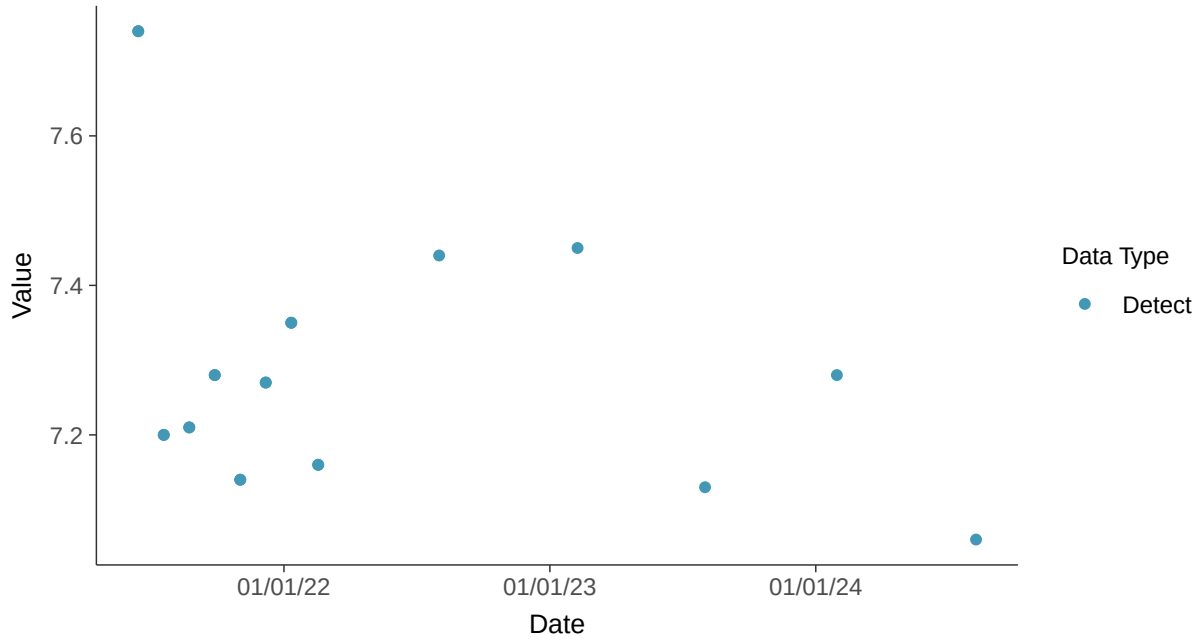


Appendix III: pH, Field, MW-9

ID: 09_1_05

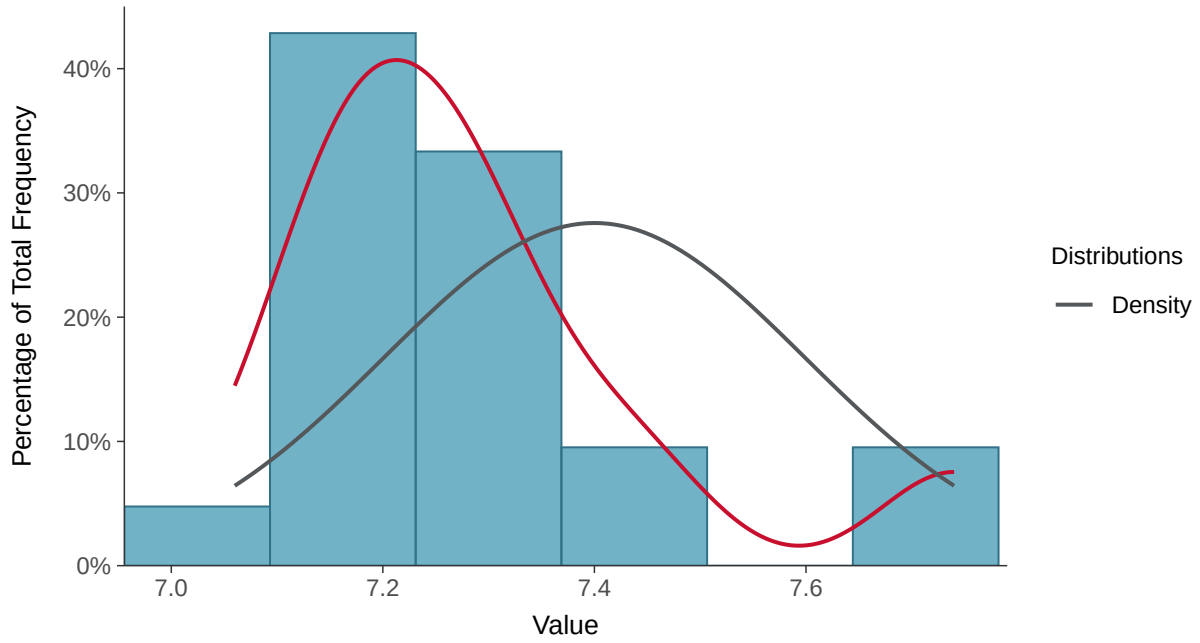
Scatter Plot

pH, Field, MW-9 (su)



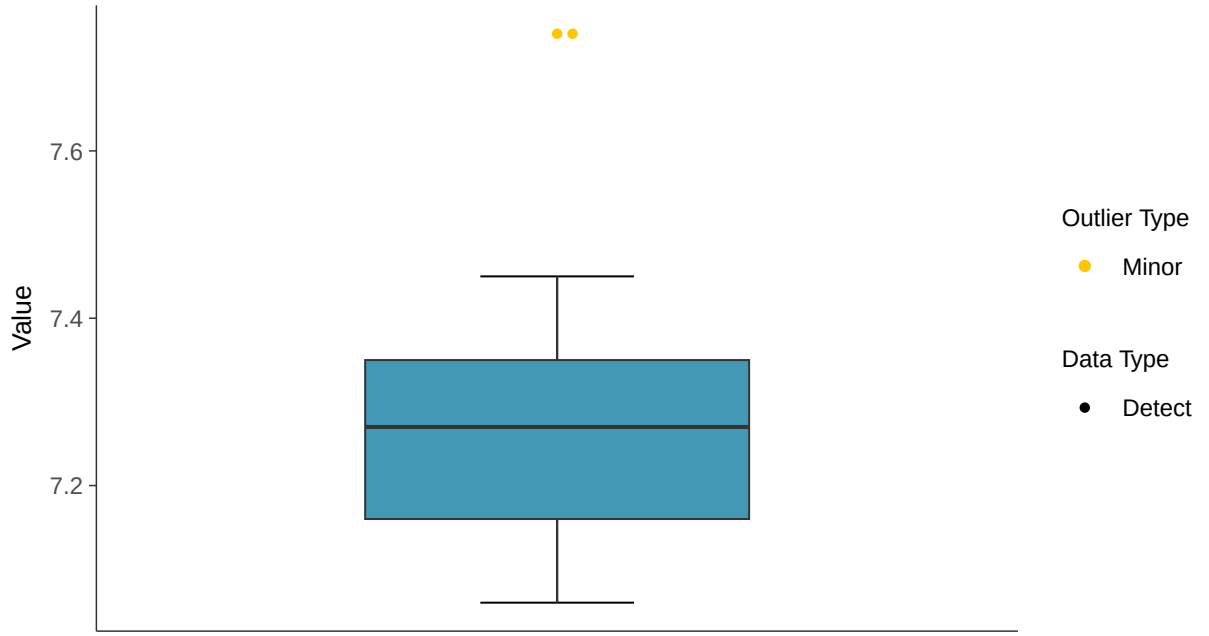
Histogram

pH, Field, MW-9 (su)



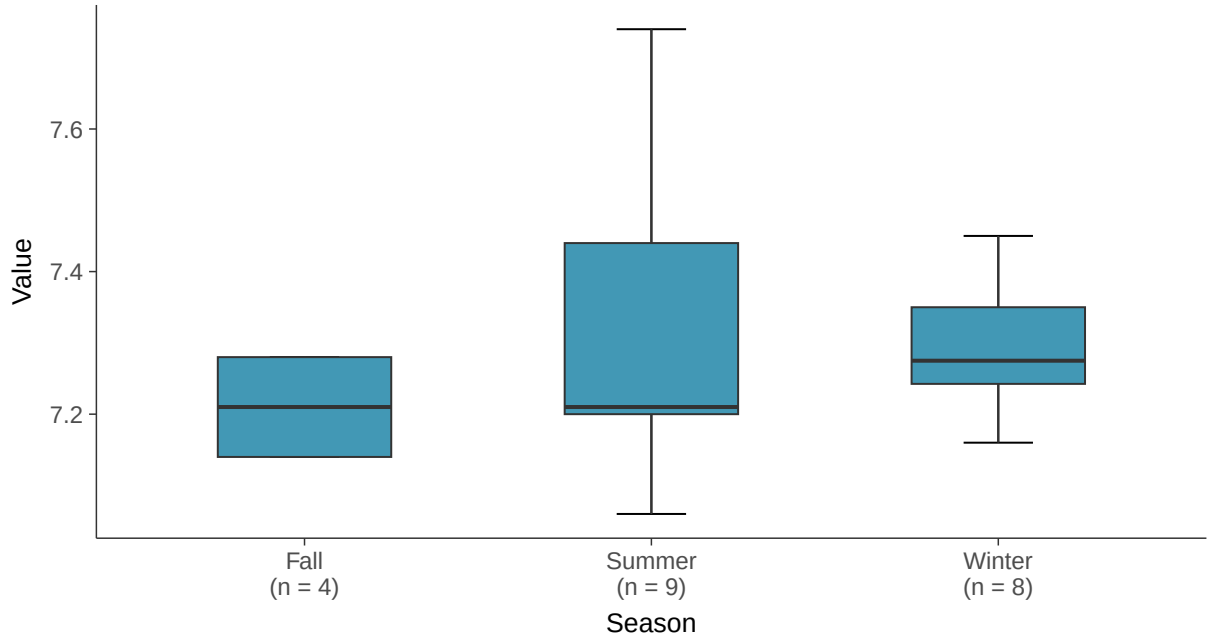
Boxplot

pH, Field, MW-9 (su)



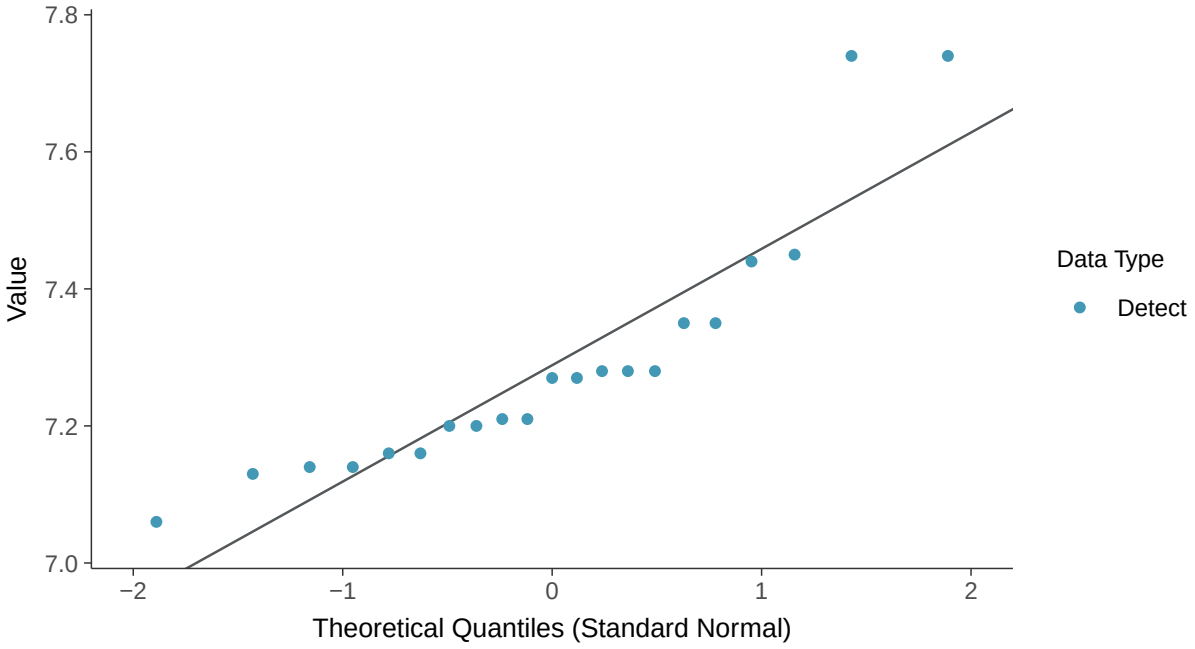
Boxplot by Season

pH, Field, MW-9 (su)



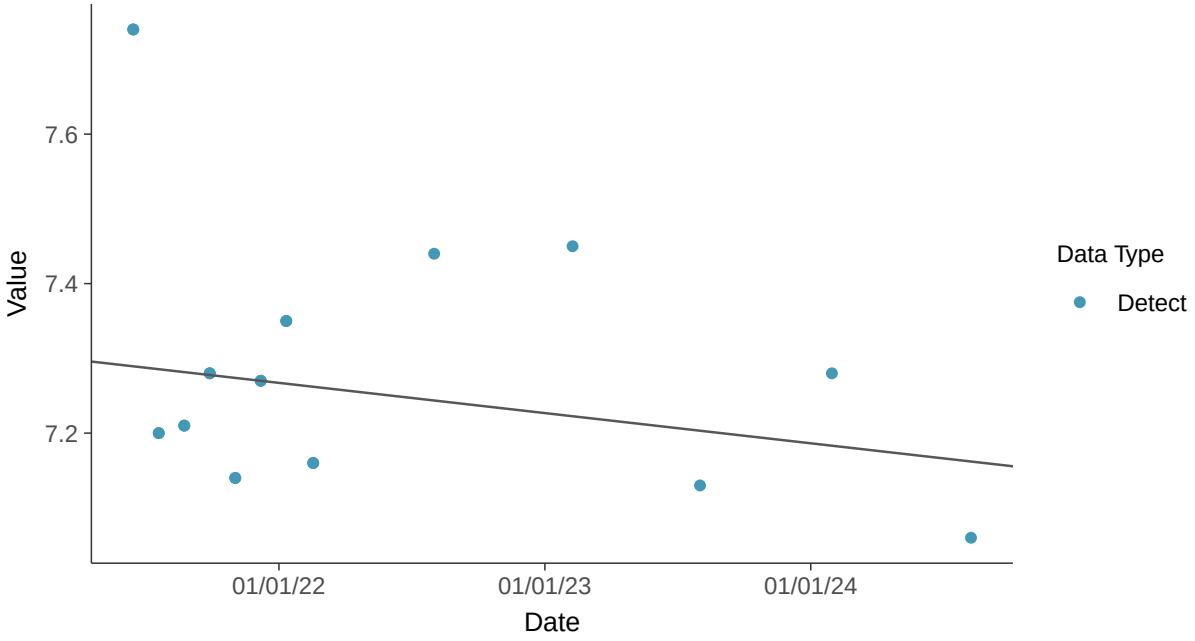
Normal Q-Q plot

pH, Field, MW-9 (su)



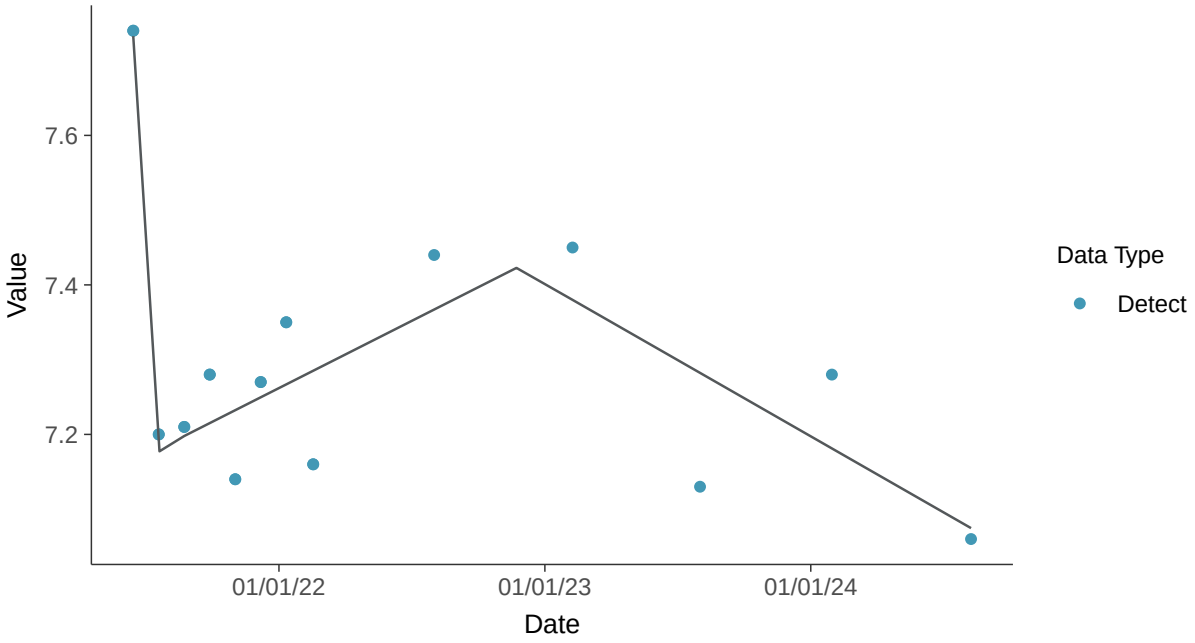
Trend Regression: Mann-Kendall/Theil-Sen Estimate

pH, Field, MW-9 (su)



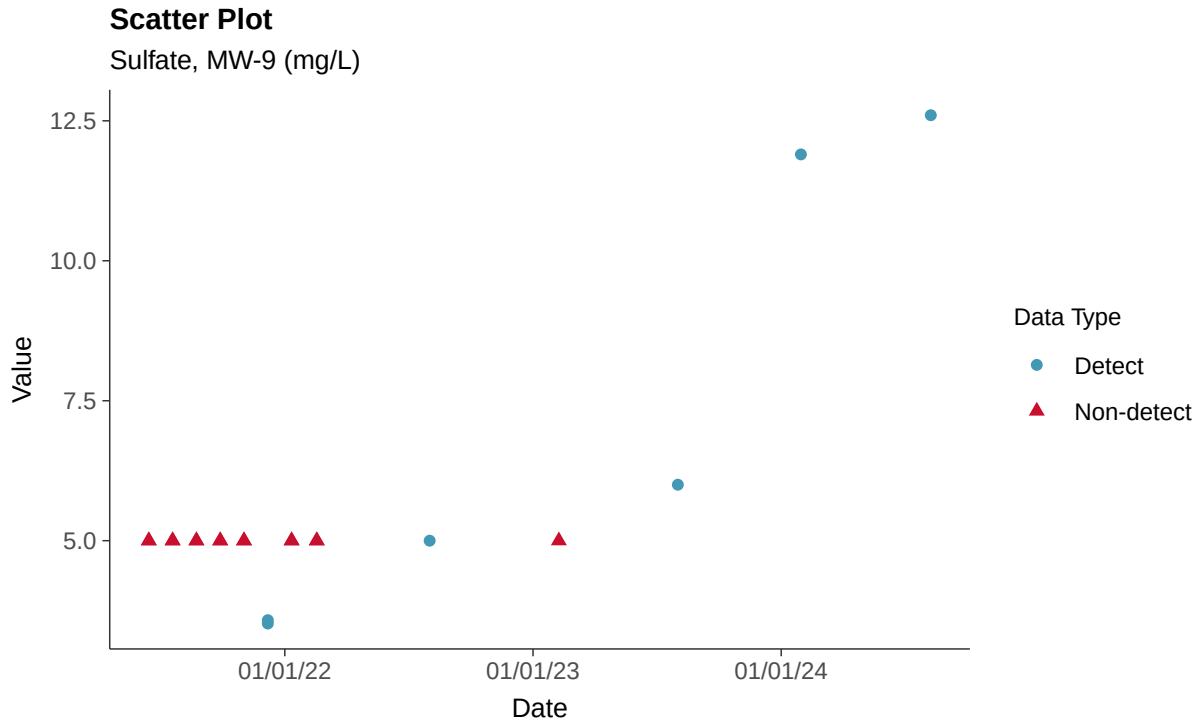
Trend Regression: Piecewise Linear-Linear-Linear

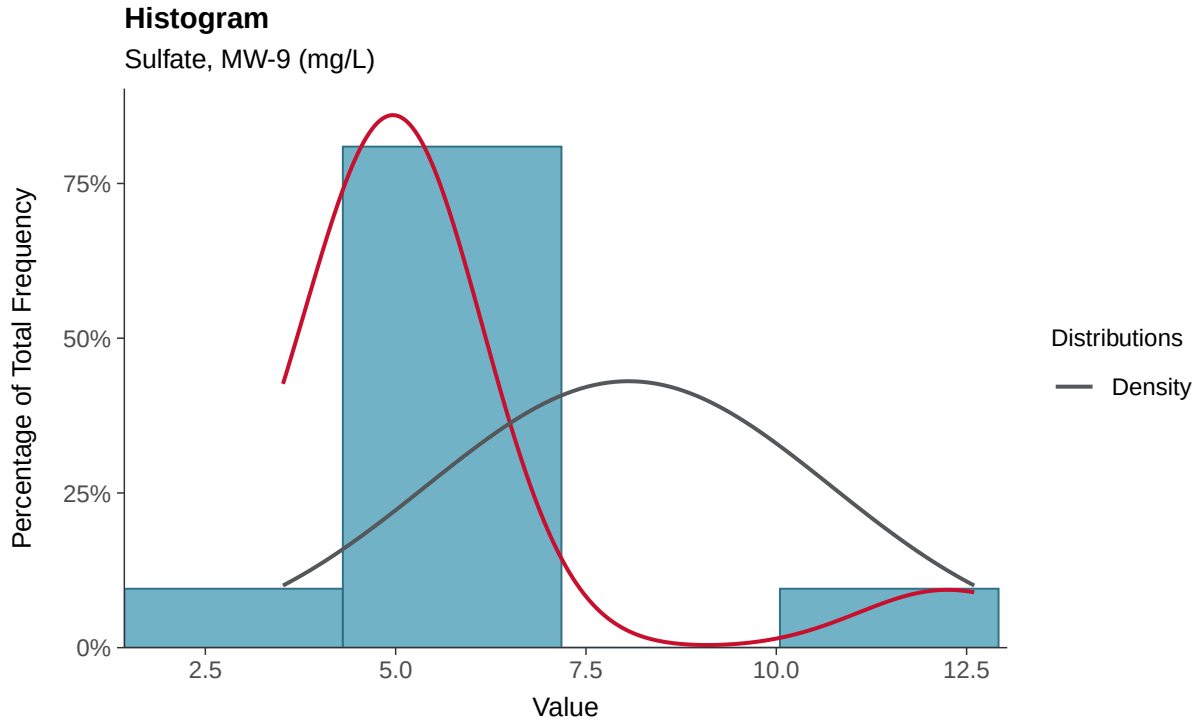
pH, Field, MW-9 (su)



Appendix III: Sulfate, MW-9

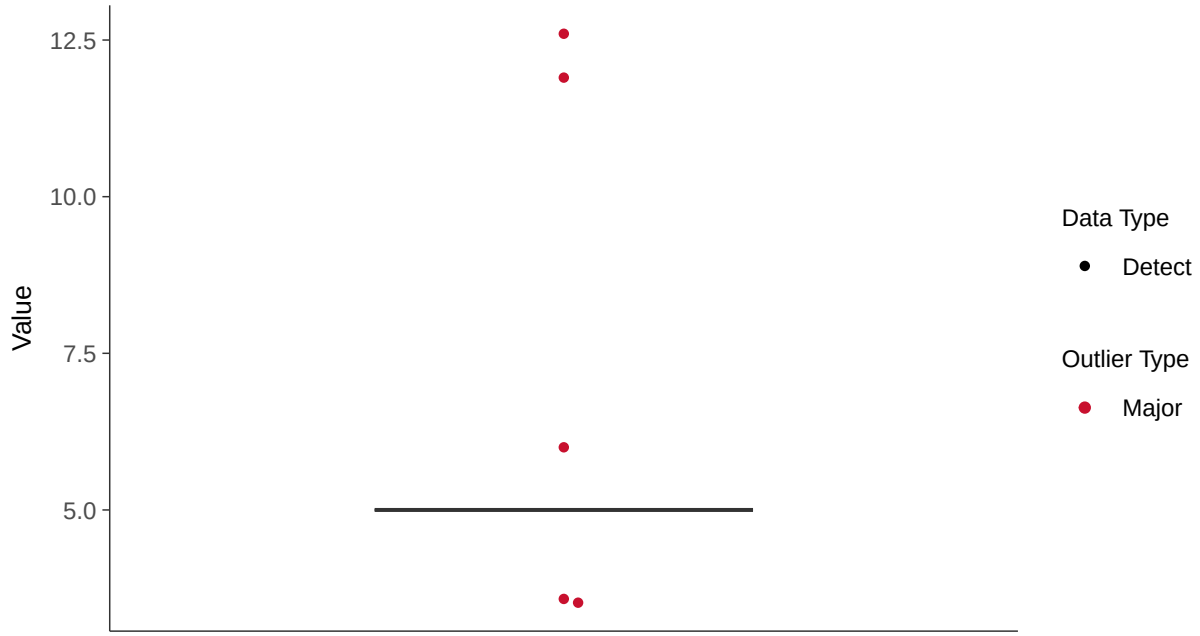
ID: 09_1_06





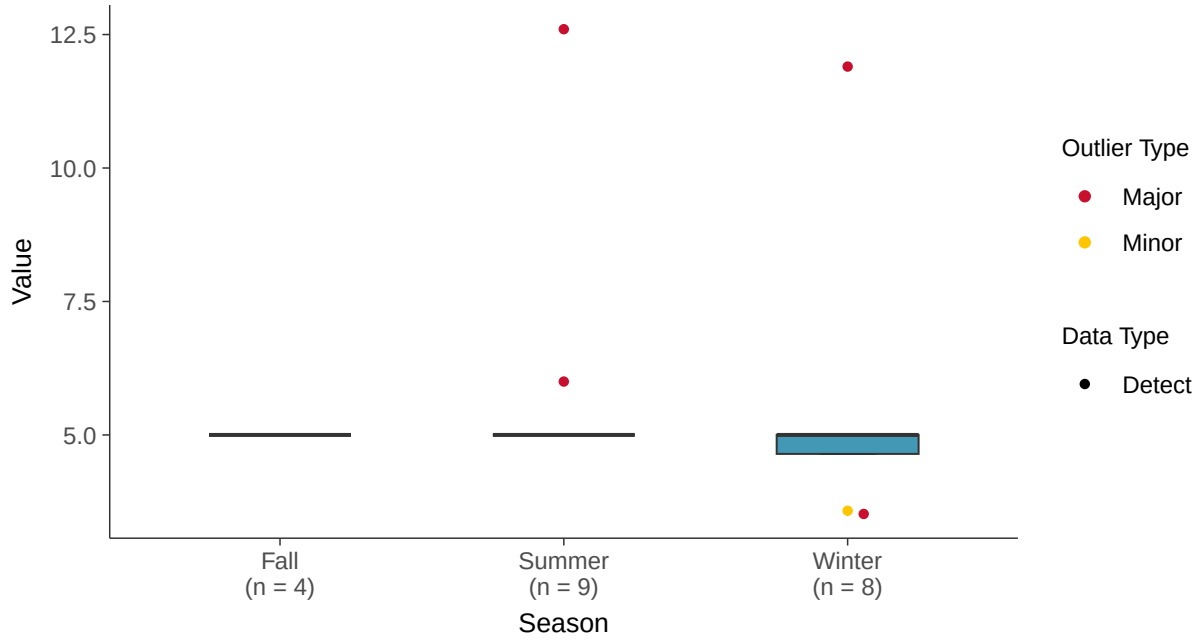
Boxplot

Sulfate, MW-9 (mg/L)



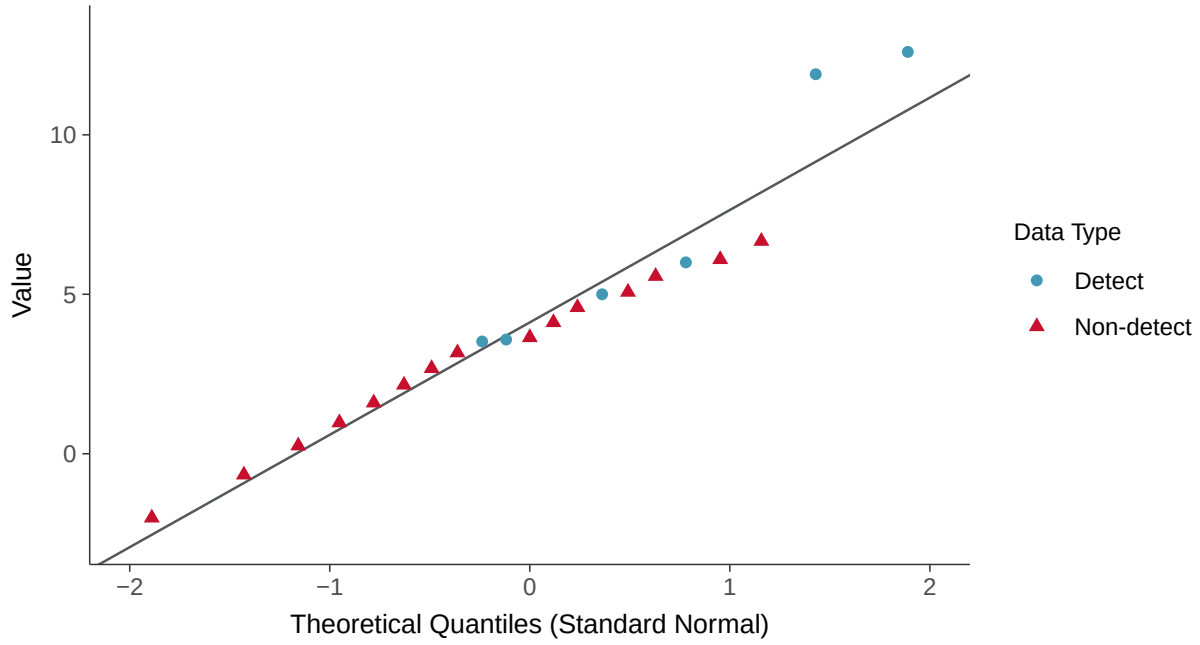
Boxplot by Season

Sulfate, MW-9 (mg/L)



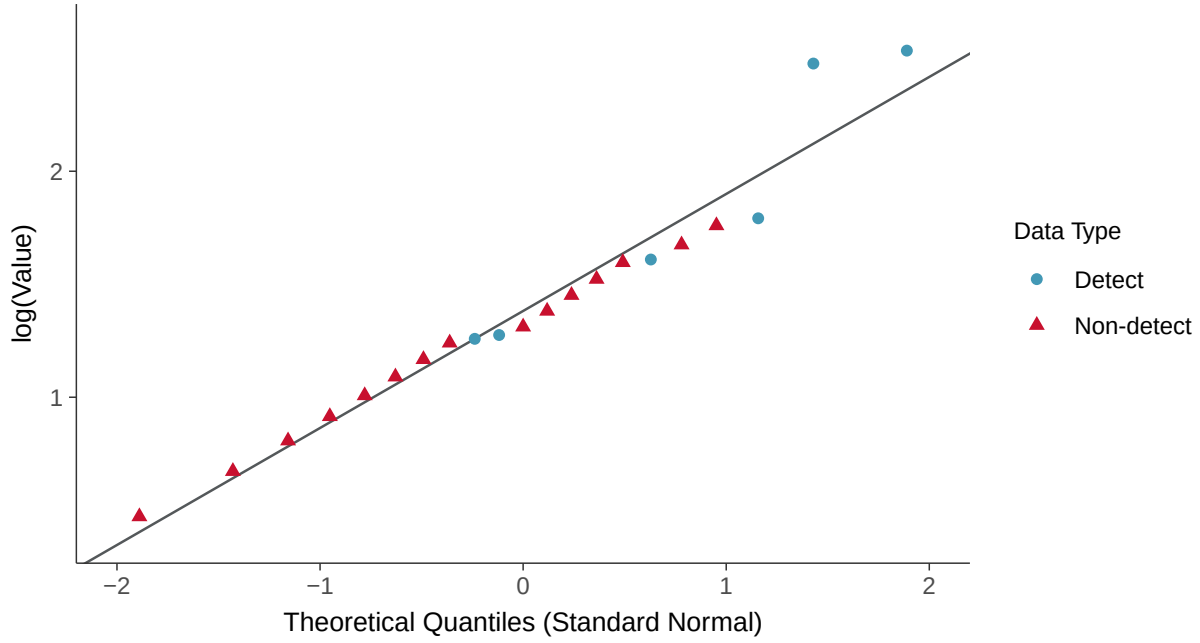
Normal Q-Q plot using ROS Imputed Estimates

Sulfate, MW-9 (mg/L)



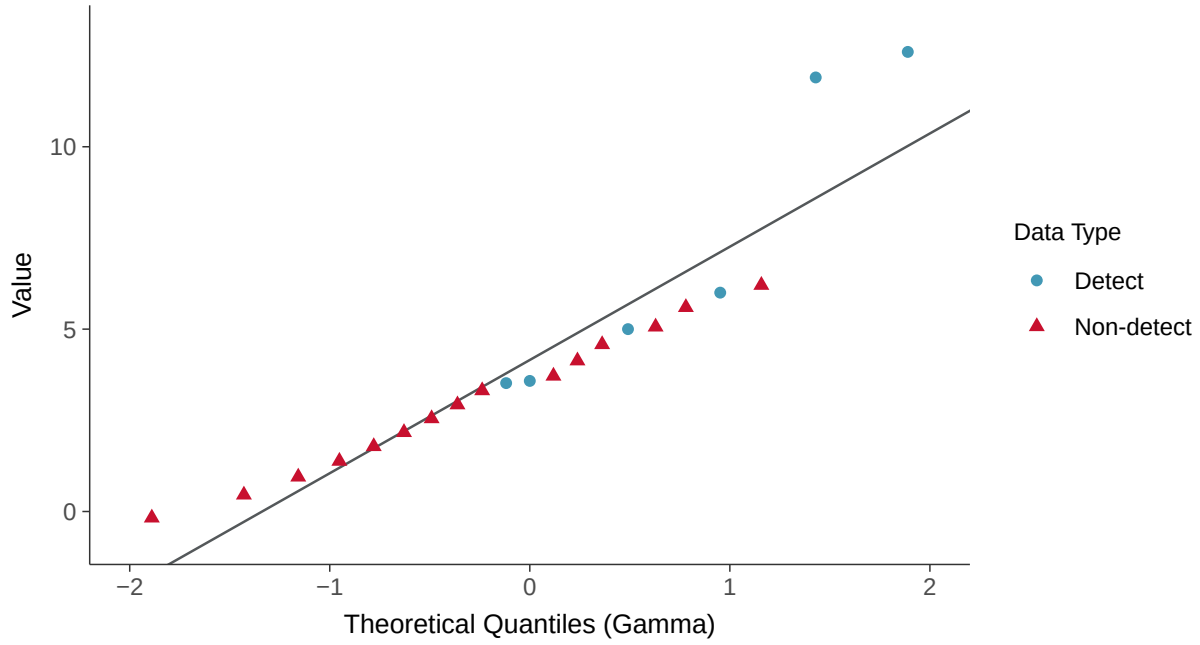
Lognormal Q-Q plot using ROS Imputed Estimates

Sulfate, MW-9 (mg/L)



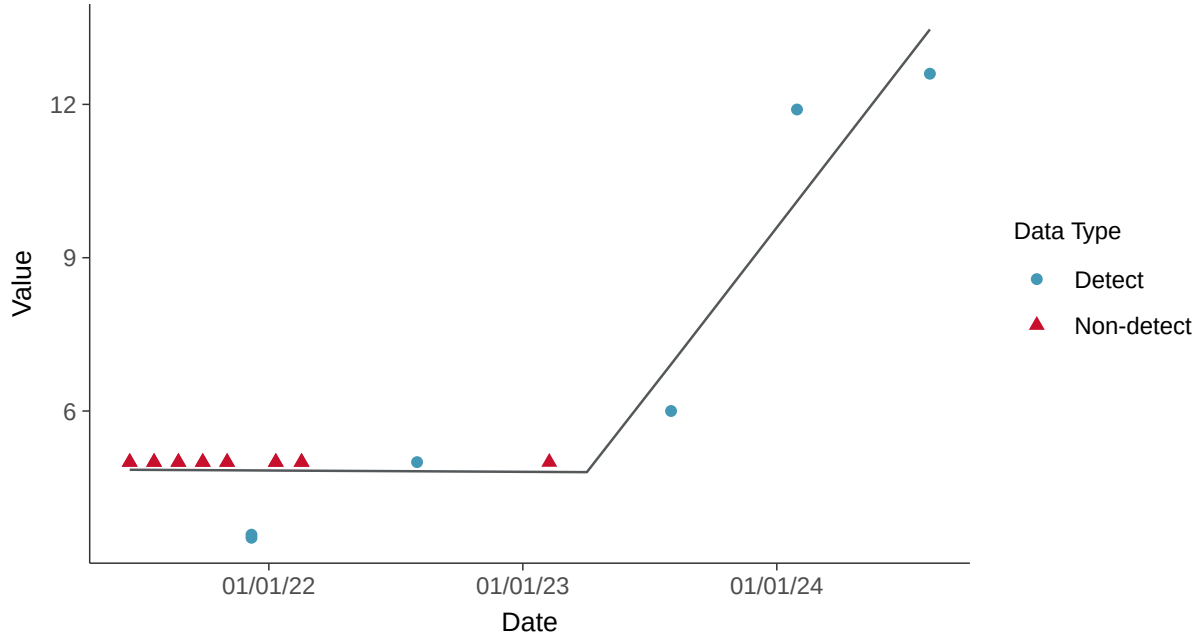
Gamma Q-Q plot using ROS Imputed Estimates

Sulfate, MW-9 (mg/L)



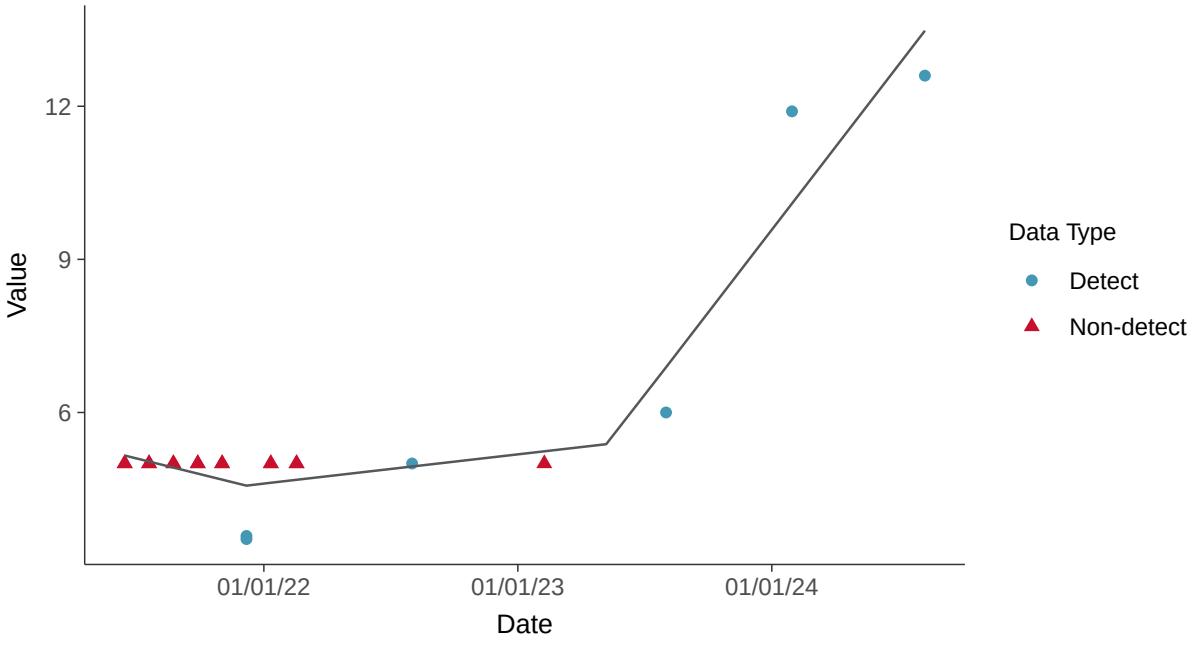
Trend Regression: Piecewise Linear-Linear

Sulfate, MW-9 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Sulfate, MW-9 (mg/L)

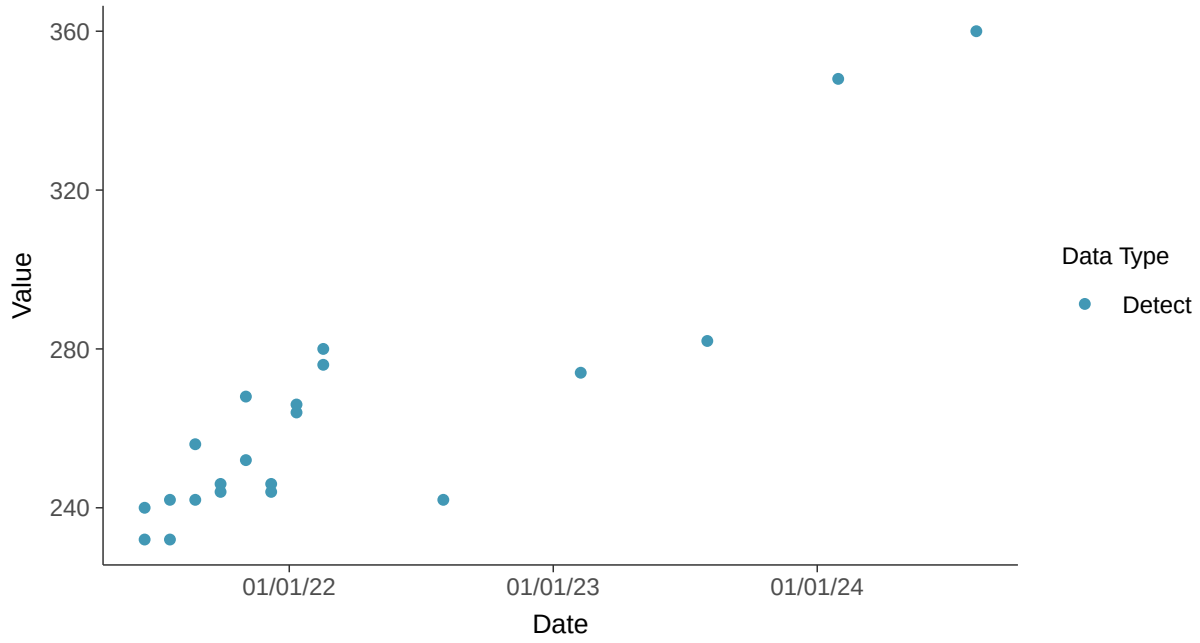


Appendix III: Total Dissolved Solids, MW-9

ID: 09_1_07

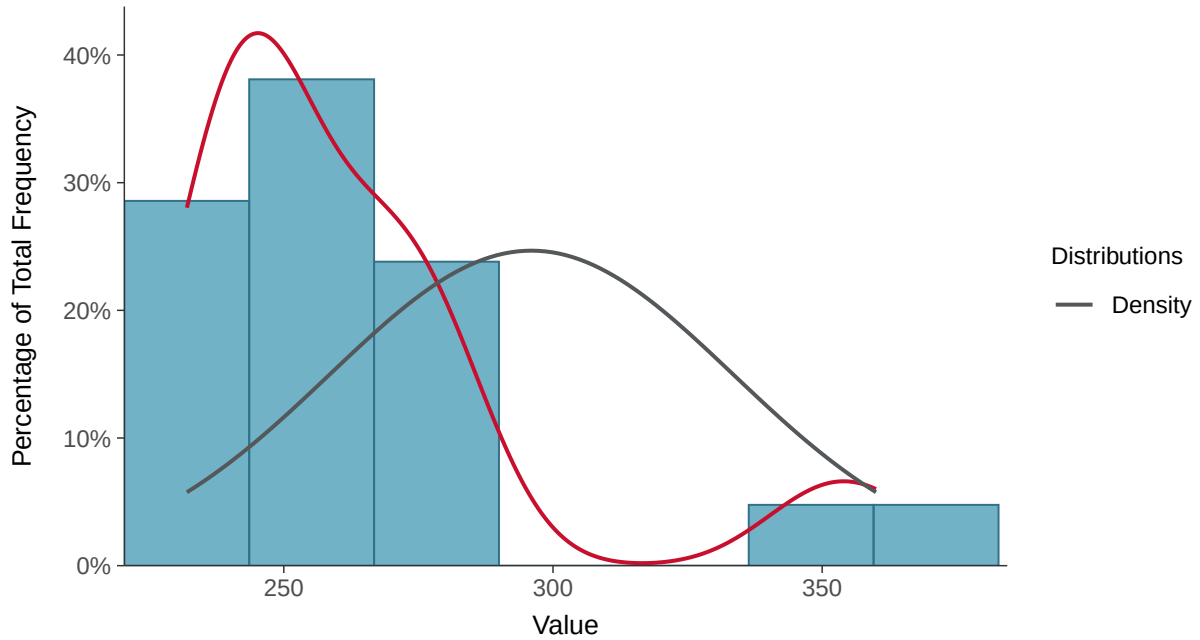
Scatter Plot

Total Dissolved Solids, MW-9 (mg/L)



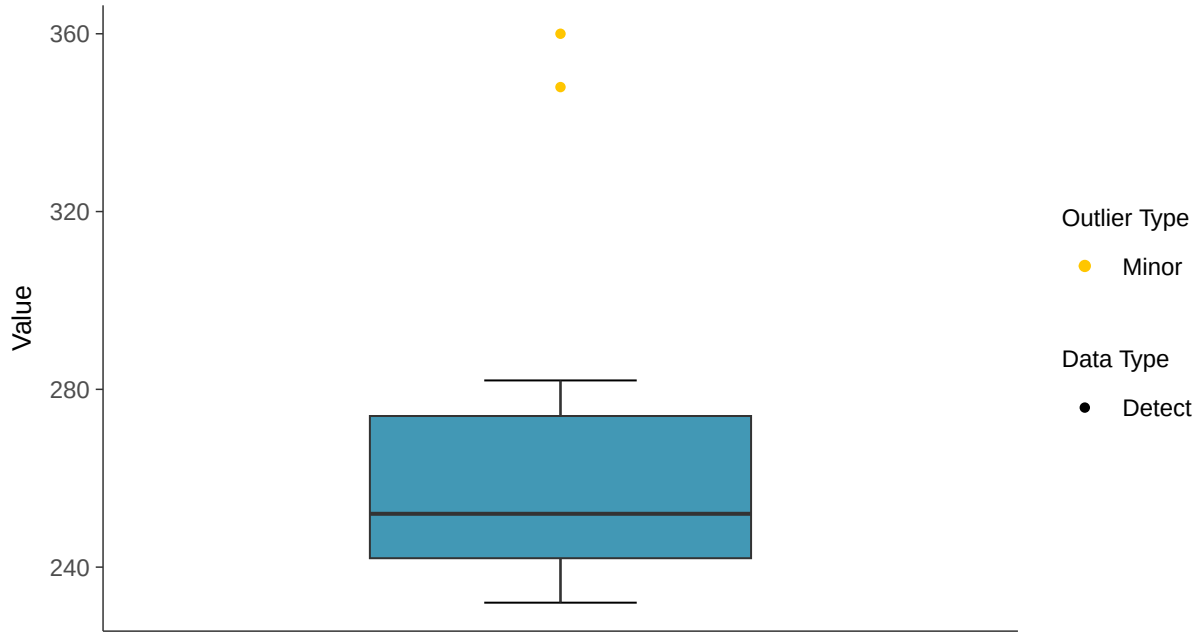
Histogram

Total Dissolved Solids, MW-9 (mg/L)



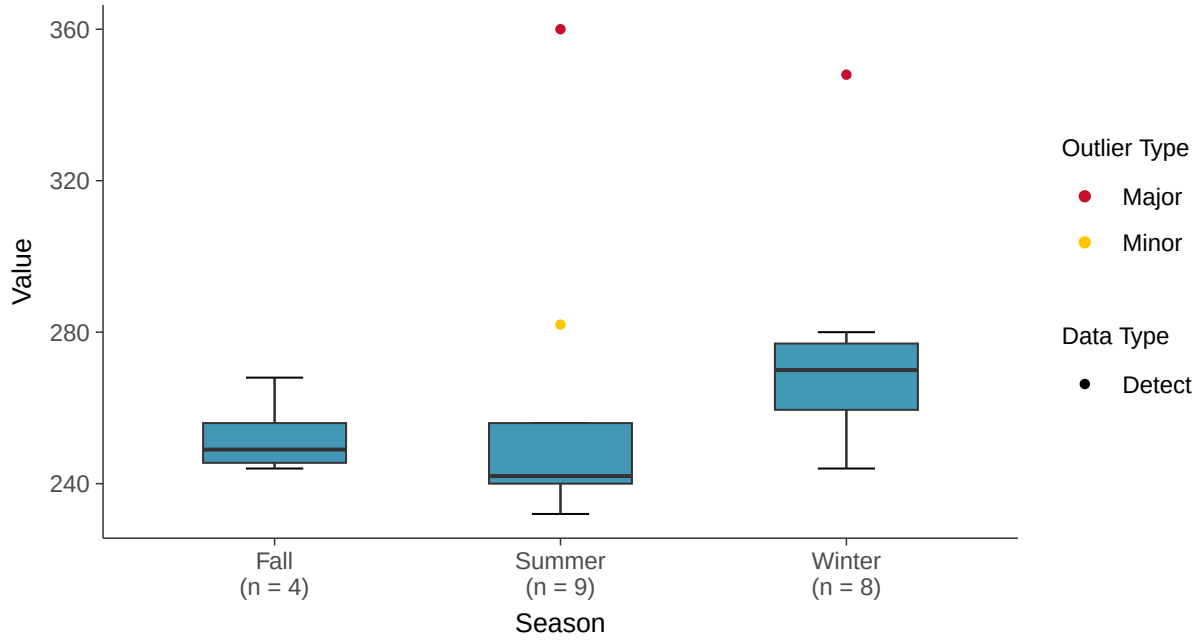
Boxplot

Total Dissolved Solids, MW-9 (mg/L)



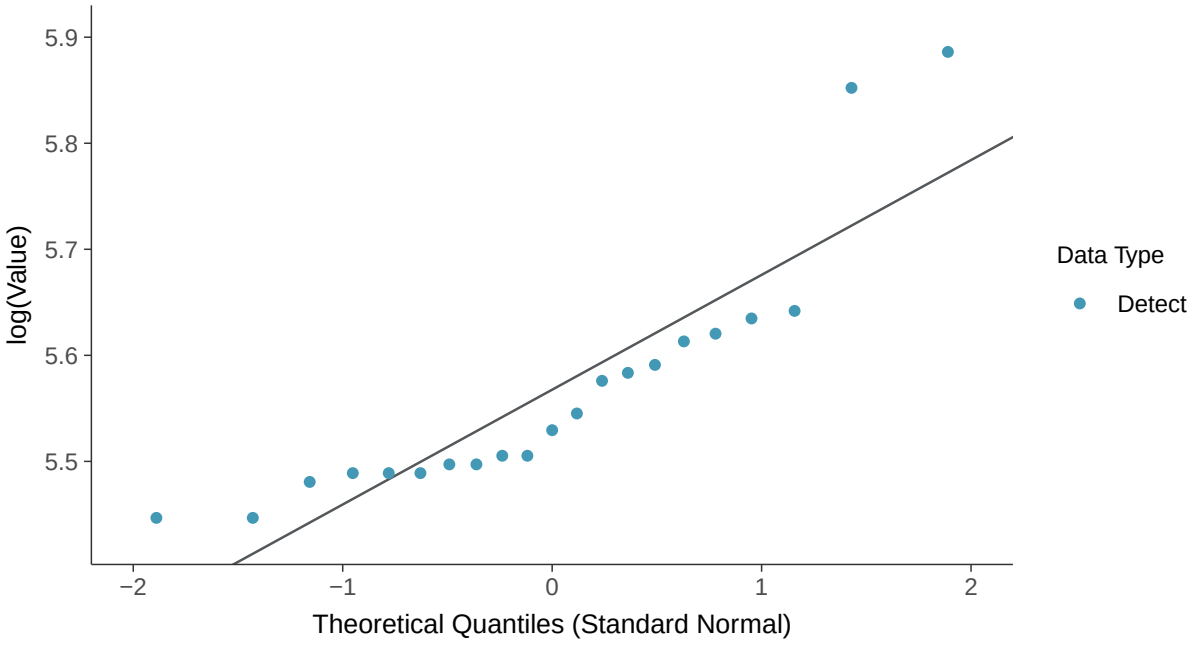
Boxplot by Season

Total Dissolved Solids, MW-9 (mg/L)



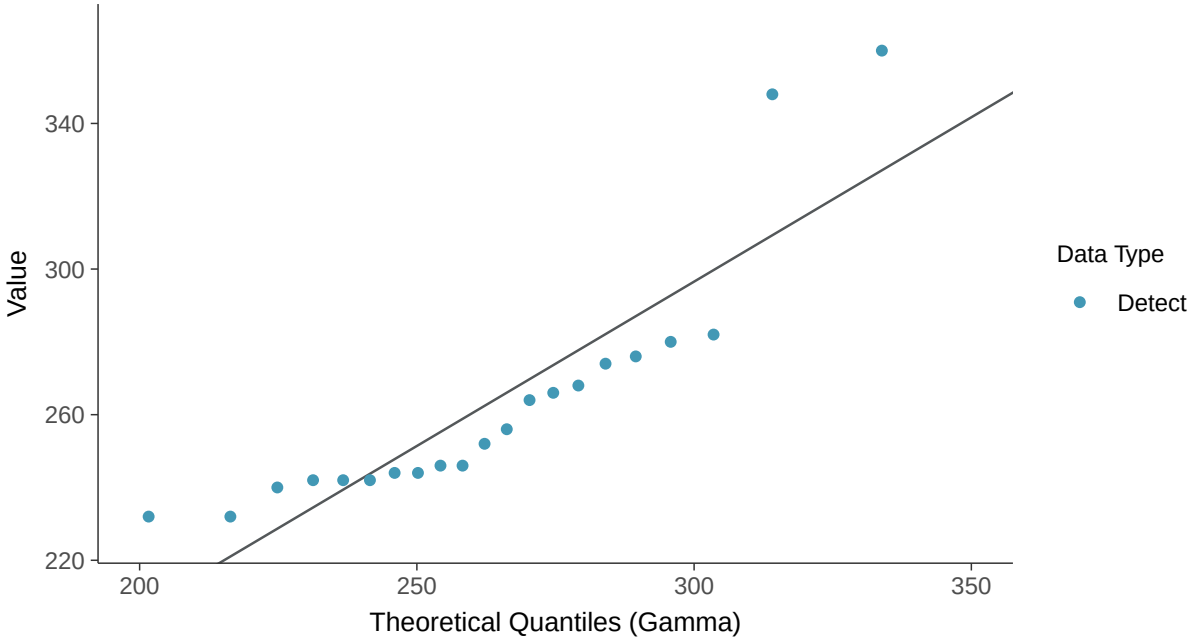
Lognormal Q-Q plot

Total Dissolved Solids, MW-9 (mg/L)



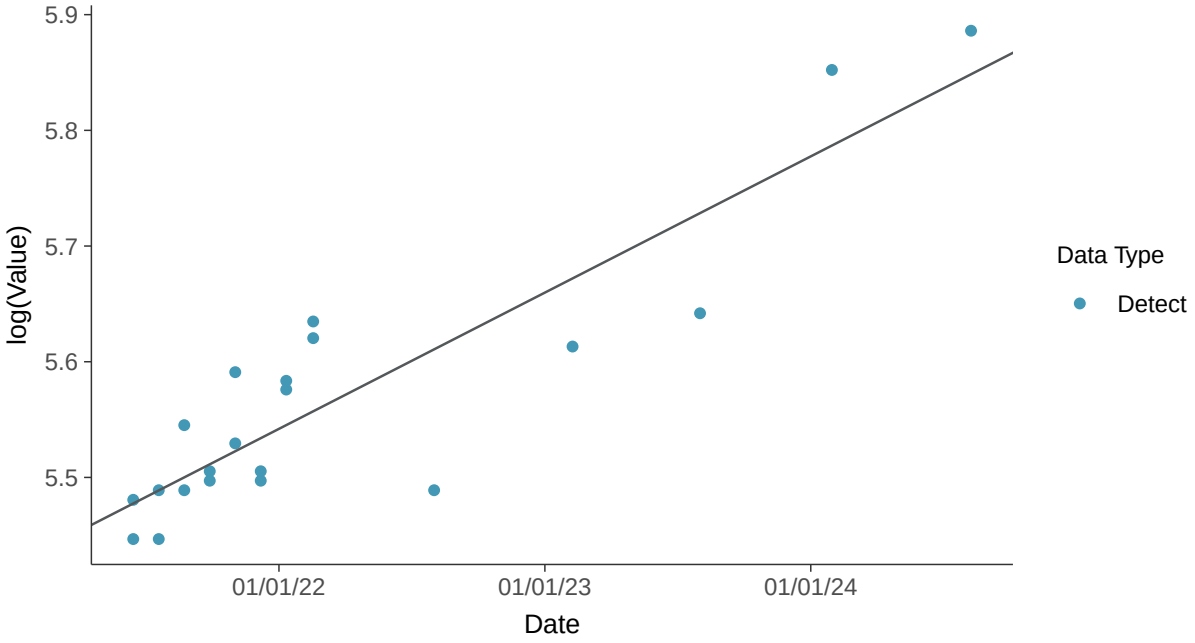
Gamma Q-Q plot

Total Dissolved Solids, MW-9 (mg/L)



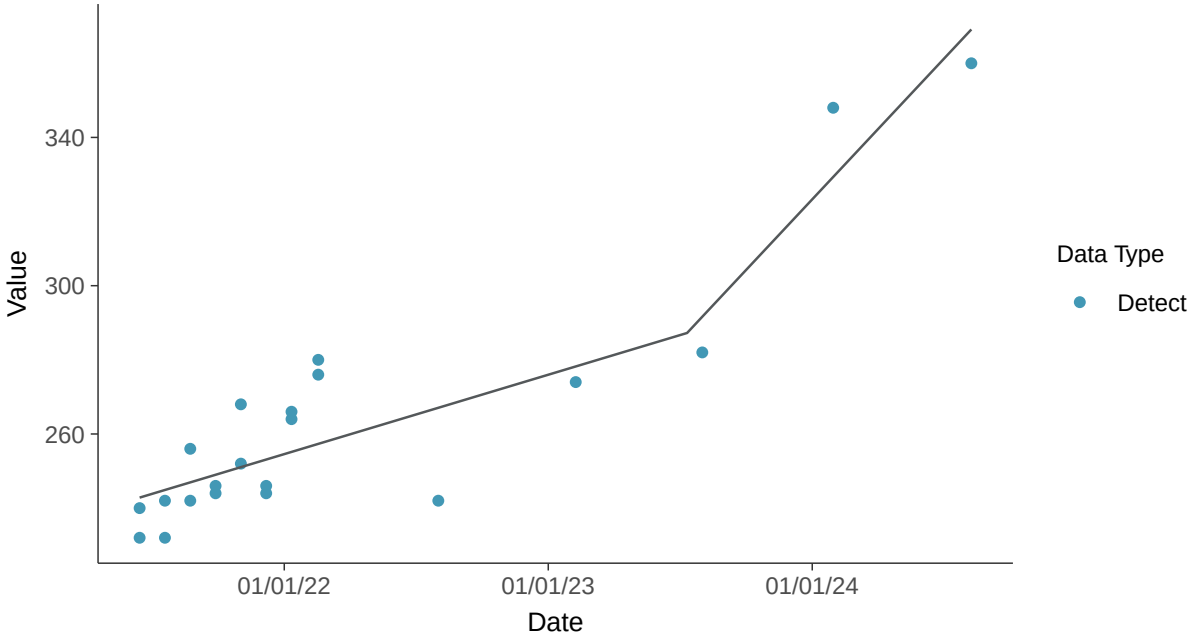
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-9 (mg/L)



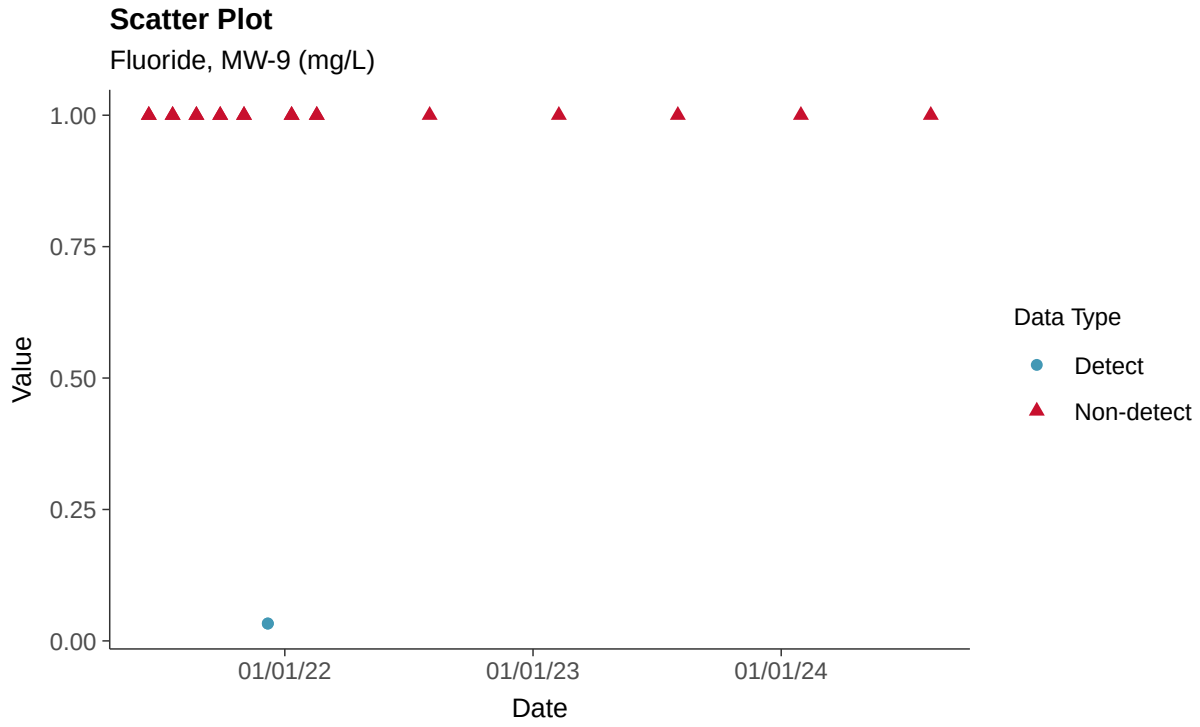
Trend Regression: Piecewise Linear-Linear

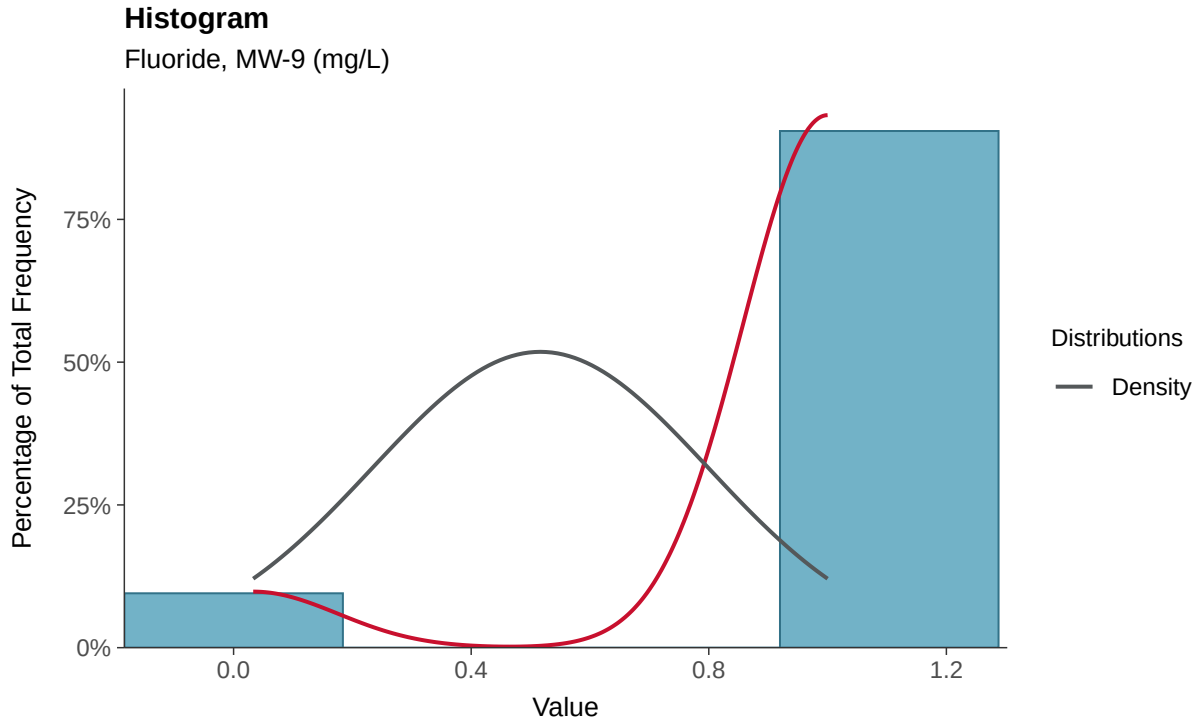
Total Dissolved Solids, MW-9 (mg/L)



Appendix IV: Fluoride, MW-9

ID: 09_2_04



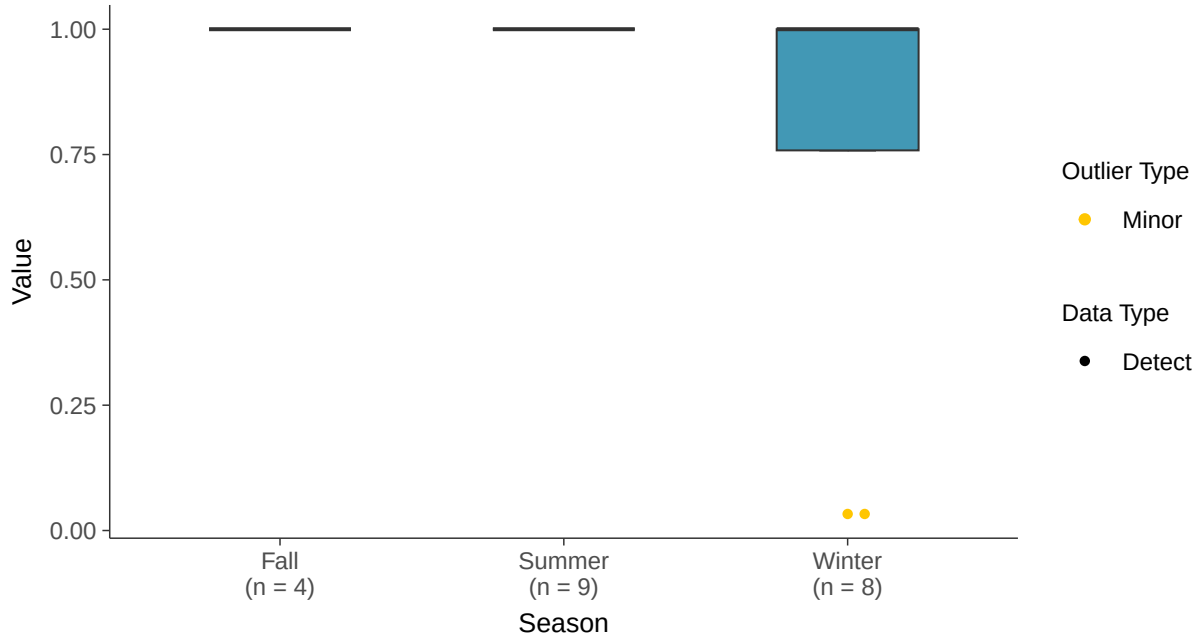


Boxplot

Fluoride, MW-9 (mg/L)

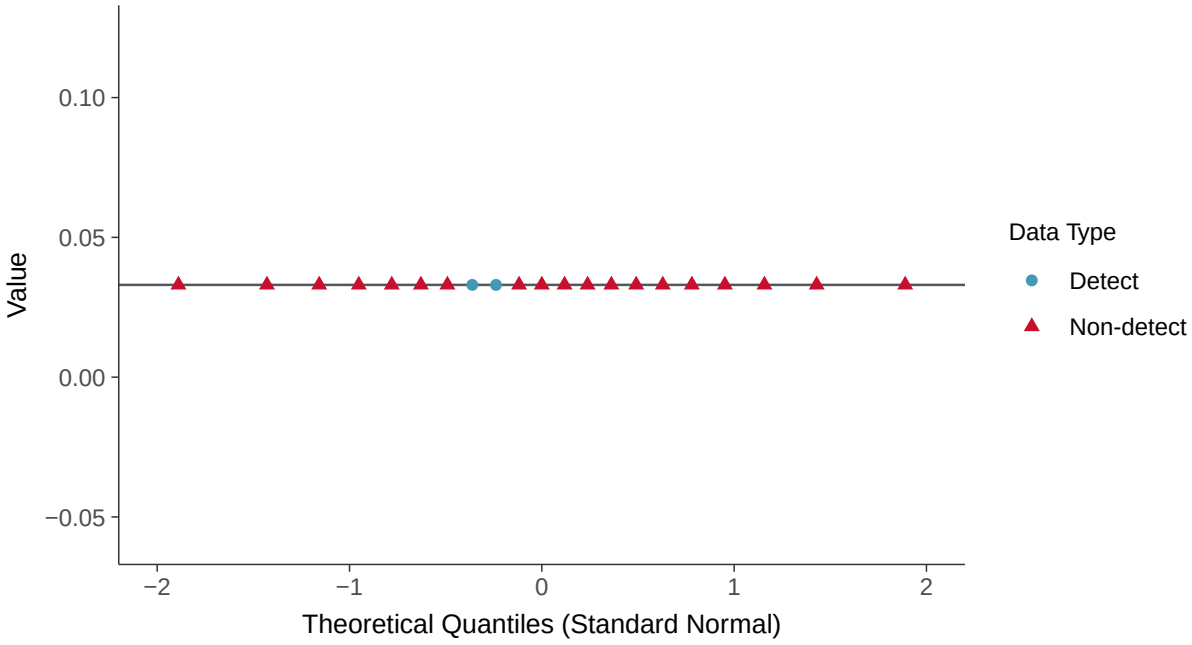
Boxplot by Season

Fluoride, MW-9 (mg/L)



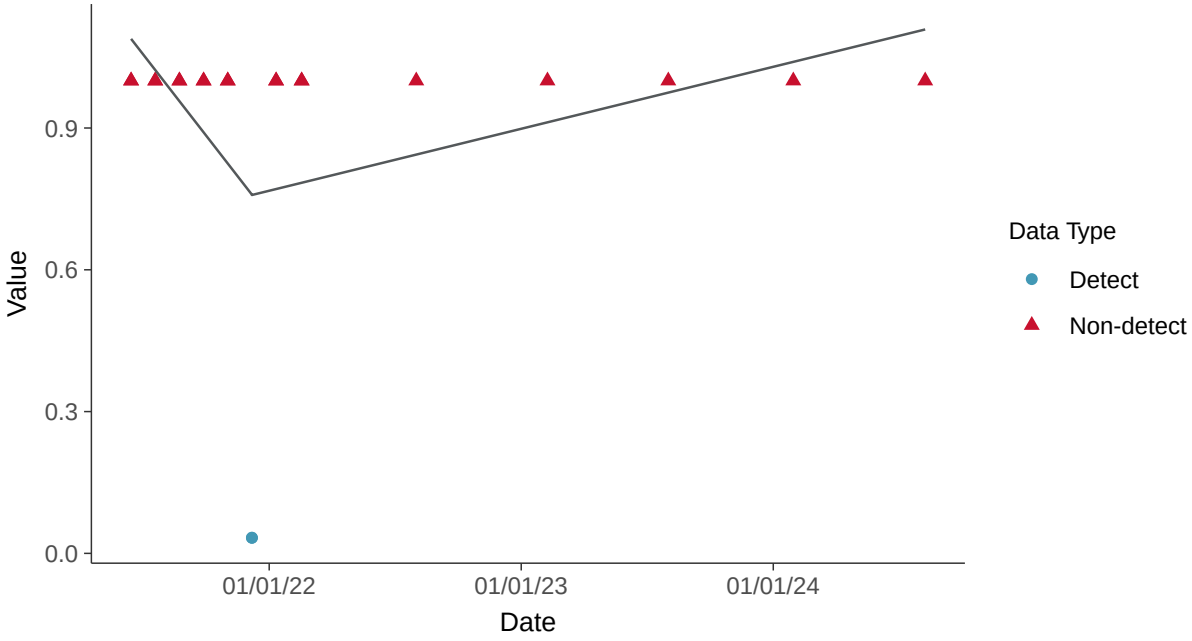
Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-9 (mg/L)



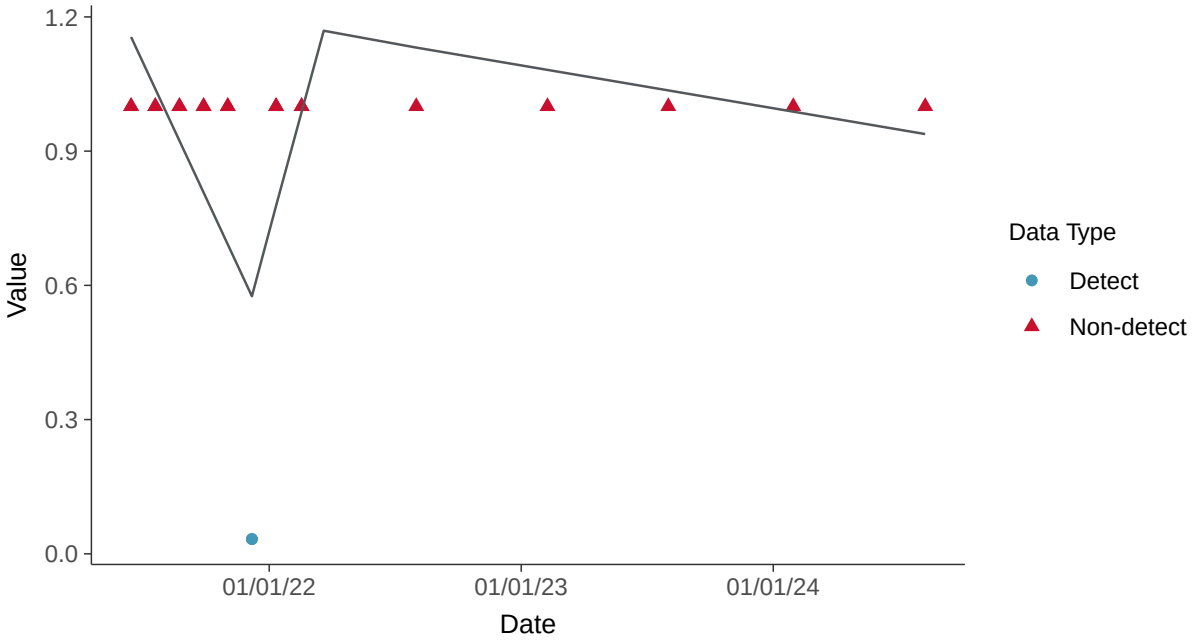
Trend Regression: Piecewise Linear-Linear

Fluoride, MW-9 (mg/L)



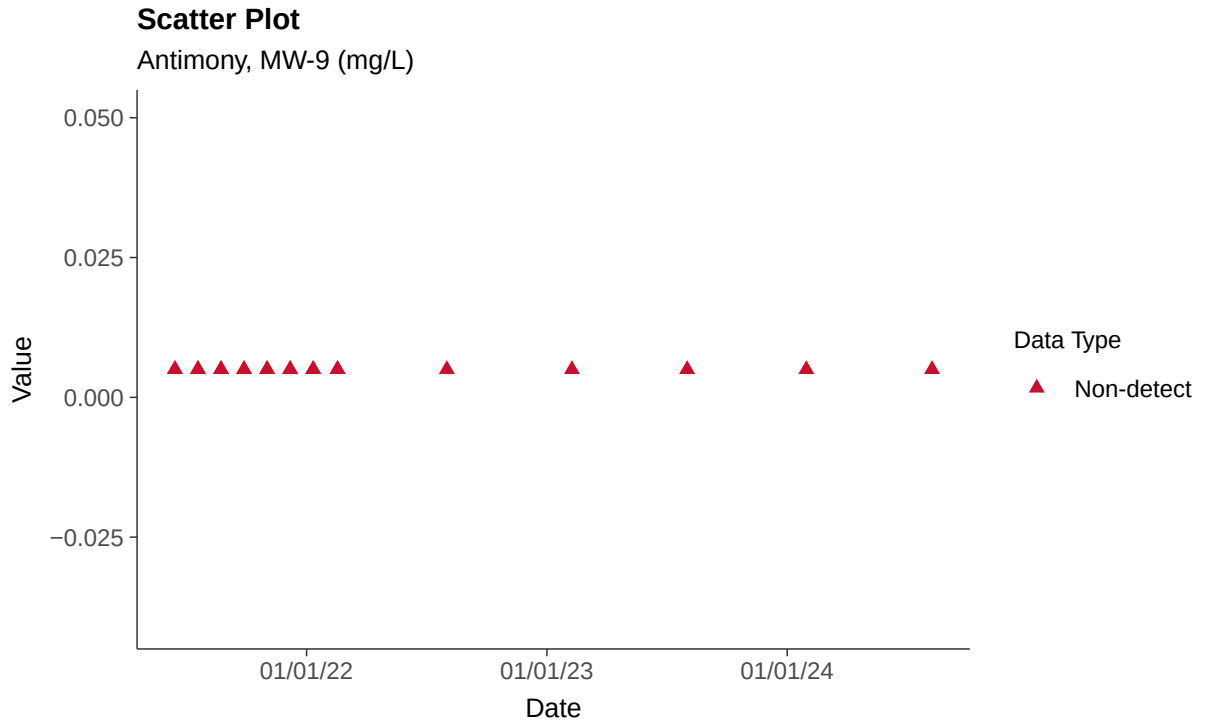
Trend Regression: Piecewise Linear-Linear-Linear

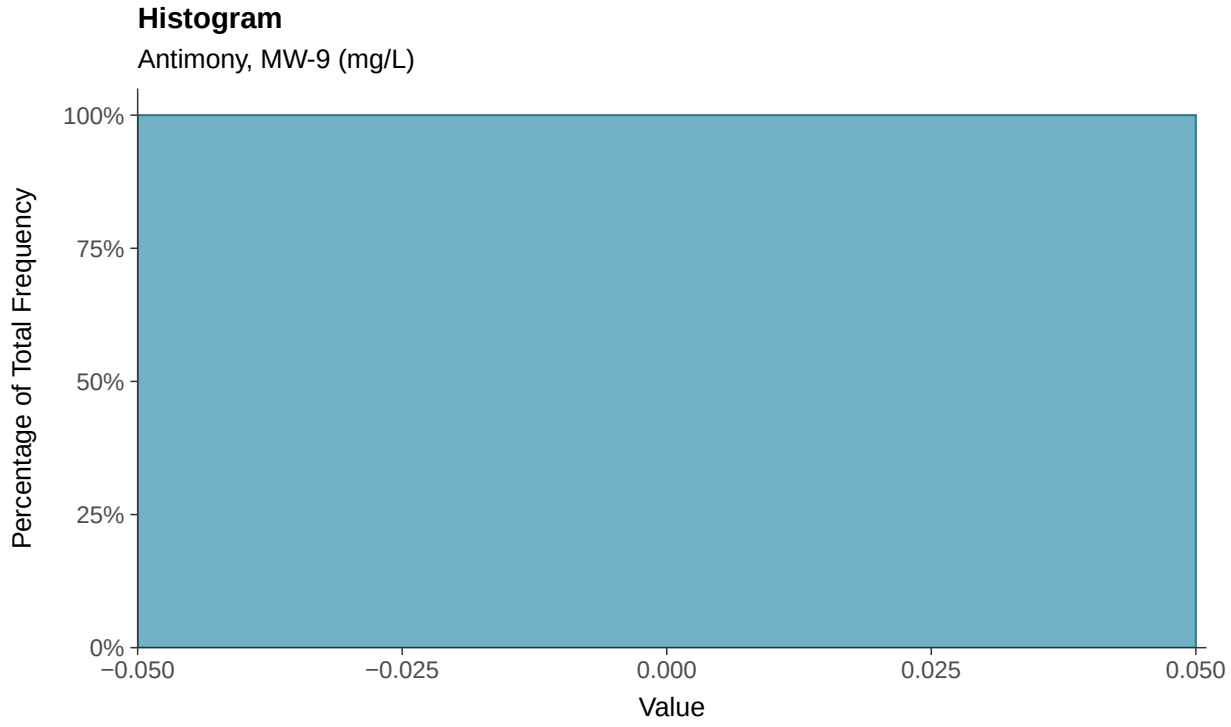
Fluoride, MW-9 (mg/L)



Appendix IV: Antimony, MW-9

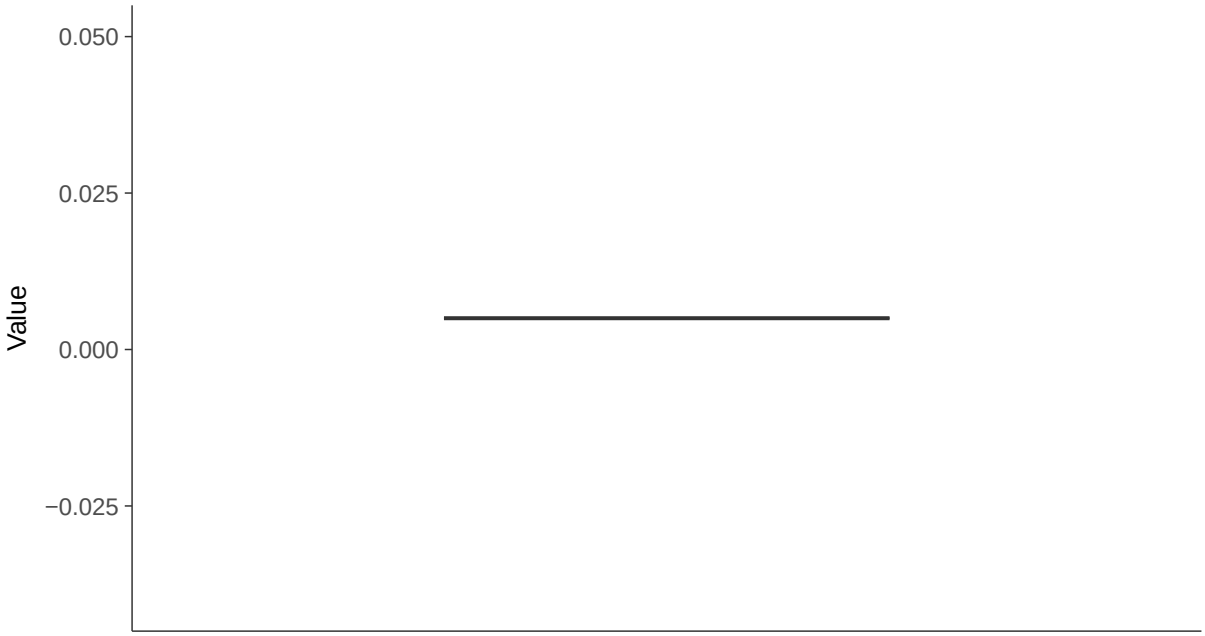
ID: 09_2_08





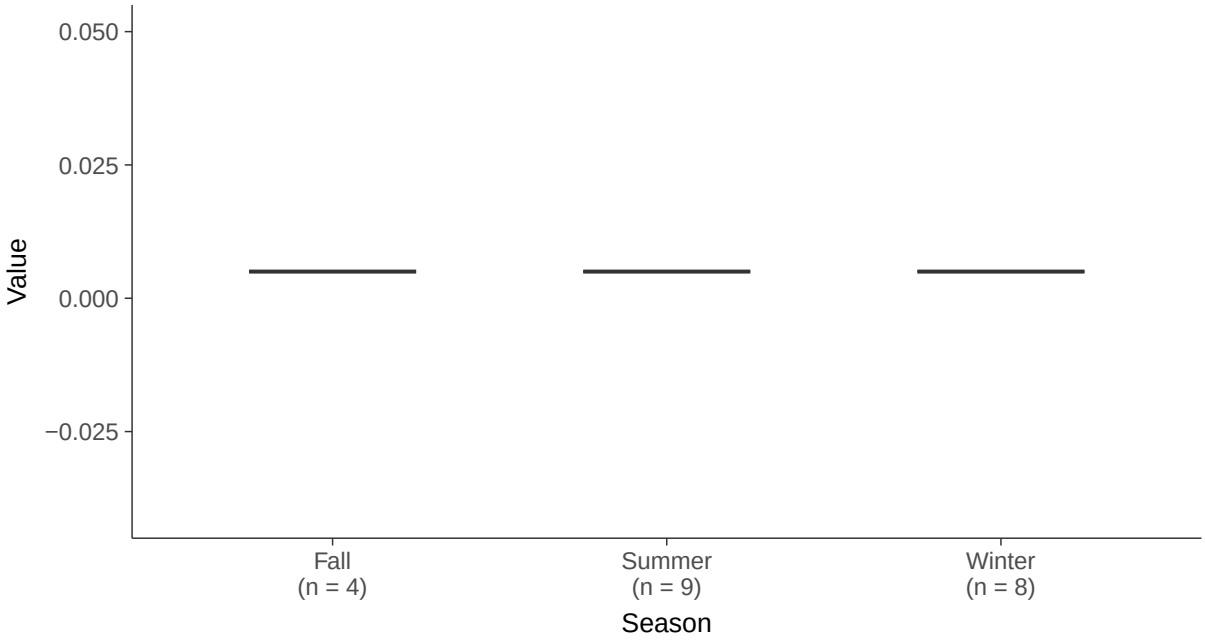
Boxplot

Antimony, MW-9 (mg/L)



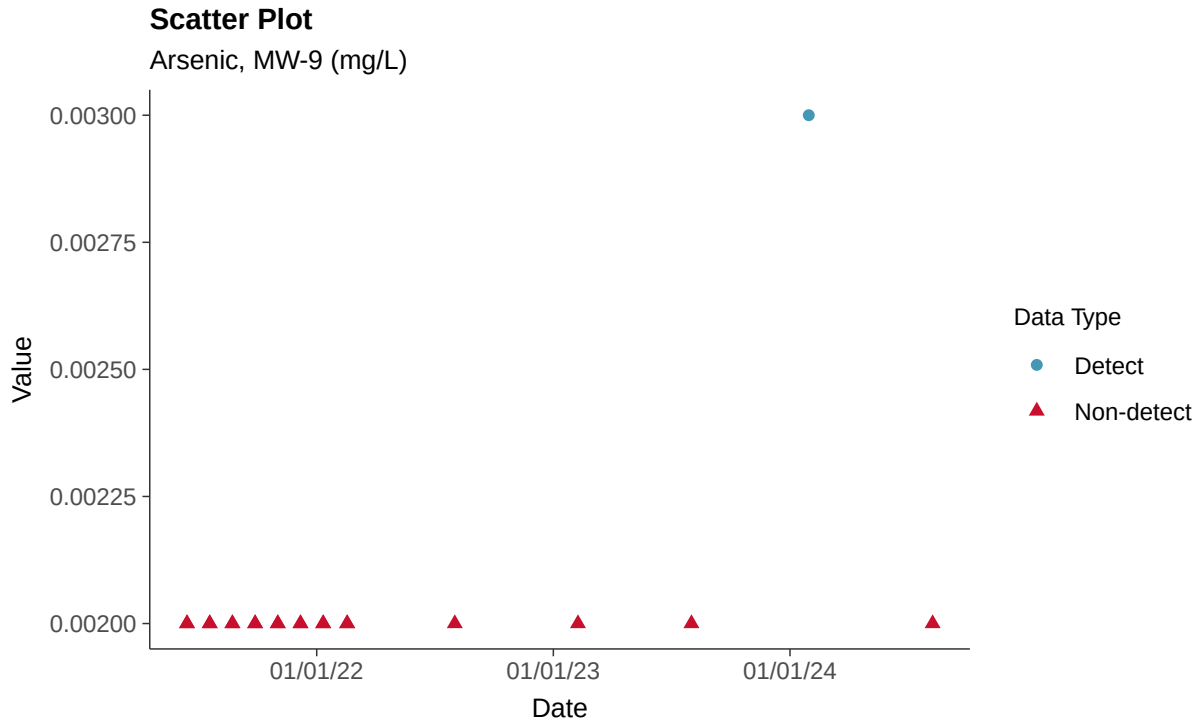
Boxplot by Season

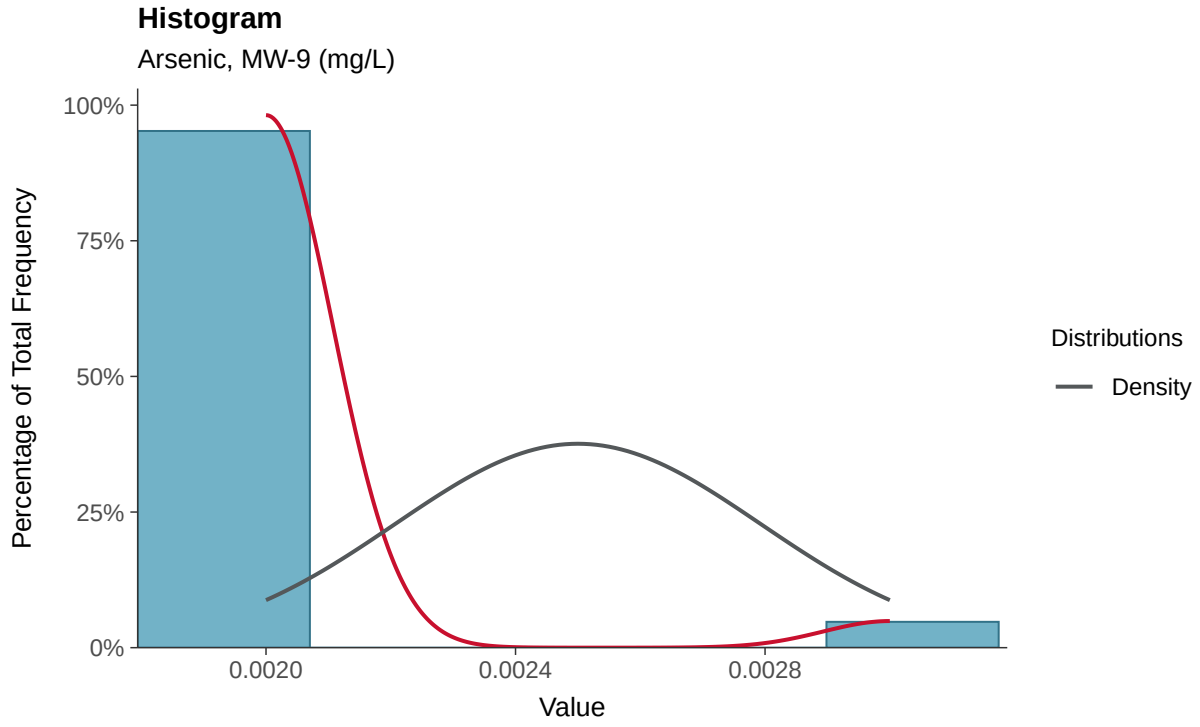
Antimony, MW-9 (mg/L)



Appendix IV: Arsenic, MW-9

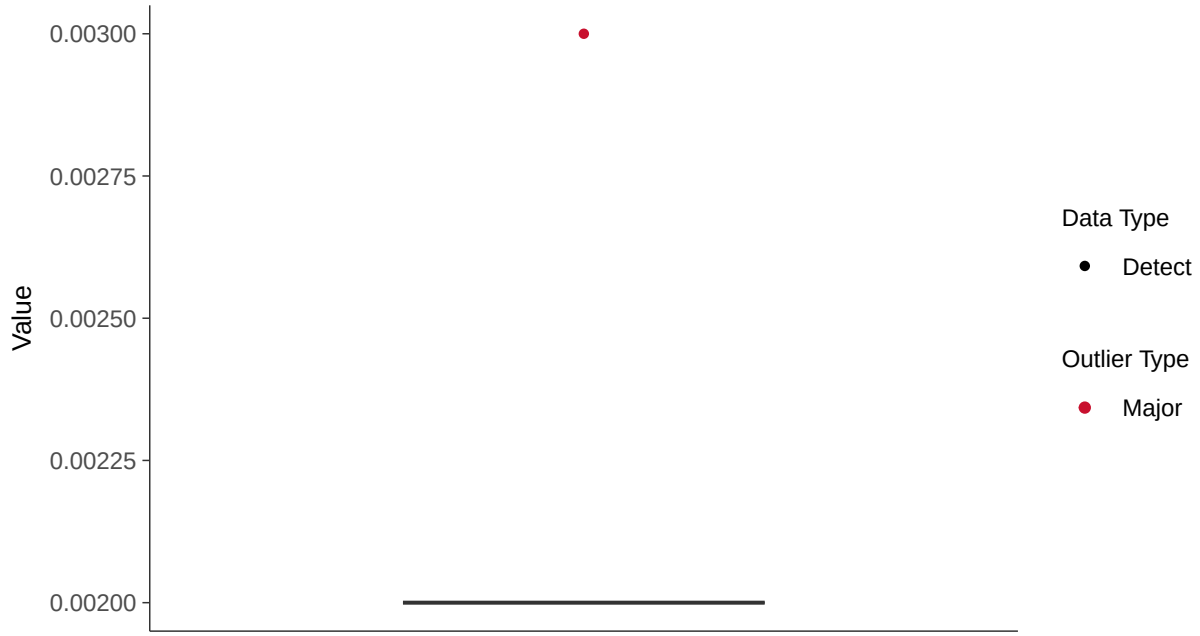
ID: 09_2_09





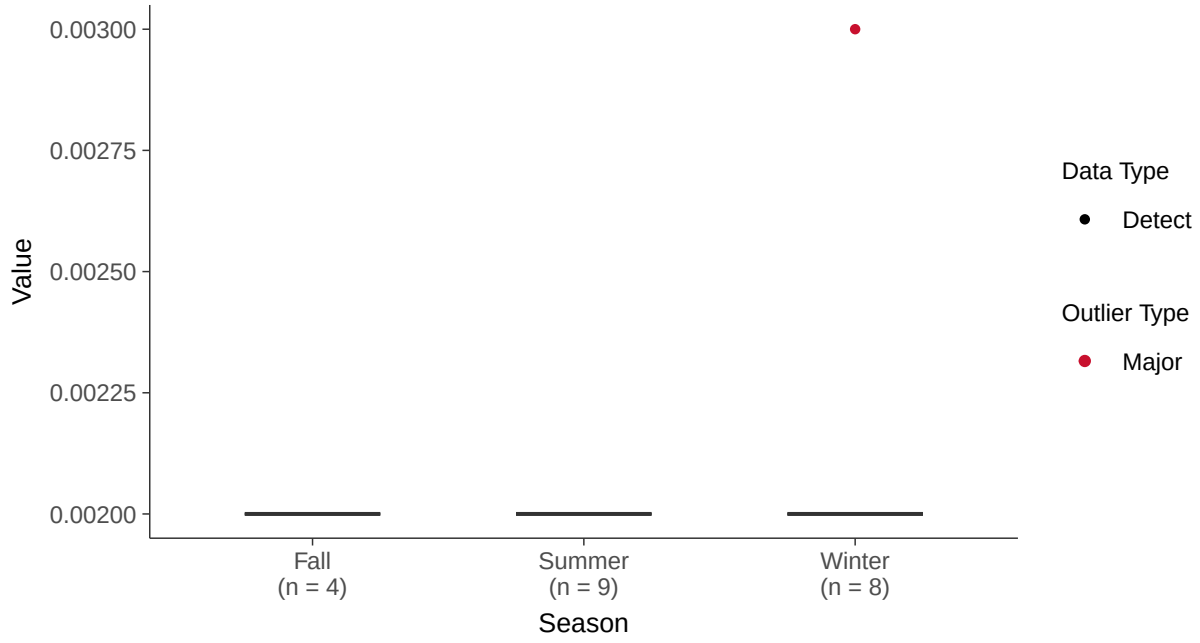
Boxplot

Arsenic, MW-9 (mg/L)



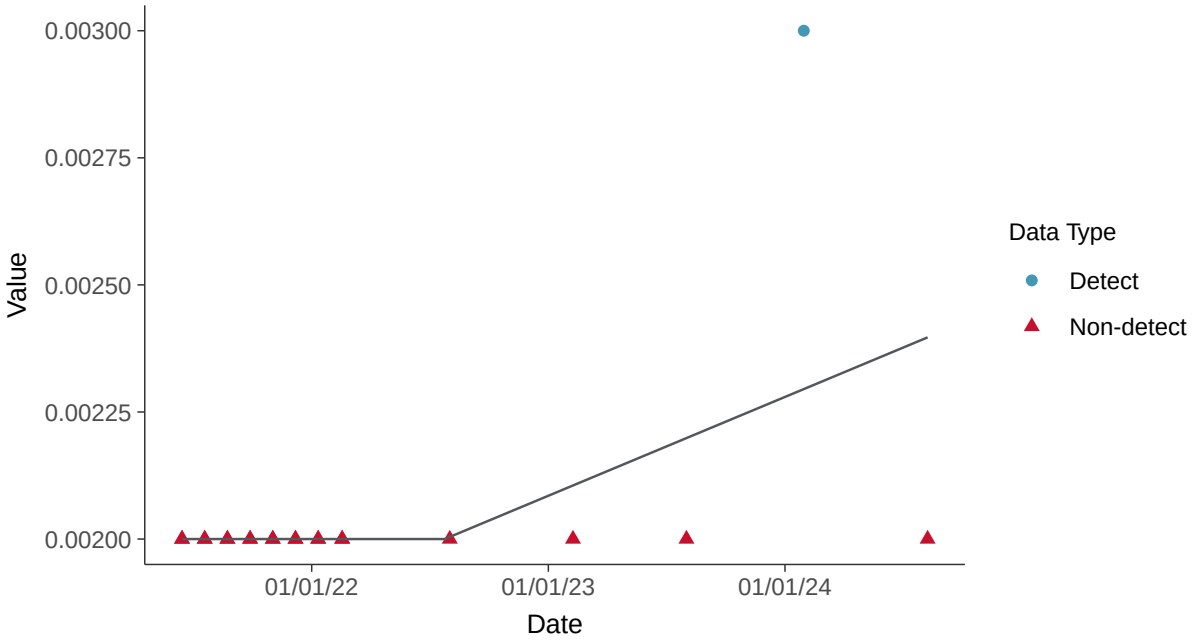
Boxplot by Season

Arsenic, MW-9 (mg/L)



Trend Regression: Piecewise Linear-Linear

Arsenic, MW-9 (mg/L)

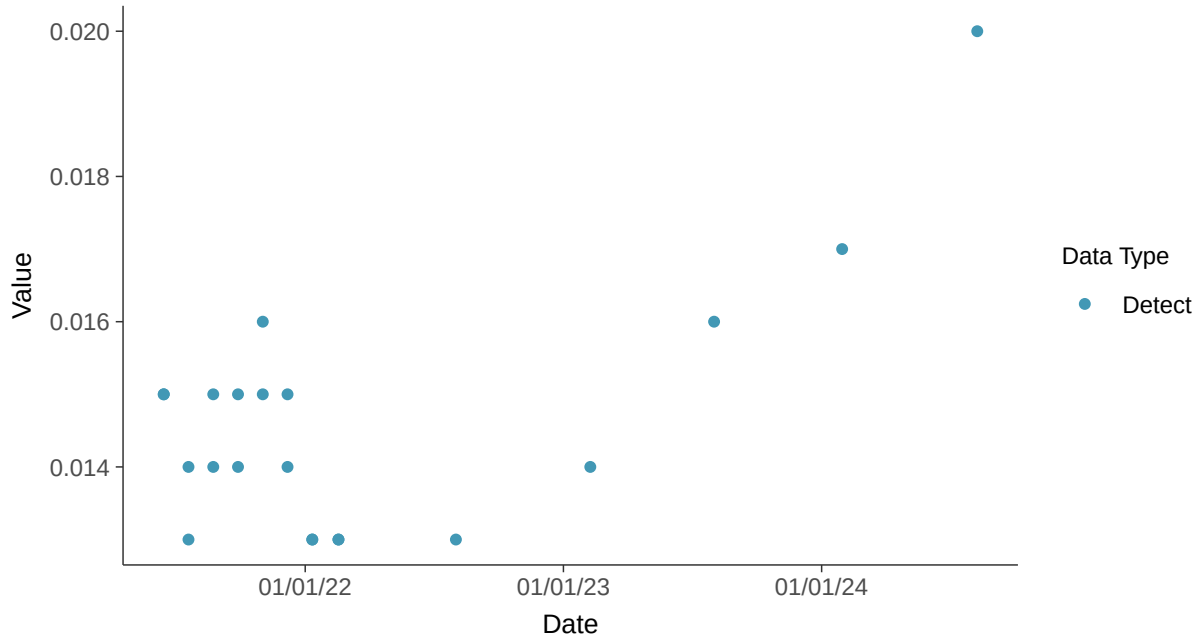


Appendix IV: Barium, MW-9

ID: 09_2_10

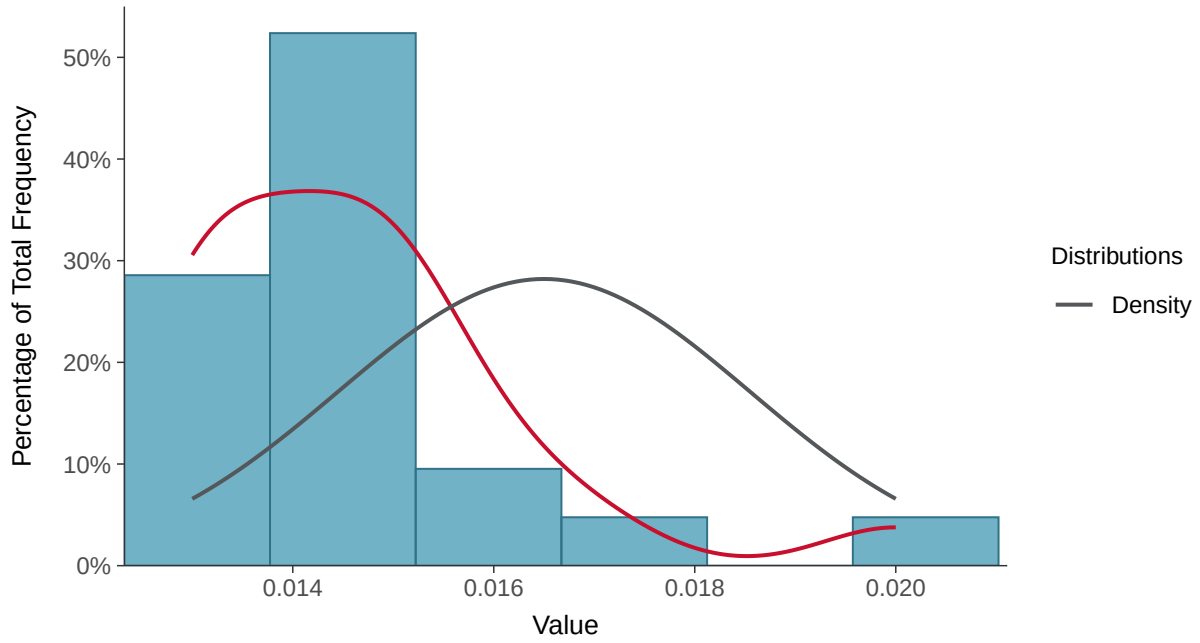
Scatter Plot

Barium, MW-9 (mg/L)



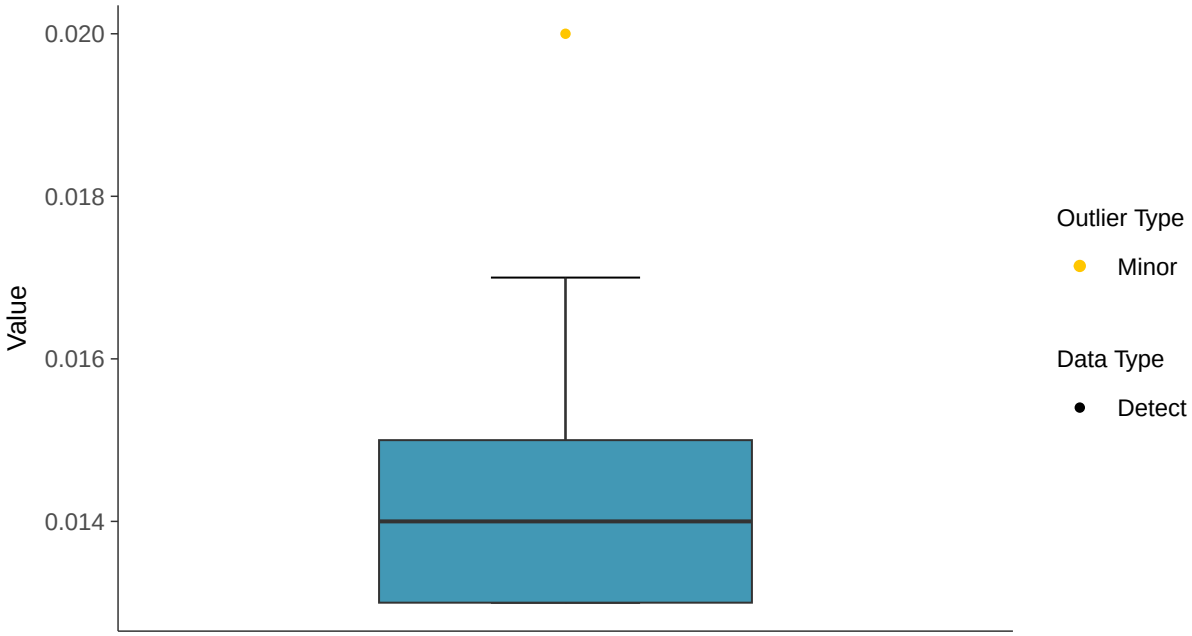
Histogram

Barium, MW-9 (mg/L)



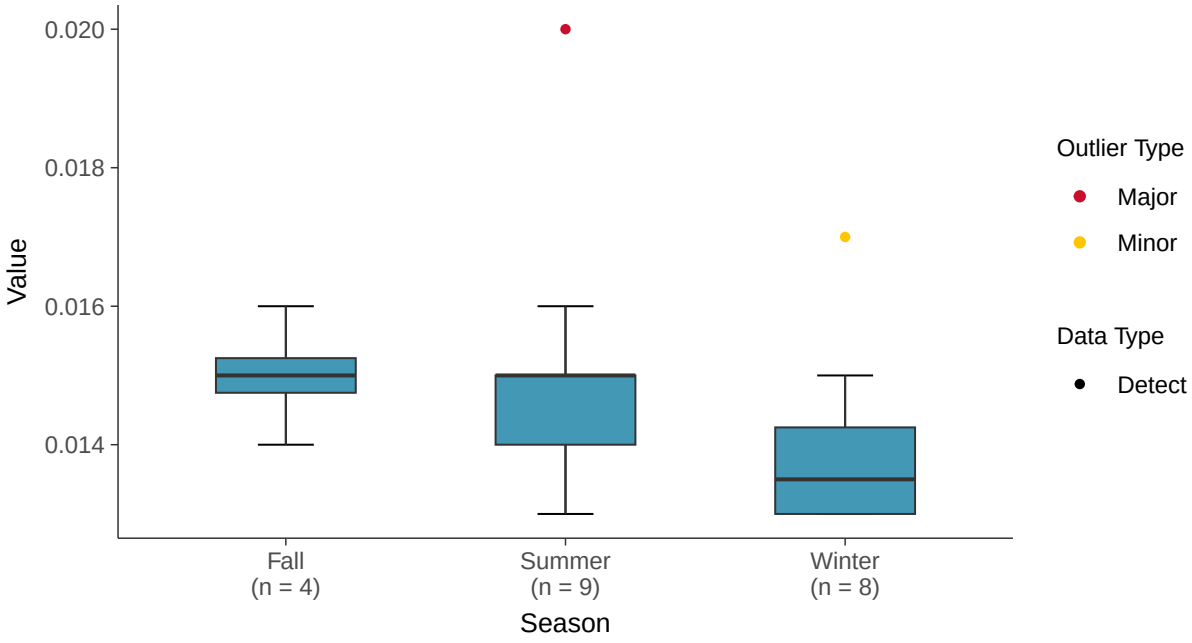
Boxplot

Barium, MW-9 (mg/L)



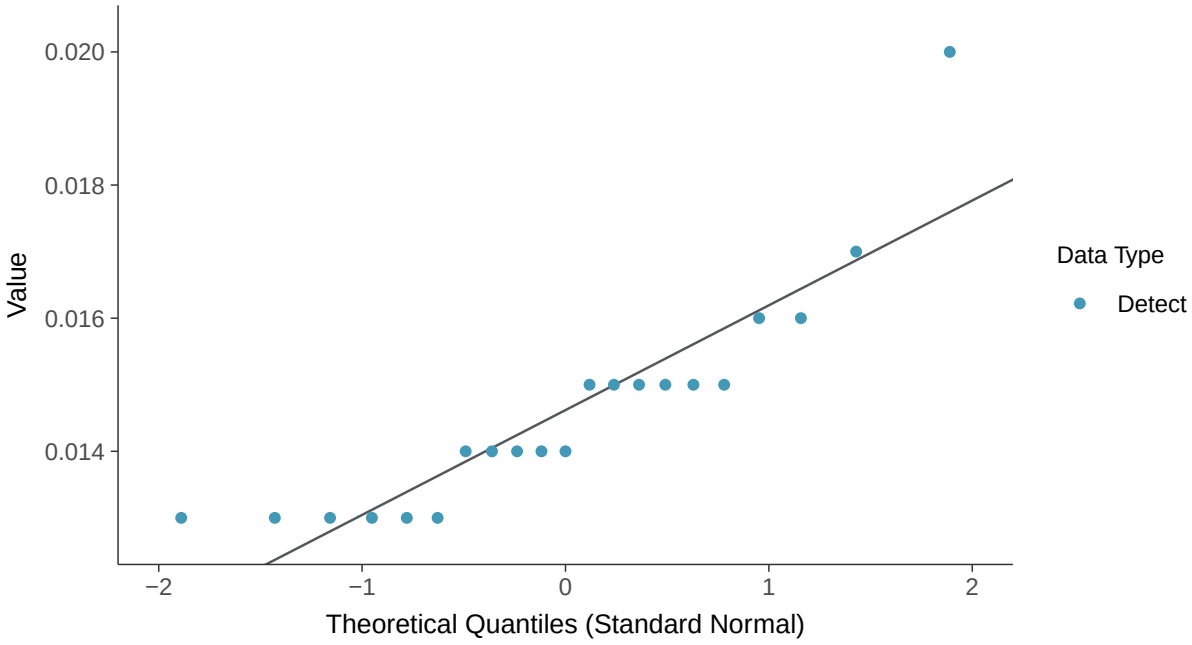
Boxplot by Season

Barium, MW-9 (mg/L)



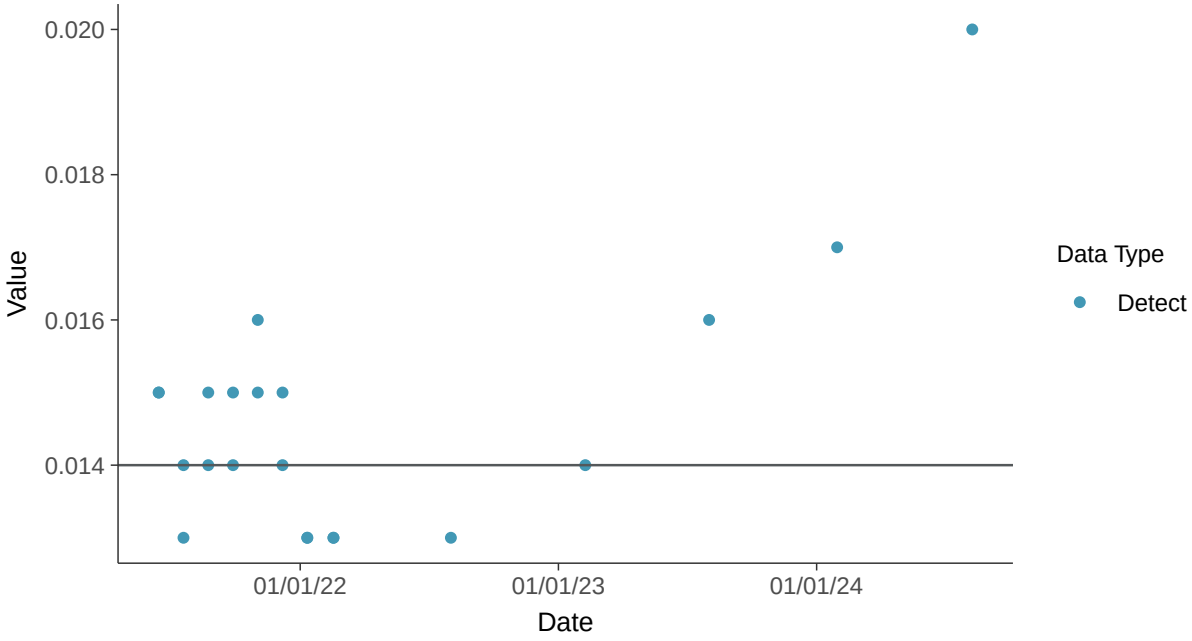
Normal Q-Q plot

Barium, MW-9 (mg/L)



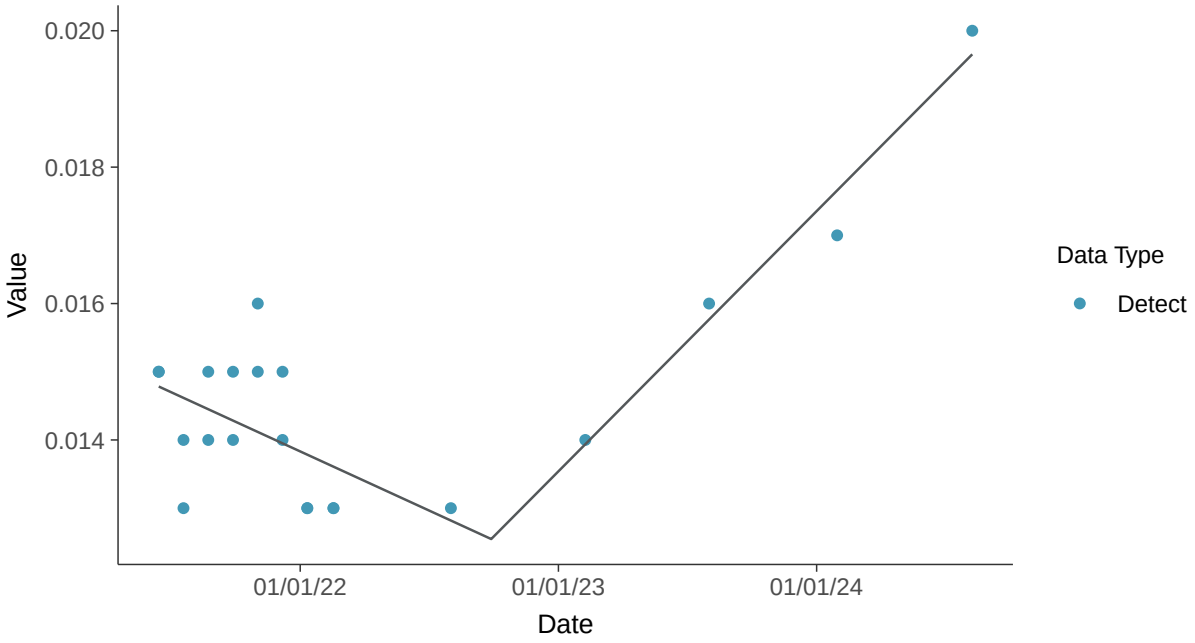
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Barium, MW-9 (mg/L)



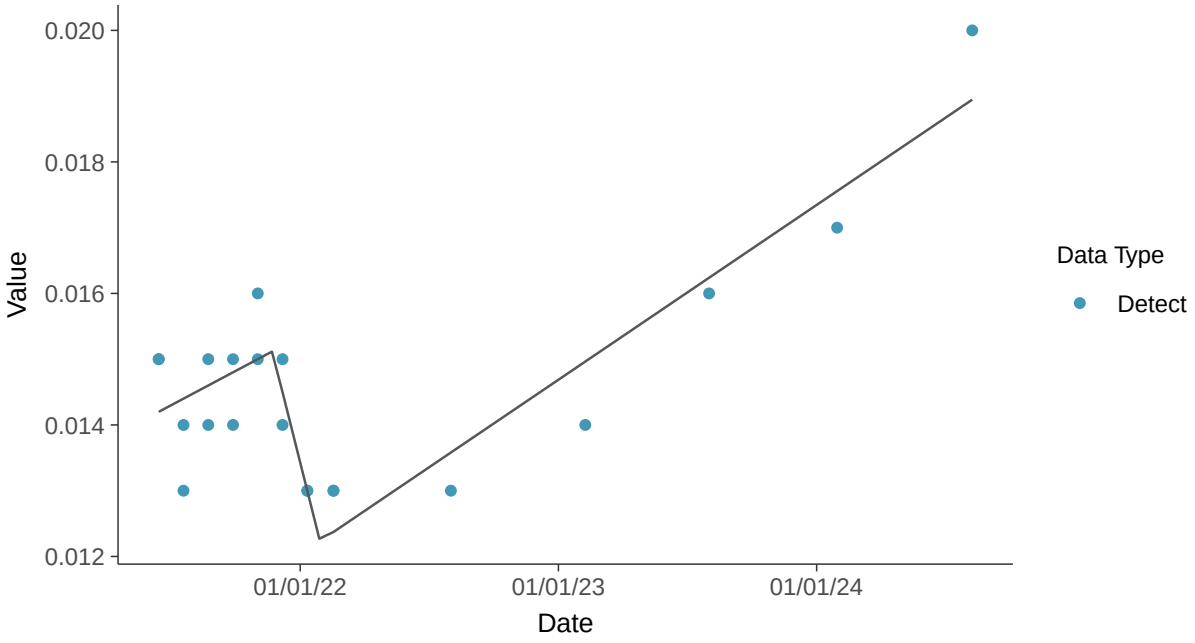
Trend Regression: Piecewise Linear-Linear

Barium, MW-9 (mg/L)



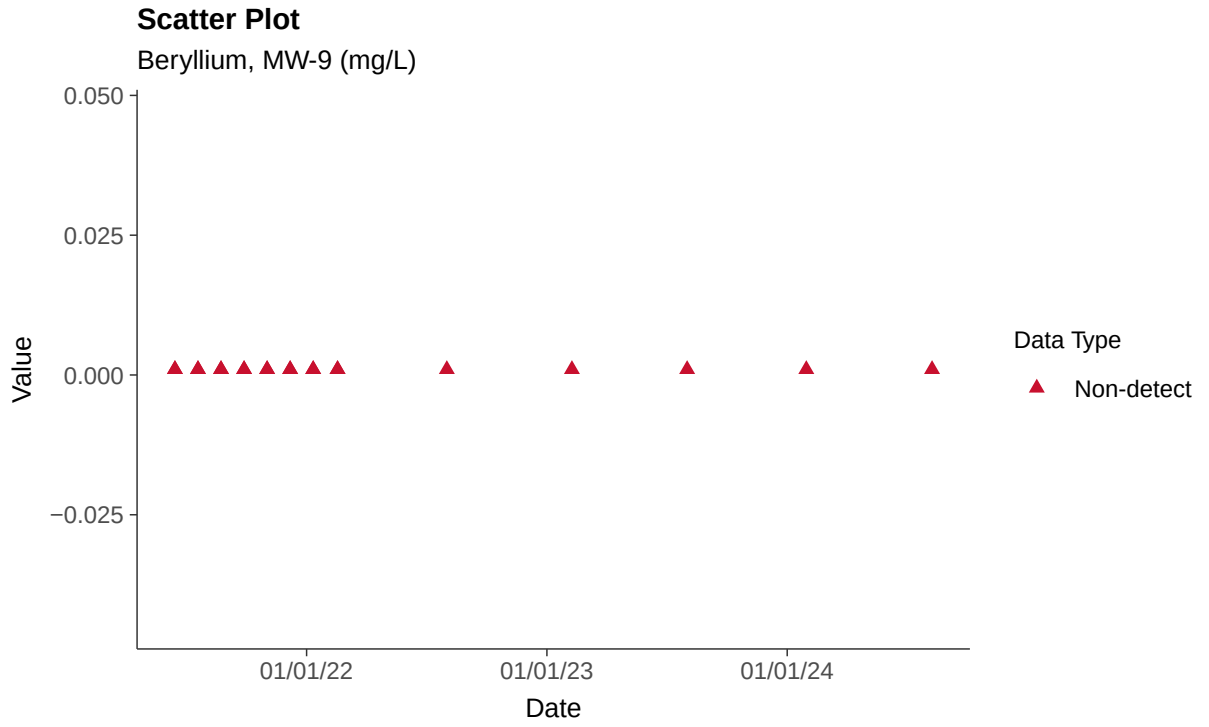
Trend Regression: Piecewise Linear-Linear-Linear

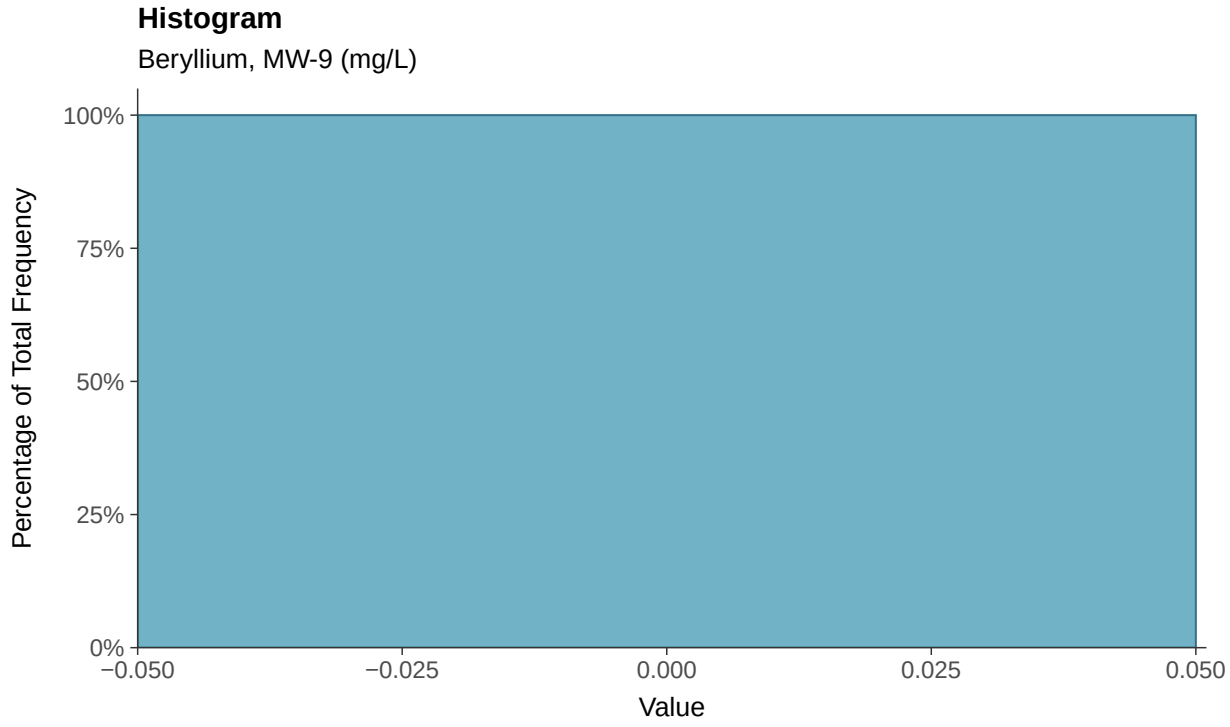
Barium, MW-9 (mg/L)



Appendix IV: Beryllium, MW-9

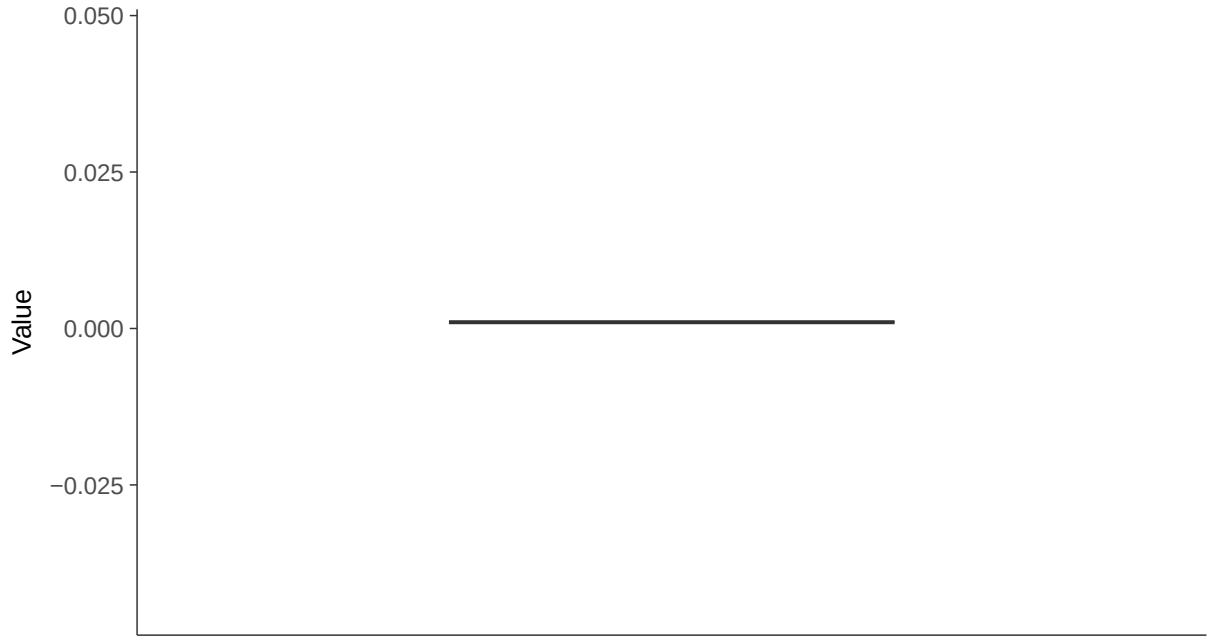
ID: 09_2_11





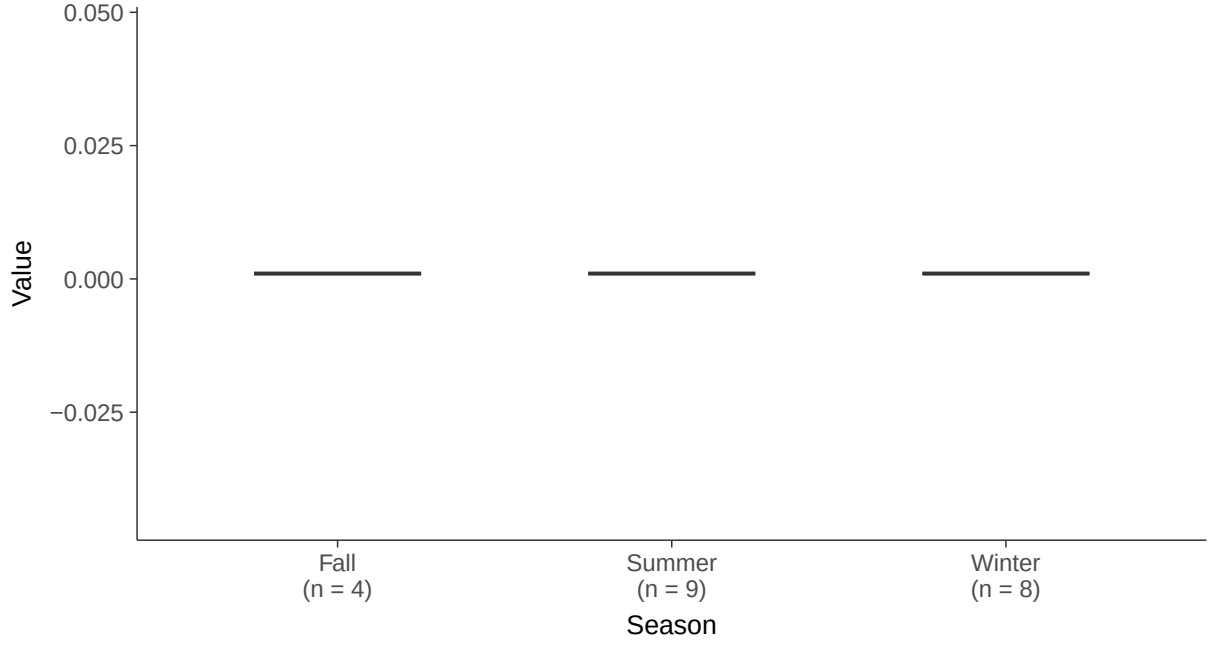
Boxplot

Beryllium, MW-9 (mg/L)



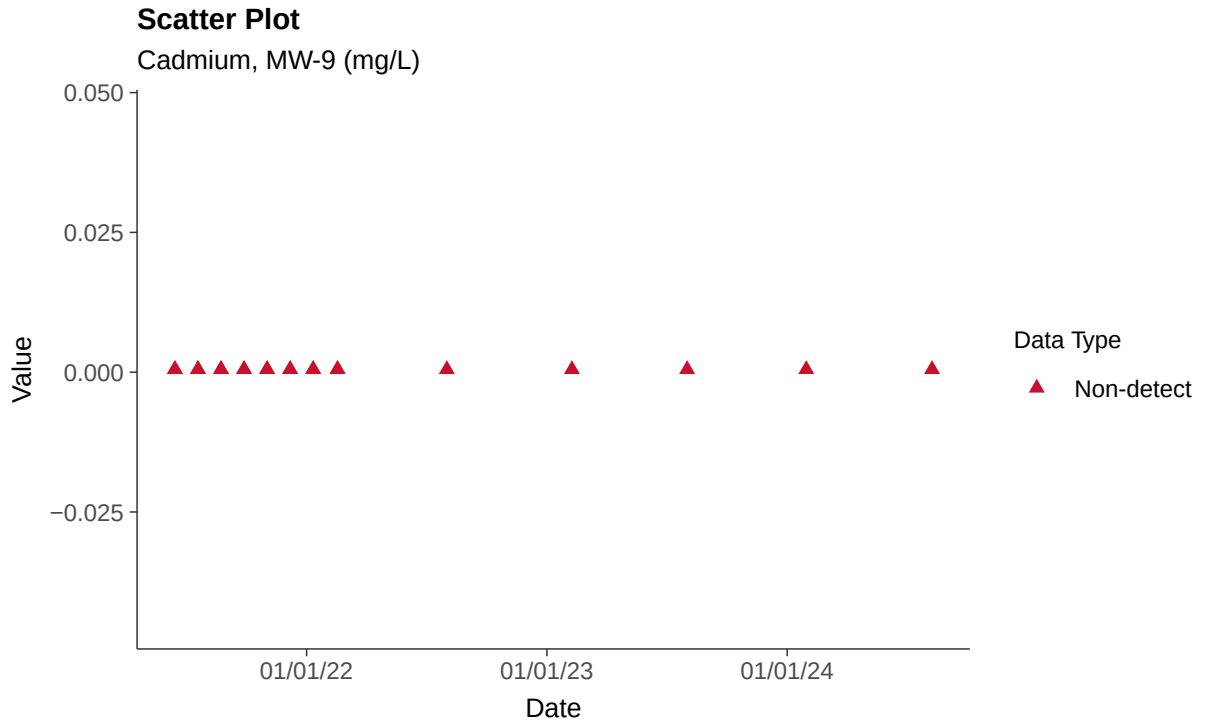
Boxplot by Season

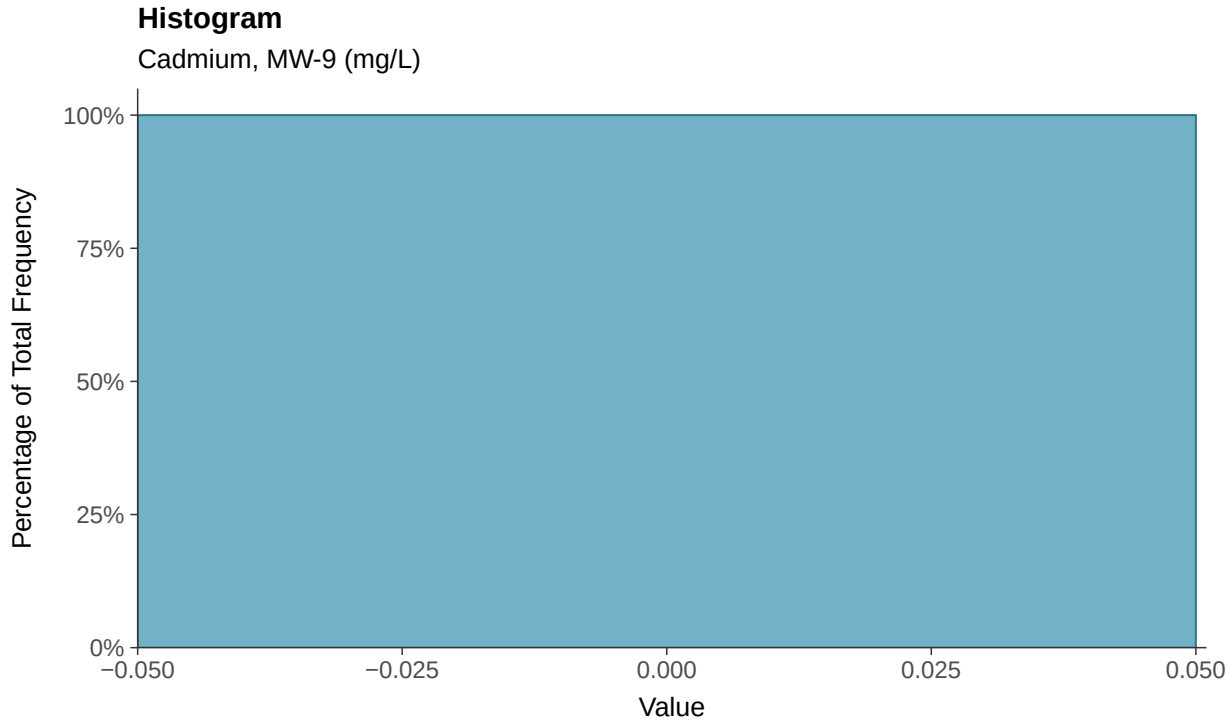
Beryllium, MW-9 (mg/L)



Appendix IV: Cadmium, MW-9

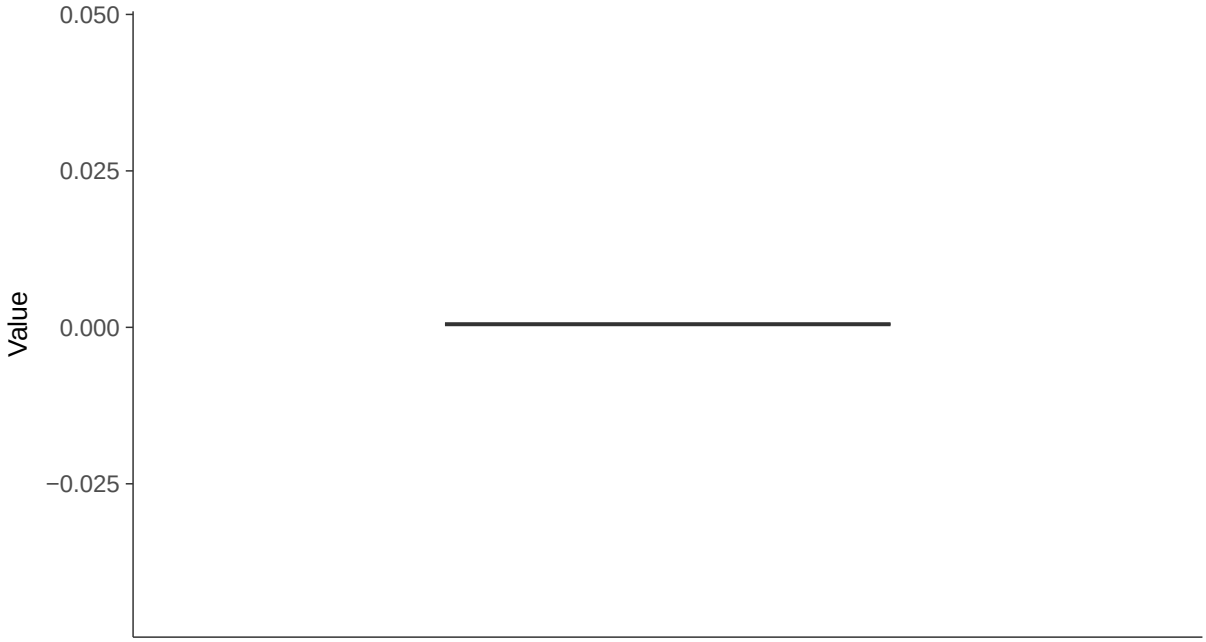
ID: 09_2_12





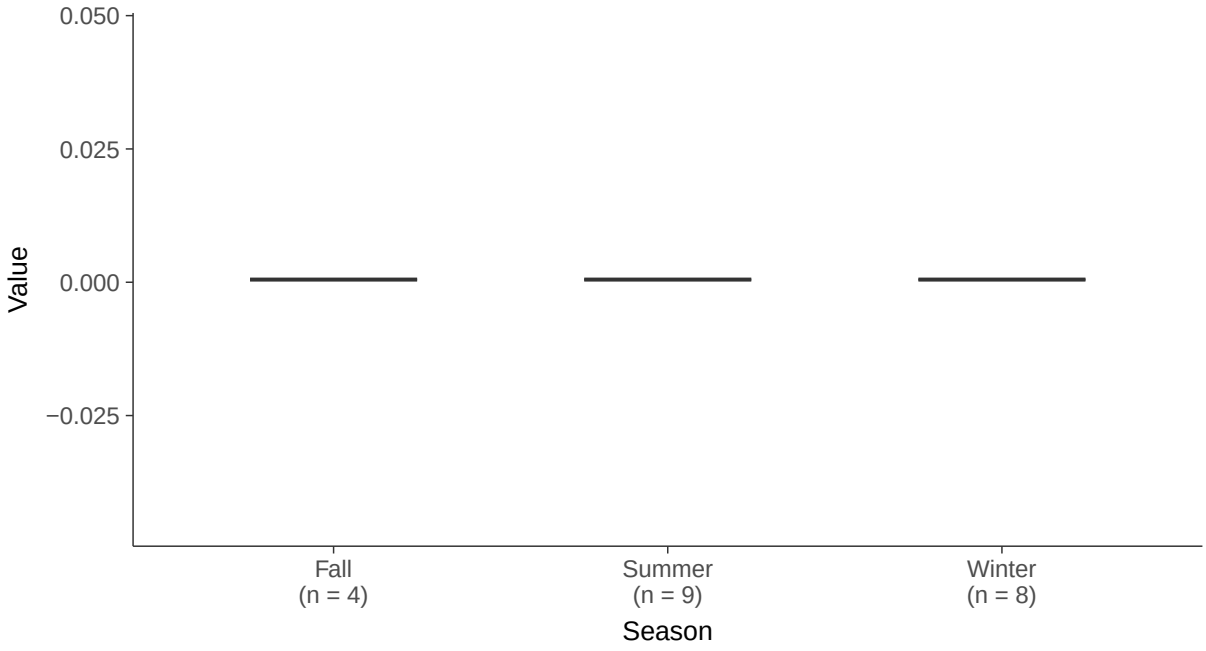
Boxplot

Cadmium, MW-9 (mg/L)



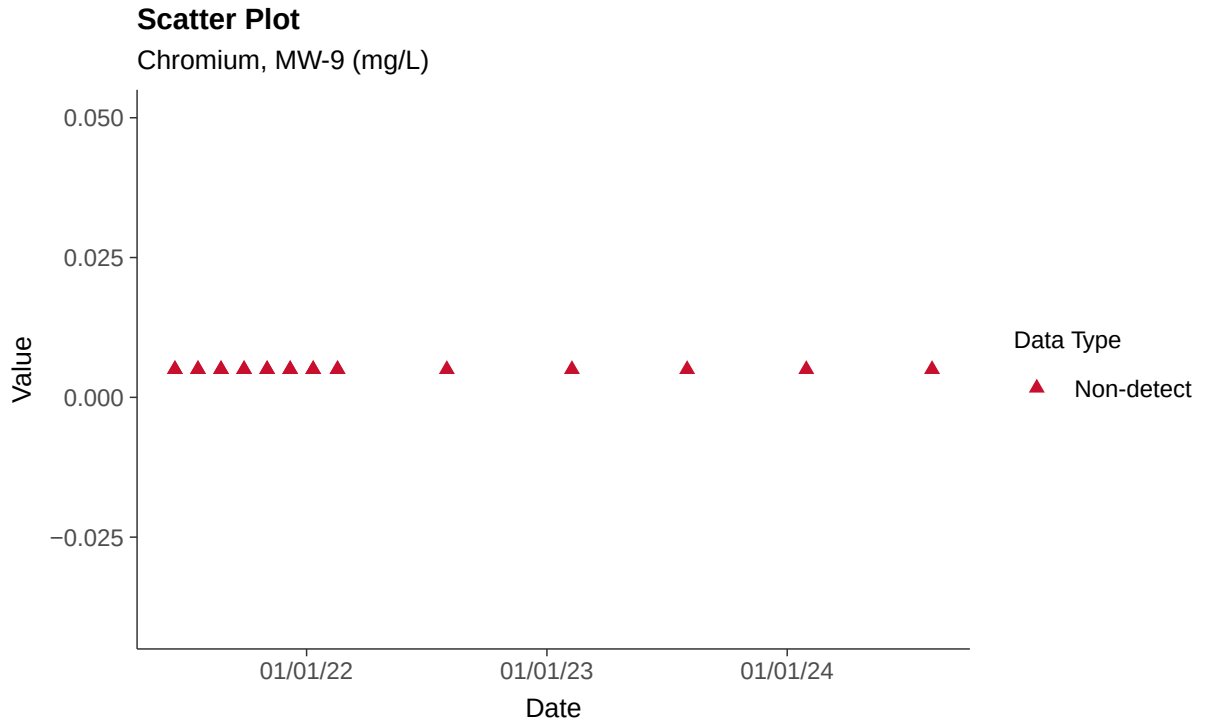
Boxplot by Season

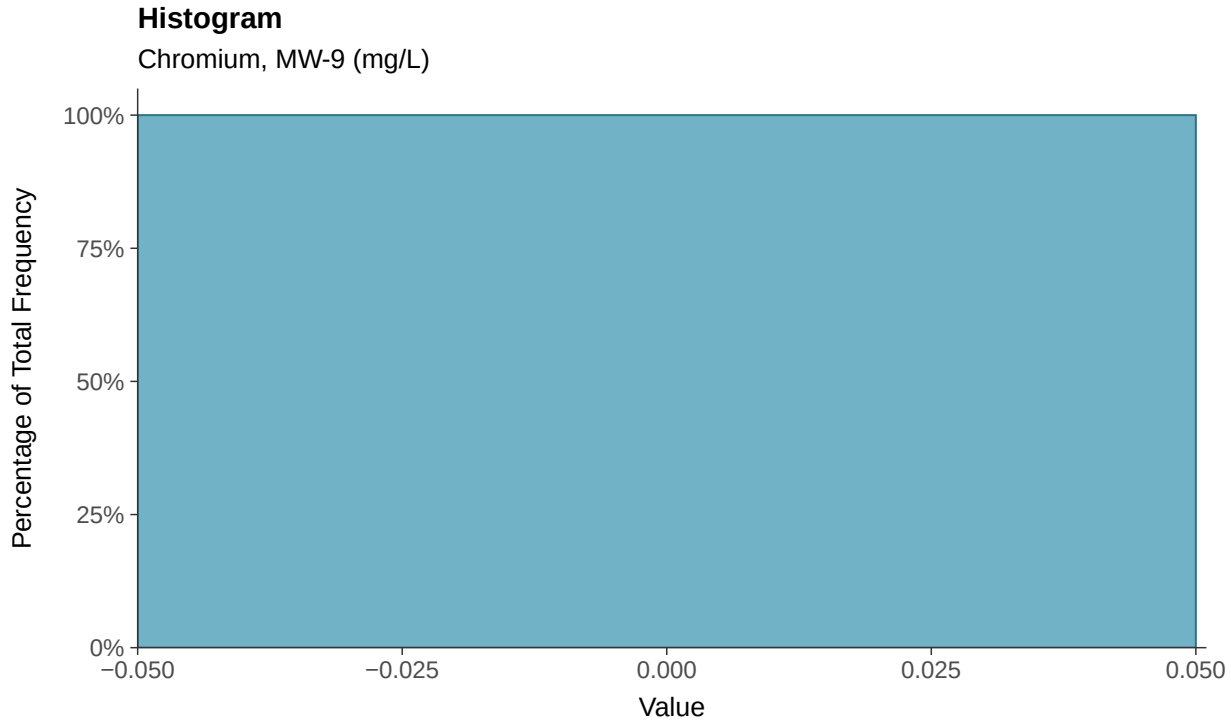
Cadmium, MW-9 (mg/L)



Appendix IV: Chromium, MW-9

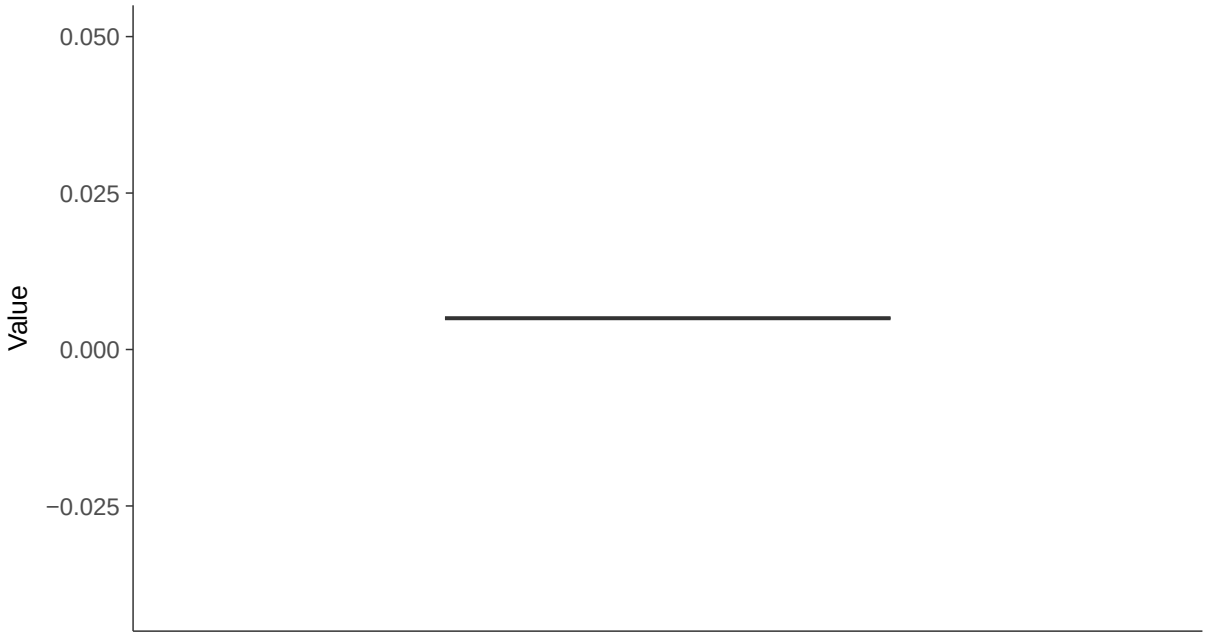
ID: 09_2_13





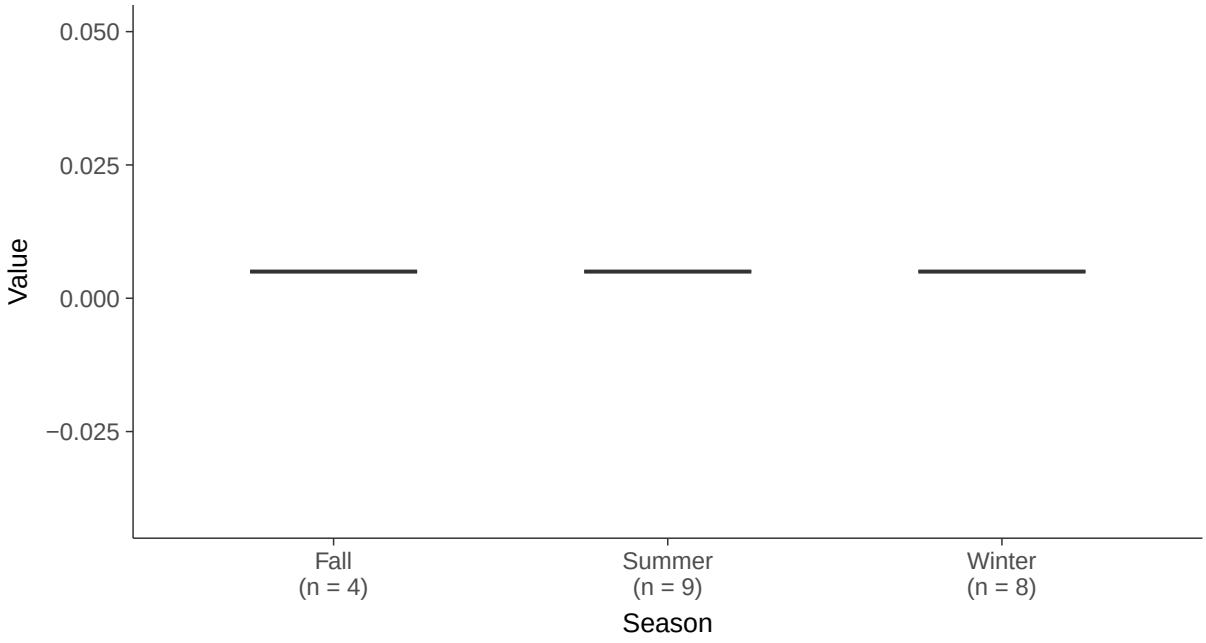
Boxplot

Chromium, MW-9 (mg/L)



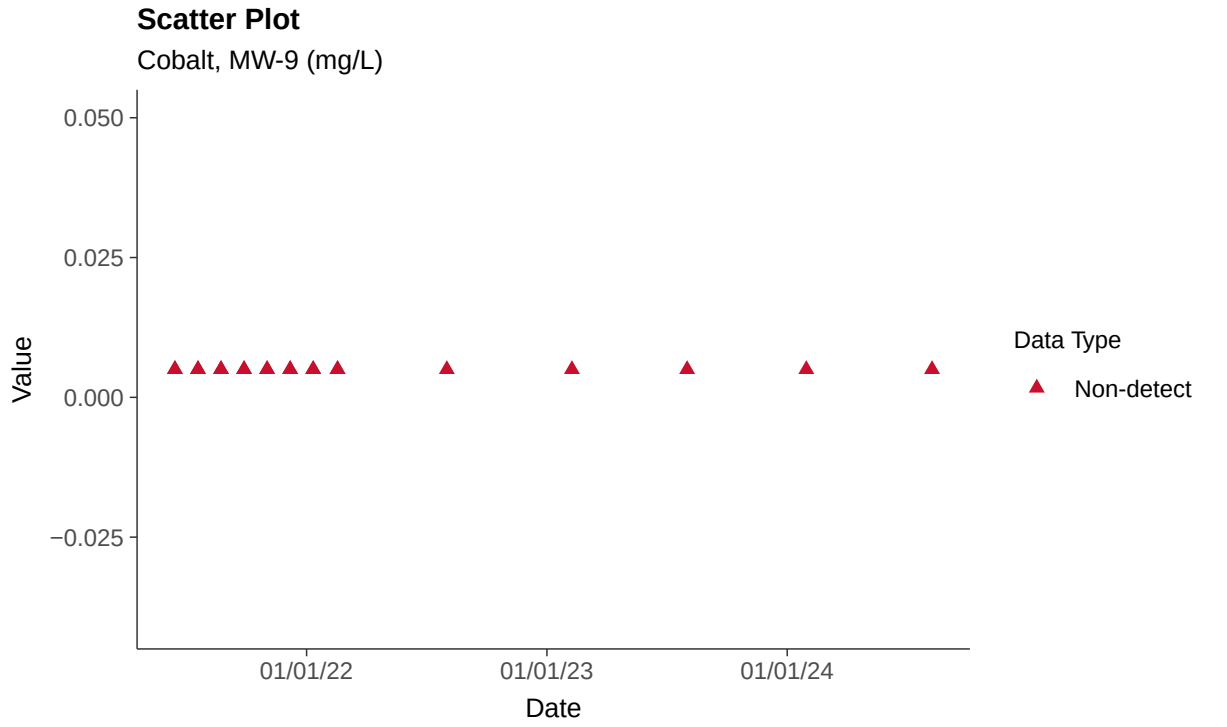
Boxplot by Season

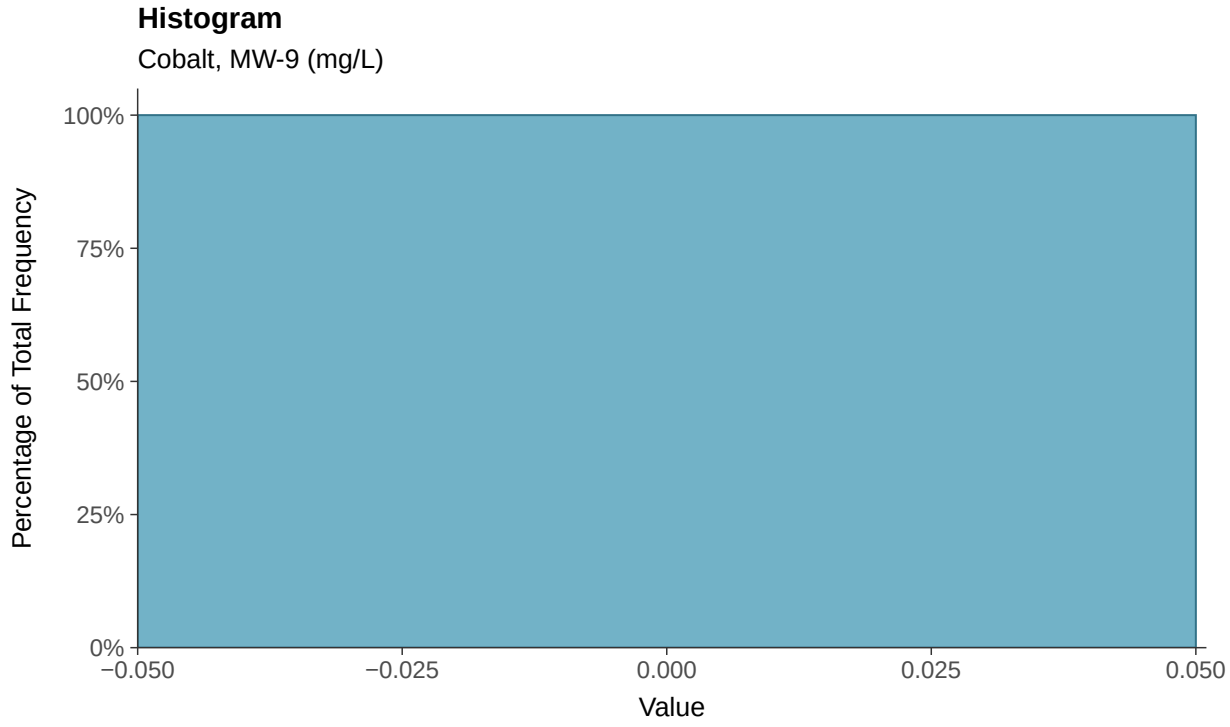
Chromium, MW-9 (mg/L)



Appendix IV: Cobalt, MW-9

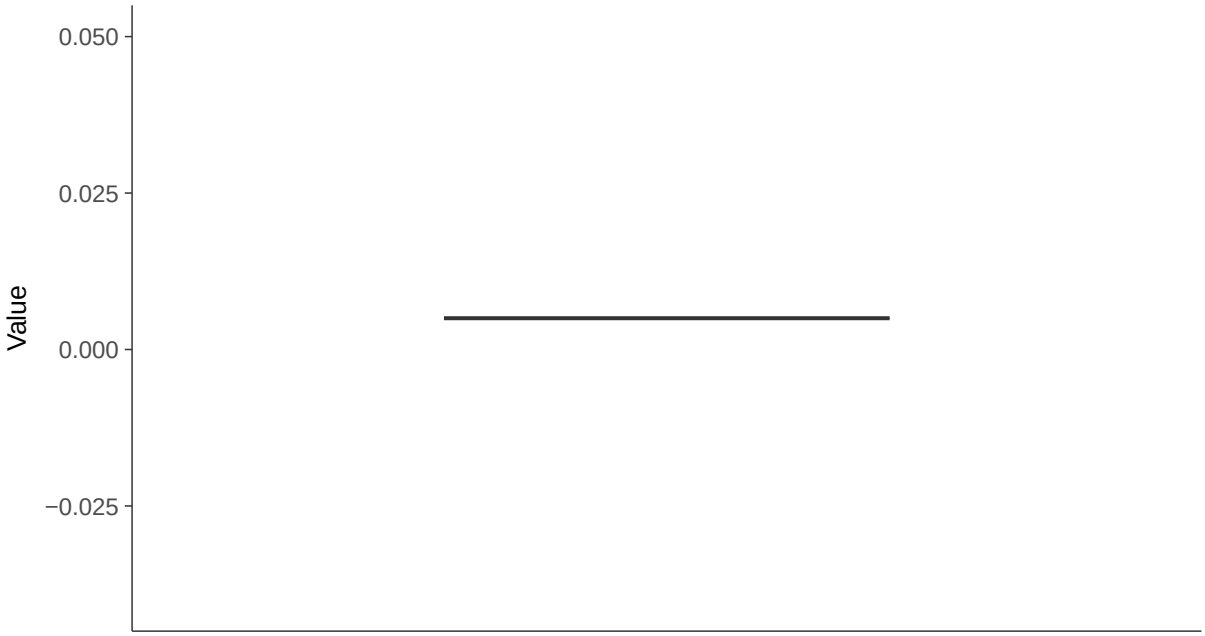
ID: 09_2_14





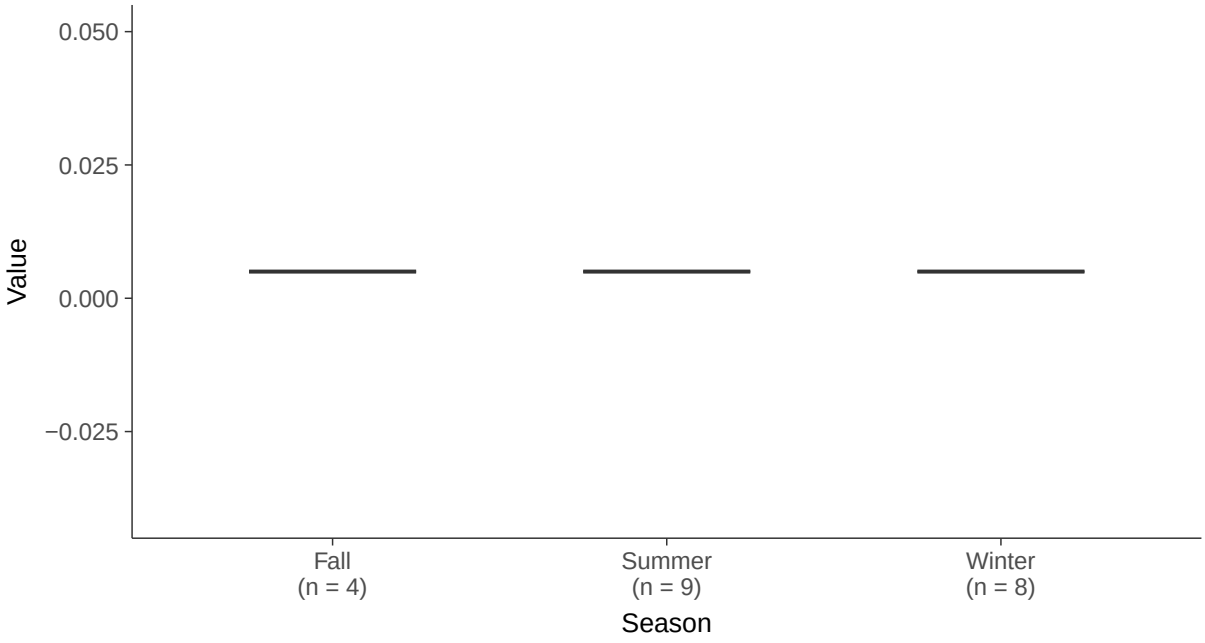
Boxplot

Cobalt, MW-9 (mg/L)



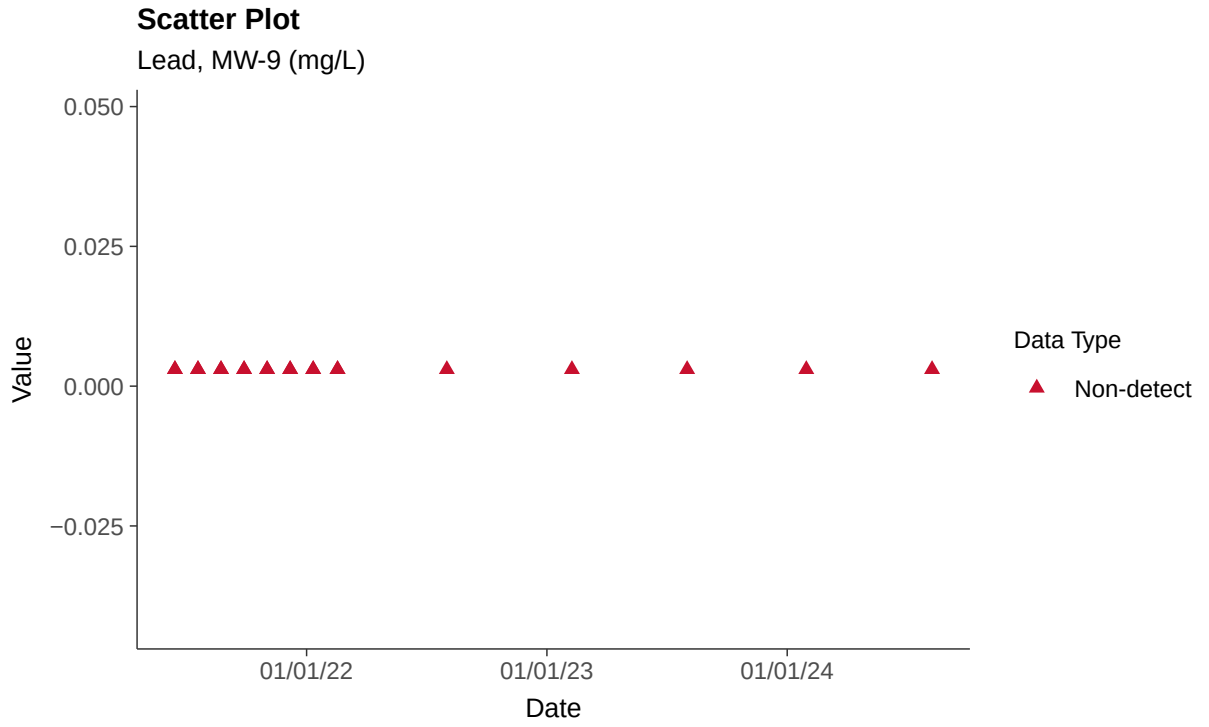
Boxplot by Season

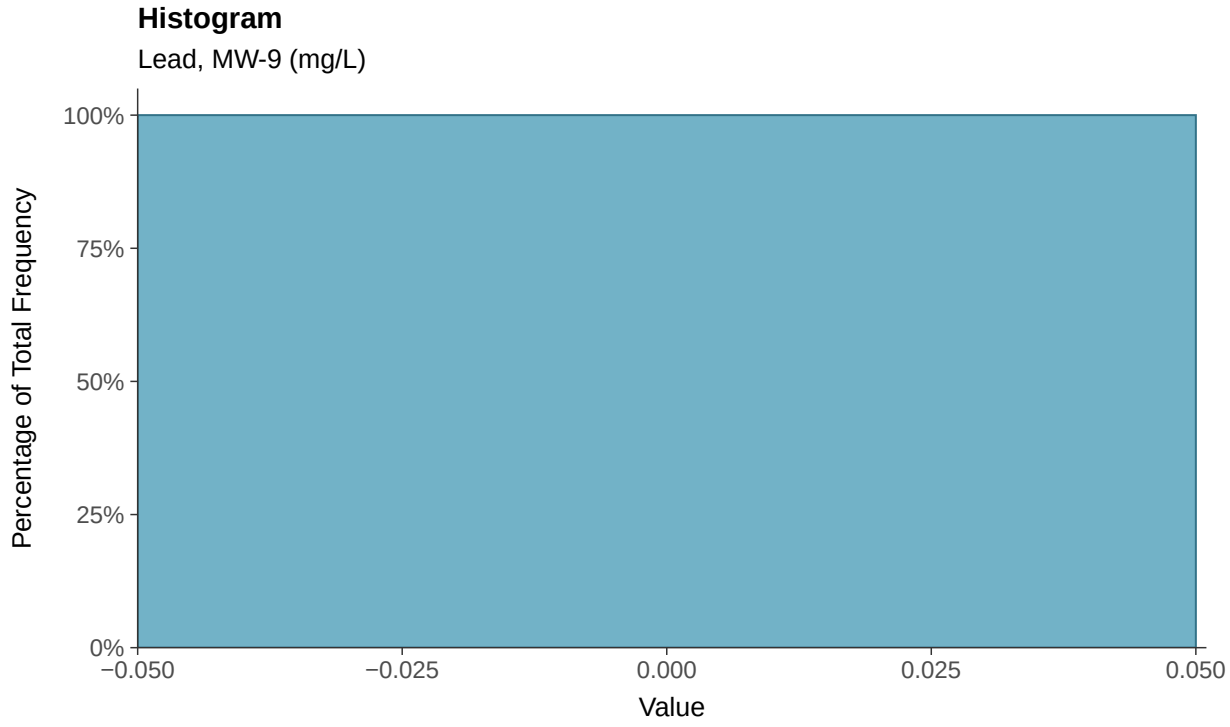
Cobalt, MW-9 (mg/L)



Appendix IV: Lead, MW-9

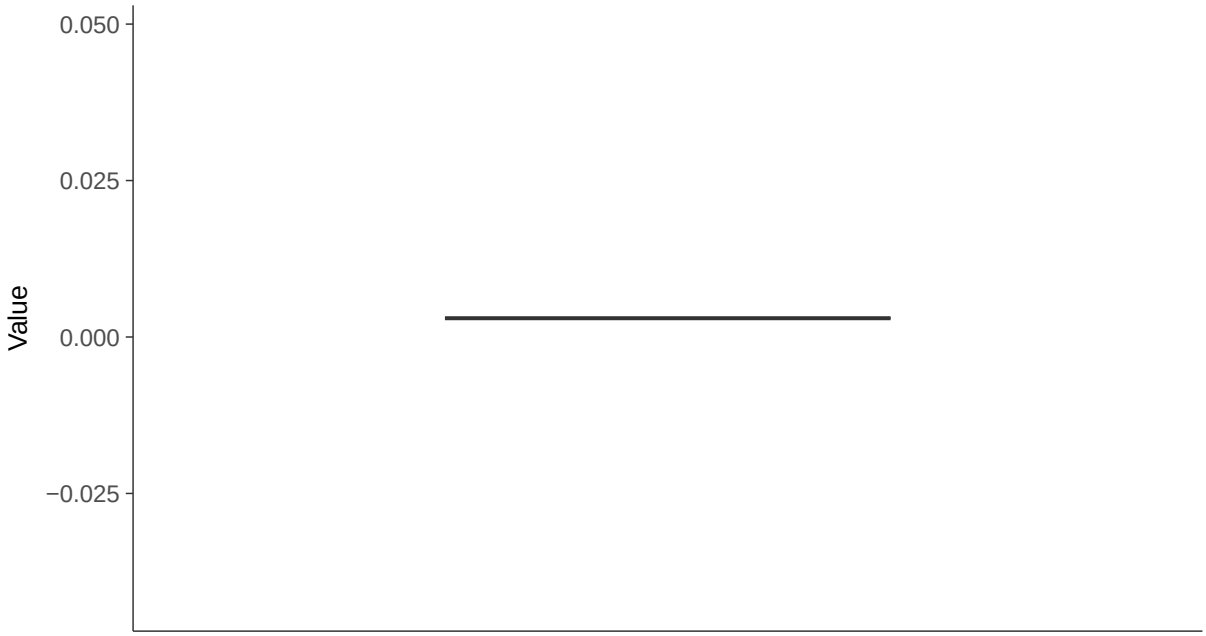
ID: 09_2_15





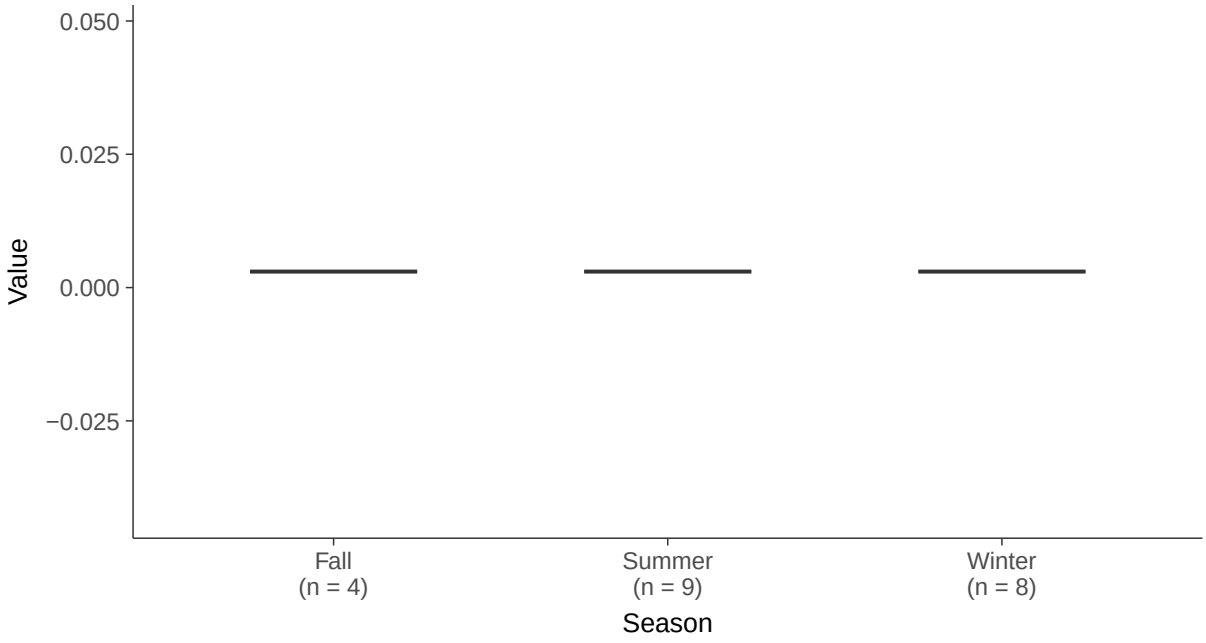
Boxplot

Lead, MW-9 (mg/L)



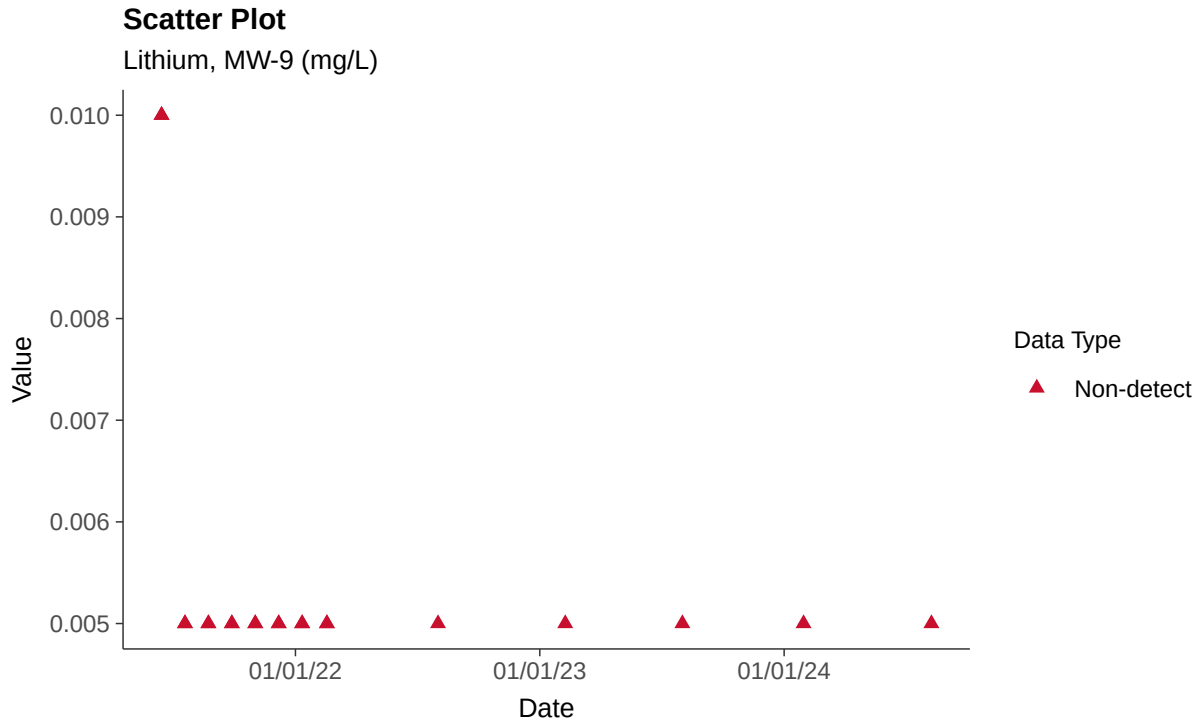
Boxplot by Season

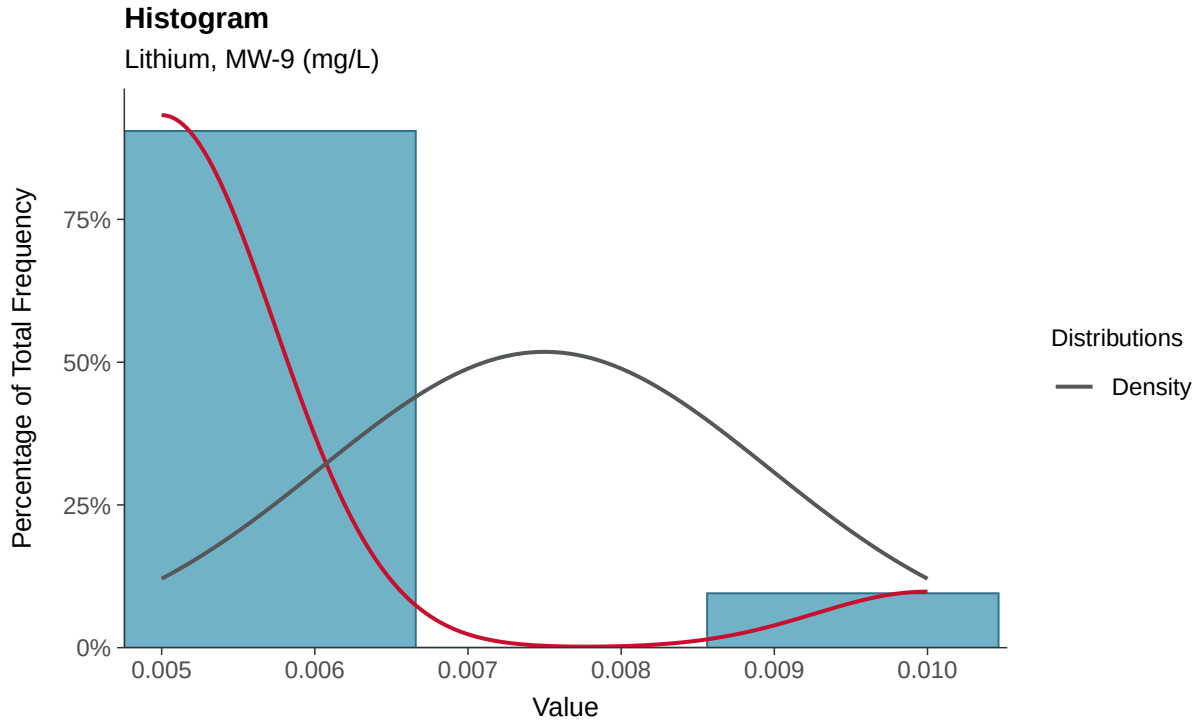
Lead, MW-9 (mg/L)



Appendix IV: Lithium, MW-9

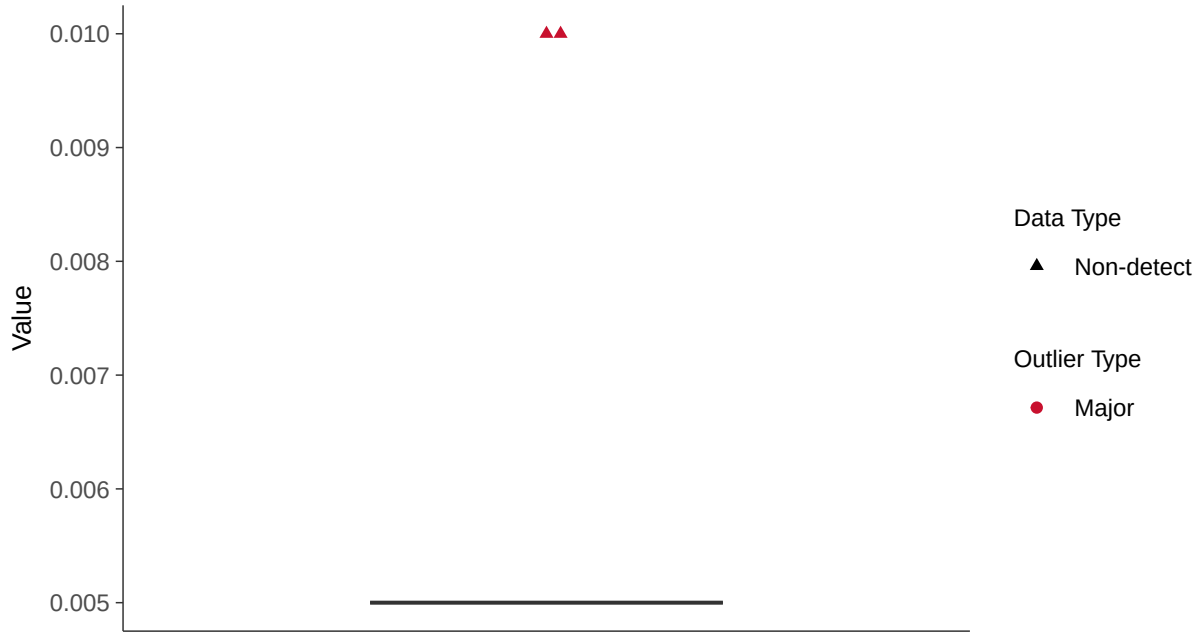
ID: 09_2_16





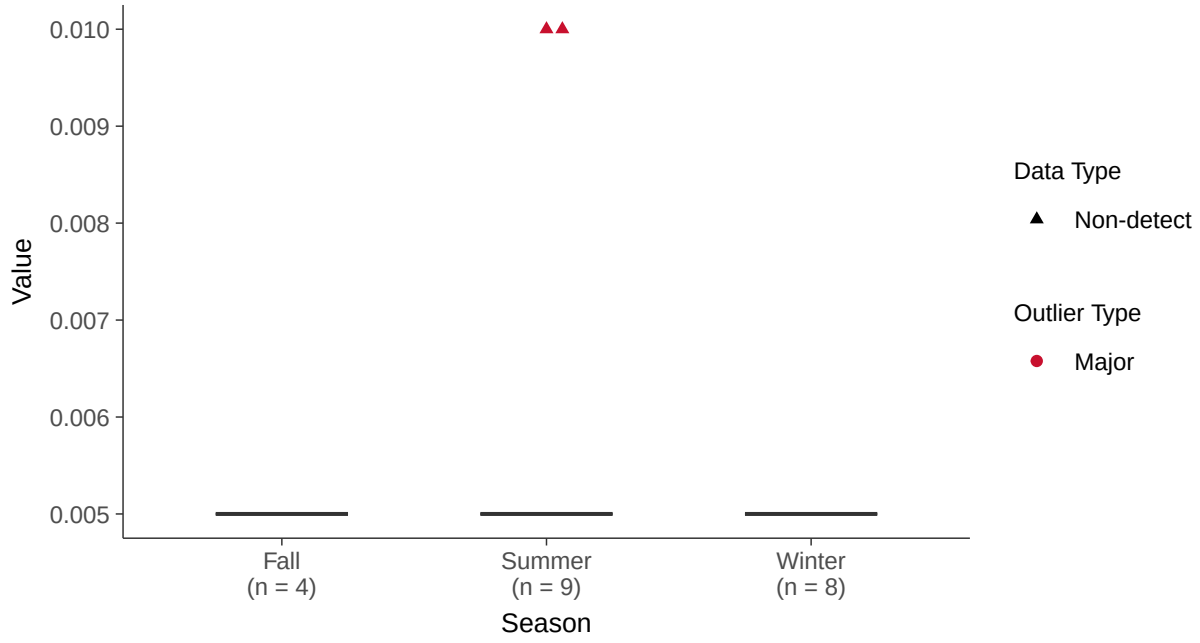
Boxplot

Lithium, MW-9 (mg/L)



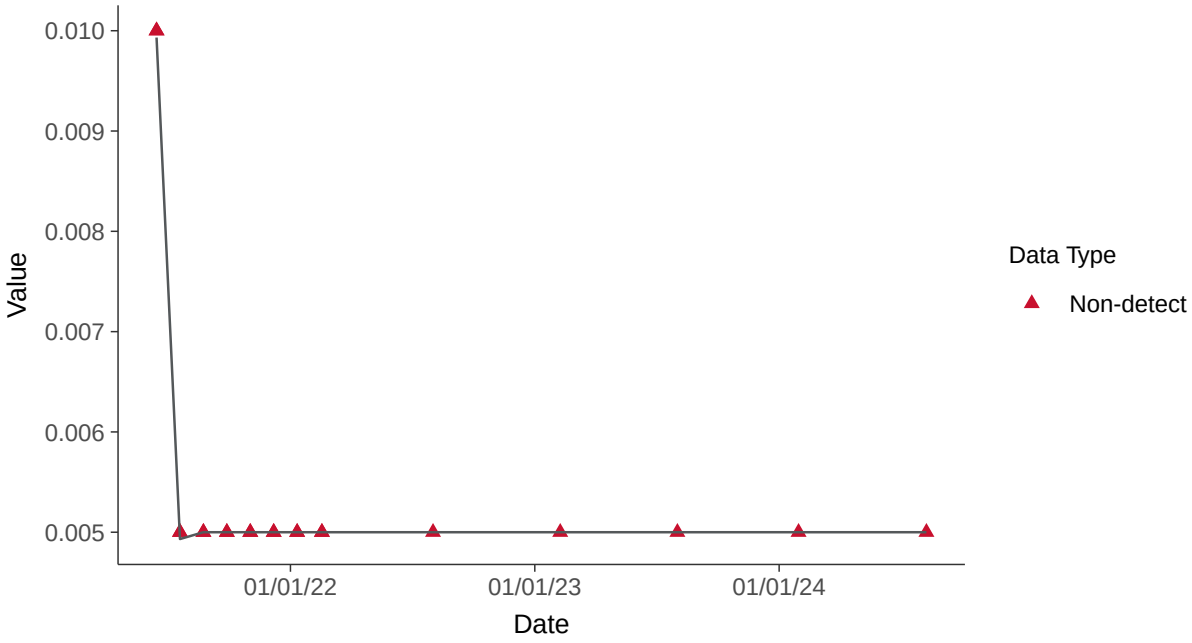
Boxplot by Season

Lithium, MW-9 (mg/L)



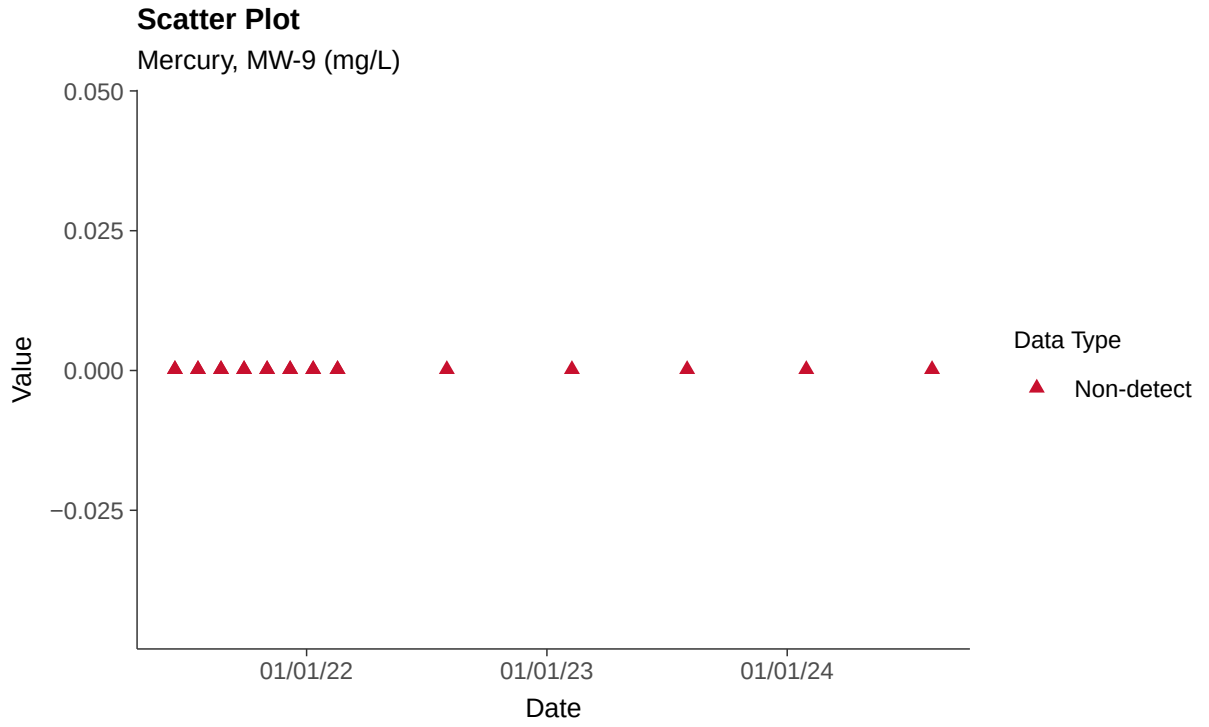
Trend Regression: Piecewise Linear-Linear

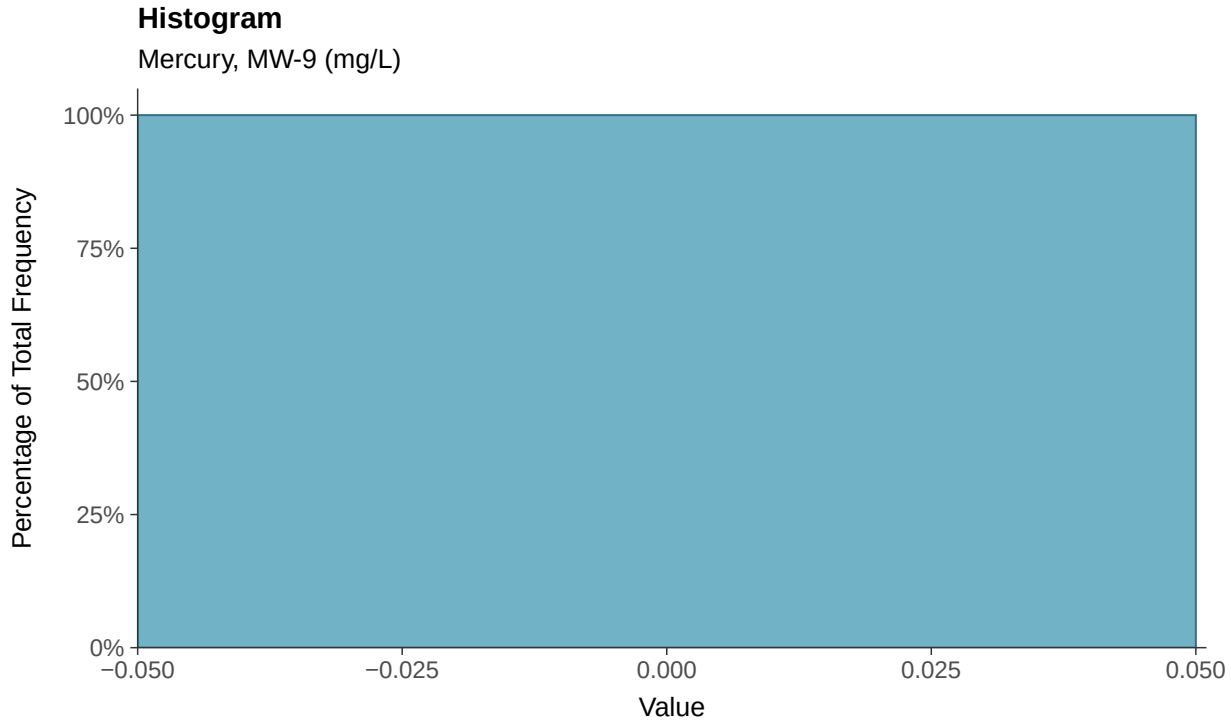
Lithium, MW-9 (mg/L)



Appendix IV: Mercury, MW-9

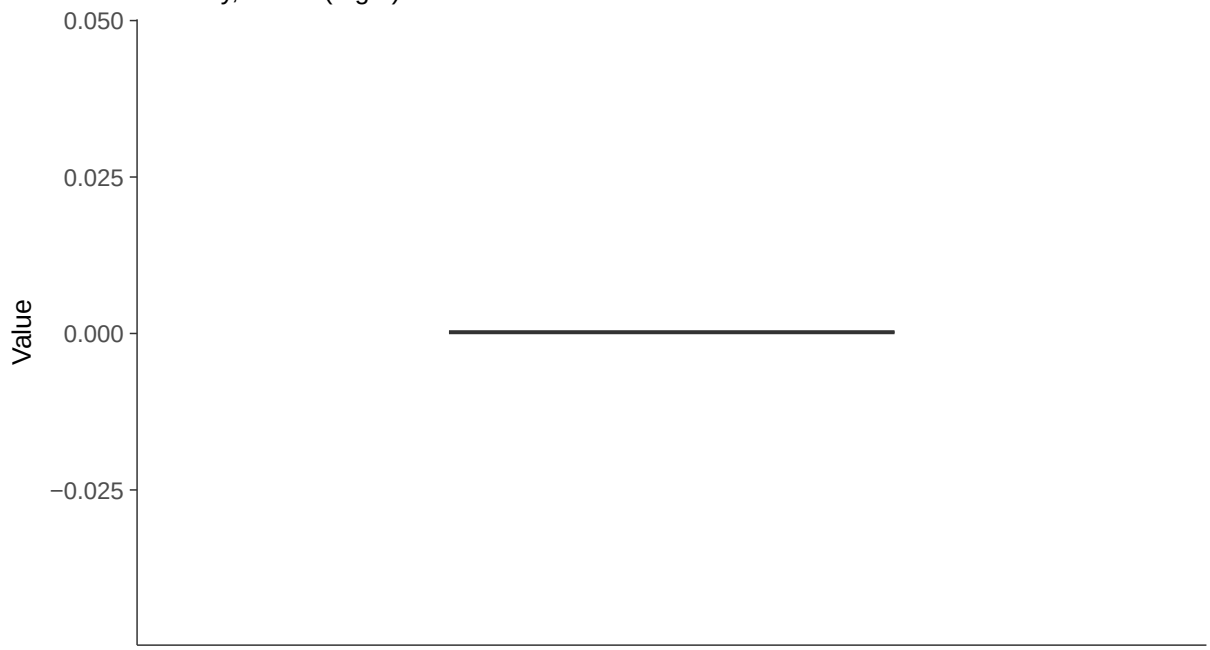
ID: 09_2_17





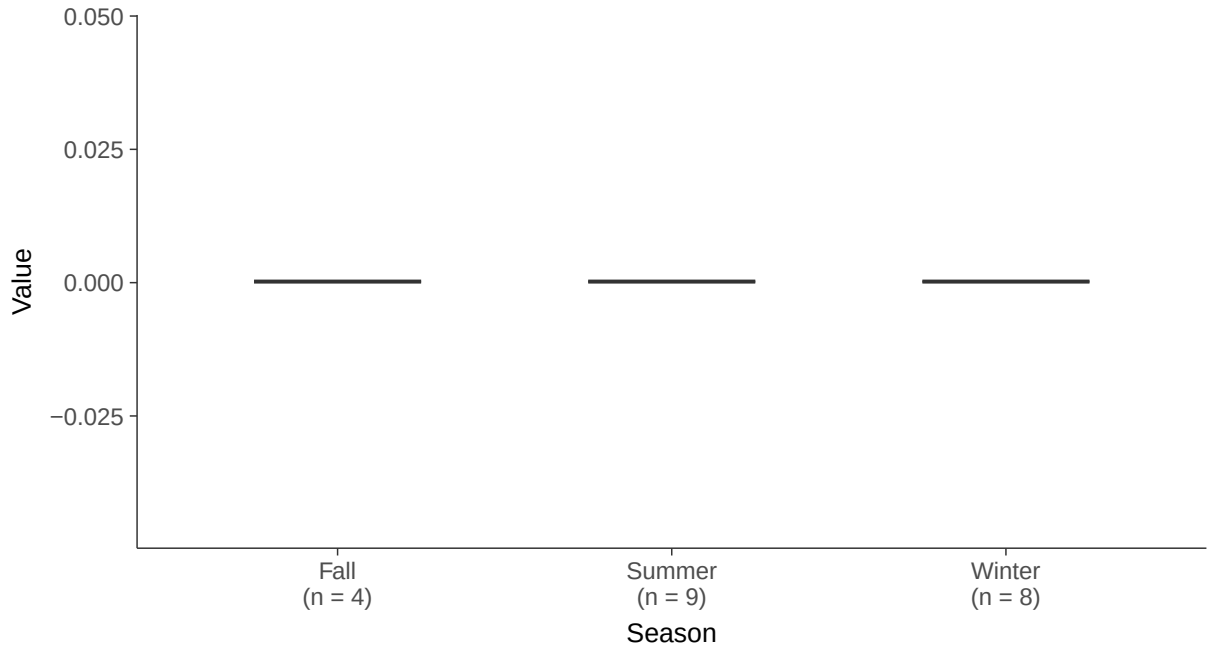
Boxplot

Mercury, MW-9 (mg/L)



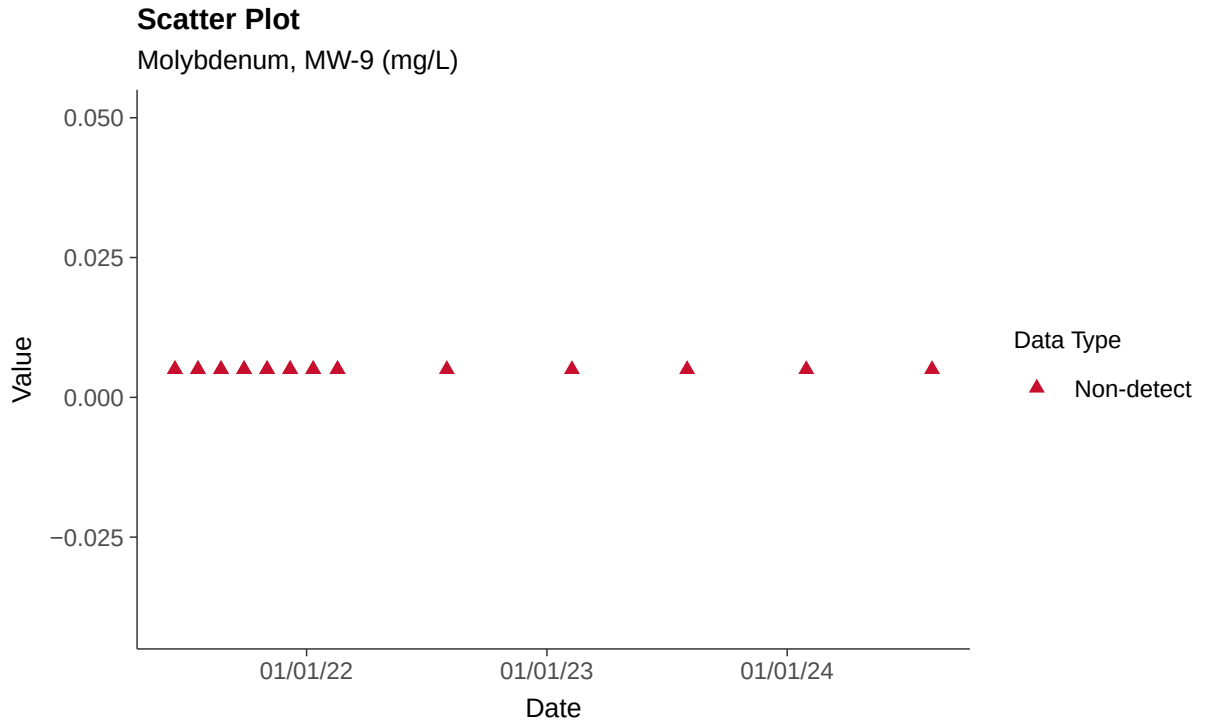
Boxplot by Season

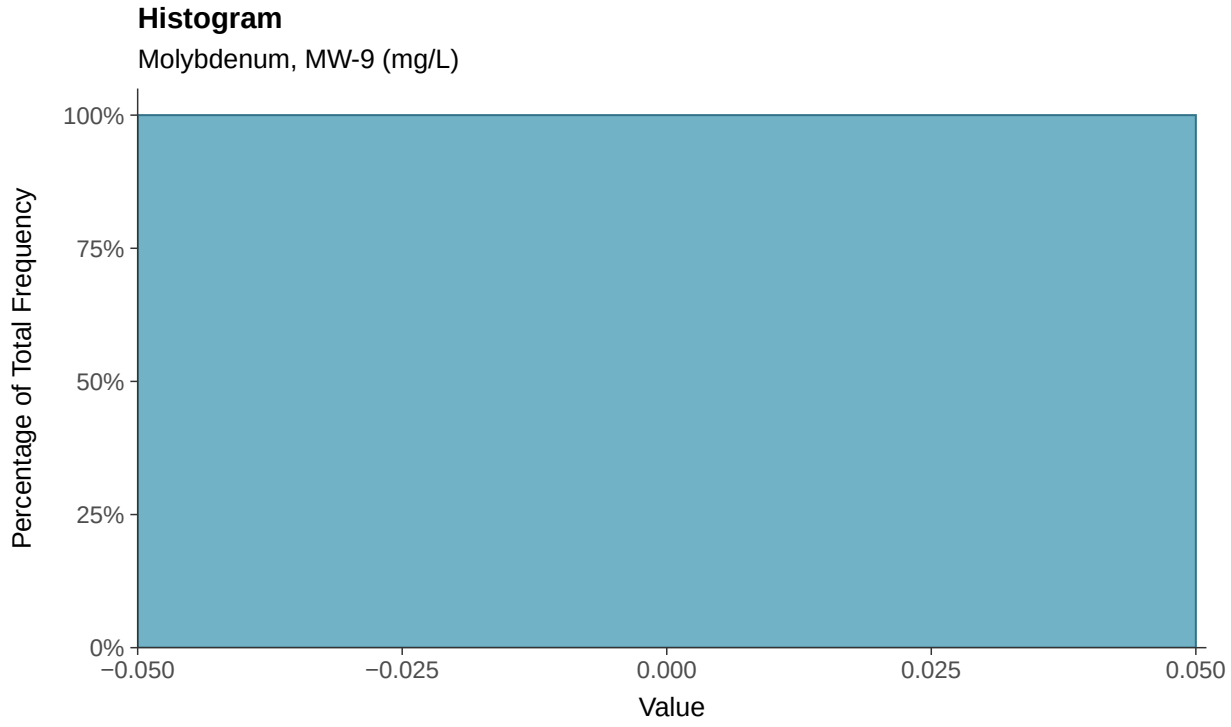
Mercury, MW-9 (mg/L)



Appendix IV: Molybdenum, MW-9

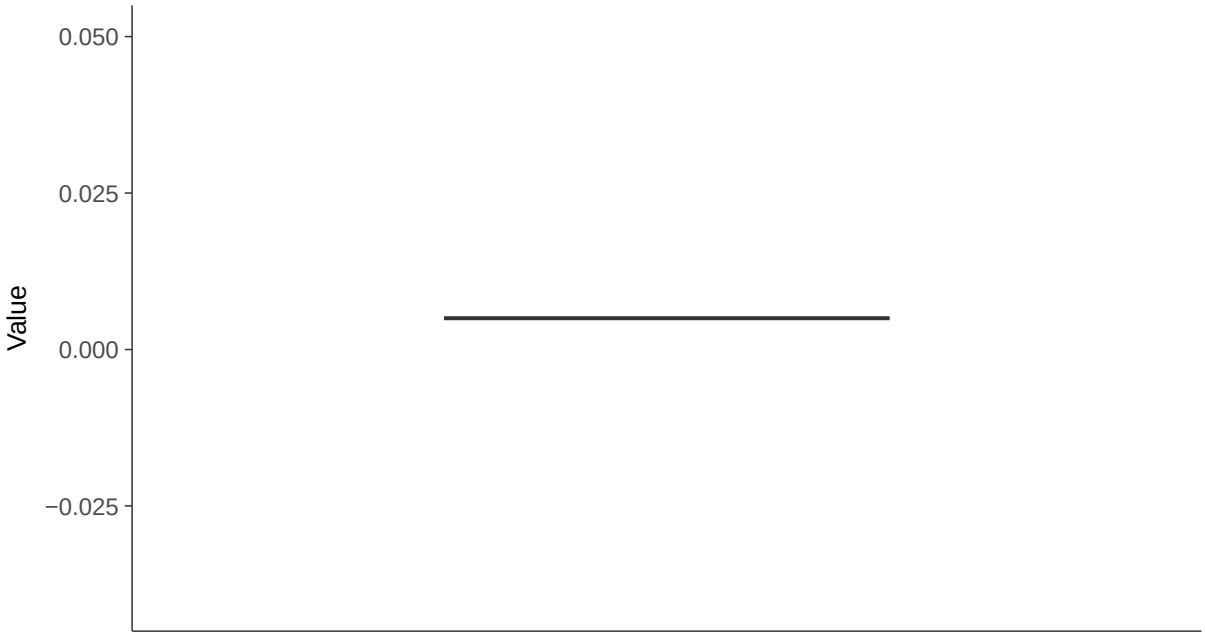
ID: 09_2_18





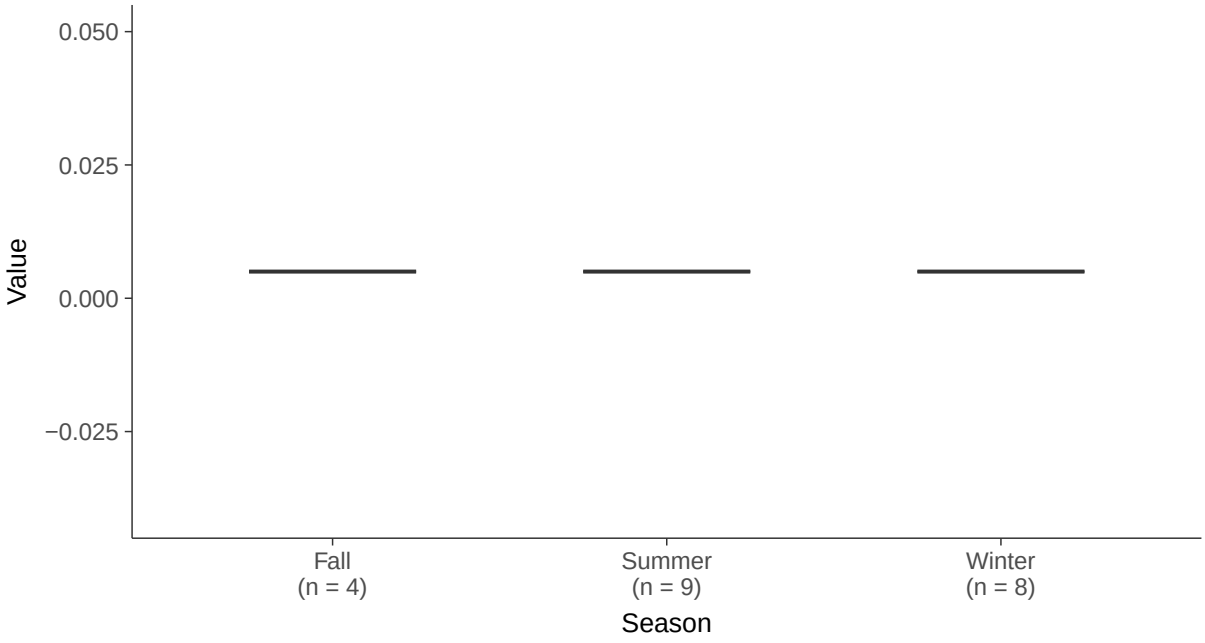
Boxplot

Molybdenum, MW-9 (mg/L)



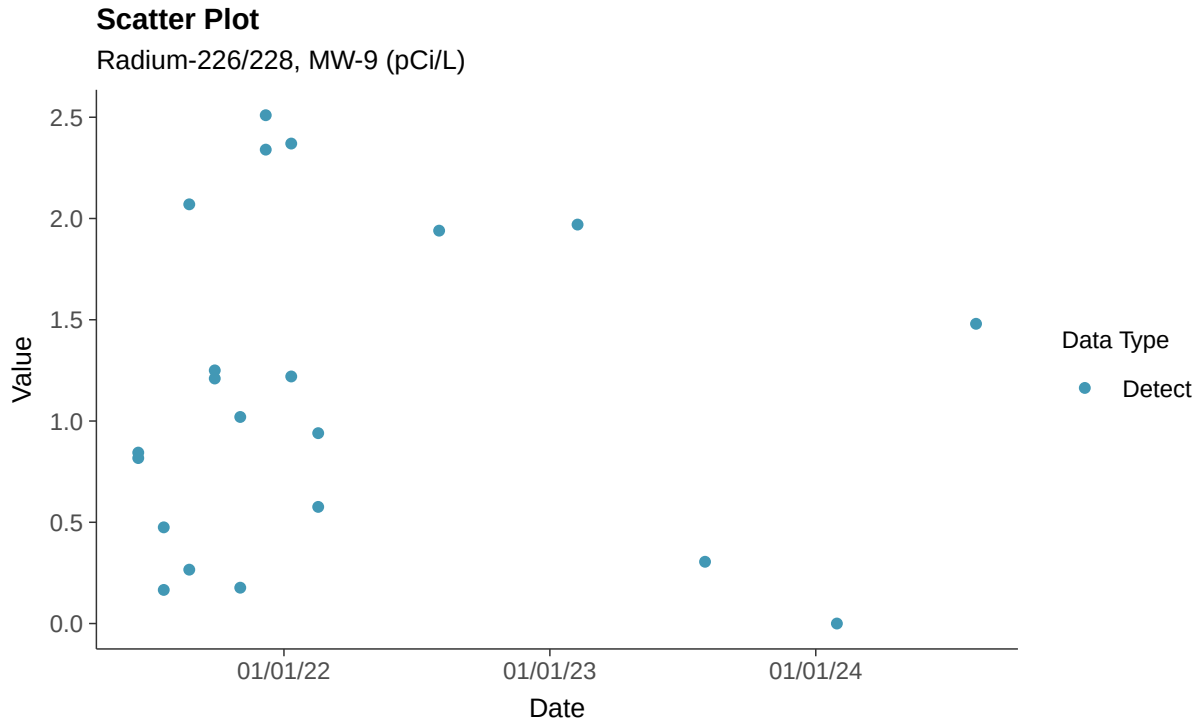
Boxplot by Season

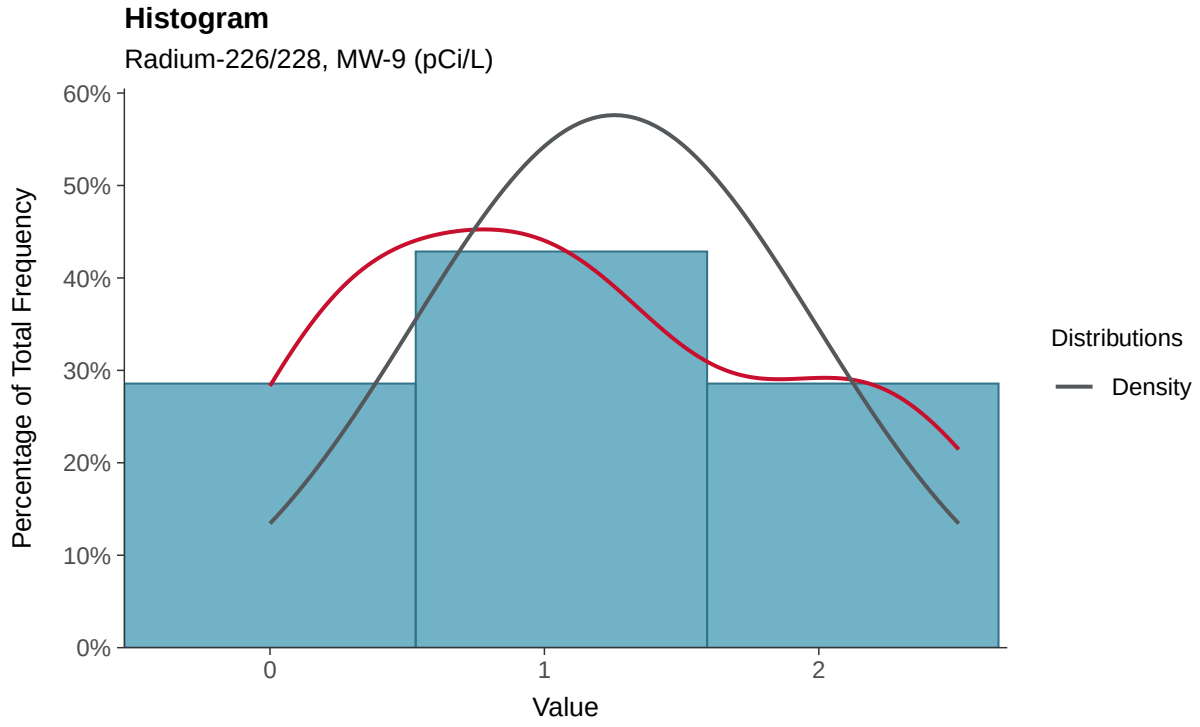
Molybdenum, MW-9 (mg/L)



Appendix IV: Radium-226/228, MW-9

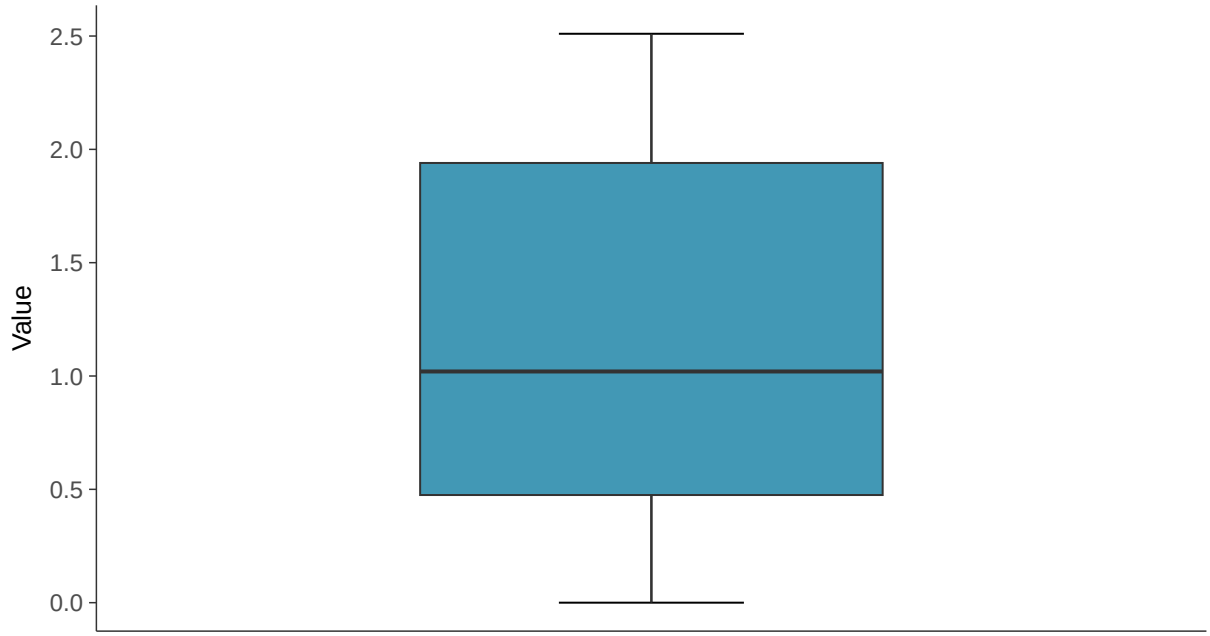
ID: 09_2_21





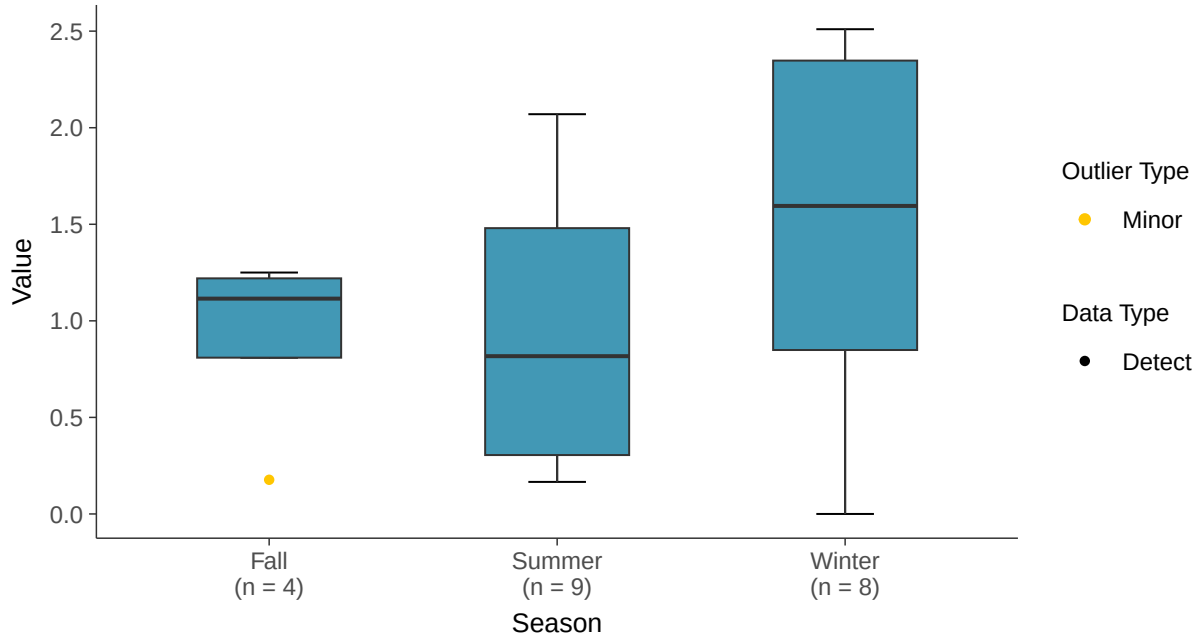
Boxplot

Radium-226/228, MW-9 (pCi/L)



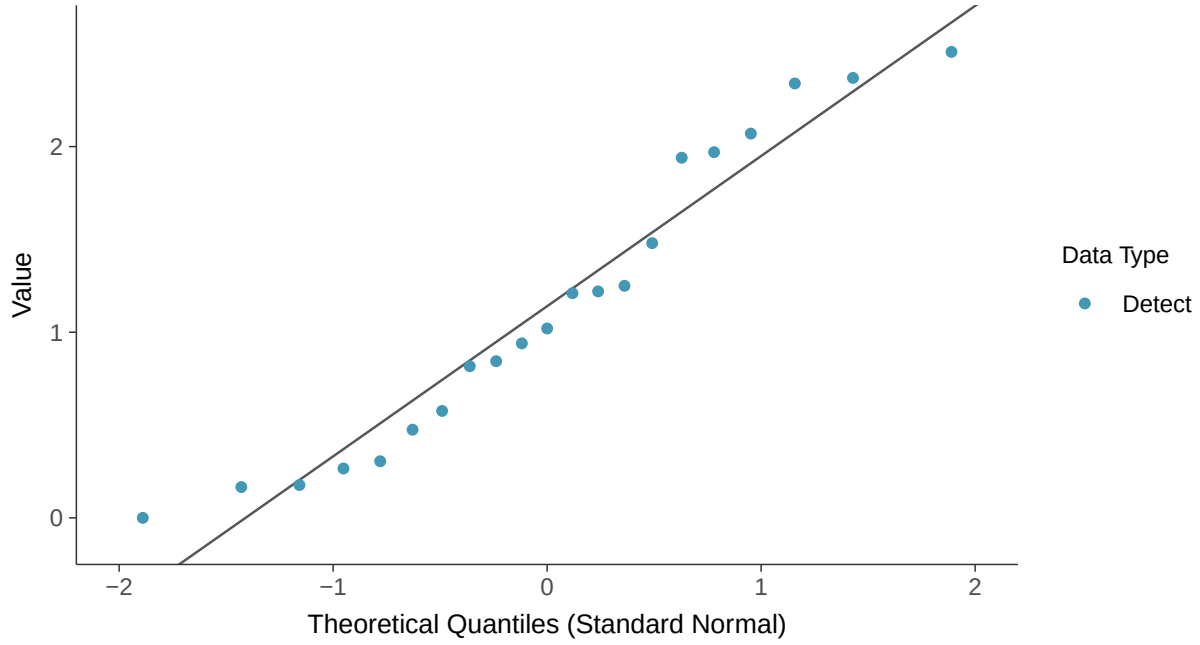
Boxplot by Season

Radium-226/228, MW-9 (pCi/L)



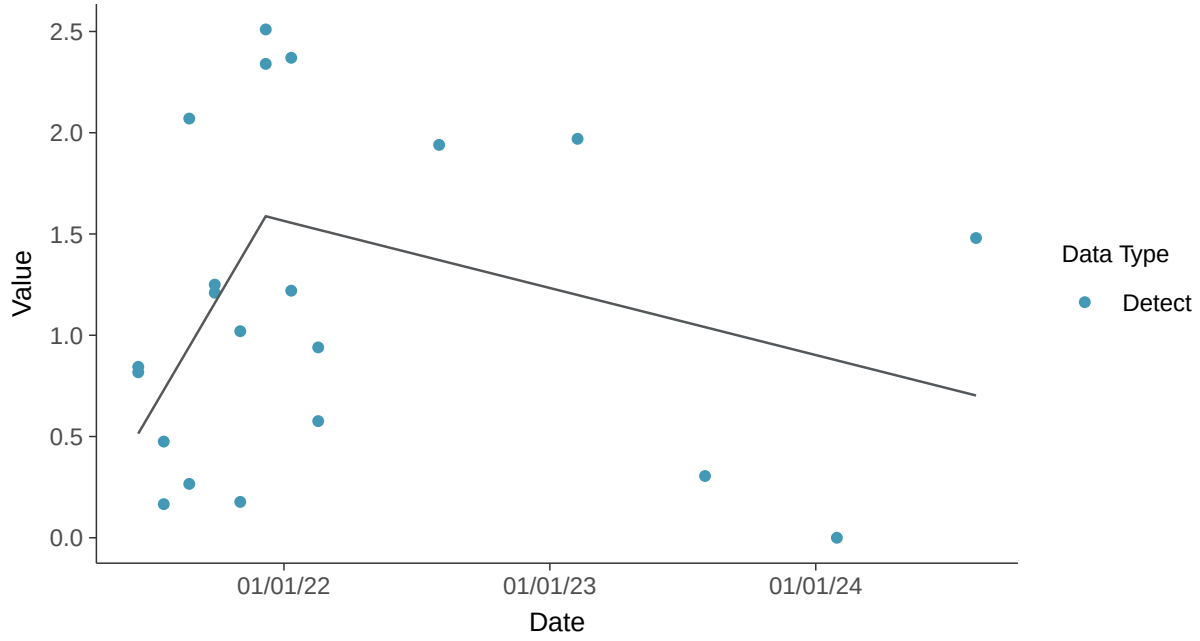
Normal Q-Q plot

Radium-226/228, MW-9 (pCi/L)



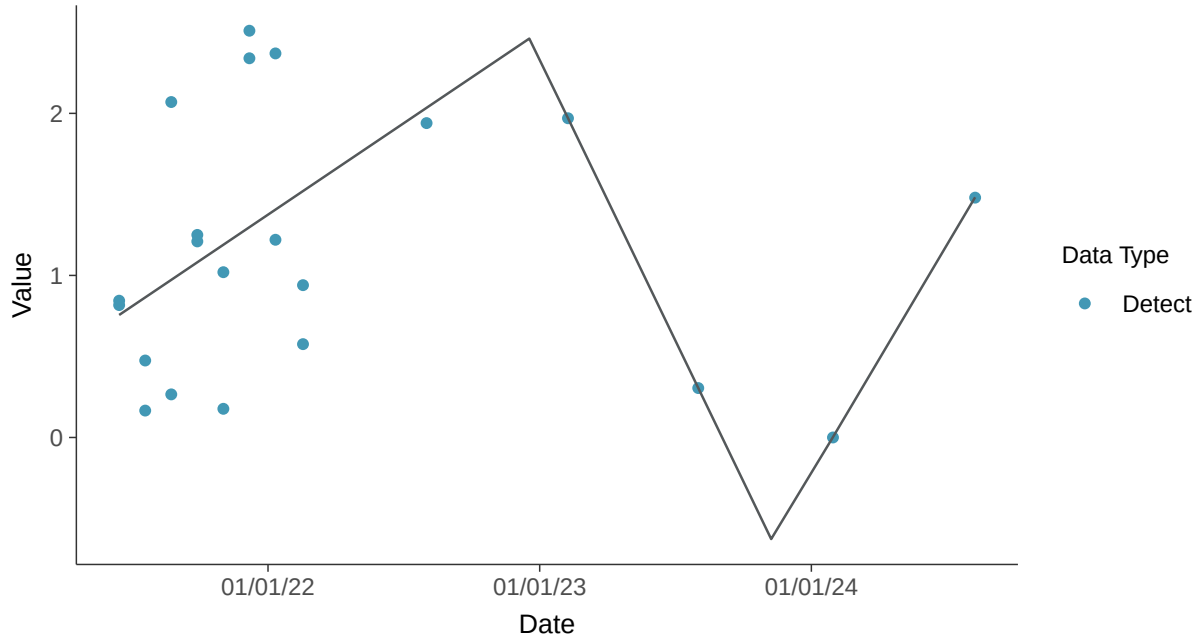
Trend Regression: Piecewise Linear-Linear

Radium-226/228, MW-9 (pCi/L)



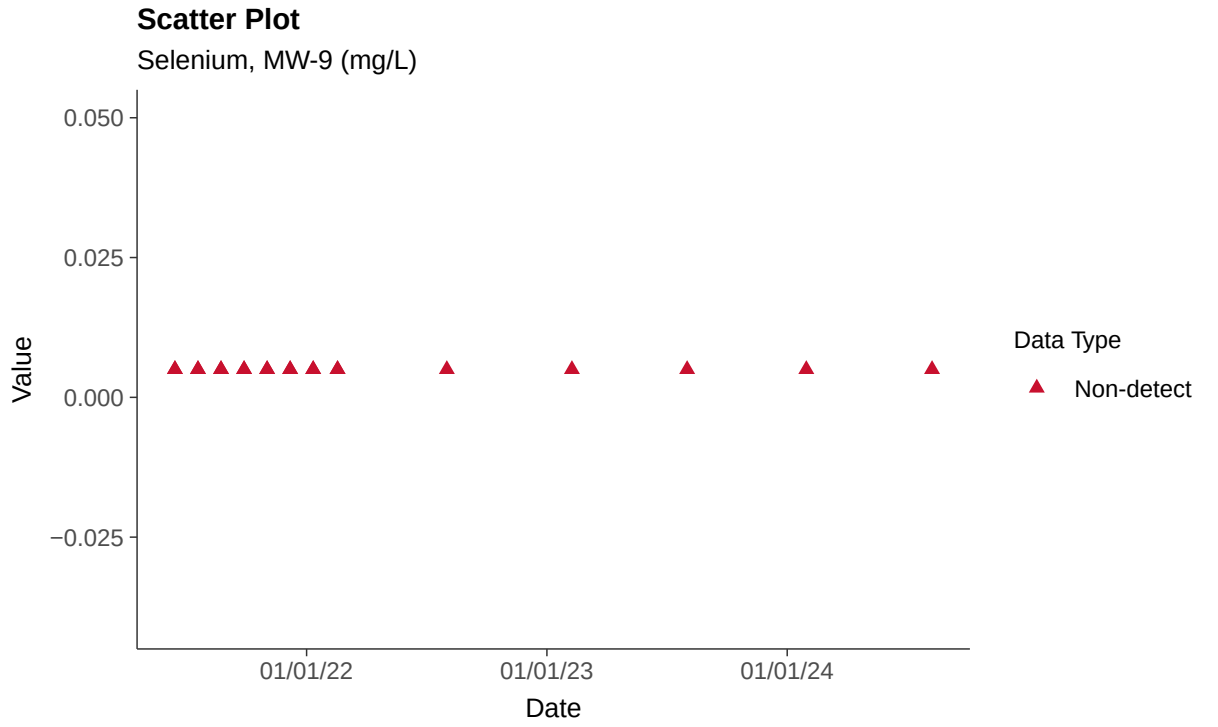
Trend Regression: Piecewise Linear-Linear-Linear

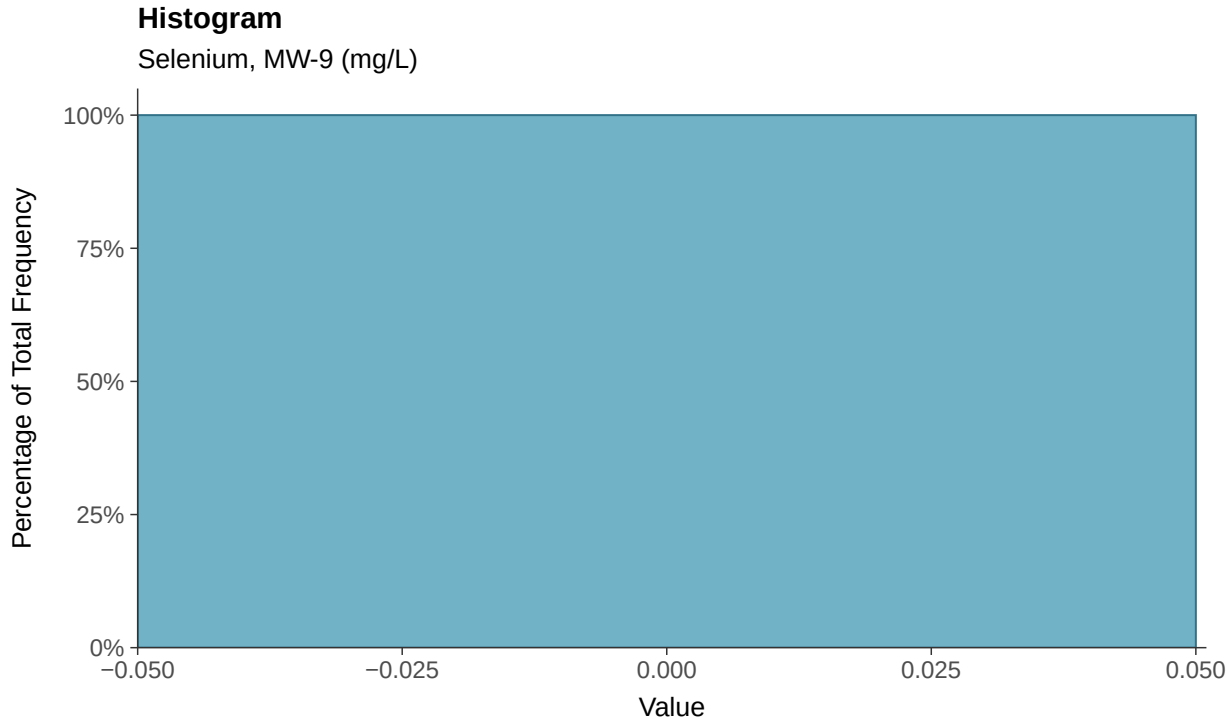
Radium-226/228, MW-9 (pCi/L)



Appendix IV: Selenium, MW-9

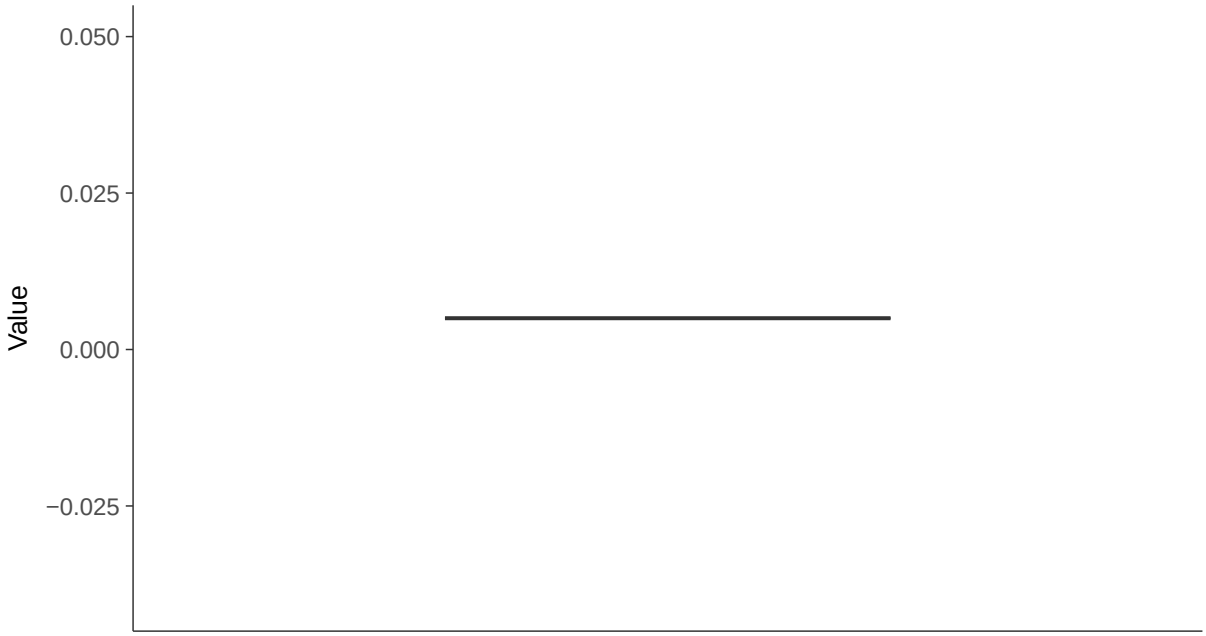
ID: 09_2_22





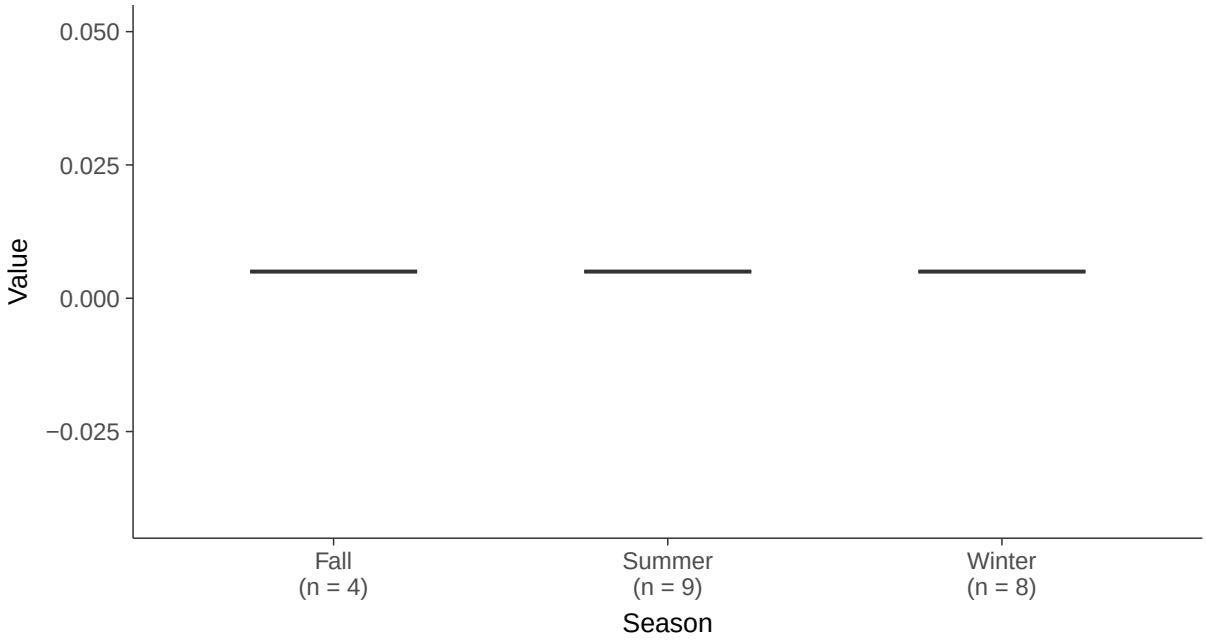
Boxplot

Selenium, MW-9 (mg/L)



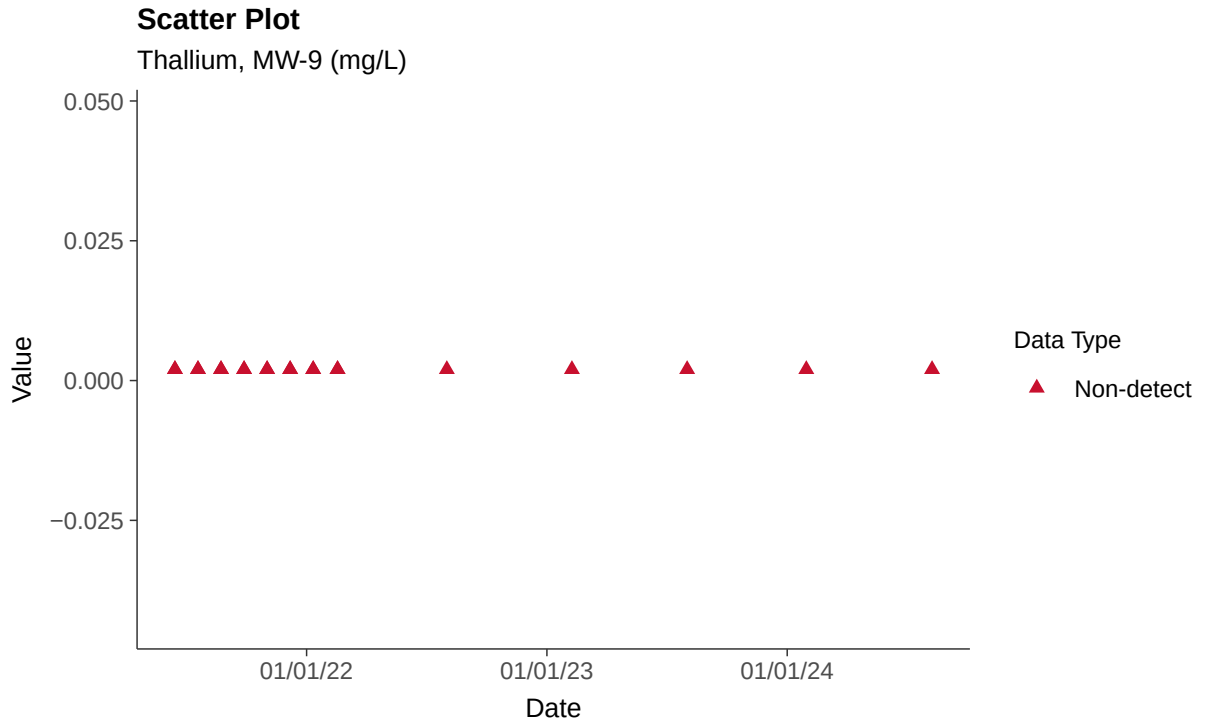
Boxplot by Season

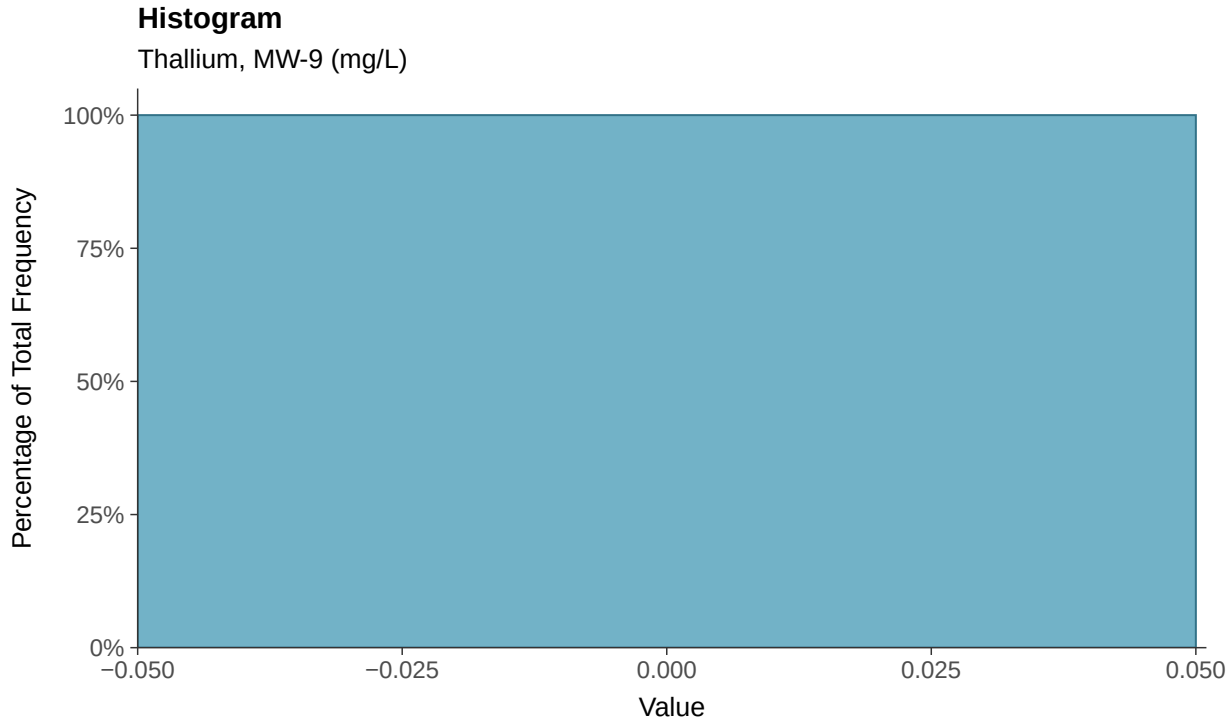
Selenium, MW-9 (mg/L)



Appendix IV: Thallium, MW-9

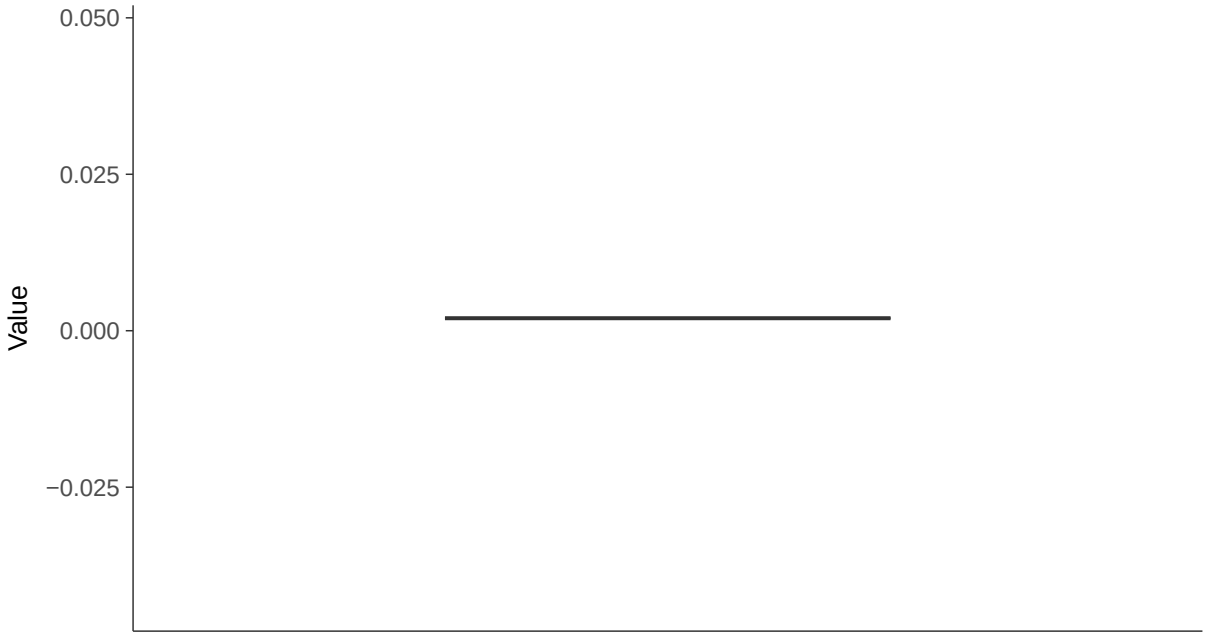
ID: 09_2_23





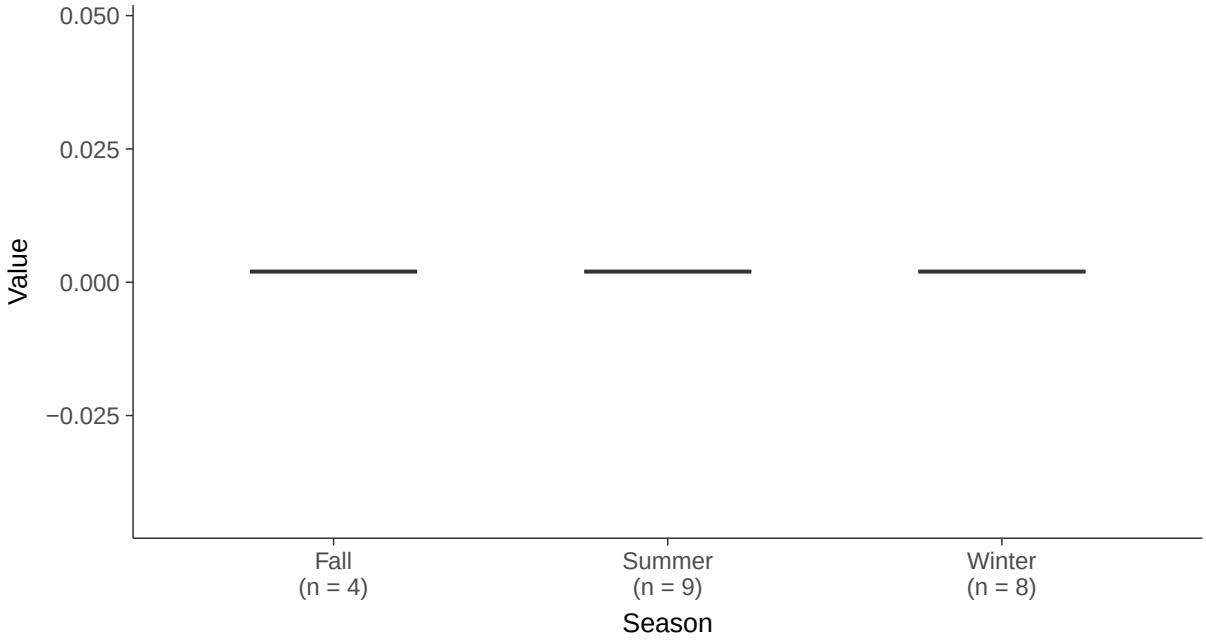
Boxplot

Thallium, MW-9 (mg/L)



Boxplot by Season

Thallium, MW-9 (mg/L)

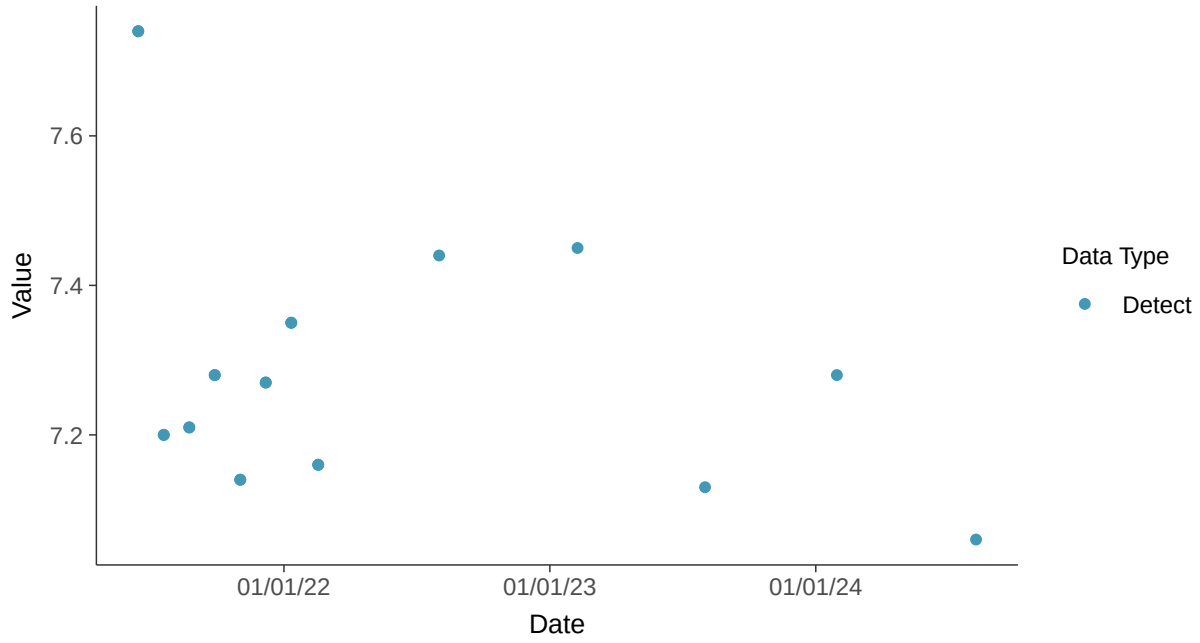


Field Parameters: pH, MW-9

ID: 09_3_24

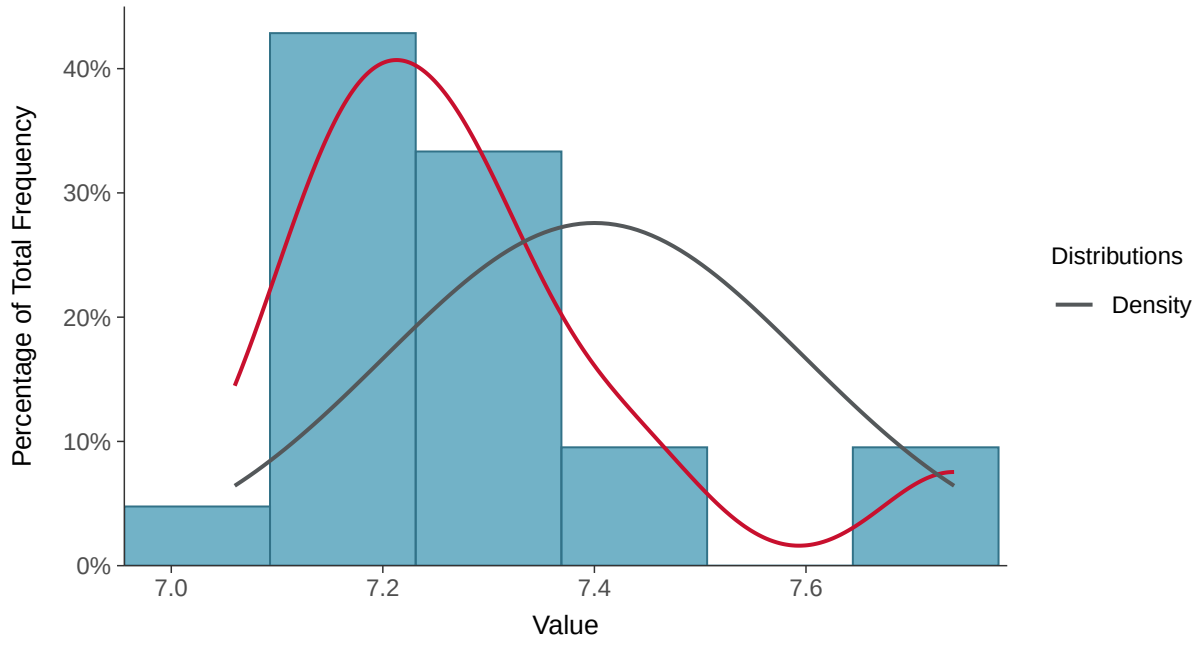
Scatter Plot

pH, MW-9 (su)



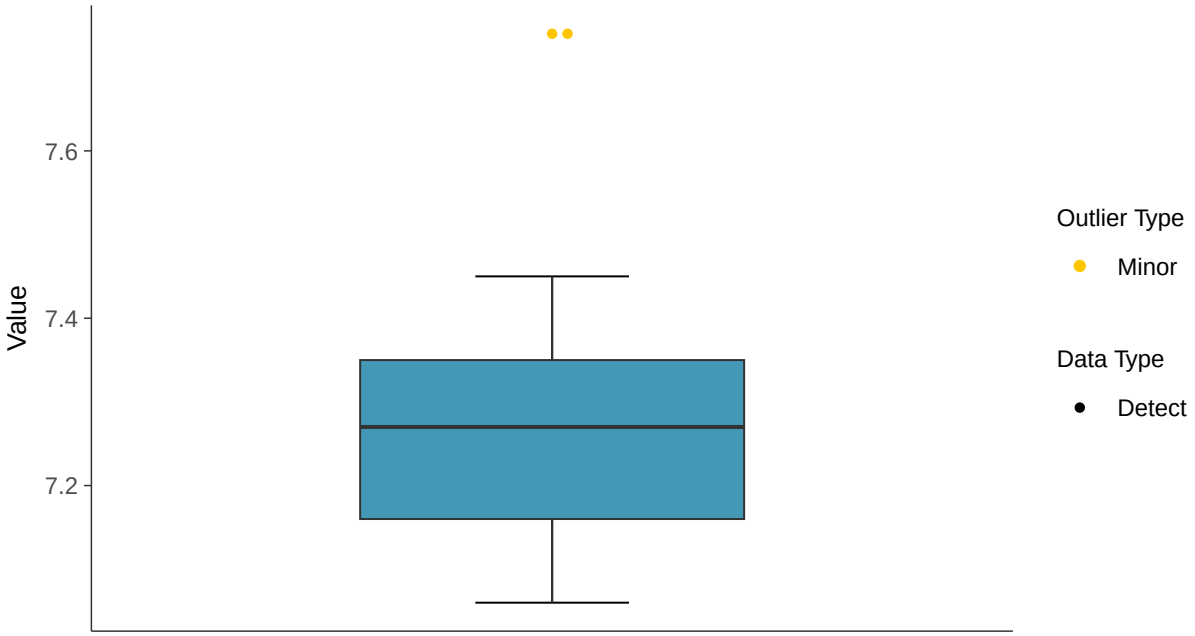
Histogram

pH, MW-9 (su)



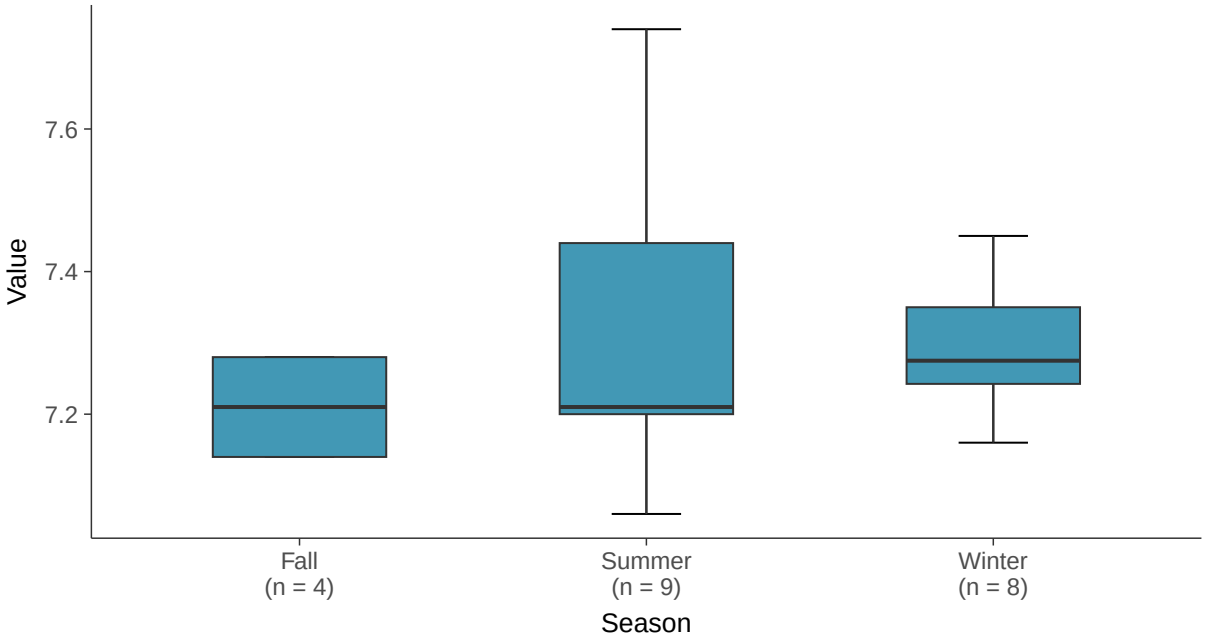
Boxplot

pH, MW-9 (su)



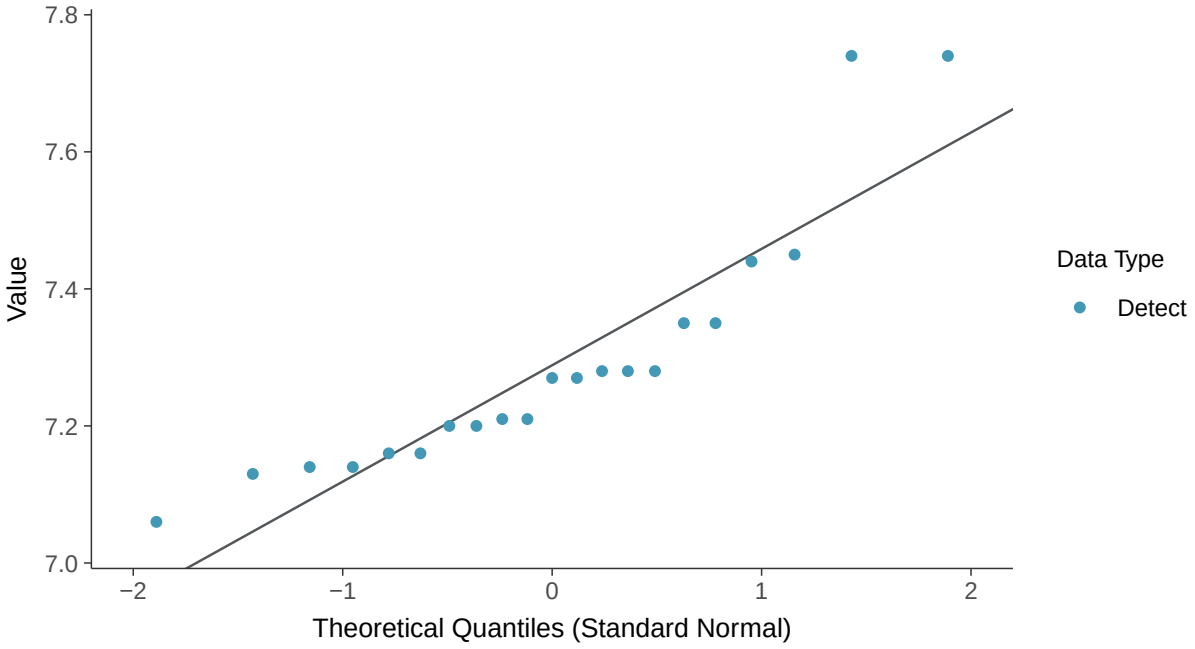
Boxplot by Season

pH, MW-9 (su)



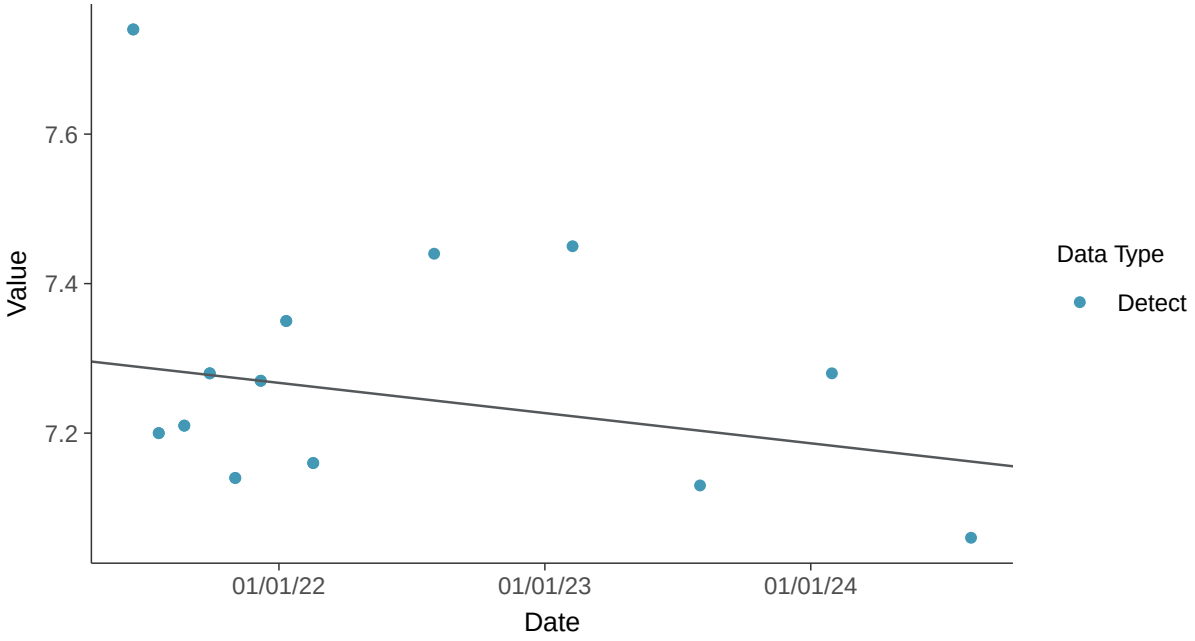
Normal Q-Q plot

pH, MW-9 (su)



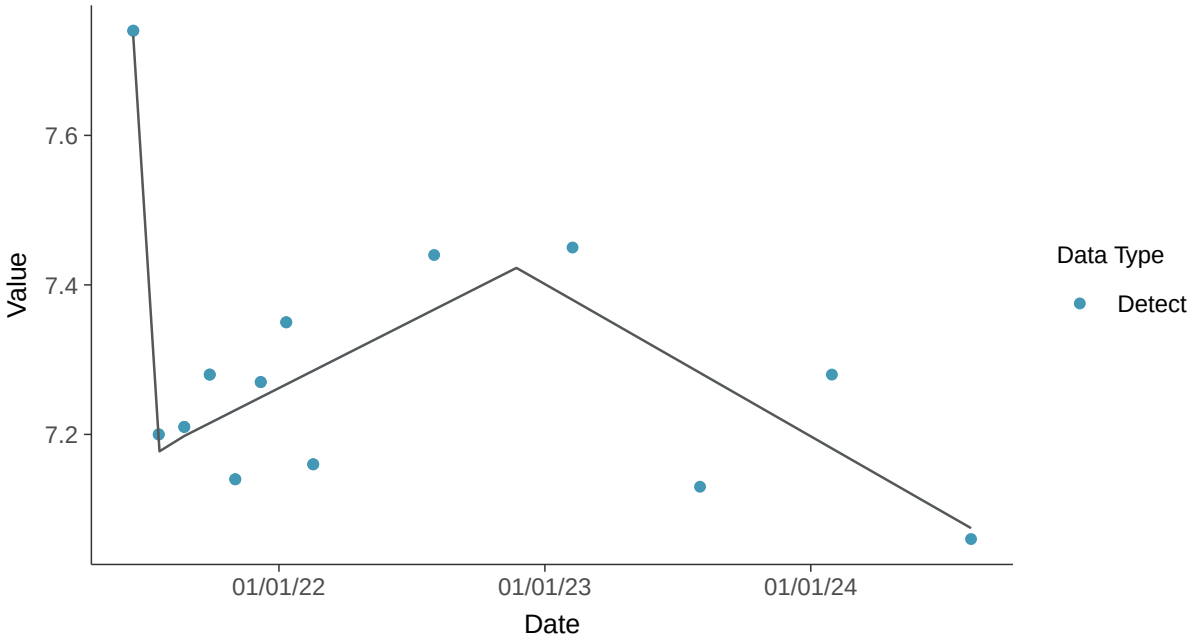
Trend Regression: Mann-Kendall/Theil-Sen Estimate

pH, MW-9 (su)



Trend Regression: Piecewise Linear-Linear-Linear

pH, MW-9 (su)

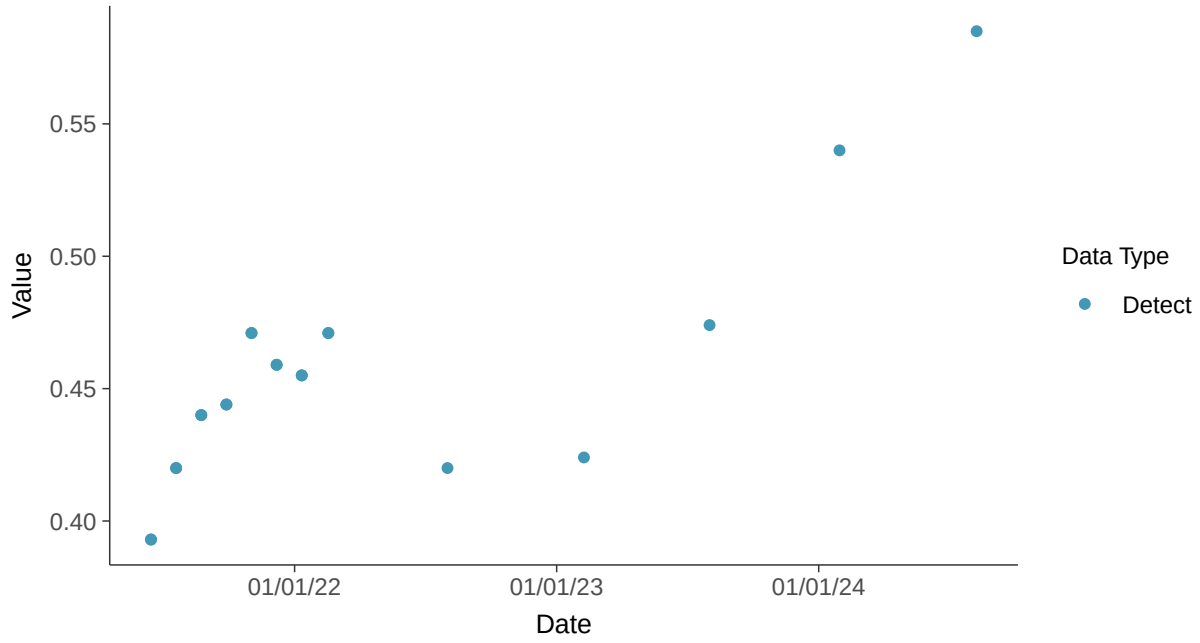


Field Parameters: Conductivity, MW-9

ID: 09_3_25

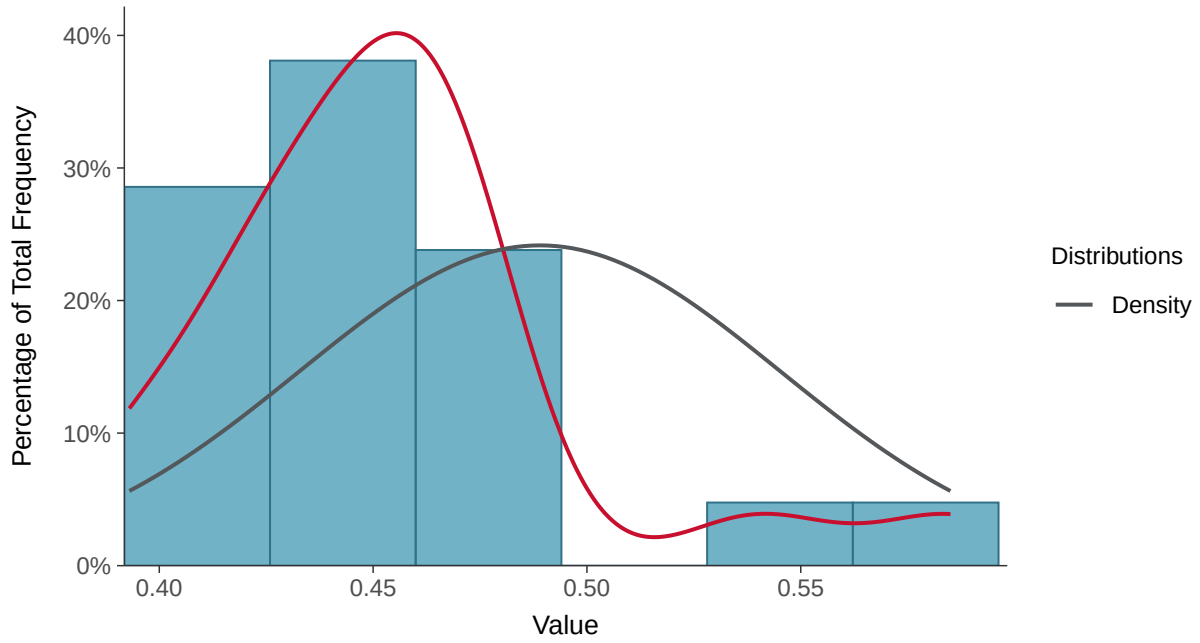
Scatter Plot

Conductivity, MW-9 (mS/cm)



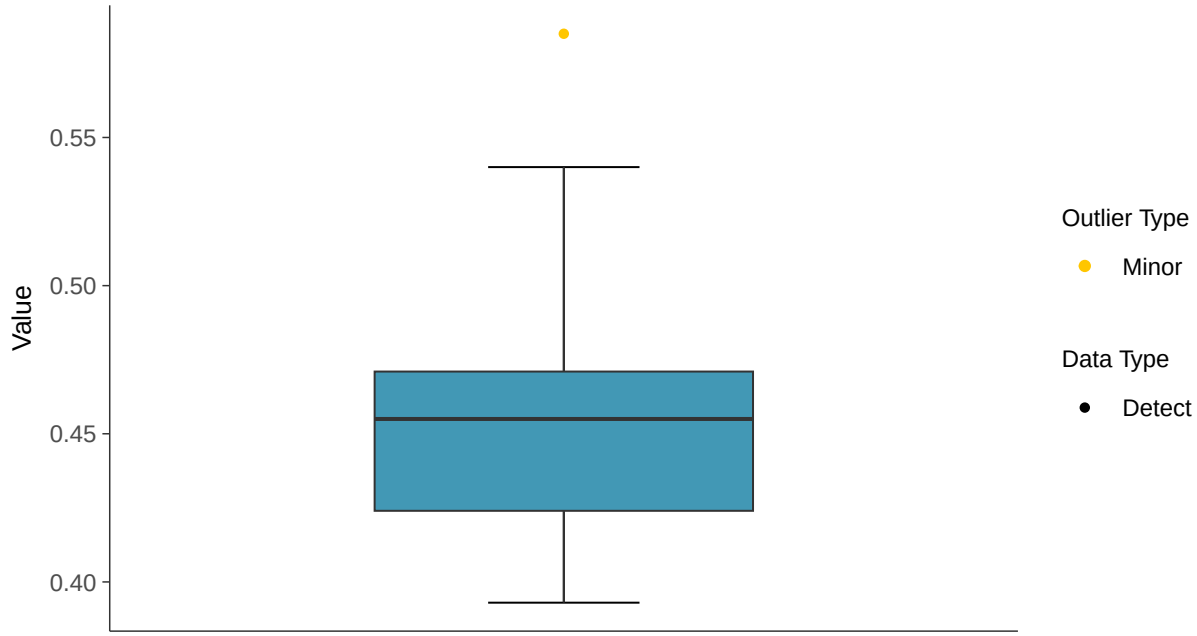
Histogram

Conductivity, MW-9 (mS/cm)



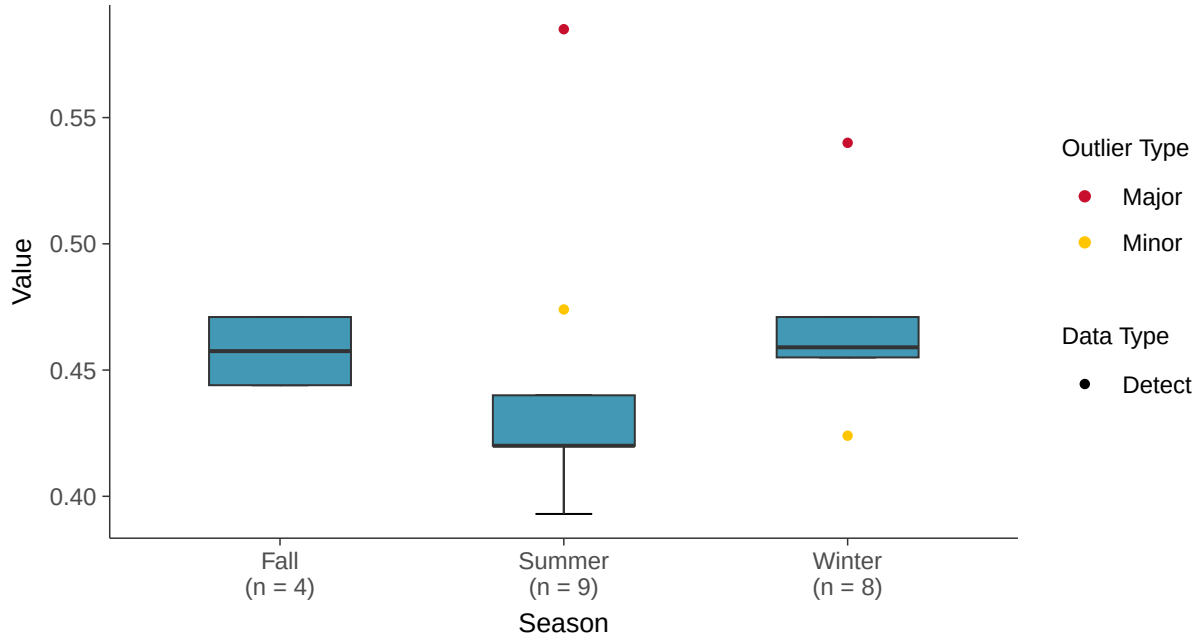
Boxplot

Conductivity, MW-9 (mS/cm)



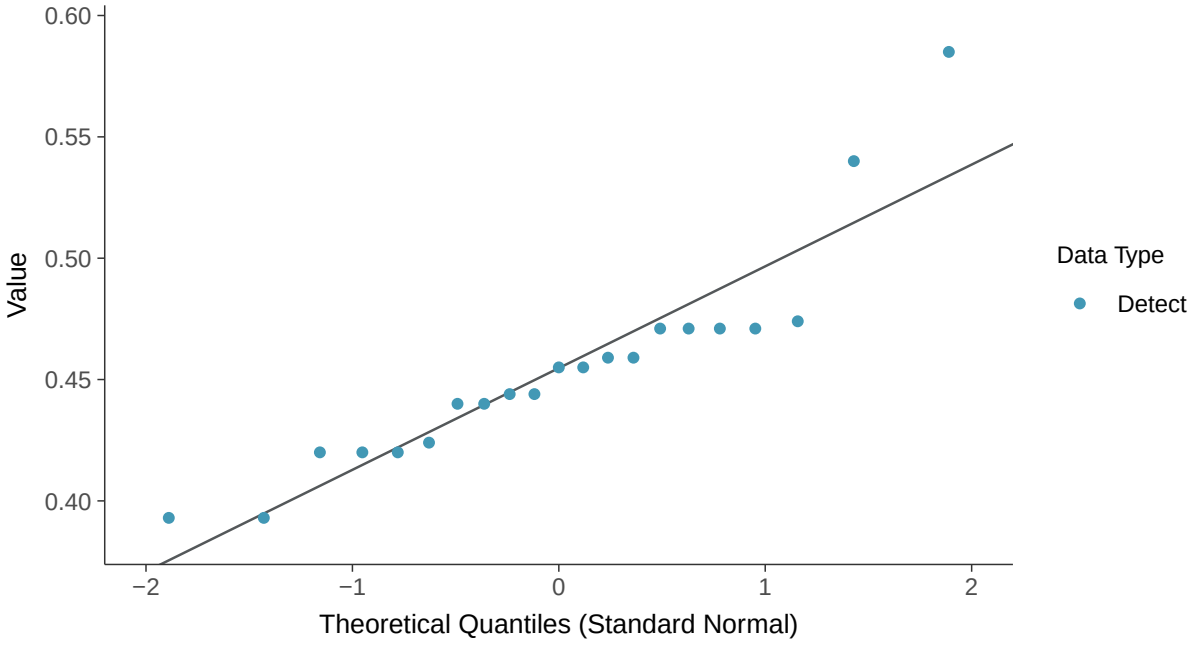
Boxplot by Season

Conductivity, MW-9 (mS/cm)



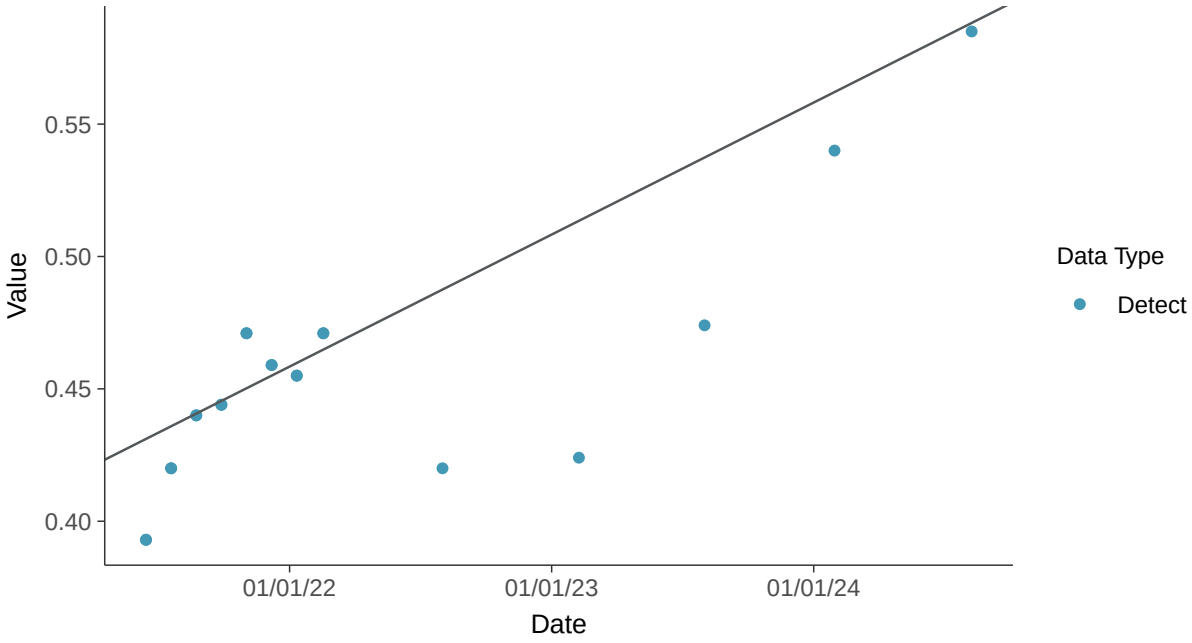
Normal Q-Q plot

Conductivity, MW-9 (mS/cm)



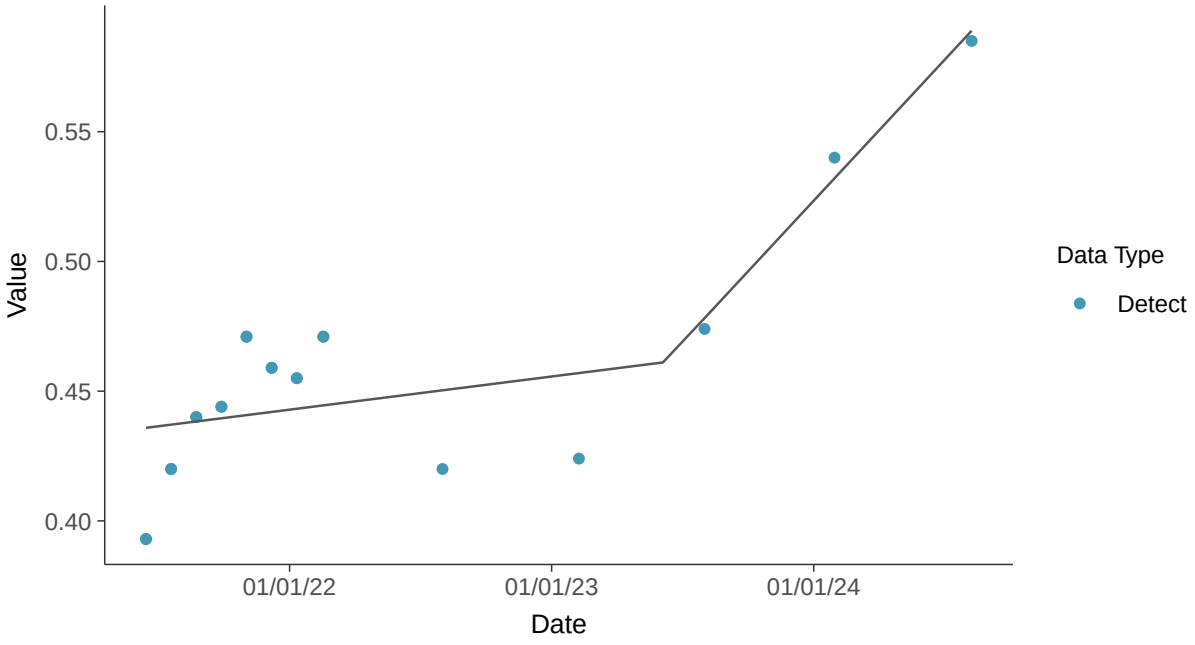
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Conductivity, MW-9 (mS/cm)



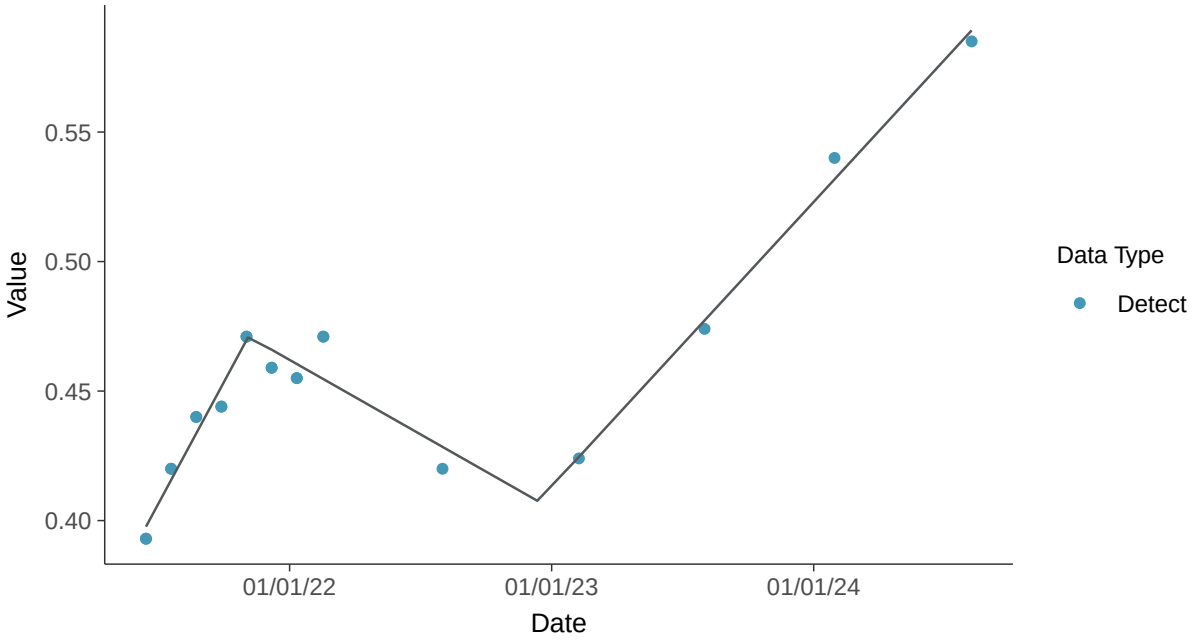
Trend Regression: Piecewise Linear-Linear

Conductivity, MW-9 (mS/cm)



Trend Regression: Piecewise Linear-Linear-Linear

Conductivity, MW-9 (mS/cm)

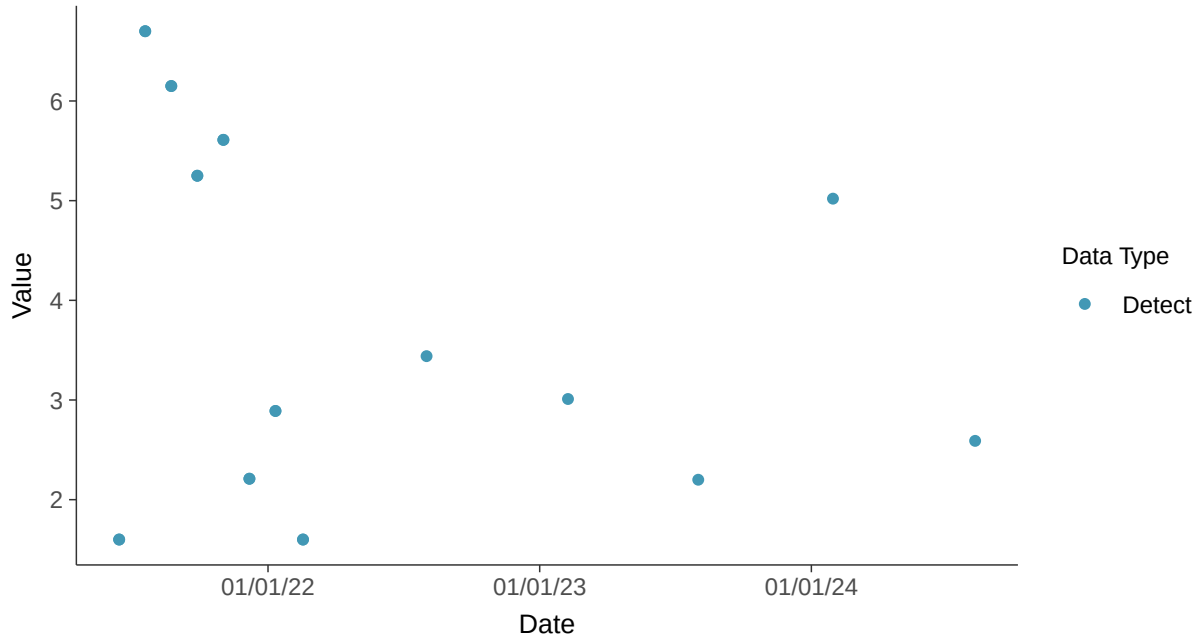


Field Parameters: Turbidity, MW-9

ID: 09_3_26

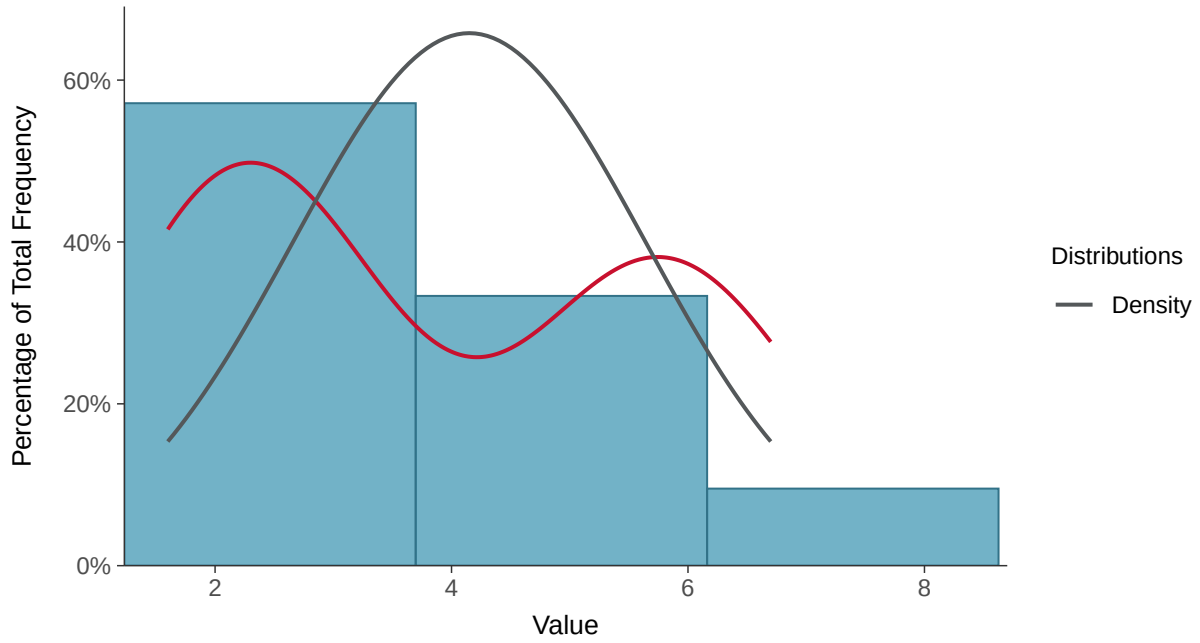
Scatter Plot

Turbidity, MW-9 (NTU)



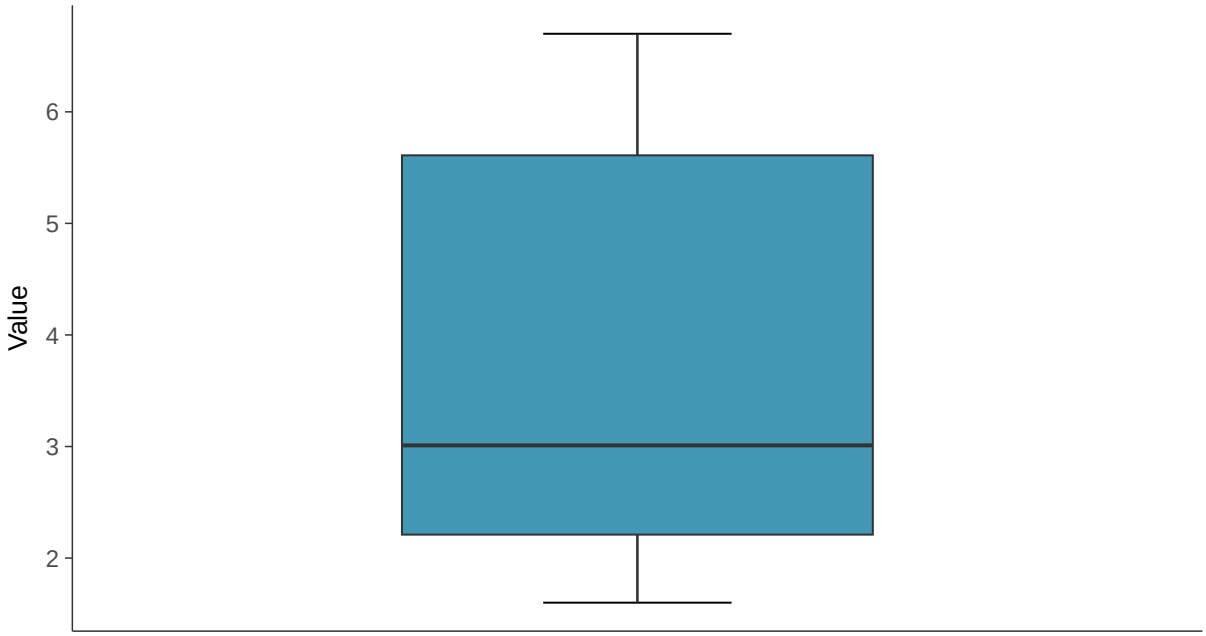
Histogram

Turbidity, MW-9 (NTU)



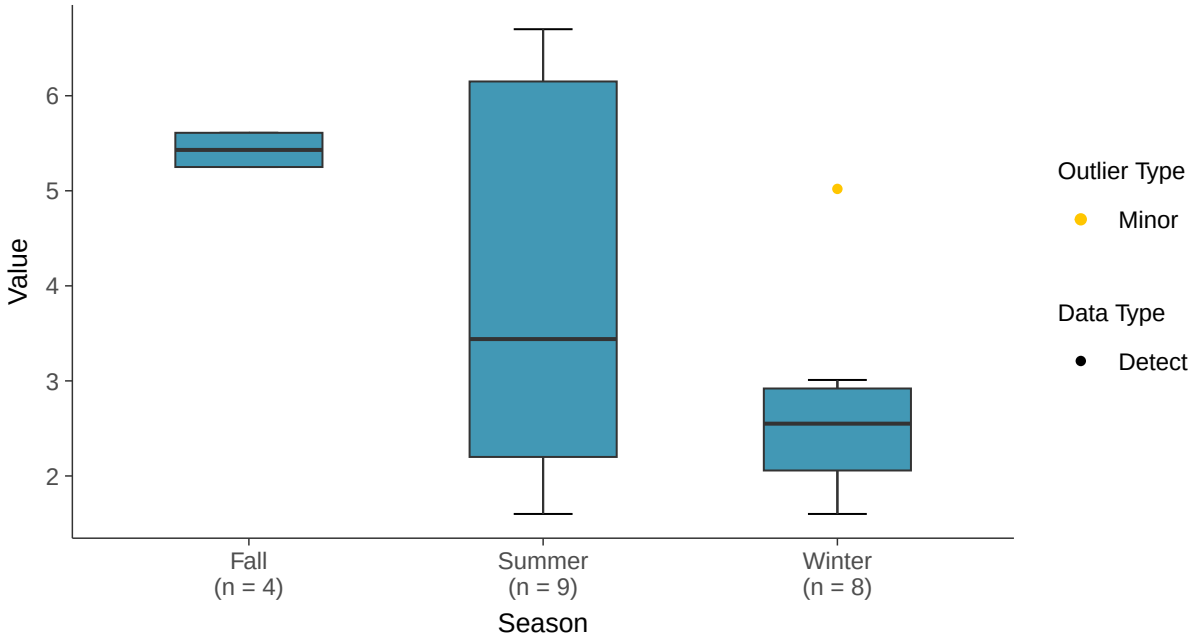
Boxplot

Turbidity, MW-9 (NTU)



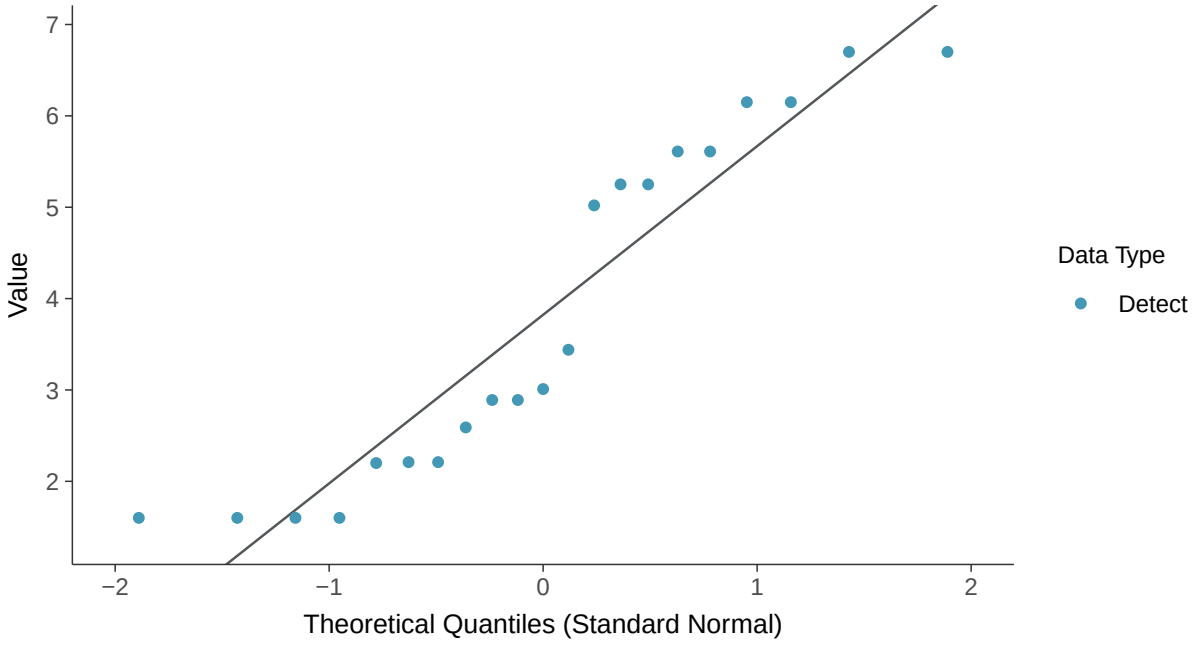
Boxplot by Season

Turbidity, MW-9 (NTU)



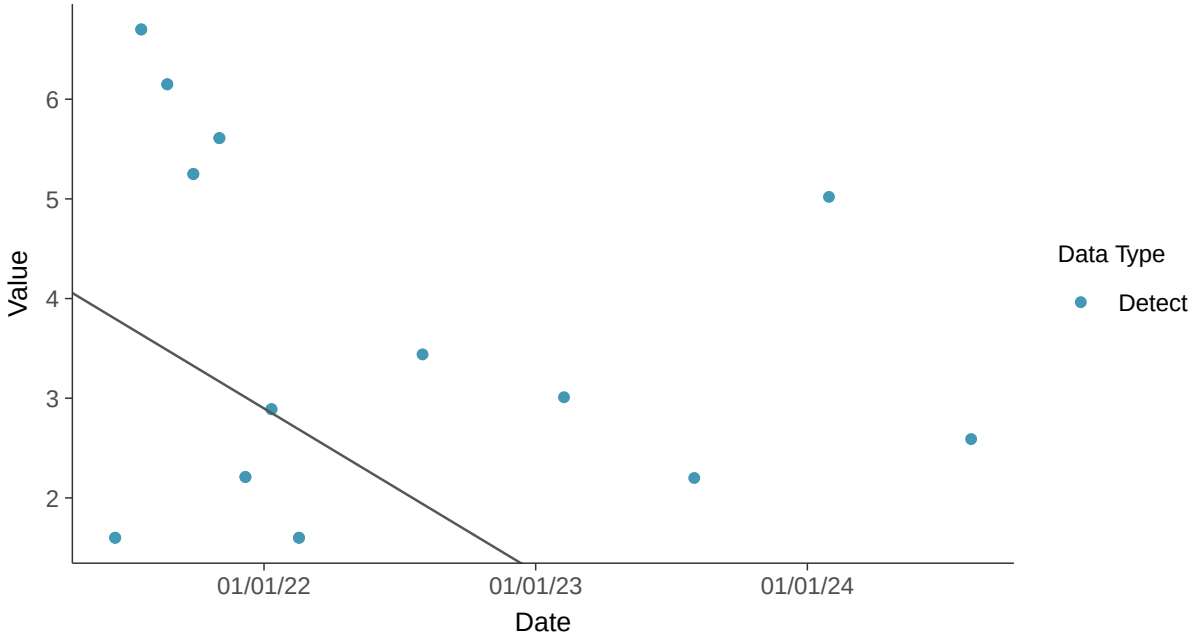
Normal Q-Q plot

Turbidity, MW-9 (NTU)



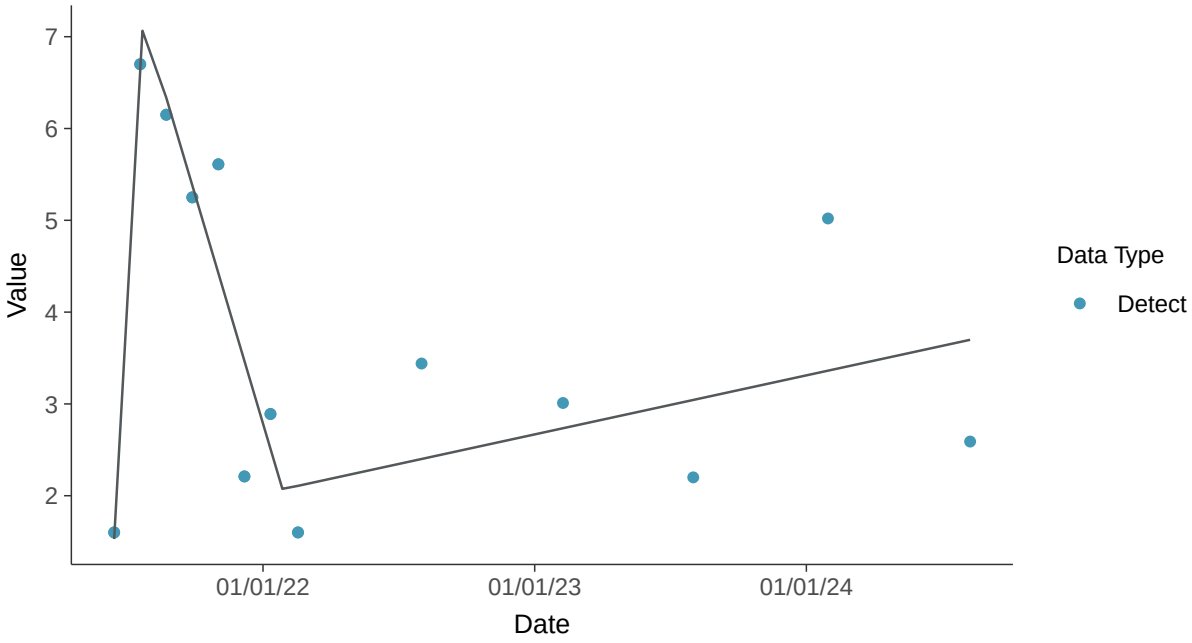
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Turbidity, MW-9 (NTU)



Trend Regression: Piecewise Linear-Linear-Linear

Turbidity, MW-9 (NTU)

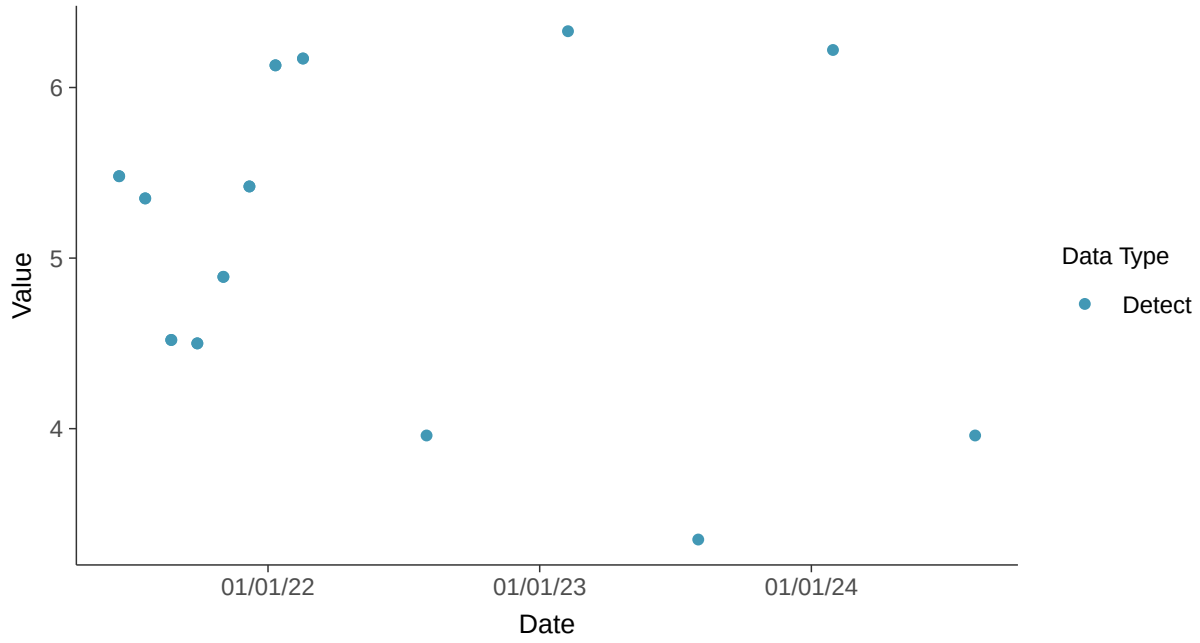


Field Parameters: Dissolved Oxygen, MW-9

ID: 09_3_27

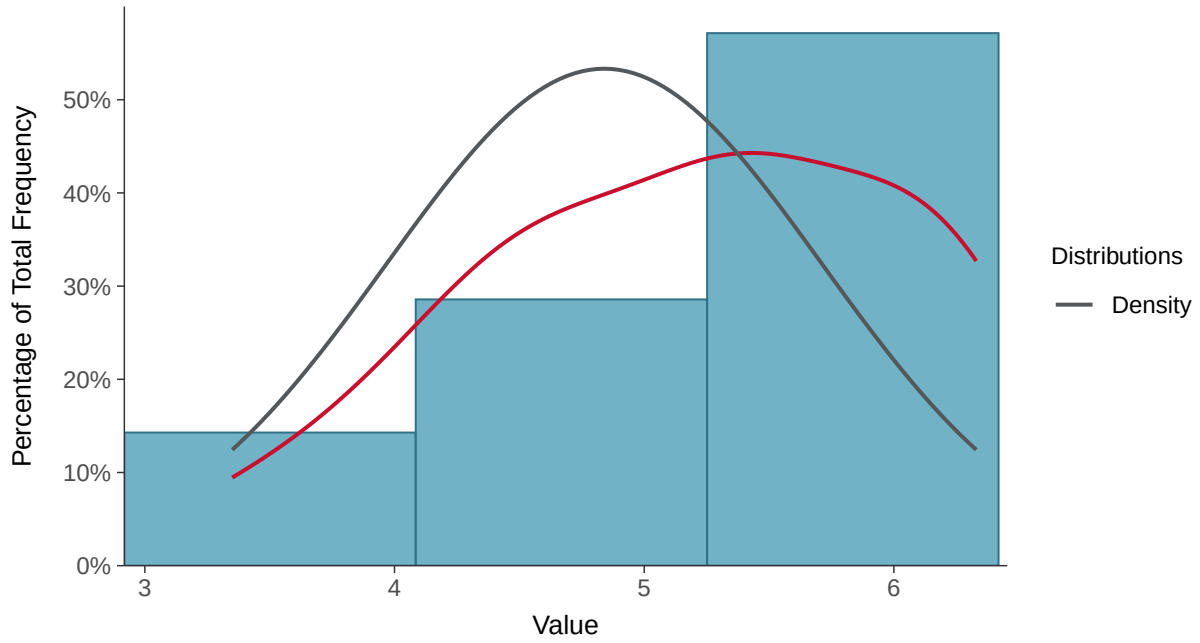
Scatter Plot

Dissolved Oxygen, MW-9 (mg/L)



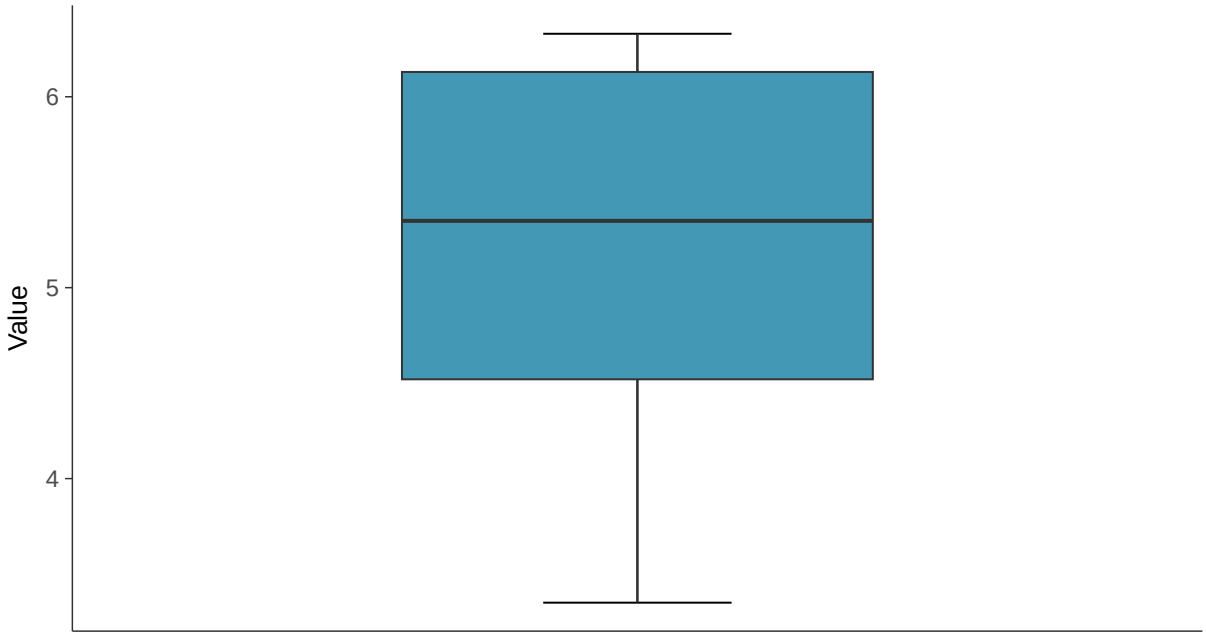
Histogram

Dissolved Oxygen, MW-9 (mg/L)



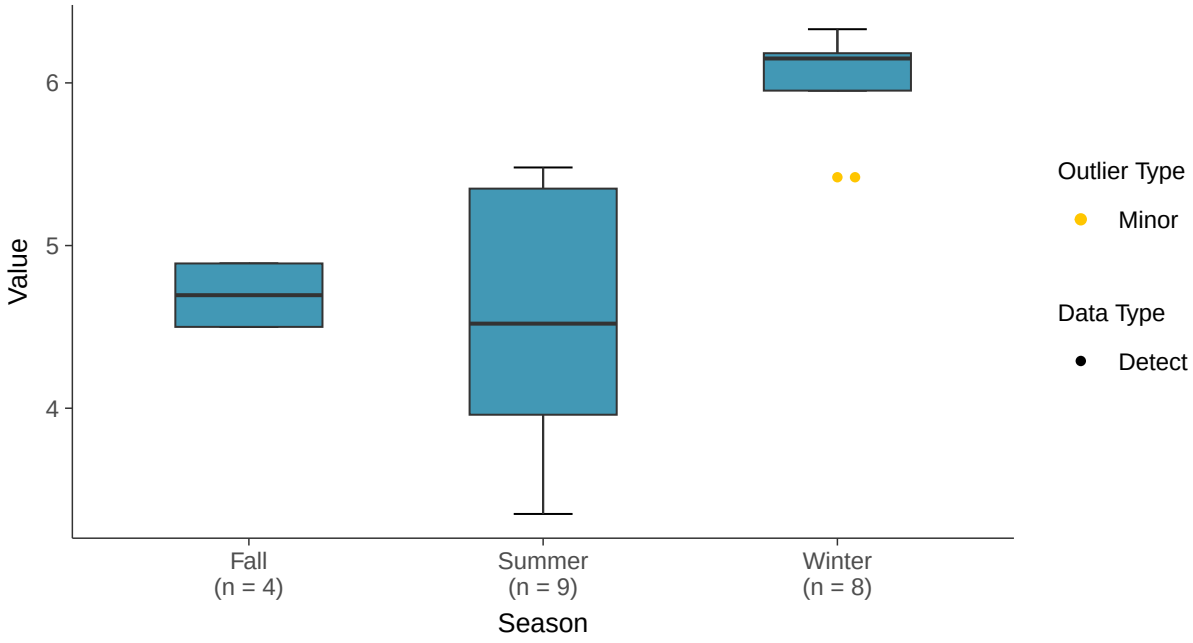
Boxplot

Dissolved Oxygen, MW-9 (mg/L)



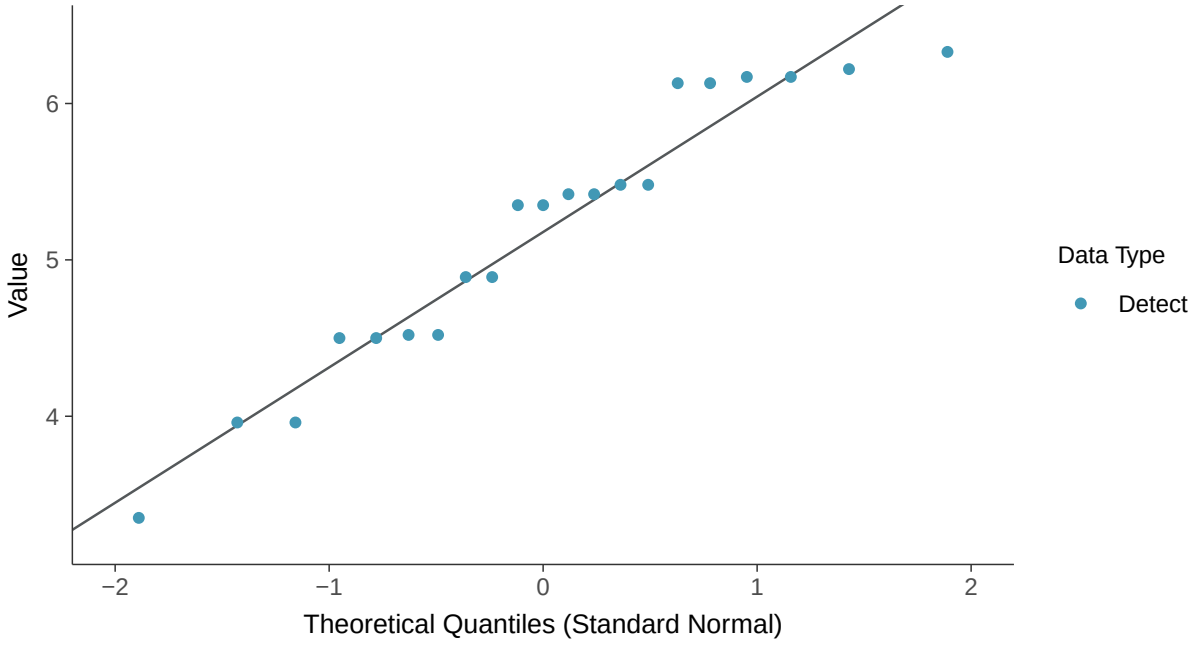
Boxplot by Season

Dissolved Oxygen, MW-9 (mg/L)



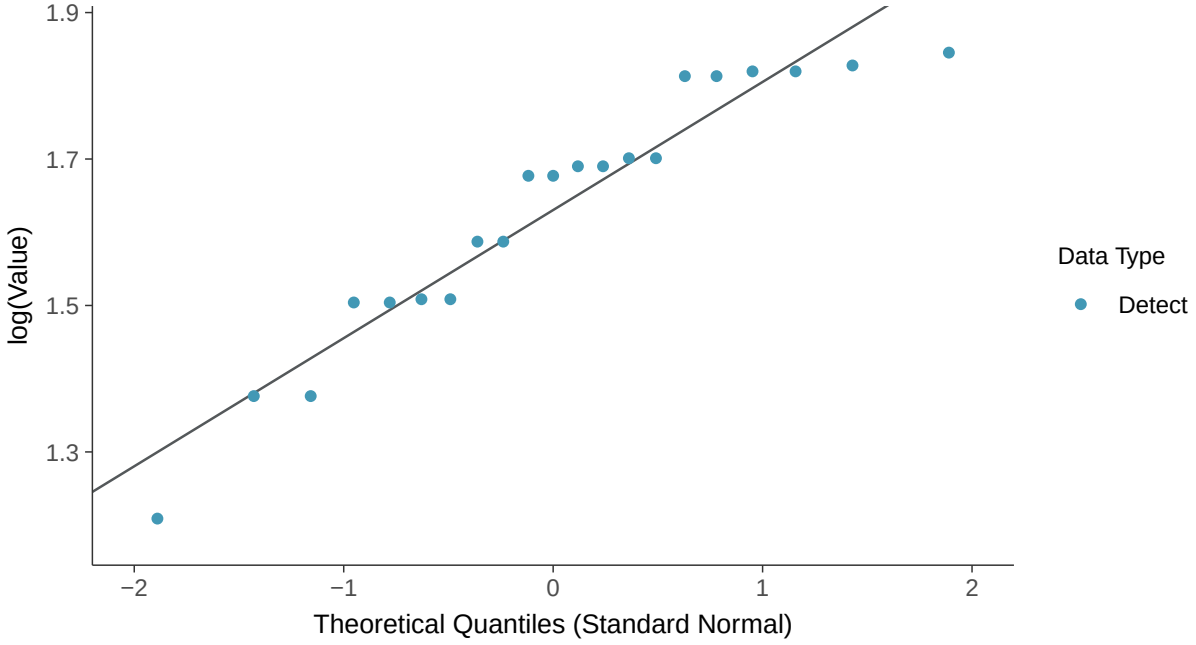
Normal Q-Q plot

Dissolved Oxygen, MW-9 (mg/L)



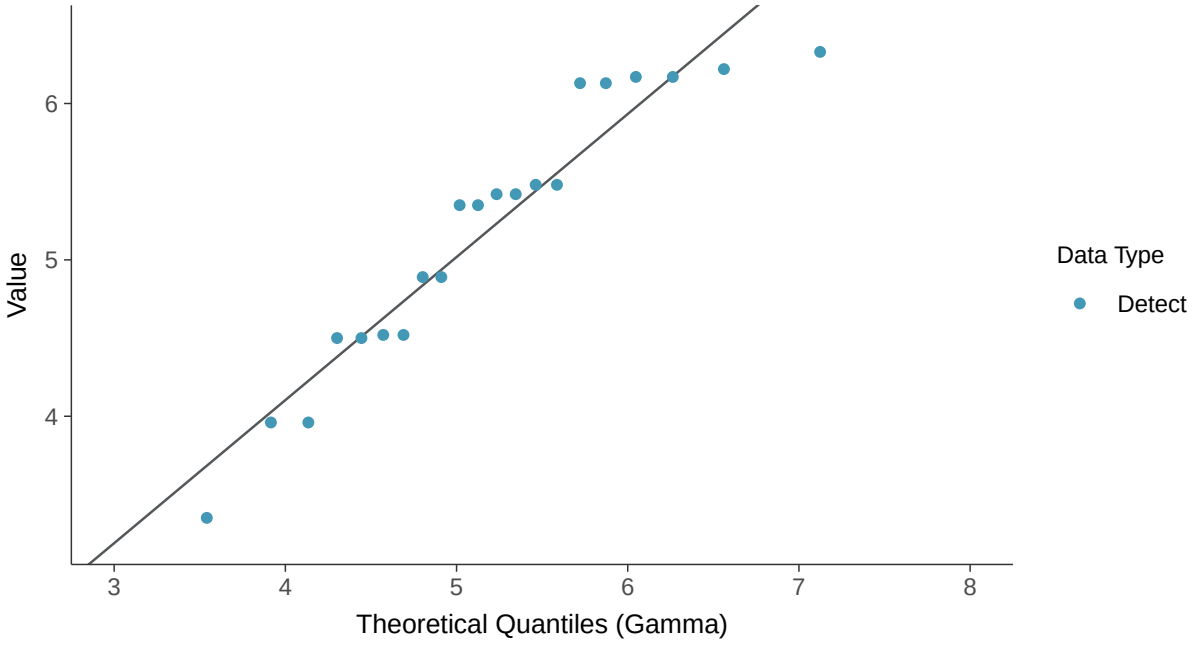
Lognormal Q-Q plot

Dissolved Oxygen, MW-9 (mg/L)



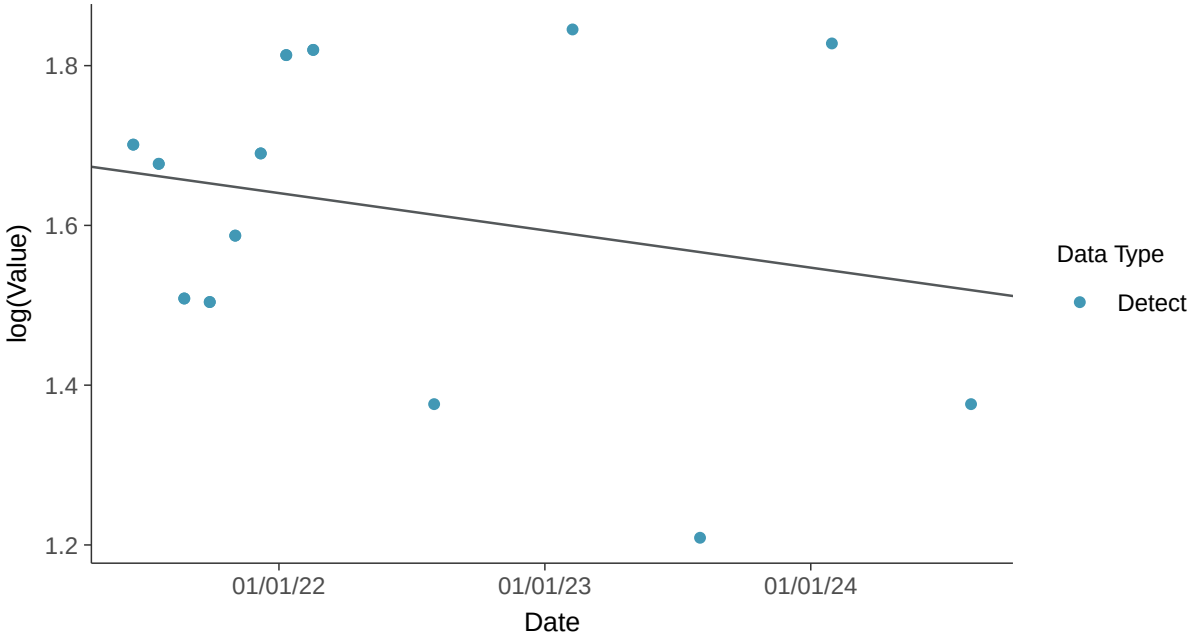
Gamma Q-Q plot

Dissolved Oxygen, MW-9 (mg/L)



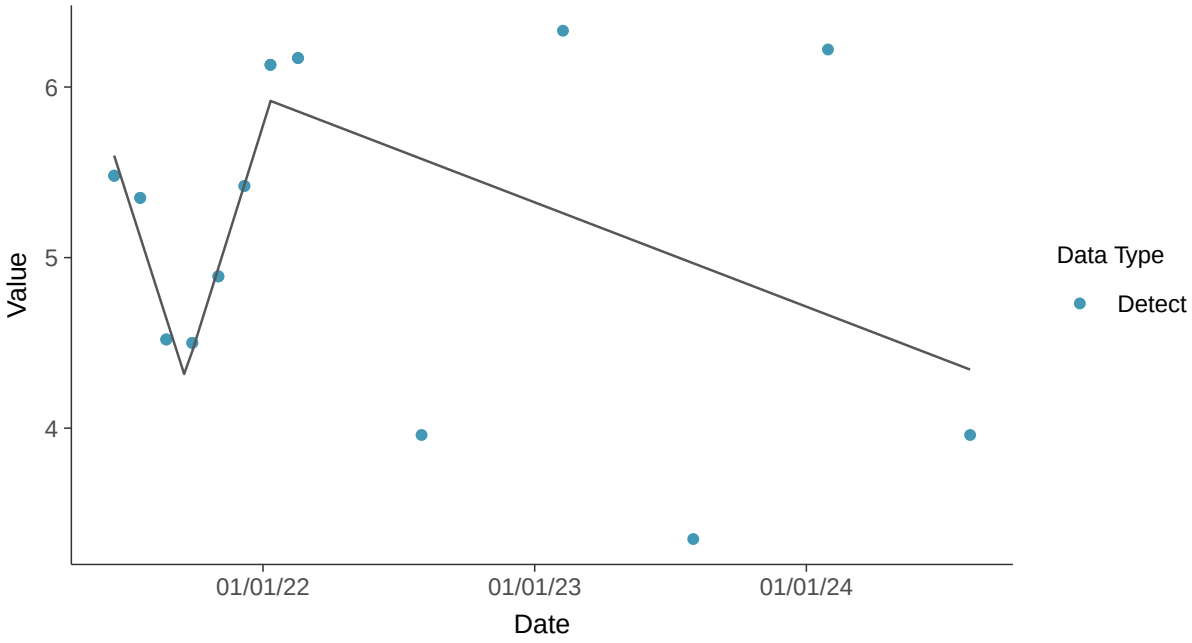
Trend Regression: Lognormal MLE

Dissolved Oxygen, MW-9 (mg/L)



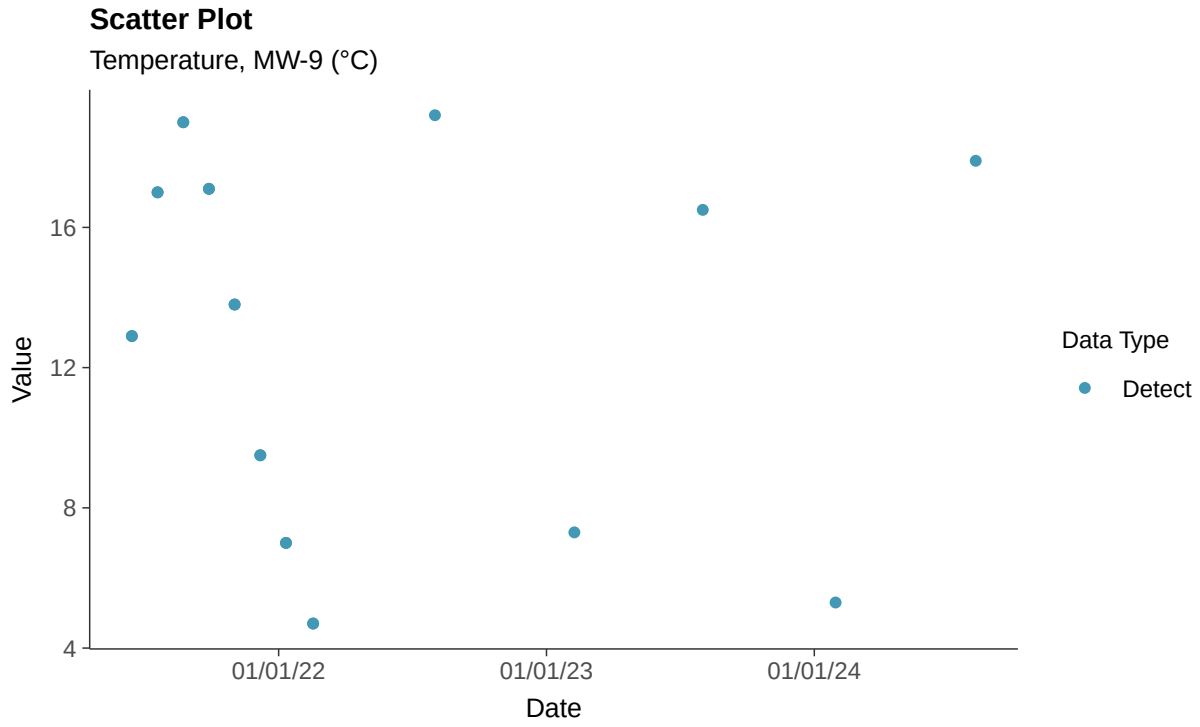
Trend Regression: Piecewise Linear-Linear-Linear

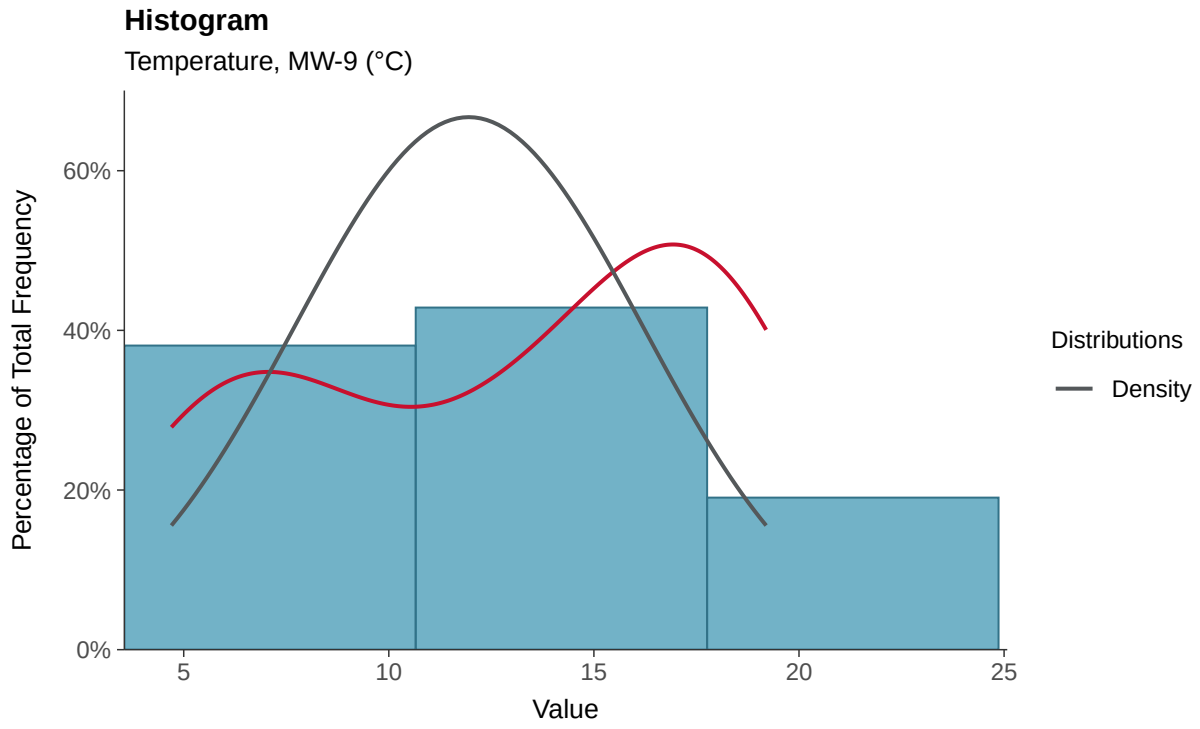
Dissolved Oxygen, MW-9 (mg/L)



Field Parameters: Temperature, MW-9

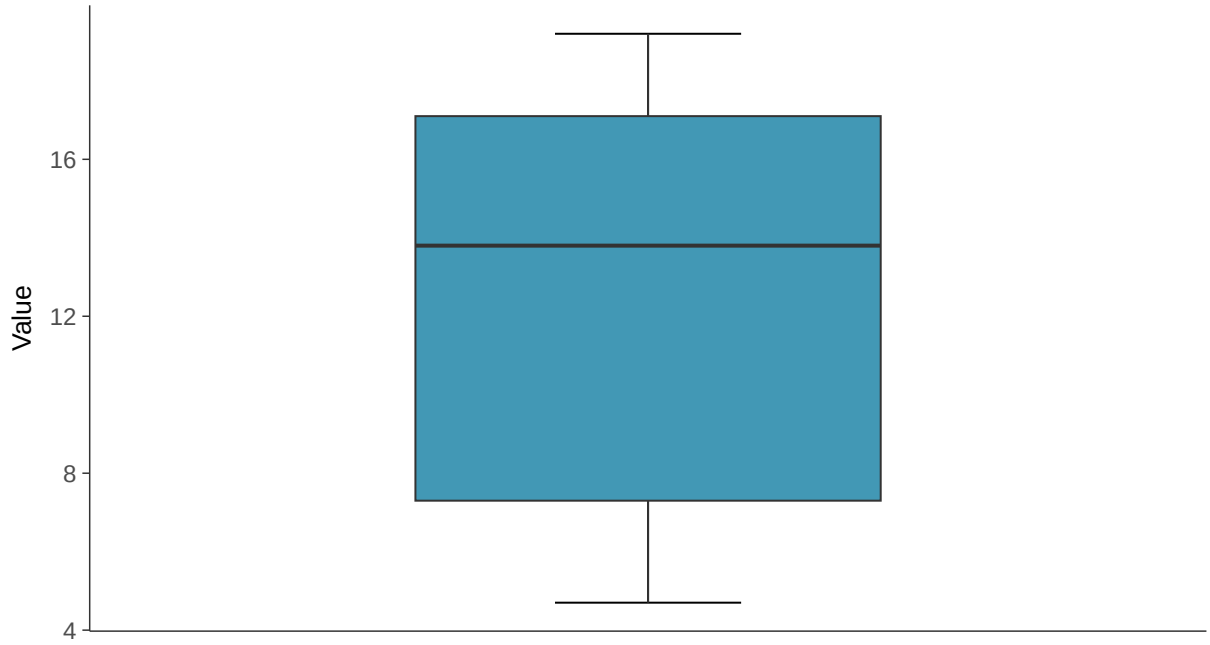
ID: 09_3_28





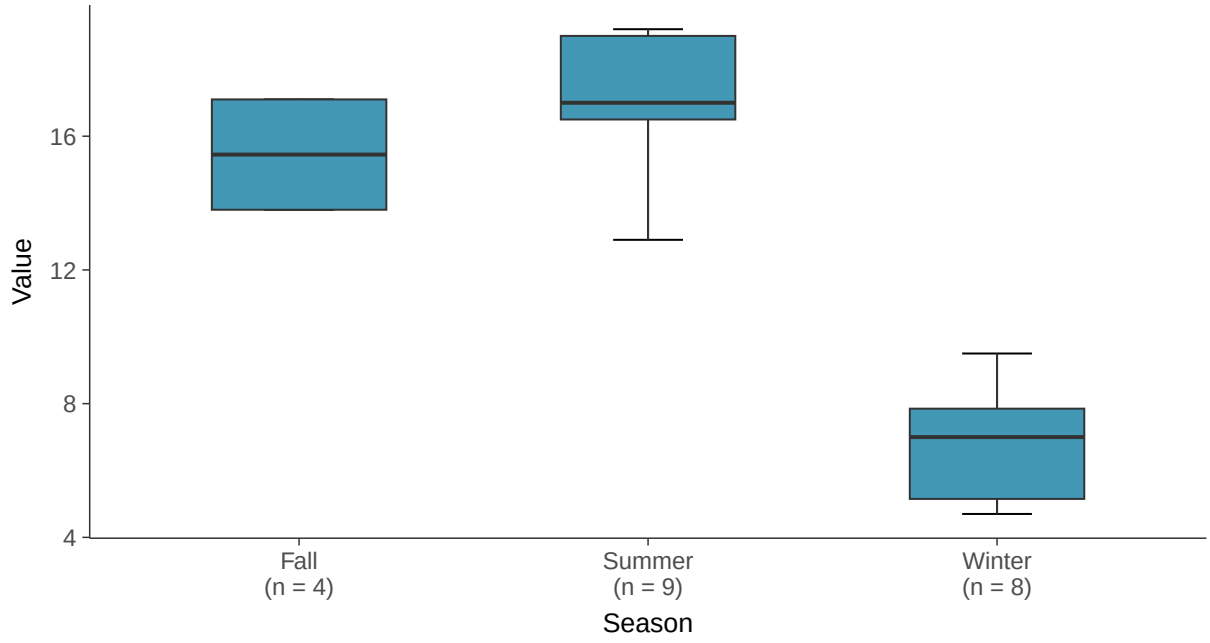
Boxplot

Temperature, MW-9 (°C)



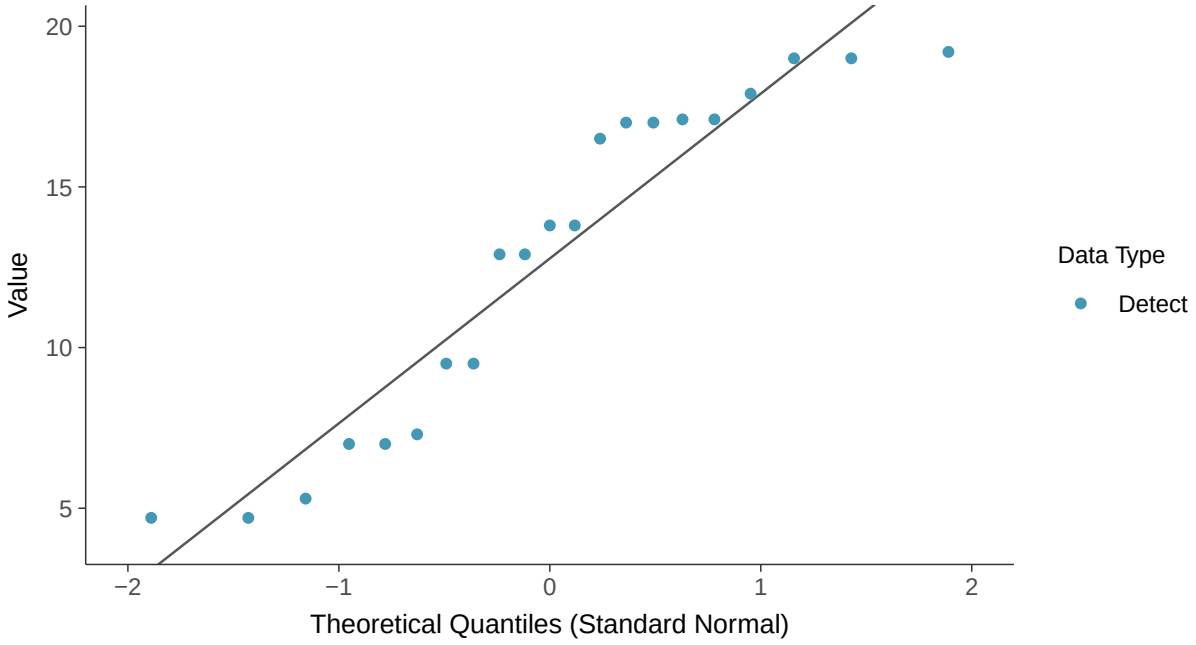
Boxplot by Season

Temperature, MW-9 (°C)



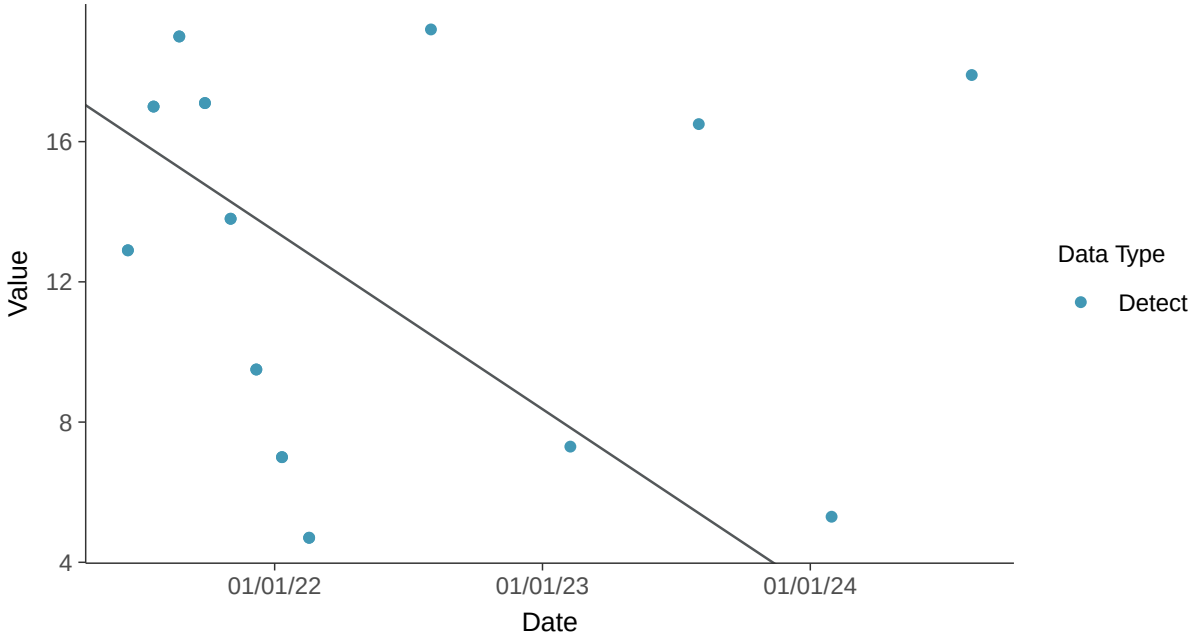
Normal Q-Q plot

Temperature, MW-9 (°C)



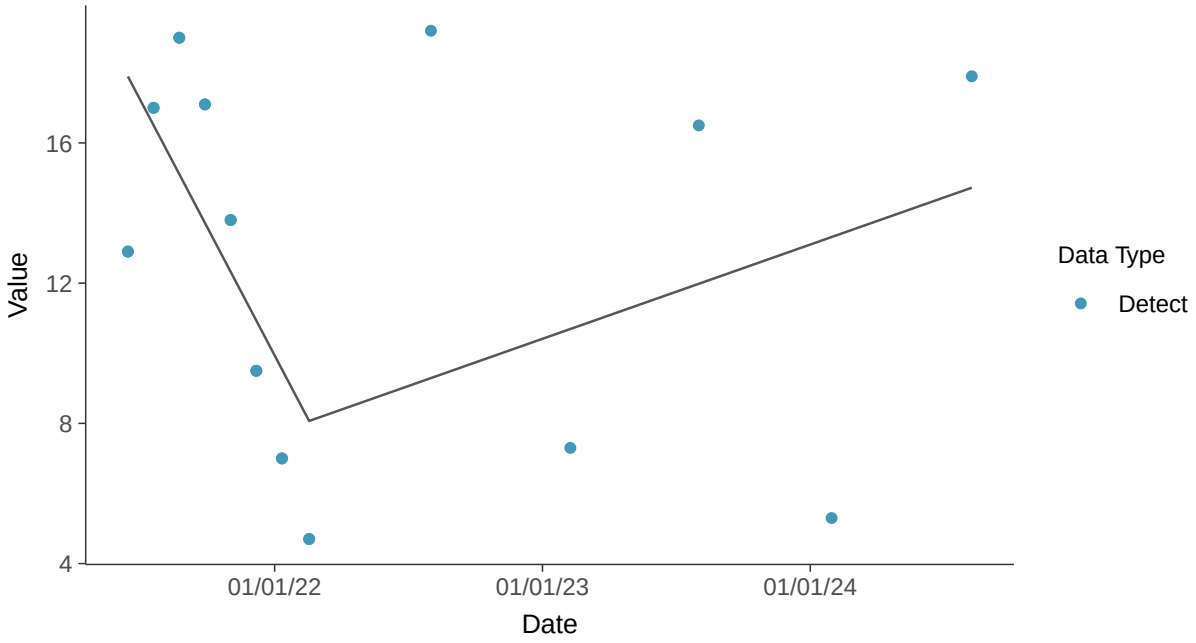
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Temperature, MW-9 (°C)



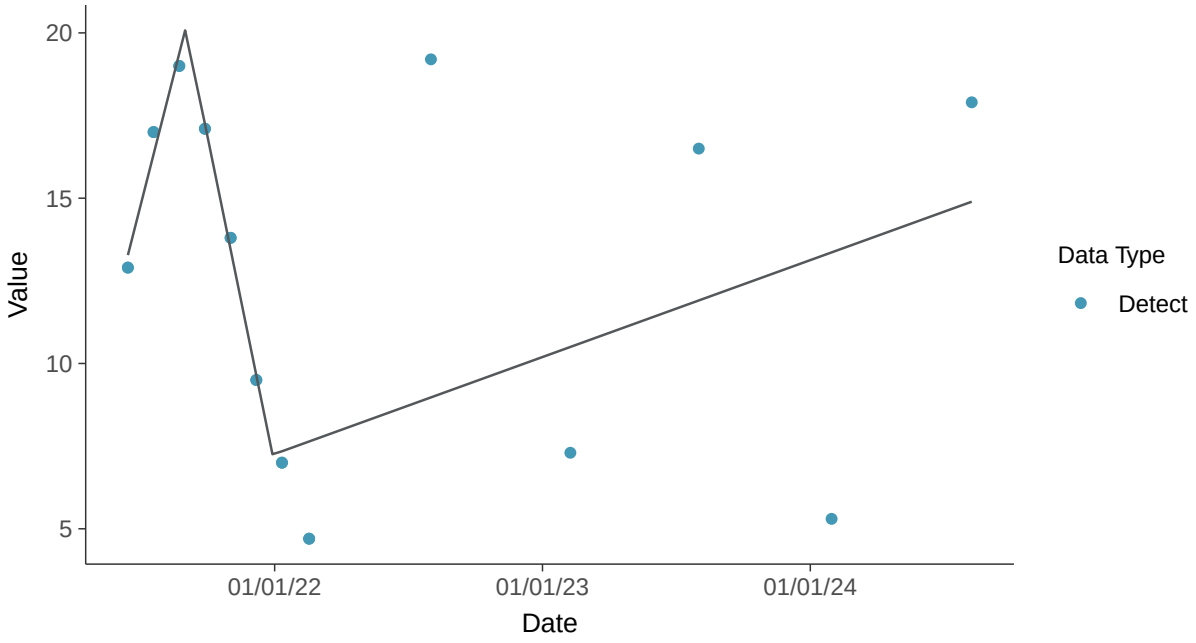
Trend Regression: Piecewise Linear-Linear

Temperature, MW-9 (°C)



Trend Regression: Piecewise Linear-Linear-Linear

Temperature, MW-9 (°C)

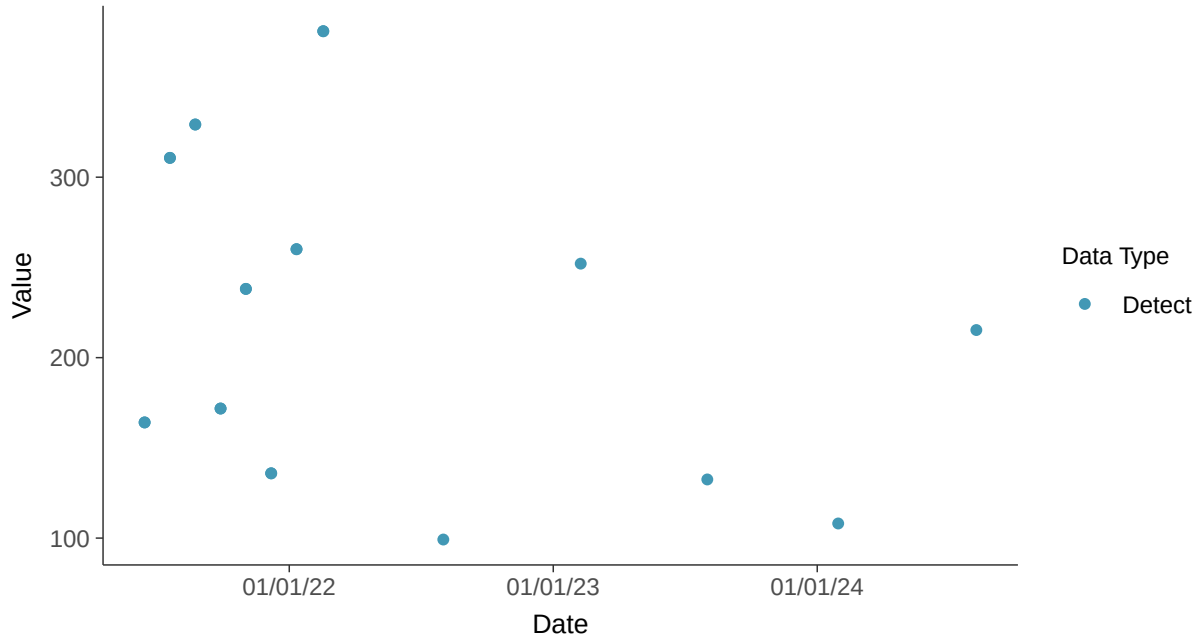


Field Parameters: Oxidation Reduction Potential, MW-9

ID: 09_3_29

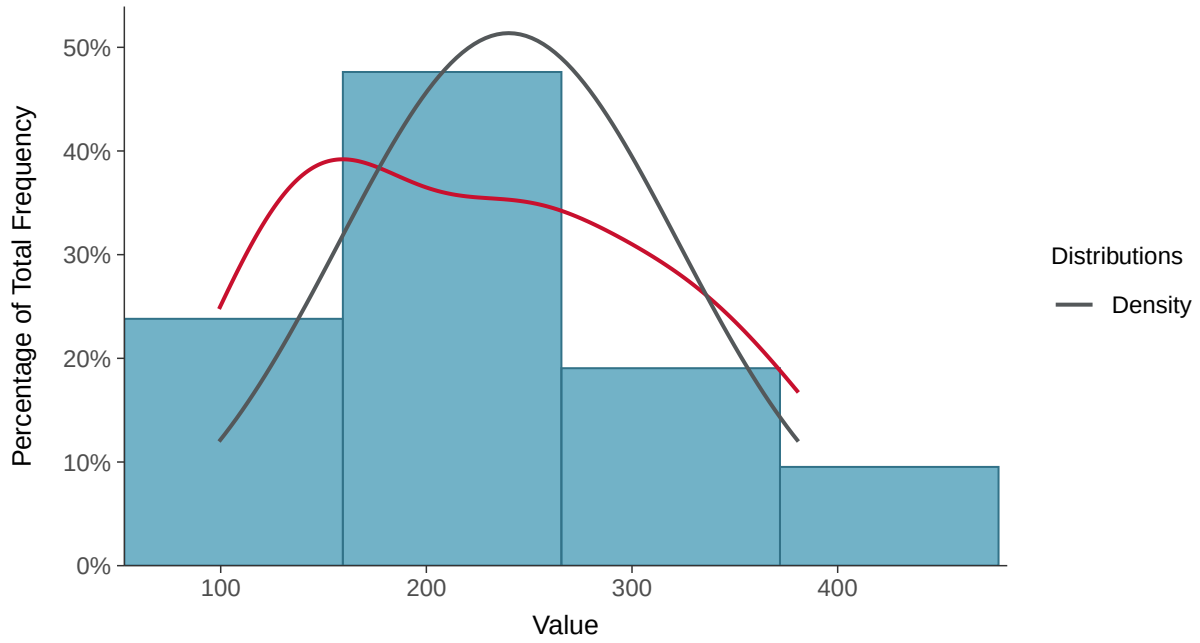
Scatter Plot

Oxidation Reduction Potential, MW-9 (mV)



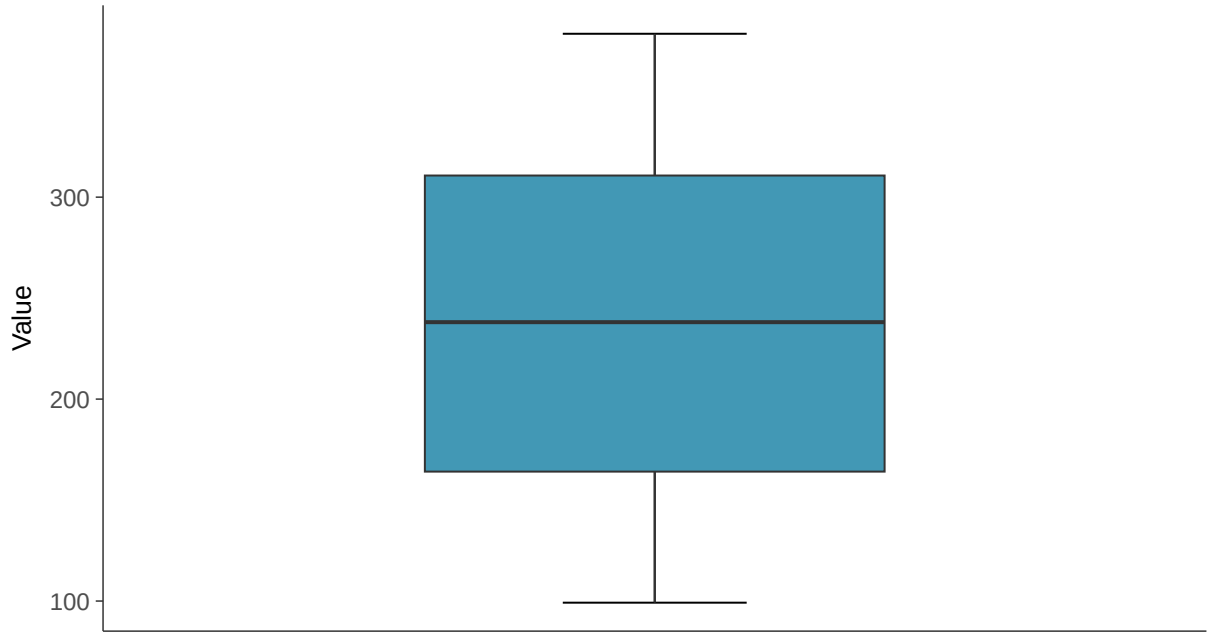
Histogram

Oxidation Reduction Potential, MW-9 (mV)



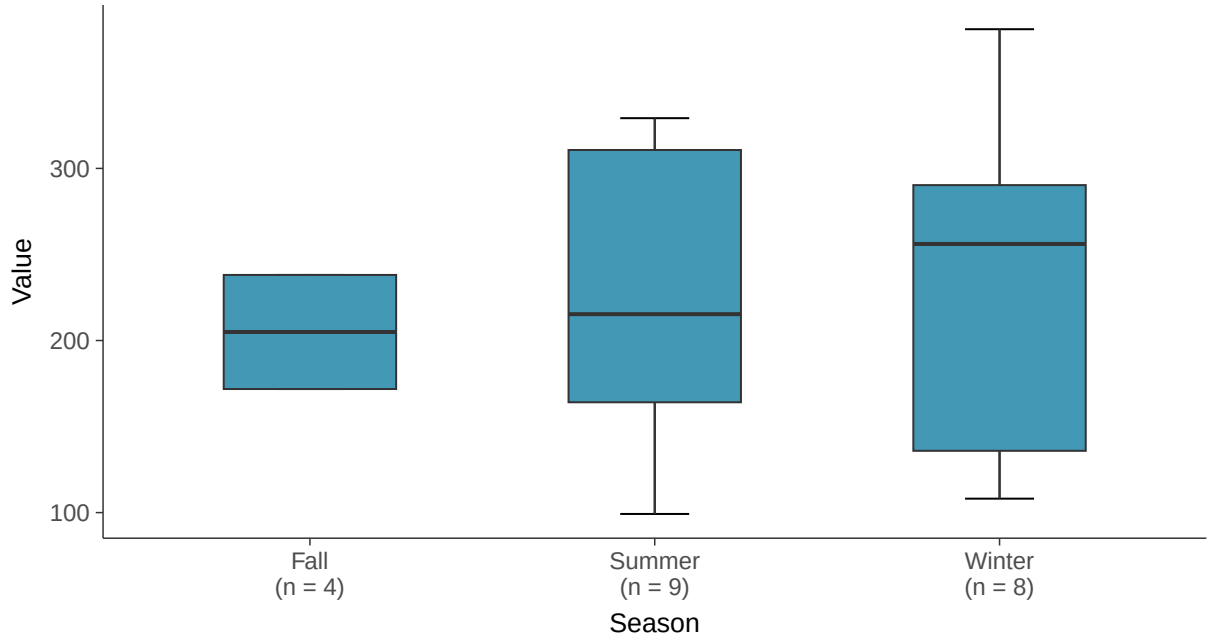
Boxplot

Oxidation Reduction Potential, MW-9 (mV)



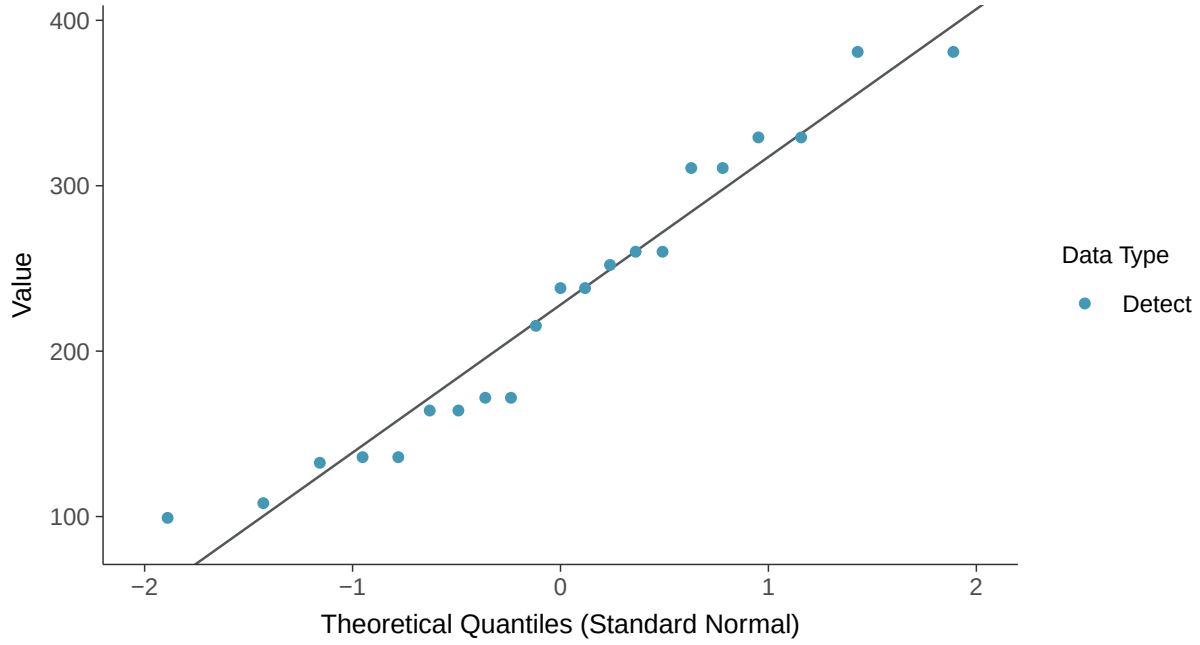
Boxplot by Season

Oxidation Reduction Potential, MW-9 (mV)



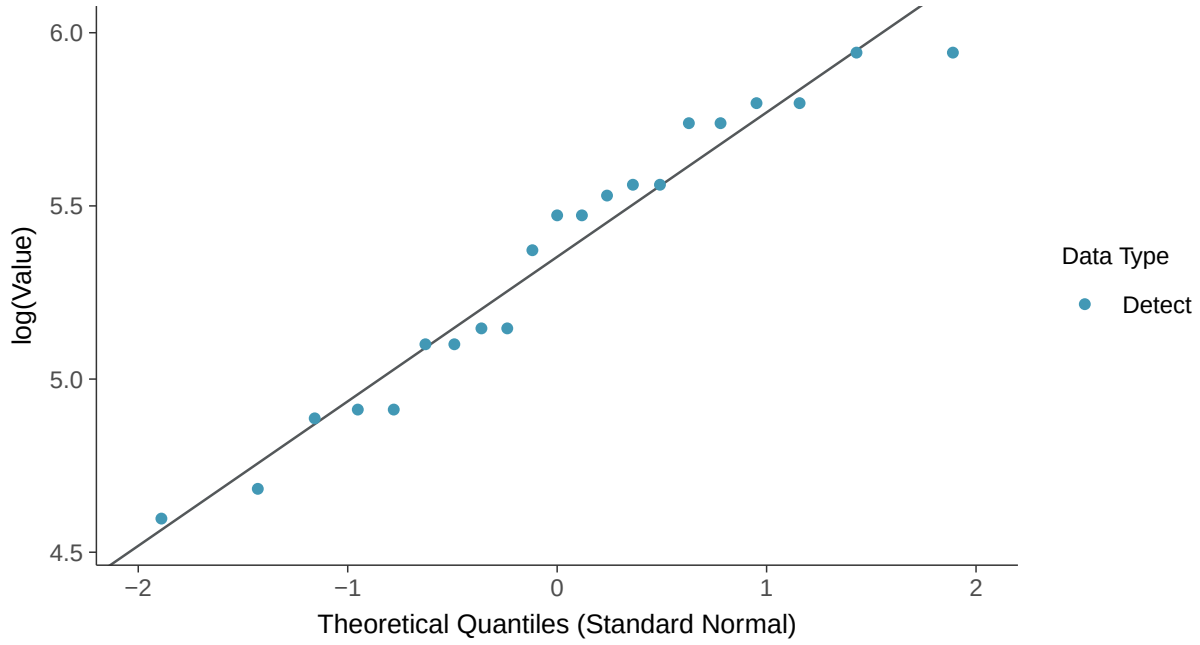
Normal Q-Q plot

Oxidation Reduction Potential, MW-9 (mV)



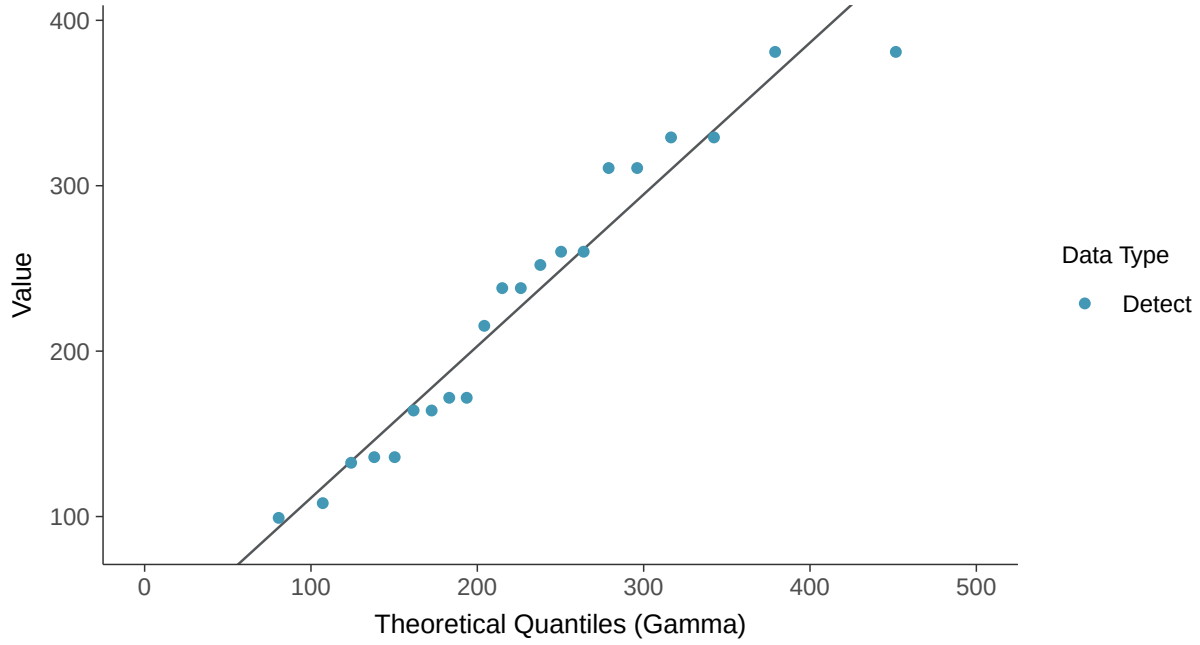
Lognormal Q-Q plot

Oxidation Reduction Potential, MW-9 (mV)



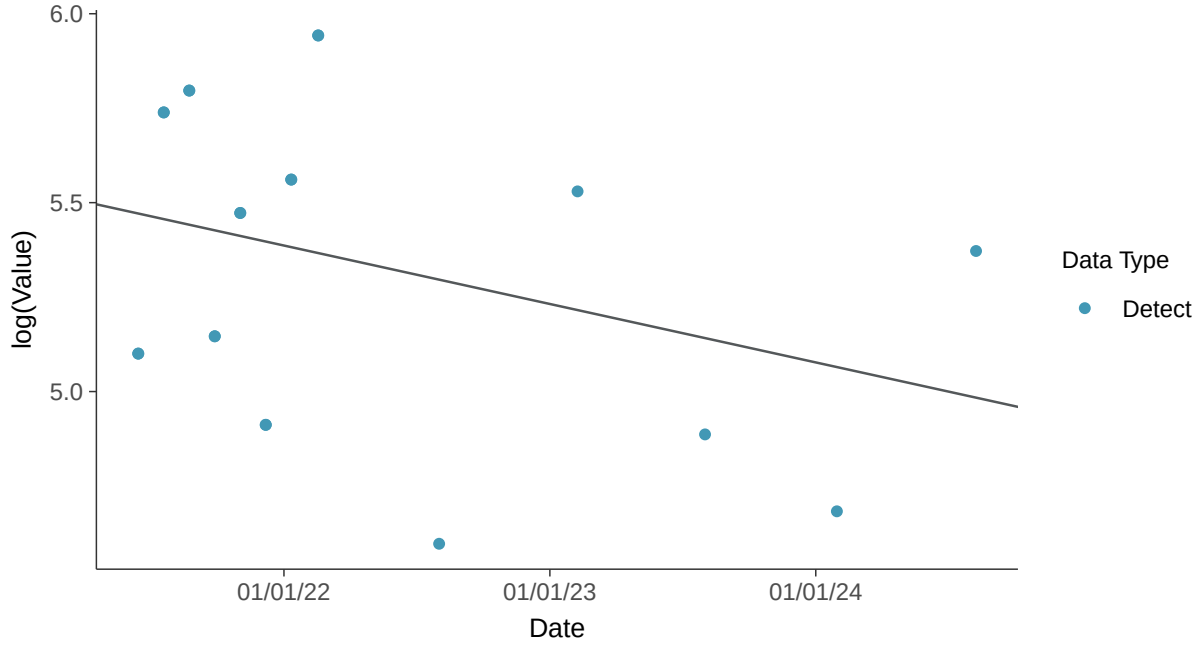
Gamma Q-Q plot

Oxidation Reduction Potential, MW-9 (mV)



Trend Regression: Lognormal MLE

Oxidation Reduction Potential, MW-9 (mV)

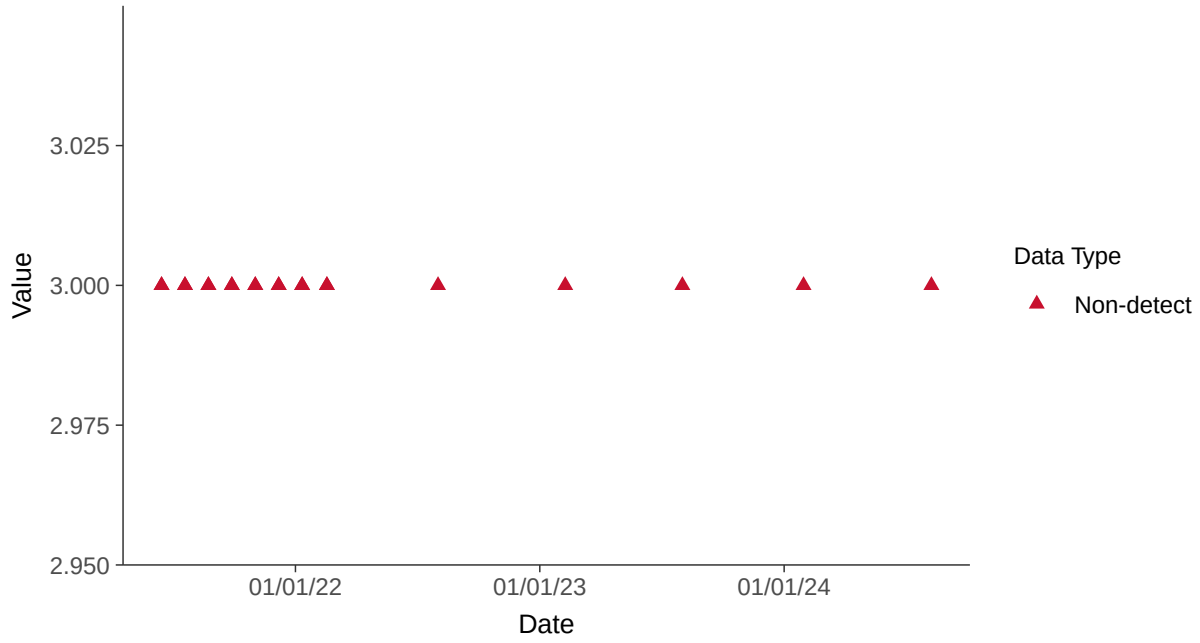


Other: Total Suspended Solids, MW-9

ID: 09_4_30

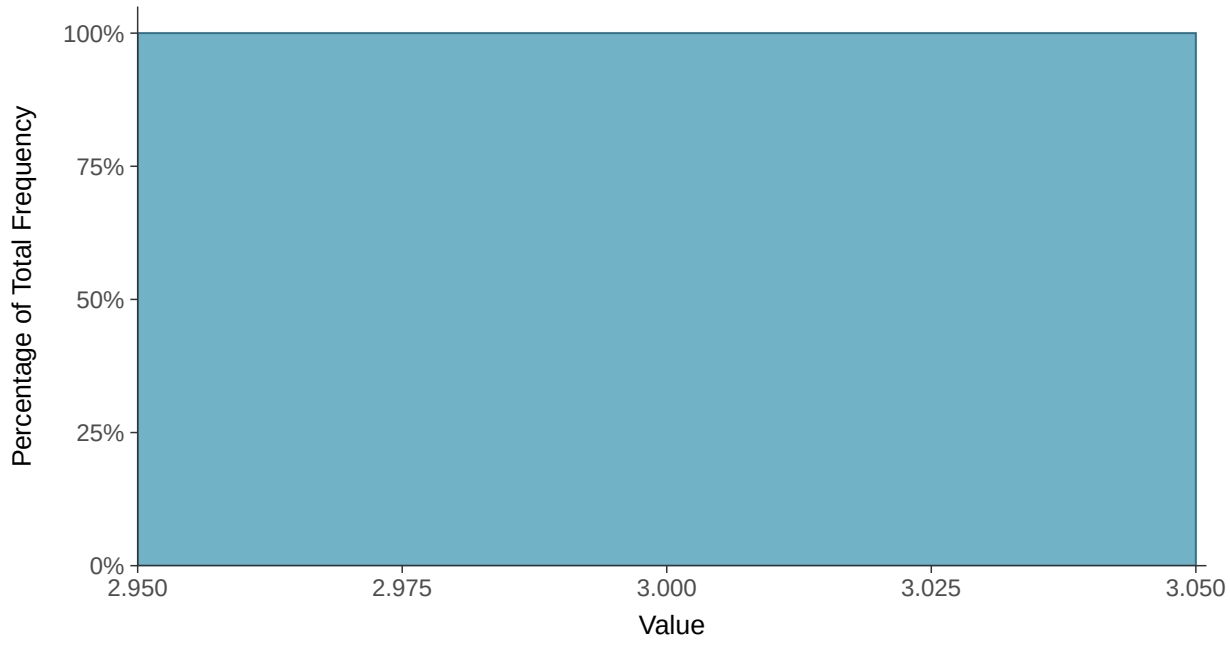
Scatter Plot

Total Suspended Solids, MW-9 (mg/L)



Histogram

Total Suspended Solids, MW-9 (mg/L)

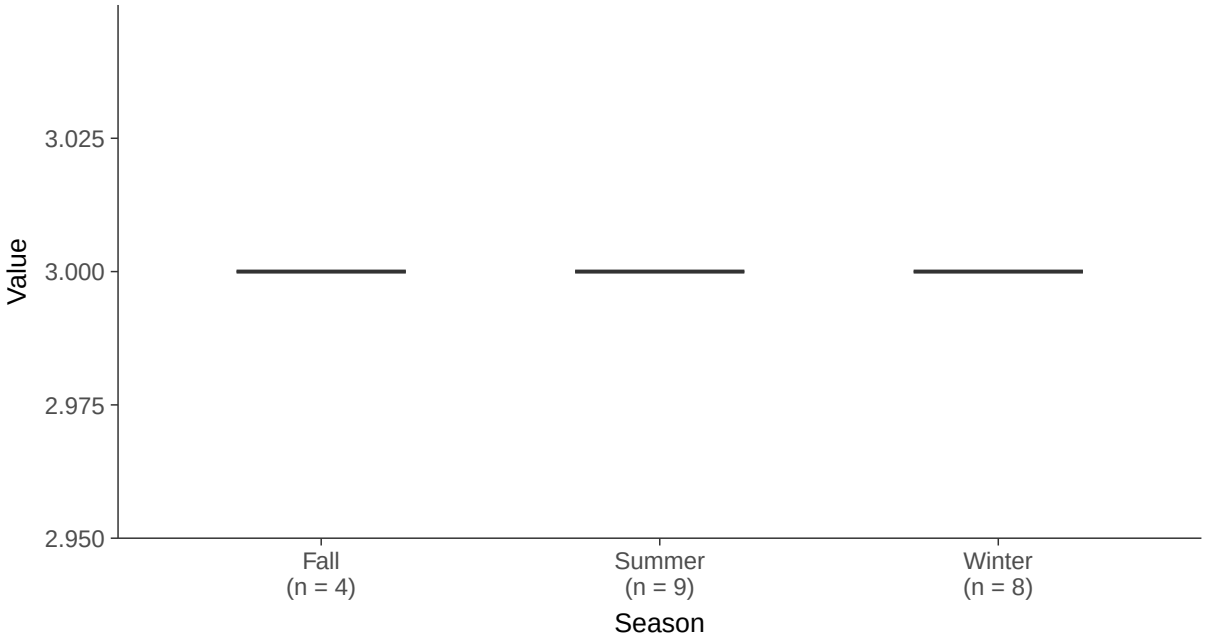


Boxplot

Total Suspended Solids, MW-9 (mg/L)

Boxplot by Season

Total Suspended Solids, MW-9 (mg/L)

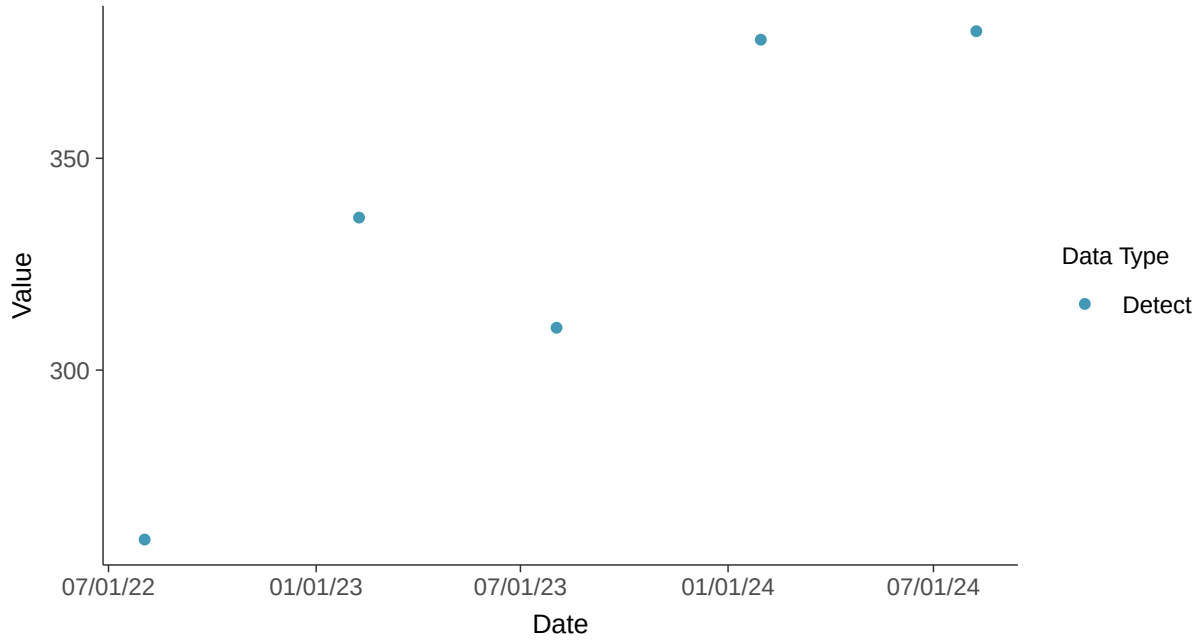


Other: Bicarbonate, MW-9

ID: 09_4_31

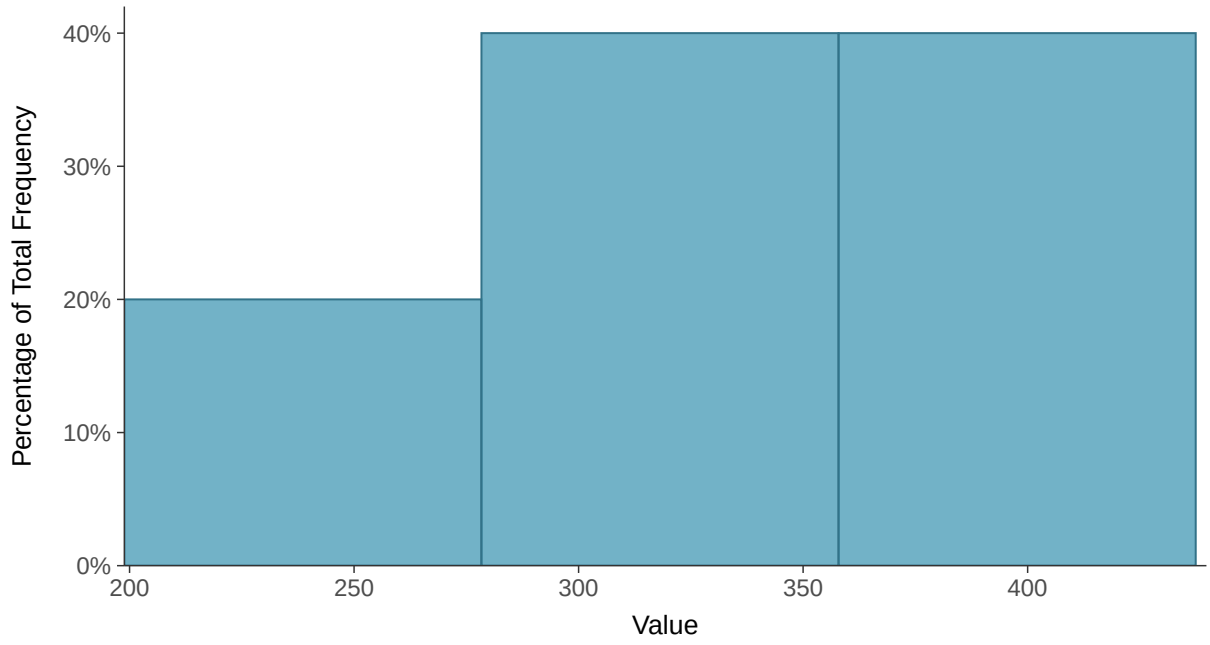
Scatter Plot

Bicarbonate, MW-9 (mg/L)



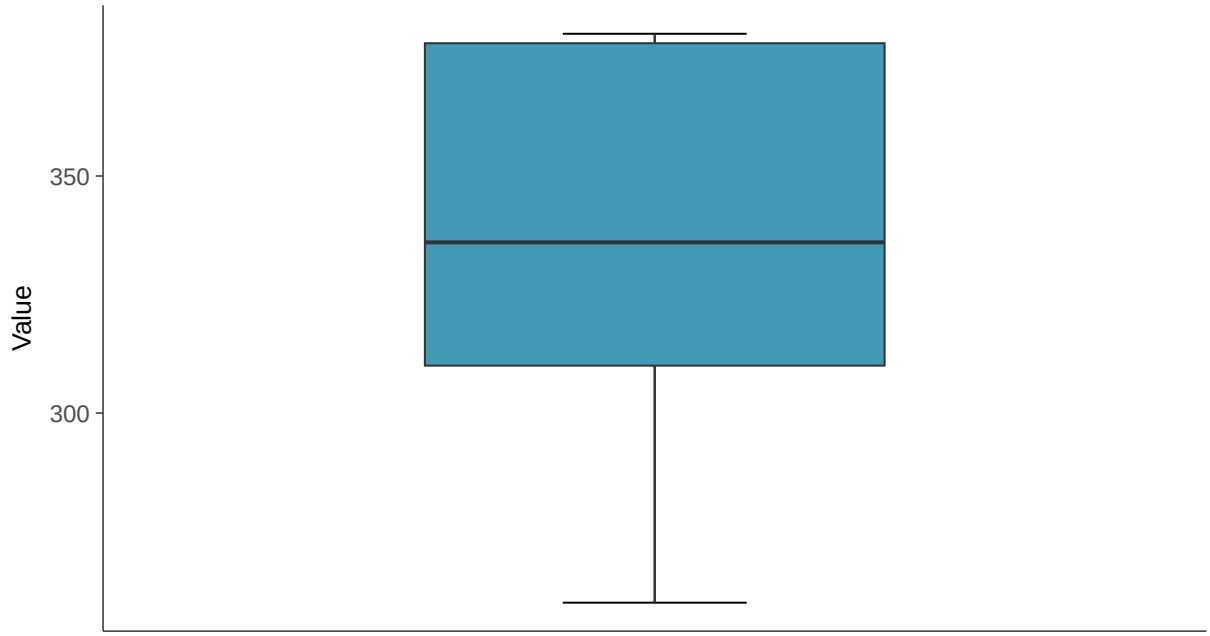
Histogram

Bicarbonate, MW-9 (mg/L)



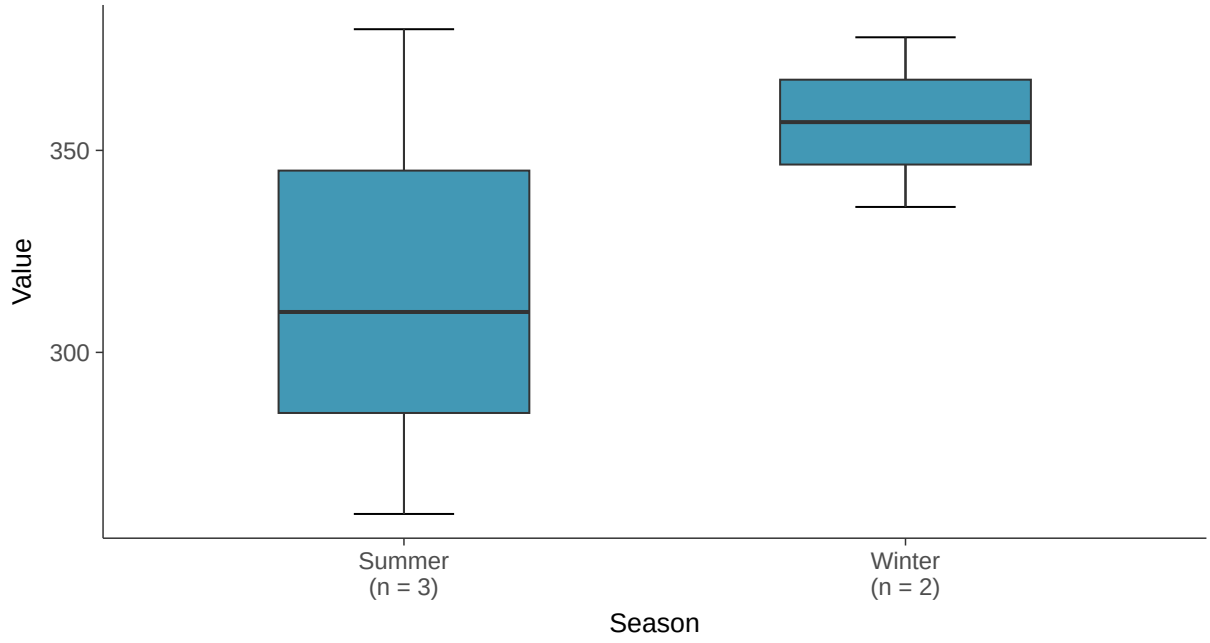
Boxplot

Bicarbonate, MW-9 (mg/L)



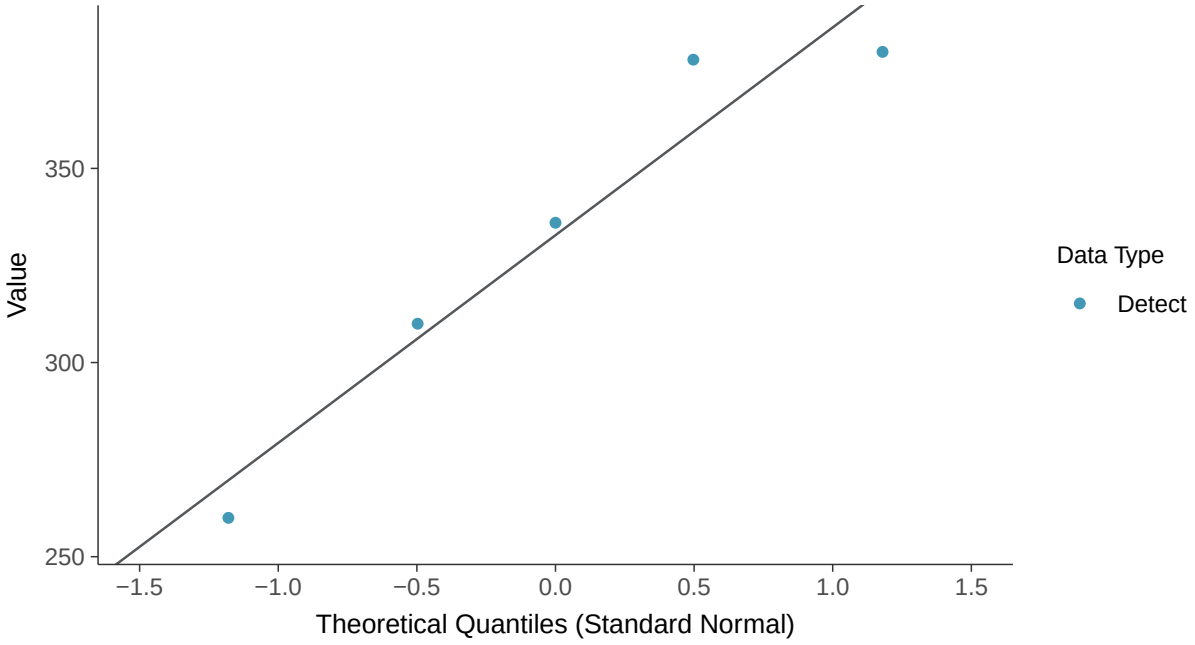
Boxplot by Season

Bicarbonate, MW-9 (mg/L)



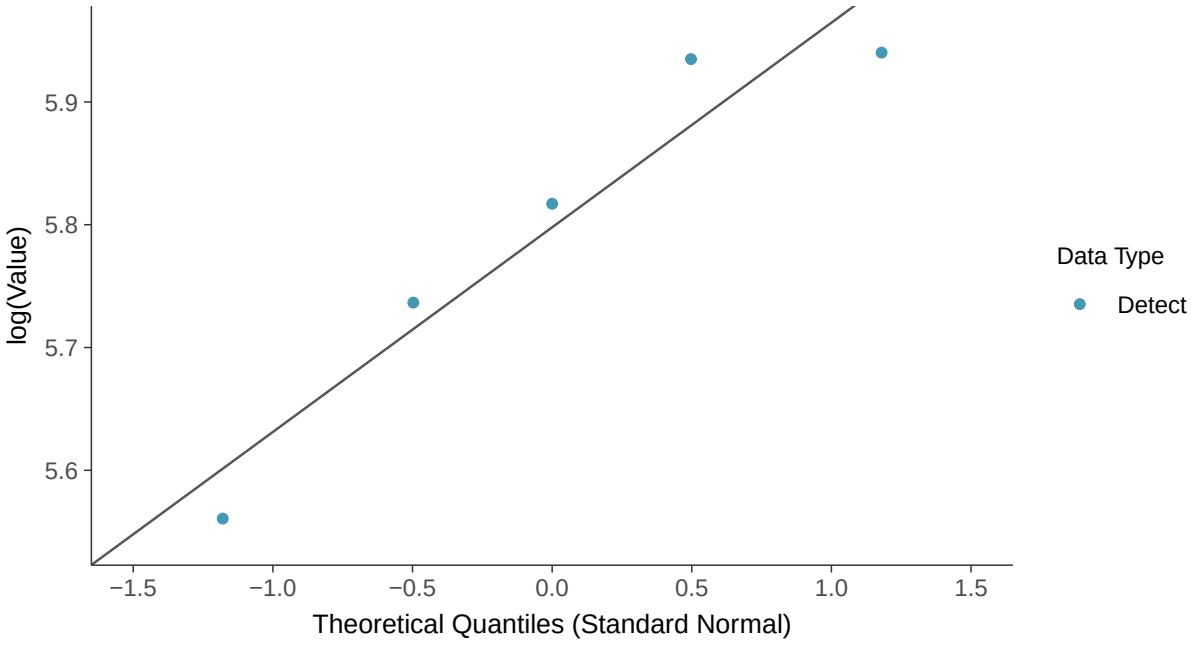
Normal Q-Q plot

Bicarbonate, MW-9 (mg/L)



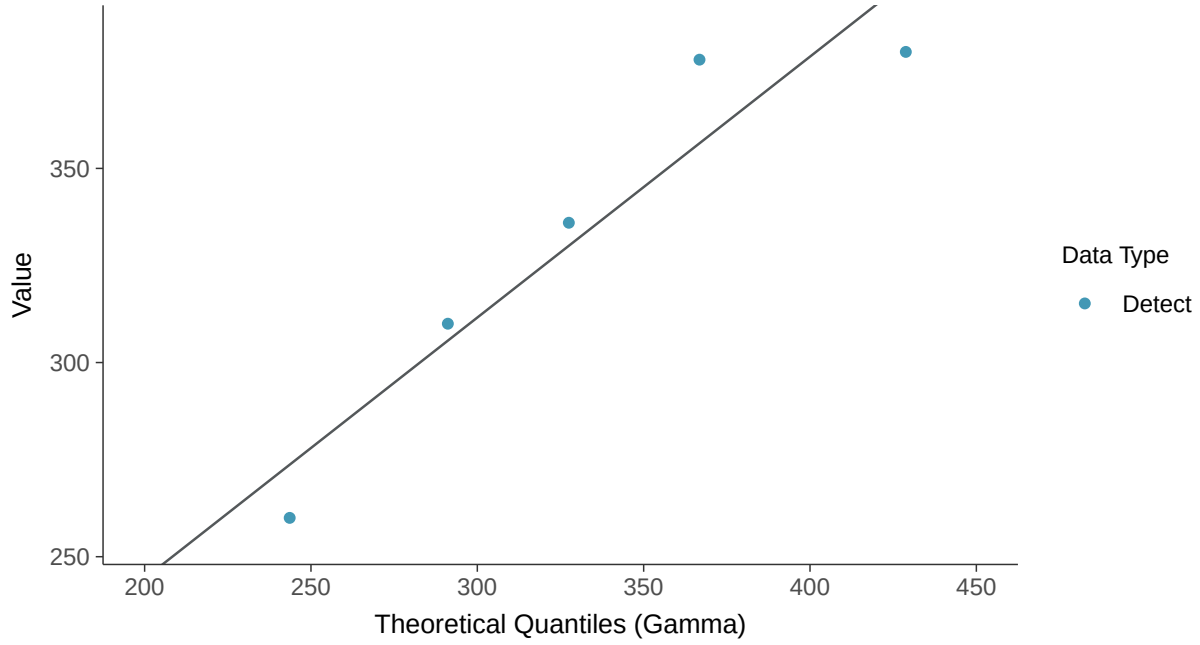
Lognormal Q-Q plot

Bicarbonate, MW-9 (mg/L)



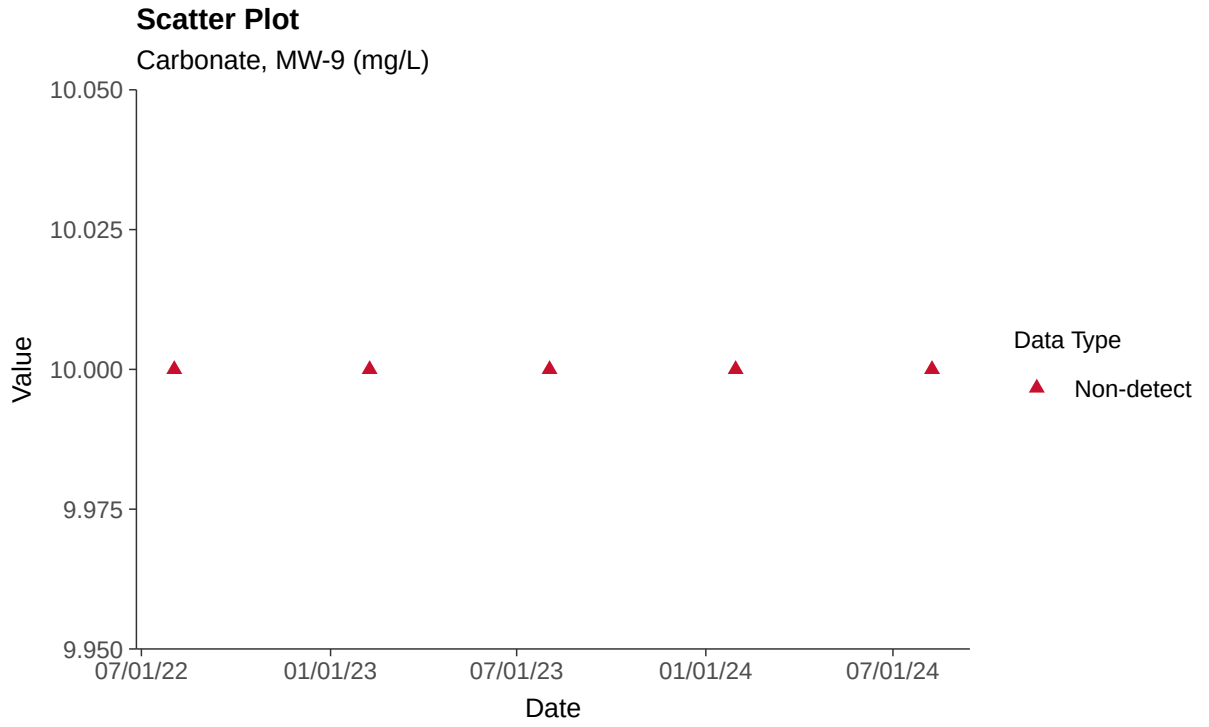
Gamma Q-Q plot

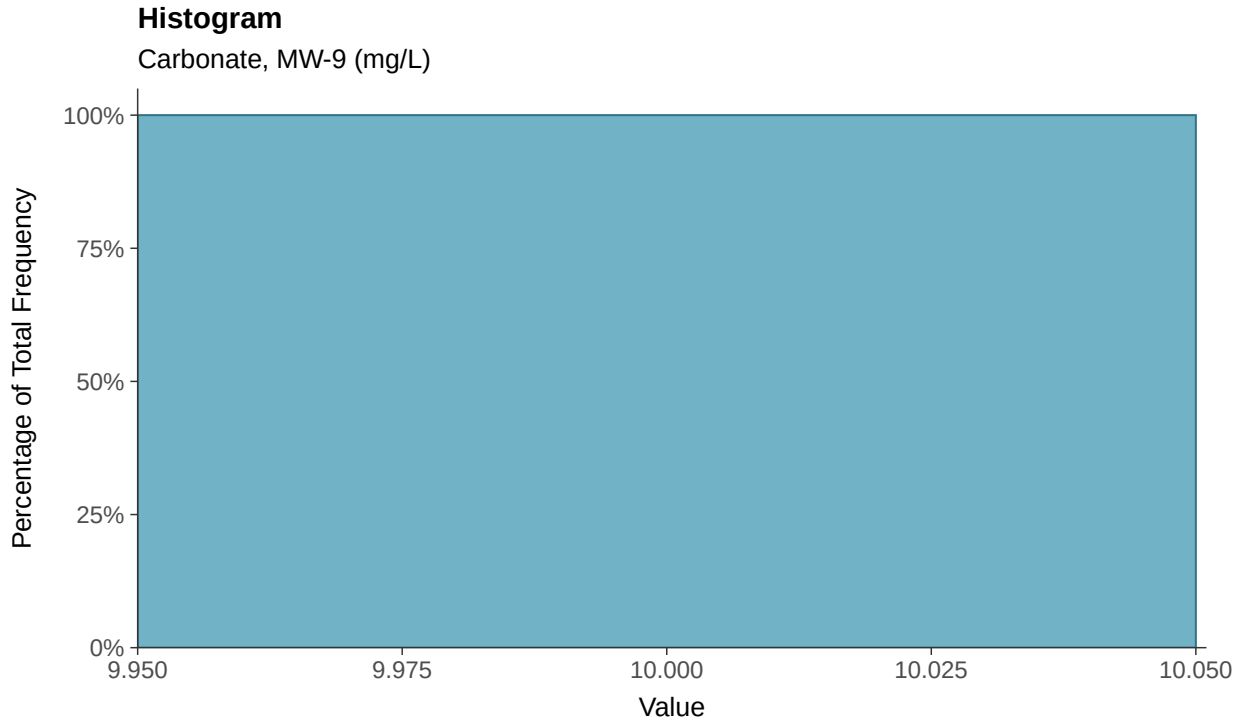
Bicarbonate, MW-9 (mg/L)



Other: Carbonate, MW-9

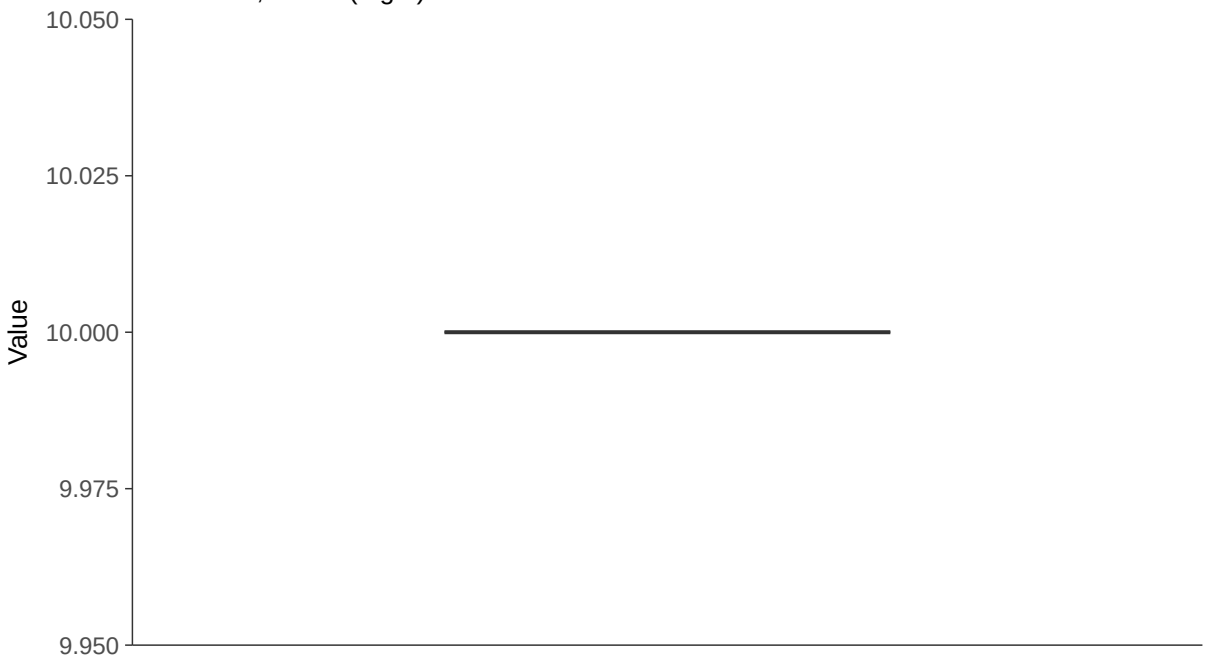
ID: 09_4_32





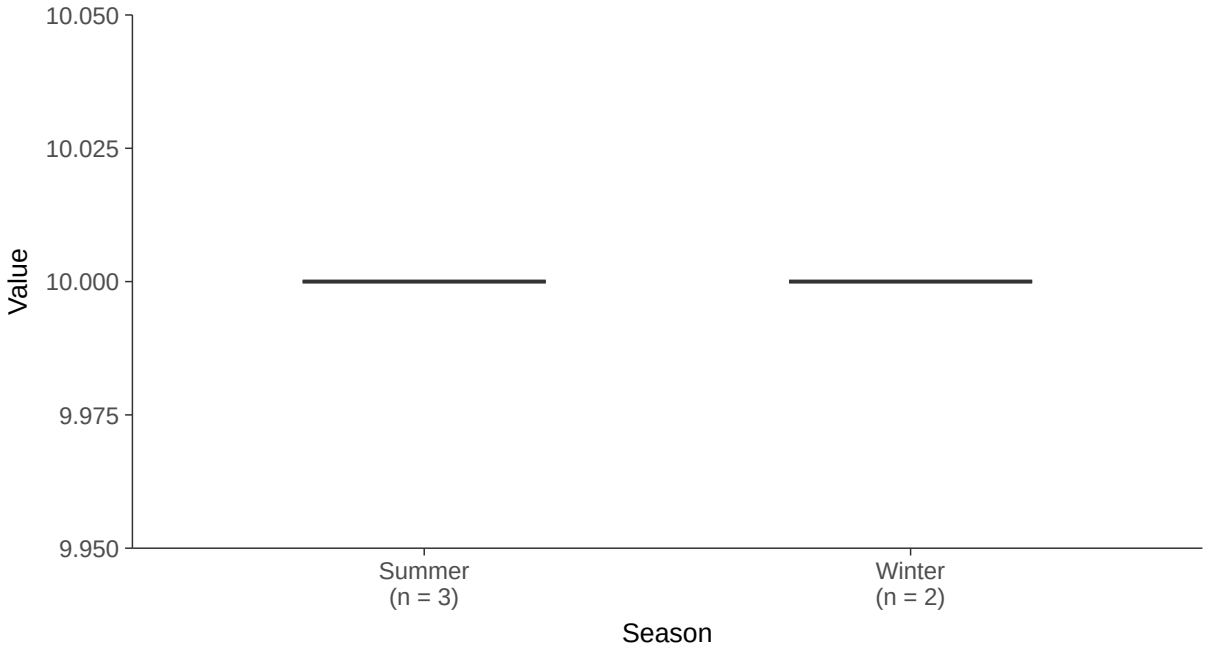
Boxplot

Carbonate, MW-9 (mg/L)



Boxplot by Season

Carbonate, MW-9 (mg/L)

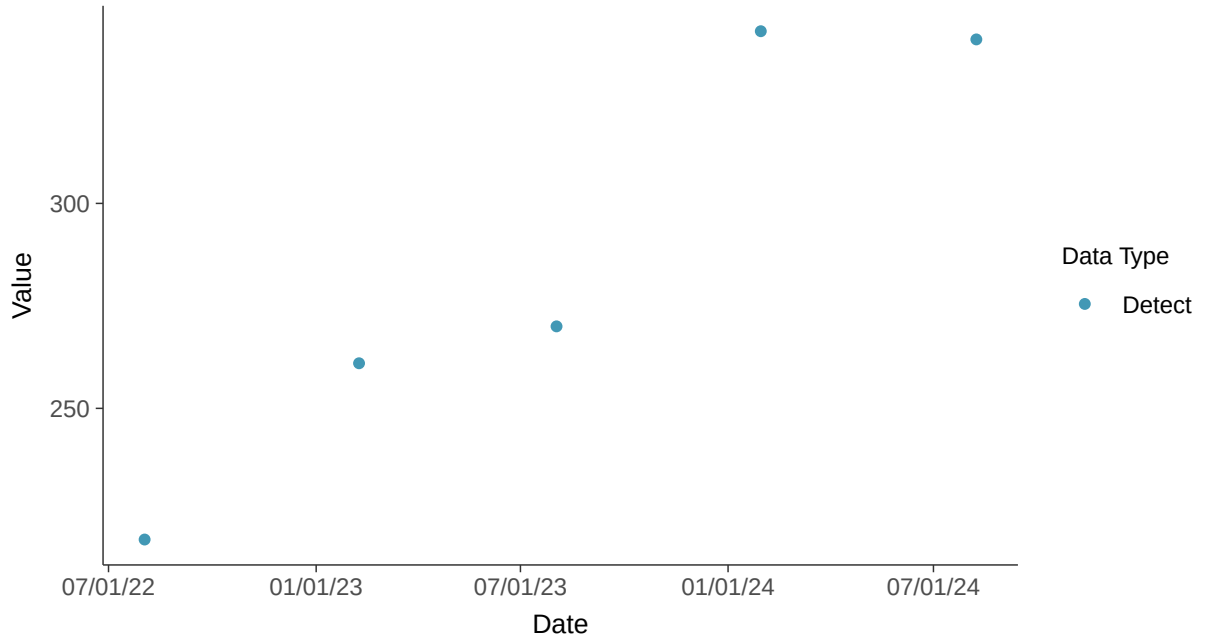


Other: Hardness, MW-9

ID: 09_4_33

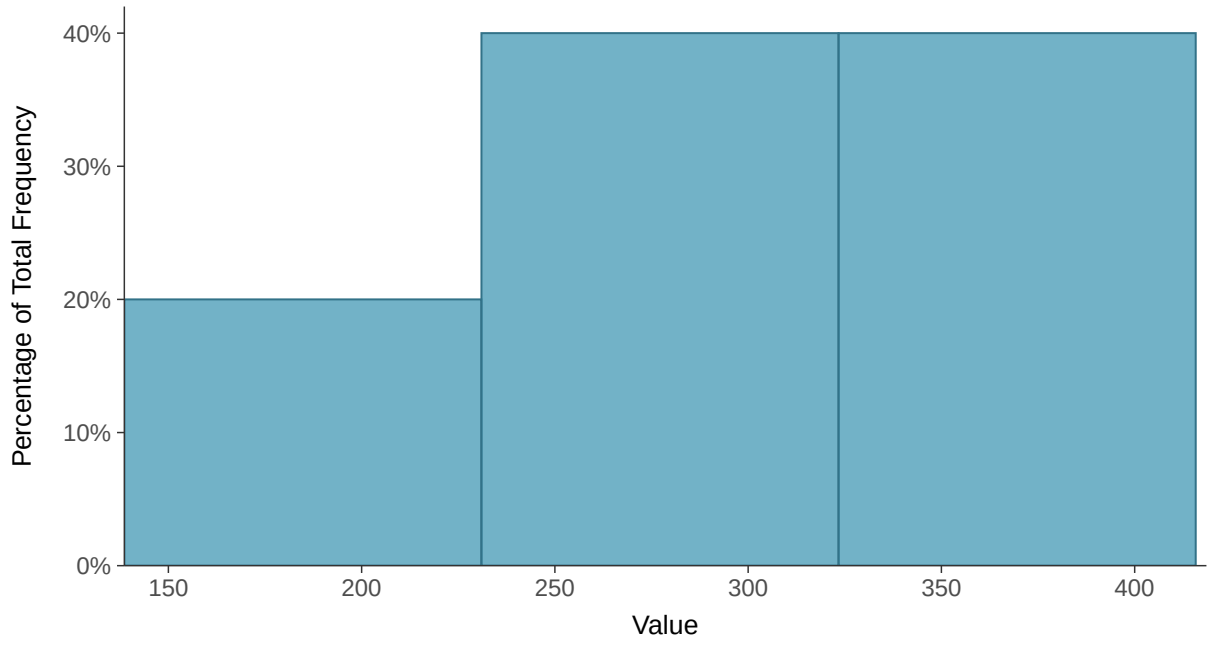
Scatter Plot

Hardness, MW-9 (mg/L)



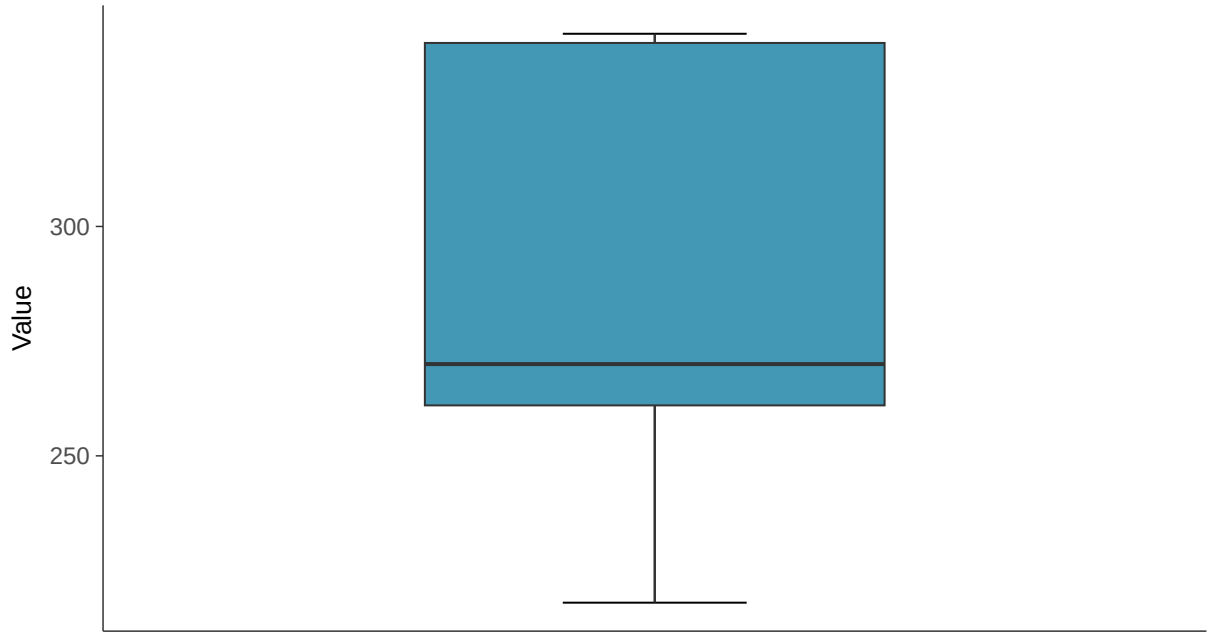
Histogram

Hardness, MW-9 (mg/L)



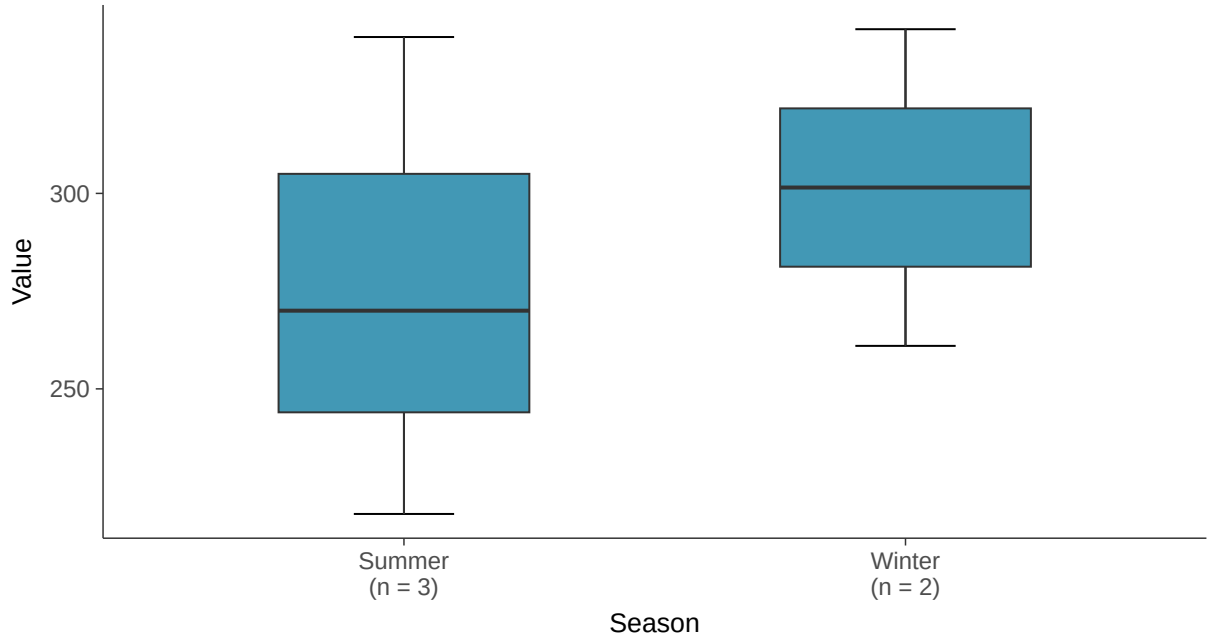
Boxplot

Hardness, MW-9 (mg/L)



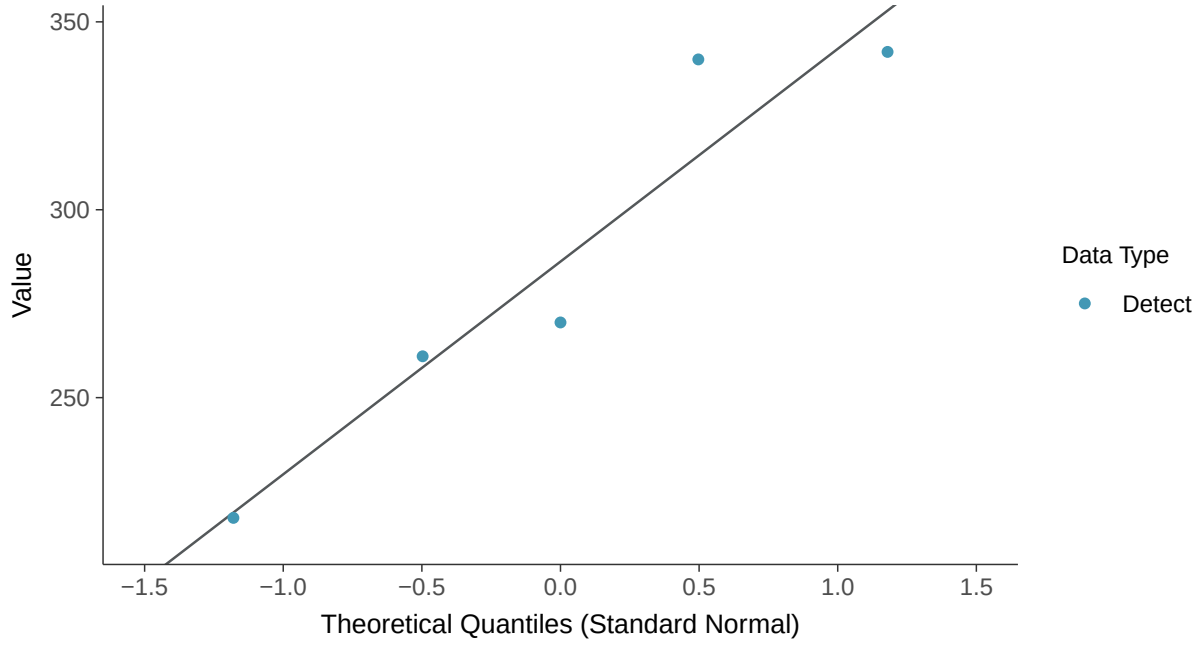
Boxplot by Season

Hardness, MW-9 (mg/L)



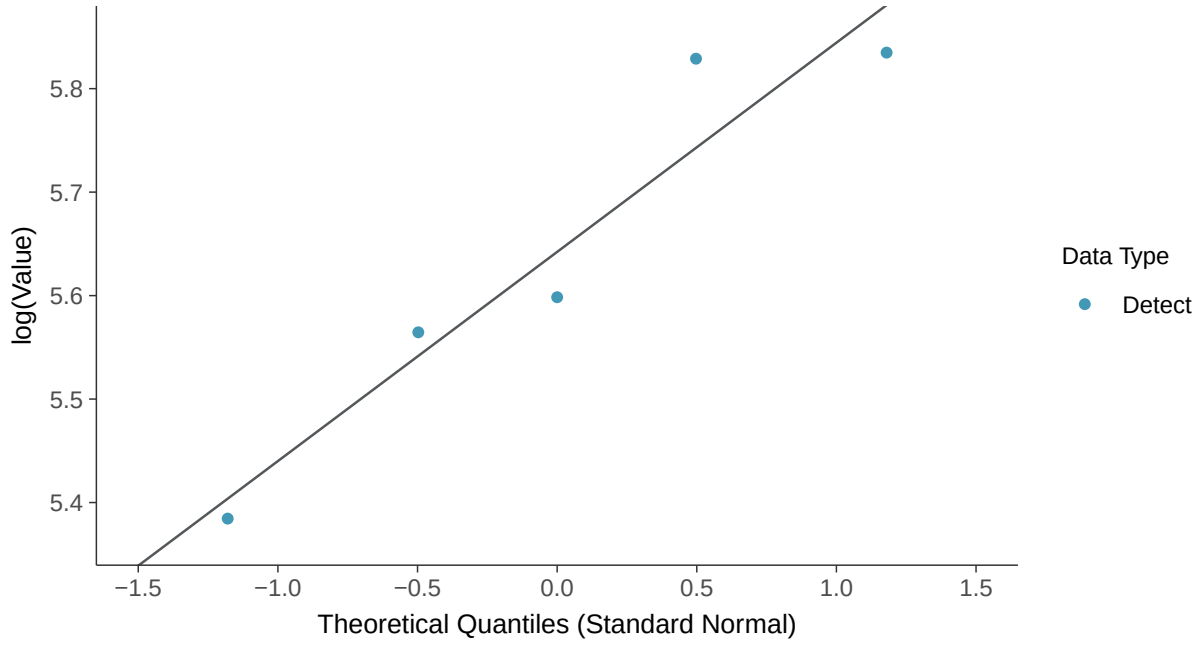
Normal Q-Q plot

Hardness, MW-9 (mg/L)



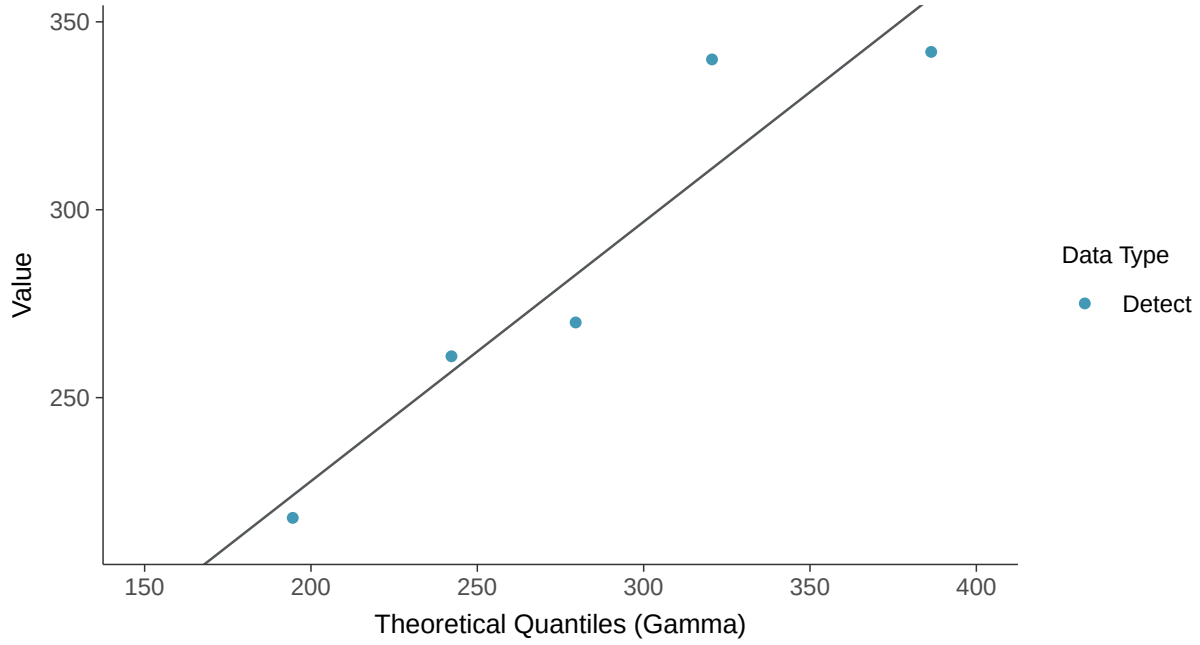
Lognormal Q-Q plot

Hardness, MW-9 (mg/L)



Gamma Q-Q plot

Hardness, MW-9 (mg/L)

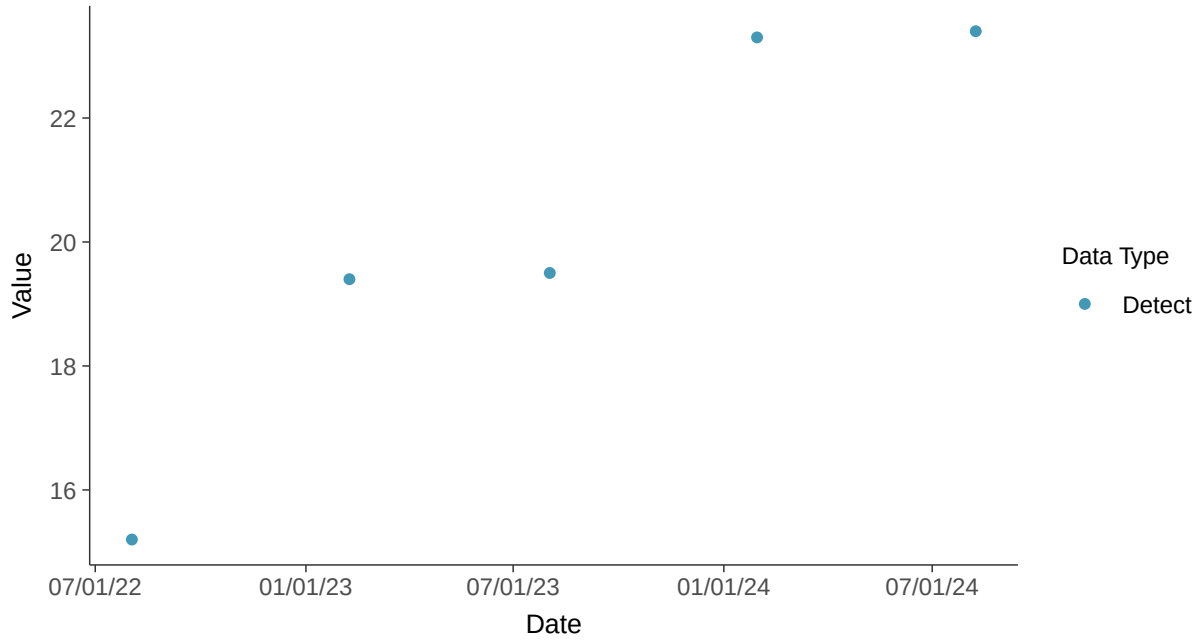


Other: Magnesium, MW-9

ID: 09_4_34

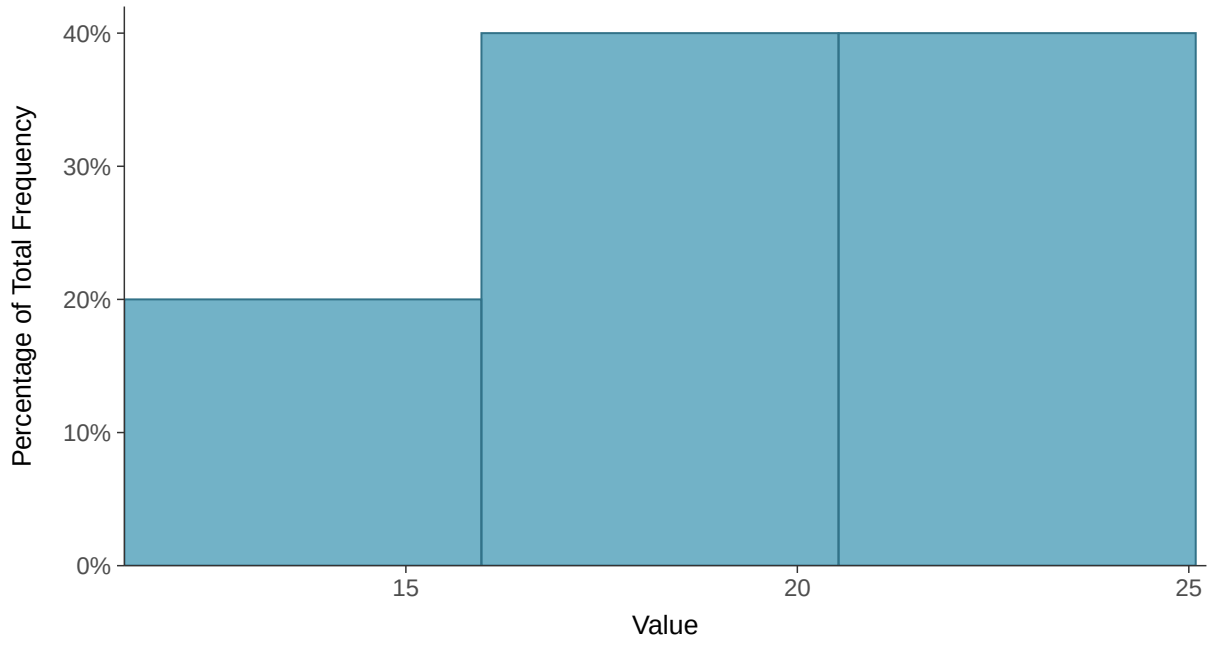
Scatter Plot

Magnesium, MW-9 (mg/L)



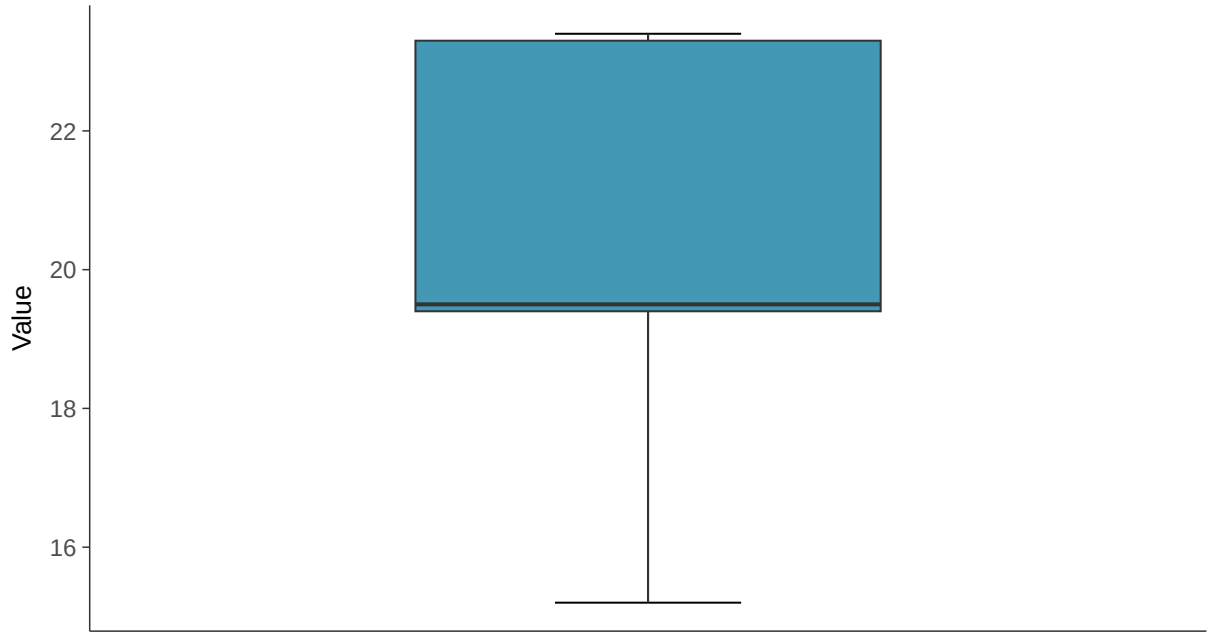
Histogram

Magnesium, MW-9 (mg/L)



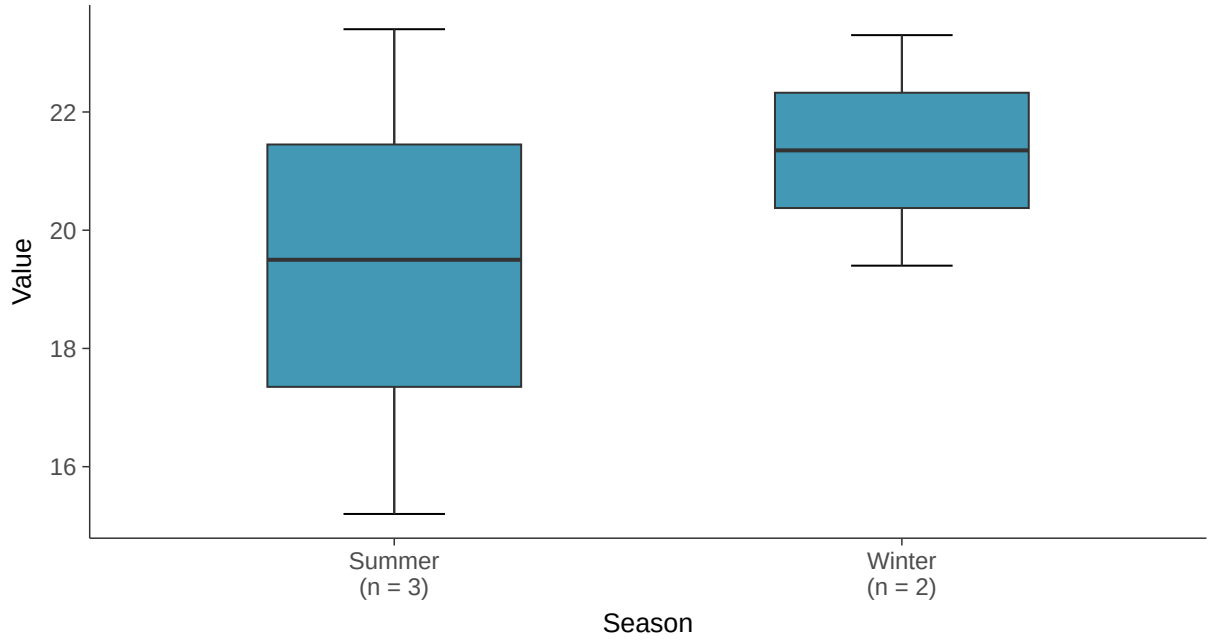
Boxplot

Magnesium, MW-9 (mg/L)



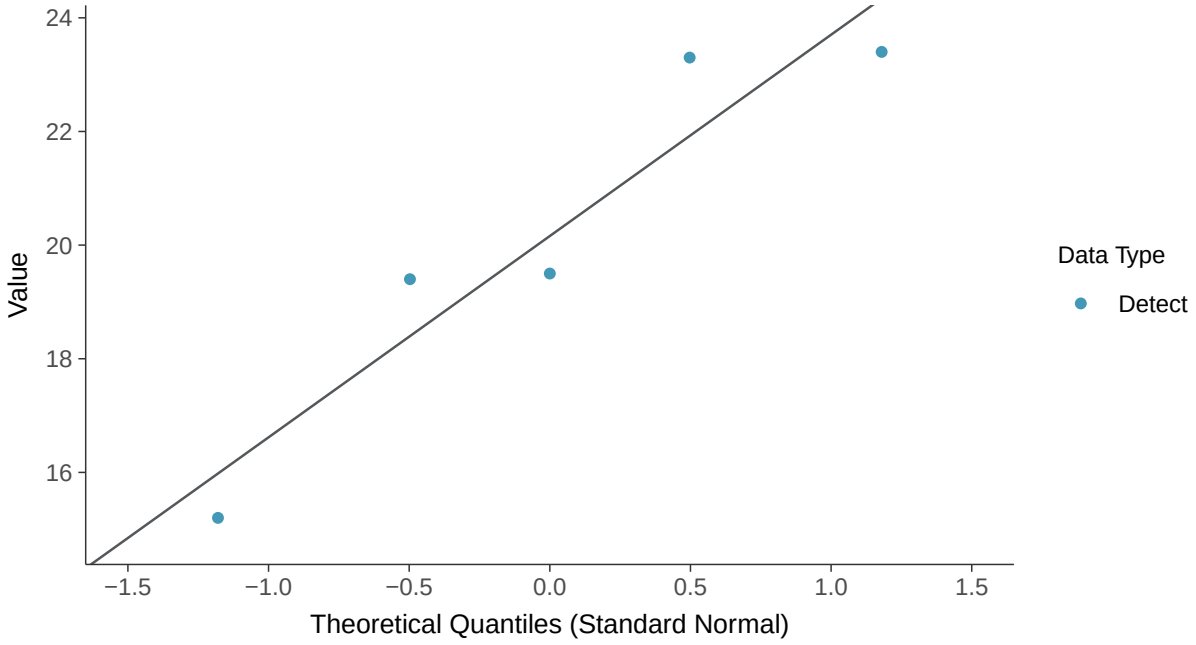
Boxplot by Season

Magnesium, MW-9 (mg/L)



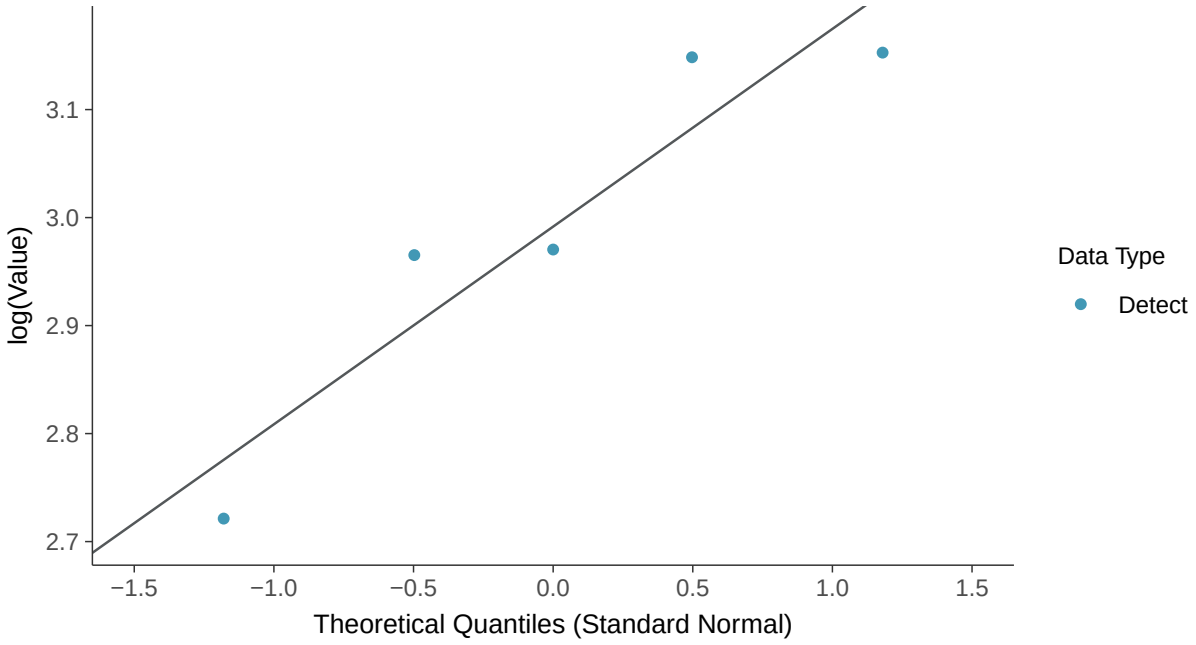
Normal Q-Q plot

Magnesium, MW-9 (mg/L)



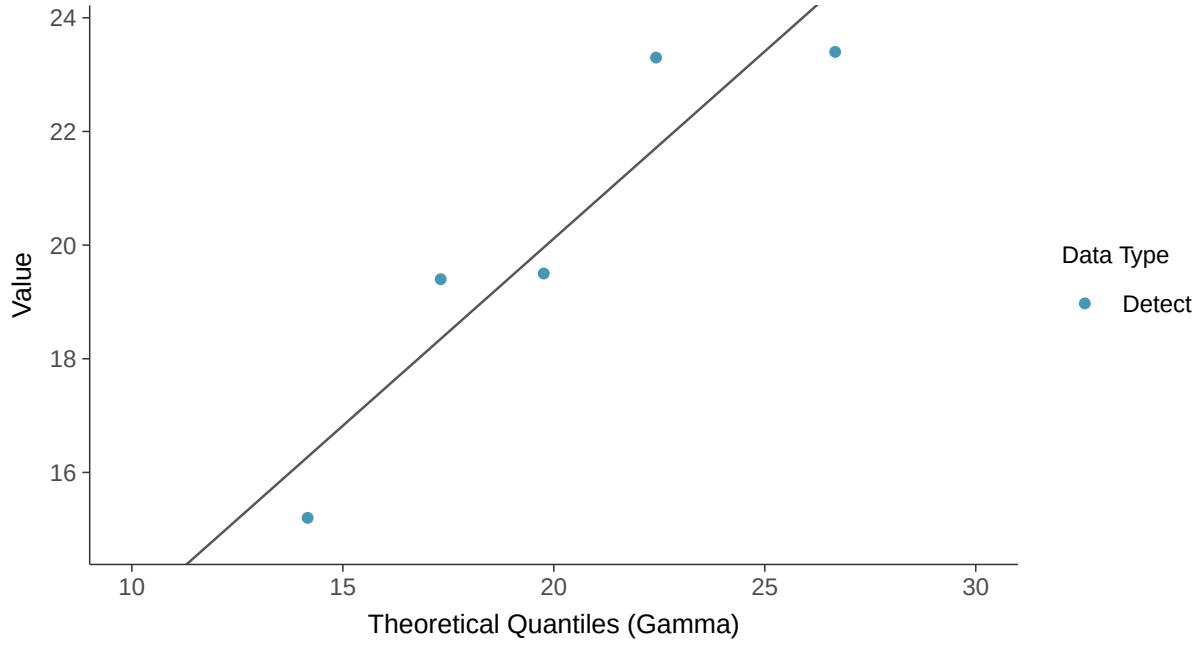
Lognormal Q-Q plot

Magnesium, MW-9 (mg/L)



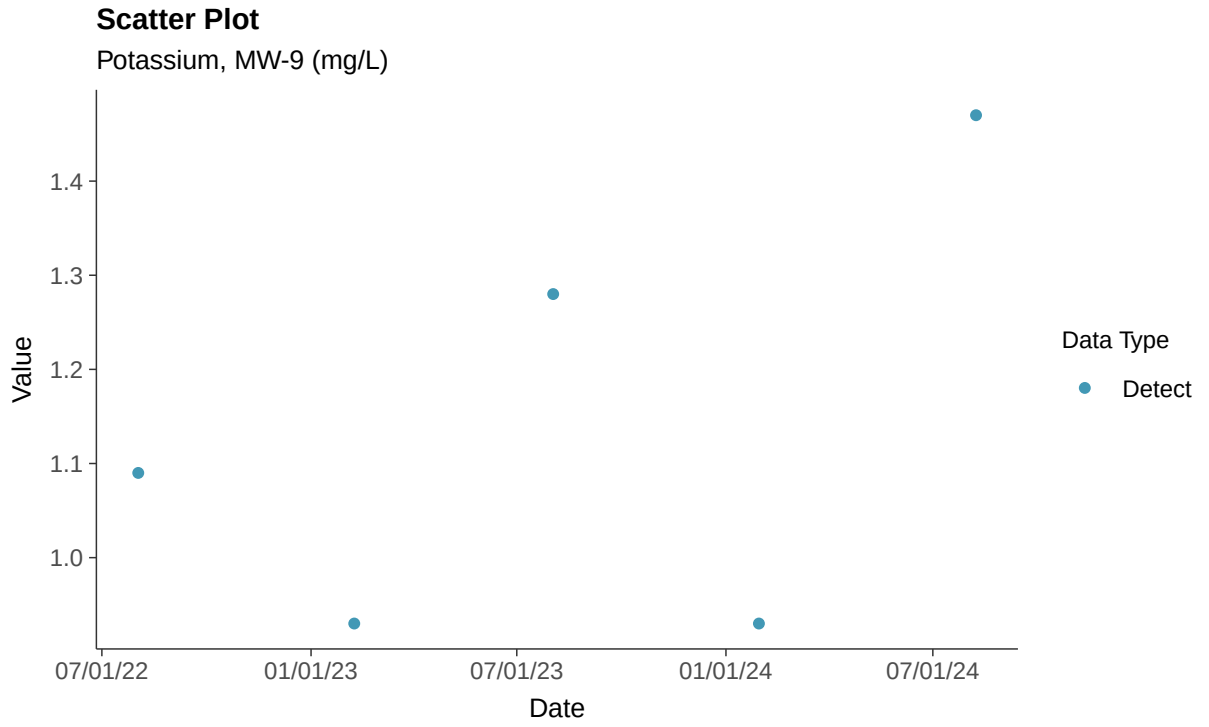
Gamma Q-Q plot

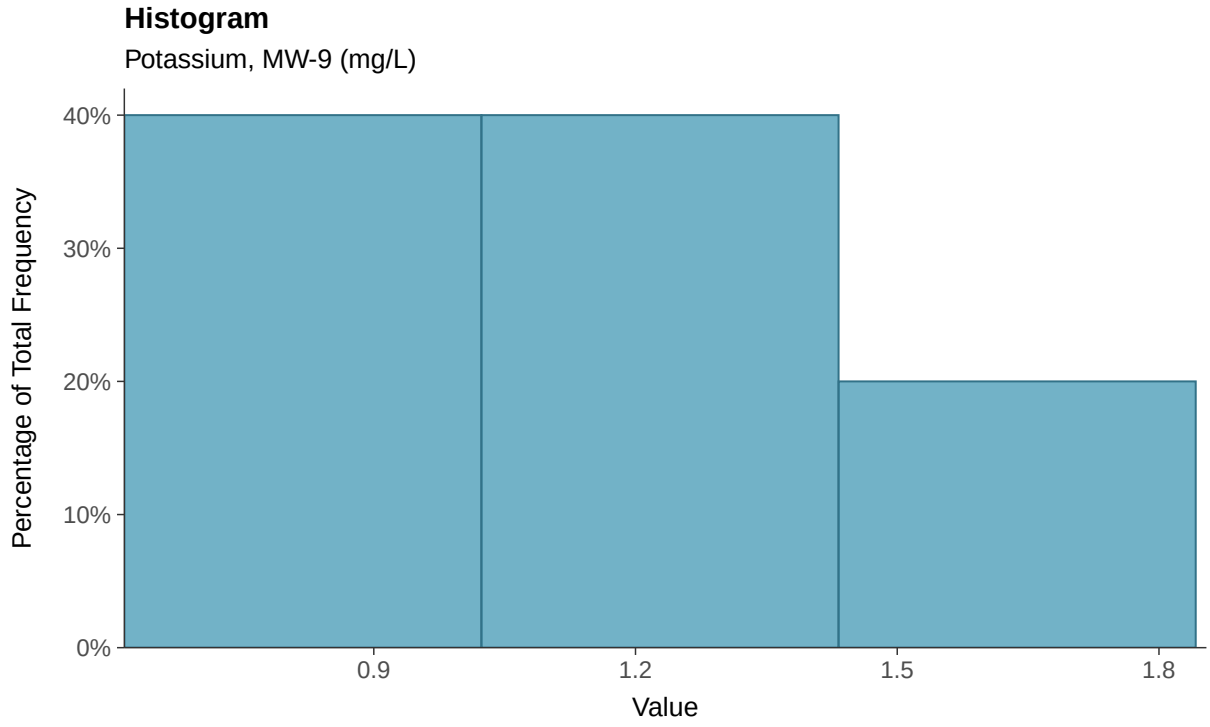
Magnesium, MW-9 (mg/L)



Other: Potassium, MW-9

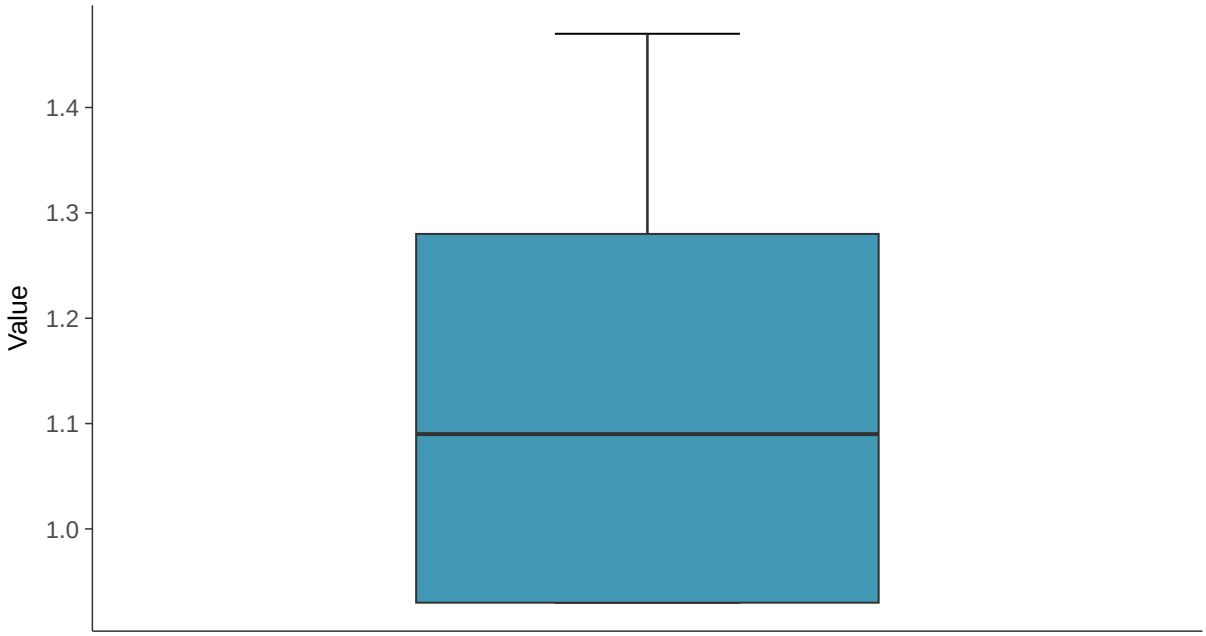
ID: 09_4_35





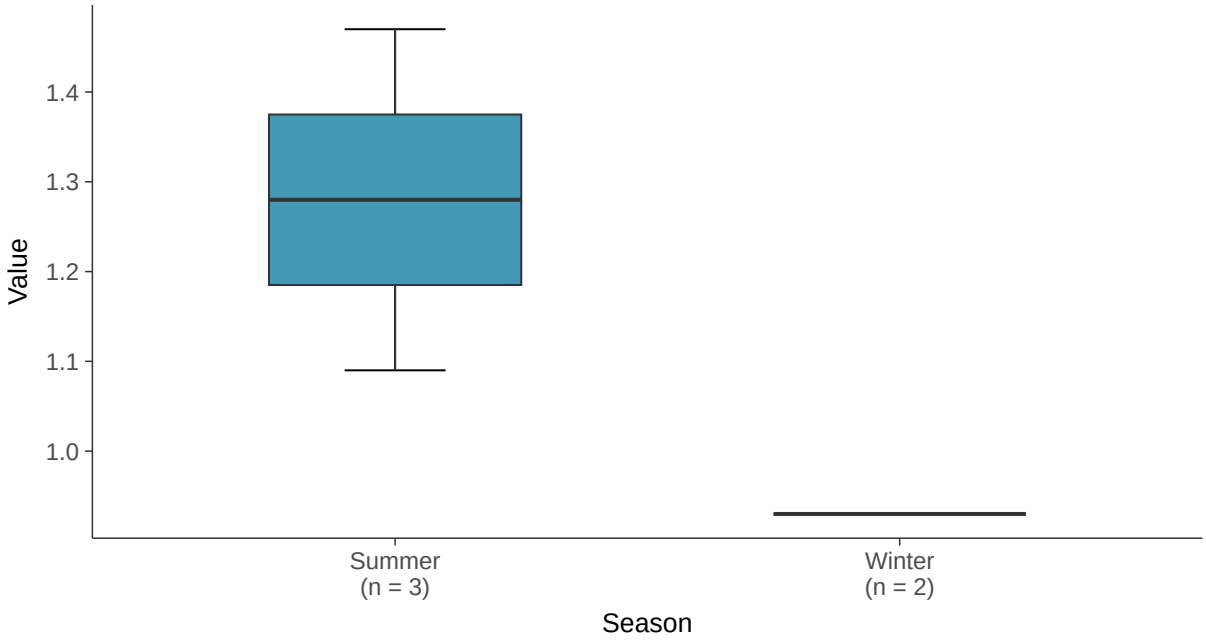
Boxplot

Potassium, MW-9 (mg/L)



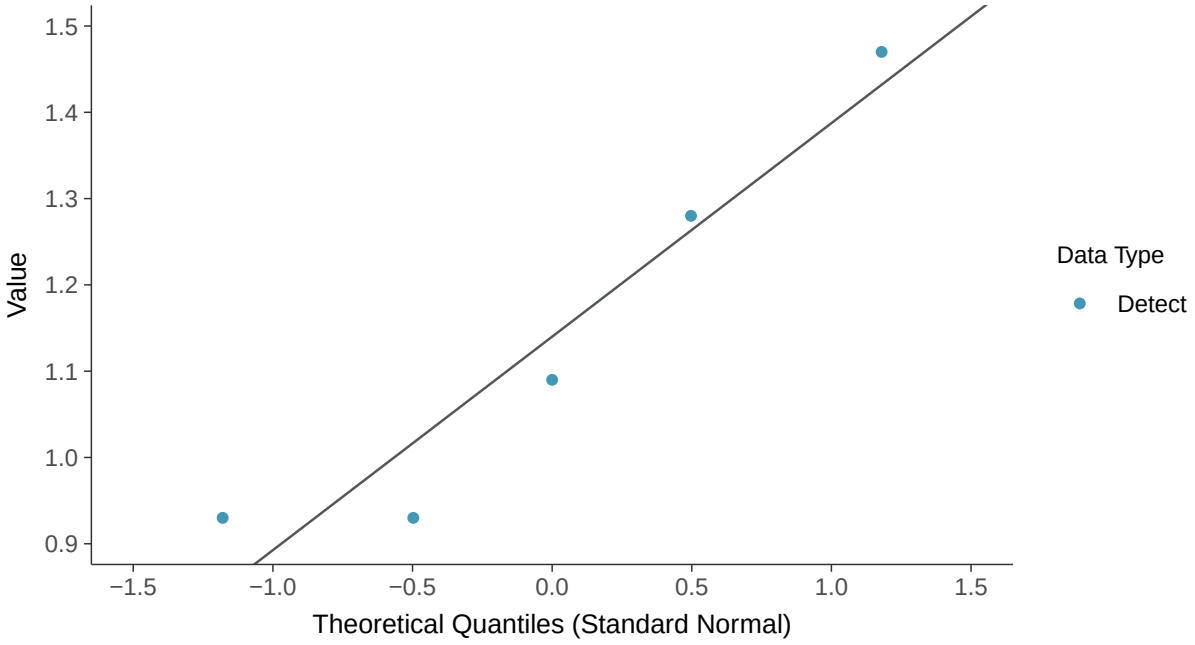
Boxplot by Season

Potassium, MW-9 (mg/L)



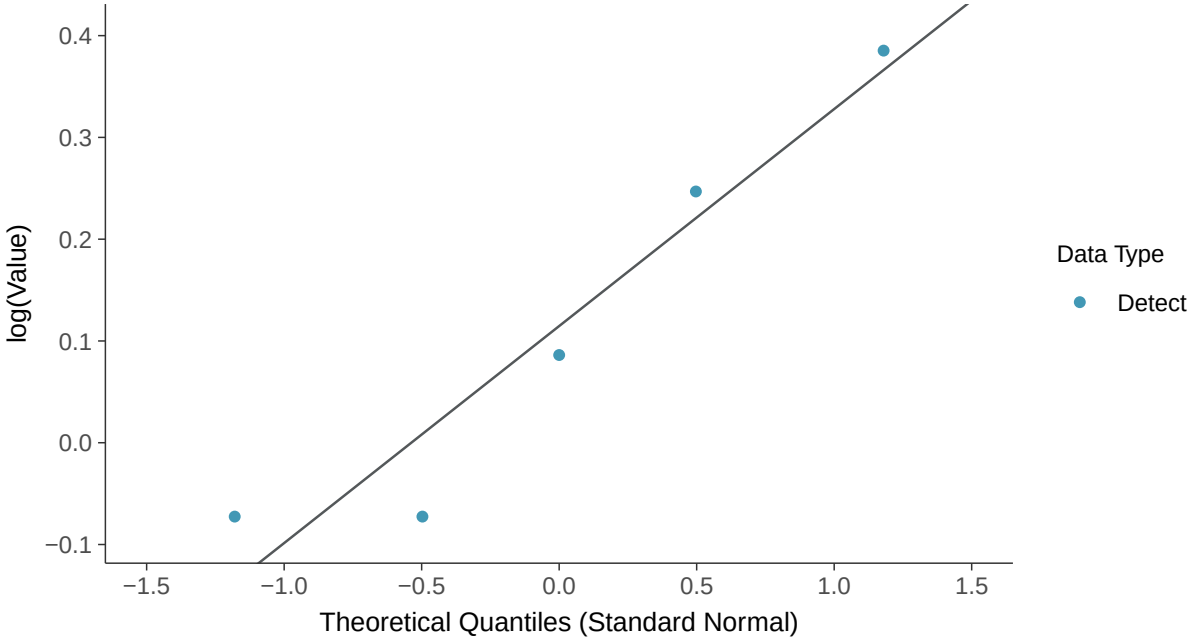
Normal Q-Q plot

Potassium, MW-9 (mg/L)



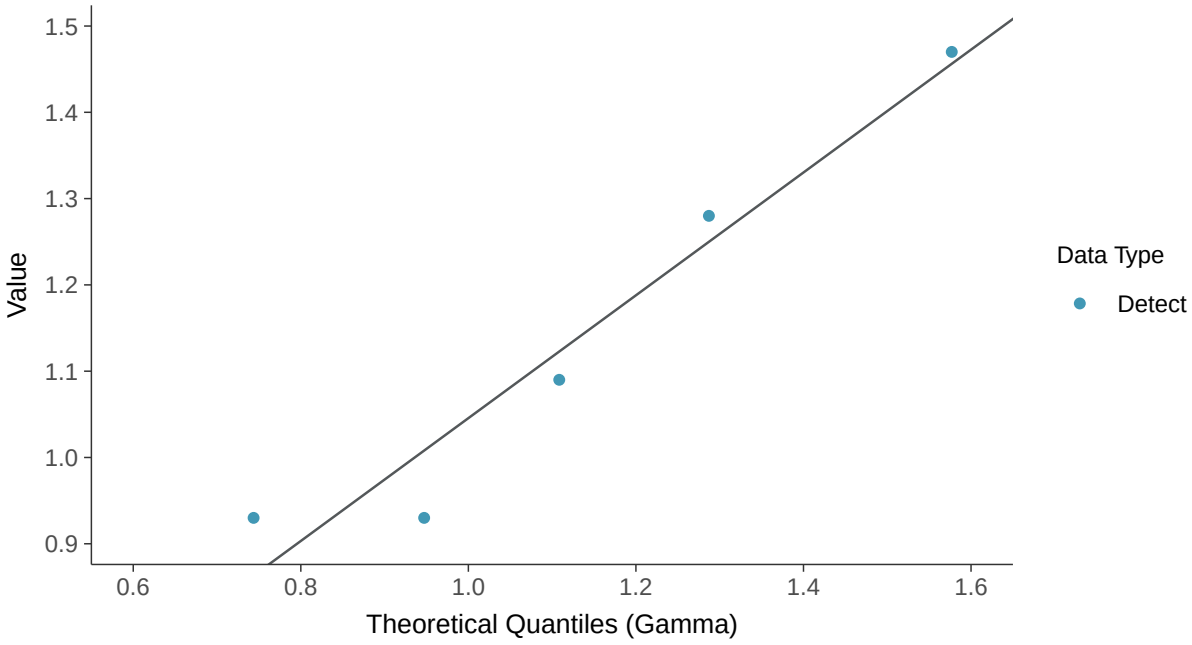
Lognormal Q-Q plot

Potassium, MW-9 (mg/L)



Gamma Q-Q plot

Potassium, MW-9 (mg/L)

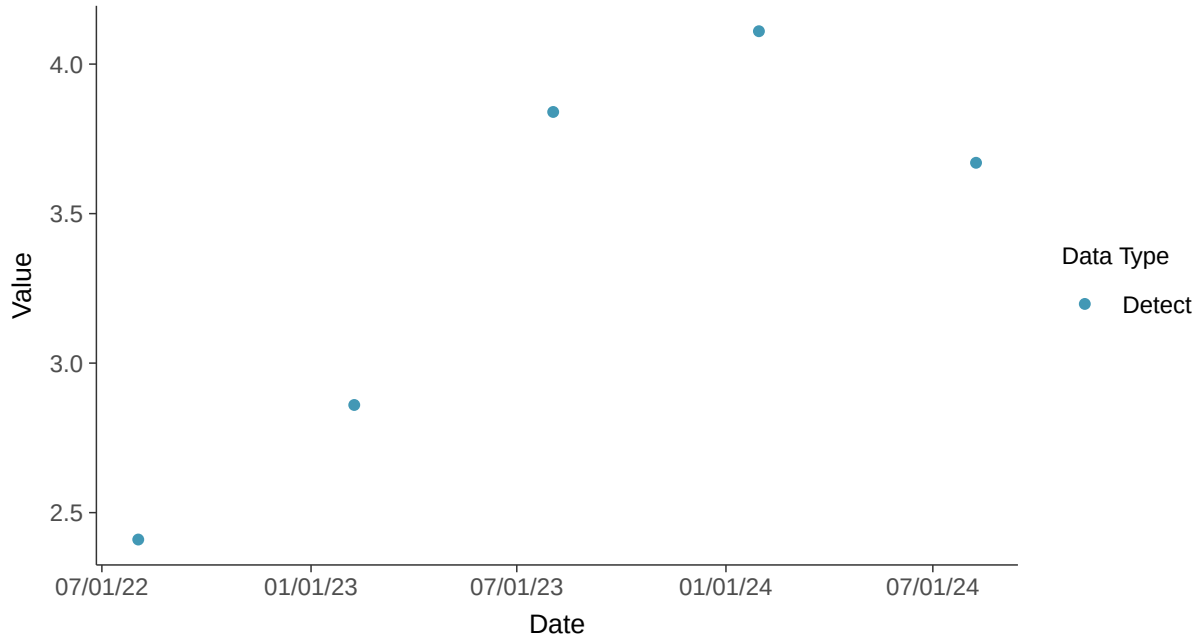


Other: Sodium, MW-9

ID: 09_4_36

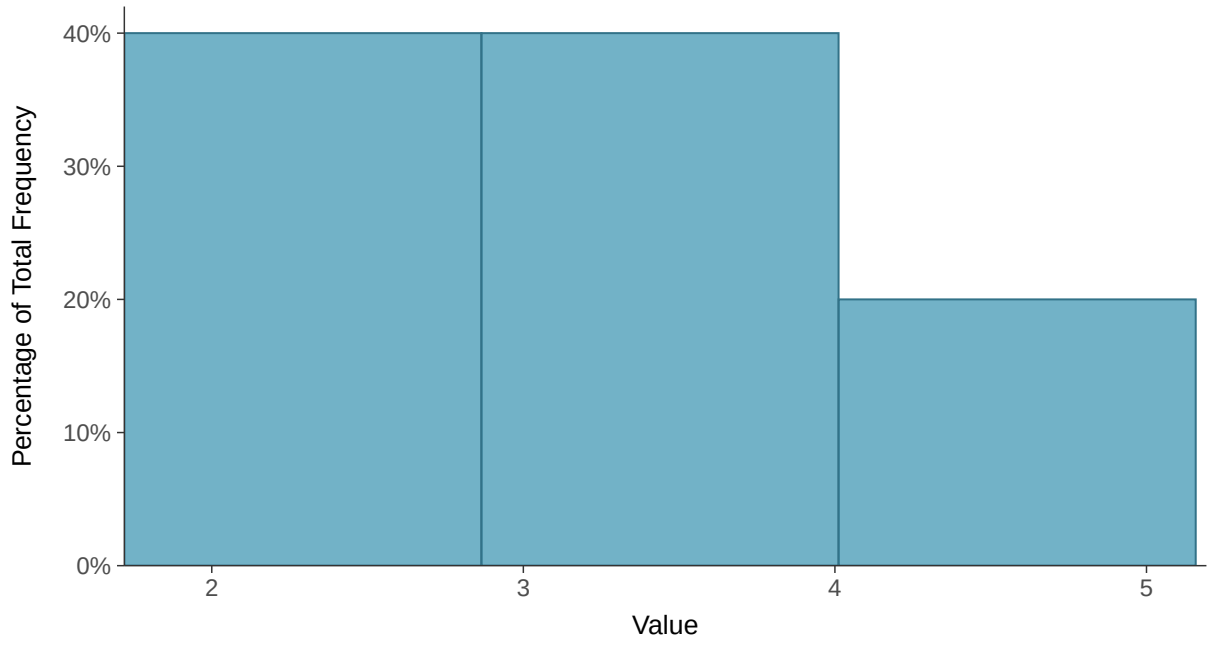
Scatter Plot

Sodium, MW-9 (mg/L)



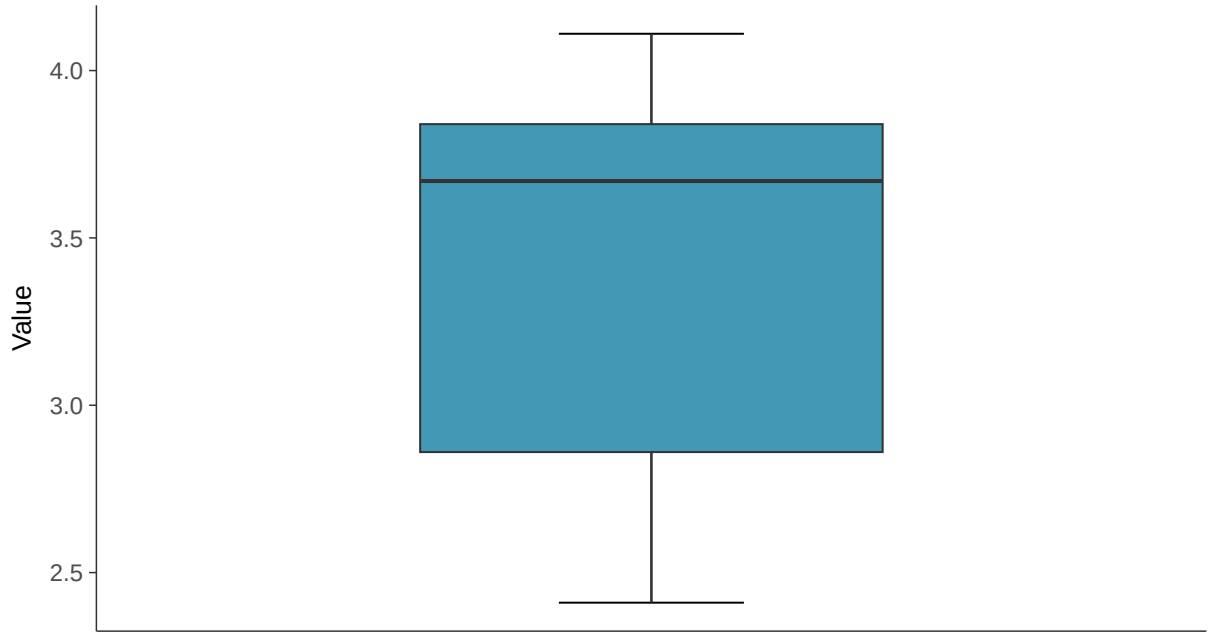
Histogram

Sodium, MW-9 (mg/L)



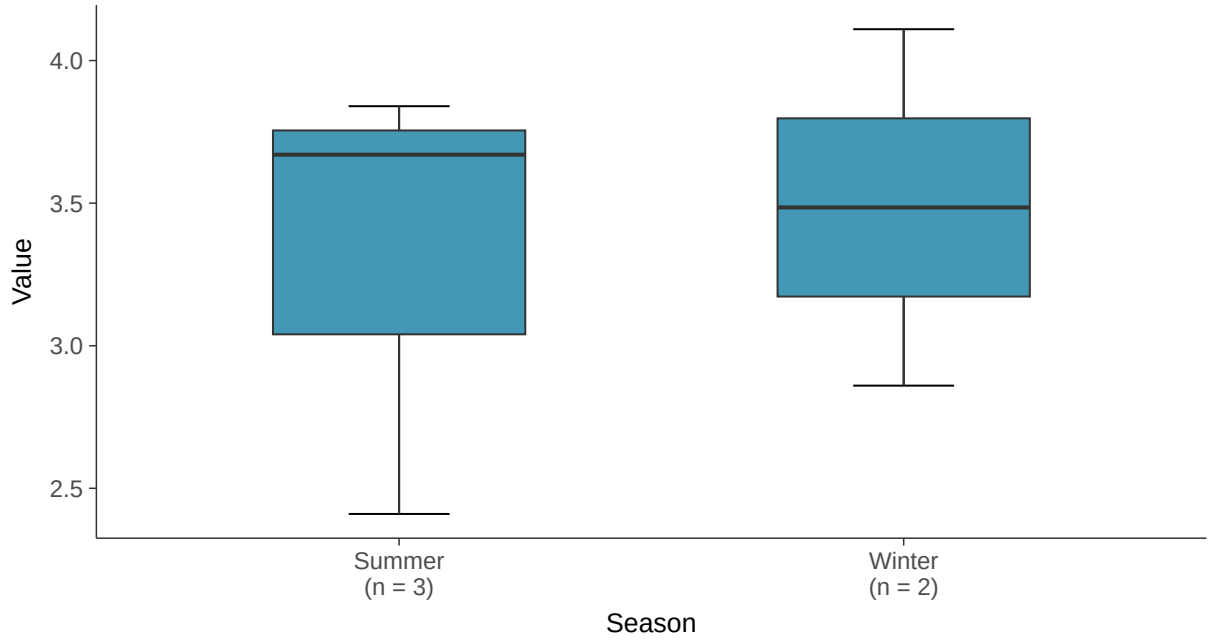
Boxplot

Sodium, MW-9 (mg/L)



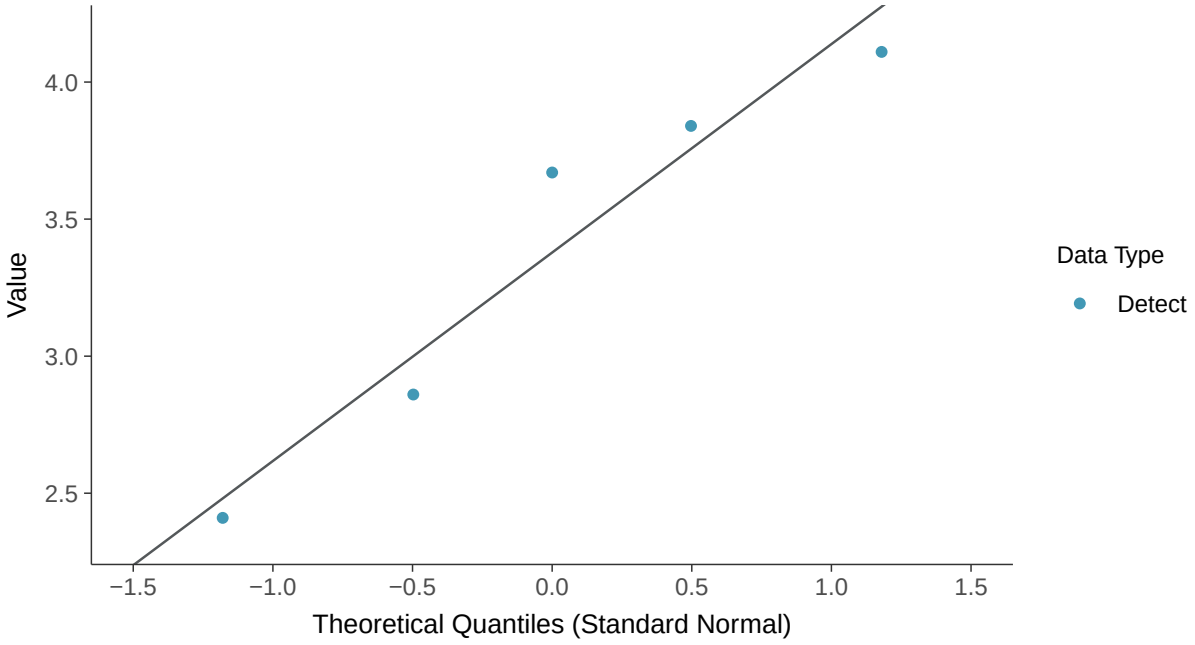
Boxplot by Season

Sodium, MW-9 (mg/L)



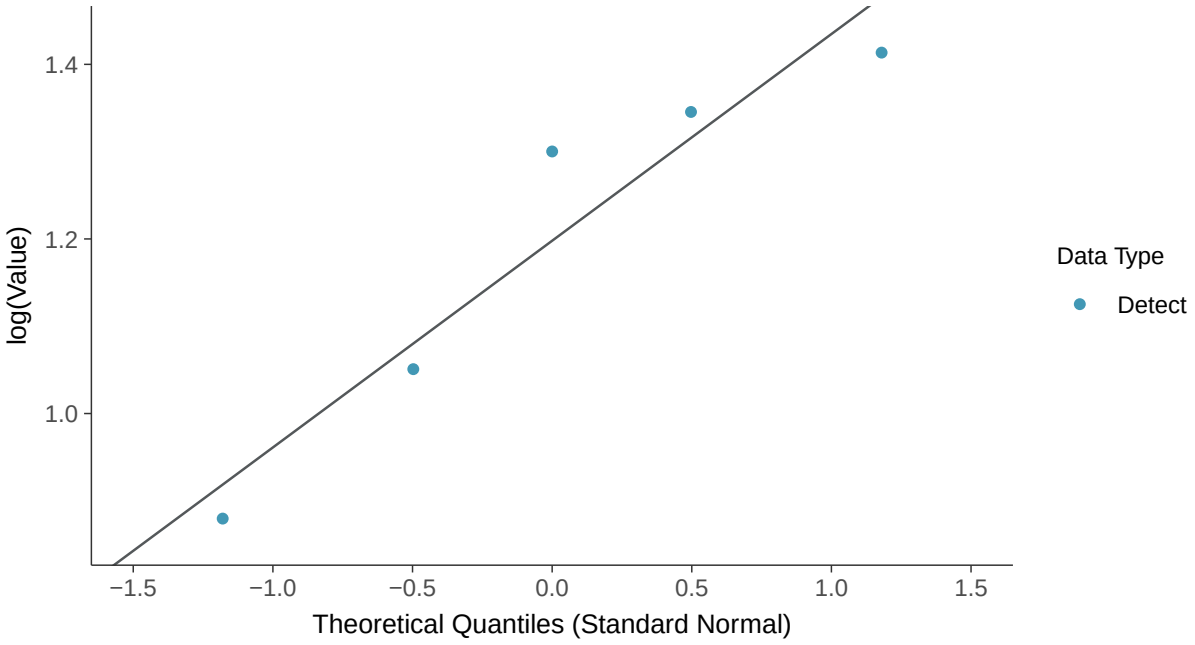
Normal Q-Q plot

Sodium, MW-9 (mg/L)



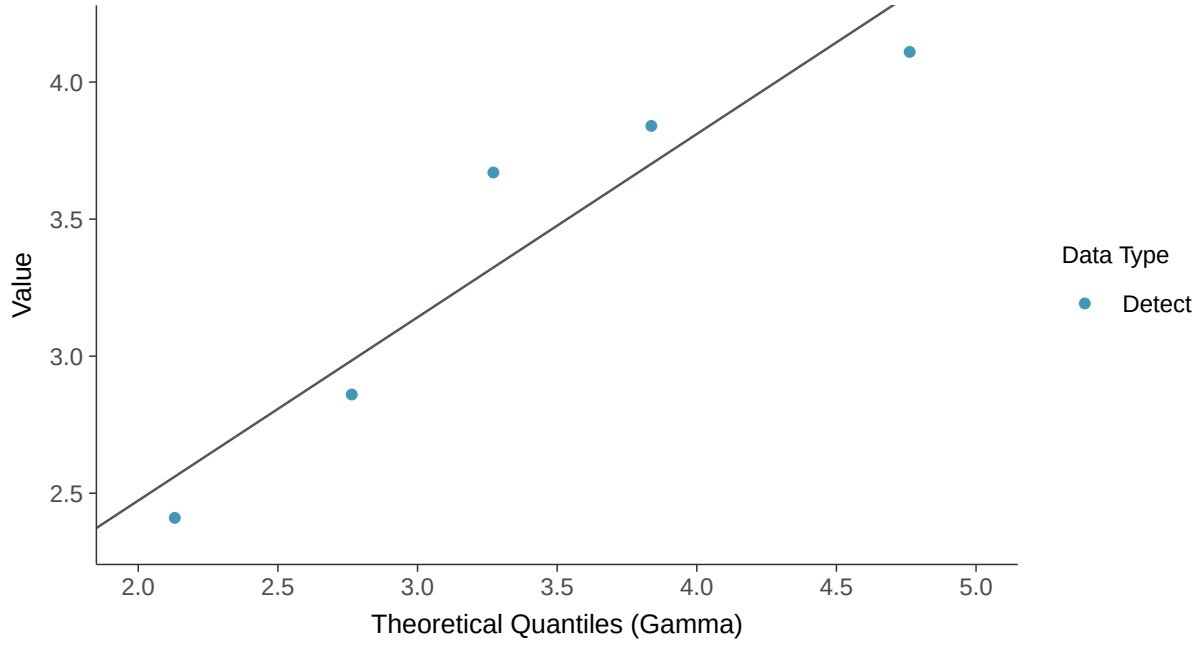
Lognormal Q-Q plot

Sodium, MW-9 (mg/L)



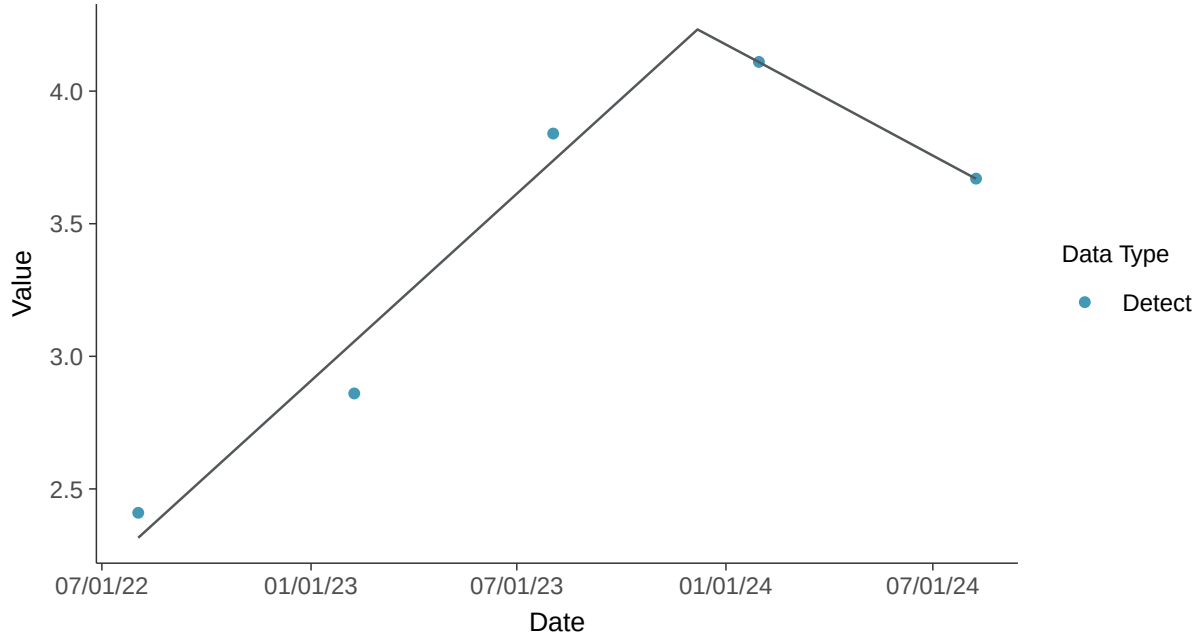
Gamma Q-Q plot

Sodium, MW-9 (mg/L)



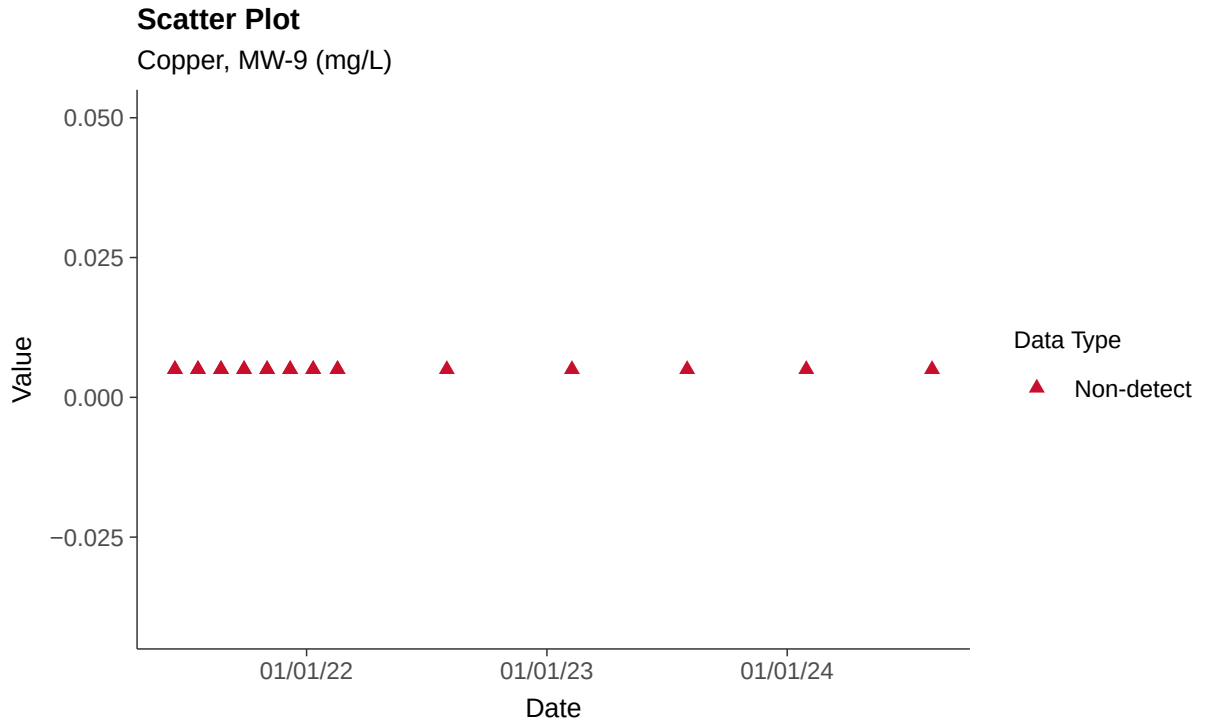
Trend Regression: Piecewise Linear-Linear

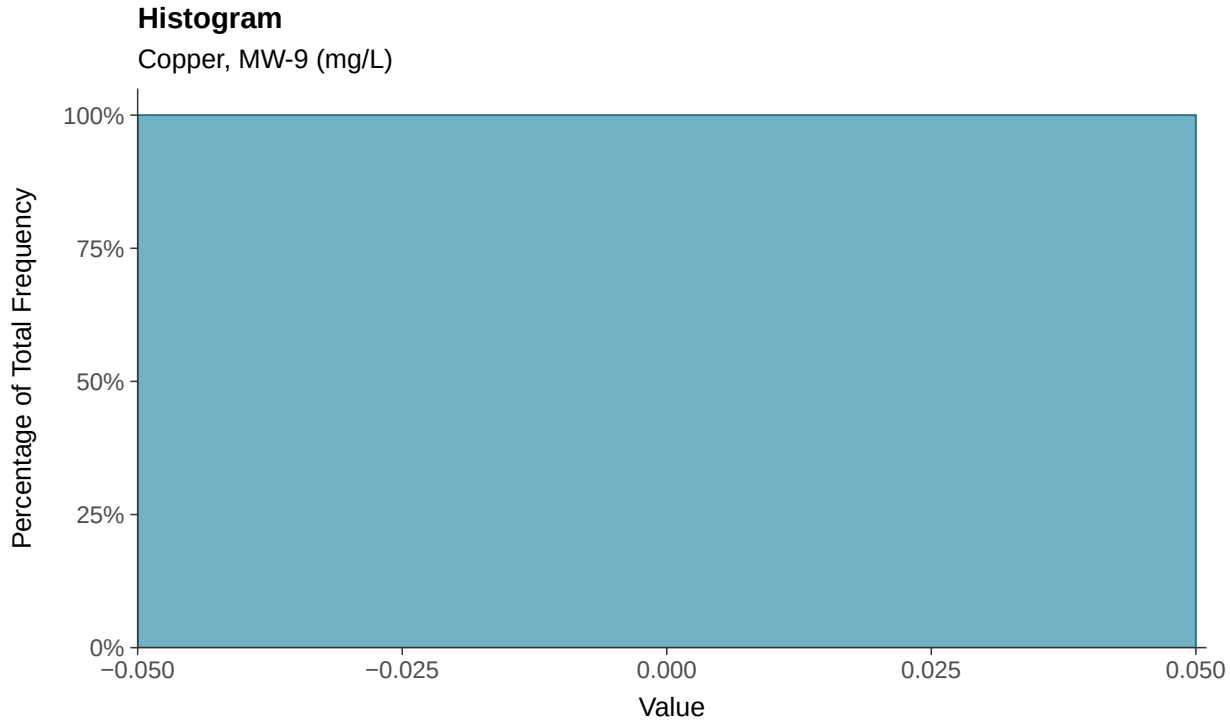
Sodium, MW-9 (mg/L)



Part 115: Copper, MW-9

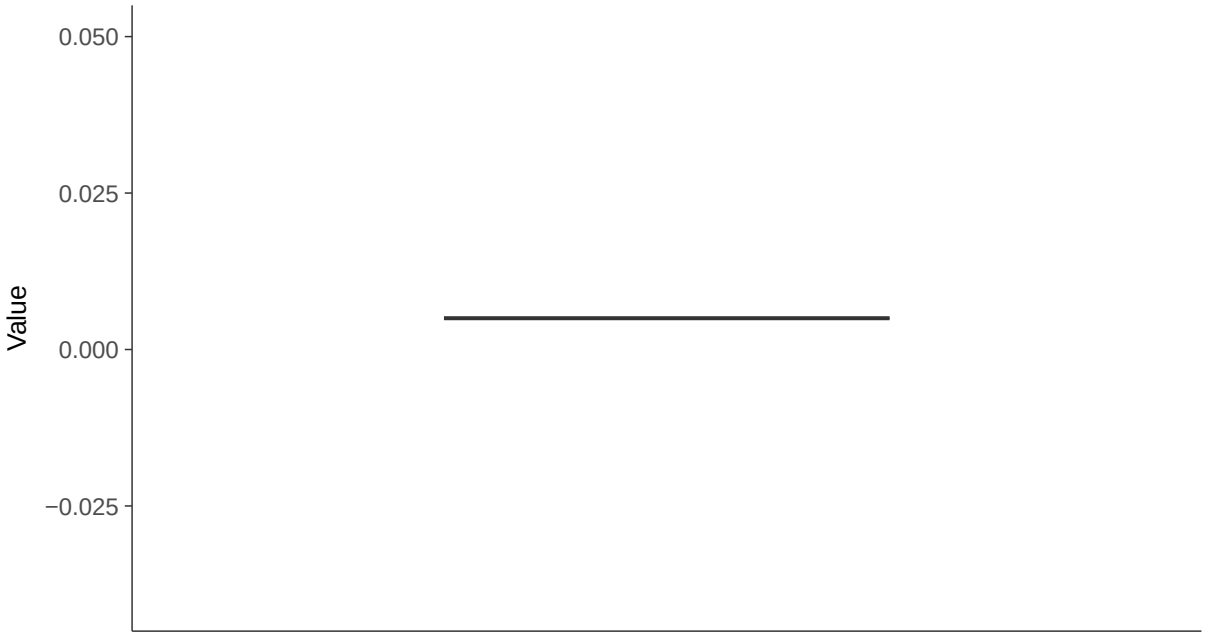
ID: 09_5_37





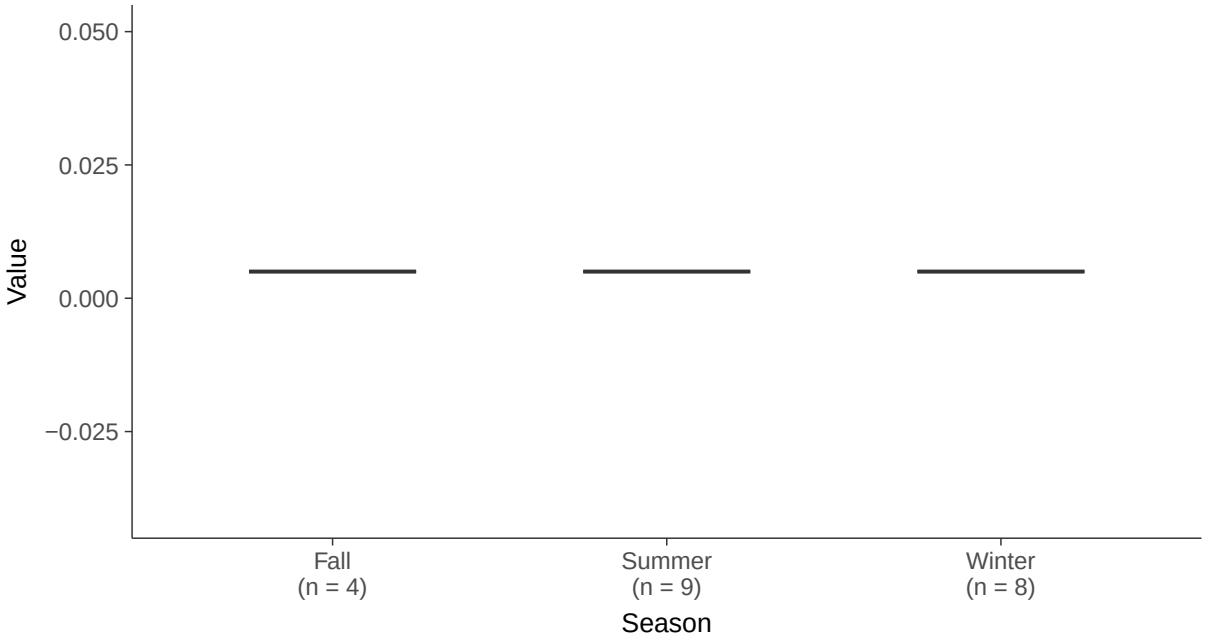
Boxplot

Copper, MW-9 (mg/L)



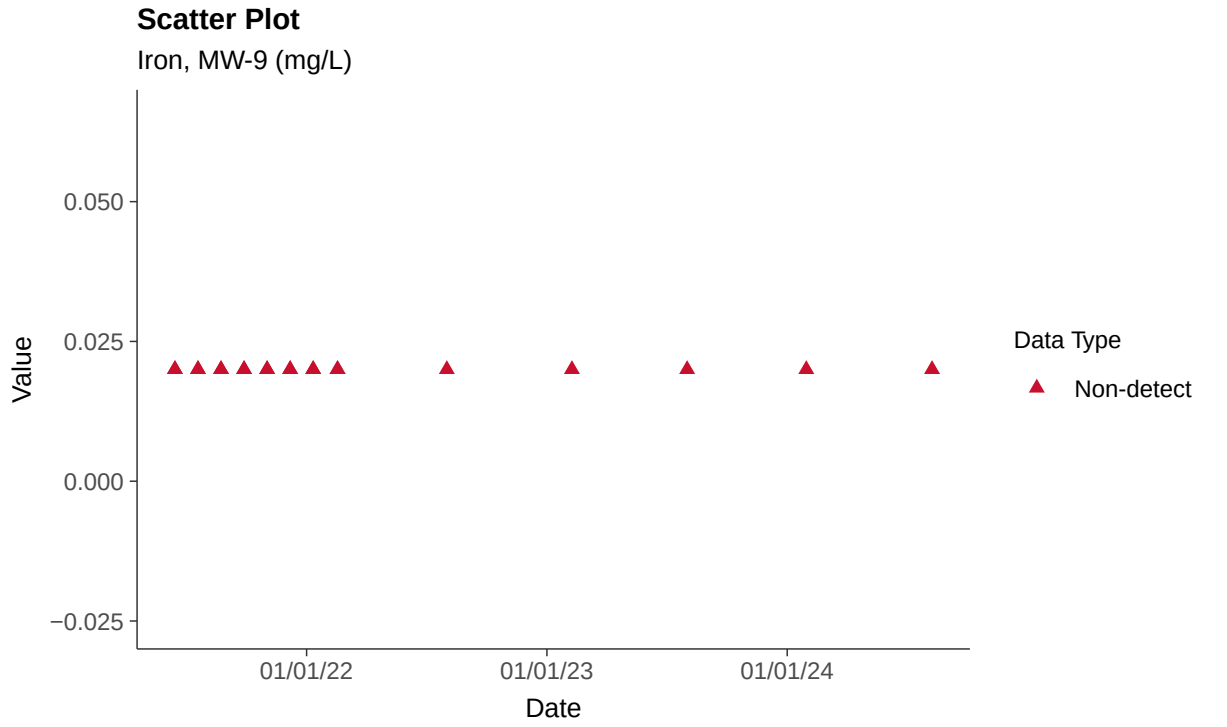
Boxplot by Season

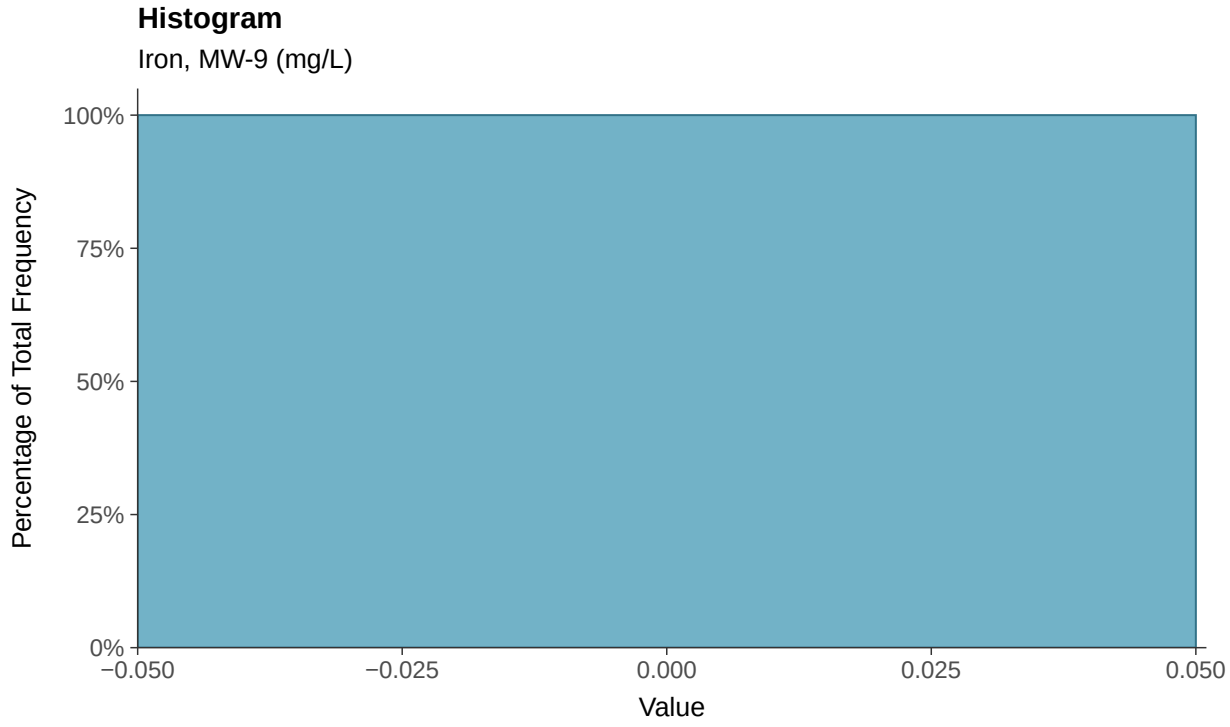
Copper, MW-9 (mg/L)



Part 115: Iron, MW-9

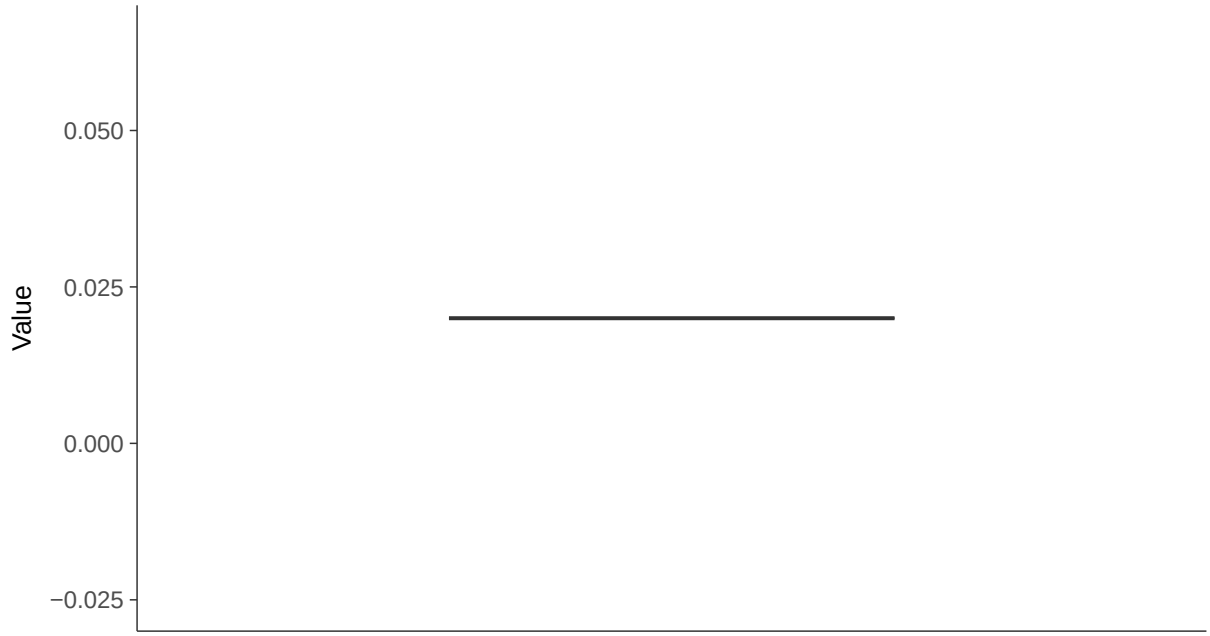
ID: 09_5_38





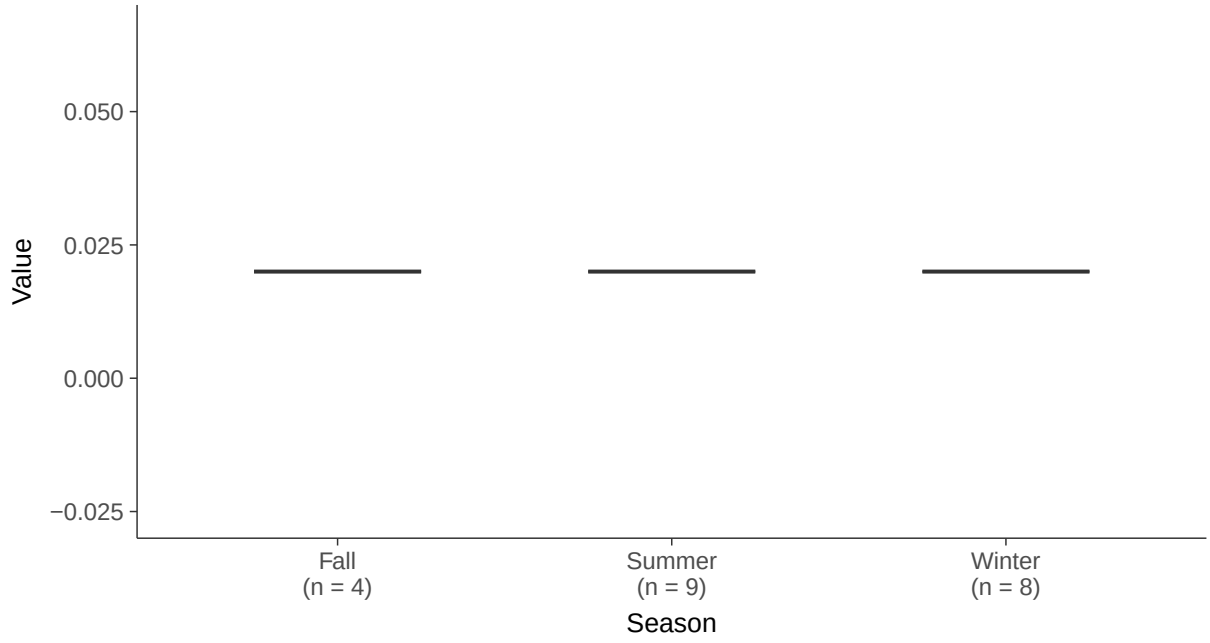
Boxplot

Iron, MW-9 (mg/L)



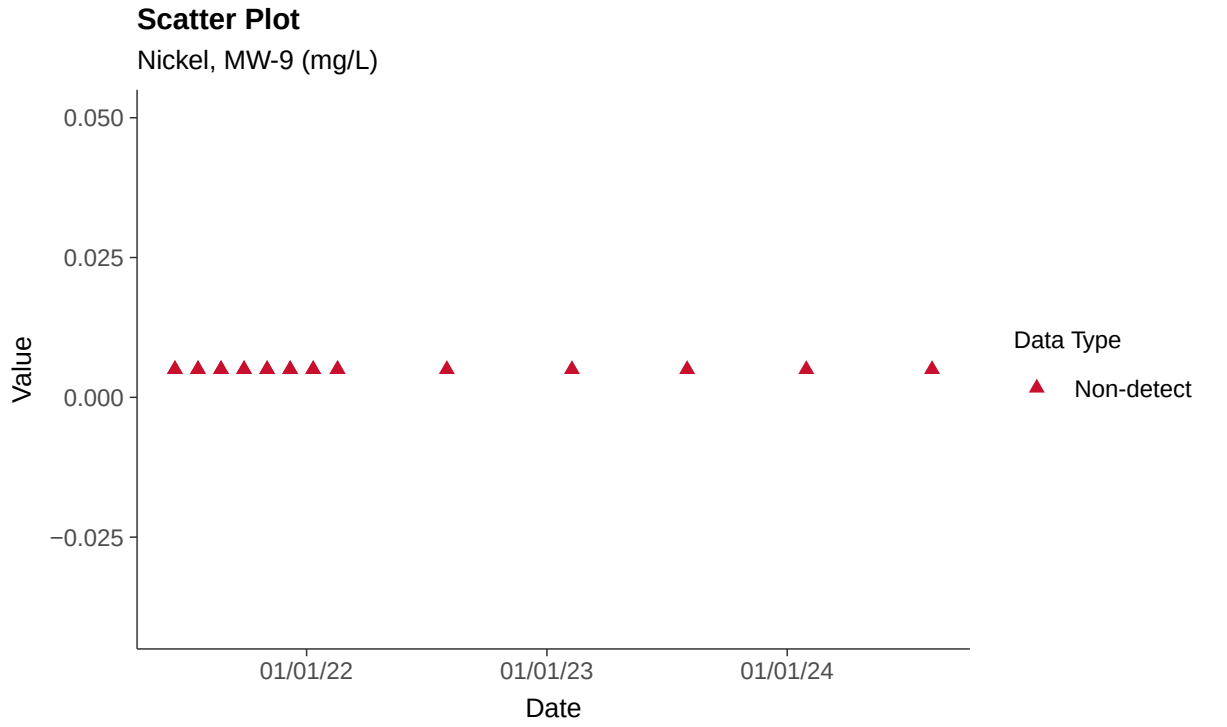
Boxplot by Season

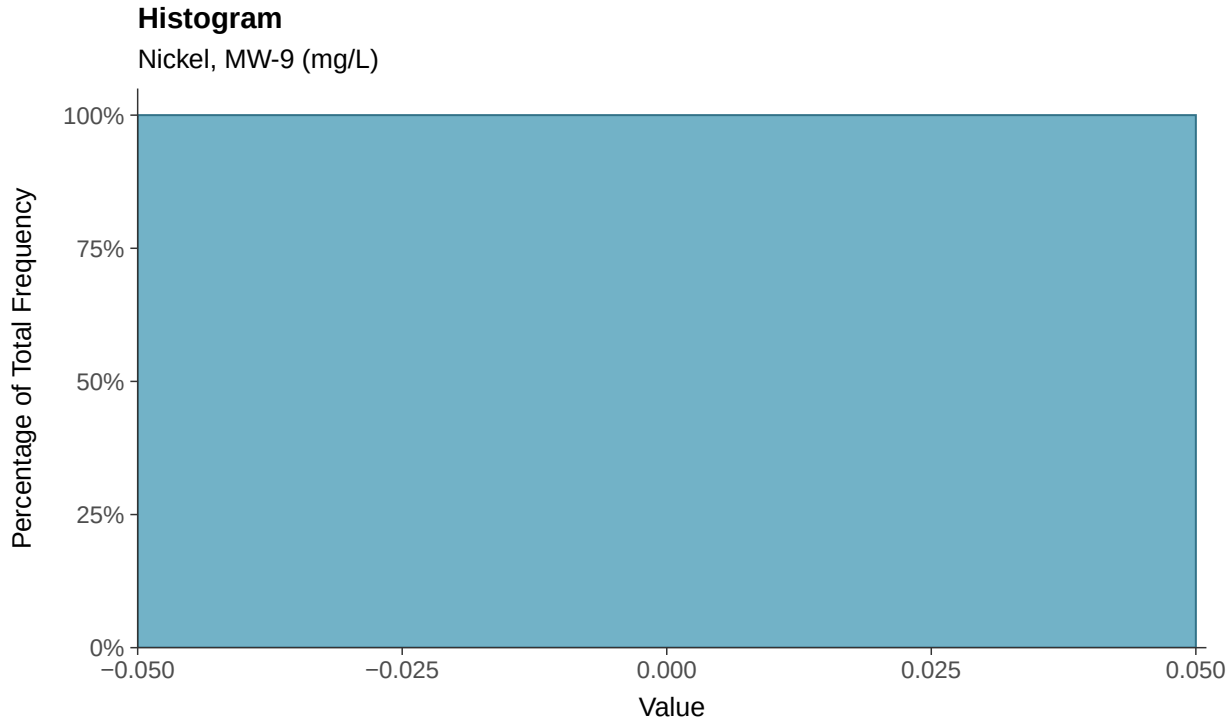
Iron, MW-9 (mg/L)



Part 115: Nickel, MW-9

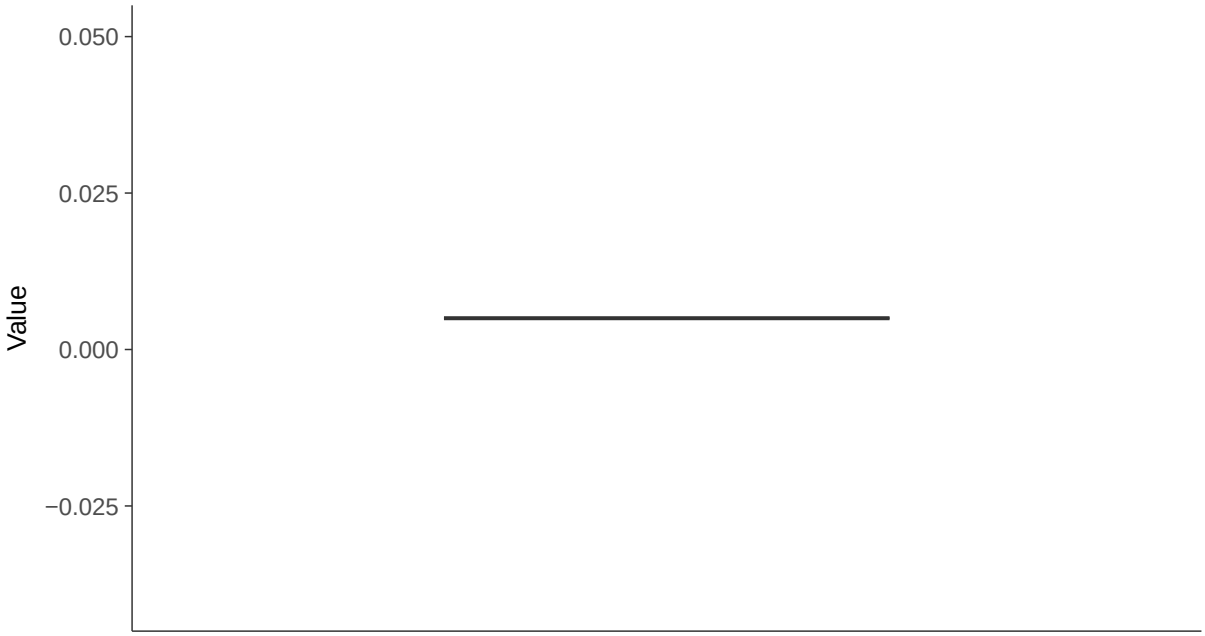
ID: 09_5_39





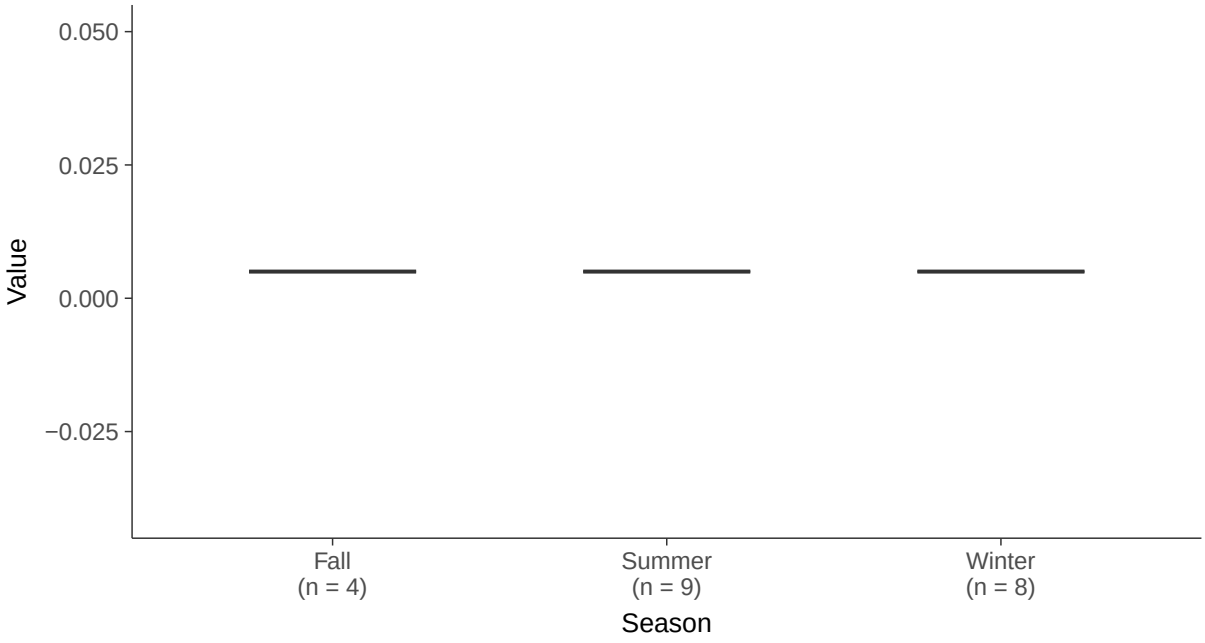
Boxplot

Nickel, MW-9 (mg/L)



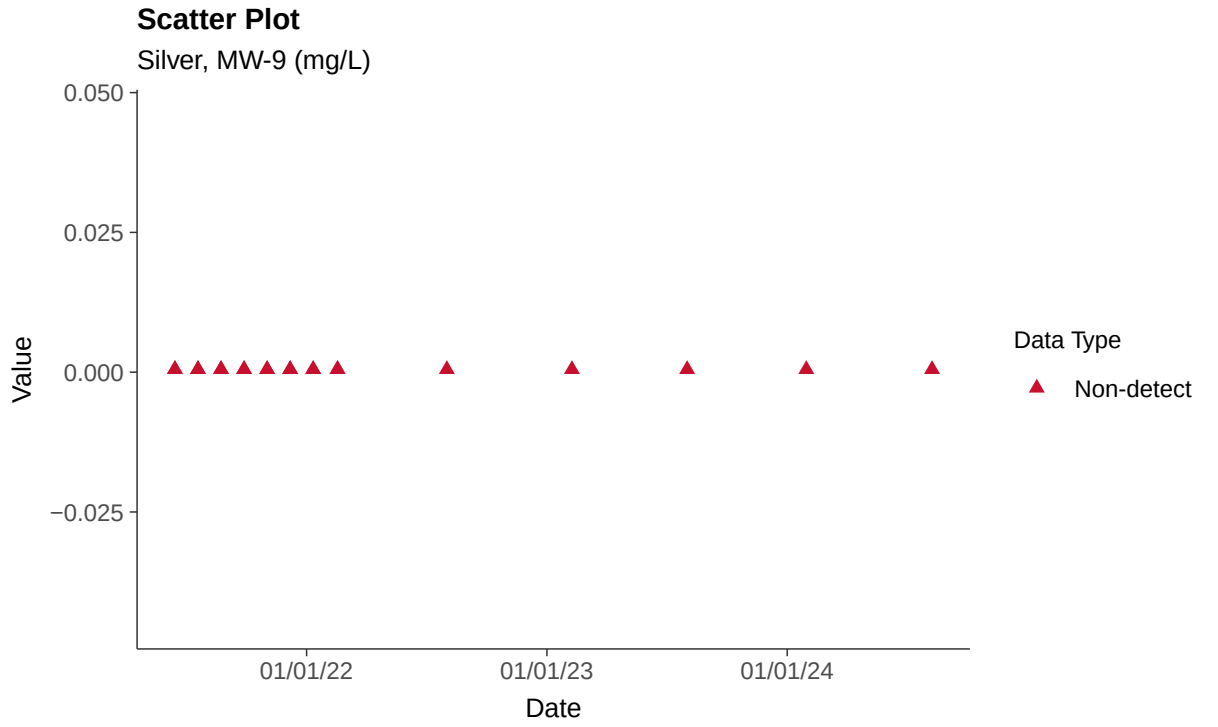
Boxplot by Season

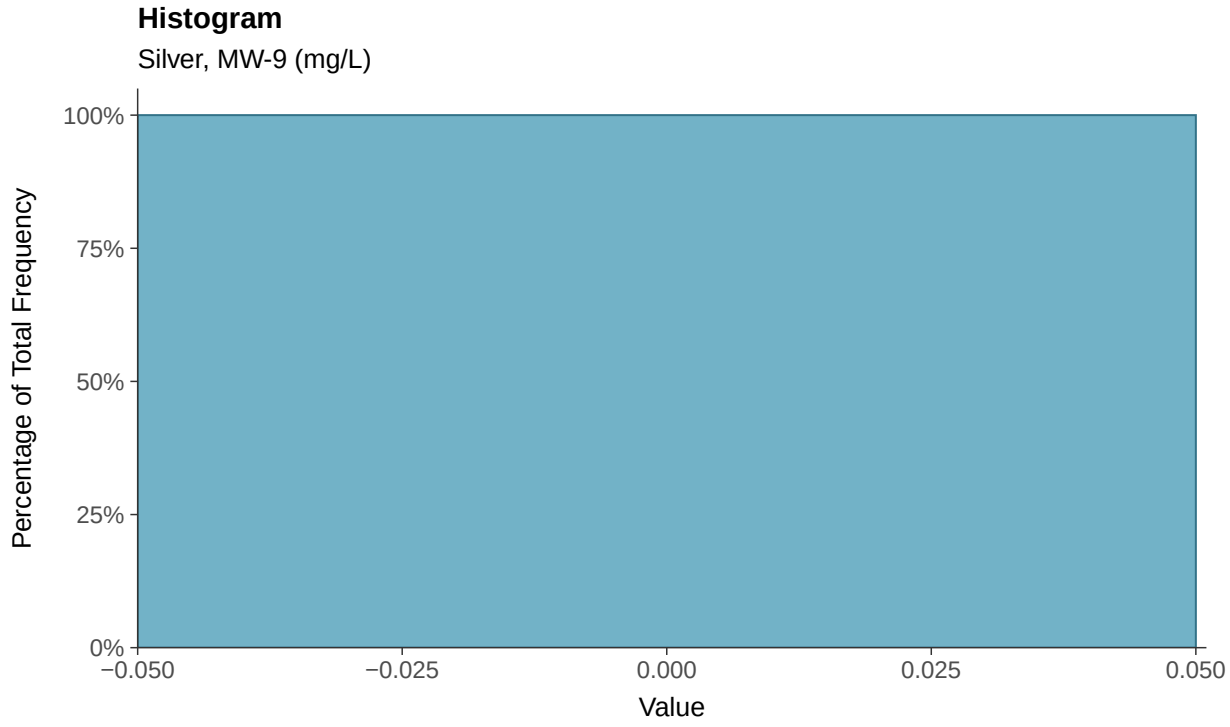
Nickel, MW-9 (mg/L)



Part 115: Silver, MW-9

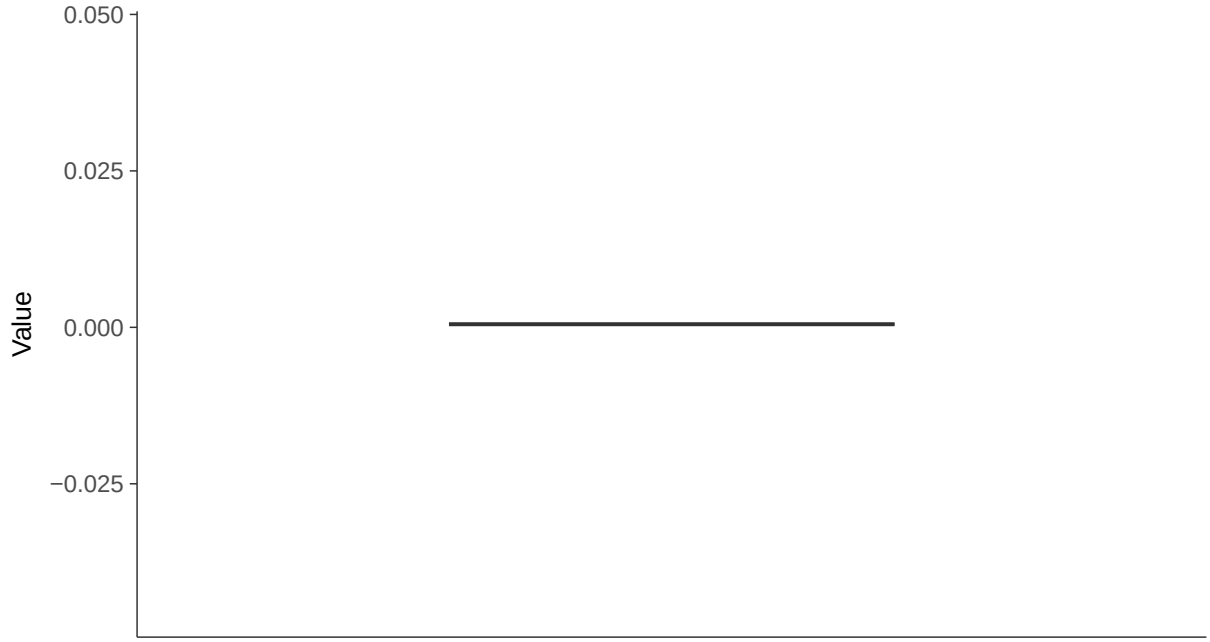
ID: 09_5_40





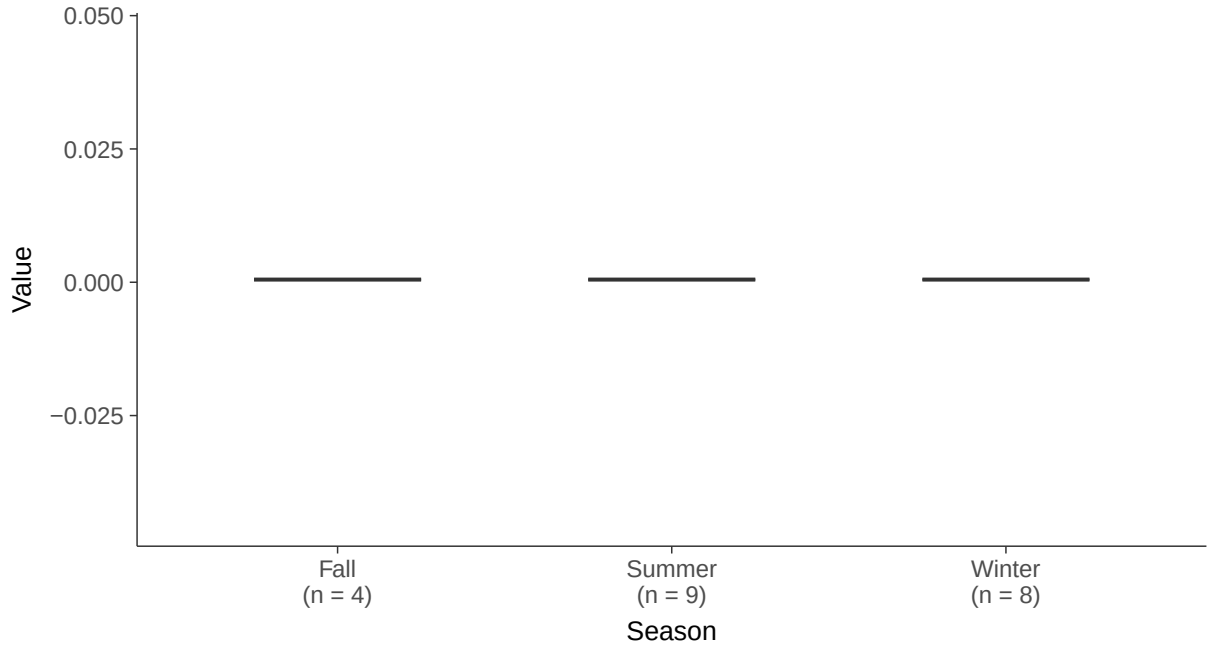
Boxplot

Silver, MW-9 (mg/L)



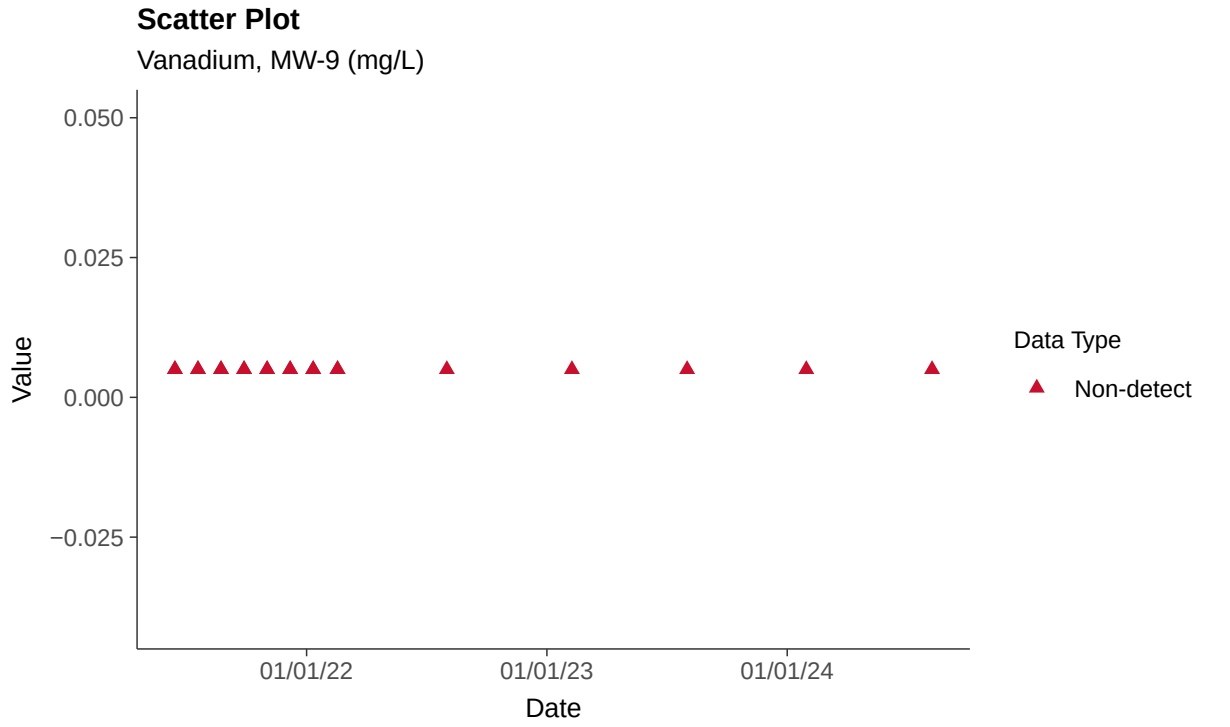
Boxplot by Season

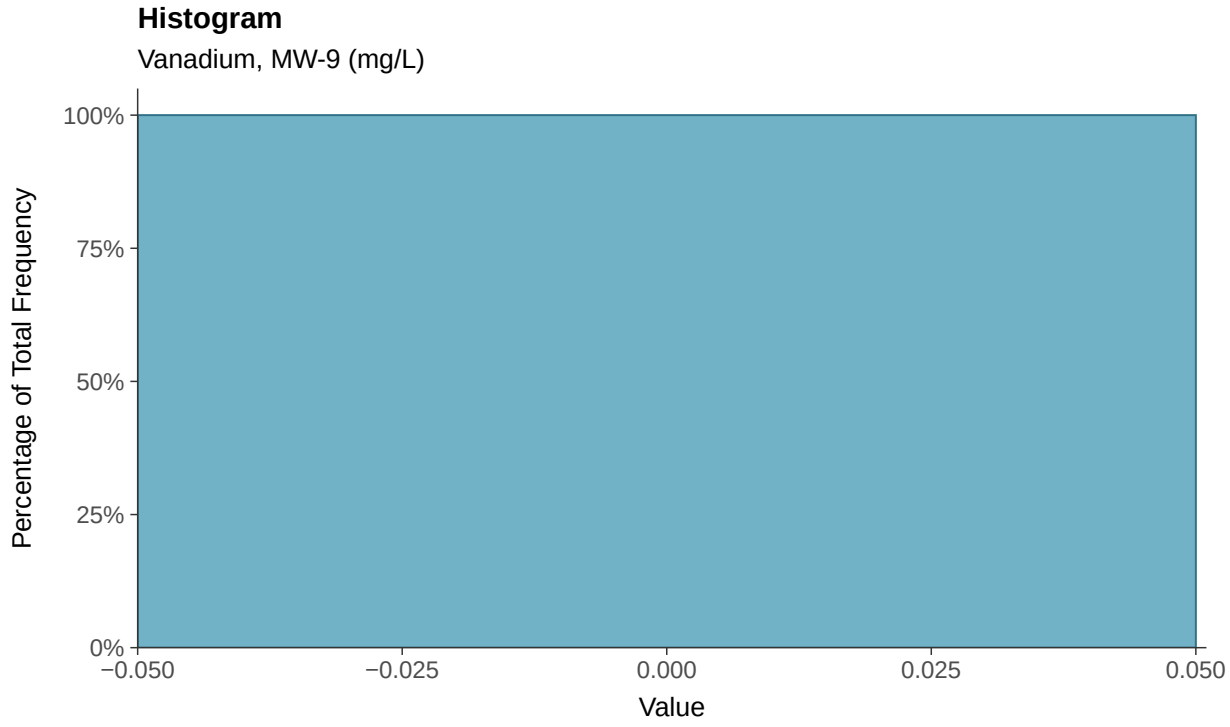
Silver, MW-9 (mg/L)



Part 115: Vanadium, MW-9

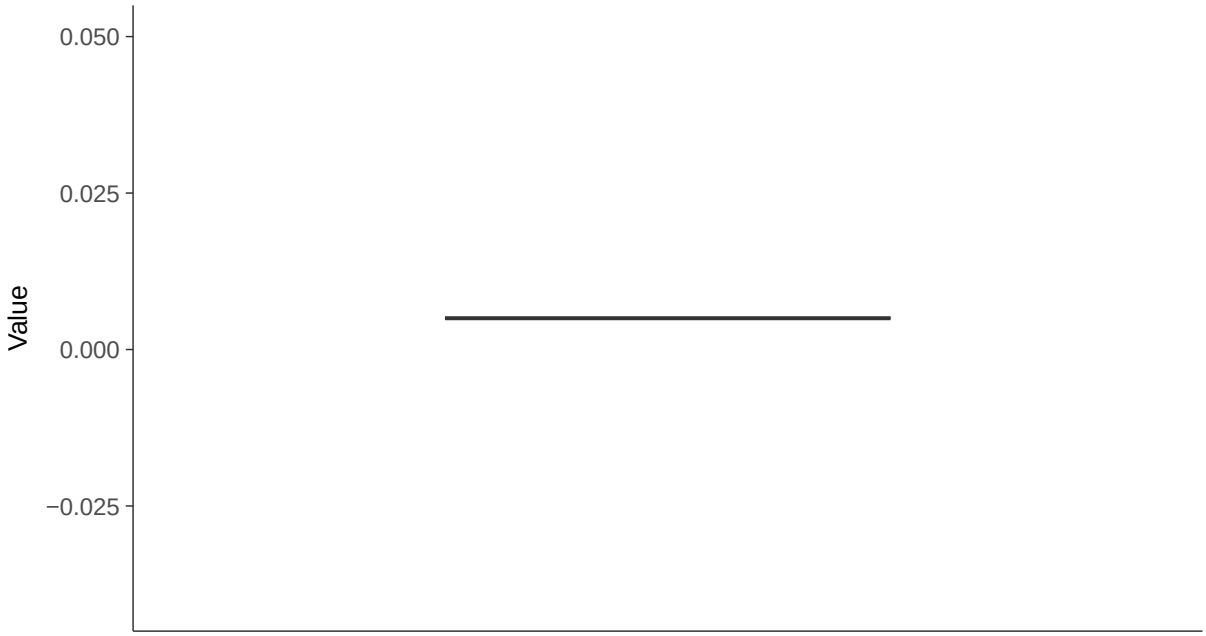
ID: 09_5_41





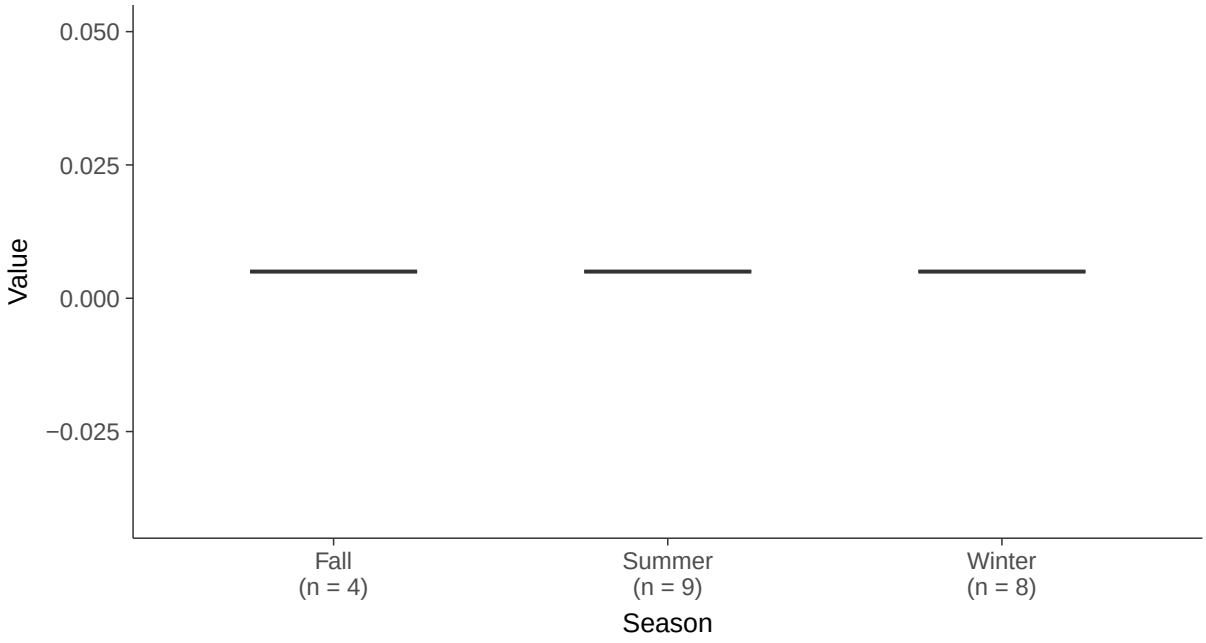
Boxplot

Vanadium, MW-9 (mg/L)



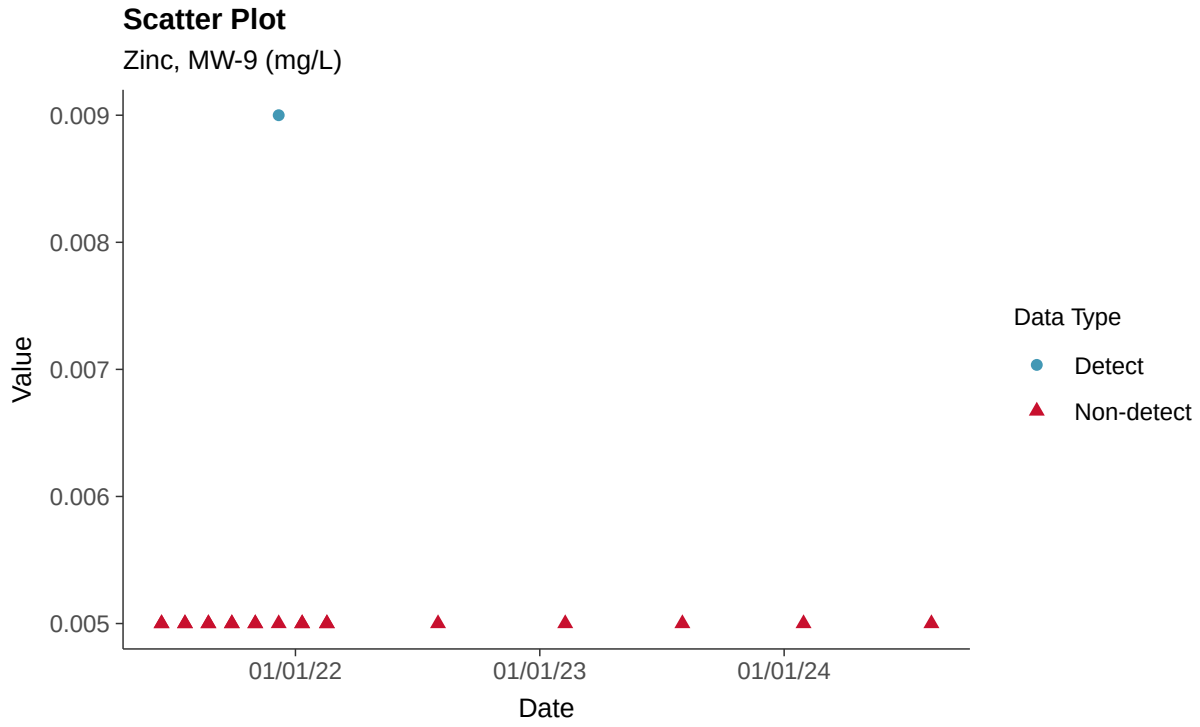
Boxplot by Season

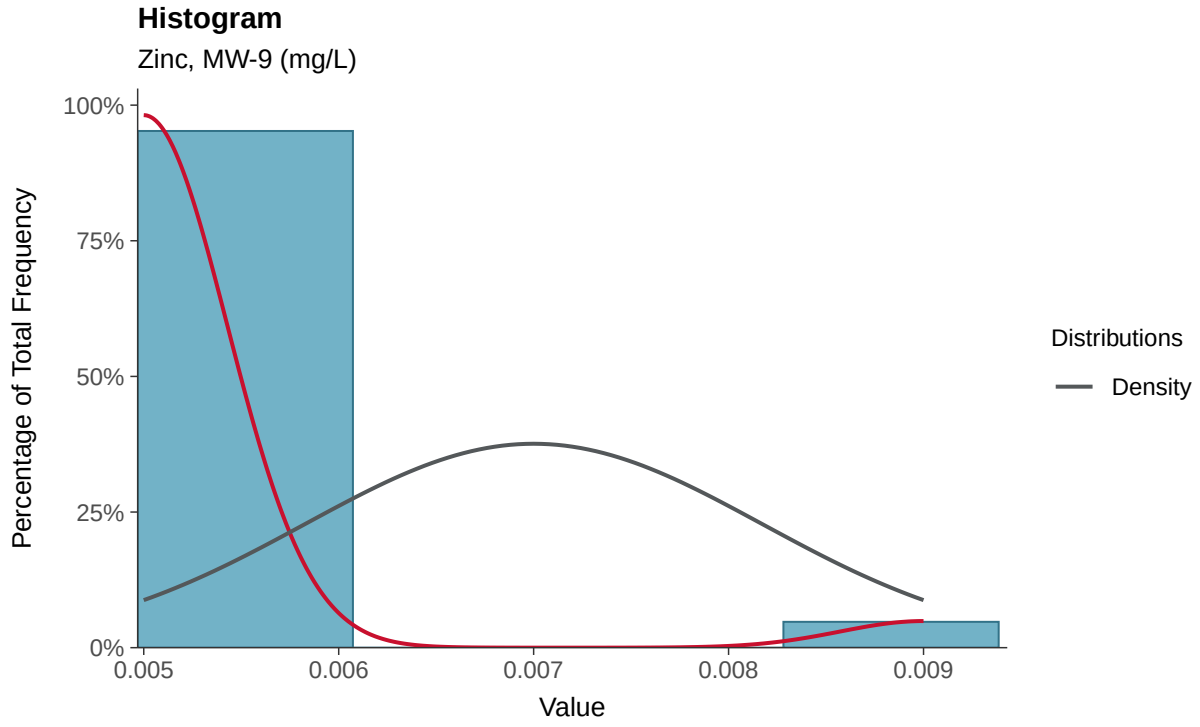
Vanadium, MW-9 (mg/L)



Part 115: Zinc, MW-9

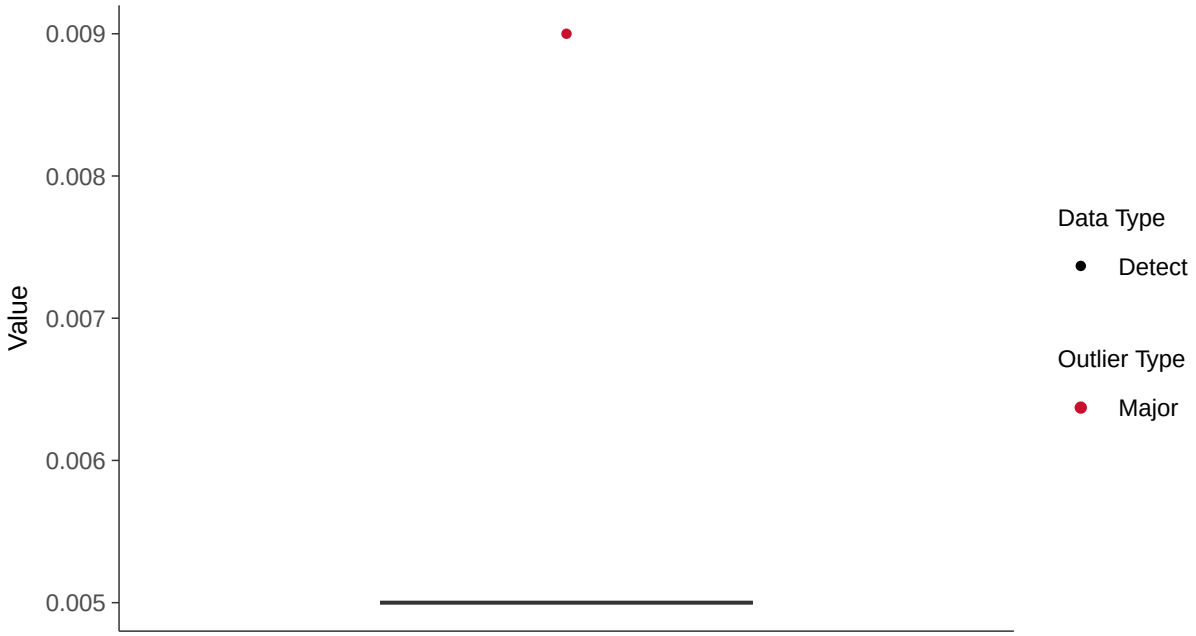
ID: 09_5_42





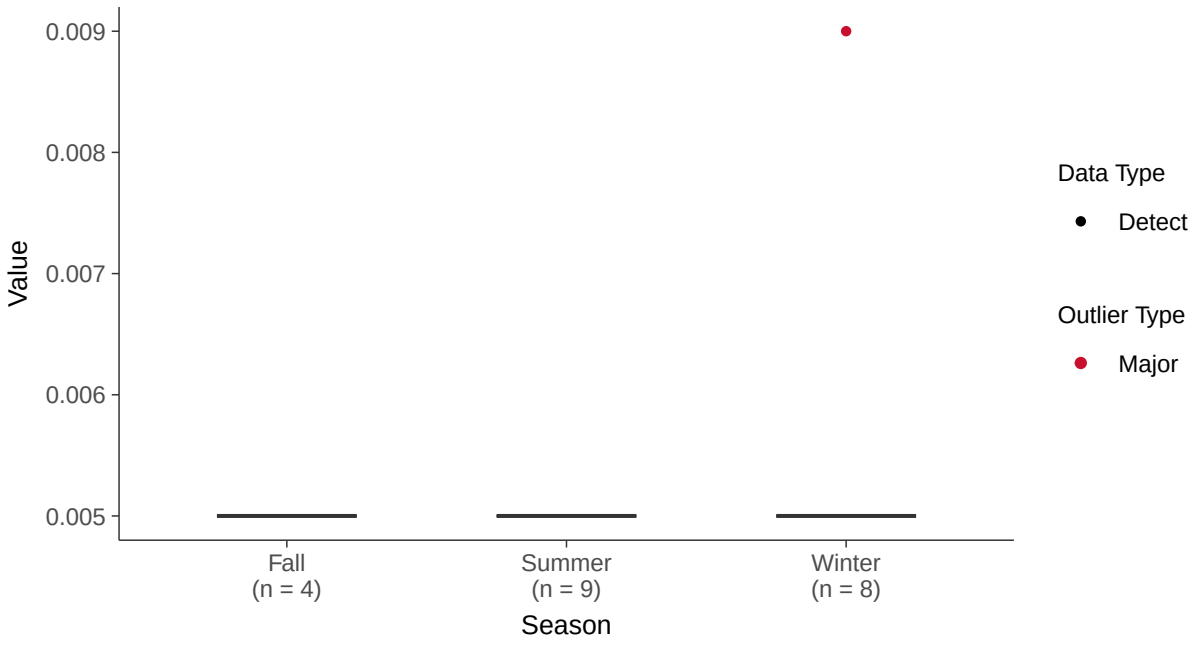
Boxplot

Zinc, MW-9 (mg/L)



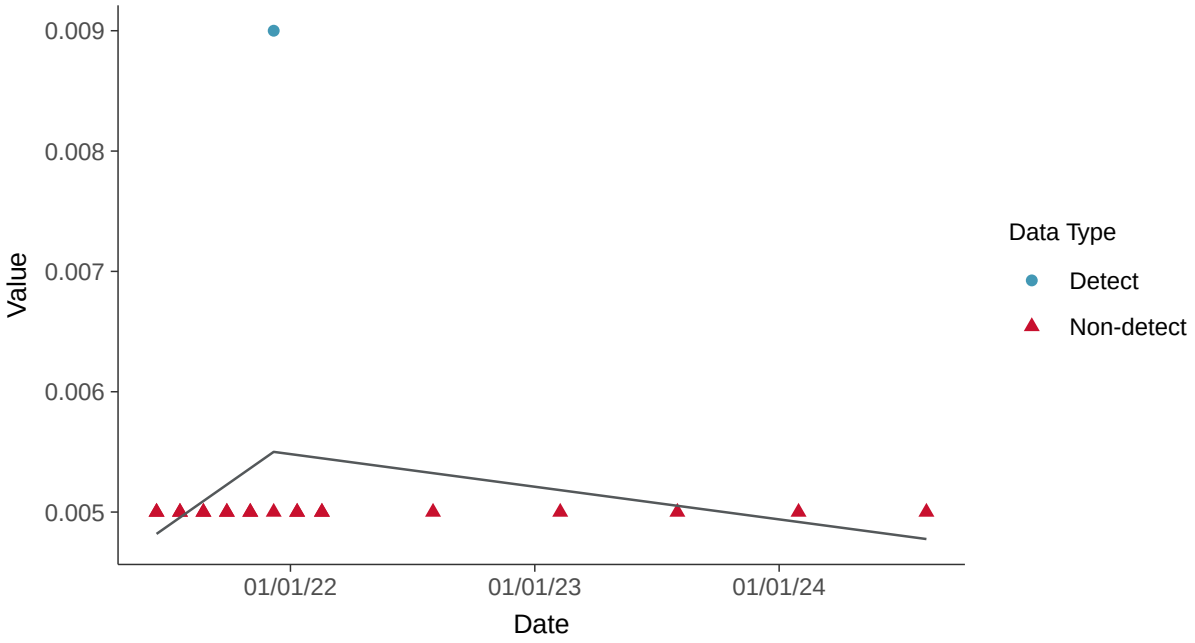
Boxplot by Season

Zinc, MW-9 (mg/L)



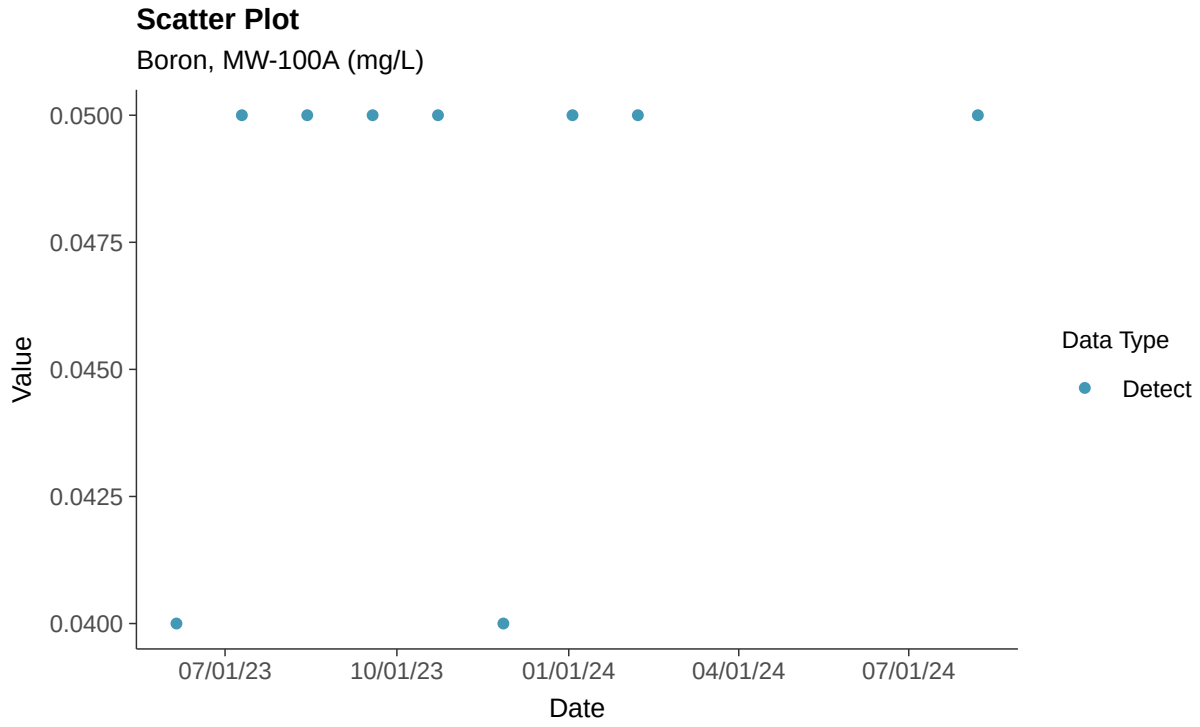
Trend Regression: Piecewise Linear-Linear

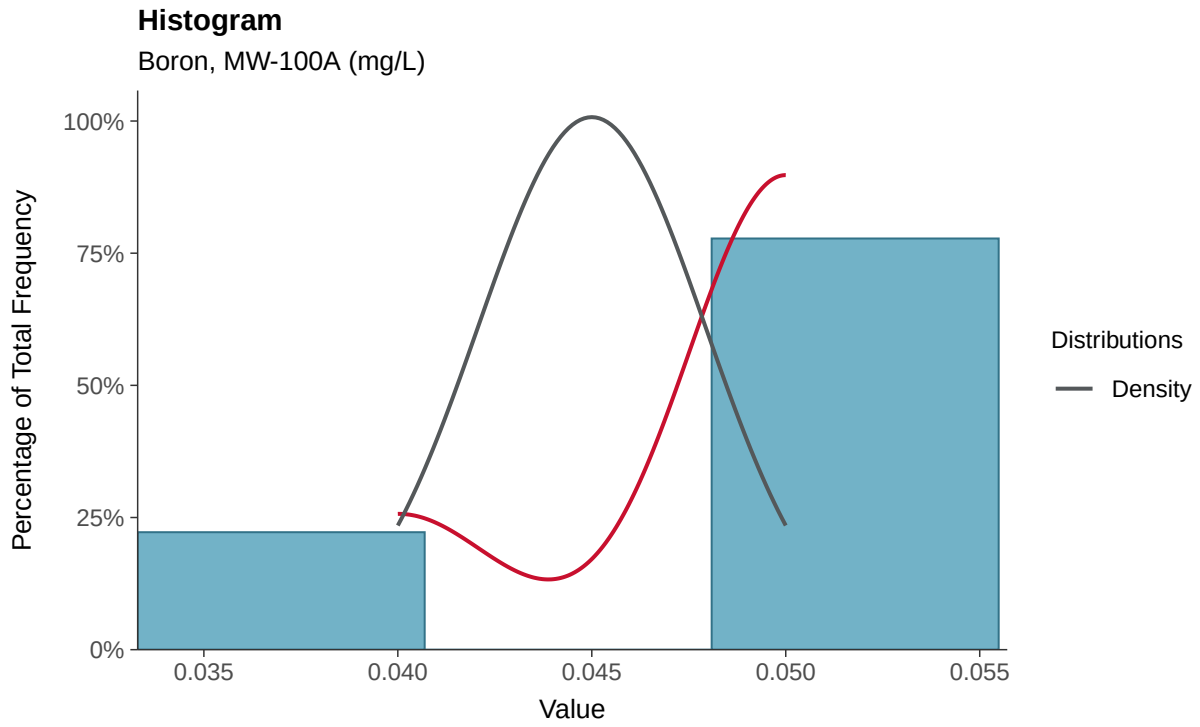
Zinc, MW-9 (mg/L)



Appendix III: Boron, MW-100A

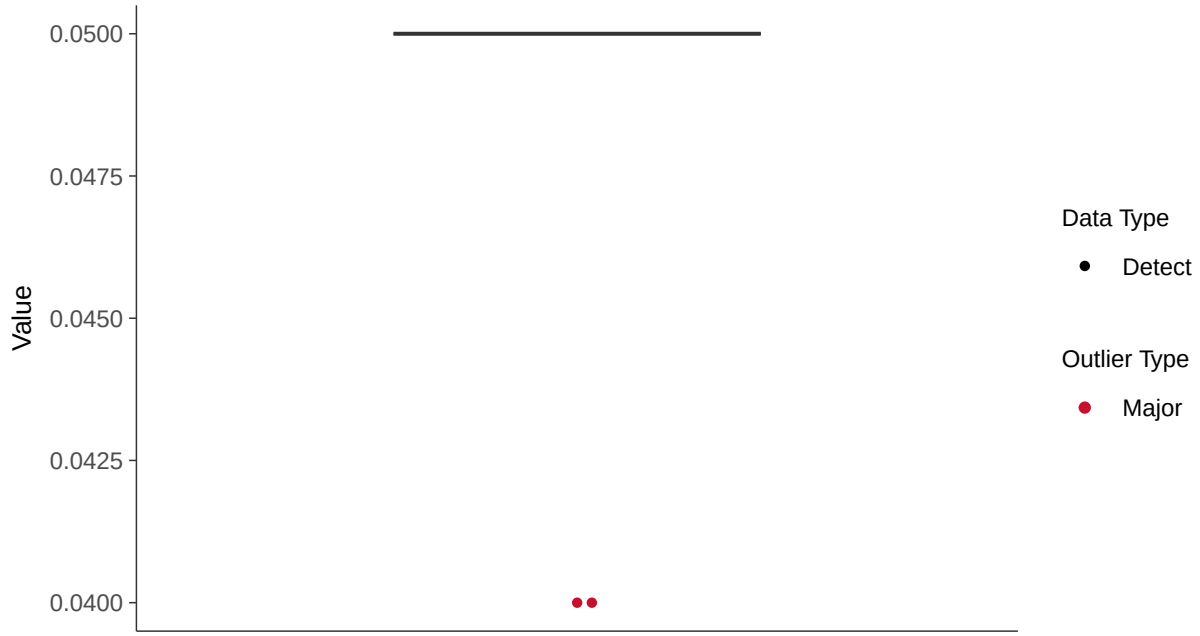
ID: 100A_1_01





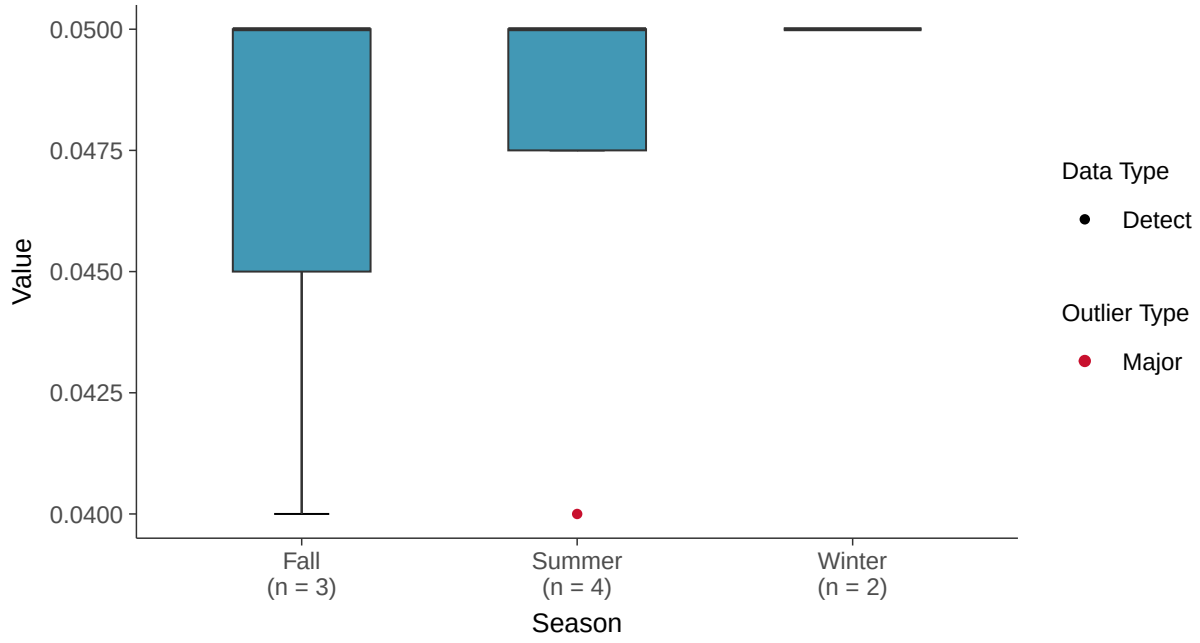
Boxplot

Boron, MW-100A (mg/L)



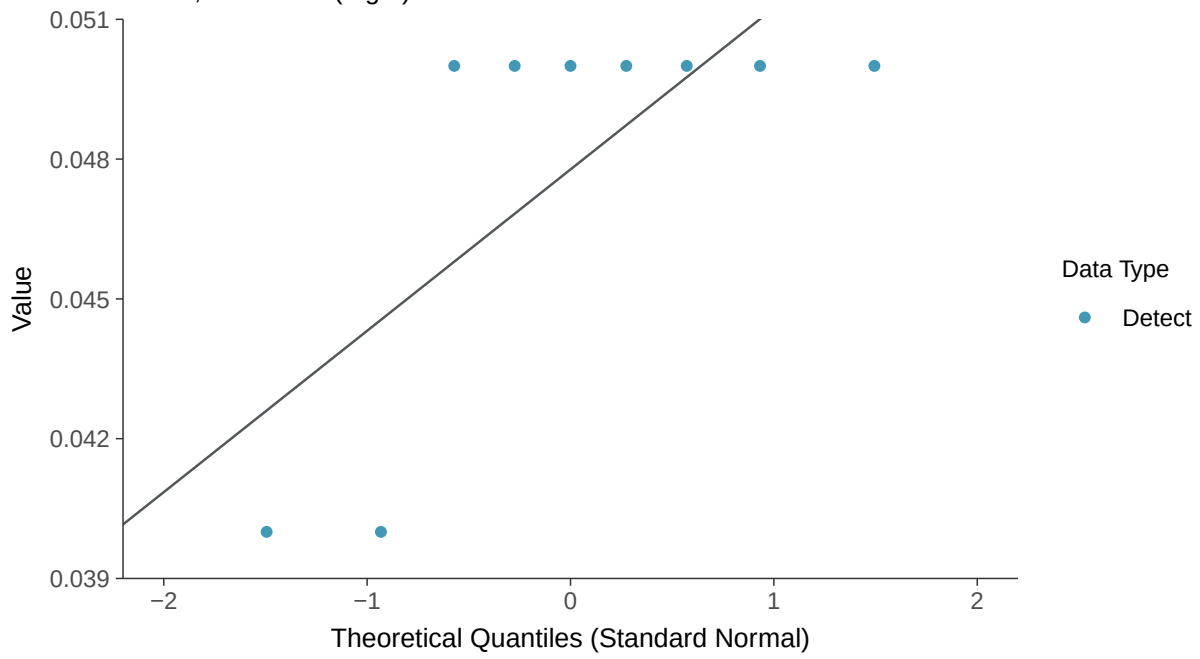
Boxplot by Season

Boron, MW-100A (mg/L)



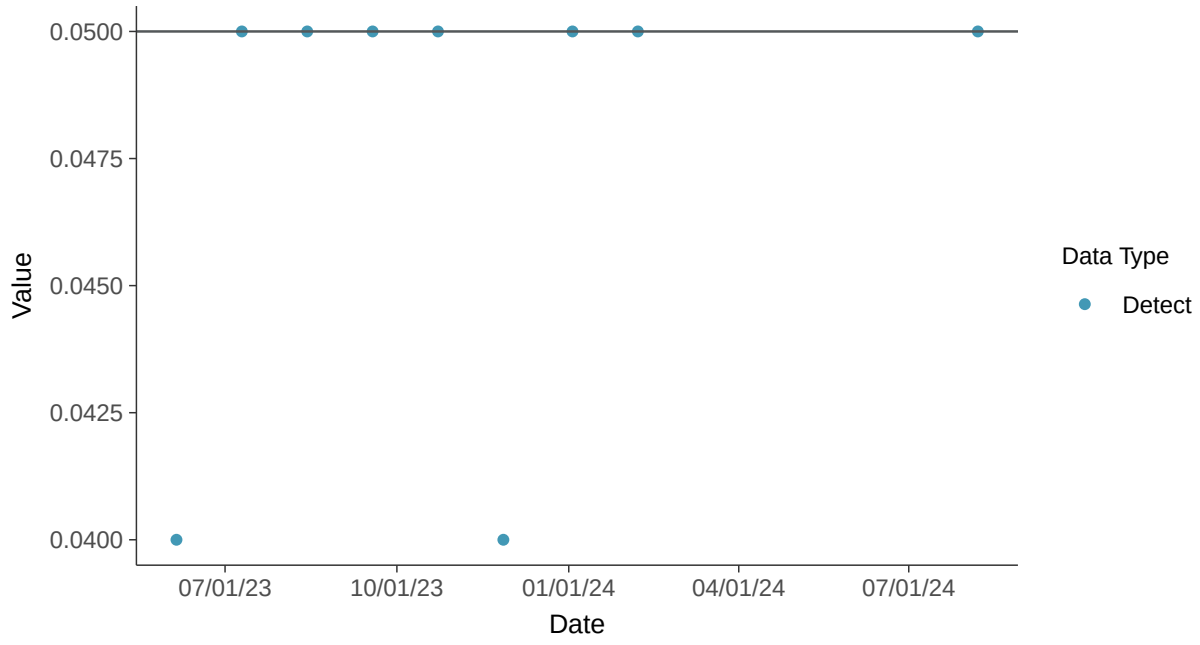
Normal Q-Q plot

Boron, MW-100A (mg/L)



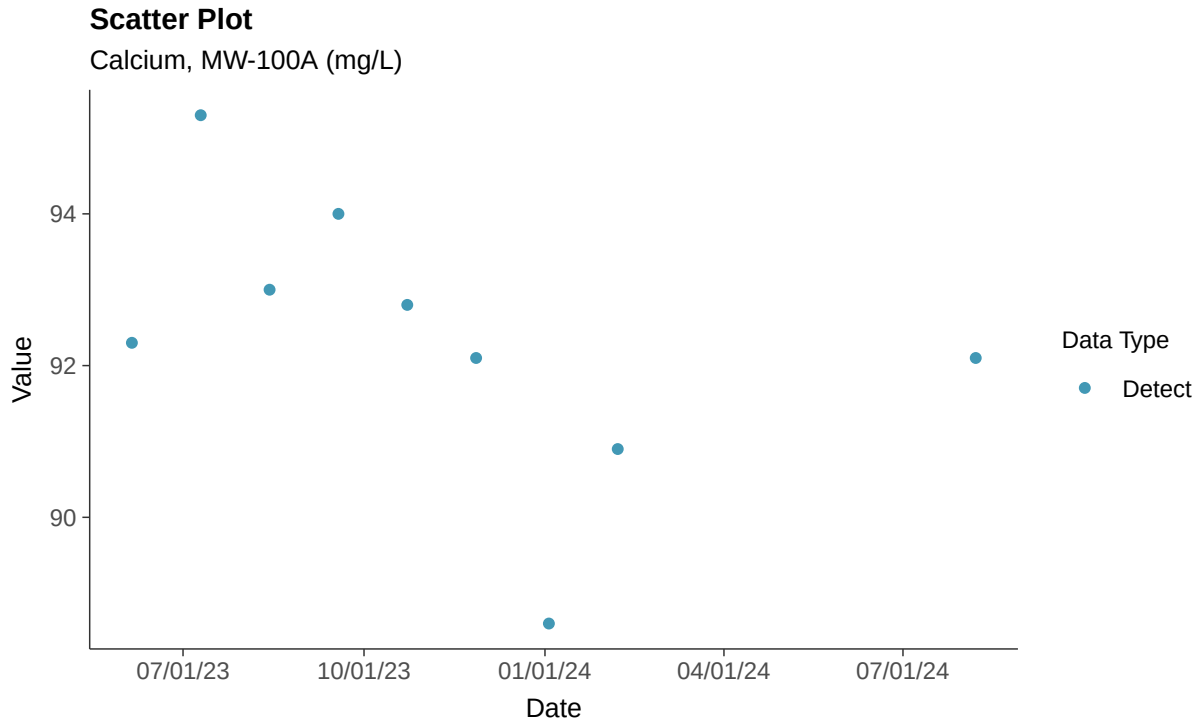
Trend Regression: Mann-Kendall/Theil-Sen Estimate

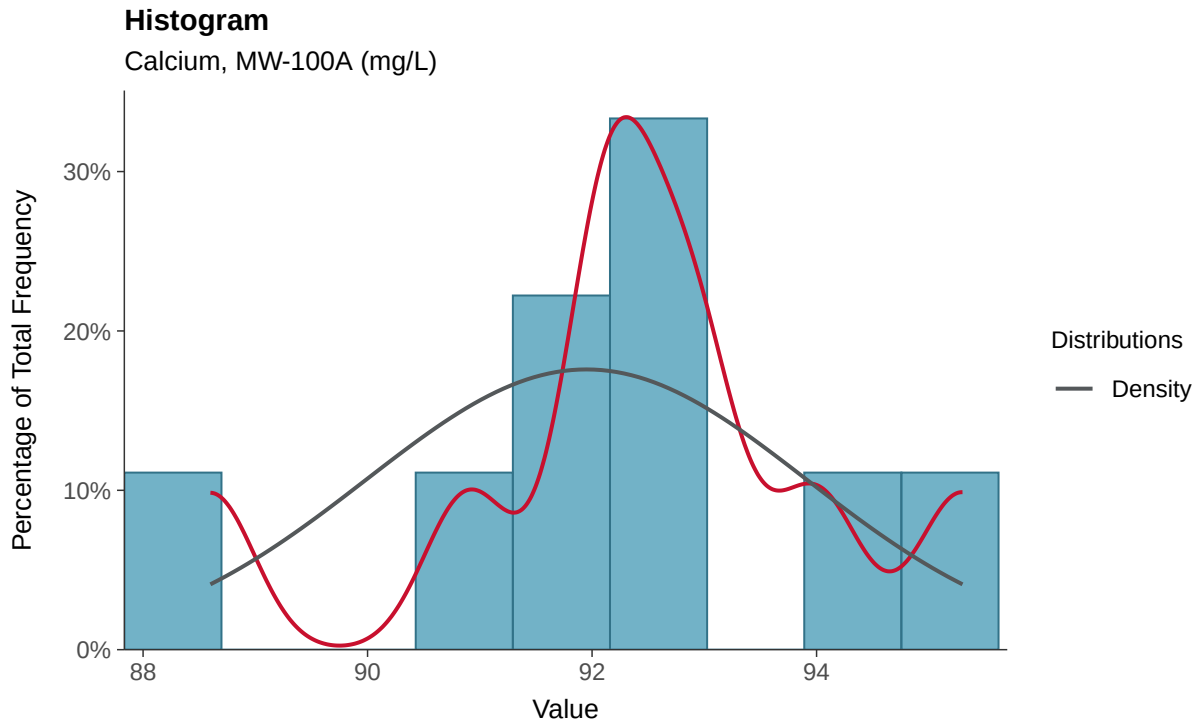
Boron, MW-100A (mg/L)



Appendix III: Calcium, MW-100A

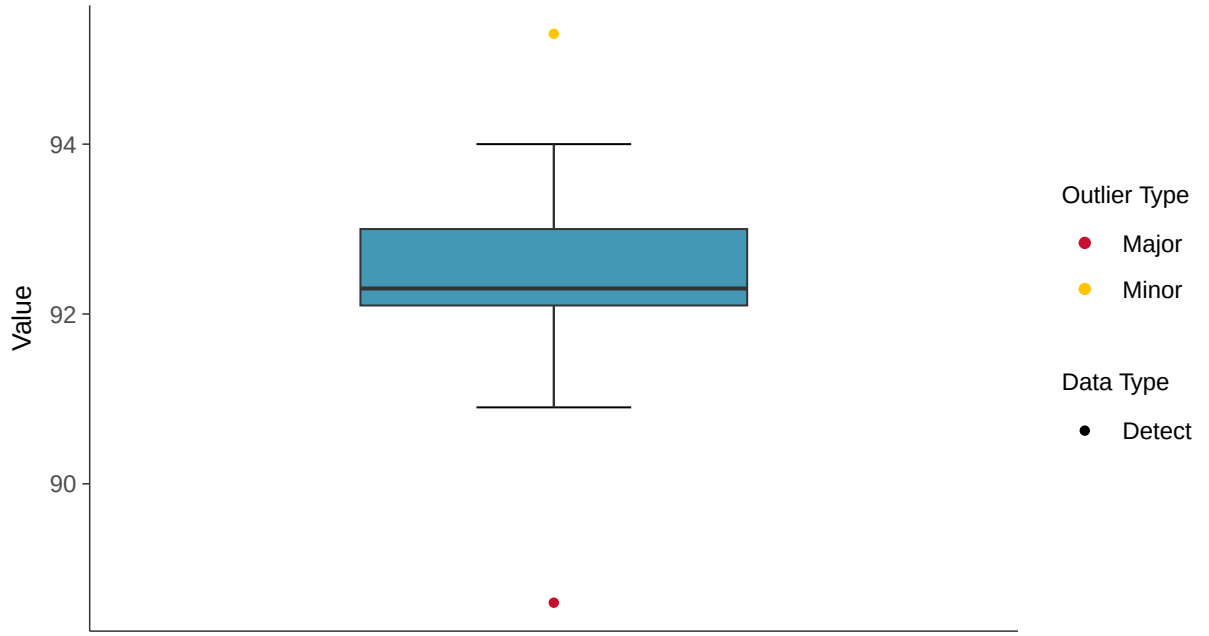
ID: 100A_1_02





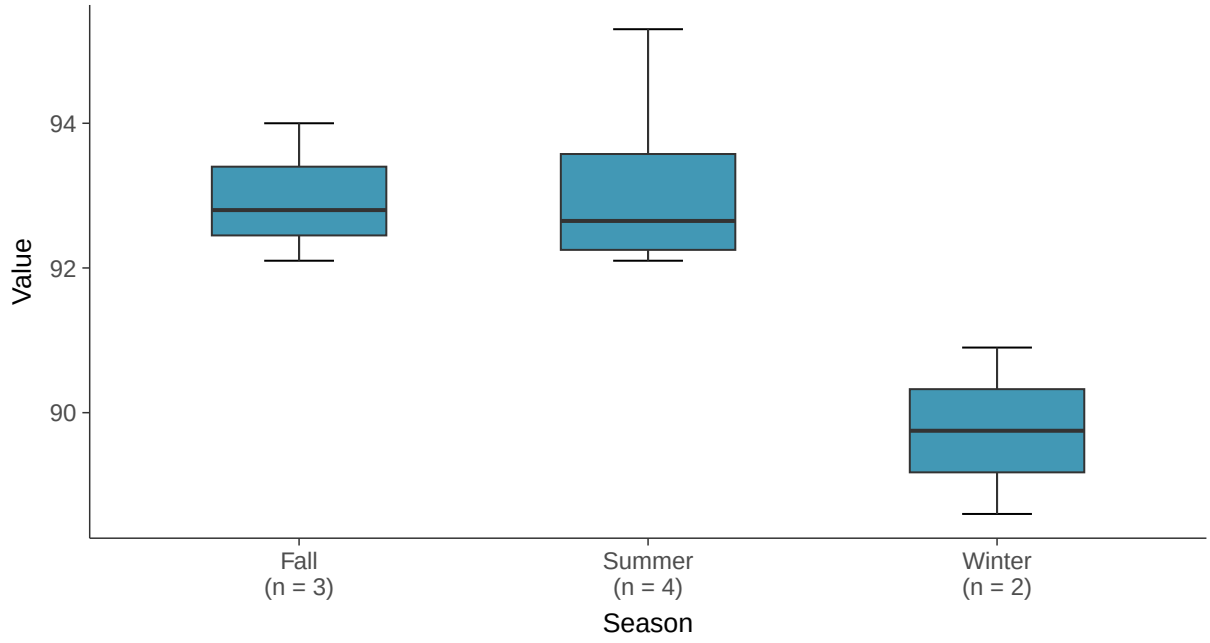
Boxplot

Calcium, MW-100A (mg/L)



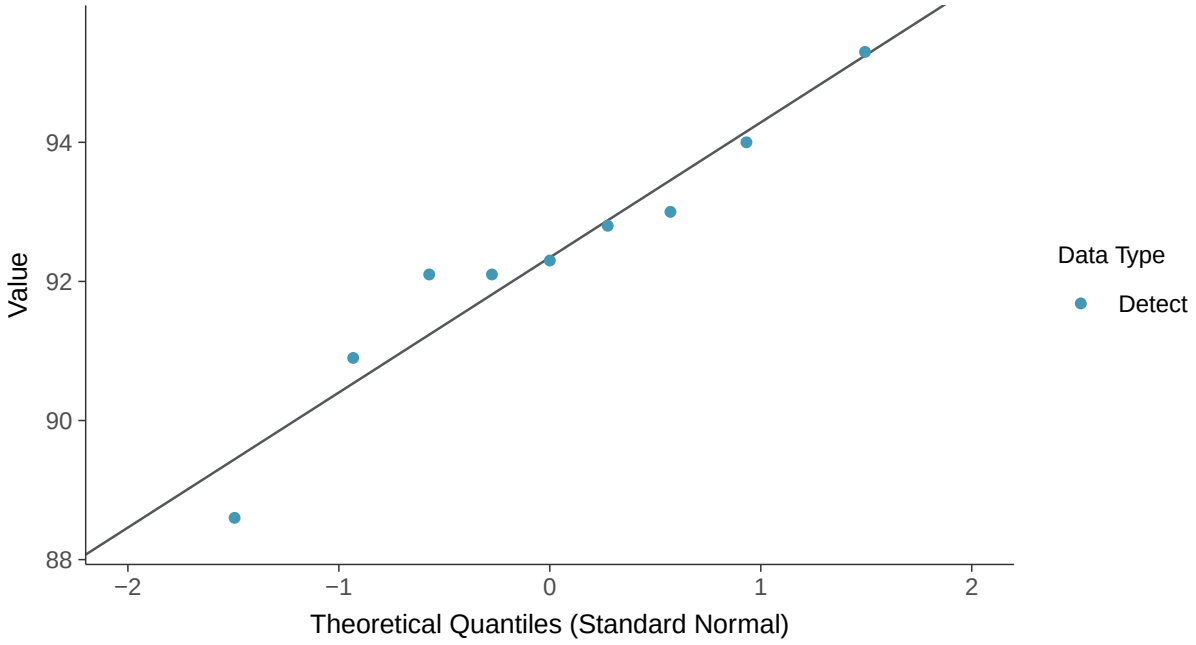
Boxplot by Season

Calcium, MW-100A (mg/L)



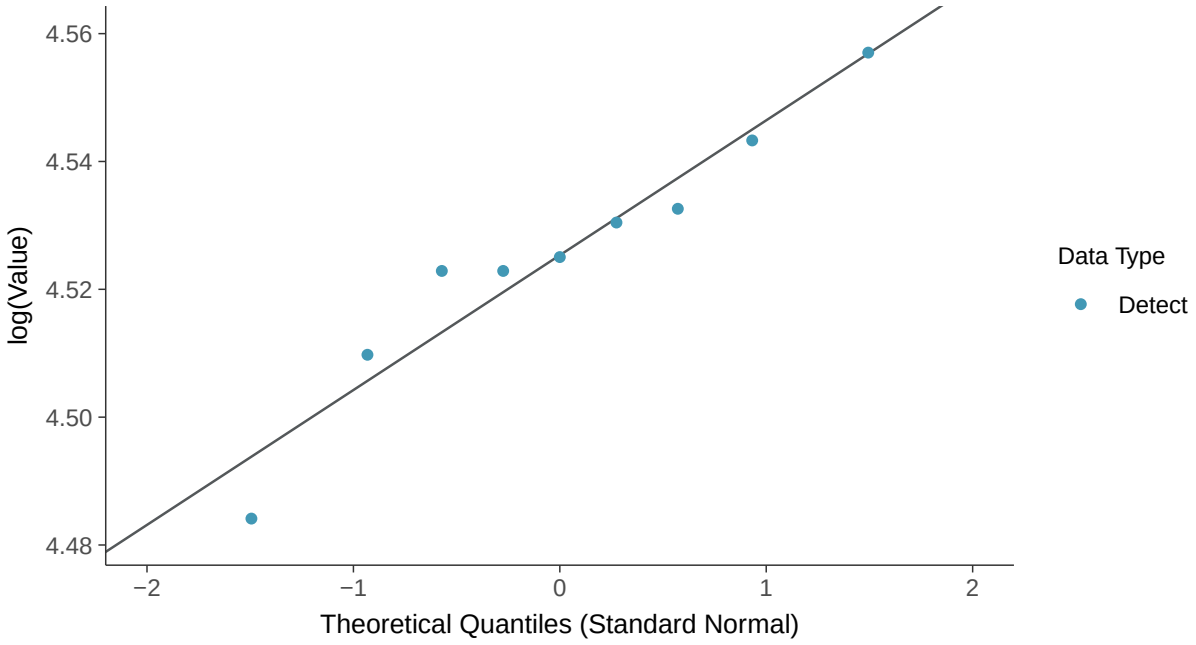
Normal Q-Q plot

Calcium, MW-100A (mg/L)



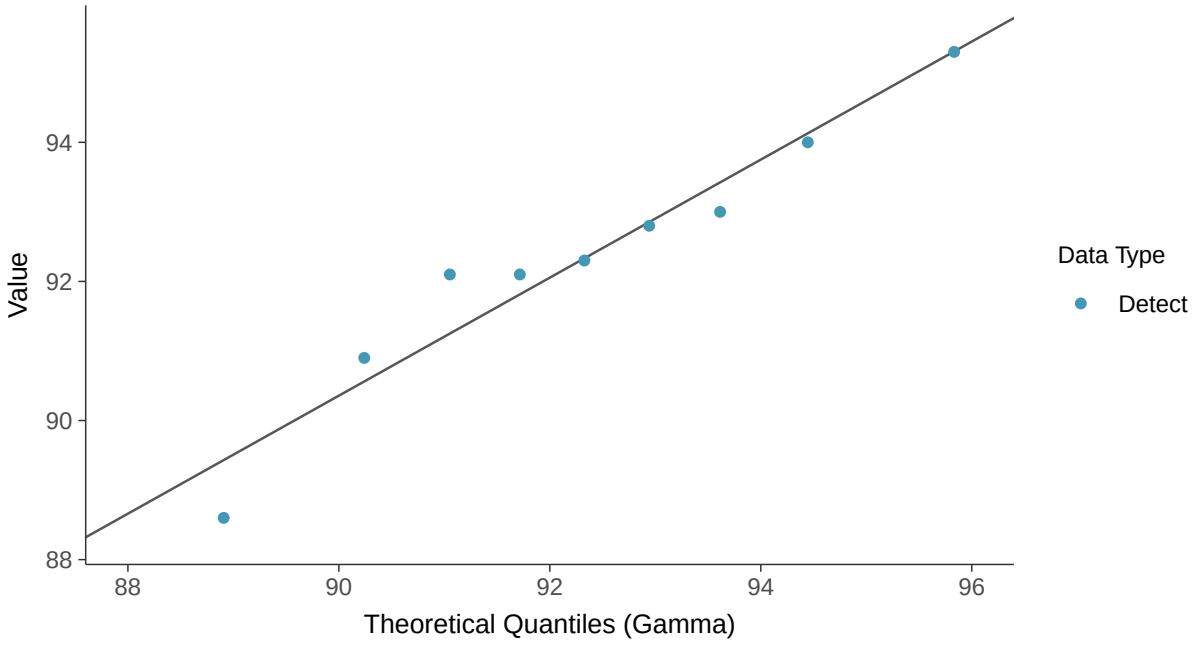
Lognormal Q-Q plot

Calcium, MW-100A (mg/L)



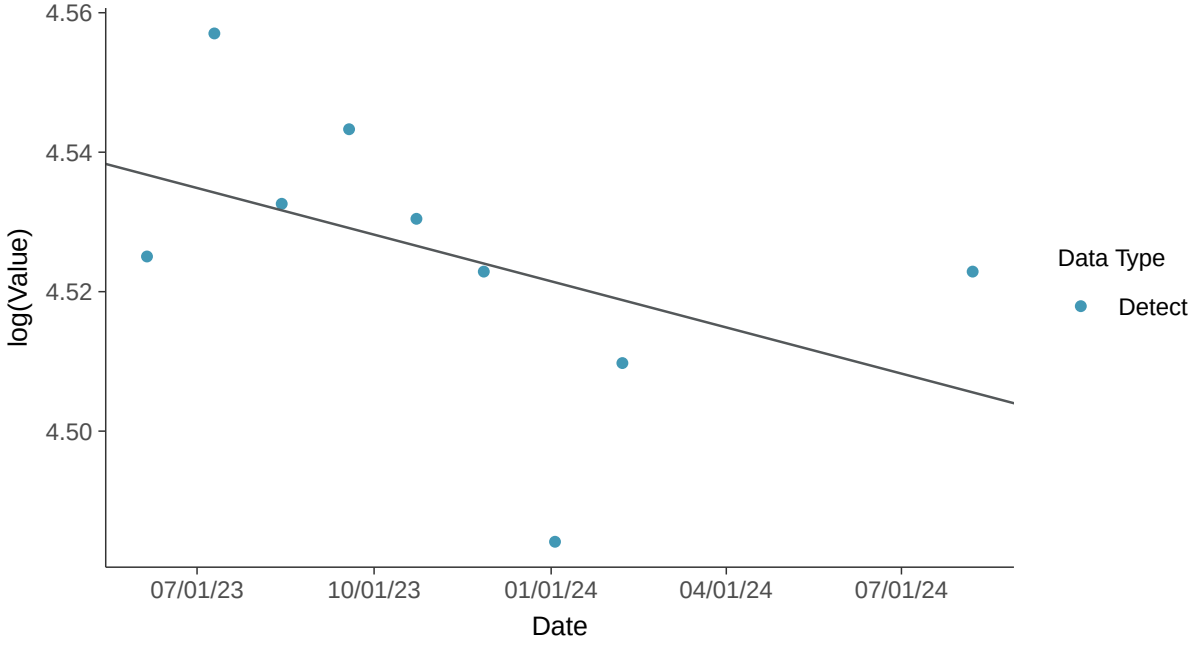
Gamma Q-Q plot

Calcium, MW-100A (mg/L)



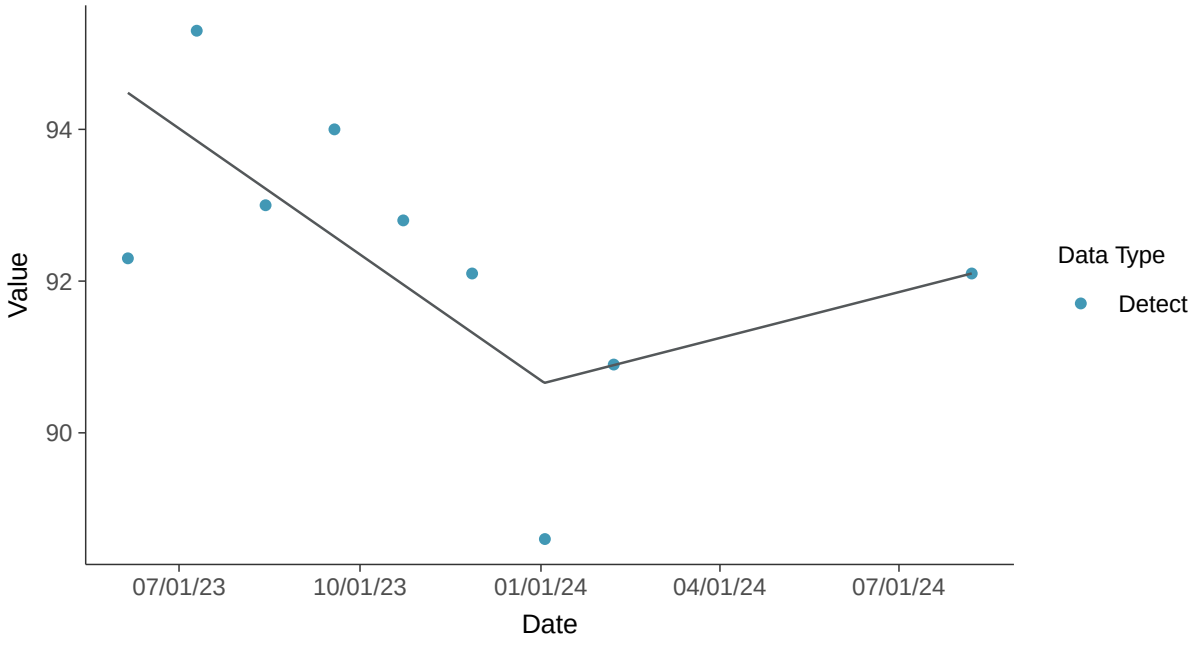
Trend Regression: Lognormal MLE

Calcium, MW-100A (mg/L)



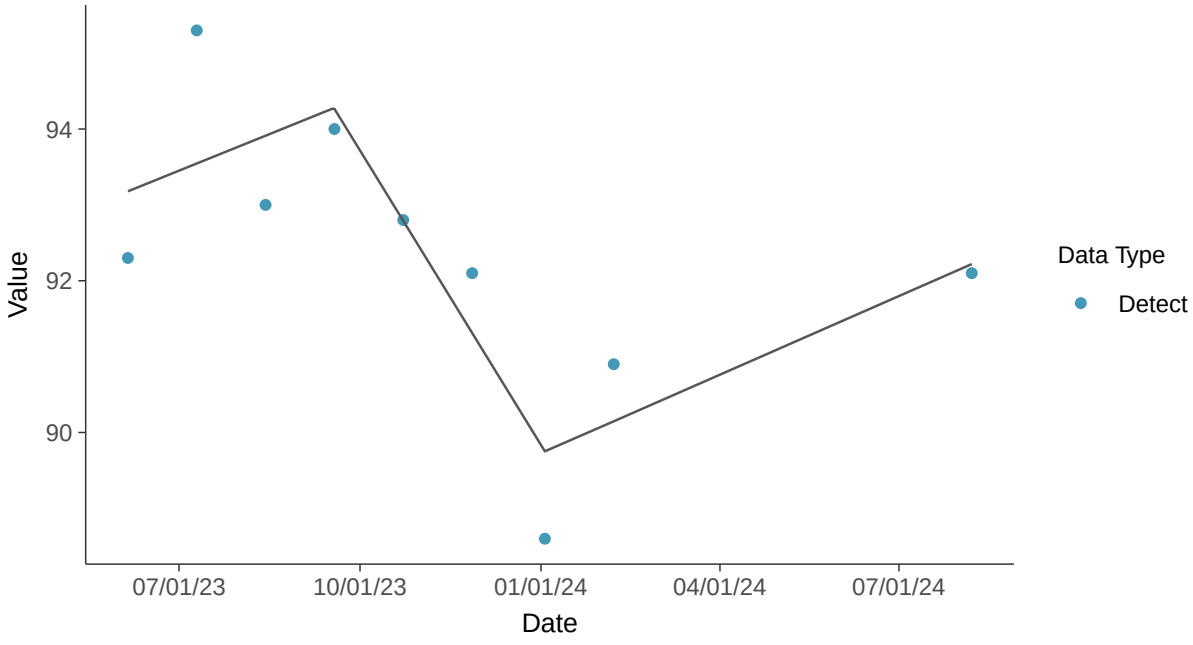
Trend Regression: Piecewise Linear-Linear

Calcium, MW-100A (mg/L)



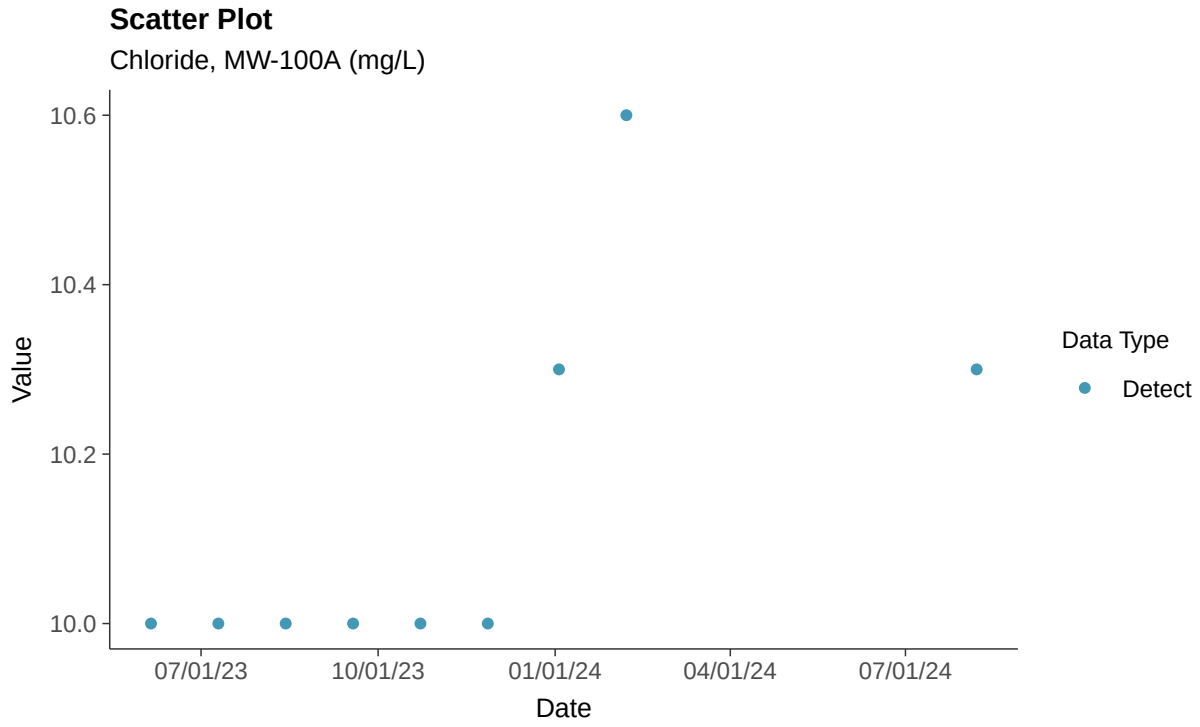
Trend Regression: Piecewise Linear-Linear-Linear

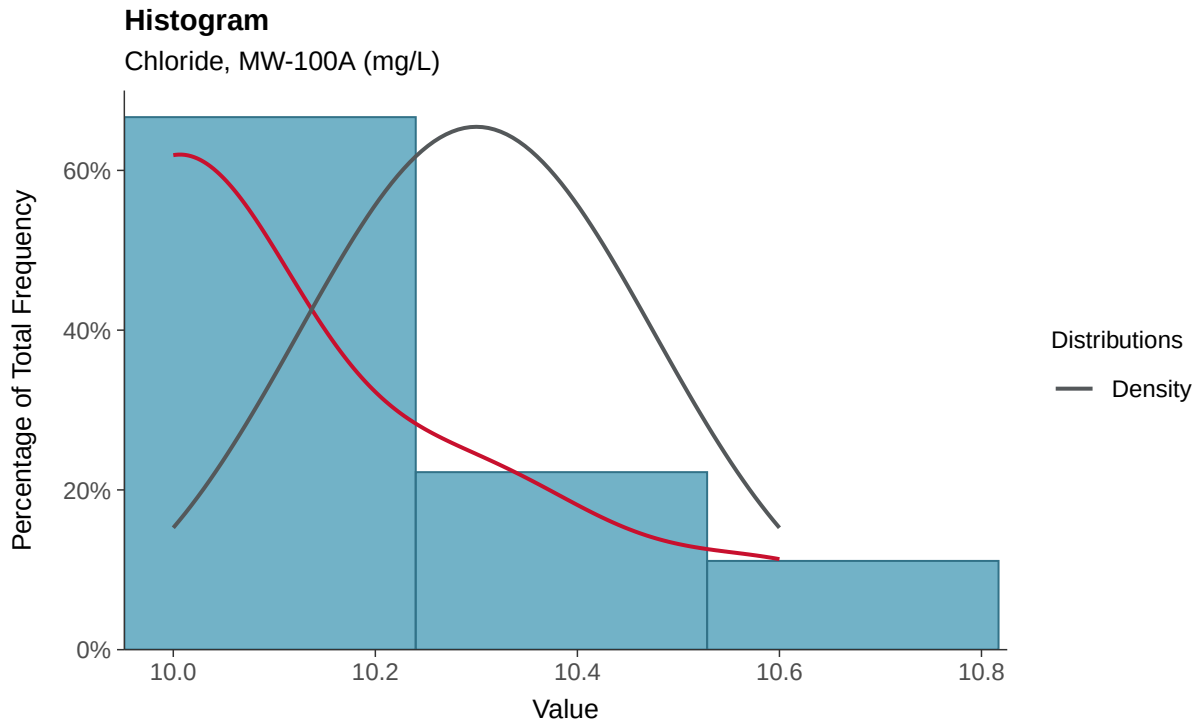
Calcium, MW-100A (mg/L)



Appendix III: Chloride, MW-100A

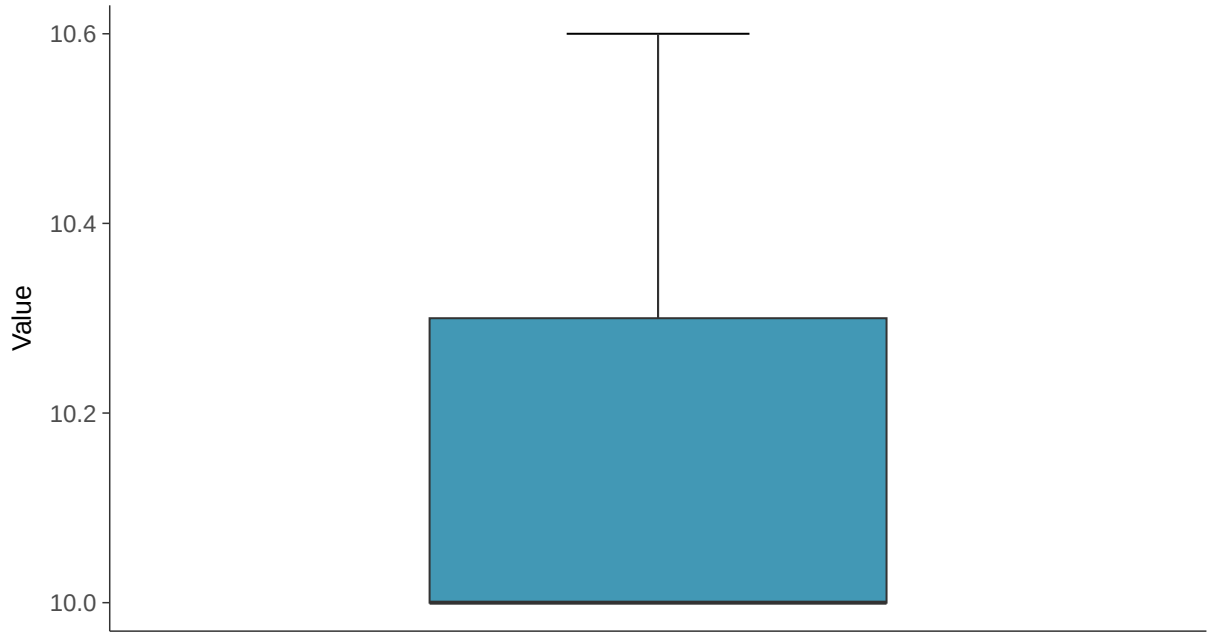
ID: 100A_1_03





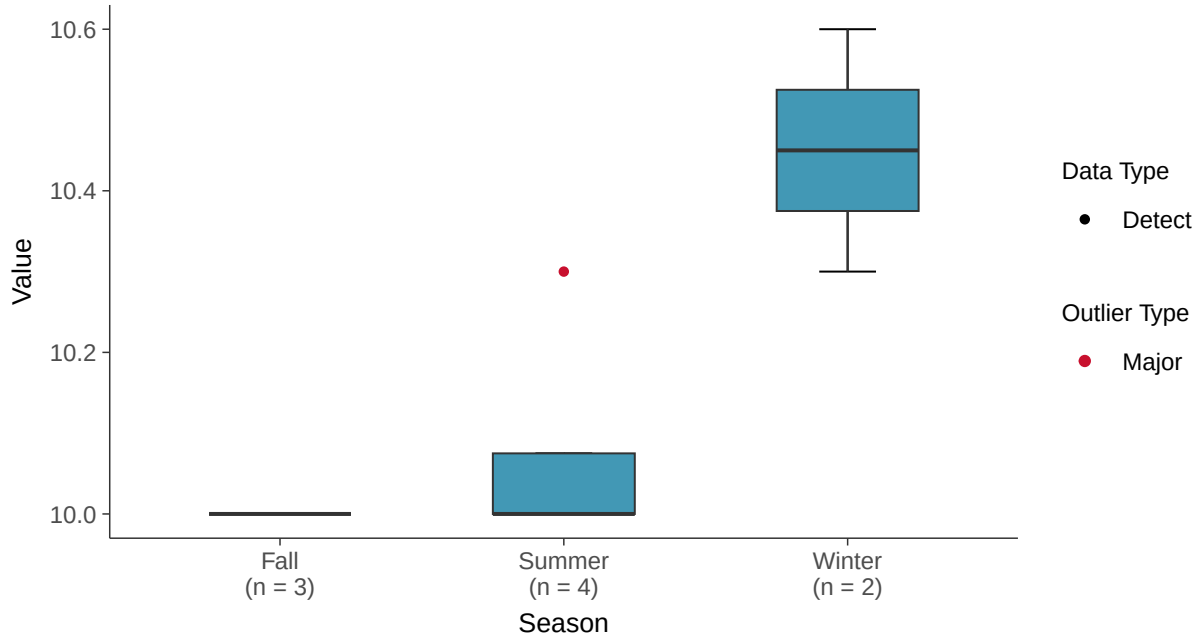
Boxplot

Chloride, MW-100A (mg/L)



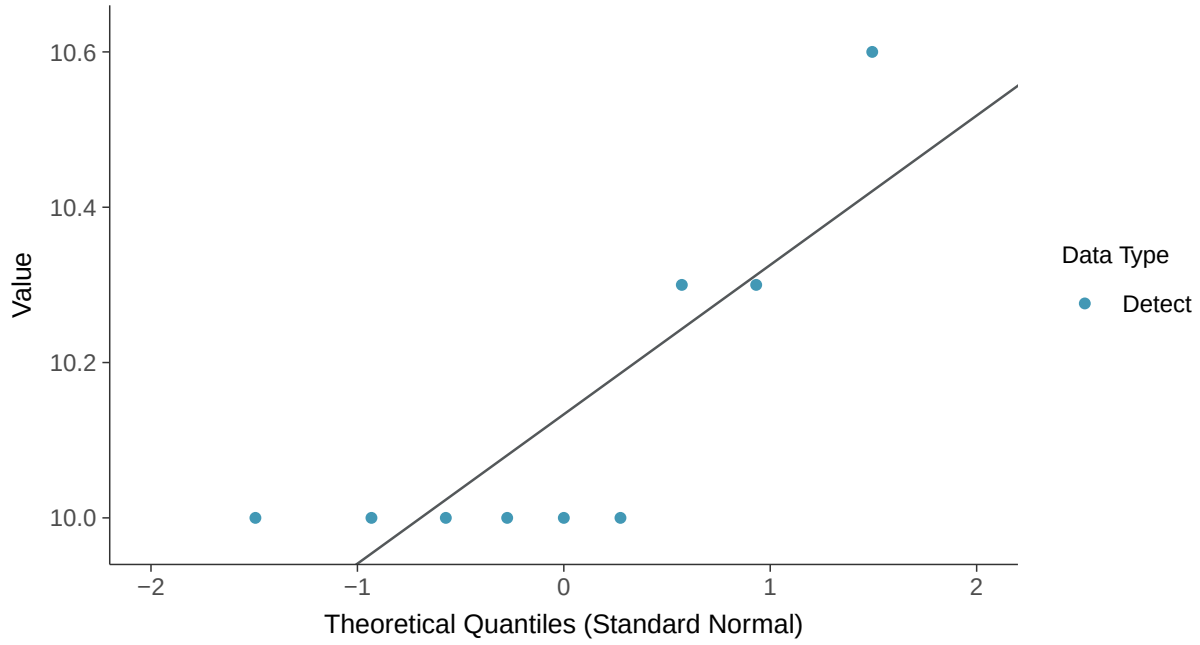
Boxplot by Season

Chloride, MW-100A (mg/L)



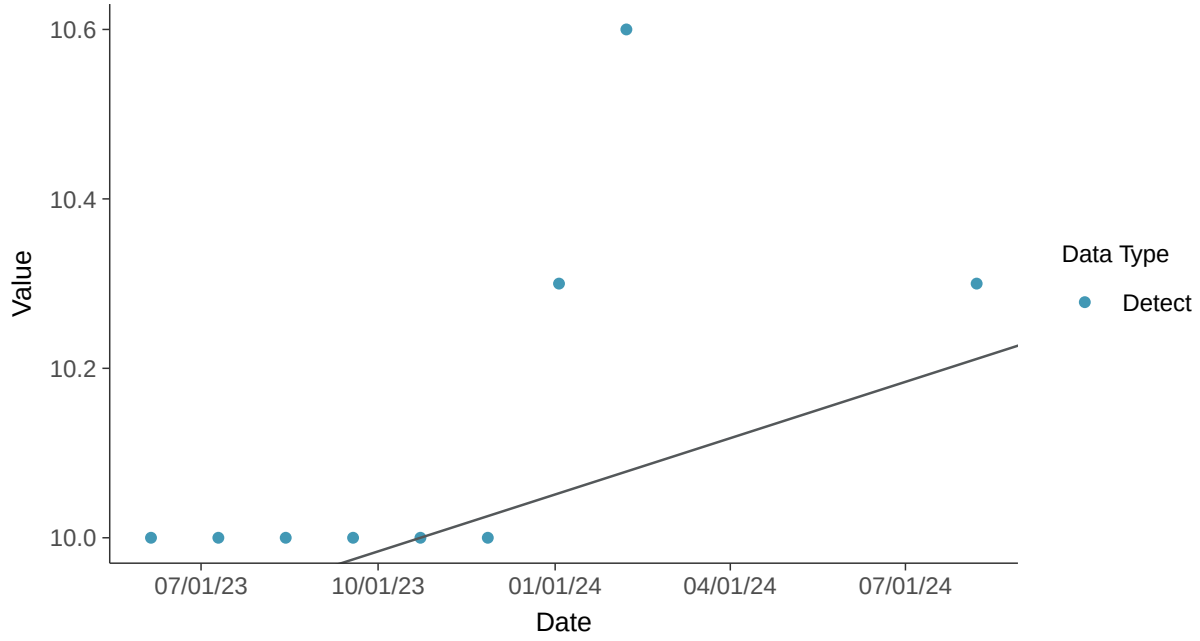
Normal Q-Q plot

Chloride, MW-100A (mg/L)



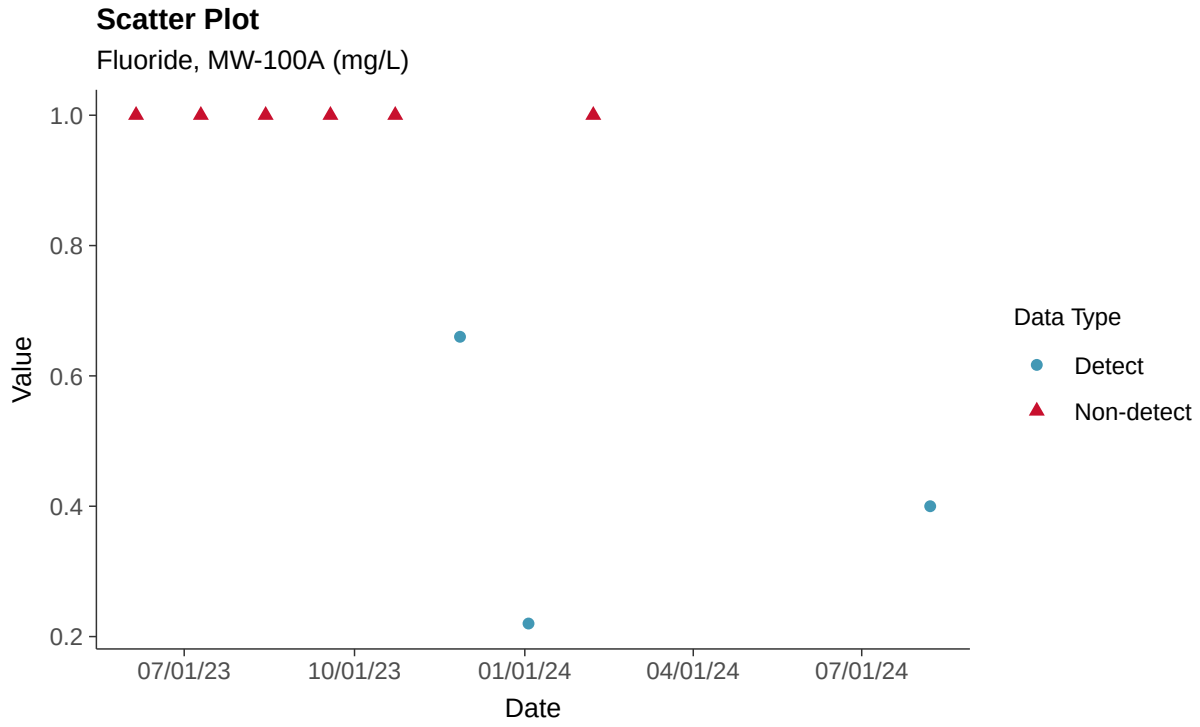
Trend Regression: Mann-Kendall/Theil-Sen Estimate

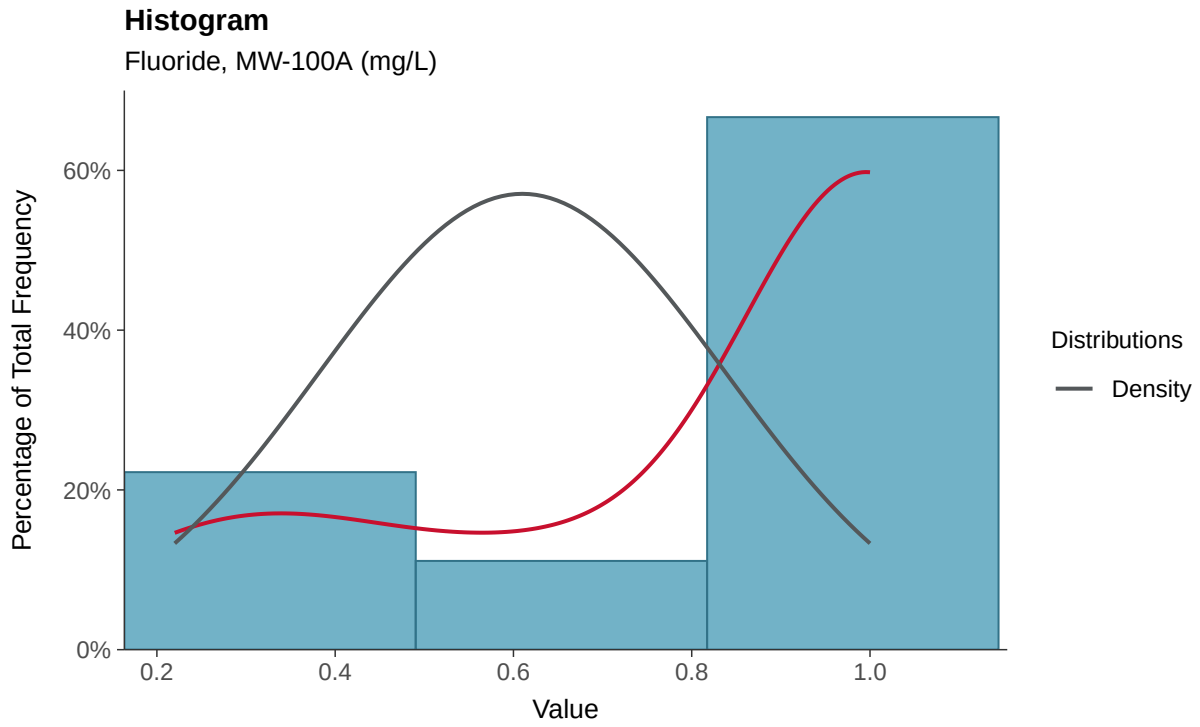
Chloride, MW-100A (mg/L)



Appendix III: Fluoride, MW-100A

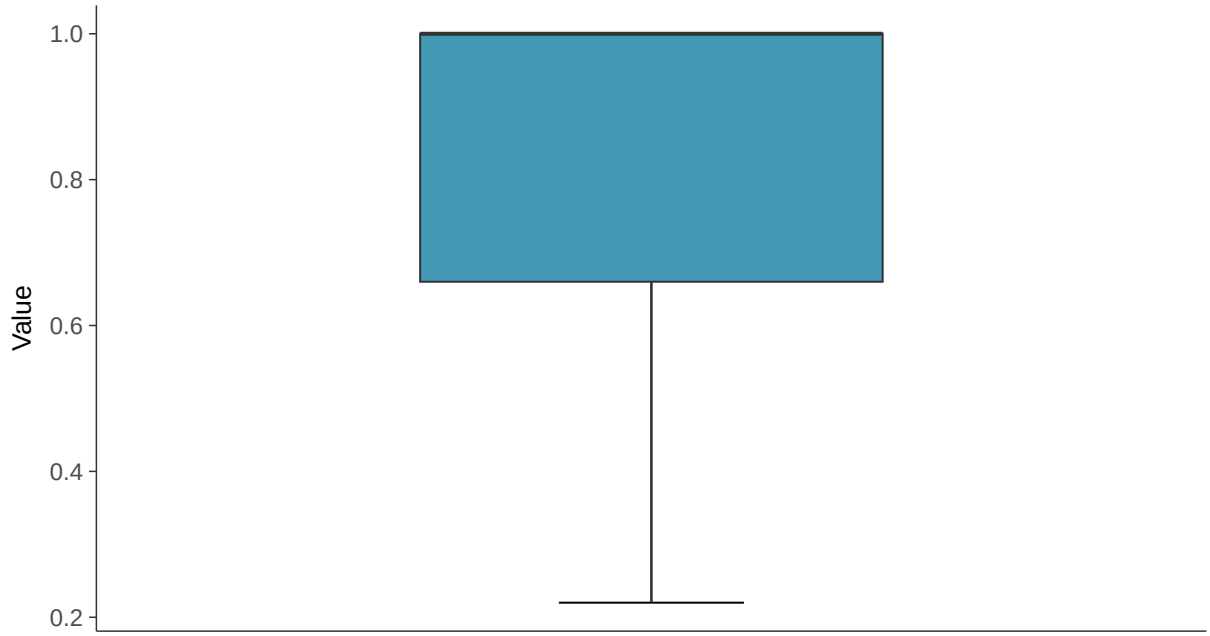
ID: 100A_1_04





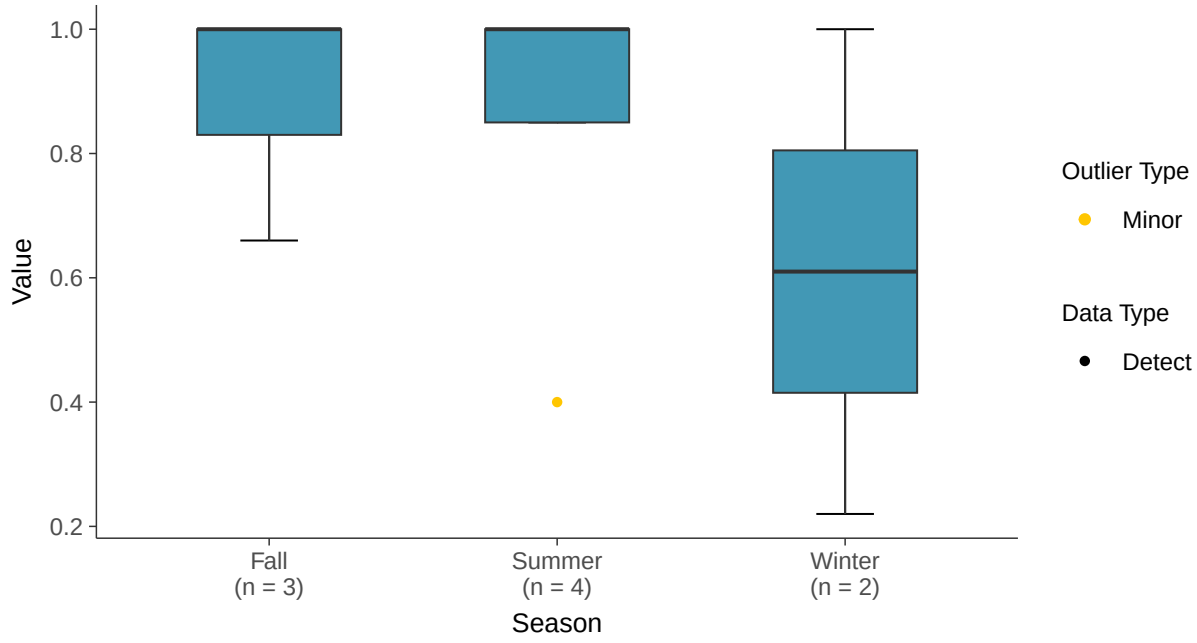
Boxplot

Fluoride, MW-100A (mg/L)



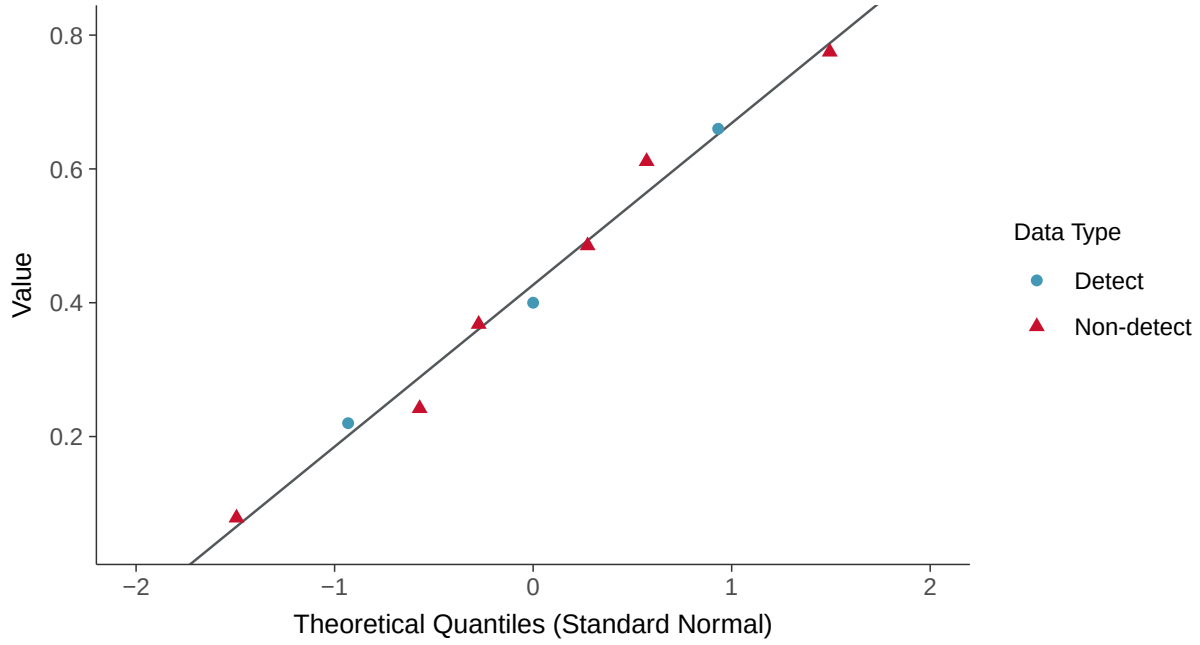
Boxplot by Season

Fluoride, MW-100A (mg/L)



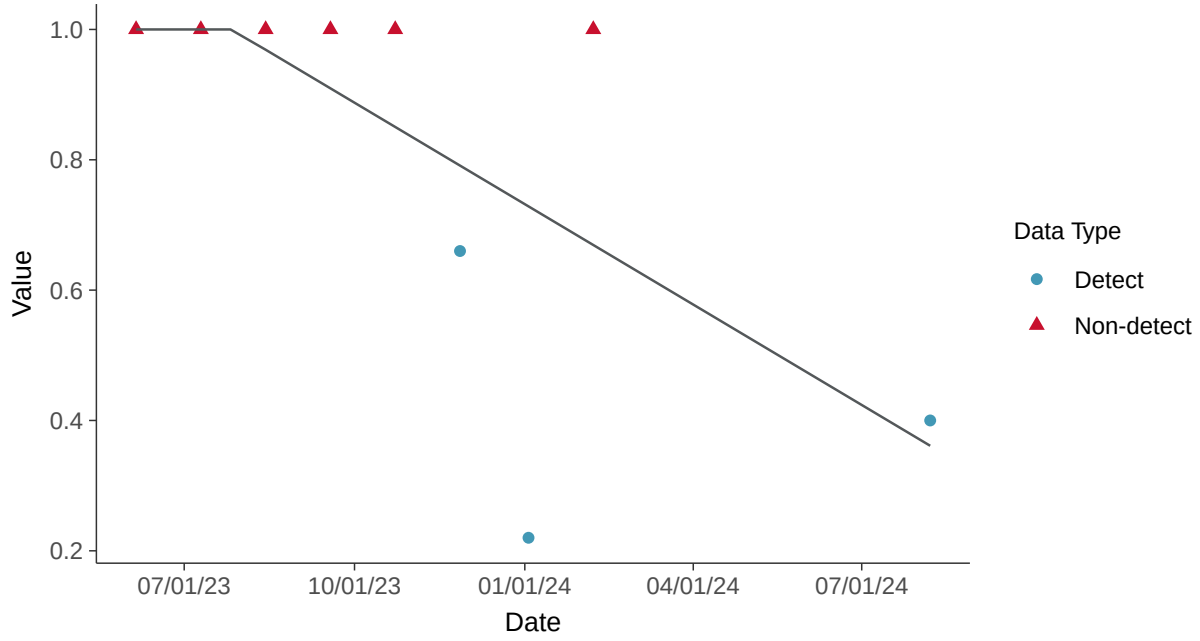
Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-100A (mg/L)



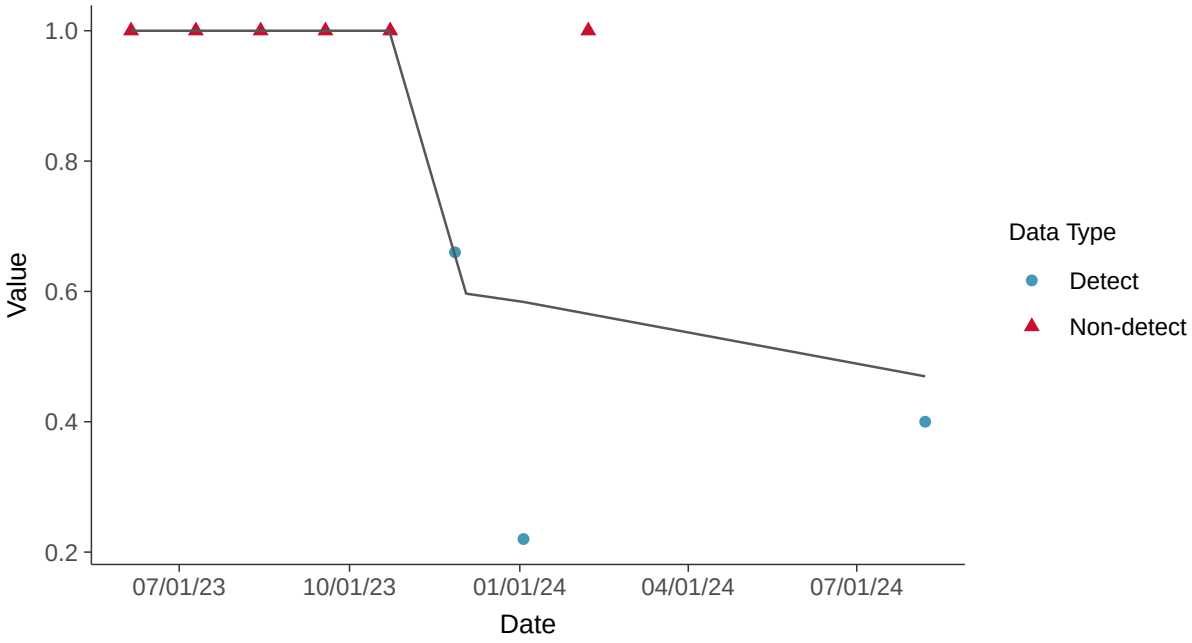
Trend Regression: Piecewise Linear-Linear

Fluoride, MW-100A (mg/L)



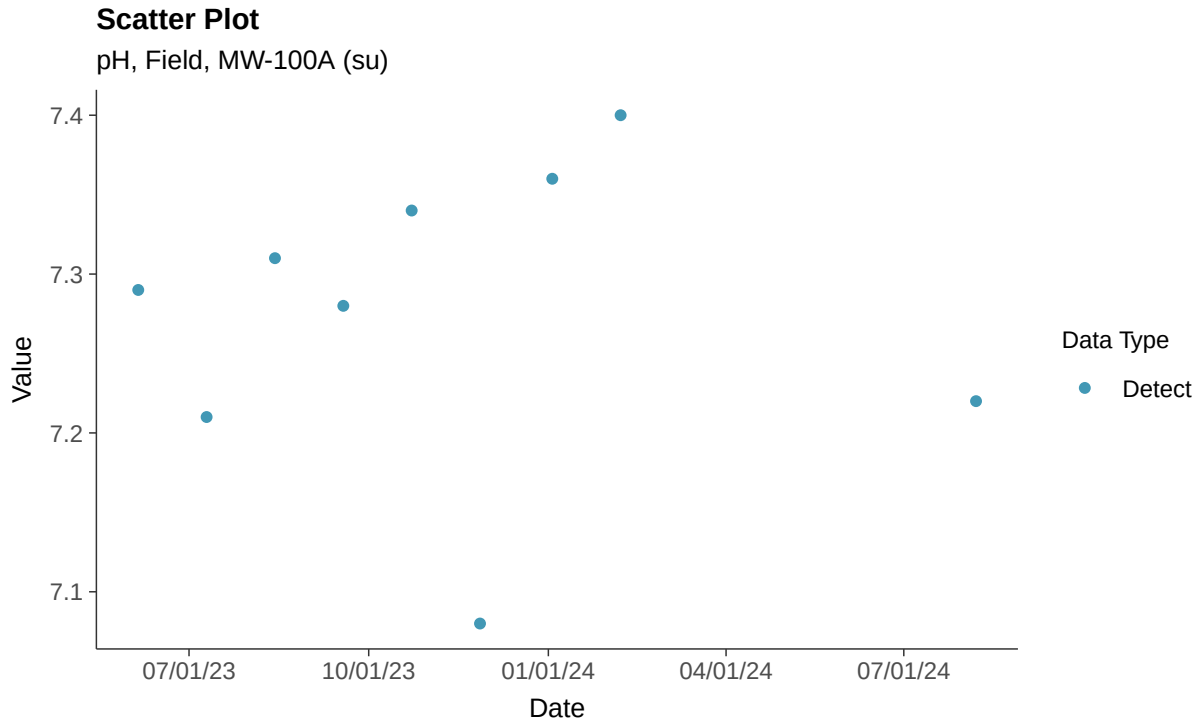
Trend Regression: Piecewise Linear-Linear-Linear

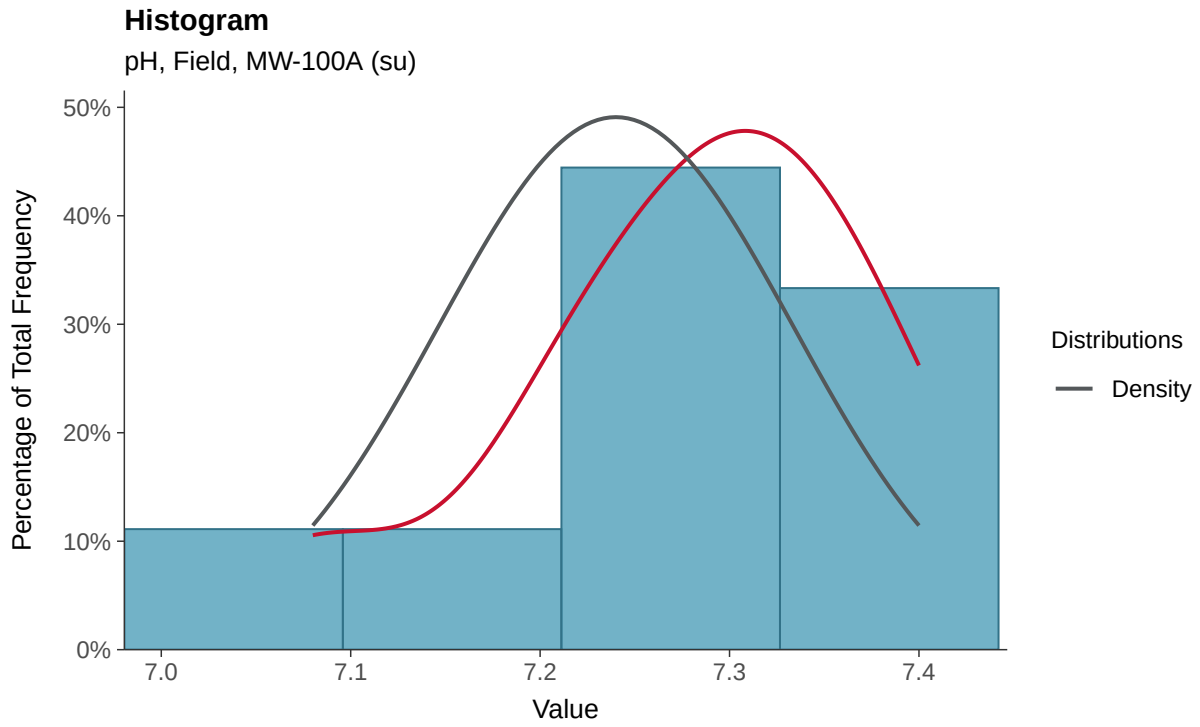
Fluoride, MW-100A (mg/L)



Appendix III: pH, Field, MW-100A

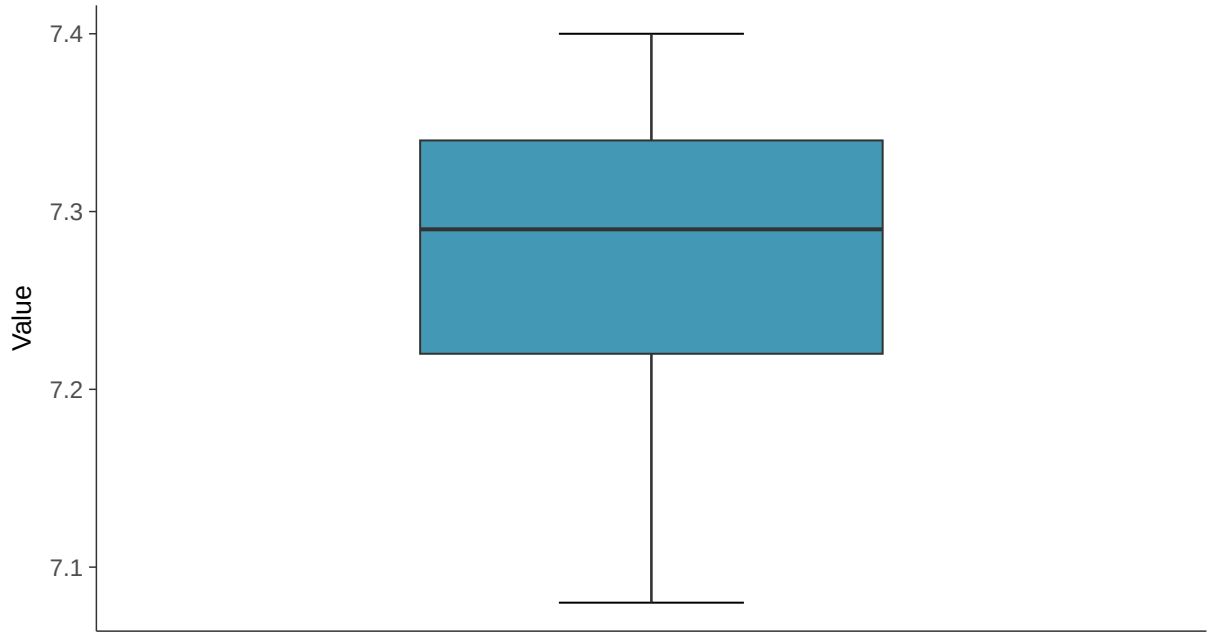
ID: 100A_1_05





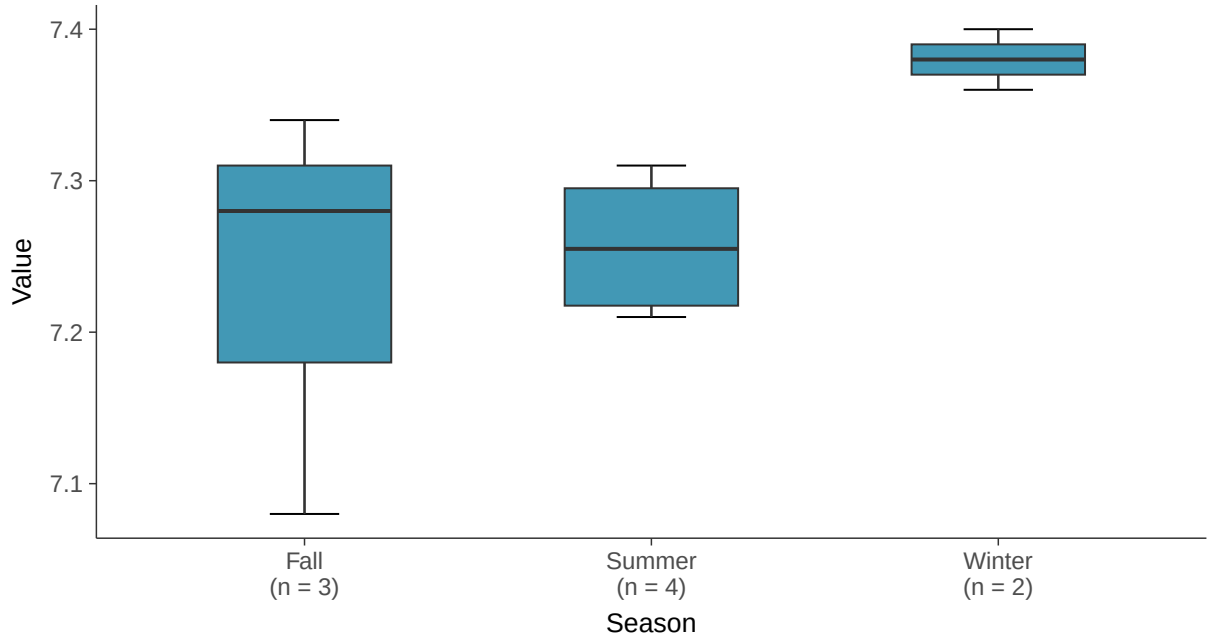
Boxplot

pH, Field, MW-100A (su)



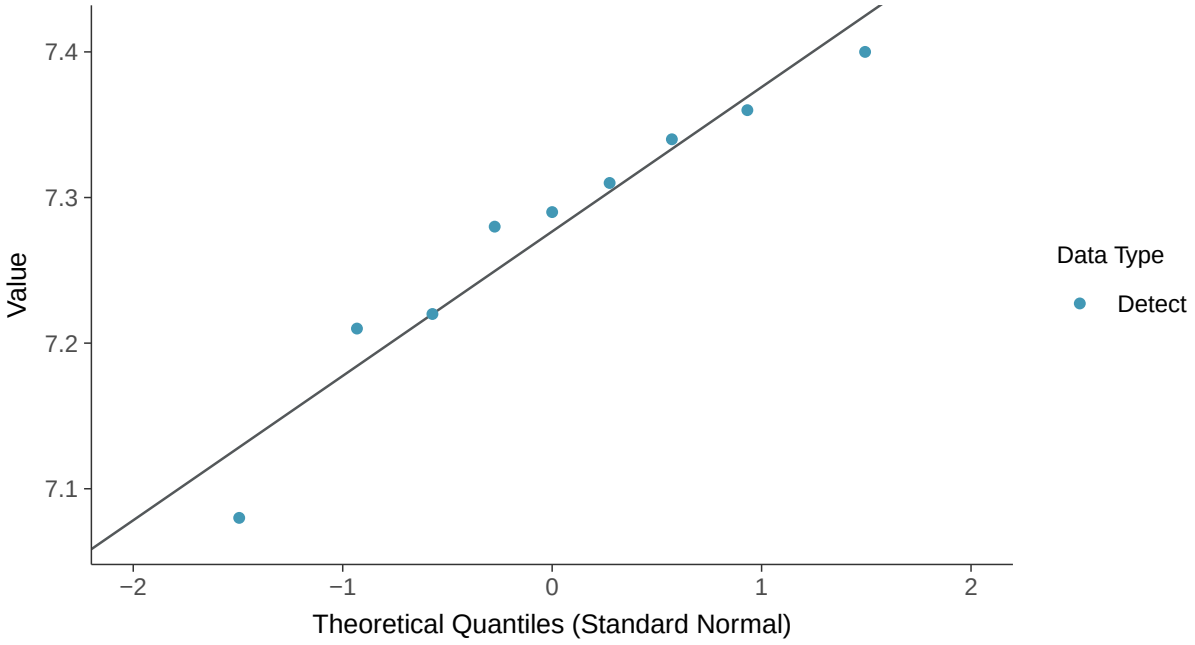
Boxplot by Season

pH, Field, MW-100A (su)



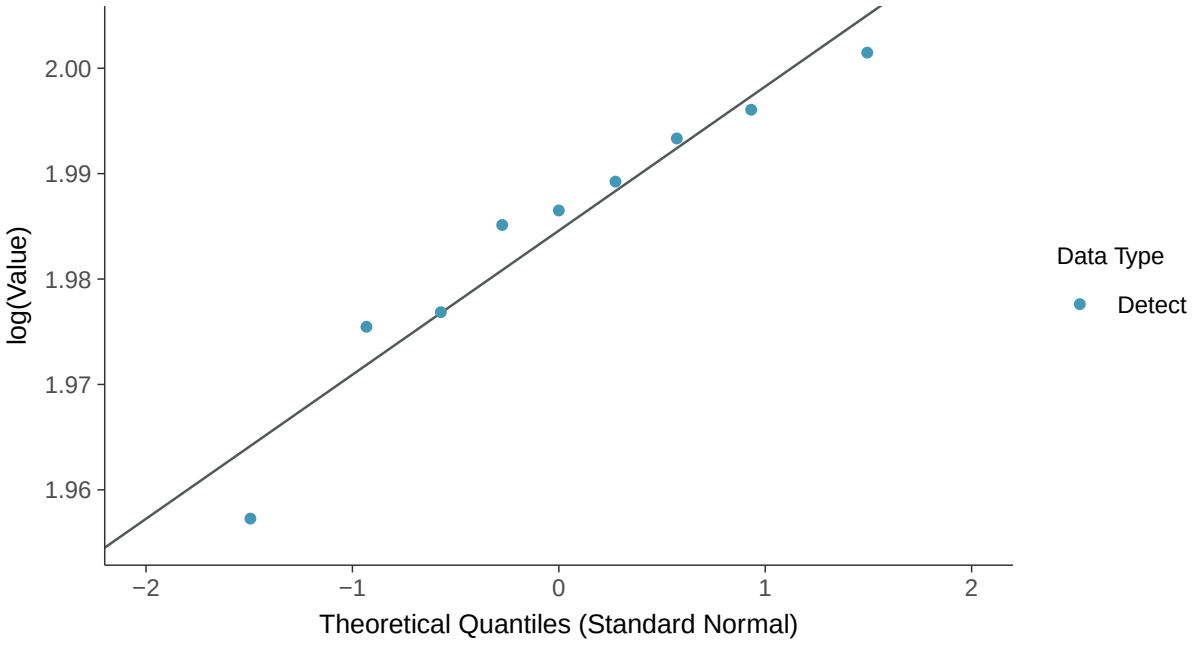
Normal Q-Q plot

pH, Field, MW-100A (su)



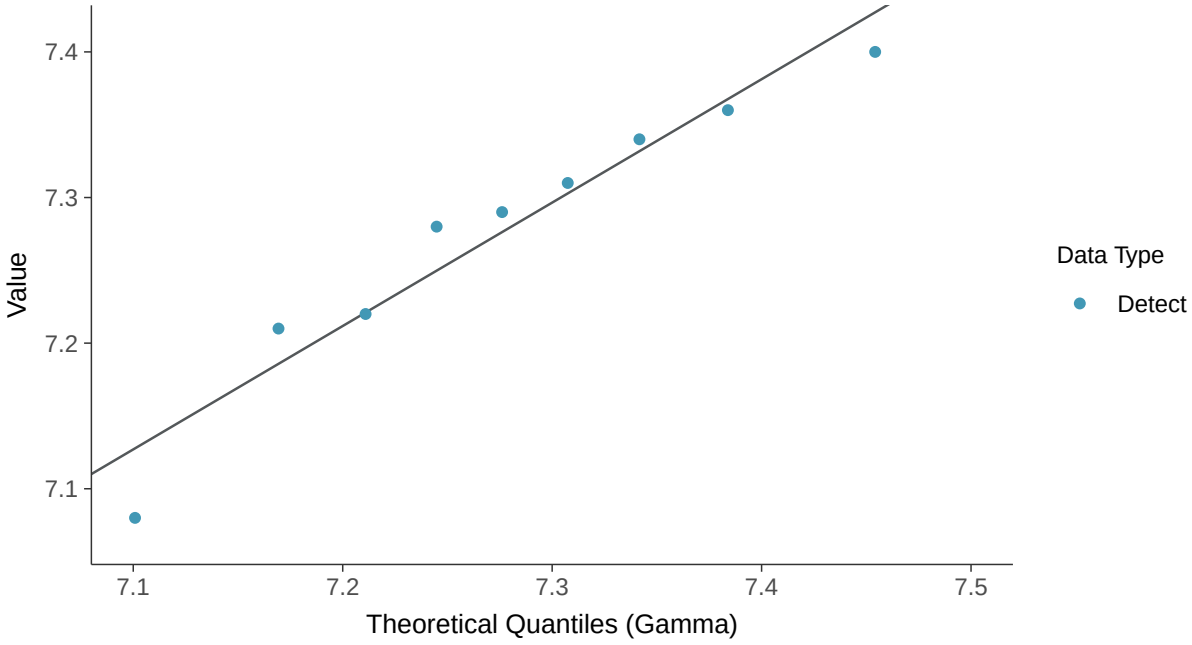
Lognormal Q-Q plot

pH, Field, MW-100A (su)



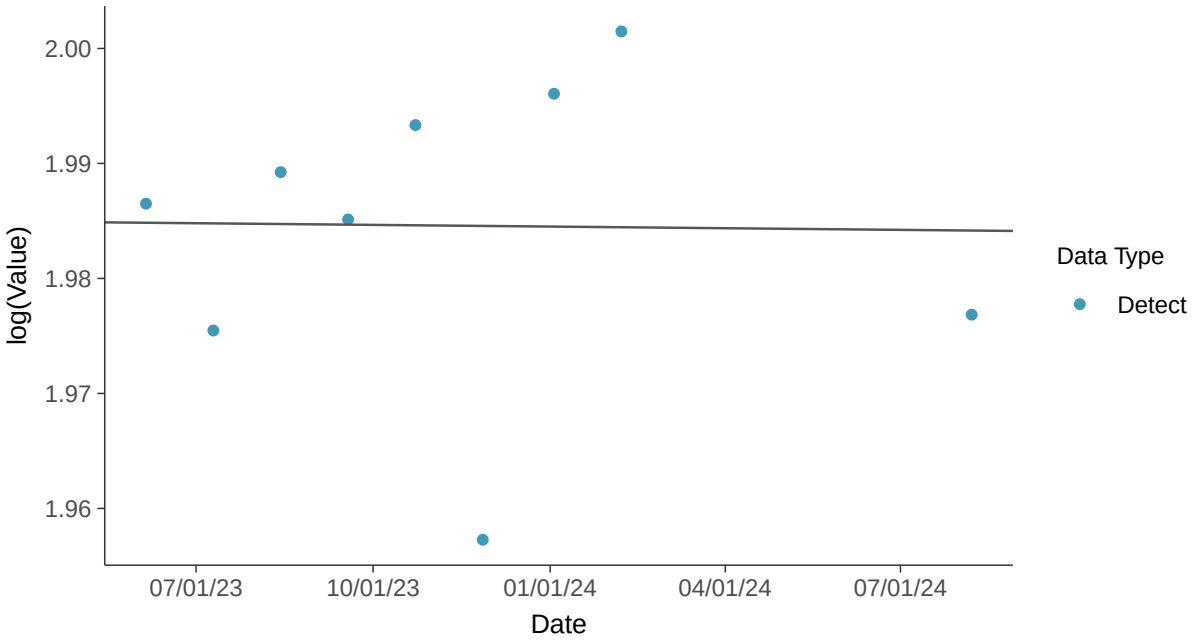
Gamma Q-Q plot

pH, Field, MW-100A (su)



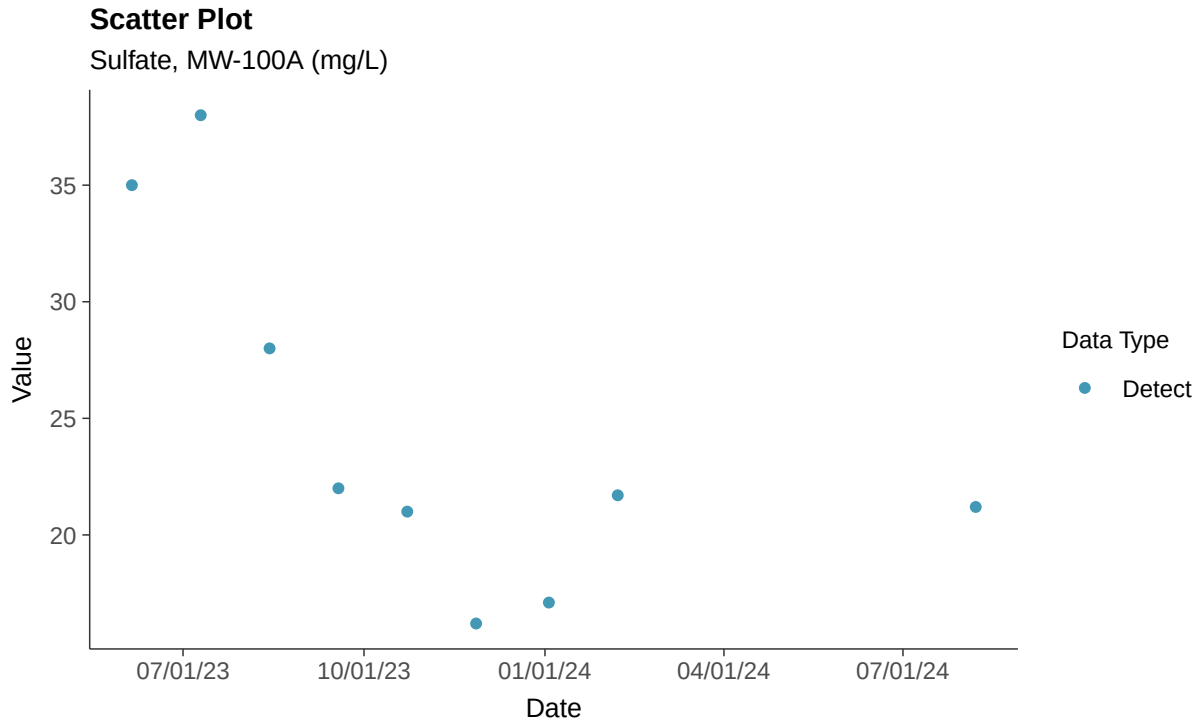
Trend Regression: Lognormal MLE

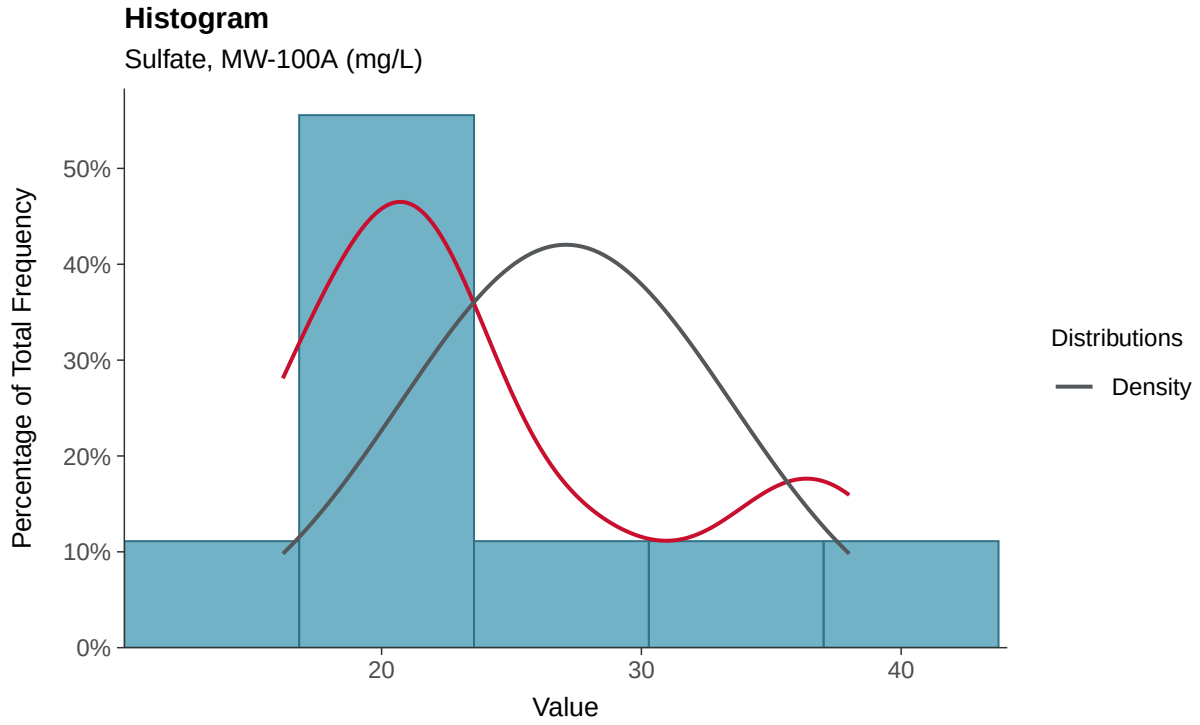
pH, Field, MW-100A (su)



Appendix III: Sulfate, MW-100A

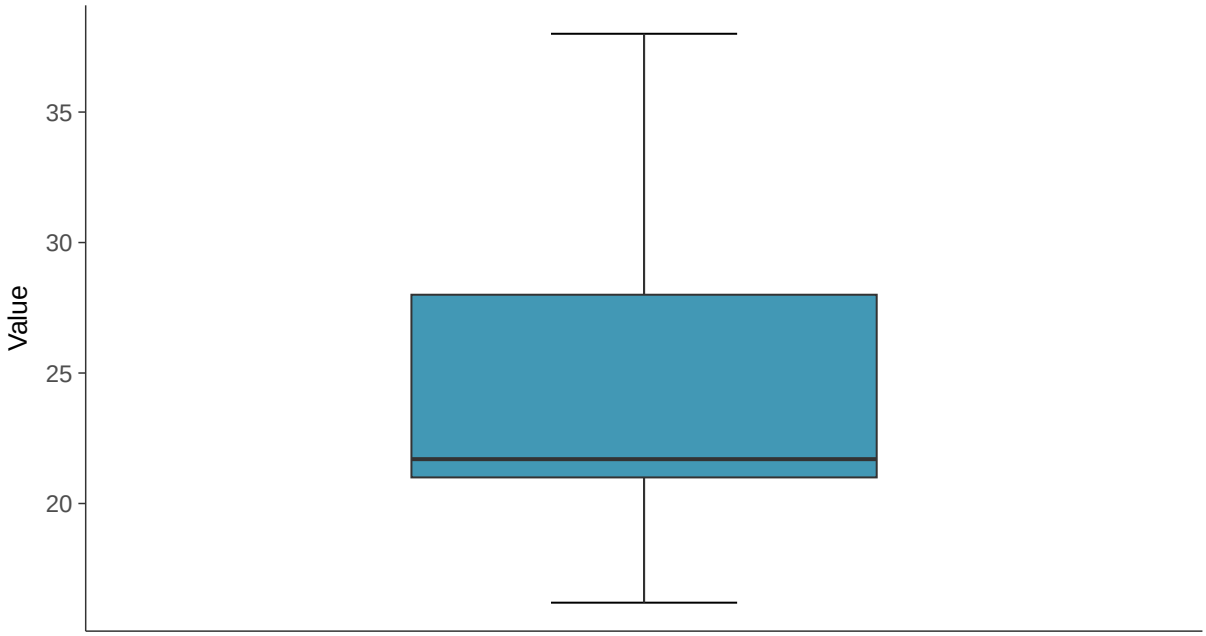
ID: 100A_1_06





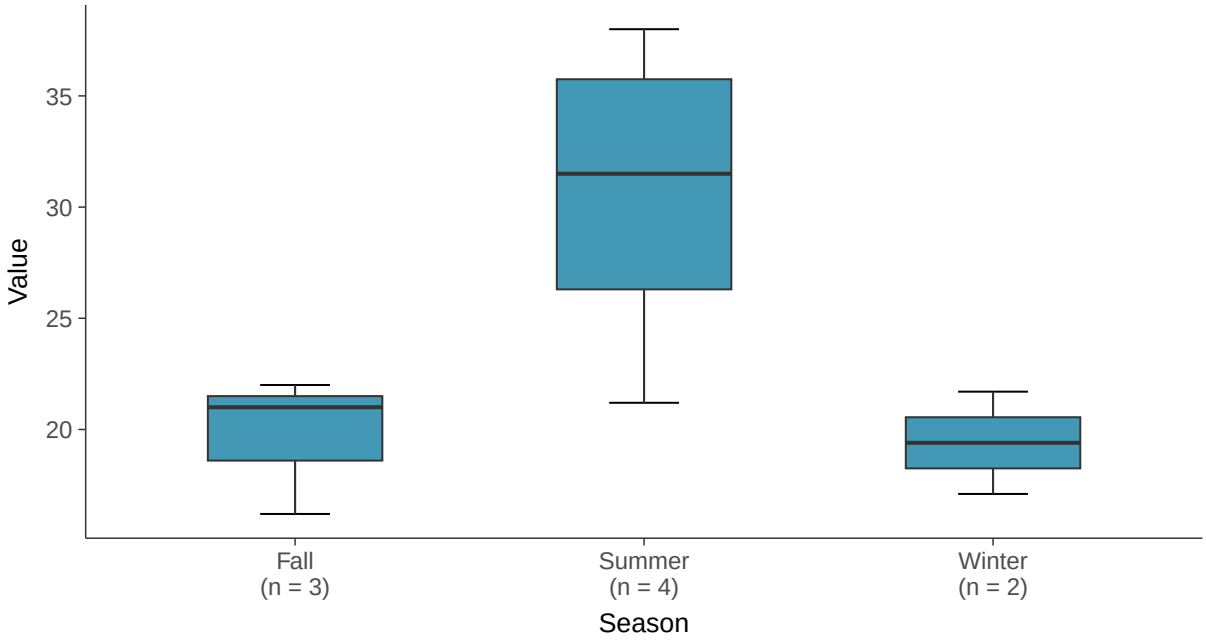
Boxplot

Sulfate, MW-100A (mg/L)



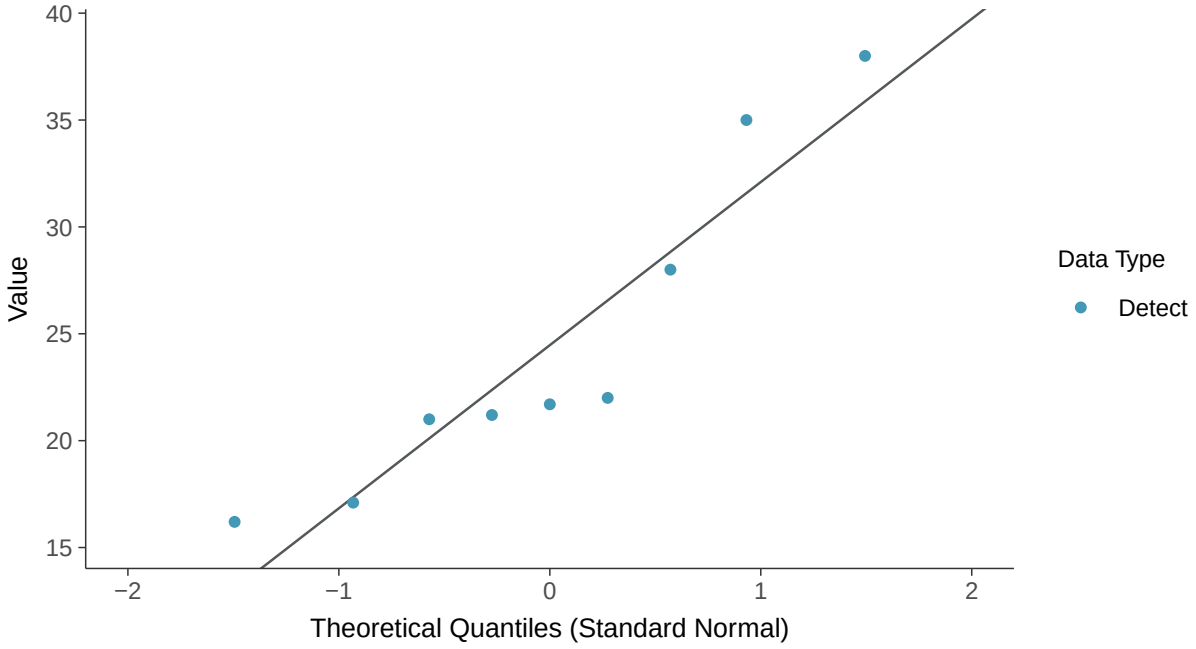
Boxplot by Season

Sulfate, MW-100A (mg/L)



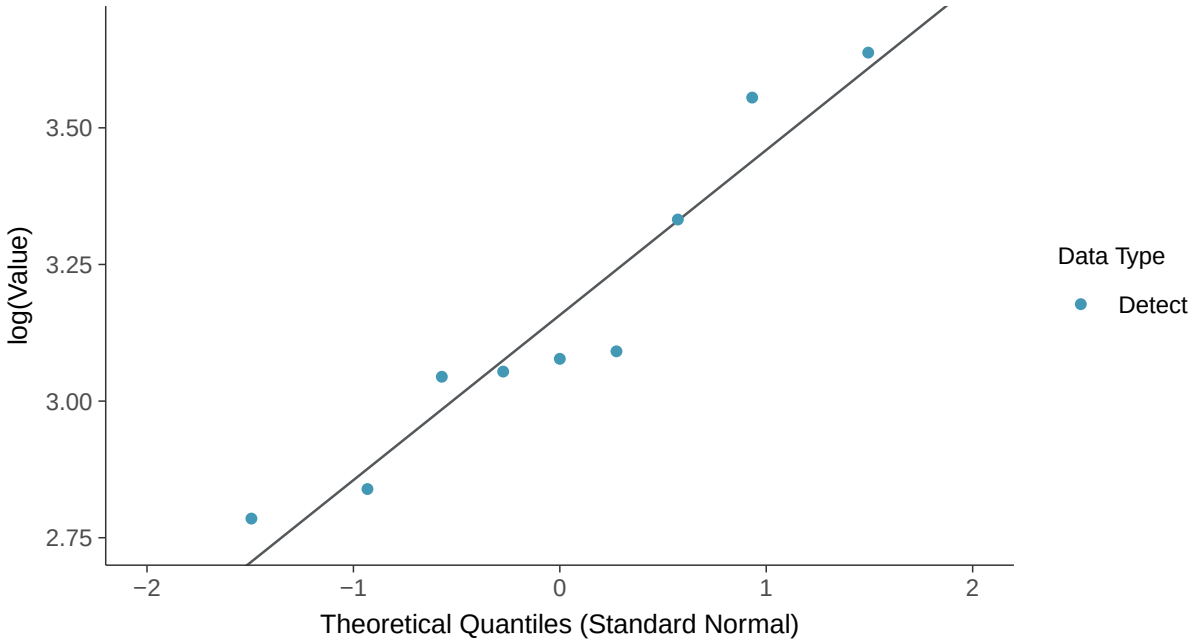
Normal Q-Q plot

Sulfate, MW-100A (mg/L)



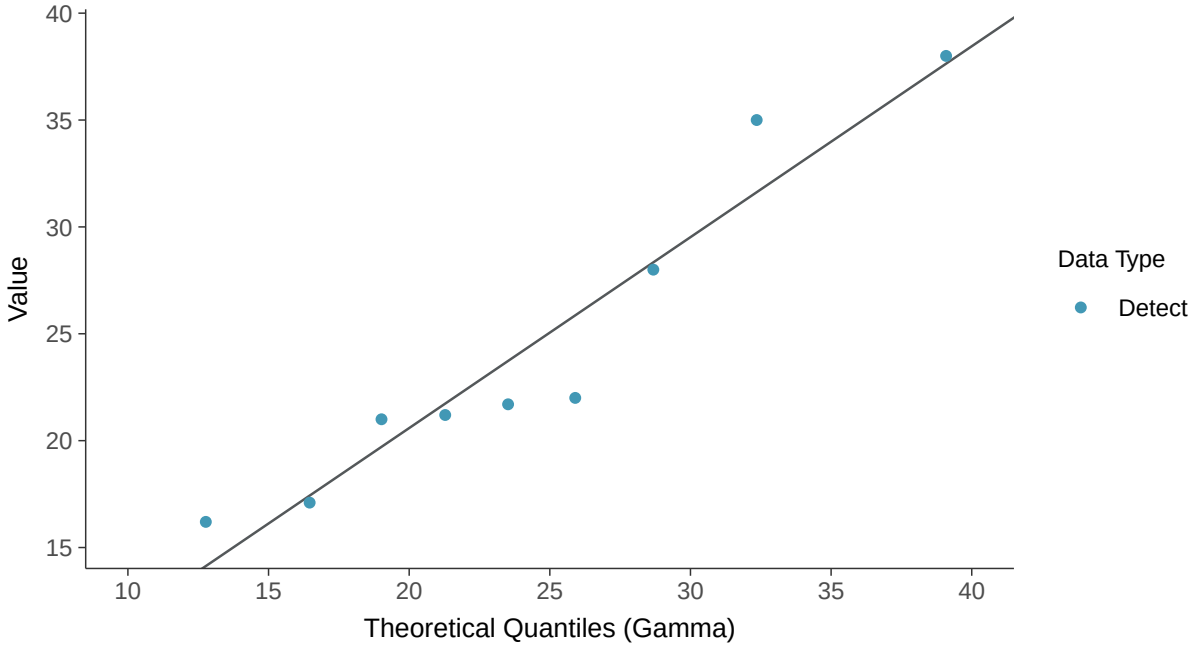
Lognormal Q-Q plot

Sulfate, MW-100A (mg/L)



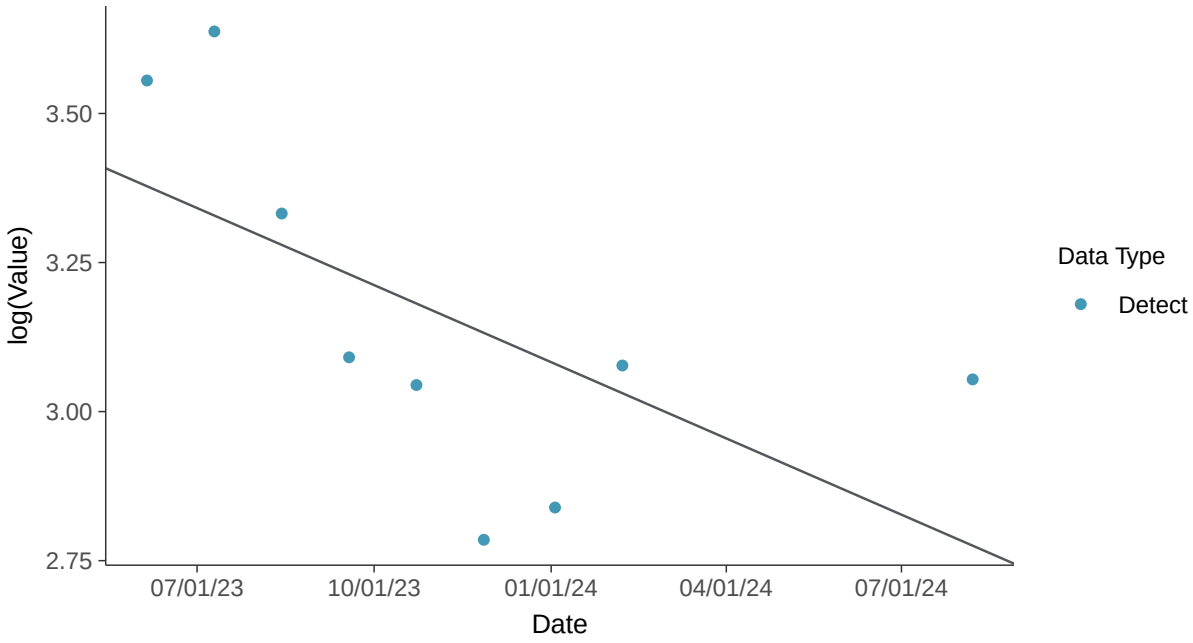
Gamma Q-Q plot

Sulfate, MW-100A (mg/L)



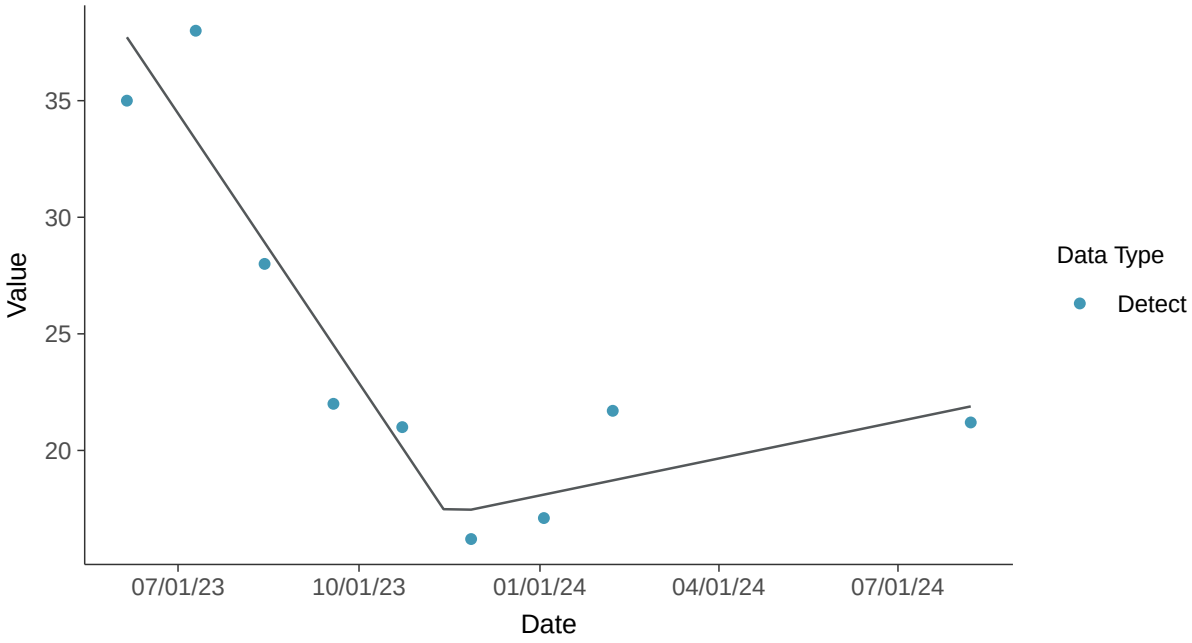
Trend Regression: Lognormal MLE

Sulfate, MW-100A (mg/L)



Trend Regression: Piecewise Linear-Linear

Sulfate, MW-100A (mg/L)

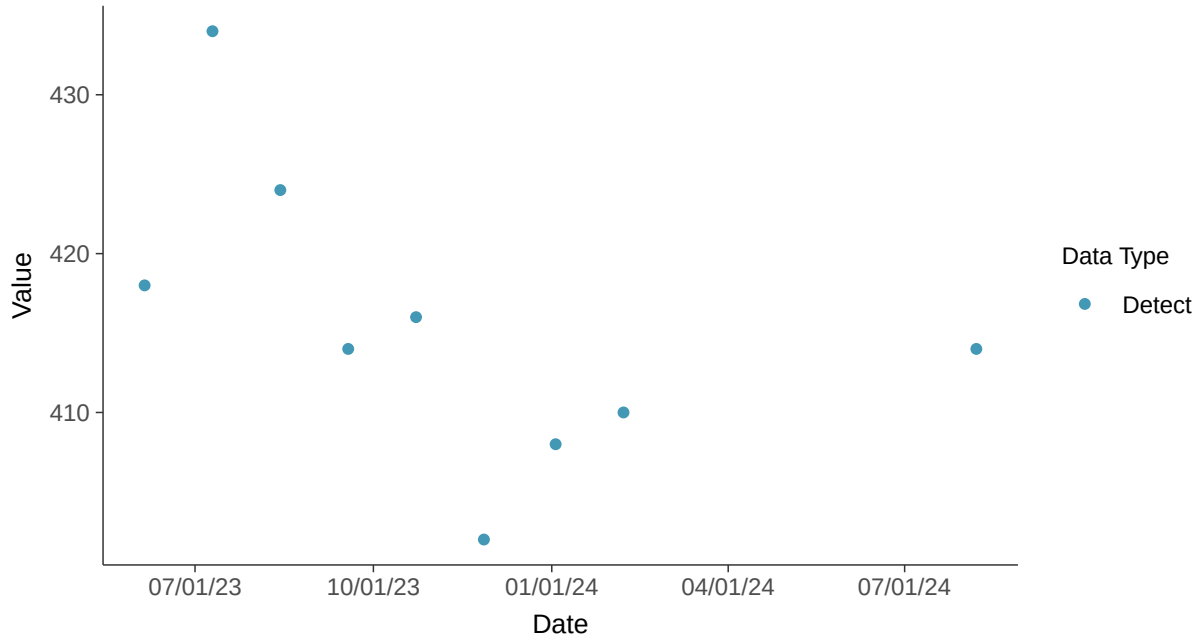


Appendix III: Total Dissolved Solids, MW-100A

ID: 100A_1_07

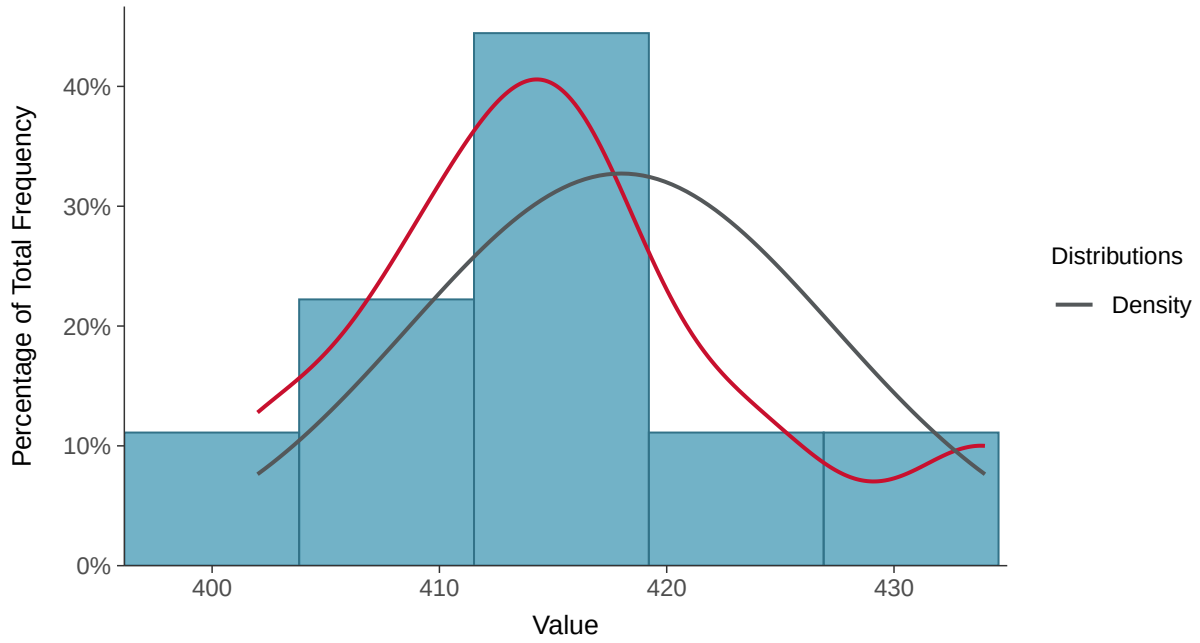
Scatter Plot

Total Dissolved Solids, MW-100A (mg/L)



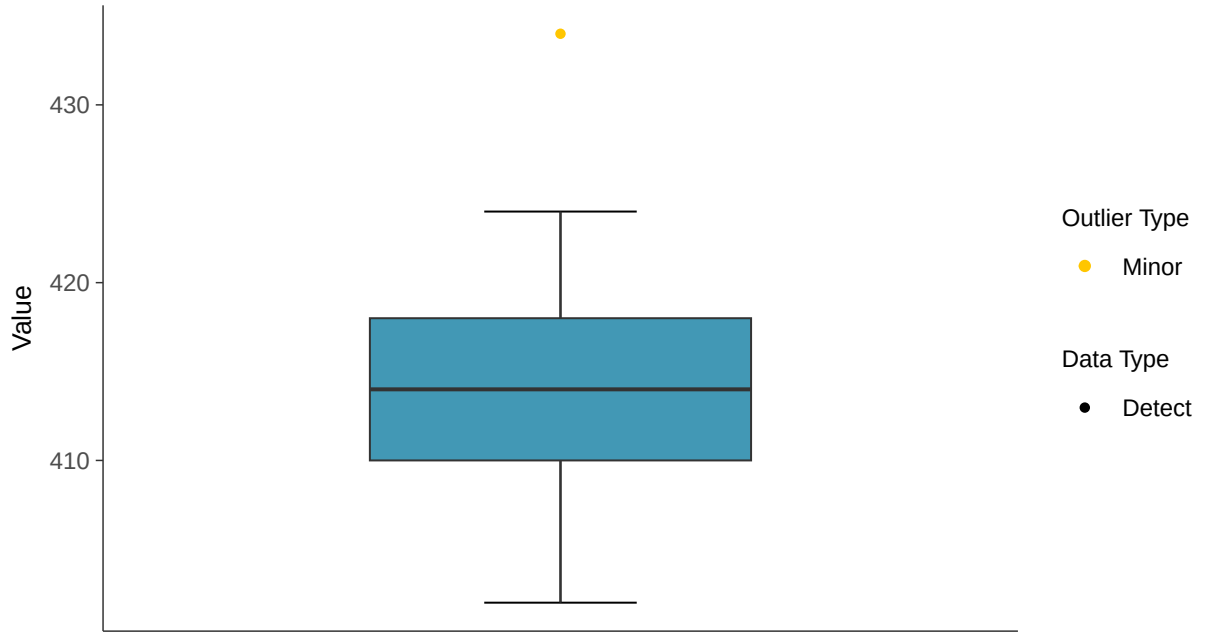
Histogram

Total Dissolved Solids, MW-100A (mg/L)



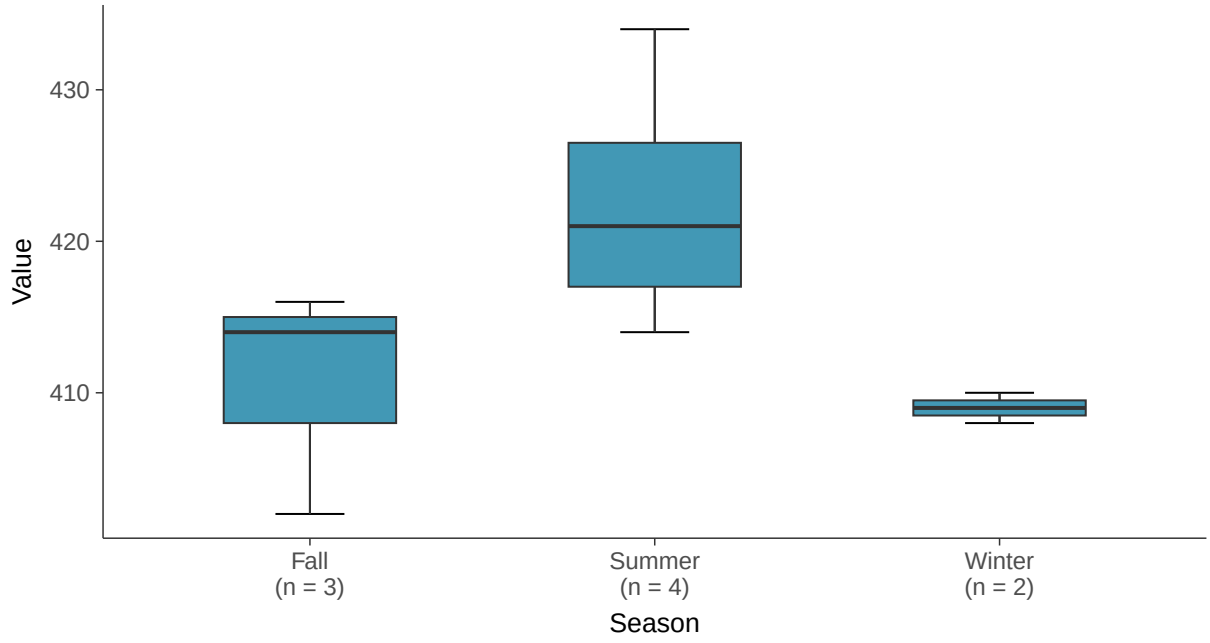
Boxplot

Total Dissolved Solids, MW-100A (mg/L)



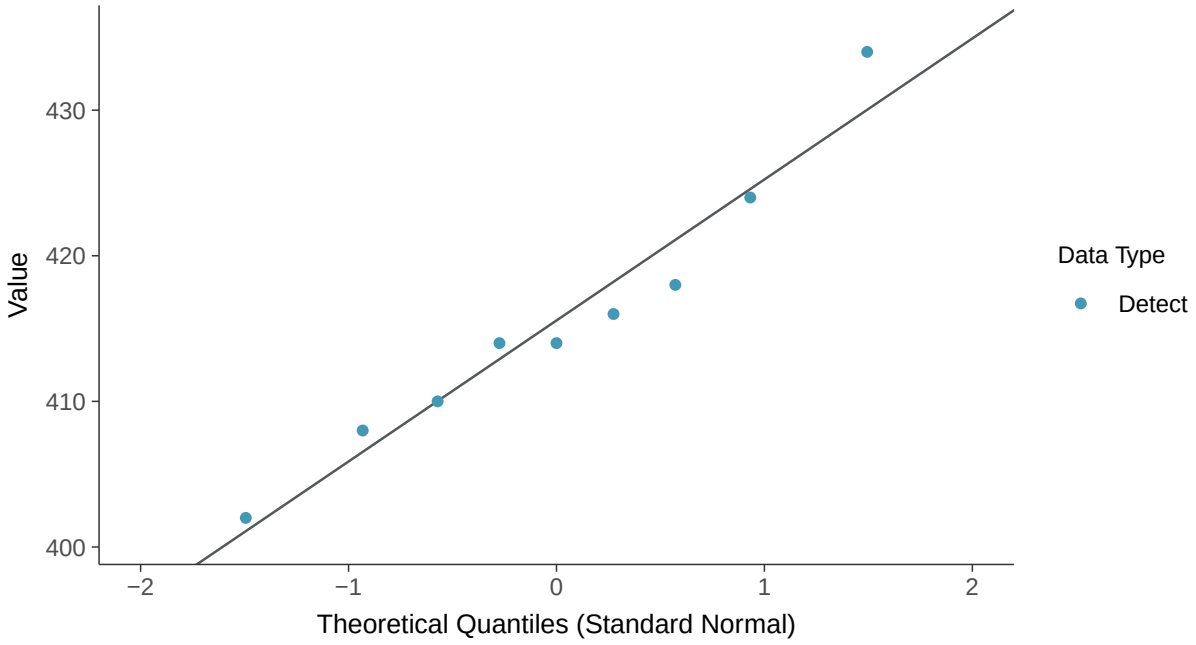
Boxplot by Season

Total Dissolved Solids, MW-100A (mg/L)



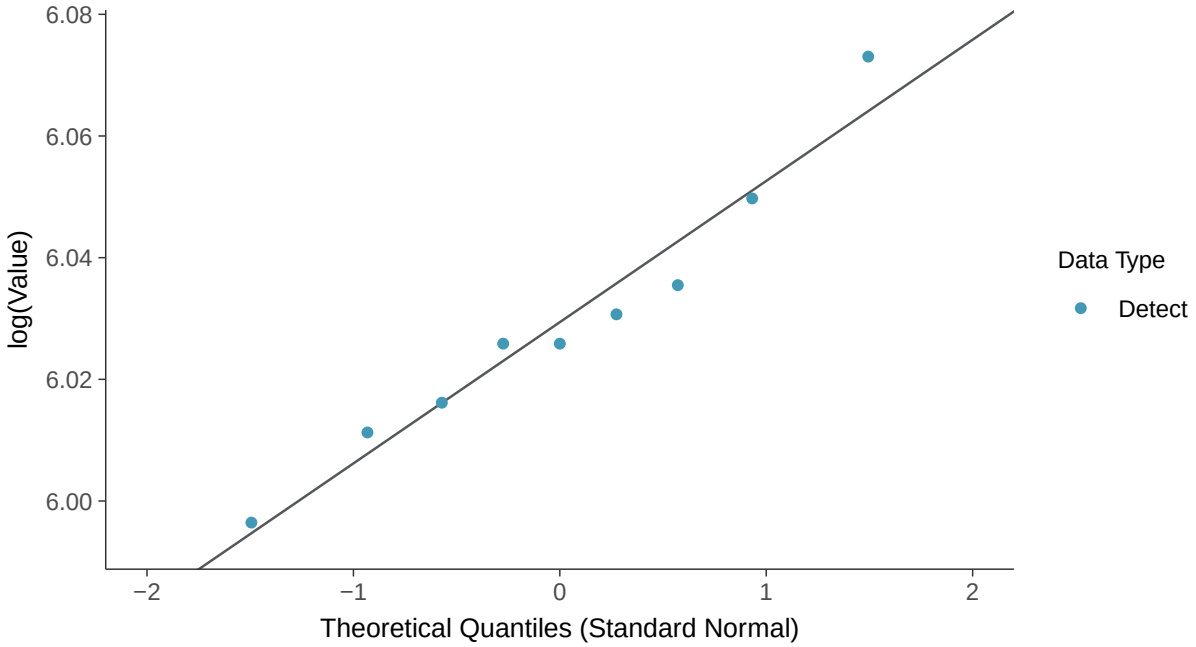
Normal Q-Q plot

Total Dissolved Solids, MW-100A (mg/L)



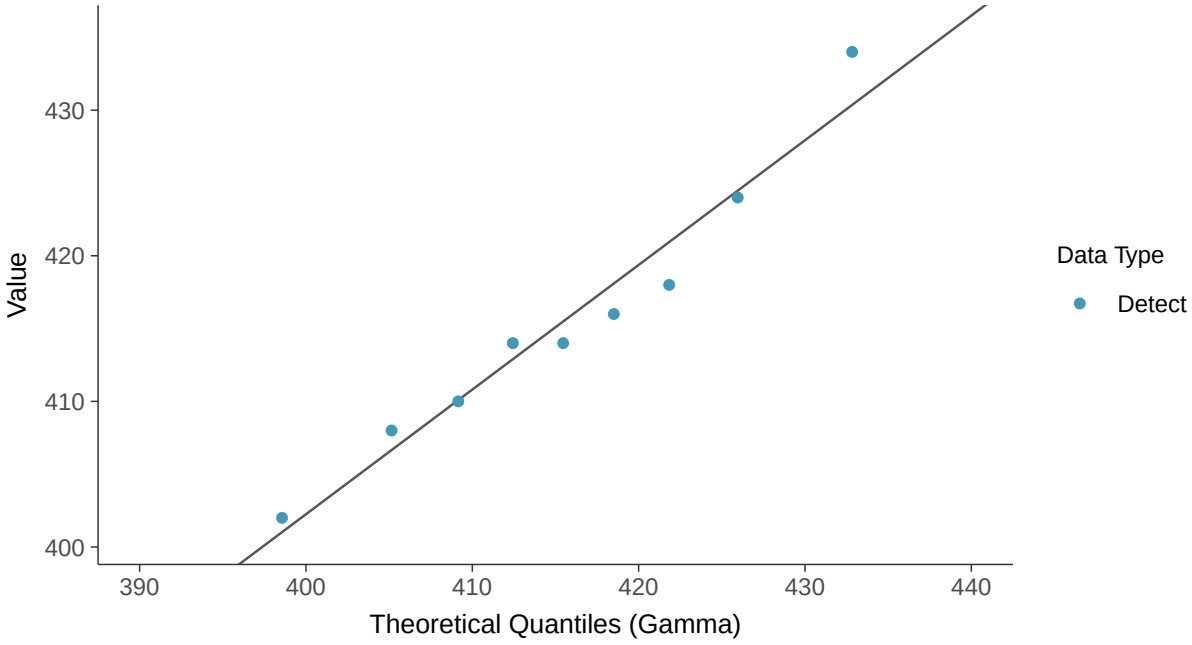
Lognormal Q-Q plot

Total Dissolved Solids, MW-100A (mg/L)



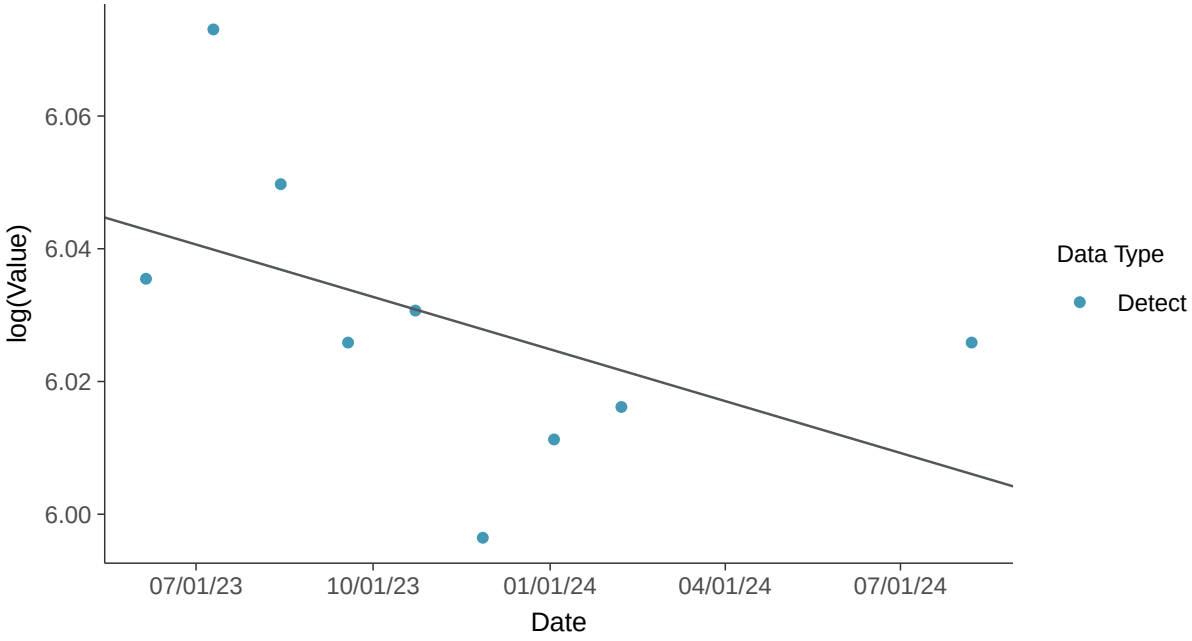
Gamma Q-Q plot

Total Dissolved Solids, MW-100A (mg/L)



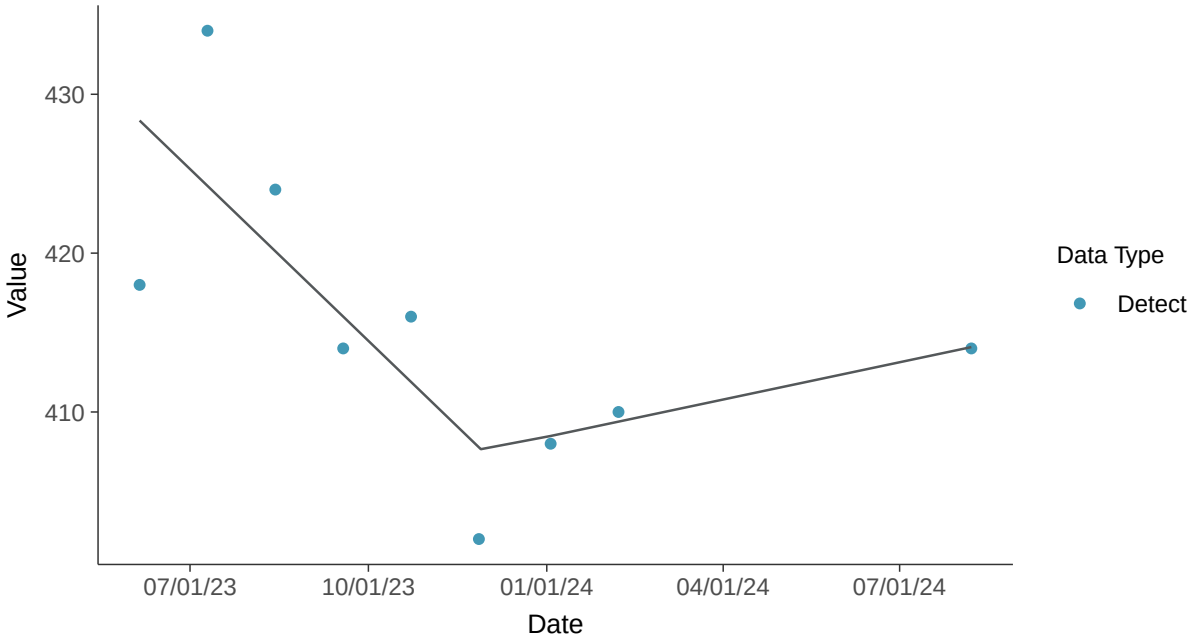
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-100A (mg/L)



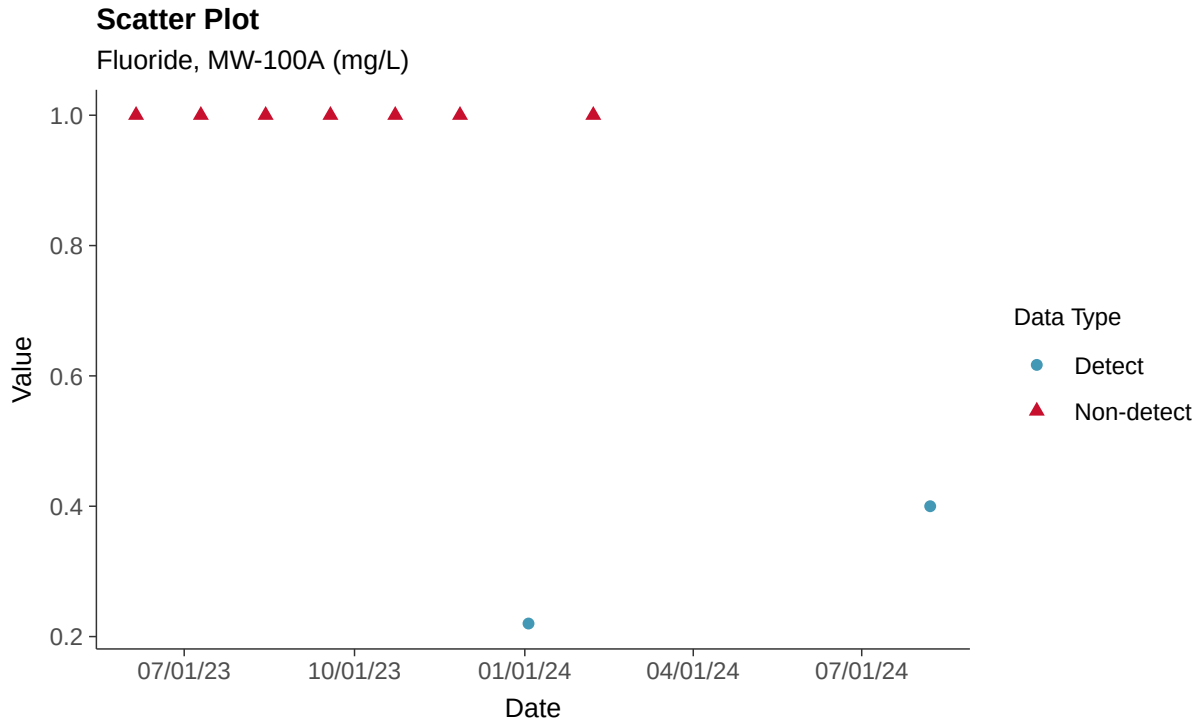
Trend Regression: Piecewise Linear-Linear

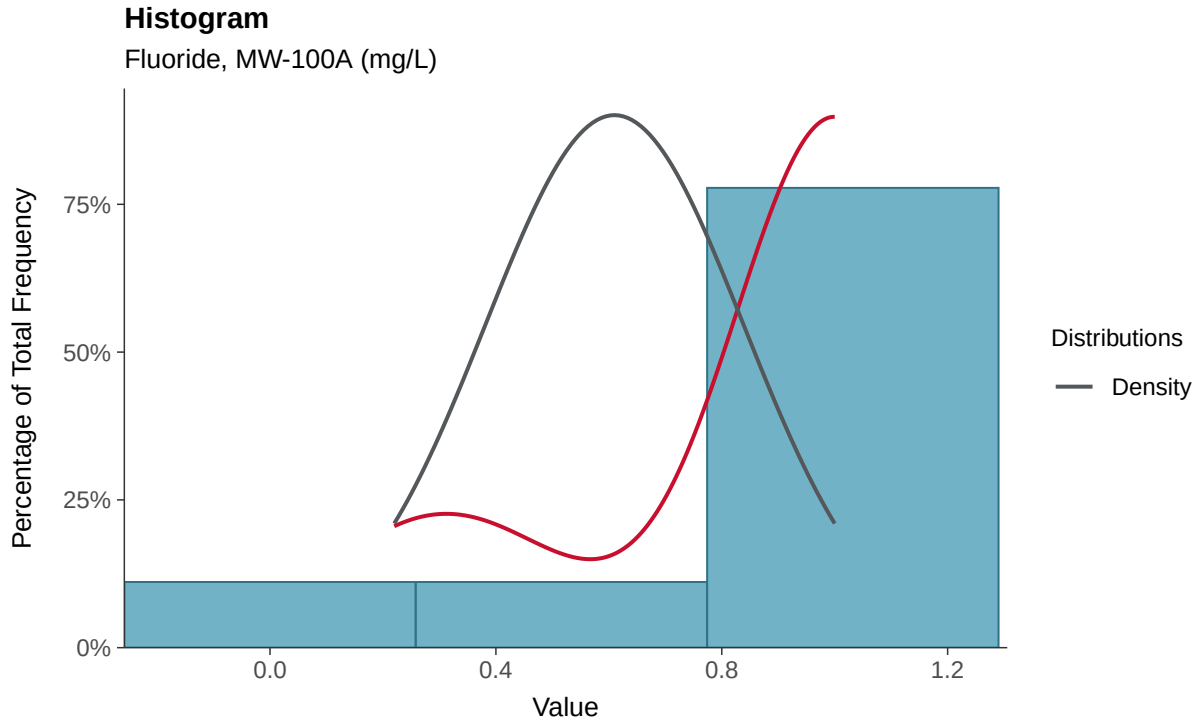
Total Dissolved Solids, MW-100A (mg/L)



Appendix IV: Fluoride, MW-100A

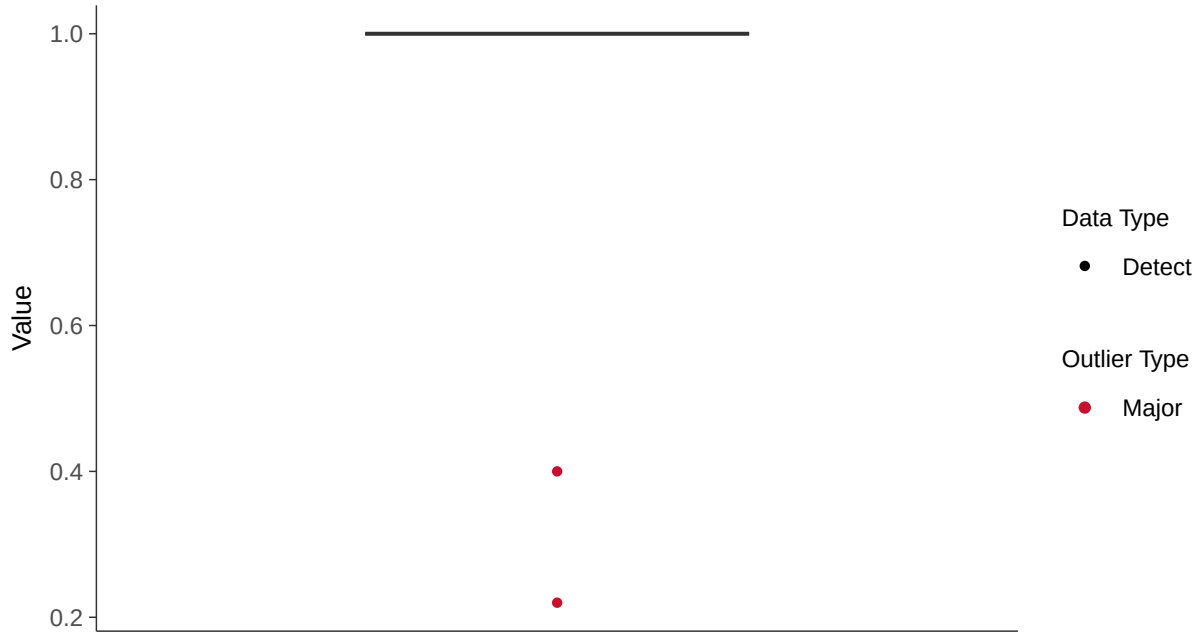
ID: 100A_2_04





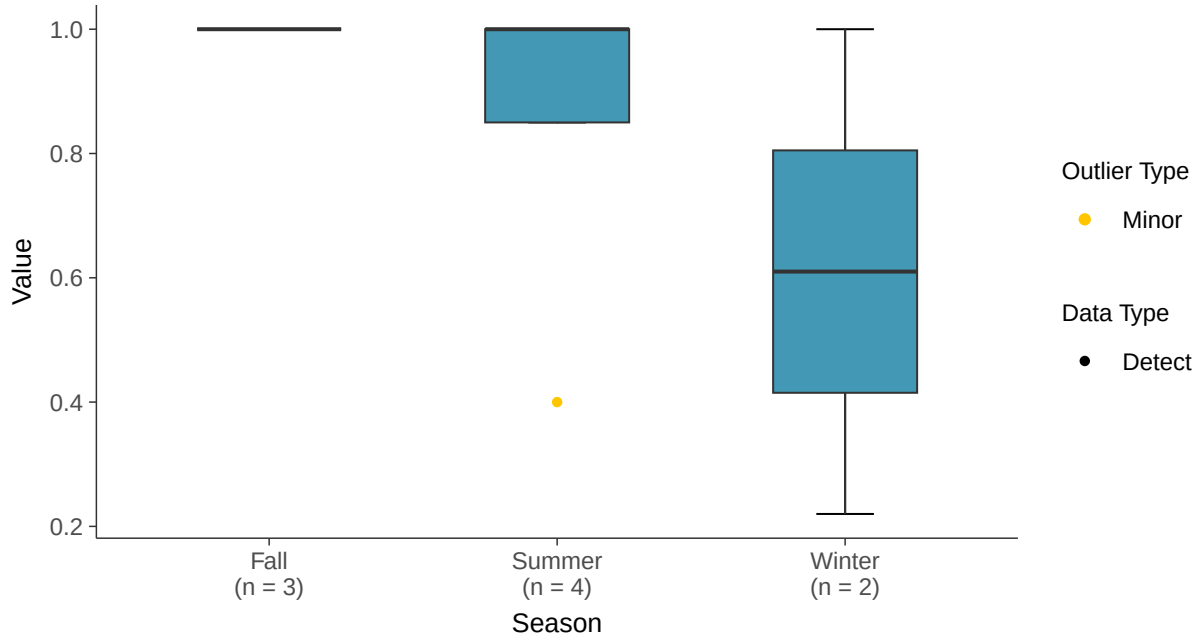
Boxplot

Fluoride, MW-100A (mg/L)



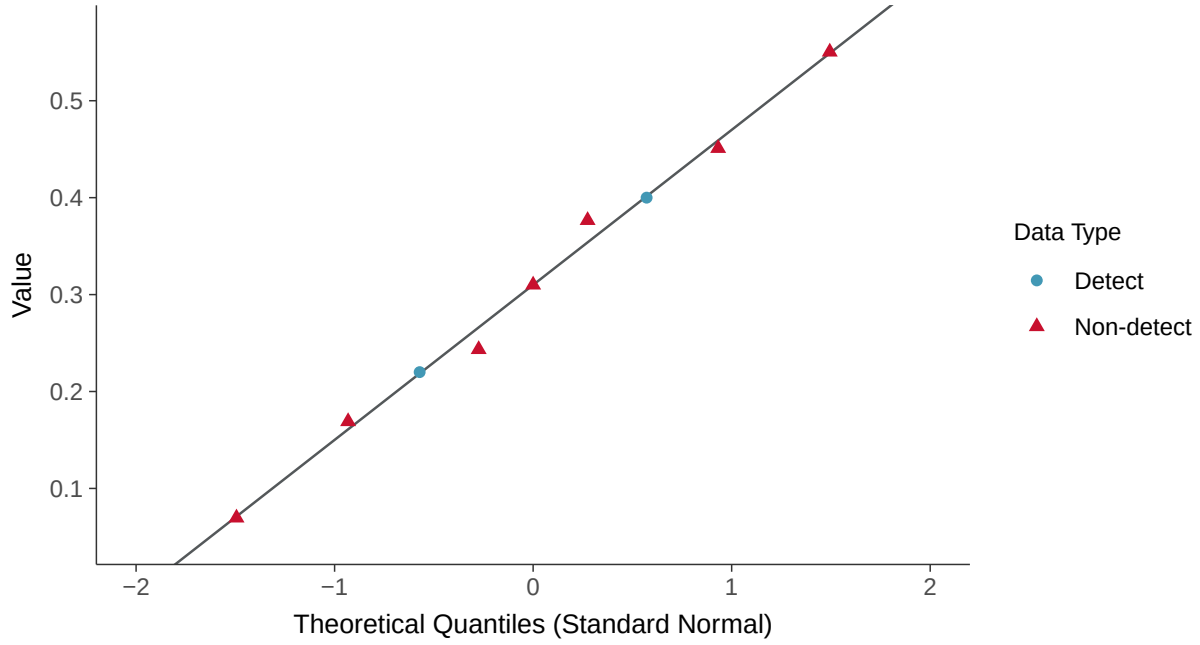
Boxplot by Season

Fluoride, MW-100A (mg/L)



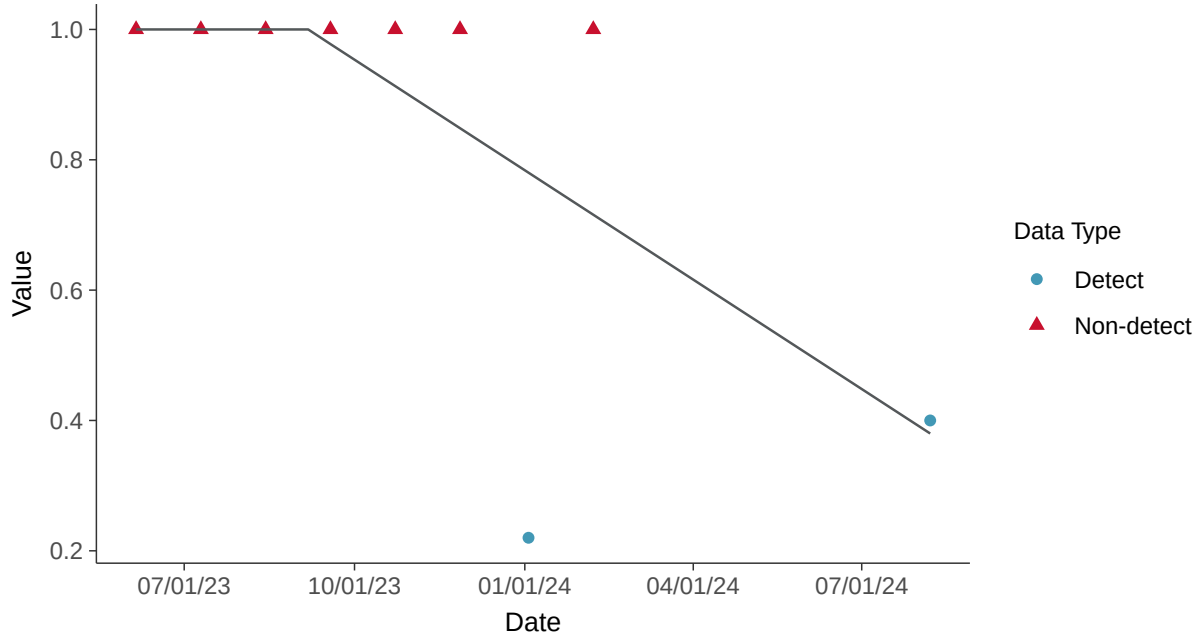
Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-100A (mg/L)



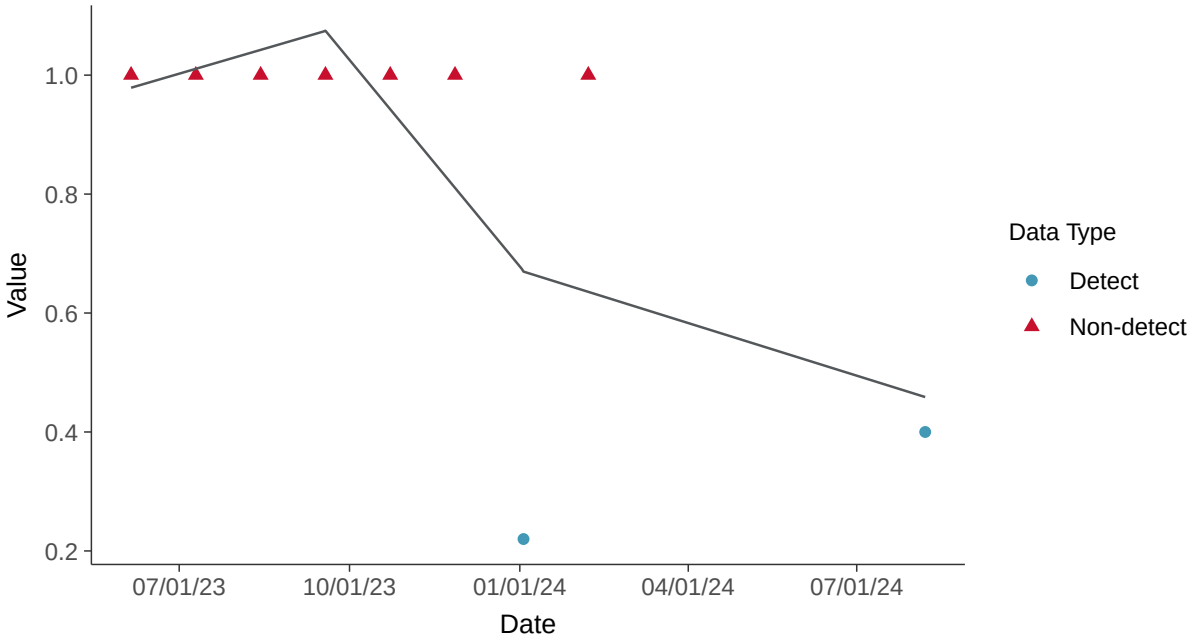
Trend Regression: Piecewise Linear-Linear

Fluoride, MW-100A (mg/L)



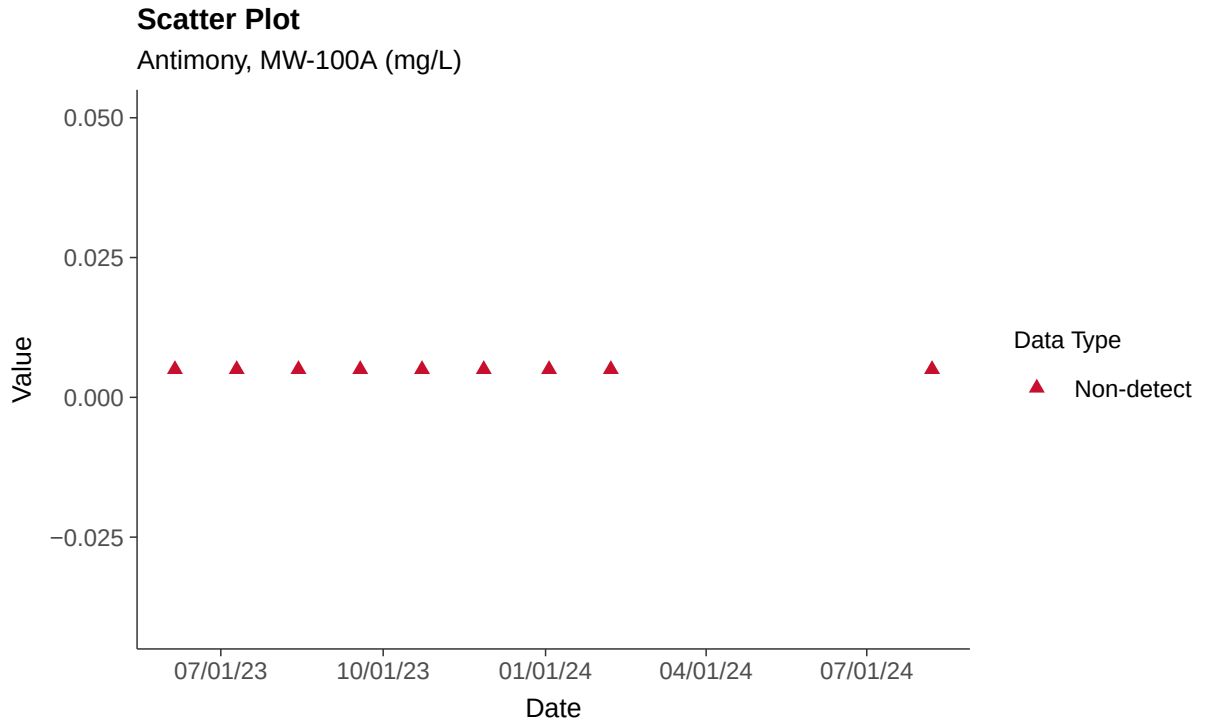
Trend Regression: Piecewise Linear-Linear-Linear

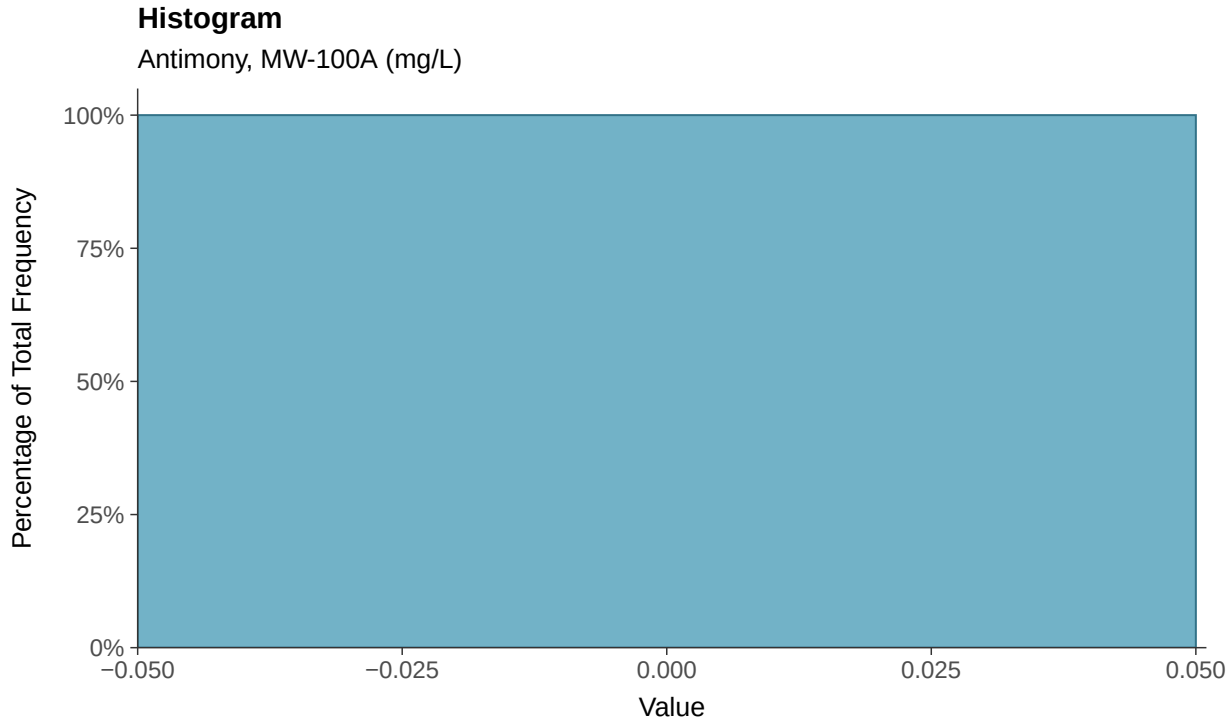
Fluoride, MW-100A (mg/L)



Appendix IV: Antimony, MW-100A

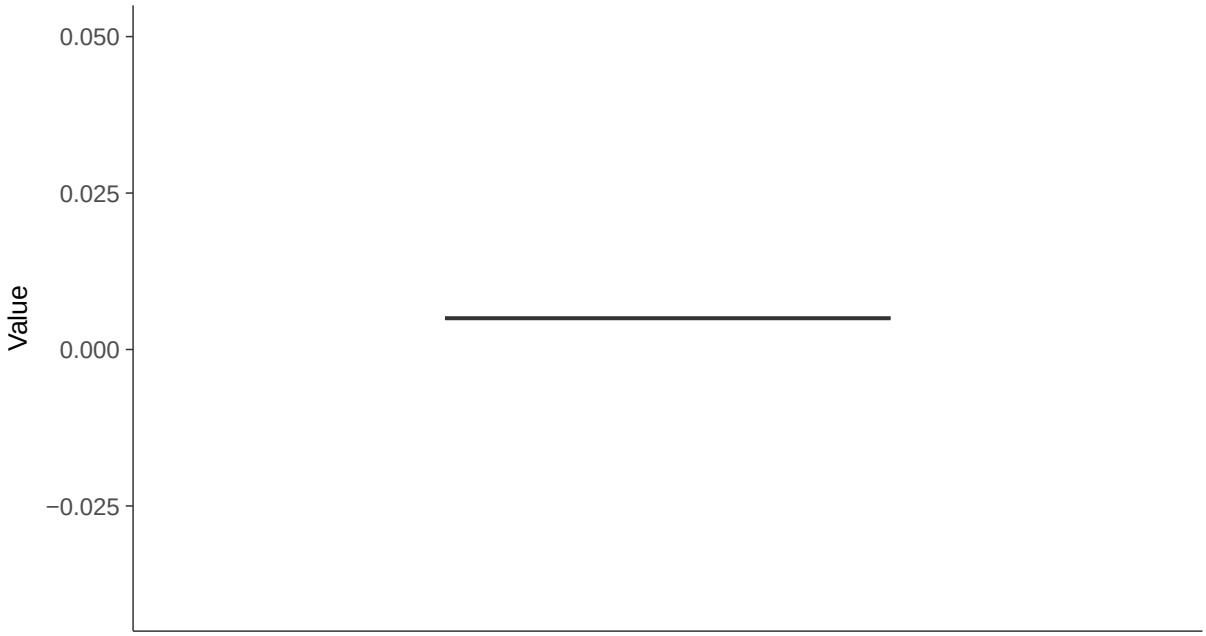
ID: 100A_2_08





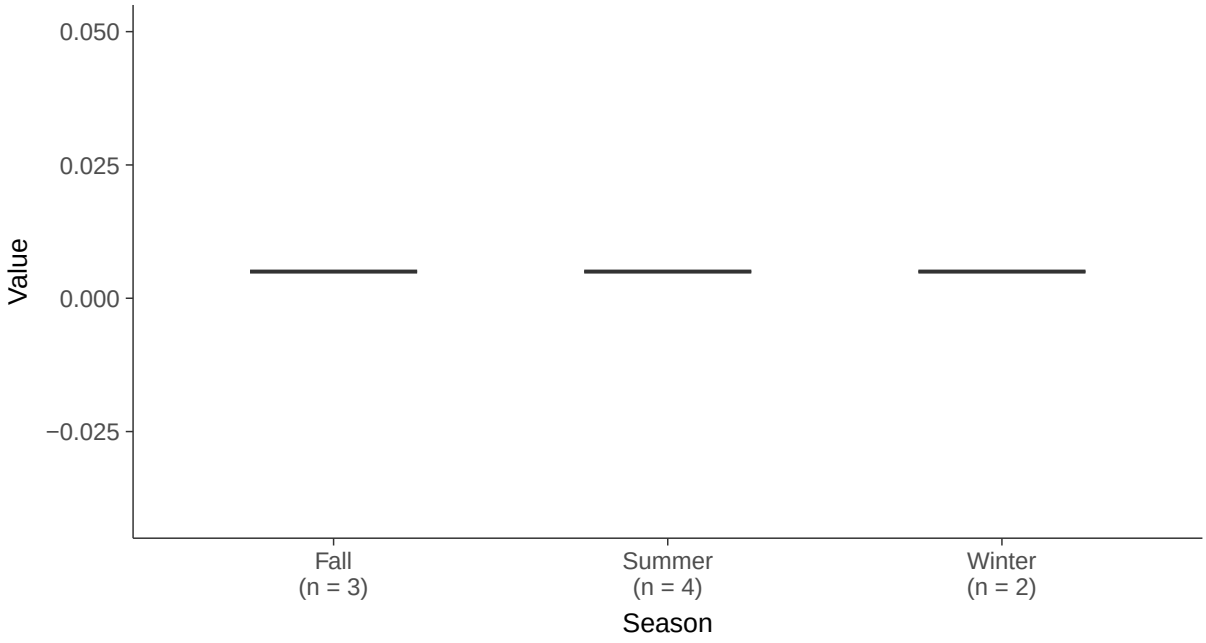
Boxplot

Antimony, MW-100A (mg/L)



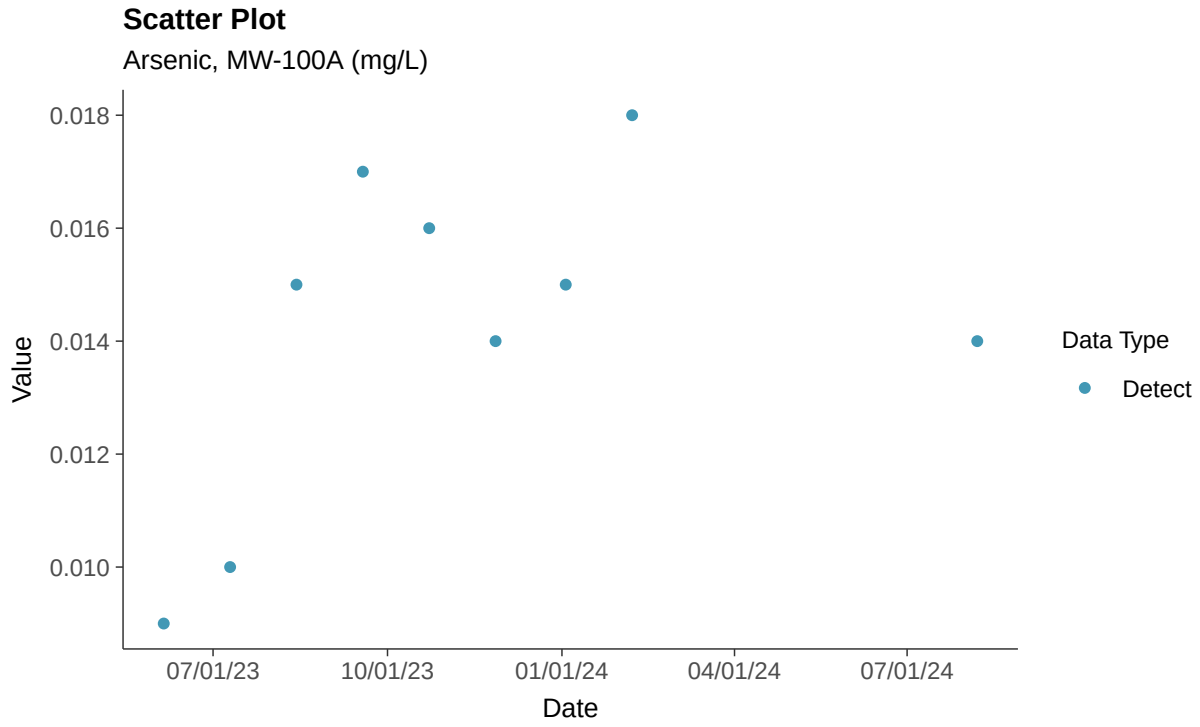
Boxplot by Season

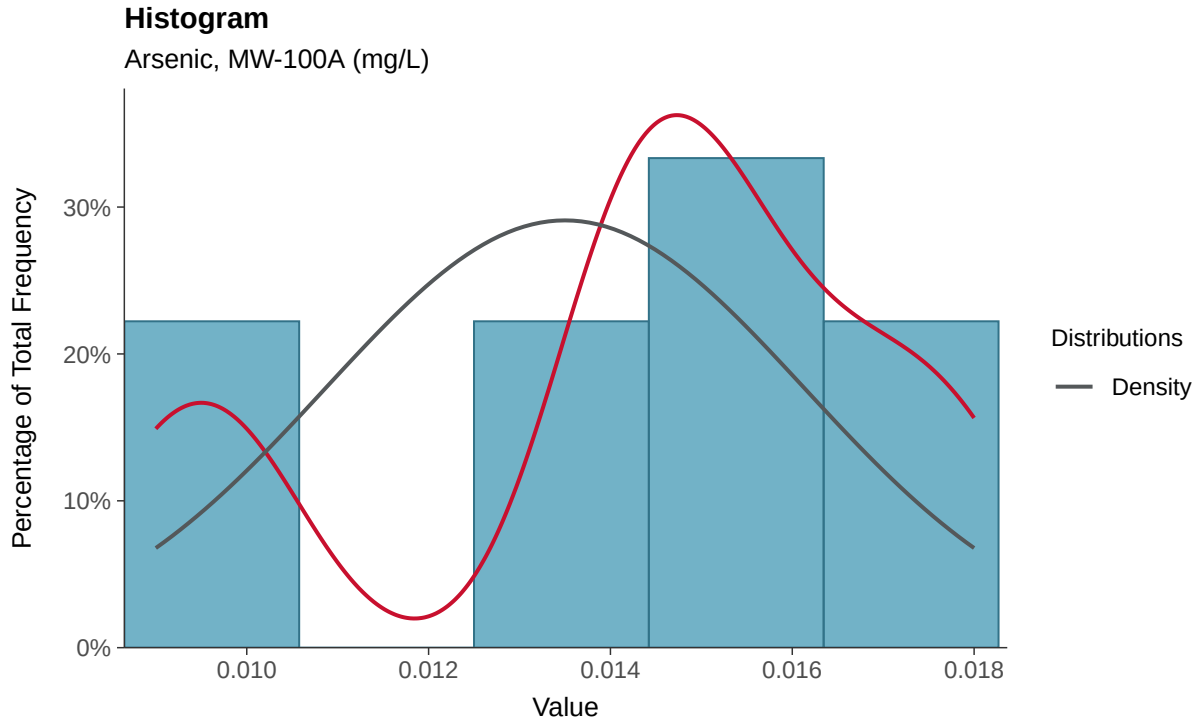
Antimony, MW-100A (mg/L)



Appendix IV: Arsenic, MW-100A

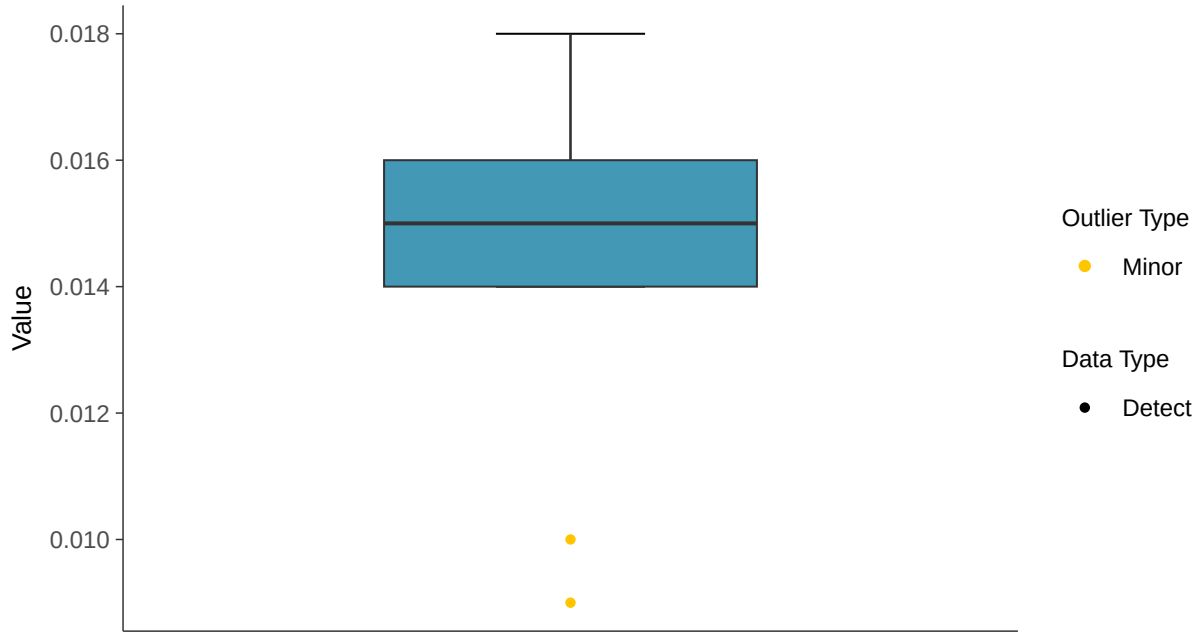
ID: 100A_2_09





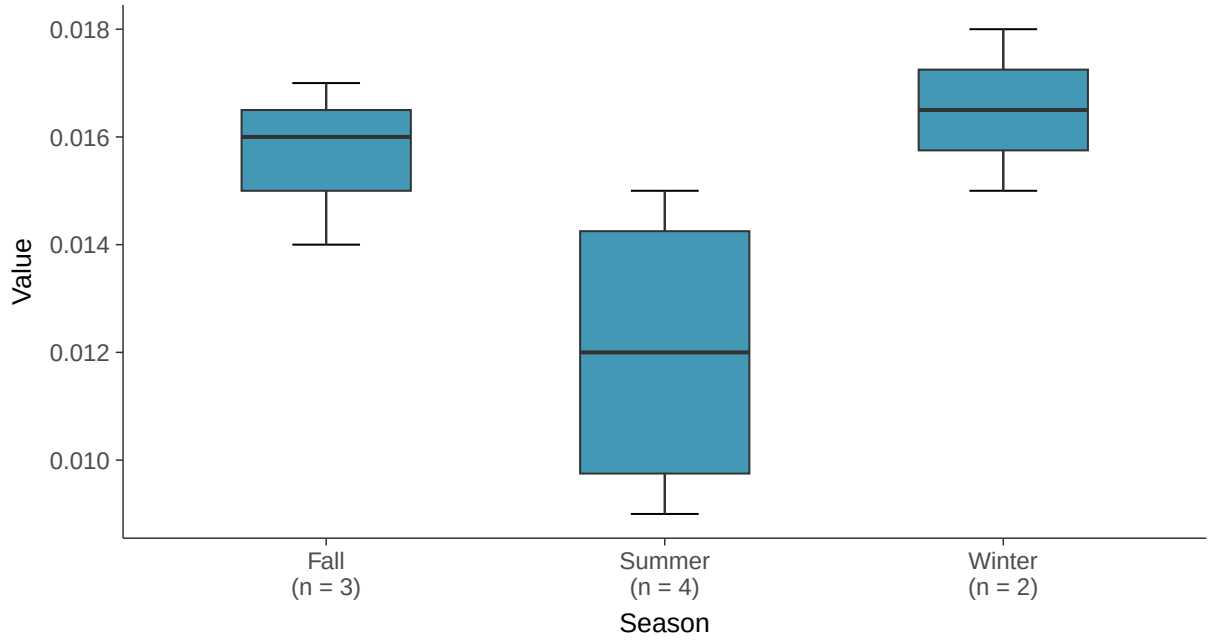
Boxplot

Arsenic, MW-100A (mg/L)



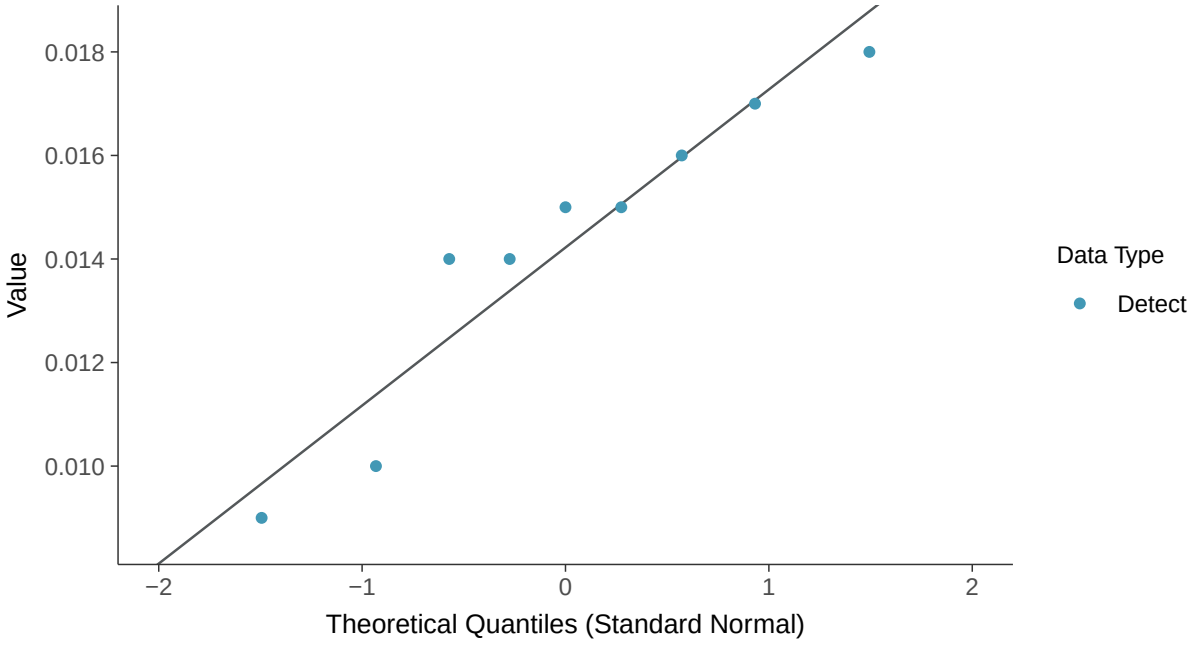
Boxplot by Season

Arsenic, MW-100A (mg/L)



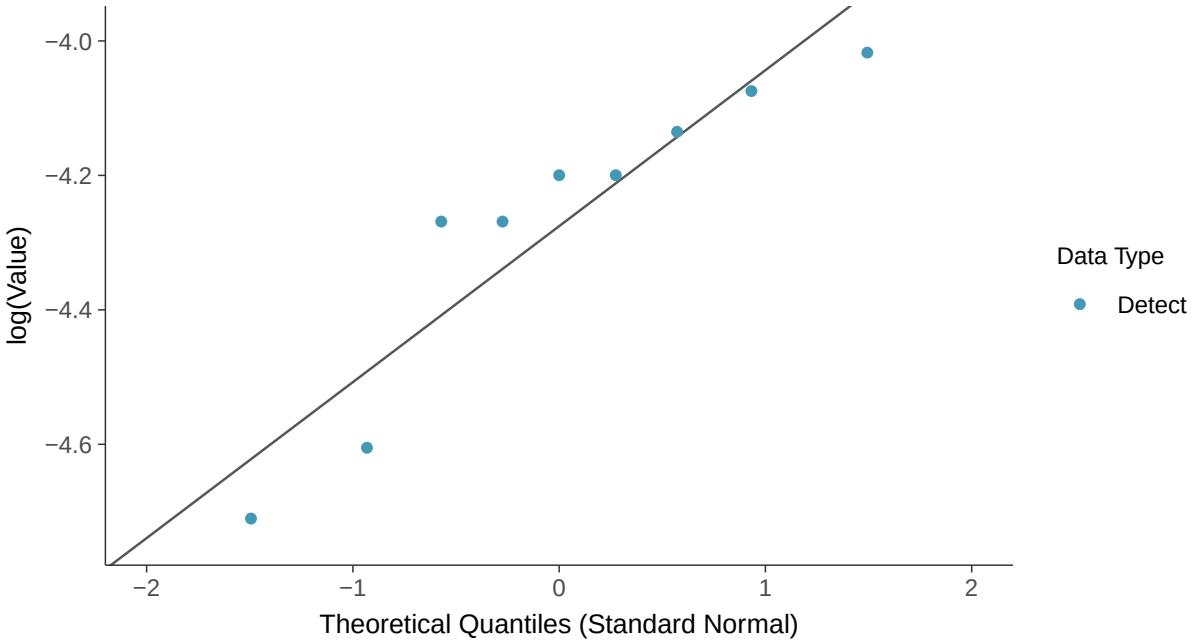
Normal Q-Q plot

Arsenic, MW-100A (mg/L)



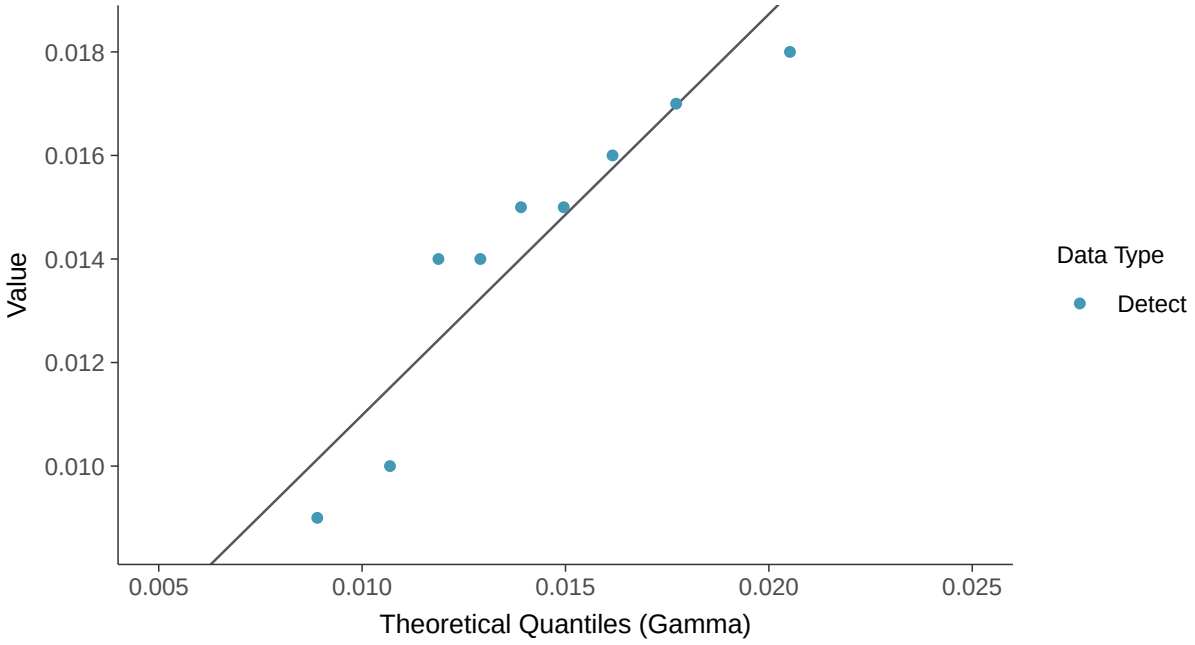
Lognormal Q-Q plot

Arsenic, MW-100A (mg/L)



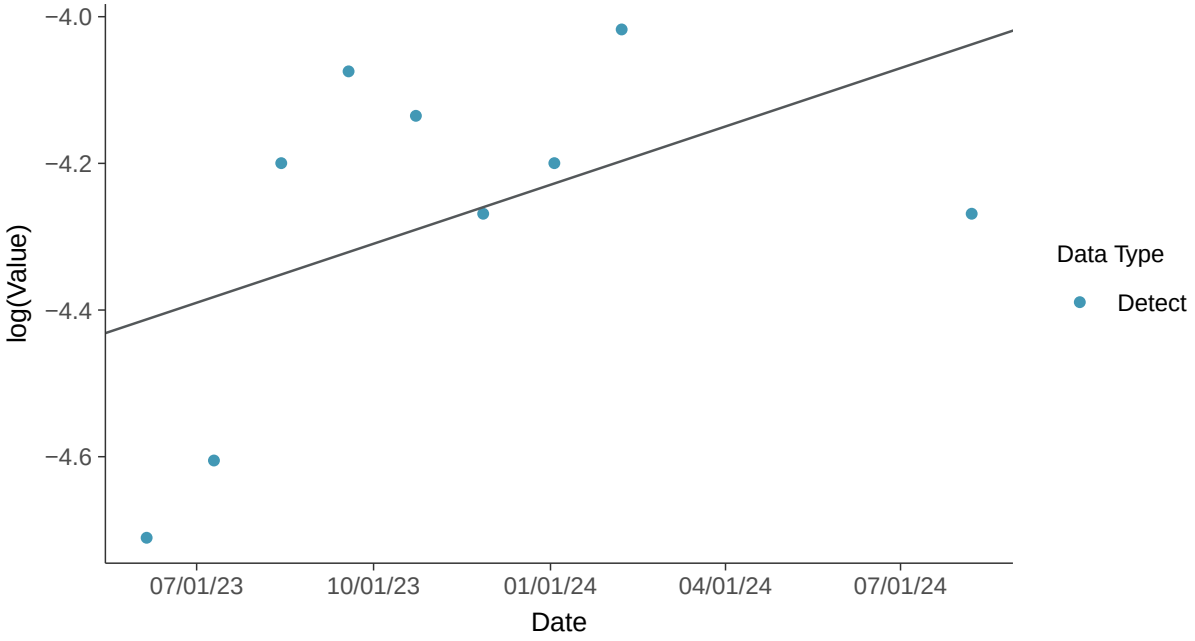
Gamma Q-Q plot

Arsenic, MW-100A (mg/L)



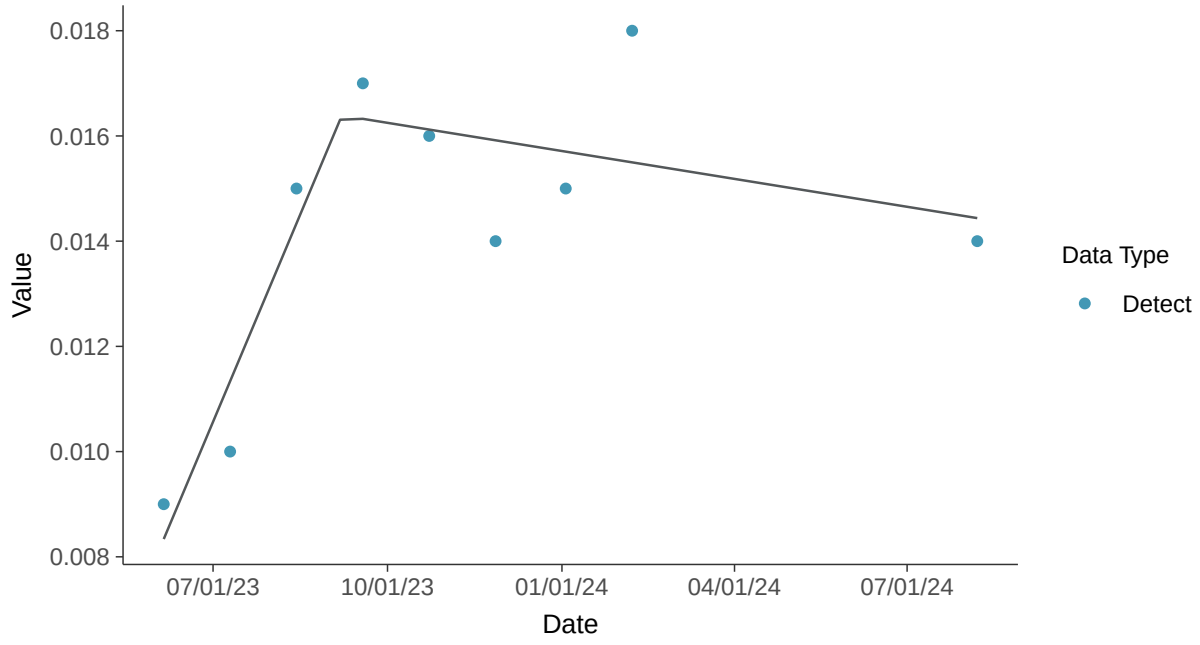
Trend Regression: Lognormal MLE

Arsenic, MW-100A (mg/L)



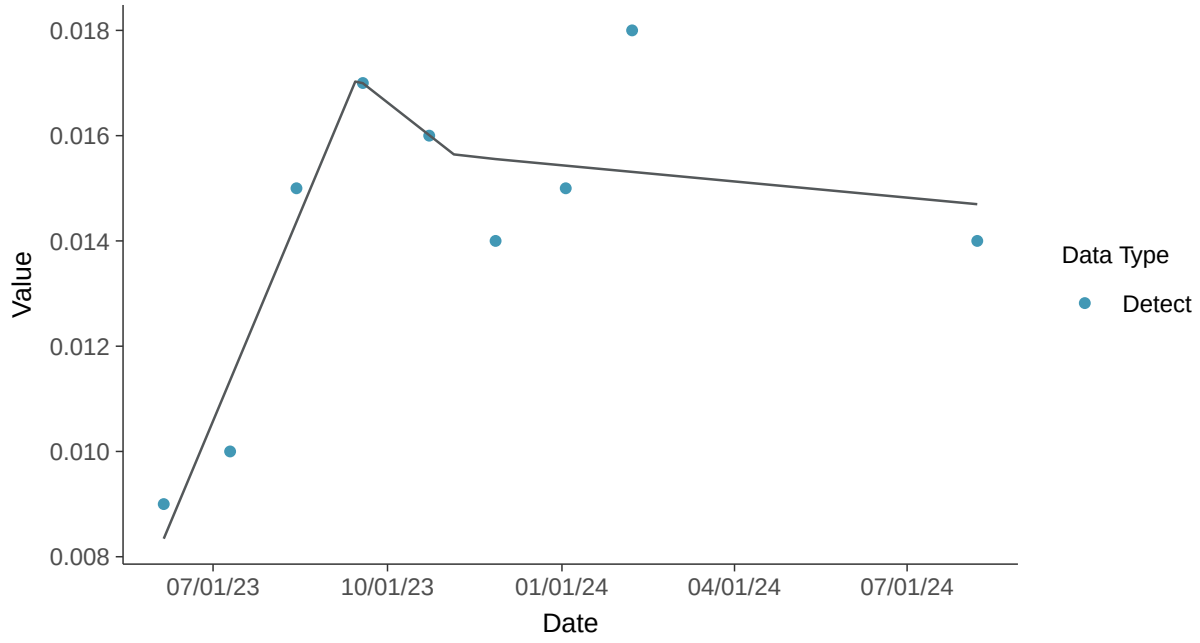
Trend Regression: Piecewise Linear-Linear

Arsenic, MW-100A (mg/L)



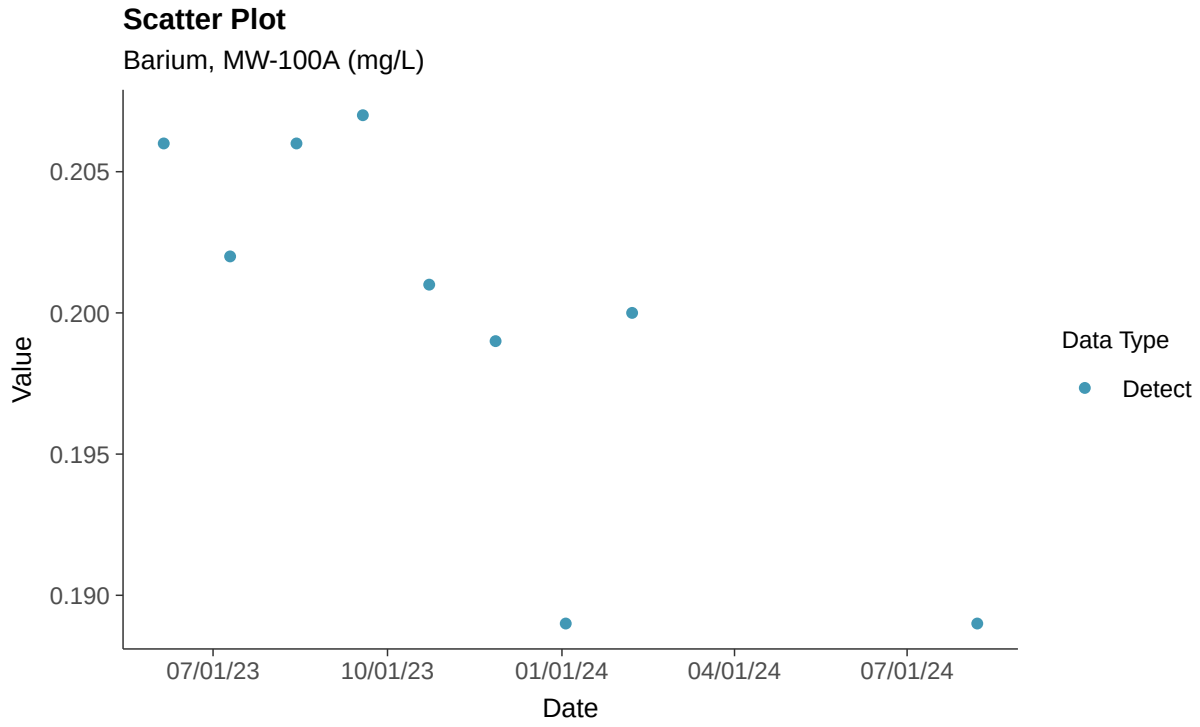
Trend Regression: Piecewise Linear-Linear-Linear

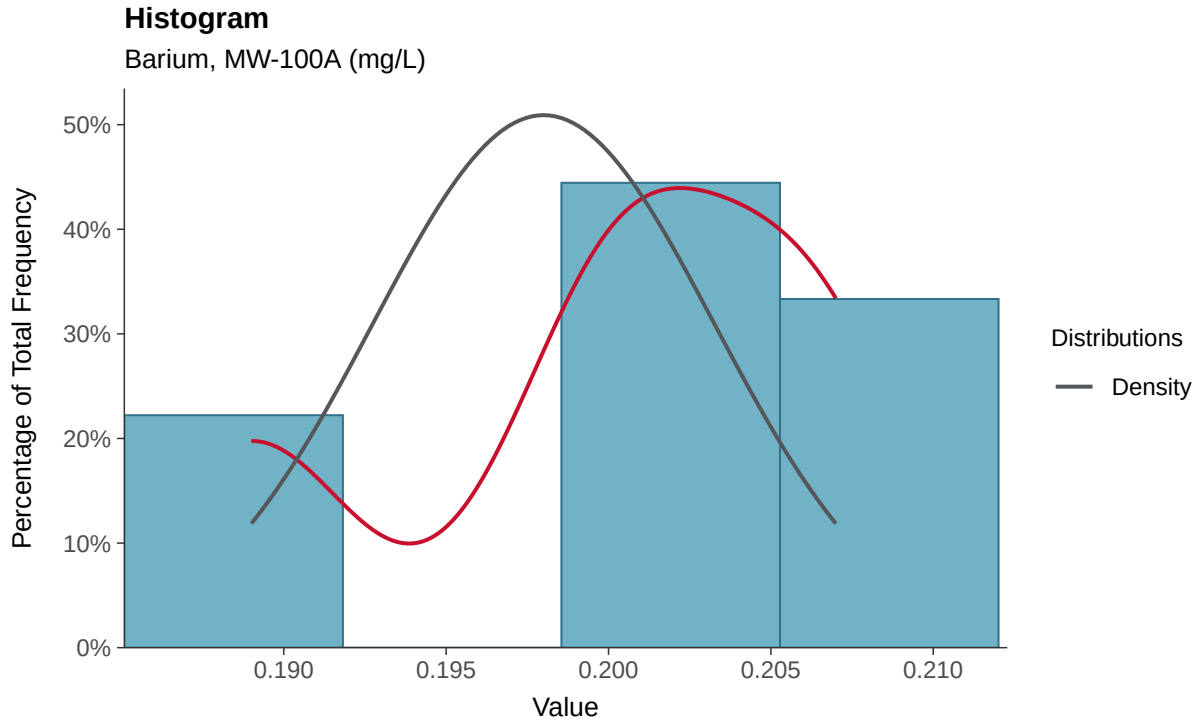
Arsenic, MW-100A (mg/L)



Appendix IV: Barium, MW-100A

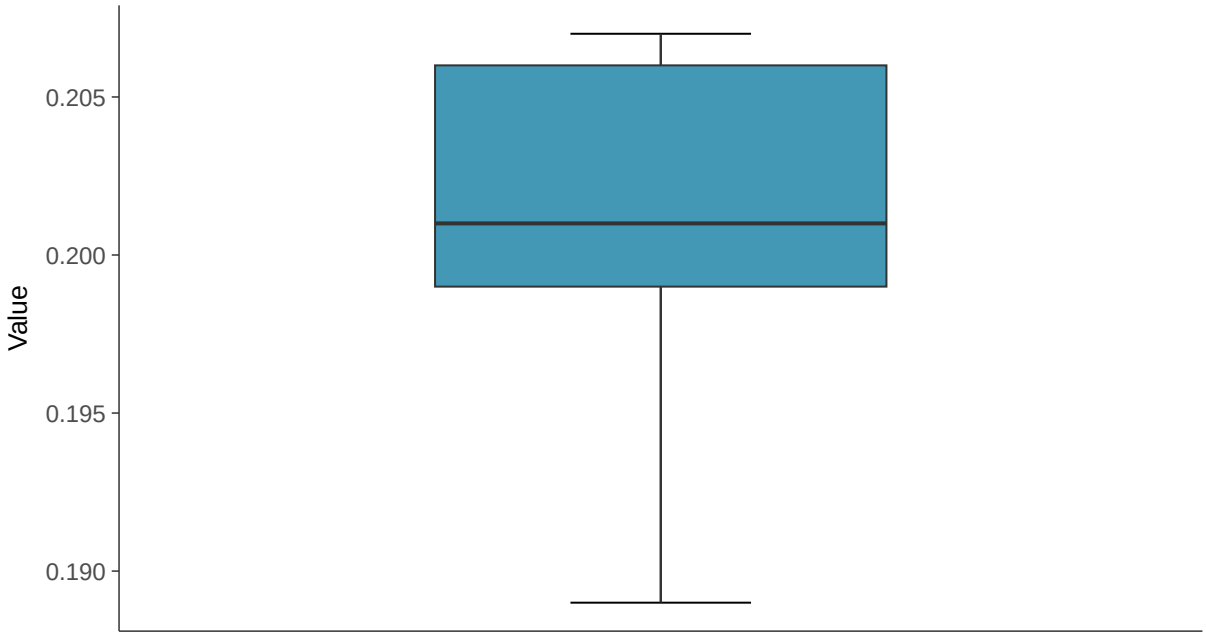
ID: 100A_2_10





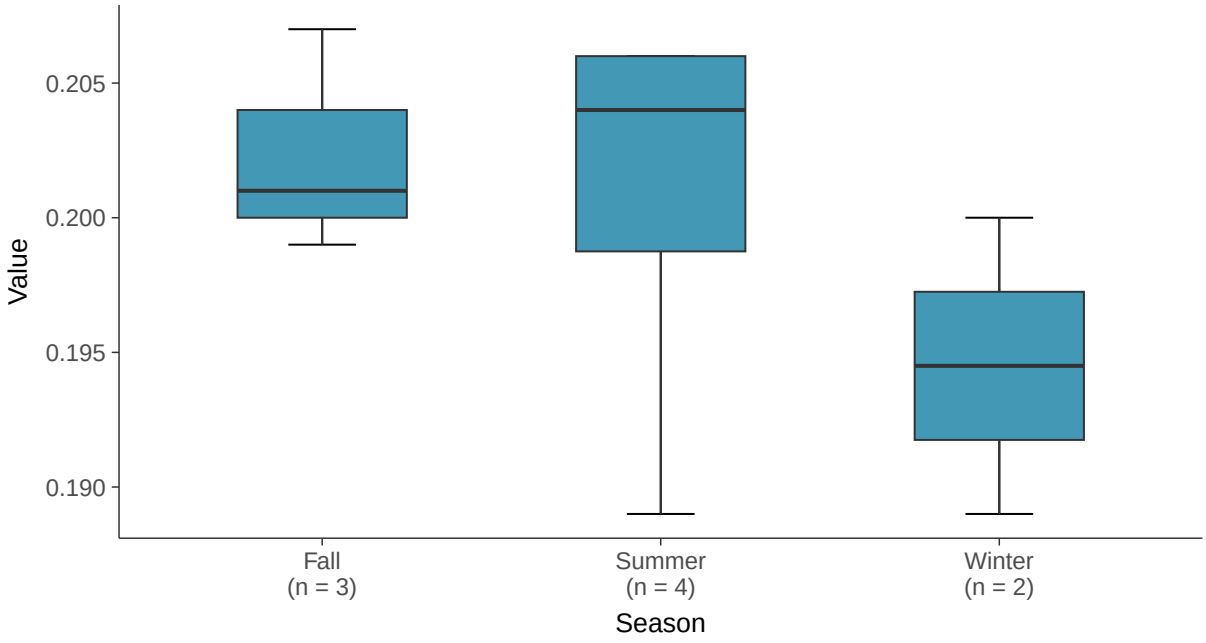
Boxplot

Barium, MW-100A (mg/L)



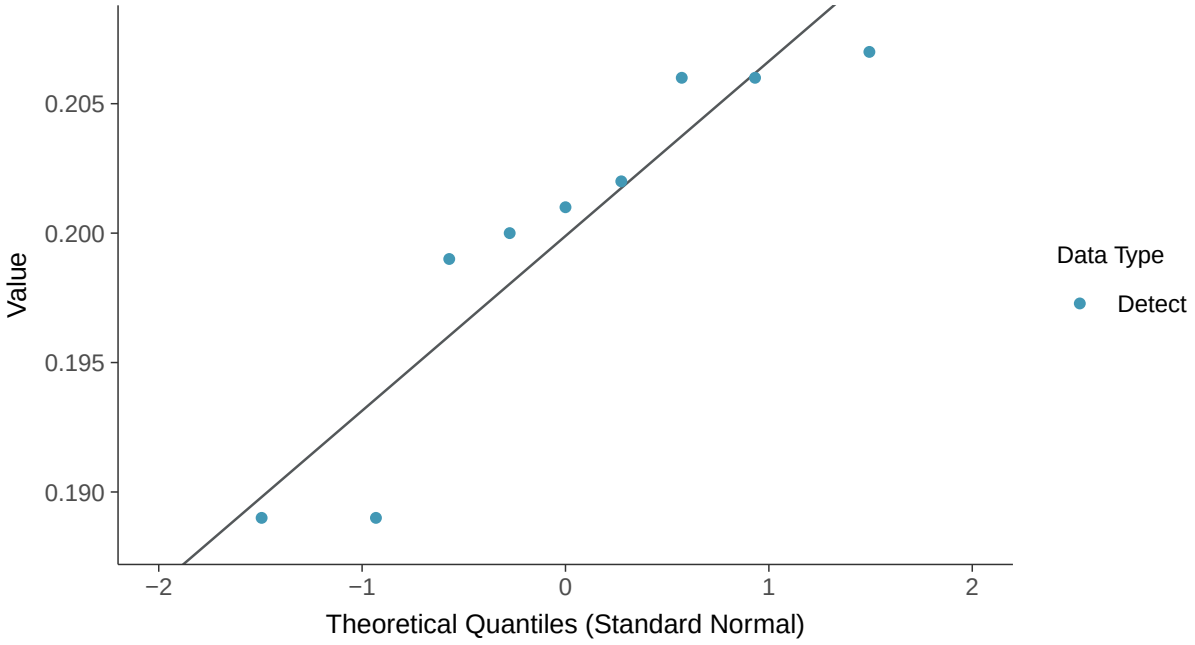
Boxplot by Season

Barium, MW-100A (mg/L)



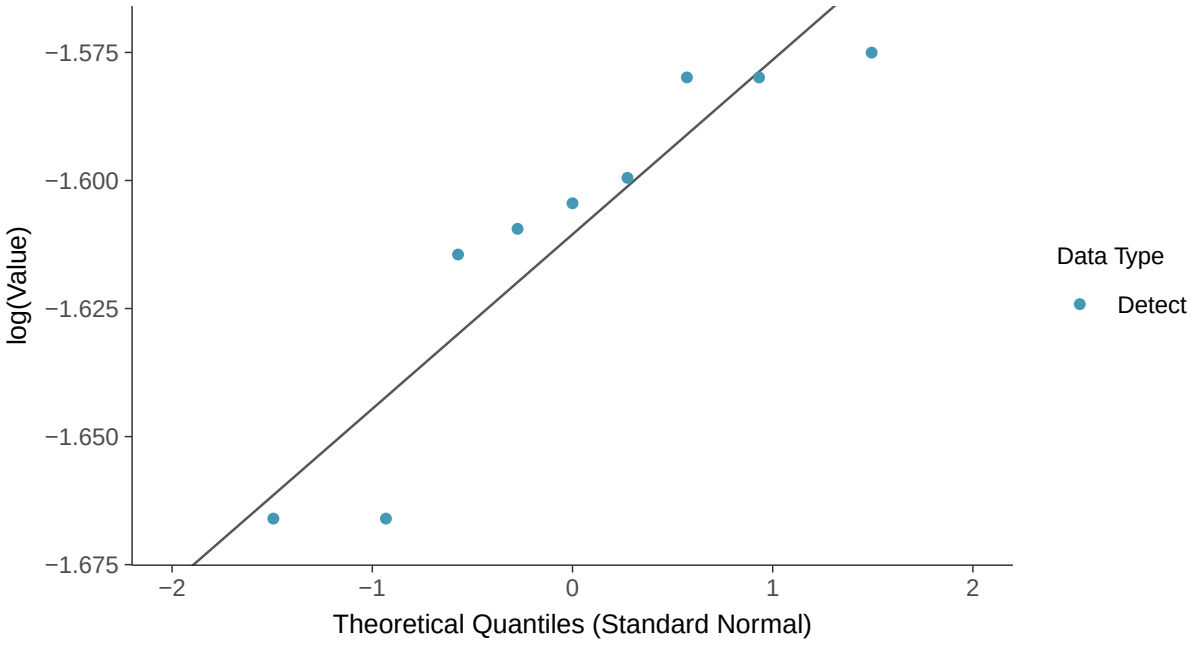
Normal Q-Q plot

Barium, MW-100A (mg/L)



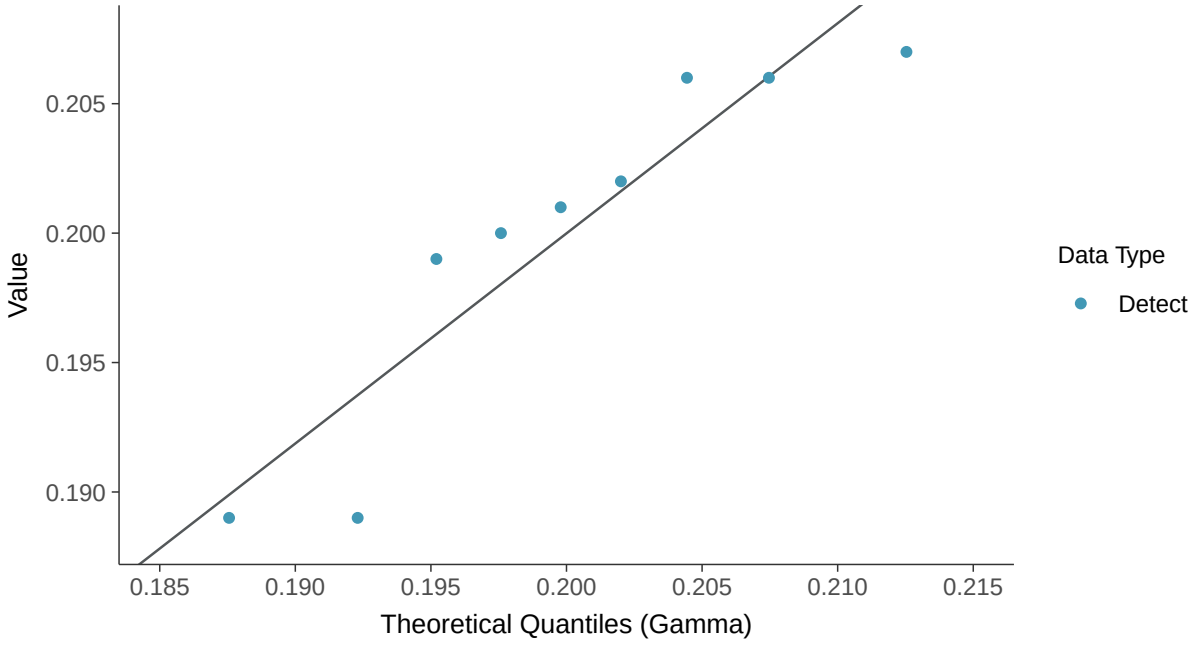
Lognormal Q-Q plot

Barium, MW-100A (mg/L)



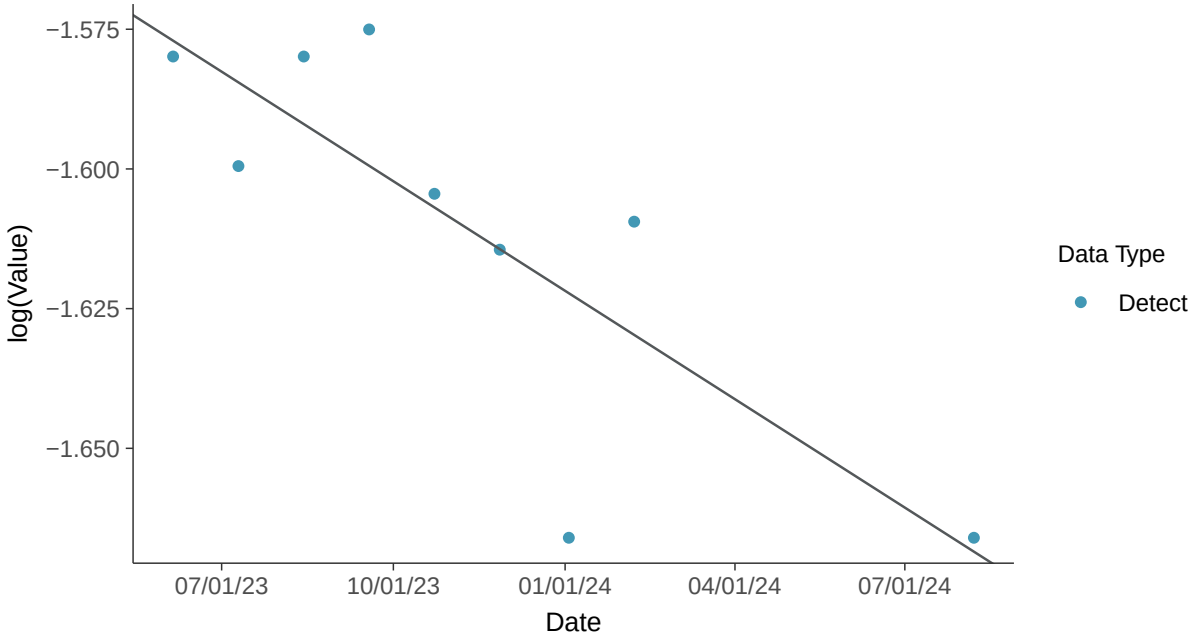
Gamma Q-Q plot

Barium, MW-100A (mg/L)



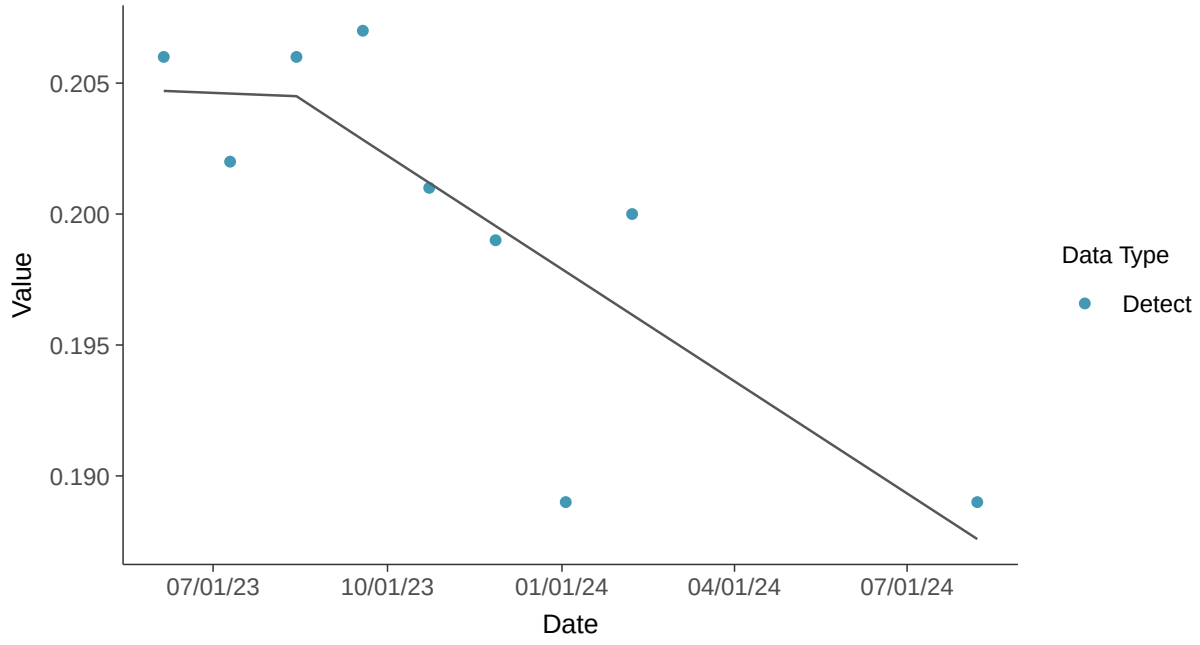
Trend Regression: Lognormal MLE

Barium, MW-100A (mg/L)



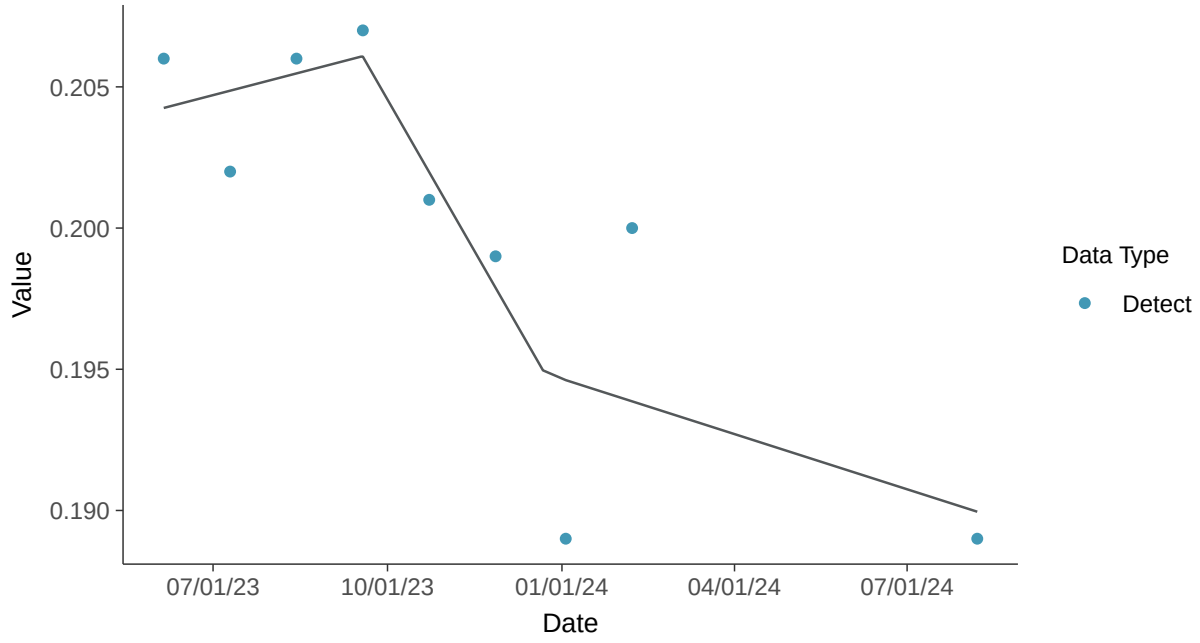
Trend Regression: Piecewise Linear-Linear

Barium, MW-100A (mg/L)



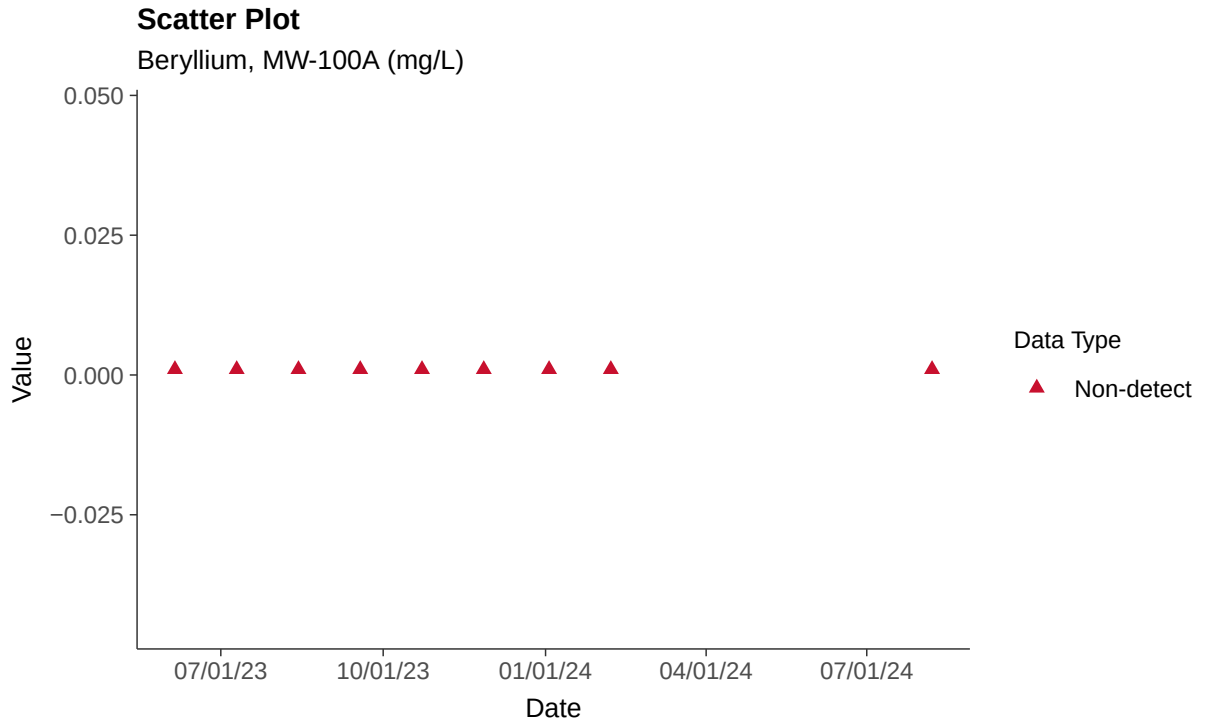
Trend Regression: Piecewise Linear-Linear-Linear

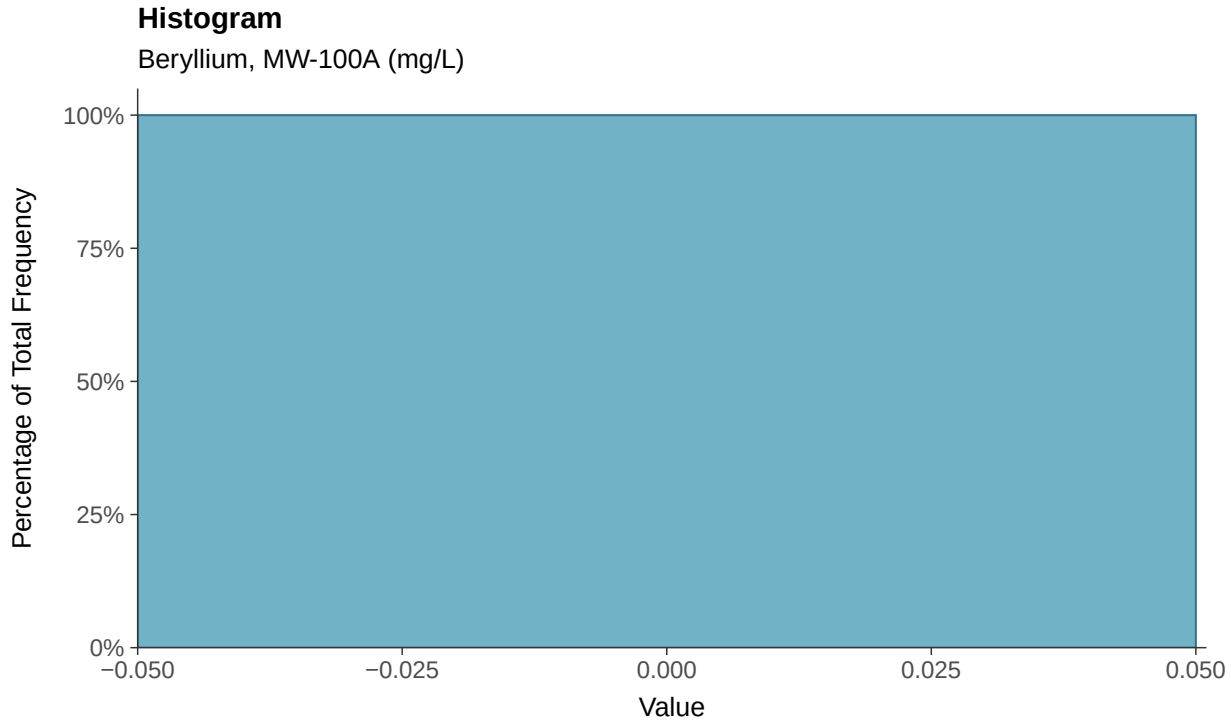
Barium, MW-100A (mg/L)



Appendix IV: Beryllium, MW-100A

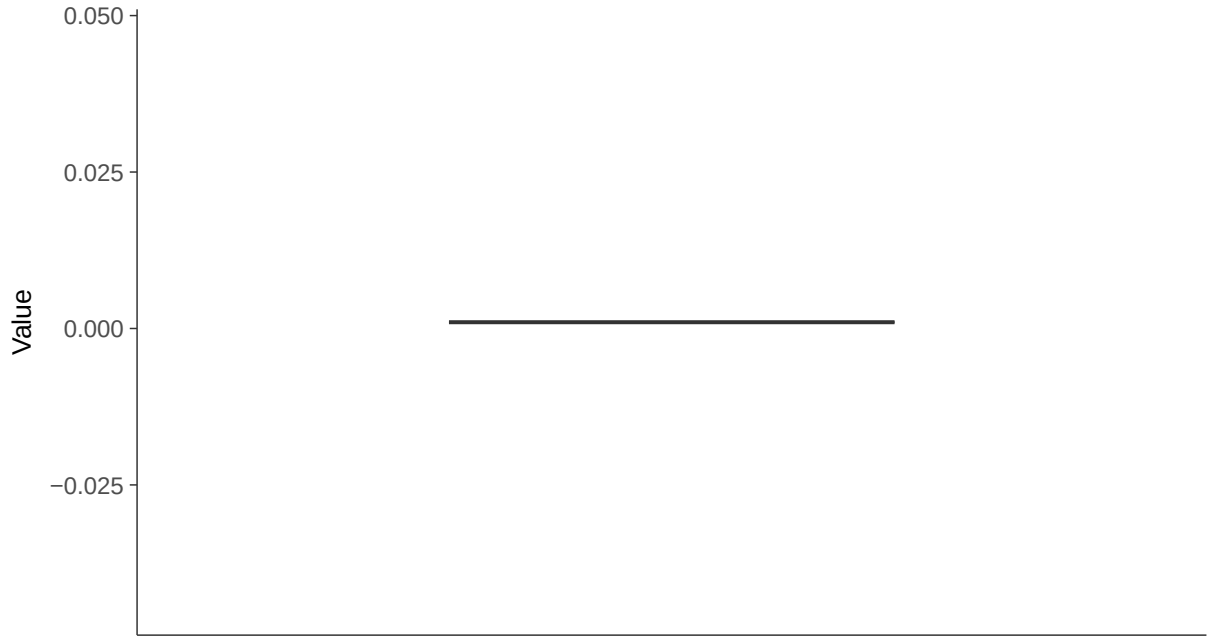
ID: 100A_2_11





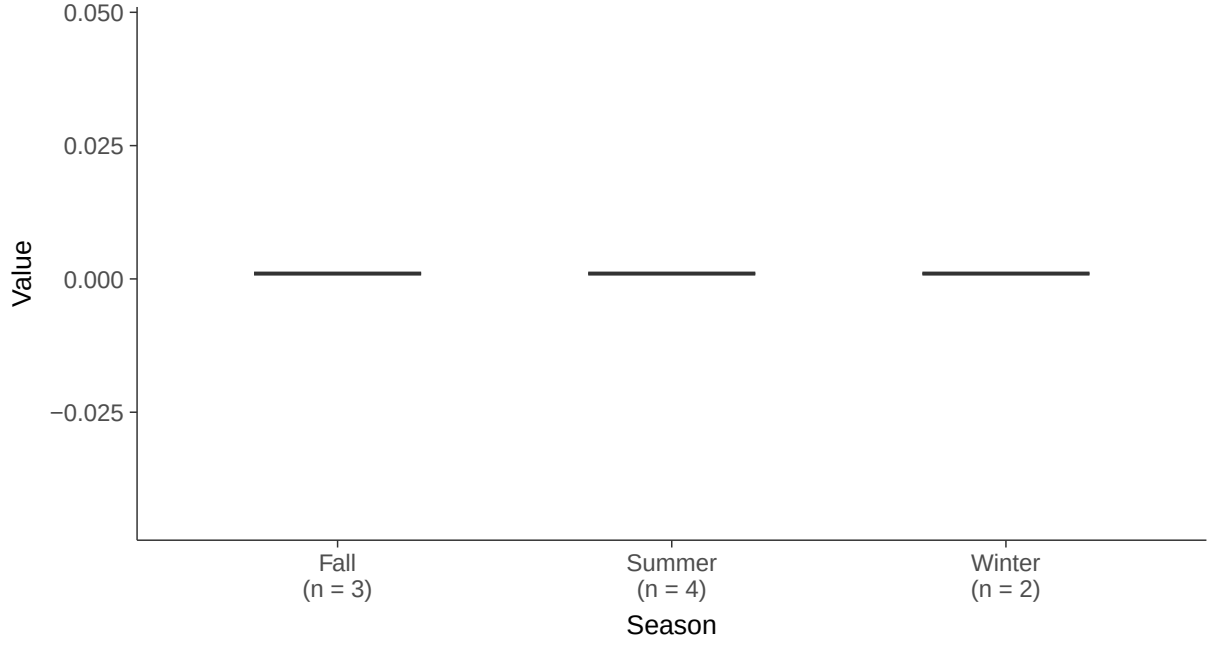
Boxplot

Beryllium, MW-100A (mg/L)



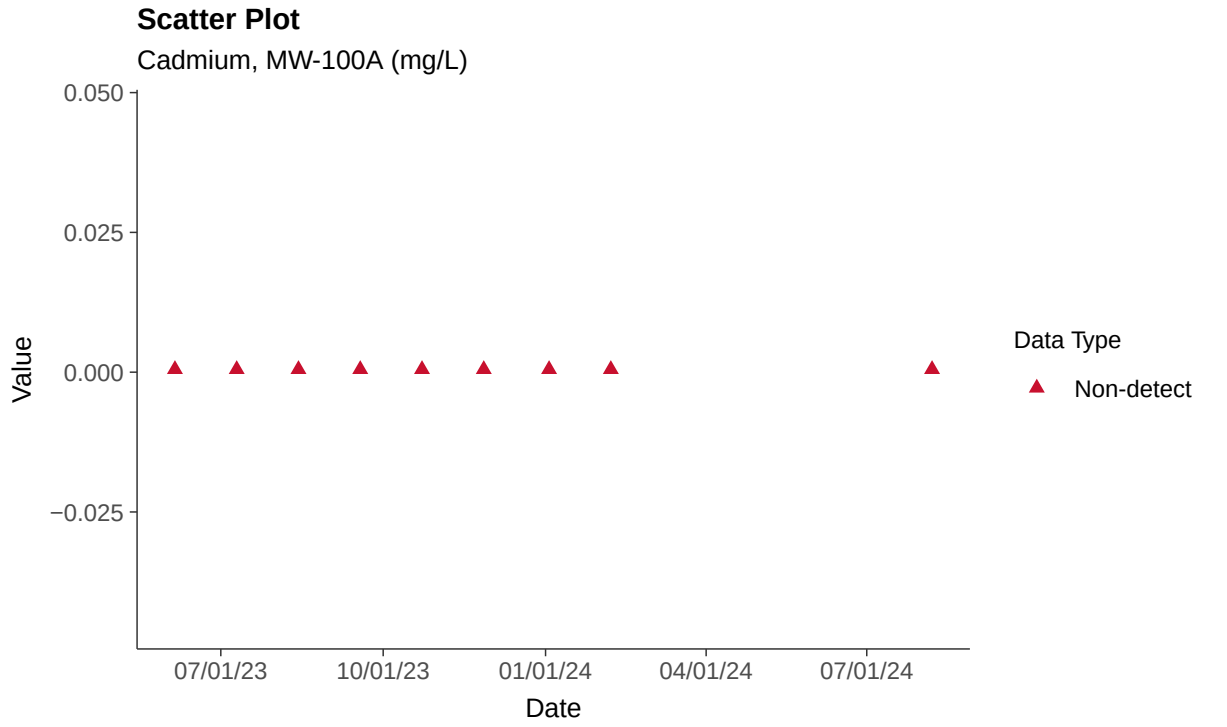
Boxplot by Season

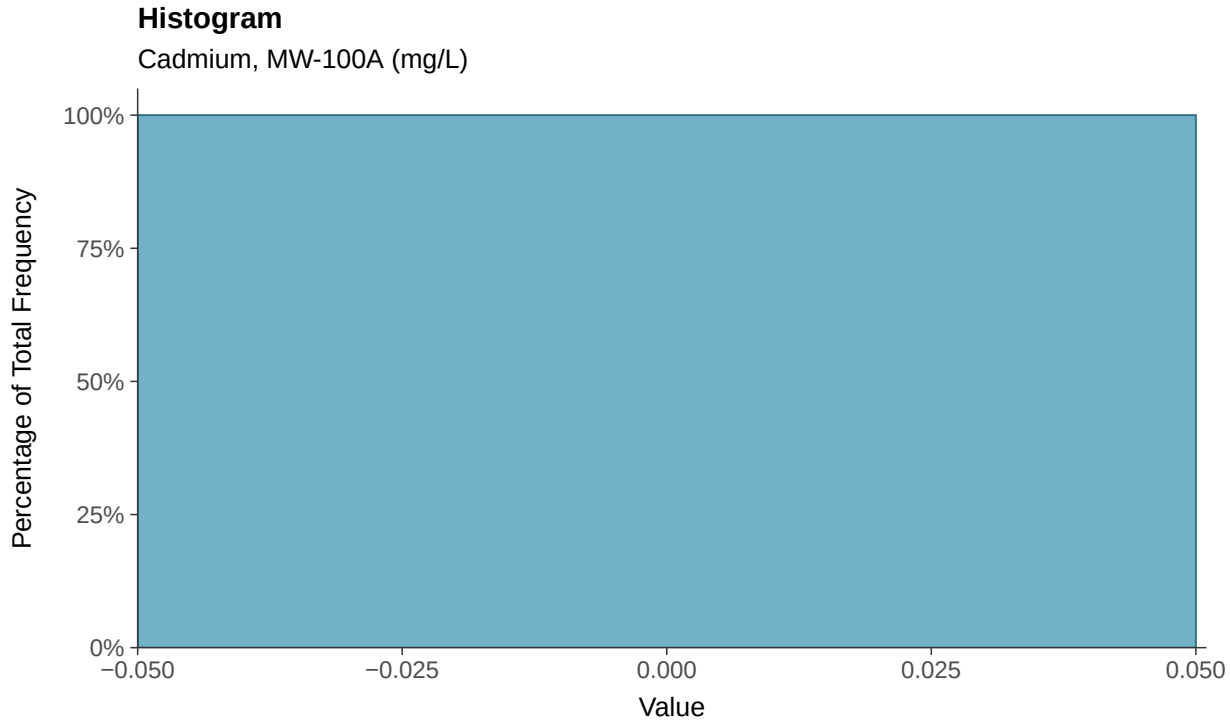
Beryllium, MW-100A (mg/L)



Appendix IV: Cadmium, MW-100A

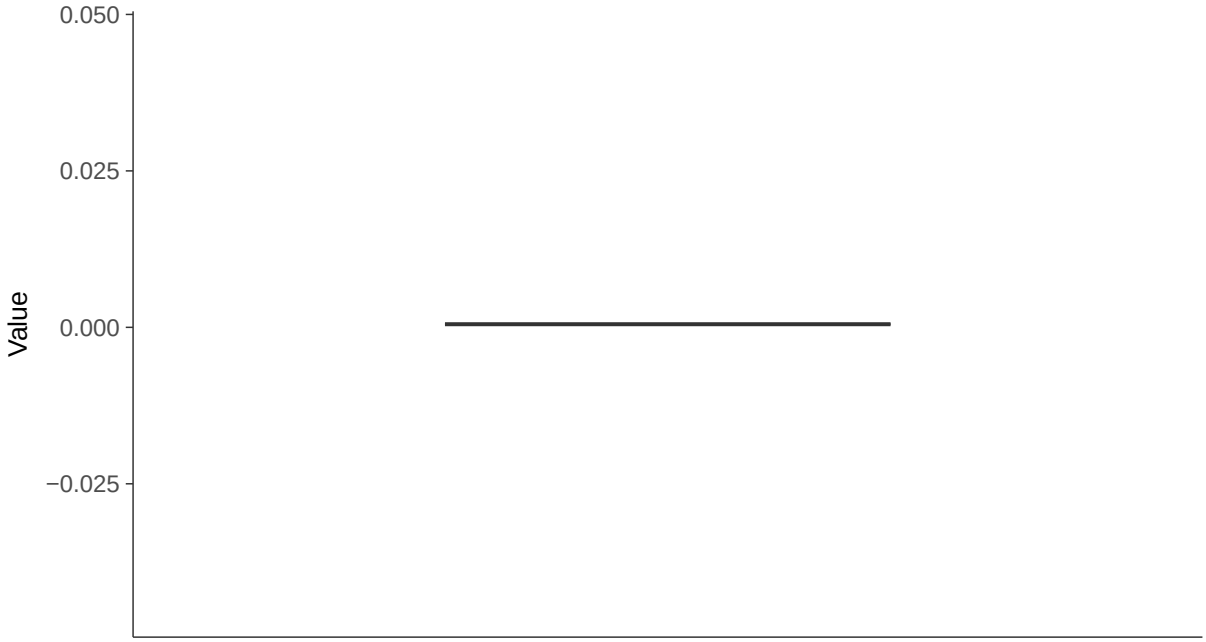
ID: 100A_2_12





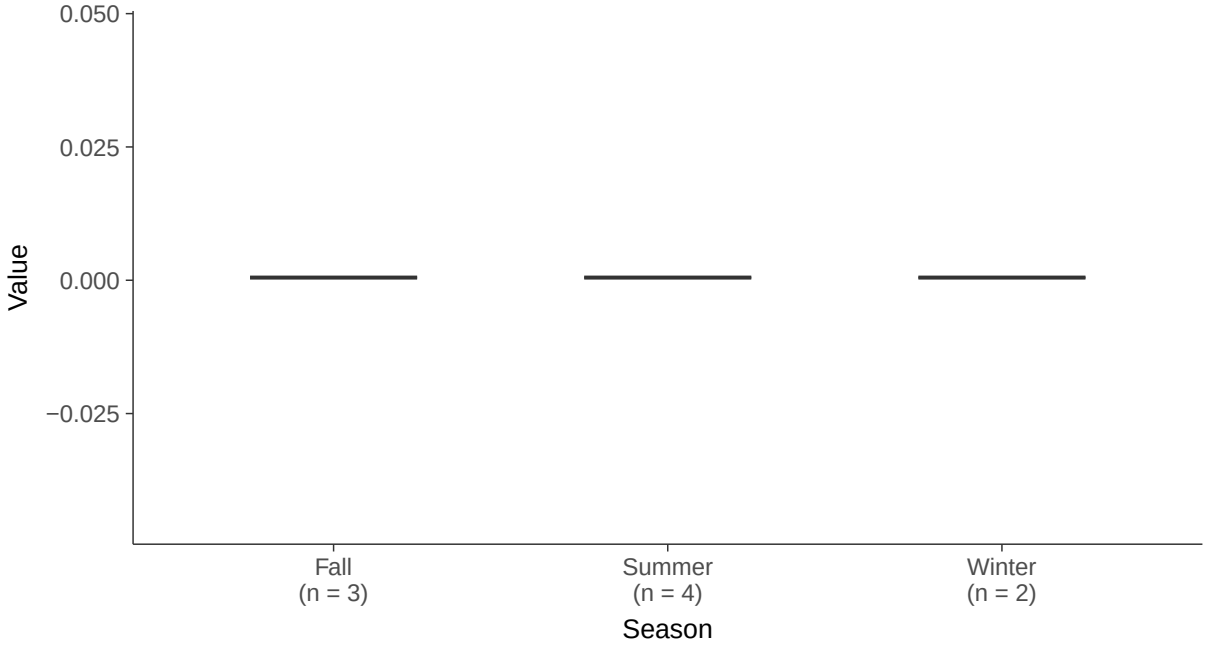
Boxplot

Cadmium, MW-100A (mg/L)



Boxplot by Season

Cadmium, MW-100A (mg/L)

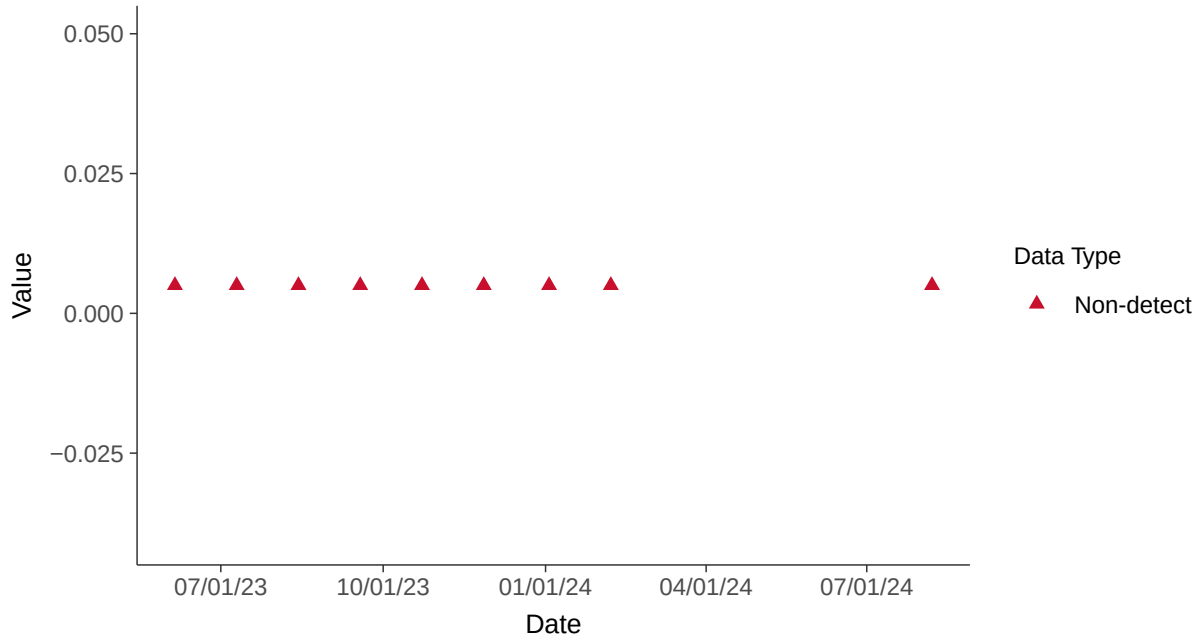


Appendix IV: Chromium, MW-100A

ID: 100A_2_13

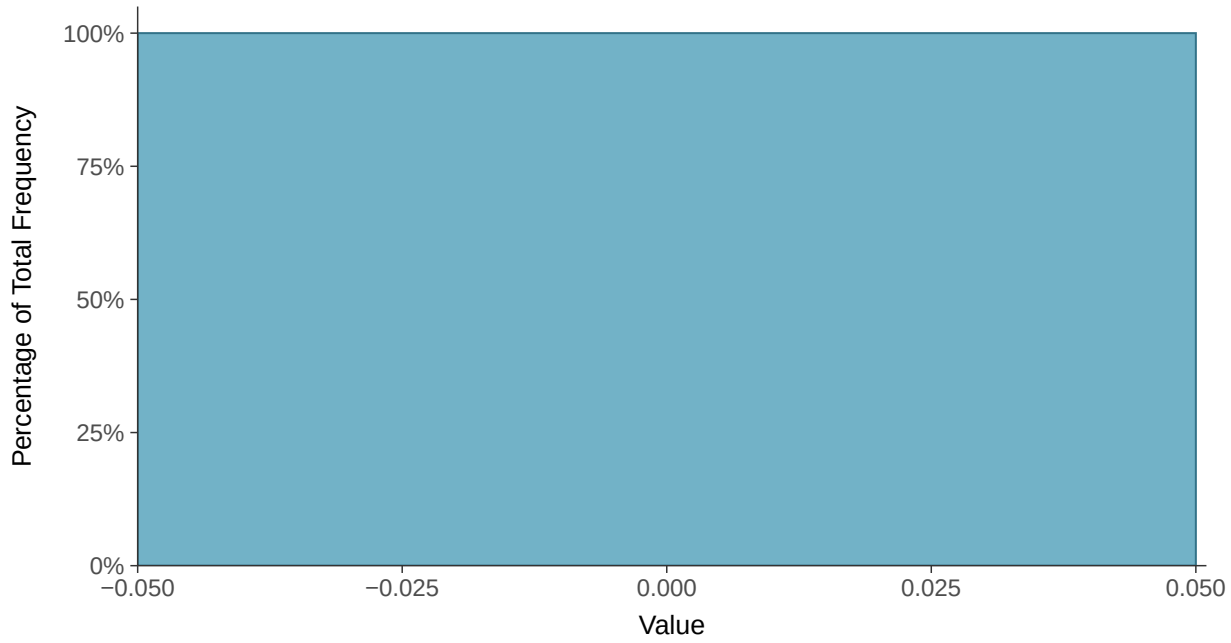
Scatter Plot

Chromium, MW-100A (mg/L)



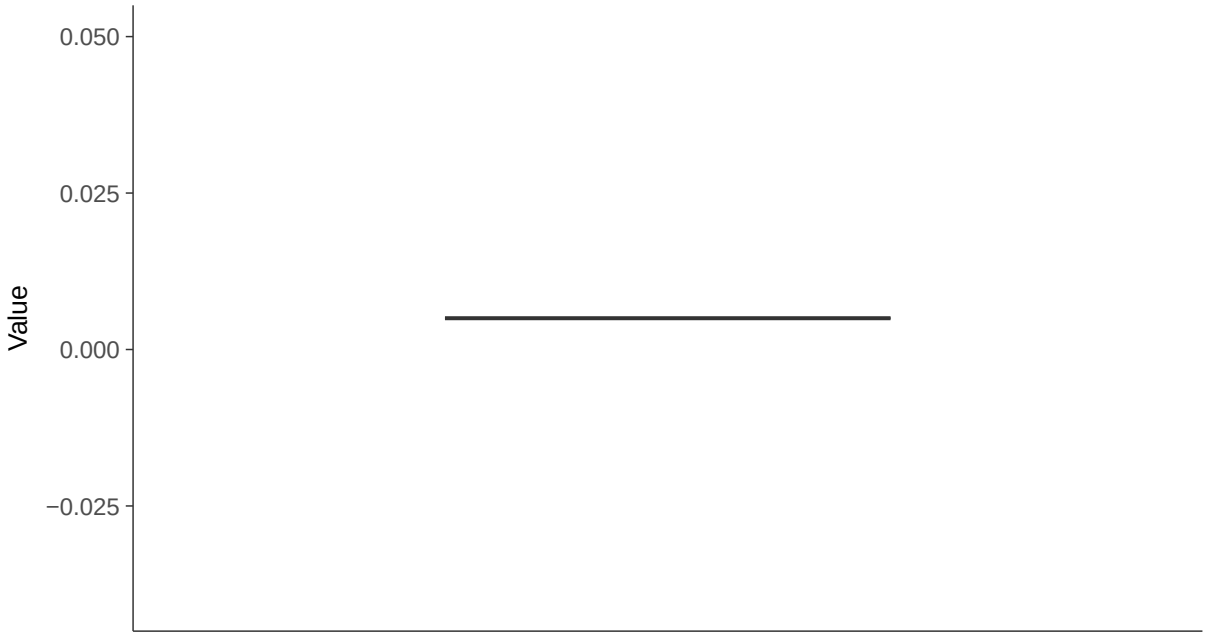
Histogram

Chromium, MW-100A (mg/L)



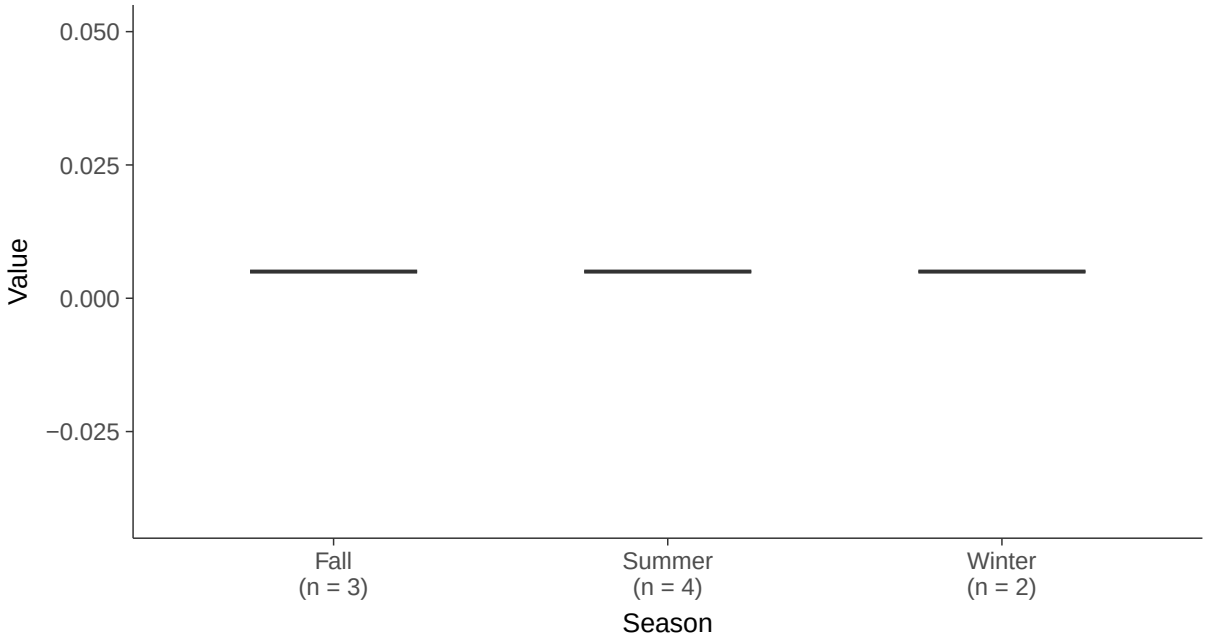
Boxplot

Chromium, MW-100A (mg/L)



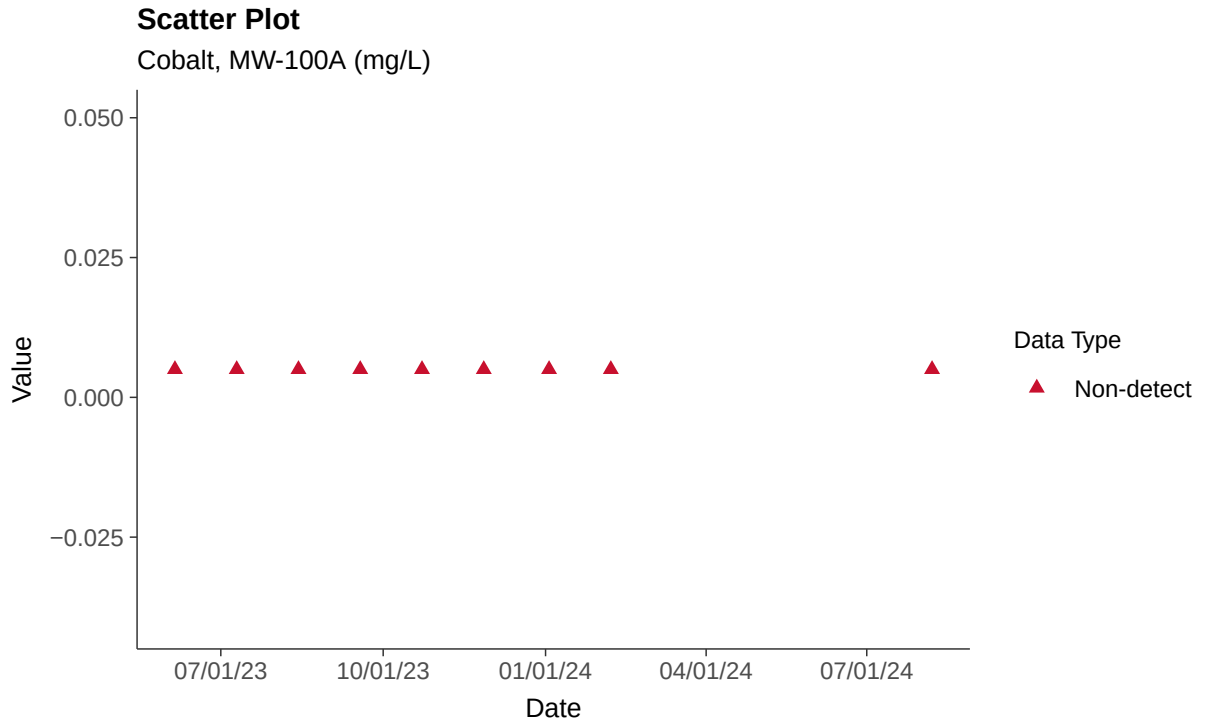
Boxplot by Season

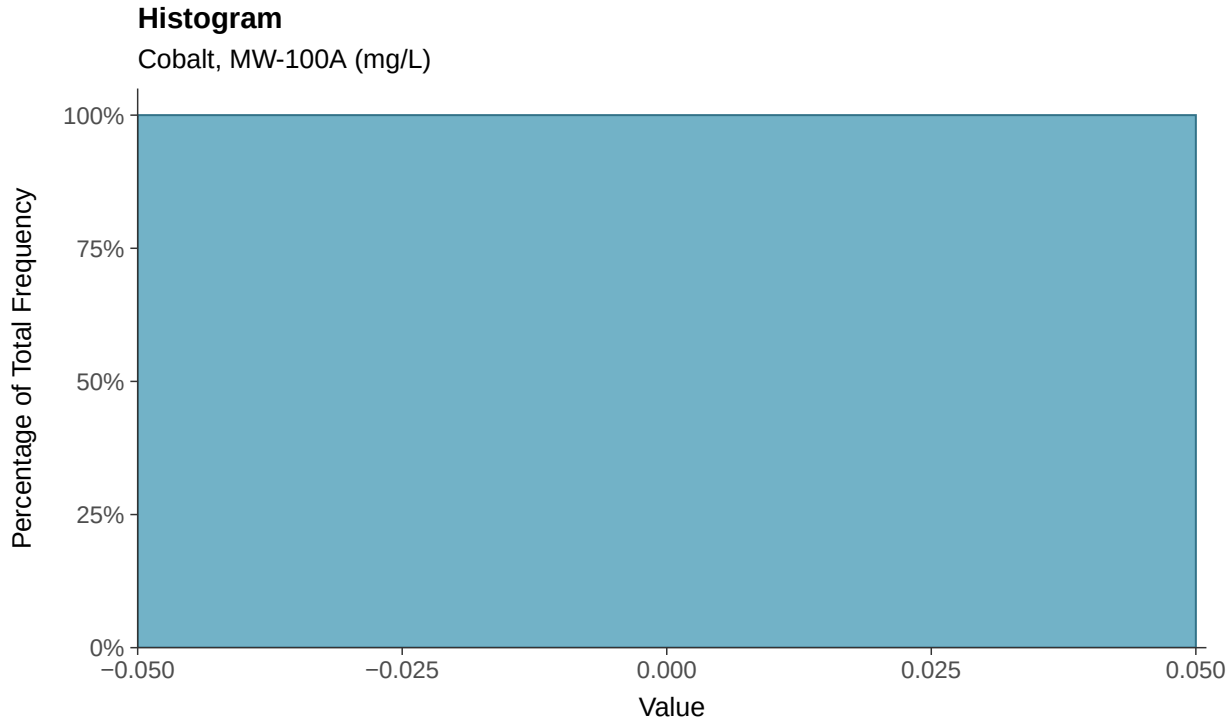
Chromium, MW-100A (mg/L)



Appendix IV: Cobalt, MW-100A

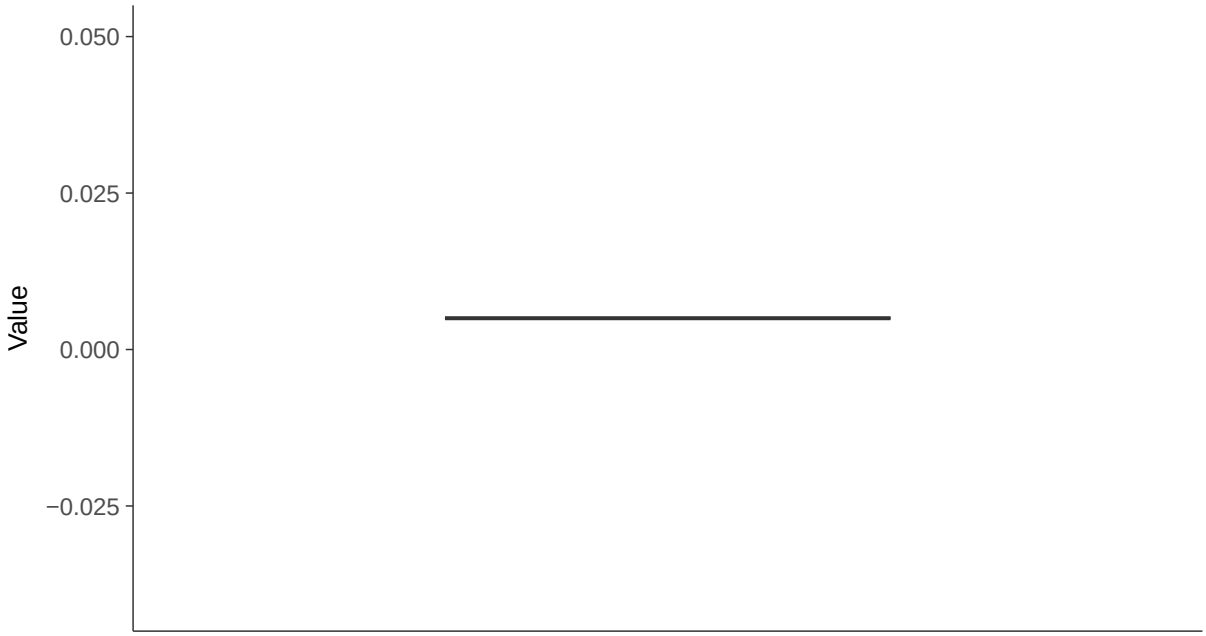
ID: 100A_2_14





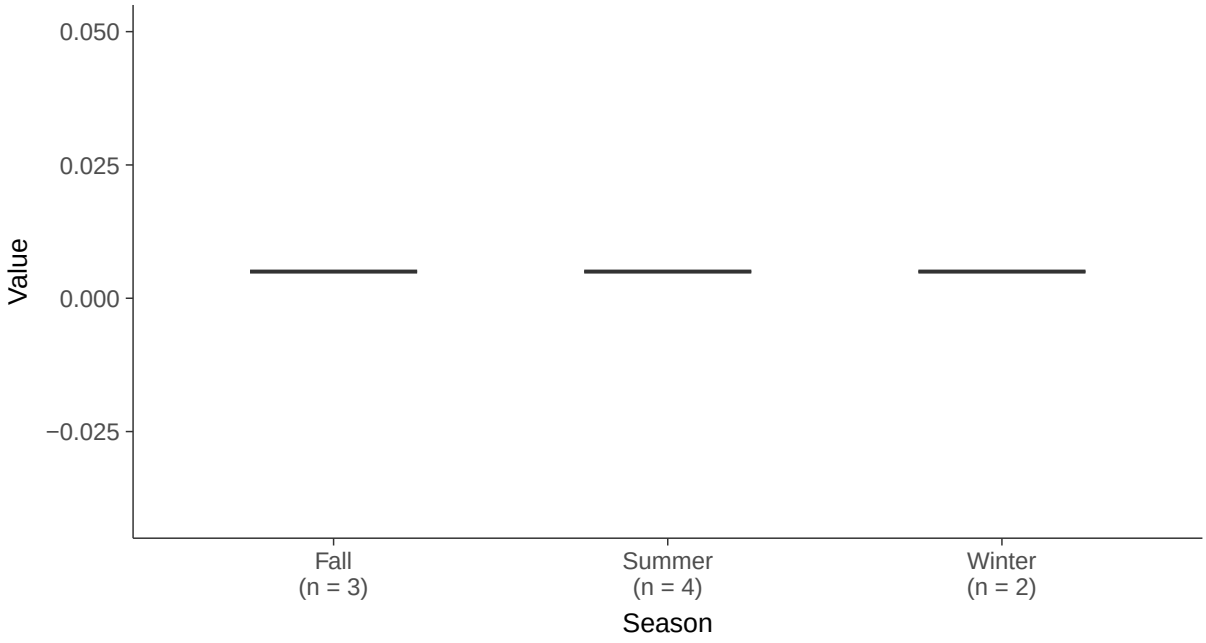
Boxplot

Cobalt, MW-100A (mg/L)



Boxplot by Season

Cobalt, MW-100A (mg/L)

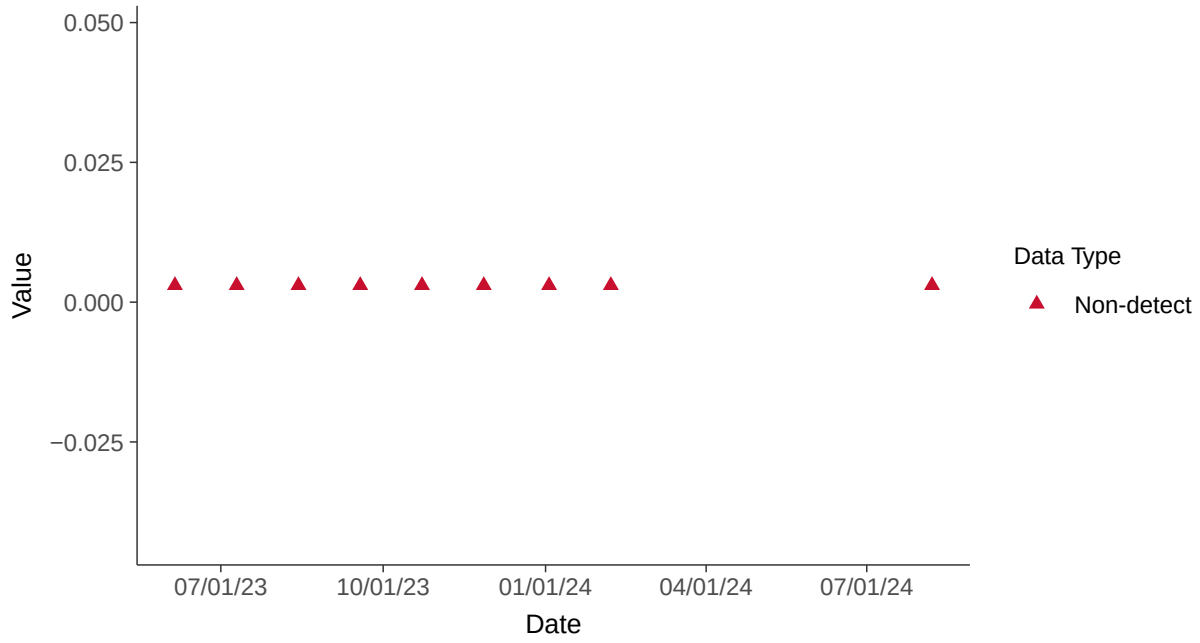


Appendix IV: Lead, MW-100A

ID: 100A_2_15

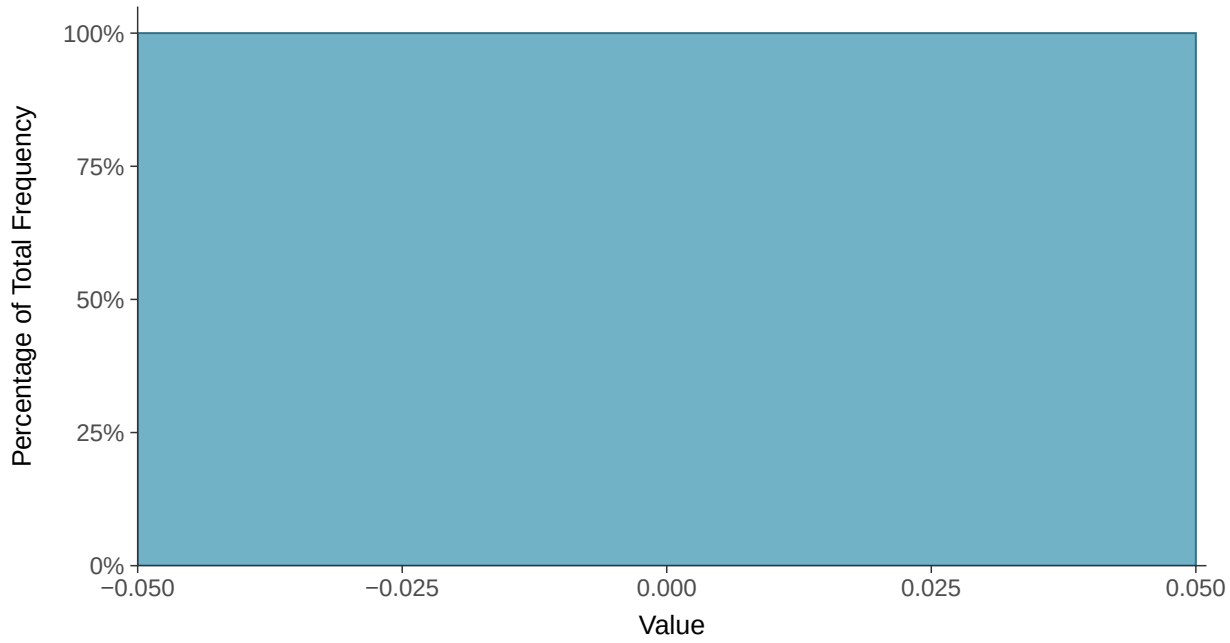
Scatter Plot

Lead, MW-100A (mg/L)



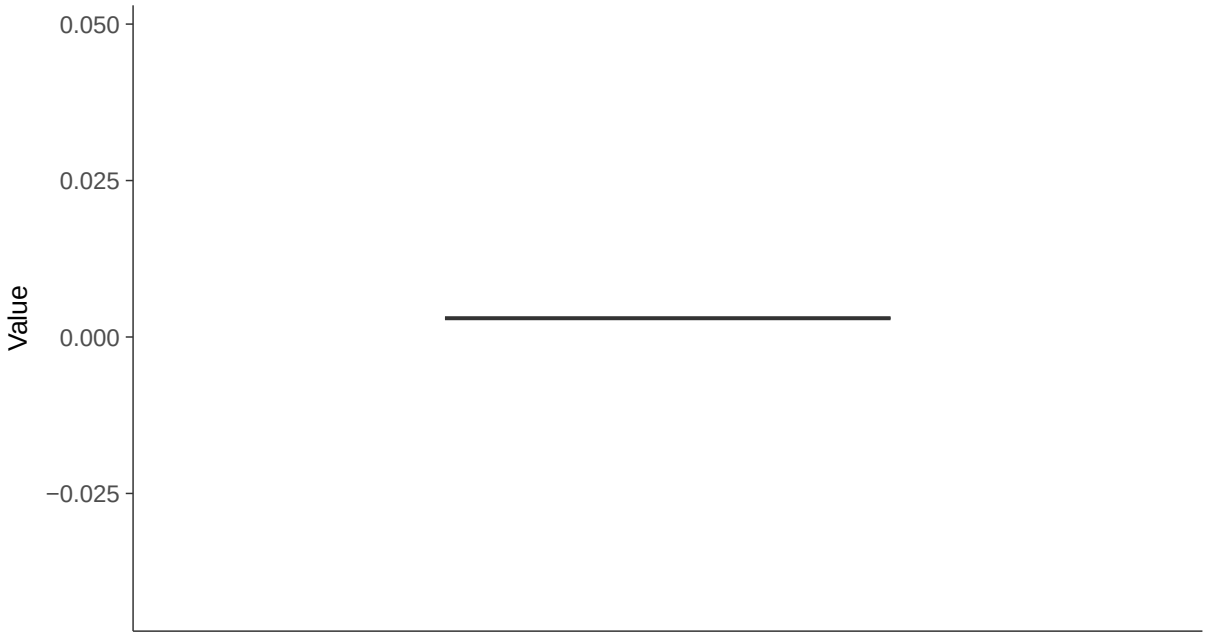
Histogram

Lead, MW-100A (mg/L)



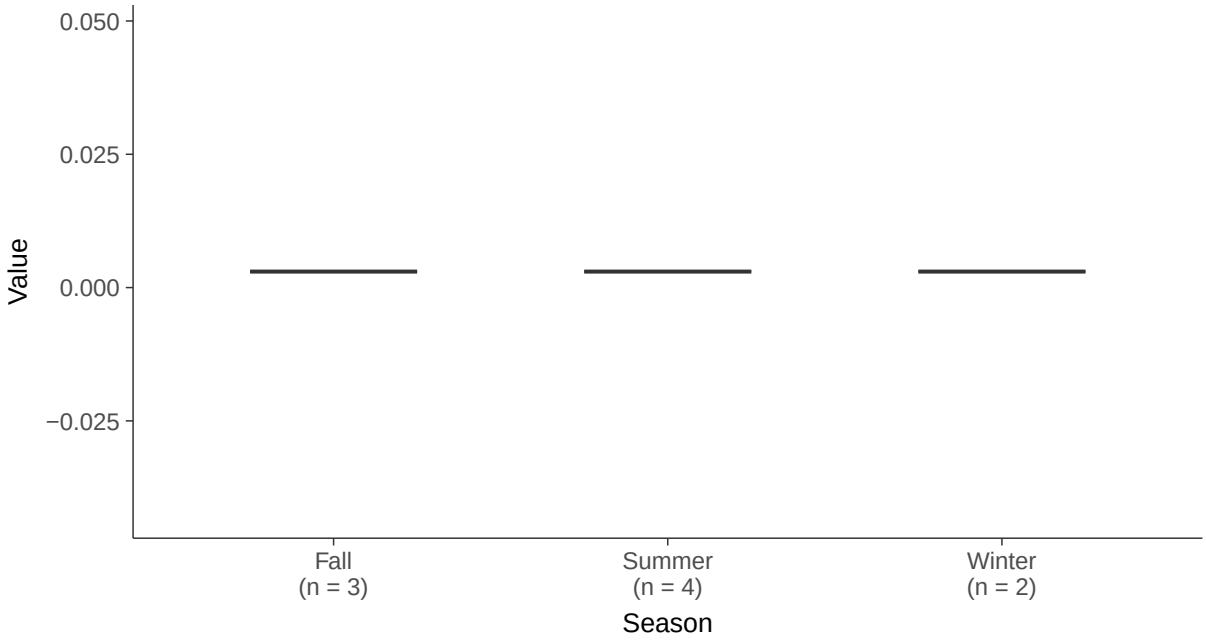
Boxplot

Lead, MW-100A (mg/L)



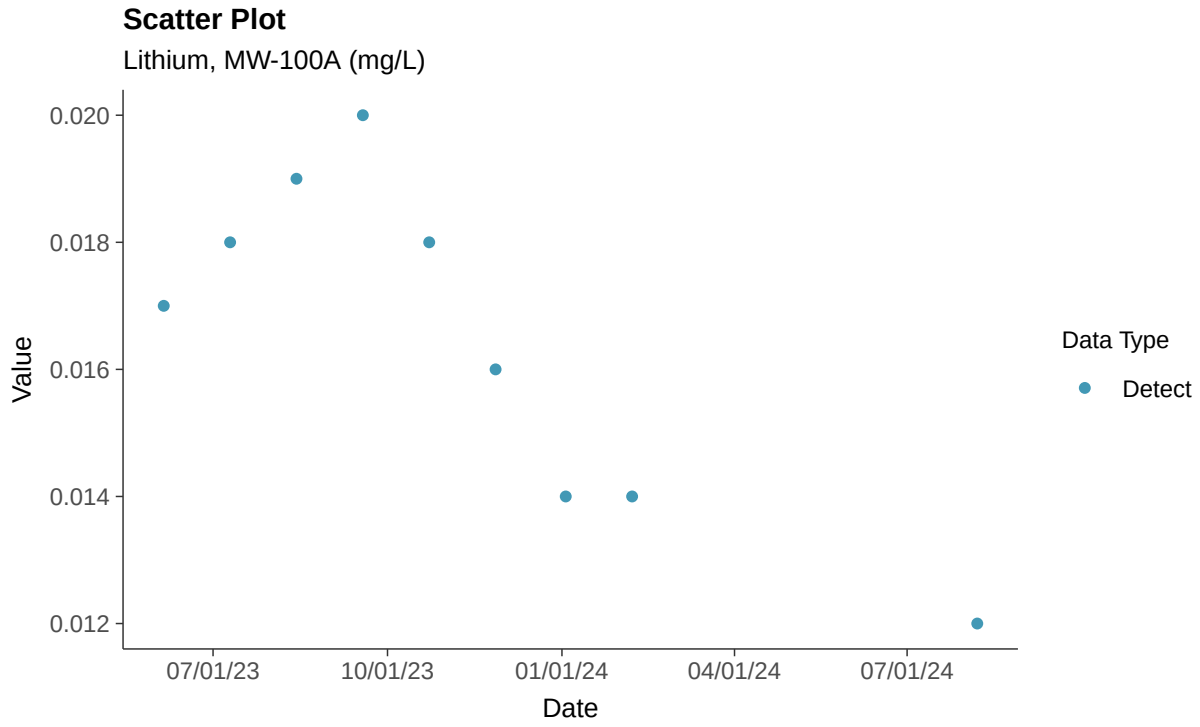
Boxplot by Season

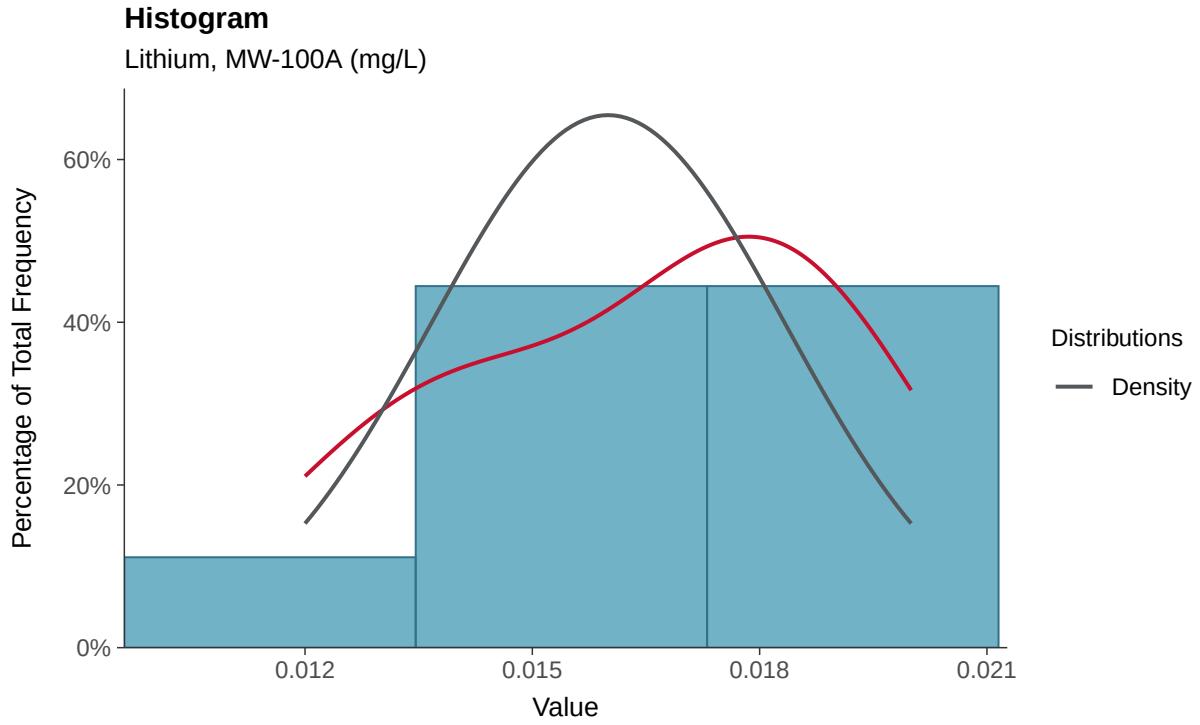
Lead, MW-100A (mg/L)



Appendix IV: Lithium, MW-100A

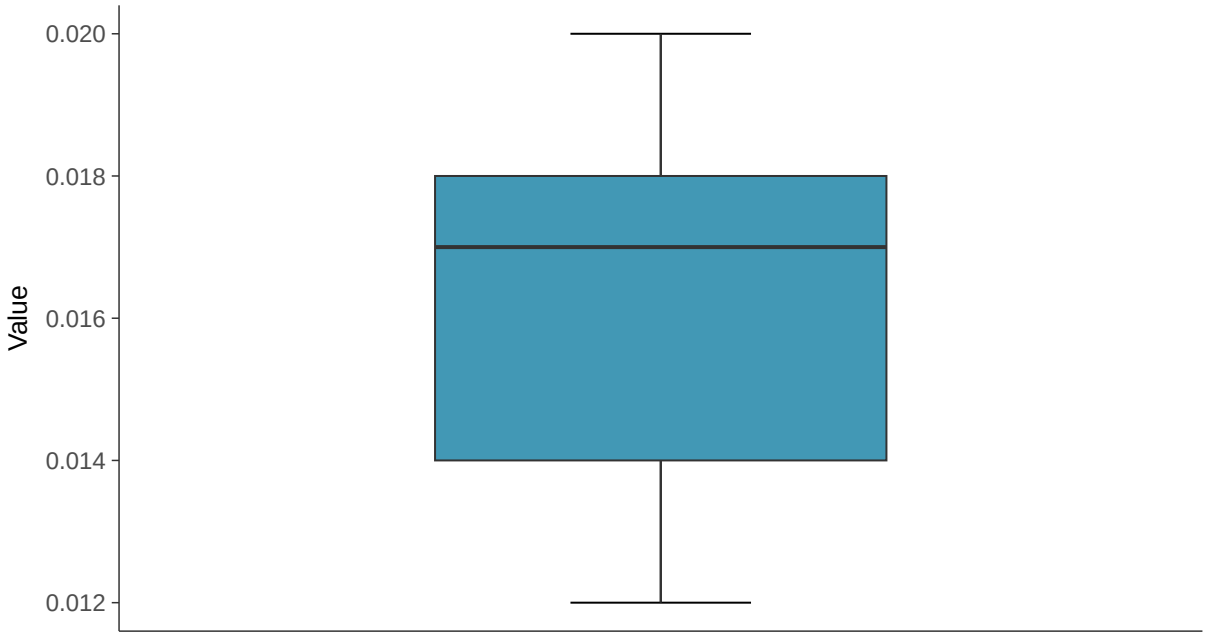
ID: 100A_2_16





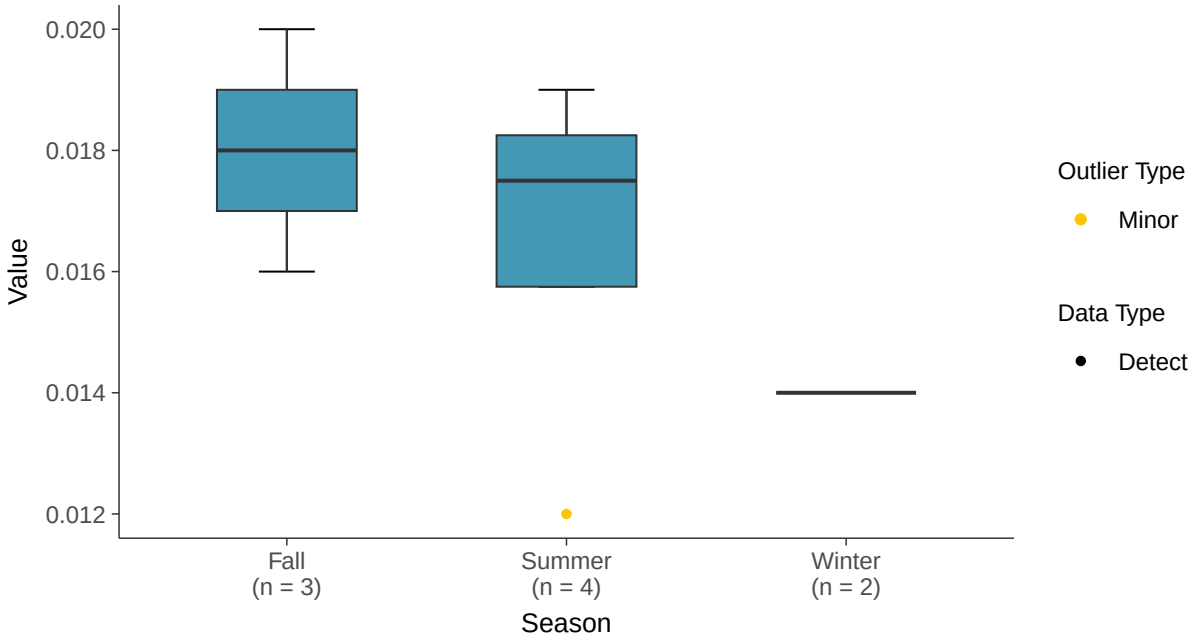
Boxplot

Lithium, MW-100A (mg/L)



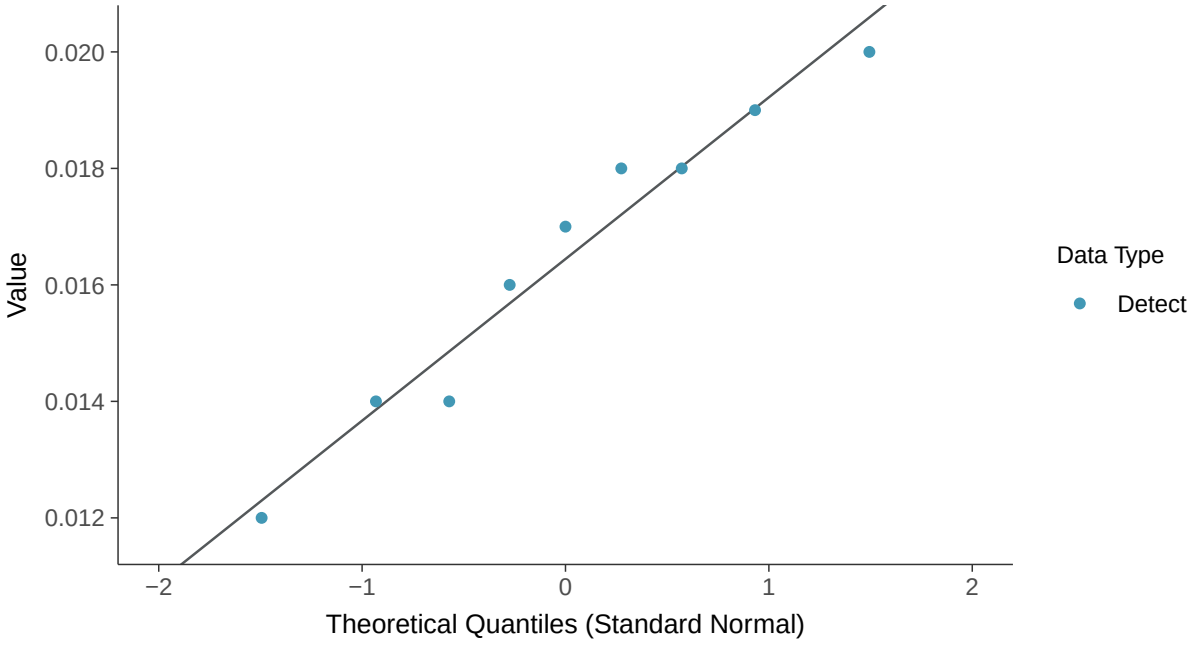
Boxplot by Season

Lithium, MW-100A (mg/L)



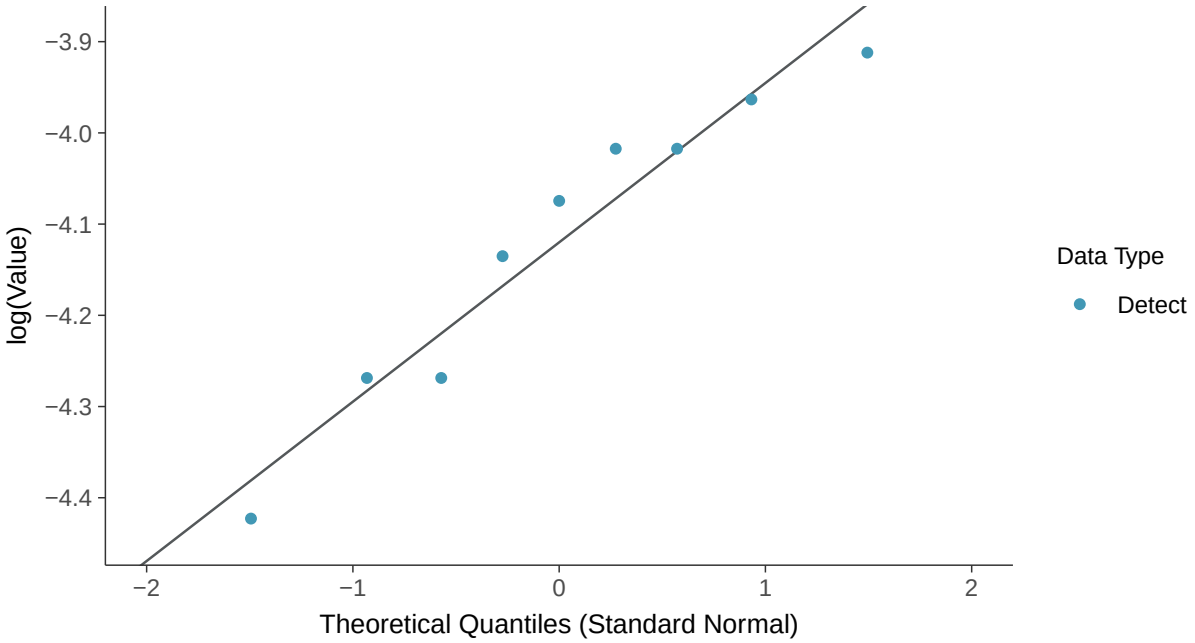
Normal Q-Q plot

Lithium, MW-100A (mg/L)



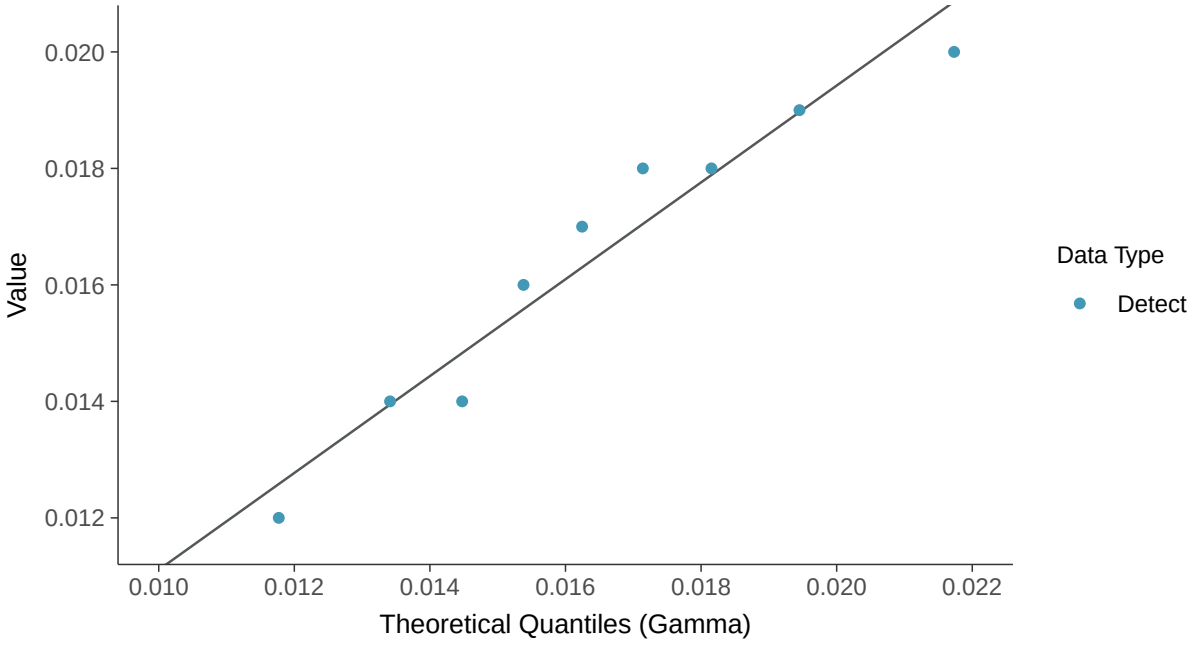
Lognormal Q-Q plot

Lithium, MW-100A (mg/L)



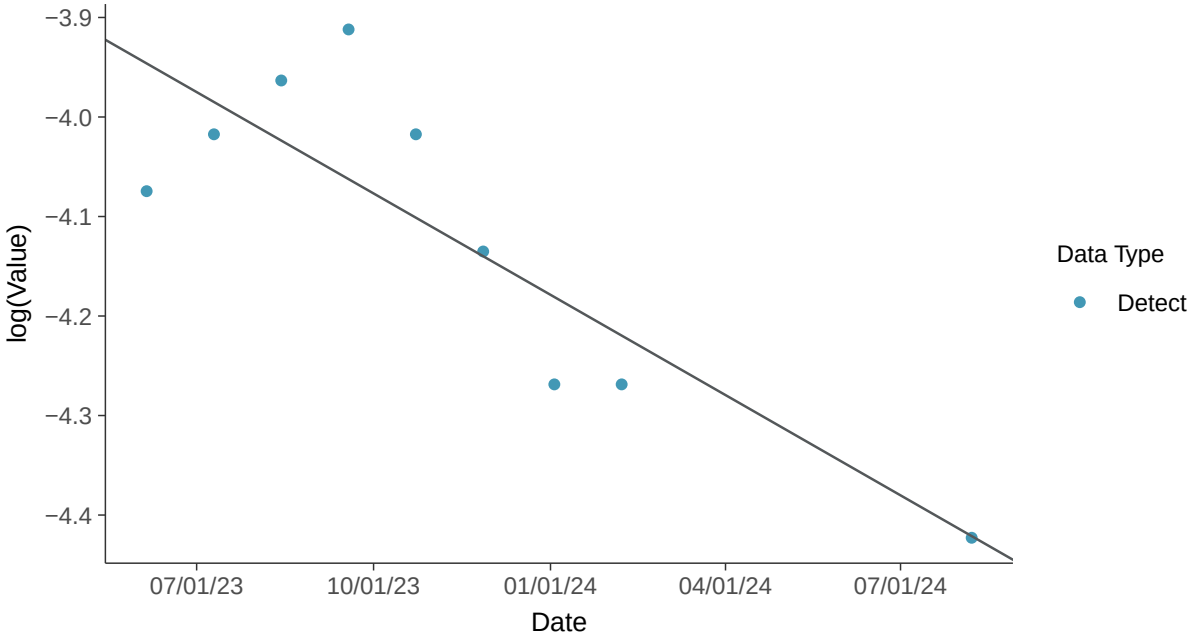
Gamma Q-Q plot

Lithium, MW-100A (mg/L)



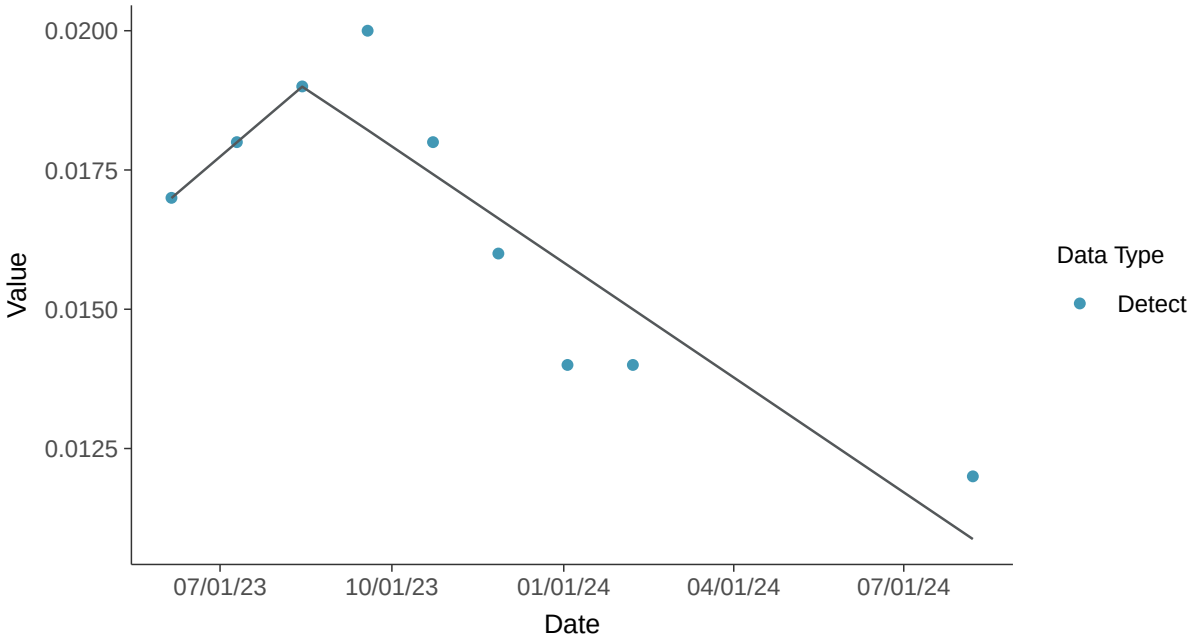
Trend Regression: Lognormal MLE

Lithium, MW-100A (mg/L)



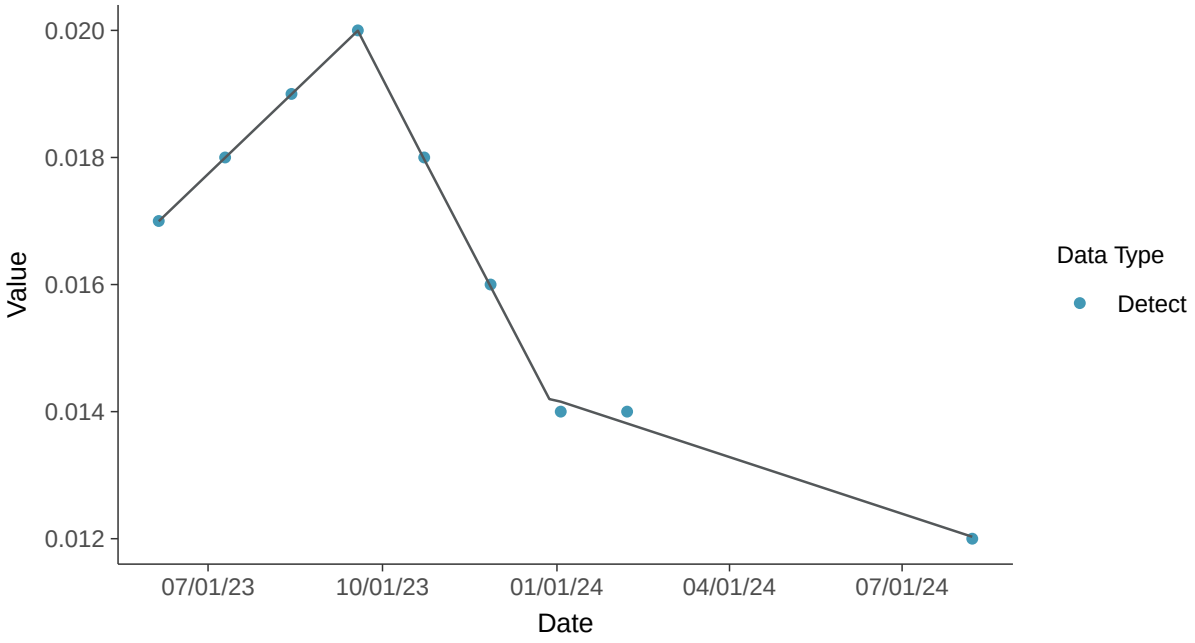
Trend Regression: Piecewise Linear-Linear

Lithium, MW-100A (mg/L)



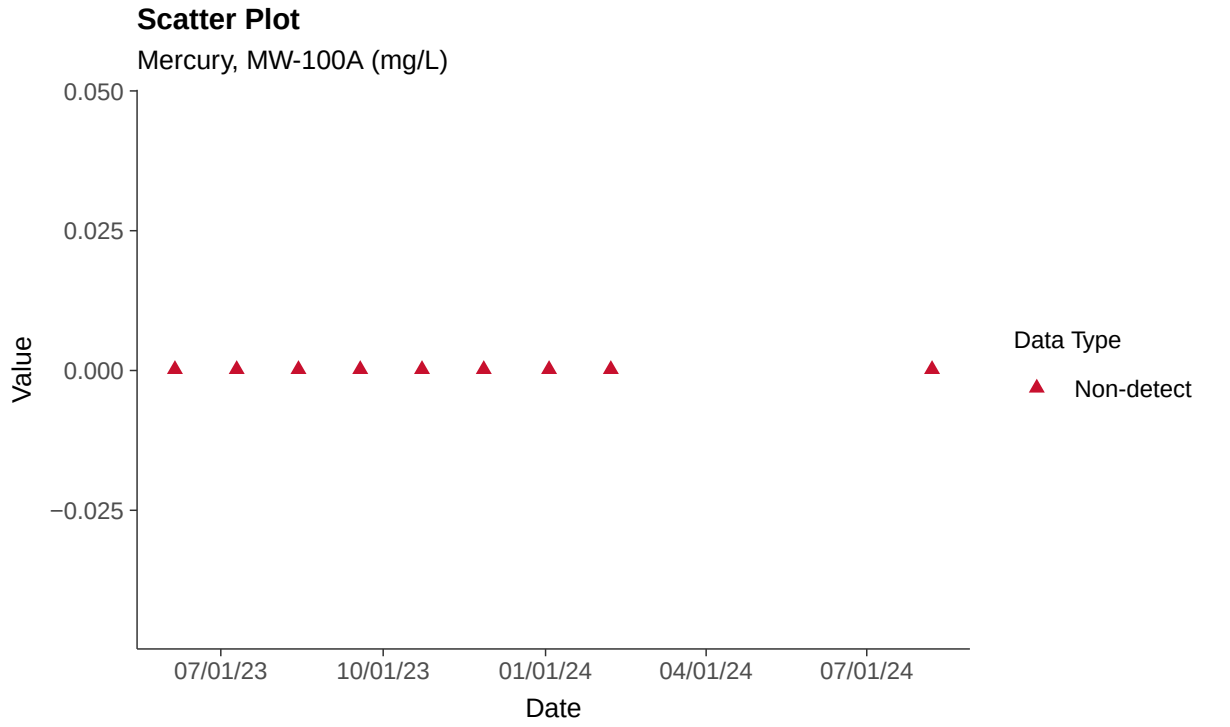
Trend Regression: Piecewise Linear-Linear-Linear

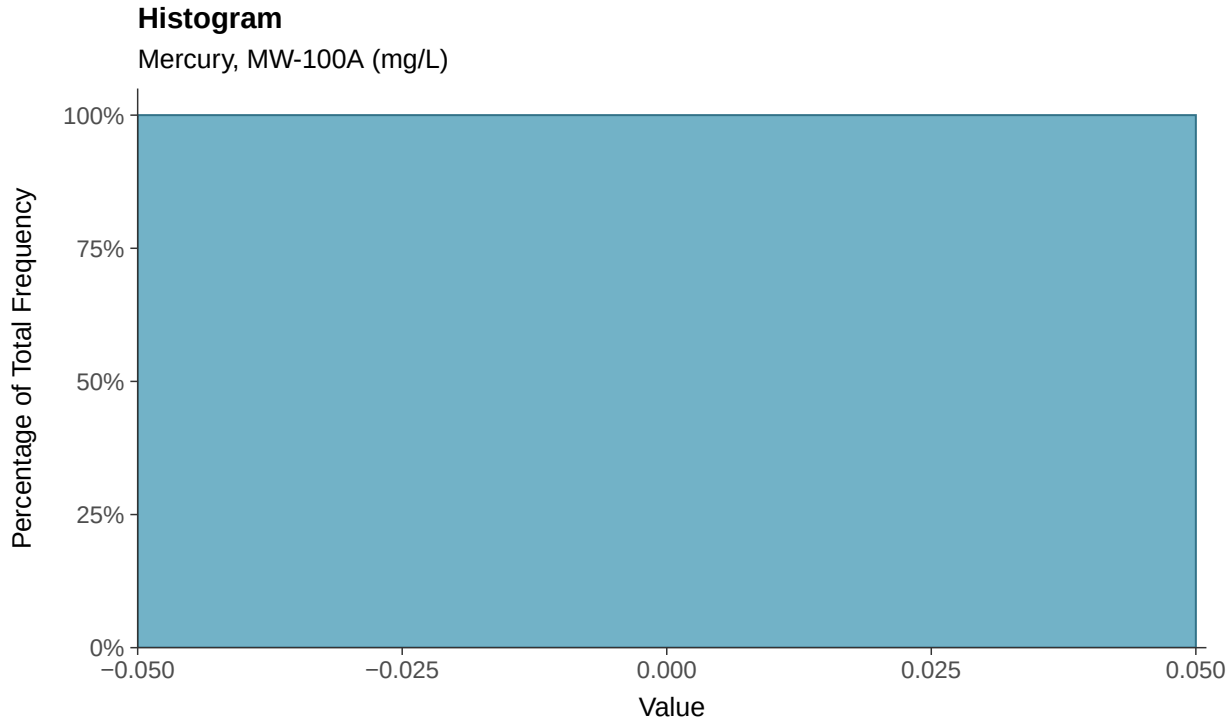
Lithium, MW-100A (mg/L)



Appendix IV: Mercury, MW-100A

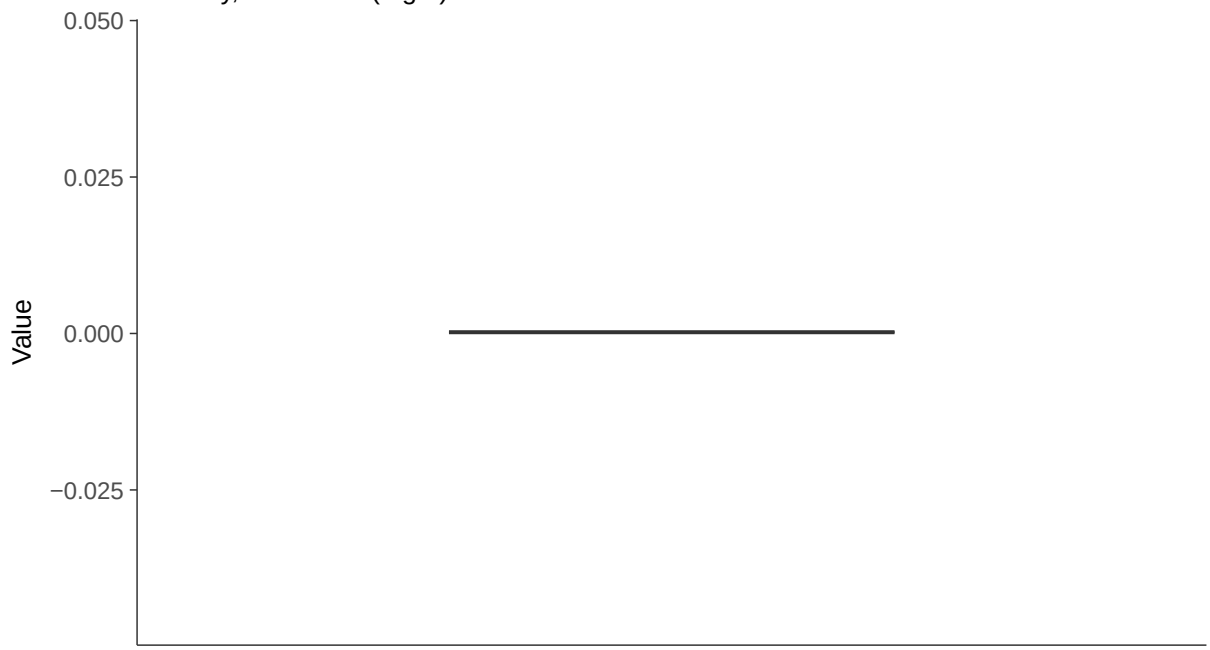
ID: 100A_2_17





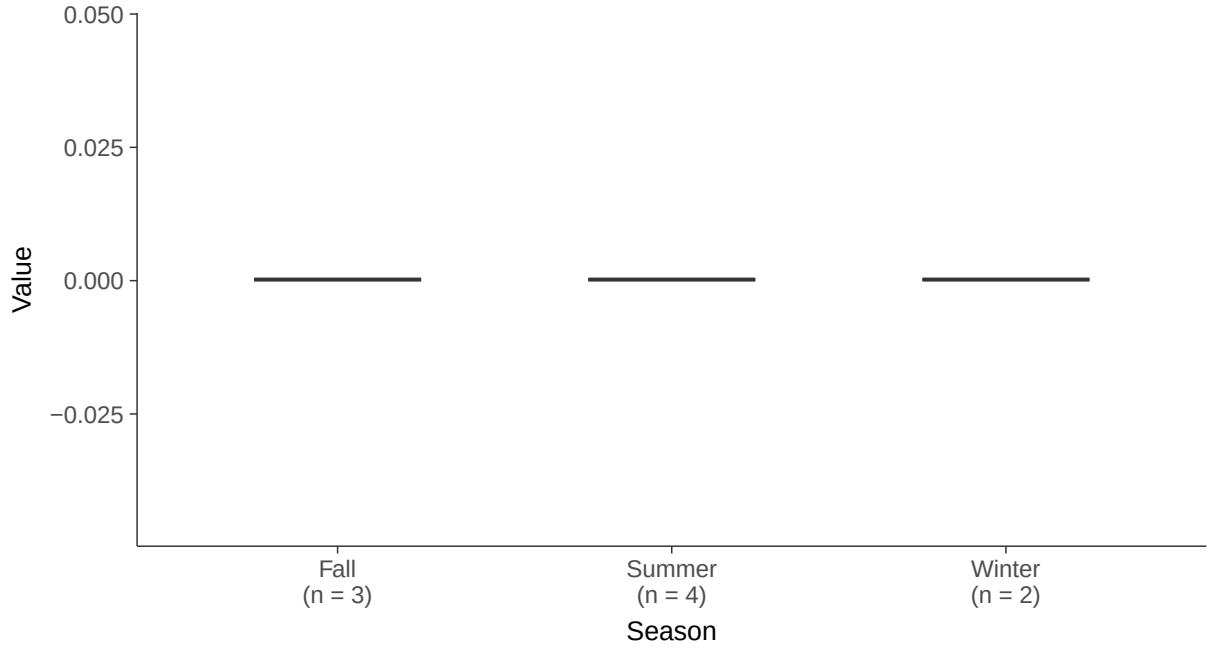
Boxplot

Mercury, MW-100A (mg/L)



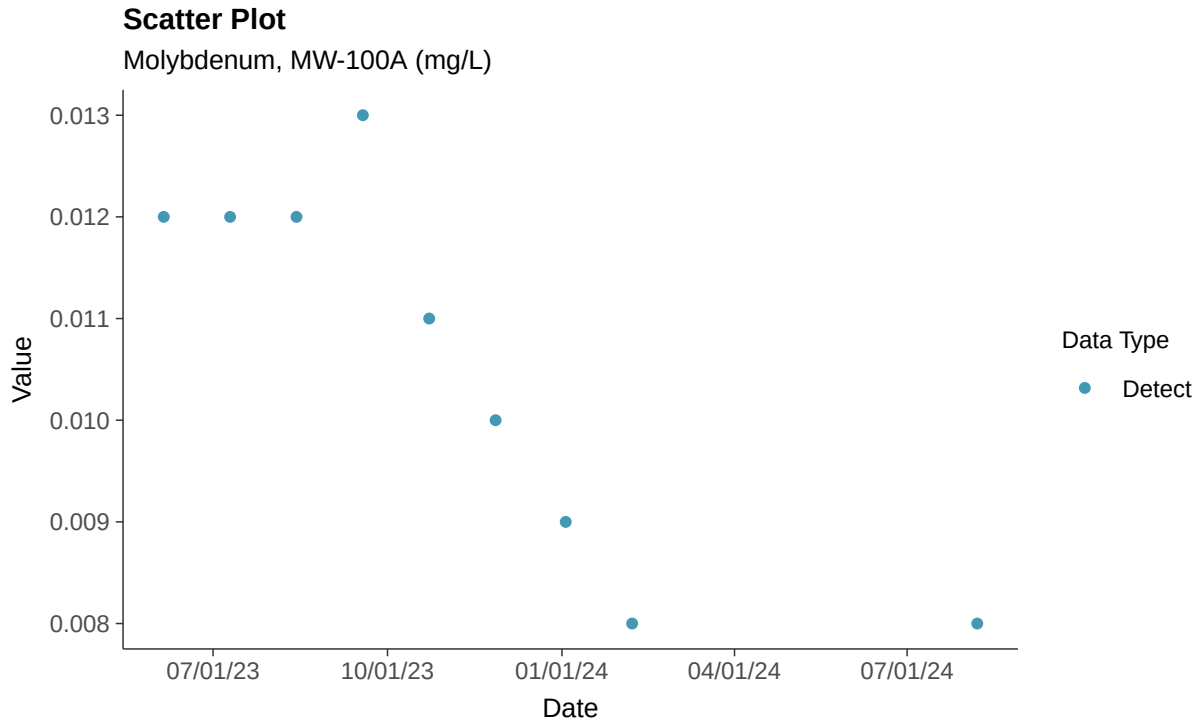
Boxplot by Season

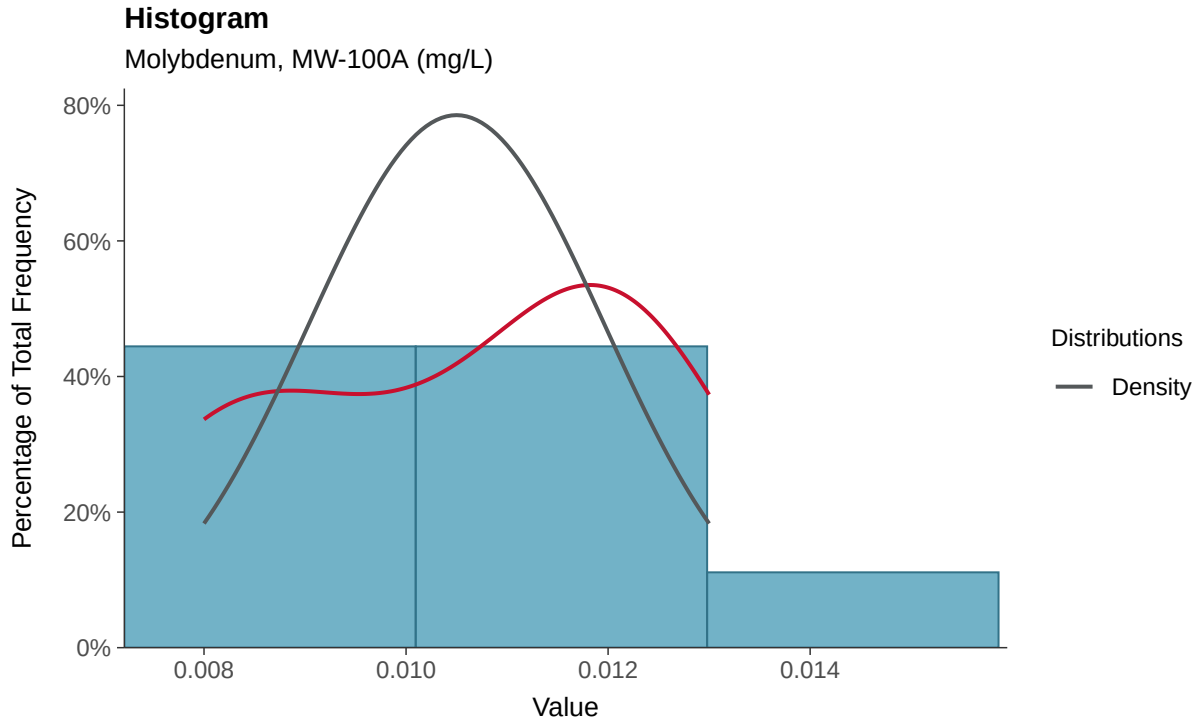
Mercury, MW-100A (mg/L)



Appendix IV: Molybdenum, MW-100A

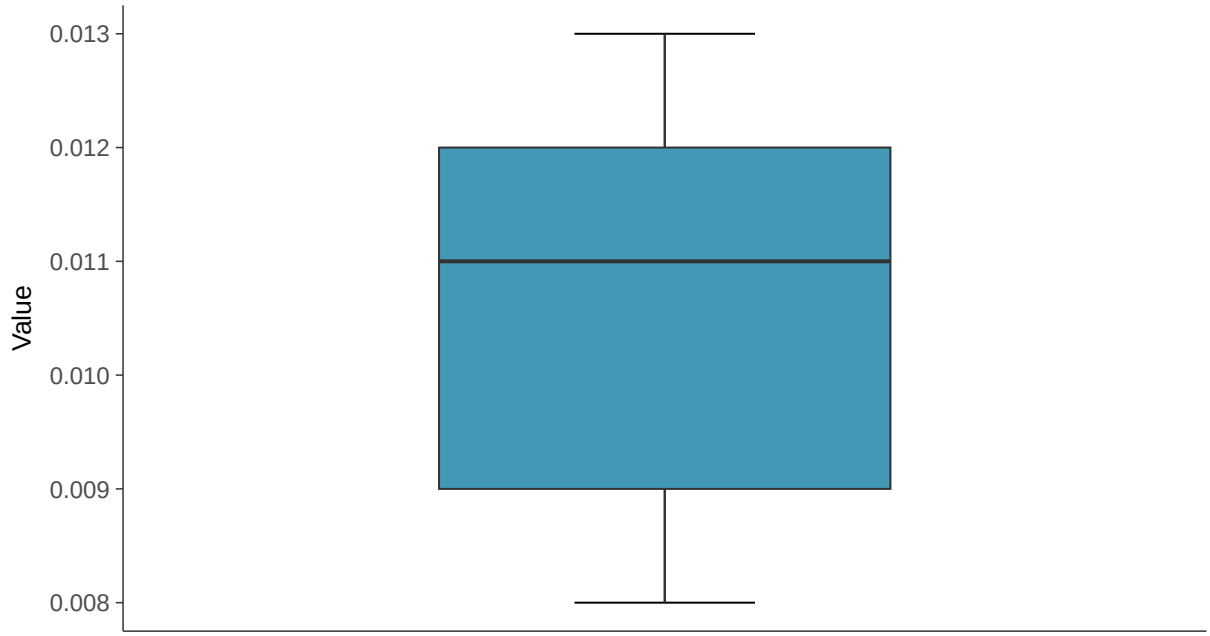
ID: 100A_2_18





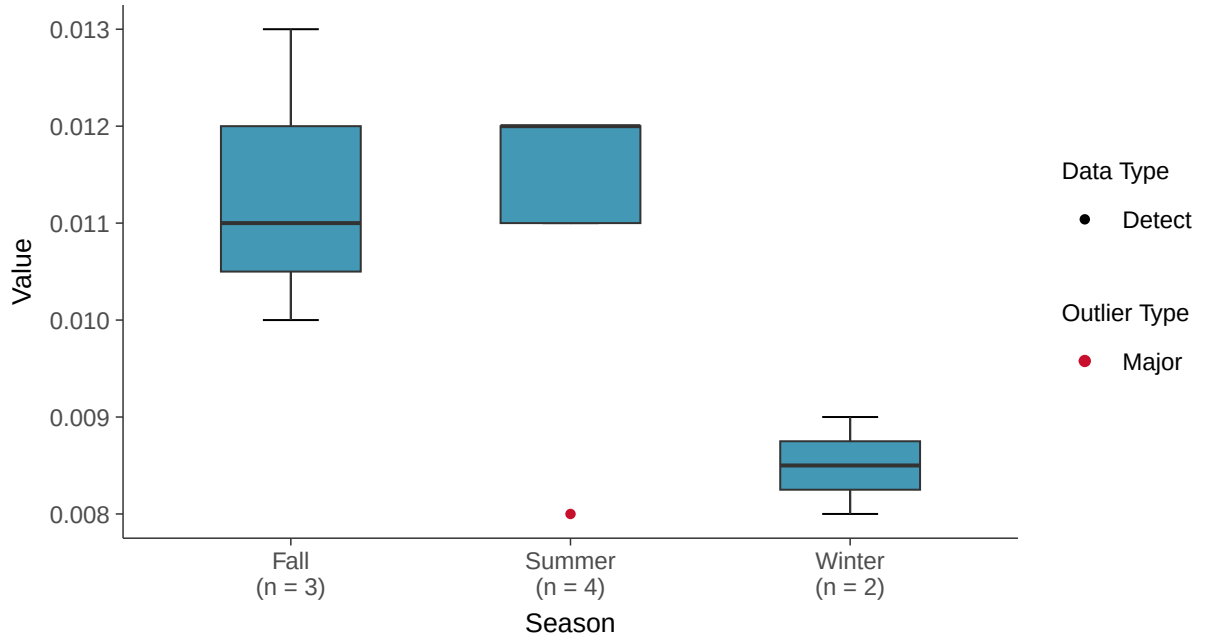
Boxplot

Molybdenum, MW-100A (mg/L)



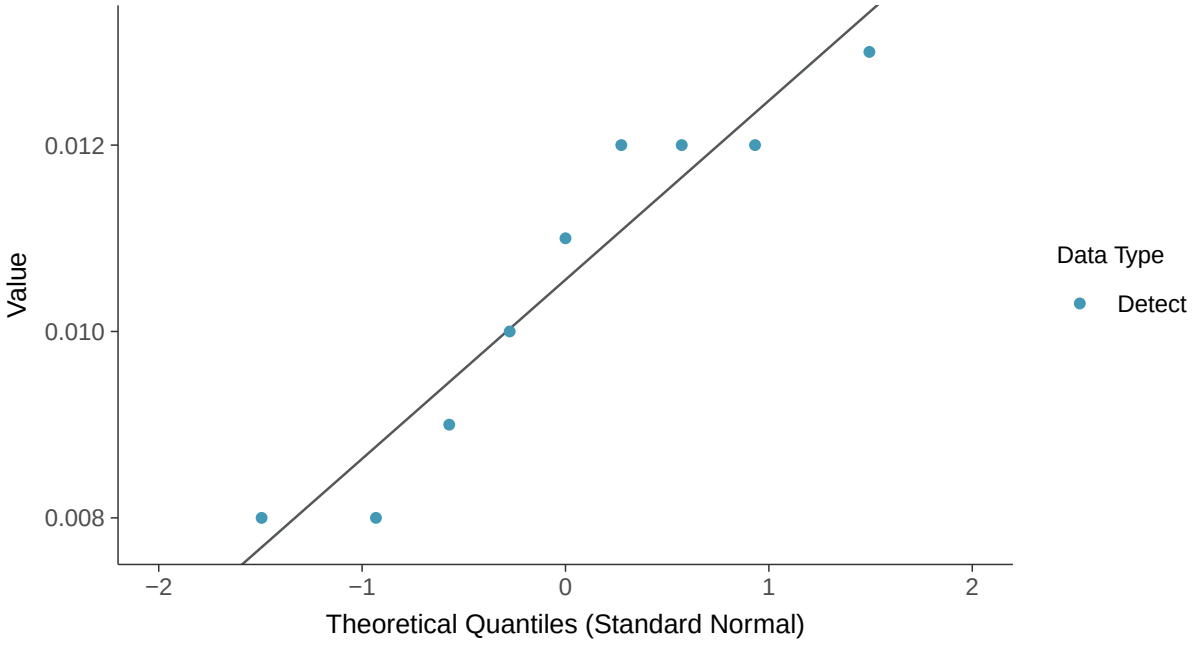
Boxplot by Season

Molybdenum, MW-100A (mg/L)



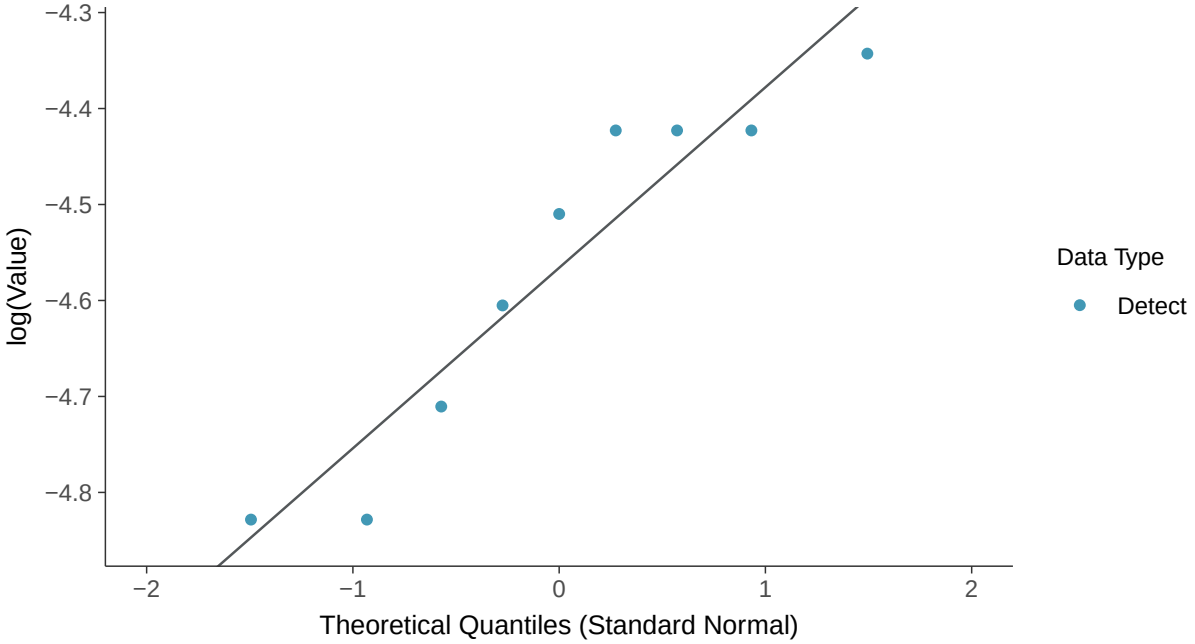
Normal Q-Q plot

Molybdenum, MW-100A (mg/L)



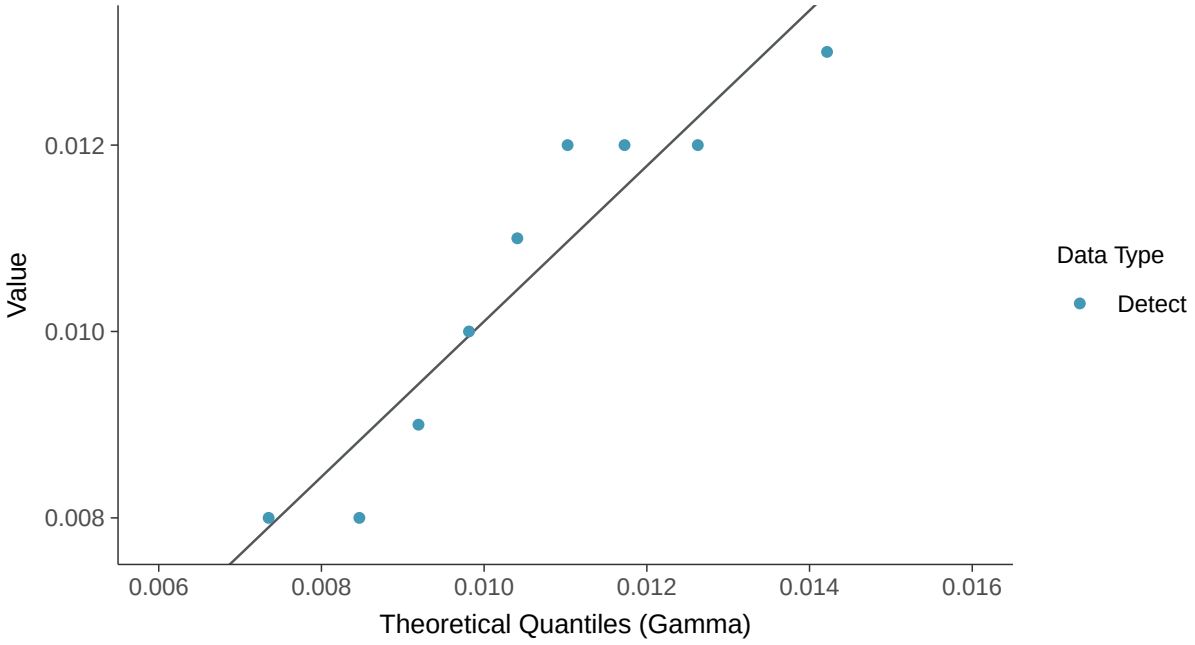
Lognormal Q-Q plot

Molybdenum, MW-100A (mg/L)



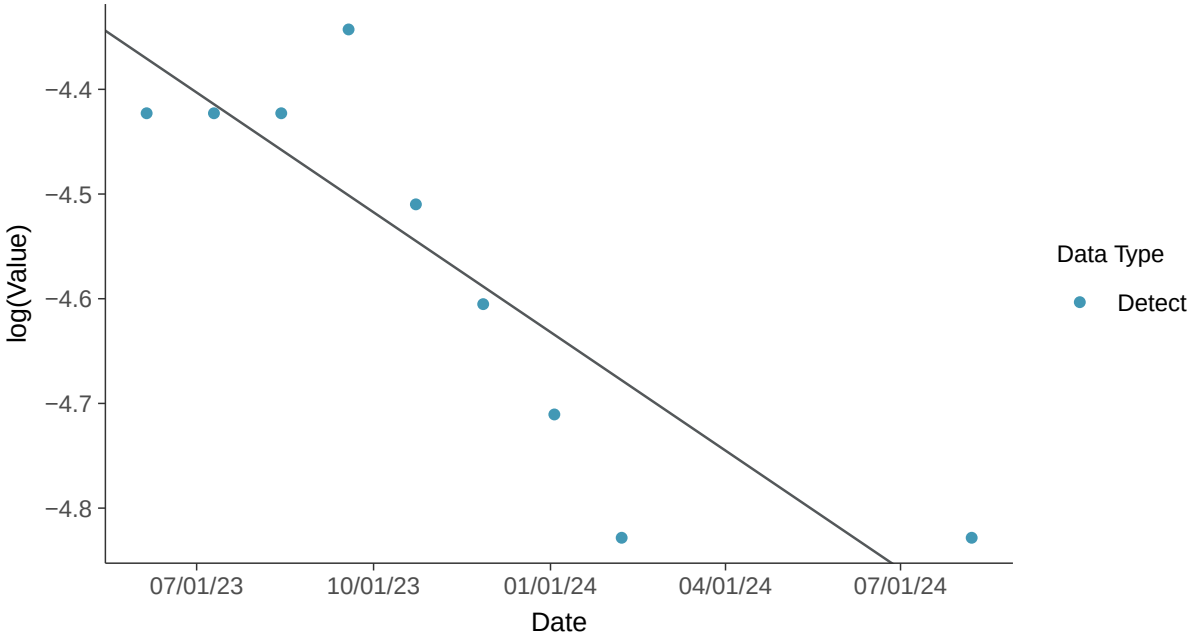
Gamma Q-Q plot

Molybdenum, MW-100A (mg/L)



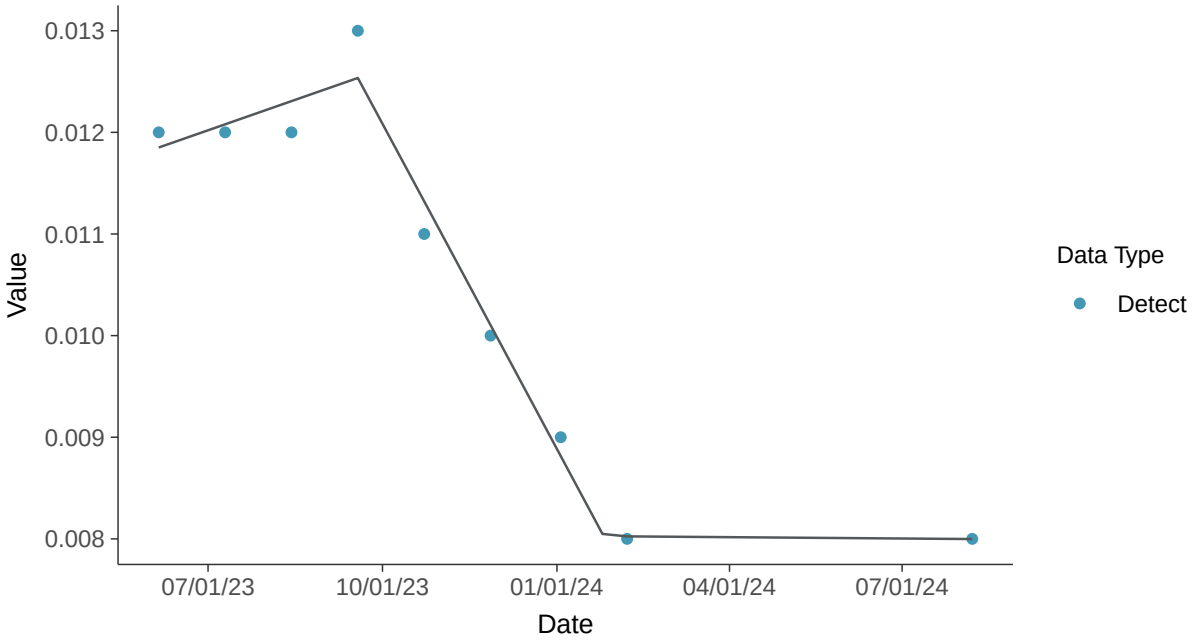
Trend Regression: Lognormal MLE

Molybdenum, MW-100A (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Molybdenum, MW-100A (mg/L)

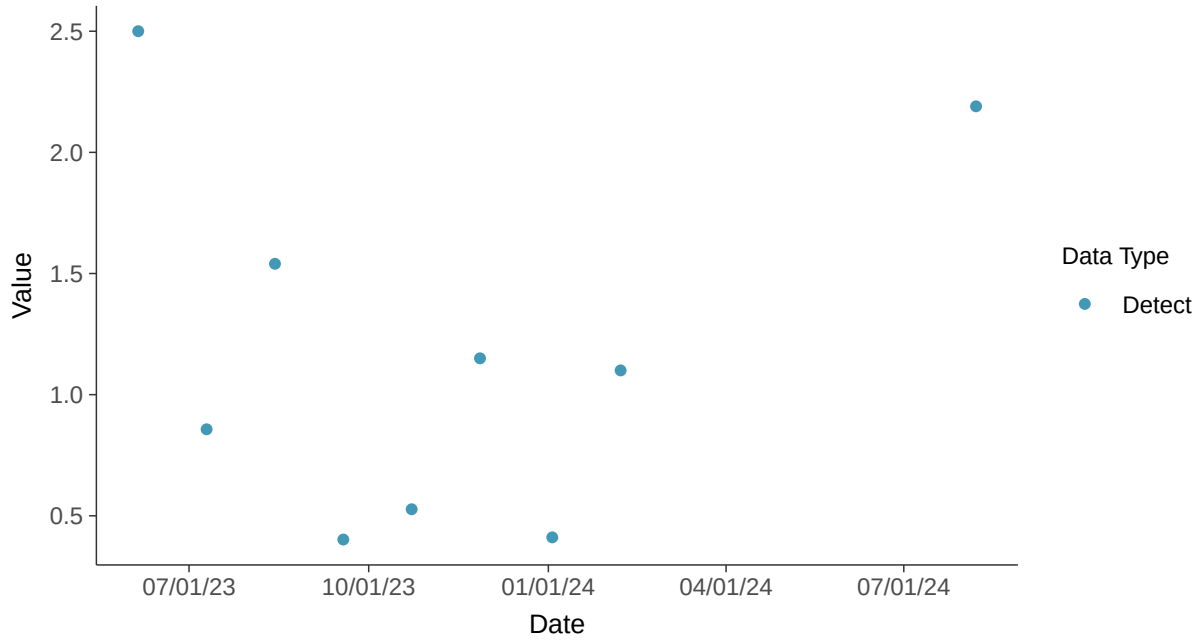


Appendix IV: Radium-226/228, MW-100A

ID: 100A_2_21

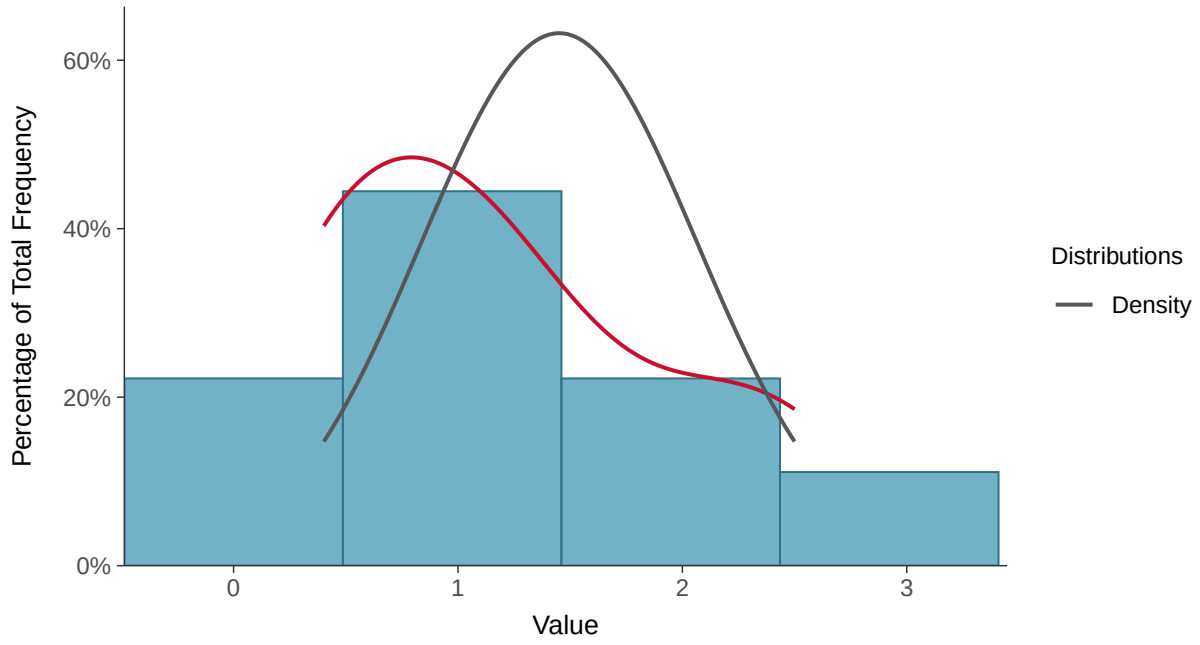
Scatter Plot

Radium-226/228, MW-100A (pCi/L)



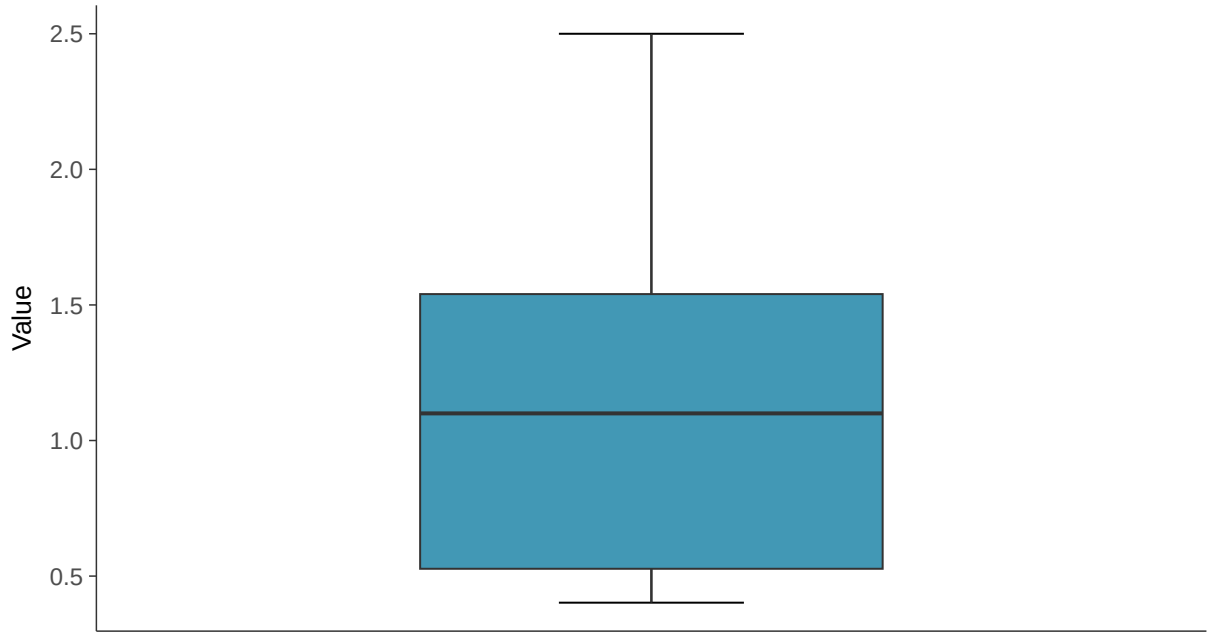
Histogram

Radium-226/228, MW-100A (pCi/L)



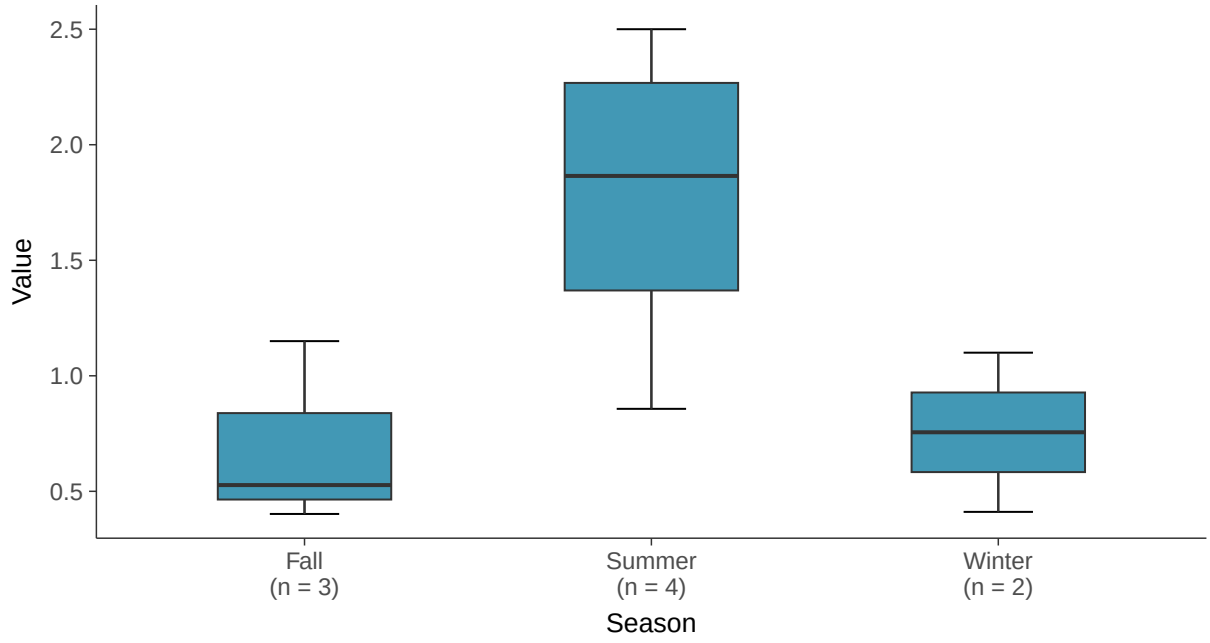
Boxplot

Radium-226/228, MW-100A (pCi/L)



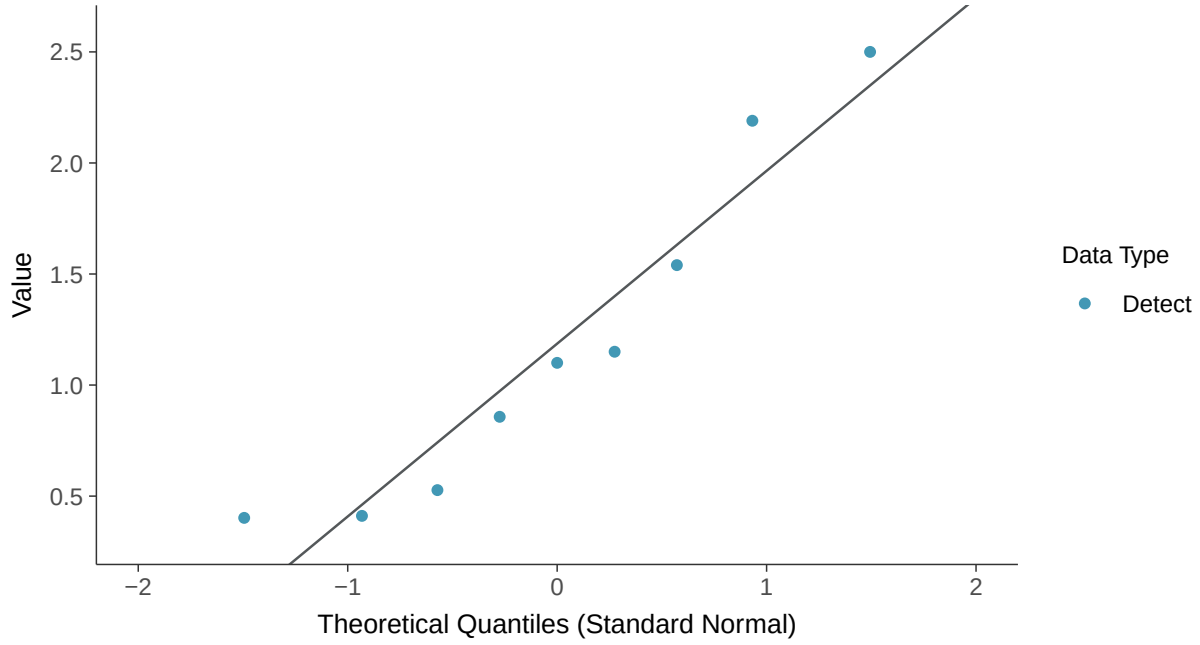
Boxplot by Season

Radium-226/228, MW-100A (pCi/L)



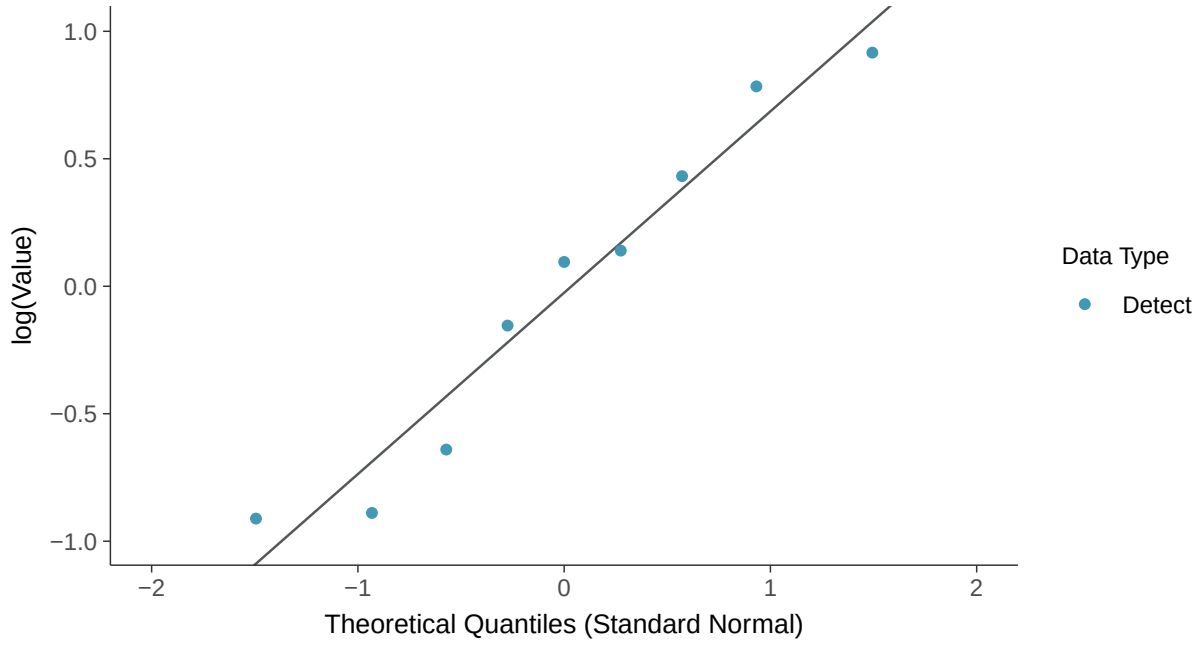
Normal Q-Q plot

Radium-226/228, MW-100A (pCi/L)



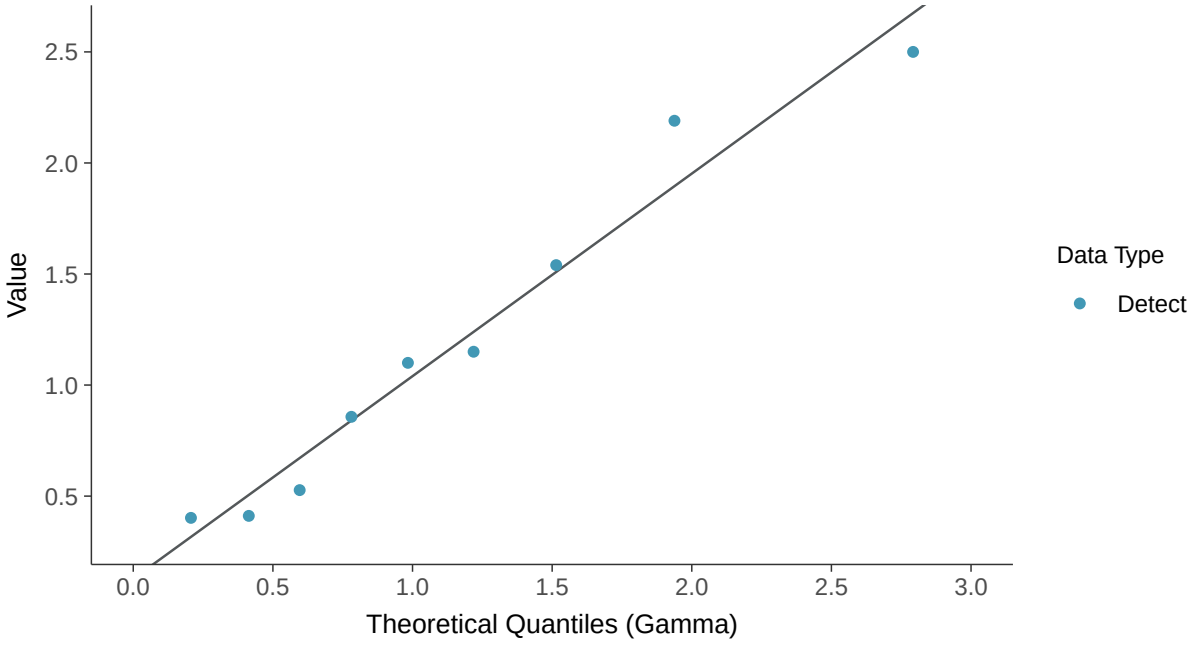
Lognormal Q-Q plot

Radium-226/228, MW-100A (pCi/L)



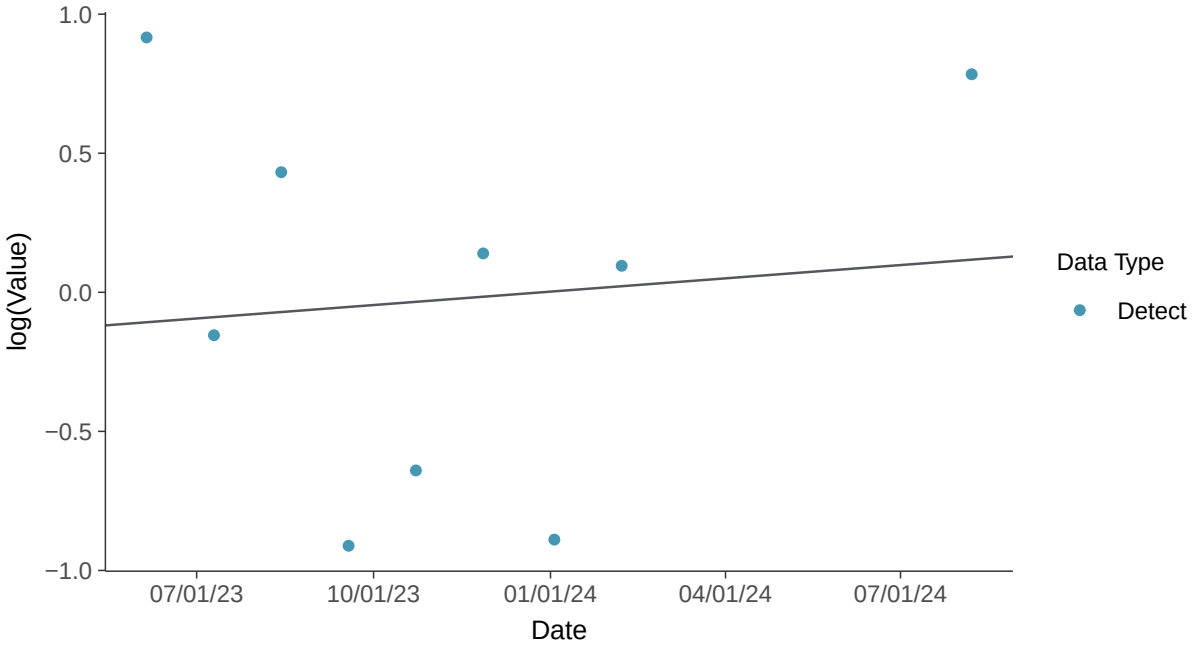
Gamma Q-Q plot

Radium-226/228, MW-100A (pCi/L)



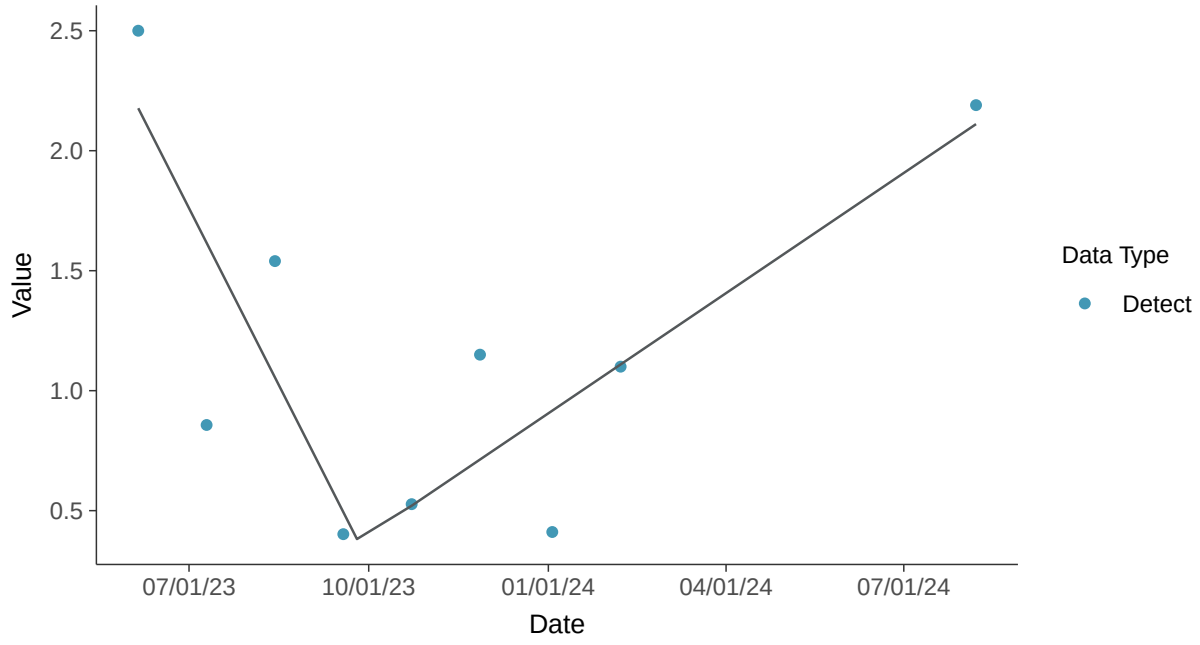
Trend Regression: Lognormal MLE

Radium-226/228, MW-100A (pCi/L)



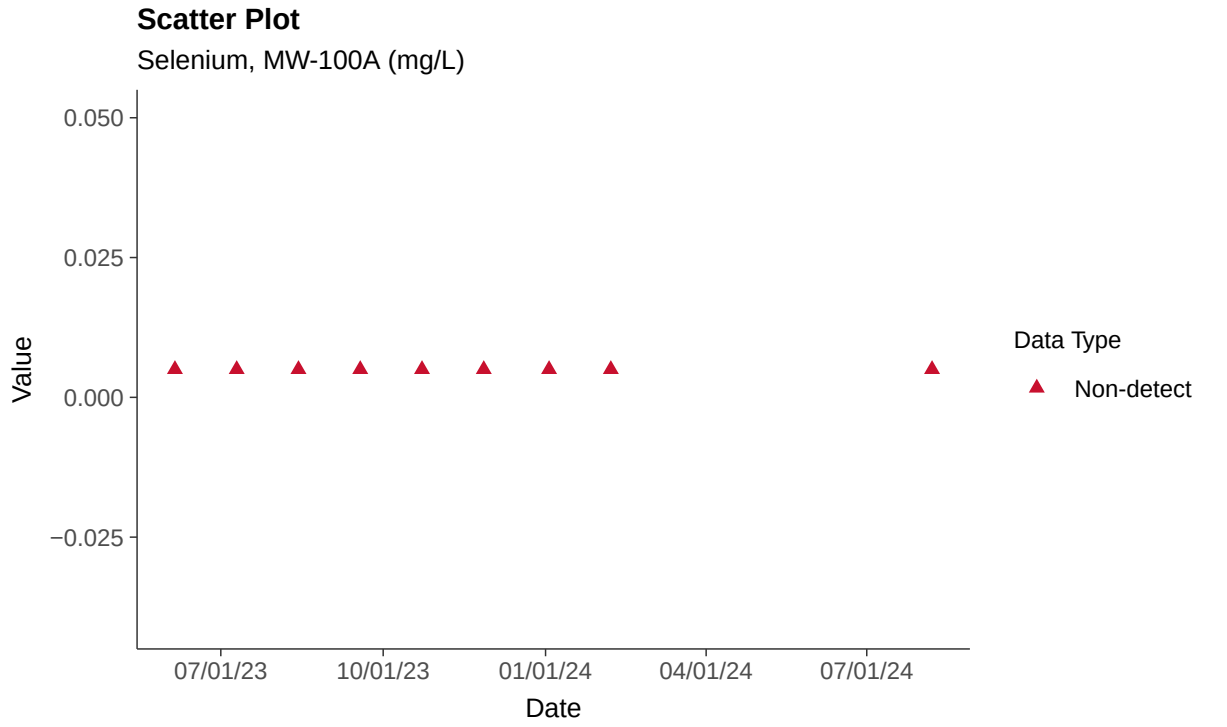
Trend Regression: Piecewise Linear-Linear

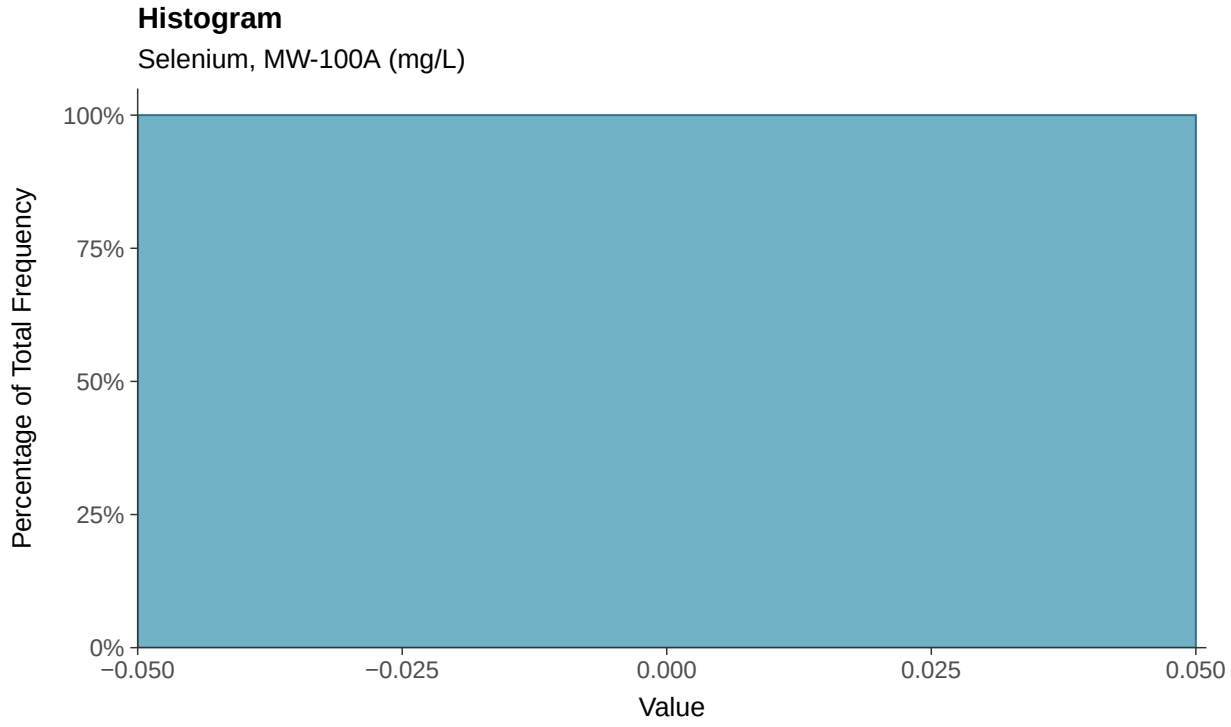
Radium-226/228, MW-100A (pCi/L)



Appendix IV: Selenium, MW-100A

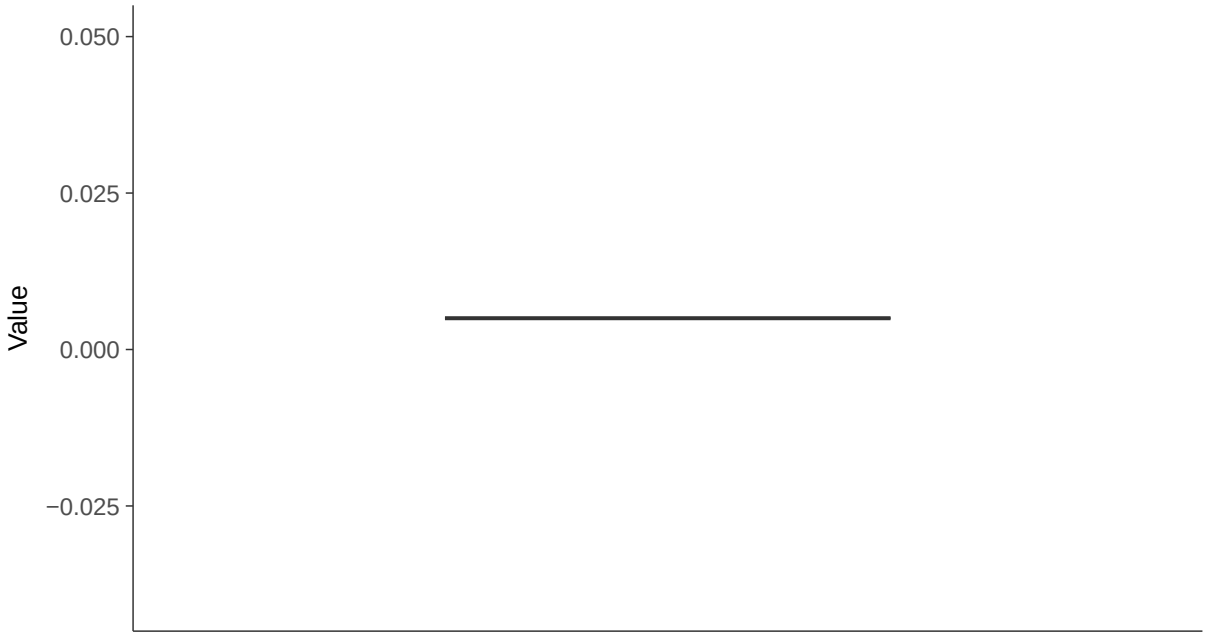
ID: 100A_2_22





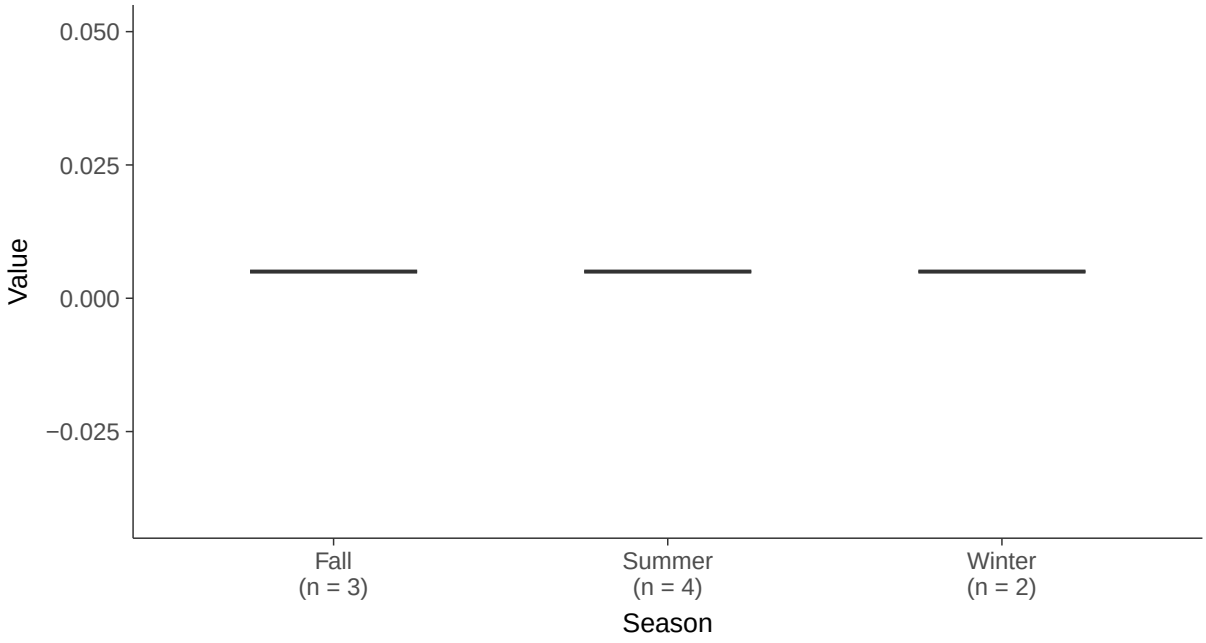
Boxplot

Selenium, MW-100A (mg/L)



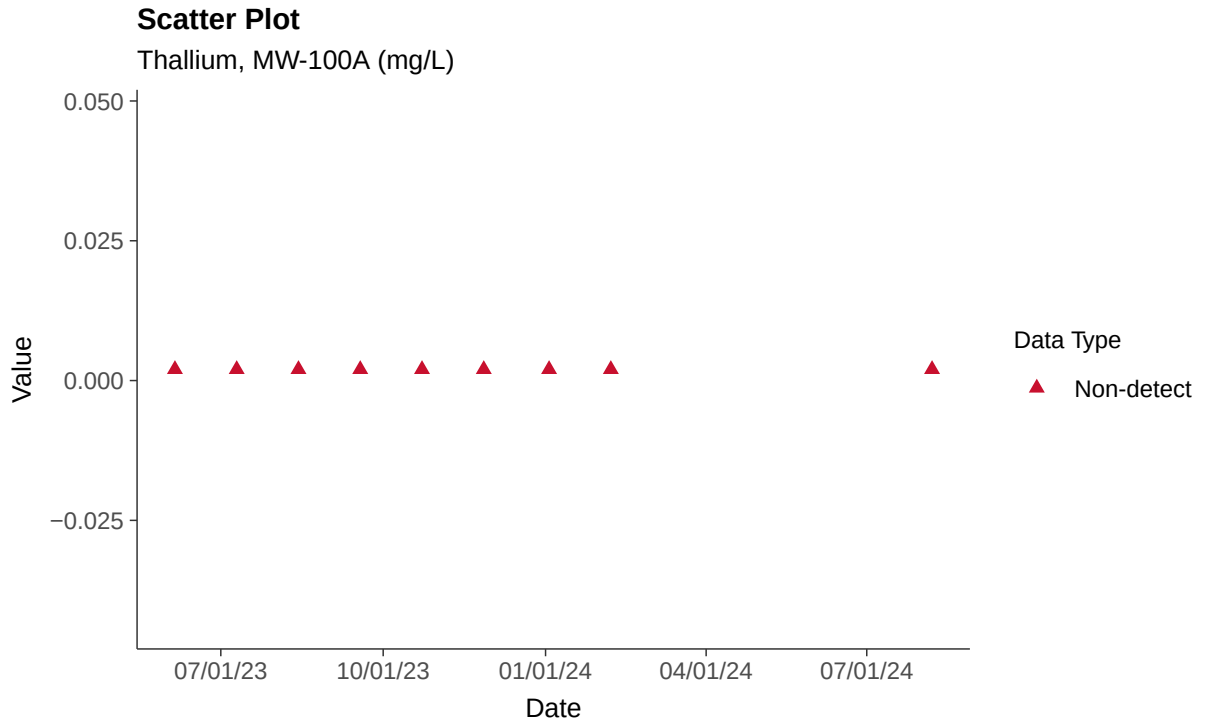
Boxplot by Season

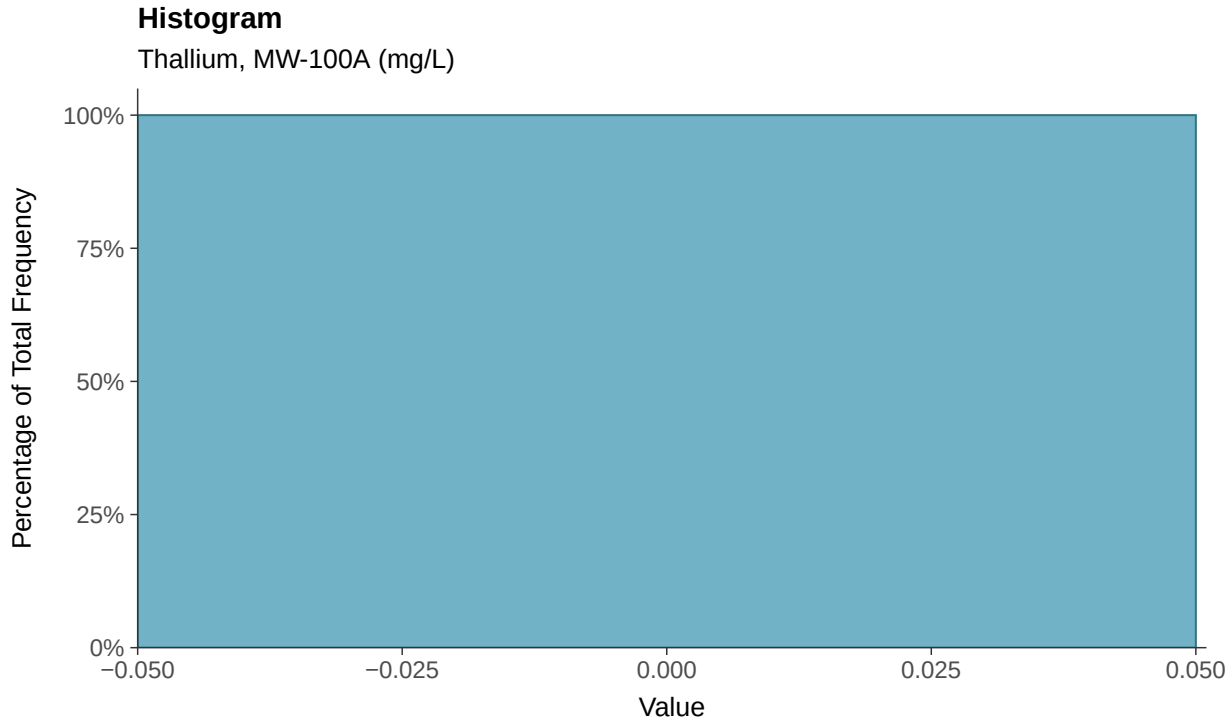
Selenium, MW-100A (mg/L)



Appendix IV: Thallium, MW-100A

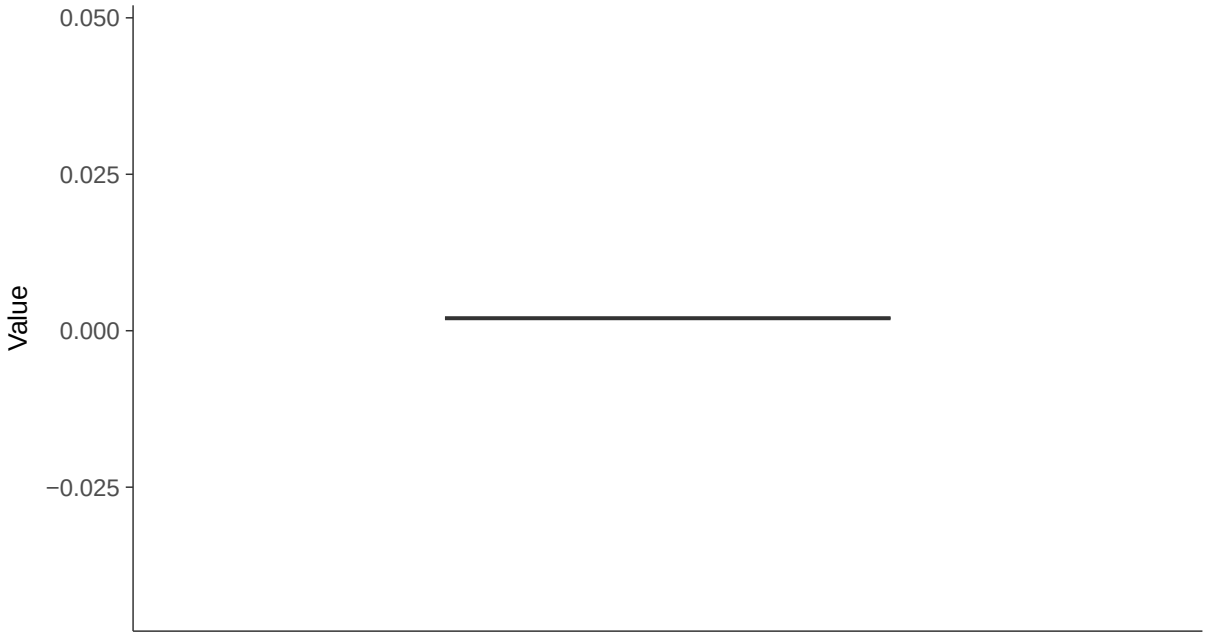
ID: 100A_2_23





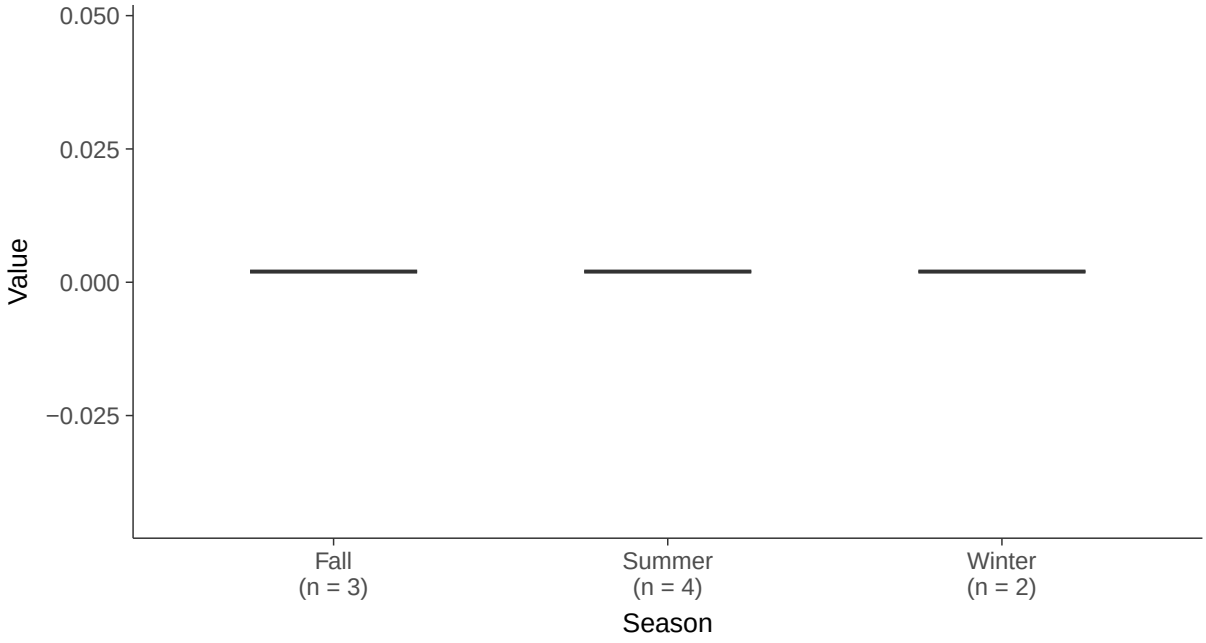
Boxplot

Thallium, MW-100A (mg/L)



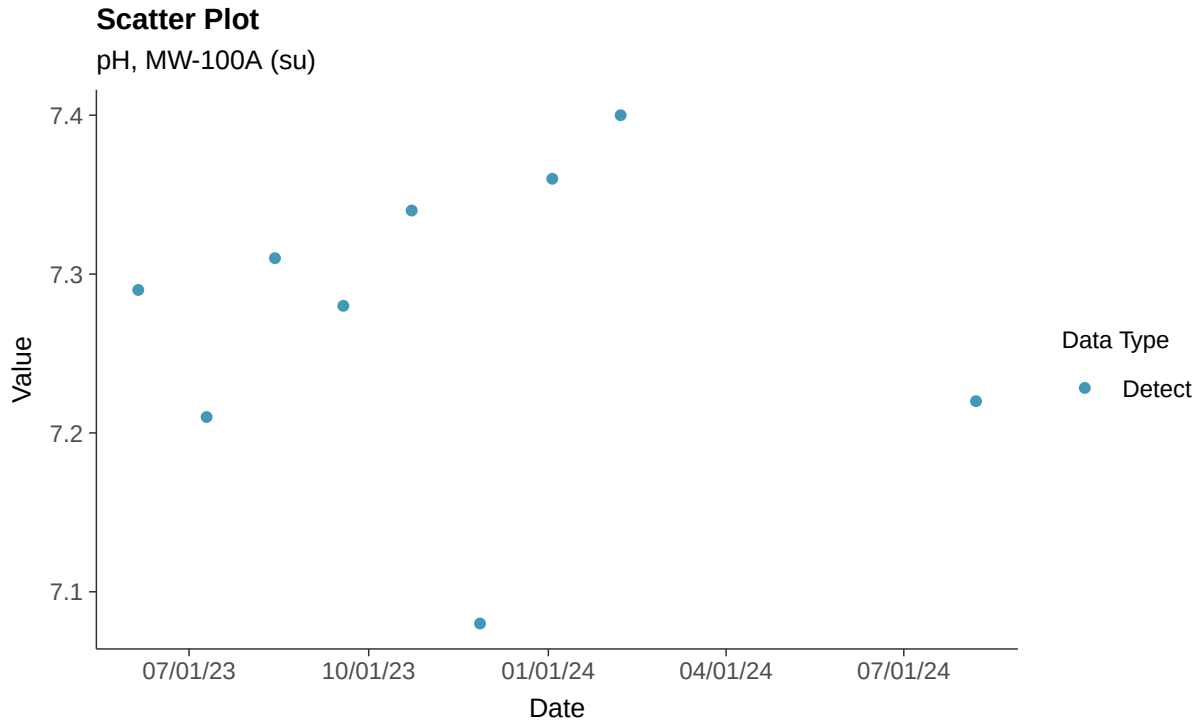
Boxplot by Season

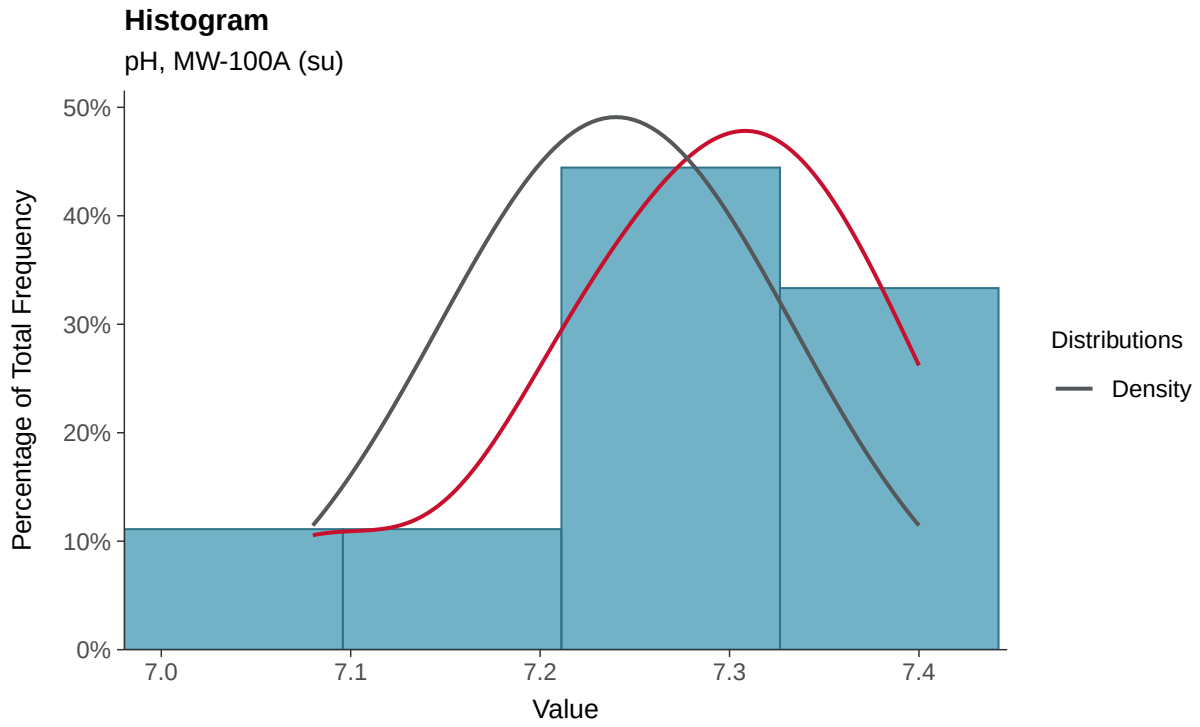
Thallium, MW-100A (mg/L)



Field Parameters: pH, MW-100A

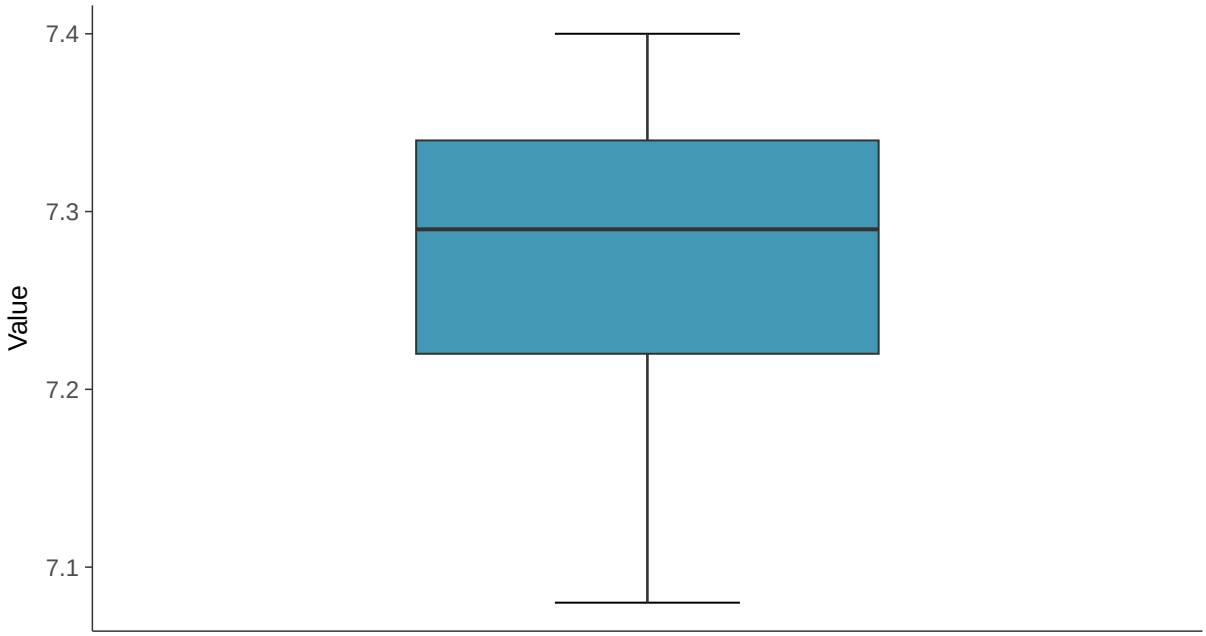
ID: 100A_3_24





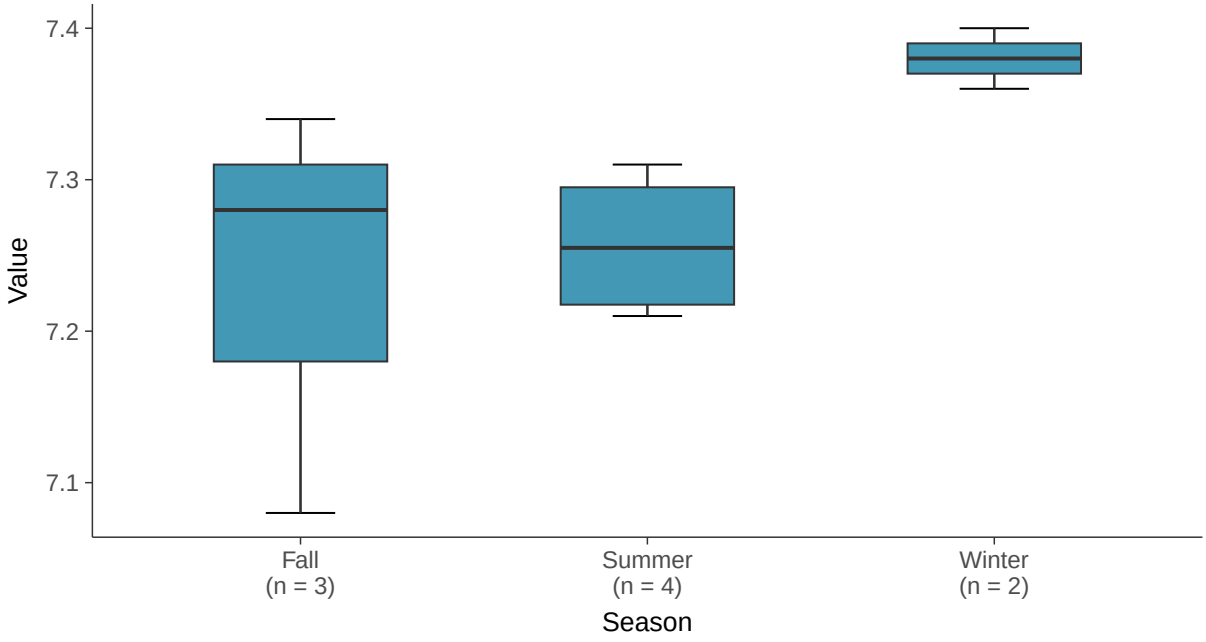
Boxplot

pH, MW-100A (su)



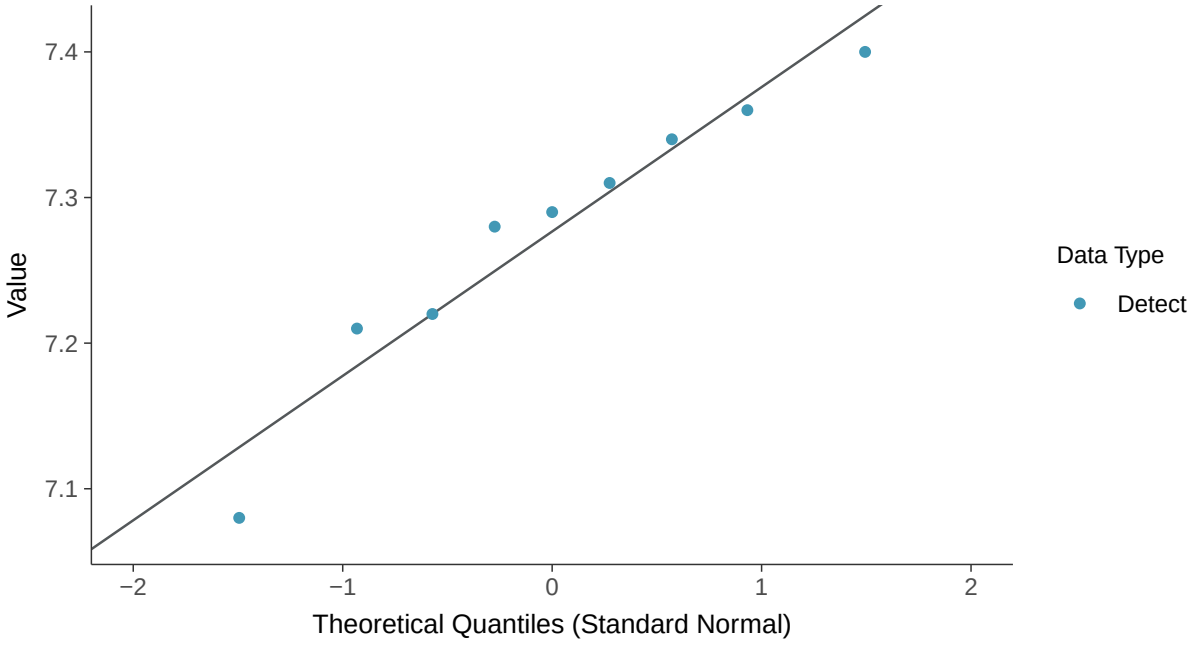
Boxplot by Season

pH, MW-100A (su)



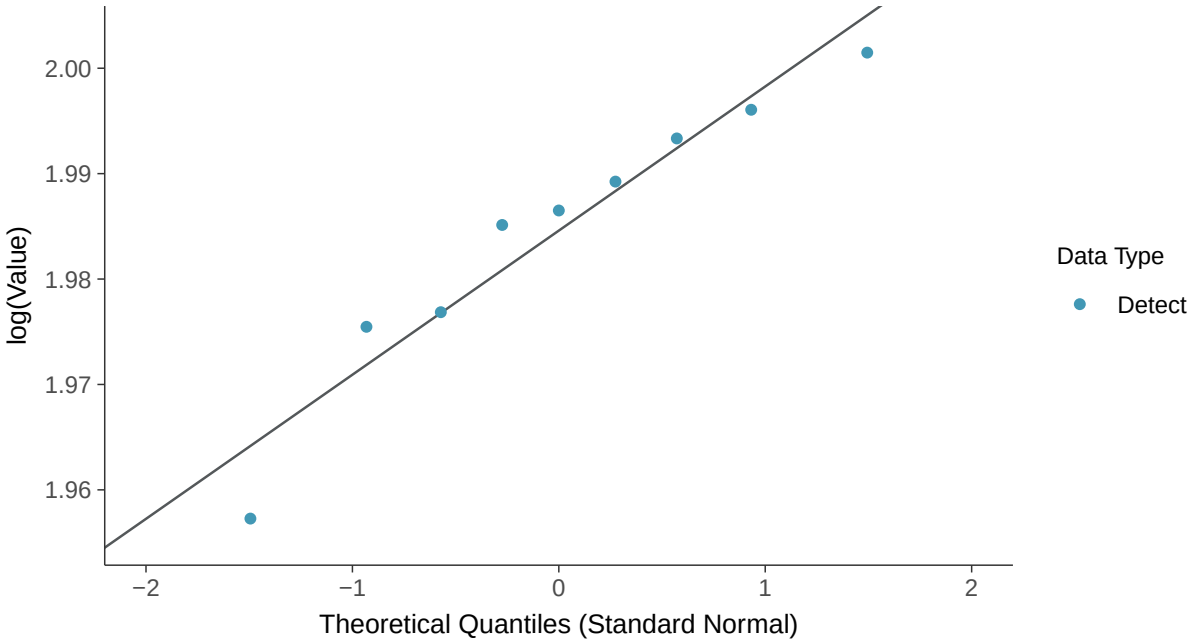
Normal Q-Q plot

pH, MW-100A (su)



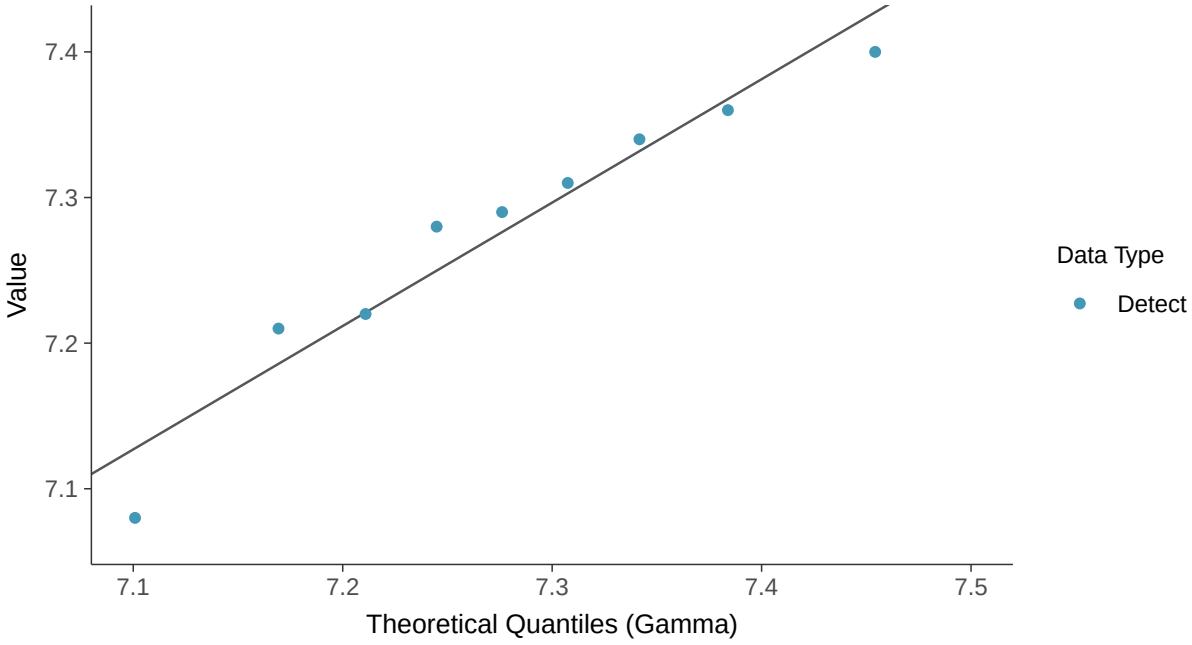
Lognormal Q-Q plot

pH, MW-100A (su)



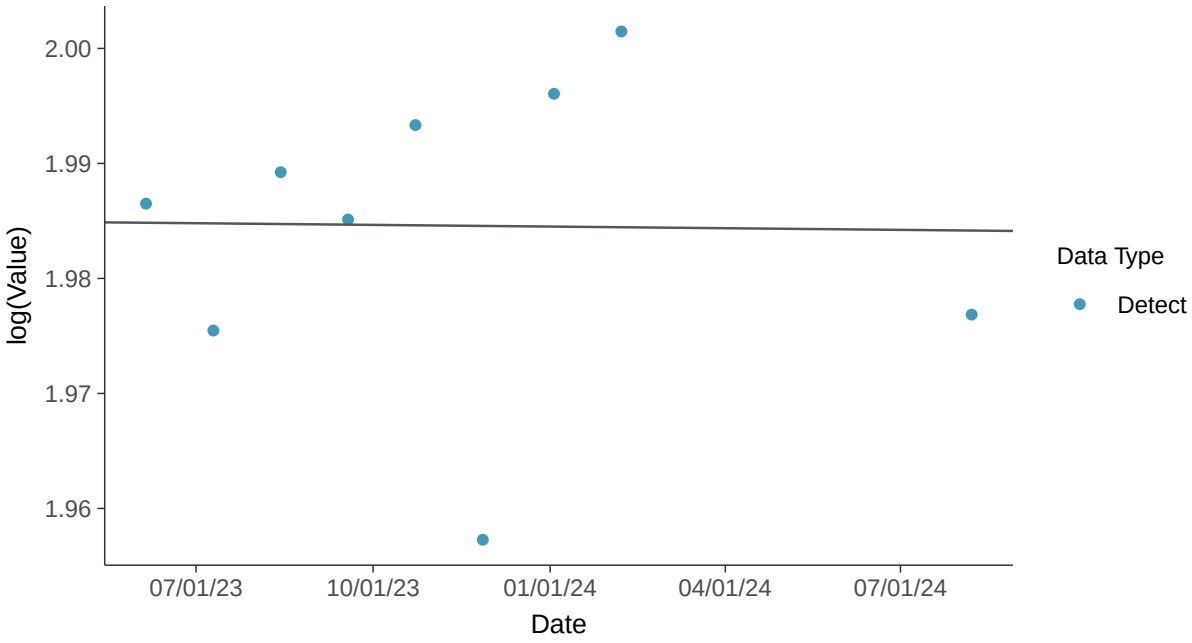
Gamma Q-Q plot

pH, MW-100A (su)



Trend Regression: Lognormal MLE

pH, MW-100A (su)

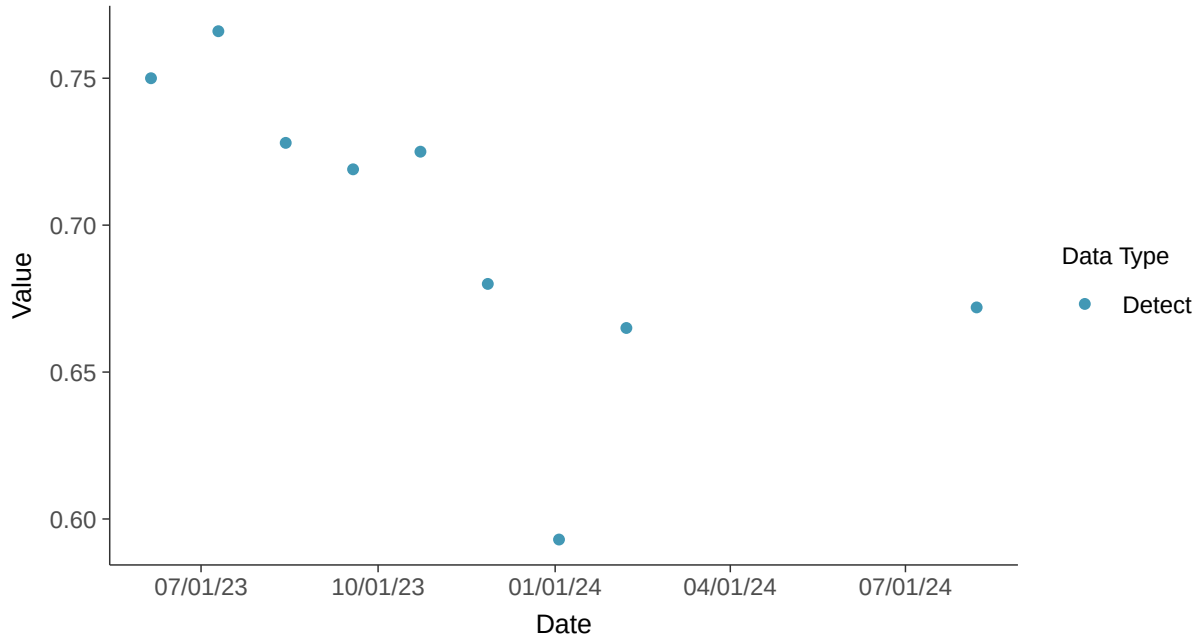


Field Parameters: Conductivity, MW-100A

ID: 100A_3_25

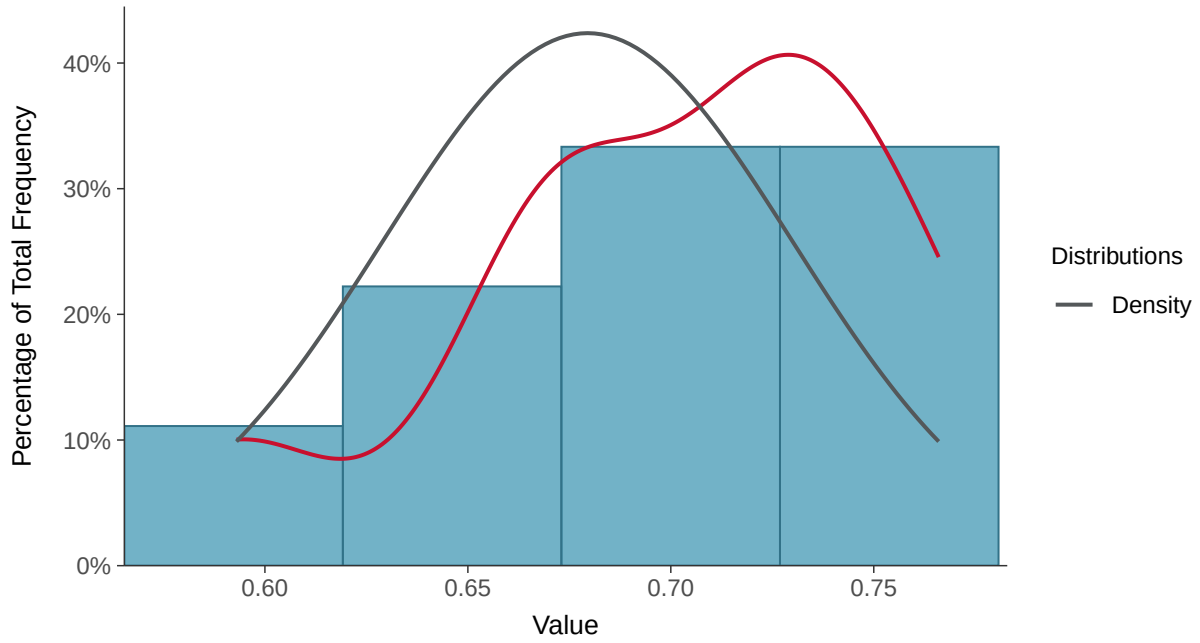
Scatter Plot

Conductivity, MW-100A (mS/cm)



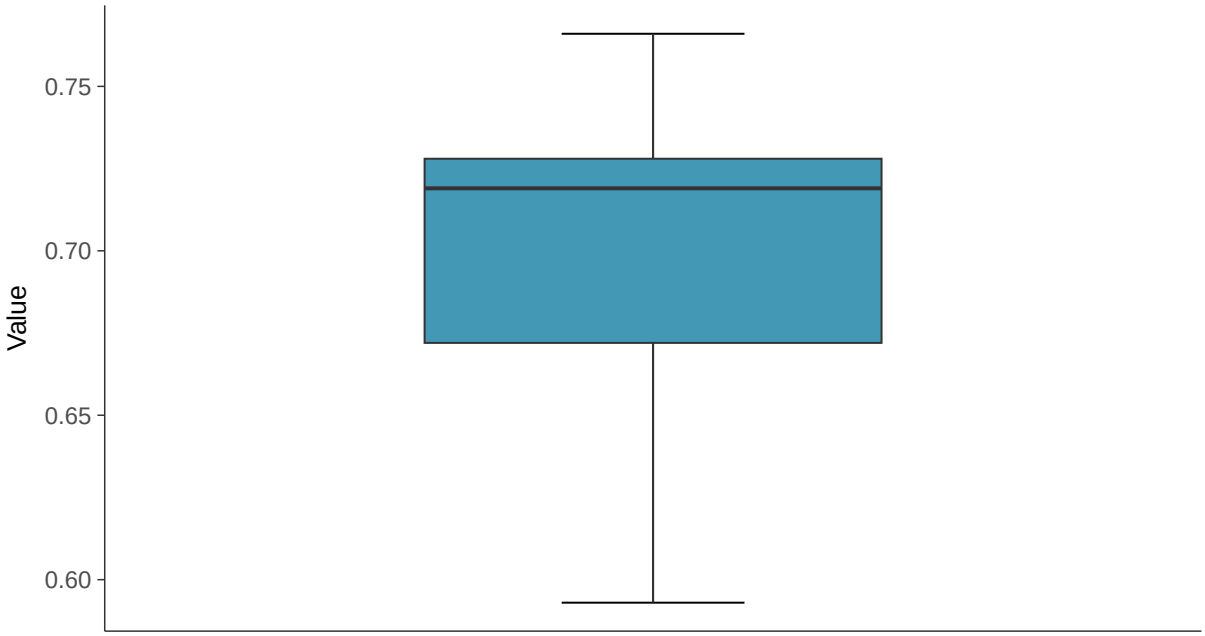
Histogram

Conductivity, MW-100A (mS/cm)



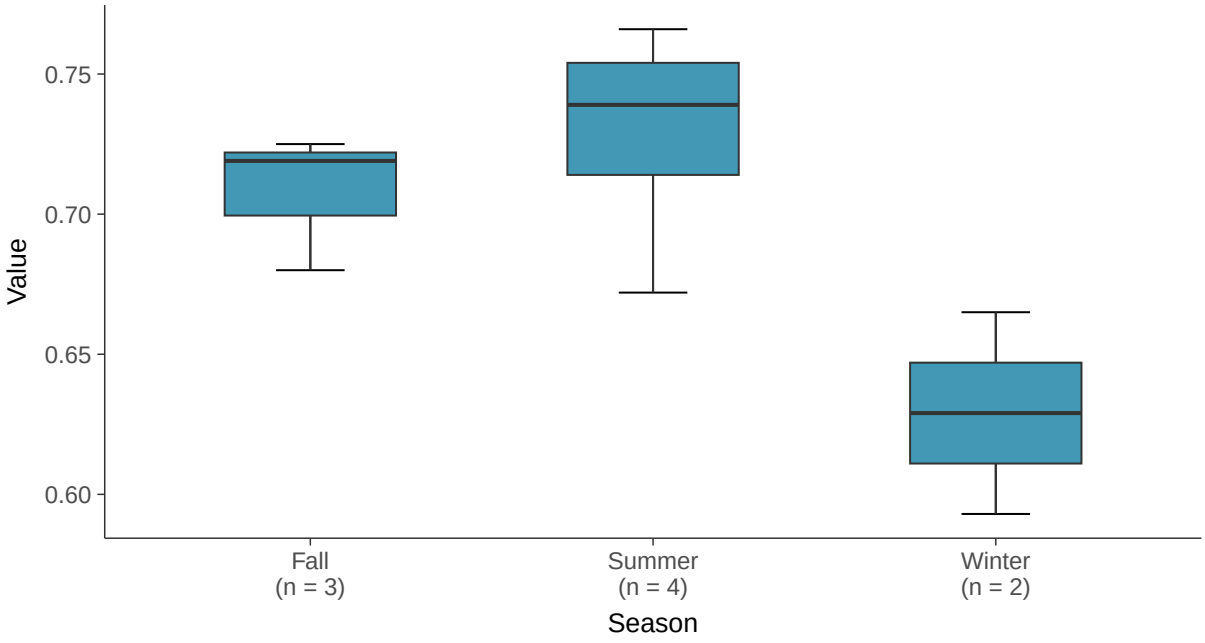
Boxplot

Conductivity, MW-100A (mS/cm)



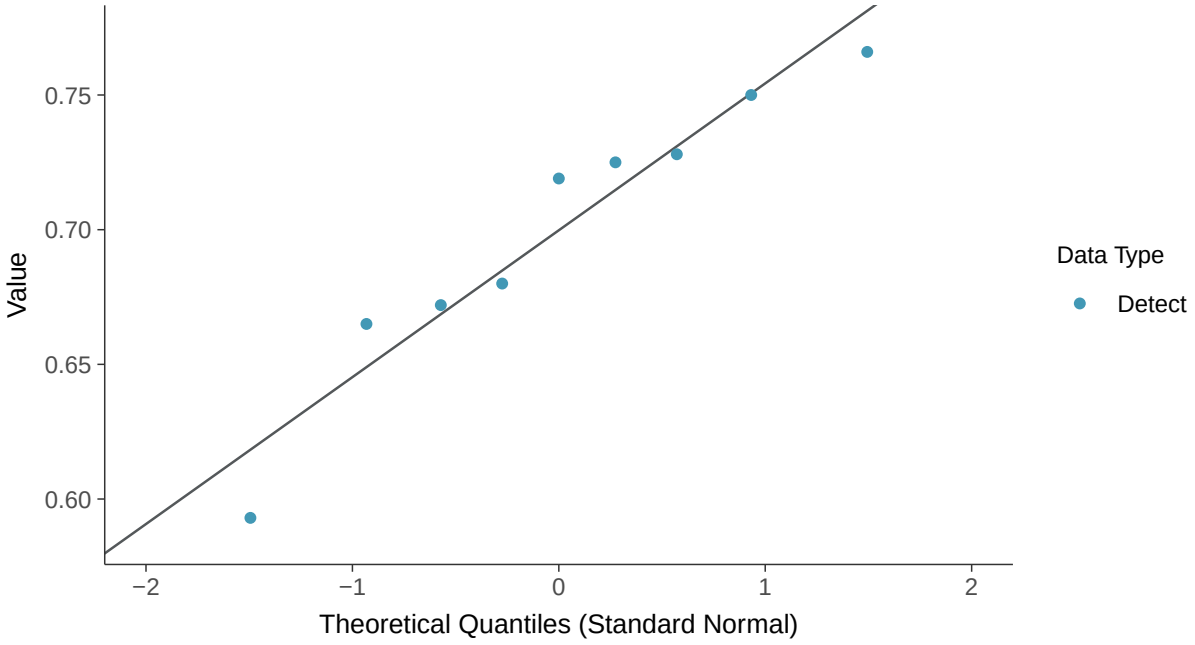
Boxplot by Season

Conductivity, MW-100A (mS/cm)



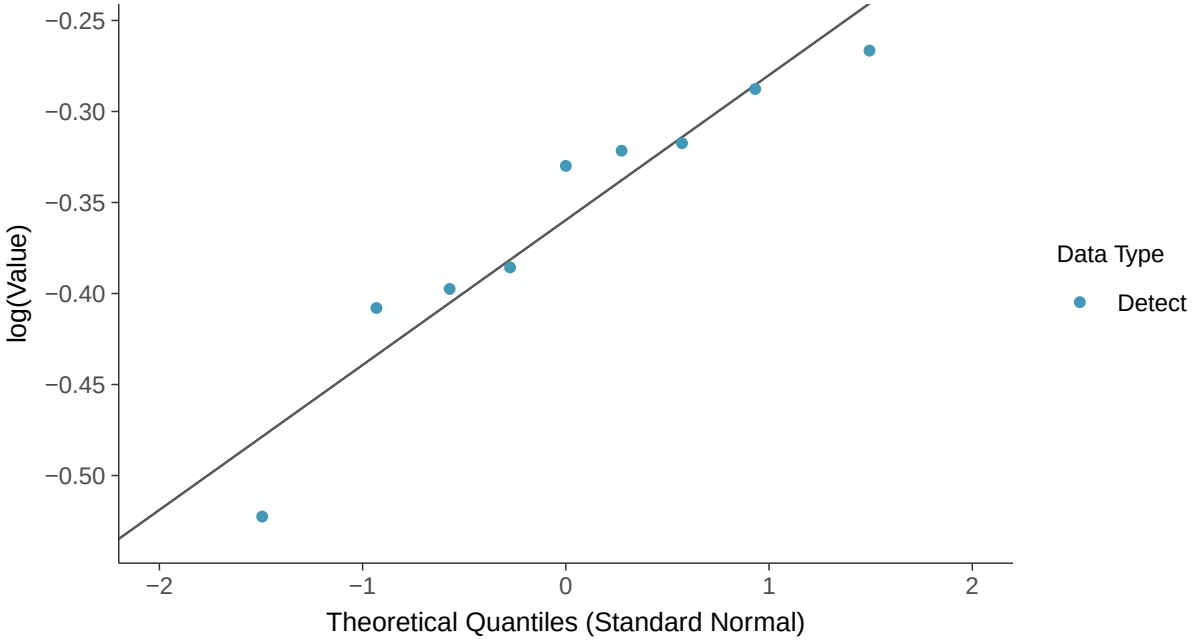
Normal Q-Q plot

Conductivity, MW-100A (mS/cm)



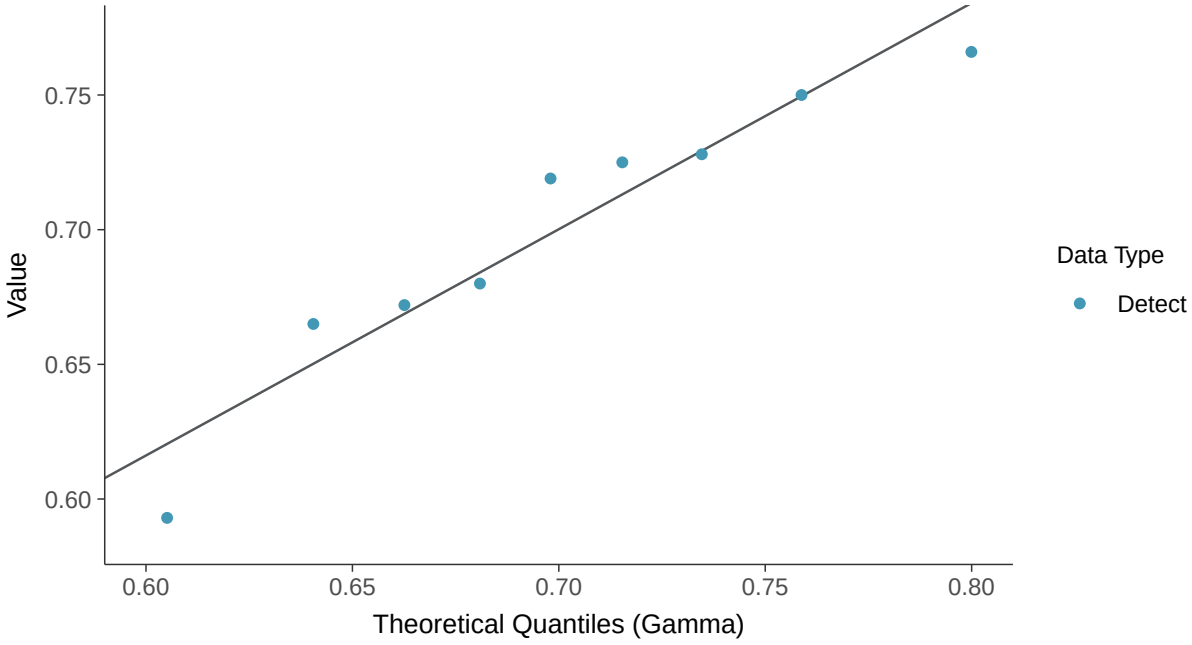
Lognormal Q-Q plot

Conductivity, MW-100A (mS/cm)



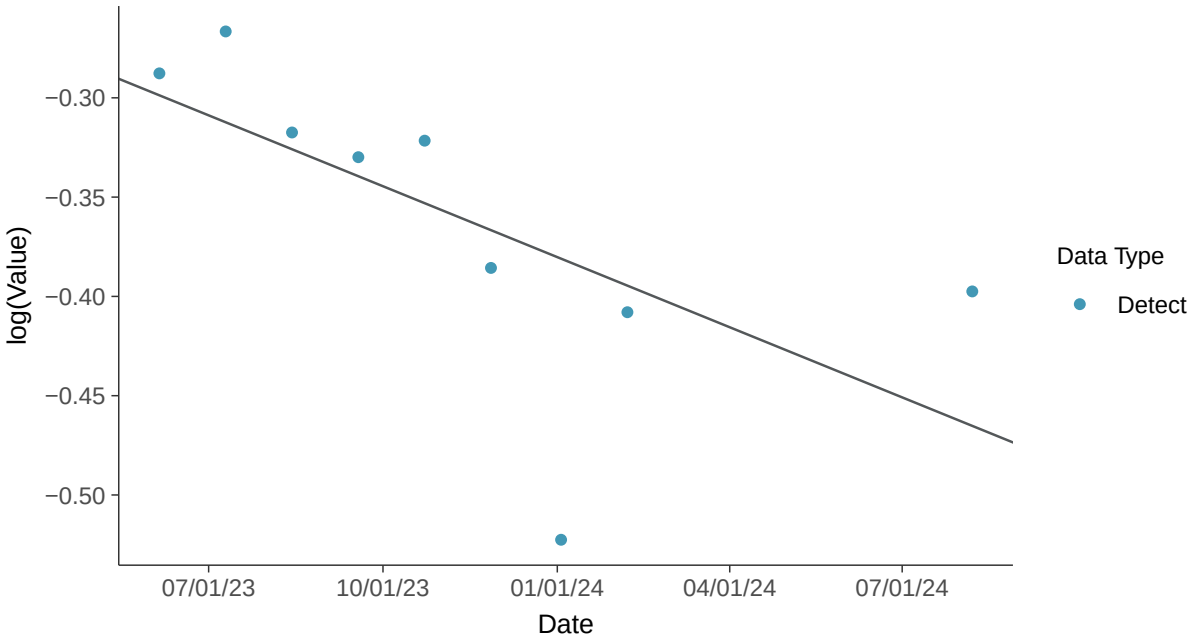
Gamma Q-Q plot

Conductivity, MW-100A (mS/cm)



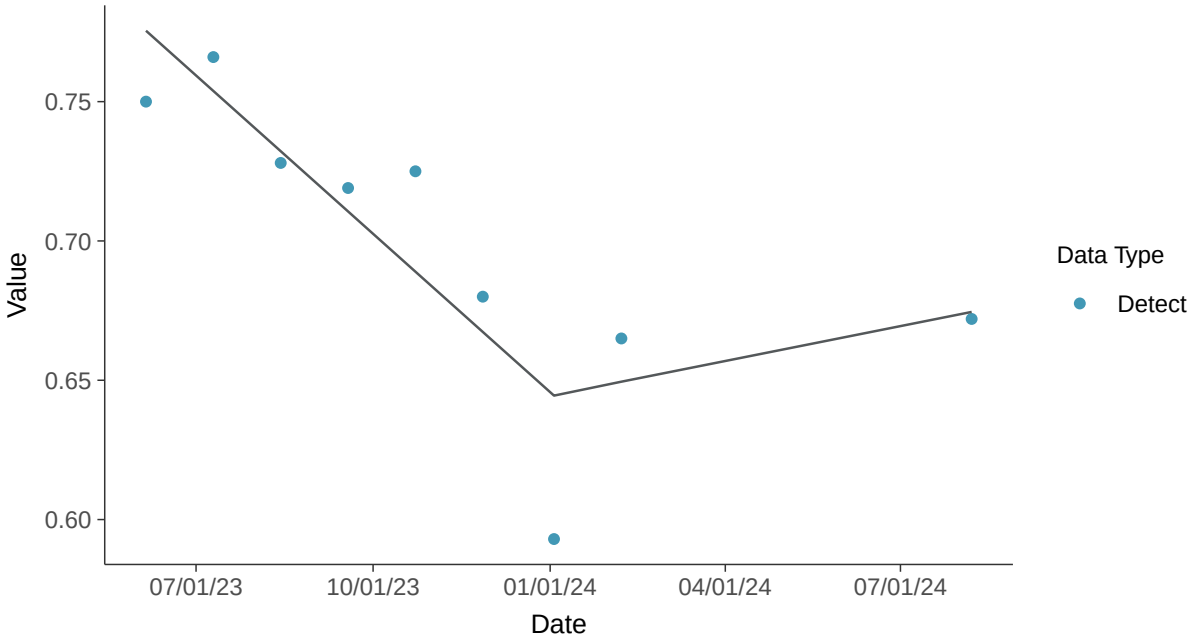
Trend Regression: Lognormal MLE

Conductivity, MW-100A (mS/cm)



Trend Regression: Piecewise Linear-Linear

Conductivity, MW-100A (mS/cm)

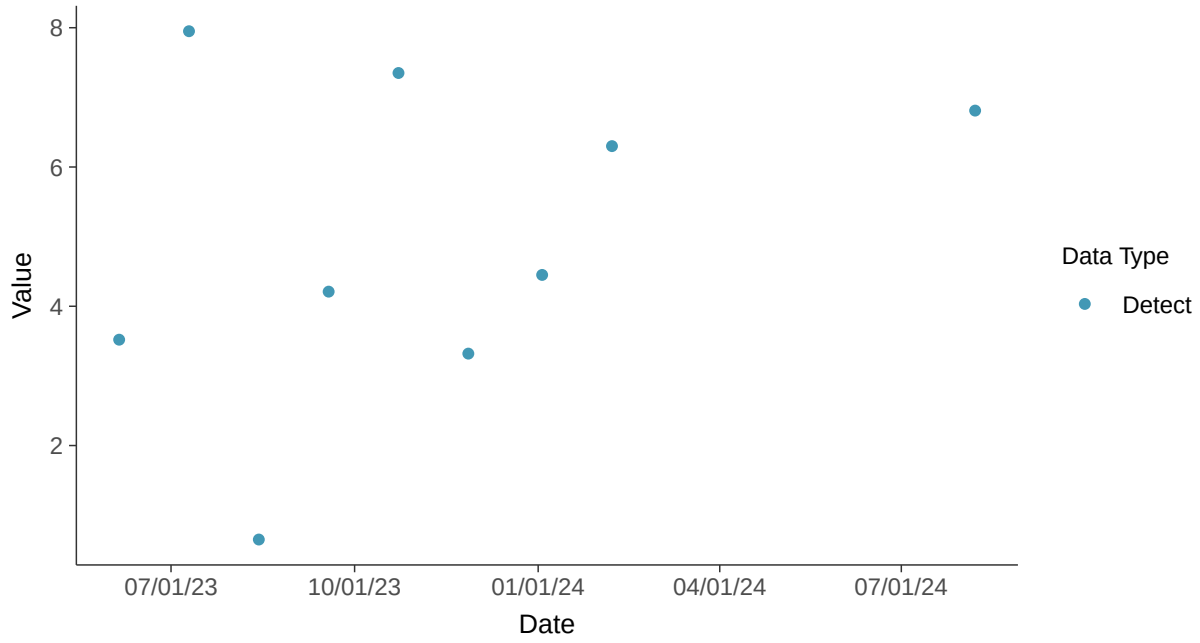


Field Parameters: Turbidity, MW-100A

ID: 100A_3_26

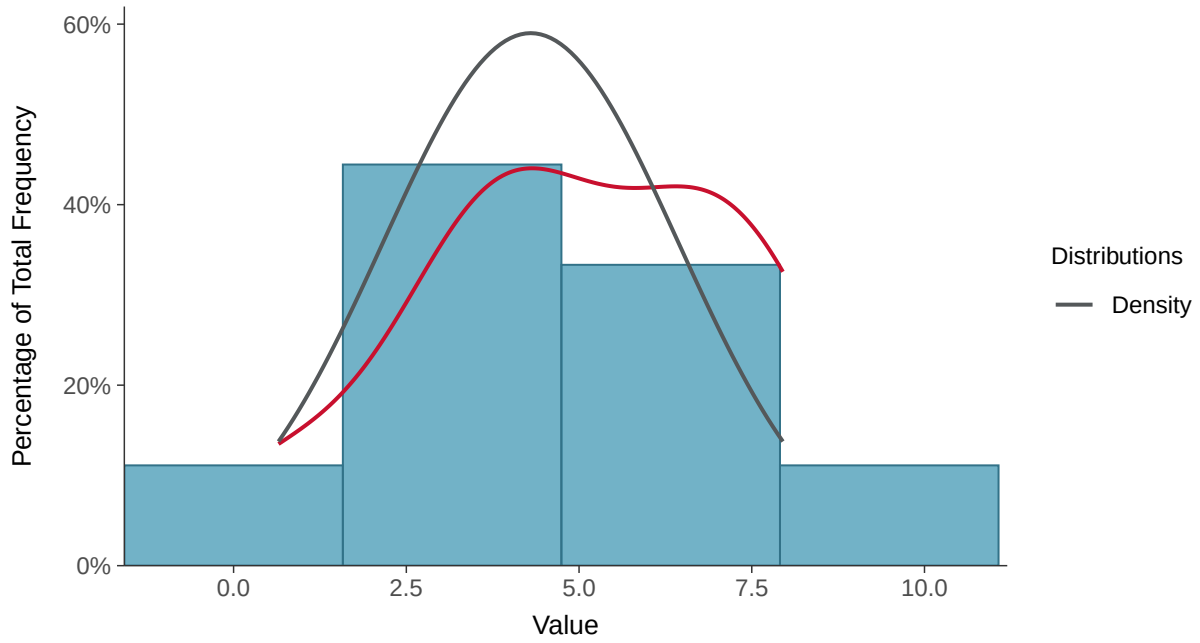
Scatter Plot

Turbidity, MW-100A (NTU)



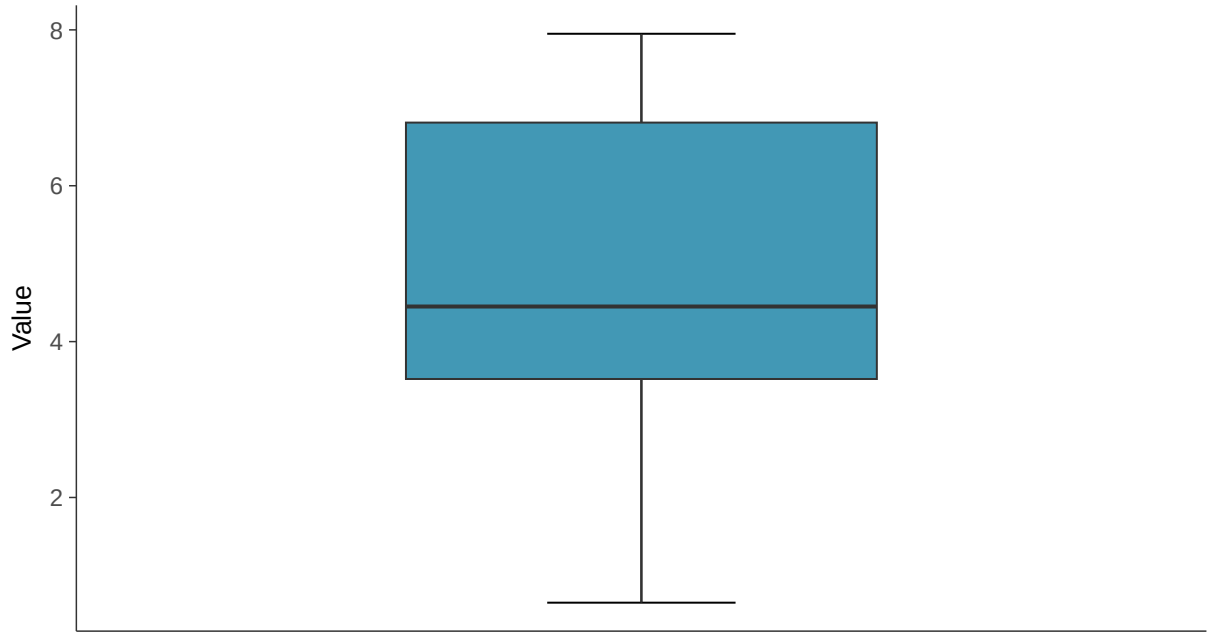
Histogram

Turbidity, MW-100A (NTU)



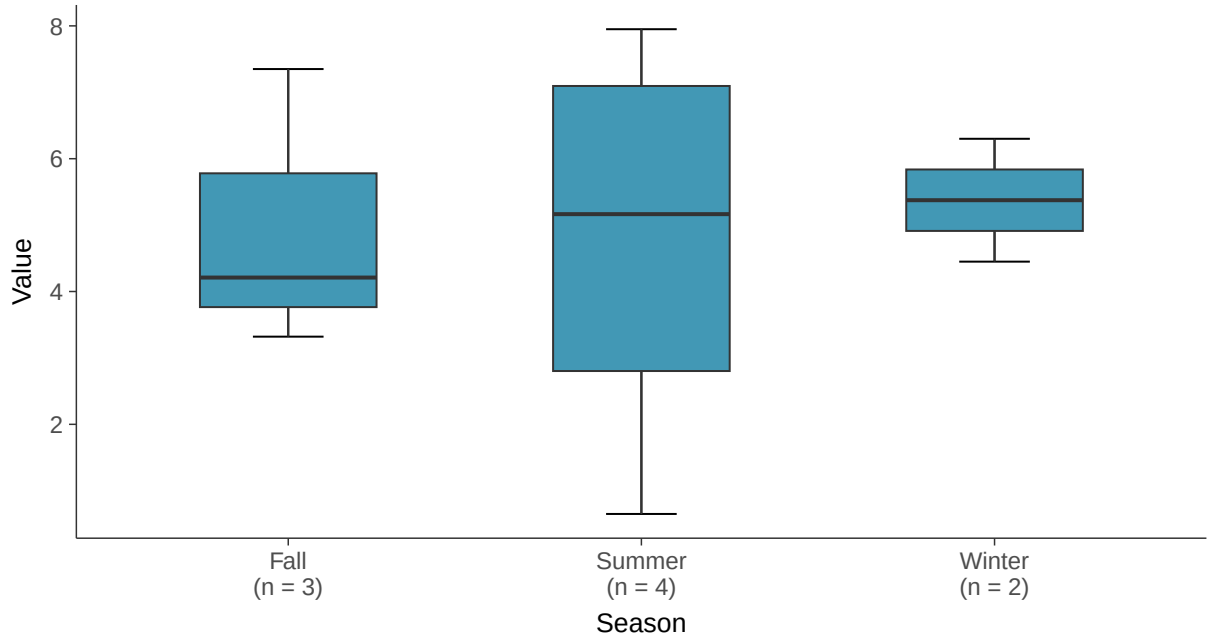
Boxplot

Turbidity, MW-100A (NTU)



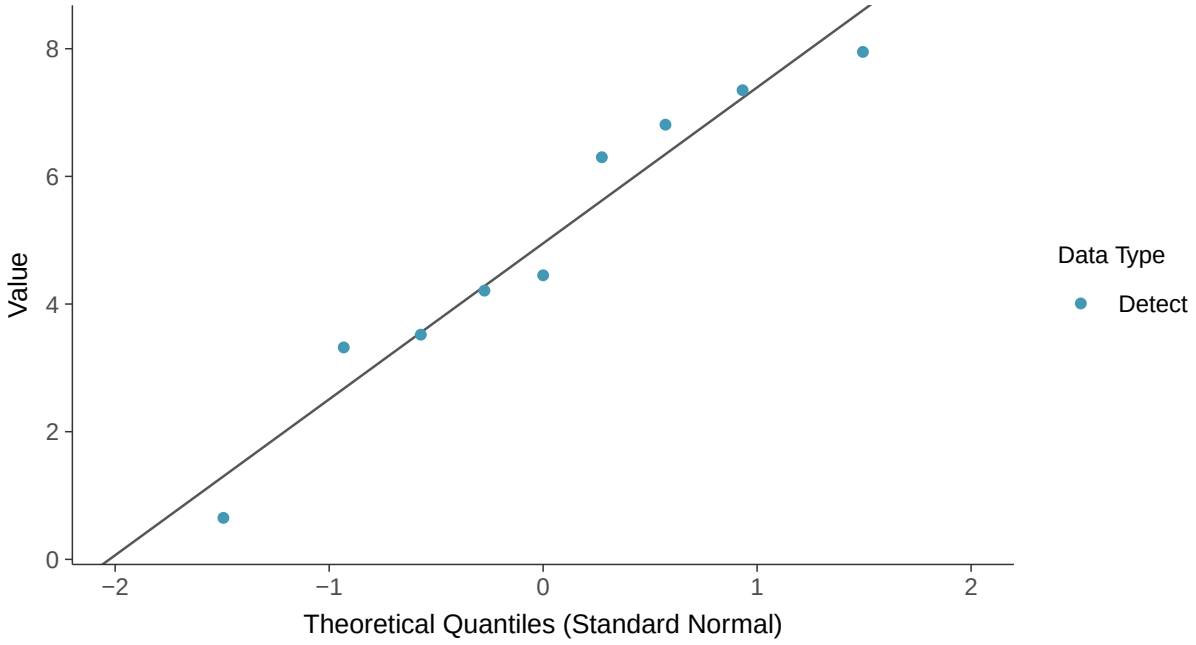
Boxplot by Season

Turbidity, MW-100A (NTU)



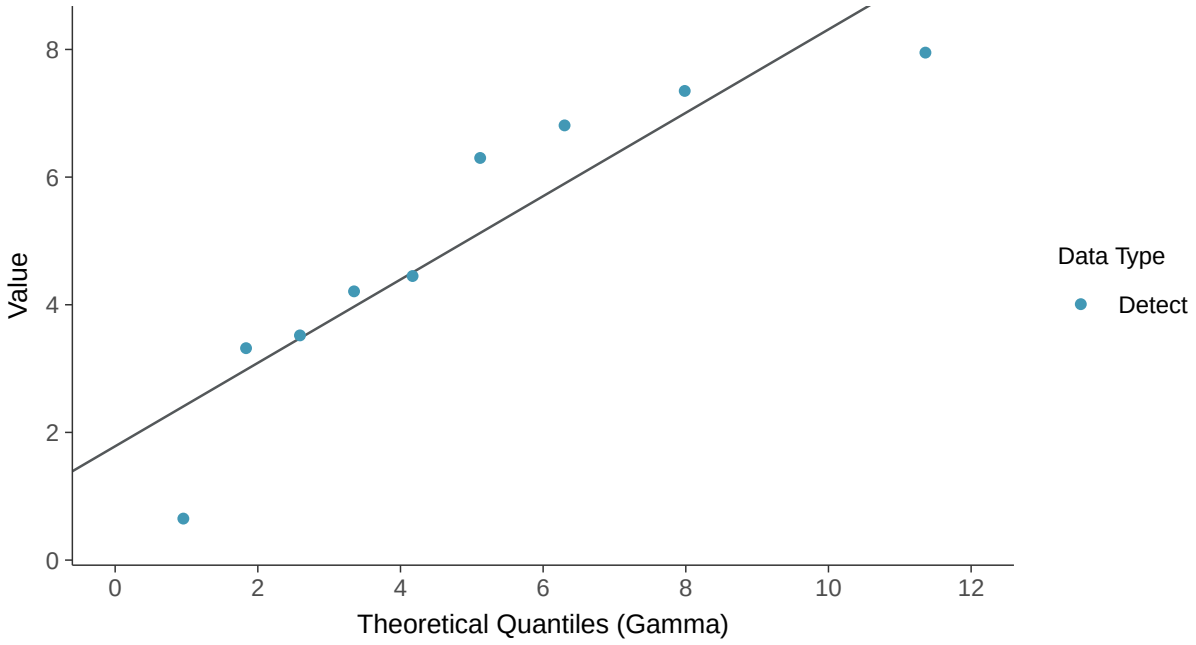
Normal Q-Q plot

Turbidity, MW-100A (NTU)



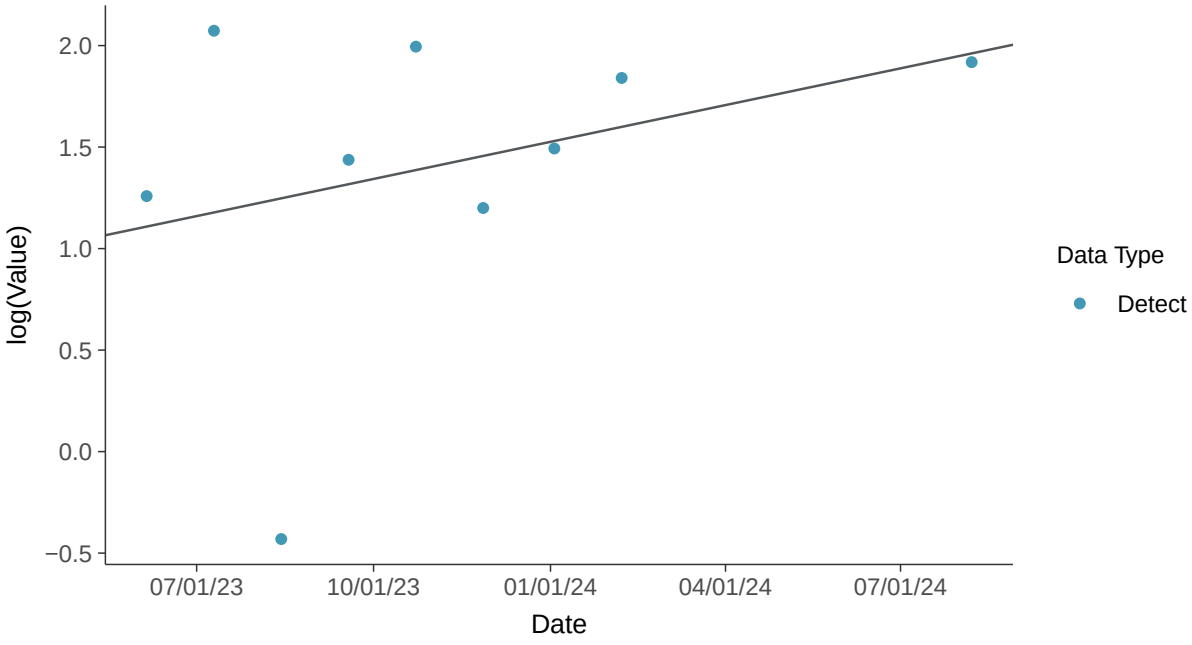
Gamma Q-Q plot

Turbidity, MW-100A (NTU)



Trend Regression: Lognormal MLE

Turbidity, MW-100A (NTU)

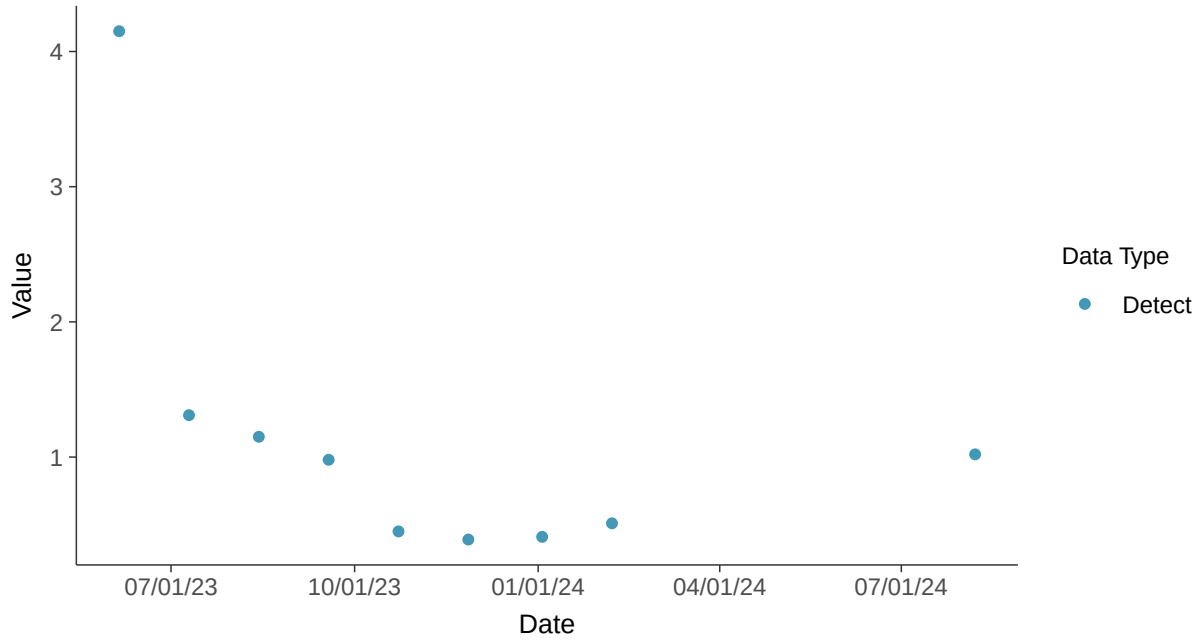


Field Parameters: Dissolved Oxygen, MW-100A

ID: 100A_3_27

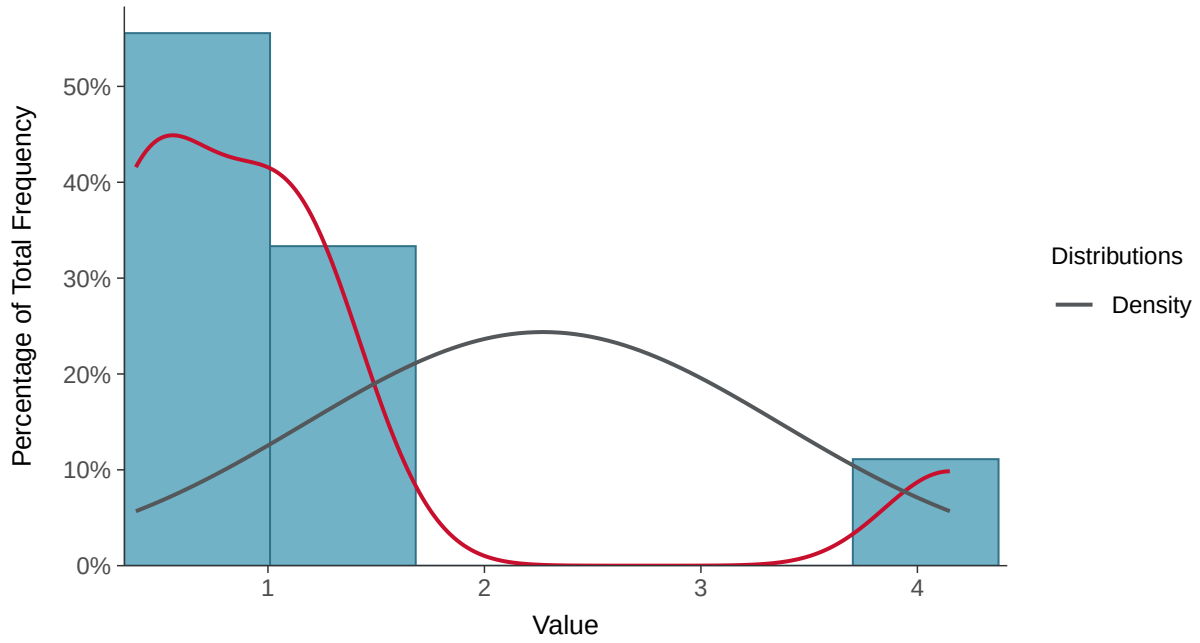
Scatter Plot

Dissolved Oxygen, MW-100A (mg/L)



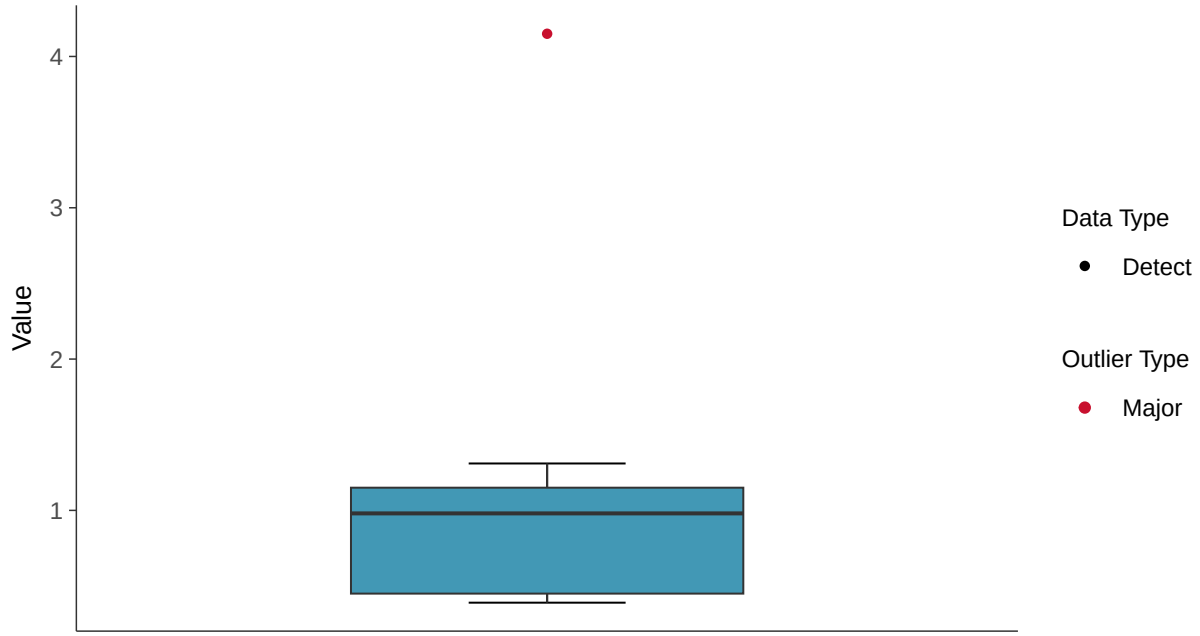
Histogram

Dissolved Oxygen, MW-100A (mg/L)



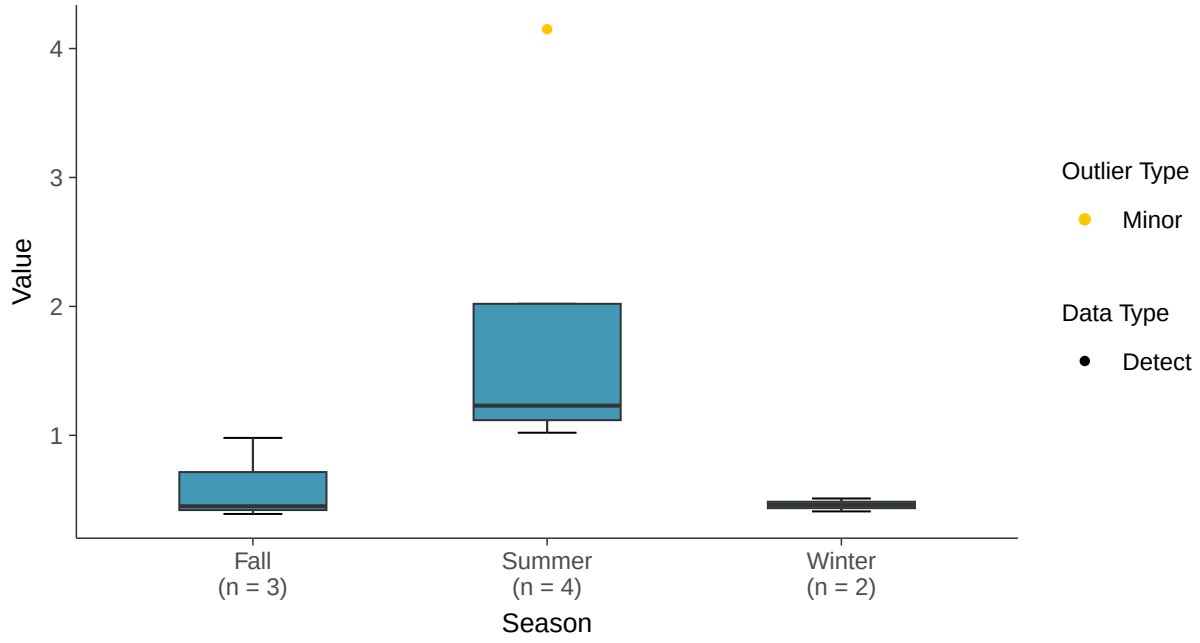
Boxplot

Dissolved Oxygen, MW-100A (mg/L)



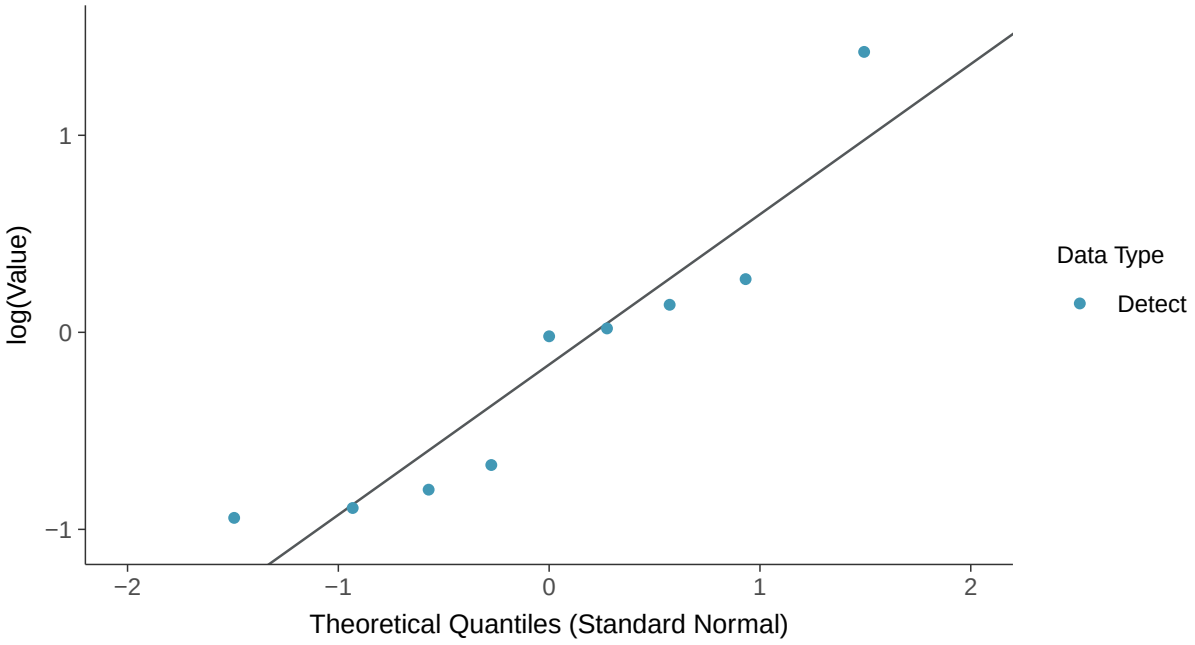
Boxplot by Season

Dissolved Oxygen, MW-100A (mg/L)



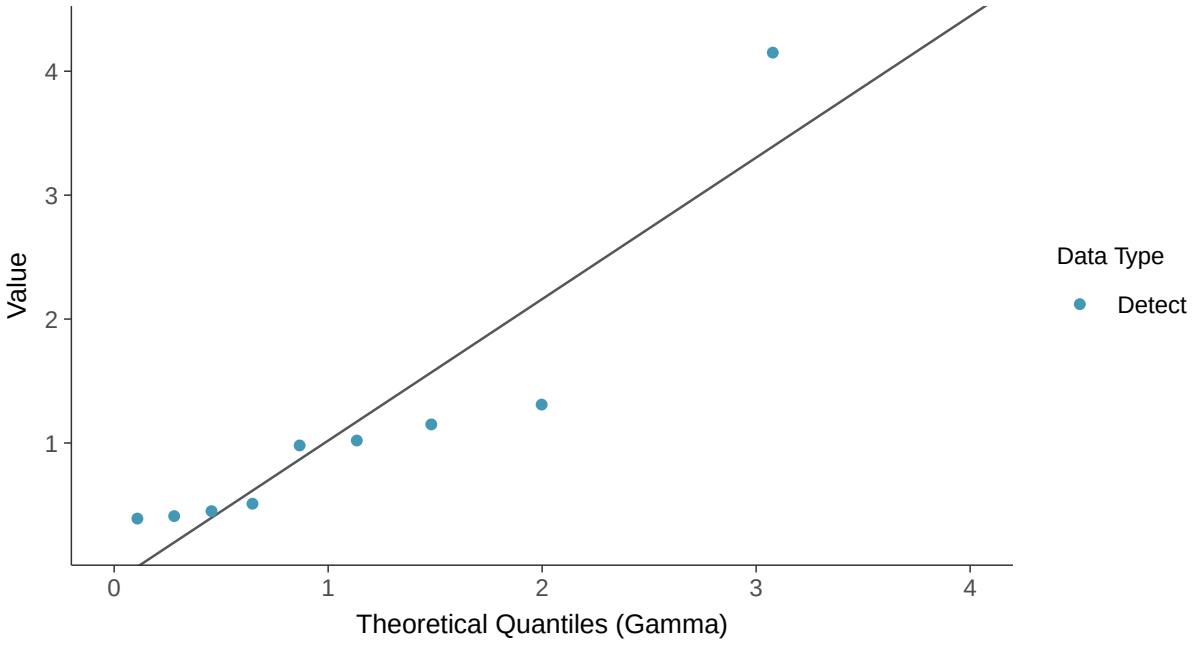
Lognormal Q-Q plot

Dissolved Oxygen, MW-100A (mg/L)



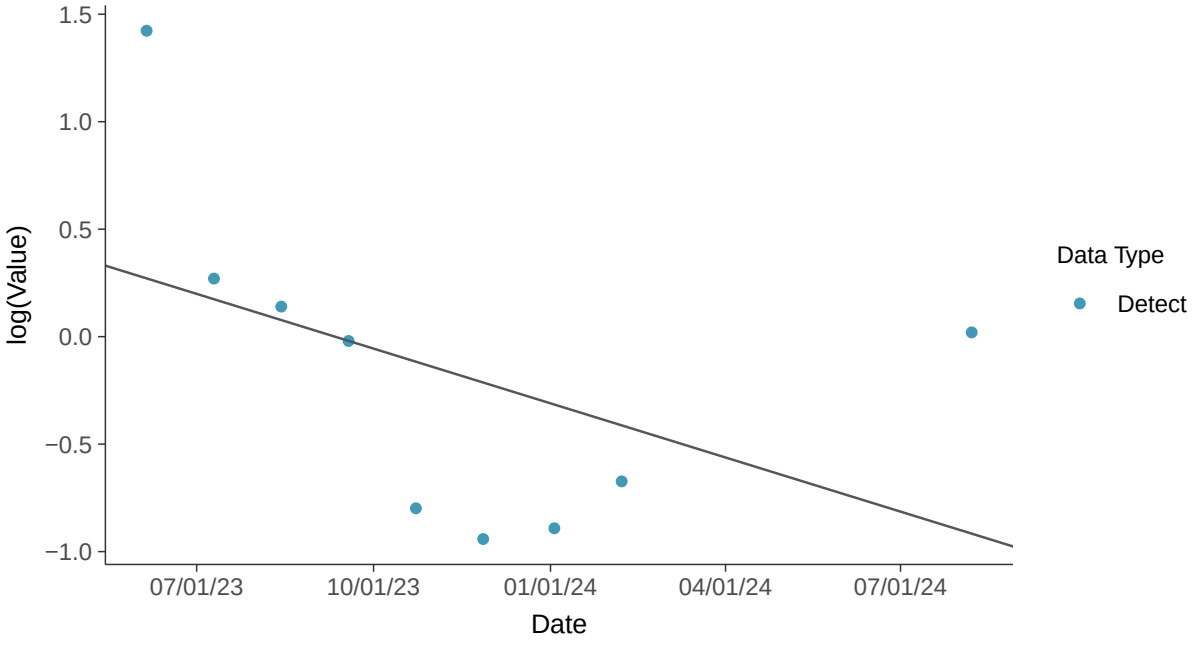
Gamma Q-Q plot

Dissolved Oxygen, MW-100A (mg/L)



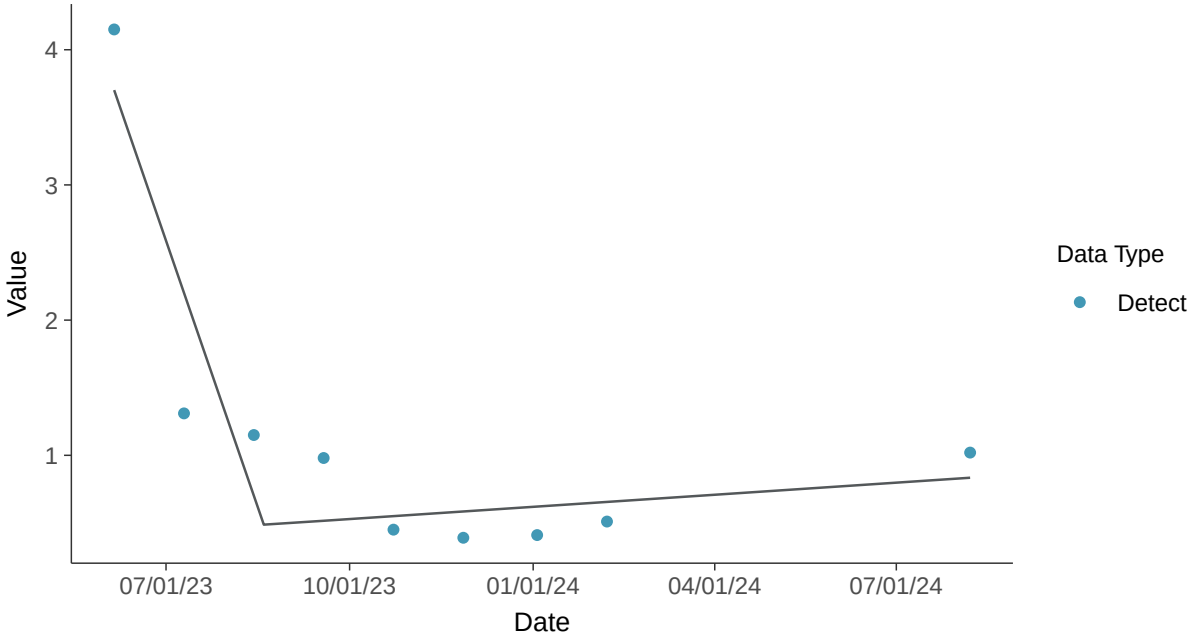
Trend Regression: Lognormal MLE

Dissolved Oxygen, MW-100A (mg/L)



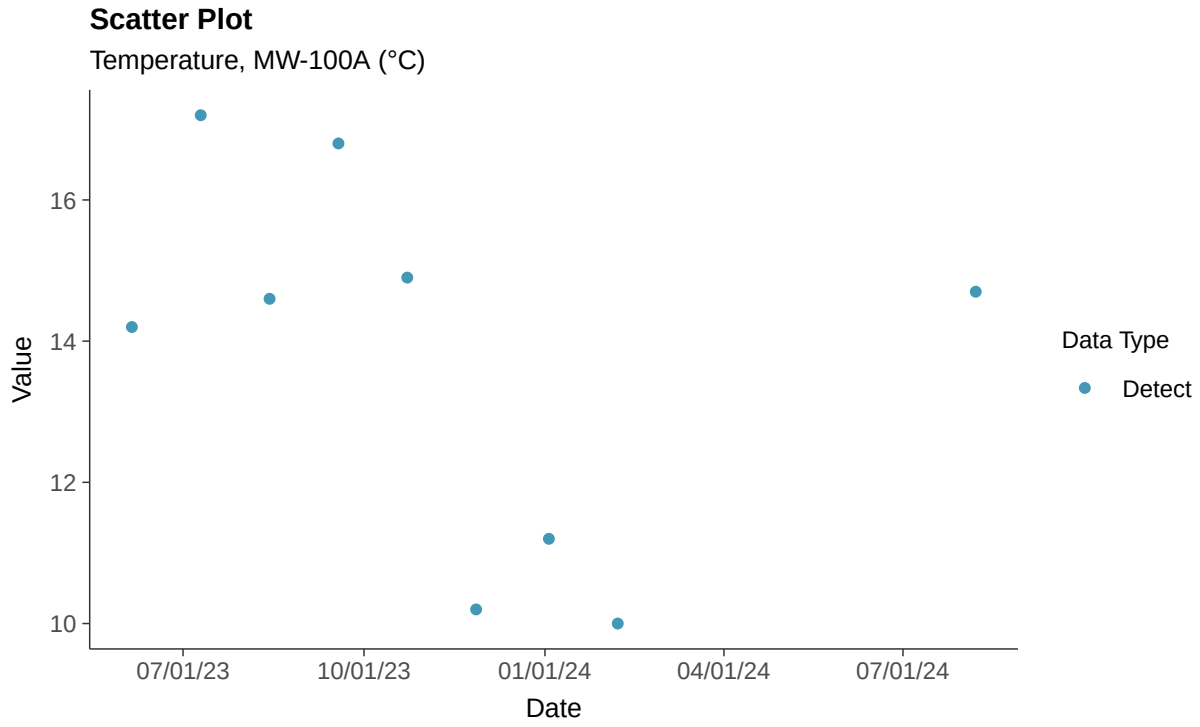
Trend Regression: Piecewise Linear-Linear

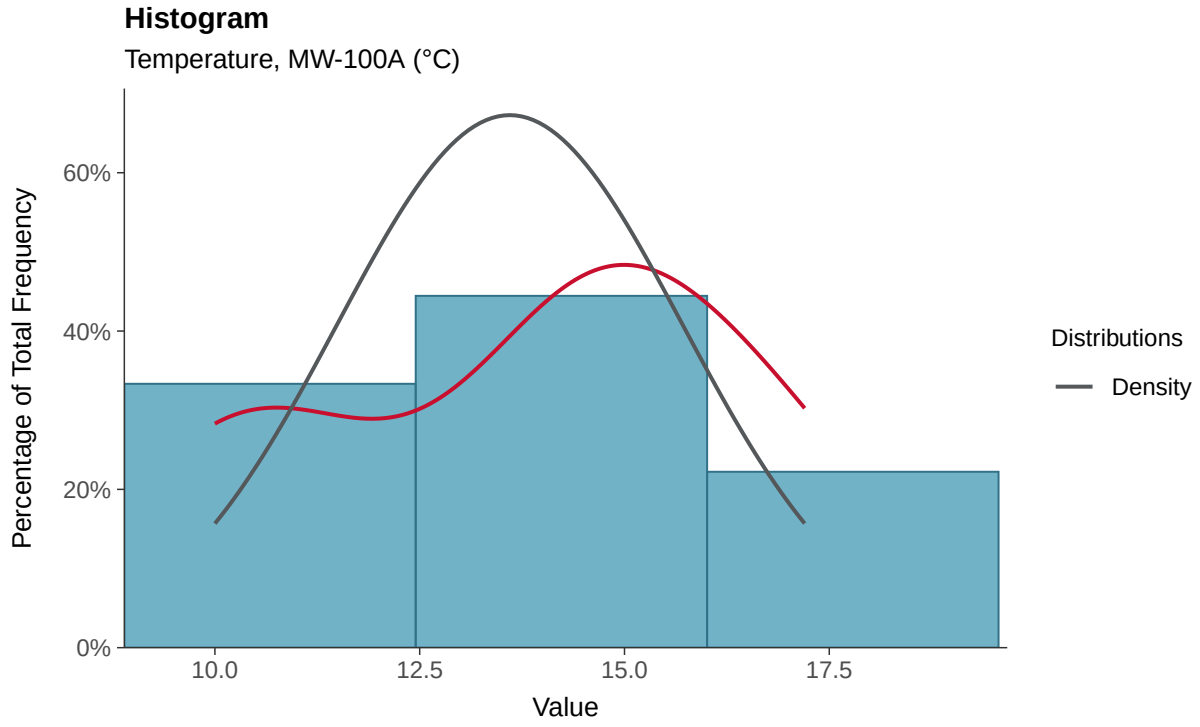
Dissolved Oxygen, MW-100A (mg/L)



Field Parameters: Temperature, MW-100A

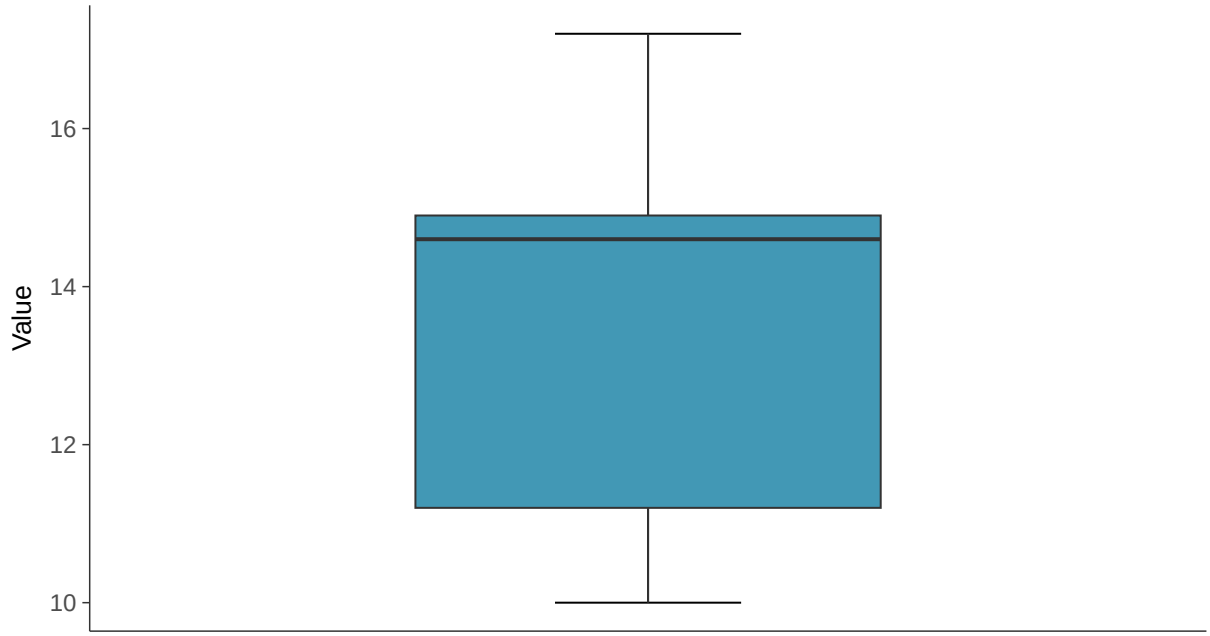
ID: 100A_3_28





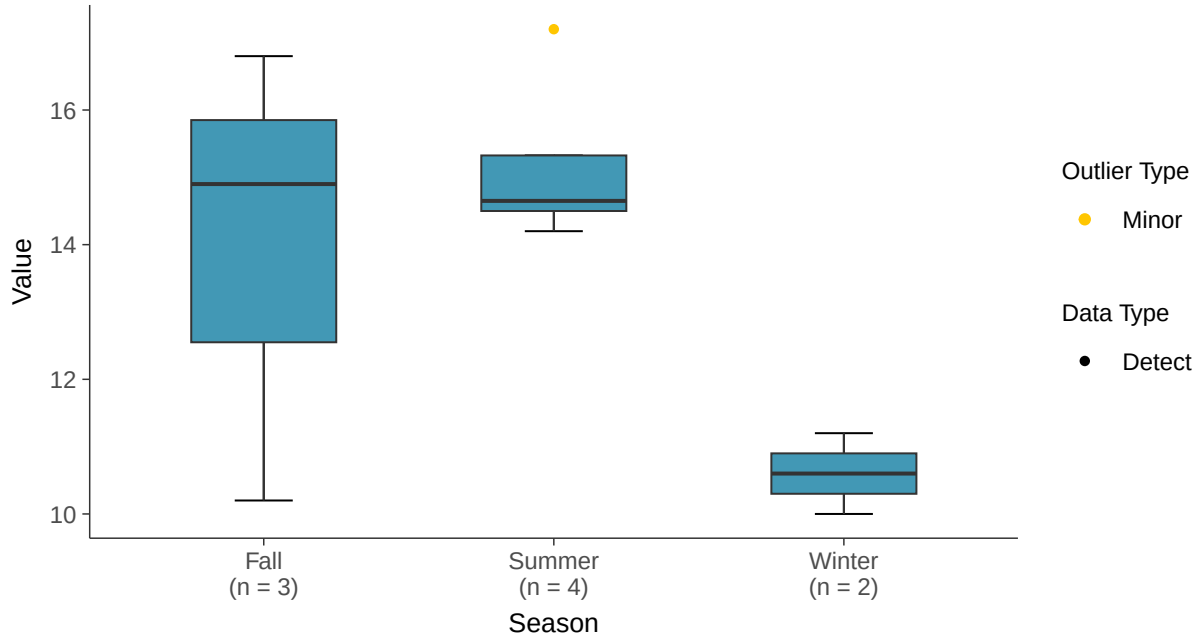
Boxplot

Temperature, MW-100A (°C)



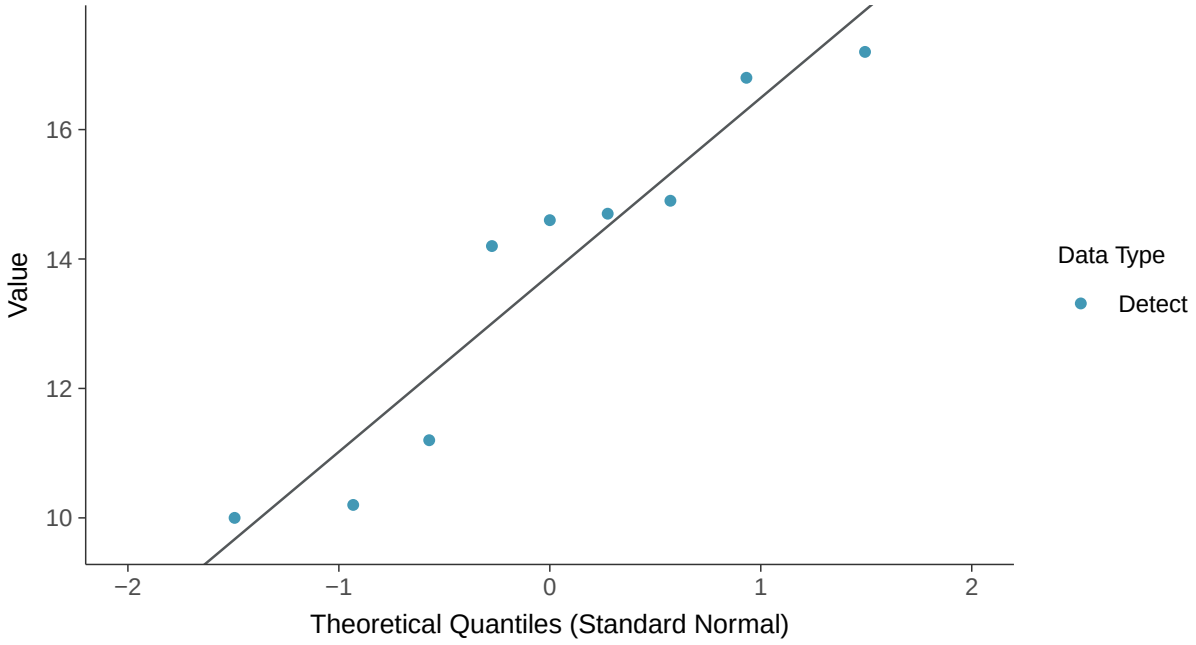
Boxplot by Season

Temperature, MW-100A (°C)



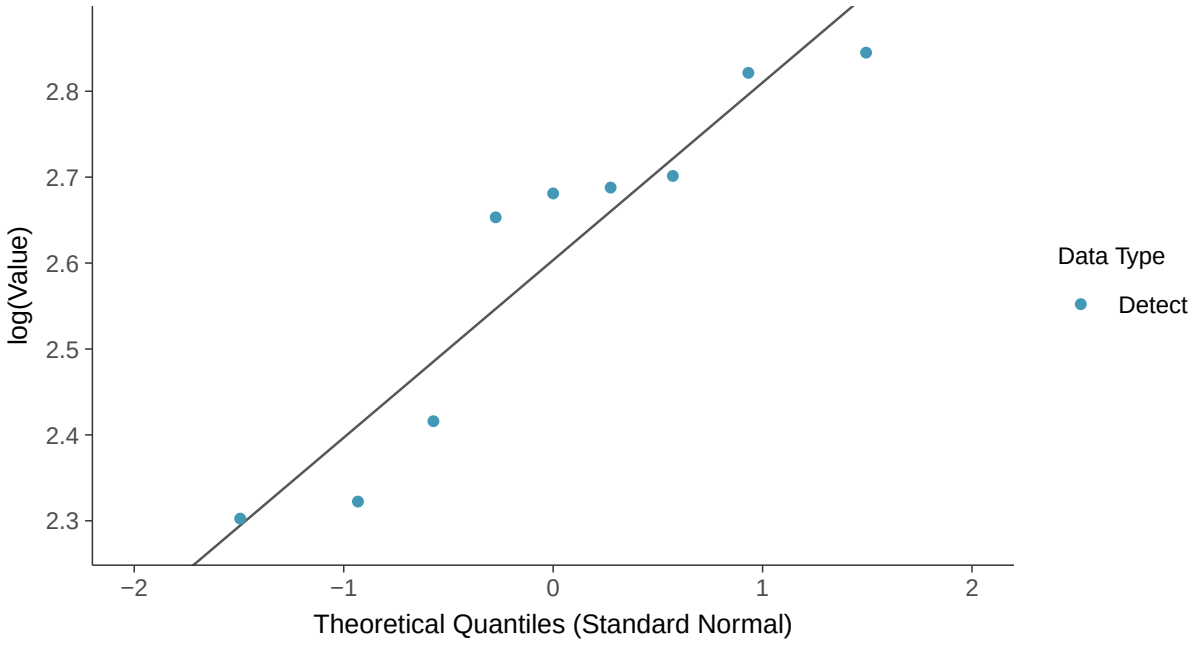
Normal Q-Q plot

Temperature, MW-100A (°C)



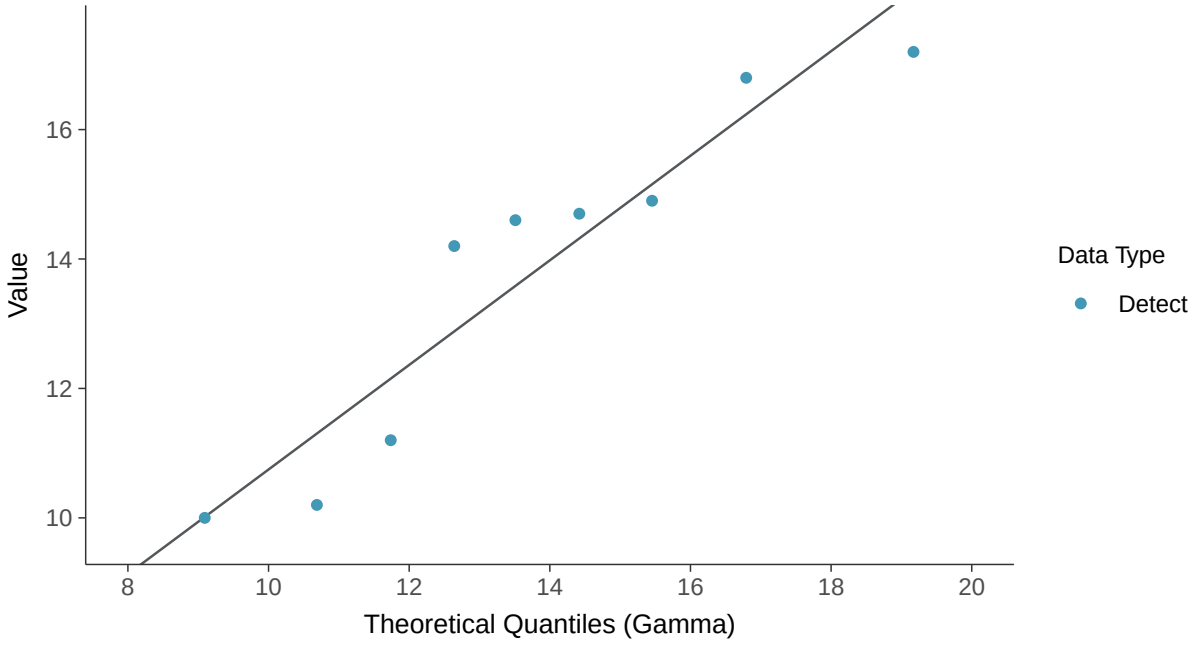
Lognormal Q-Q plot

Temperature, MW-100A (°C)



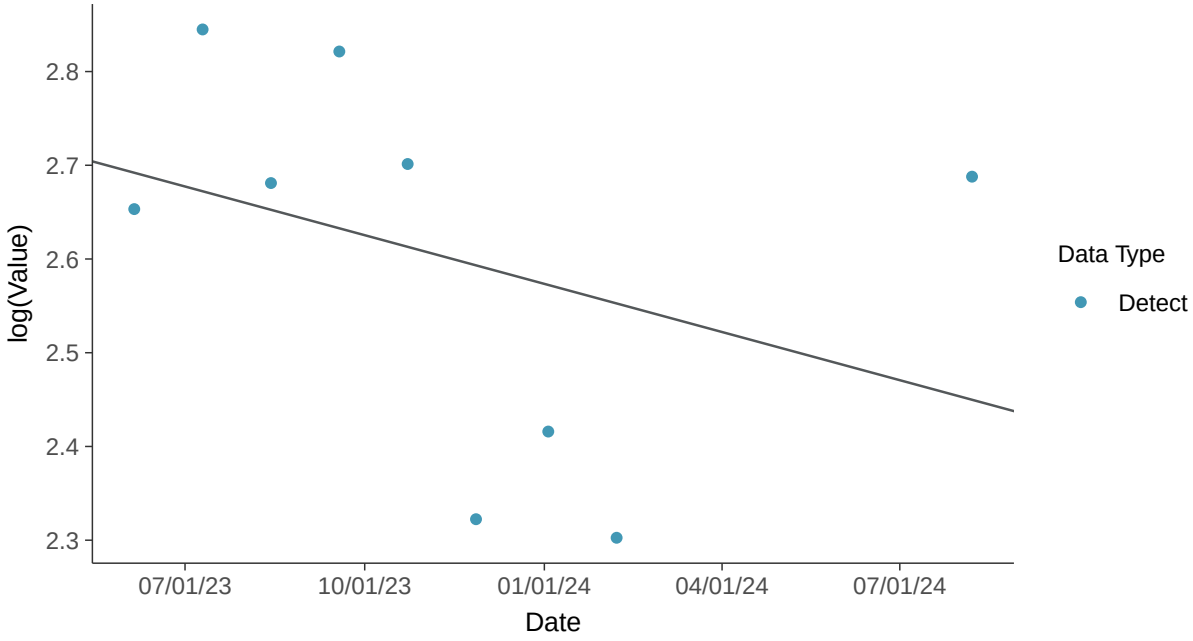
Gamma Q-Q plot

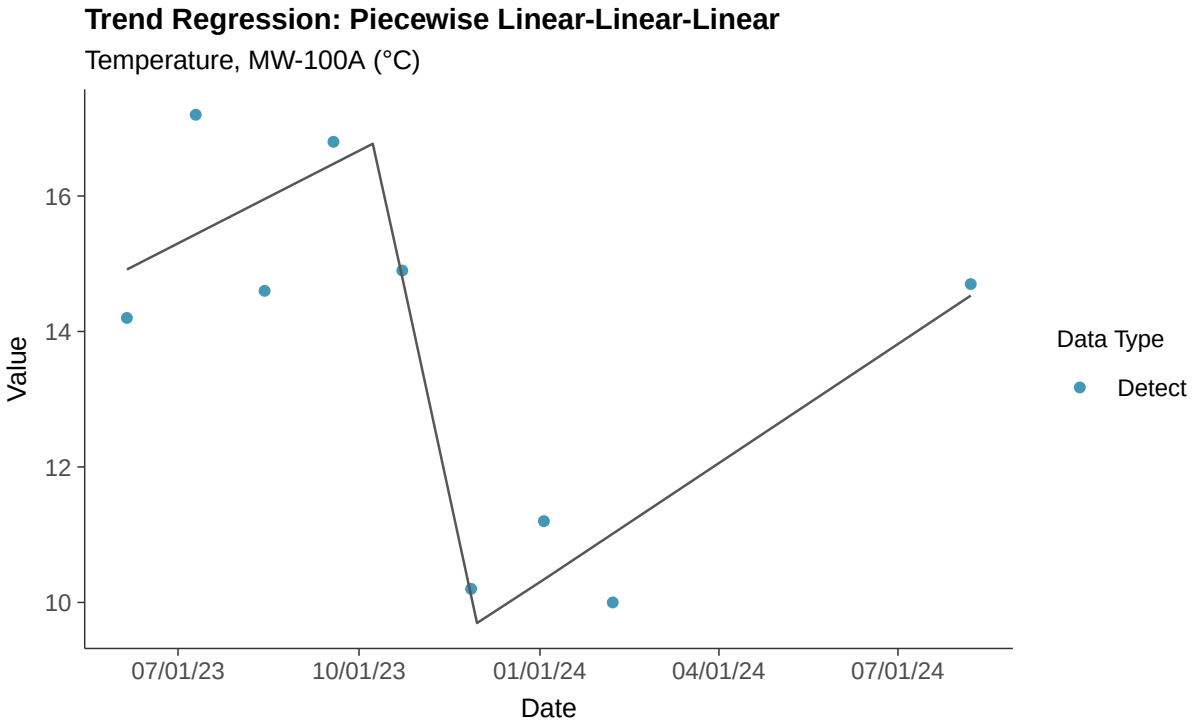
Temperature, MW-100A (°C)



Trend Regression: Lognormal MLE

Temperature, MW-100A (°C)



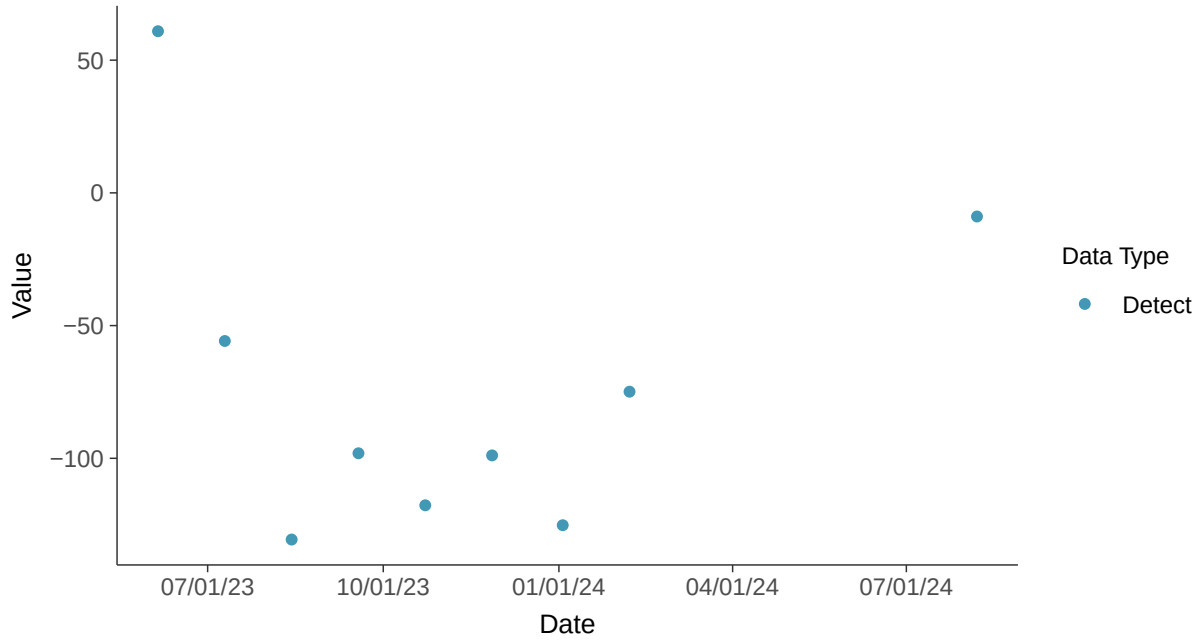

Trend Regression: Piecewise Linear-Linear-Linear
Temperature, MW-100A (°C)
Value
16
14
12
10
07/01/23
10/01/23
01/01/24
04/01/24
07/01/24
Date
Data Type
Detect

Field Parameters: Oxidation Reduction Potential, MW-100A

ID: 100A_3_29

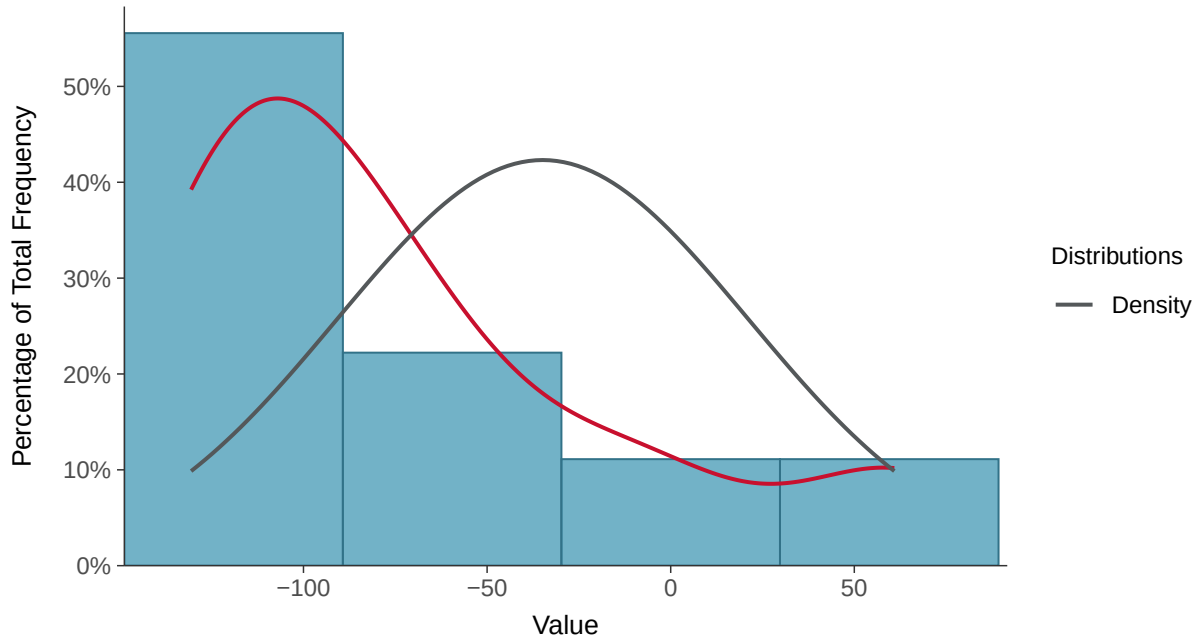
Scatter Plot

Oxidation Reduction Potential, MW-100A (mV)



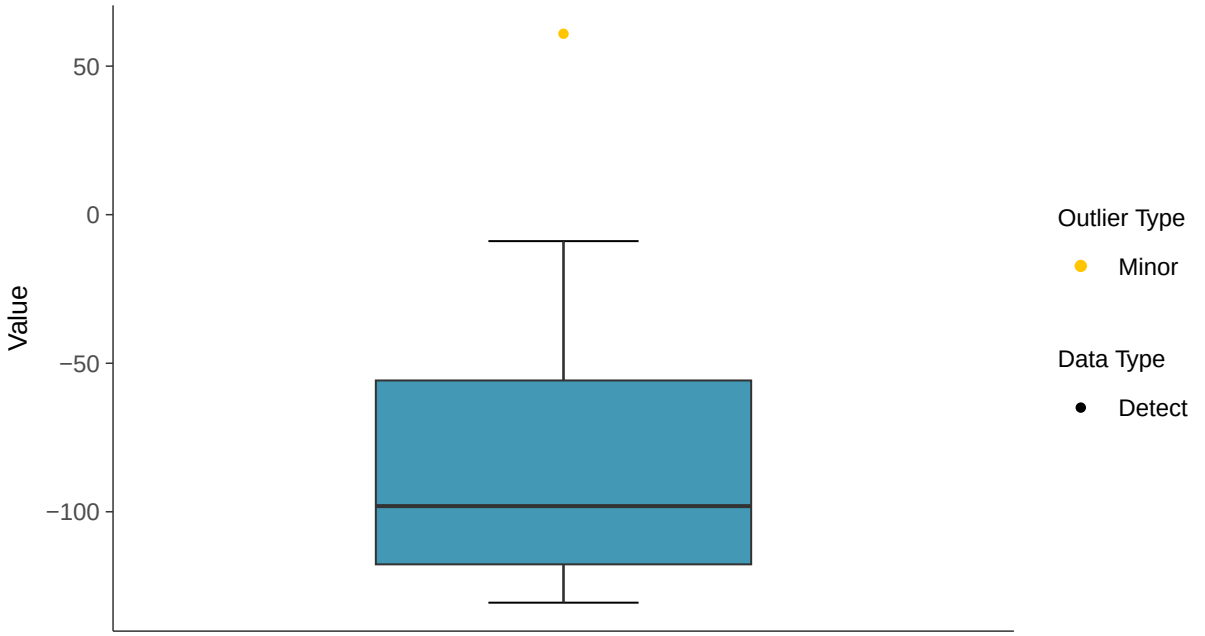
Histogram

Oxidation Reduction Potential, MW-100A (mV)



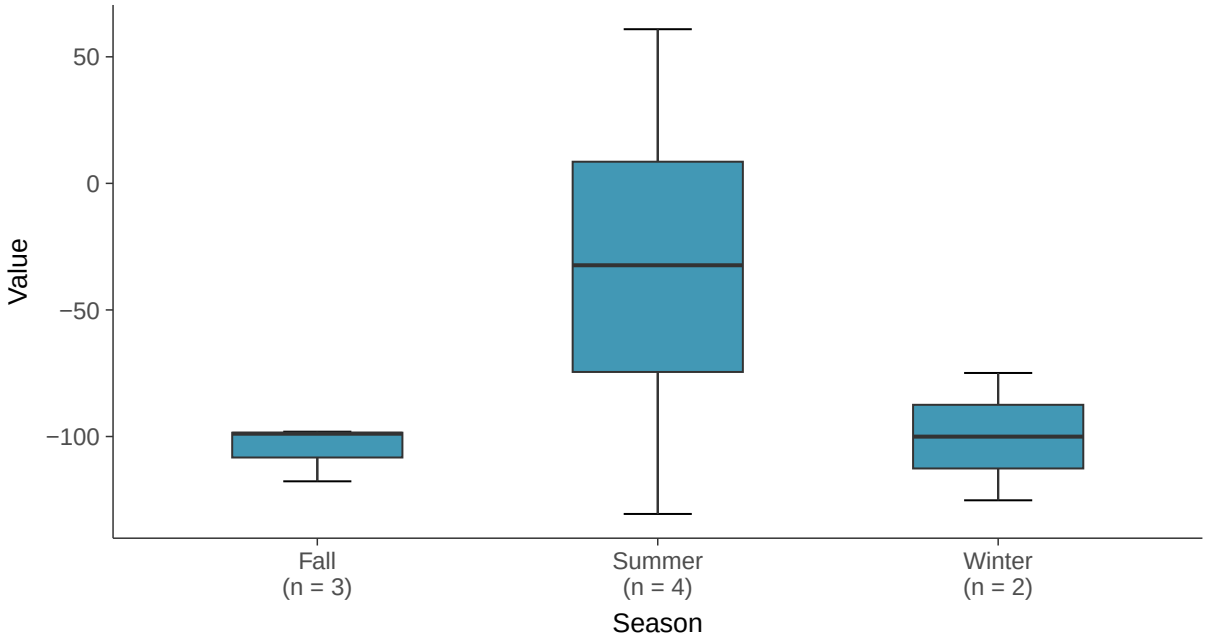
Boxplot

Oxidation Reduction Potential, MW-100A (mV)



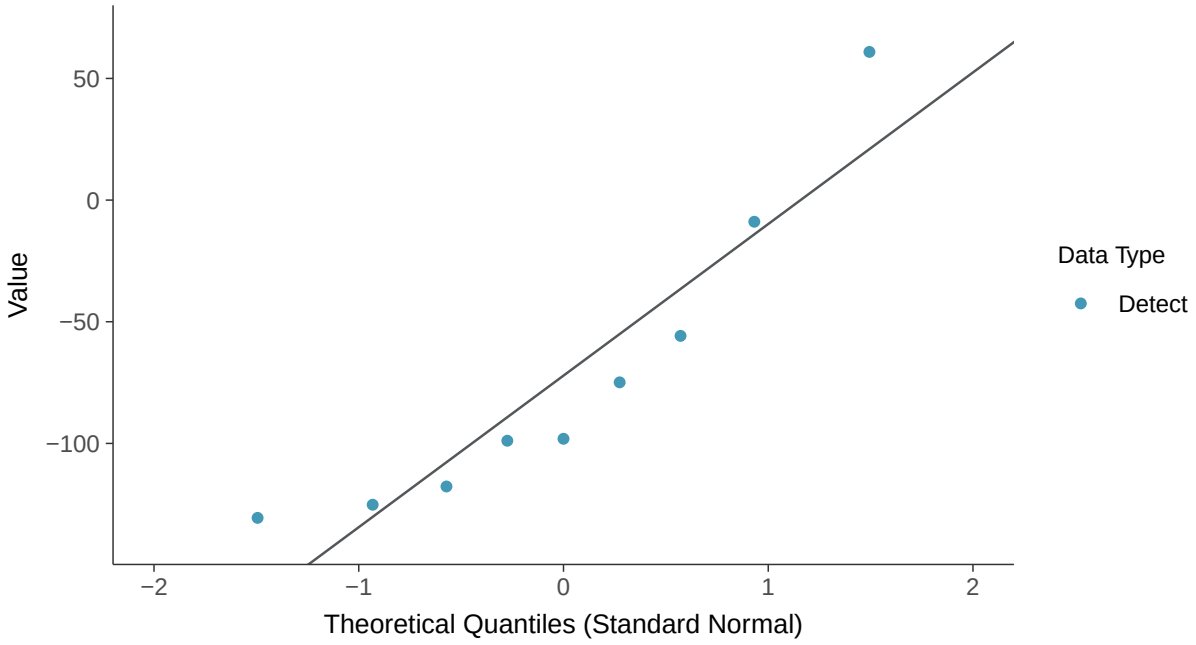
Boxplot by Season

Oxidation Reduction Potential, MW-100A (mV)



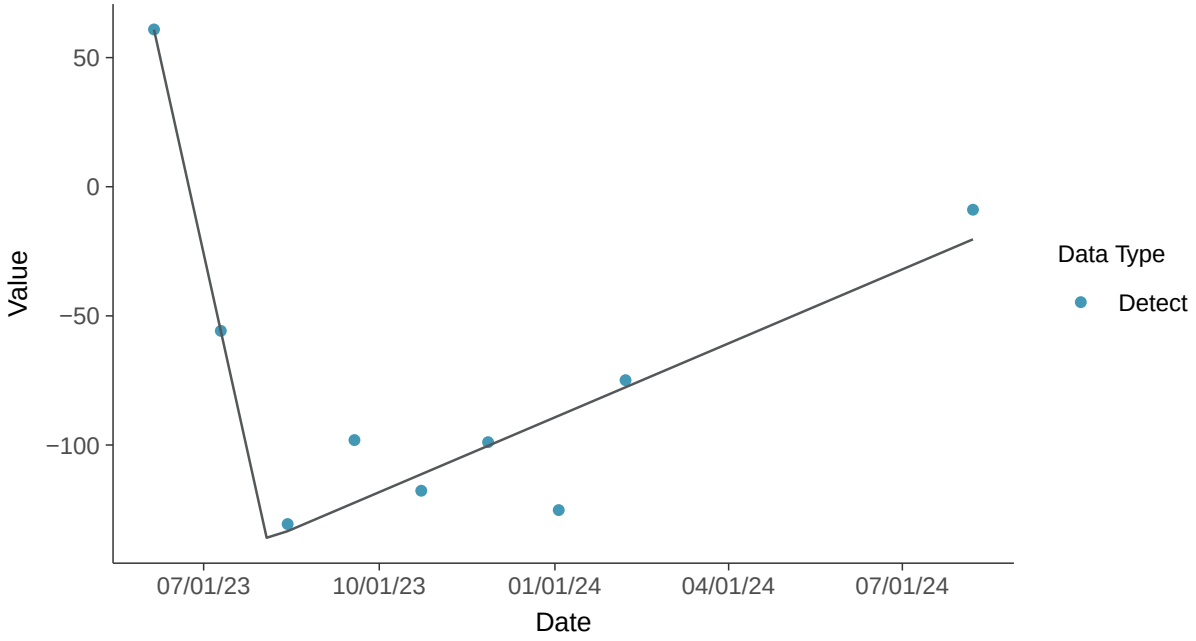
Normal Q-Q plot

Oxidation Reduction Potential, MW-100A (mV)



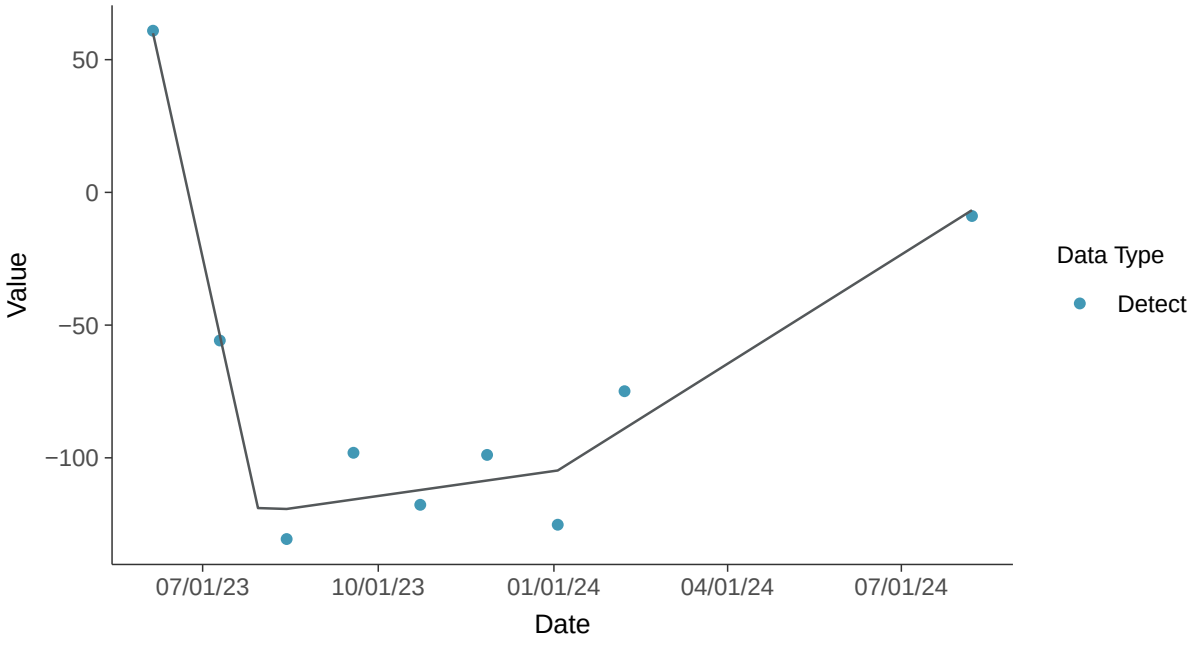
Trend Regression: Piecewise Linear-Linear

Oxidation Reduction Potential, MW-100A (mV)



Trend Regression: Piecewise Linear-Linear-Linear

Oxidation Reduction Potential, MW-100A (mV)

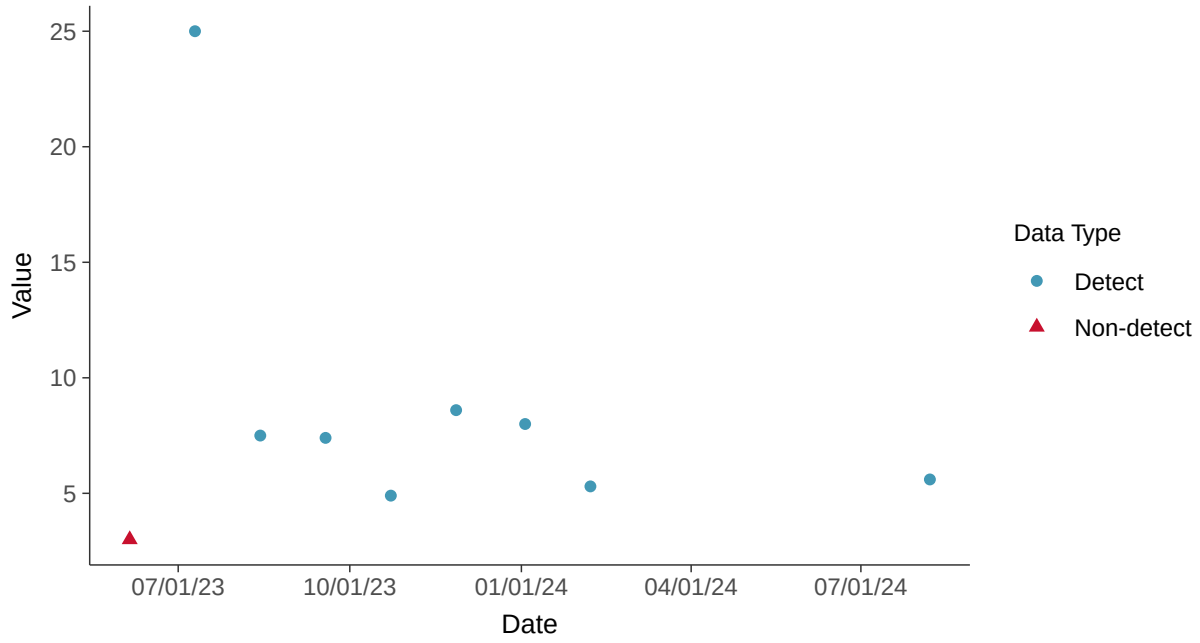


Other: Total Suspended Solids, MW-100A

ID: 100A_4_30

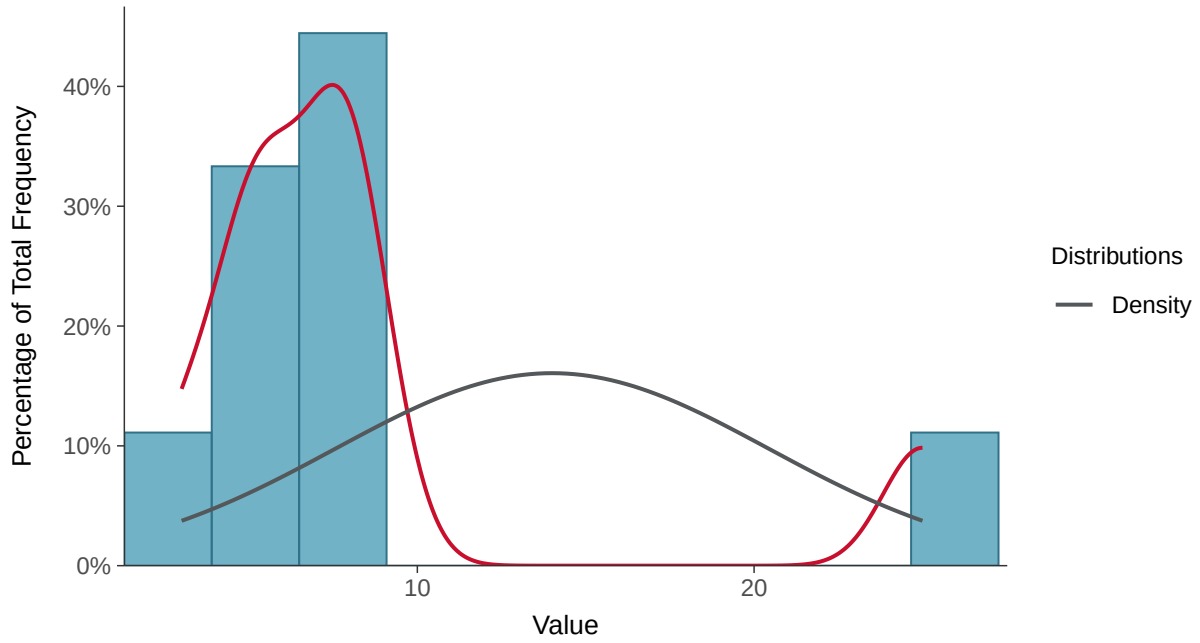
Scatter Plot

Total Suspended Solids, MW-100A (mg/L)



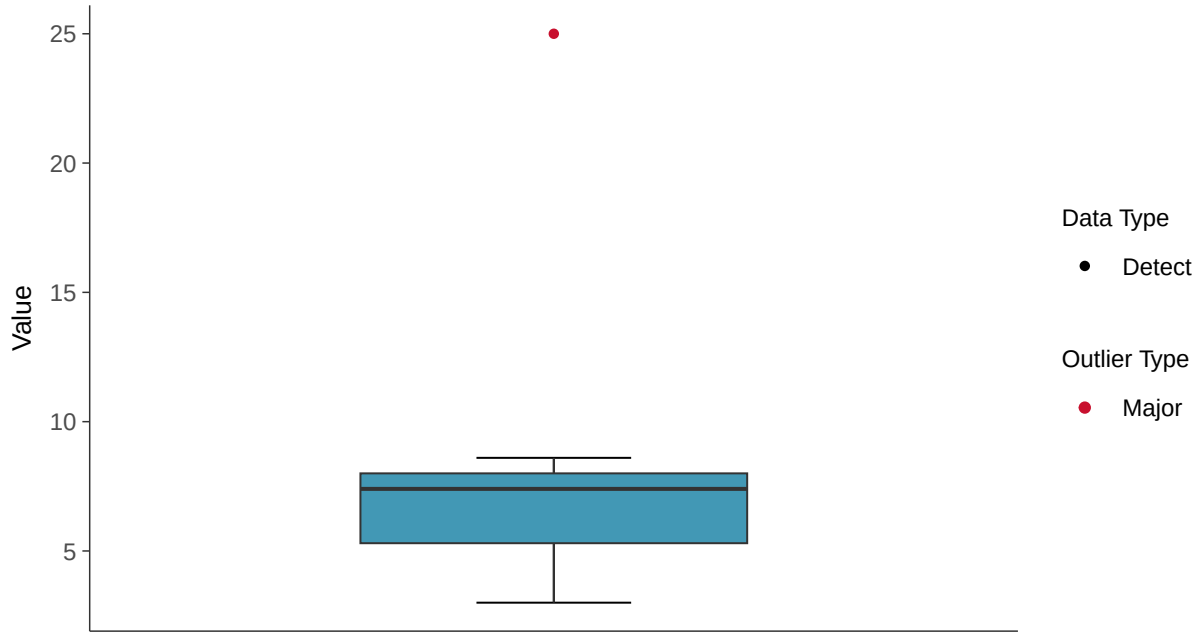
Histogram

Total Suspended Solids, MW-100A (mg/L)



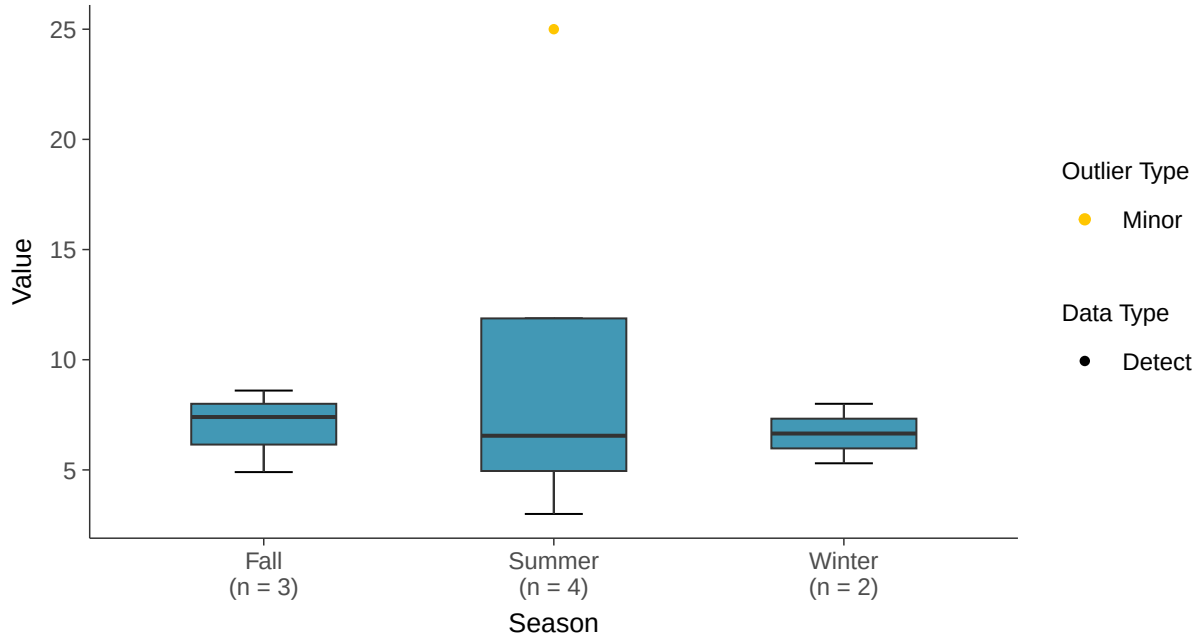
Boxplot

Total Suspended Solids, MW-100A (mg/L)



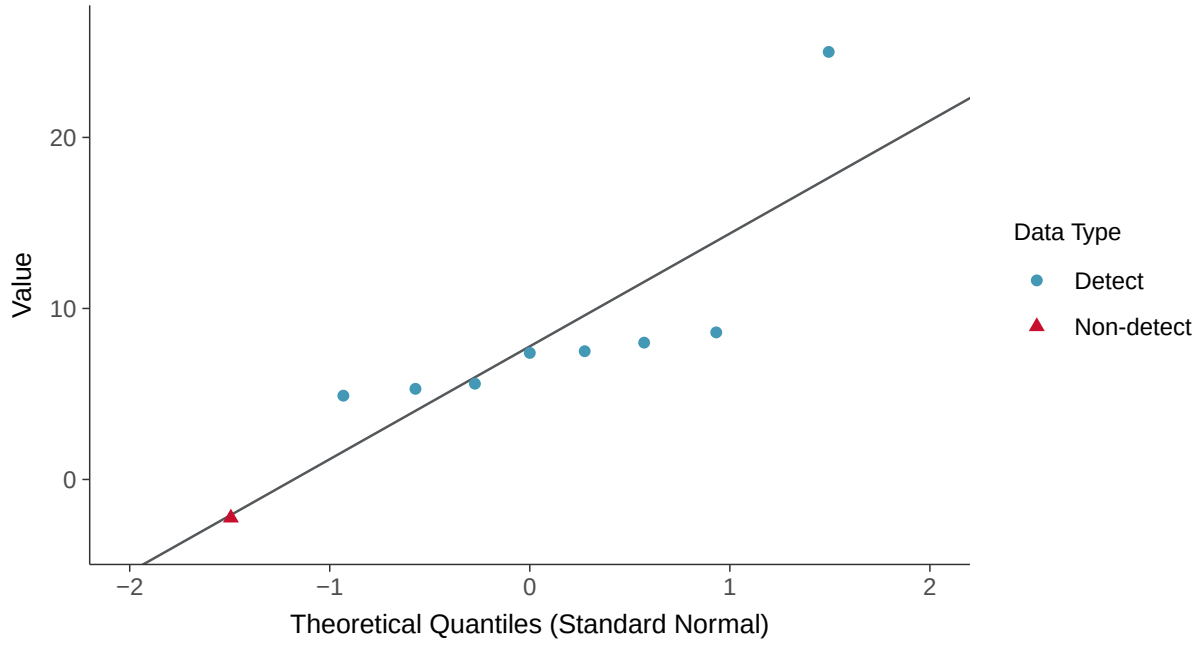
Boxplot by Season

Total Suspended Solids, MW-100A (mg/L)



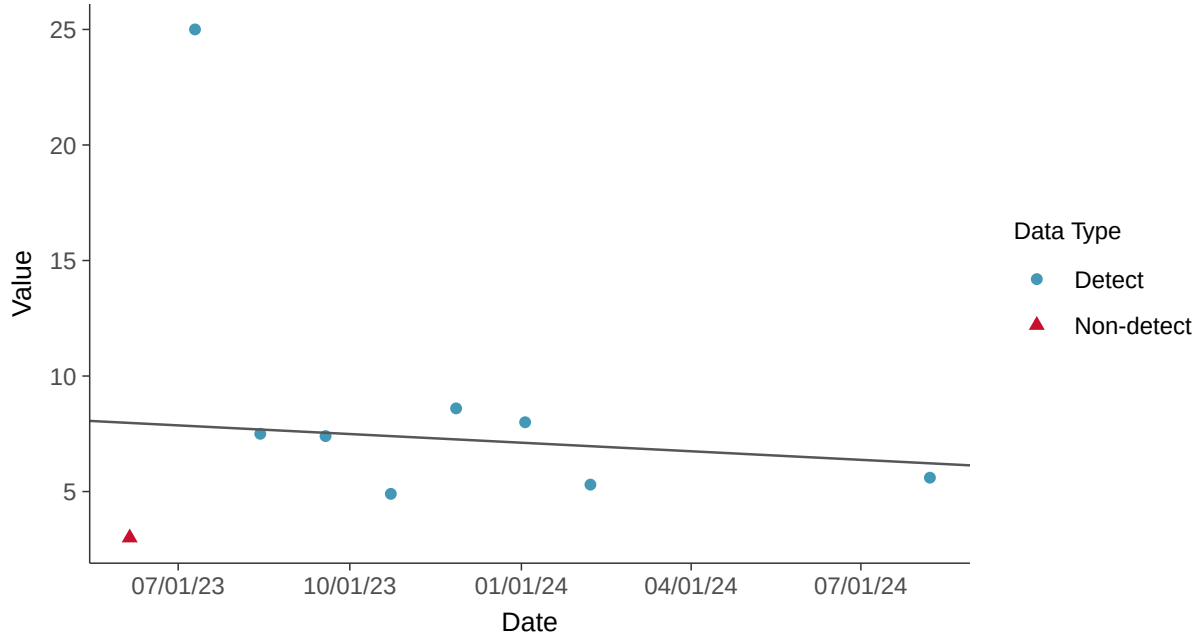
Normal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-100A (mg/L)



Trend Regression: Mann-Kendall/Theil-Sen Estimate

Total Suspended Solids, MW-100A (mg/L)

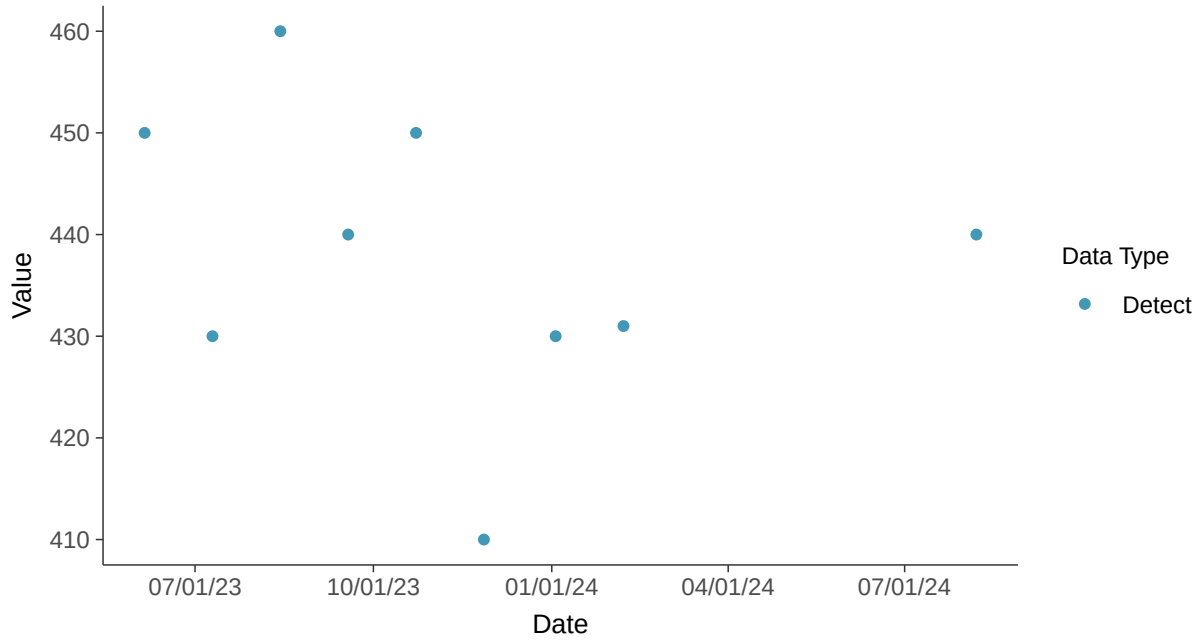


Other: Bicarbonate, MW-100A

ID: 100A_4_31

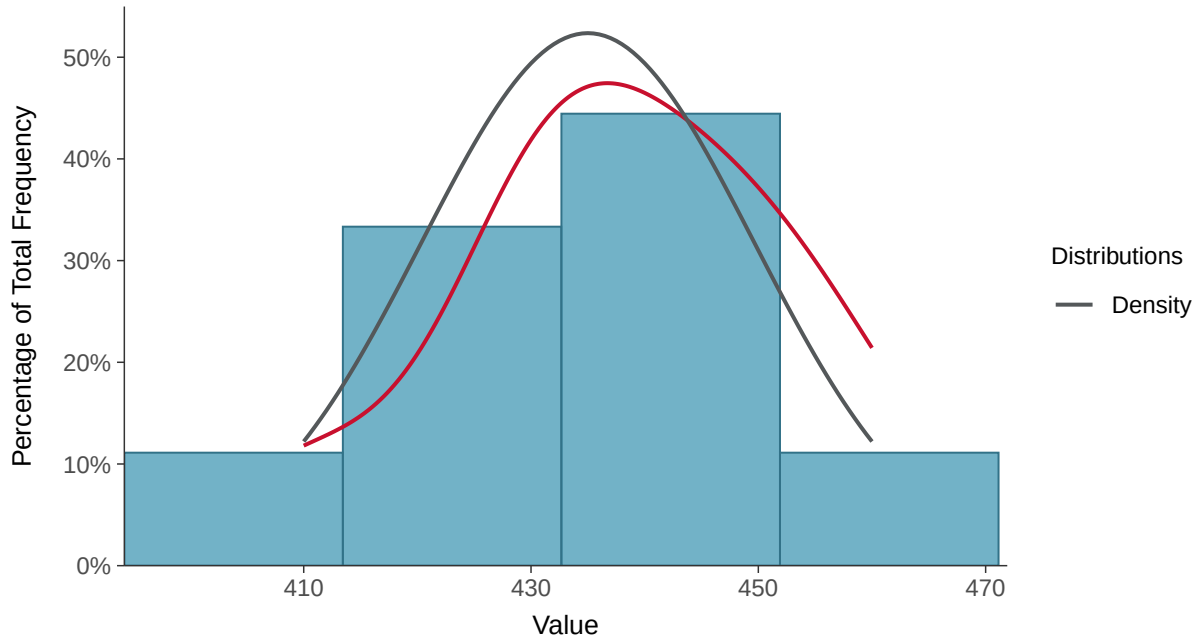
Scatter Plot

Bicarbonate, MW-100A (mg/L)



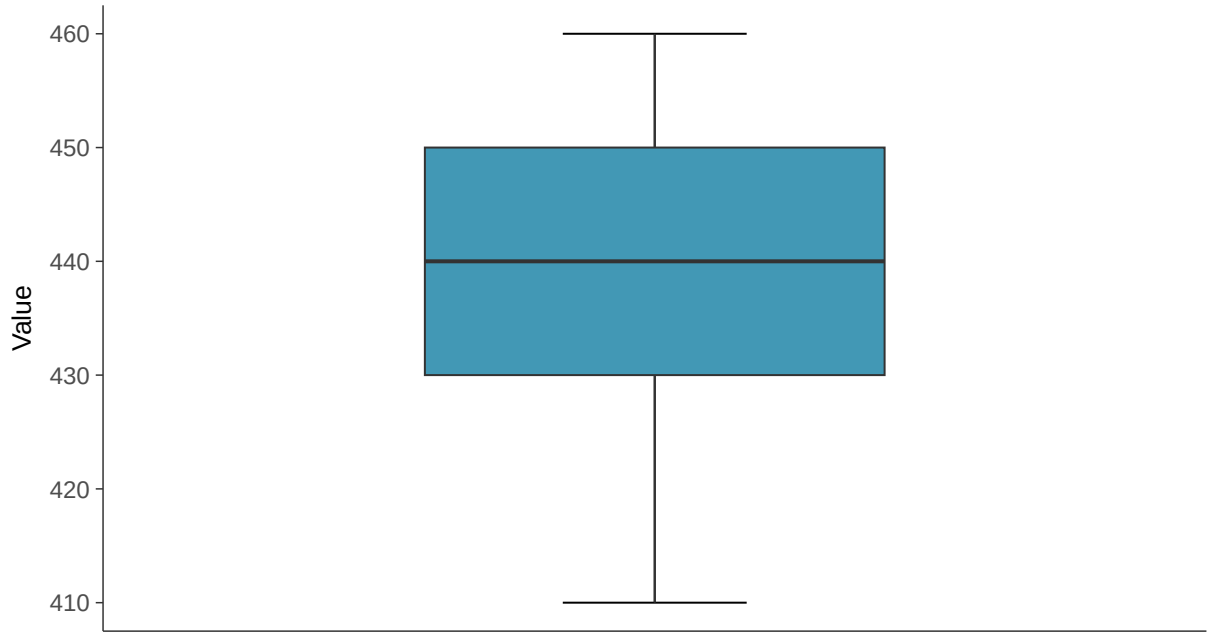
Histogram

Bicarbonate, MW-100A (mg/L)



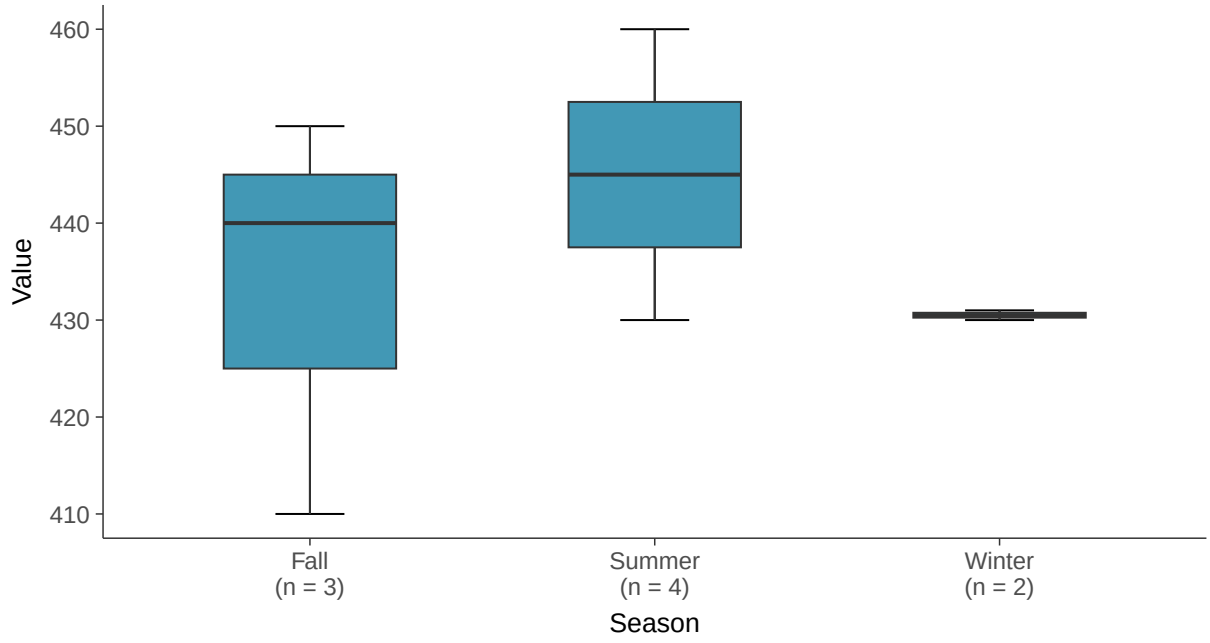
Boxplot

Bicarbonate, MW-100A (mg/L)



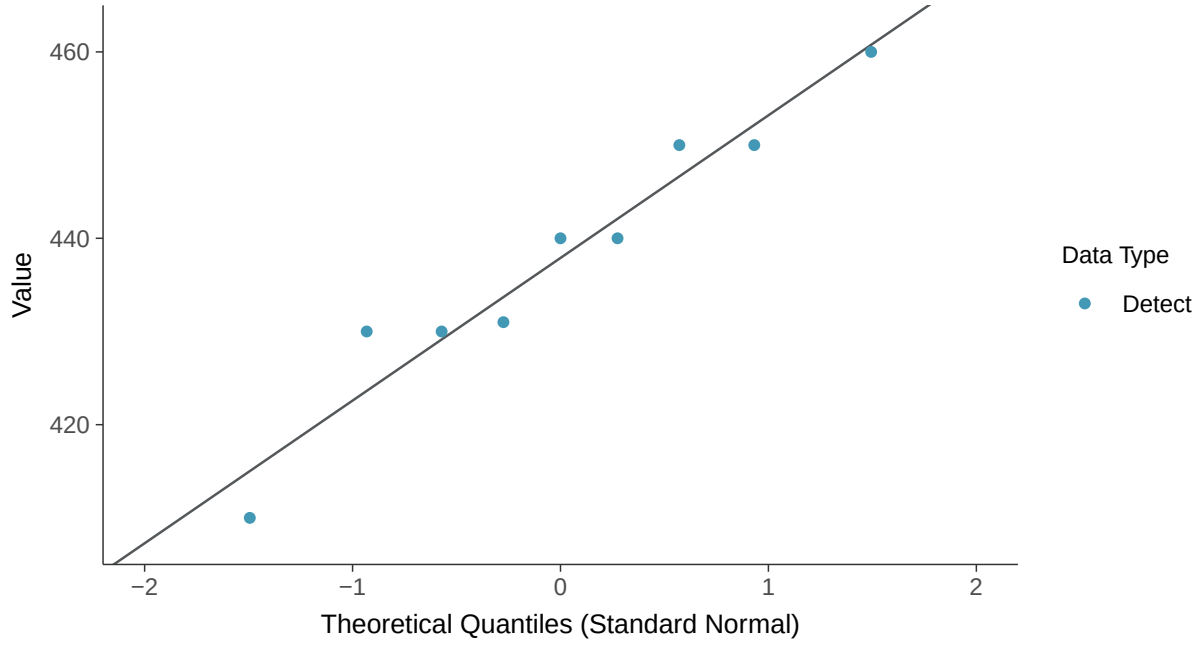
Boxplot by Season

Bicarbonate, MW-100A (mg/L)



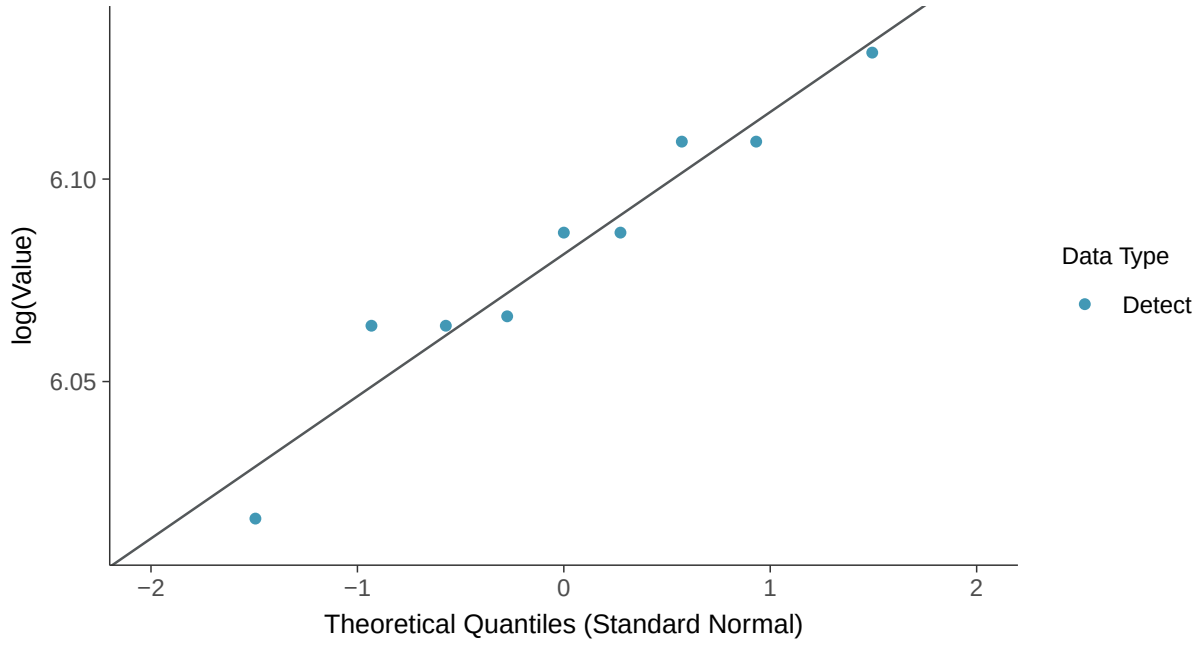
Normal Q-Q plot

Bicarbonate, MW-100A (mg/L)



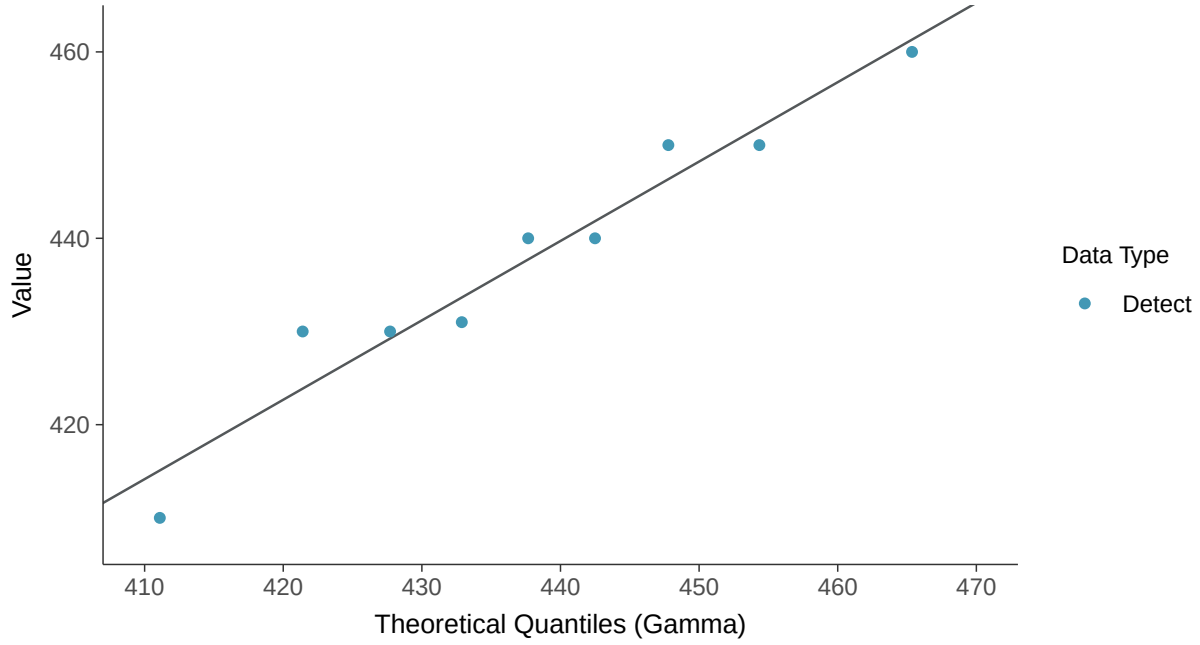
Lognormal Q-Q plot

Bicarbonate, MW-100A (mg/L)



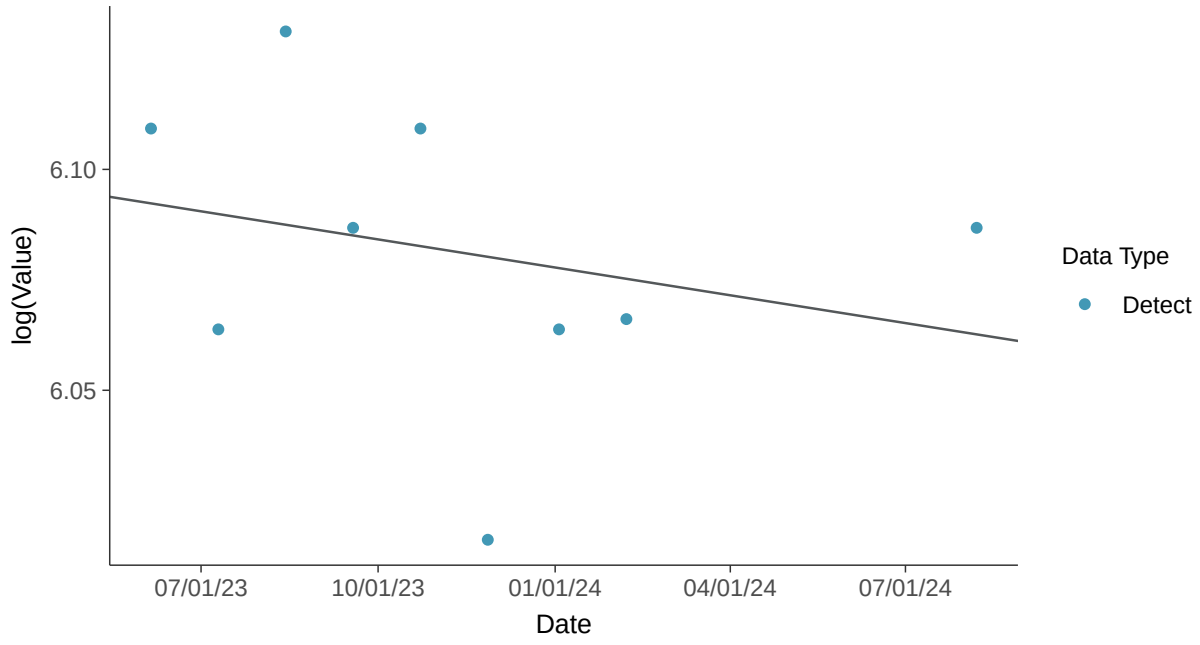
Gamma Q-Q plot

Bicarbonate, MW-100A (mg/L)



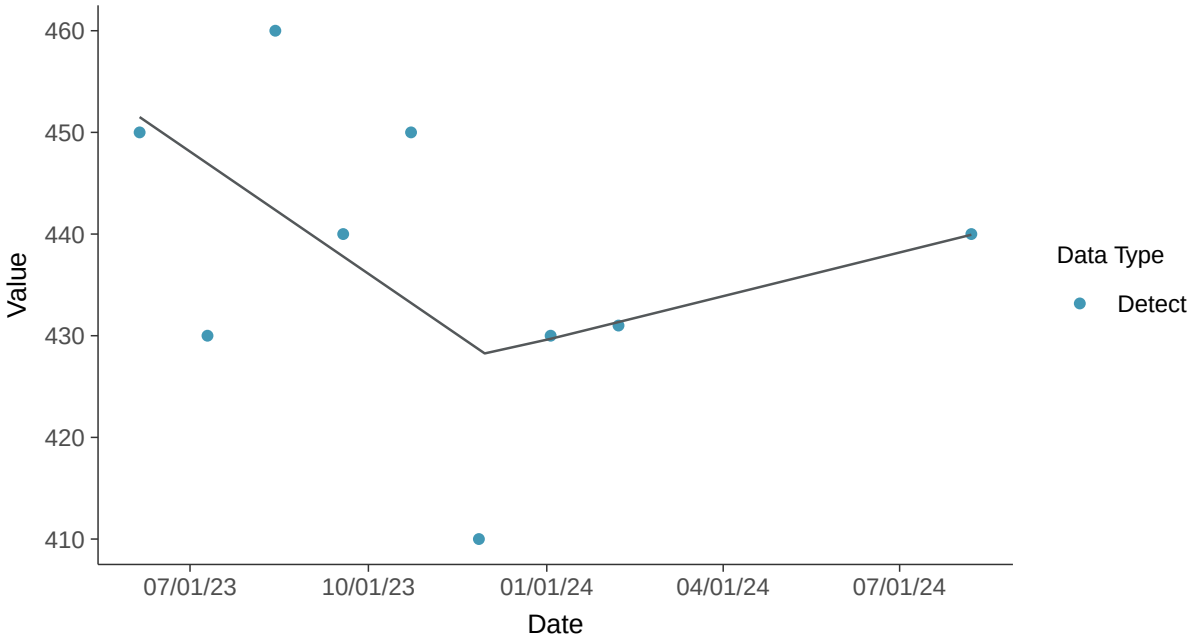
Trend Regression: Lognormal MLE

Bicarbonate, MW-100A (mg/L)



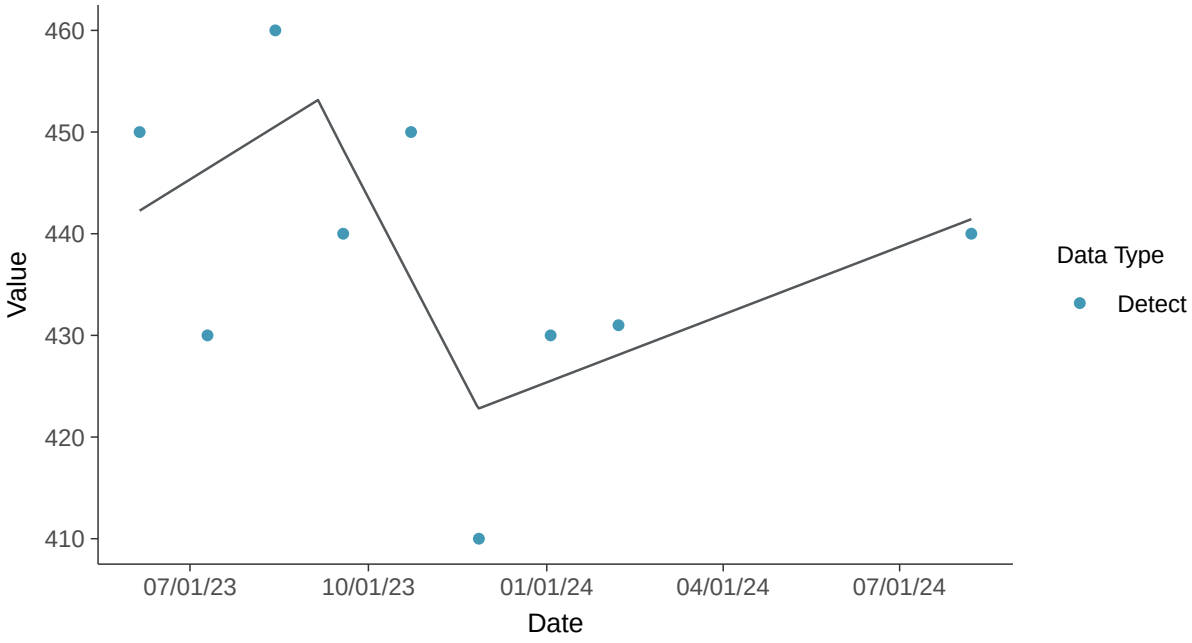
Trend Regression: Piecewise Linear-Linear

Bicarbonate, MW-100A (mg/L)



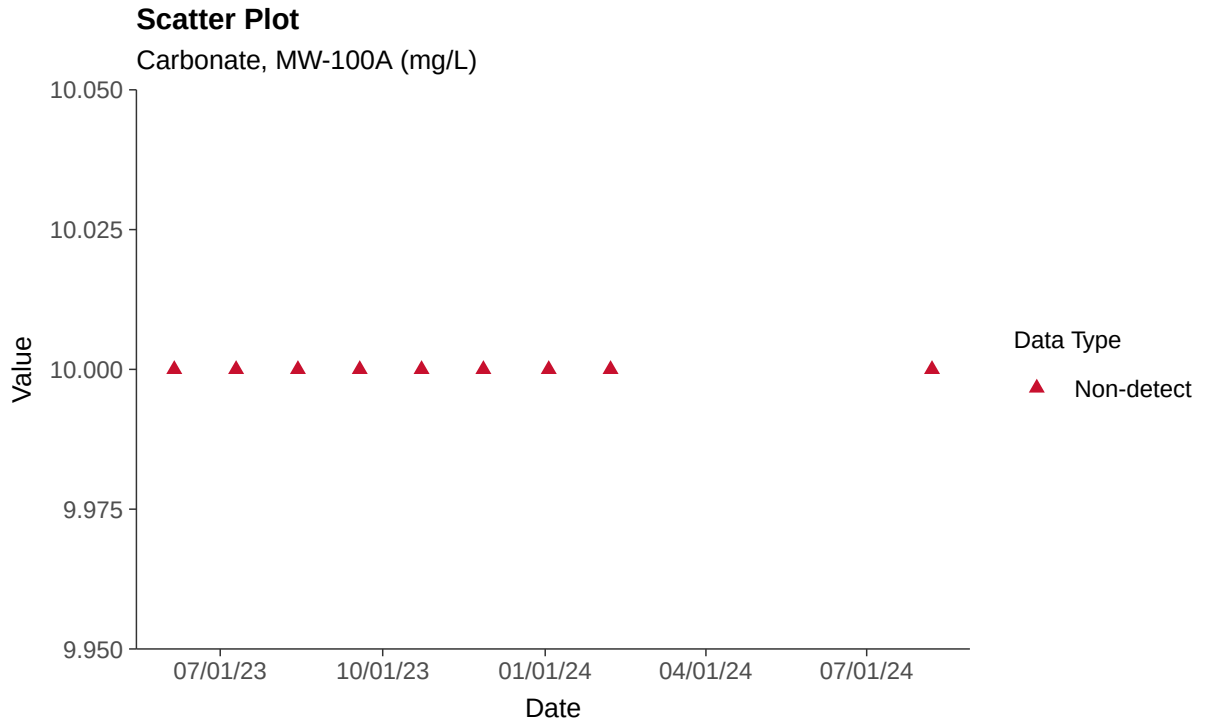
Trend Regression: Piecewise Linear-Linear-Linear

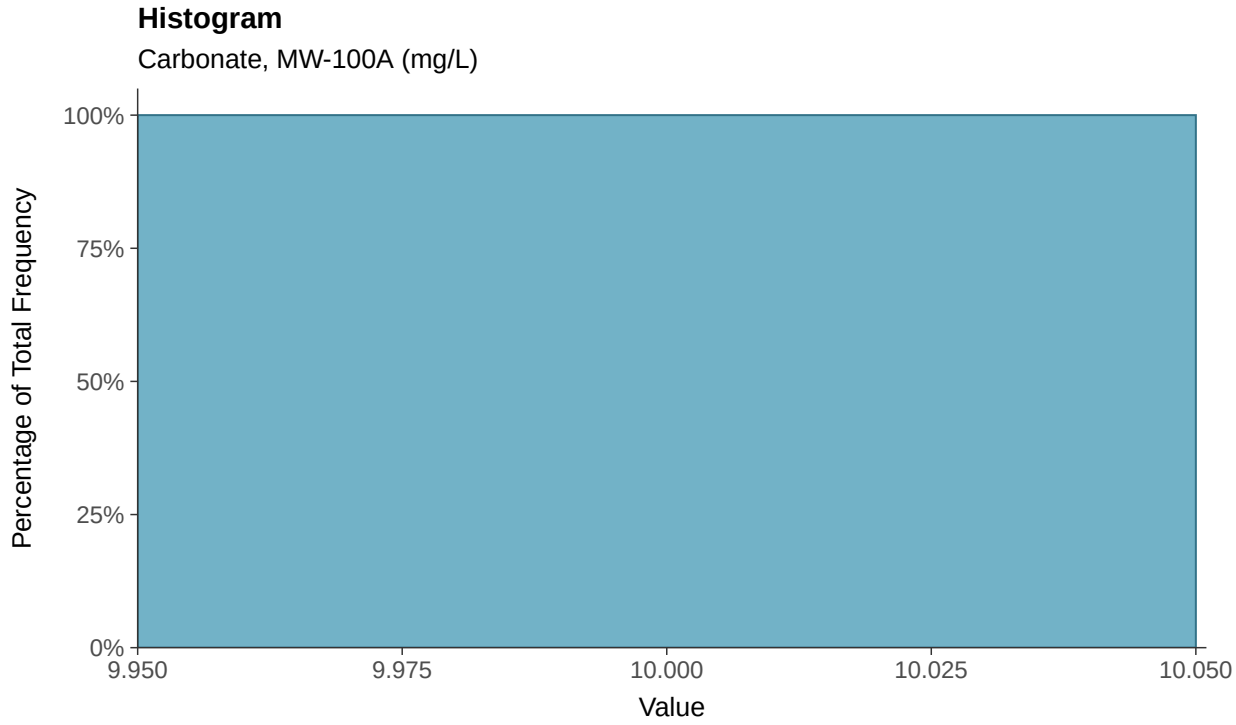
Bicarbonate, MW-100A (mg/L)



Other: Carbonate, MW-100A

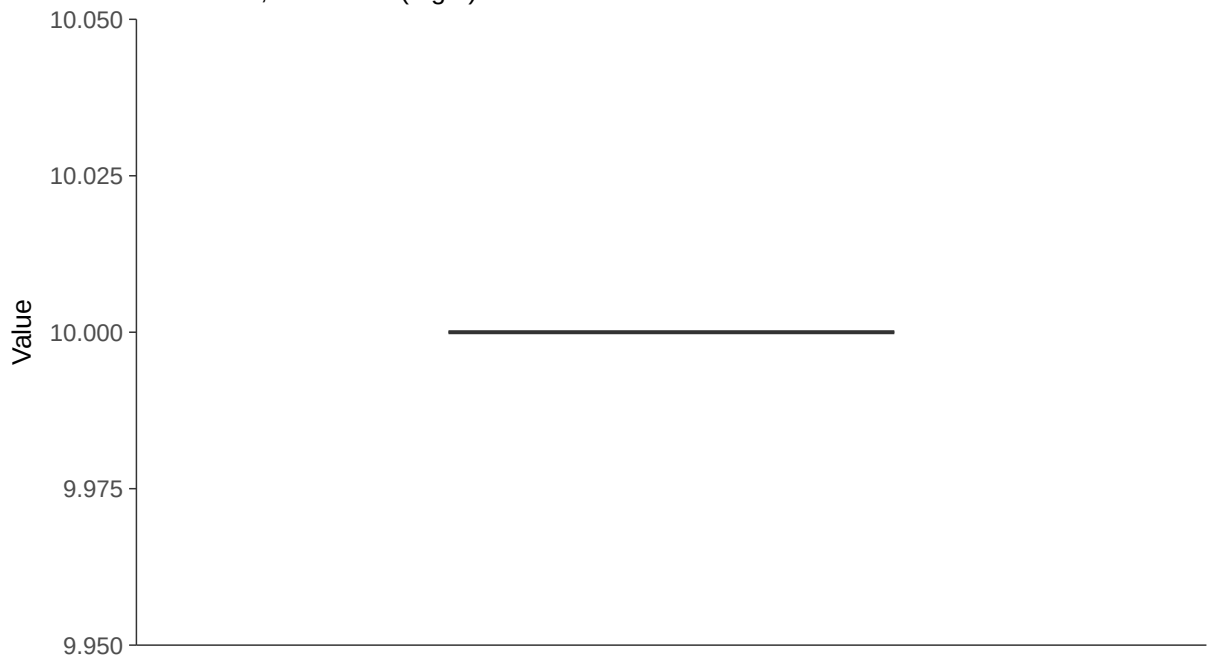
ID: 100A_4_32





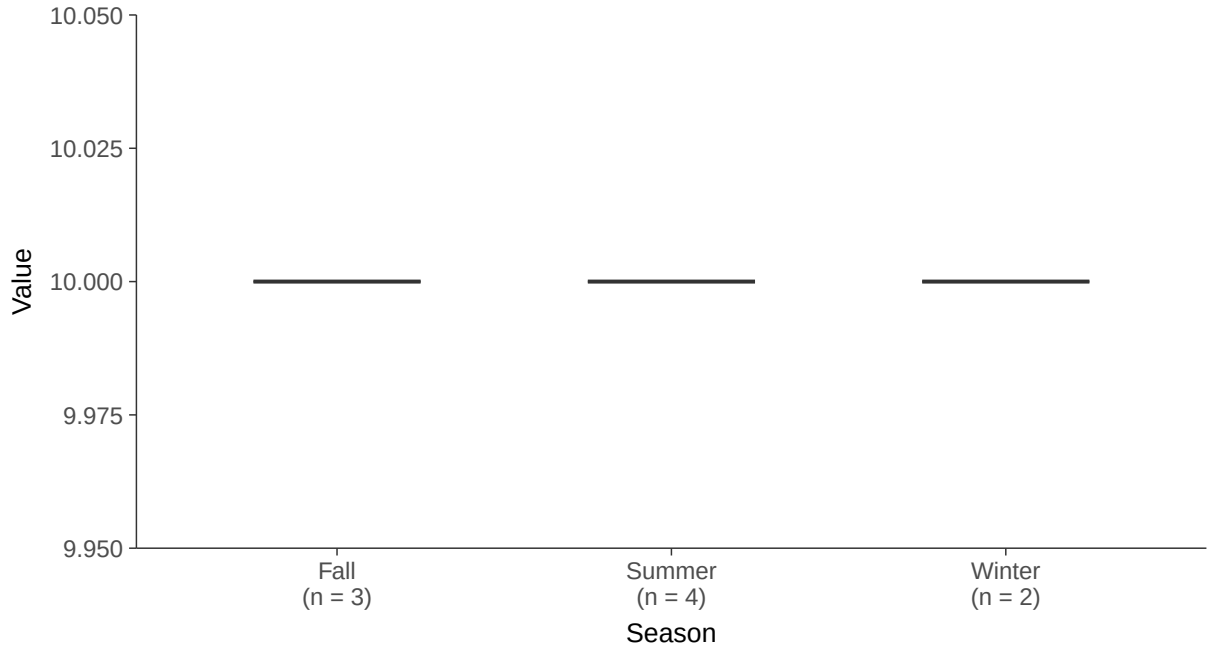
Boxplot

Carbonate, MW-100A (mg/L)



Boxplot by Season

Carbonate, MW-100A (mg/L)

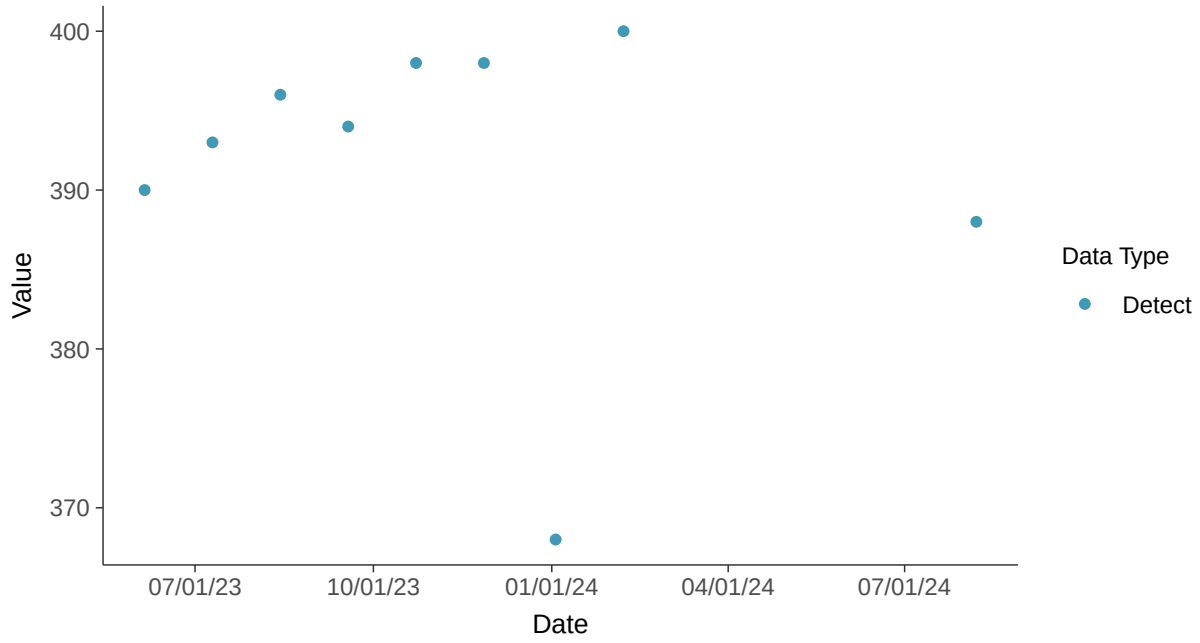


Other: Hardness, MW-100A

ID: 100A_4_33

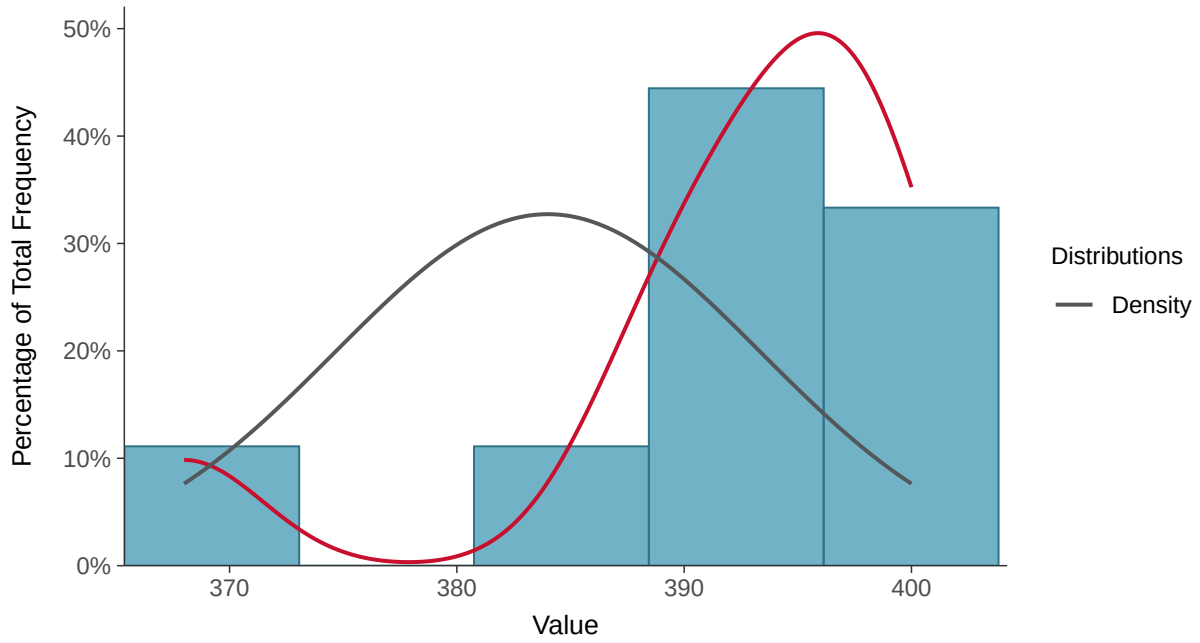
Scatter Plot

Hardness, MW-100A (mg/L)



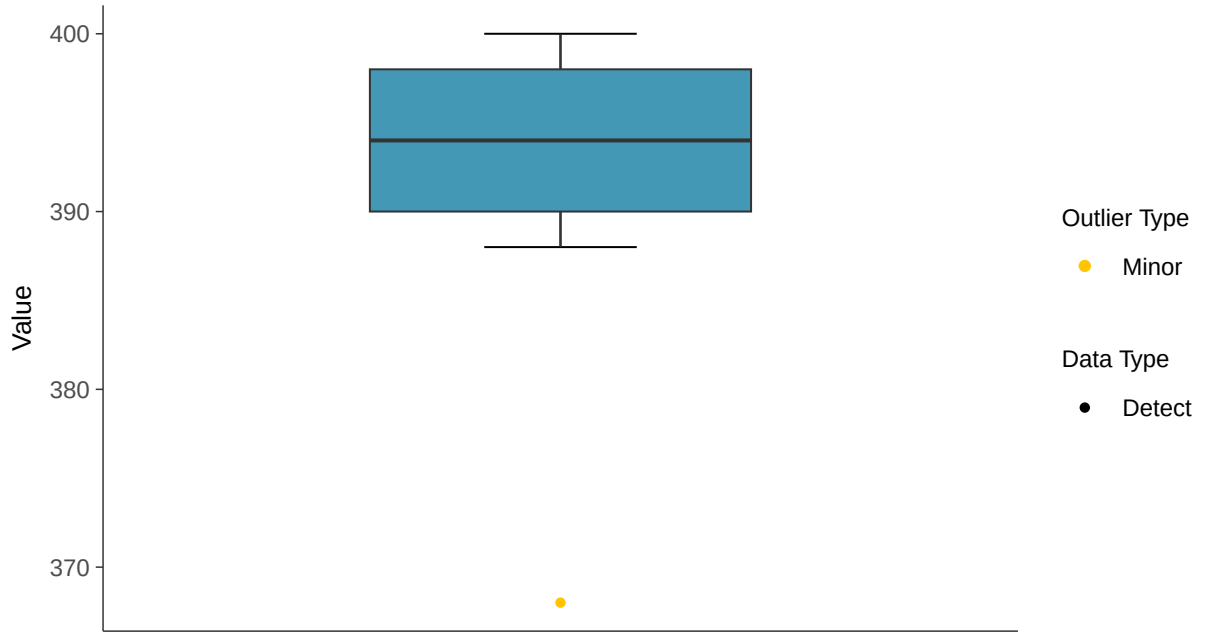
Histogram

Hardness, MW-100A (mg/L)



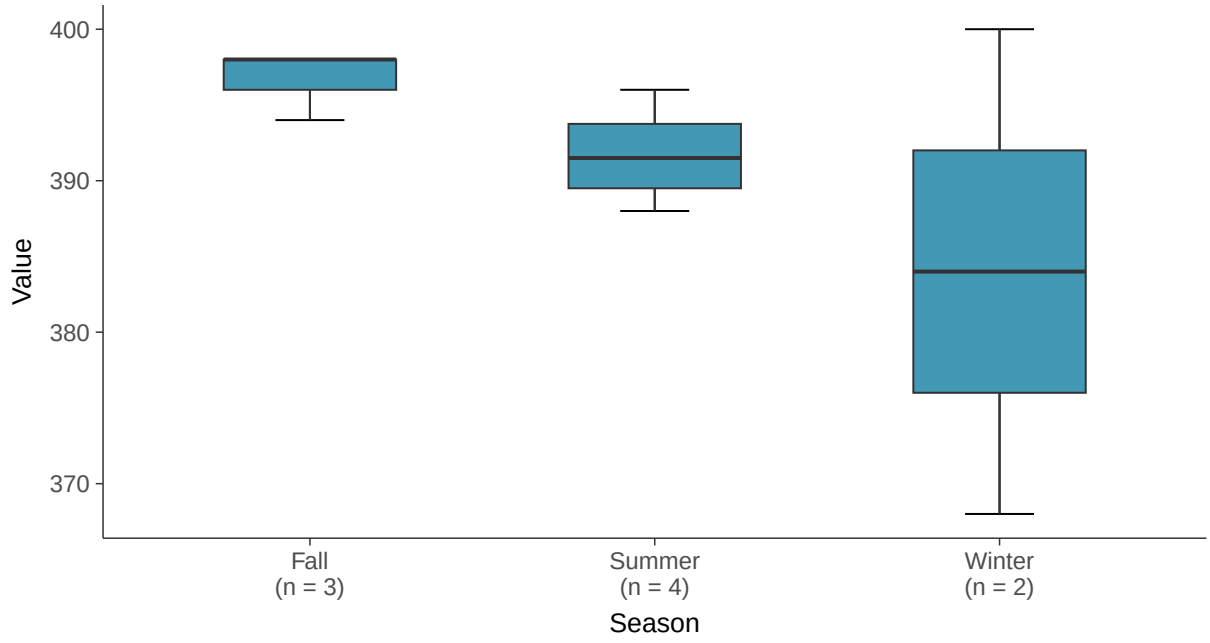
Boxplot

Hardness, MW-100A (mg/L)



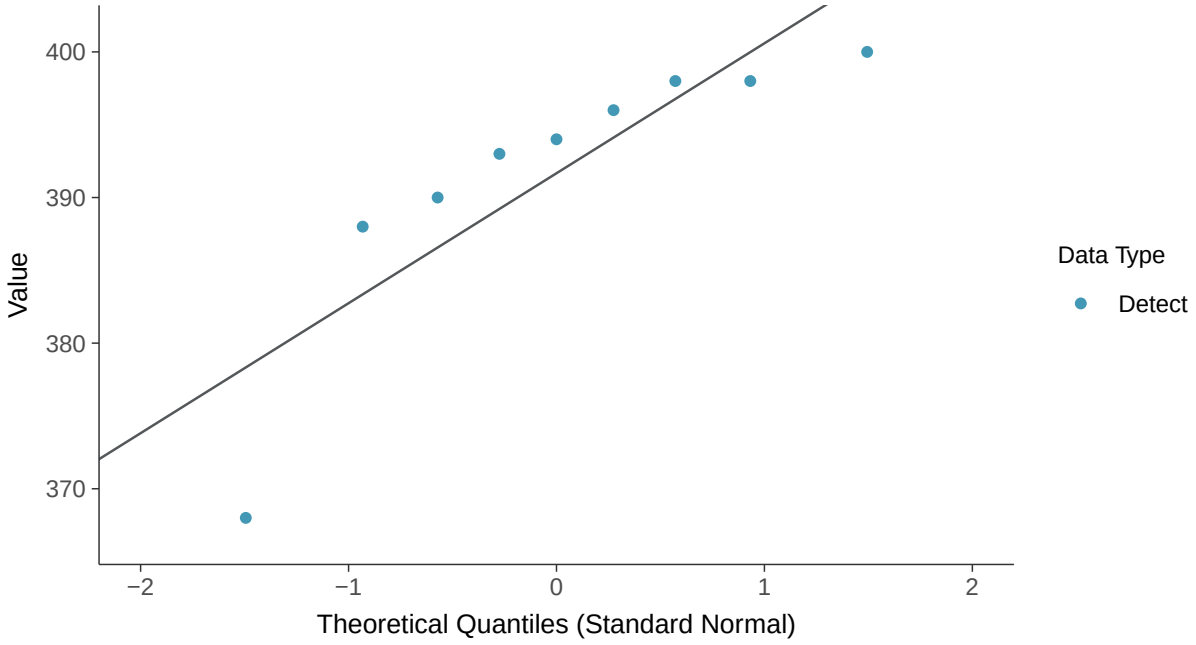
Boxplot by Season

Hardness, MW-100A (mg/L)



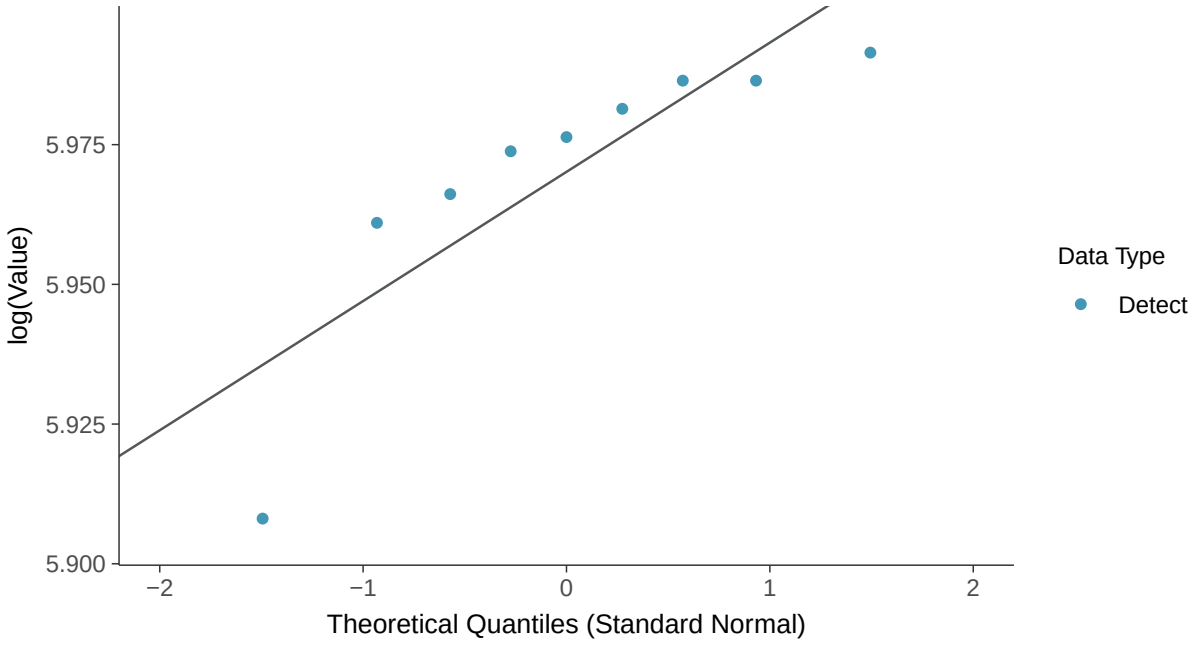
Normal Q-Q plot

Hardness, MW-100A (mg/L)



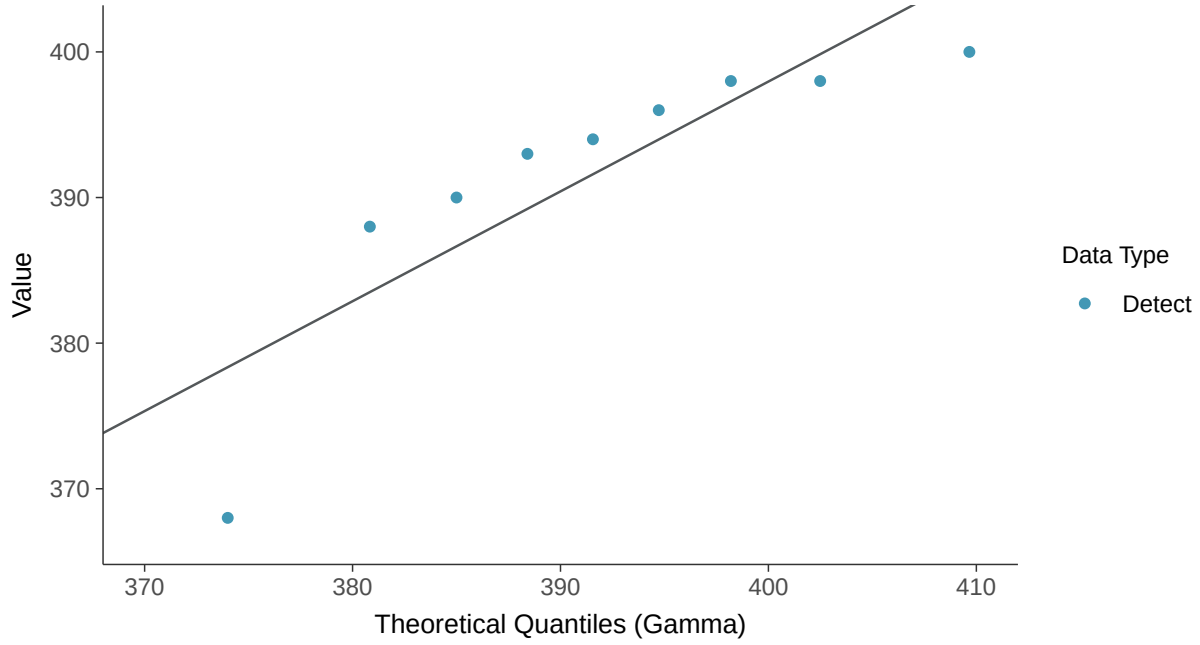
Lognormal Q-Q plot

Hardness, MW-100A (mg/L)



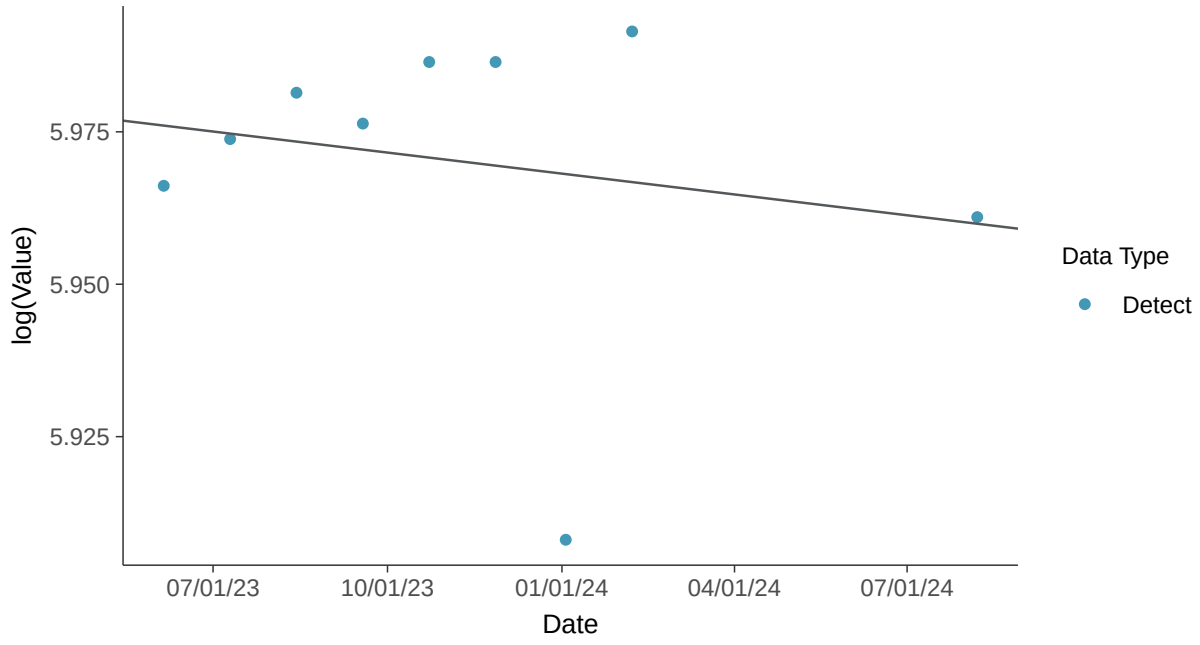
Gamma Q-Q plot

Hardness, MW-100A (mg/L)



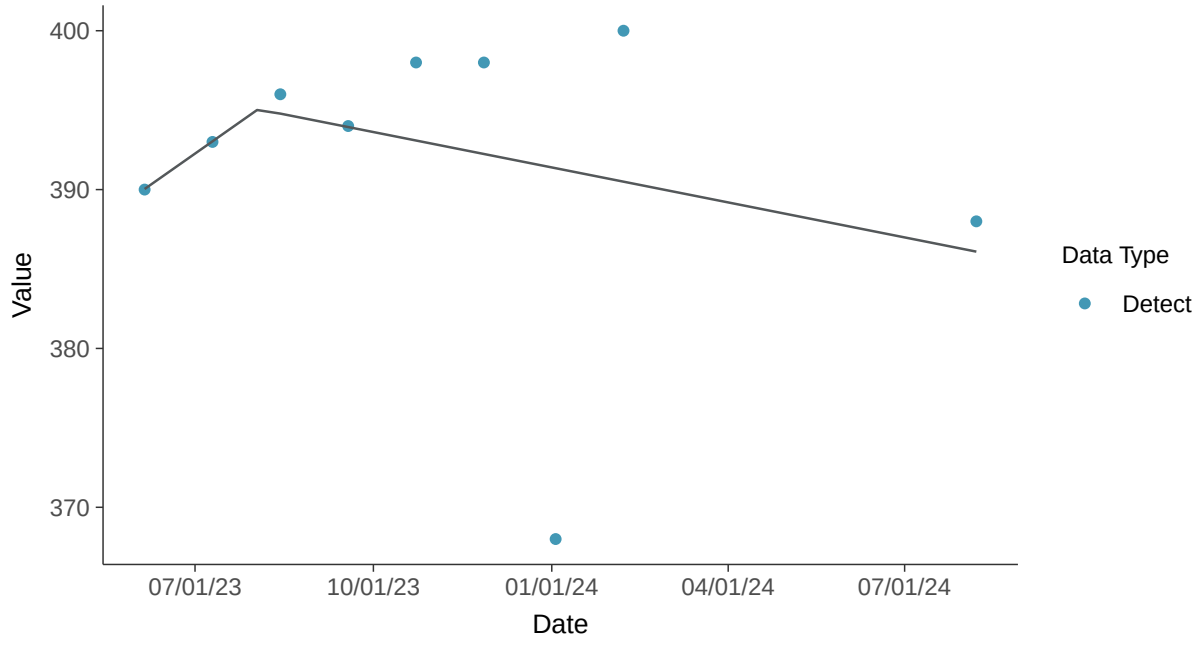
Trend Regression: Lognormal MLE

Hardness, MW-100A (mg/L)



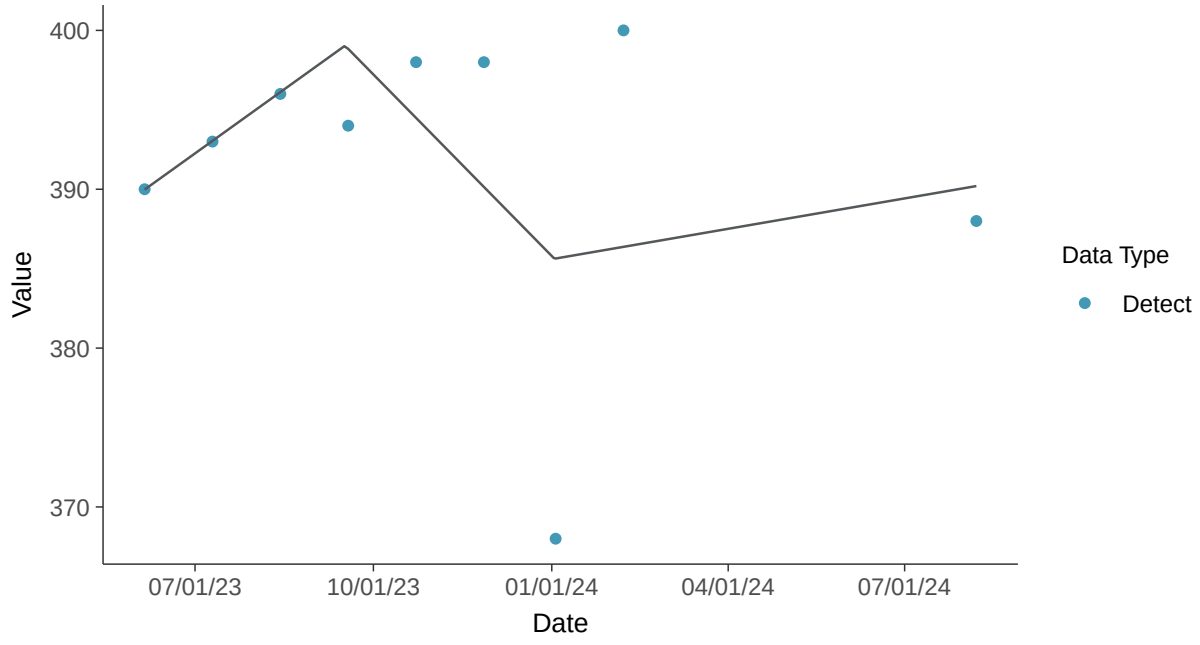
Trend Regression: Piecewise Linear-Linear

Hardness, MW-100A (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Hardness, MW-100A (mg/L)

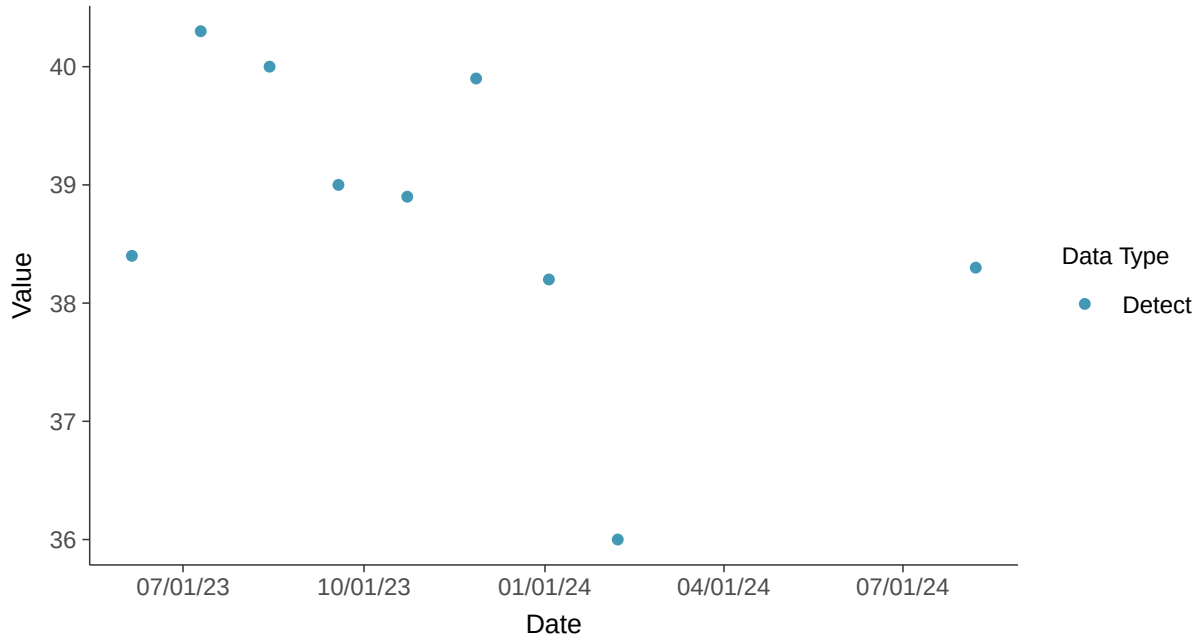


Other: Magnesium, MW-100A

ID: 100A_4_34

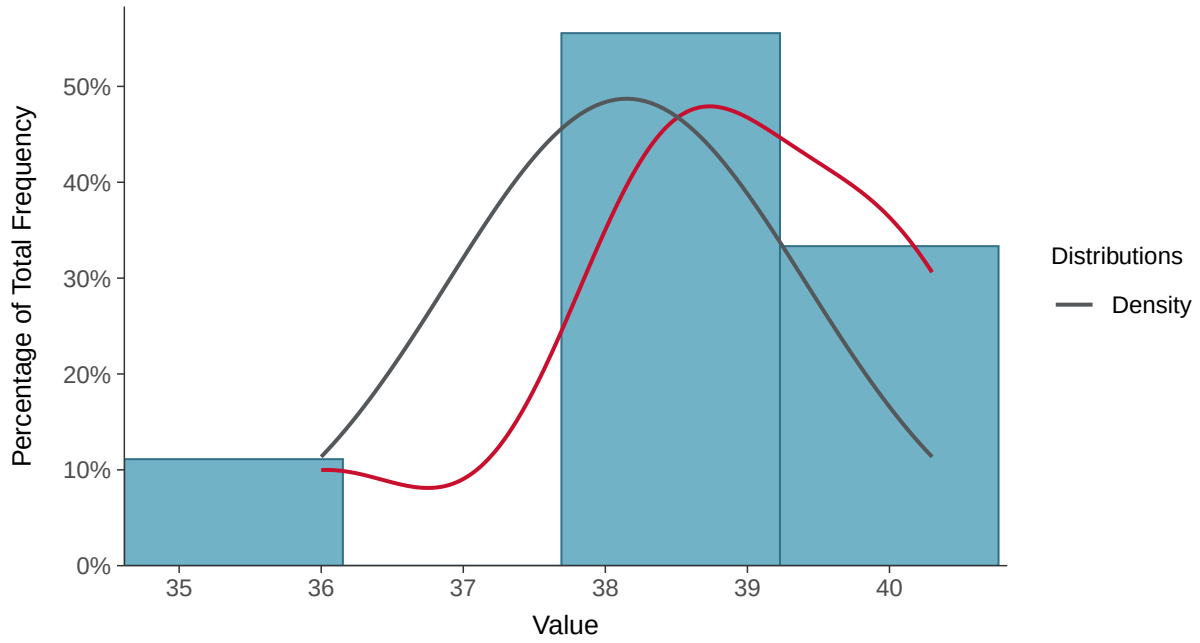
Scatter Plot

Magnesium, MW-100A (mg/L)



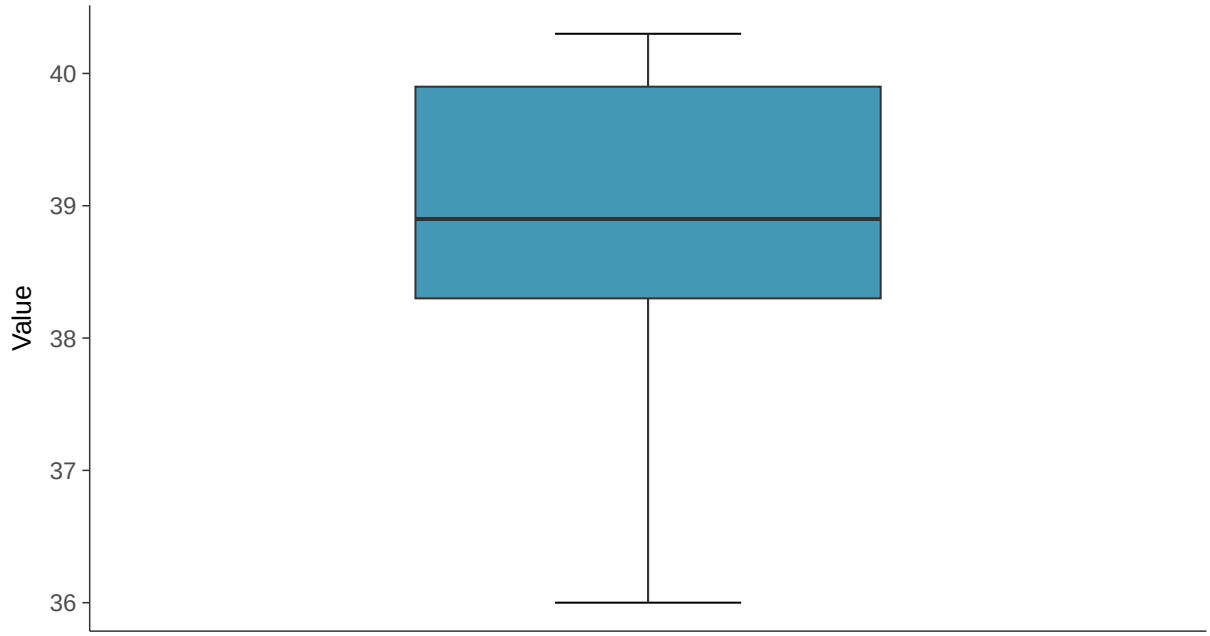
Histogram

Magnesium, MW-100A (mg/L)



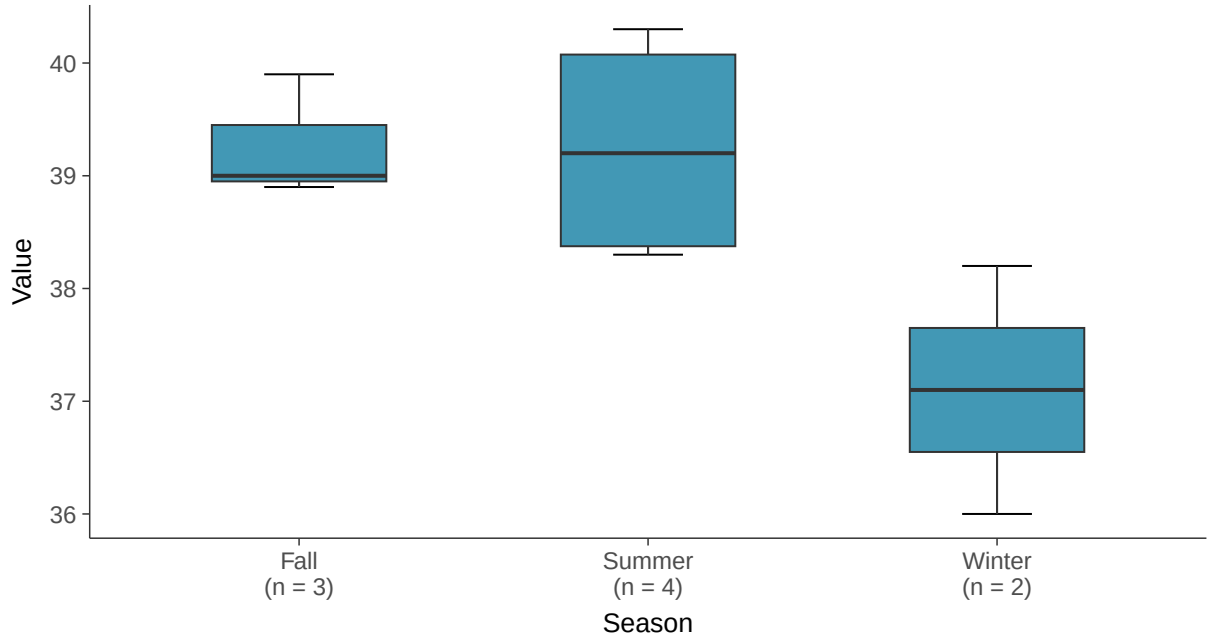
Boxplot

Magnesium, MW-100A (mg/L)



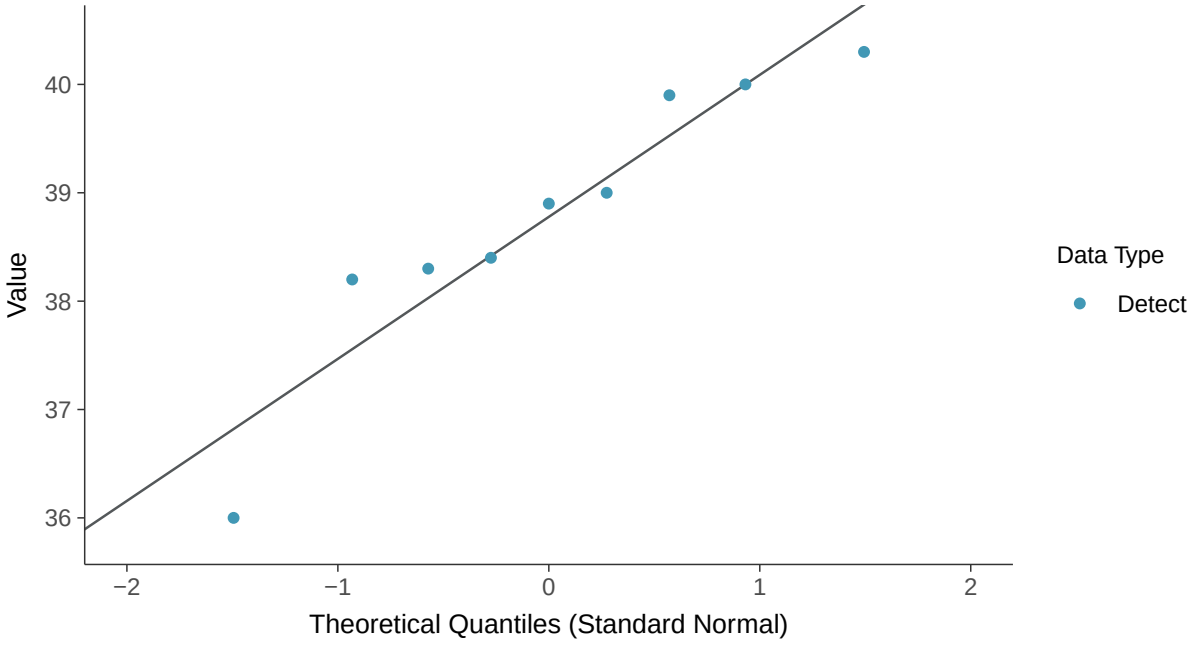
Boxplot by Season

Magnesium, MW-100A (mg/L)



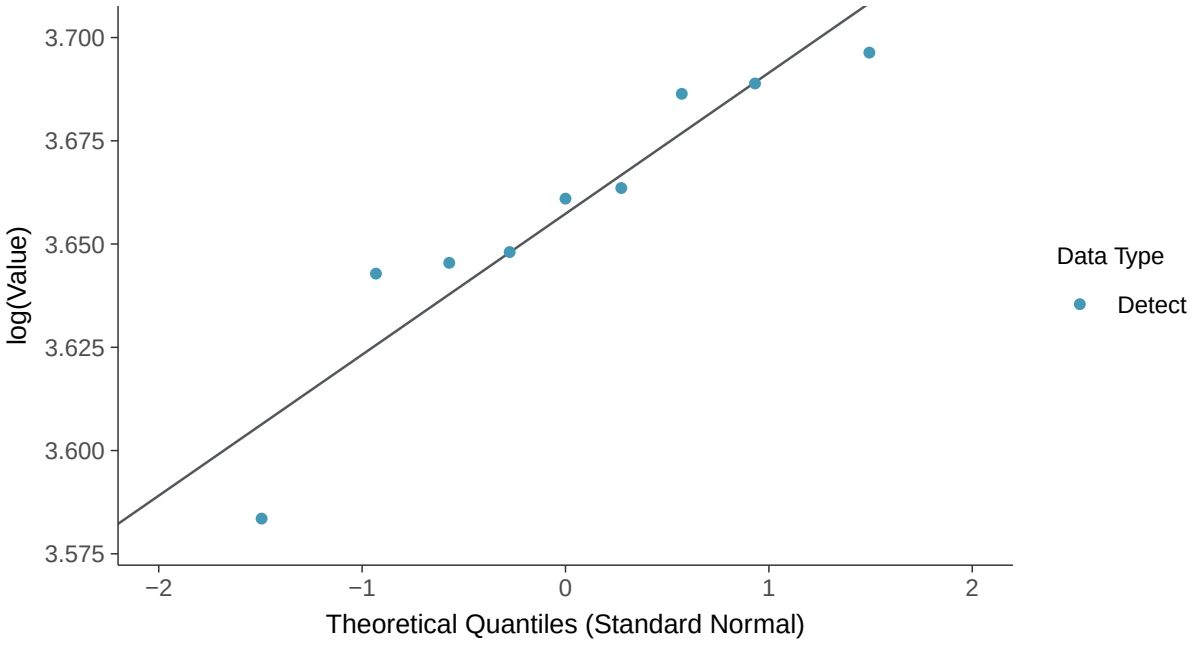
Normal Q-Q plot

Magnesium, MW-100A (mg/L)



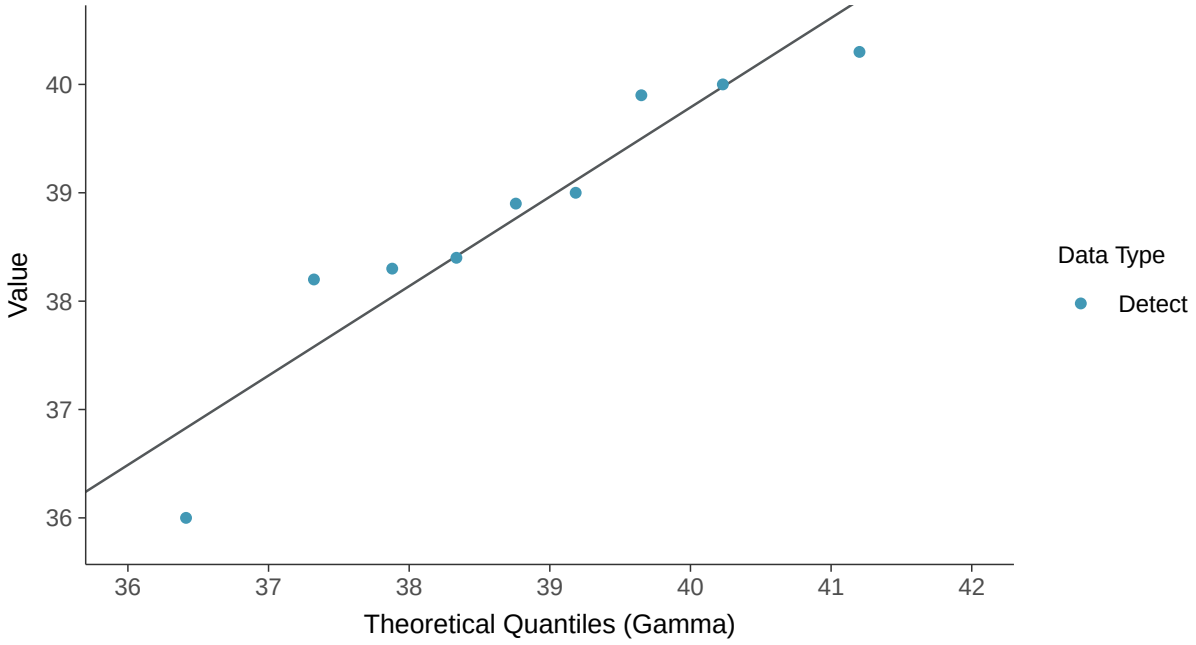
Lognormal Q-Q plot

Magnesium, MW-100A (mg/L)



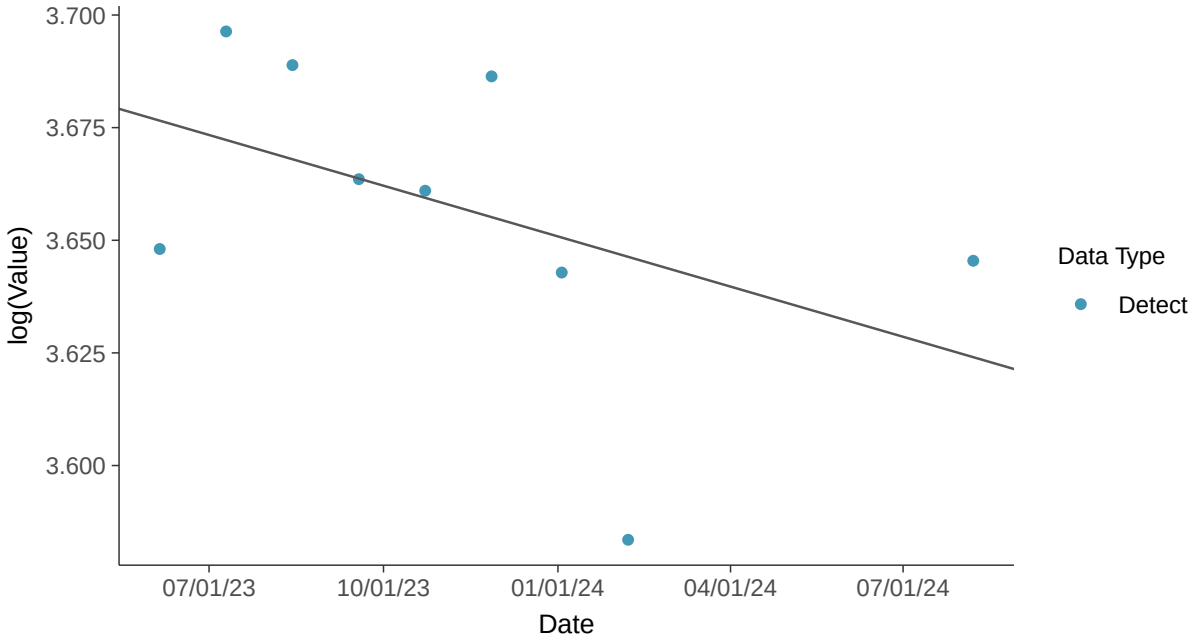
Gamma Q-Q plot

Magnesium, MW-100A (mg/L)



Trend Regression: Lognormal MLE

Magnesium, MW-100A (mg/L)

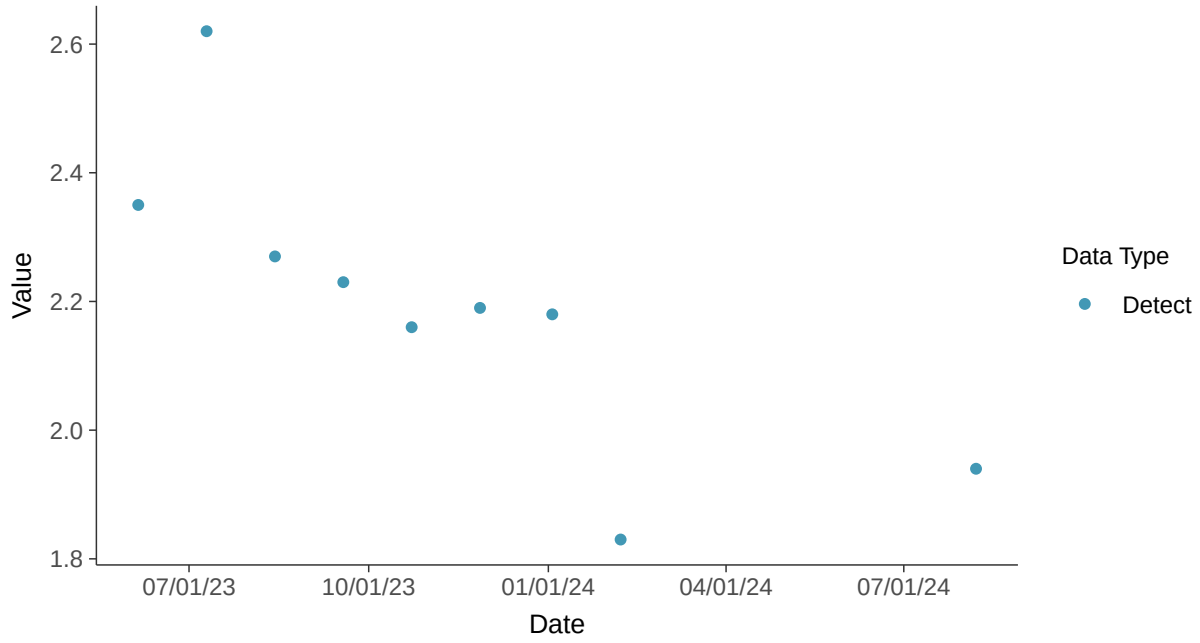


Other: Potassium, MW-100A

ID: 100A_4_35

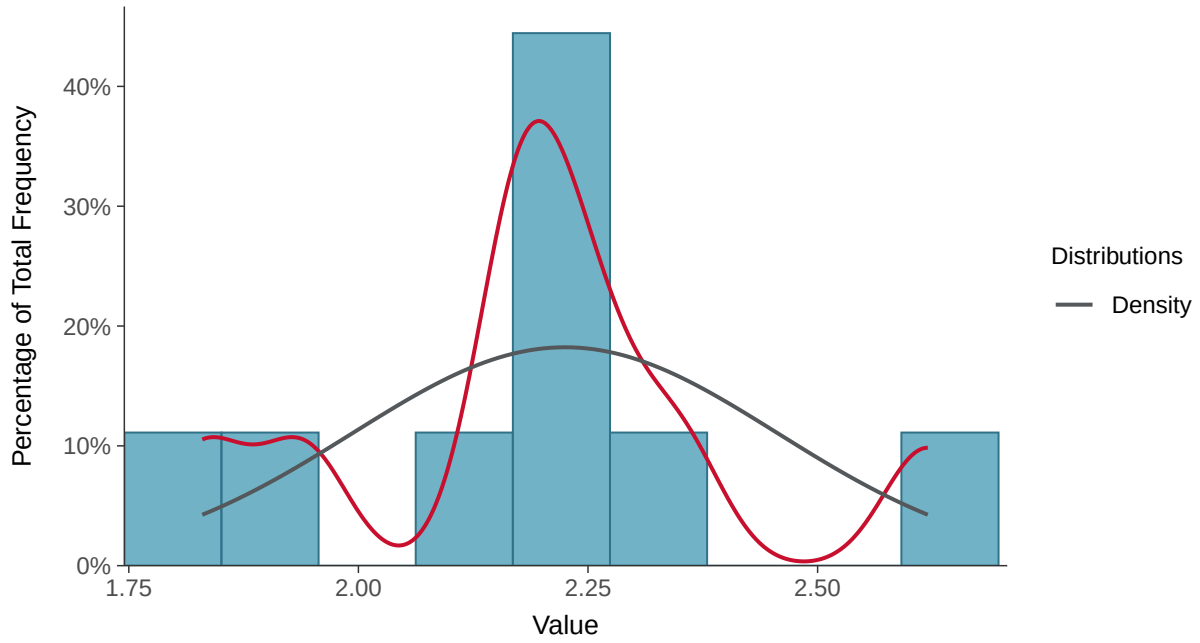
Scatter Plot

Potassium, MW-100A (mg/L)



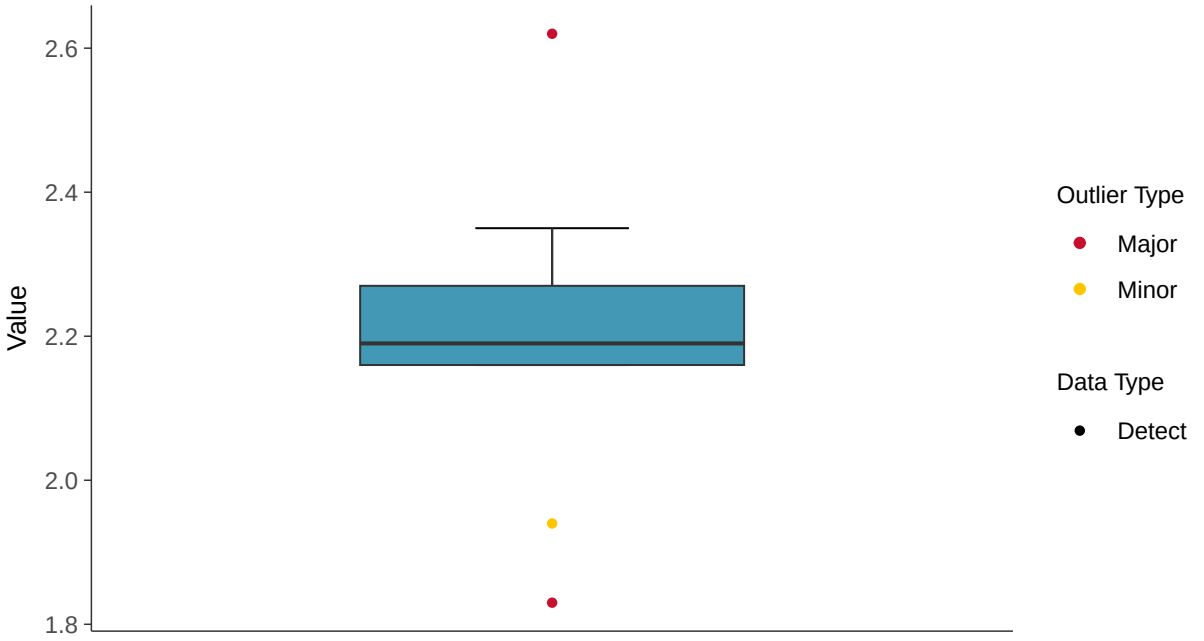
Histogram

Potassium, MW-100A (mg/L)



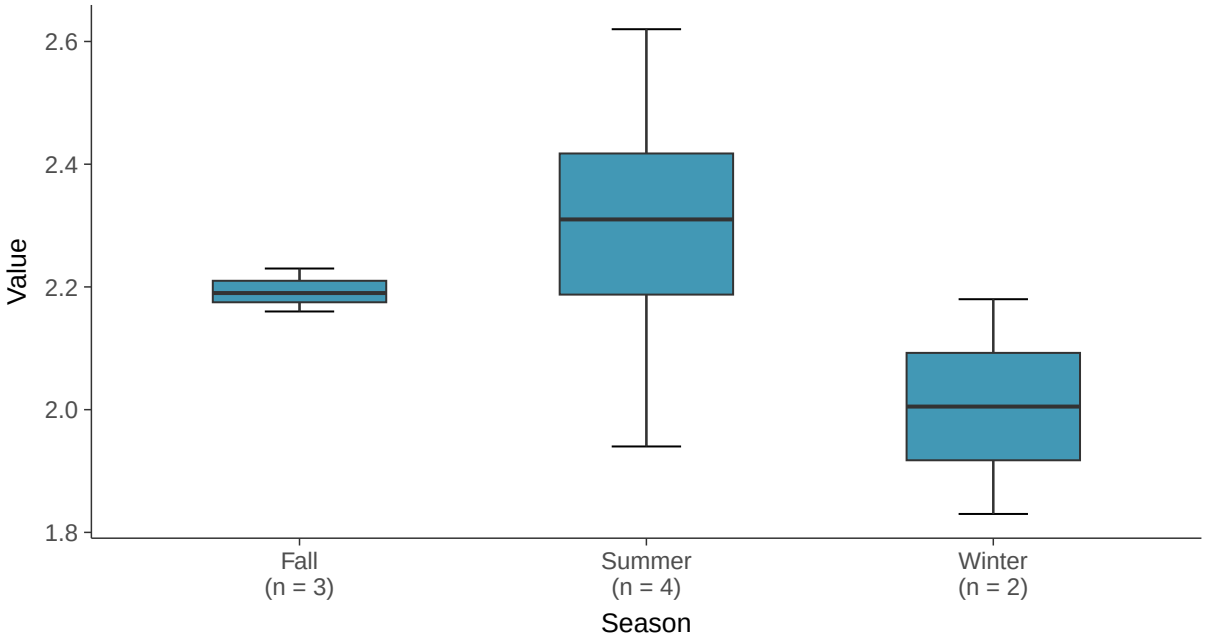
Boxplot

Potassium, MW-100A (mg/L)



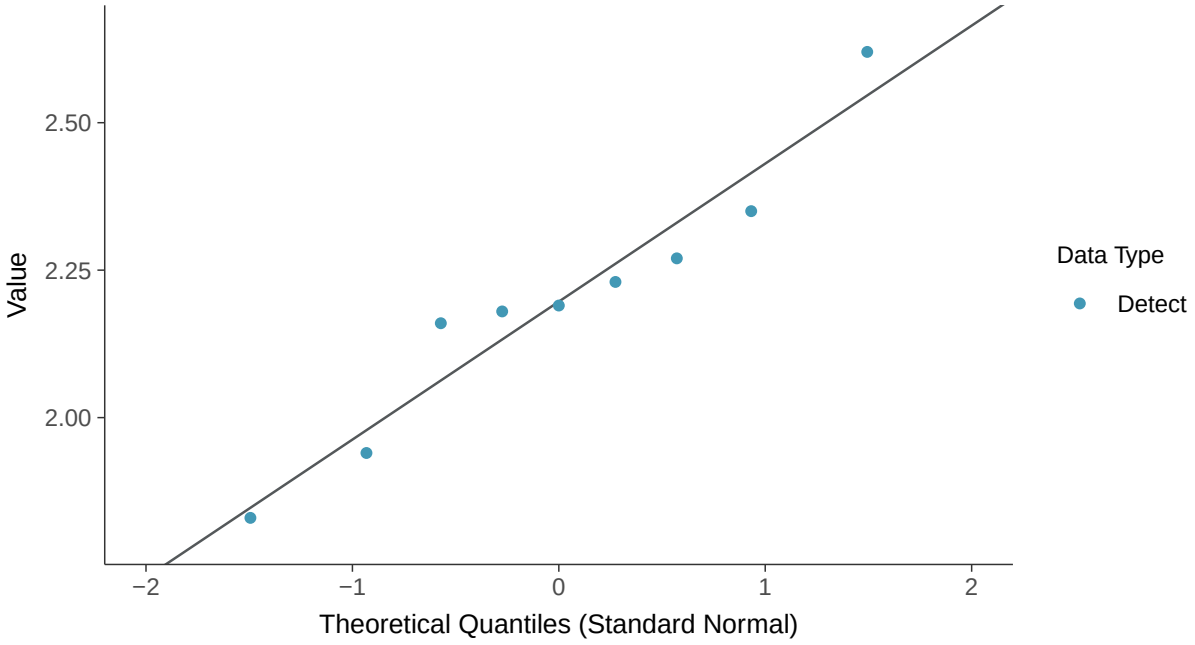
Boxplot by Season

Potassium, MW-100A (mg/L)



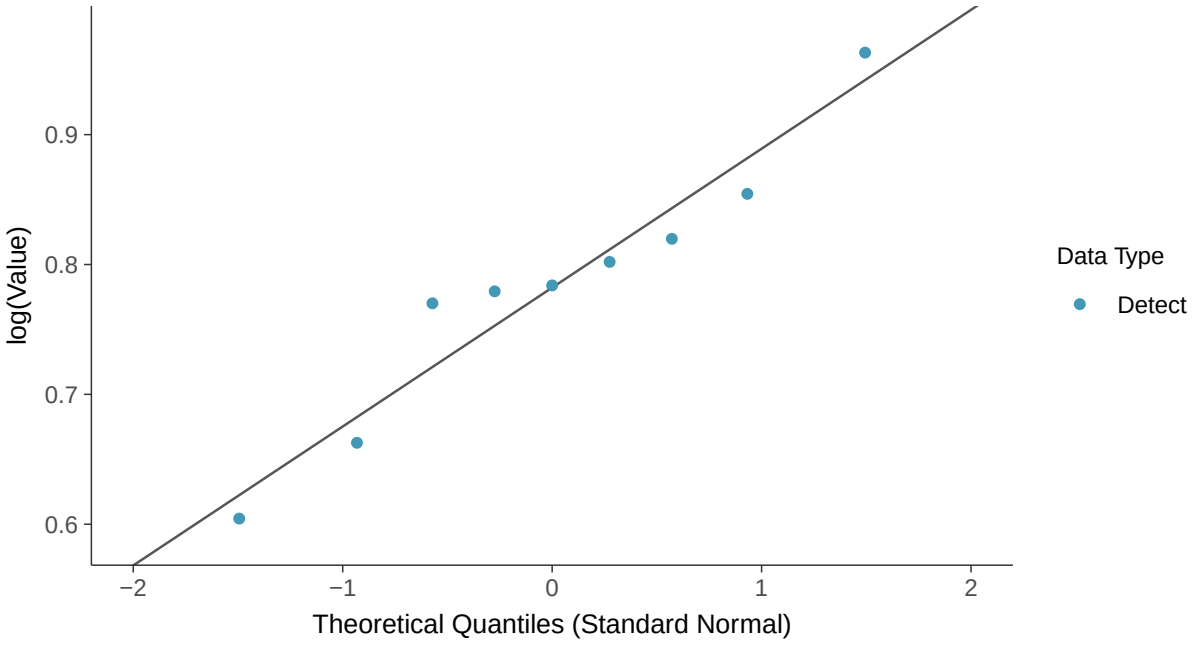
Normal Q-Q plot

Potassium, MW-100A (mg/L)



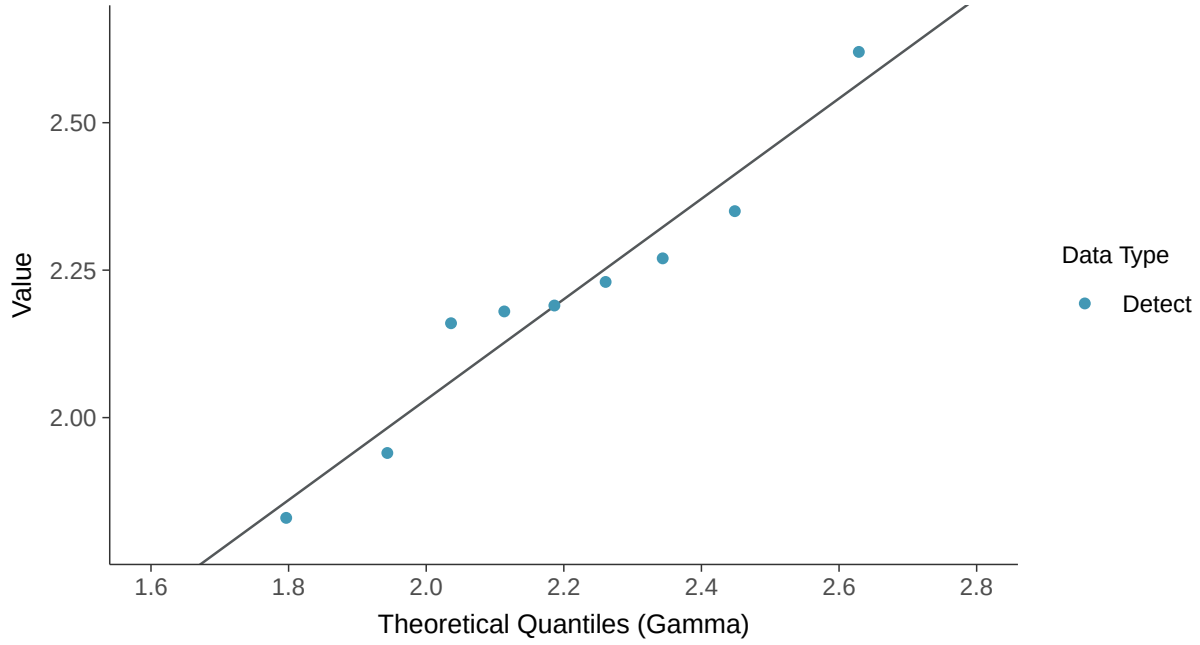
Lognormal Q-Q plot

Potassium, MW-100A (mg/L)



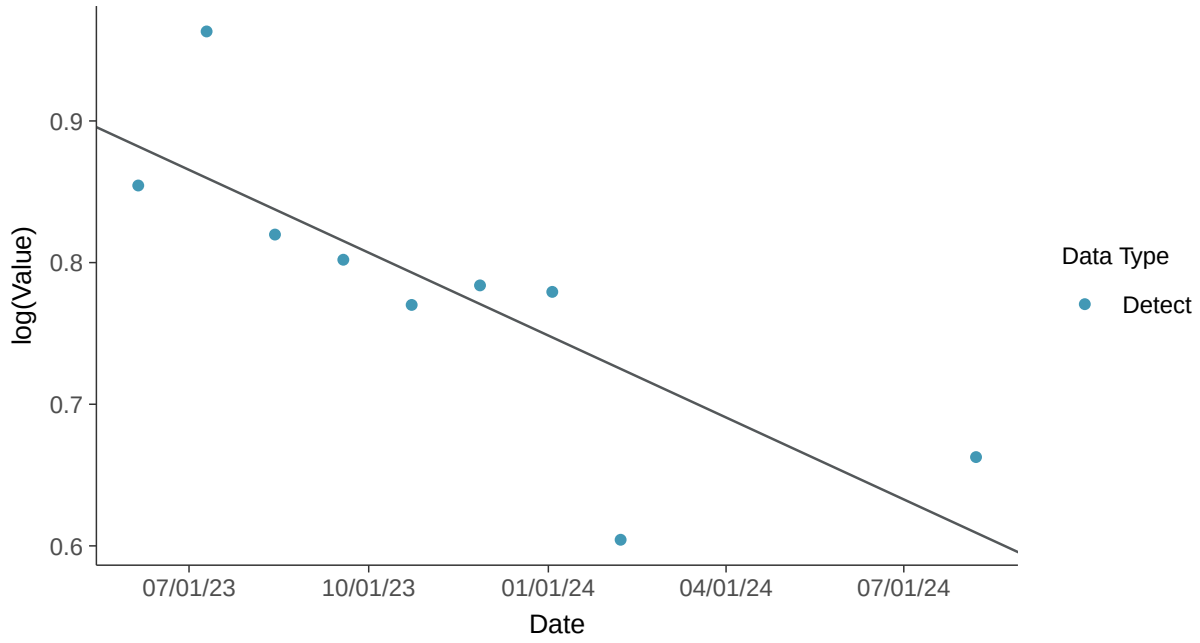
Gamma Q-Q plot

Potassium, MW-100A (mg/L)



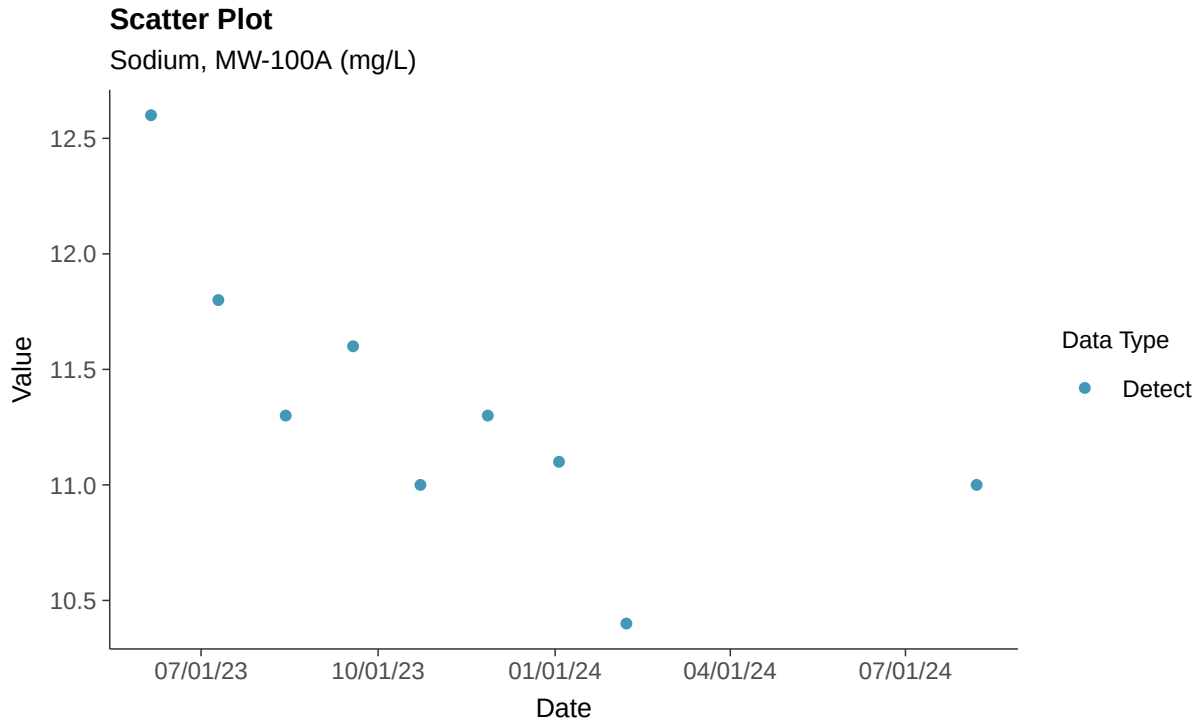
Trend Regression: Lognormal MLE

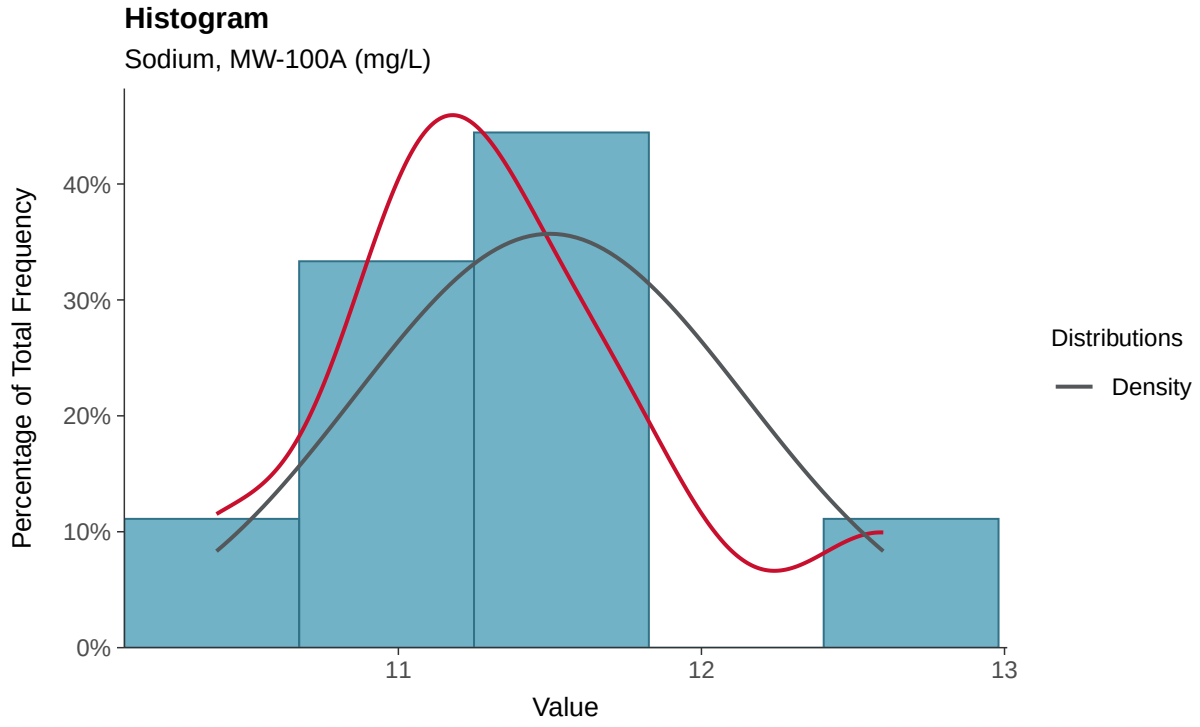
Potassium, MW-100A (mg/L)



Other: Sodium, MW-100A

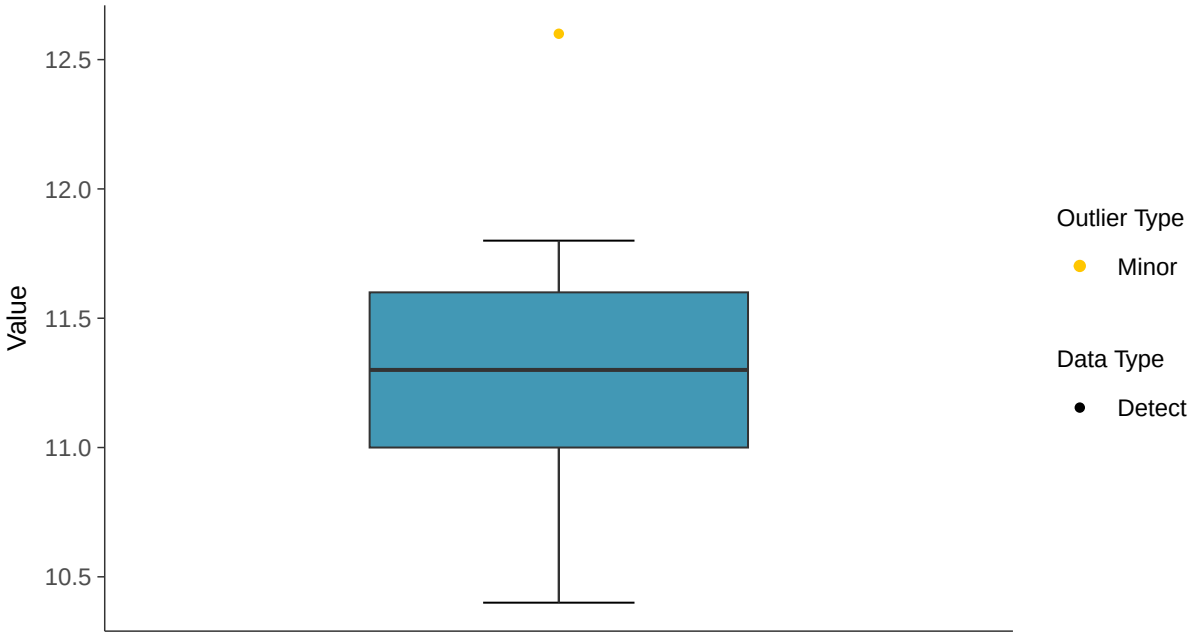
ID: 100A_4_36





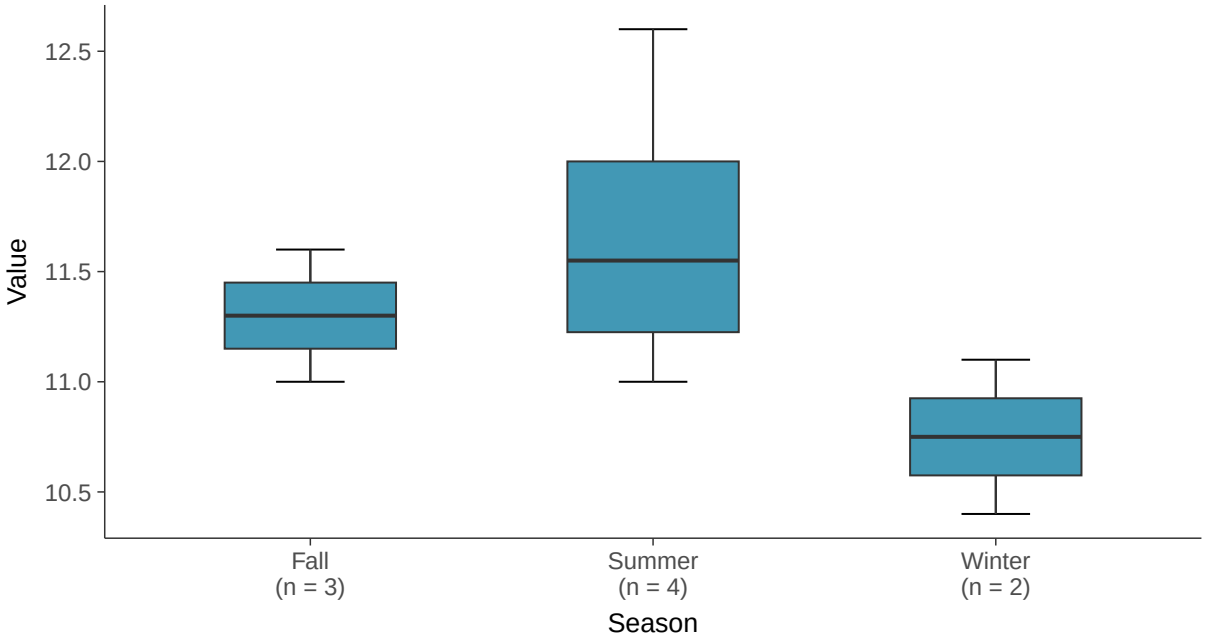
Boxplot

Sodium, MW-100A (mg/L)



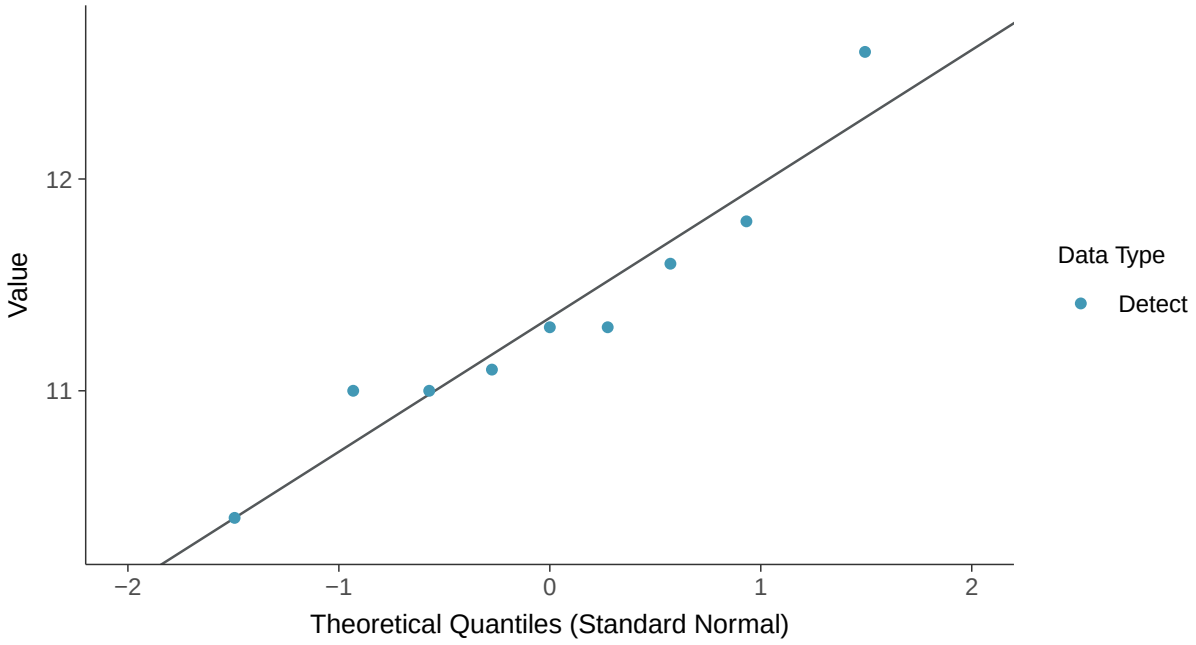
Boxplot by Season

Sodium, MW-100A (mg/L)



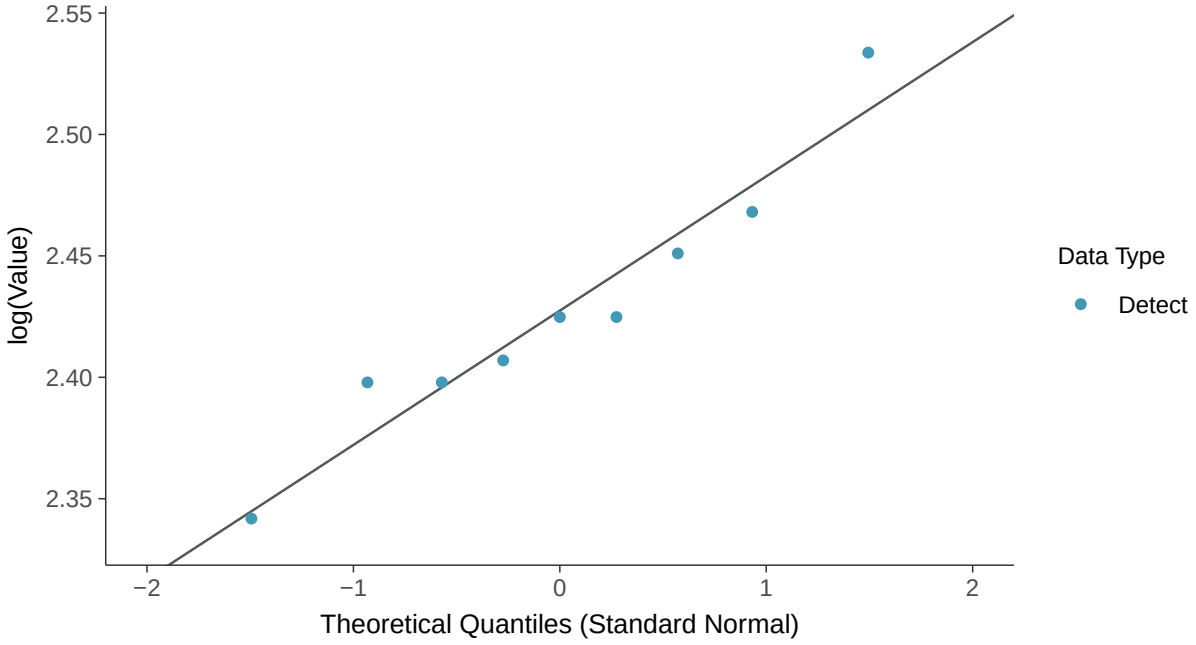
Normal Q-Q plot

Sodium, MW-100A (mg/L)



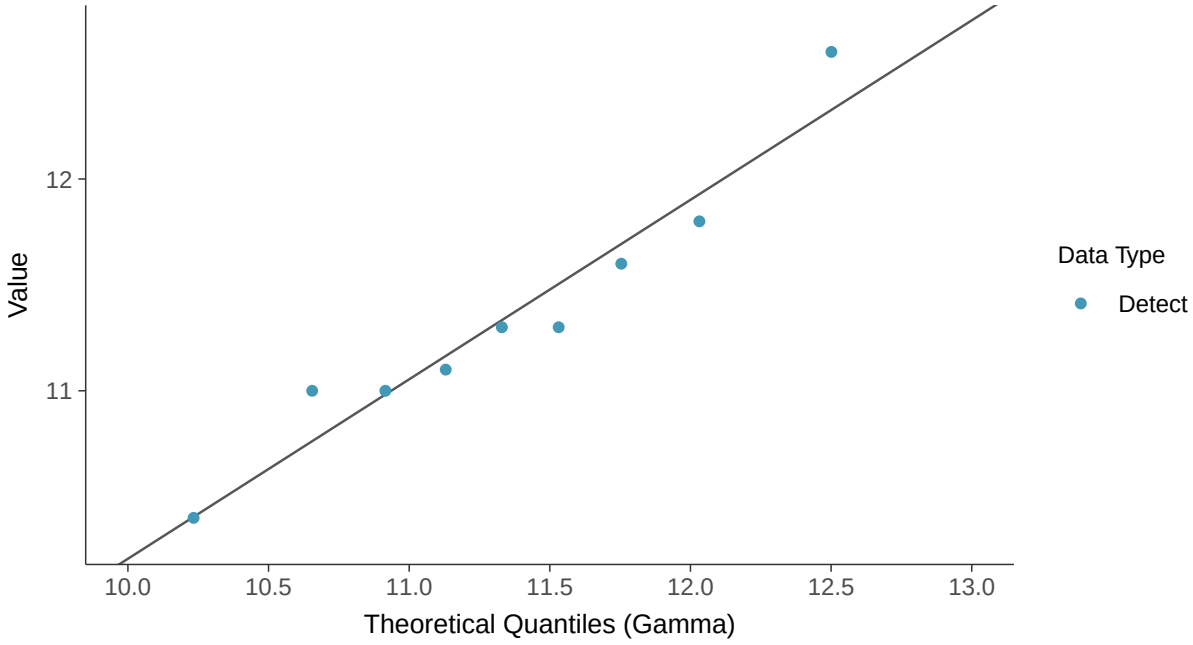
Lognormal Q-Q plot

Sodium, MW-100A (mg/L)



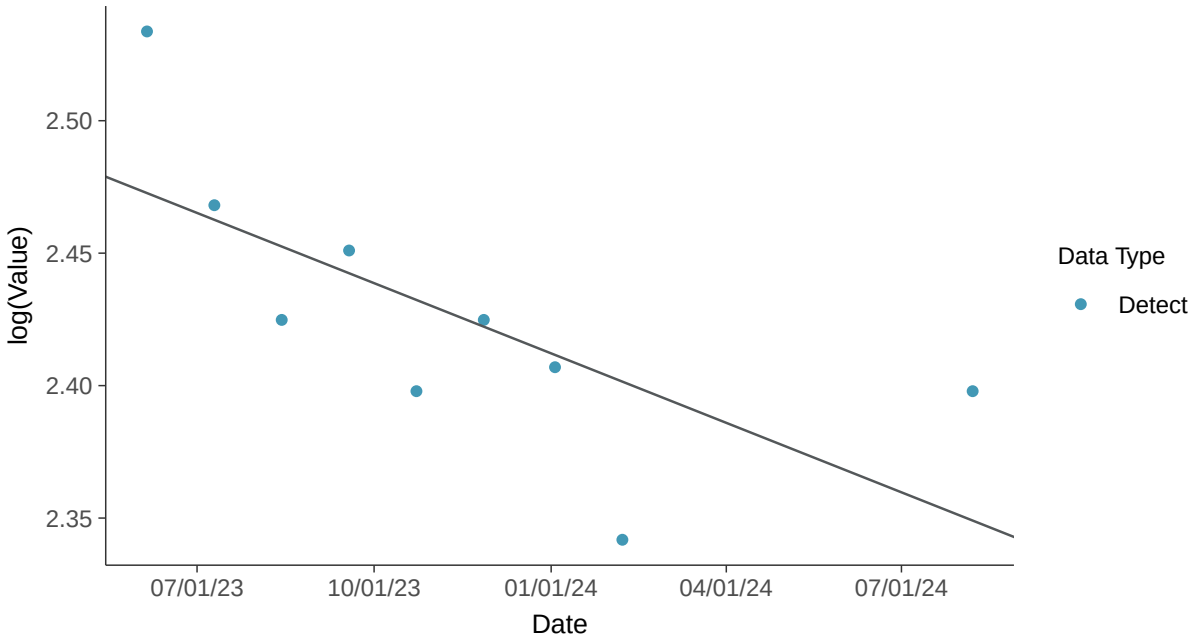
Gamma Q-Q plot

Sodium, MW-100A (mg/L)



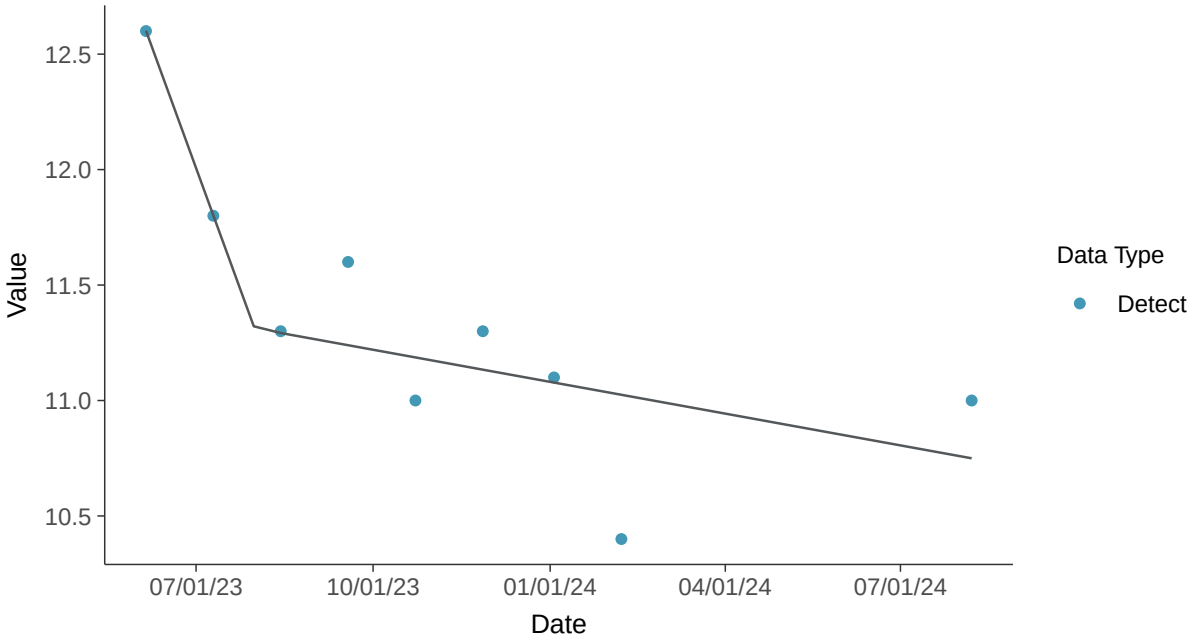
Trend Regression: Lognormal MLE

Sodium, MW-100A (mg/L)



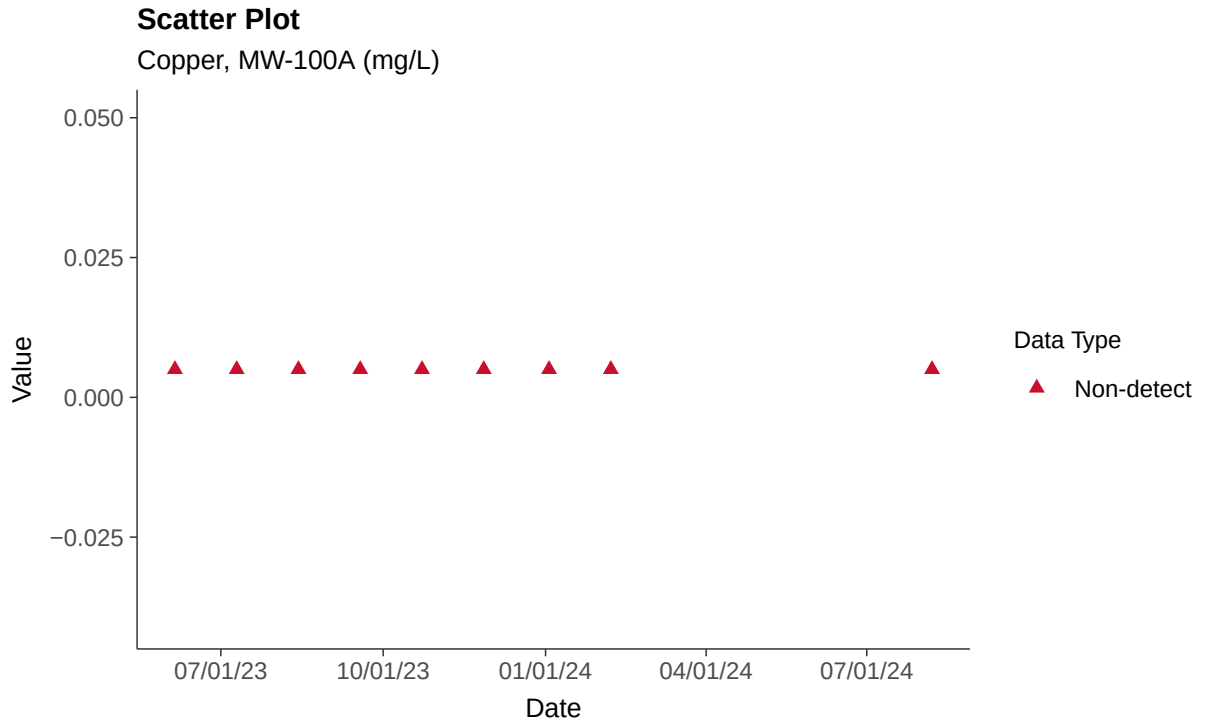
Trend Regression: Piecewise Linear-Linear

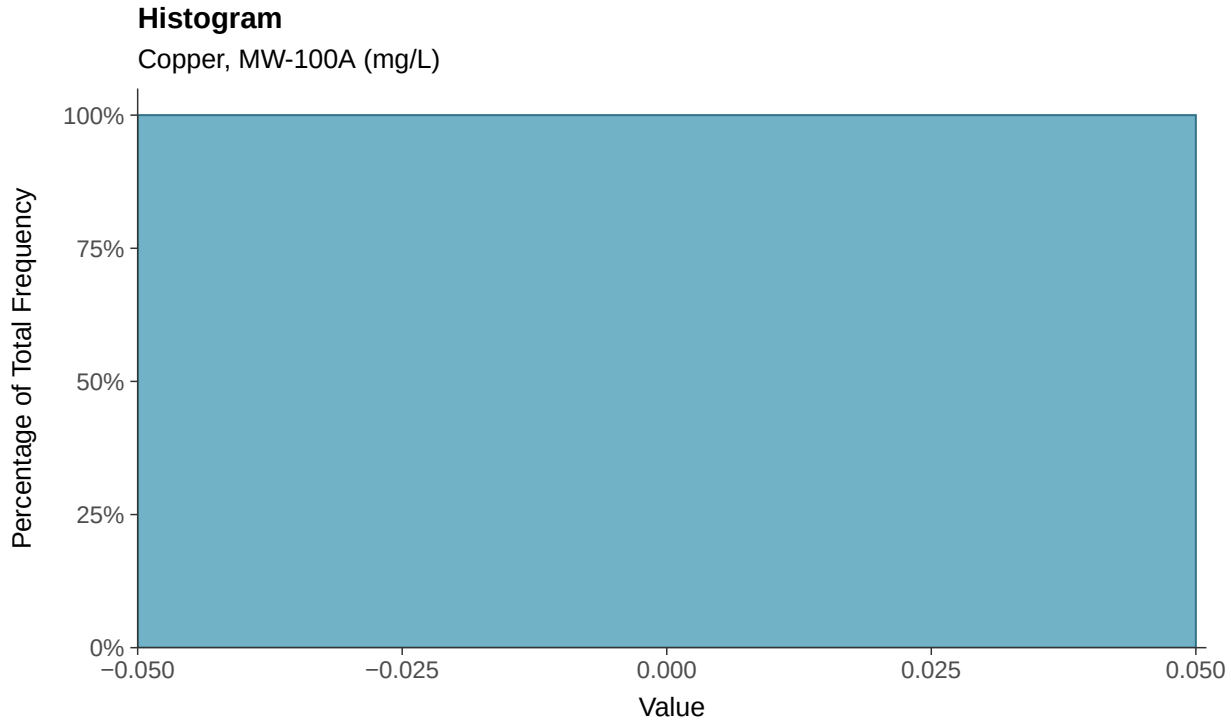
Sodium, MW-100A (mg/L)



Part 115: Copper, MW-100A

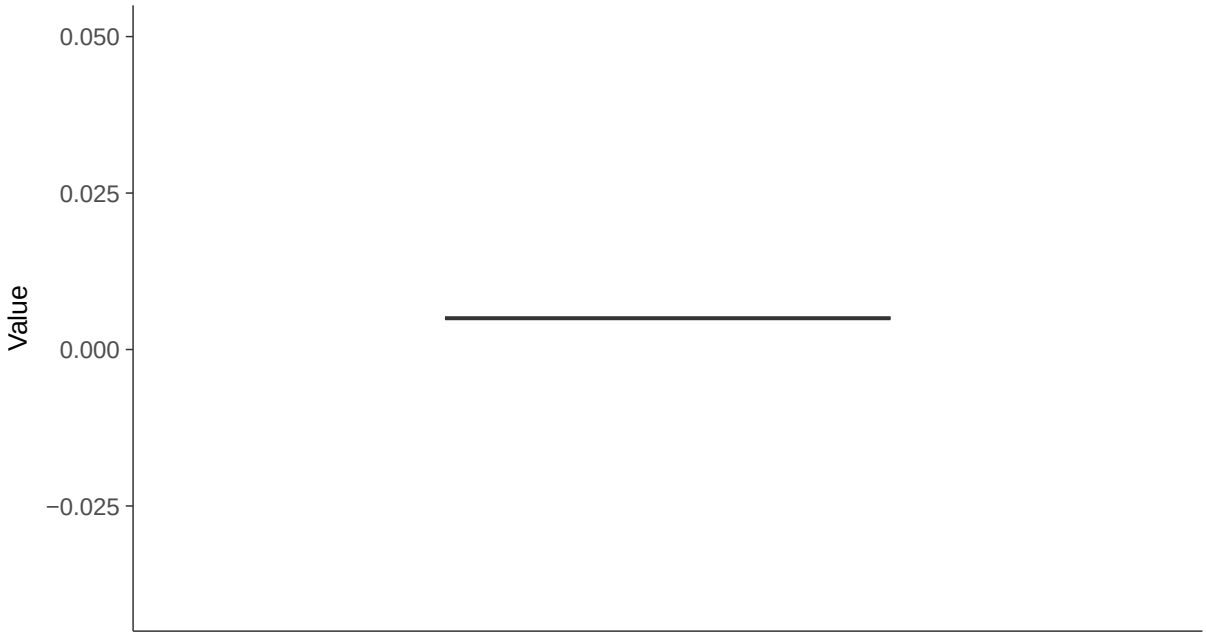
ID: 100A_5_37





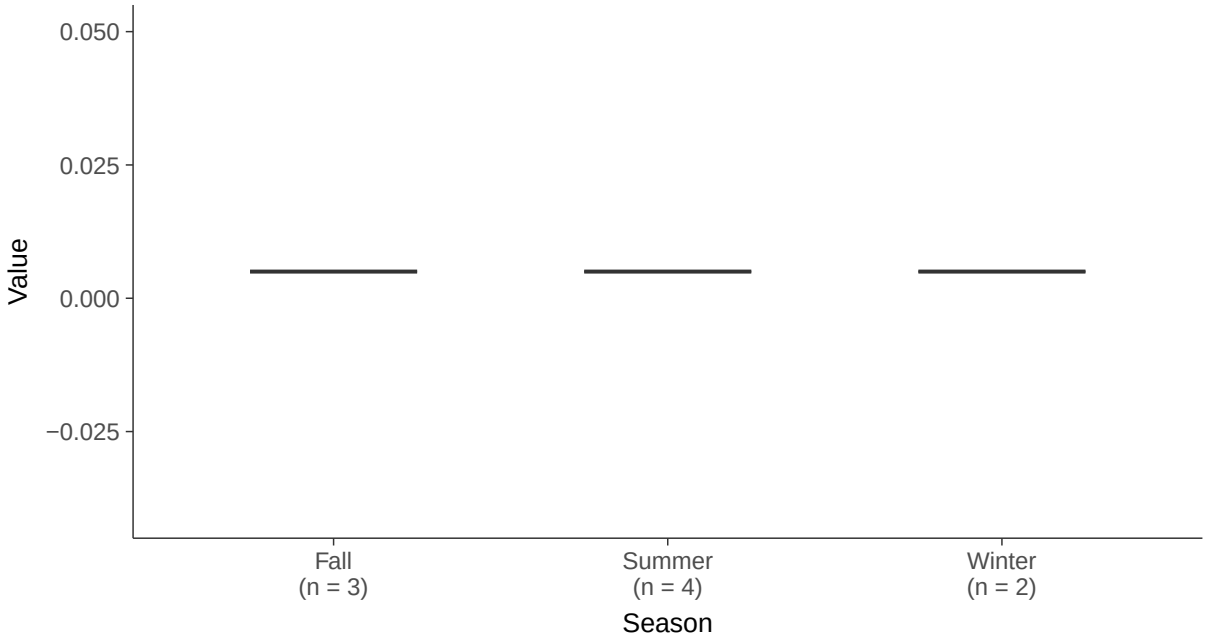
Boxplot

Copper, MW-100A (mg/L)



Boxplot by Season

Copper, MW-100A (mg/L)

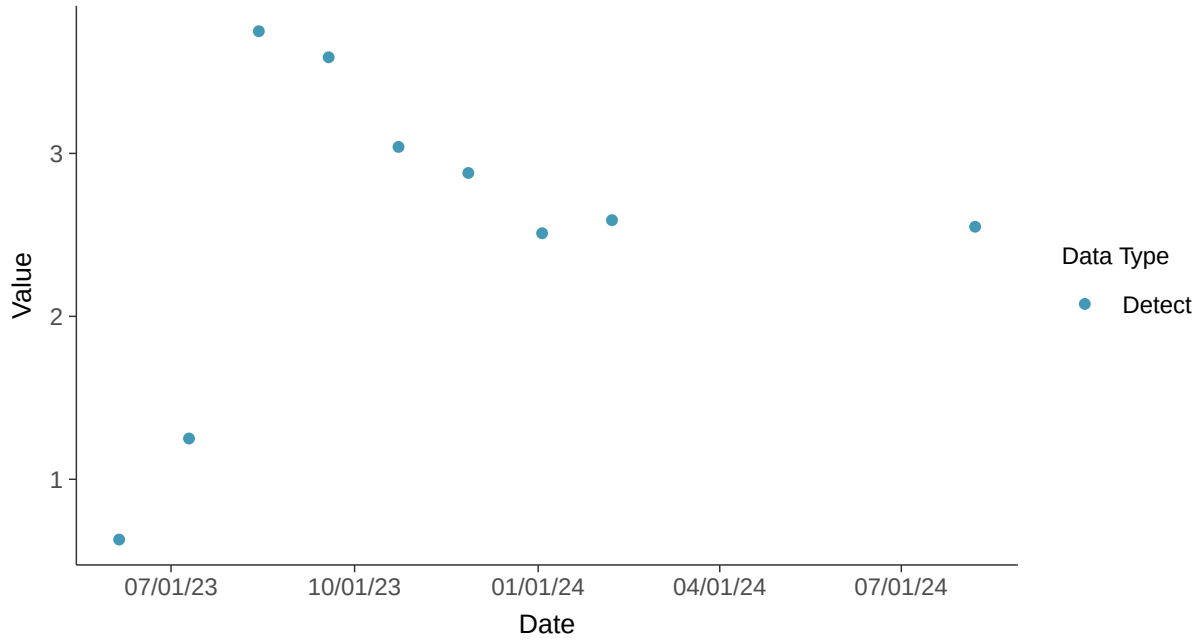


Part 115: Iron, MW-100A

ID: 100A_5_38

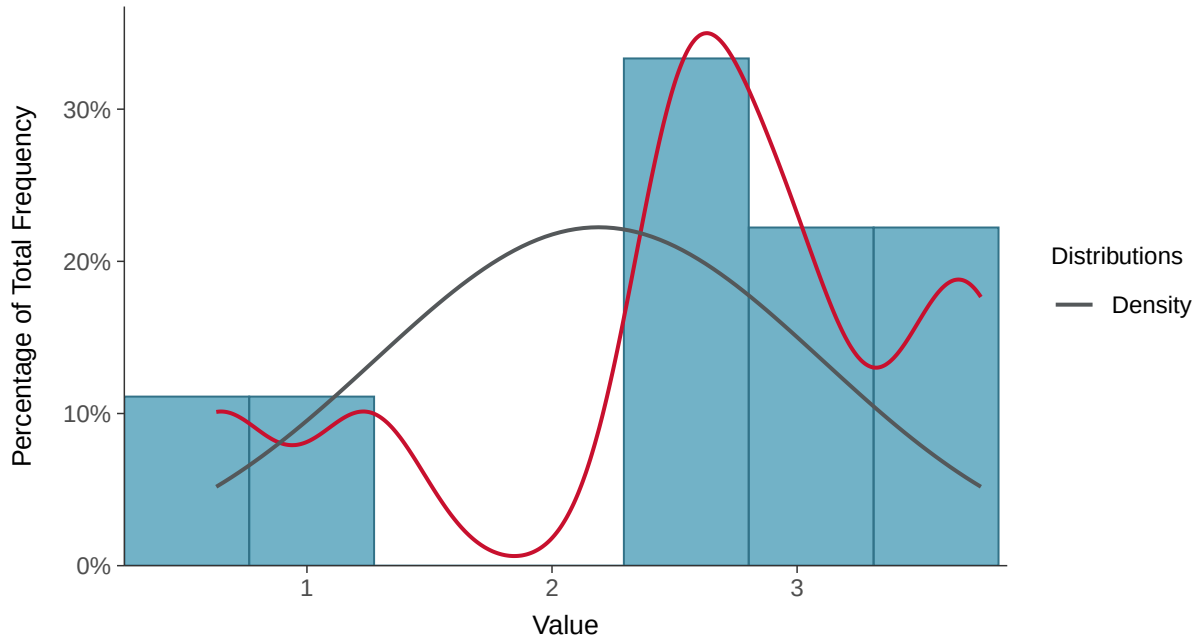
Scatter Plot

Iron, MW-100A (mg/L)



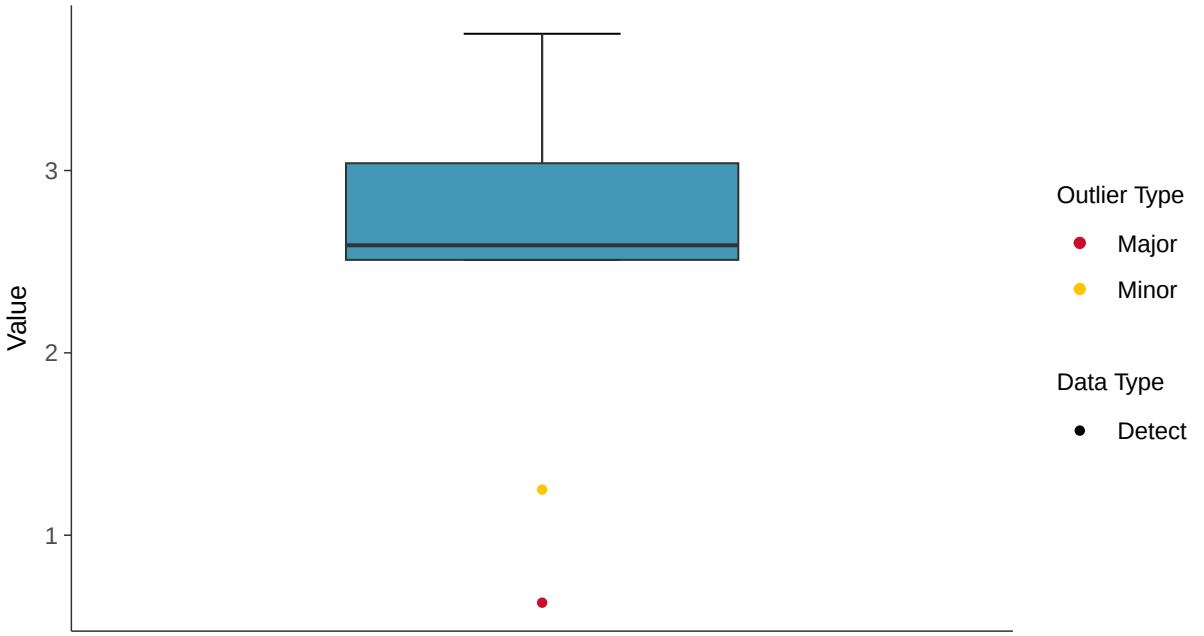
Histogram

Iron, MW-100A (mg/L)



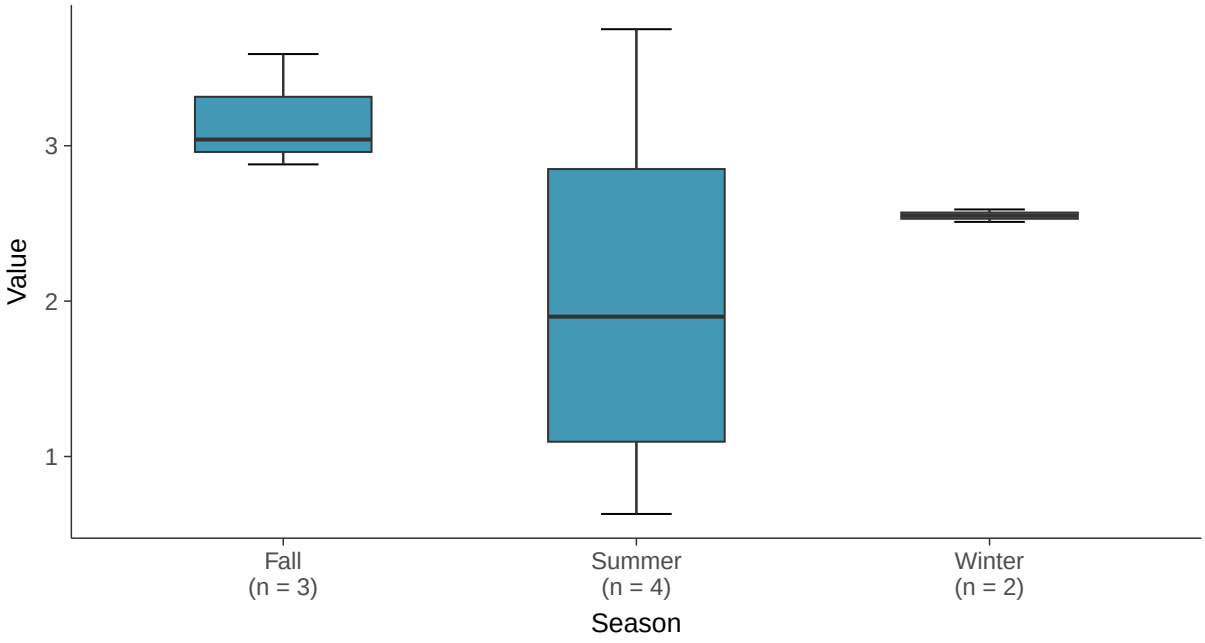
Boxplot

Iron, MW-100A (mg/L)



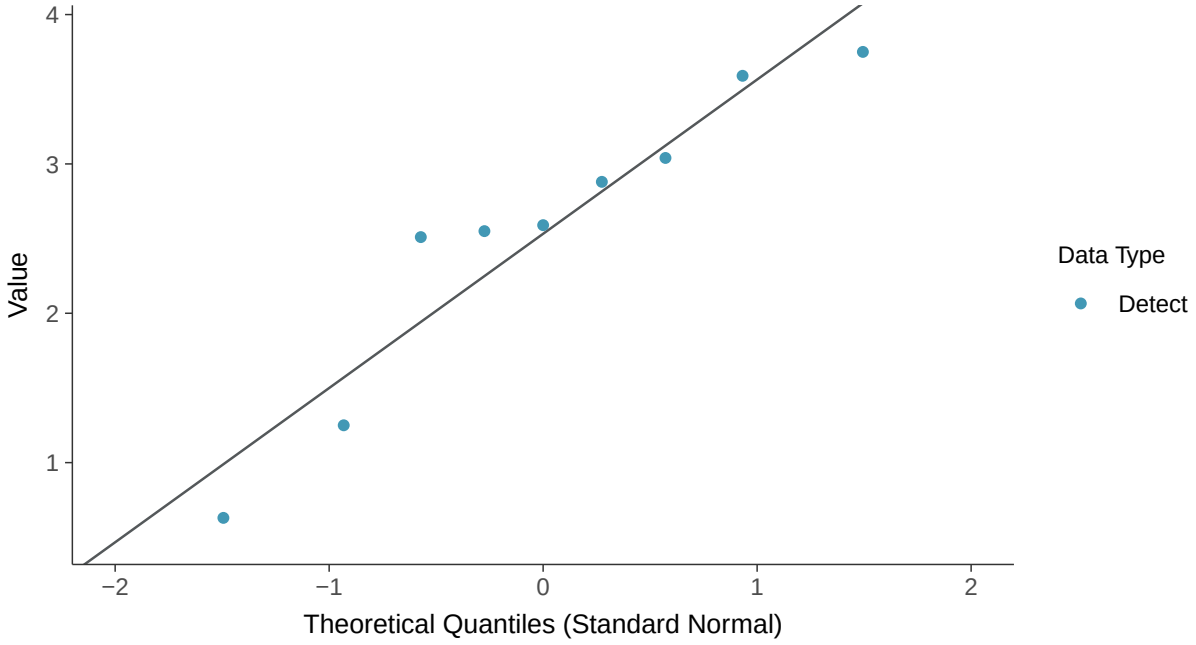
Boxplot by Season

Iron, MW-100A (mg/L)



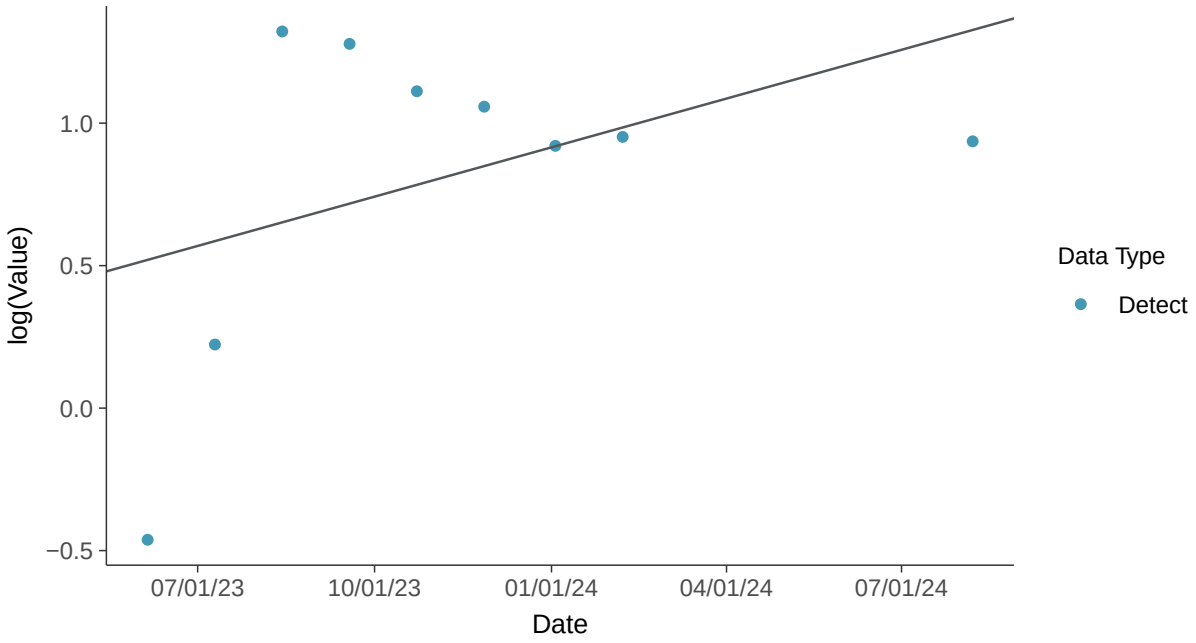
Normal Q-Q plot

Iron, MW-100A (mg/L)



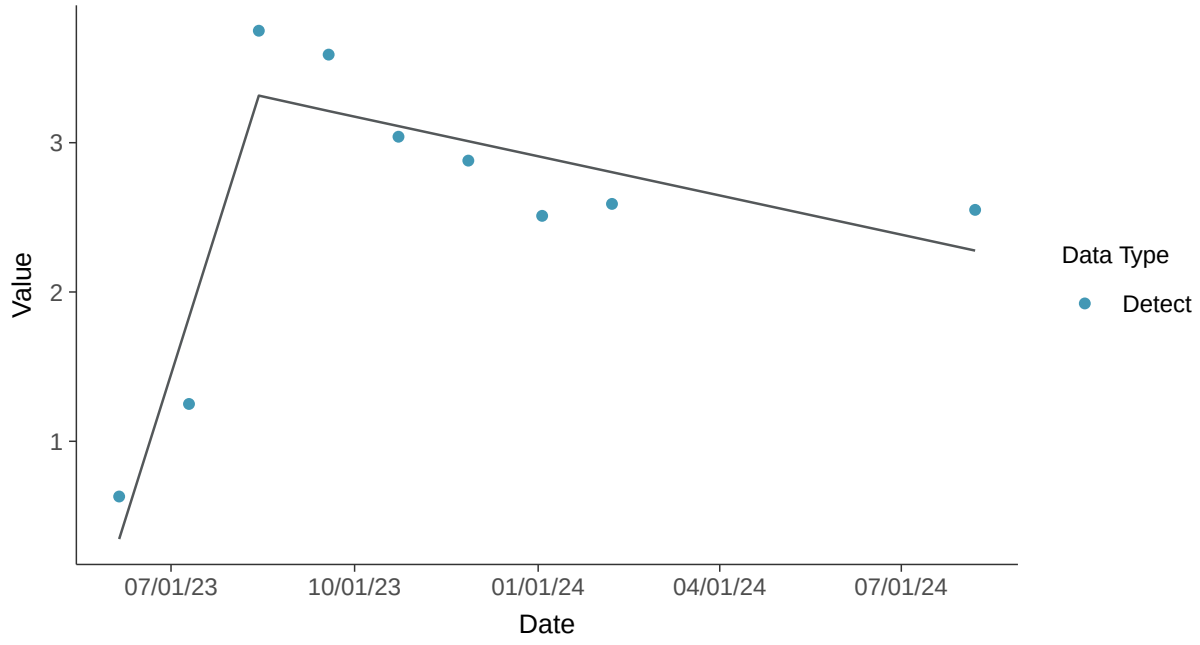
Trend Regression: Lognormal MLE

Iron, MW-100A (mg/L)



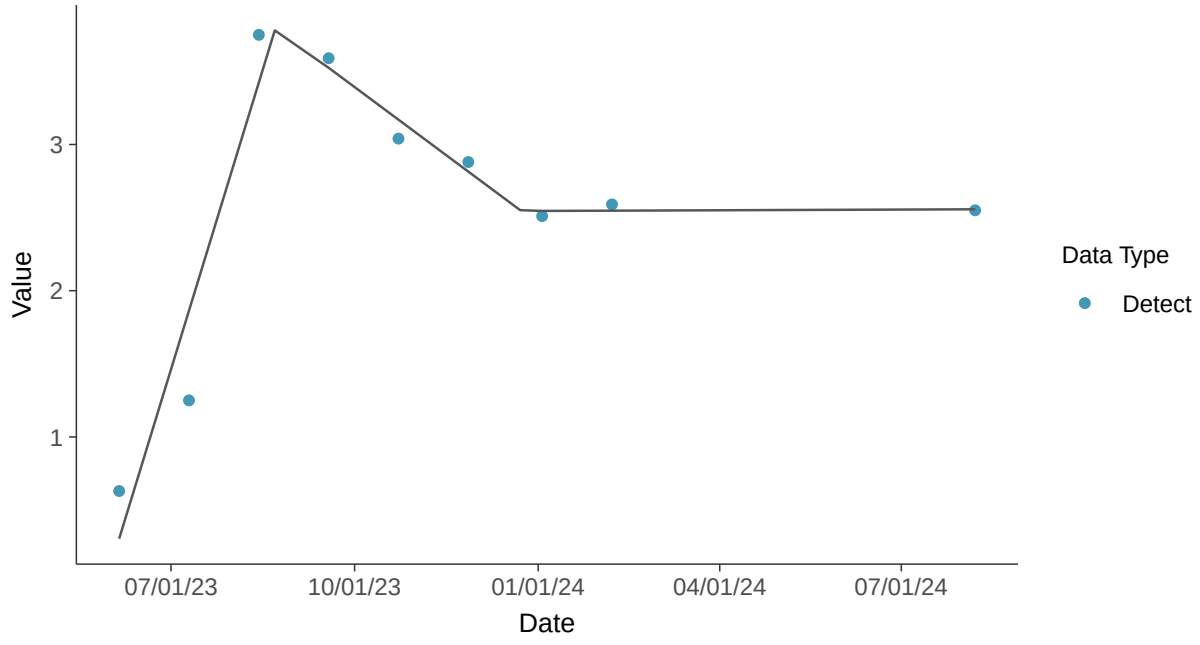
Trend Regression: Piecewise Linear-Linear

Iron, MW-100A (mg/L)



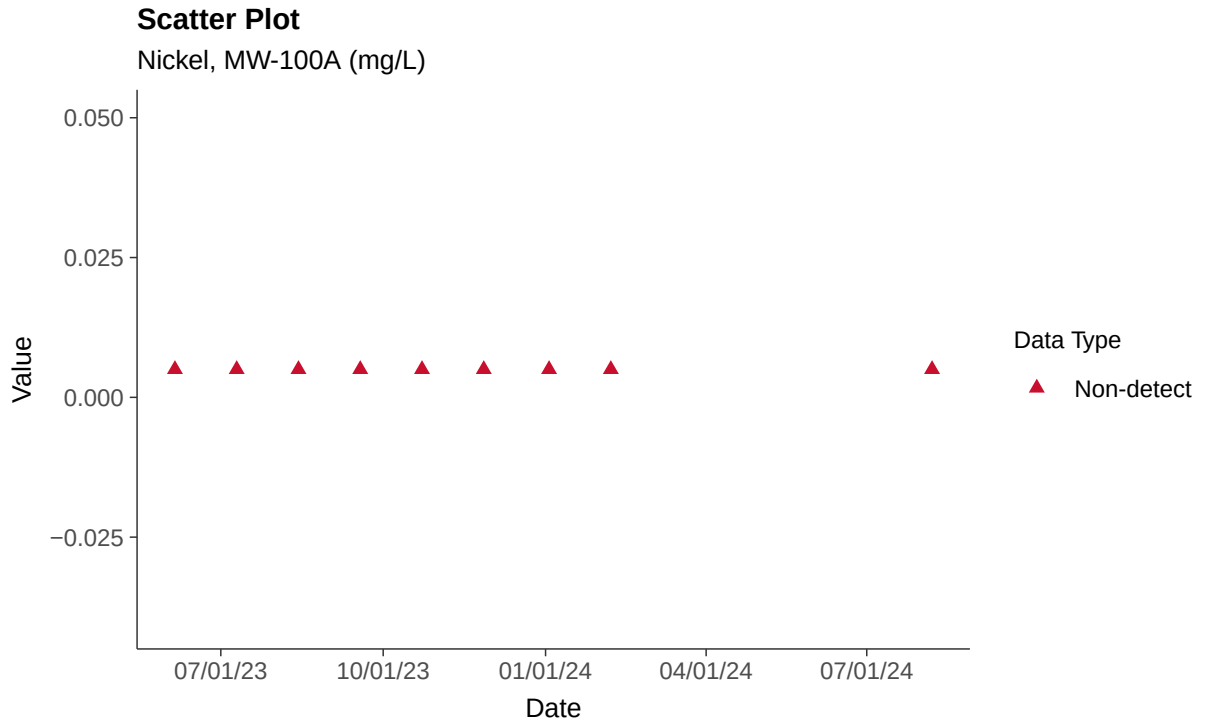
Trend Regression: Piecewise Linear-Linear-Linear

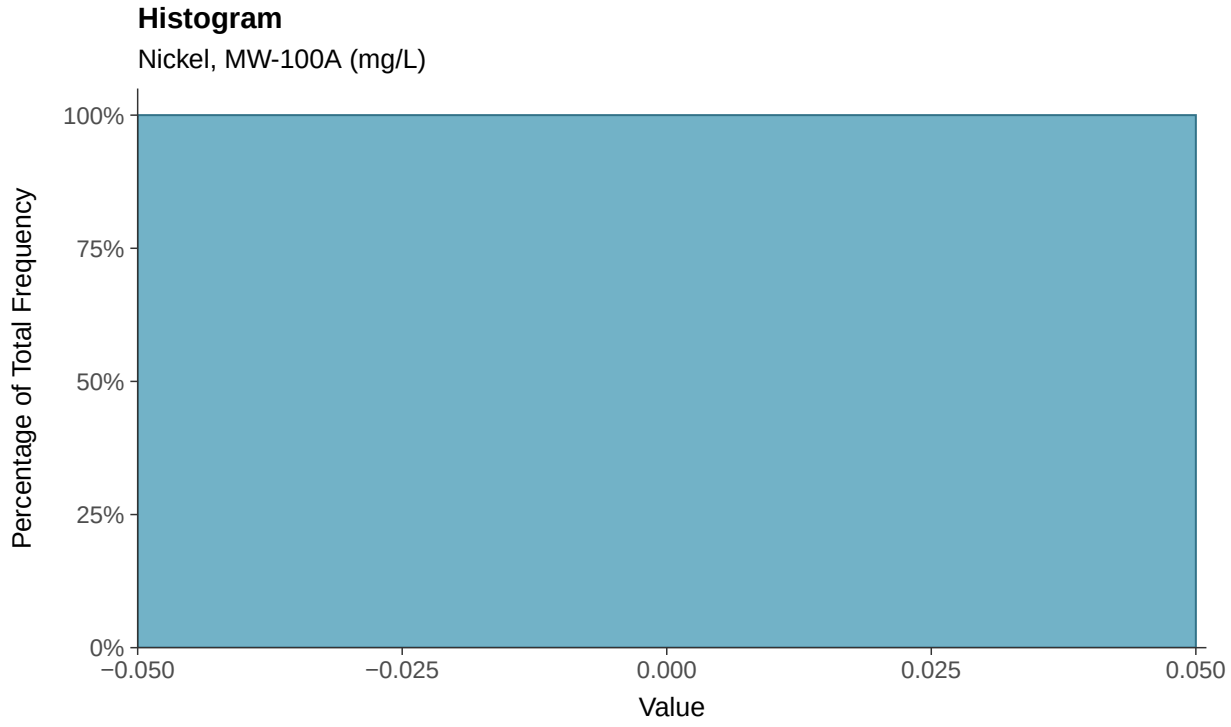
Iron, MW-100A (mg/L)



Part 115: Nickel, MW-100A

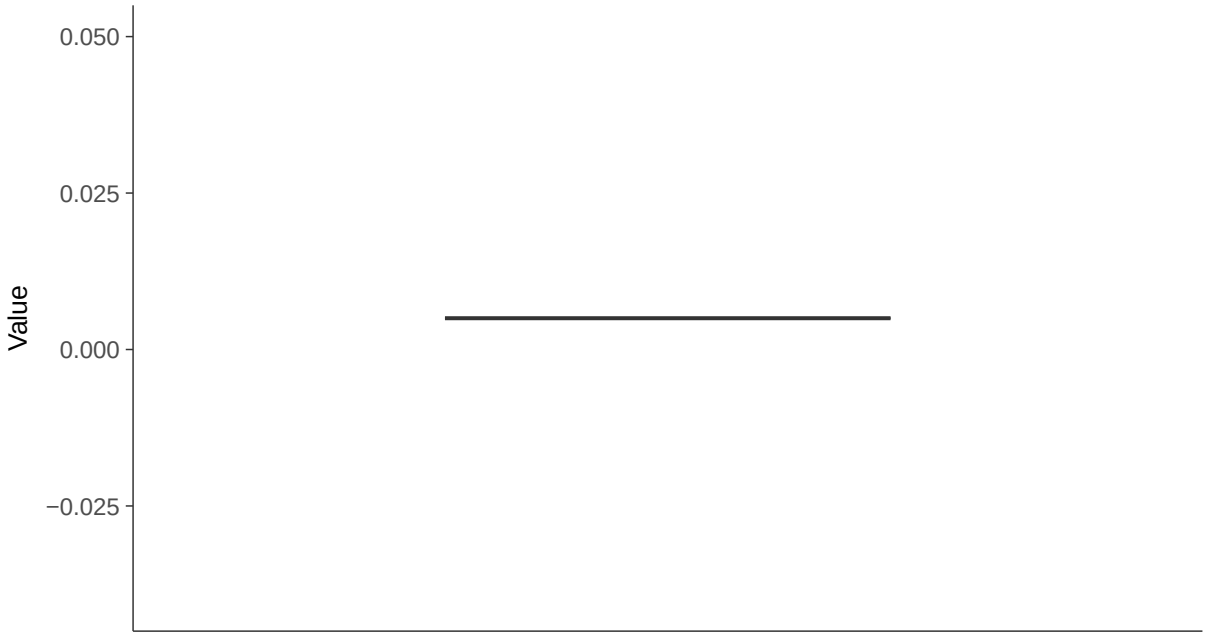
ID: 100A_5_39





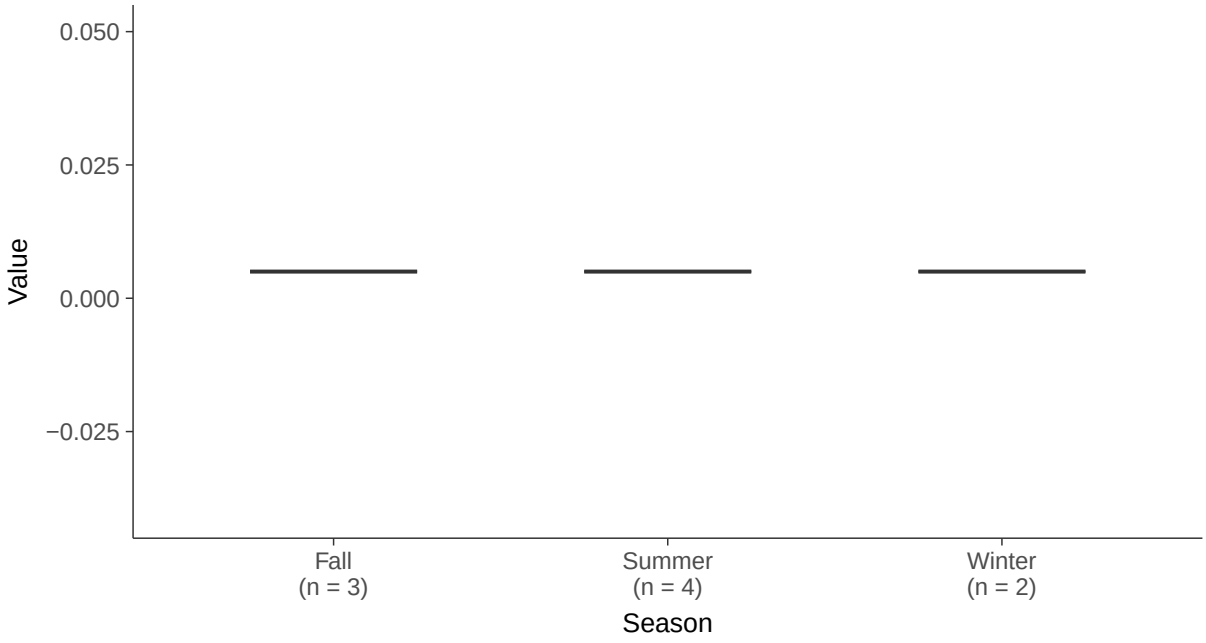
Boxplot

Nickel, MW-100A (mg/L)



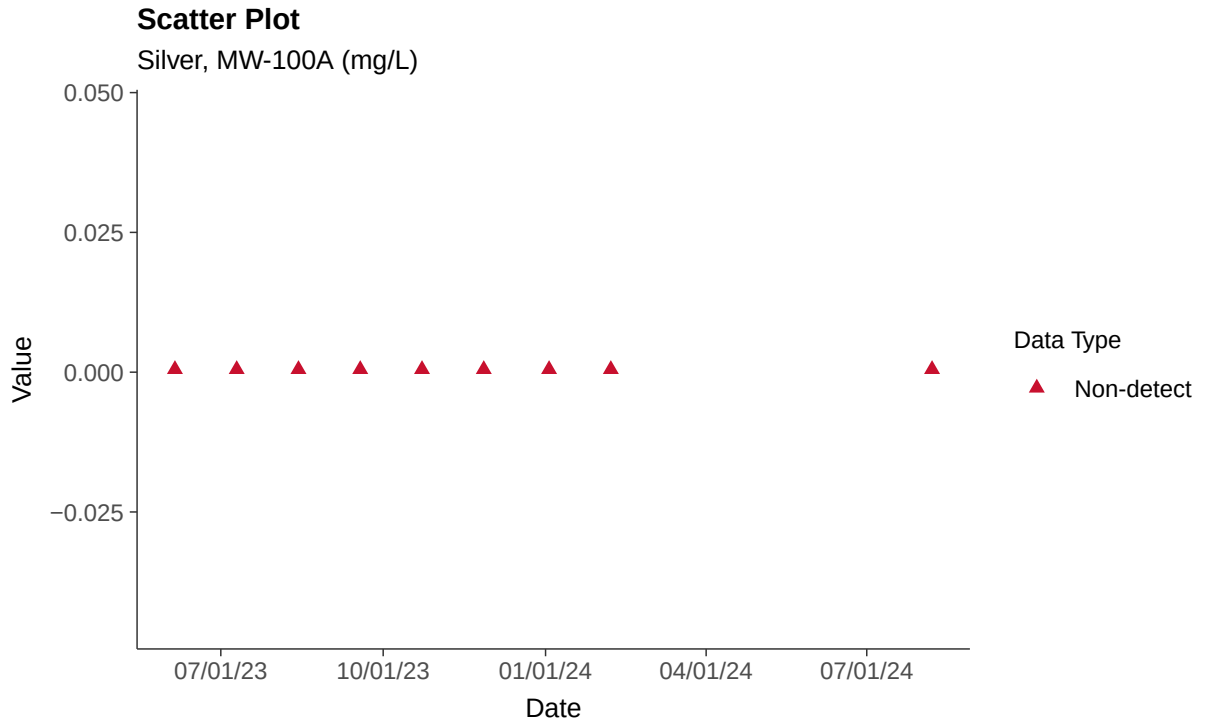
Boxplot by Season

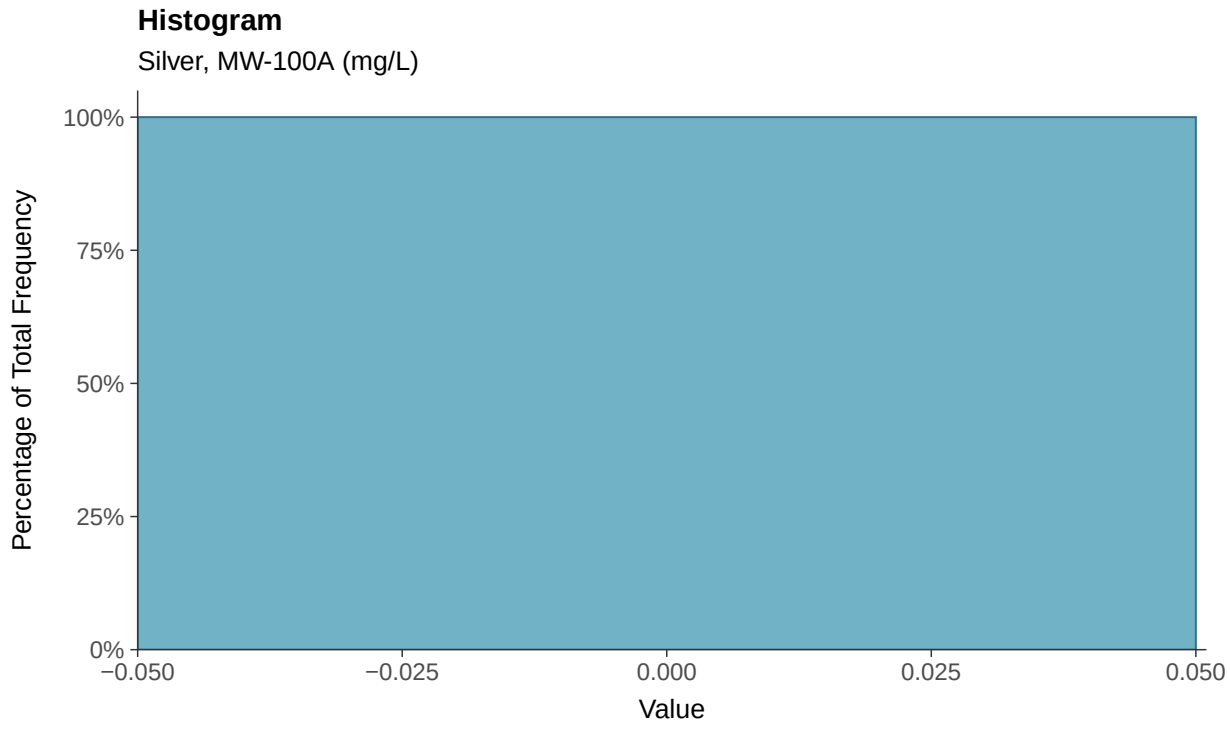
Nickel, MW-100A (mg/L)



Part 115: Silver, MW-100A

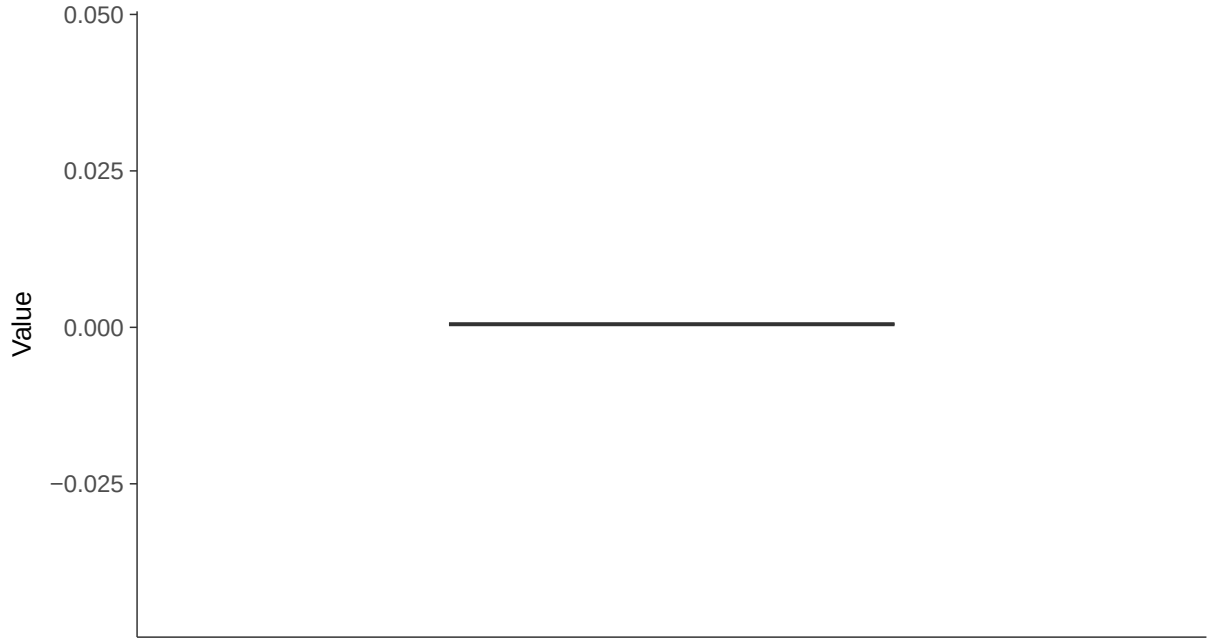
ID: 100A_5_40





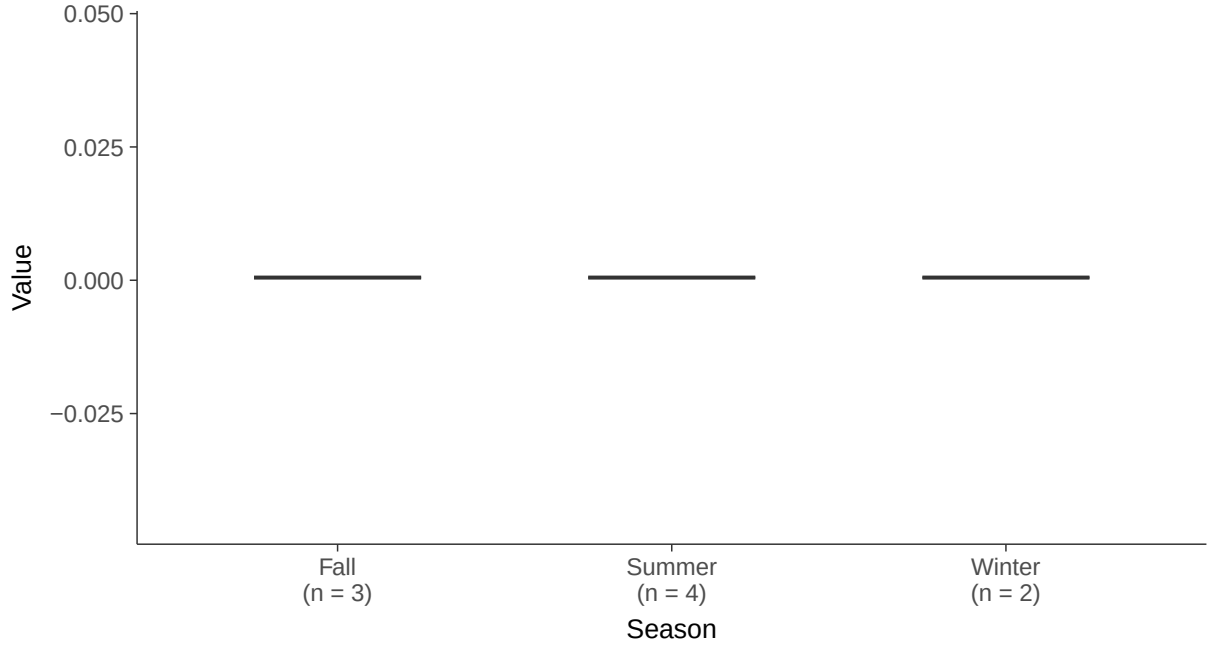
Boxplot

Silver, MW-100A (mg/L)



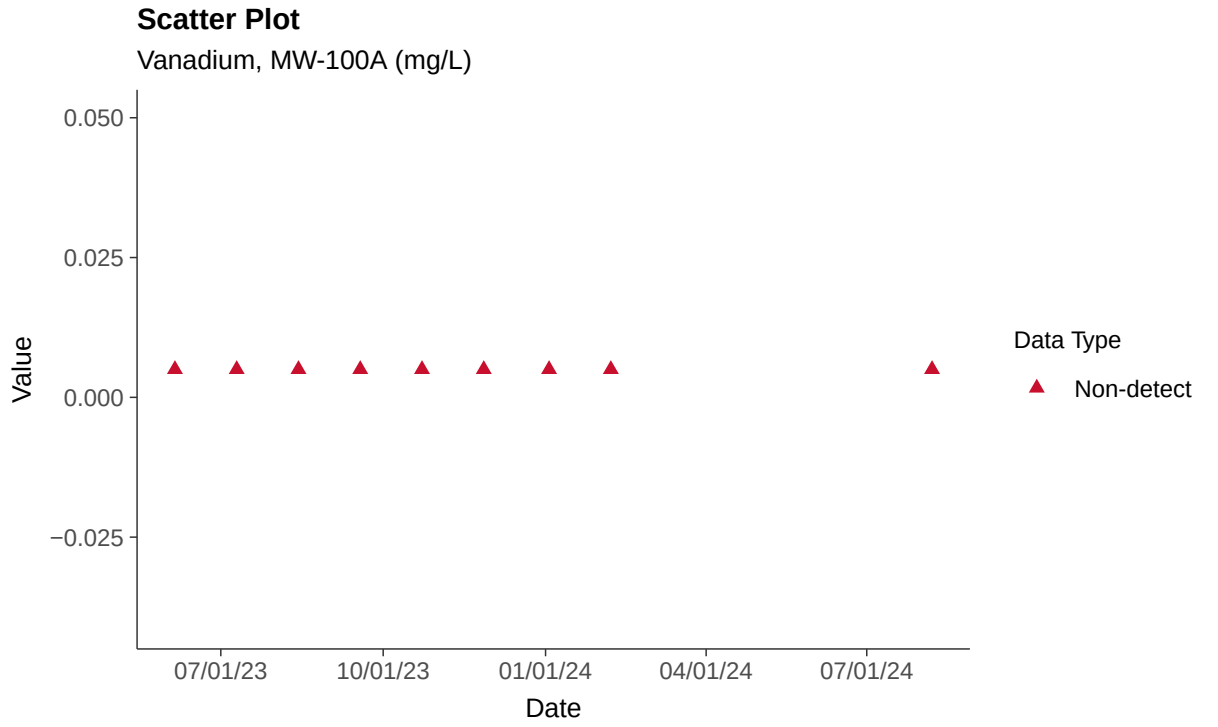
Boxplot by Season

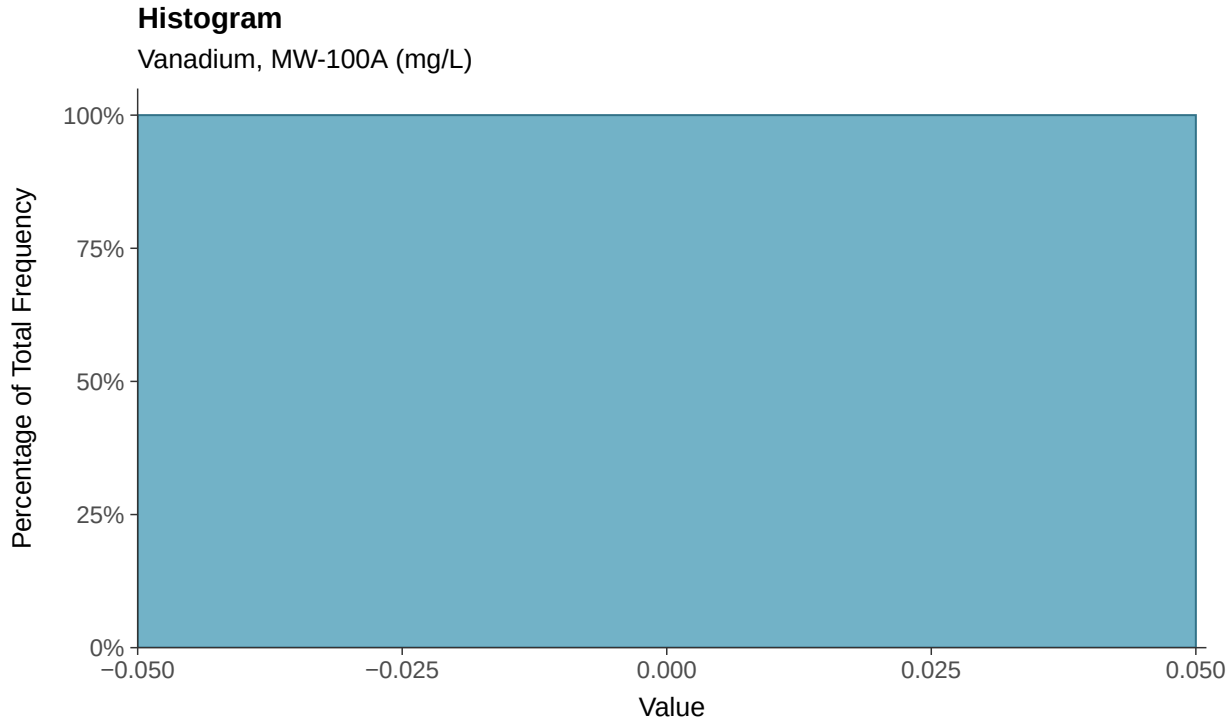
Silver, MW-100A (mg/L)



Part 115: Vanadium, MW-100A

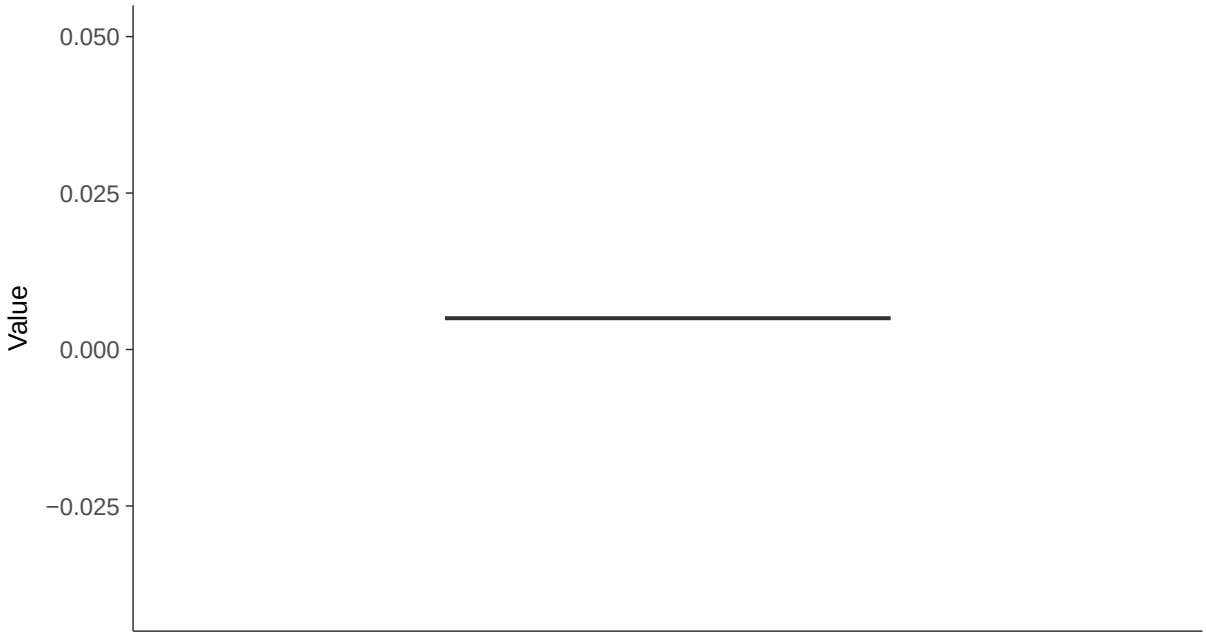
ID: 100A_5_41





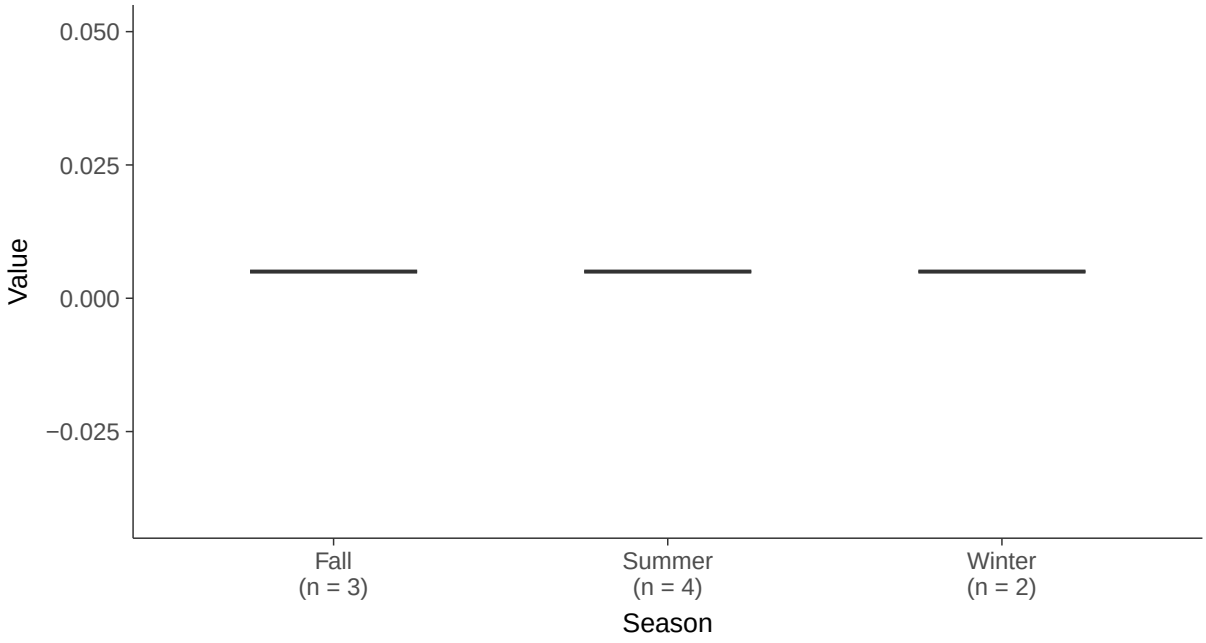
Boxplot

Vanadium, MW-100A (mg/L)



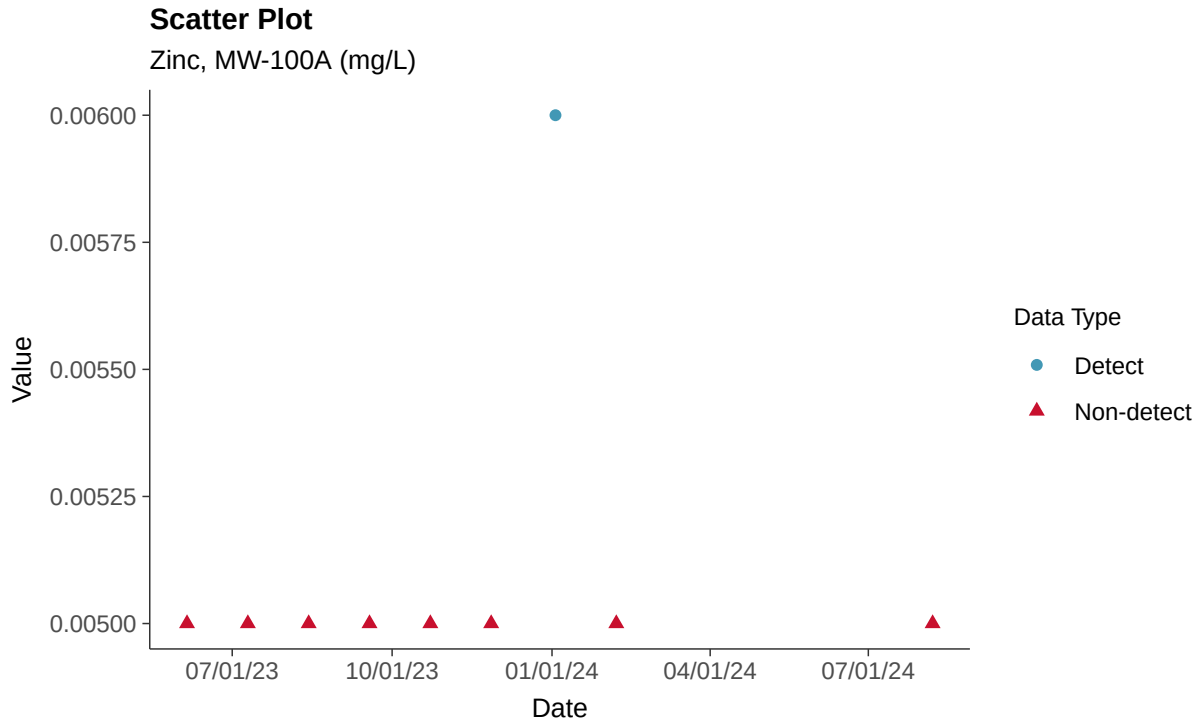
Boxplot by Season

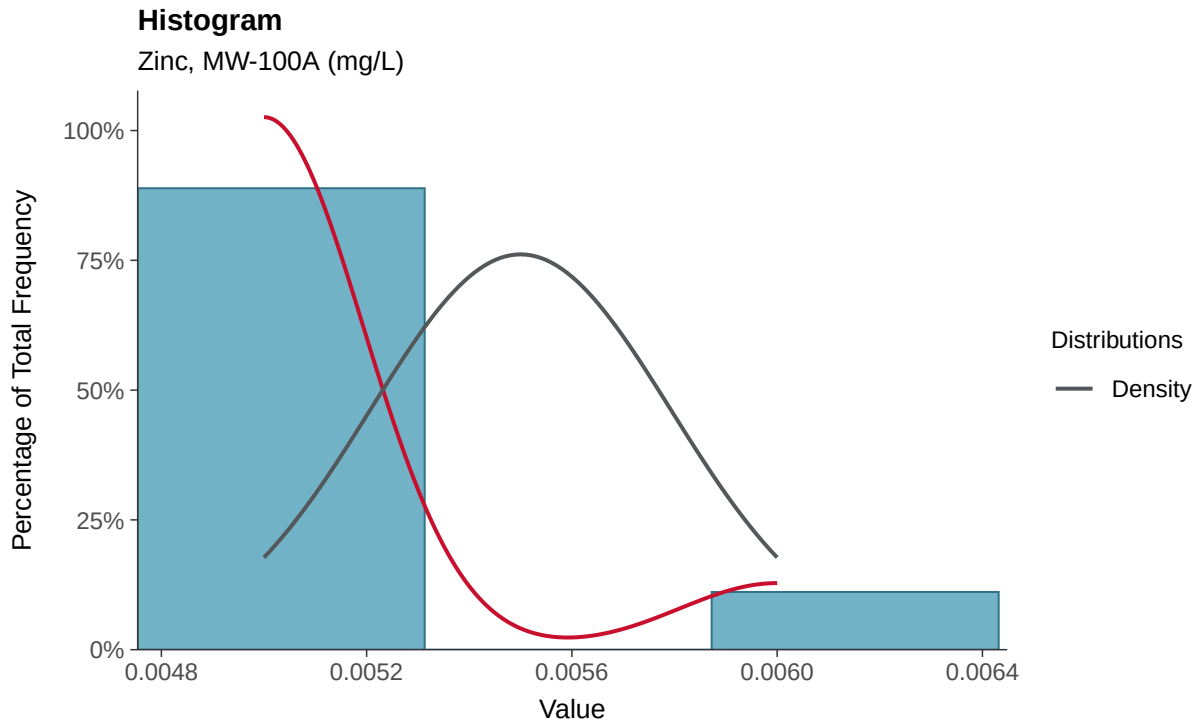
Vanadium, MW-100A (mg/L)



Part 115: Zinc, MW-100A

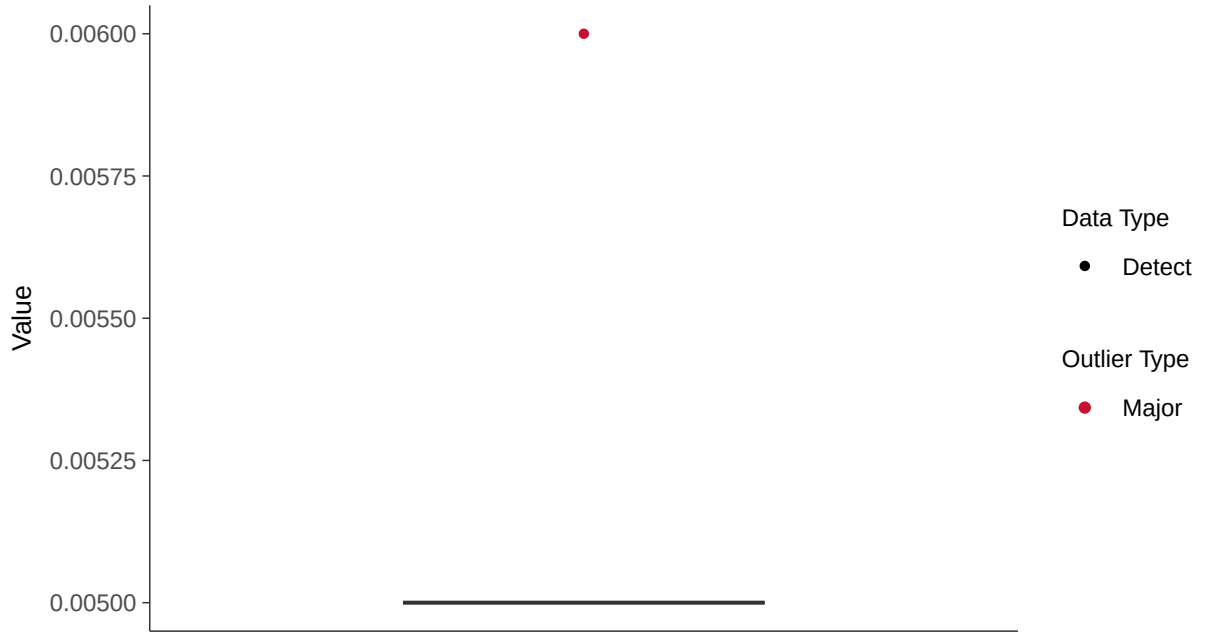
ID: 100A_5_42





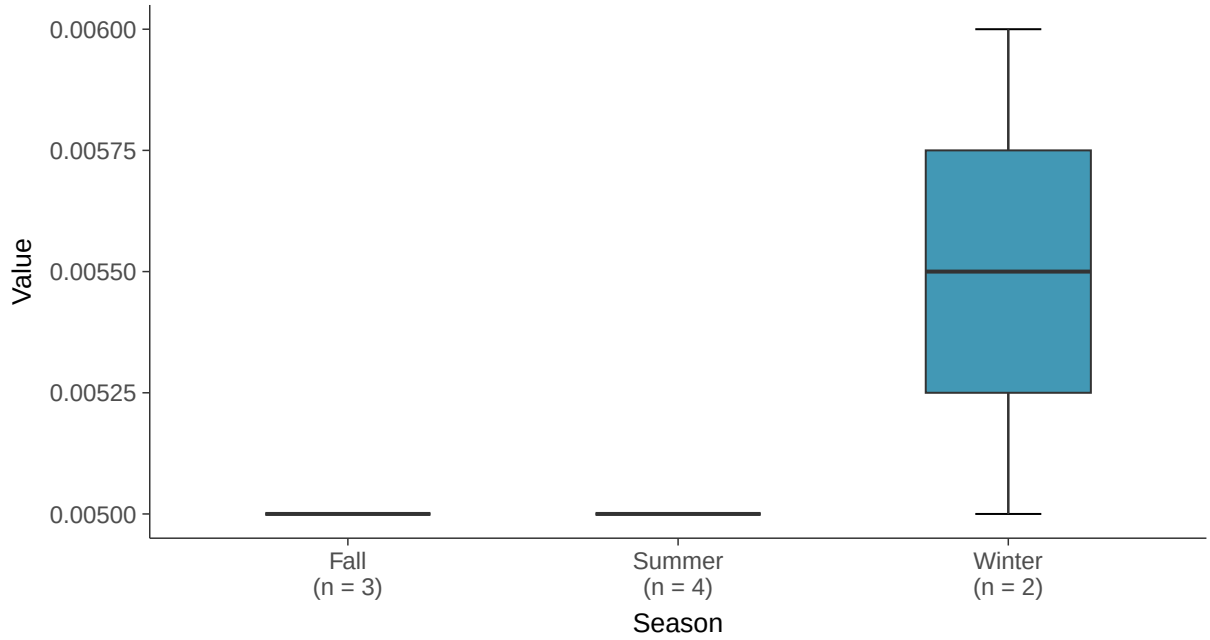
Boxplot

Zinc, MW-100A (mg/L)



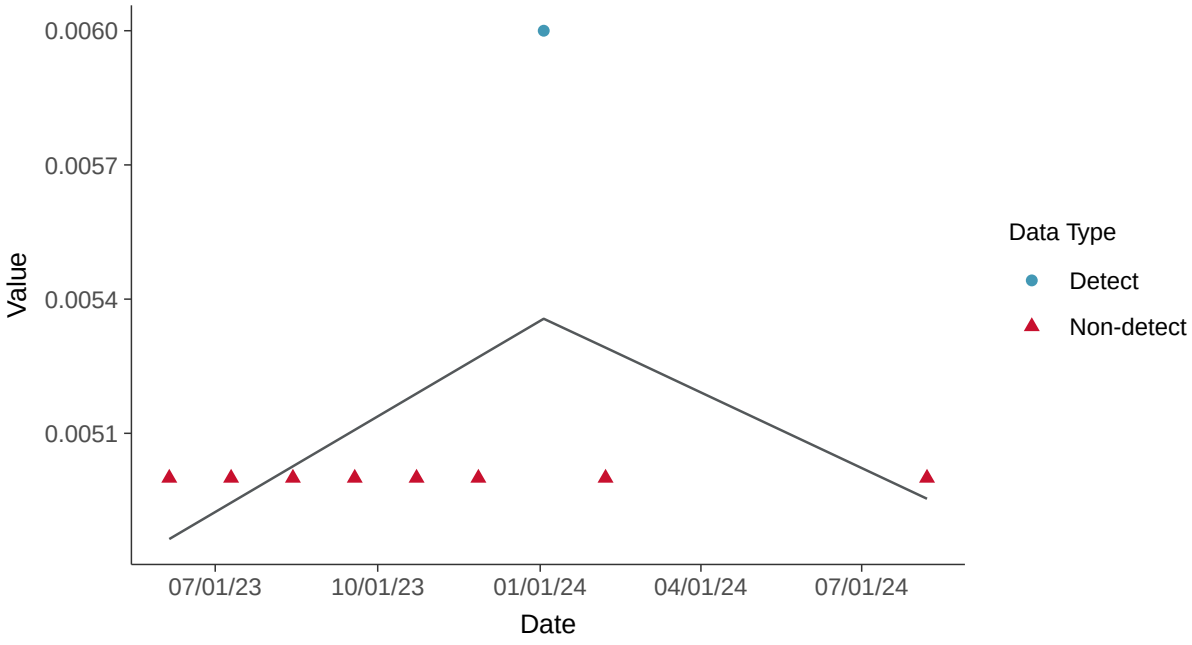
Boxplot by Season

Zinc, MW-100A (mg/L)



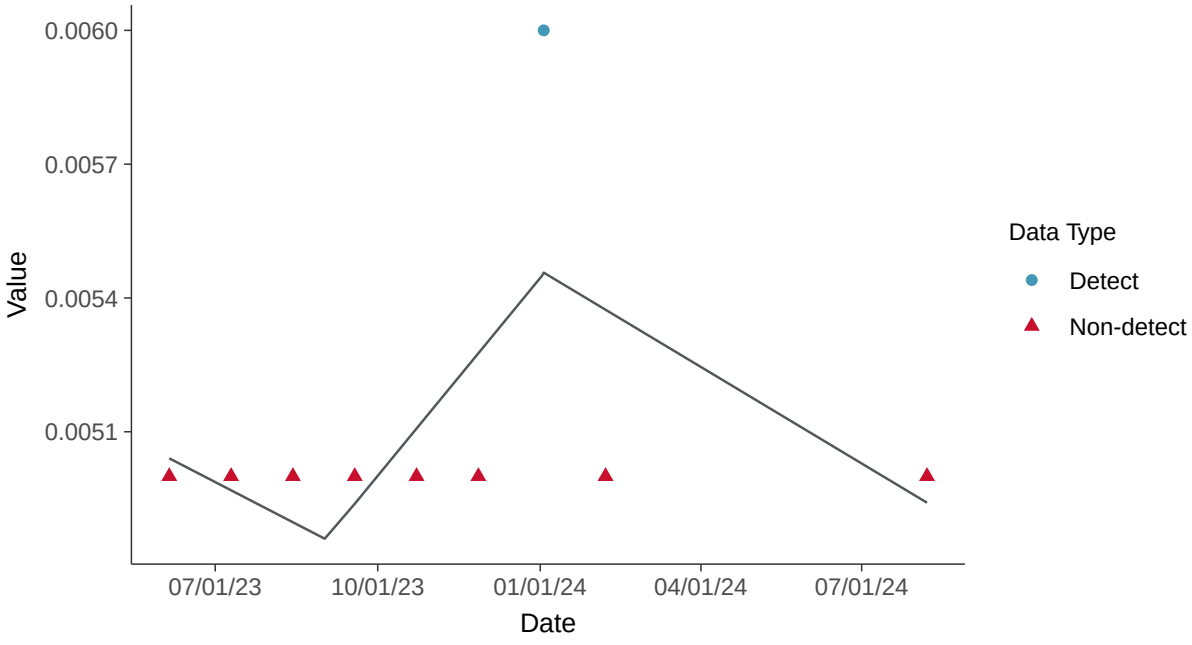
Trend Regression: Piecewise Linear-Linear

Zinc, MW-100A (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Zinc, MW-100A (mg/L)

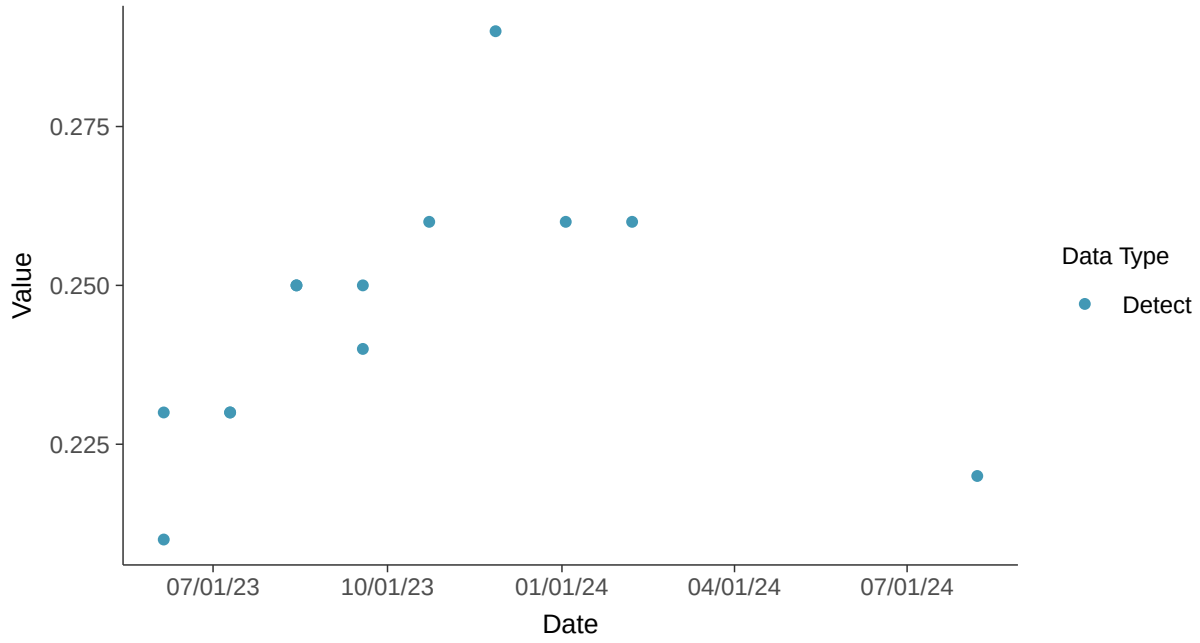


Appendix III: Boron, MW-100B

ID: 100B_1_01

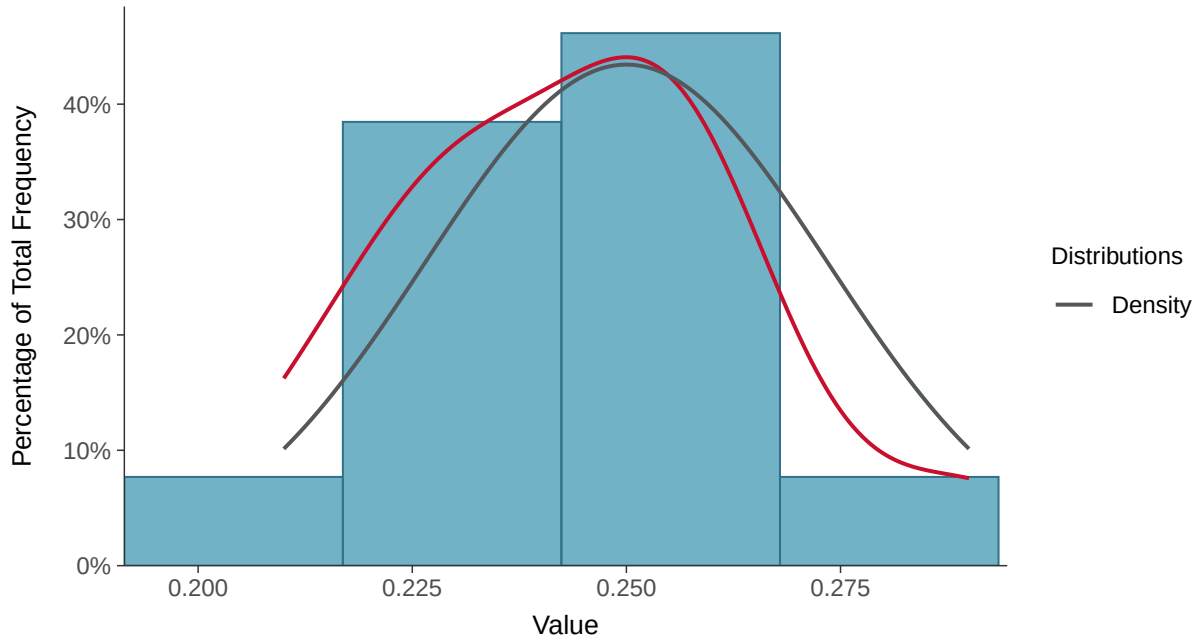
Scatter Plot

Boron, MW-100B (mg/L)



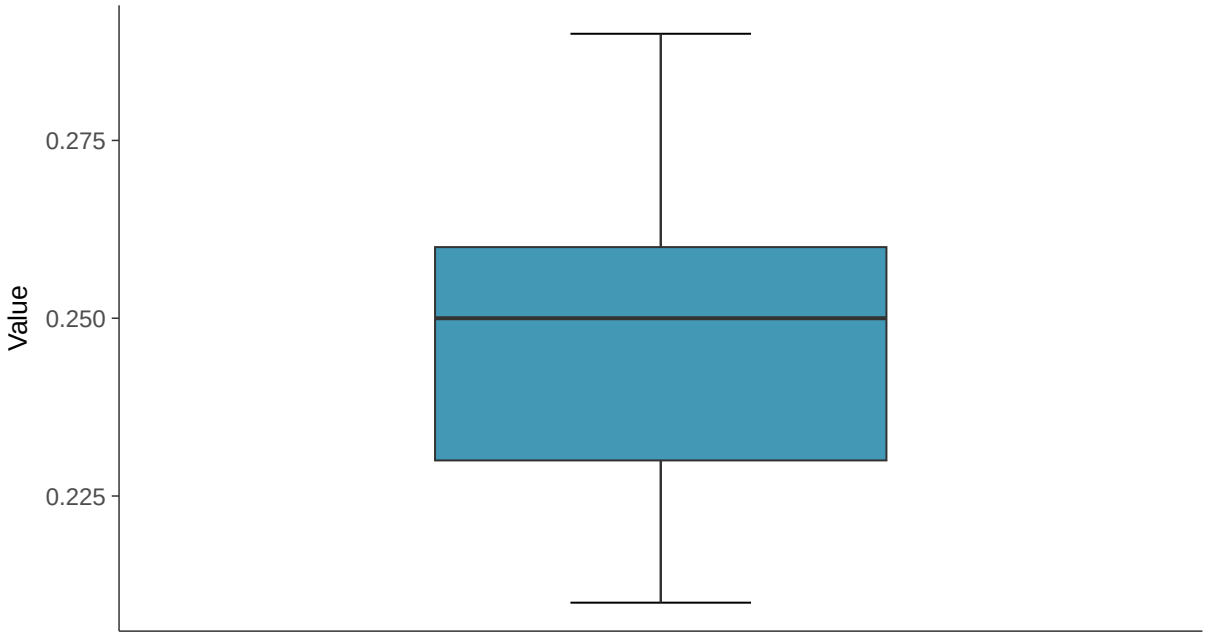
Histogram

Boron, MW-100B (mg/L)



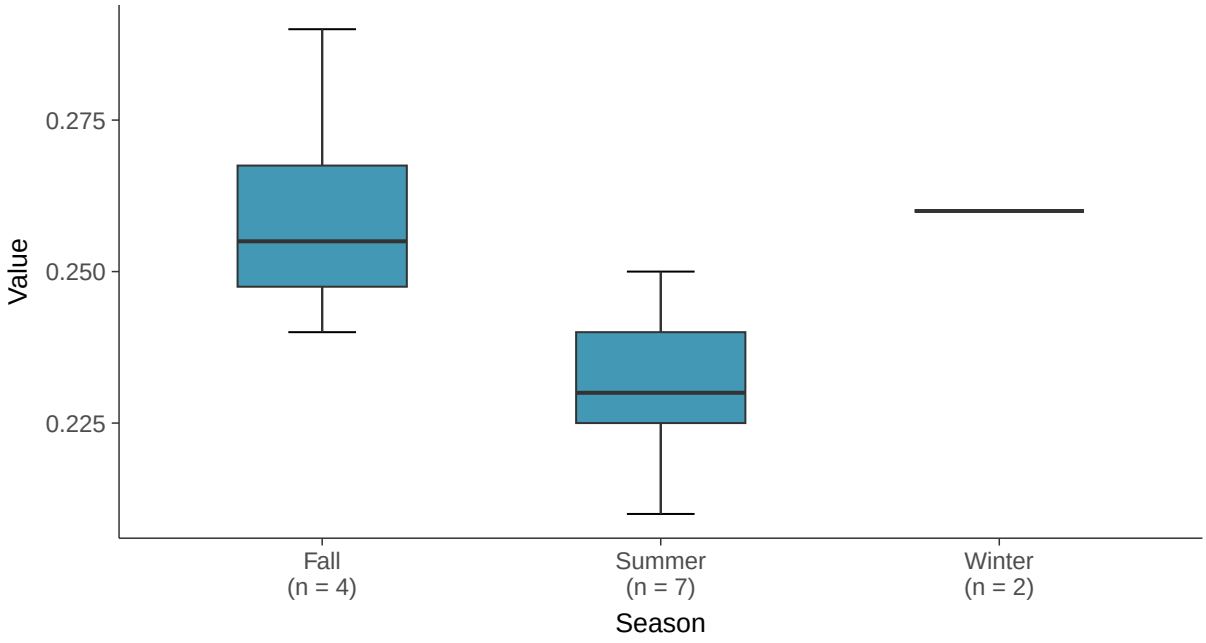
Boxplot

Boron, MW-100B (mg/L)



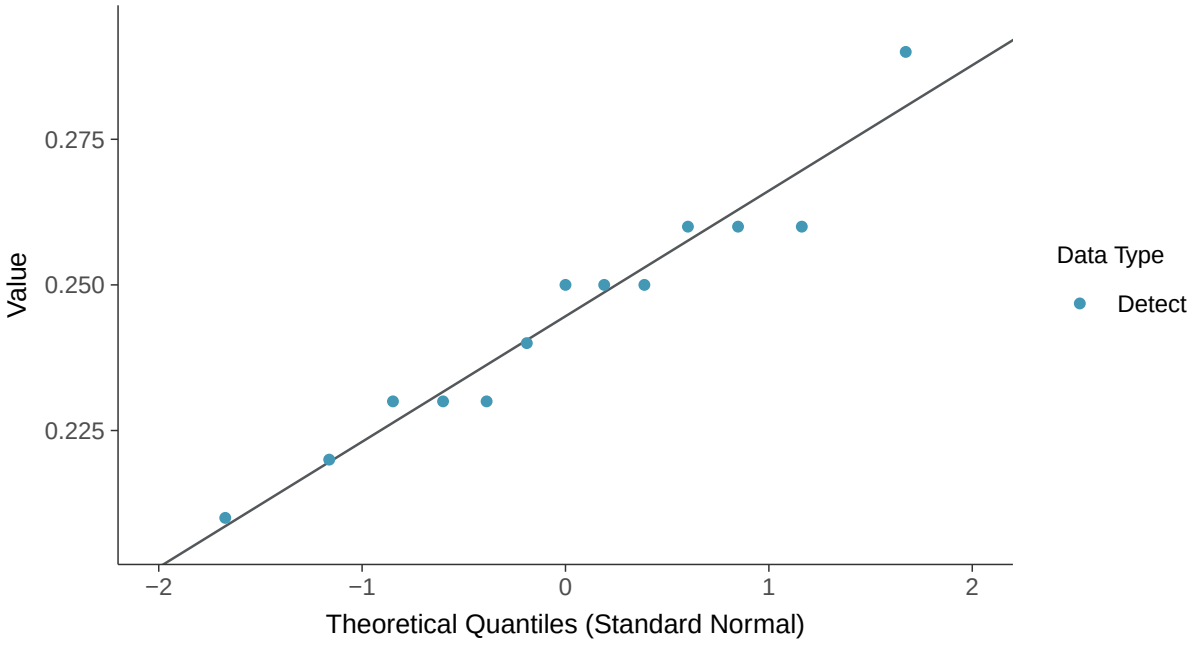
Boxplot by Season

Boron, MW-100B (mg/L)



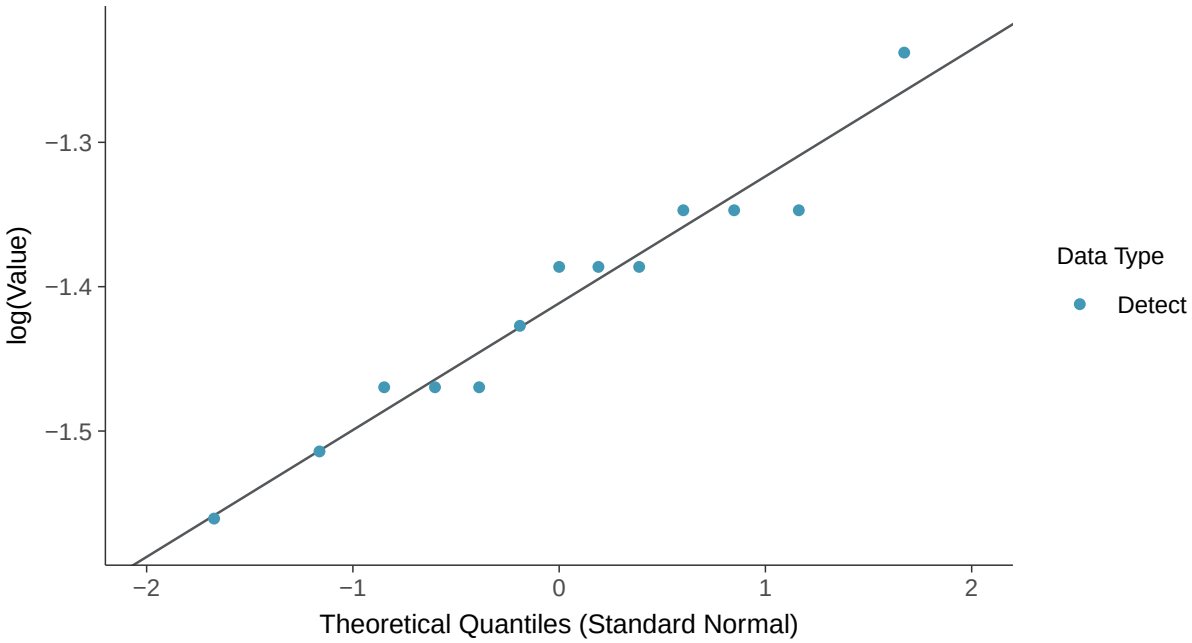
Normal Q-Q plot

Boron, MW-100B (mg/L)



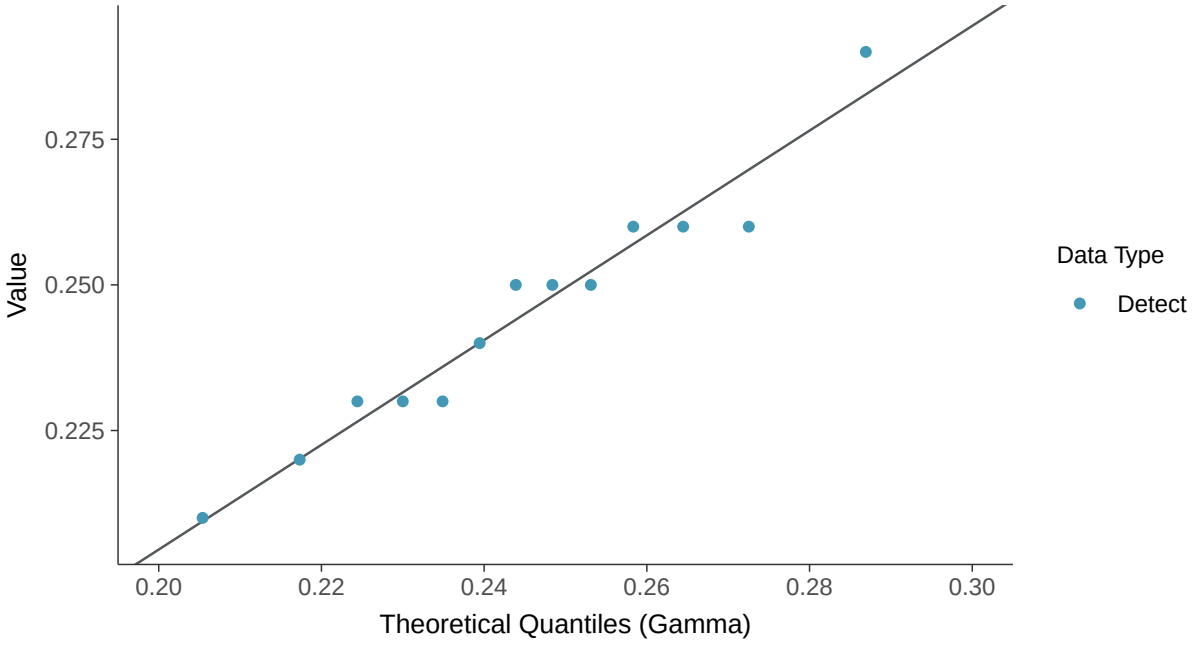
Lognormal Q-Q plot

Boron, MW-100B (mg/L)



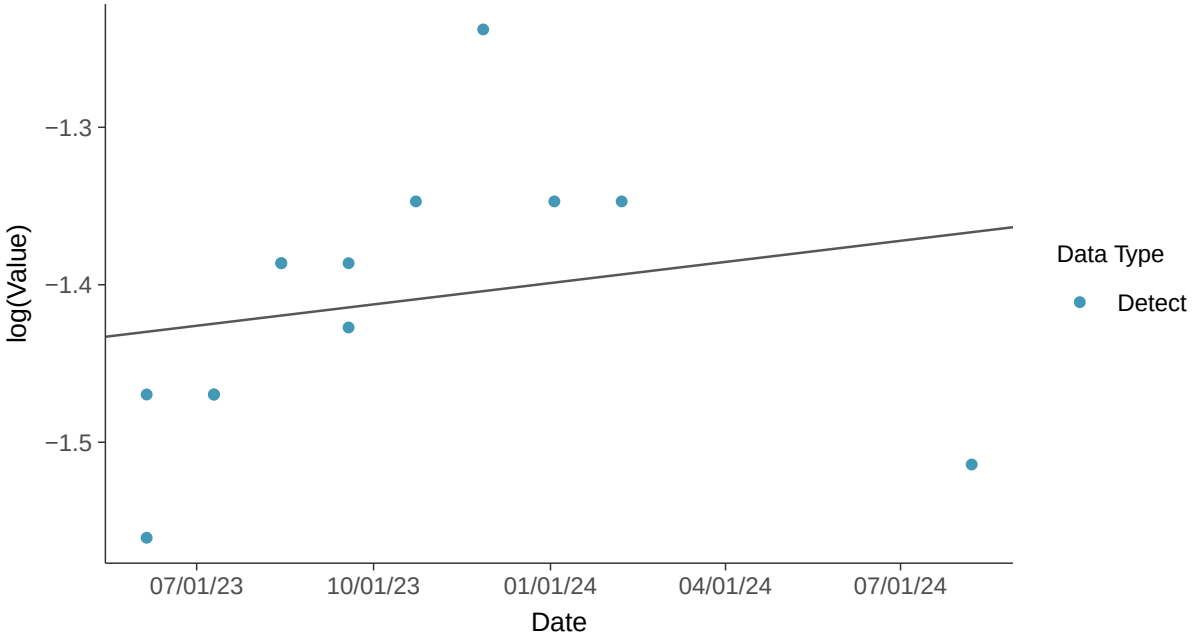
Gamma Q-Q plot

Boron, MW-100B (mg/L)



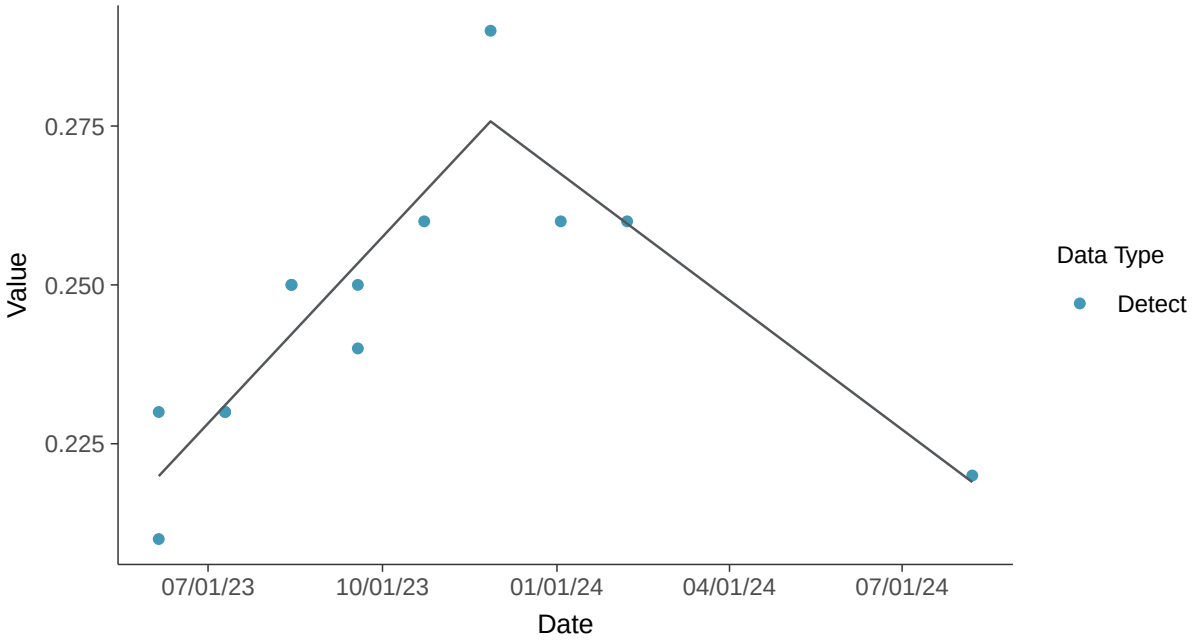
Trend Regression: Lognormal MLE

Boron, MW-100B (mg/L)



Trend Regression: Piecewise Linear-Linear

Boron, MW-100B (mg/L)

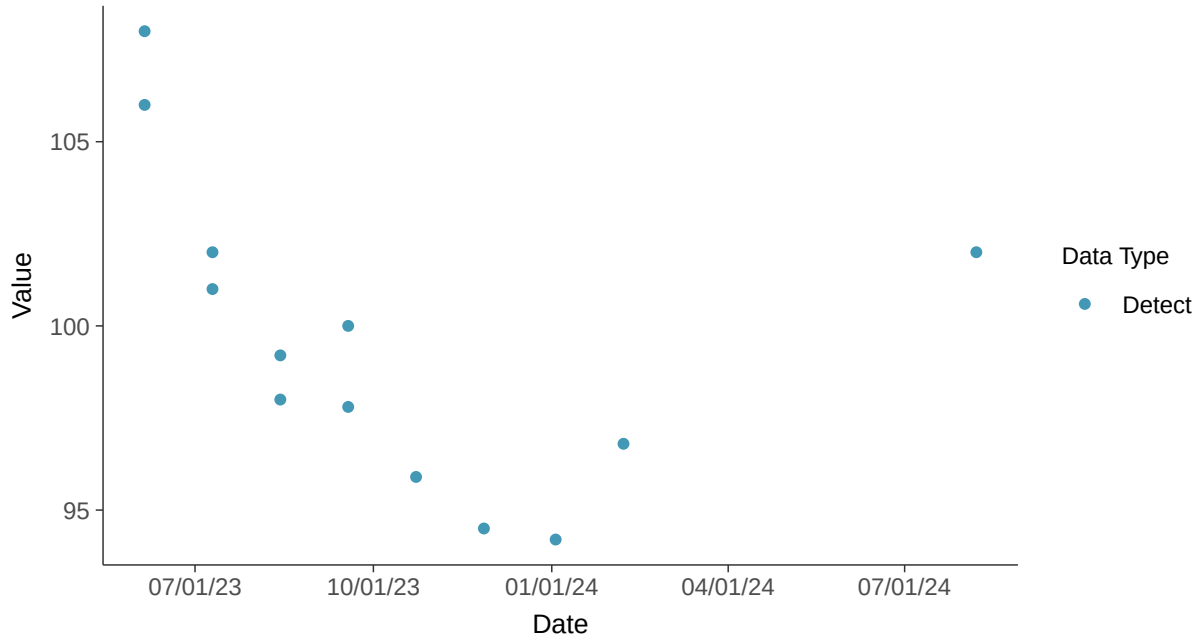


Appendix III: Calcium, MW-100B

ID: 100B_1_02

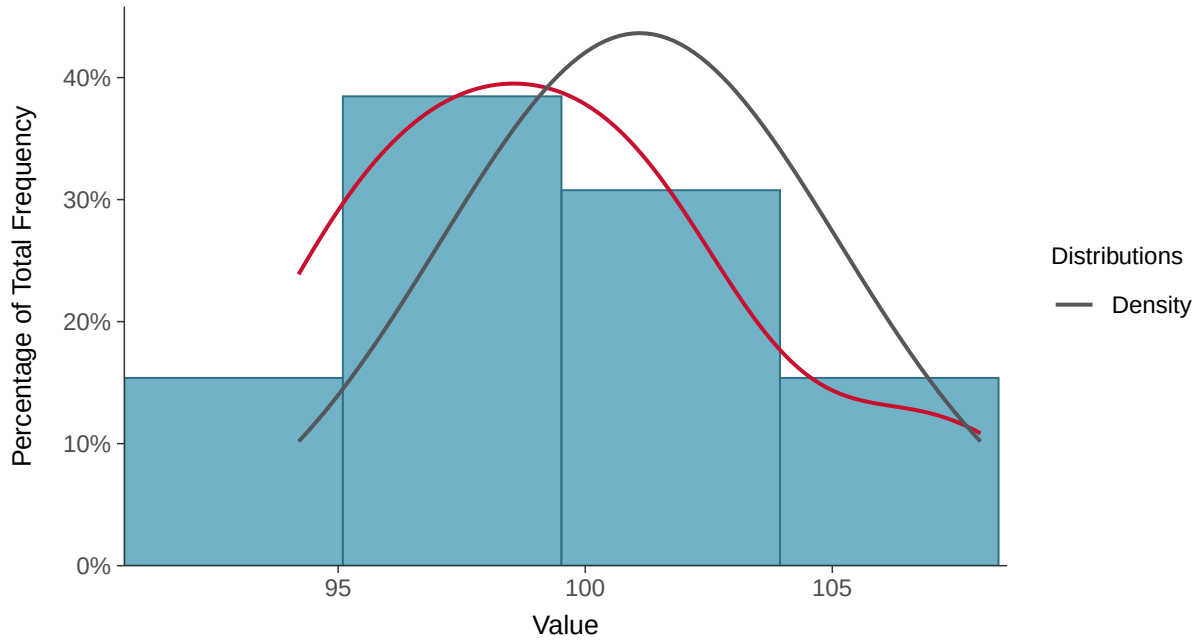
Scatter Plot

Calcium, MW-100B (mg/L)



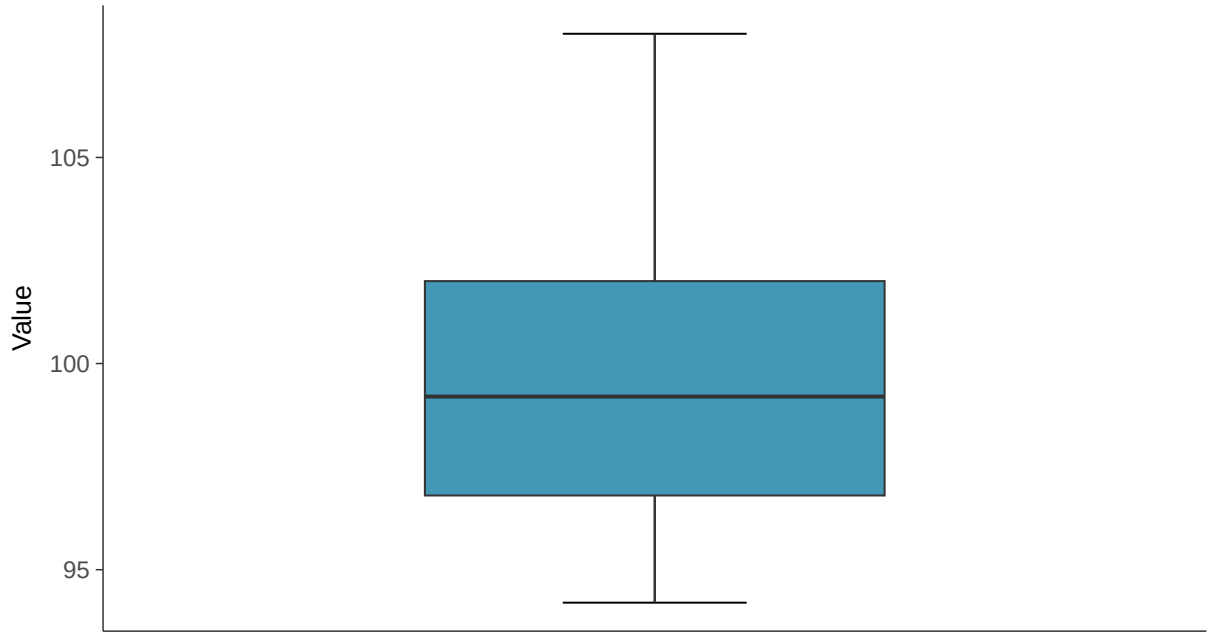
Histogram

Calcium, MW-100B (mg/L)



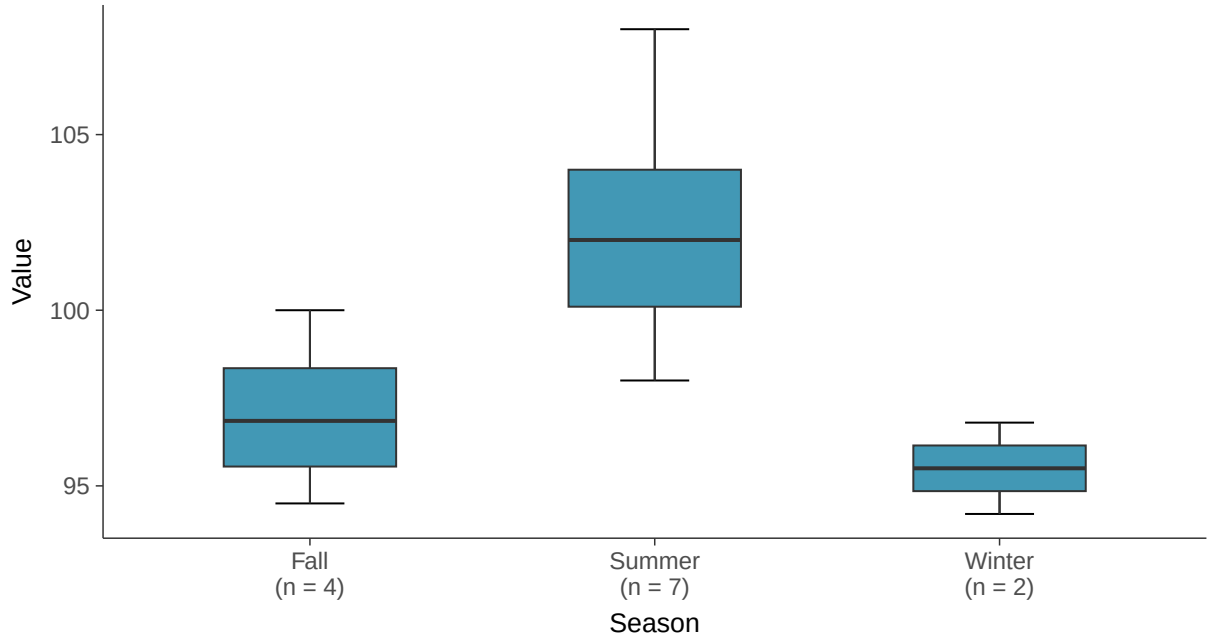
Boxplot

Calcium, MW-100B (mg/L)



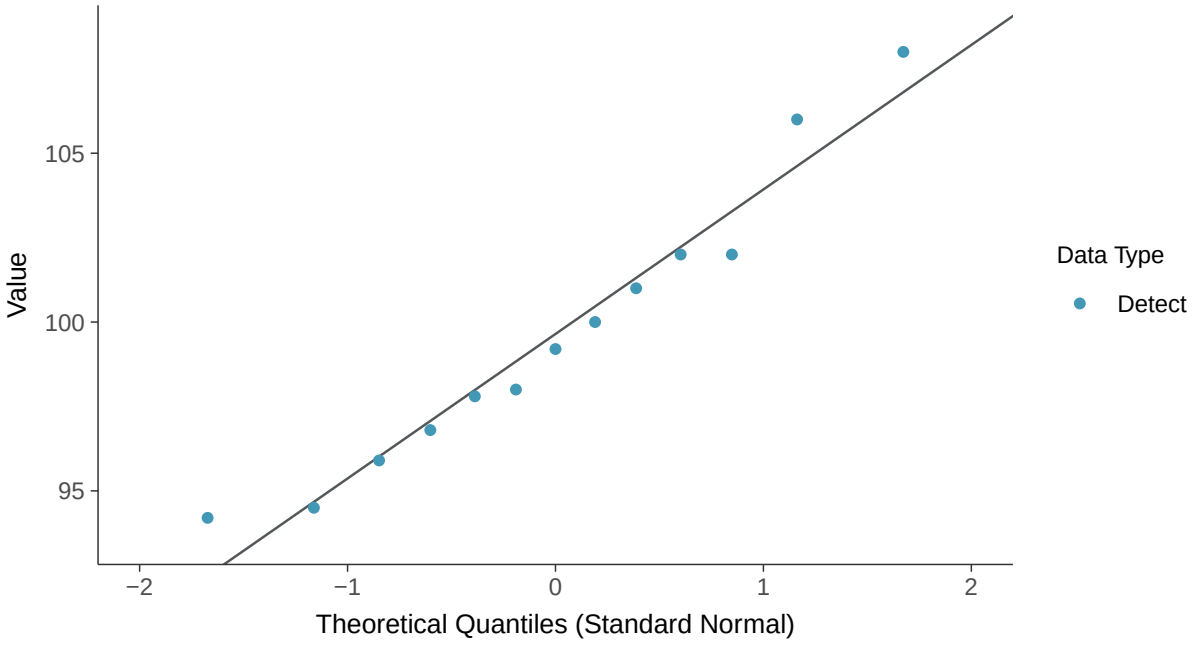
Boxplot by Season

Calcium, MW-100B (mg/L)



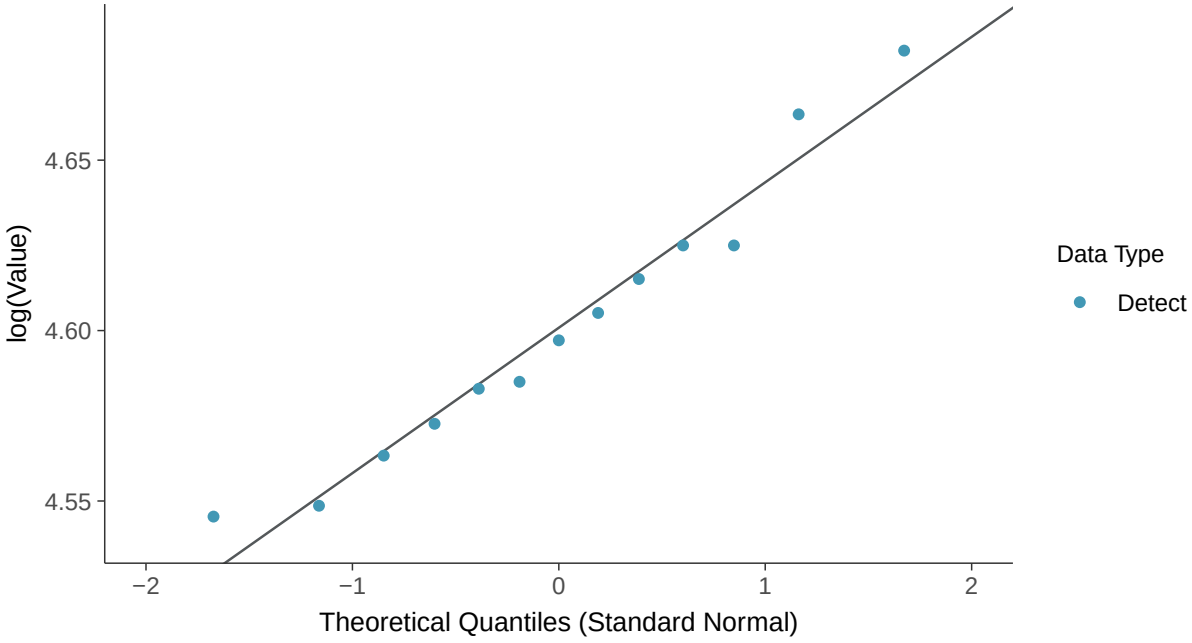
Normal Q-Q plot

Calcium, MW-100B (mg/L)



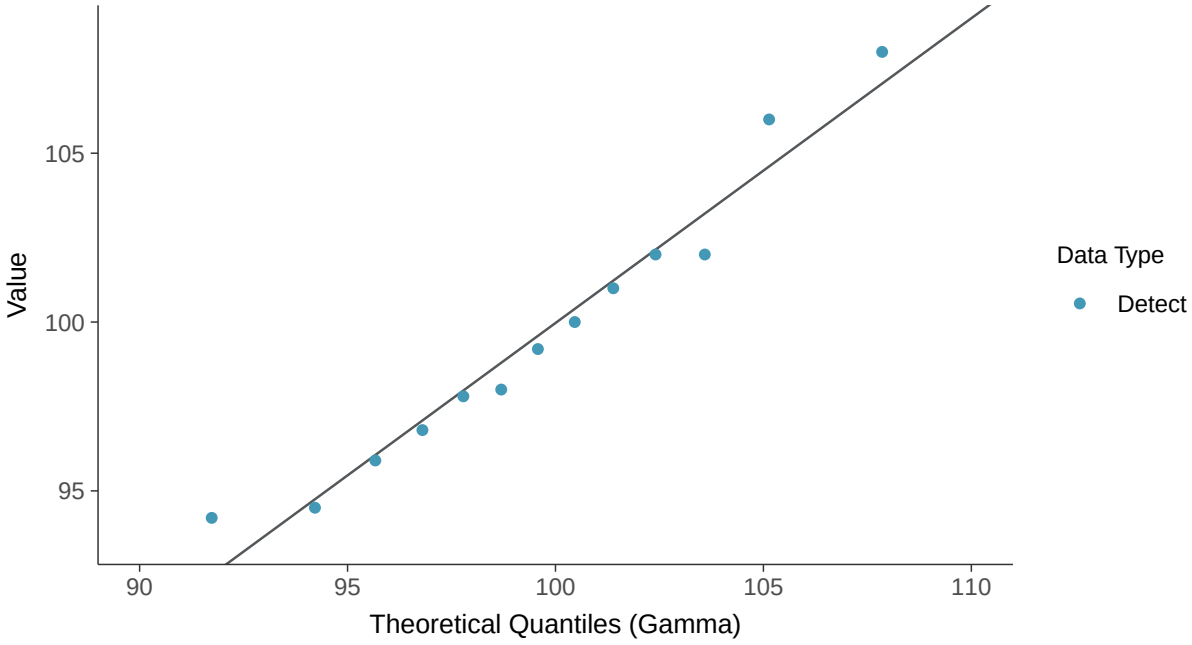
Lognormal Q-Q plot

Calcium, MW-100B (mg/L)



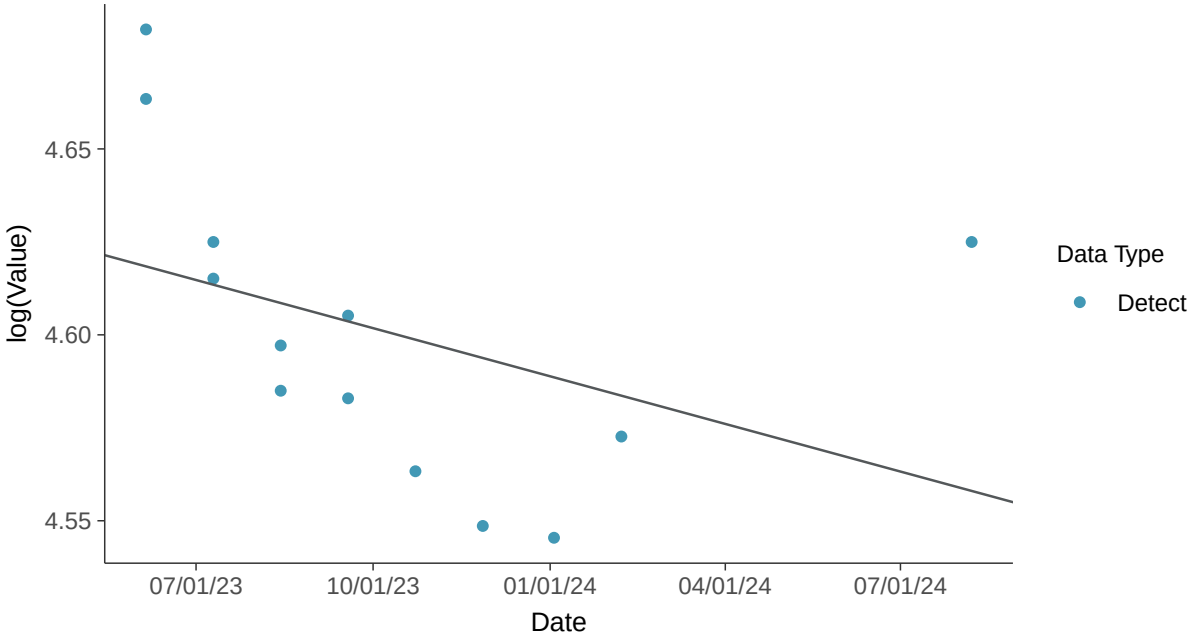
Gamma Q-Q plot

Calcium, MW-100B (mg/L)



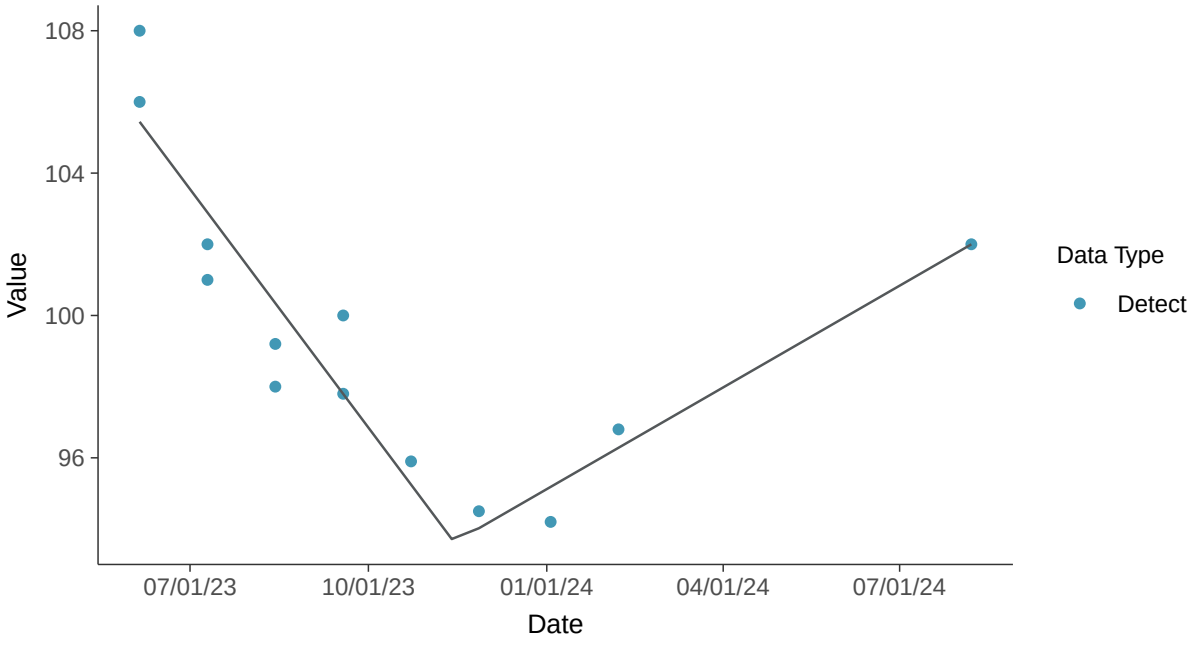
Trend Regression: Lognormal MLE

Calcium, MW-100B (mg/L)



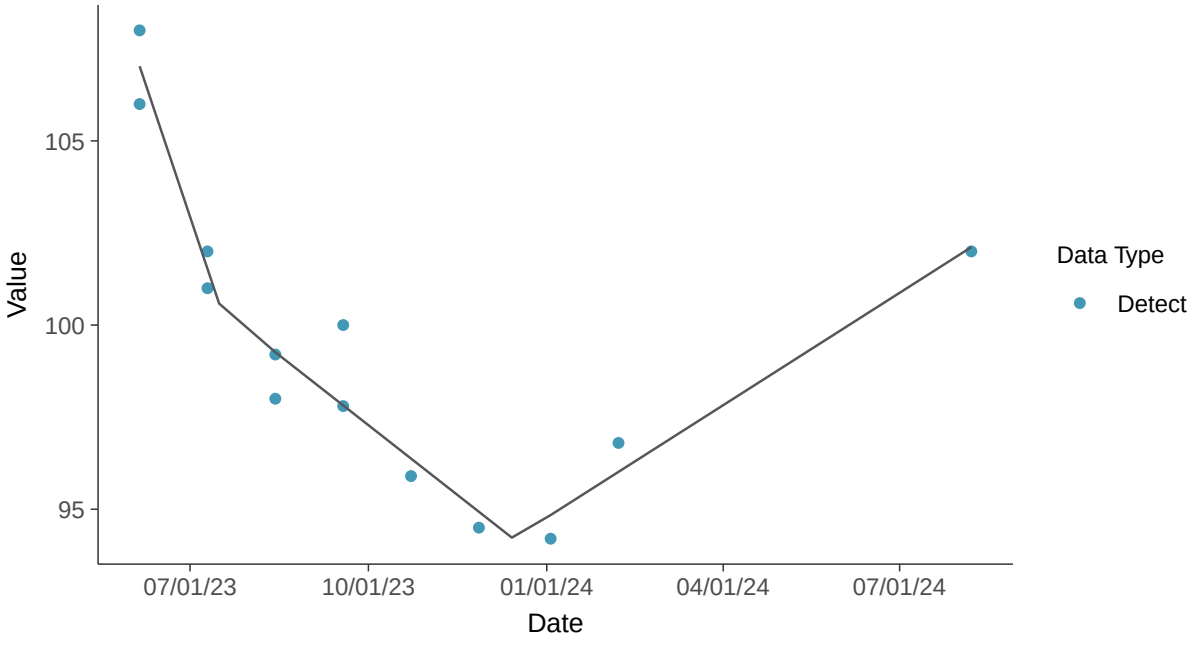
Trend Regression: Piecewise Linear-Linear

Calcium, MW-100B (mg/L)



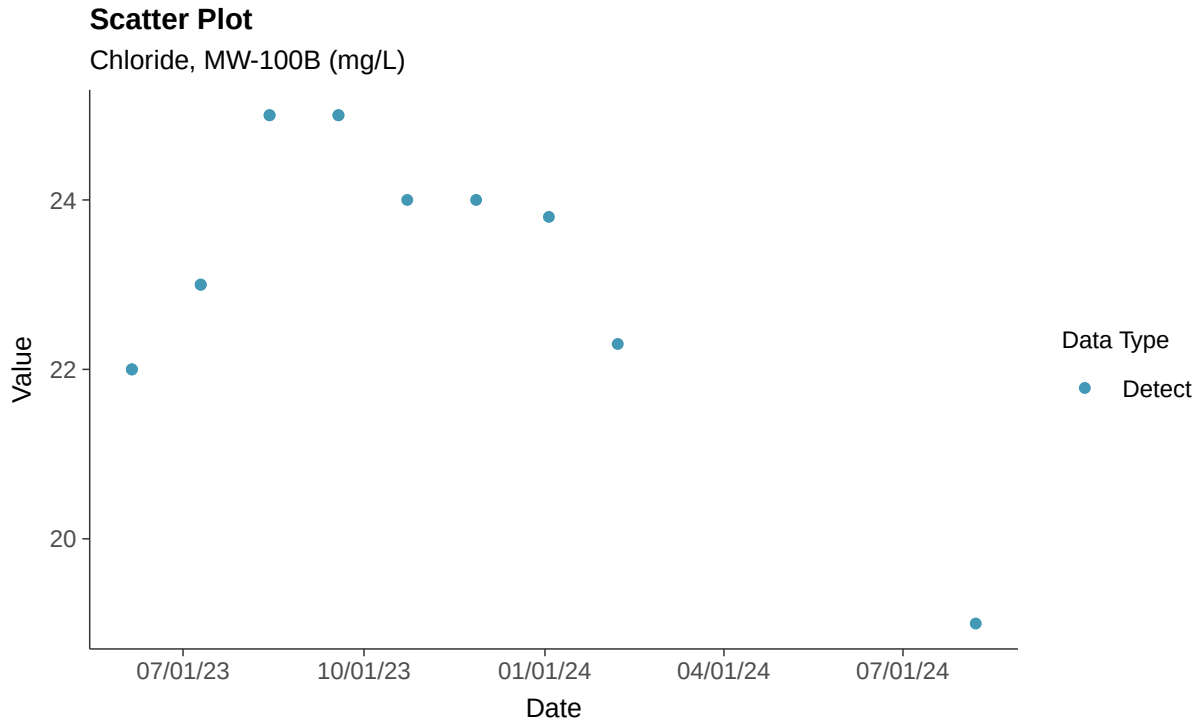
Trend Regression: Piecewise Linear-Linear-Linear

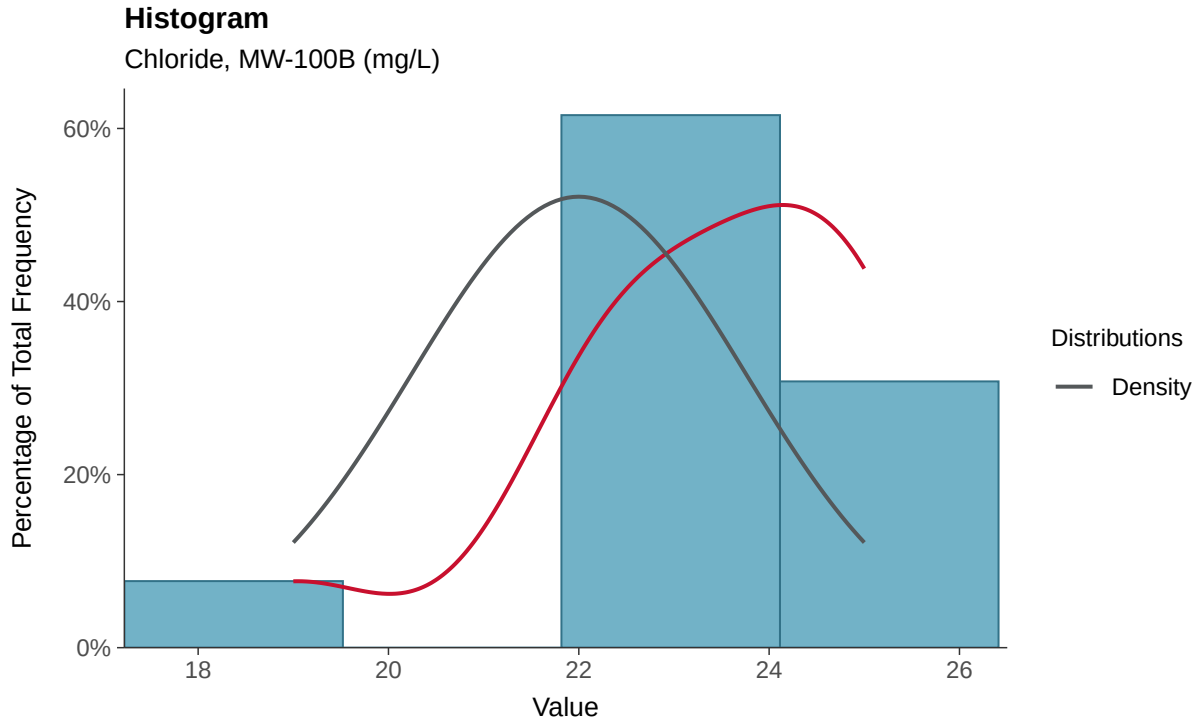
Calcium, MW-100B (mg/L)



Appendix III: Chloride, MW-100B

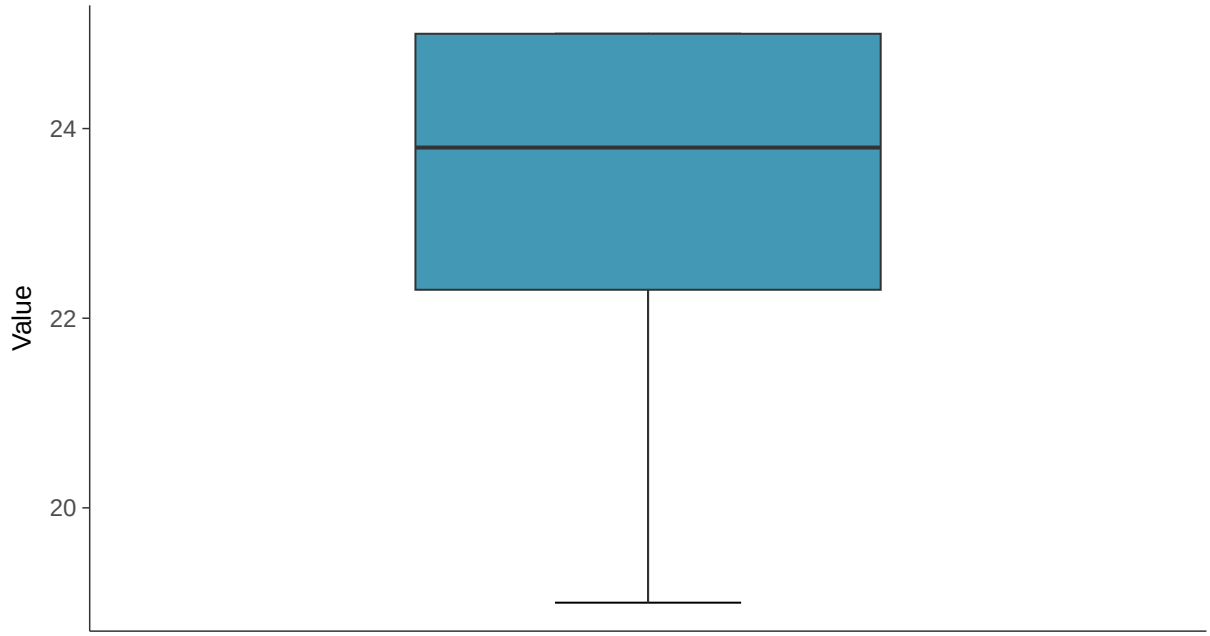
ID: 100B_1_03





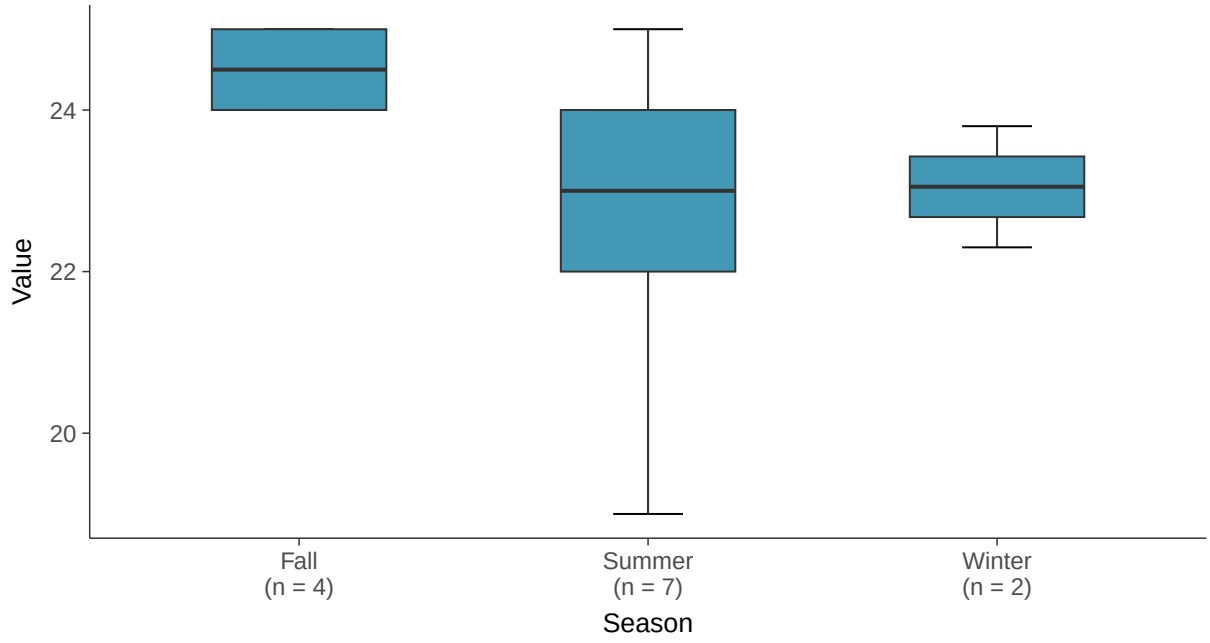
Boxplot

Chloride, MW-100B (mg/L)



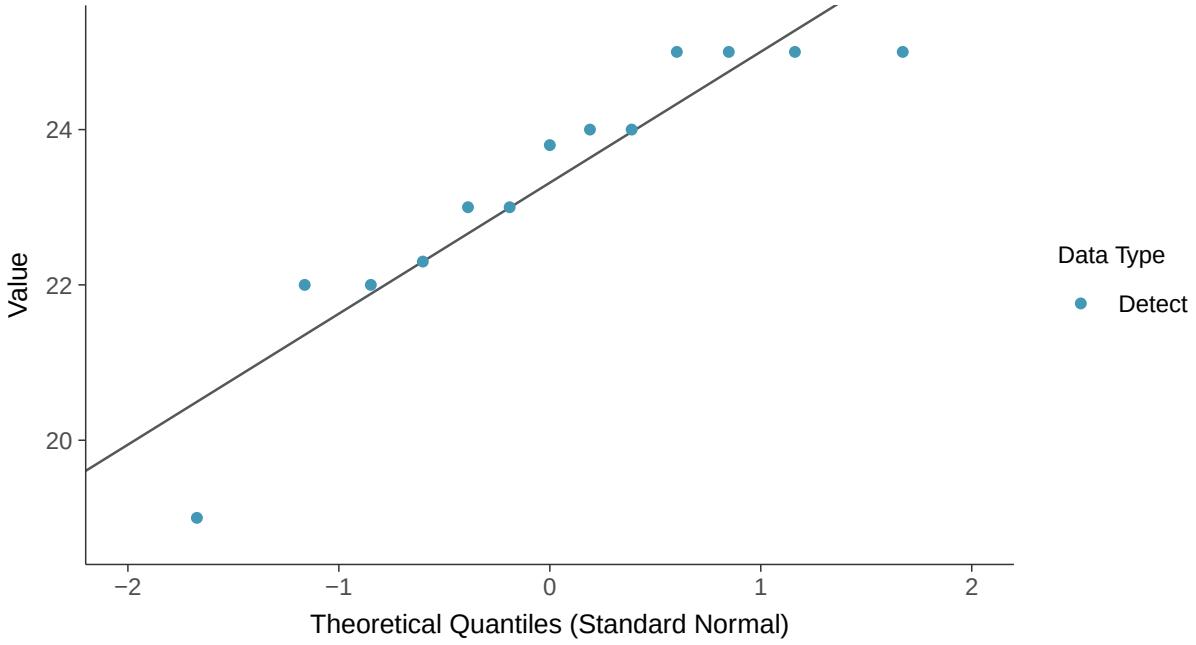
Boxplot by Season

Chloride, MW-100B (mg/L)



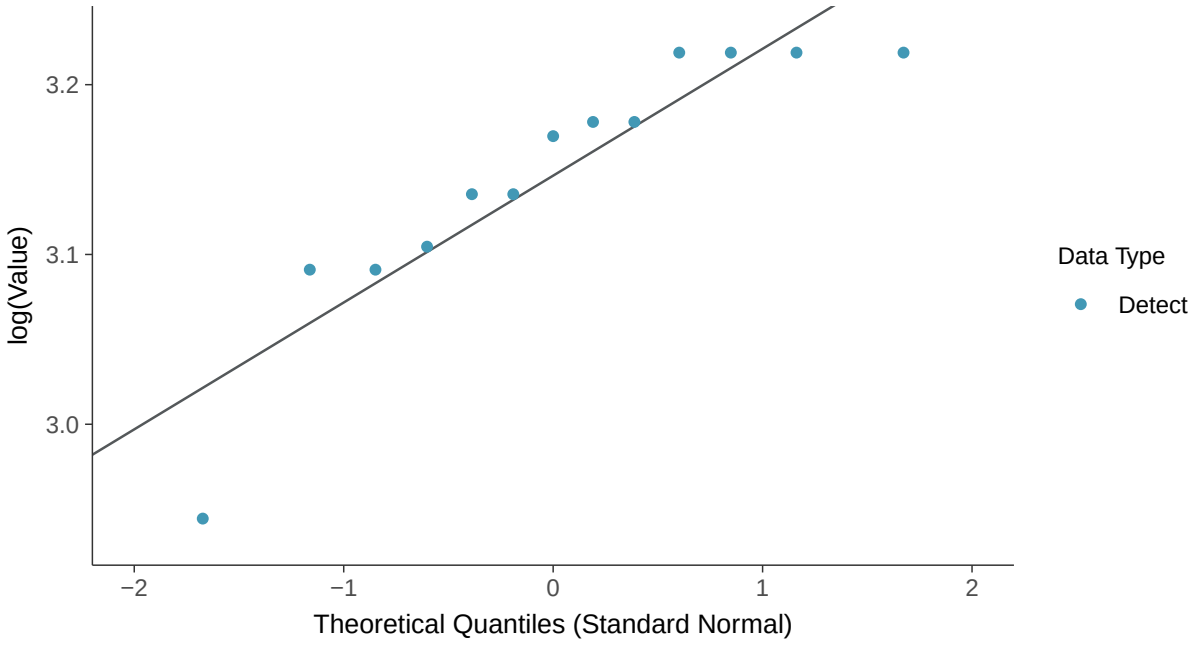
Normal Q-Q plot

Chloride, MW-100B (mg/L)



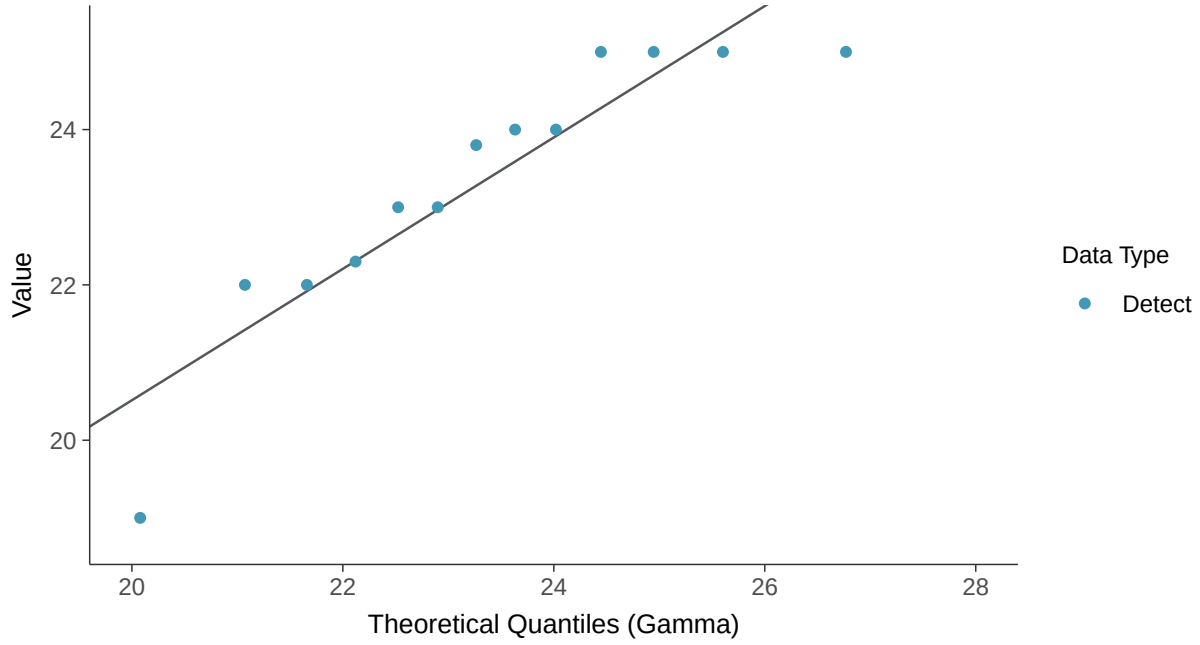
Lognormal Q-Q plot

Chloride, MW-100B (mg/L)



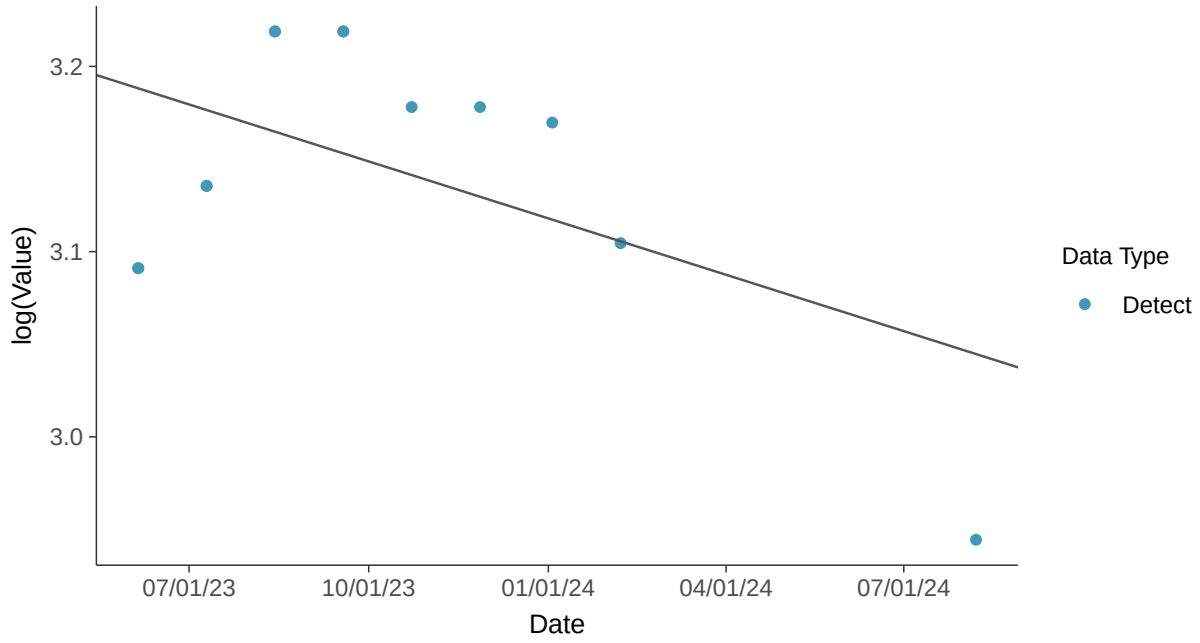
Gamma Q-Q plot

Chloride, MW-100B (mg/L)



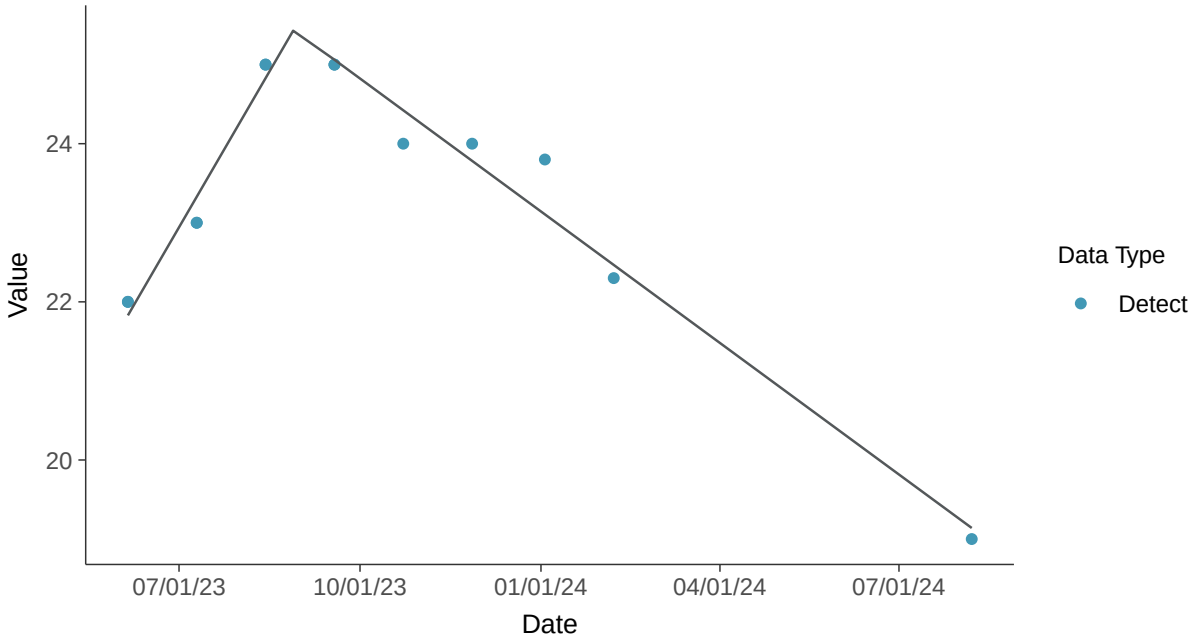
Trend Regression: Lognormal MLE

Chloride, MW-100B (mg/L)



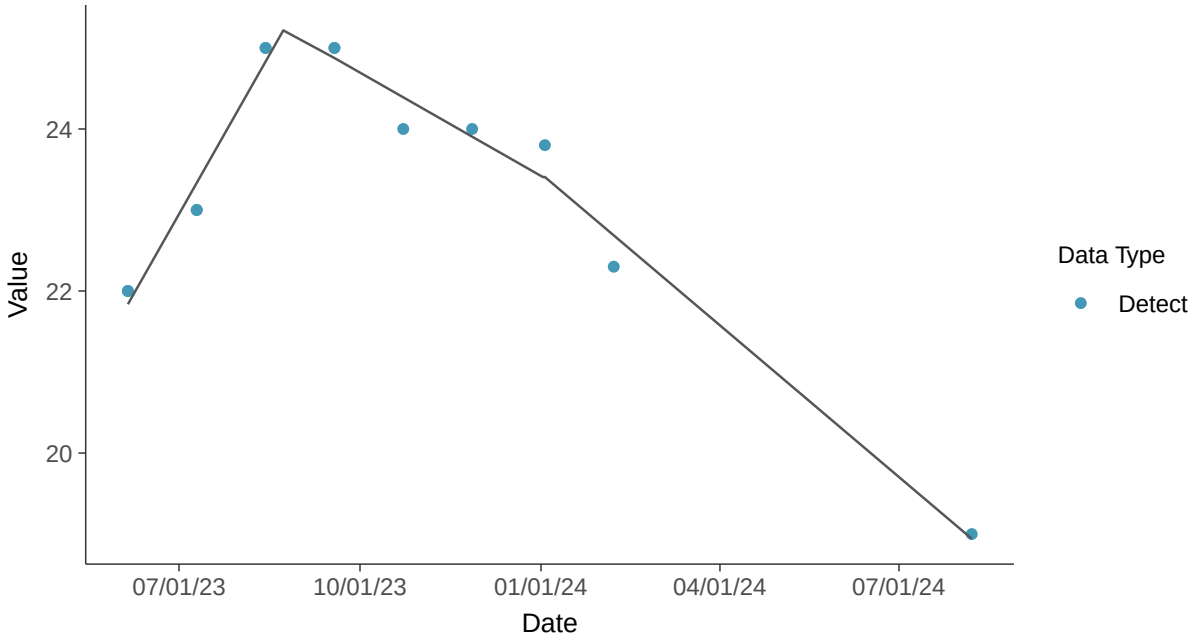
Trend Regression: Piecewise Linear-Linear

Chloride, MW-100B (mg/L)



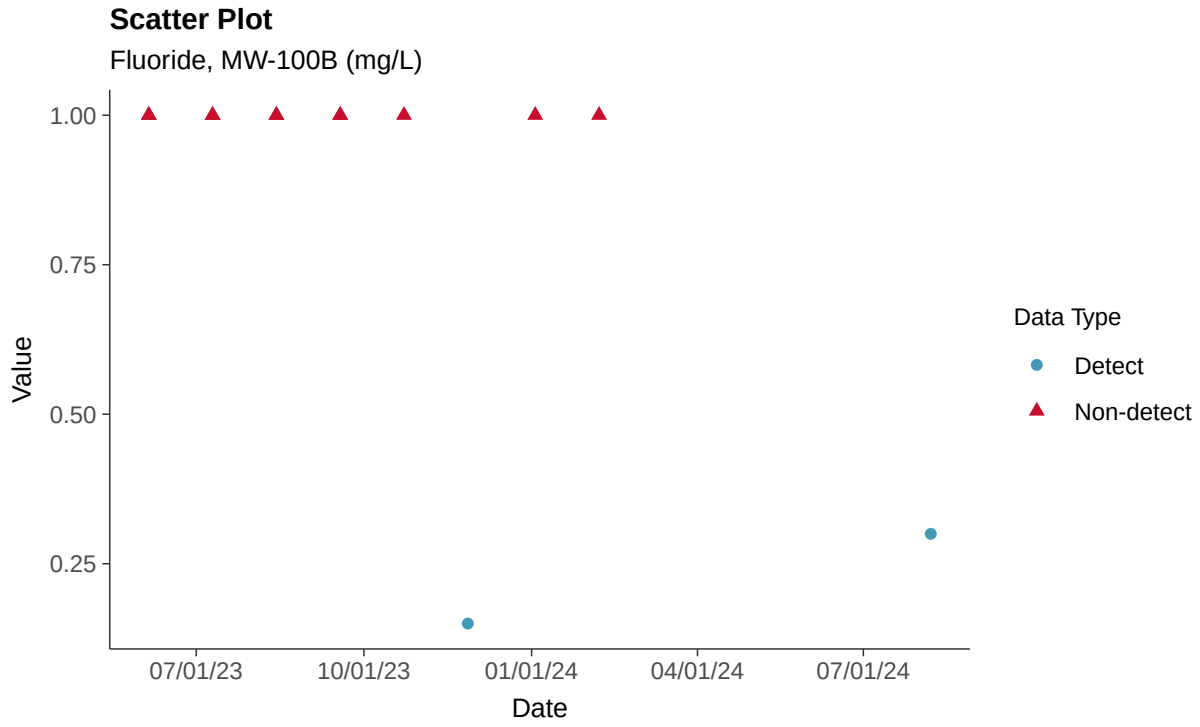
Trend Regression: Piecewise Linear-Linear-Linear

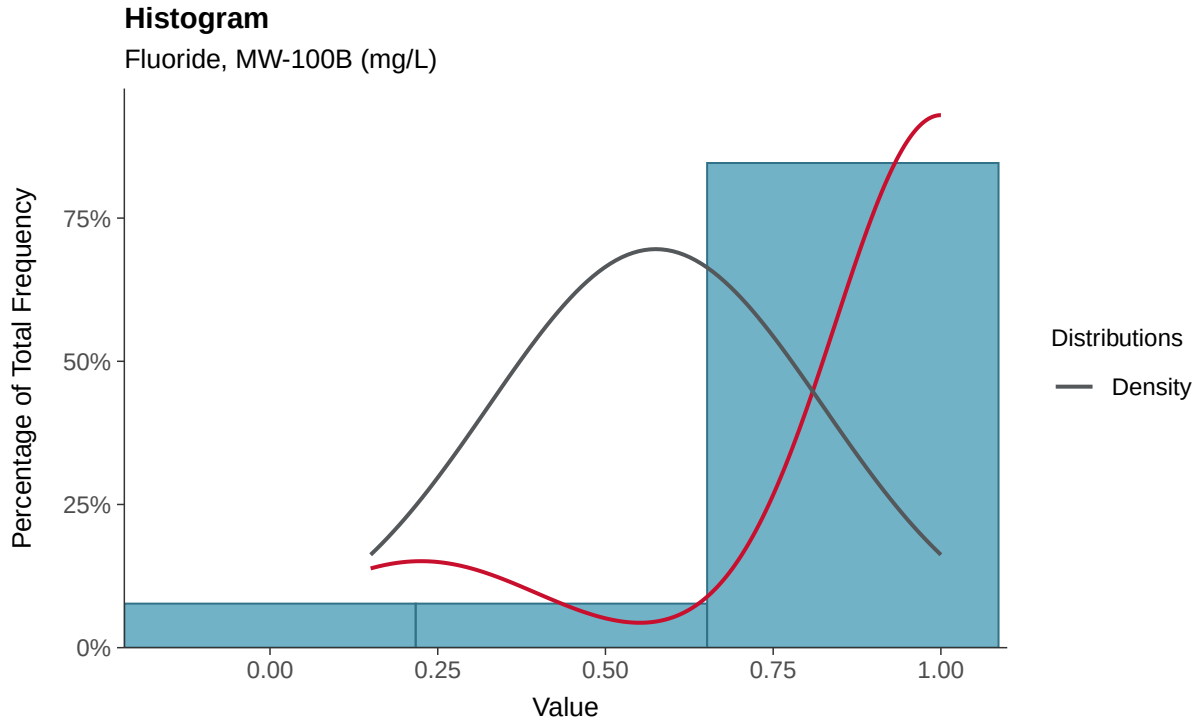
Chloride, MW-100B (mg/L)



Appendix III: Fluoride, MW-100B

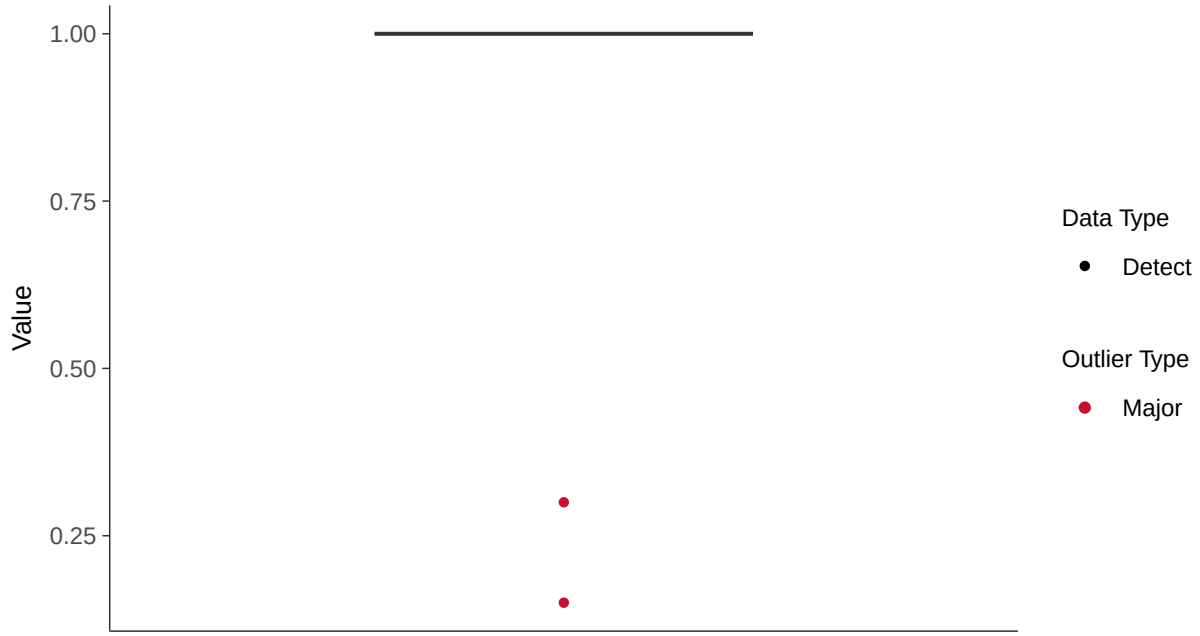
ID: 100B_1_04





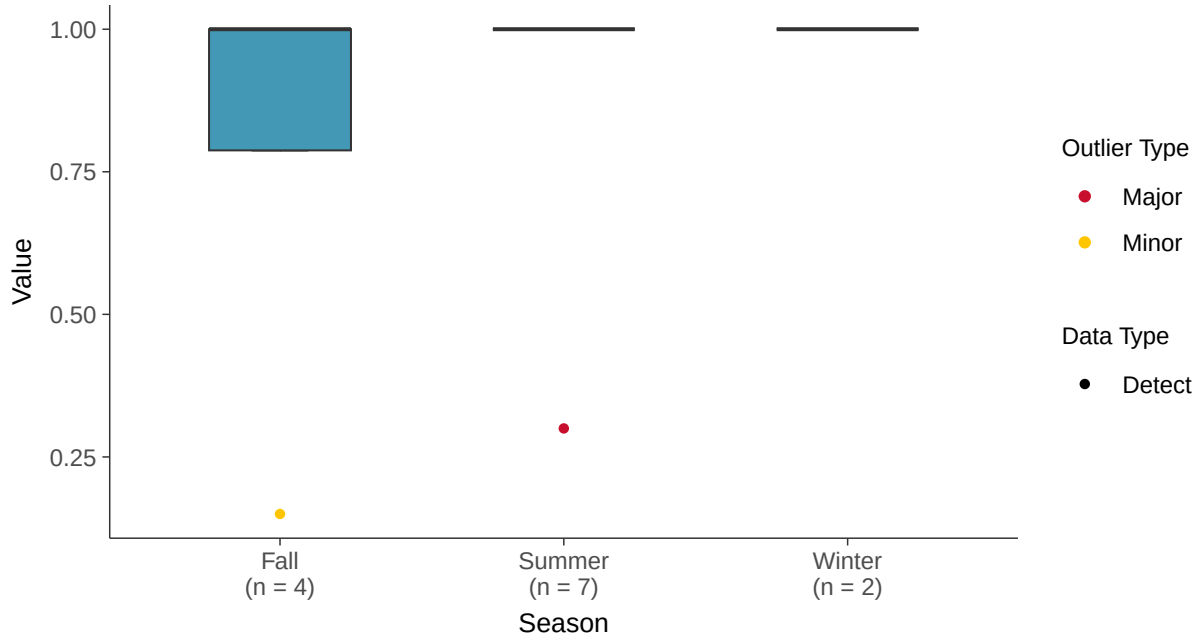
Boxplot

Fluoride, MW-100B (mg/L)



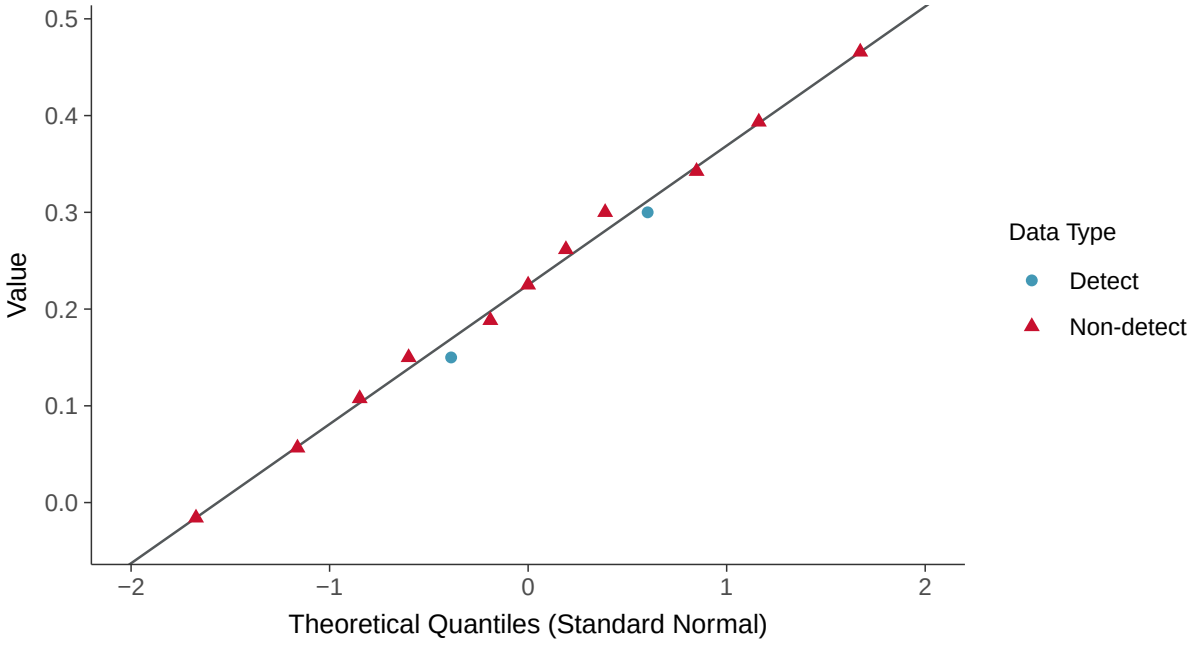
Boxplot by Season

Fluoride, MW-100B (mg/L)



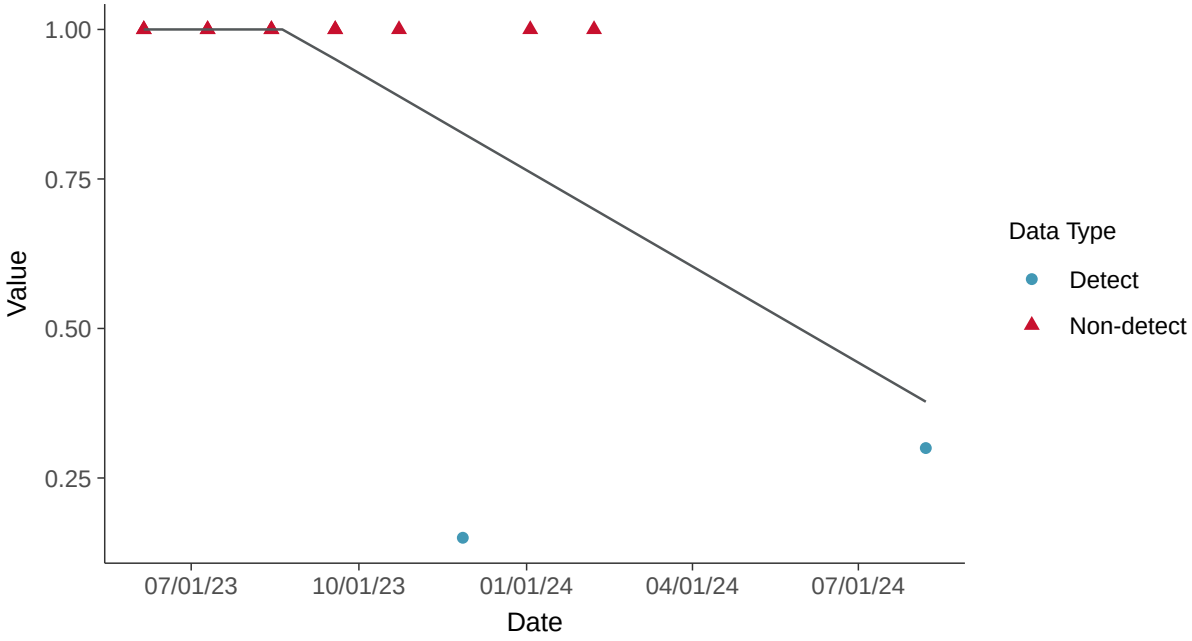
Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-100B (mg/L)



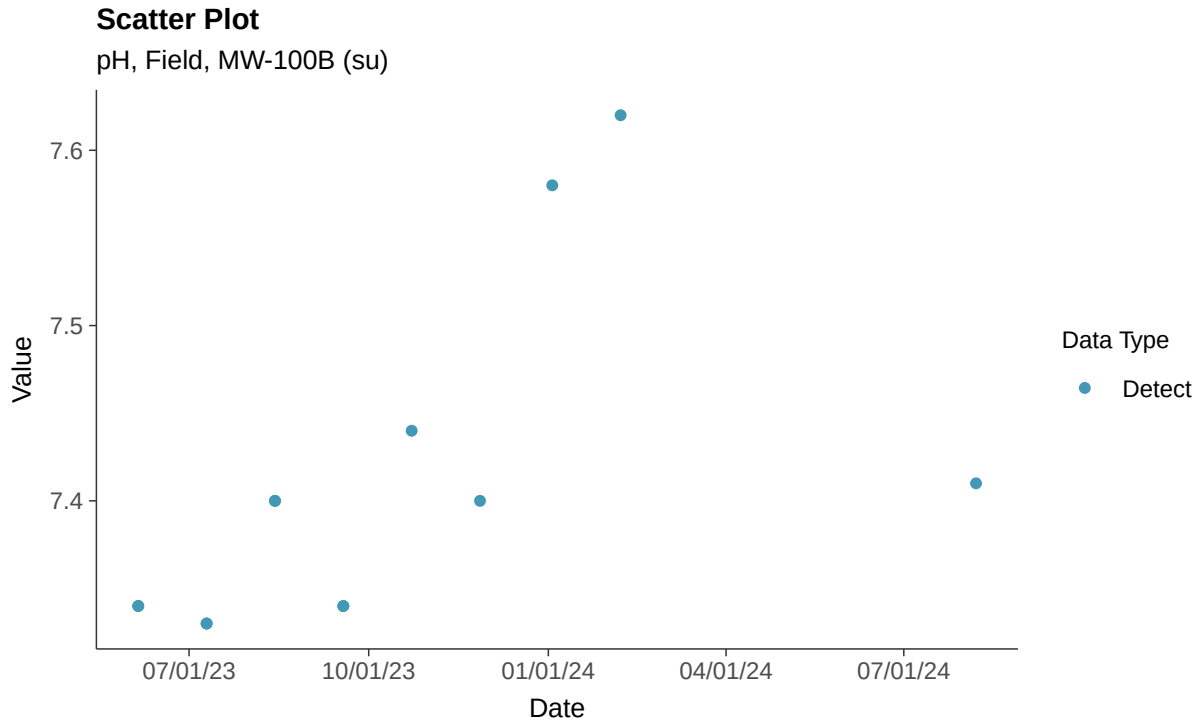
Trend Regression: Piecewise Linear-Linear

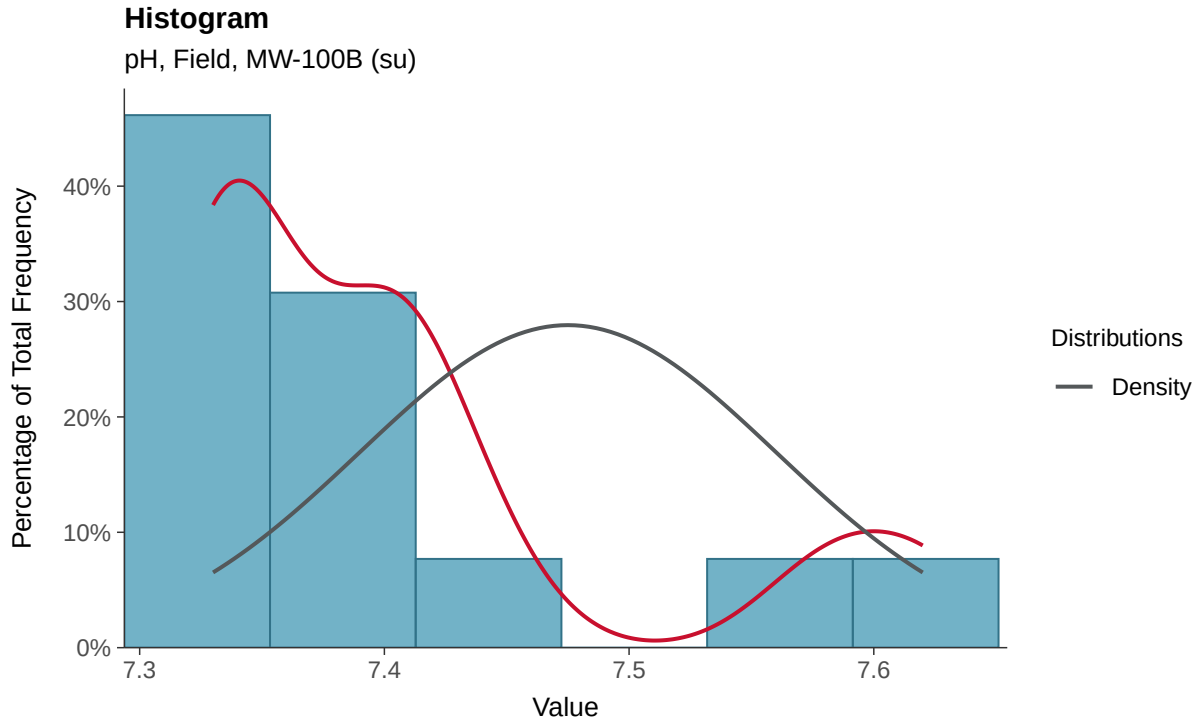
Fluoride, MW-100B (mg/L)



Appendix III: pH, Field, MW-100B

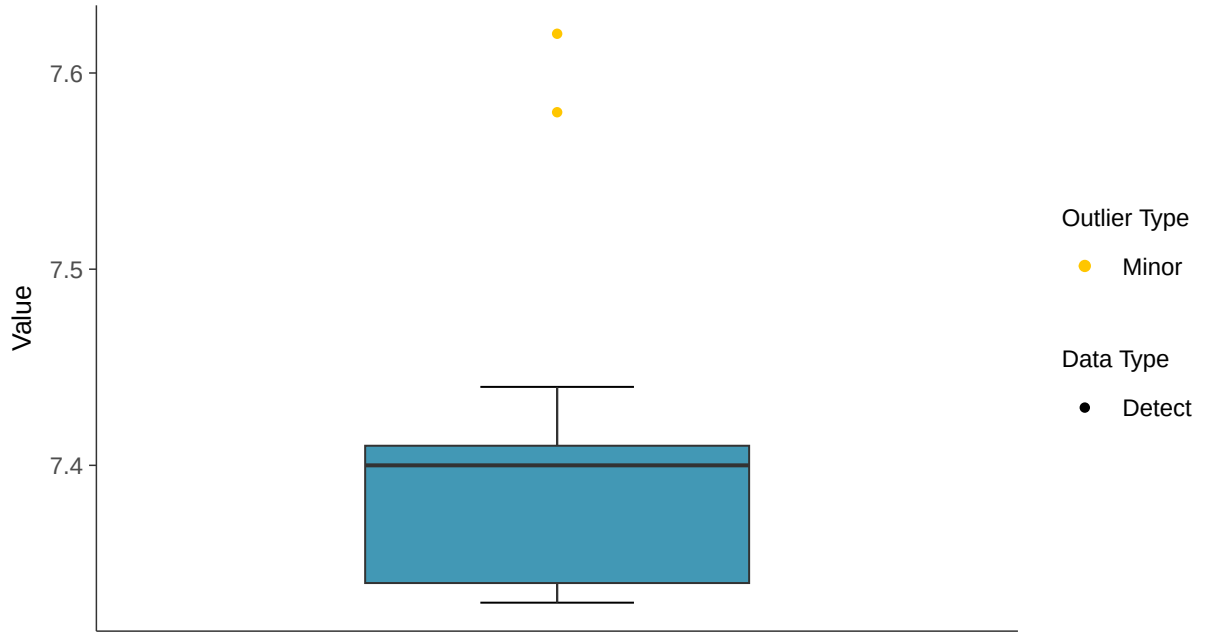
ID: 100B_1_05





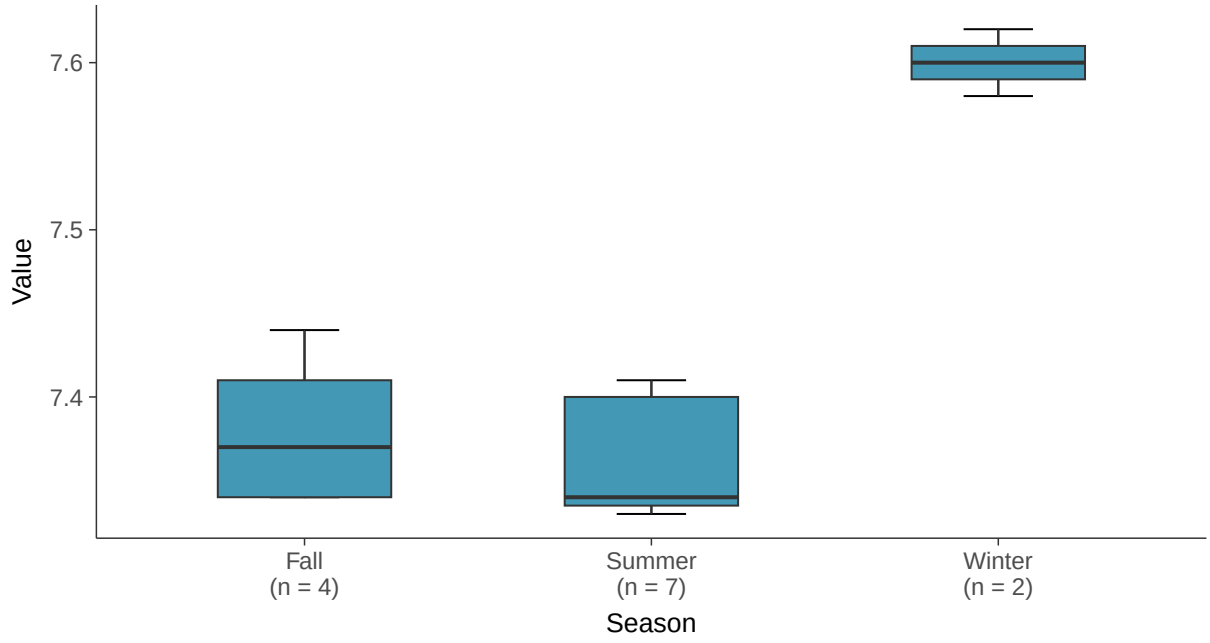
Boxplot

pH, Field, MW-100B (su)



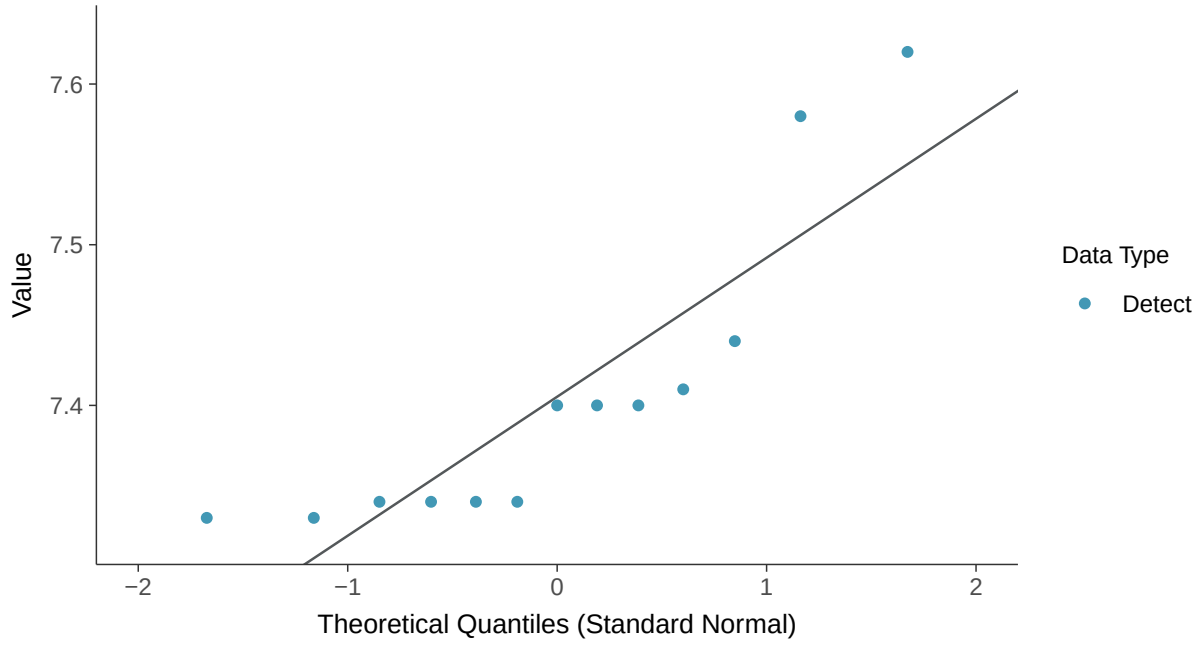
Boxplot by Season

pH, Field, MW-100B (su)



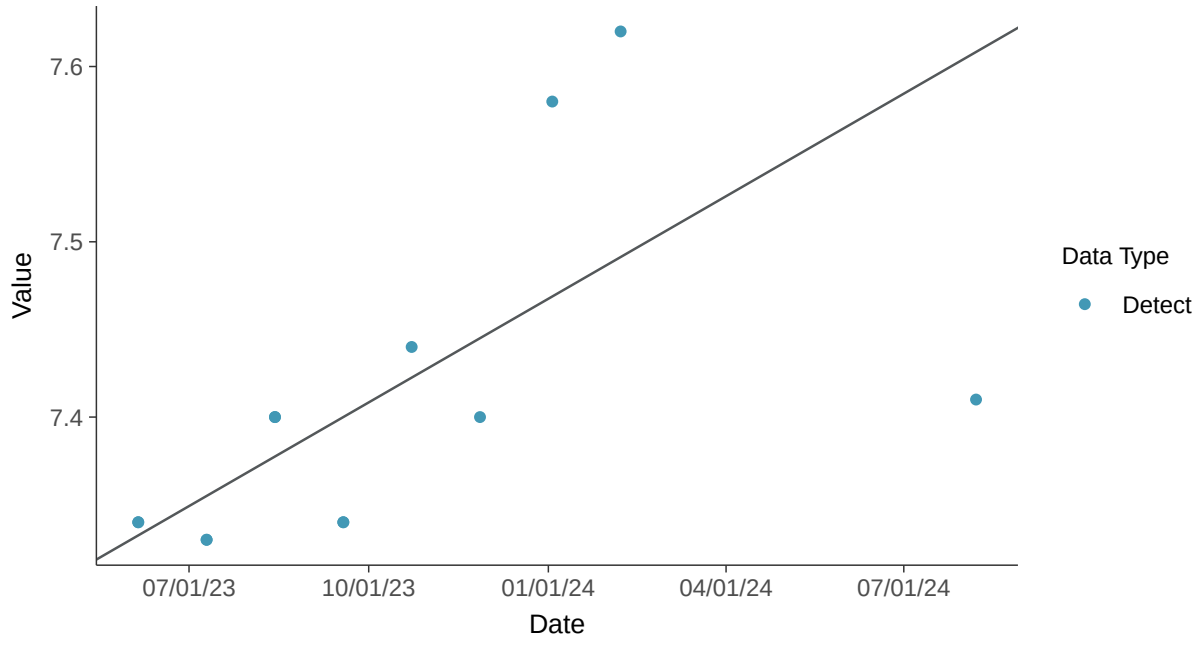
Normal Q-Q plot

pH, Field, MW-100B (su)



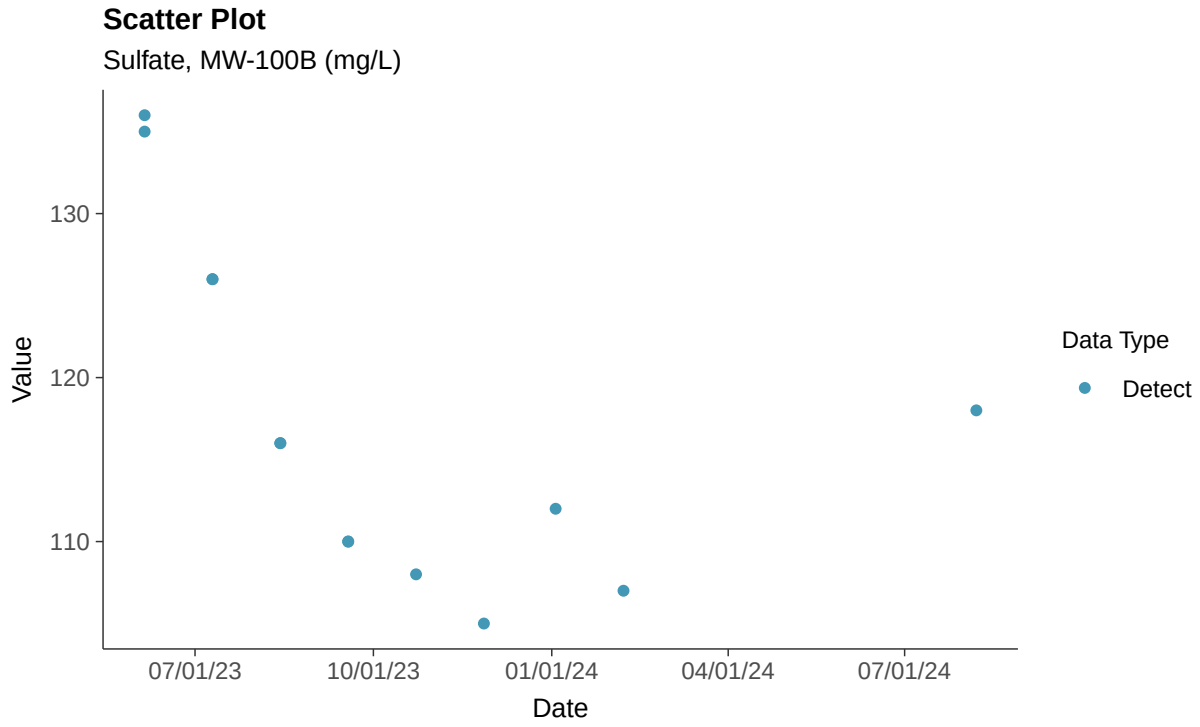
Trend Regression: Mann-Kendall/Theil-Sen Estimate

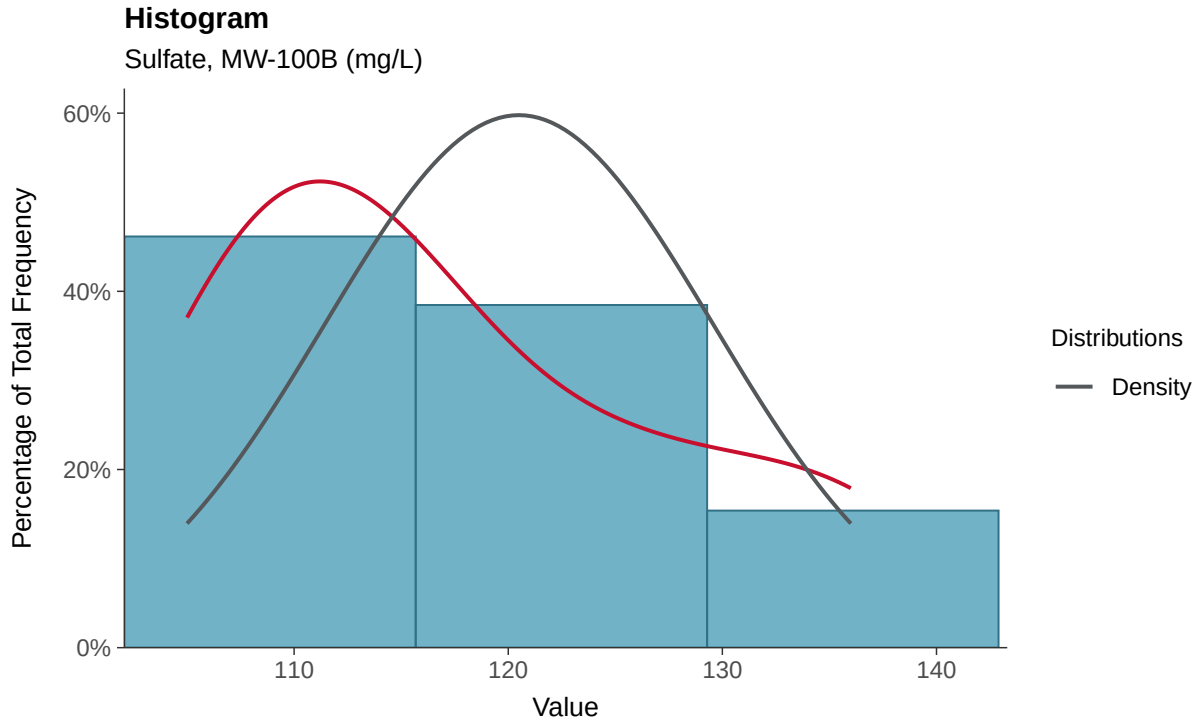
pH, Field, MW-100B (su)



Appendix III: Sulfate, MW-100B

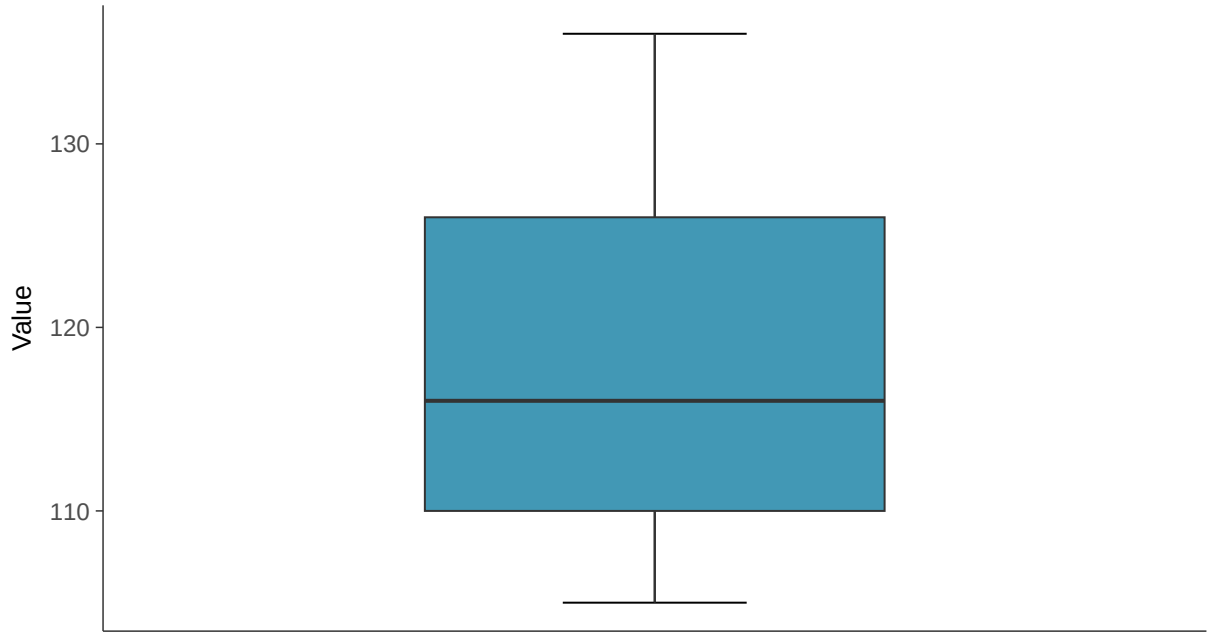
ID: 100B_1_06





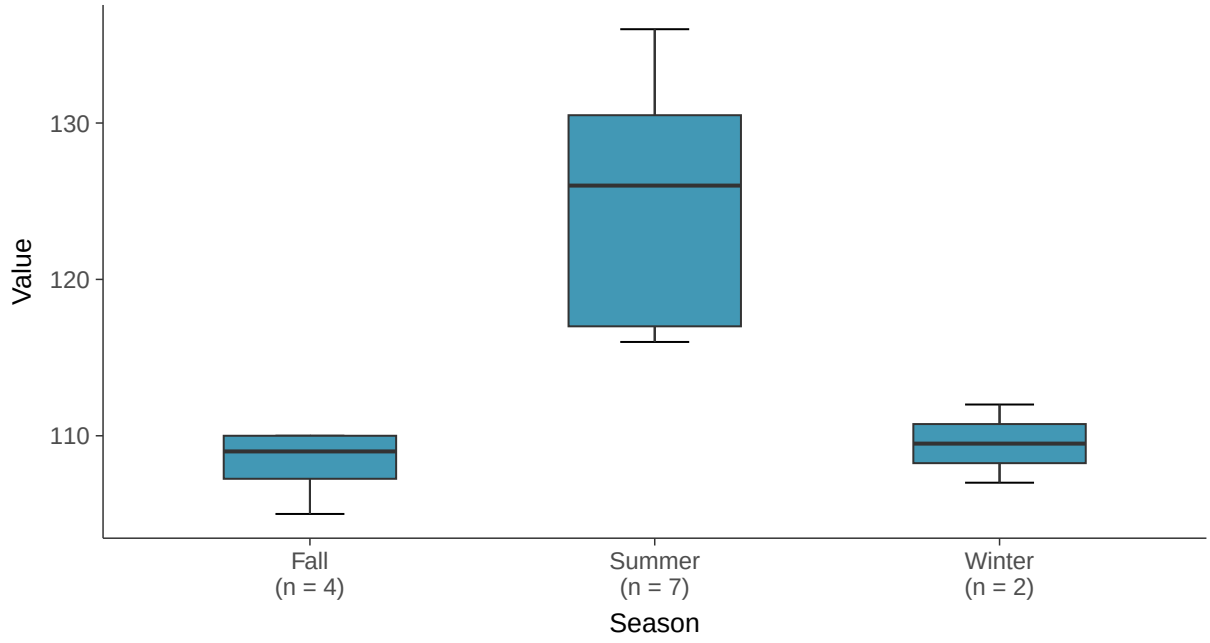
Boxplot

Sulfate, MW-100B (mg/L)



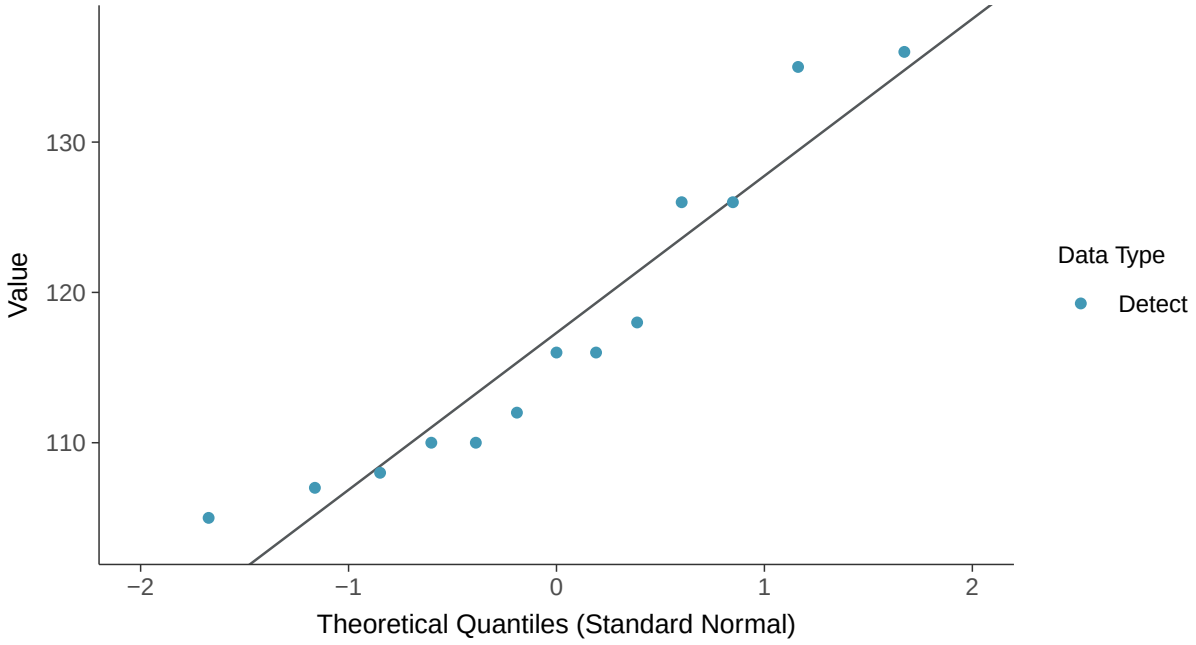
Boxplot by Season

Sulfate, MW-100B (mg/L)



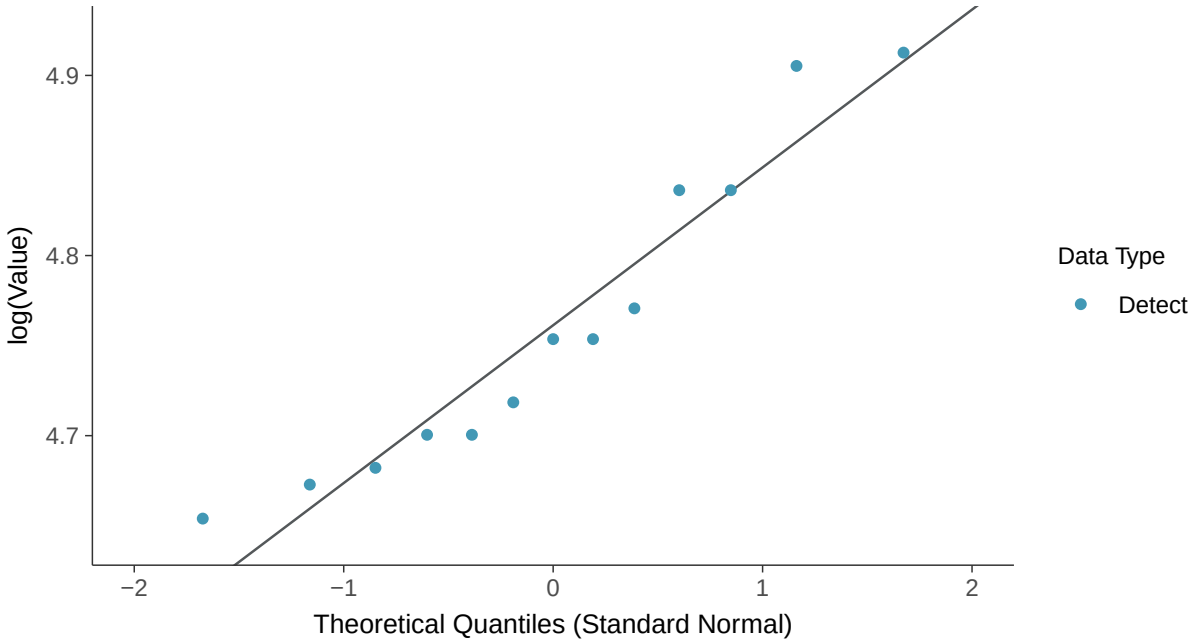
Normal Q-Q plot

Sulfate, MW-100B (mg/L)



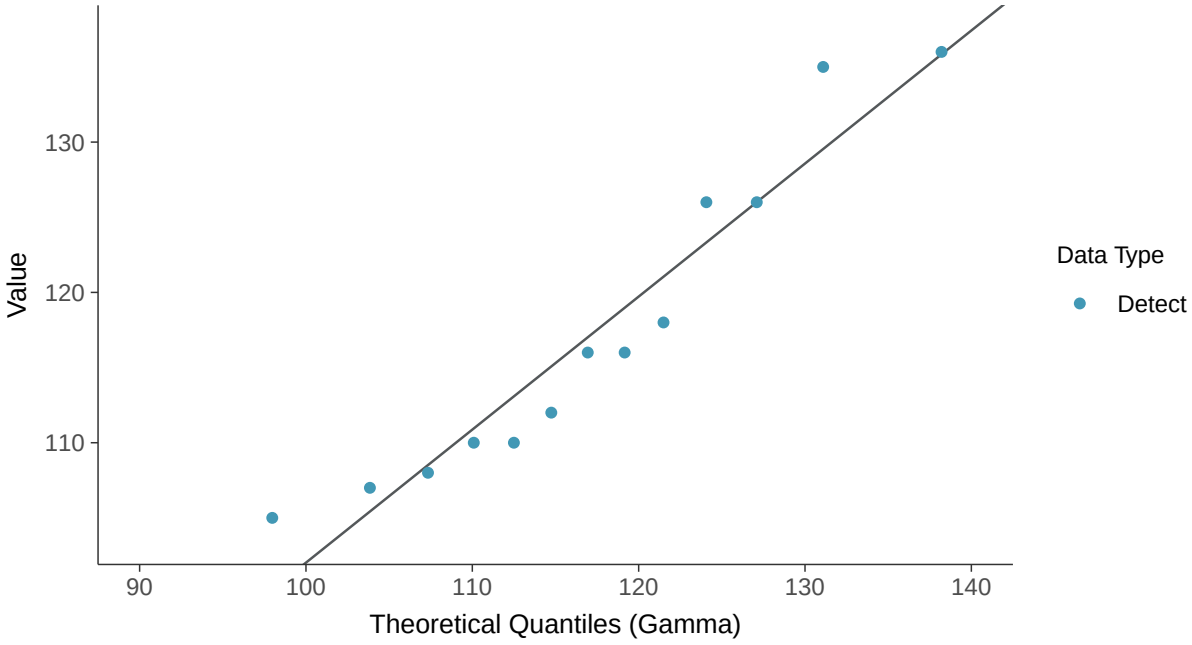
Lognormal Q-Q plot

Sulfate, MW-100B (mg/L)



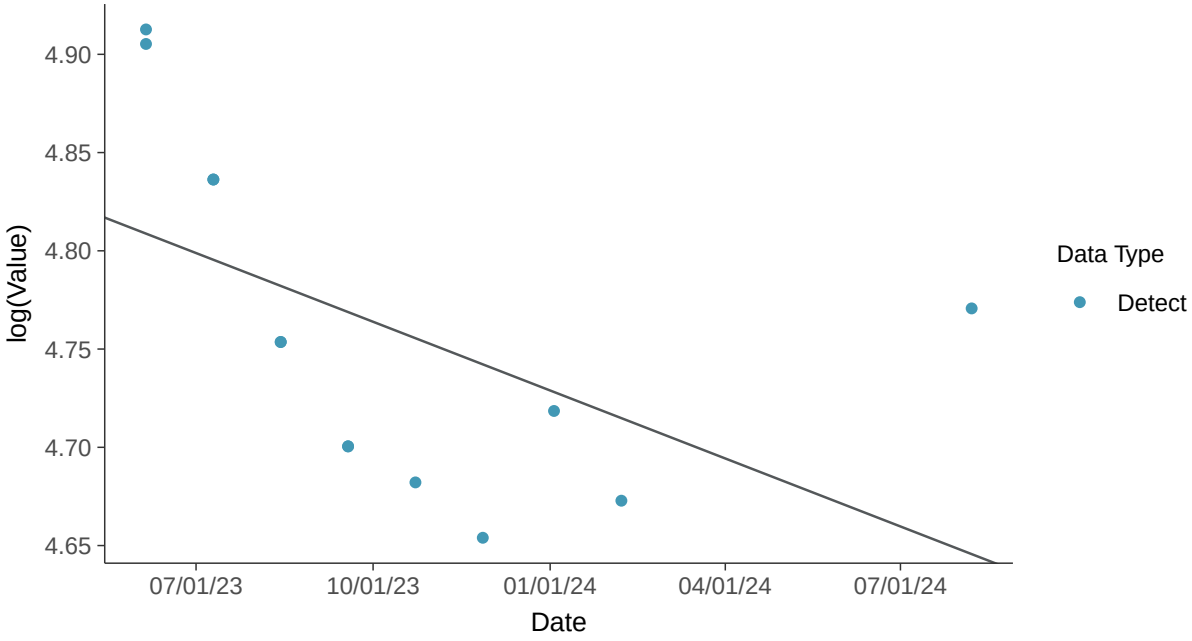
Gamma Q-Q plot

Sulfate, MW-100B (mg/L)



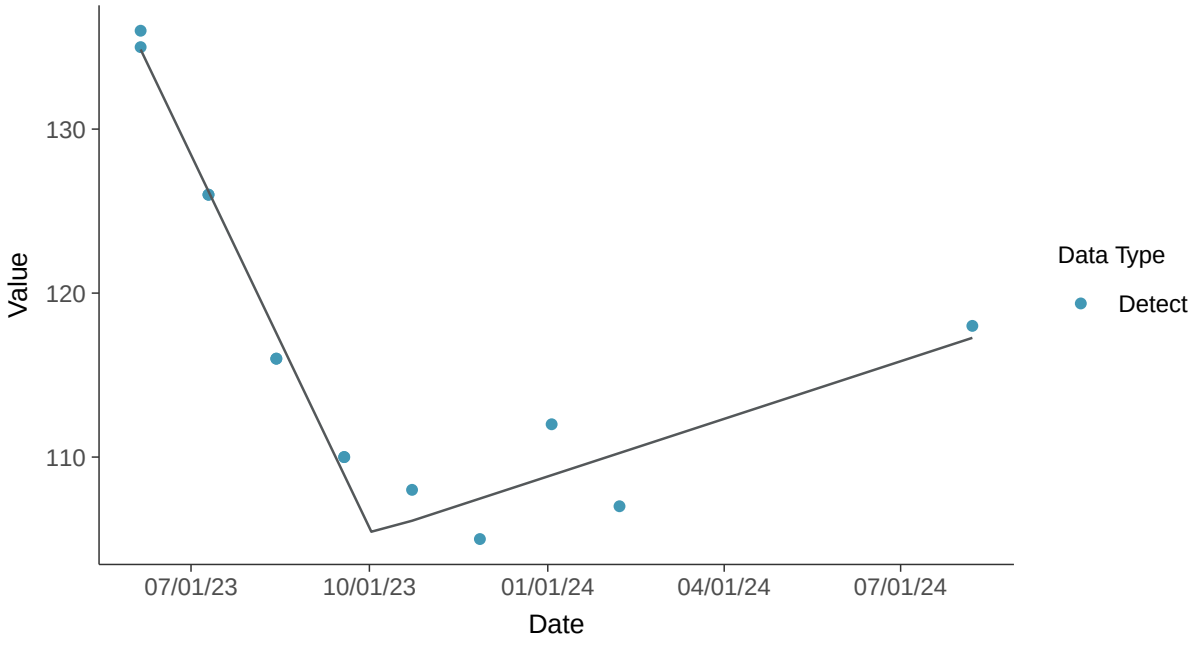
Trend Regression: Lognormal MLE

Sulfate, MW-100B (mg/L)



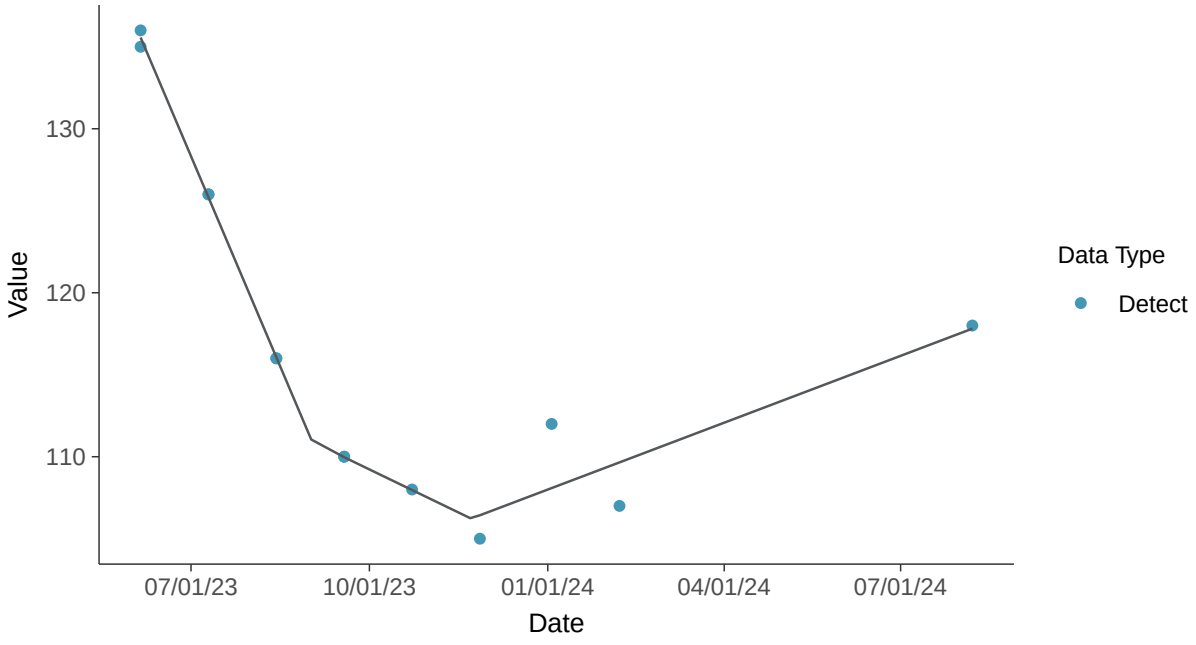
Trend Regression: Piecewise Linear-Linear

Sulfate, MW-100B (mg/L)



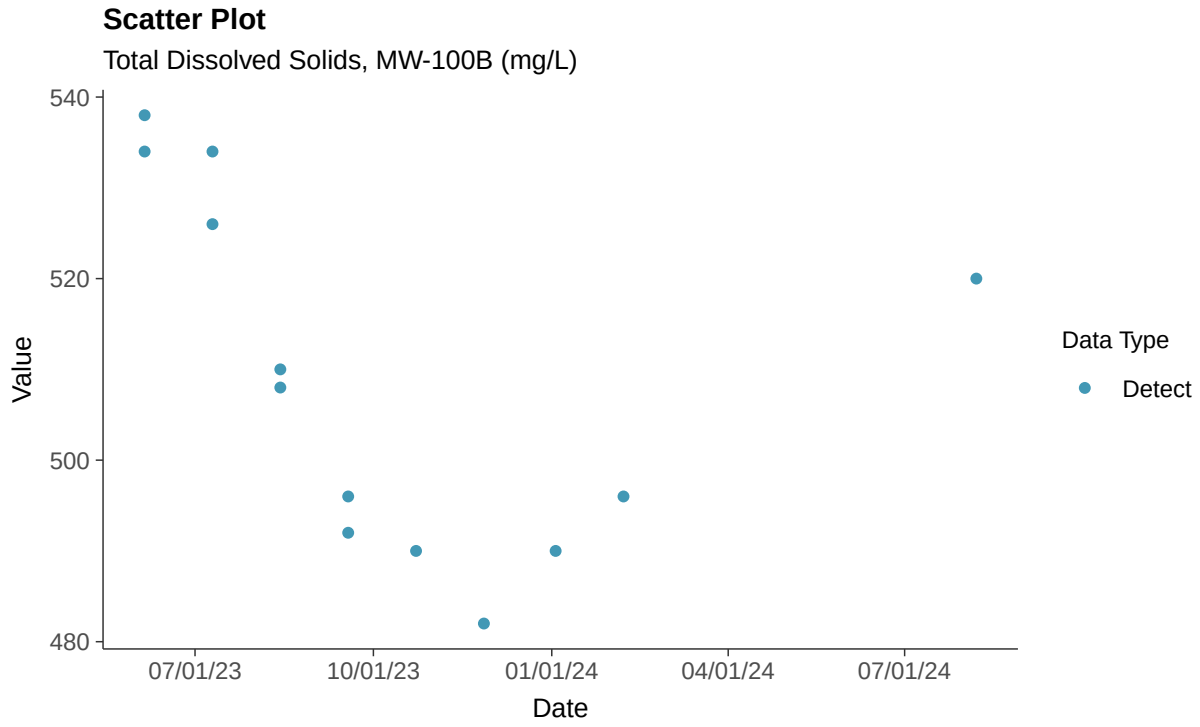
Trend Regression: Piecewise Linear-Linear-Linear

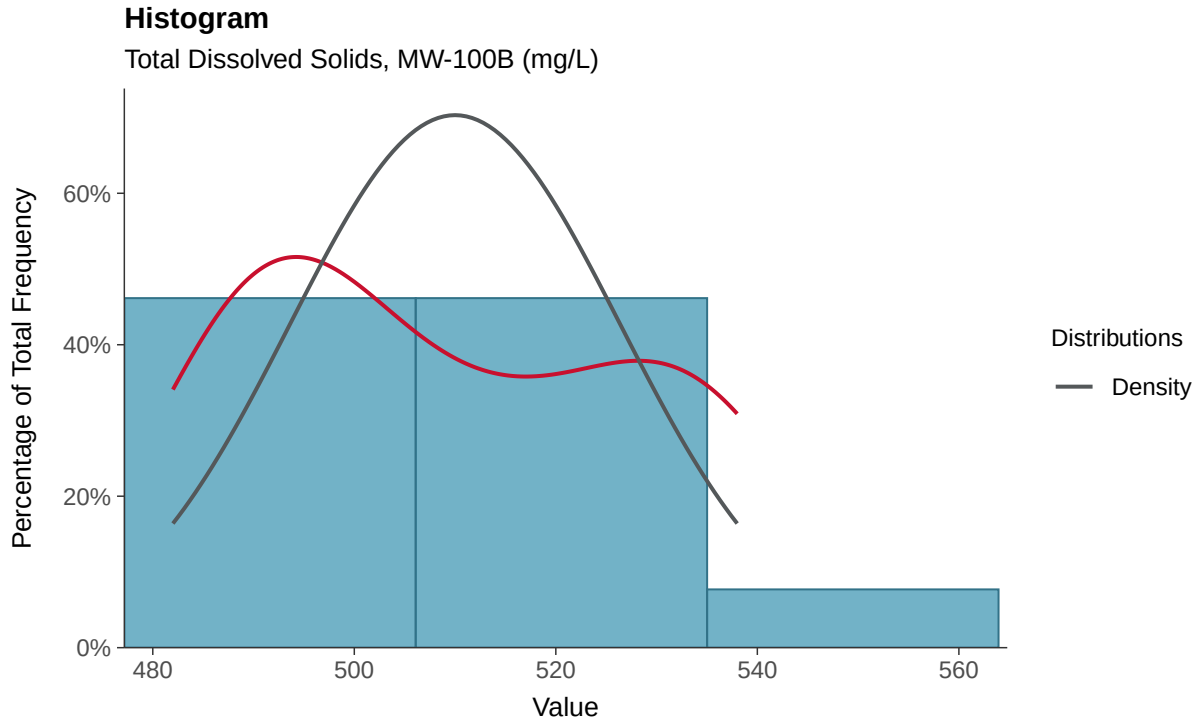
Sulfate, MW-100B (mg/L)



Appendix III: Total Dissolved Solids, MW-100B

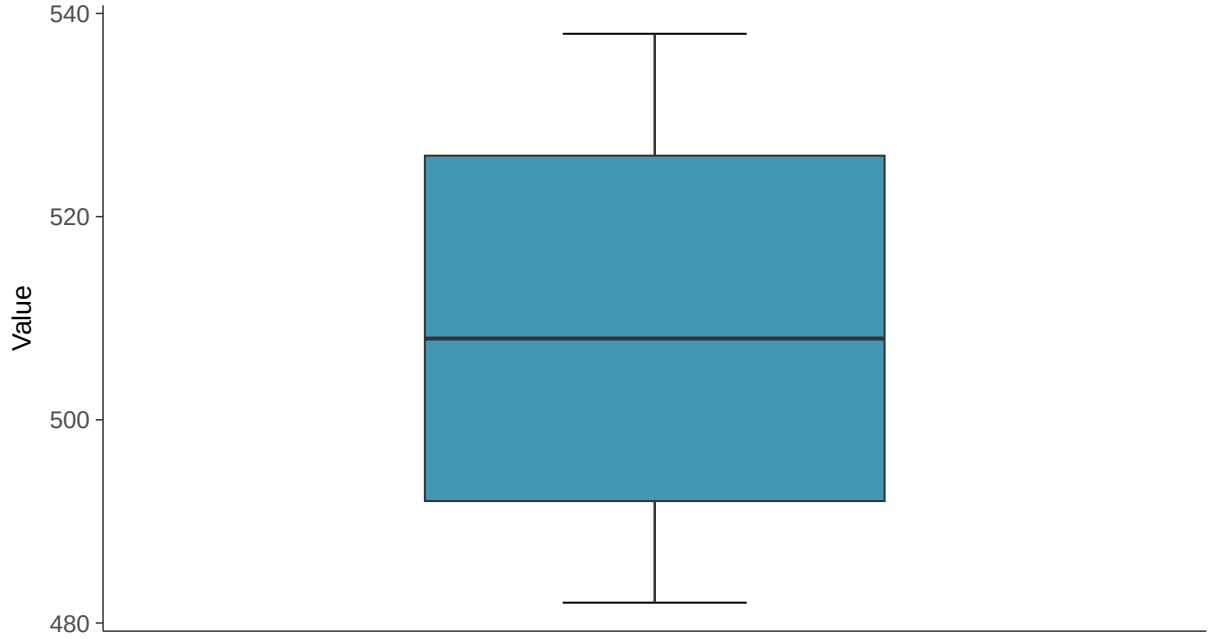
ID: 100B_1_07





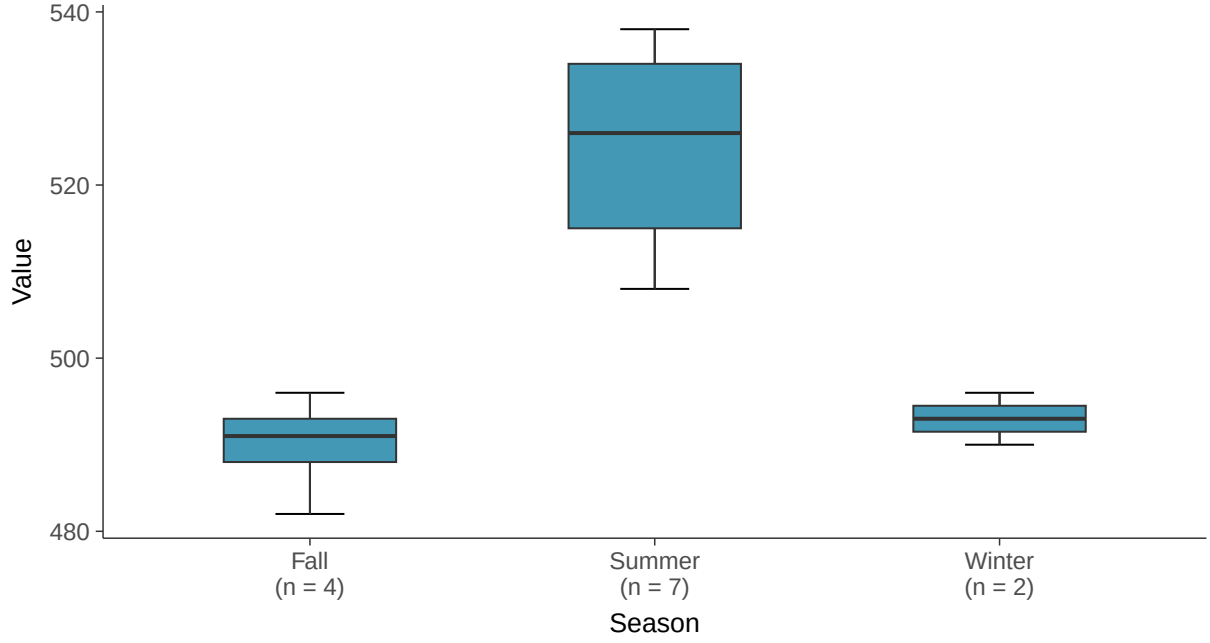
Boxplot

Total Dissolved Solids, MW-100B (mg/L)



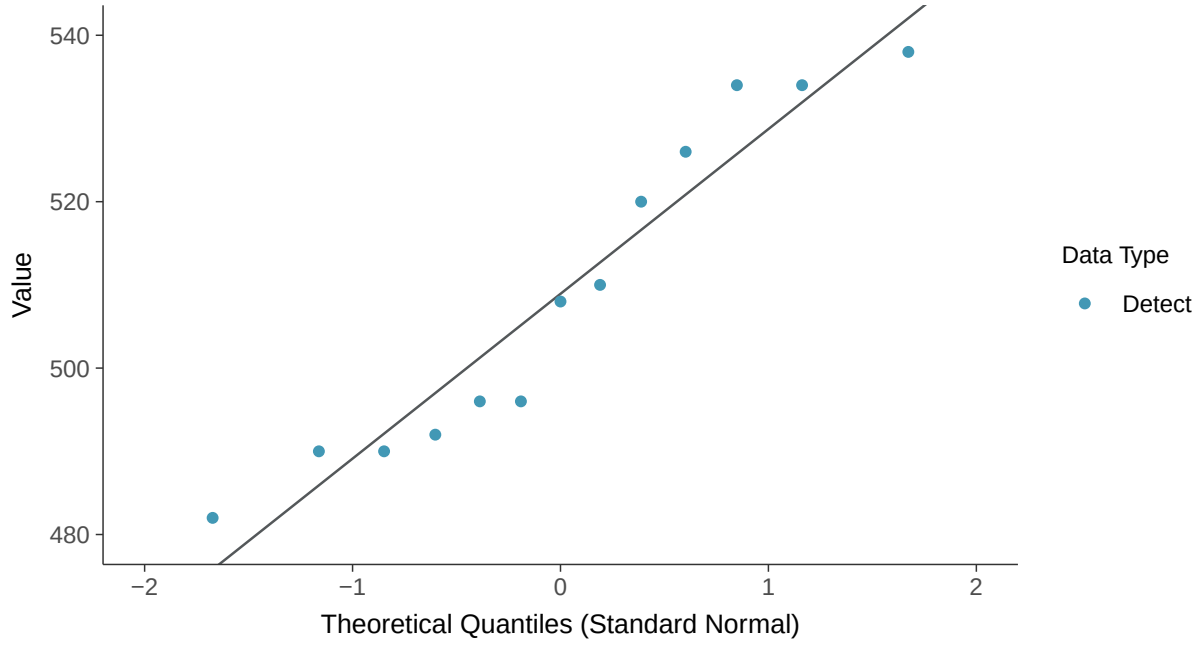
Boxplot by Season

Total Dissolved Solids, MW-100B (mg/L)



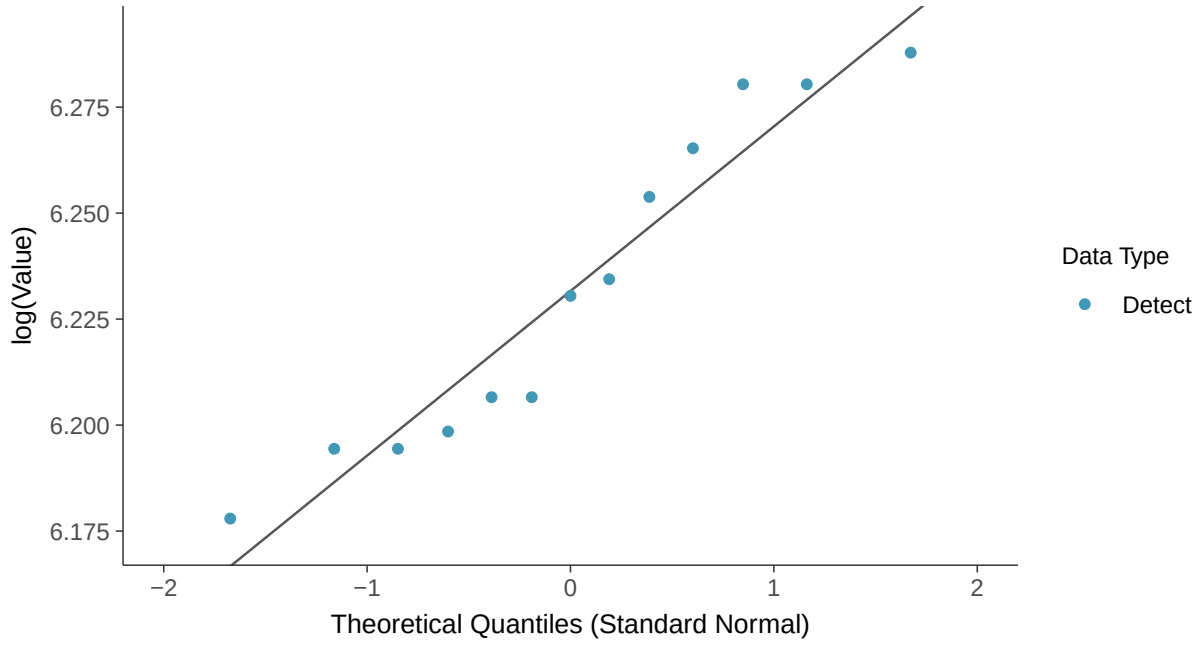
Normal Q-Q plot

Total Dissolved Solids, MW-100B (mg/L)



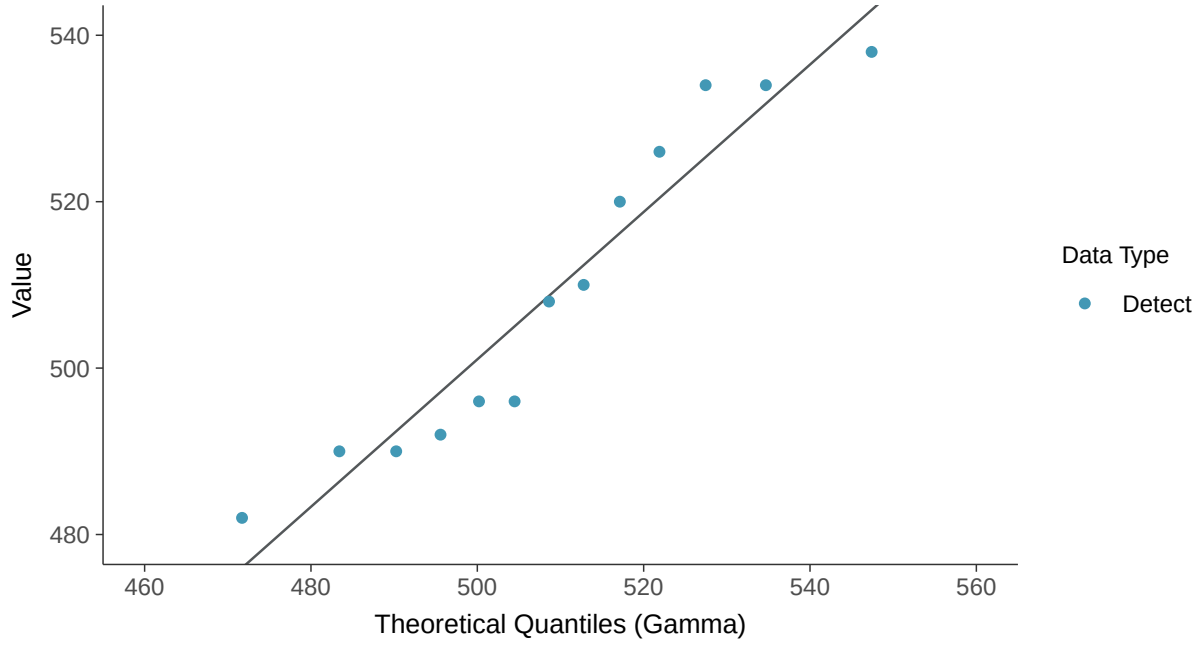
Lognormal Q-Q plot

Total Dissolved Solids, MW-100B (mg/L)



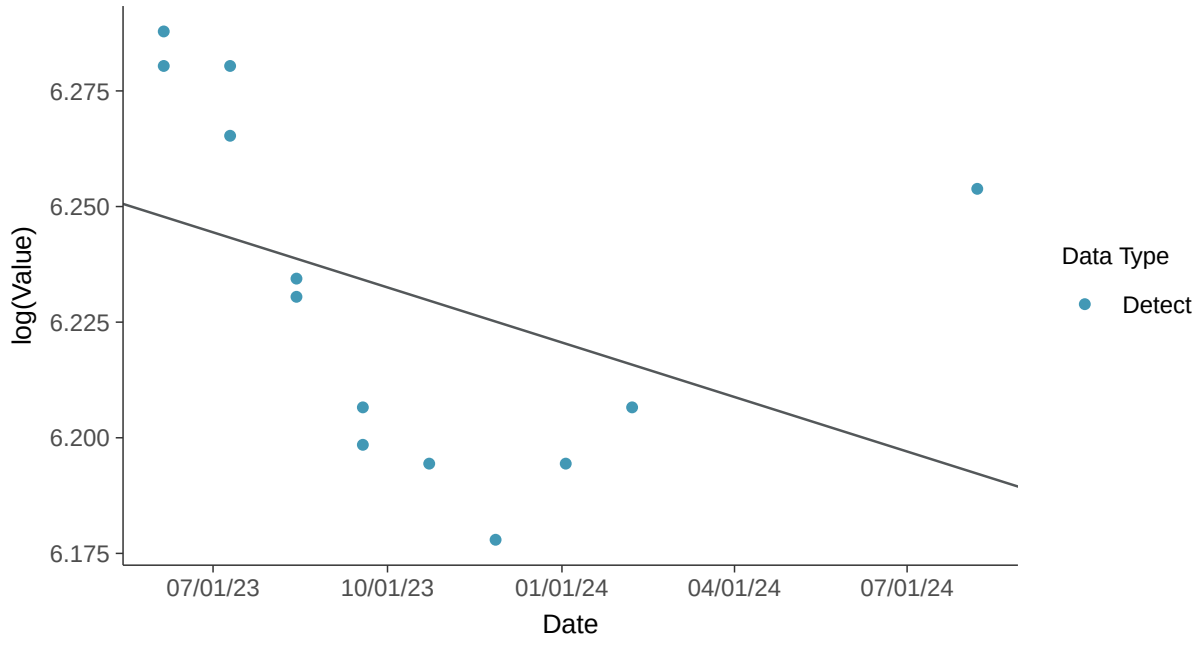
Gamma Q-Q plot

Total Dissolved Solids, MW-100B (mg/L)



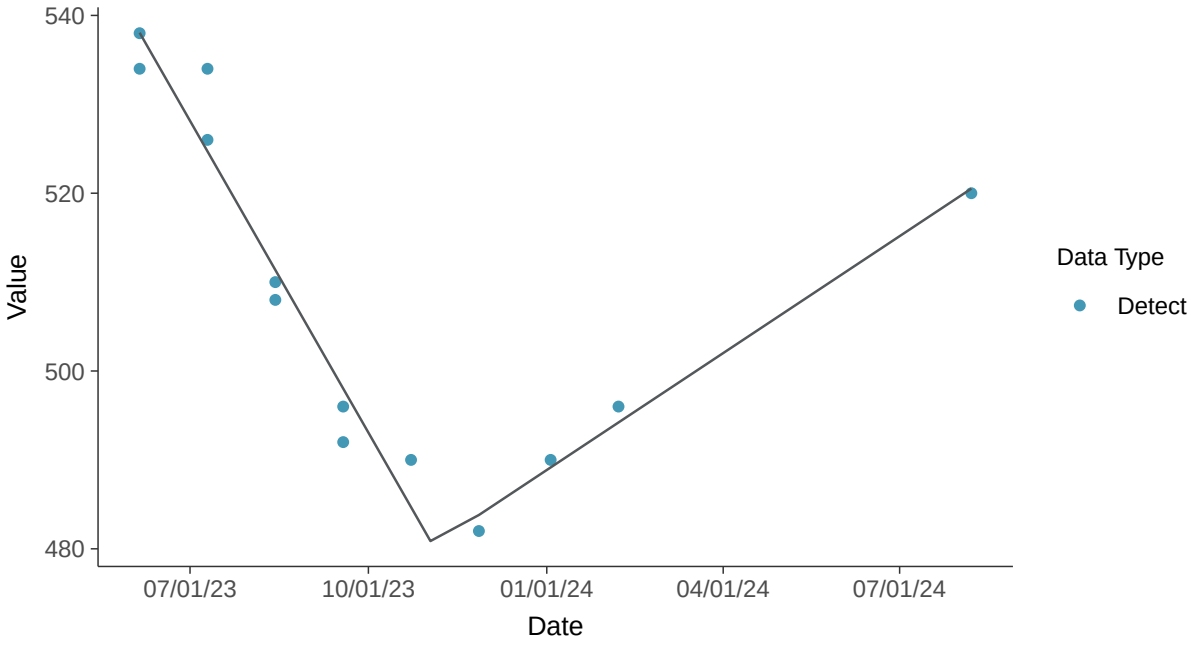
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-100B (mg/L)



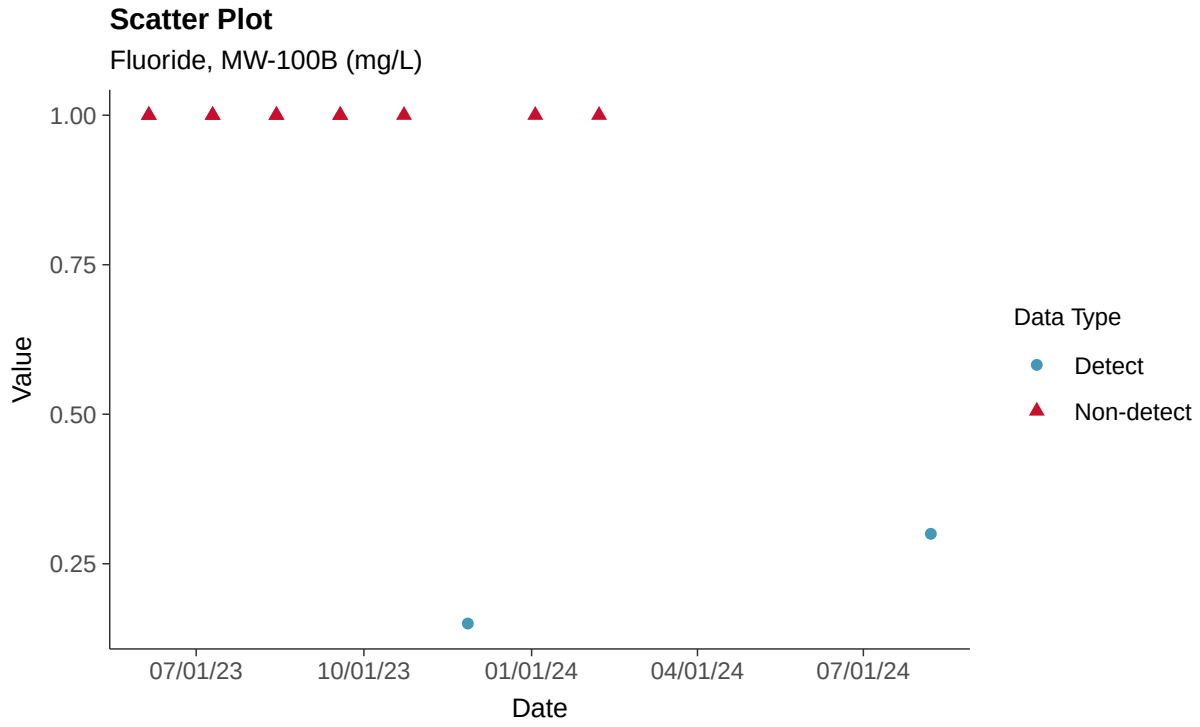
Trend Regression: Piecewise Linear-Linear

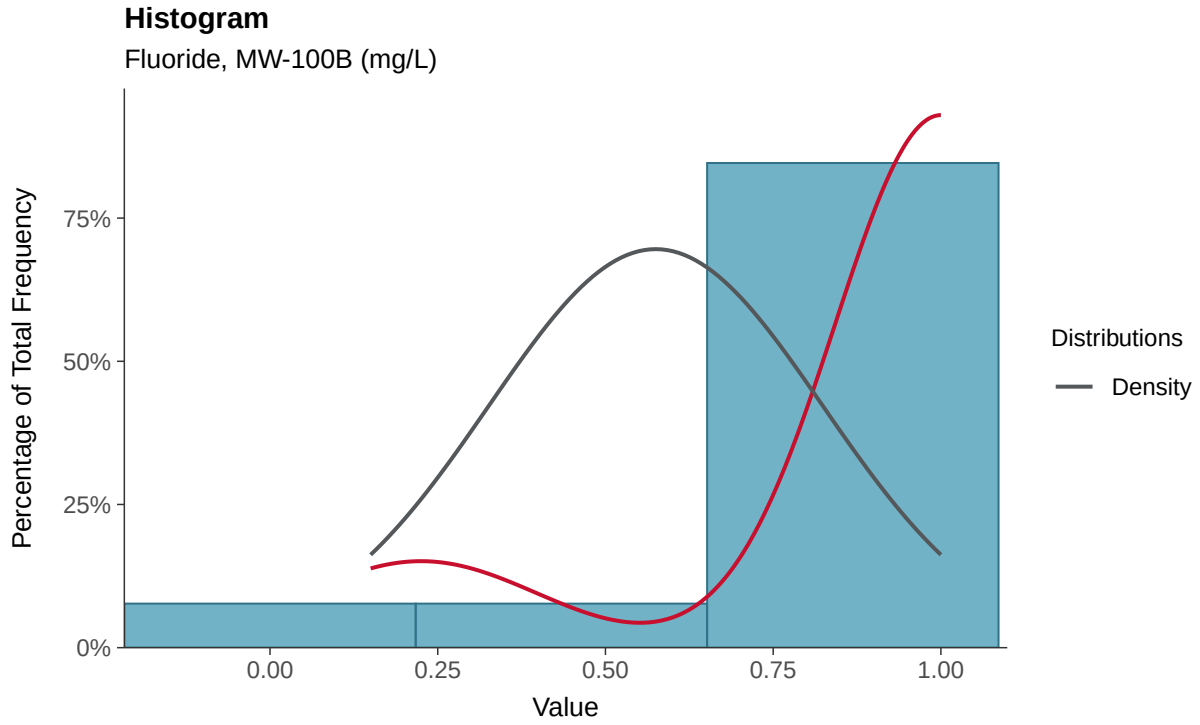
Total Dissolved Solids, MW-100B (mg/L)



Appendix IV: Fluoride, MW-100B

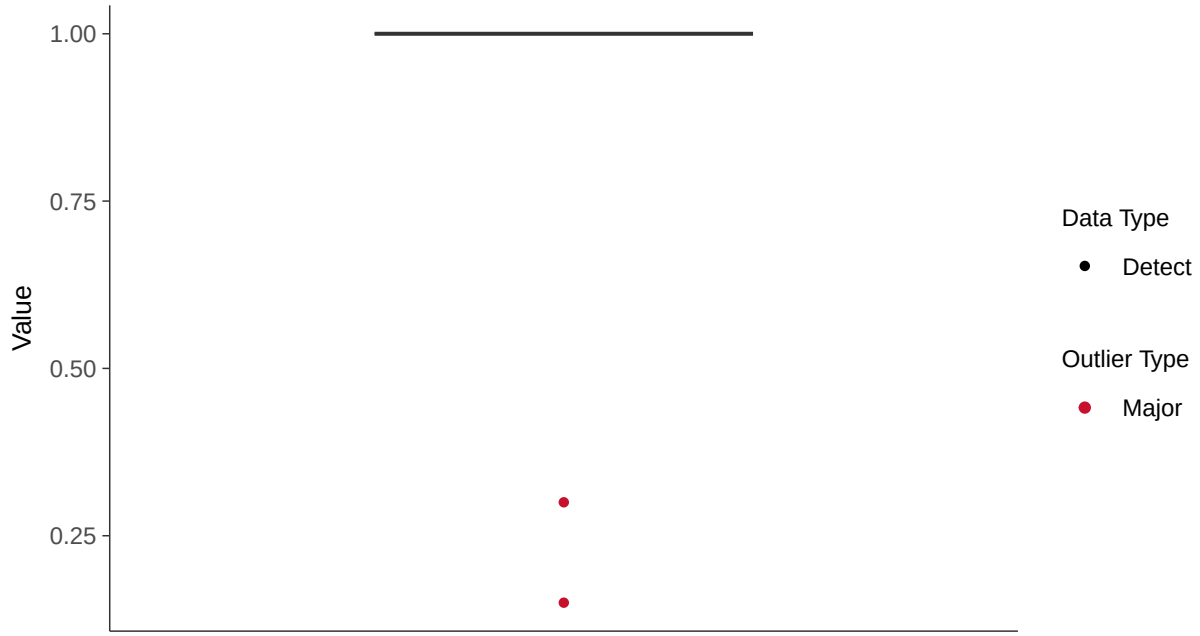
ID: 100B_2_04





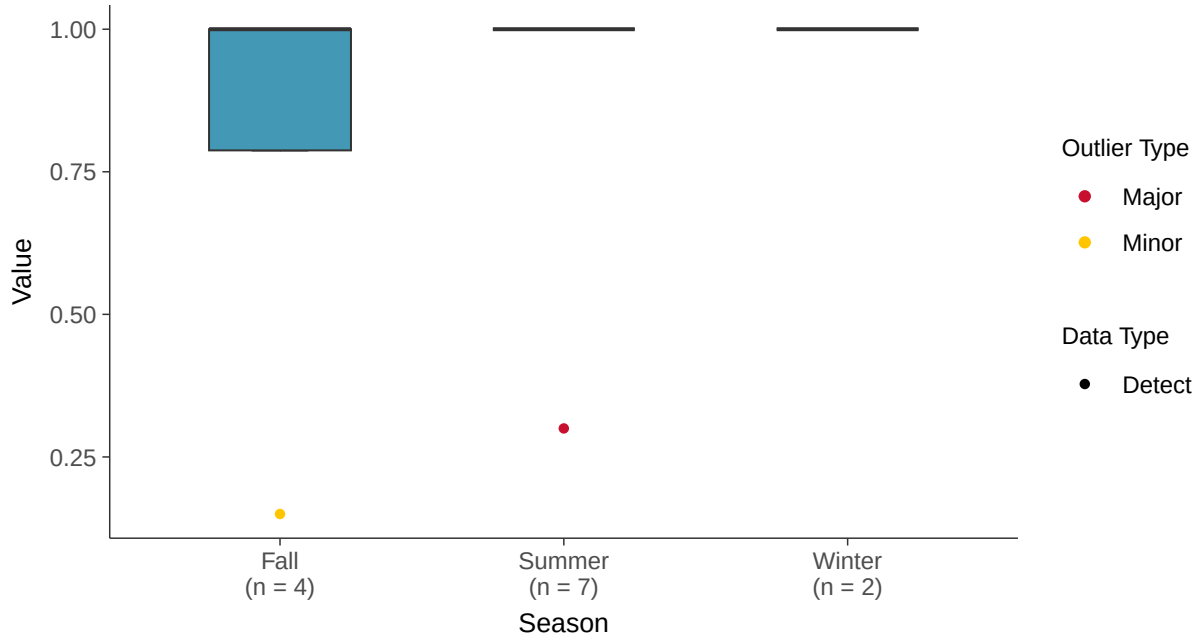
Boxplot

Fluoride, MW-100B (mg/L)



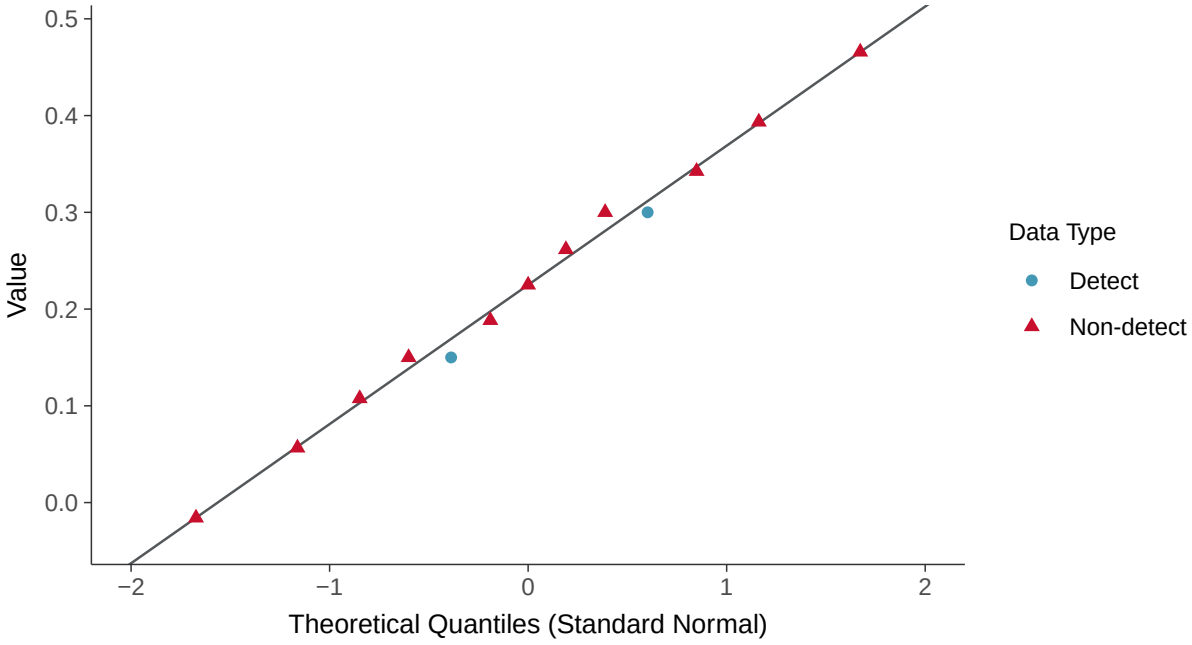
Boxplot by Season

Fluoride, MW-100B (mg/L)



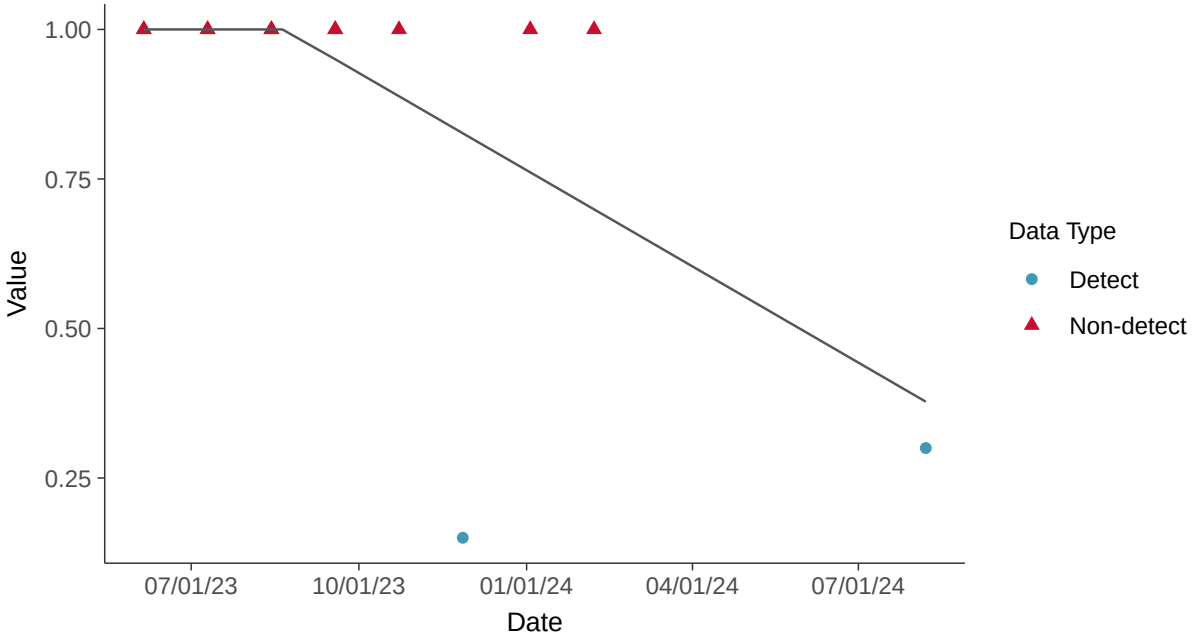
Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-100B (mg/L)



Trend Regression: Piecewise Linear-Linear

Fluoride, MW-100B (mg/L)

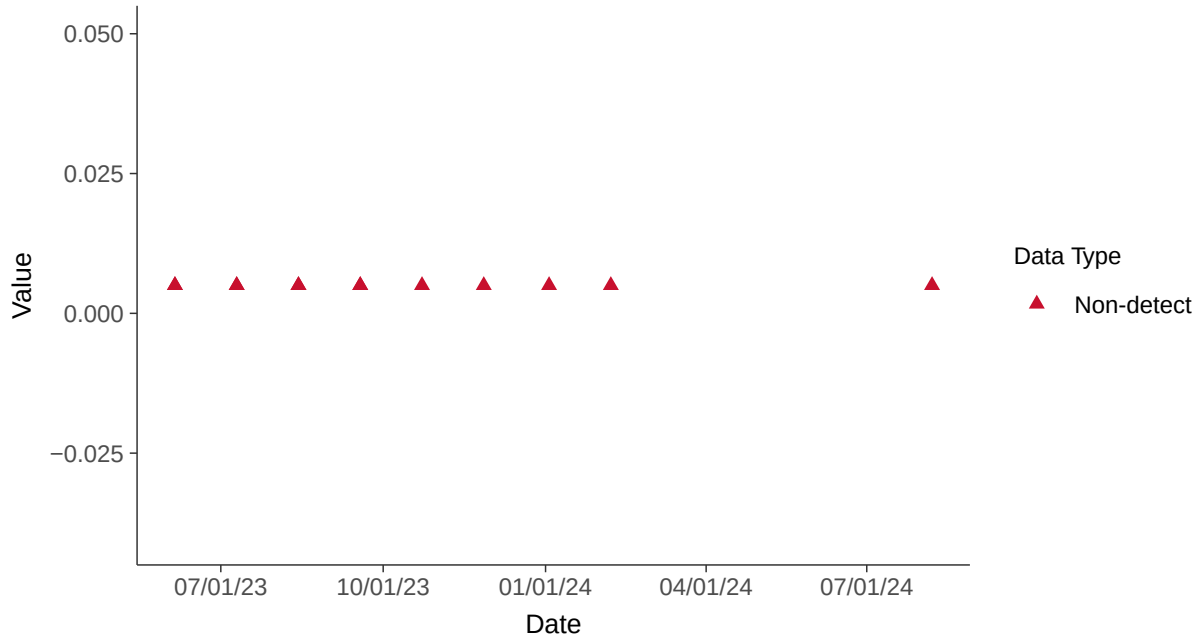


Appendix IV: Antimony, MW-100B

ID: 100B_2_08

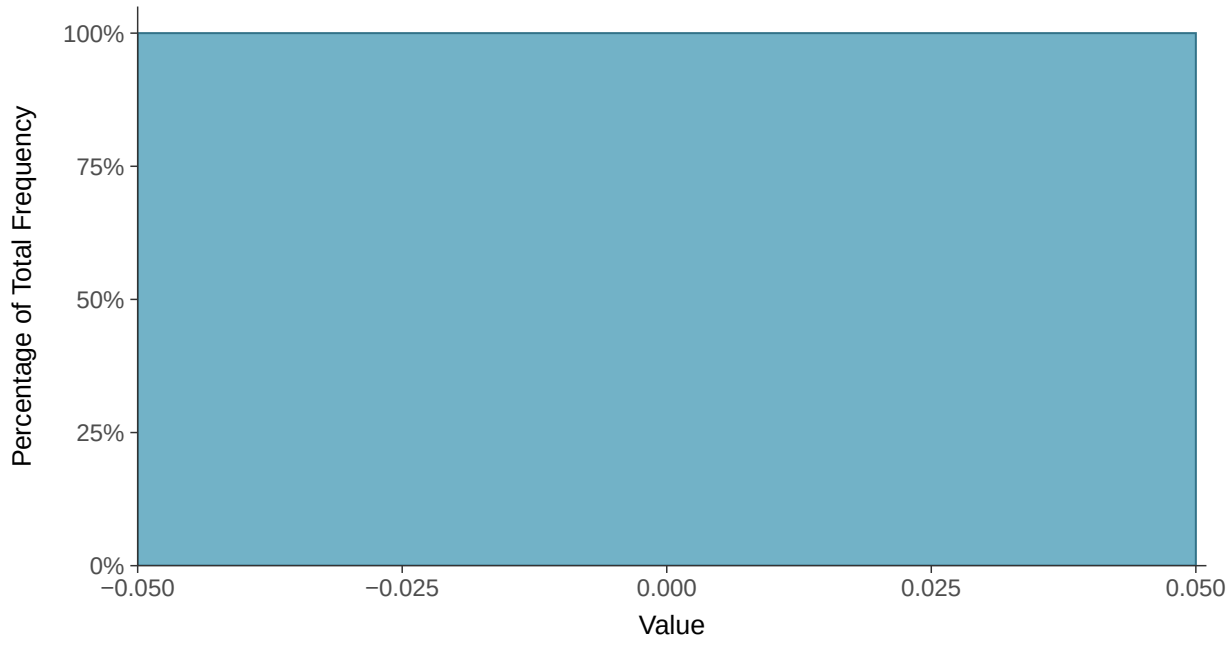
Scatter Plot

Antimony, MW-100B (mg/L)



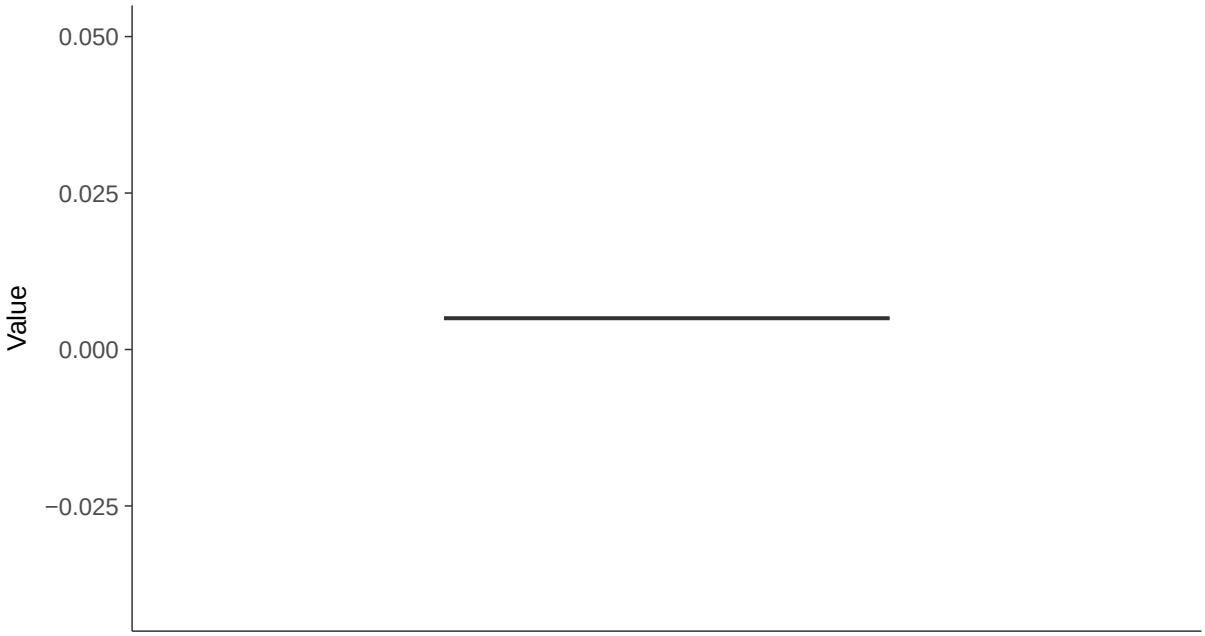
Histogram

Antimony, MW-100B (mg/L)



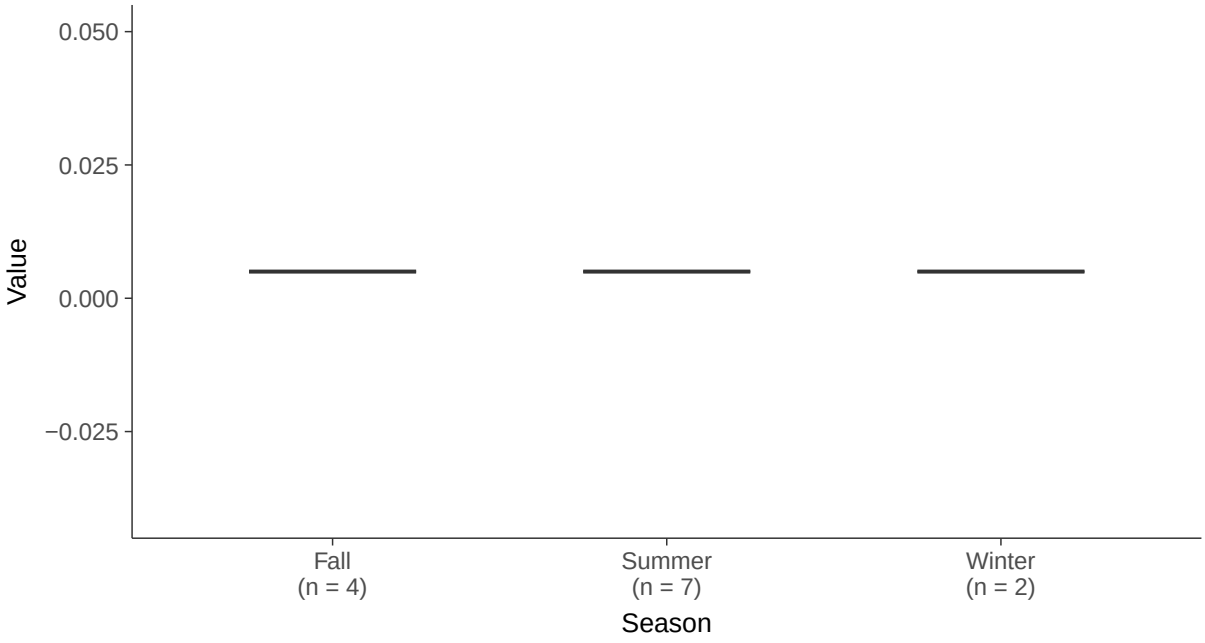
Boxplot

Antimony, MW-100B (mg/L)



Boxplot by Season

Antimony, MW-100B (mg/L)

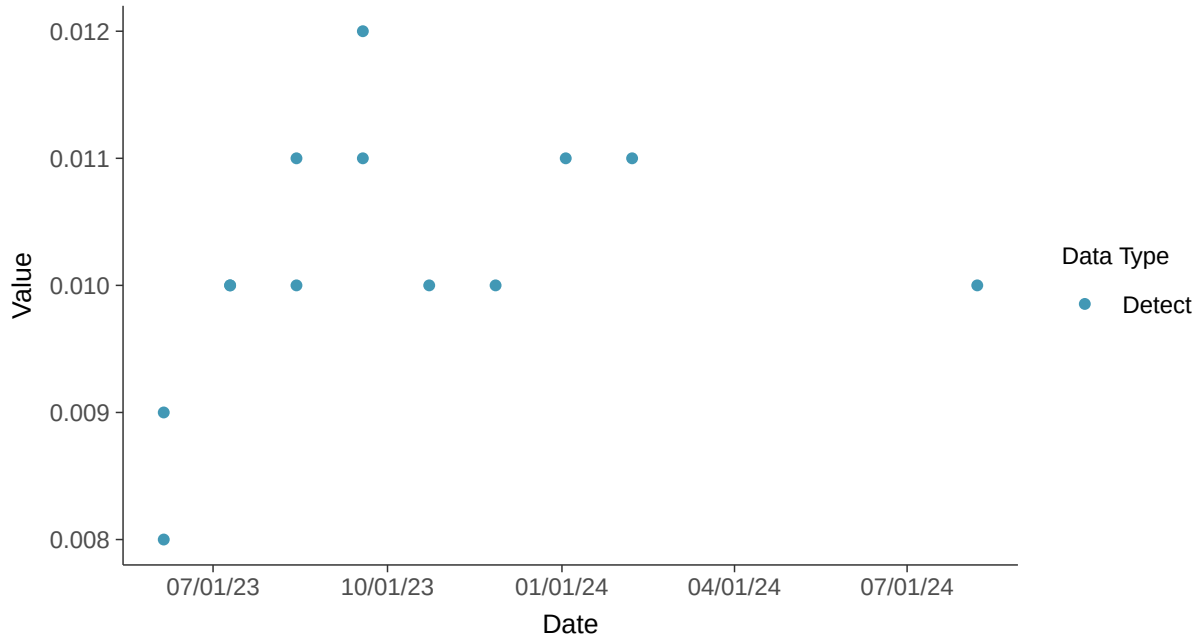


Appendix IV: Arsenic, MW-100B

ID: 100B_2_09

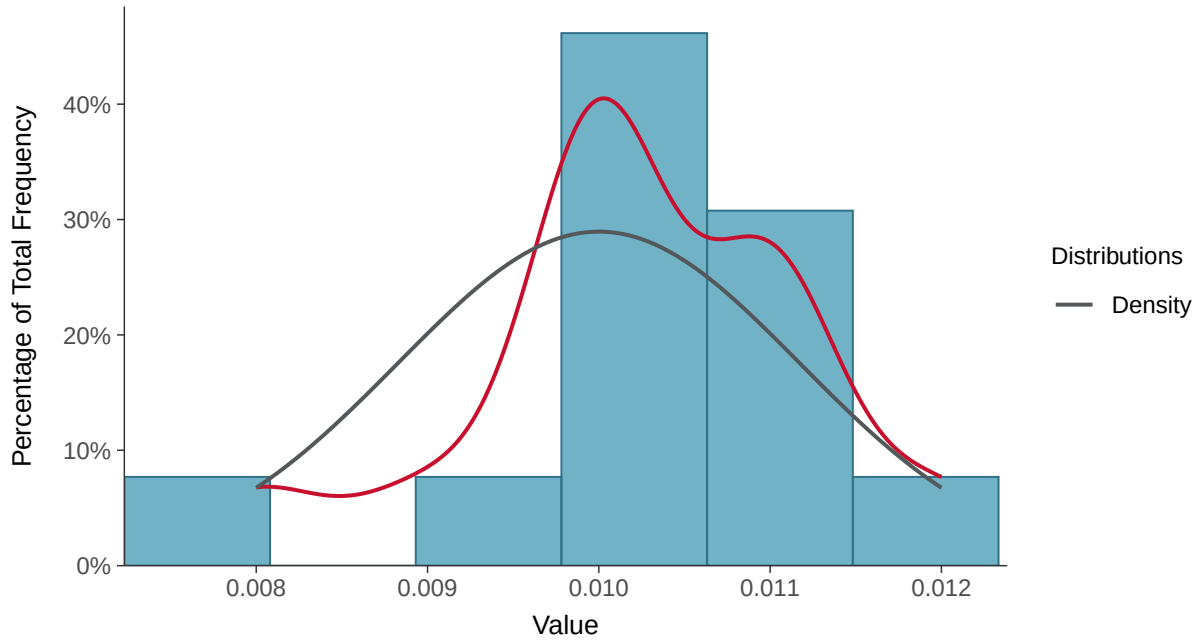
Scatter Plot

Arsenic, MW-100B (mg/L)



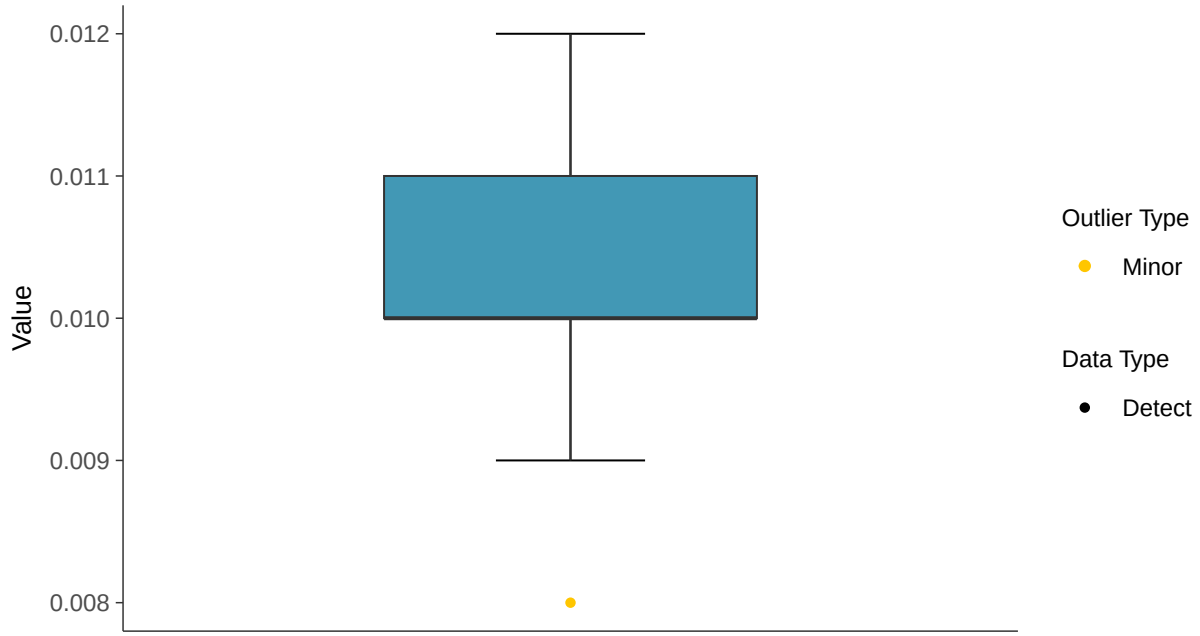
Histogram

Arsenic, MW-100B (mg/L)



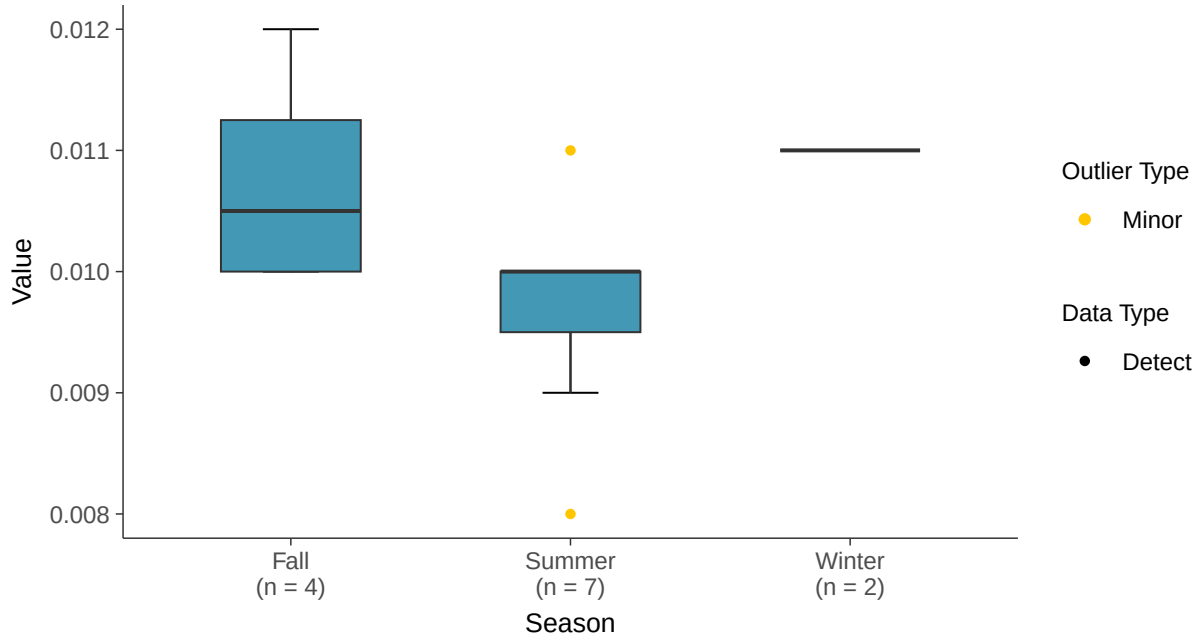
Boxplot

Arsenic, MW-100B (mg/L)



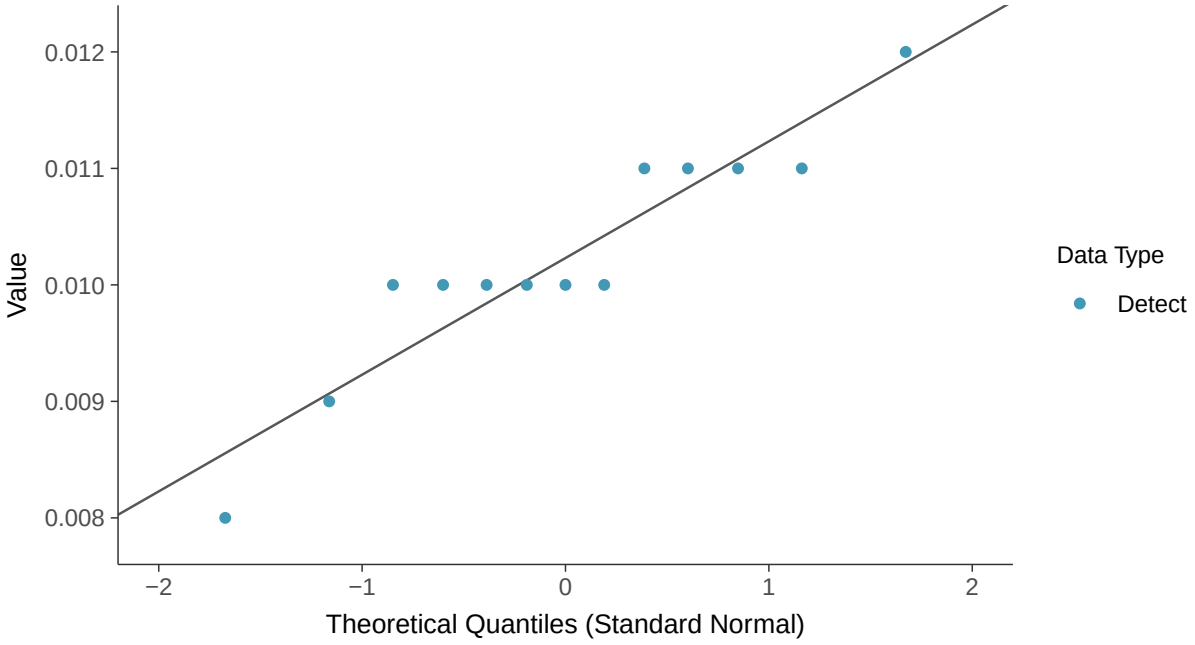
Boxplot by Season

Arsenic, MW-100B (mg/L)



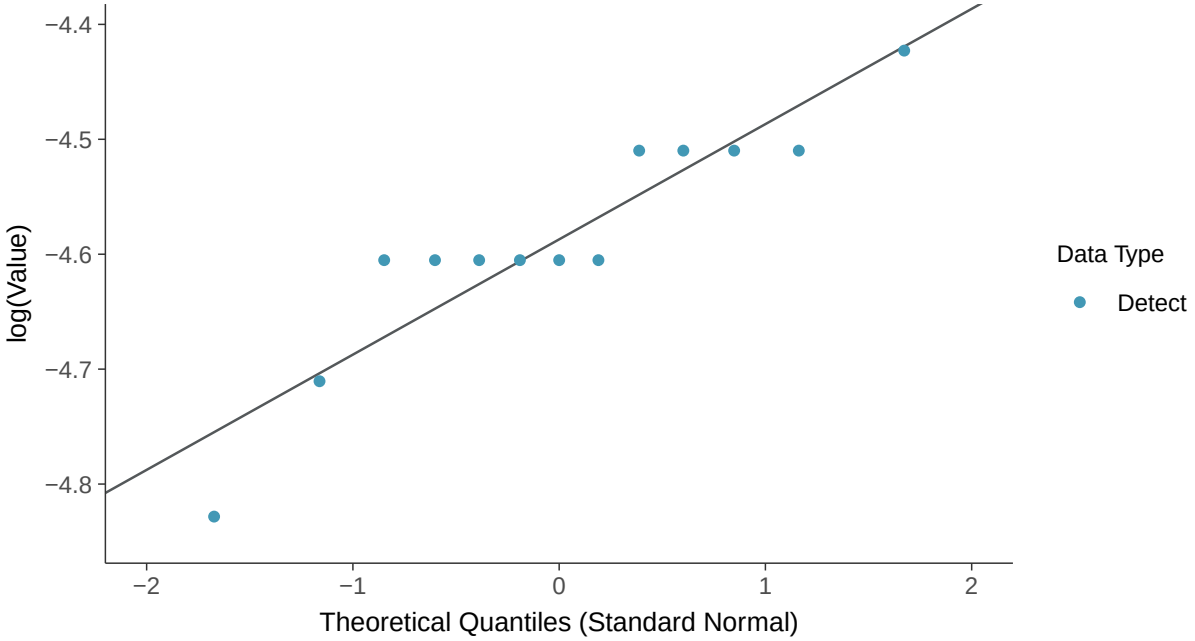
Normal Q-Q plot

Arsenic, MW-100B (mg/L)



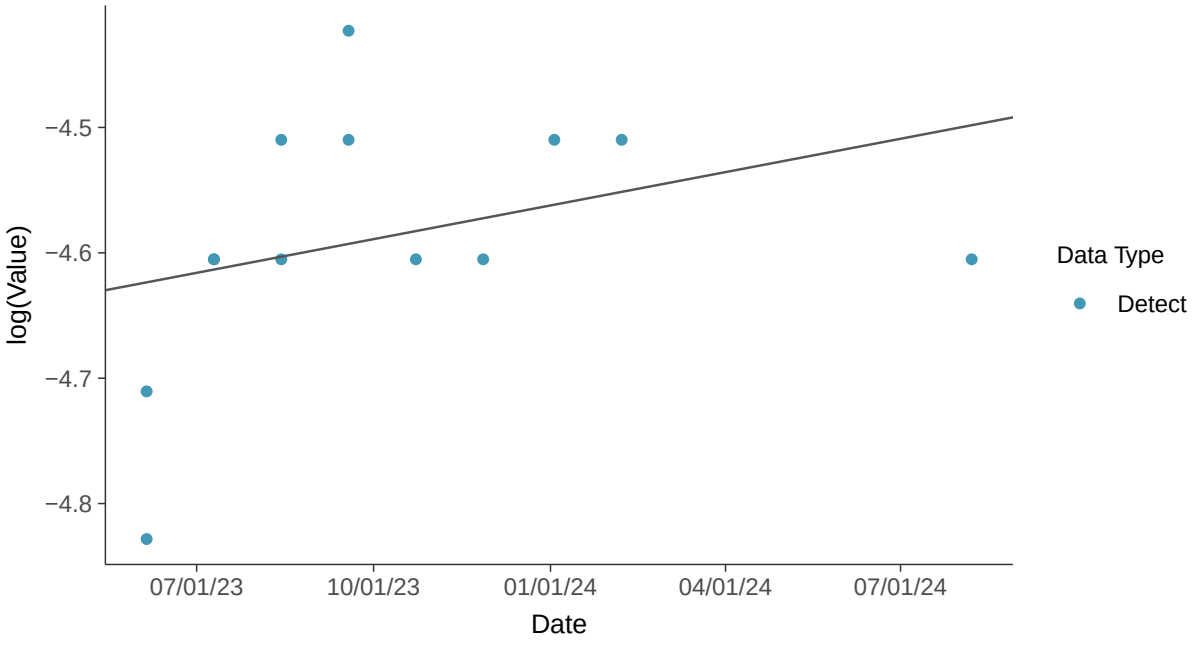
Lognormal Q-Q plot

Arsenic, MW-100B (mg/L)



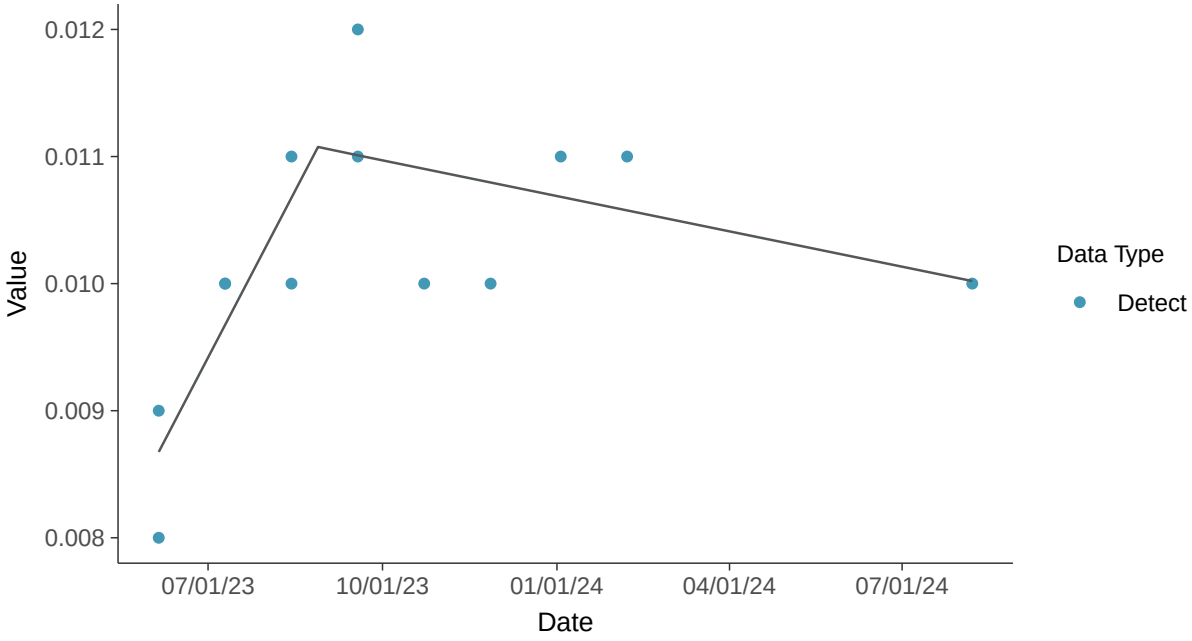
Trend Regression: Lognormal MLE

Arsenic, MW-100B (mg/L)



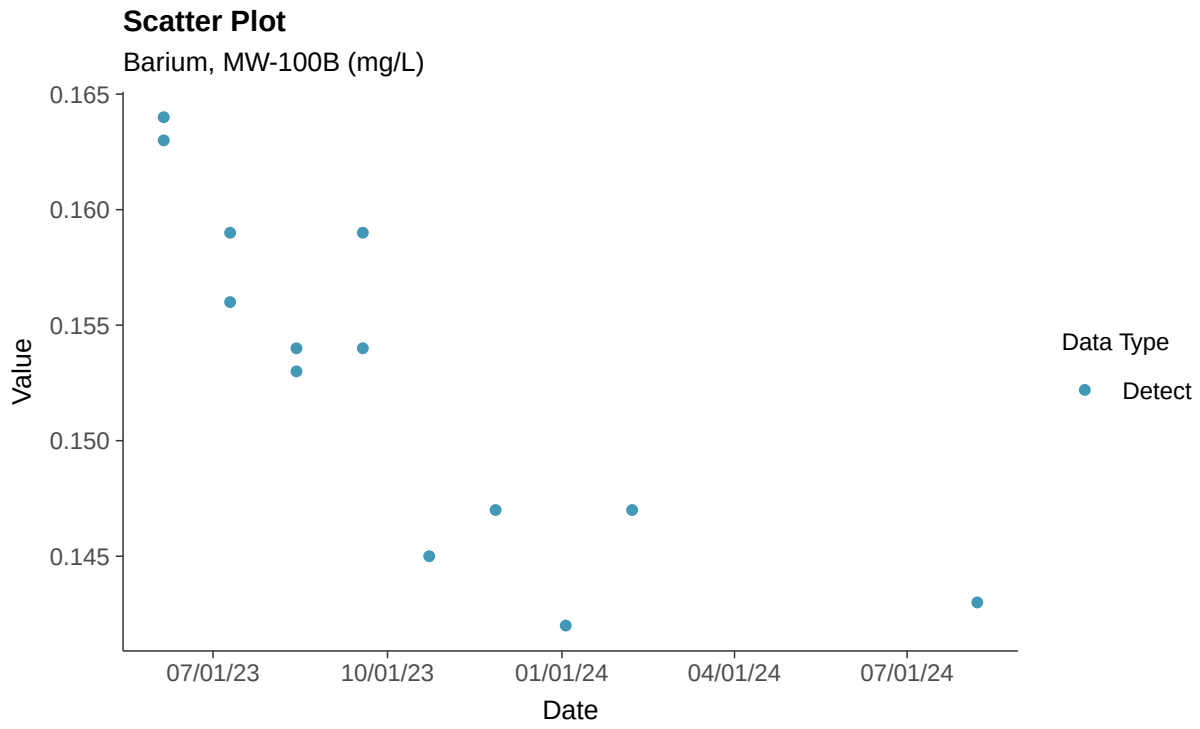
Trend Regression: Piecewise Linear-Linear

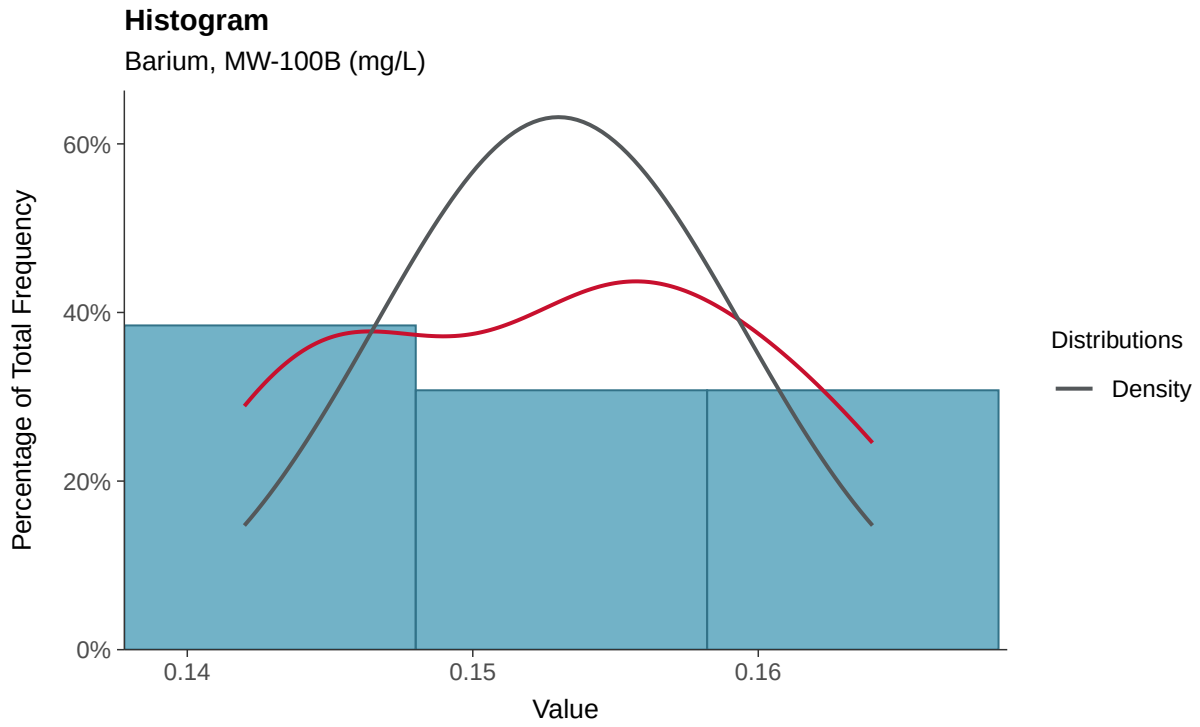
Arsenic, MW-100B (mg/L)



Appendix IV: Barium, MW-100B

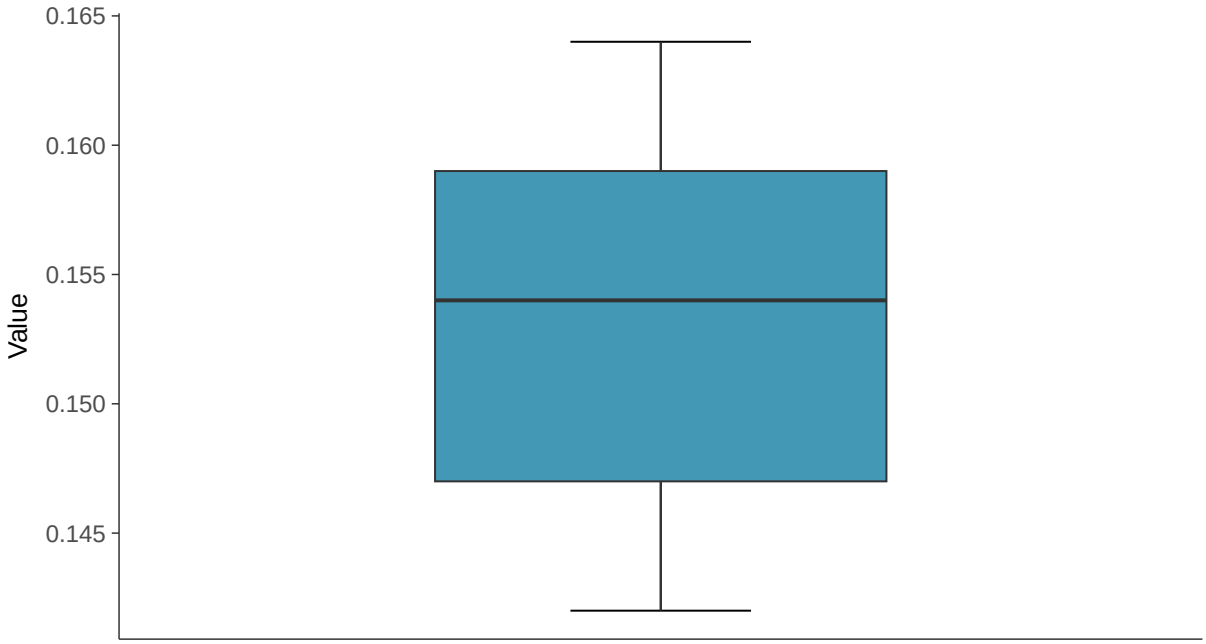
ID: 100B_2_10





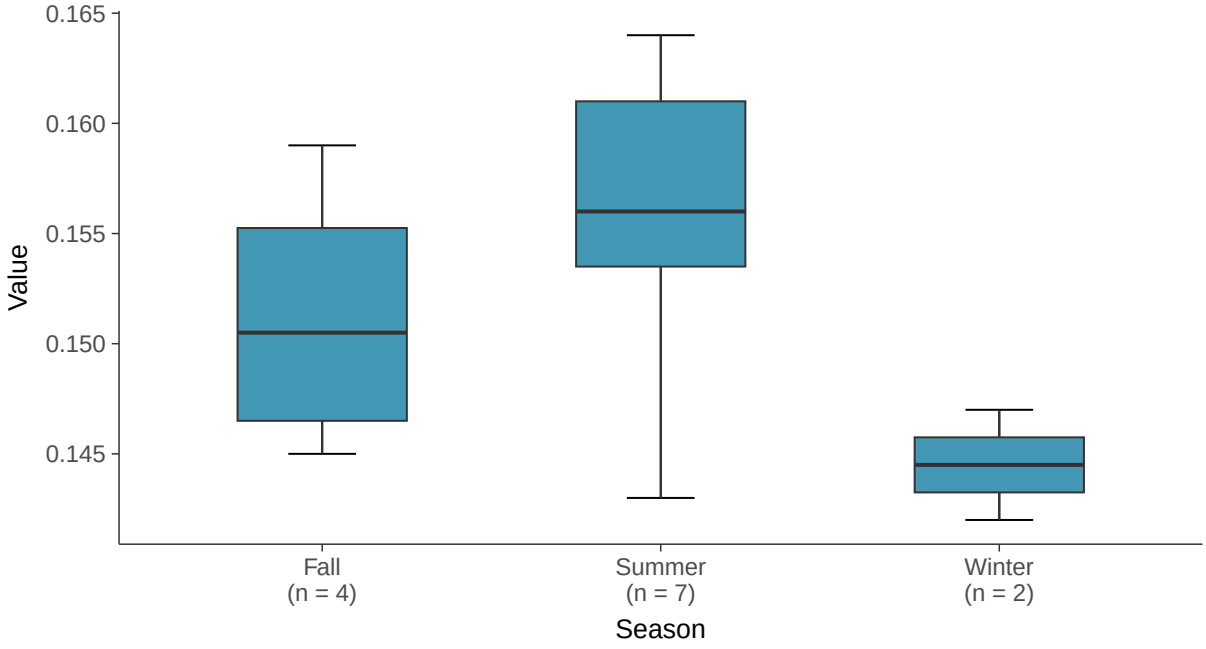
Boxplot

Barium, MW-100B (mg/L)



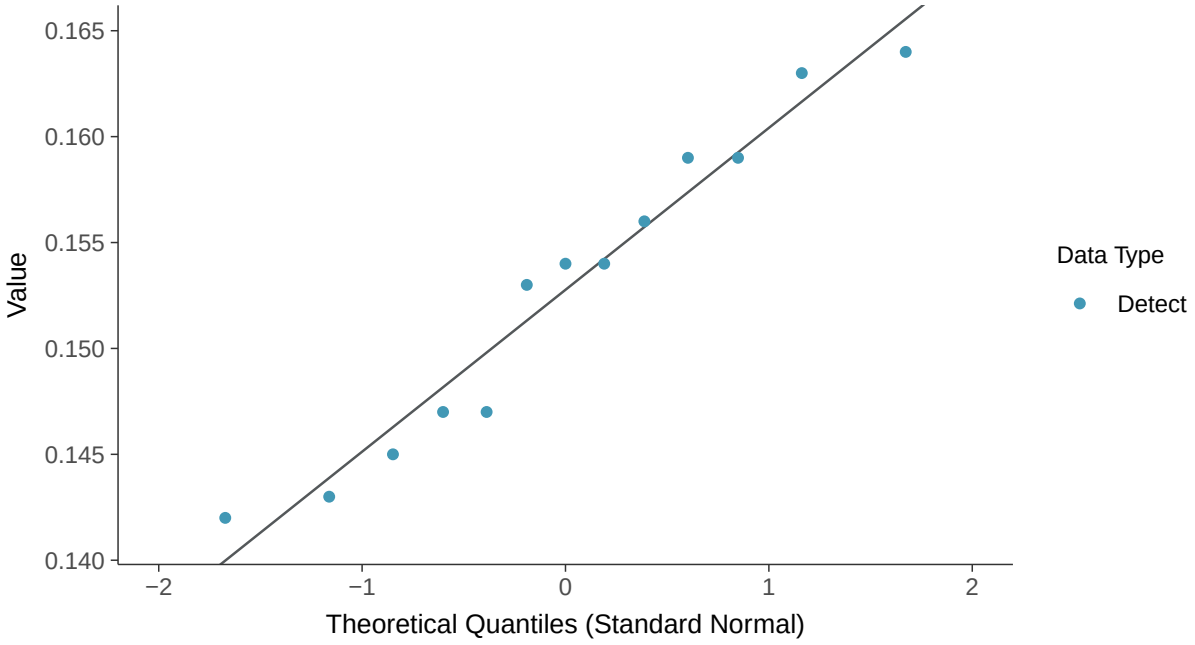
Boxplot by Season

Barium, MW-100B (mg/L)



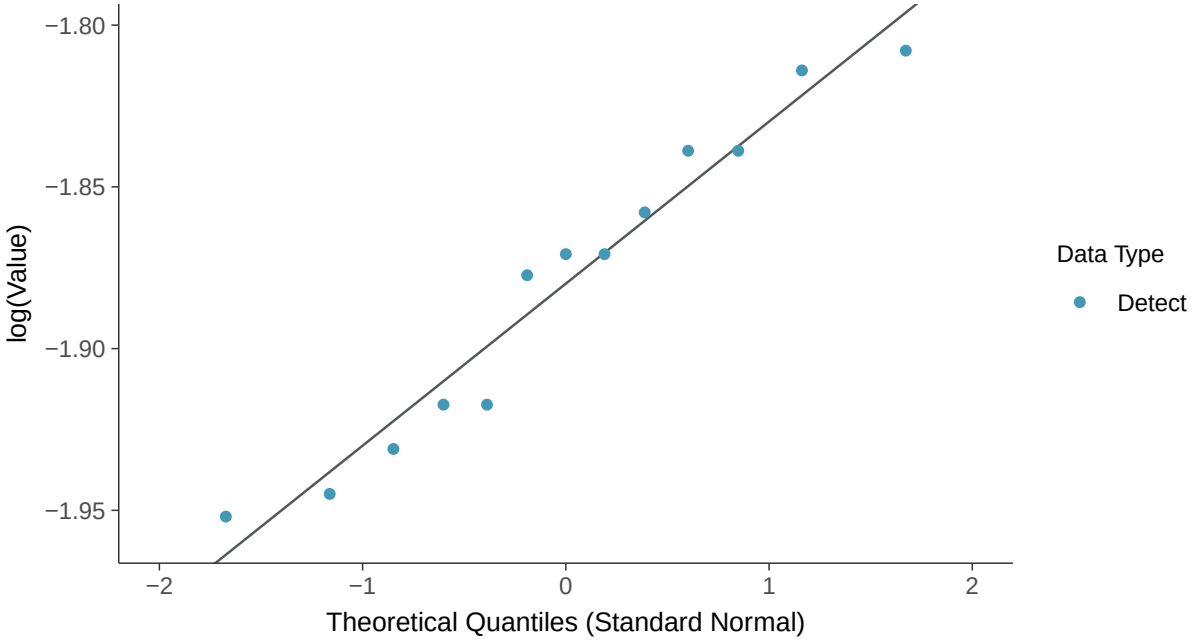
Normal Q-Q plot

Barium, MW-100B (mg/L)



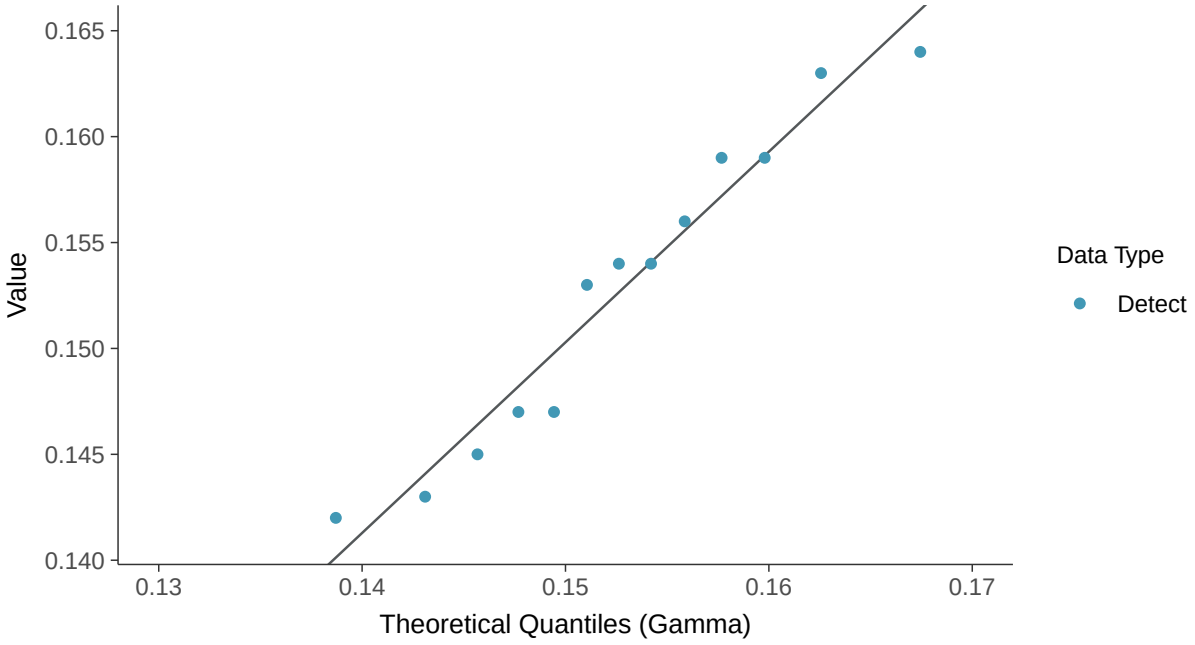
Lognormal Q-Q plot

Barium, MW-100B (mg/L)



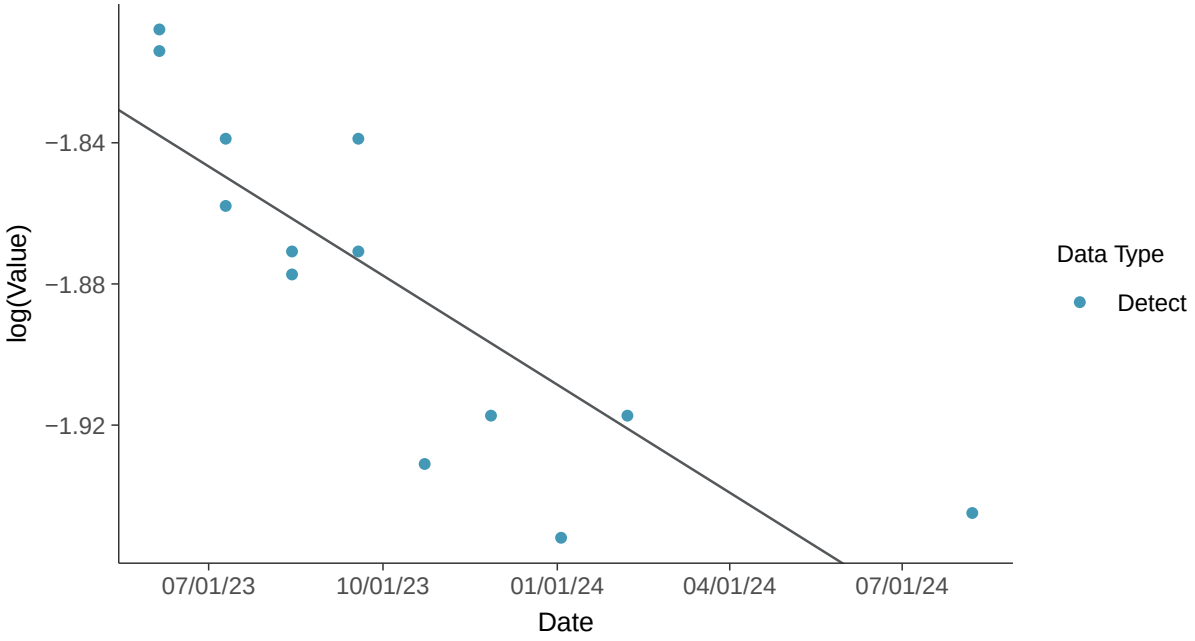
Gamma Q-Q plot

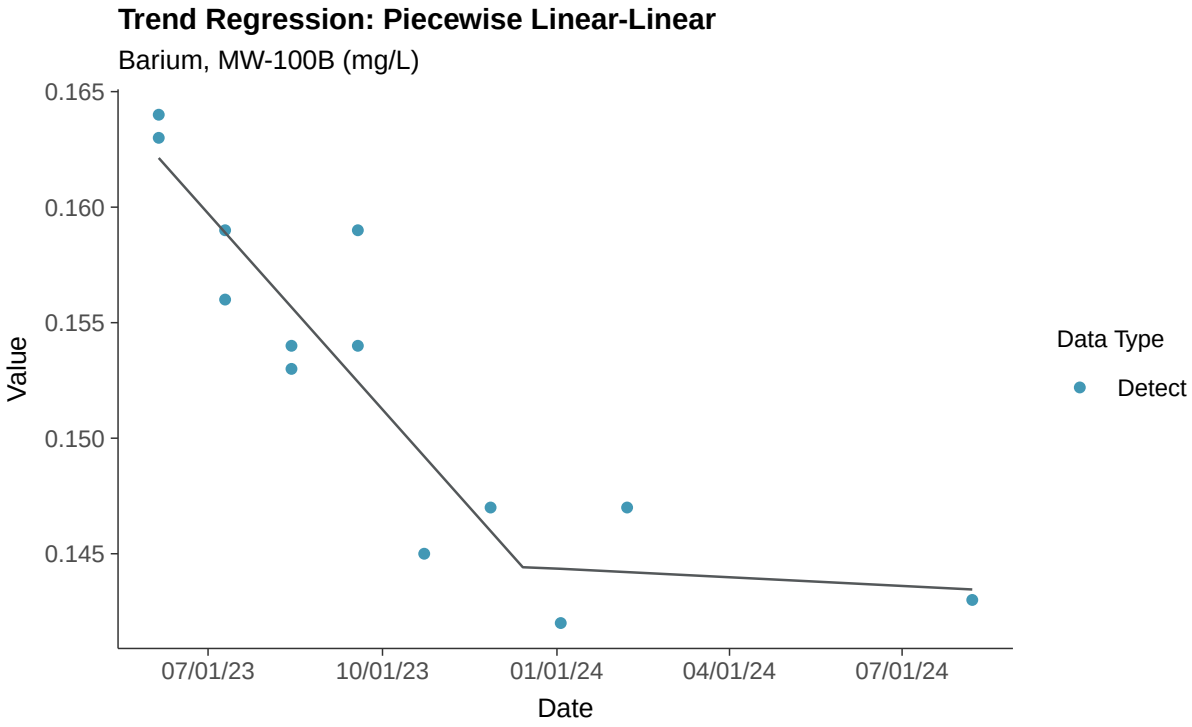
Barium, MW-100B (mg/L)



Trend Regression: Lognormal MLE

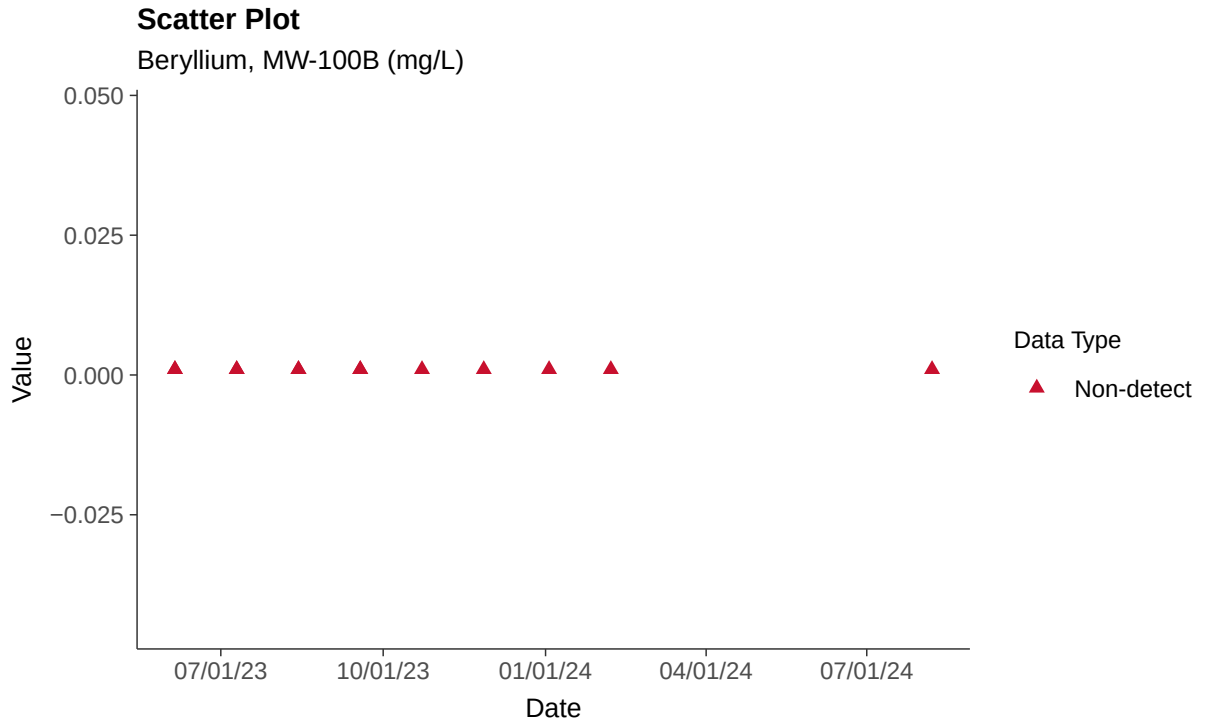
Barium, MW-100B (mg/L)

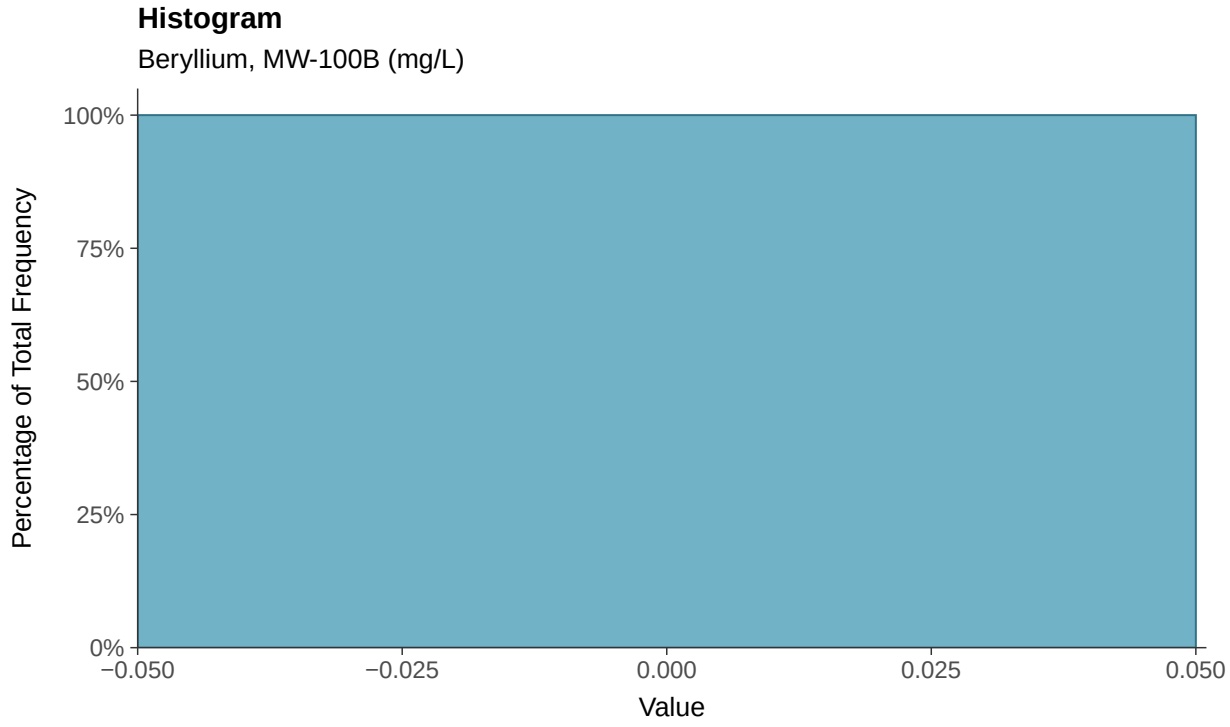



Trend Regression: Piecewise Linear-Linear
Barium, MW-100B (mg/L)
Value
0.165
0.160
0.155
0.150
0.145
07/01/23
10/01/23
01/01/24
04/01/24
07/01/24
Date
Data Type
Detect

Appendix IV: Beryllium, MW-100B

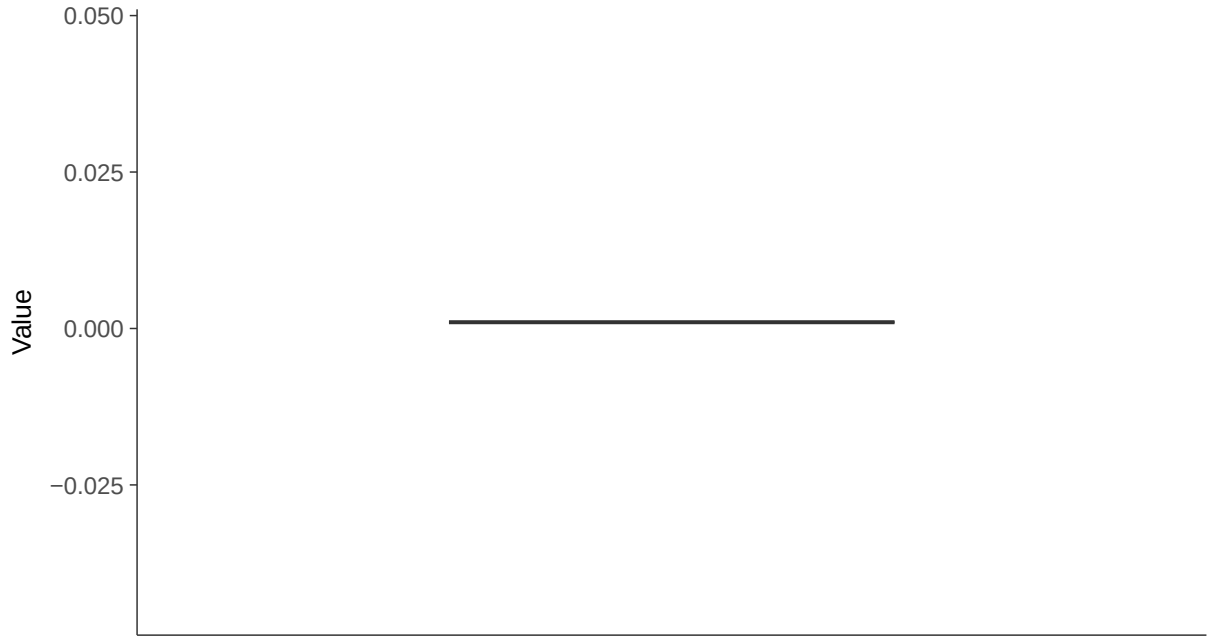
ID: 100B_2_11





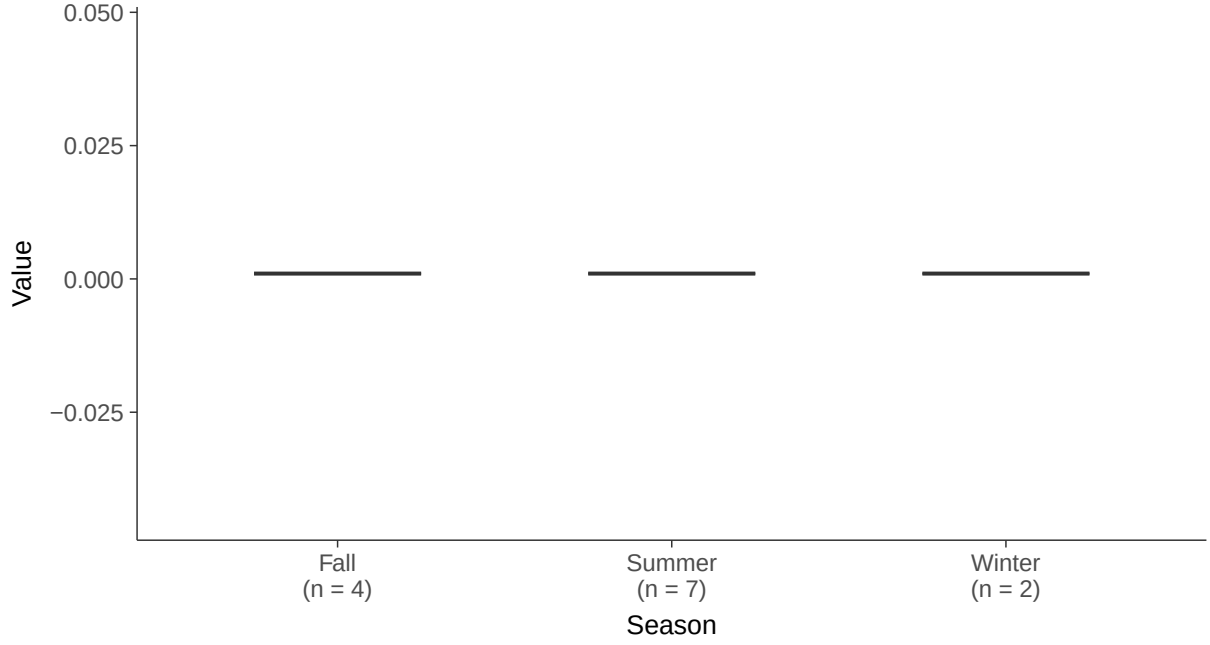
Boxplot

Beryllium, MW-100B (mg/L)



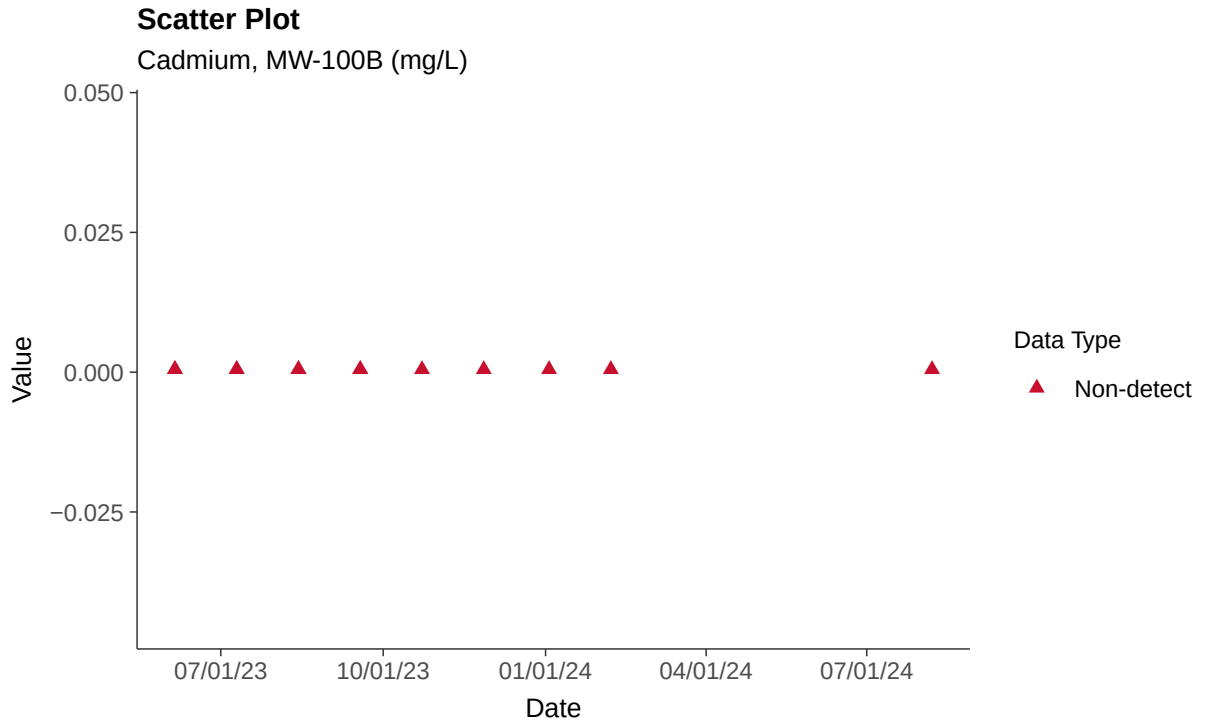
Boxplot by Season

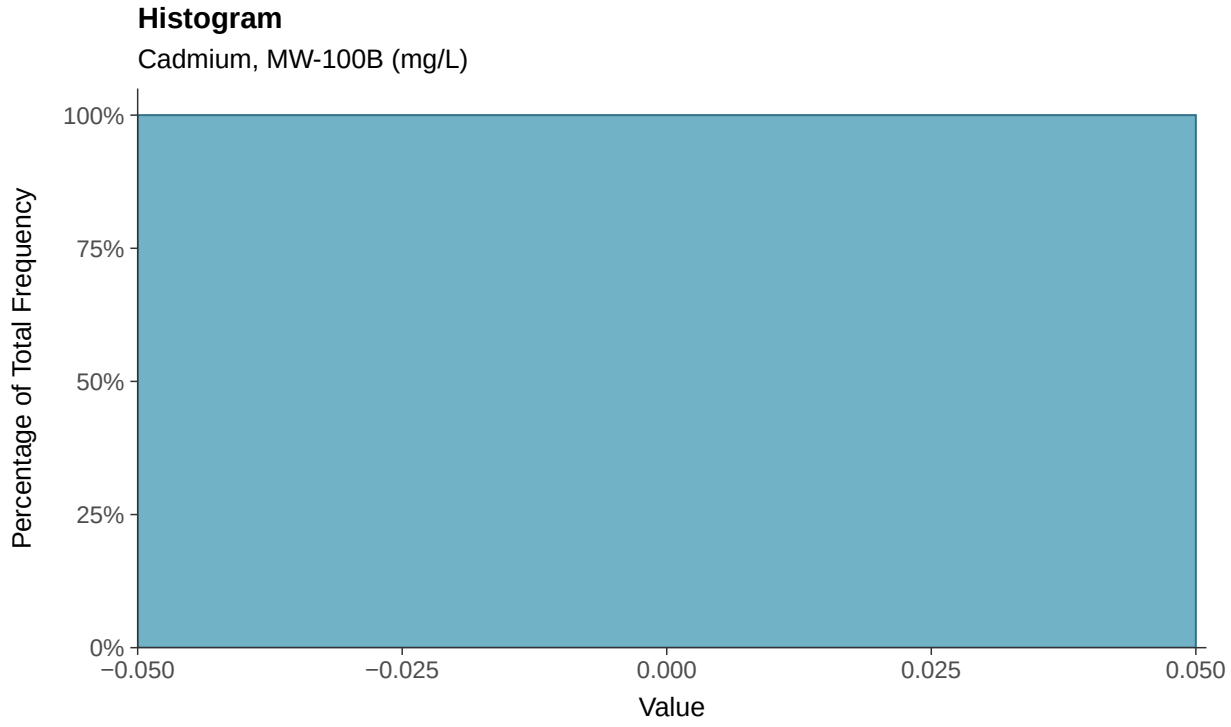
Beryllium, MW-100B (mg/L)



Appendix IV: Cadmium, MW-100B

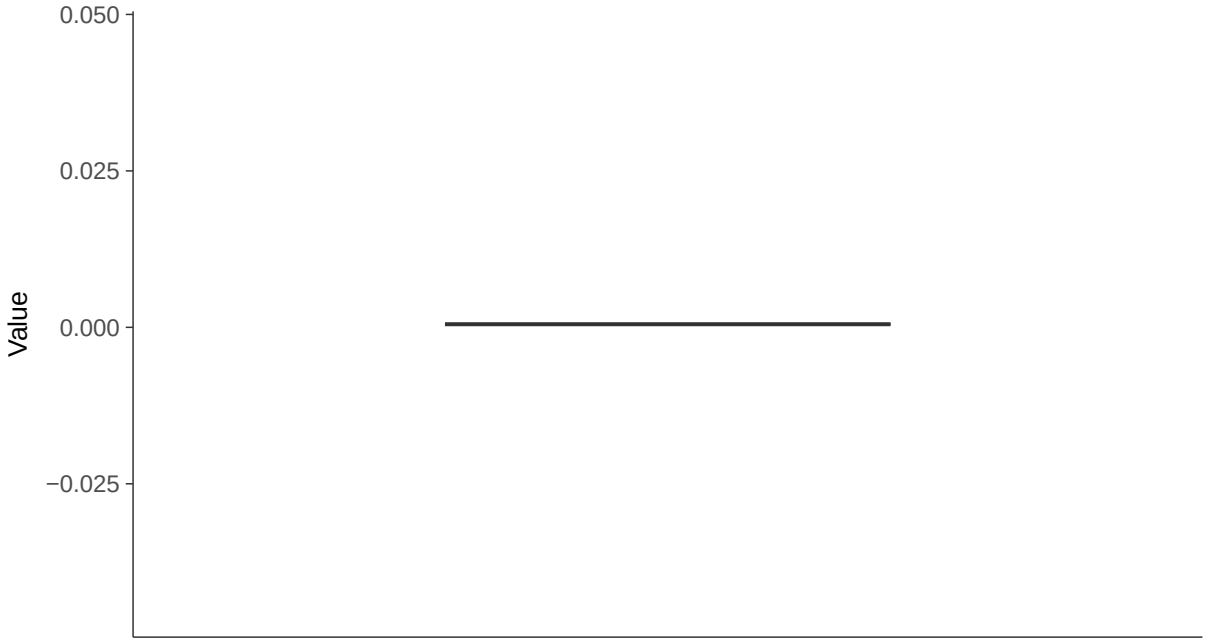
ID: 100B_2_12





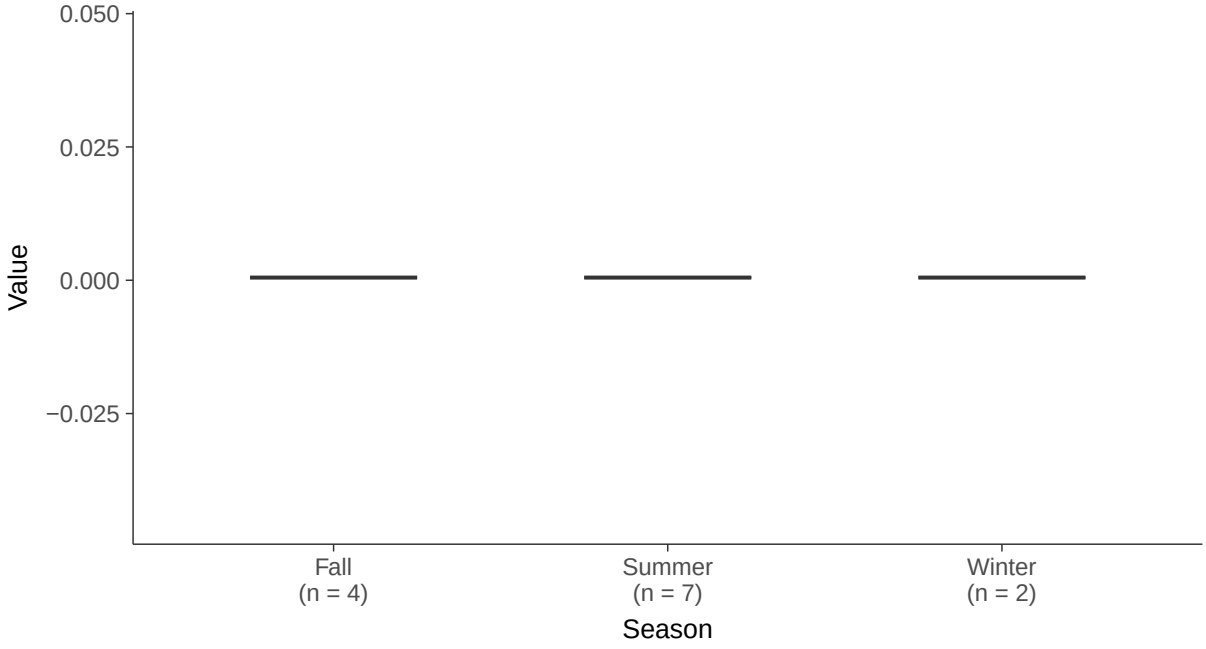
Boxplot

Cadmium, MW-100B (mg/L)



Boxplot by Season

Cadmium, MW-100B (mg/L)

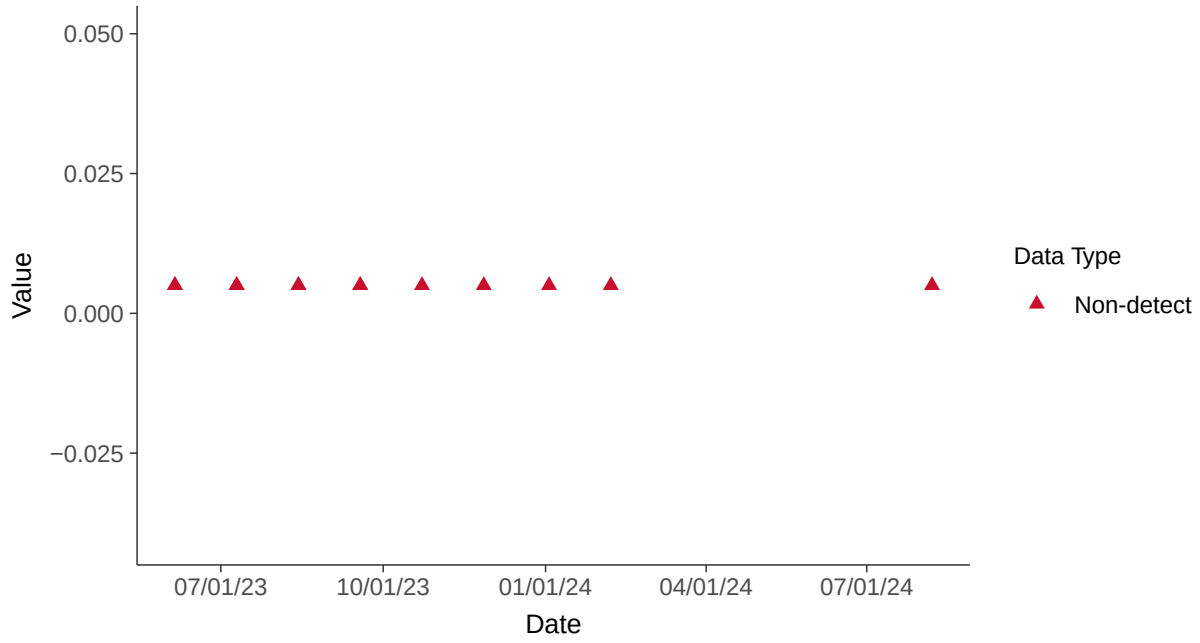


Appendix IV: Chromium, MW-100B

ID: 100B_2_13

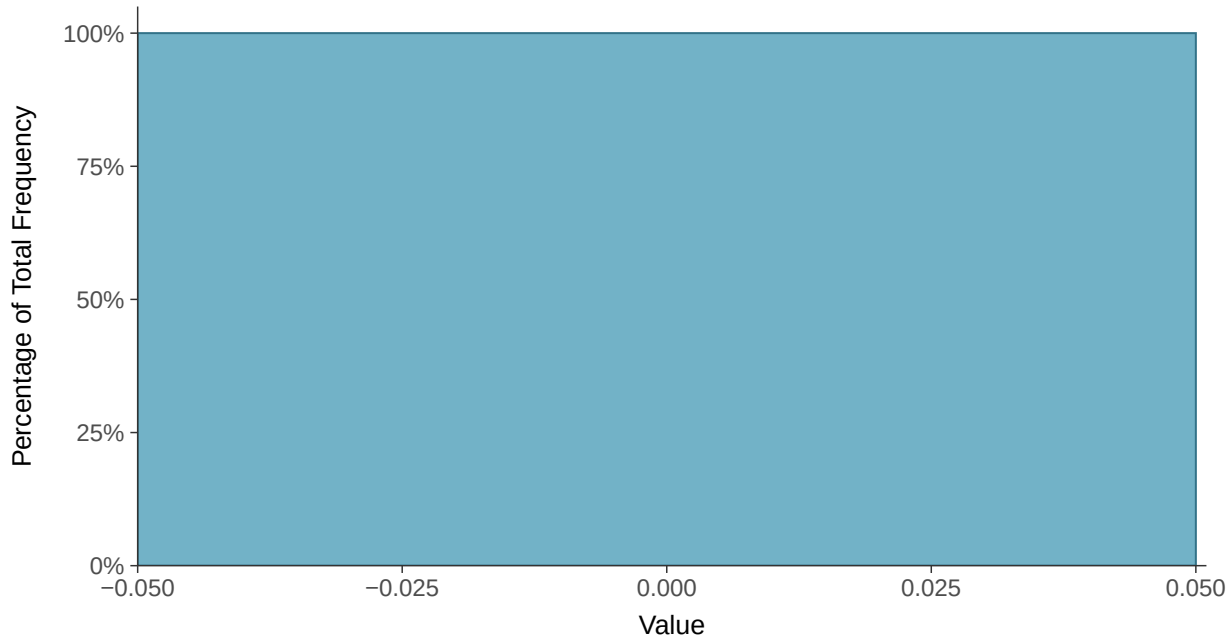
Scatter Plot

Chromium, MW-100B (mg/L)



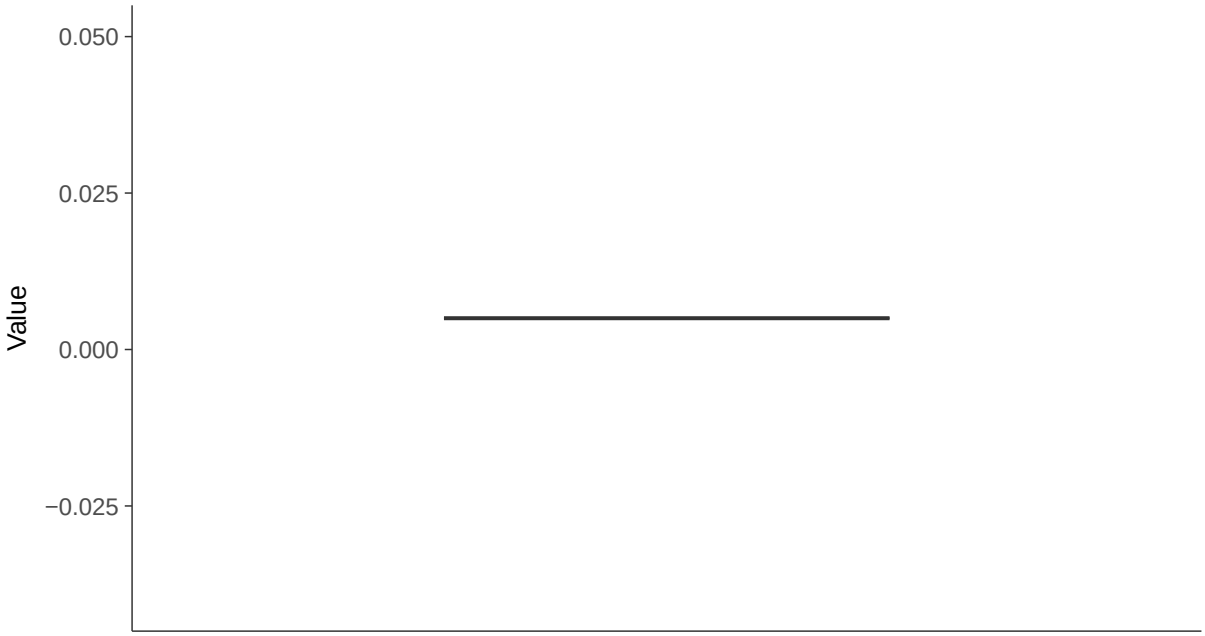
Histogram

Chromium, MW-100B (mg/L)



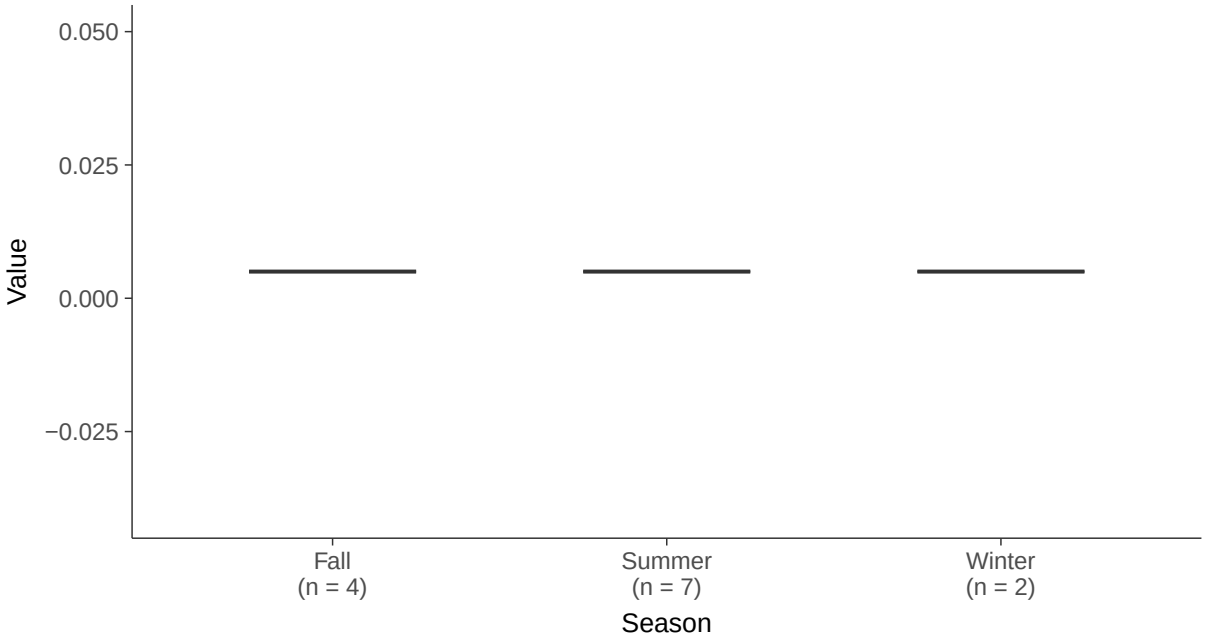
Boxplot

Chromium, MW-100B (mg/L)



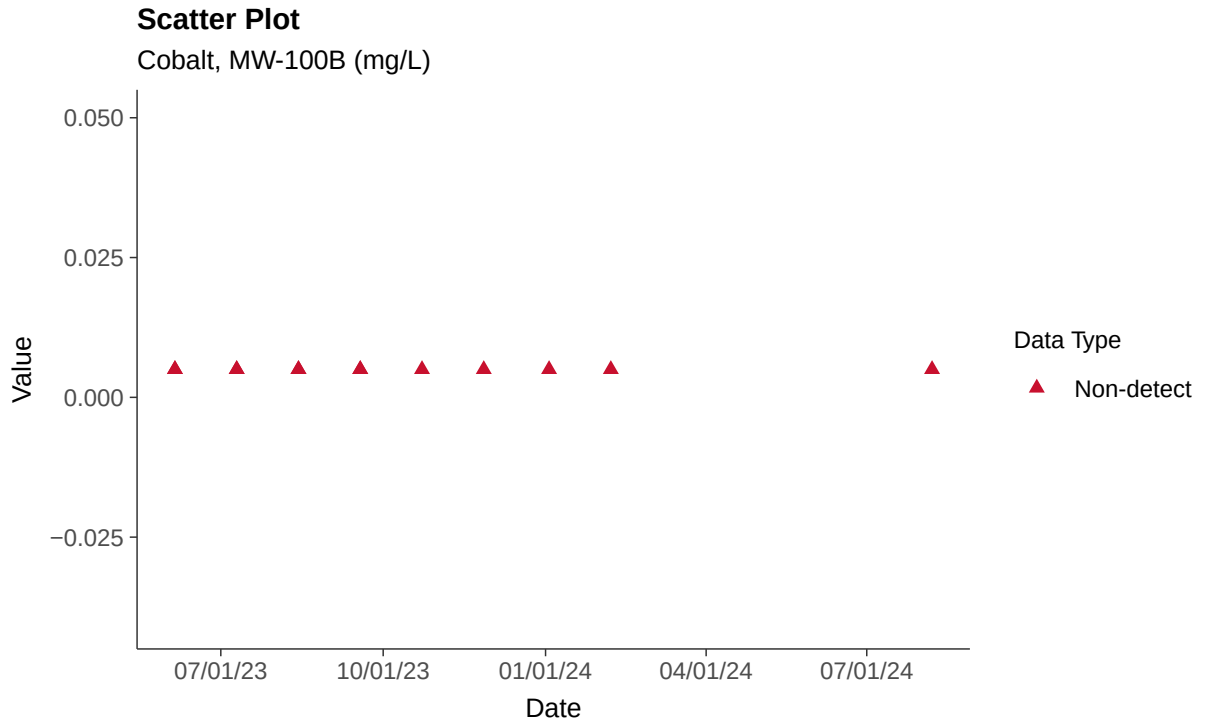
Boxplot by Season

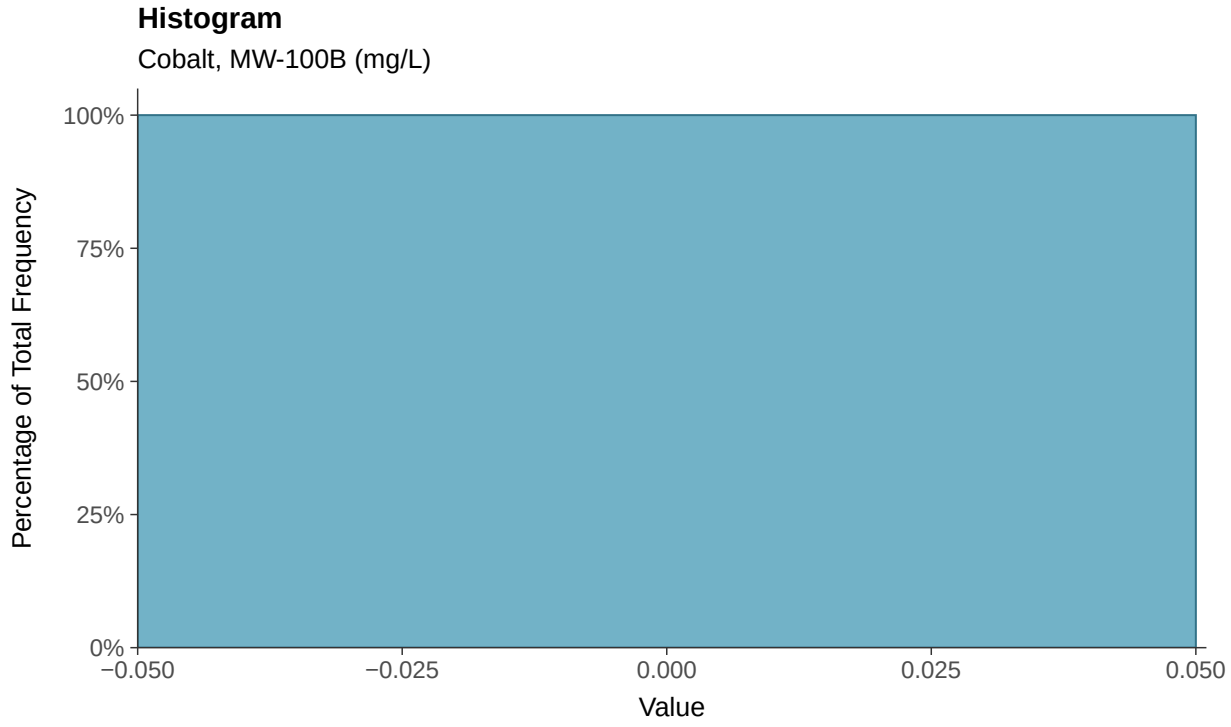
Chromium, MW-100B (mg/L)



Appendix IV: Cobalt, MW-100B

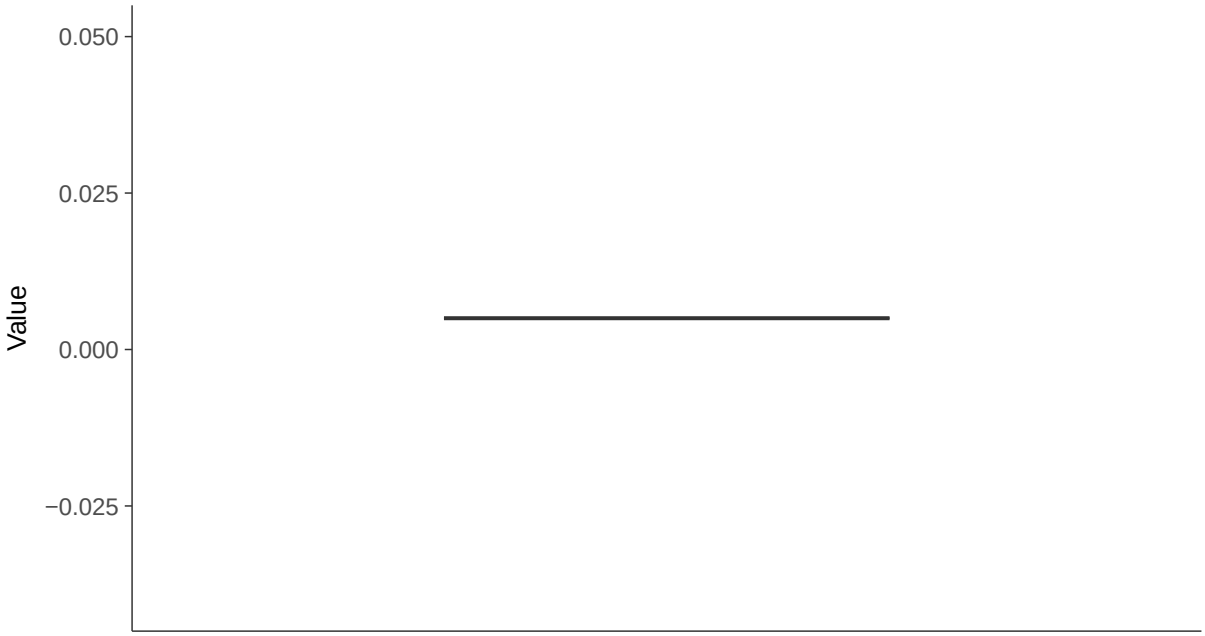
ID: 100B_2_14





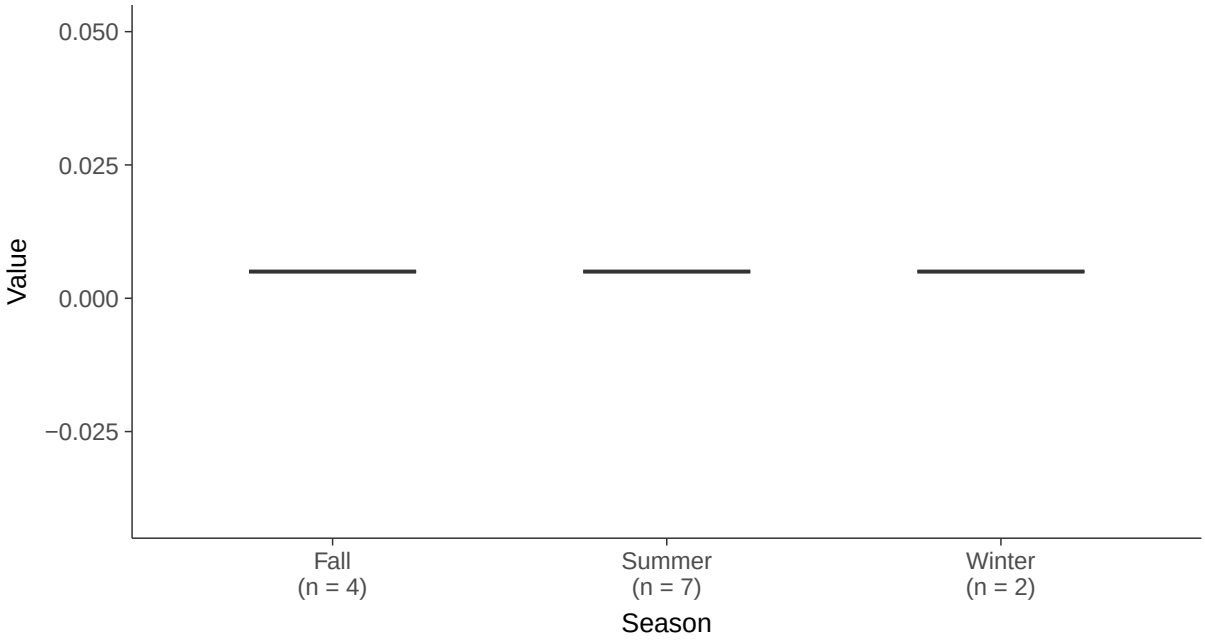
Boxplot

Cobalt, MW-100B (mg/L)



Boxplot by Season

Cobalt, MW-100B (mg/L)

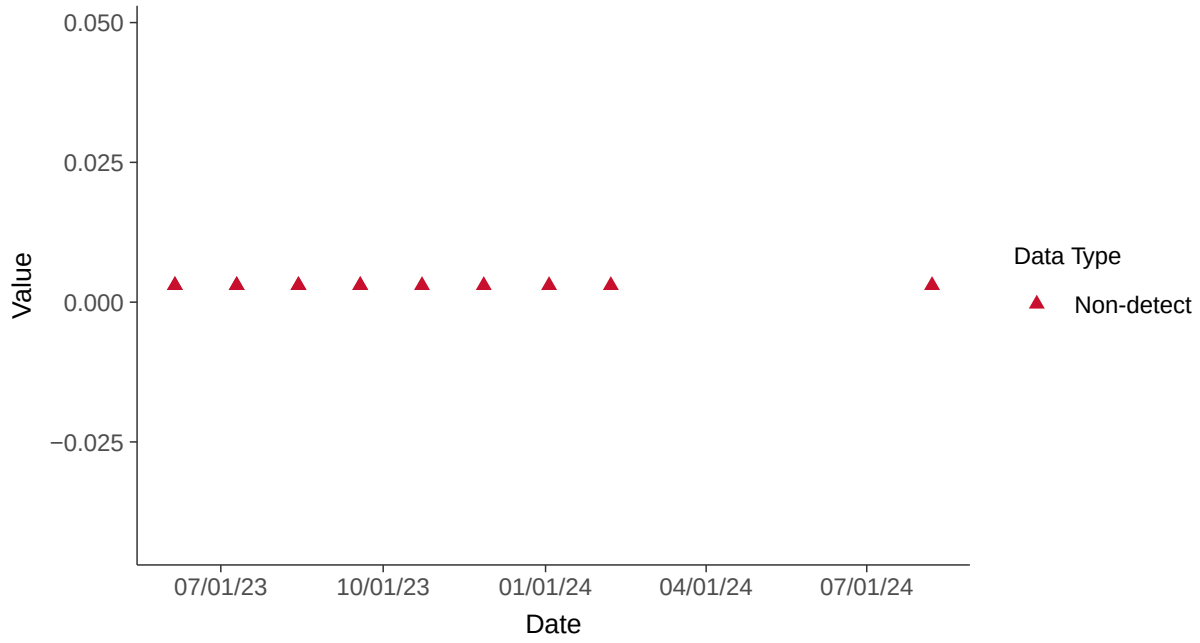


Appendix IV: Lead, MW-100B

ID: 100B_2_15

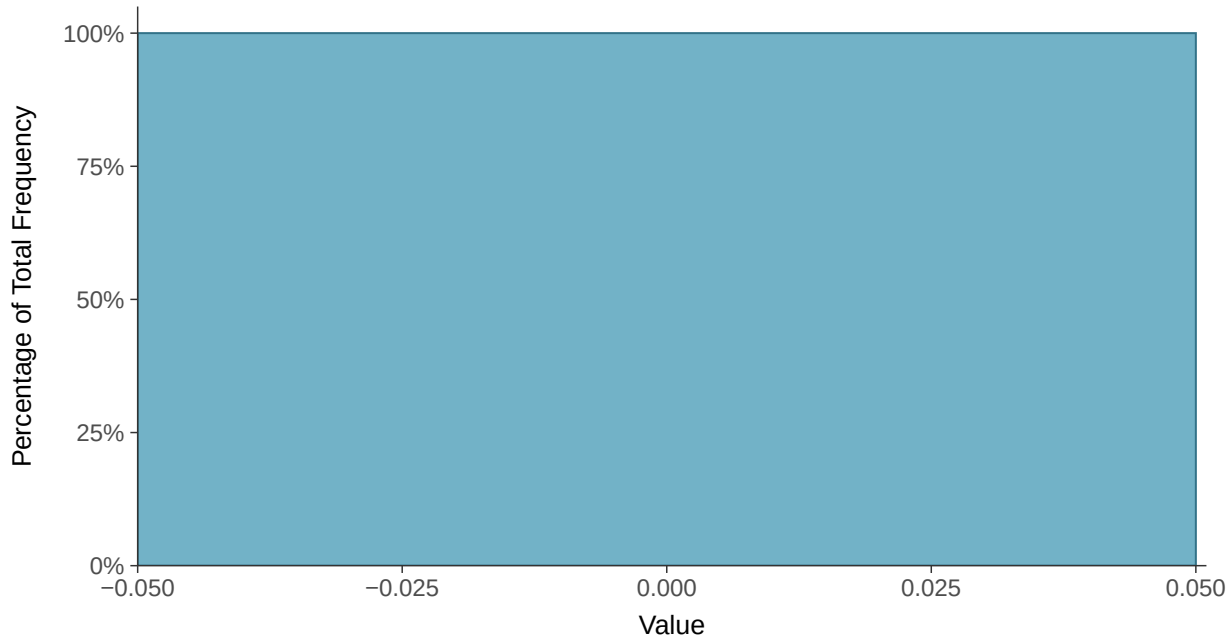
Scatter Plot

Lead, MW-100B (mg/L)



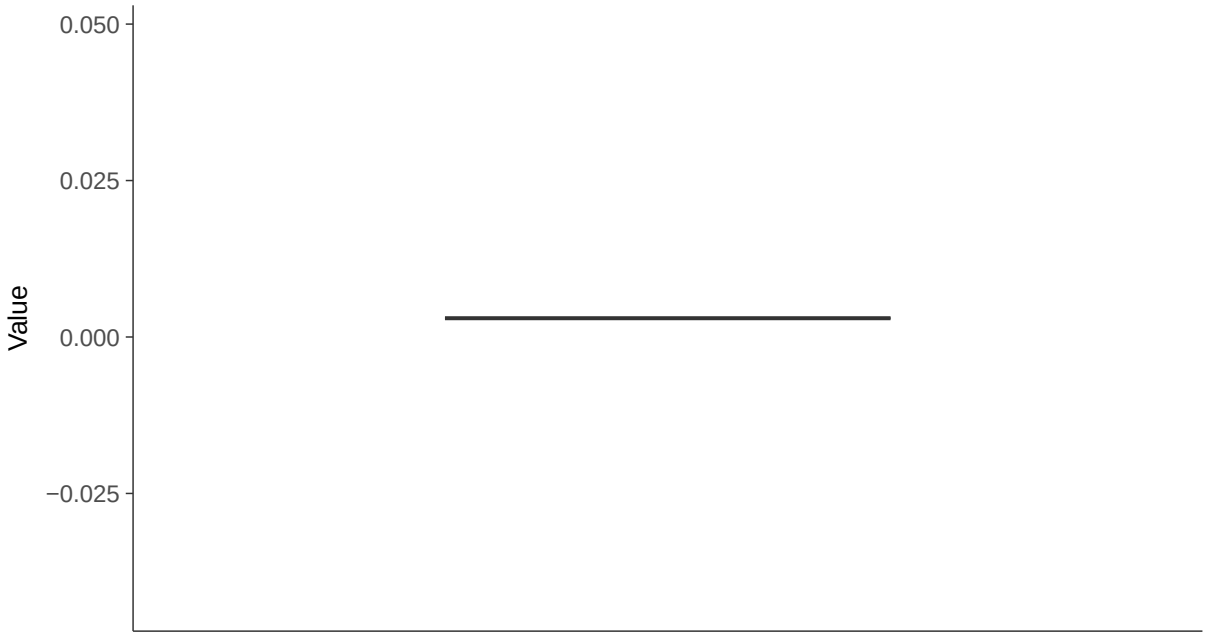
Histogram

Lead, MW-100B (mg/L)



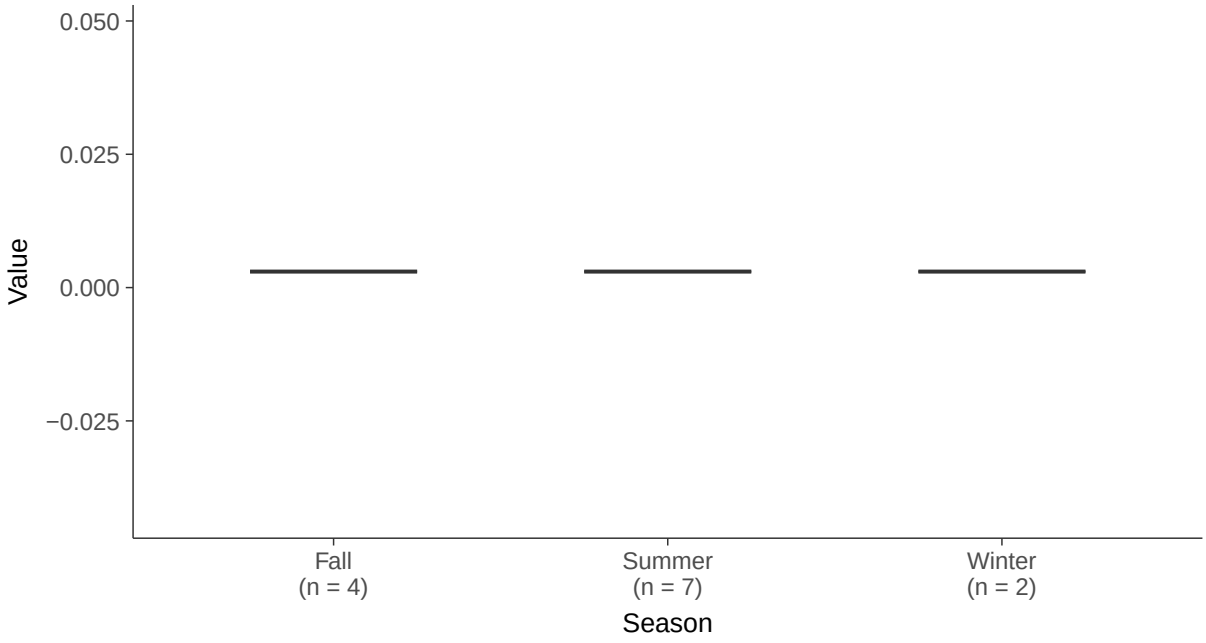
Boxplot

Lead, MW-100B (mg/L)



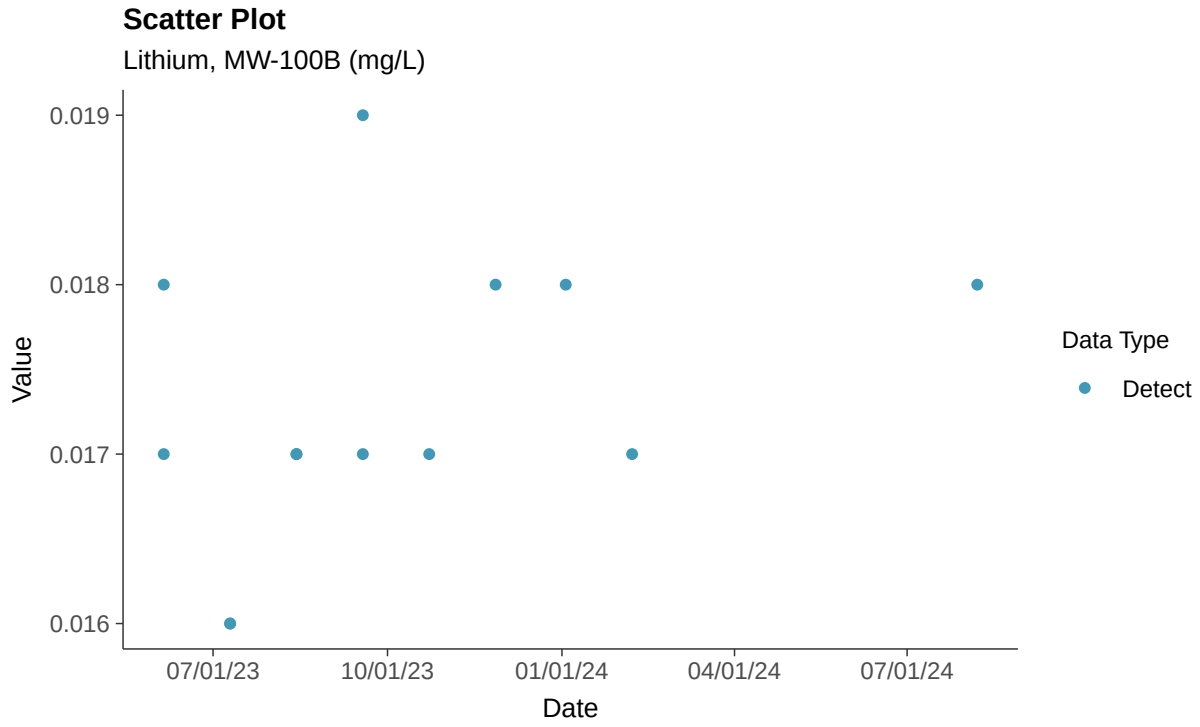
Boxplot by Season

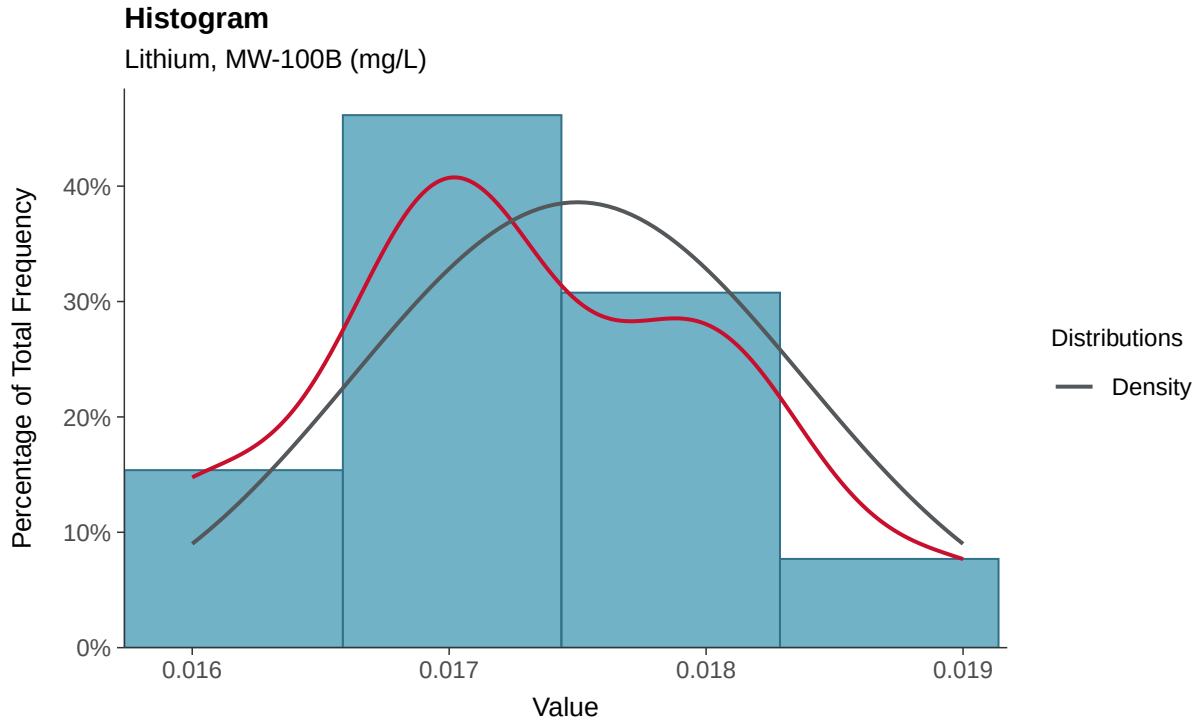
Lead, MW-100B (mg/L)



Appendix IV: Lithium, MW-100B

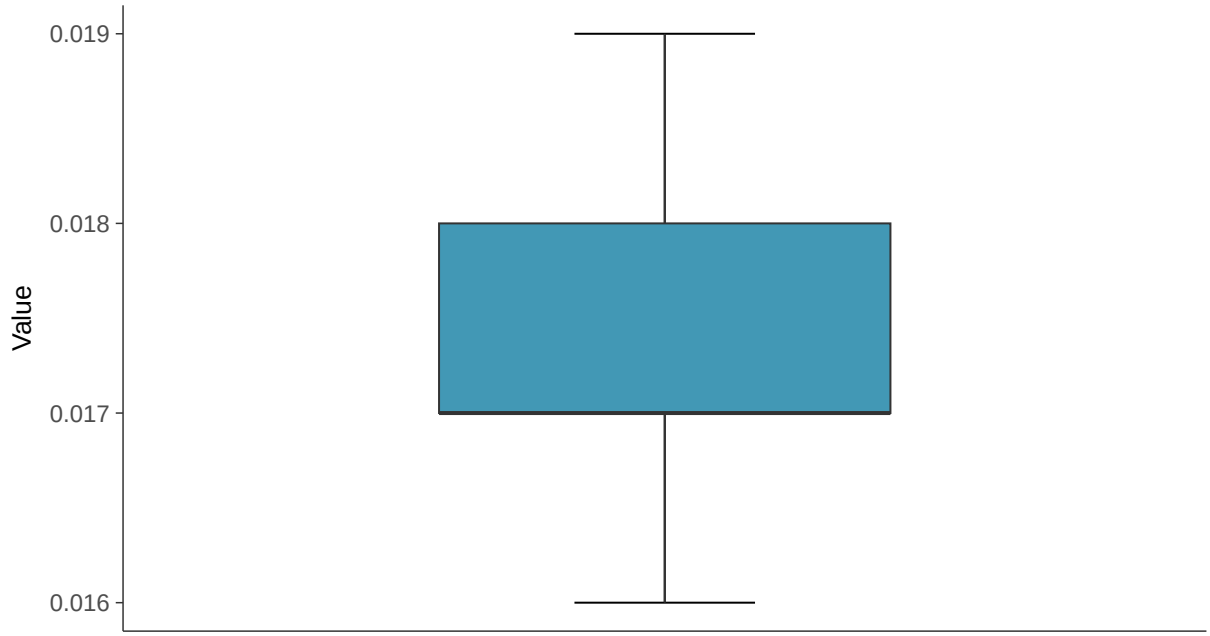
ID: 100B_2_16





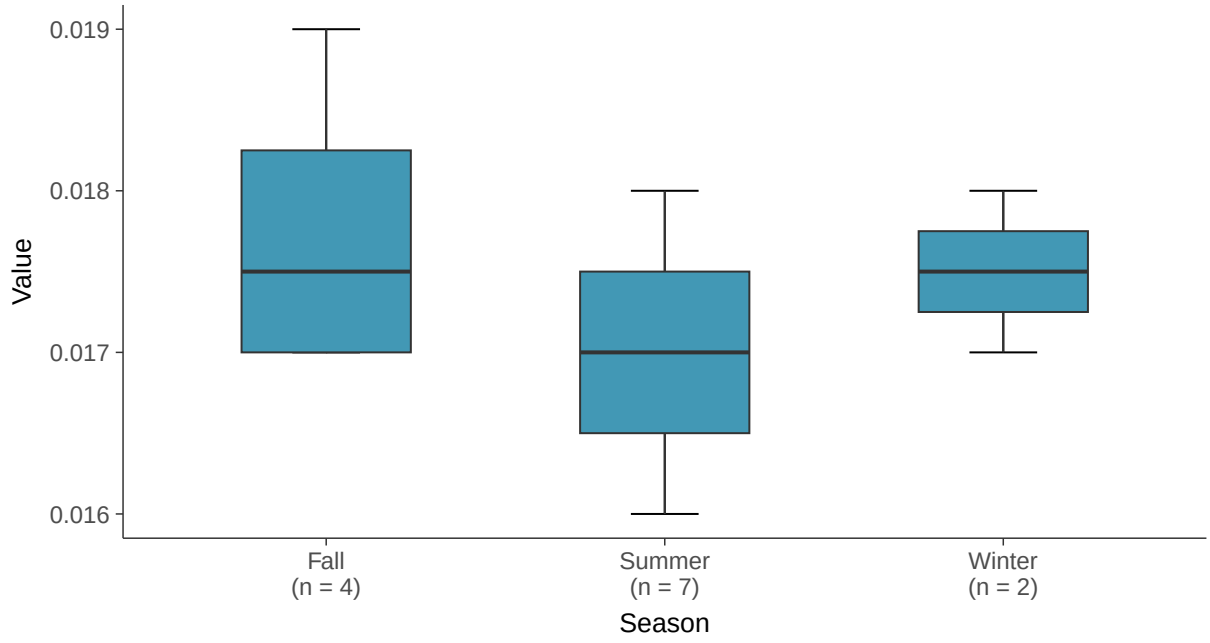
Boxplot

Lithium, MW-100B (mg/L)



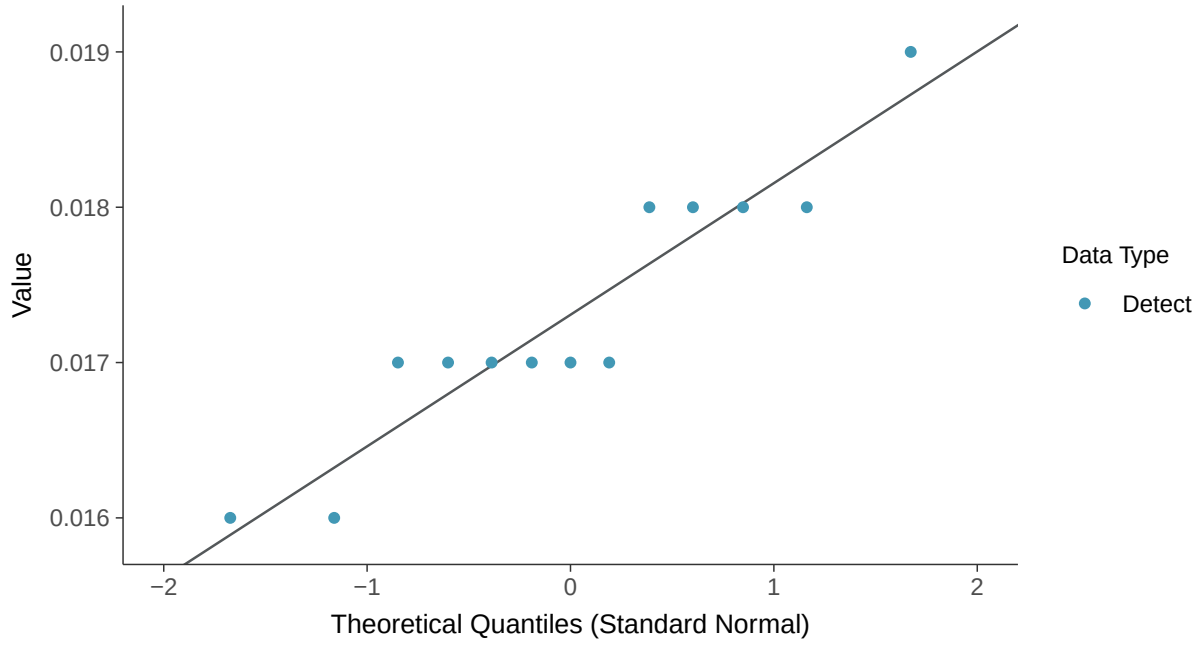
Boxplot by Season

Lithium, MW-100B (mg/L)



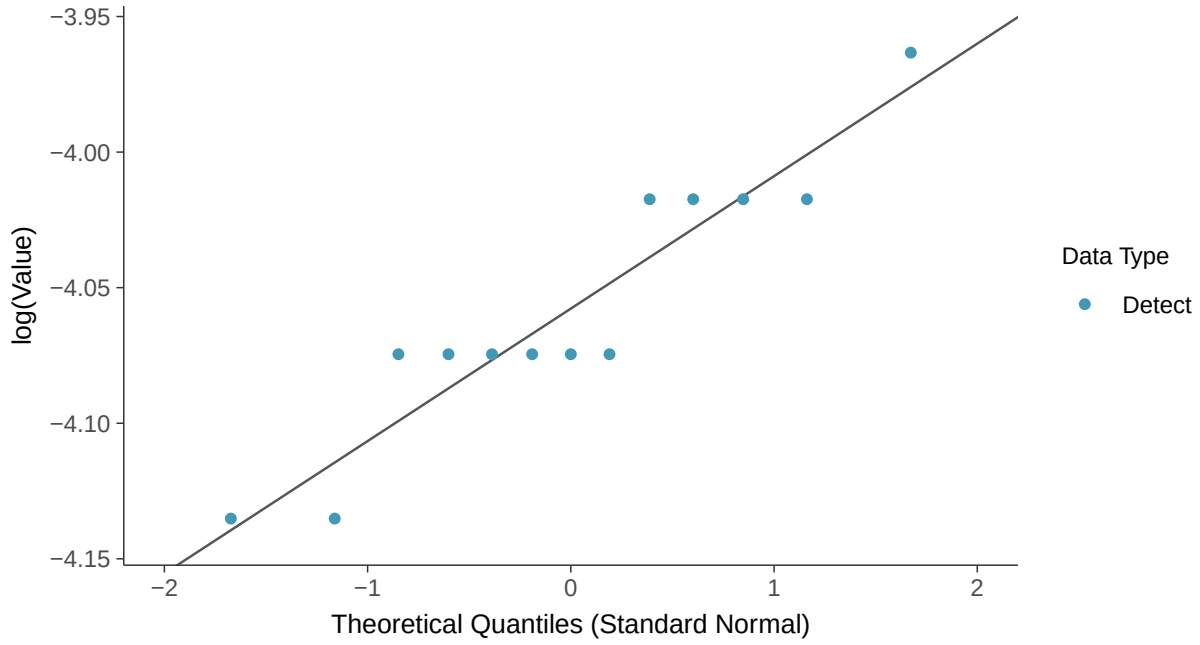
Normal Q-Q plot

Lithium, MW-100B (mg/L)



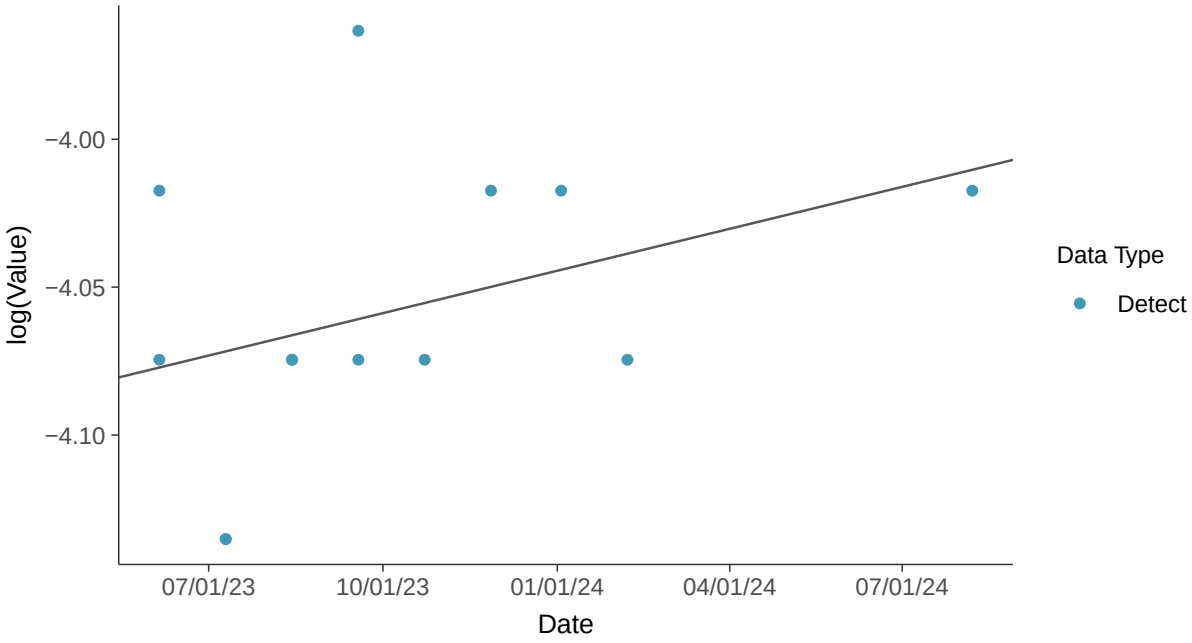
Lognormal Q-Q plot

Lithium, MW-100B (mg/L)



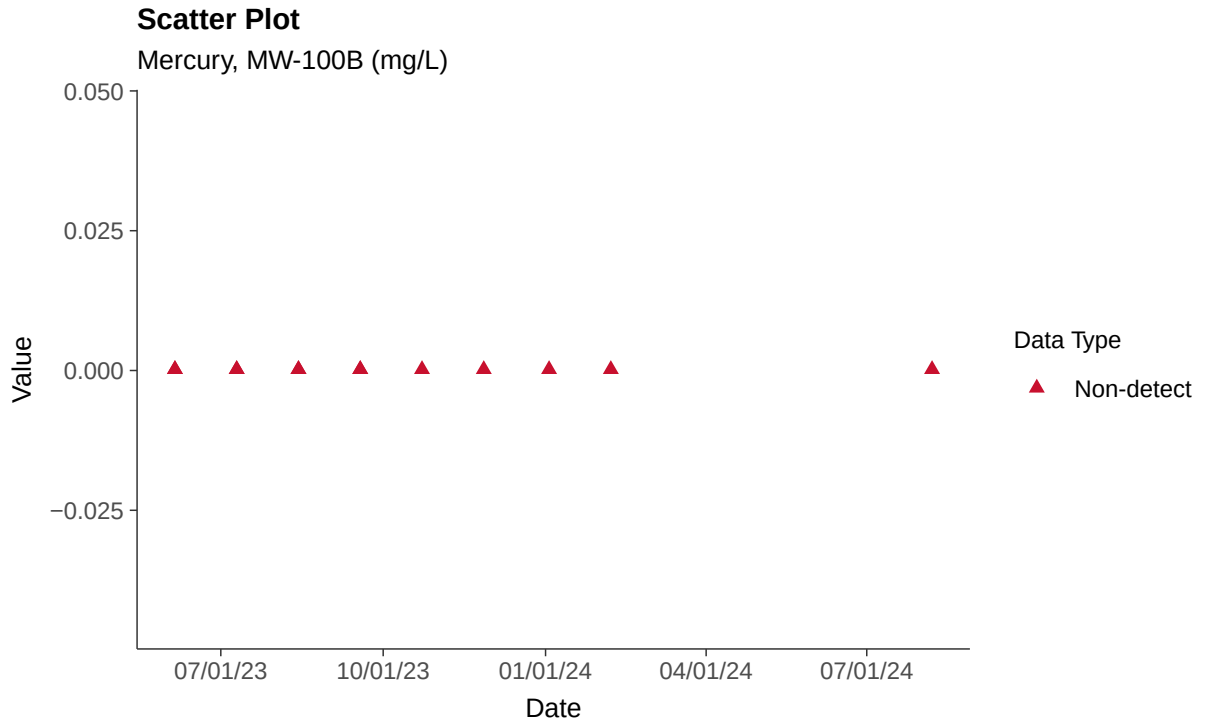
Trend Regression: Lognormal MLE

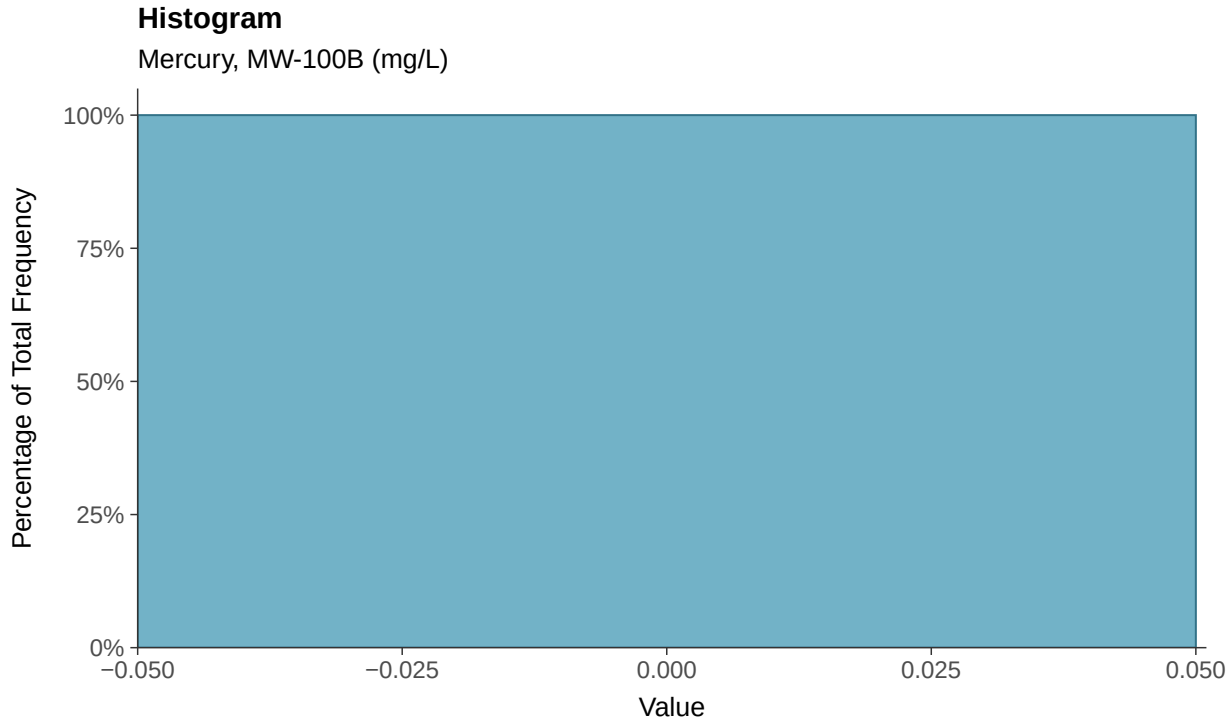
Lithium, MW-100B (mg/L)



Appendix IV: Mercury, MW-100B

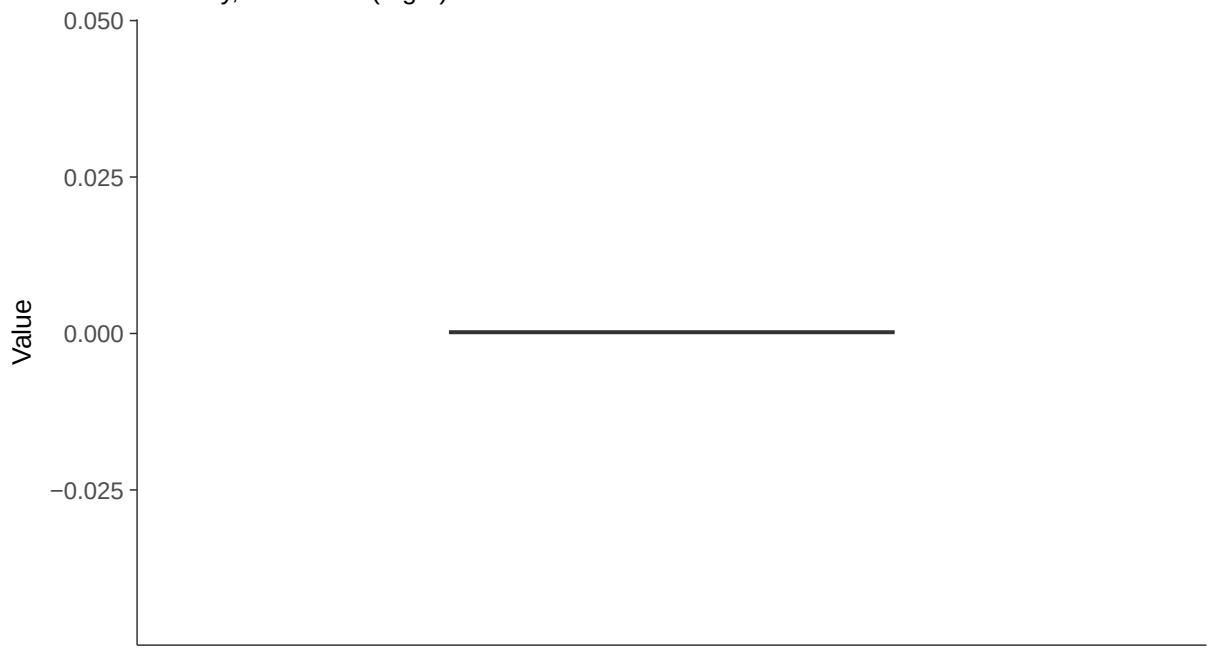
ID: 100B_2_17





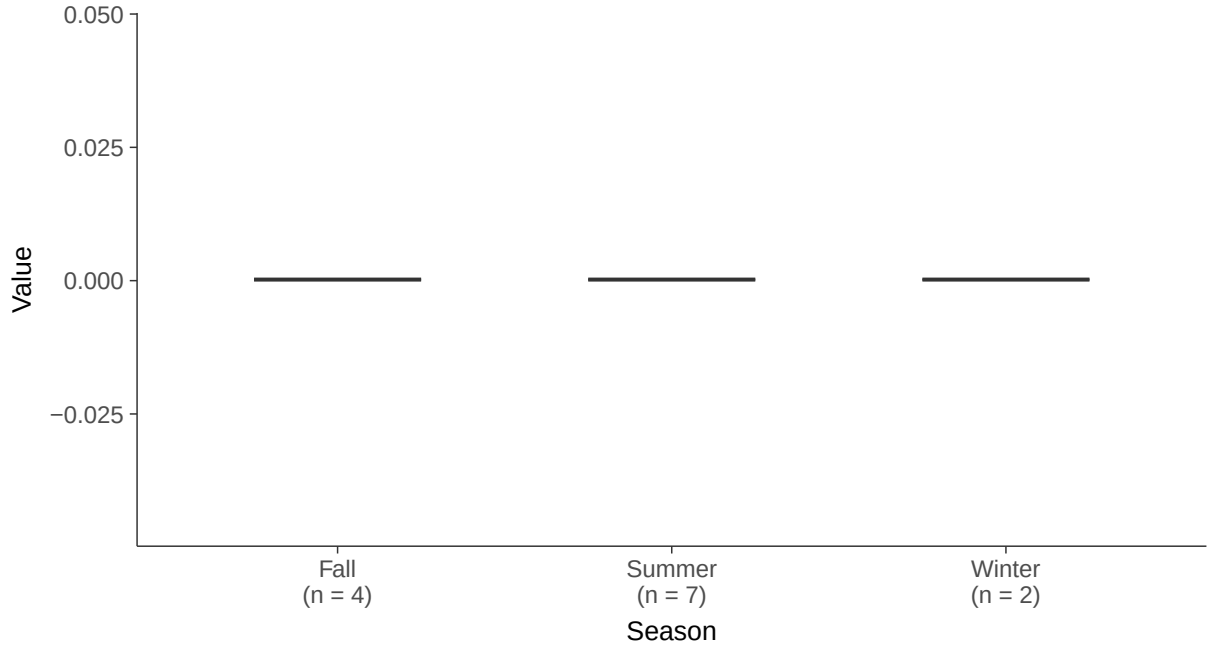
Boxplot

Mercury, MW-100B (mg/L)



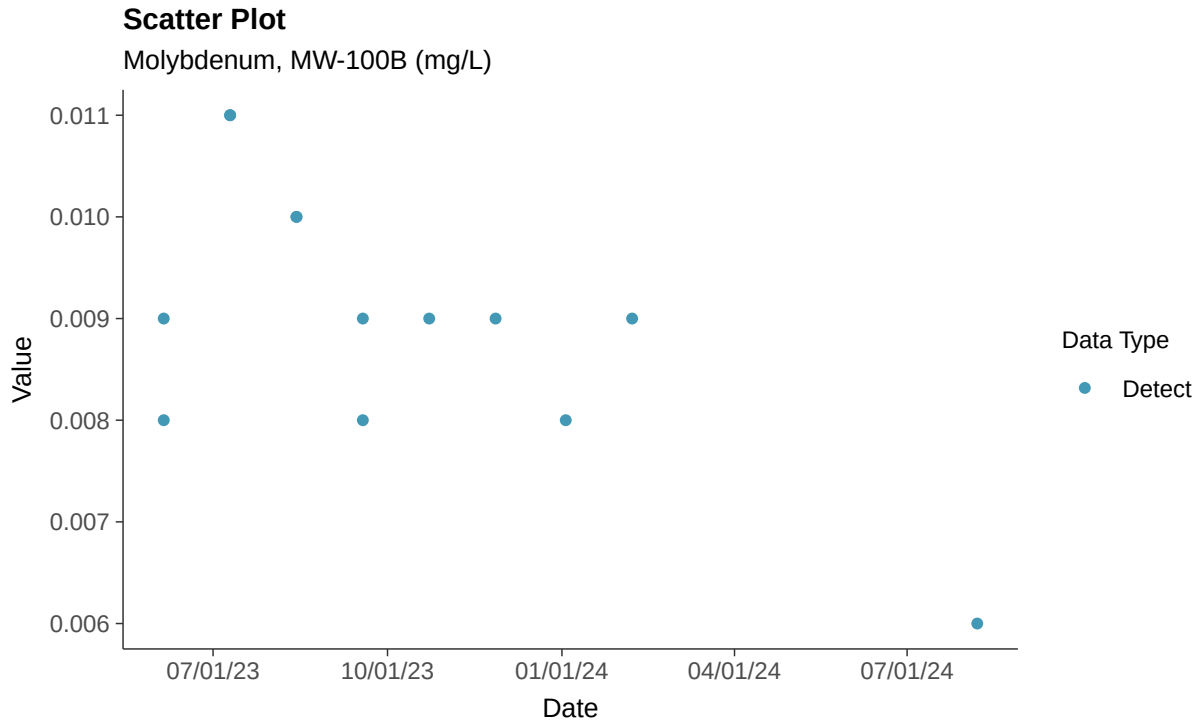
Boxplot by Season

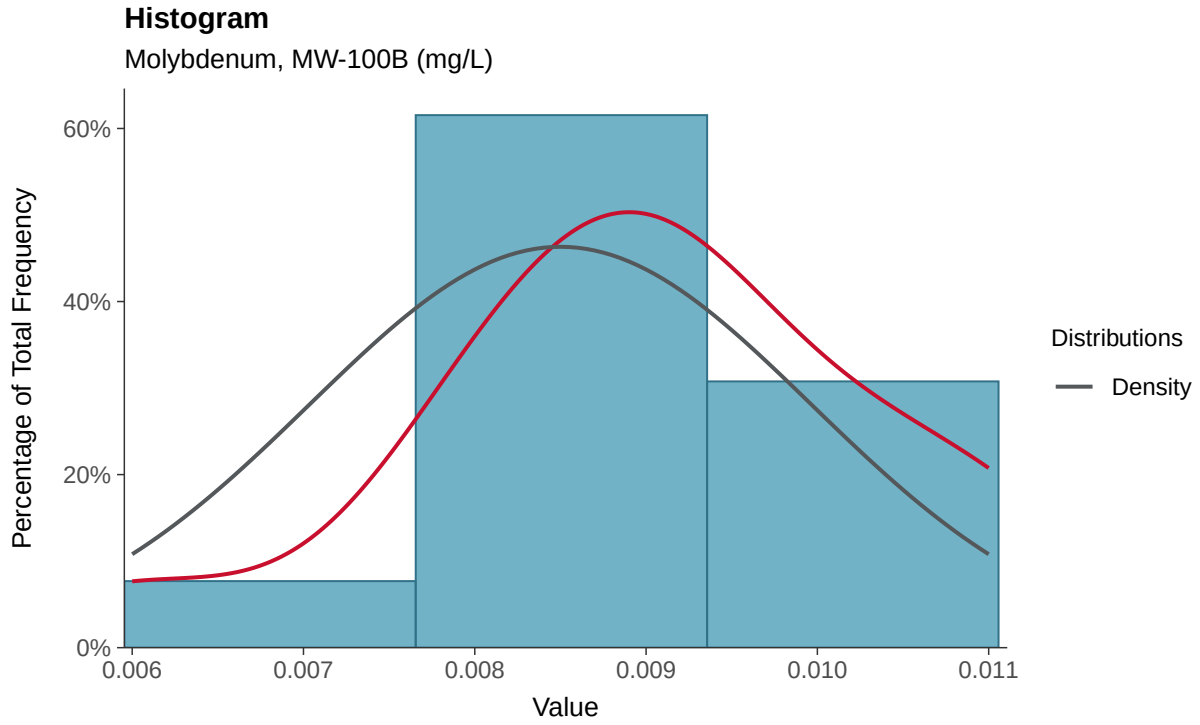
Mercury, MW-100B (mg/L)



Appendix IV: Molybdenum, MW-100B

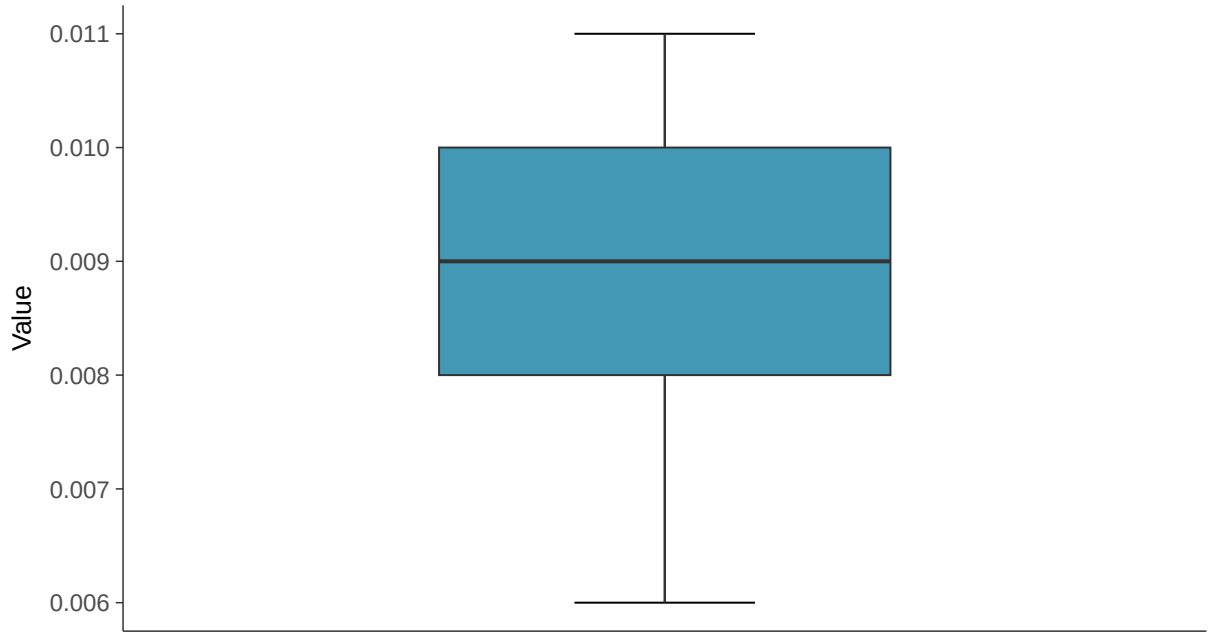
ID: 100B_2_18





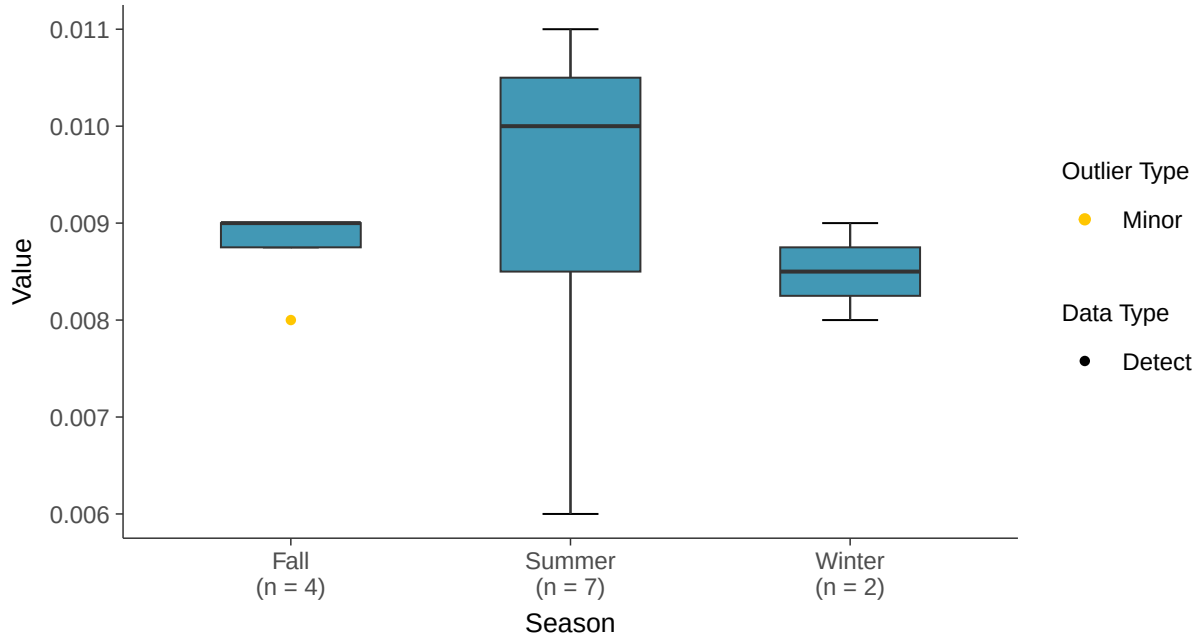
Boxplot

Molybdenum, MW-100B (mg/L)



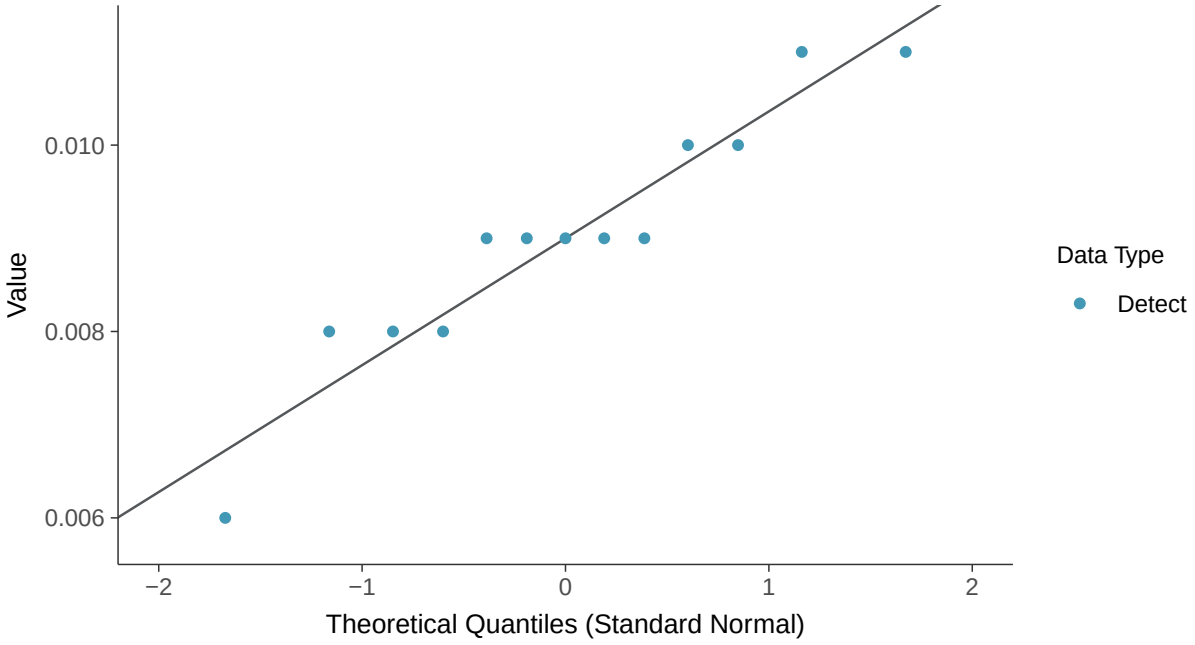
Boxplot by Season

Molybdenum, MW-100B (mg/L)



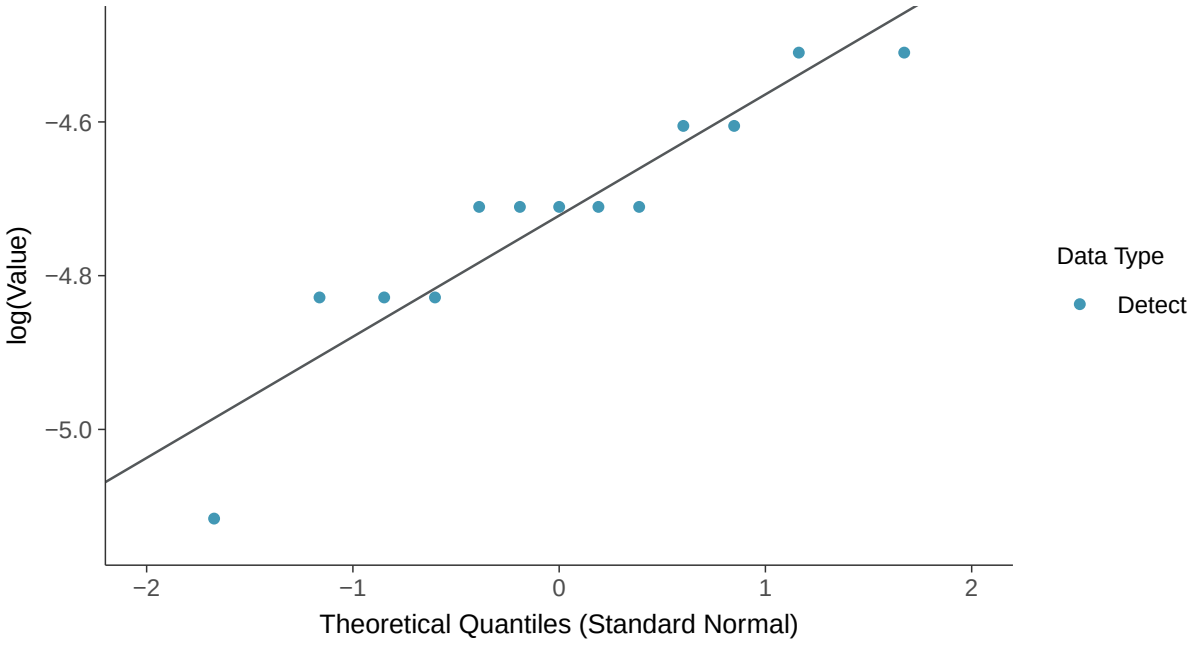
Normal Q-Q plot

Molybdenum, MW-100B (mg/L)



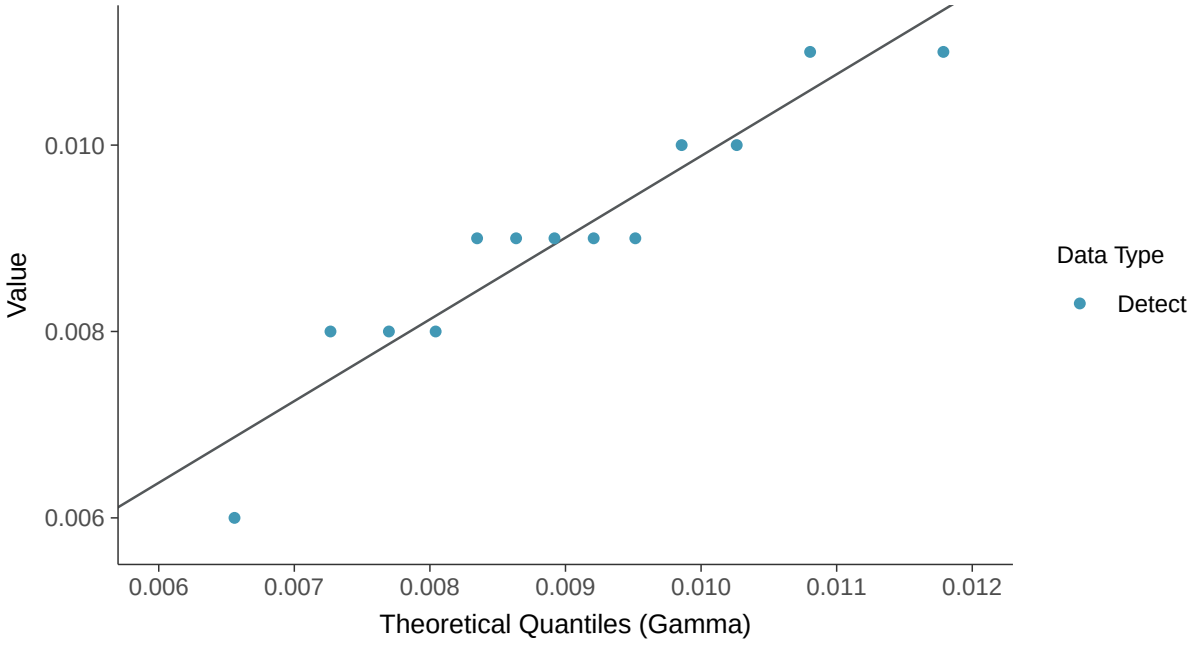
Lognormal Q-Q plot

Molybdenum, MW-100B (mg/L)



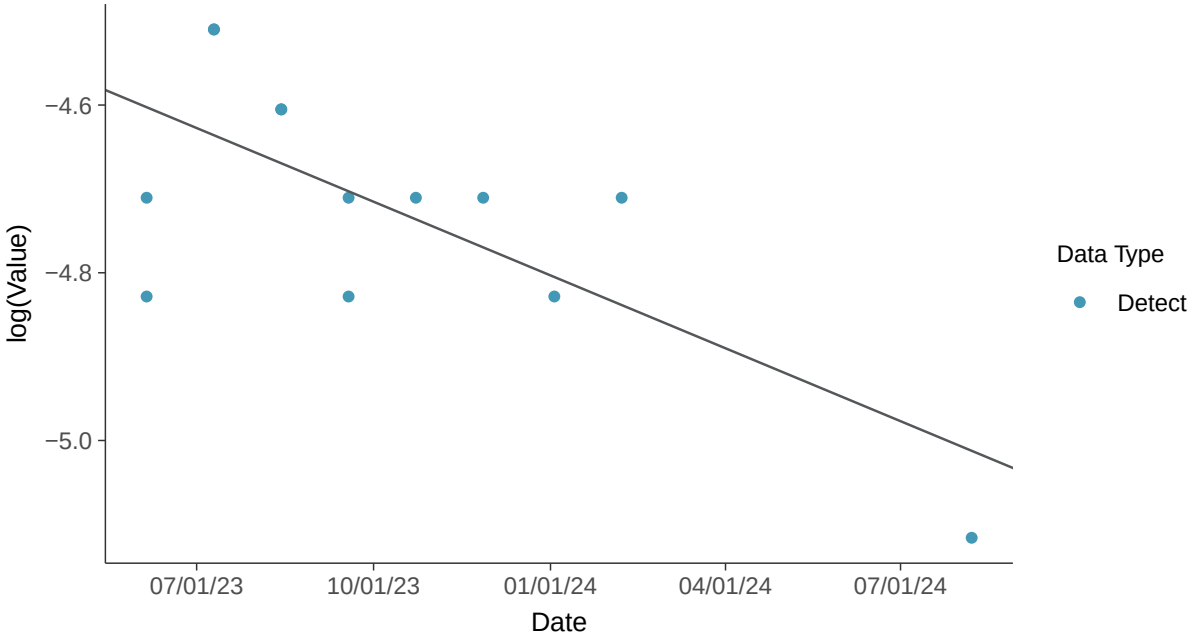
Gamma Q-Q plot

Molybdenum, MW-100B (mg/L)



Trend Regression: Lognormal MLE

Molybdenum, MW-100B (mg/L)

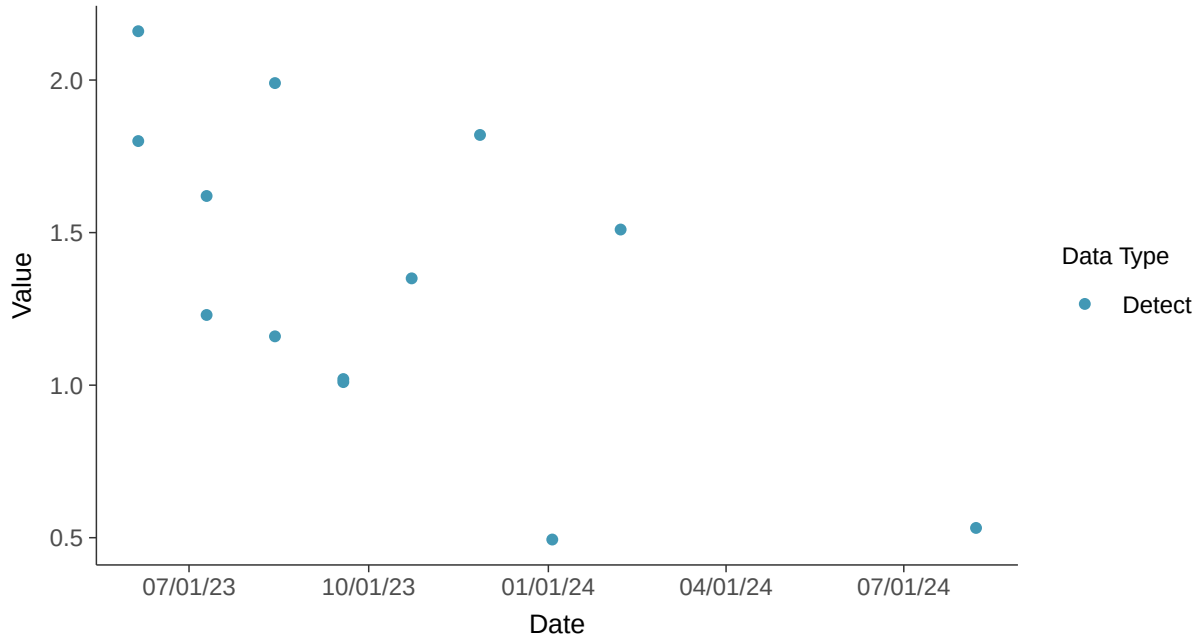


Appendix IV: Radium-226/228, MW-100B

ID: 100B_2_21

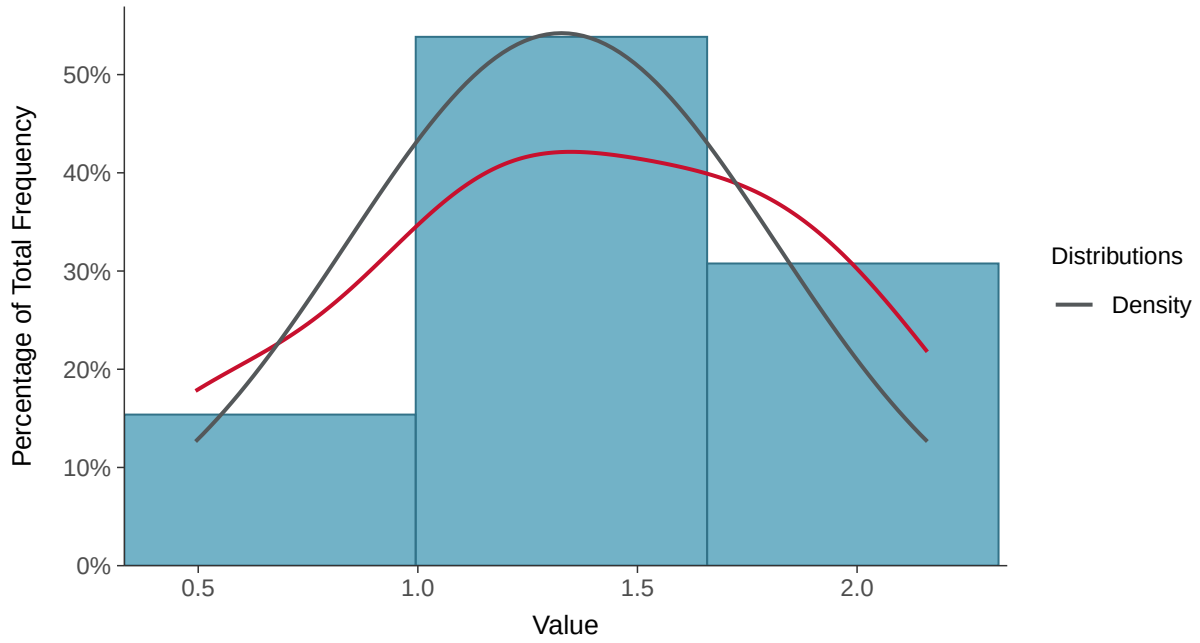
Scatter Plot

Radium-226/228, MW-100B (pCi/L)



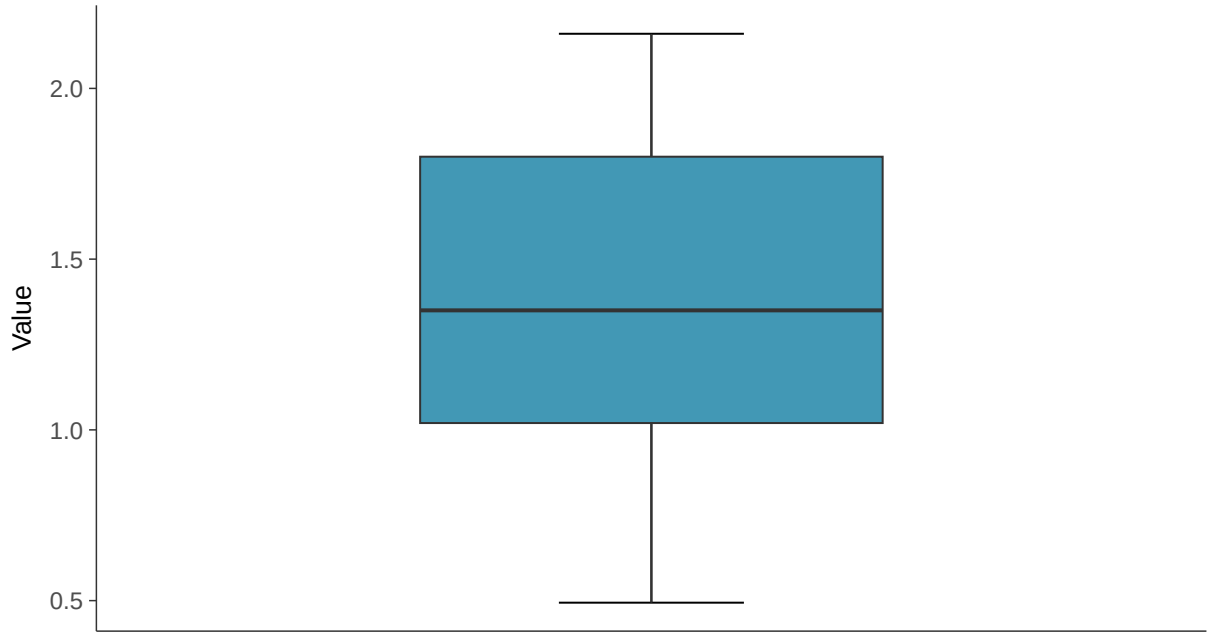
Histogram

Radium-226/228, MW-100B (pCi/L)



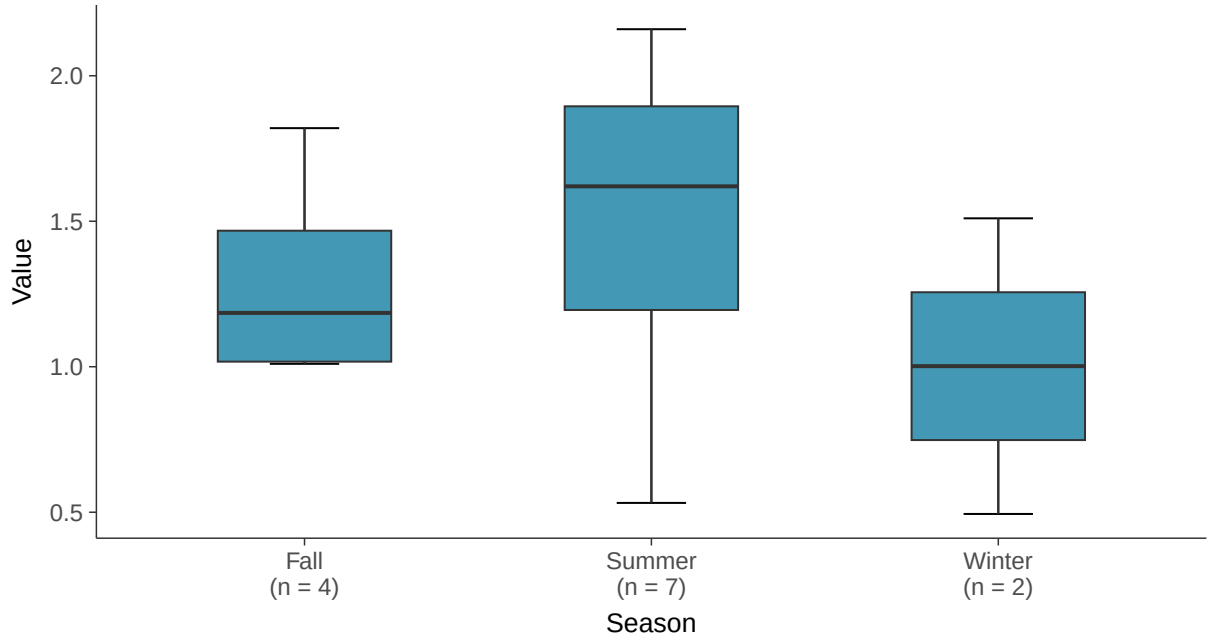
Boxplot

Radium-226/228, MW-100B (pCi/L)



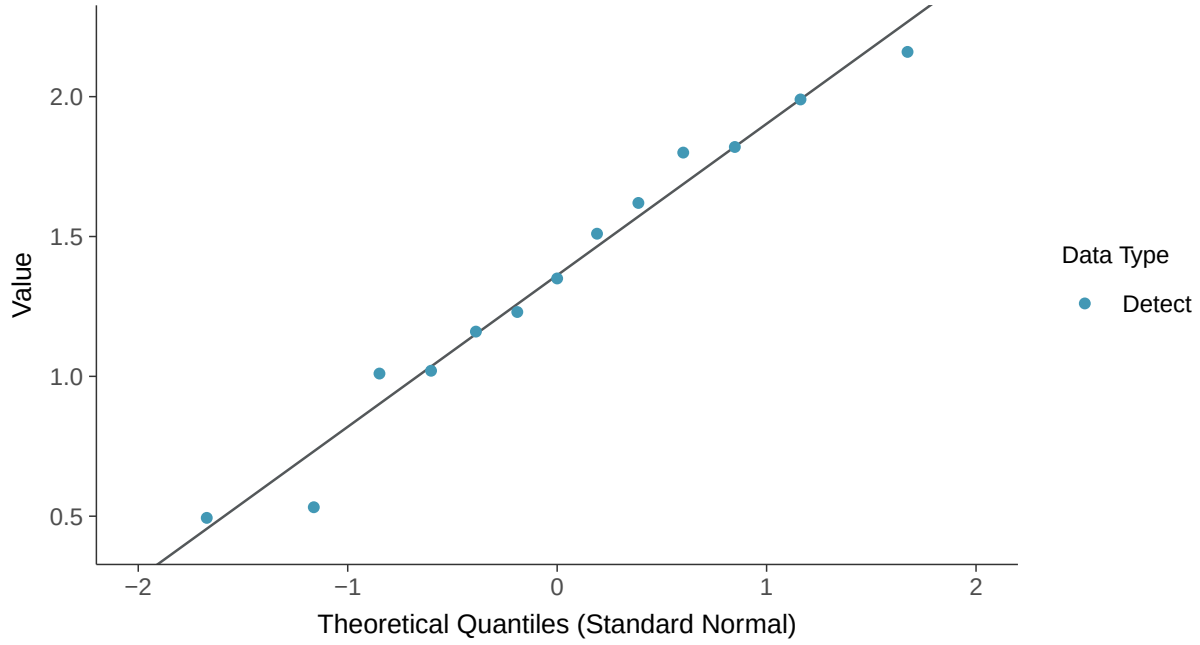
Boxplot by Season

Radium-226/228, MW-100B (pCi/L)



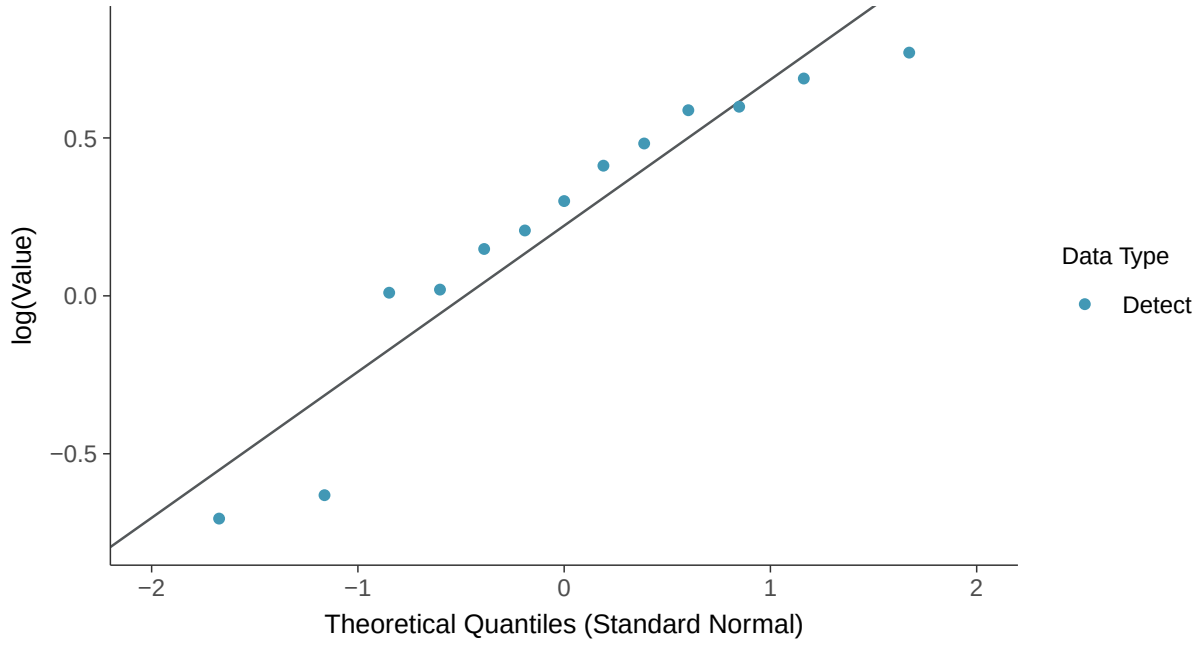
Normal Q-Q plot

Radium-226/228, MW-100B (pCi/L)



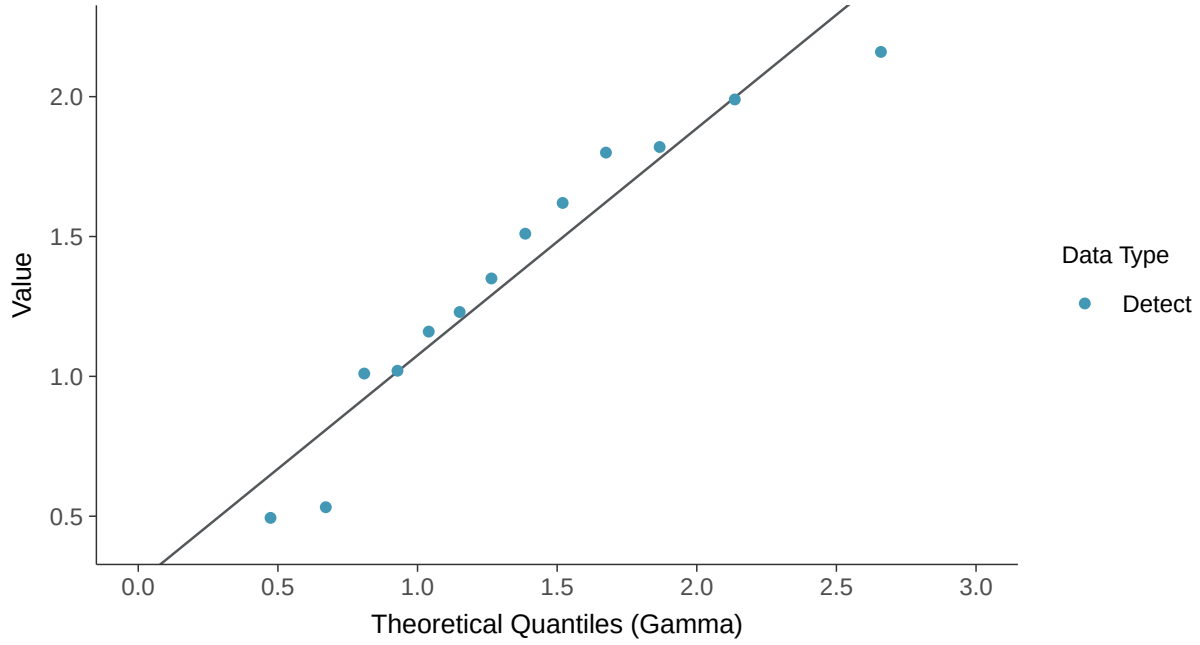
Lognormal Q-Q plot

Radium-226/228, MW-100B (pCi/L)



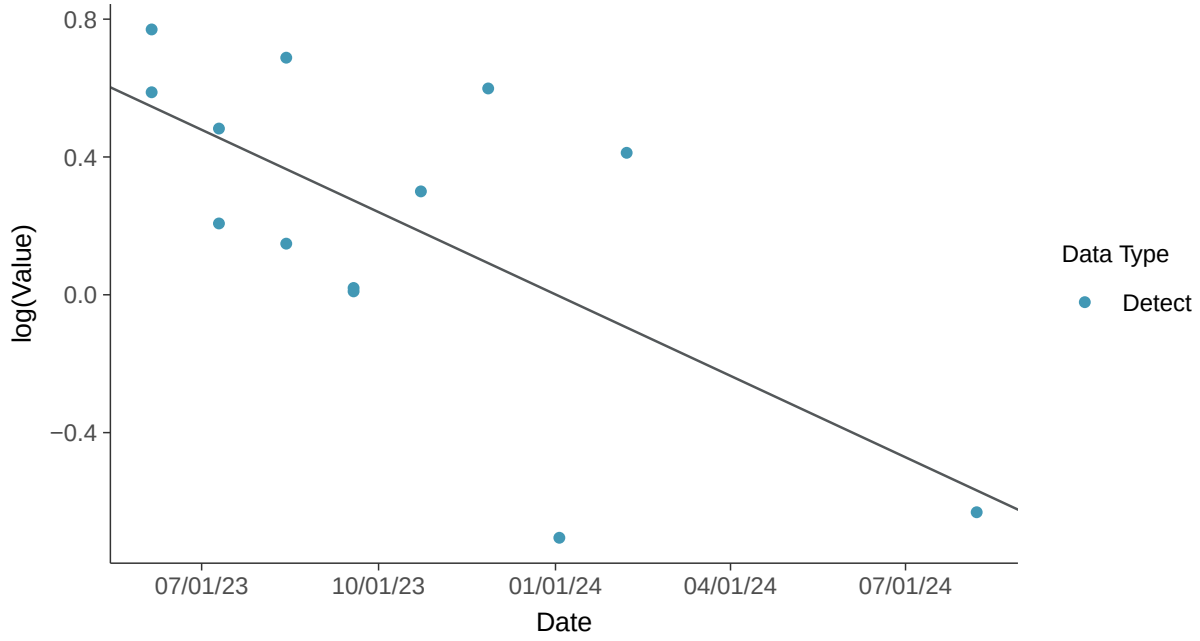
Gamma Q-Q plot

Radium-226/228, MW-100B (pCi/L)



Trend Regression: Lognormal MLE

Radium-226/228, MW-100B (pCi/L)

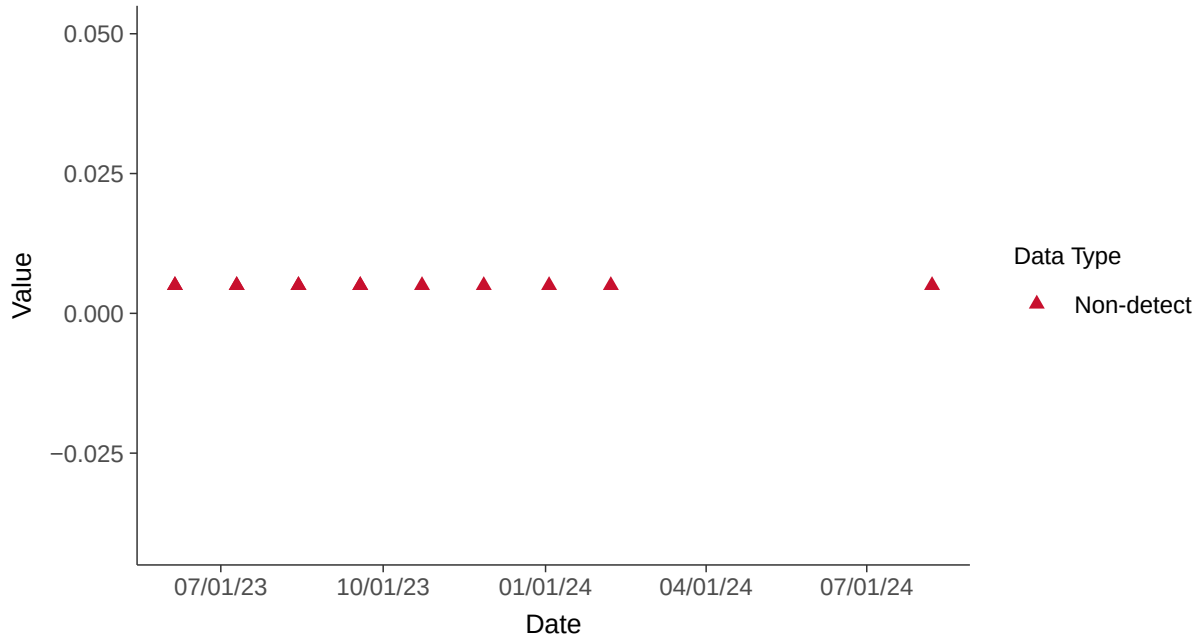


Appendix IV: Selenium, MW-100B

ID: 100B_2_22

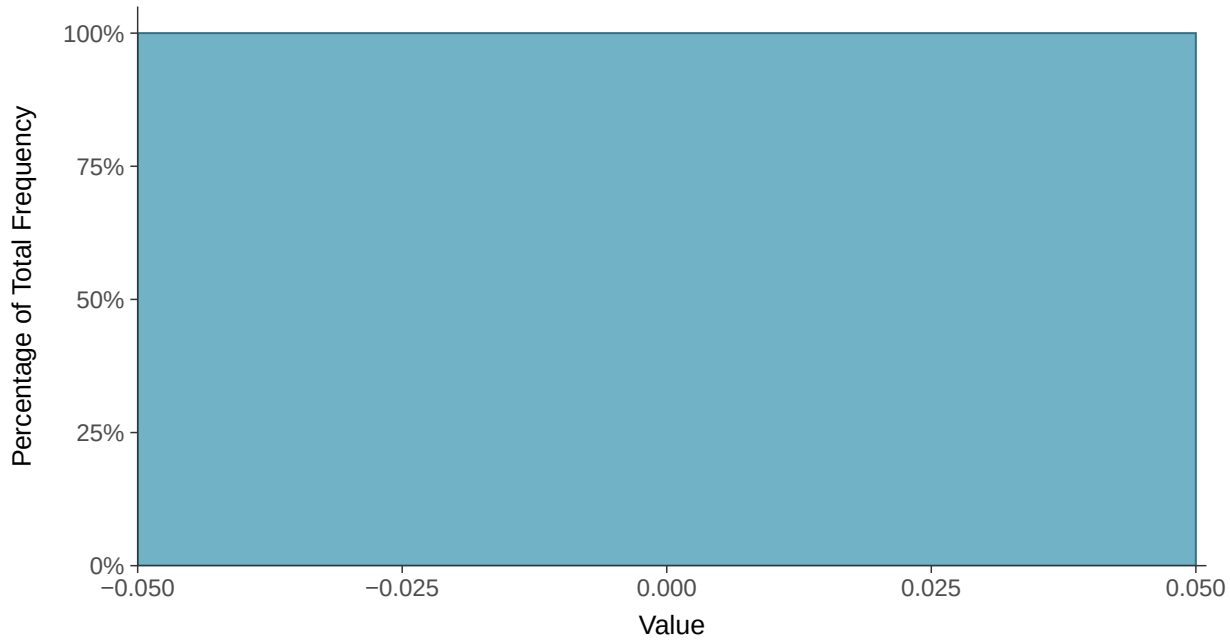
Scatter Plot

Selenium, MW-100B (mg/L)



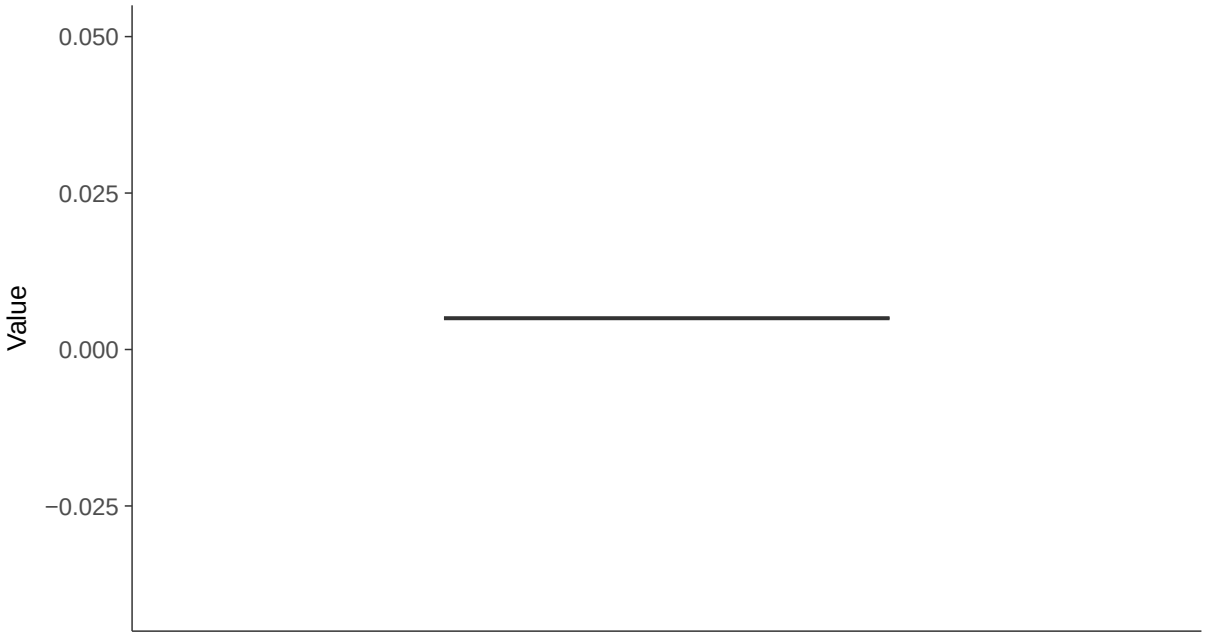
Histogram

Selenium, MW-100B (mg/L)



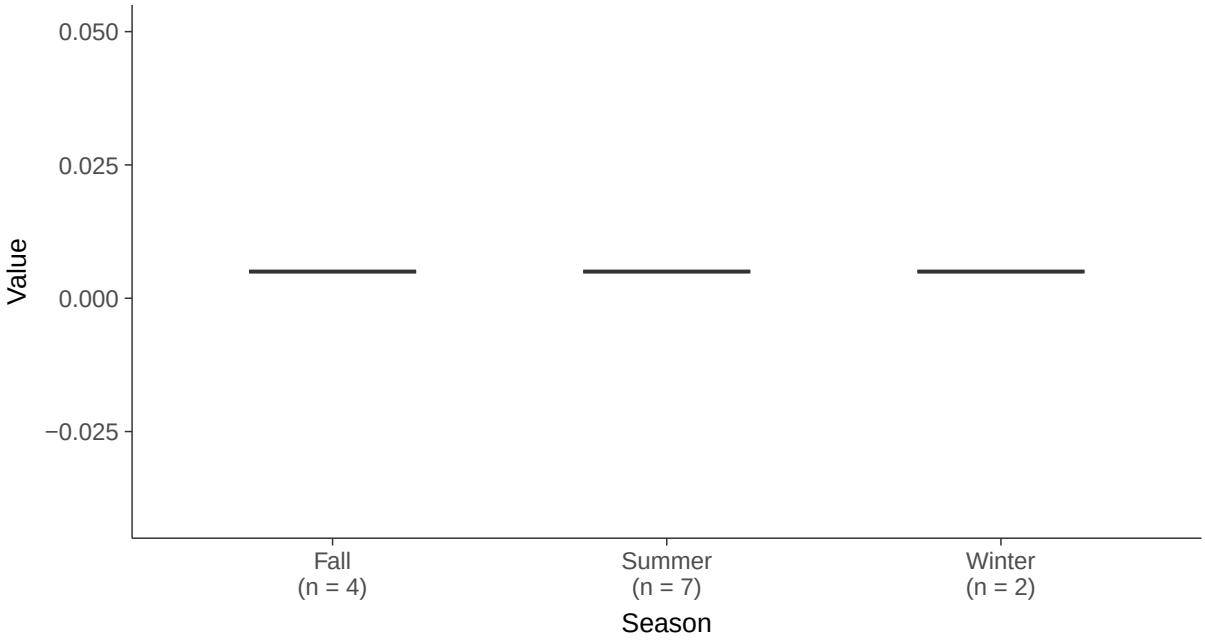
Boxplot

Selenium, MW-100B (mg/L)



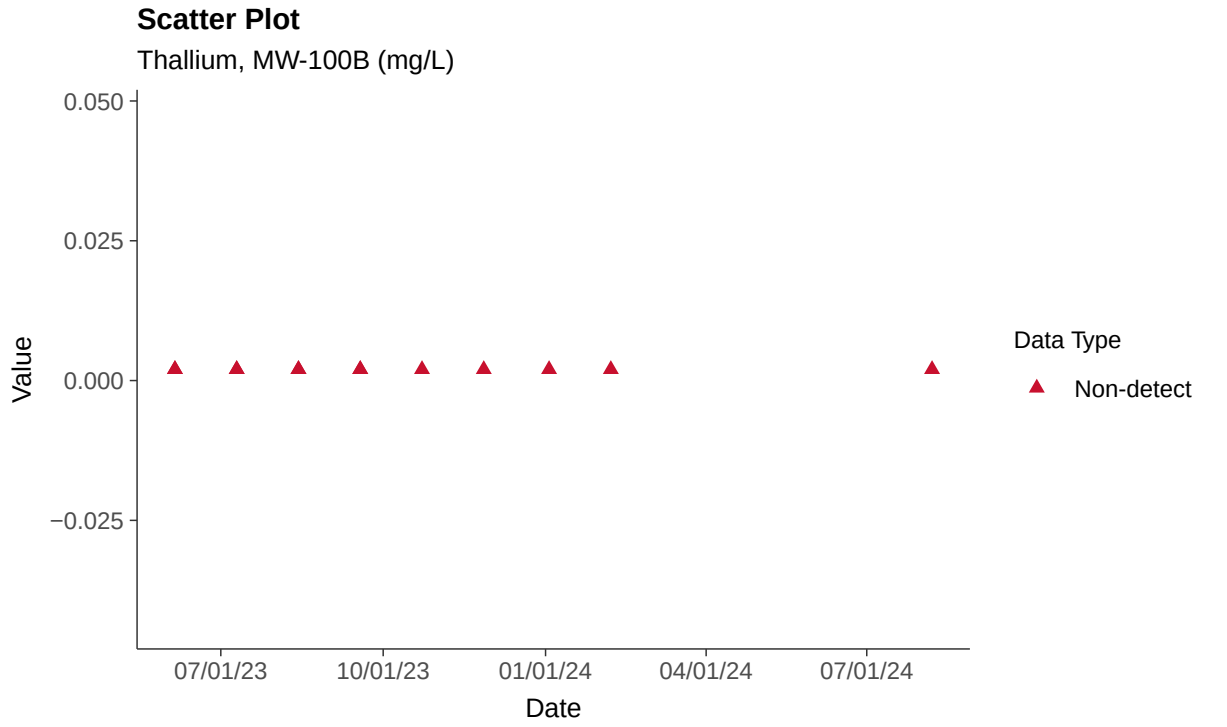
Boxplot by Season

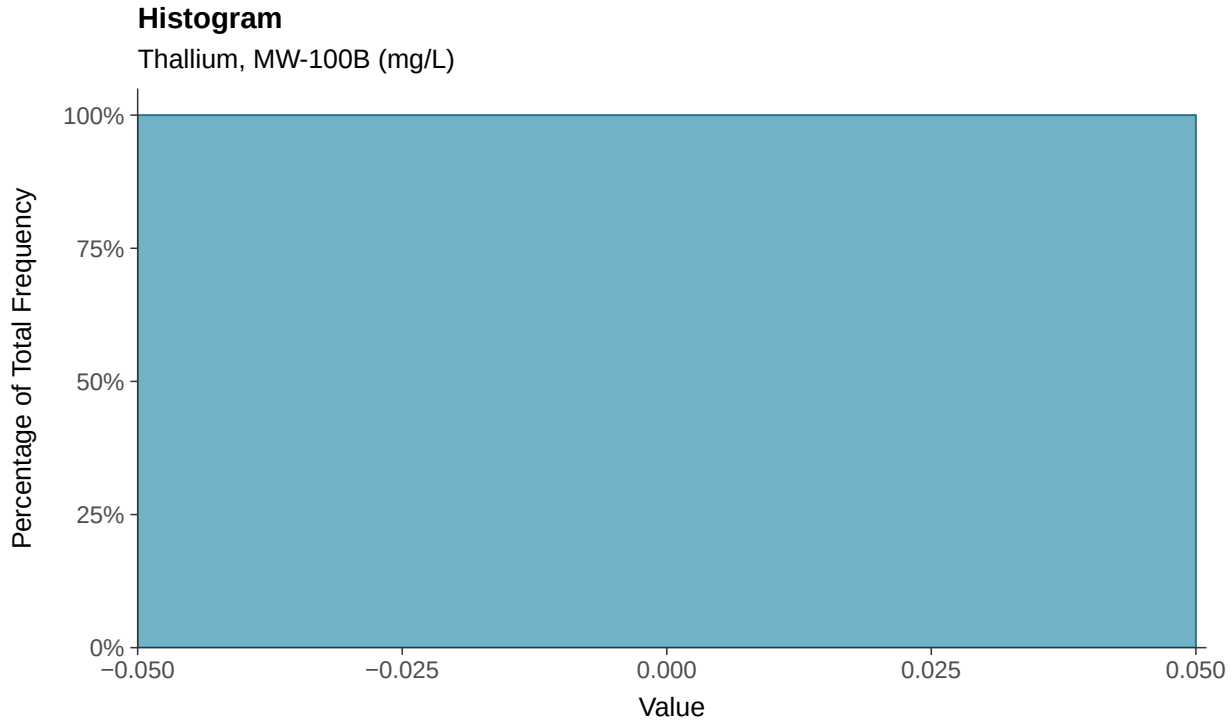
Selenium, MW-100B (mg/L)



Appendix IV: Thallium, MW-100B

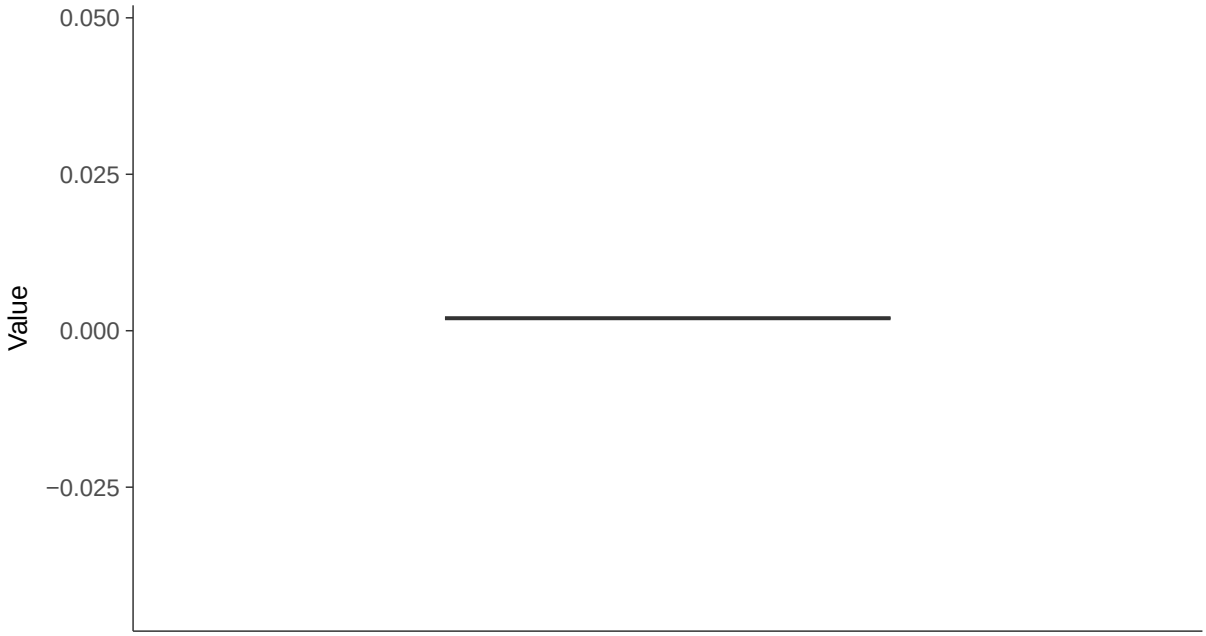
ID: 100B_2_23





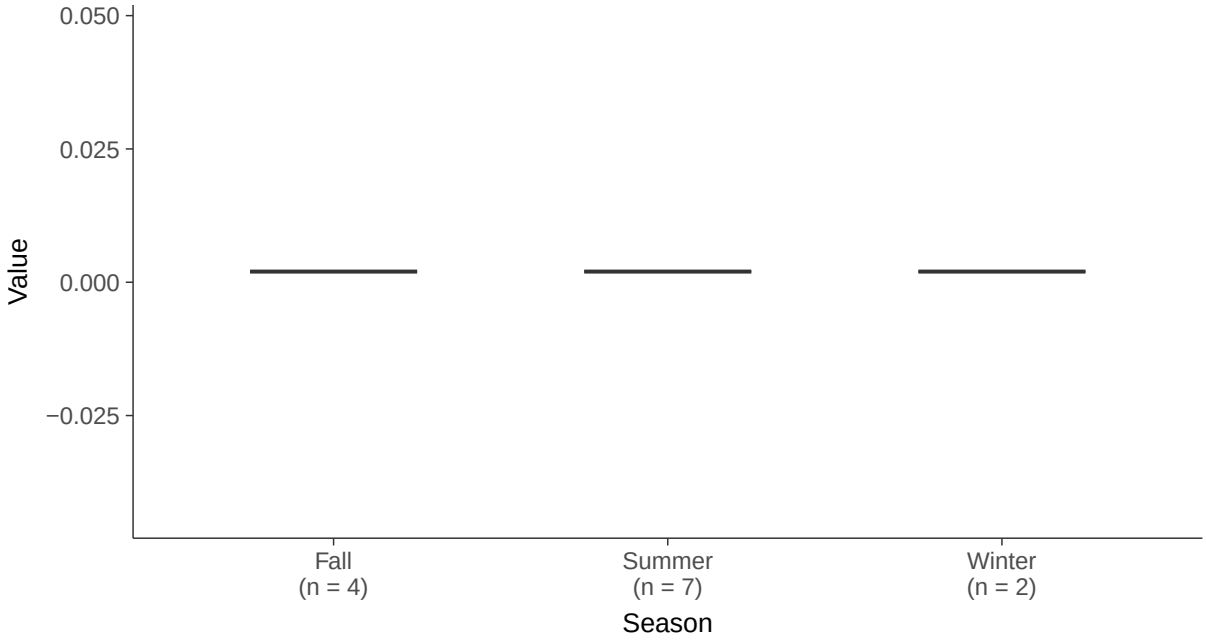
Boxplot

Thallium, MW-100B (mg/L)



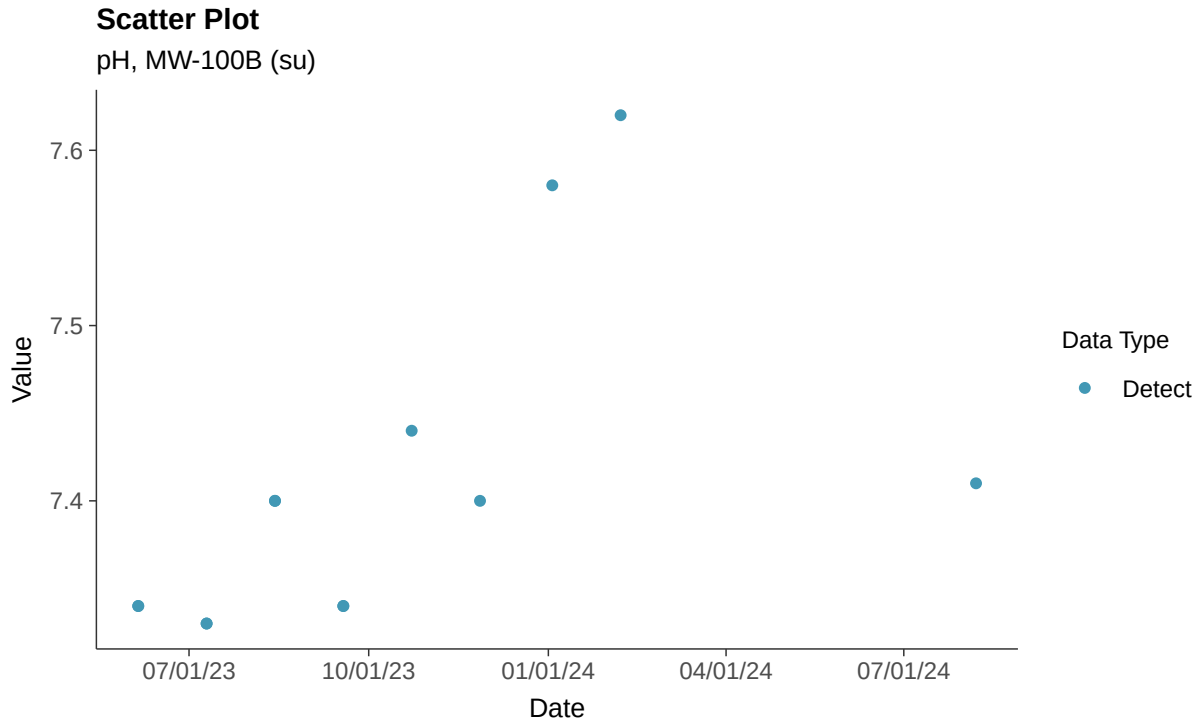
Boxplot by Season

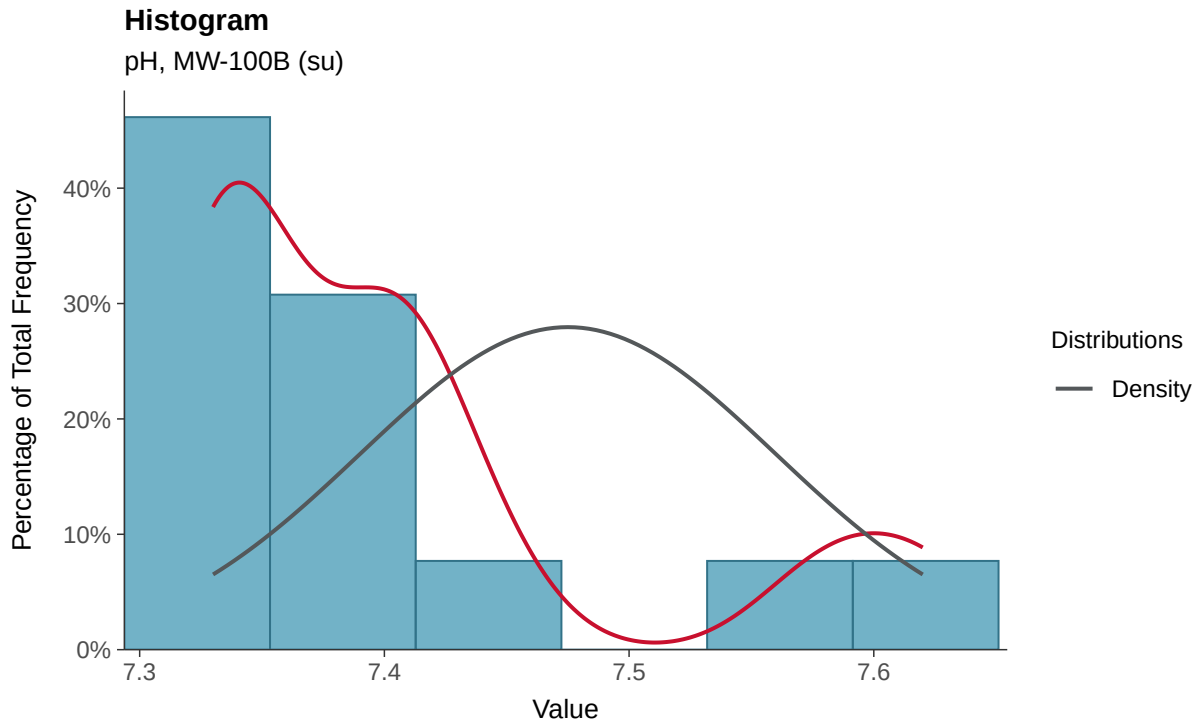
Thallium, MW-100B (mg/L)



Field Parameters: pH, MW-100B

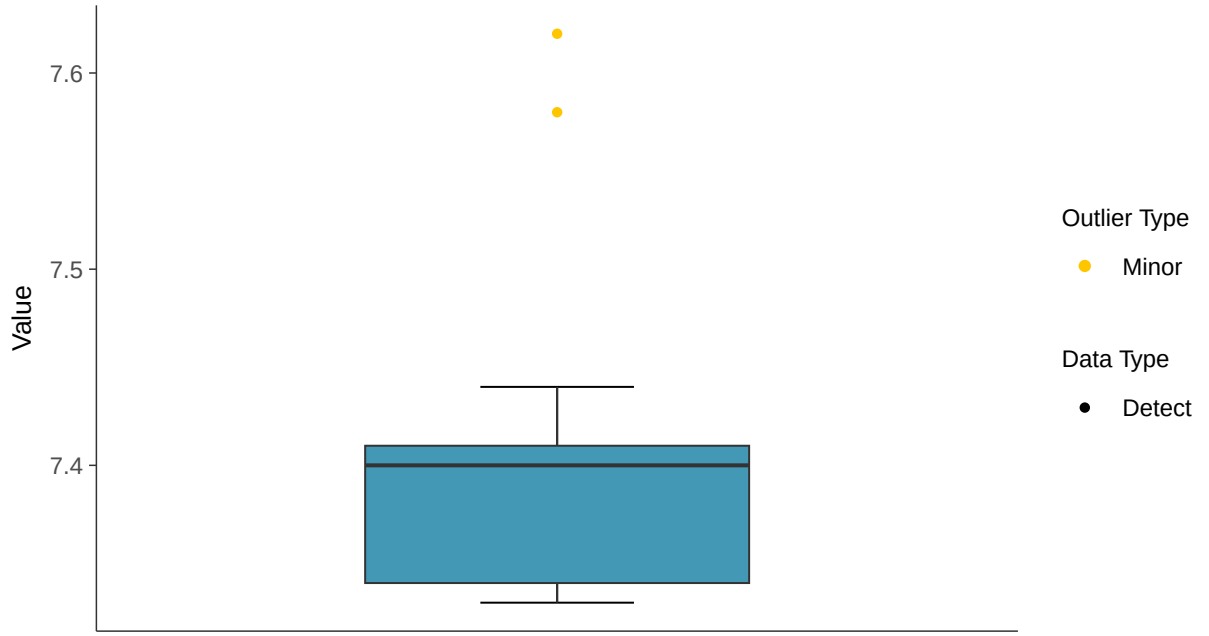
ID: 100B_3_24





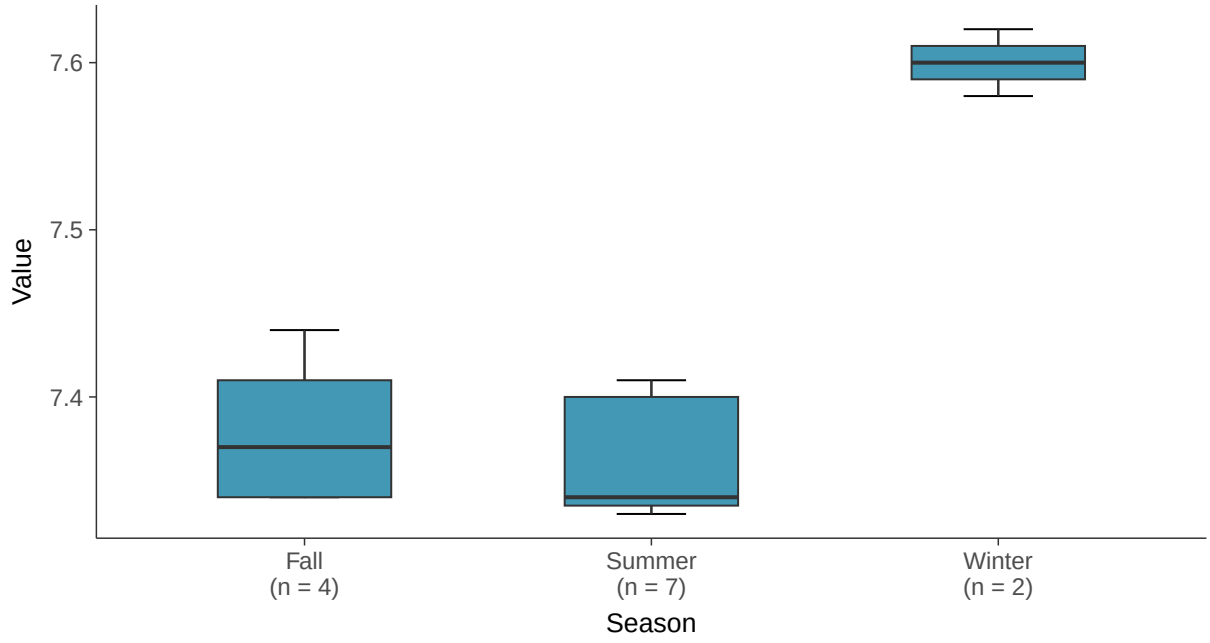
Boxplot

pH, MW-100B (su)



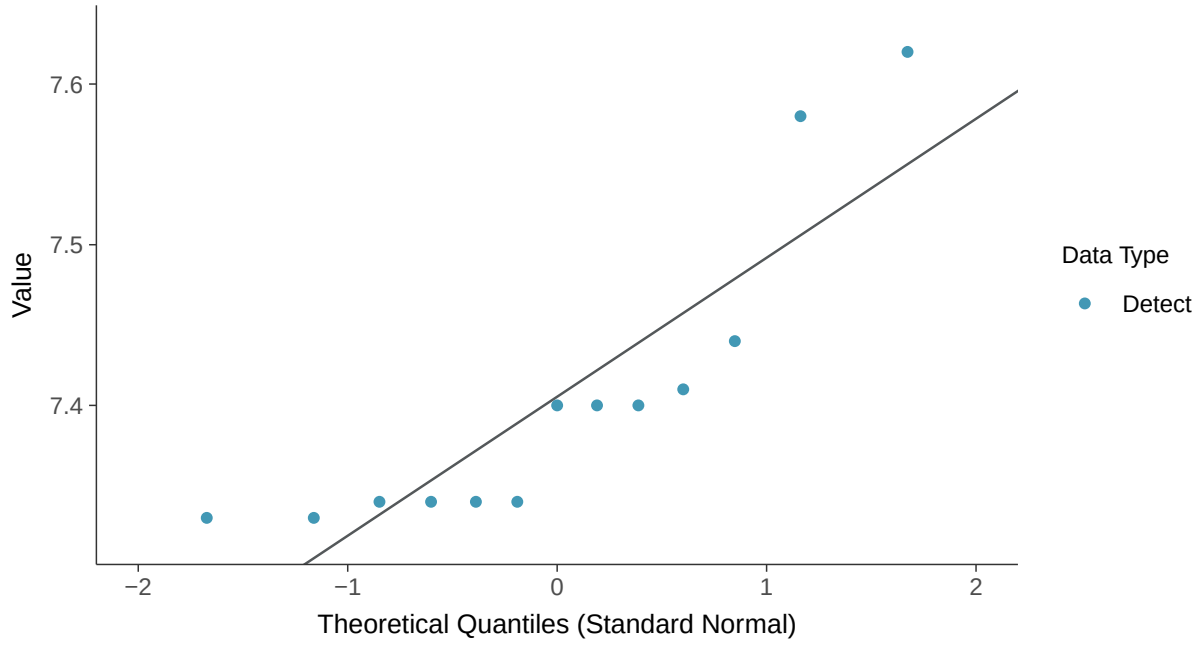
Boxplot by Season

pH, MW-100B (su)



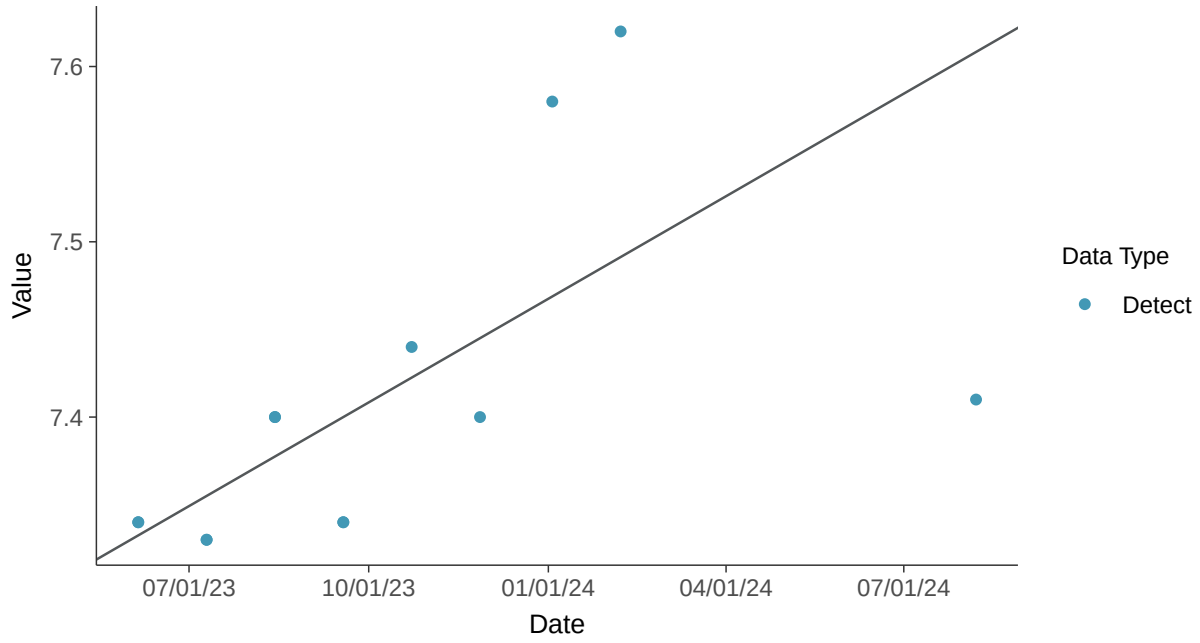
Normal Q-Q plot

pH, MW-100B (su)



Trend Regression: Mann-Kendall/Theil-Sen Estimate

pH, MW-100B (su)

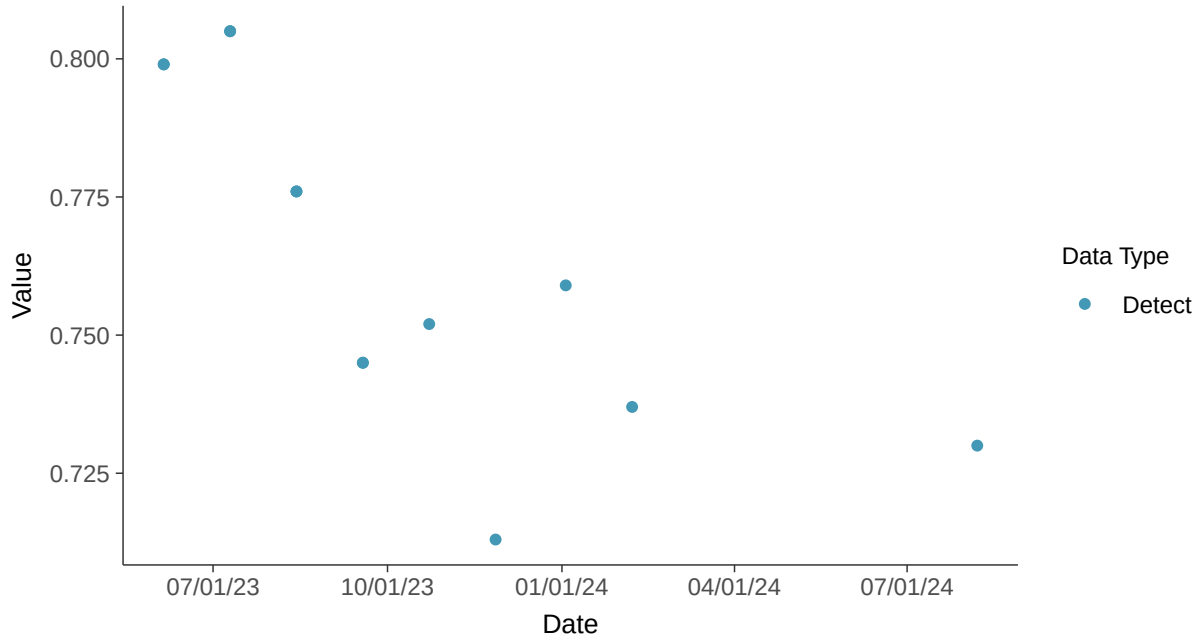


Field Parameters: Conductivity, MW-100B

ID: 100B_3_25

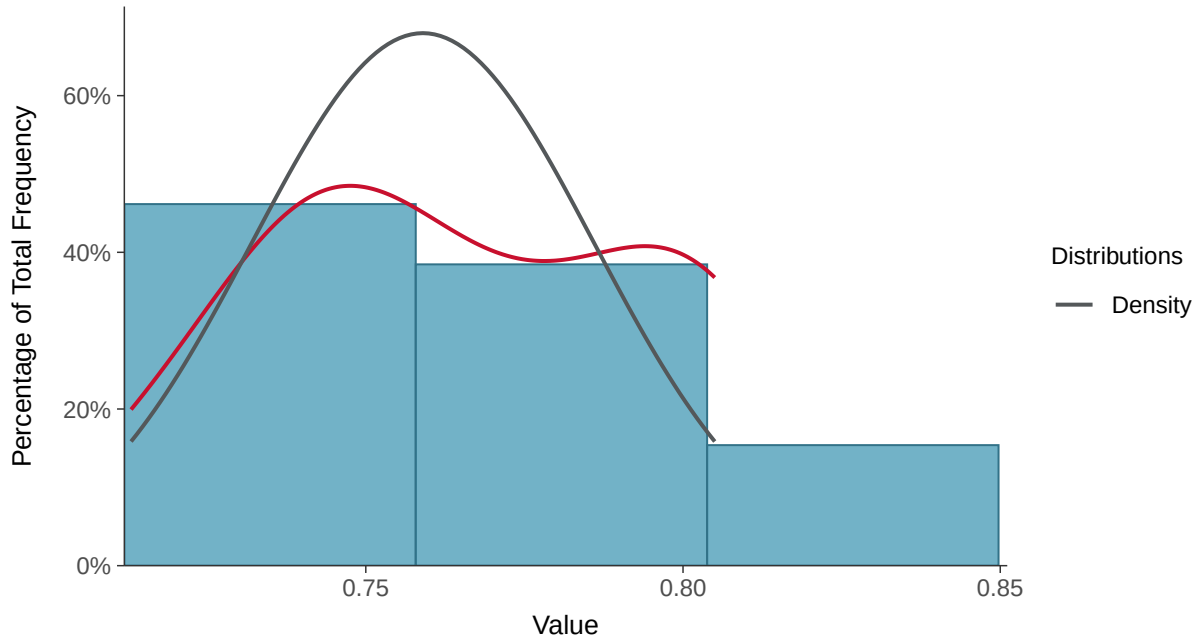
Scatter Plot

Conductivity, MW-100B (mS/cm)



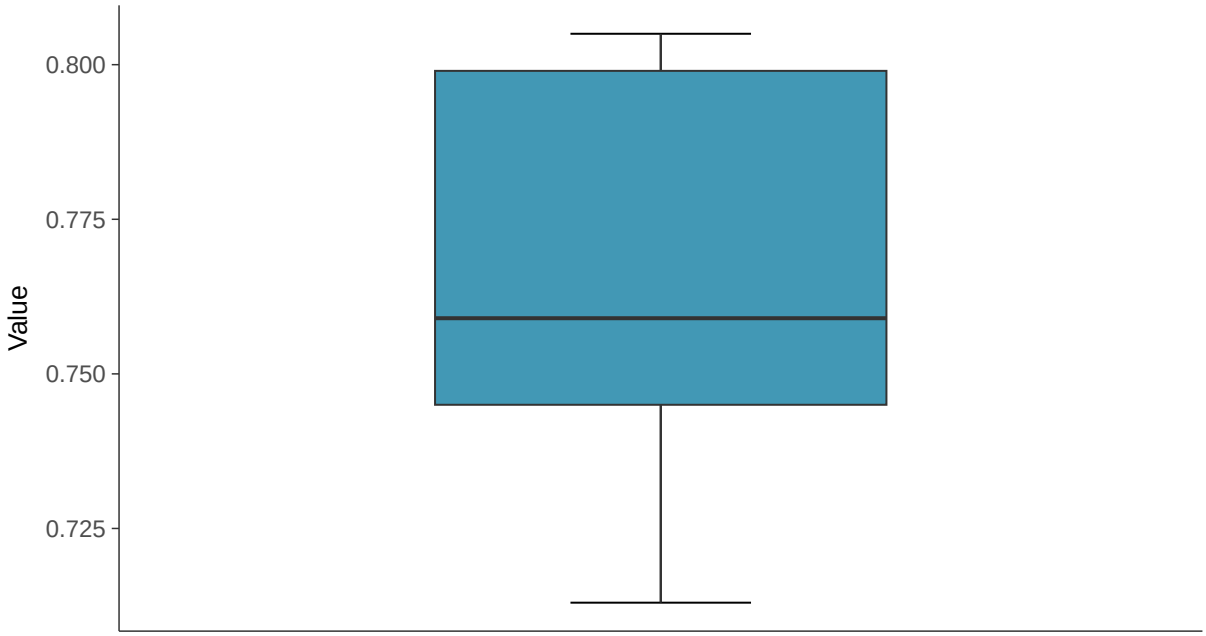
Histogram

Conductivity, MW-100B (mS/cm)



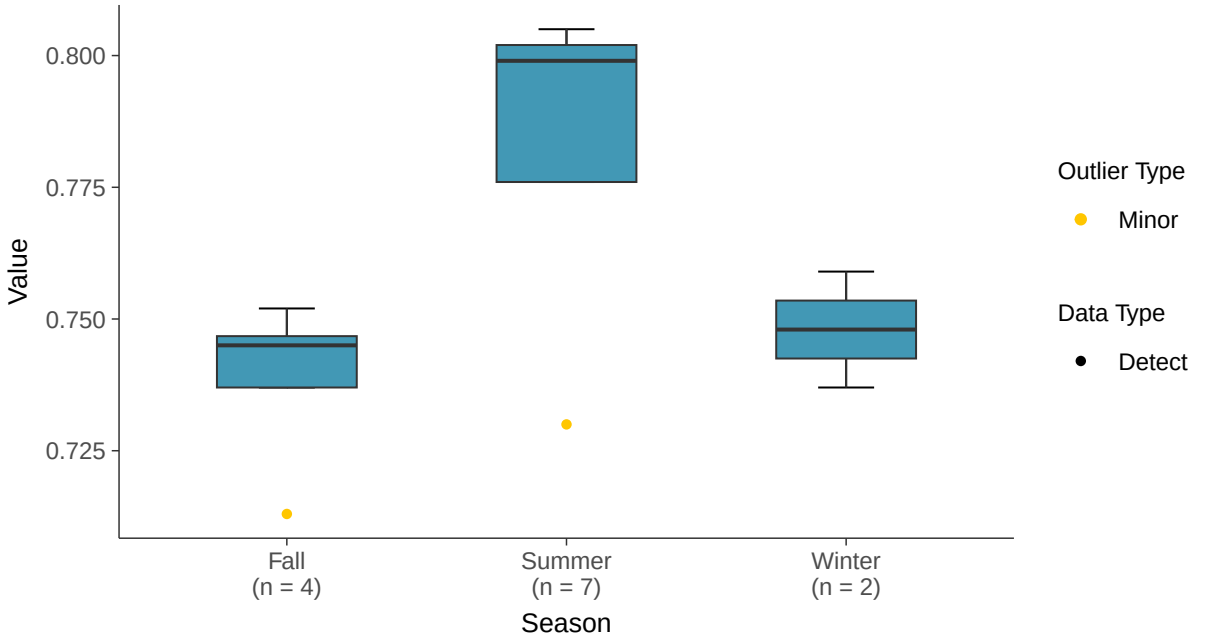
Boxplot

Conductivity, MW-100B (mS/cm)



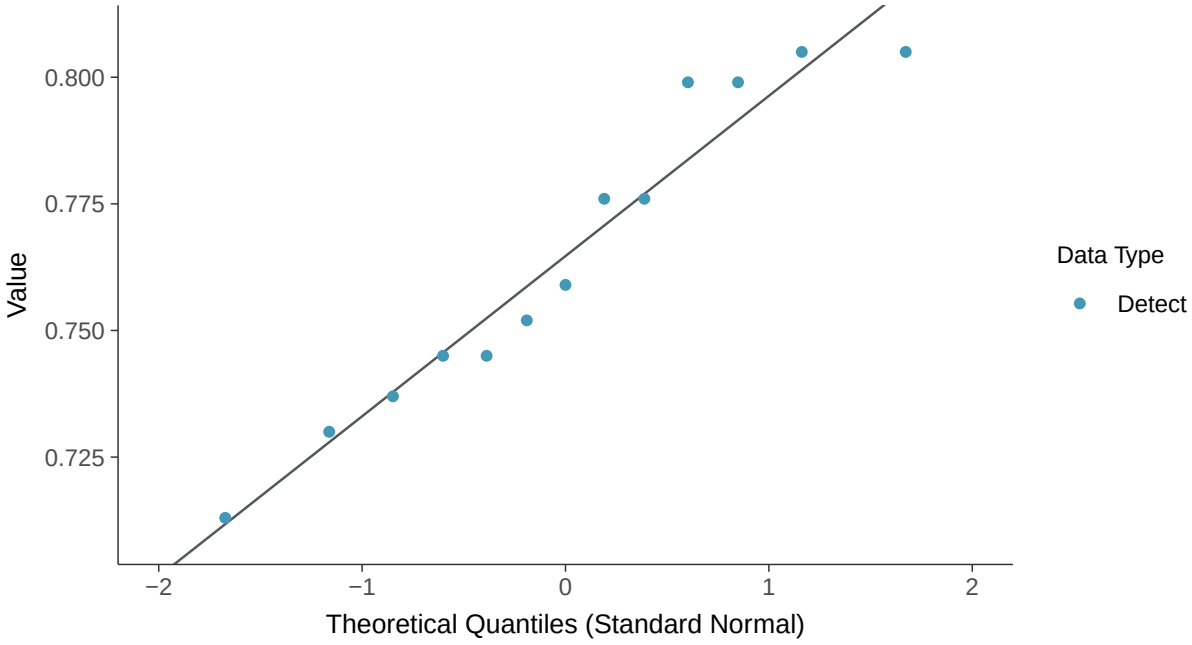
Boxplot by Season

Conductivity, MW-100B (mS/cm)



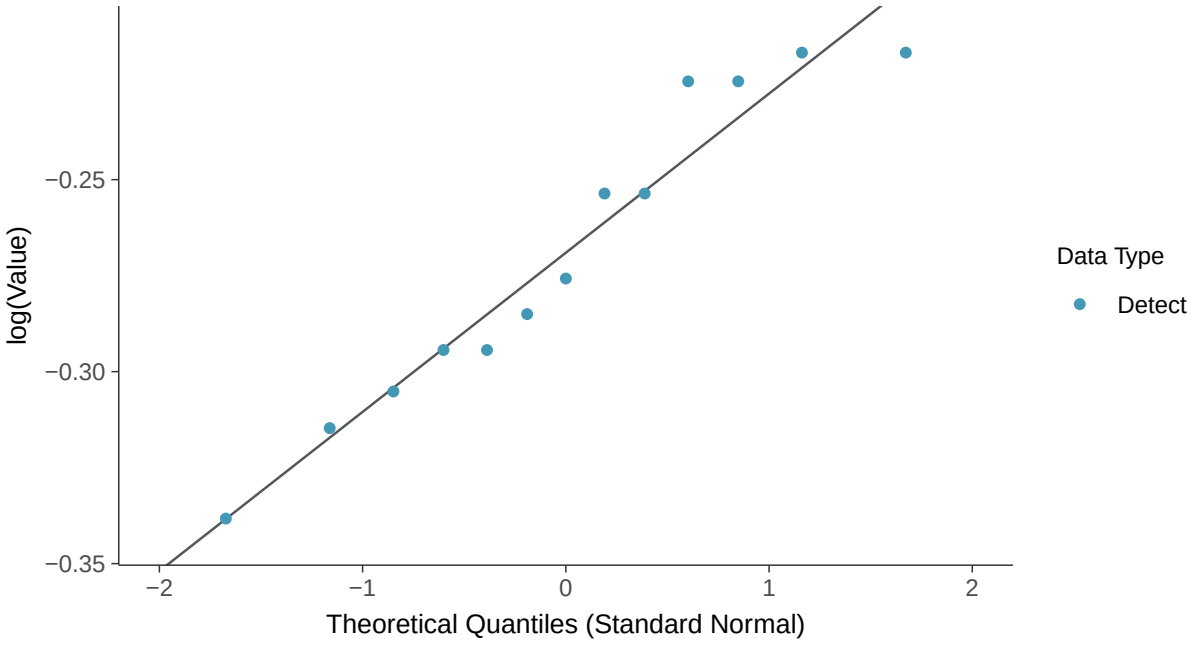
Normal Q-Q plot

Conductivity, MW-100B (mS/cm)



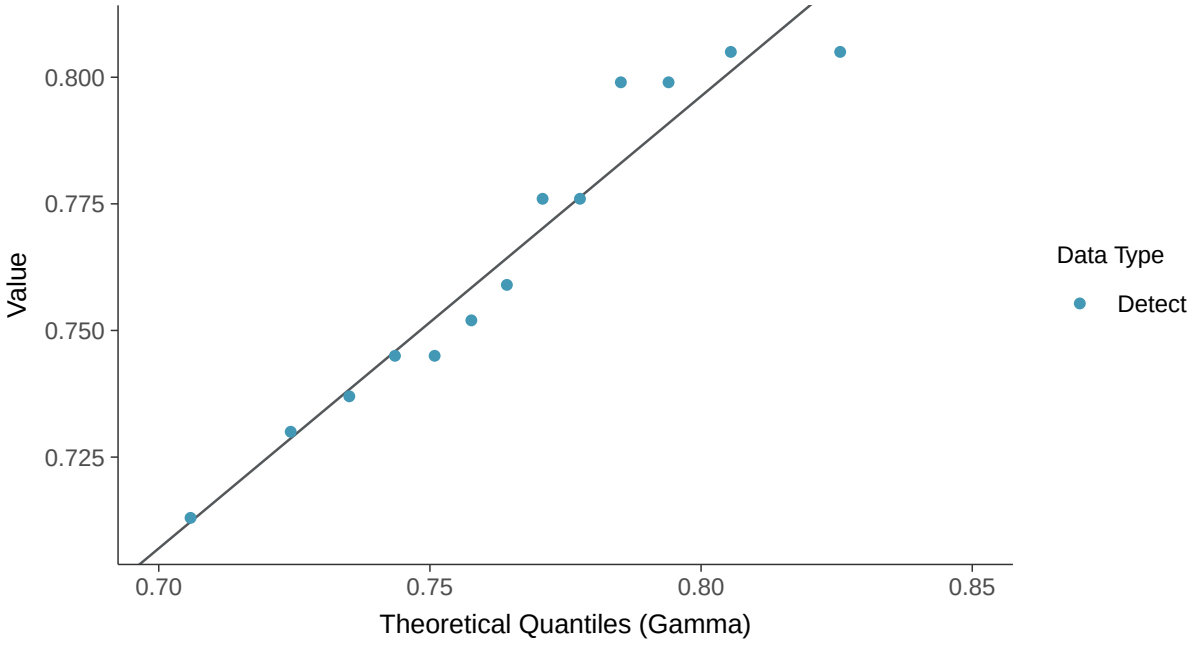
Lognormal Q-Q plot

Conductivity, MW-100B (mS/cm)



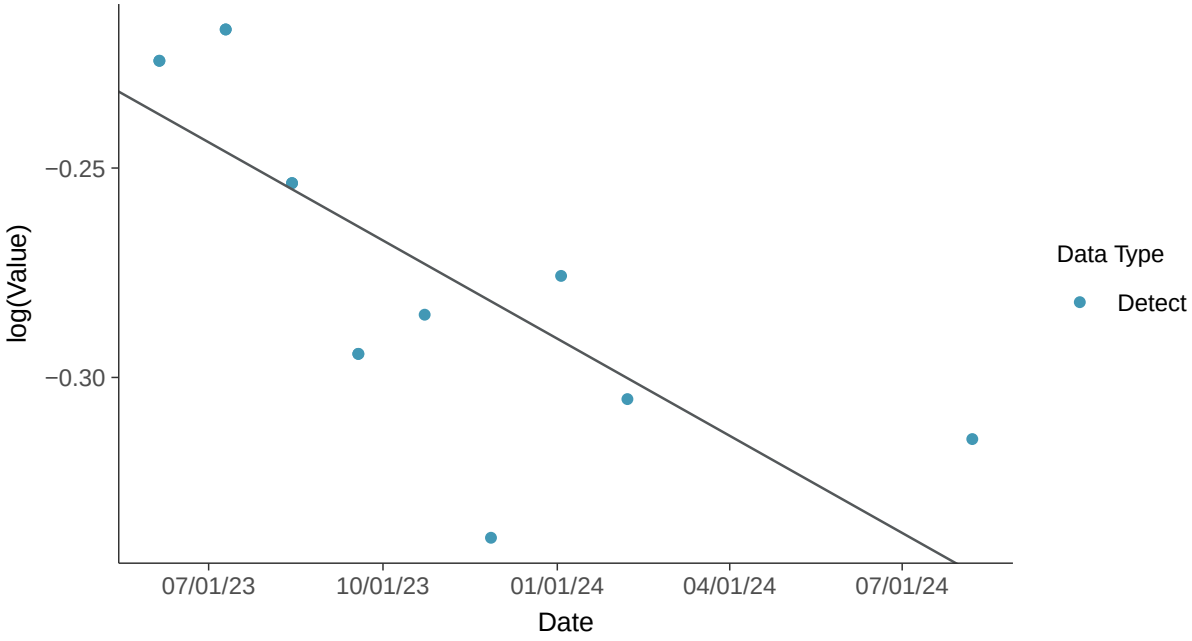
Gamma Q-Q plot

Conductivity, MW-100B (mS/cm)



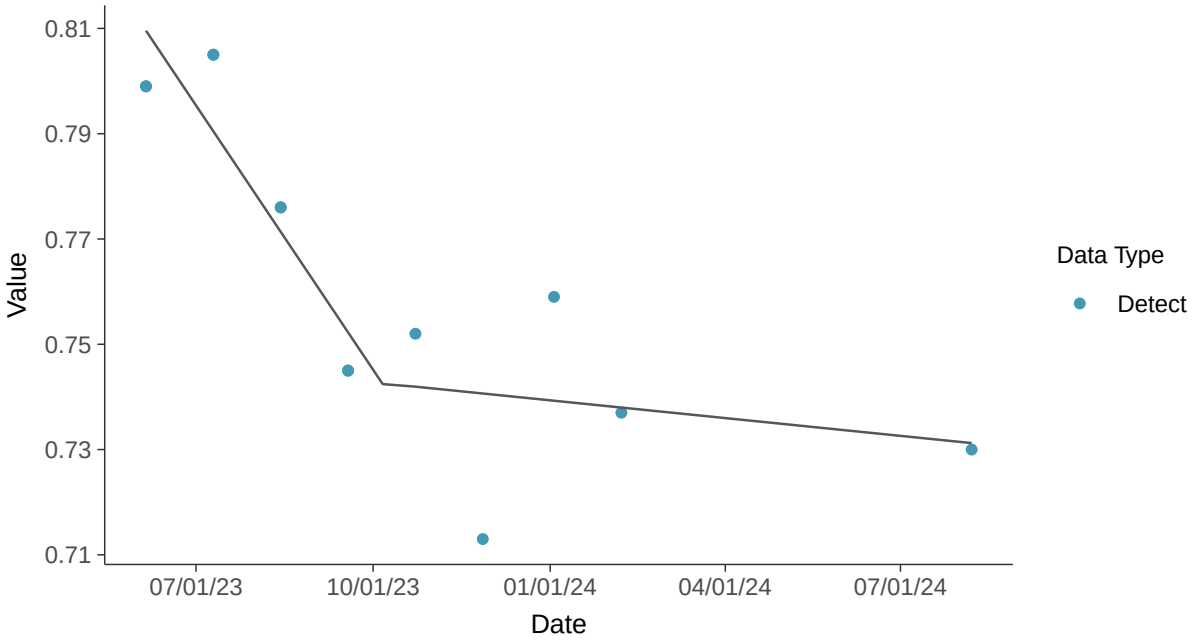
Trend Regression: Lognormal MLE

Conductivity, MW-100B (mS/cm)



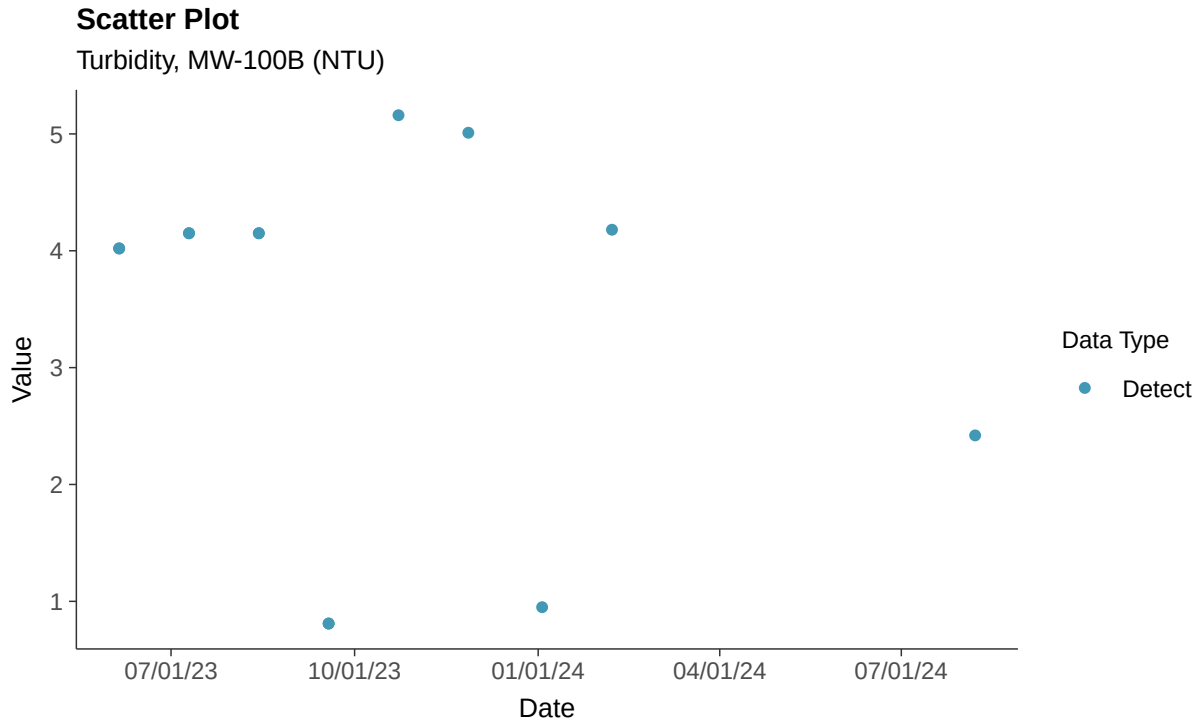
Trend Regression: Piecewise Linear-Linear

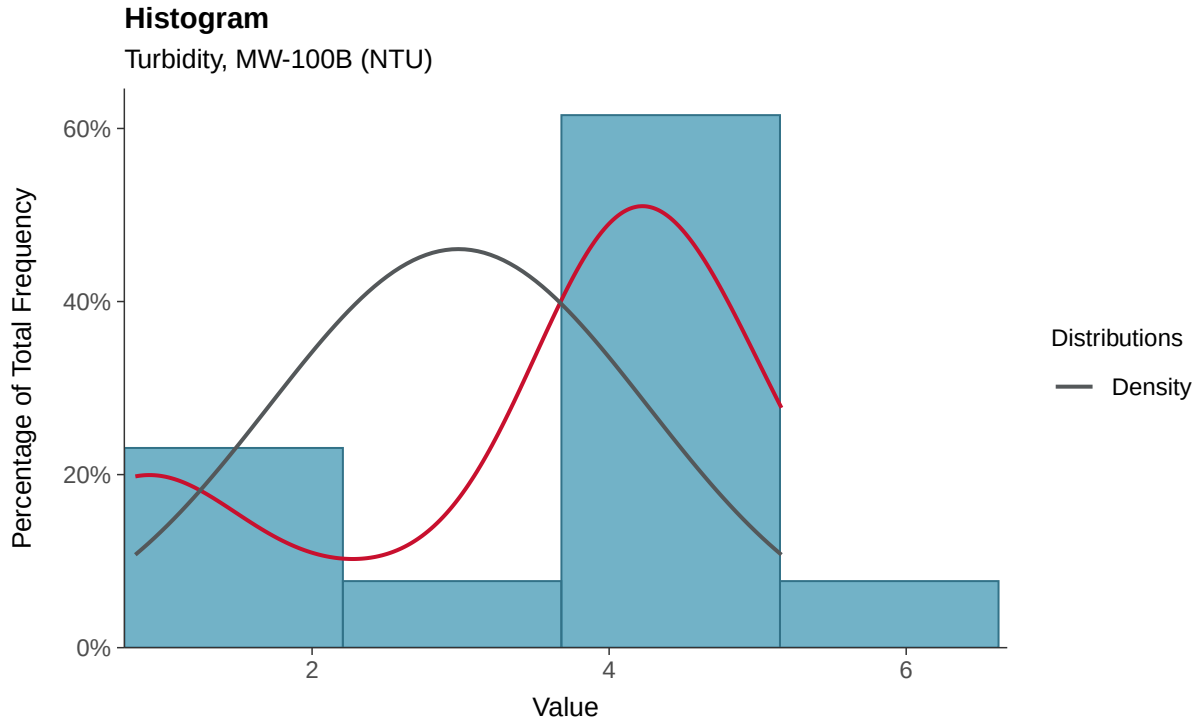
Conductivity, MW-100B (mS/cm)



Field Parameters: Turbidity, MW-100B

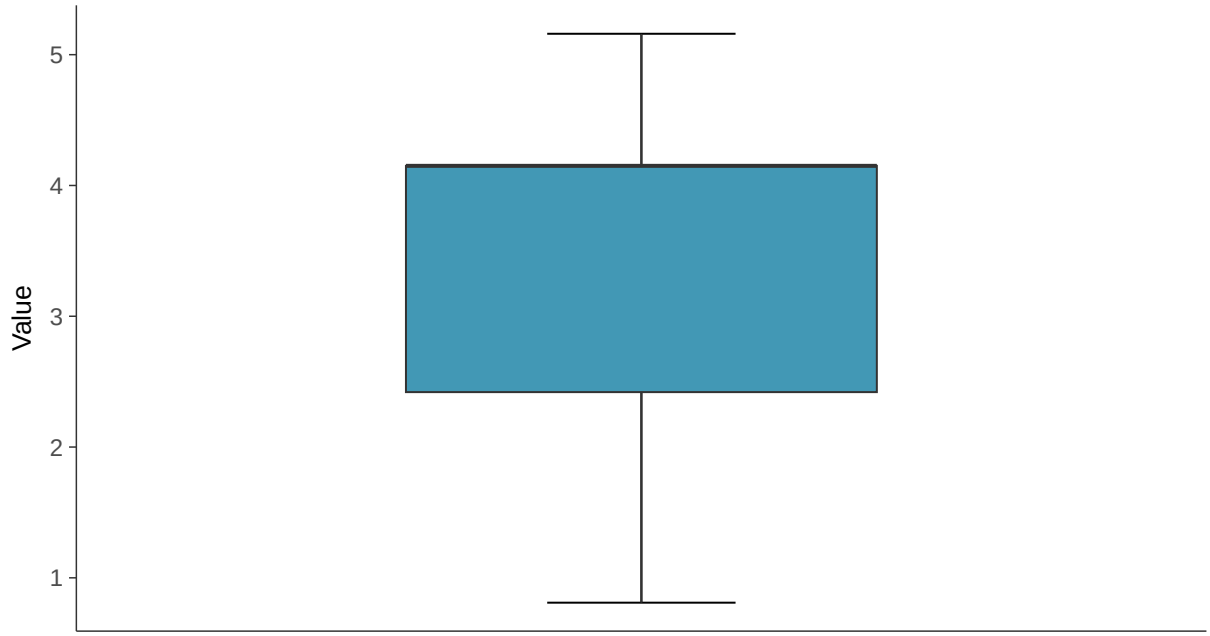
ID: 100B_3_26





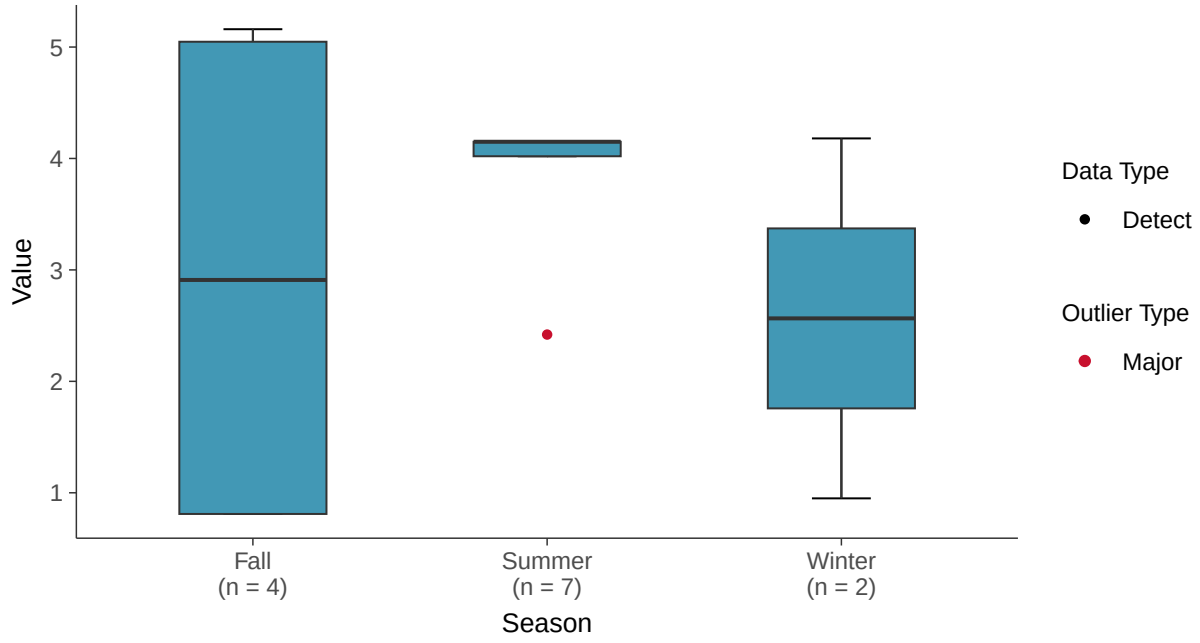
Boxplot

Turbidity, MW-100B (NTU)



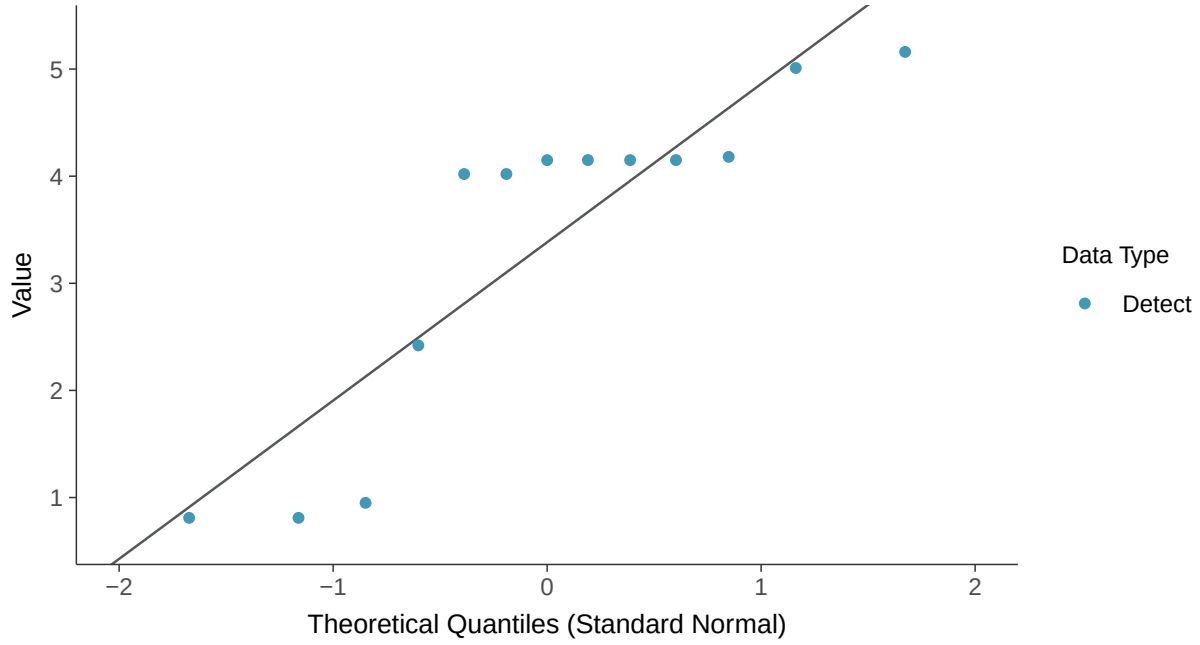
Boxplot by Season

Turbidity, MW-100B (NTU)



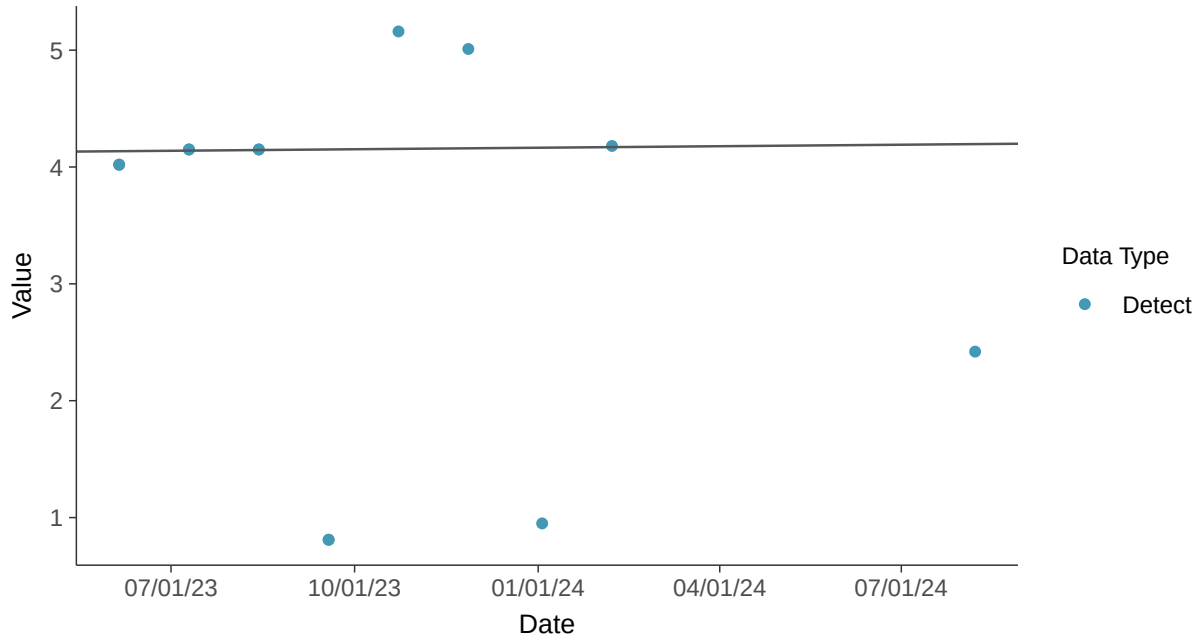
Normal Q-Q plot

Turbidity, MW-100B (NTU)



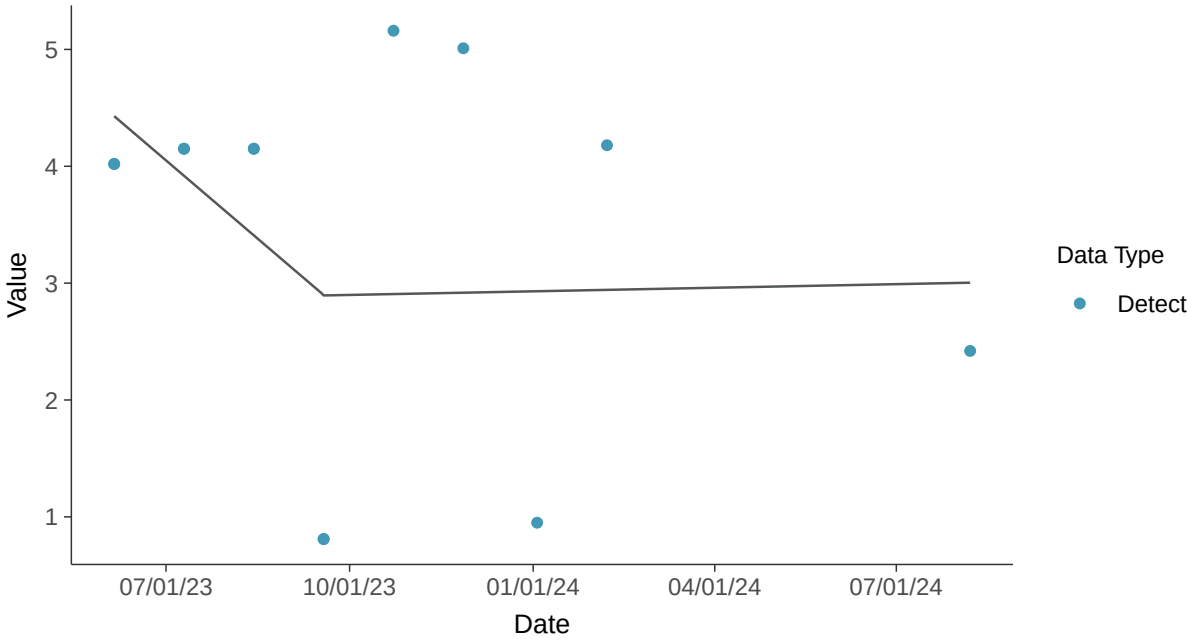
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Turbidity, MW-100B (NTU)



Trend Regression: Piecewise Linear-Linear

Turbidity, MW-100B (NTU)

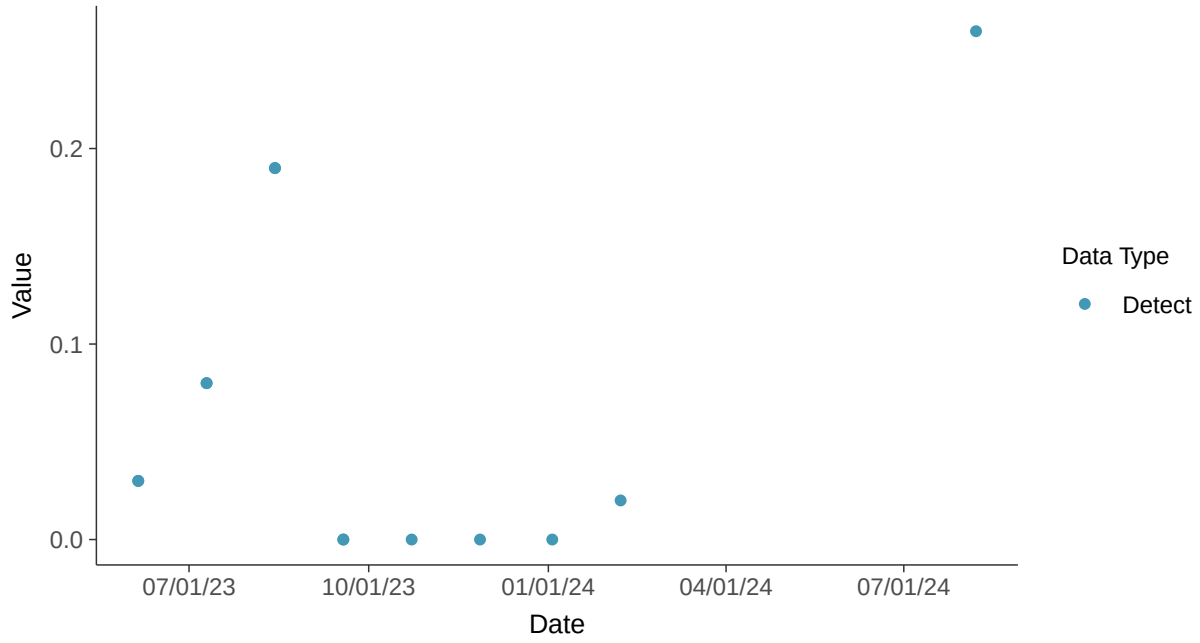


Field Parameters: Dissolved Oxygen, MW-100B

ID: 100B_3_27

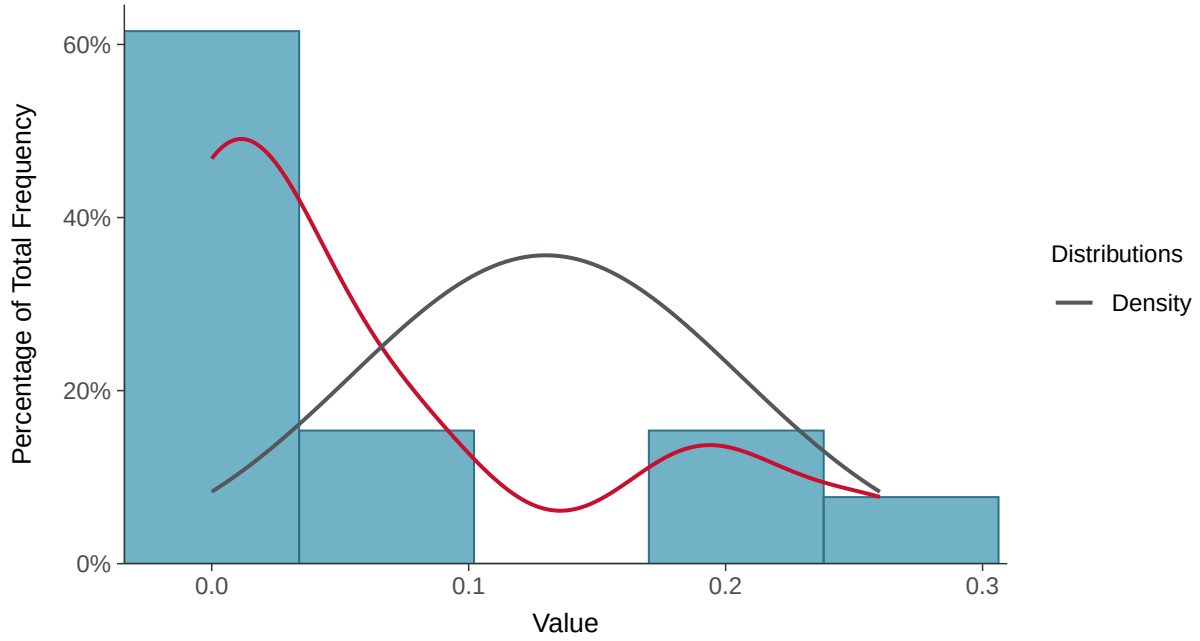
Scatter Plot

Dissolved Oxygen, MW-100B (mg/L)



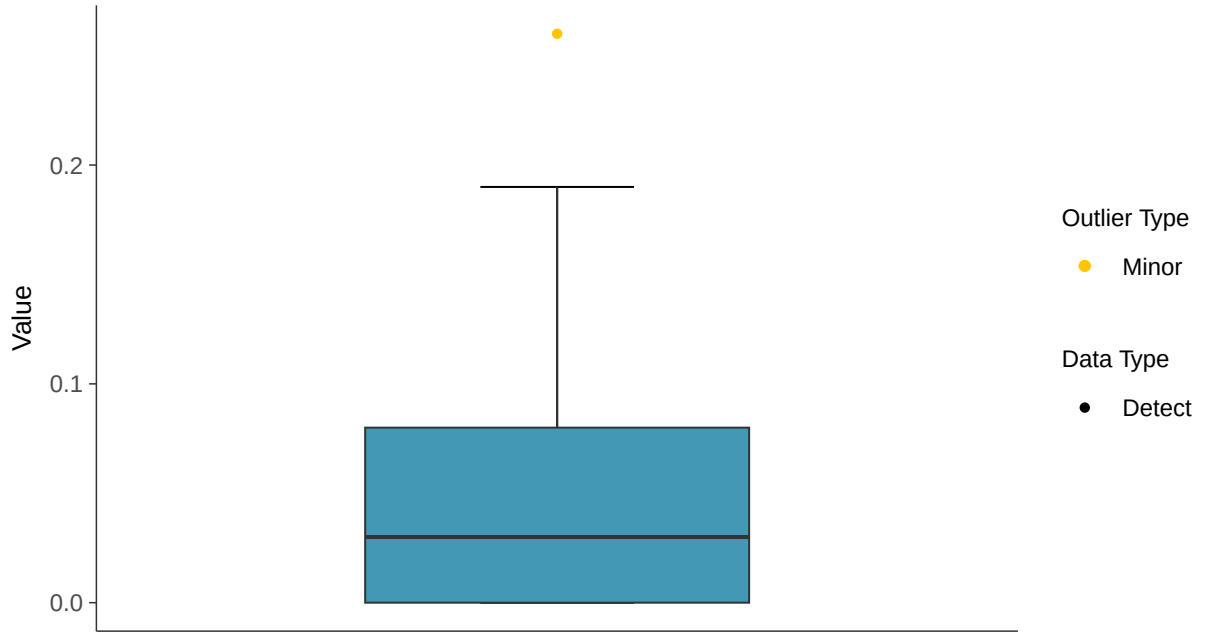
Histogram

Dissolved Oxygen, MW-100B (mg/L)



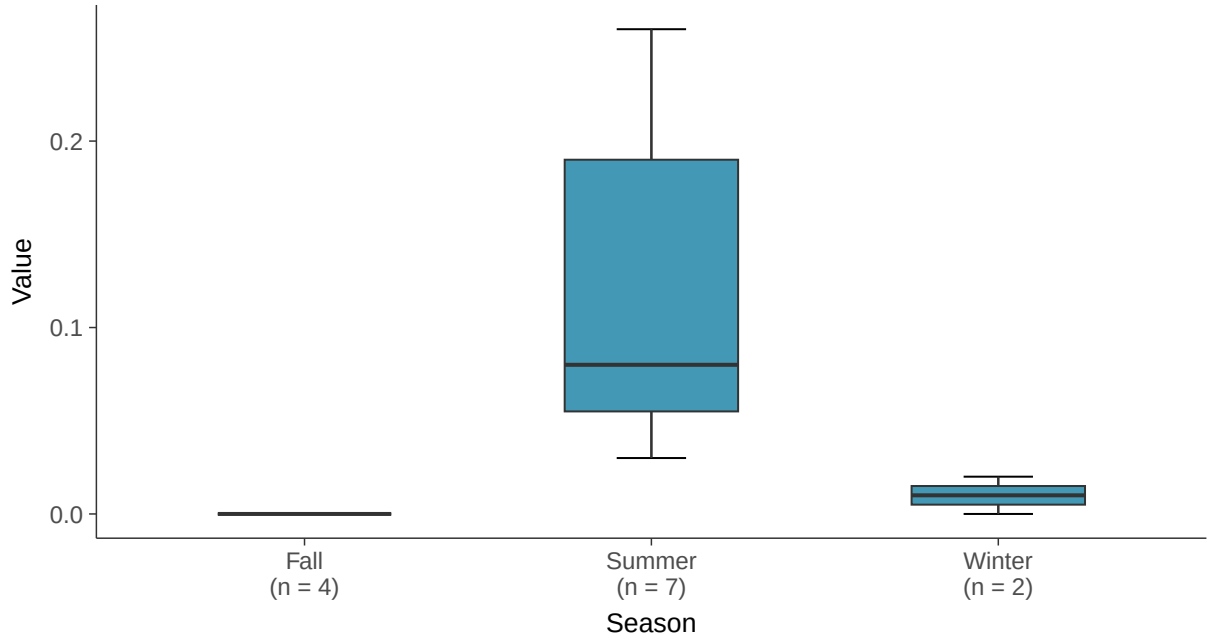
Boxplot

Dissolved Oxygen, MW-100B (mg/L)



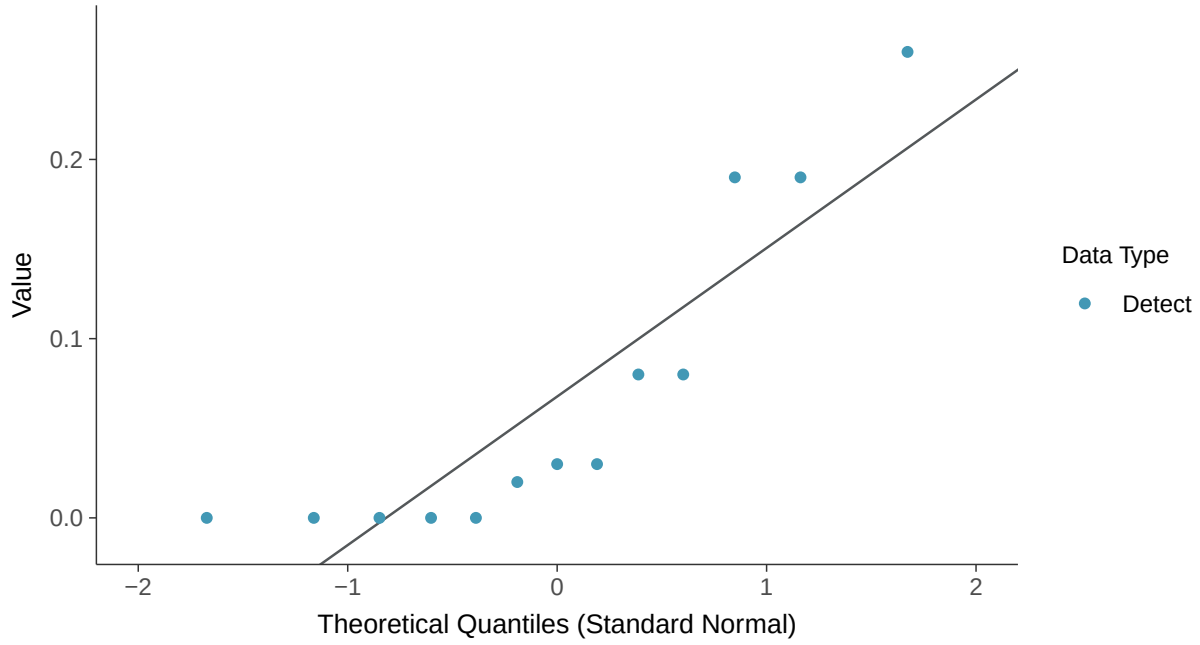
Boxplot by Season

Dissolved Oxygen, MW-100B (mg/L)



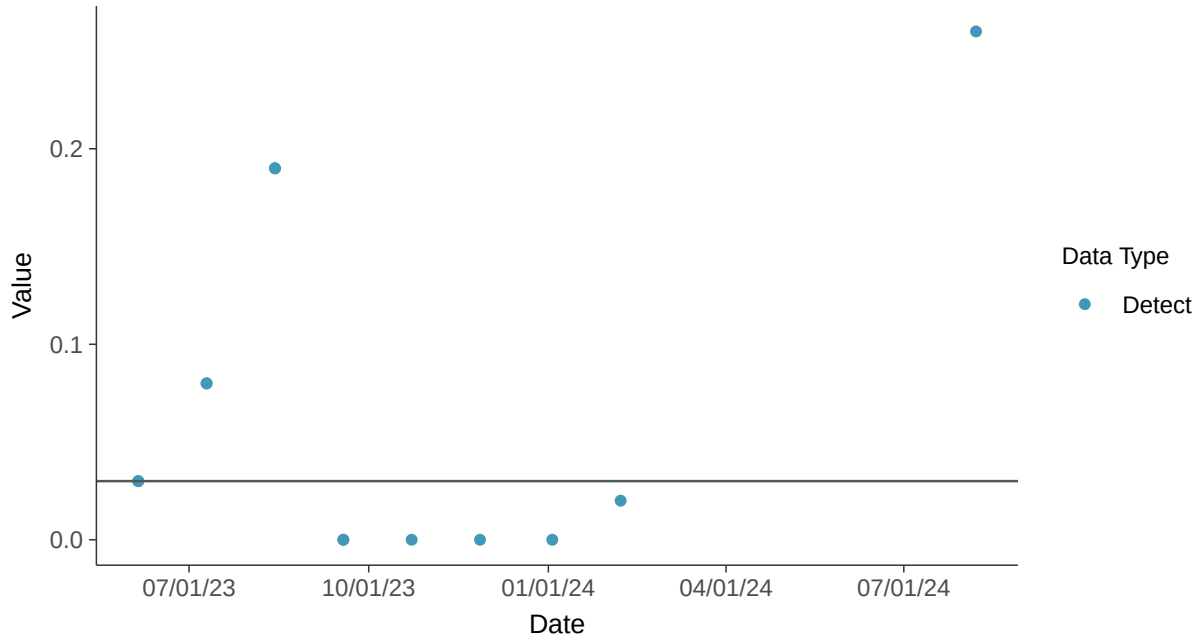
Normal Q-Q plot

Dissolved Oxygen, MW-100B (mg/L)



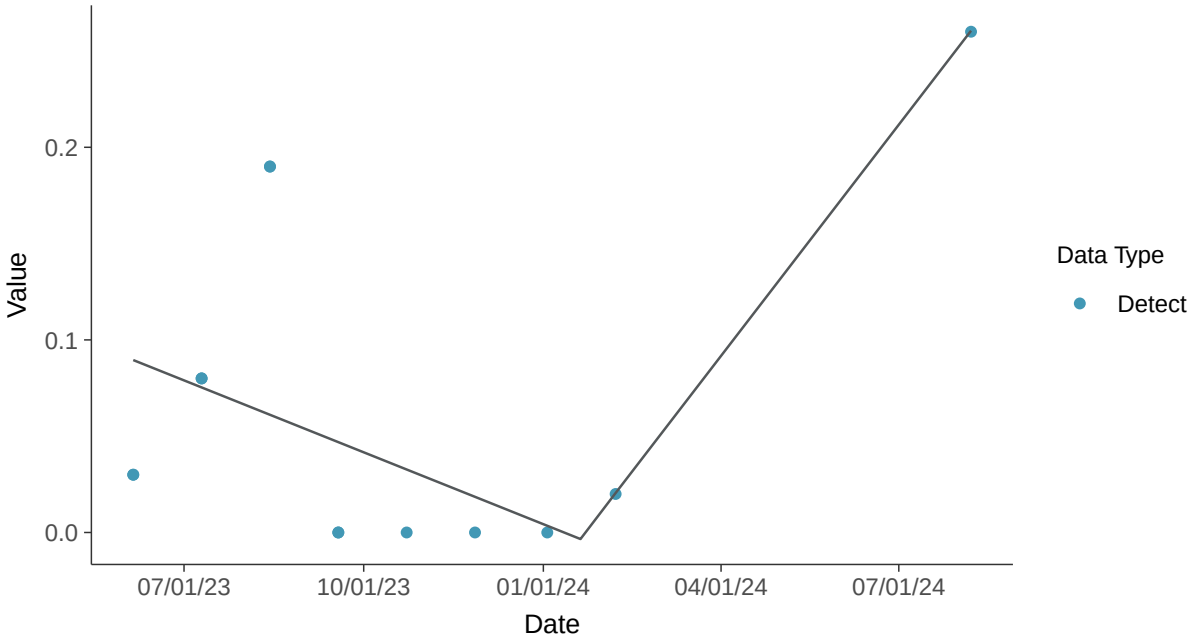
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Dissolved Oxygen, MW-100B (mg/L)



Trend Regression: Piecewise Linear-Linear

Dissolved Oxygen, MW-100B (mg/L)

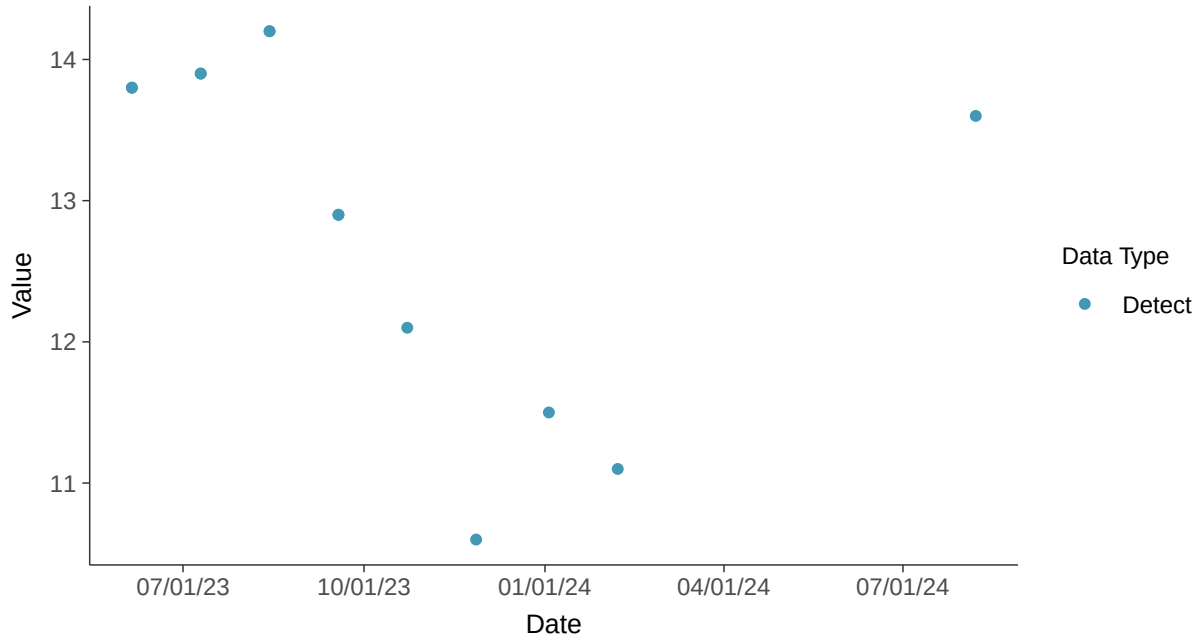


Field Parameters: Temperature, MW-100B

ID: 100B_3_28

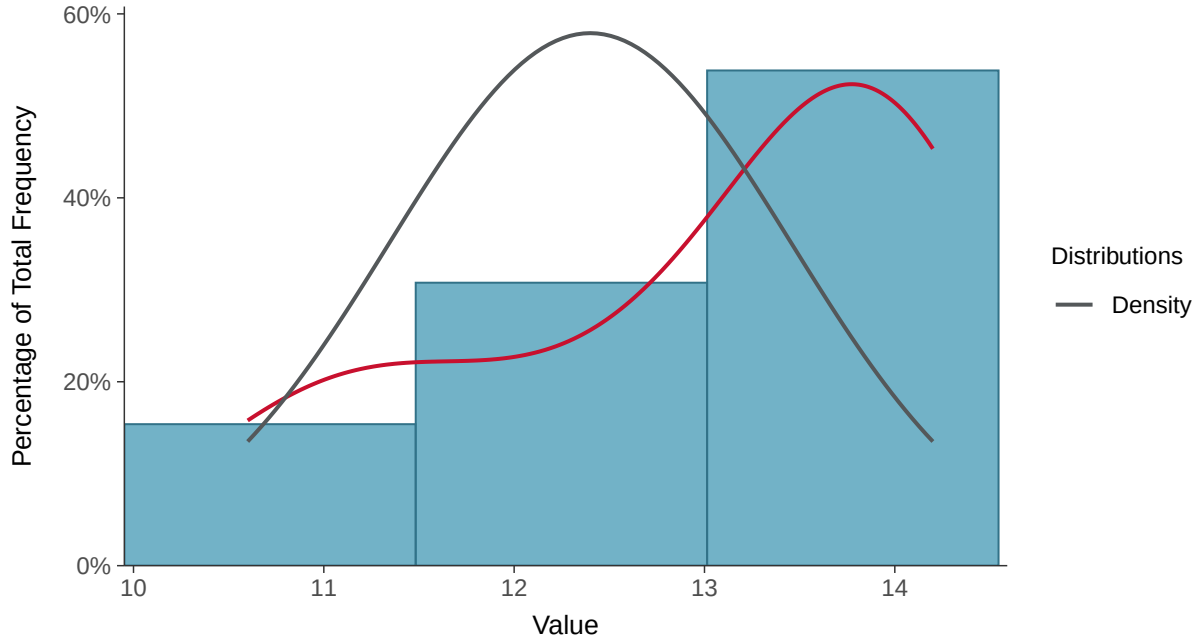
Scatter Plot

Temperature, MW-100B (°C)



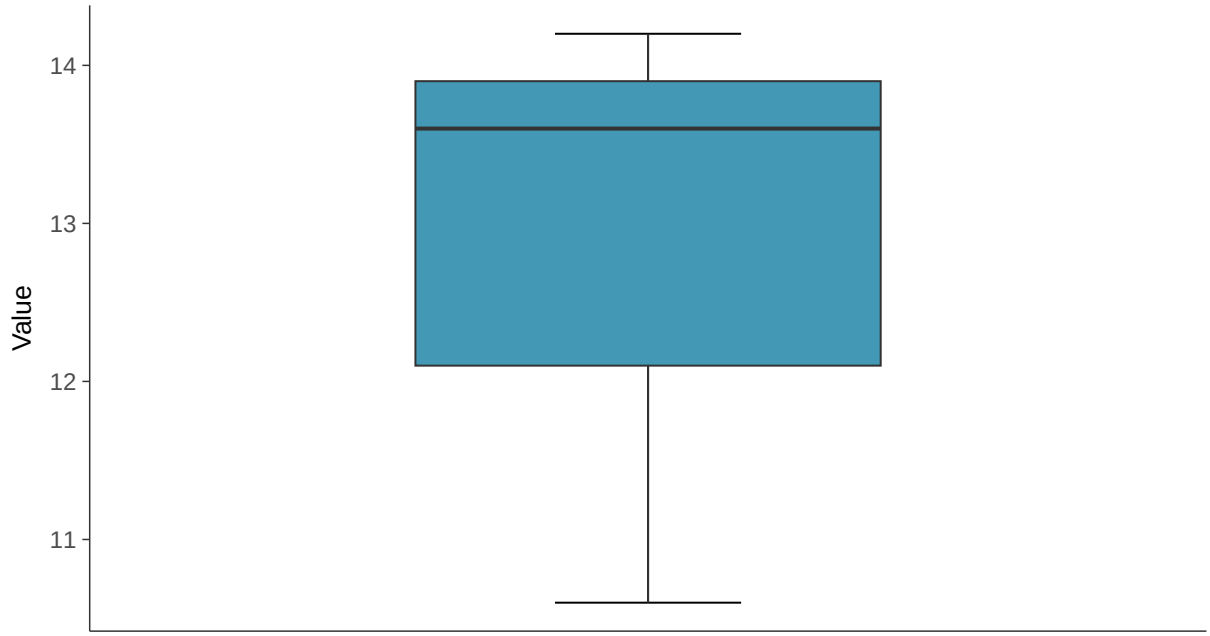
Histogram

Temperature, MW-100B (°C)



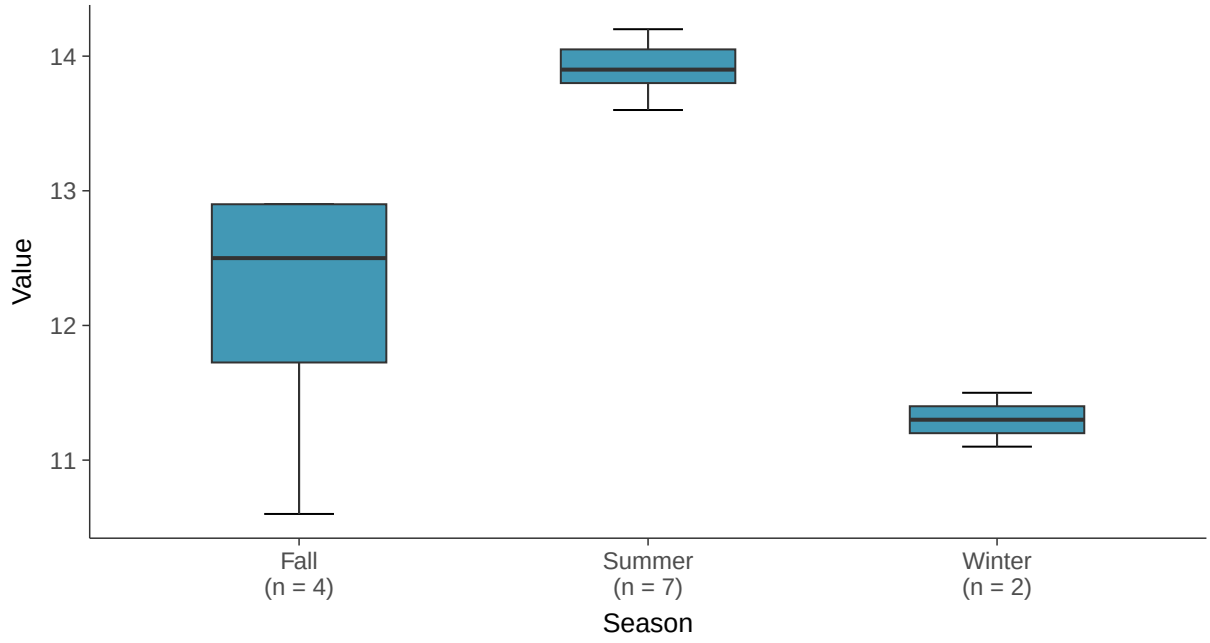
Boxplot

Temperature, MW-100B (°C)



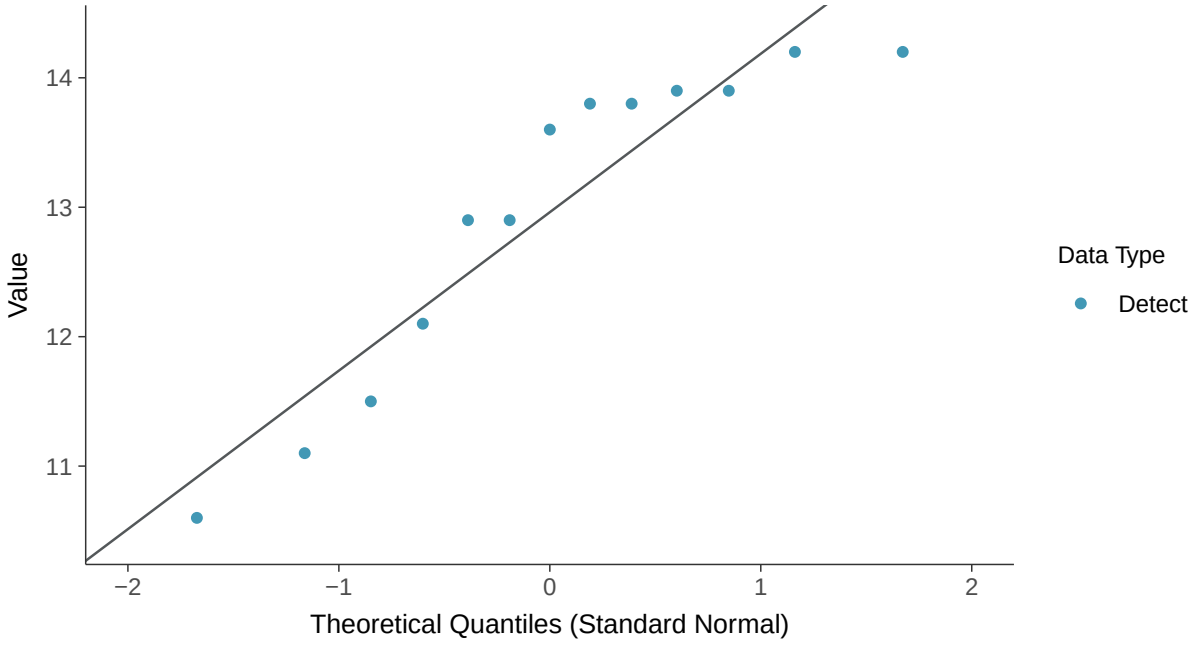
Boxplot by Season

Temperature, MW-100B (°C)



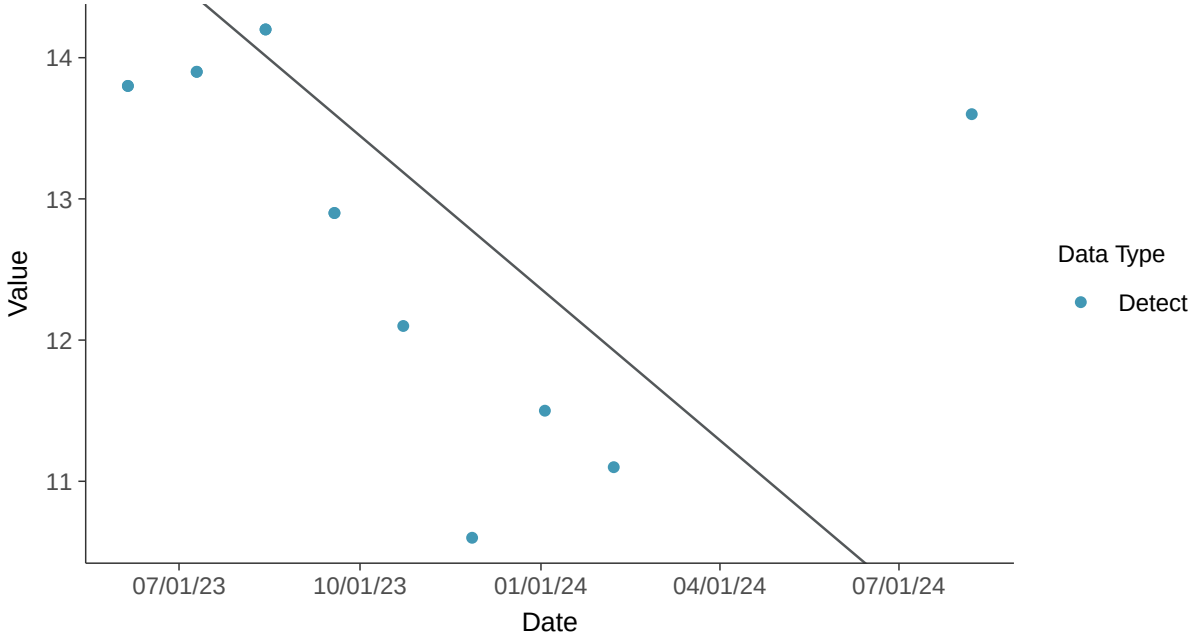
Normal Q-Q plot

Temperature, MW-100B (°C)



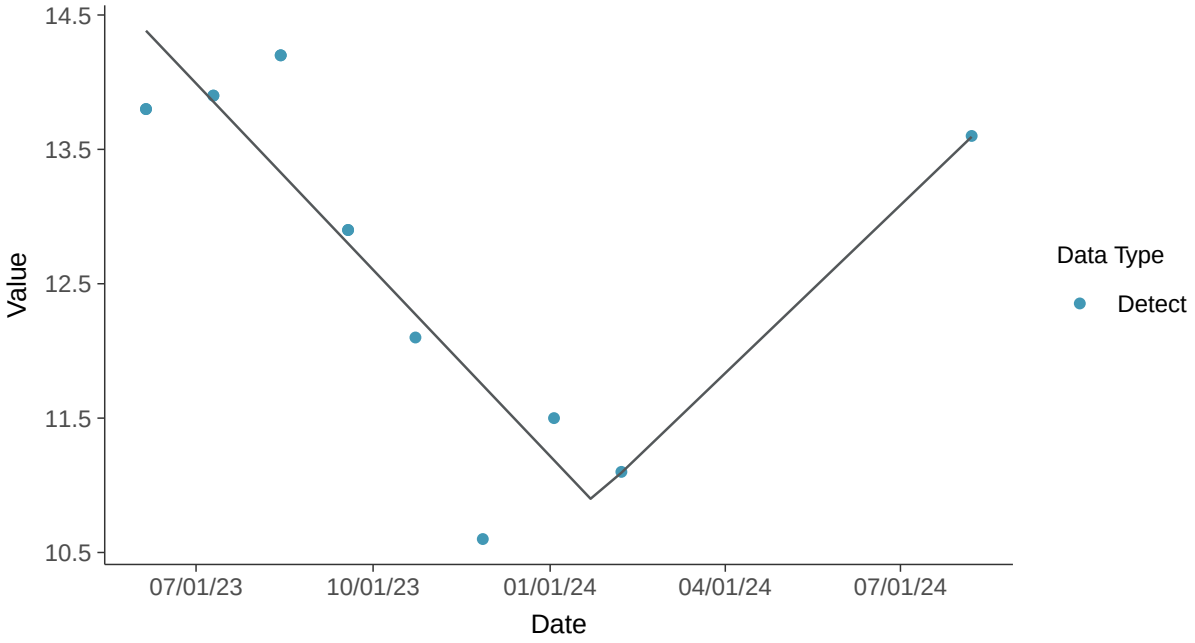
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Temperature, MW-100B (°C)



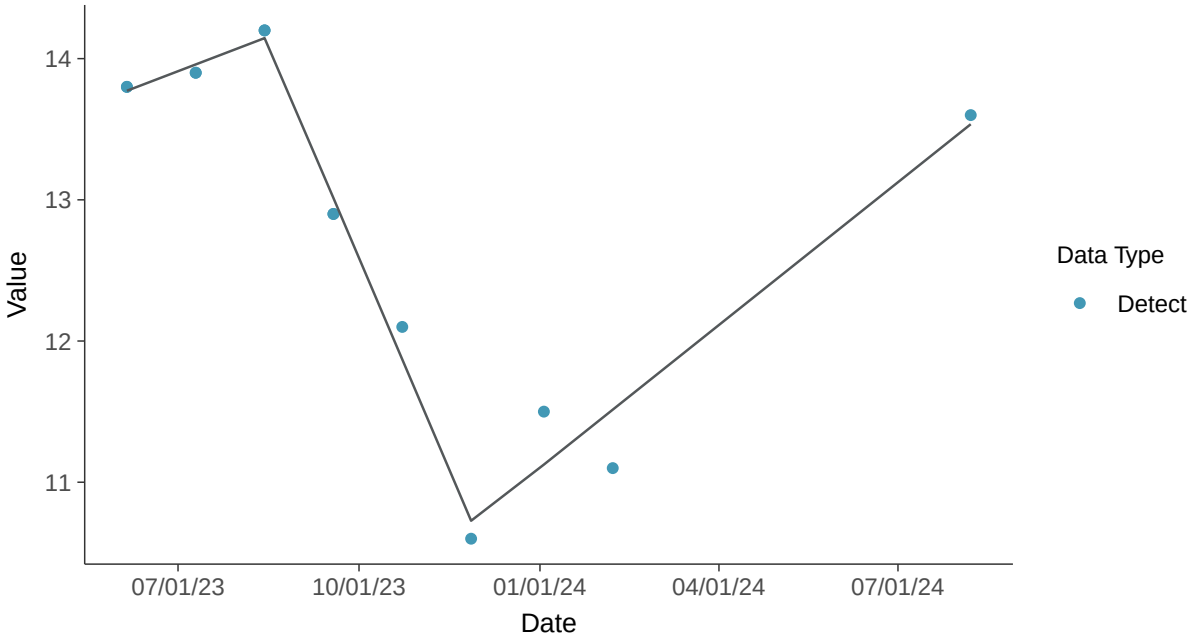
Trend Regression: Piecewise Linear-Linear

Temperature, MW-100B (°C)



Trend Regression: Piecewise Linear-Linear-Linear

Temperature, MW-100B (°C)

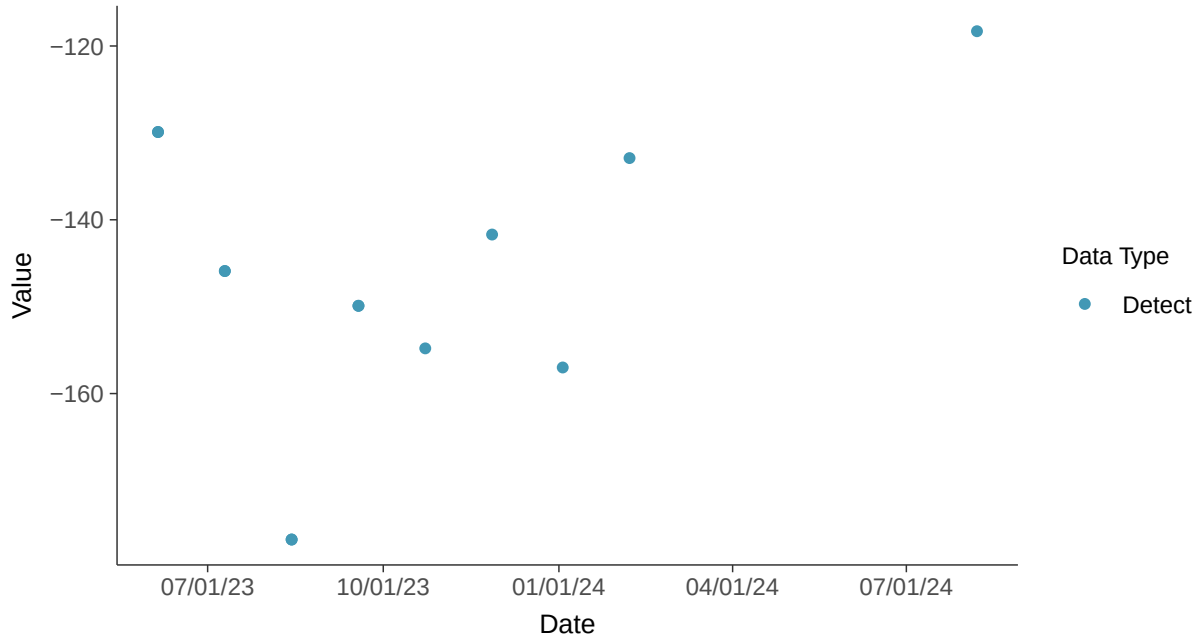


Field Parameters: Oxidation Reduction Potential, MW-100B

ID: 100B_3_29

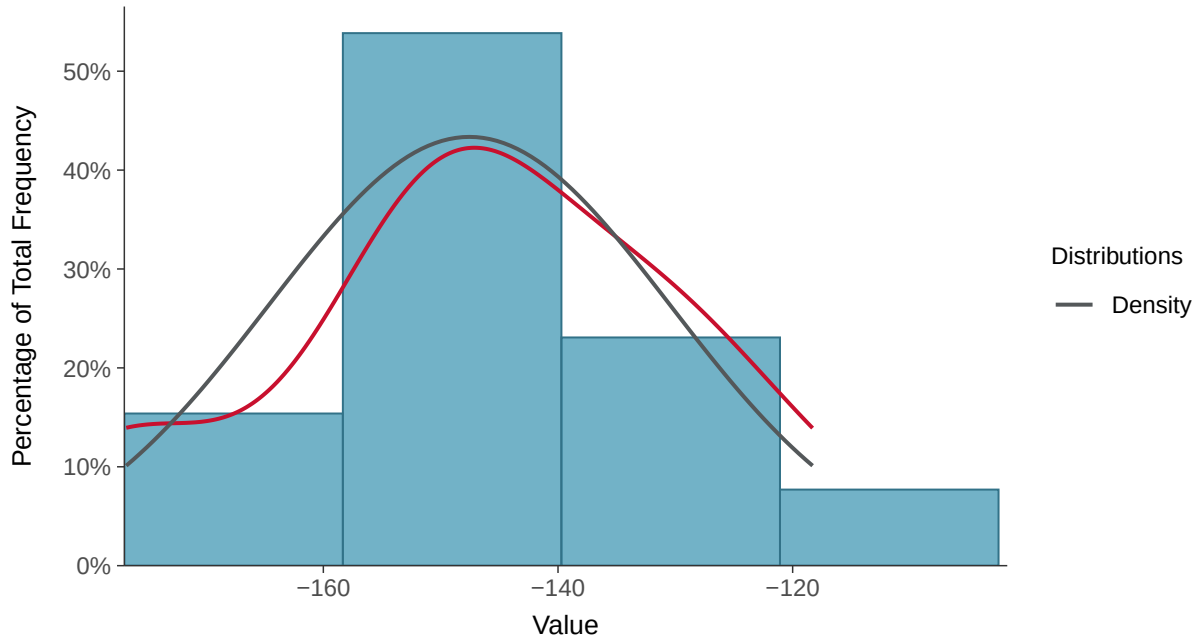
Scatter Plot

Oxidation Reduction Potential, MW-100B (mV)



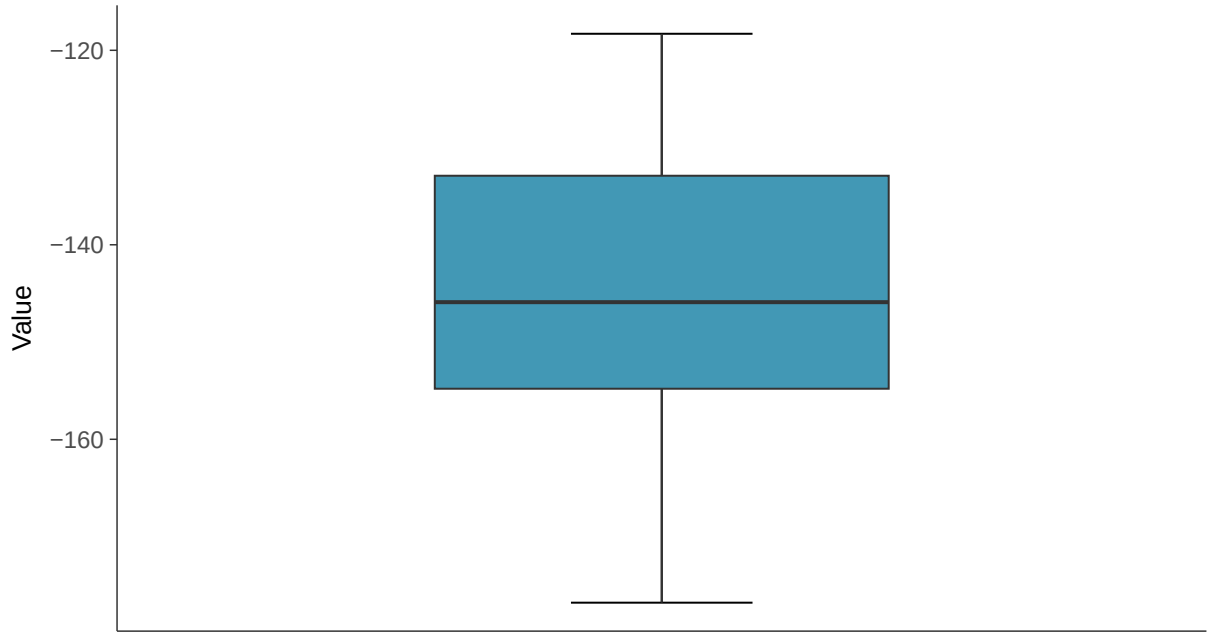
Histogram

Oxidation Reduction Potential, MW-100B (mV)



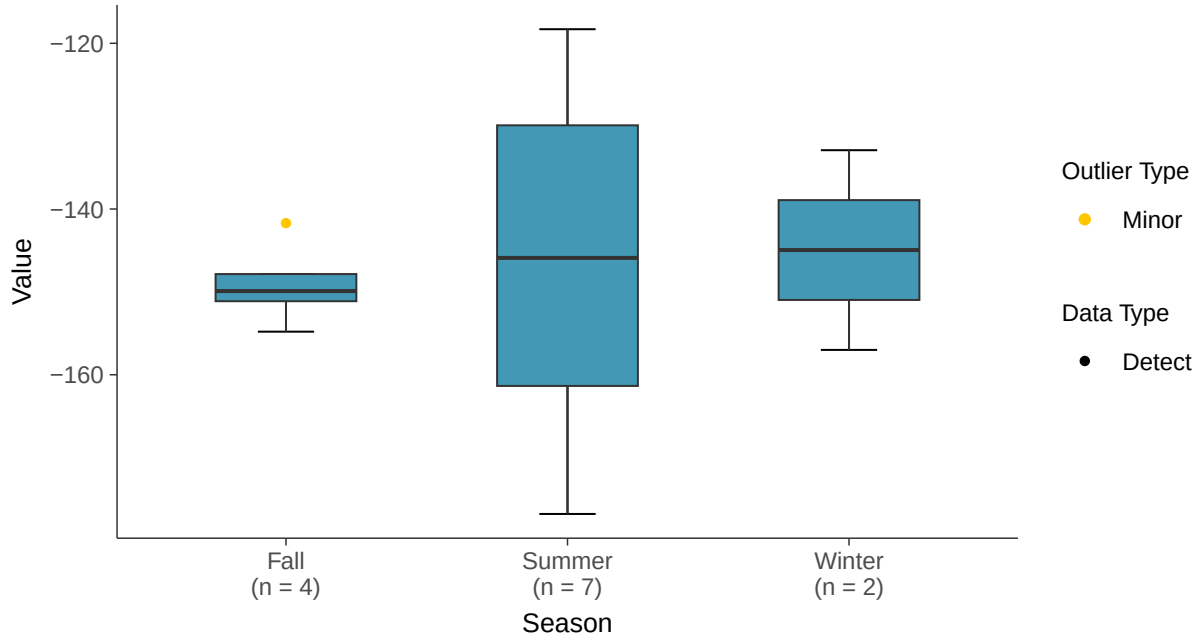
Boxplot

Oxidation Reduction Potential, MW-100B (mV)



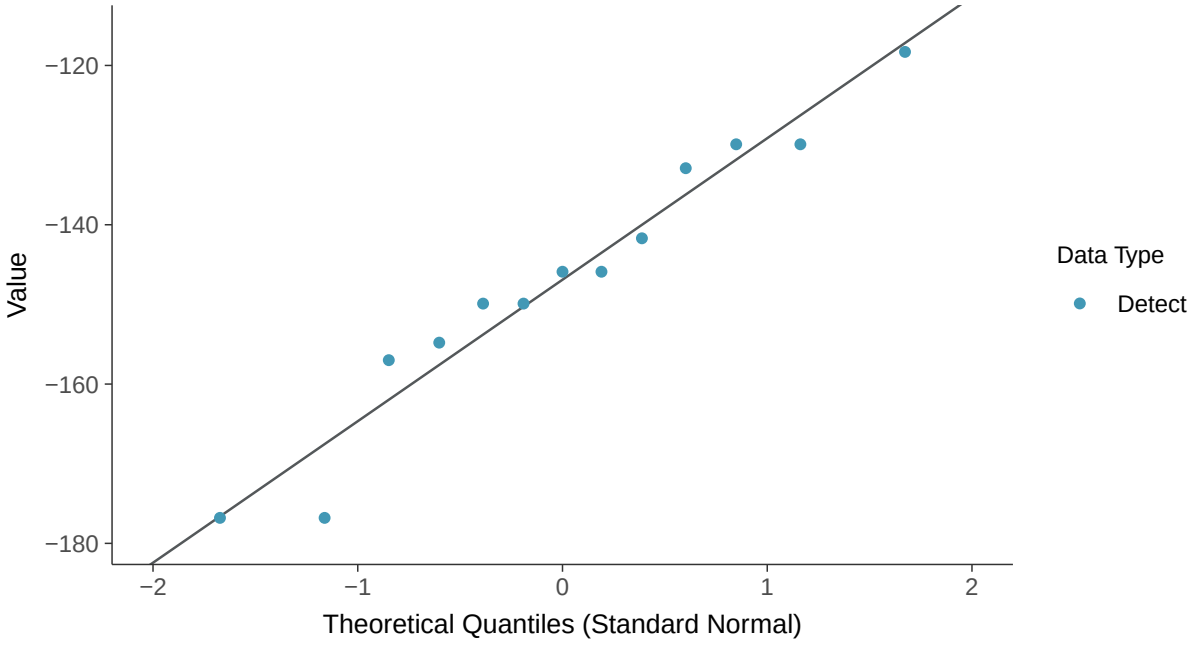
Boxplot by Season

Oxidation Reduction Potential, MW-100B (mV)



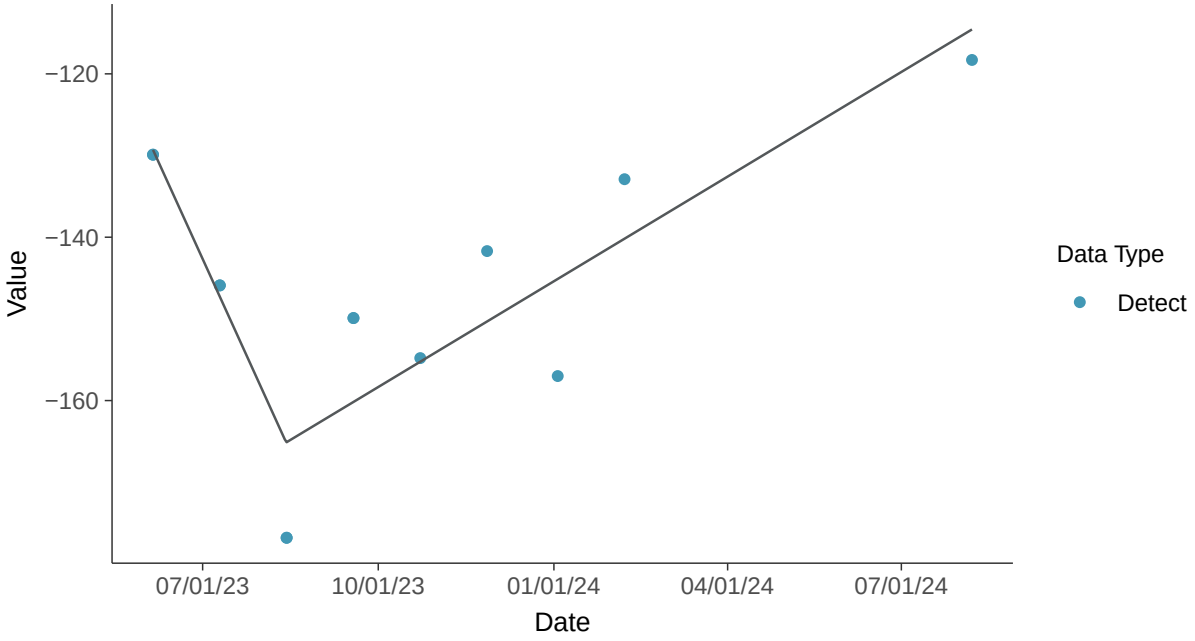
Normal Q-Q plot

Oxidation Reduction Potential, MW-100B (mV)



Trend Regression: Piecewise Linear-Linear

Oxidation Reduction Potential, MW-100B (mV)

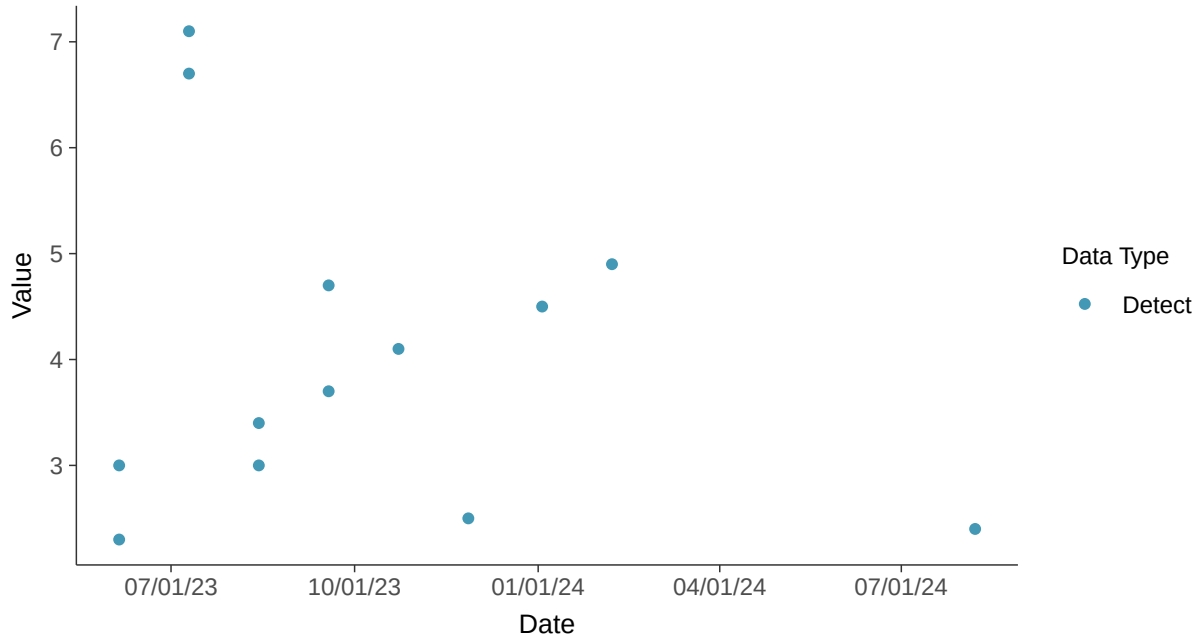


Other: Total Suspended Solids, MW-100B

ID: 100B_4_30

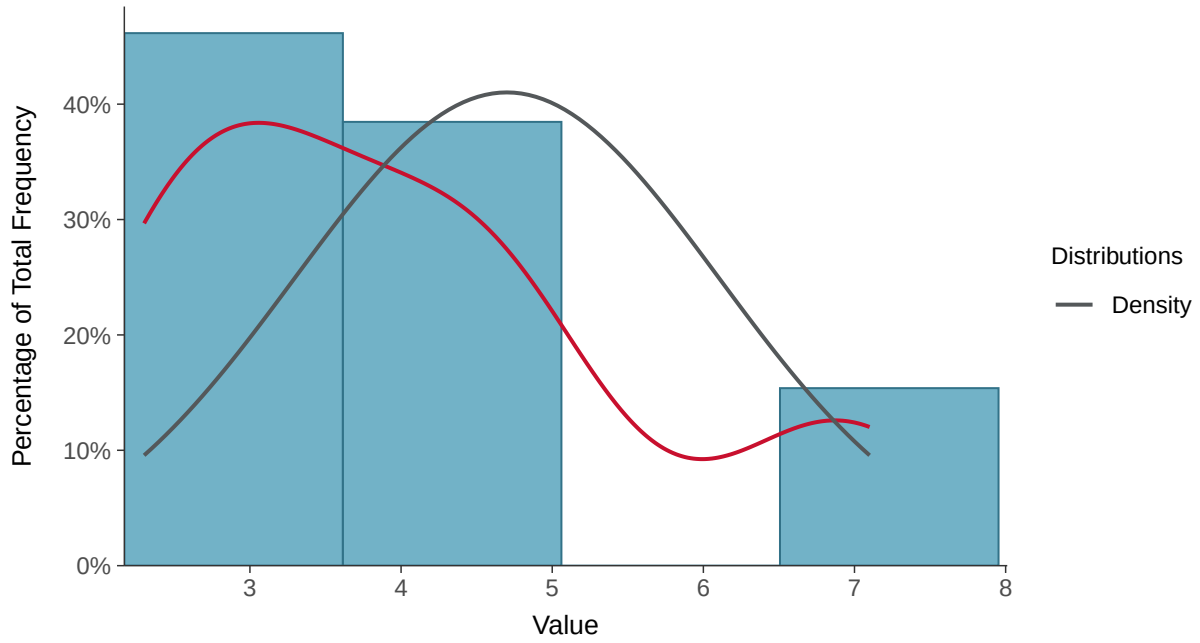
Scatter Plot

Total Suspended Solids, MW-100B (mg/L)



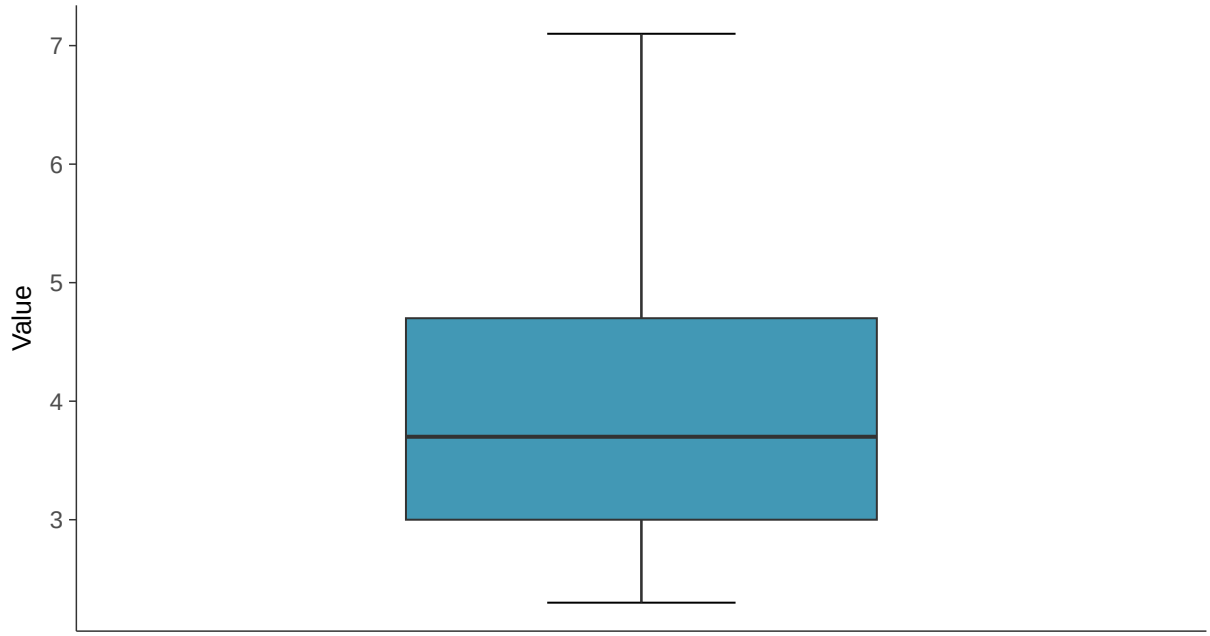
Histogram

Total Suspended Solids, MW-100B (mg/L)



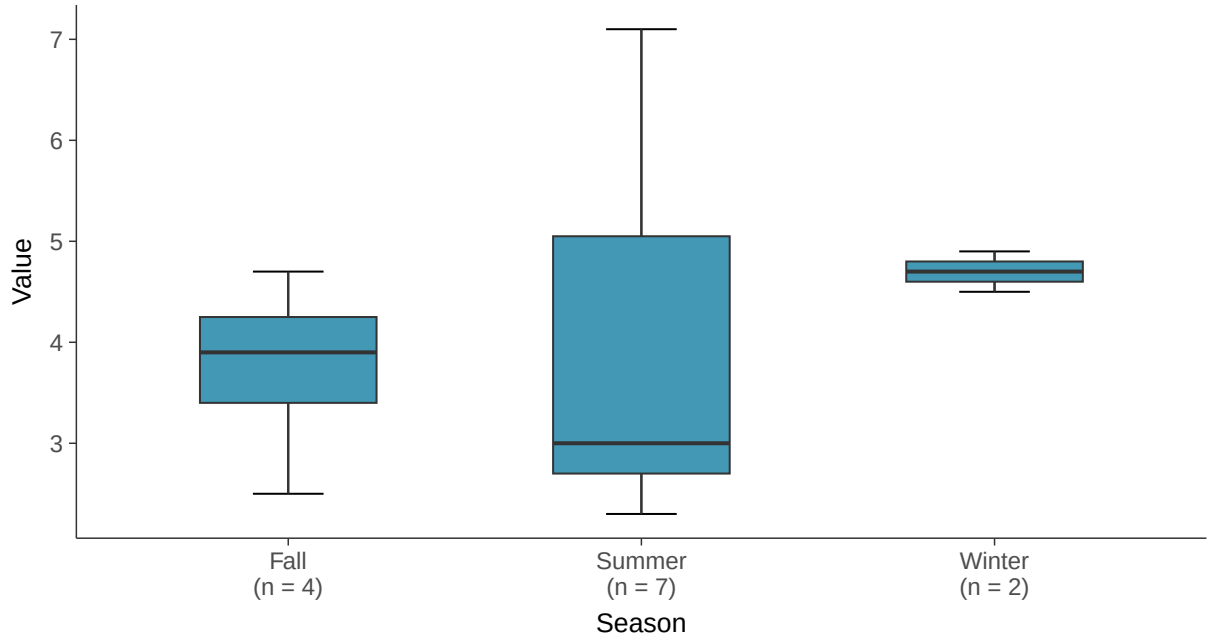
Boxplot

Total Suspended Solids, MW-100B (mg/L)



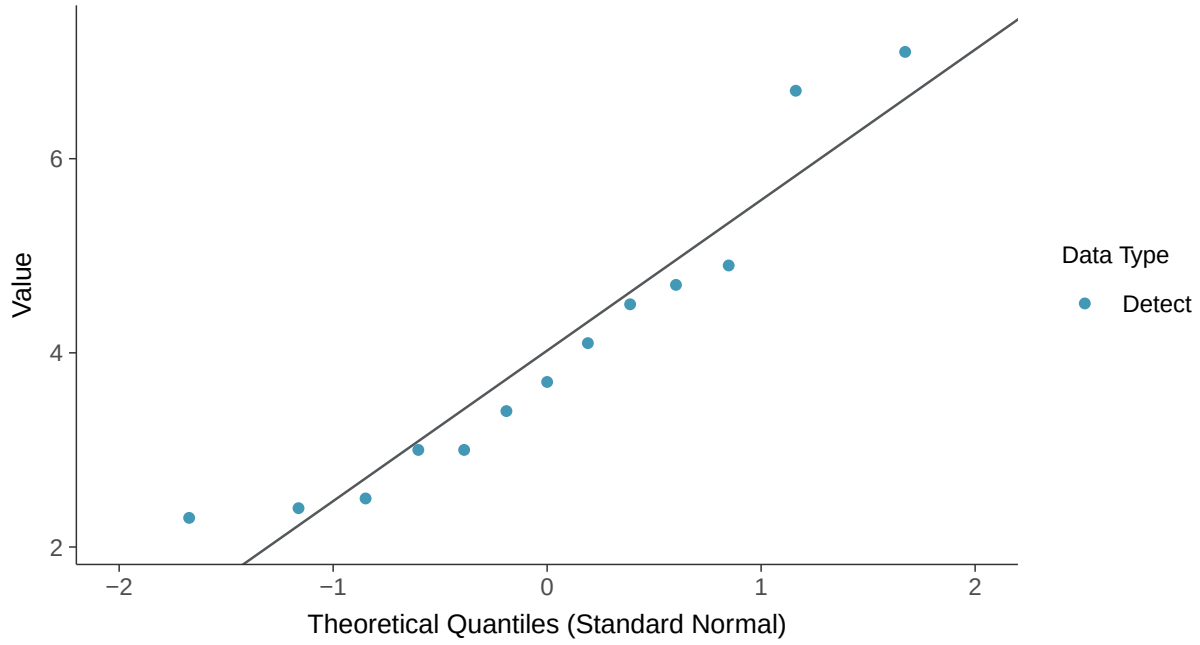
Boxplot by Season

Total Suspended Solids, MW-100B (mg/L)



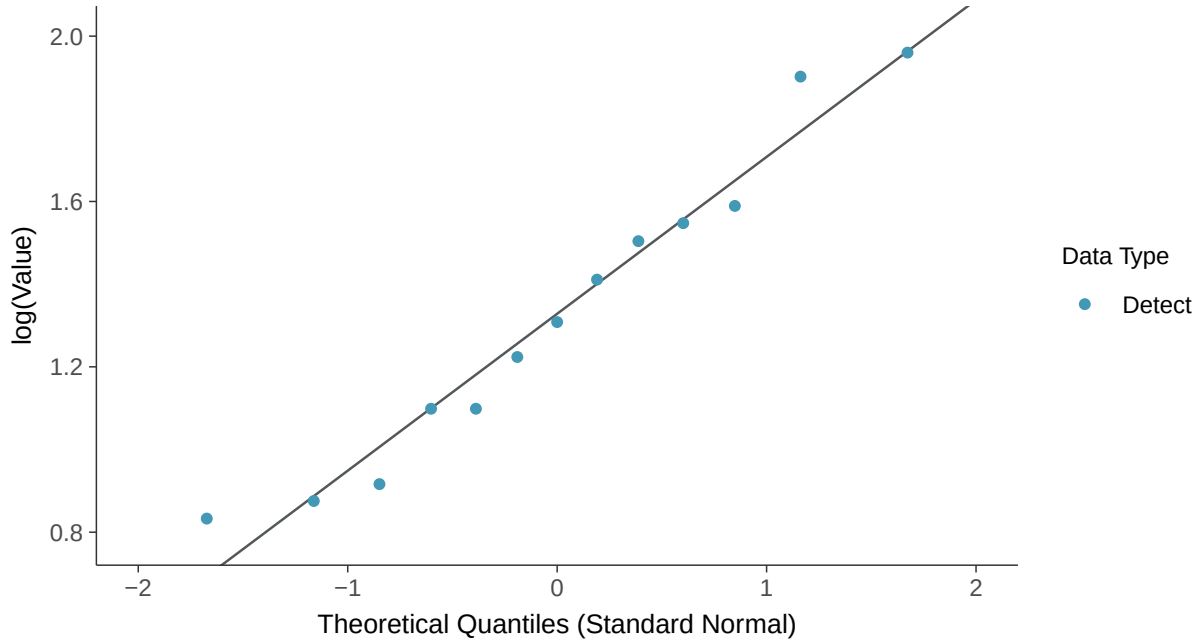
Normal Q-Q plot

Total Suspended Solids, MW-100B (mg/L)



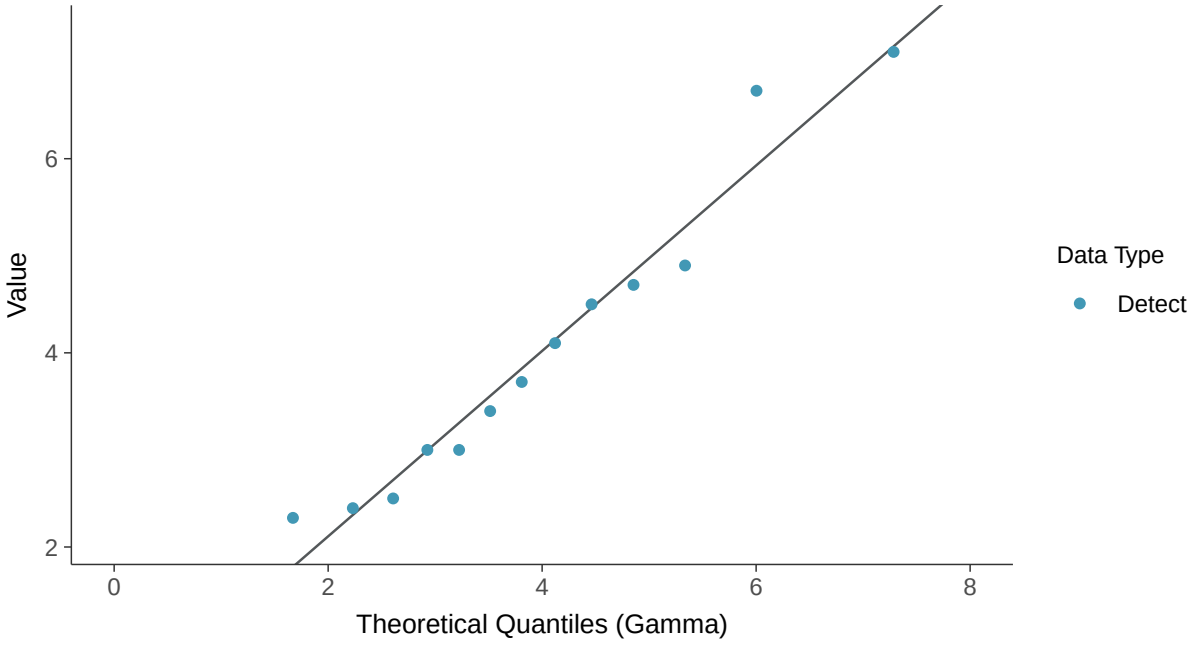
Lognormal Q-Q plot

Total Suspended Solids, MW-100B (mg/L)



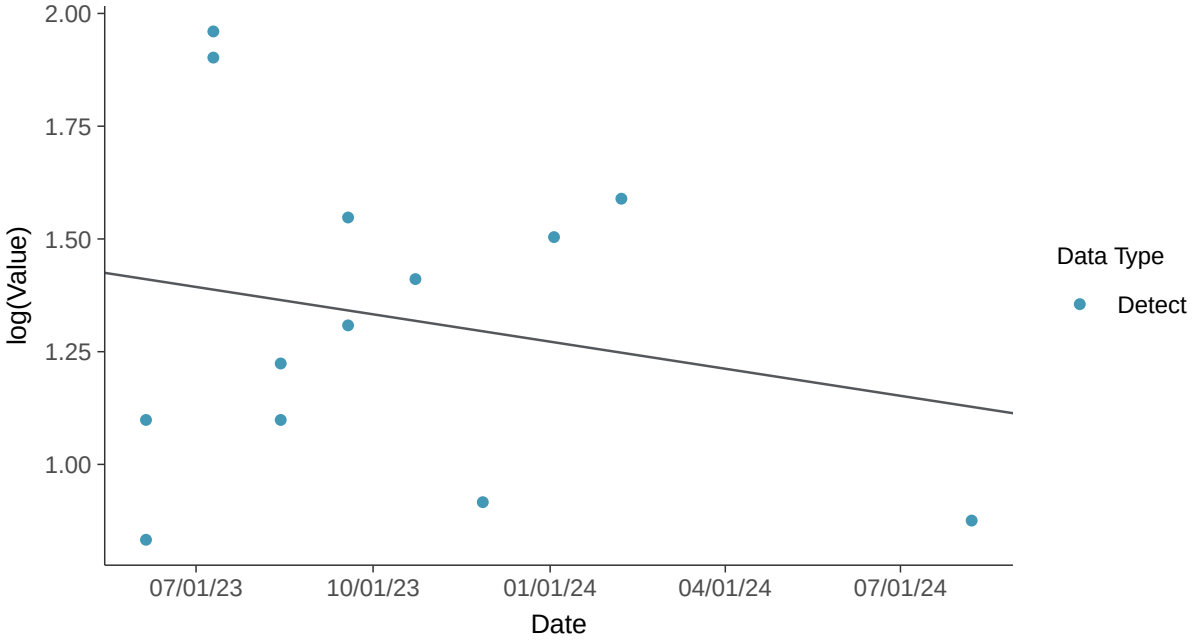
Gamma Q-Q plot

Total Suspended Solids, MW-100B (mg/L)



Trend Regression: Lognormal MLE

Total Suspended Solids, MW-100B (mg/L)

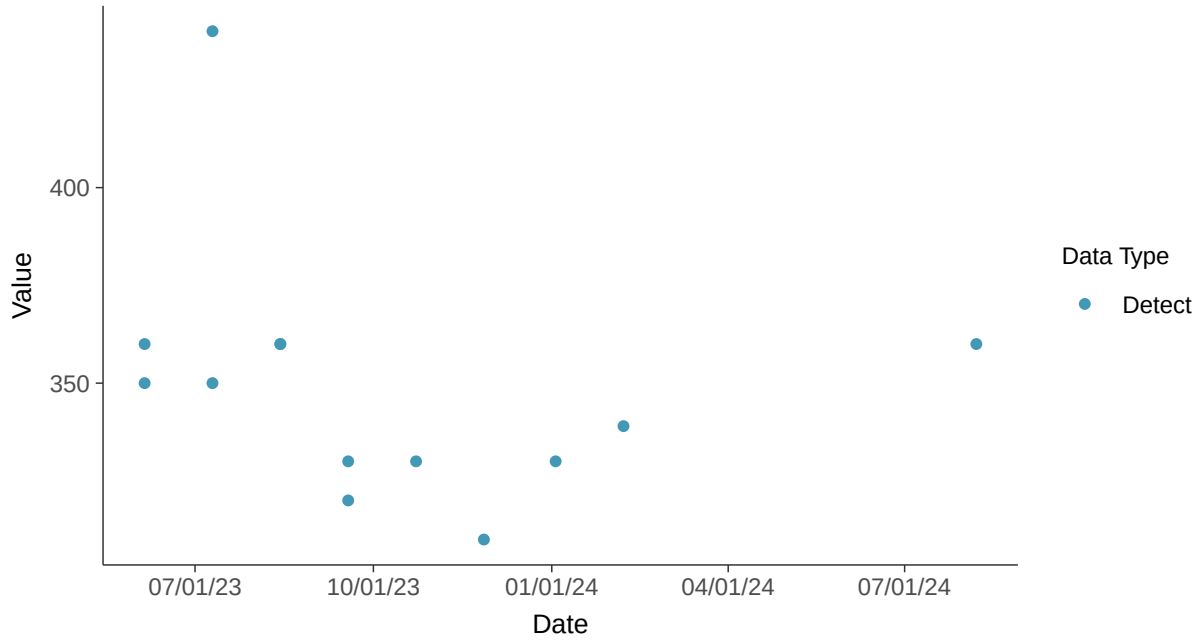


Other: Bicarbonate, MW-100B

ID: 100B_4_31

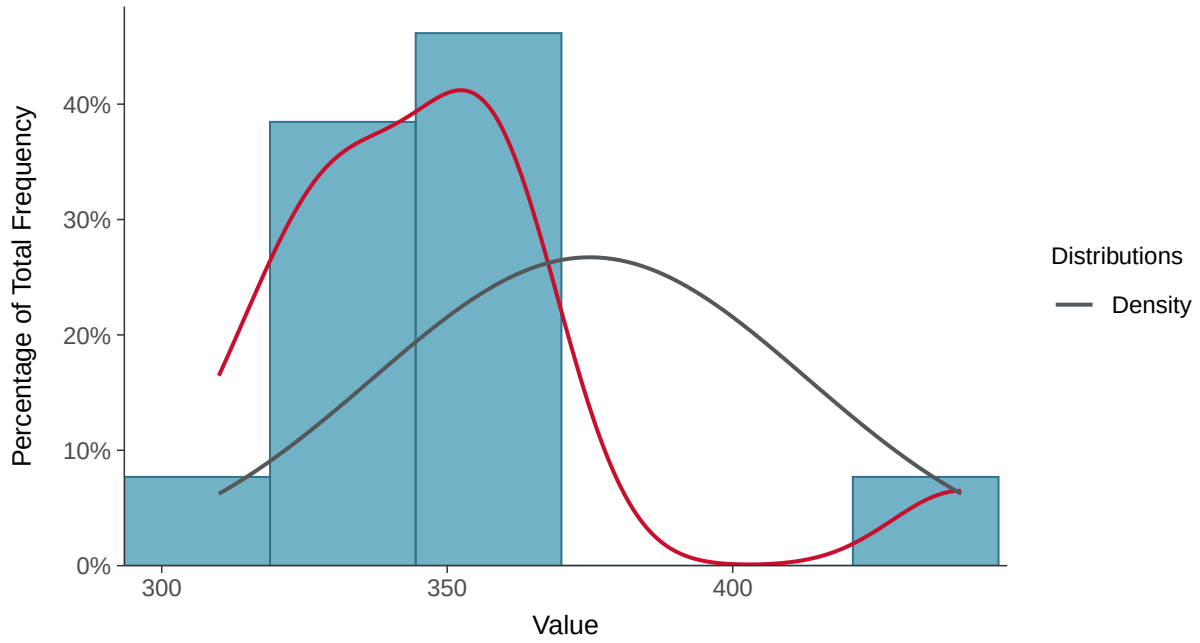
Scatter Plot

Bicarbonate, MW-100B (mg/L)



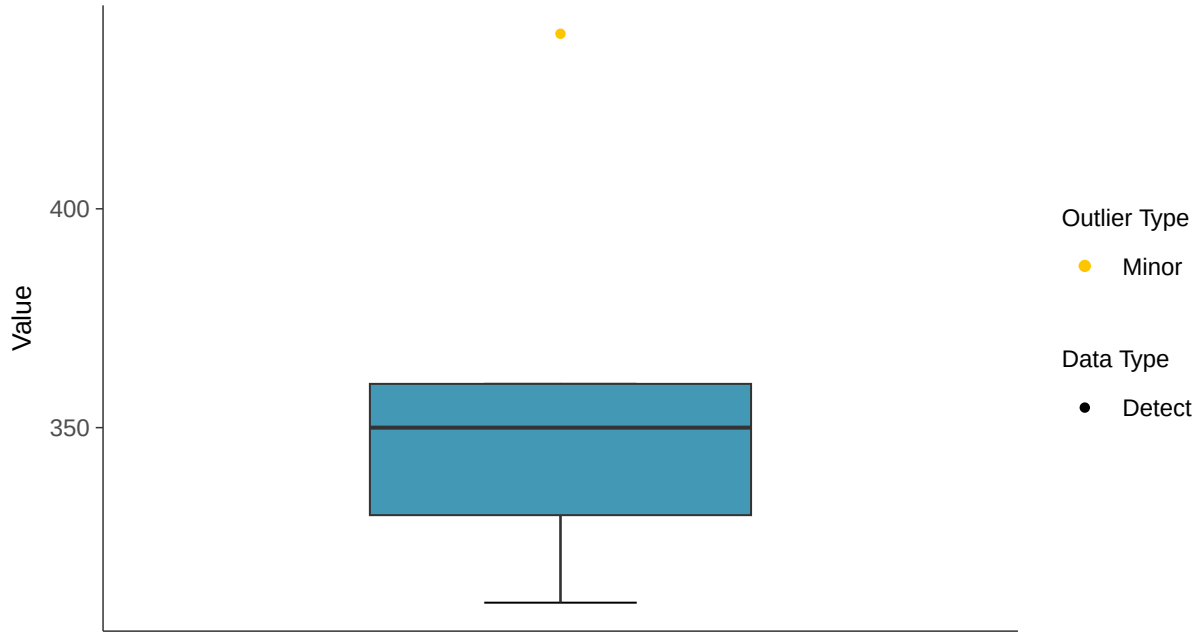
Histogram

Bicarbonate, MW-100B (mg/L)



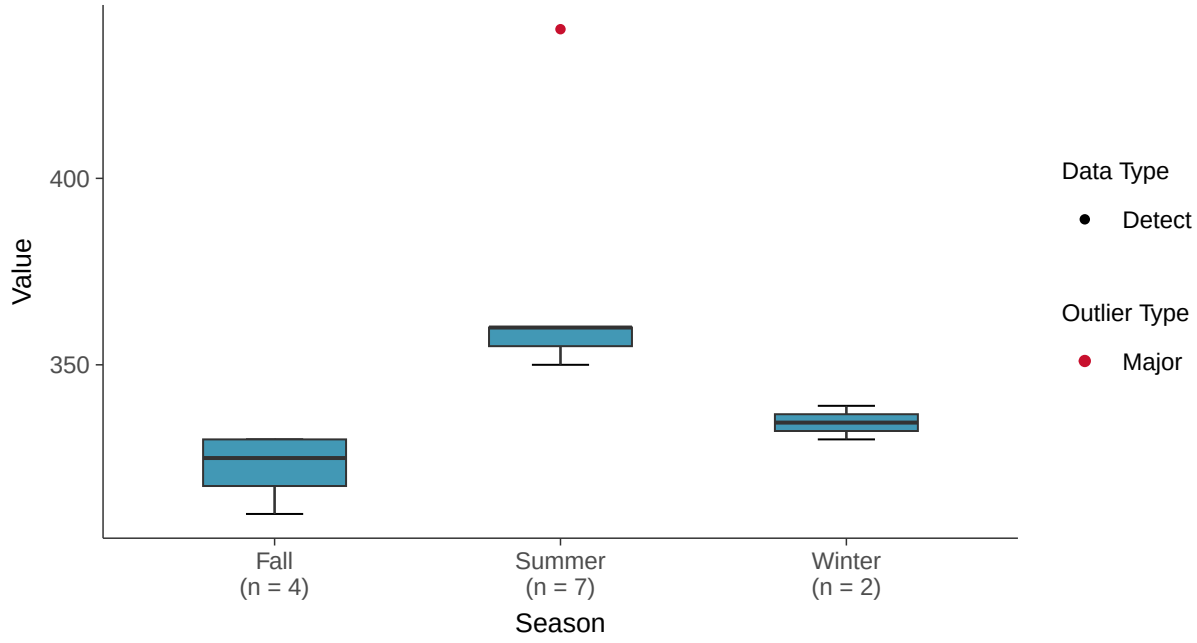
Boxplot

Bicarbonate, MW-100B (mg/L)



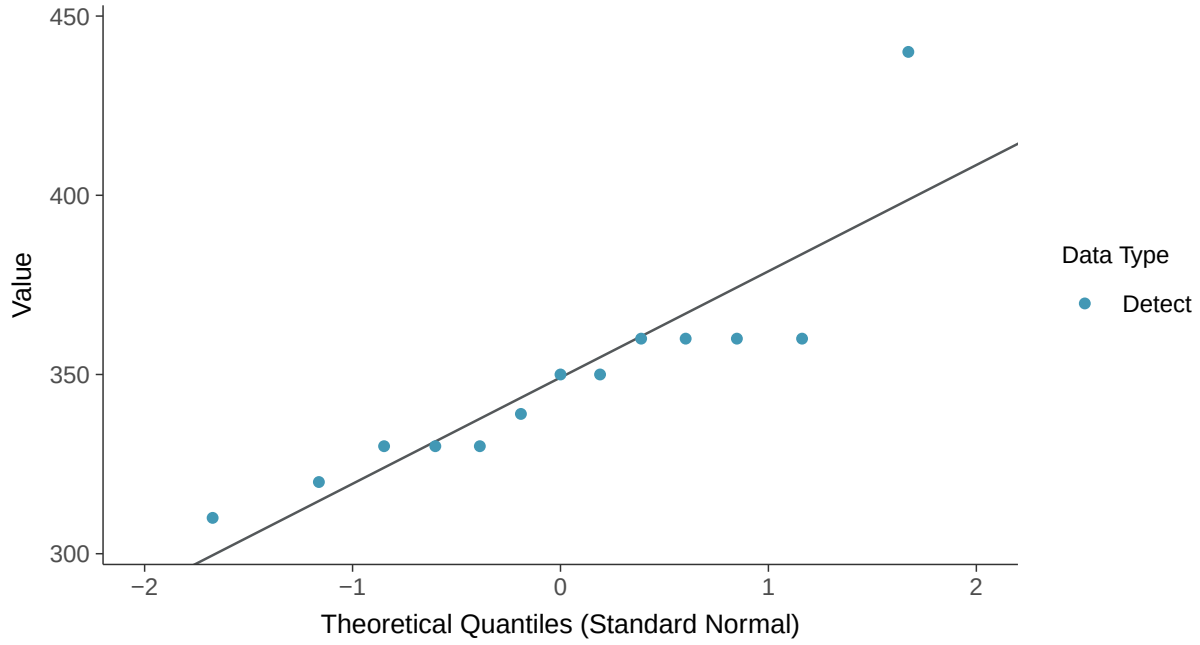
Boxplot by Season

Bicarbonate, MW-100B (mg/L)



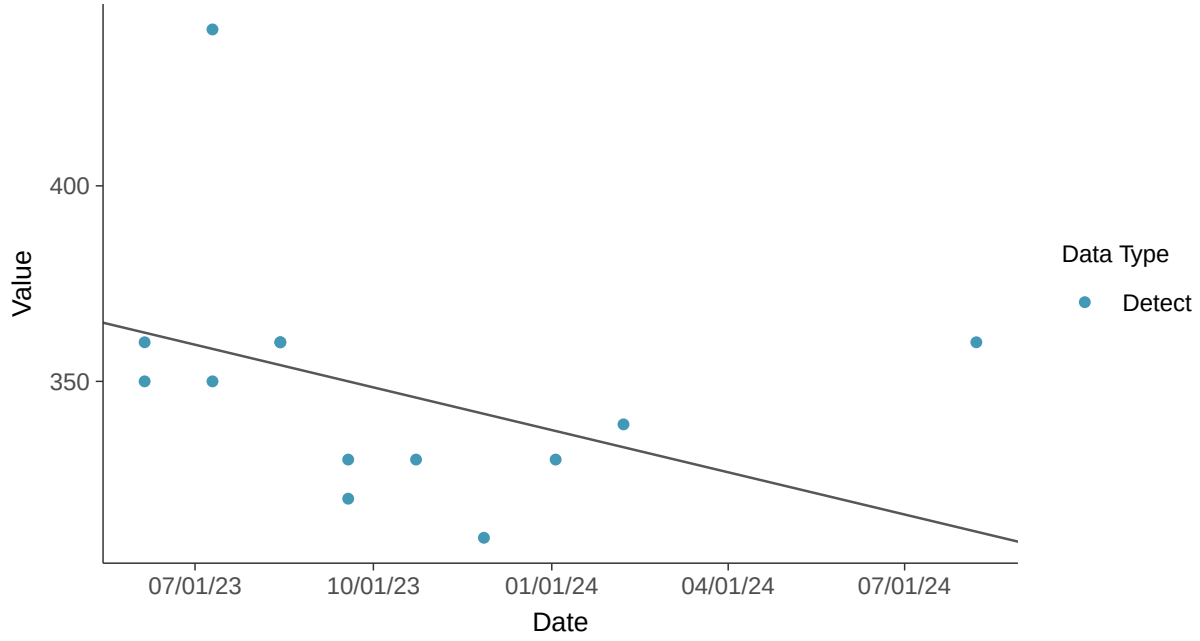
Normal Q-Q plot

Bicarbonate, MW-100B (mg/L)



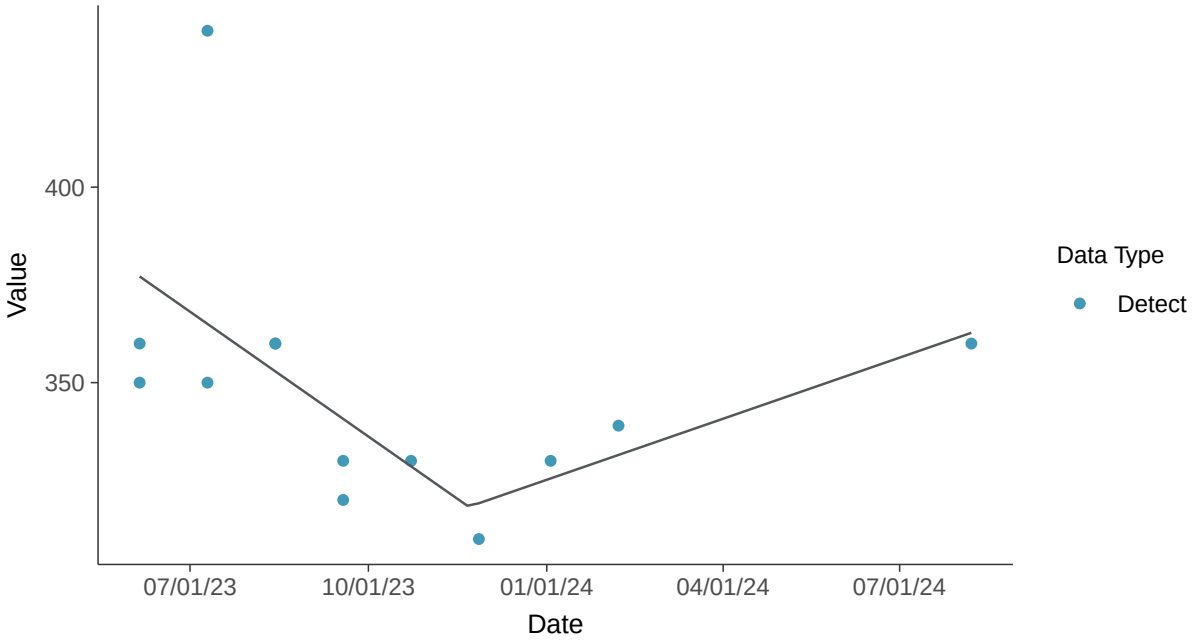
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Bicarbonate, MW-100B (mg/L)



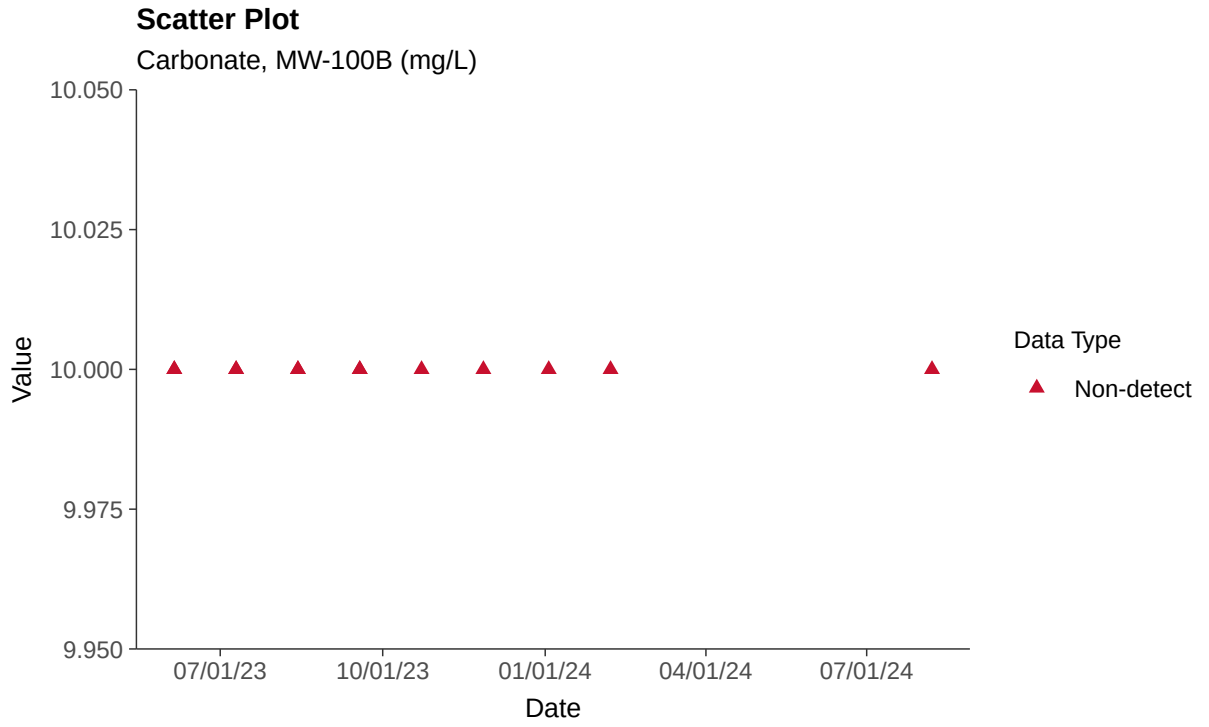
Trend Regression: Piecewise Linear-Linear

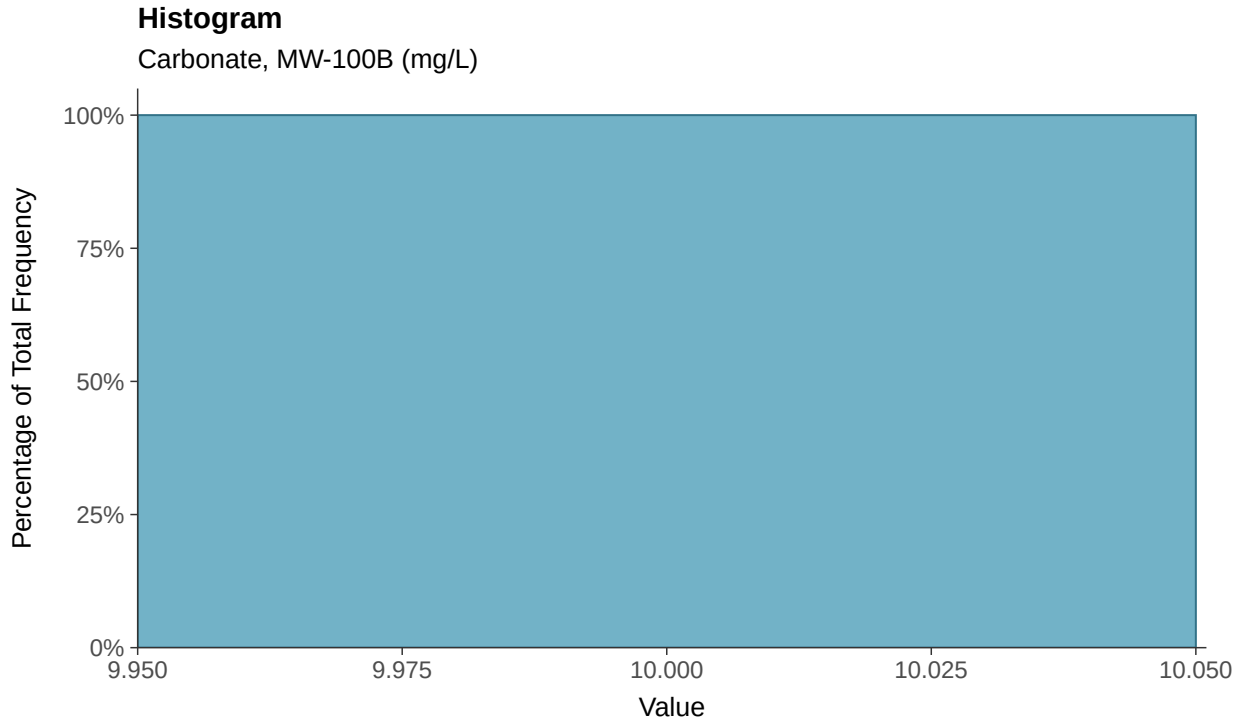
Bicarbonate, MW-100B (mg/L)



Other: Carbonate, MW-100B

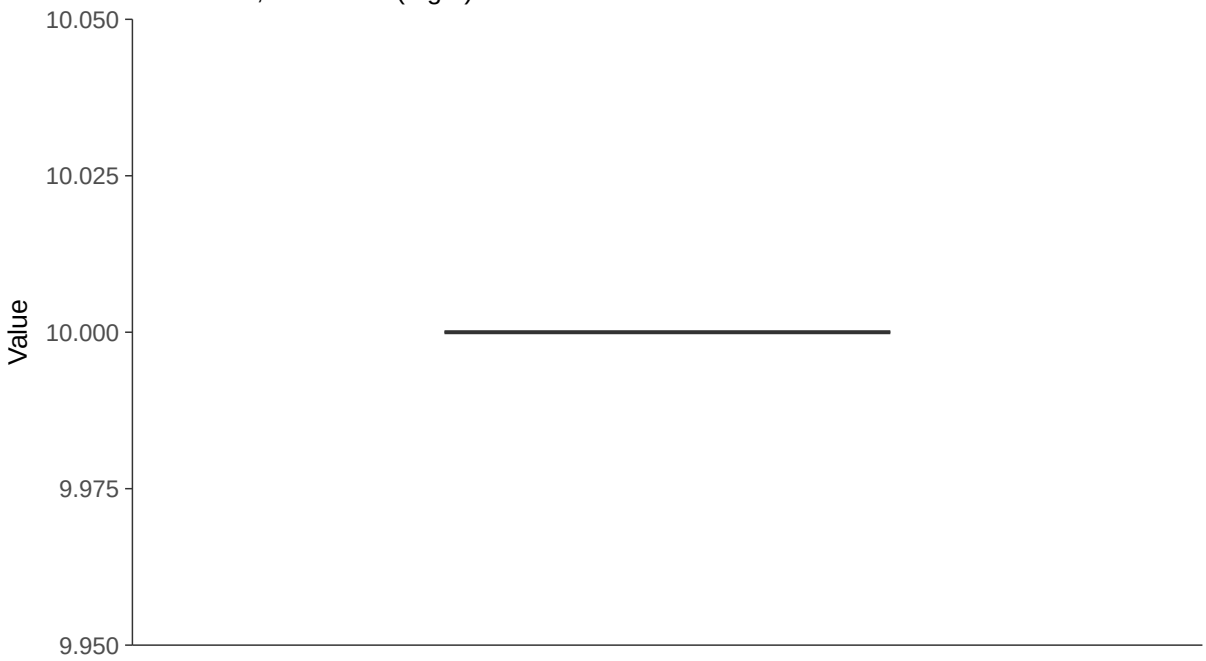
ID: 100B_4_32





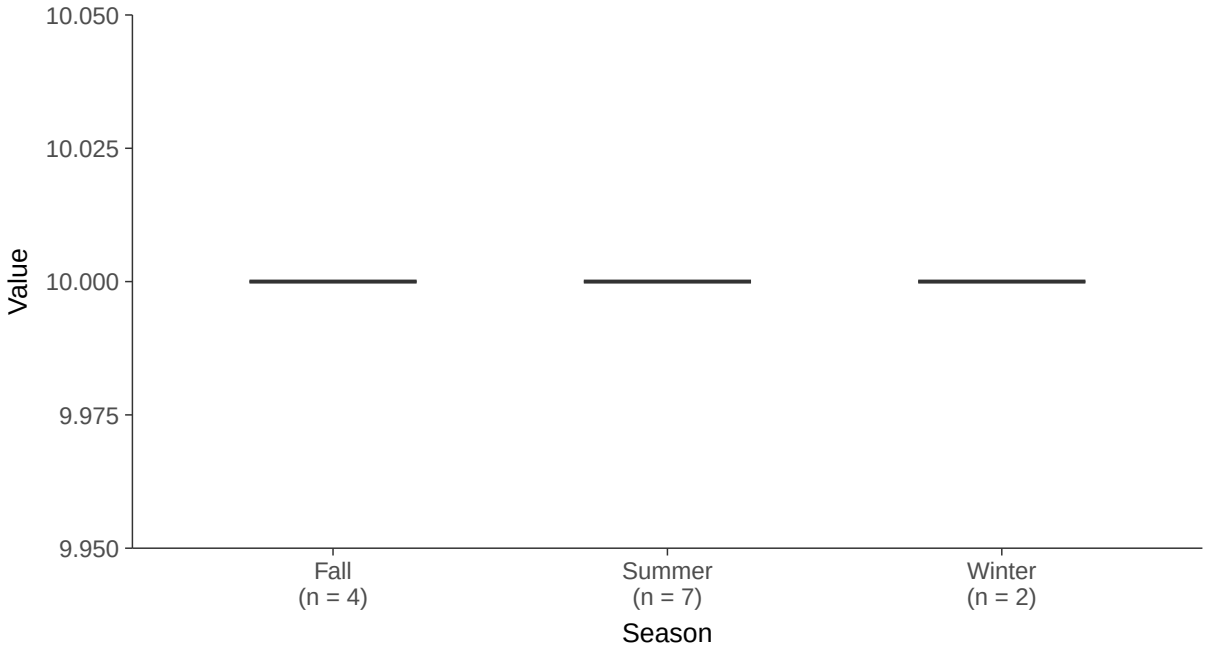
Boxplot

Carbonate, MW-100B (mg/L)



Boxplot by Season

Carbonate, MW-100B (mg/L)

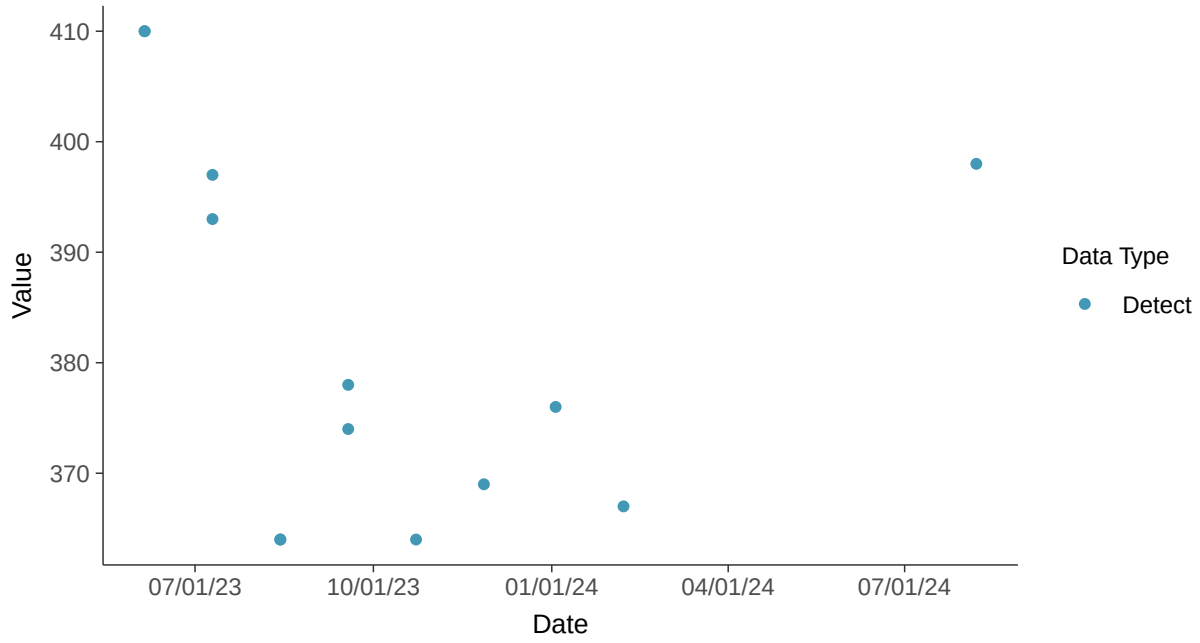


Other: Hardness, MW-100B

ID: 100B_4_33

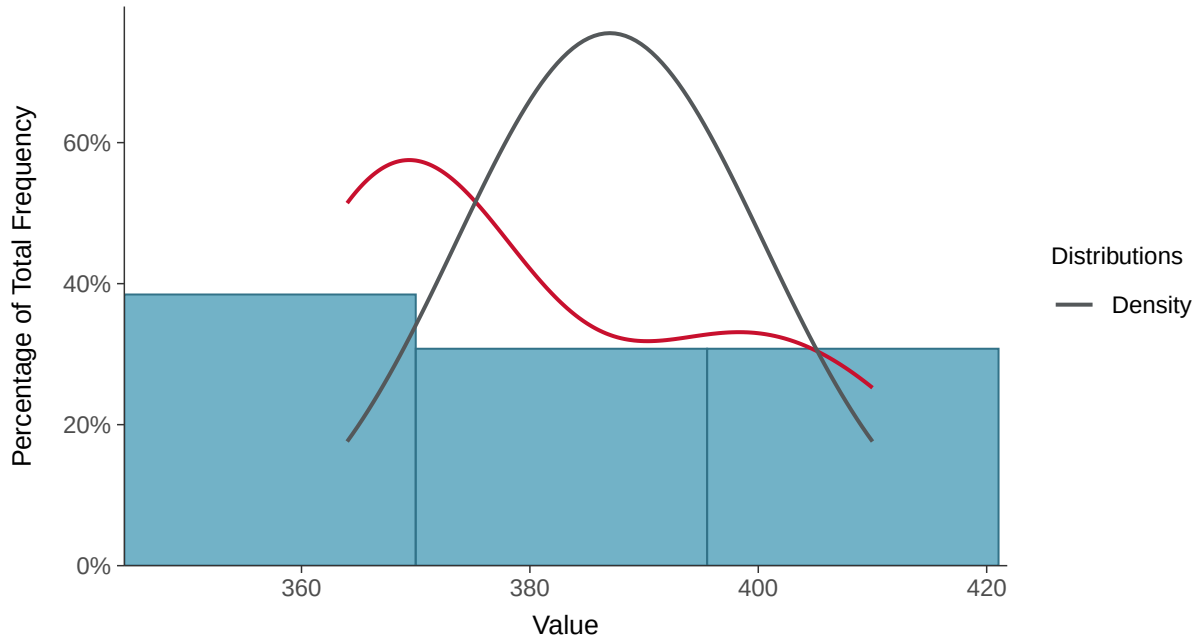
Scatter Plot

Hardness, MW-100B (mg/L)



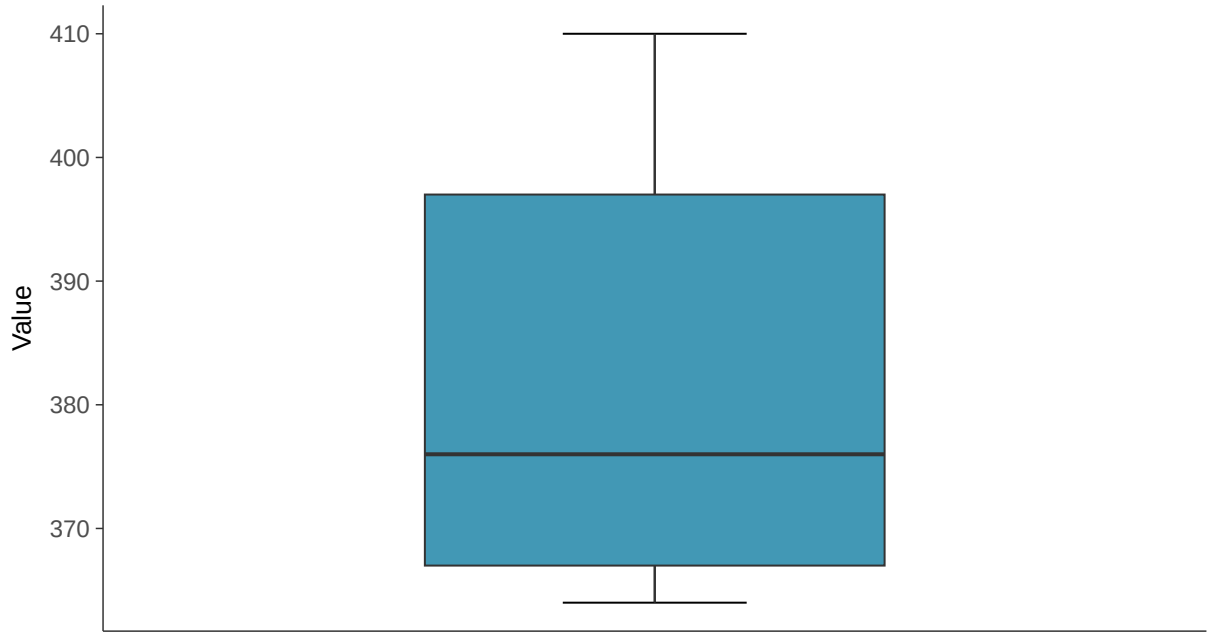
Histogram

Hardness, MW-100B (mg/L)



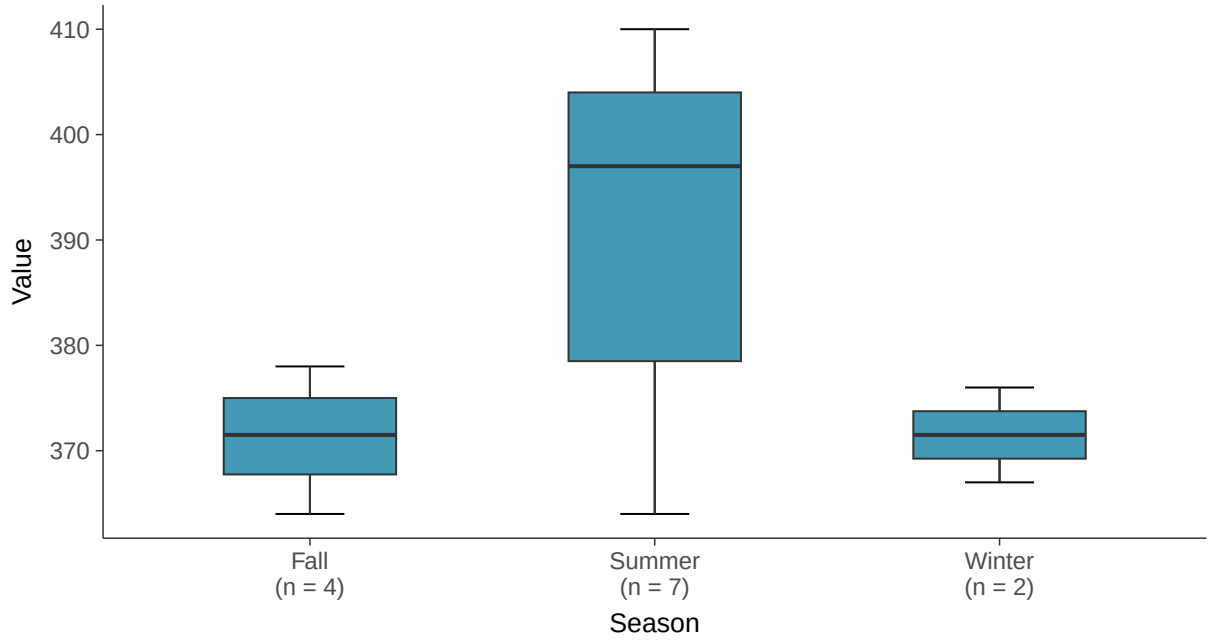
Boxplot

Hardness, MW-100B (mg/L)



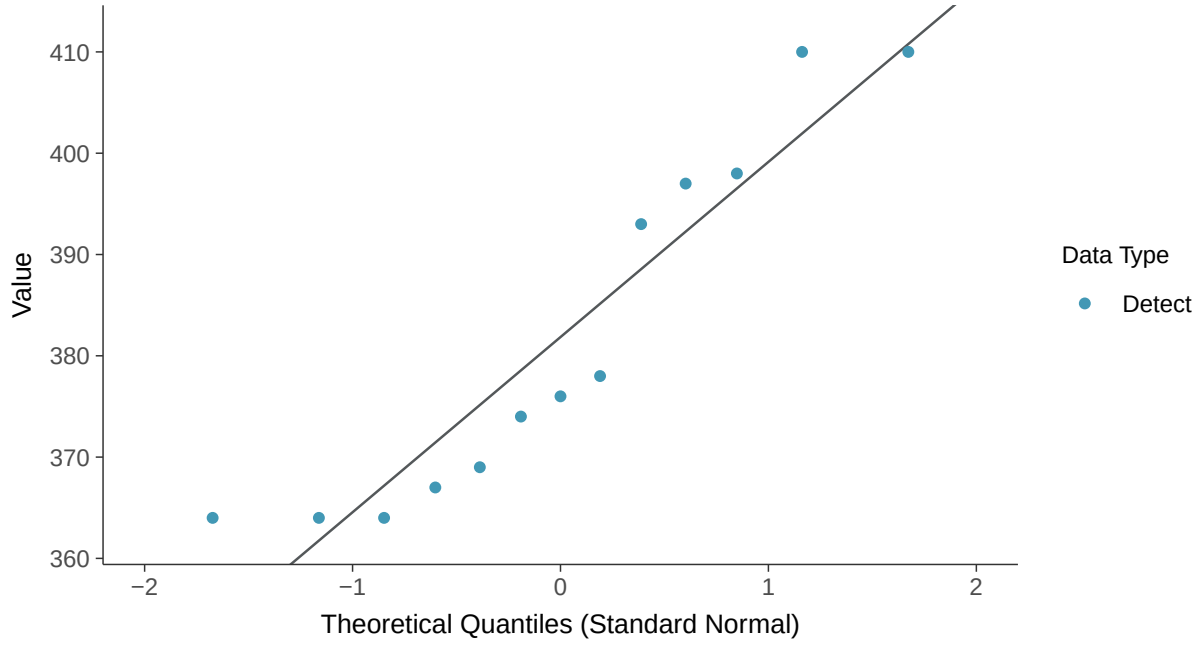
Boxplot by Season

Hardness, MW-100B (mg/L)



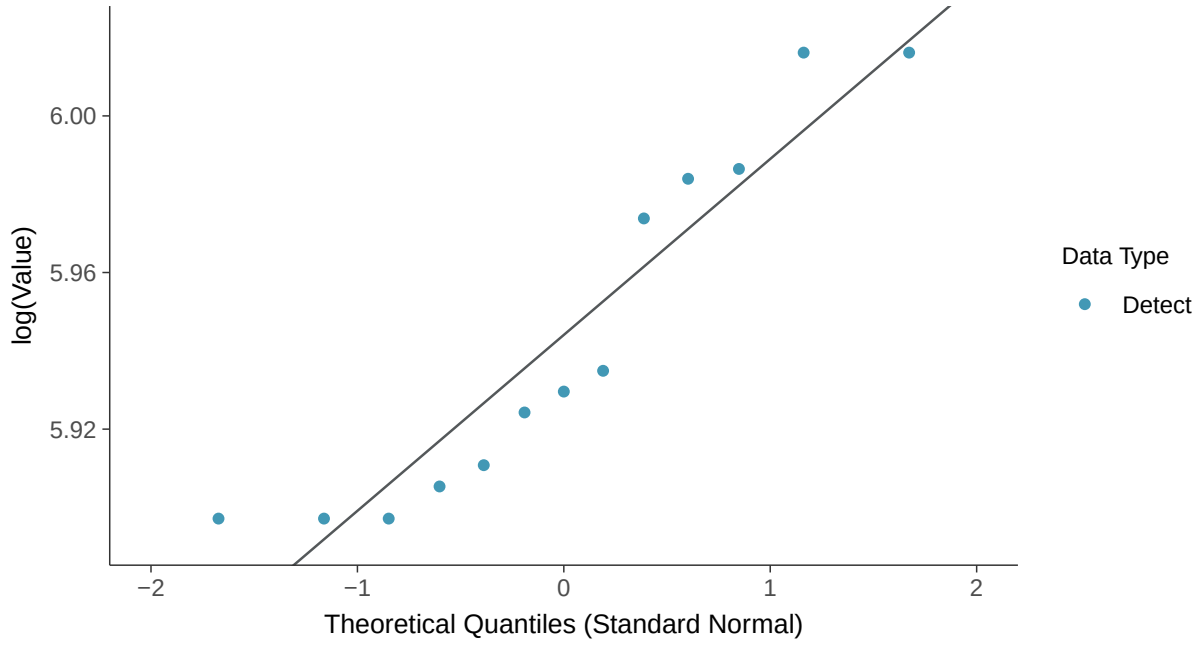
Normal Q-Q plot

Hardness, MW-100B (mg/L)



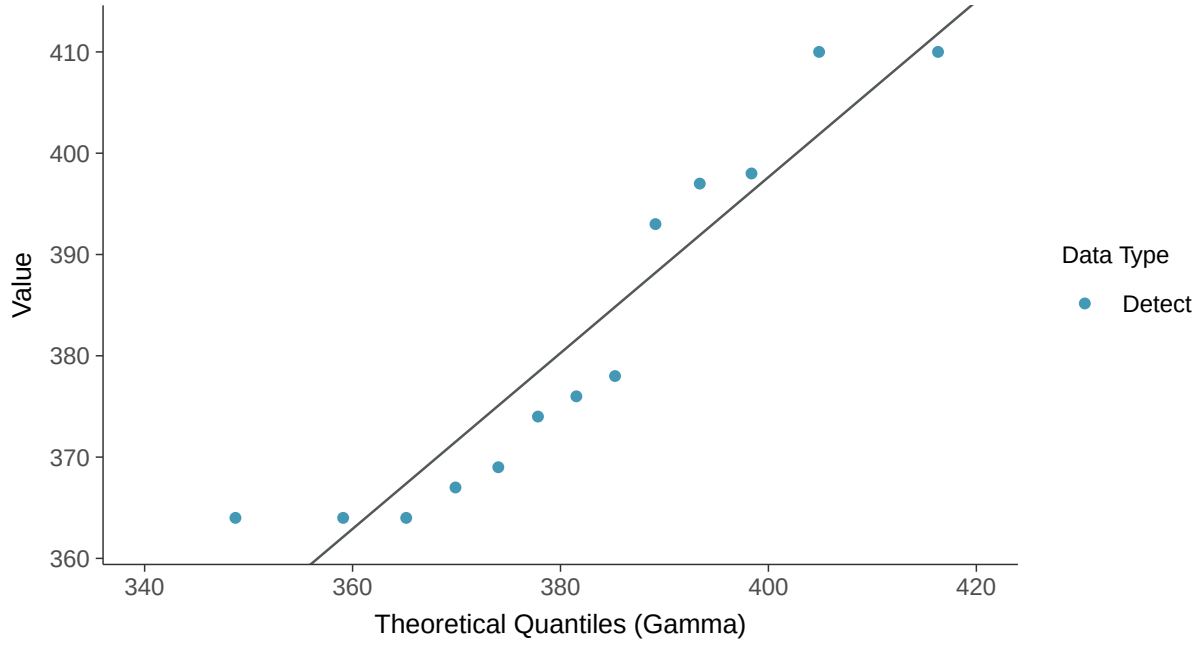
Lognormal Q-Q plot

Hardness, MW-100B (mg/L)



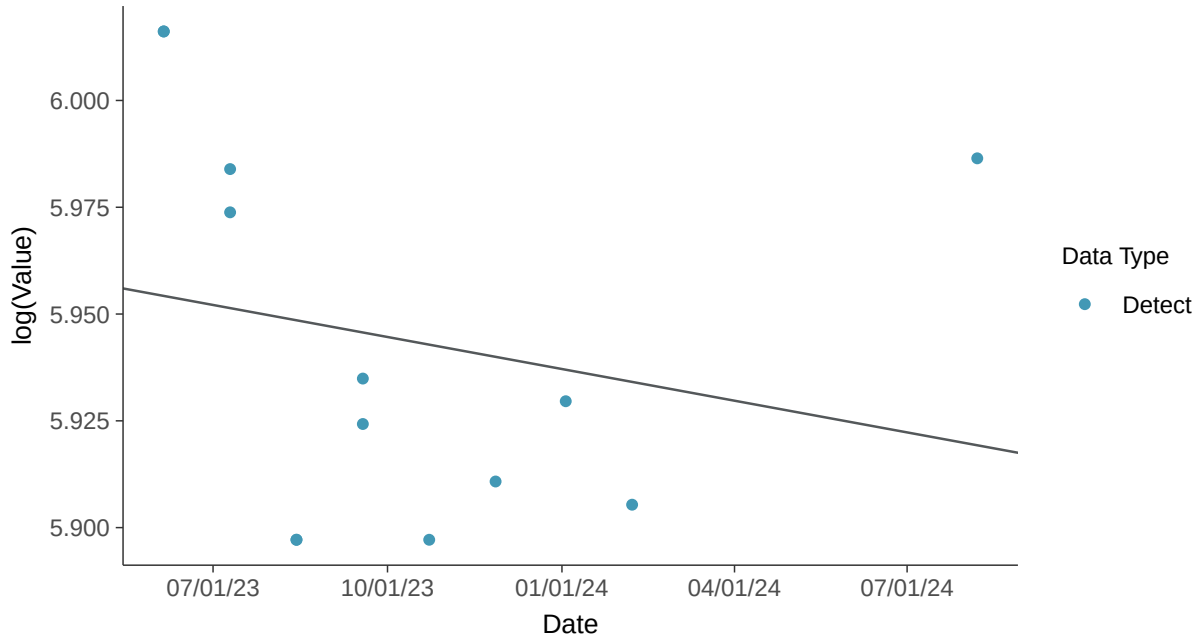
Gamma Q-Q plot

Hardness, MW-100B (mg/L)



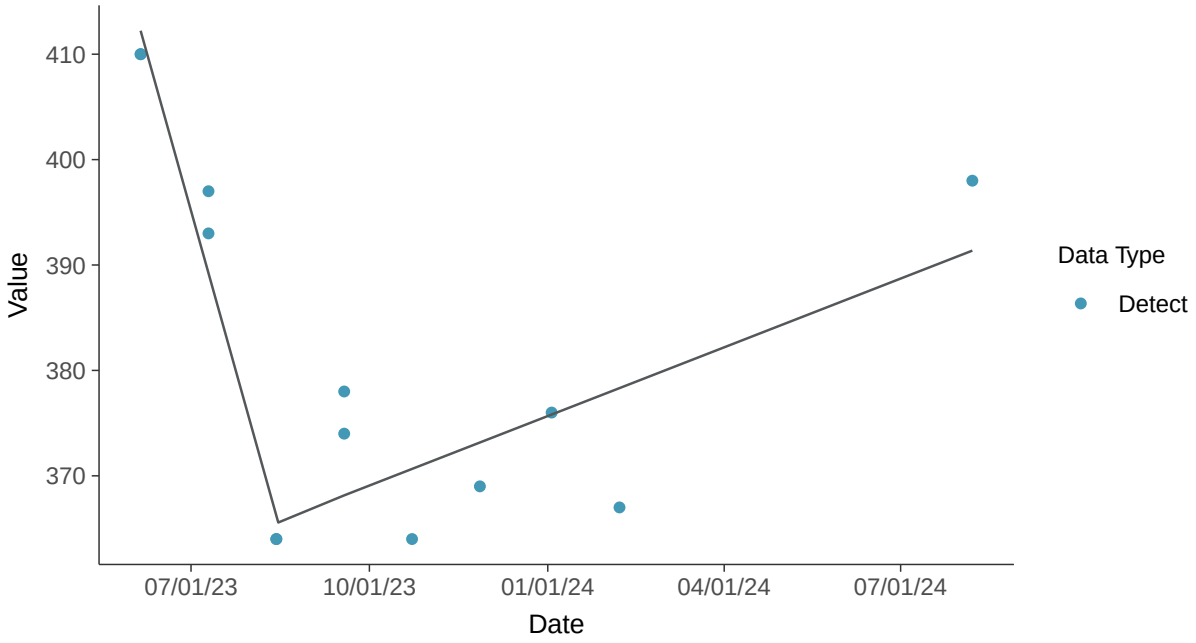
Trend Regression: Lognormal MLE

Hardness, MW-100B (mg/L)



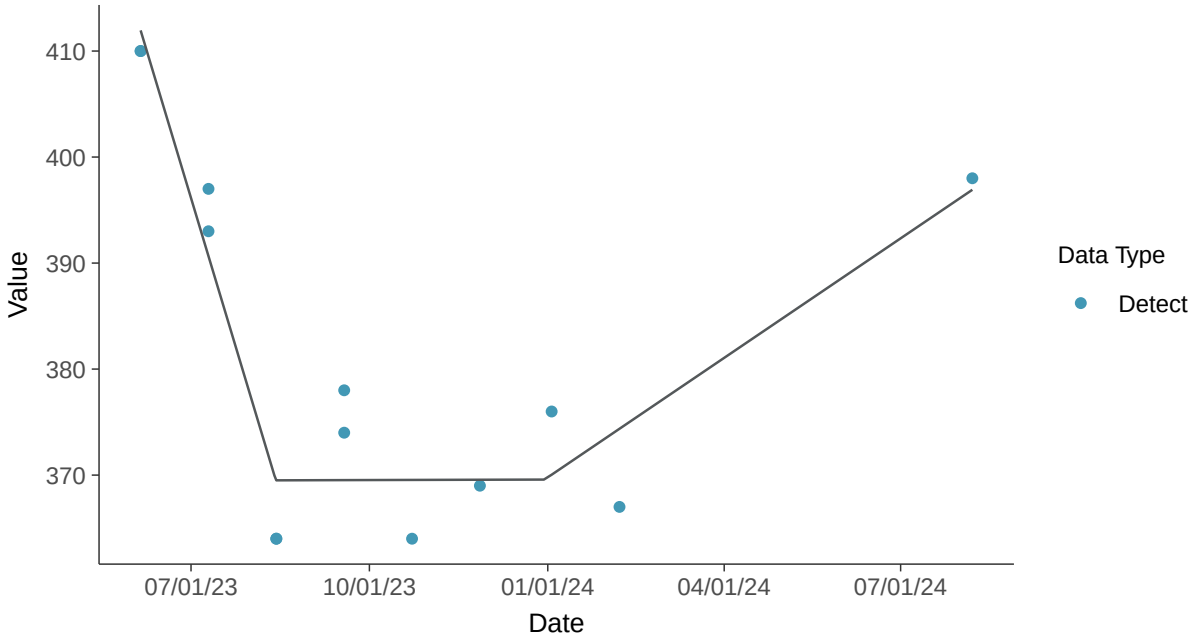
Trend Regression: Piecewise Linear-Linear

Hardness, MW-100B (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Hardness, MW-100B (mg/L)

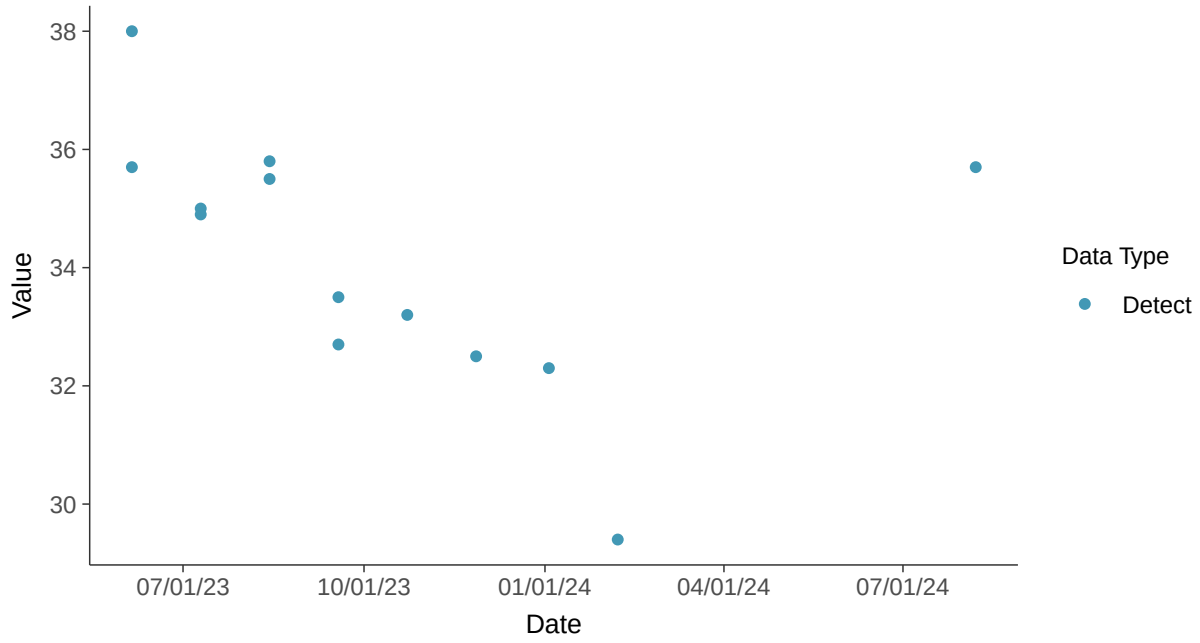


Other: Magnesium, MW-100B

ID: 100B_4_34

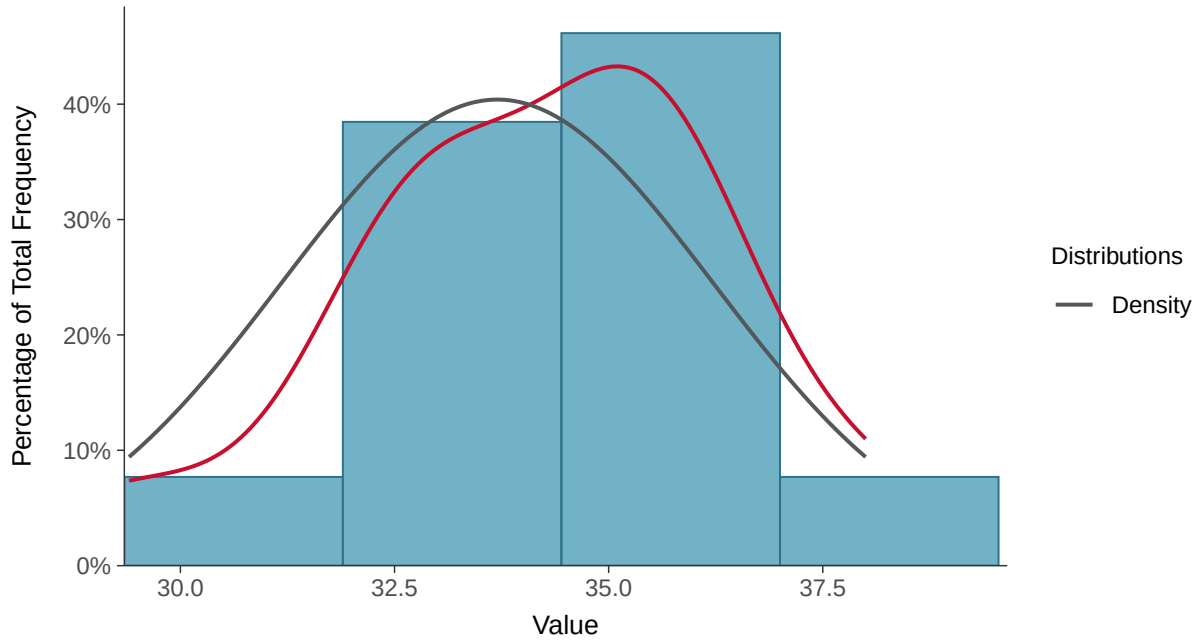
Scatter Plot

Magnesium, MW-100B (mg/L)



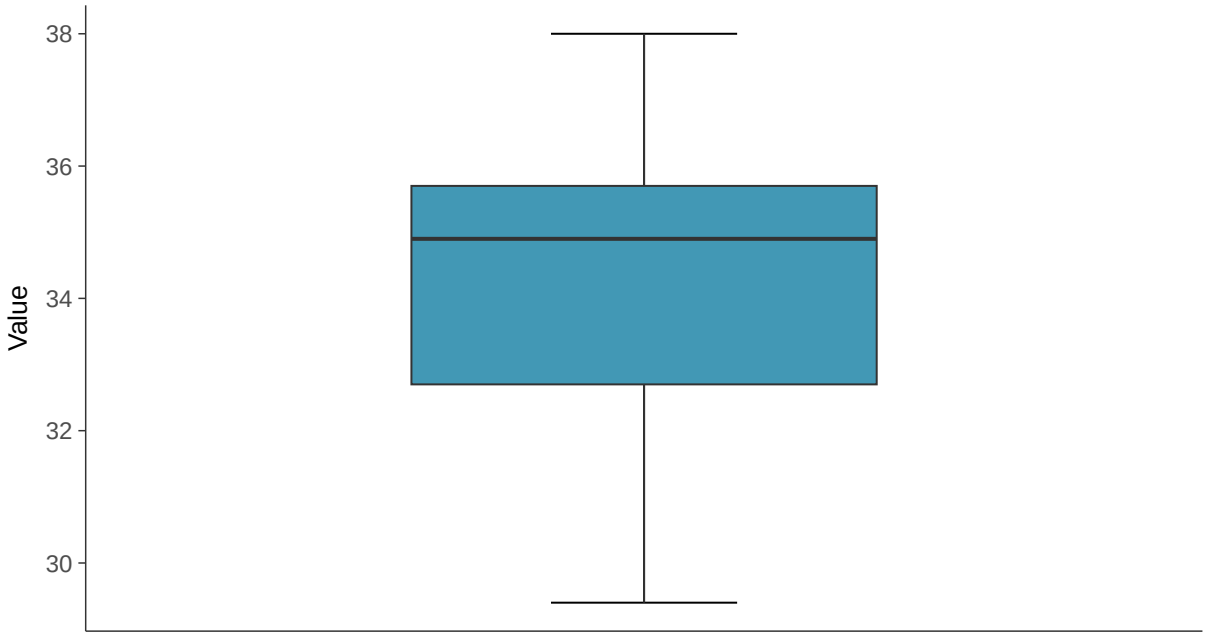
Histogram

Magnesium, MW-100B (mg/L)



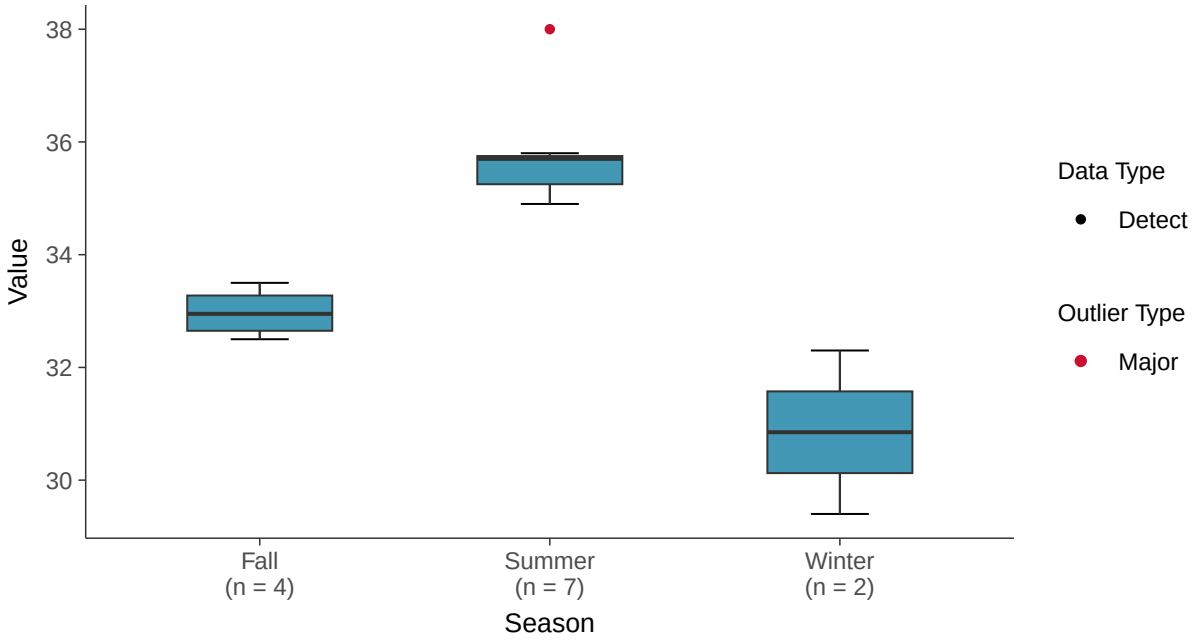
Boxplot

Magnesium, MW-100B (mg/L)



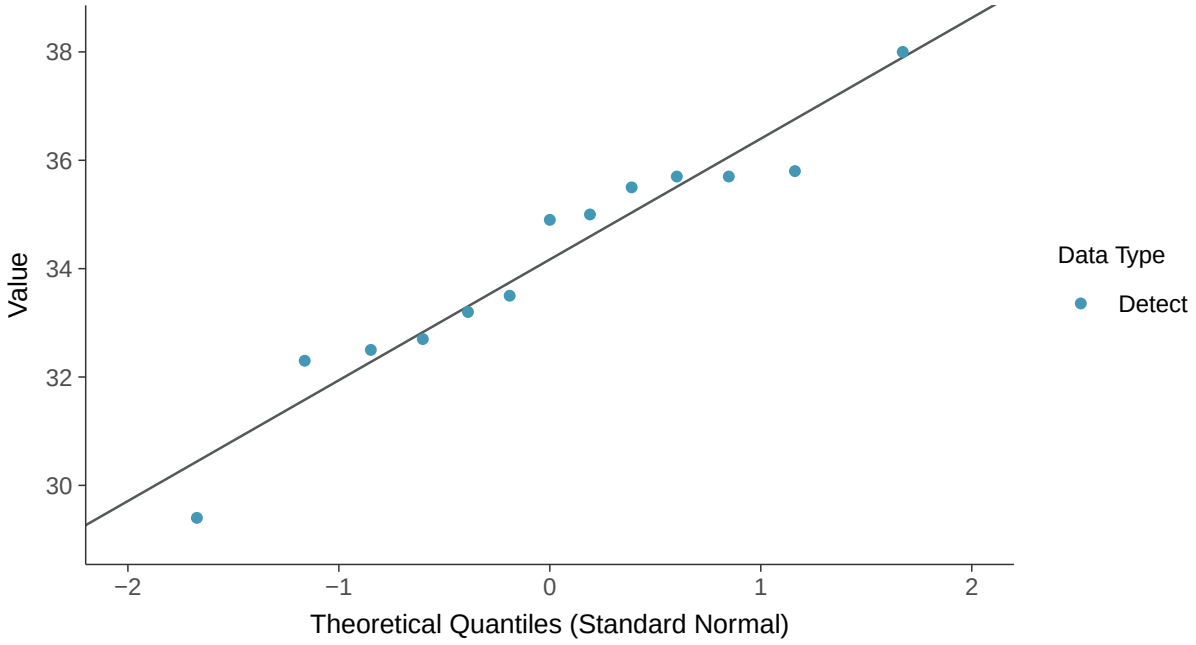
Boxplot by Season

Magnesium, MW-100B (mg/L)



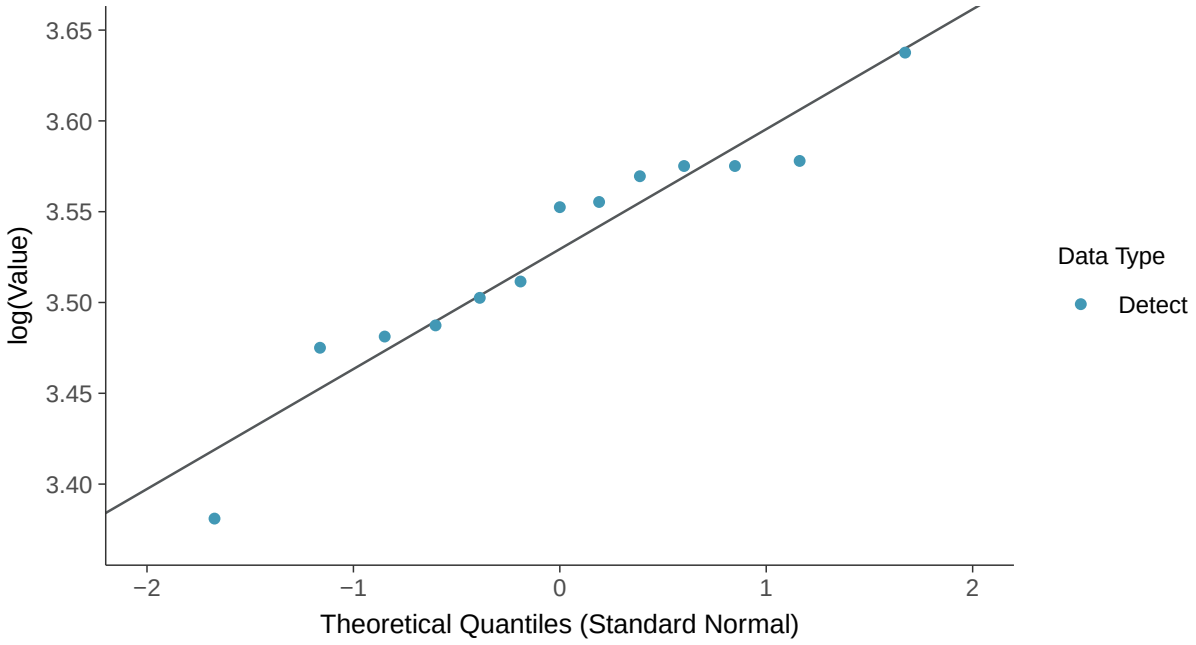
Normal Q-Q plot

Magnesium, MW-100B (mg/L)



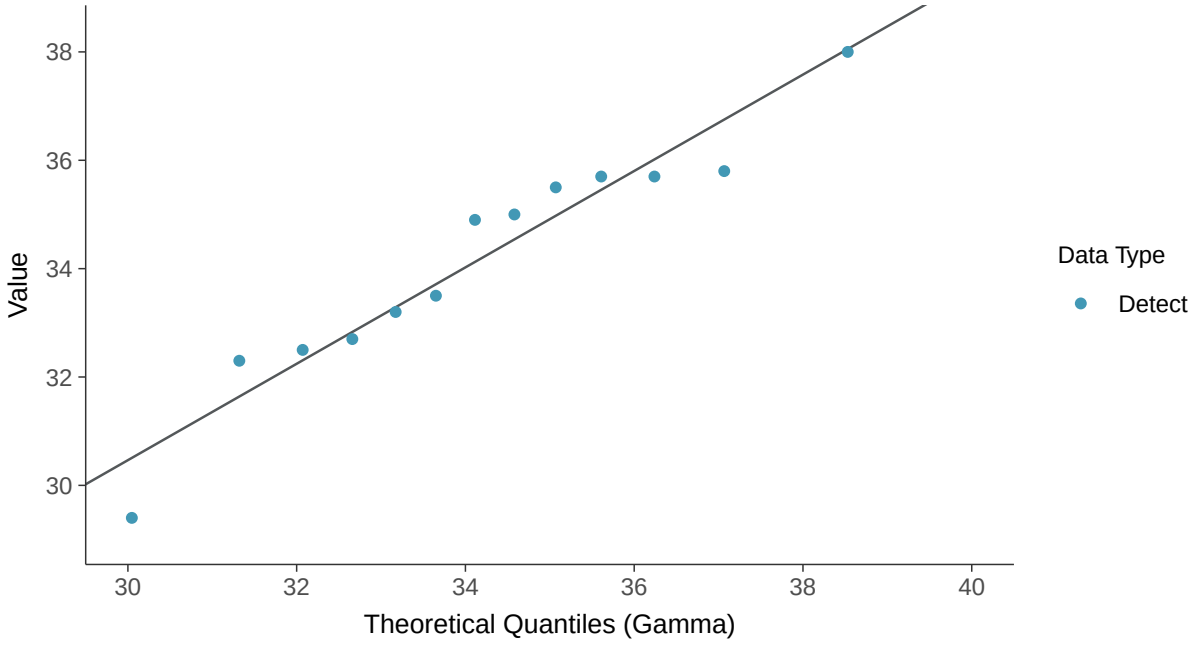
Lognormal Q-Q plot

Magnesium, MW-100B (mg/L)



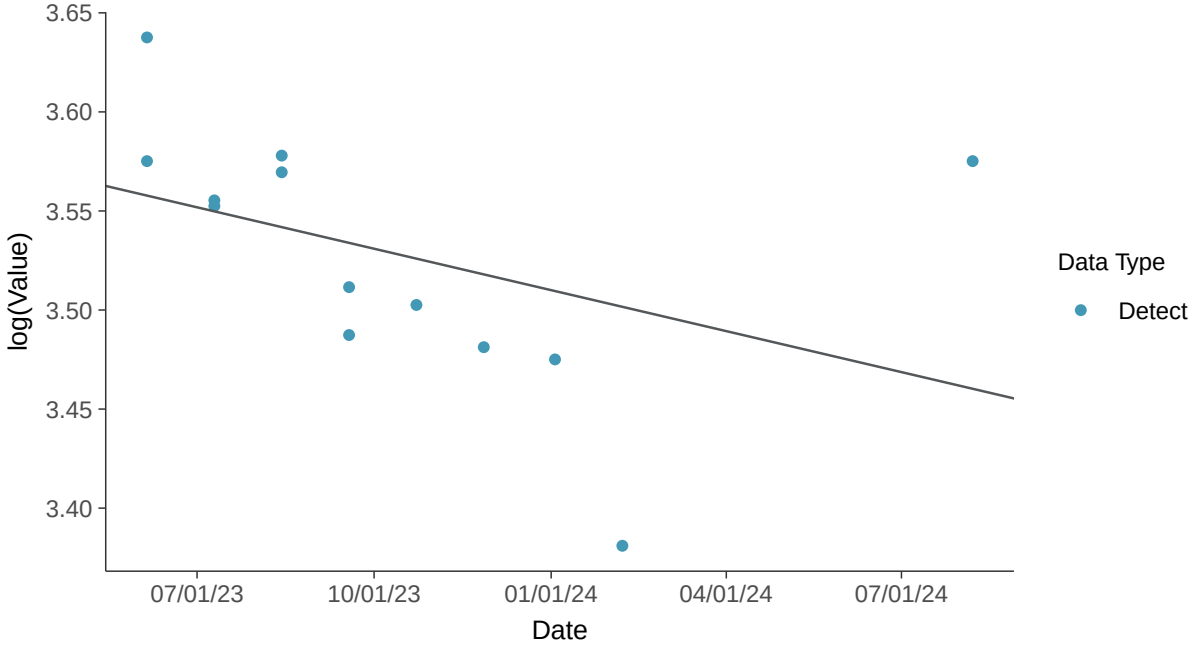
Gamma Q-Q plot

Magnesium, MW-100B (mg/L)



Trend Regression: Lognormal MLE

Magnesium, MW-100B (mg/L)

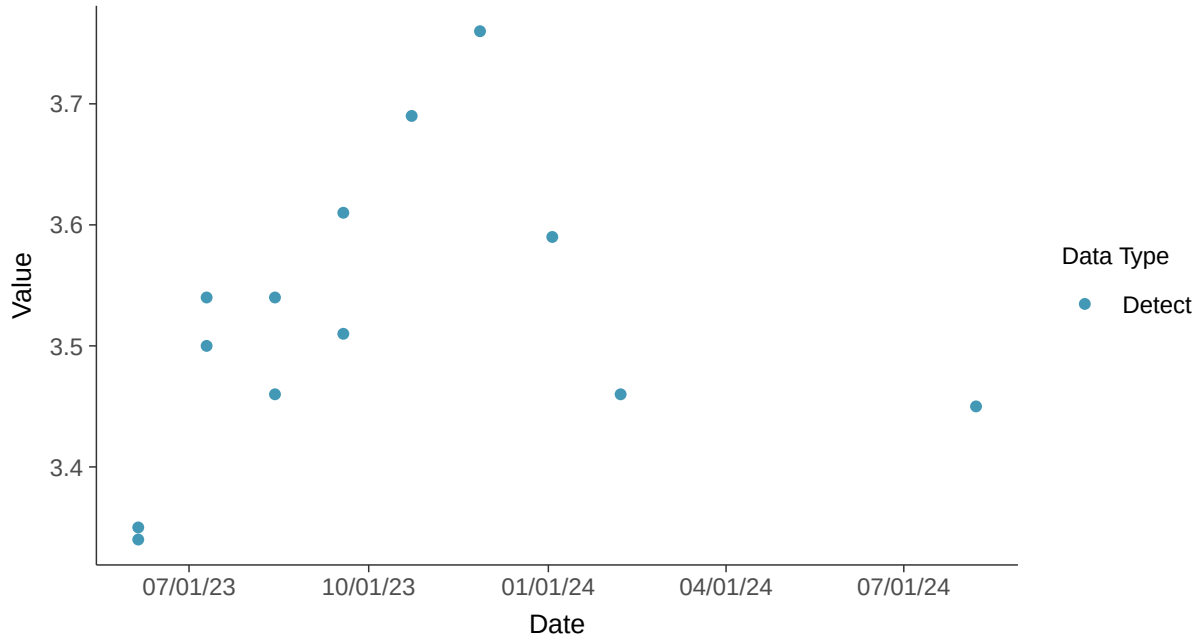


Other: Potassium, MW-100B

ID: 100B_4_35

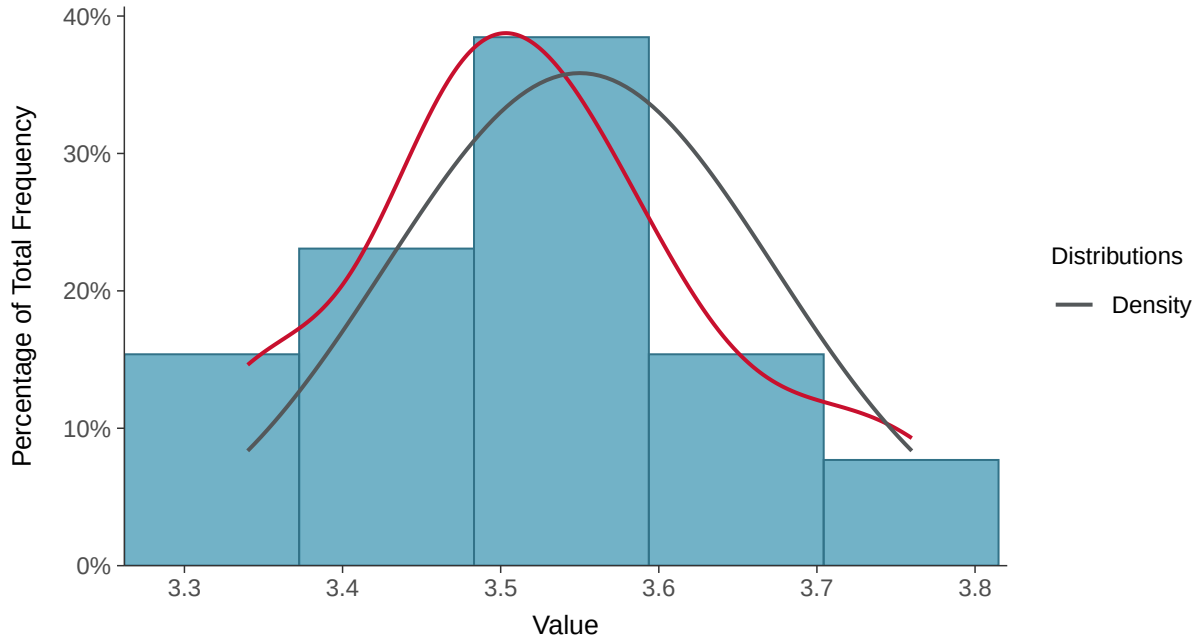
Scatter Plot

Potassium, MW-100B (mg/L)



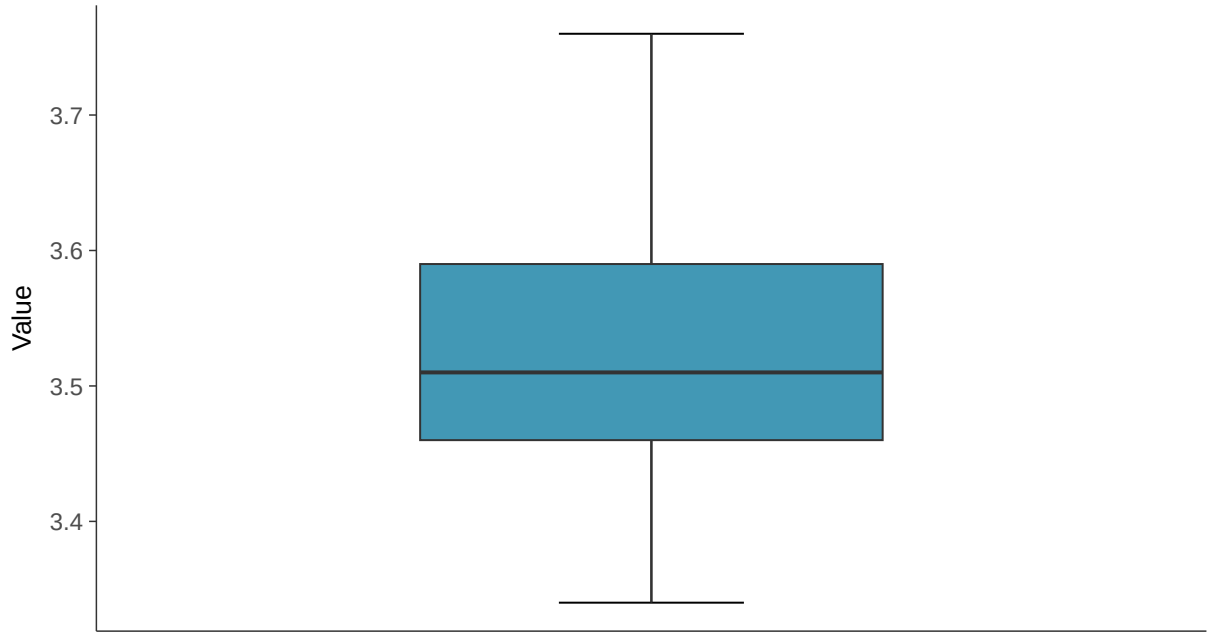
Histogram

Potassium, MW-100B (mg/L)



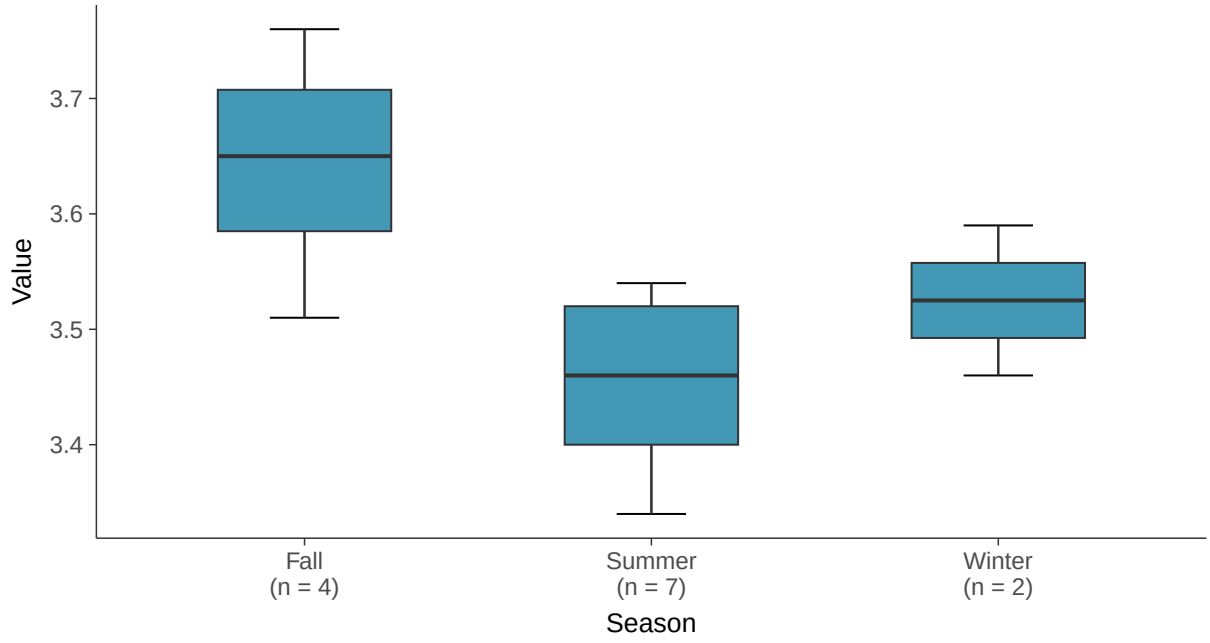
Boxplot

Potassium, MW-100B (mg/L)



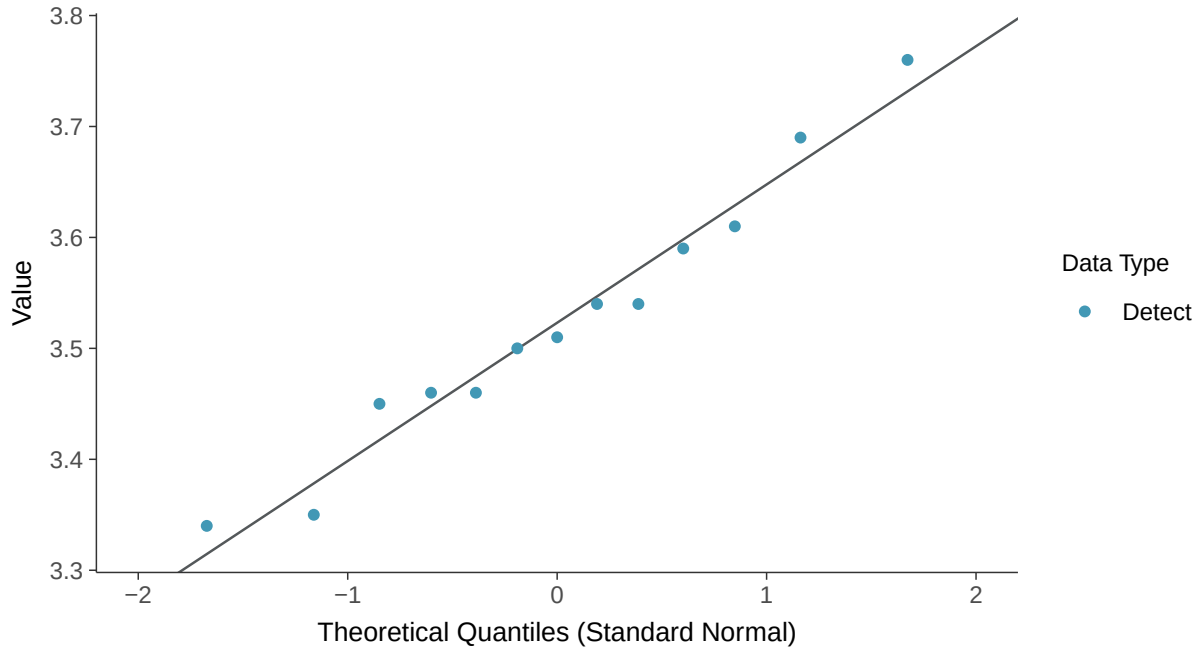
Boxplot by Season

Potassium, MW-100B (mg/L)



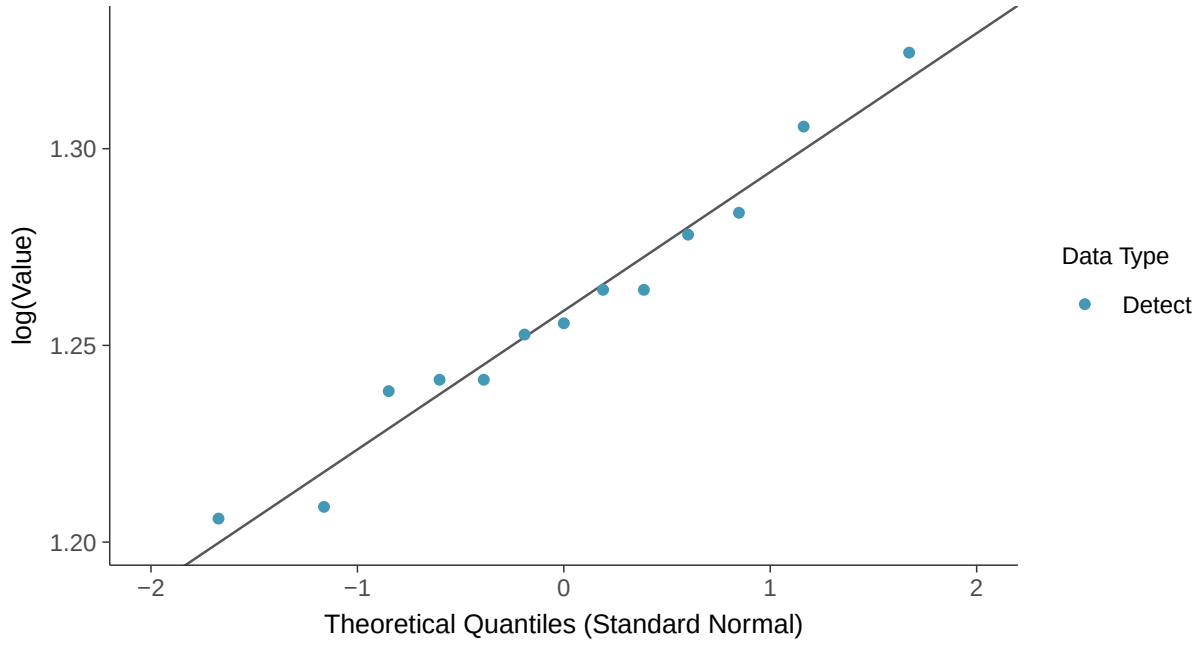
Normal Q-Q plot

Potassium, MW-100B (mg/L)



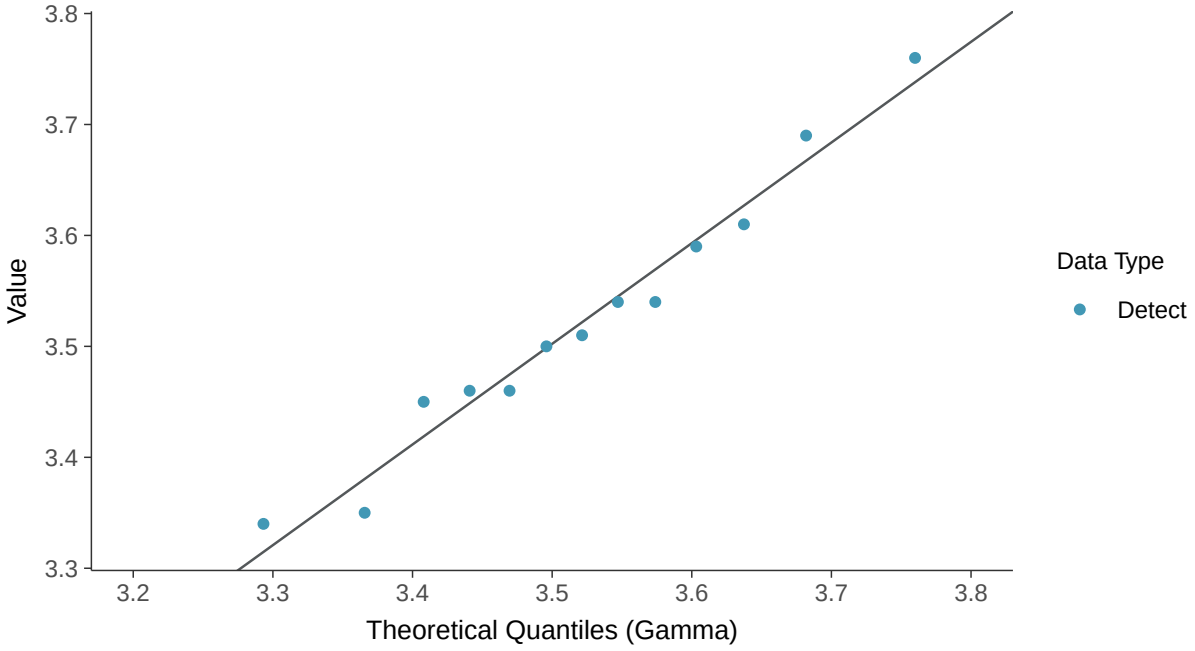
Lognormal Q-Q plot

Potassium, MW-100B (mg/L)



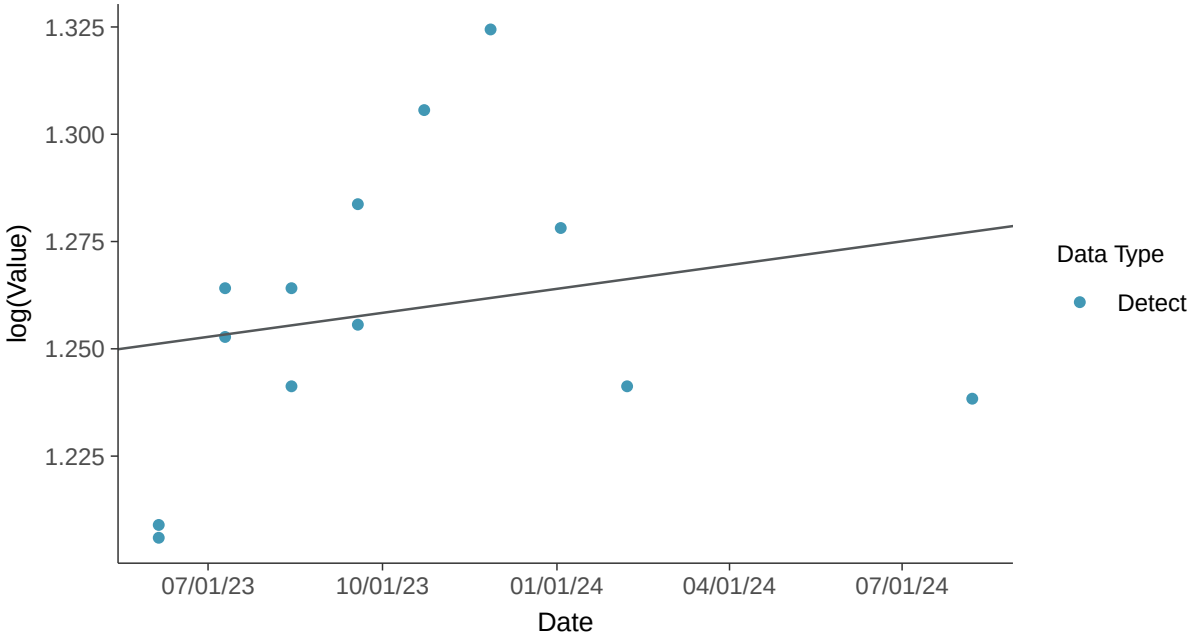
Gamma Q-Q plot

Potassium, MW-100B (mg/L)



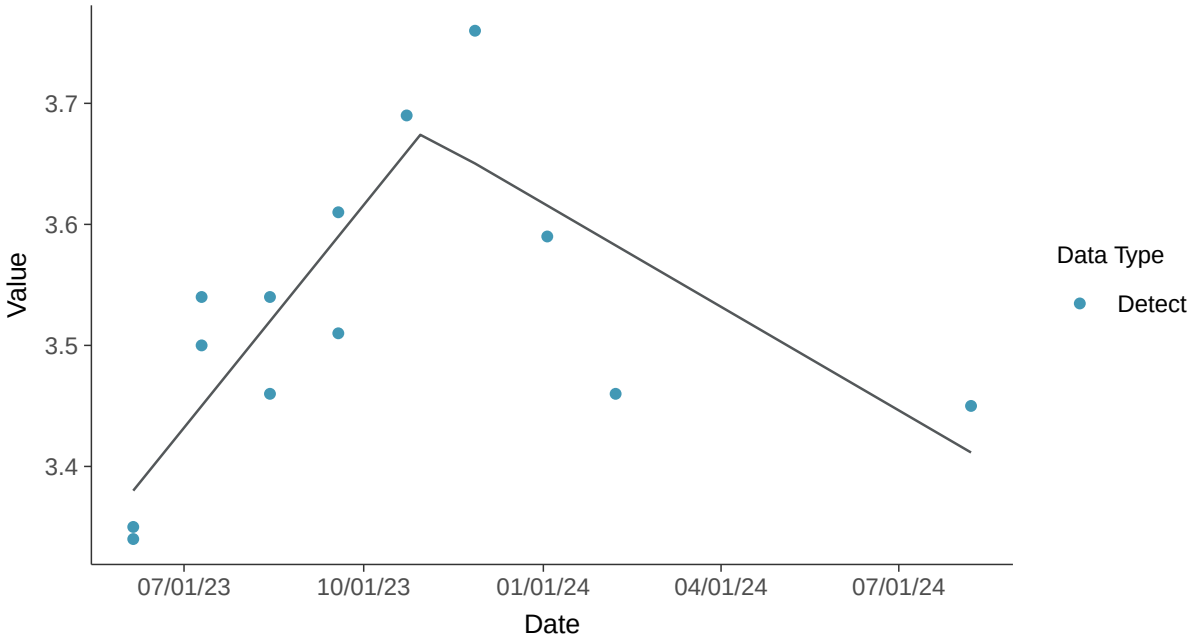
Trend Regression: Lognormal MLE

Potassium, MW-100B (mg/L)



Trend Regression: Piecewise Linear-Linear

Potassium, MW-100B (mg/L)

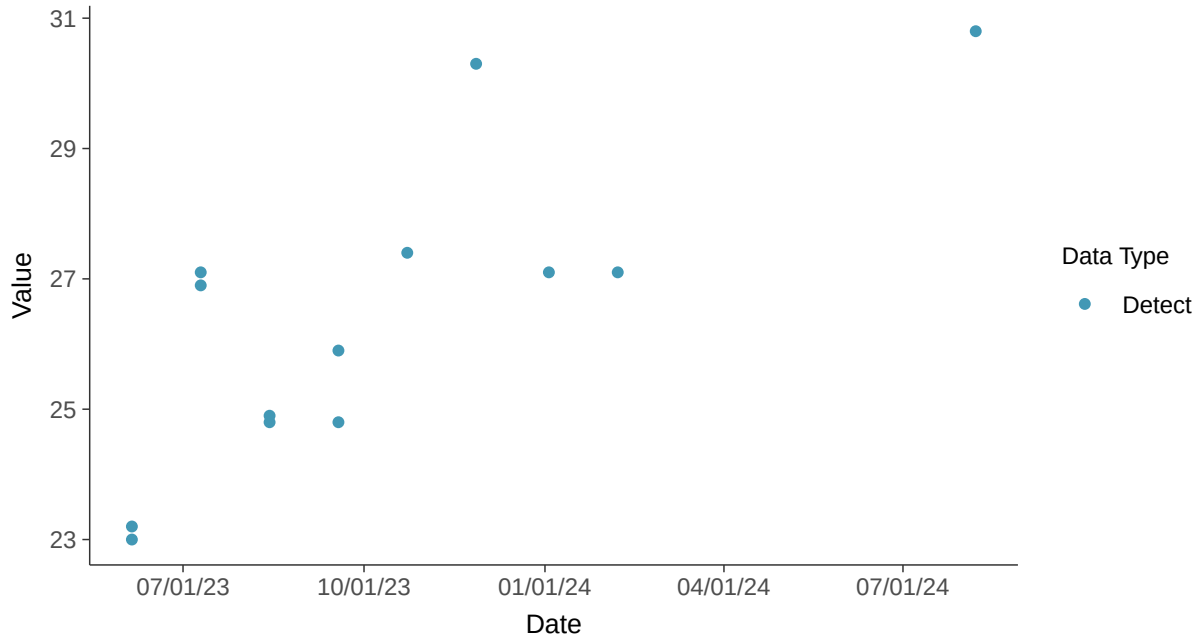


Other: Sodium, MW-100B

ID: 100B_4_36

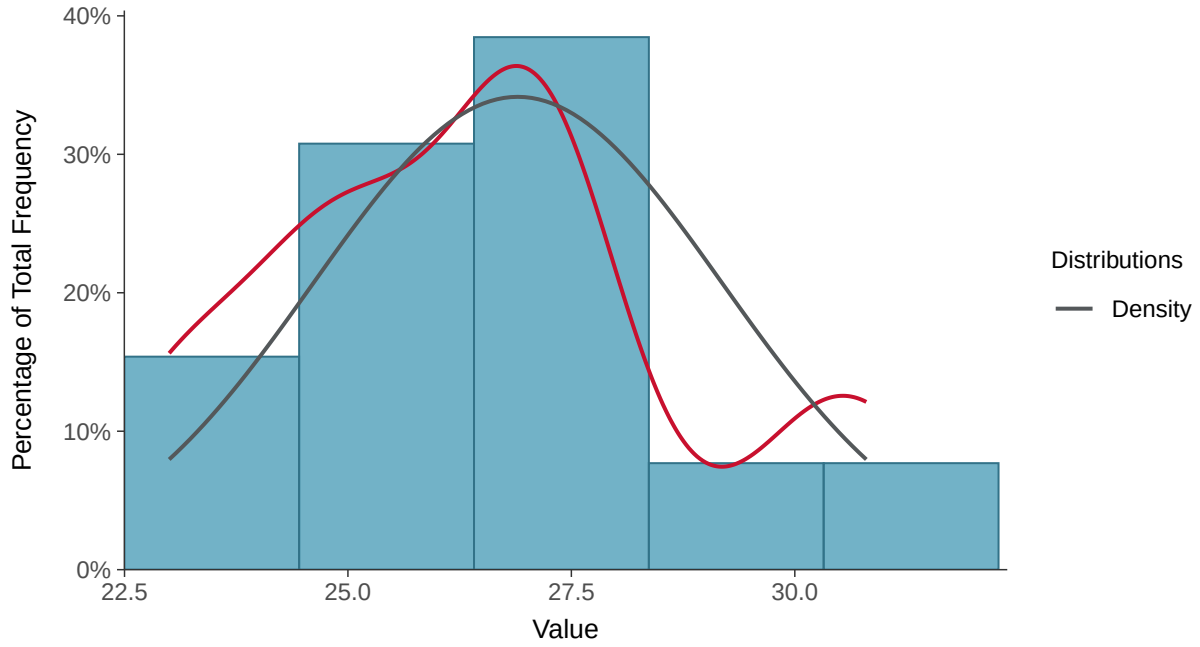
Scatter Plot

Sodium, MW-100B (mg/L)



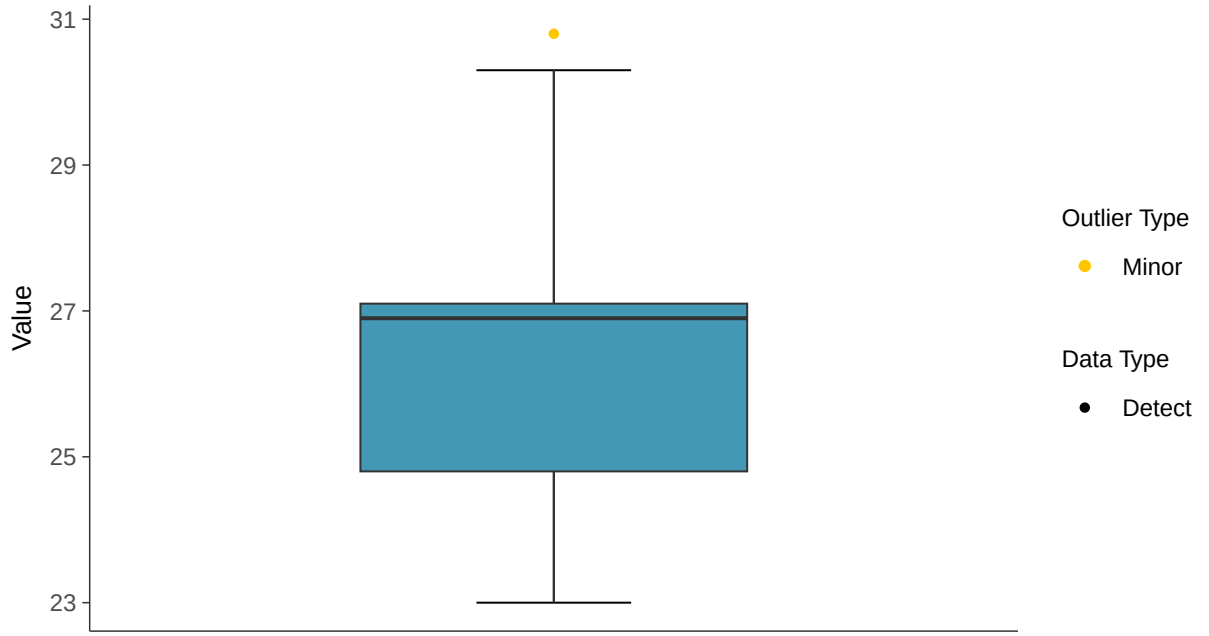
Histogram

Sodium, MW-100B (mg/L)



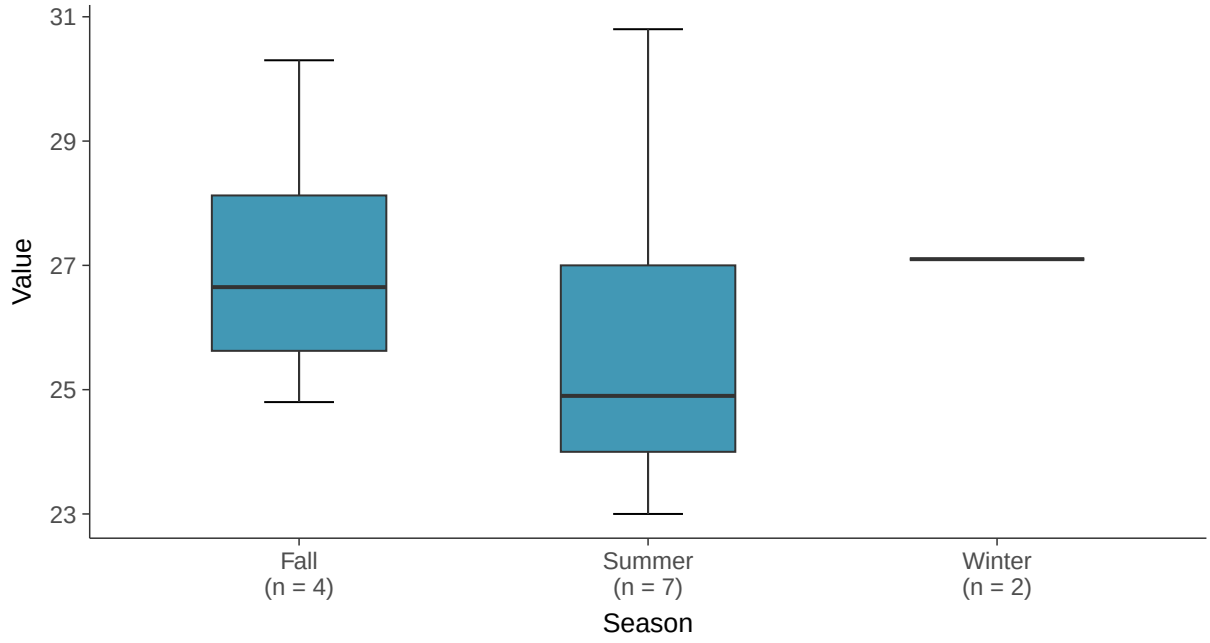
Boxplot

Sodium, MW-100B (mg/L)



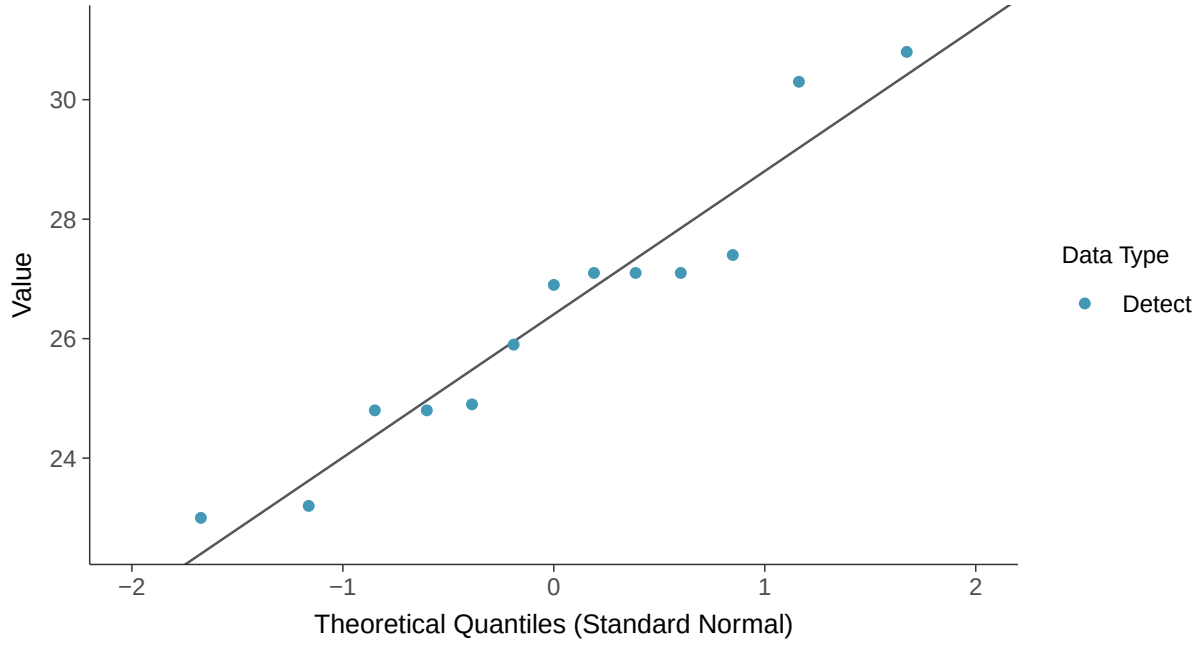
Boxplot by Season

Sodium, MW-100B (mg/L)



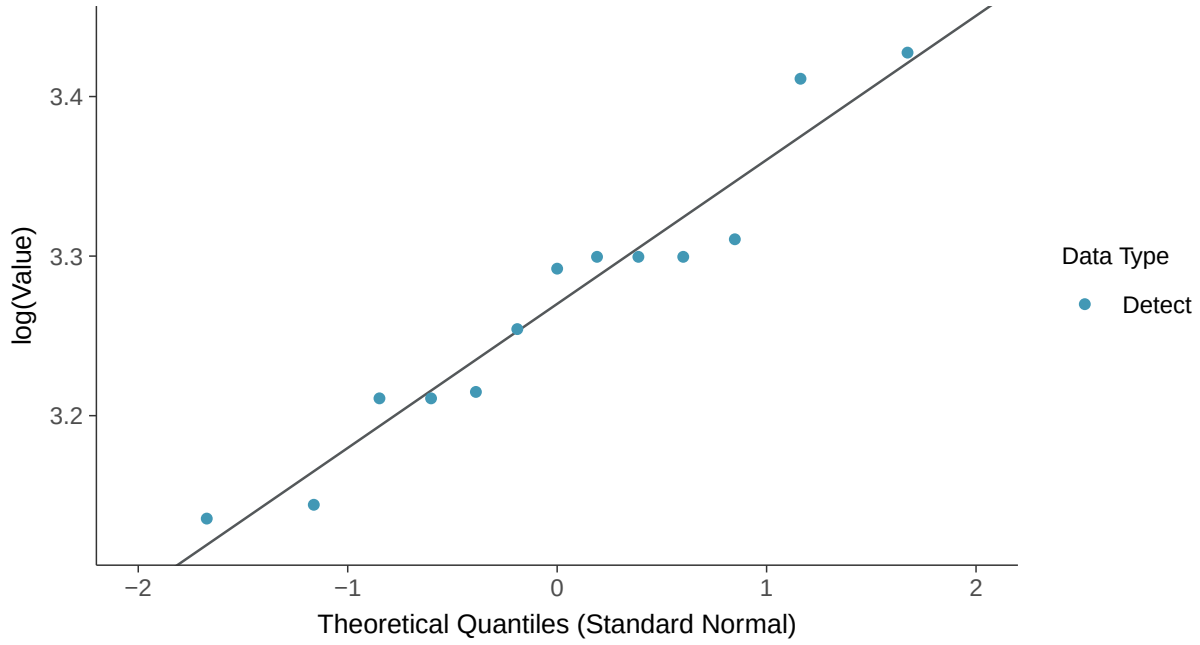
Normal Q-Q plot

Sodium, MW-100B (mg/L)



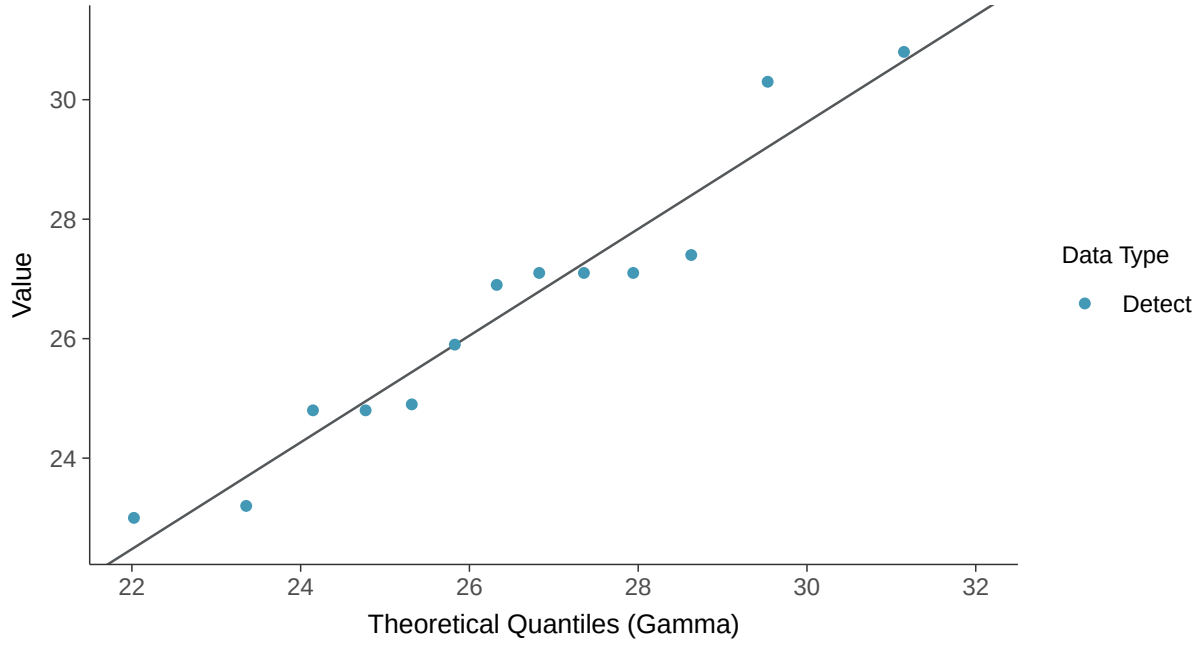
Lognormal Q-Q plot

Sodium, MW-100B (mg/L)



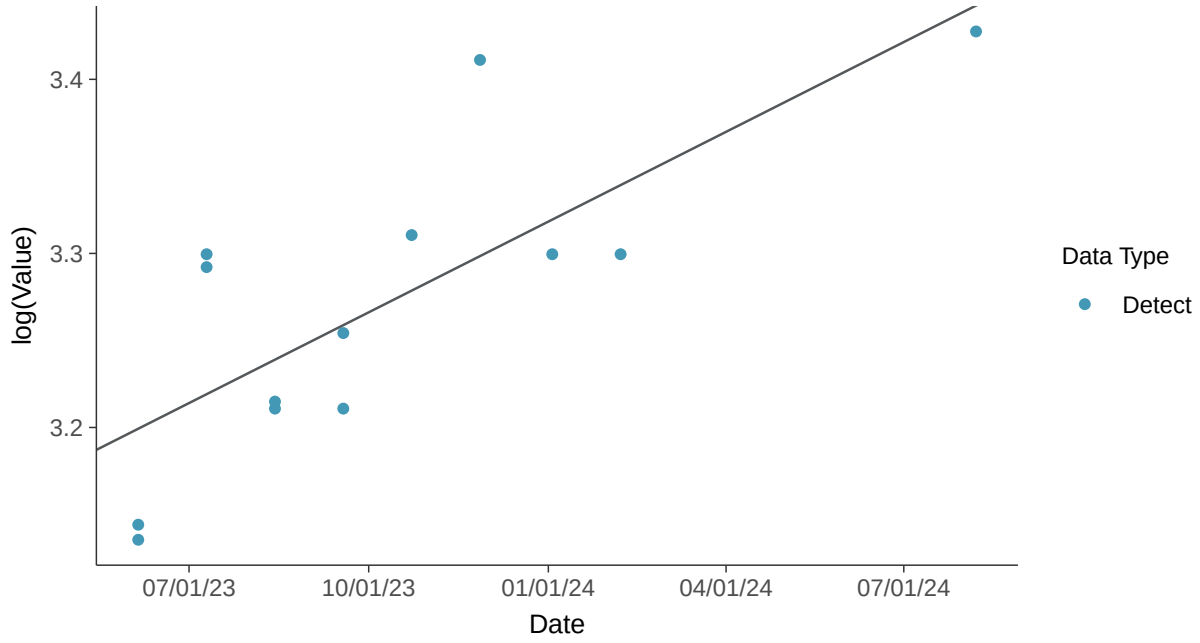
Gamma Q-Q plot

Sodium, MW-100B (mg/L)



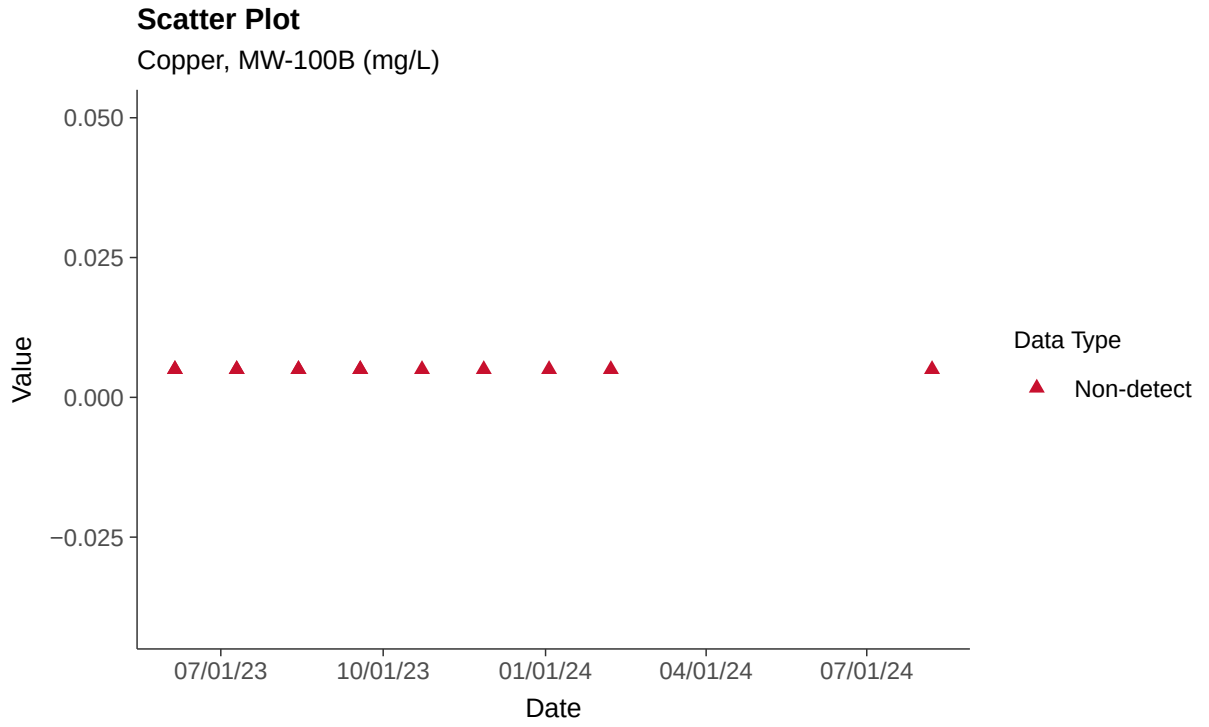
Trend Regression: Lognormal MLE

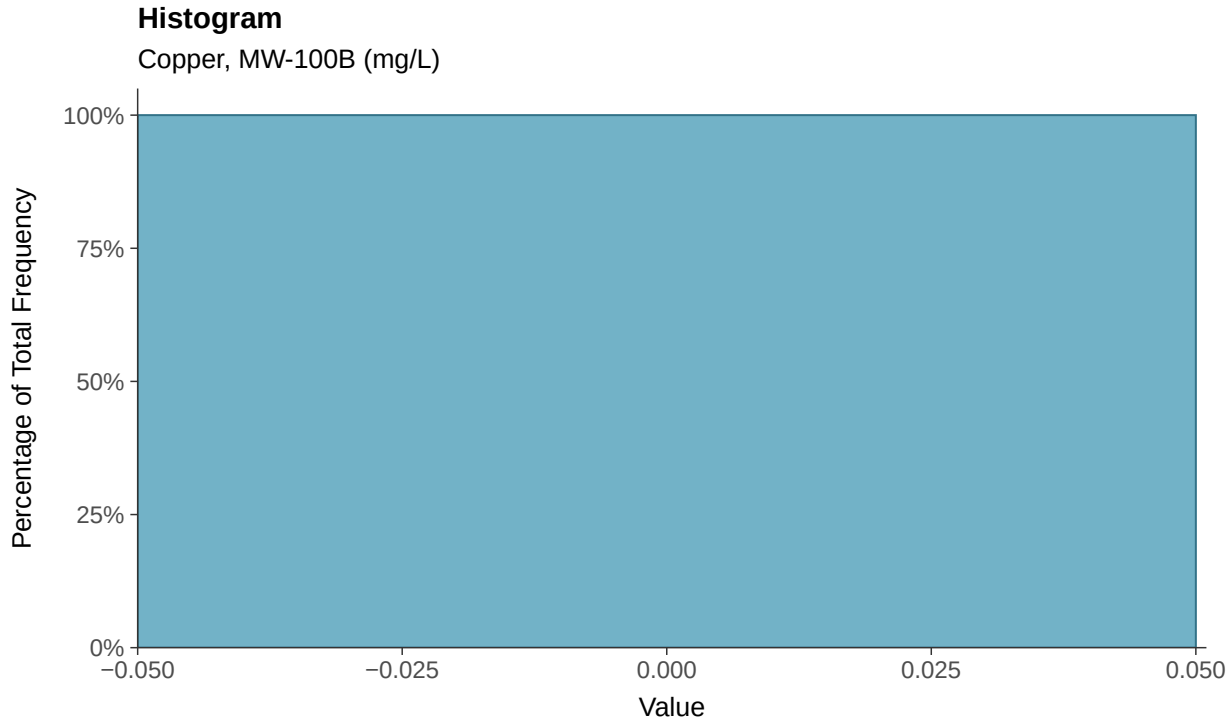
Sodium, MW-100B (mg/L)



Part 115: Copper, MW-100B

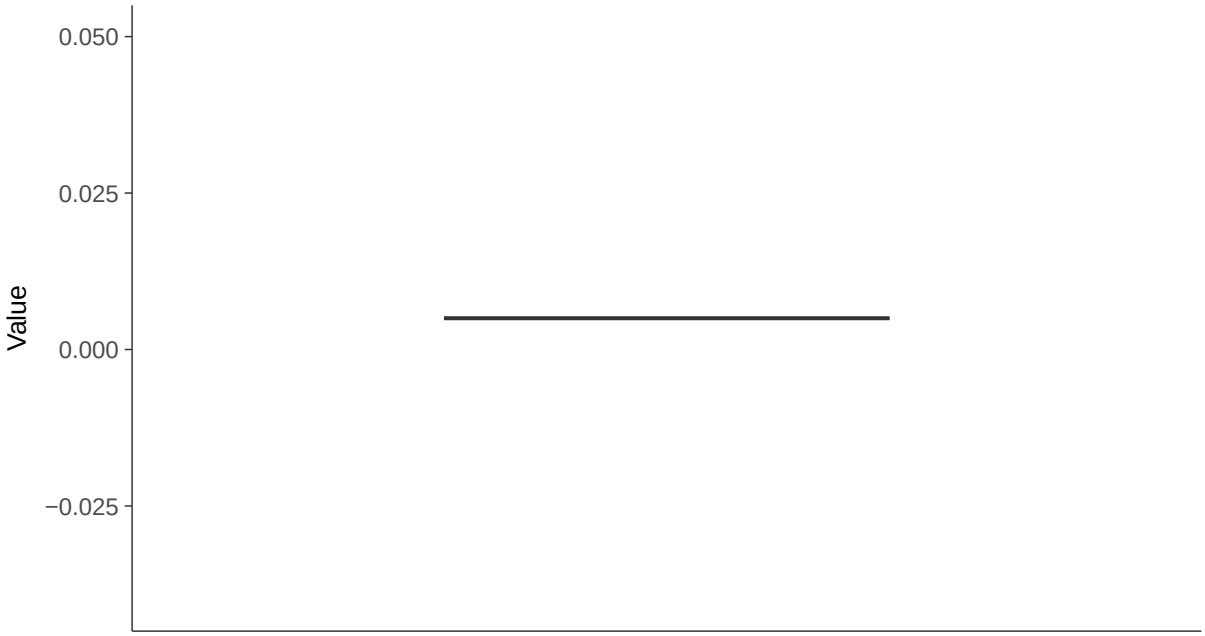
ID: 100B_5_37





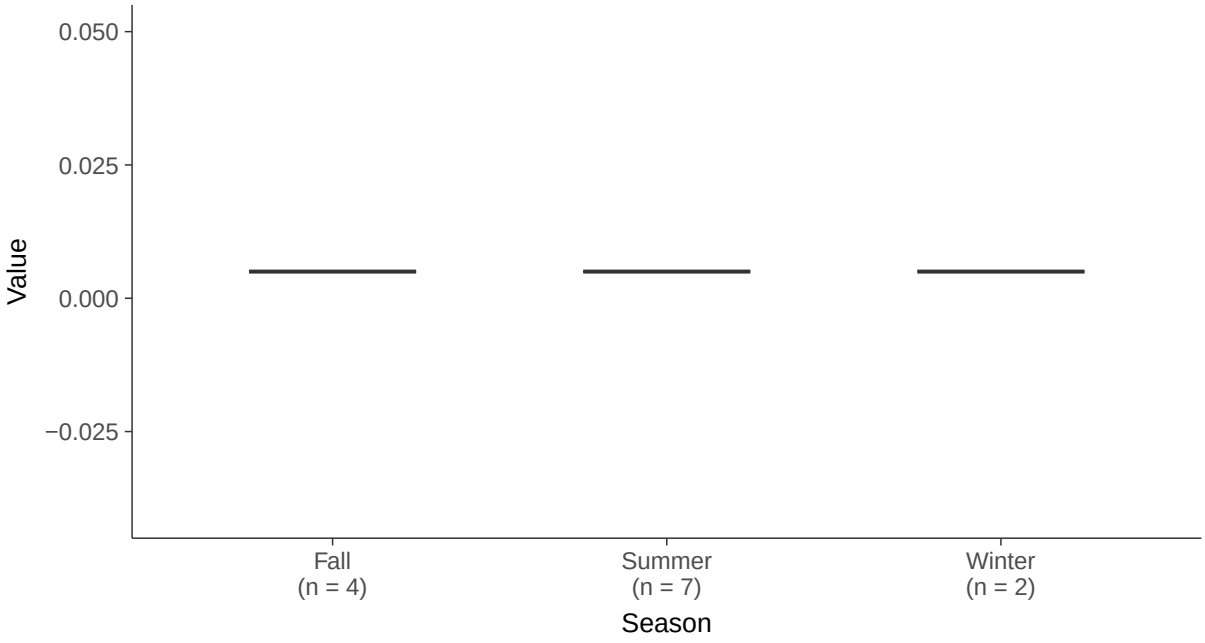
Boxplot

Copper, MW-100B (mg/L)



Boxplot by Season

Copper, MW-100B (mg/L)

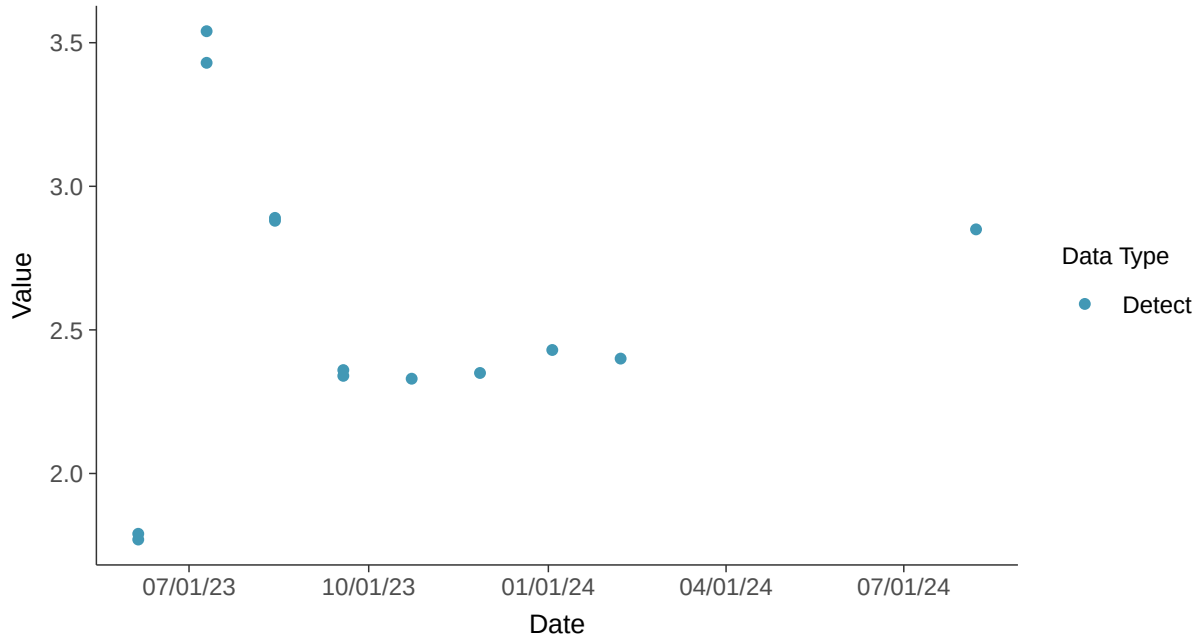


Part 115: Iron, MW-100B

ID: 100B_5_38

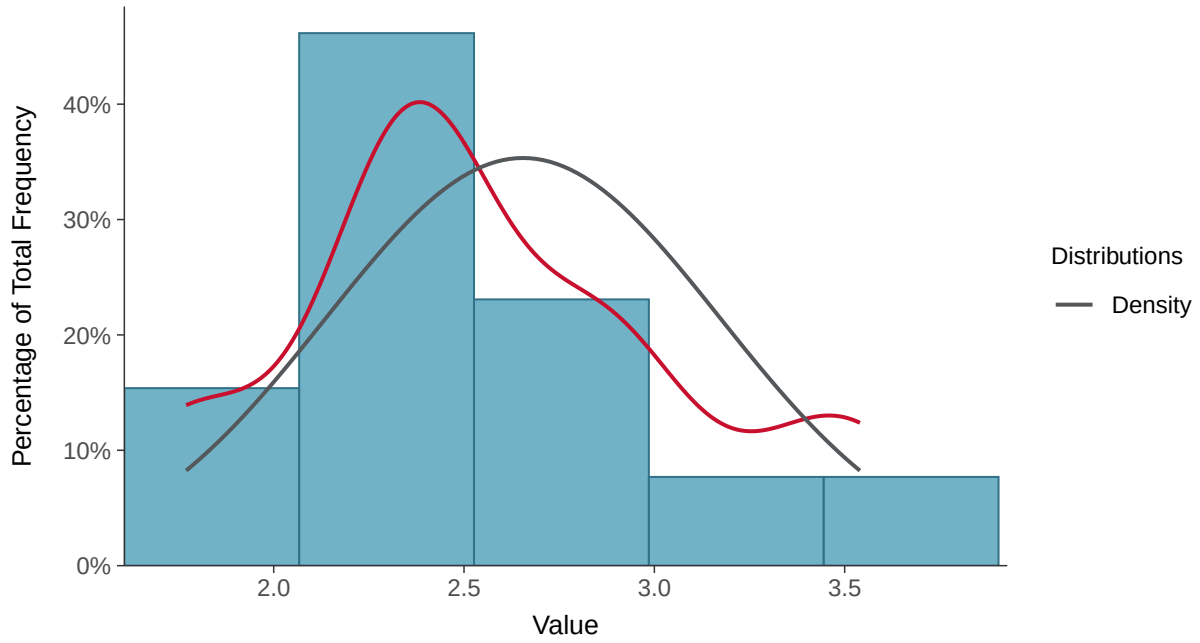
Scatter Plot

Iron, MW-100B (mg/L)



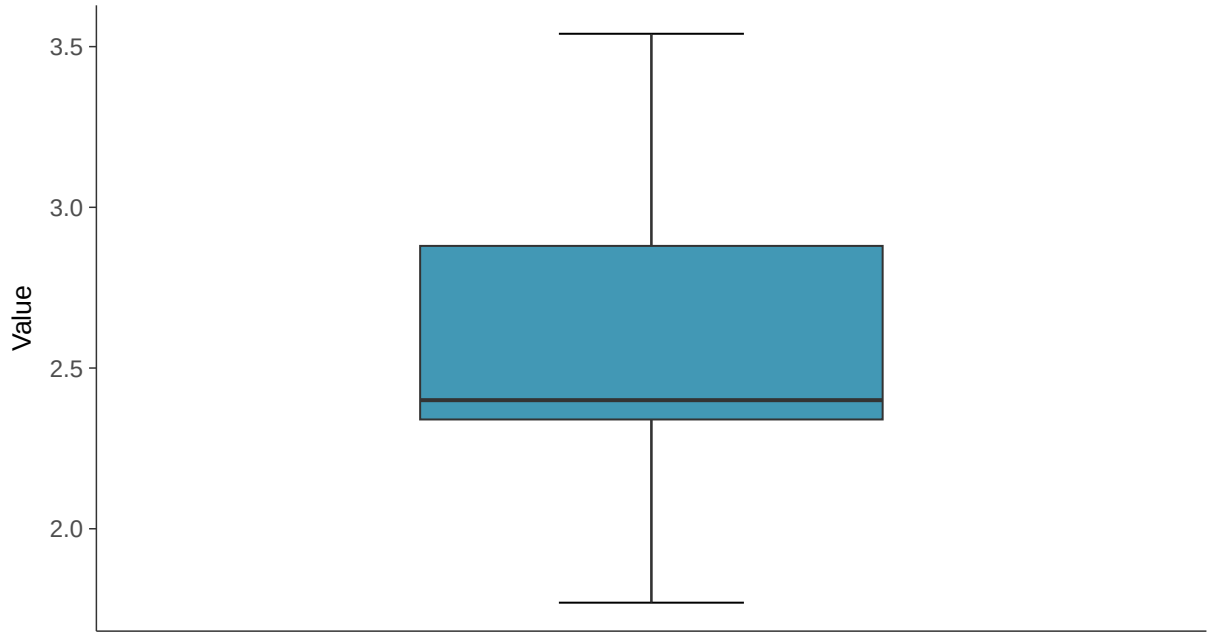
Histogram

Iron, MW-100B (mg/L)



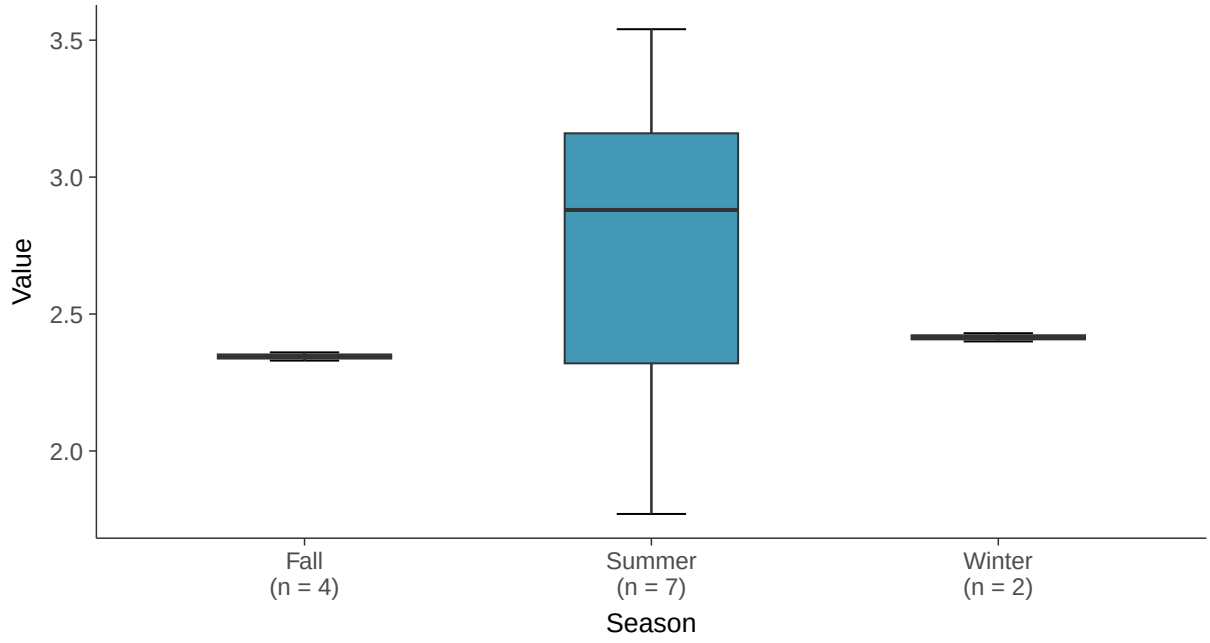
Boxplot

Iron, MW-100B (mg/L)



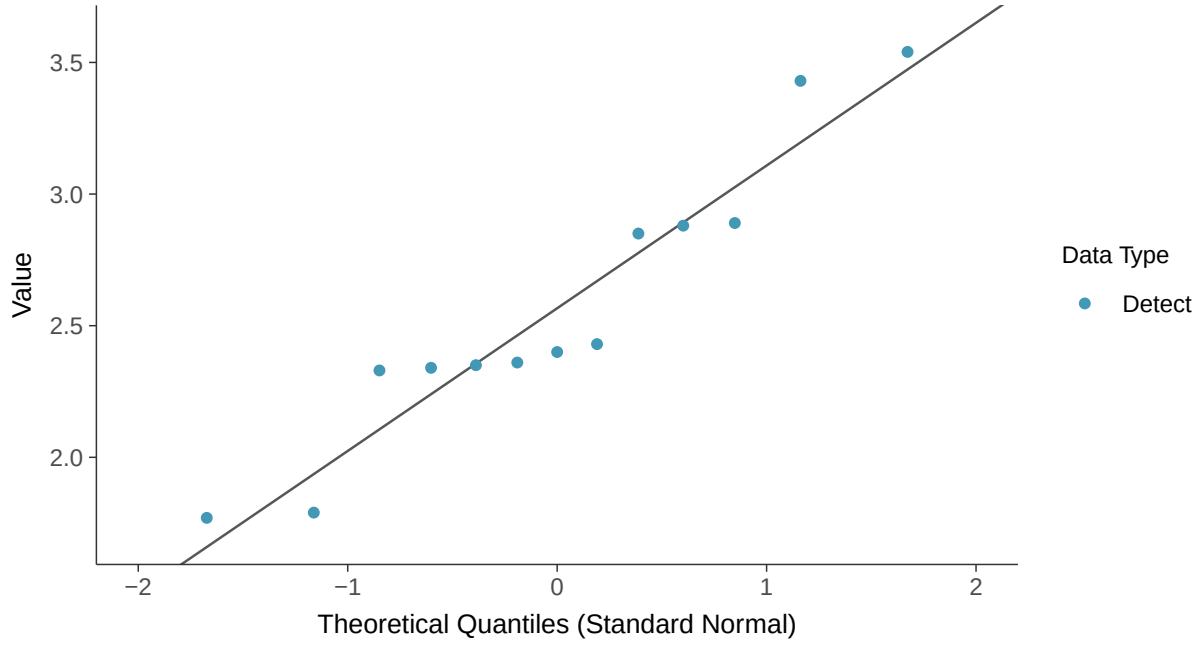
Boxplot by Season

Iron, MW-100B (mg/L)



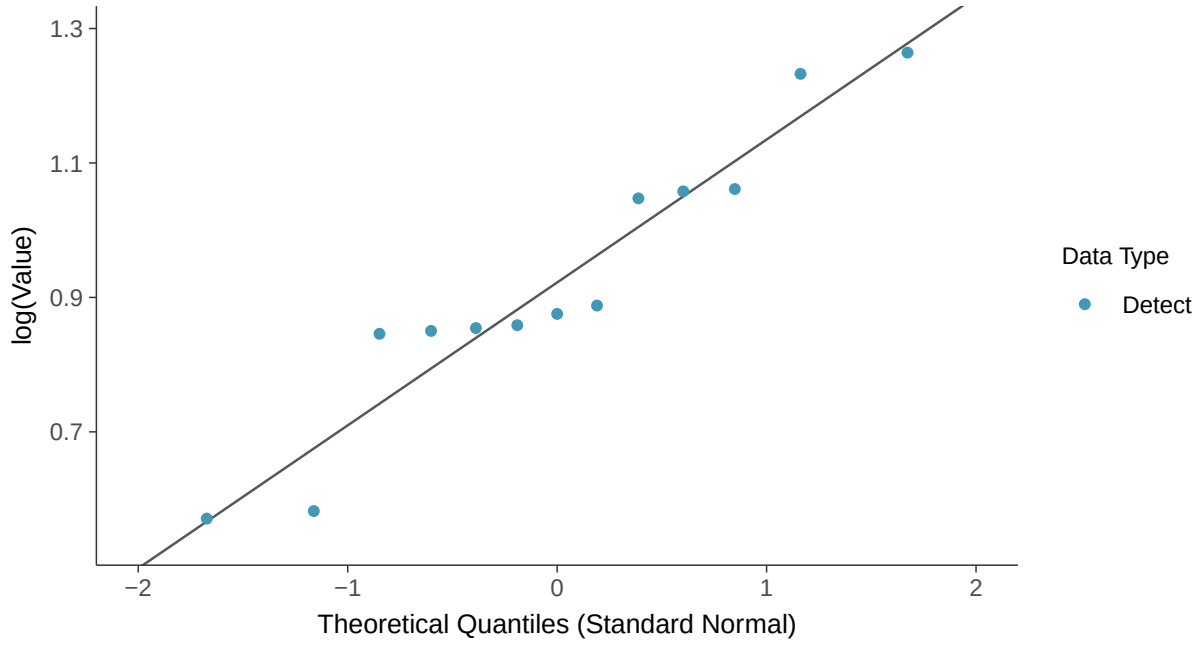
Normal Q-Q plot

Iron, MW-100B (mg/L)



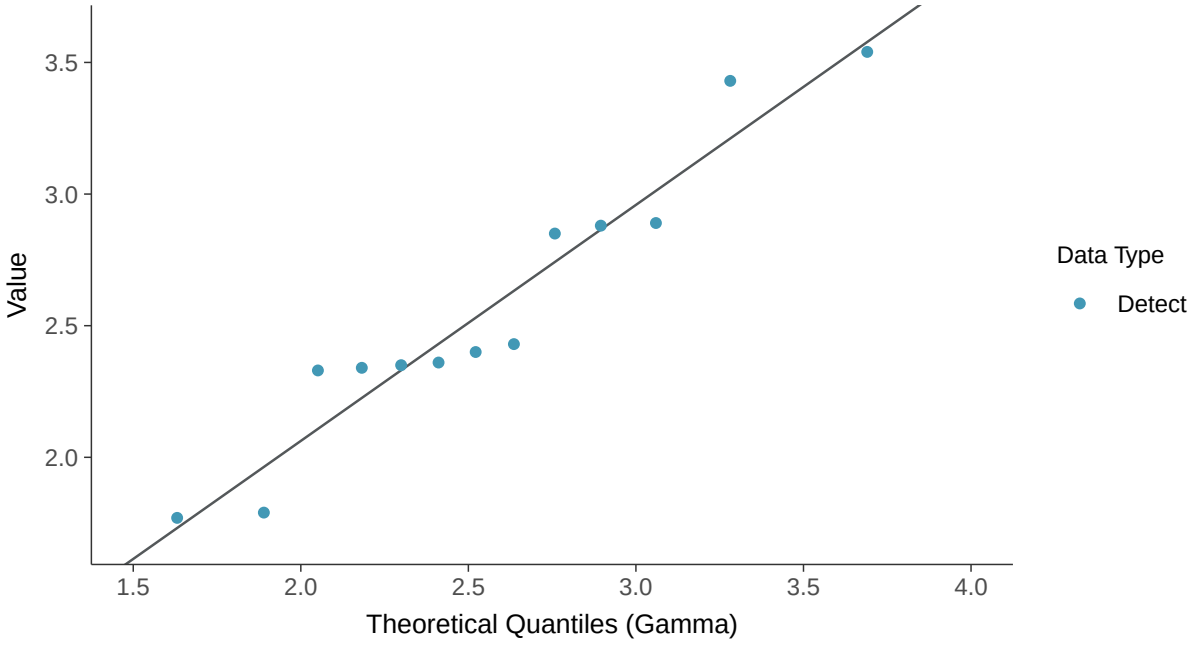
Lognormal Q-Q plot

Iron, MW-100B (mg/L)



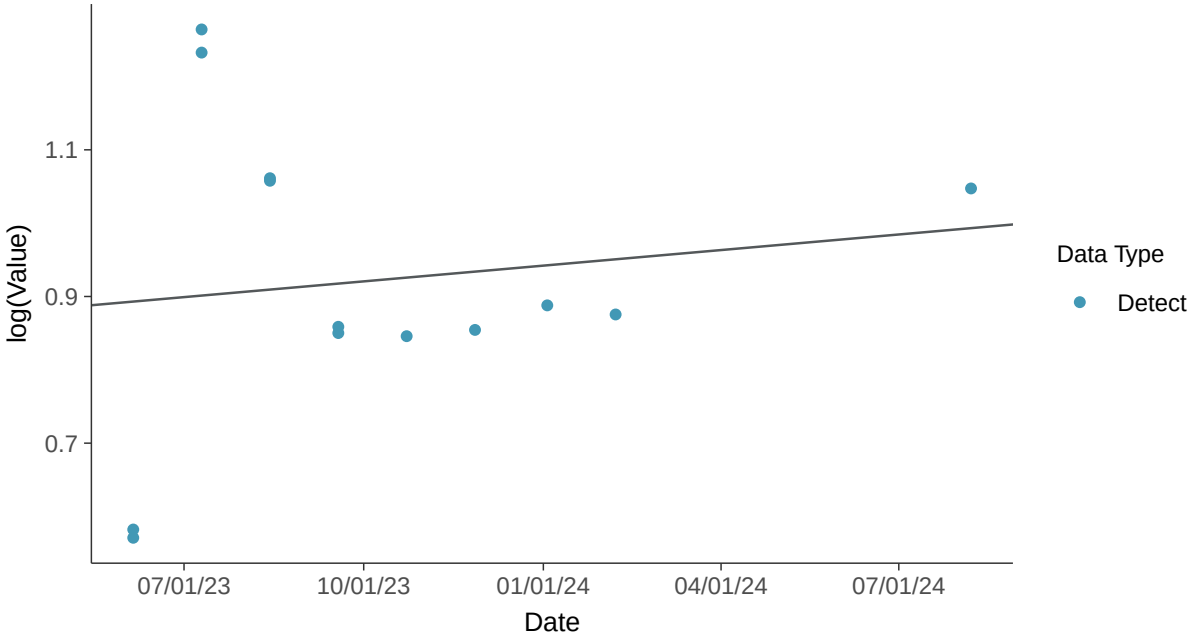
Gamma Q-Q plot

Iron, MW-100B (mg/L)



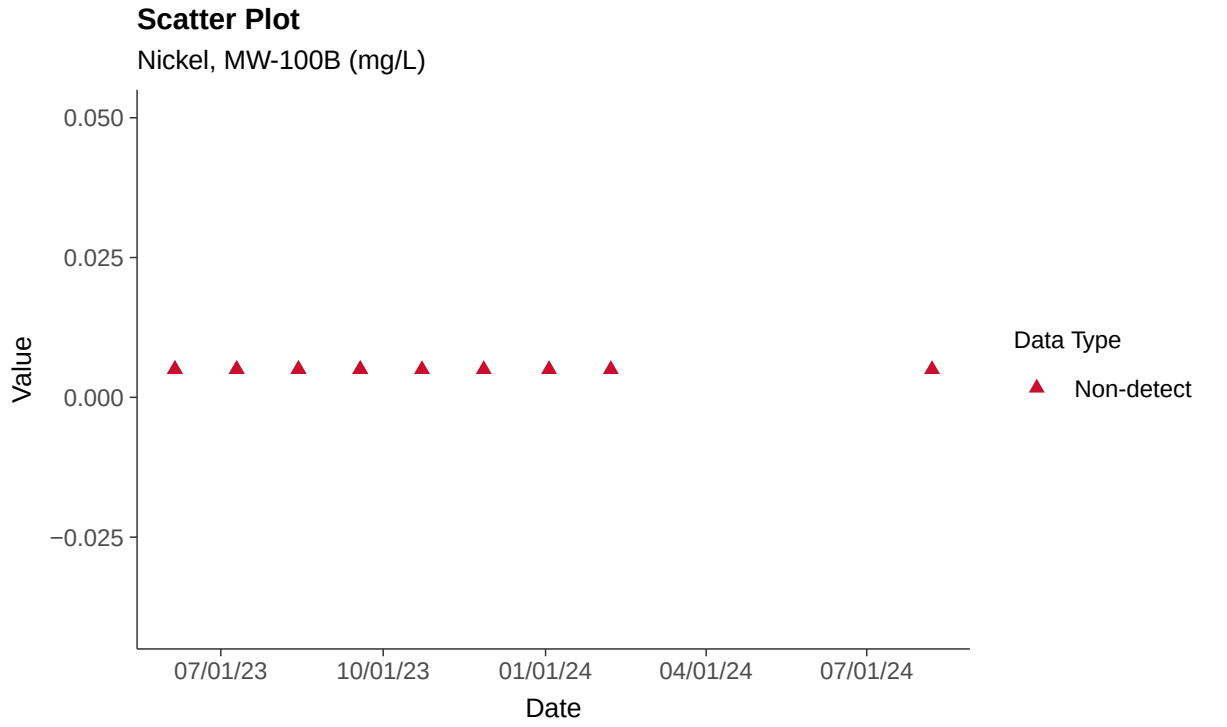
Trend Regression: Lognormal MLE

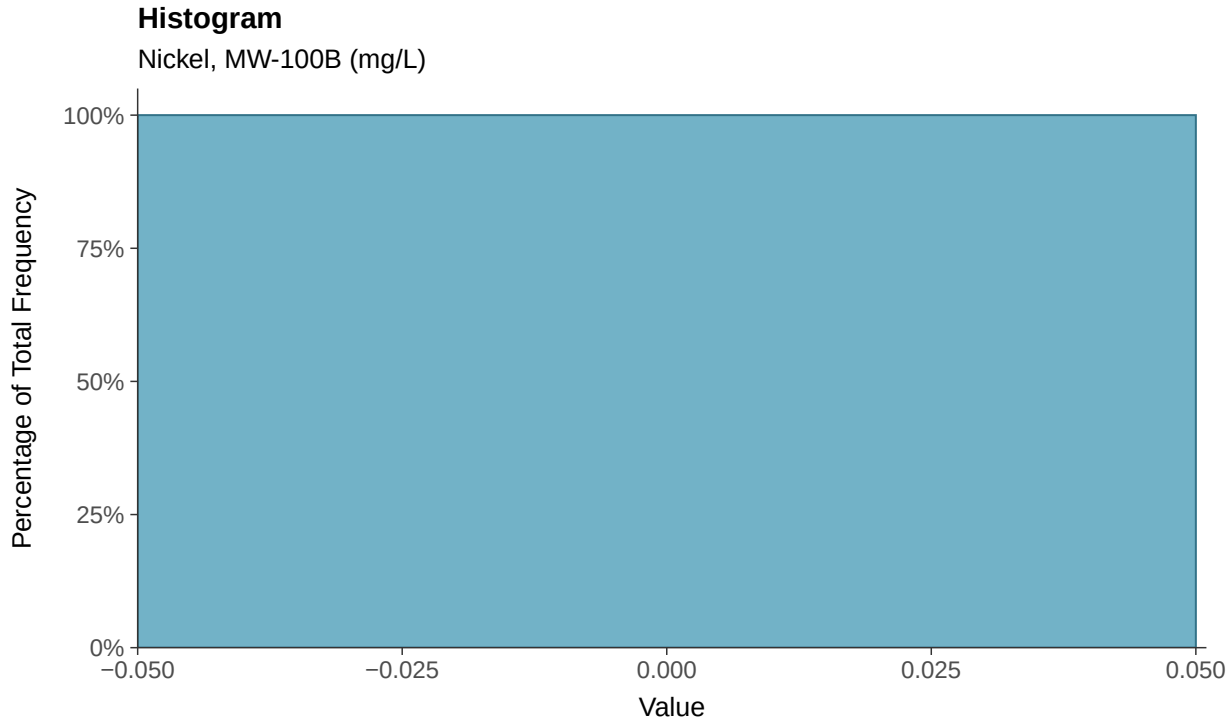
Iron, MW-100B (mg/L)



Part 115: Nickel, MW-100B

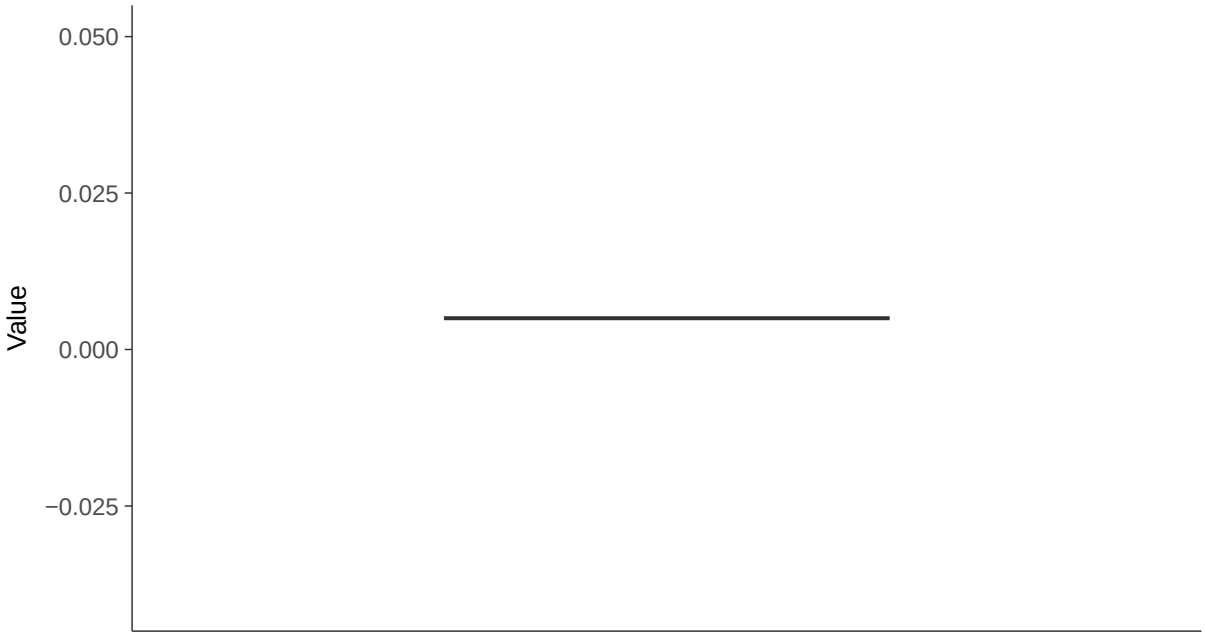
ID: 100B_5_39





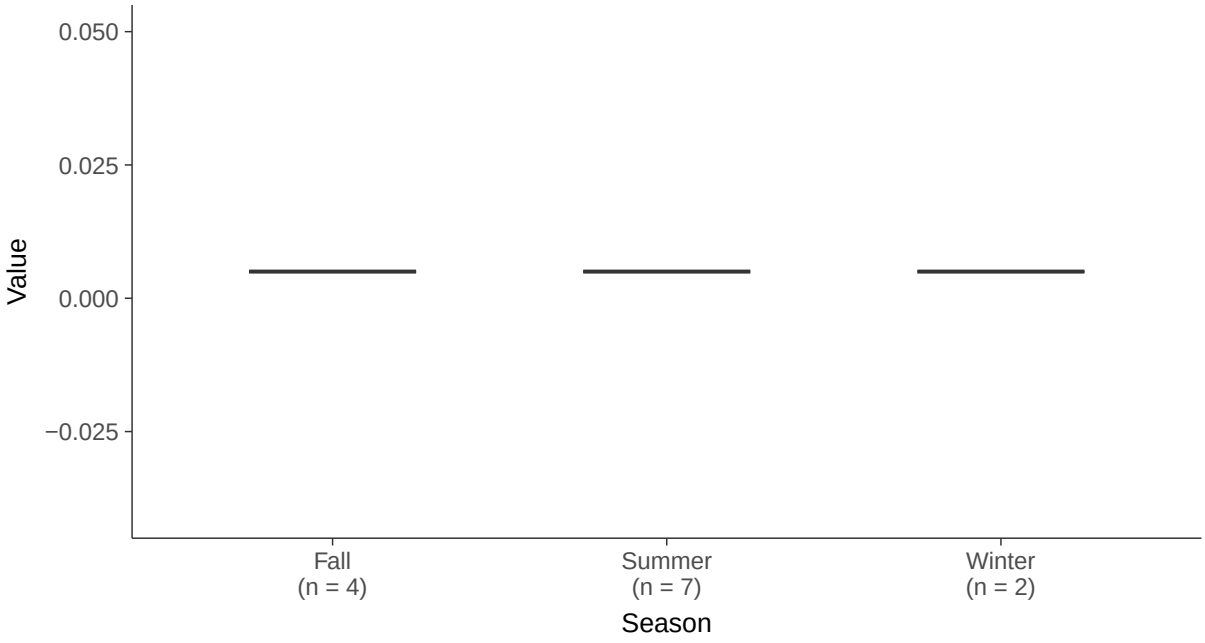
Boxplot

Nickel, MW-100B (mg/L)



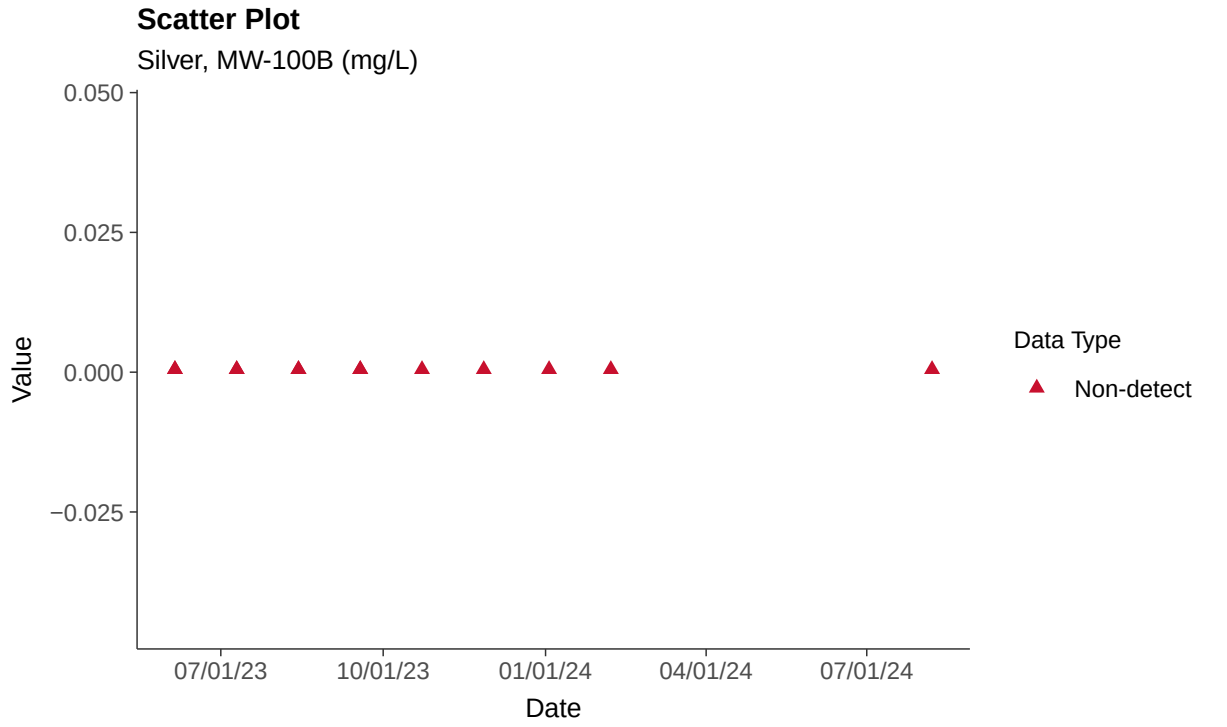
Boxplot by Season

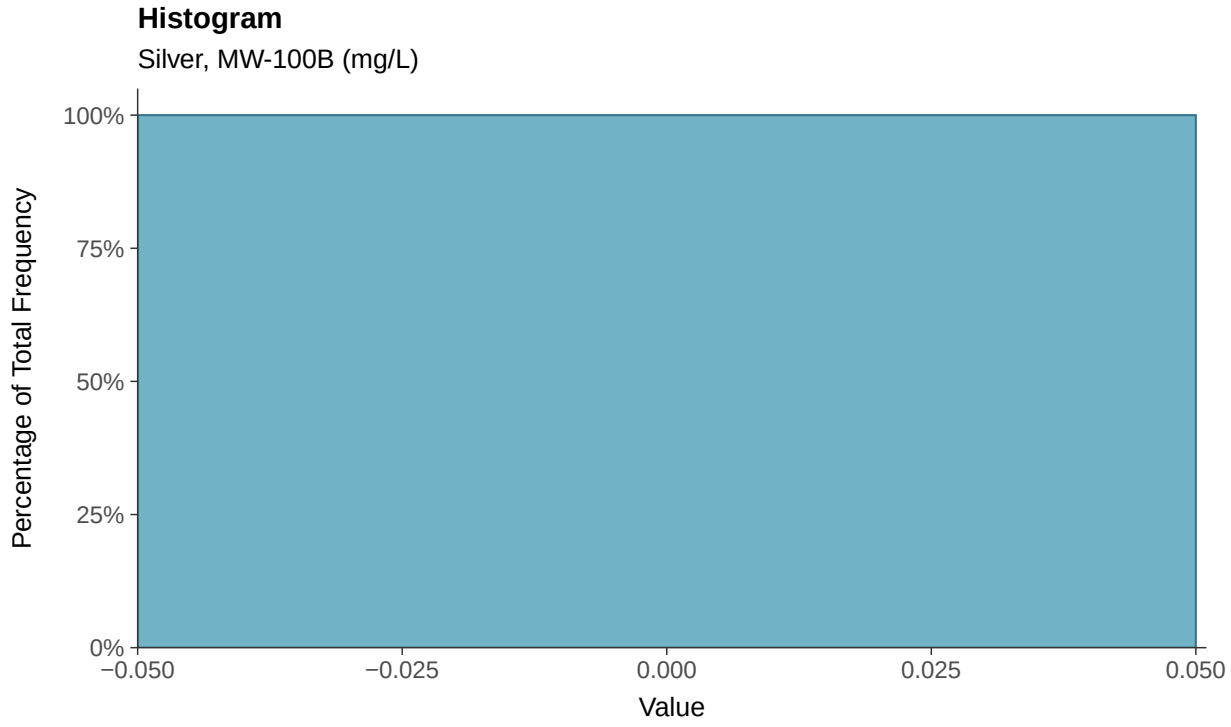
Nickel, MW-100B (mg/L)



Part 115: Silver, MW-100B

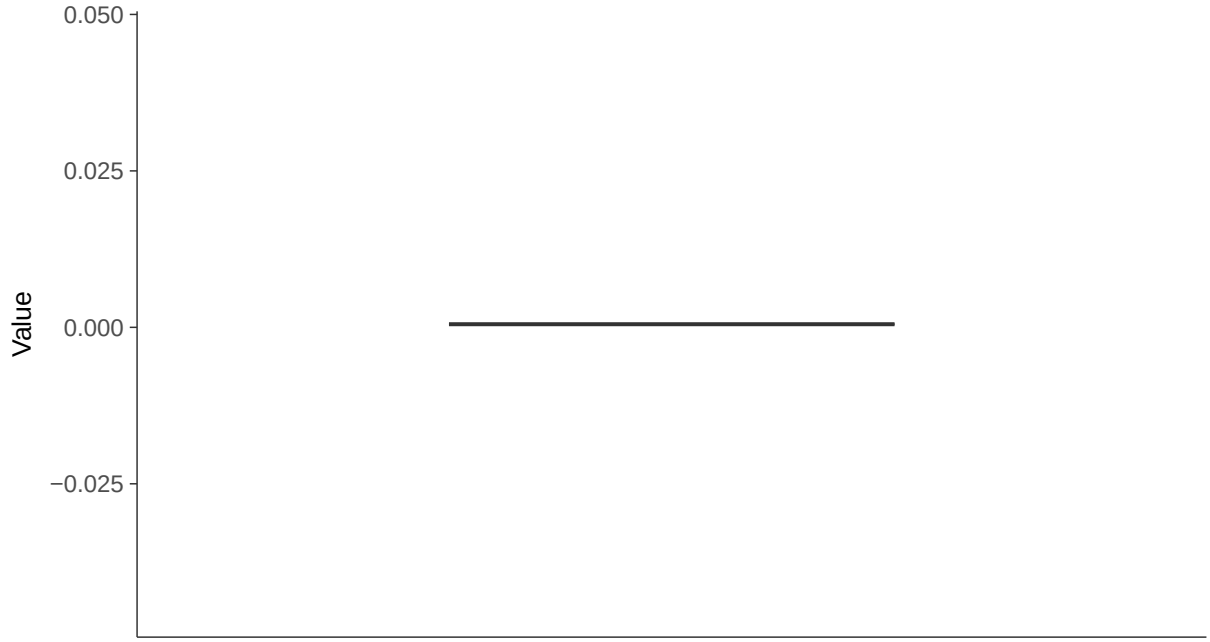
ID: 100B_5_40





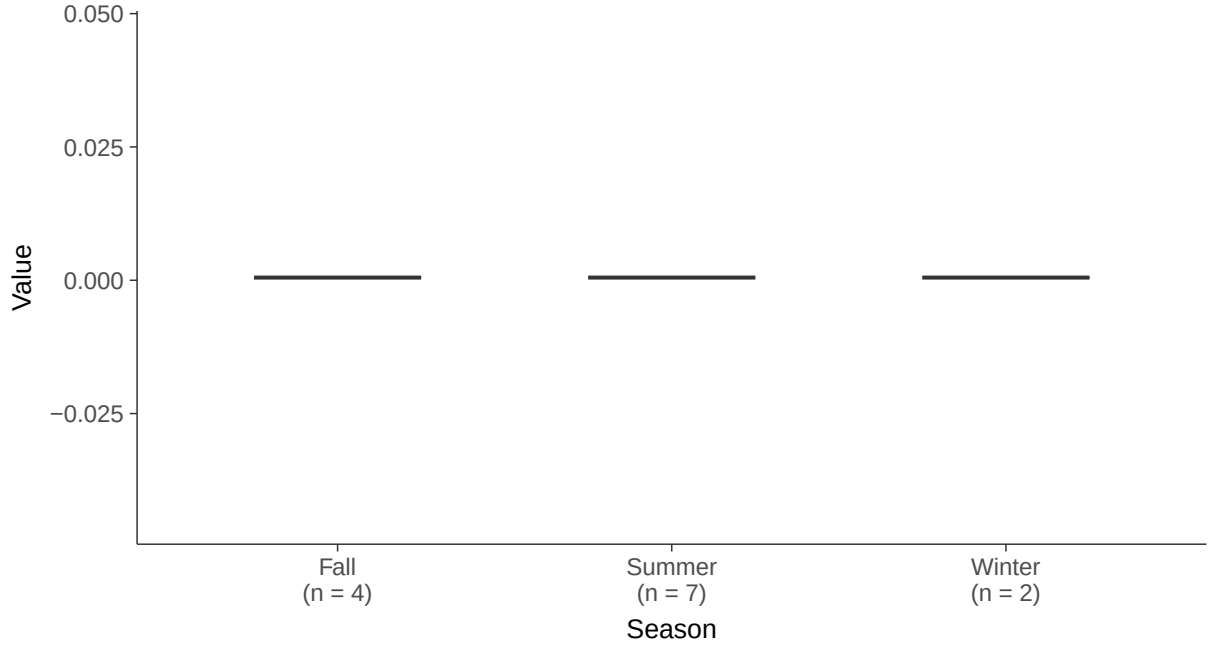
Boxplot

Silver, MW-100B (mg/L)



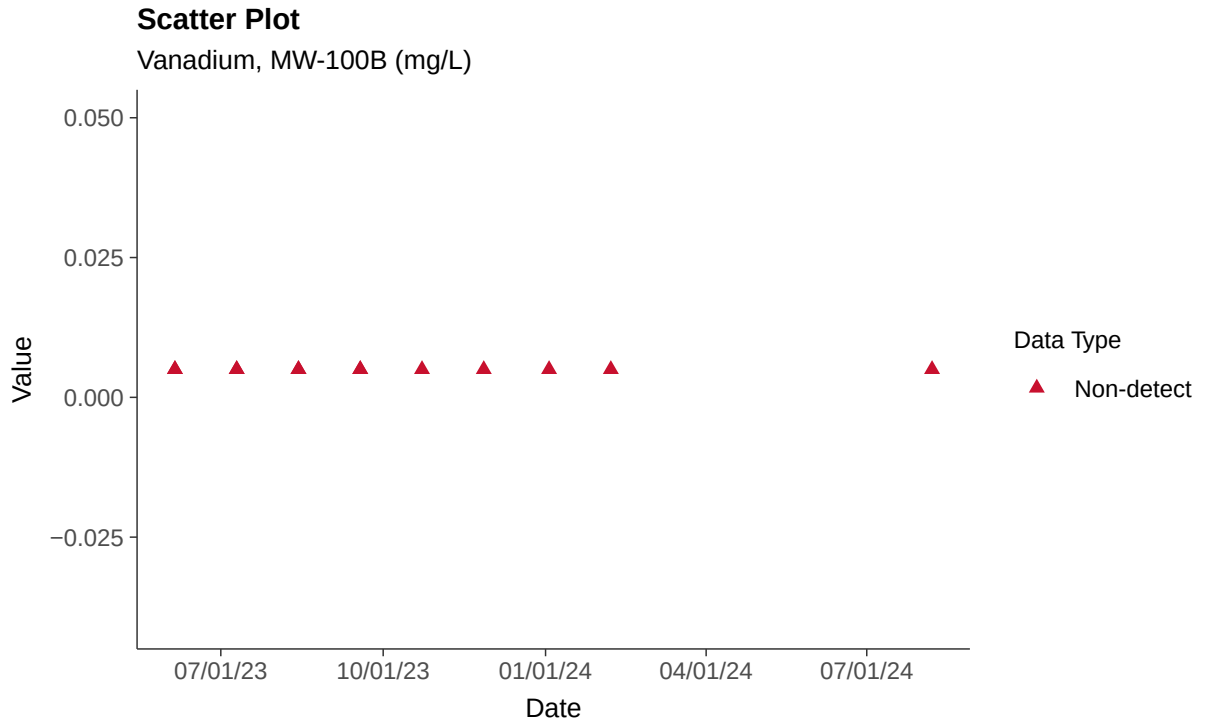
Boxplot by Season

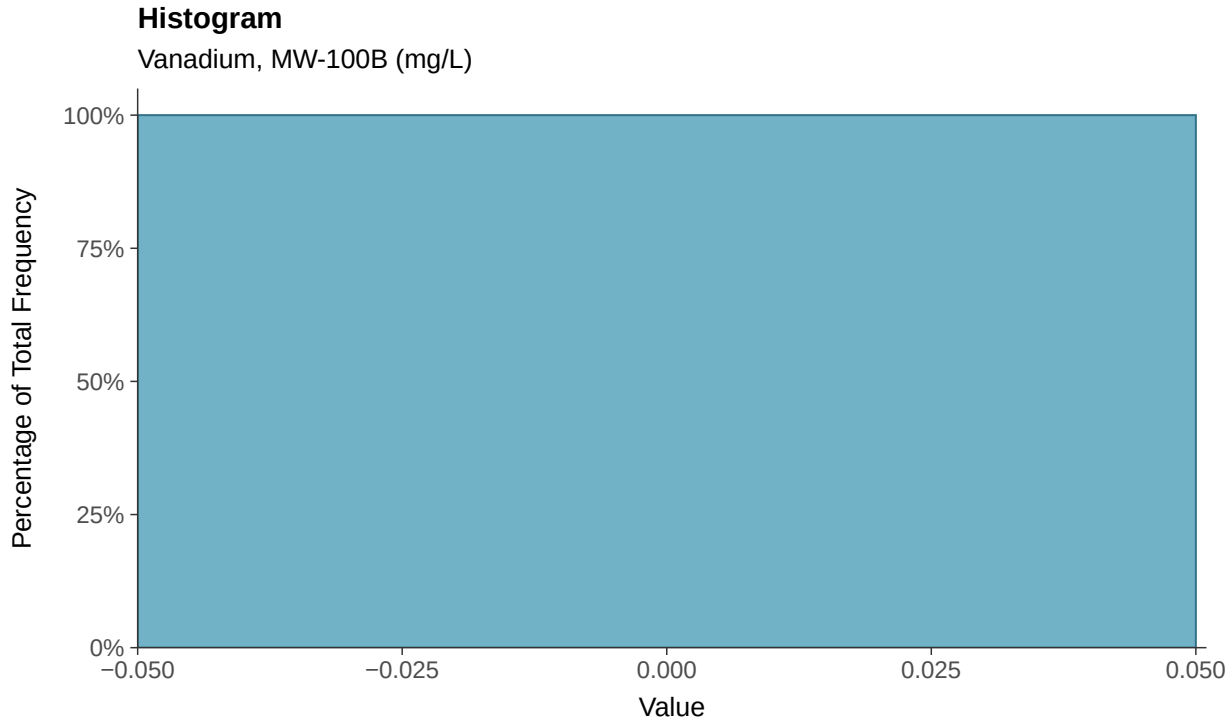
Silver, MW-100B (mg/L)



Part 115: Vanadium, MW-100B

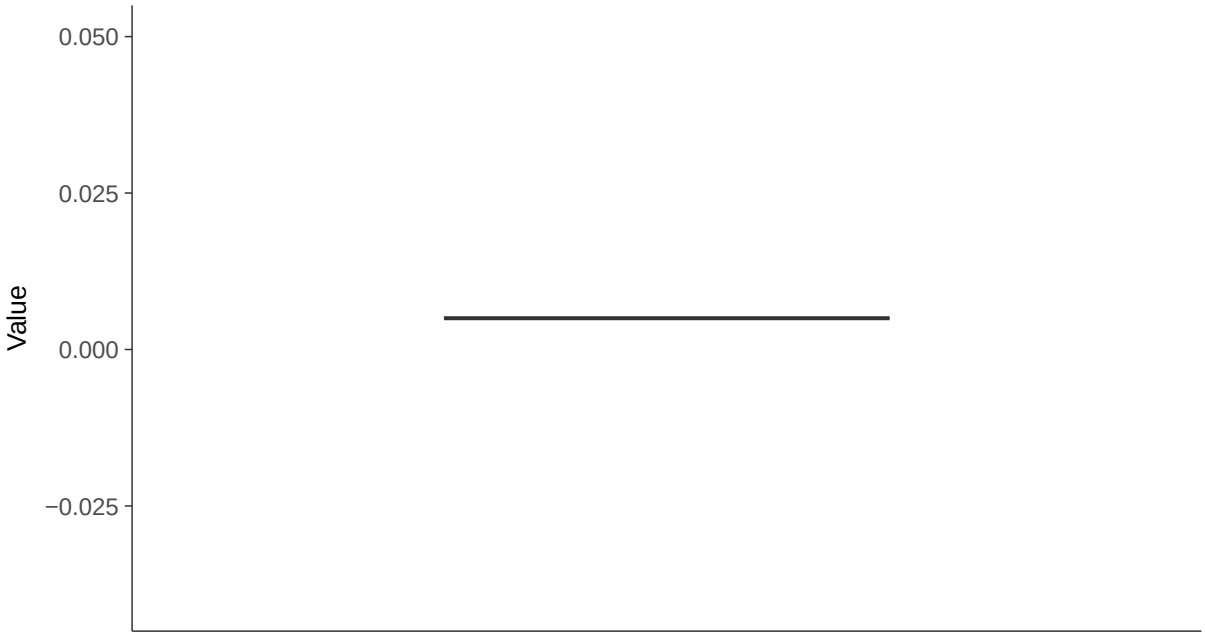
ID: 100B_5_41





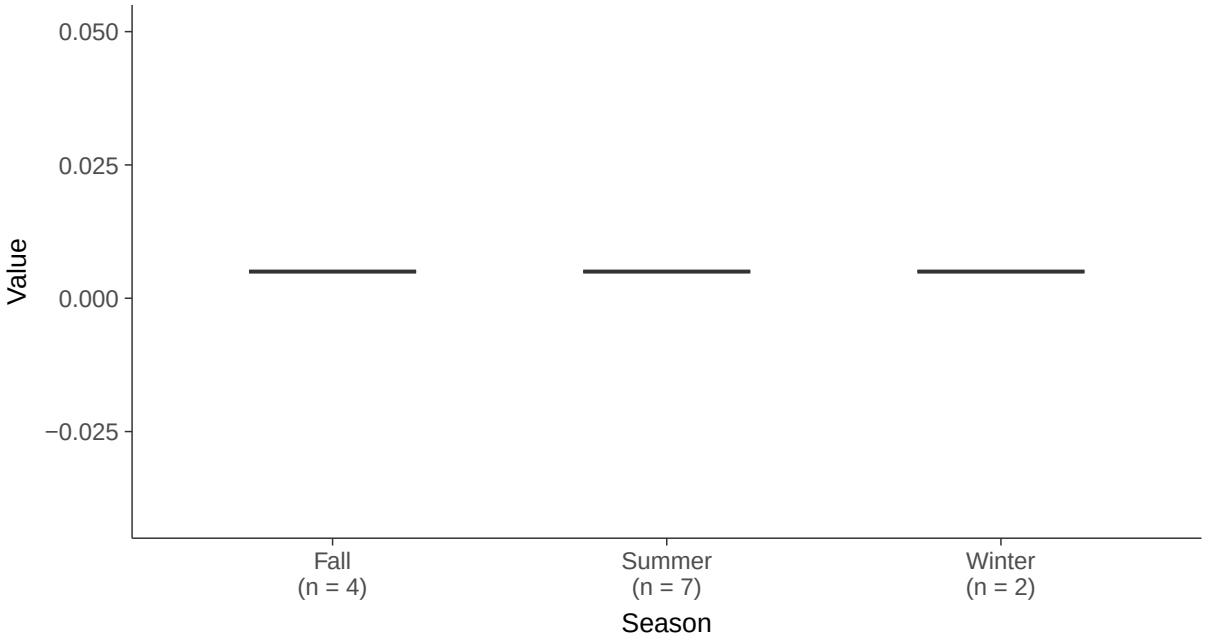
Boxplot

Vanadium, MW-100B (mg/L)



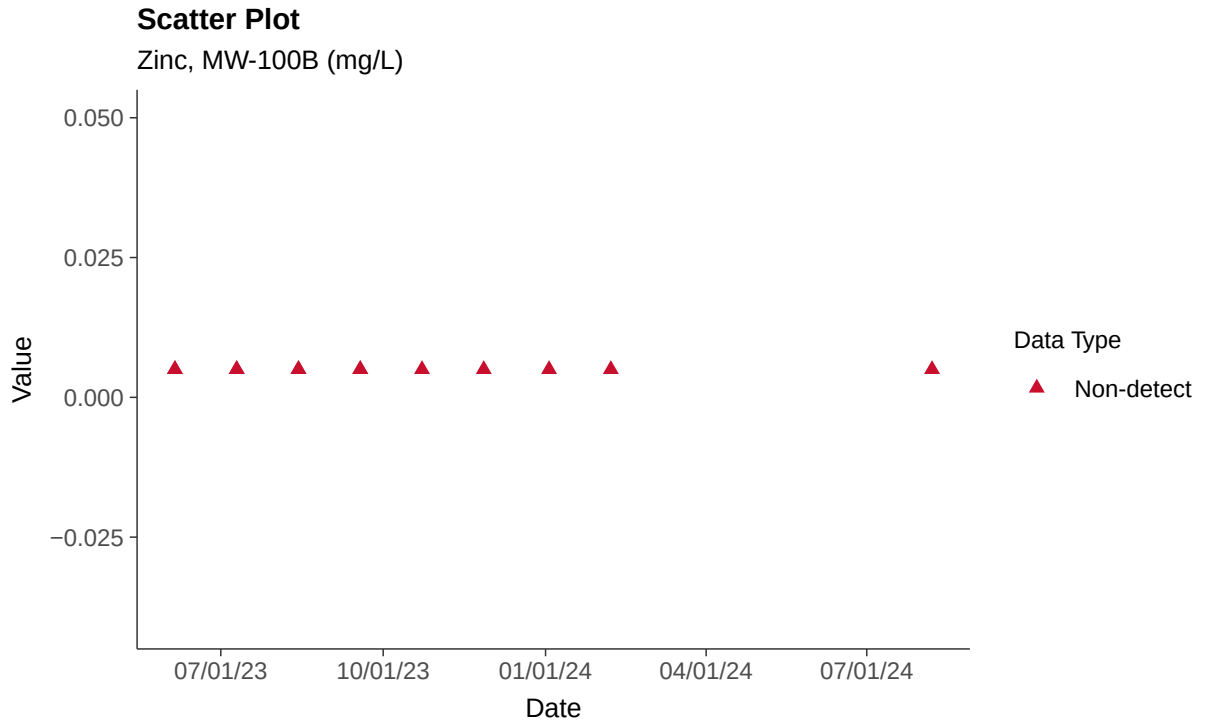
Boxplot by Season

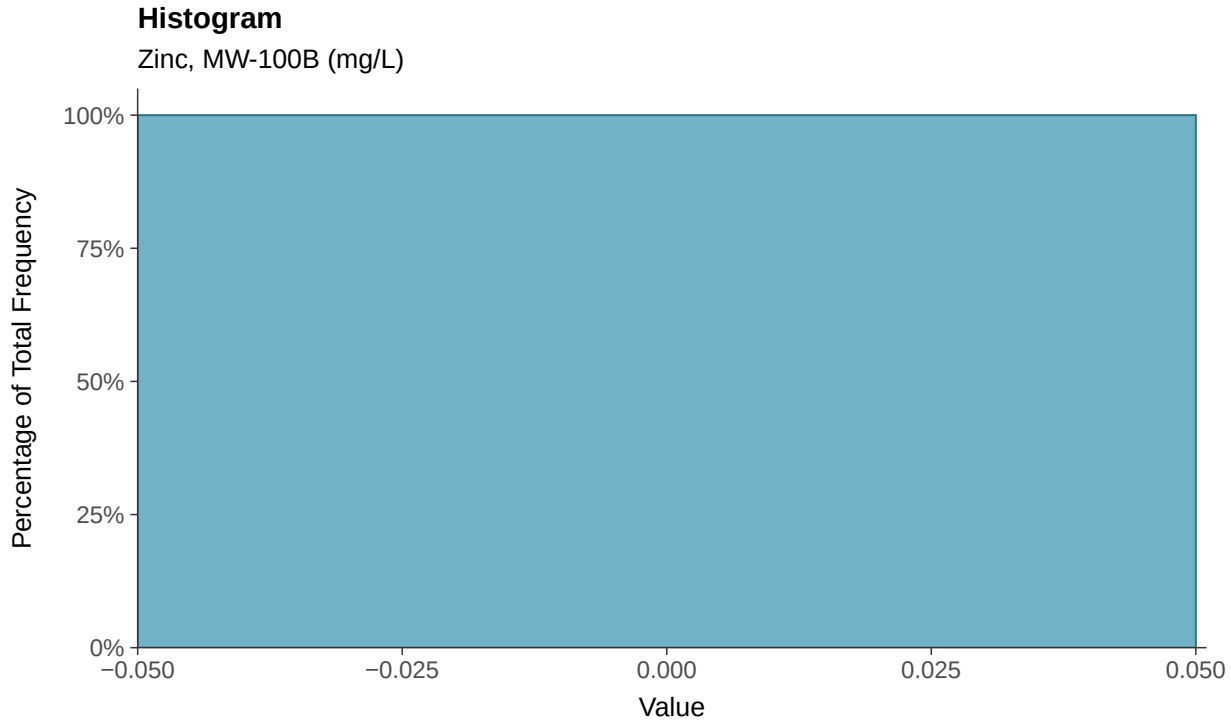
Vanadium, MW-100B (mg/L)



Part 115: Zinc, MW-100B

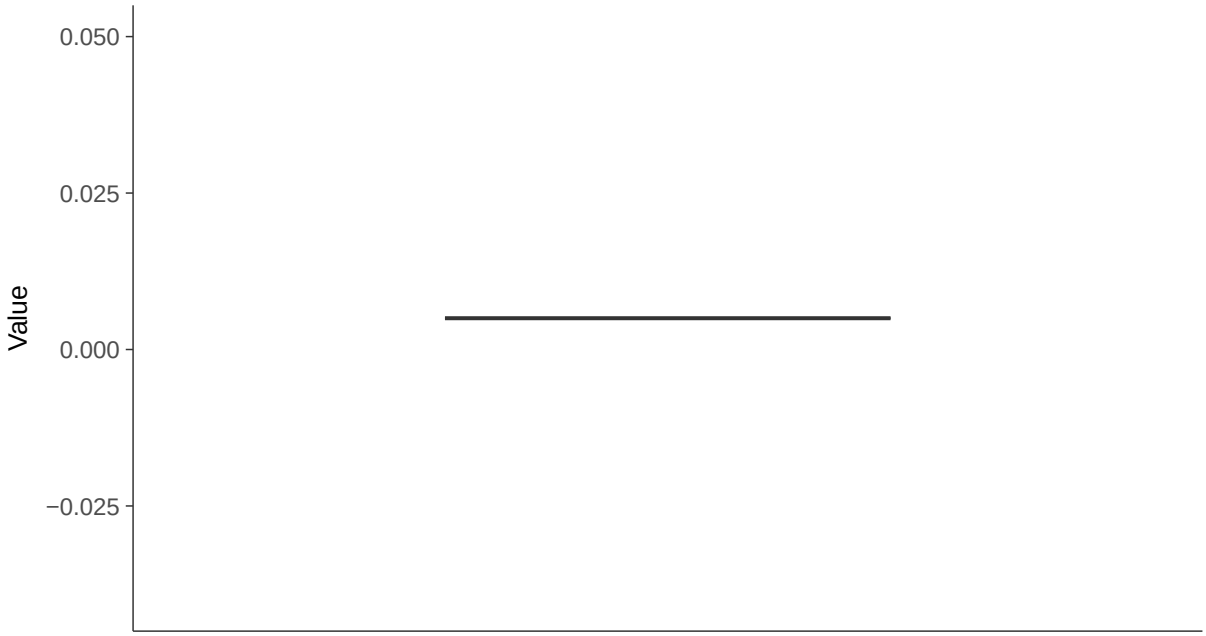
ID: 100B_5_42





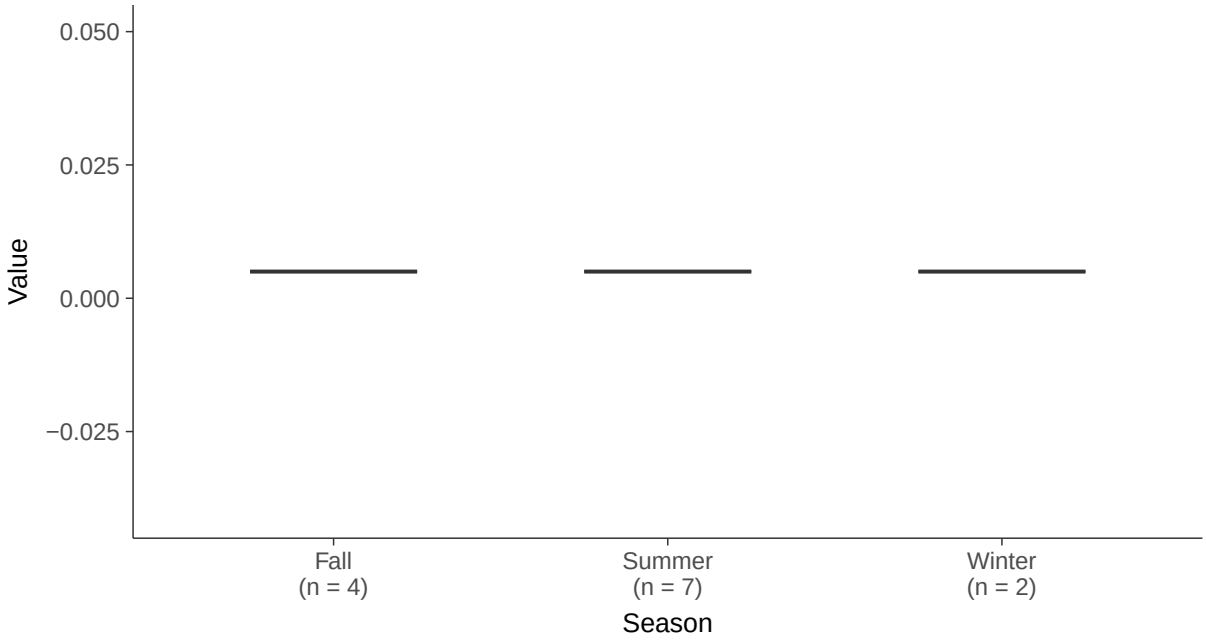
Boxplot

Zinc, MW-100B (mg/L)



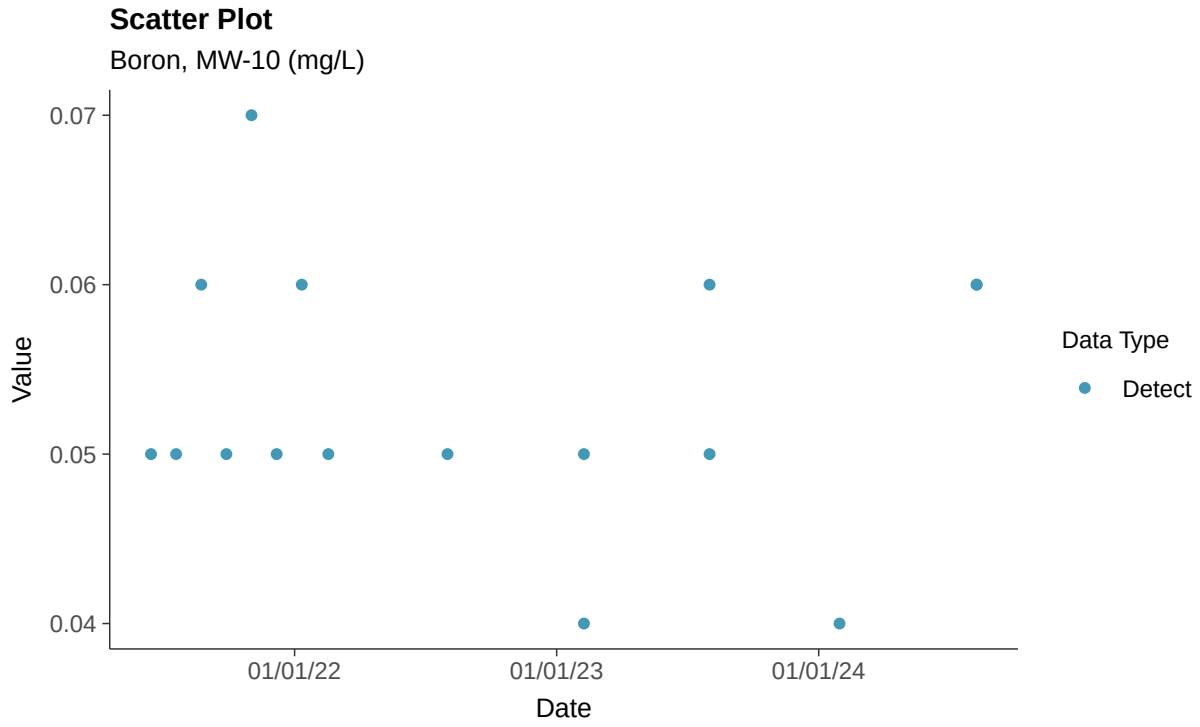
Boxplot by Season

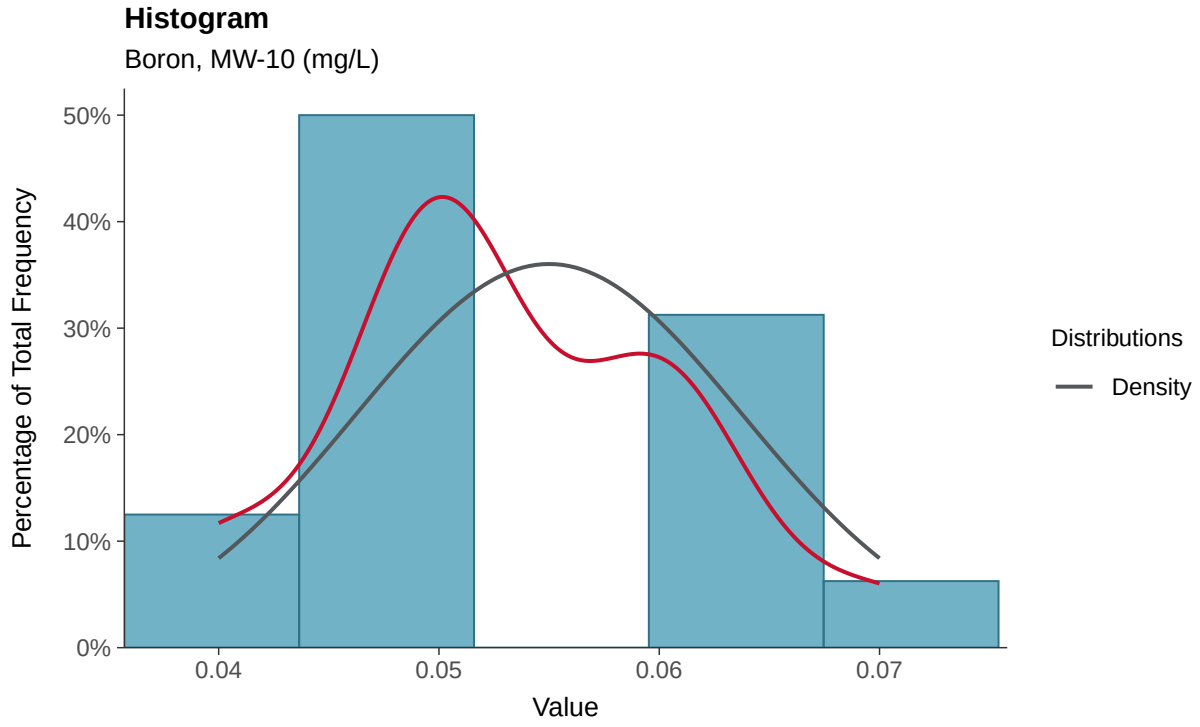
Zinc, MW-100B (mg/L)



Appendix III: Boron, MW-10

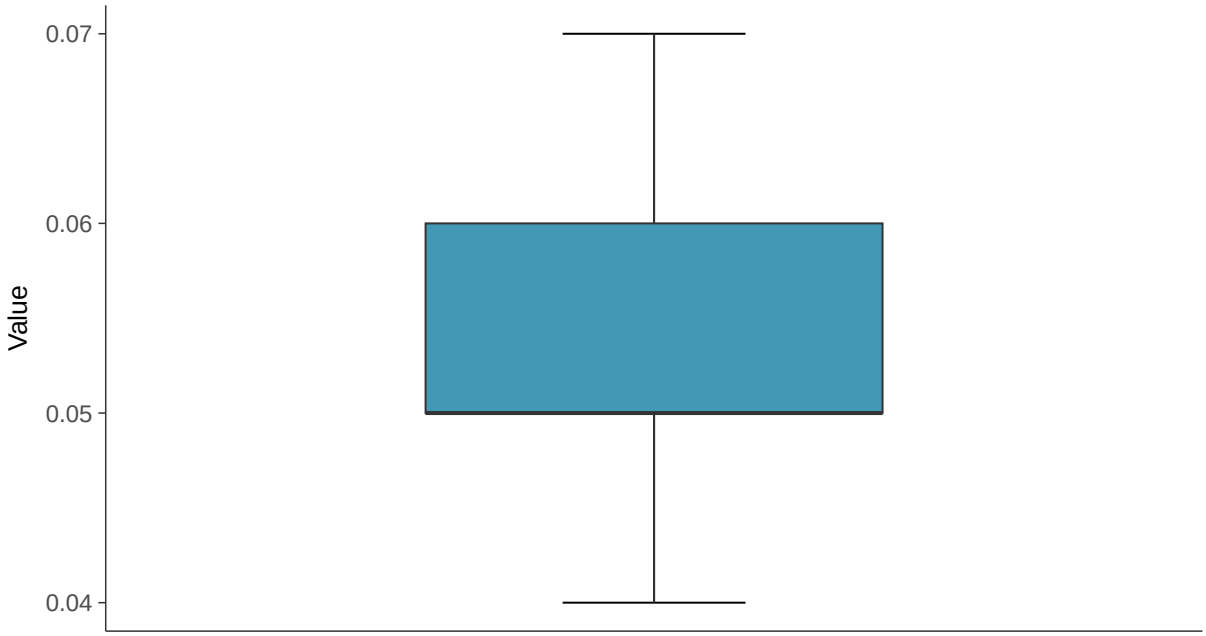
ID: 10_1_01





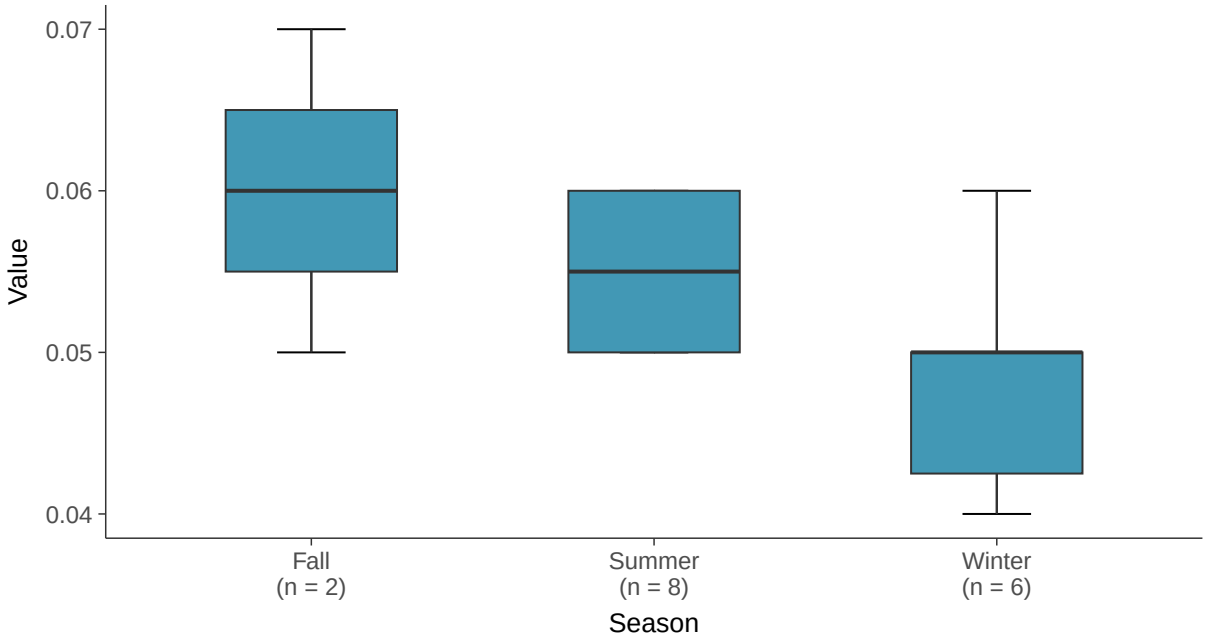
Boxplot

Boron, MW-10 (mg/L)



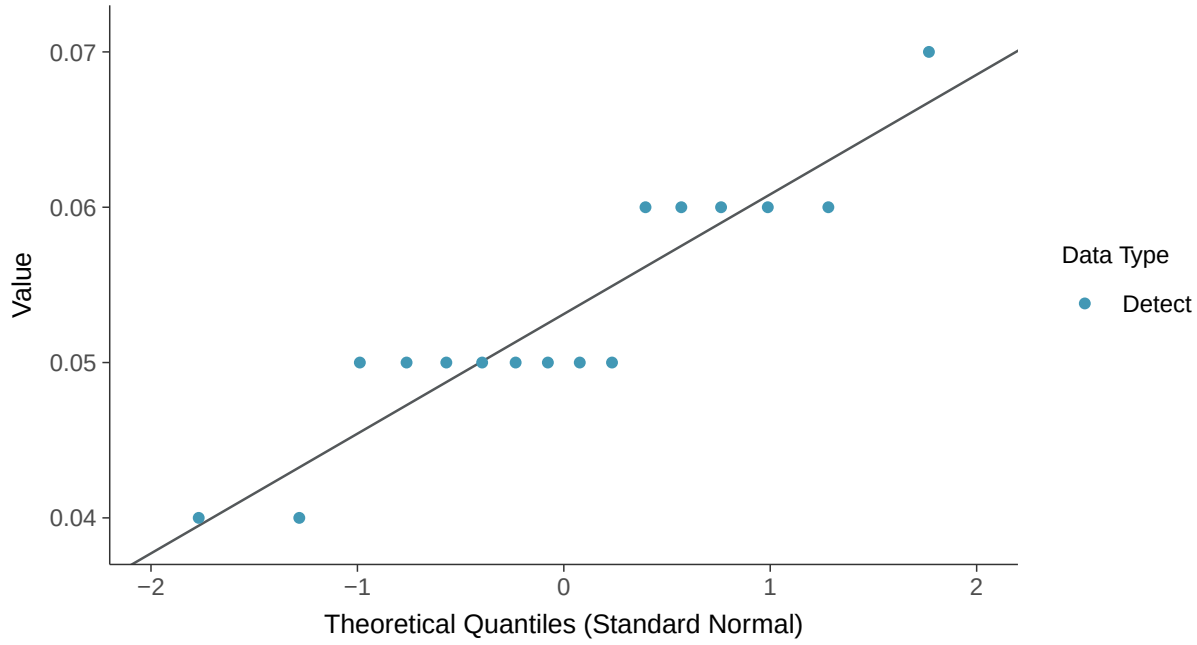
Boxplot by Season

Boron, MW-10 (mg/L)



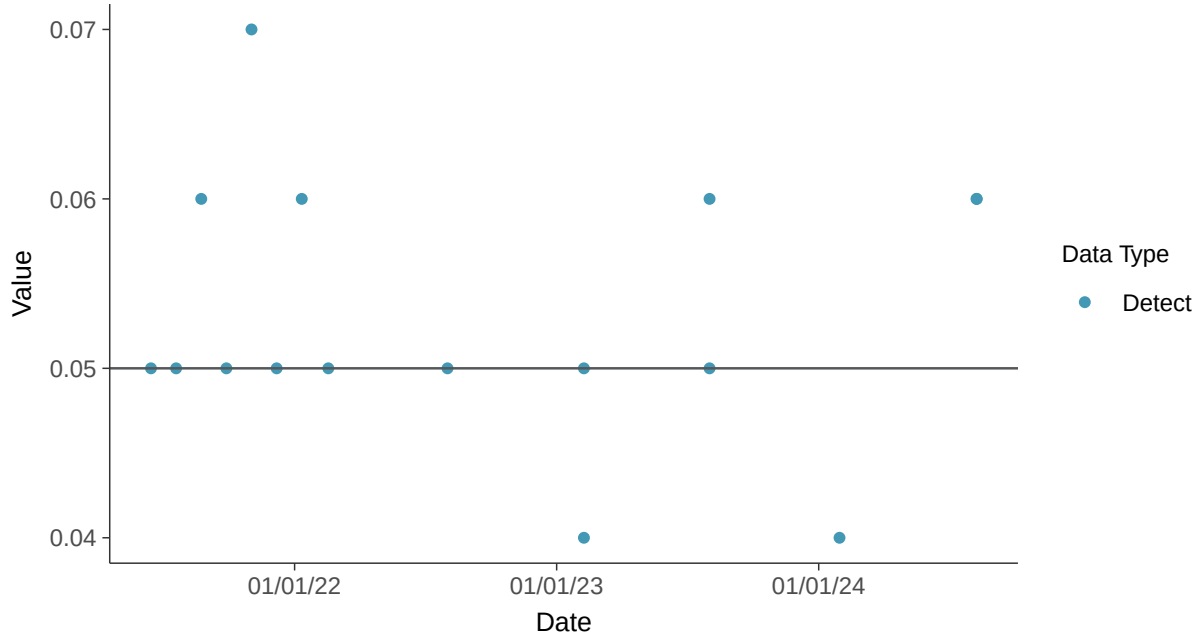
Normal Q-Q plot

Boron, MW-10 (mg/L)



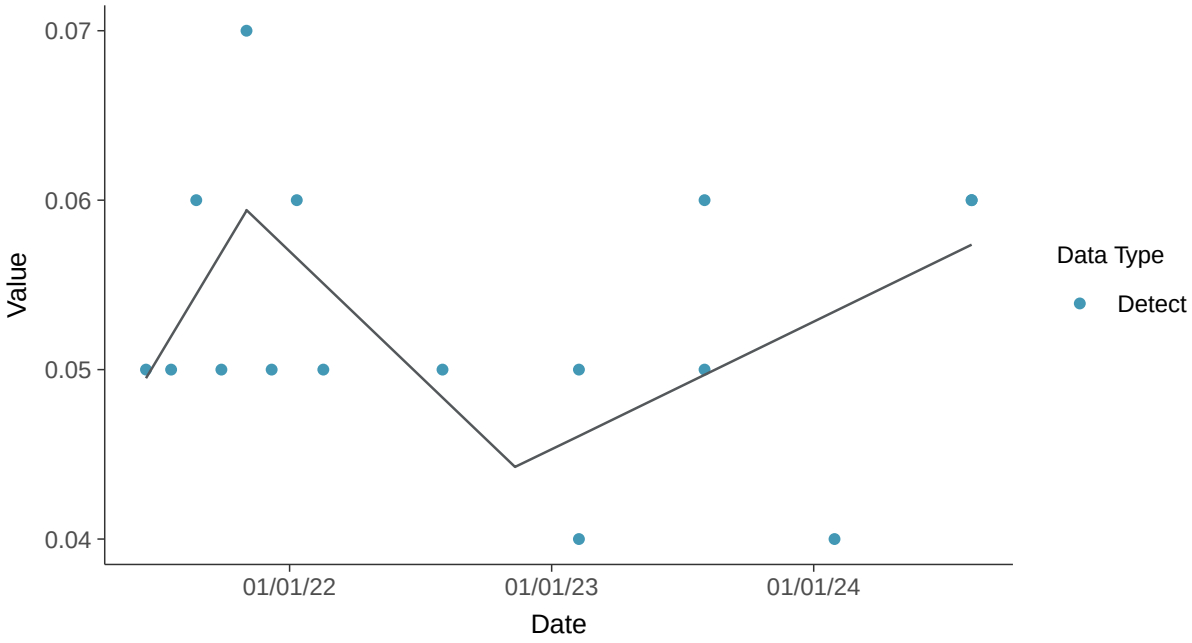
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Boron, MW-10 (mg/L)



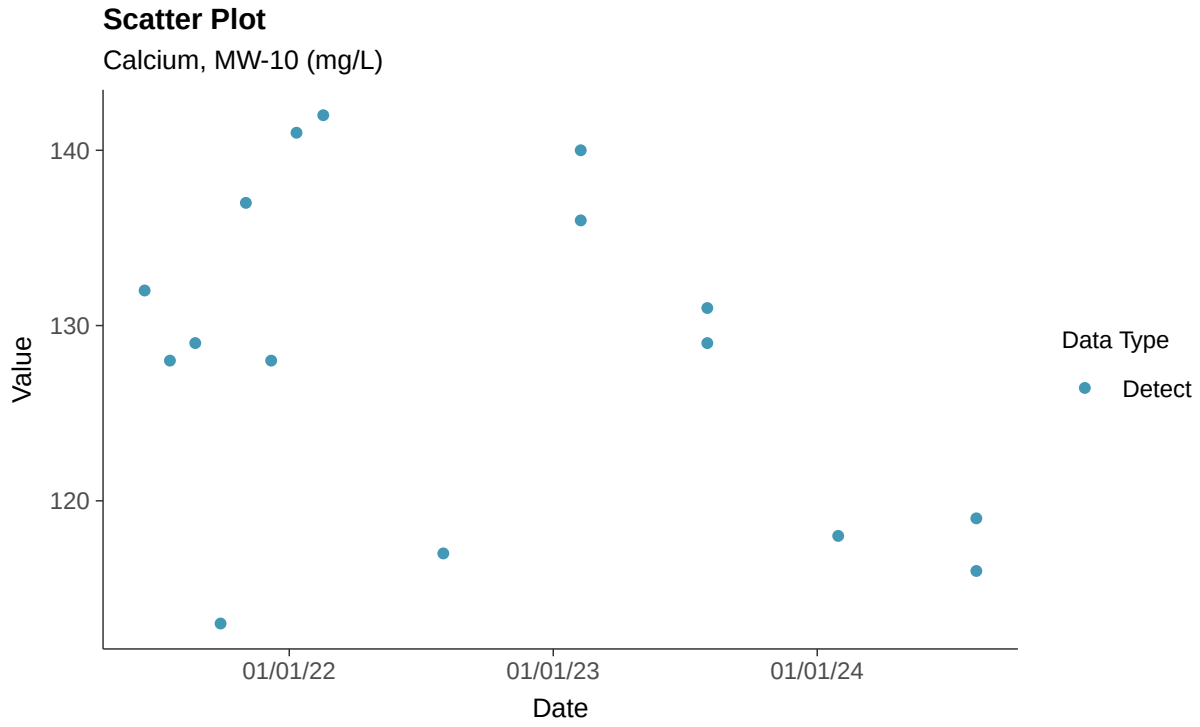
Trend Regression: Piecewise Linear-Linear-Linear

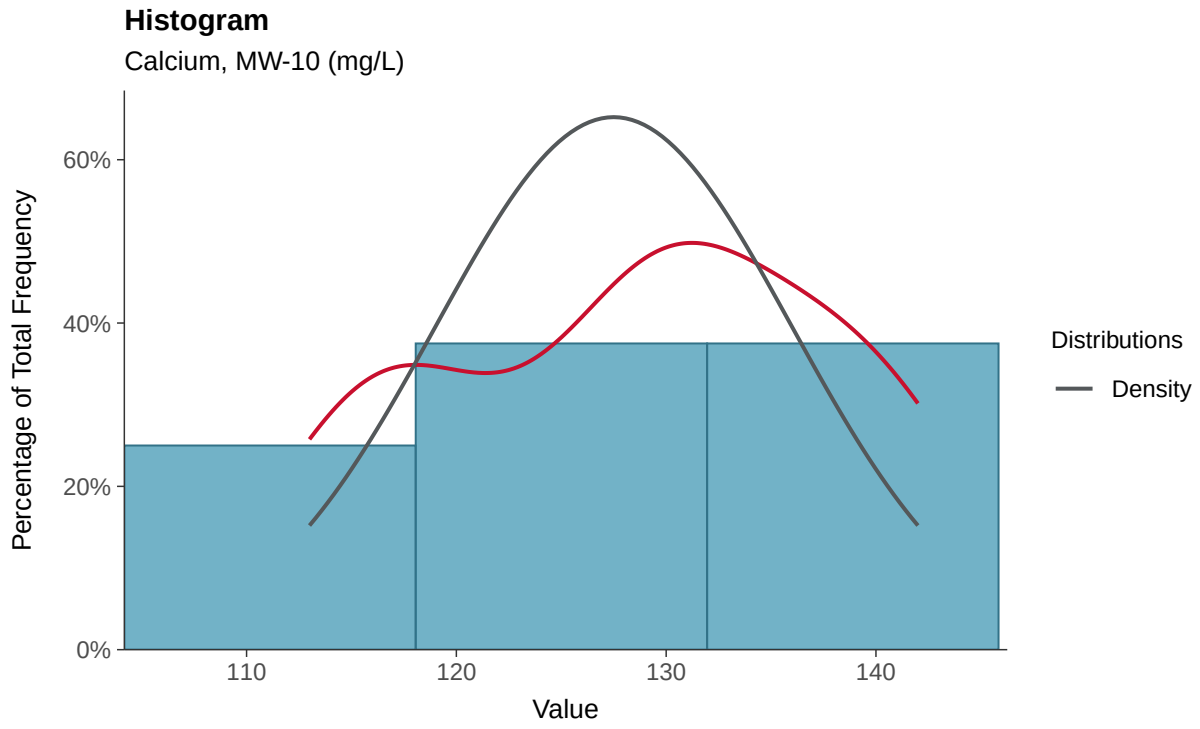
Boron, MW-10 (mg/L)



Appendix III: Calcium, MW-10

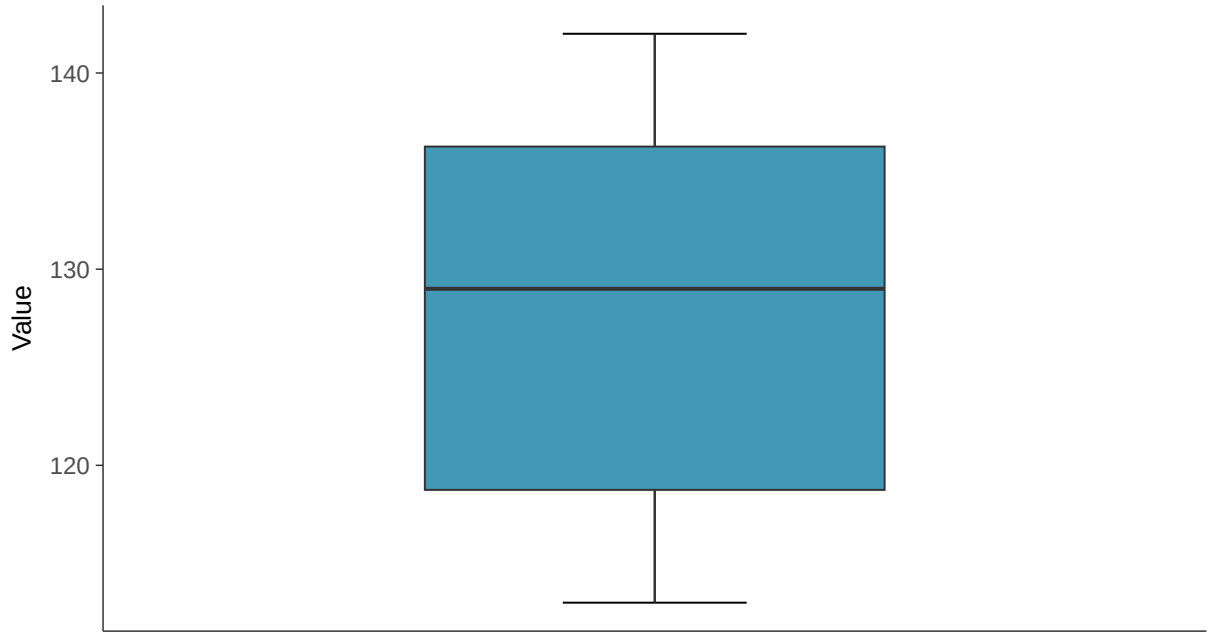
ID: 10_1_02





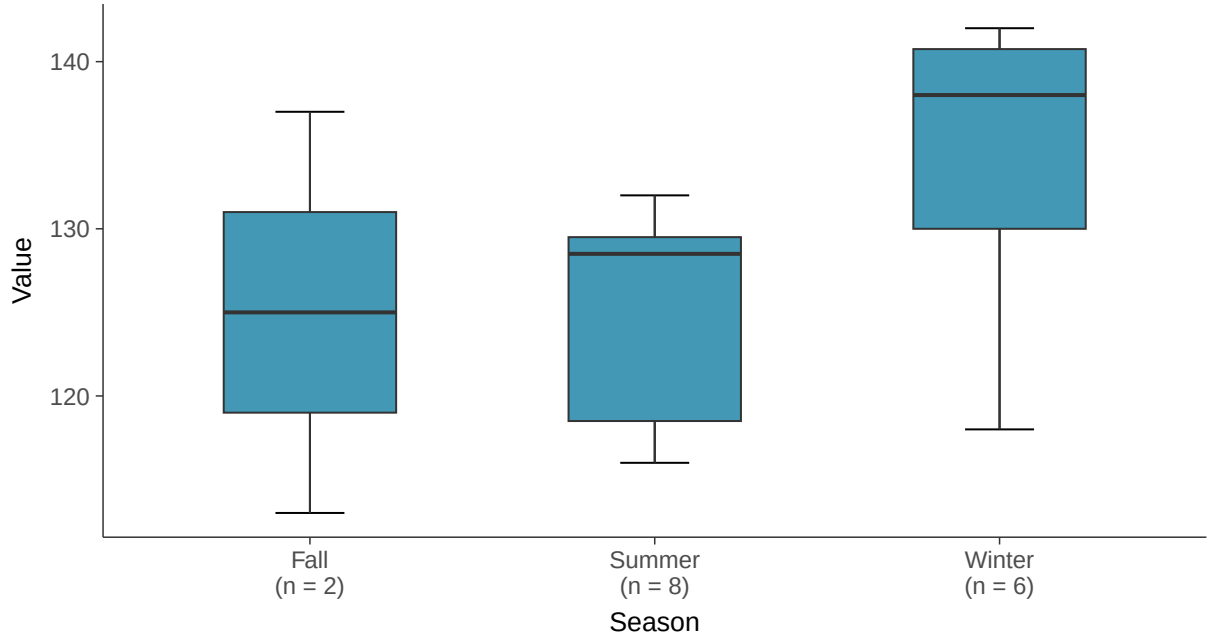
Boxplot

Calcium, MW-10 (mg/L)



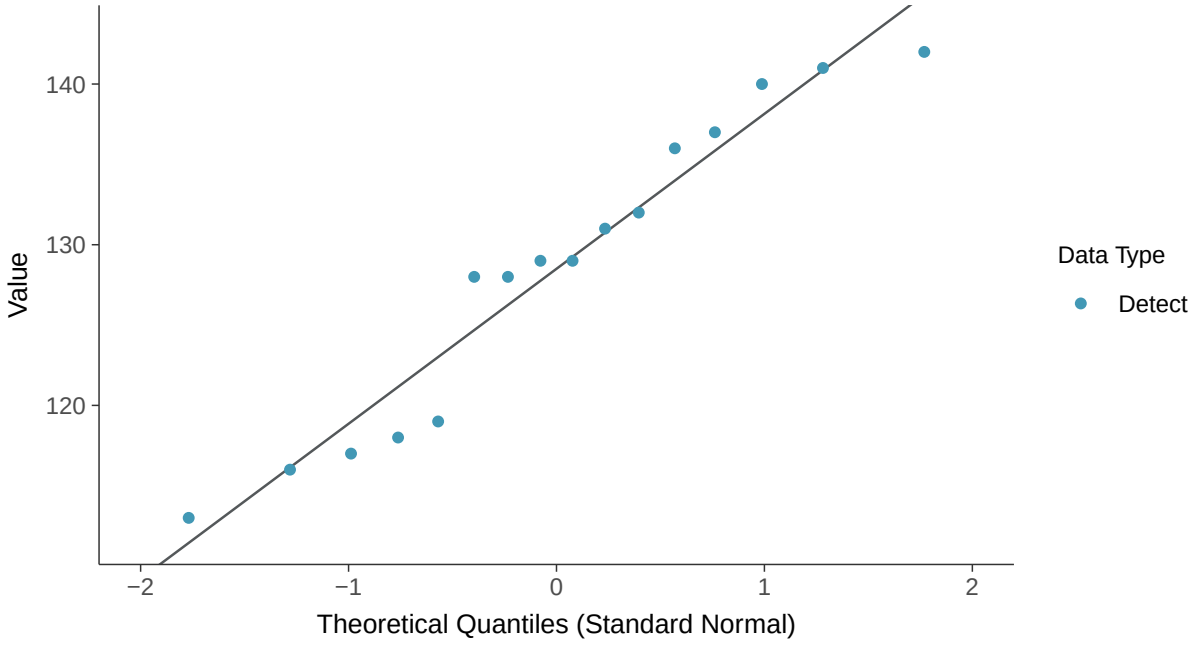
Boxplot by Season

Calcium, MW-10 (mg/L)



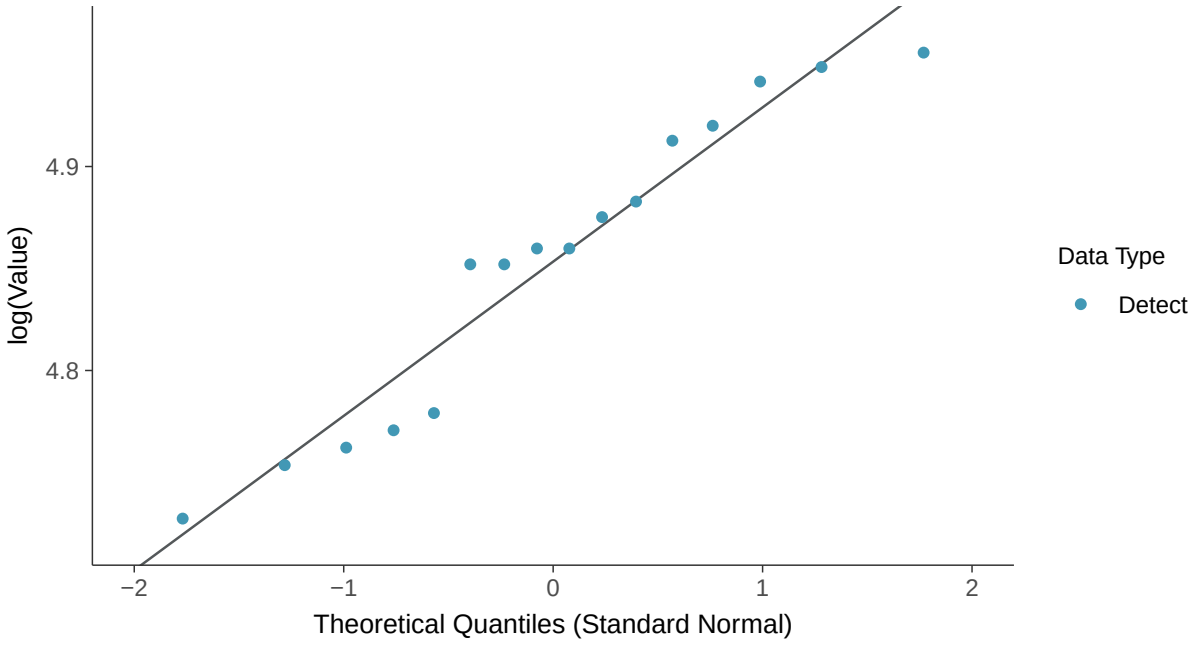
Normal Q-Q plot

Calcium, MW-10 (mg/L)



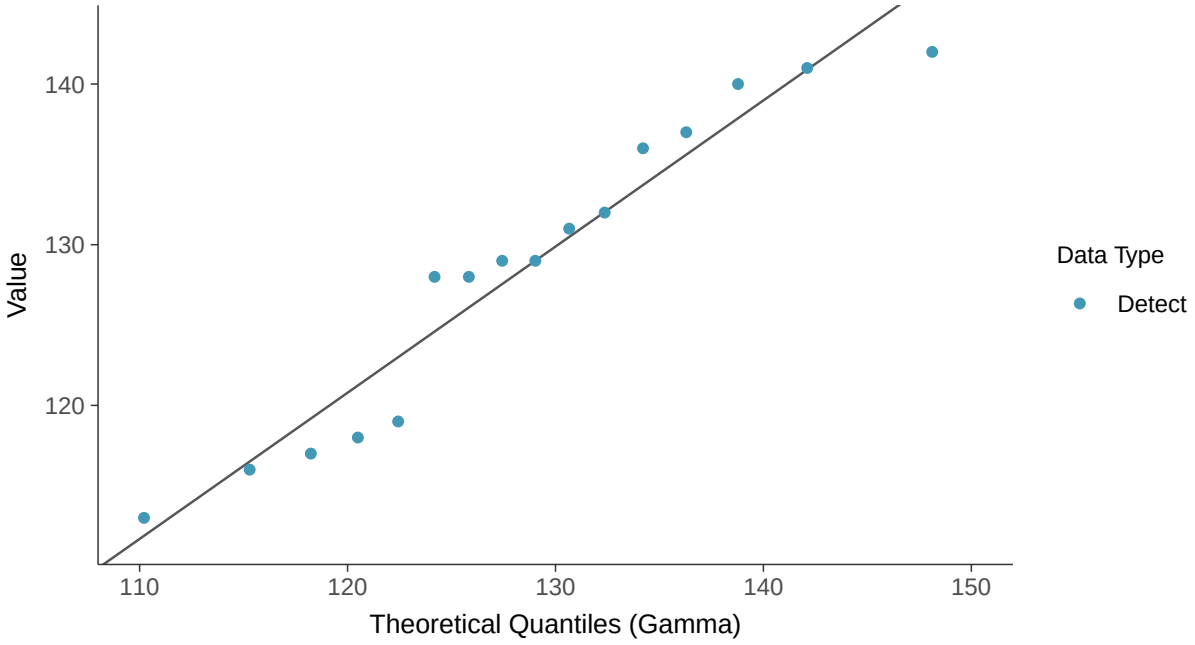
Lognormal Q-Q plot

Calcium, MW-10 (mg/L)



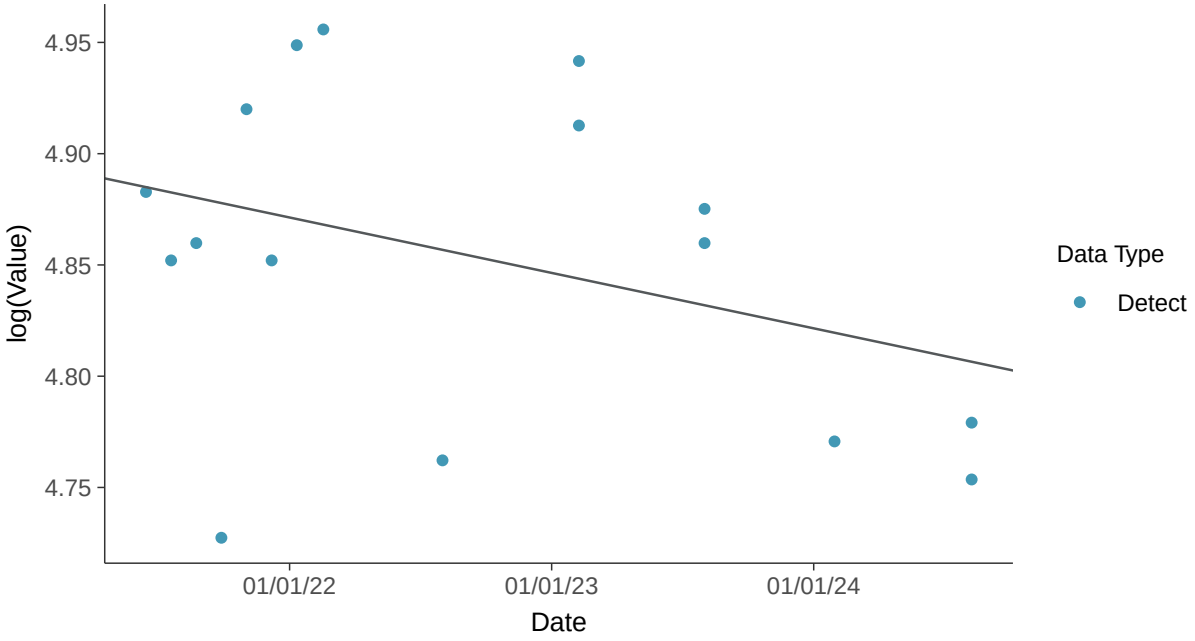
Gamma Q-Q plot

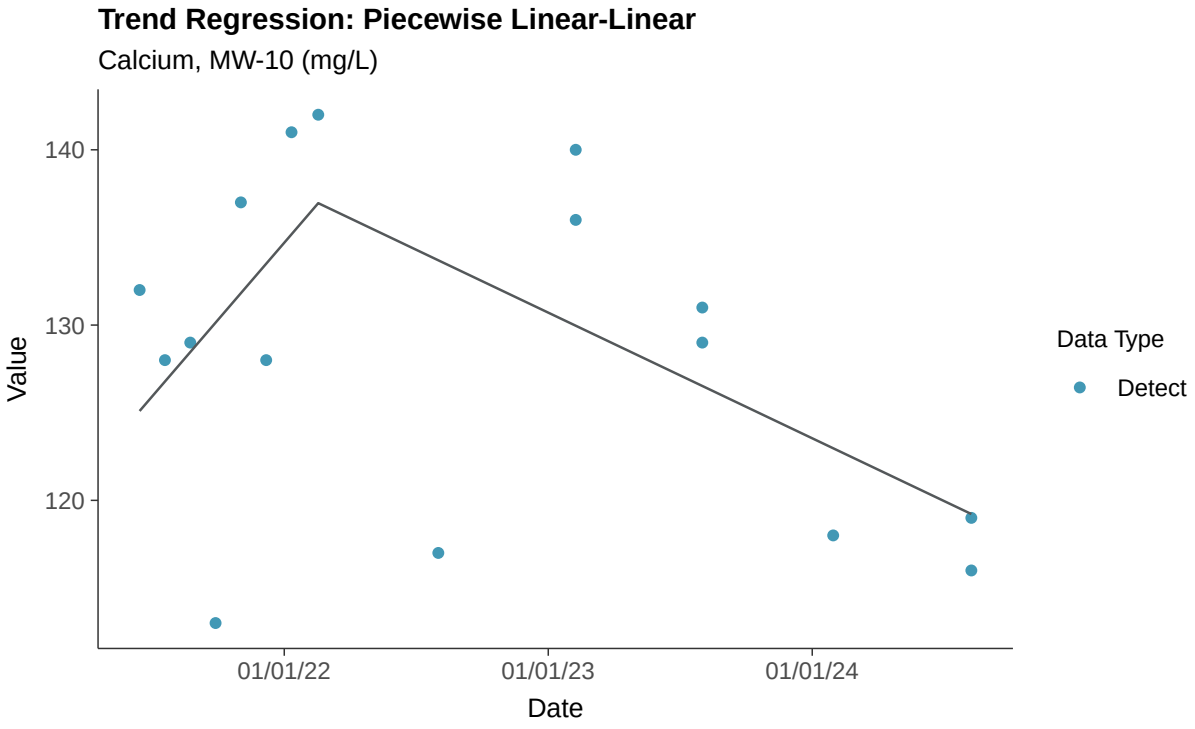
Calcium, MW-10 (mg/L)



Trend Regression: Lognormal MLE

Calcium, MW-10 (mg/L)



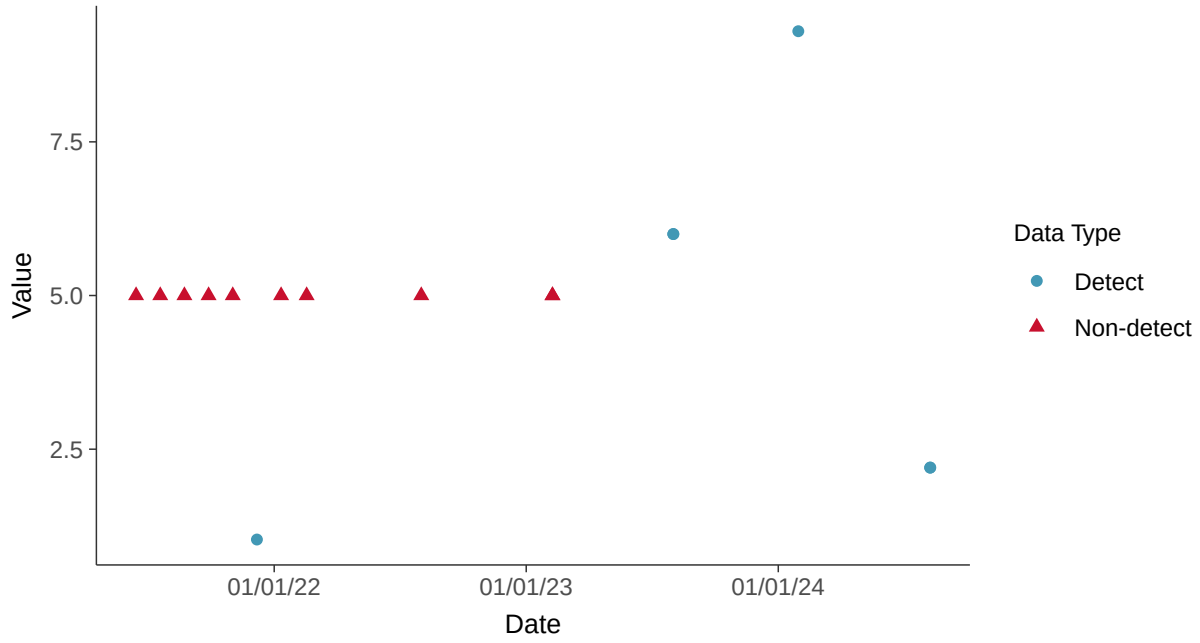

Trend Regression: Piecewise Linear-Linear
Calcium, MW-10 (mg/L)
140
130
120
Value
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Appendix III: Chloride, MW-10

ID: 10_1_03

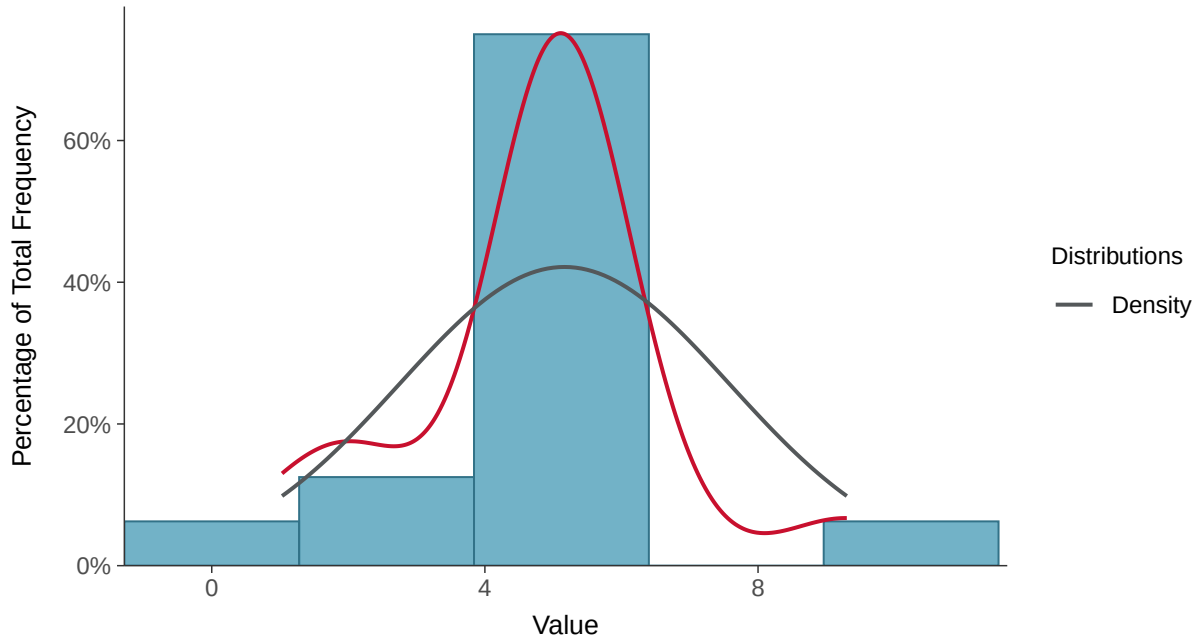
Scatter Plot

Chloride, MW-10 (mg/L)



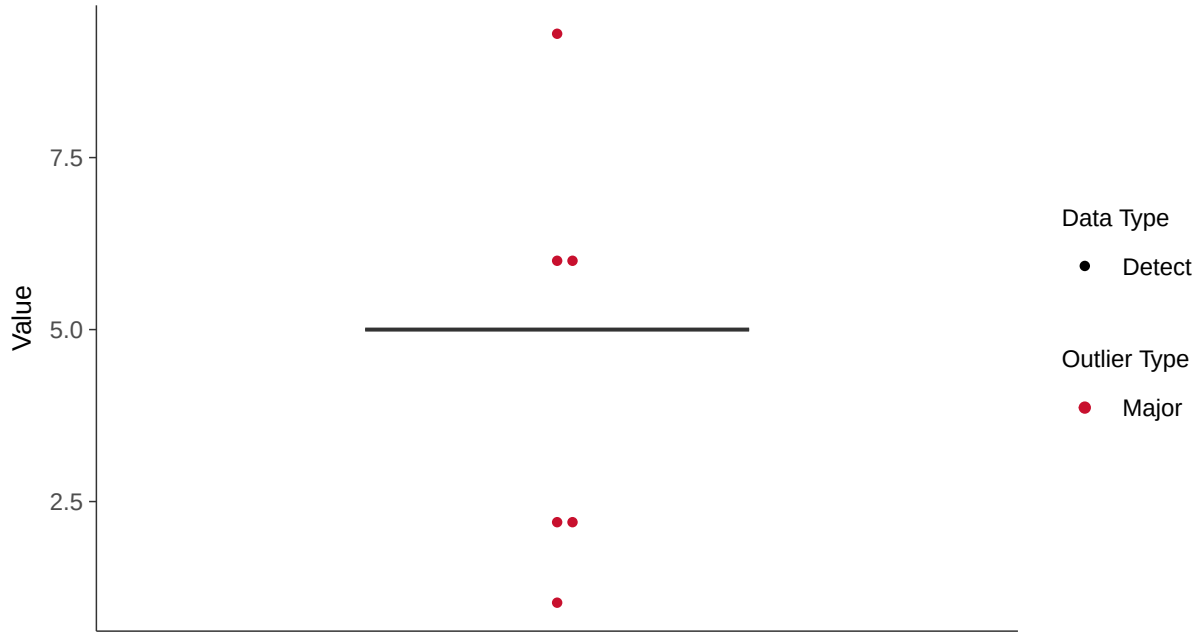
Histogram

Chloride, MW-10 (mg/L)



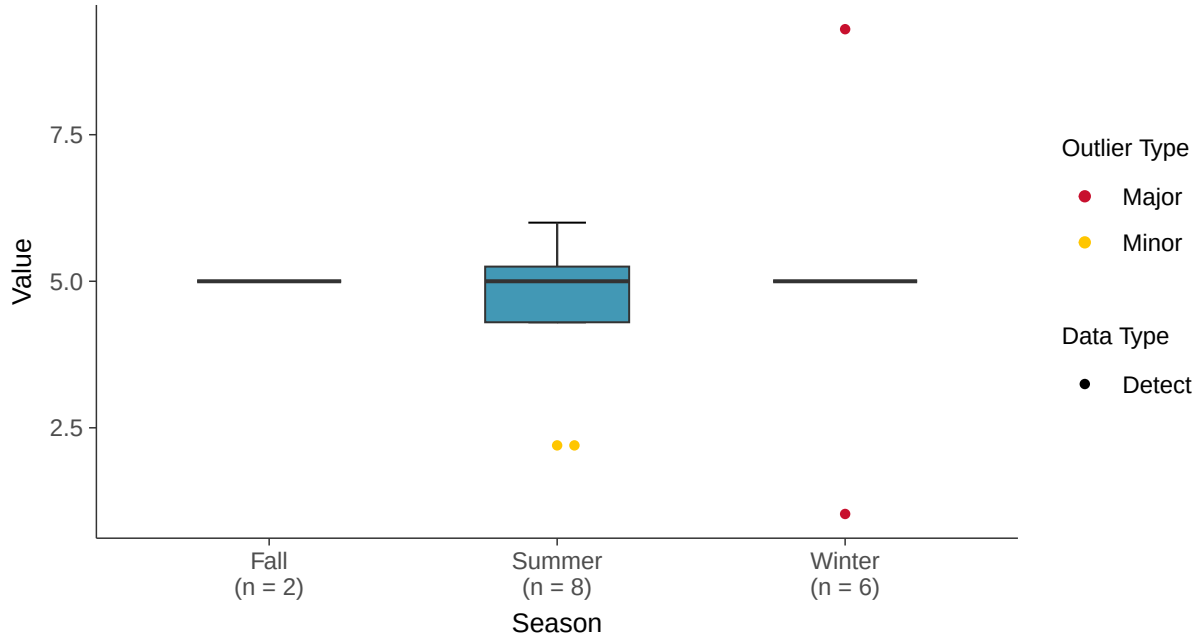
Boxplot

Chloride, MW-10 (mg/L)



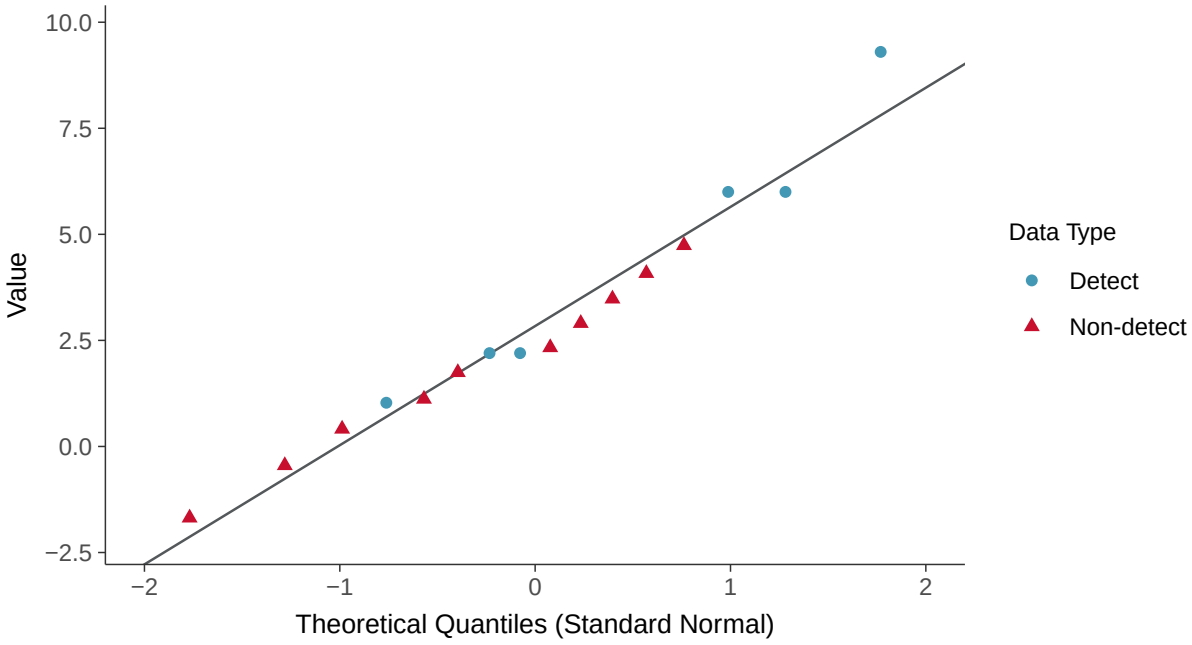
Boxplot by Season

Chloride, MW-10 (mg/L)



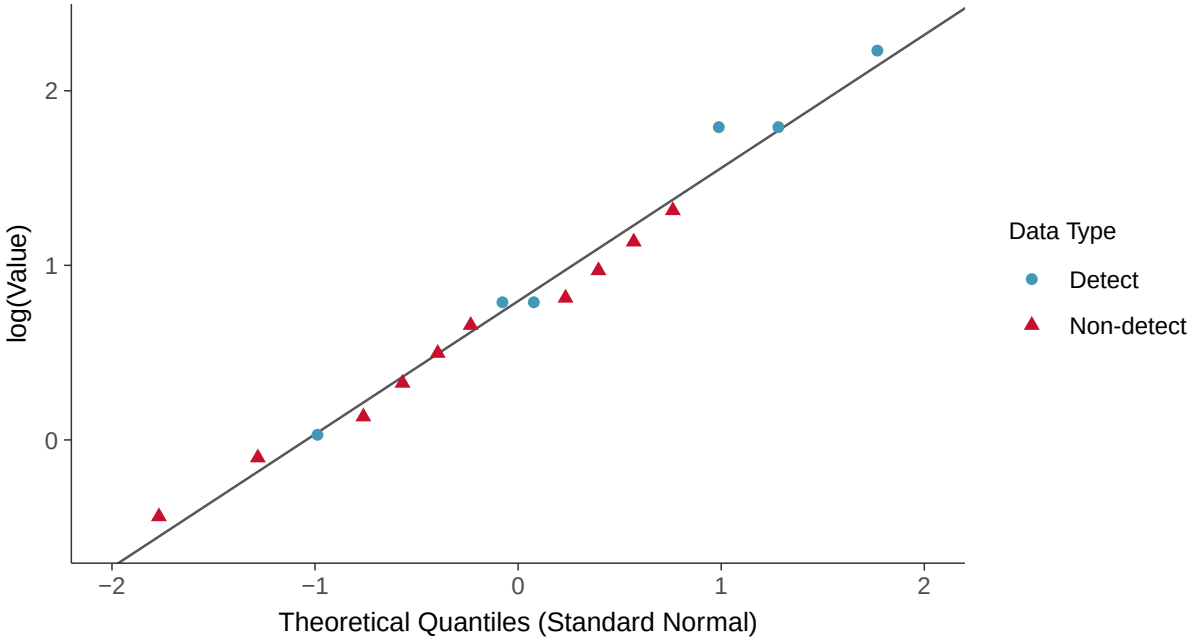
Normal Q-Q plot using ROS Imputed Estimates

Chloride, MW-10 (mg/L)



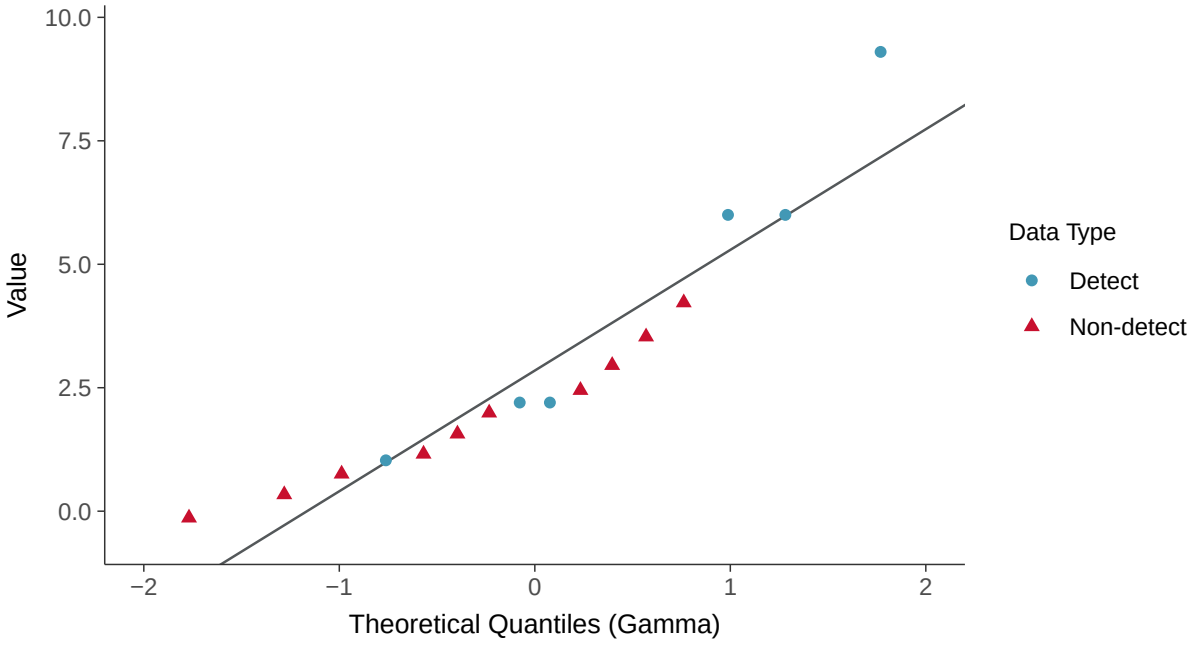
Lognormal Q-Q plot using ROS Imputed Estimates

Chloride, MW-10 (mg/L)



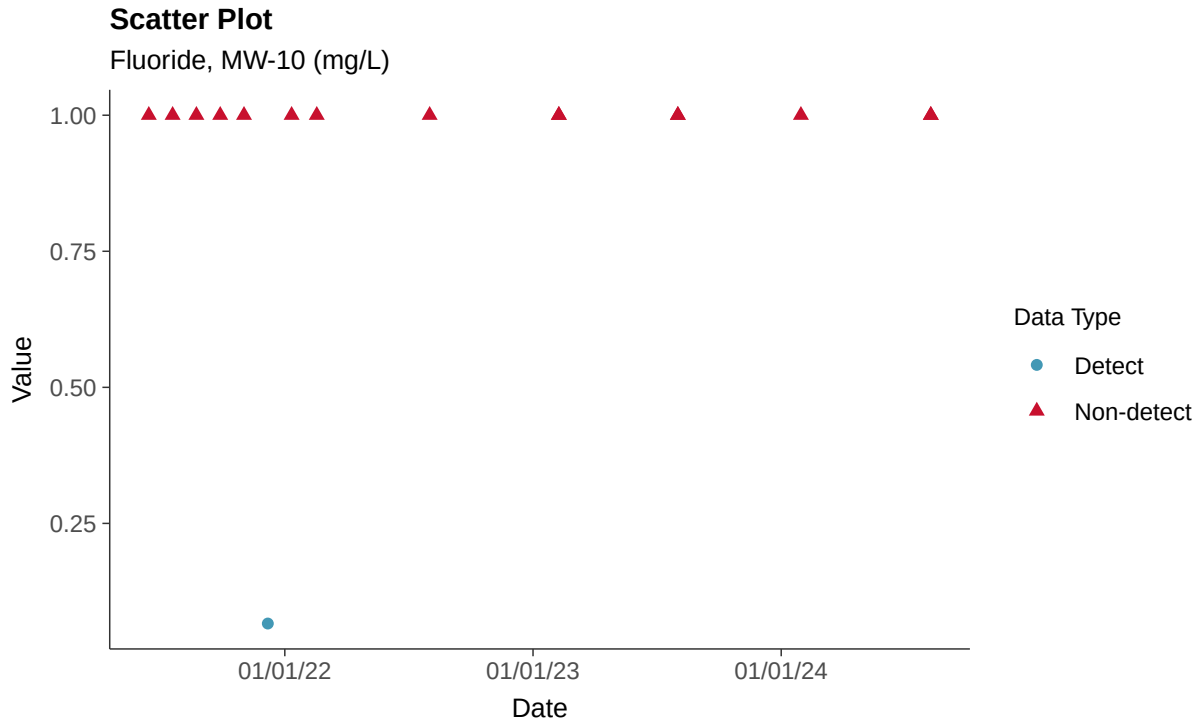
Gamma Q-Q plot using ROS Imputed Estimates

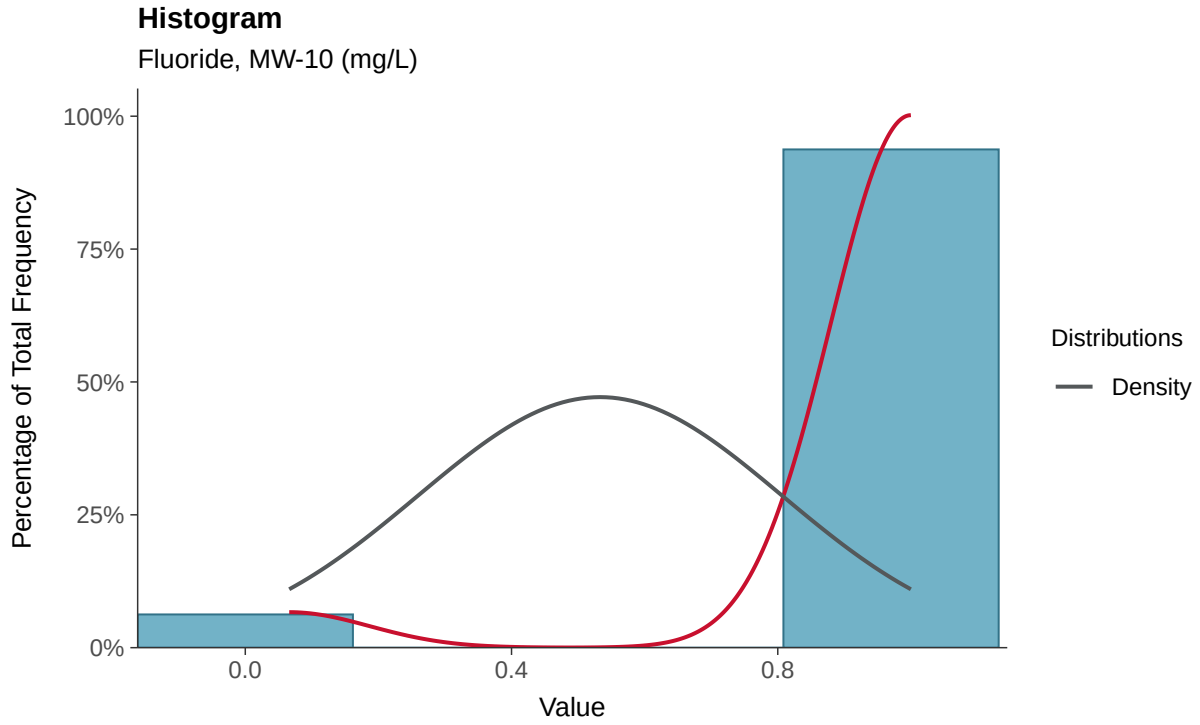
Chloride, MW-10 (mg/L)



Appendix III: Fluoride, MW-10

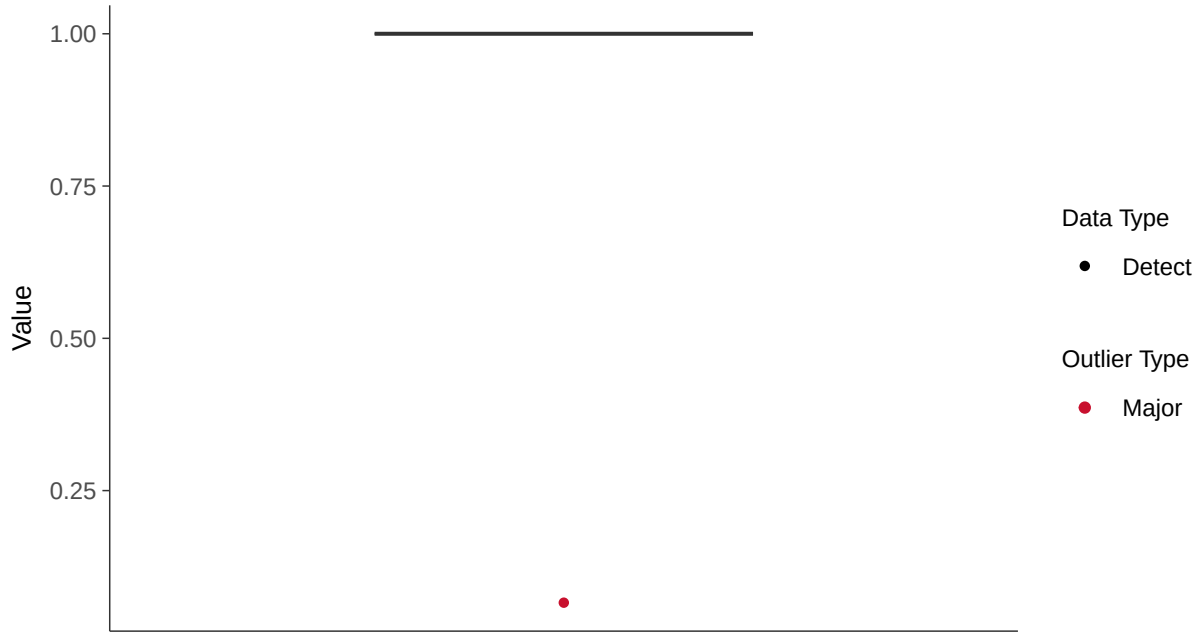
ID: 10_1_04





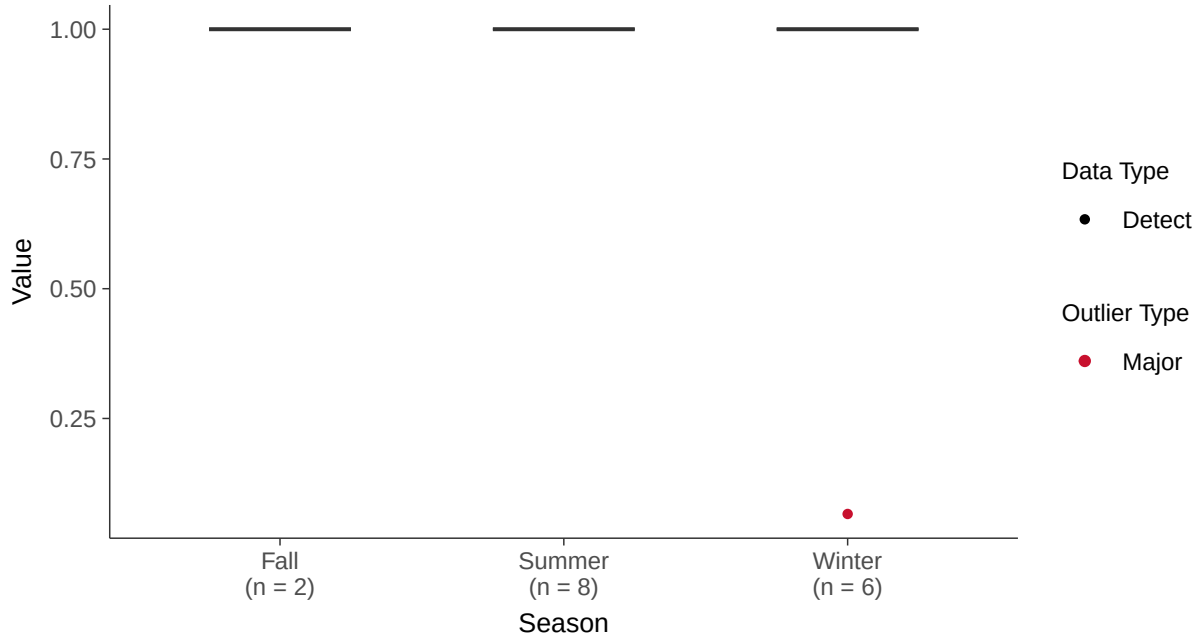
Boxplot

Fluoride, MW-10 (mg/L)



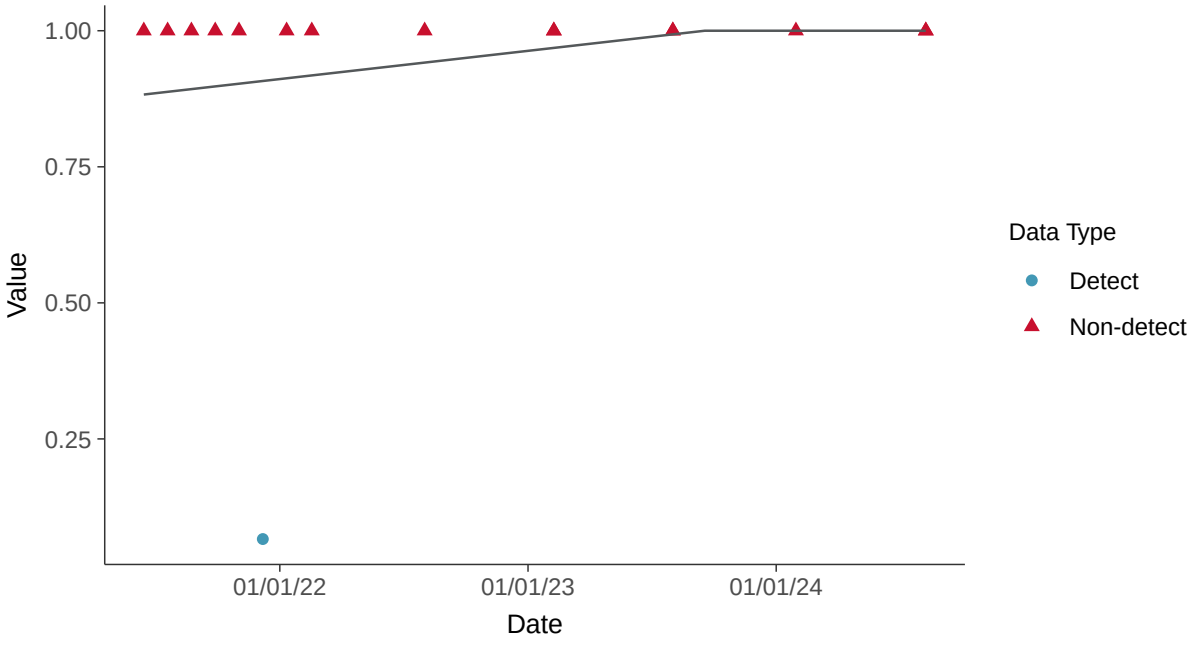
Boxplot by Season

Fluoride, MW-10 (mg/L)



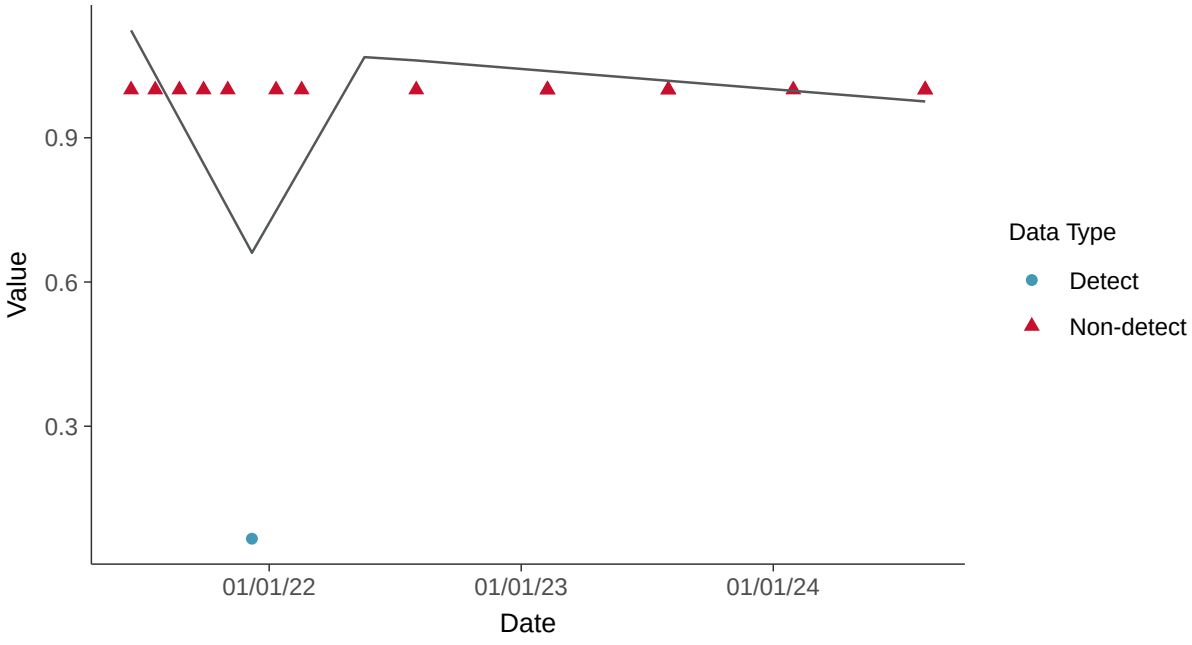
Trend Regression: Piecewise Linear-Linear

Fluoride, MW-10 (mg/L)



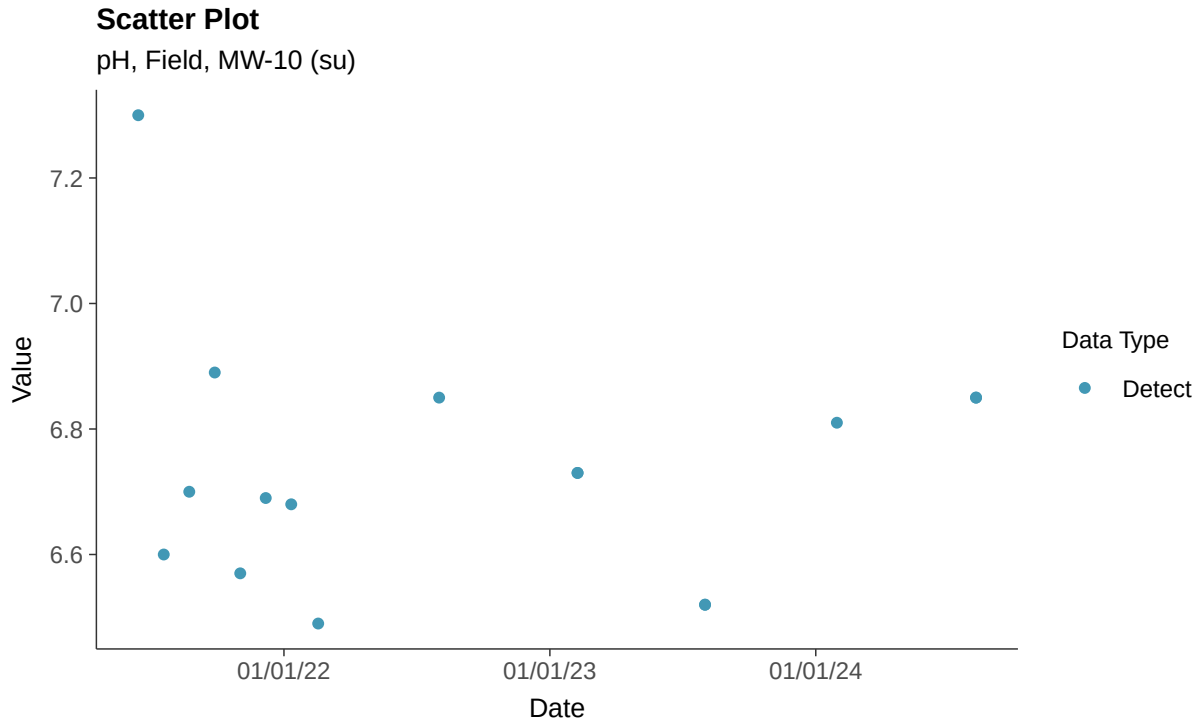
Trend Regression: Piecewise Linear-Linear-Linear

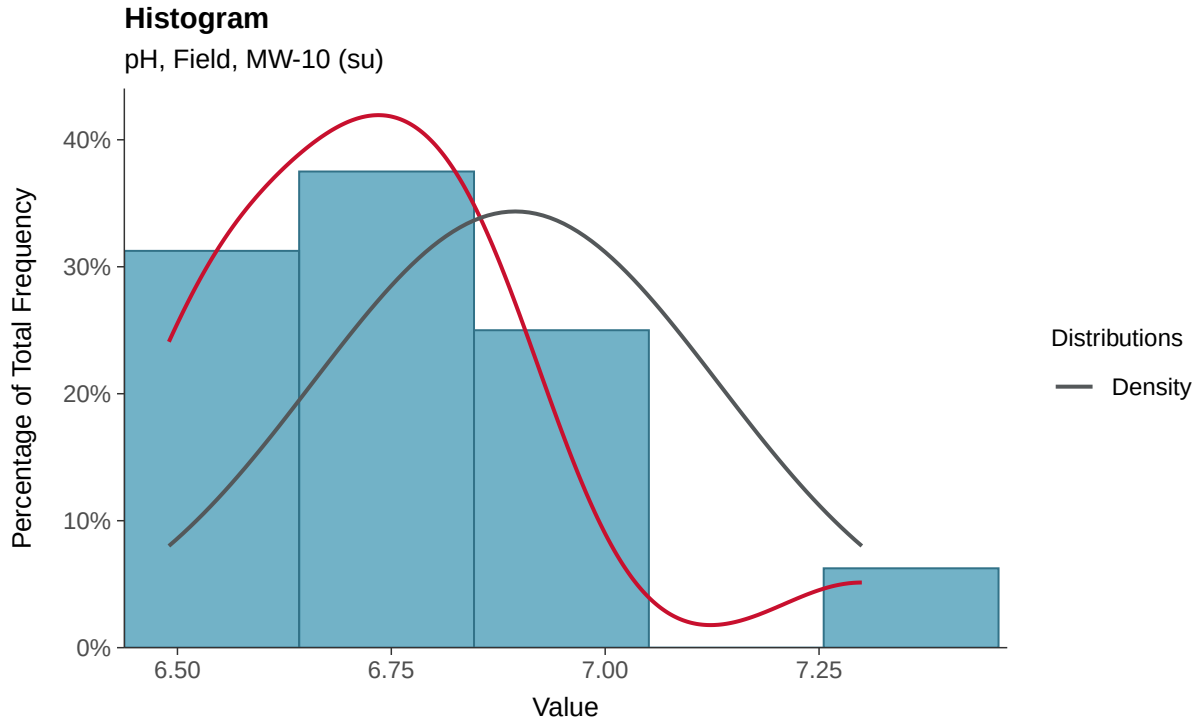
Fluoride, MW-10 (mg/L)



Appendix III: pH, Field, MW-10

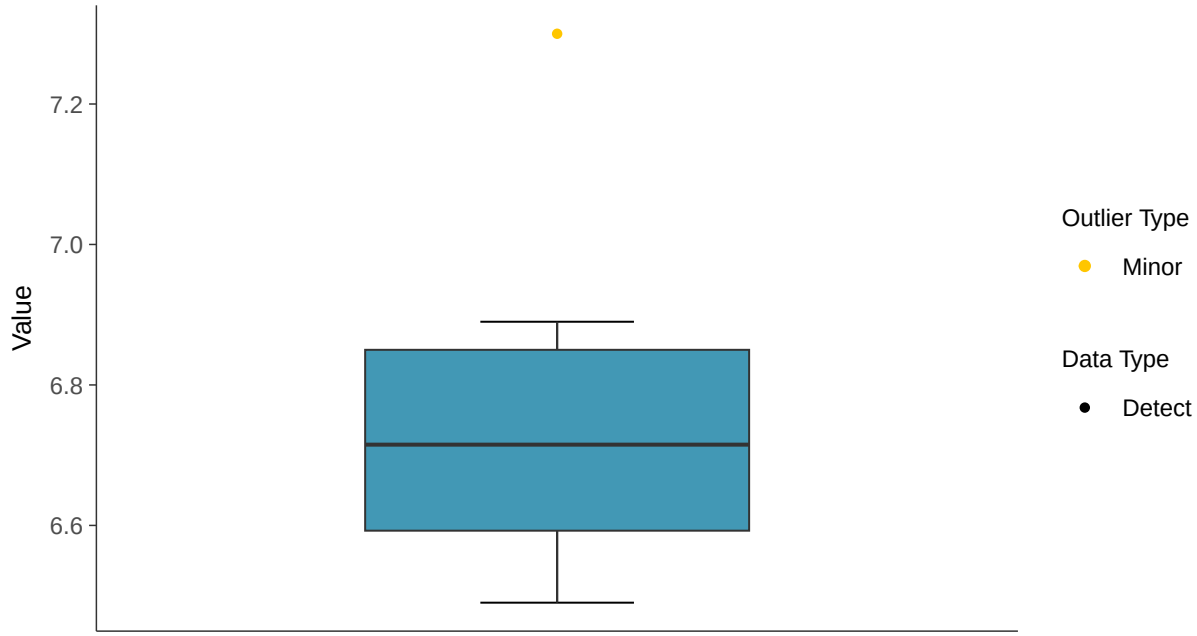
ID: 10_1_05





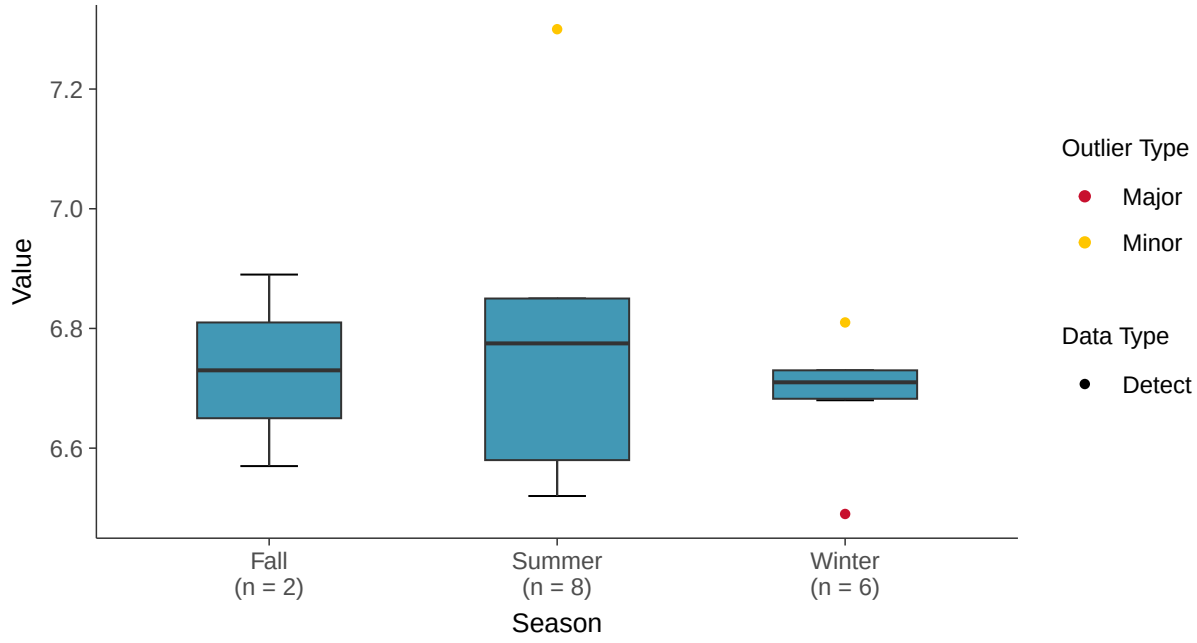
Boxplot

pH, Field, MW-10 (su)



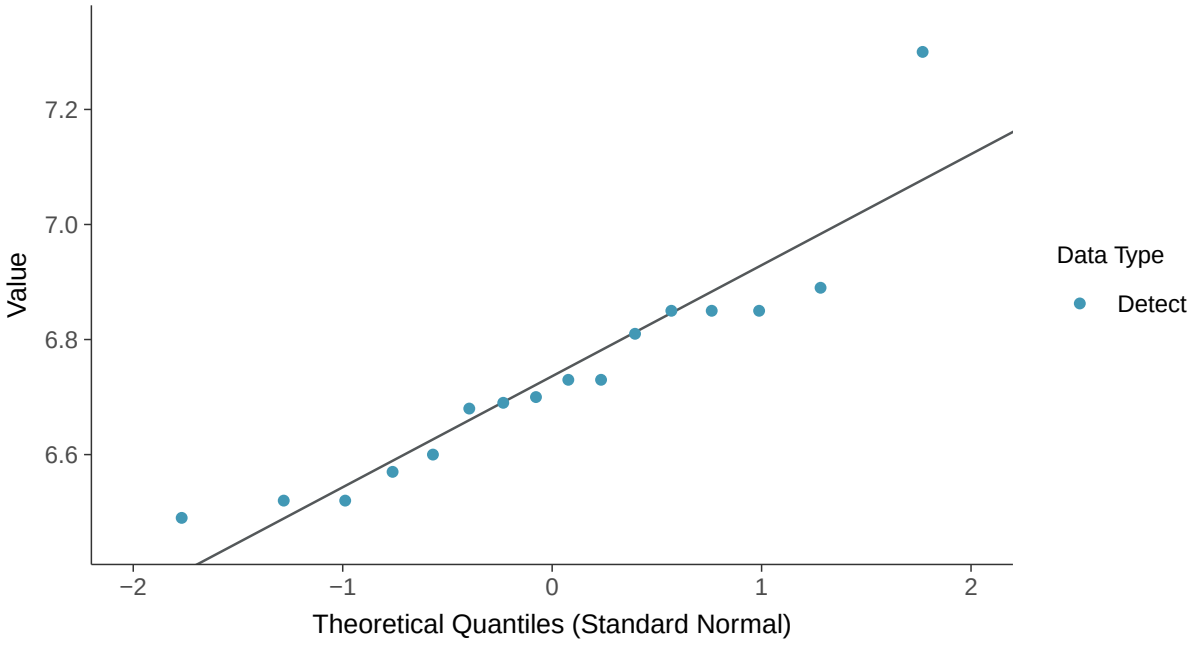
Boxplot by Season

pH, Field, MW-10 (su)



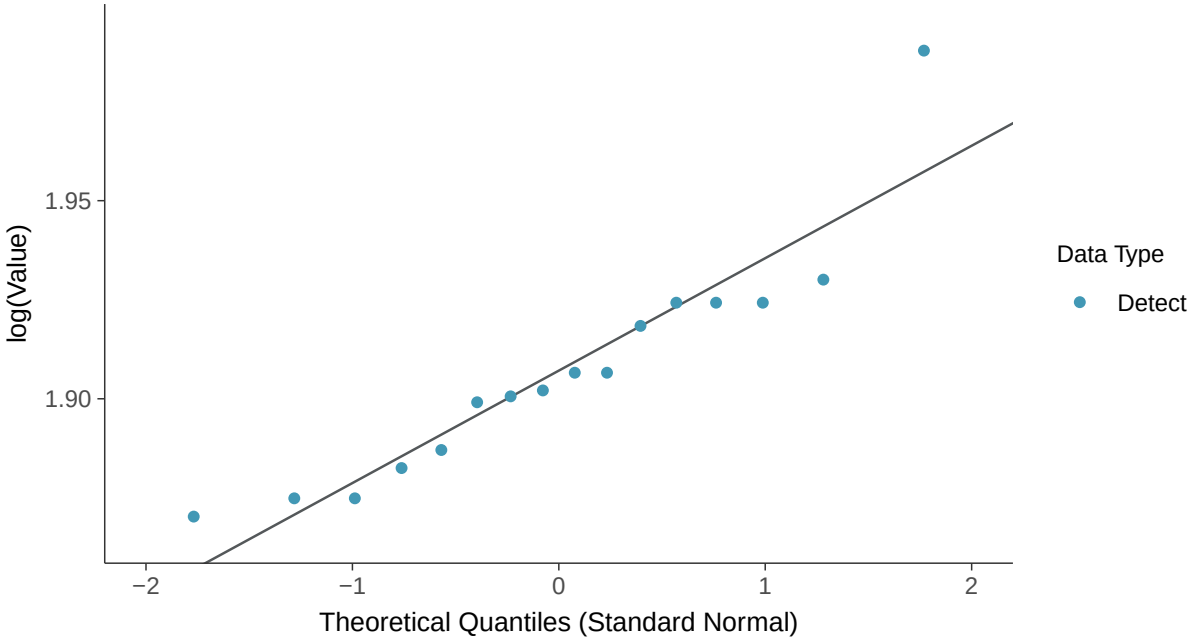
Normal Q-Q plot

pH, Field, MW-10 (su)



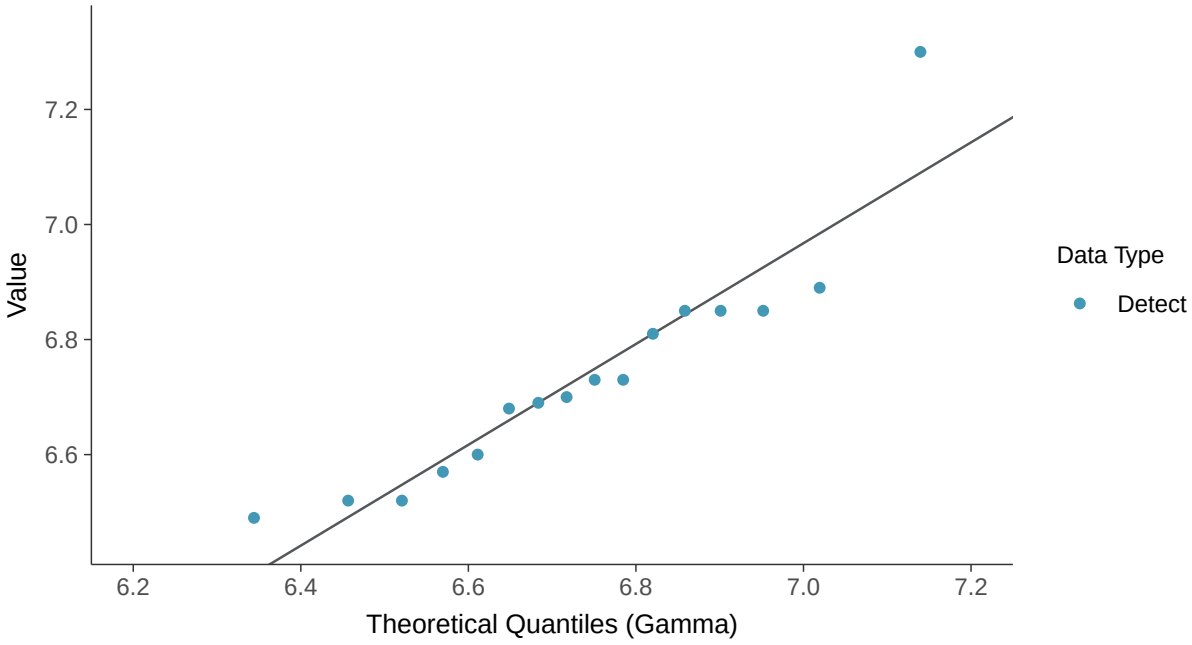
Lognormal Q-Q plot

pH, Field, MW-10 (su)



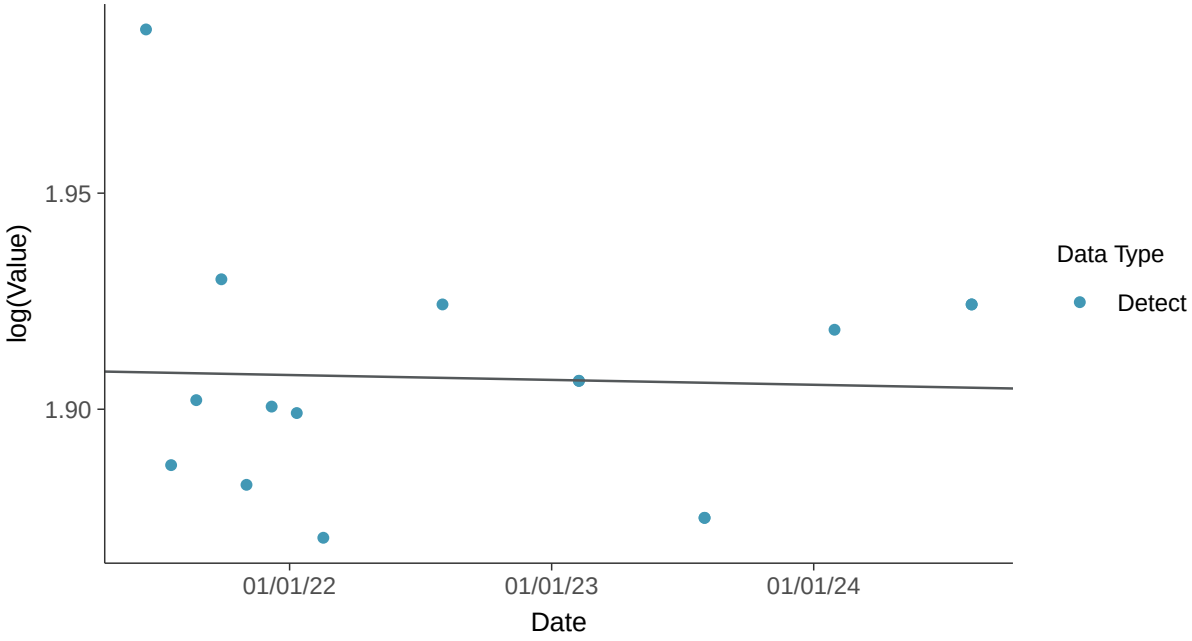
Gamma Q-Q plot

pH, Field, MW-10 (su)



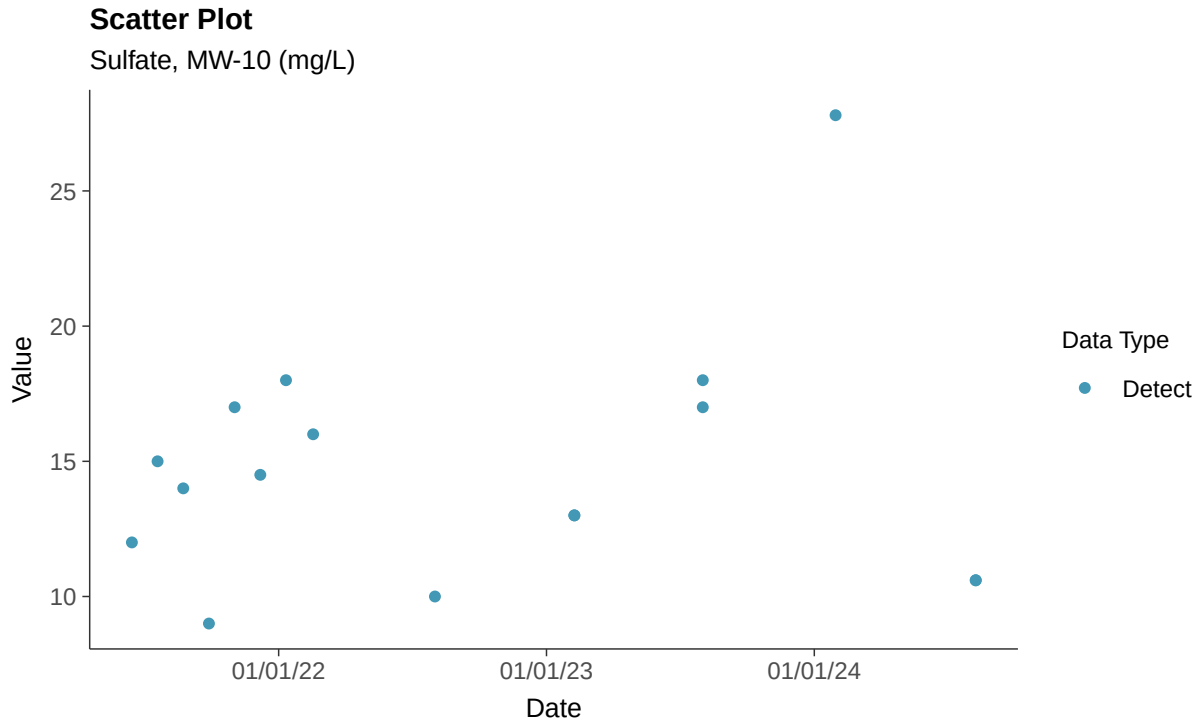
Trend Regression: Lognormal MLE

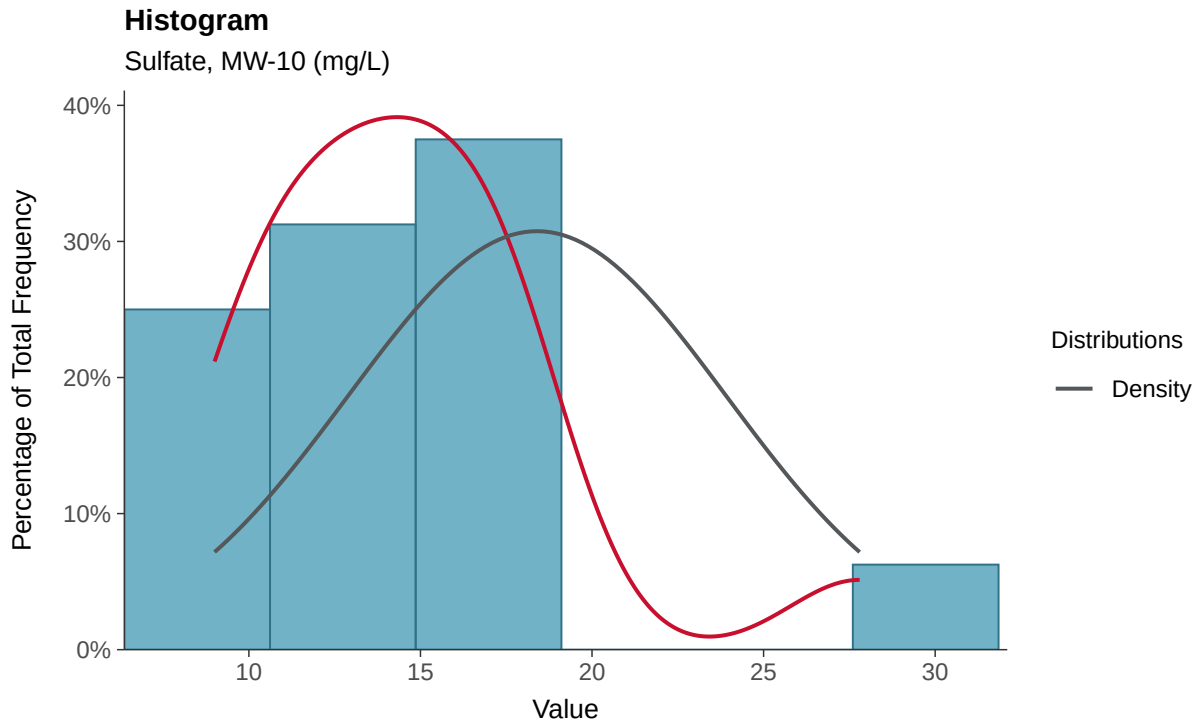
pH, Field, MW-10 (su)



Appendix III: Sulfate, MW-10

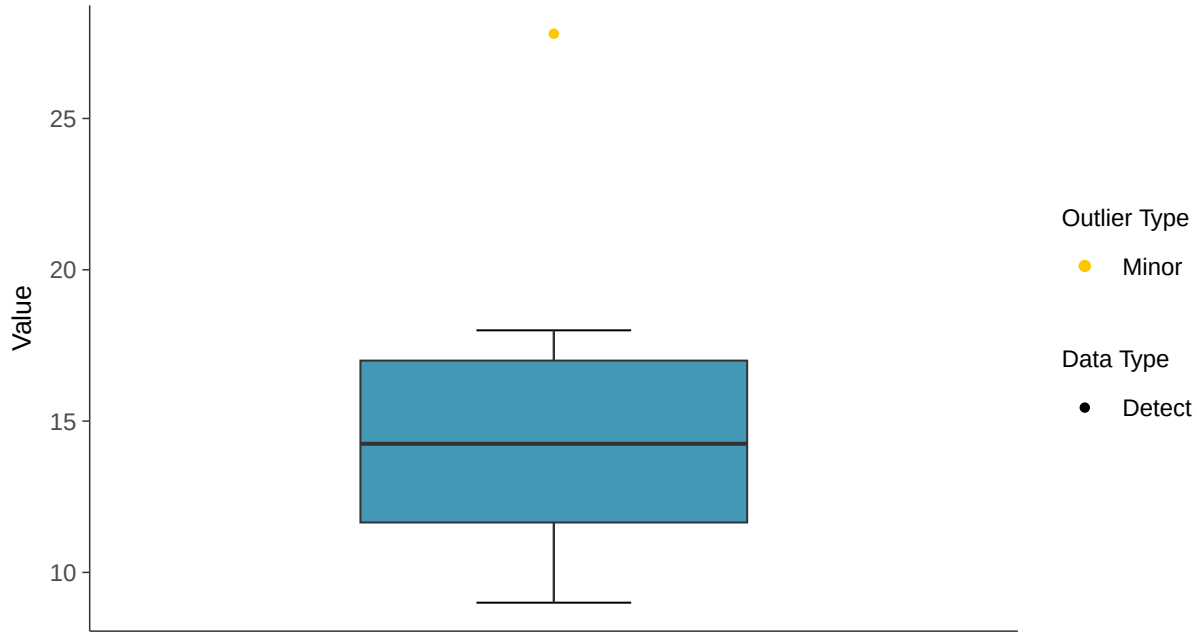
ID: 10_1_06





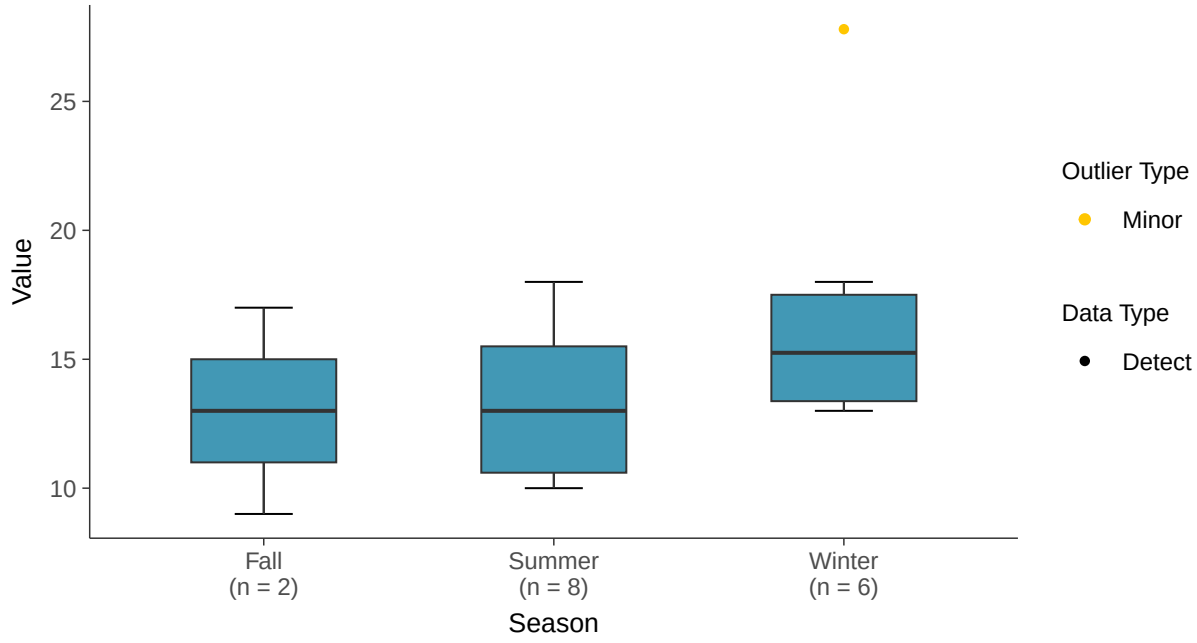
Boxplot

Sulfate, MW-10 (mg/L)



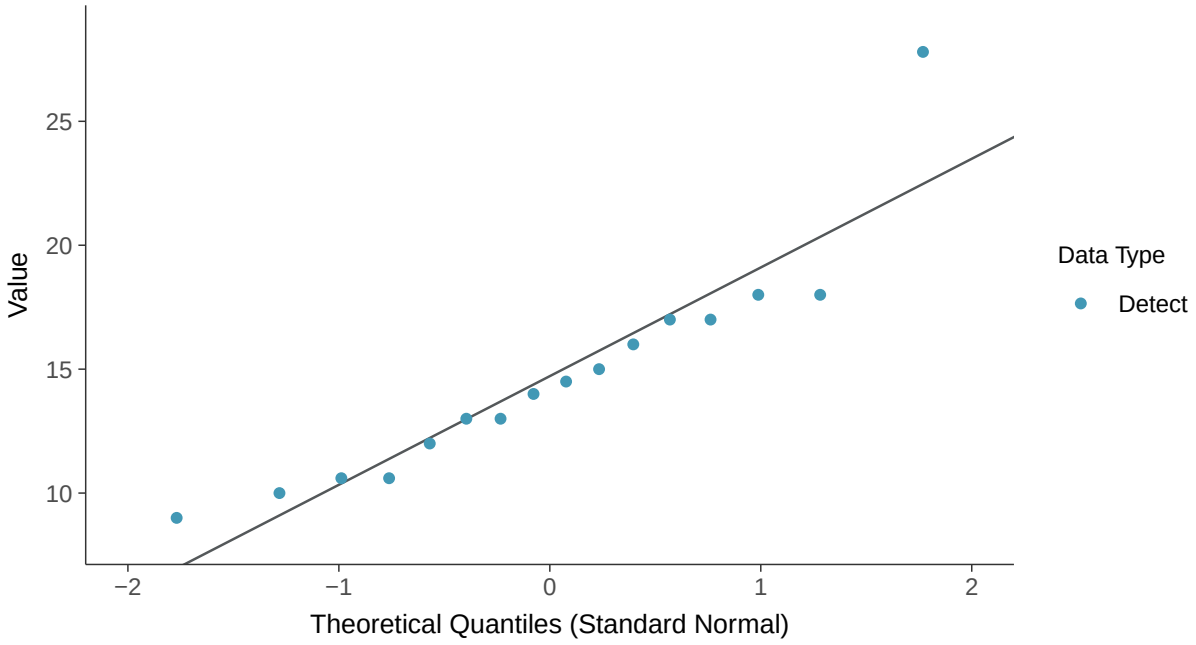
Boxplot by Season

Sulfate, MW-10 (mg/L)



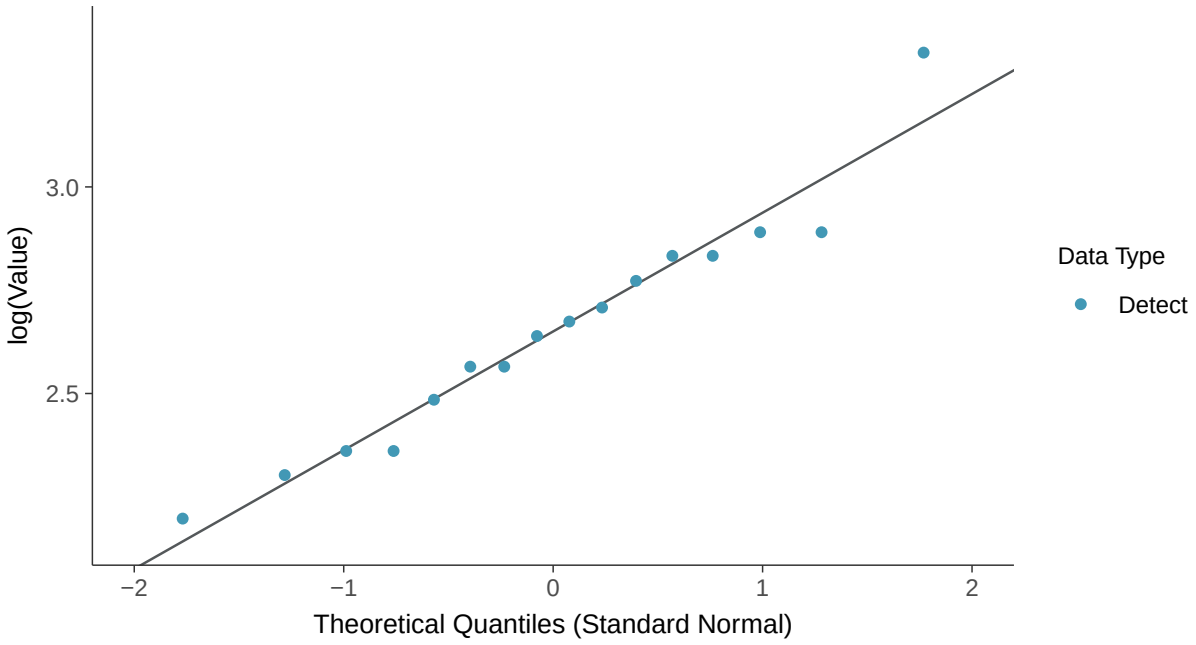
Normal Q-Q plot

Sulfate, MW-10 (mg/L)



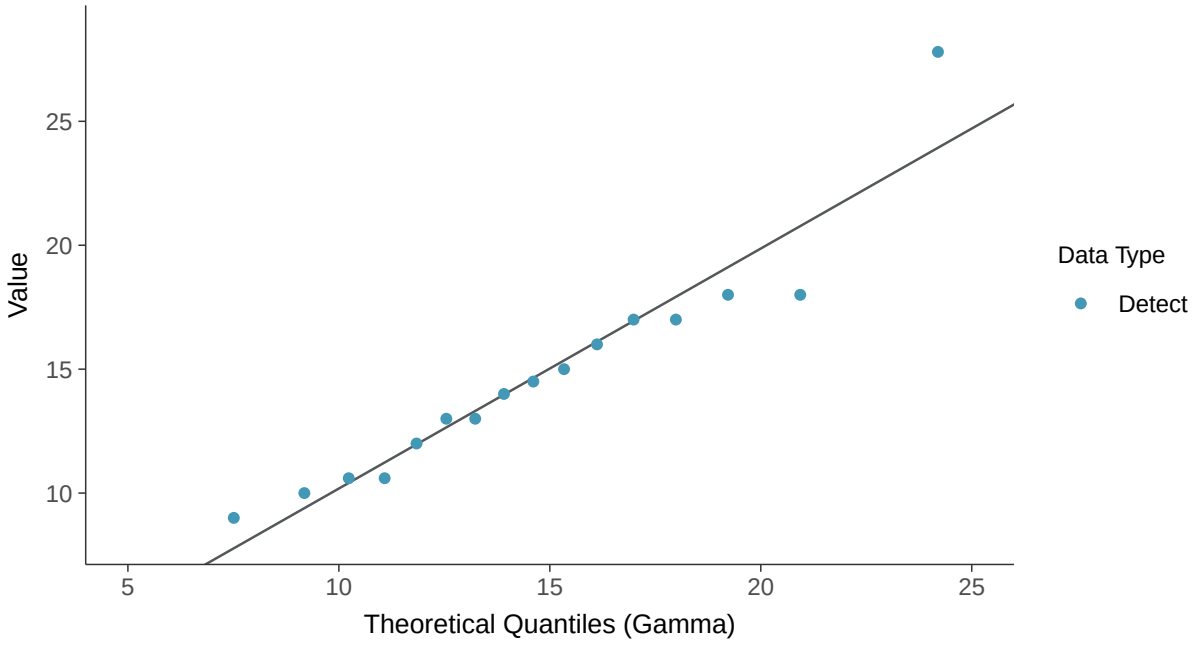
Lognormal Q-Q plot

Sulfate, MW-10 (mg/L)



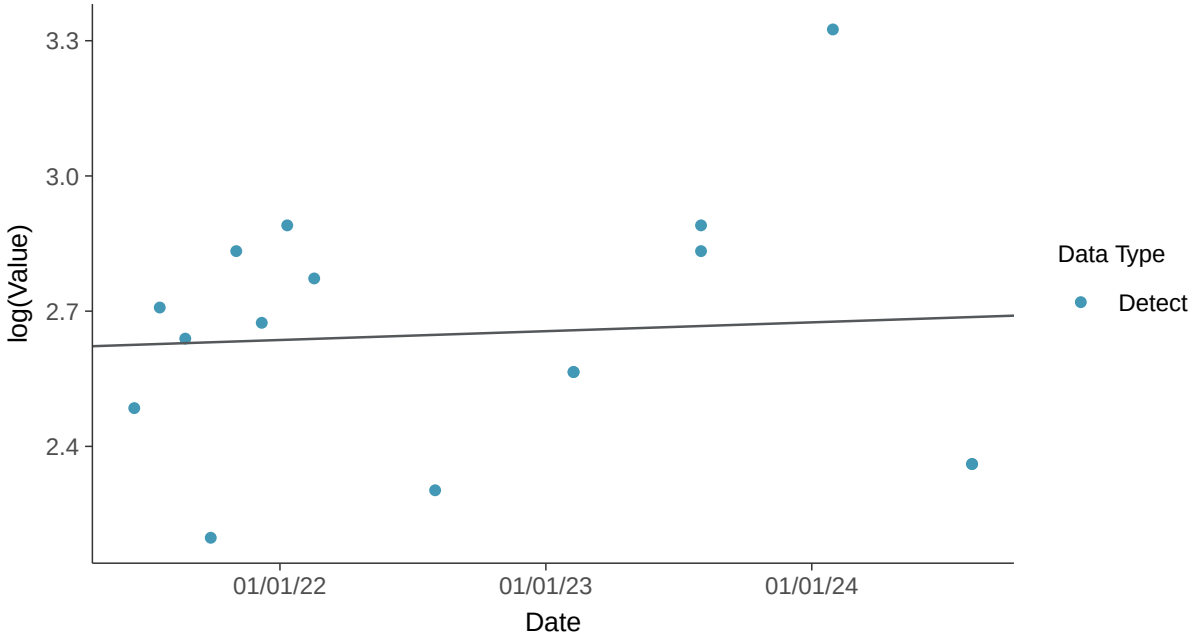
Gamma Q-Q plot

Sulfate, MW-10 (mg/L)



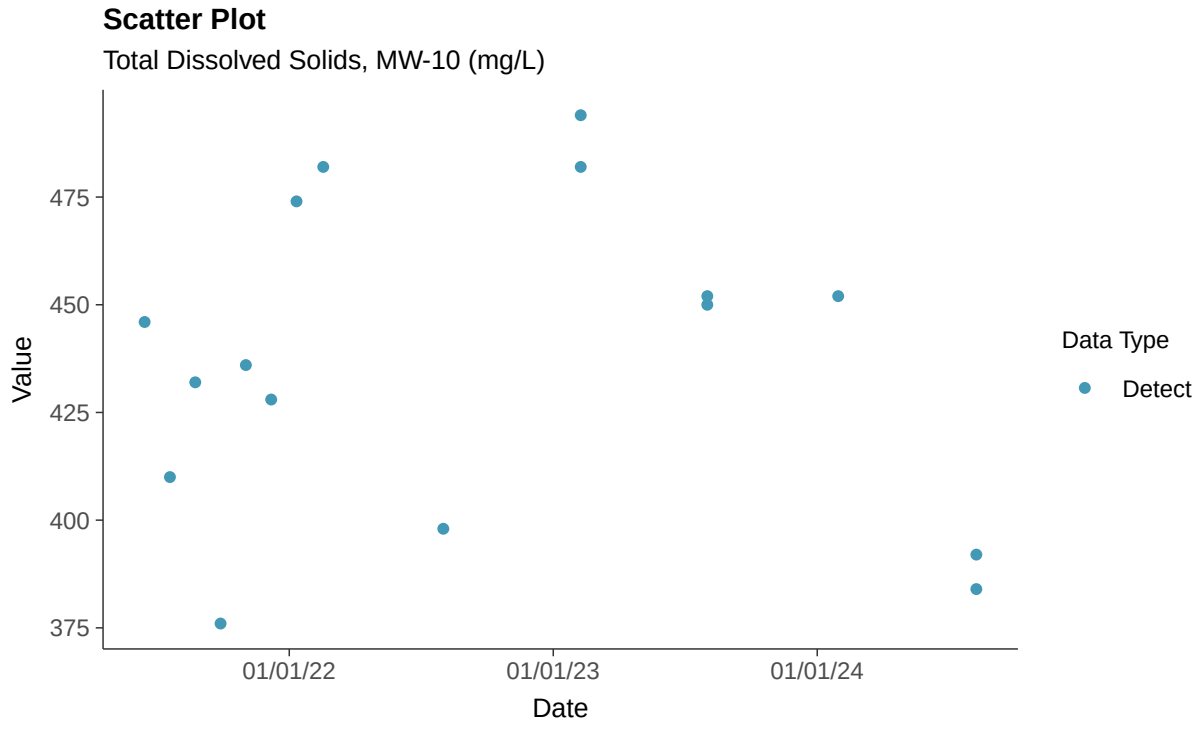
Trend Regression: Lognormal MLE

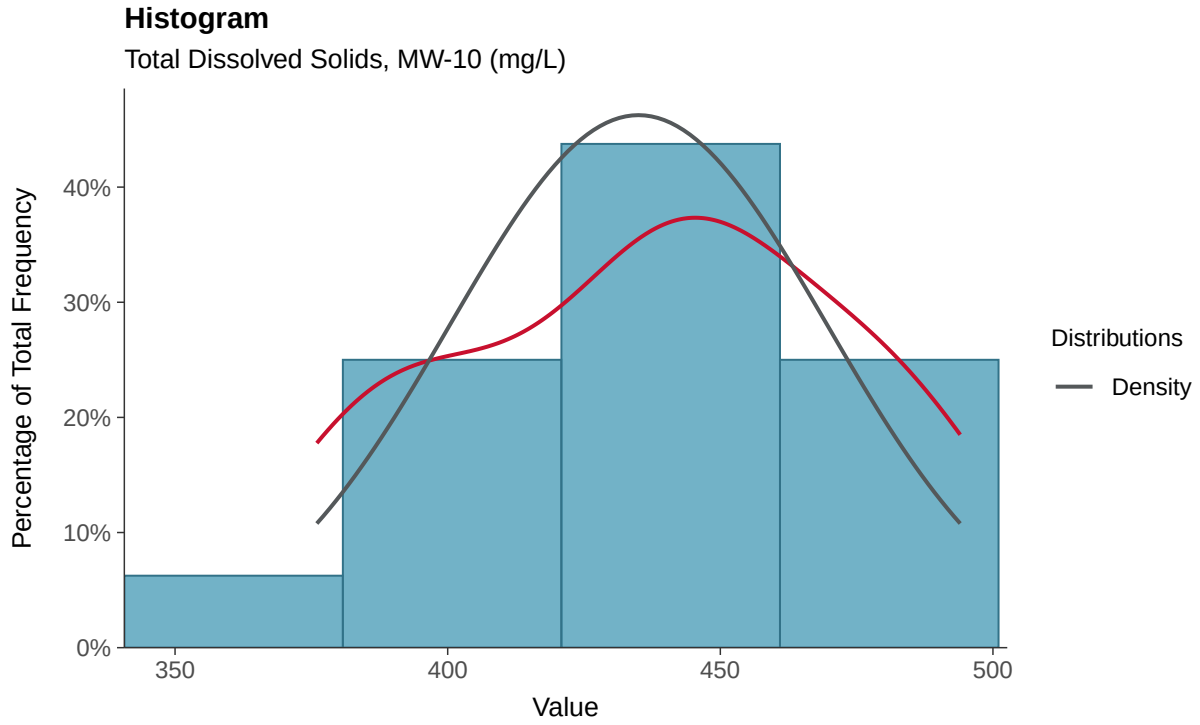
Sulfate, MW-10 (mg/L)



Appendix III: Total Dissolved Solids, MW-10

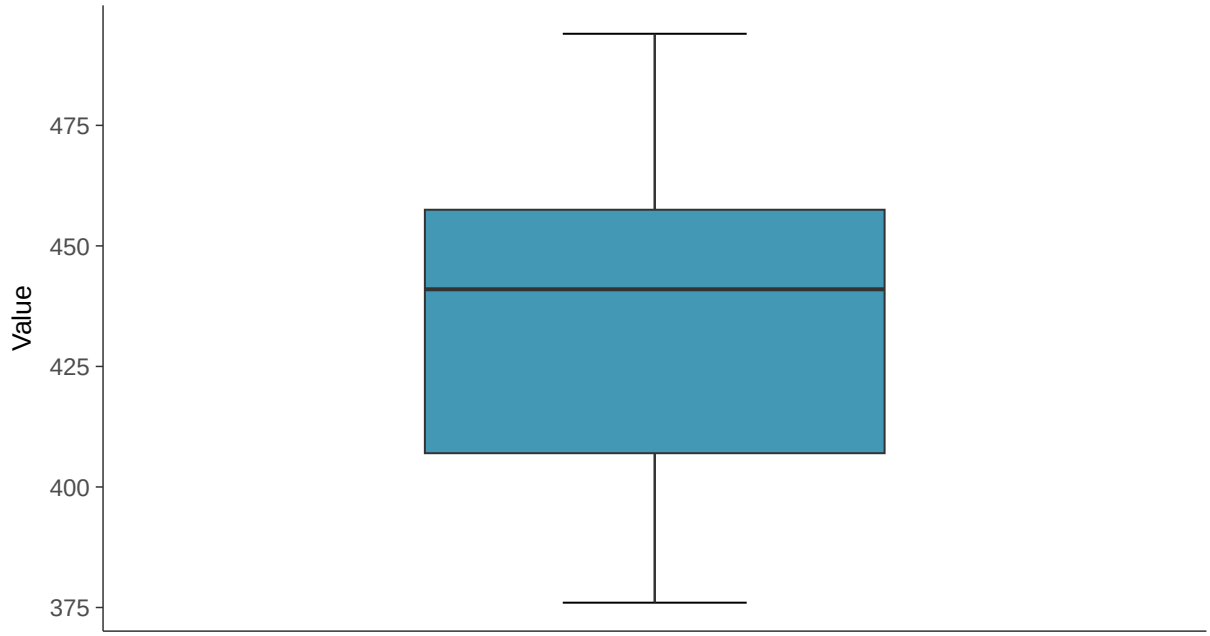
ID: 10_1_07





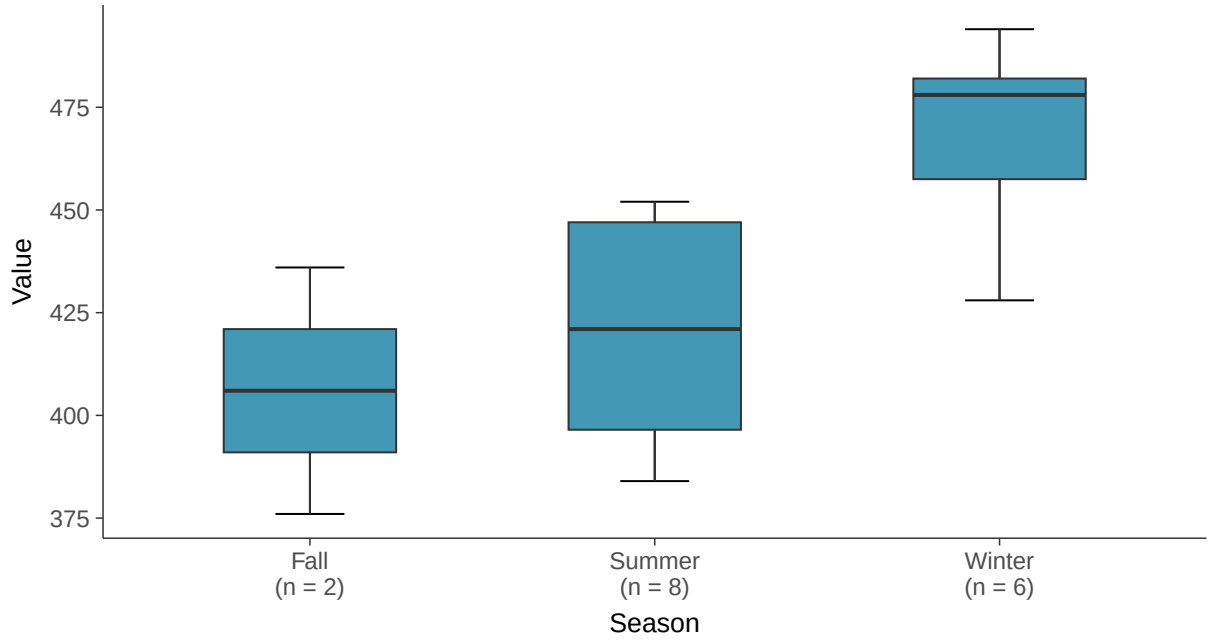
Boxplot

Total Dissolved Solids, MW-10 (mg/L)



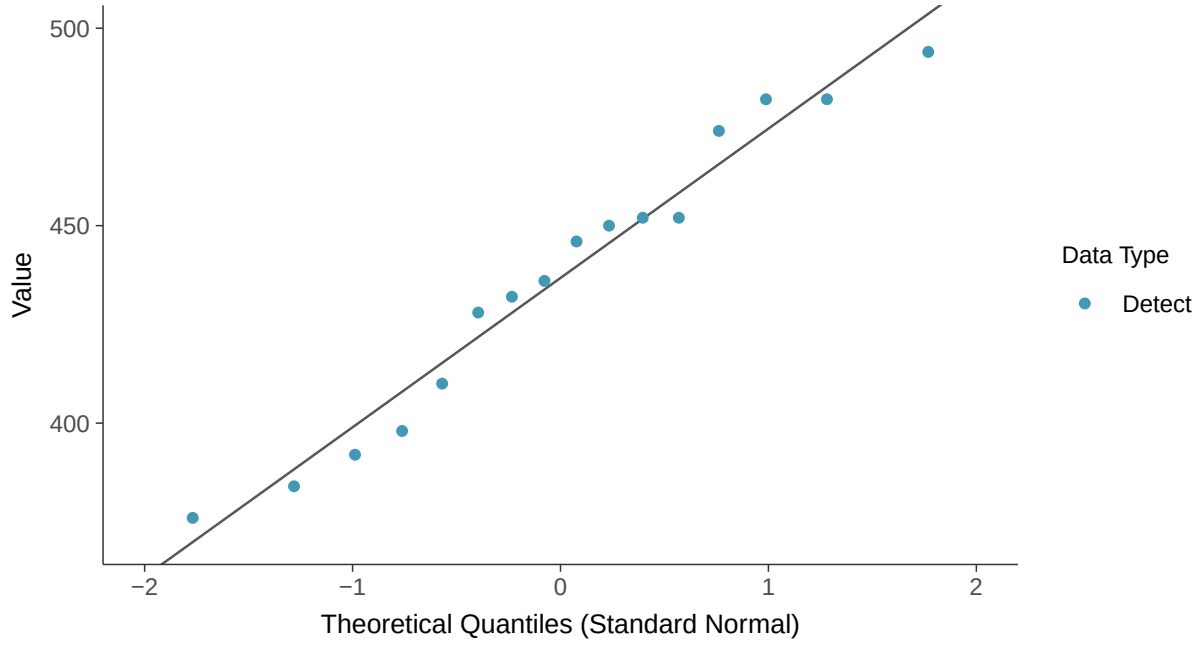
Boxplot by Season

Total Dissolved Solids, MW-10 (mg/L)



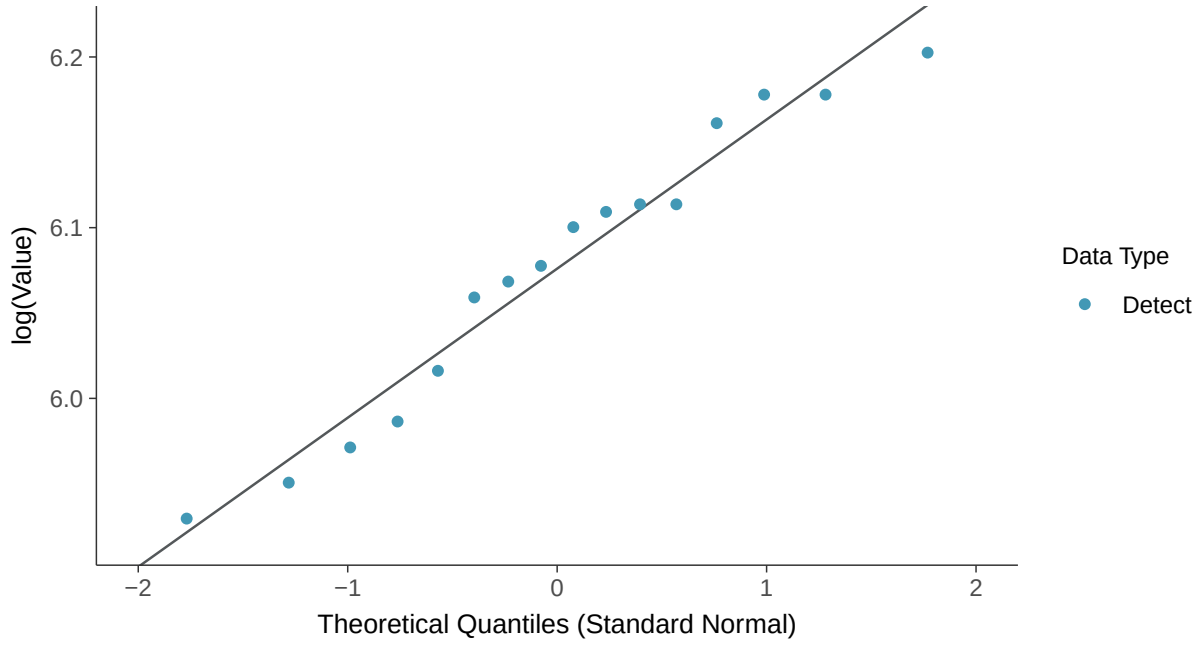
Normal Q-Q plot

Total Dissolved Solids, MW-10 (mg/L)



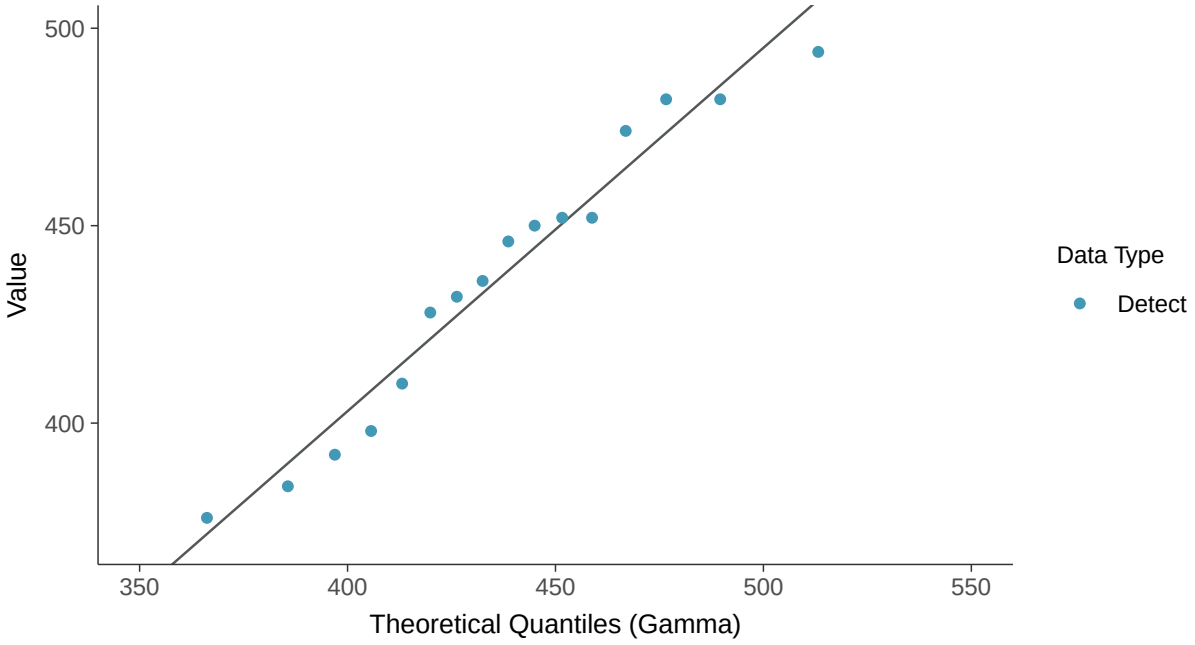
Lognormal Q-Q plot

Total Dissolved Solids, MW-10 (mg/L)



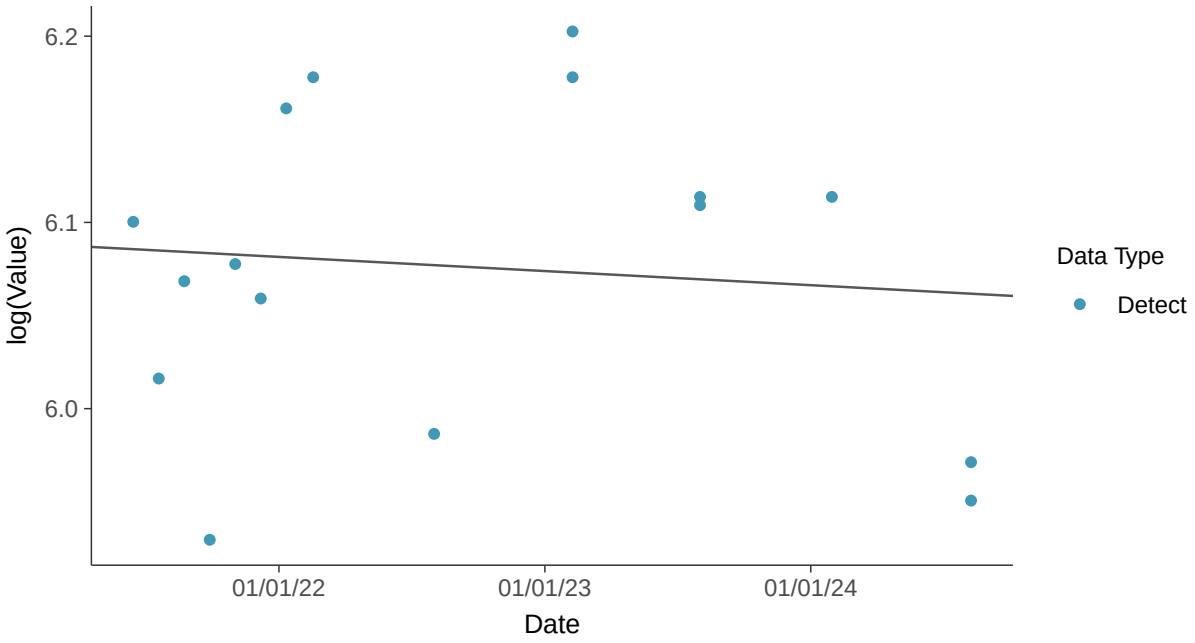
Gamma Q-Q plot

Total Dissolved Solids, MW-10 (mg/L)



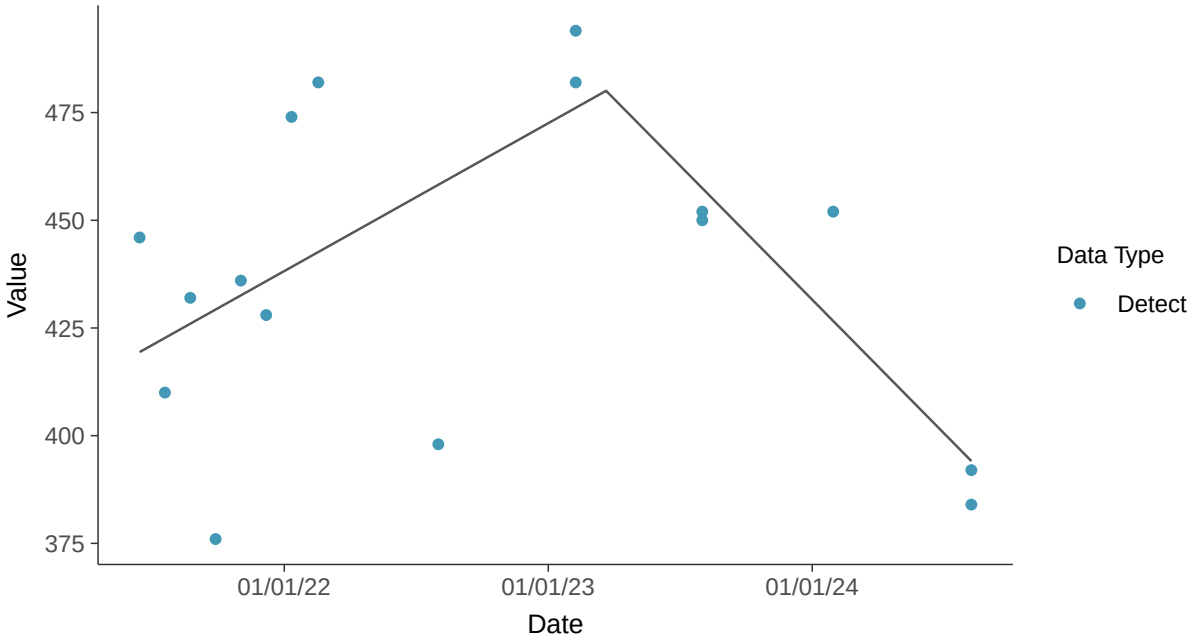
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-10 (mg/L)



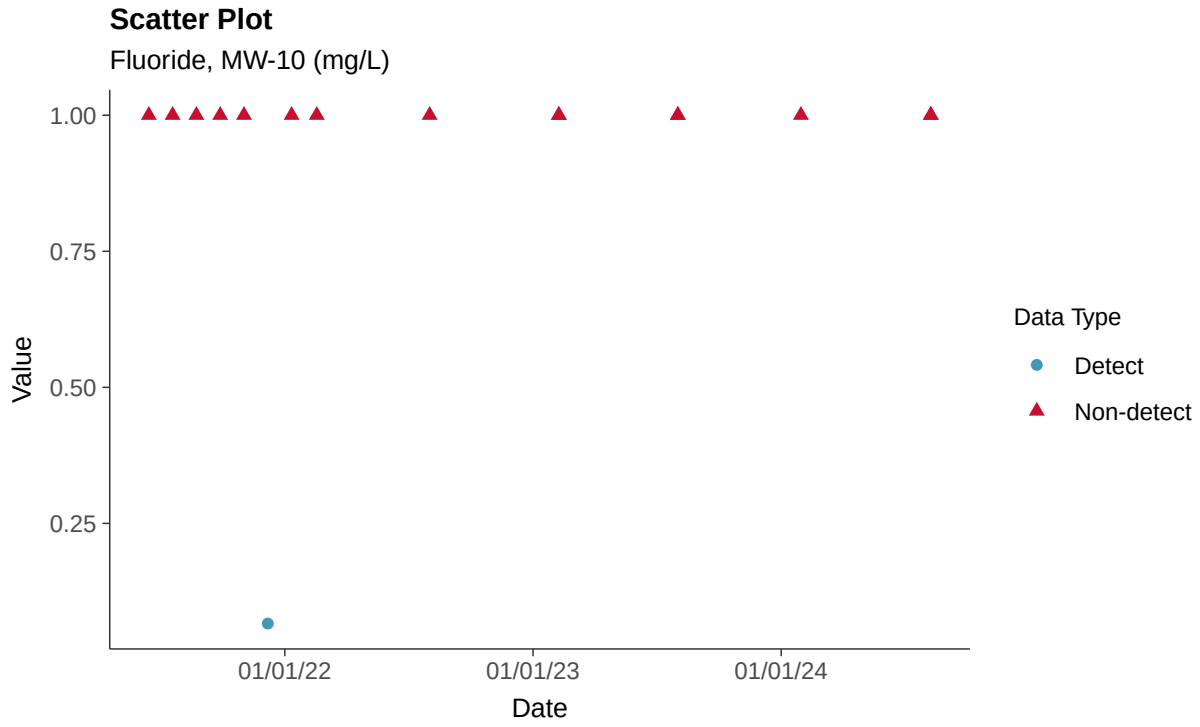
Trend Regression: Piecewise Linear-Linear

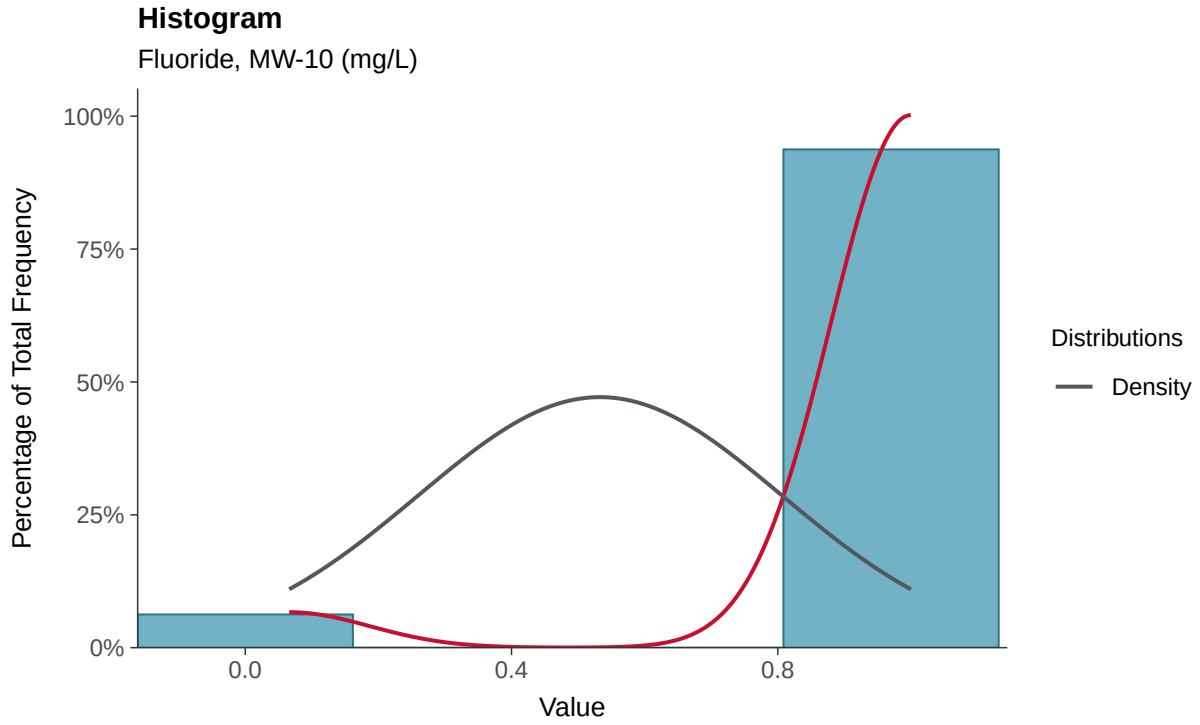
Total Dissolved Solids, MW-10 (mg/L)



Appendix IV: Fluoride, MW-10

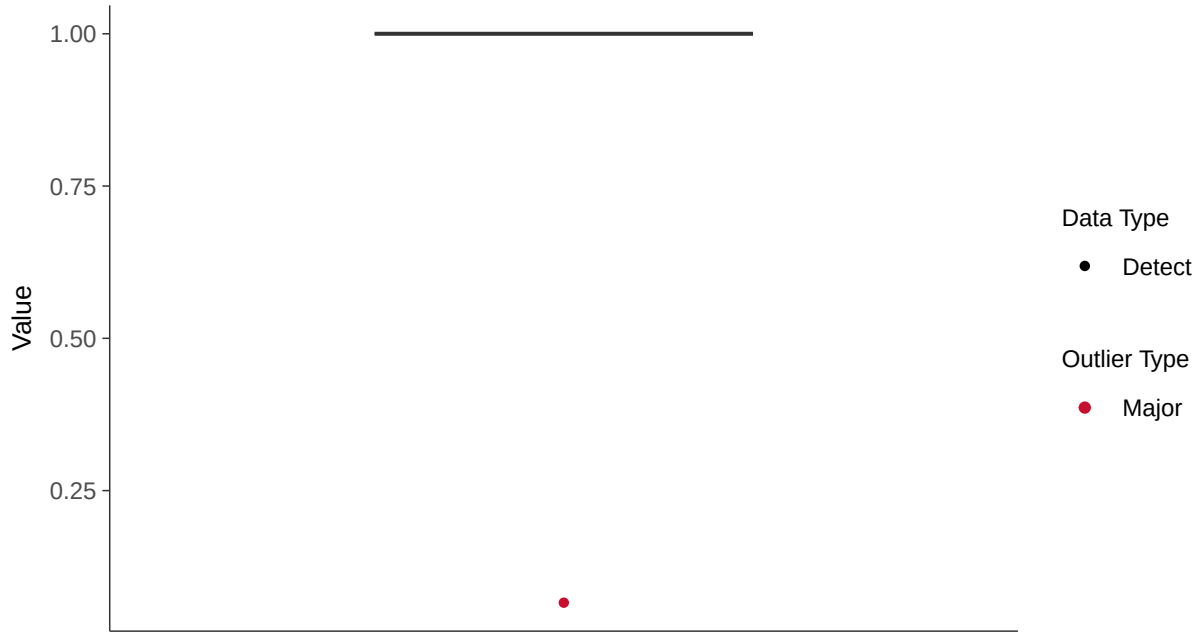
ID: 10_2_04





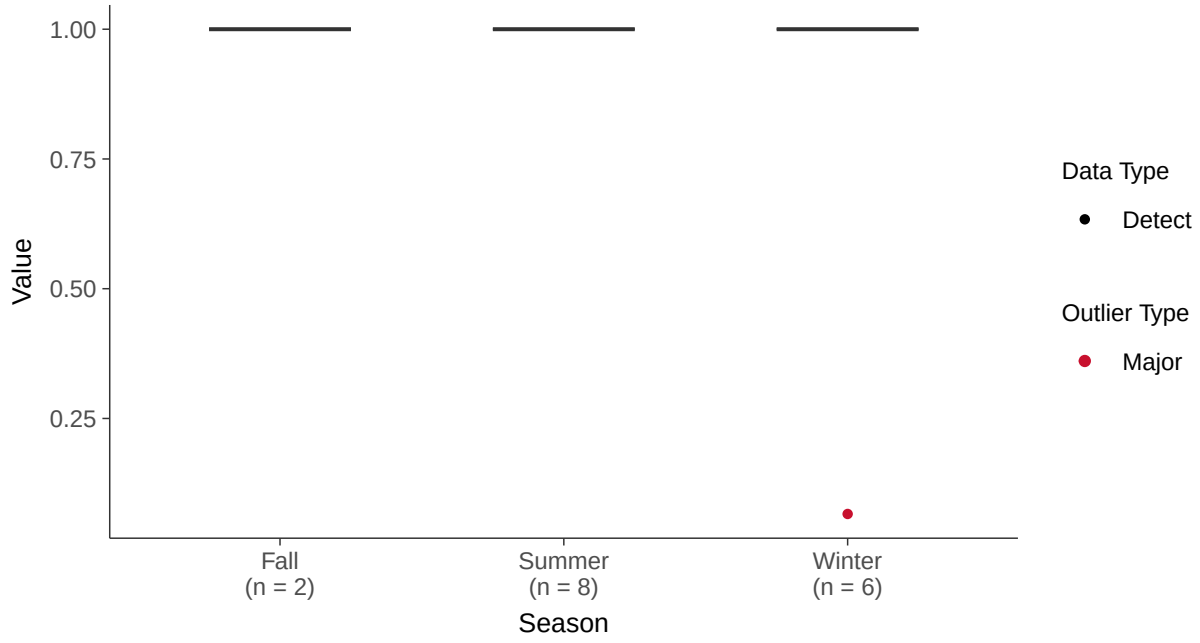
Boxplot

Fluoride, MW-10 (mg/L)



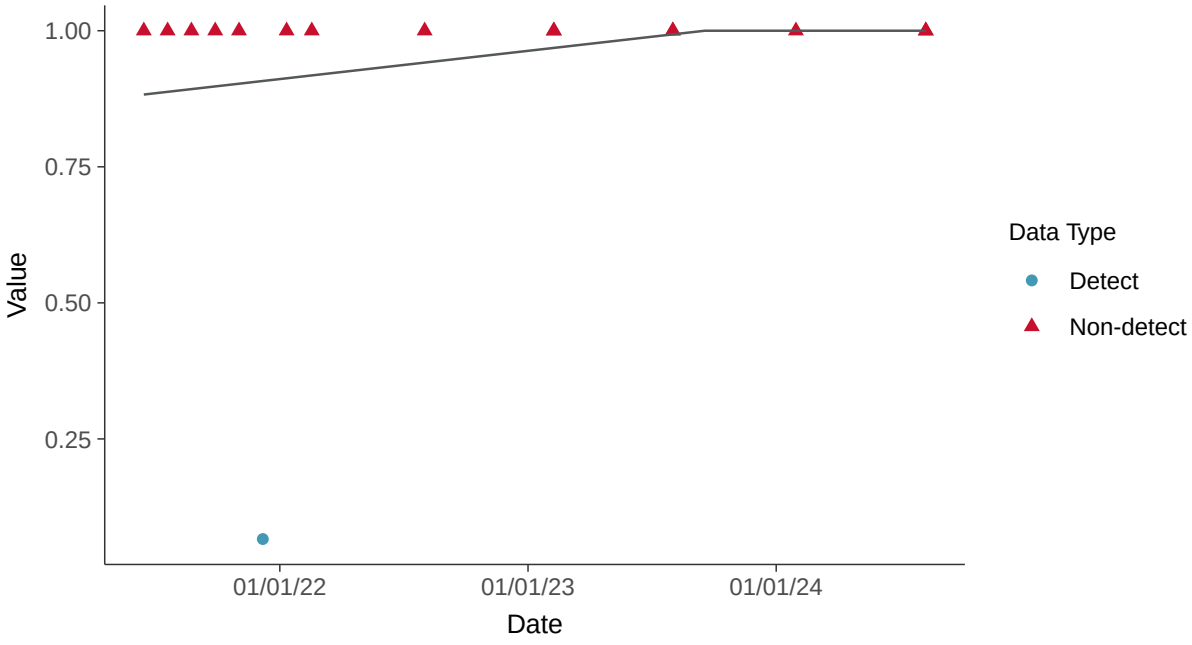
Boxplot by Season

Fluoride, MW-10 (mg/L)



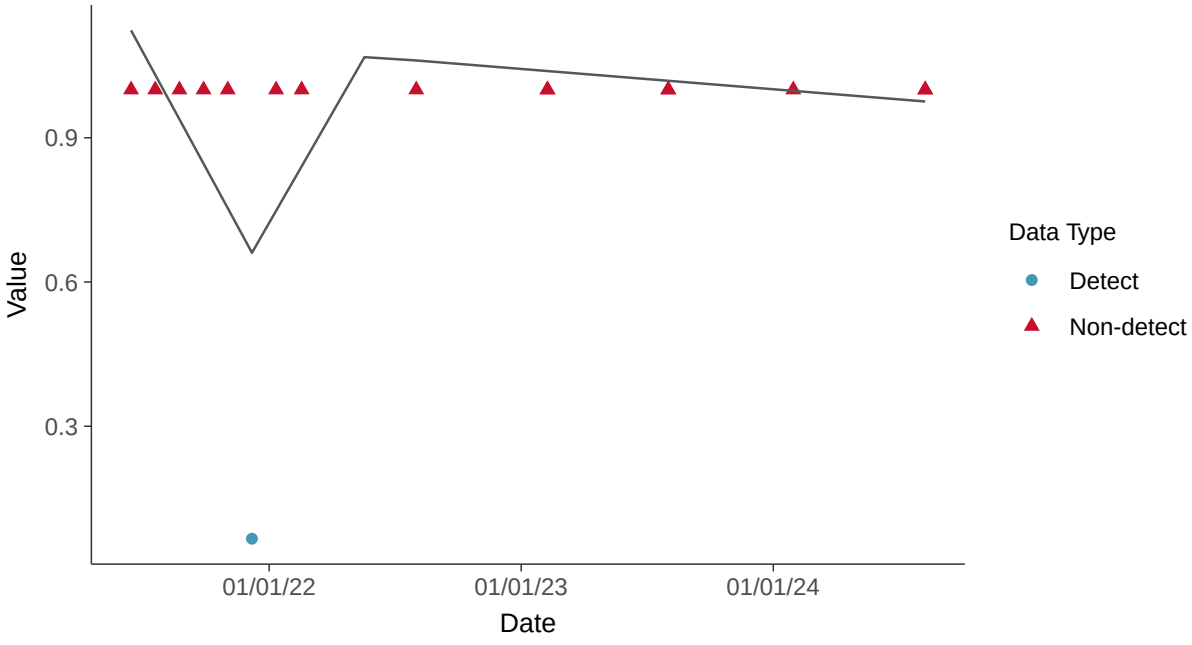
Trend Regression: Piecewise Linear-Linear

Fluoride, MW-10 (mg/L)



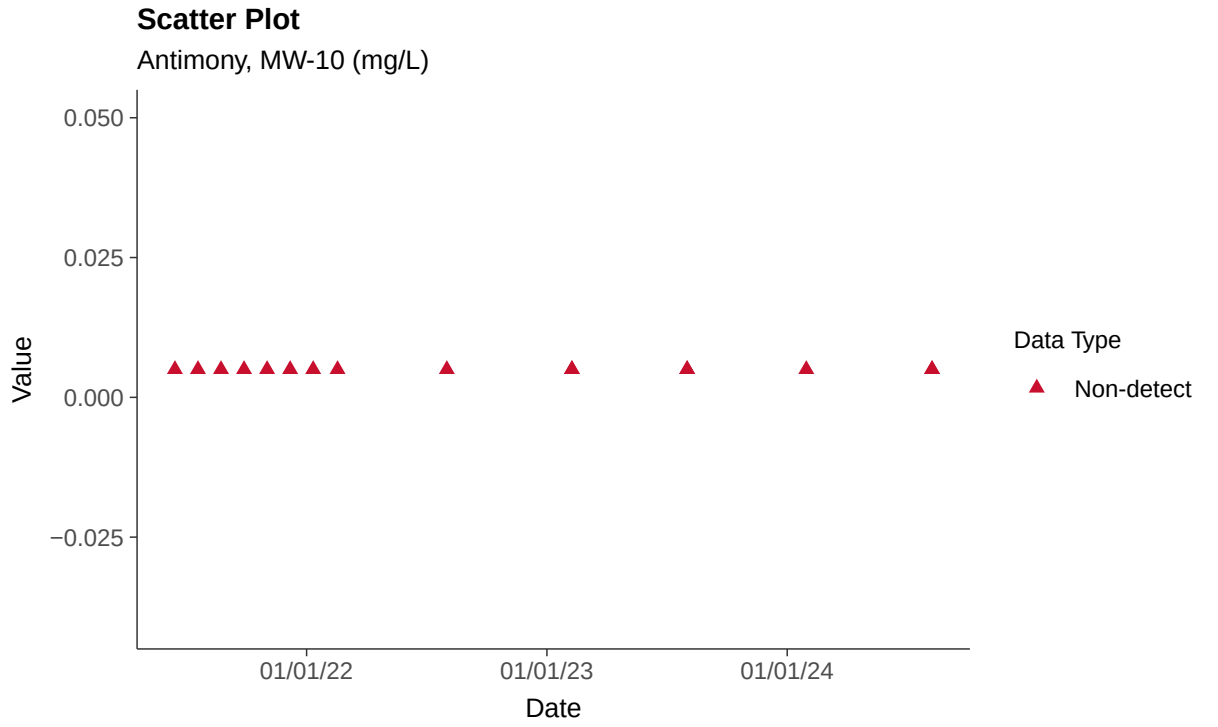
Trend Regression: Piecewise Linear-Linear-Linear

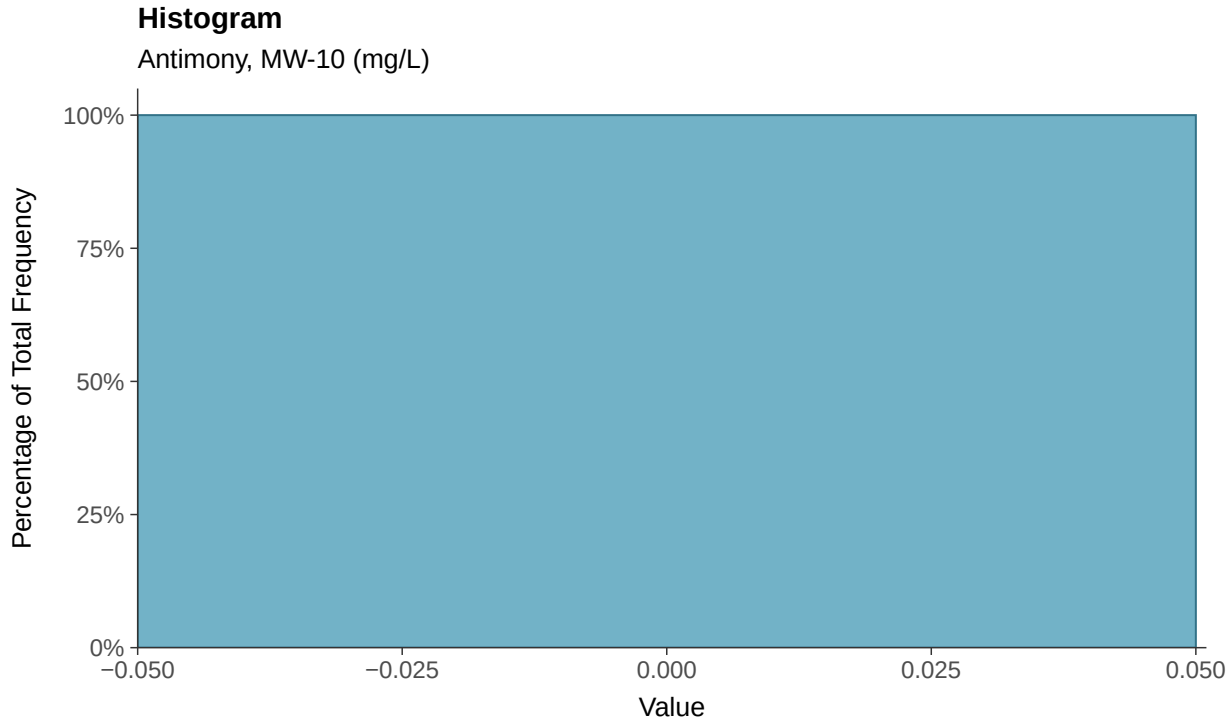
Fluoride, MW-10 (mg/L)



Appendix IV: Antimony, MW-10

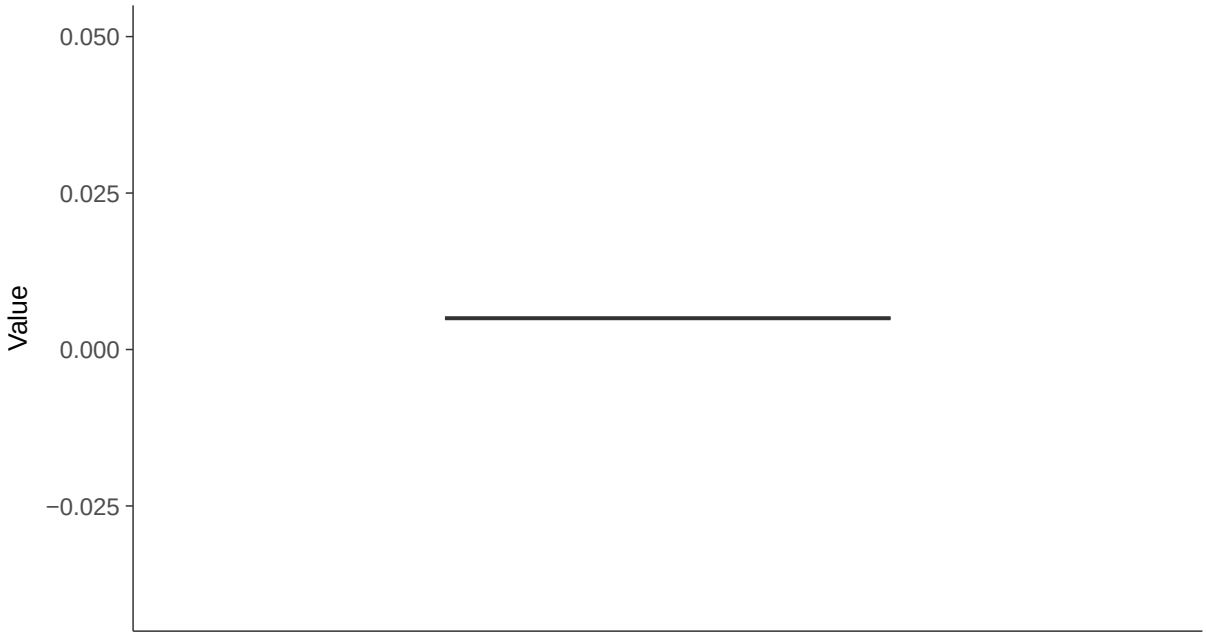
ID: 10_2_08





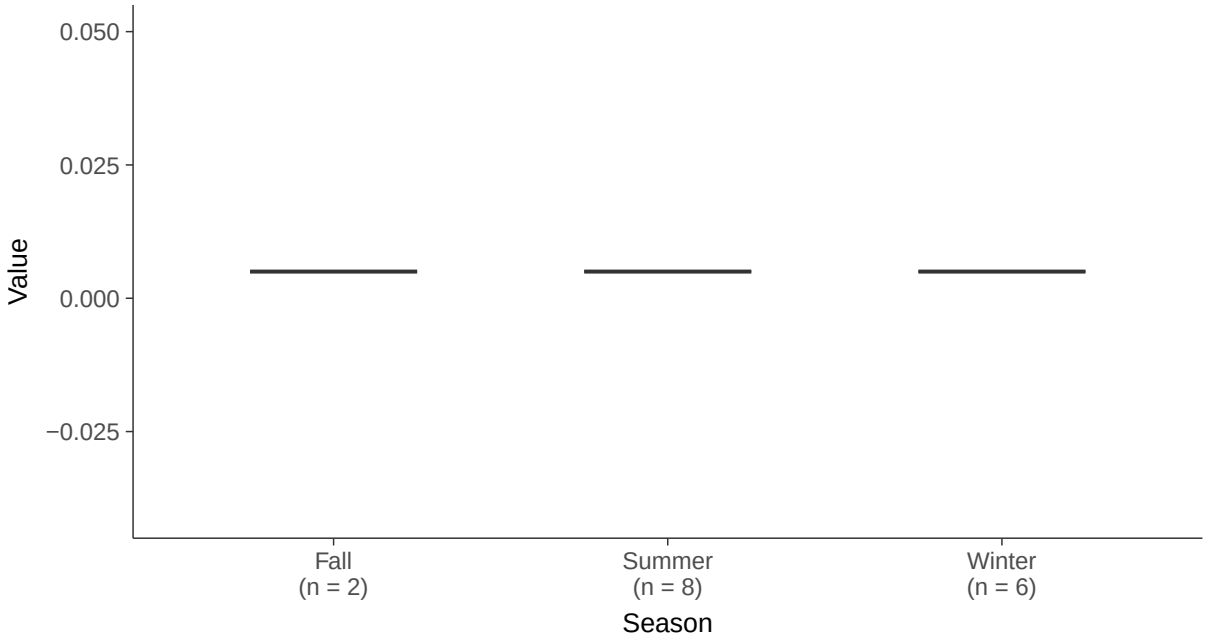
Boxplot

Antimony, MW-10 (mg/L)



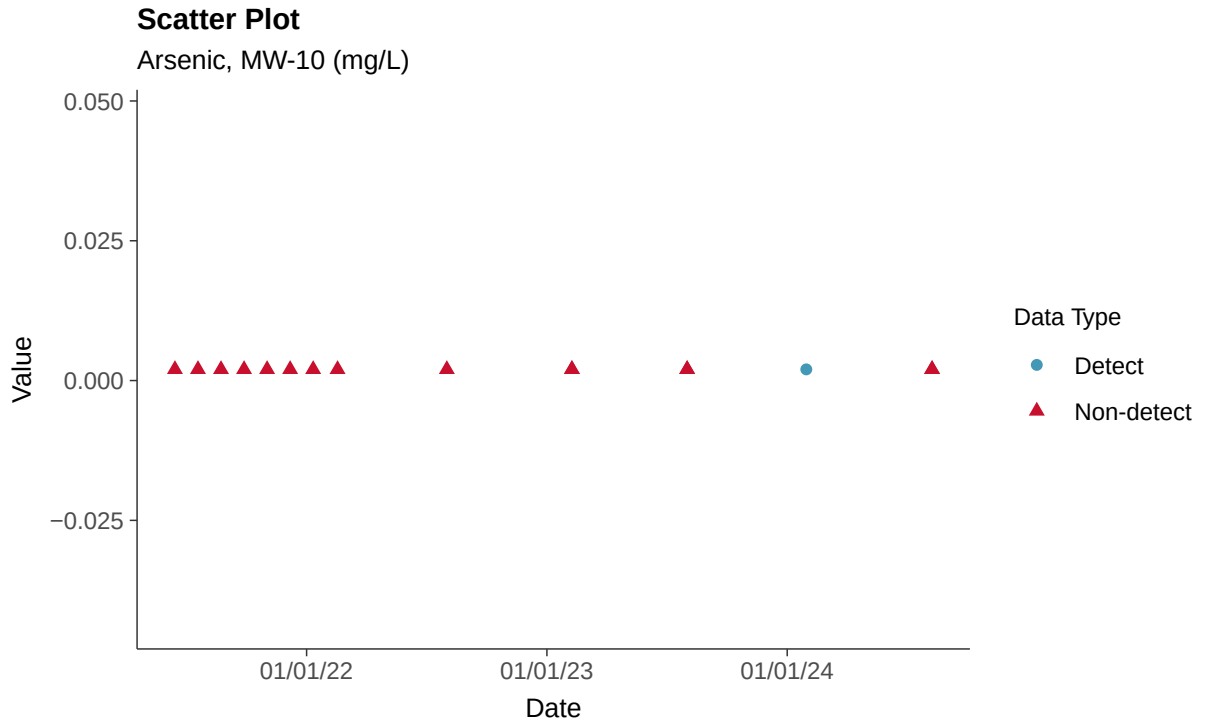
Boxplot by Season

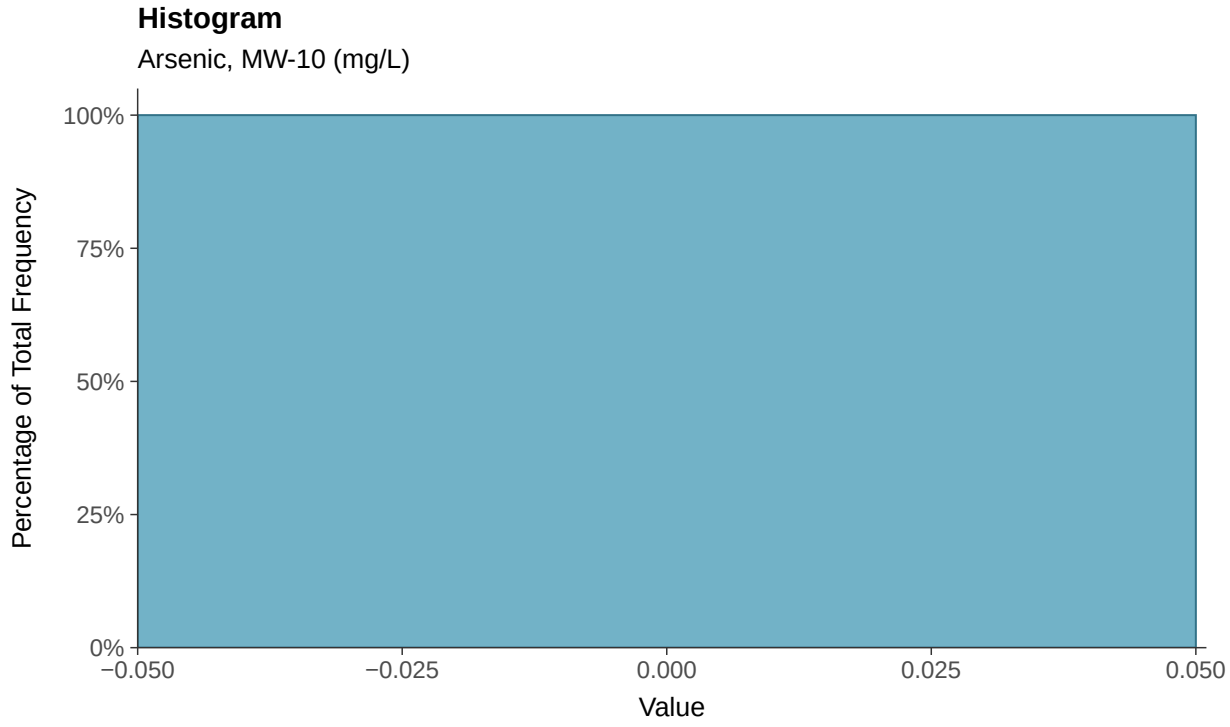
Antimony, MW-10 (mg/L)



Appendix IV: Arsenic, MW-10

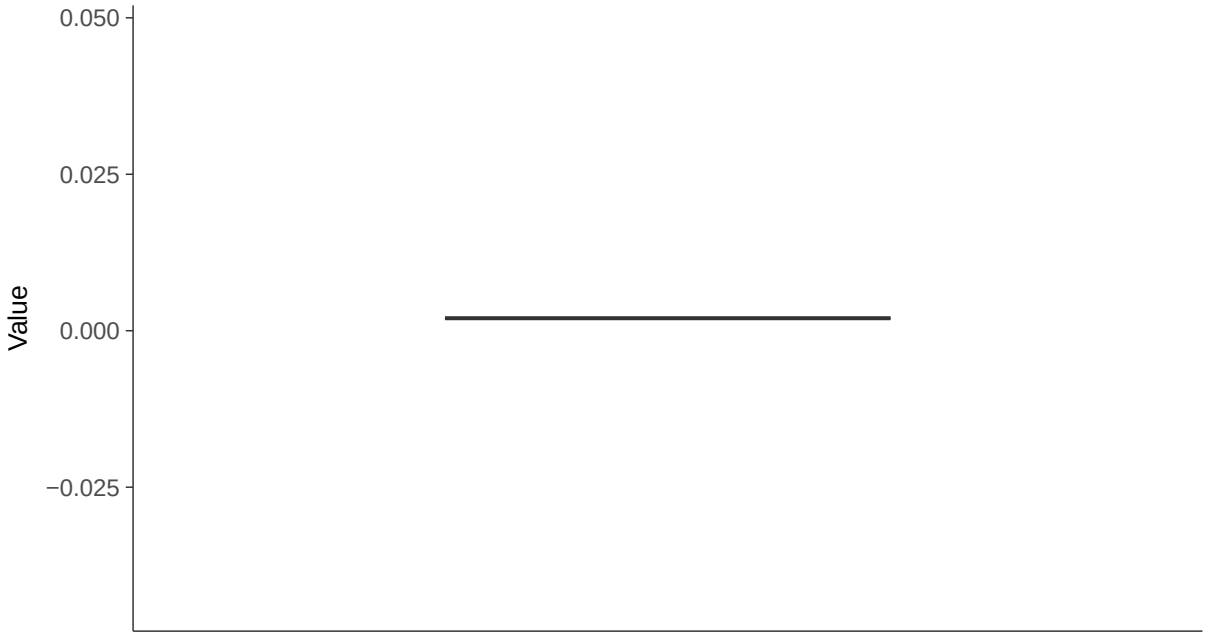
ID: 10_2_09





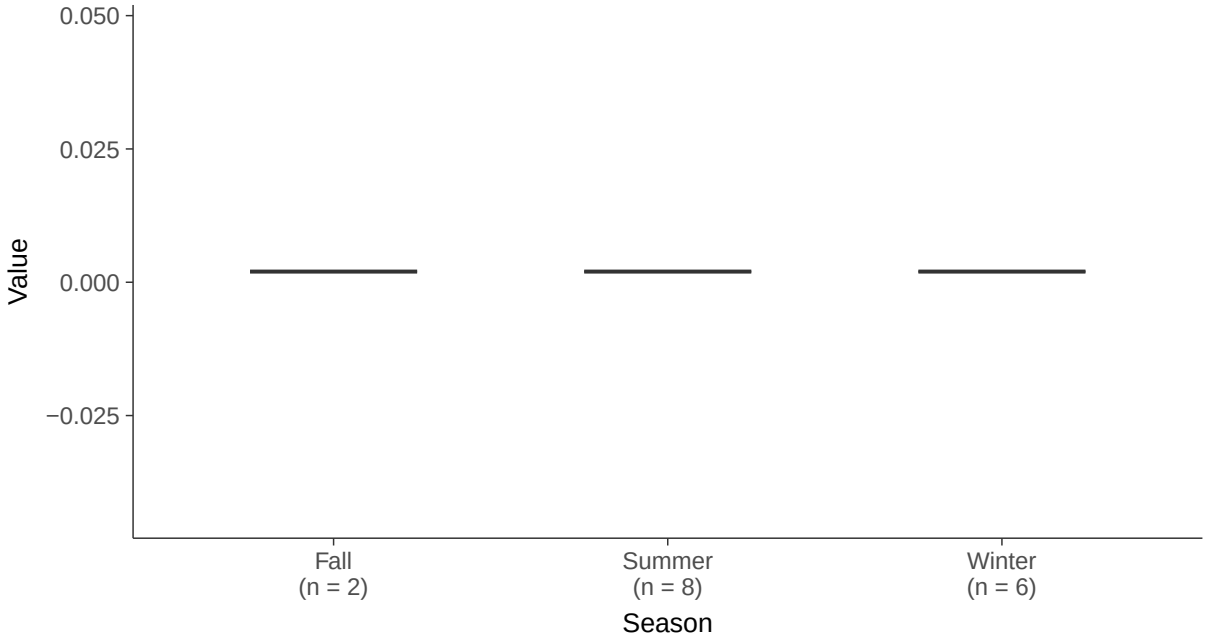
Boxplot

Arsenic, MW-10 (mg/L)



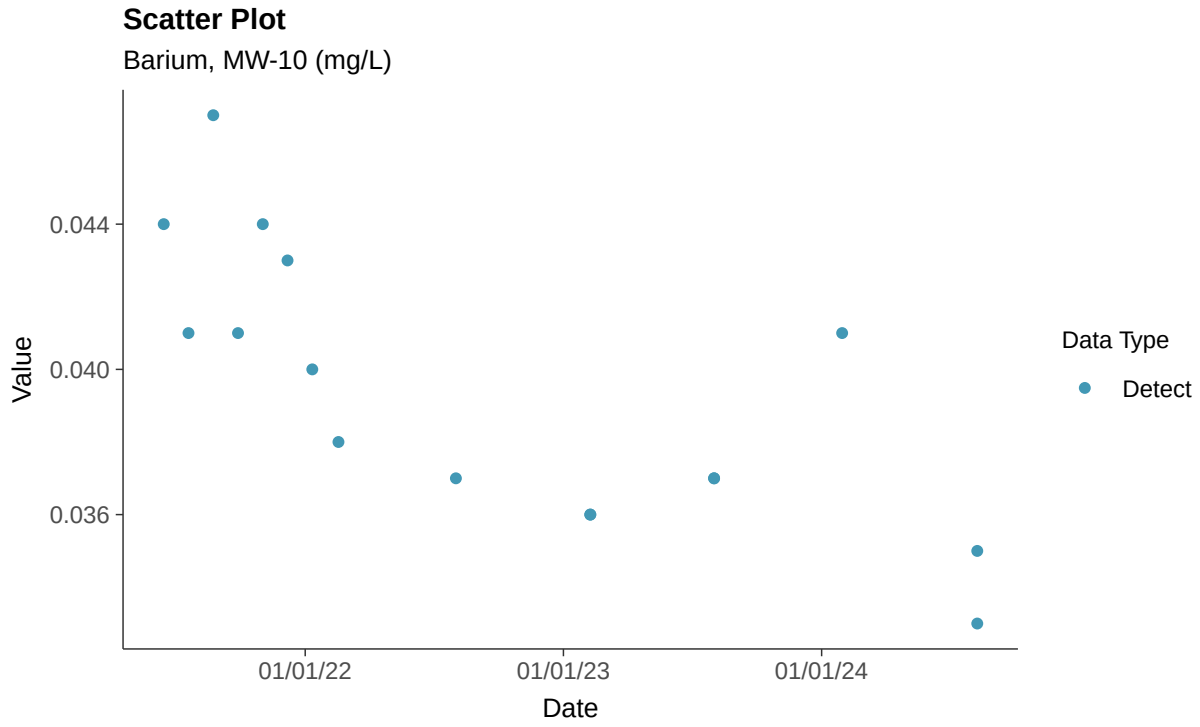
Boxplot by Season

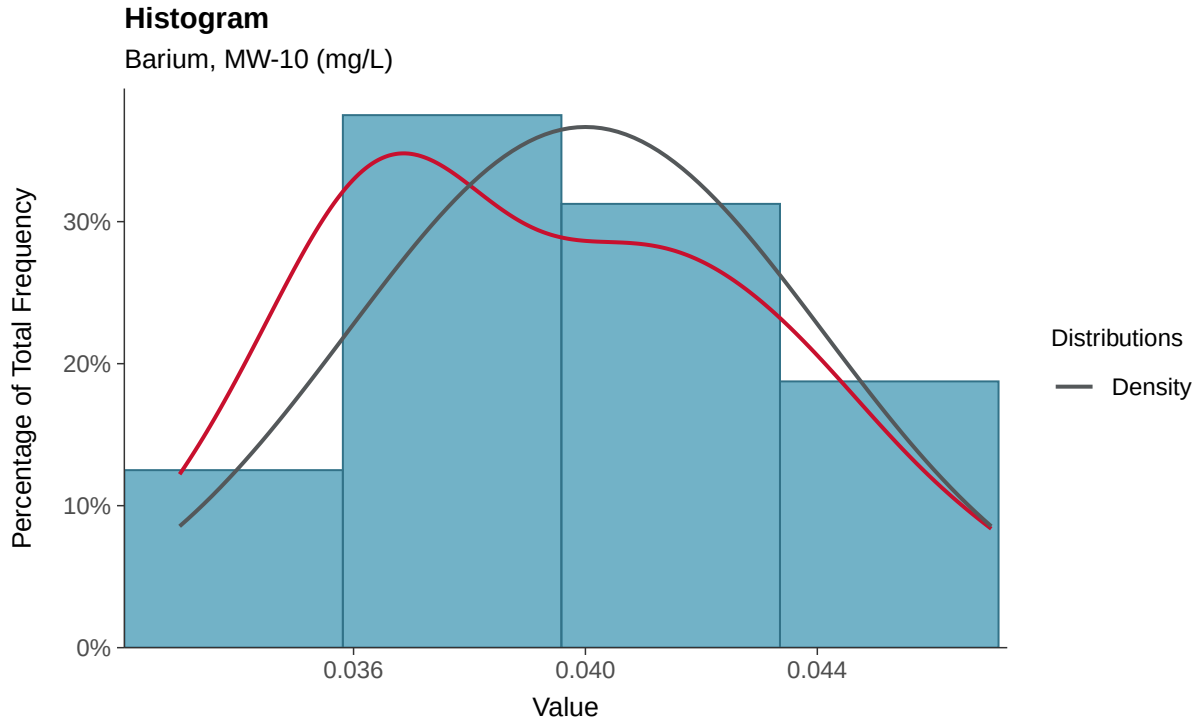
Arsenic, MW-10 (mg/L)



Appendix IV: Barium, MW-10

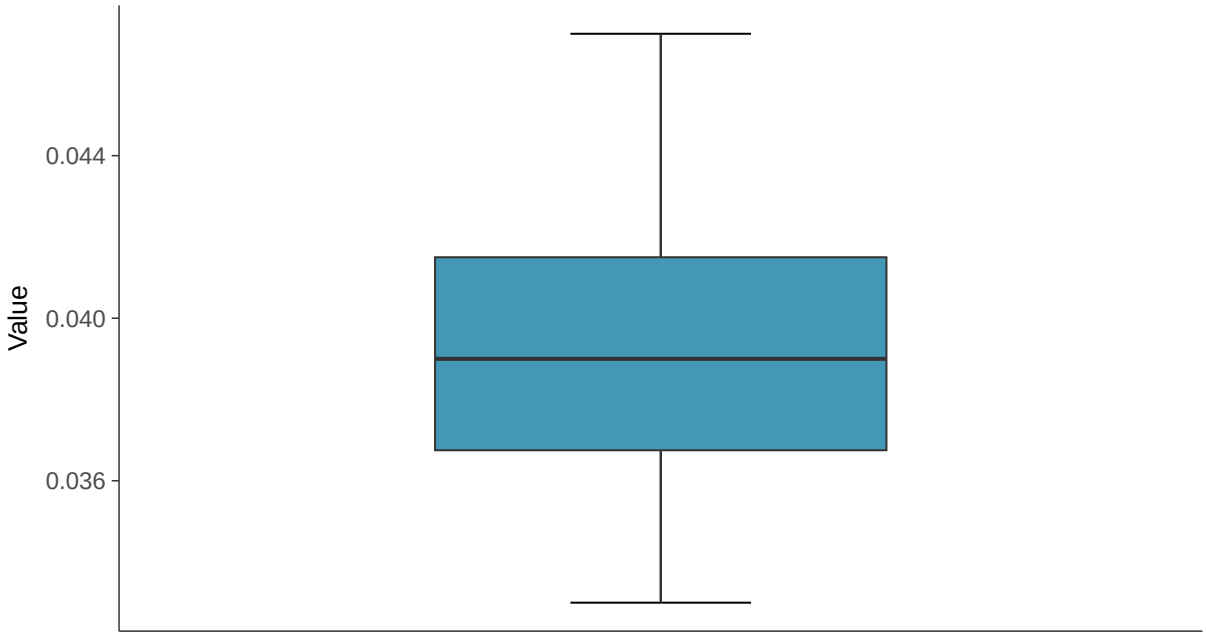
ID: 10_2_10





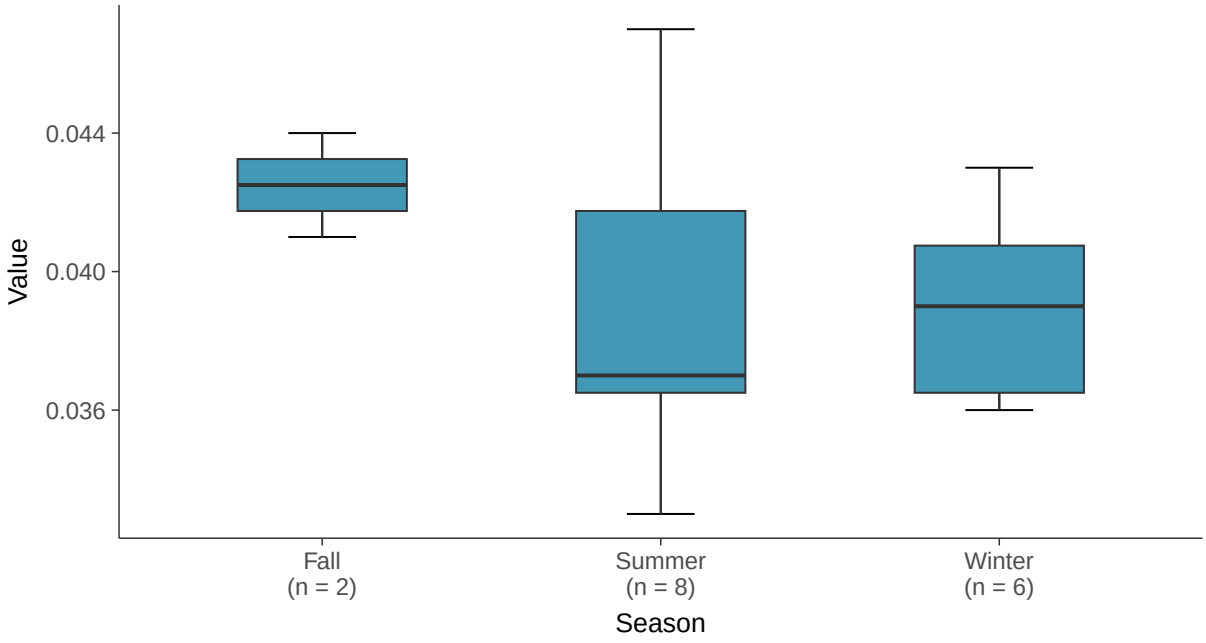
Boxplot

Barium, MW-10 (mg/L)



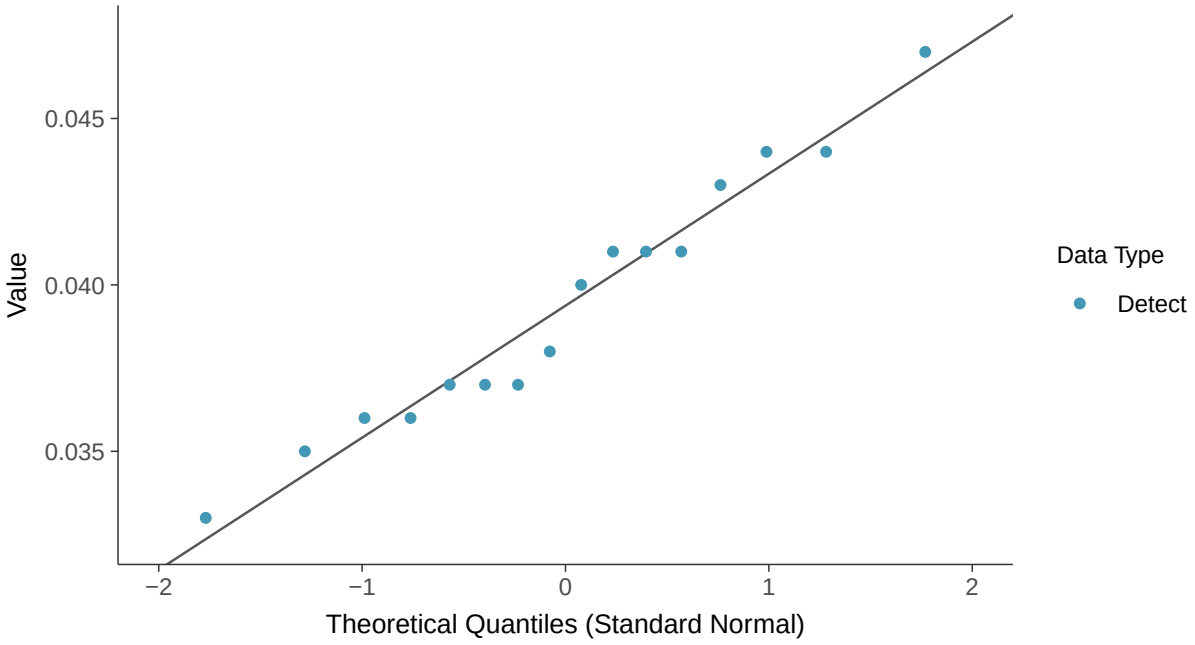
Boxplot by Season

Barium, MW-10 (mg/L)



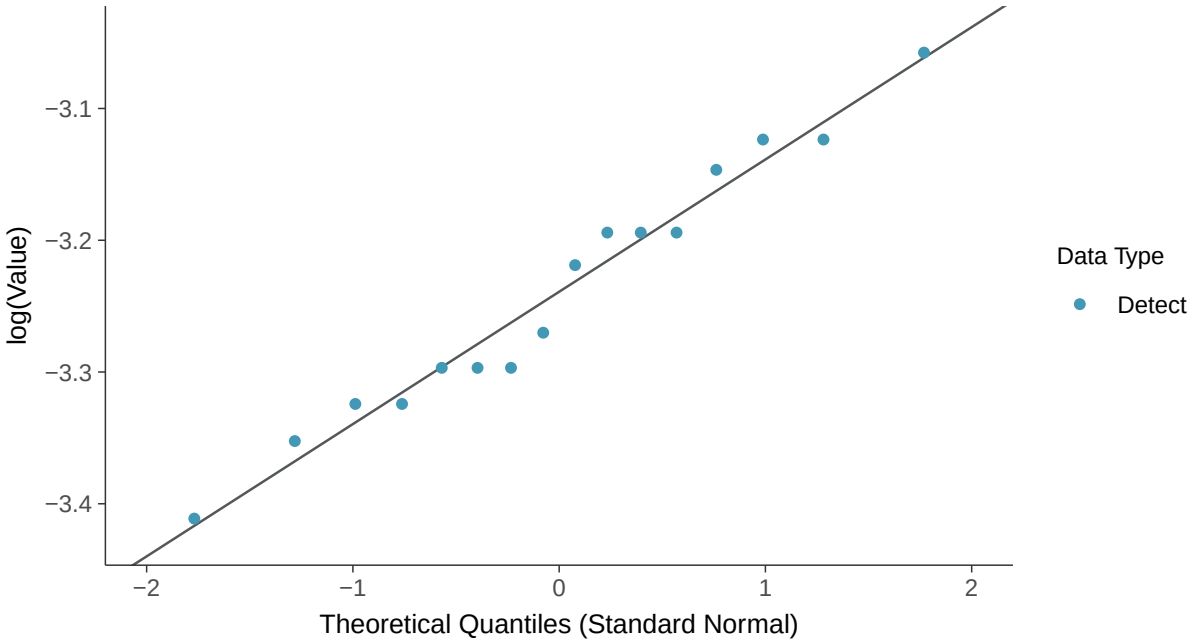
Normal Q-Q plot

Barium, MW-10 (mg/L)



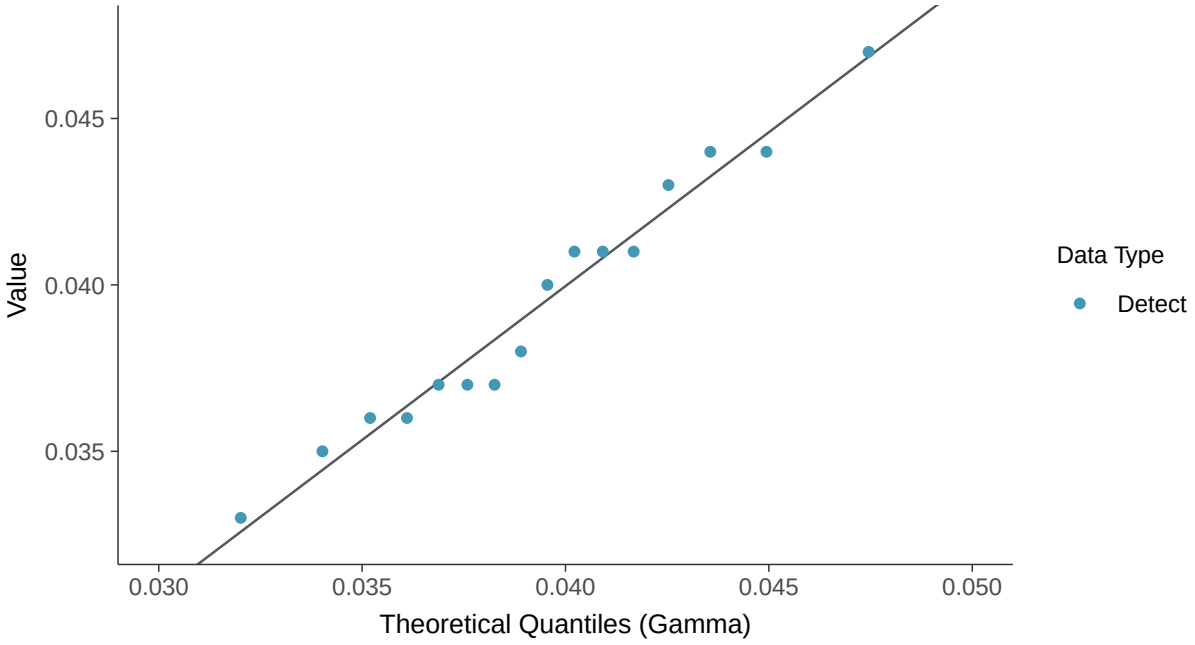
Lognormal Q-Q plot

Barium, MW-10 (mg/L)



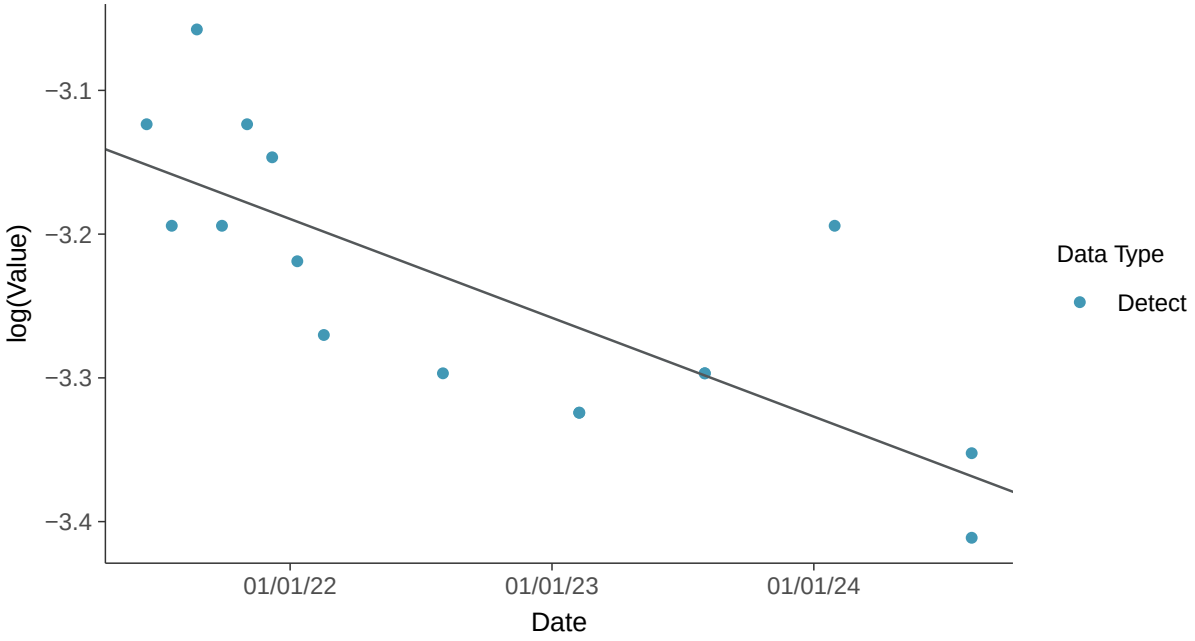
Gamma Q-Q plot

Barium, MW-10 (mg/L)



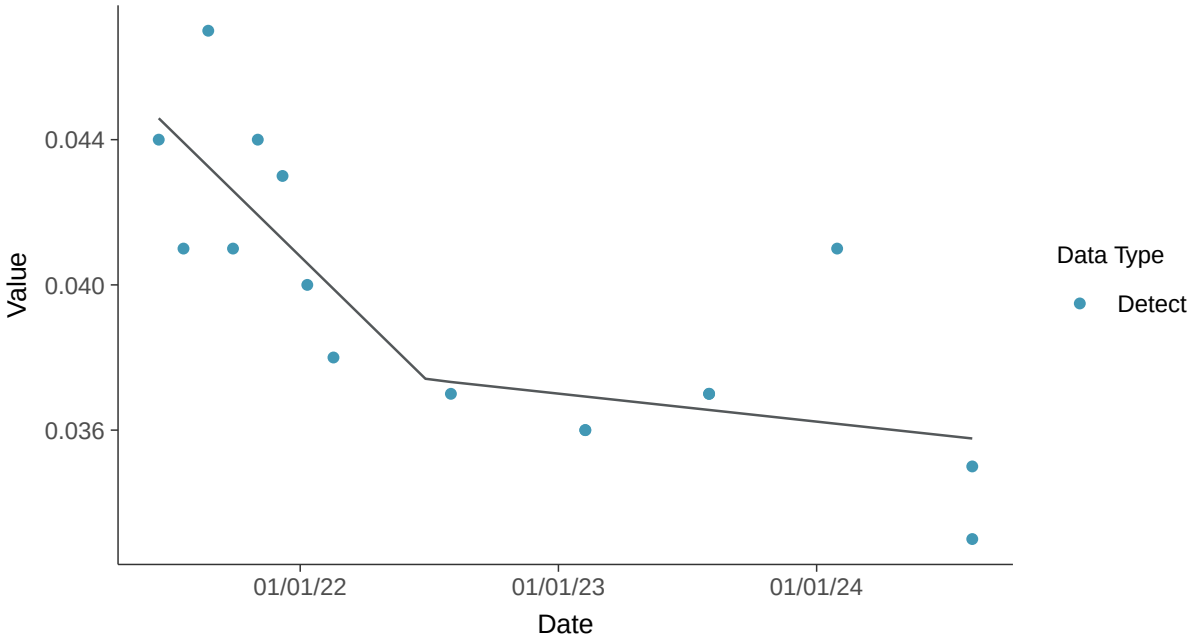
Trend Regression: Lognormal MLE

Barium, MW-10 (mg/L)



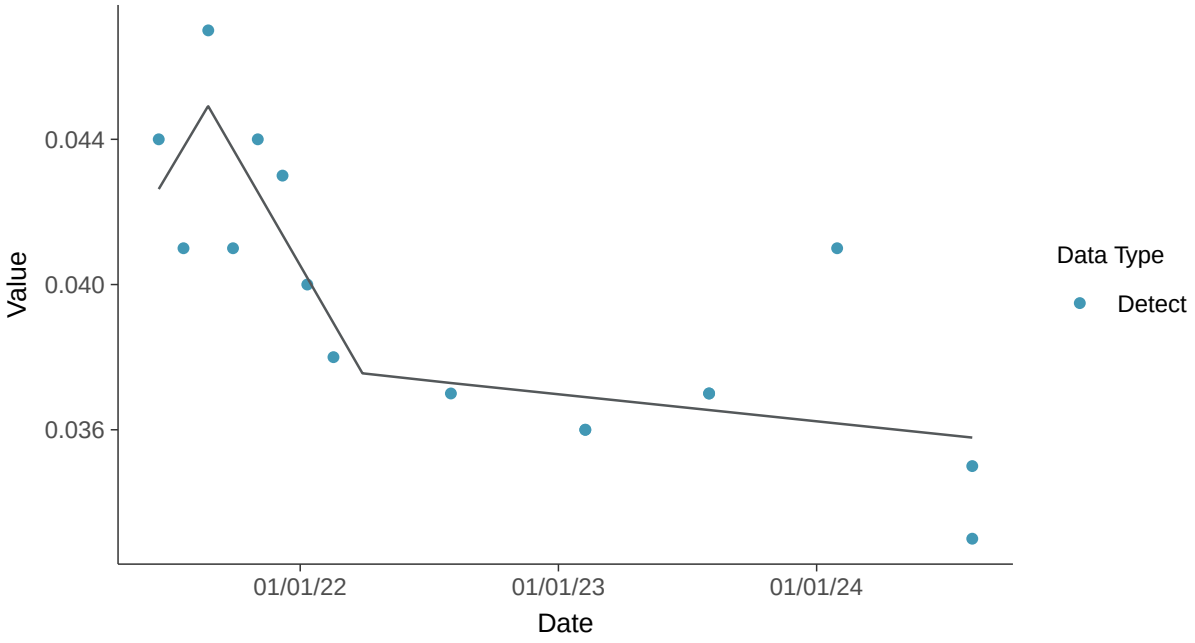
Trend Regression: Piecewise Linear-Linear

Barium, MW-10 (mg/L)



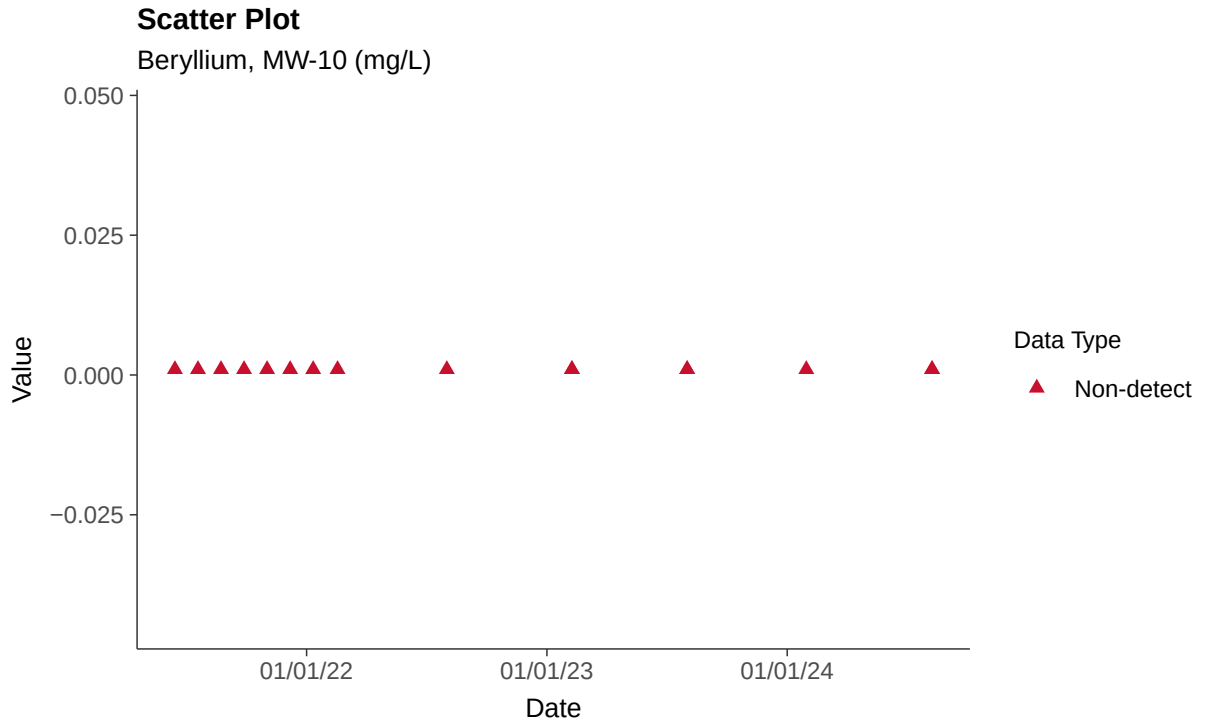
Trend Regression: Piecewise Linear-Linear-Linear

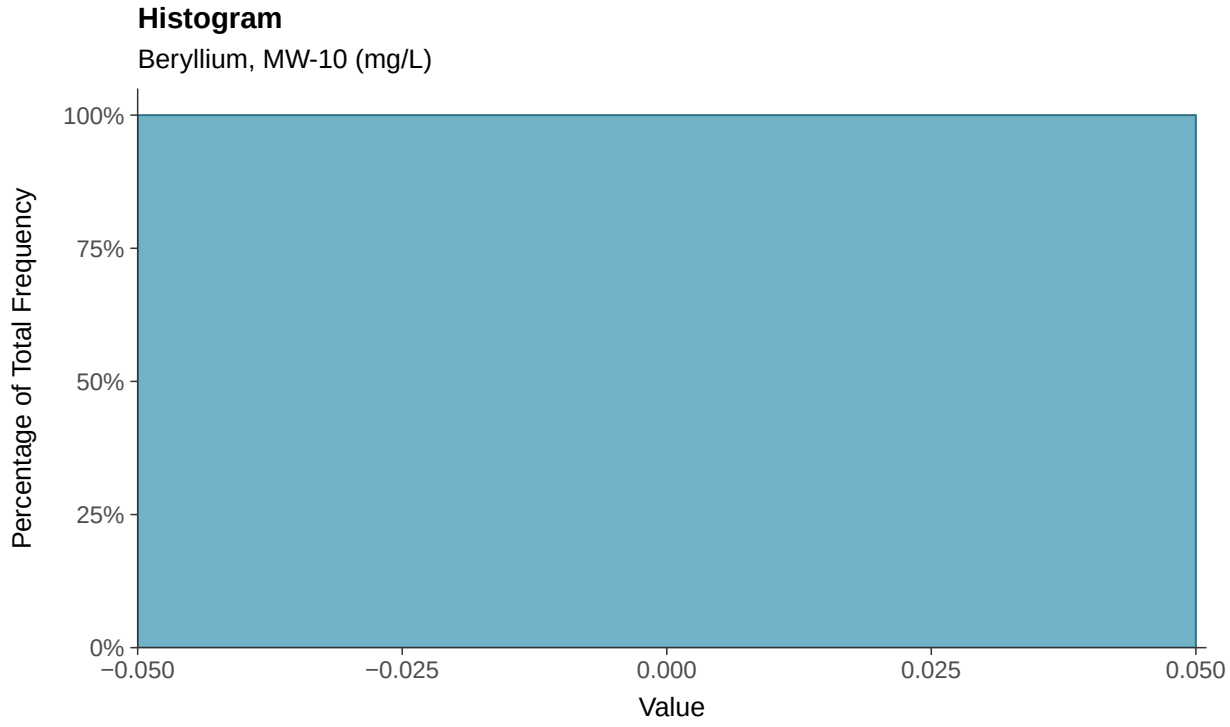
Barium, MW-10 (mg/L)



Appendix IV: Beryllium, MW-10

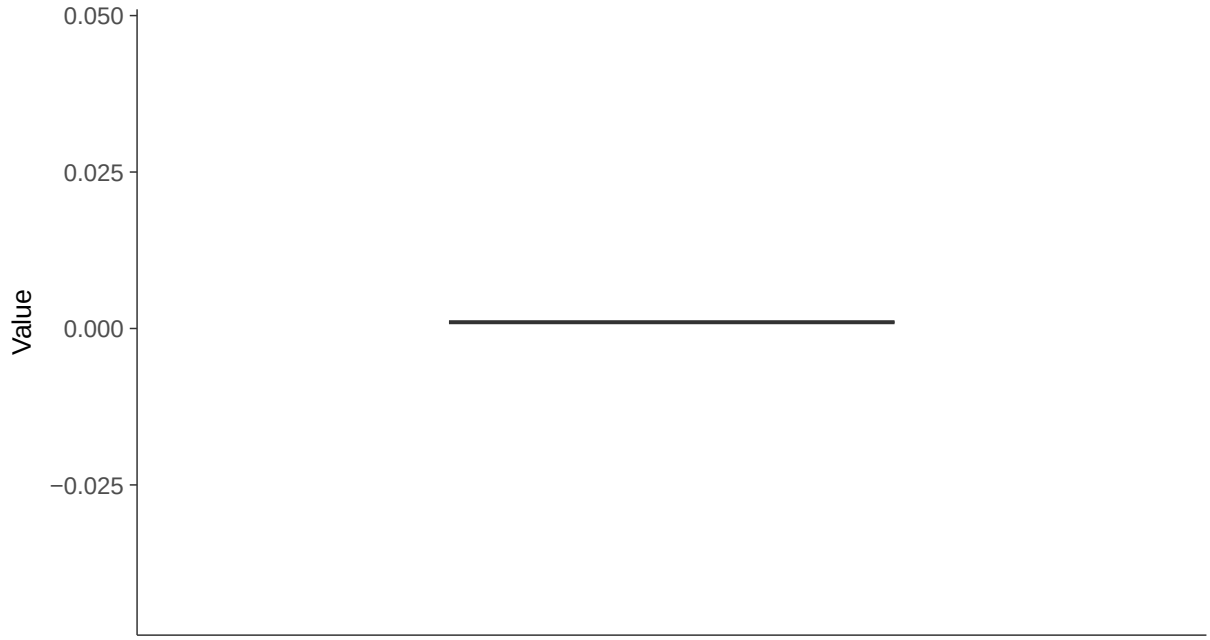
ID: 10_2_11





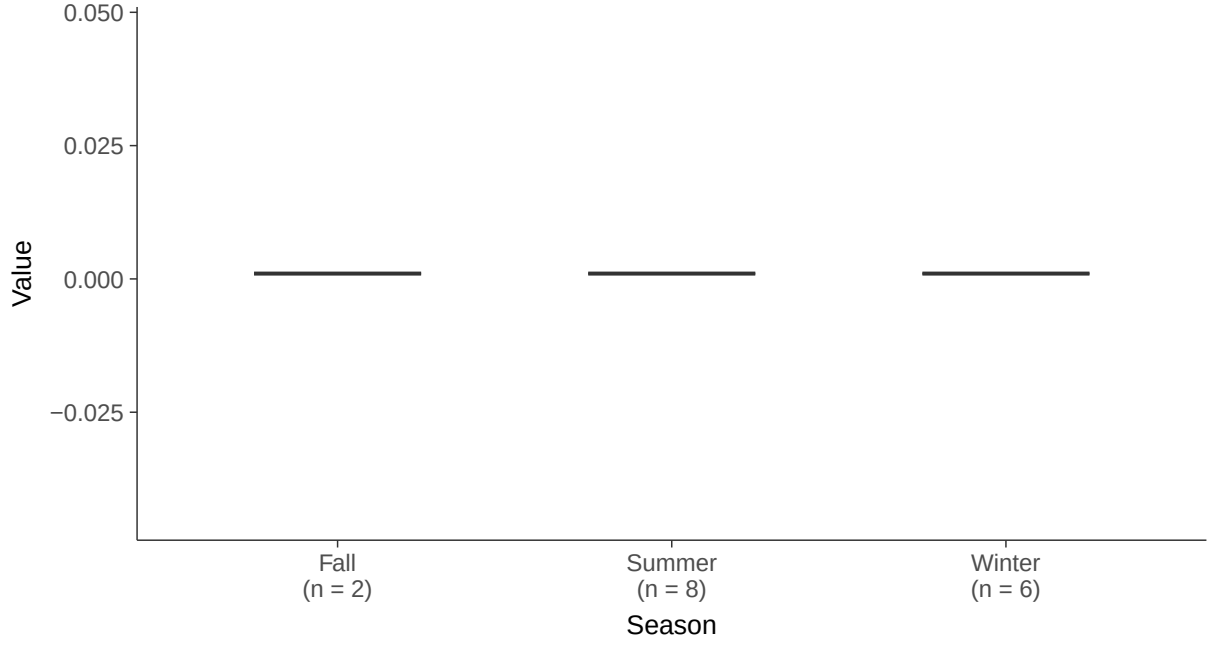
Boxplot

Beryllium, MW-10 (mg/L)



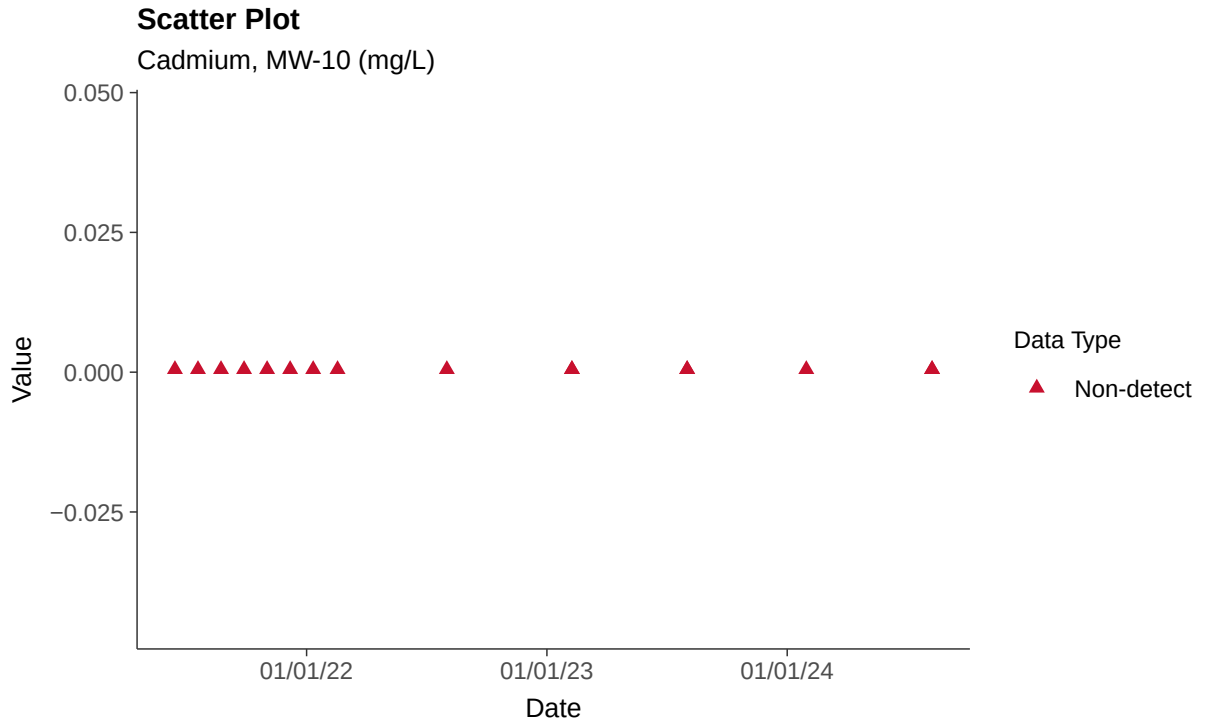
Boxplot by Season

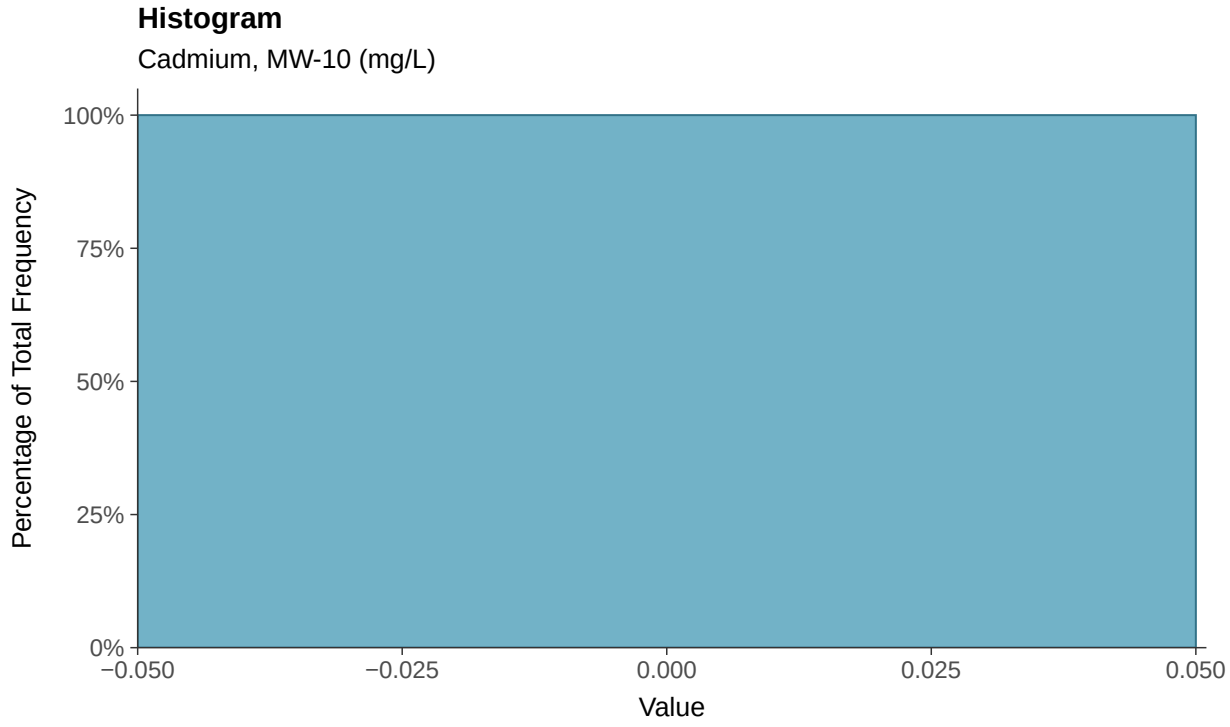
Beryllium, MW-10 (mg/L)



Appendix IV: Cadmium, MW-10

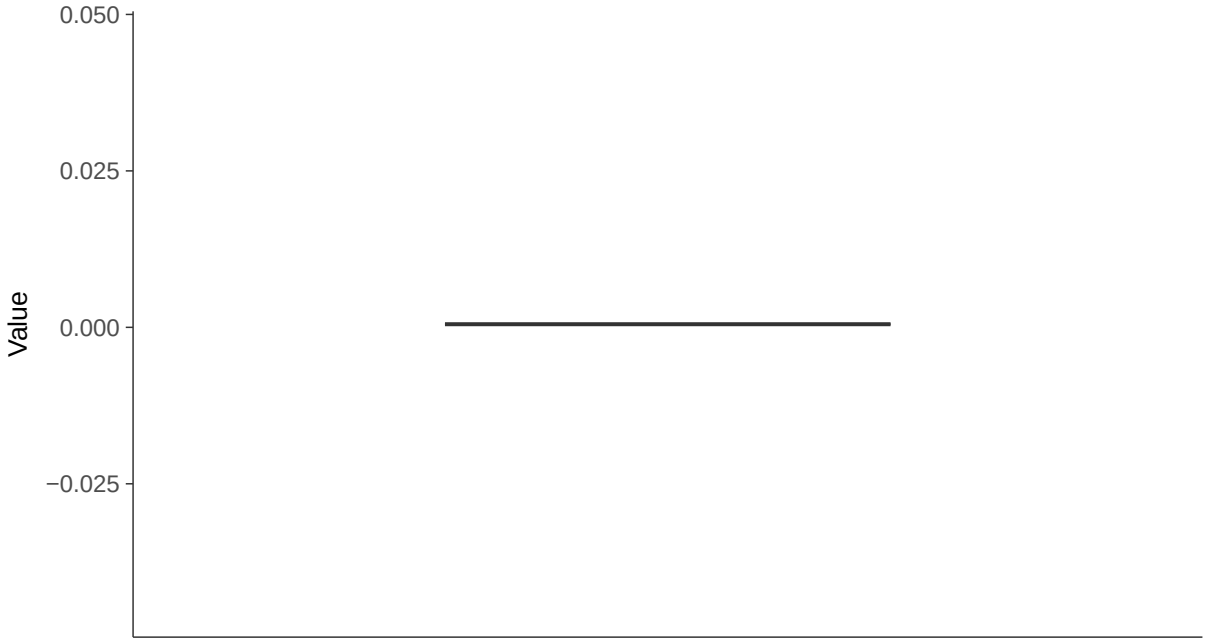
ID: 10_2_12





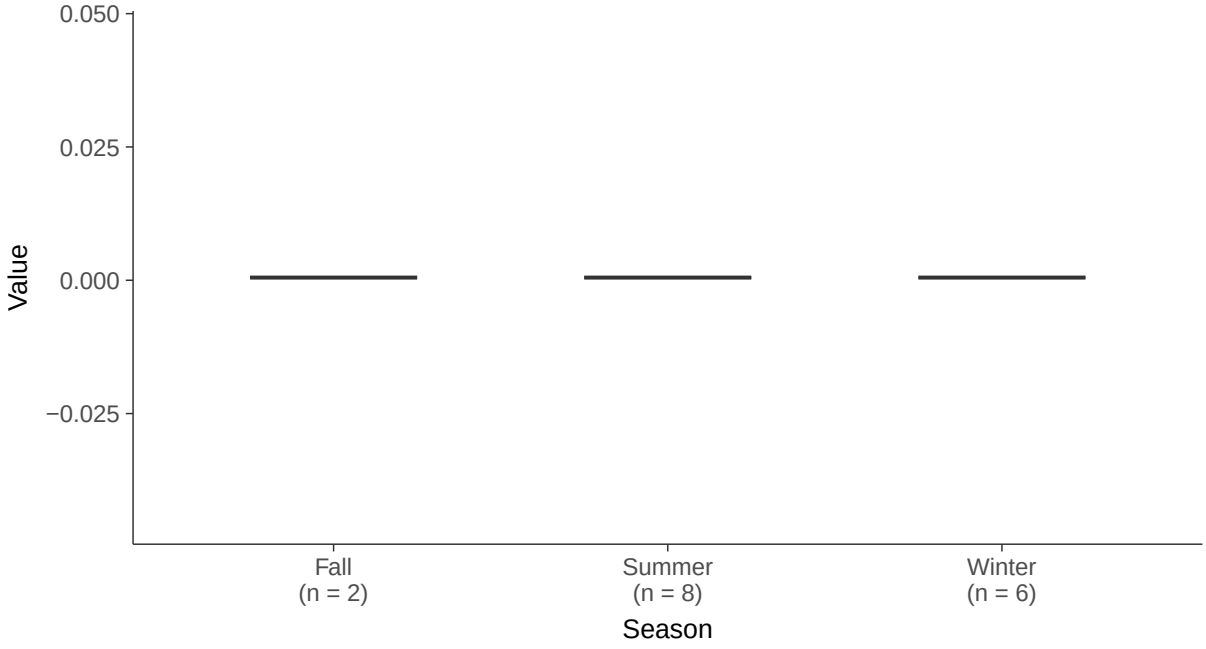
Boxplot

Cadmium, MW-10 (mg/L)



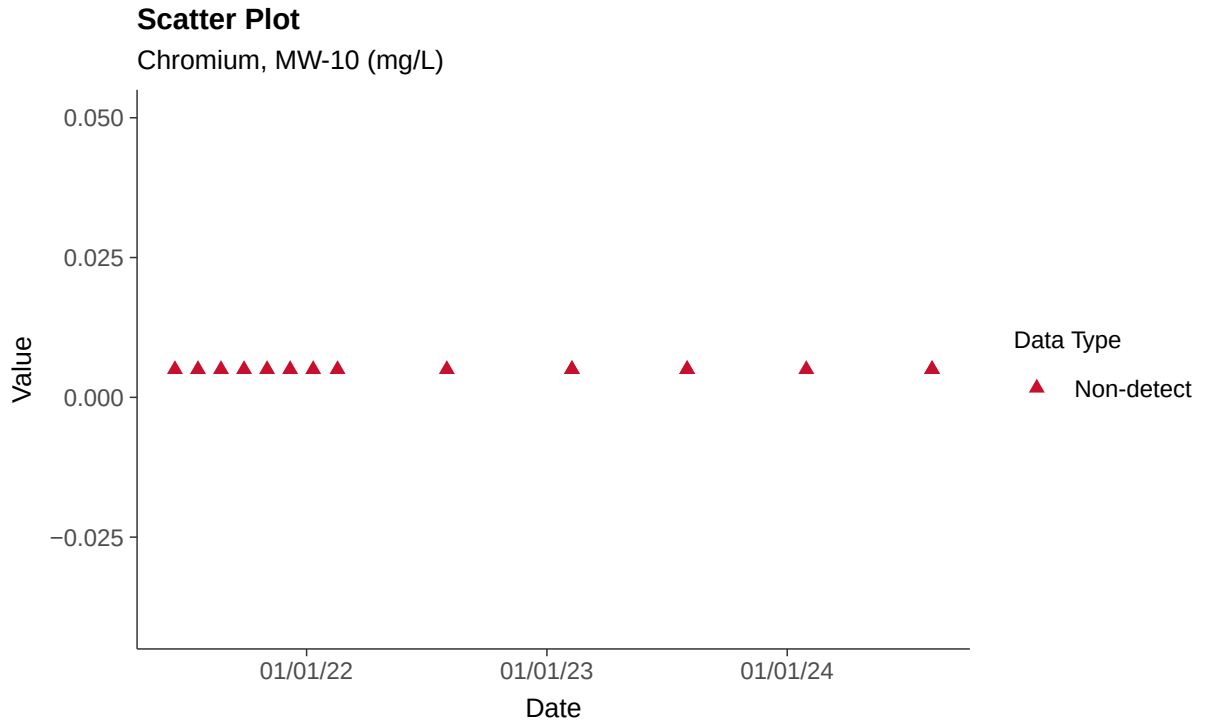
Boxplot by Season

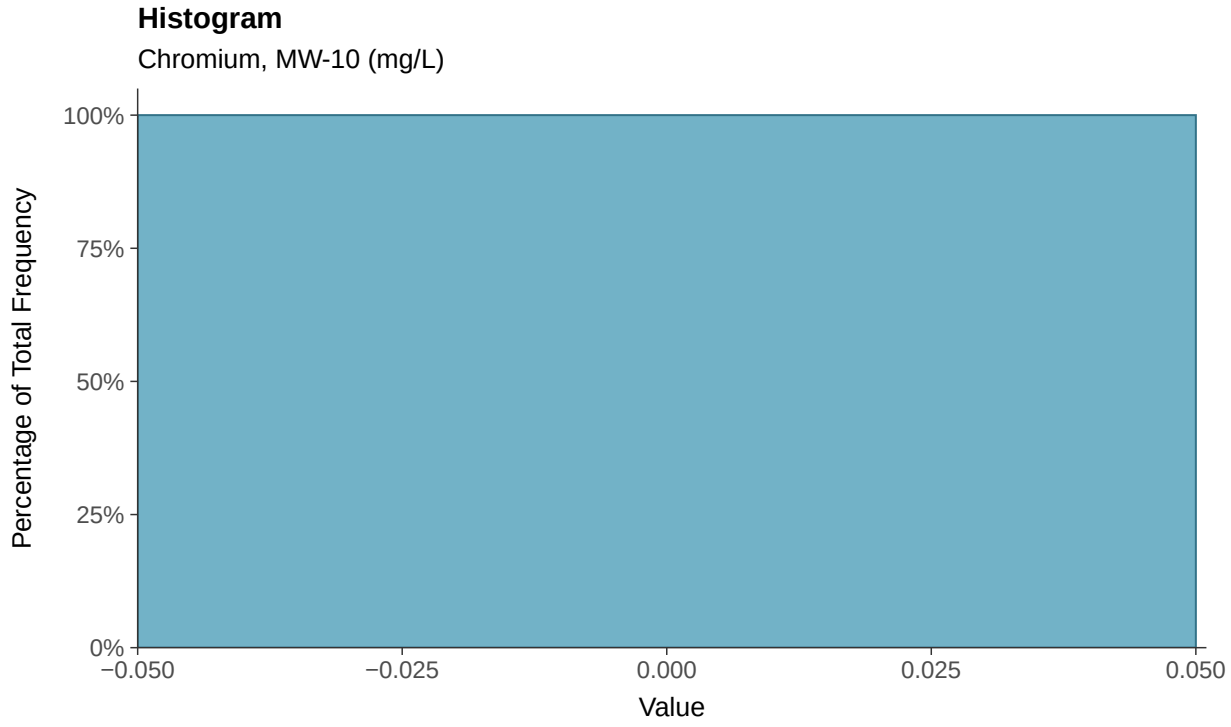
Cadmium, MW-10 (mg/L)



Appendix IV: Chromium, MW-10

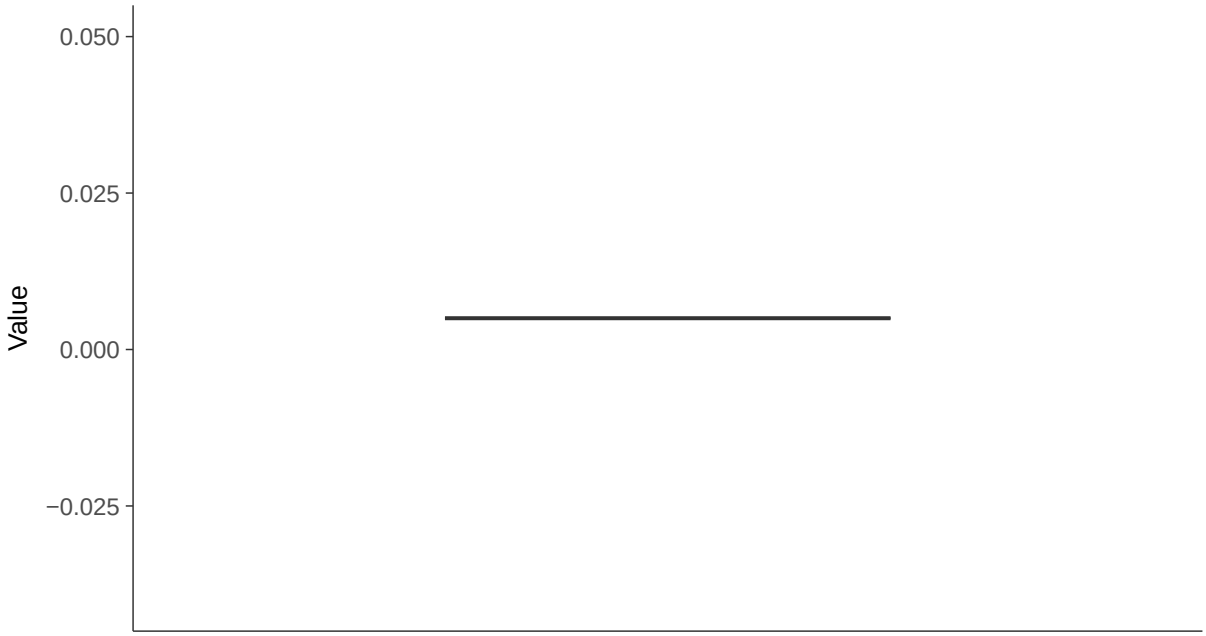
ID: 10_2_13





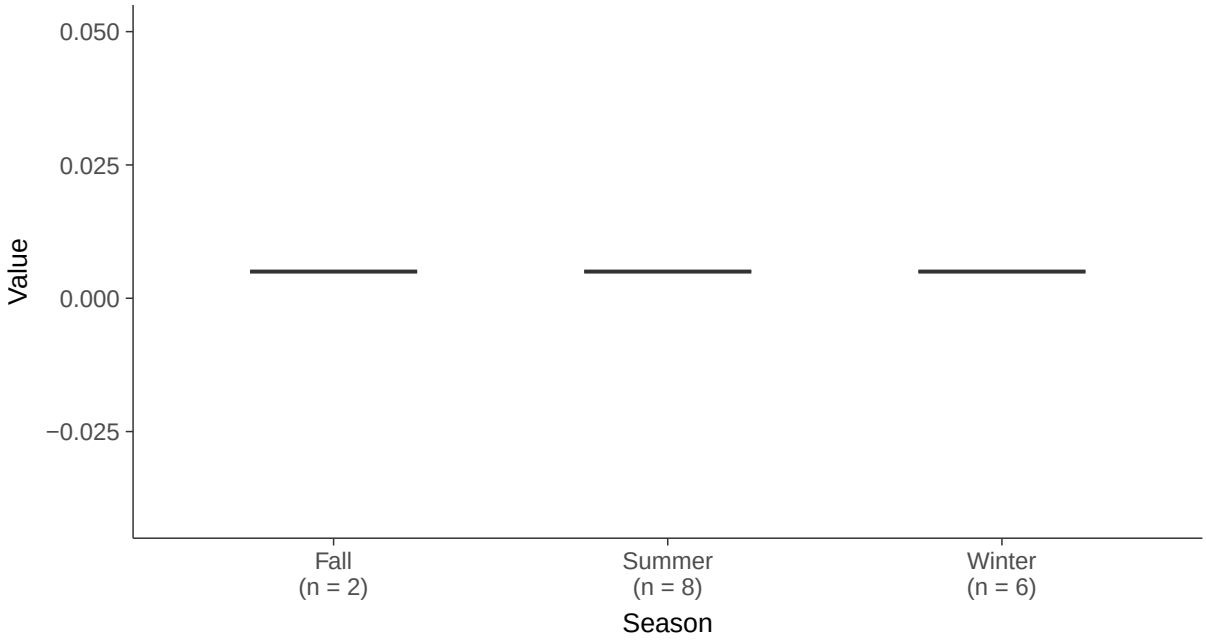
Boxplot

Chromium, MW-10 (mg/L)



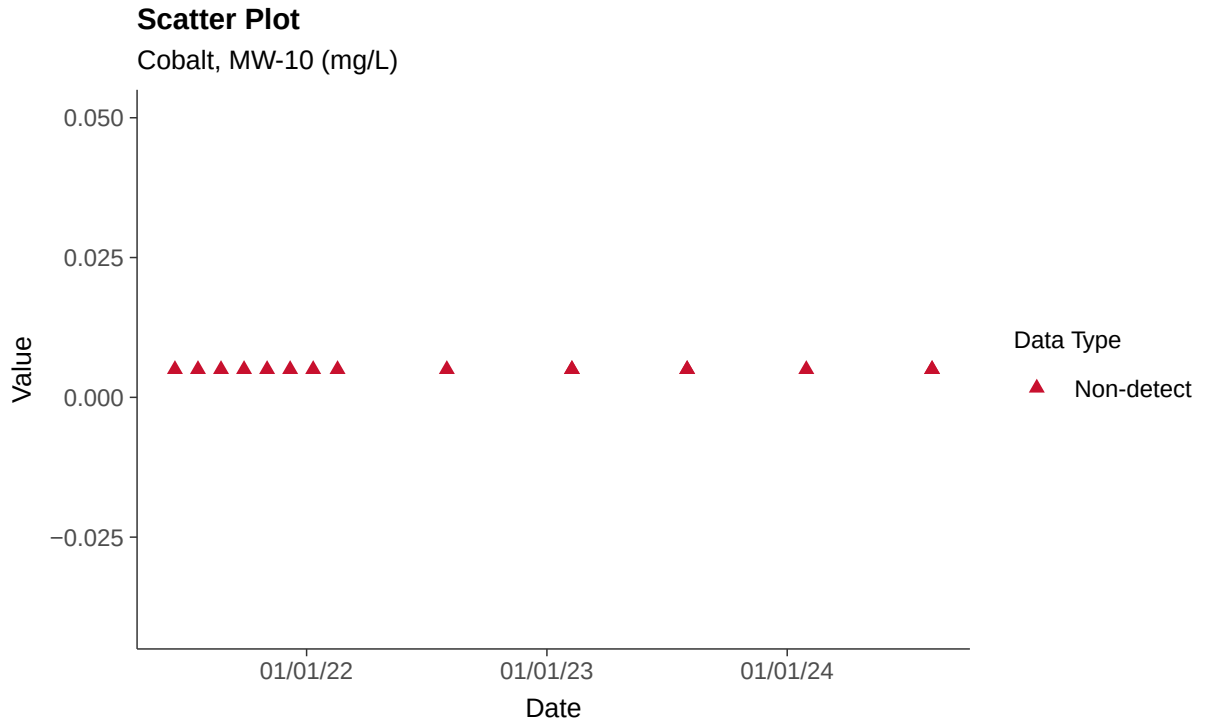
Boxplot by Season

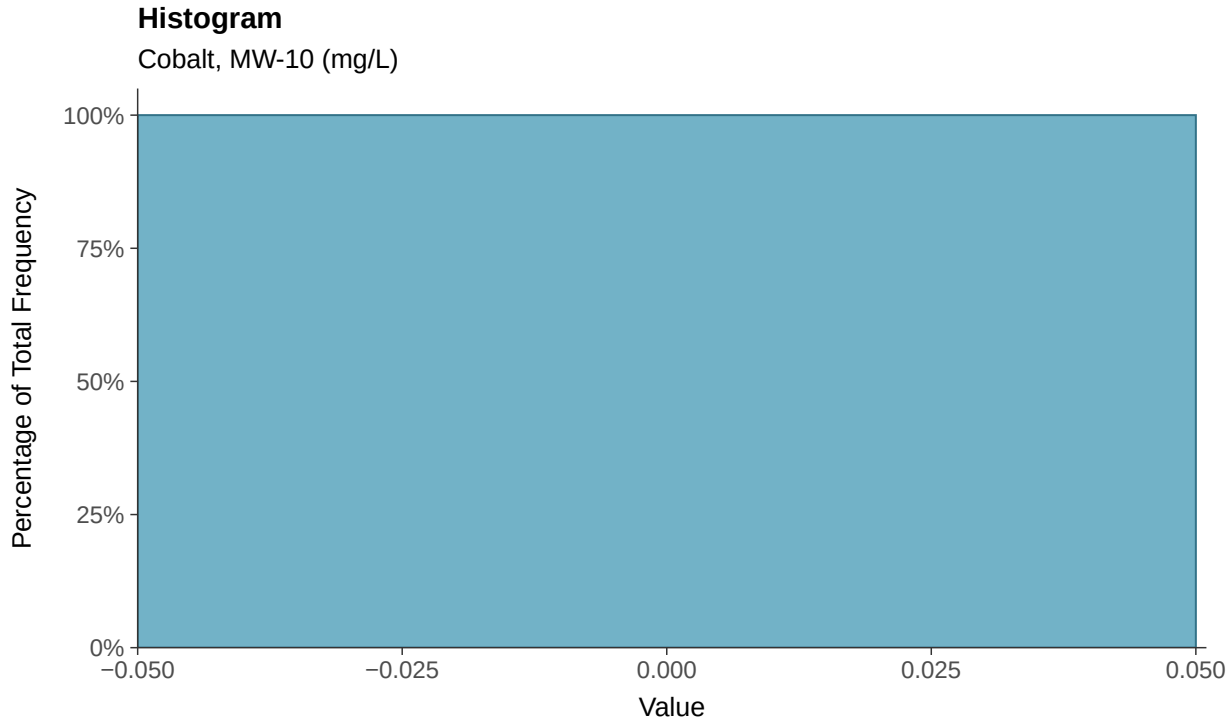
Chromium, MW-10 (mg/L)



Appendix IV: Cobalt, MW-10

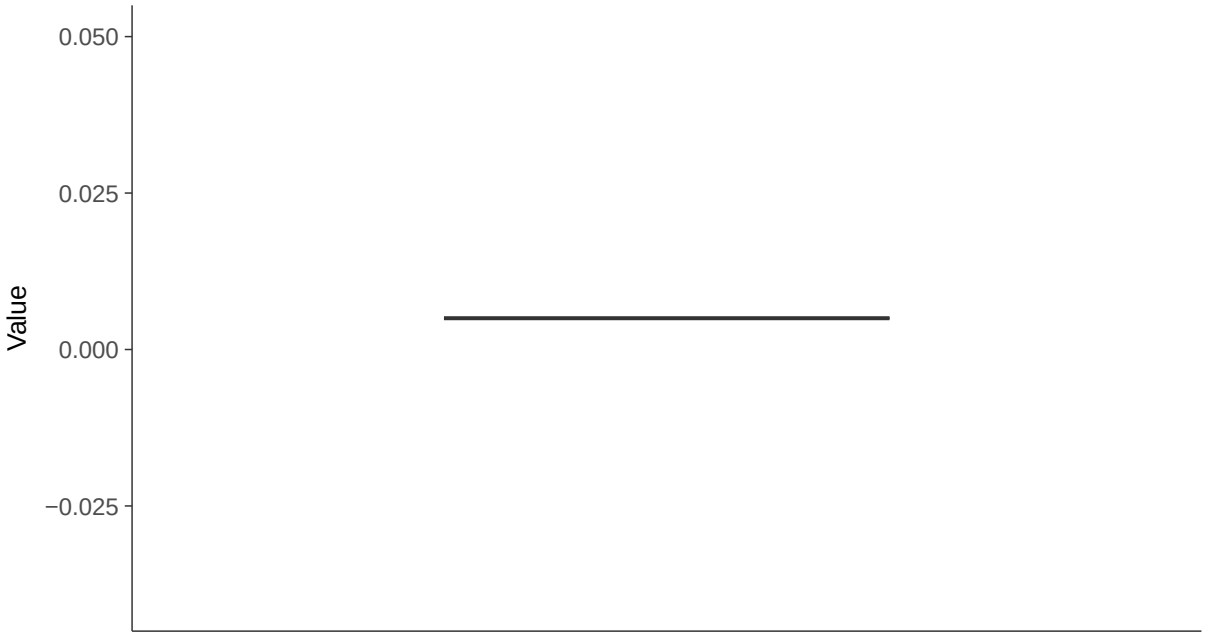
ID: 10_2_14





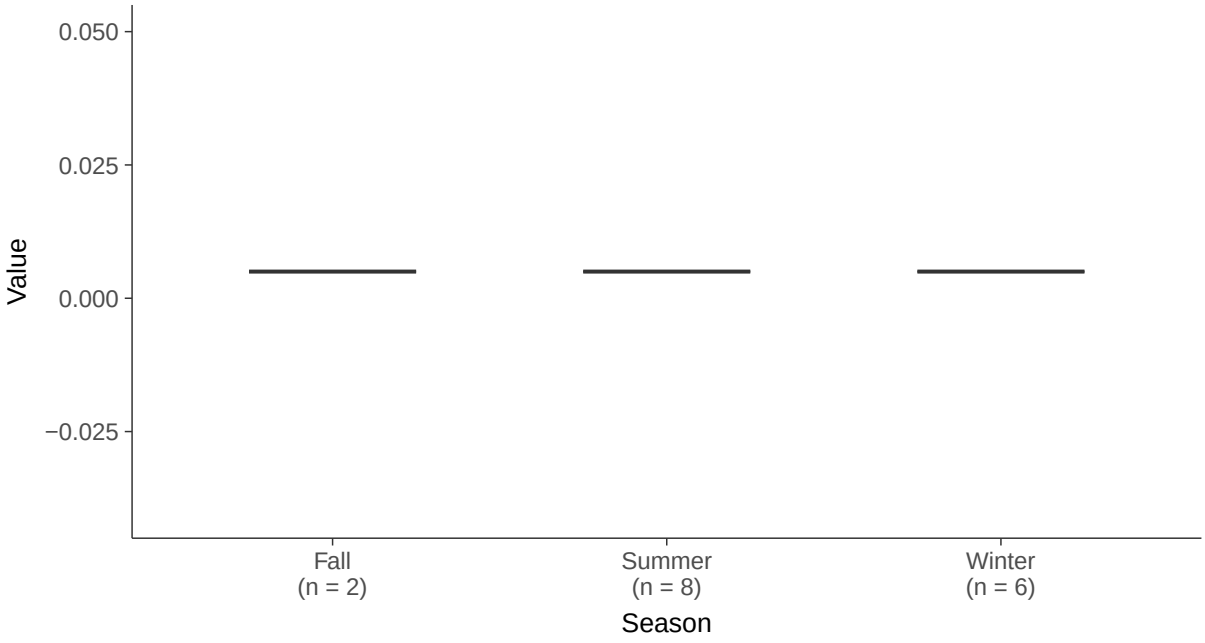
Boxplot

Cobalt, MW-10 (mg/L)



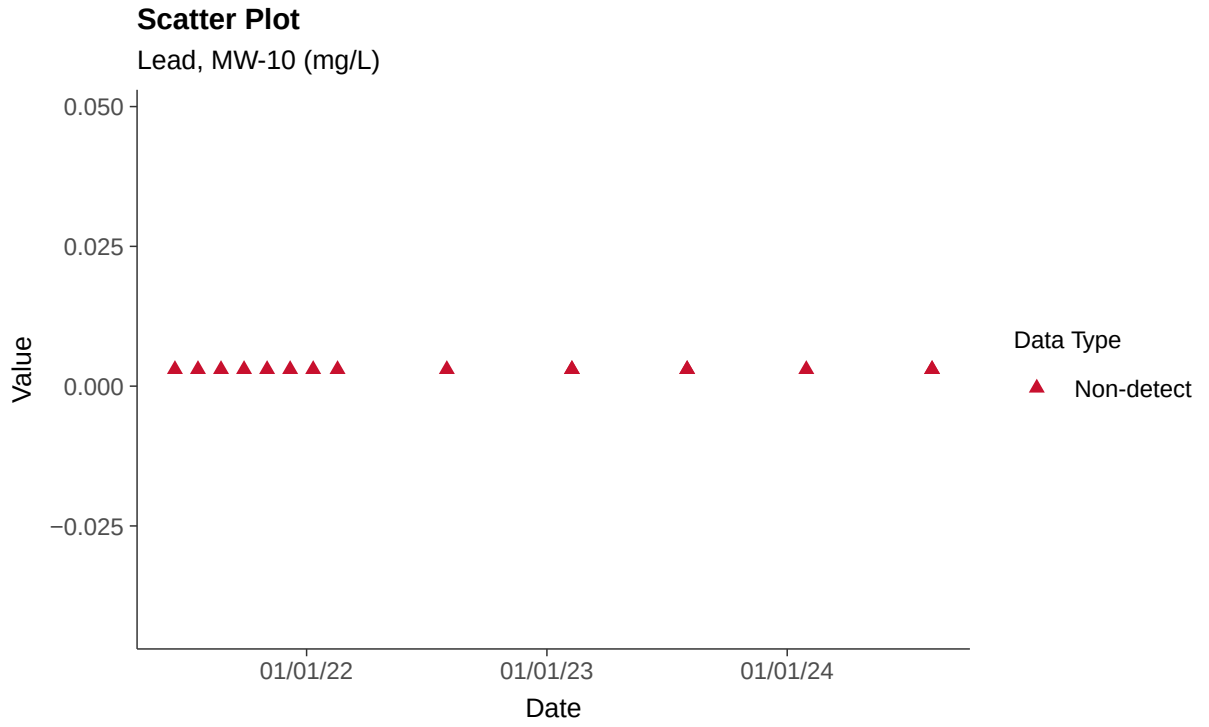
Boxplot by Season

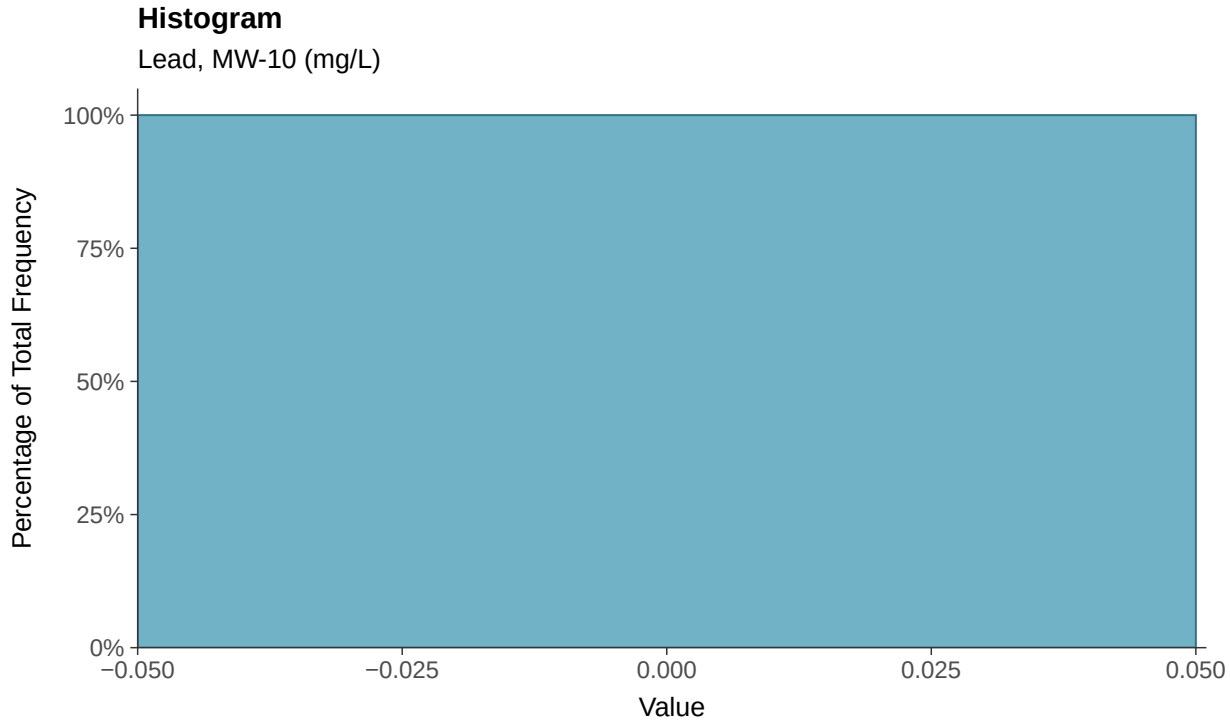
Cobalt, MW-10 (mg/L)



Appendix IV: Lead, MW-10

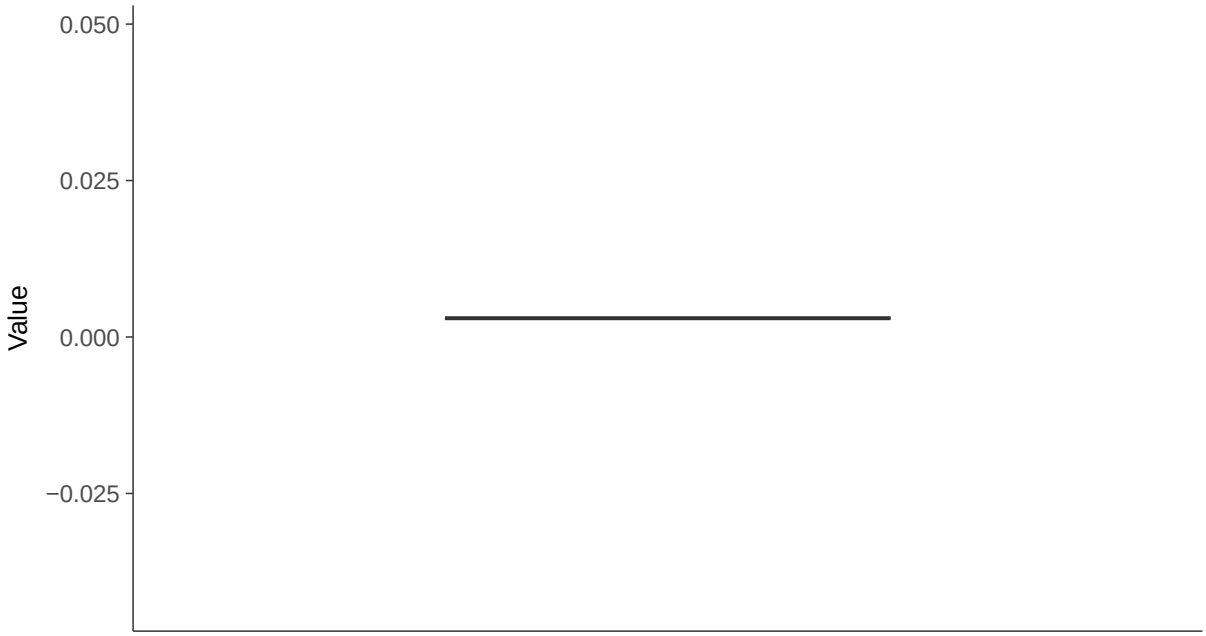
ID: 10_2_15





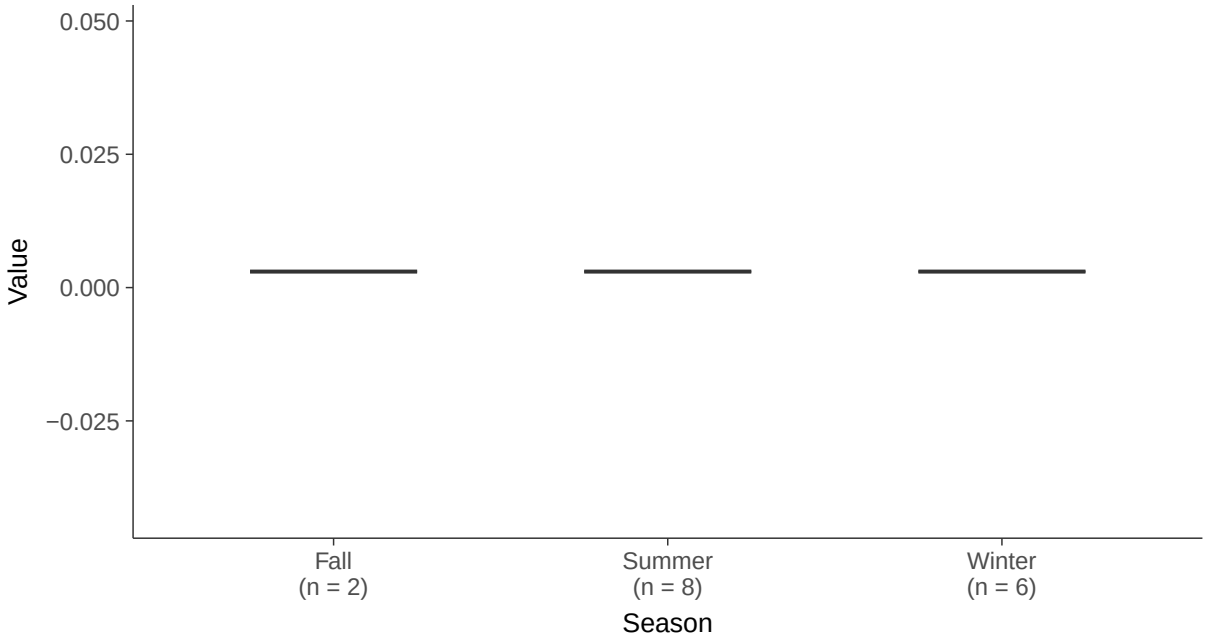
Boxplot

Lead, MW-10 (mg/L)



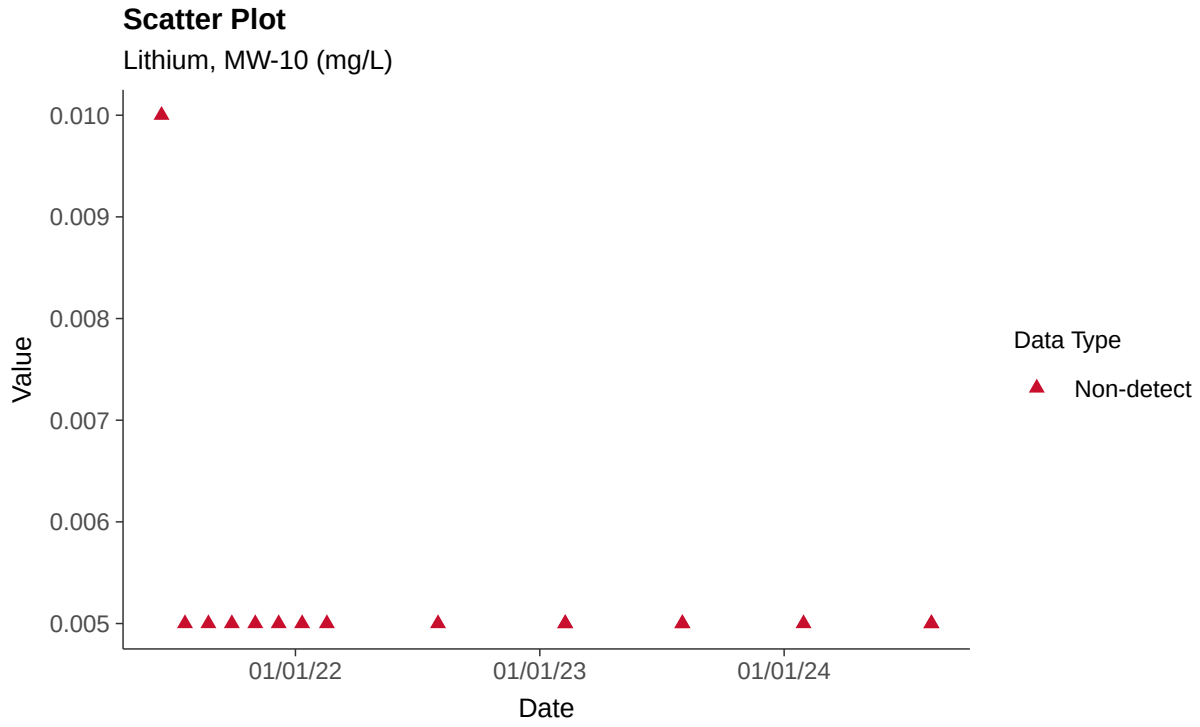
Boxplot by Season

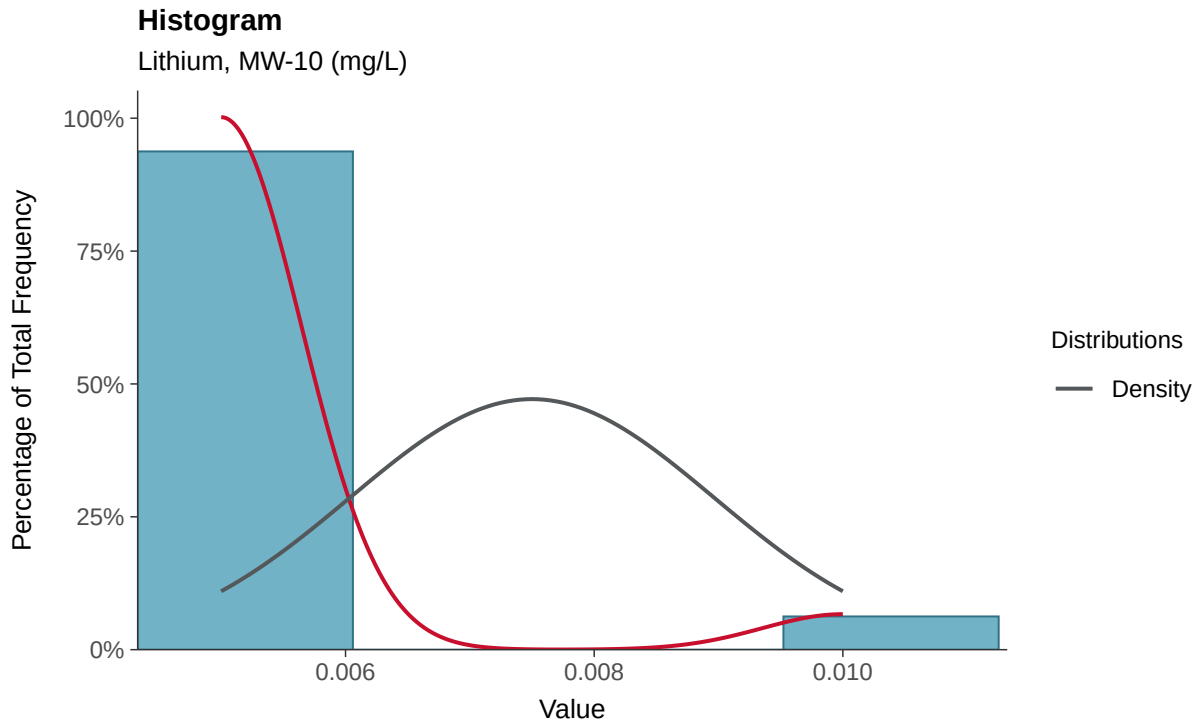
Lead, MW-10 (mg/L)



Appendix IV: Lithium, MW-10

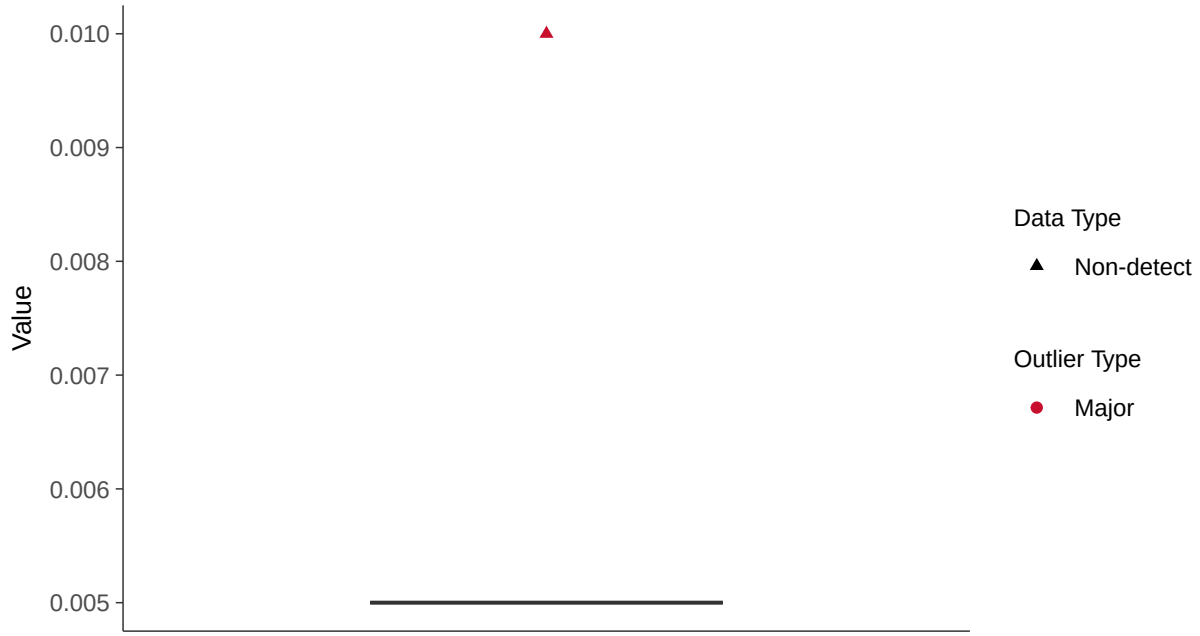
ID: 10_2_16





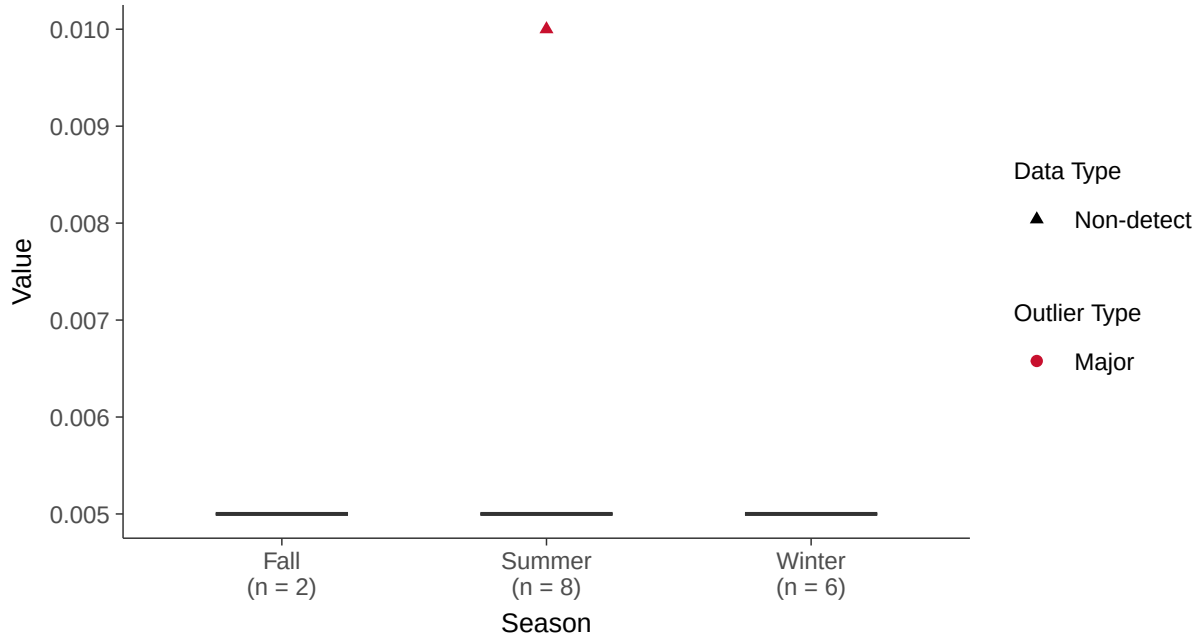
Boxplot

Lithium, MW-10 (mg/L)



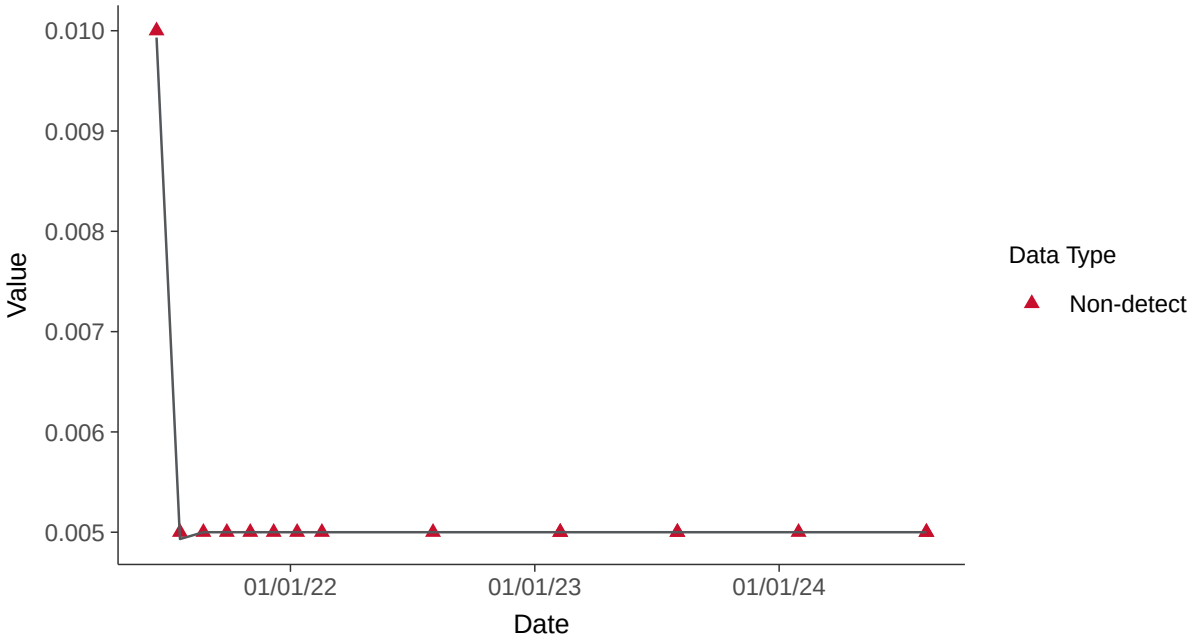
Boxplot by Season

Lithium, MW-10 (mg/L)



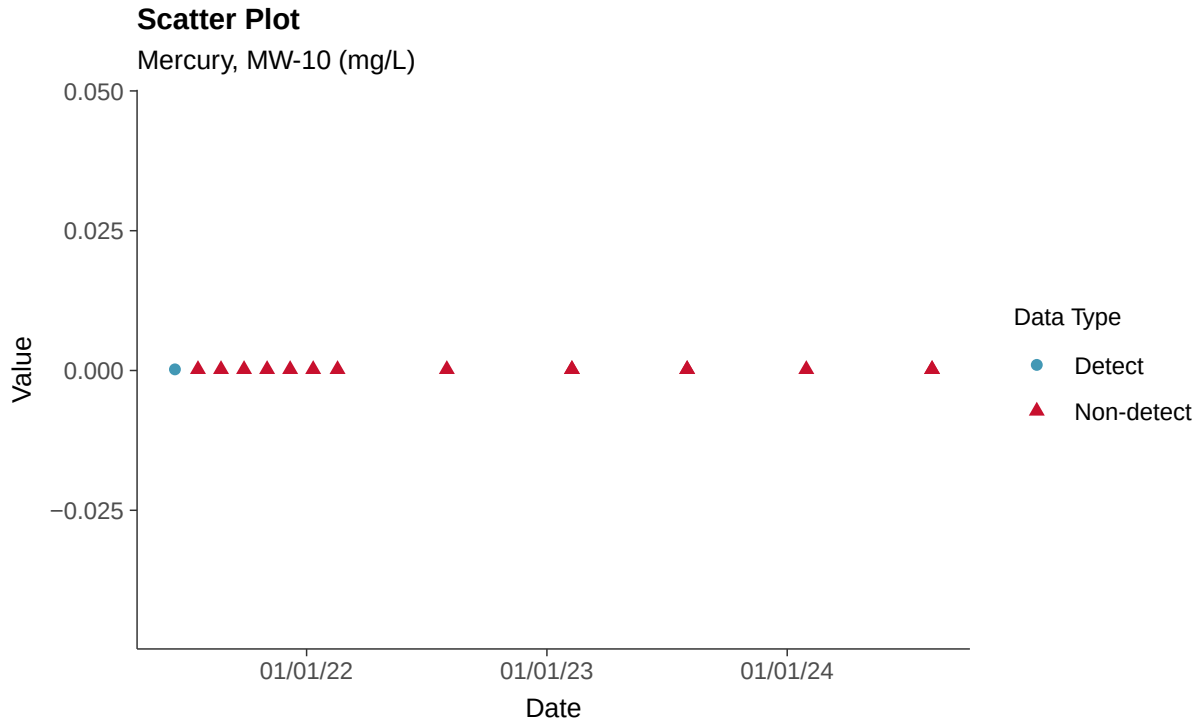
Trend Regression: Piecewise Linear-Linear

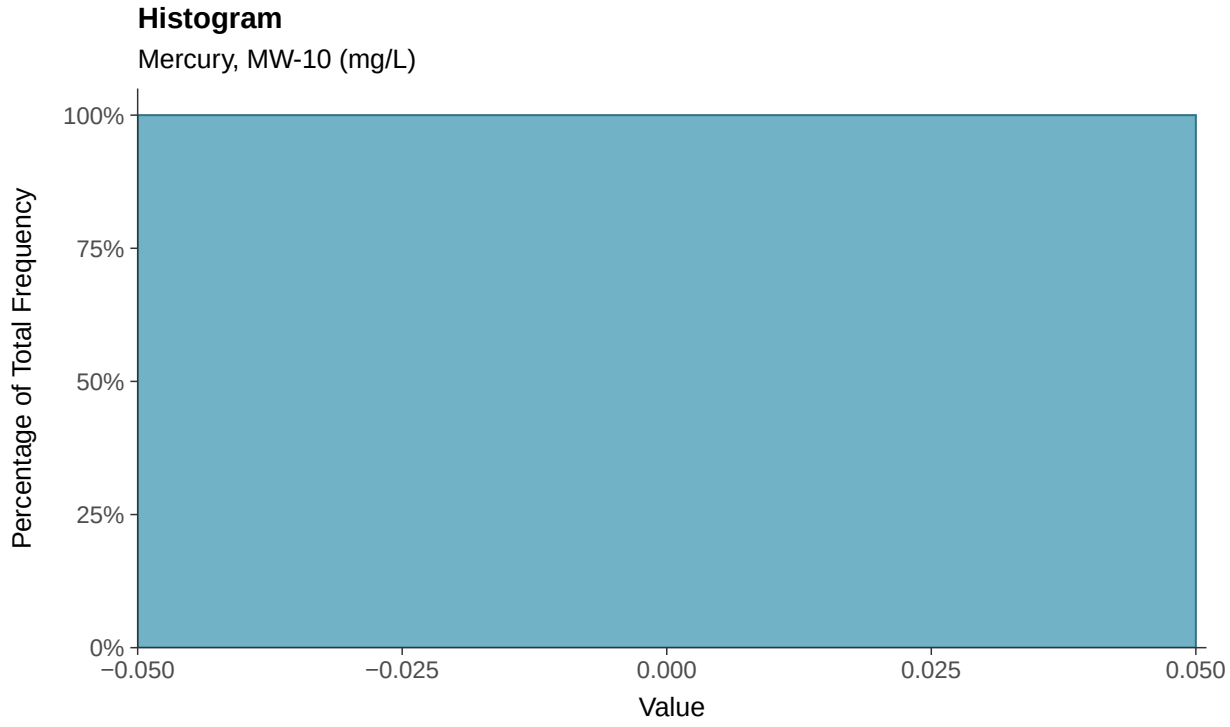
Lithium, MW-10 (mg/L)



Appendix IV: Mercury, MW-10

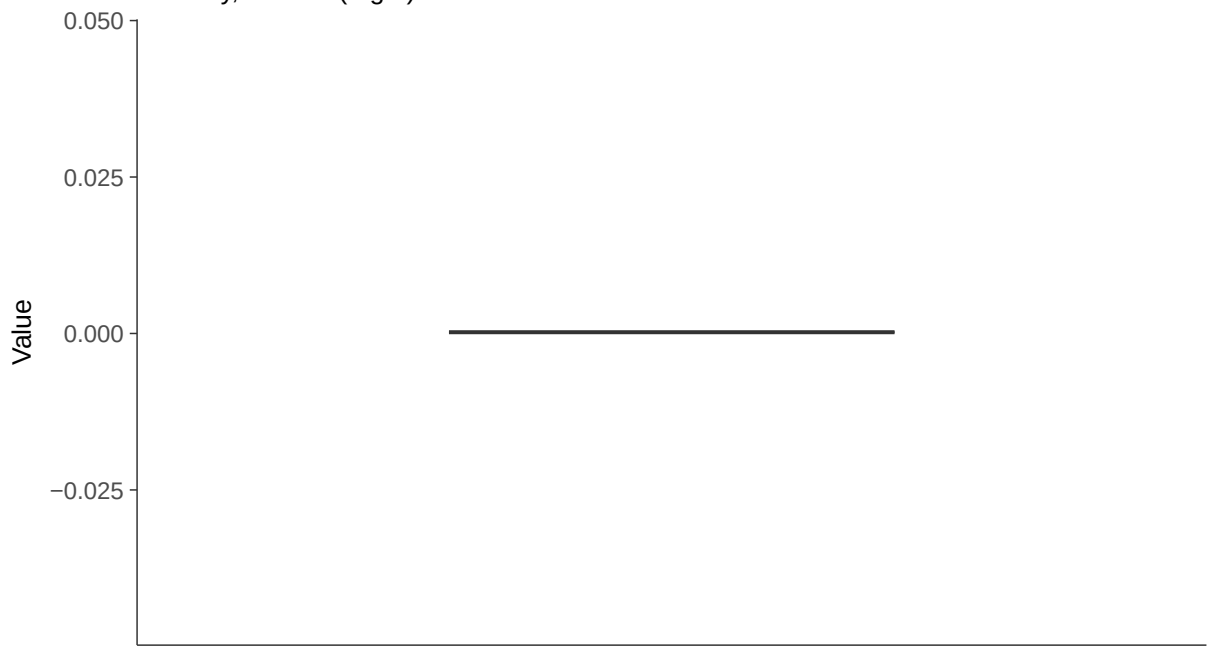
ID: 10_2_17





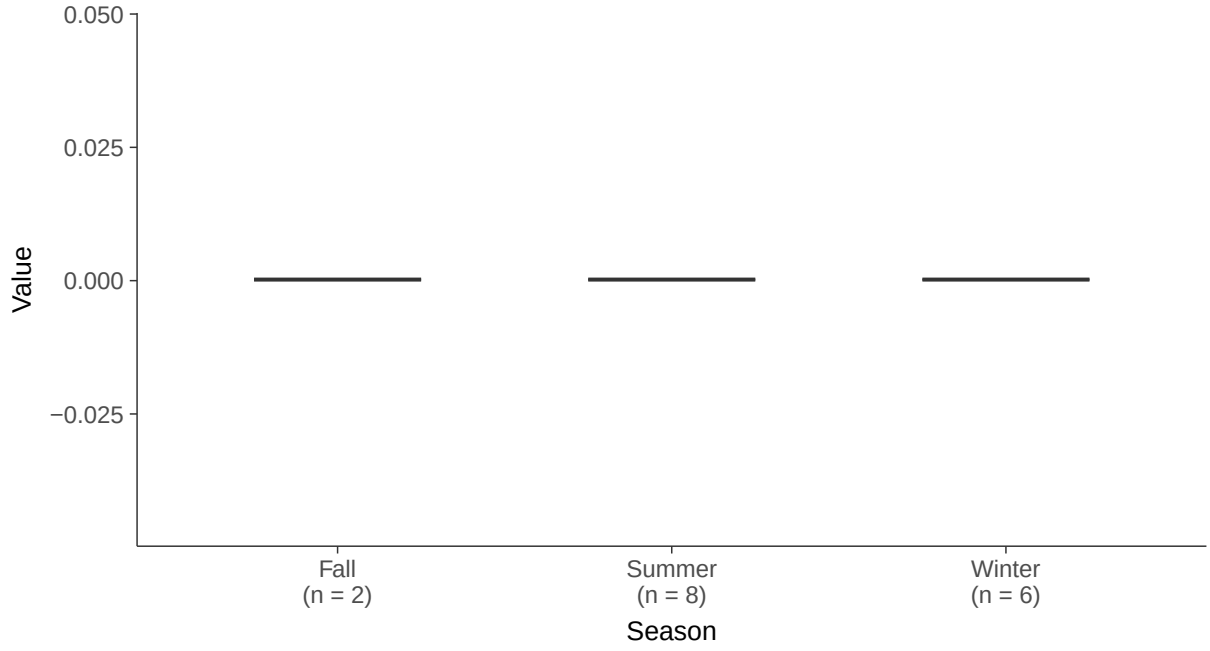
Boxplot

Mercury, MW-10 (mg/L)



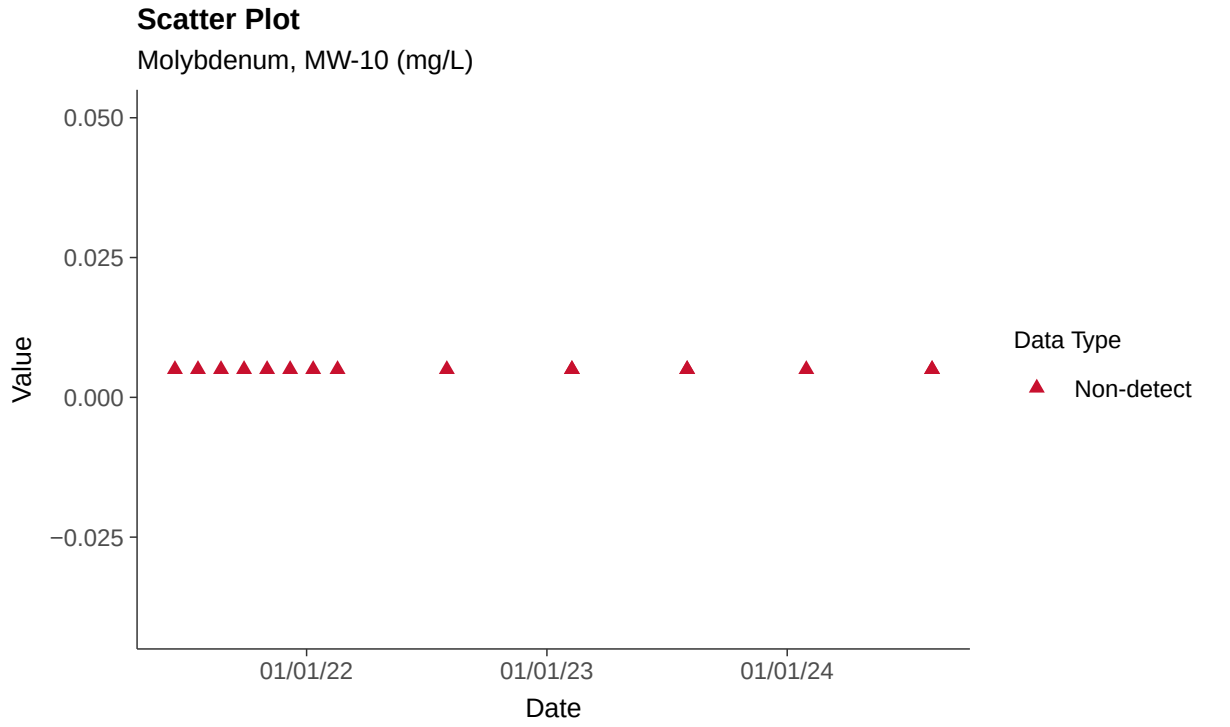
Boxplot by Season

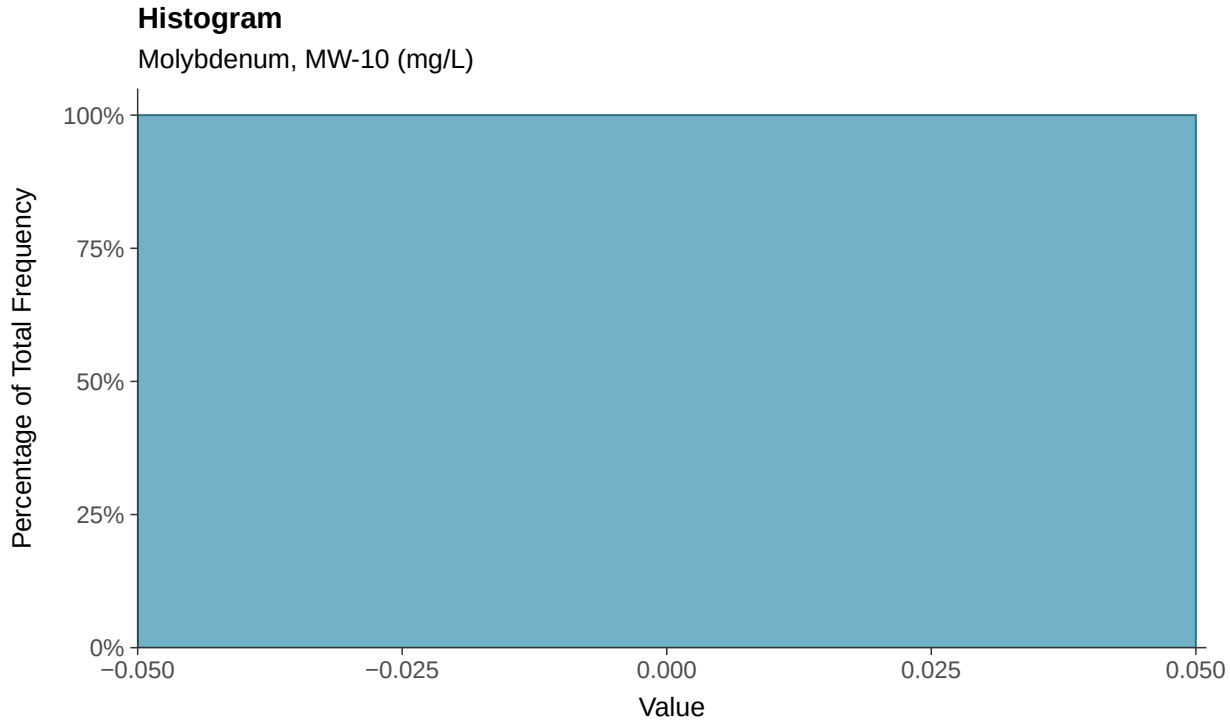
Mercury, MW-10 (mg/L)



Appendix IV: Molybdenum, MW-10

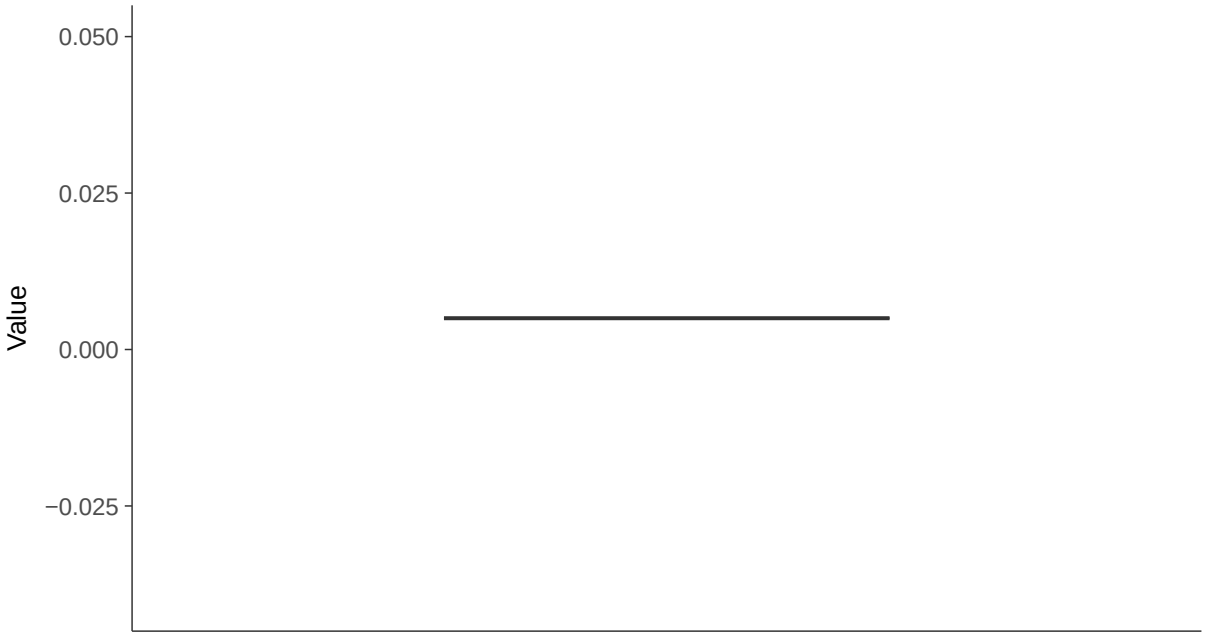
ID: 10_2_18





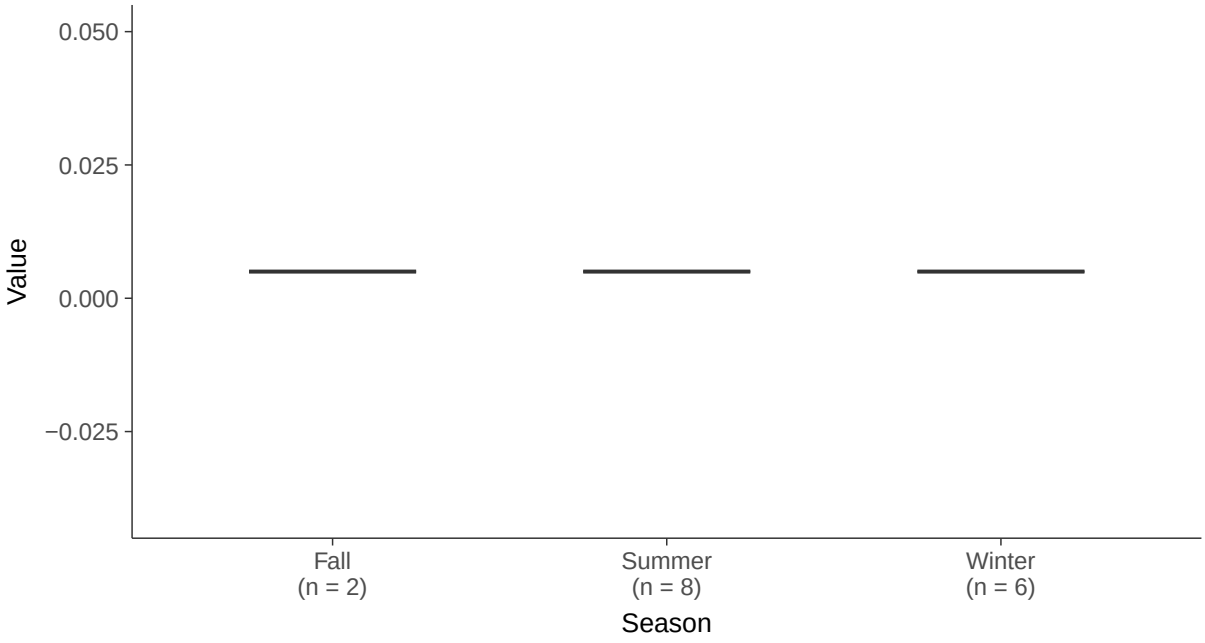
Boxplot

Molybdenum, MW-10 (mg/L)



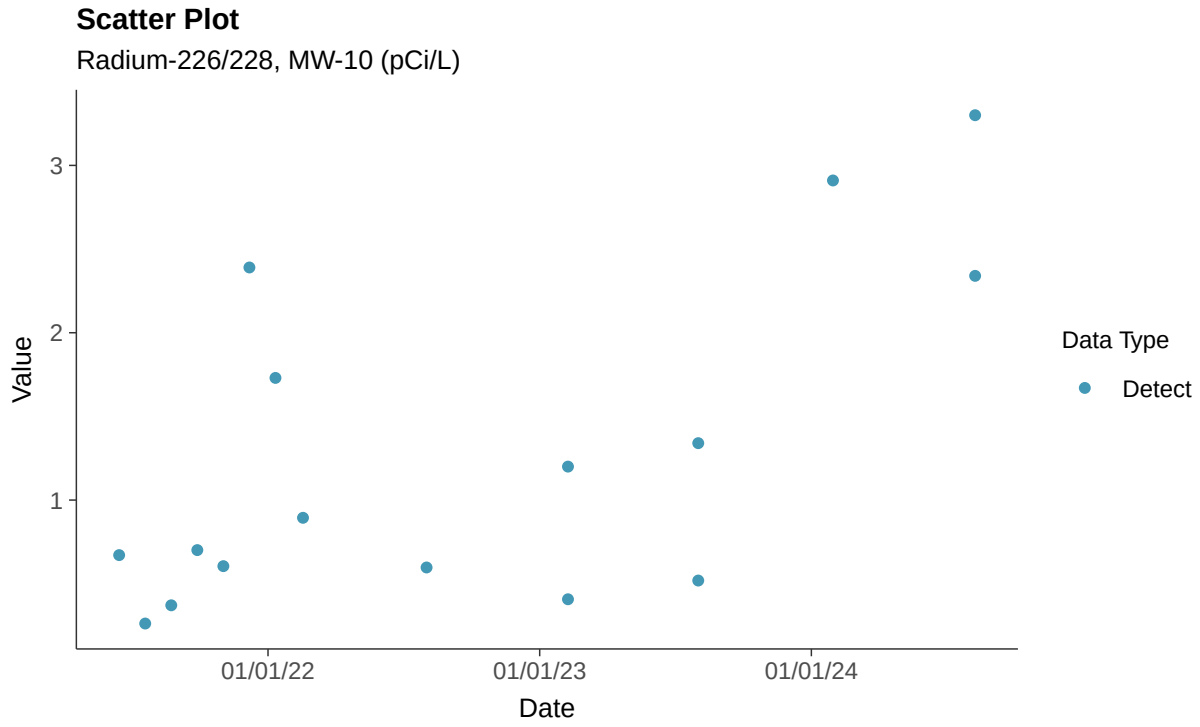
Boxplot by Season

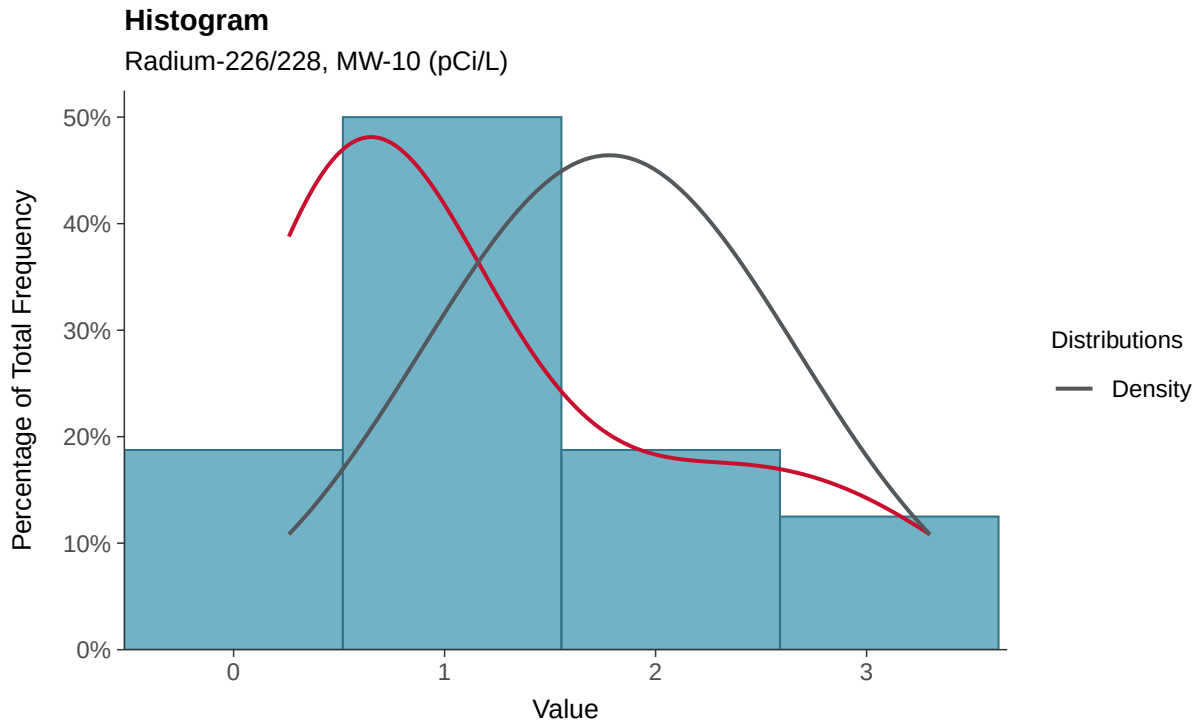
Molybdenum, MW-10 (mg/L)



Appendix IV: Radium-226/228, MW-10

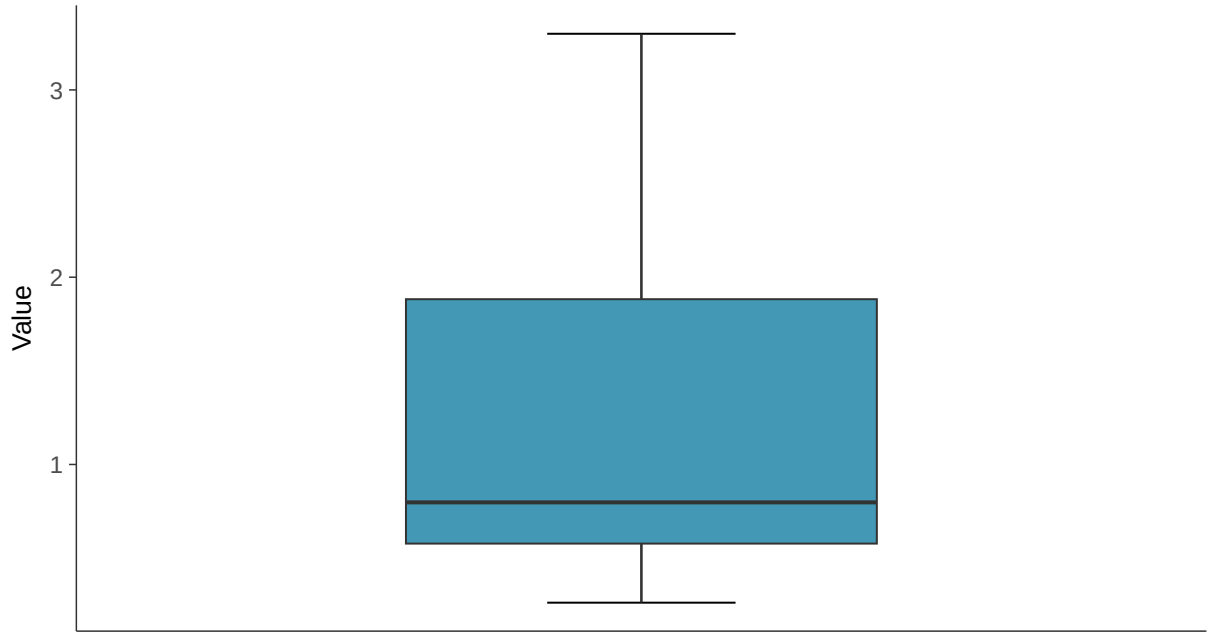
ID: 10_2_21





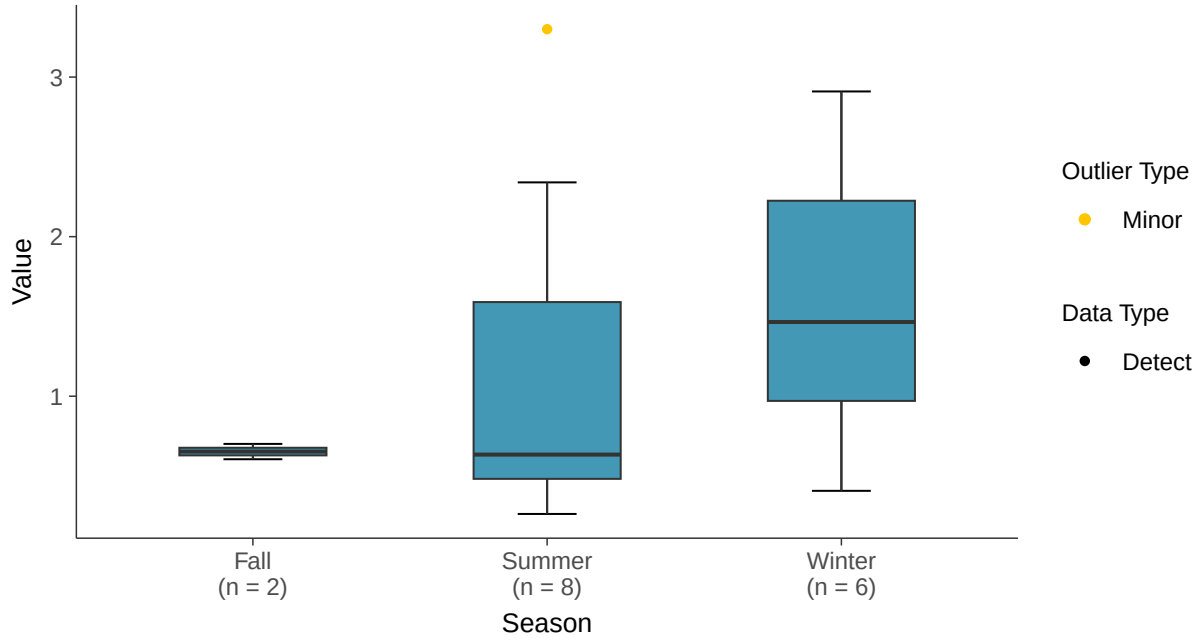
Boxplot

Radium-226/228, MW-10 (pCi/L)



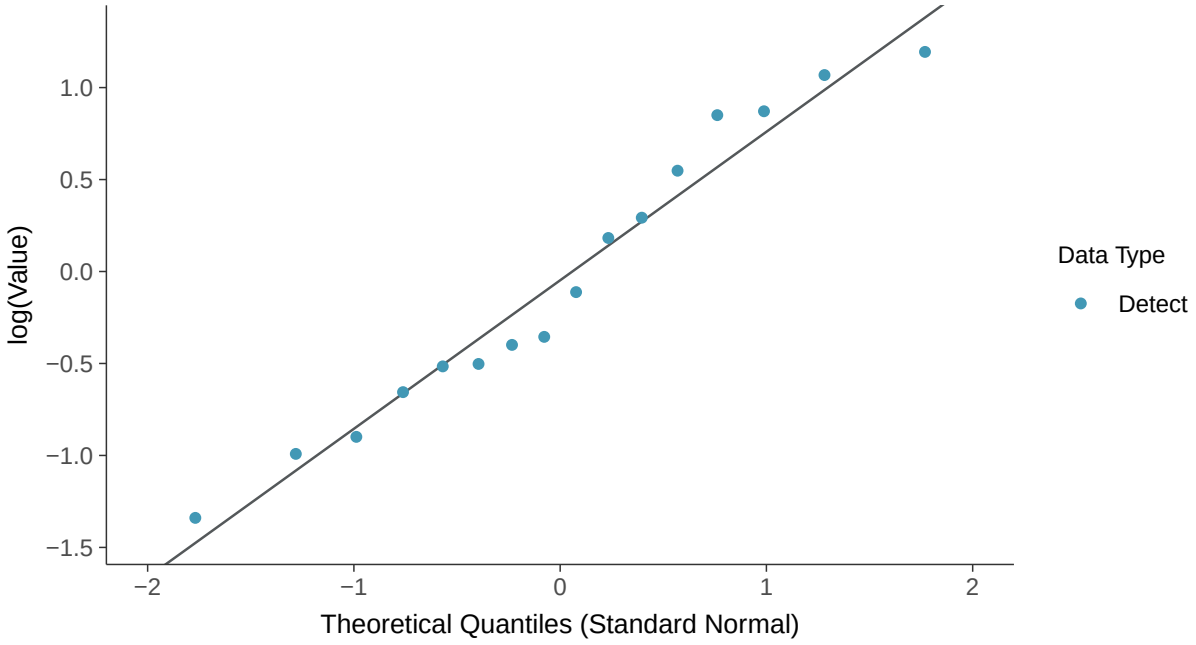
Boxplot by Season

Radium-226/228, MW-10 (pCi/L)



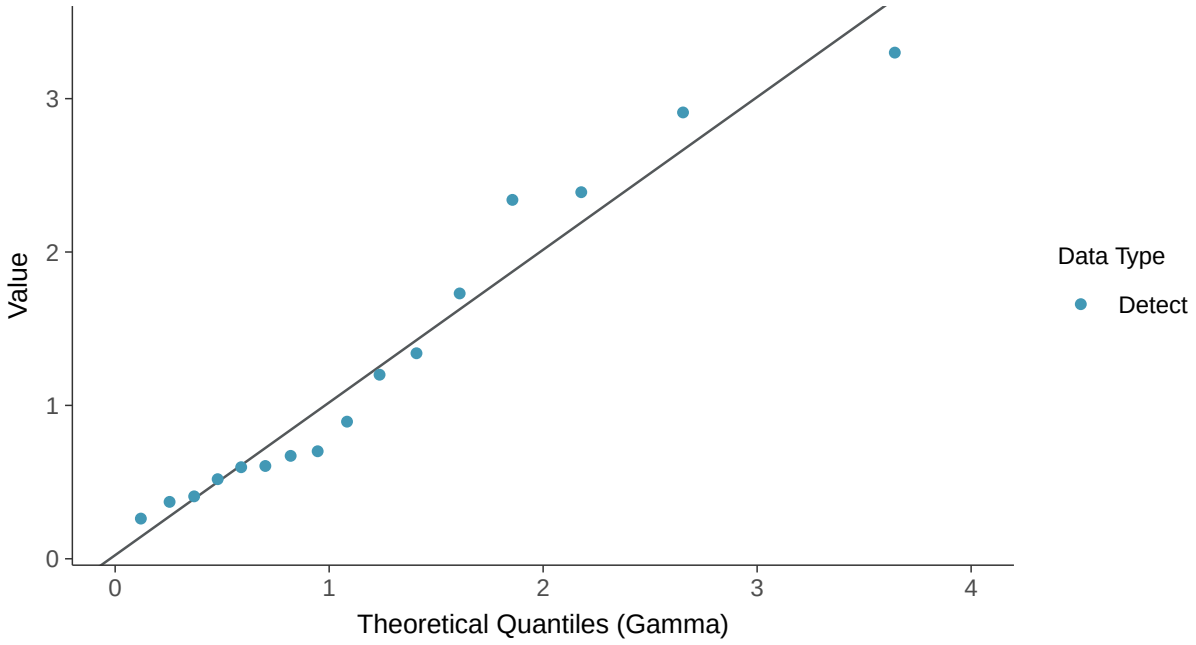
Lognormal Q-Q plot

Radium-226/228, MW-10 (pCi/L)



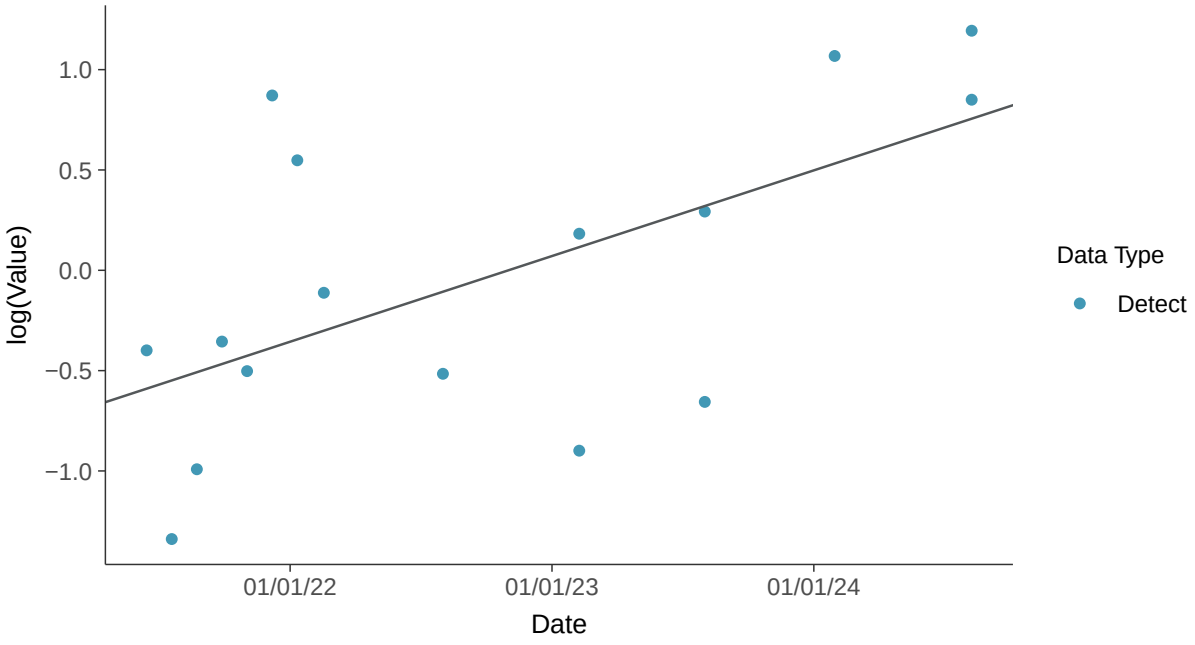
Gamma Q-Q plot

Radium-226/228, MW-10 (pCi/L)



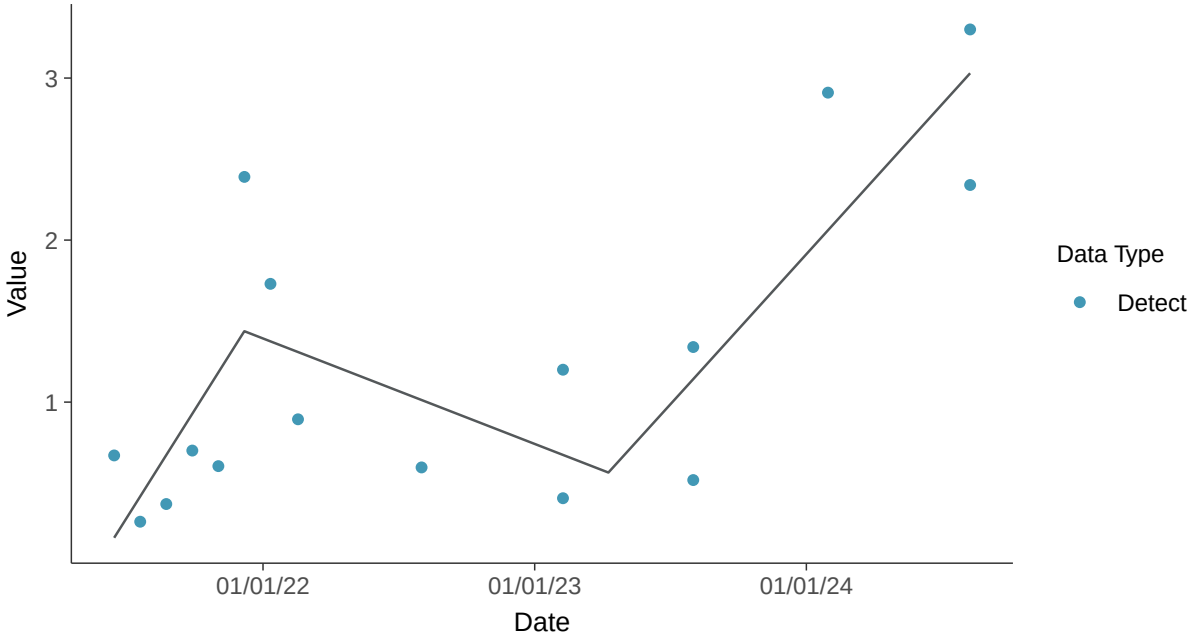
Trend Regression: Lognormal MLE

Radium-226/228, MW-10 (pCi/L)



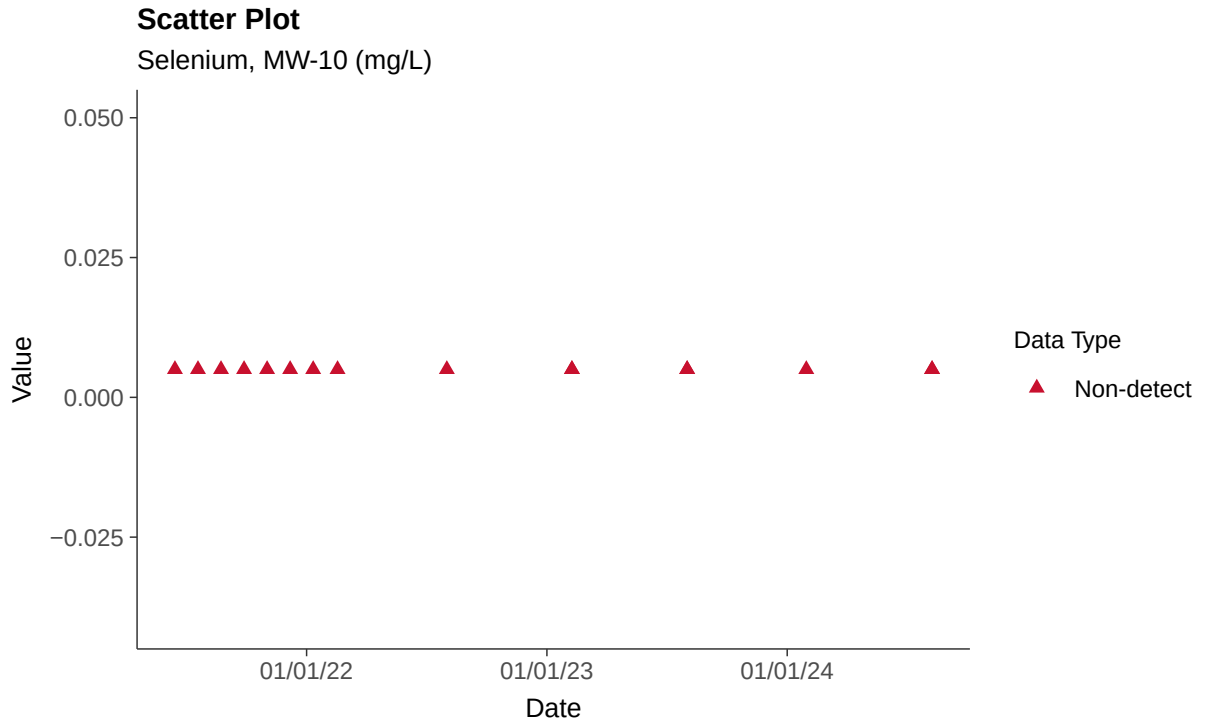
Trend Regression: Piecewise Linear-Linear-Linear

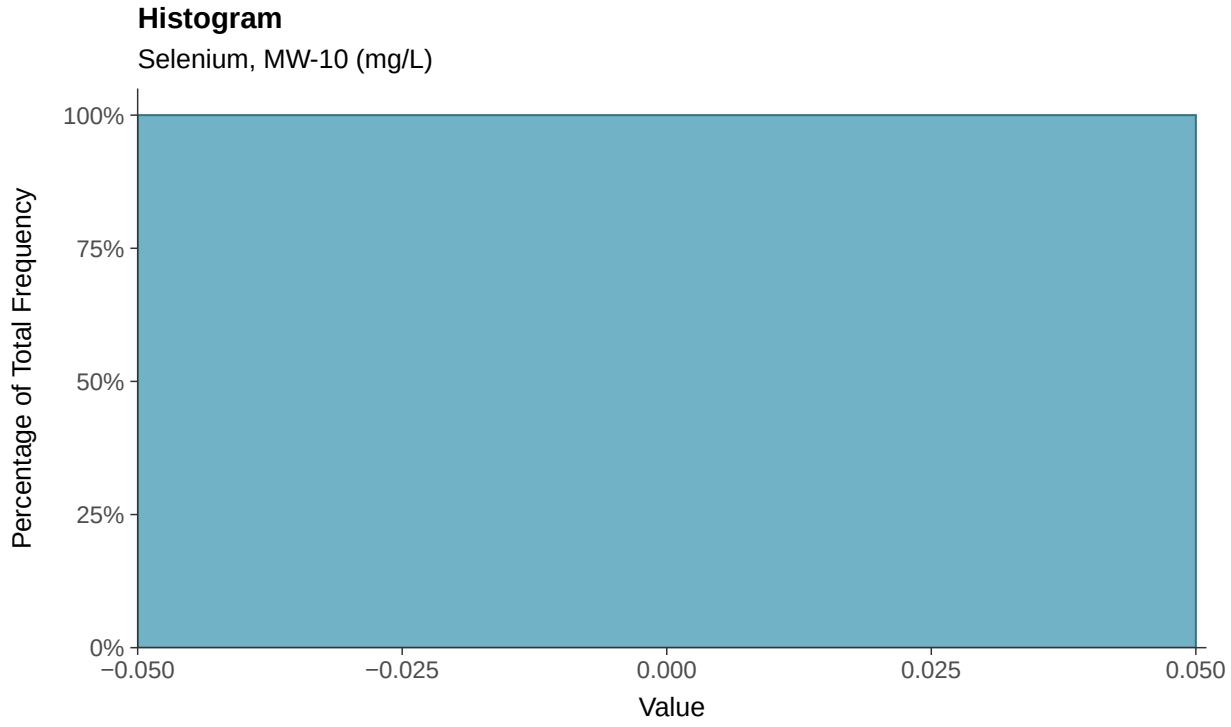
Radium-226/228, MW-10 (pCi/L)



Appendix IV: Selenium, MW-10

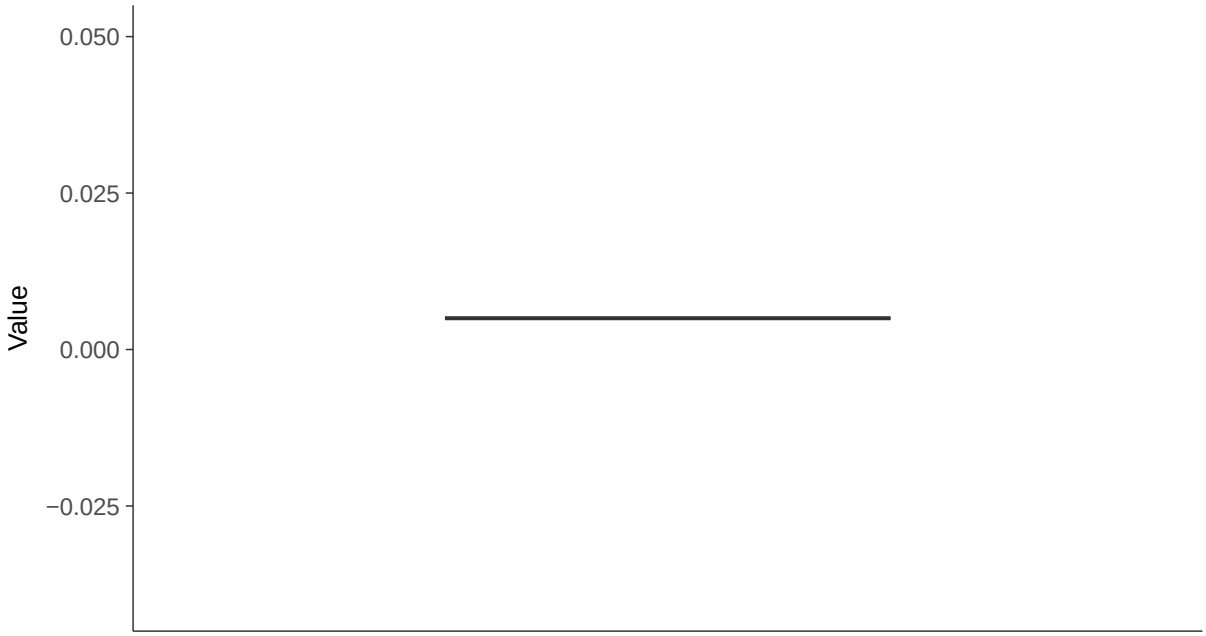
ID: 10_2_22





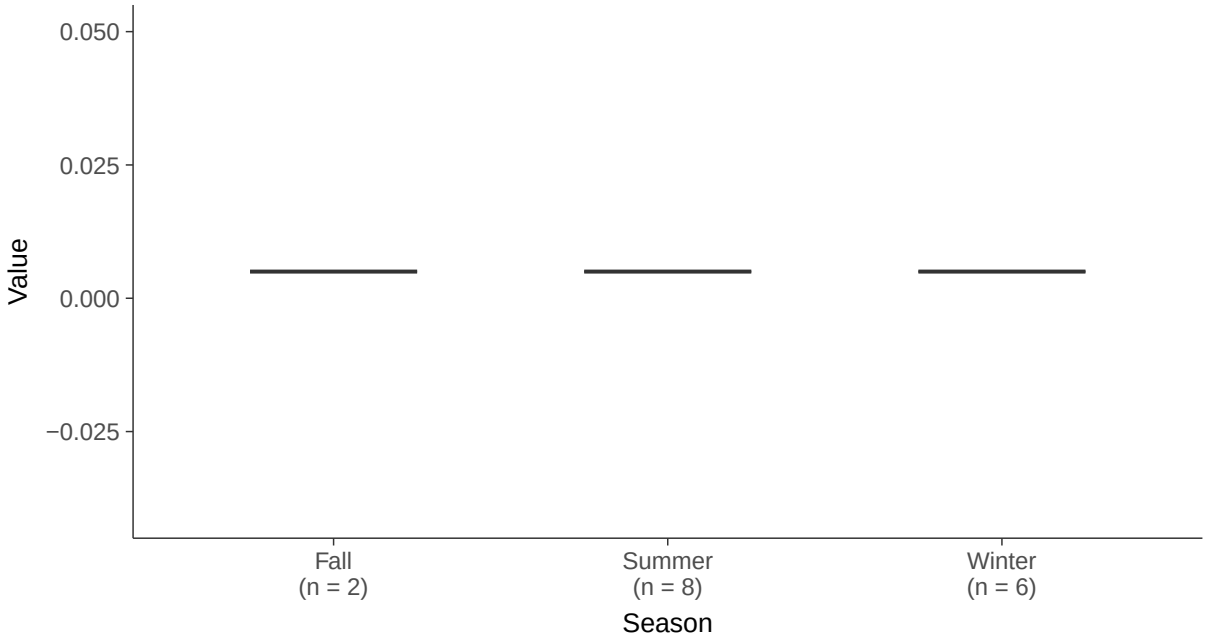
Boxplot

Selenium, MW-10 (mg/L)



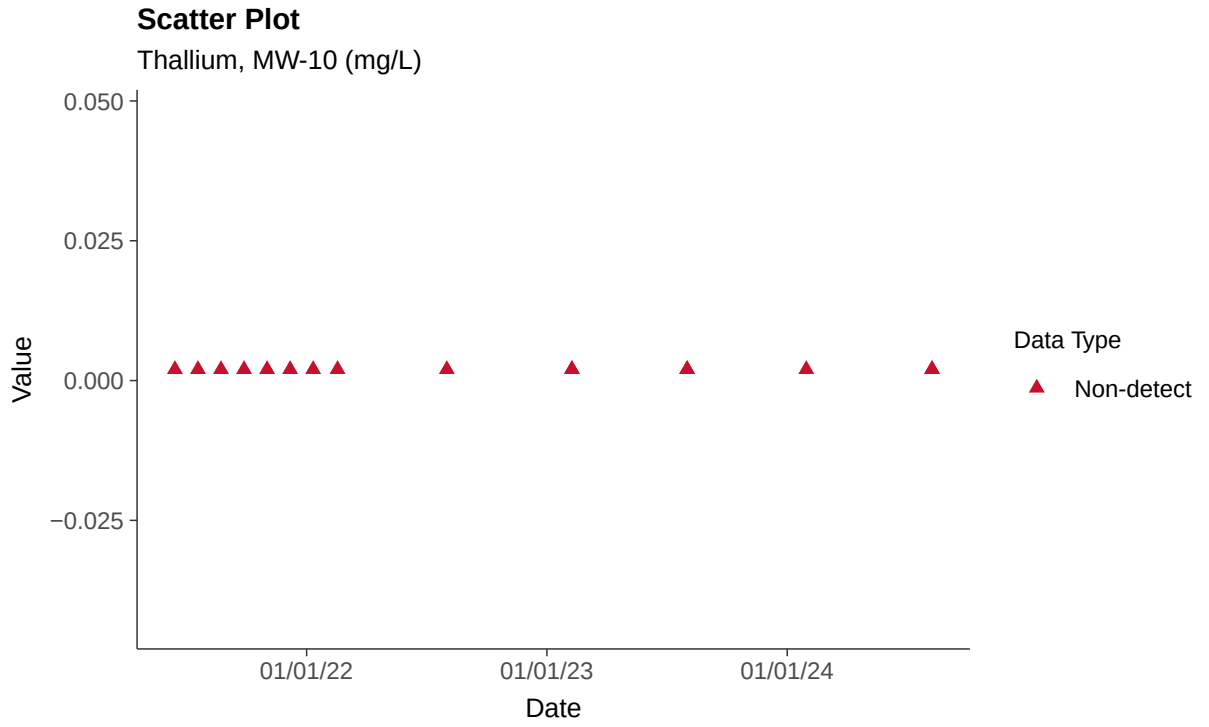
Boxplot by Season

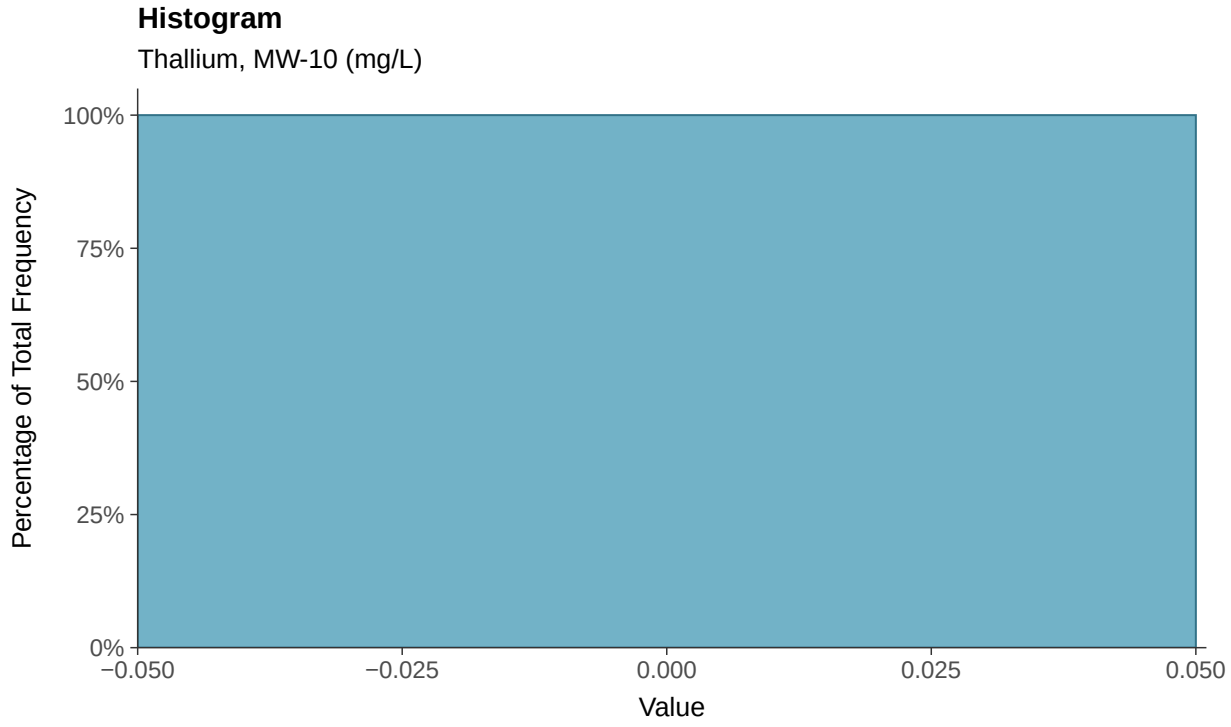
Selenium, MW-10 (mg/L)



Appendix IV: Thallium, MW-10

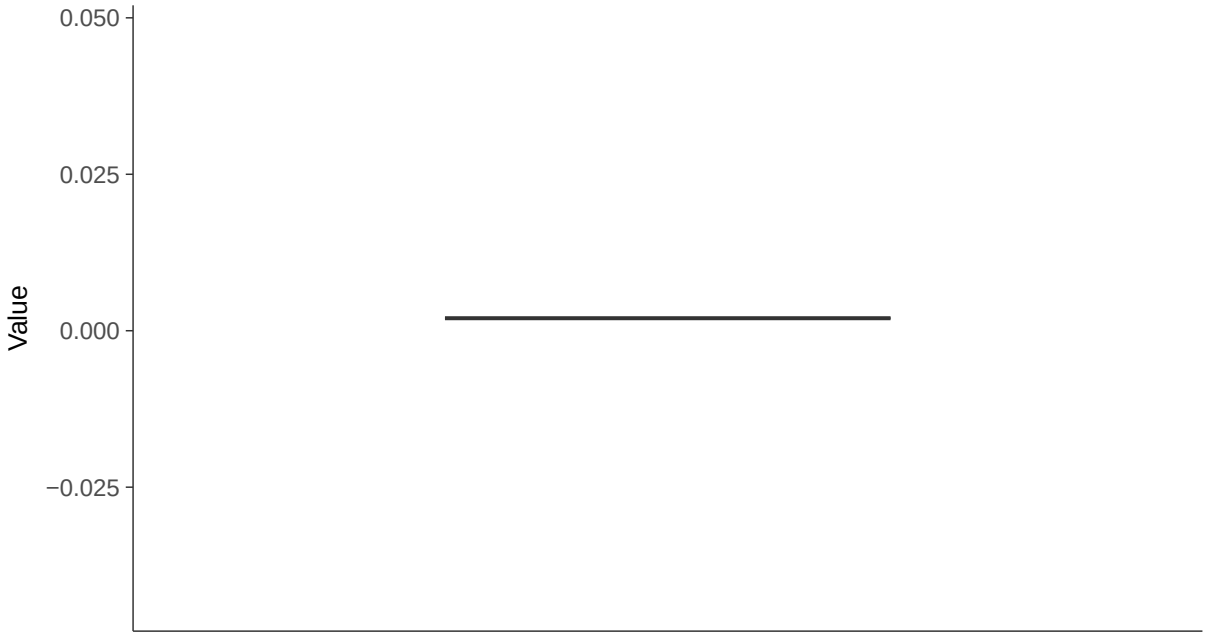
ID: 10_2_23





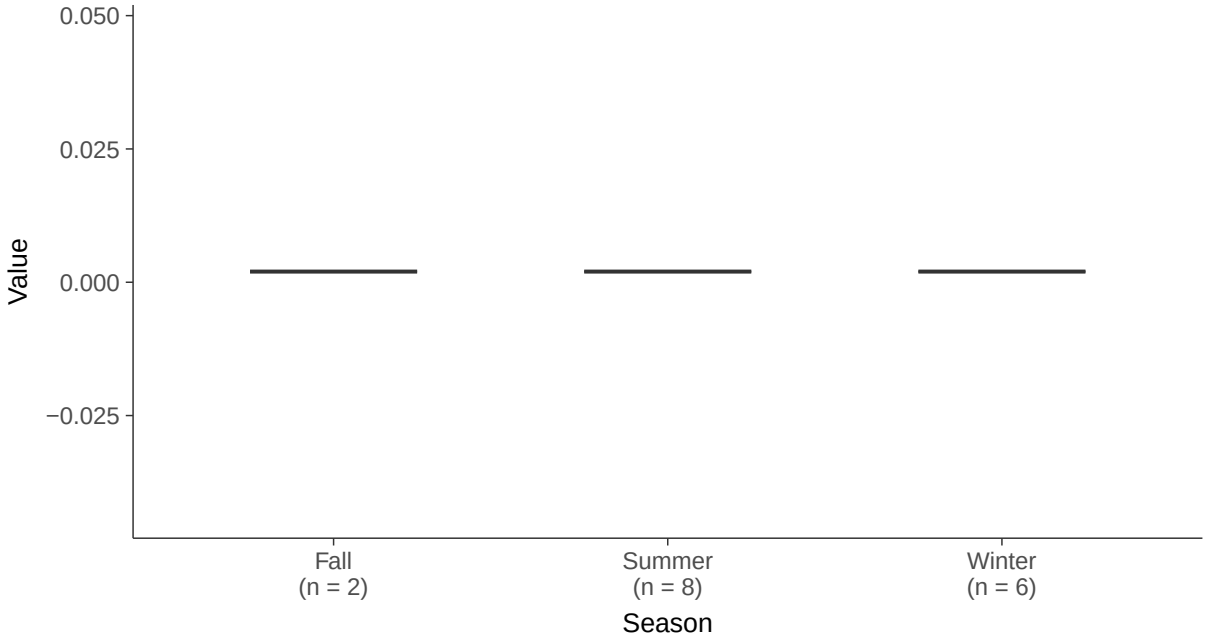
Boxplot

Thallium, MW-10 (mg/L)



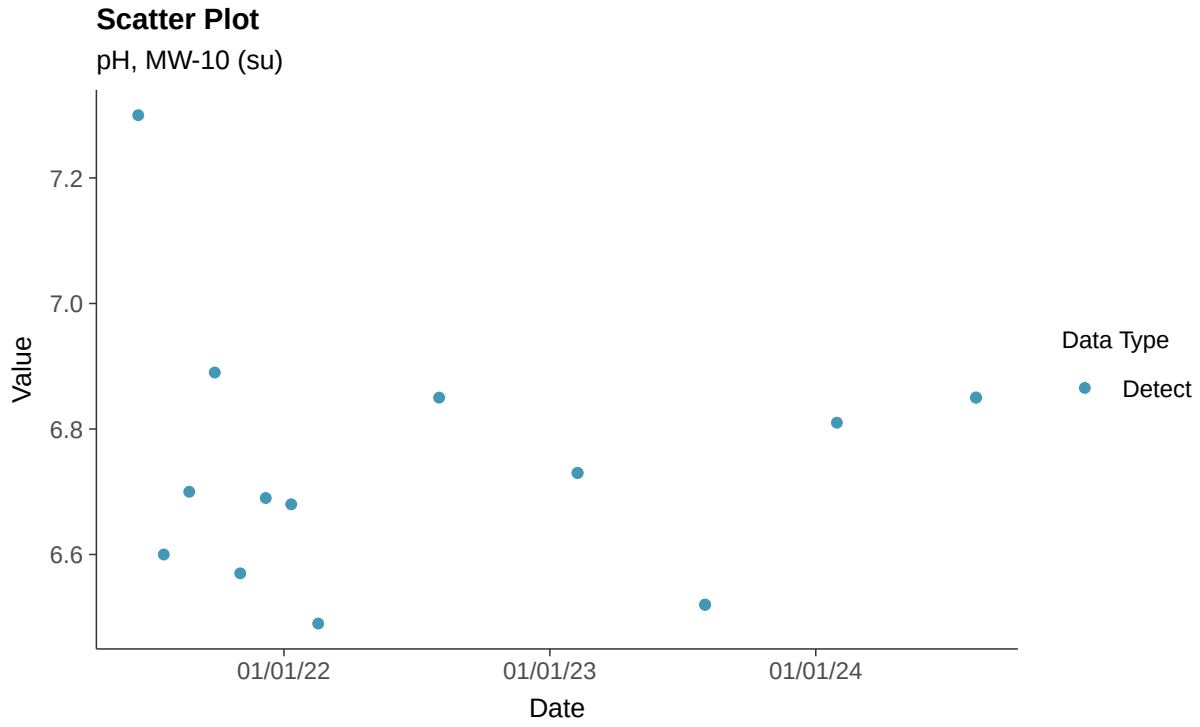
Boxplot by Season

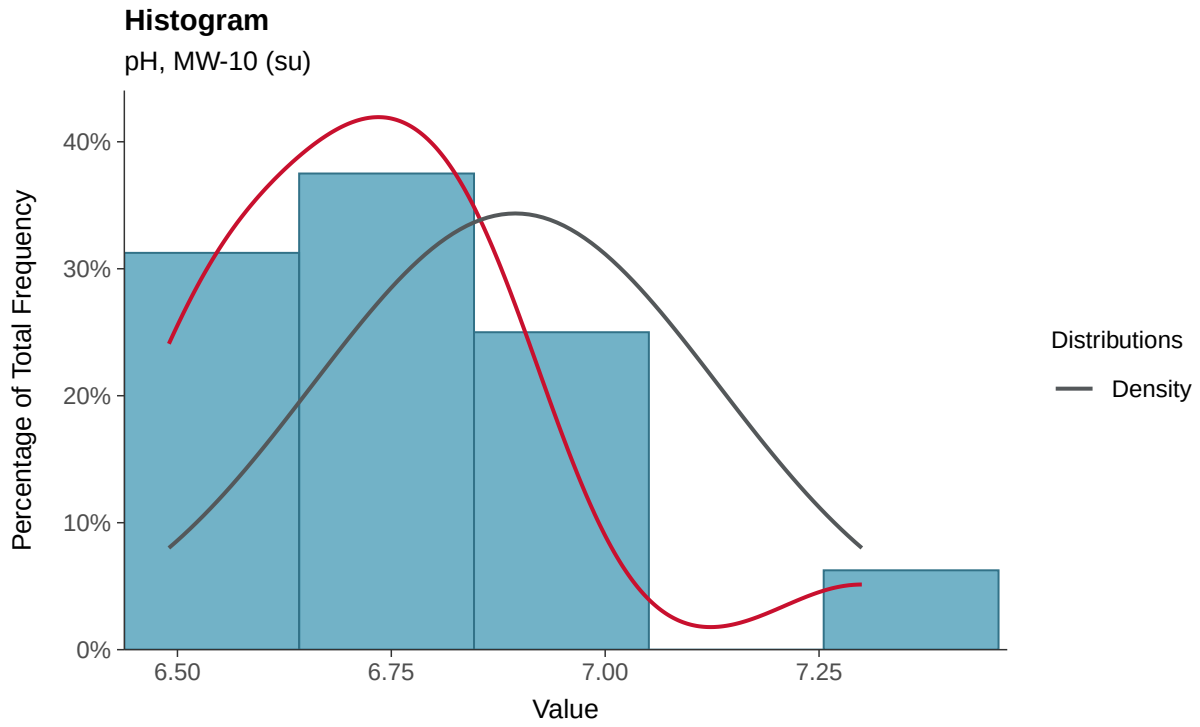
Thallium, MW-10 (mg/L)



Field Parameters: pH, MW-10

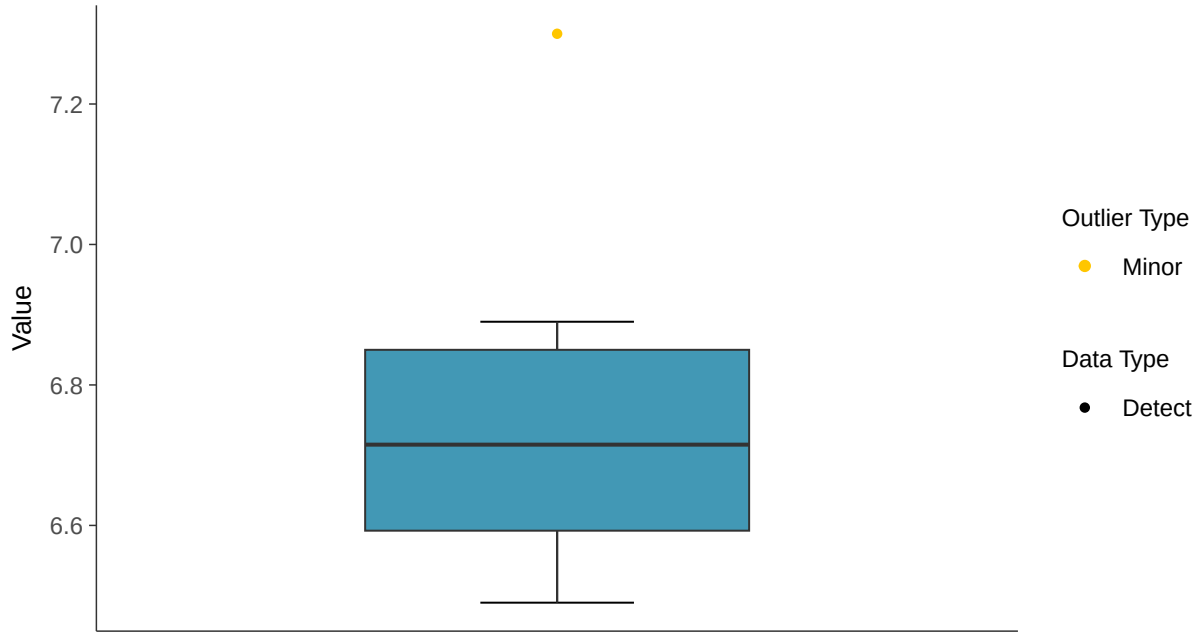
ID: 10_3_24





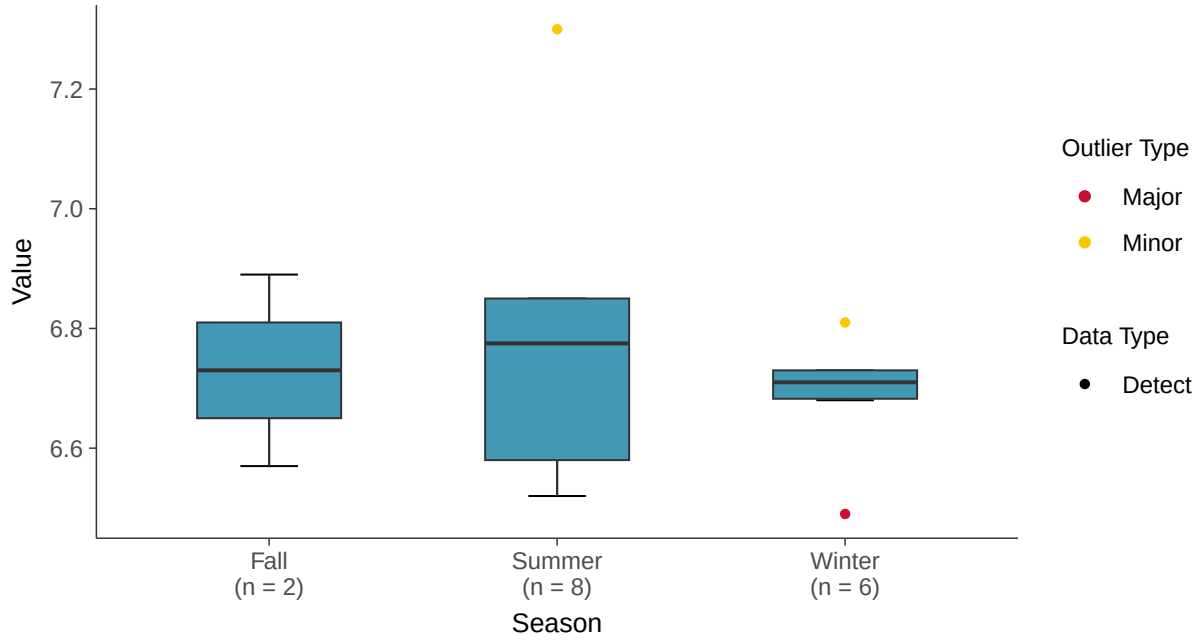
Boxplot

pH, MW-10 (su)



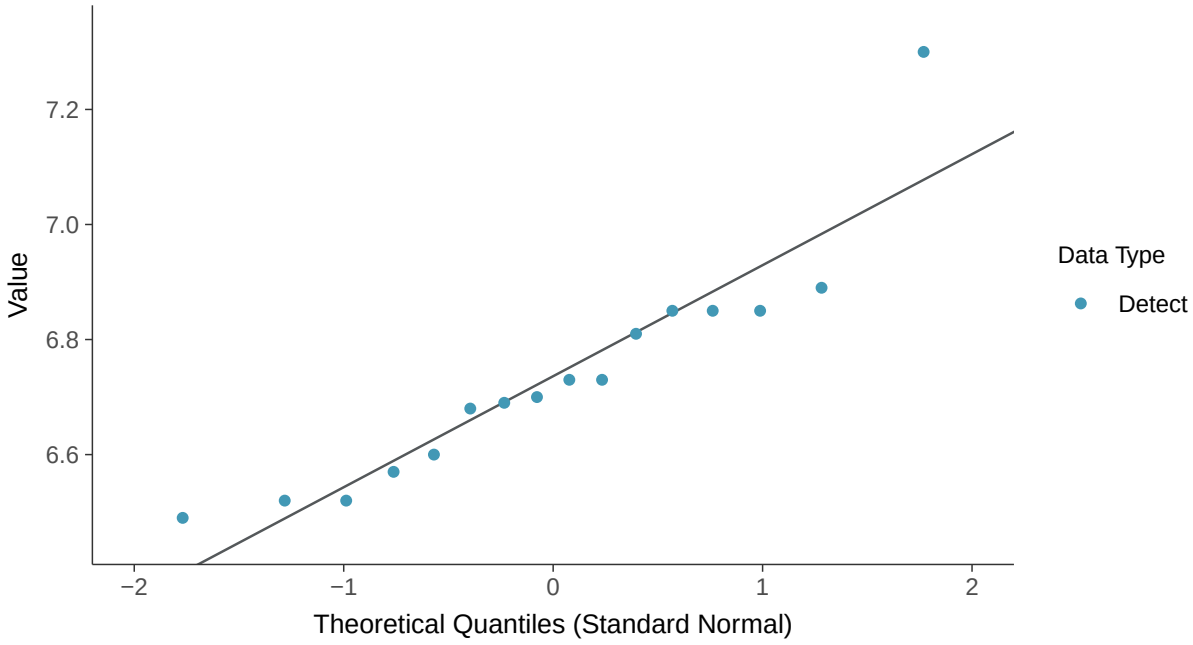
Boxplot by Season

pH, MW-10 (su)



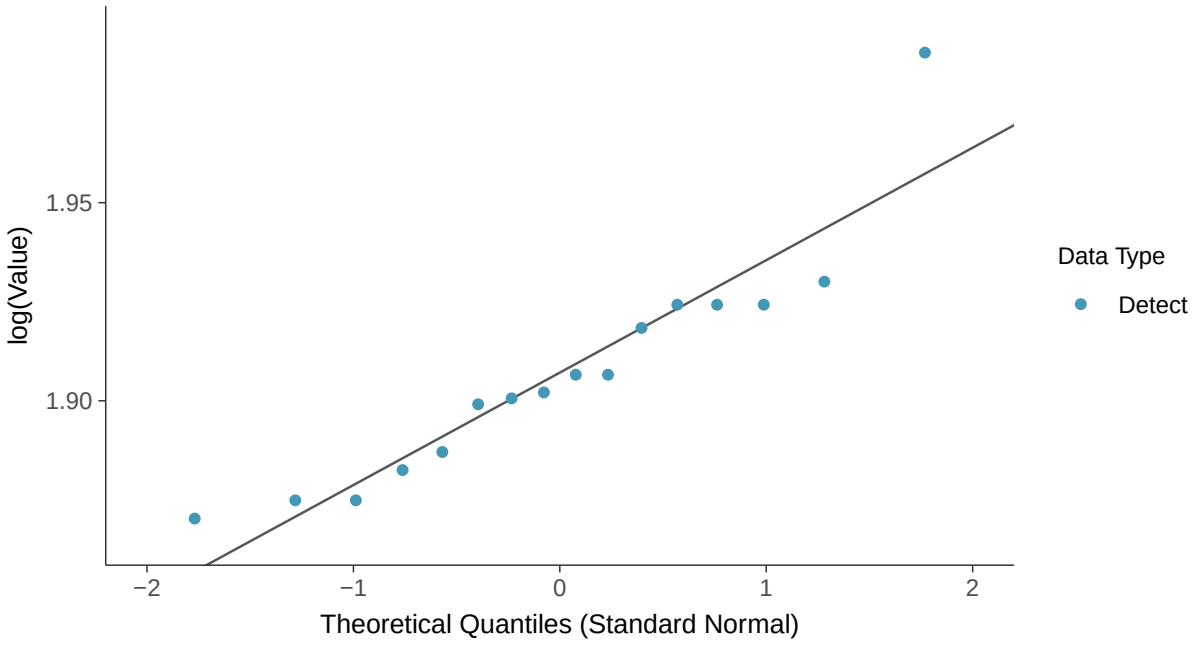
Normal Q-Q plot

pH, MW-10 (su)



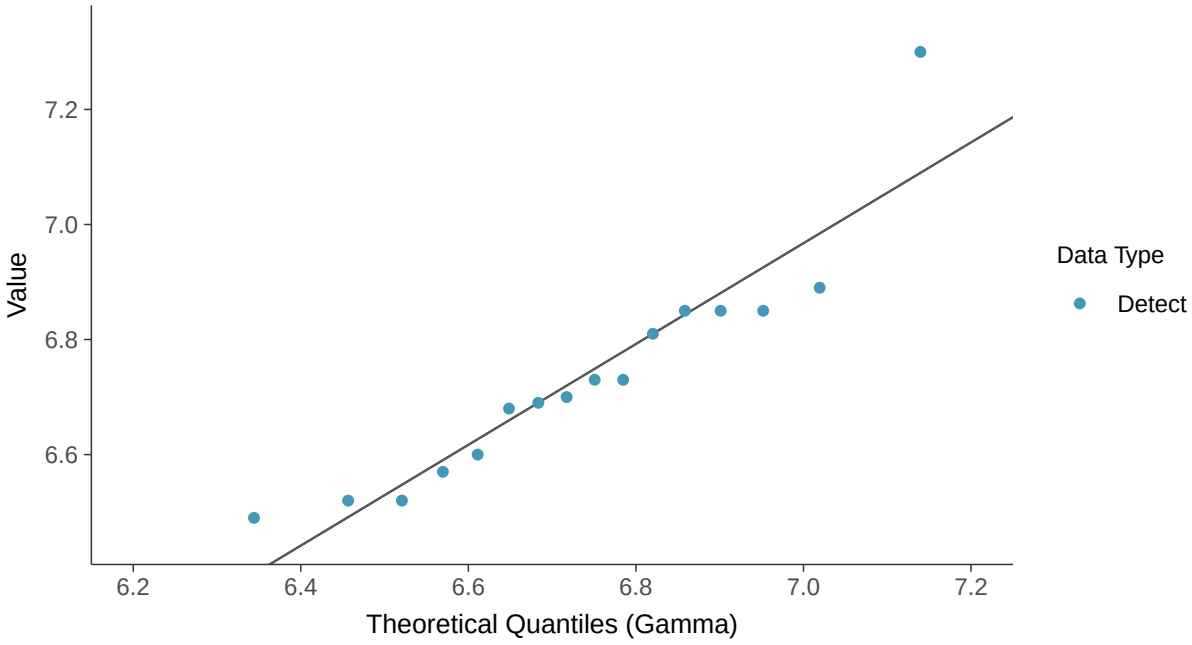
Lognormal Q-Q plot

pH, MW-10 (su)



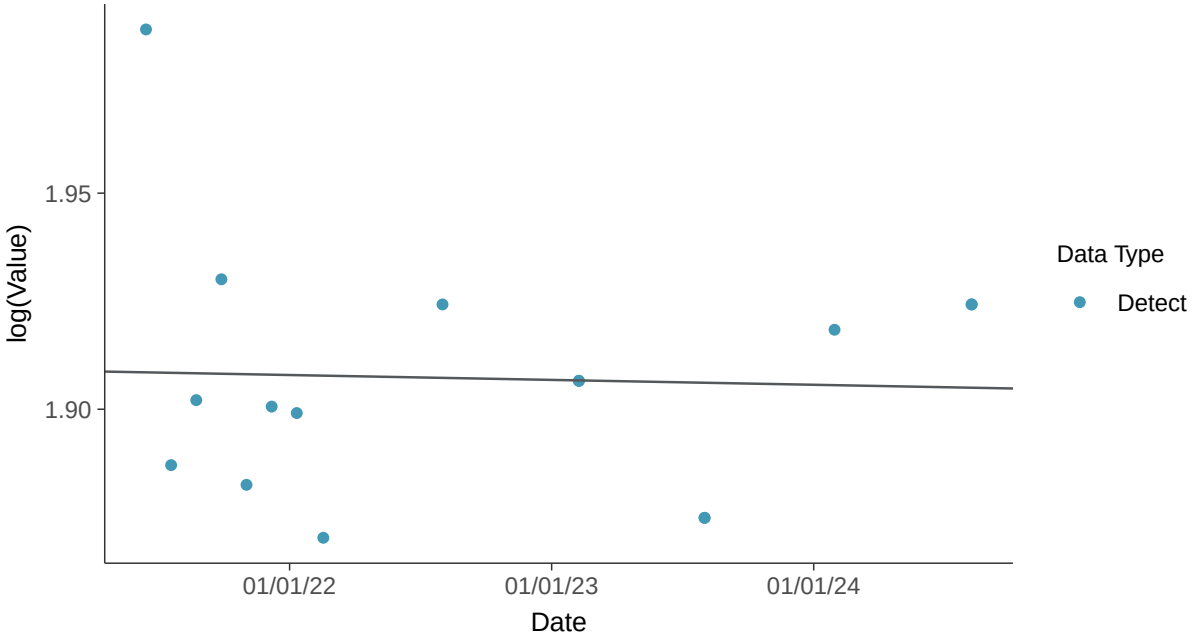
Gamma Q-Q plot

pH, MW-10 (su)



Trend Regression: Lognormal MLE

pH, MW-10 (su)

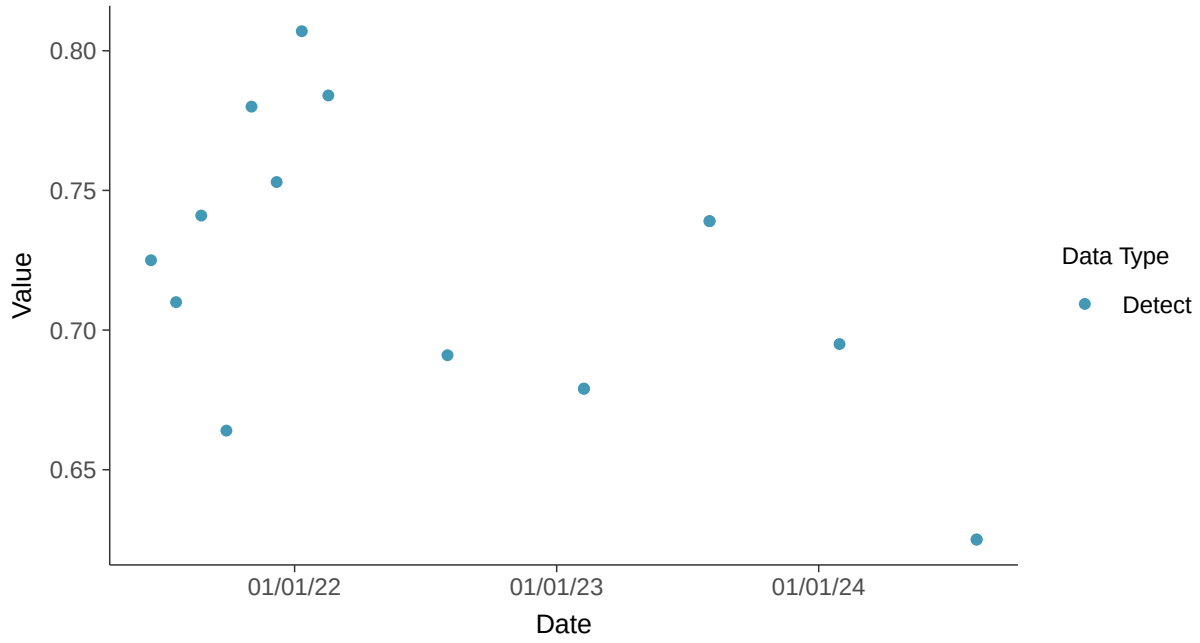


Field Parameters: Conductivity, MW-10

ID: 10_3_25

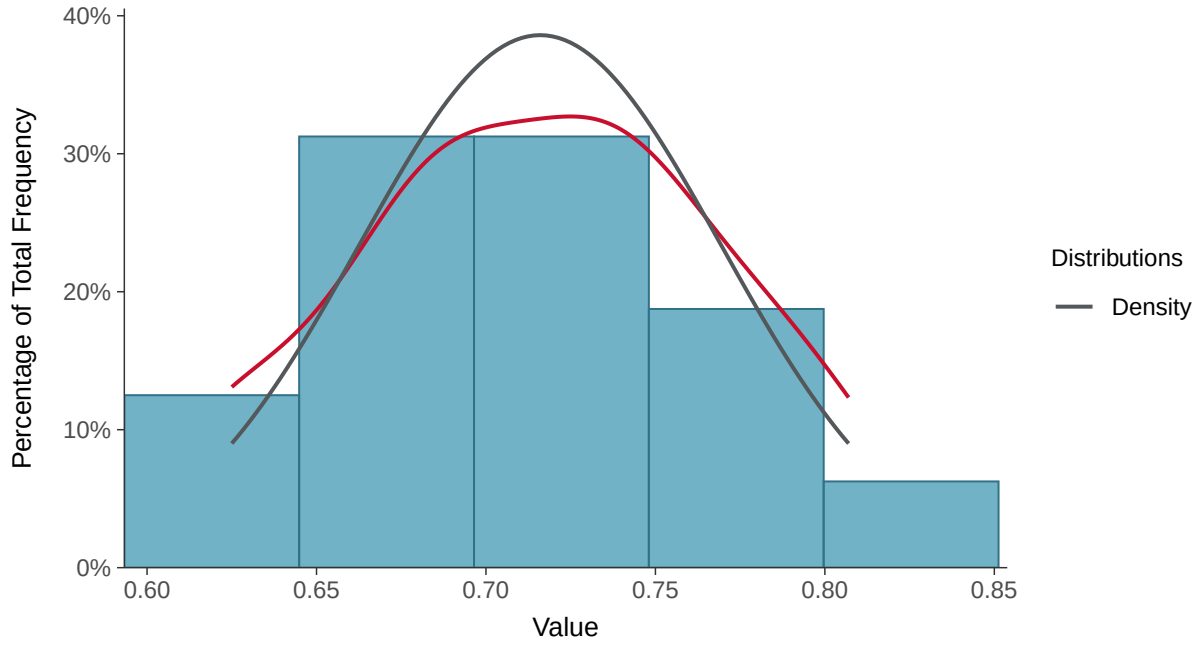
Scatter Plot

Conductivity, MW-10 (mS/cm)



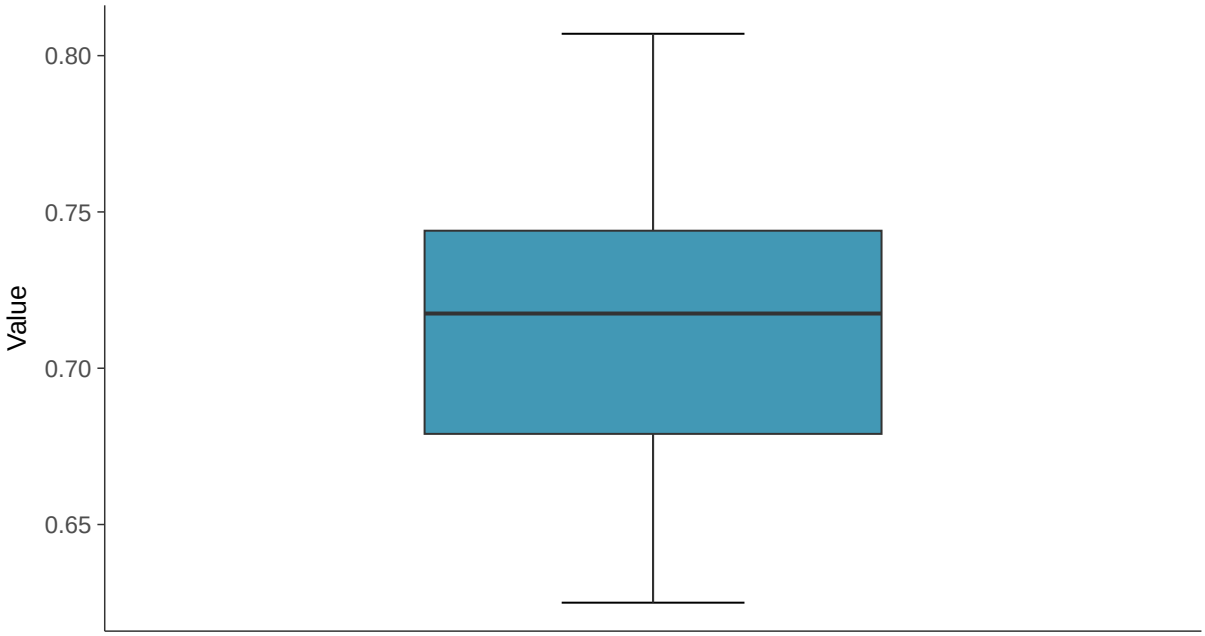
Histogram

Conductivity, MW-10 (mS/cm)



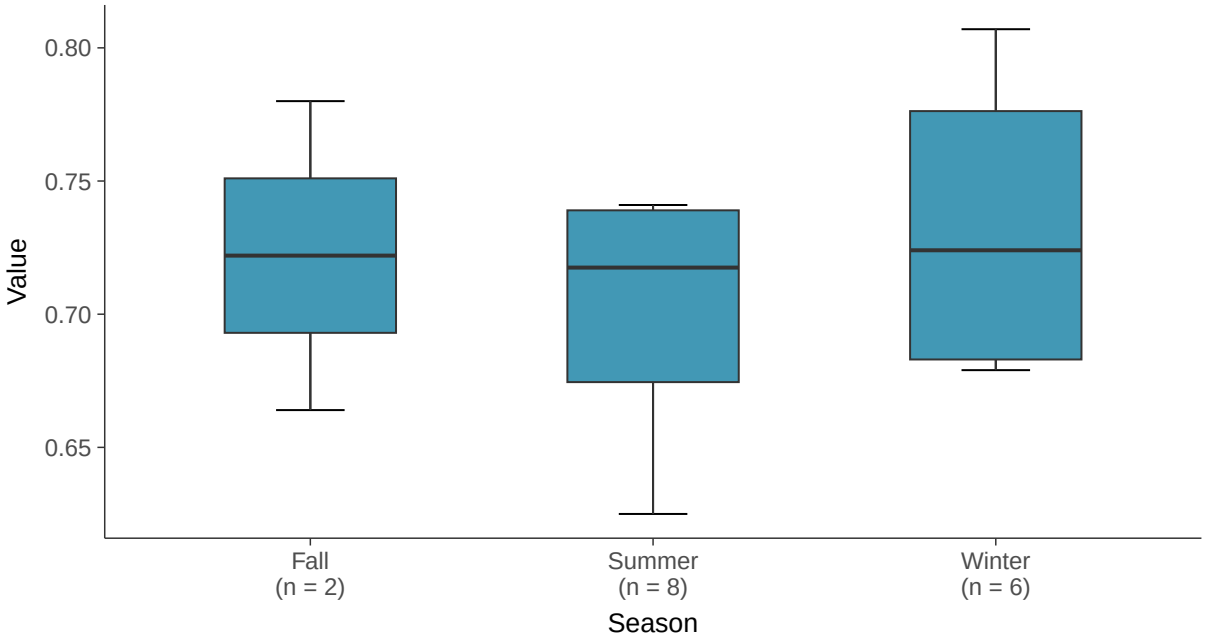
Boxplot

Conductivity, MW-10 (mS/cm)



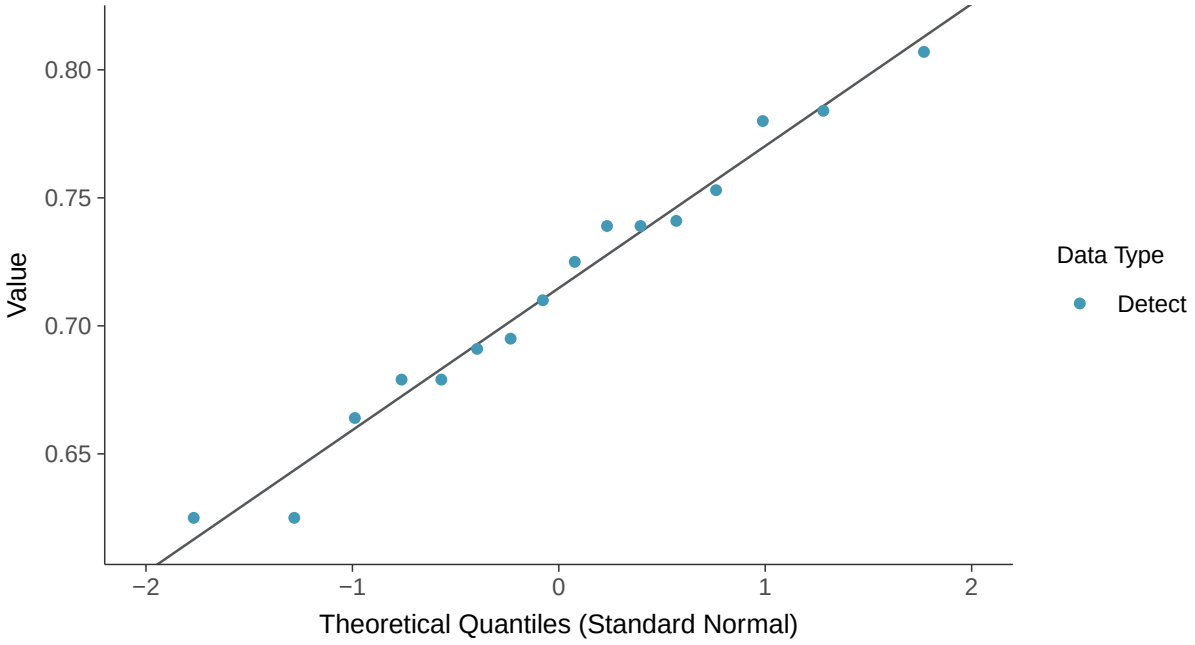
Boxplot by Season

Conductivity, MW-10 (mS/cm)



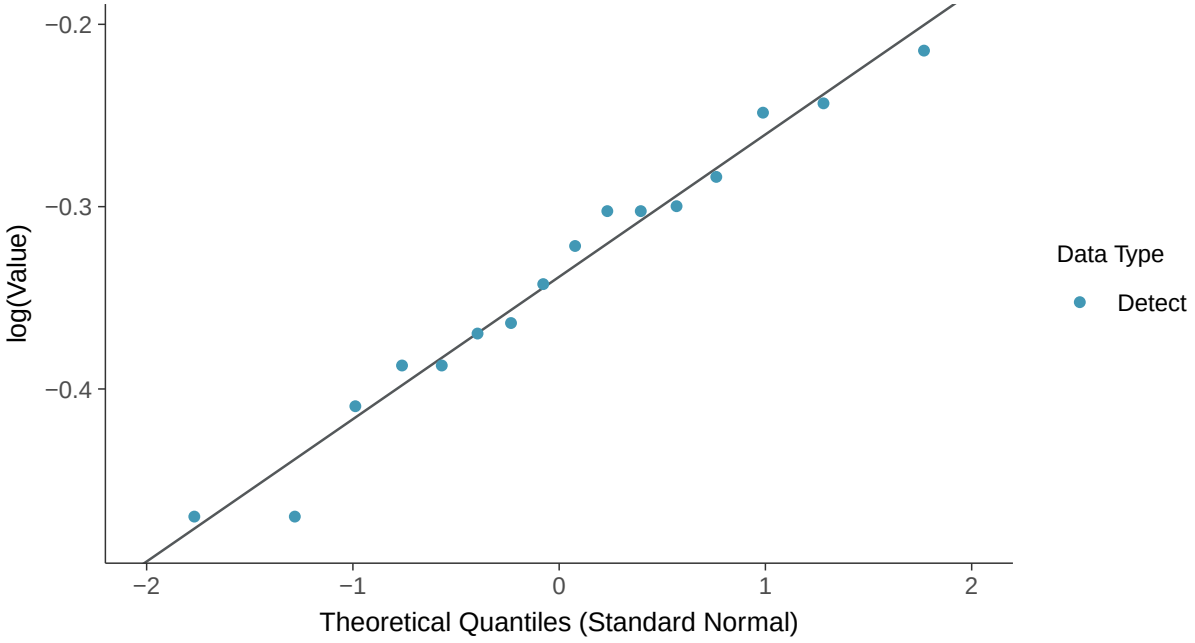
Normal Q-Q plot

Conductivity, MW-10 (mS/cm)



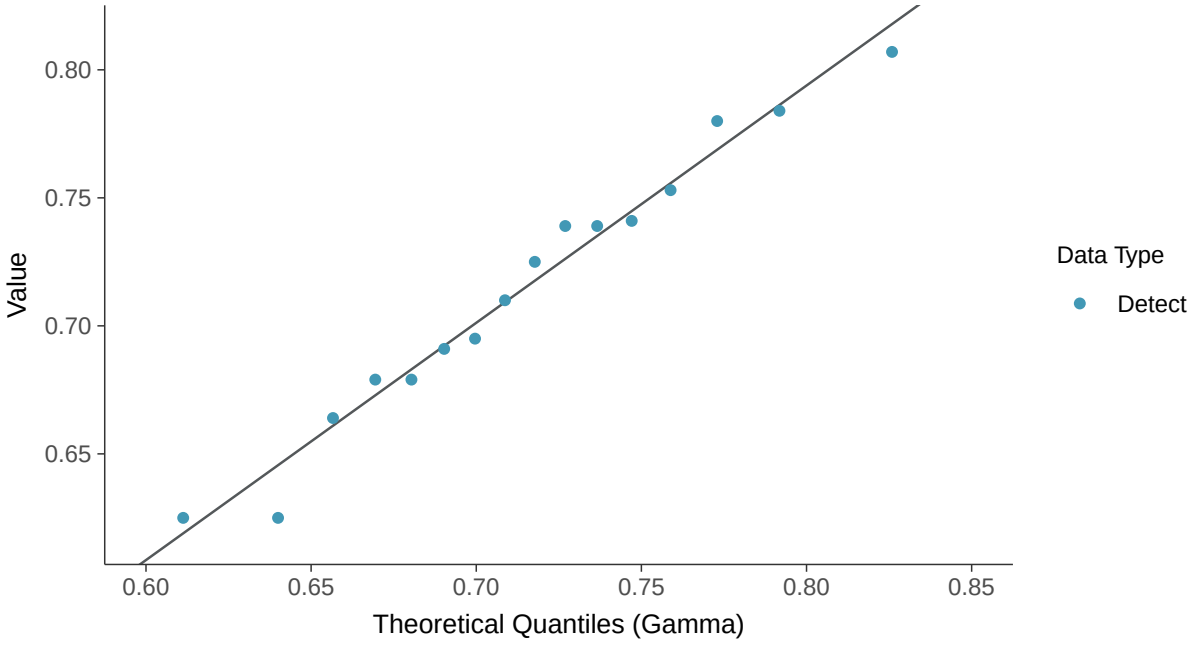
Lognormal Q-Q plot

Conductivity, MW-10 (mS/cm)



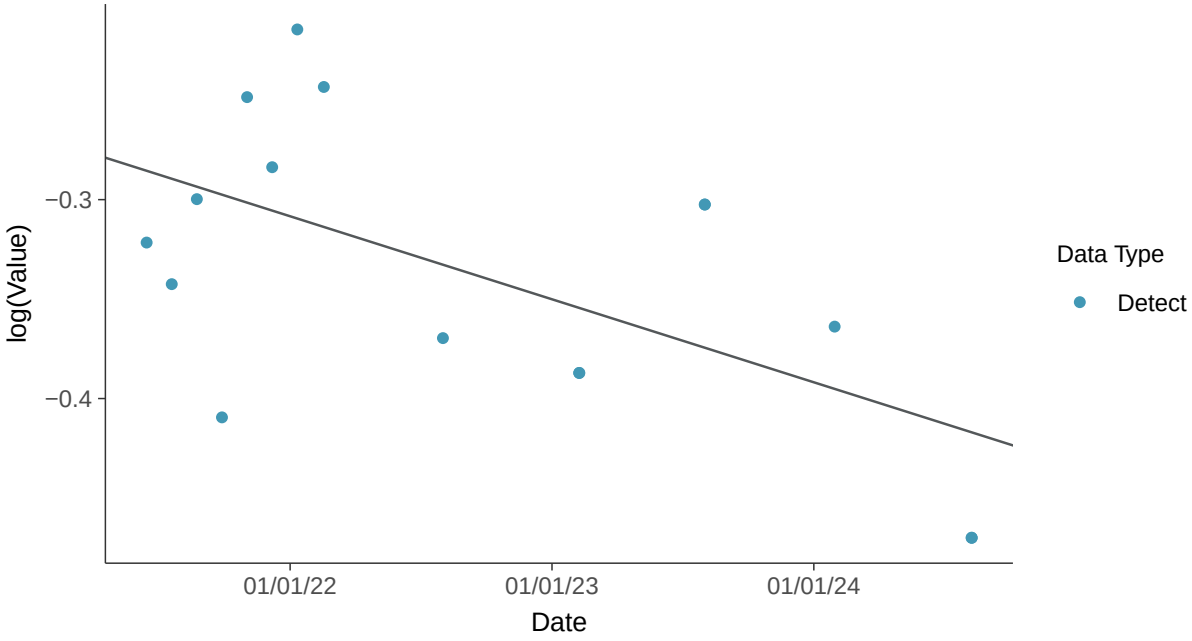
Gamma Q-Q plot

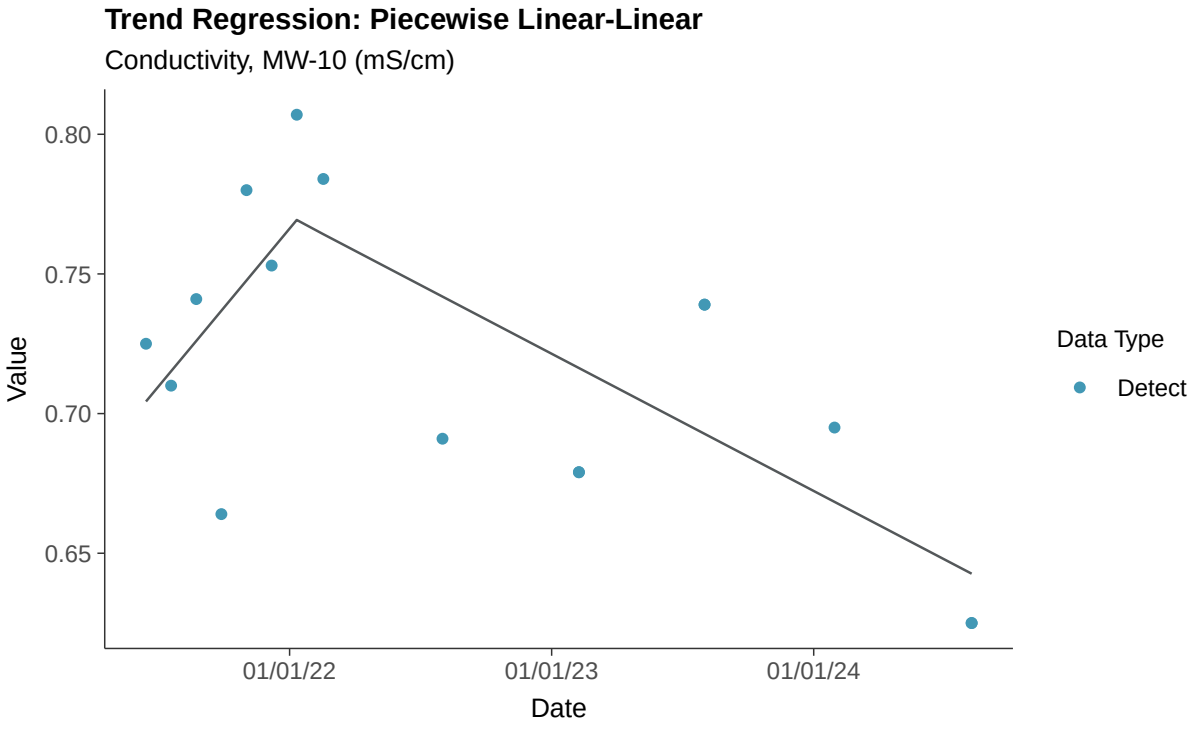
Conductivity, MW-10 (mS/cm)



Trend Regression: Lognormal MLE

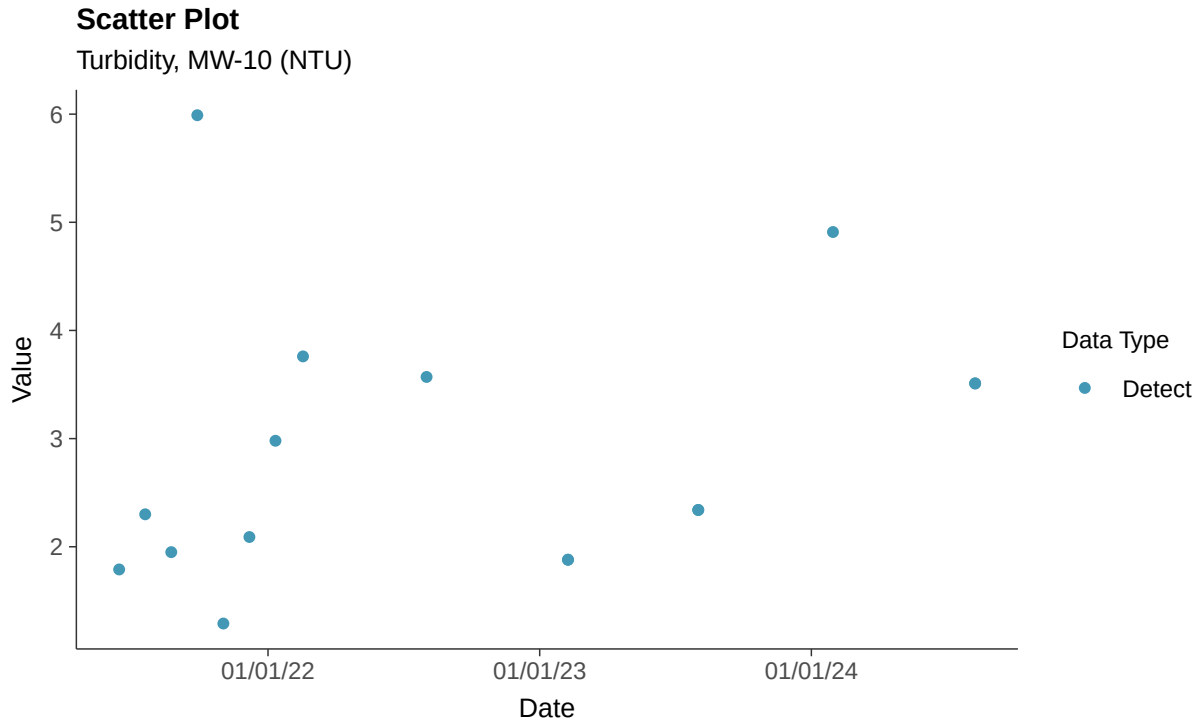
Conductivity, MW-10 (mS/cm)

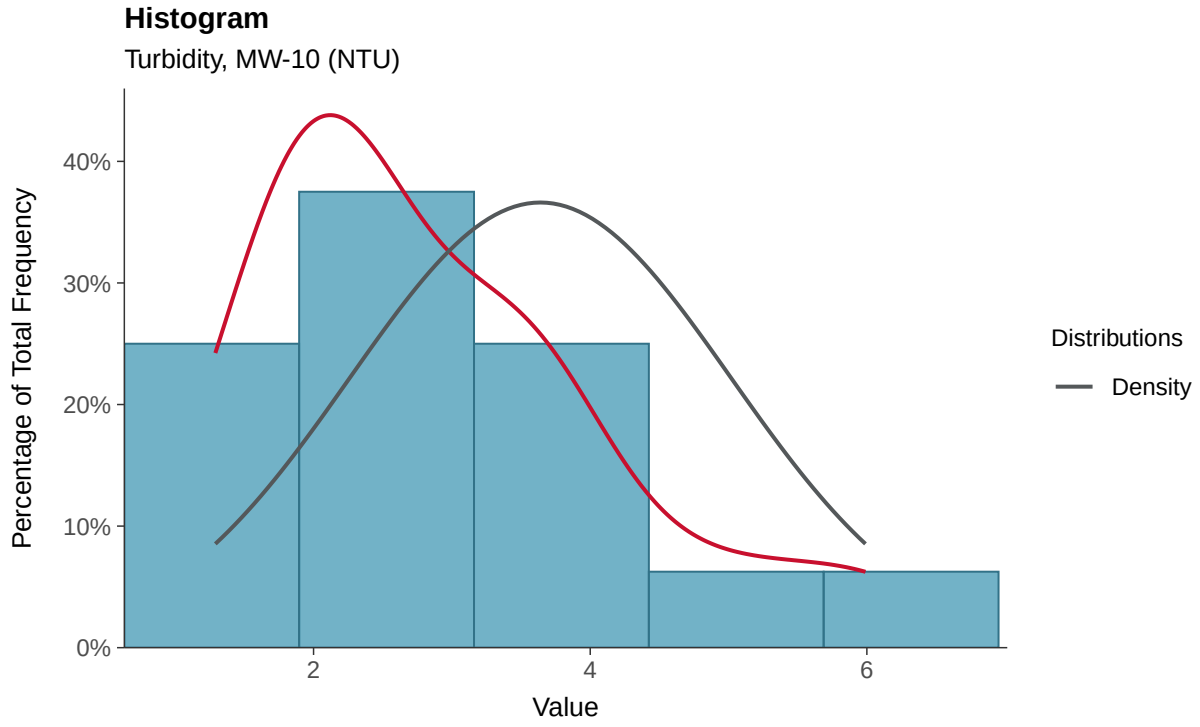



Trend Regression: Piecewise Linear-Linear
Conductivity, MW-10 (mS/cm)
0.80
0.75
0.70
0.65
Value
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Field Parameters: Turbidity, MW-10

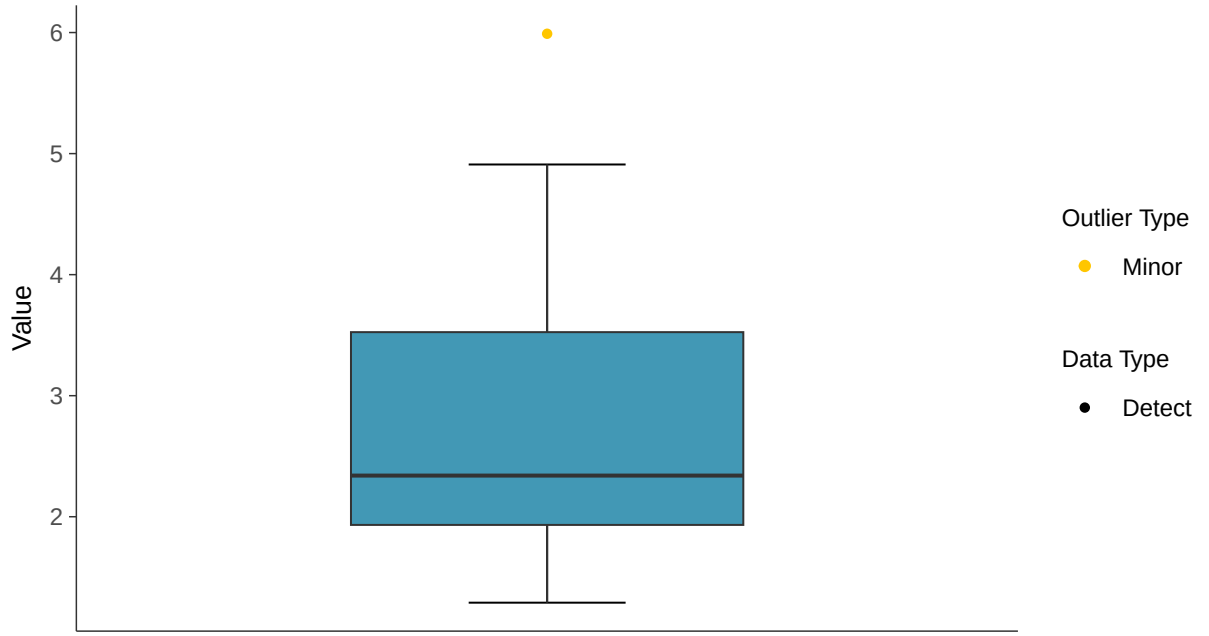
ID: 10_3_26





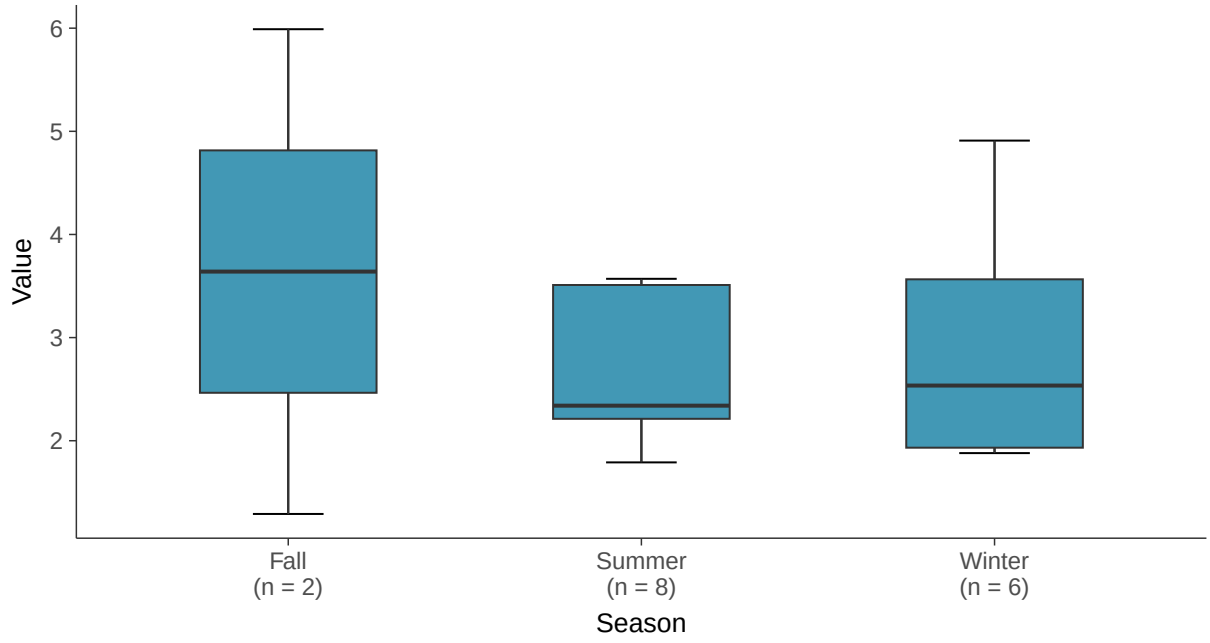
Boxplot

Turbidity, MW-10 (NTU)



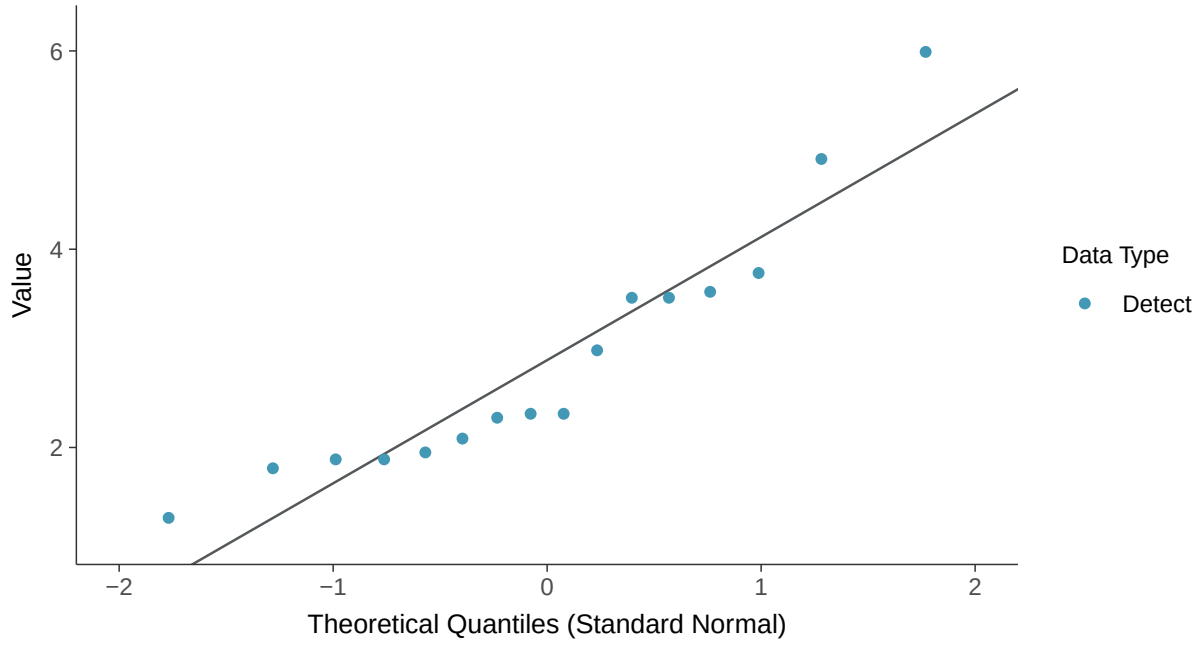
Boxplot by Season

Turbidity, MW-10 (NTU)



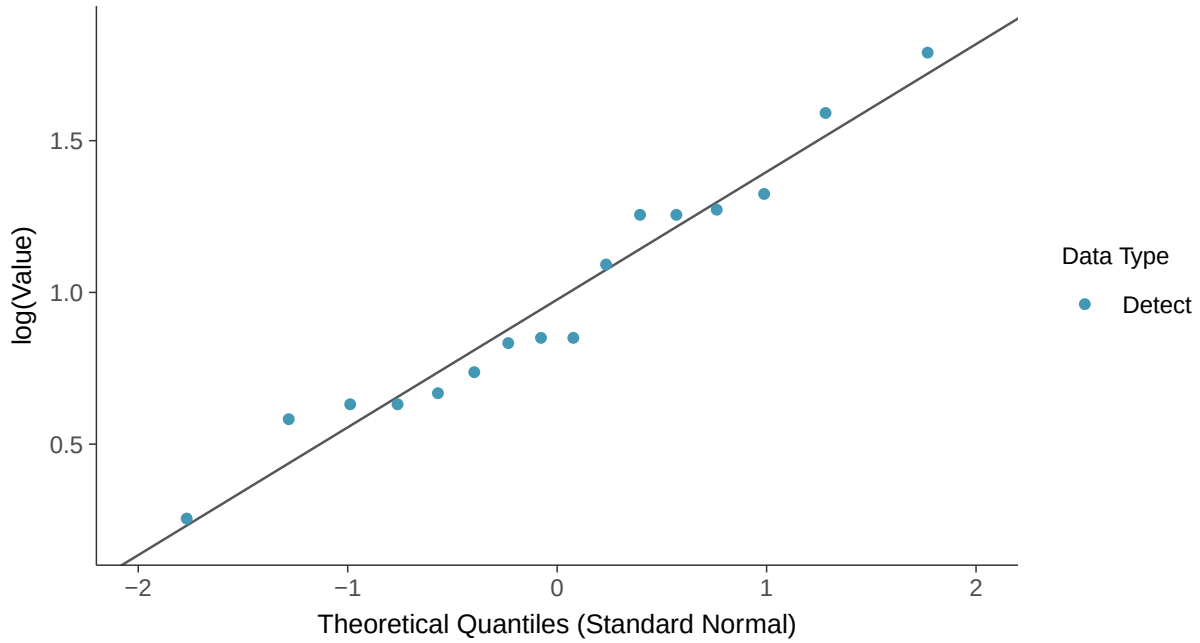
Normal Q-Q plot

Turbidity, MW-10 (NTU)



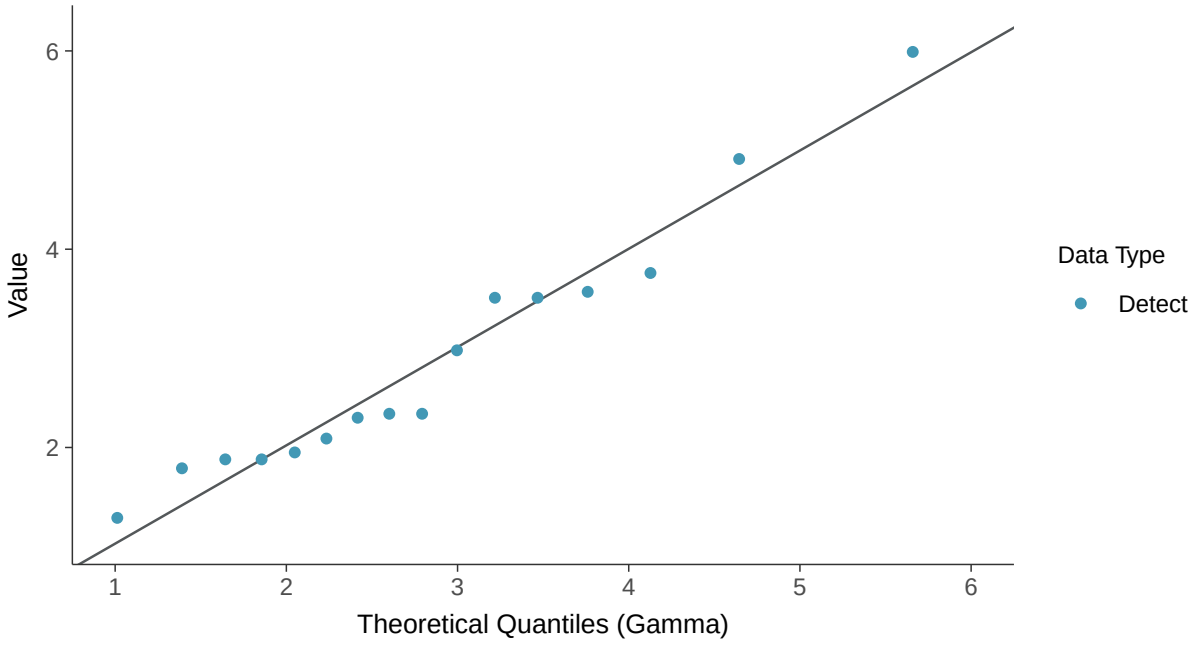
Lognormal Q-Q plot

Turbidity, MW-10 (NTU)



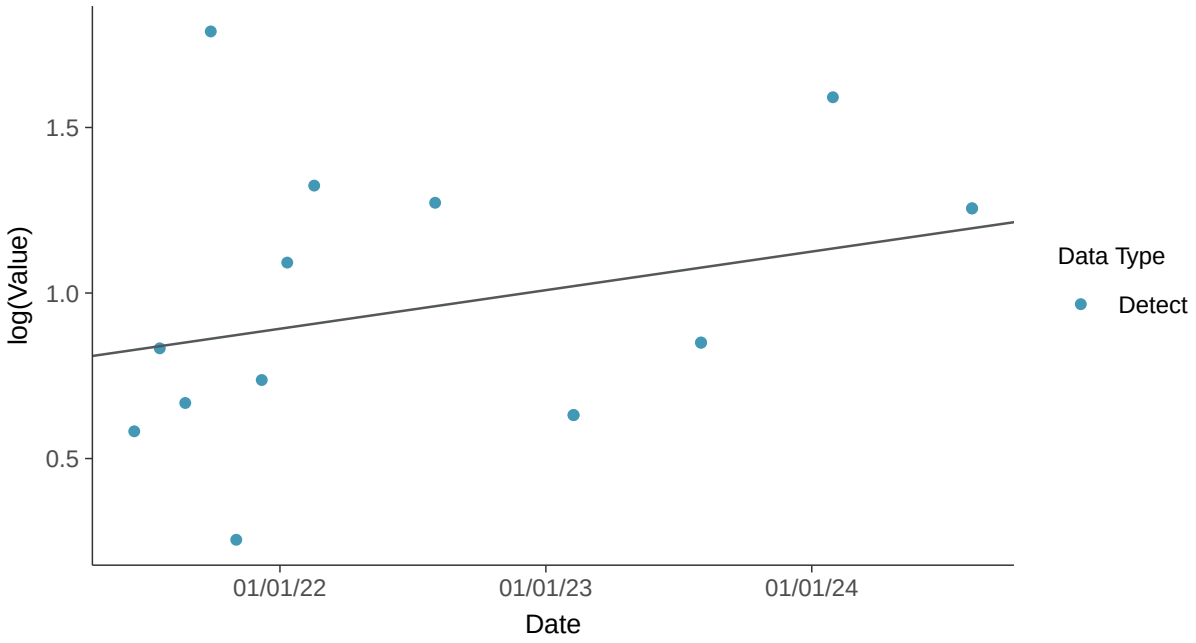
Gamma Q-Q plot

Turbidity, MW-10 (NTU)



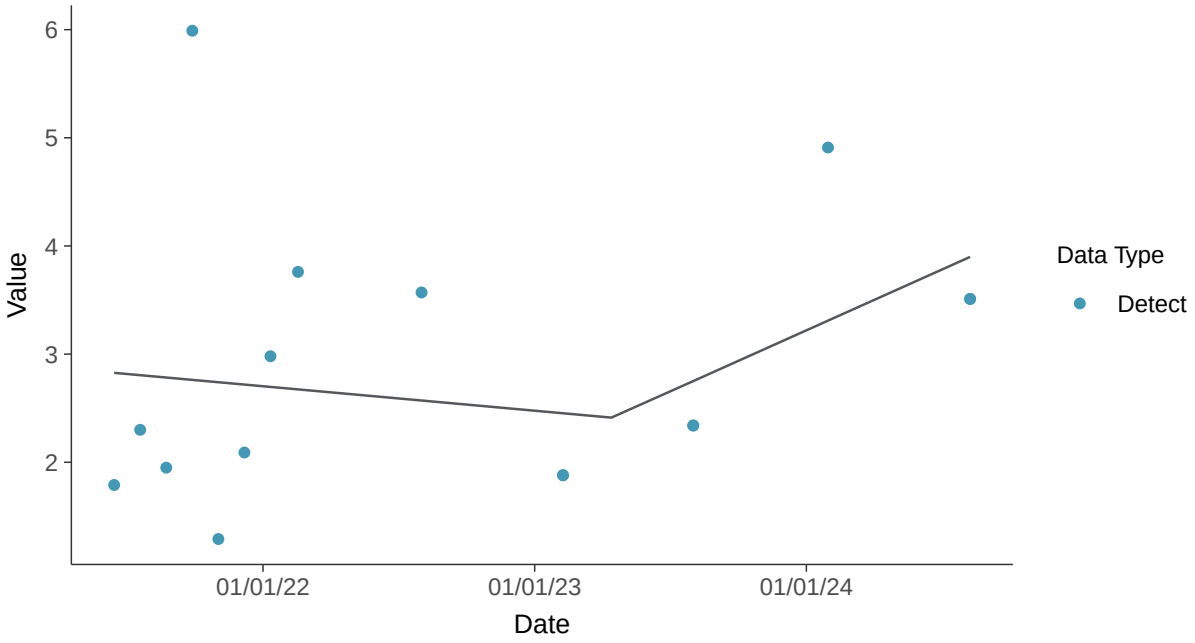
Trend Regression: Lognormal MLE

Turbidity, MW-10 (NTU)



Trend Regression: Piecewise Linear-Linear

Turbidity, MW-10 (NTU)

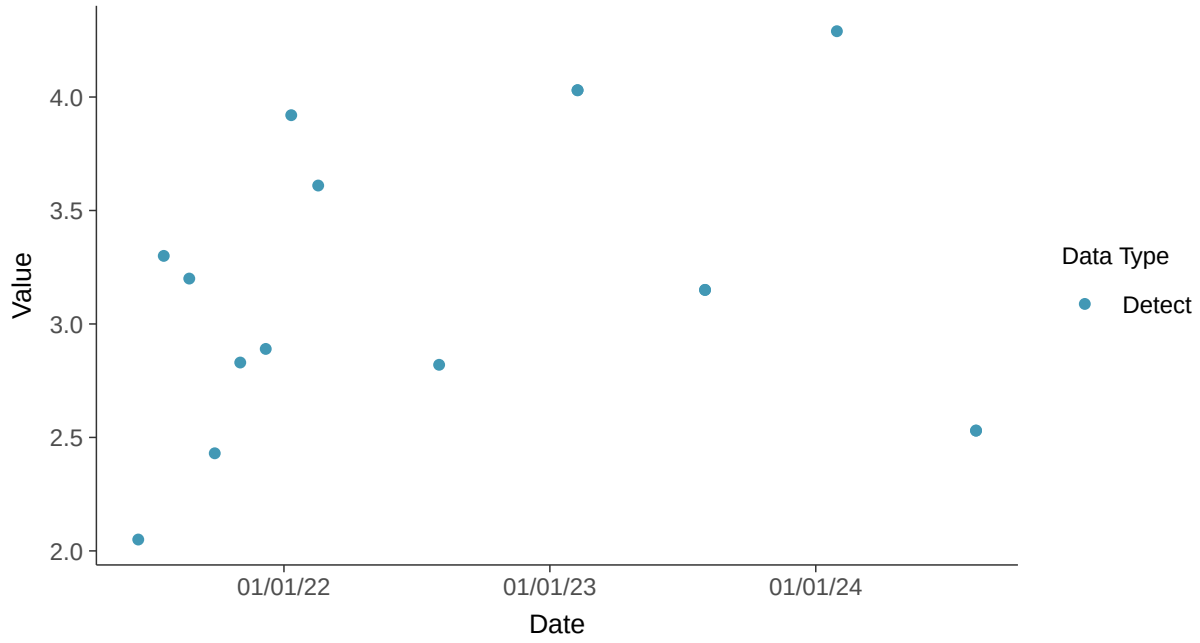


Field Parameters: Dissolved Oxygen, MW-10

ID: 10_3_27

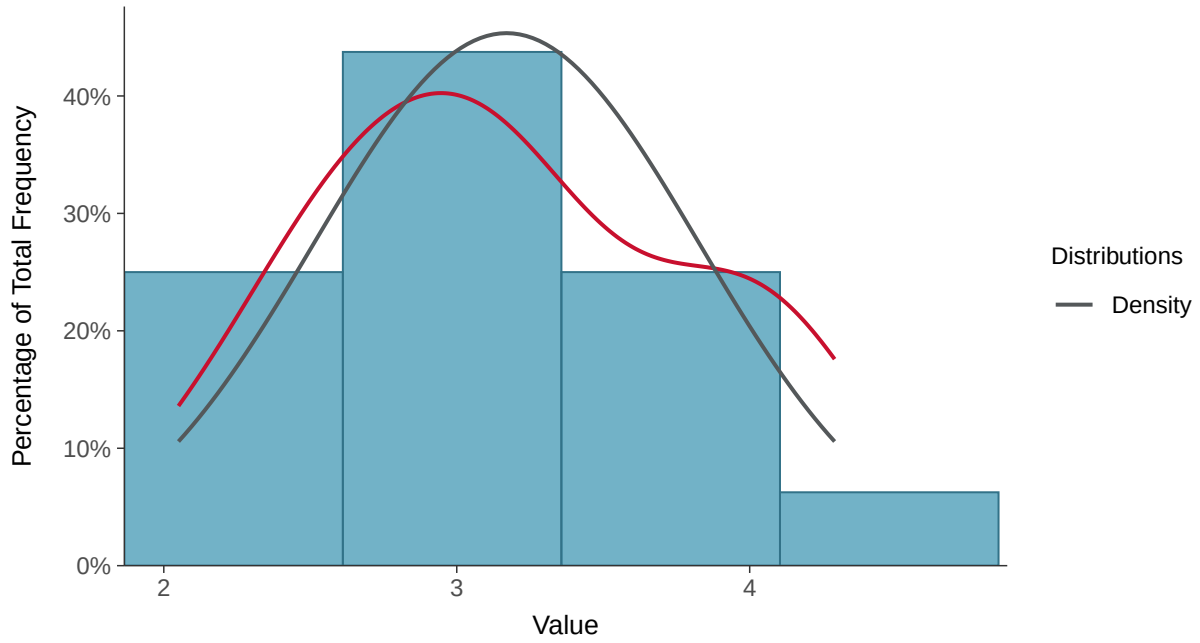
Scatter Plot

Dissolved Oxygen, MW-10 (mg/L)



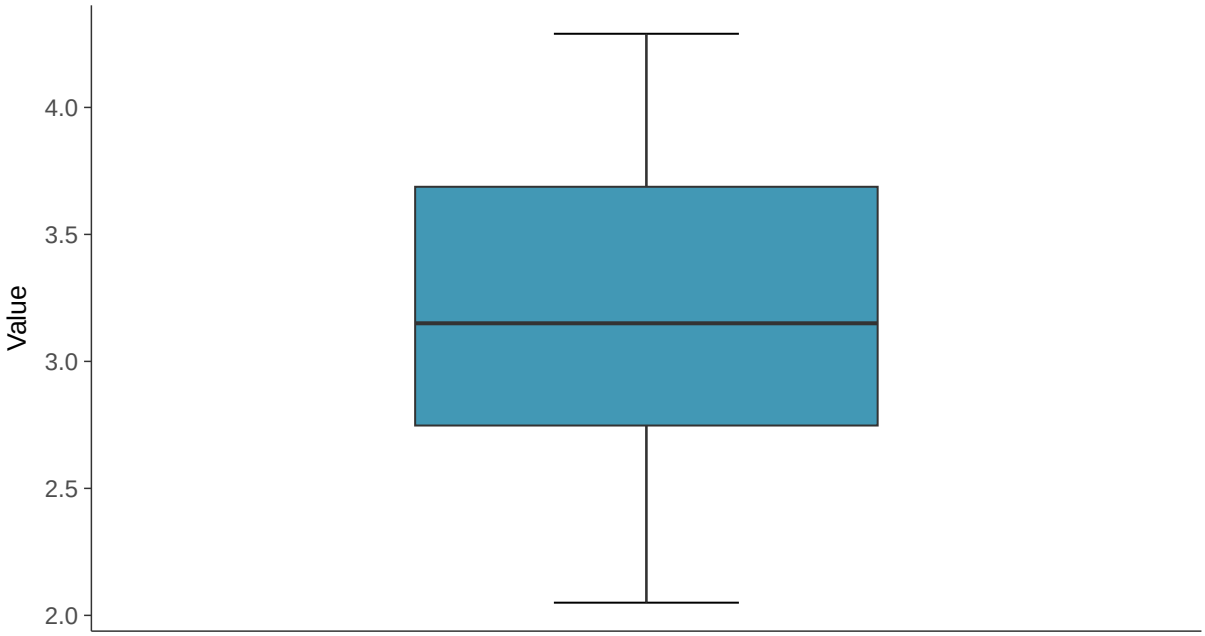
Histogram

Dissolved Oxygen, MW-10 (mg/L)



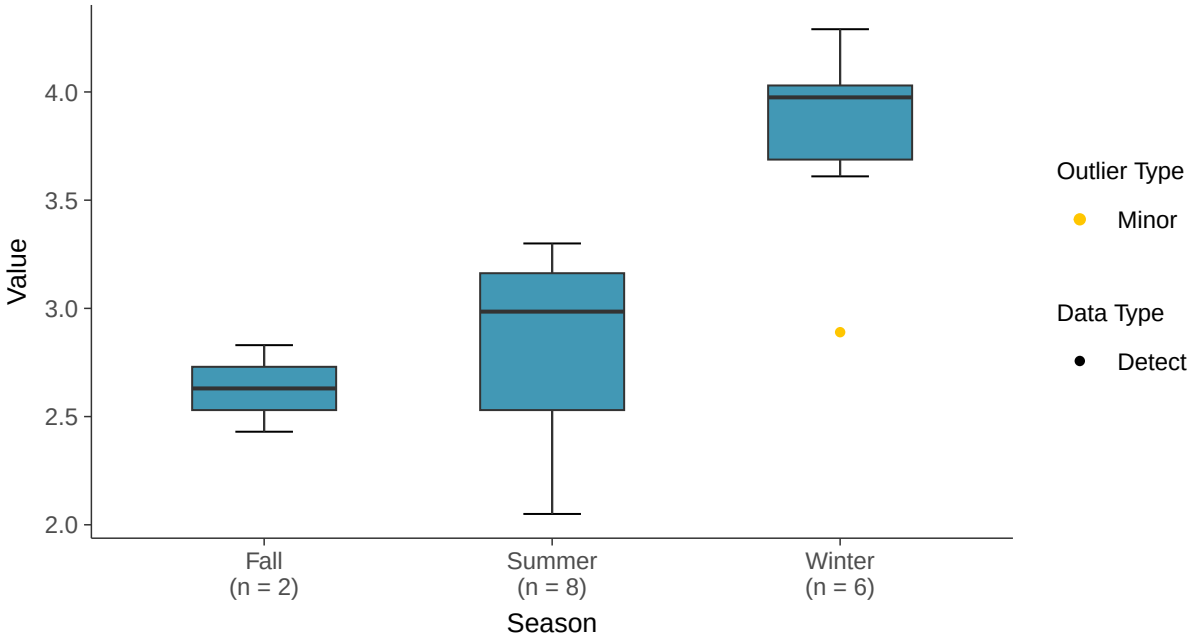
Boxplot

Dissolved Oxygen, MW-10 (mg/L)



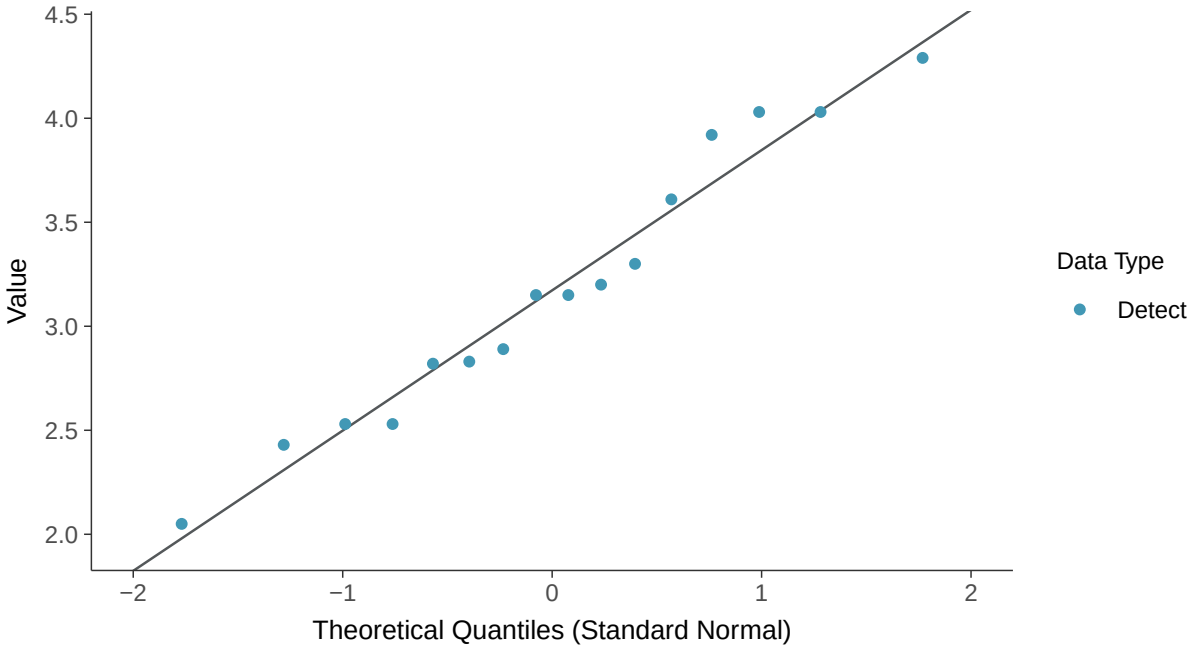
Boxplot by Season

Dissolved Oxygen, MW-10 (mg/L)



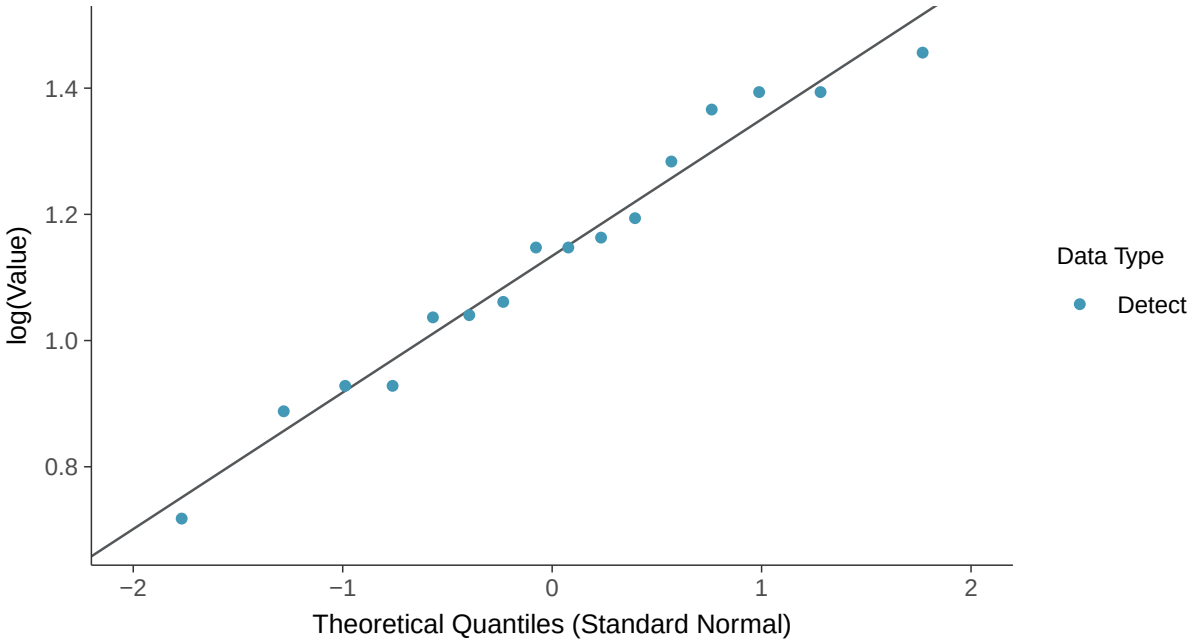
Normal Q-Q plot

Dissolved Oxygen, MW-10 (mg/L)



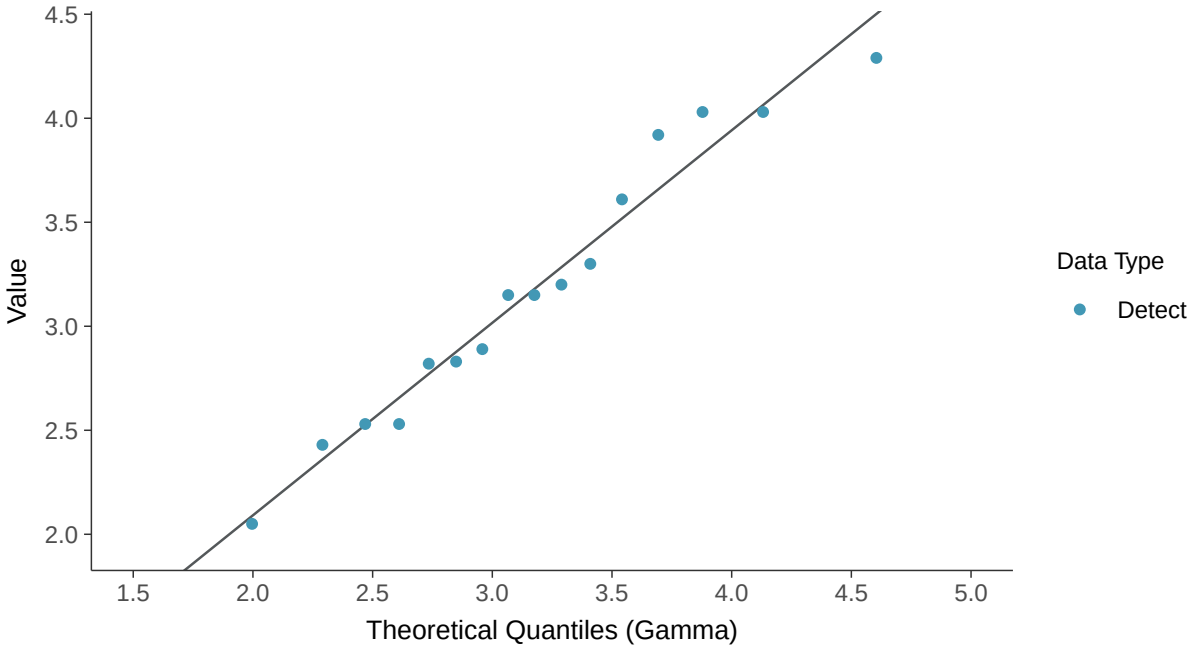
Lognormal Q-Q plot

Dissolved Oxygen, MW-10 (mg/L)



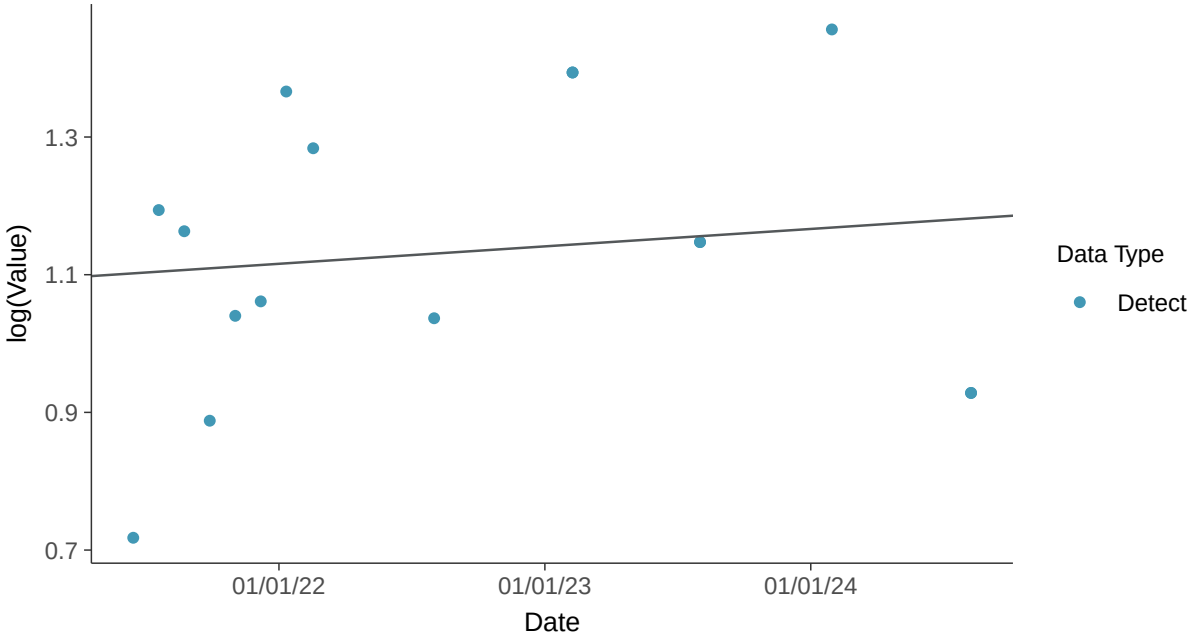
Gamma Q-Q plot

Dissolved Oxygen, MW-10 (mg/L)



Trend Regression: Lognormal MLE

Dissolved Oxygen, MW-10 (mg/L)

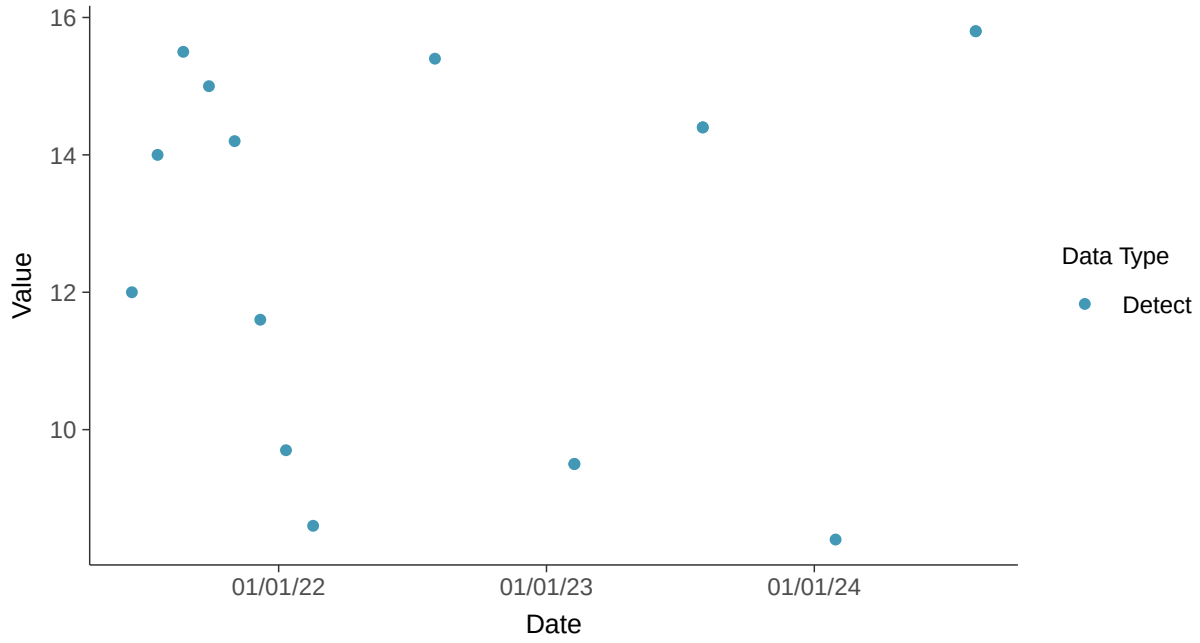


Field Parameters: Temperature, MW-10

ID: 10_3_28

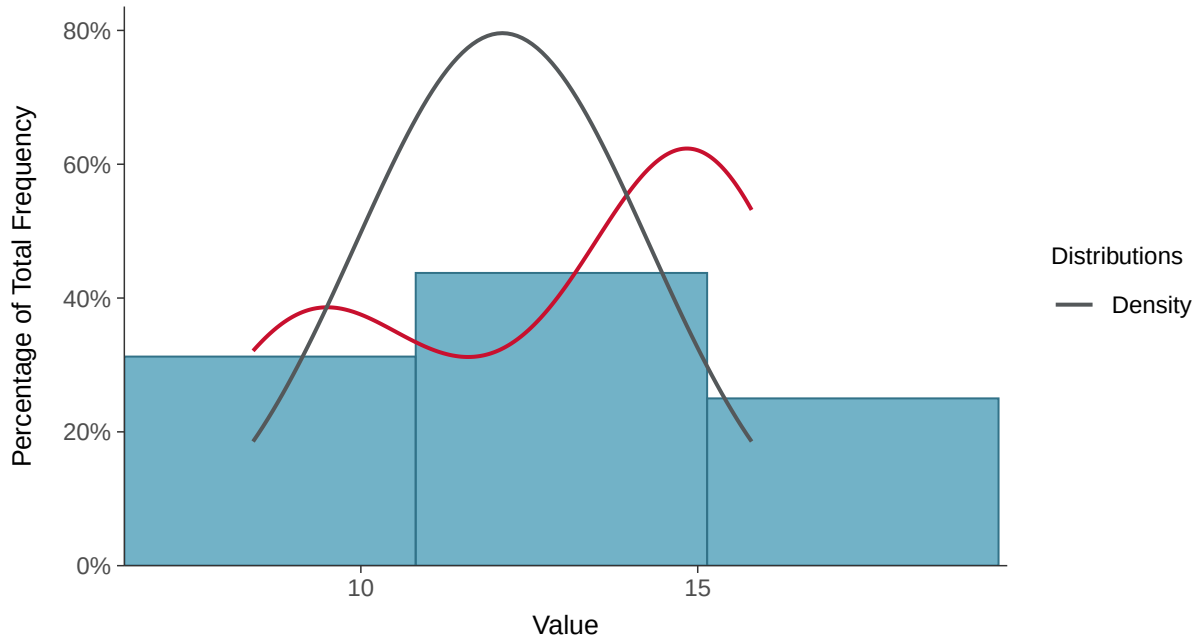
Scatter Plot

Temperature, MW-10 (°C)



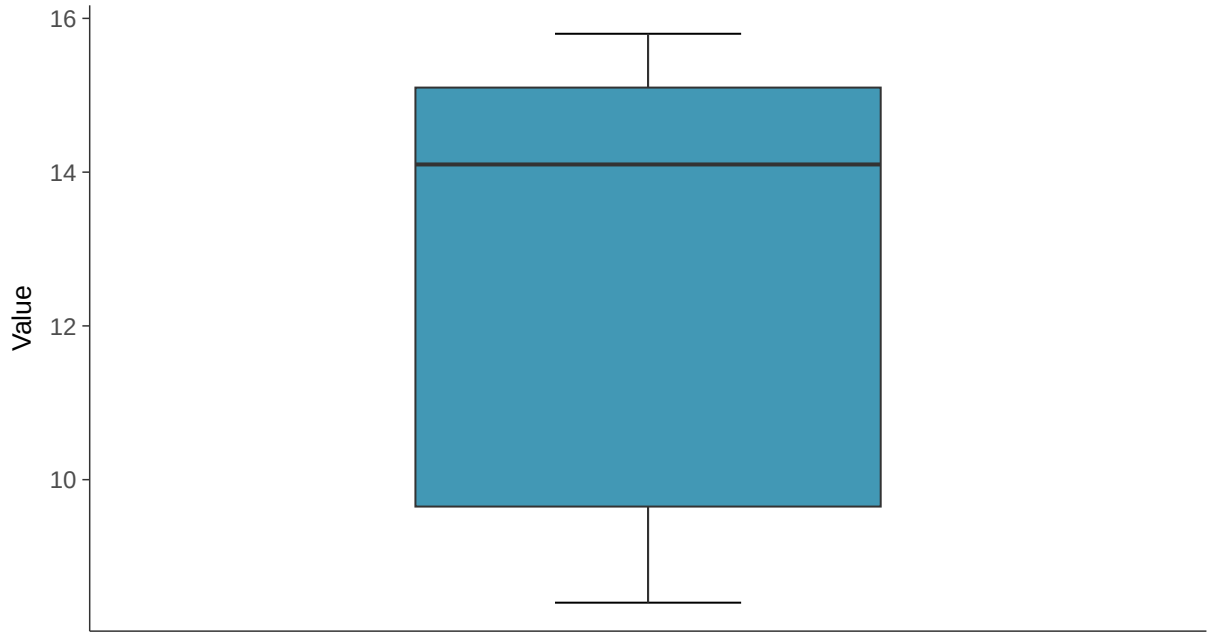
Histogram

Temperature, MW-10 (°C)



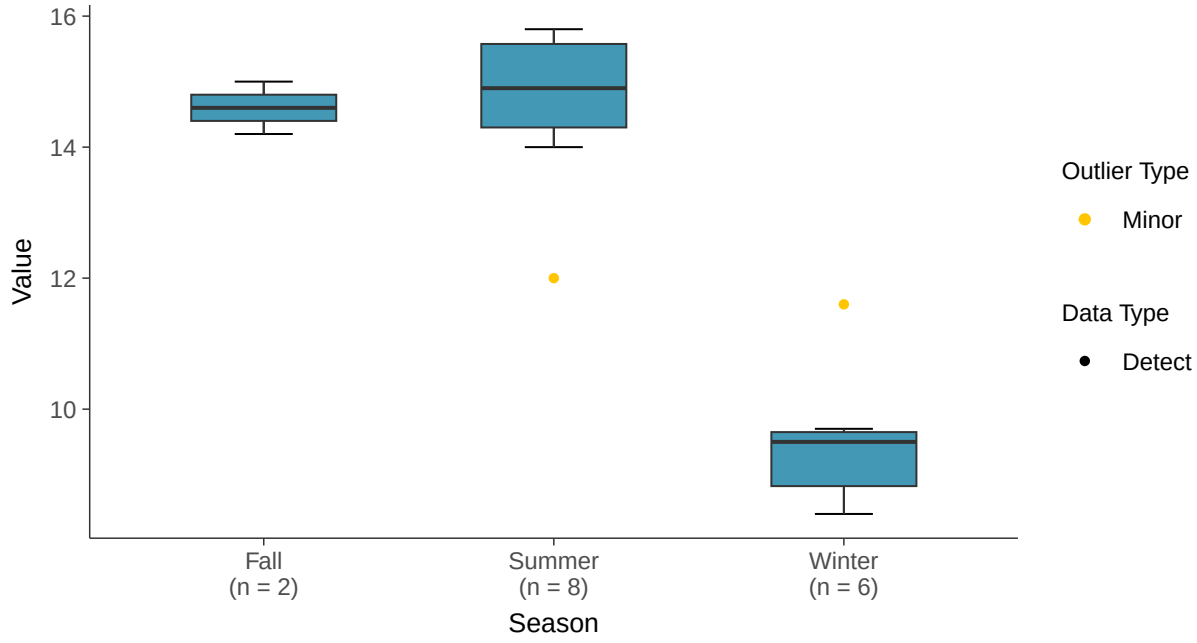
Boxplot

Temperature, MW-10 (°C)



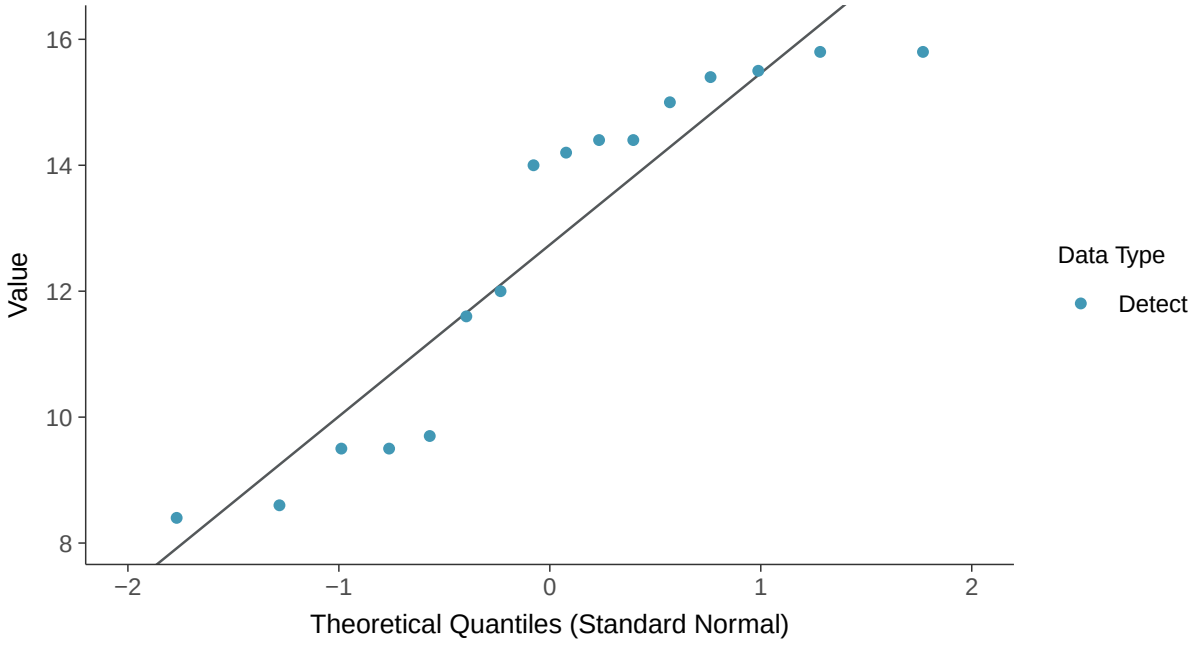
Boxplot by Season

Temperature, MW-10 (°C)



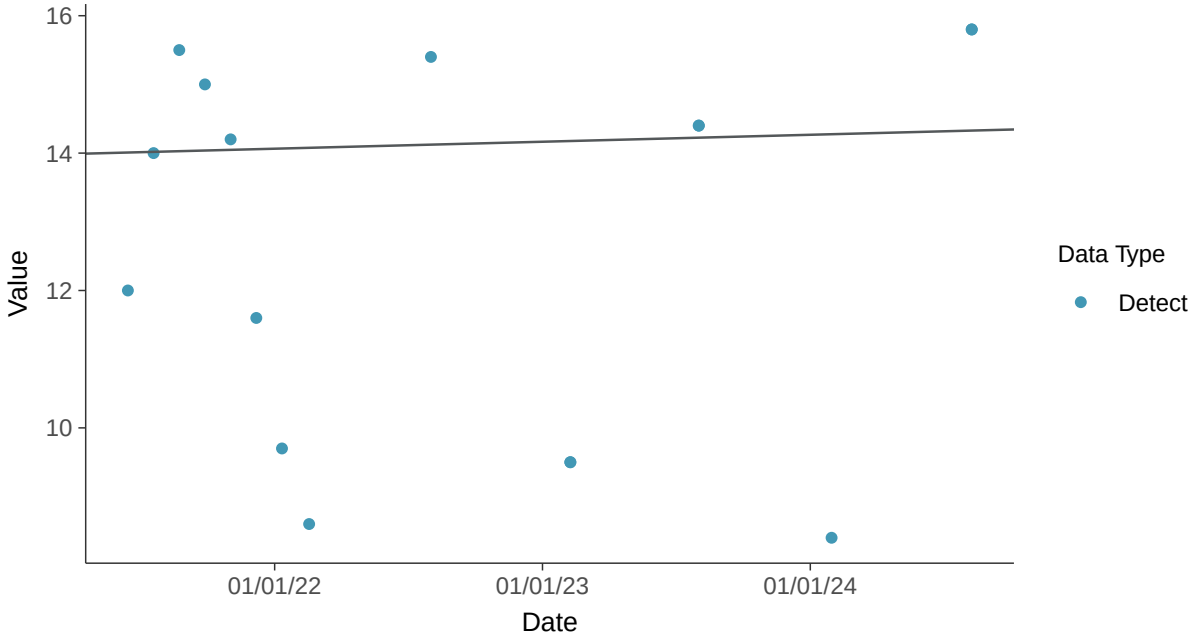
Normal Q-Q plot

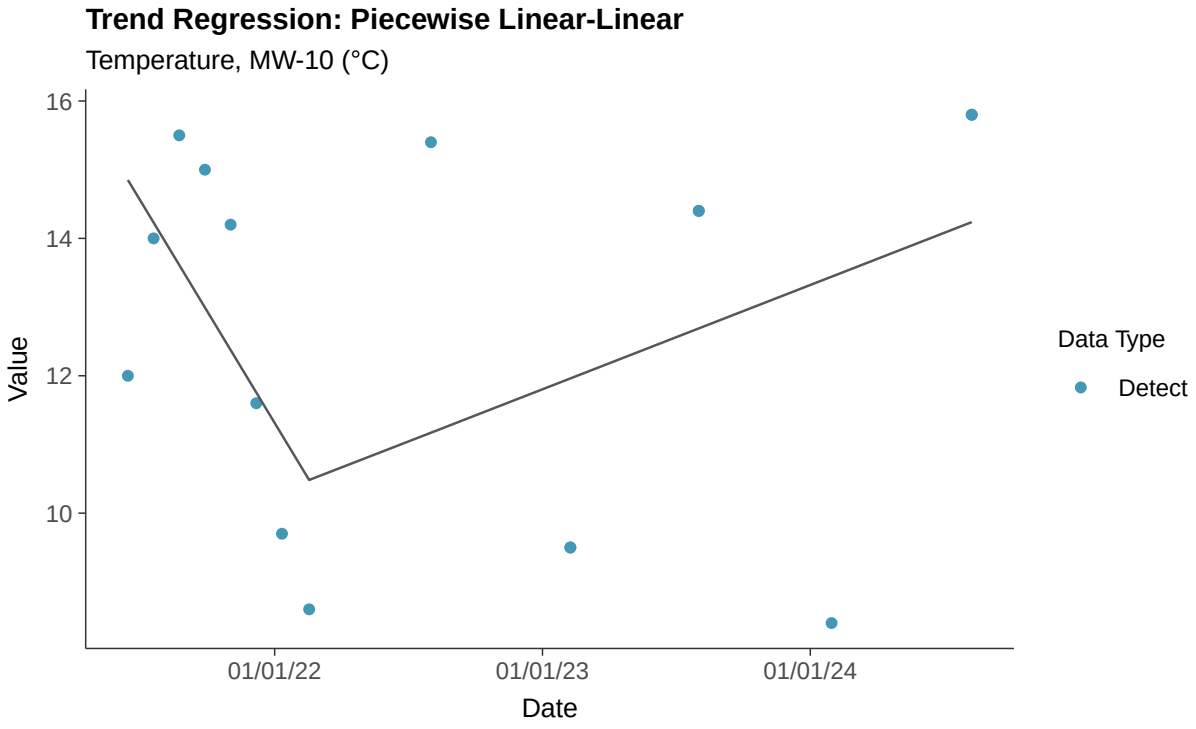
Temperature, MW-10 (°C)



Trend Regression: Mann-Kendall/Theil-Sen Estimate

Temperature, MW-10 (°C)



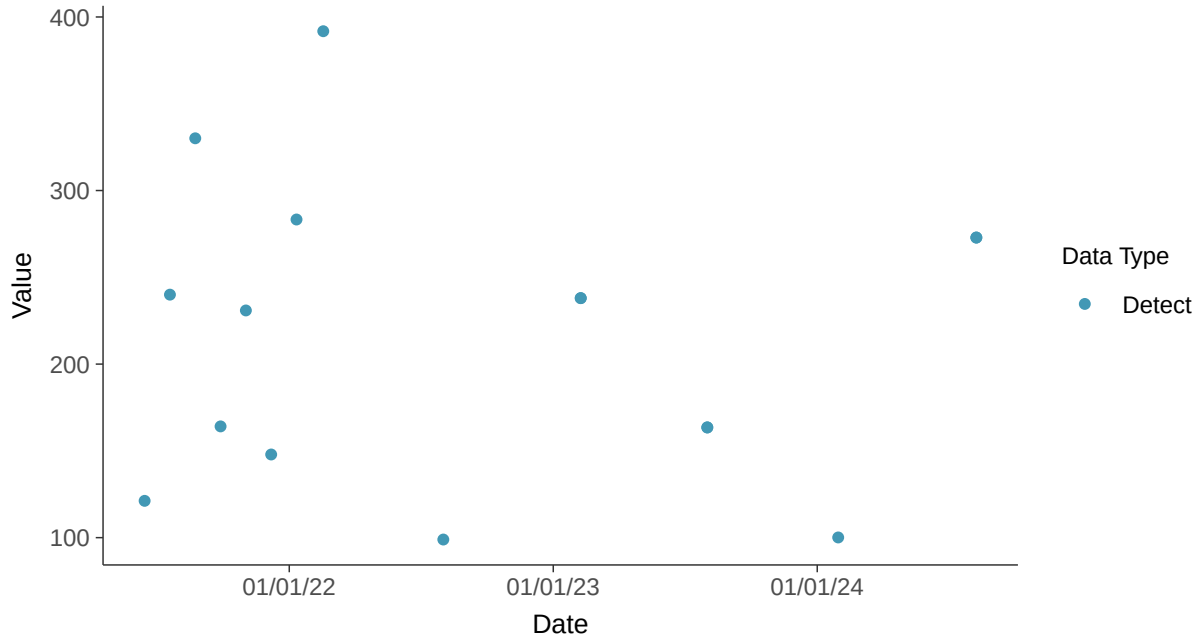

Trend Regression: Piecewise Linear-Linear
Temperature, MW-10 (°C)
16
14
12
10
Value
01/01/22
01/01/23
01/01/24
Date
Data Type
Detect

Field Parameters: Oxidation Reduction Potential, MW-10

ID: 10_3_29

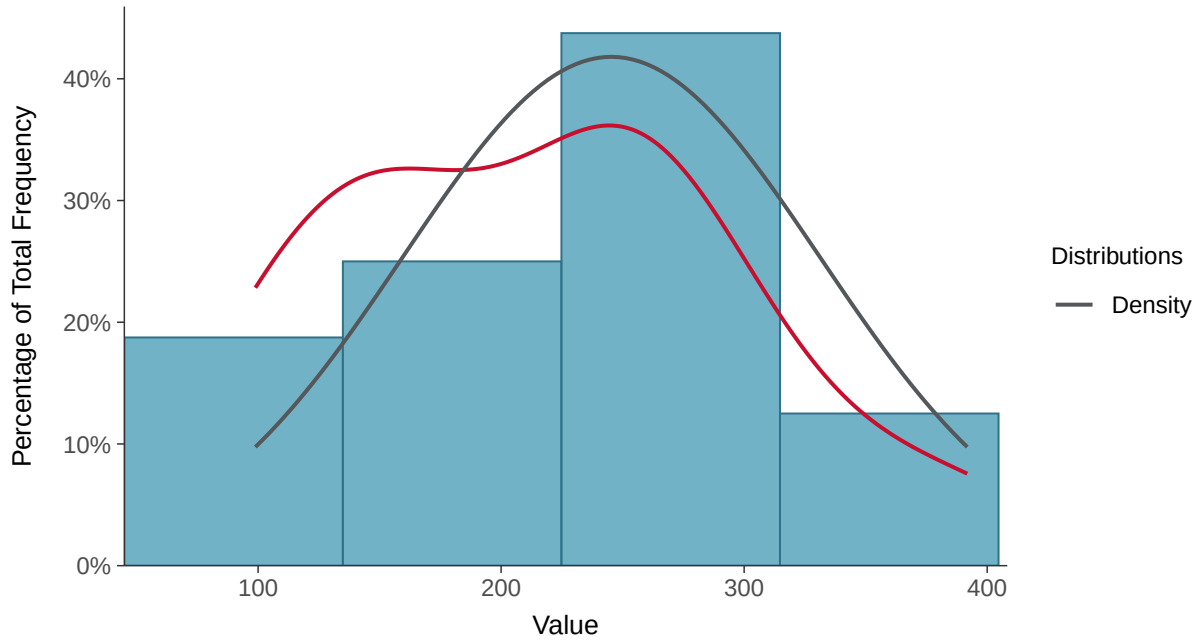
Scatter Plot

Oxidation Reduction Potential, MW-10 (mV)



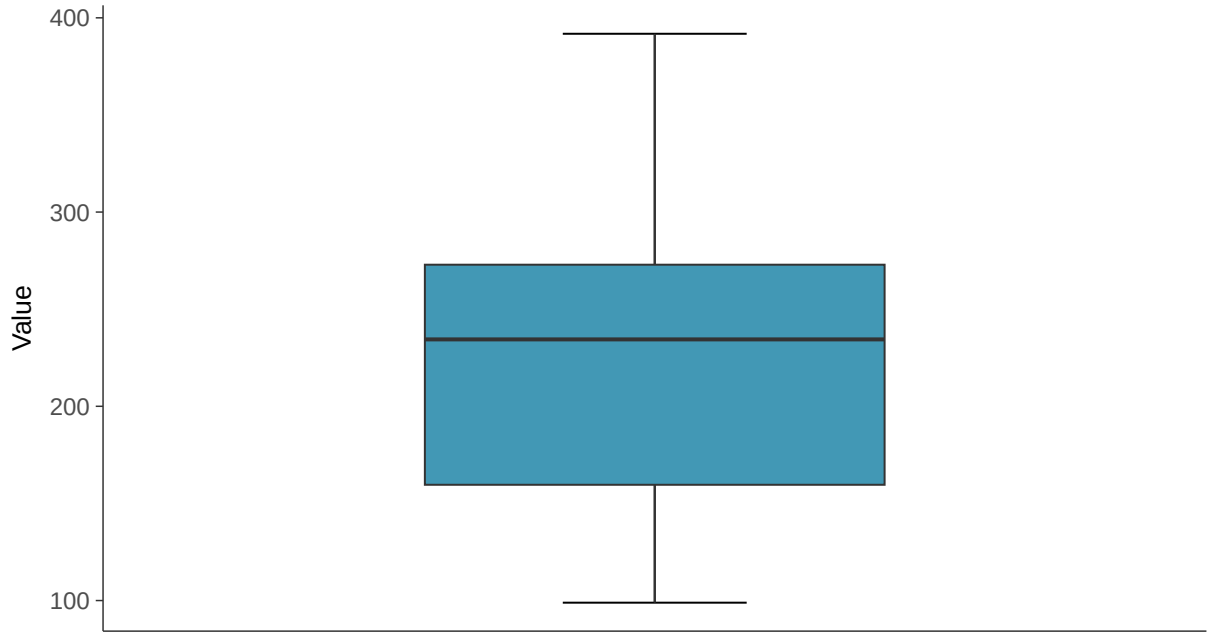
Histogram

Oxidation Reduction Potential, MW-10 (mV)



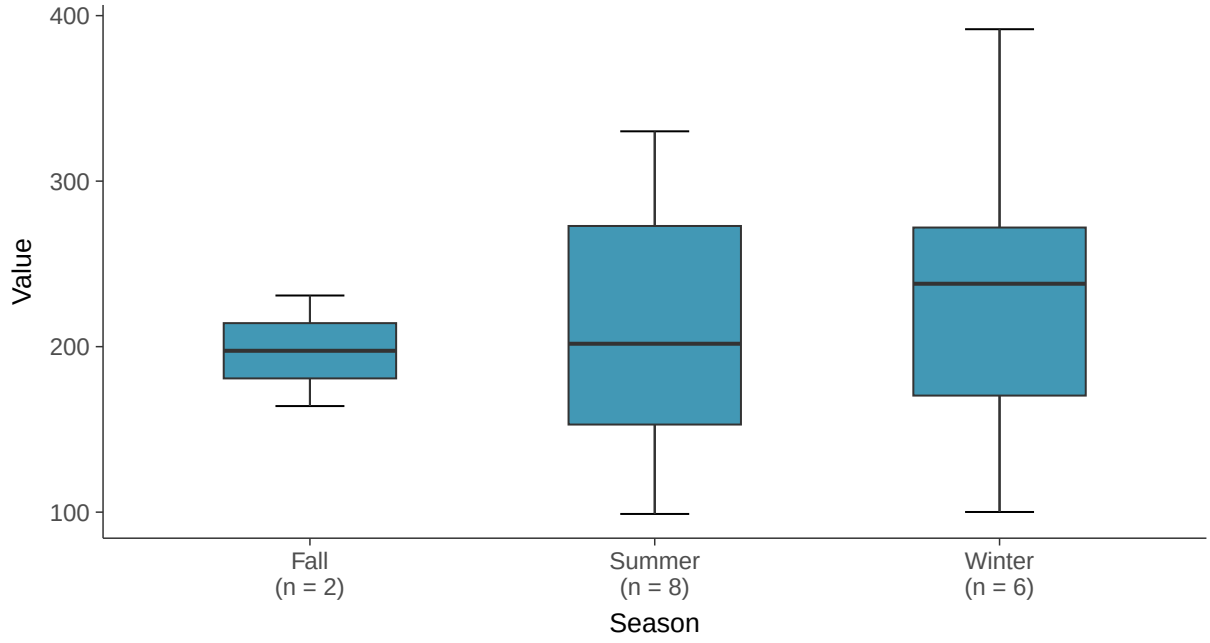
Boxplot

Oxidation Reduction Potential, MW-10 (mV)



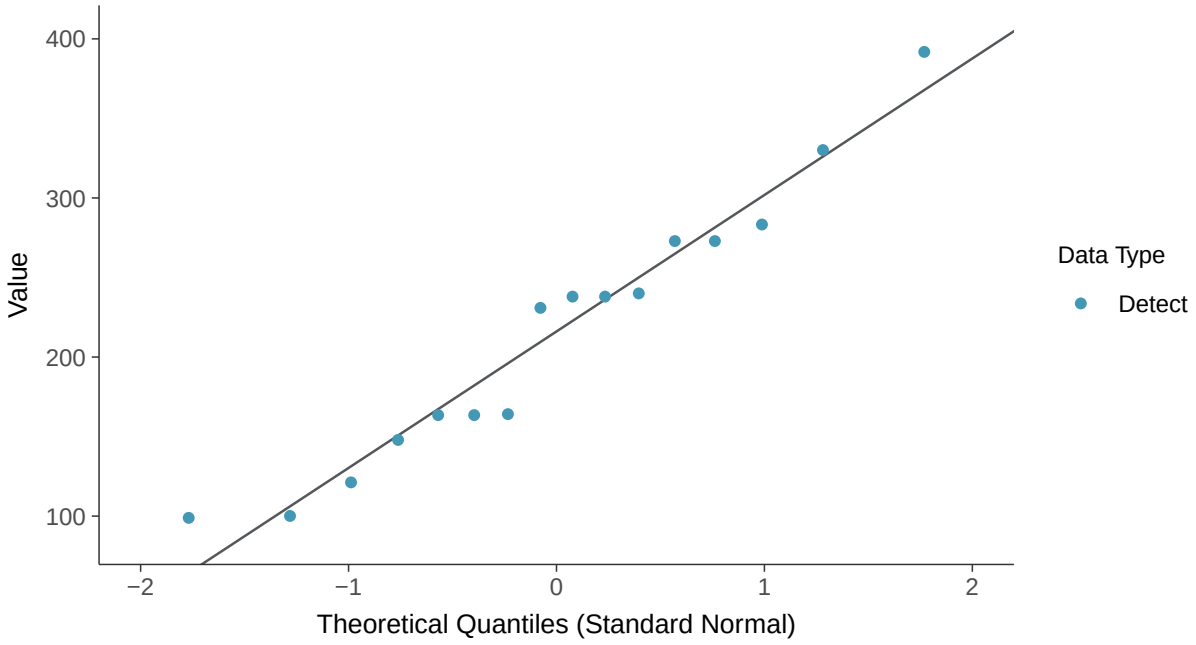
Boxplot by Season

Oxidation Reduction Potential, MW-10 (mV)



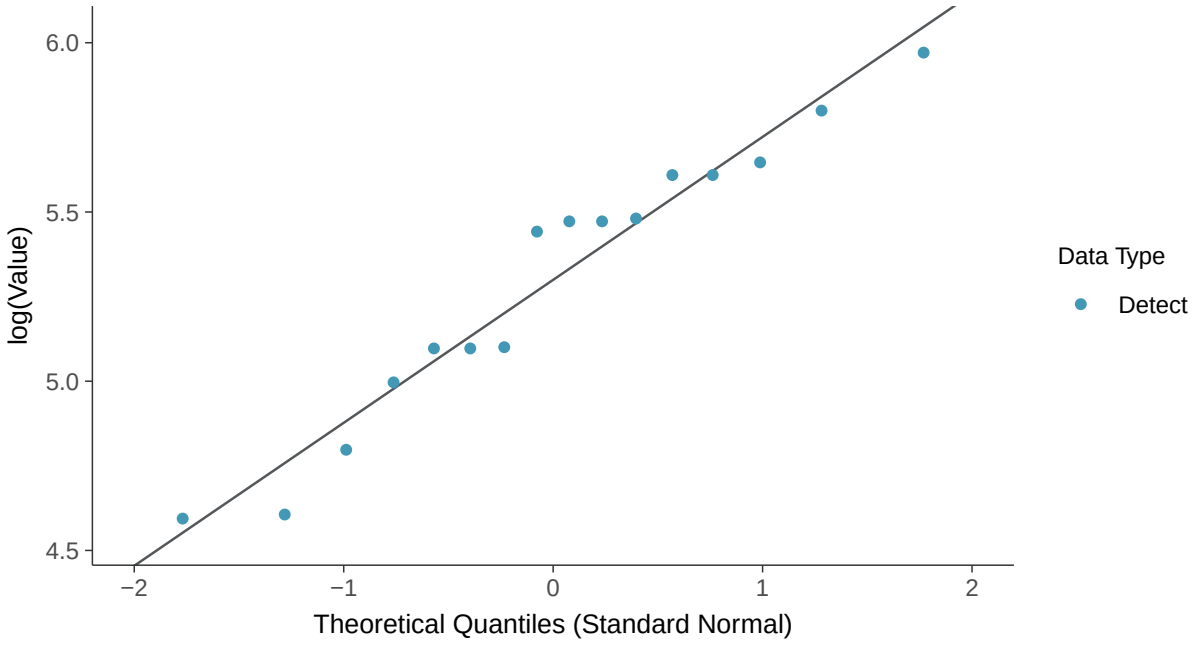
Normal Q-Q plot

Oxidation Reduction Potential, MW-10 (mV)



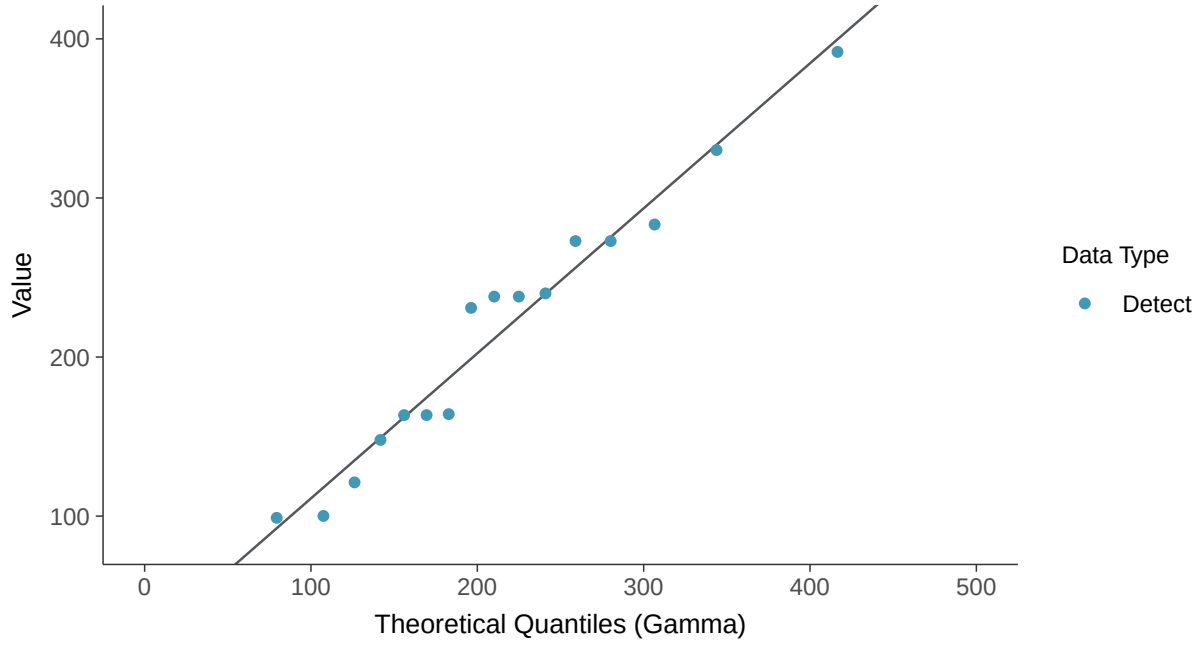
Lognormal Q-Q plot

Oxidation Reduction Potential, MW-10 (mV)



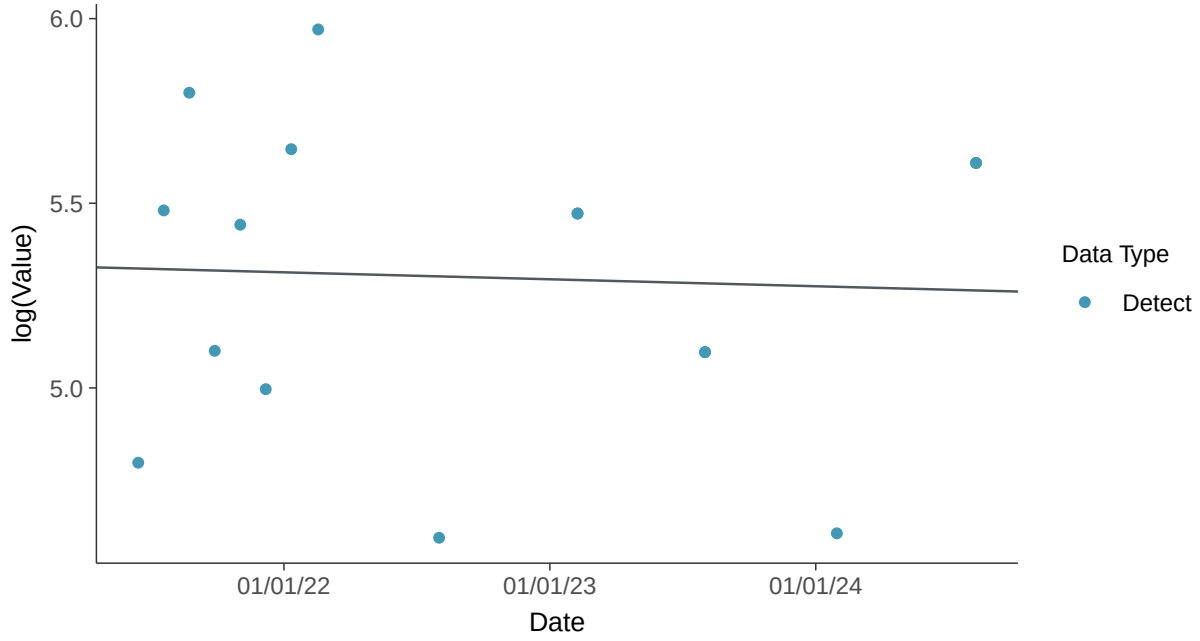
Gamma Q-Q plot

Oxidation Reduction Potential, MW-10 (mV)



Trend Regression: Lognormal MLE

Oxidation Reduction Potential, MW-10 (mV)

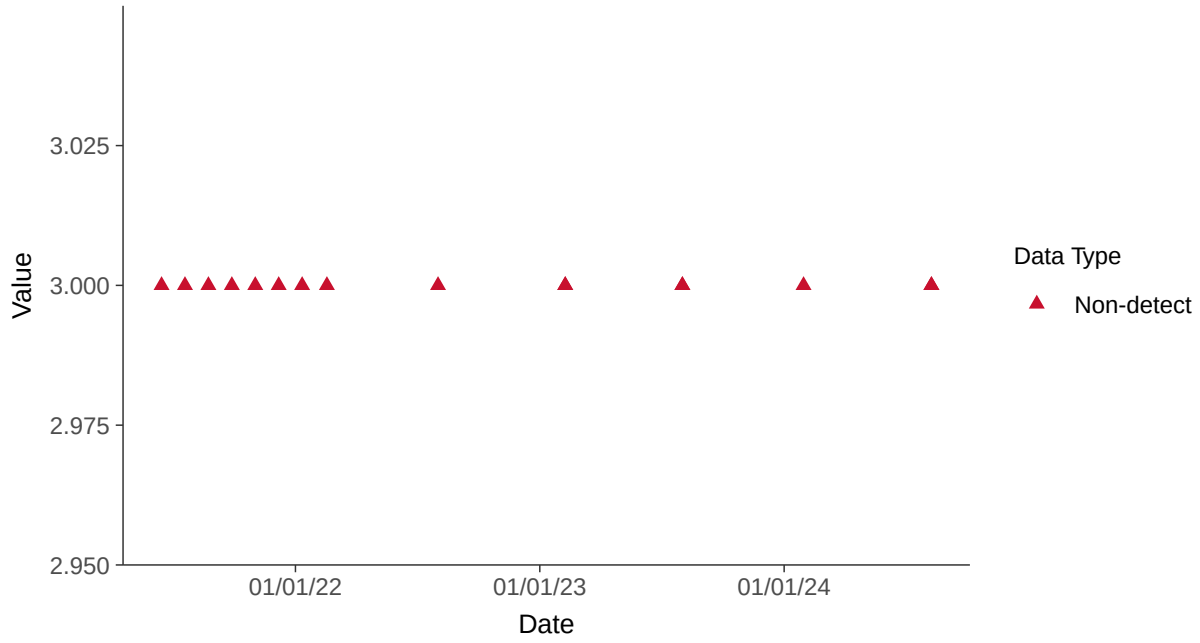


Other: Total Suspended Solids, MW-10

ID: 10_4_30

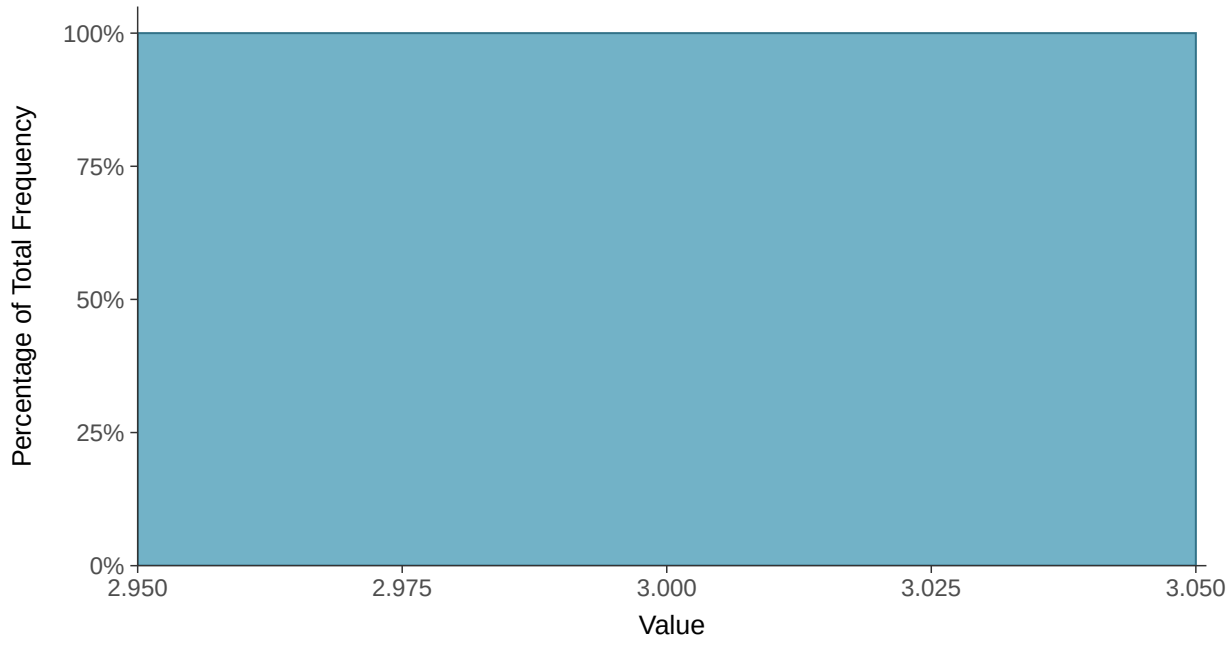
Scatter Plot

Total Suspended Solids, MW-10 (mg/L)



Histogram

Total Suspended Solids, MW-10 (mg/L)

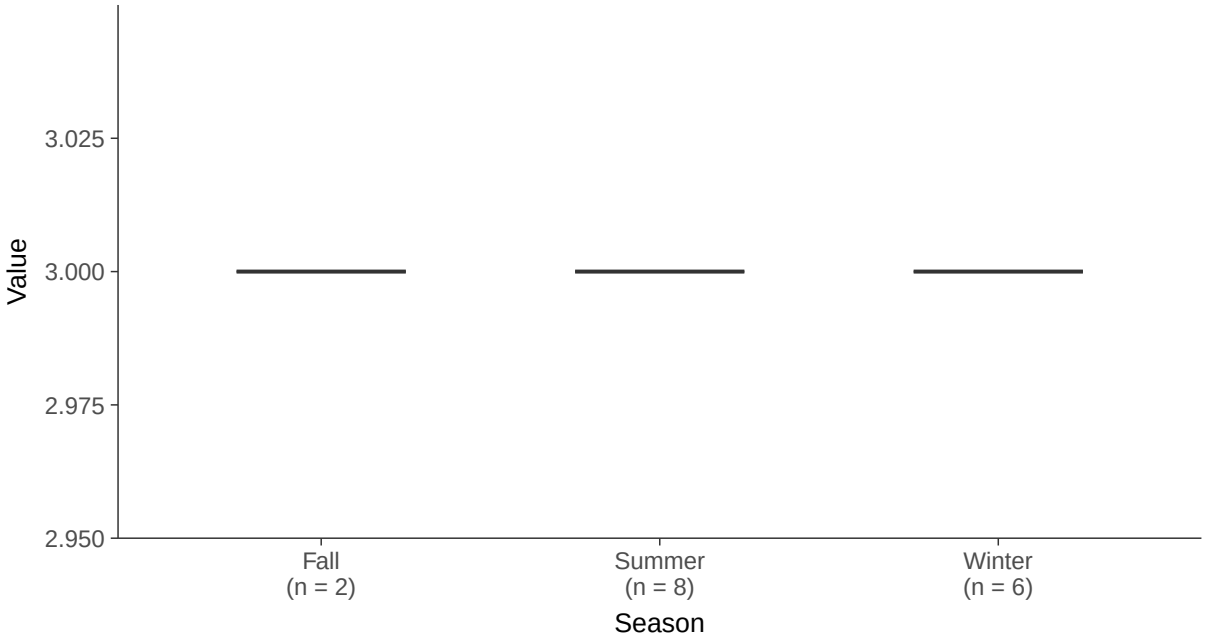


Boxplot

Total Suspended Solids, MW-10 (mg/L)

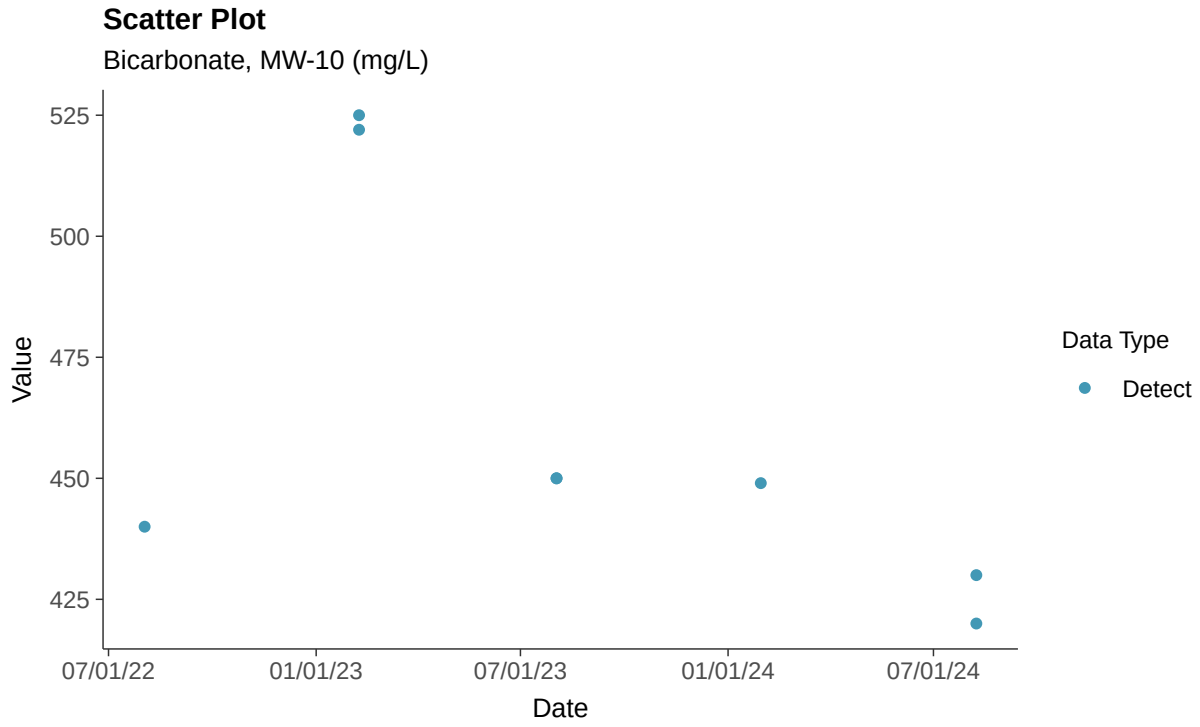
Boxplot by Season

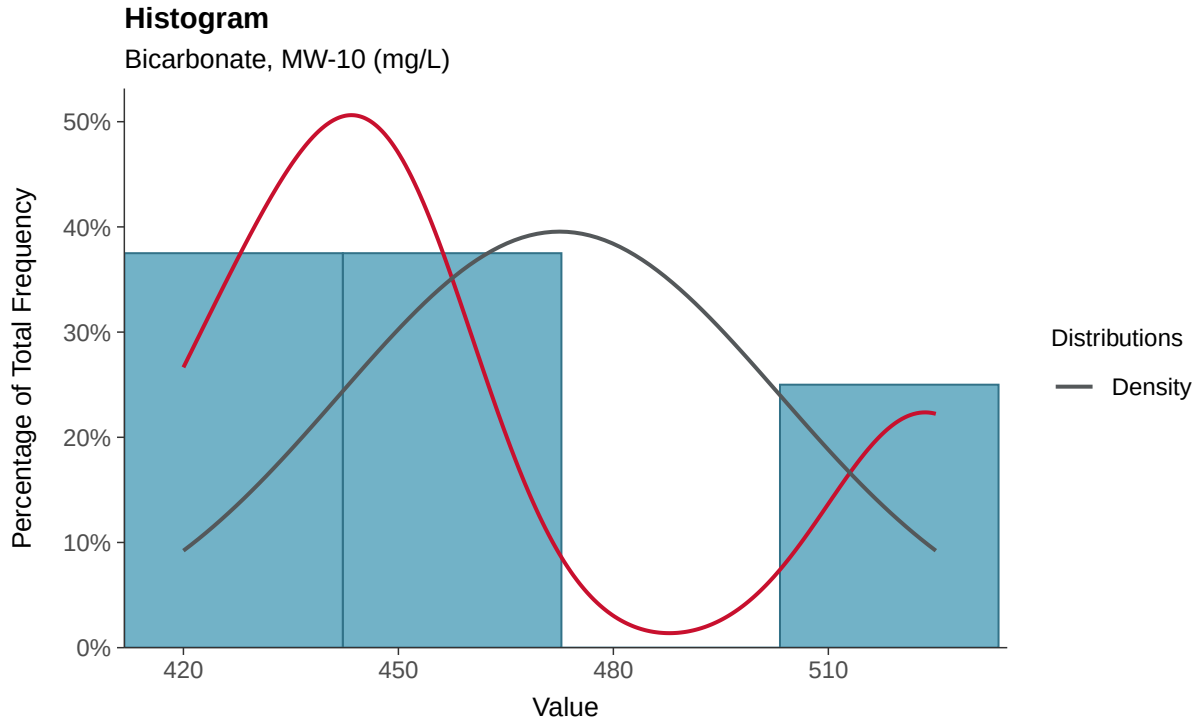
Total Suspended Solids, MW-10 (mg/L)



Other: Bicarbonate, MW-10

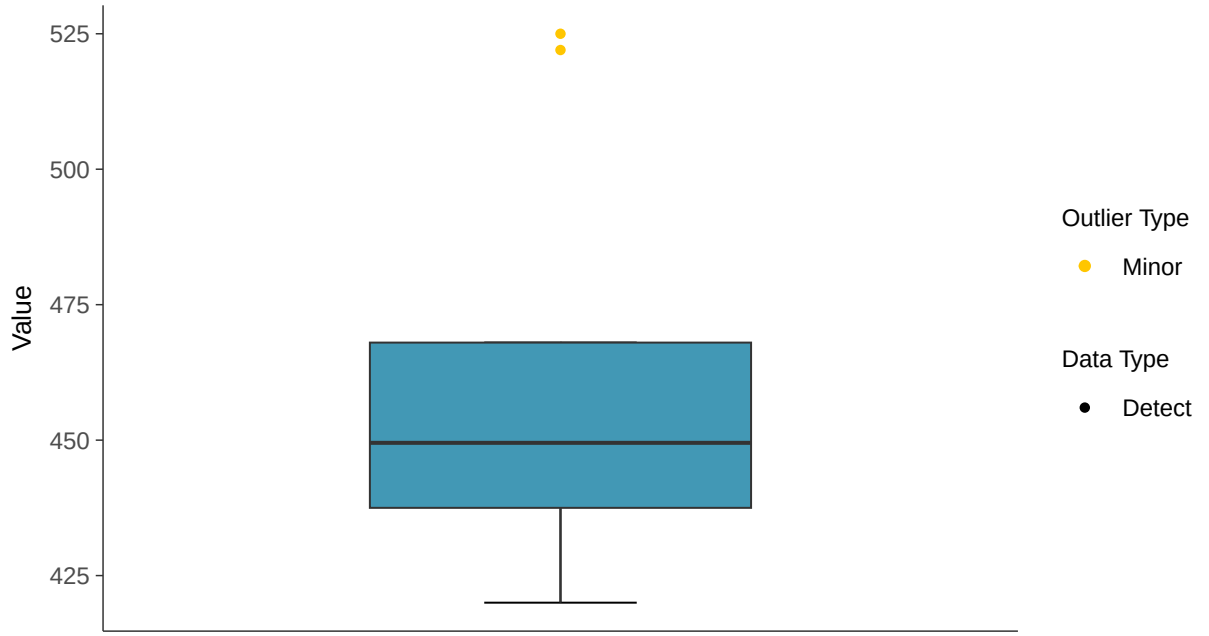
ID: 10_4_31





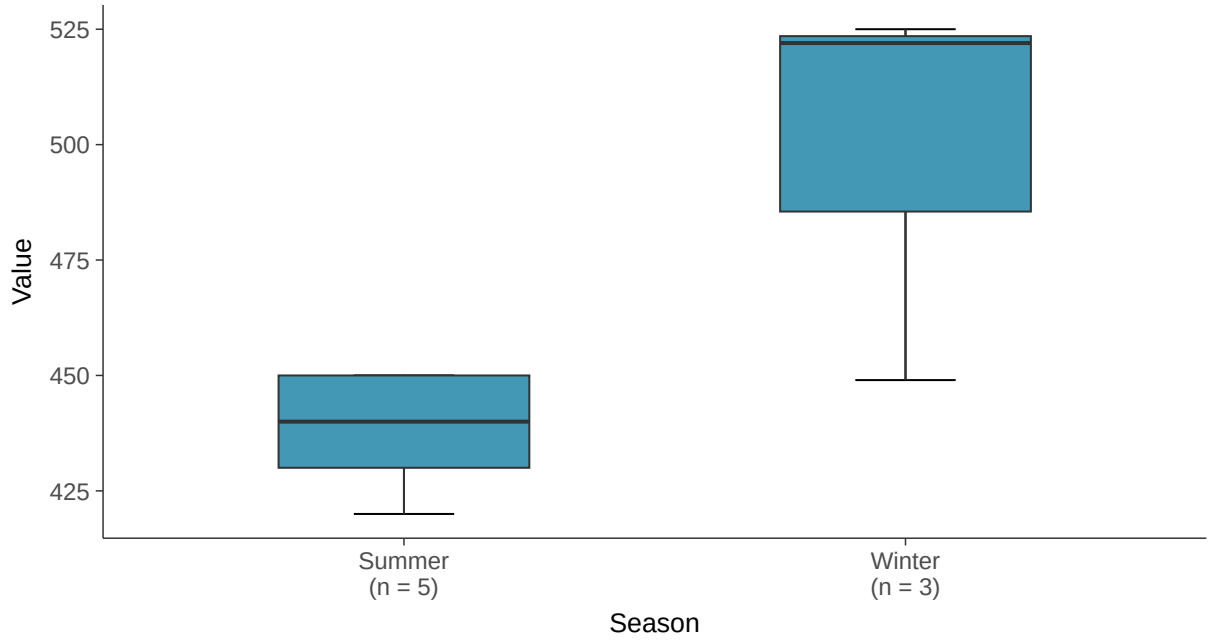
Boxplot

Bicarbonate, MW-10 (mg/L)



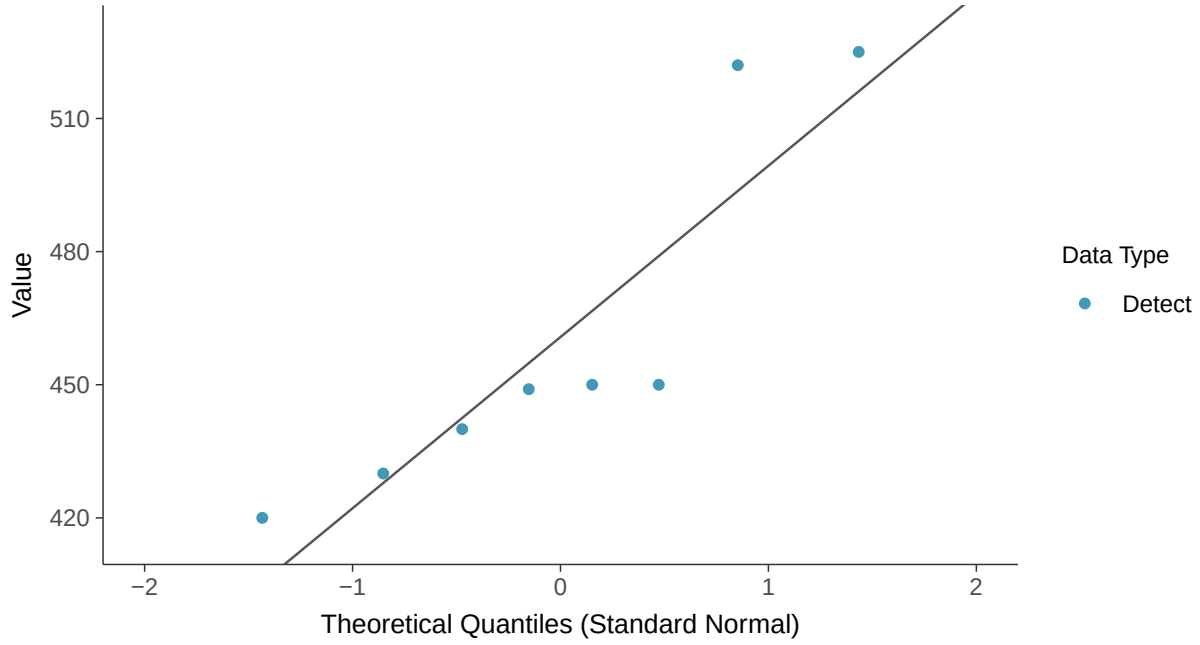
Boxplot by Season

Bicarbonate, MW-10 (mg/L)



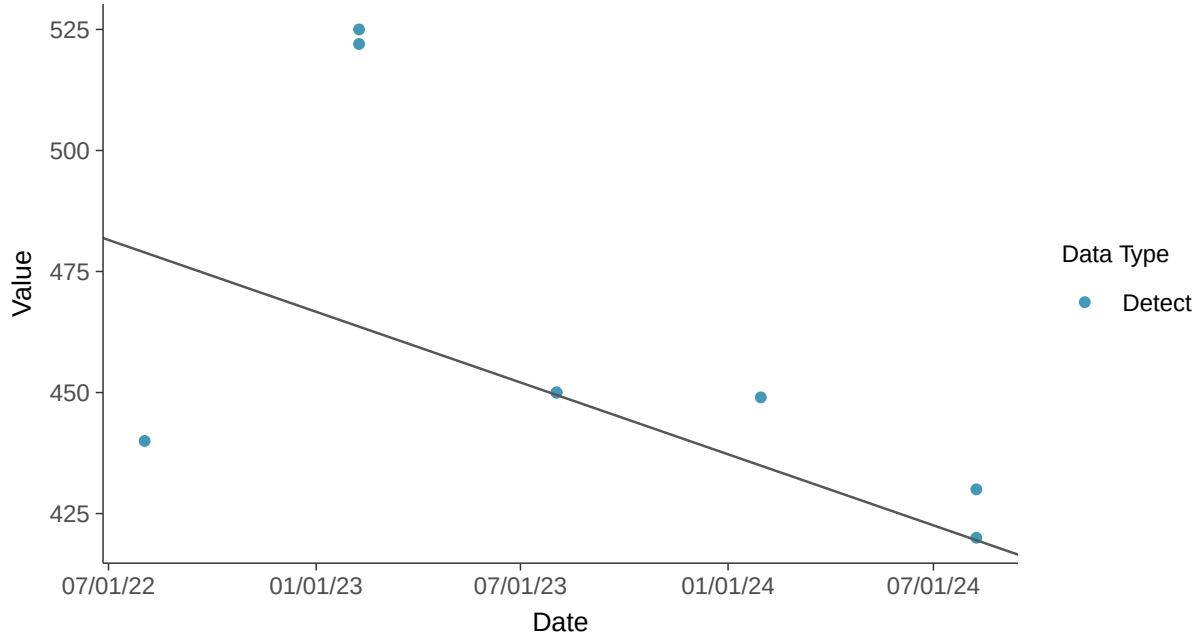
Normal Q-Q plot

Bicarbonate, MW-10 (mg/L)



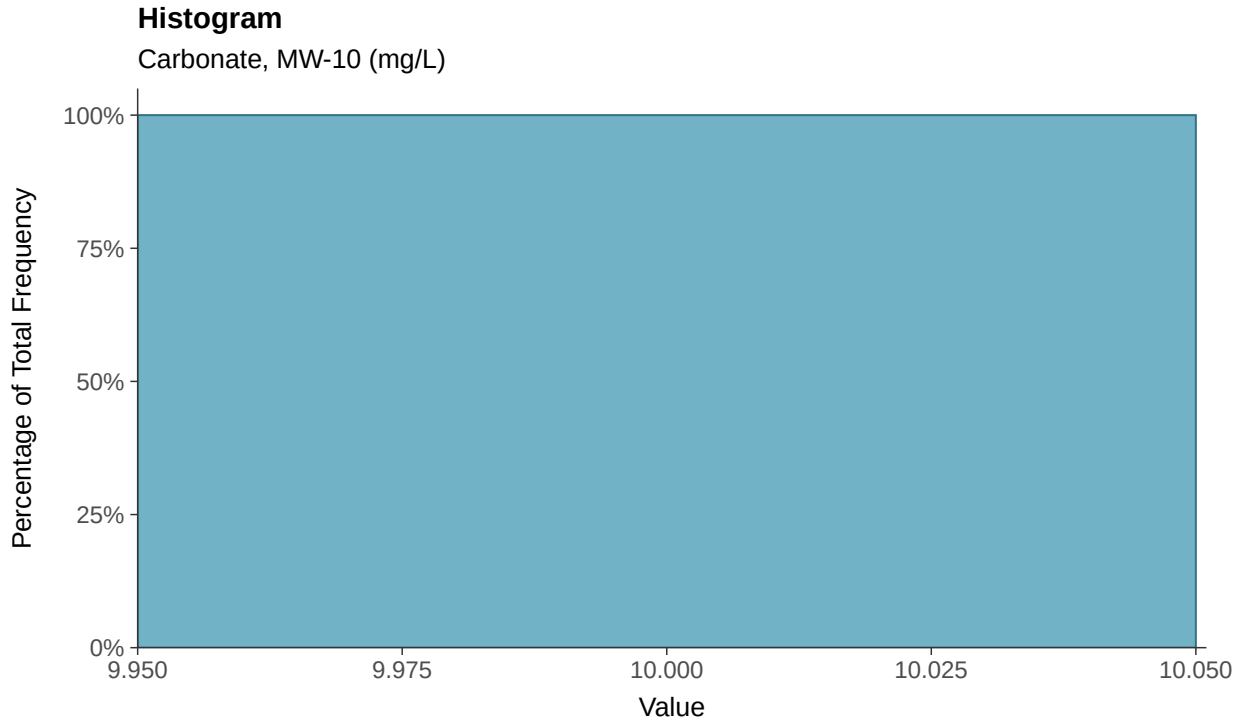
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Bicarbonate, MW-10 (mg/L)



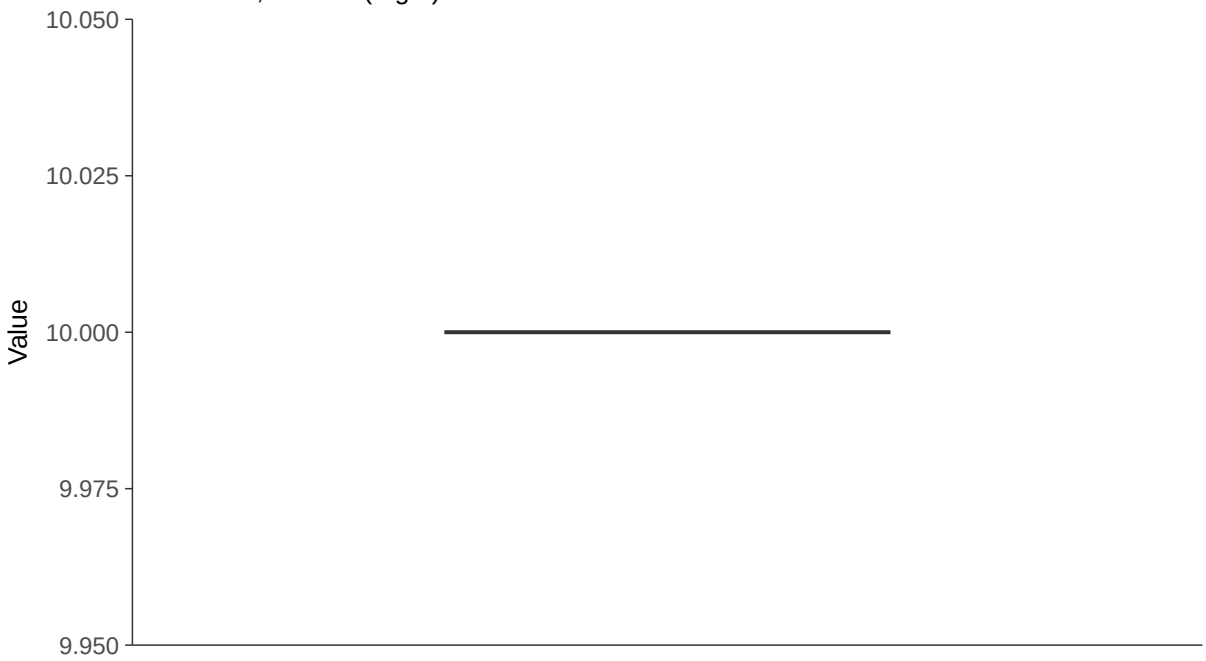
Other: Carbonate, MW-10

ID: 10_4_32



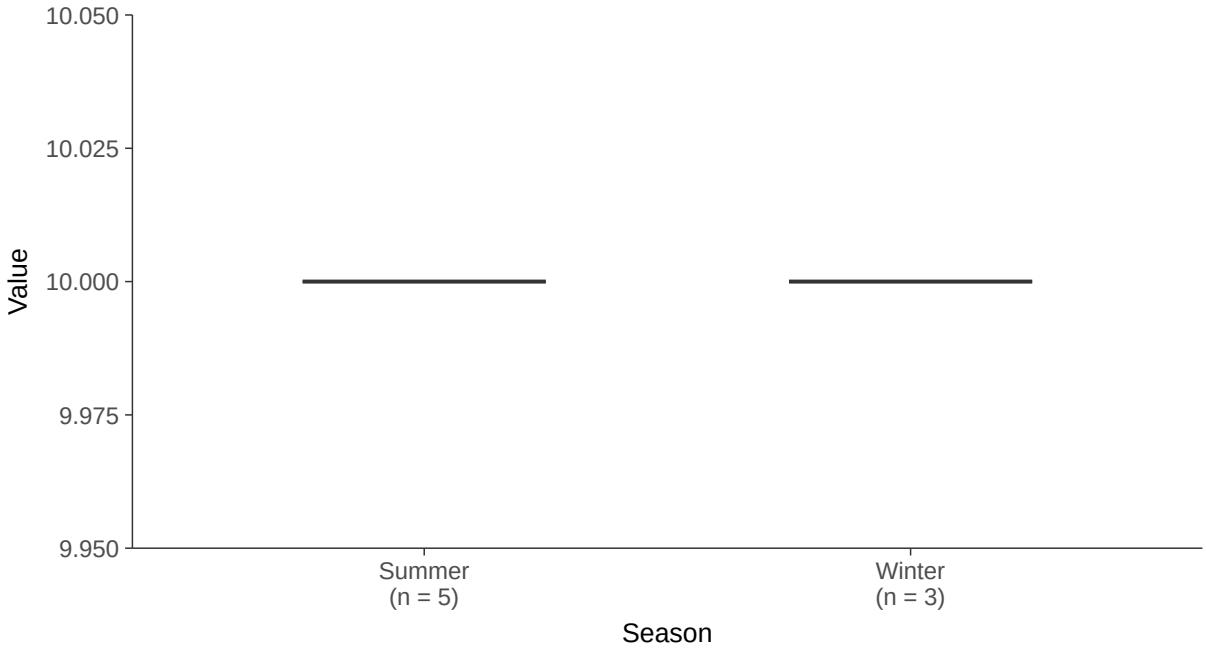
Boxplot

Carbonate, MW-10 (mg/L)



Boxplot by Season

Carbonate, MW-10 (mg/L)

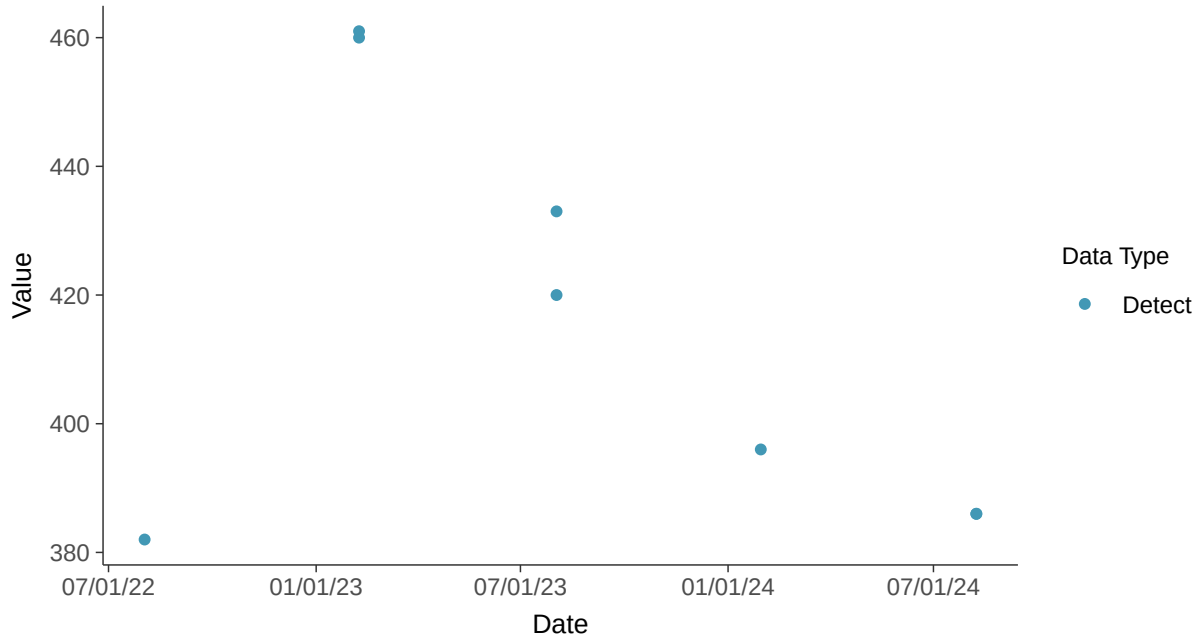


Other: Hardness, MW-10

ID: 10_4_33

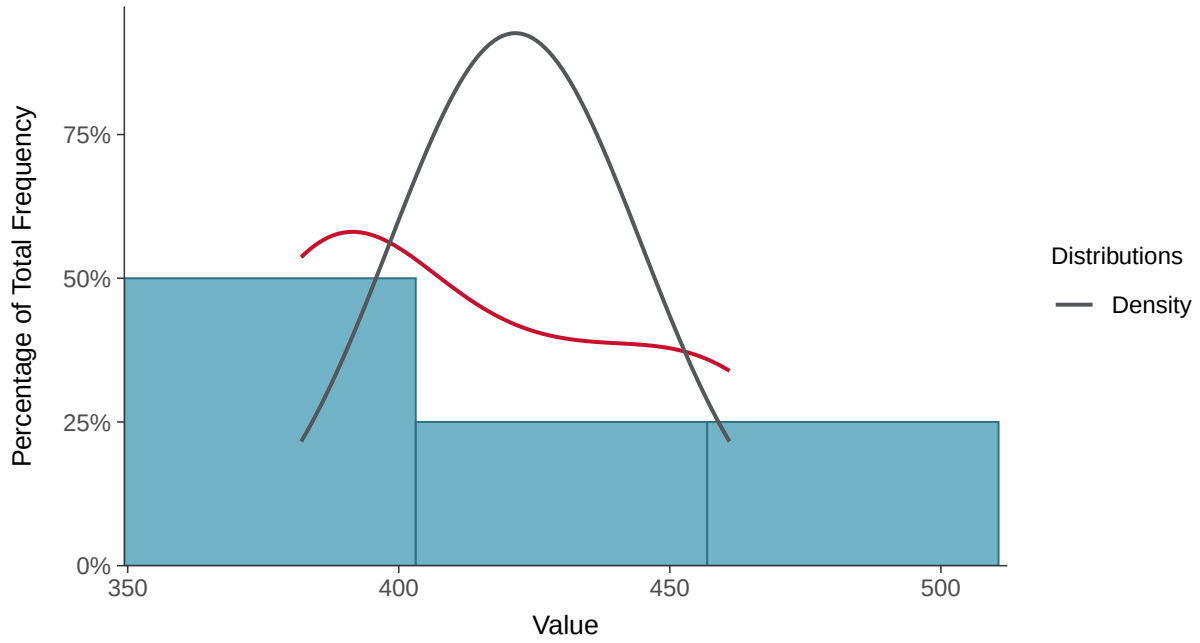
Scatter Plot

Hardness, MW-10 (mg/L)



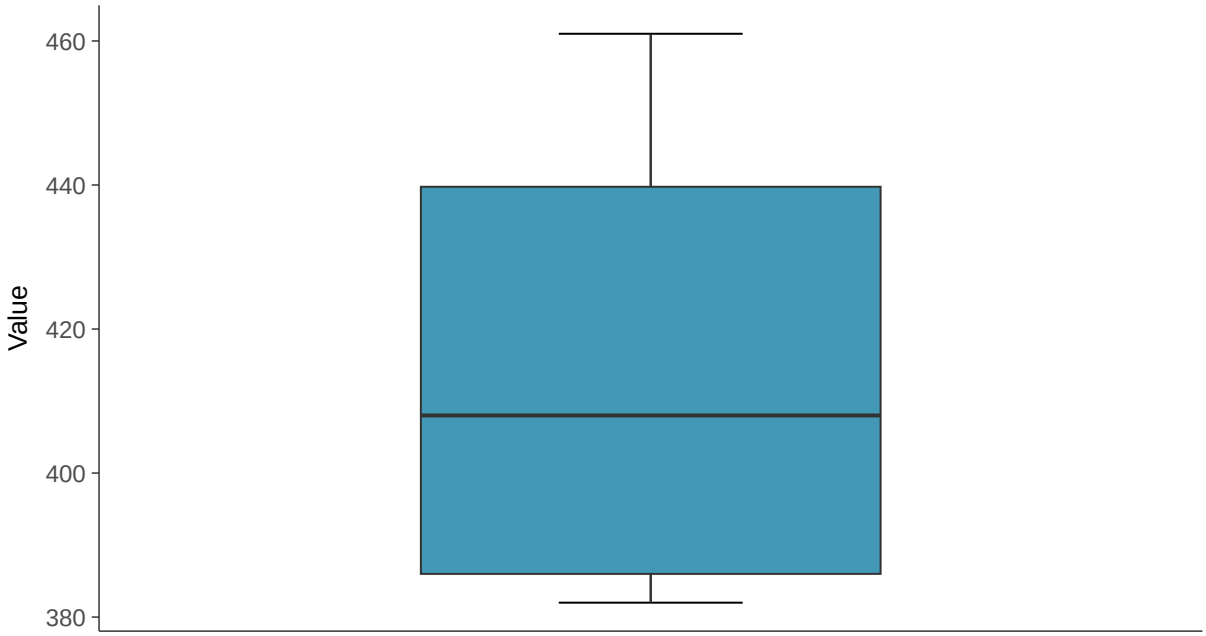
Histogram

Hardness, MW-10 (mg/L)



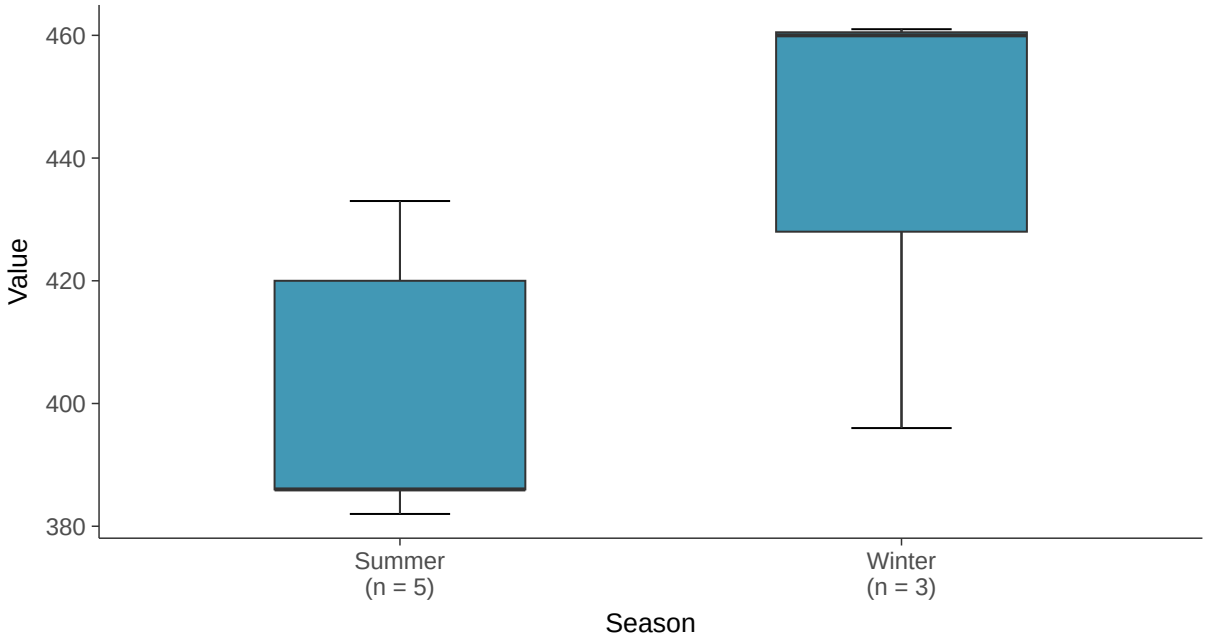
Boxplot

Hardness, MW-10 (mg/L)



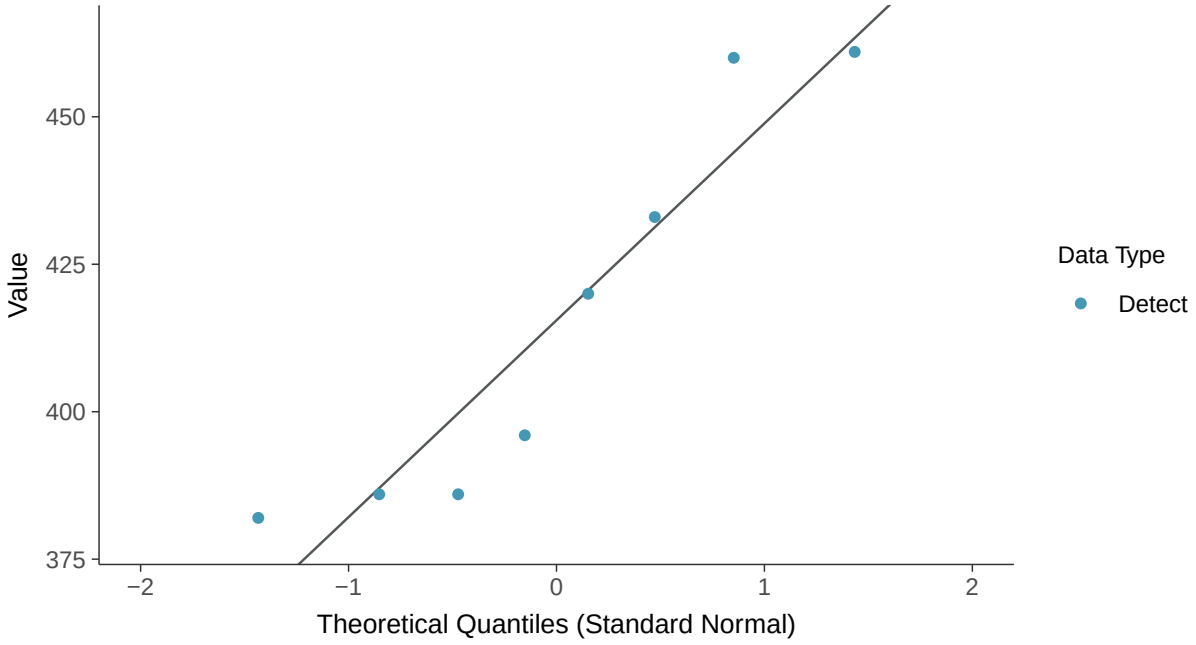
Boxplot by Season

Hardness, MW-10 (mg/L)



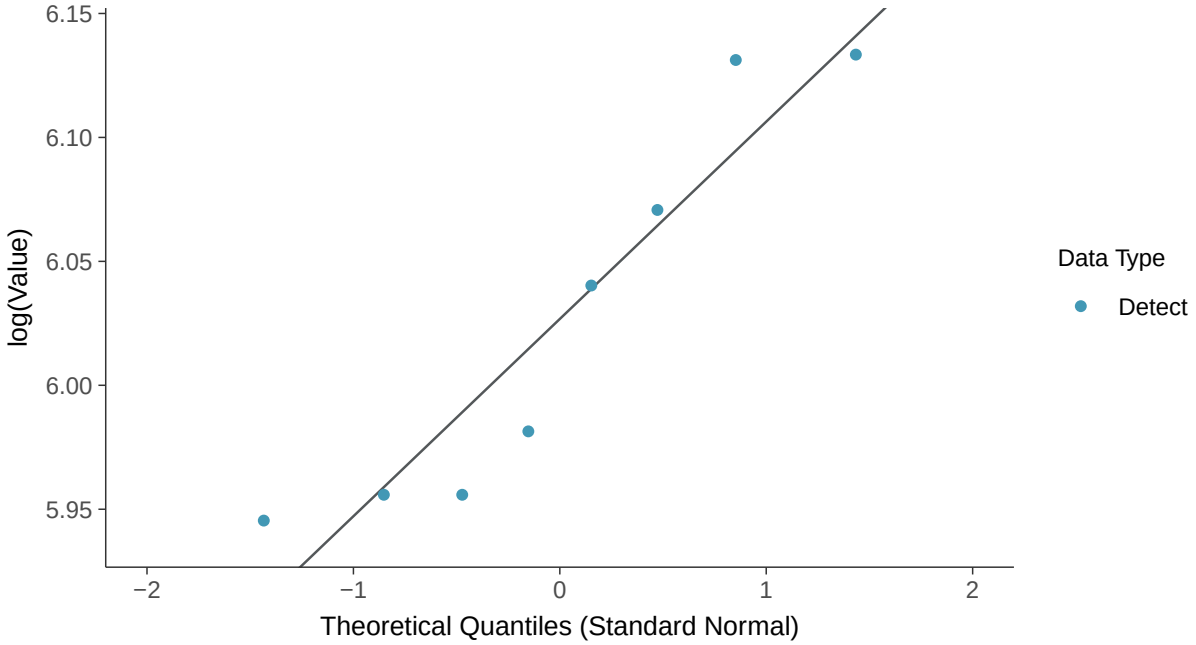
Normal Q-Q plot

Hardness, MW-10 (mg/L)



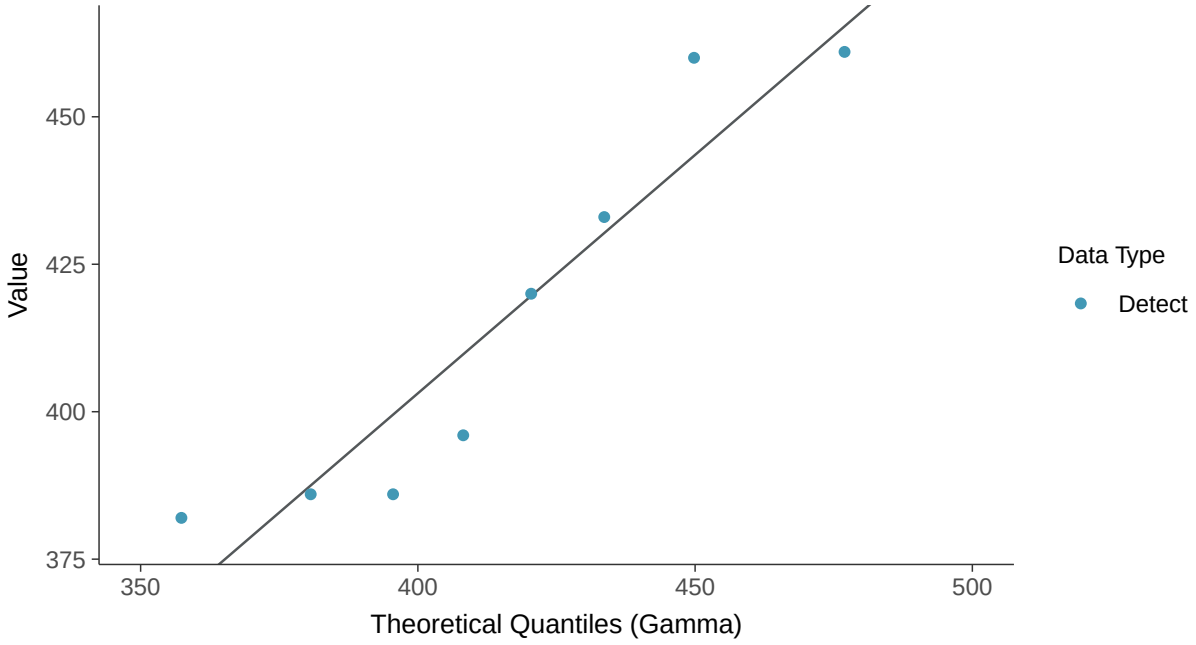
Lognormal Q-Q plot

Hardness, MW-10 (mg/L)



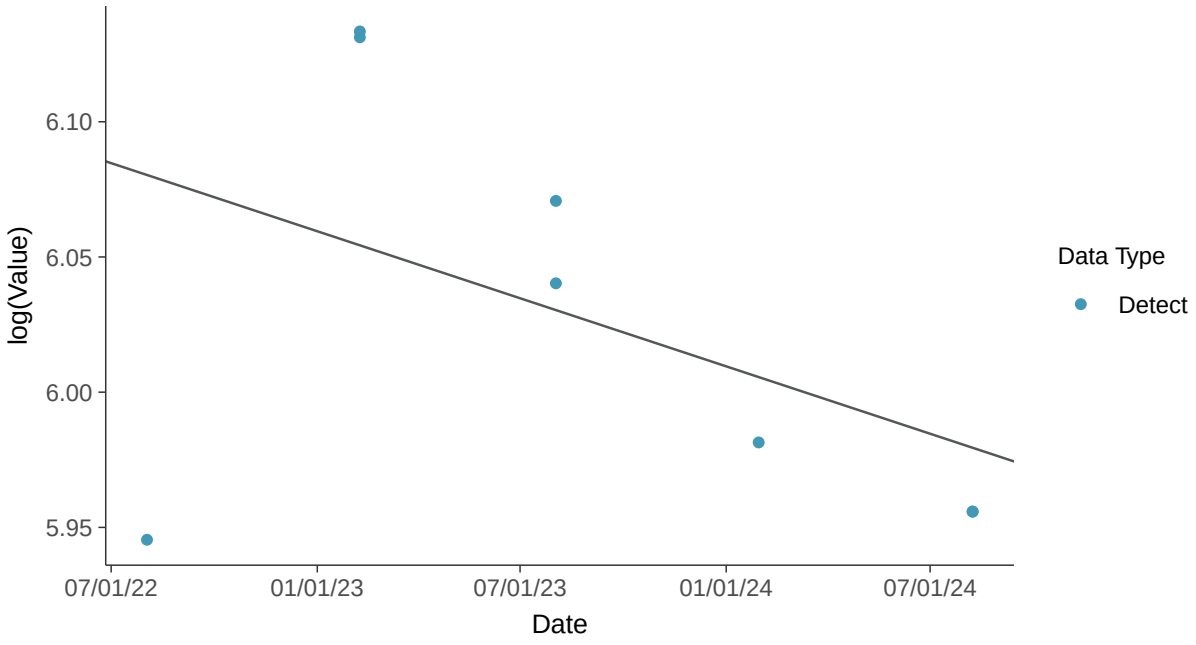
Gamma Q-Q plot

Hardness, MW-10 (mg/L)



Trend Regression: Lognormal MLE

Hardness, MW-10 (mg/L)

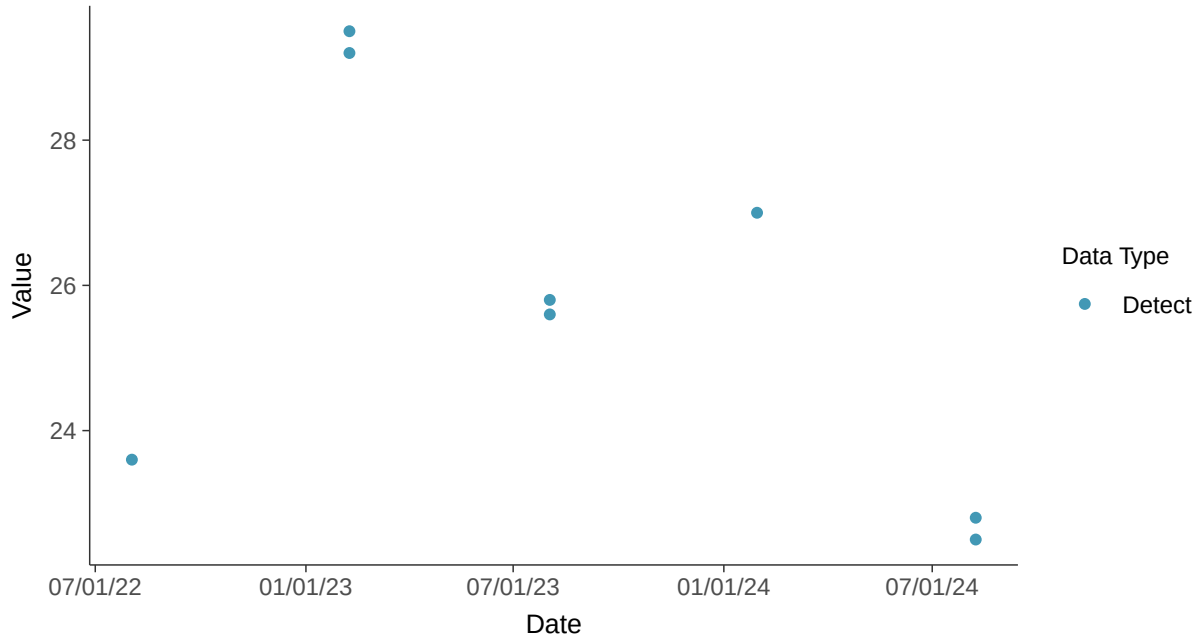


Other: Magnesium, MW-10

ID: 10_4_34

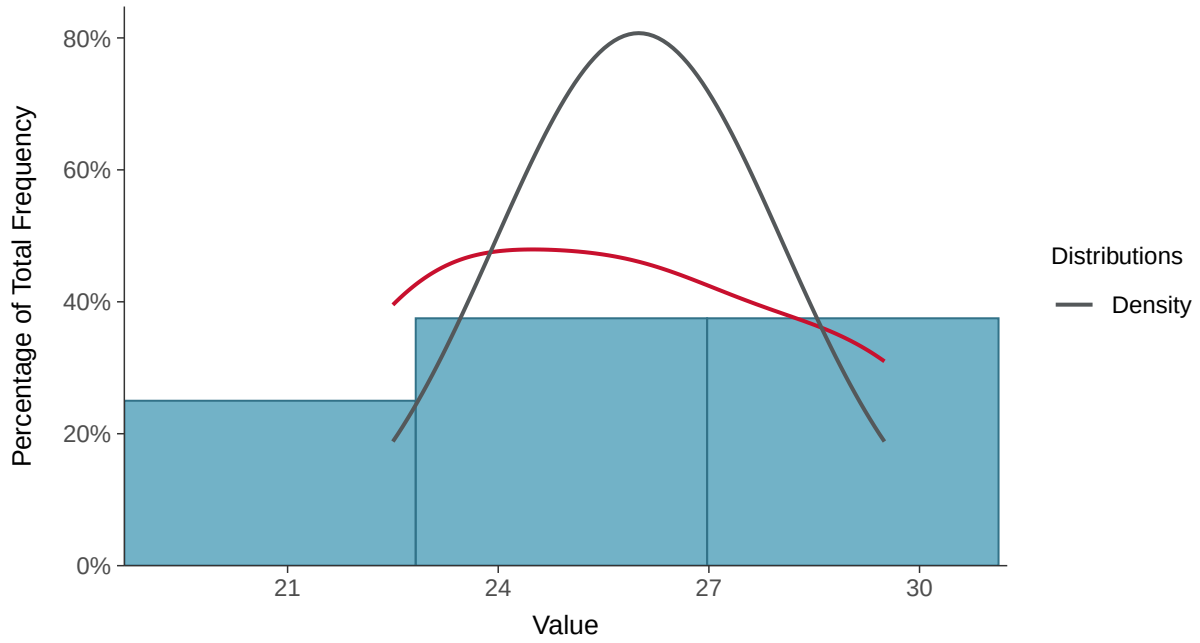
Scatter Plot

Magnesium, MW-10 (mg/L)



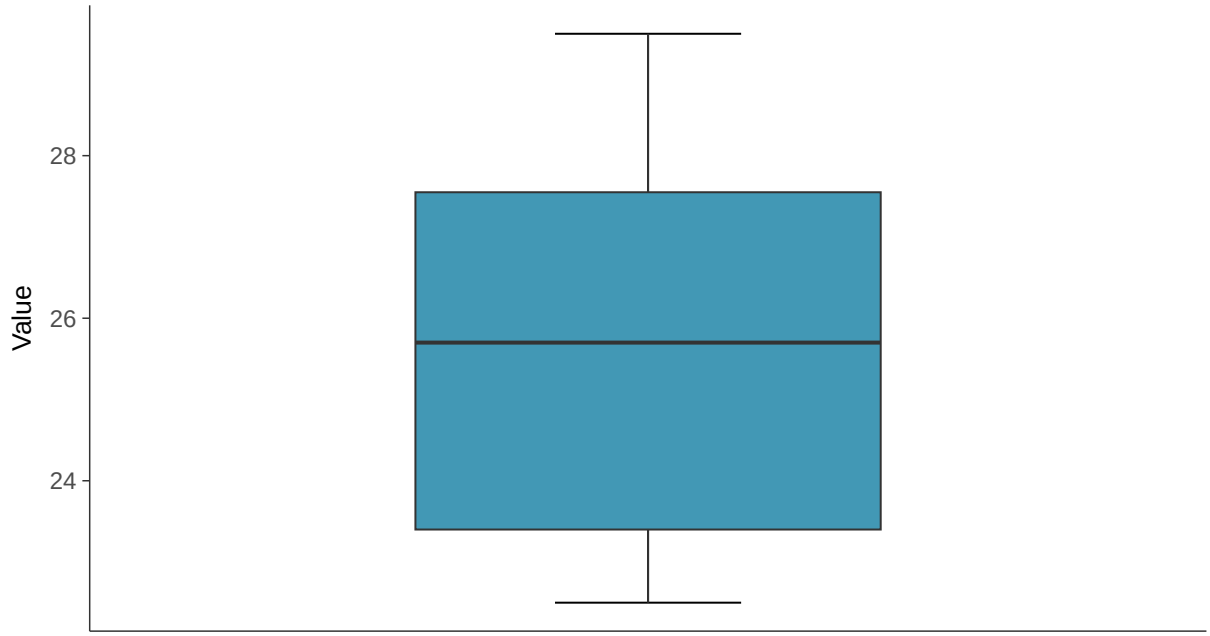
Histogram

Magnesium, MW-10 (mg/L)



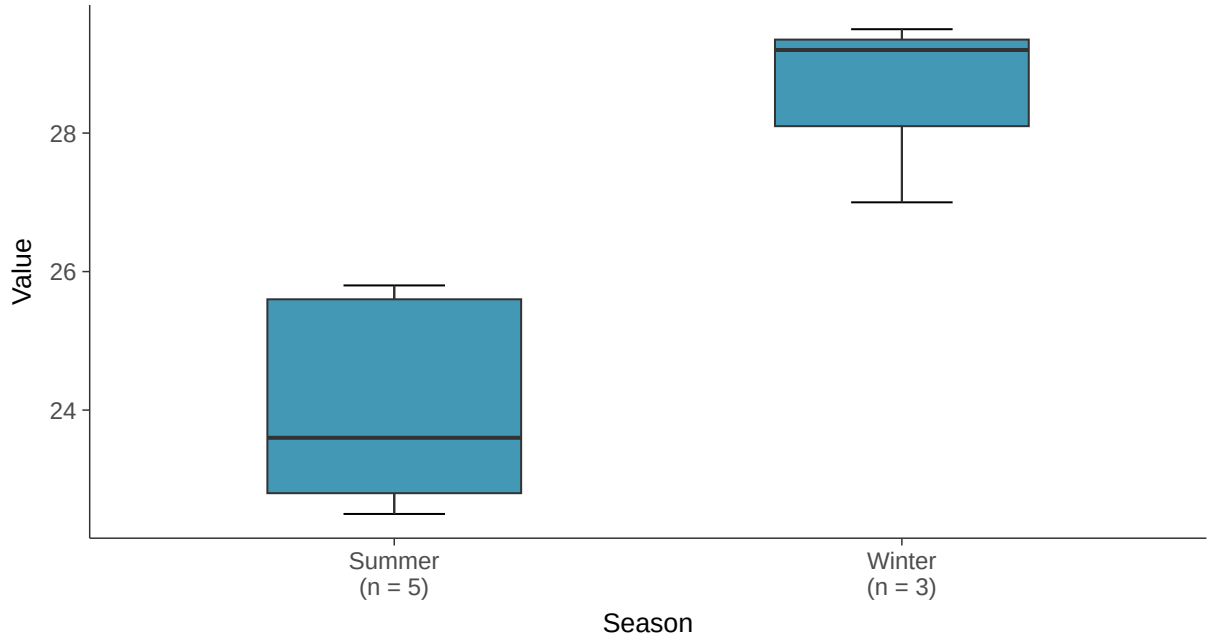
Boxplot

Magnesium, MW-10 (mg/L)



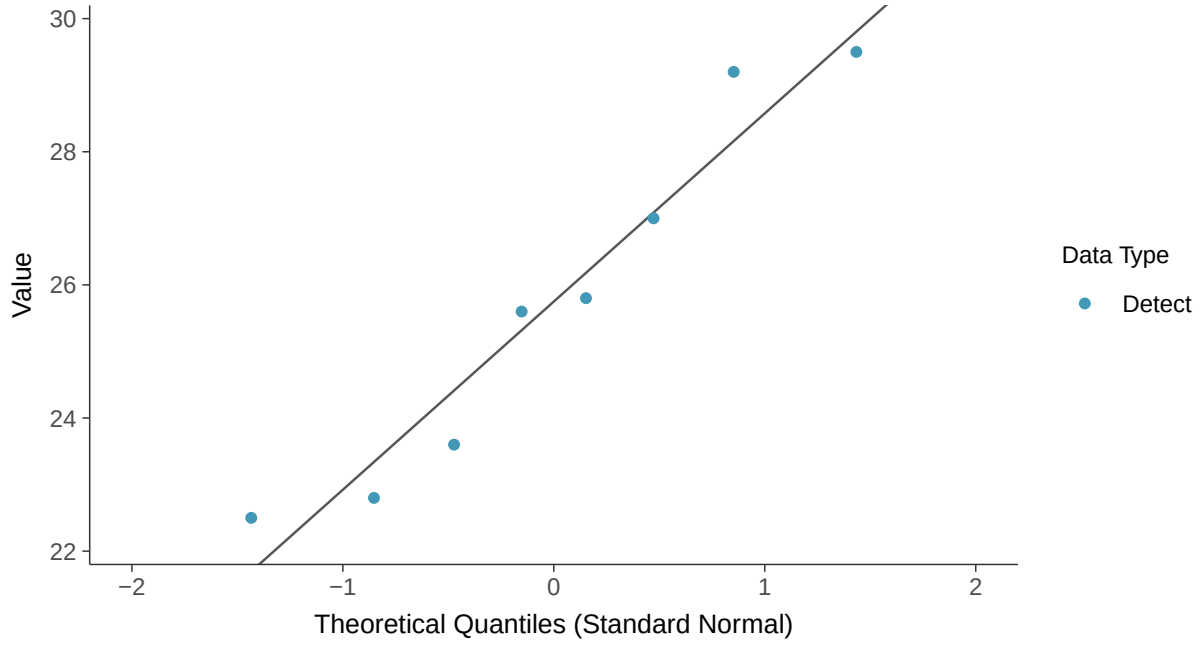
Boxplot by Season

Magnesium, MW-10 (mg/L)



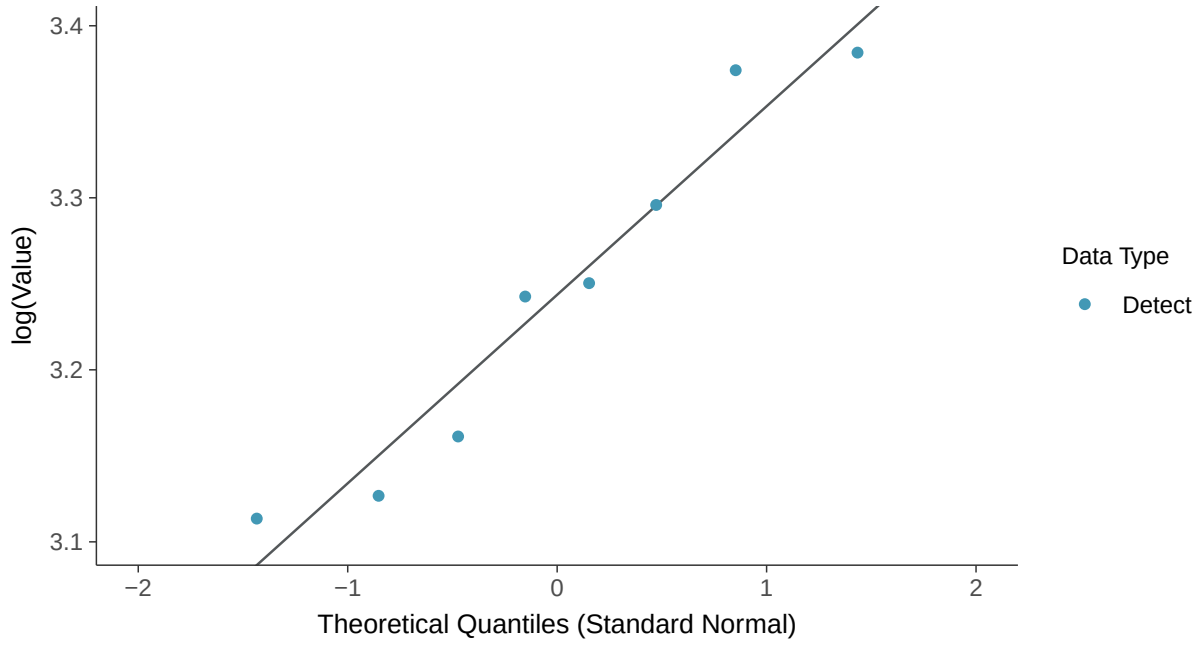
Normal Q-Q plot

Magnesium, MW-10 (mg/L)



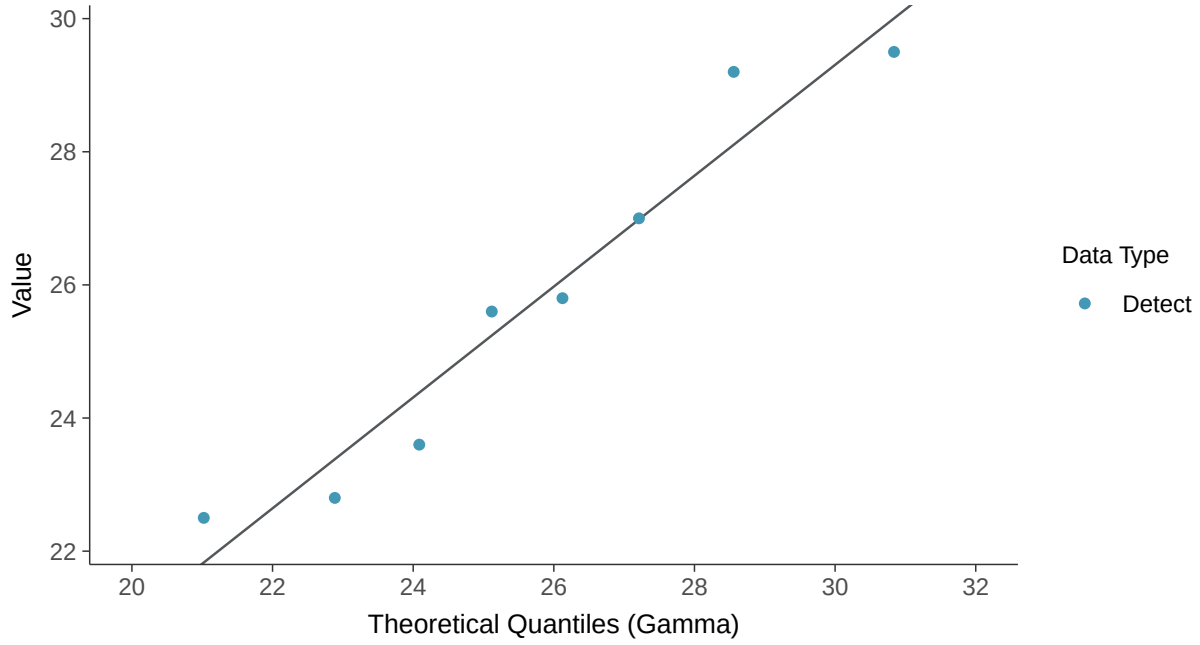
Lognormal Q-Q plot

Magnesium, MW-10 (mg/L)



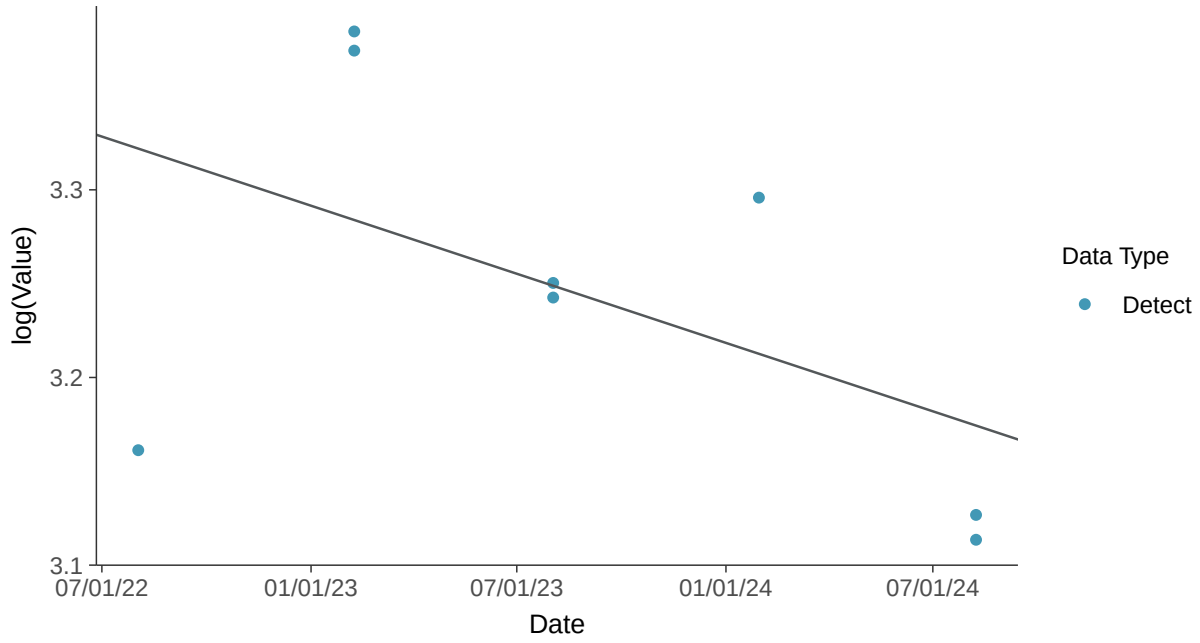
Gamma Q-Q plot

Magnesium, MW-10 (mg/L)



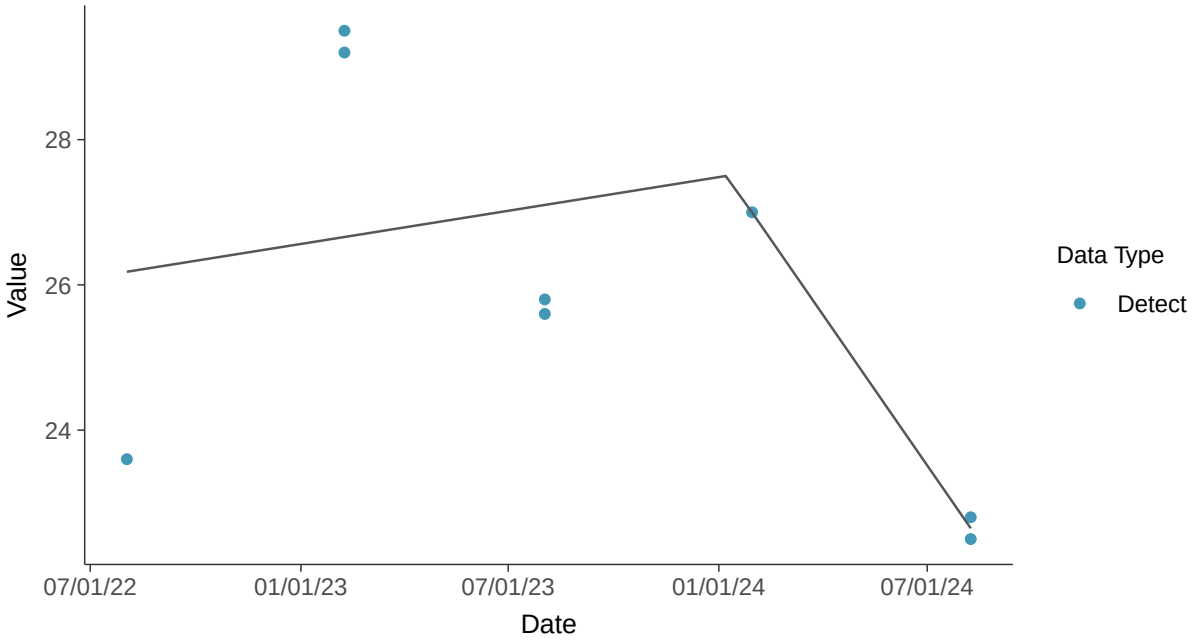
Trend Regression: Lognormal MLE

Magnesium, MW-10 (mg/L)



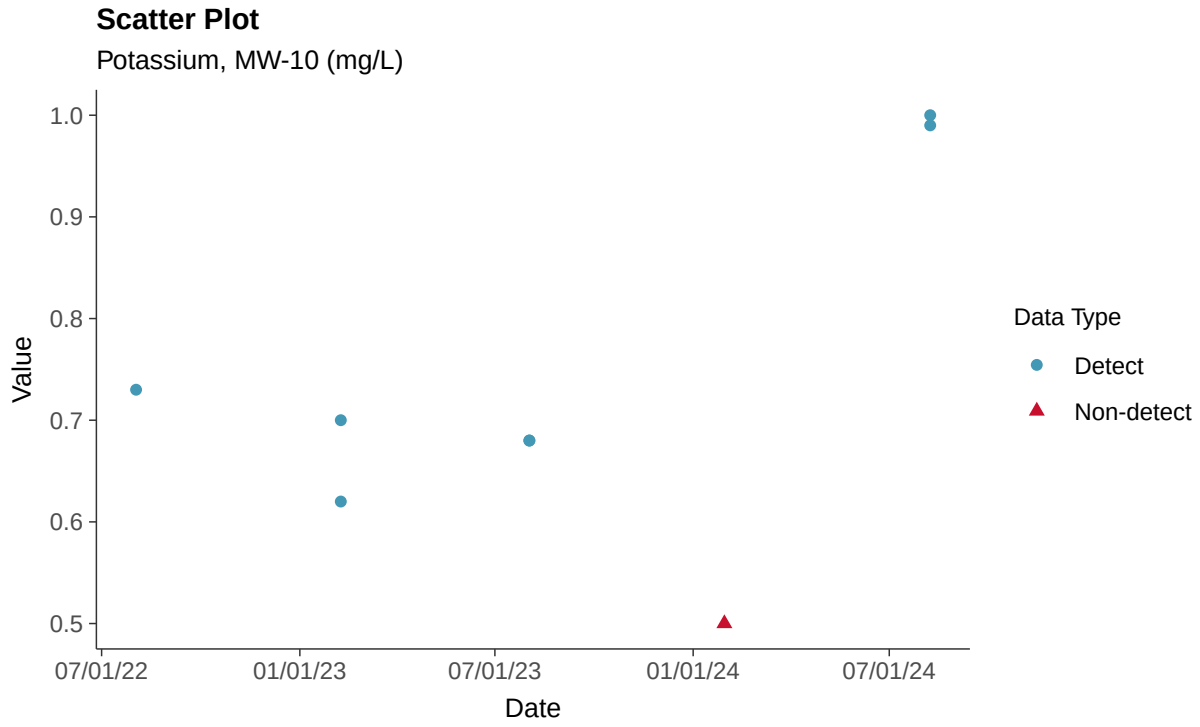
Trend Regression: Piecewise Linear-Linear

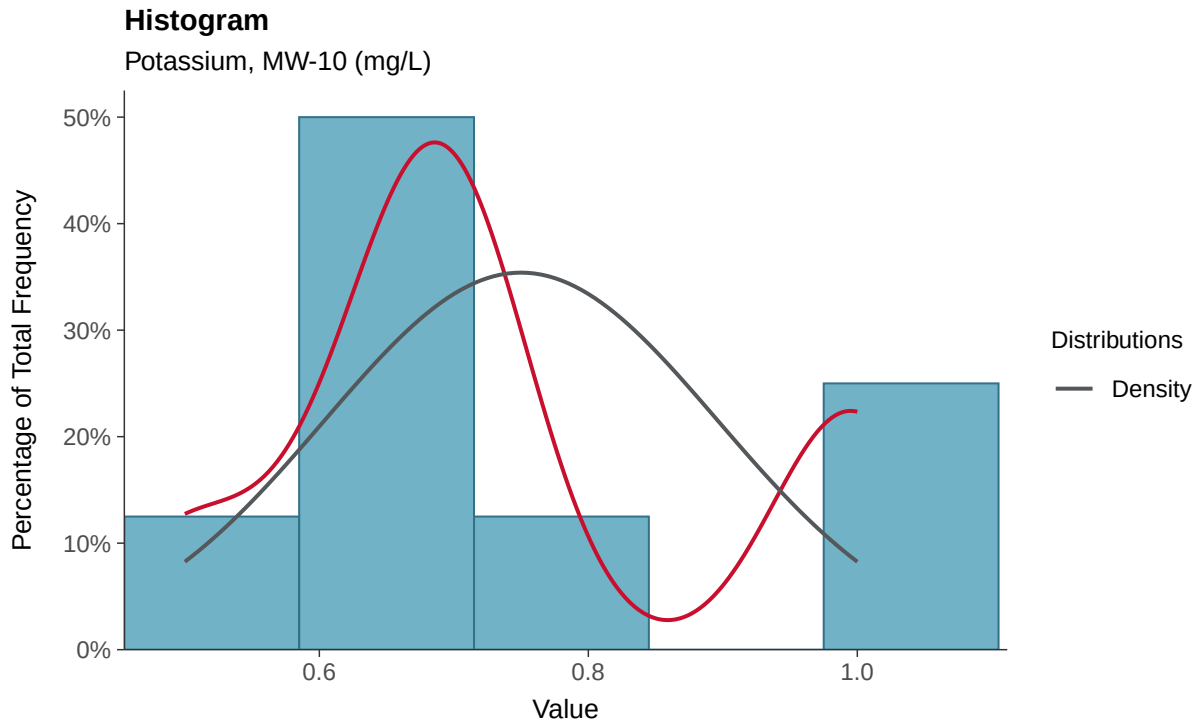
Magnesium, MW-10 (mg/L)



Other: Potassium, MW-10

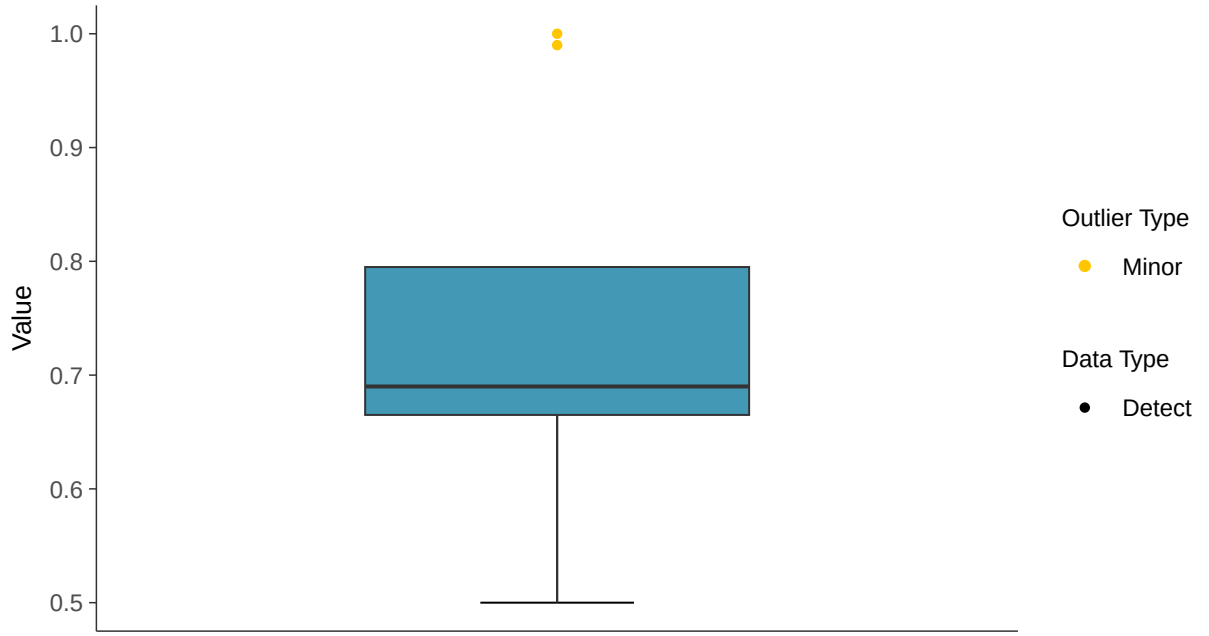
ID: 10_4_35





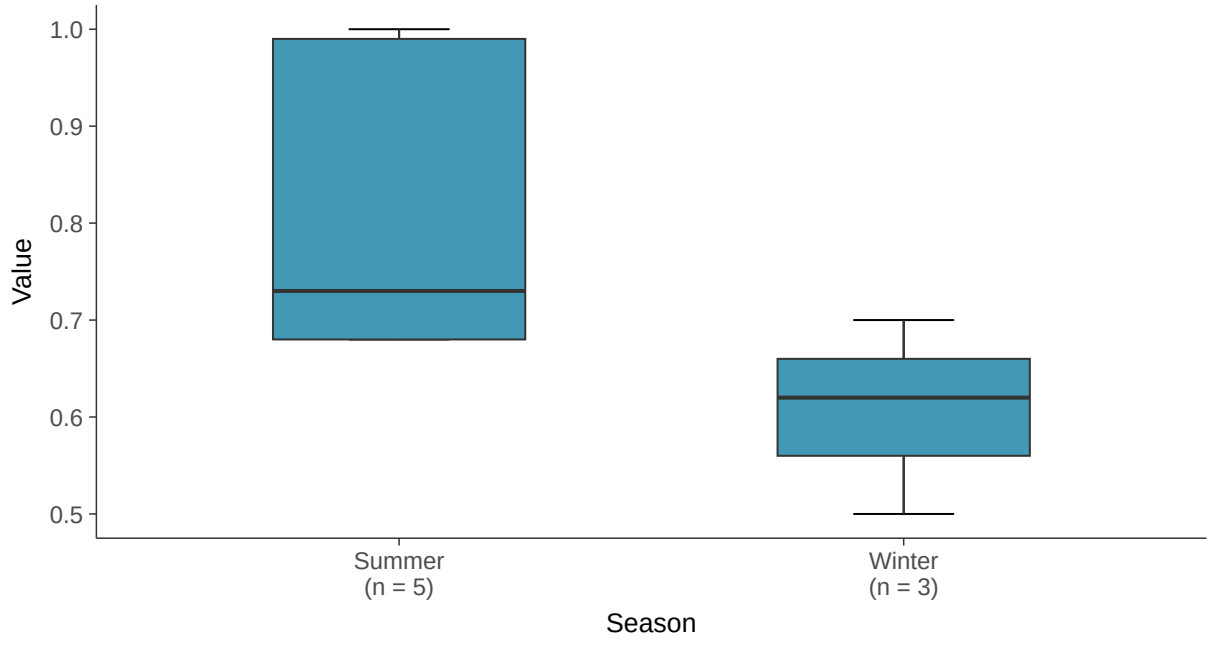
Boxplot

Potassium, MW-10 (mg/L)



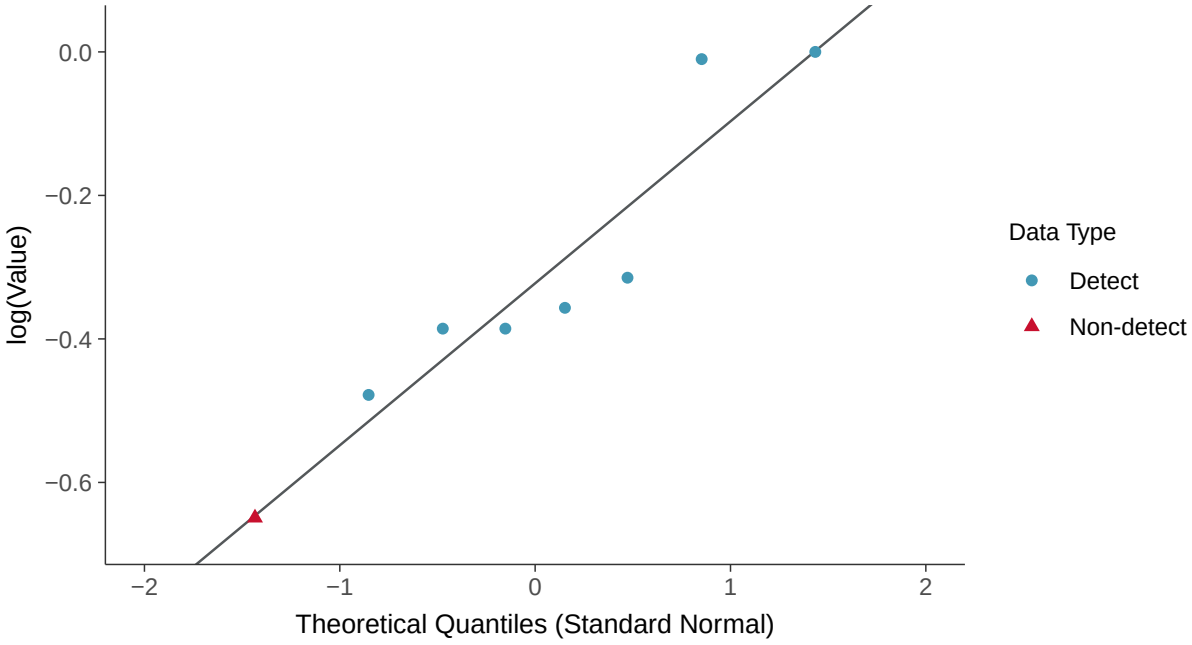
Boxplot by Season

Potassium, MW-10 (mg/L)



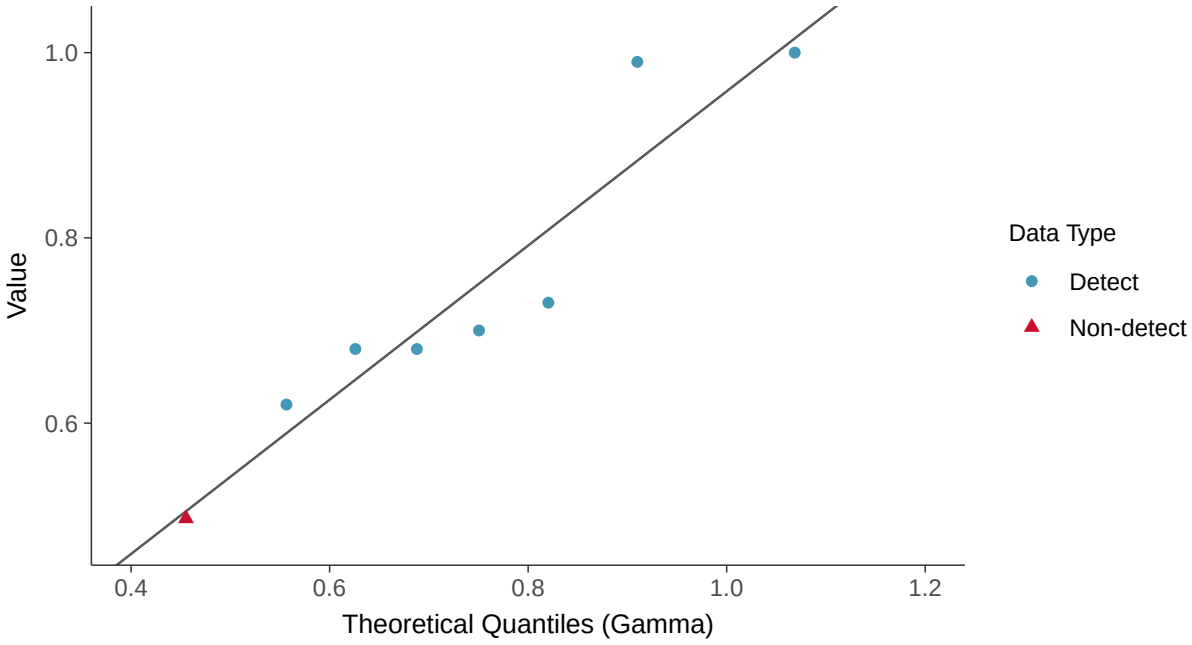
Lognormal Q-Q plot using ROS Imputed Estimates

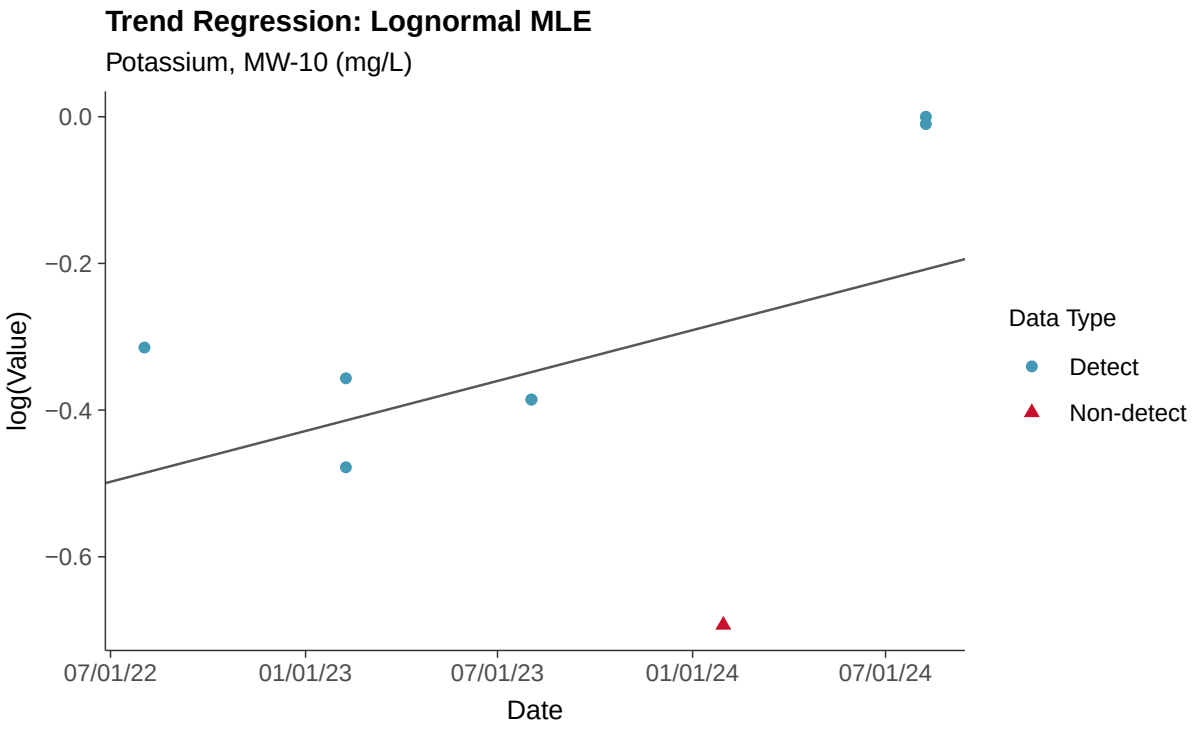
Potassium, MW-10 (mg/L)



Gamma Q-Q plot using ROS Imputed Estimates

Potassium, MW-10 (mg/L)



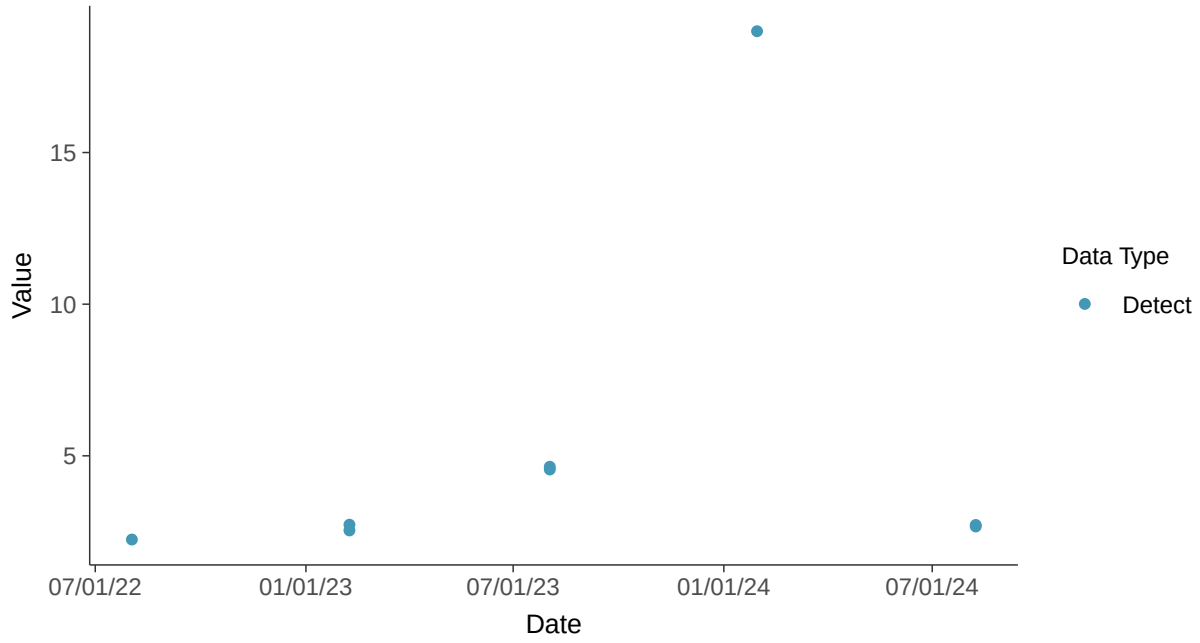

Trend Regression: Lognormal MLE
Potassium, MW-10 (mg/L)
0.0
−0.2
−0.4
−0.6
log(Value)
07/01/22
01/01/23
07/01/23
01/01/24
07/01/24
Date
Data Type
Detect
Non-detect

Other: Sodium, MW-10

ID: 10_4_36

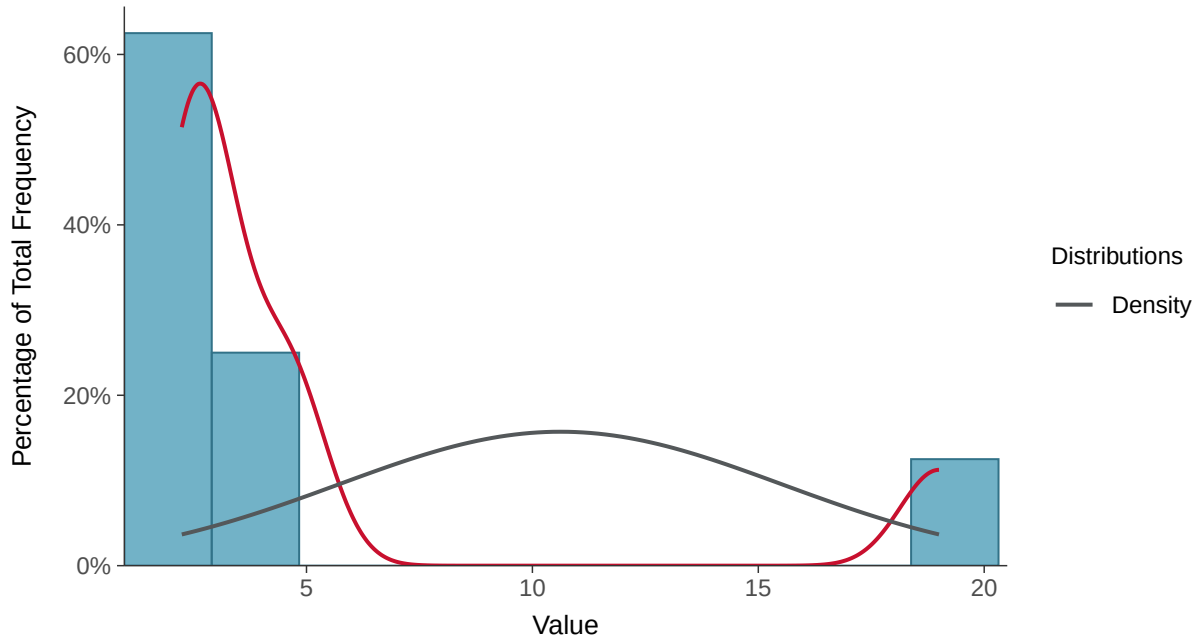
Scatter Plot

Sodium, MW-10 (mg/L)



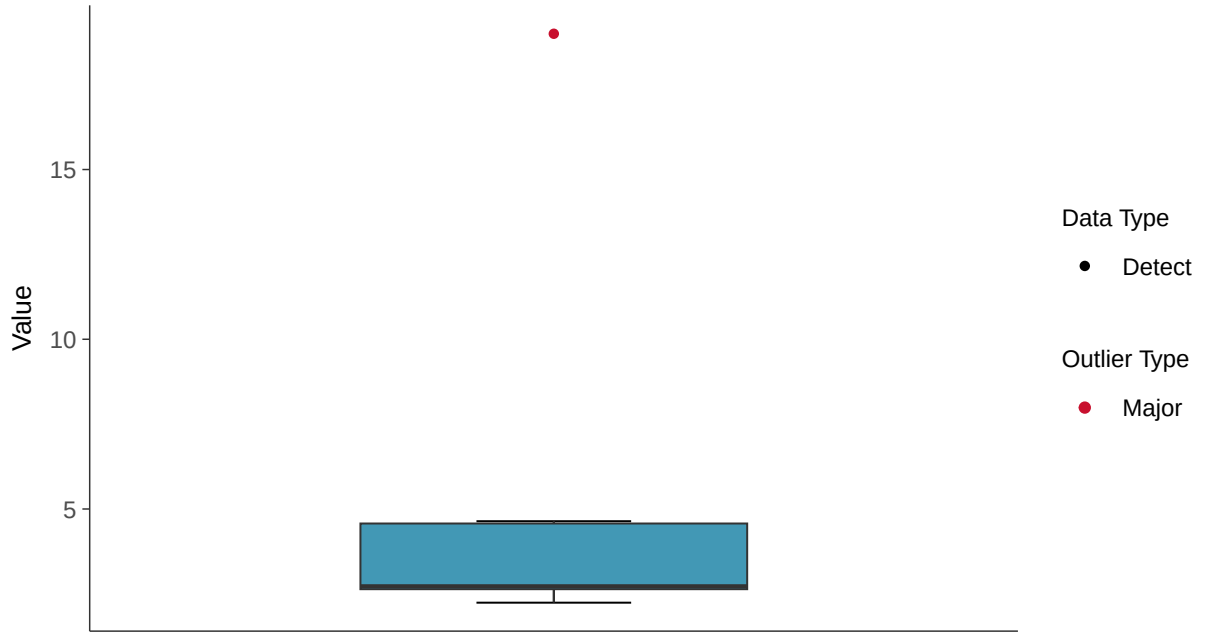
Histogram

Sodium, MW-10 (mg/L)



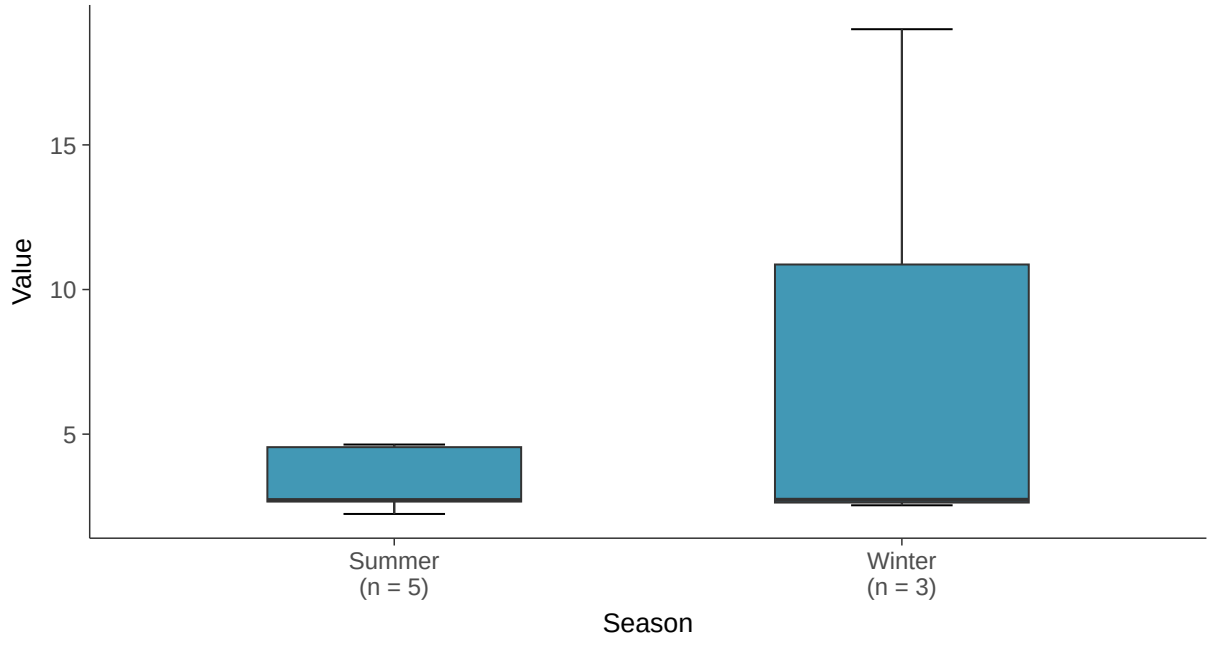
Boxplot

Sodium, MW-10 (mg/L)



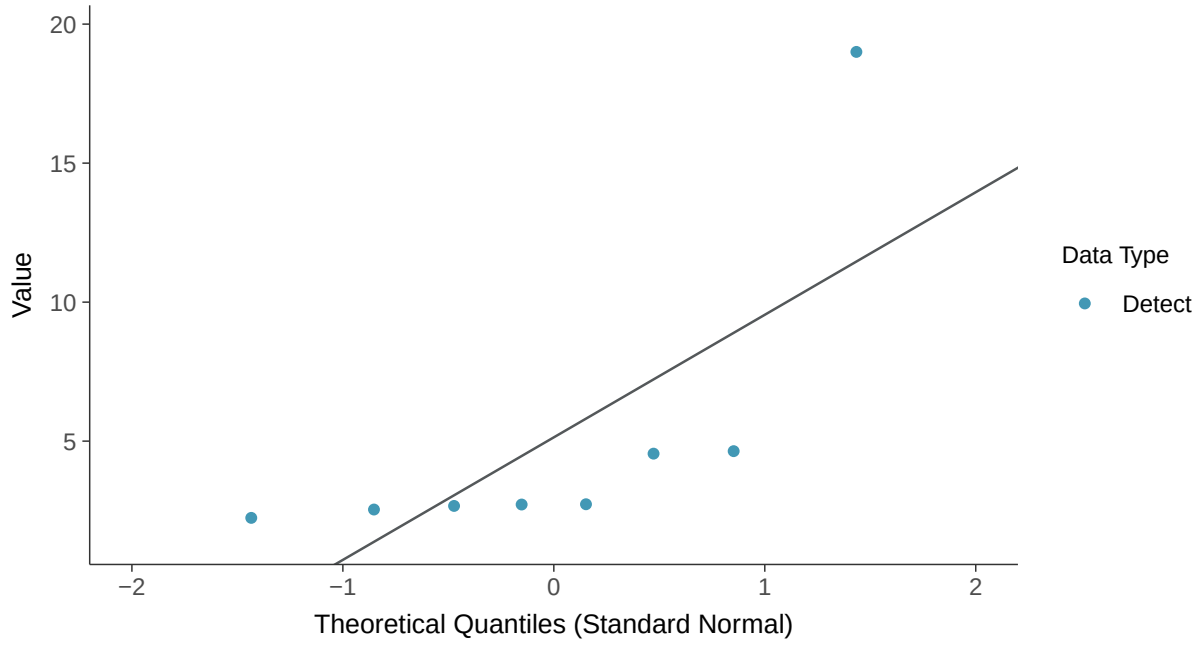
Boxplot by Season

Sodium, MW-10 (mg/L)



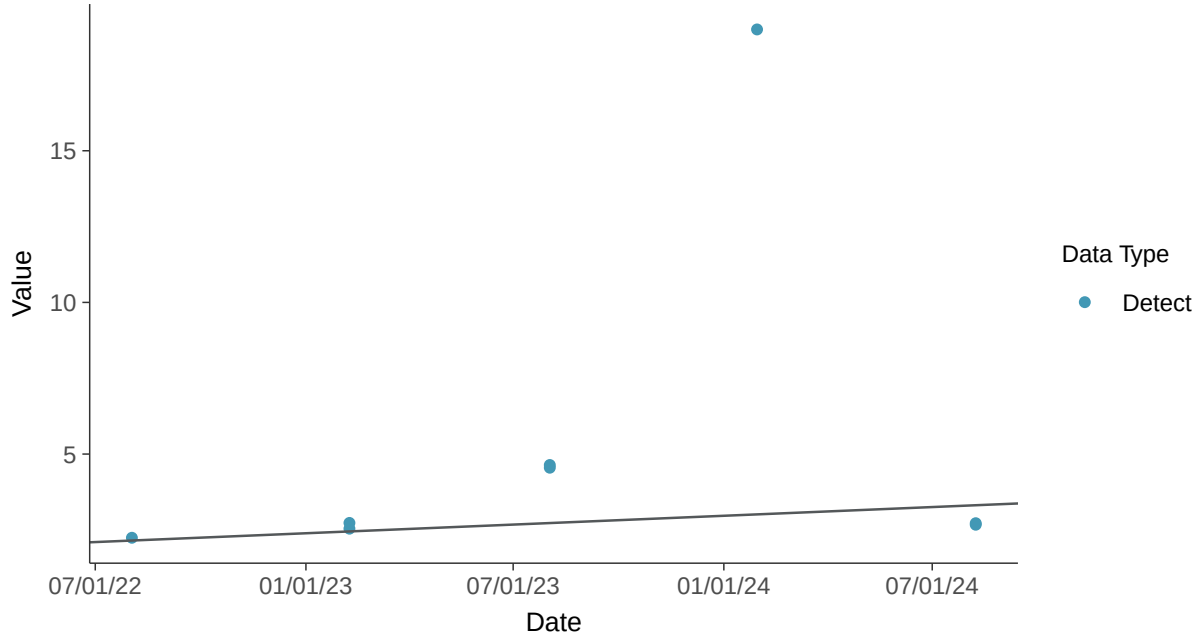
Normal Q-Q plot

Sodium, MW-10 (mg/L)



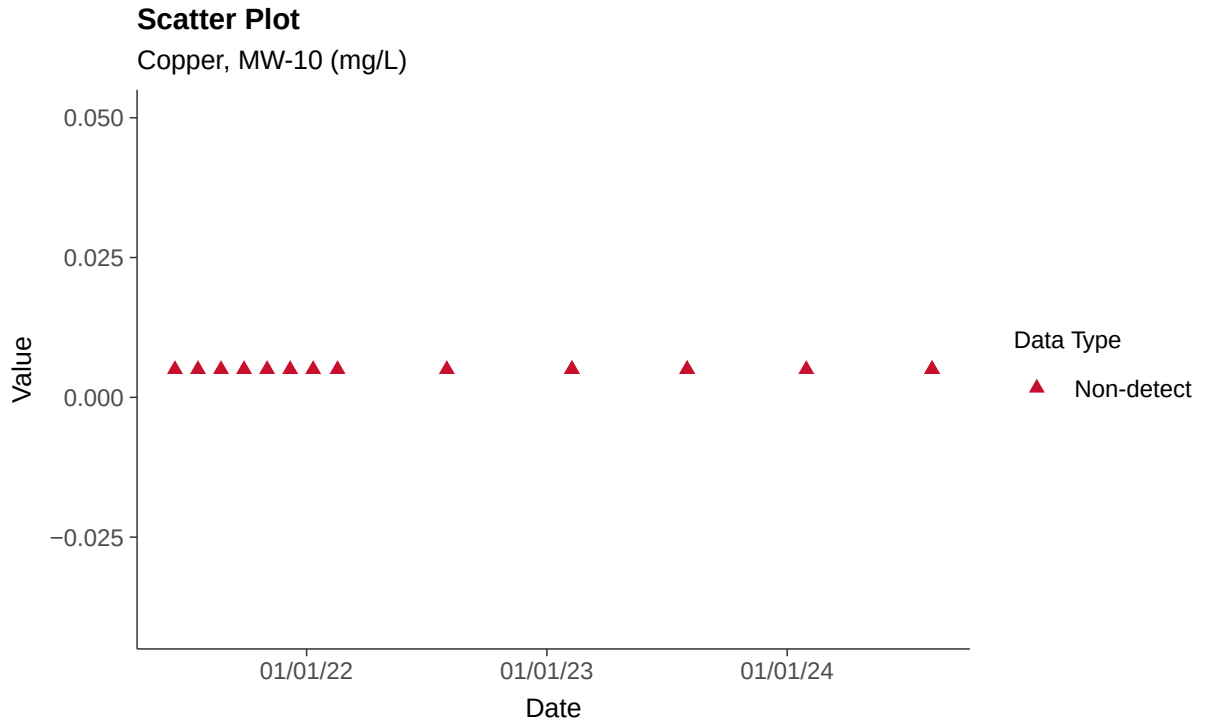
Trend Regression: Mann-Kendall/Theil-Sen Estimate

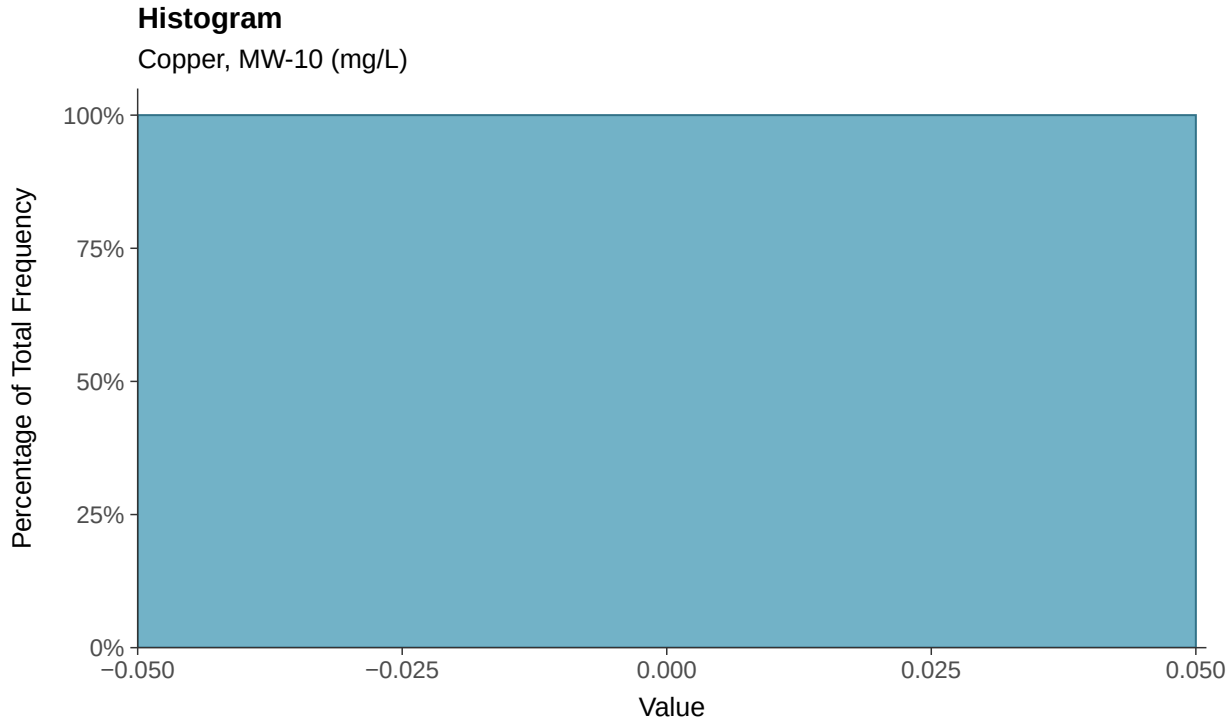
Sodium, MW-10 (mg/L)



Part 115: Copper, MW-10

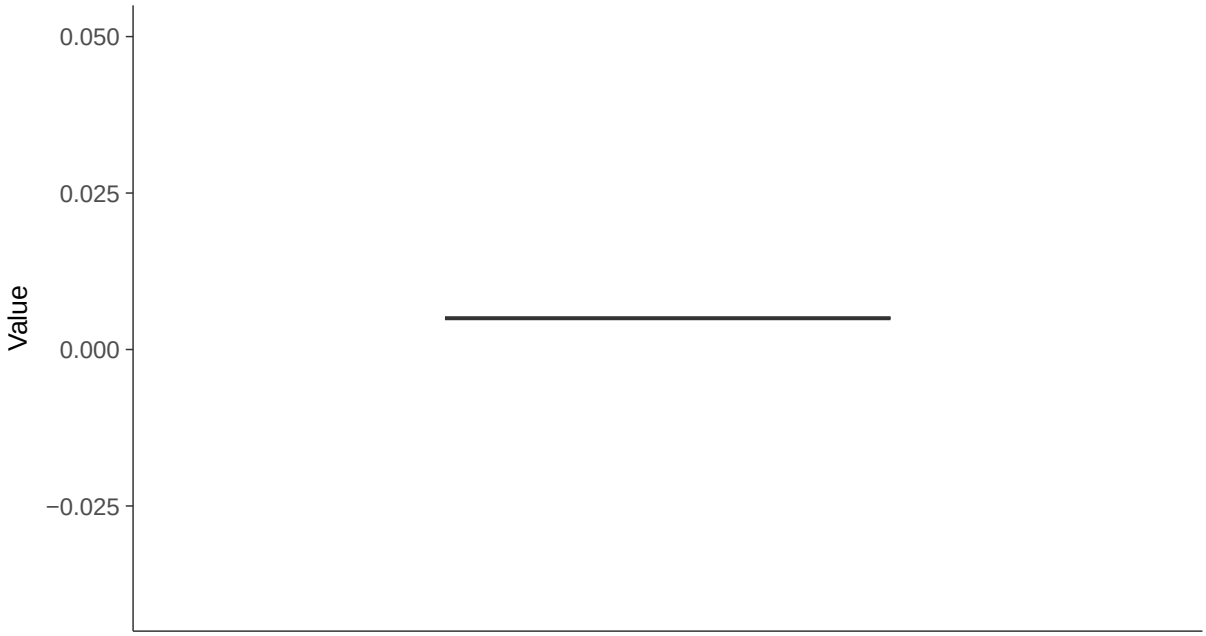
ID: 10_5_37





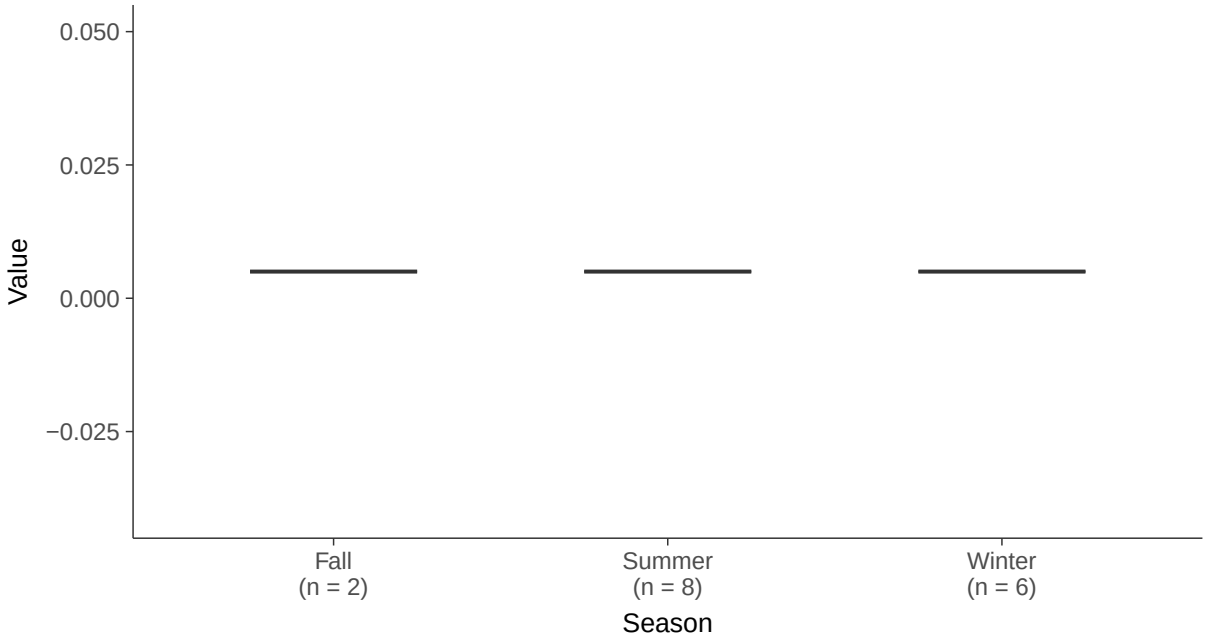
Boxplot

Copper, MW-10 (mg/L)



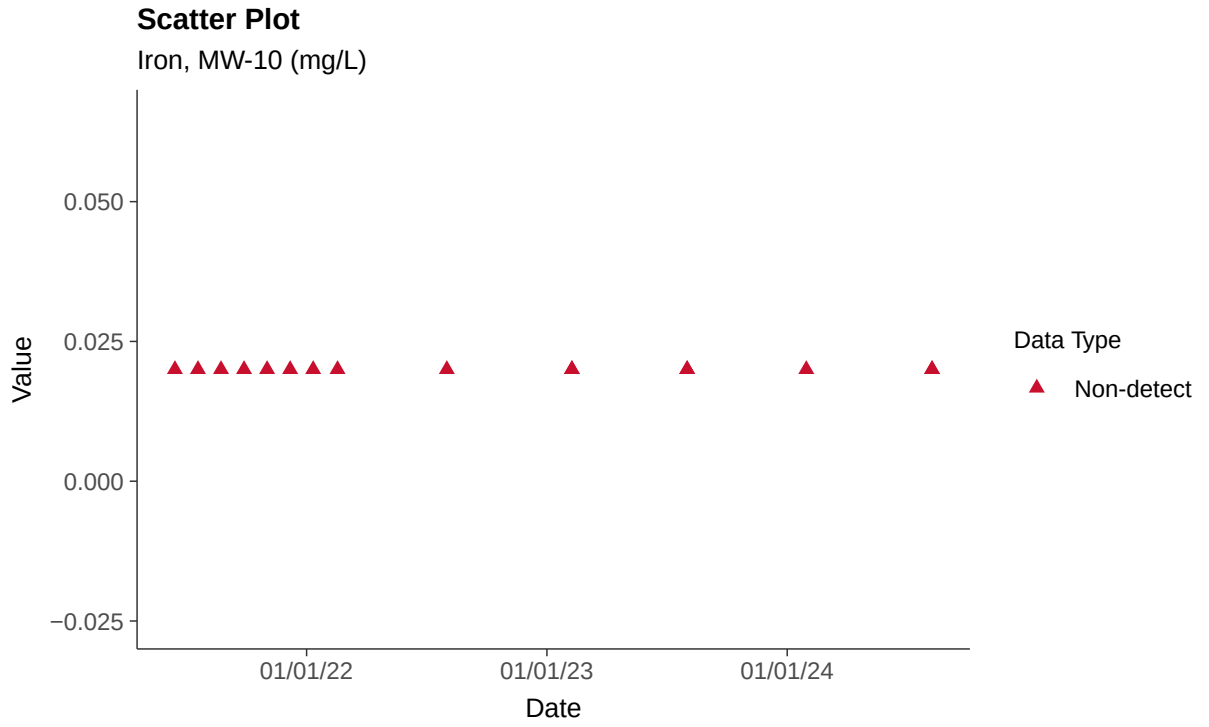
Boxplot by Season

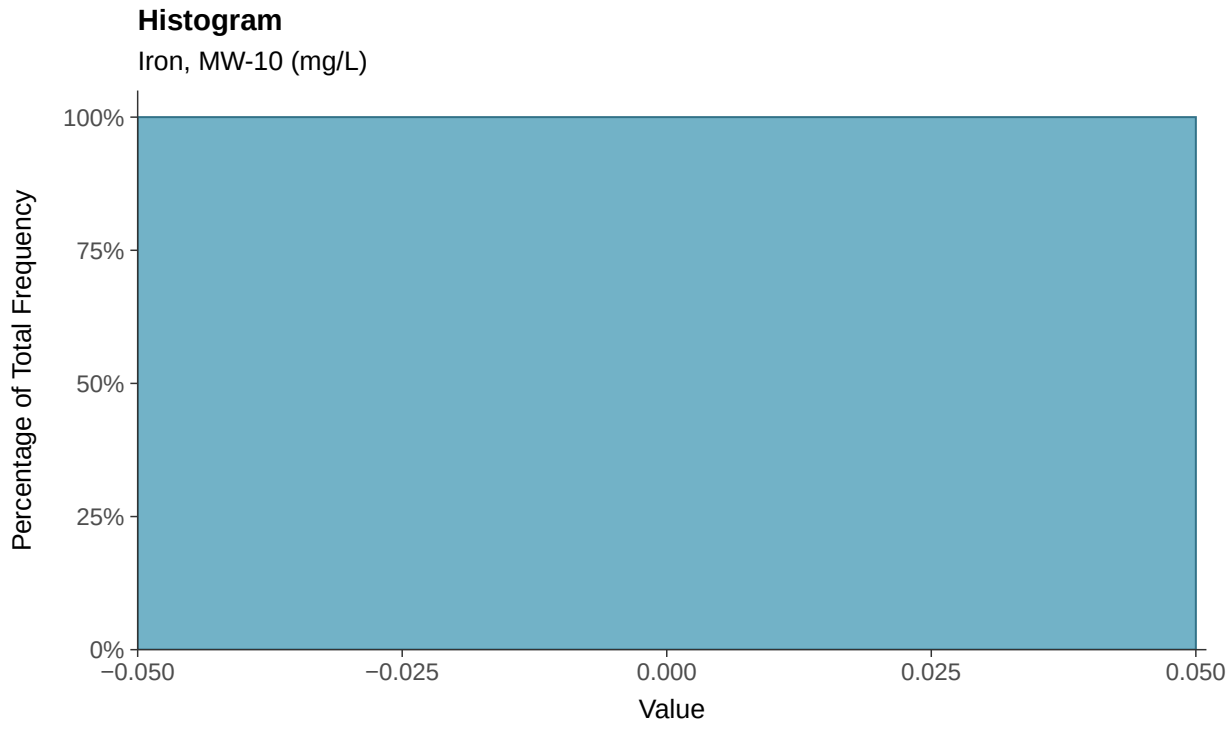
Copper, MW-10 (mg/L)



Part 115: Iron, MW-10

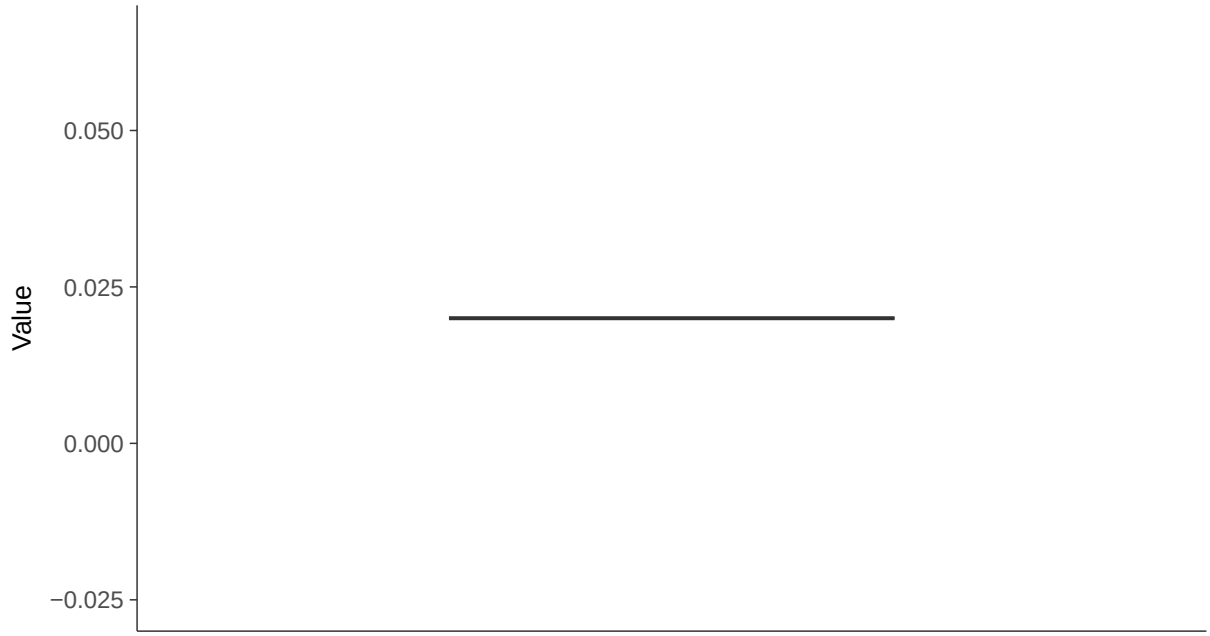
ID: 10_5_38





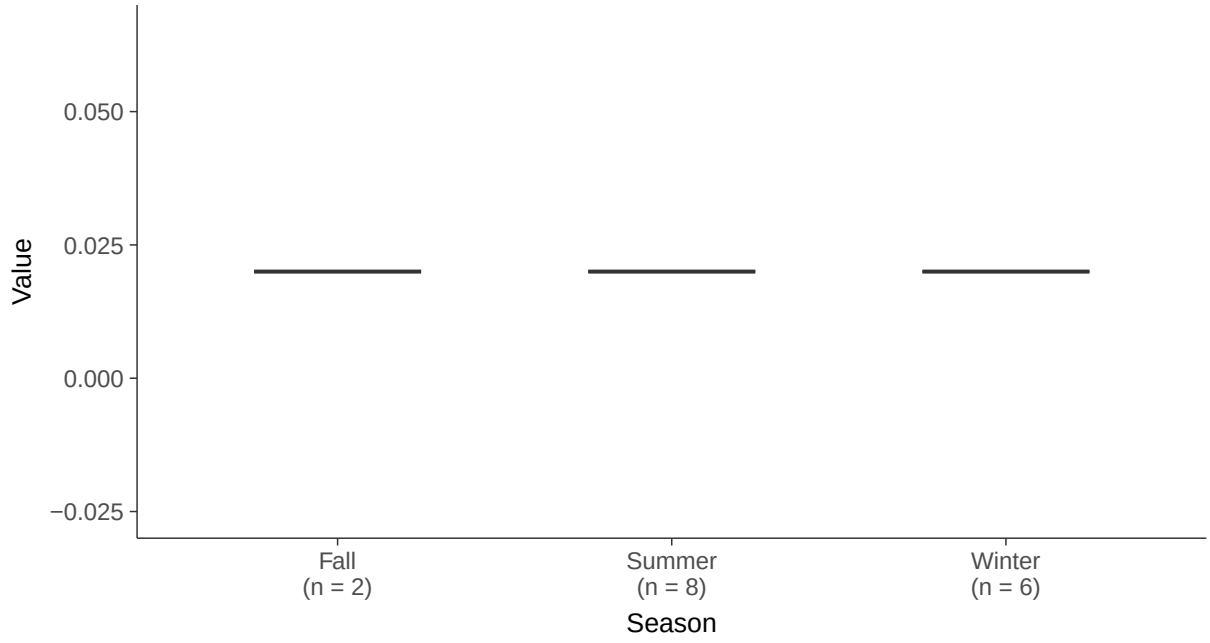
Boxplot

Iron, MW-10 (mg/L)



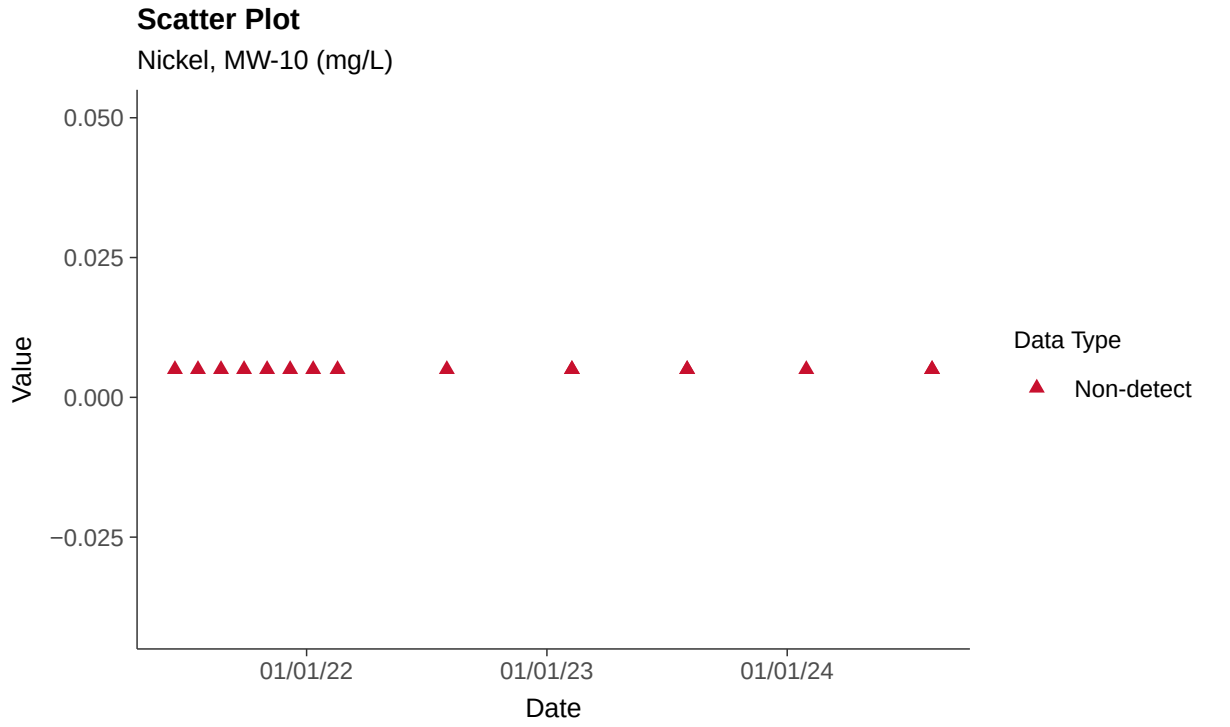
Boxplot by Season

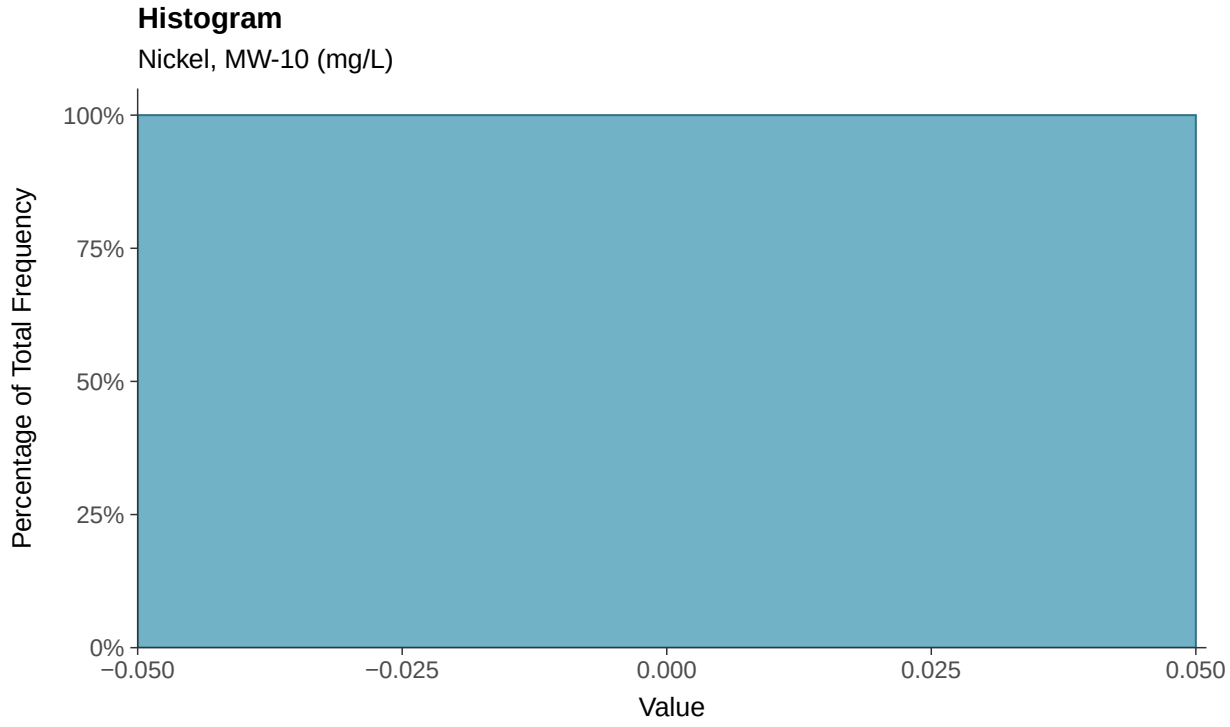
Iron, MW-10 (mg/L)



Part 115: Nickel, MW-10

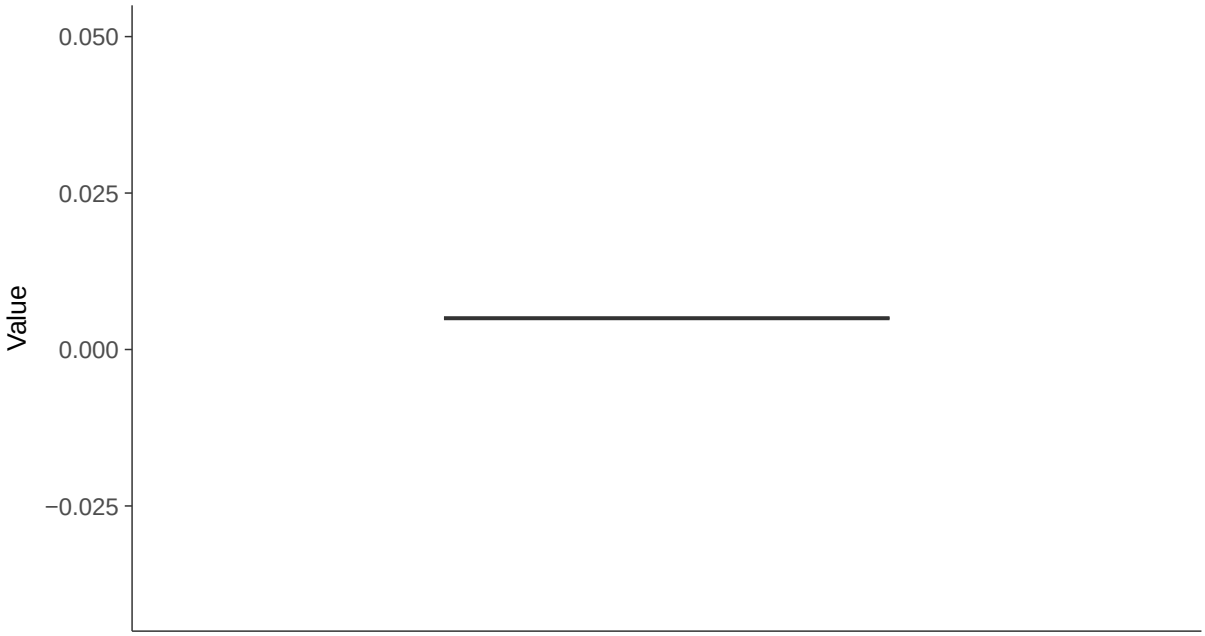
ID: 10_5_39





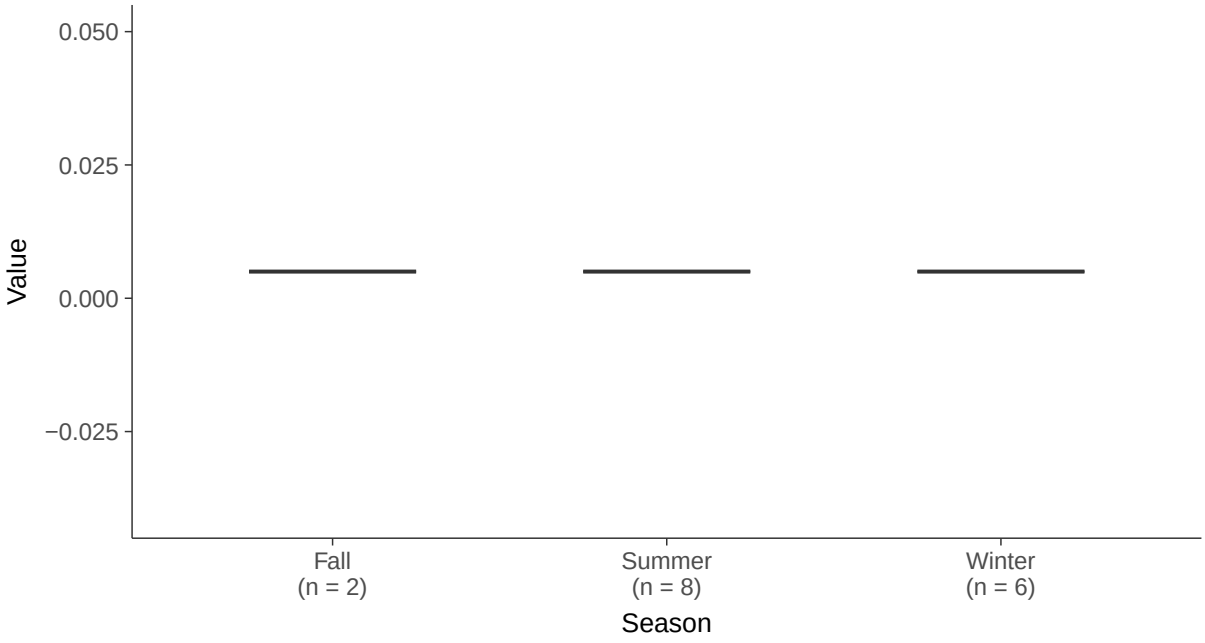
Boxplot

Nickel, MW-10 (mg/L)



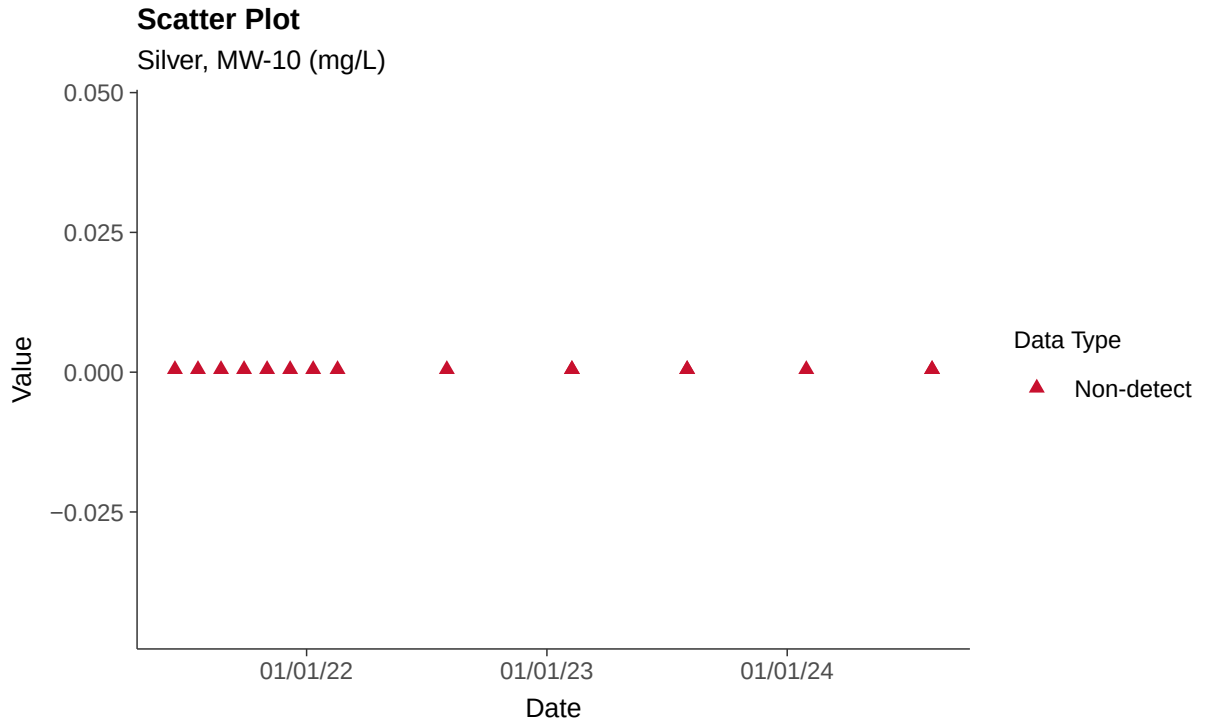
Boxplot by Season

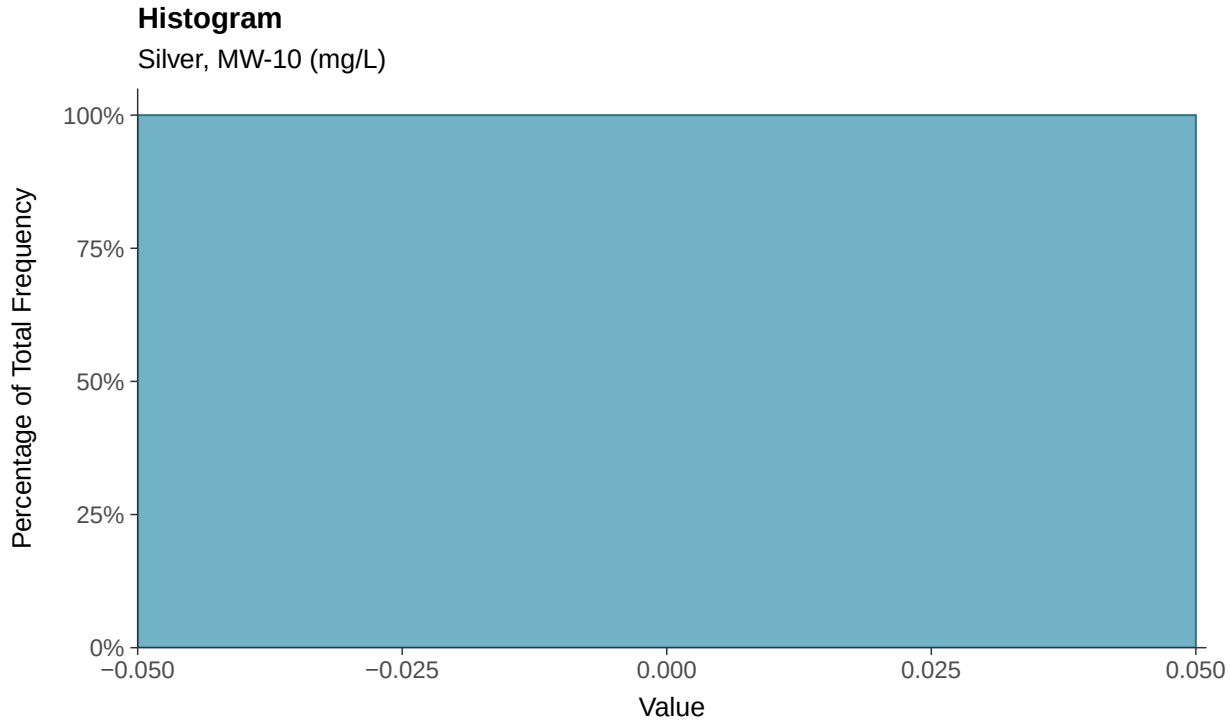
Nickel, MW-10 (mg/L)



Part 115: Silver, MW-10

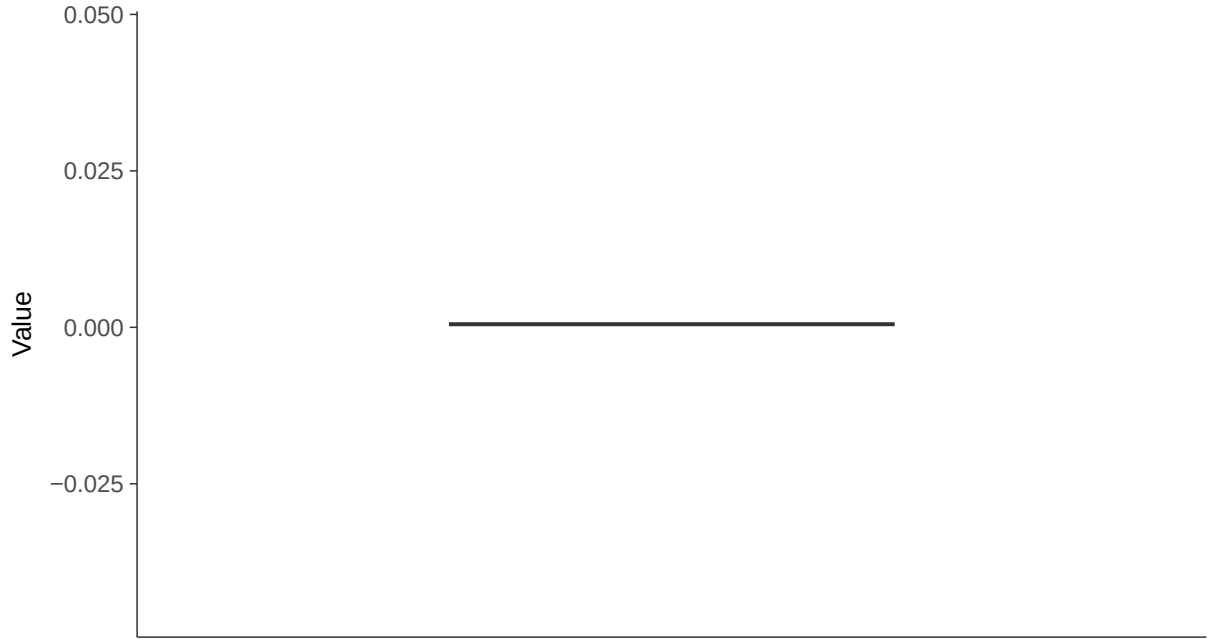
ID: 10_5_40





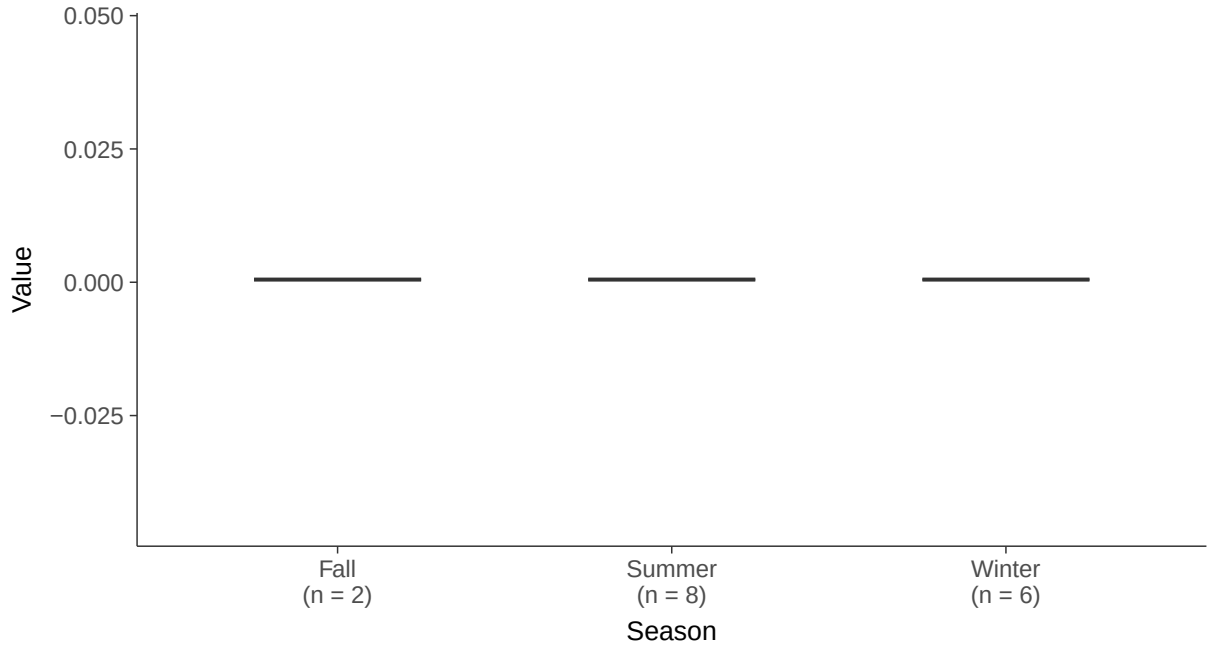
Boxplot

Silver, MW-10 (mg/L)



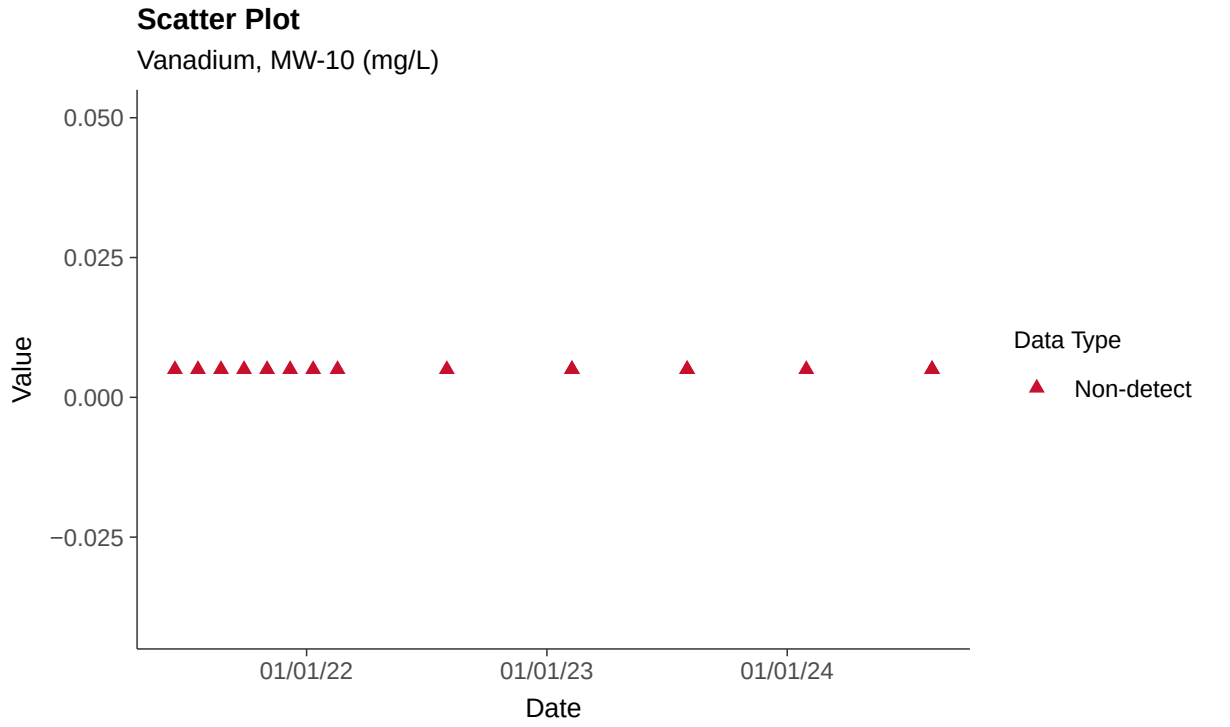
Boxplot by Season

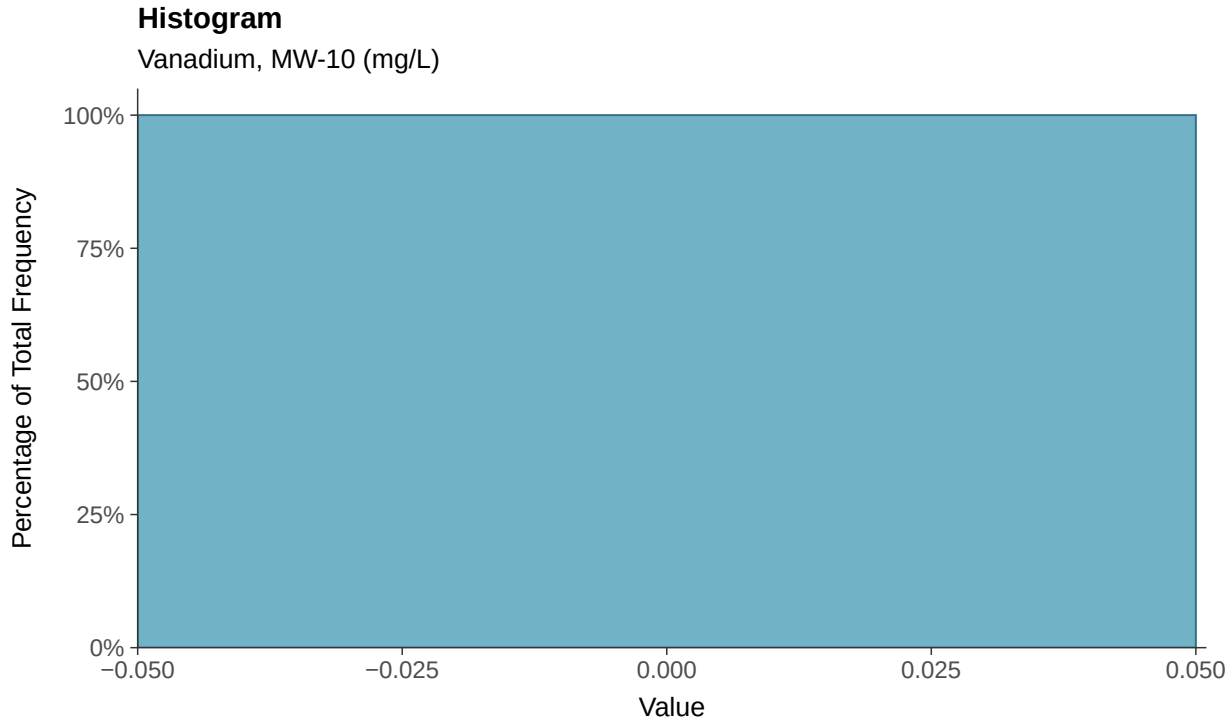
Silver, MW-10 (mg/L)



Part 115: Vanadium, MW-10

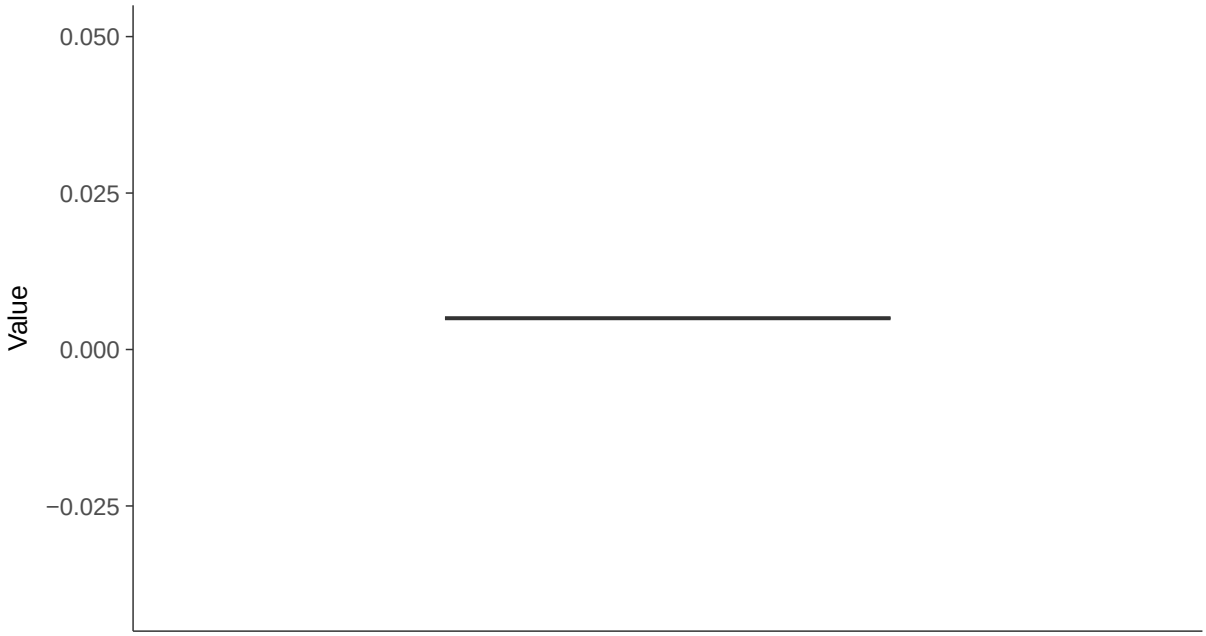
ID: 10_5_41





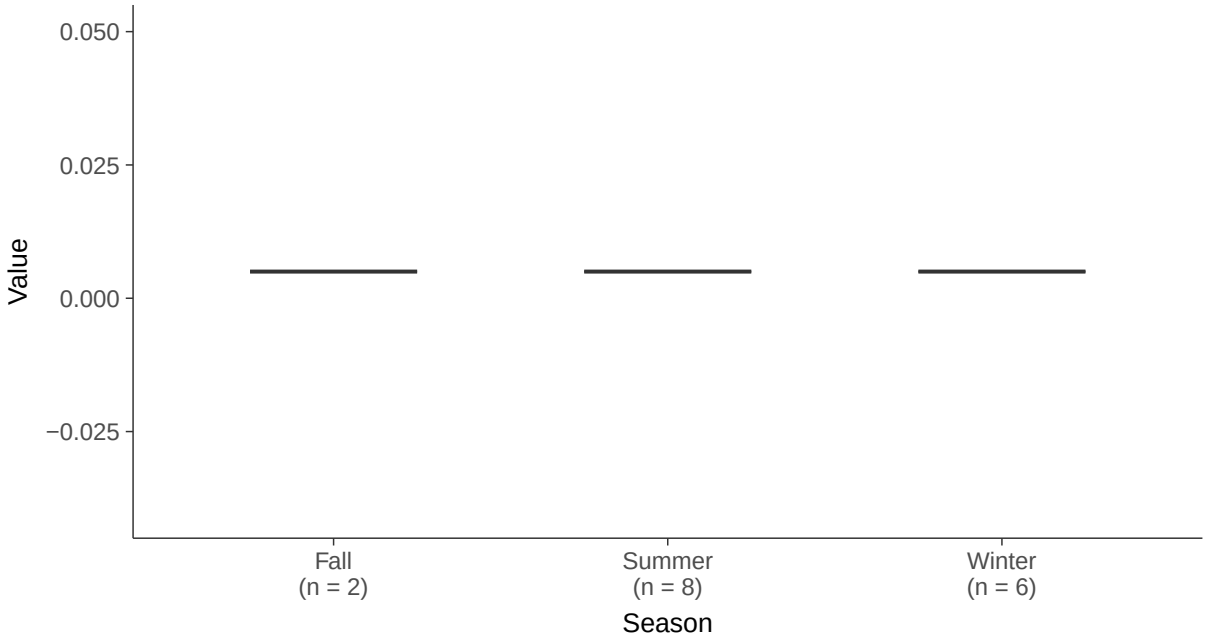
Boxplot

Vanadium, MW-10 (mg/L)



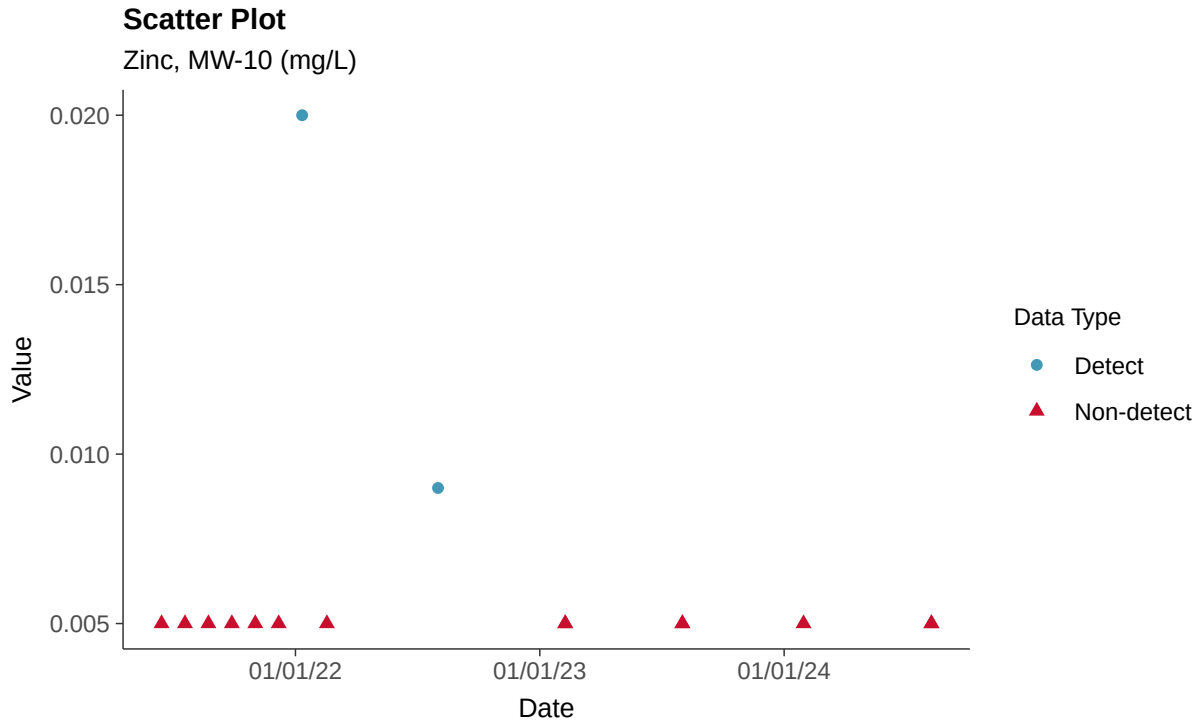
Boxplot by Season

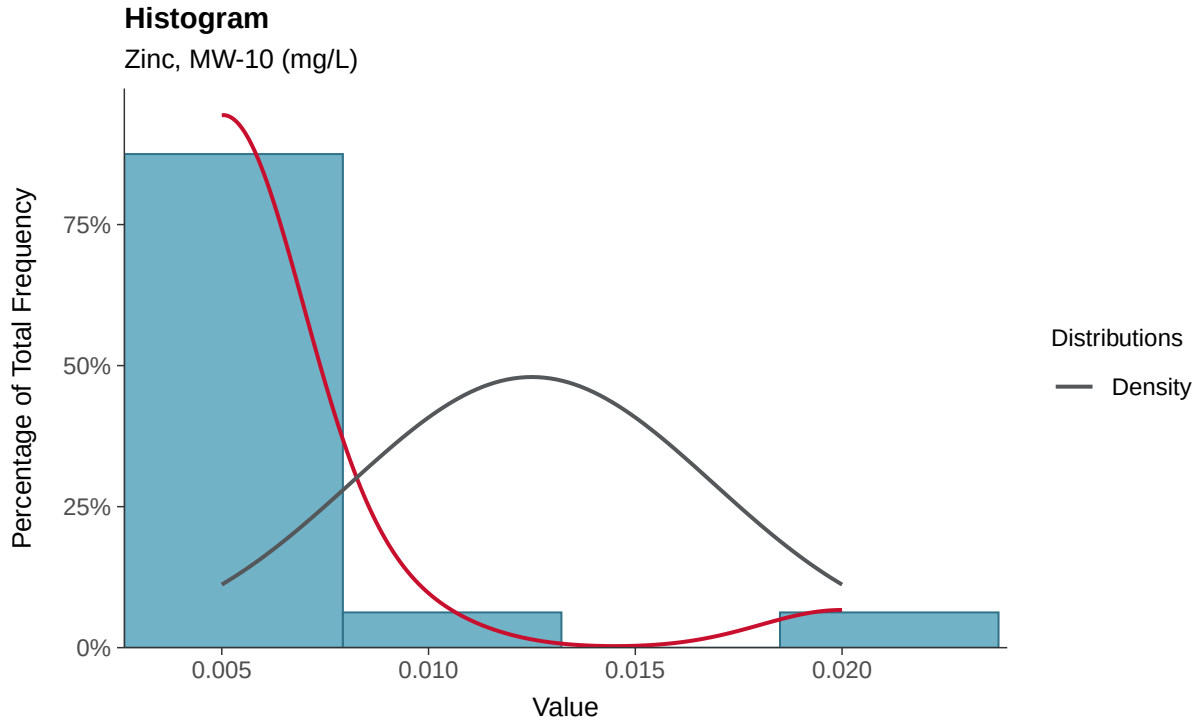
Vanadium, MW-10 (mg/L)



Part 115: Zinc, MW-10

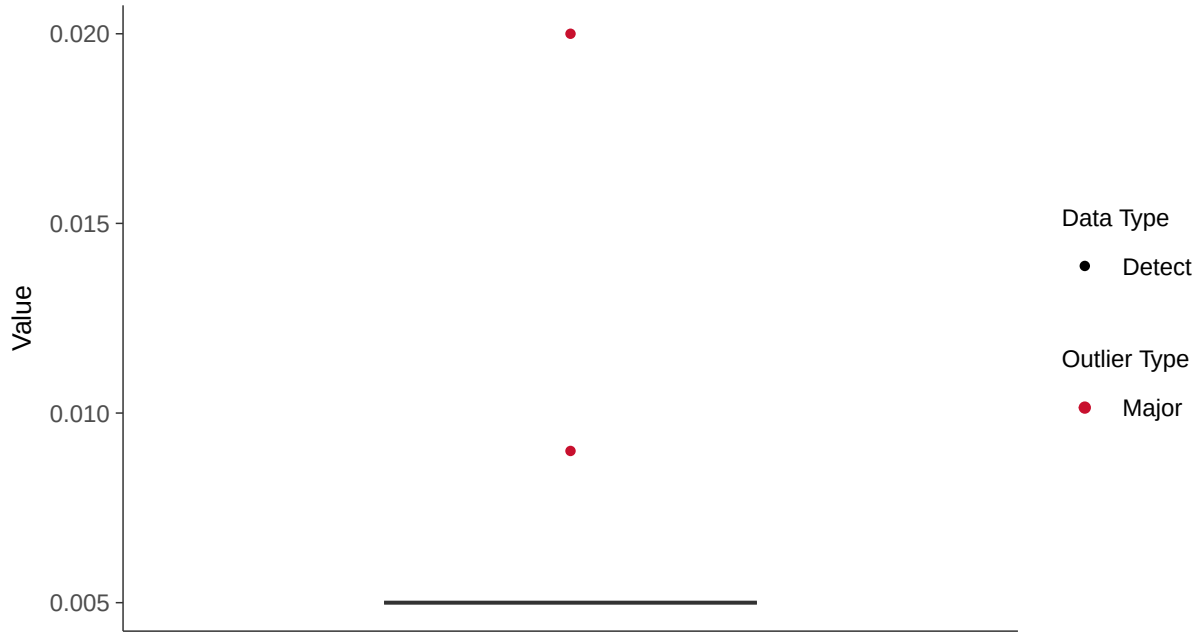
ID: 10_5_42





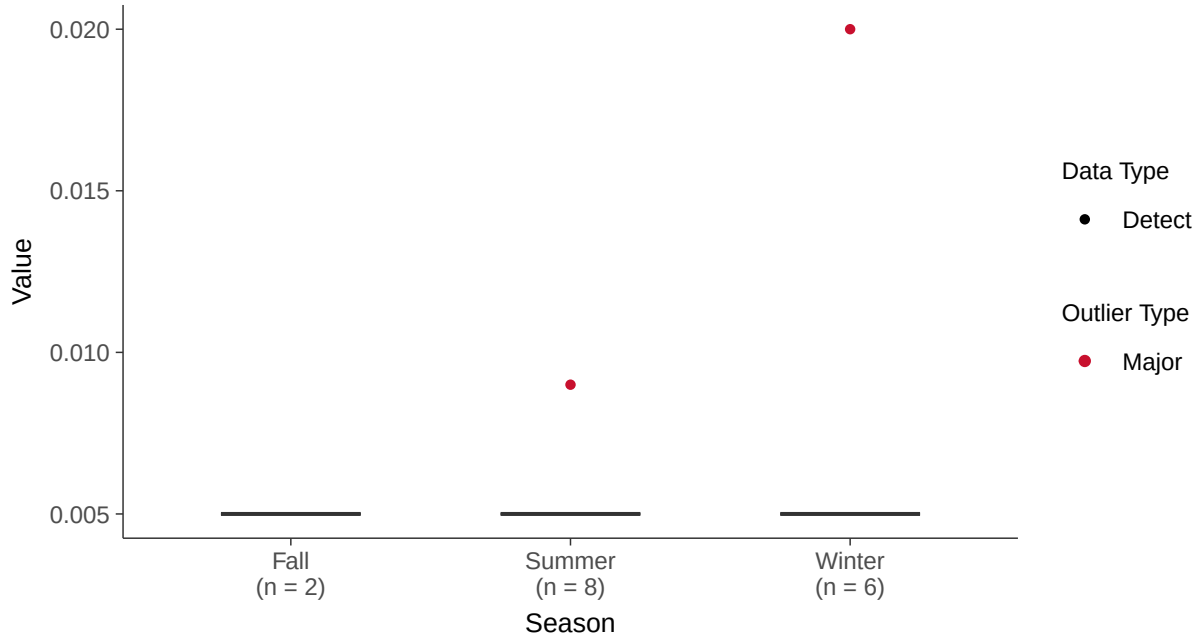
Boxplot

Zinc, MW-10 (mg/L)



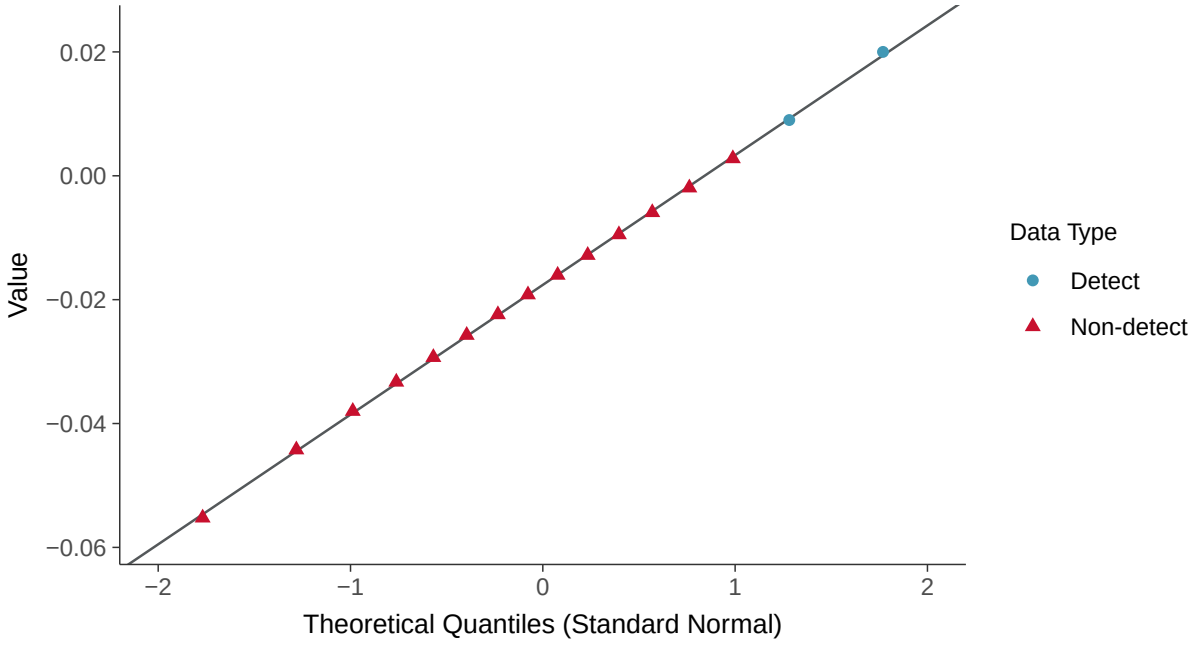
Boxplot by Season

Zinc, MW-10 (mg/L)



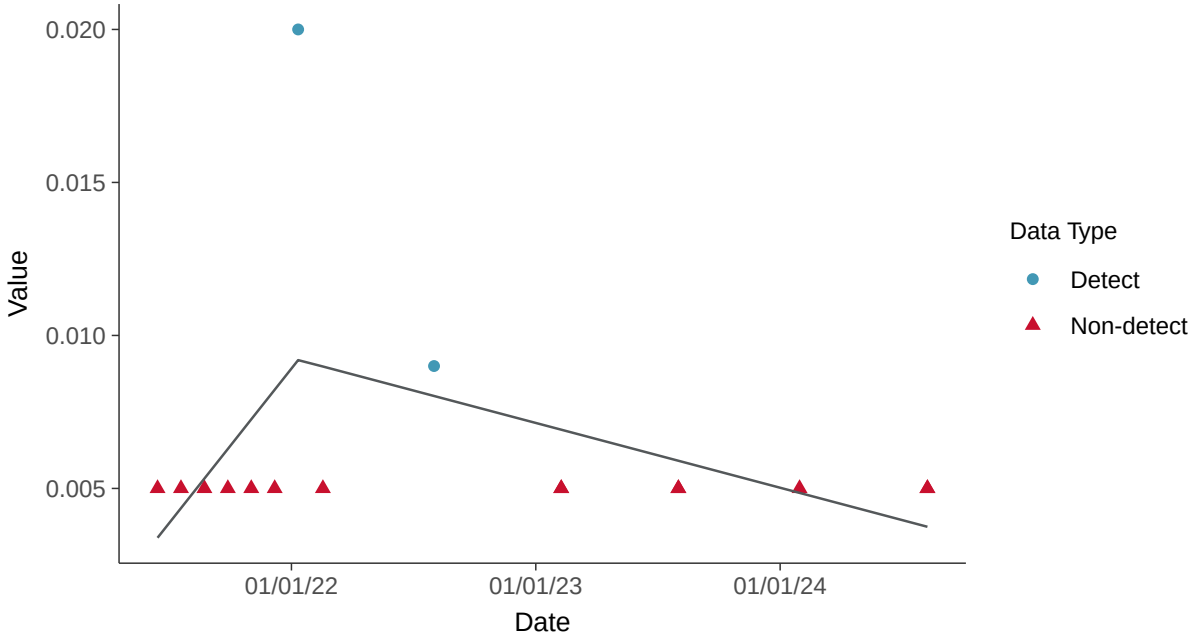
Normal Q-Q plot using ROS Imputed Estimates

Zinc, MW-10 (mg/L)



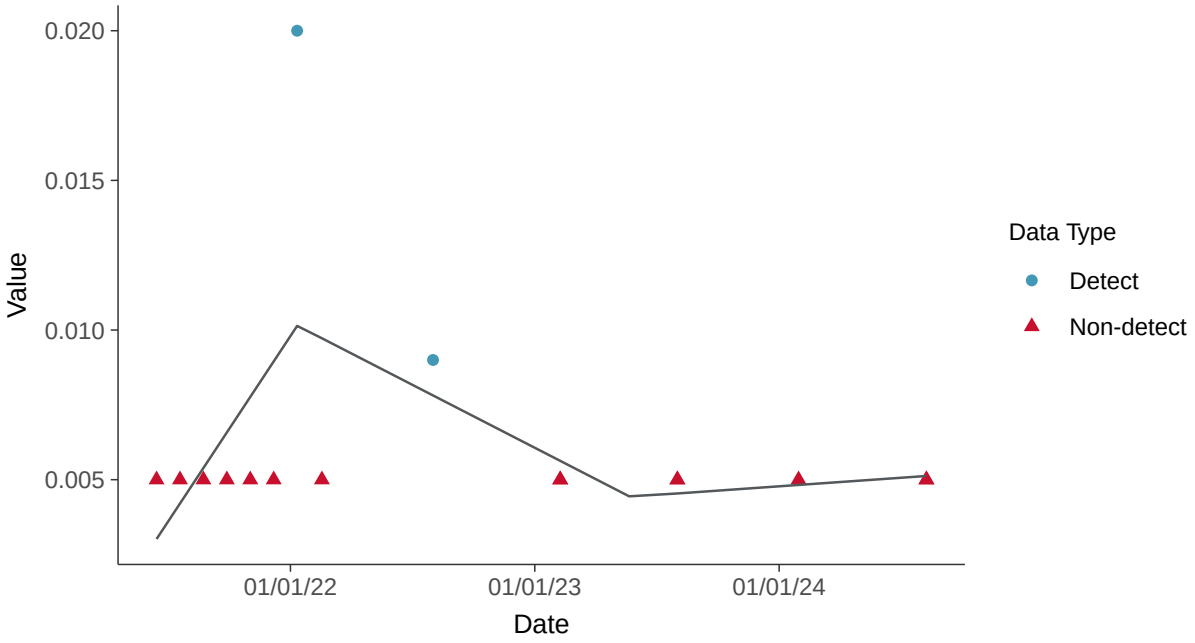
Trend Regression: Piecewise Linear-Linear

Zinc, MW-10 (mg/L)



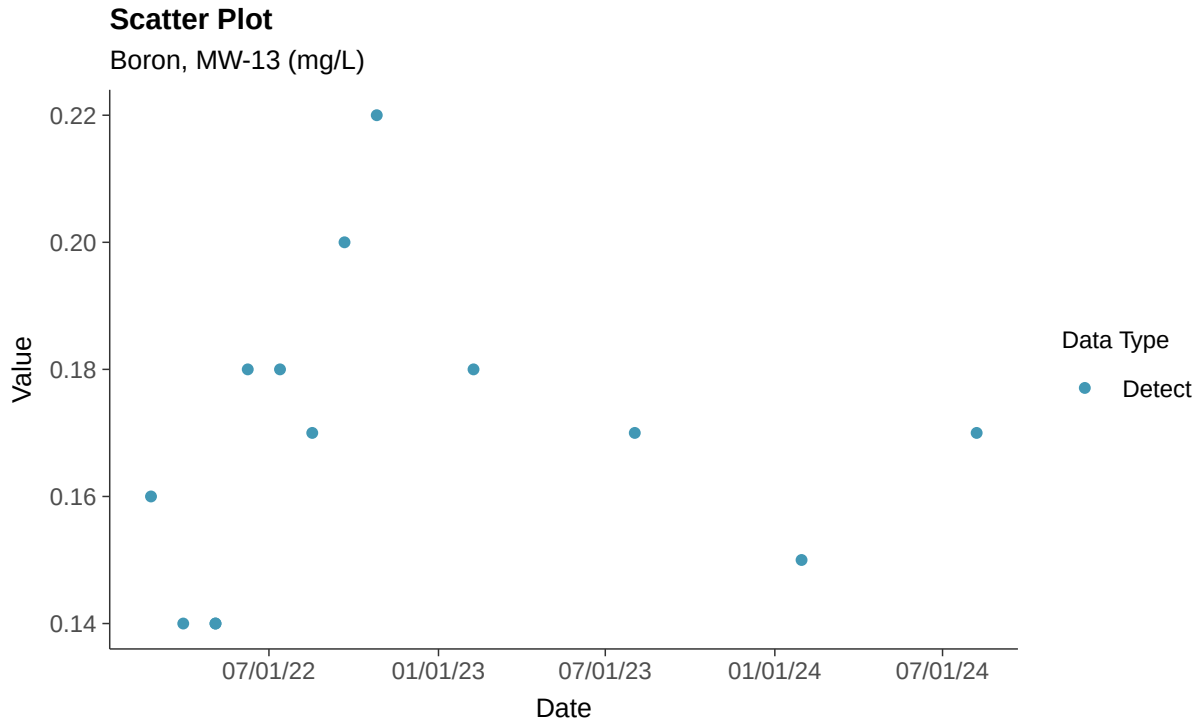
Trend Regression: Piecewise Linear-Linear-Linear

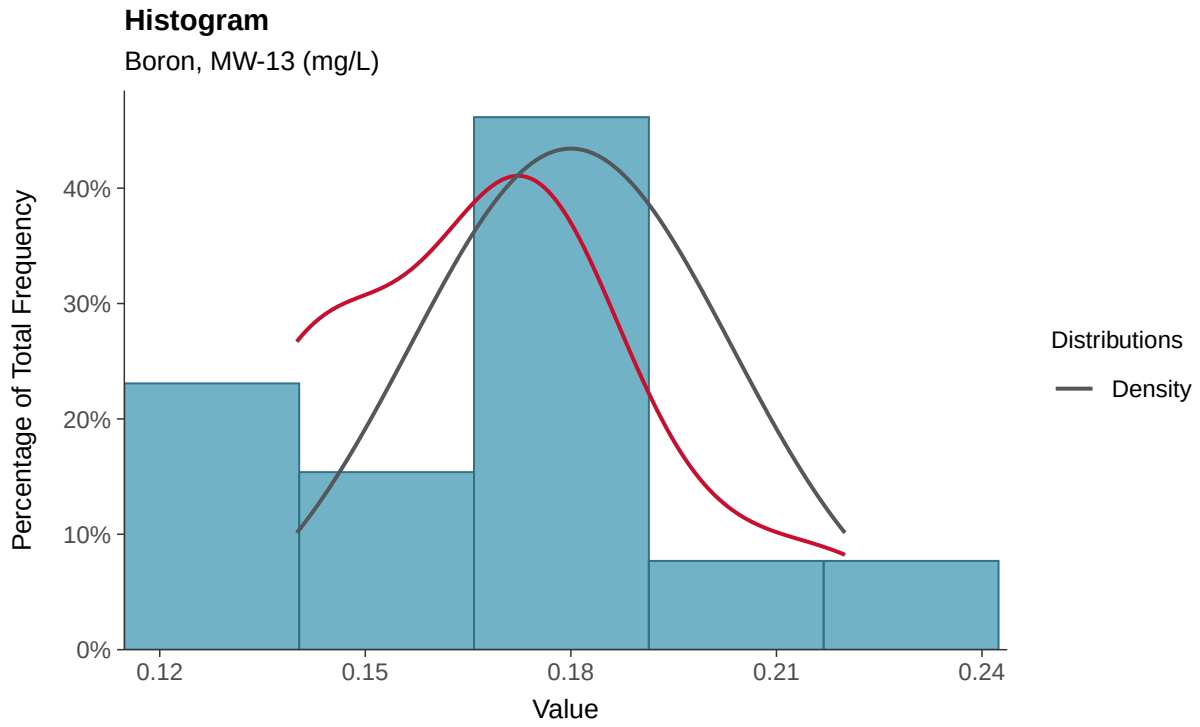
Zinc, MW-10 (mg/L)



Appendix III: Boron, MW-13

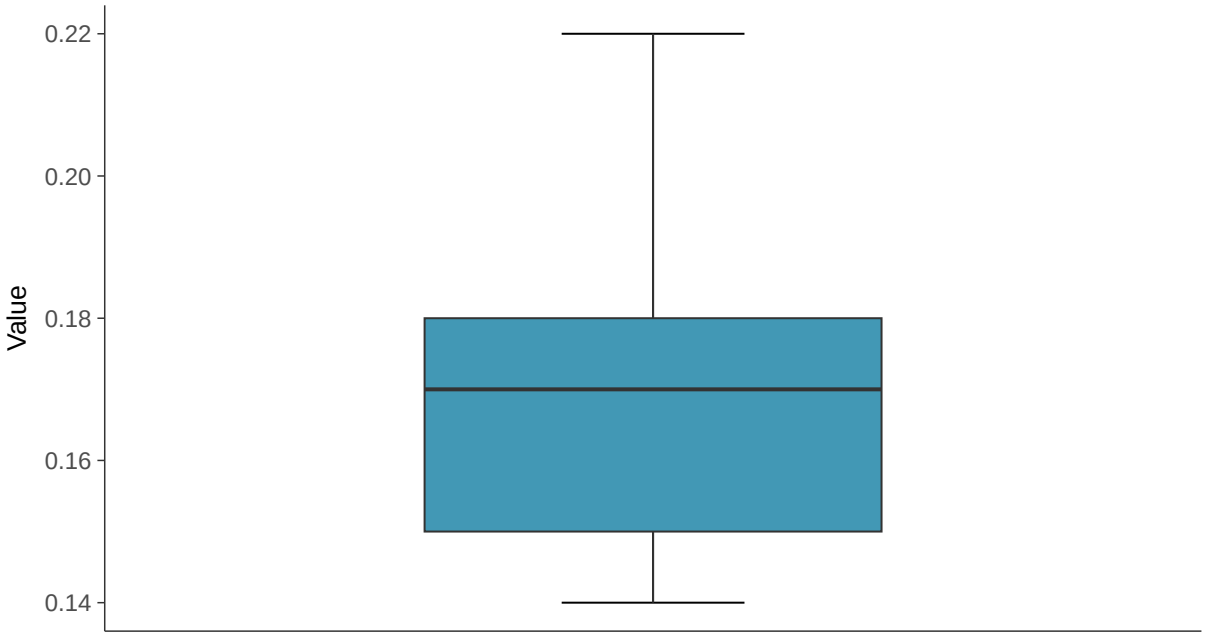
ID: 13_1_01





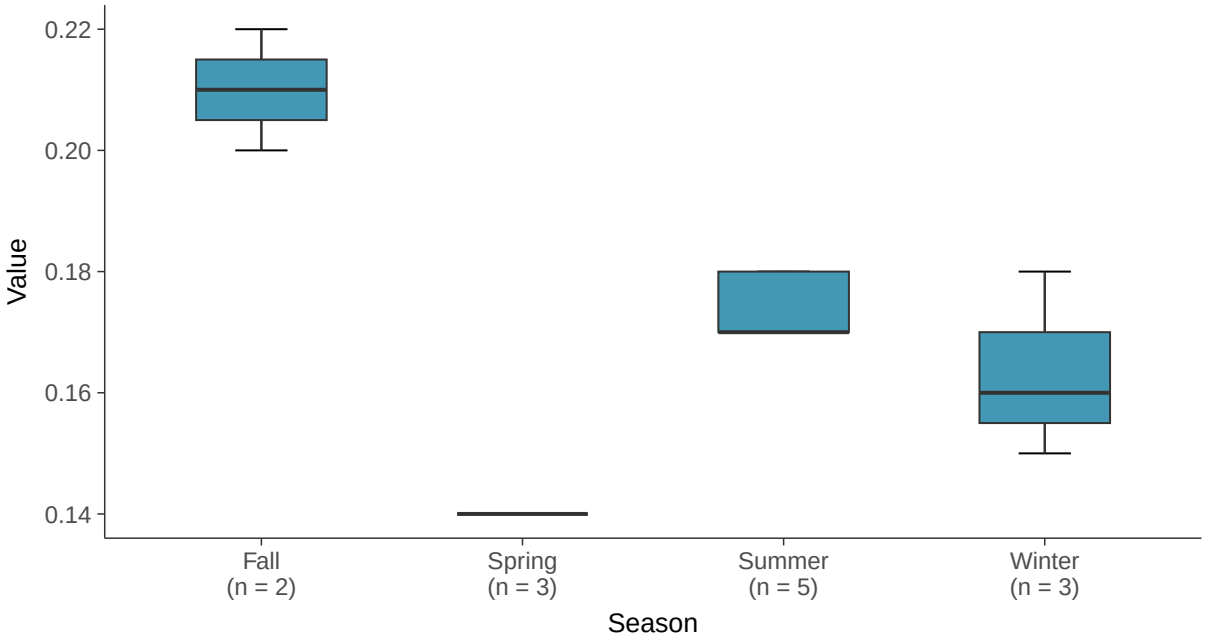
Boxplot

Boron, MW-13 (mg/L)



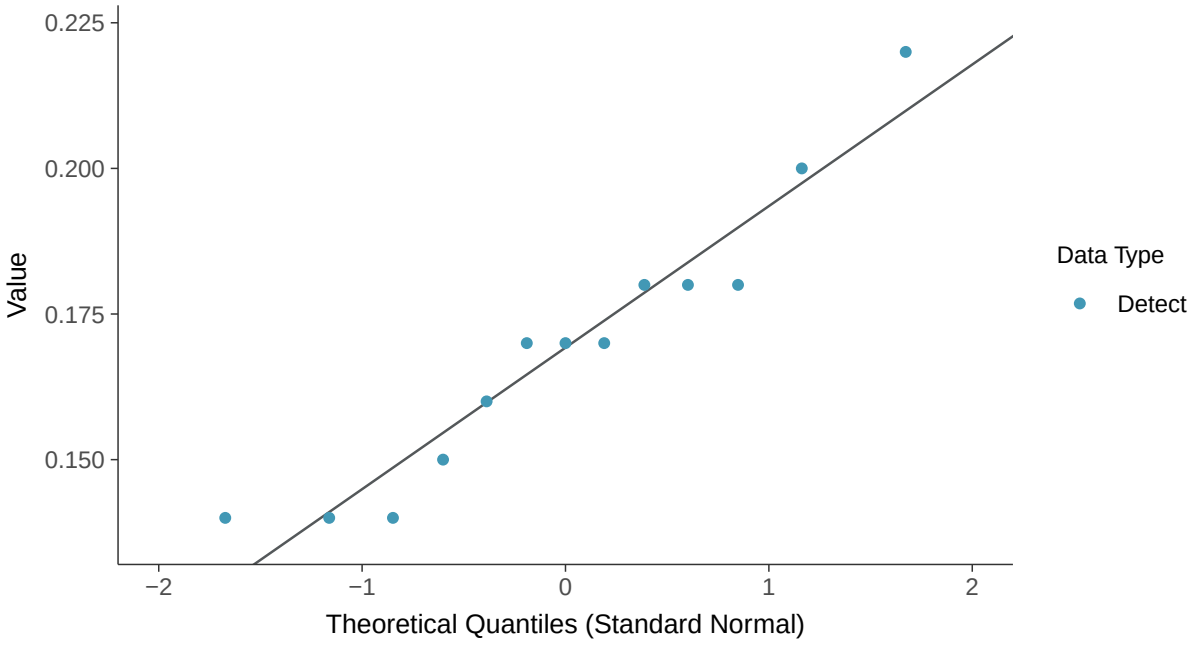
Boxplot by Season

Boron, MW-13 (mg/L)



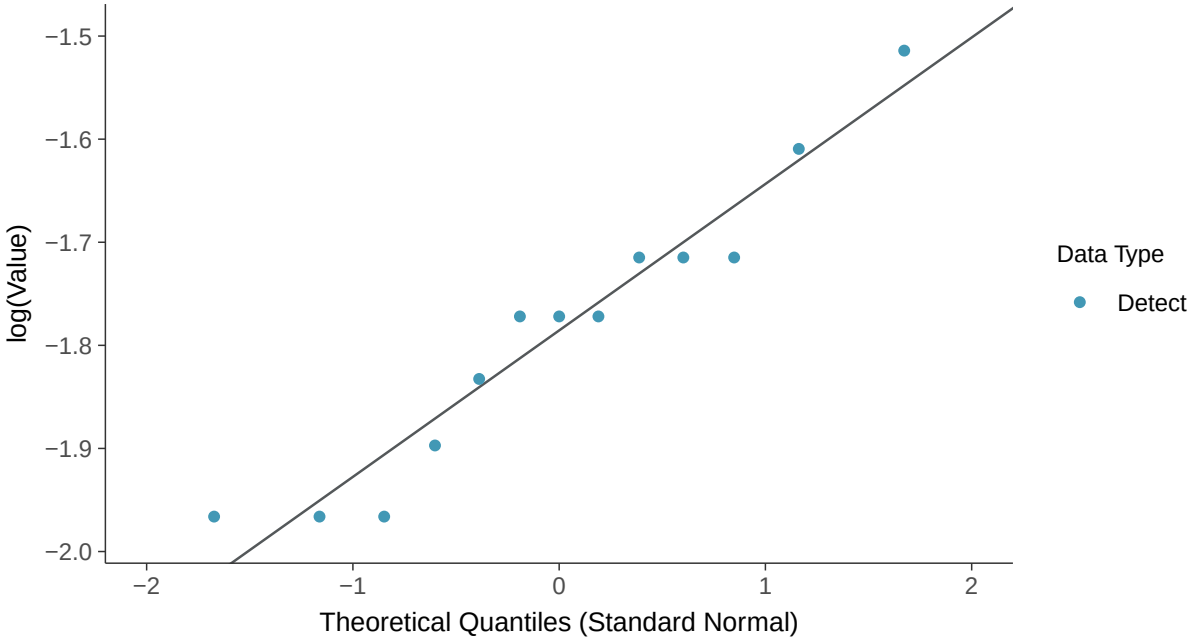
Normal Q-Q plot

Boron, MW-13 (mg/L)



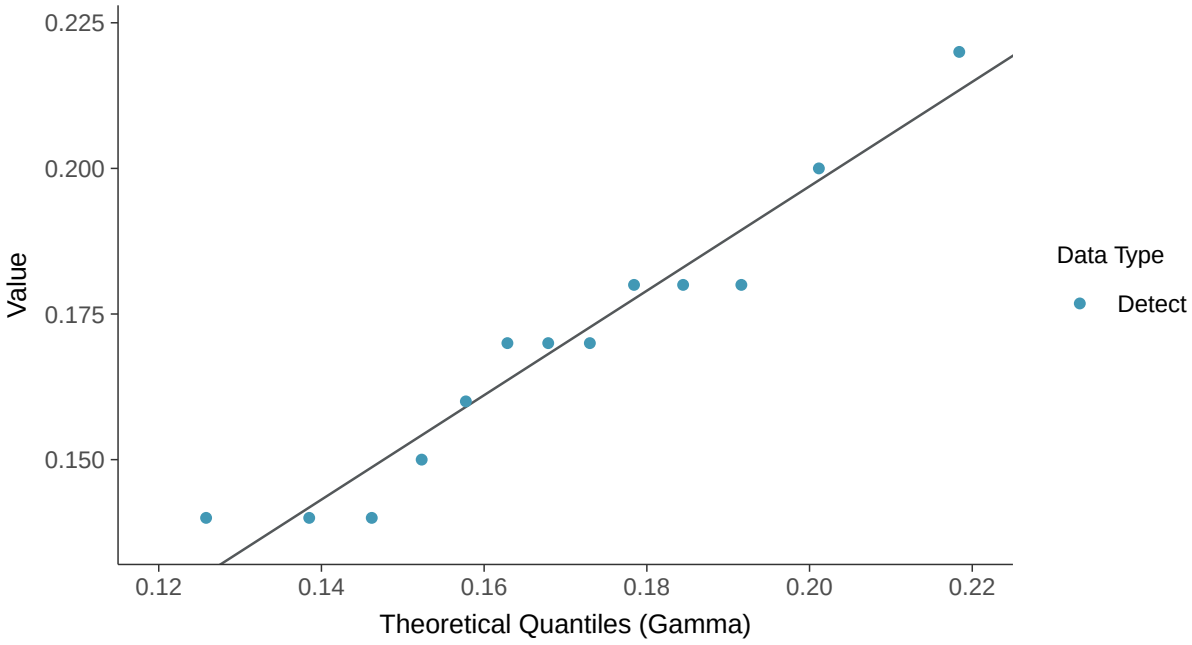
Lognormal Q-Q plot

Boron, MW-13 (mg/L)



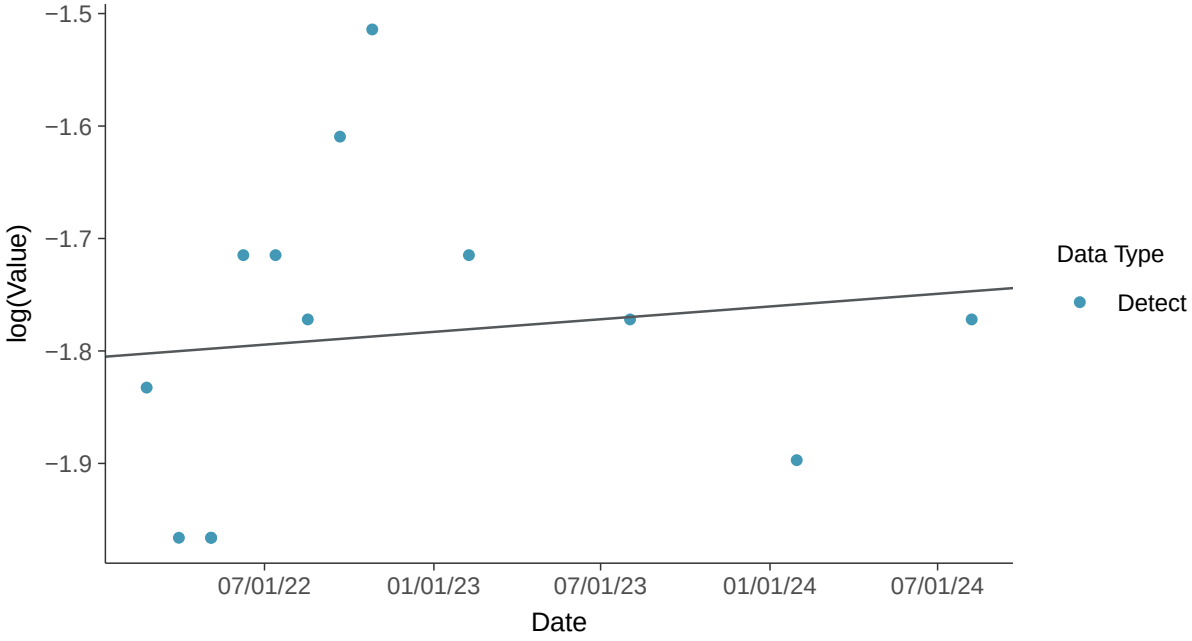
Gamma Q-Q plot

Boron, MW-13 (mg/L)



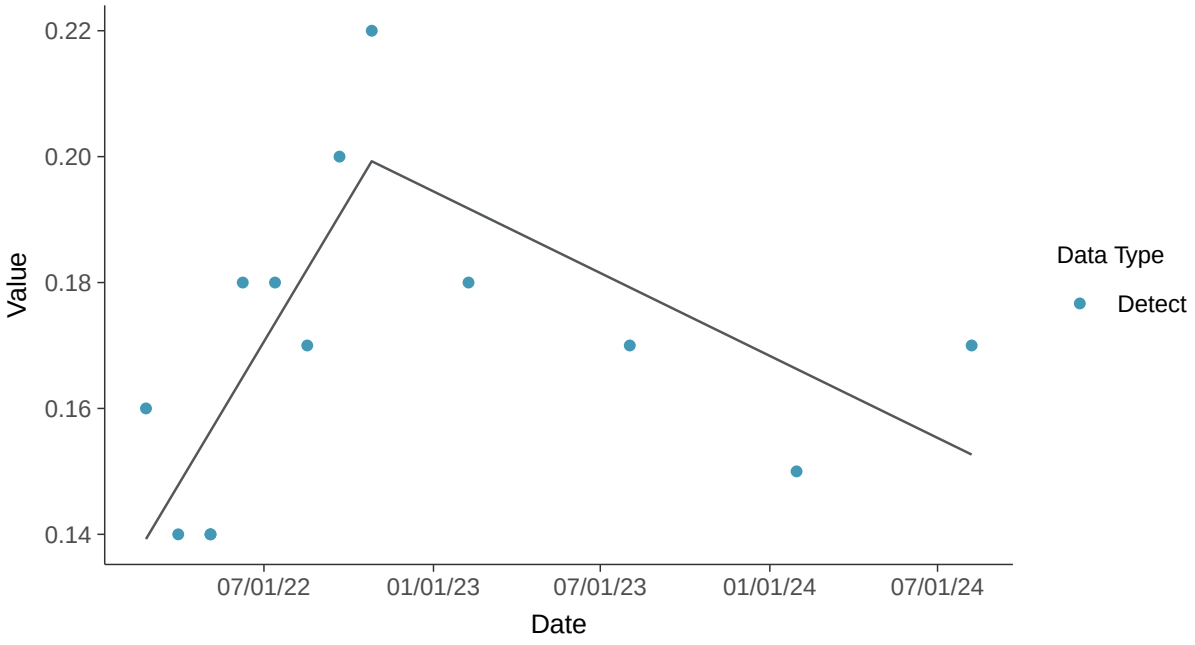
Trend Regression: Lognormal MLE

Boron, MW-13 (mg/L)



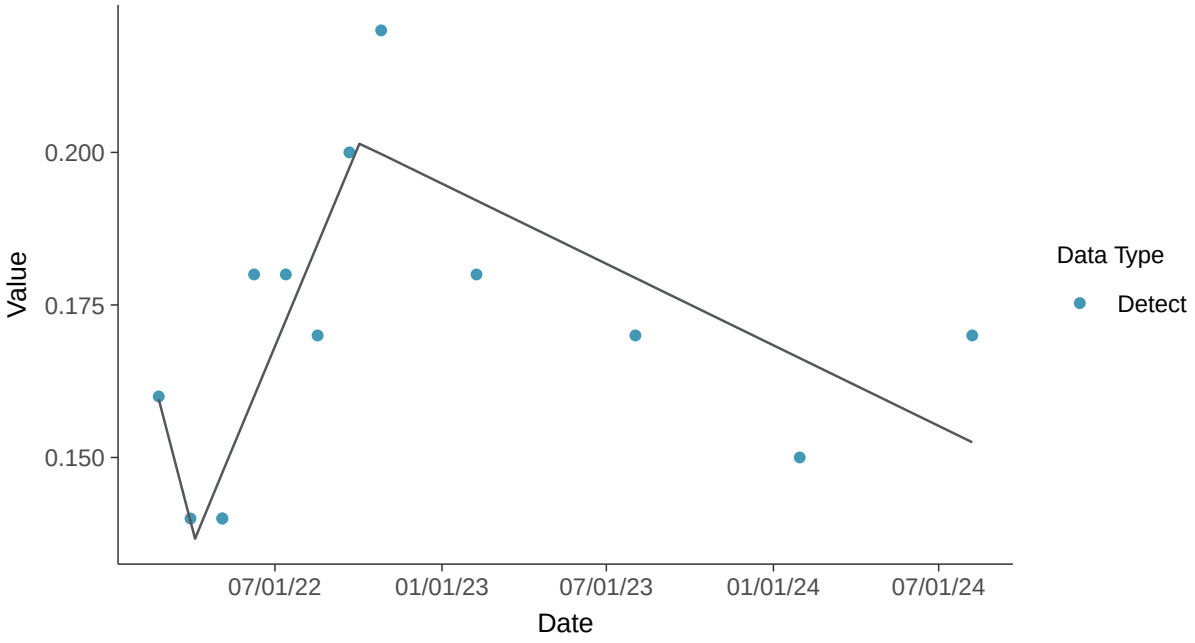
Trend Regression: Piecewise Linear-Linear

Boron, MW-13 (mg/L)



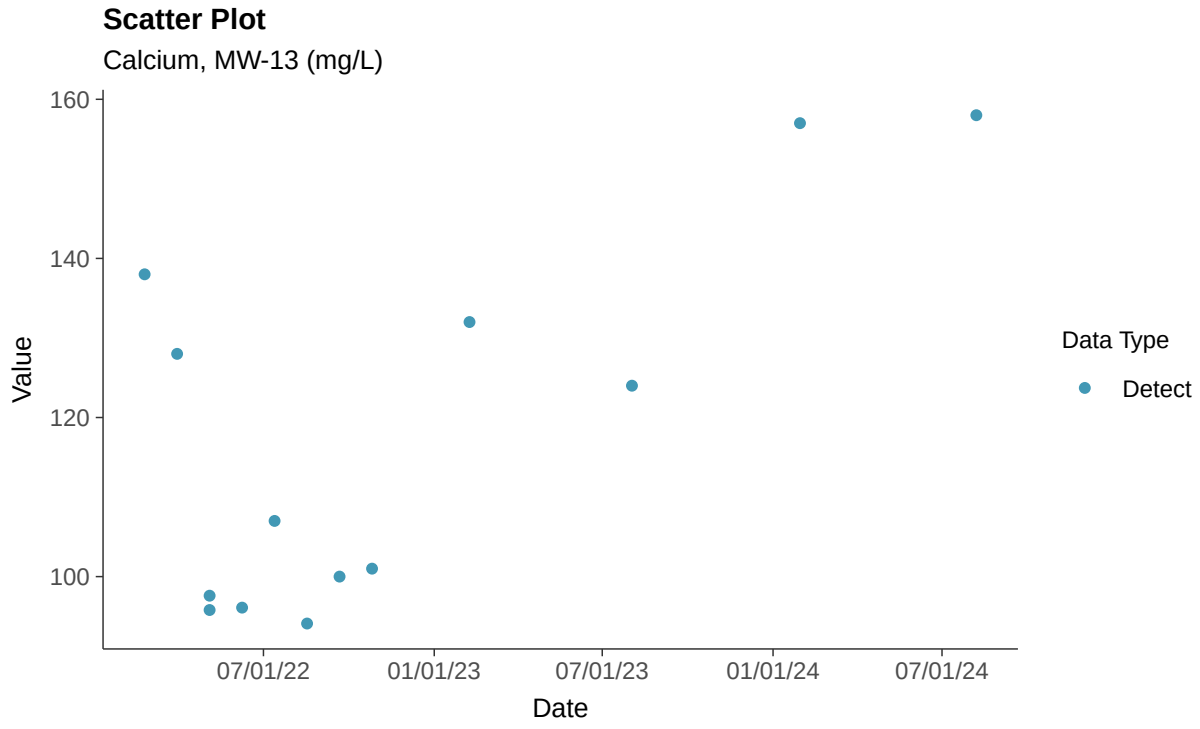
Trend Regression: Piecewise Linear-Linear-Linear

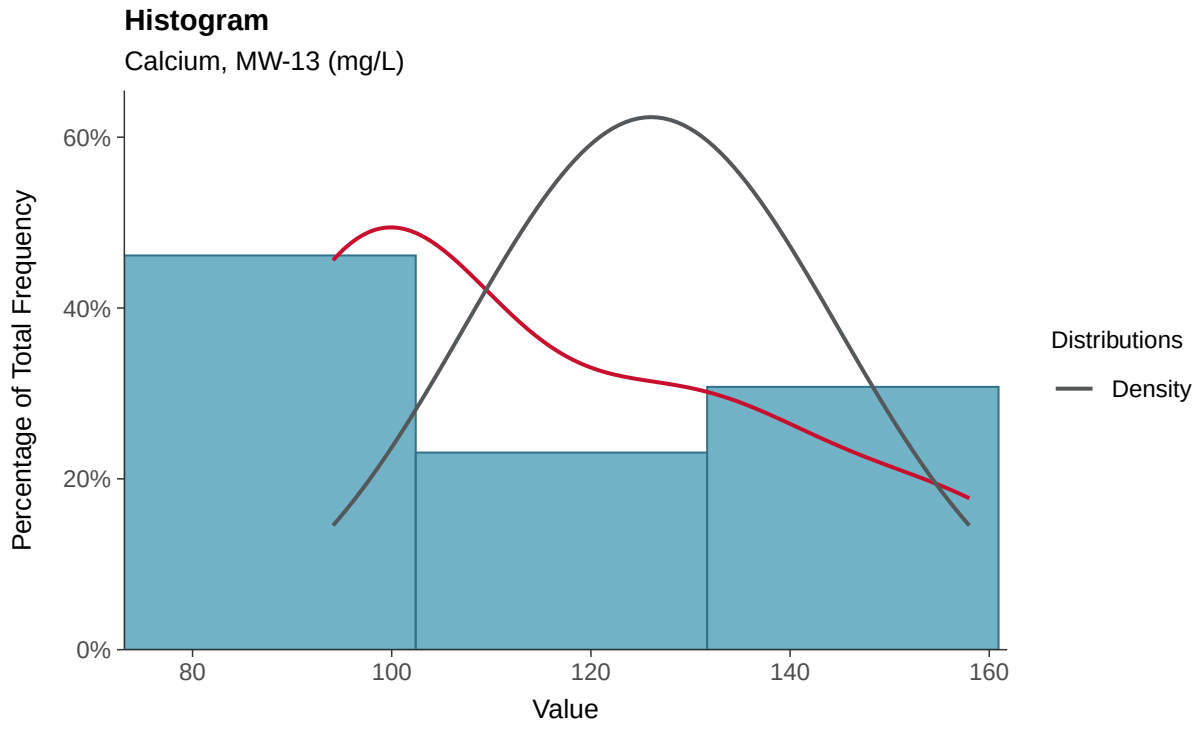
Boron, MW-13 (mg/L)



Appendix III: Calcium, MW-13

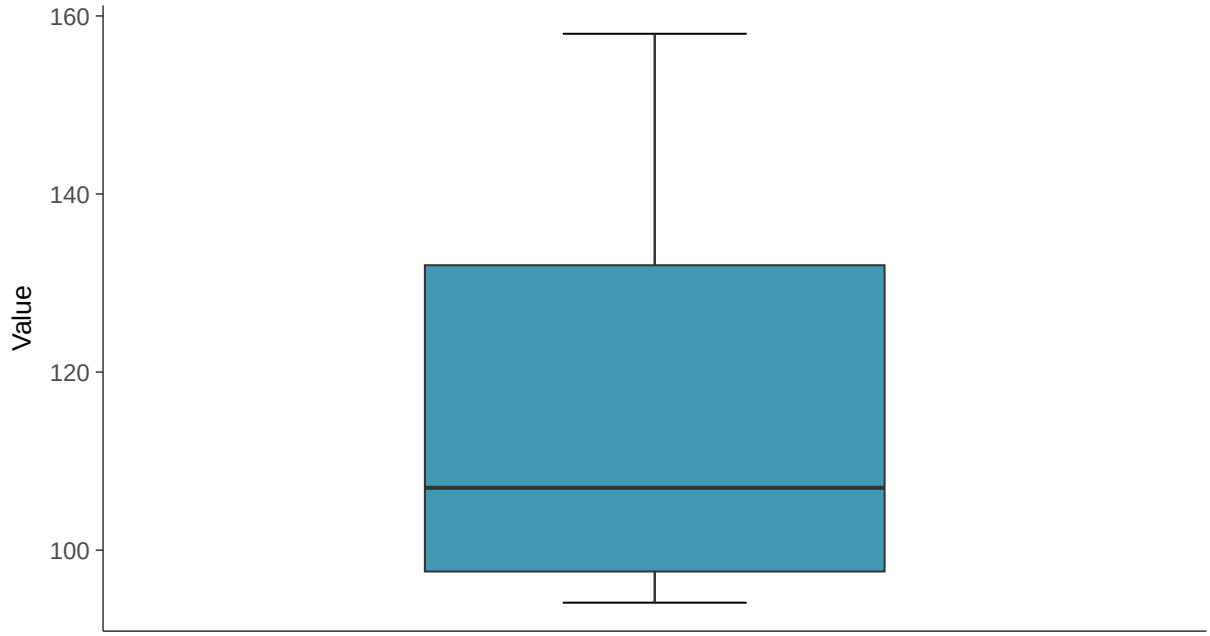
ID: 13_1_02





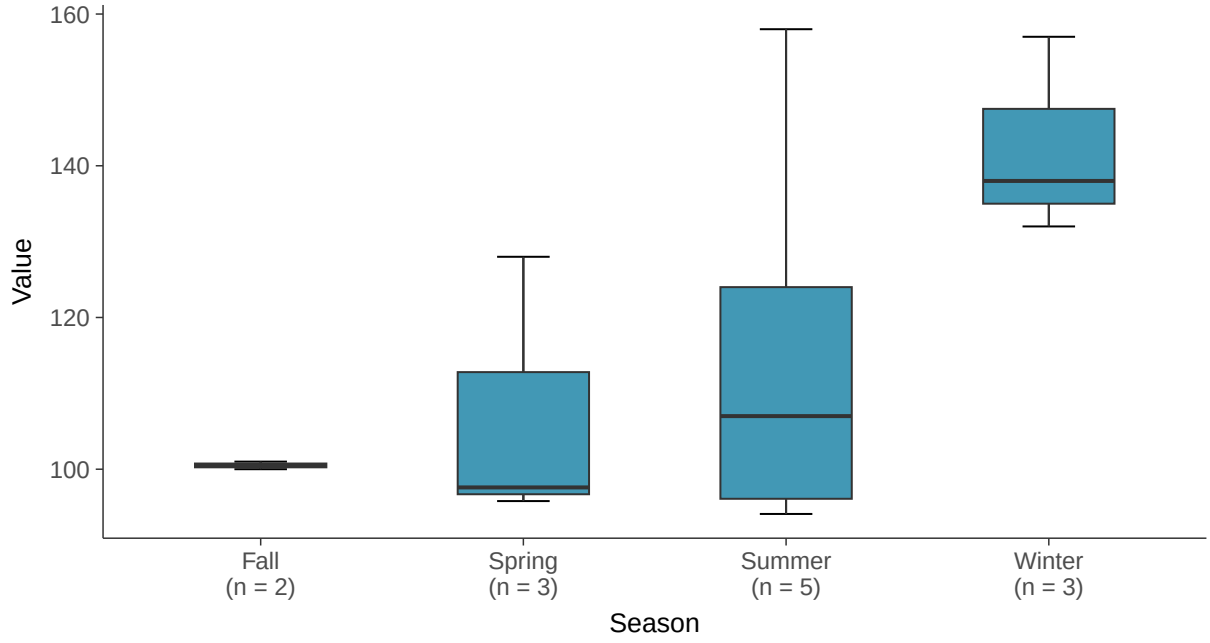
Boxplot

Calcium, MW-13 (mg/L)



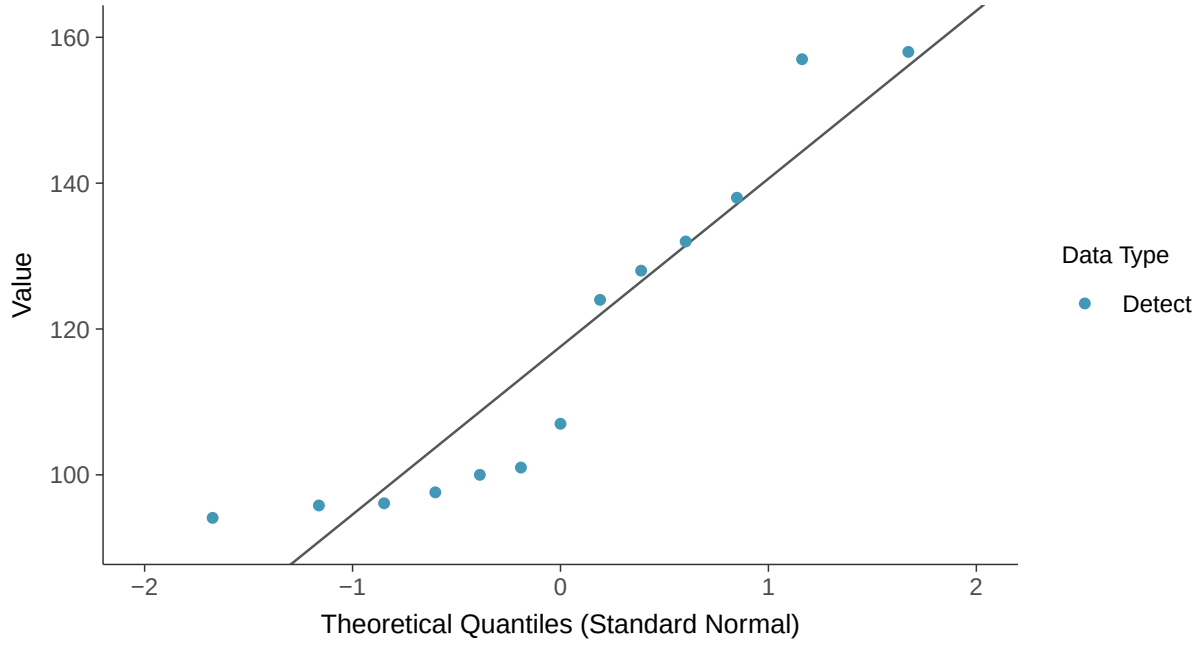
Boxplot by Season

Calcium, MW-13 (mg/L)



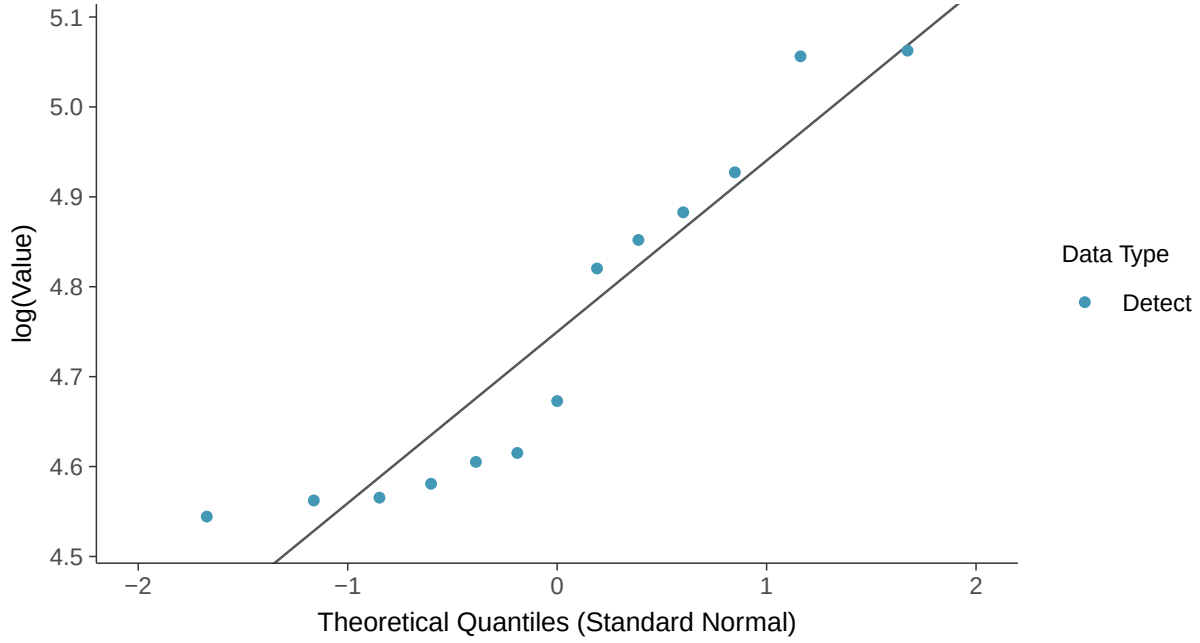
Normal Q-Q plot

Calcium, MW-13 (mg/L)



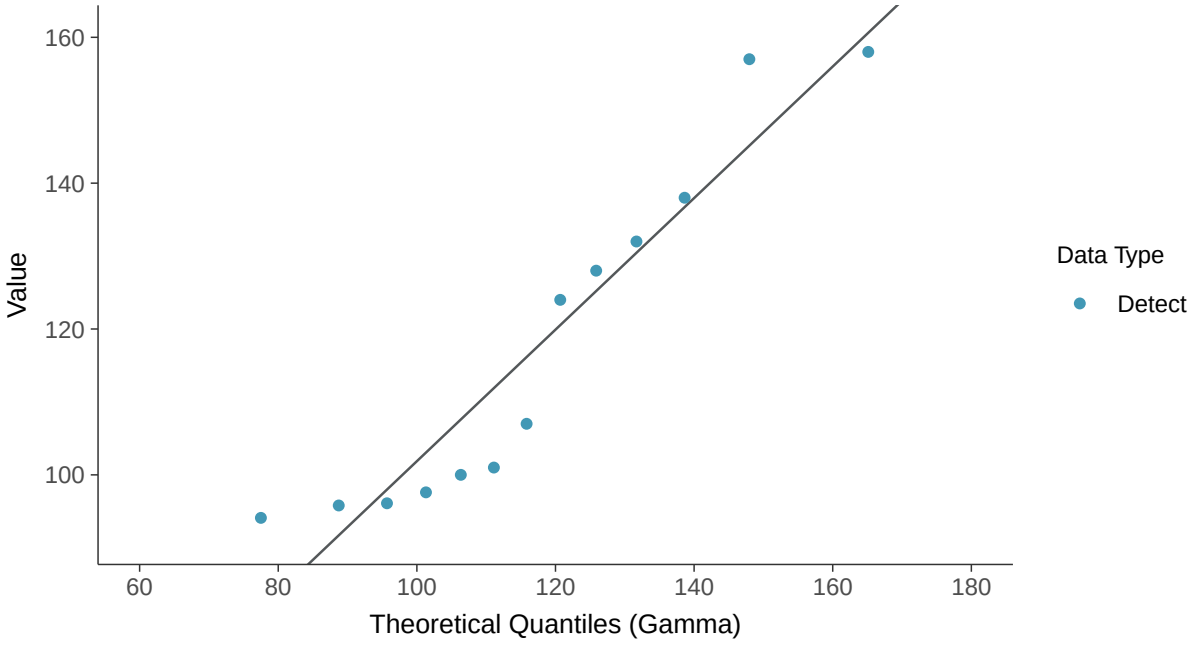
Lognormal Q-Q plot

Calcium, MW-13 (mg/L)



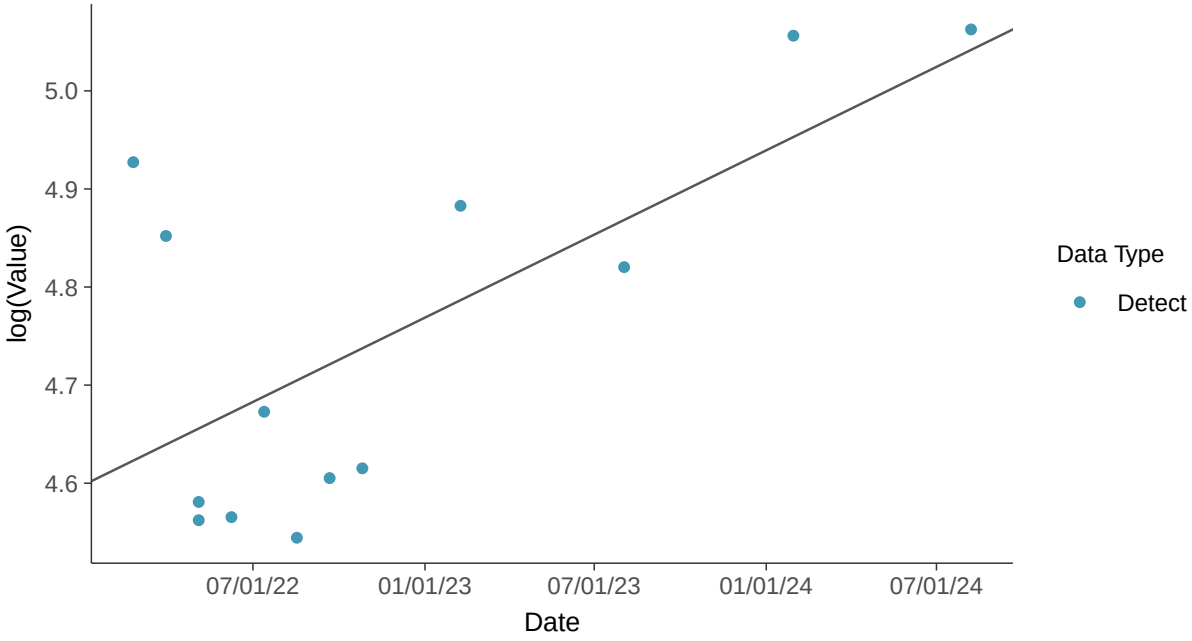
Gamma Q-Q plot

Calcium, MW-13 (mg/L)



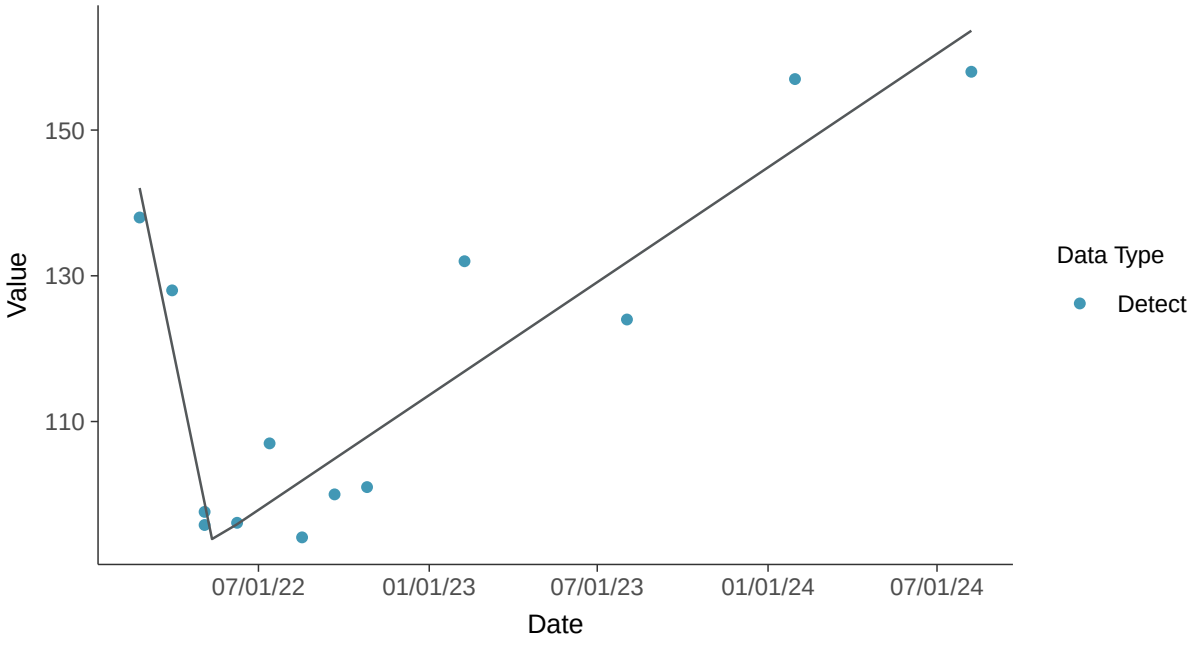
Trend Regression: Lognormal MLE

Calcium, MW-13 (mg/L)



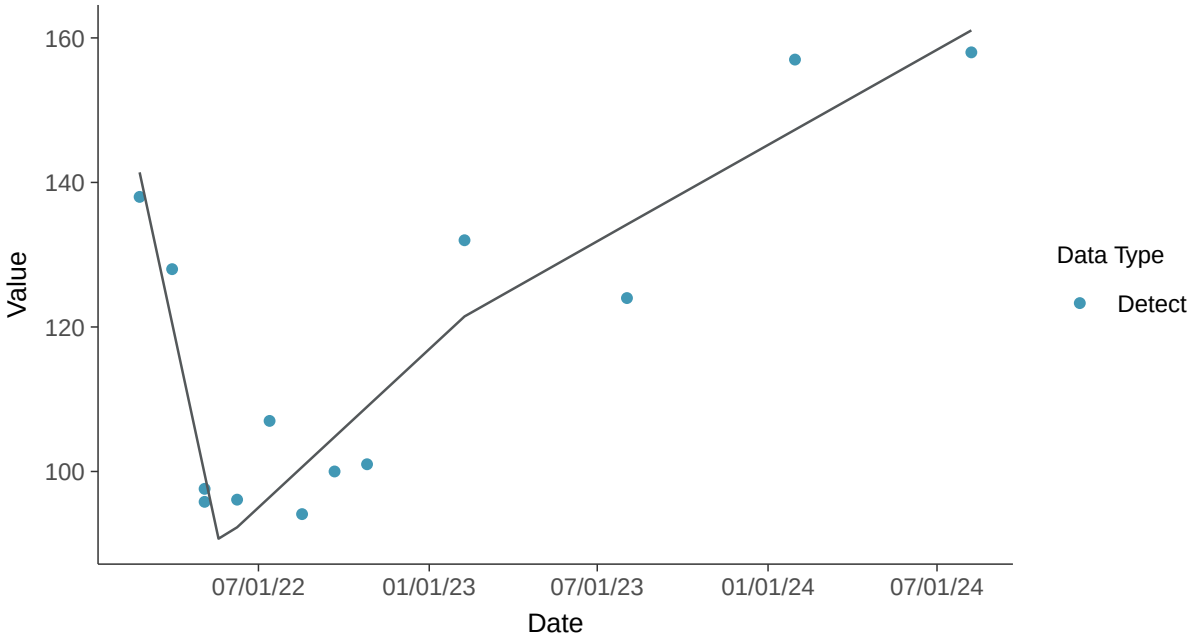
Trend Regression: Piecewise Linear-Linear

Calcium, MW-13 (mg/L)



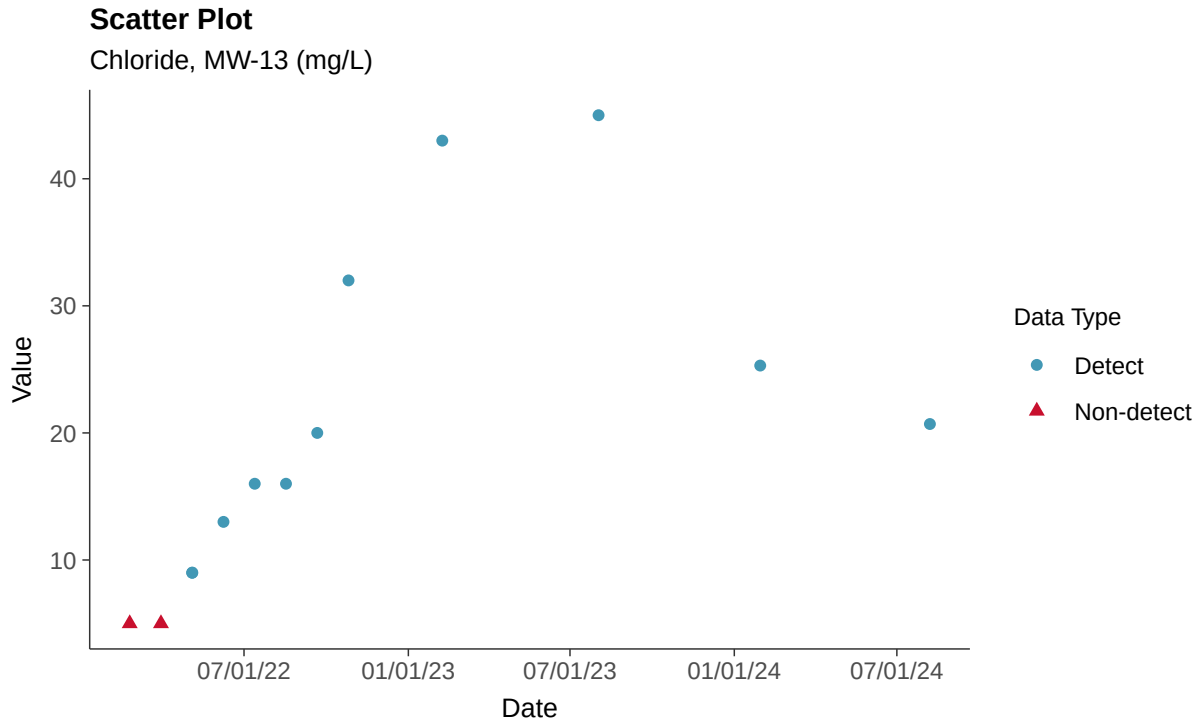
Trend Regression: Piecewise Linear-Linear-Linear

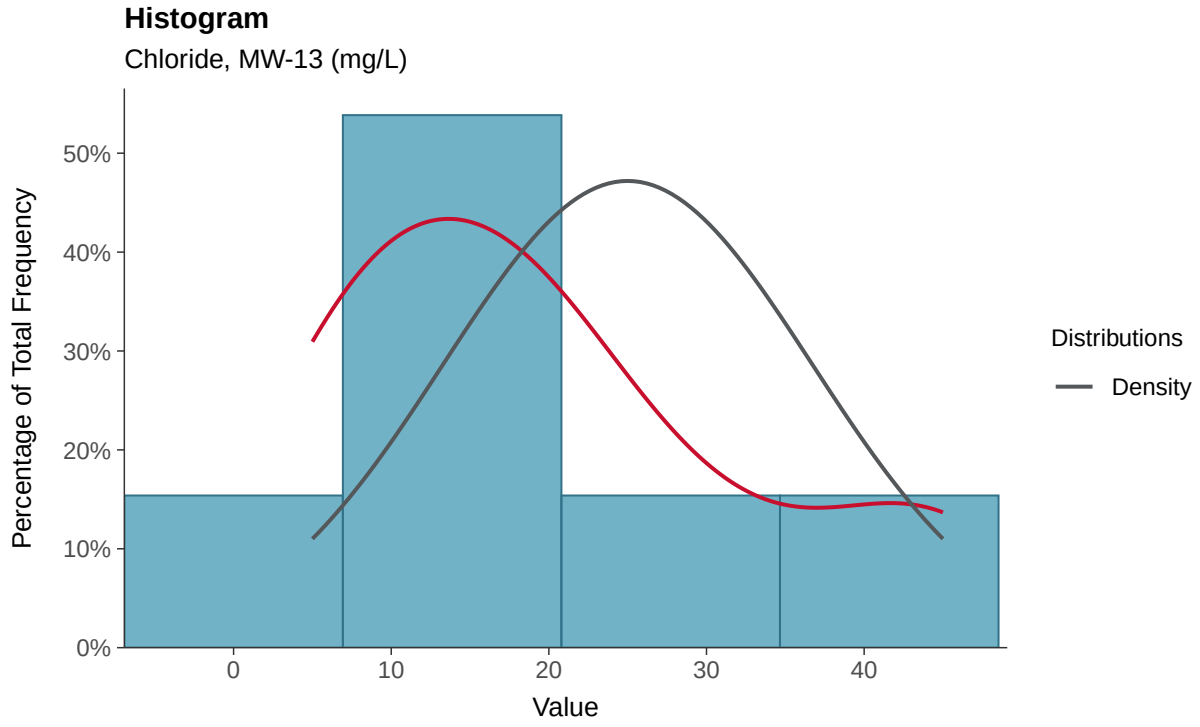
Calcium, MW-13 (mg/L)



Appendix III: Chloride, MW-13

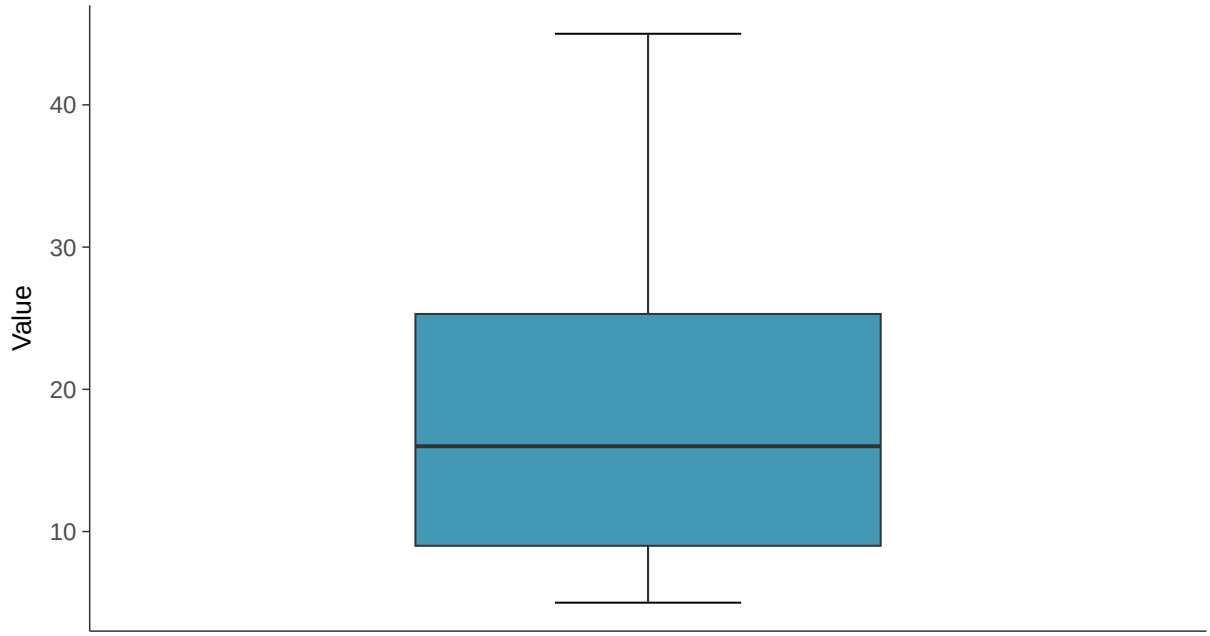
ID: 13_1_03





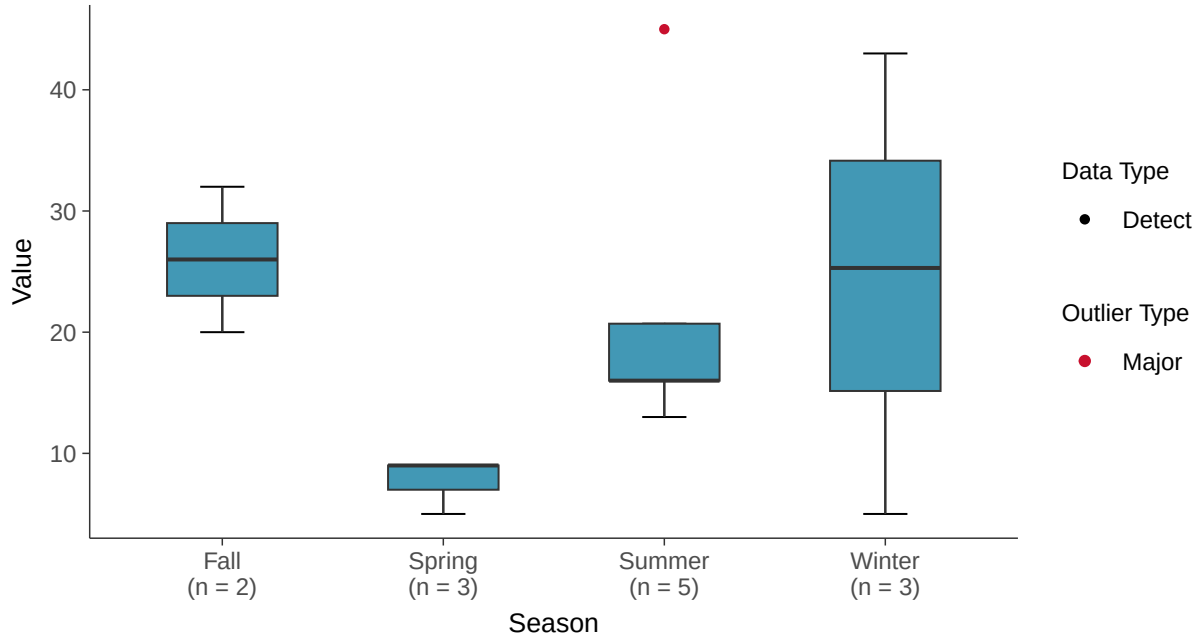
Boxplot

Chloride, MW-13 (mg/L)



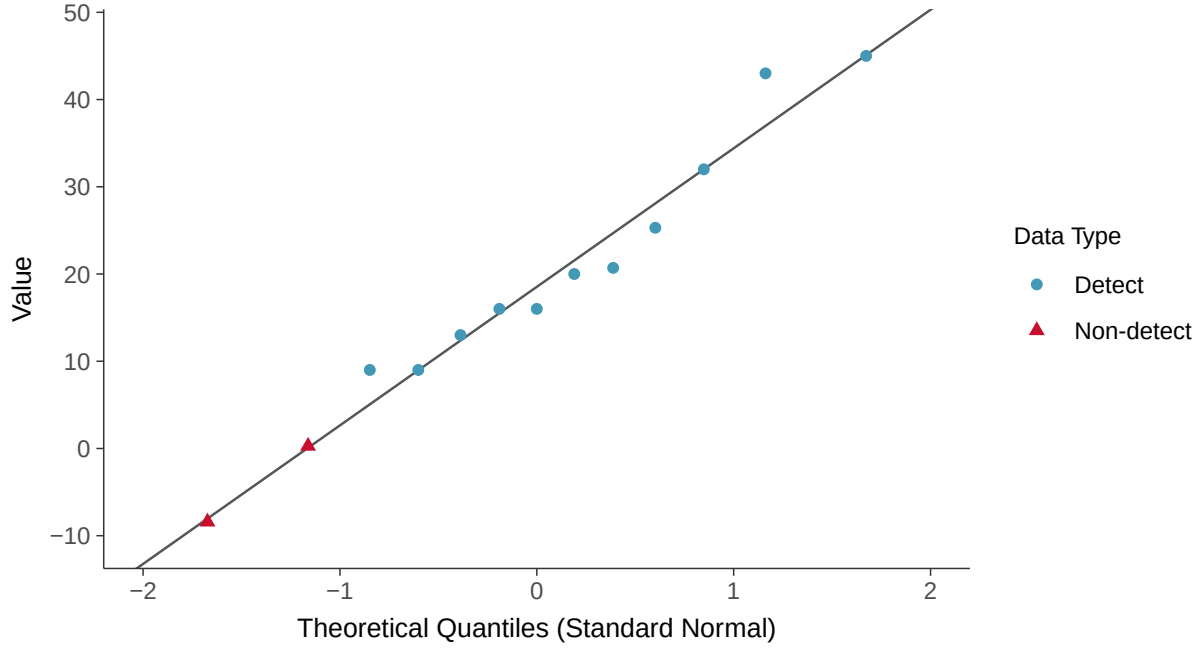
Boxplot by Season

Chloride, MW-13 (mg/L)



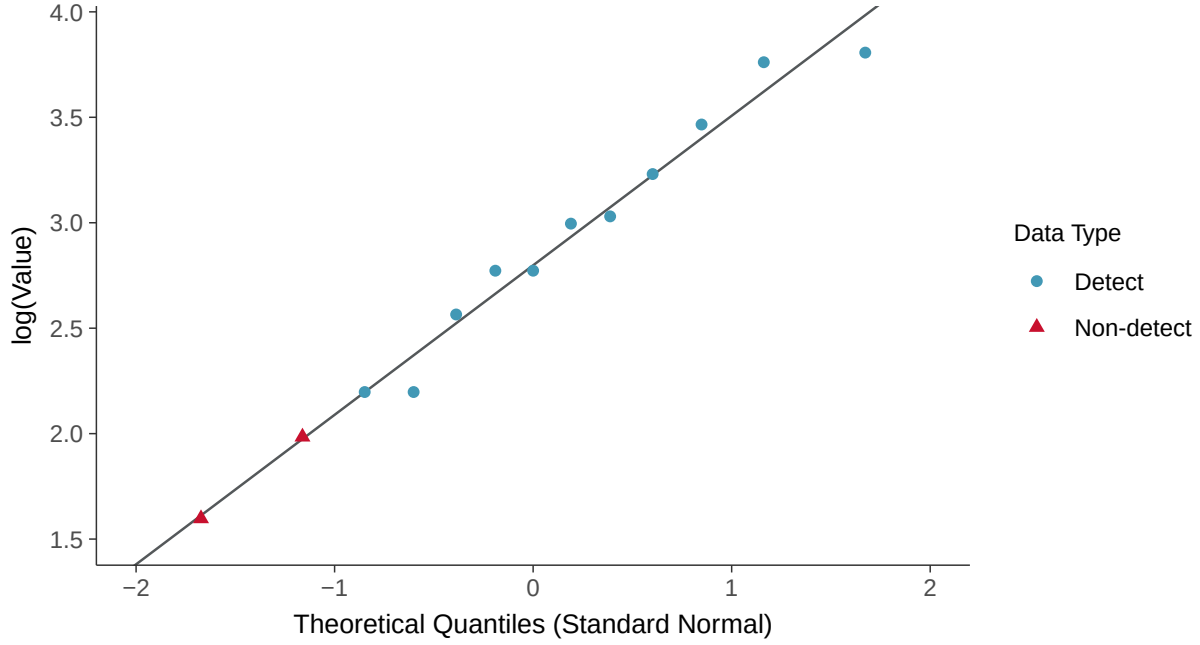
Normal Q-Q plot using ROS Imputed Estimates

Chloride, MW-13 (mg/L)



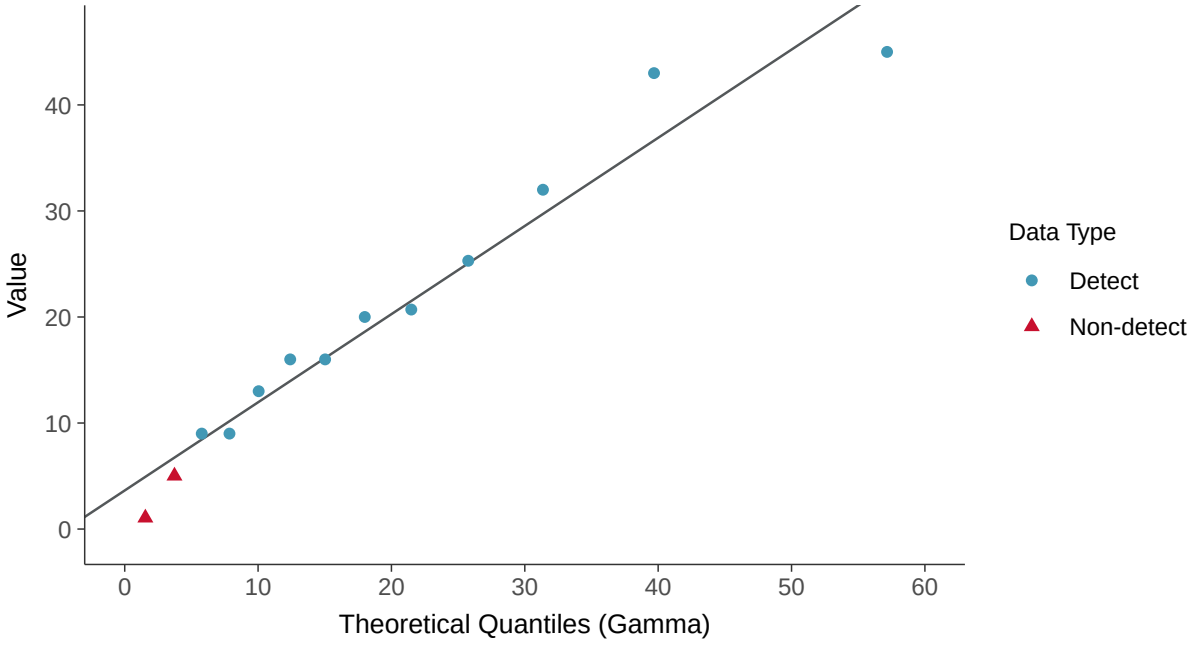
Lognormal Q-Q plot using ROS Imputed Estimates

Chloride, MW-13 (mg/L)



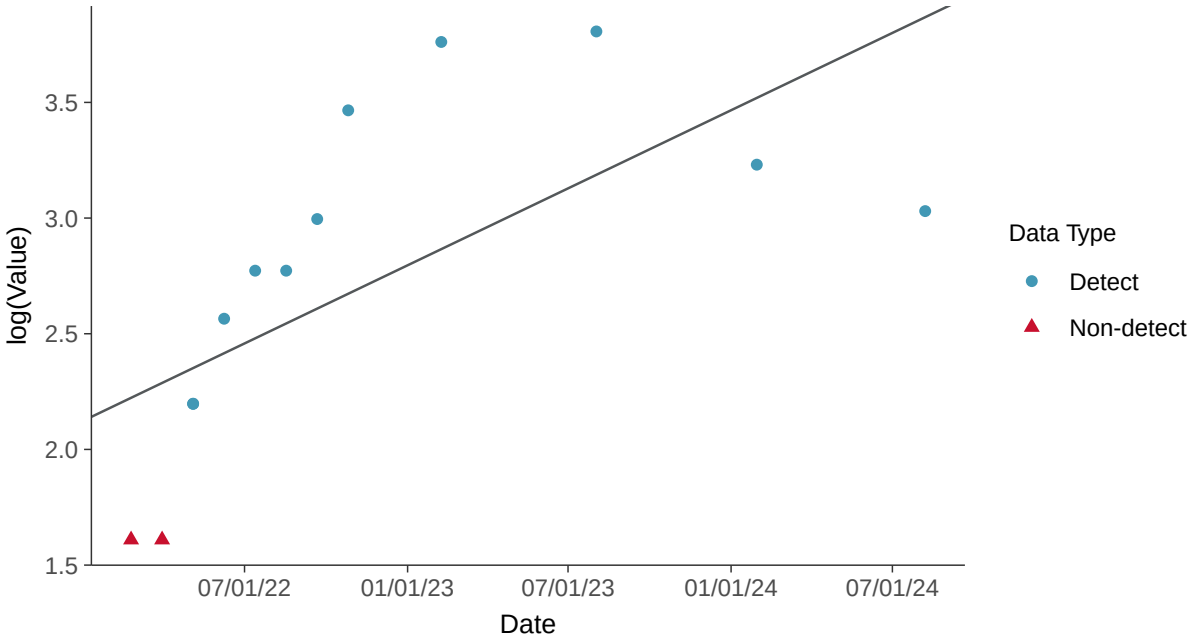
Gamma Q-Q plot using ROS Imputed Estimates

Chloride, MW-13 (mg/L)



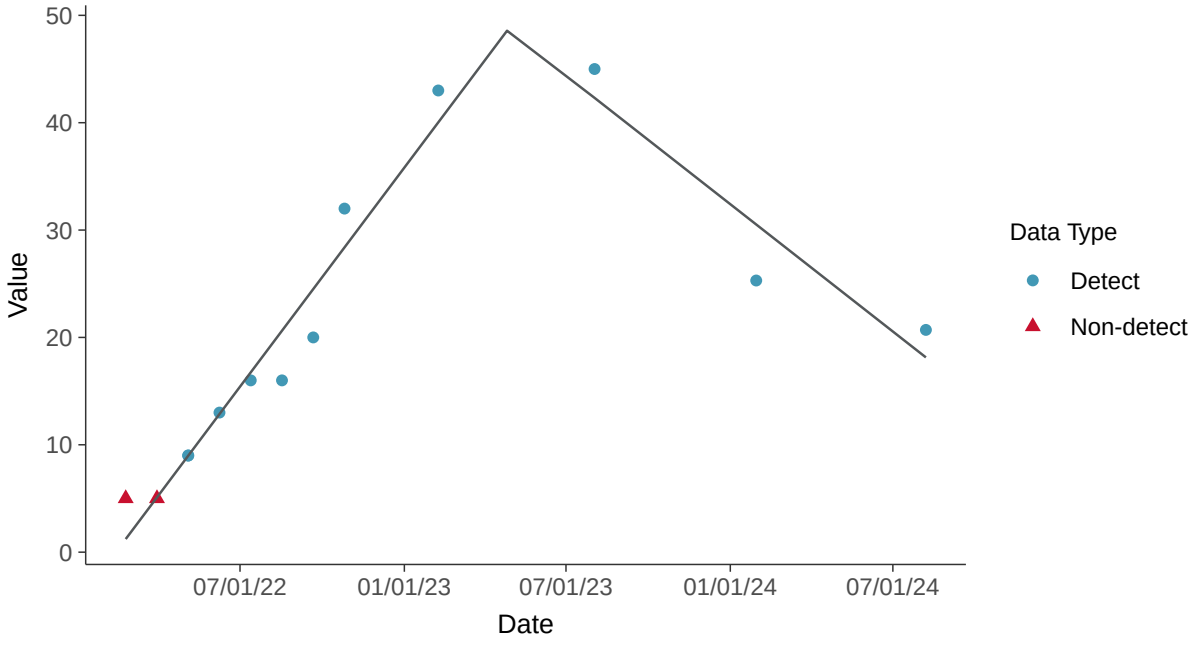
Trend Regression: Lognormal MLE

Chloride, MW-13 (mg/L)



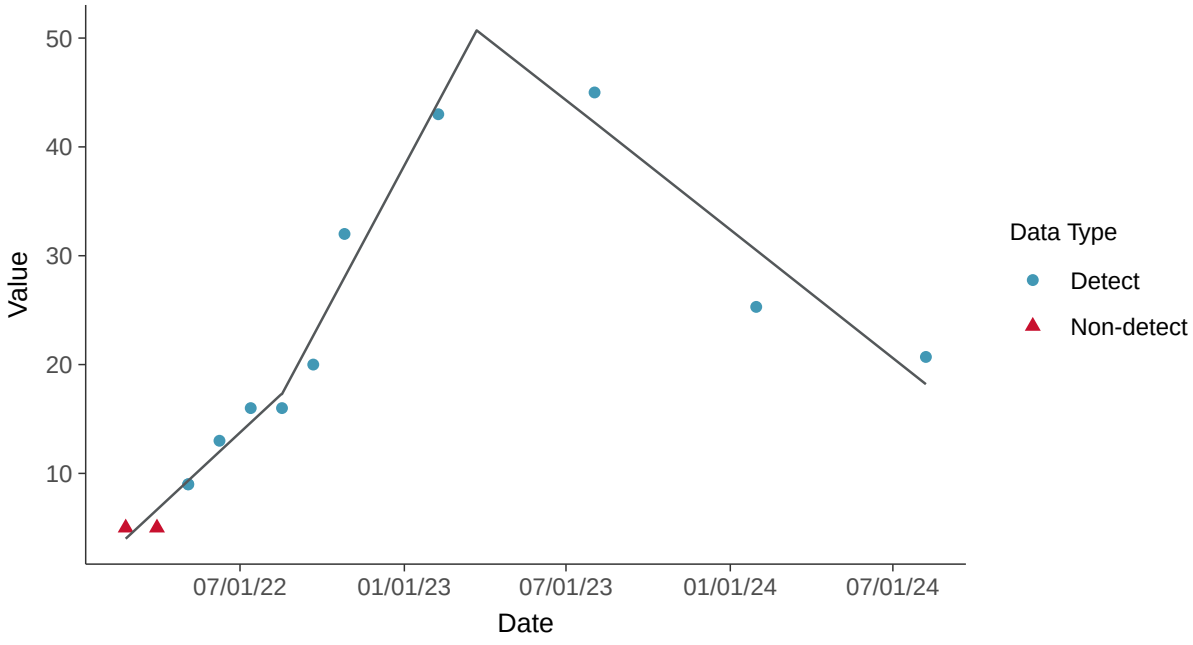
Trend Regression: Piecewise Linear-Linear

Chloride, MW-13 (mg/L)



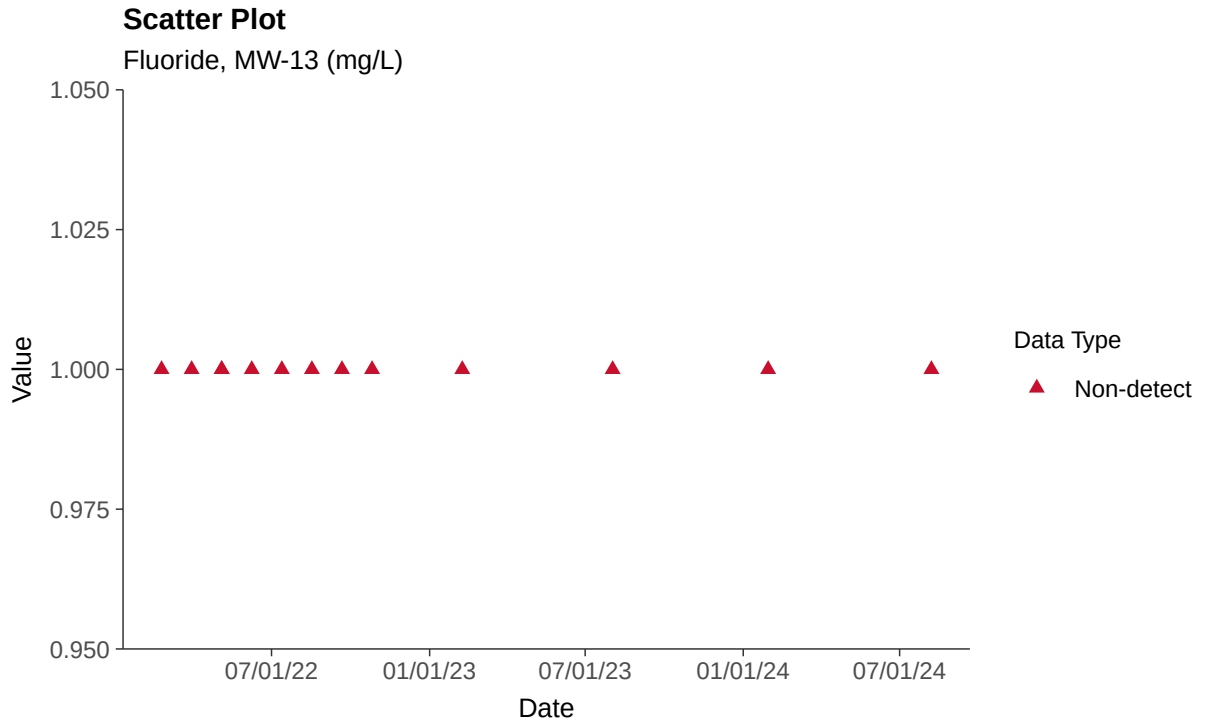
Trend Regression: Piecewise Linear-Linear-Linear

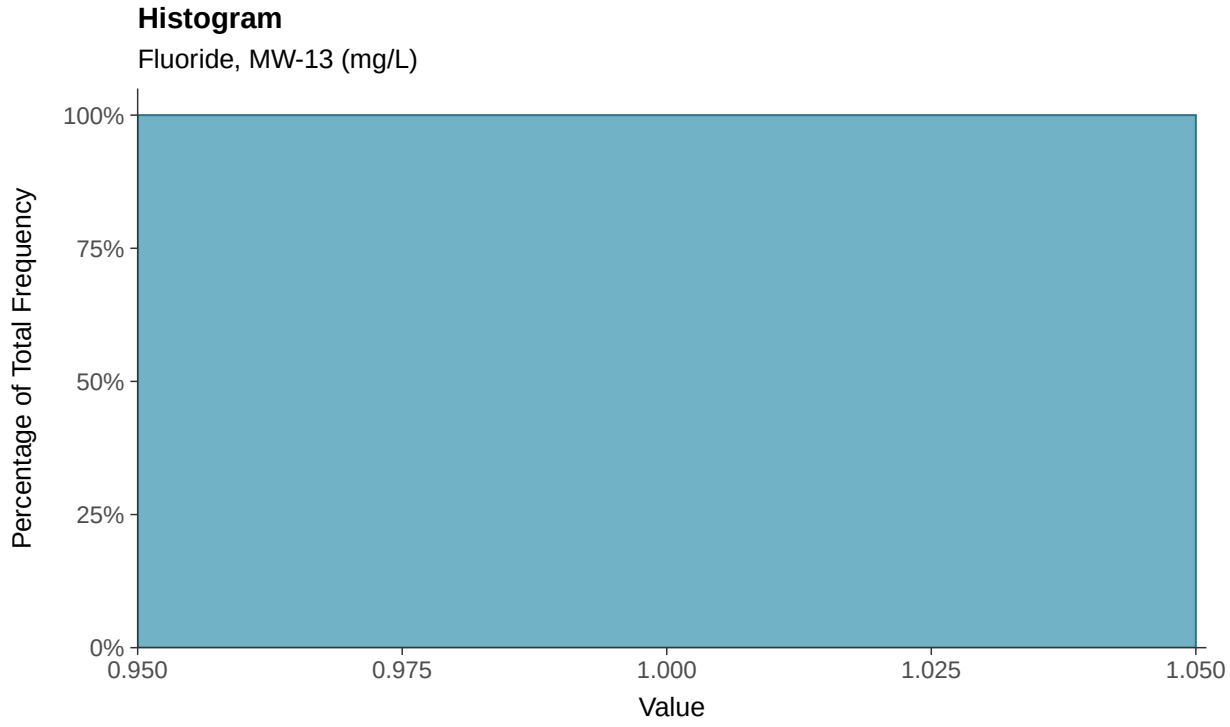
Chloride, MW-13 (mg/L)



Appendix III: Fluoride, MW-13

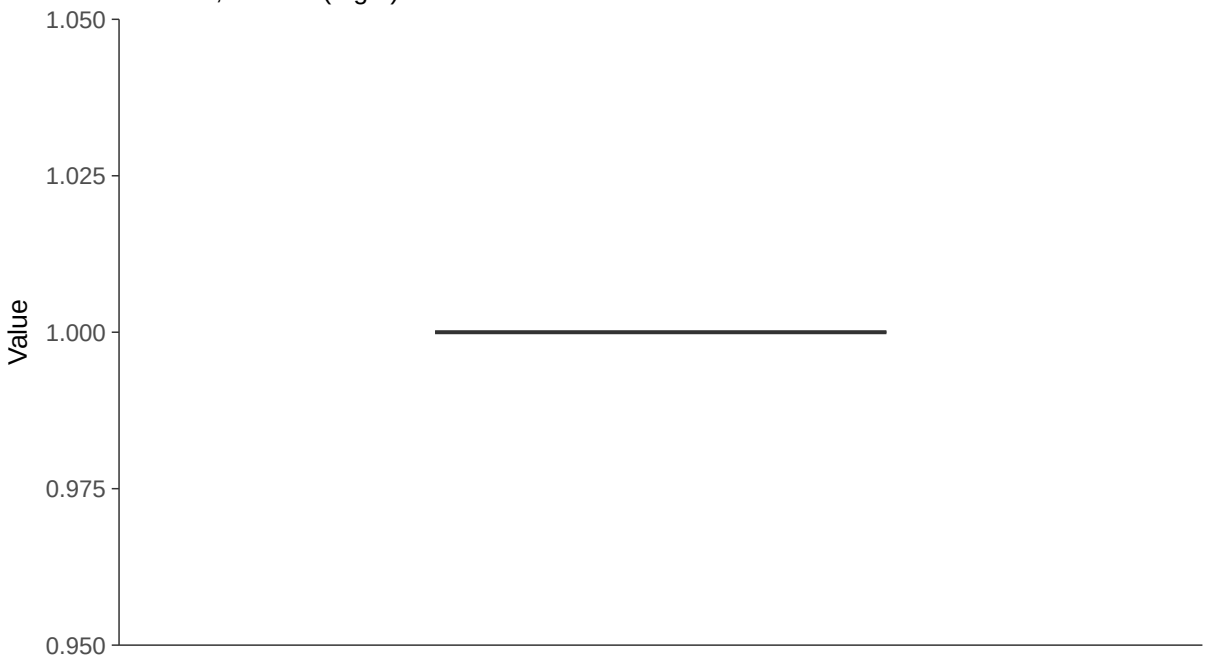
ID: 13_1_04





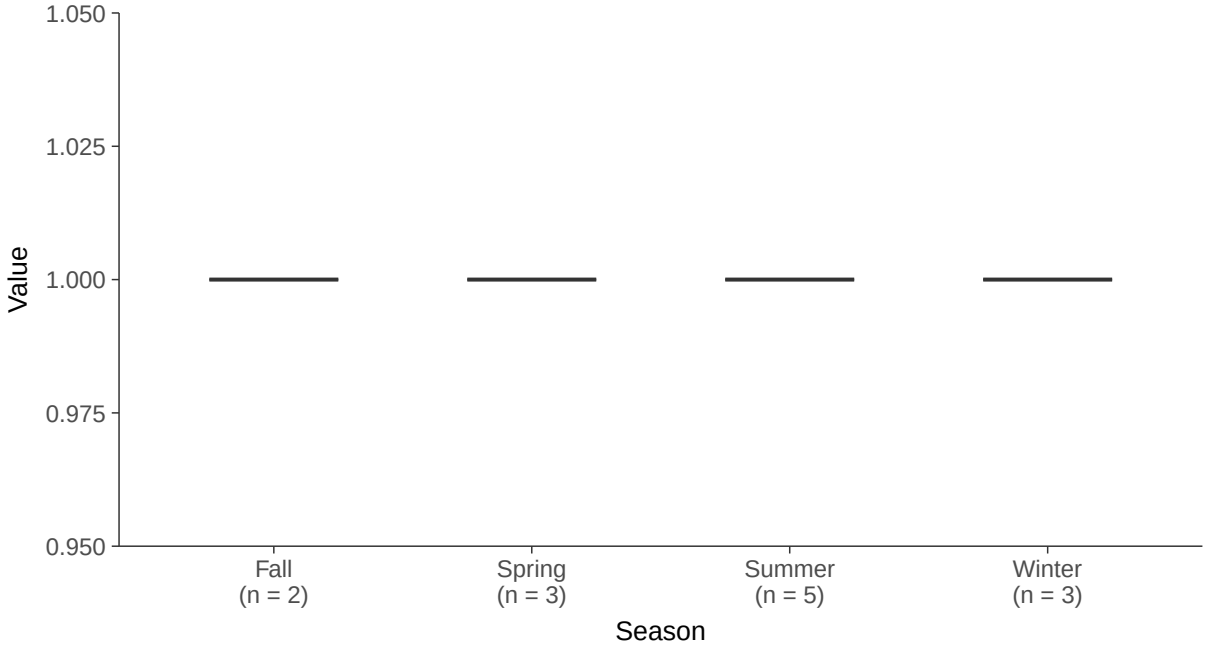
Boxplot

Fluoride, MW-13 (mg/L)



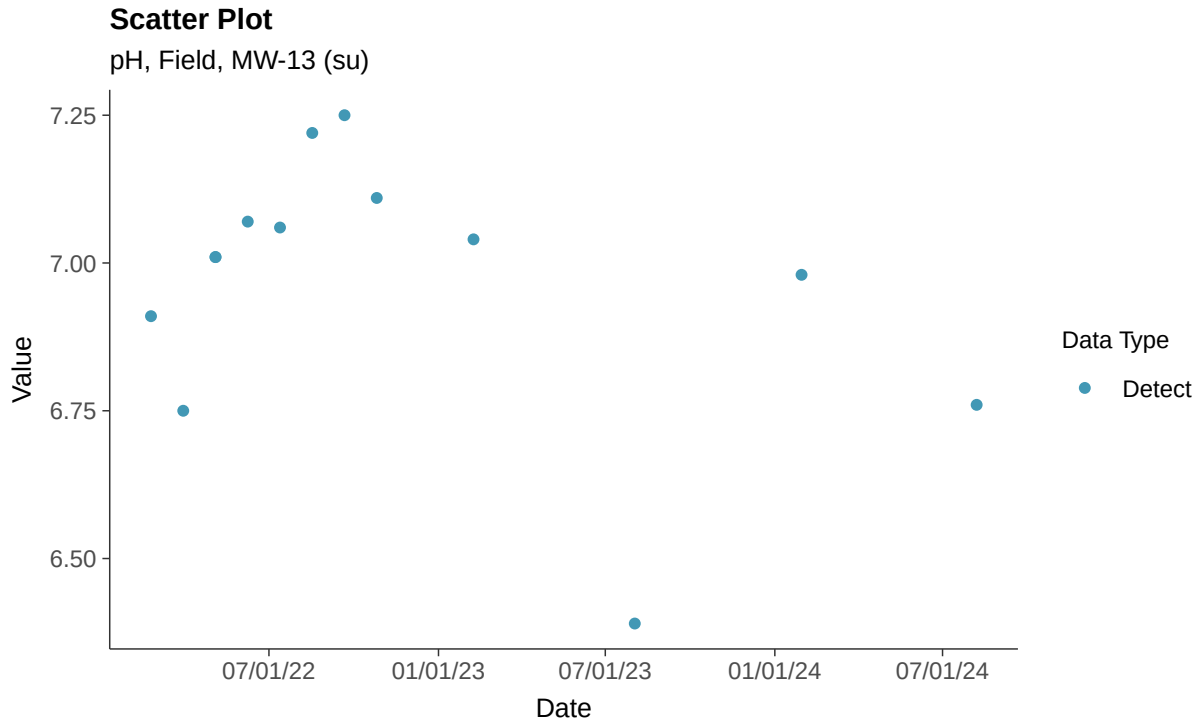
Boxplot by Season

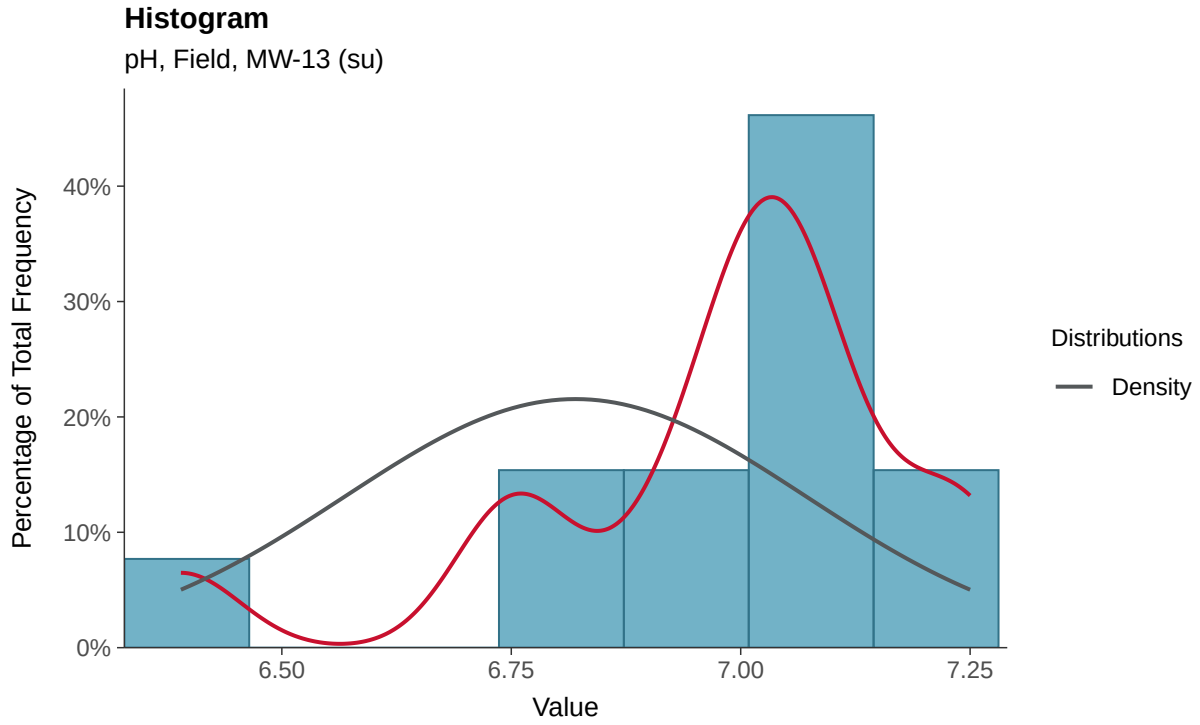
Fluoride, MW-13 (mg/L)



Appendix III: pH, Field, MW-13

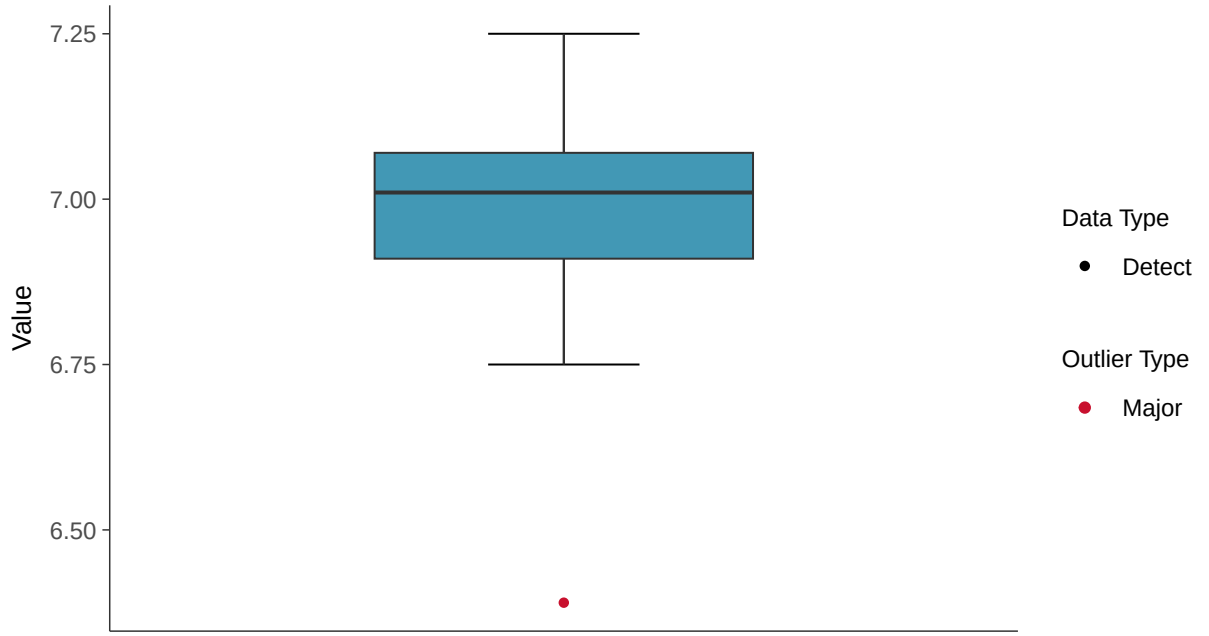
ID: 13_1_05





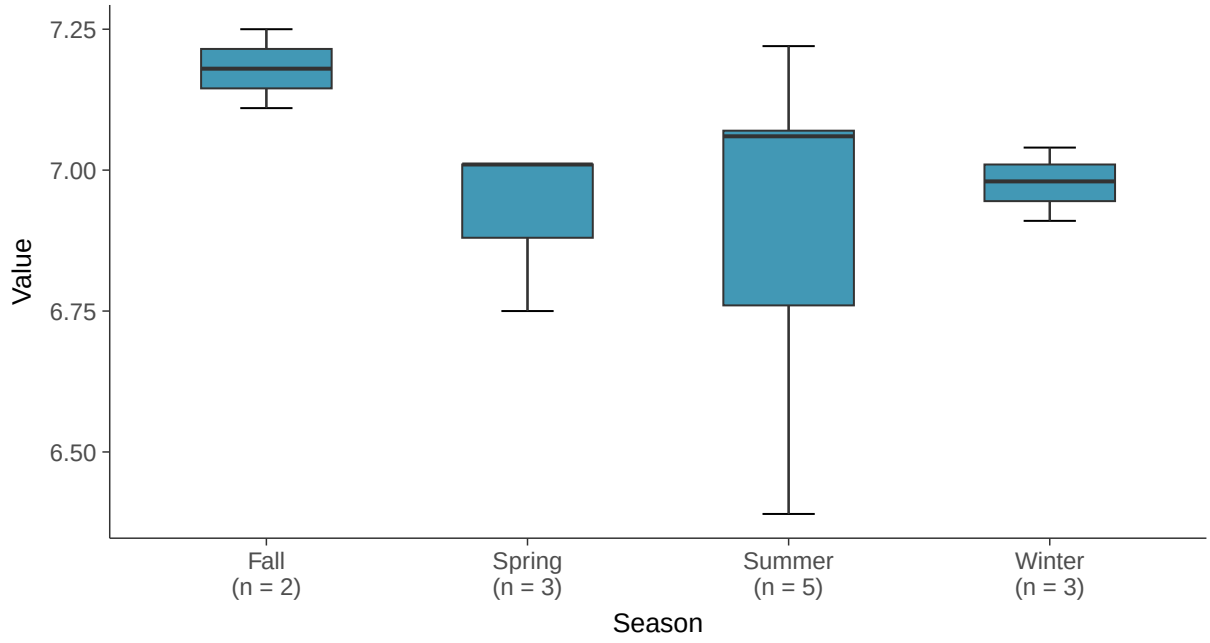
Boxplot

pH, Field, MW-13 (su)



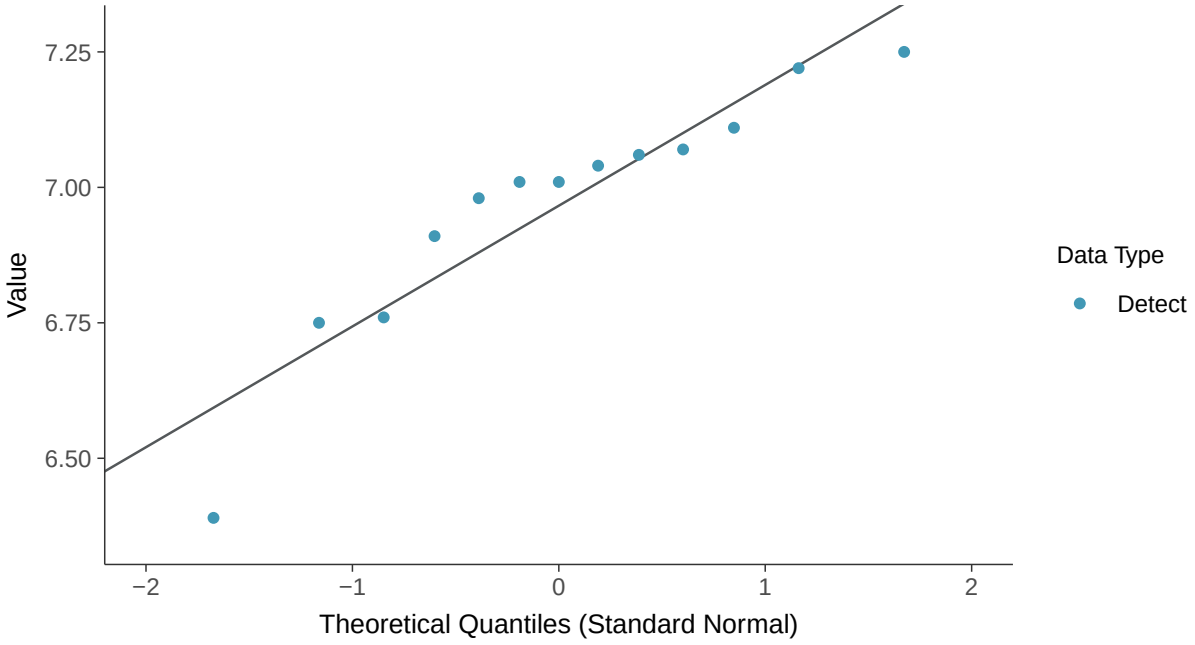
Boxplot by Season

pH, Field, MW-13 (su)



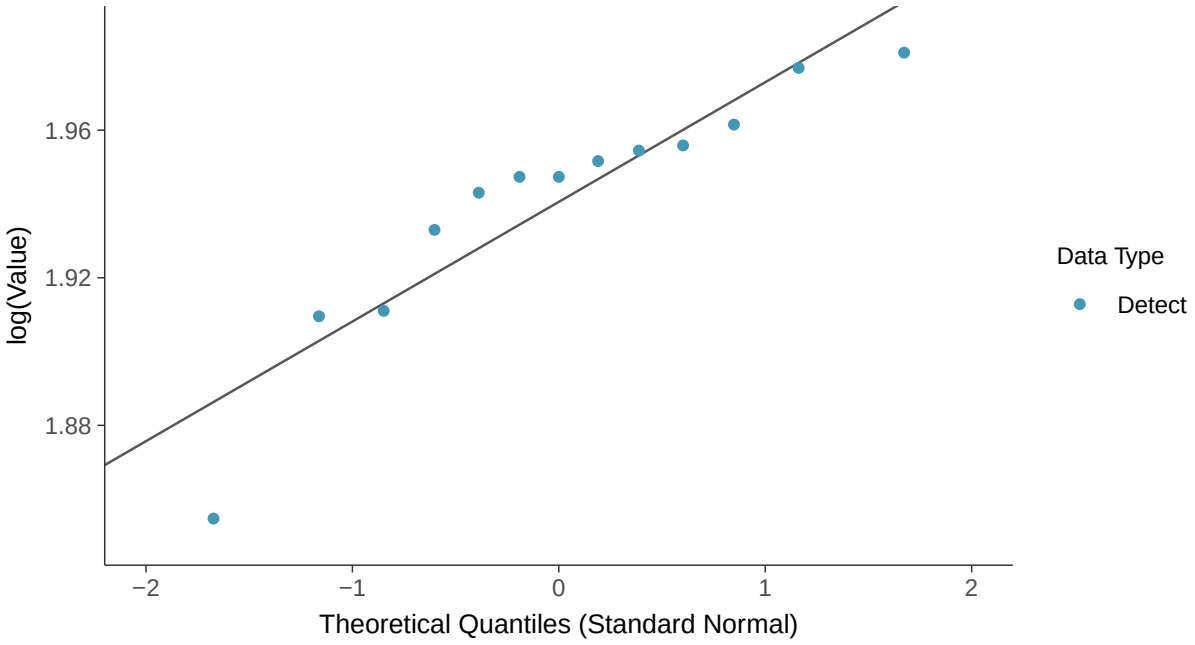
Normal Q-Q plot

pH, Field, MW-13 (su)



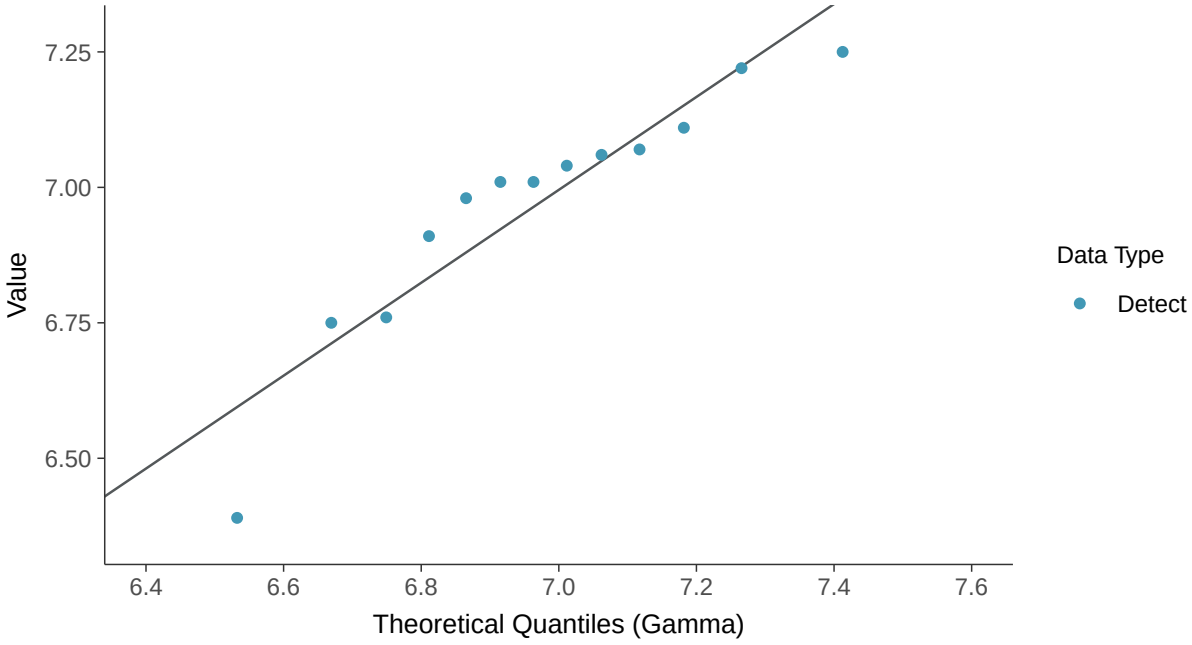
Lognormal Q-Q plot

pH, Field, MW-13 (su)



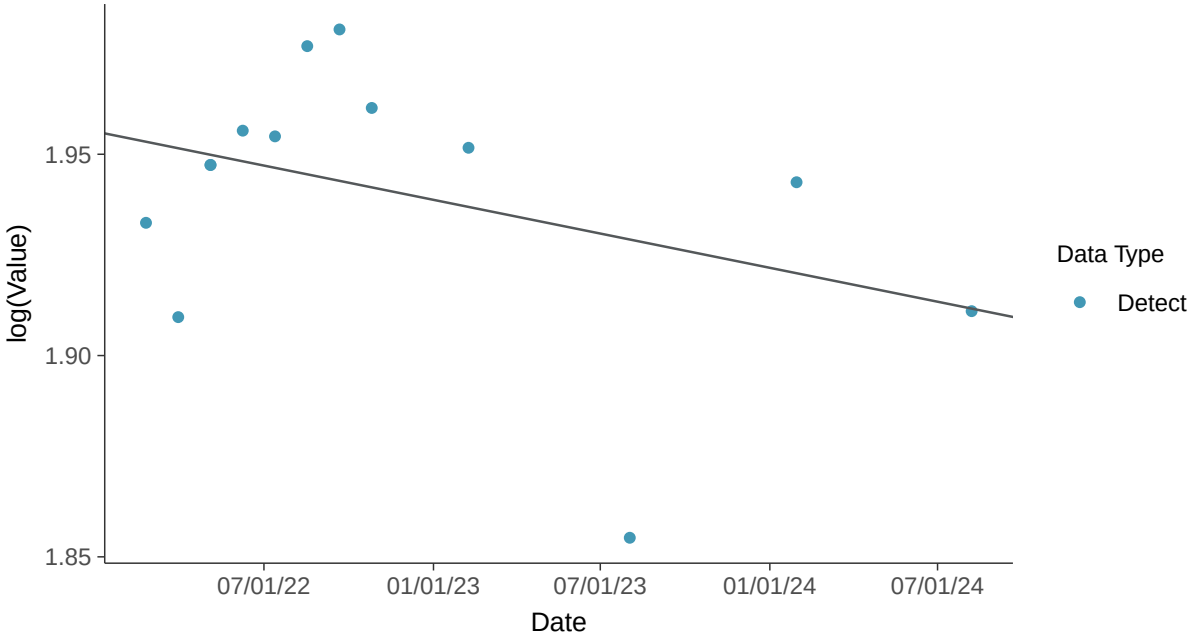
Gamma Q-Q plot

pH, Field, MW-13 (su)



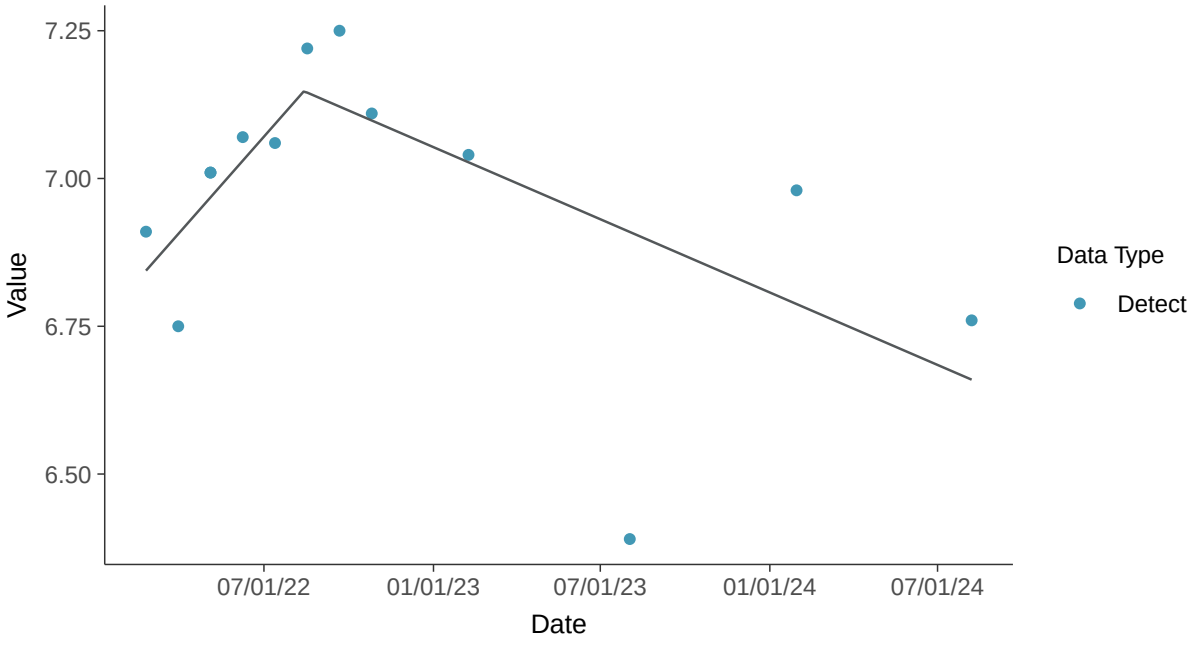
Trend Regression: Lognormal MLE

pH, Field, MW-13 (su)



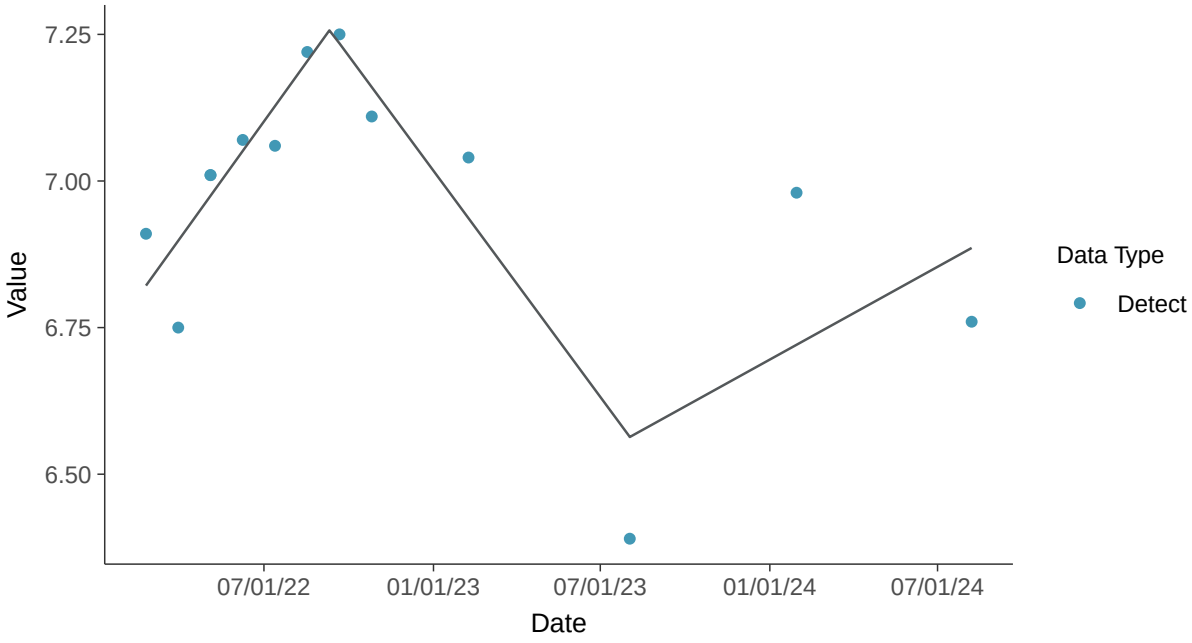
Trend Regression: Piecewise Linear-Linear

pH, Field, MW-13 (su)



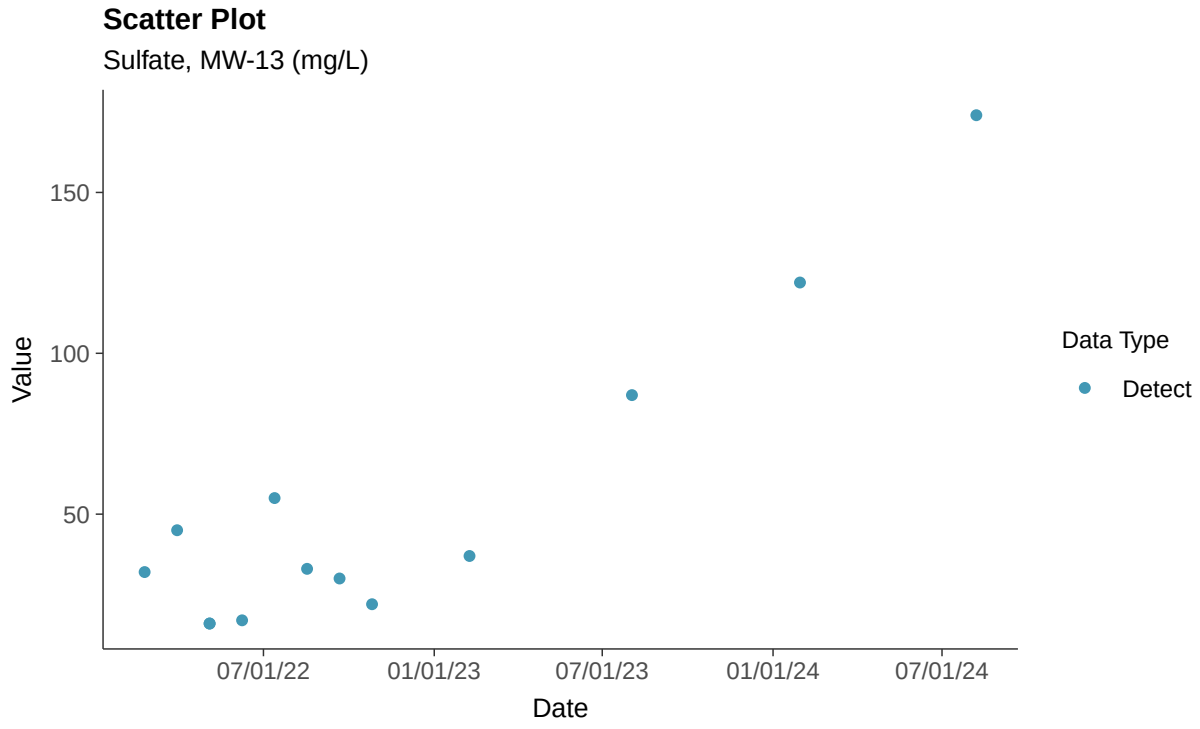
Trend Regression: Piecewise Linear-Linear-Linear

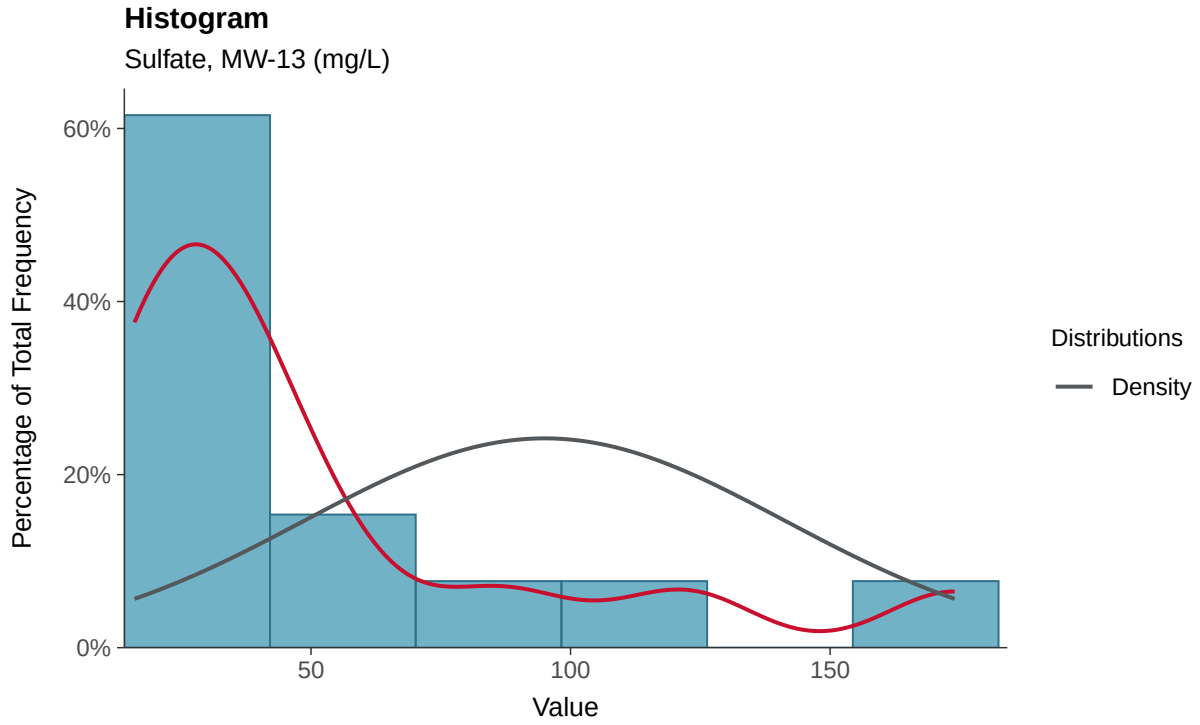
pH, Field, MW-13 (su)



Appendix III: Sulfate, MW-13

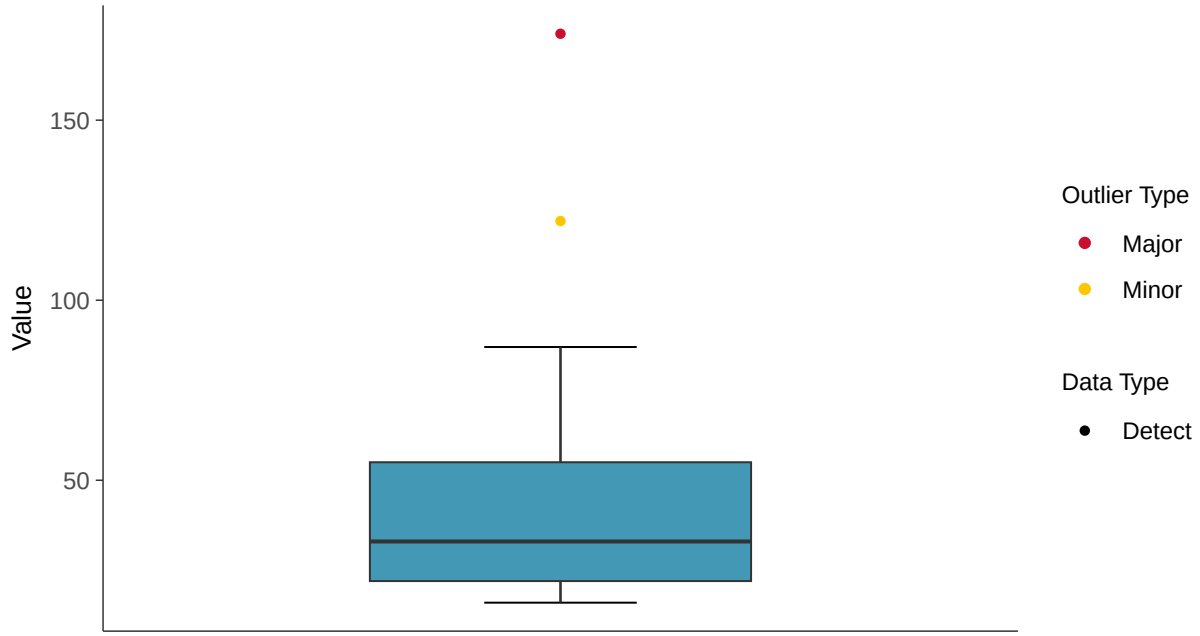
ID: 13_1_06





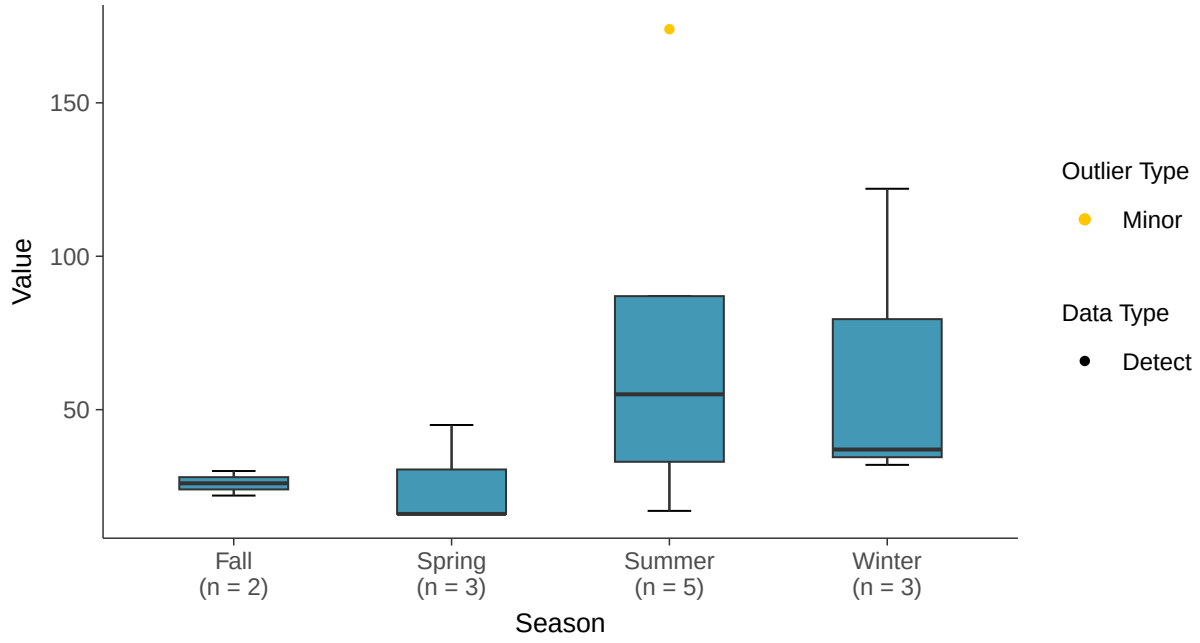
Boxplot

Sulfate, MW-13 (mg/L)



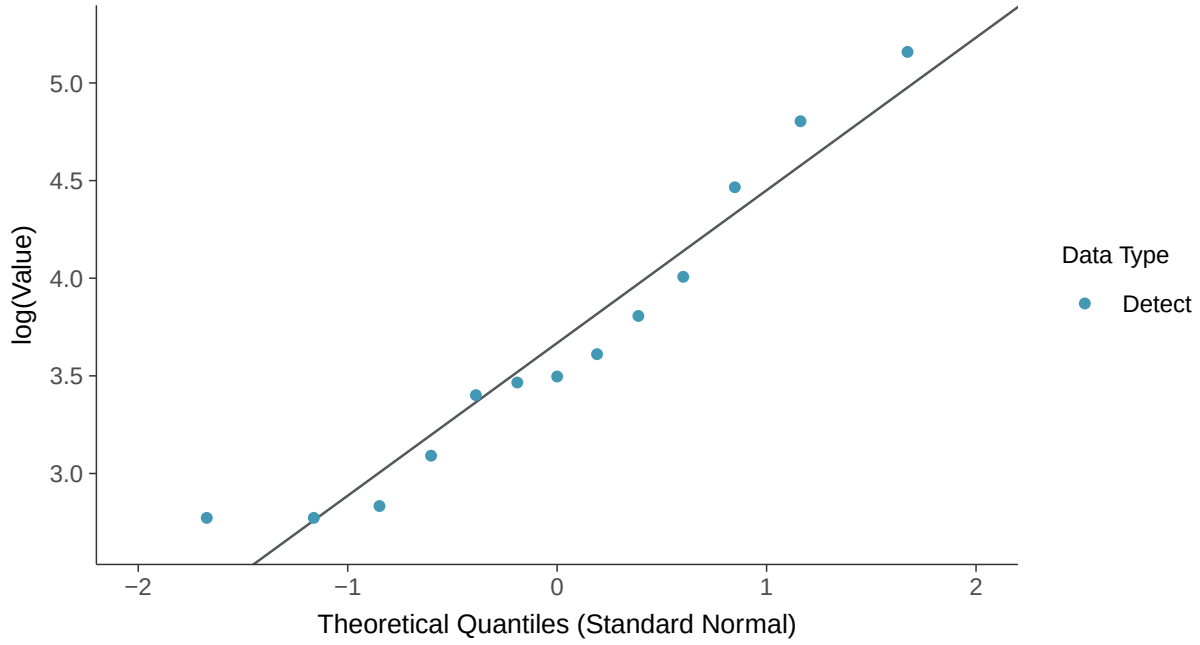
Boxplot by Season

Sulfate, MW-13 (mg/L)



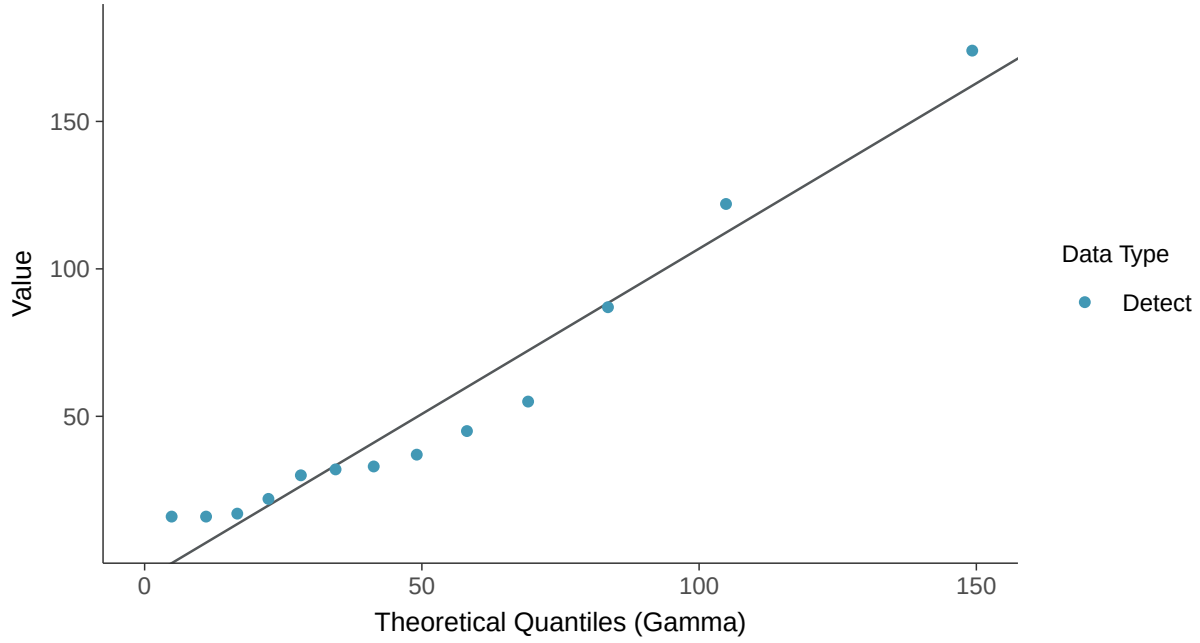
Lognormal Q-Q plot

Sulfate, MW-13 (mg/L)



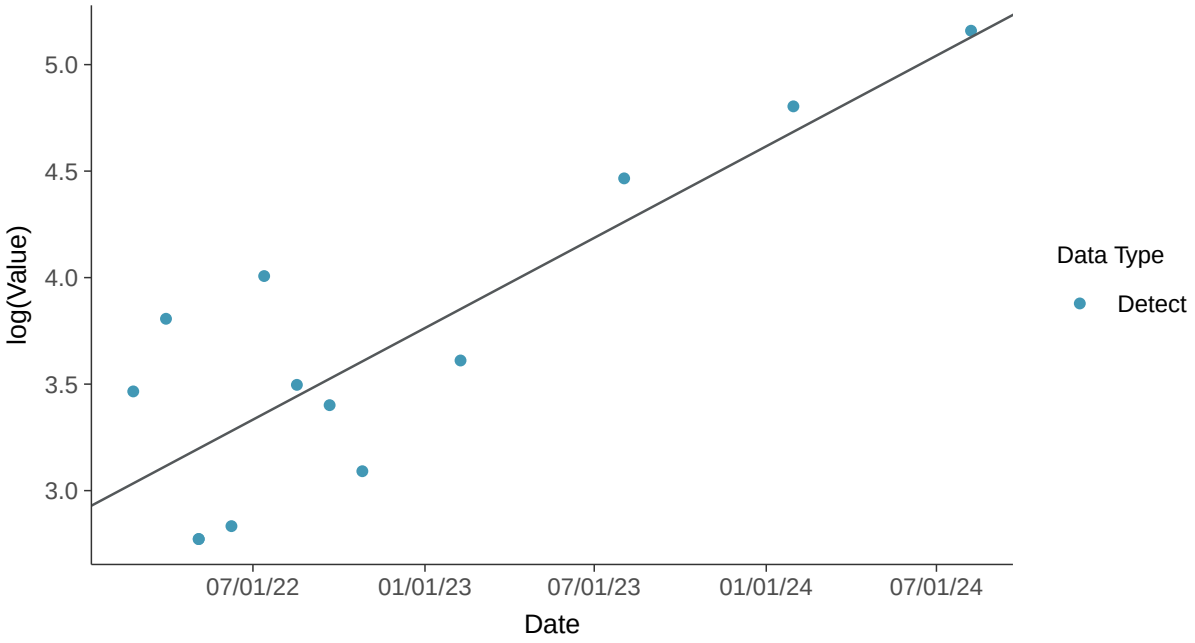
Gamma Q-Q plot

Sulfate, MW-13 (mg/L)



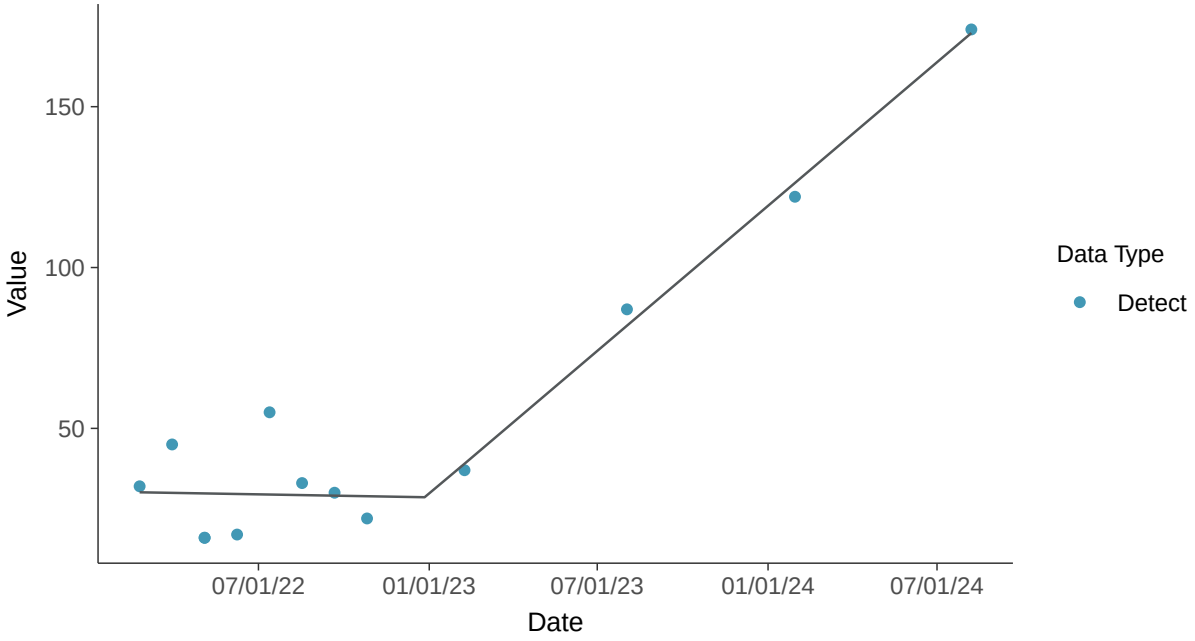
Trend Regression: Lognormal MLE

Sulfate, MW-13 (mg/L)



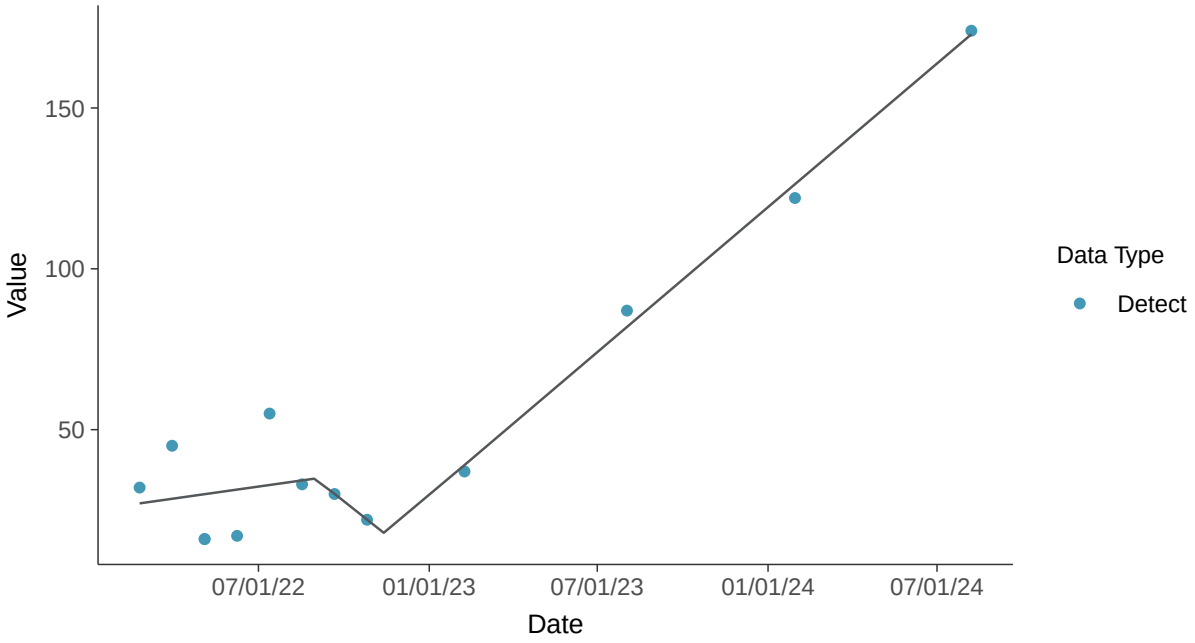
Trend Regression: Piecewise Linear-Linear

Sulfate, MW-13 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Sulfate, MW-13 (mg/L)

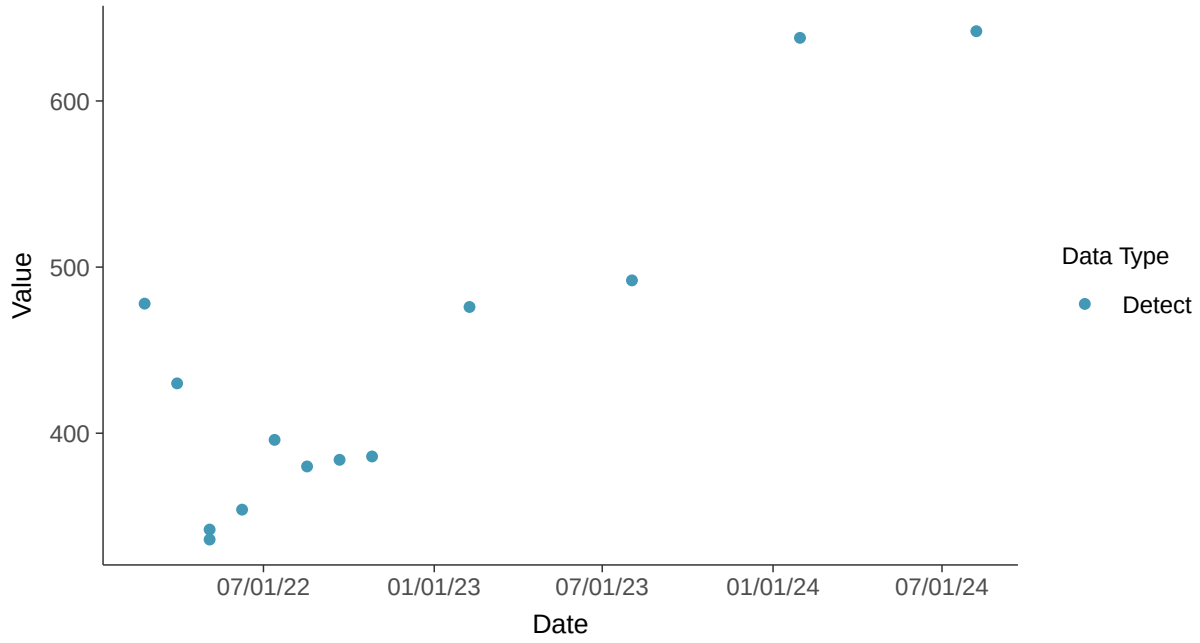


Appendix III: Total Dissolved Solids, MW-13

ID: 13_1_07

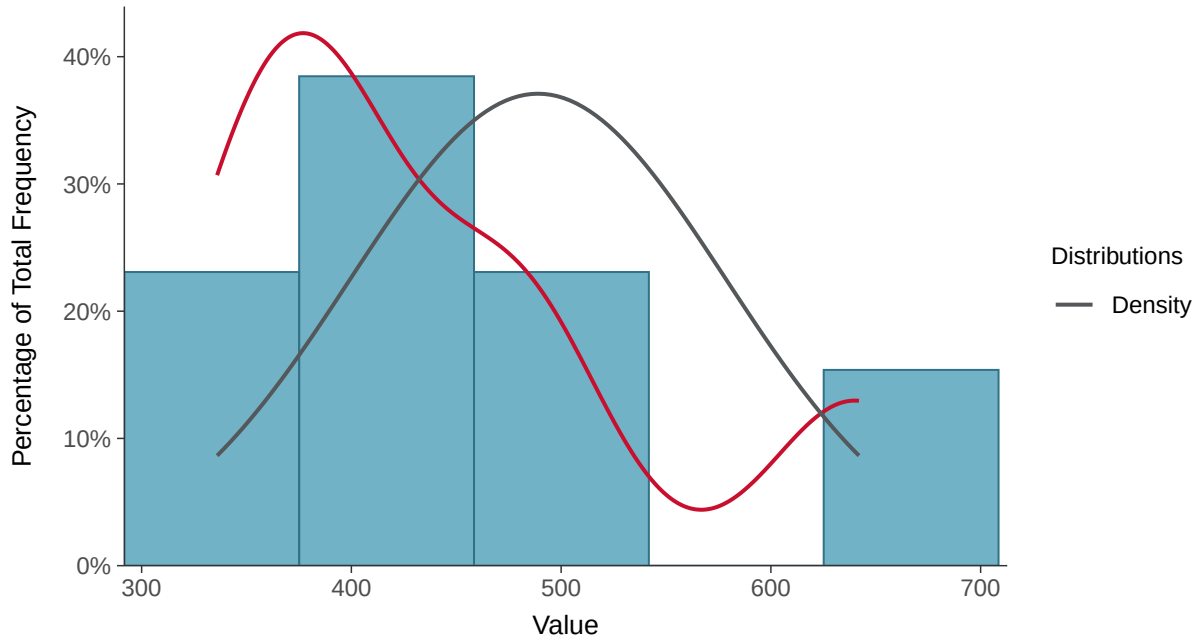
Scatter Plot

Total Dissolved Solids, MW-13 (mg/L)



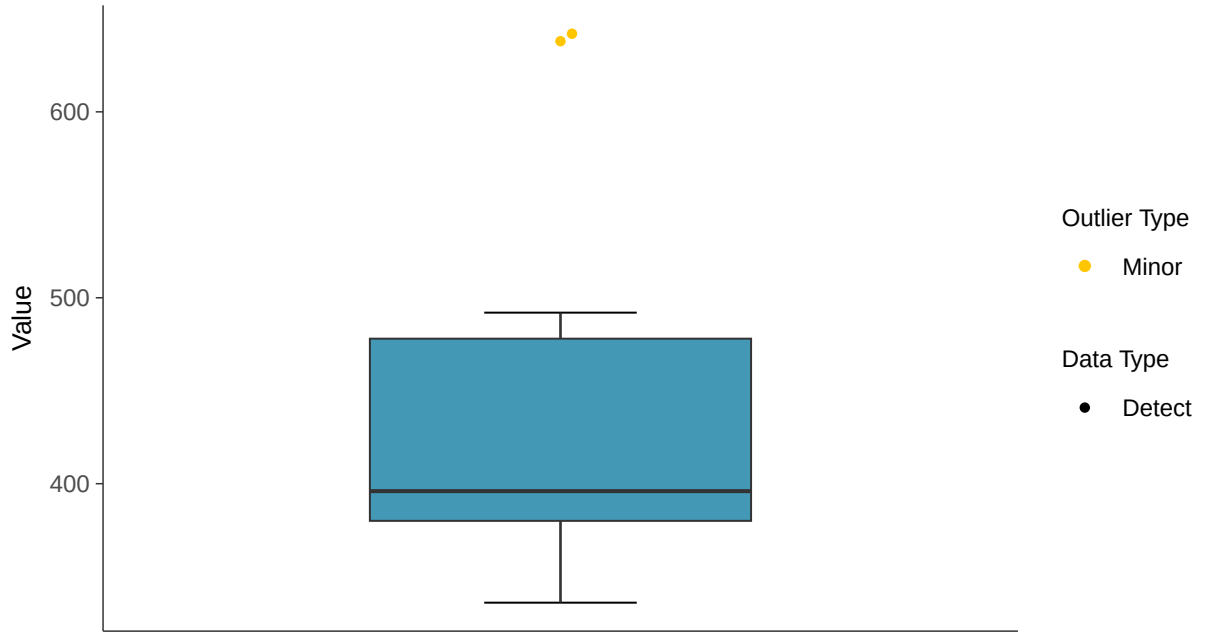
Histogram

Total Dissolved Solids, MW-13 (mg/L)



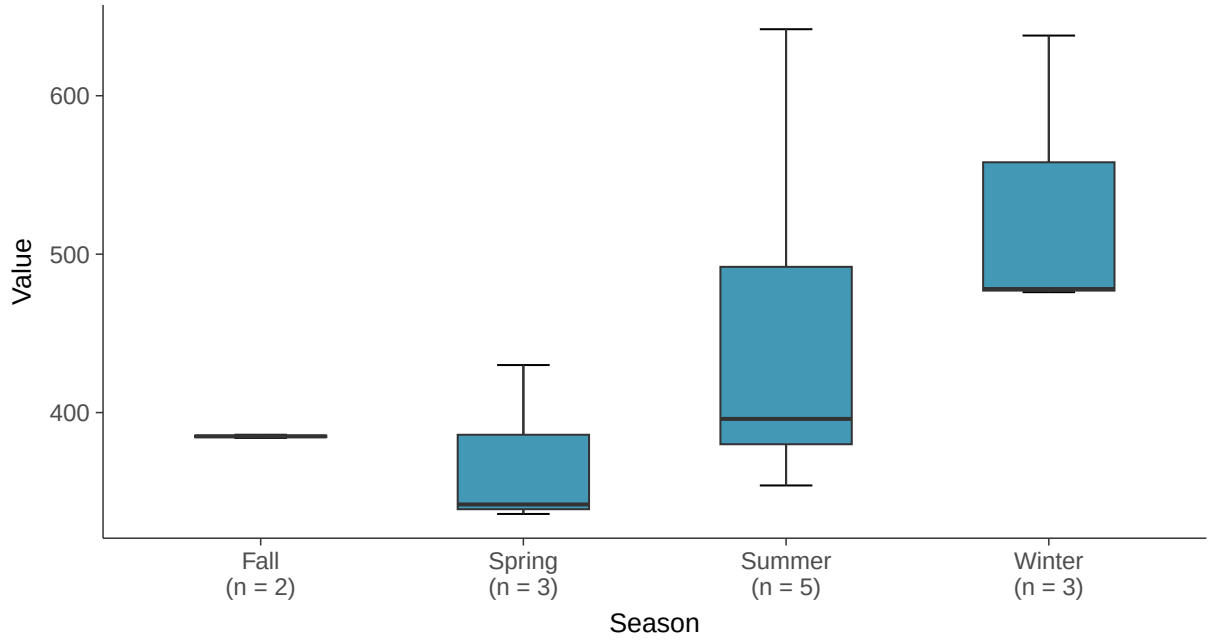
Boxplot

Total Dissolved Solids, MW-13 (mg/L)



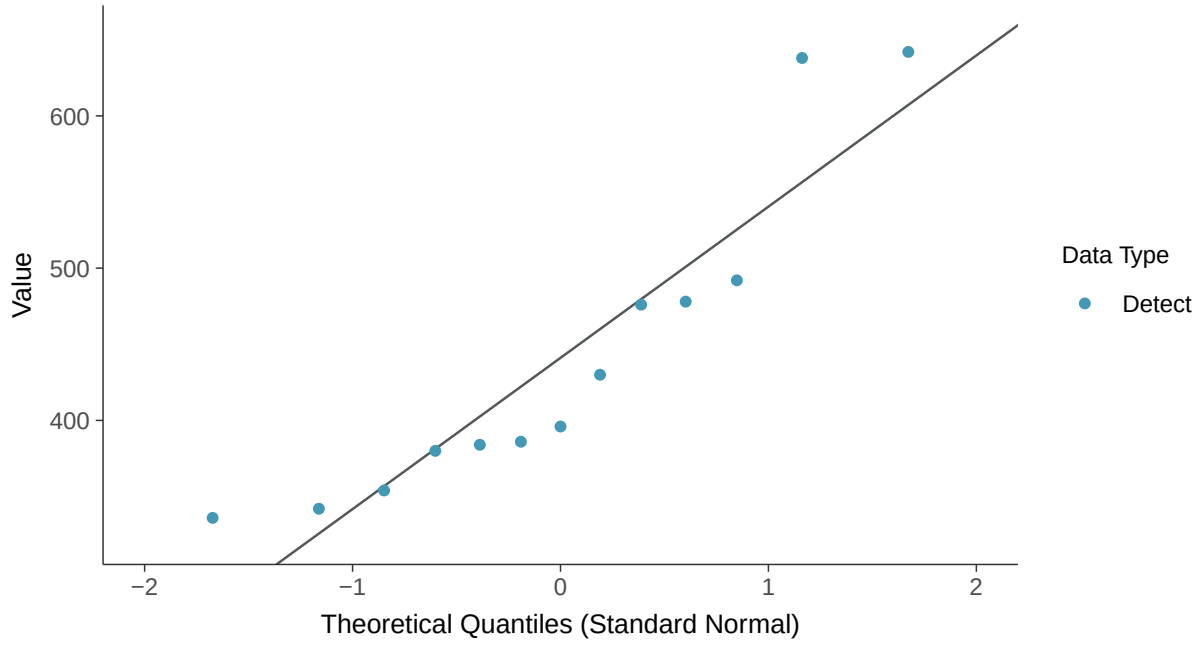
Boxplot by Season

Total Dissolved Solids, MW-13 (mg/L)



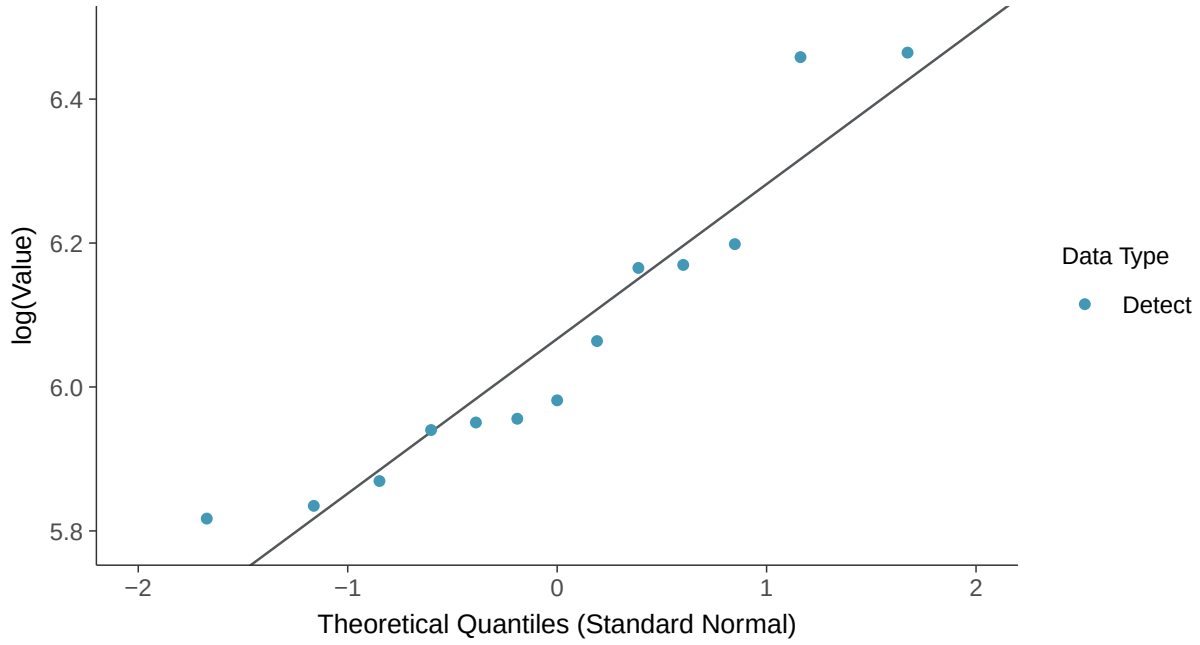
Normal Q-Q plot

Total Dissolved Solids, MW-13 (mg/L)



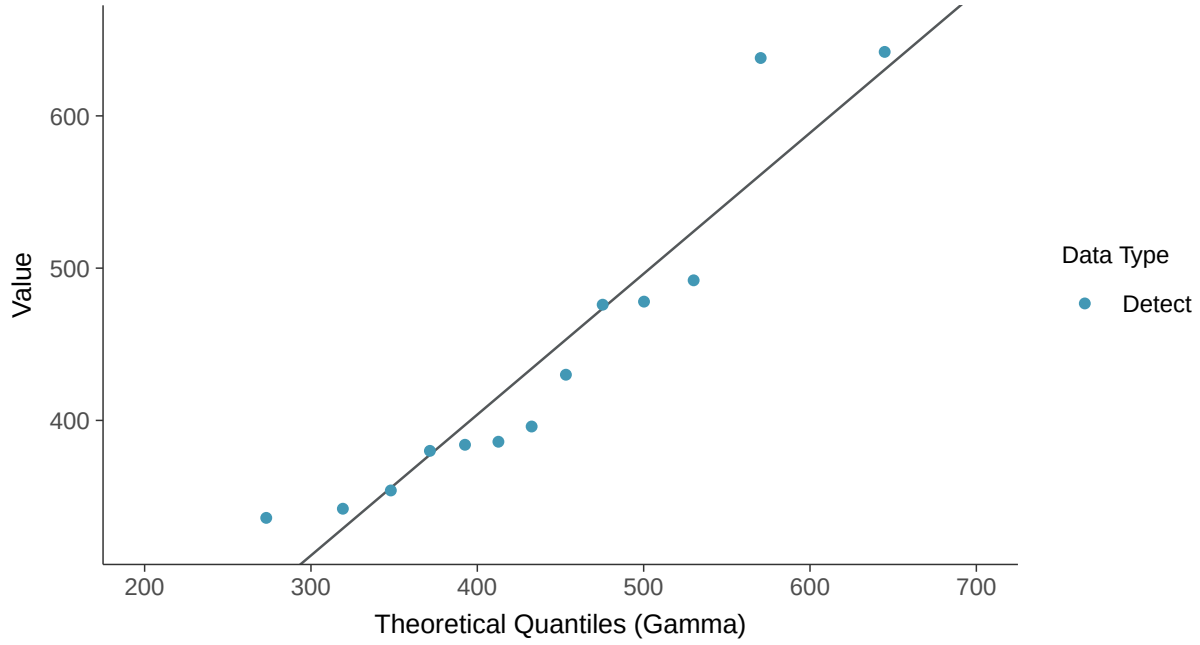
Lognormal Q-Q plot

Total Dissolved Solids, MW-13 (mg/L)



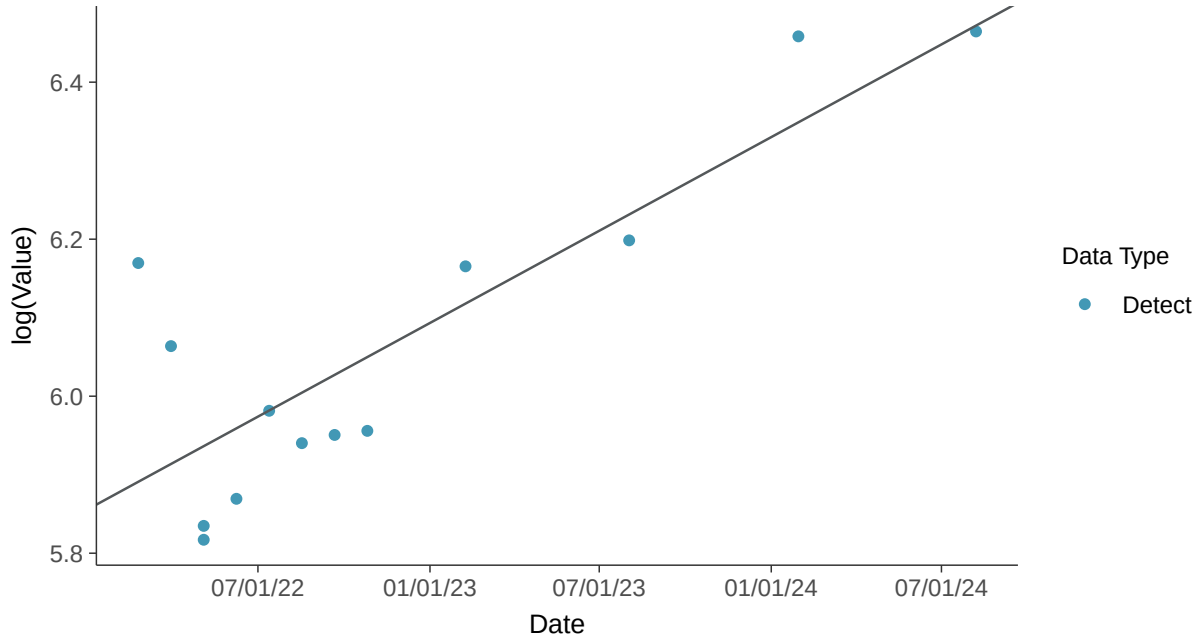
Gamma Q-Q plot

Total Dissolved Solids, MW-13 (mg/L)



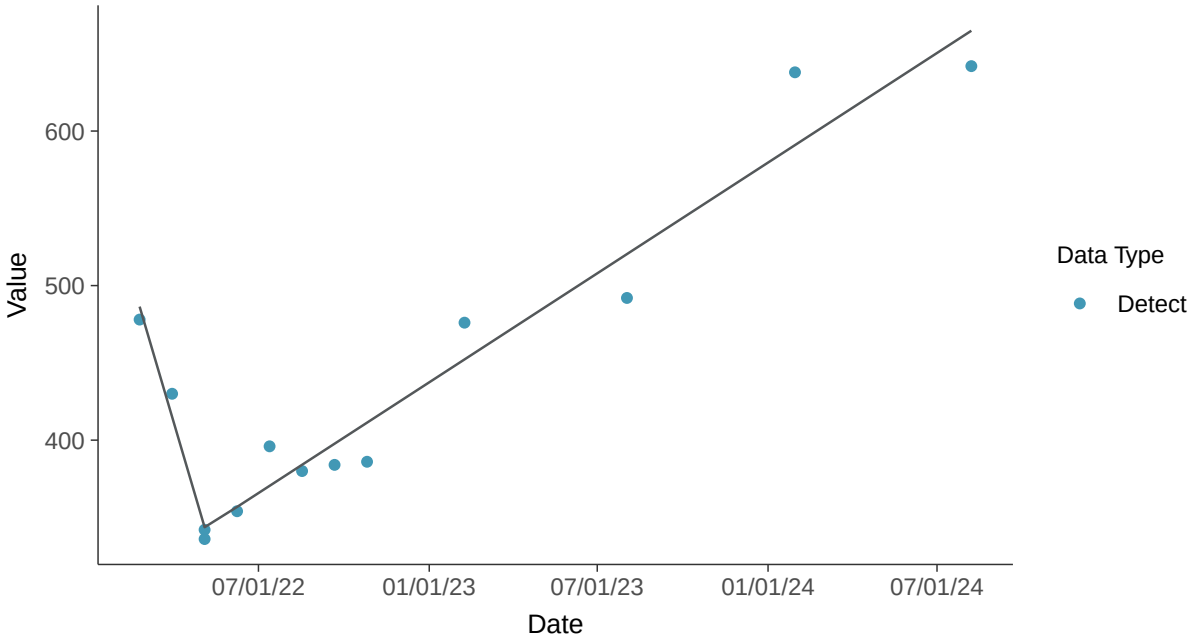
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-13 (mg/L)



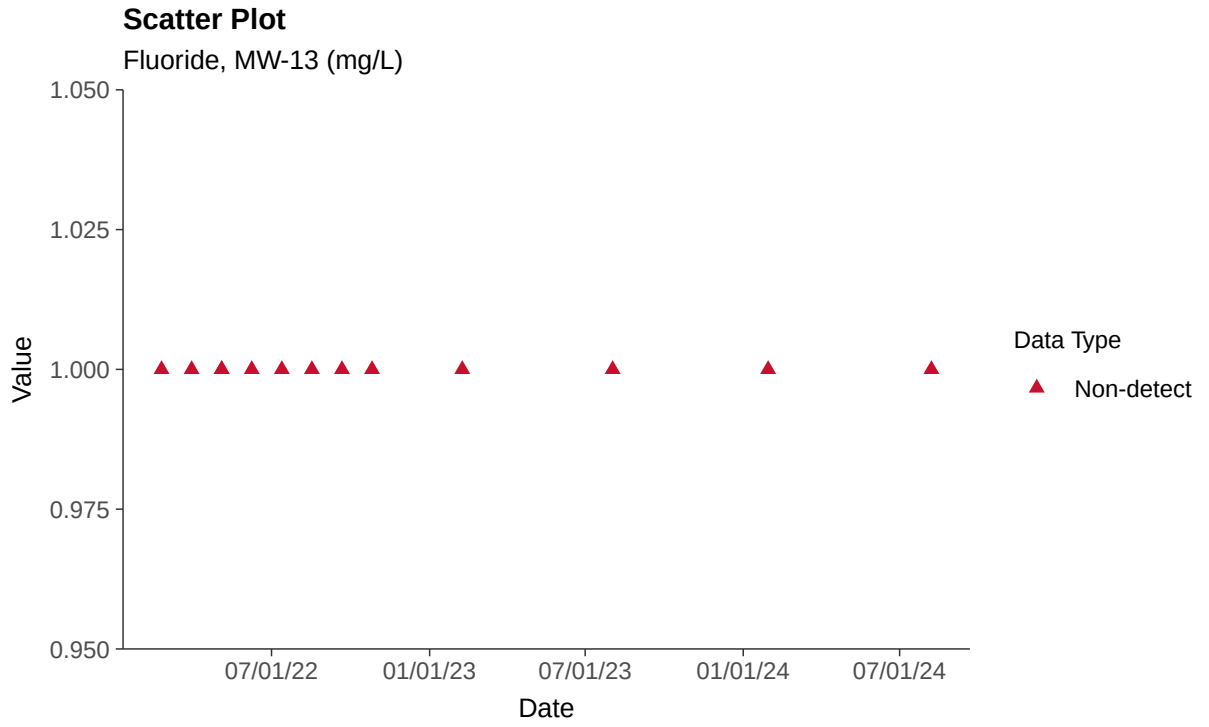
Trend Regression: Piecewise Linear-Linear

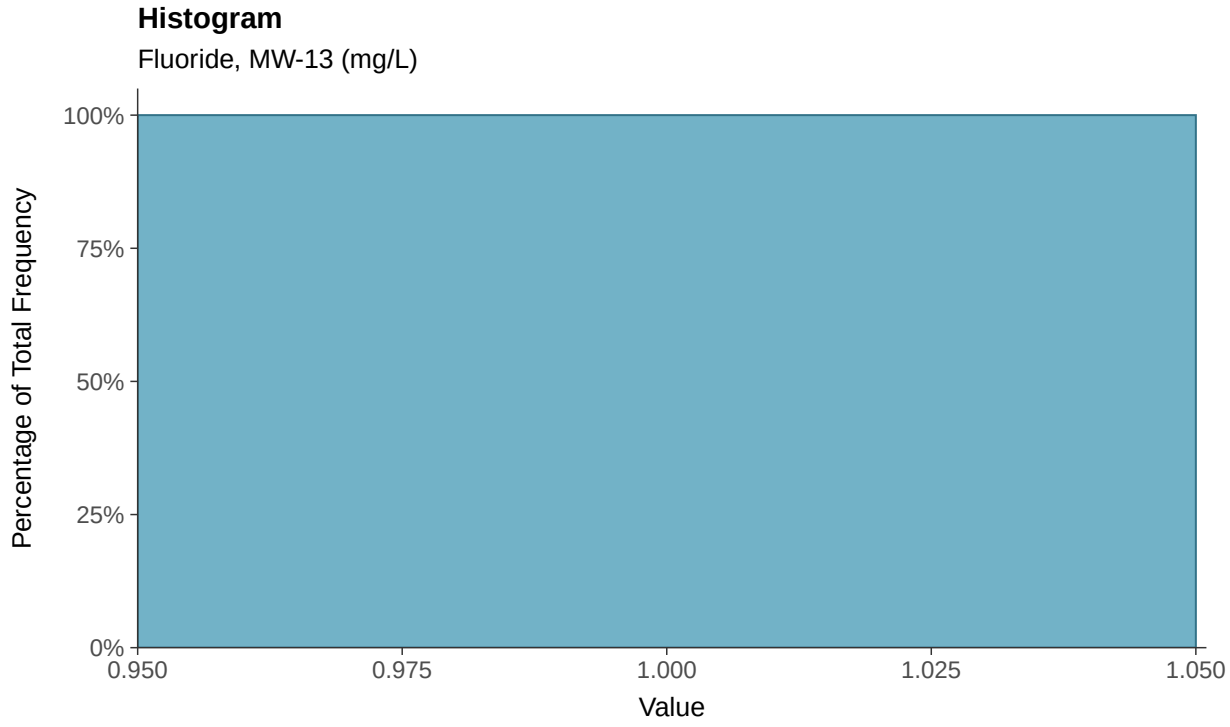
Total Dissolved Solids, MW-13 (mg/L)



Appendix IV: Fluoride, MW-13

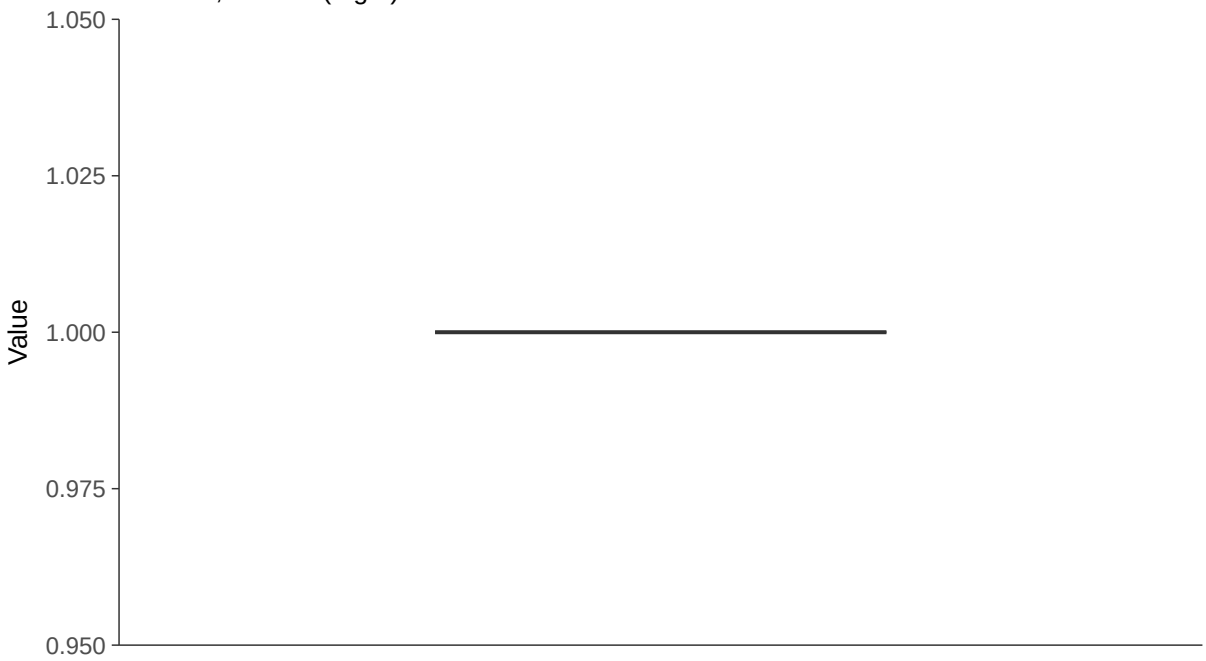
ID: 13_2_04





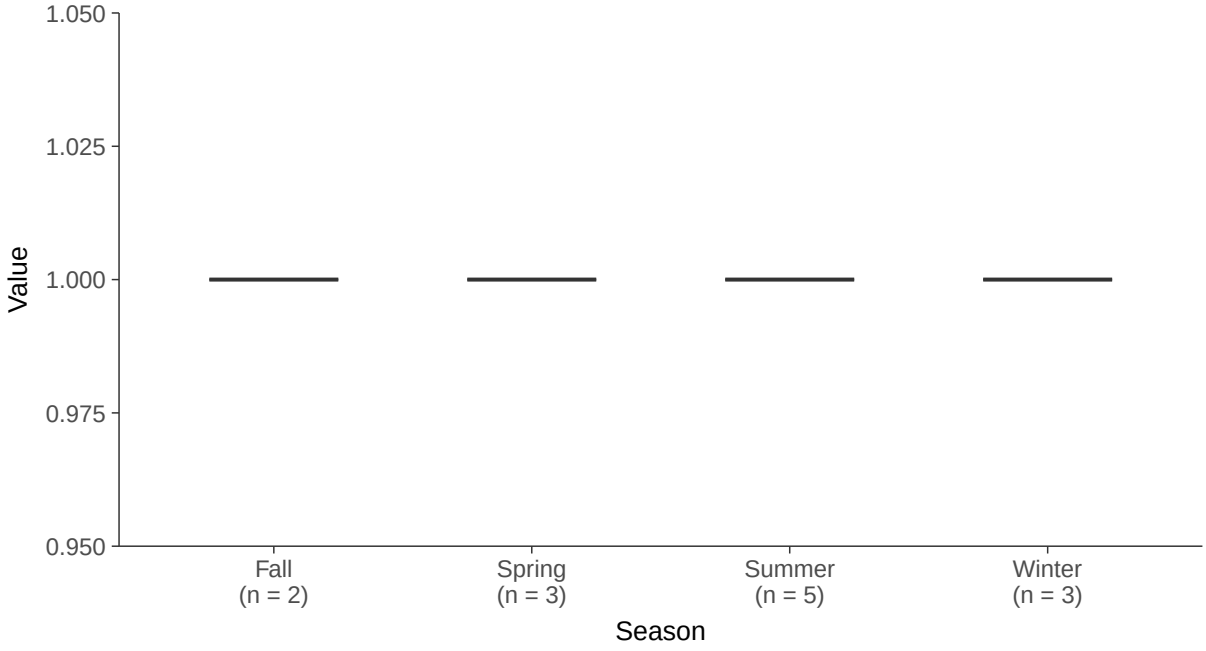
Boxplot

Fluoride, MW-13 (mg/L)



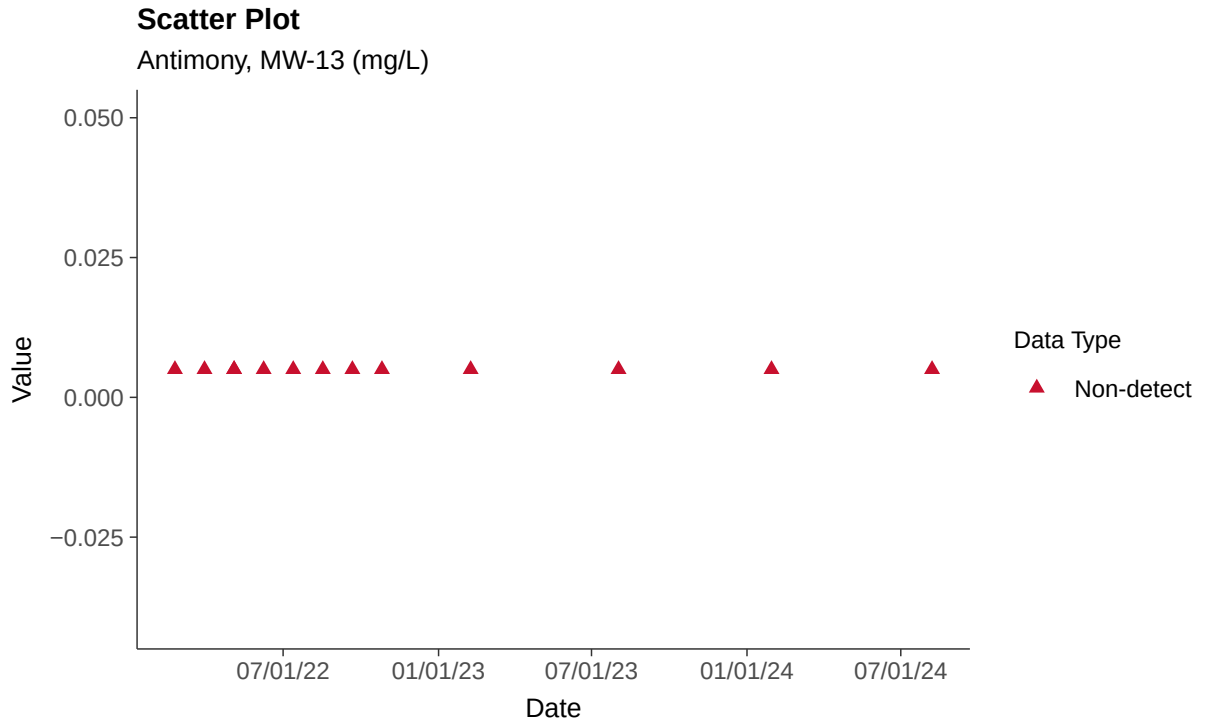
Boxplot by Season

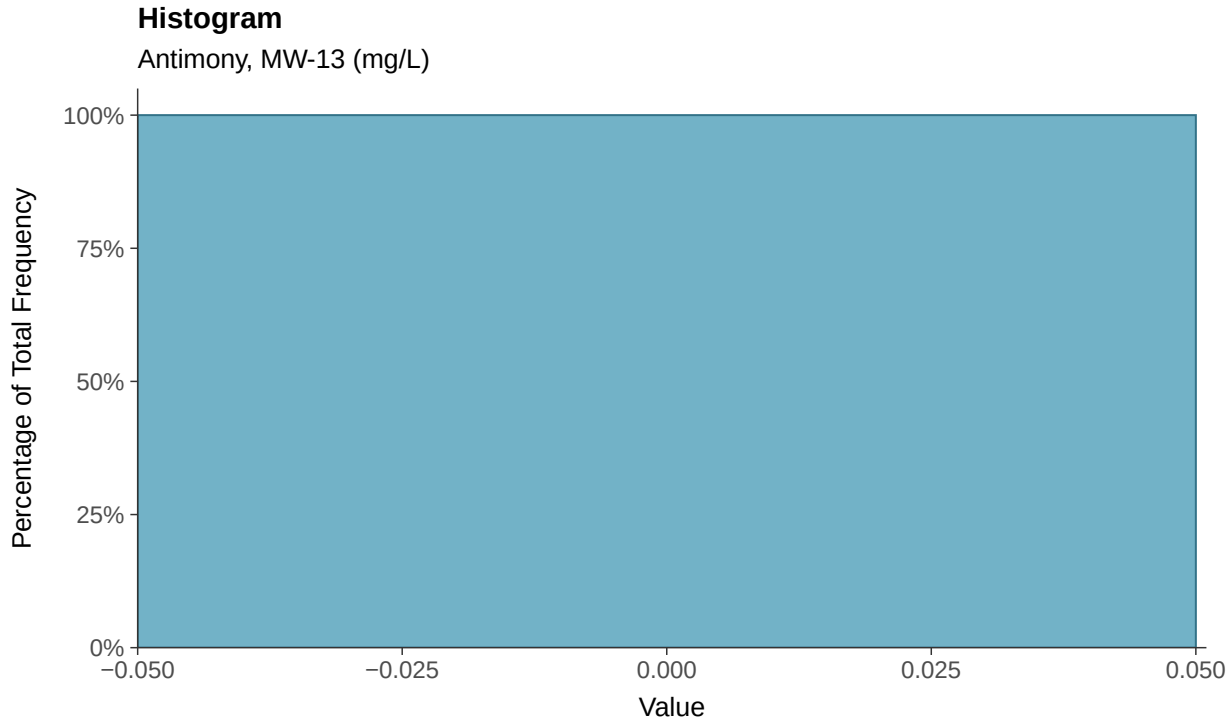
Fluoride, MW-13 (mg/L)



Appendix IV: Antimony, MW-13

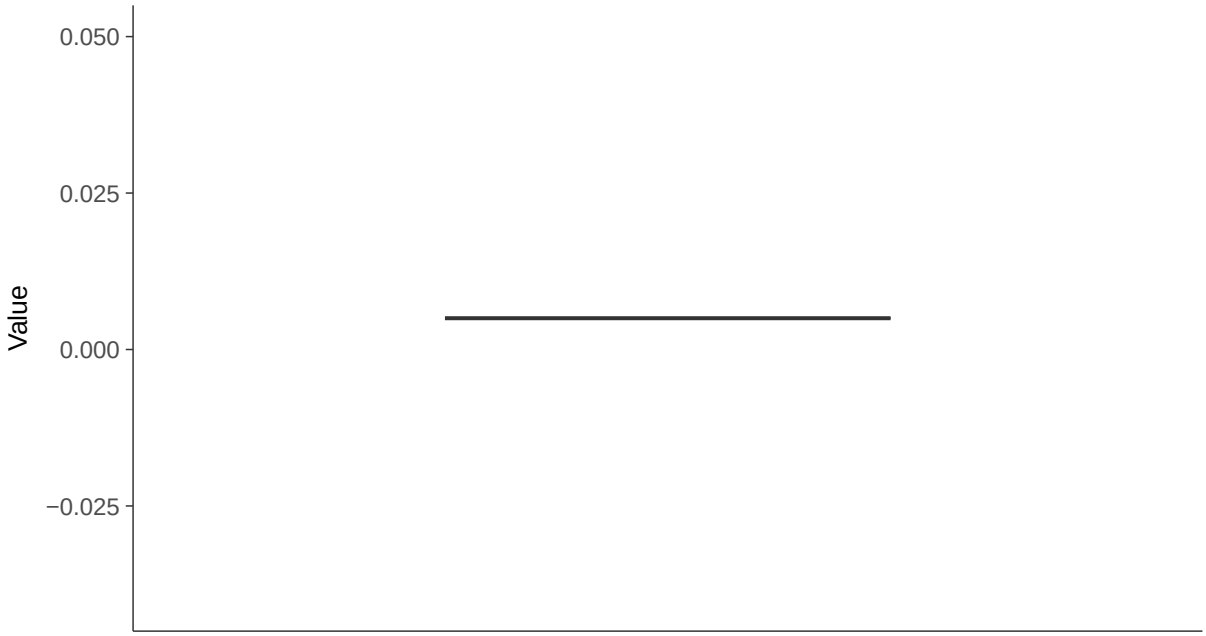
ID: 13_2_08





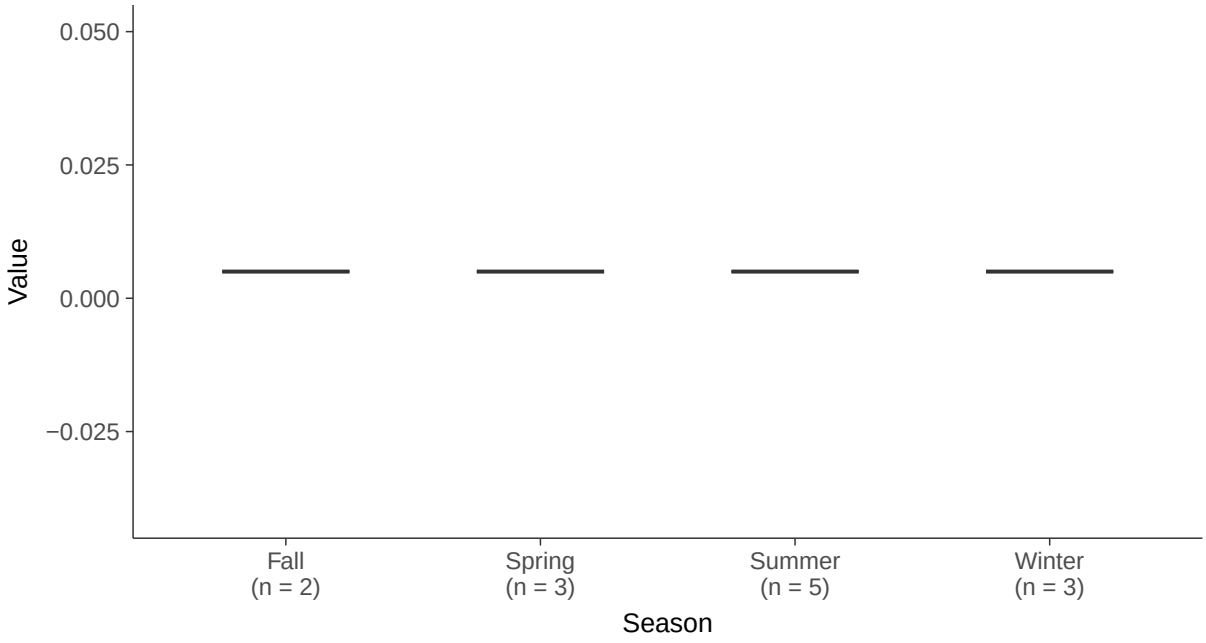
Boxplot

Antimony, MW-13 (mg/L)



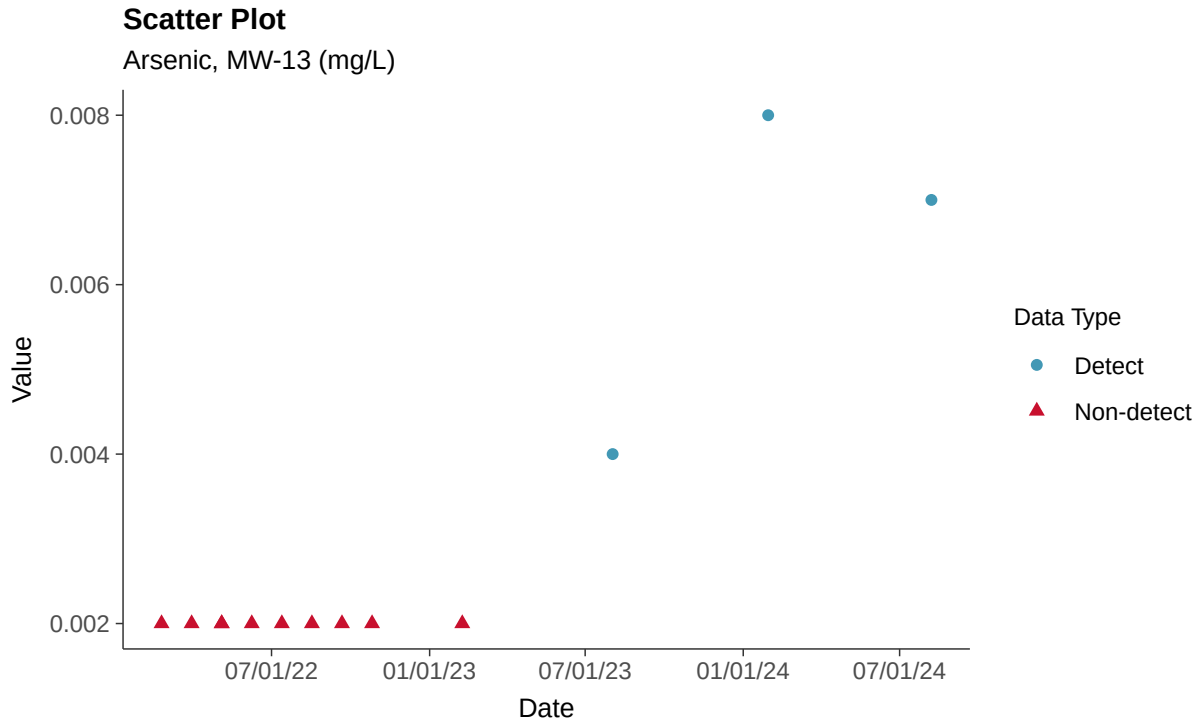
Boxplot by Season

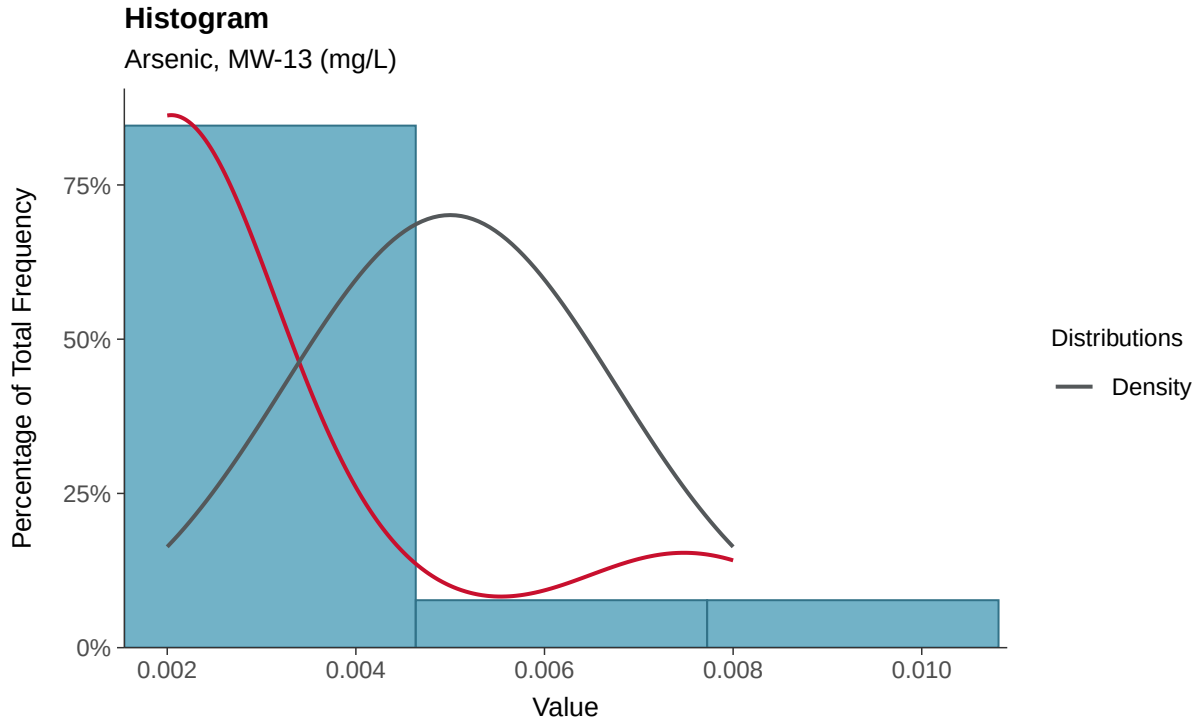
Antimony, MW-13 (mg/L)



Appendix IV: Arsenic, MW-13

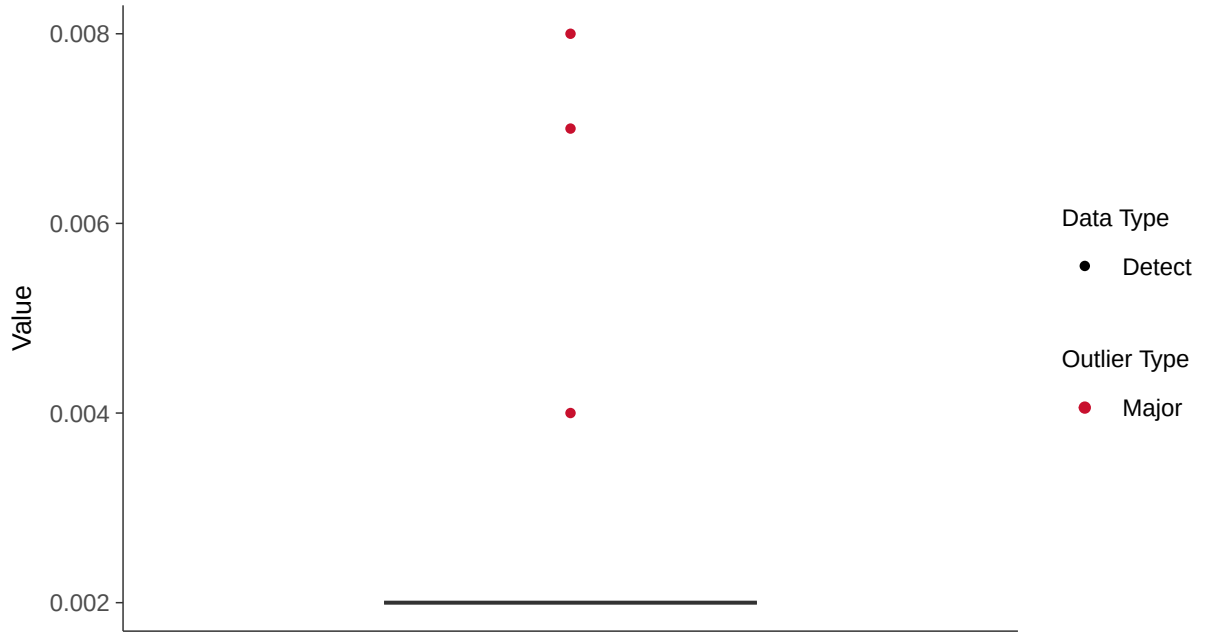
ID: 13_2_09





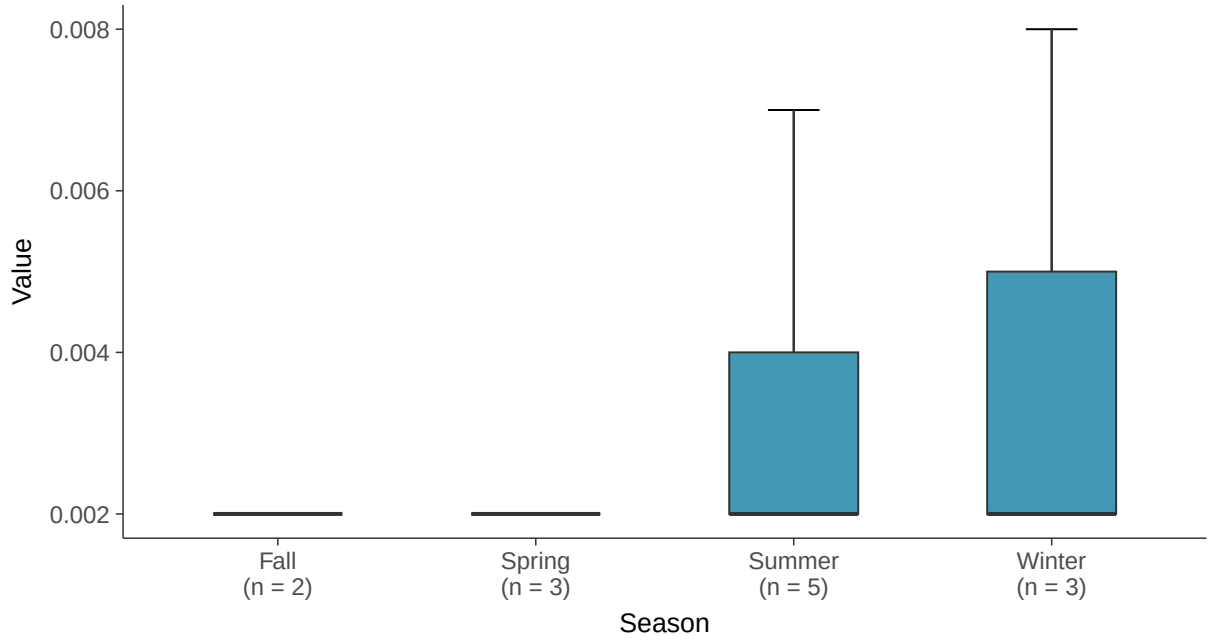
Boxplot

Arsenic, MW-13 (mg/L)



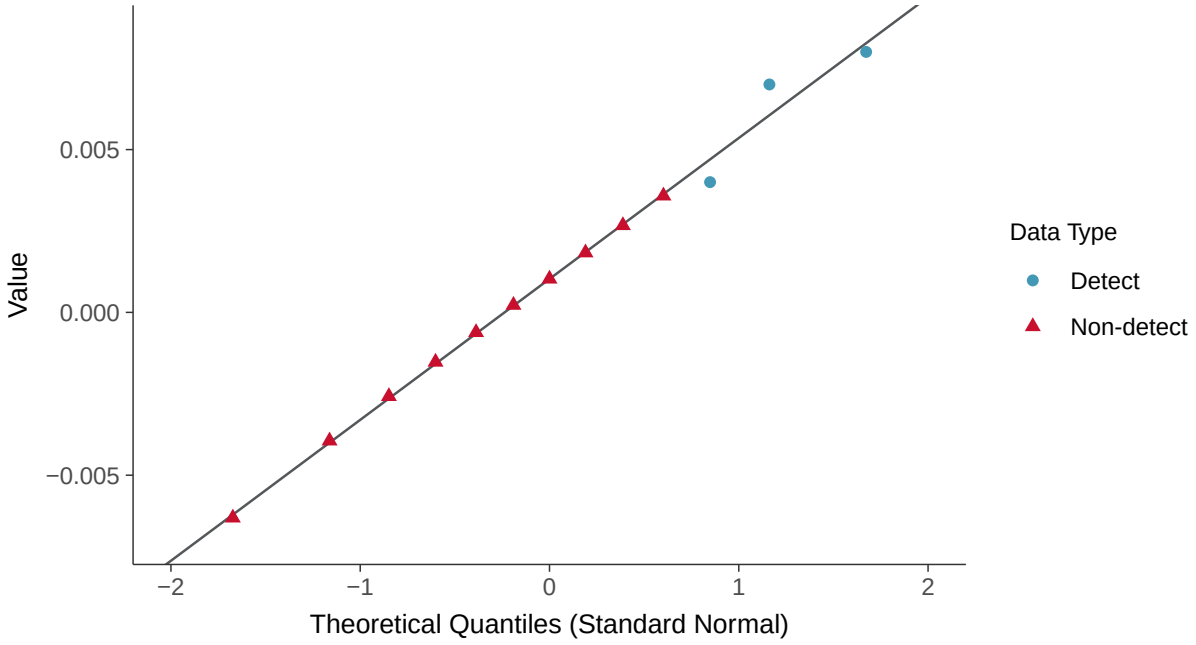
Boxplot by Season

Arsenic, MW-13 (mg/L)



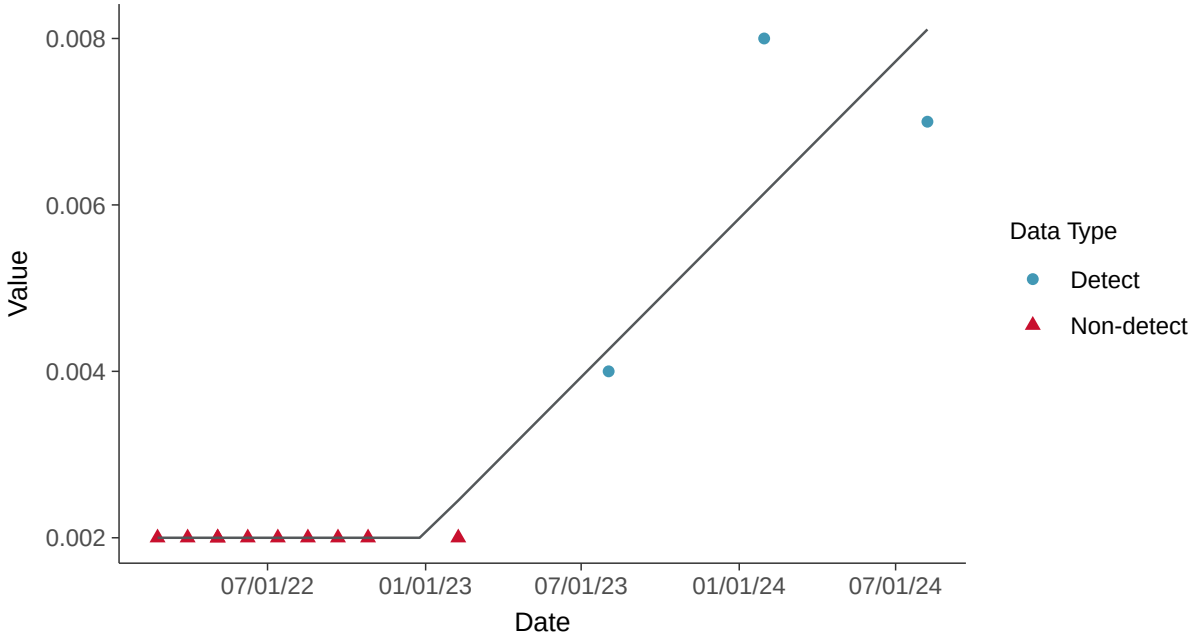
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, MW-13 (mg/L)



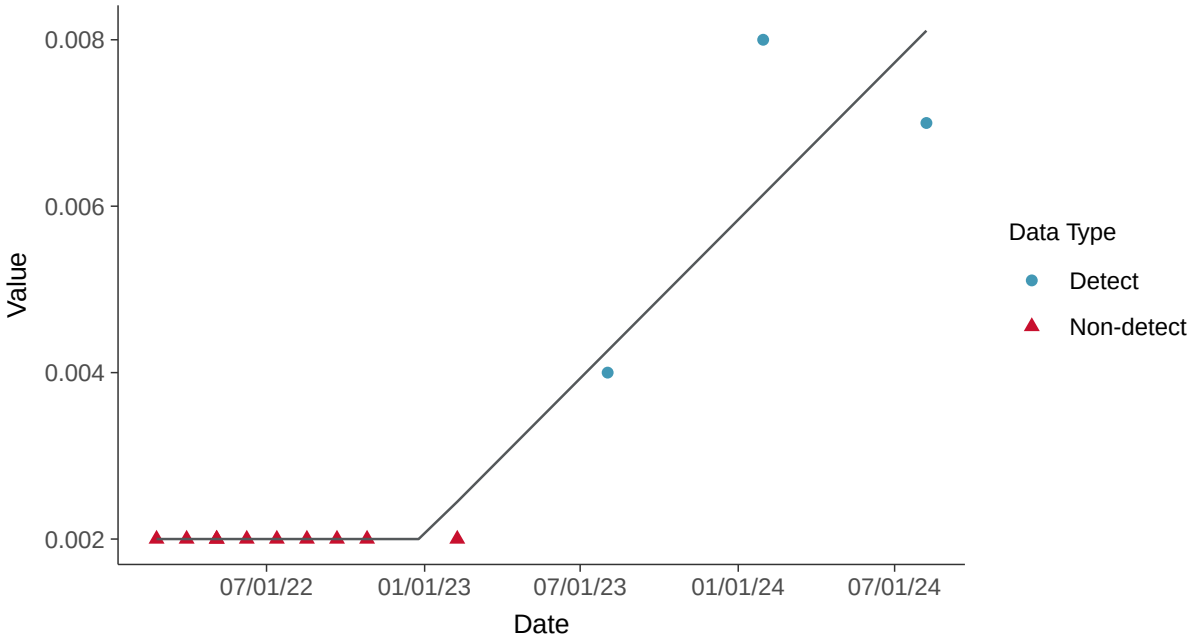
Trend Regression: Piecewise Linear-Linear

Arsenic, MW-13 (mg/L)



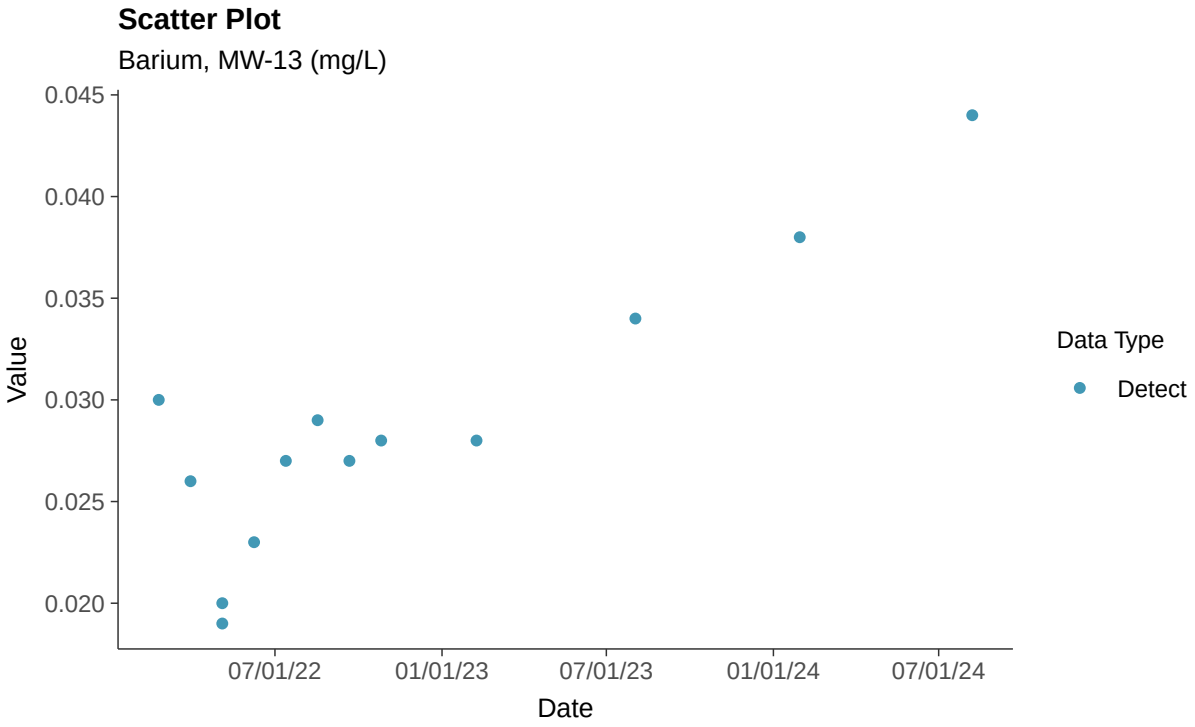
Trend Regression: Piecewise Linear-Linear-Linear

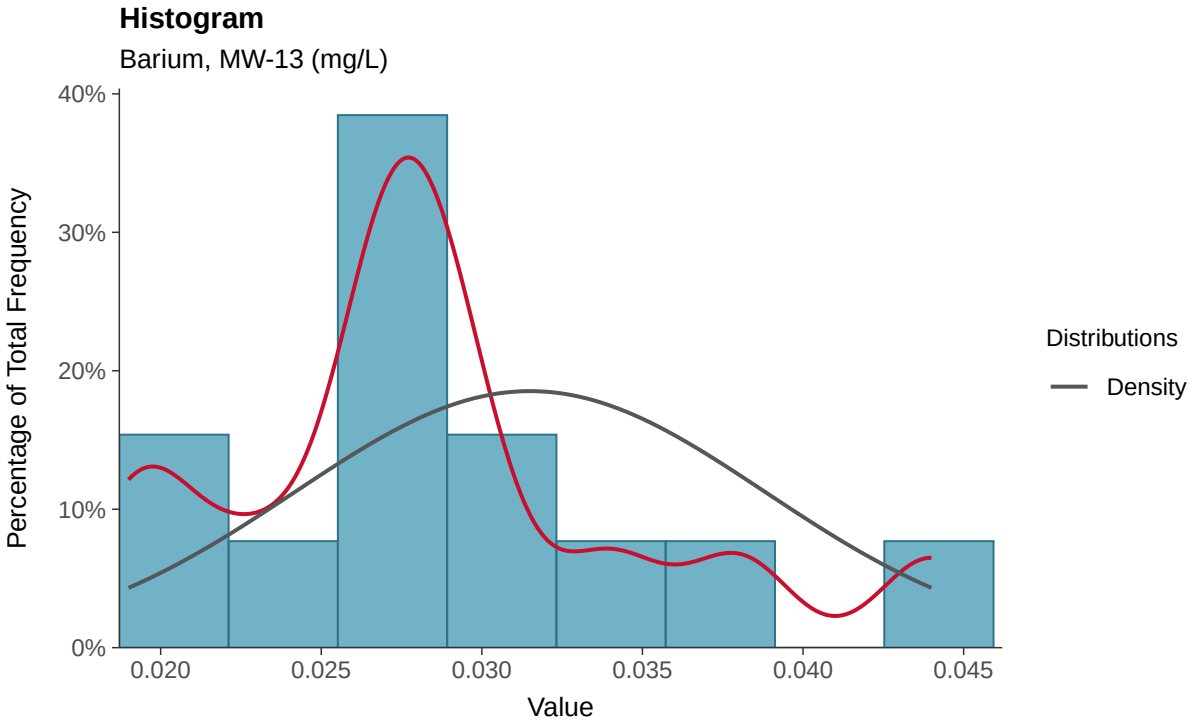
Arsenic, MW-13 (mg/L)



Appendix IV: Barium, MW-13

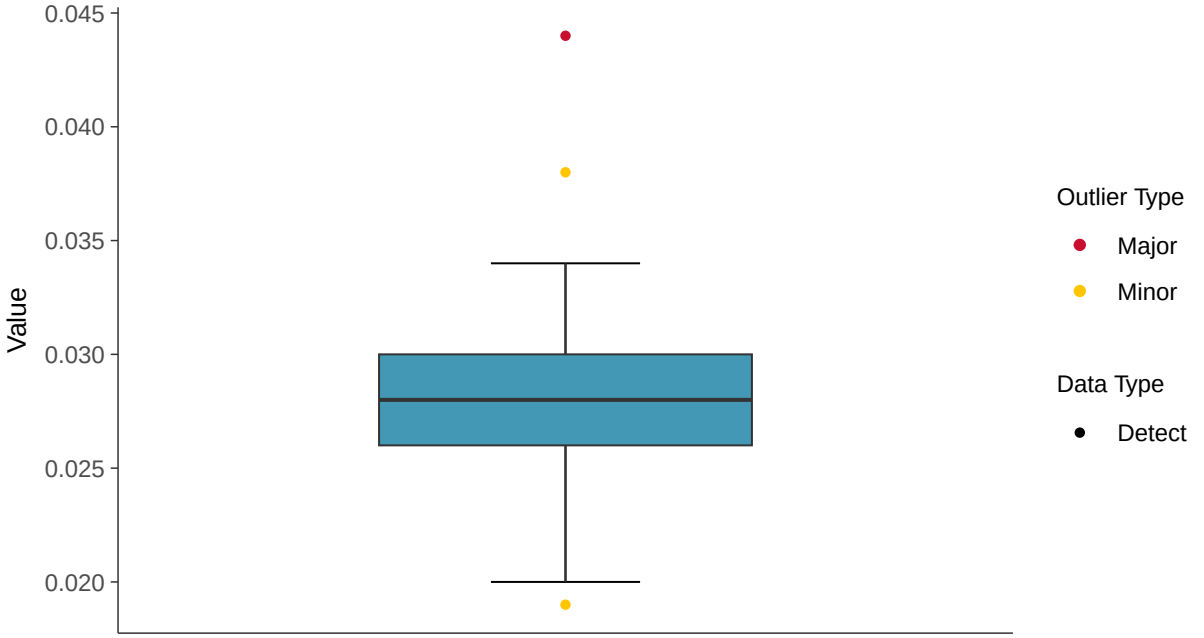
ID: 13_2_10





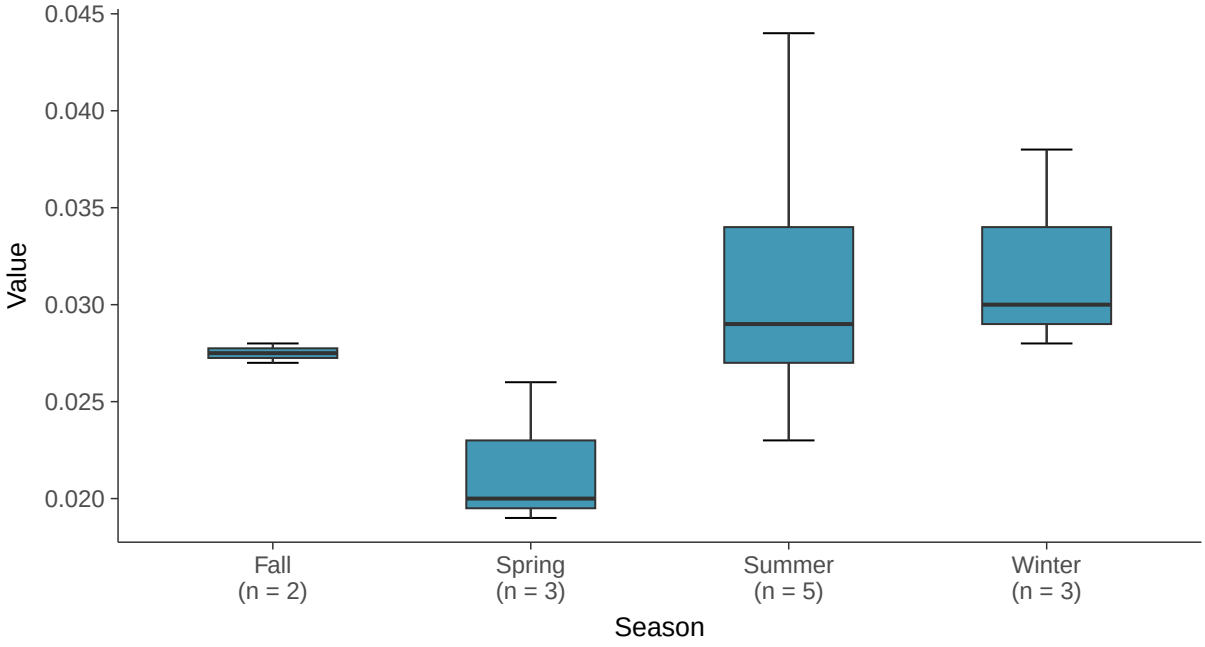
Boxplot

Barium, MW-13 (mg/L)



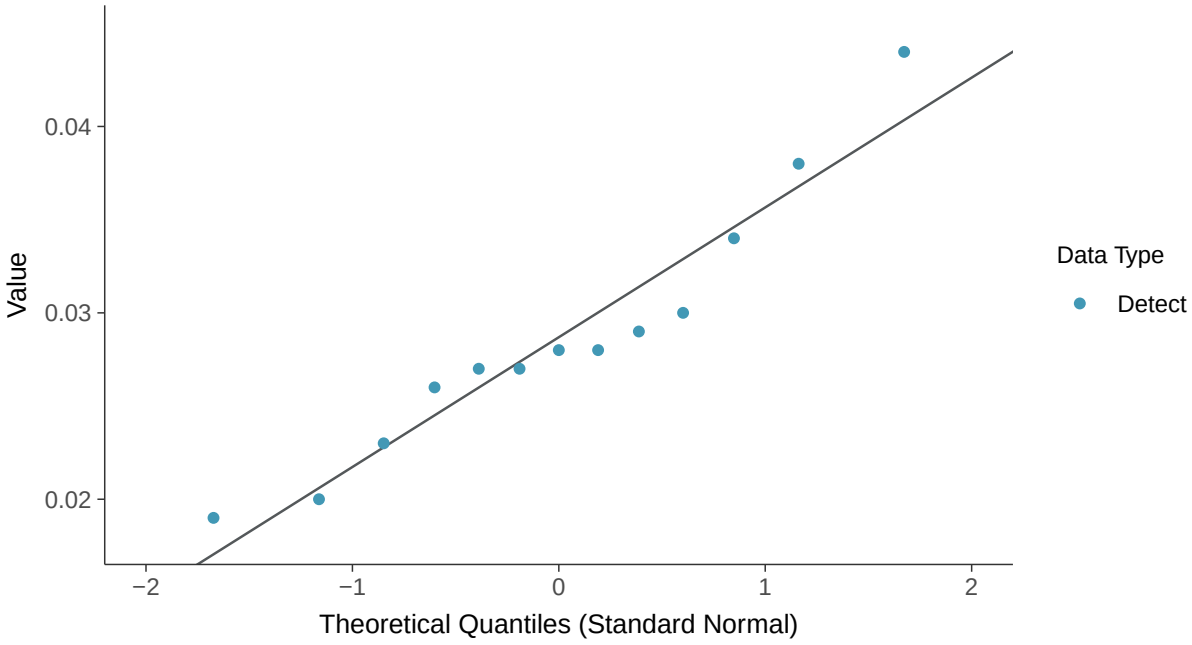
Boxplot by Season

Barium, MW-13 (mg/L)



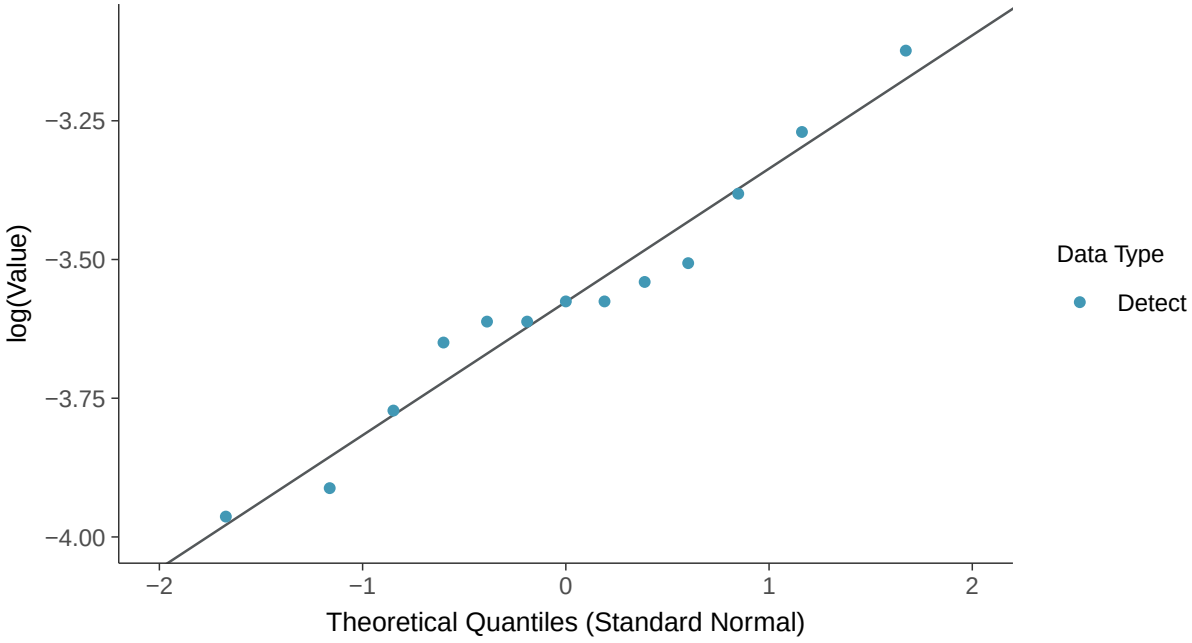
Normal Q-Q plot

Barium, MW-13 (mg/L)



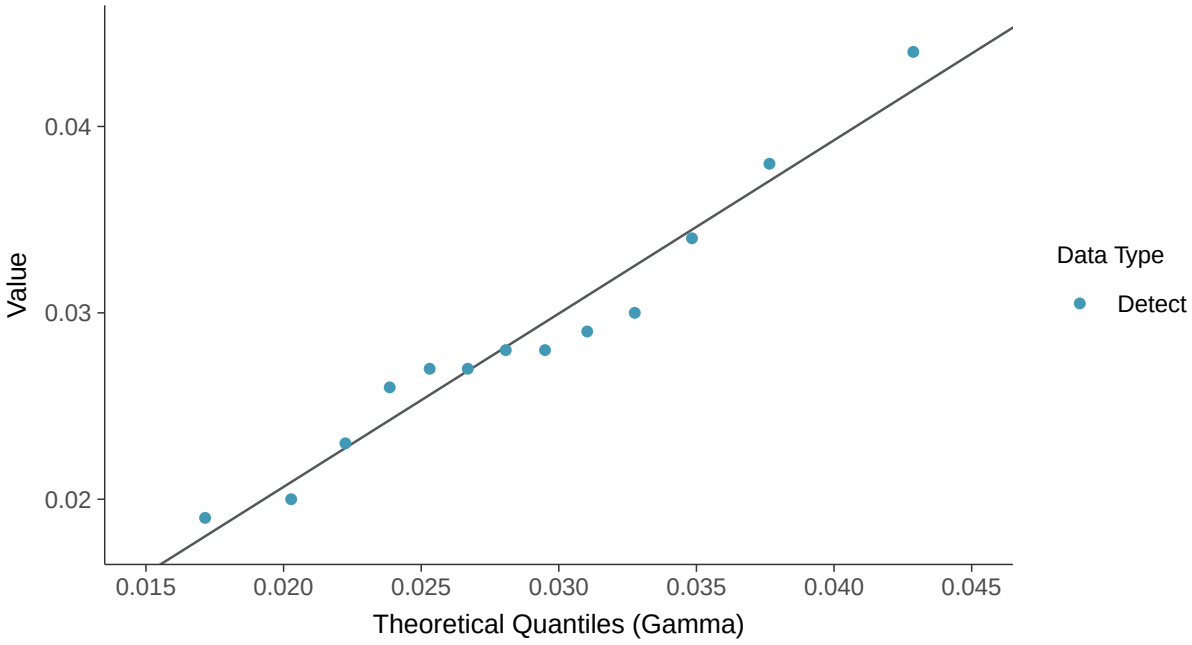
Lognormal Q-Q plot

Barium, MW-13 (mg/L)



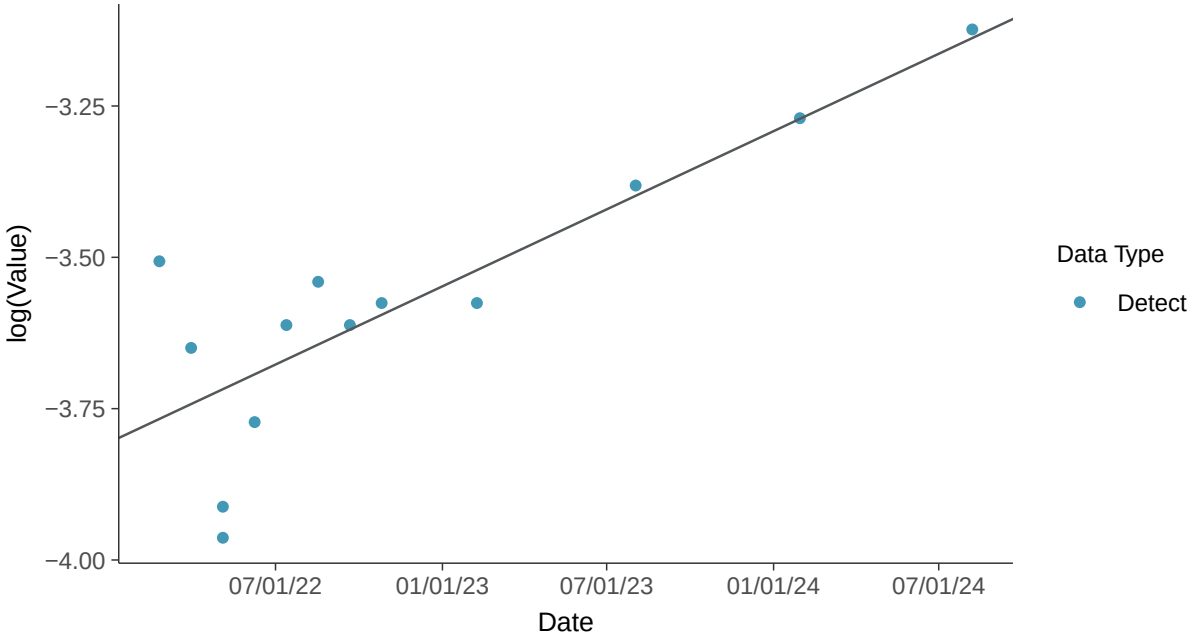
Gamma Q-Q plot

Barium, MW-13 (mg/L)



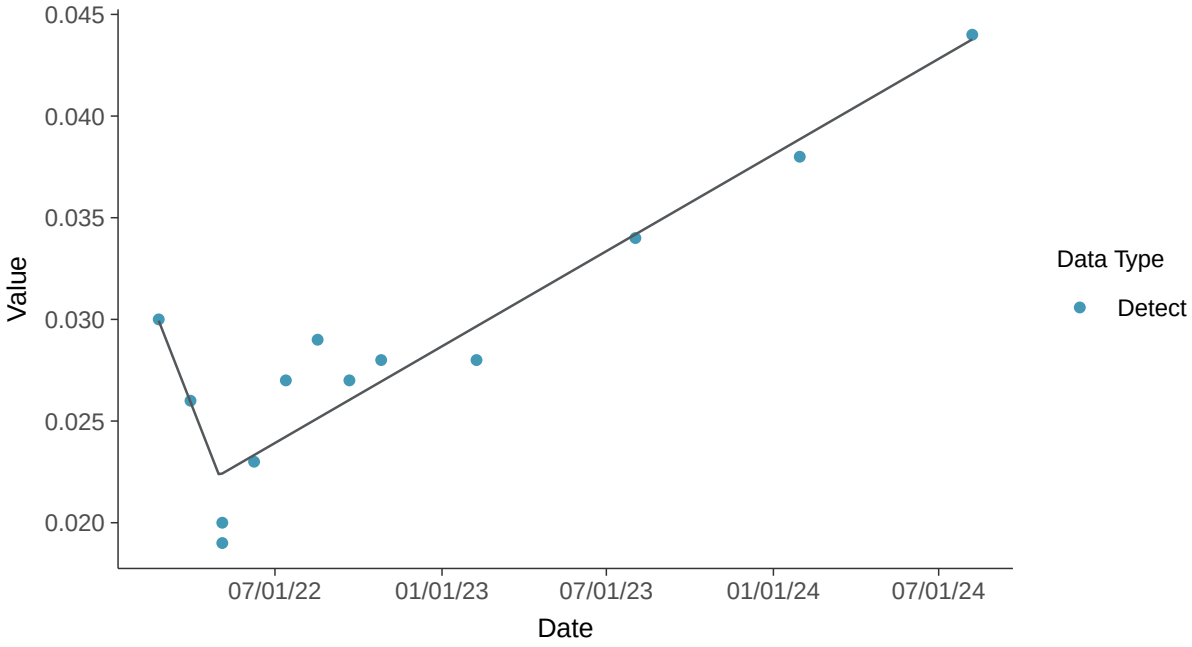
Trend Regression: Lognormal MLE

Barium, MW-13 (mg/L)



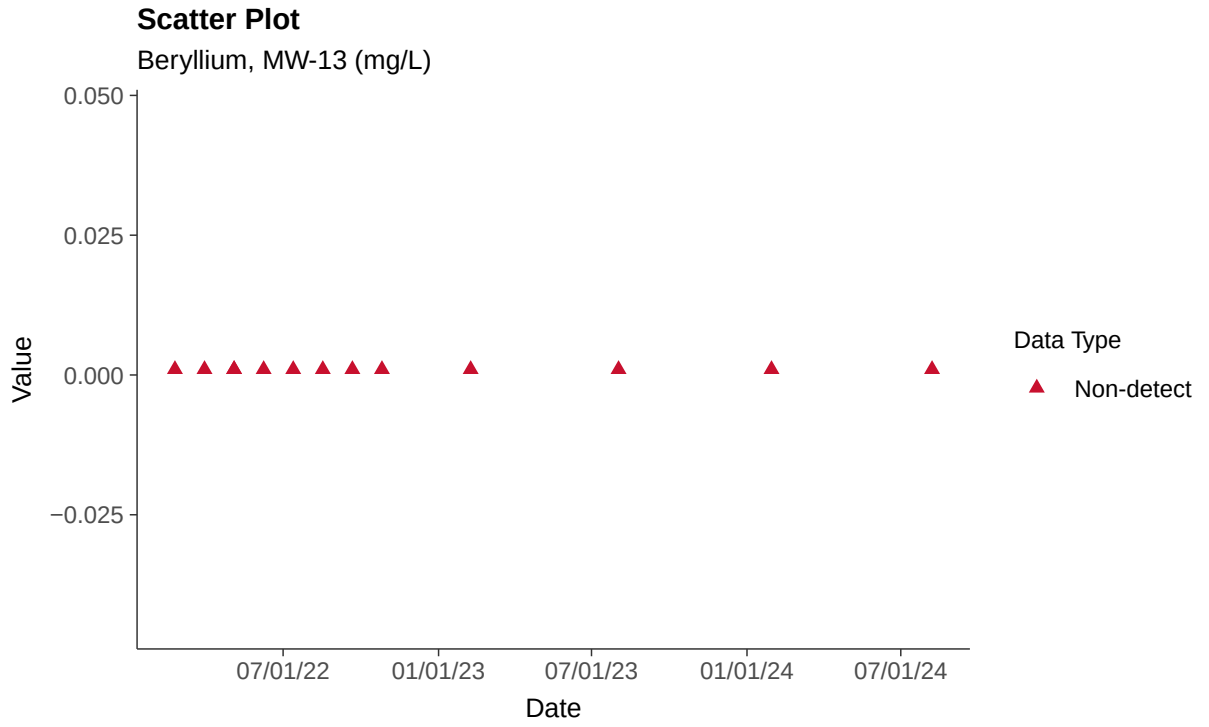
Trend Regression: Piecewise Linear-Linear

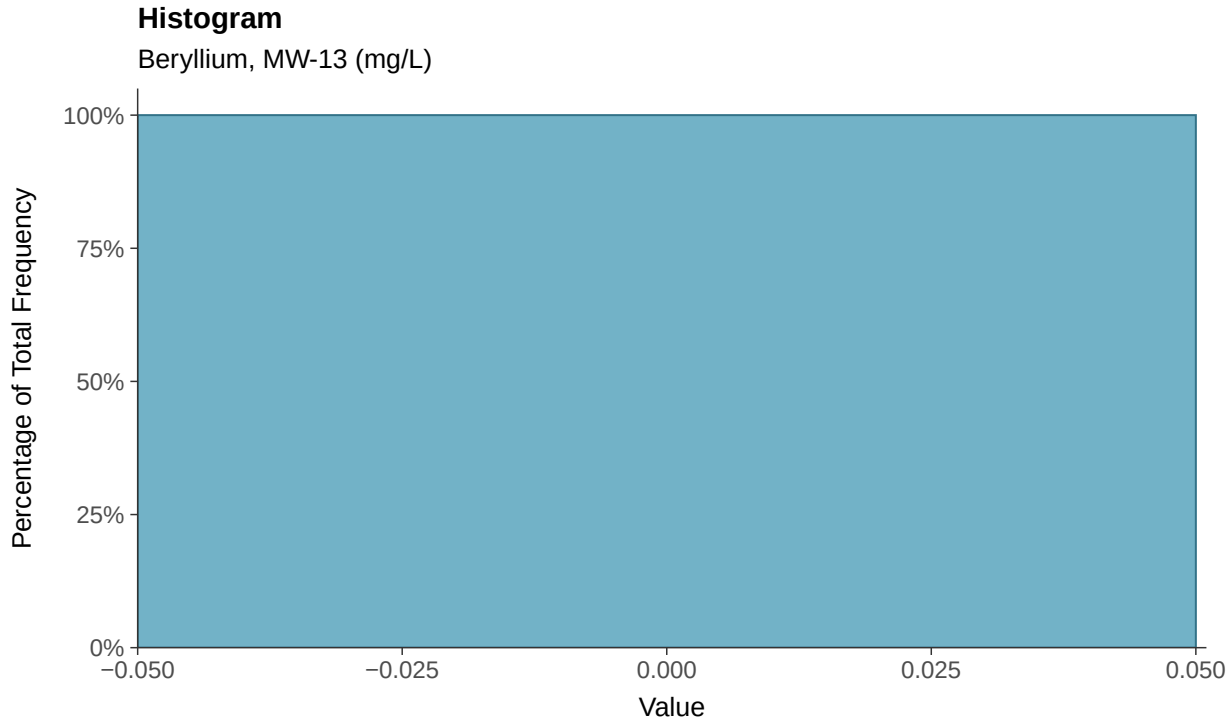
Barium, MW-13 (mg/L)



Appendix IV: Beryllium, MW-13

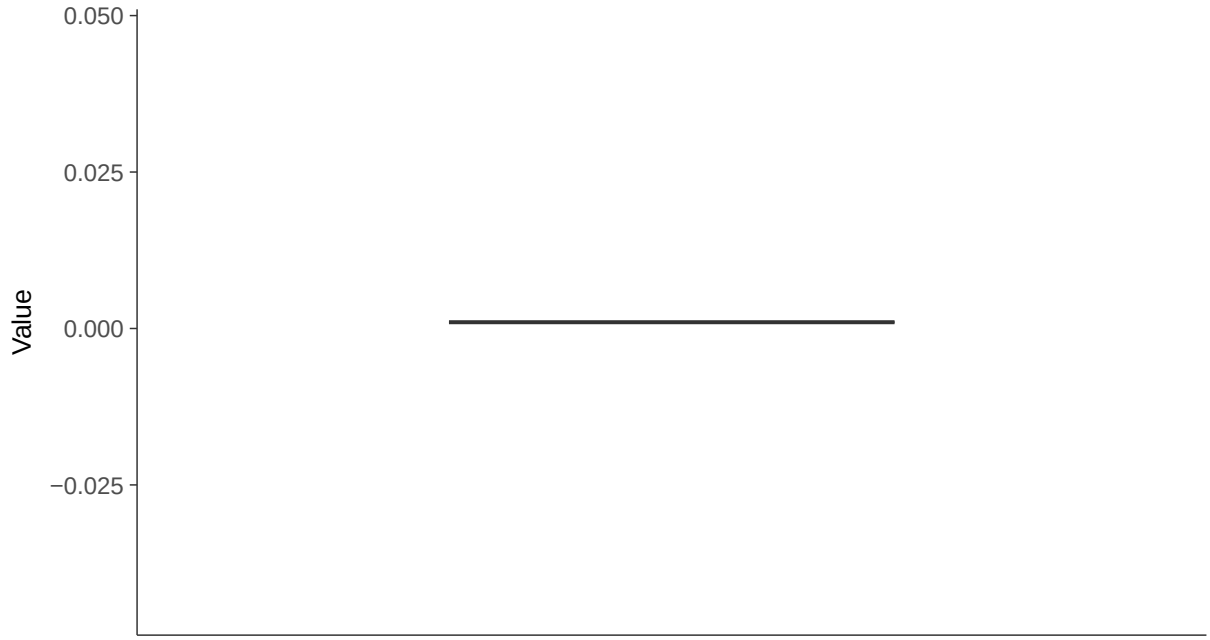
ID: 13_2_11





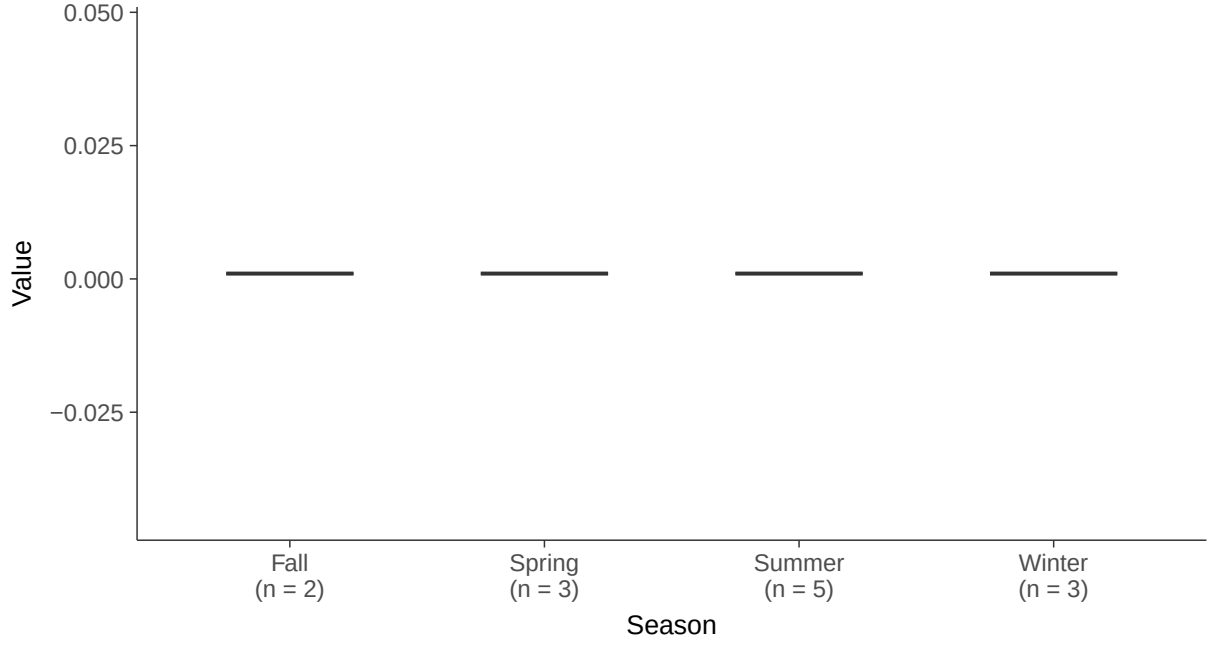
Boxplot

Beryllium, MW-13 (mg/L)



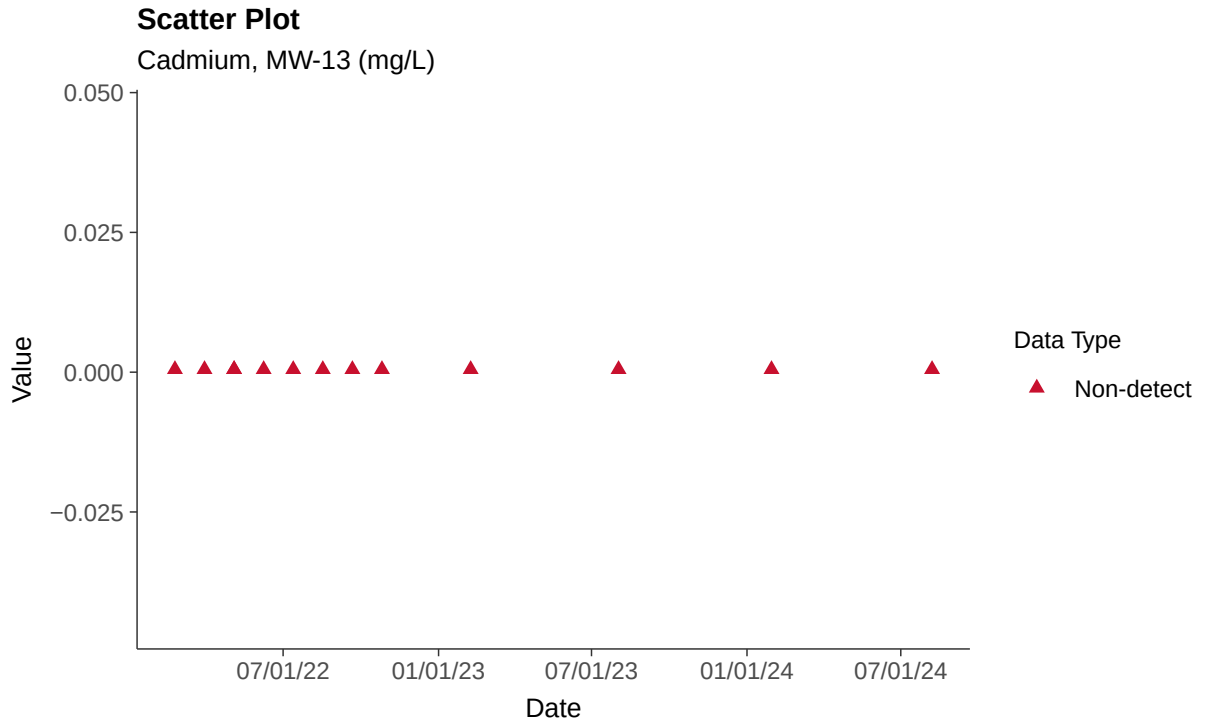
Boxplot by Season

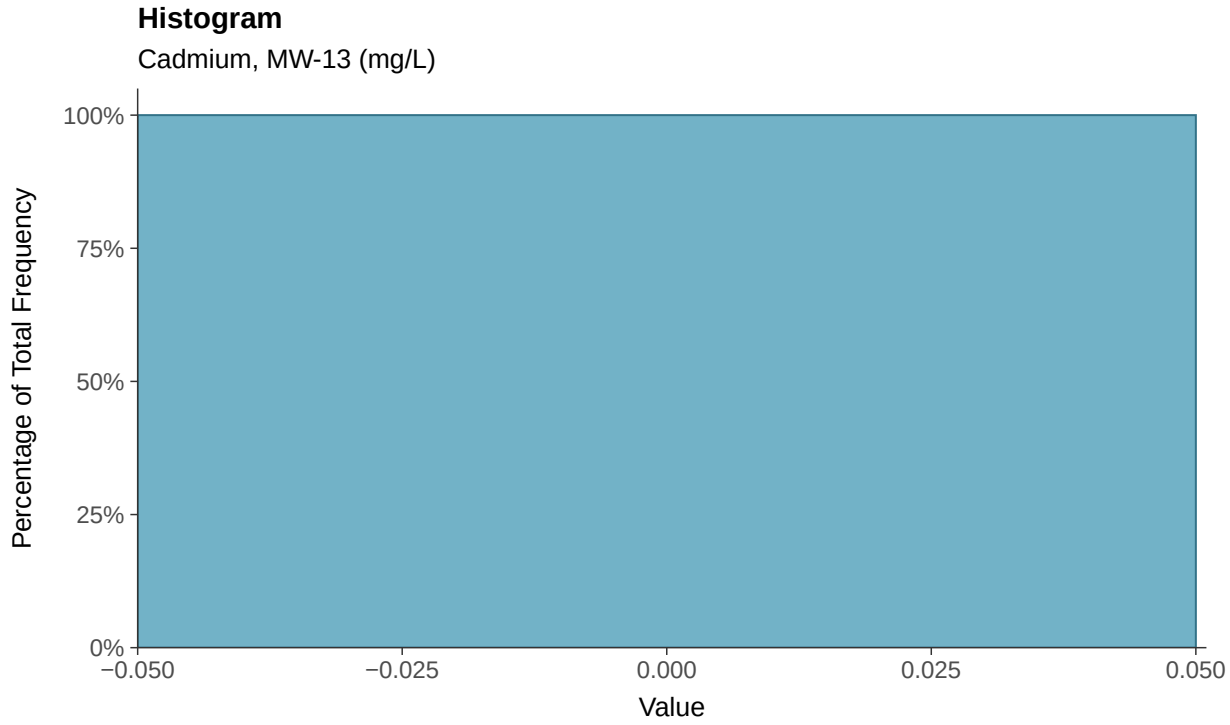
Beryllium, MW-13 (mg/L)



Appendix IV: Cadmium, MW-13

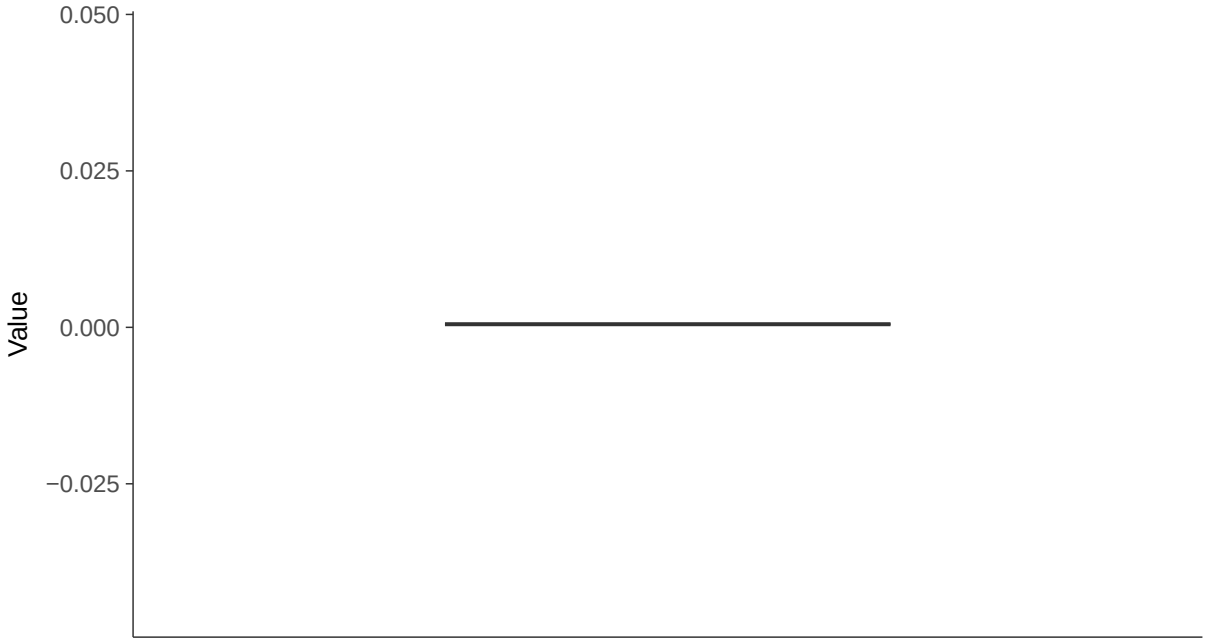
ID: 13_2_12





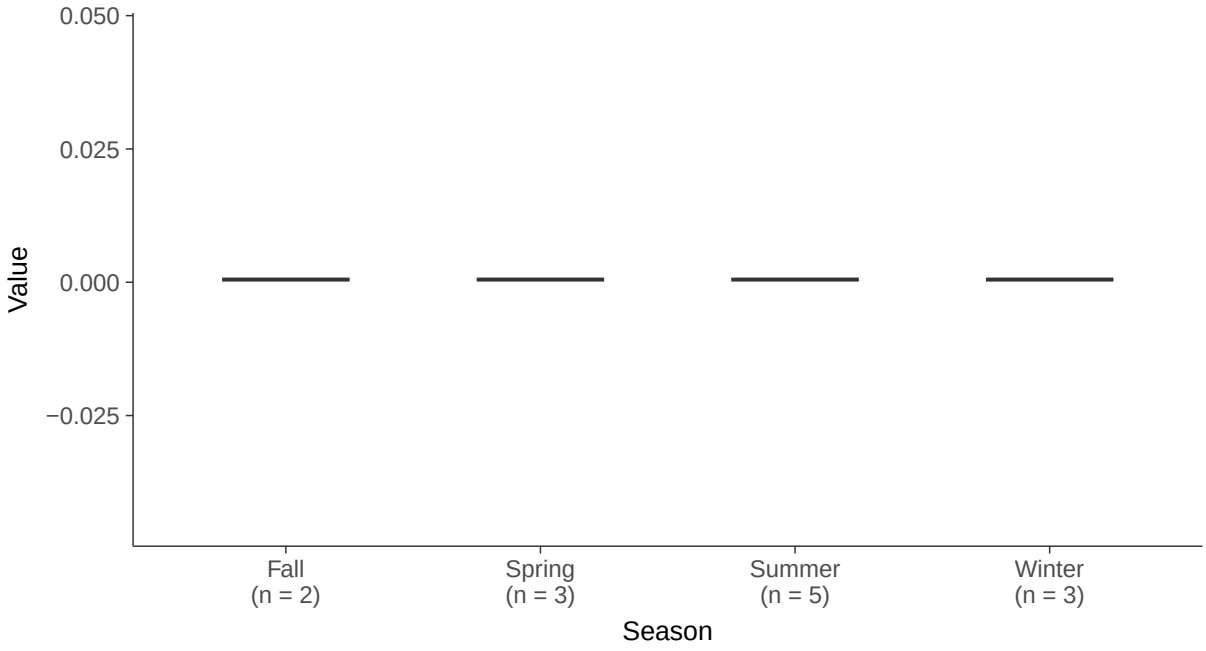
Boxplot

Cadmium, MW-13 (mg/L)



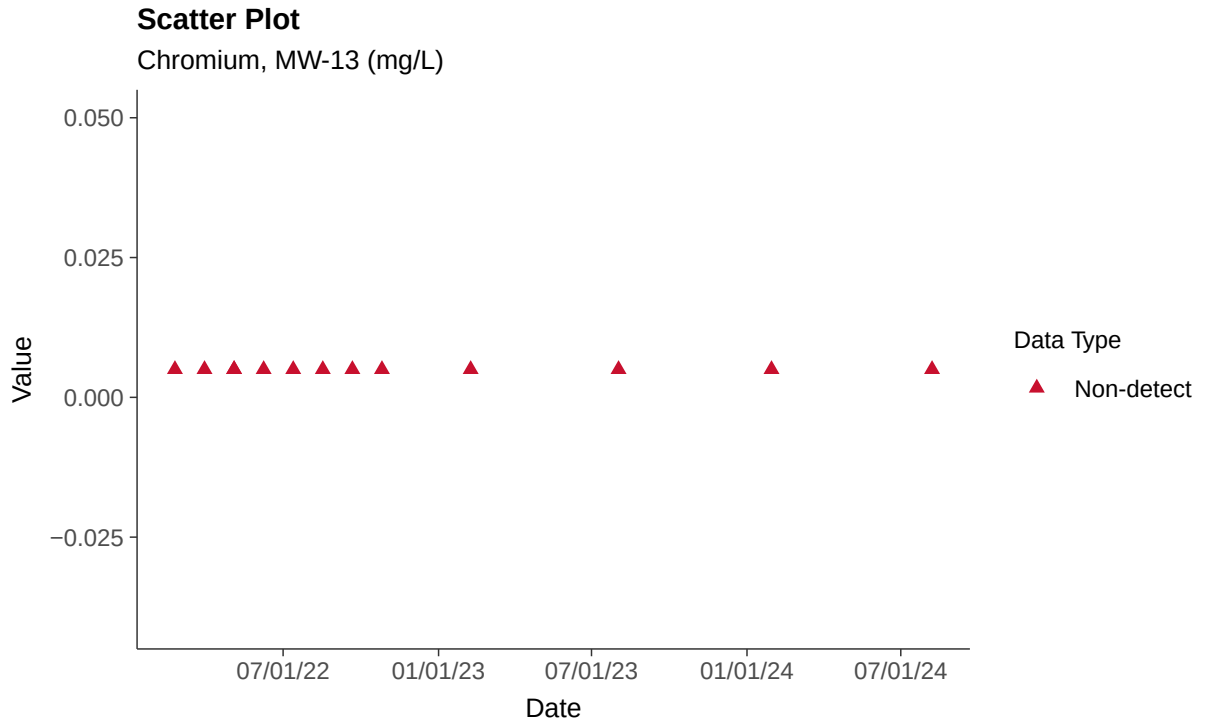
Boxplot by Season

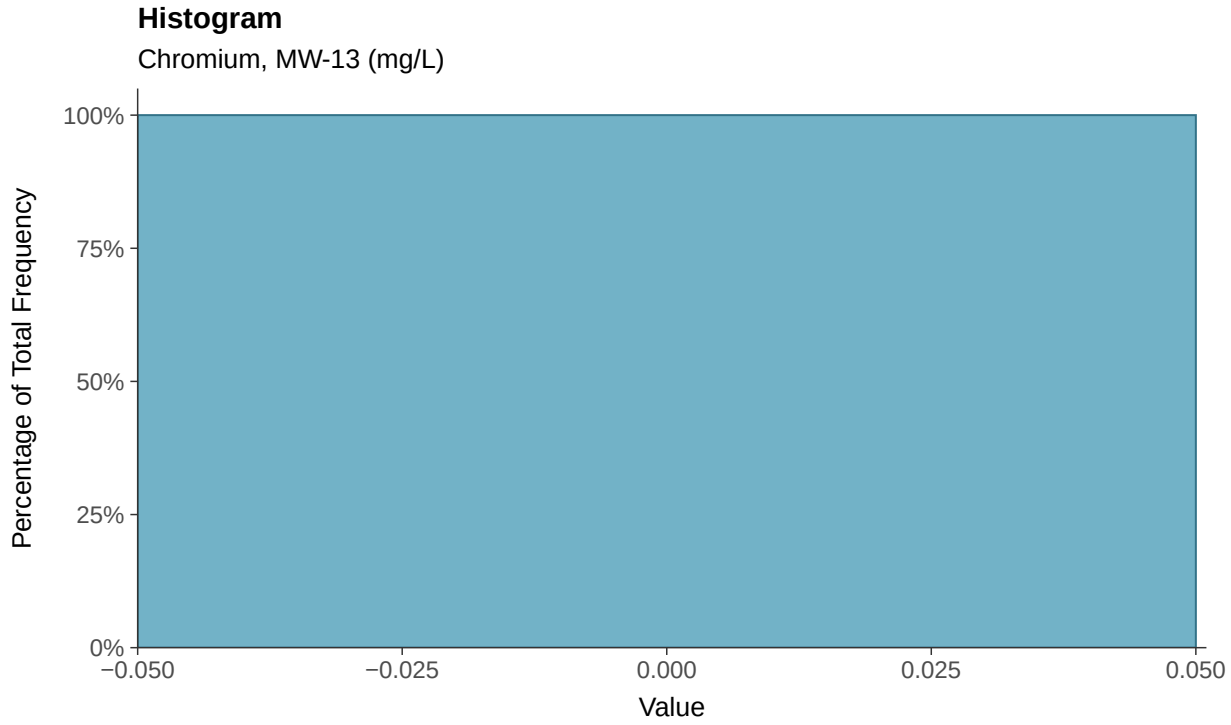
Cadmium, MW-13 (mg/L)



Appendix IV: Chromium, MW-13

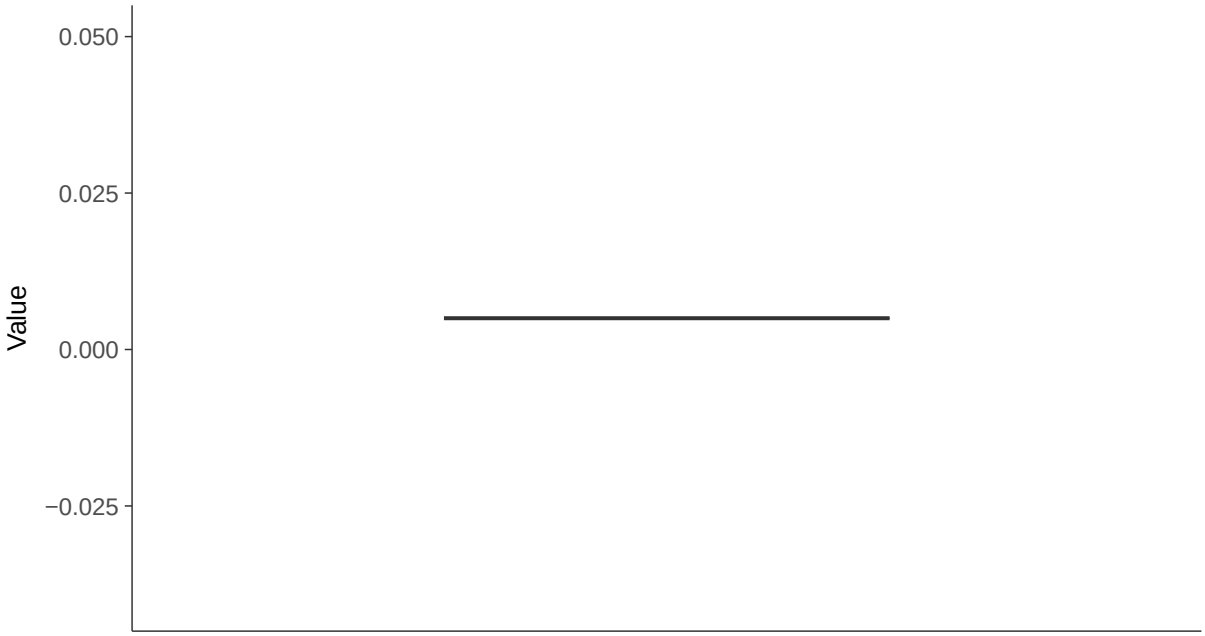
ID: 13_2_13





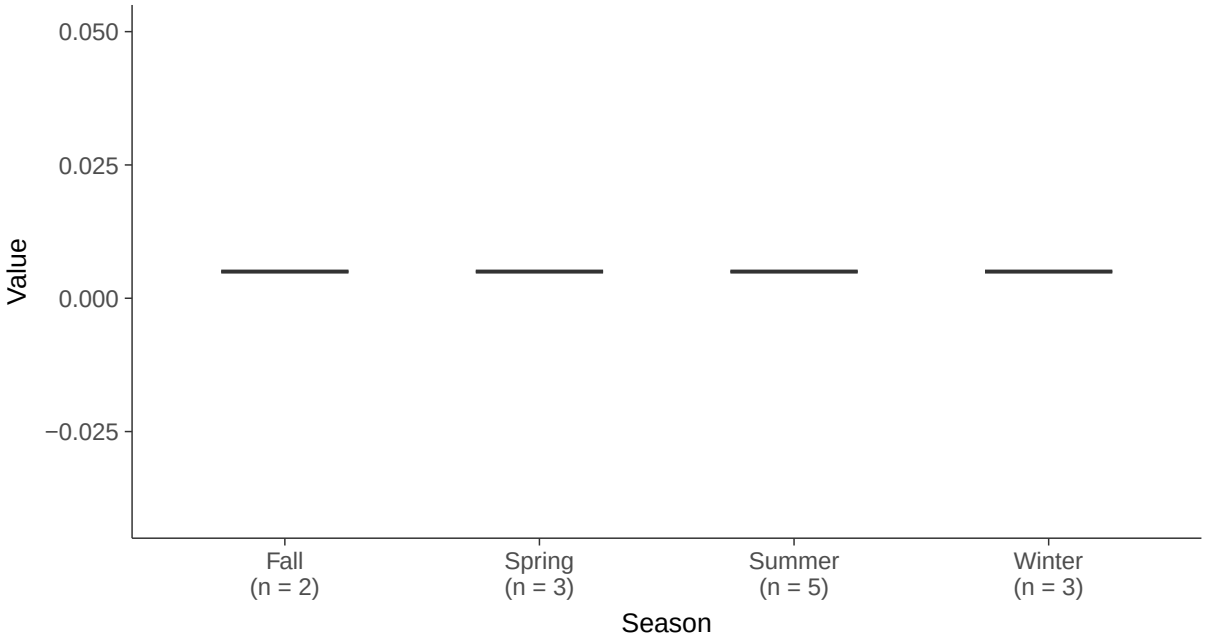
Boxplot

Chromium, MW-13 (mg/L)



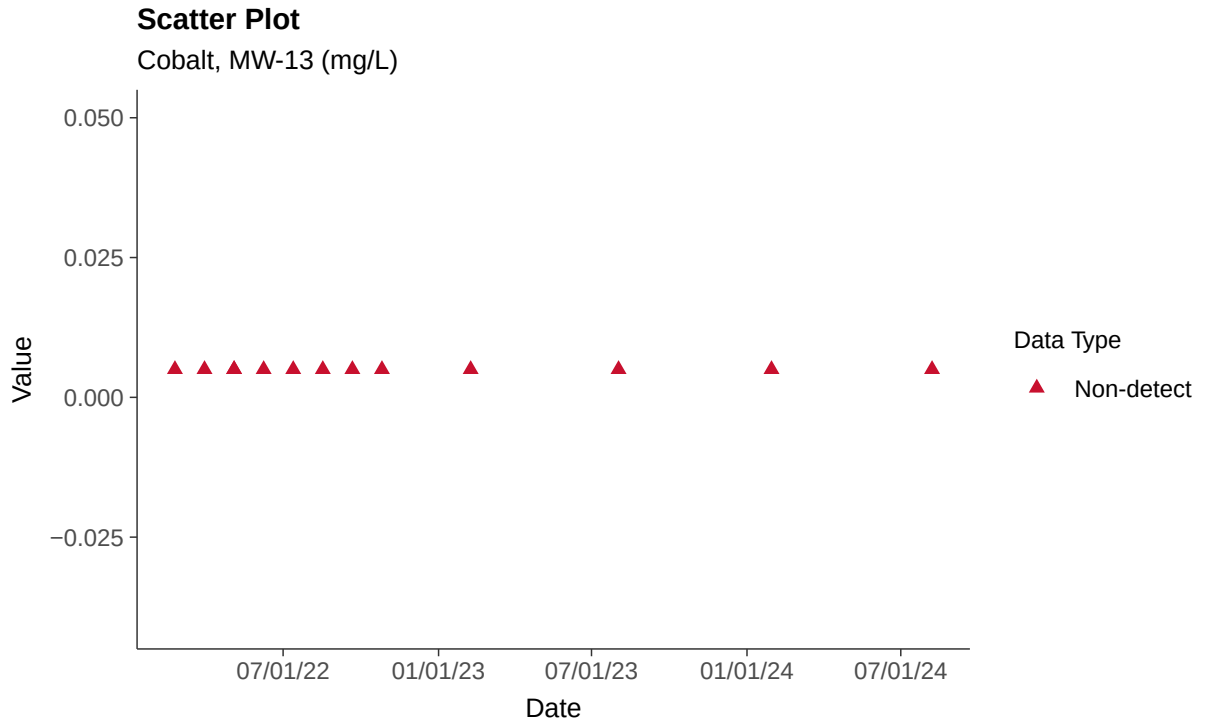
Boxplot by Season

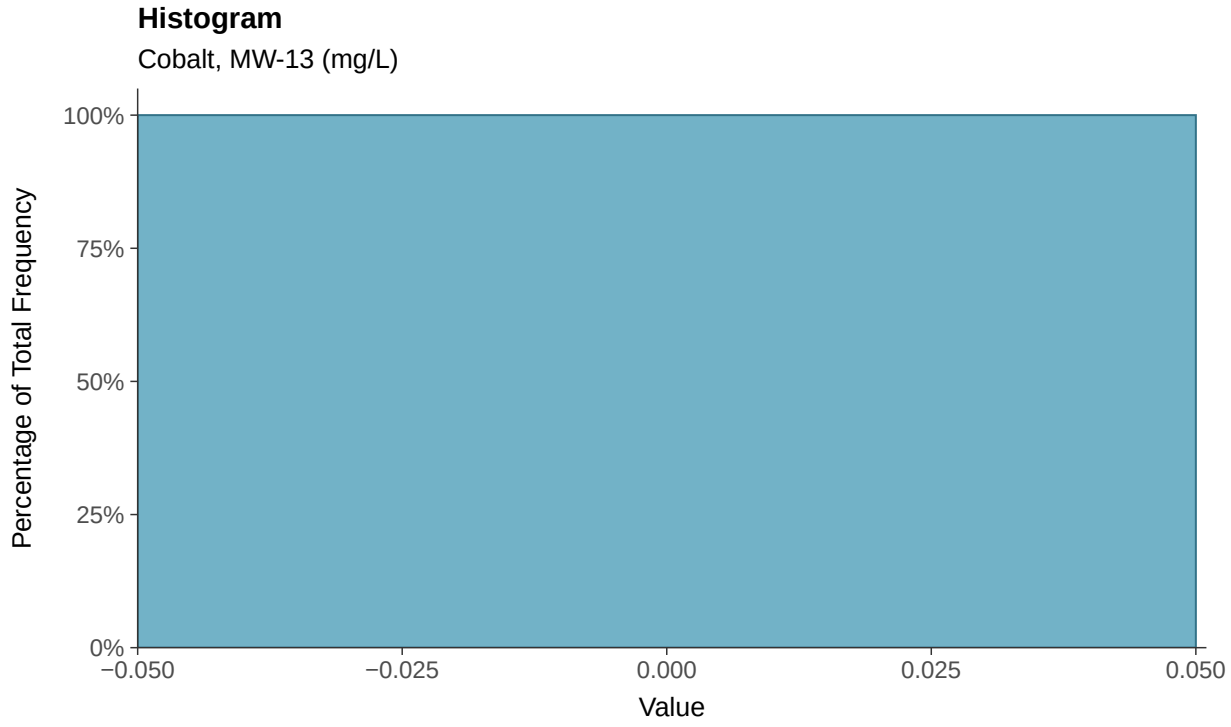
Chromium, MW-13 (mg/L)



Appendix IV: Cobalt, MW-13

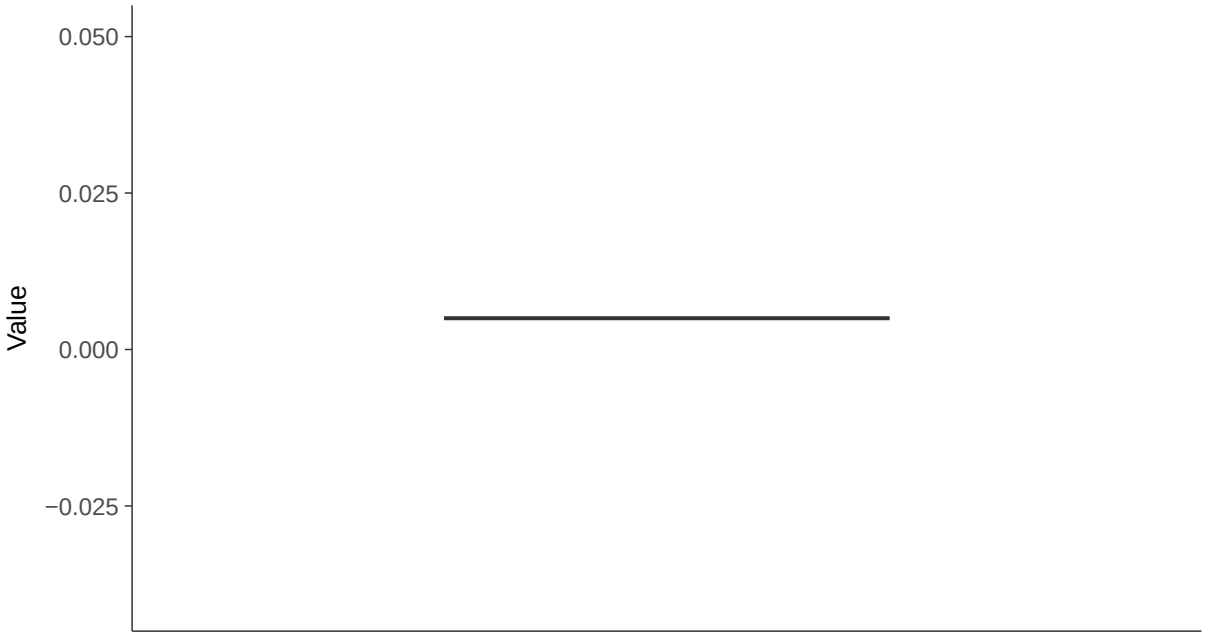
ID: 13_2_14





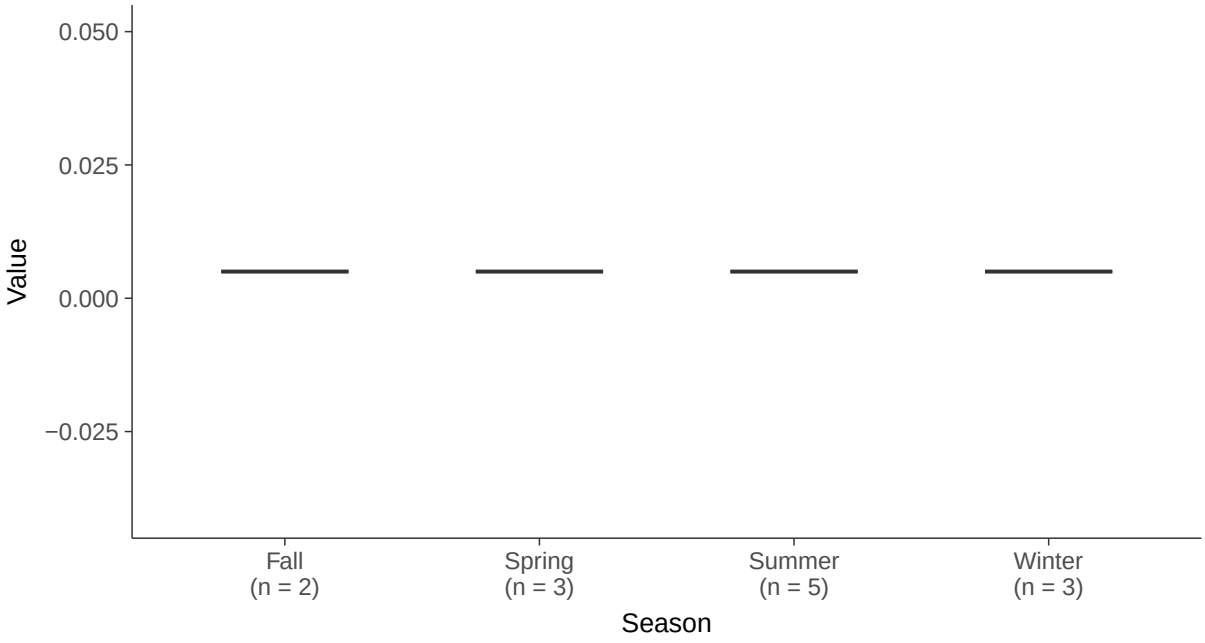
Boxplot

Cobalt, MW-13 (mg/L)



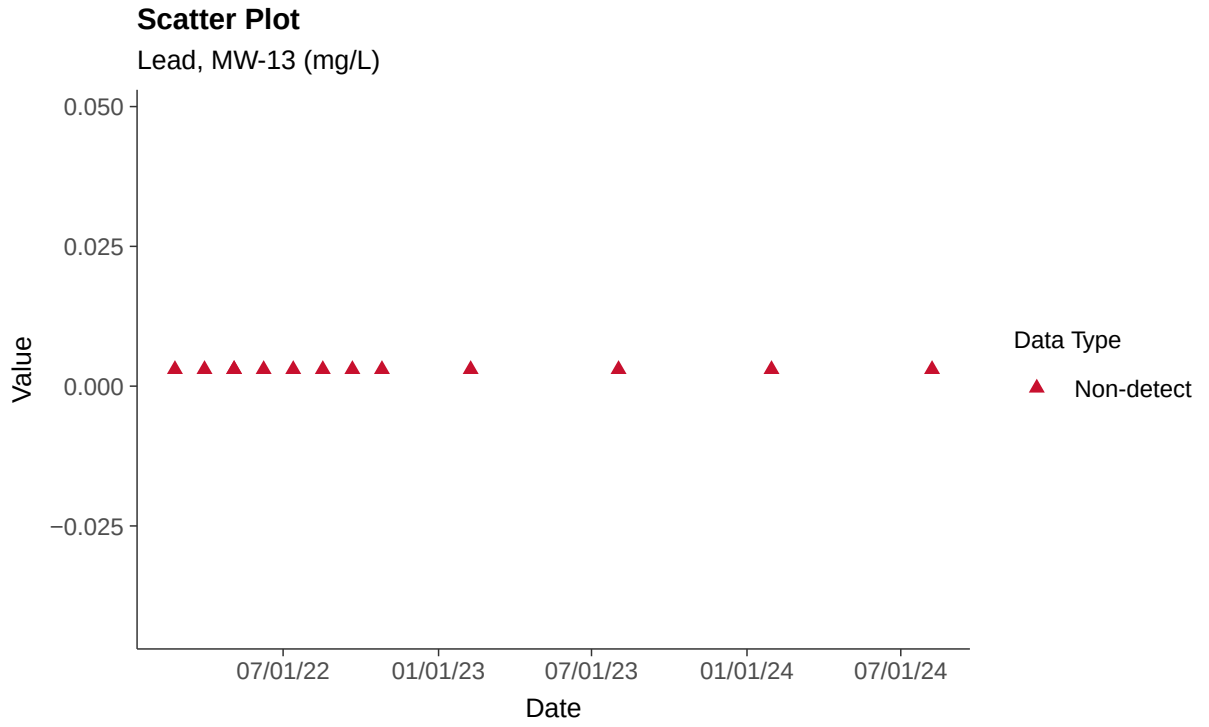
Boxplot by Season

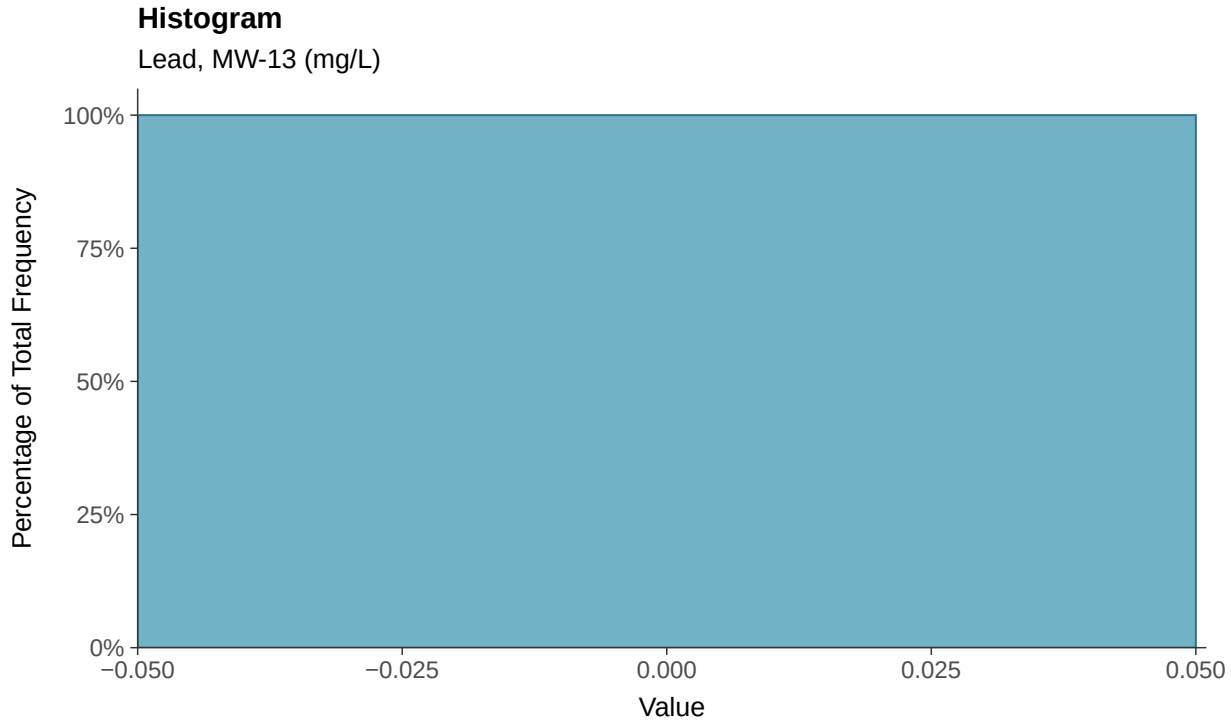
Cobalt, MW-13 (mg/L)



Appendix IV: Lead, MW-13

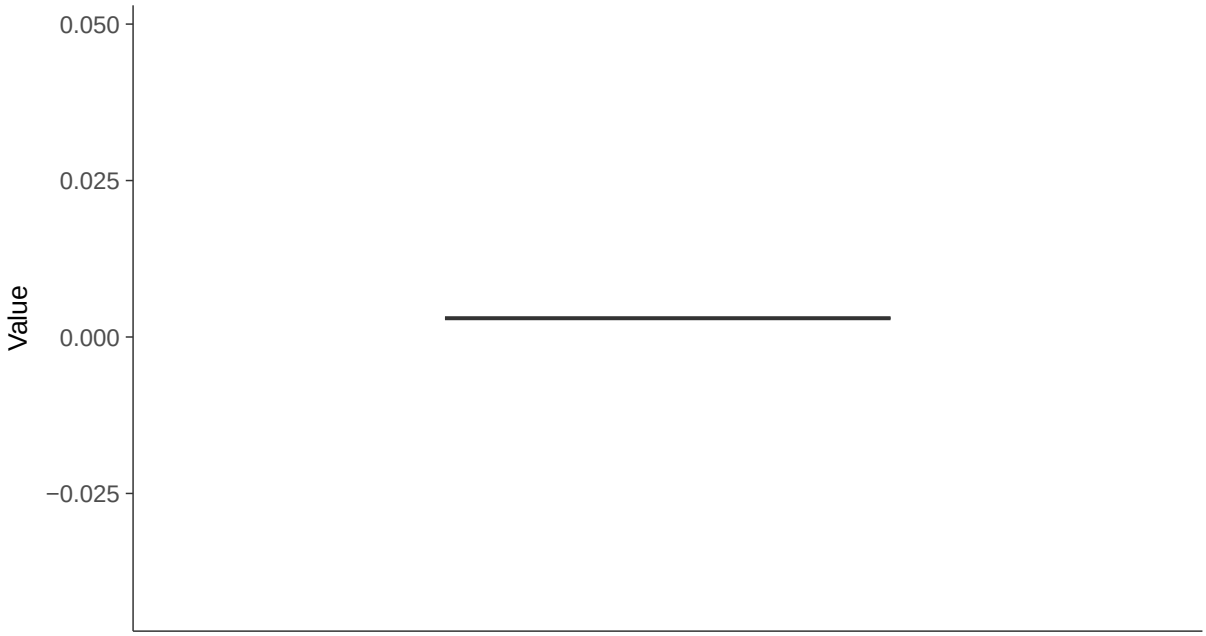
ID: 13_2_15





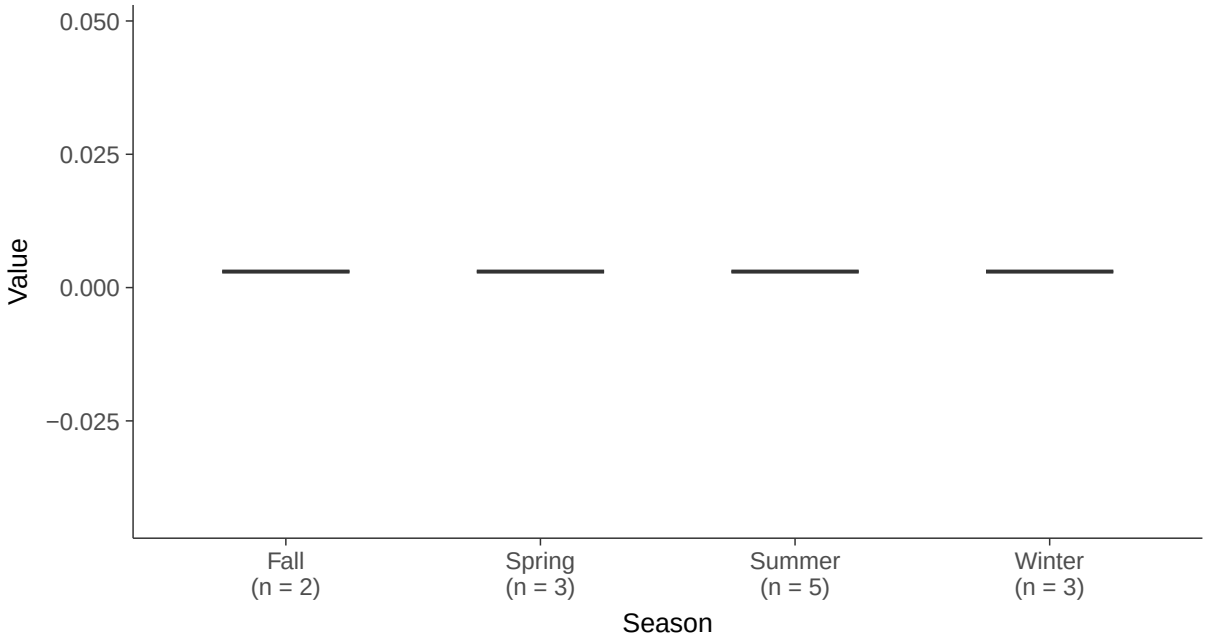
Boxplot

Lead, MW-13 (mg/L)



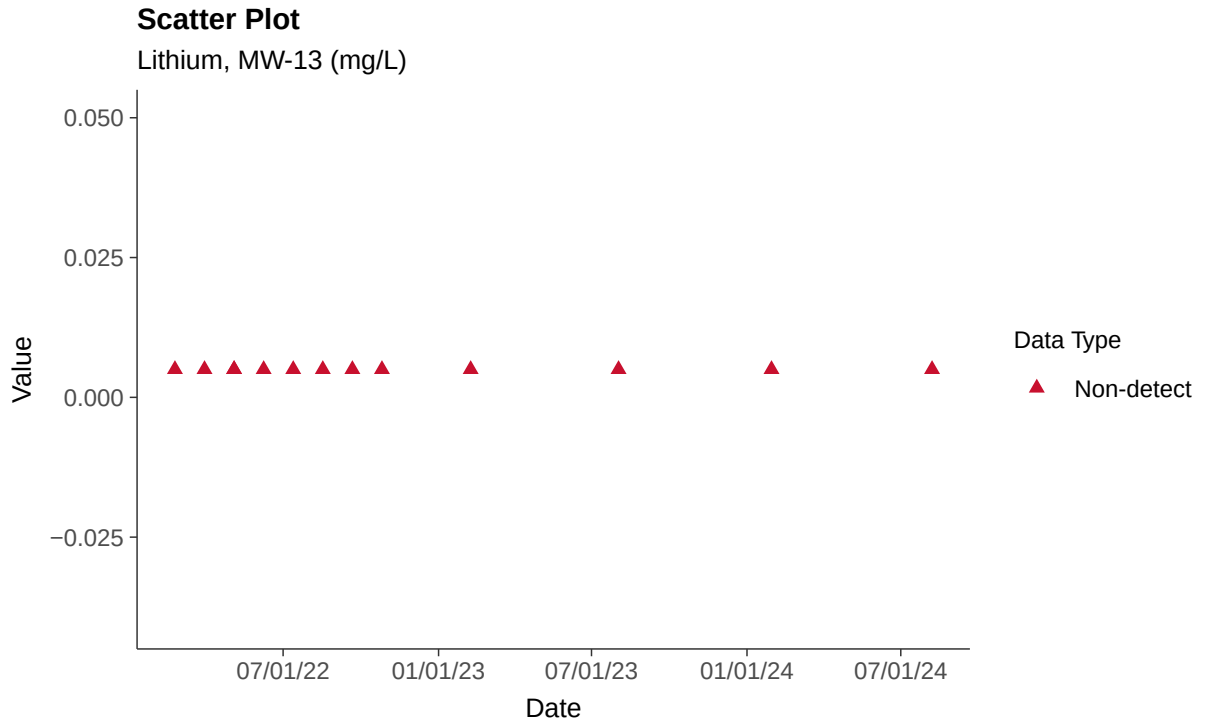
Boxplot by Season

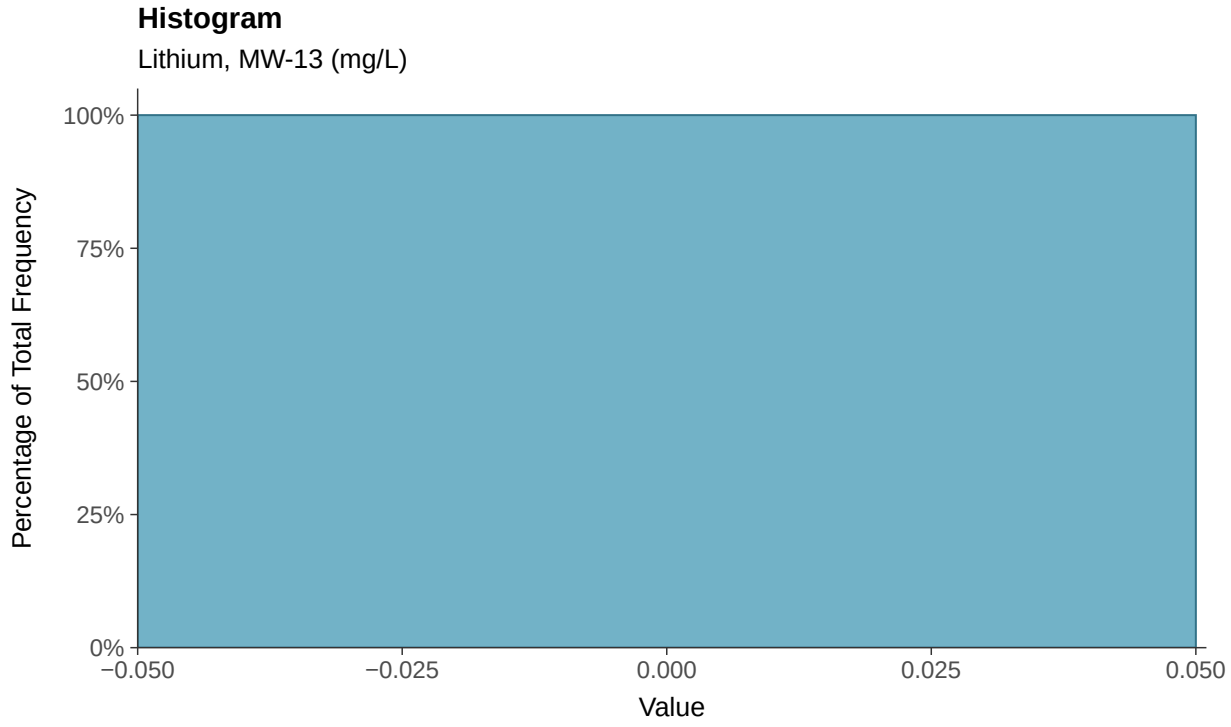
Lead, MW-13 (mg/L)



Appendix IV: Lithium, MW-13

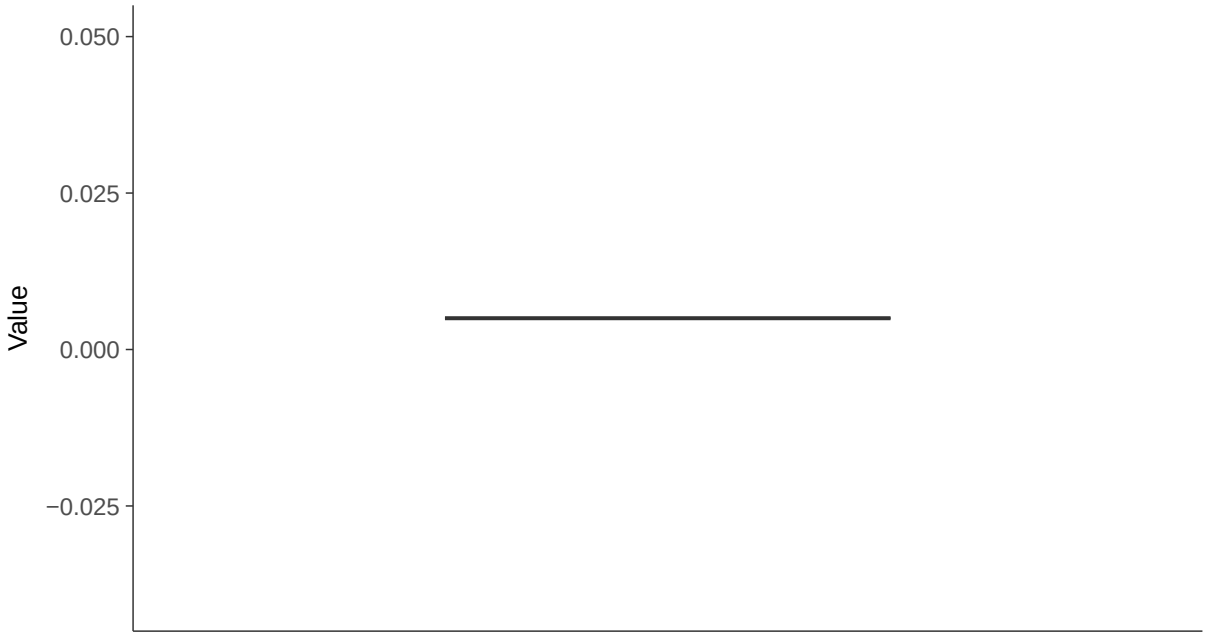
ID: 13_2_16





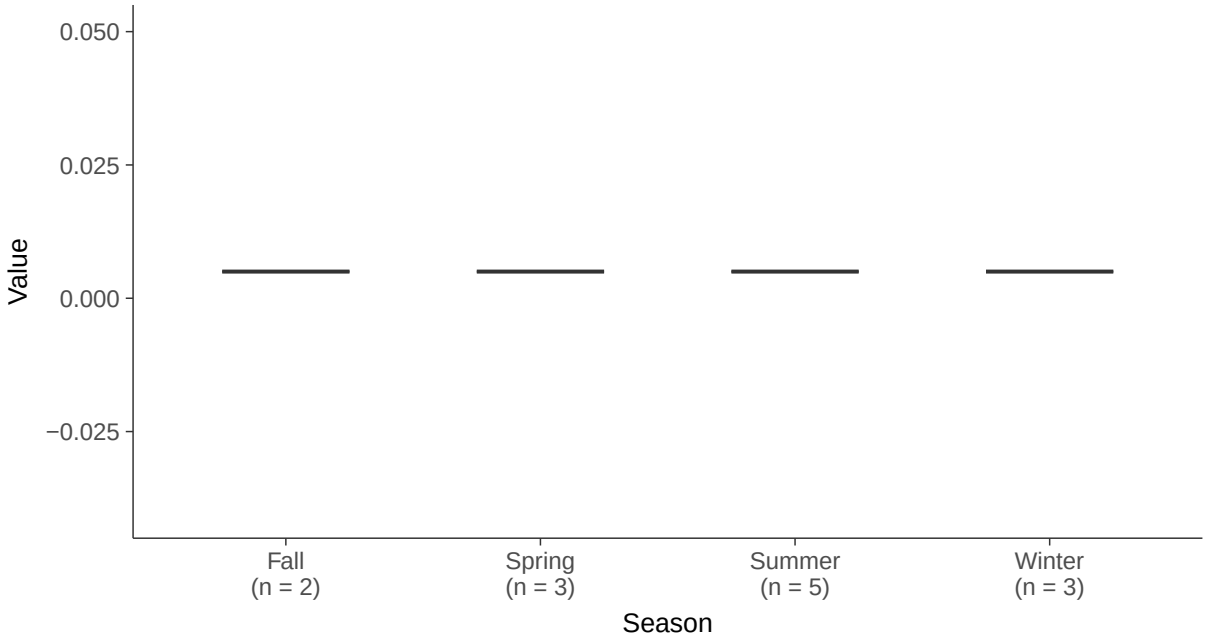
Boxplot

Lithium, MW-13 (mg/L)



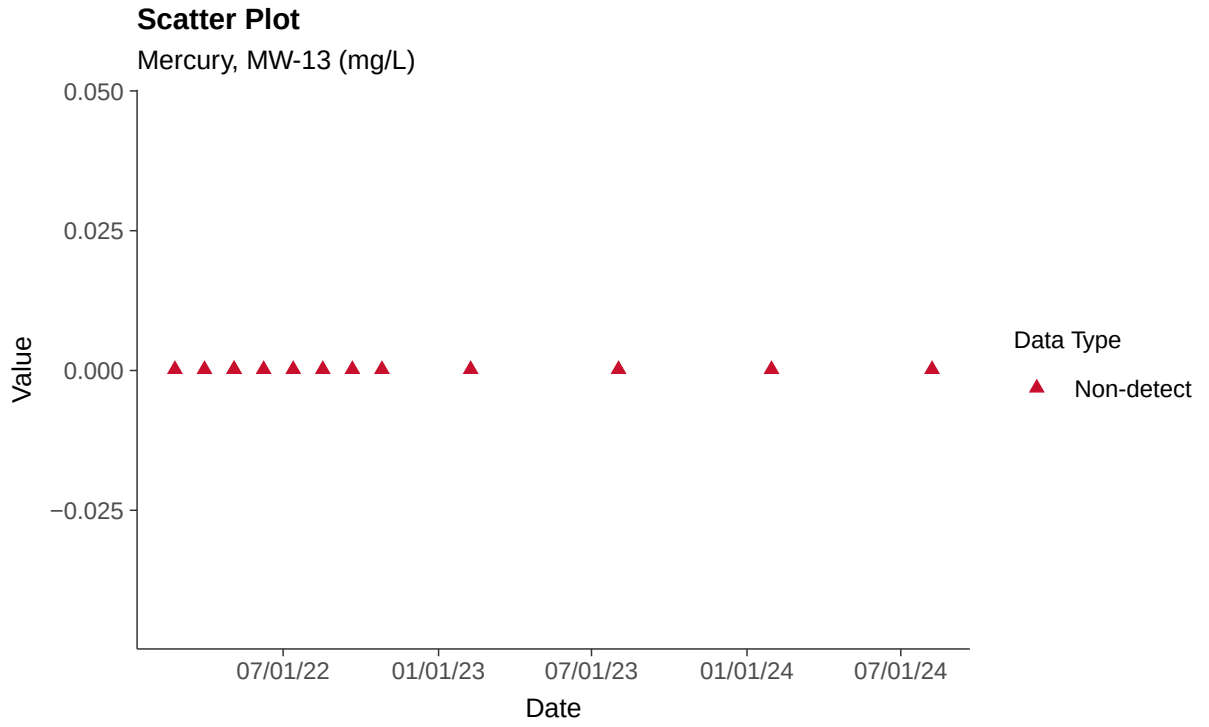
Boxplot by Season

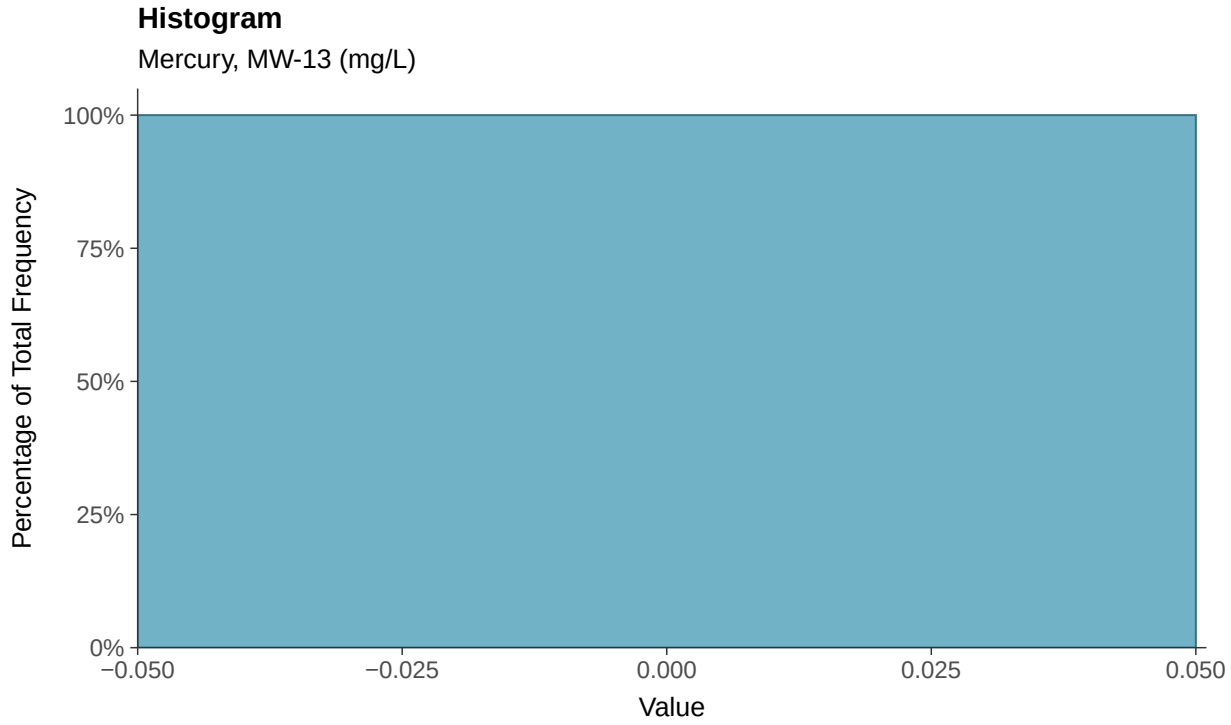
Lithium, MW-13 (mg/L)



Appendix IV: Mercury, MW-13

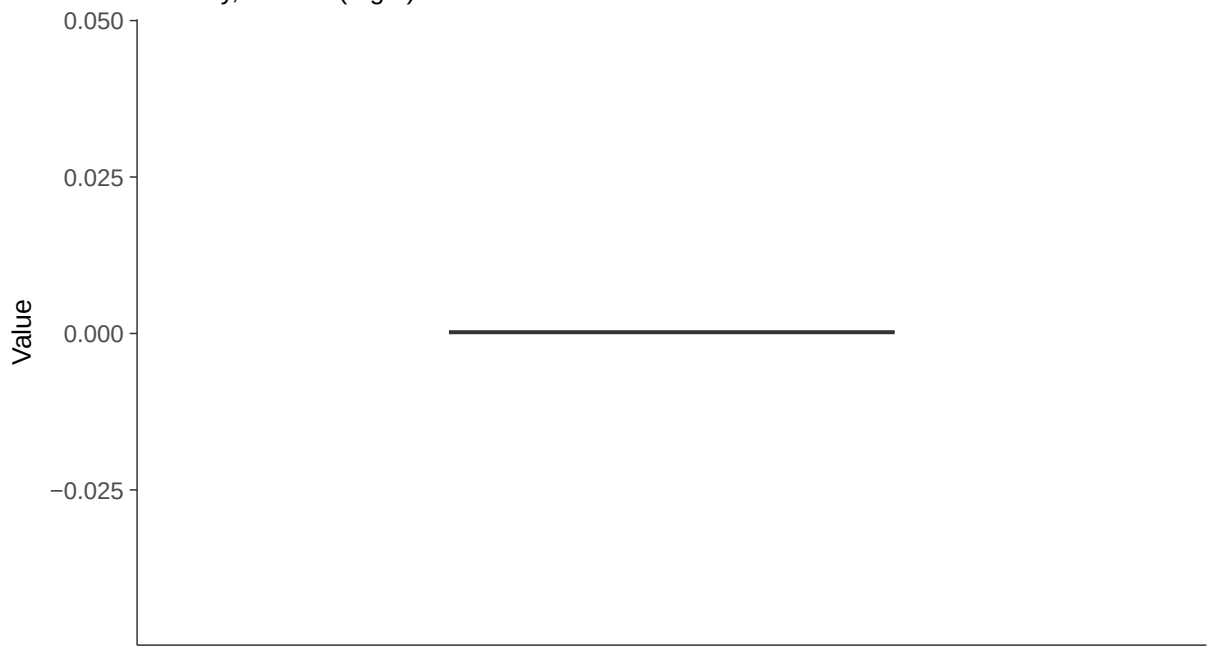
ID: 13_2_17





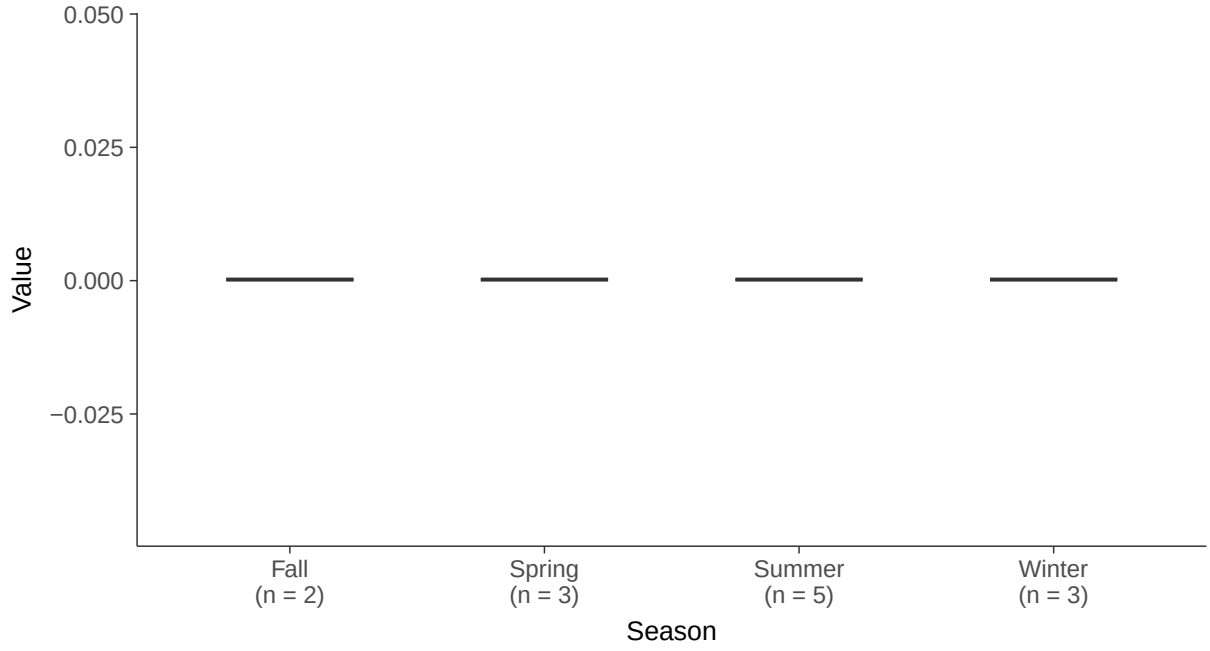
Boxplot

Mercury, MW-13 (mg/L)



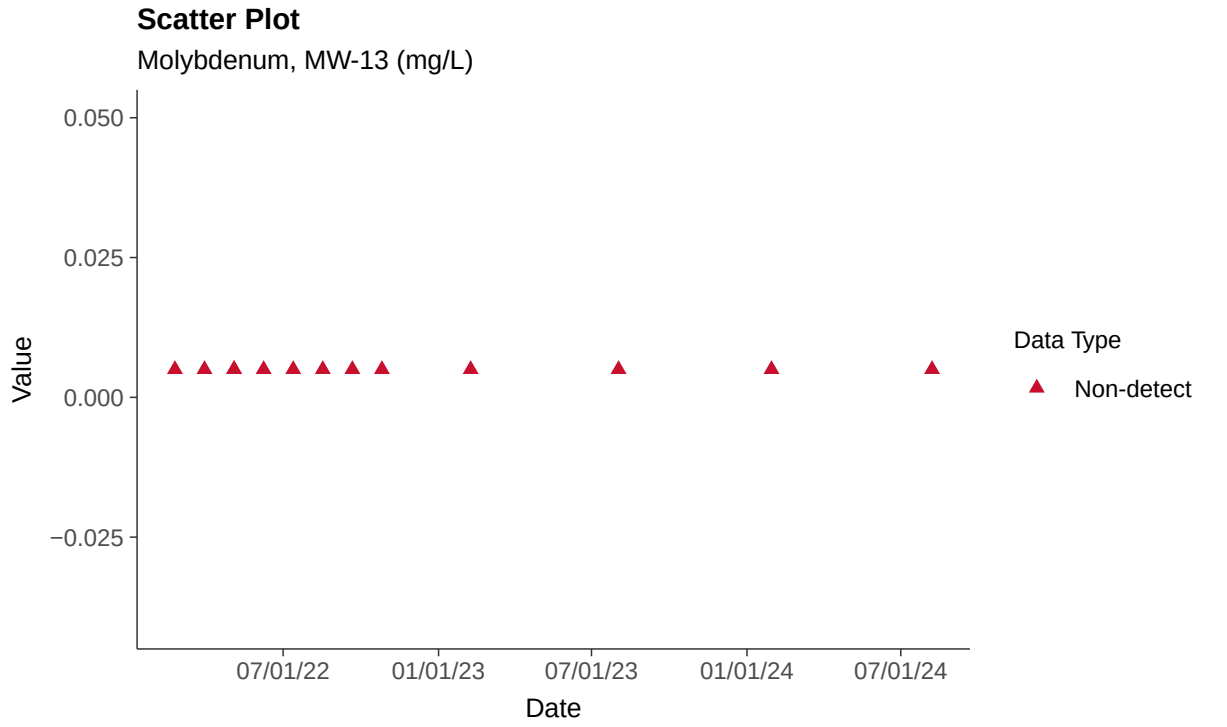
Boxplot by Season

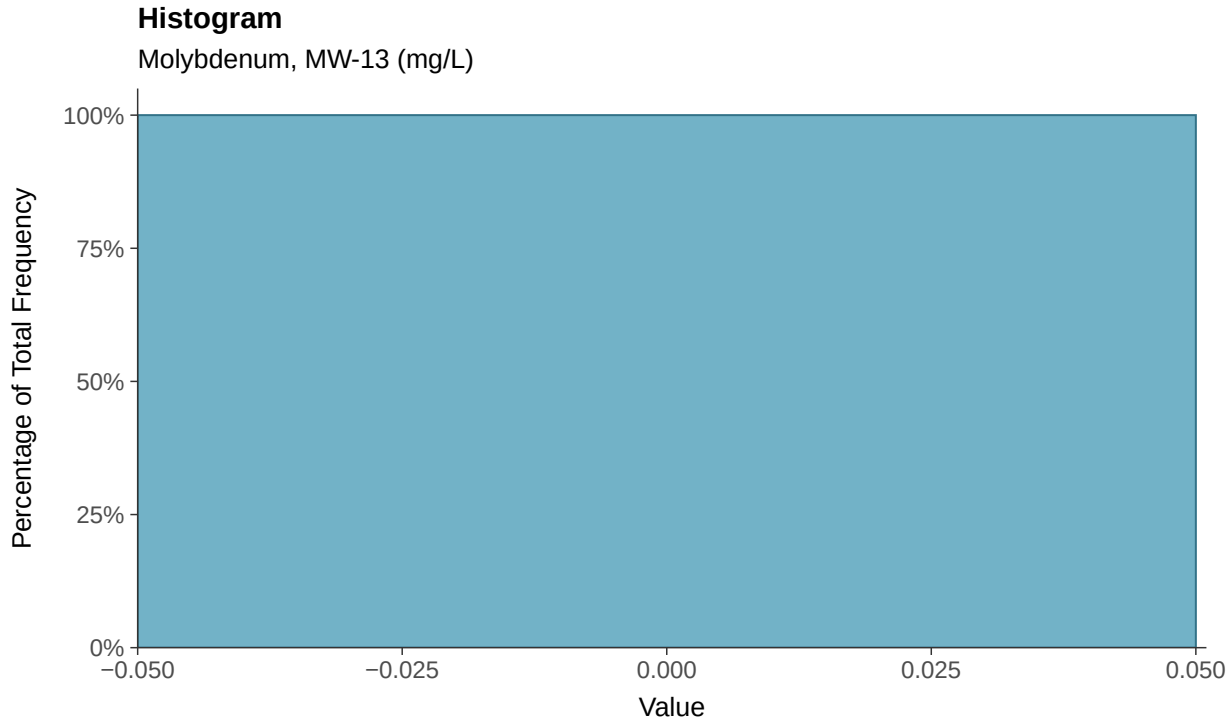
Mercury, MW-13 (mg/L)



Appendix IV: Molybdenum, MW-13

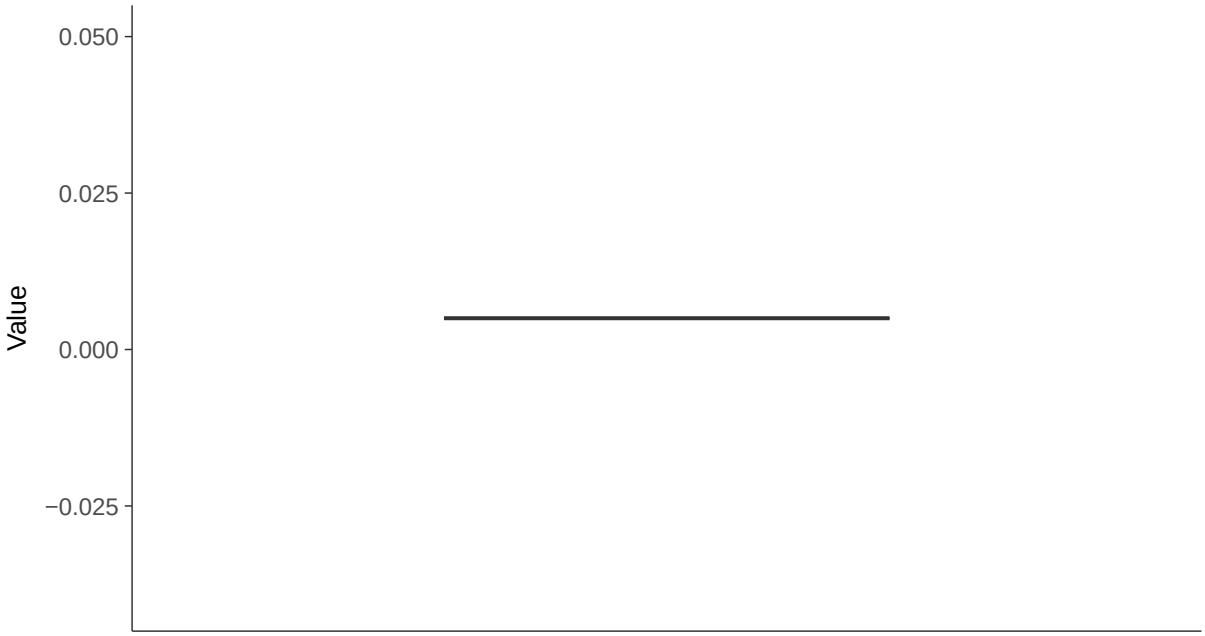
ID: 13_2_18





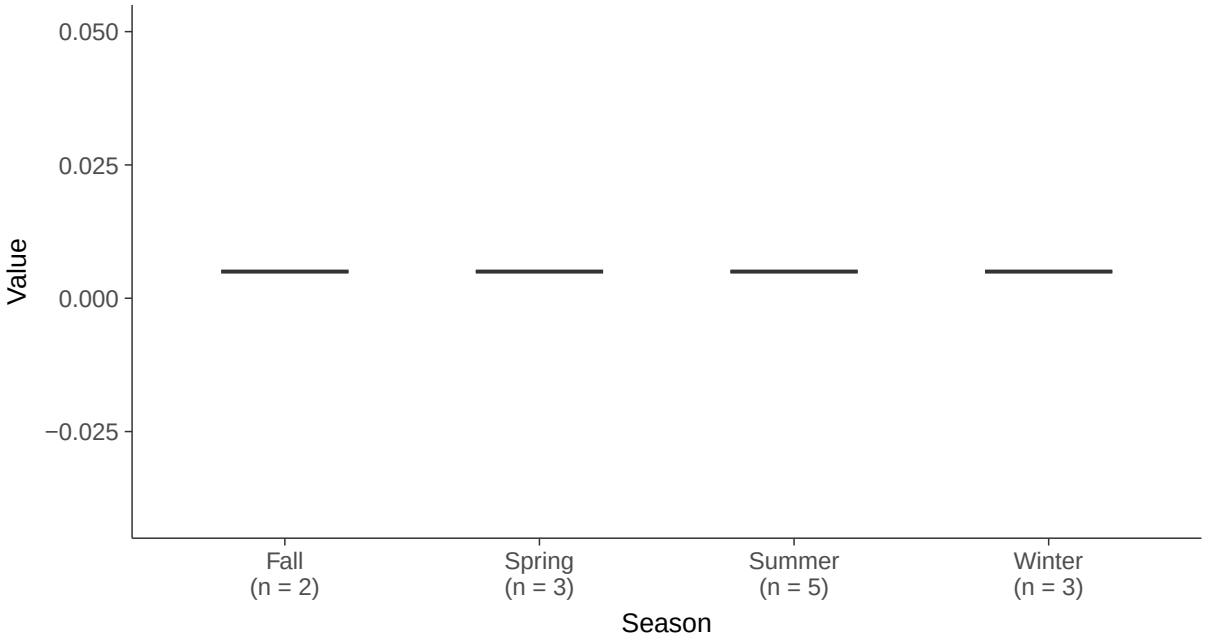
Boxplot

Molybdenum, MW-13 (mg/L)



Boxplot by Season

Molybdenum, MW-13 (mg/L)

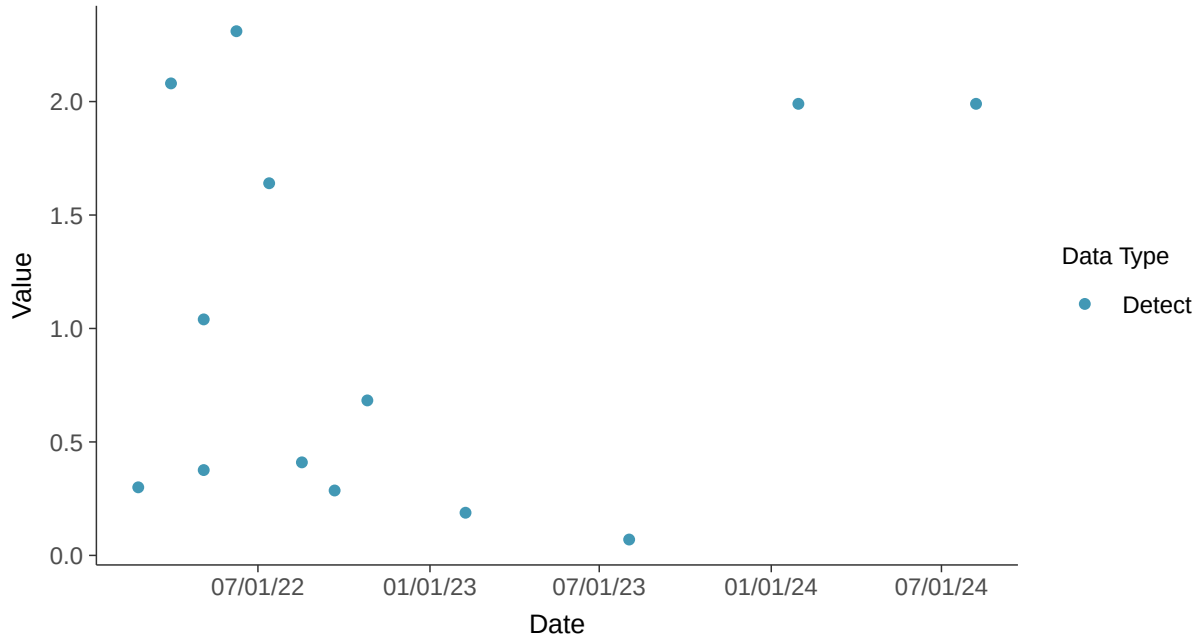


Appendix IV: Radium-226/228, MW-13

ID: 13_2_21

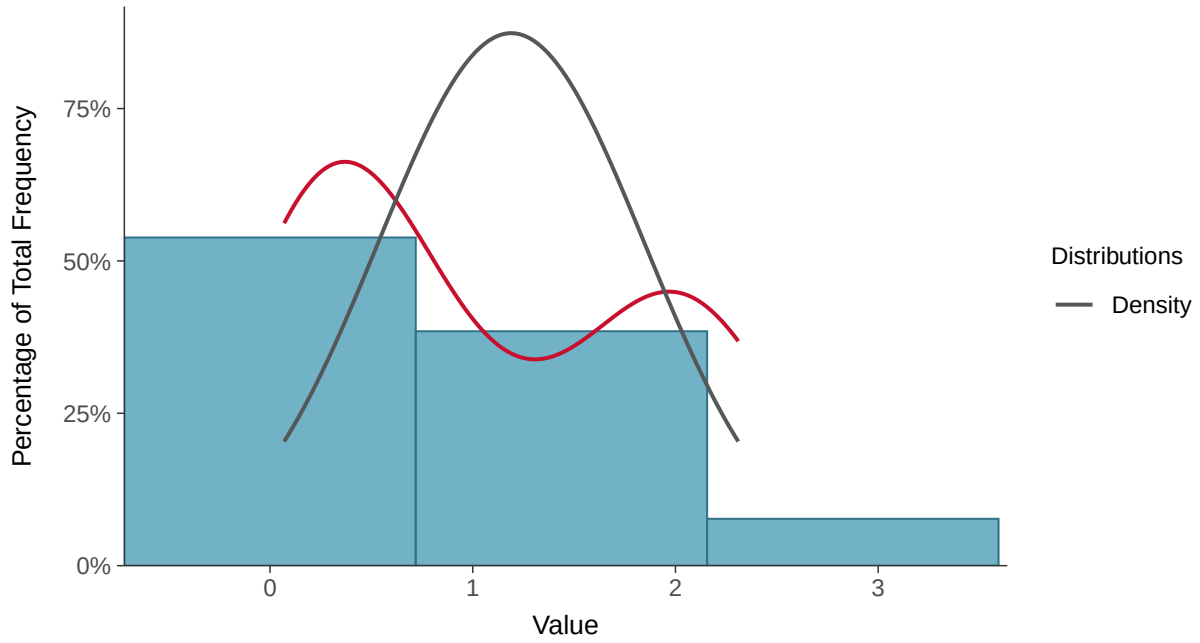
Scatter Plot

Radium-226/228, MW-13 (pCi/L)



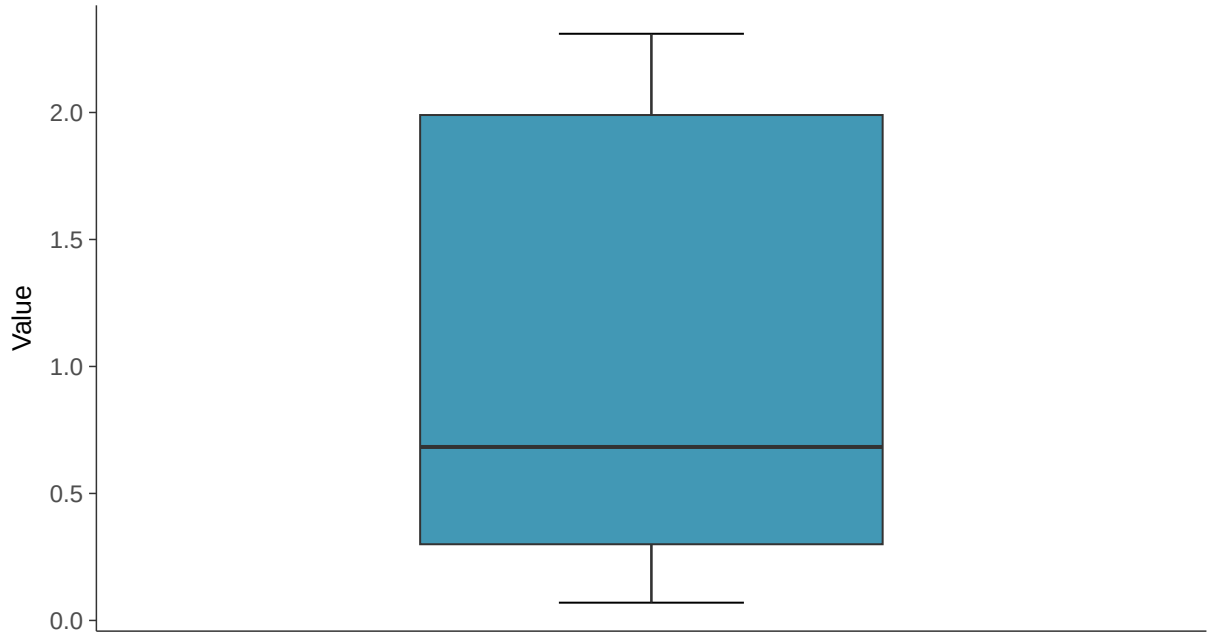
Histogram

Radium-226/228, MW-13 (pCi/L)



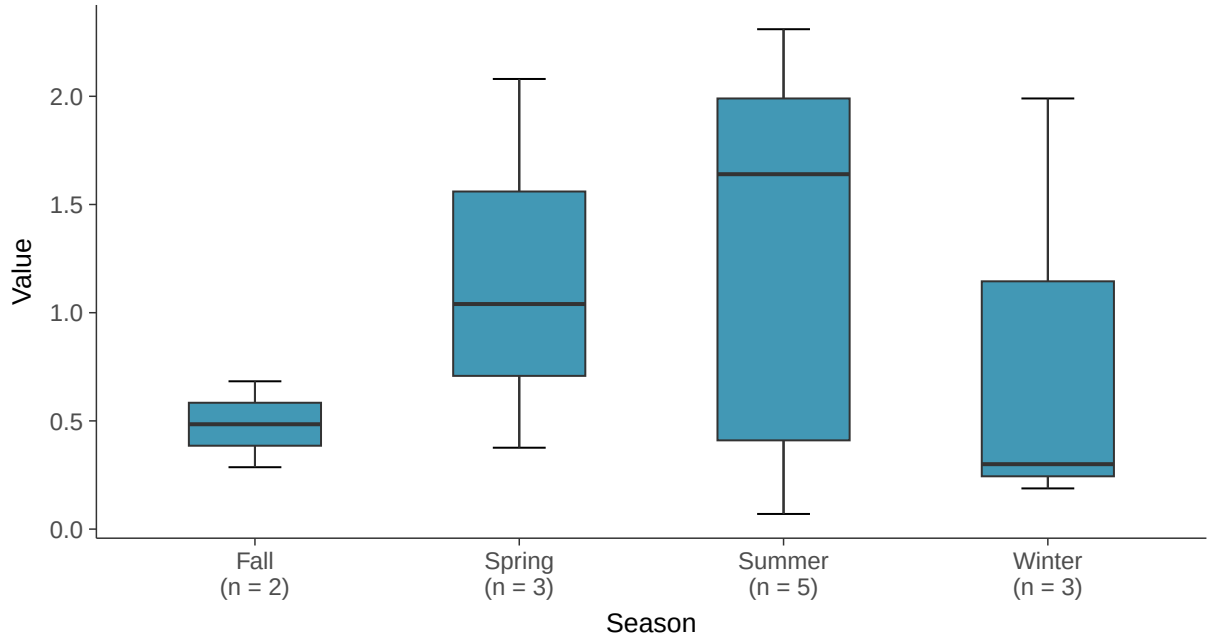
Boxplot

Radium-226/228, MW-13 (pCi/L)



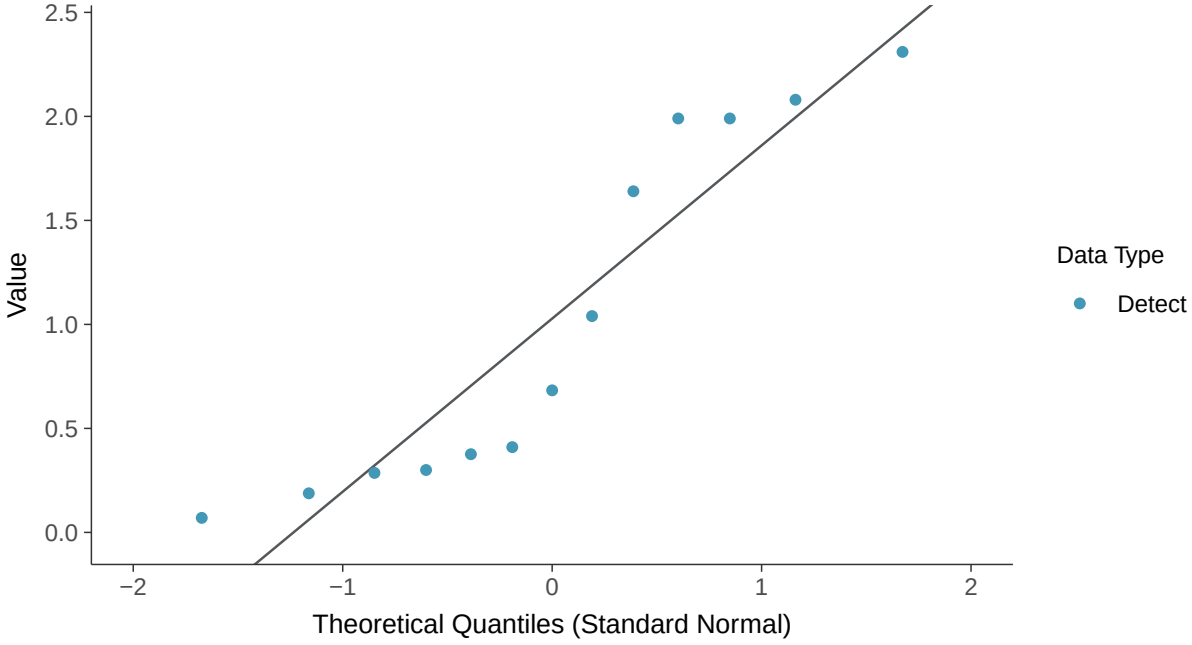
Boxplot by Season

Radium-226/228, MW-13 (pCi/L)



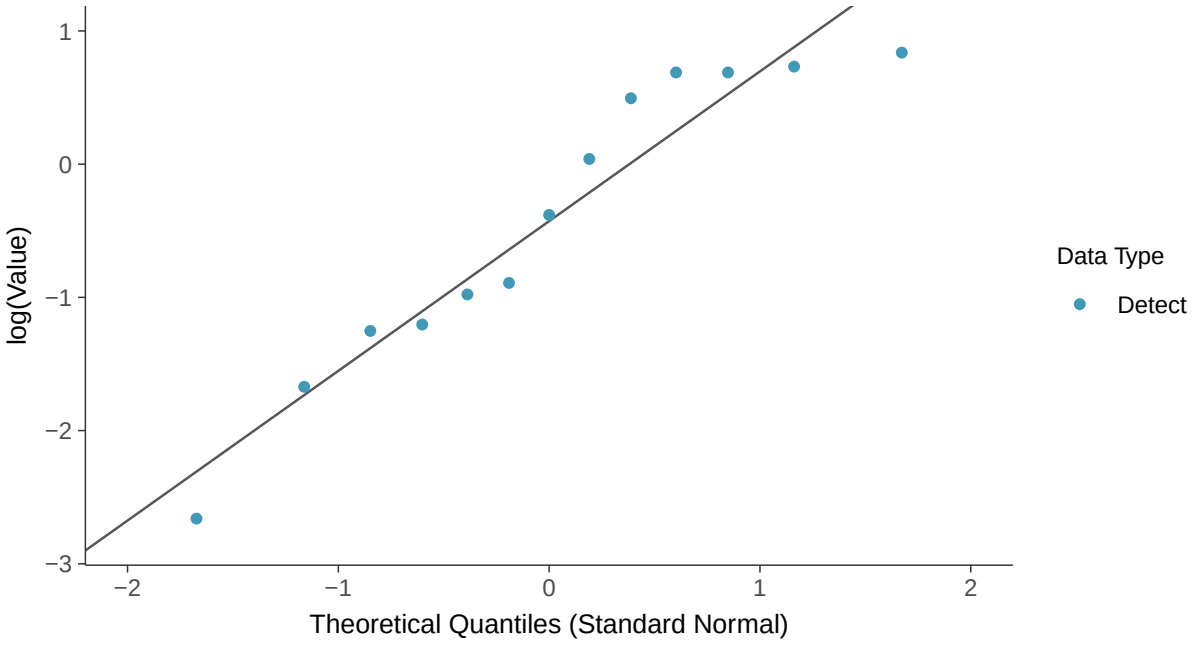
Normal Q-Q plot

Radium-226/228, MW-13 (pCi/L)



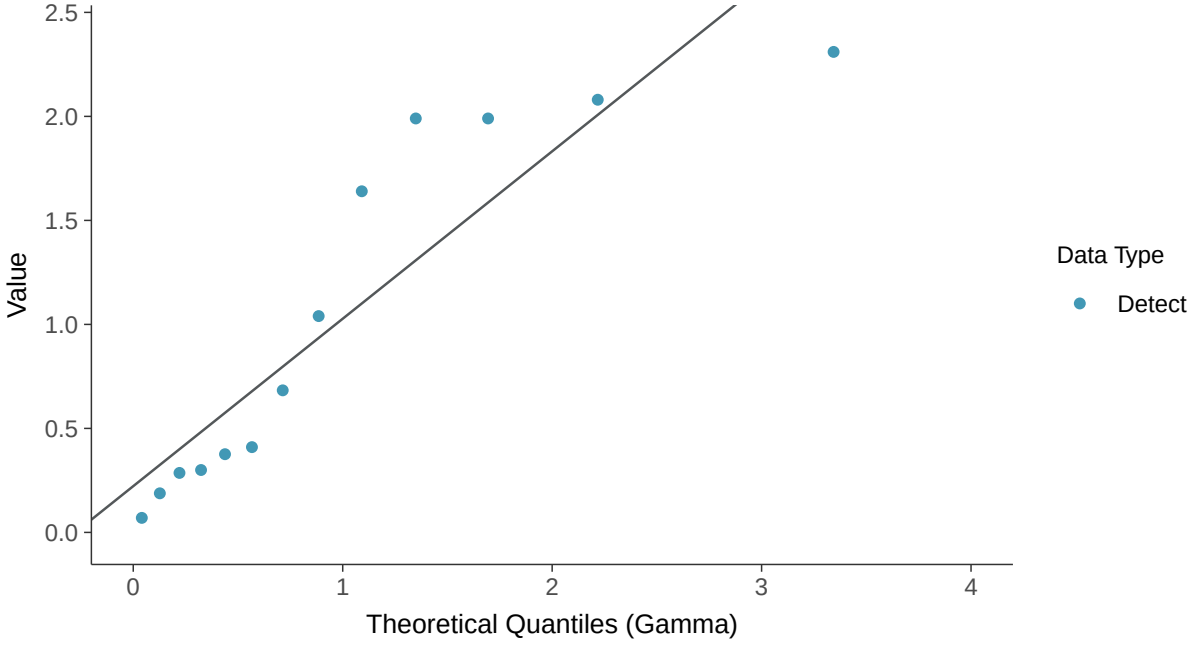
Lognormal Q-Q plot

Radium-226/228, MW-13 (pCi/L)



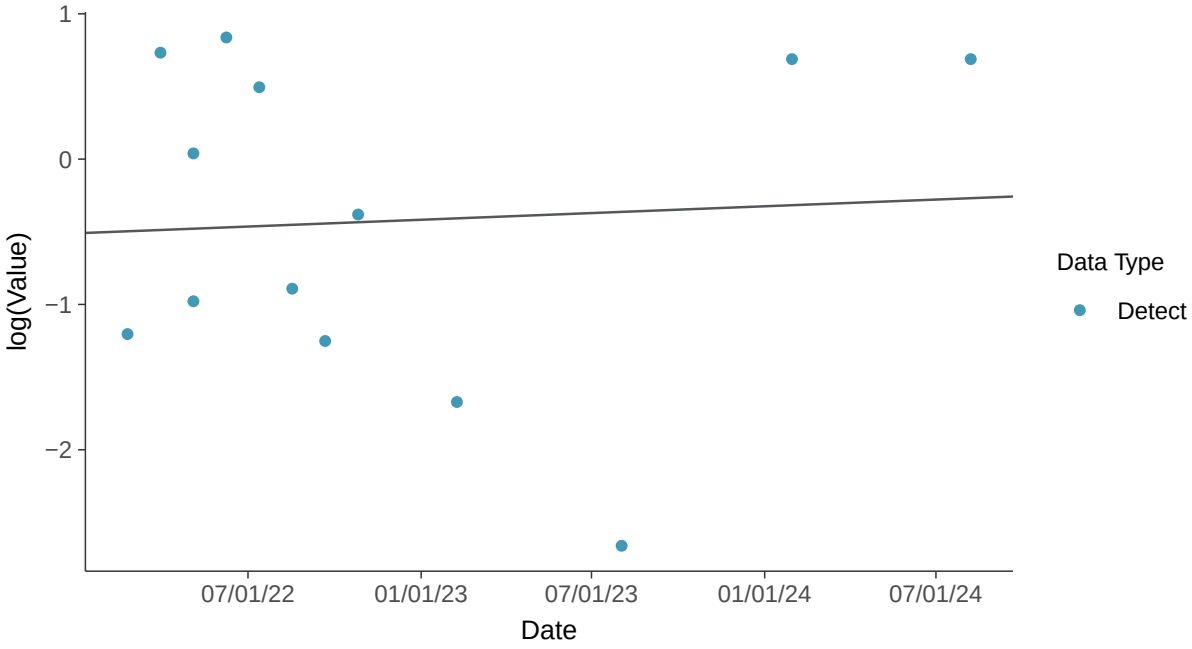
Gamma Q-Q plot

Radium-226/228, MW-13 (pCi/L)



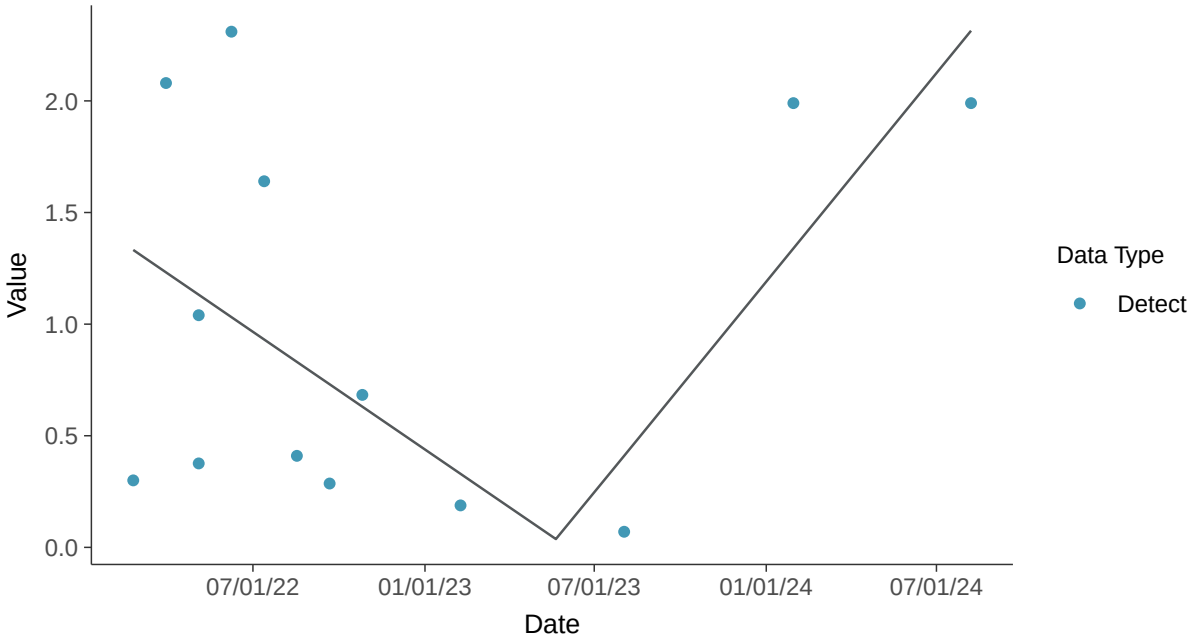
Trend Regression: Lognormal MLE

Radium-226/228, MW-13 (pCi/L)



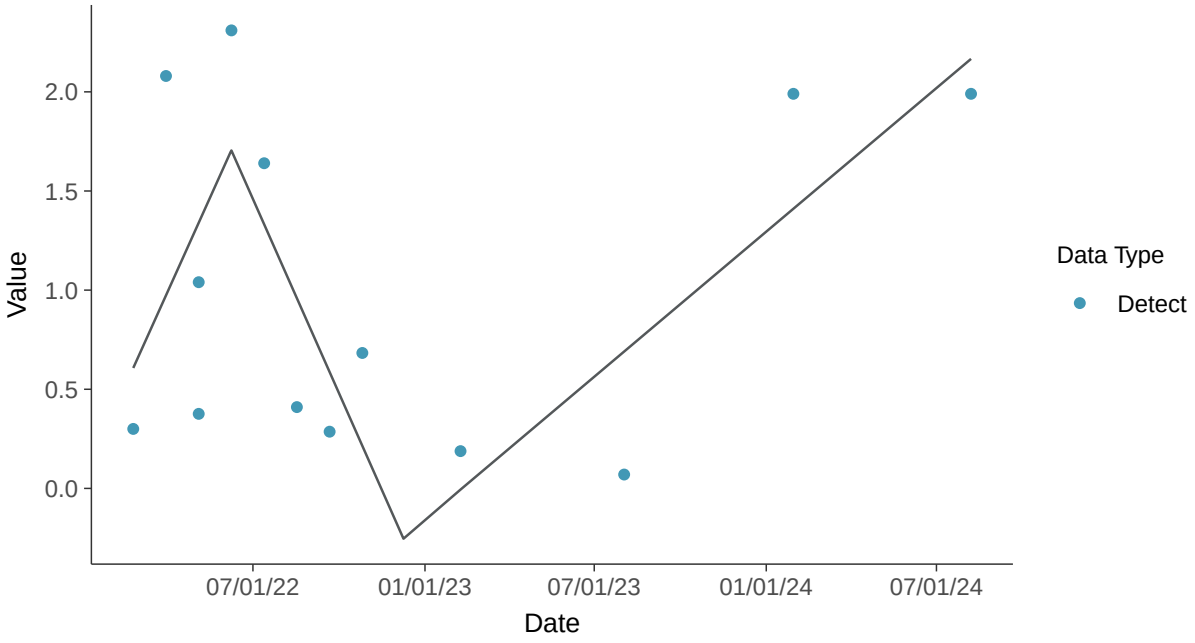
Trend Regression: Piecewise Linear-Linear

Radium-226/228, MW-13 (pCi/L)



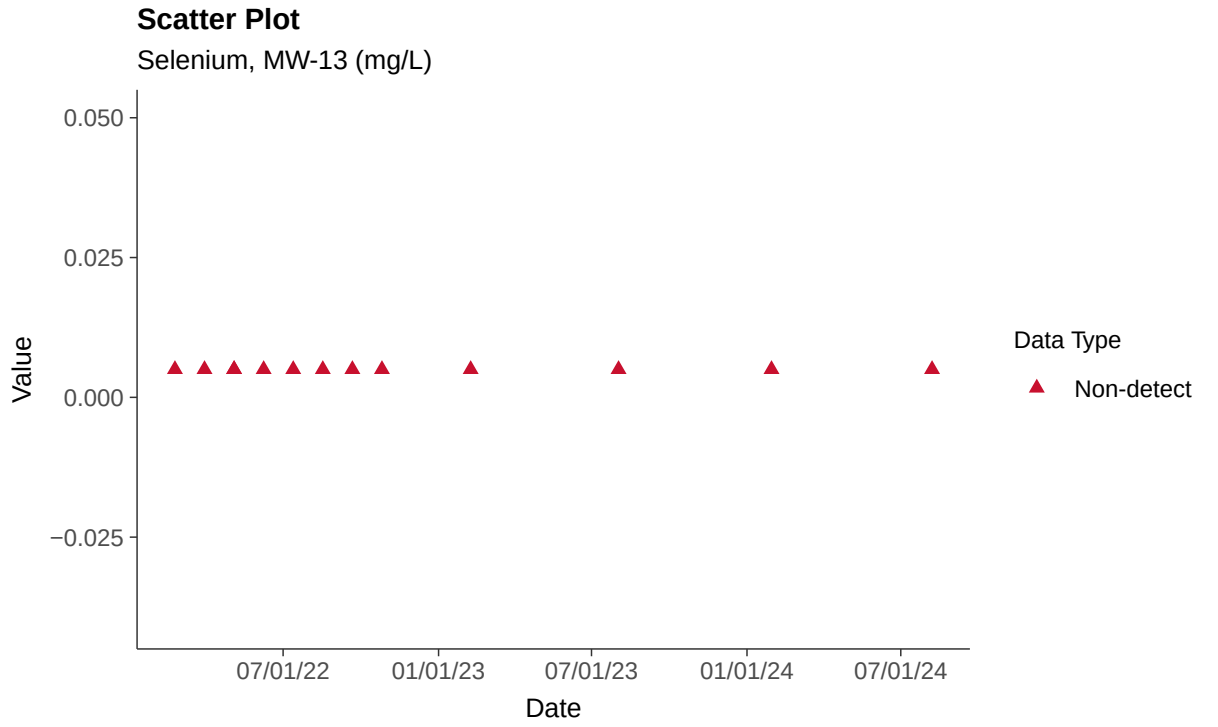
Trend Regression: Piecewise Linear-Linear-Linear

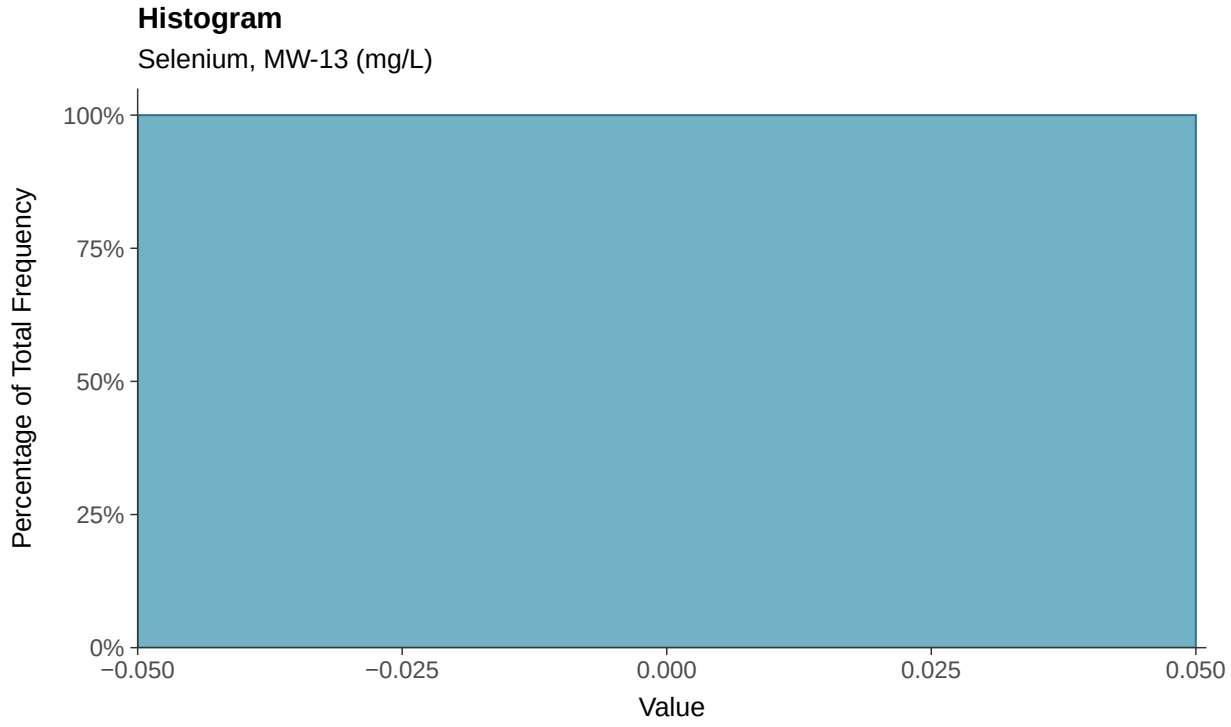
Radium-226/228, MW-13 (pCi/L)



Appendix IV: Selenium, MW-13

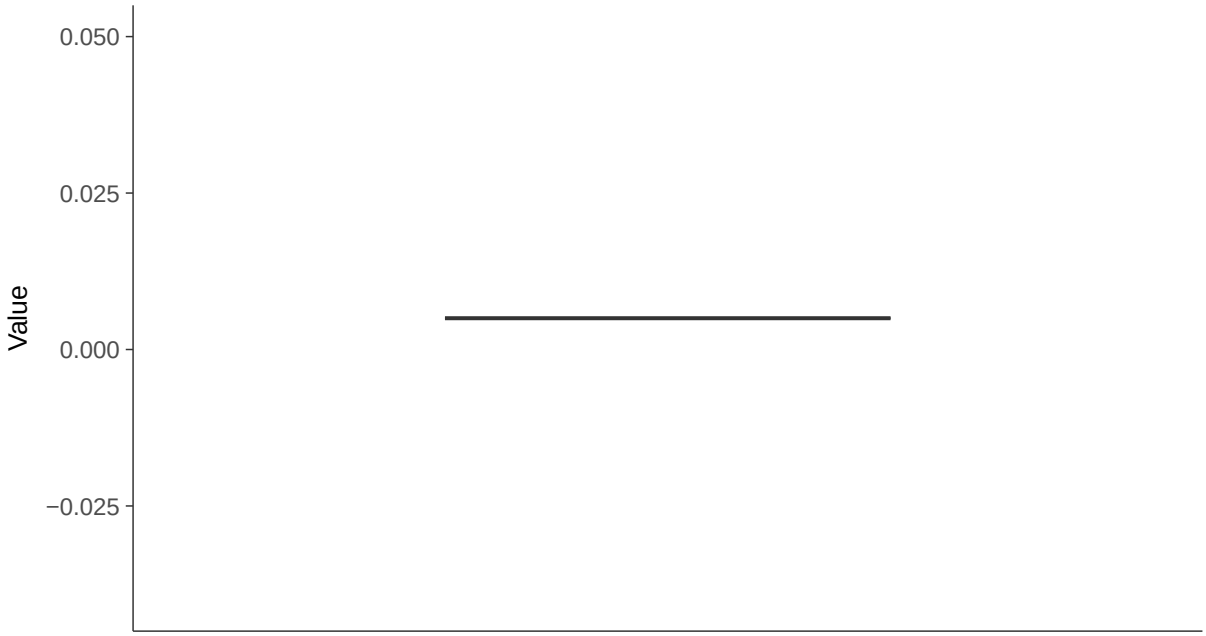
ID: 13_2_22





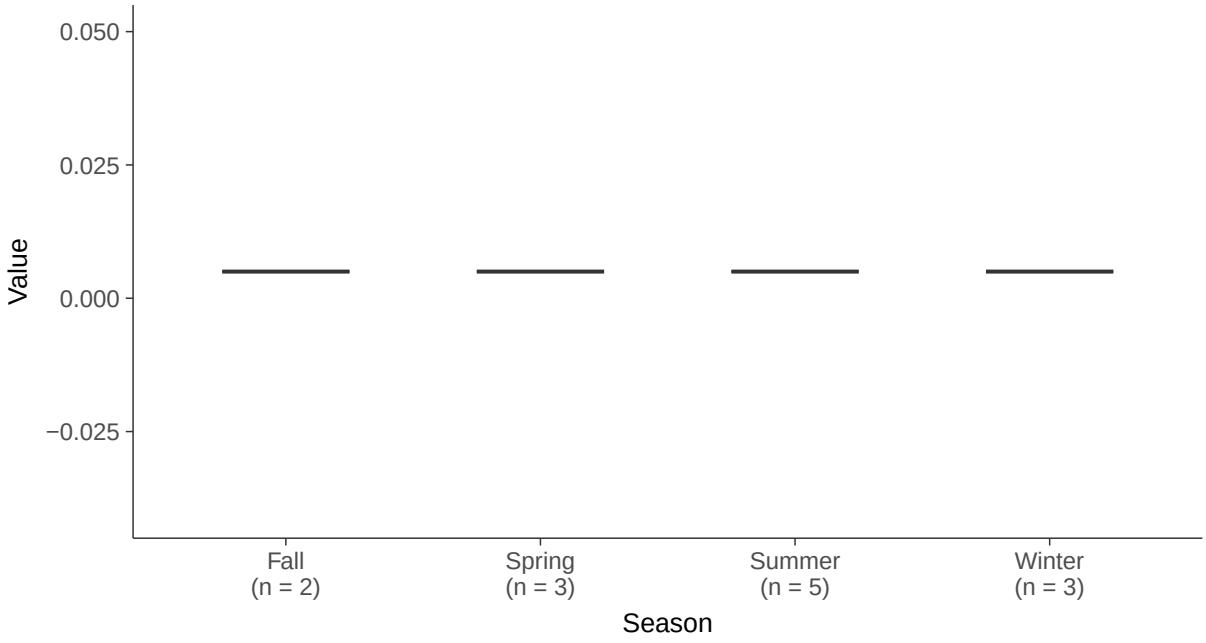
Boxplot

Selenium, MW-13 (mg/L)



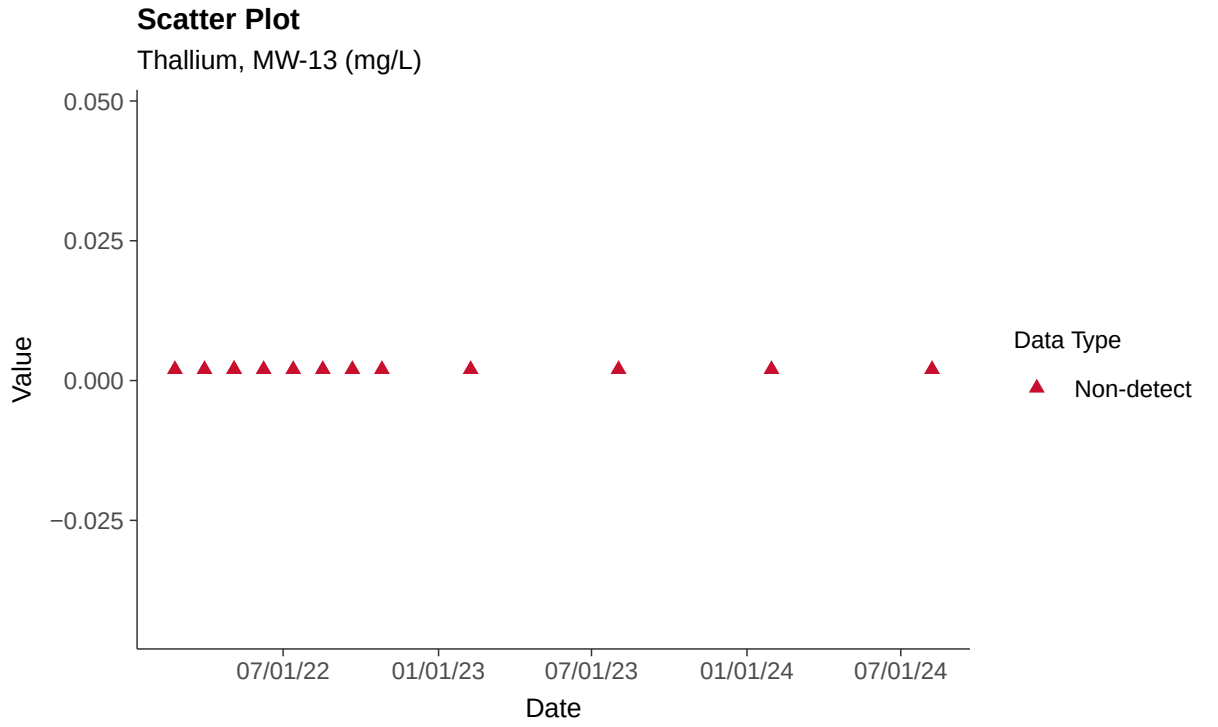
Boxplot by Season

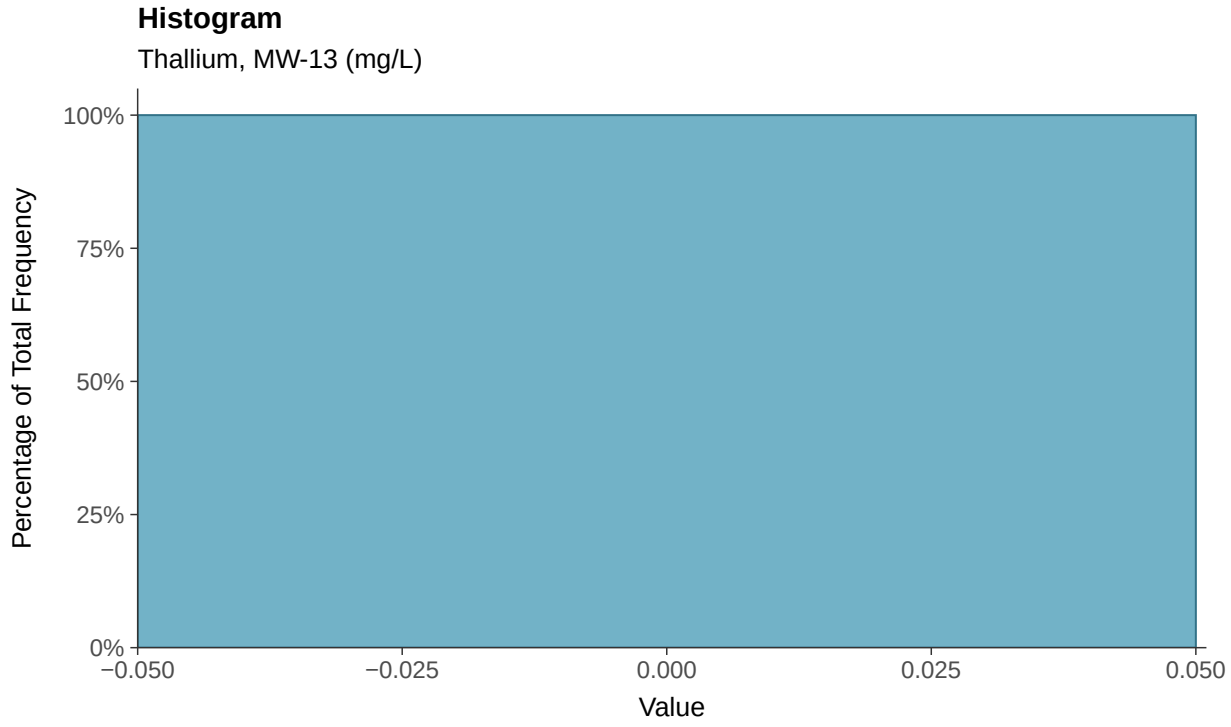
Selenium, MW-13 (mg/L)



Appendix IV: Thallium, MW-13

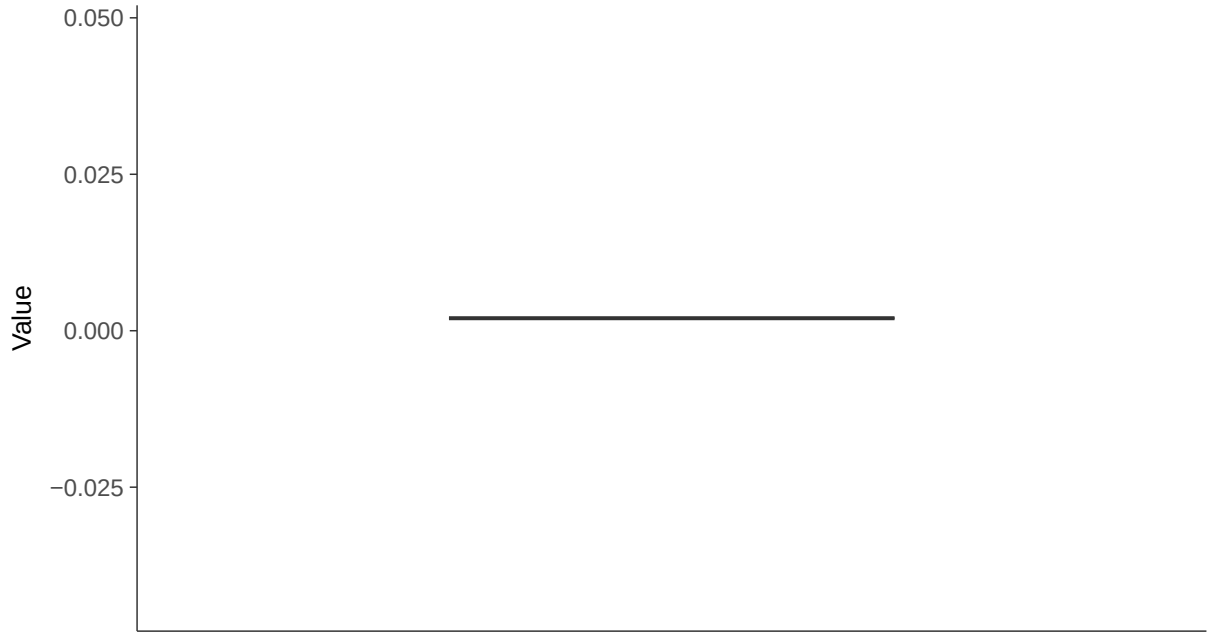
ID: 13_2_23





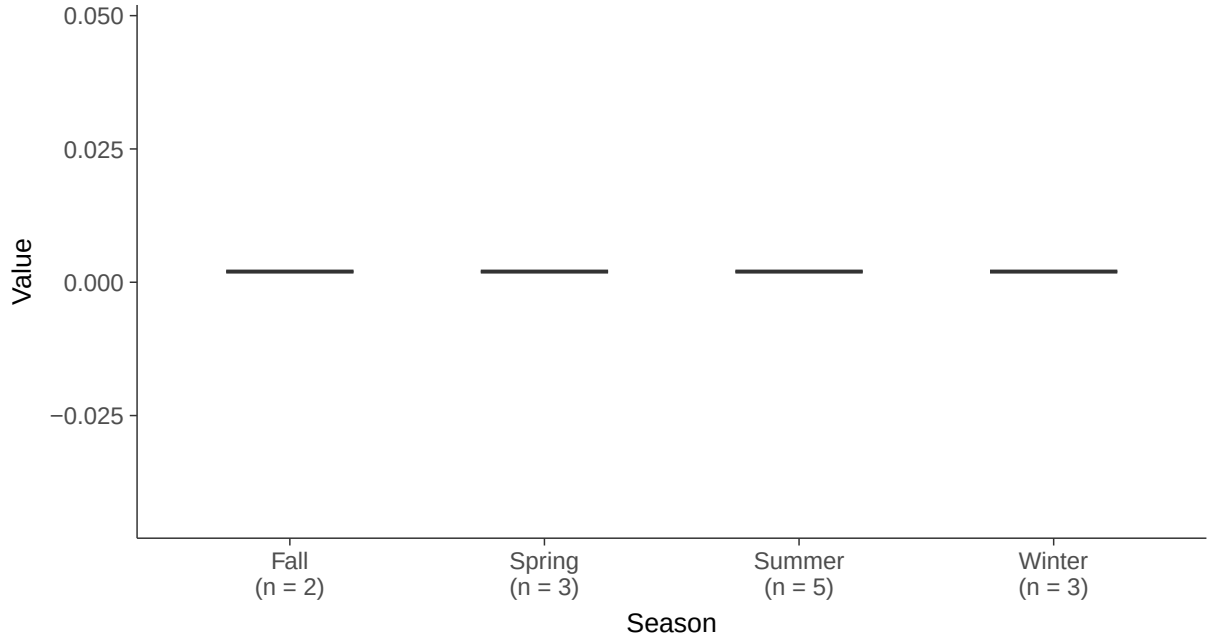
Boxplot

Thallium, MW-13 (mg/L)



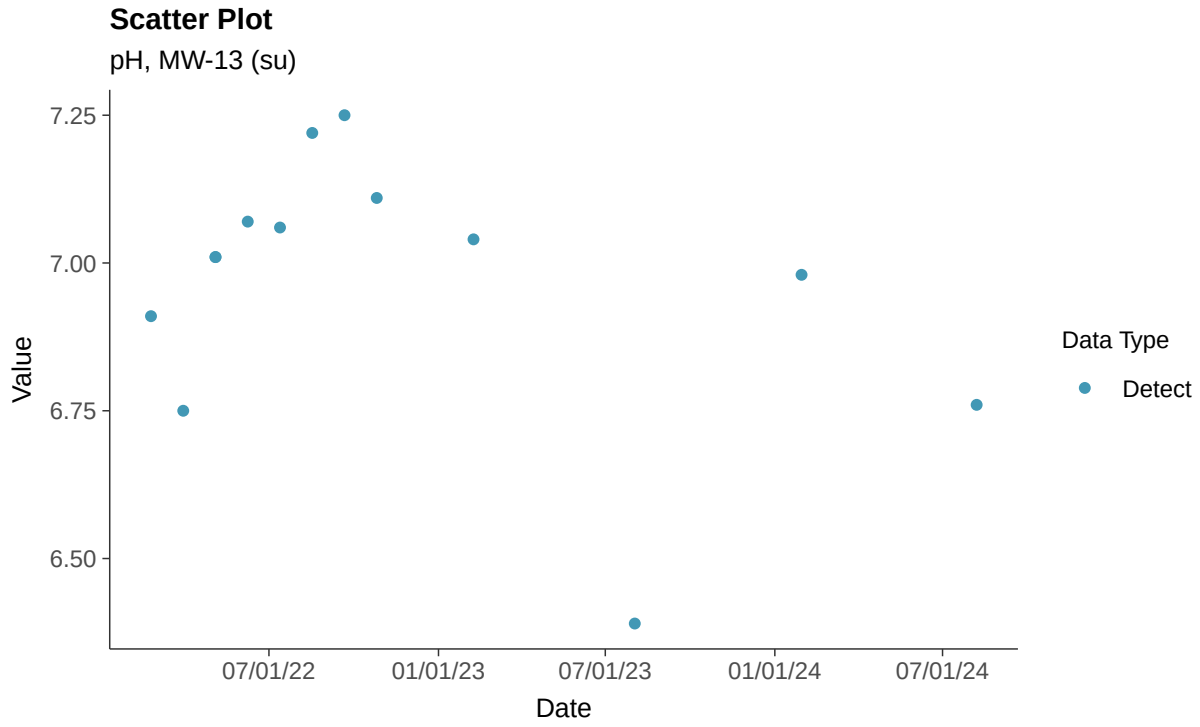
Boxplot by Season

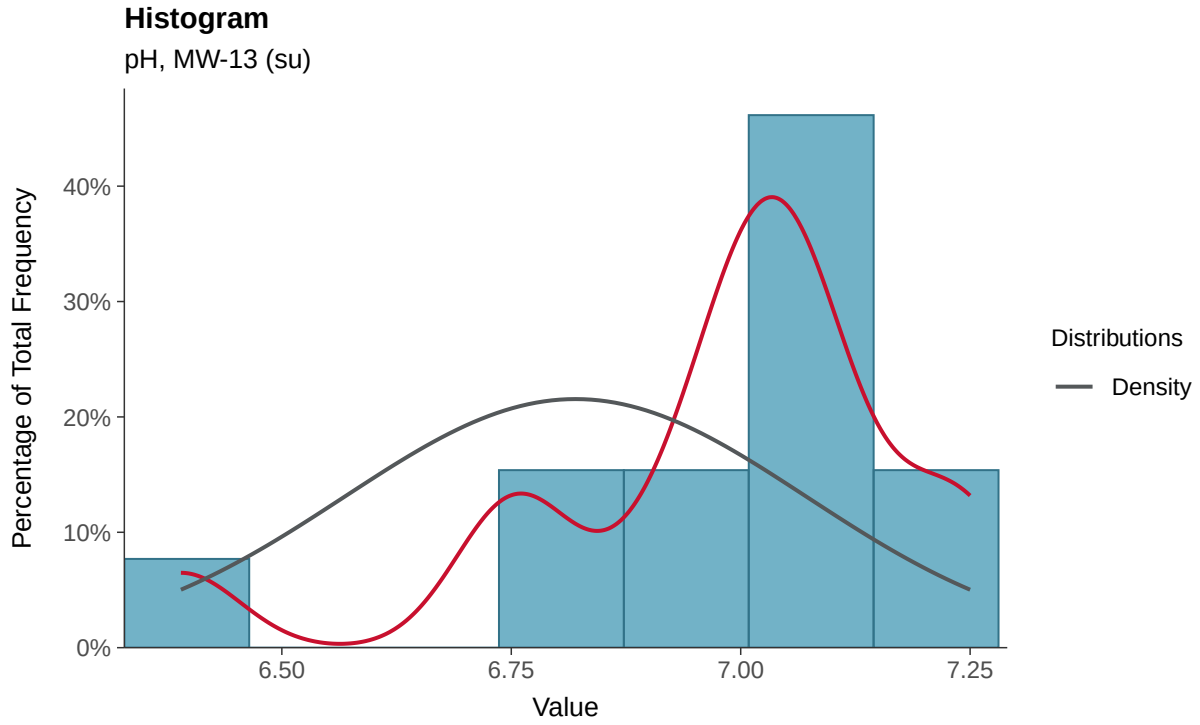
Thallium, MW-13 (mg/L)



Field Parameters: pH, MW-13

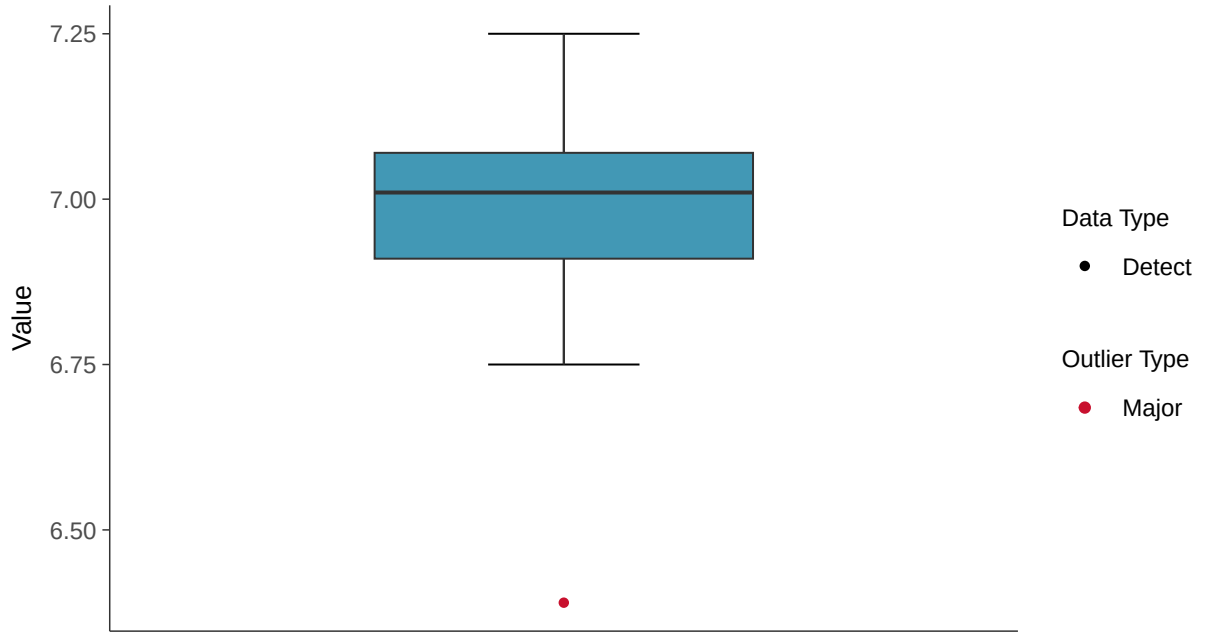
ID: 13_3_24





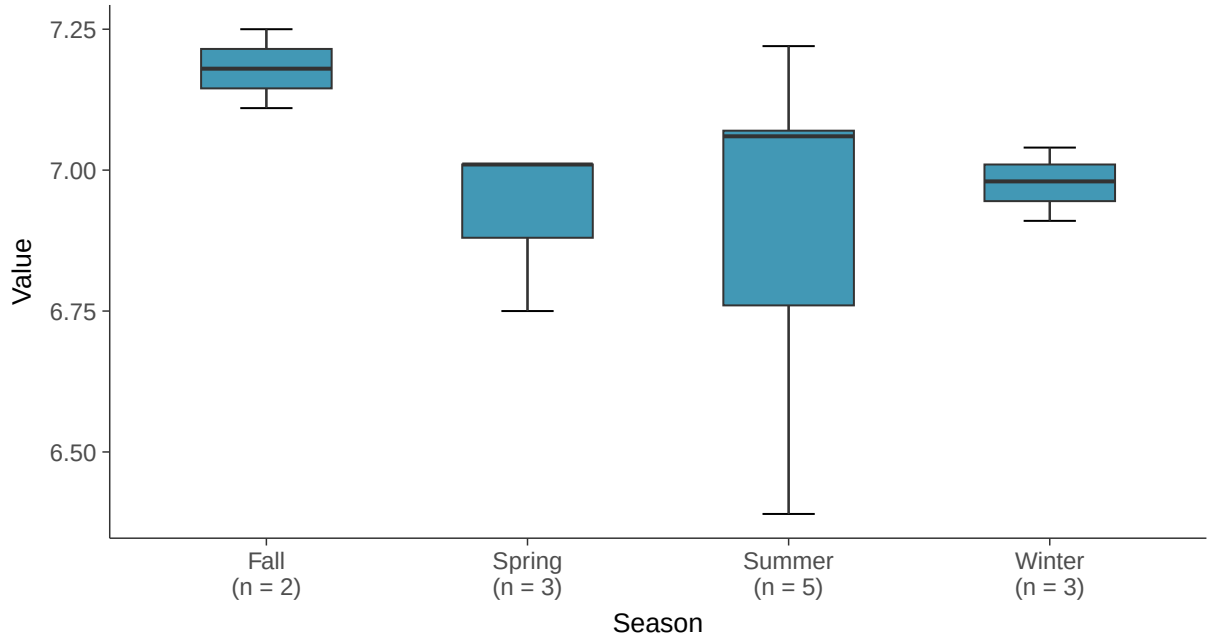
Boxplot

pH, MW-13 (su)



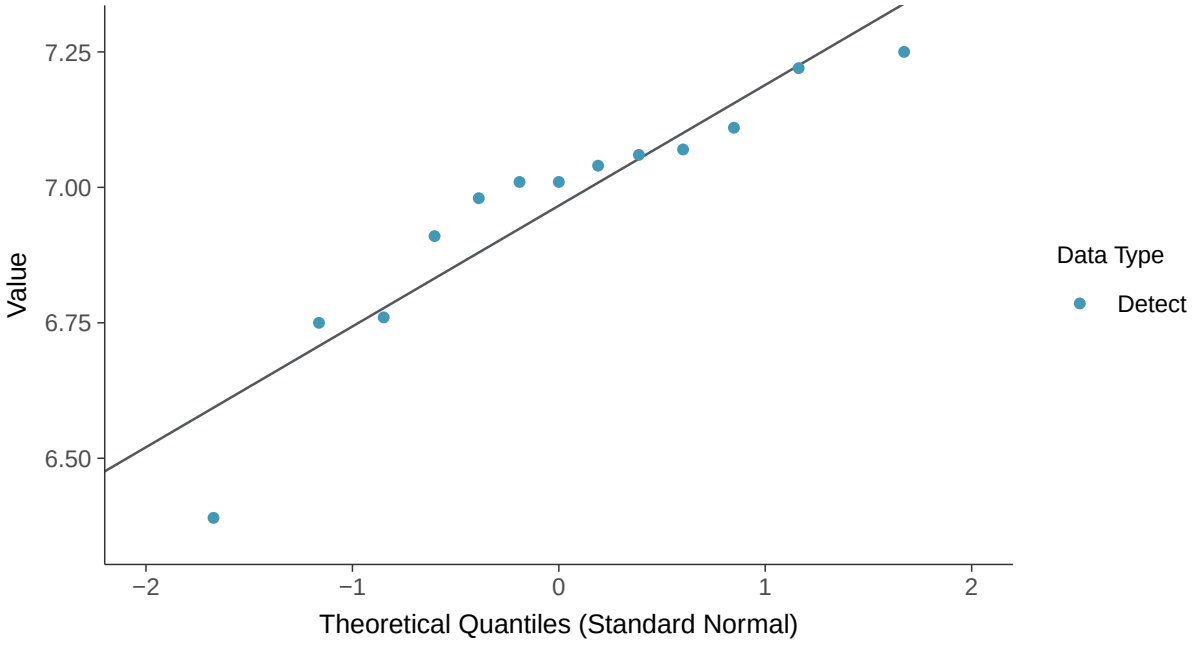
Boxplot by Season

pH, MW-13 (su)



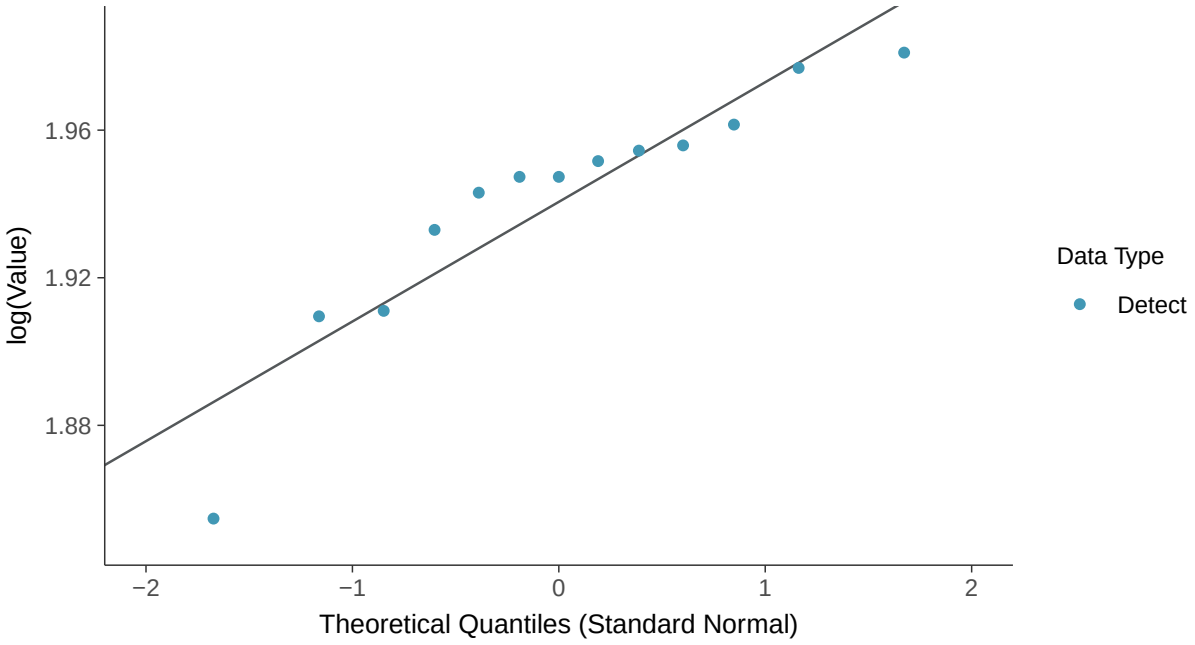
Normal Q-Q plot

pH, MW-13 (su)



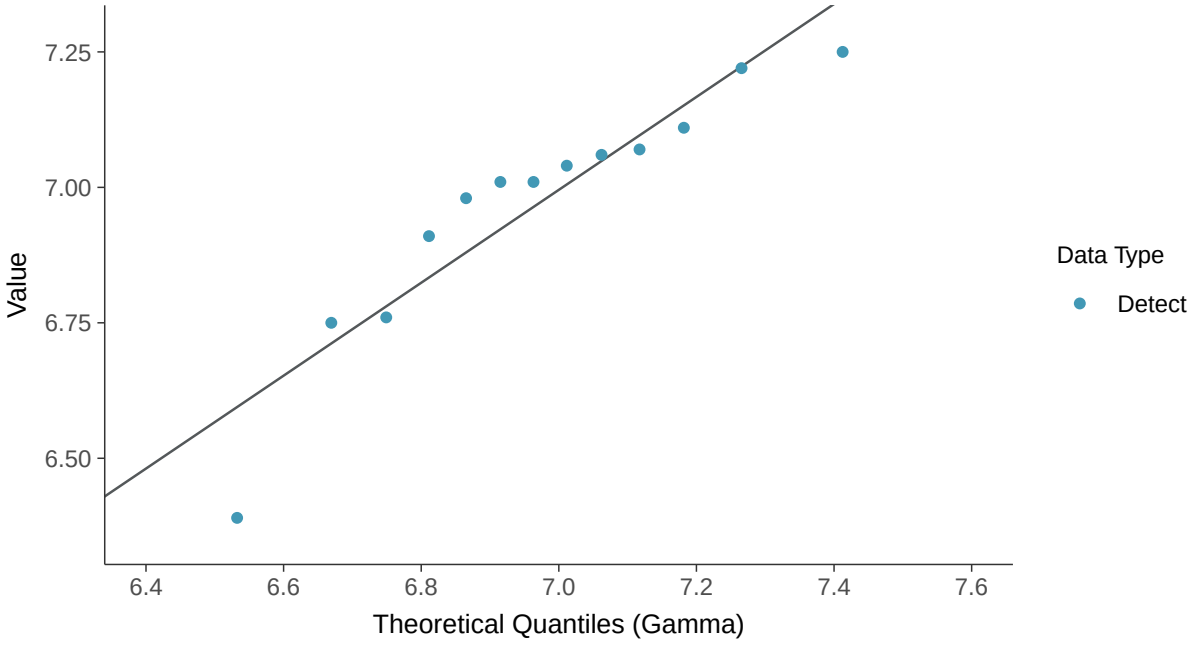
Lognormal Q-Q plot

pH, MW-13 (su)



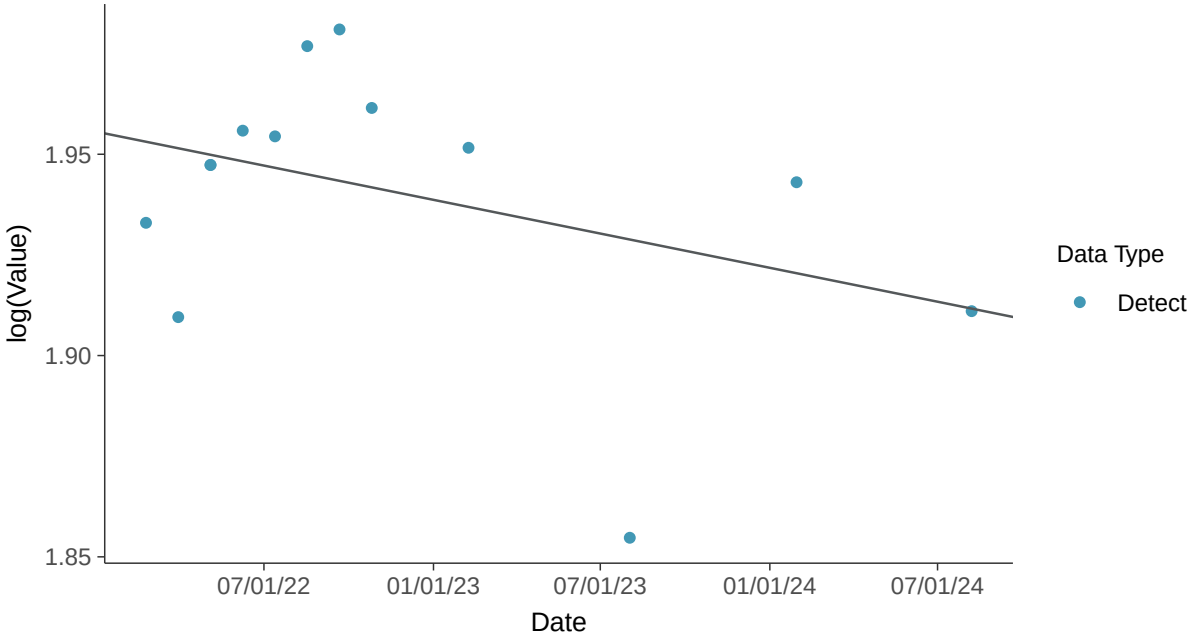
Gamma Q-Q plot

pH, MW-13 (su)



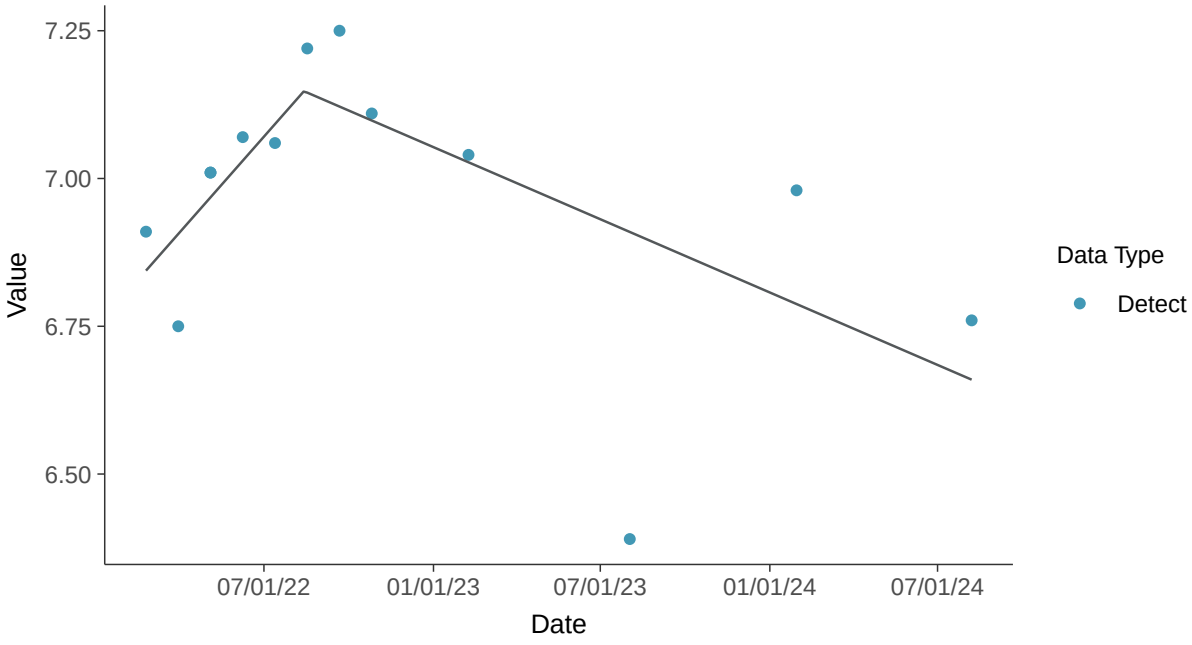
Trend Regression: Lognormal MLE

pH, MW-13 (su)



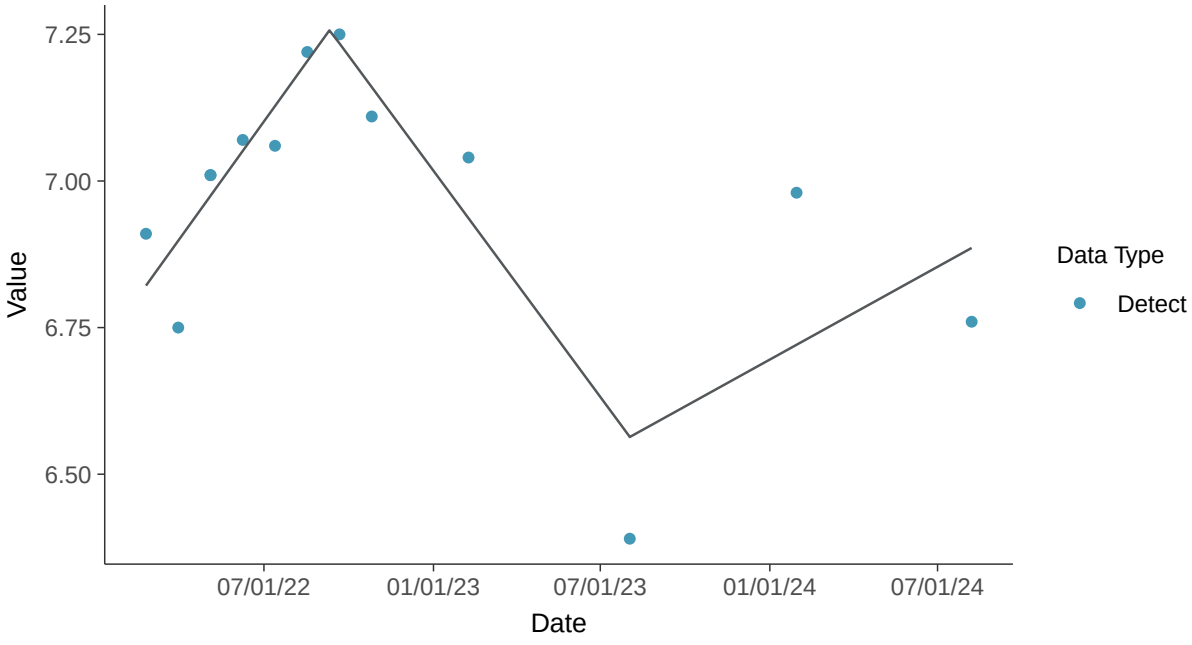
Trend Regression: Piecewise Linear-Linear

pH, MW-13 (su)



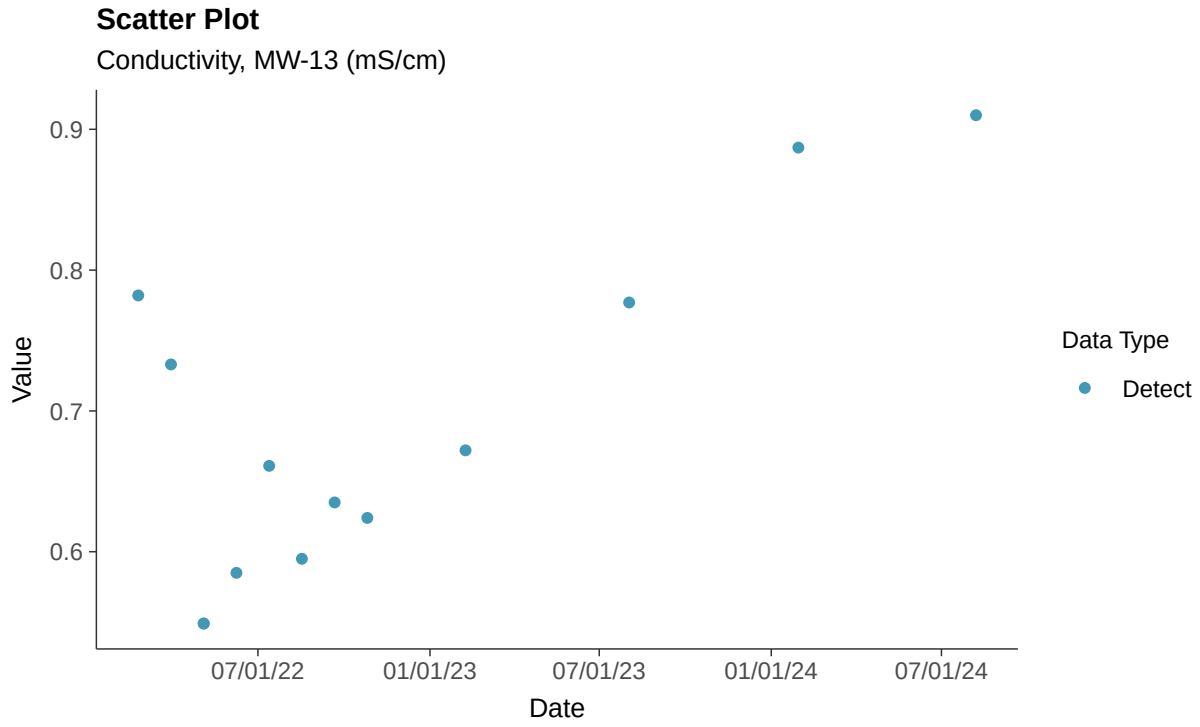
Trend Regression: Piecewise Linear-Linear-Linear

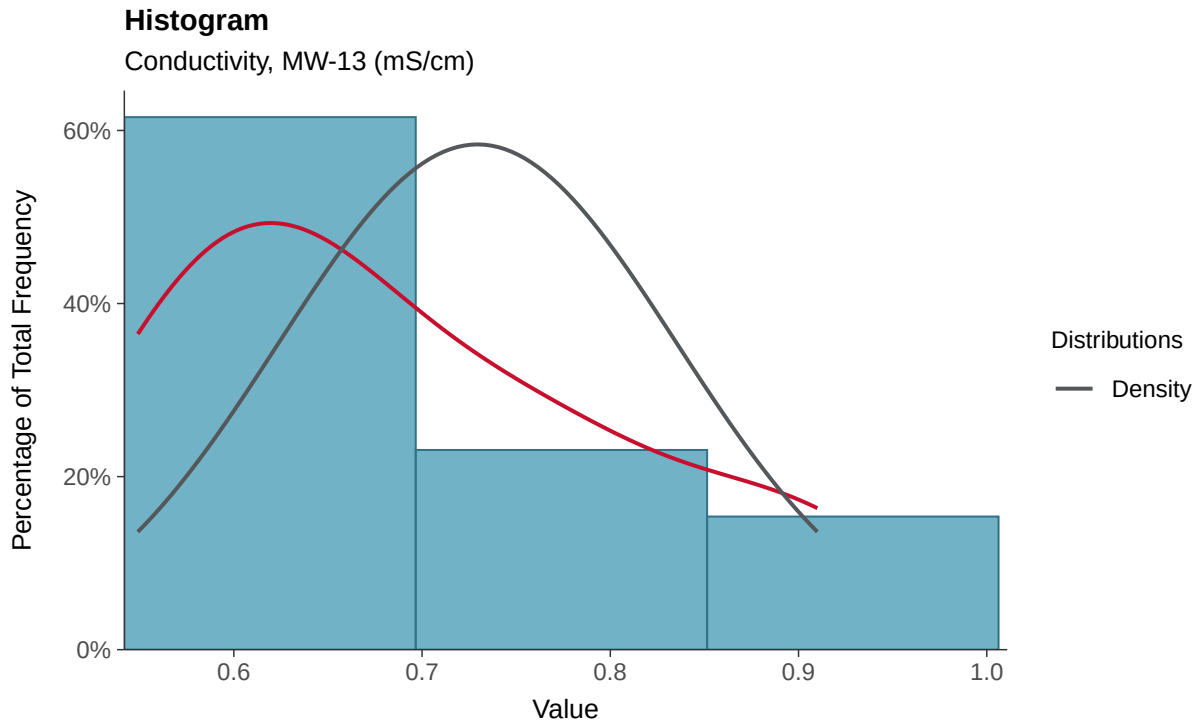
pH, MW-13 (su)



Field Parameters: Conductivity, MW-13

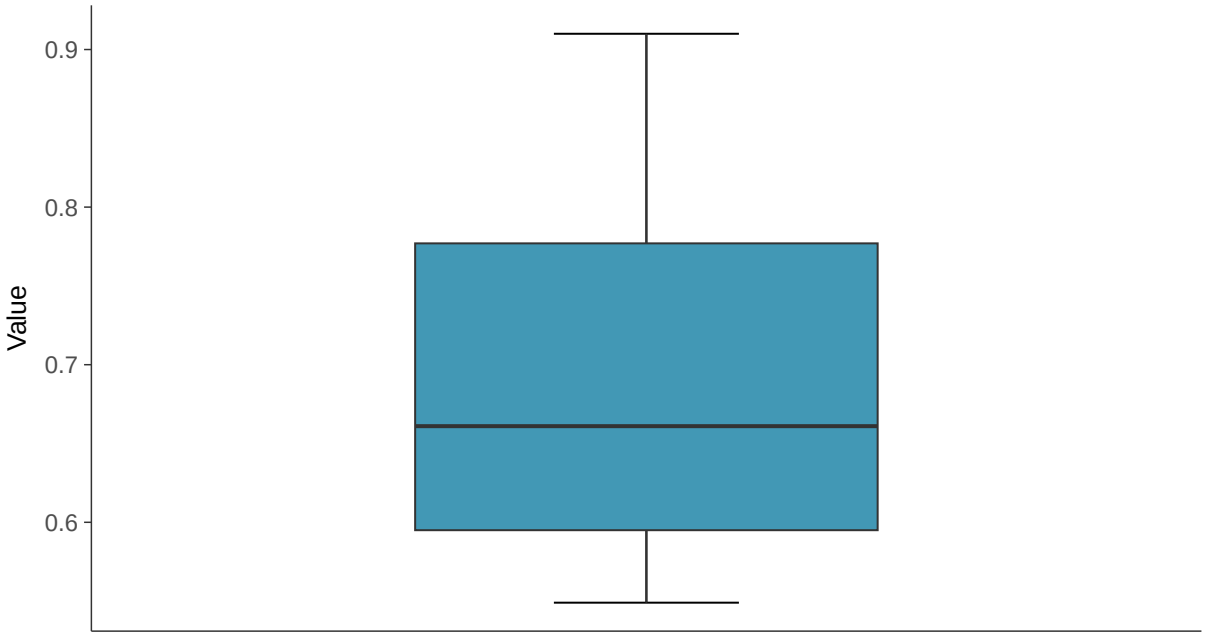
ID: 13_3_25





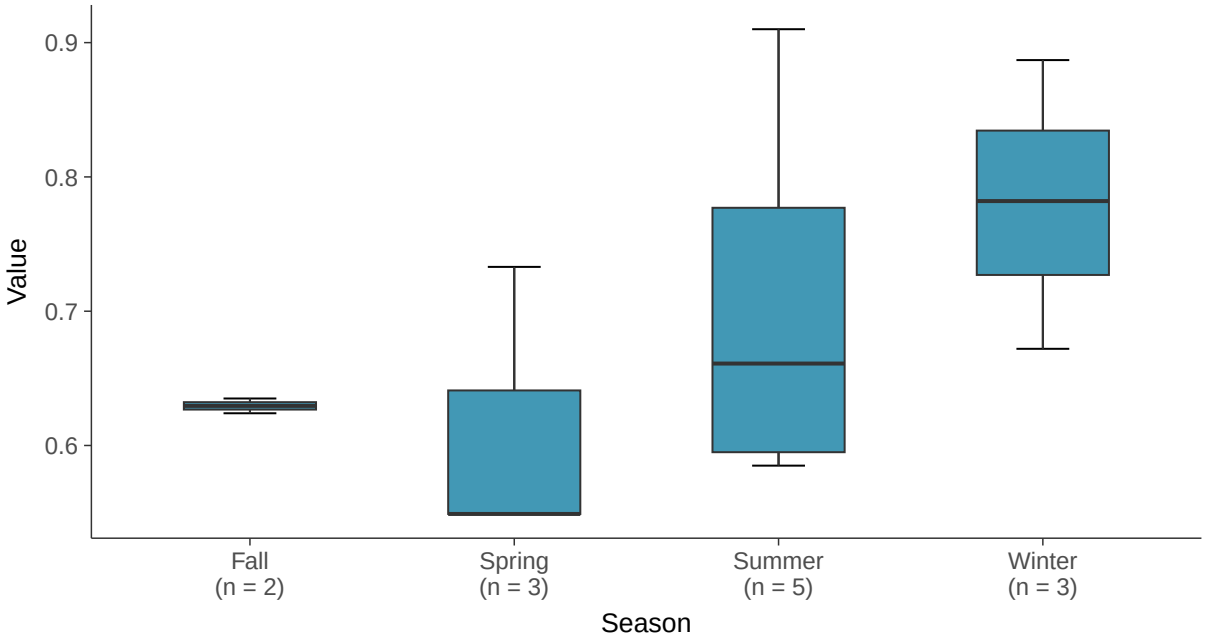
Boxplot

Conductivity, MW-13 (mS/cm)



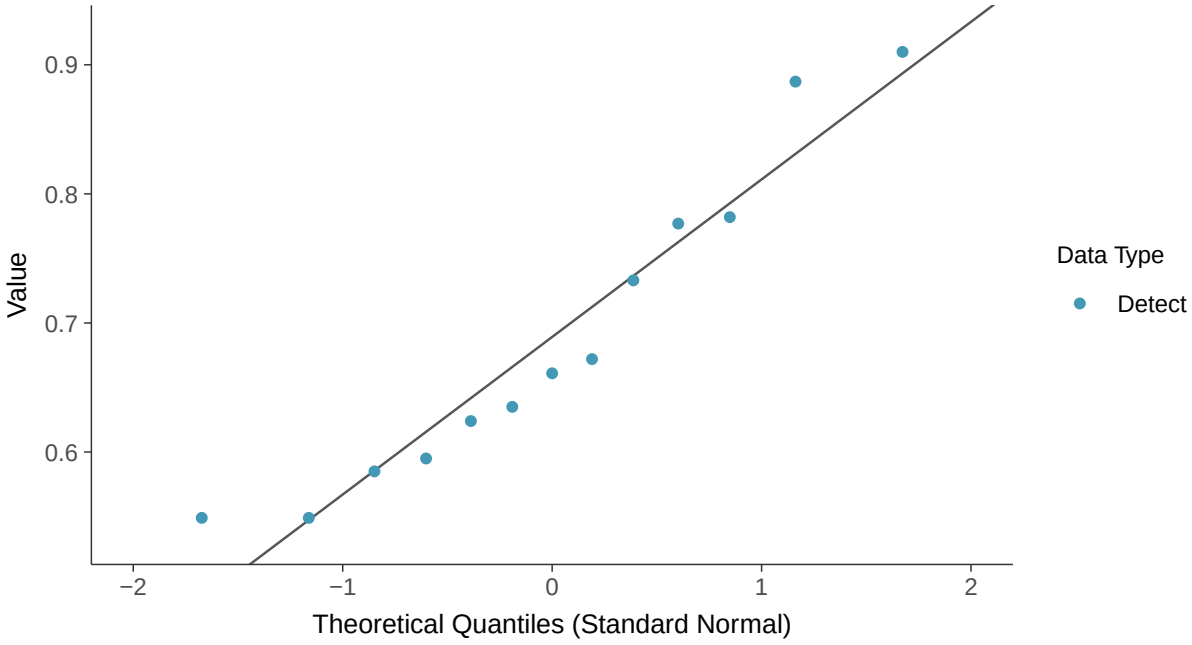
Boxplot by Season

Conductivity, MW-13 (mS/cm)



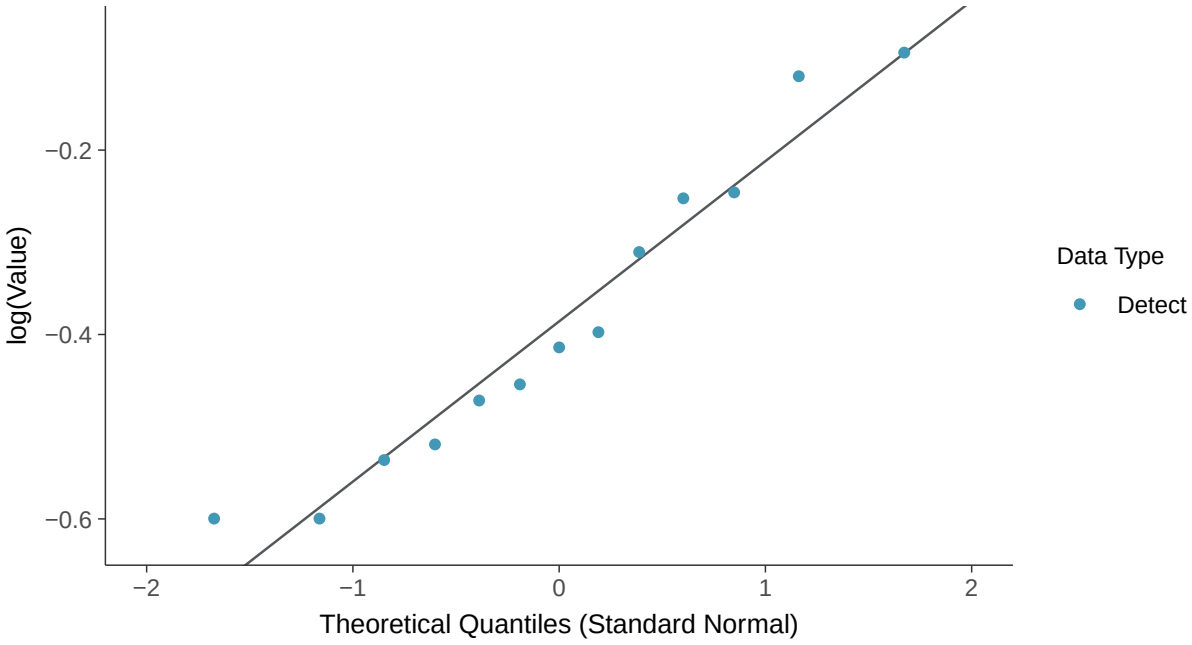
Normal Q-Q plot

Conductivity, MW-13 (mS/cm)



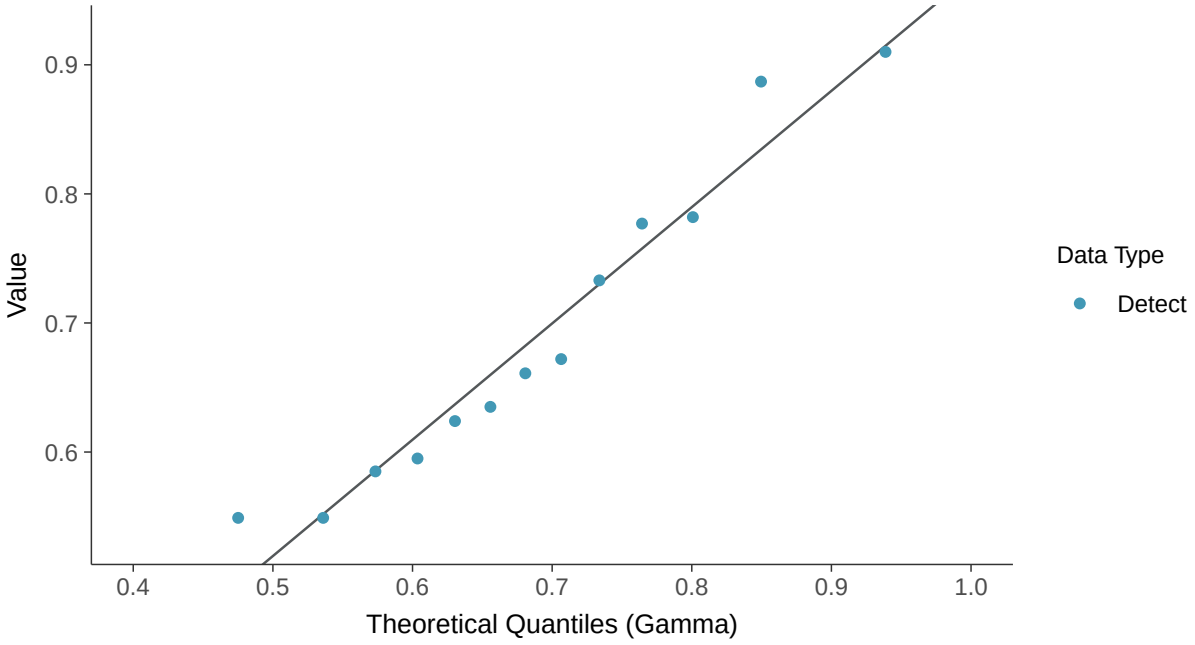
Lognormal Q-Q plot

Conductivity, MW-13 (mS/cm)



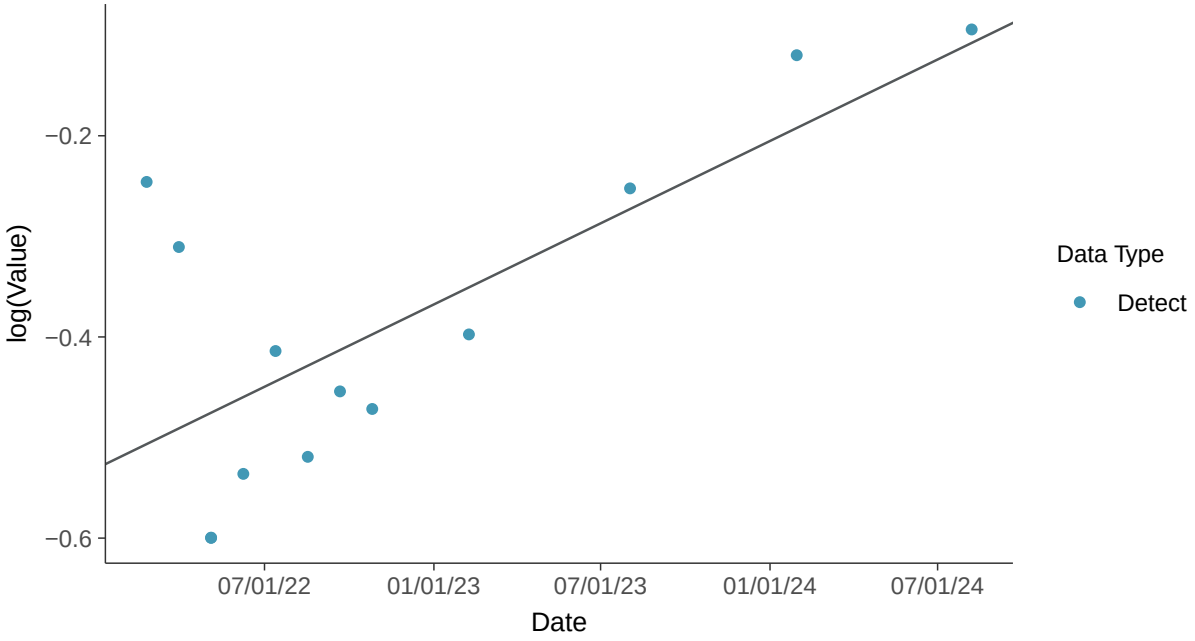
Gamma Q-Q plot

Conductivity, MW-13 (mS/cm)



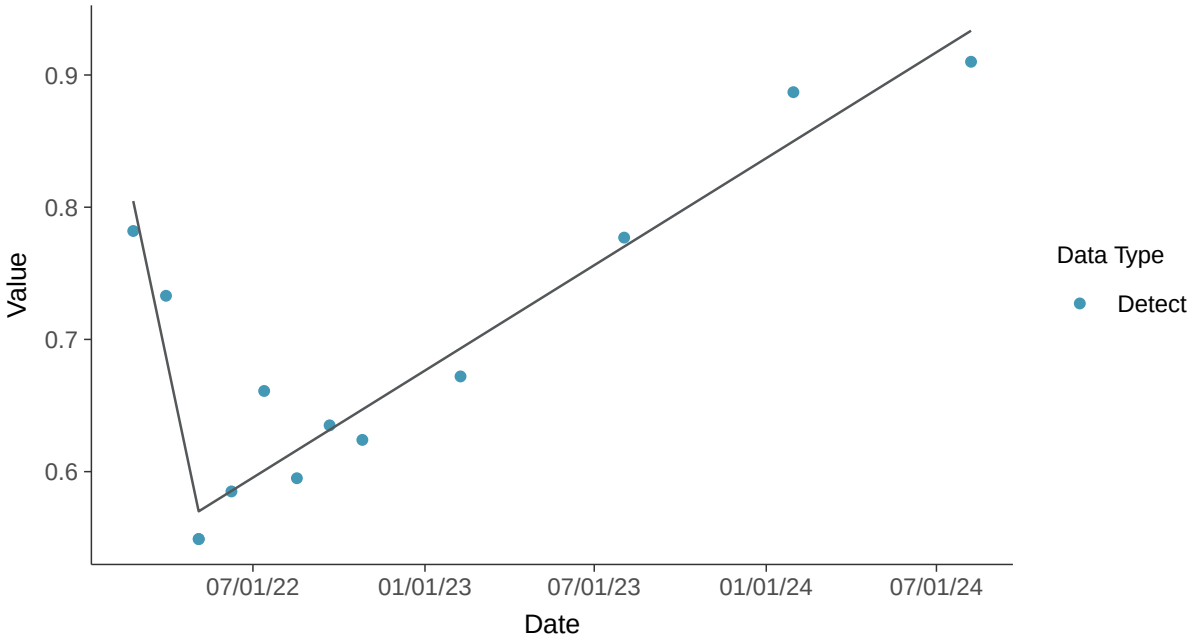
Trend Regression: Lognormal MLE

Conductivity, MW-13 (mS/cm)



Trend Regression: Piecewise Linear-Linear

Conductivity, MW-13 (mS/cm)

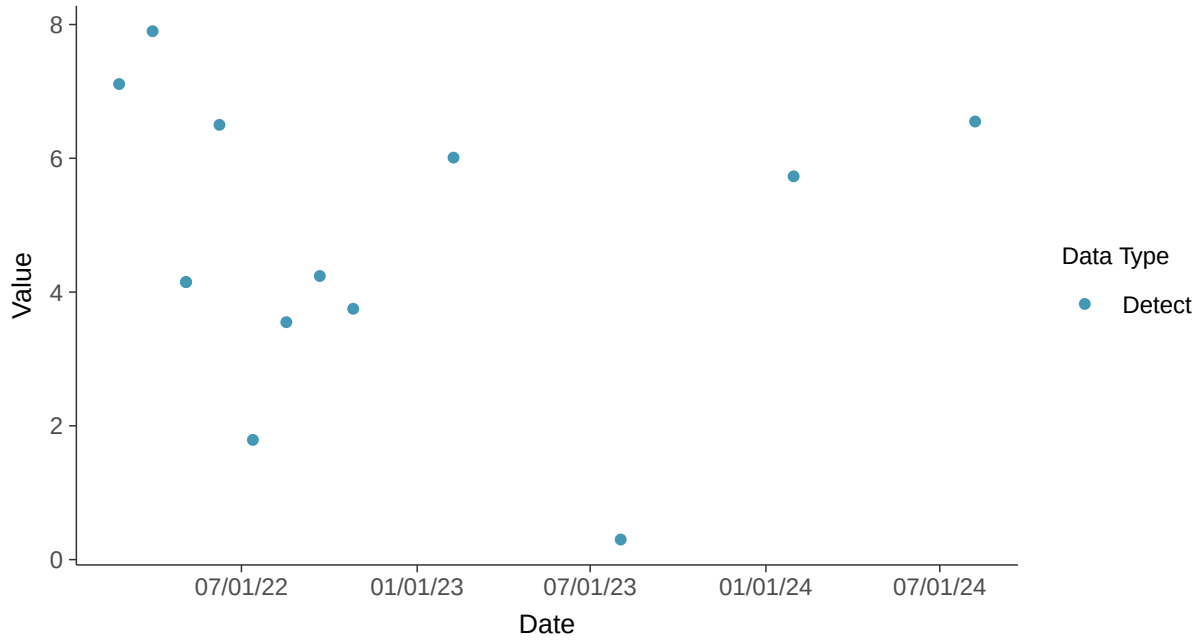


Field Parameters: Turbidity, MW-13

ID: 13_3_26

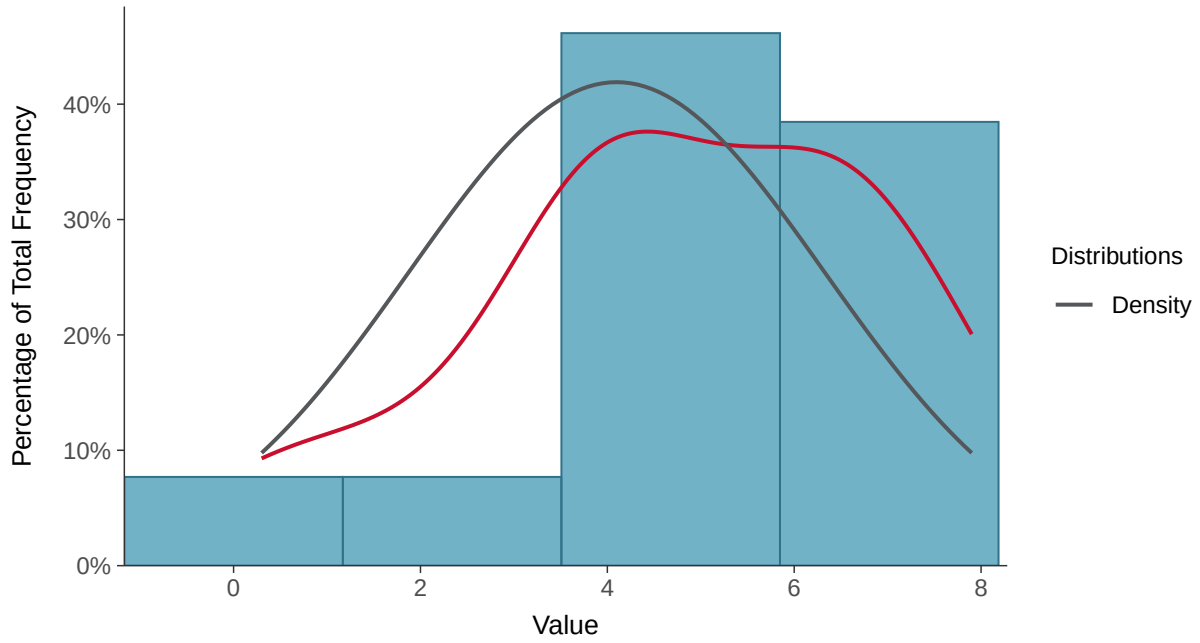
Scatter Plot

Turbidity, MW-13 (NTU)



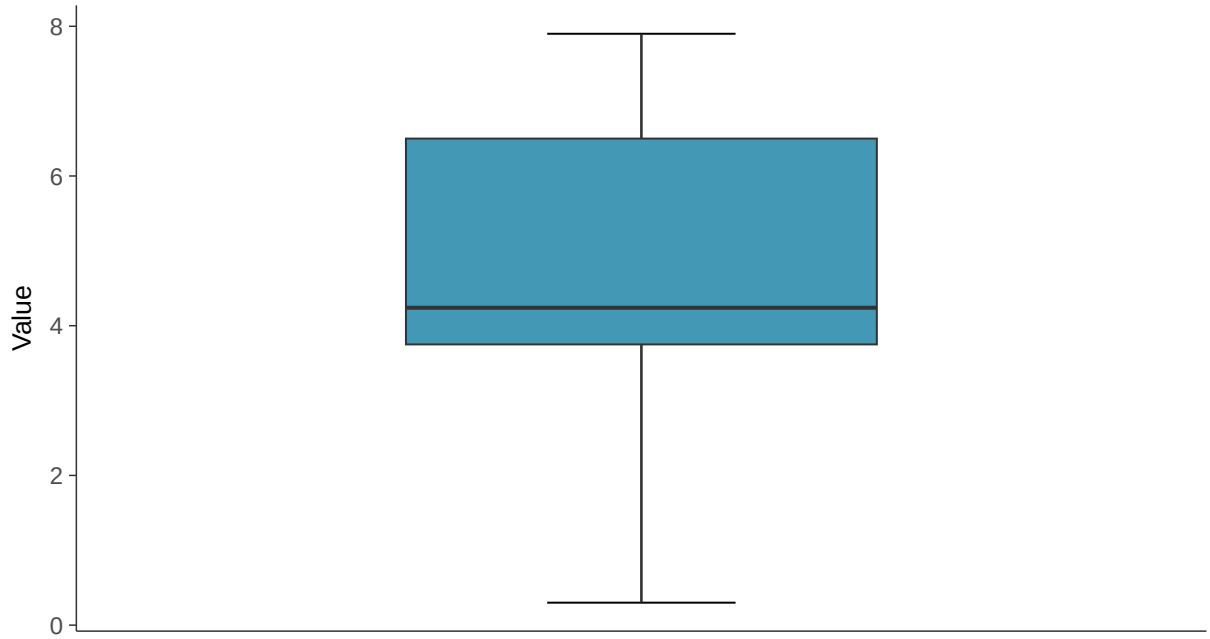
Histogram

Turbidity, MW-13 (NTU)



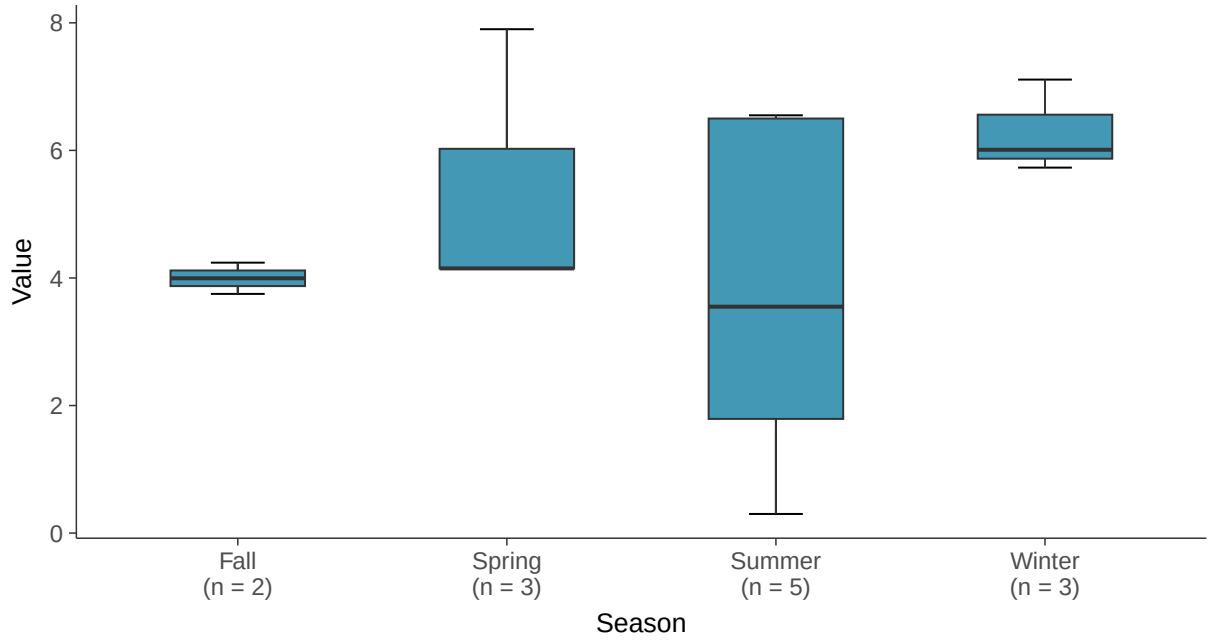
Boxplot

Turbidity, MW-13 (NTU)



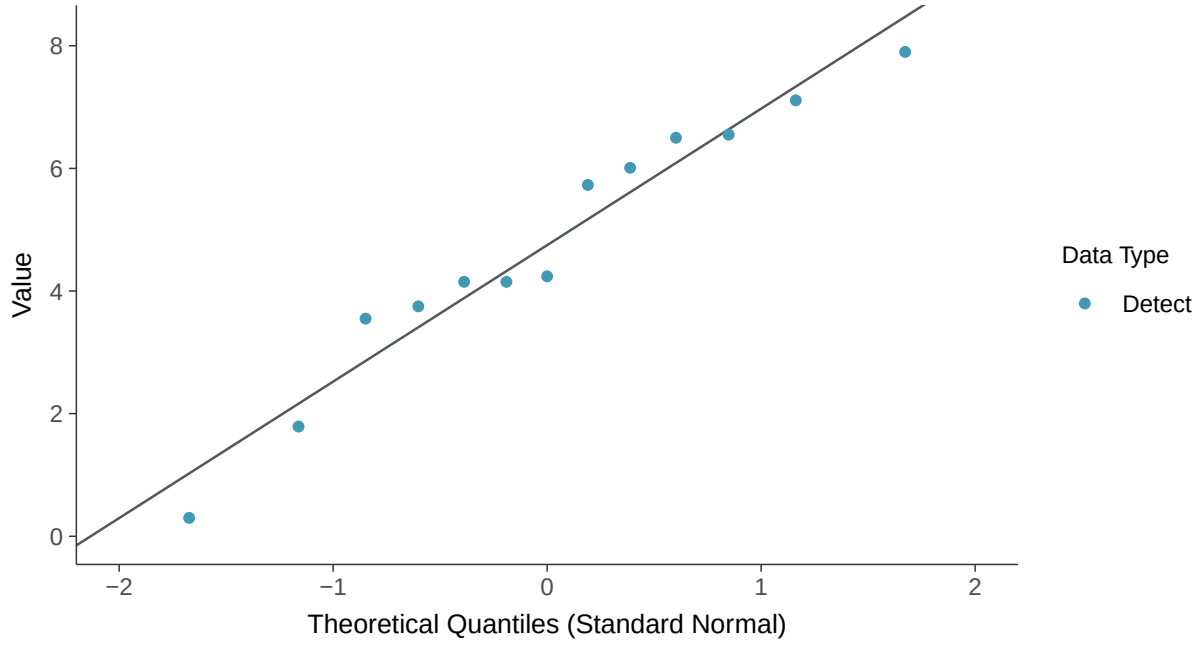
Boxplot by Season

Turbidity, MW-13 (NTU)



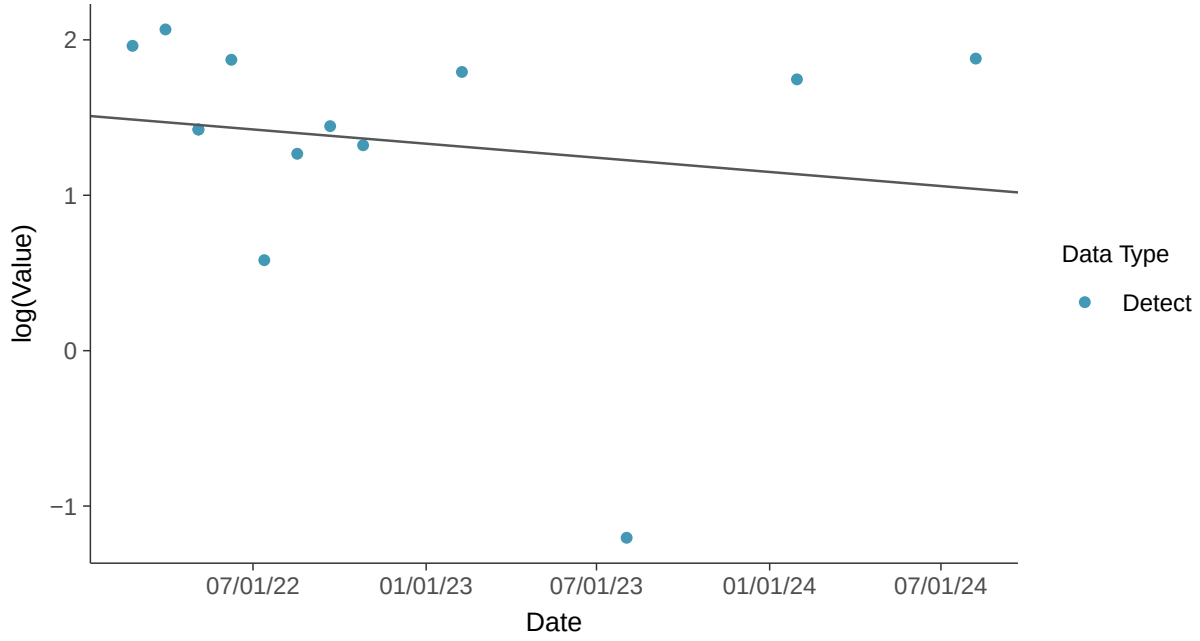
Normal Q-Q plot

Turbidity, MW-13 (NTU)



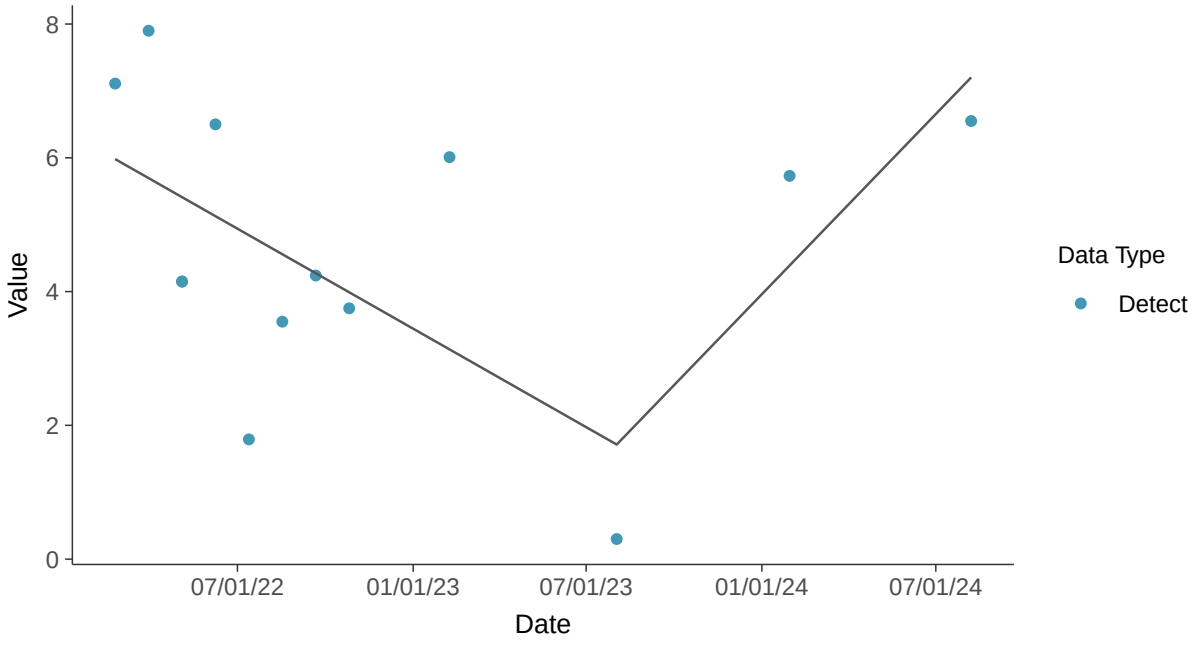
Trend Regression: Lognormal MLE

Turbidity, MW-13 (NTU)



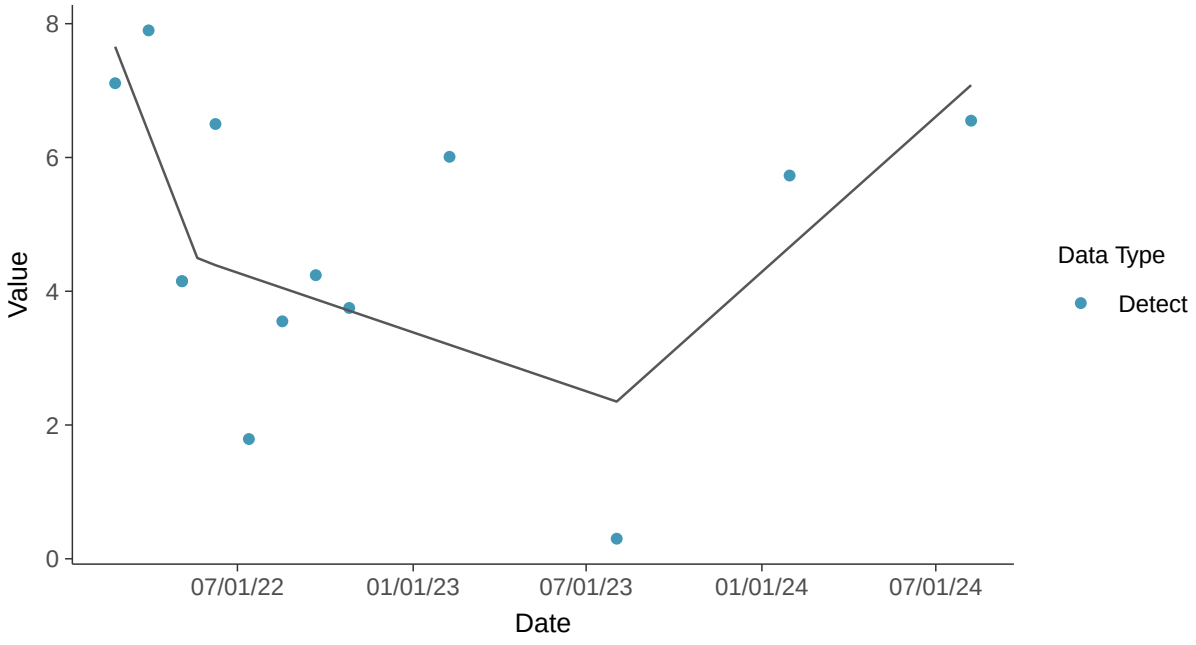
Trend Regression: Piecewise Linear-Linear

Turbidity, MW-13 (NTU)



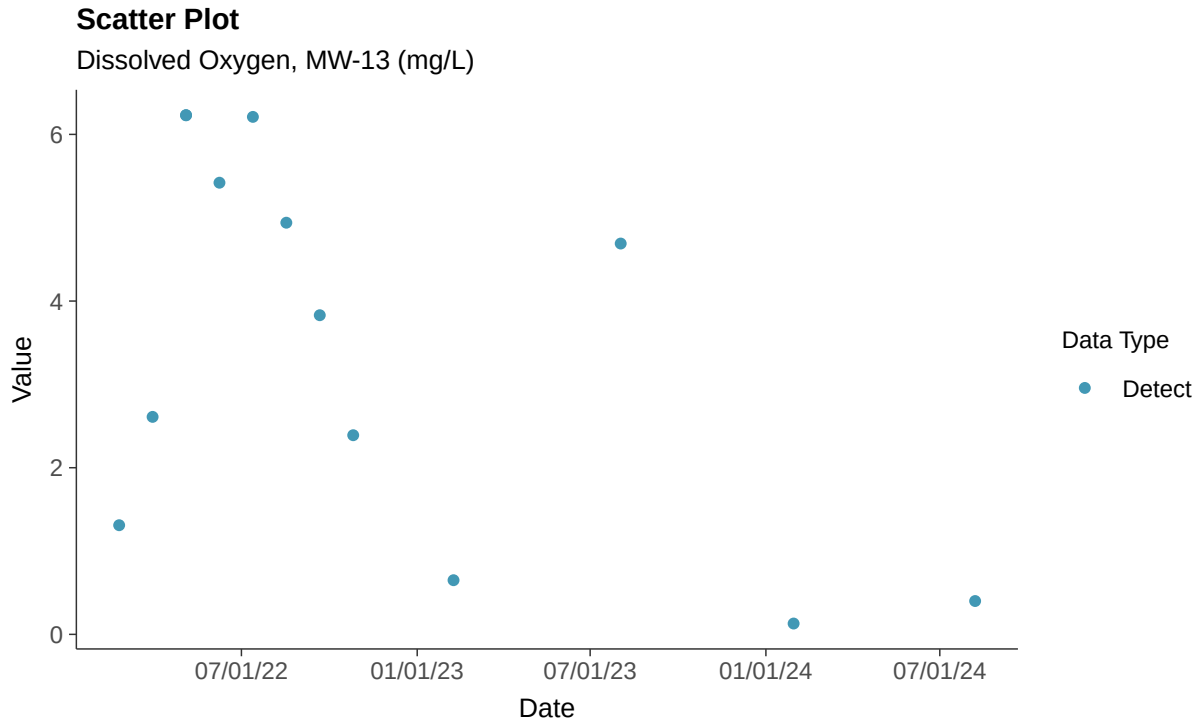
Trend Regression: Piecewise Linear-Linear-Linear

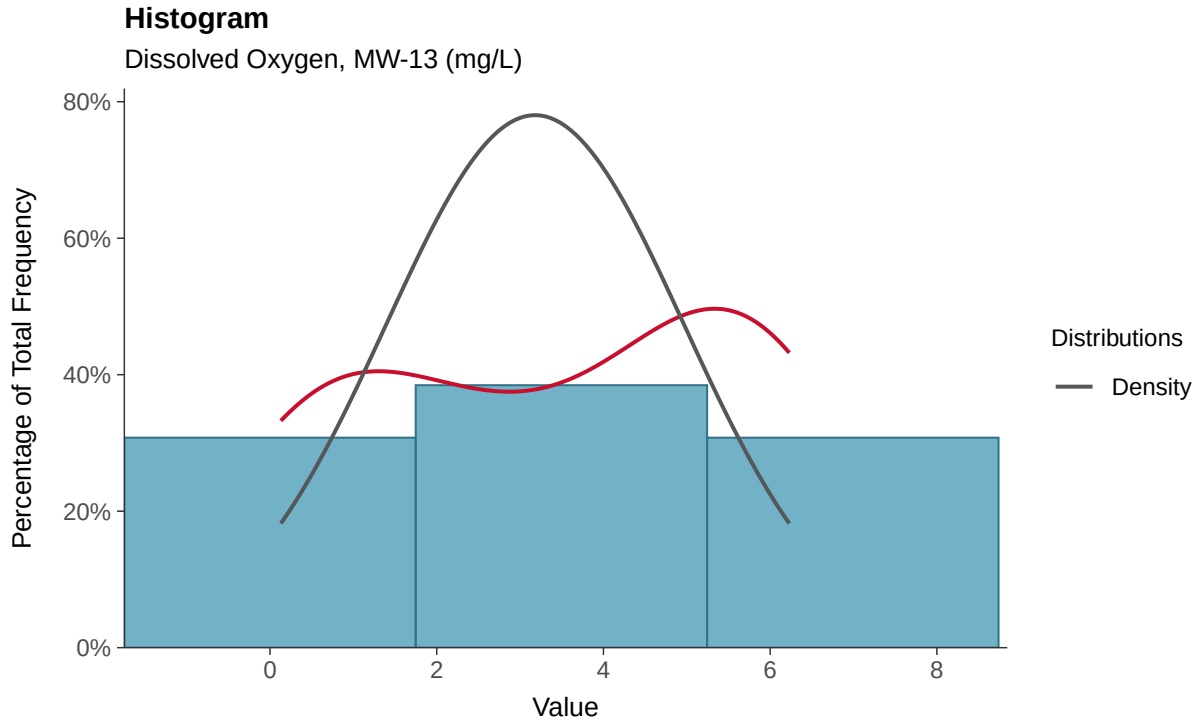
Turbidity, MW-13 (NTU)



Field Parameters: Dissolved Oxygen, MW-13

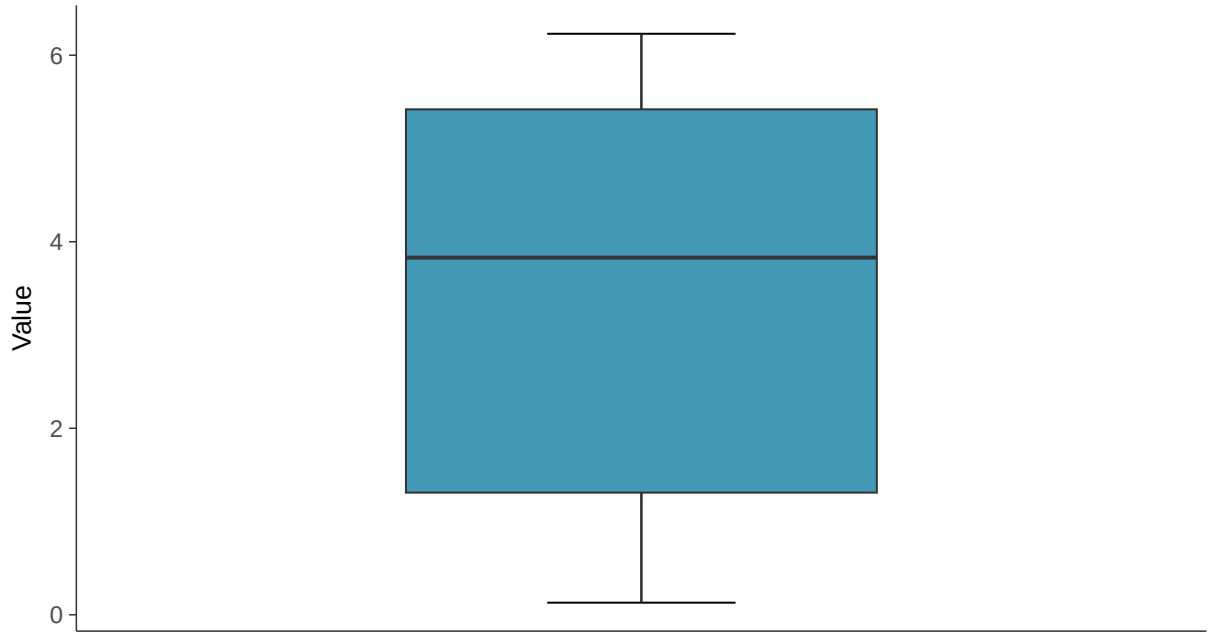
ID: 13_3_27





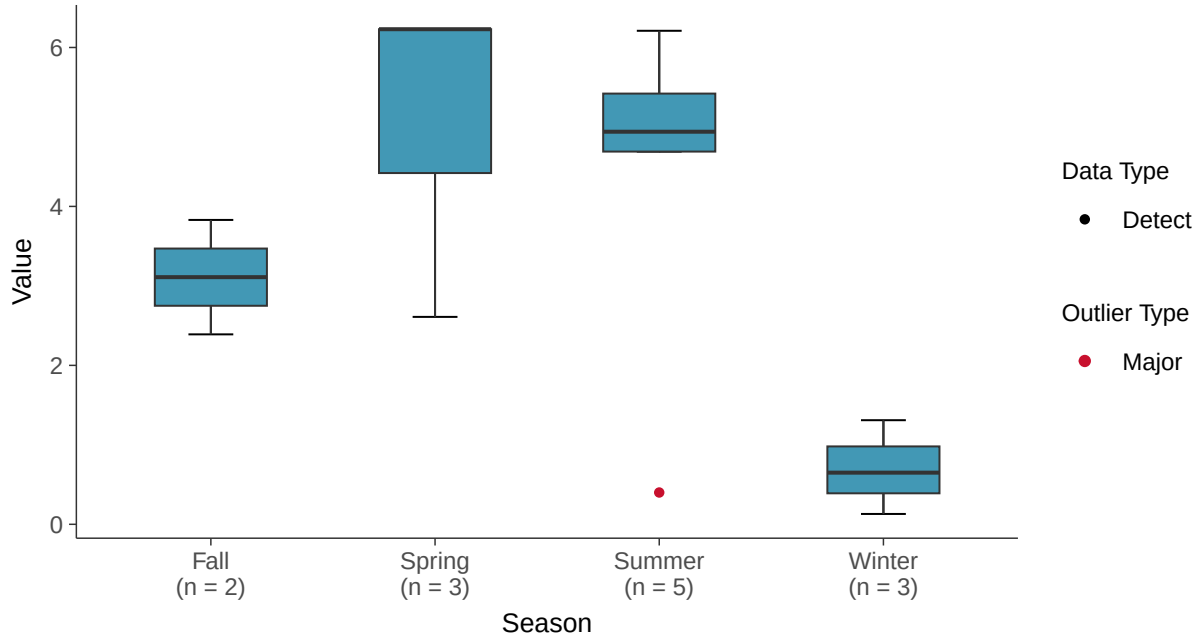
Boxplot

Dissolved Oxygen, MW-13 (mg/L)



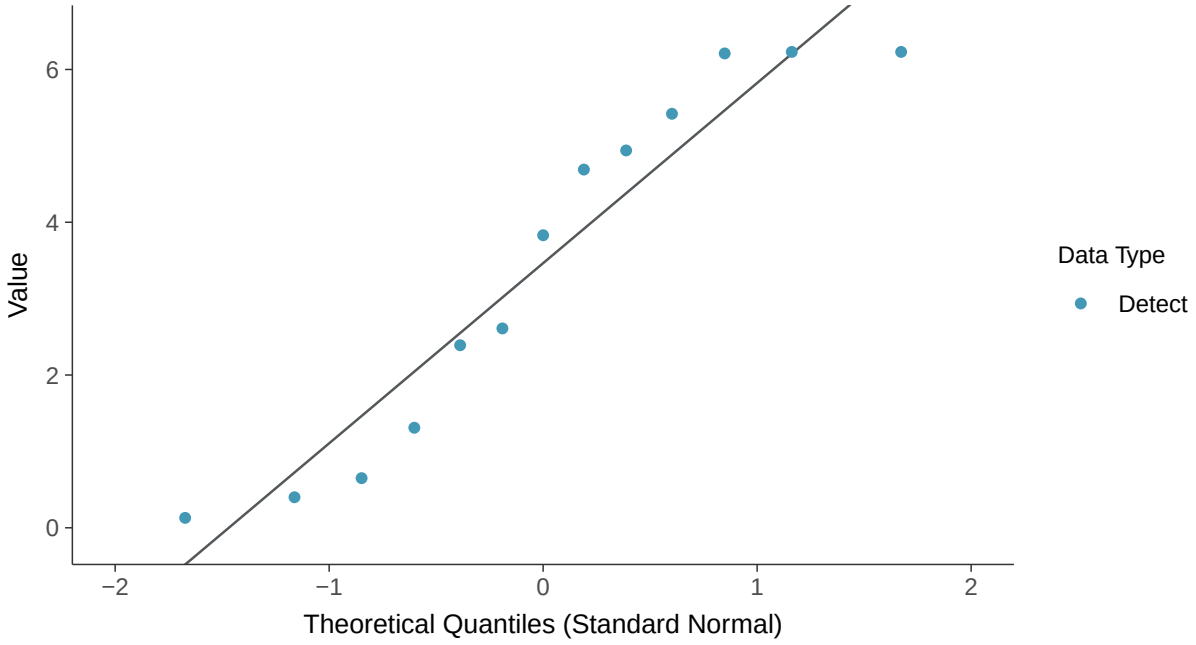
Boxplot by Season

Dissolved Oxygen, MW-13 (mg/L)



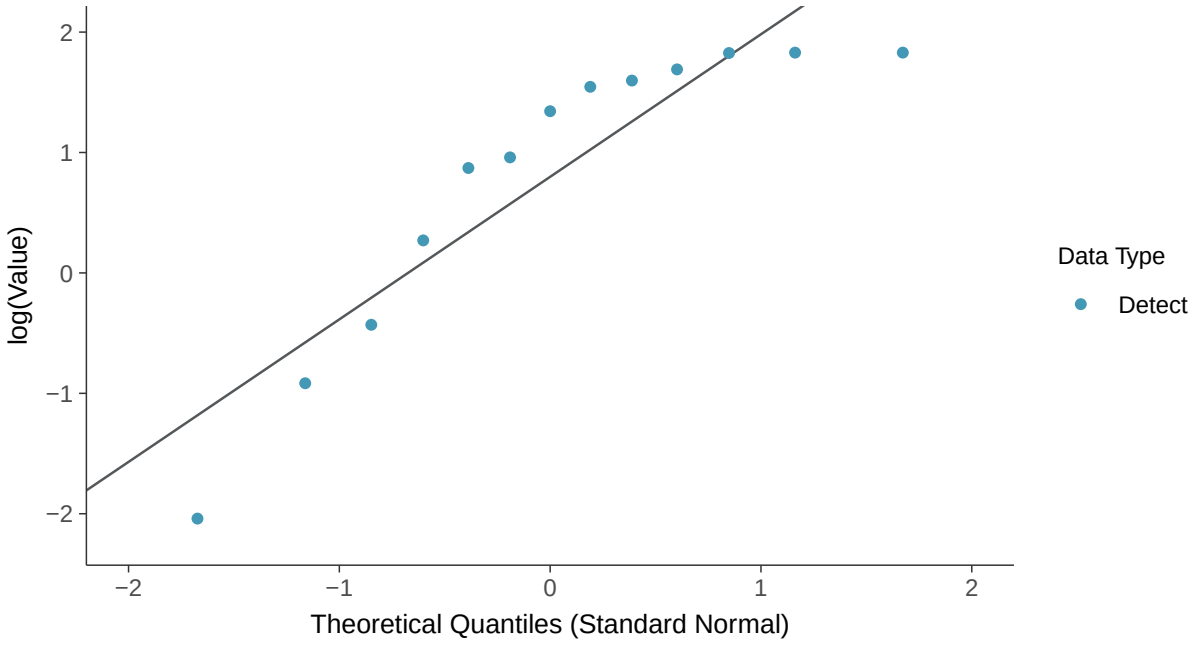
Normal Q-Q plot

Dissolved Oxygen, MW-13 (mg/L)



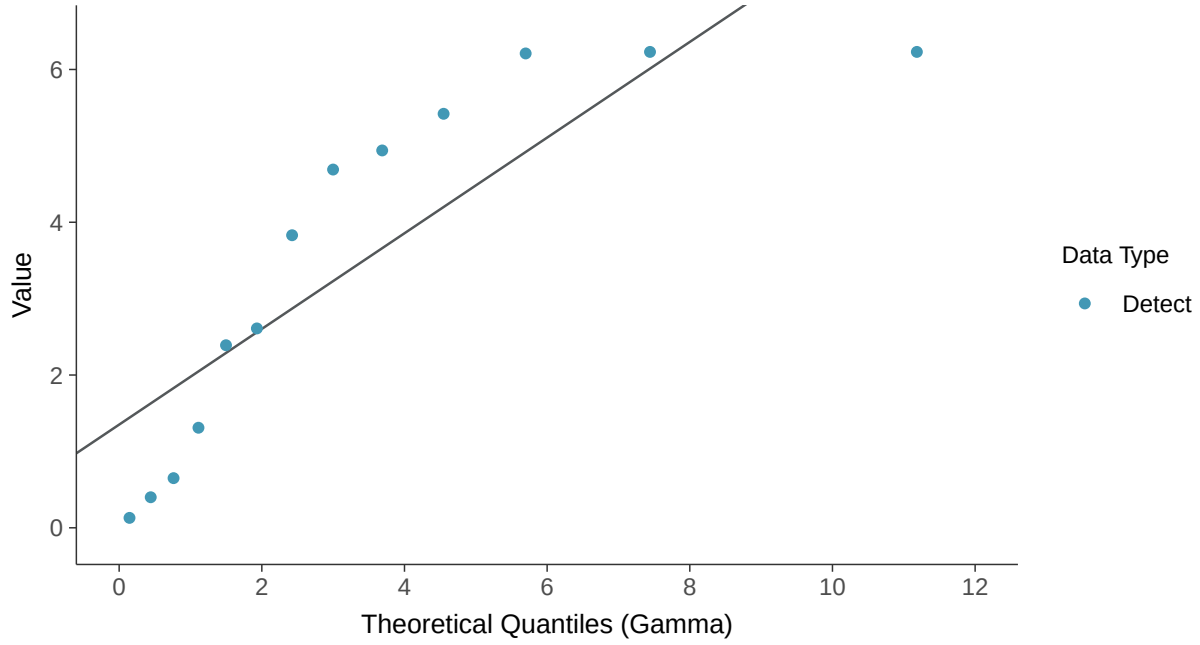
Lognormal Q-Q plot

Dissolved Oxygen, MW-13 (mg/L)



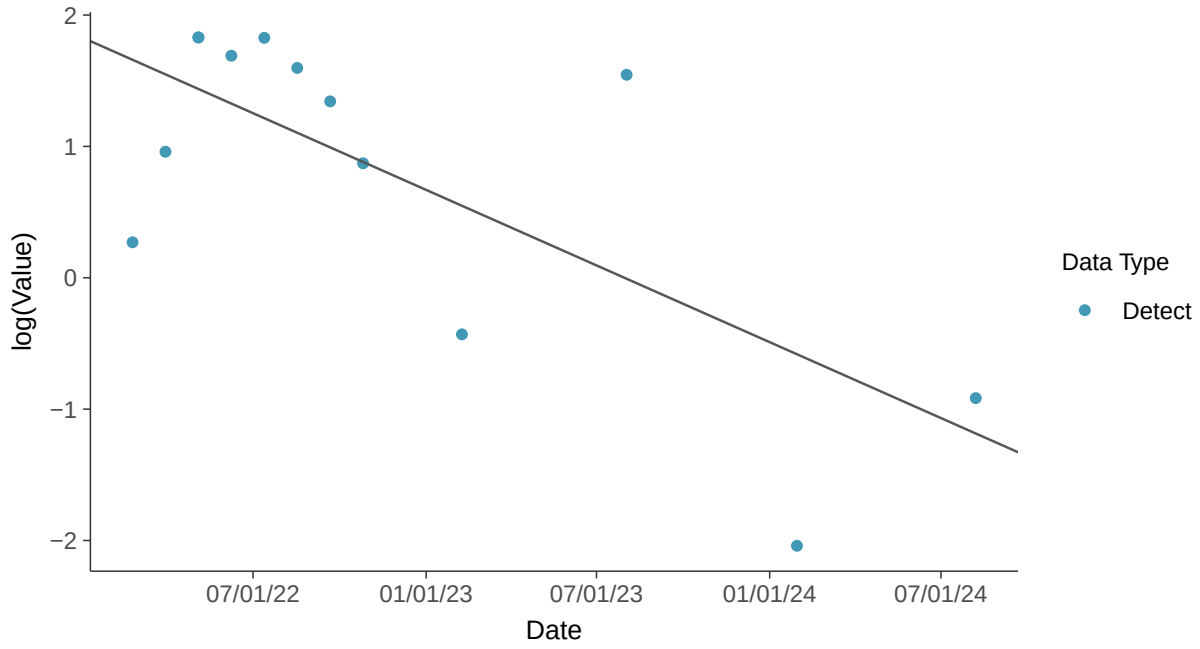
Gamma Q-Q plot

Dissolved Oxygen, MW-13 (mg/L)



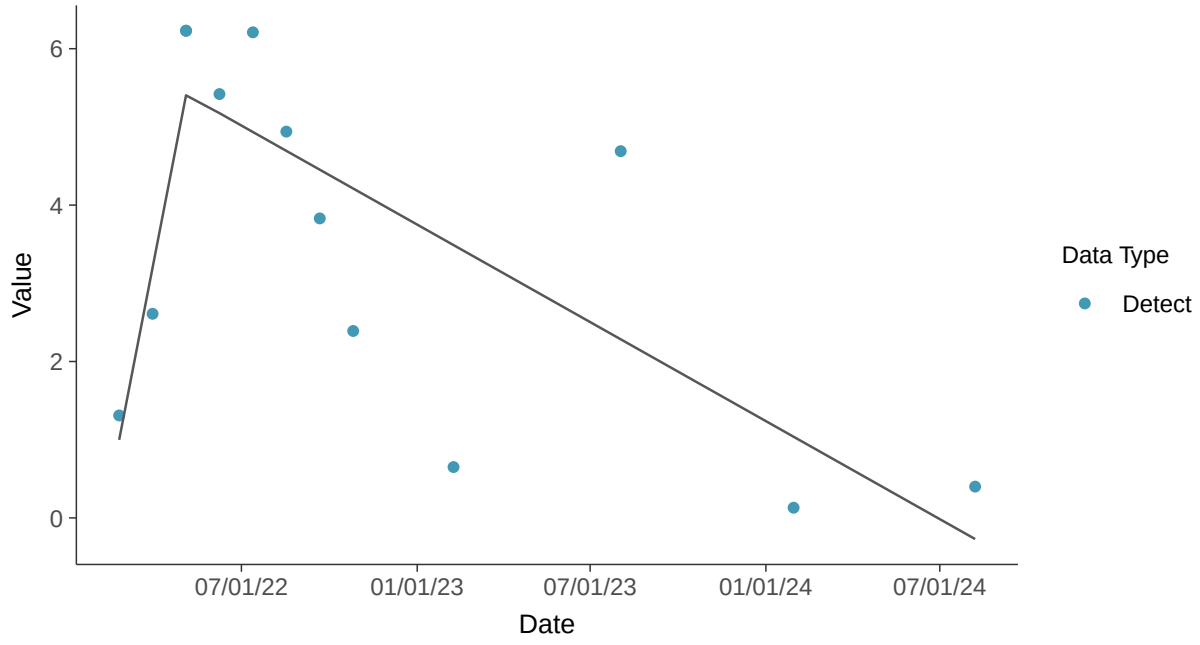
Trend Regression: Lognormal MLE

Dissolved Oxygen, MW-13 (mg/L)



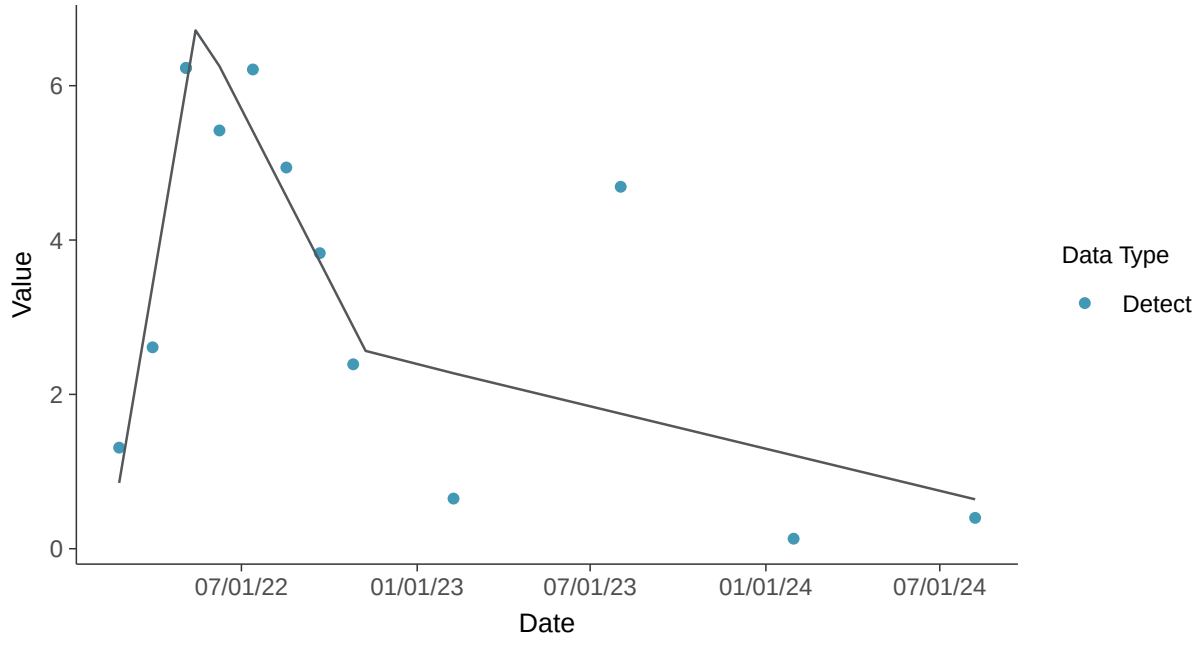
Trend Regression: Piecewise Linear-Linear

Dissolved Oxygen, MW-13 (mg/L)



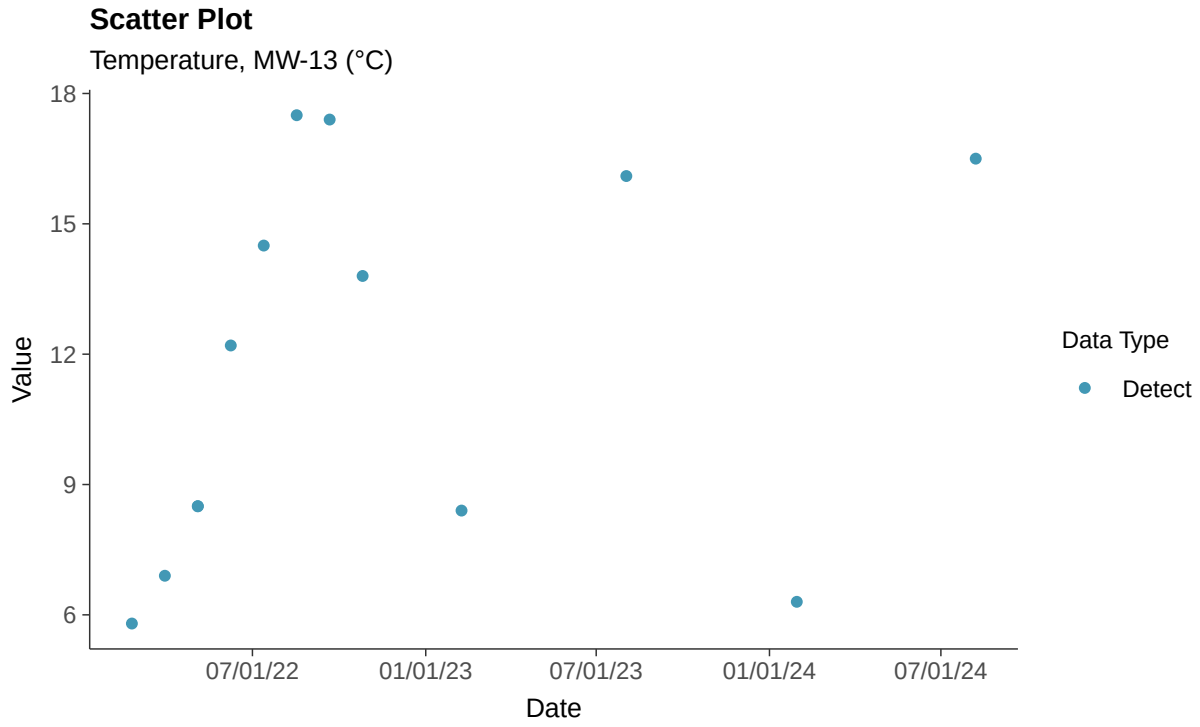
Trend Regression: Piecewise Linear-Linear-Linear

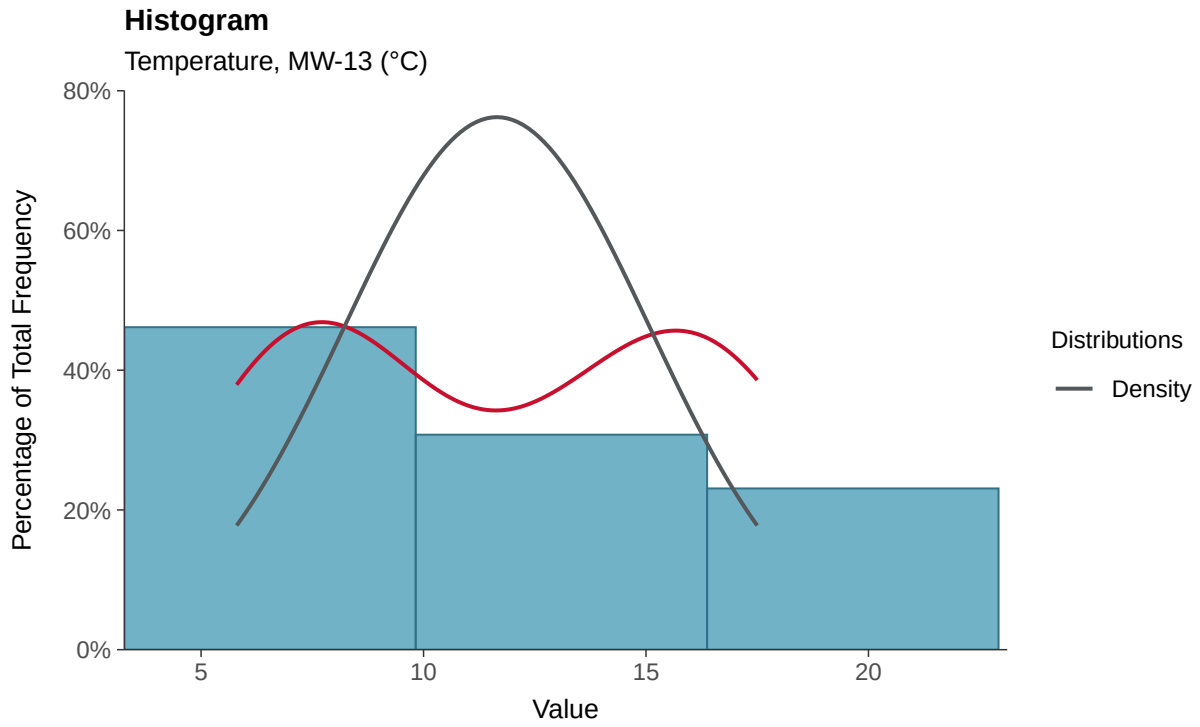
Dissolved Oxygen, MW-13 (mg/L)



Field Parameters: Temperature, MW-13

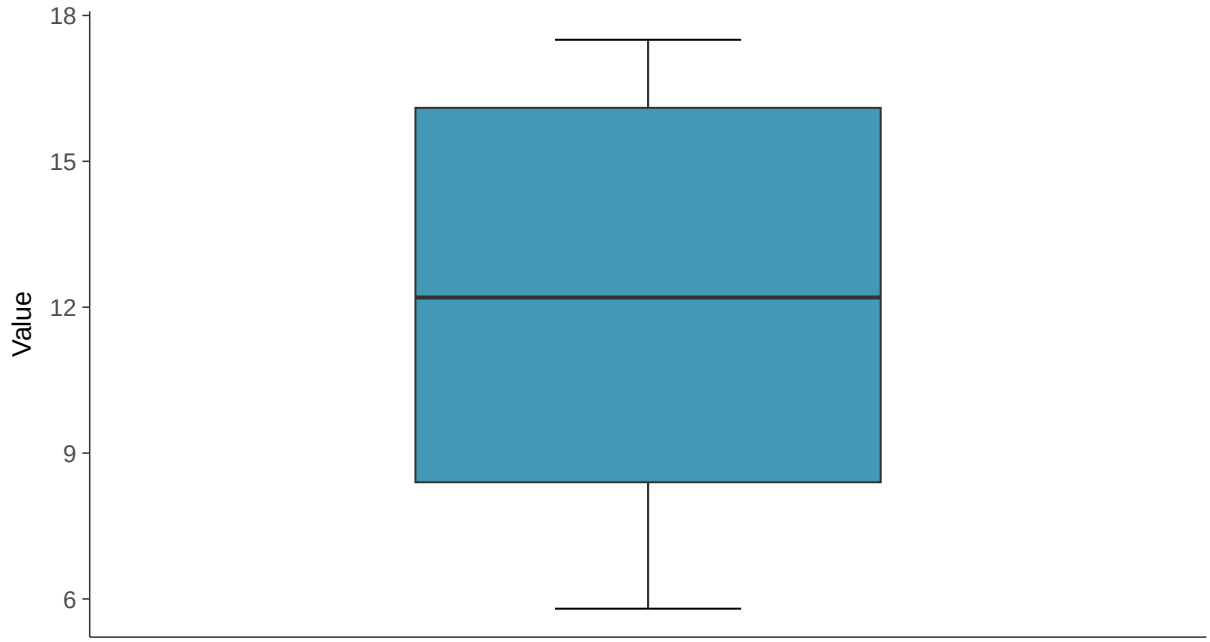
ID: 13_3_28





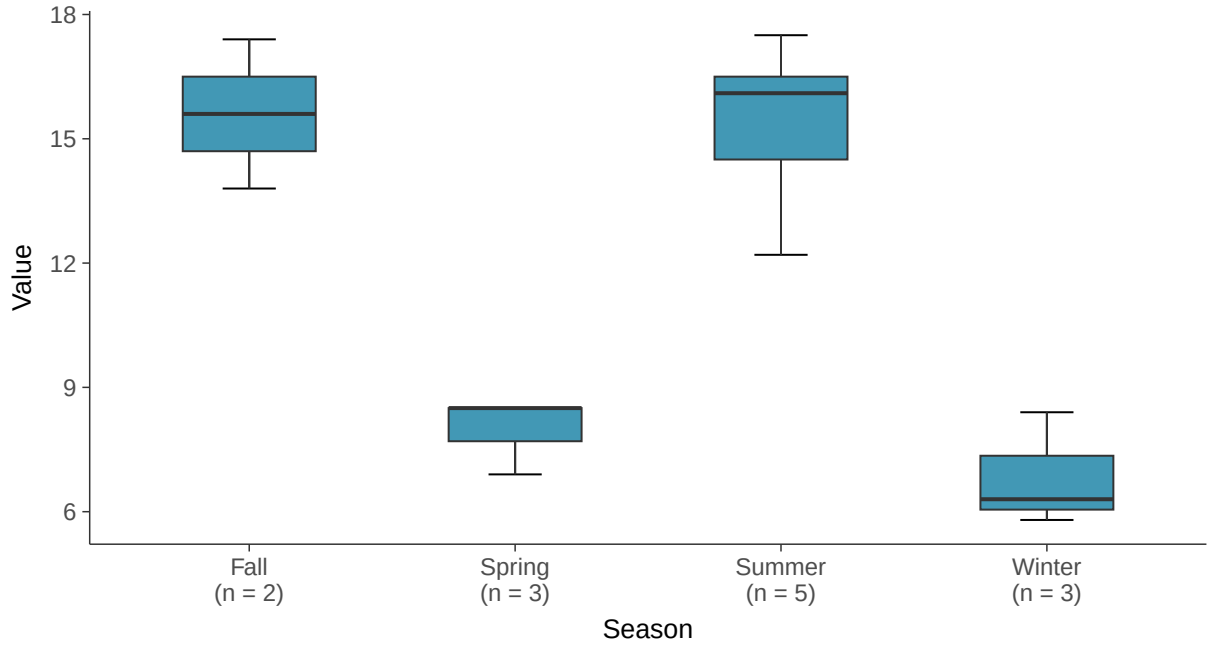
Boxplot

Temperature, MW-13 (°C)



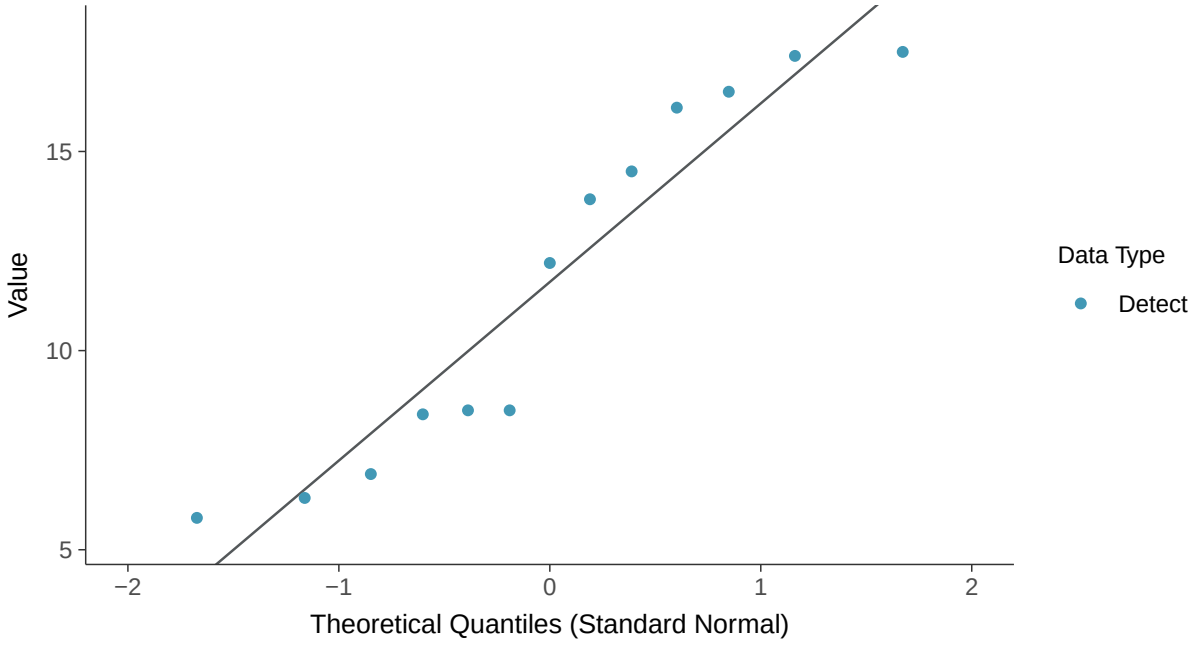
Boxplot by Season

Temperature, MW-13 (°C)



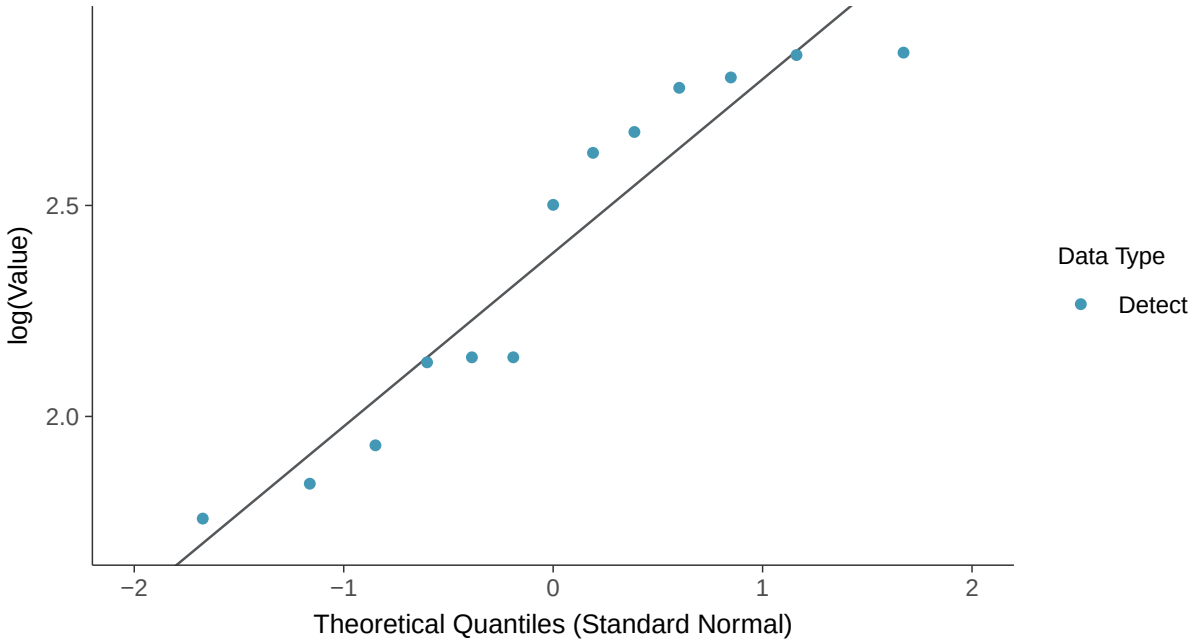
Normal Q-Q plot

Temperature, MW-13 (°C)



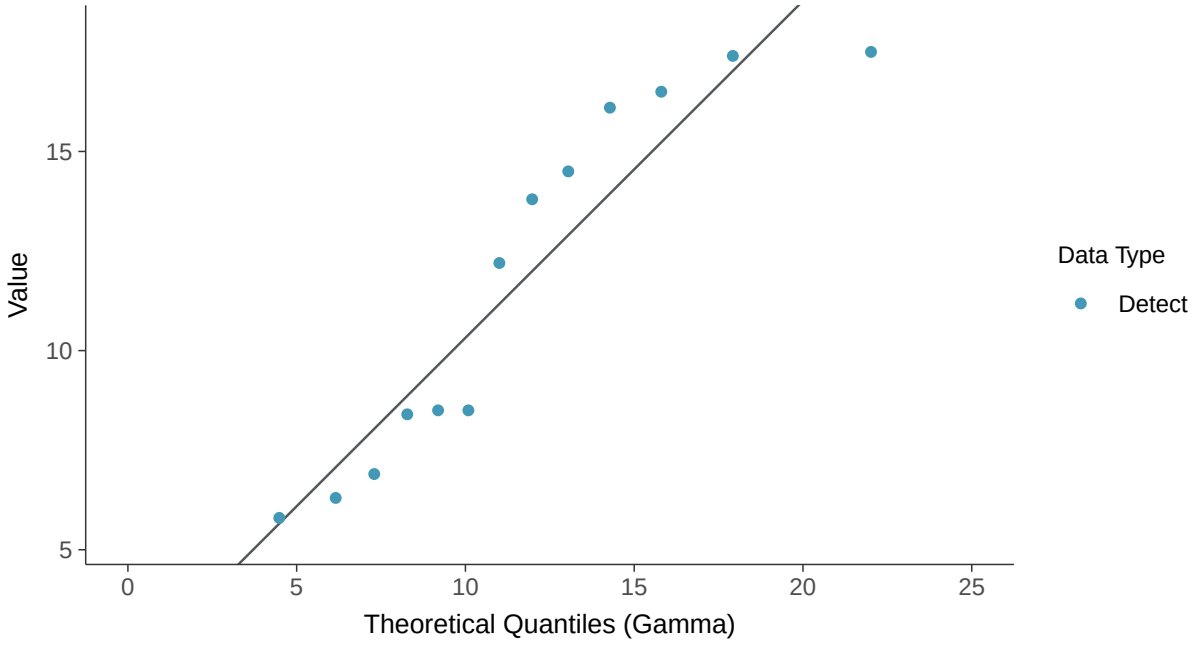
Lognormal Q-Q plot

Temperature, MW-13 (°C)



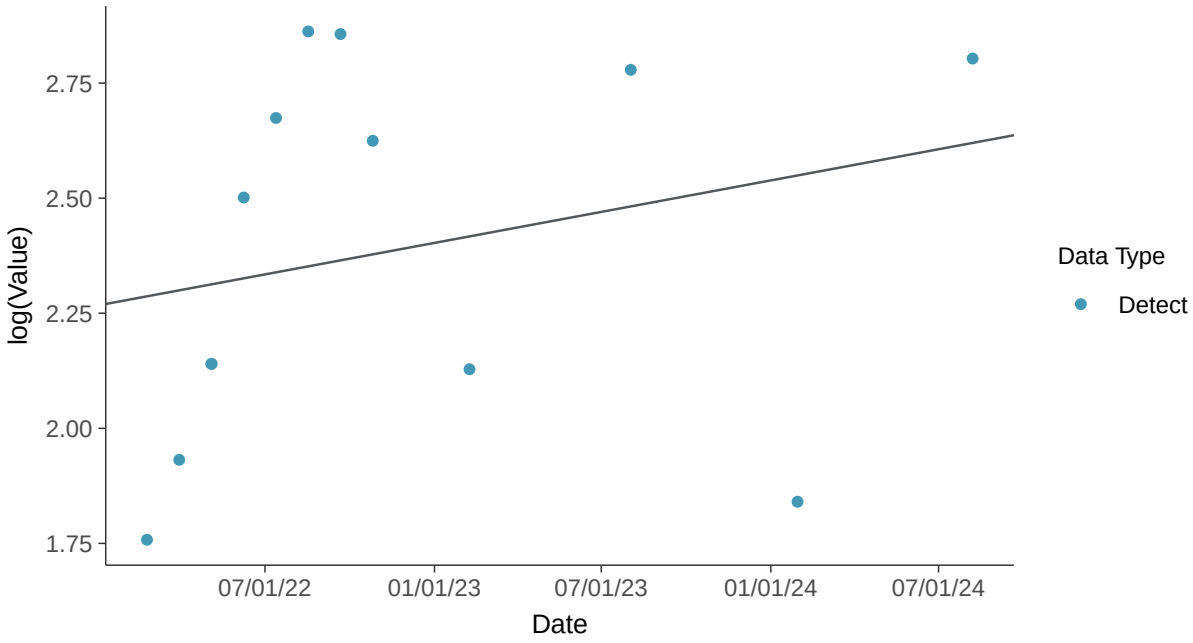
Gamma Q-Q plot

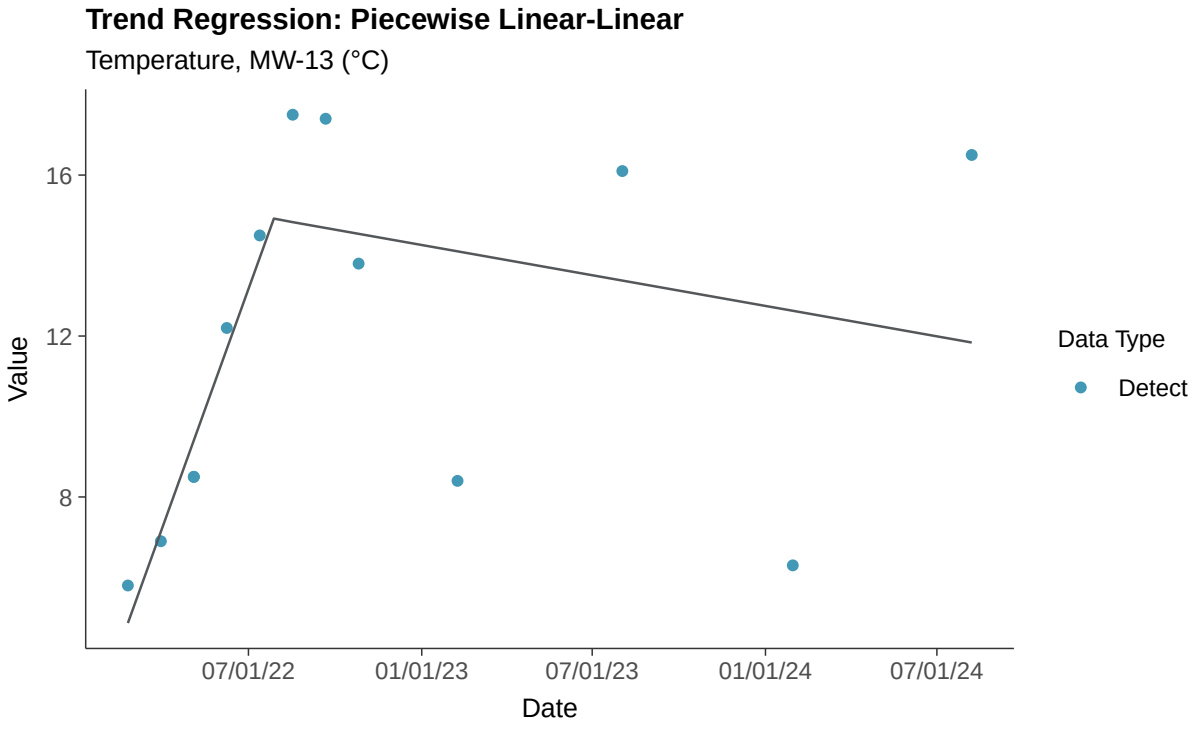
Temperature, MW-13 (°C)



Trend Regression: Lognormal MLE

Temperature, MW-13 (°C)



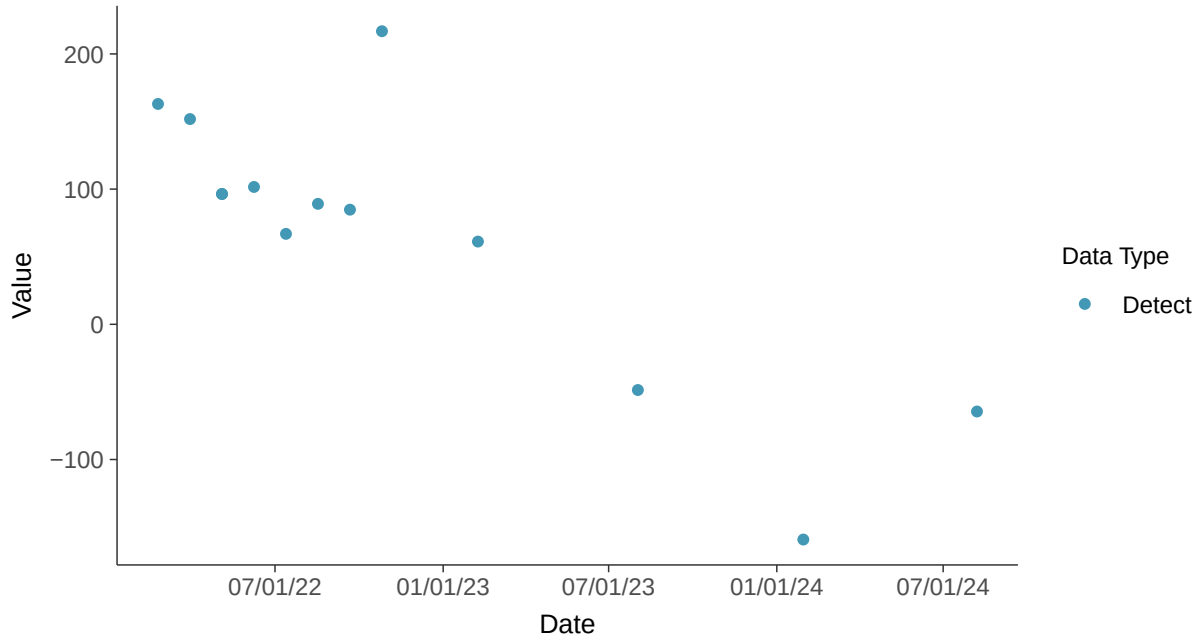

Trend Regression: Piecewise Linear-Linear
Temperature, MW-13 (°C)
Value
16
12
8
07/01/22
01/01/23
07/01/23
01/01/24
07/01/24
Date
Data Type
Detect

Field Parameters: Oxidation Reduction Potential, MW-13

ID: 13_3_29

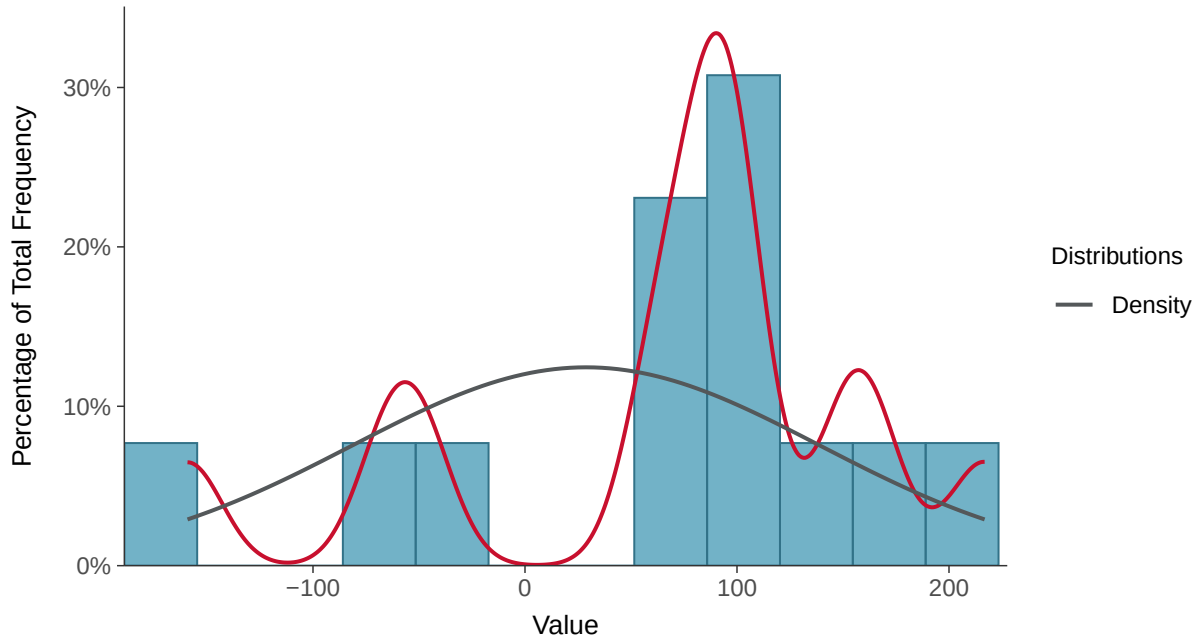
Scatter Plot

Oxidation Reduction Potential, MW-13 (mV)



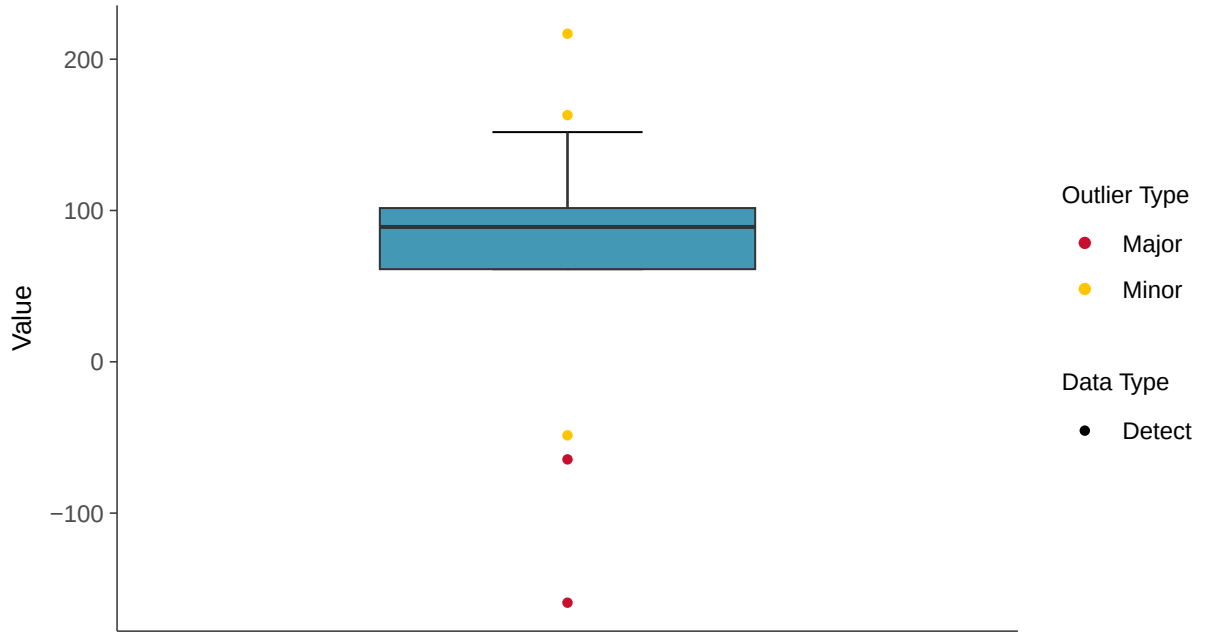
Histogram

Oxidation Reduction Potential, MW-13 (mV)



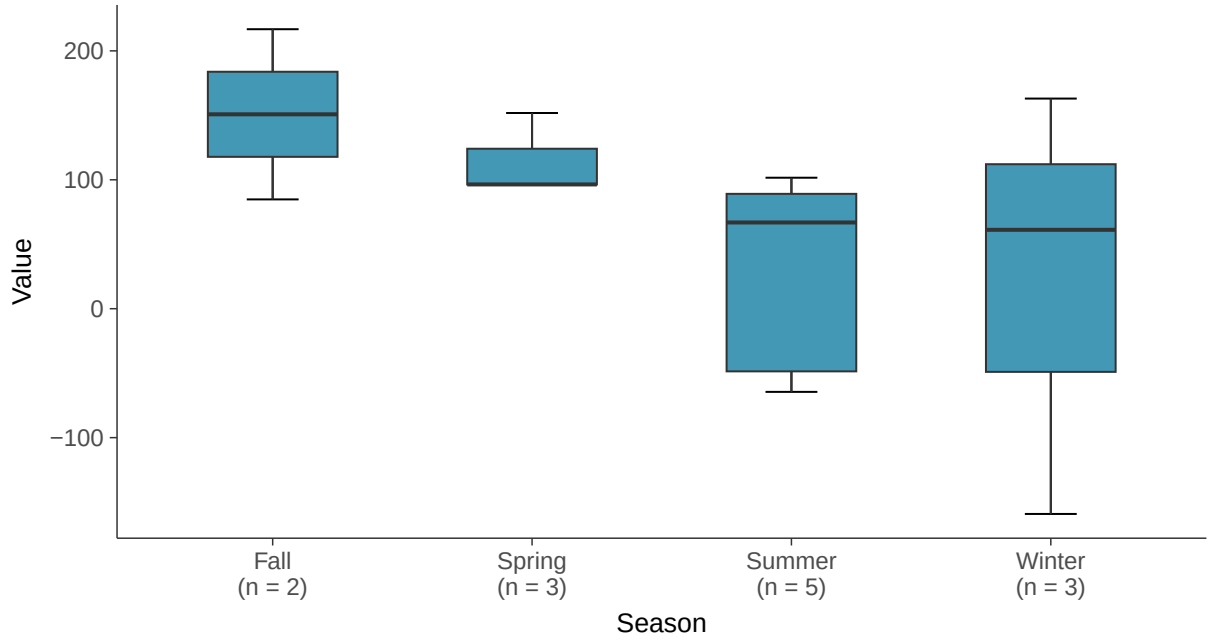
Boxplot

Oxidation Reduction Potential, MW-13 (mV)



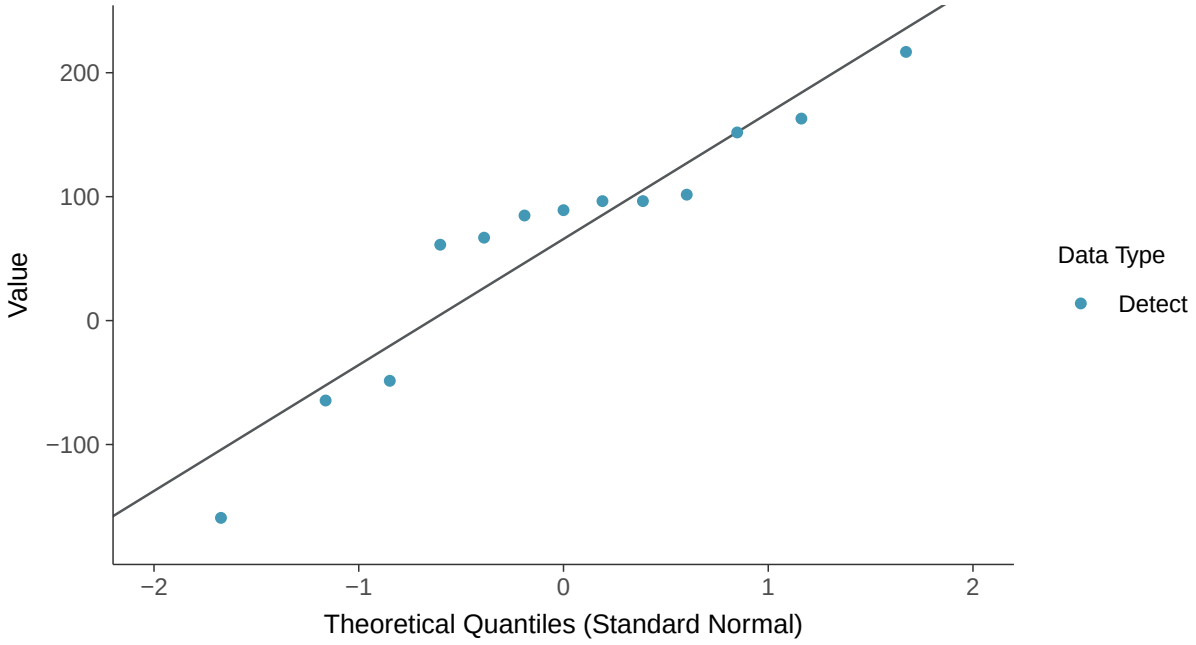
Boxplot by Season

Oxidation Reduction Potential, MW-13 (mV)



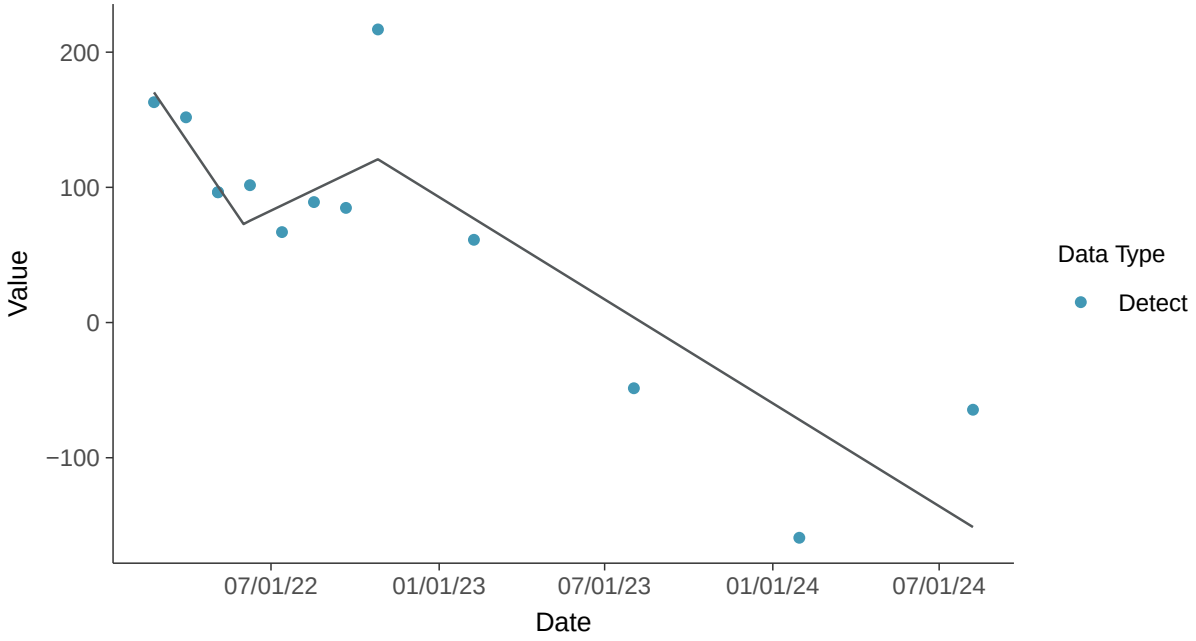
Normal Q-Q plot

Oxidation Reduction Potential, MW-13 (mV)



Trend Regression: Piecewise Linear-Linear-Linear

Oxidation Reduction Potential, MW-13 (mV)

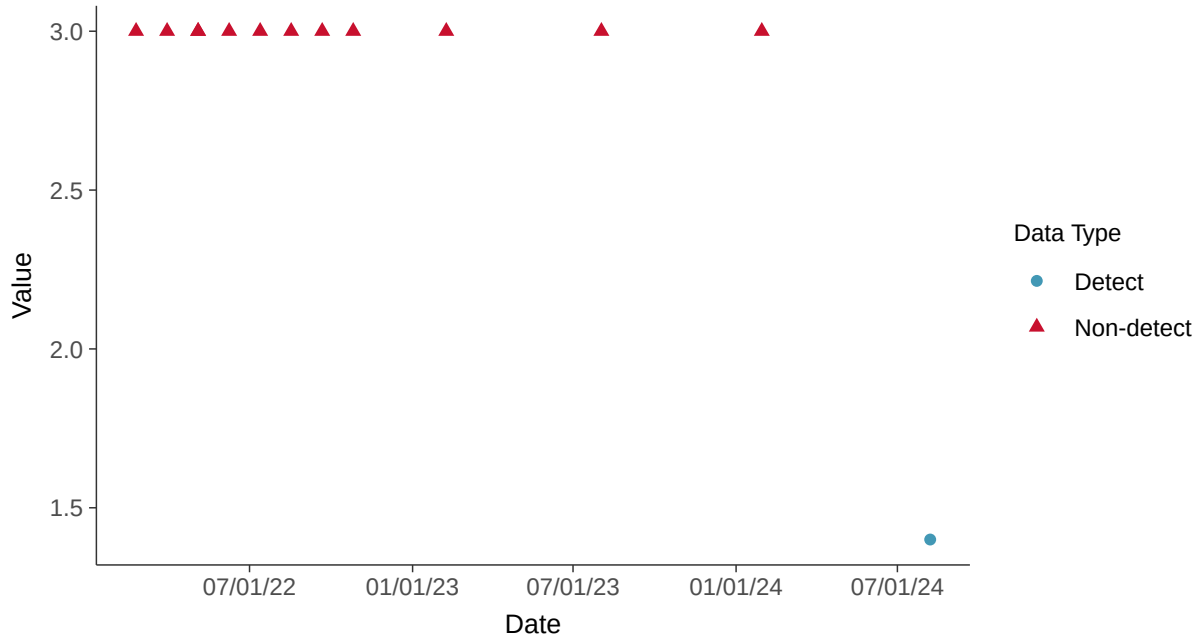


Other: Total Suspended Solids, MW-13

ID: 13_4_30

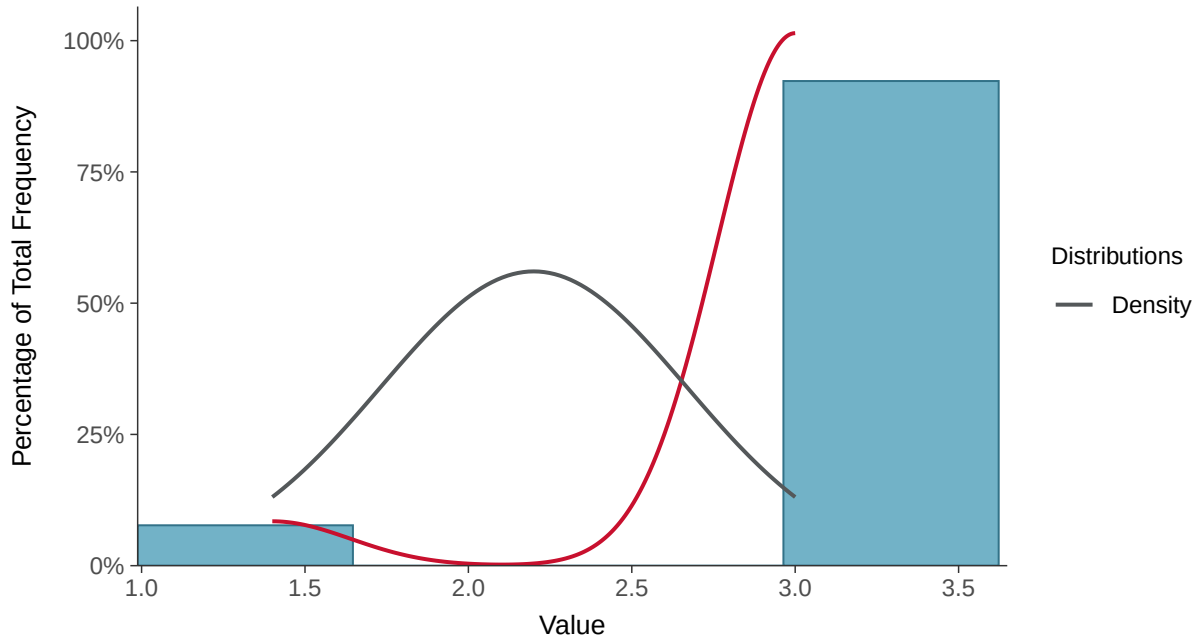
Scatter Plot

Total Suspended Solids, MW-13 (mg/L)



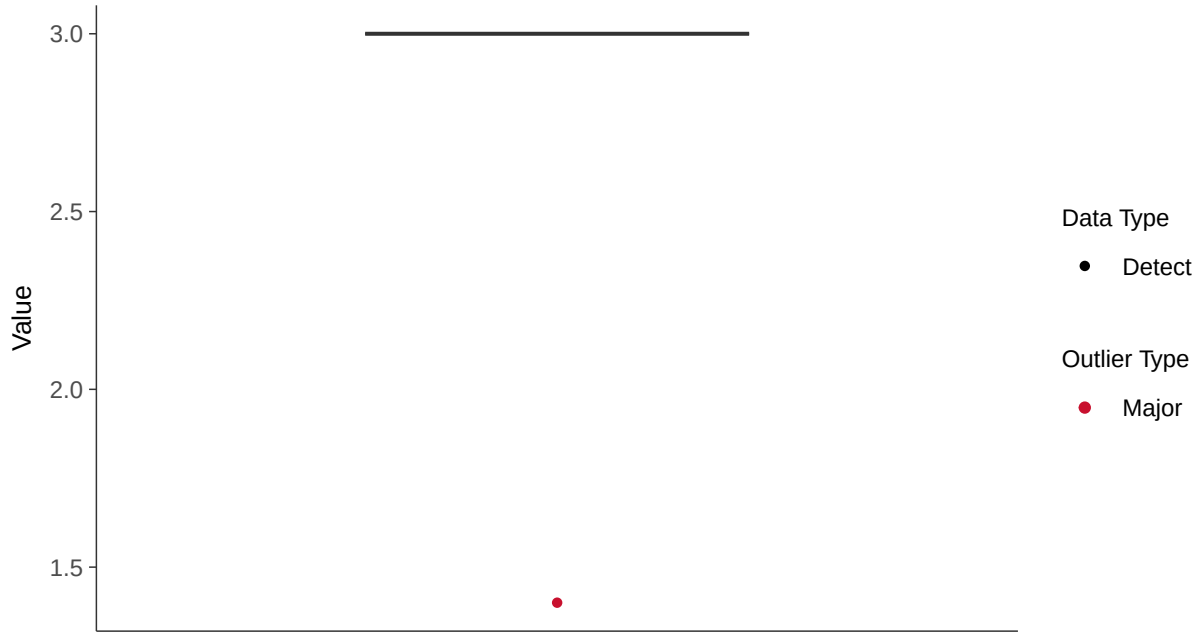
Histogram

Total Suspended Solids, MW-13 (mg/L)



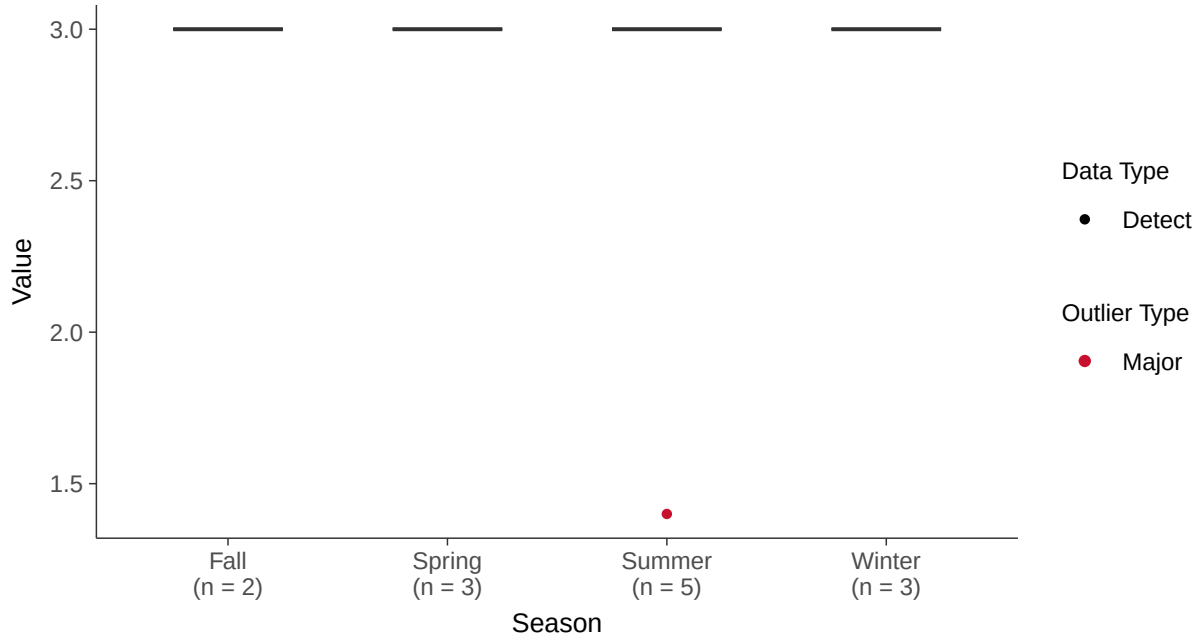
Boxplot

Total Suspended Solids, MW-13 (mg/L)



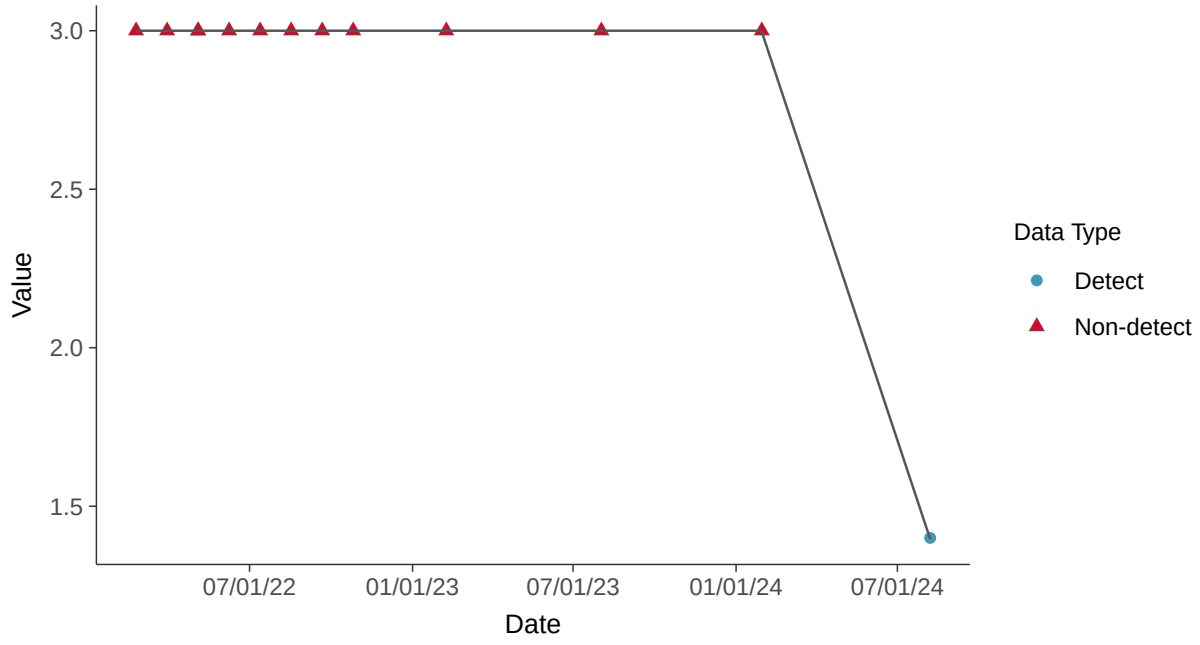
Boxplot by Season

Total Suspended Solids, MW-13 (mg/L)



Trend Regression: Piecewise Linear-Linear

Total Suspended Solids, MW-13 (mg/L)

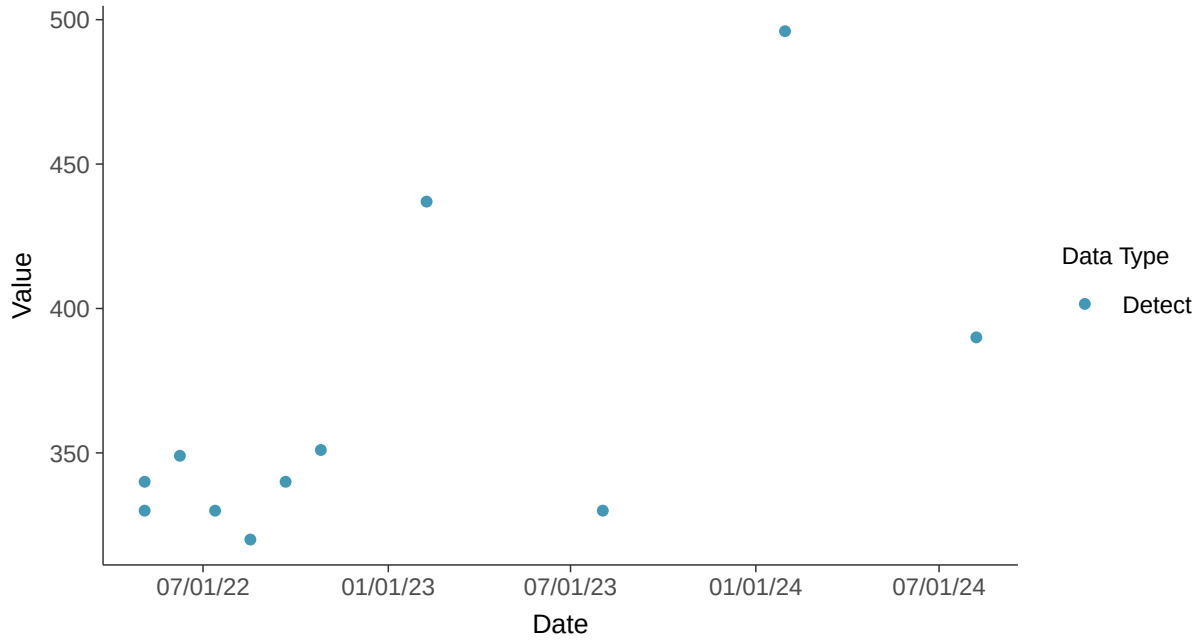


Other: Bicarbonate, MW-13

ID: 13_4_31

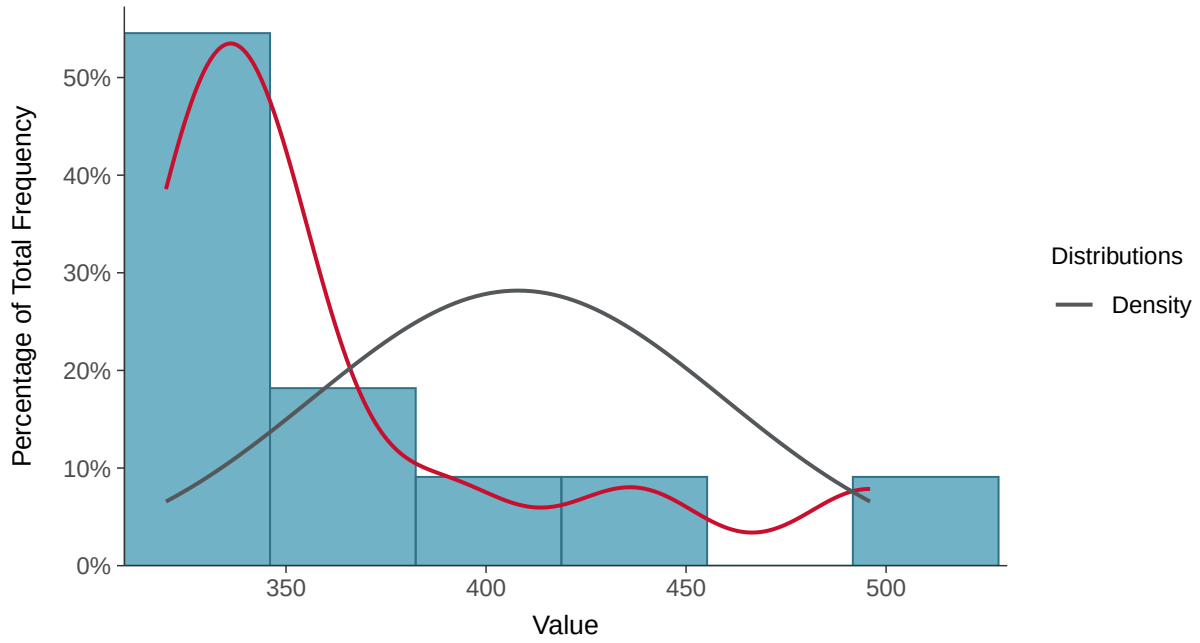
Scatter Plot

Bicarbonate, MW-13 (mg/L)



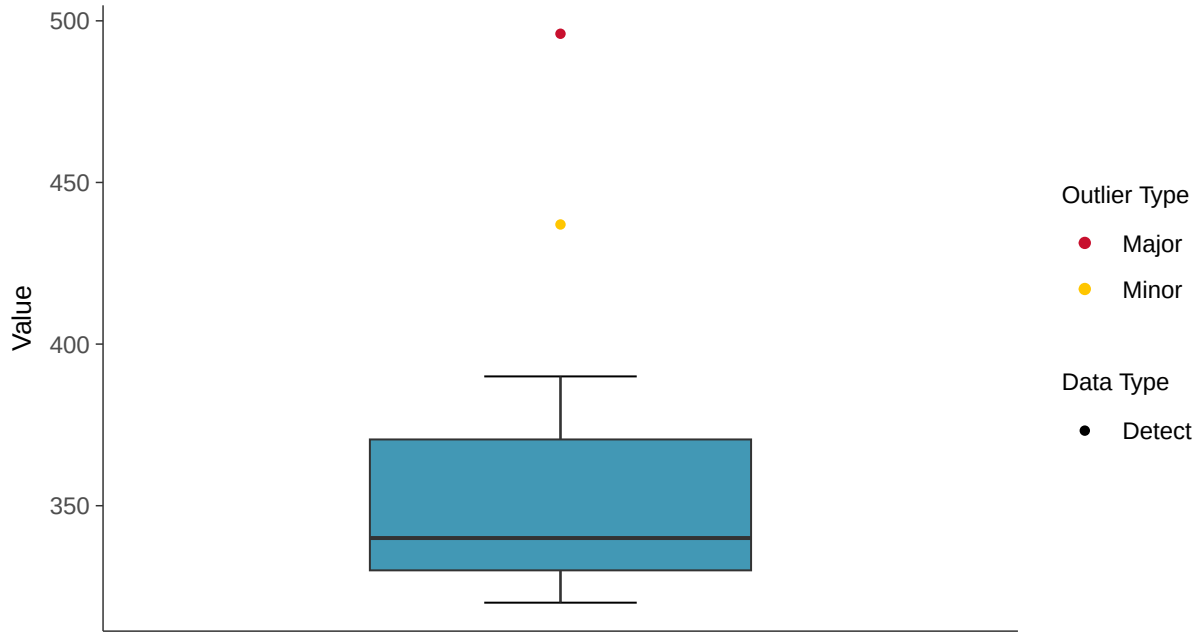
Histogram

Bicarbonate, MW-13 (mg/L)



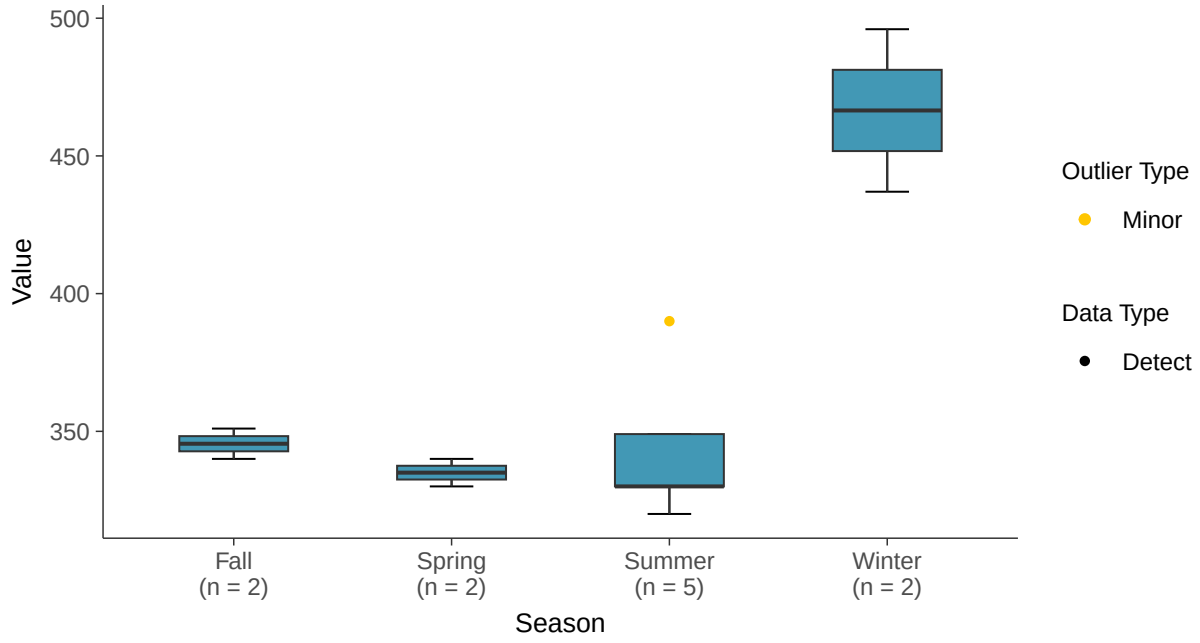
Boxplot

Bicarbonate, MW-13 (mg/L)



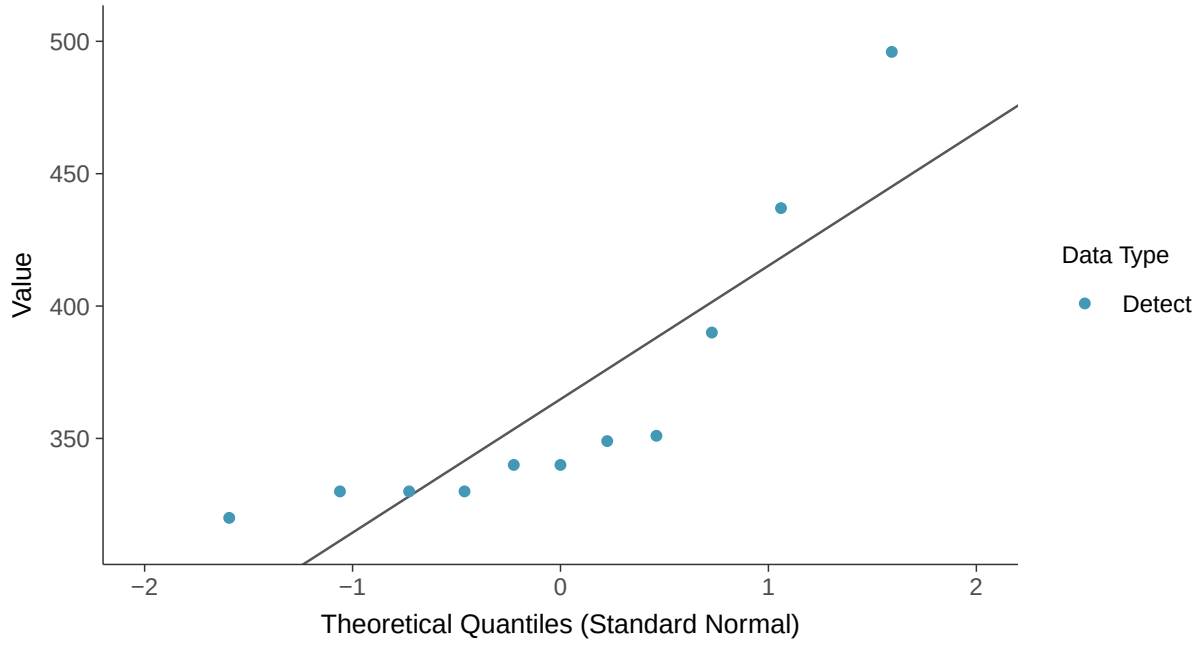
Boxplot by Season

Bicarbonate, MW-13 (mg/L)



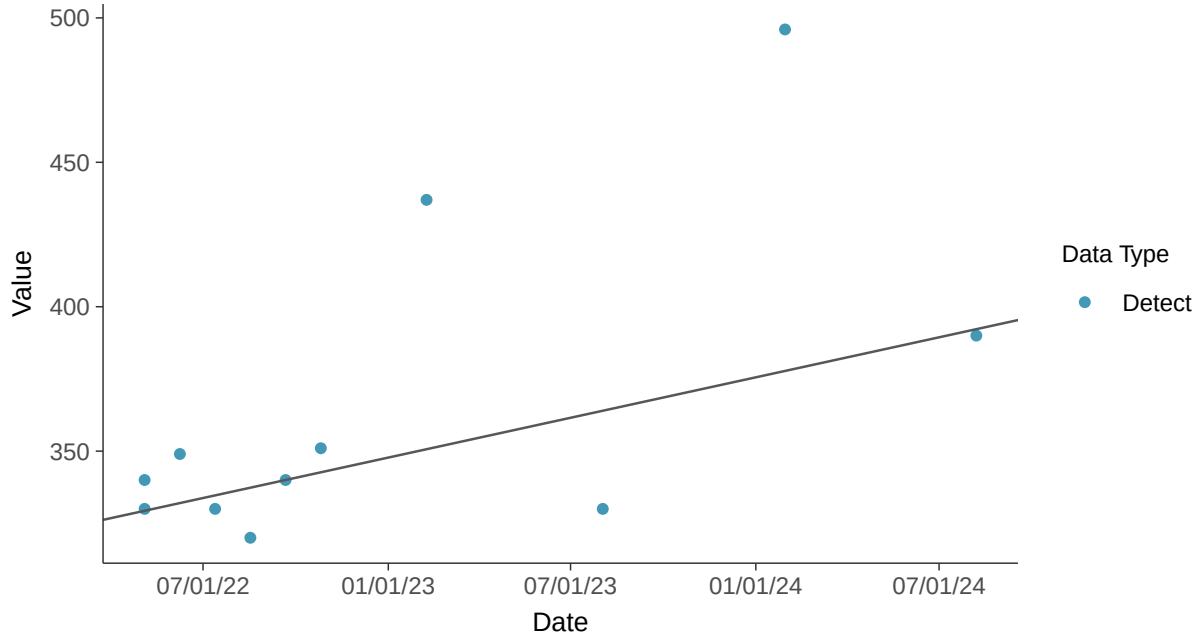
Normal Q-Q plot

Bicarbonate, MW-13 (mg/L)



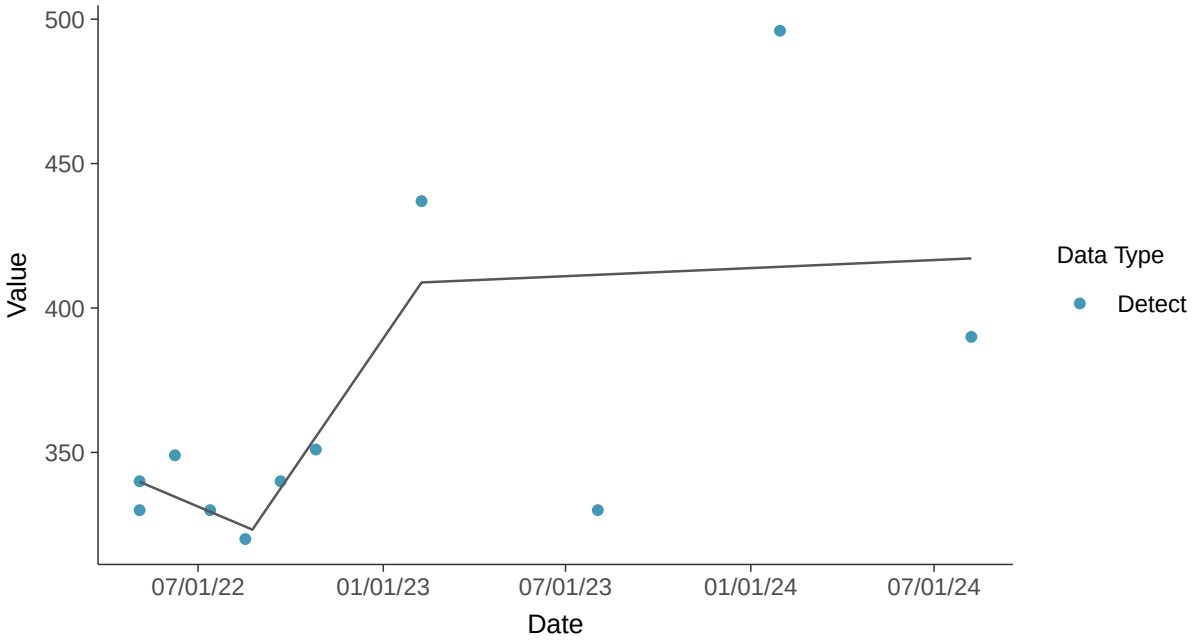
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Bicarbonate, MW-13 (mg/L)



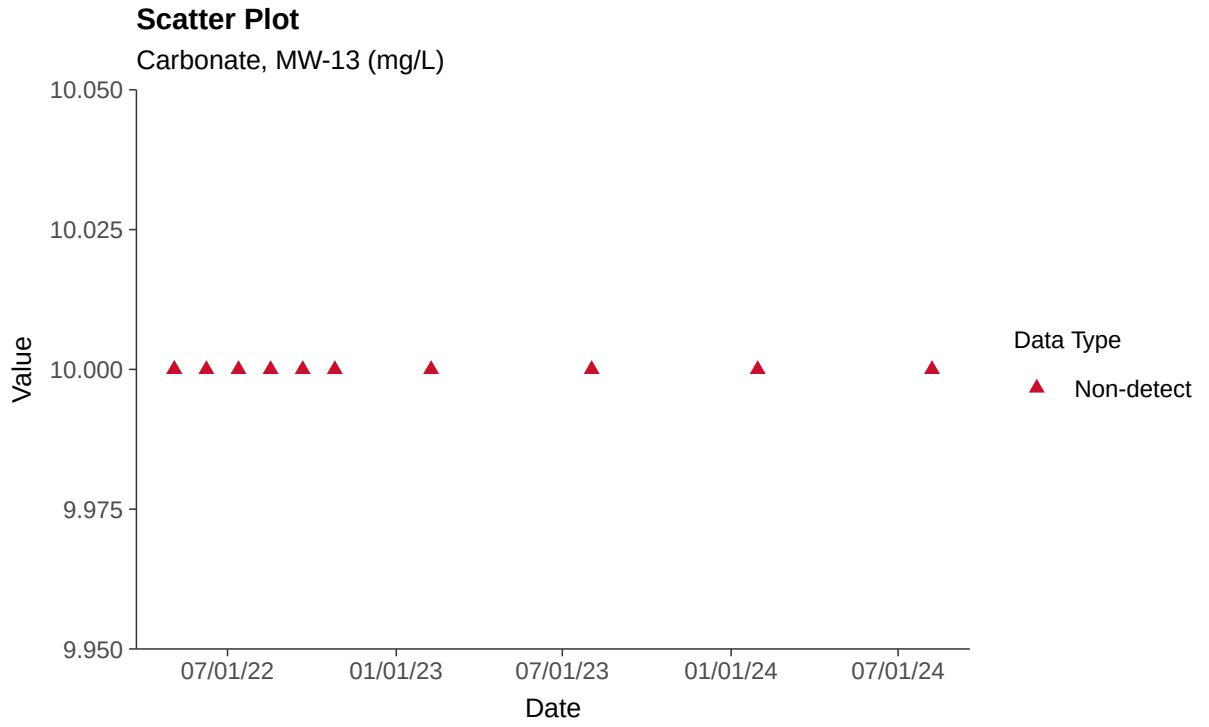
Trend Regression: Piecewise Linear-Linear-Linear

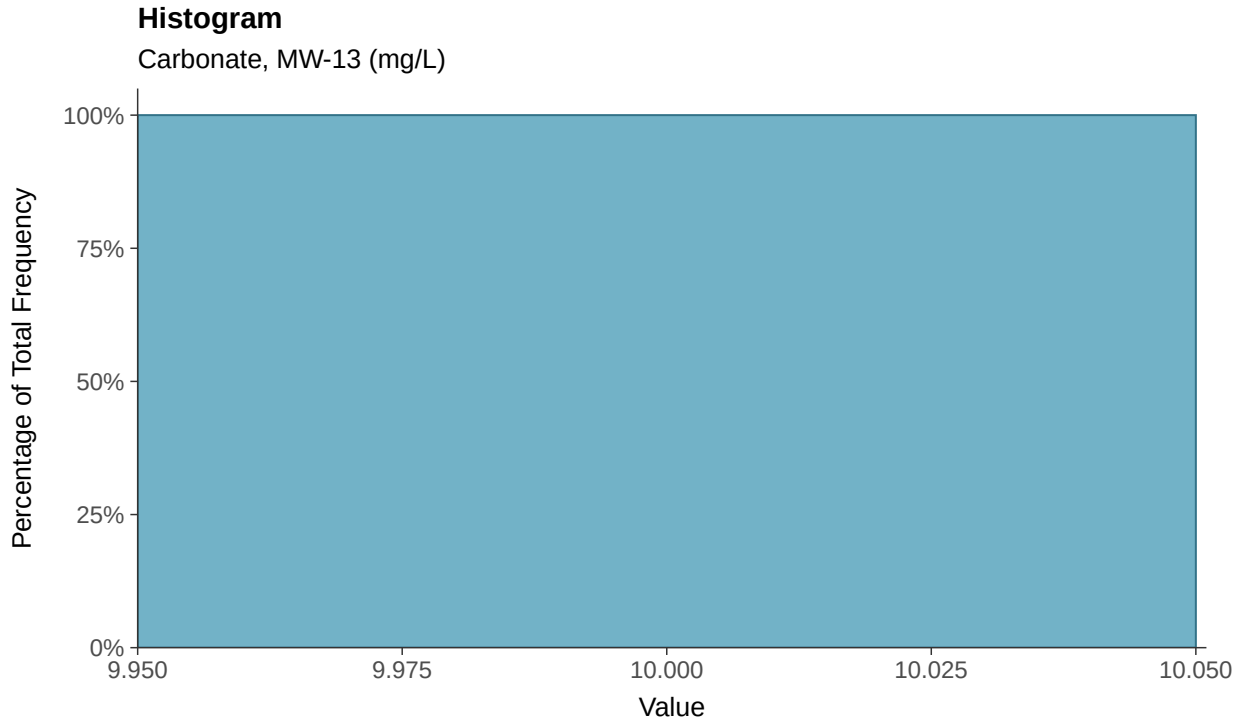
Bicarbonate, MW-13 (mg/L)



Other: Carbonate, MW-13

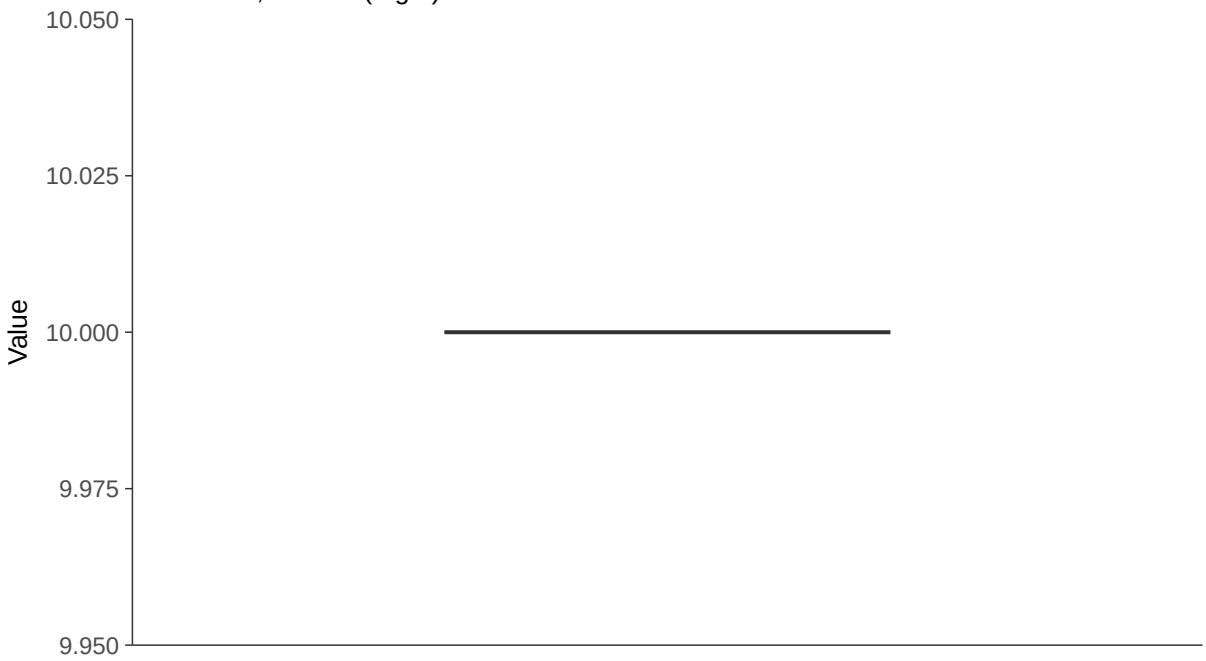
ID: 13_4_32





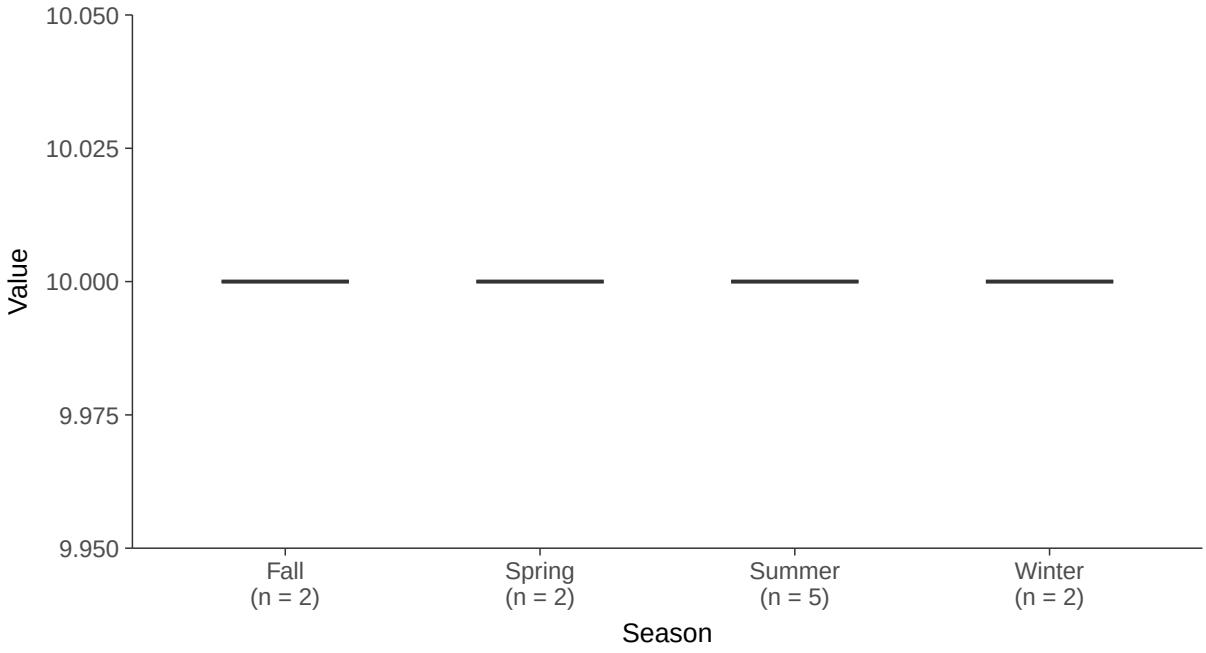
Boxplot

Carbonate, MW-13 (mg/L)



Boxplot by Season

Carbonate, MW-13 (mg/L)

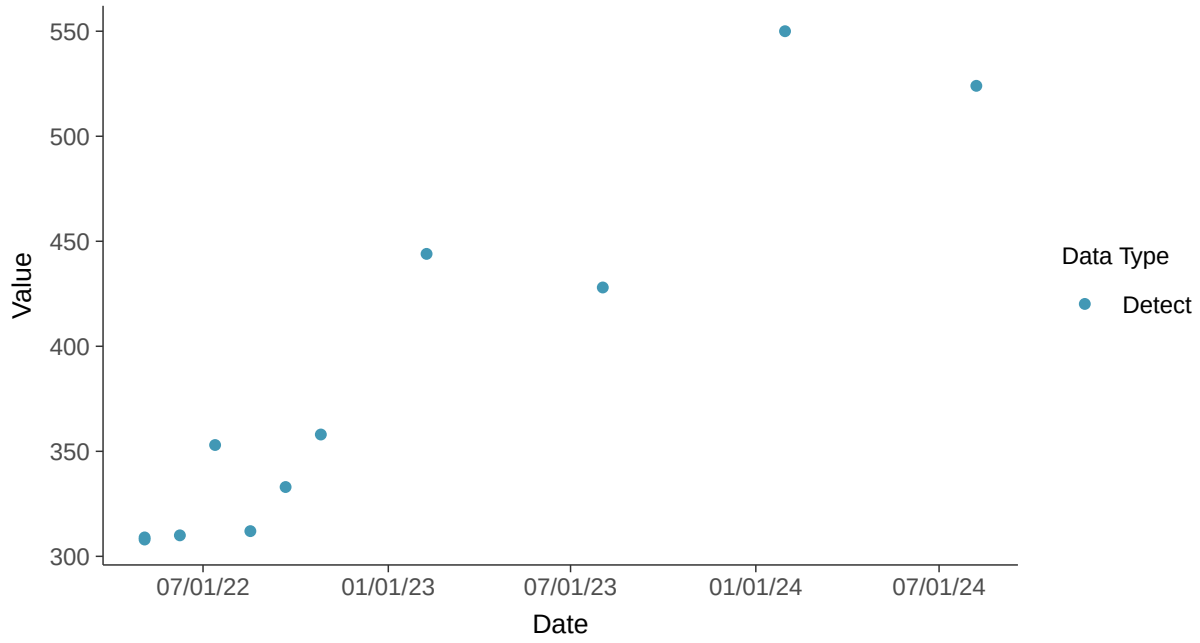


Other: Hardness, MW-13

ID: 13_4_33

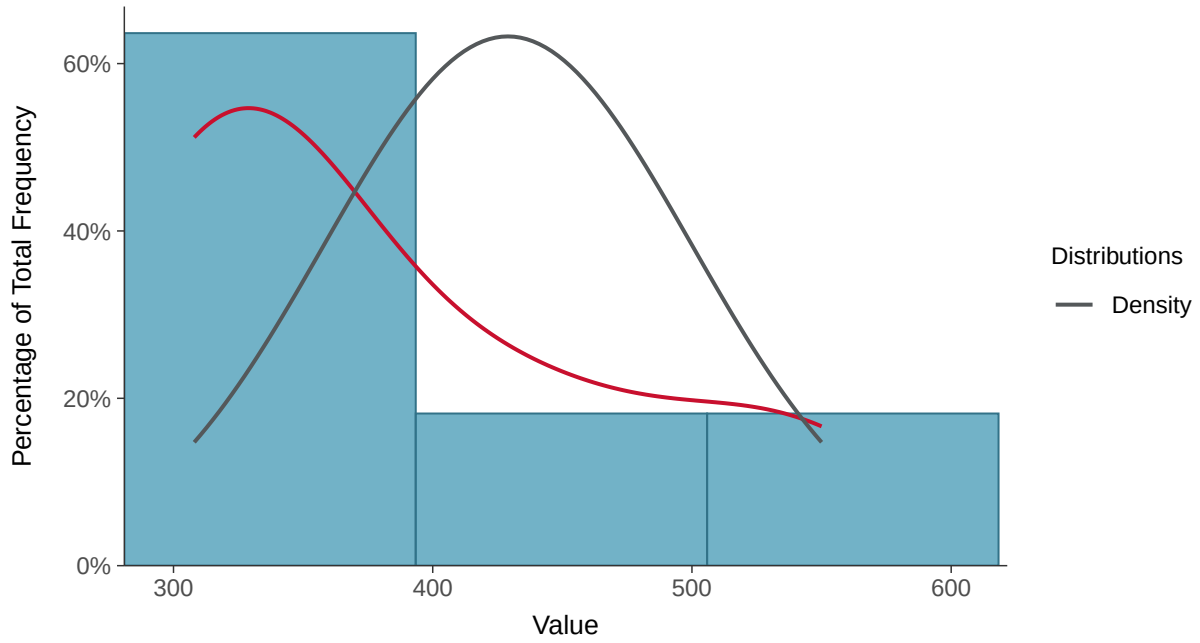
Scatter Plot

Hardness, MW-13 (mg/L)



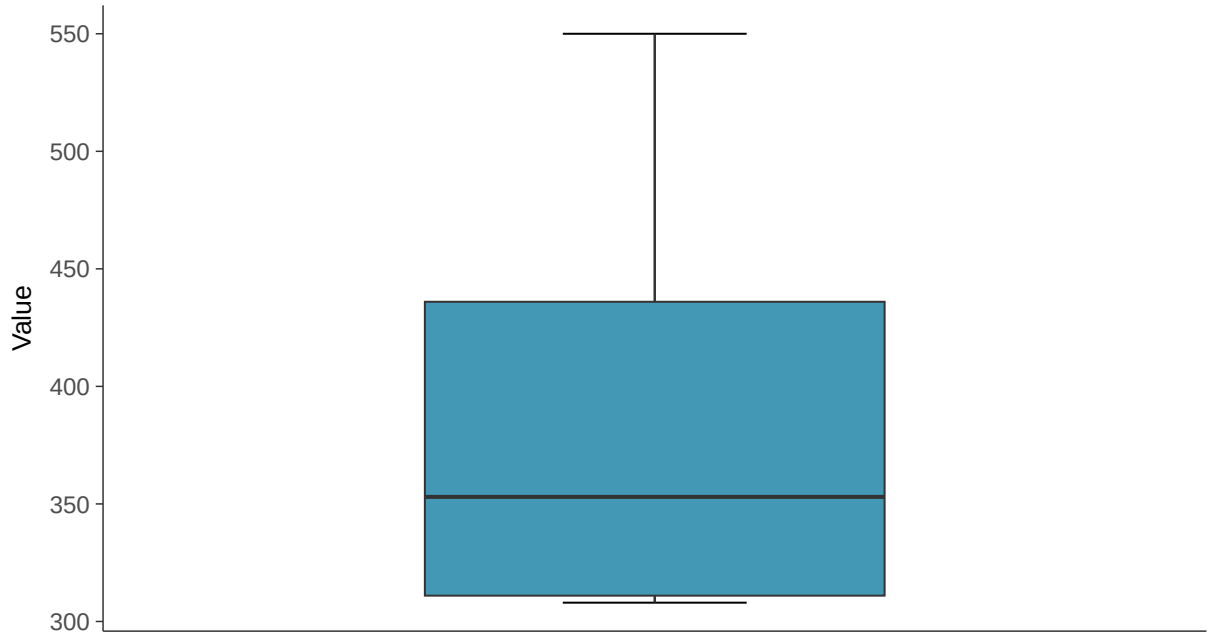
Histogram

Hardness, MW-13 (mg/L)



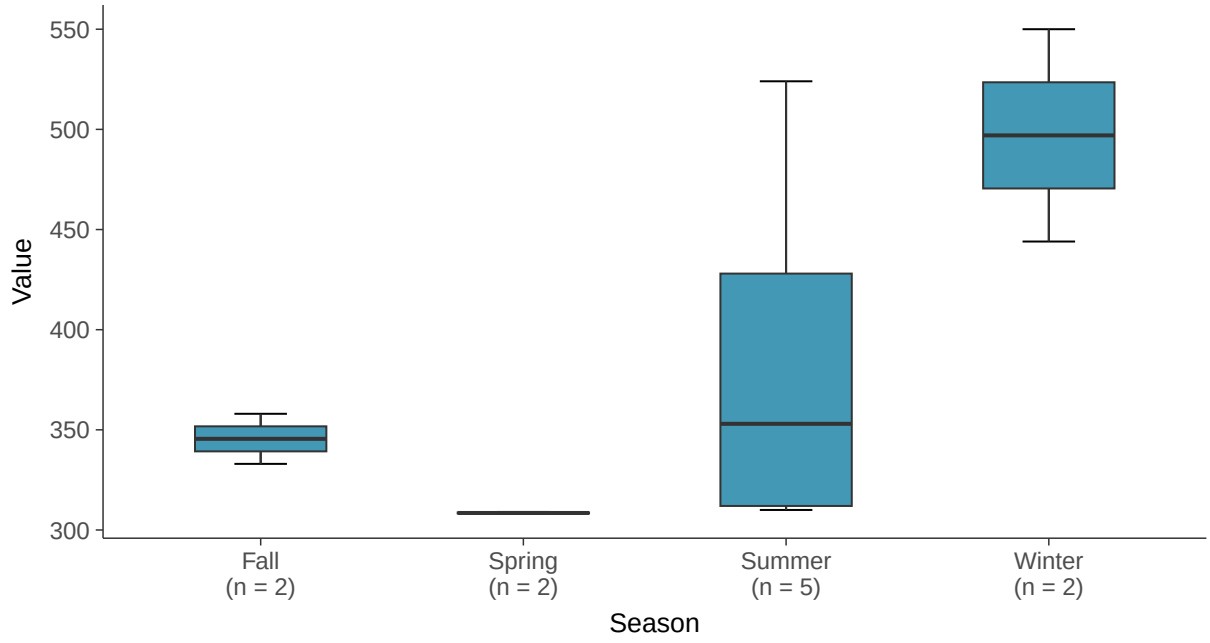
Boxplot

Hardness, MW-13 (mg/L)



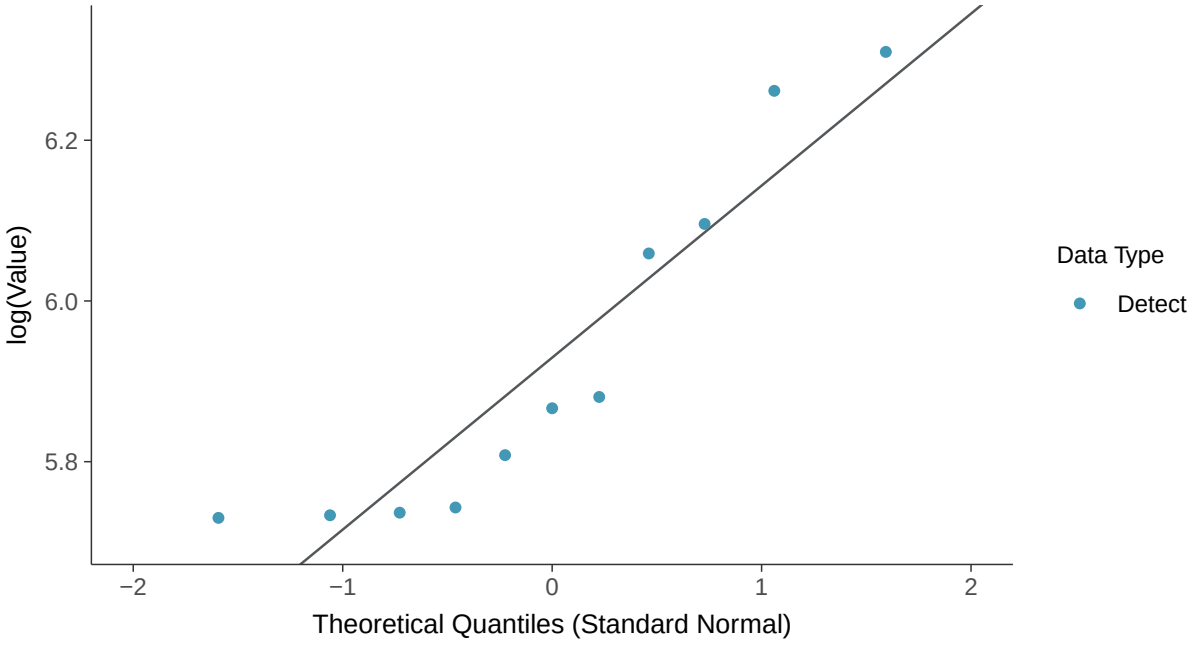
Boxplot by Season

Hardness, MW-13 (mg/L)



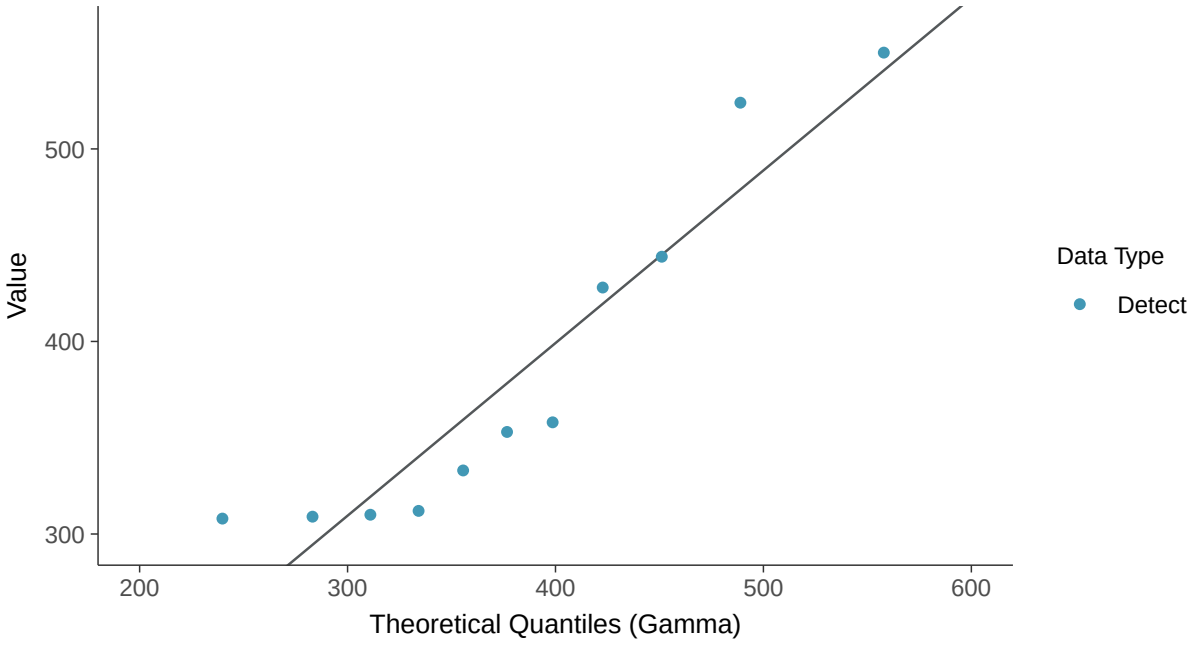
Lognormal Q-Q plot

Hardness, MW-13 (mg/L)



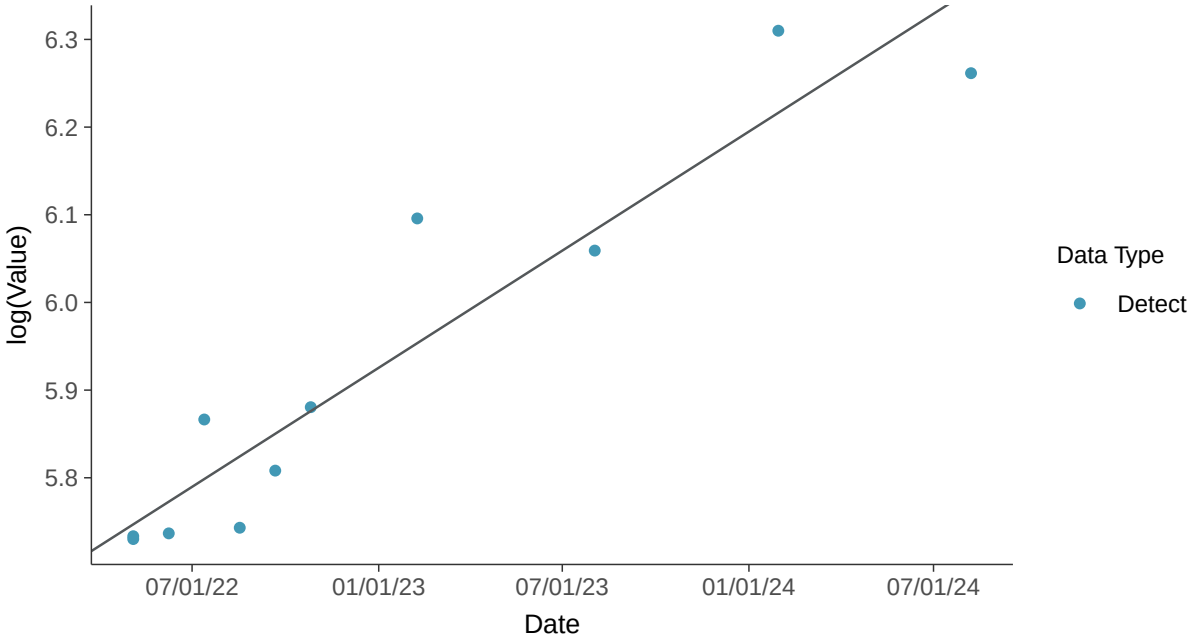
Gamma Q-Q plot

Hardness, MW-13 (mg/L)



Trend Regression: Lognormal MLE

Hardness, MW-13 (mg/L)

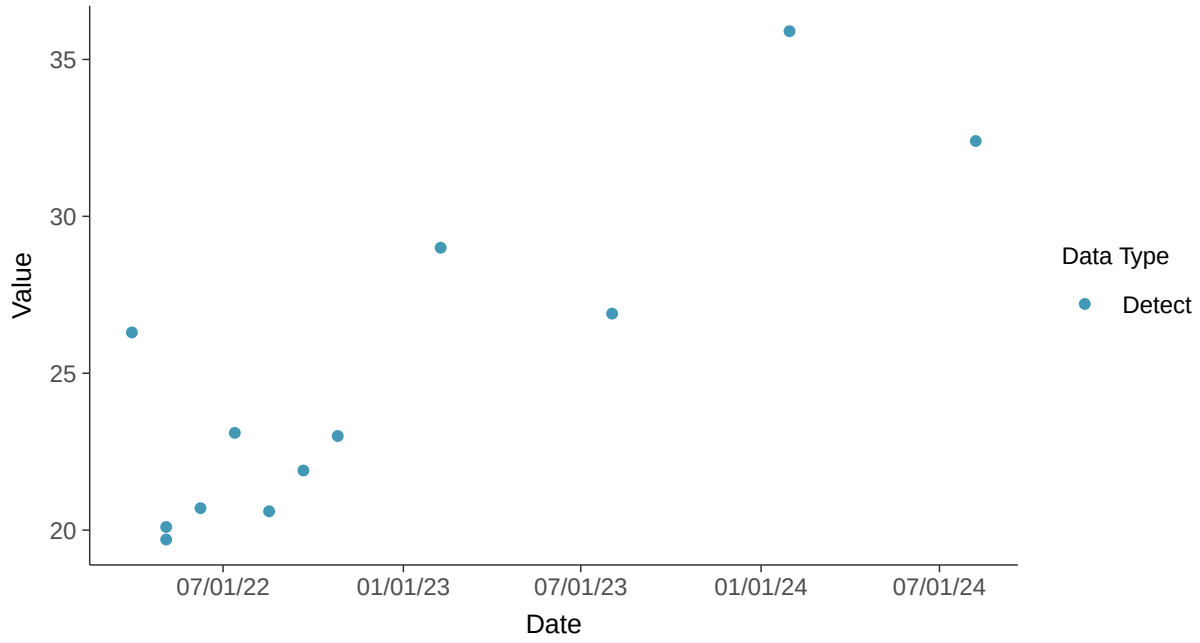


Other: Magnesium, MW-13

ID: 13_4_34

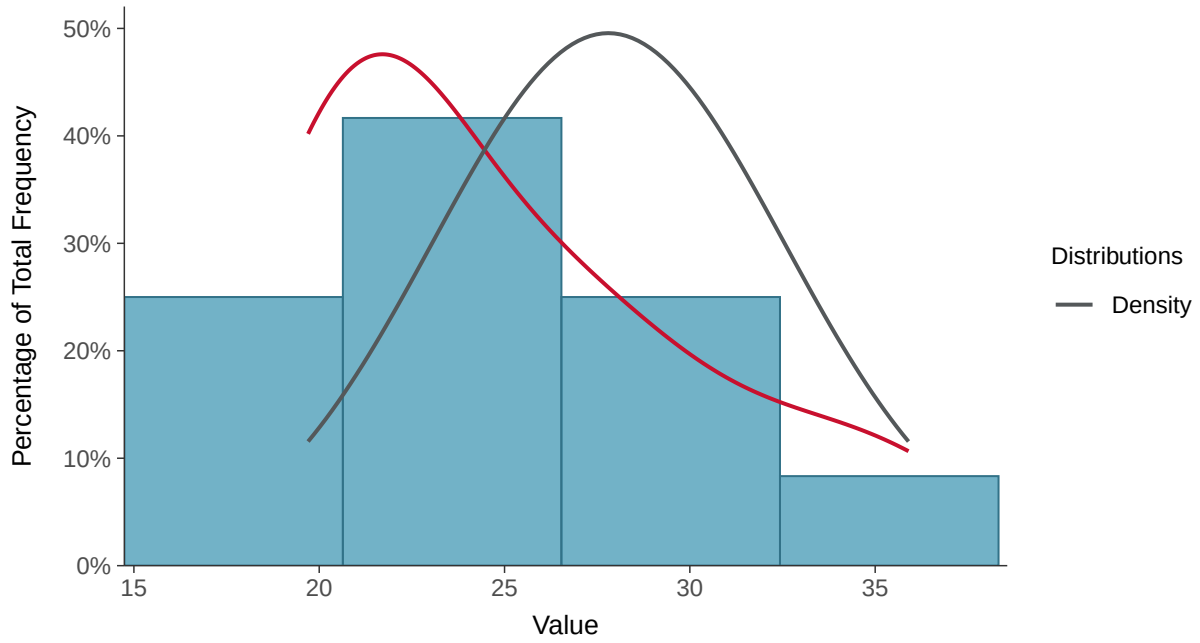
Scatter Plot

Magnesium, MW-13 (mg/L)



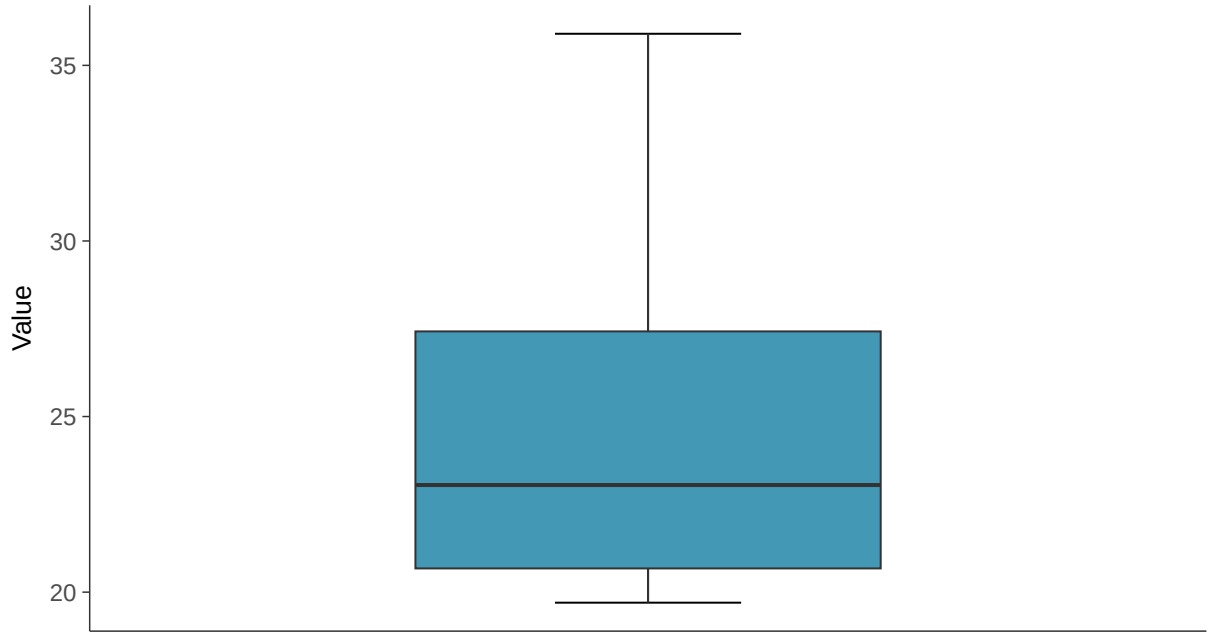
Histogram

Magnesium, MW-13 (mg/L)



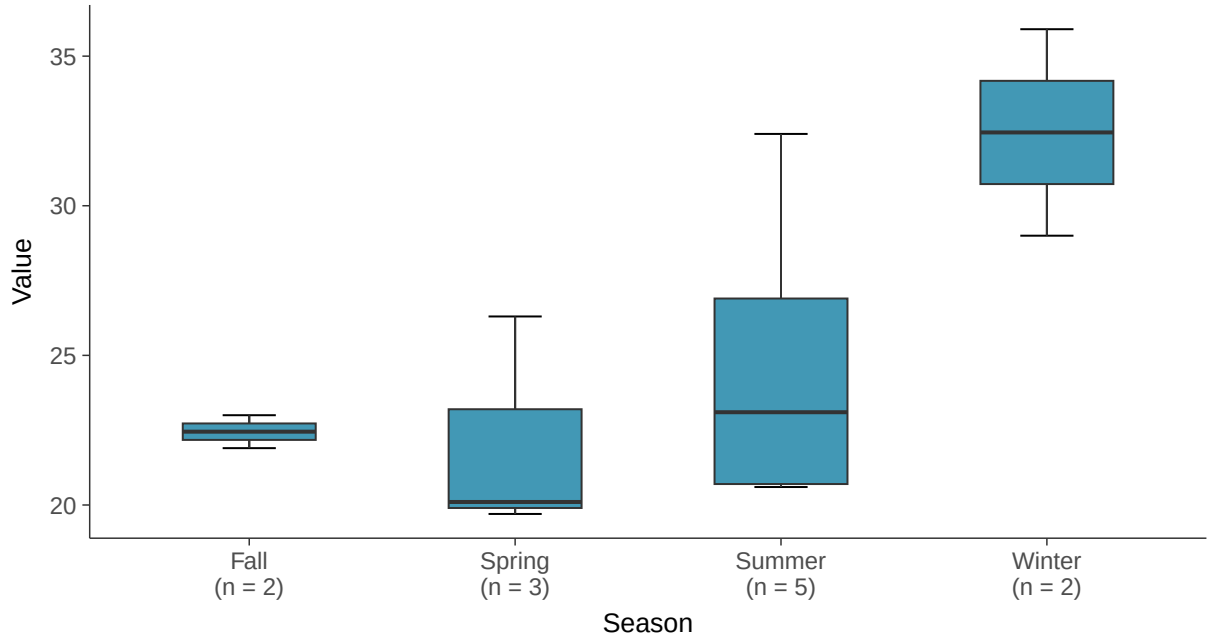
Boxplot

Magnesium, MW-13 (mg/L)



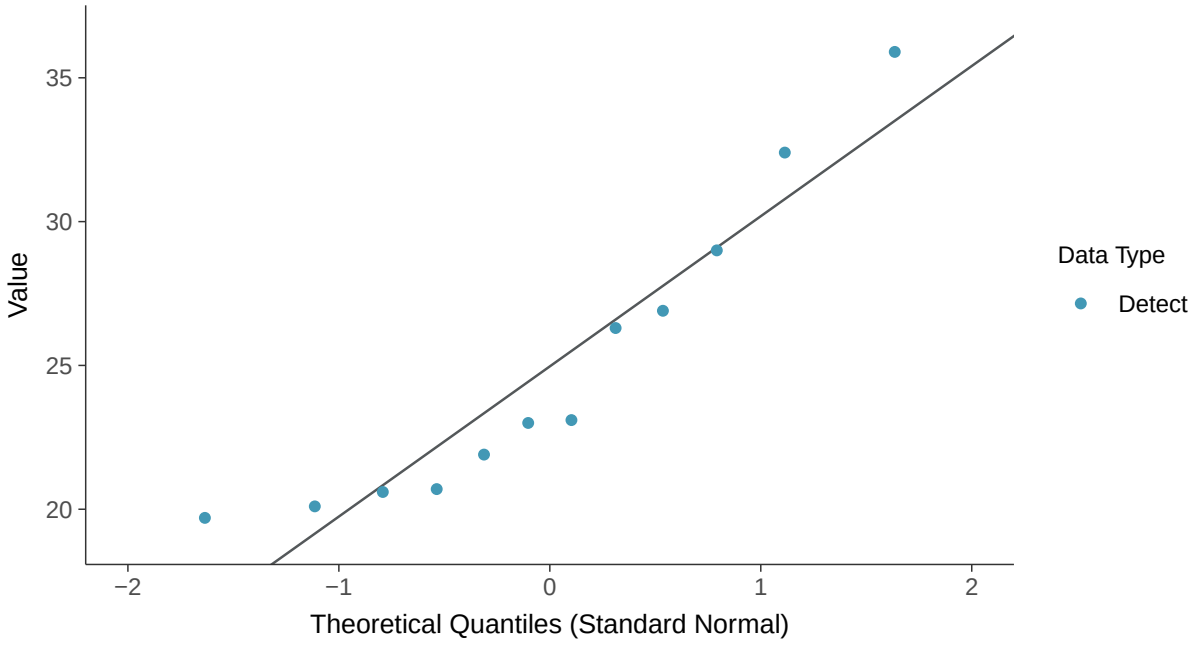
Boxplot by Season

Magnesium, MW-13 (mg/L)



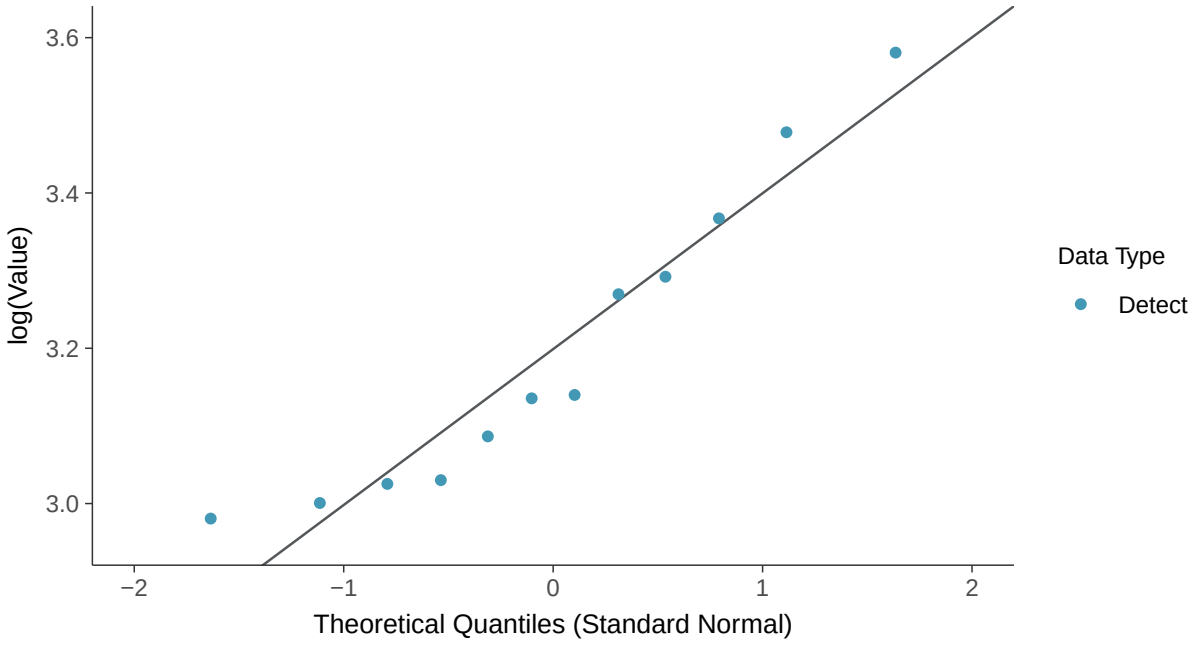
Normal Q-Q plot

Magnesium, MW-13 (mg/L)



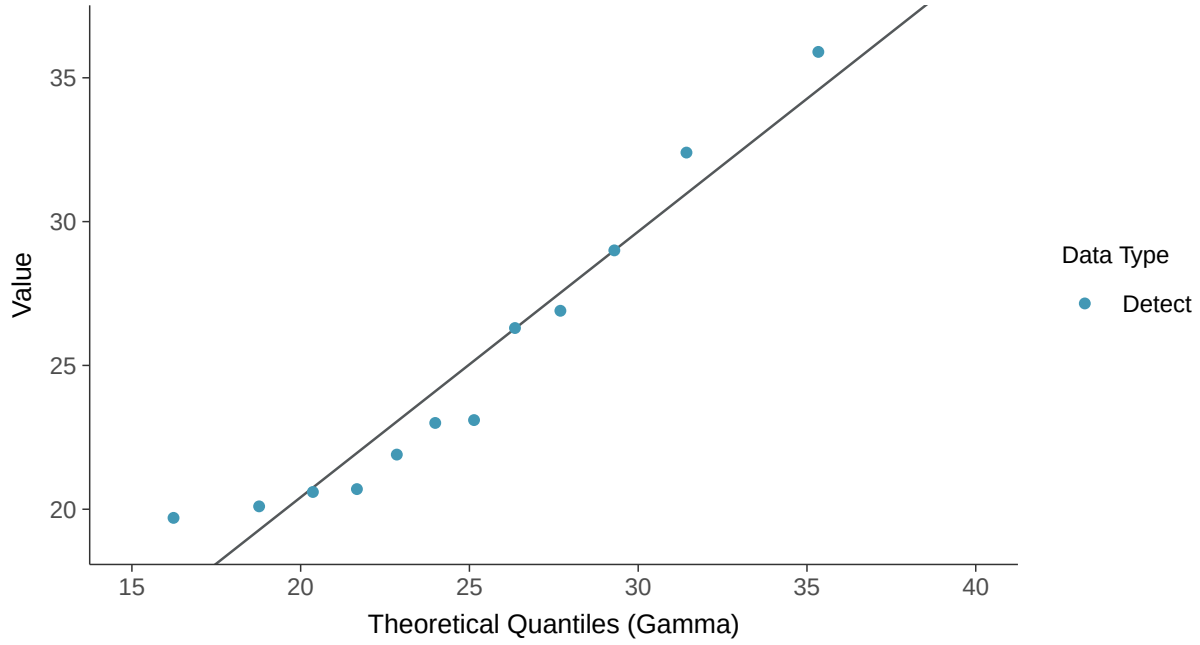
Lognormal Q-Q plot

Magnesium, MW-13 (mg/L)



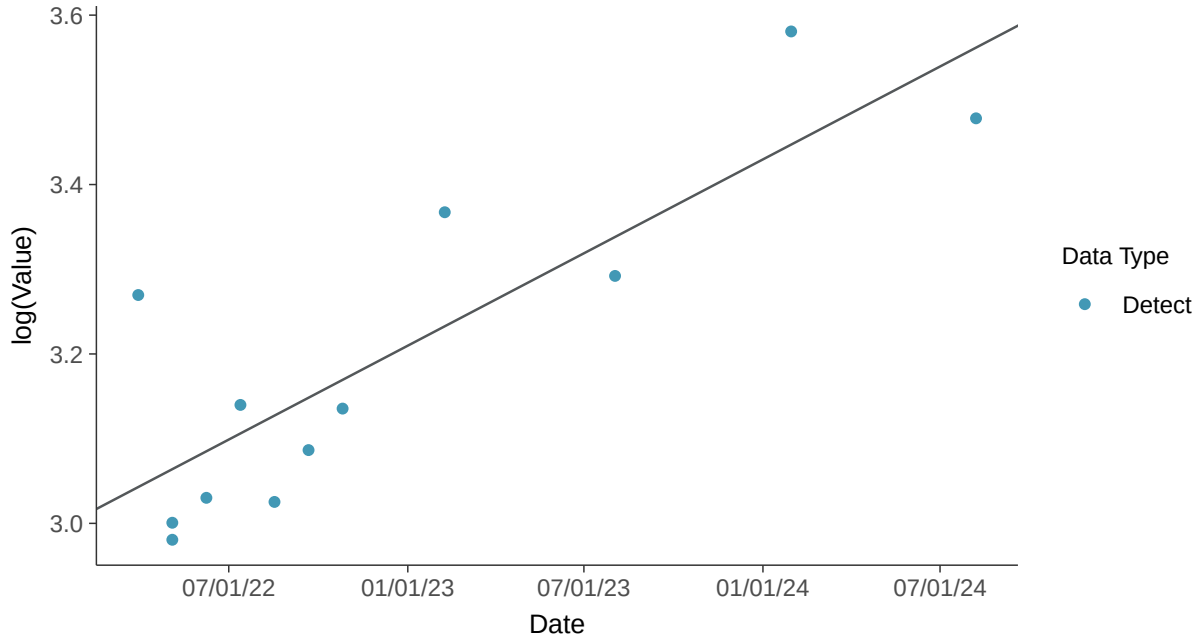
Gamma Q-Q plot

Magnesium, MW-13 (mg/L)



Trend Regression: Lognormal MLE

Magnesium, MW-13 (mg/L)

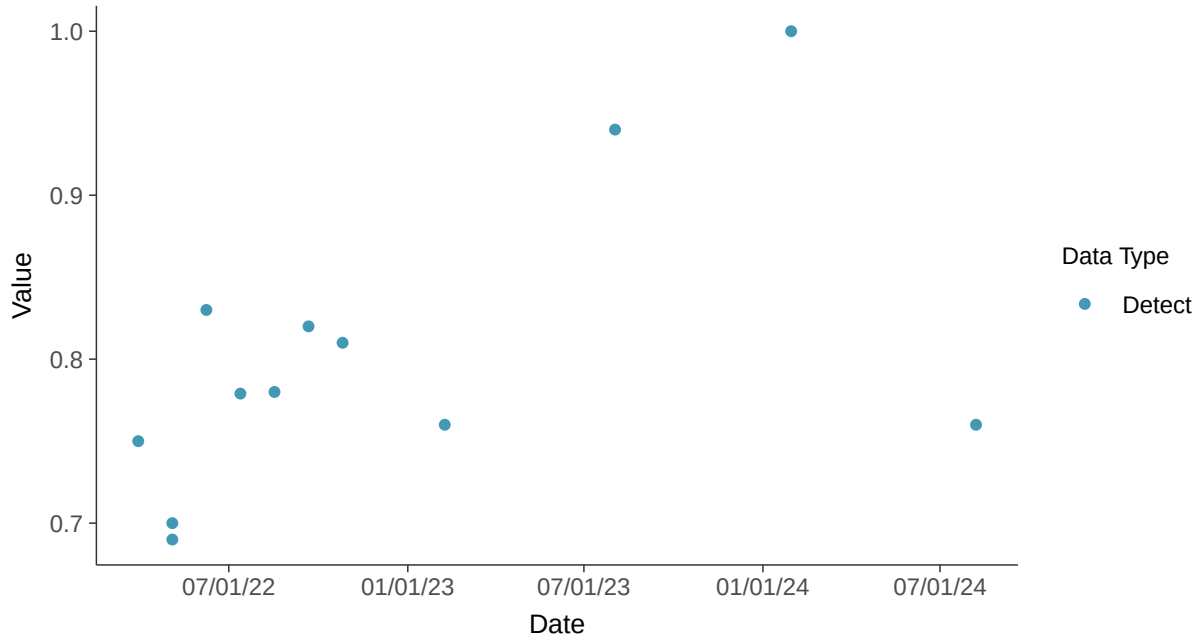


Other: Potassium, MW-13

ID: 13_4_35

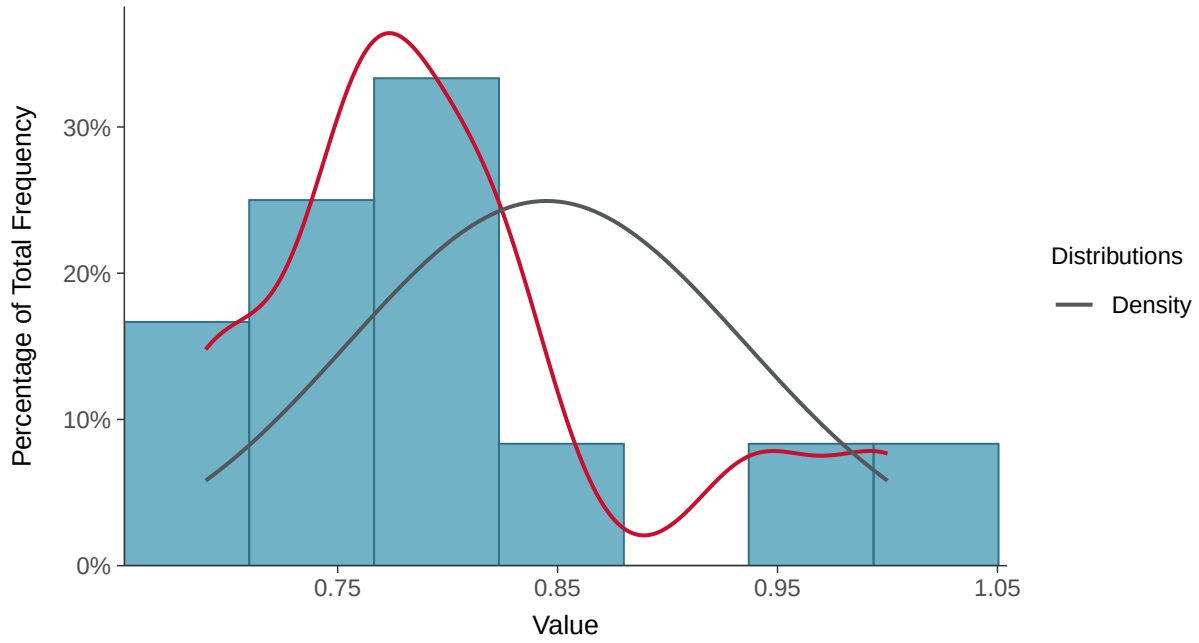
Scatter Plot

Potassium, MW-13 (mg/L)



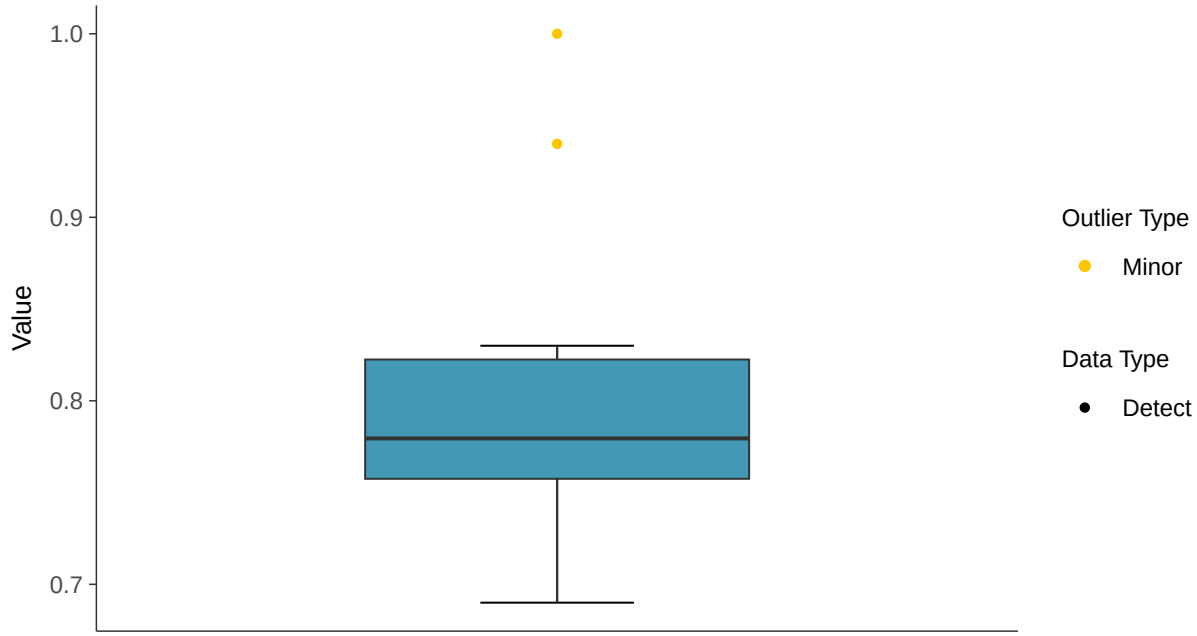
Histogram

Potassium, MW-13 (mg/L)



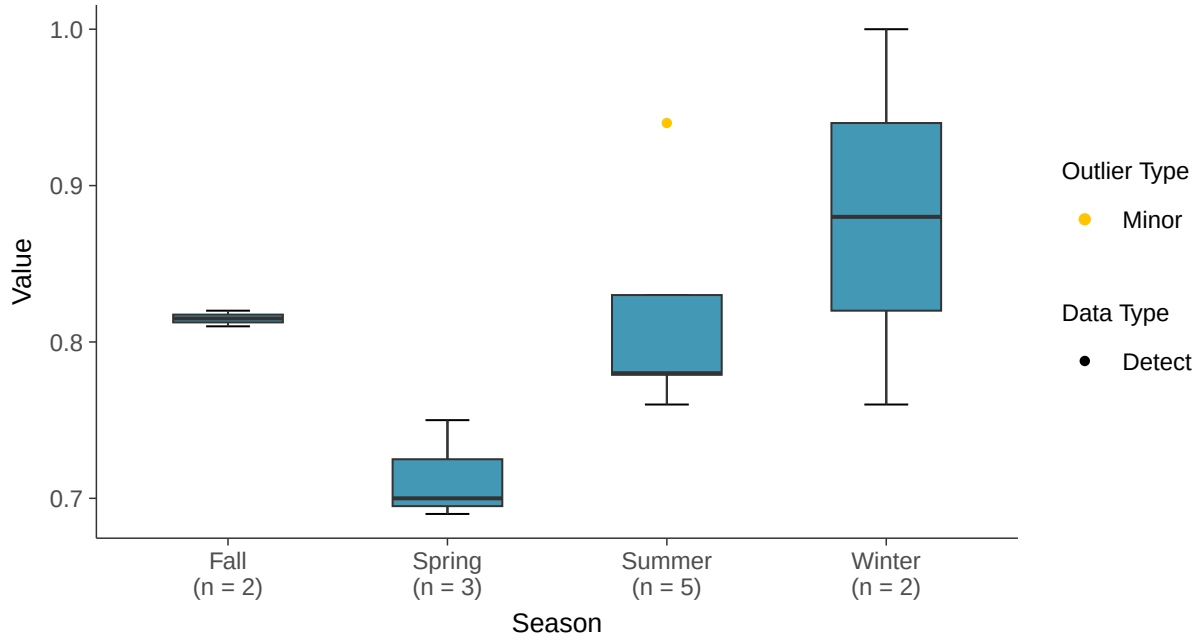
Boxplot

Potassium, MW-13 (mg/L)



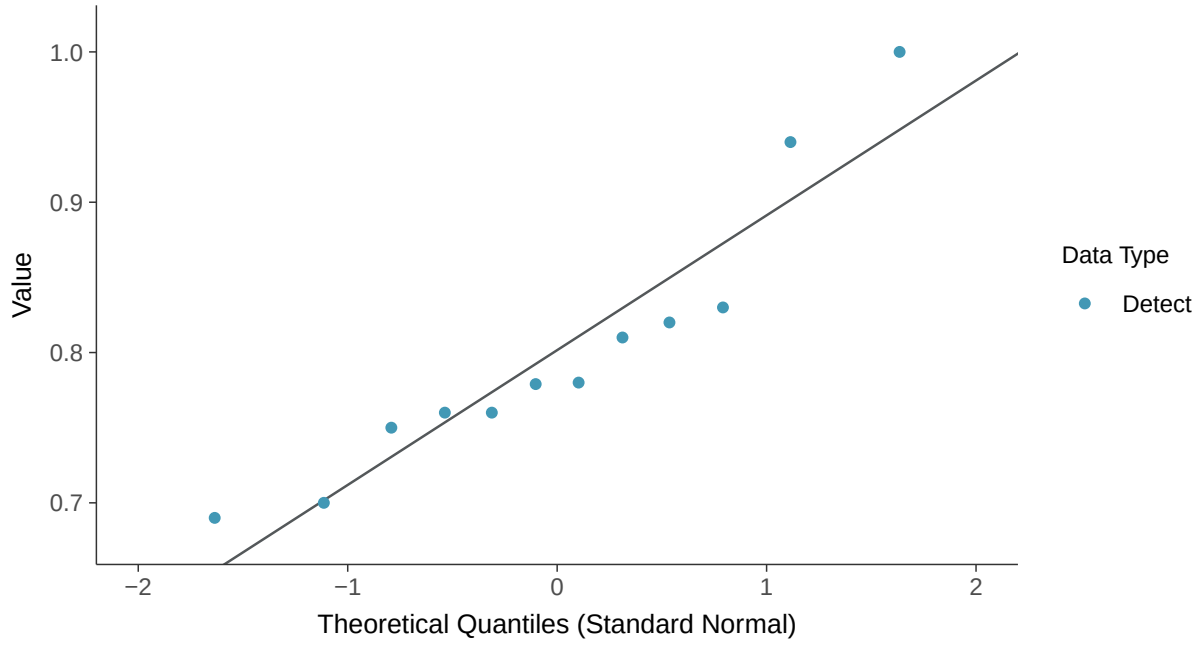
Boxplot by Season

Potassium, MW-13 (mg/L)



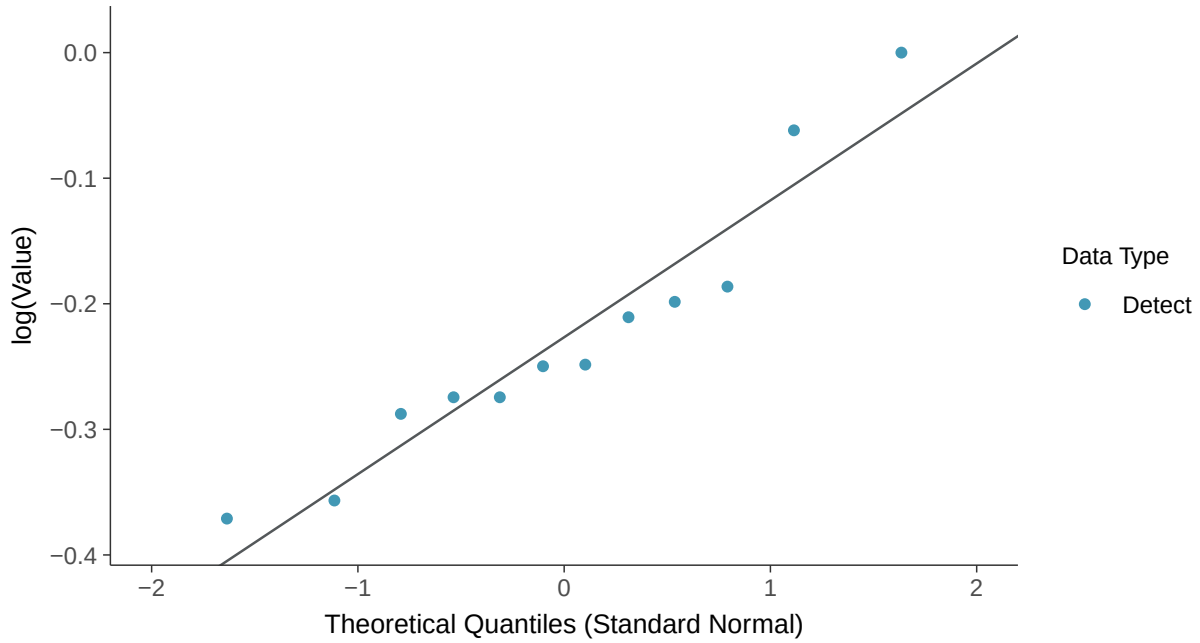
Normal Q-Q plot

Potassium, MW-13 (mg/L)



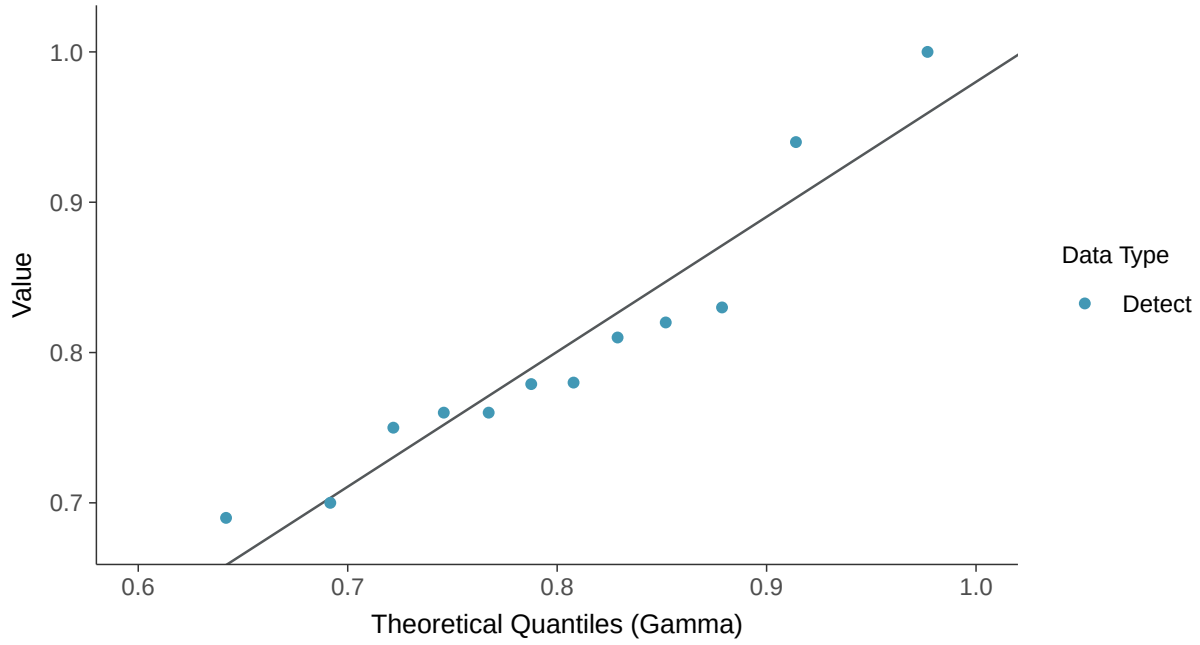
Lognormal Q-Q plot

Potassium, MW-13 (mg/L)



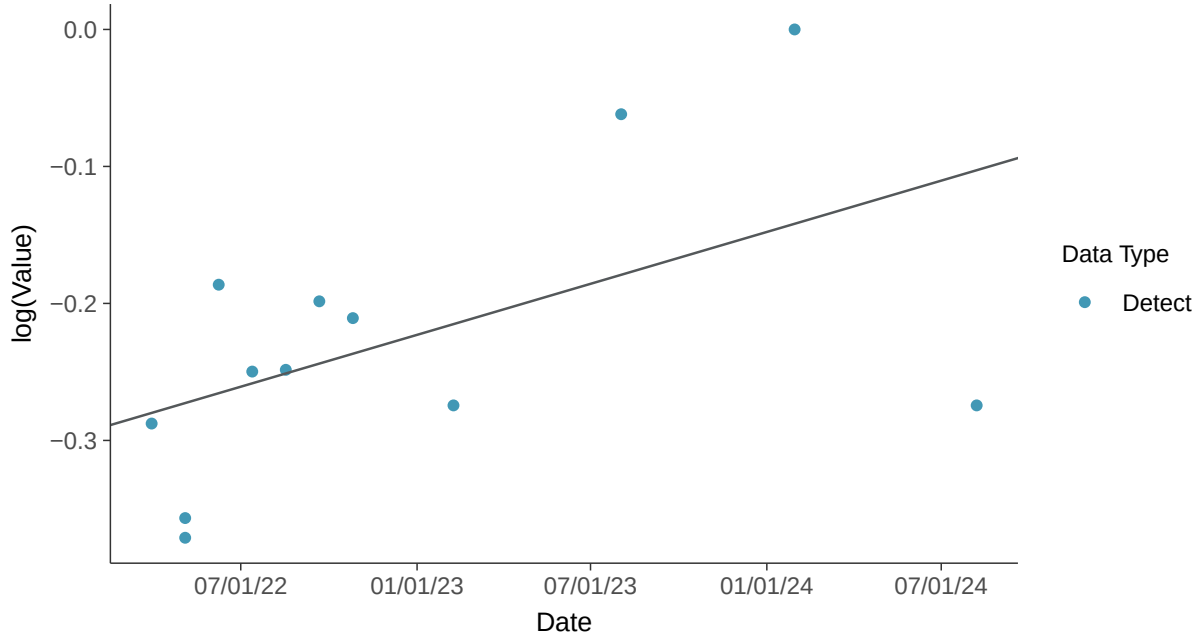
Gamma Q-Q plot

Potassium, MW-13 (mg/L)



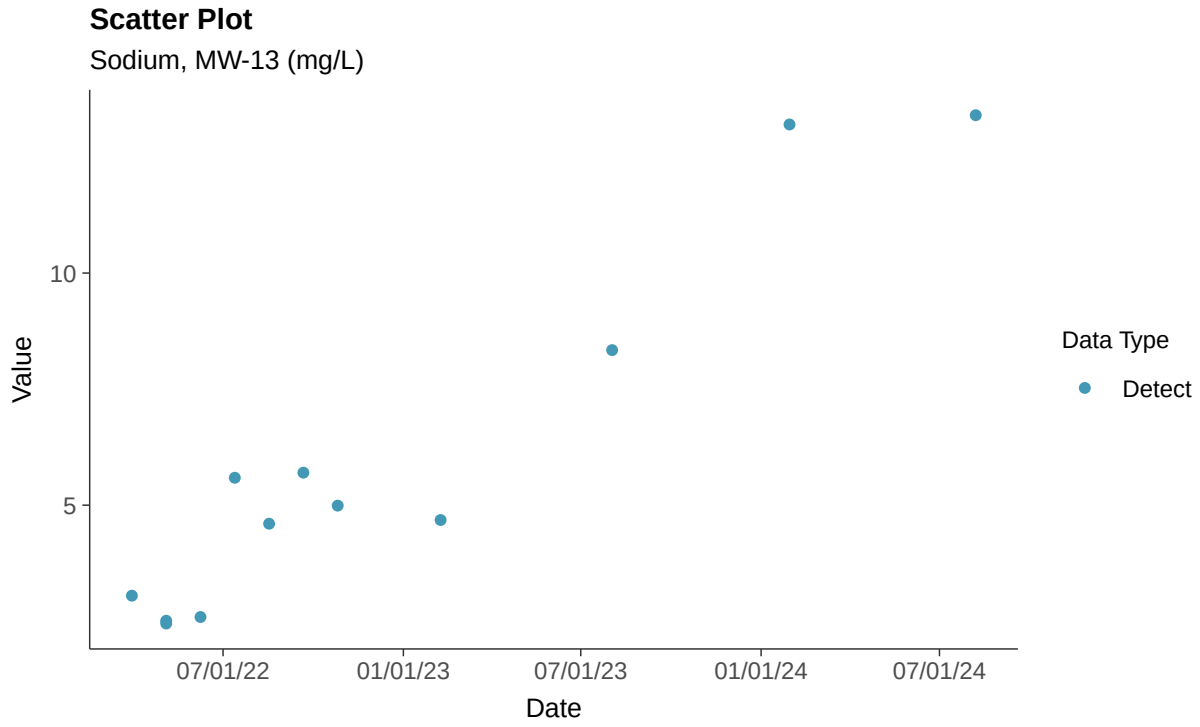
Trend Regression: Lognormal MLE

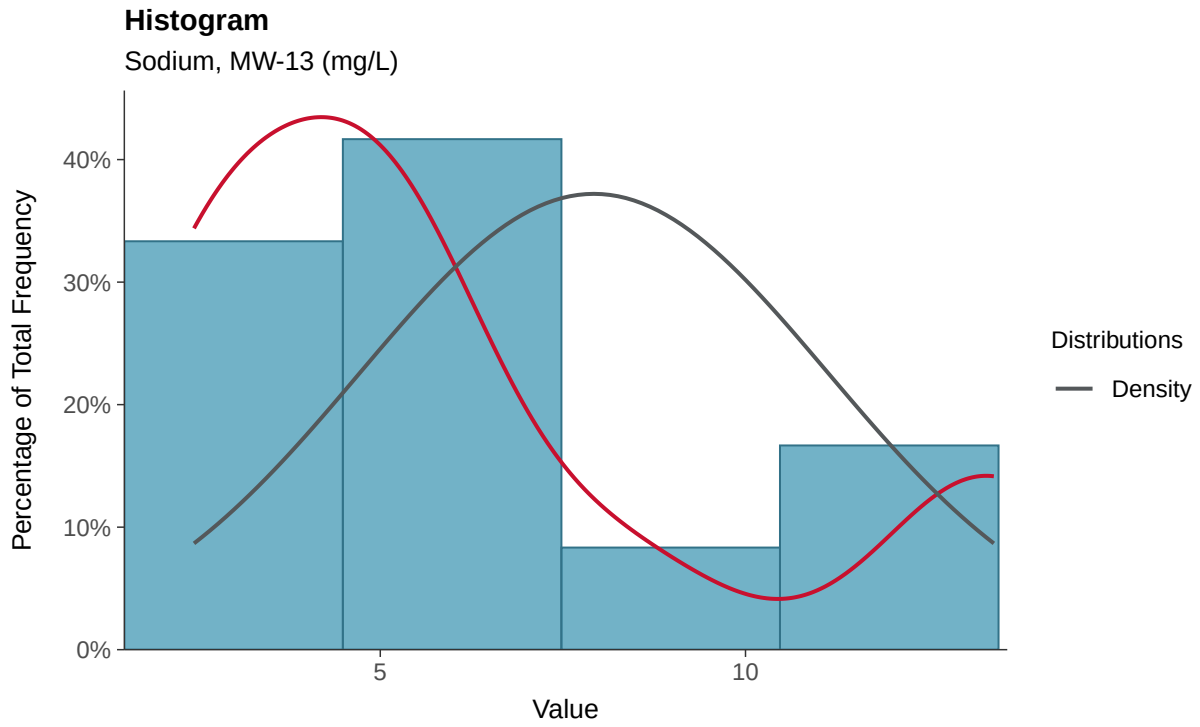
Potassium, MW-13 (mg/L)



Other: Sodium, MW-13

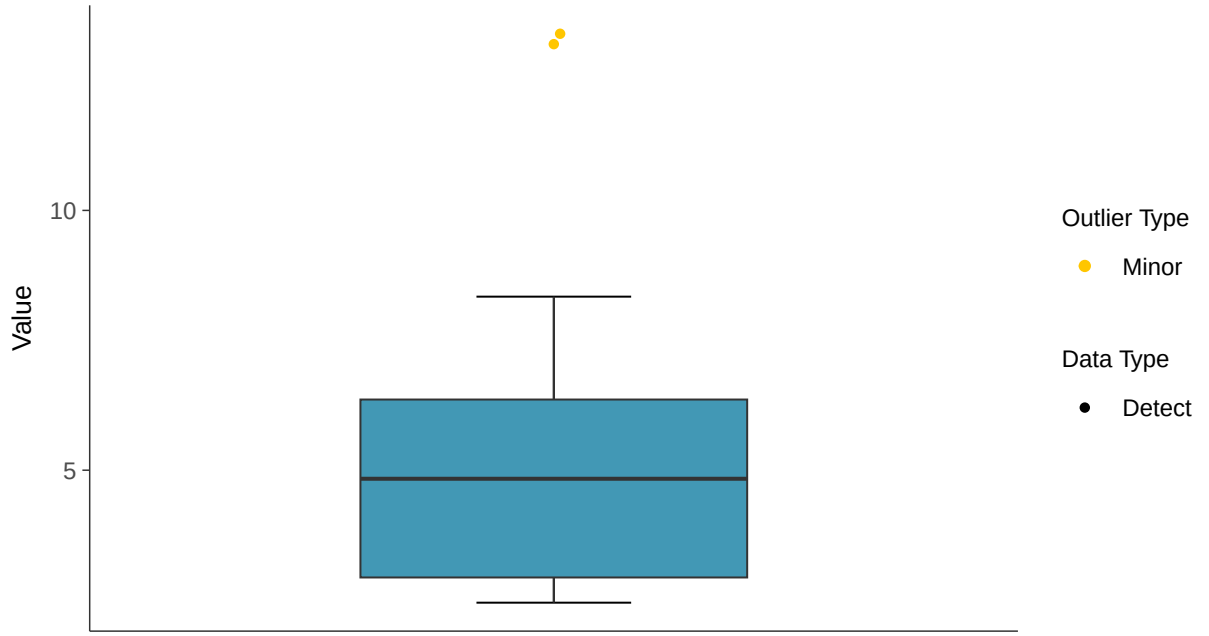
ID: 13_4_36





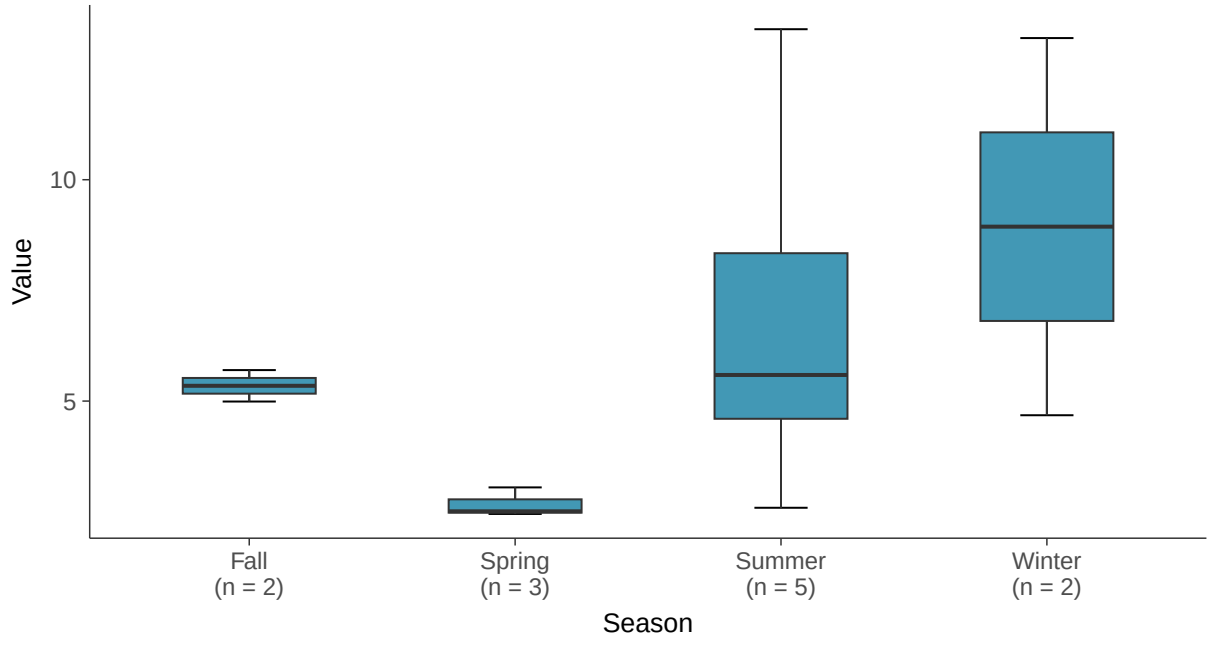
Boxplot

Sodium, MW-13 (mg/L)



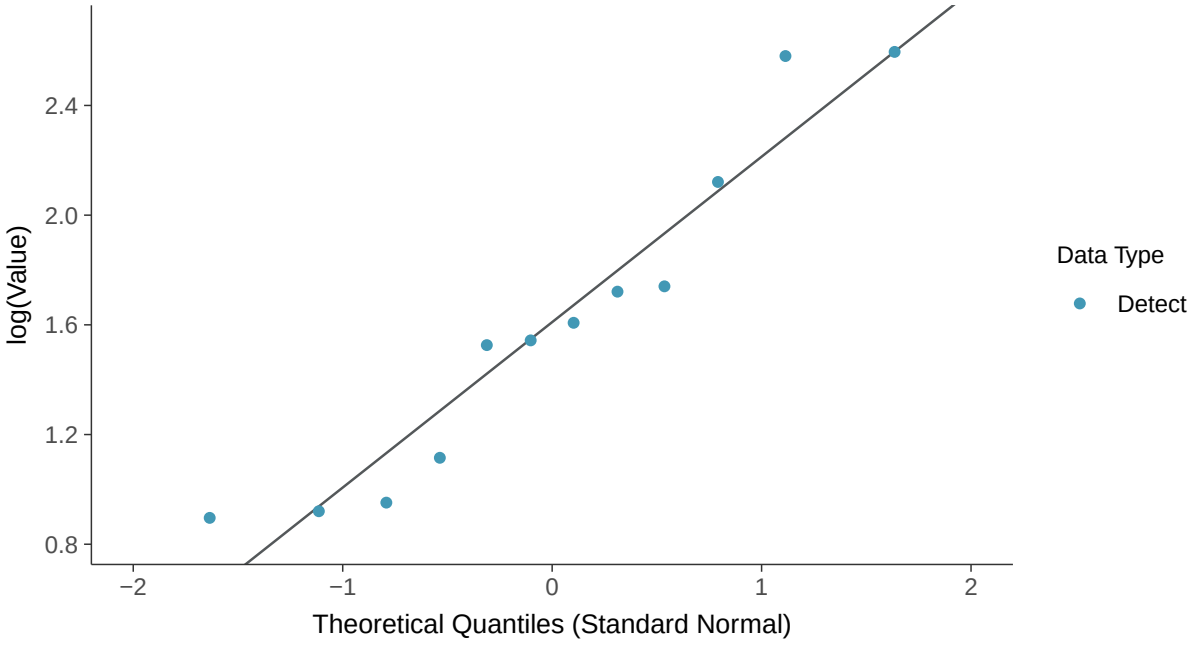
Boxplot by Season

Sodium, MW-13 (mg/L)



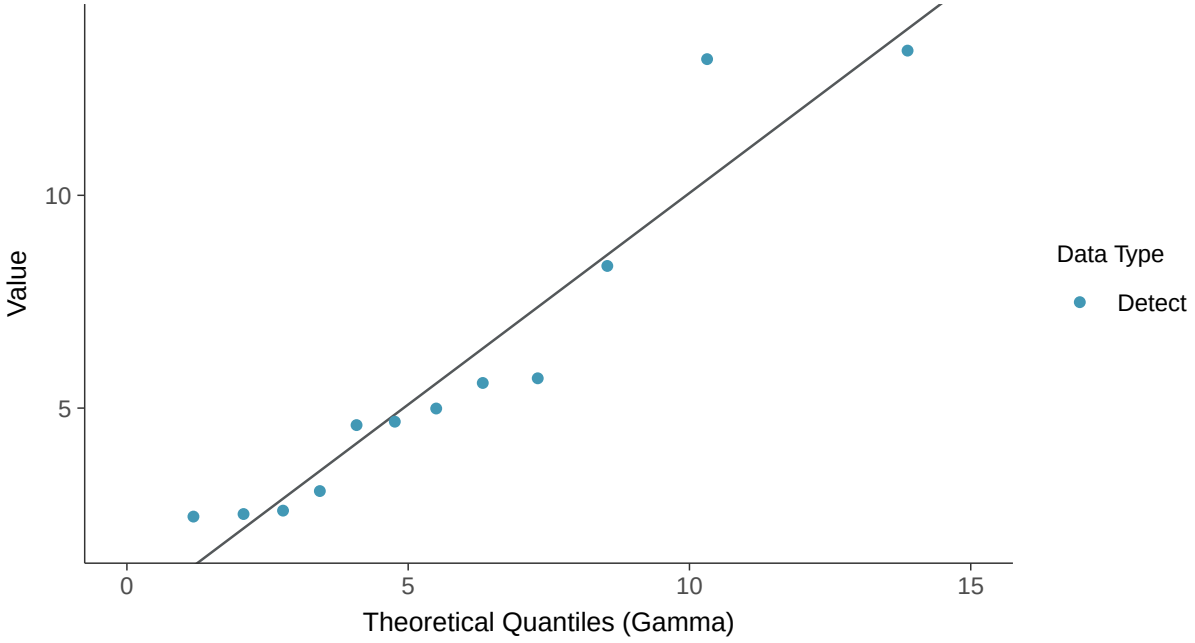
Lognormal Q-Q plot

Sodium, MW-13 (mg/L)



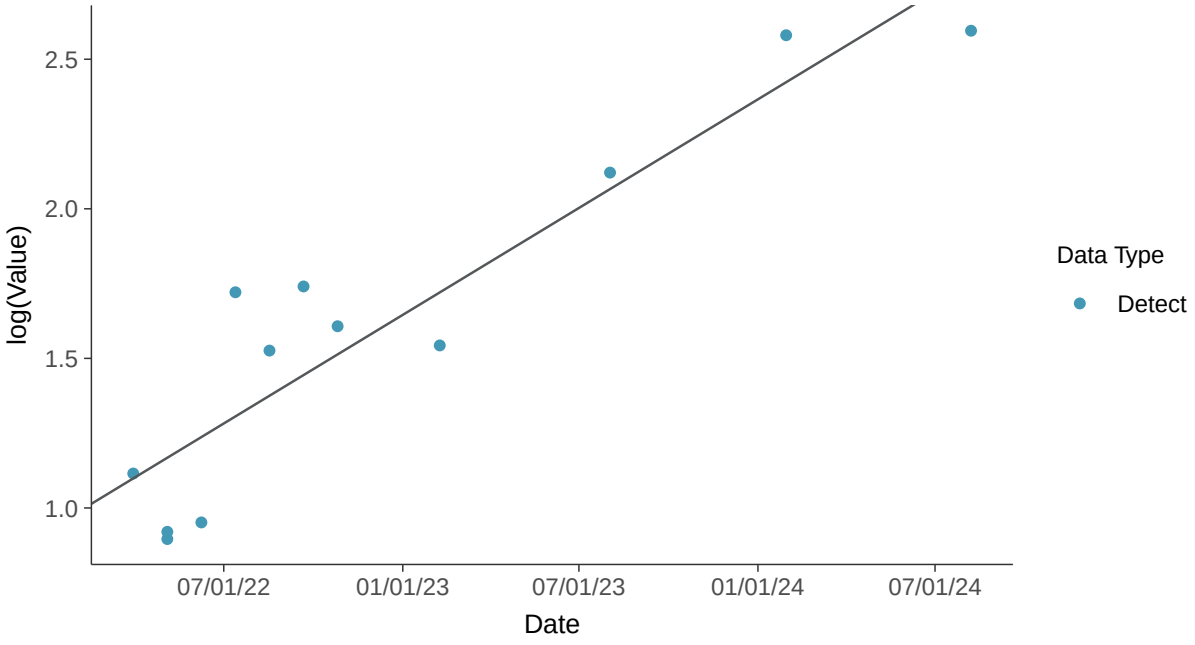
Gamma Q-Q plot

Sodium, MW-13 (mg/L)



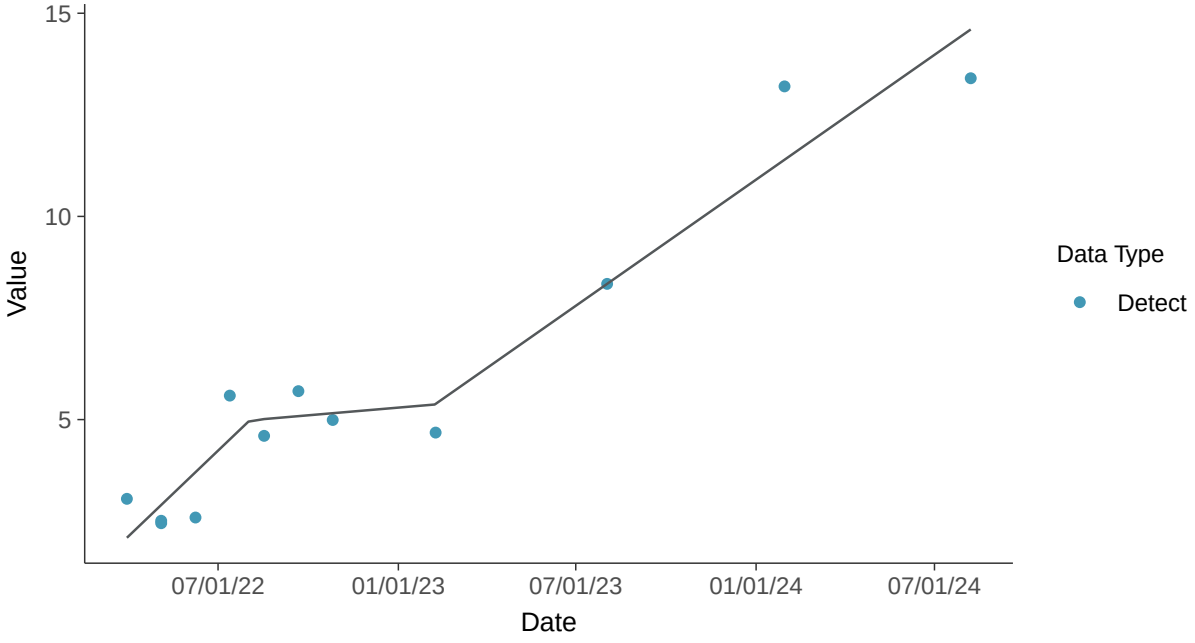
Trend Regression: Lognormal MLE

Sodium, MW-13 (mg/L)



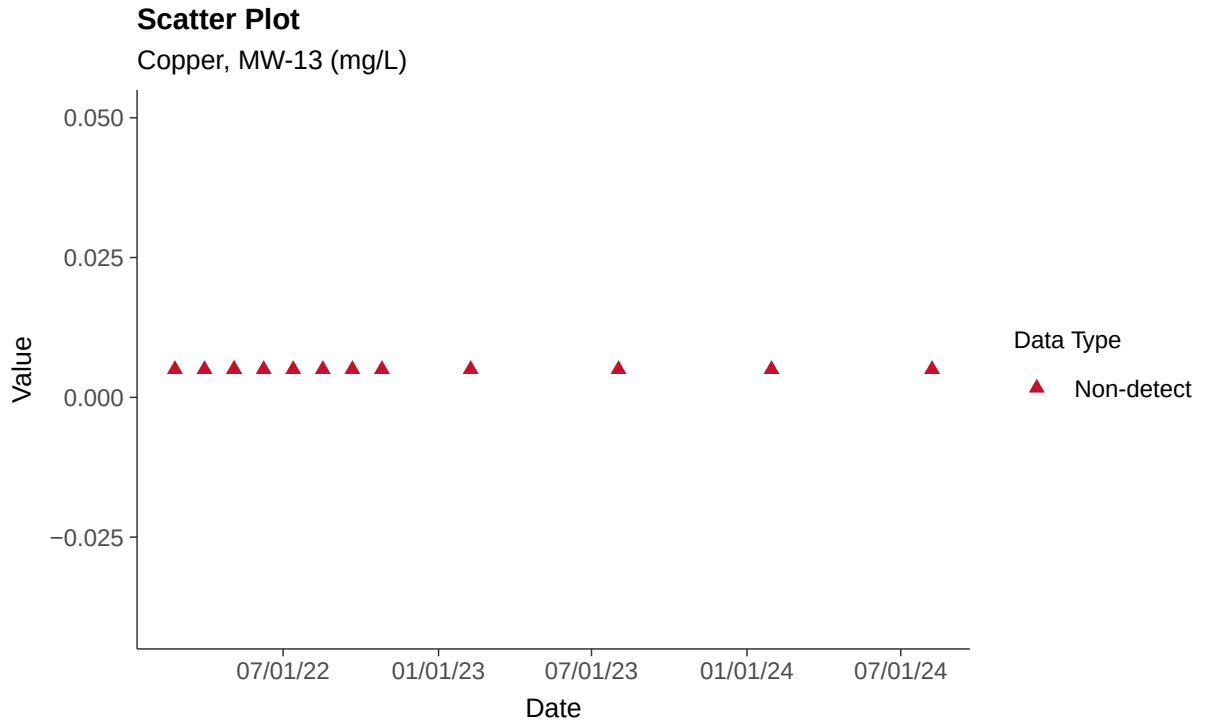
Trend Regression: Piecewise Linear-Linear-Linear

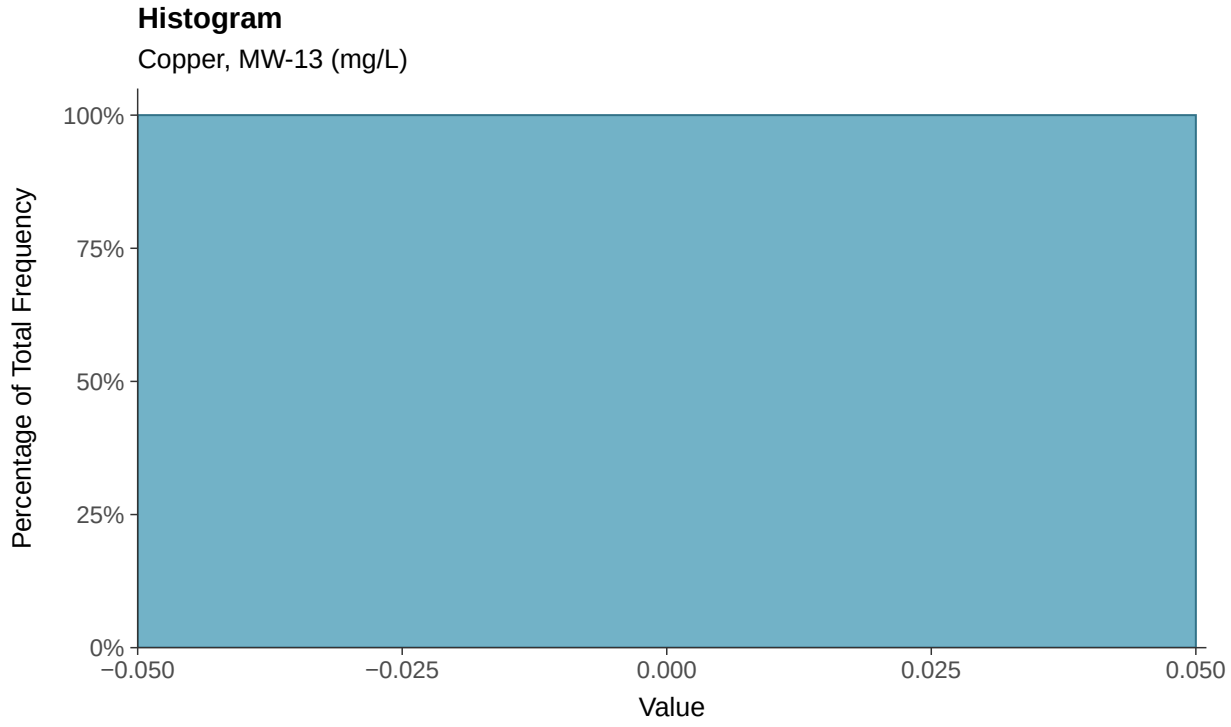
Sodium, MW-13 (mg/L)



Part 115: Copper, MW-13

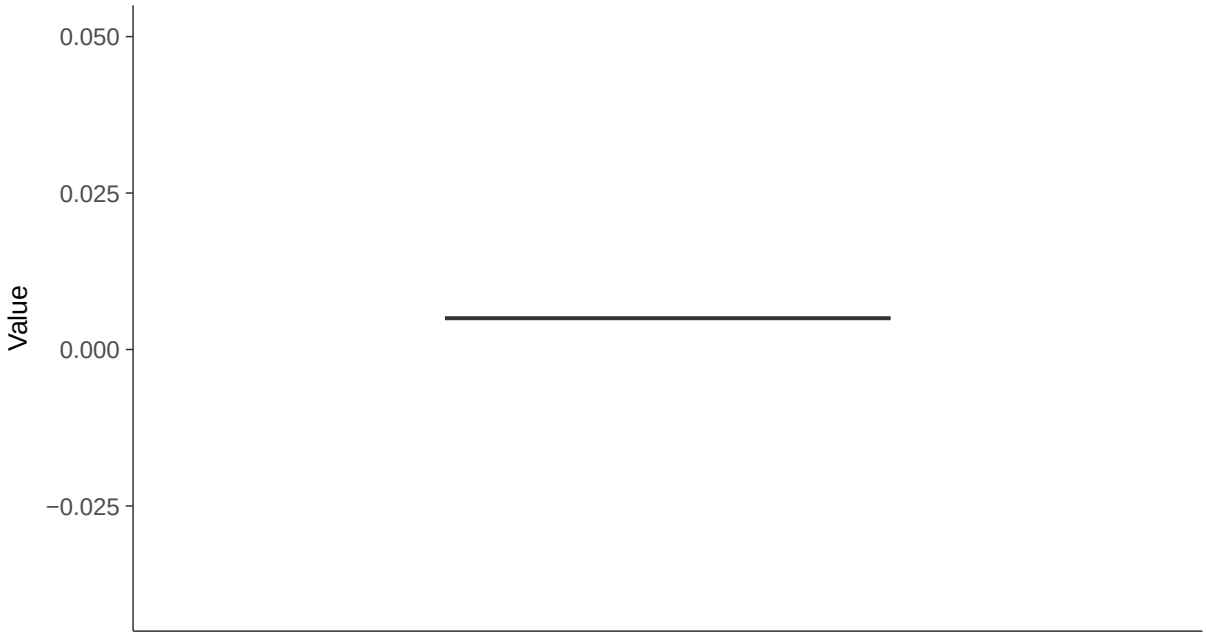
ID: 13_5_37





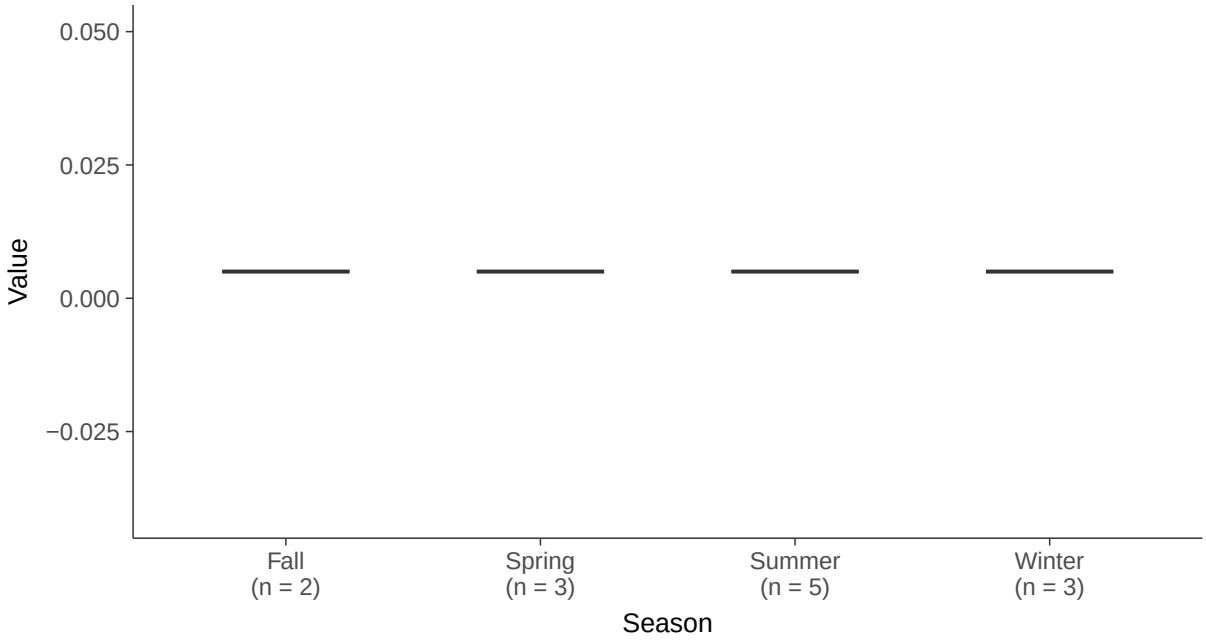
Boxplot

Copper, MW-13 (mg/L)



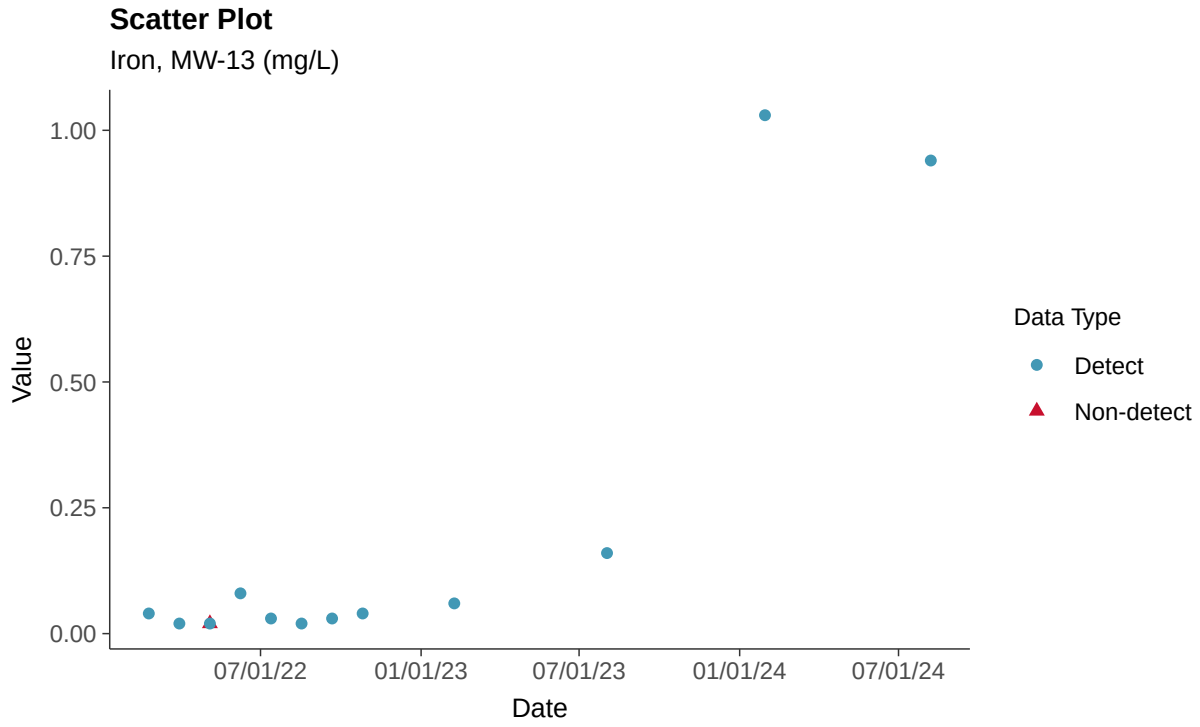
Boxplot by Season

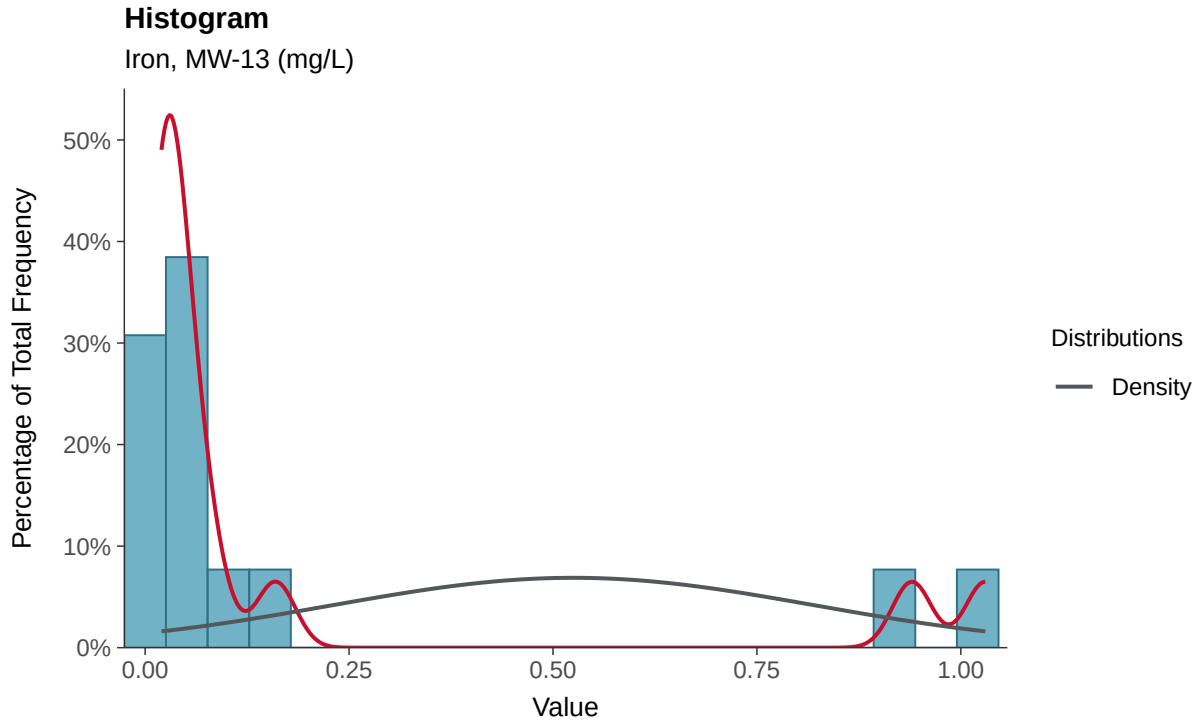
Copper, MW-13 (mg/L)



Part 115: Iron, MW-13

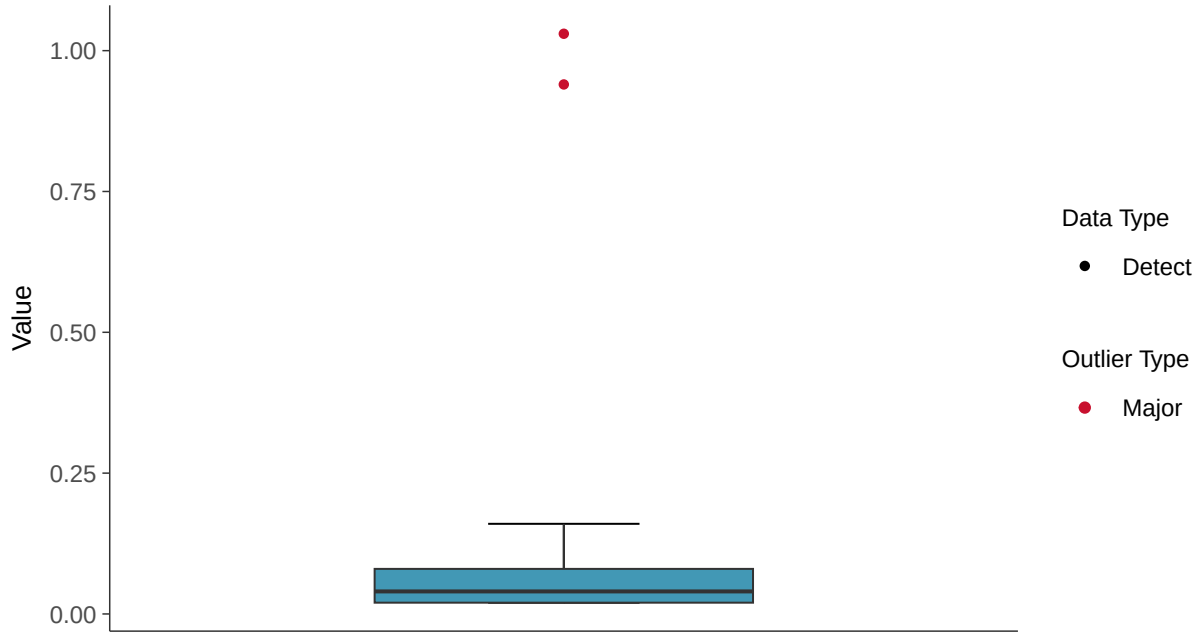
ID: 13_5_38





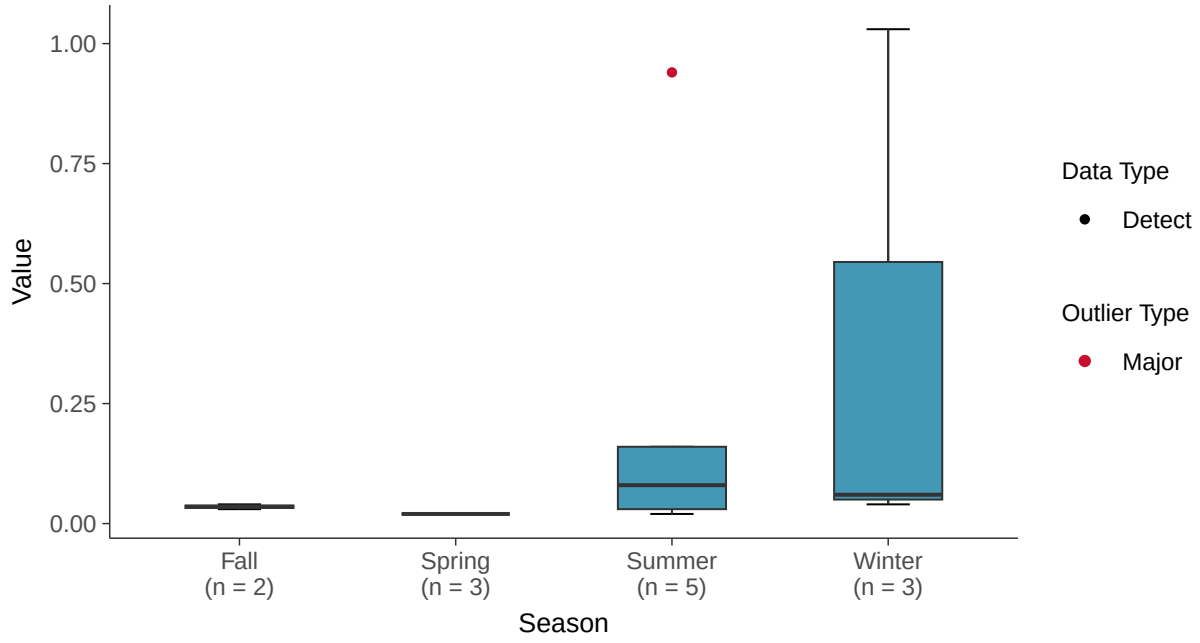
Boxplot

Iron, MW-13 (mg/L)



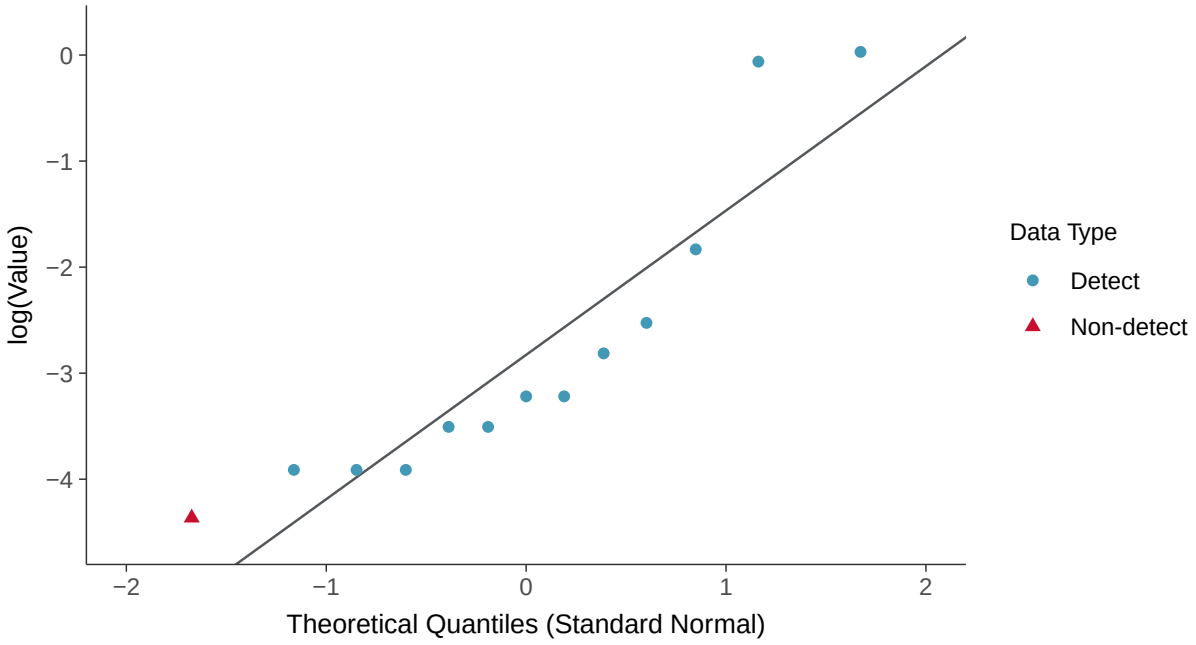
Boxplot by Season

Iron, MW-13 (mg/L)



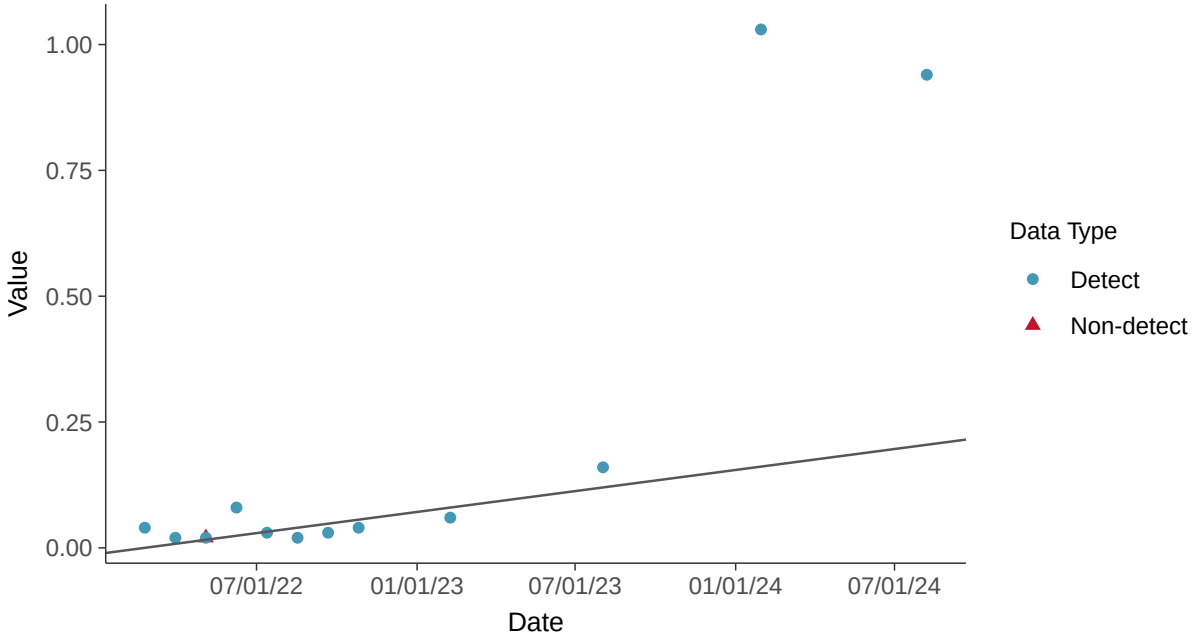
Lognormal Q-Q plot using ROS Imputed Estimates

Iron, MW-13 (mg/L)



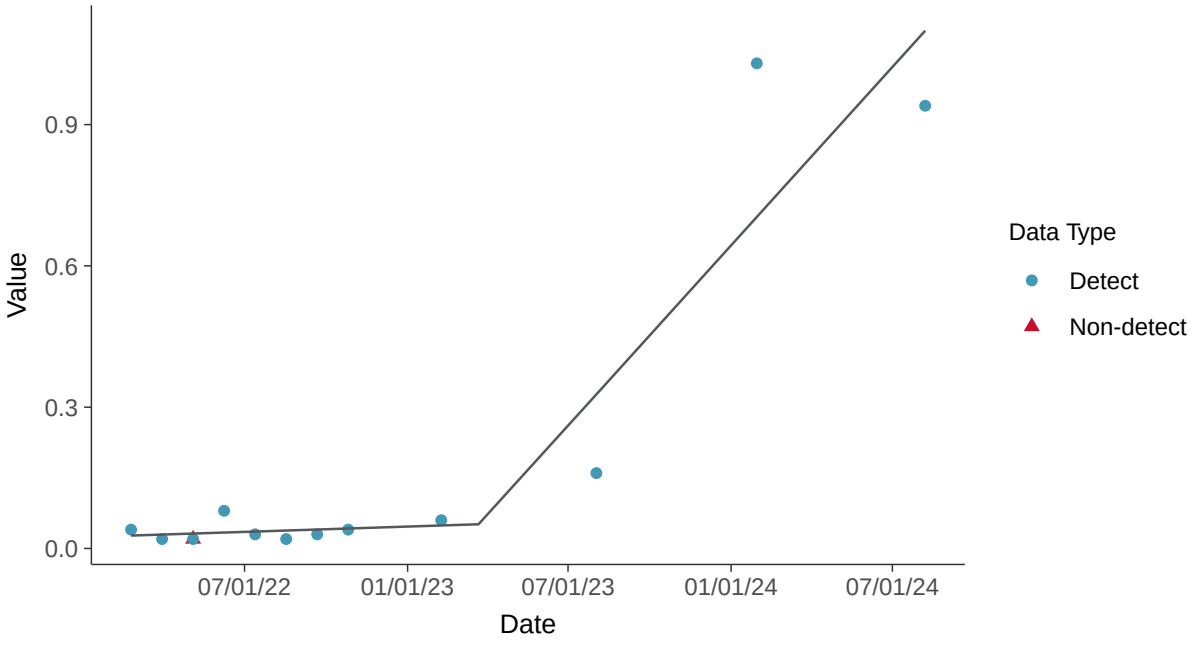
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Iron, MW-13 (mg/L)



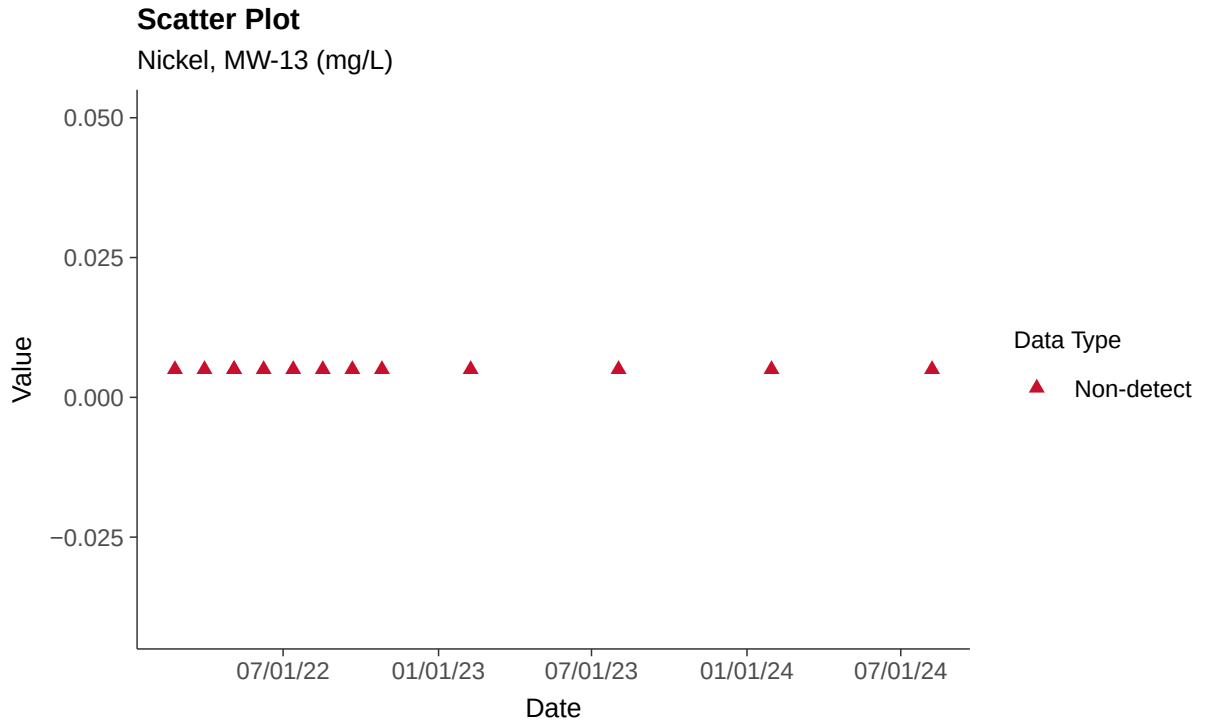
Trend Regression: Piecewise Linear-Linear

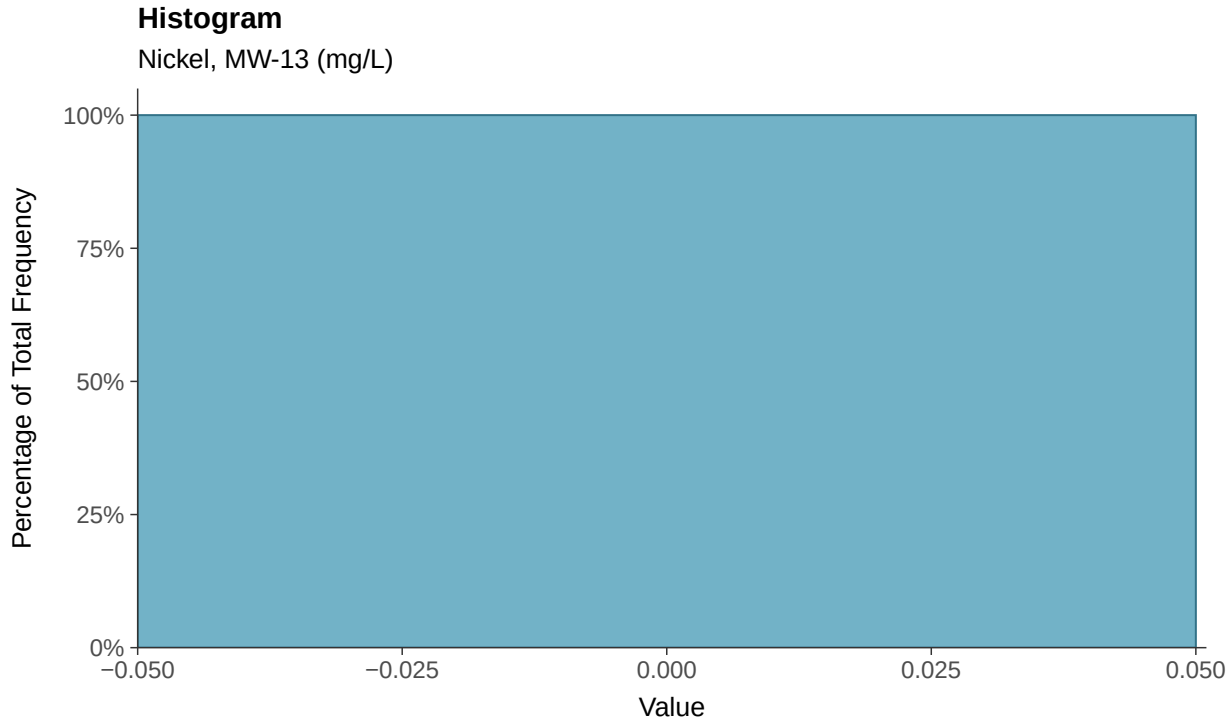
Iron, MW-13 (mg/L)



Part 115: Nickel, MW-13

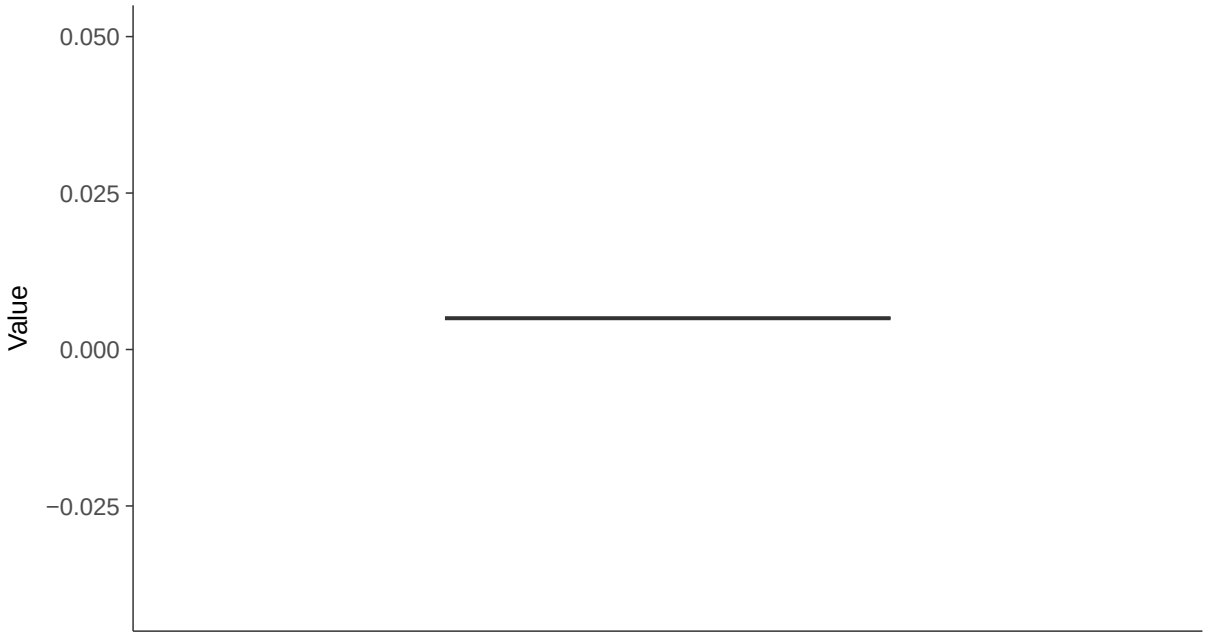
ID: 13_5_39





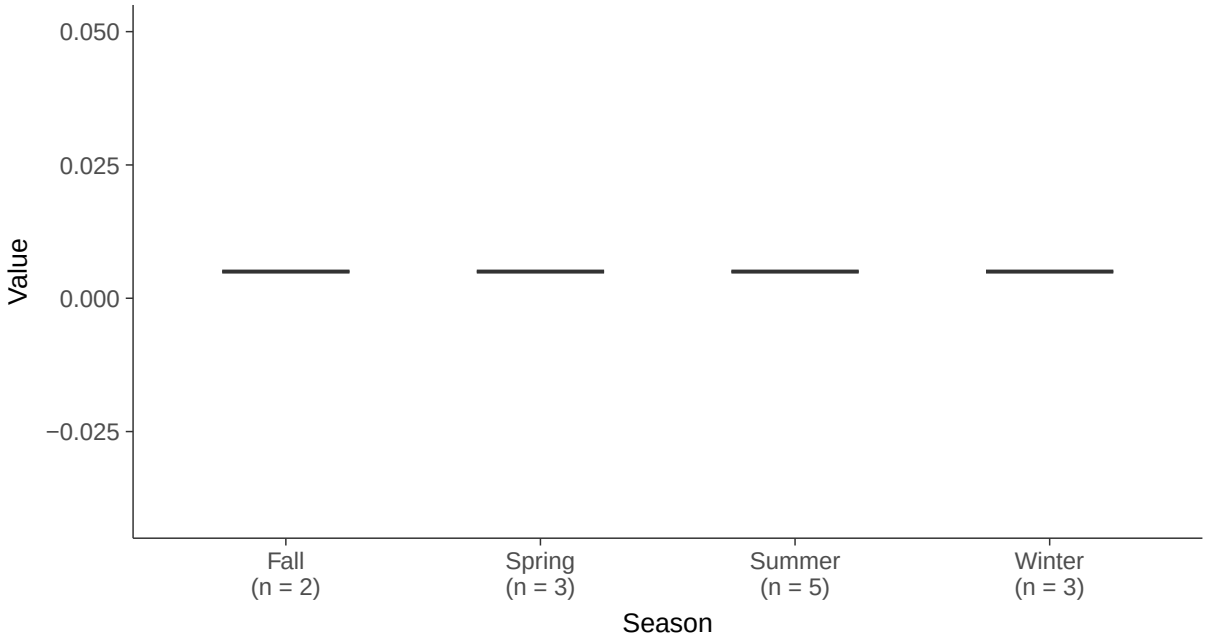
Boxplot

Nickel, MW-13 (mg/L)



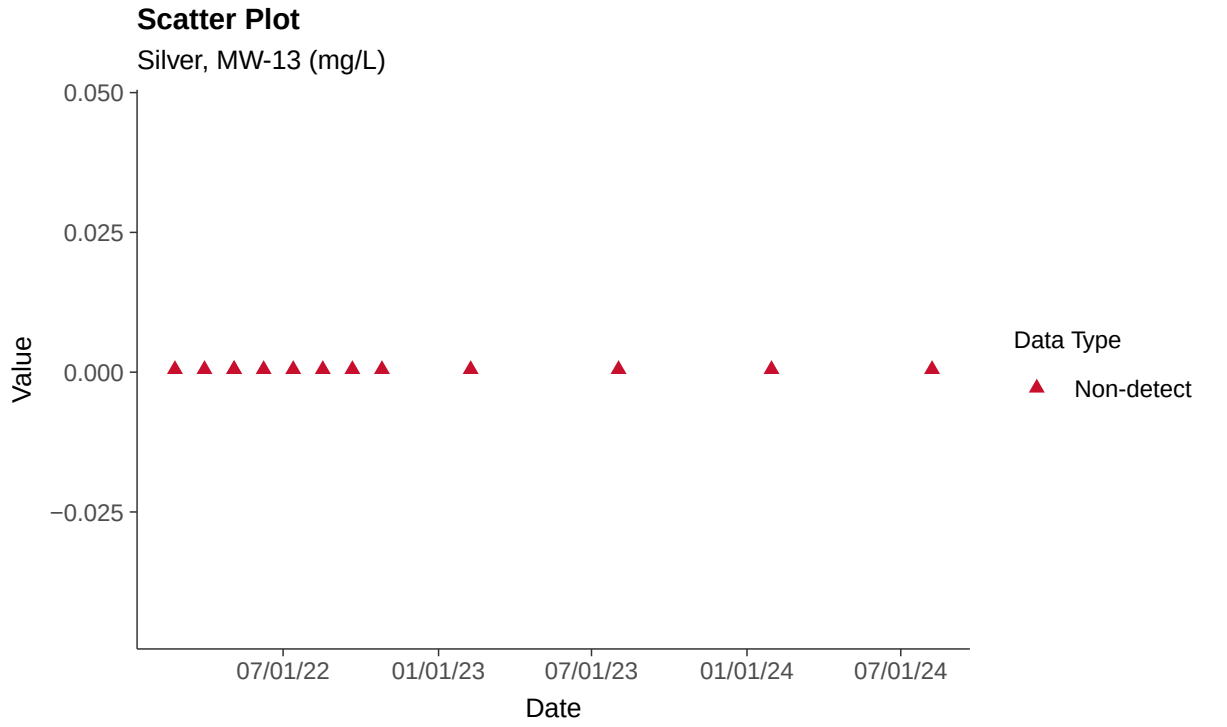
Boxplot by Season

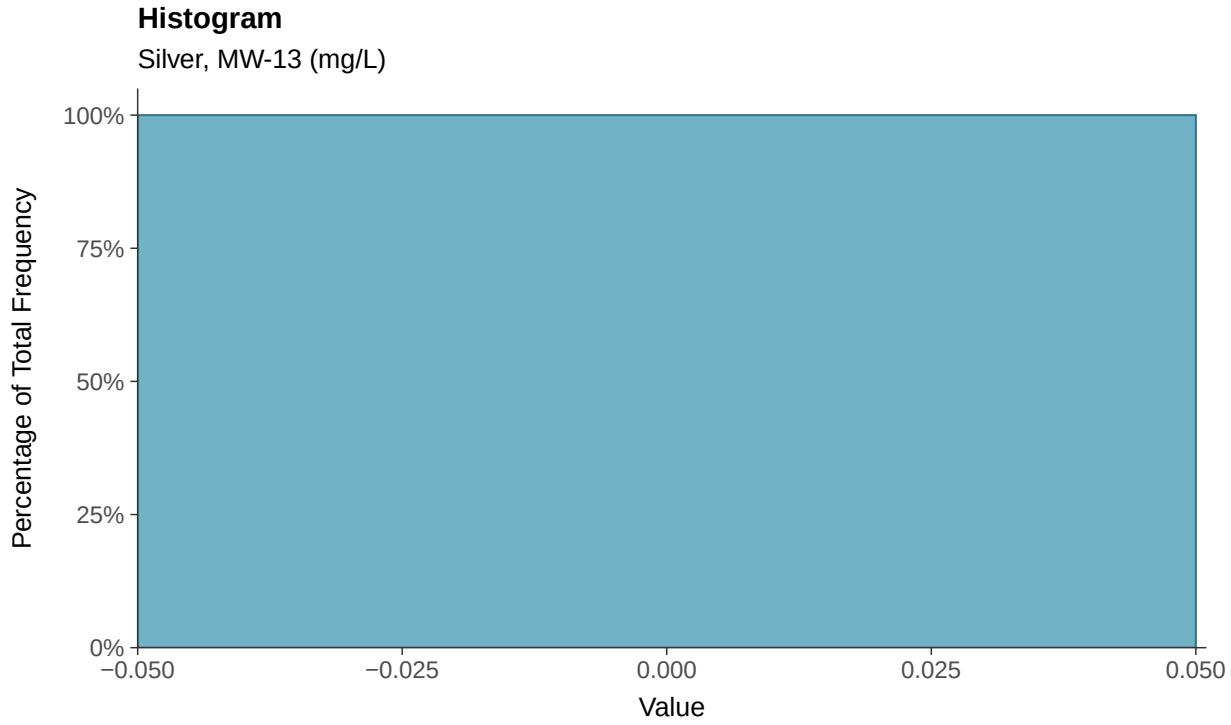
Nickel, MW-13 (mg/L)



Part 115: Silver, MW-13

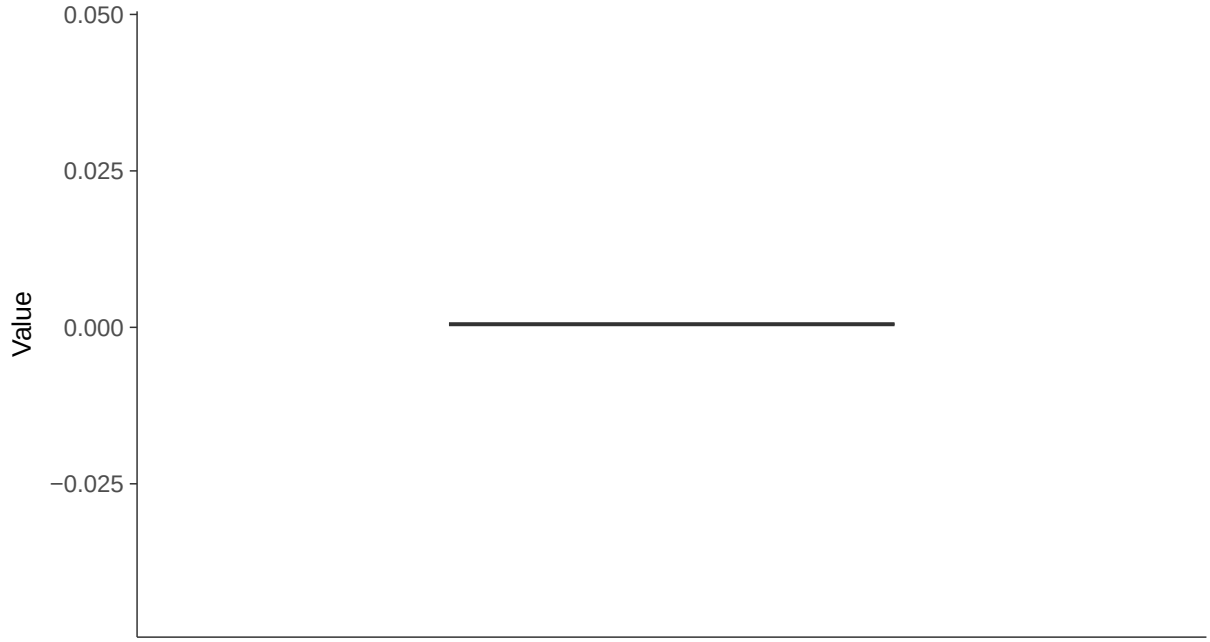
ID: 13_5_40





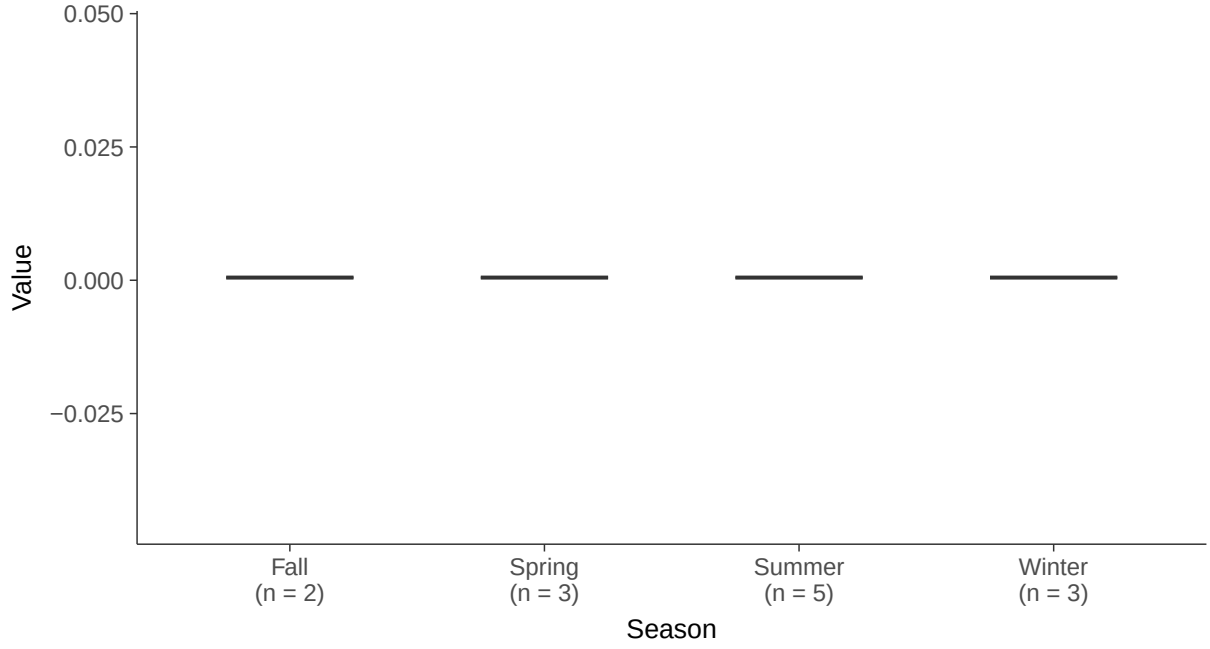
Boxplot

Silver, MW-13 (mg/L)



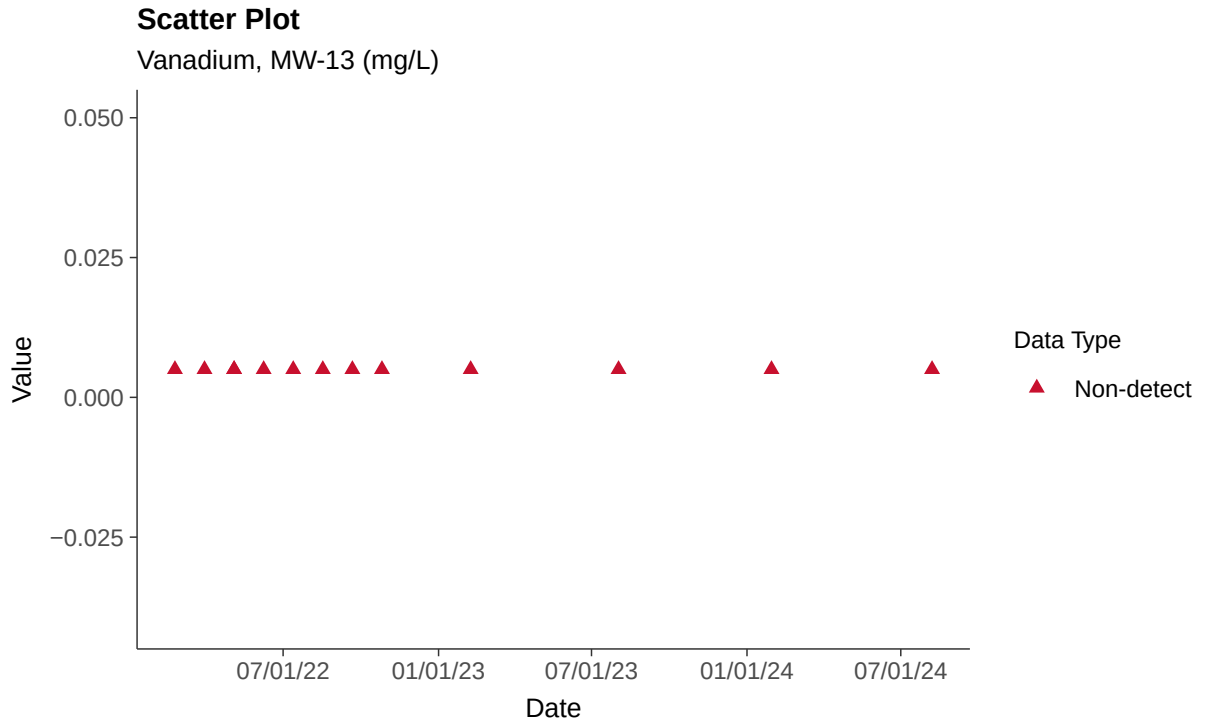
Boxplot by Season

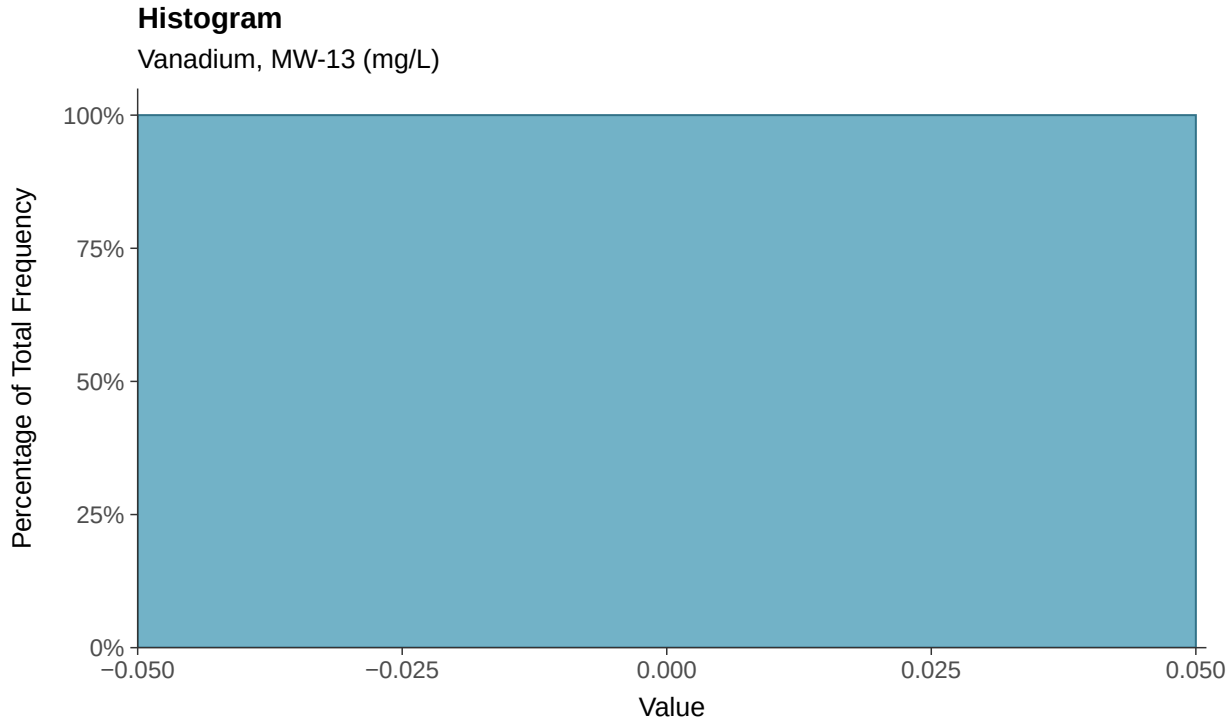
Silver, MW-13 (mg/L)



Part 115: Vanadium, MW-13

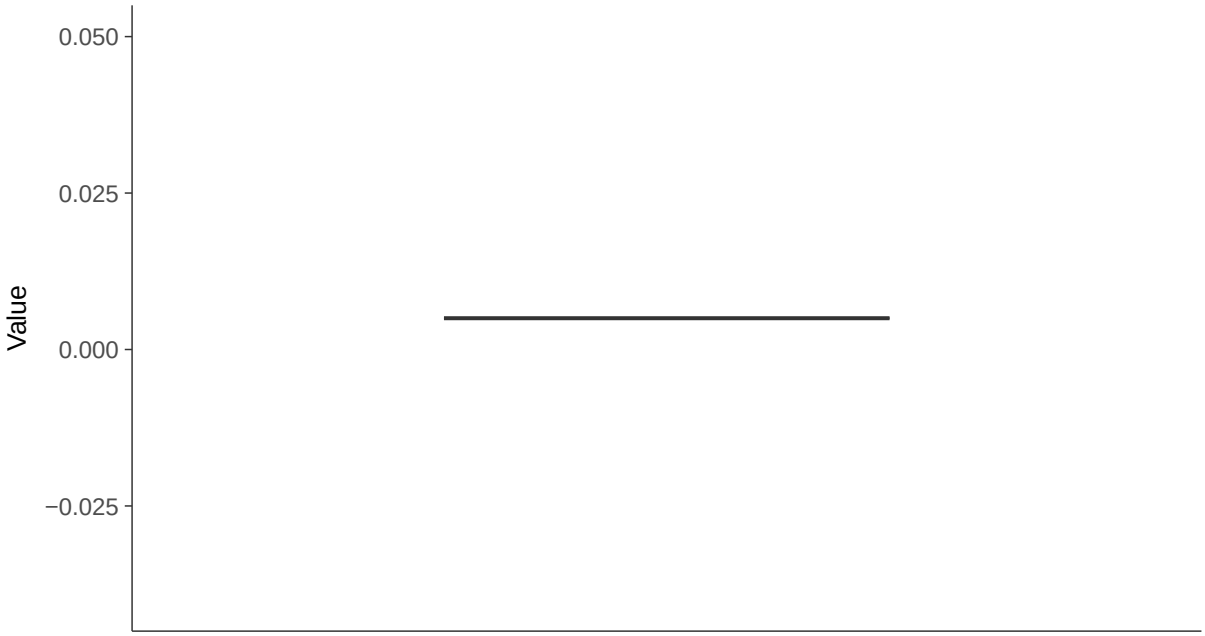
ID: 13_5_41





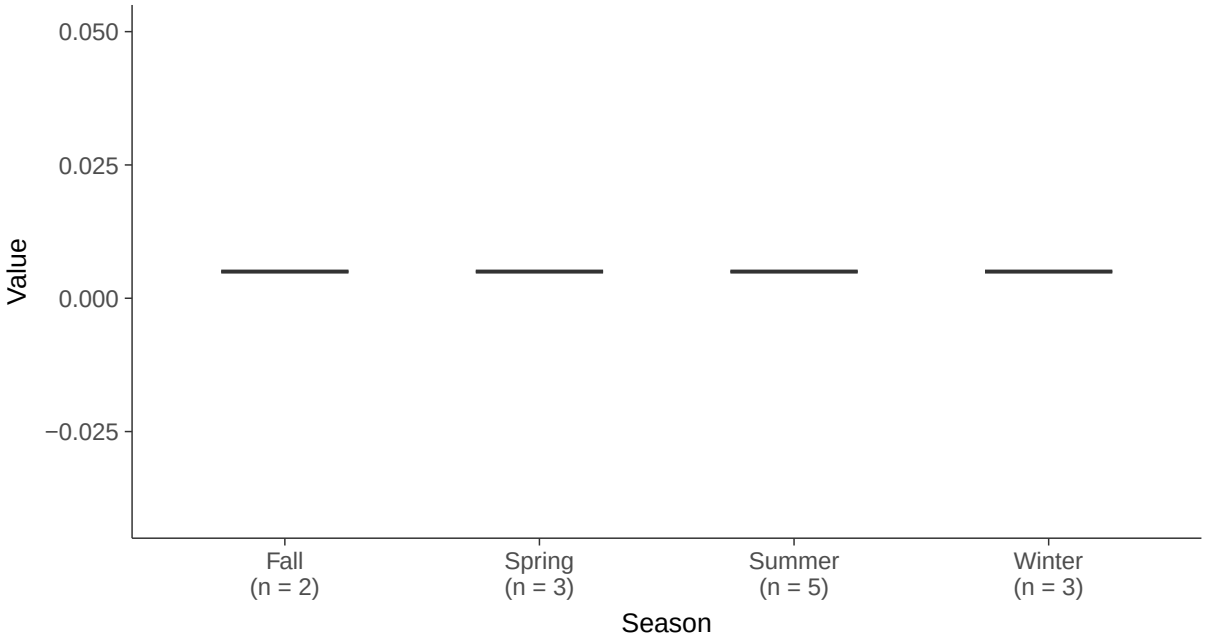
Boxplot

Vanadium, MW-13 (mg/L)



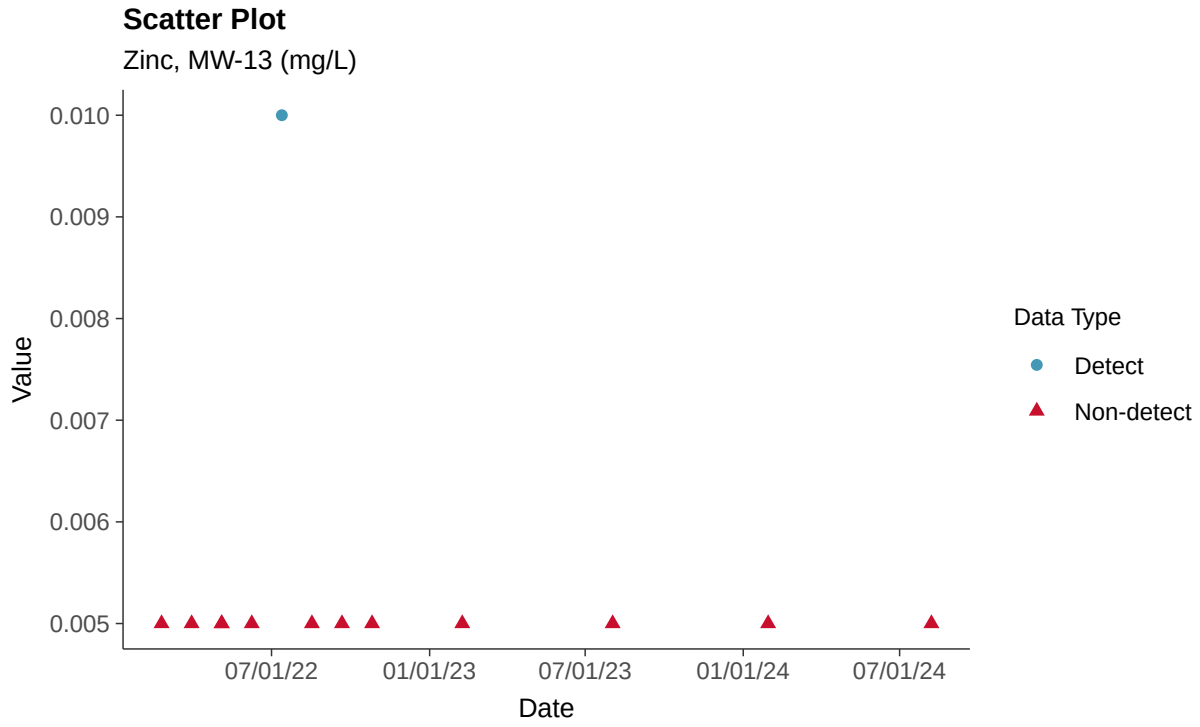
Boxplot by Season

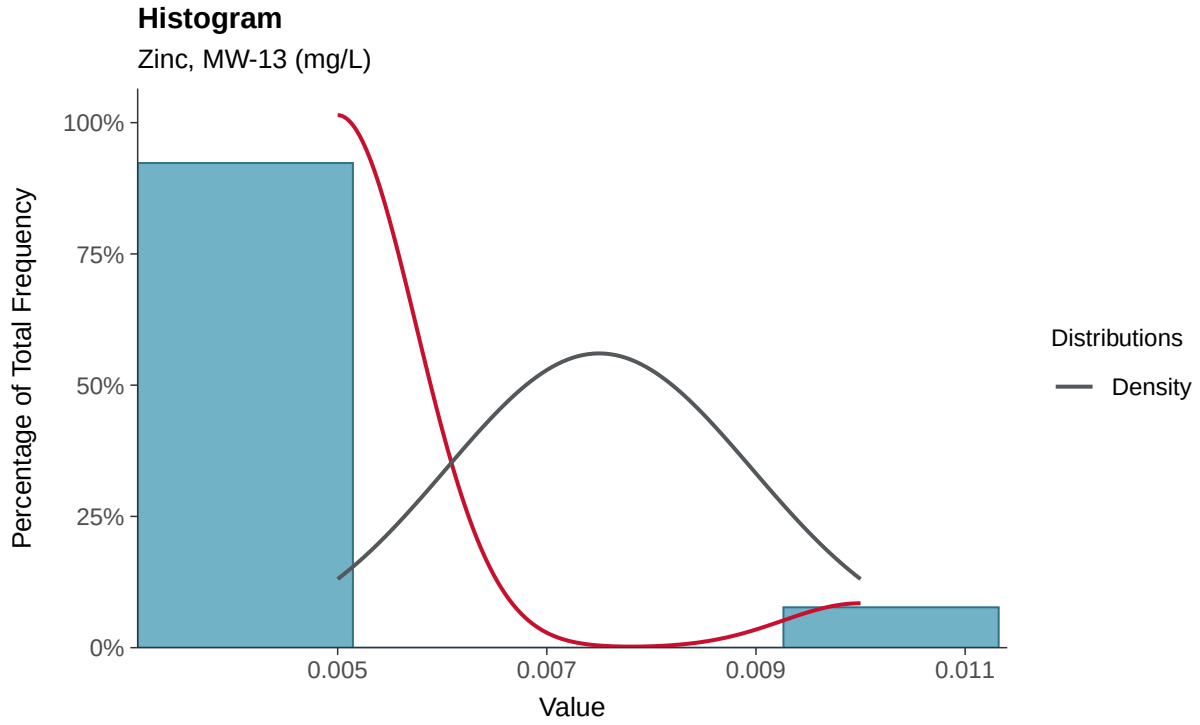
Vanadium, MW-13 (mg/L)



Part 115: Zinc, MW-13

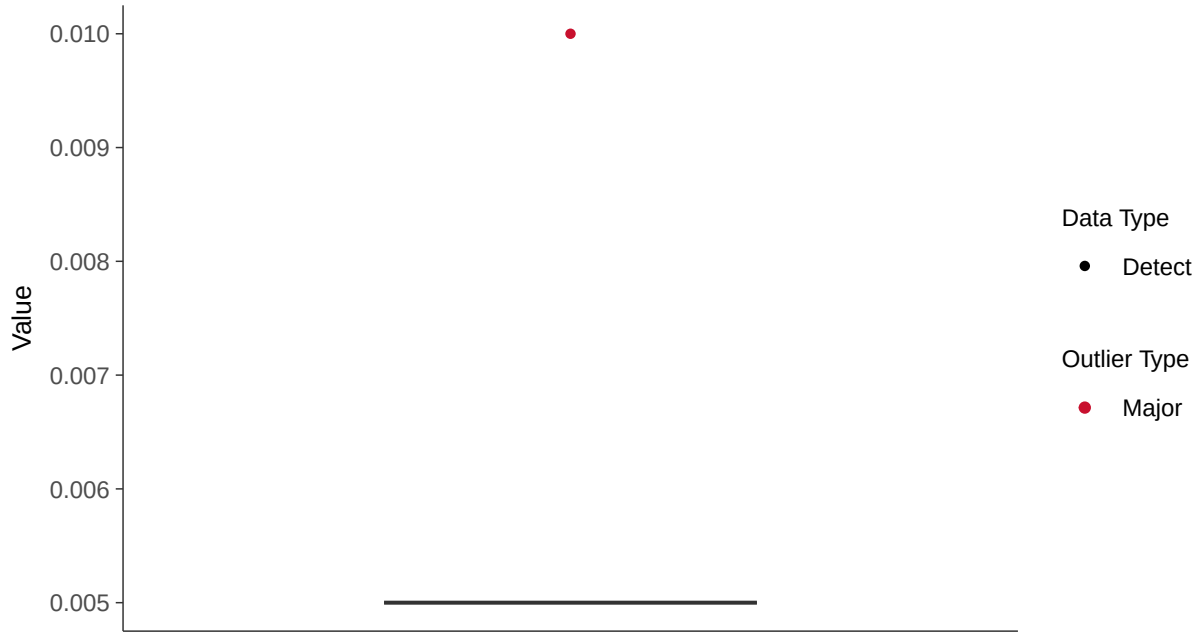
ID: 13_5_42





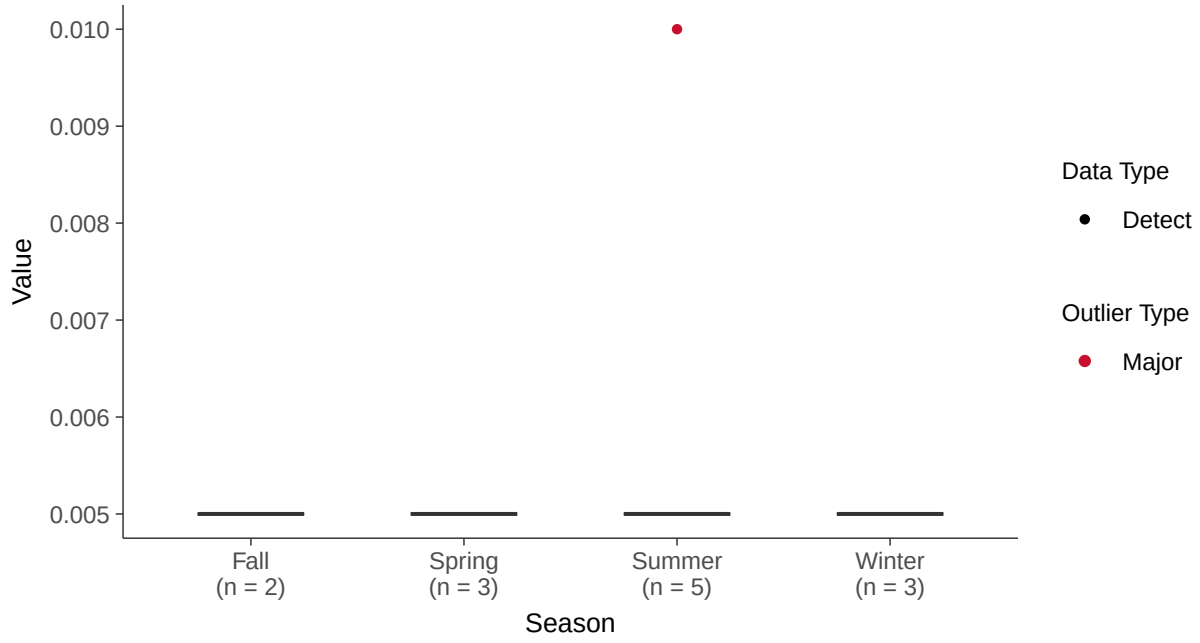
Boxplot

Zinc, MW-13 (mg/L)



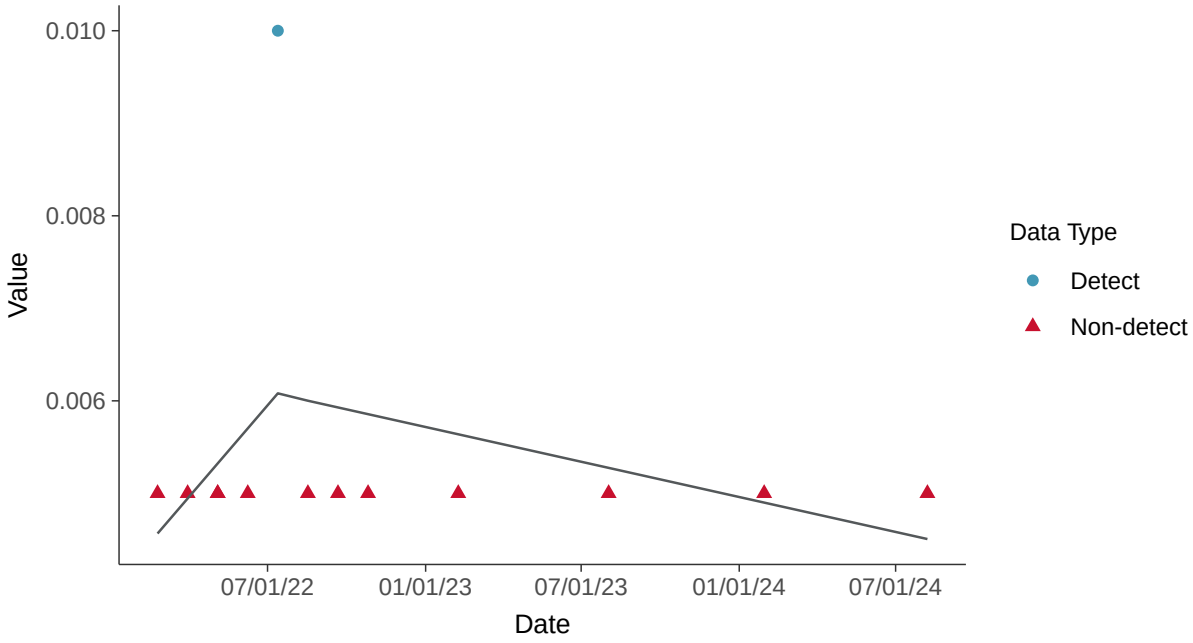
Boxplot by Season

Zinc, MW-13 (mg/L)



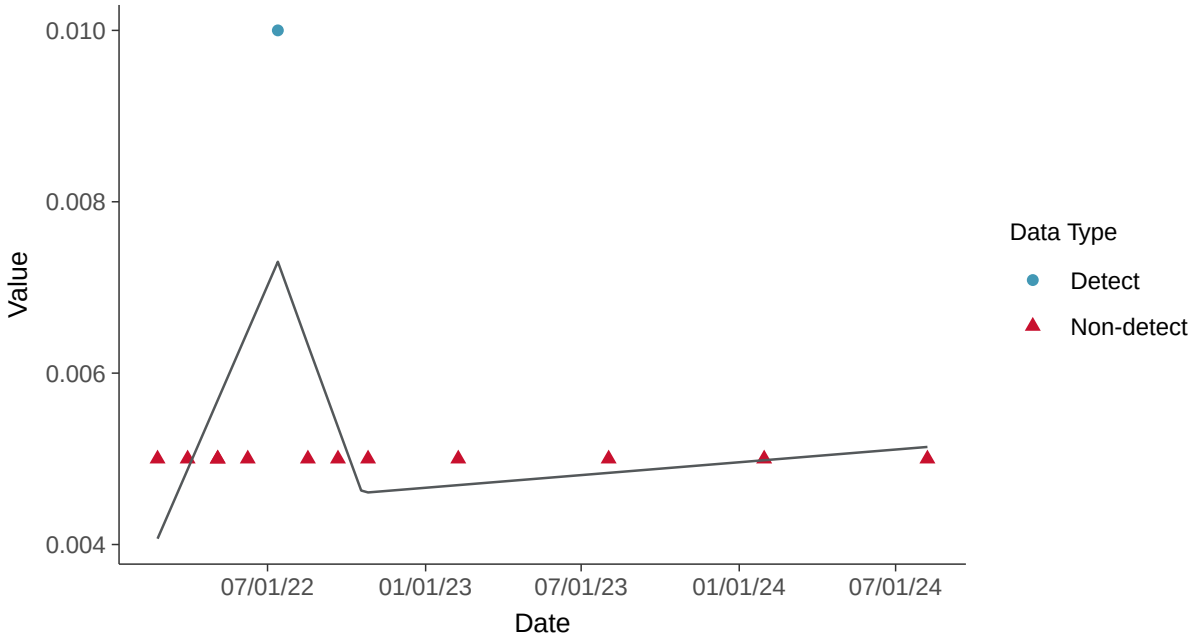
Trend Regression: Piecewise Linear-Linear

Zinc, MW-13 (mg/L)



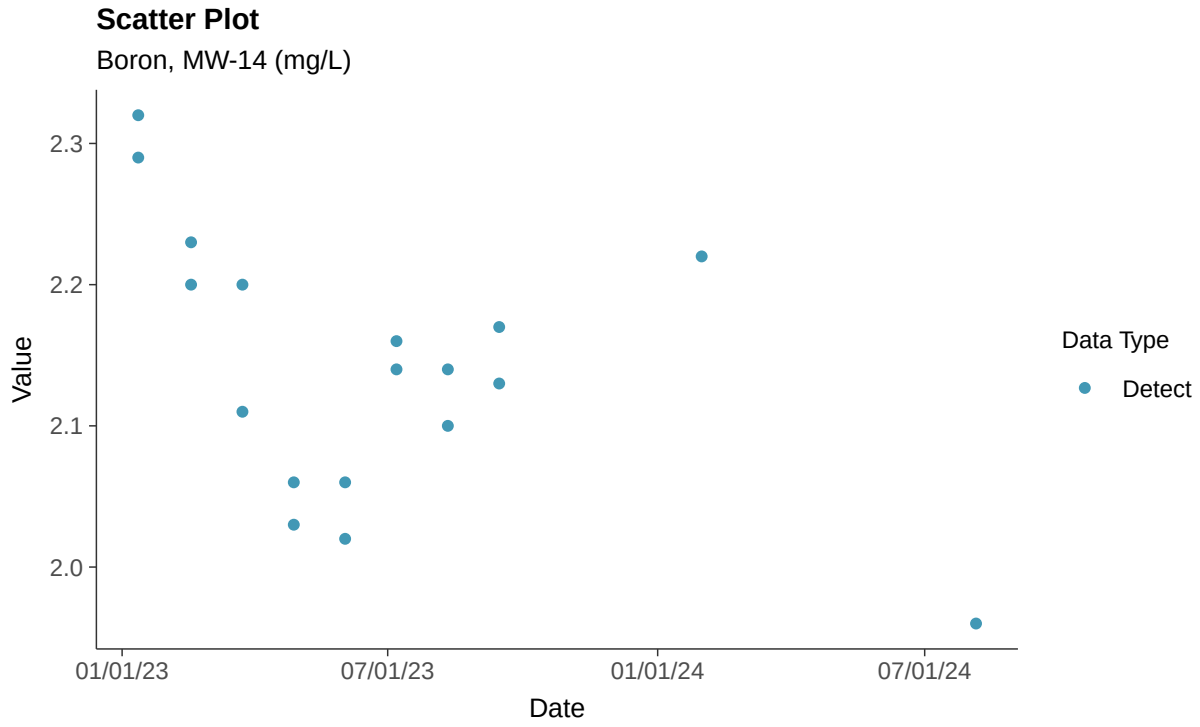
Trend Regression: Piecewise Linear-Linear-Linear

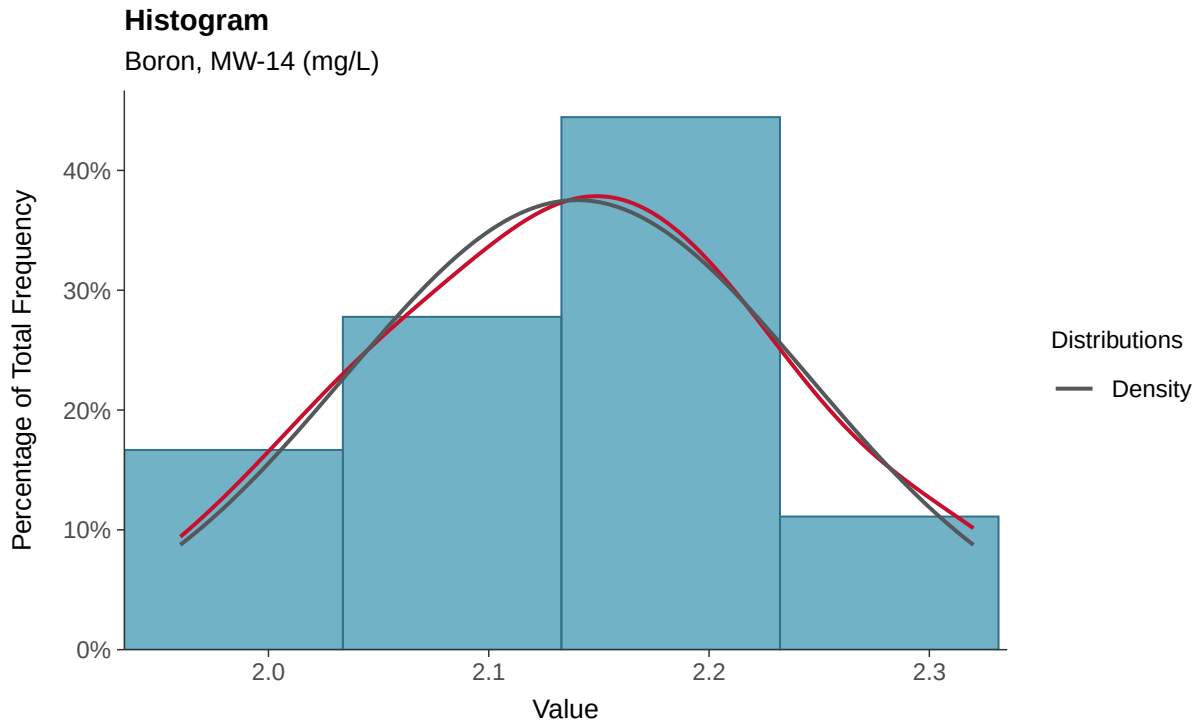
Zinc, MW-13 (mg/L)



Appendix III: Boron, MW-14

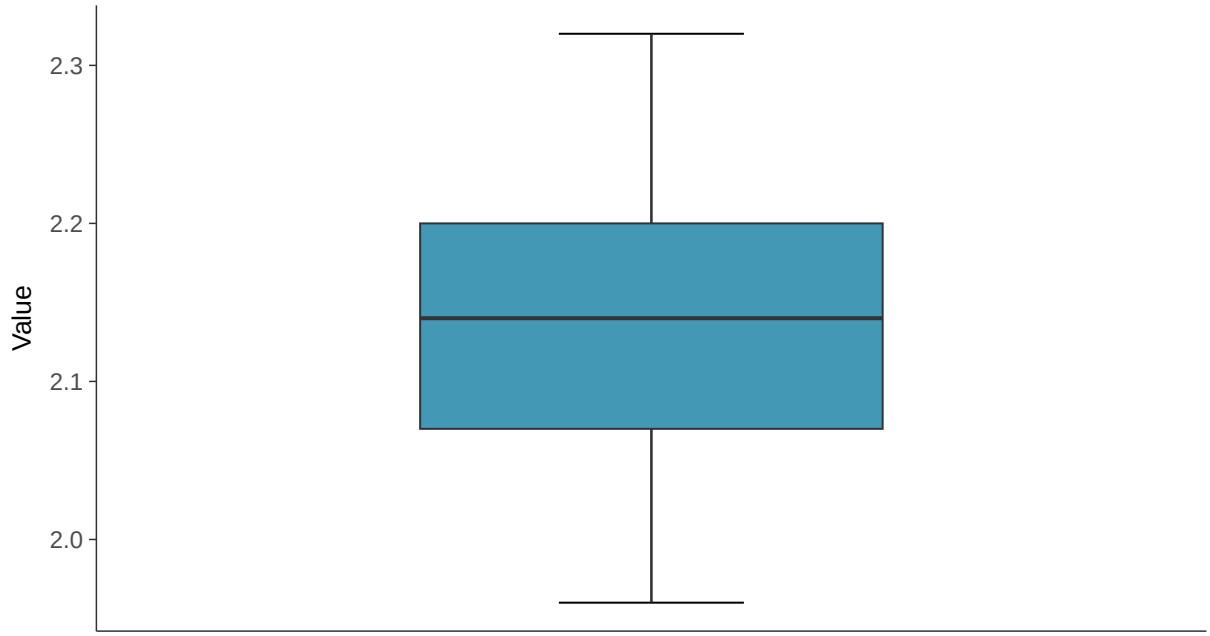
ID: 14_1_01





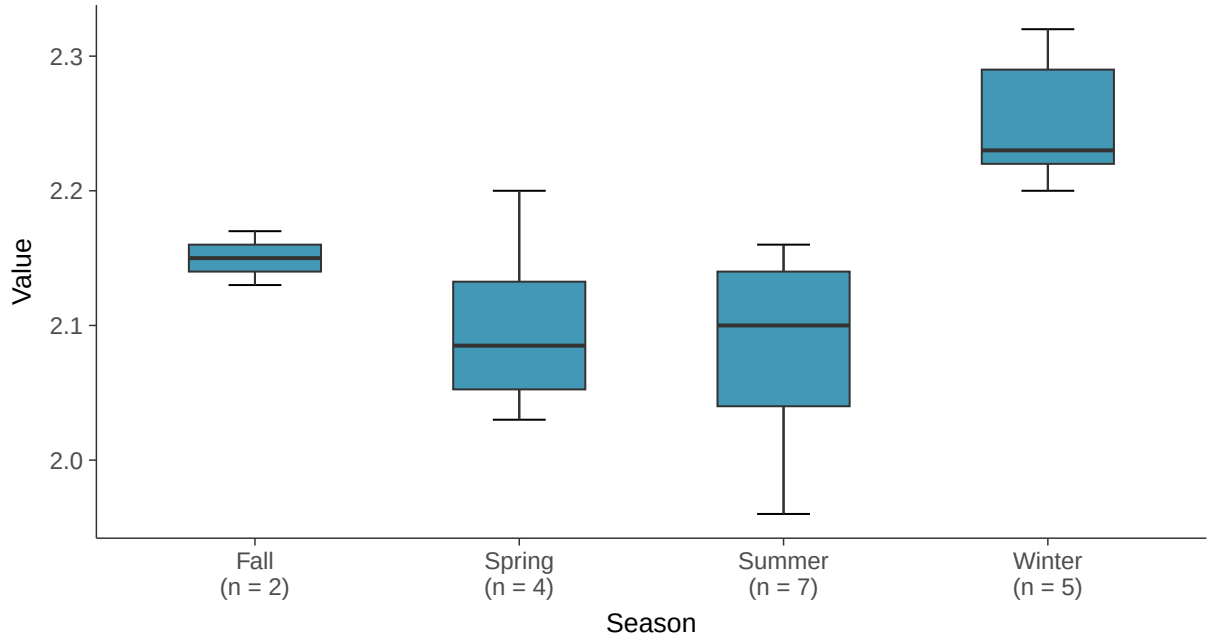
Boxplot

Boron, MW-14 (mg/L)



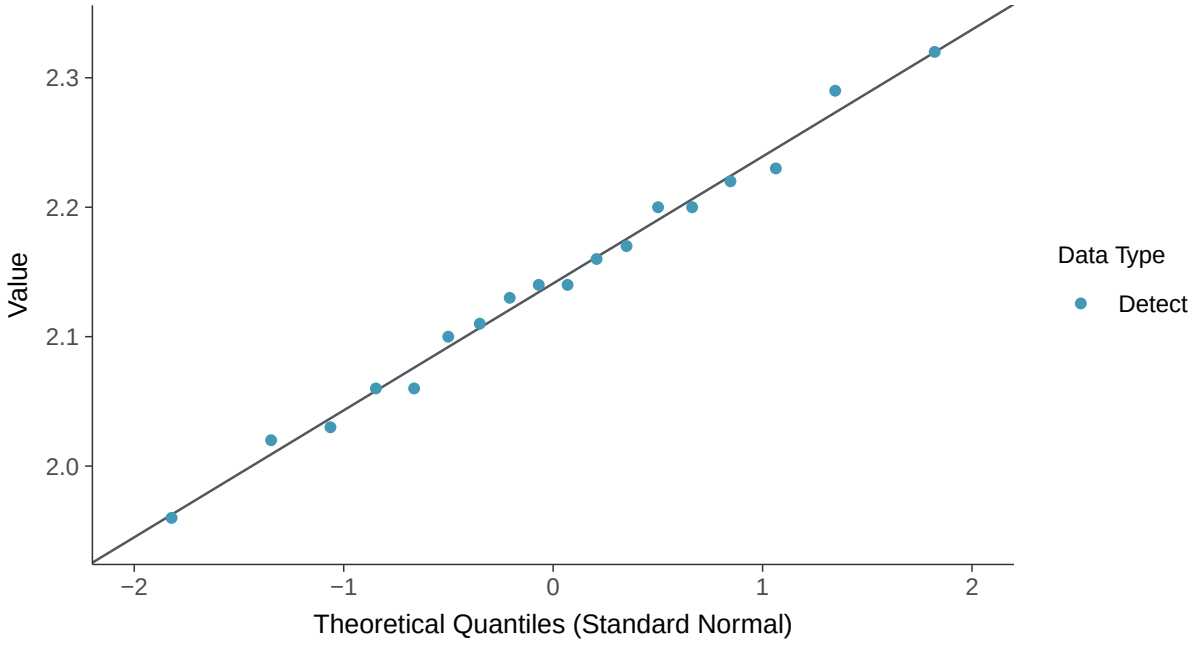
Boxplot by Season

Boron, MW-14 (mg/L)



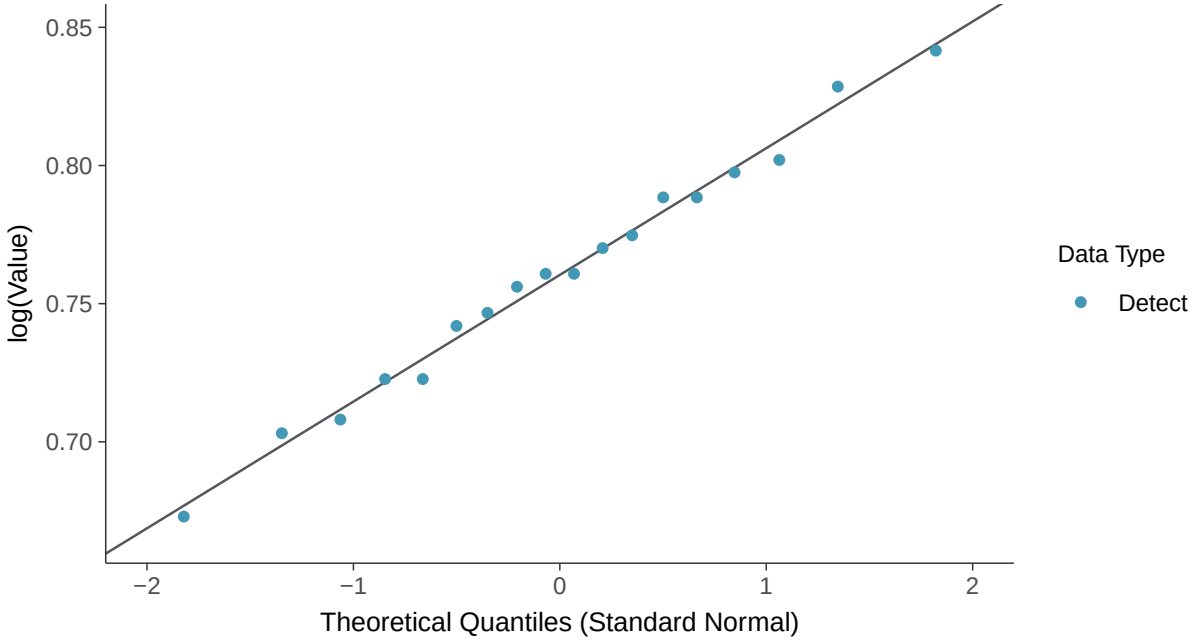
Normal Q-Q plot

Boron, MW-14 (mg/L)



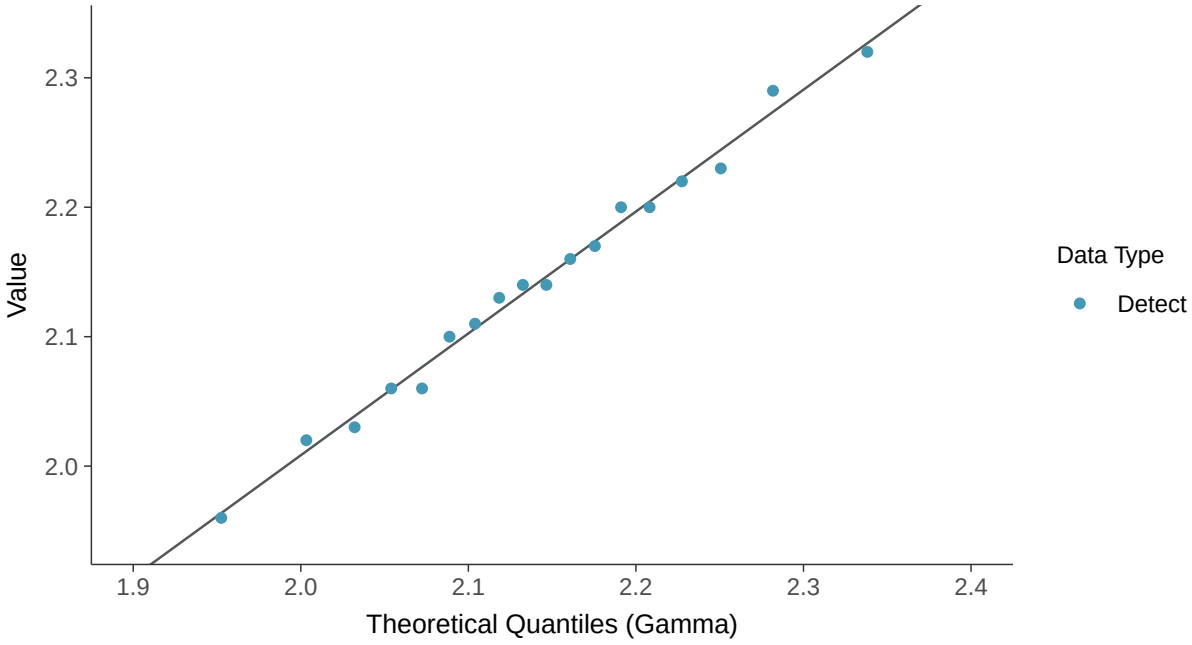
Lognormal Q-Q plot

Boron, MW-14 (mg/L)



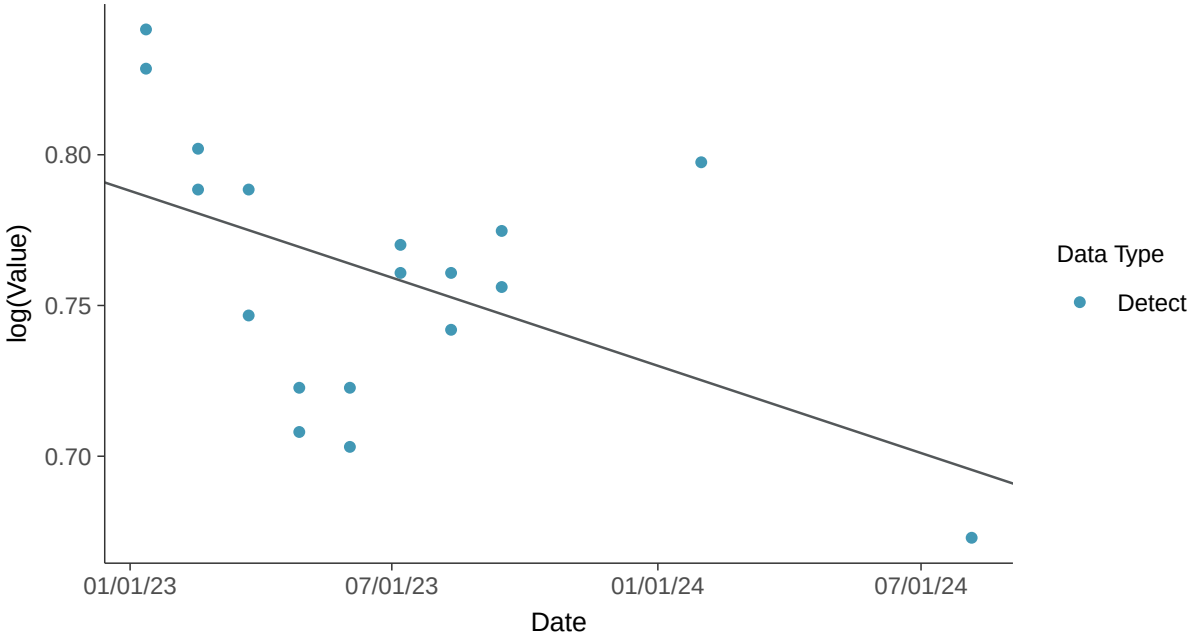
Gamma Q-Q plot

Boron, MW-14 (mg/L)



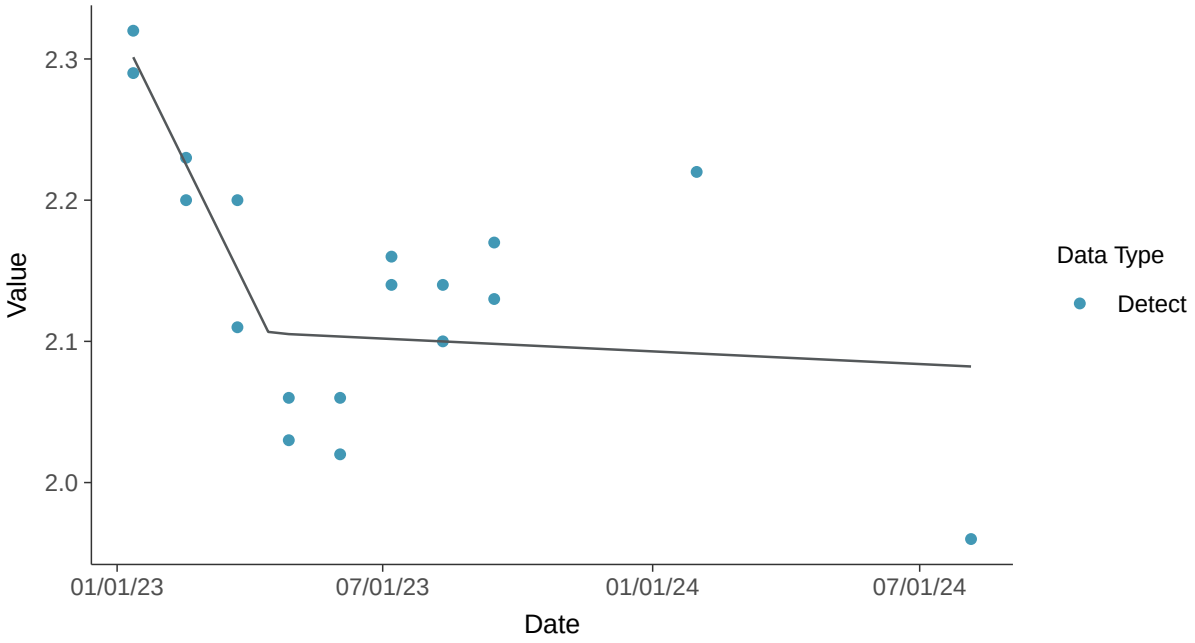
Trend Regression: Lognormal MLE

Boron, MW-14 (mg/L)



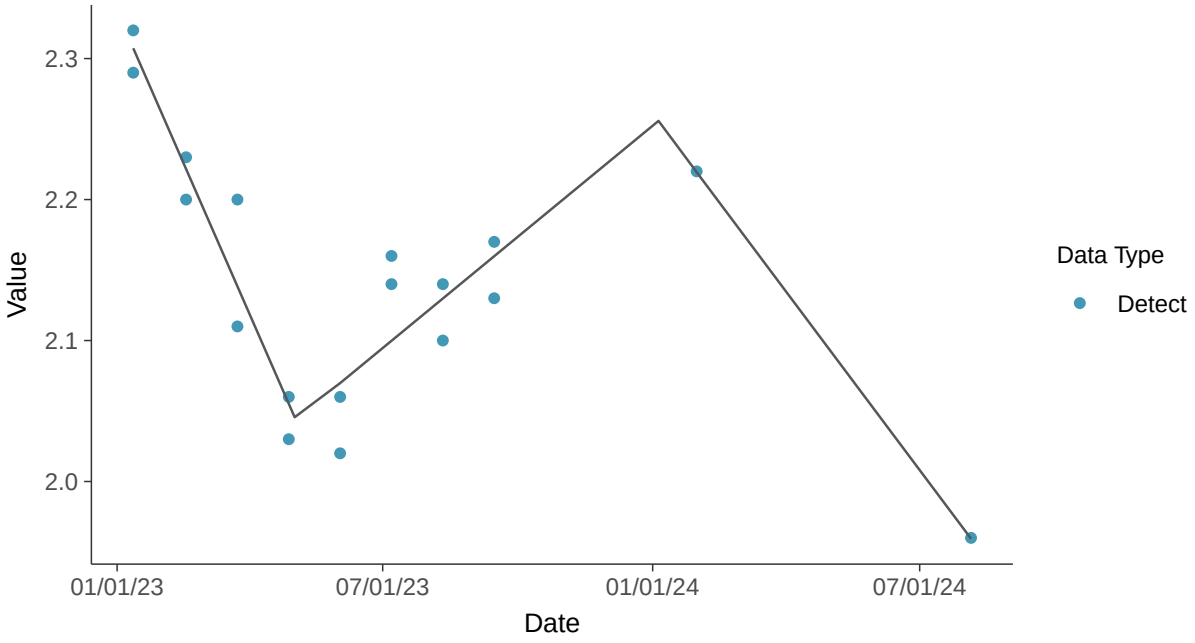
Trend Regression: Piecewise Linear-Linear

Boron, MW-14 (mg/L)



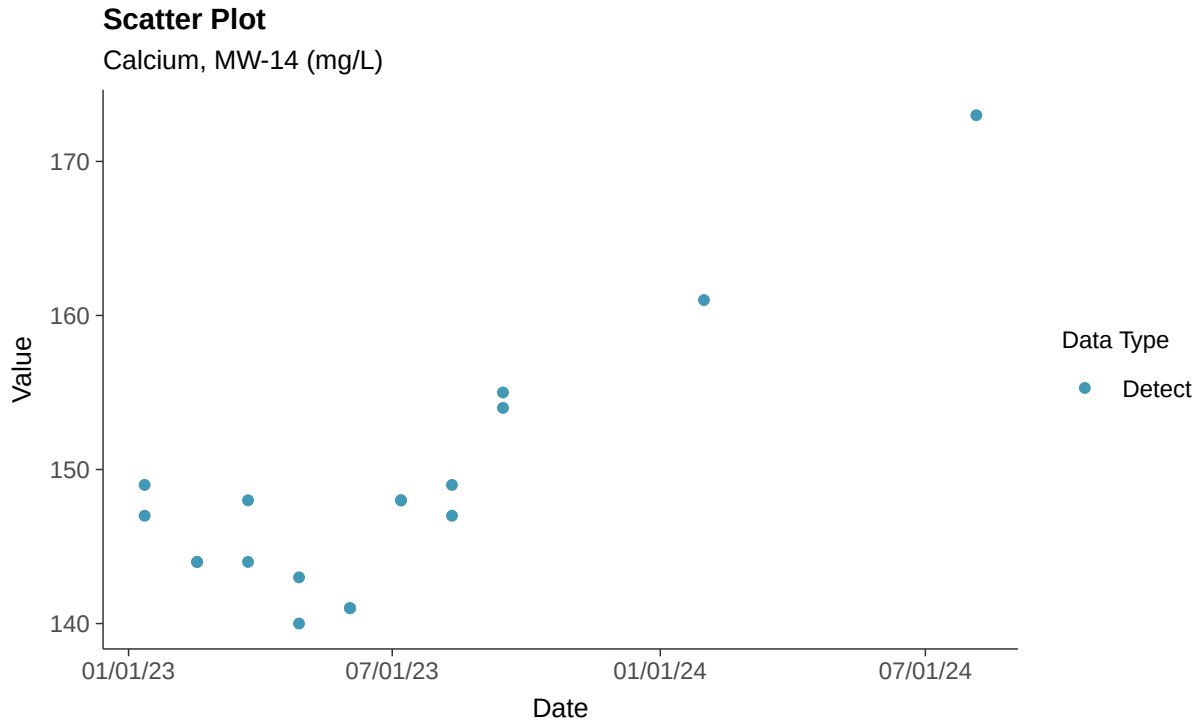
Trend Regression: Piecewise Linear-Linear-Linear

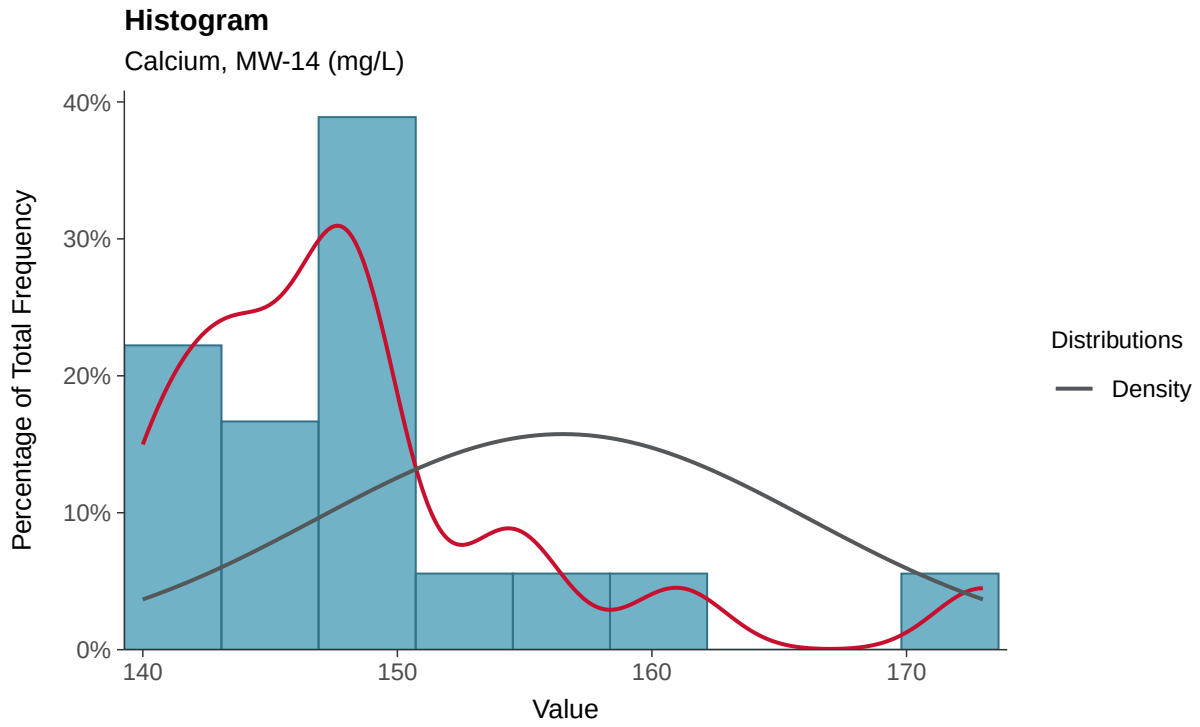
Boron, MW-14 (mg/L)



Appendix III: Calcium, MW-14

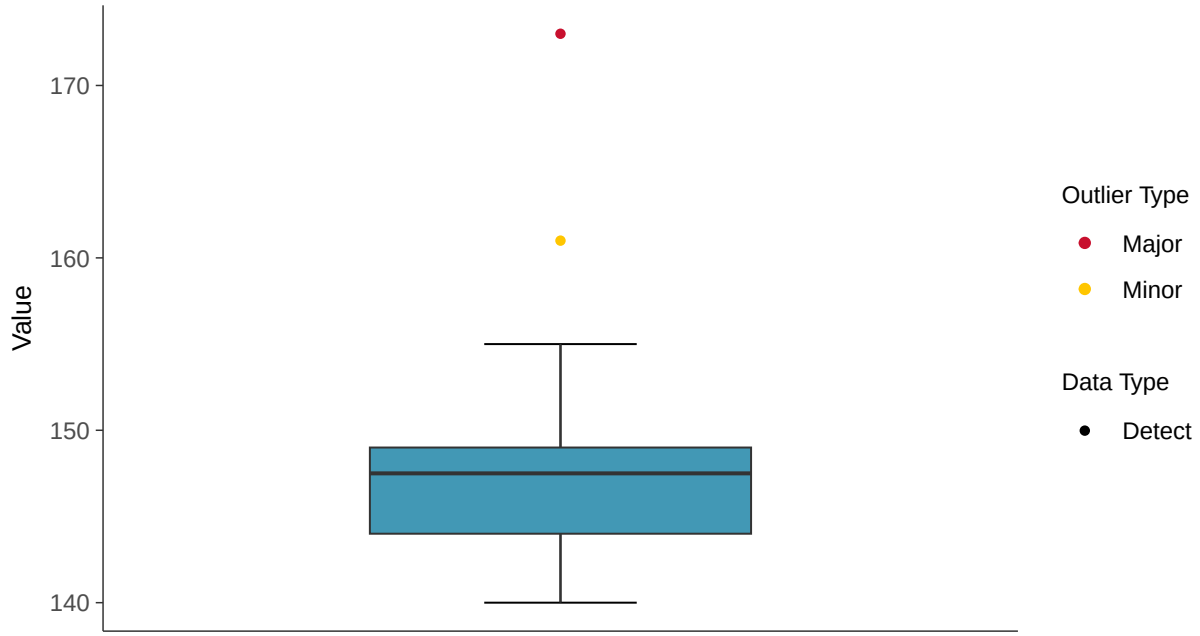
ID: 14_1_02





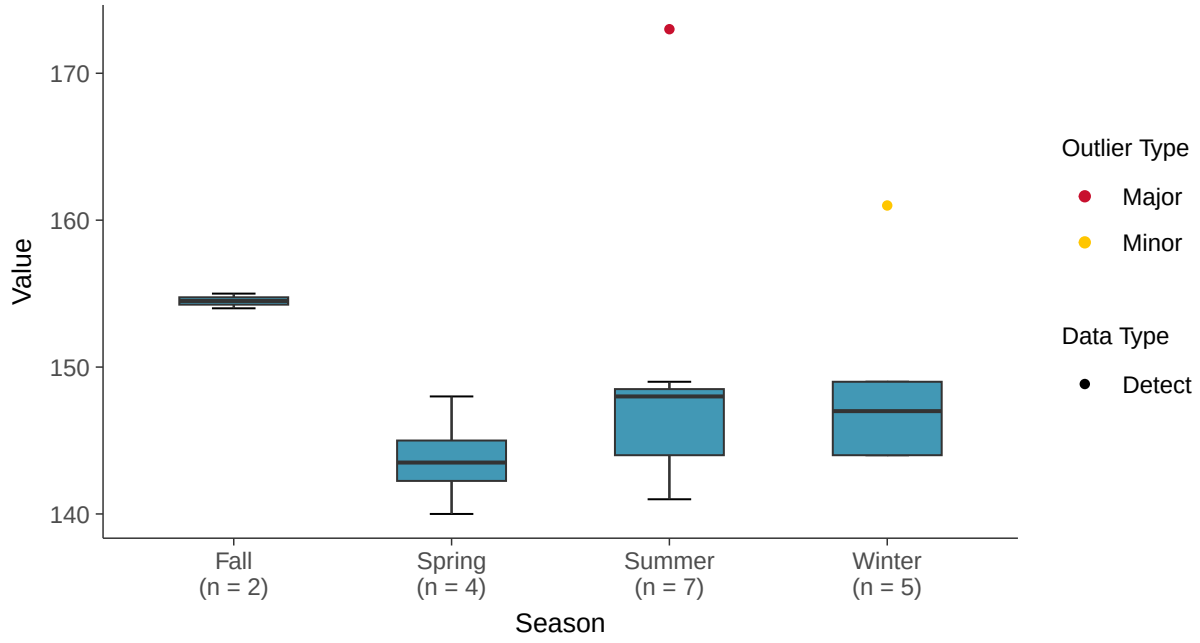
Boxplot

Calcium, MW-14 (mg/L)



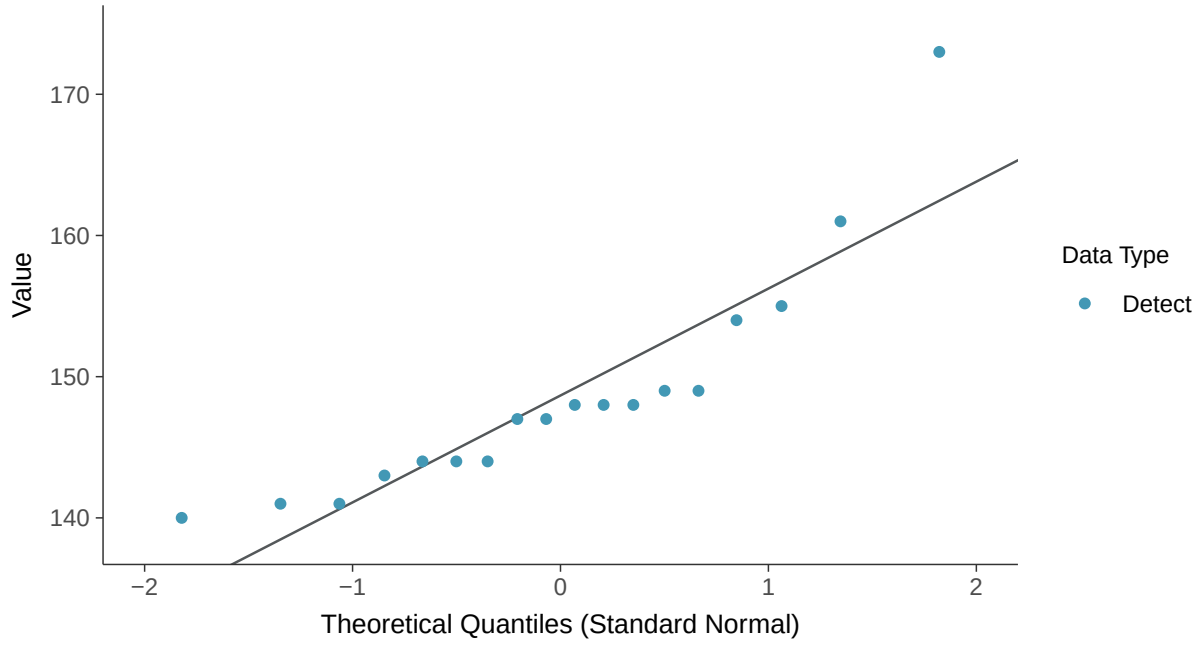
Boxplot by Season

Calcium, MW-14 (mg/L)



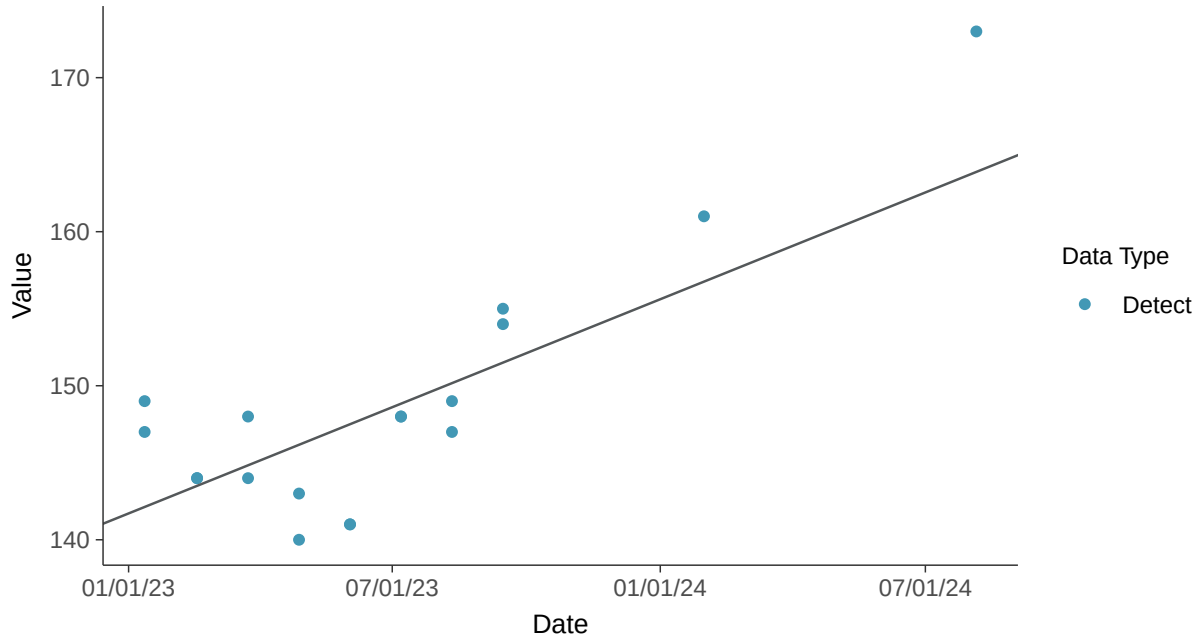
Normal Q-Q plot

Calcium, MW-14 (mg/L)



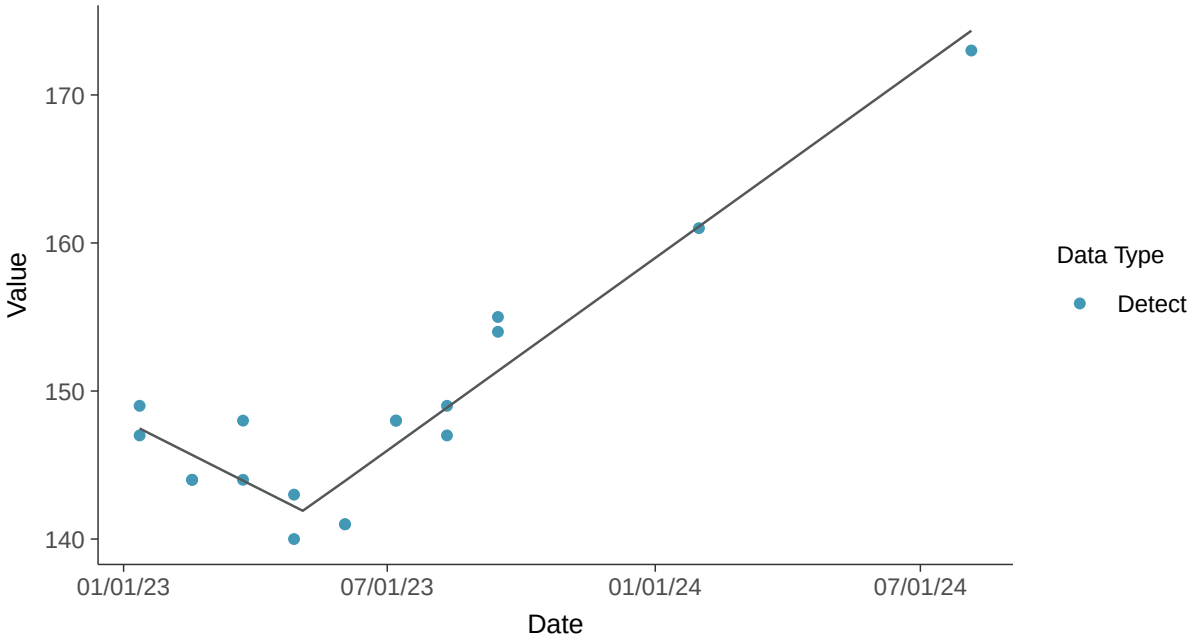
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Calcium, MW-14 (mg/L)



Trend Regression: Piecewise Linear-Linear

Calcium, MW-14 (mg/L)

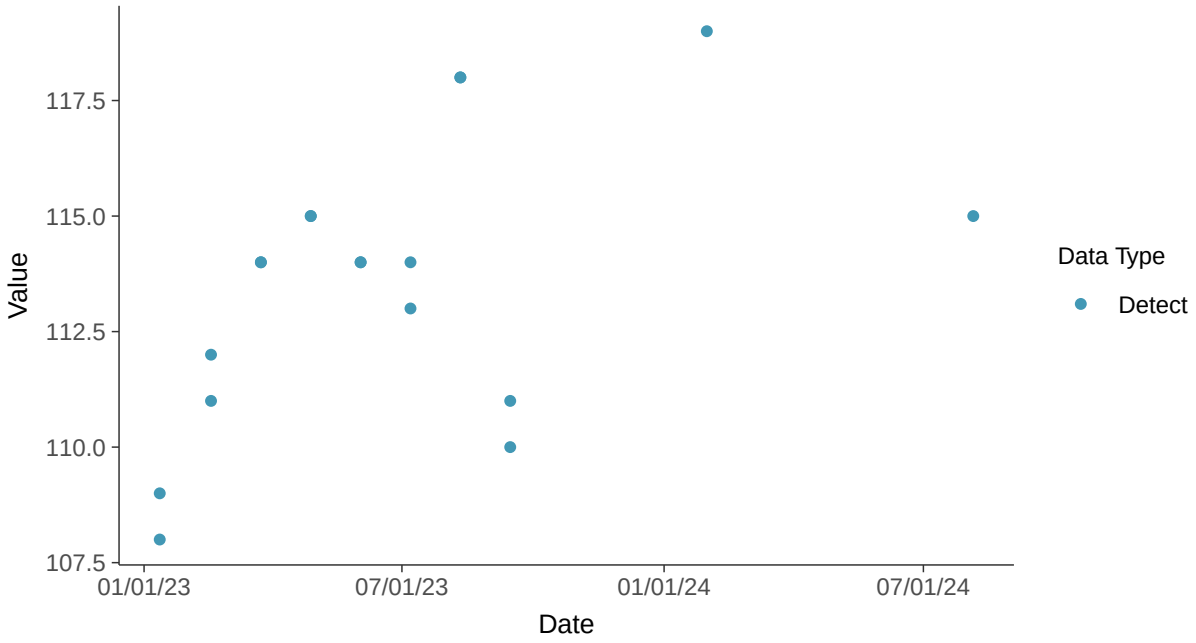


Appendix III: Chloride, MW-14

ID: 14_1_03

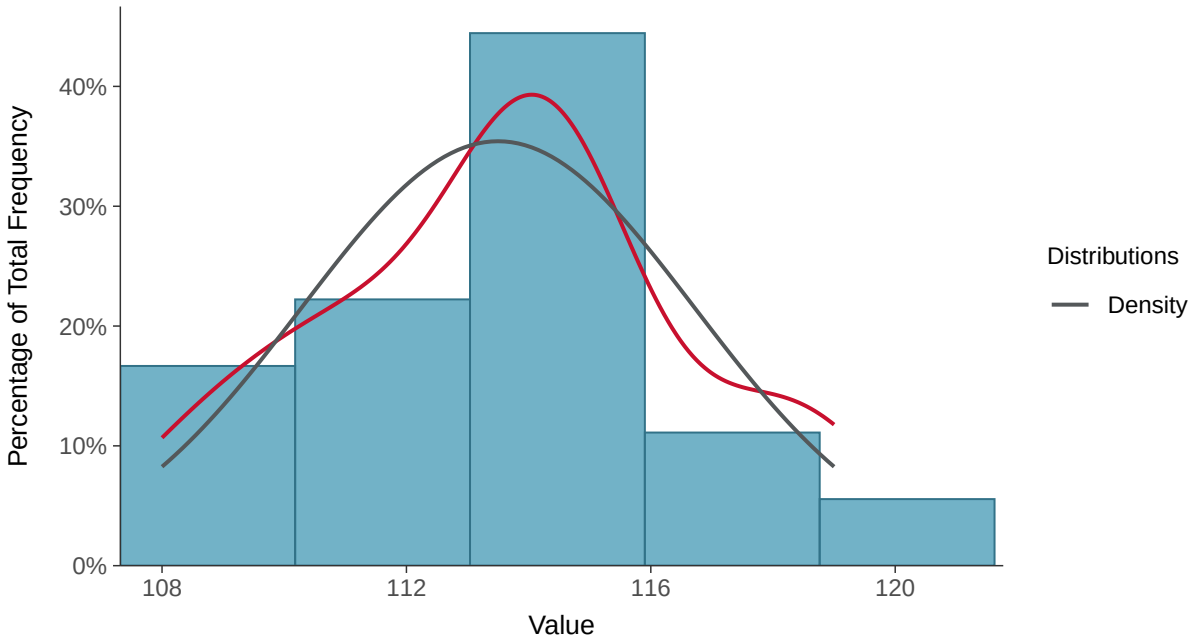
Scatter Plot

Chloride, MW-14 (mg/L)



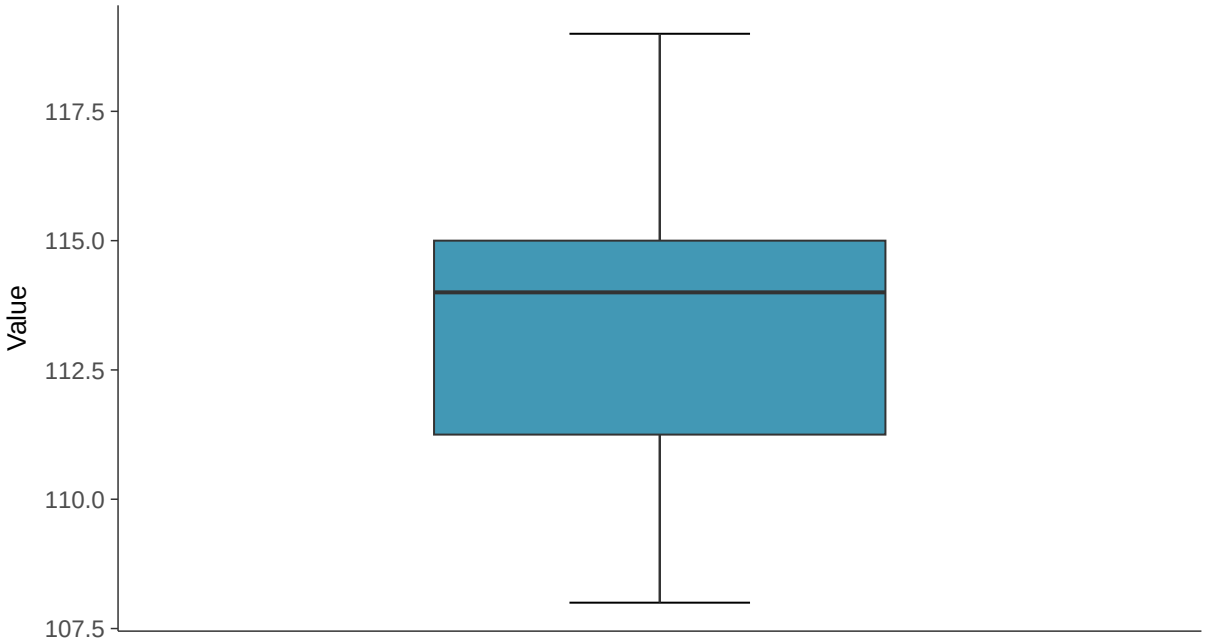
Histogram

Chloride, MW-14 (mg/L)



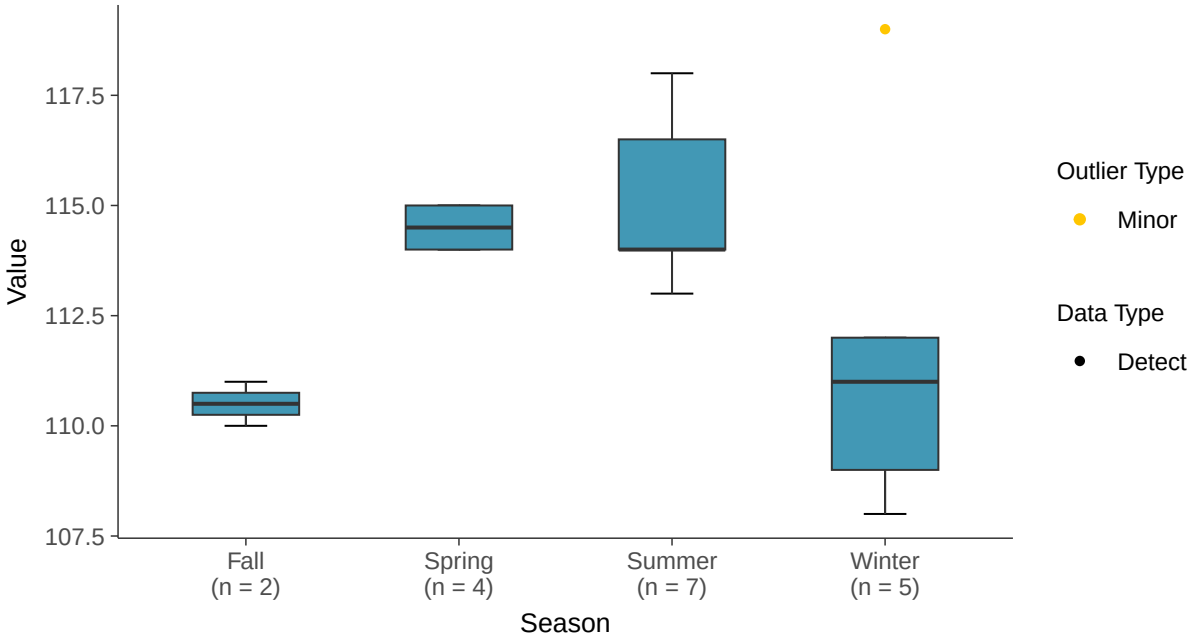
Boxplot

Chloride, MW-14 (mg/L)



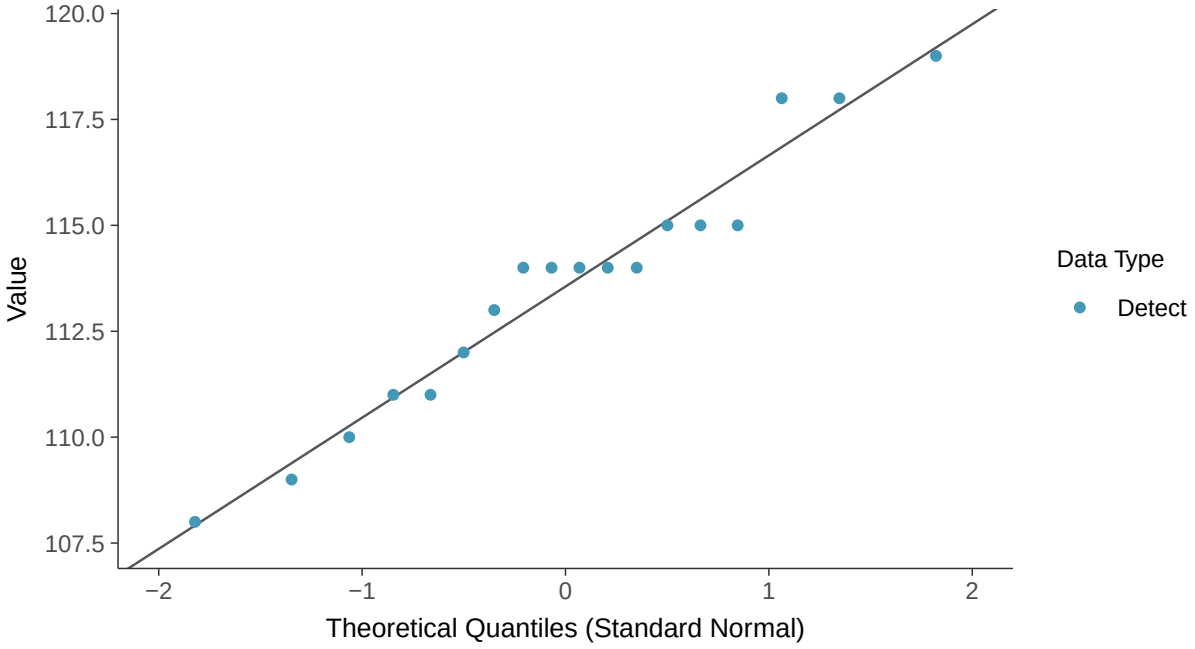
Boxplot by Season

Chloride, MW-14 (mg/L)



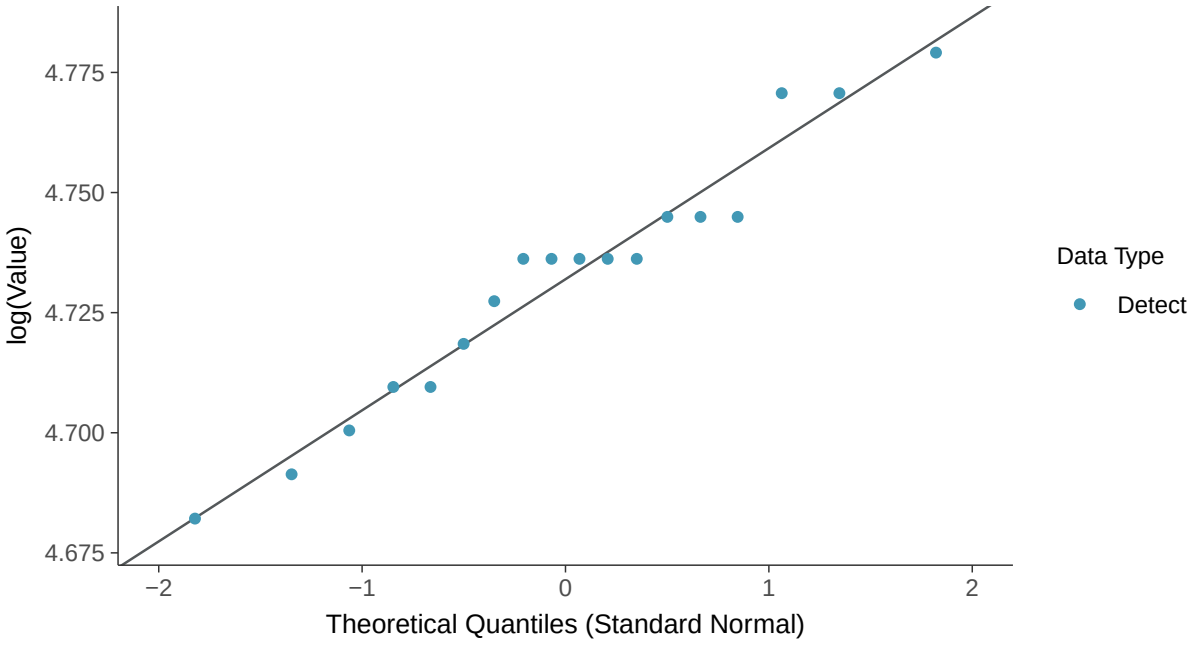
Normal Q-Q plot

Chloride, MW-14 (mg/L)



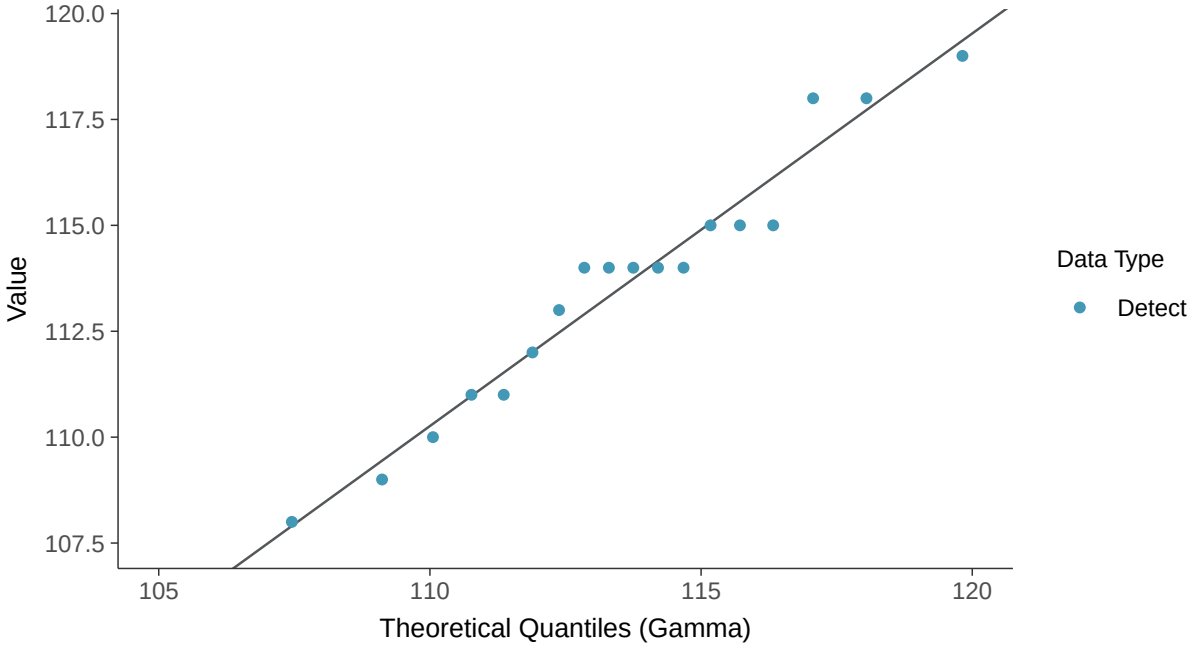
Lognormal Q-Q plot

Chloride, MW-14 (mg/L)



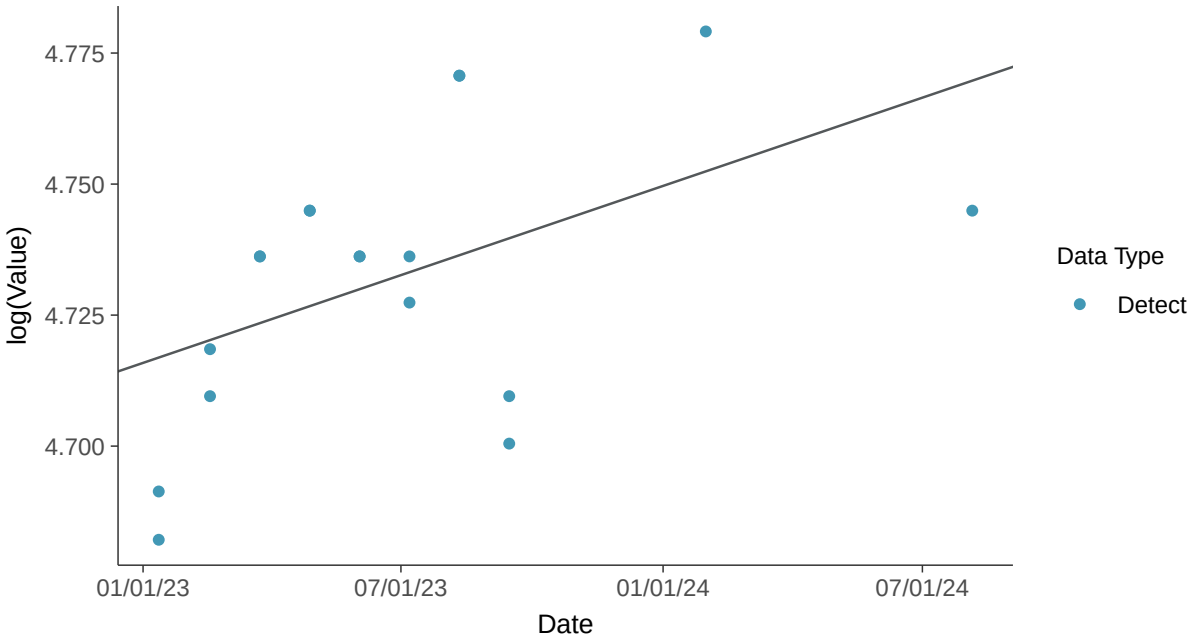
Gamma Q-Q plot

Chloride, MW-14 (mg/L)



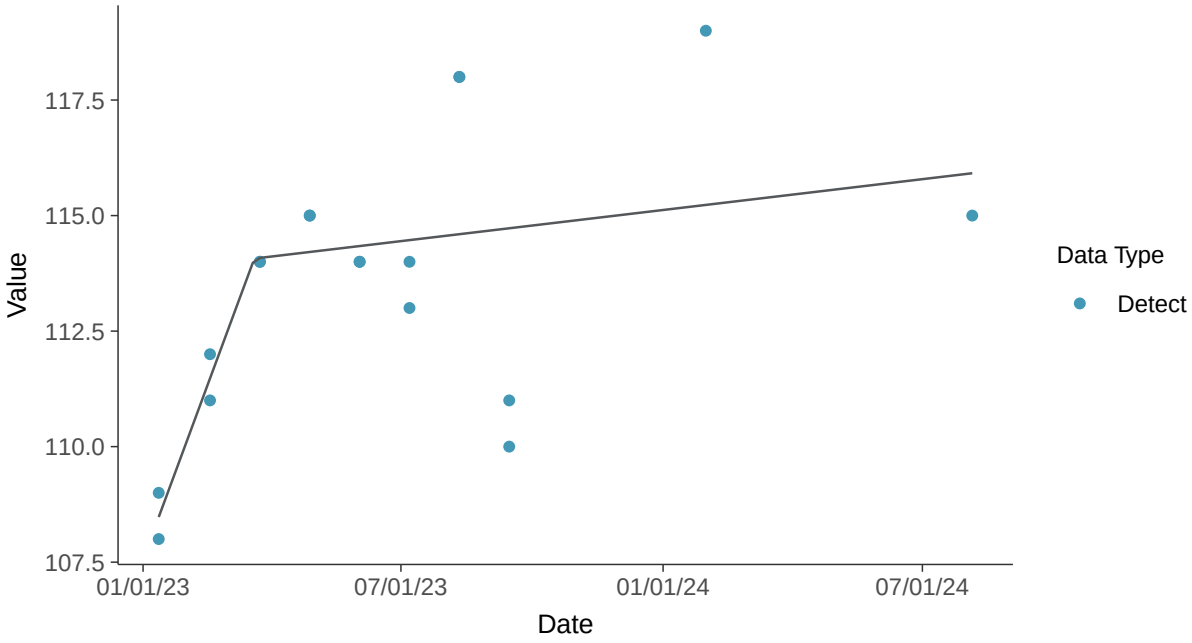
Trend Regression: Lognormal MLE

Chloride, MW-14 (mg/L)



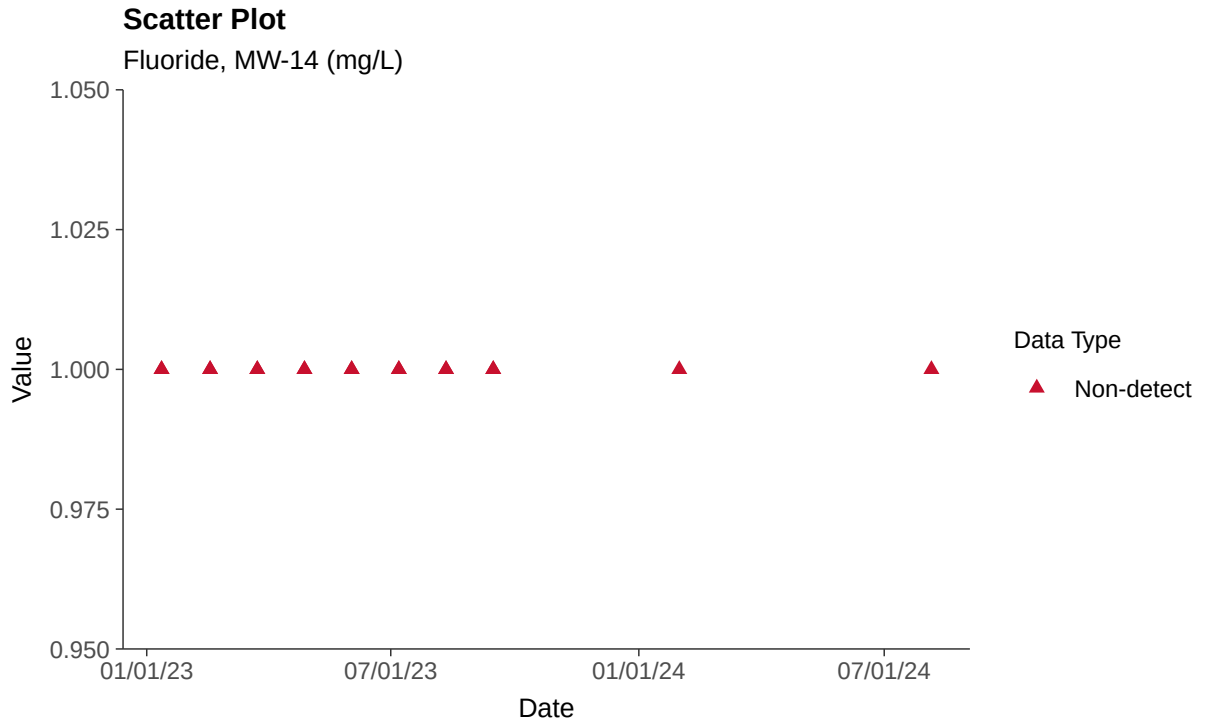
Trend Regression: Piecewise Linear-Linear

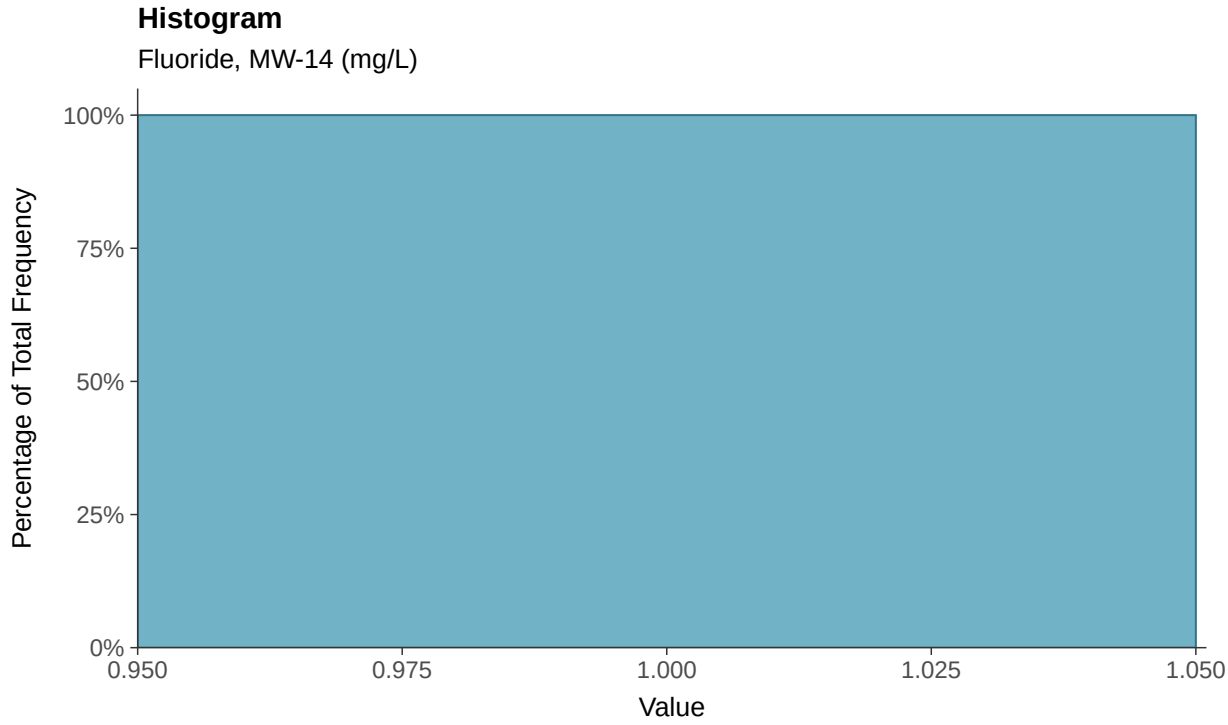
Chloride, MW-14 (mg/L)



Appendix III: Fluoride, MW-14

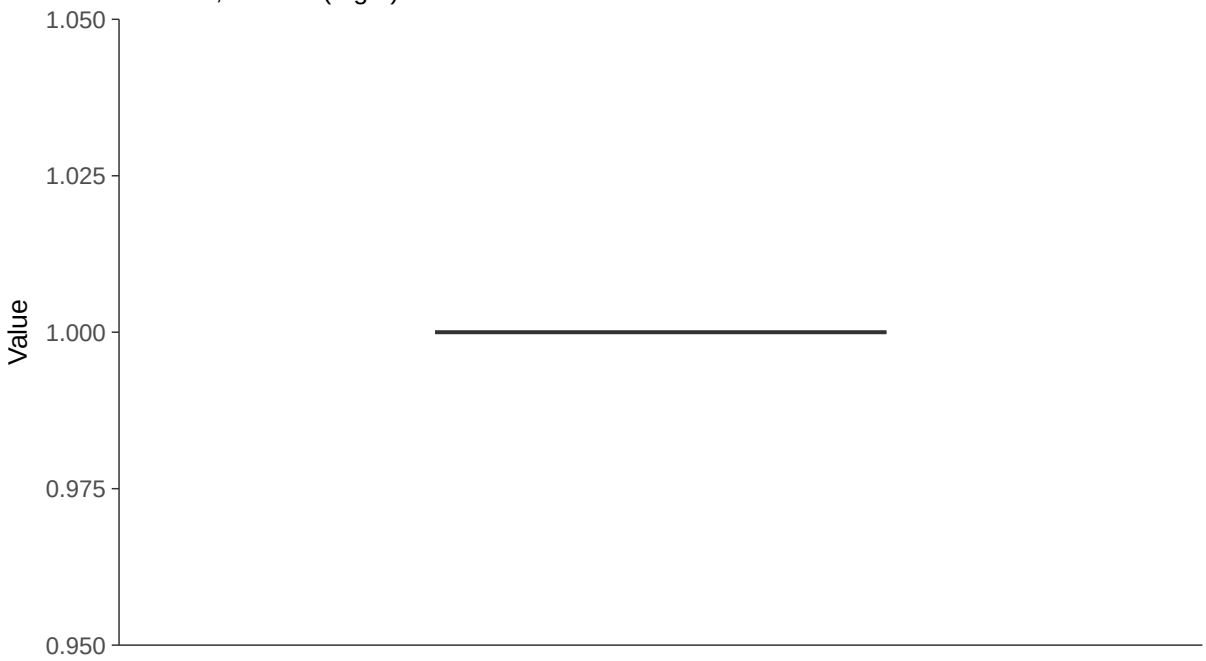
ID: 14_1_04





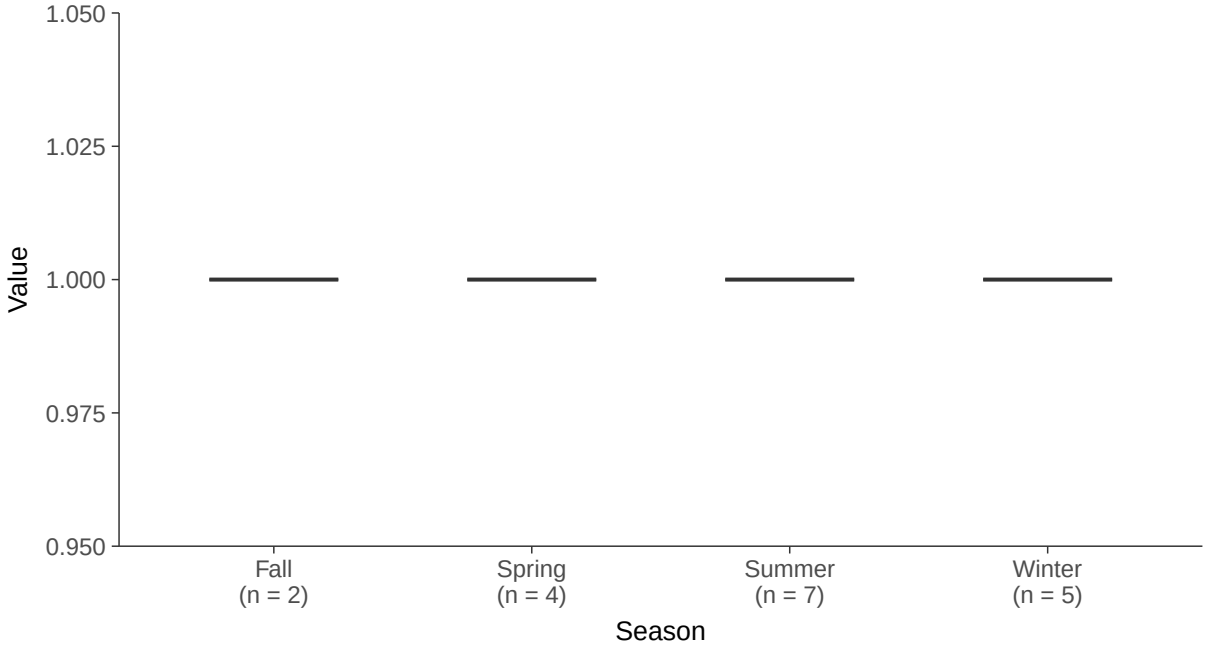
Boxplot

Fluoride, MW-14 (mg/L)



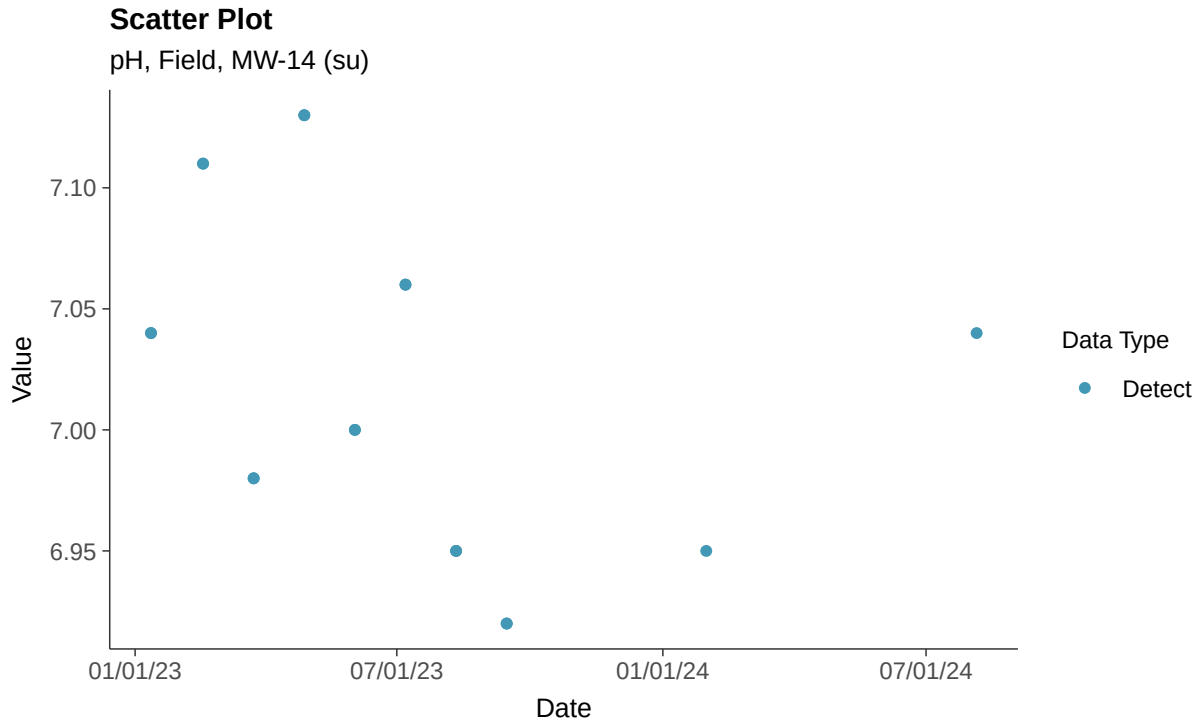
Boxplot by Season

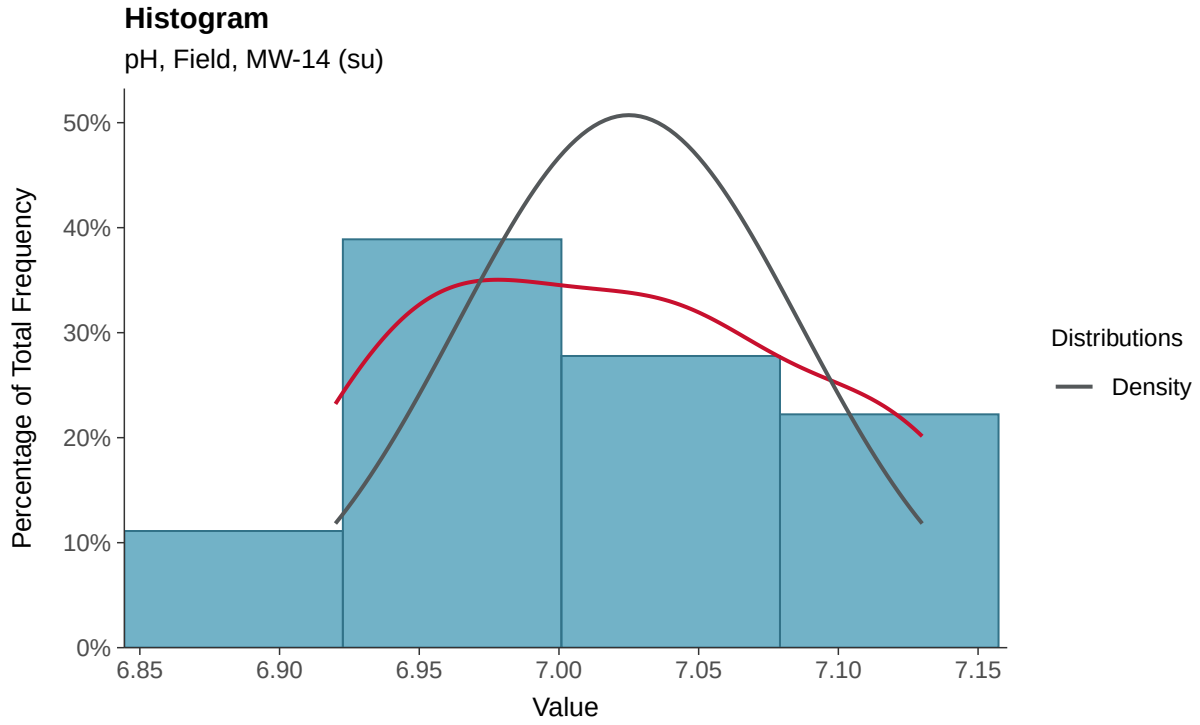
Fluoride, MW-14 (mg/L)



Appendix III: pH, Field, MW-14

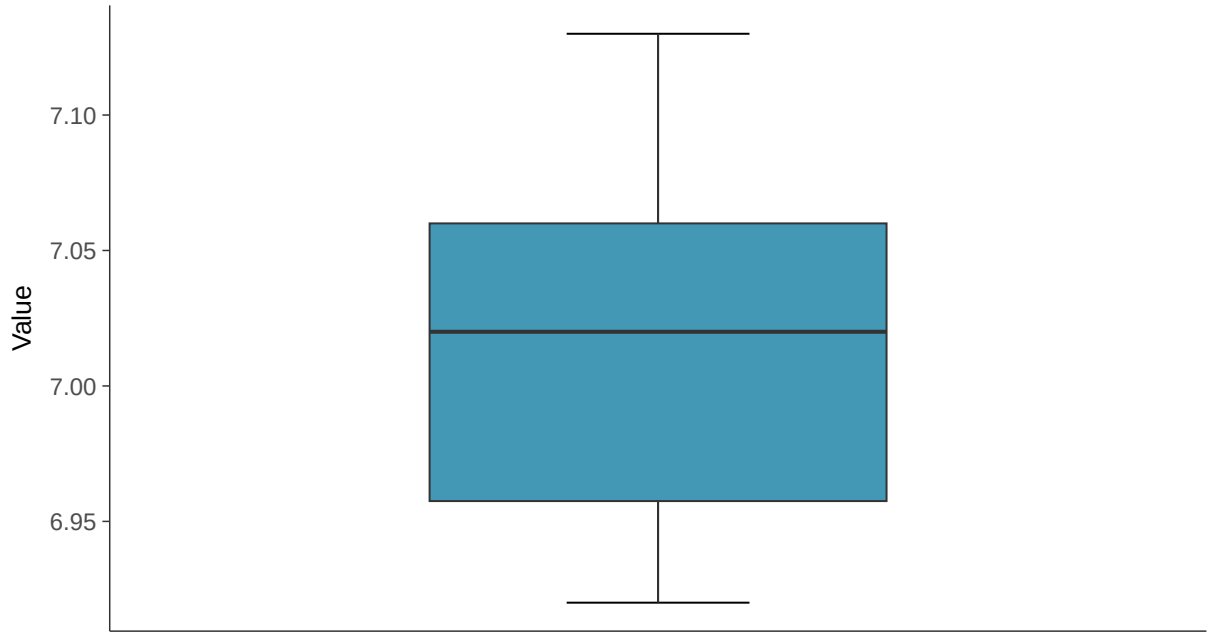
ID: 14_1_05





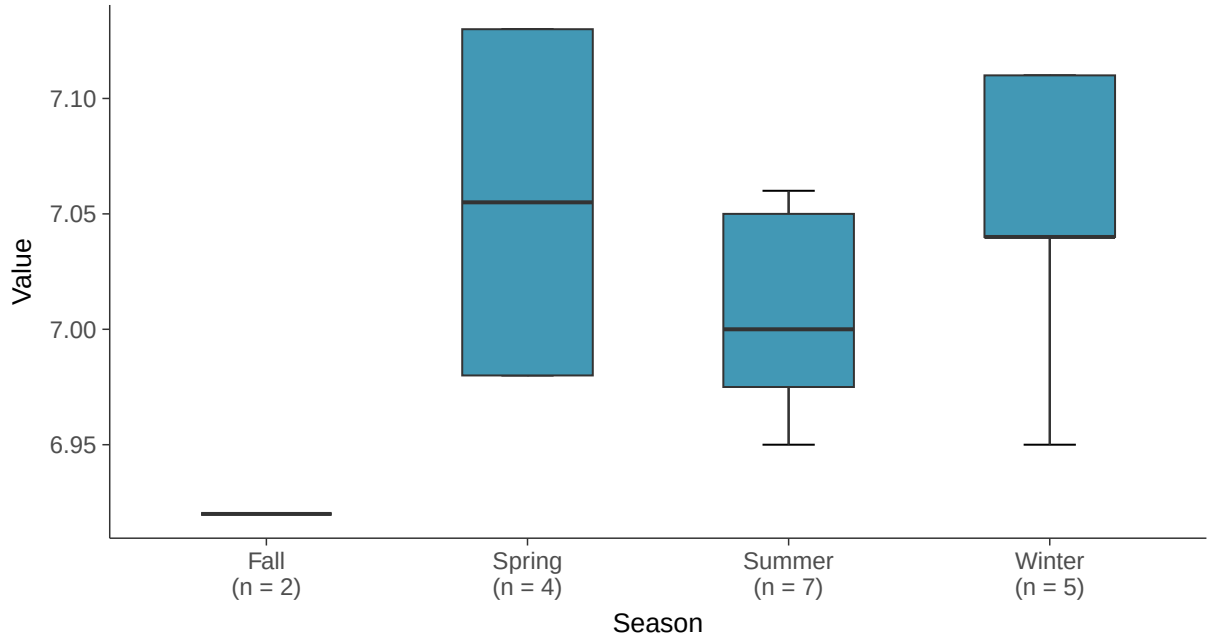
Boxplot

pH, Field, MW-14 (su)



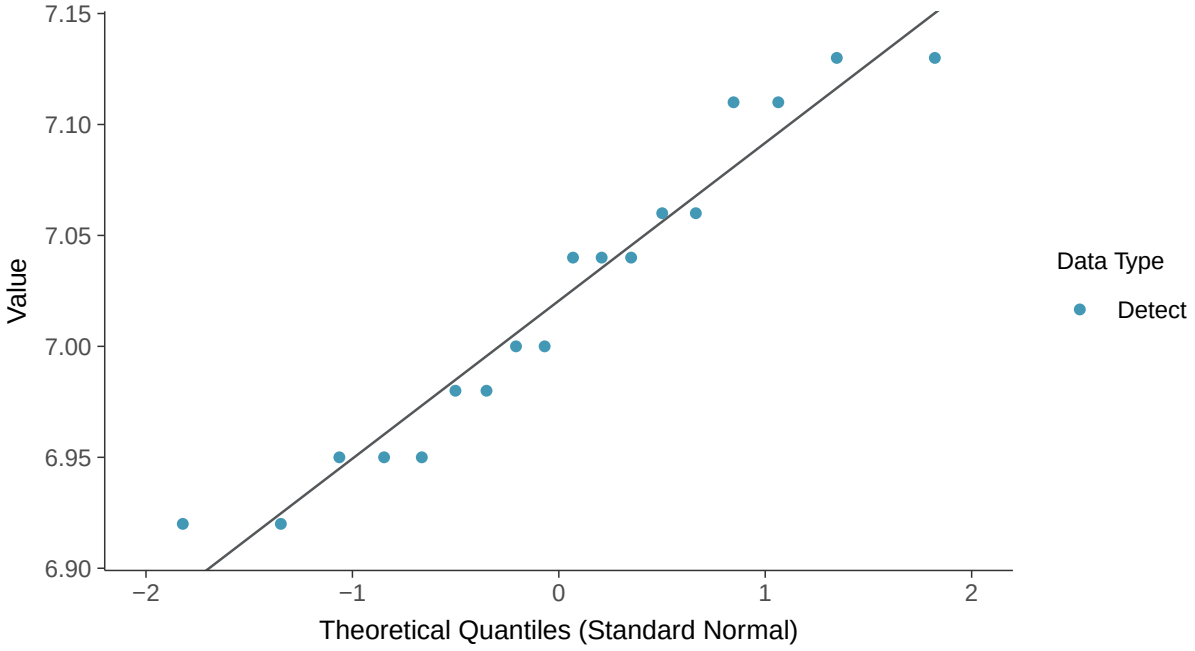
Boxplot by Season

pH, Field, MW-14 (su)



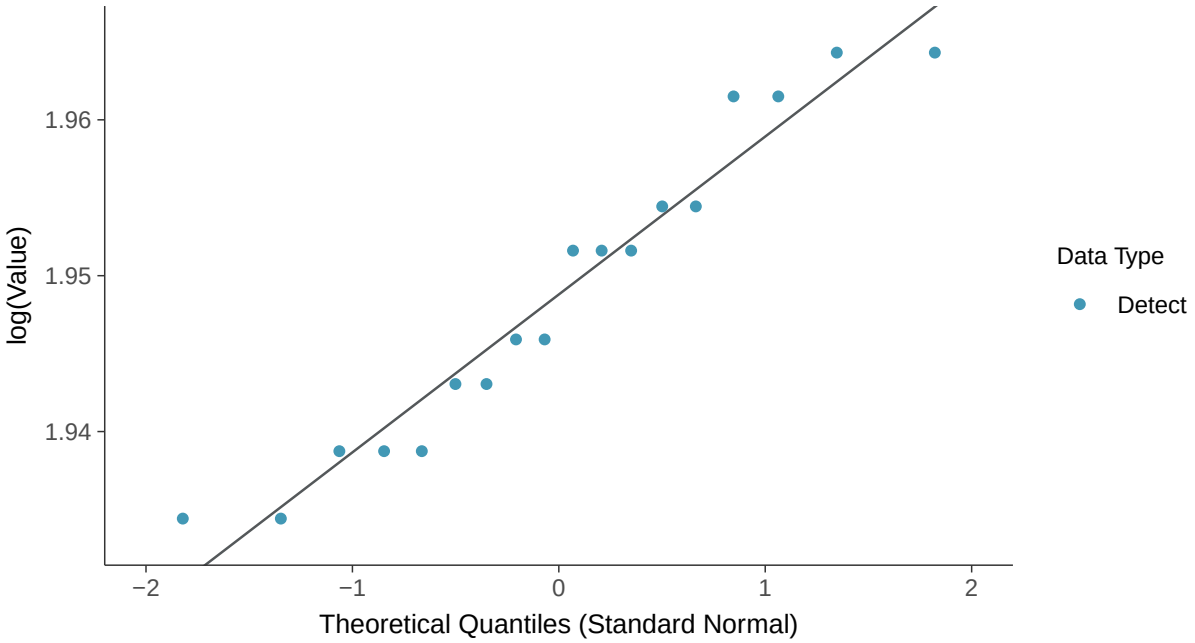
Normal Q-Q plot

pH, Field, MW-14 (su)



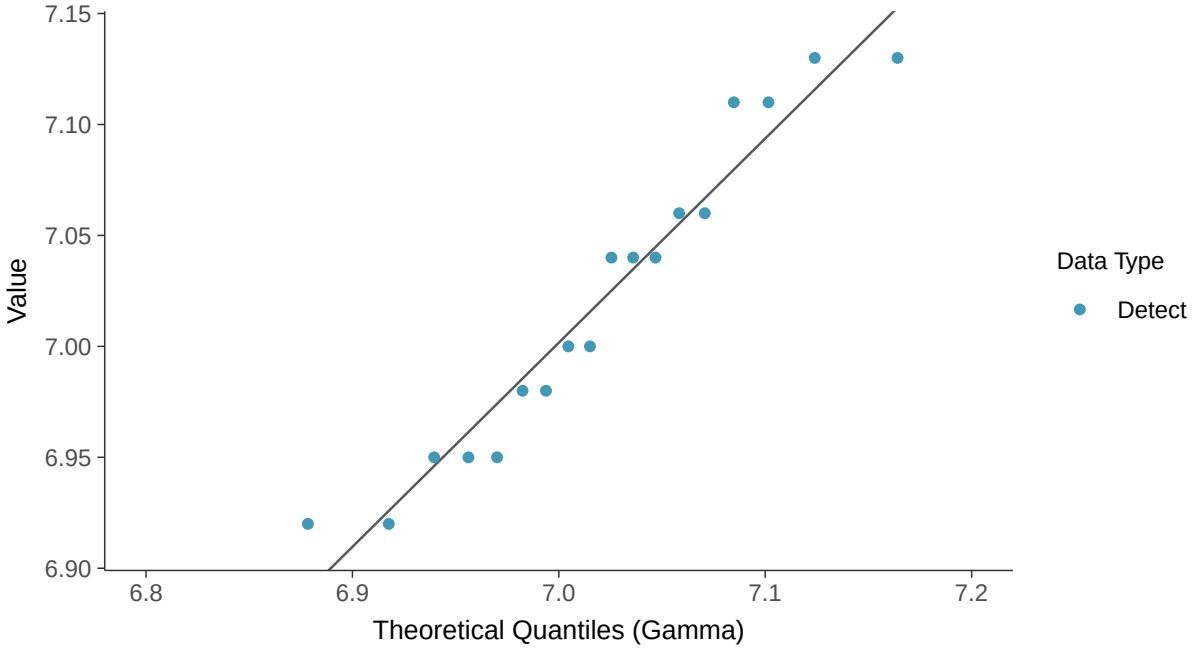
Lognormal Q-Q plot

pH, Field, MW-14 (su)



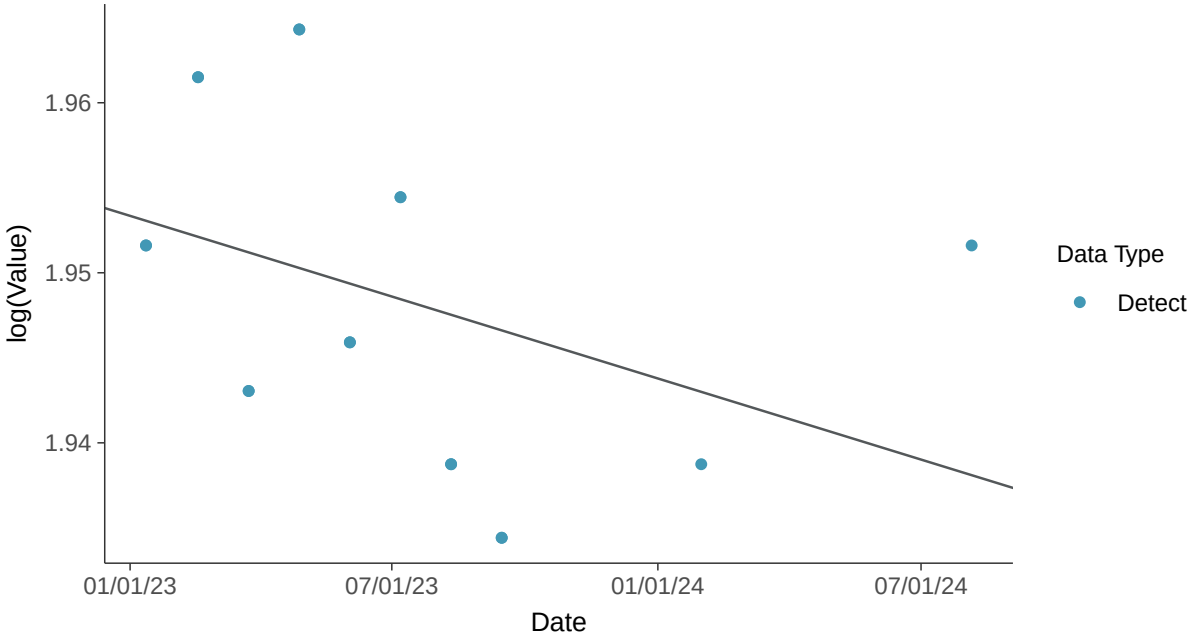
Gamma Q-Q plot

pH, Field, MW-14 (su)



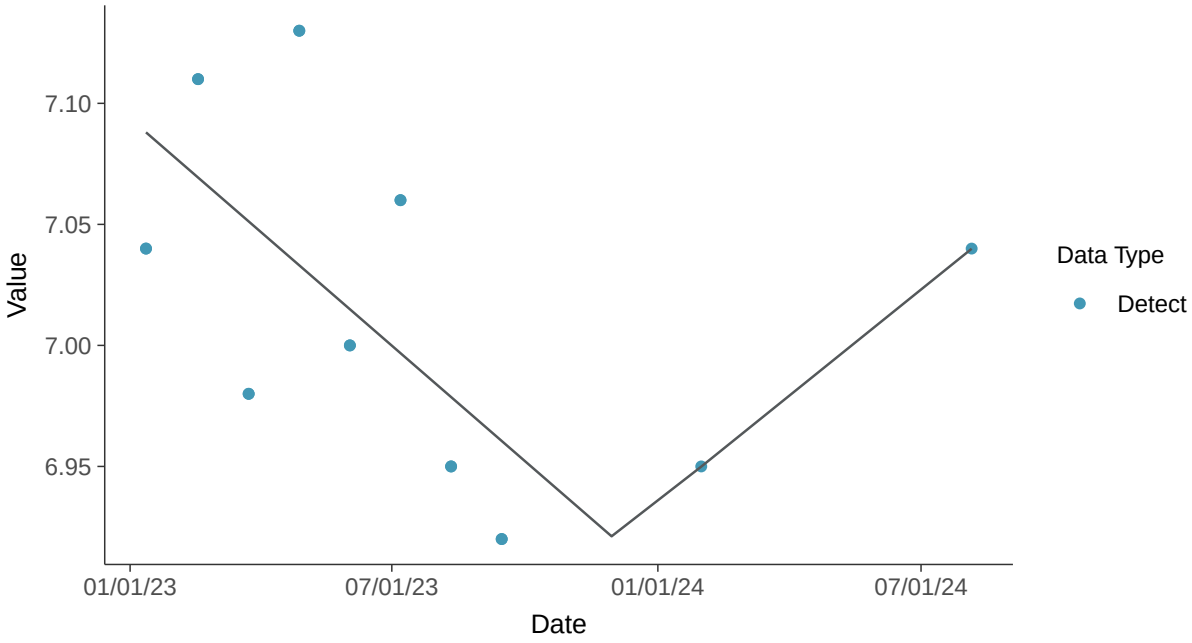
Trend Regression: Lognormal MLE

pH, Field, MW-14 (su)



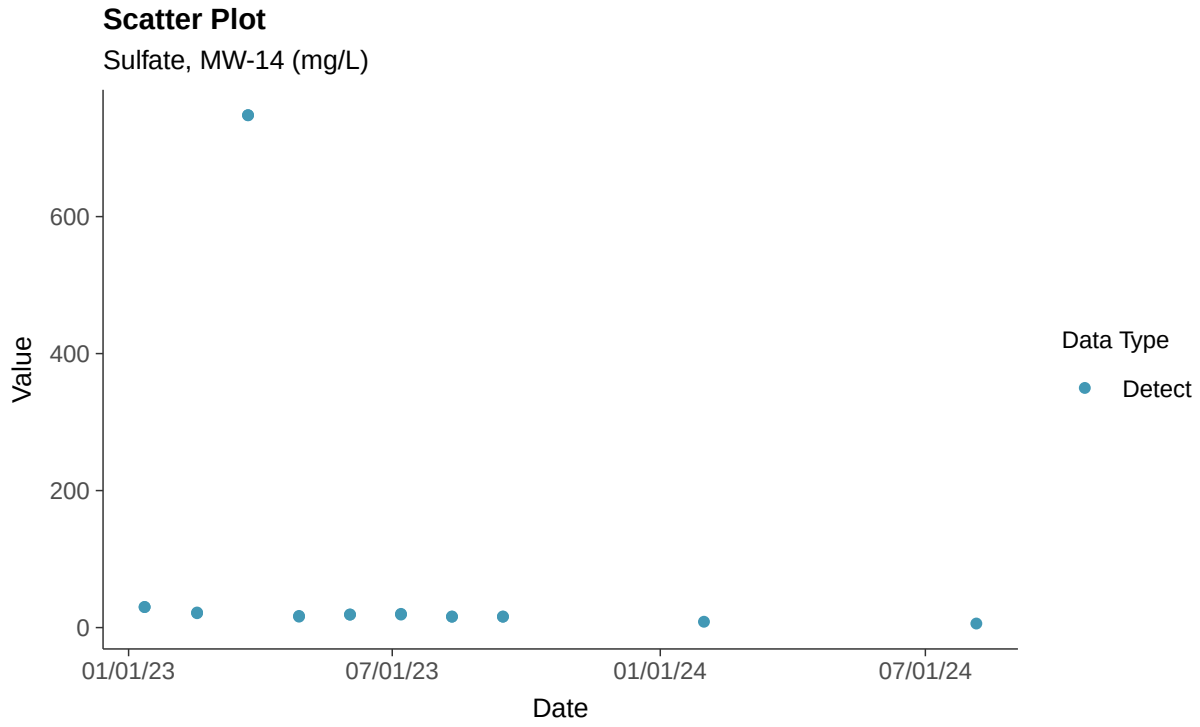
Trend Regression: Piecewise Linear-Linear

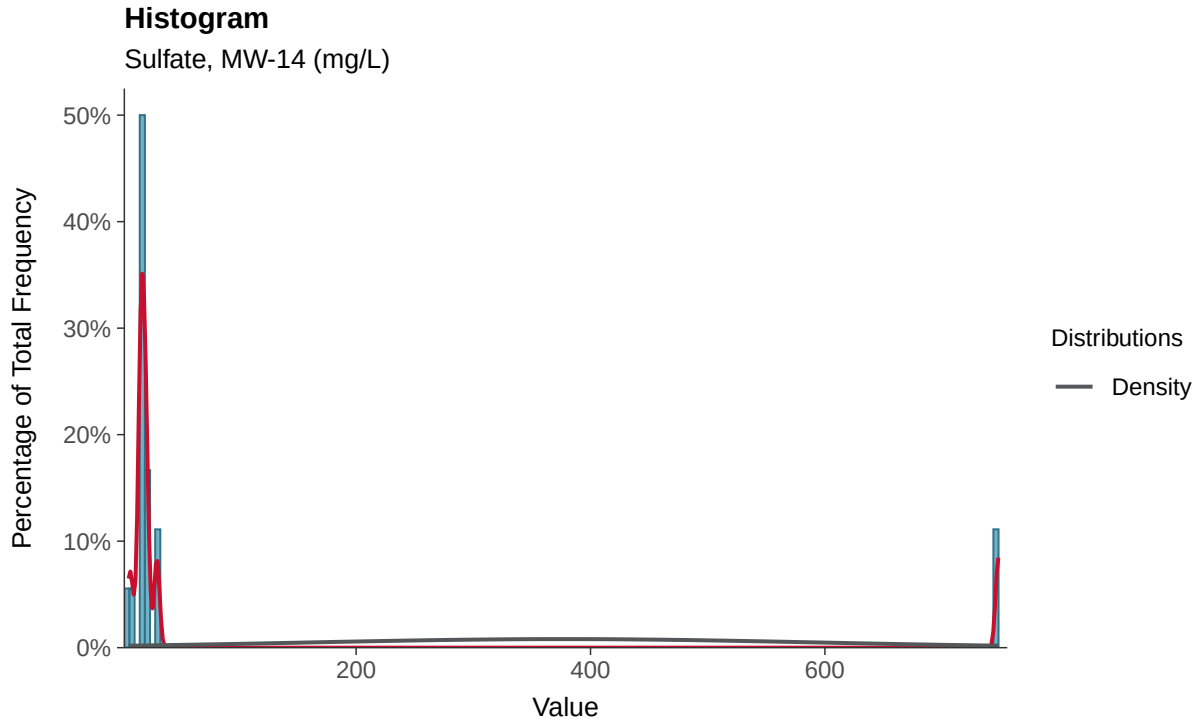
pH, Field, MW-14 (su)



Appendix III: Sulfate, MW-14

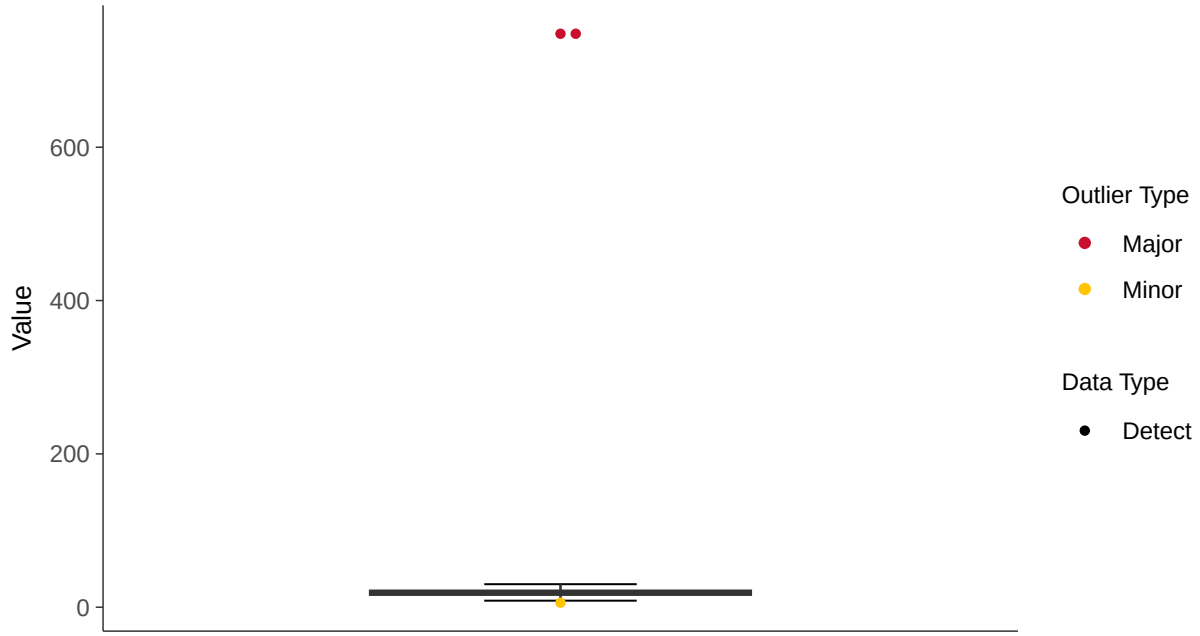
ID: 14_1_06





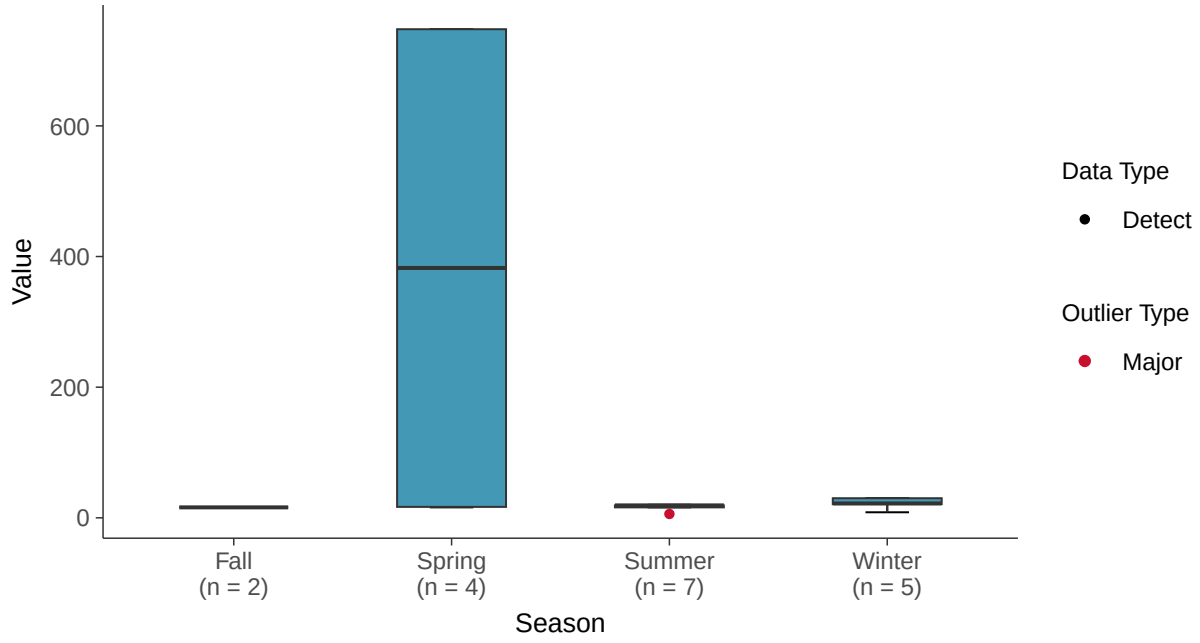
Boxplot

Sulfate, MW-14 (mg/L)



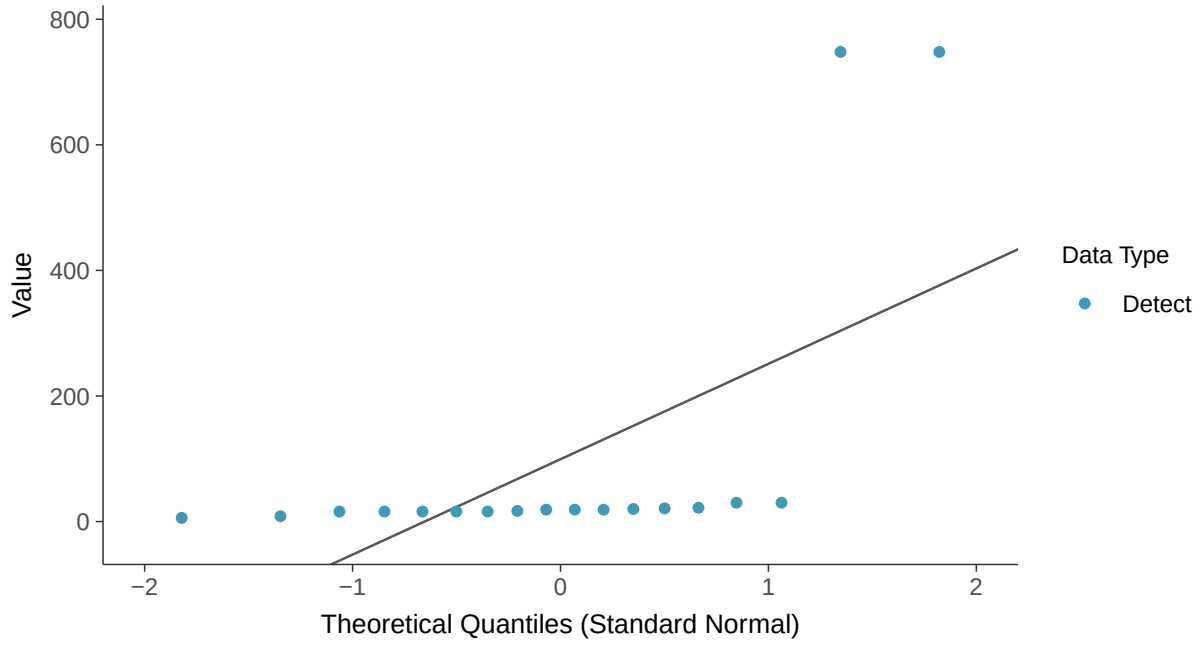
Boxplot by Season

Sulfate, MW-14 (mg/L)



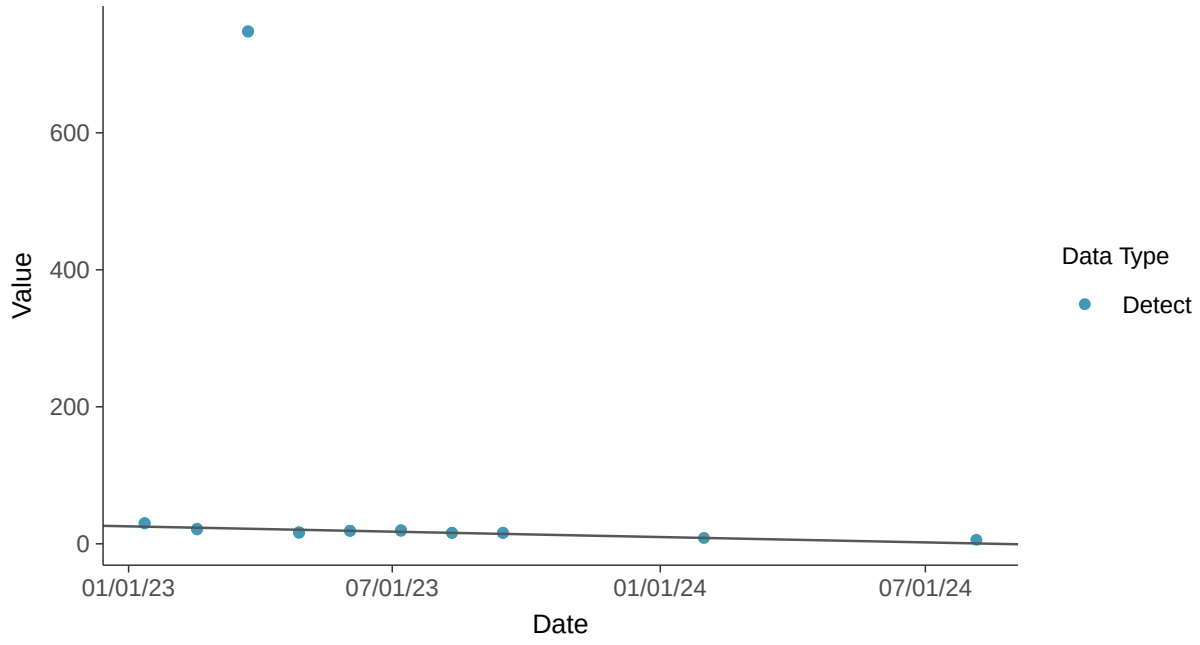
Normal Q-Q plot

Sulfate, MW-14 (mg/L)



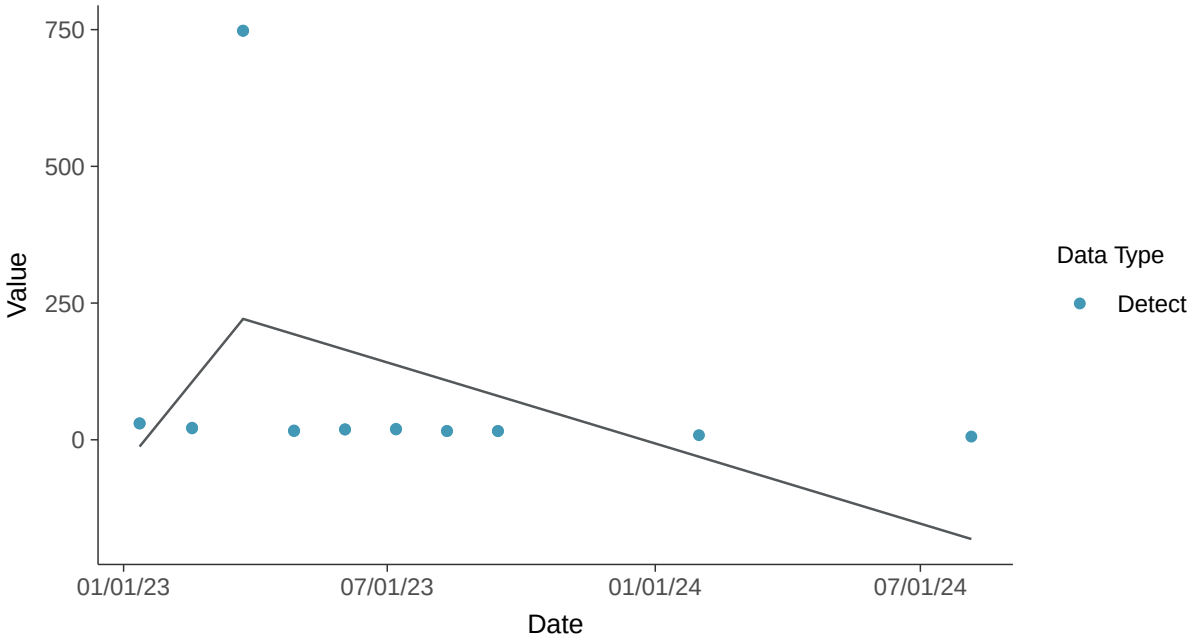
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Sulfate, MW-14 (mg/L)



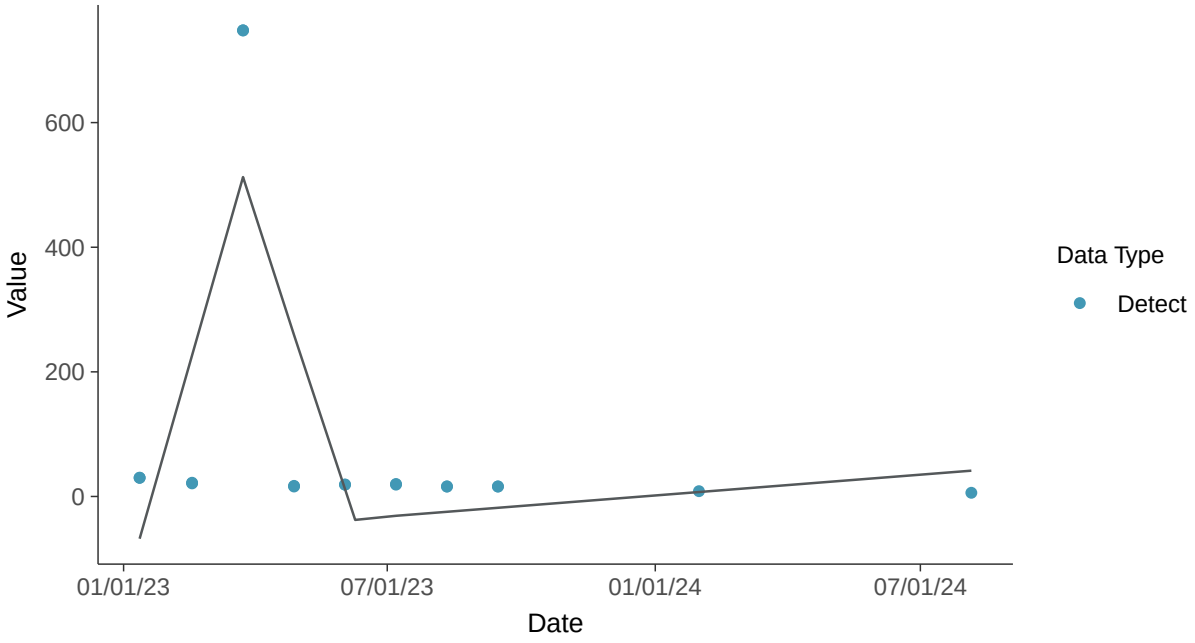
Trend Regression: Piecewise Linear-Linear

Sulfate, MW-14 (mg/L)



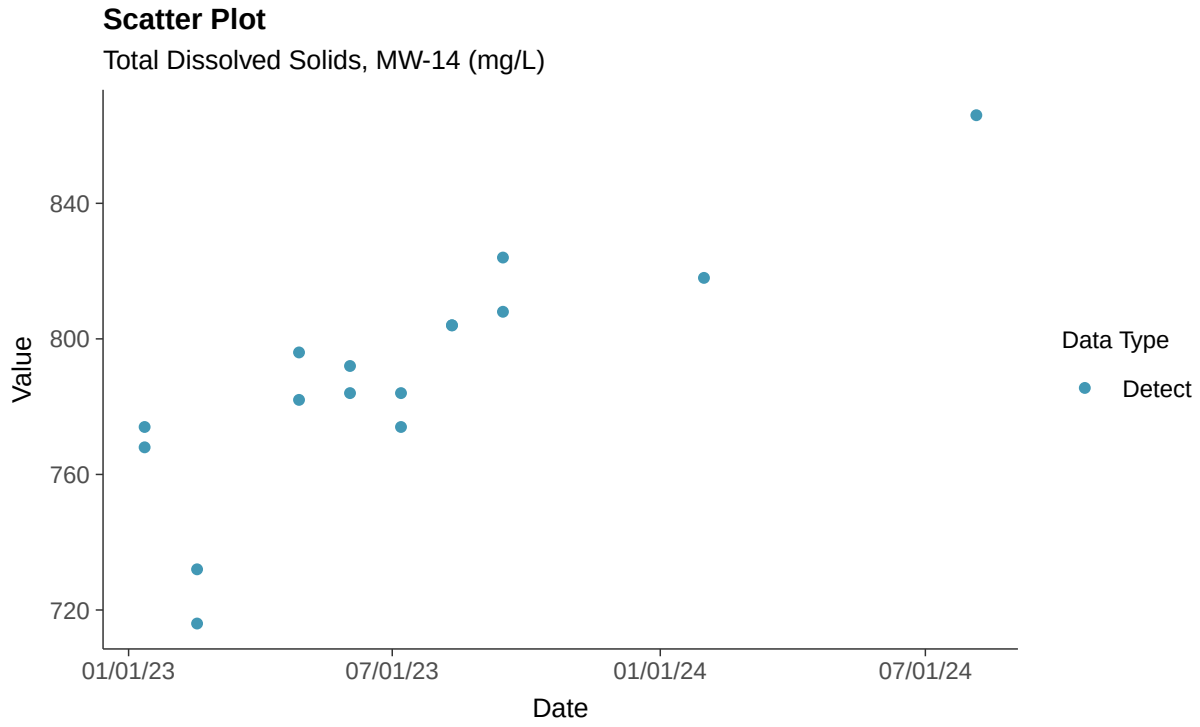
Trend Regression: Piecewise Linear-Linear-Linear

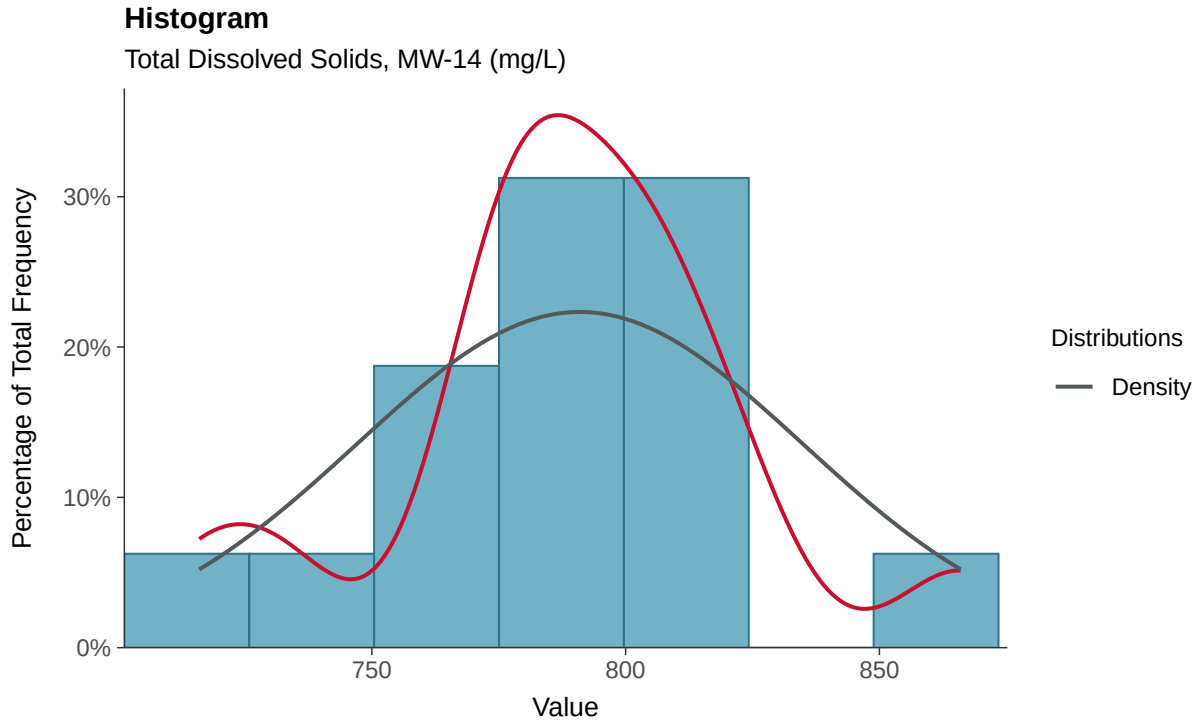
Sulfate, MW-14 (mg/L)



Appendix III: Total Dissolved Solids, MW-14

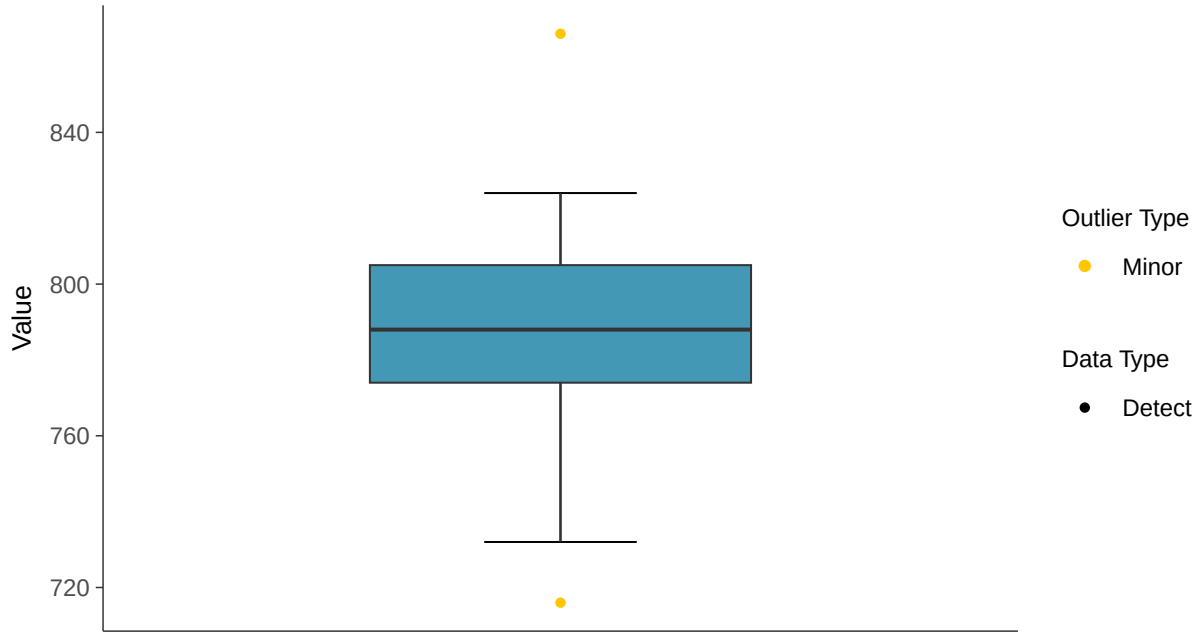
ID: 14_1_07





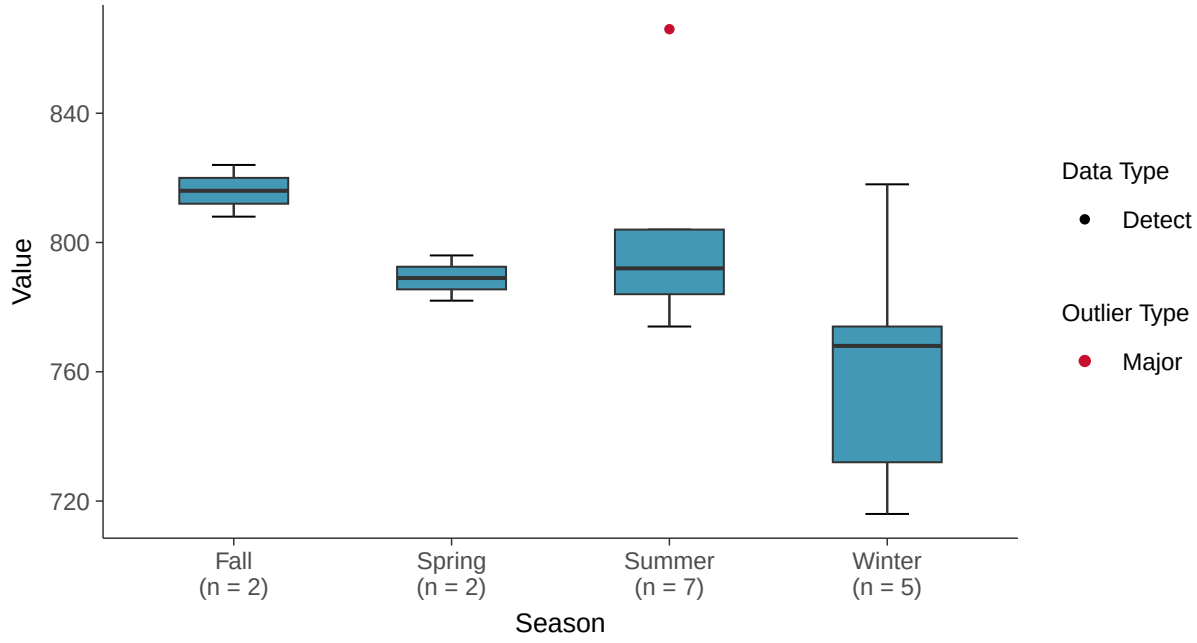
Boxplot

Total Dissolved Solids, MW-14 (mg/L)



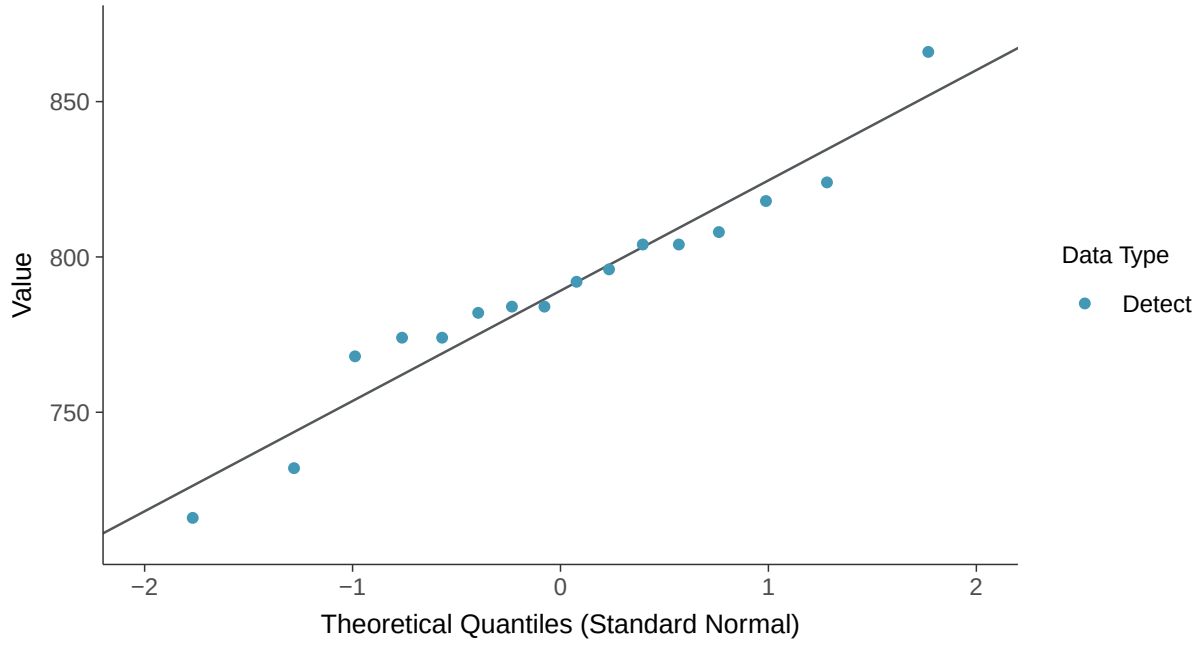
Boxplot by Season

Total Dissolved Solids, MW-14 (mg/L)



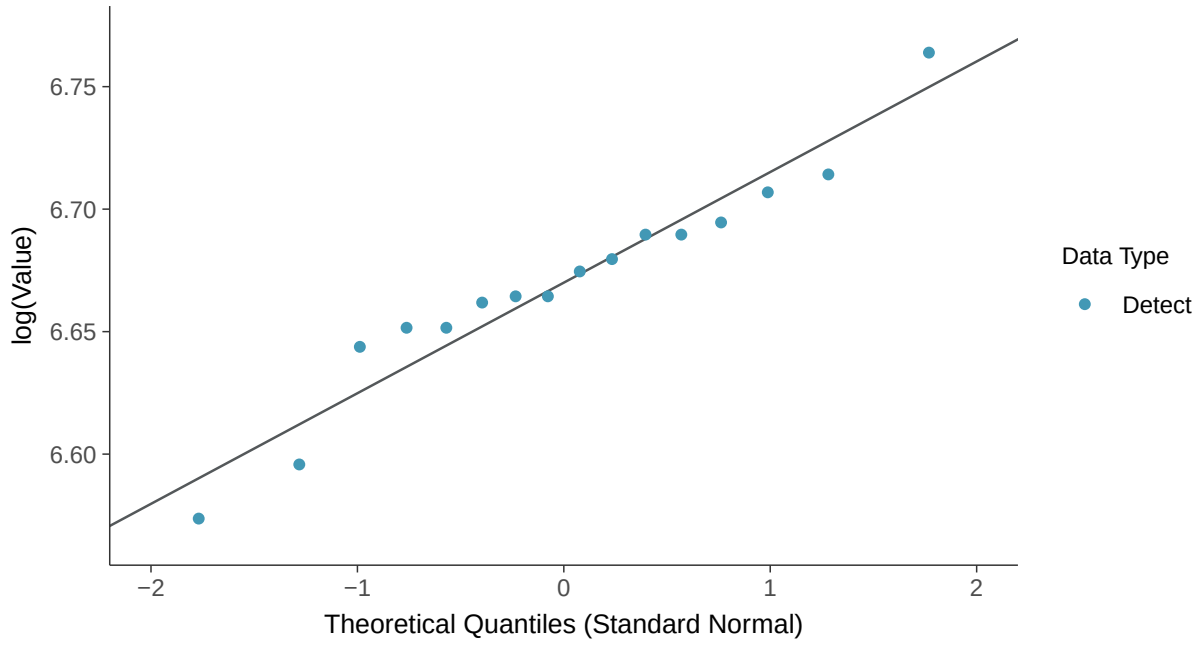
Normal Q-Q plot

Total Dissolved Solids, MW-14 (mg/L)



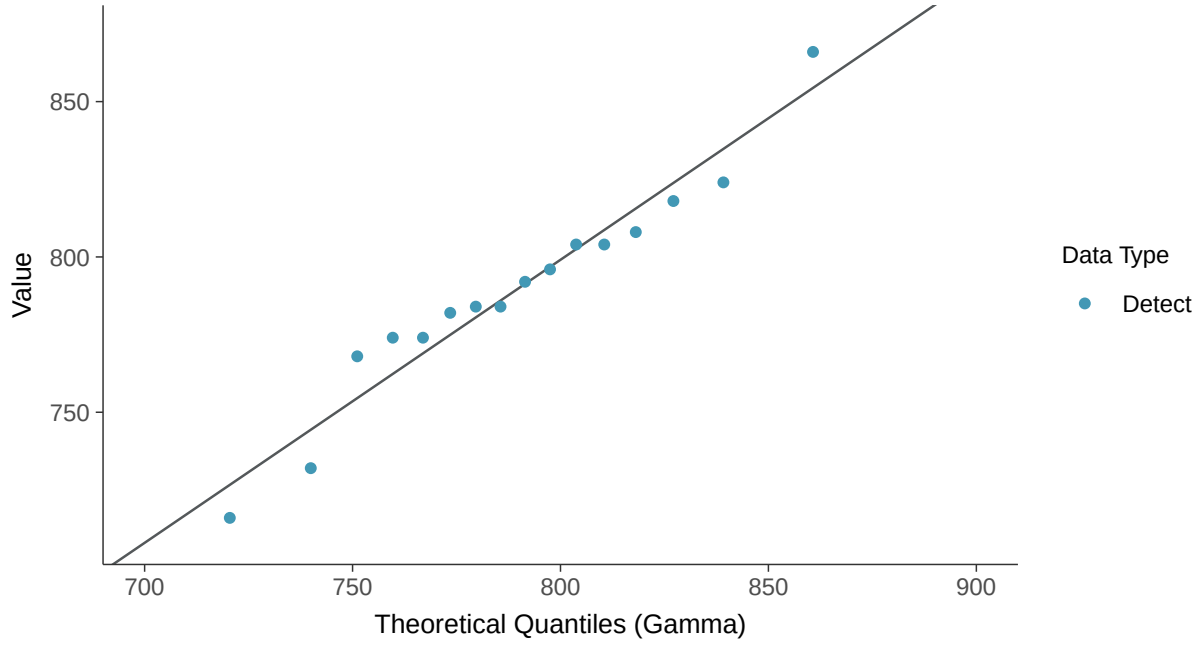
Lognormal Q-Q plot

Total Dissolved Solids, MW-14 (mg/L)



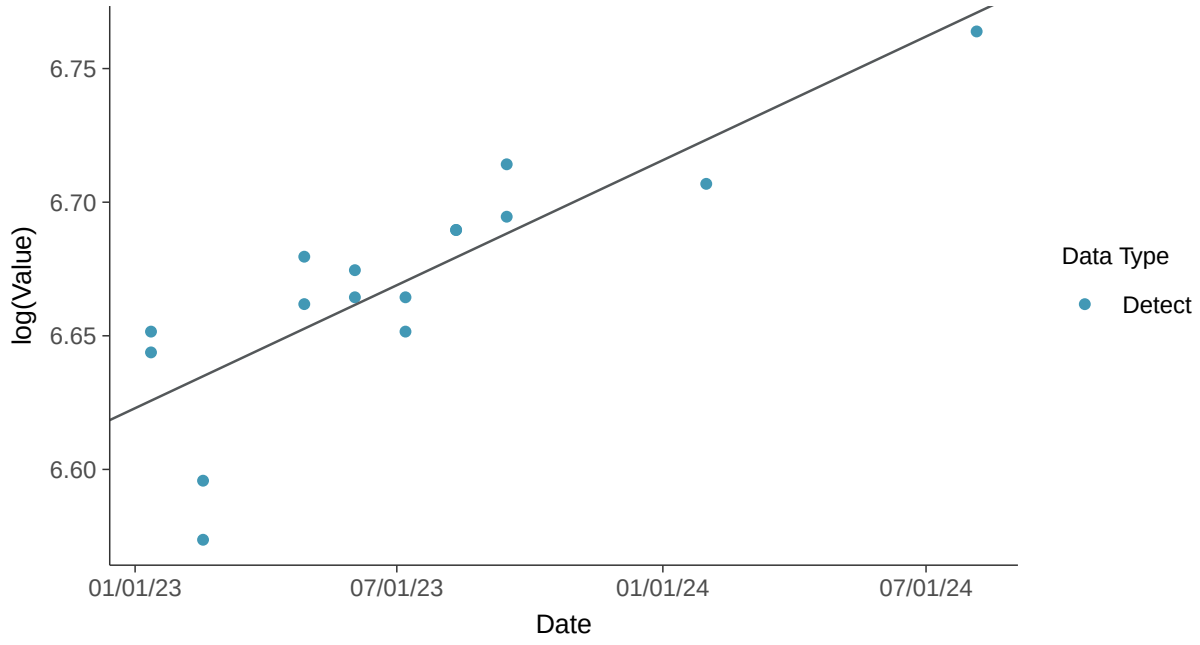
Gamma Q-Q plot

Total Dissolved Solids, MW-14 (mg/L)



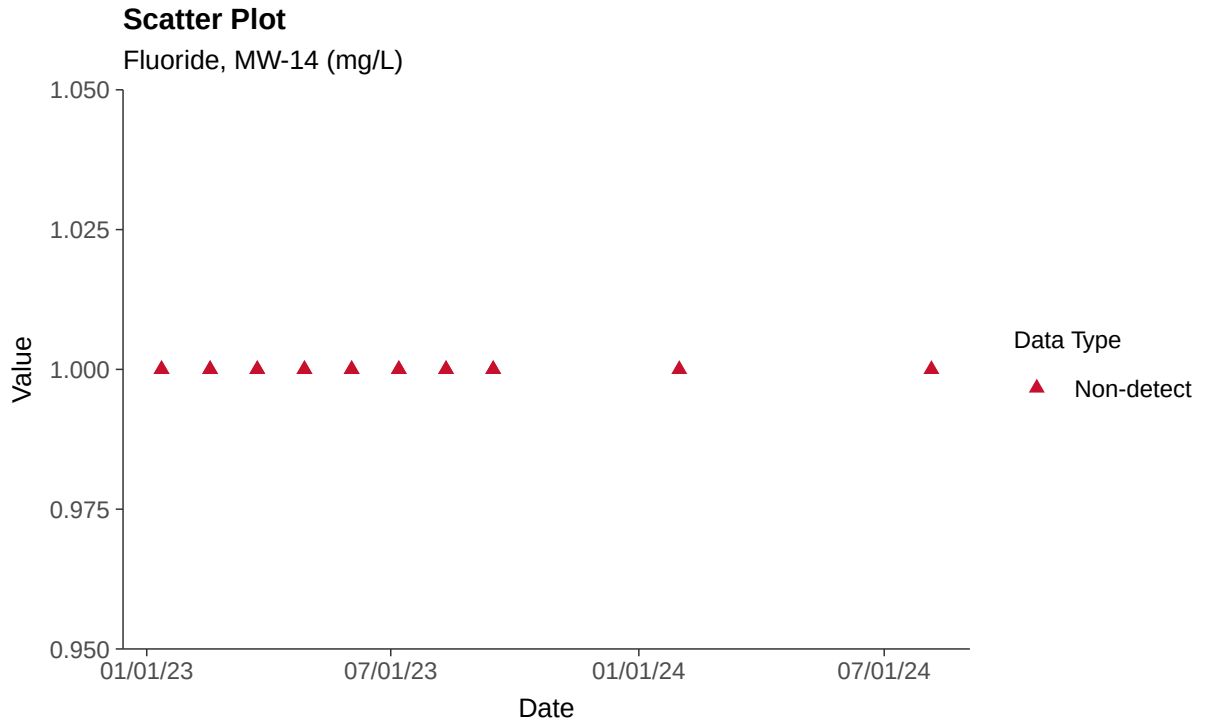
Trend Regression: Lognormal MLE

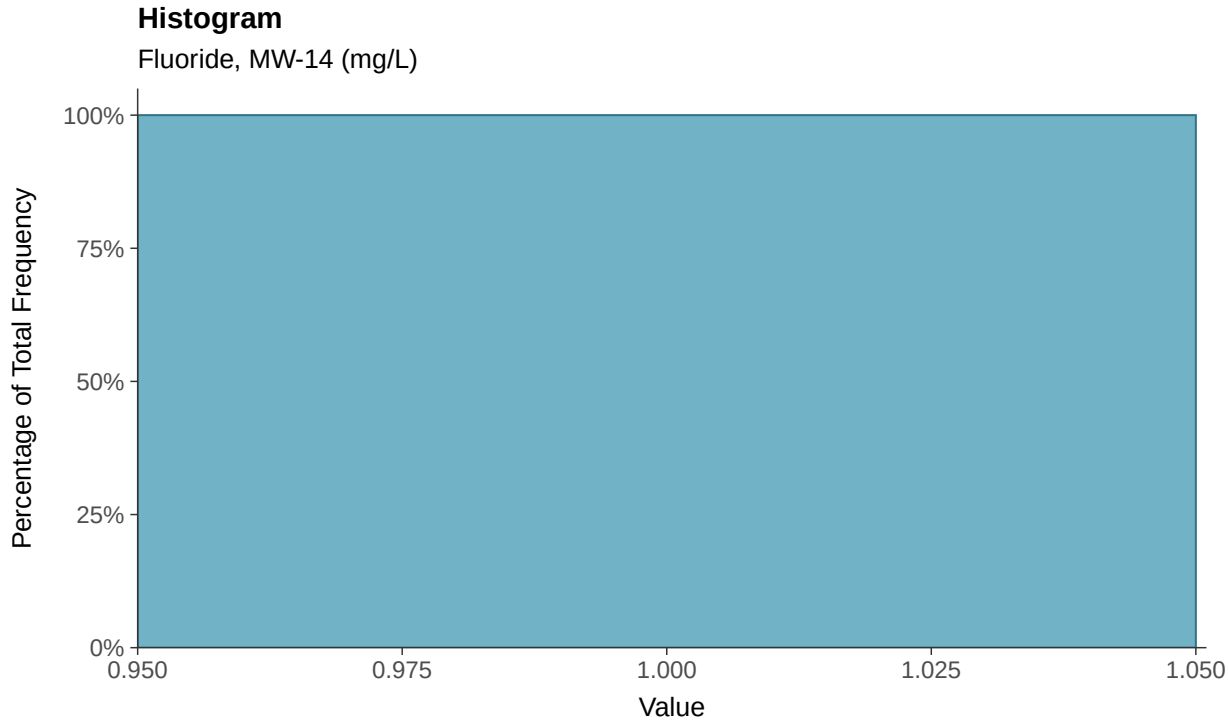
Total Dissolved Solids, MW-14 (mg/L)



Appendix IV: Fluoride, MW-14

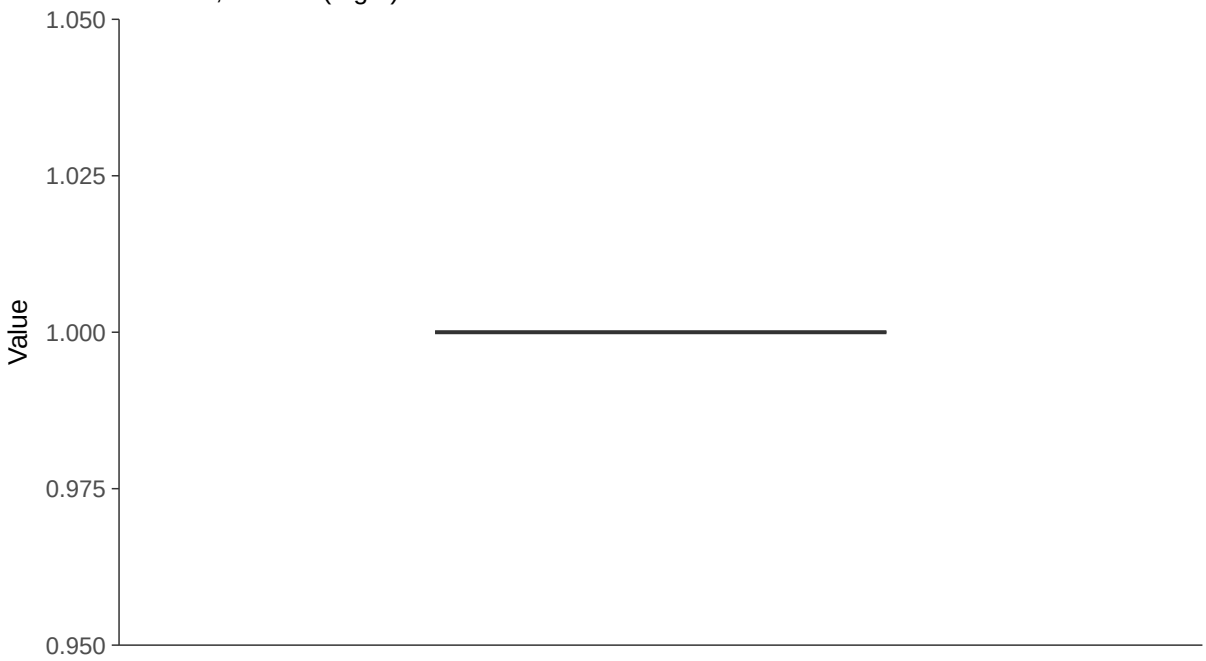
ID: 14_2_04





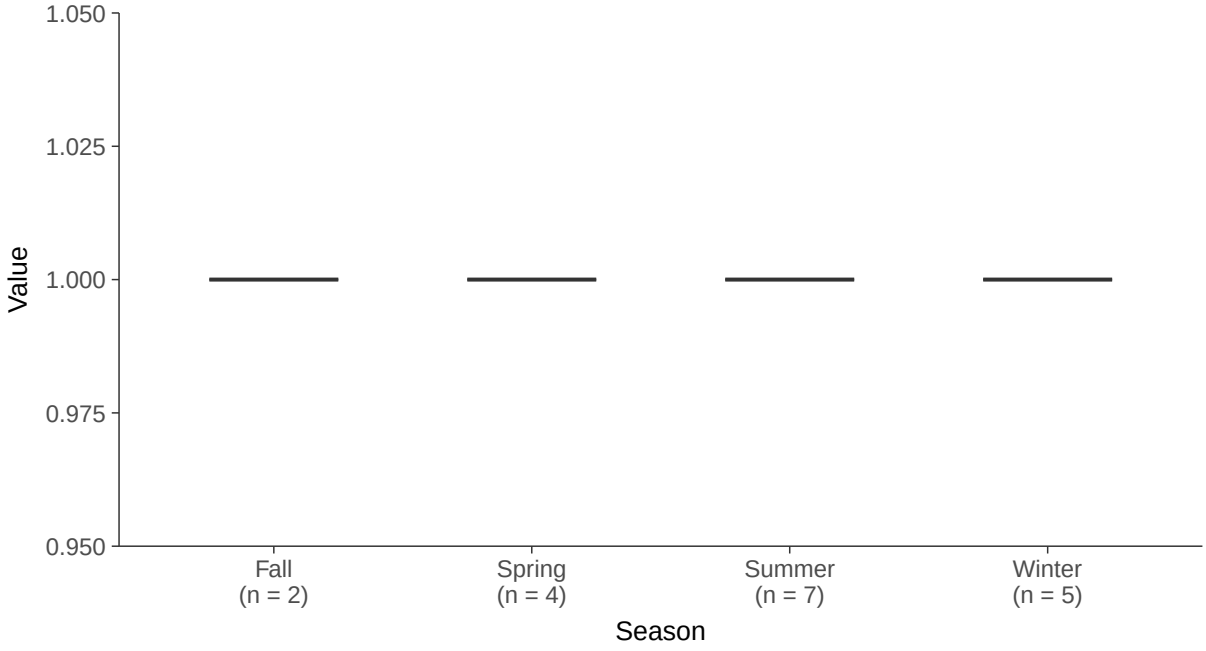
Boxplot

Fluoride, MW-14 (mg/L)



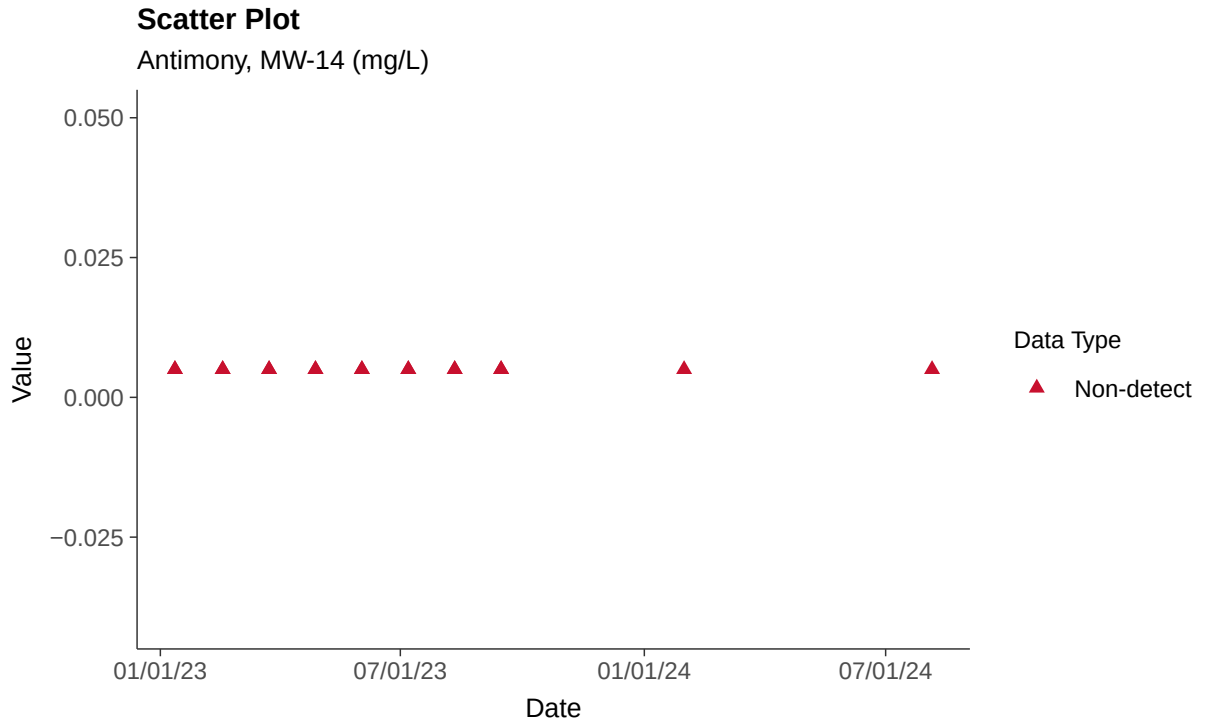
Boxplot by Season

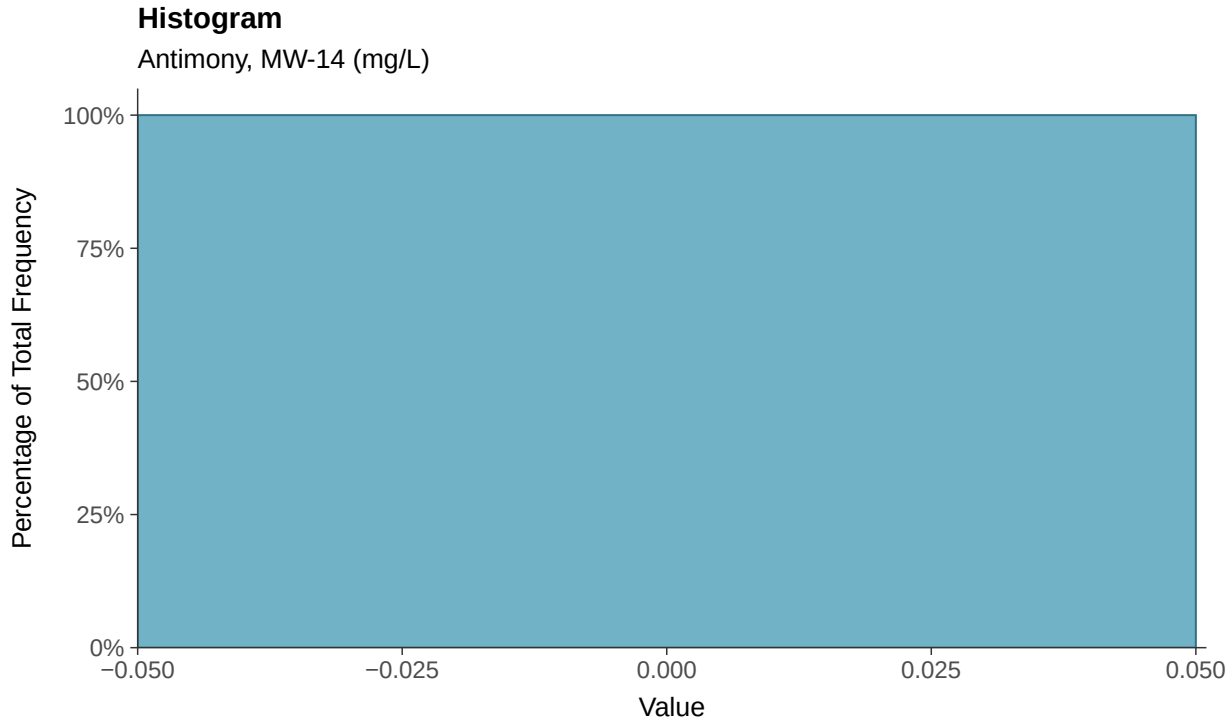
Fluoride, MW-14 (mg/L)



Appendix IV: Antimony, MW-14

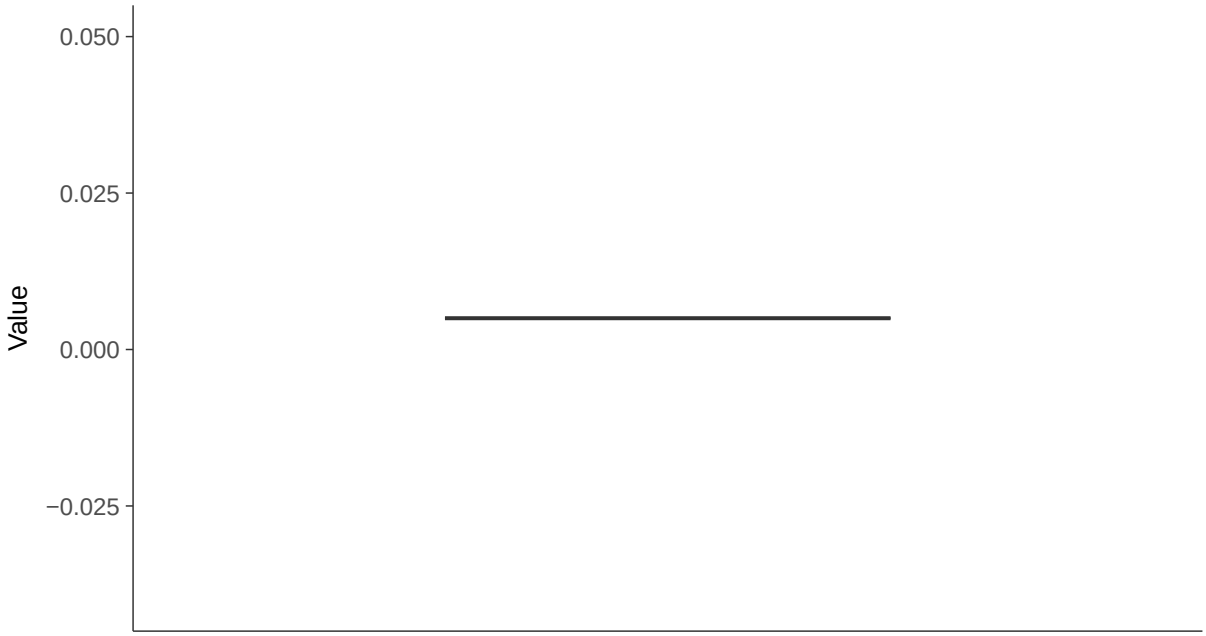
ID: 14_2_08





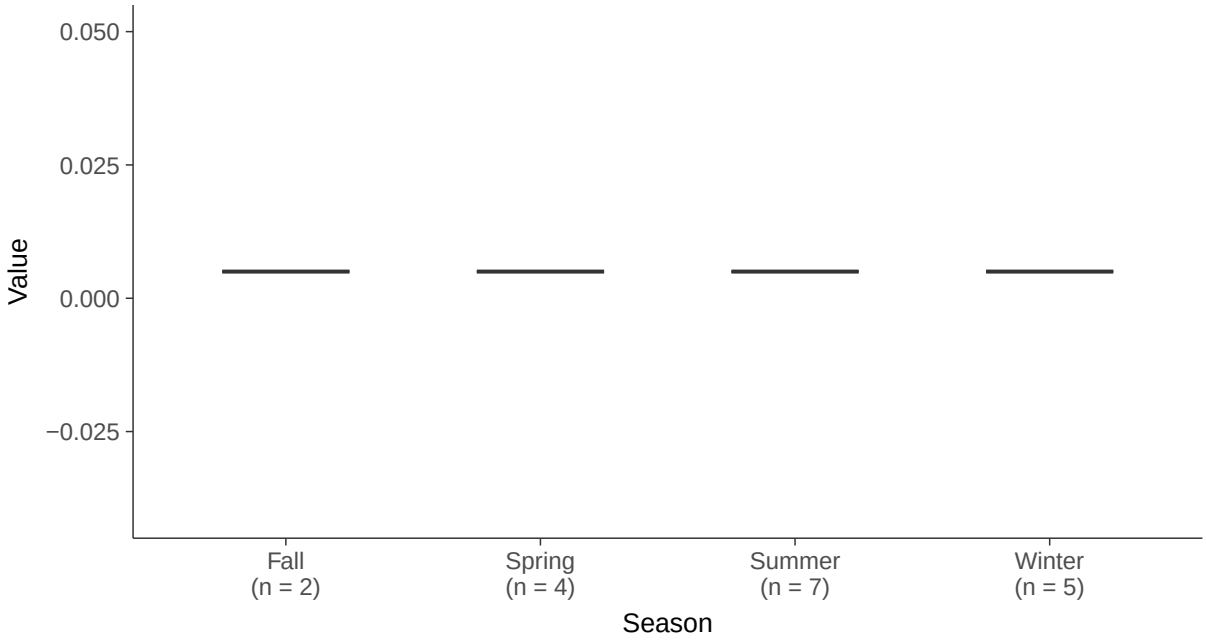
Boxplot

Antimony, MW-14 (mg/L)



Boxplot by Season

Antimony, MW-14 (mg/L)

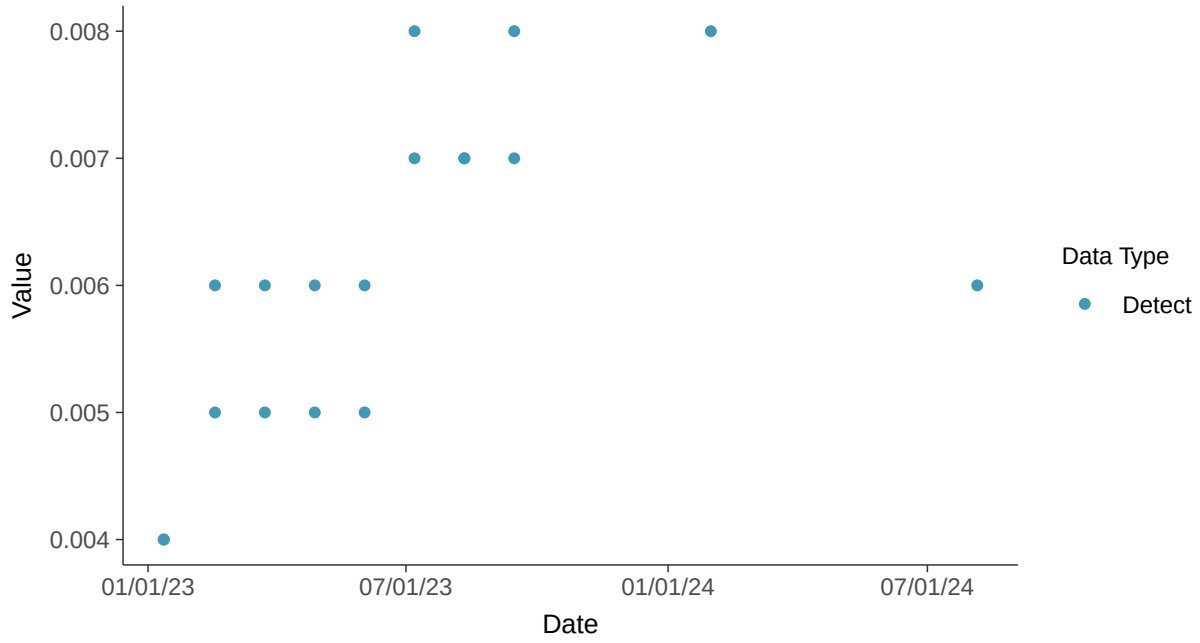


Appendix IV: Arsenic, MW-14

ID: 14_2_09

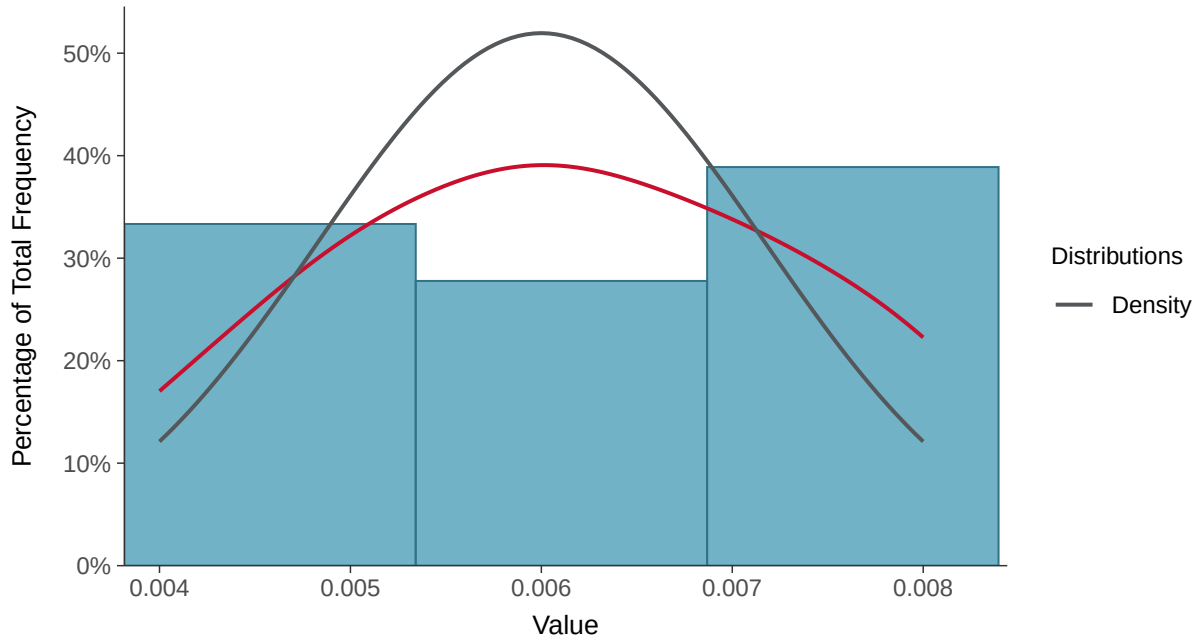
Scatter Plot

Arsenic, MW-14 (mg/L)



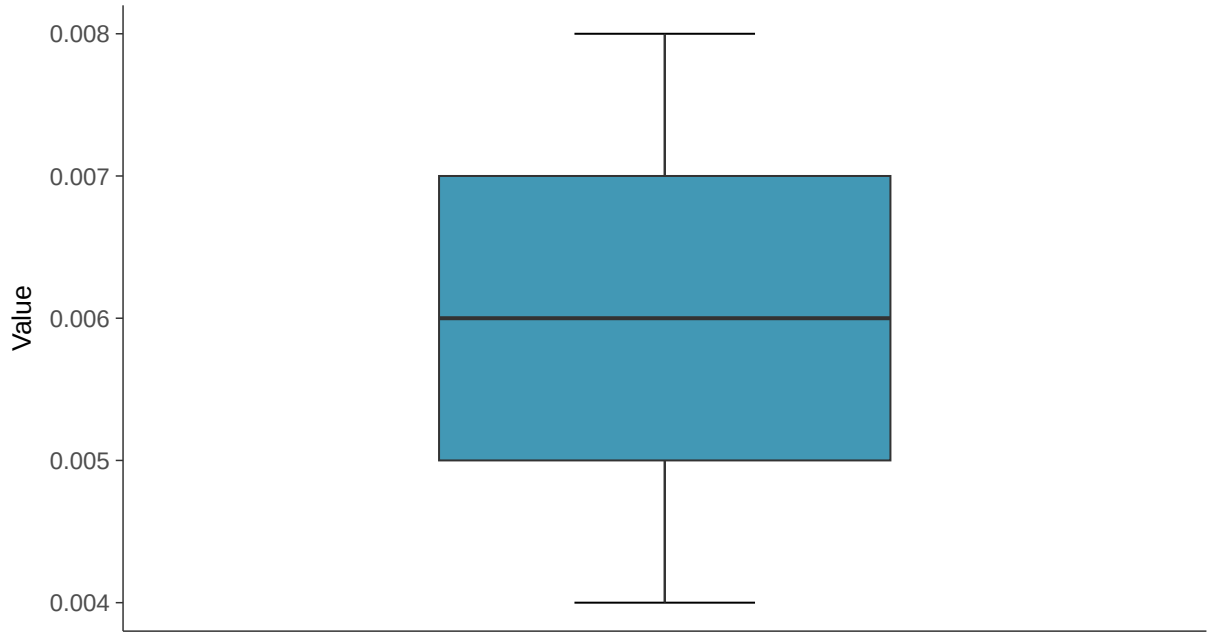
Histogram

Arsenic, MW-14 (mg/L)



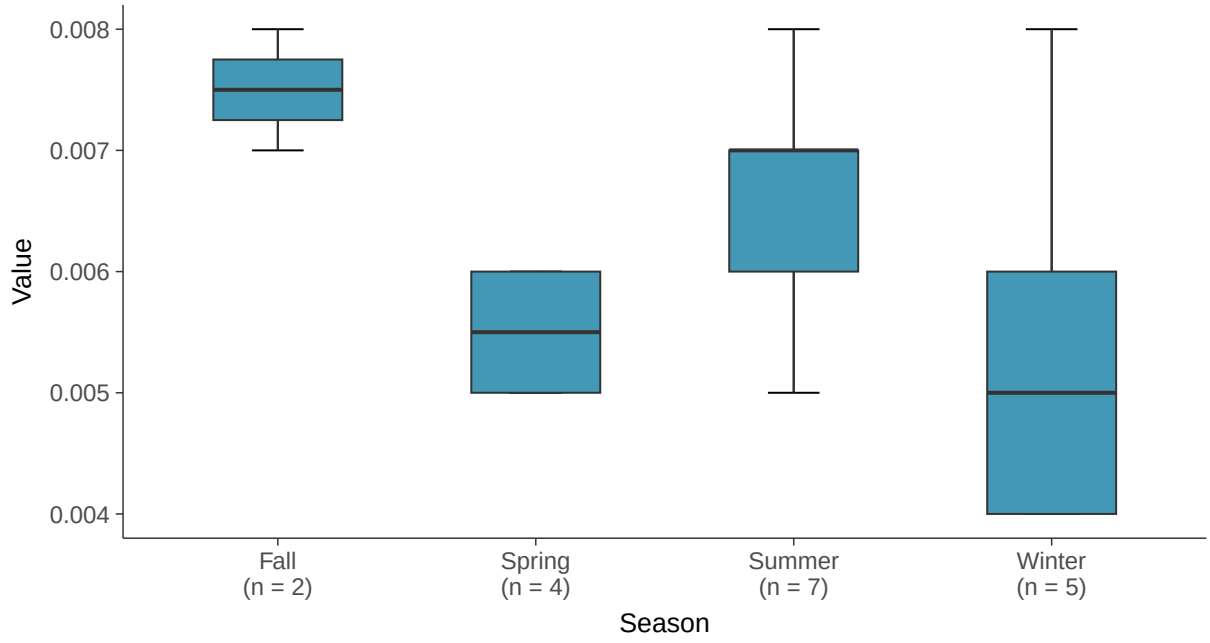
Boxplot

Arsenic, MW-14 (mg/L)



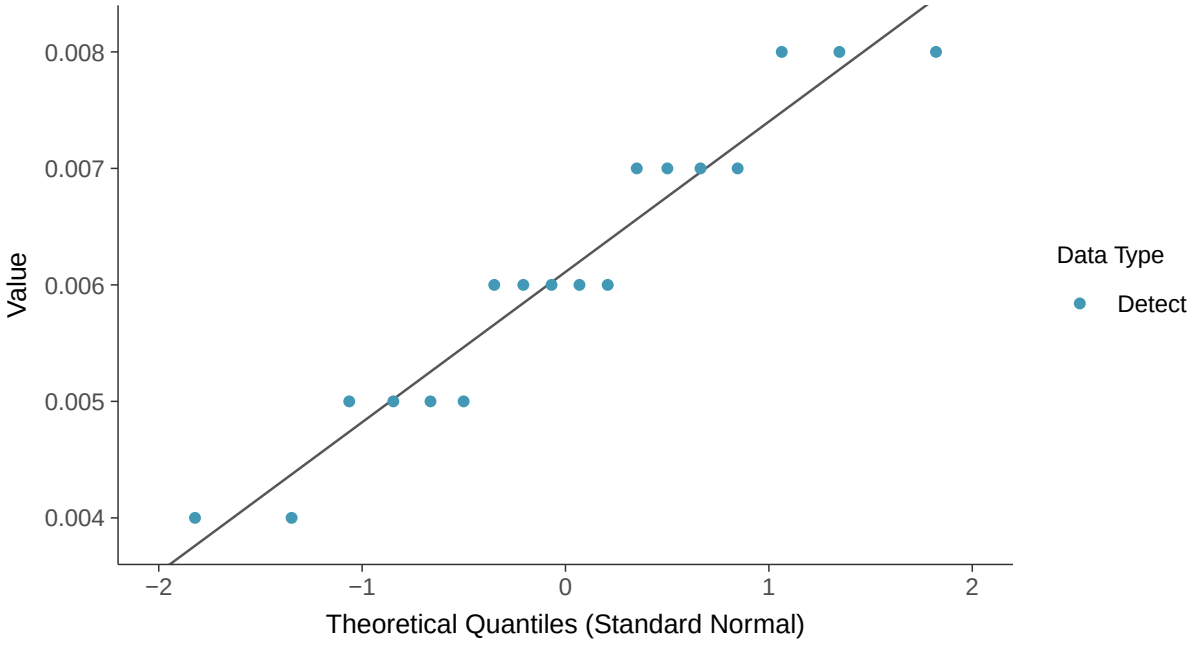
Boxplot by Season

Arsenic, MW-14 (mg/L)



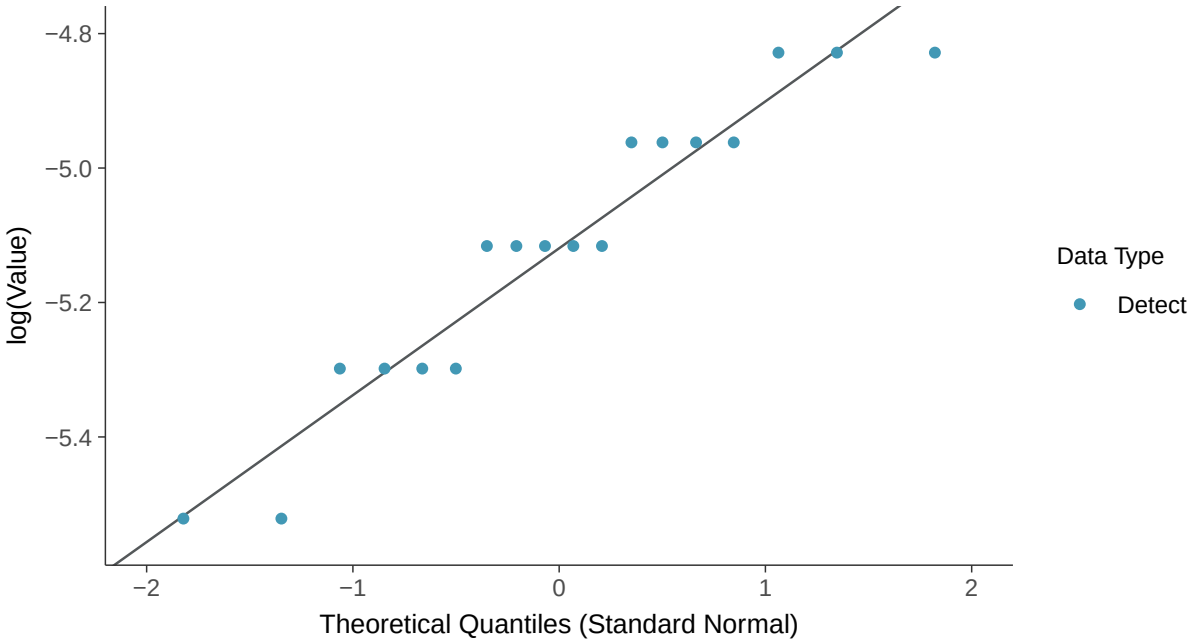
Normal Q-Q plot

Arsenic, MW-14 (mg/L)



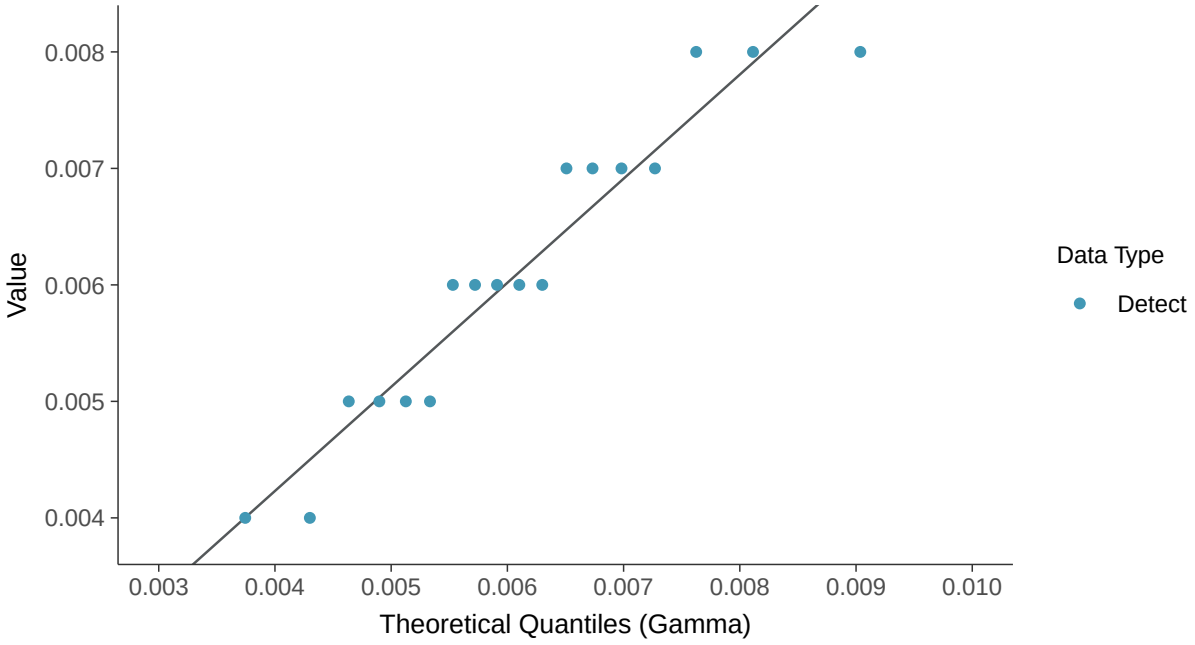
Lognormal Q-Q plot

Arsenic, MW-14 (mg/L)



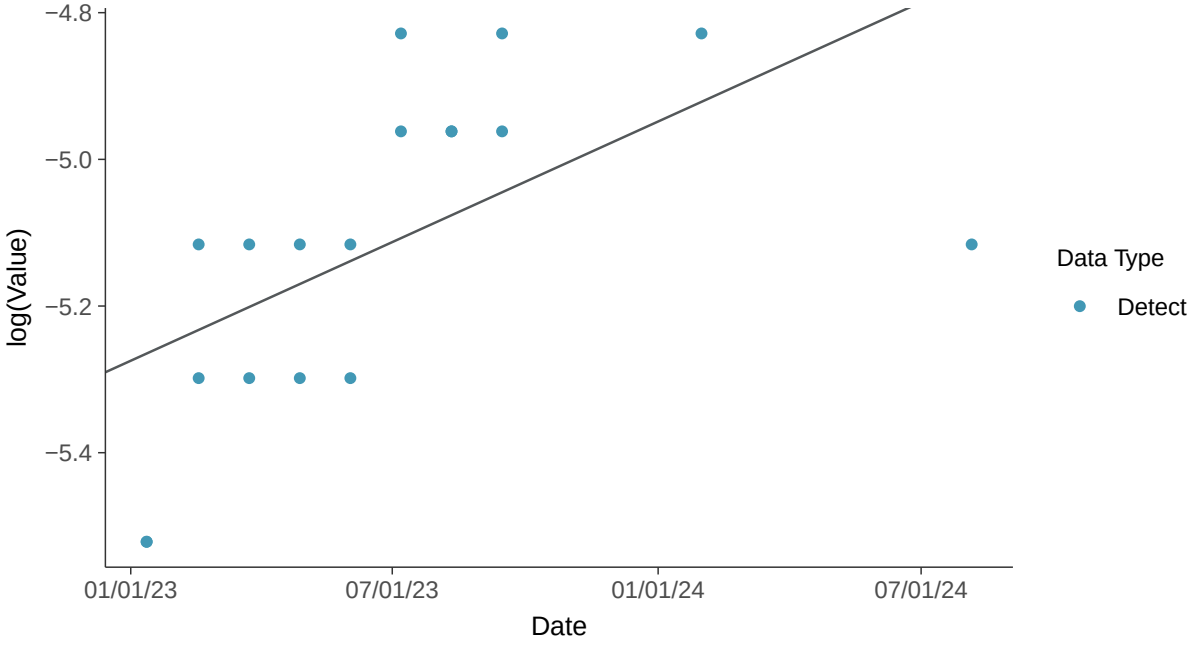
Gamma Q-Q plot

Arsenic, MW-14 (mg/L)



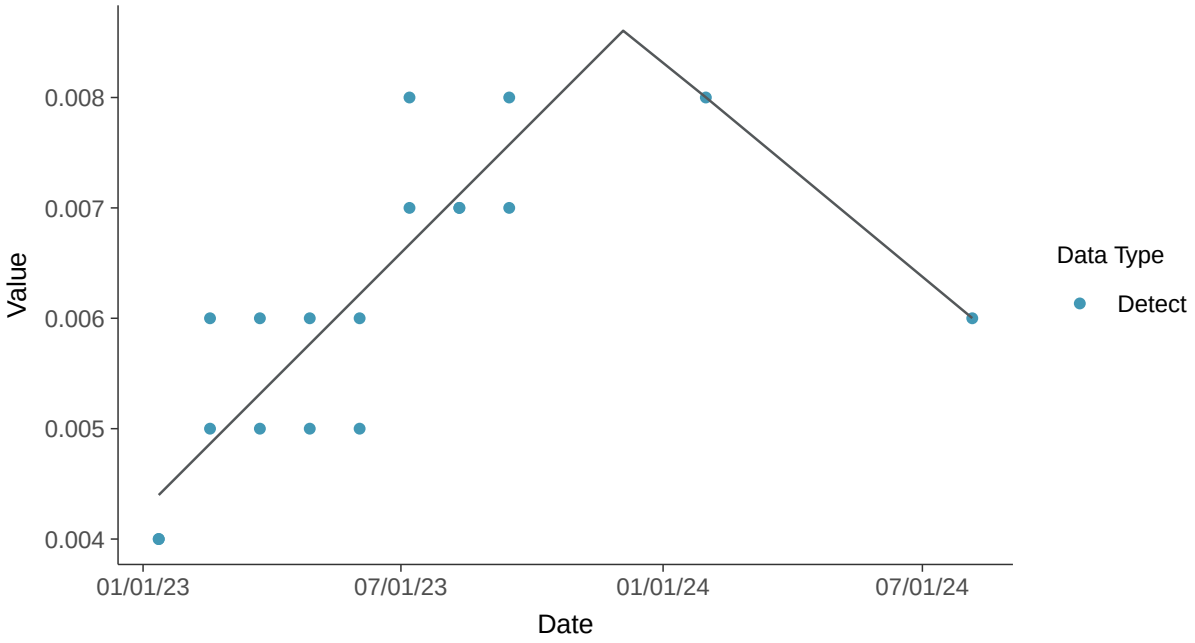
Trend Regression: Lognormal MLE

Arsenic, MW-14 (mg/L)



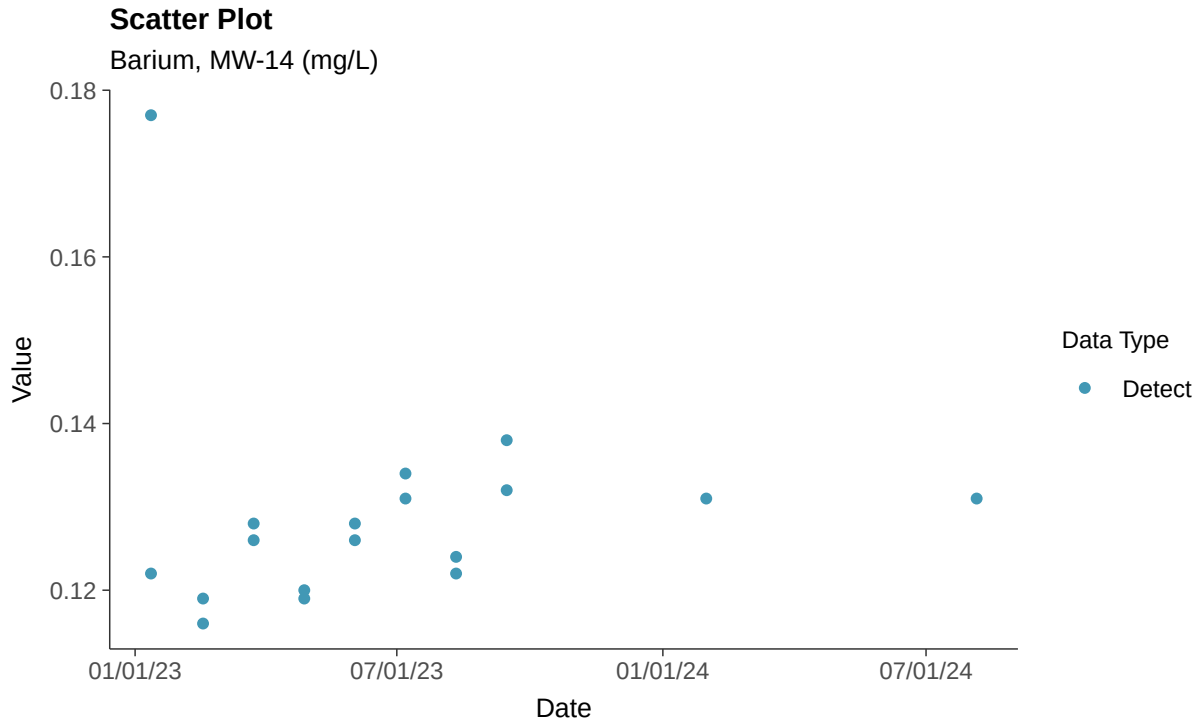
Trend Regression: Piecewise Linear-Linear

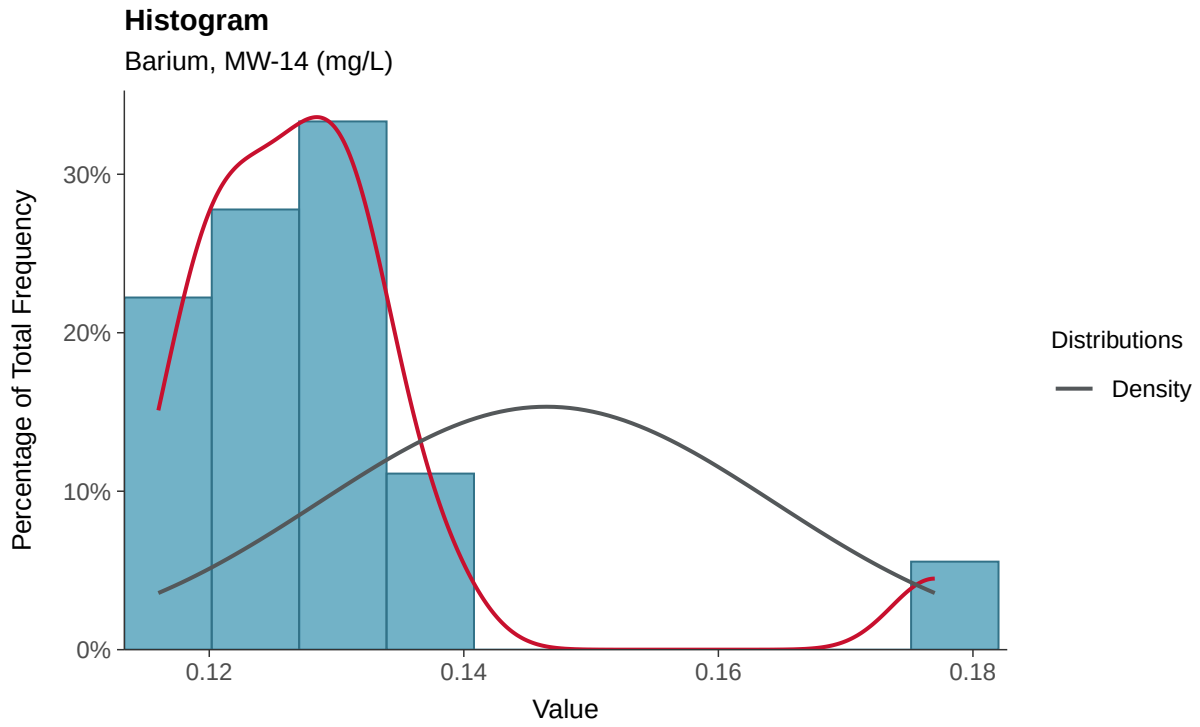
Arsenic, MW-14 (mg/L)



Appendix IV: Barium, MW-14

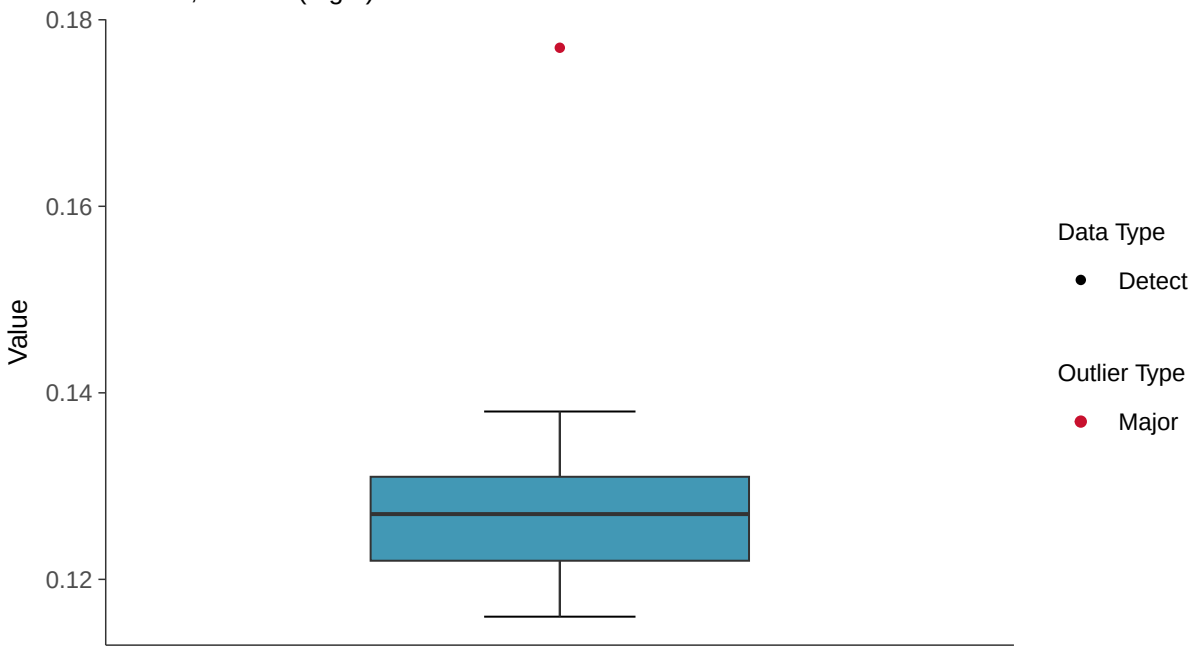
ID: 14_2_10





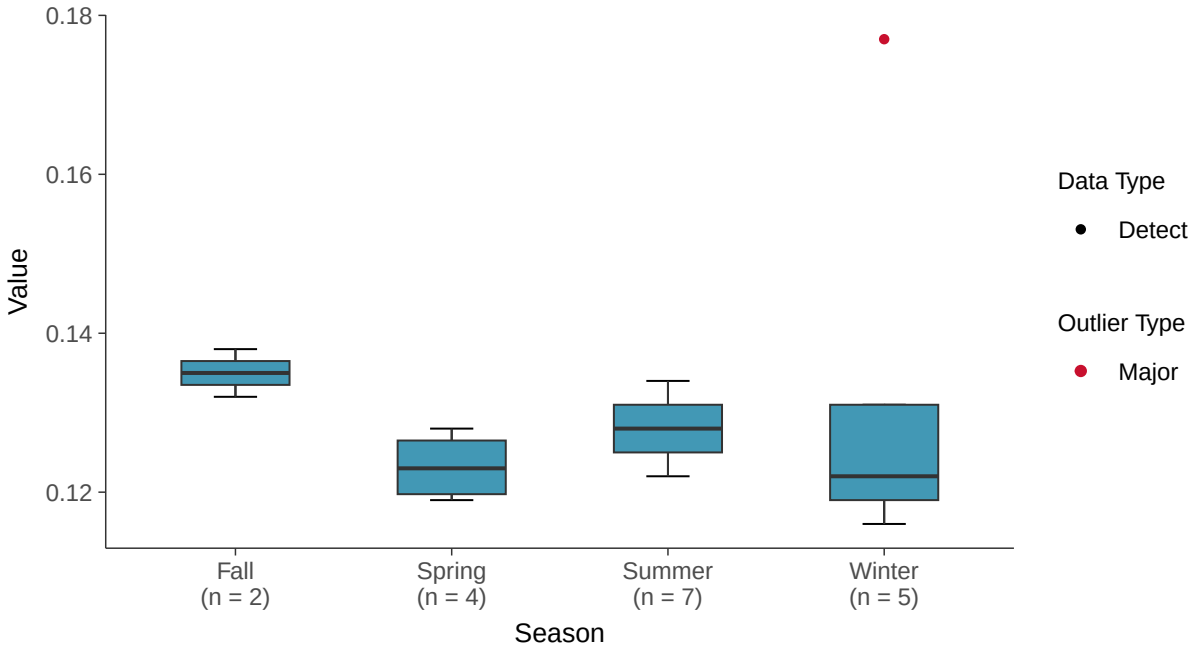
Boxplot

Barium, MW-14 (mg/L)



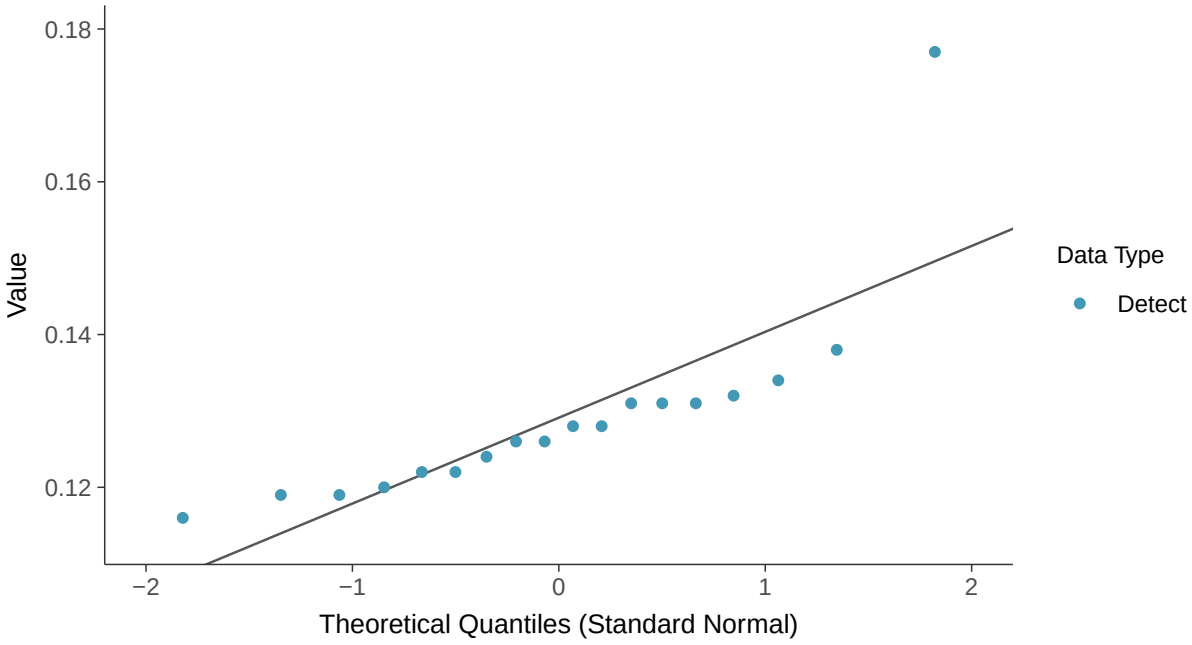
Boxplot by Season

Barium, MW-14 (mg/L)



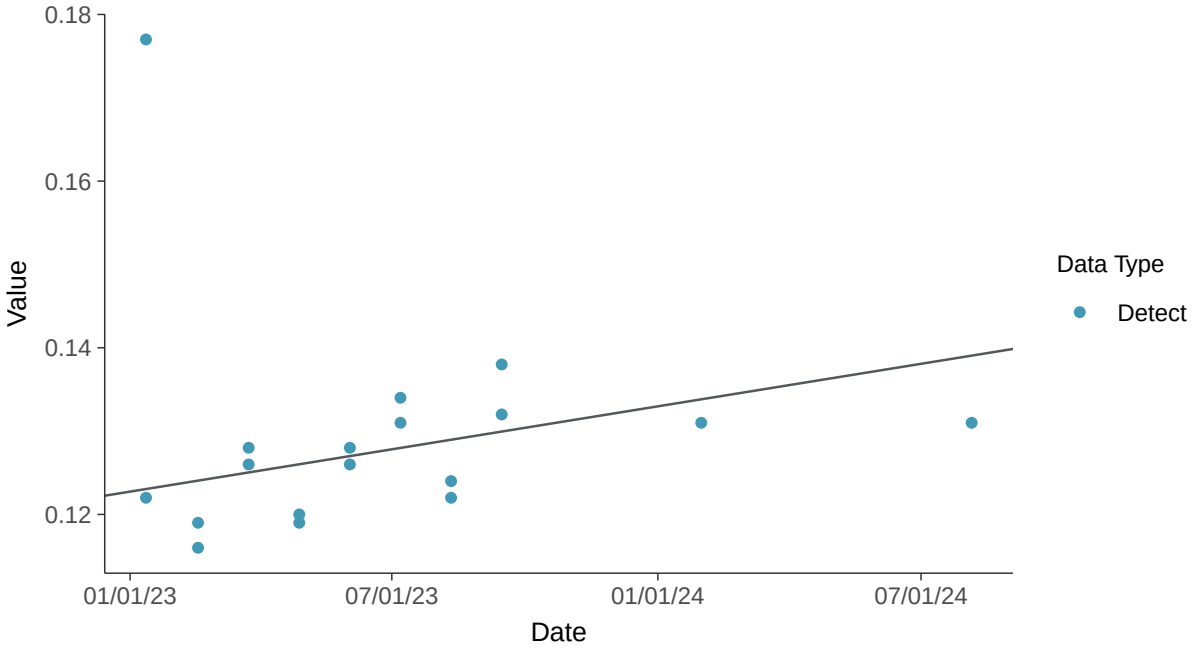
Normal Q-Q plot

Barium, MW-14 (mg/L)



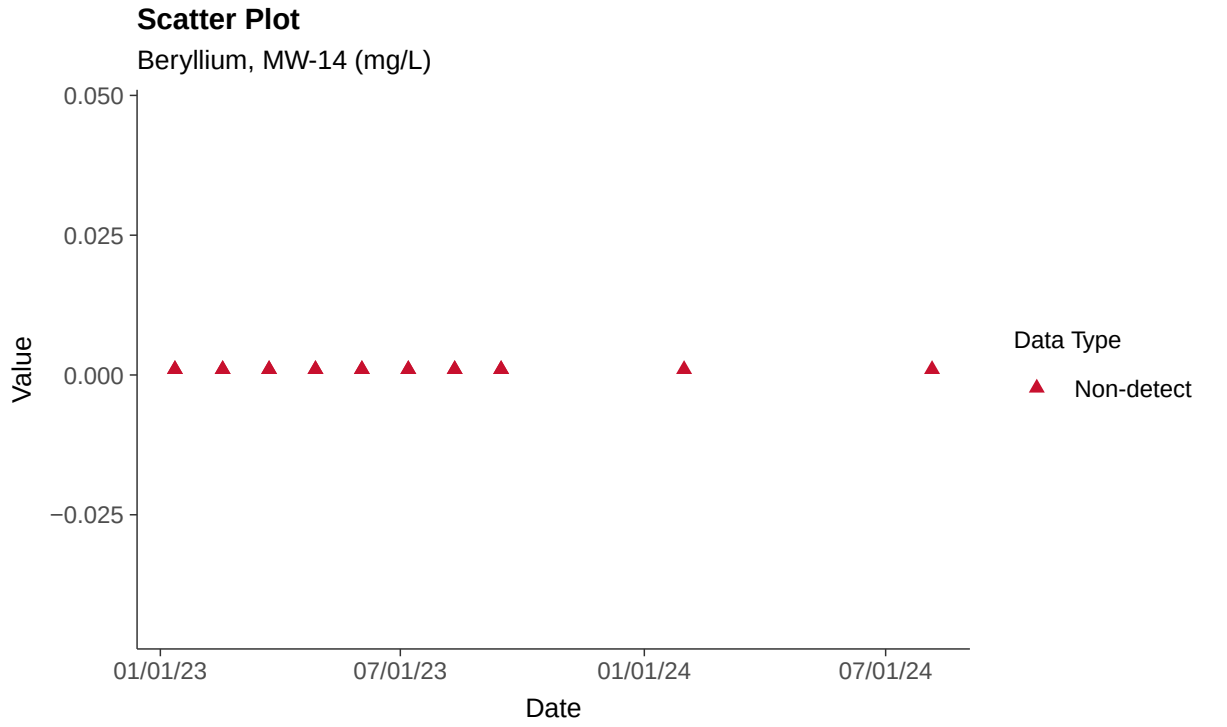
Trend Regression: Mann-Kendall/Theil-Sen Estimate

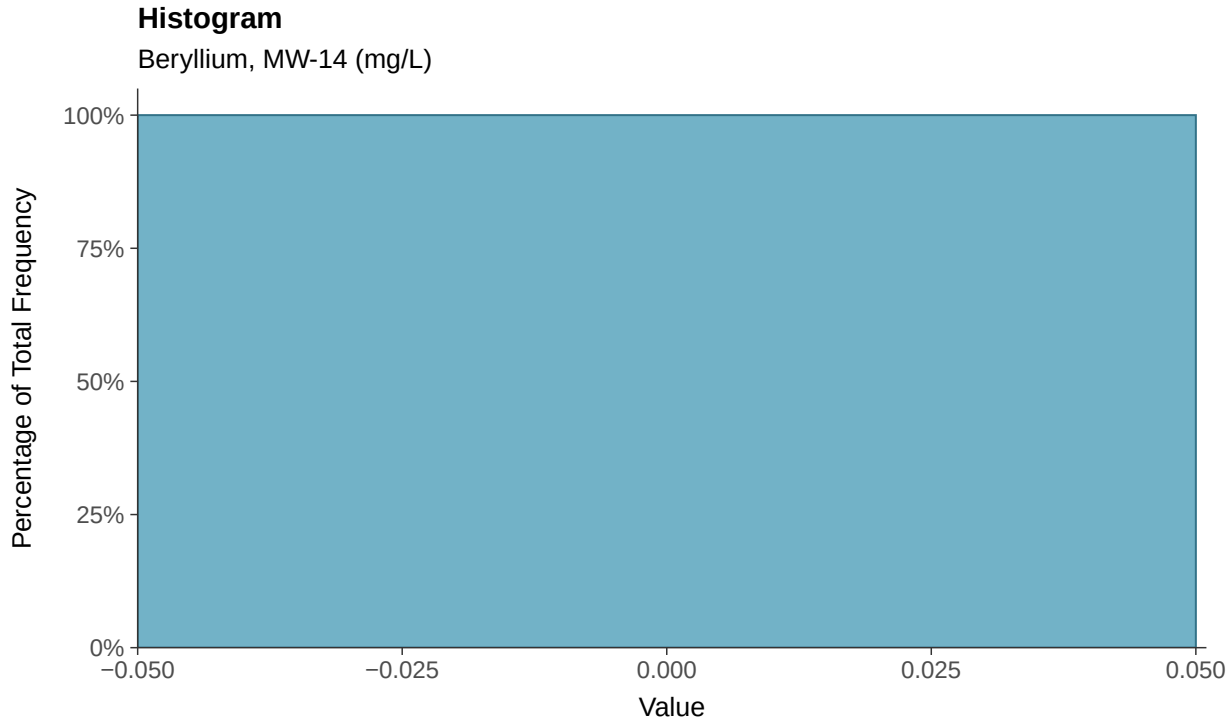
Barium, MW-14 (mg/L)



Appendix IV: Beryllium, MW-14

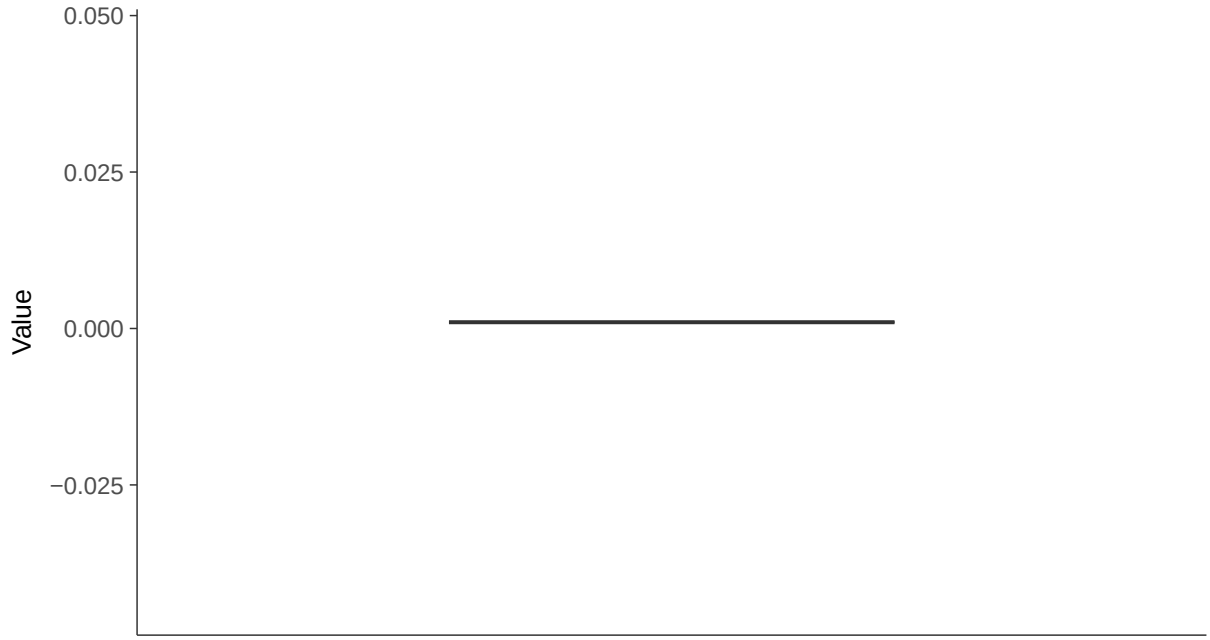
ID: 14_2_11





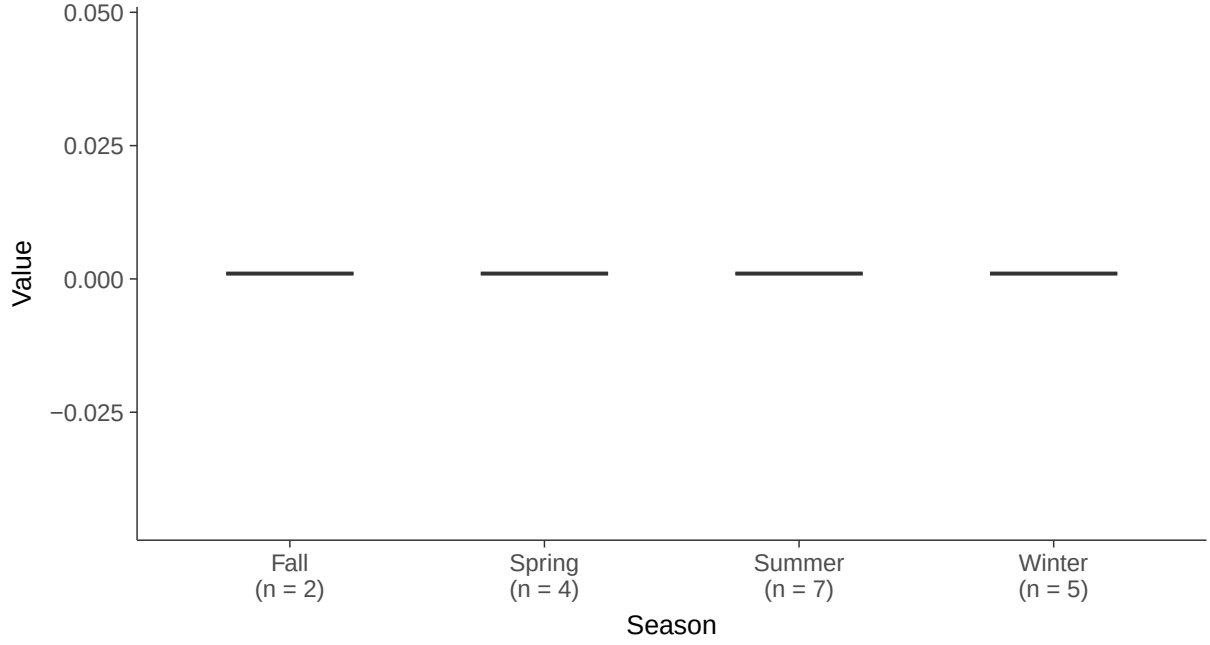
Boxplot

Beryllium, MW-14 (mg/L)



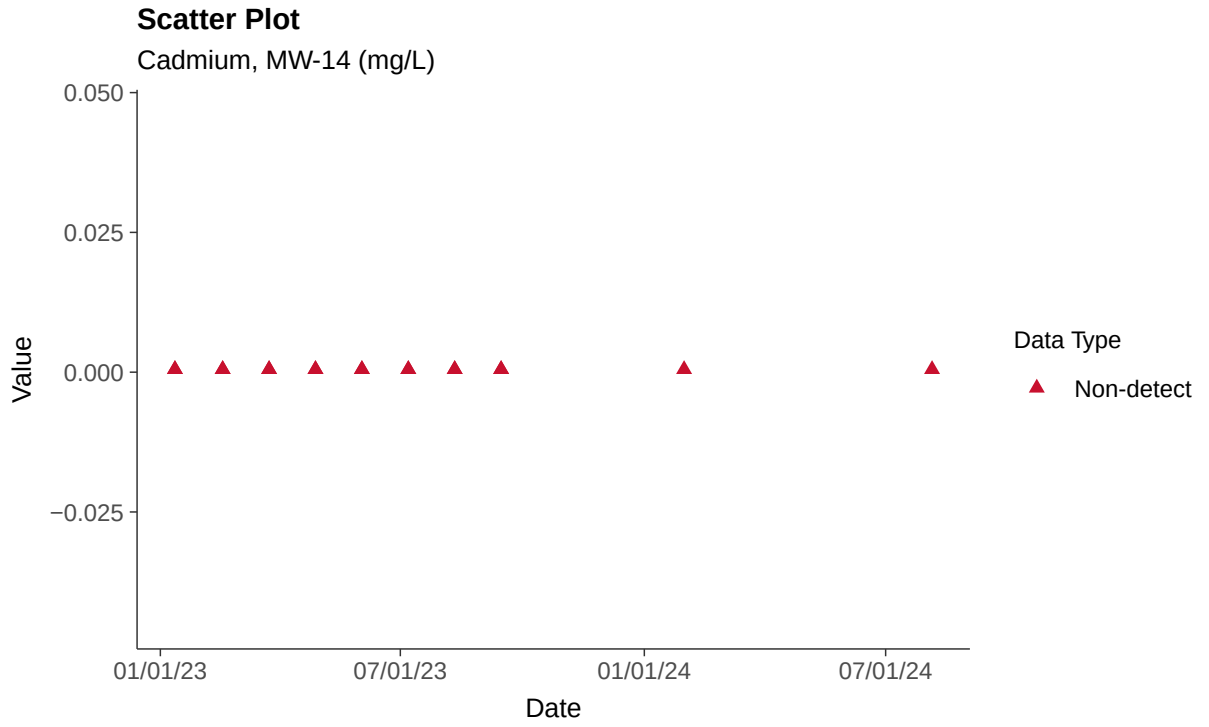
Boxplot by Season

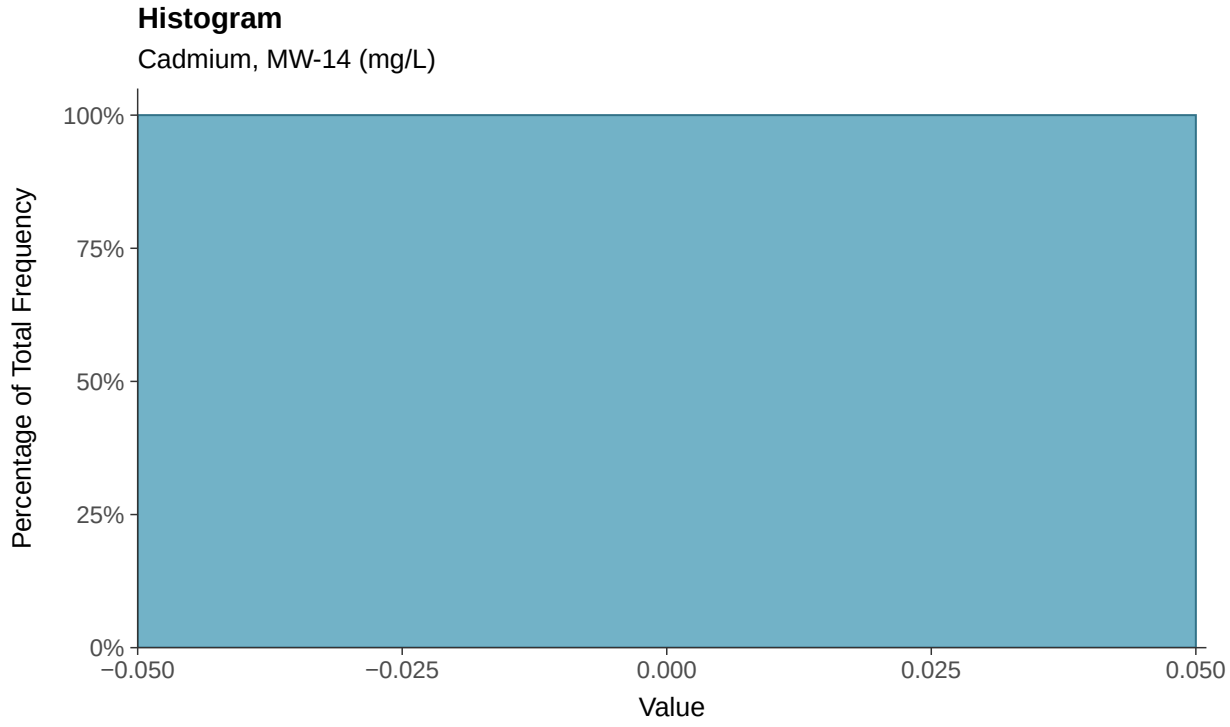
Beryllium, MW-14 (mg/L)



Appendix IV: Cadmium, MW-14

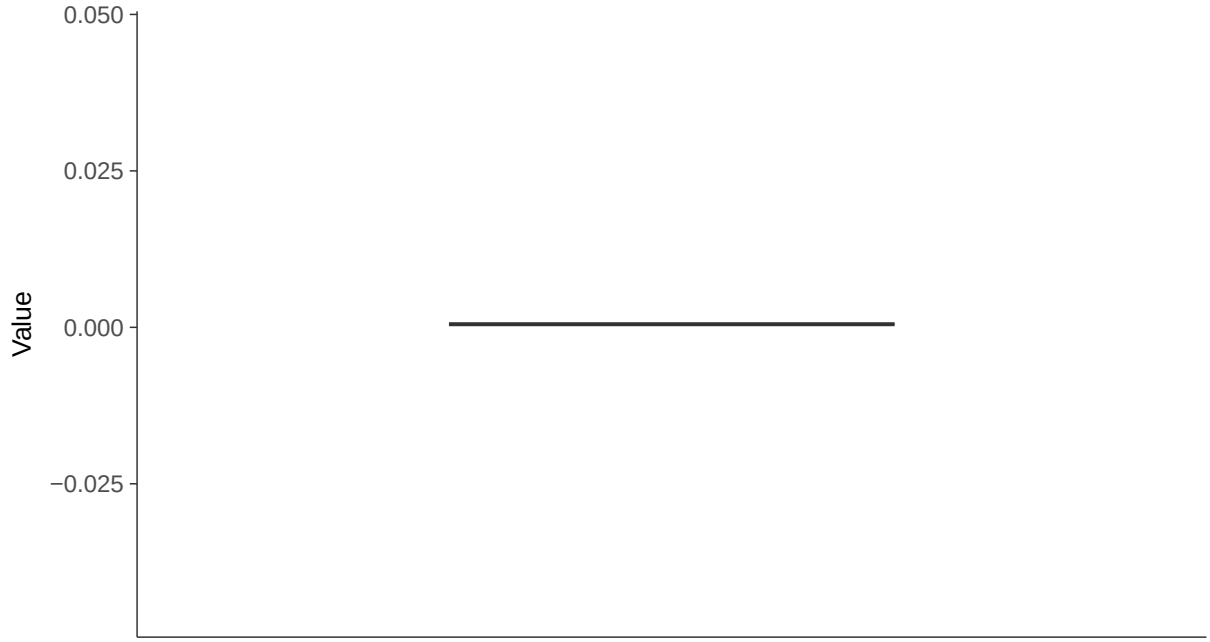
ID: 14_2_12





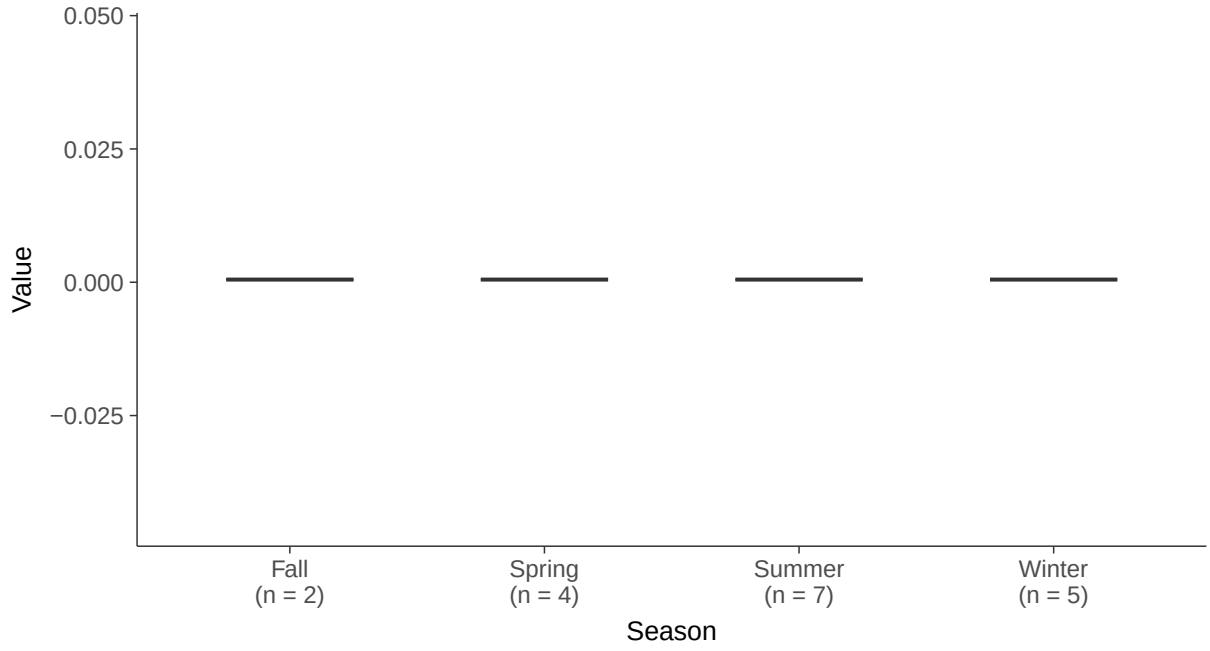
Boxplot

Cadmium, MW-14 (mg/L)



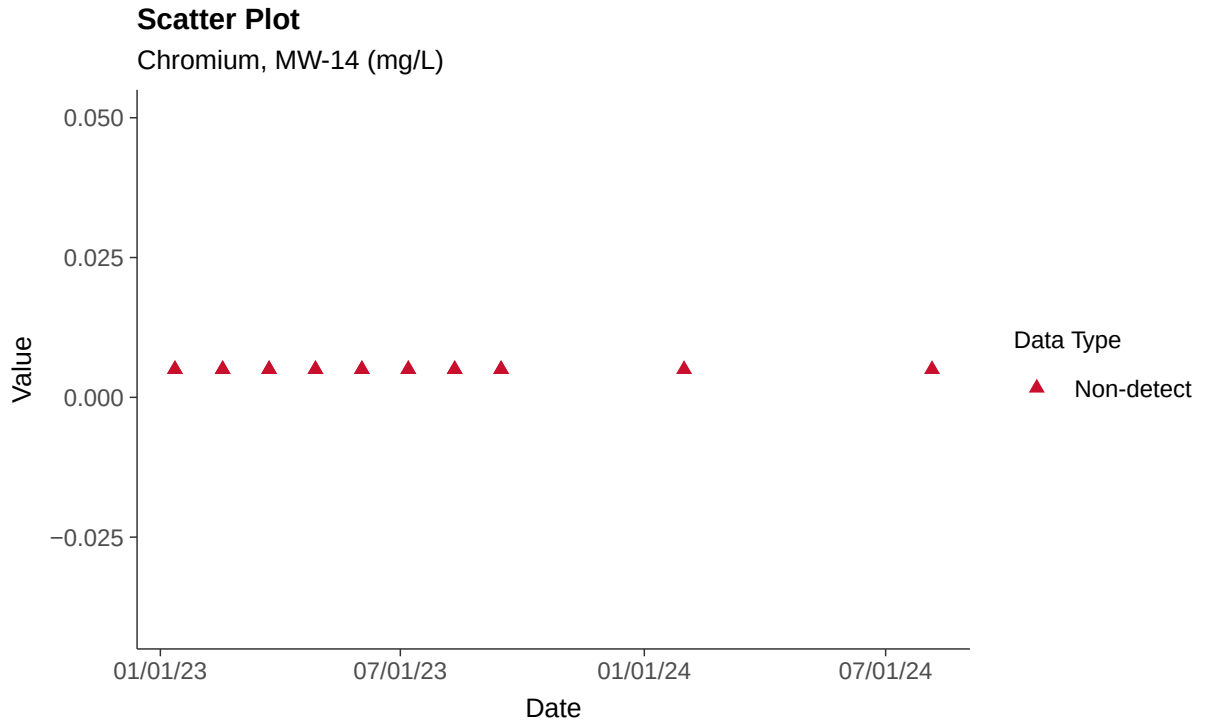
Boxplot by Season

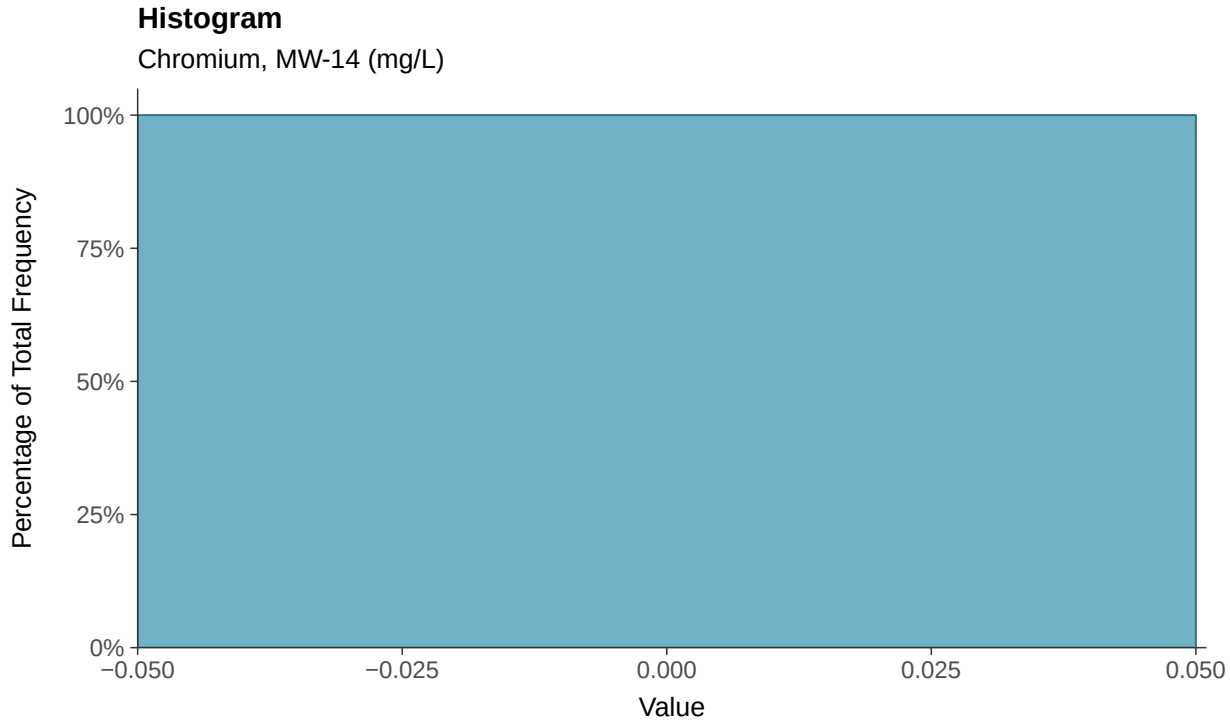
Cadmium, MW-14 (mg/L)



Appendix IV: Chromium, MW-14

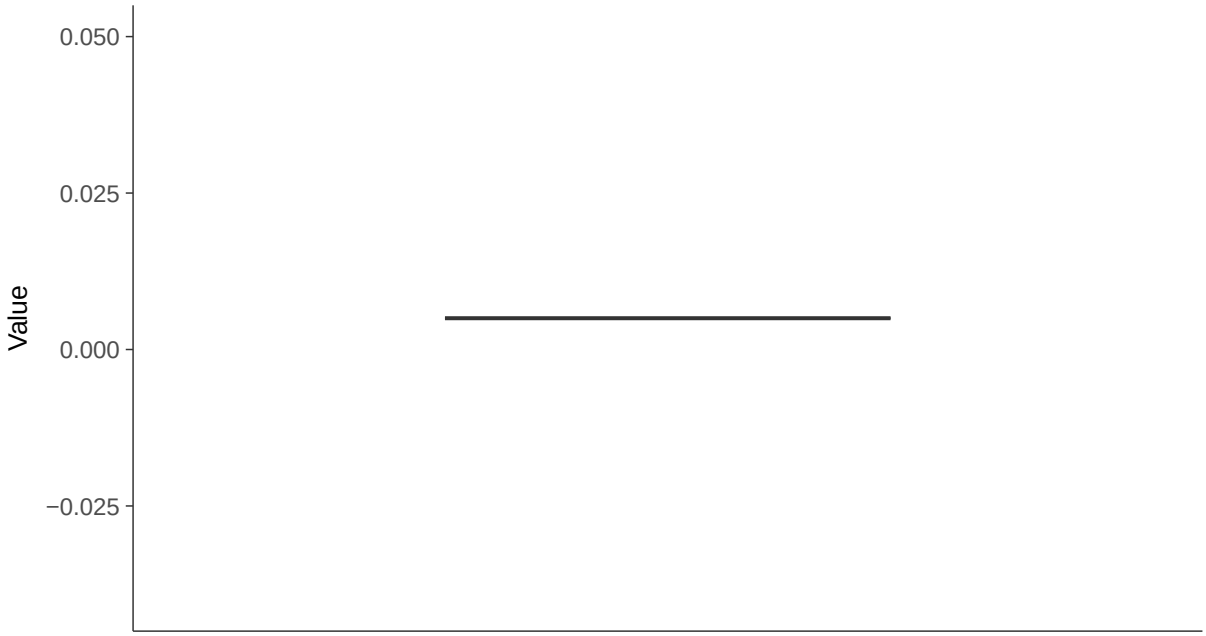
ID: 14_2_13





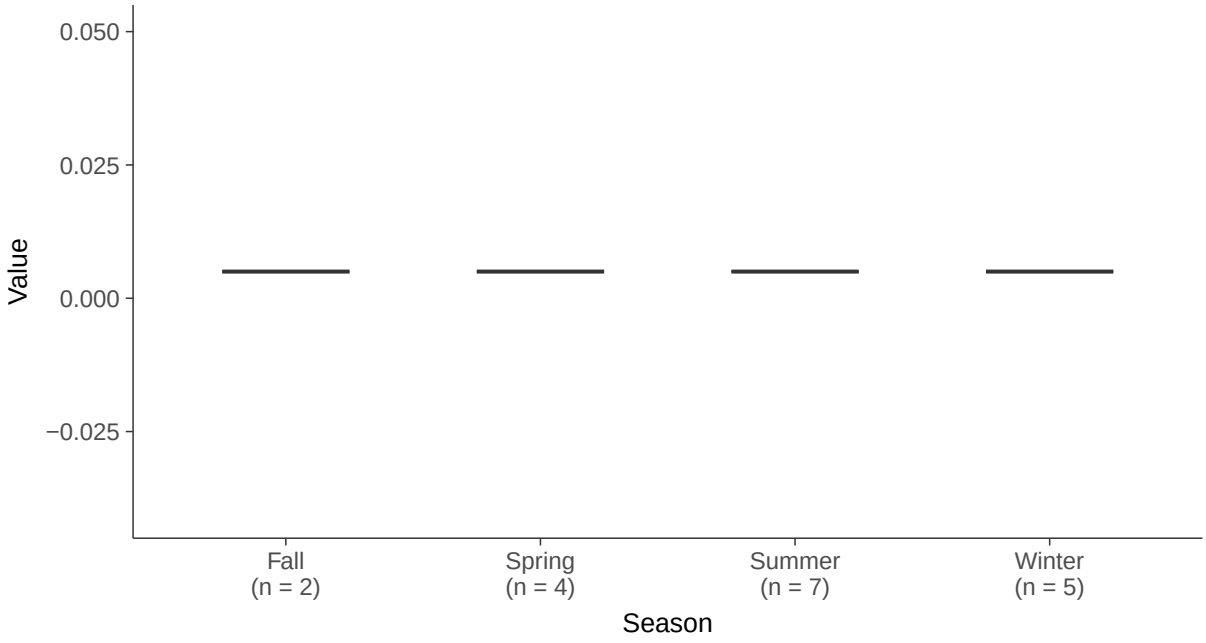
Boxplot

Chromium, MW-14 (mg/L)



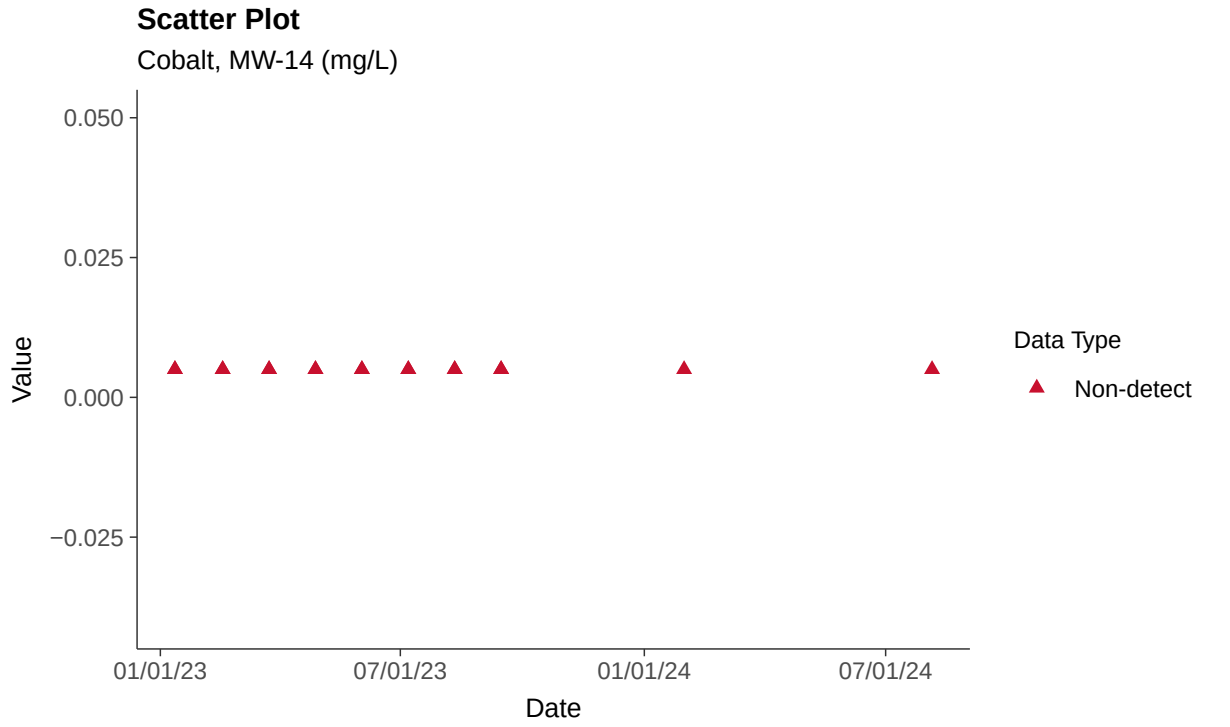
Boxplot by Season

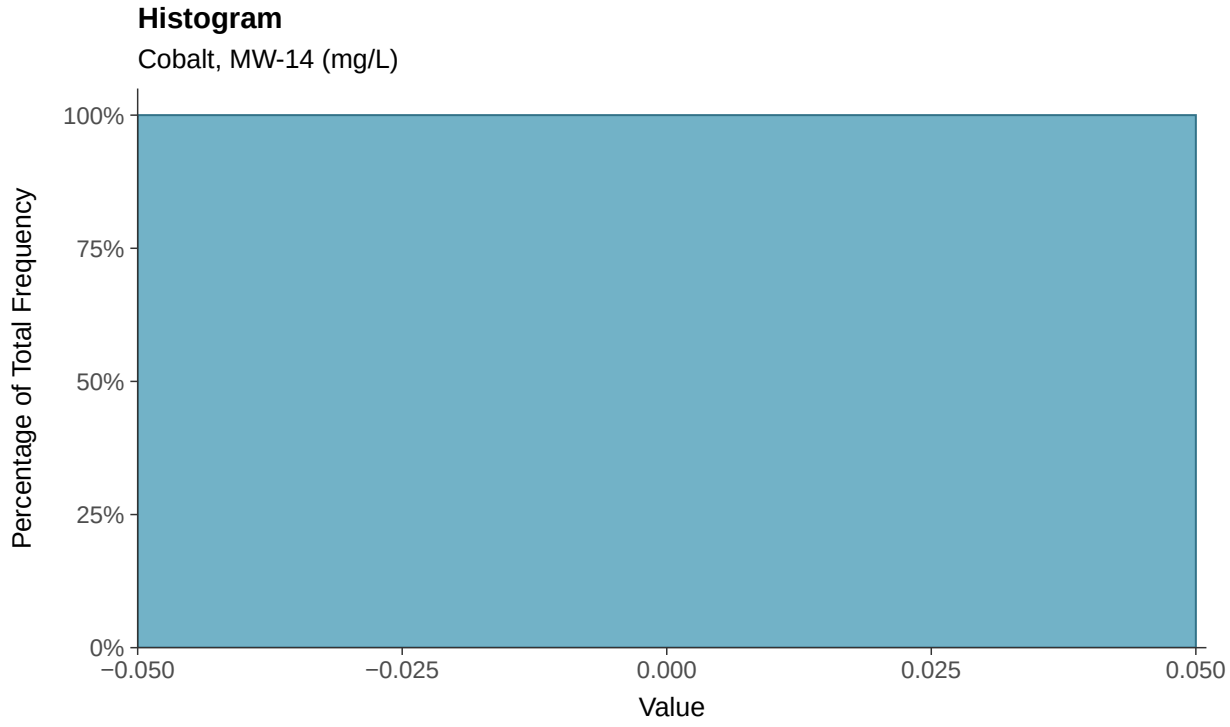
Chromium, MW-14 (mg/L)



Appendix IV: Cobalt, MW-14

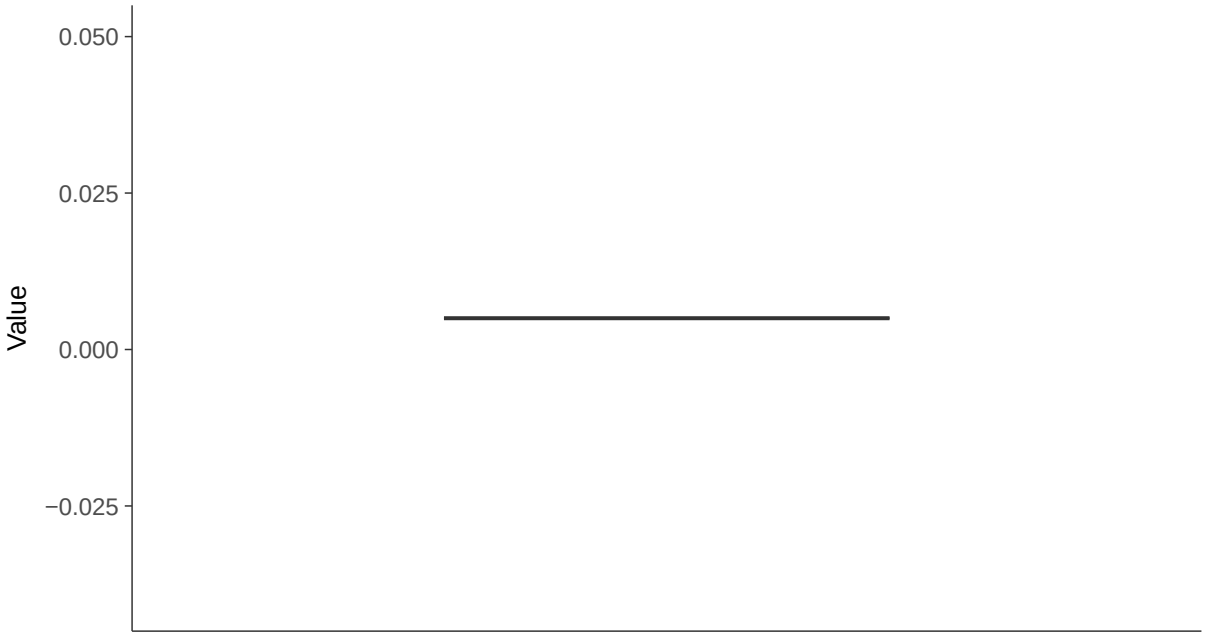
ID: 14_2_14





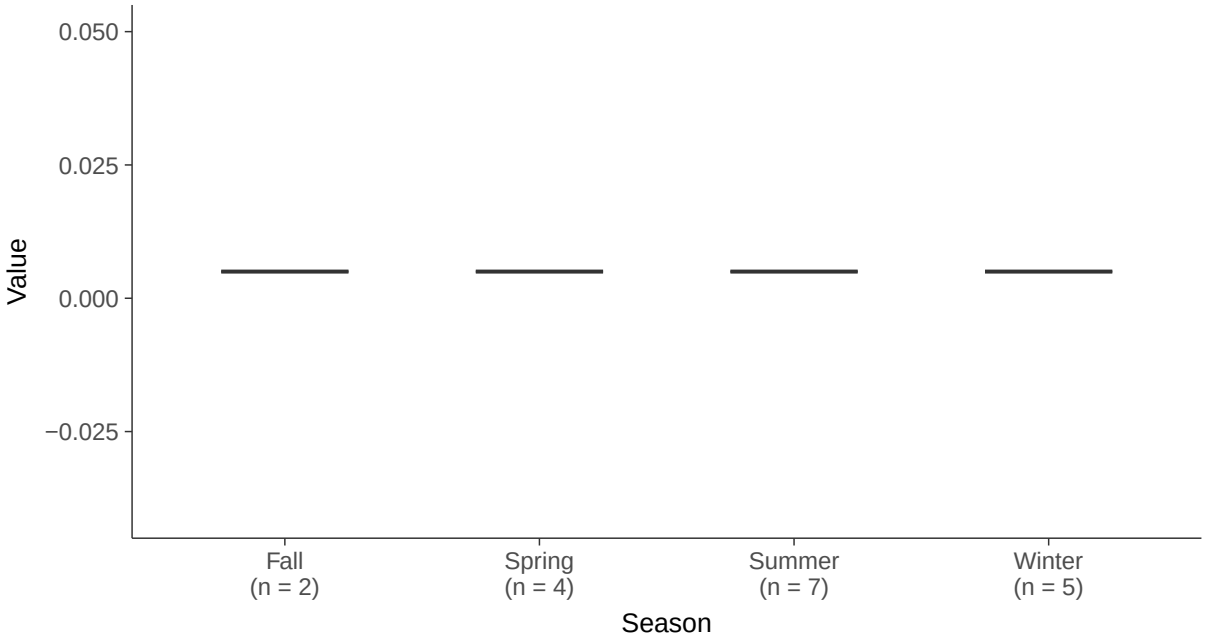
Boxplot

Cobalt, MW-14 (mg/L)



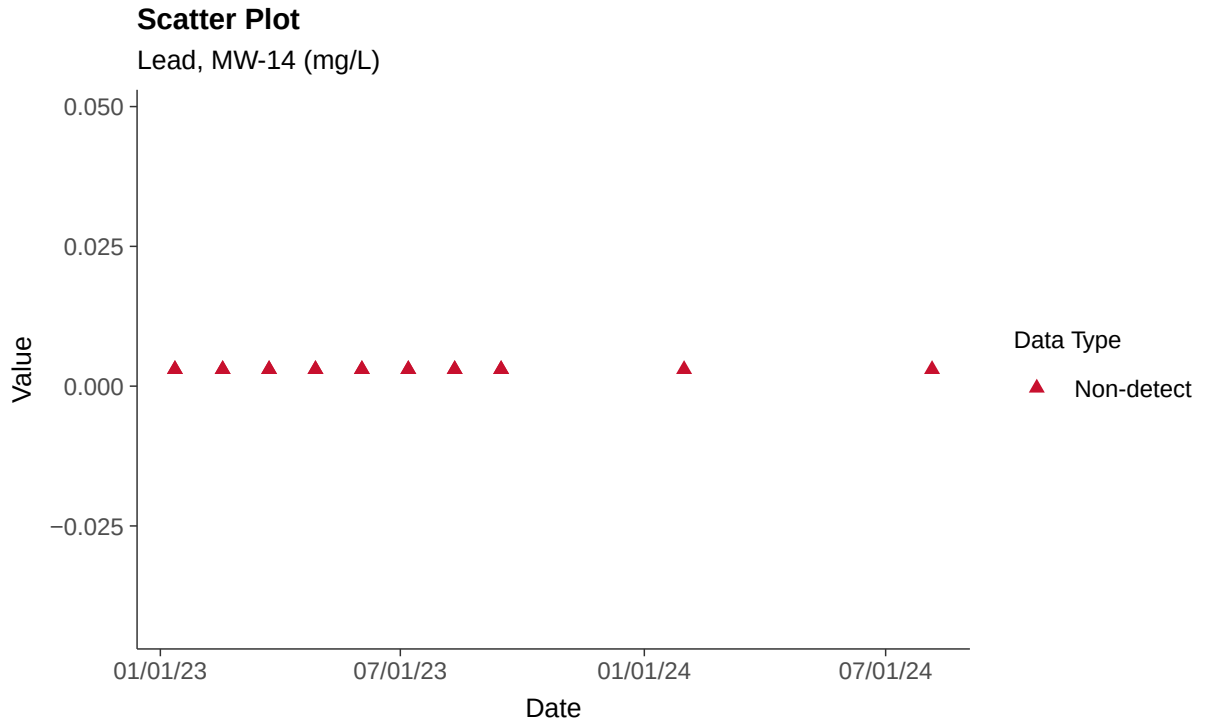
Boxplot by Season

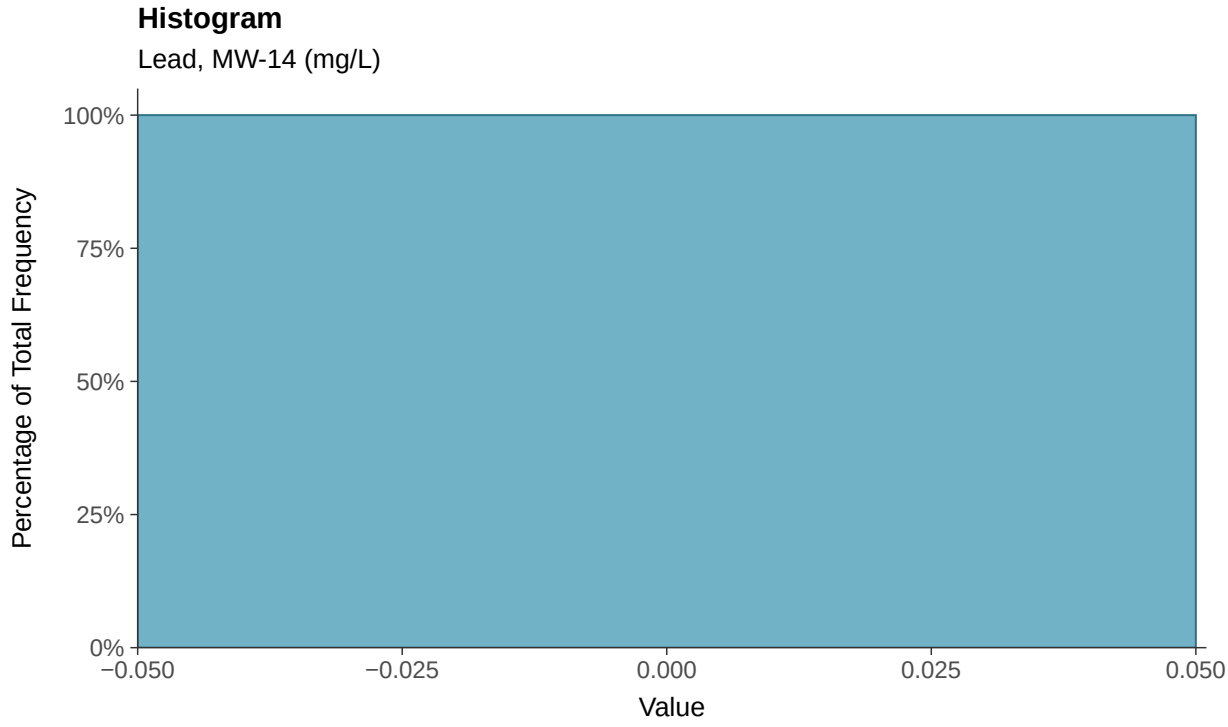
Cobalt, MW-14 (mg/L)



Appendix IV: Lead, MW-14

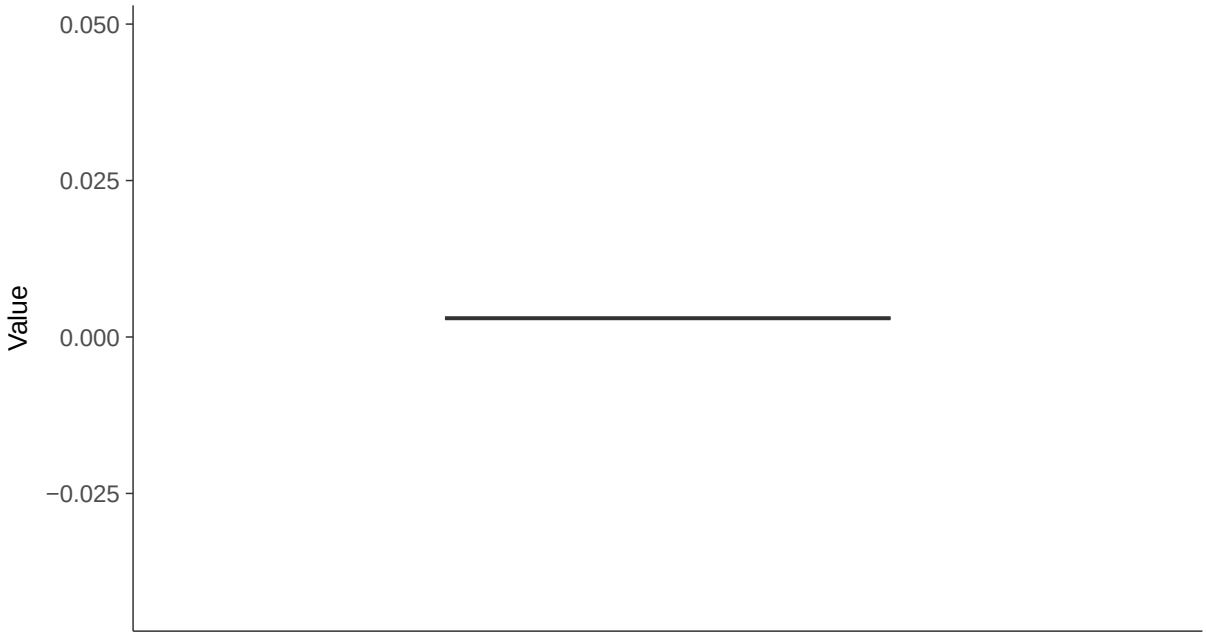
ID: 14_2_15





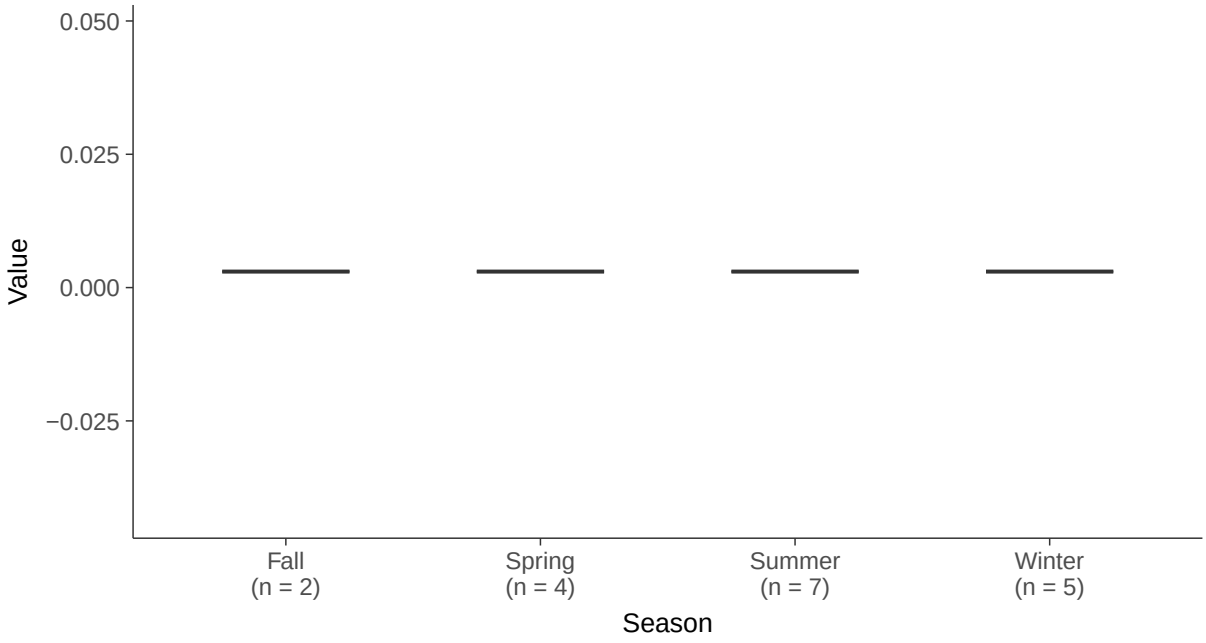
Boxplot

Lead, MW-14 (mg/L)



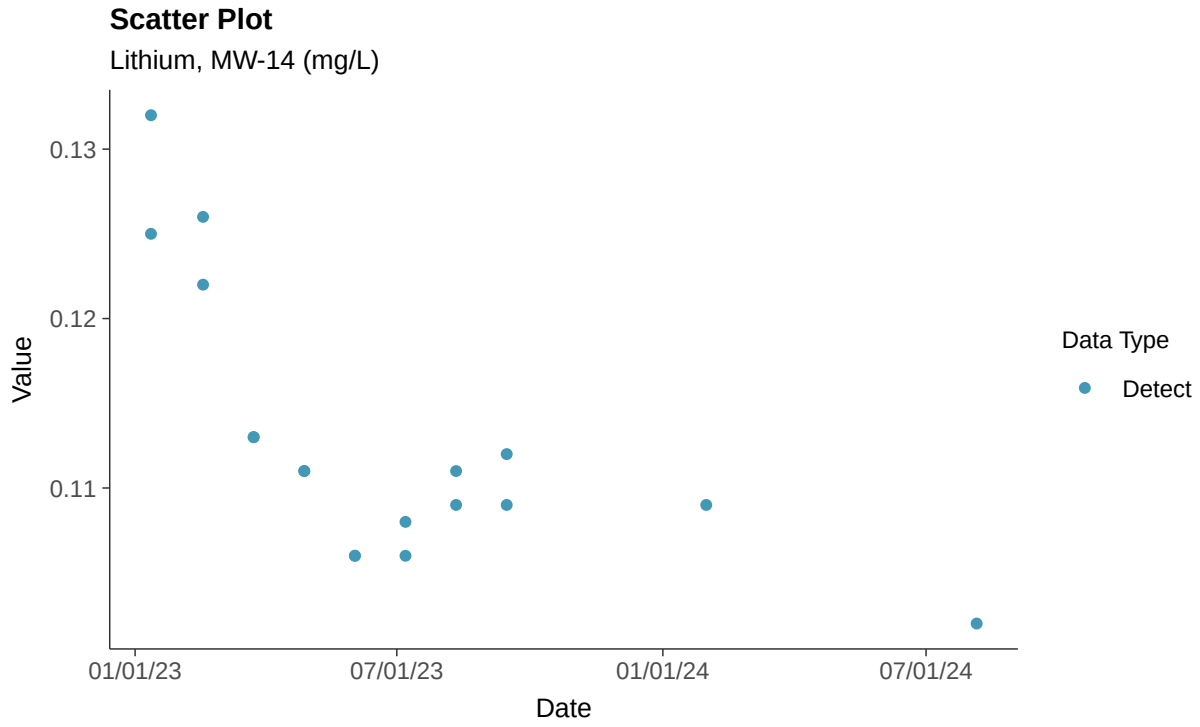
Boxplot by Season

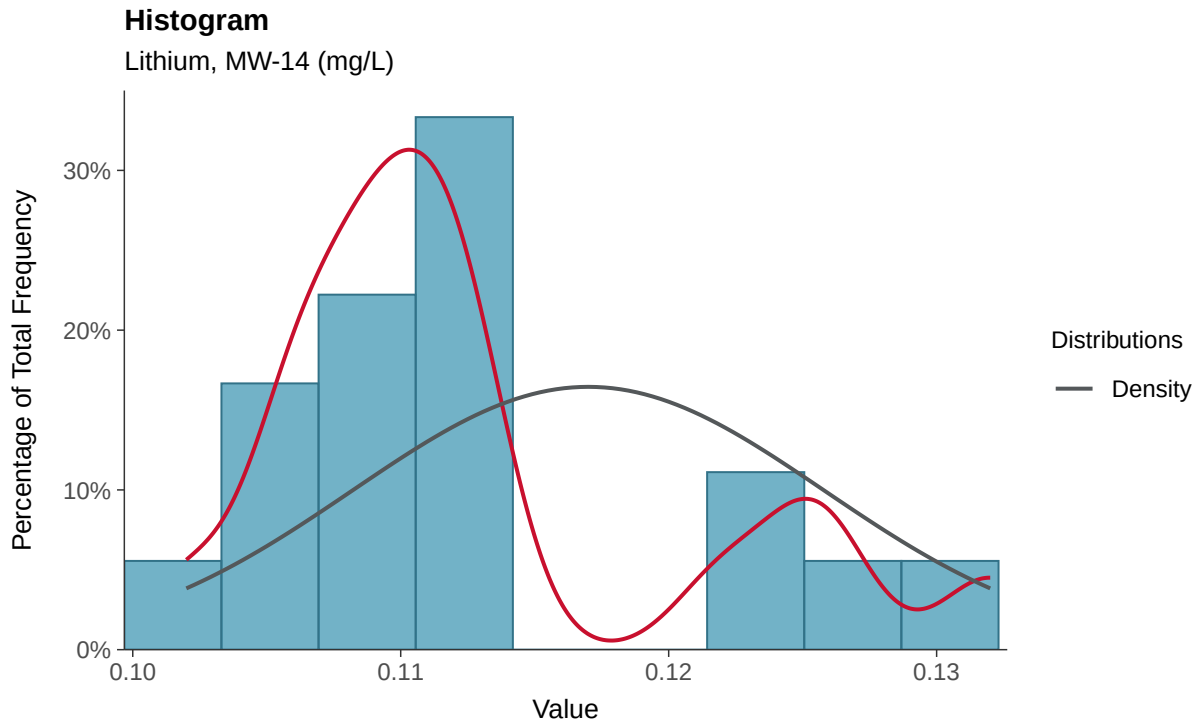
Lead, MW-14 (mg/L)



Appendix IV: Lithium, MW-14

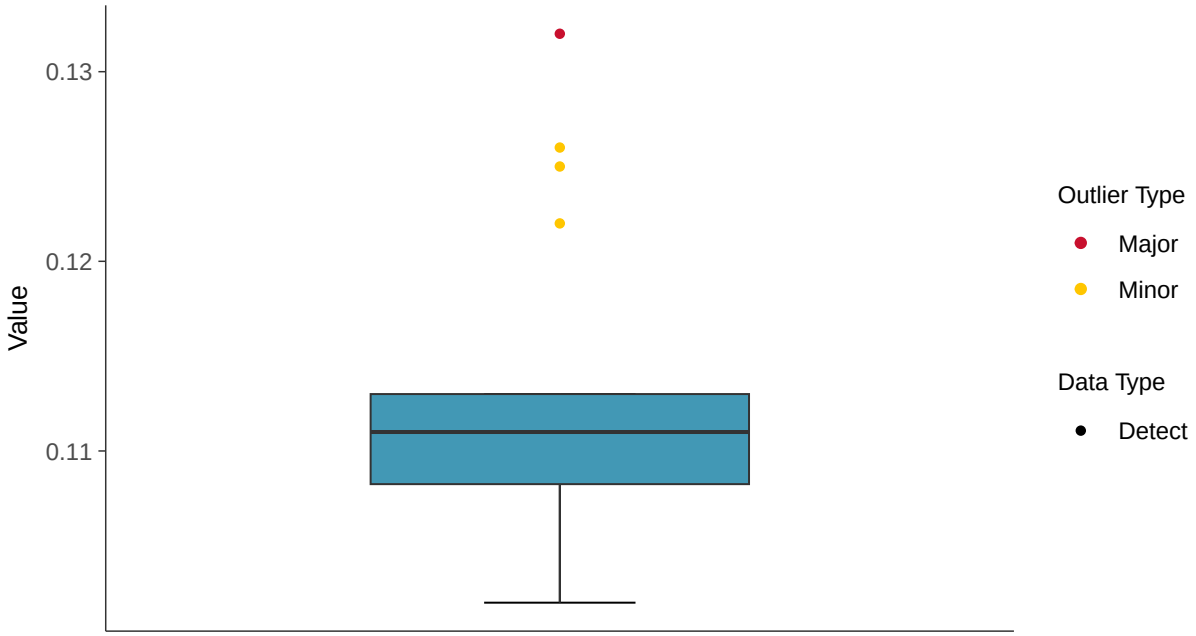
ID: 14_2_16





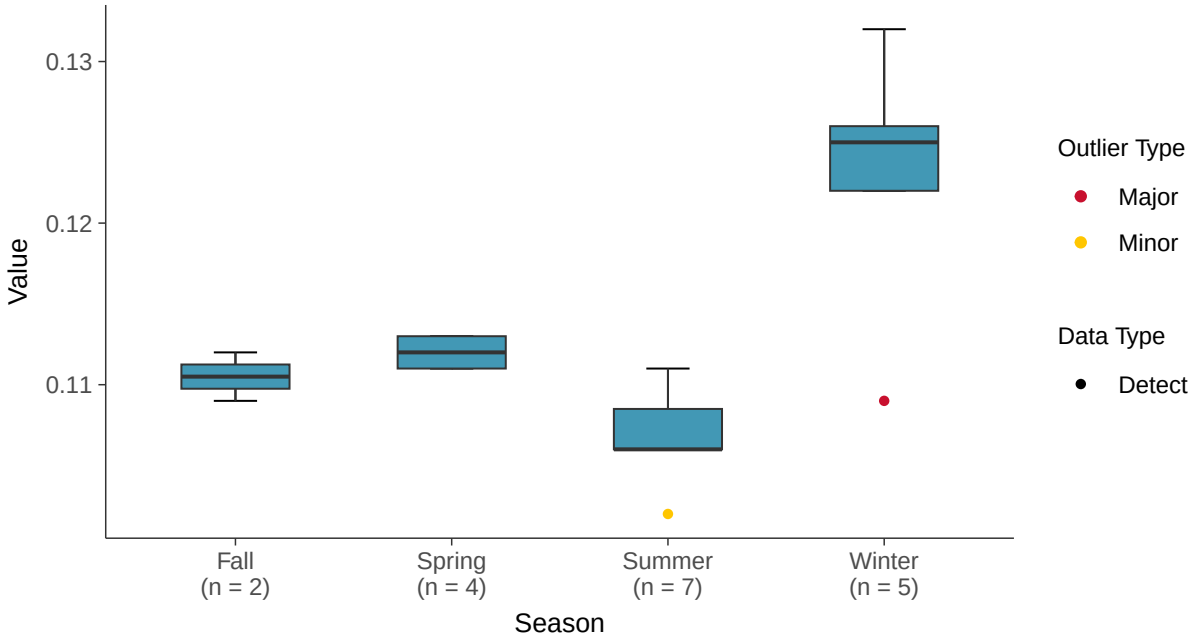
Boxplot

Lithium, MW-14 (mg/L)



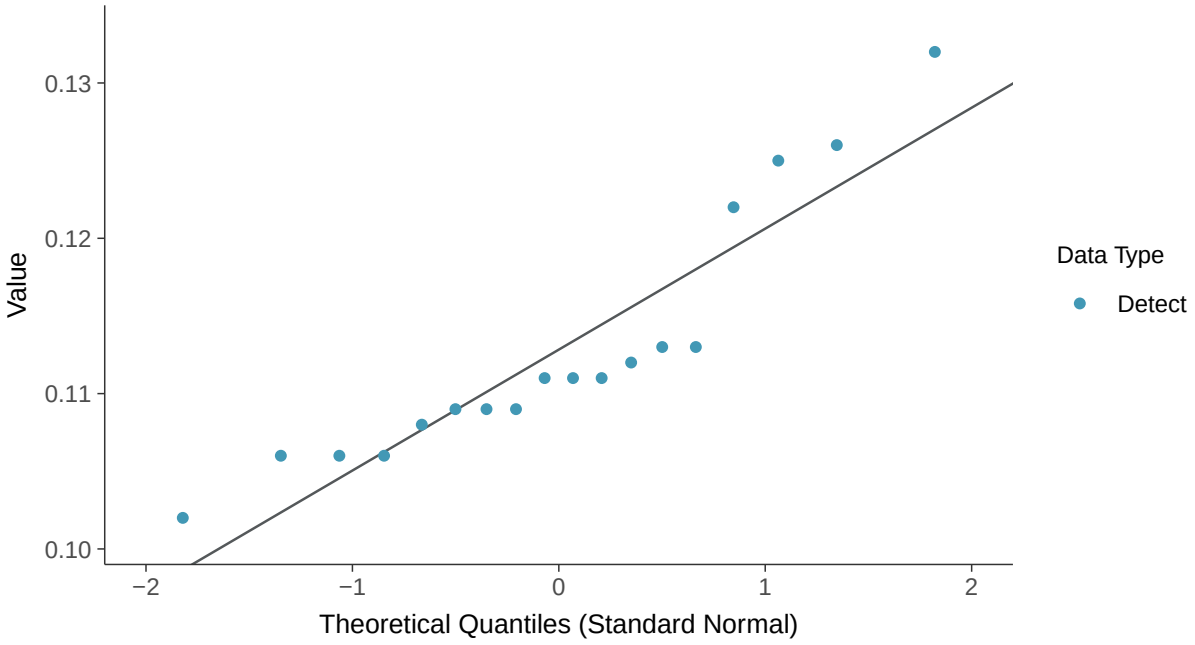
Boxplot by Season

Lithium, MW-14 (mg/L)



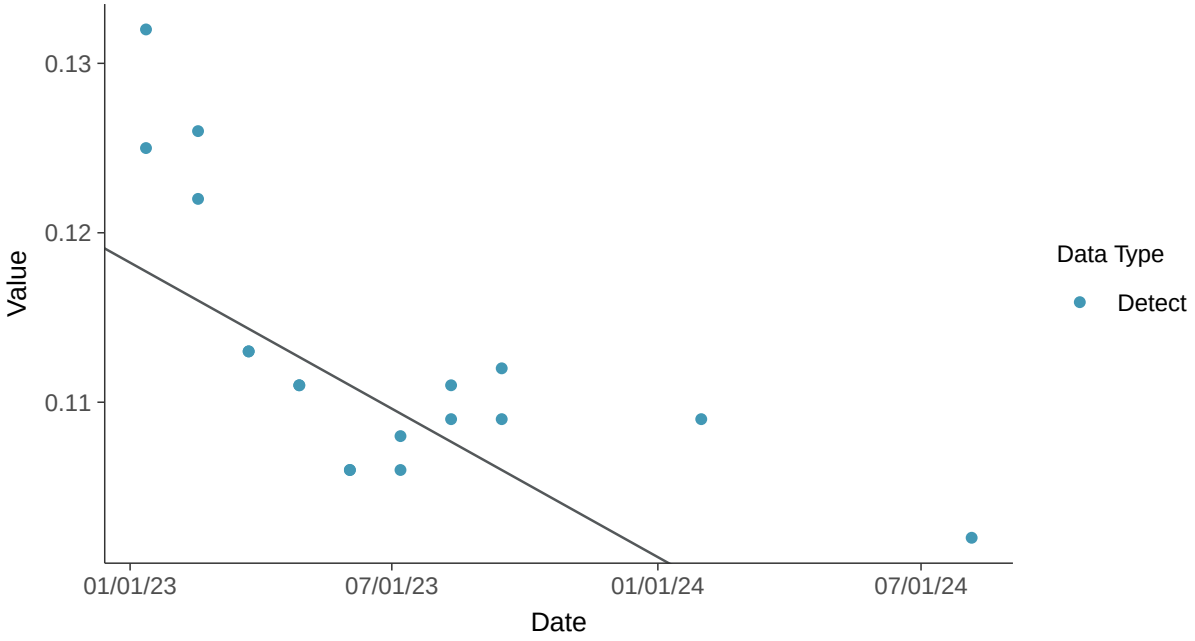
Normal Q-Q plot

Lithium, MW-14 (mg/L)



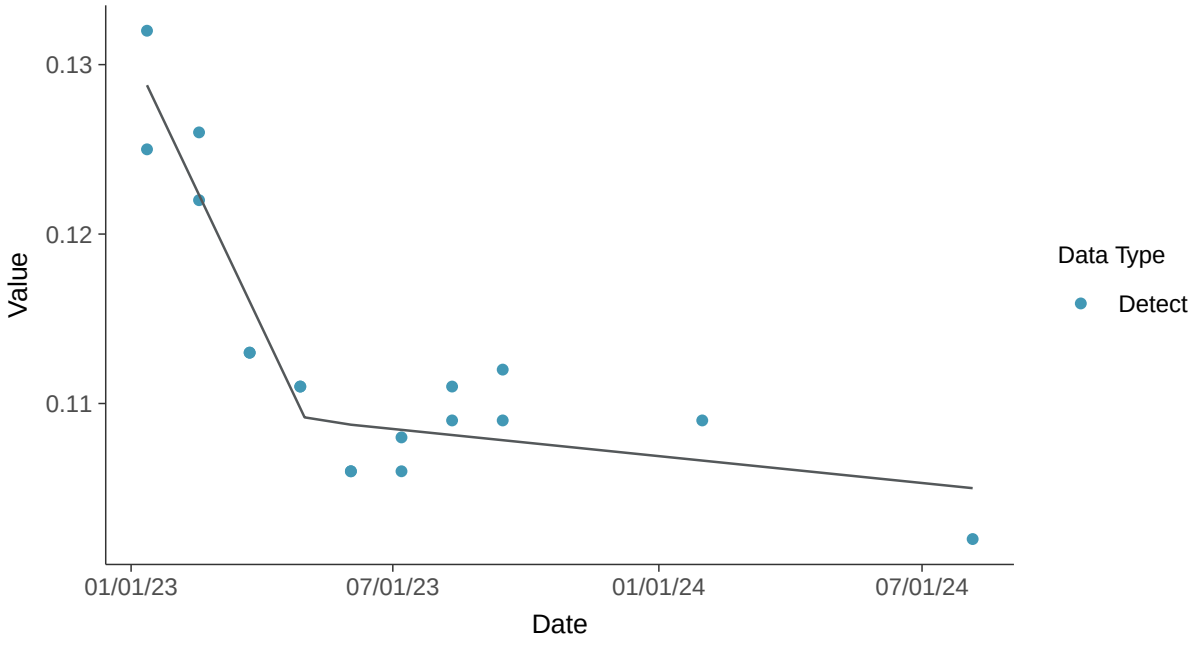
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Lithium, MW-14 (mg/L)



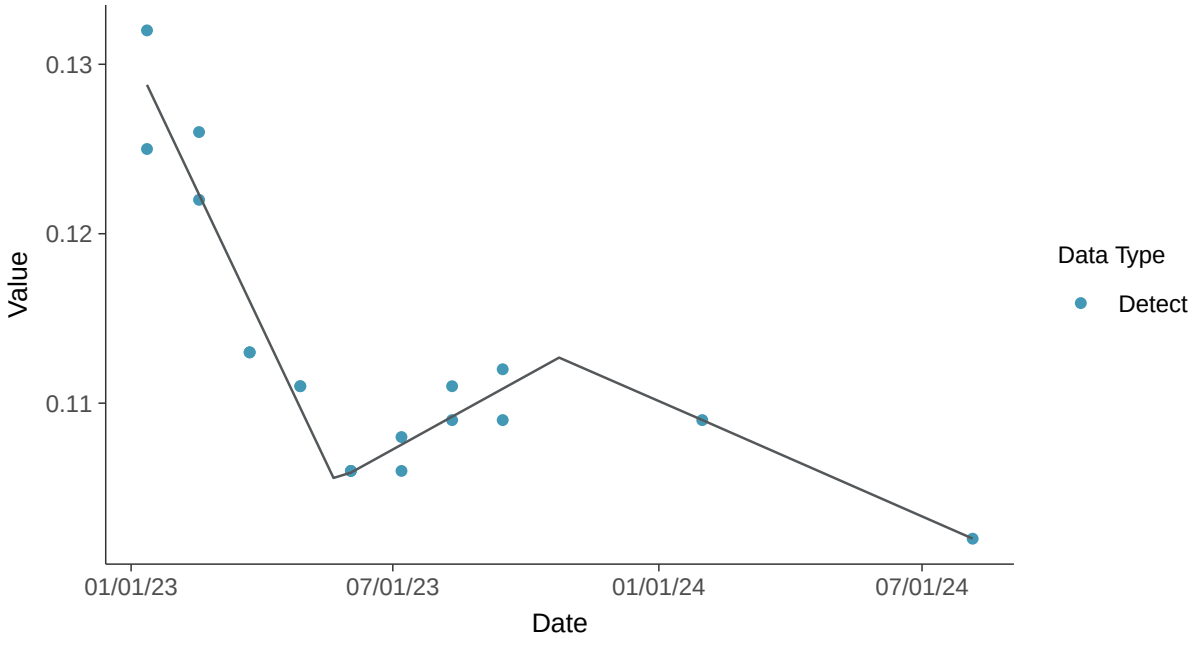
Trend Regression: Piecewise Linear-Linear

Lithium, MW-14 (mg/L)



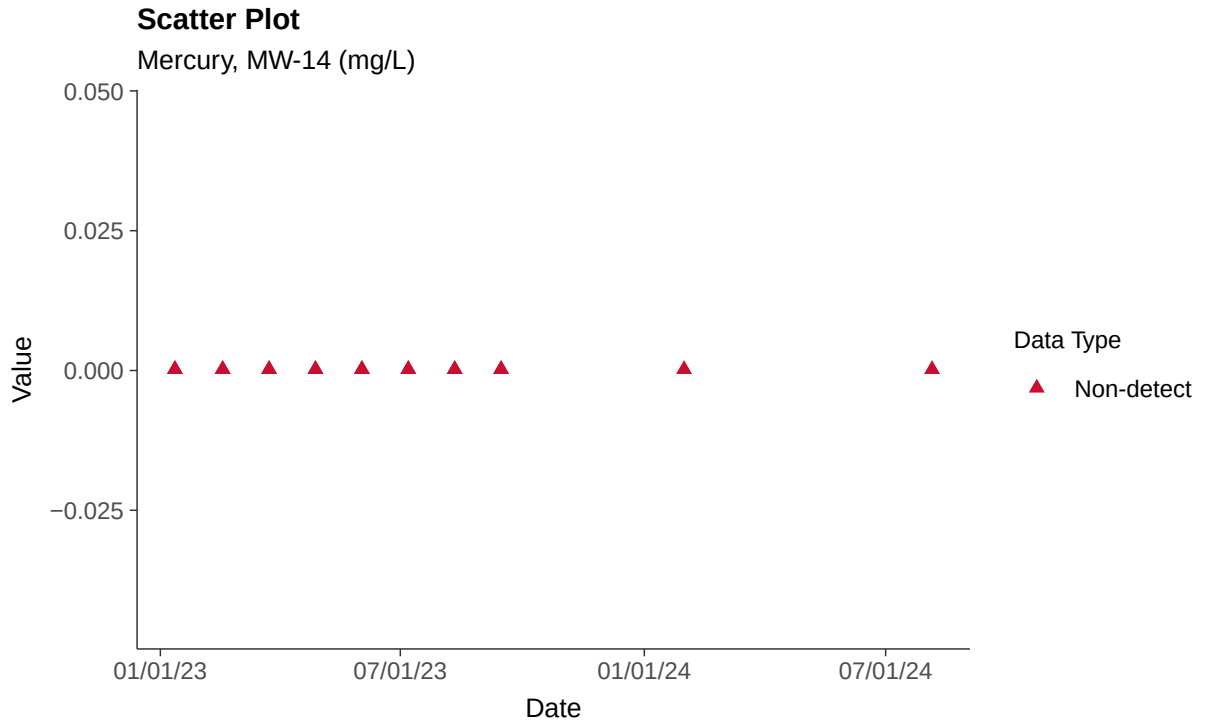
Trend Regression: Piecewise Linear-Linear-Linear

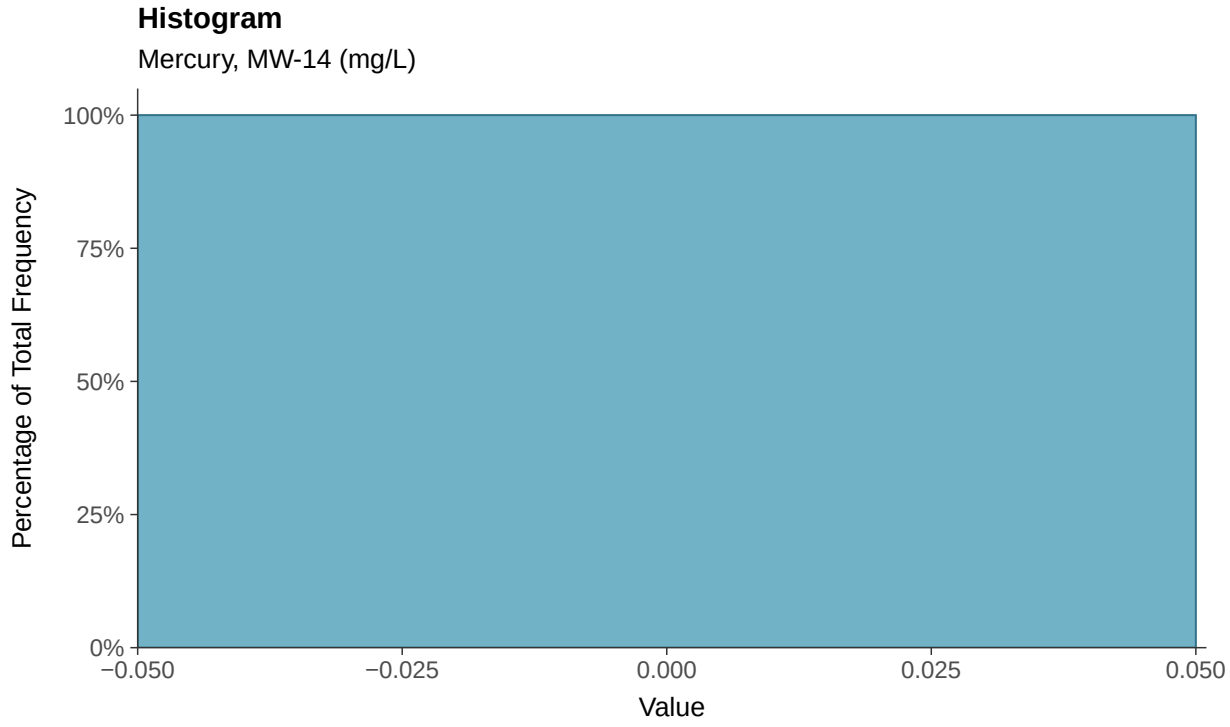
Lithium, MW-14 (mg/L)



Appendix IV: Mercury, MW-14

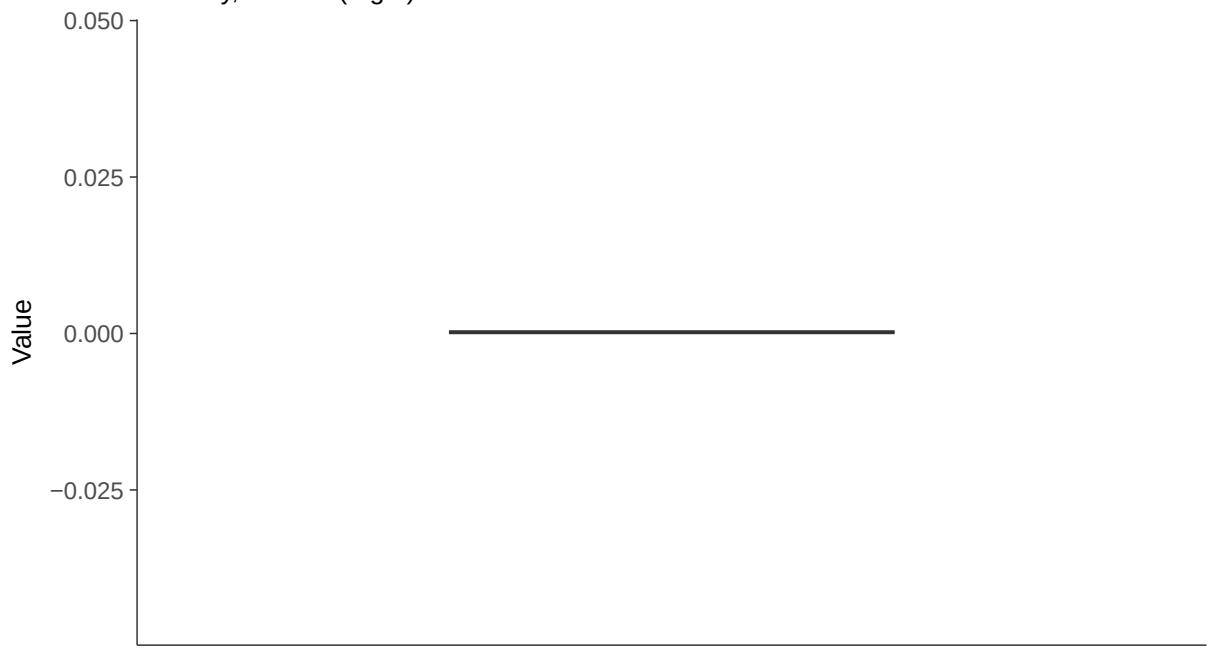
ID: 14_2_17





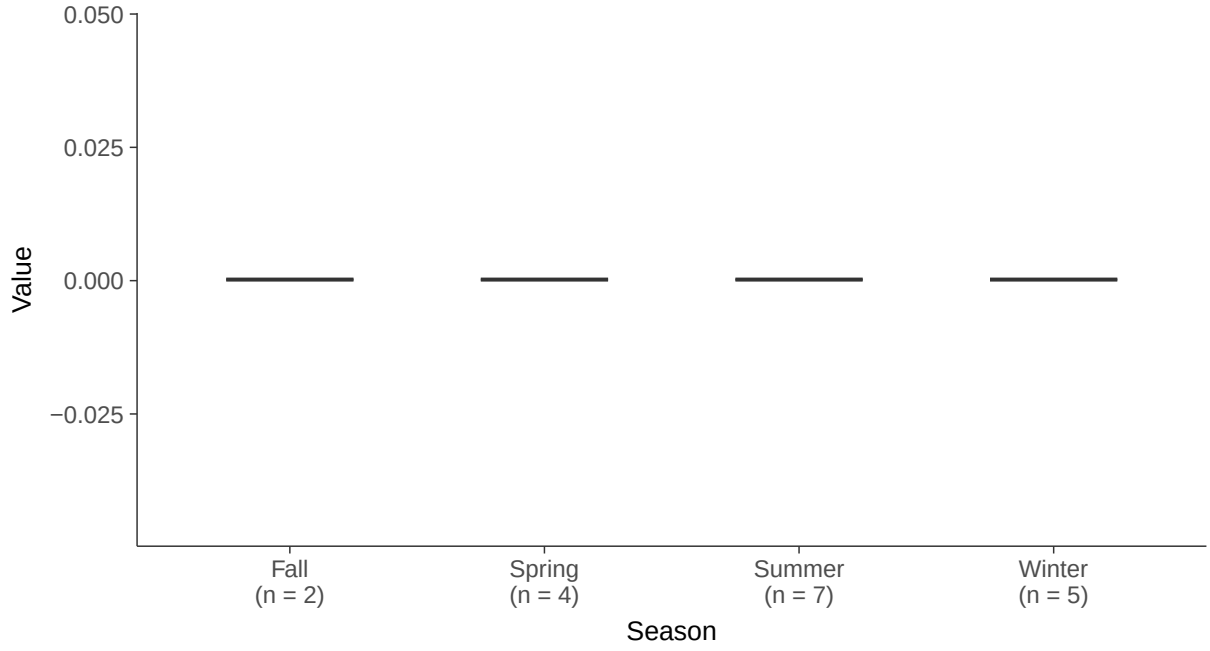
Boxplot

Mercury, MW-14 (mg/L)



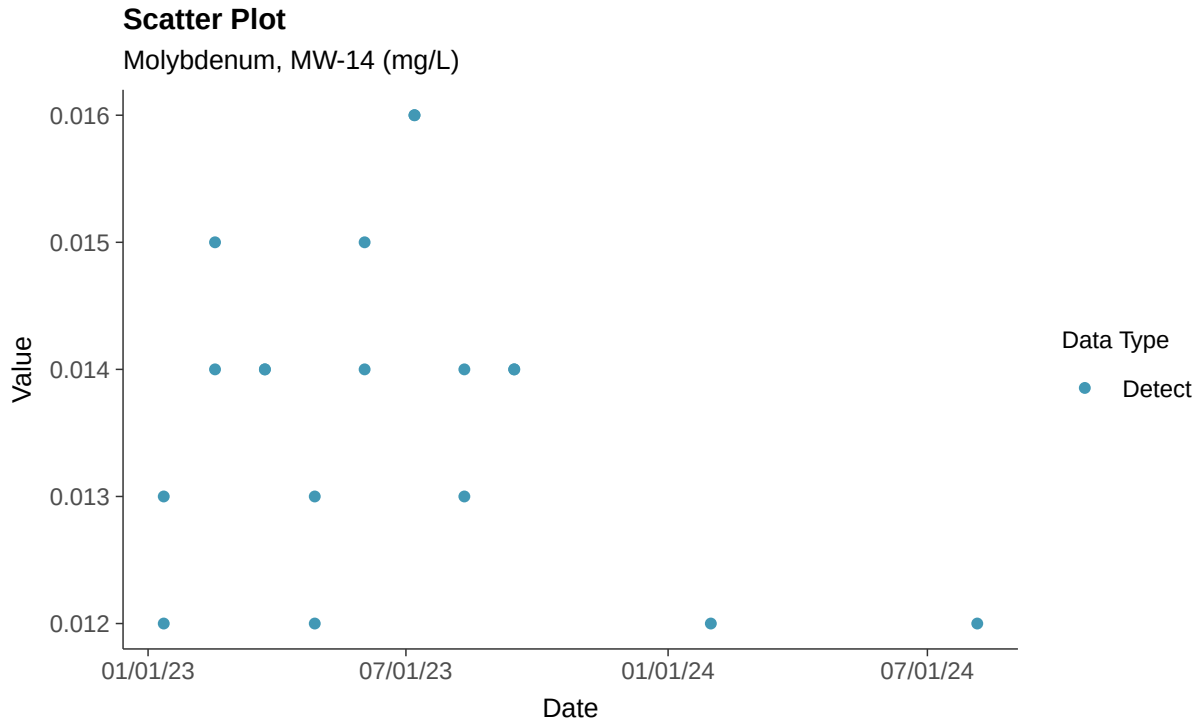
Boxplot by Season

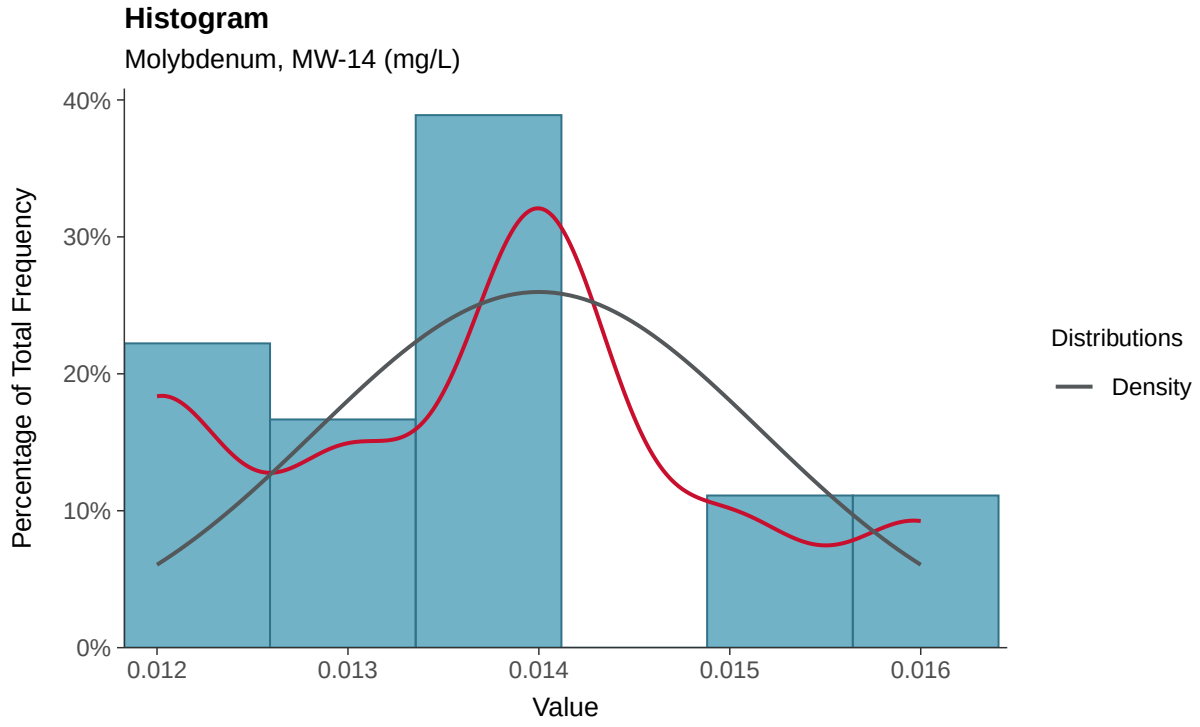
Mercury, MW-14 (mg/L)



Appendix IV: Molybdenum, MW-14

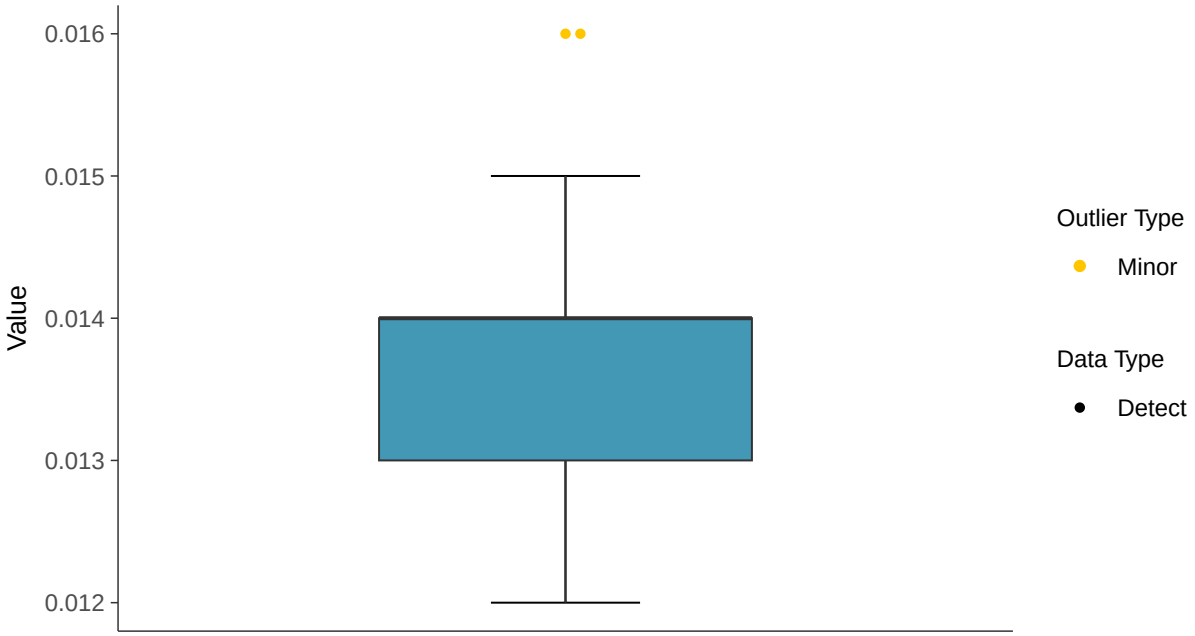
ID: 14_2_18





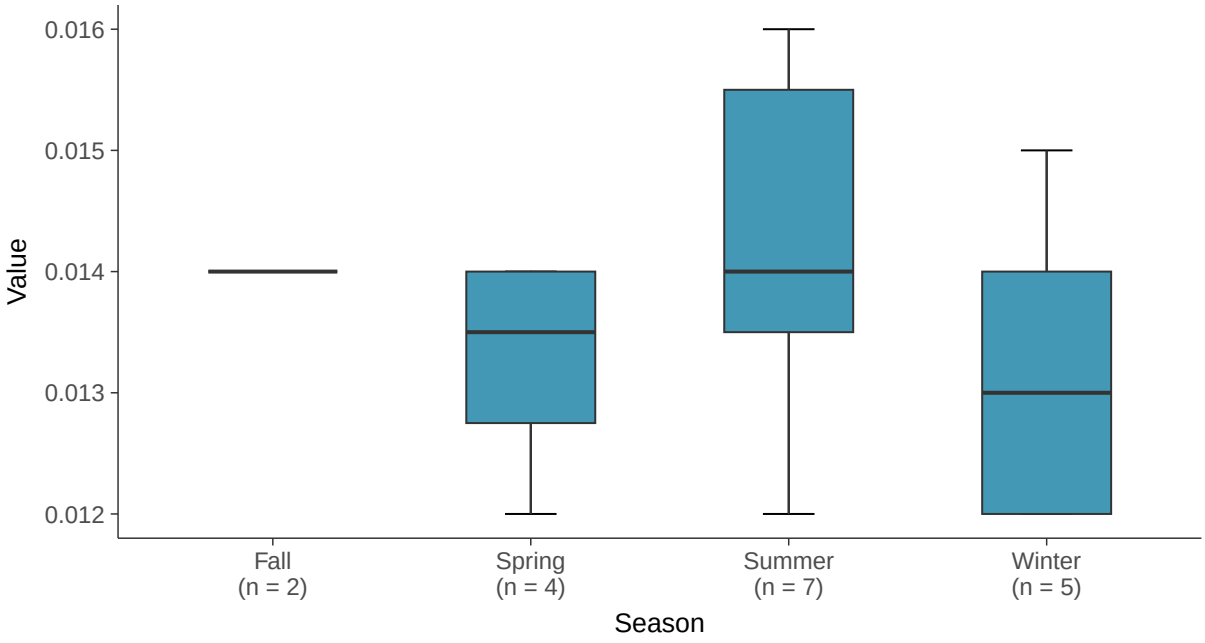
Boxplot

Molybdenum, MW-14 (mg/L)



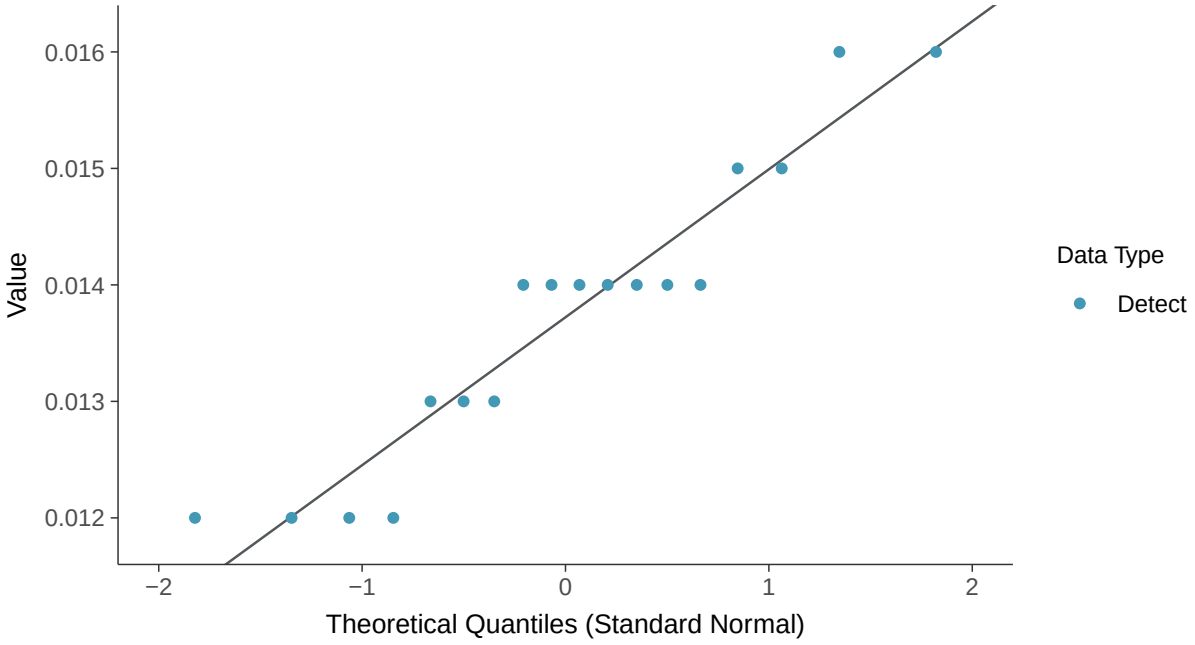
Boxplot by Season

Molybdenum, MW-14 (mg/L)



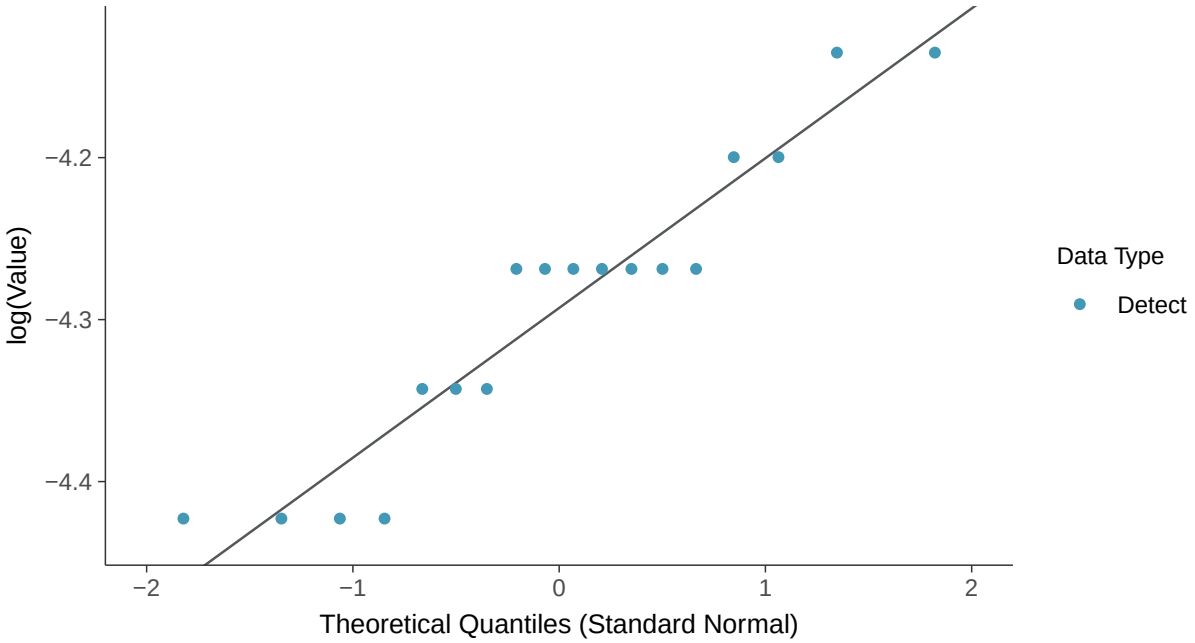
Normal Q-Q plot

Molybdenum, MW-14 (mg/L)



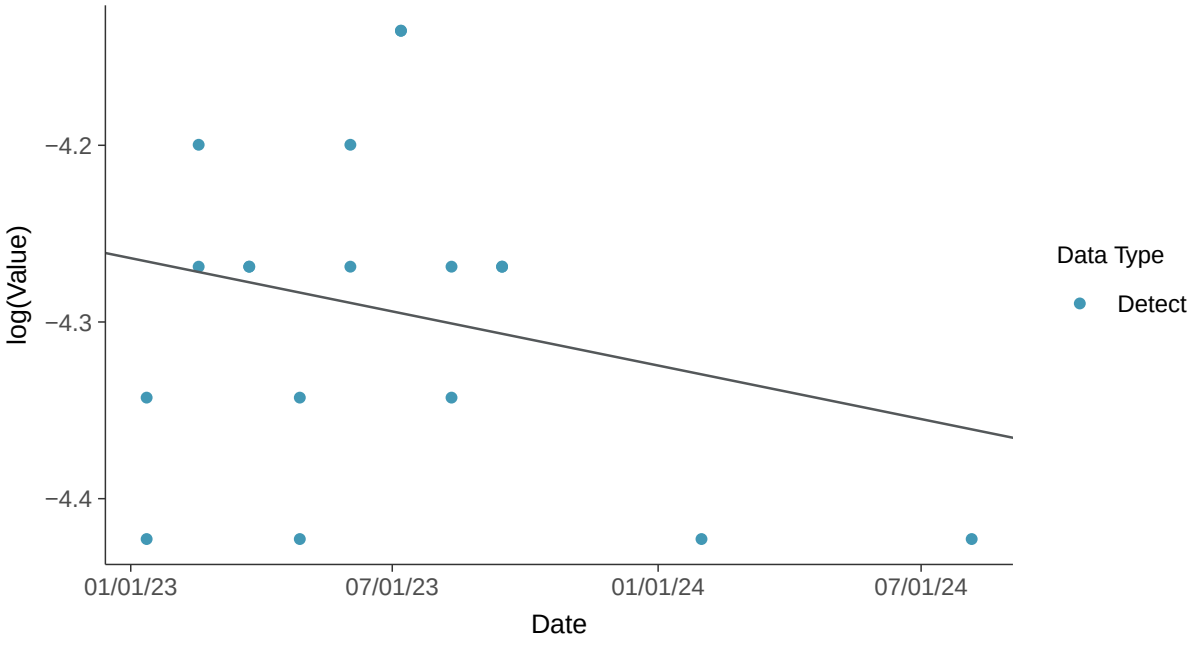
Lognormal Q-Q plot

Molybdenum, MW-14 (mg/L)



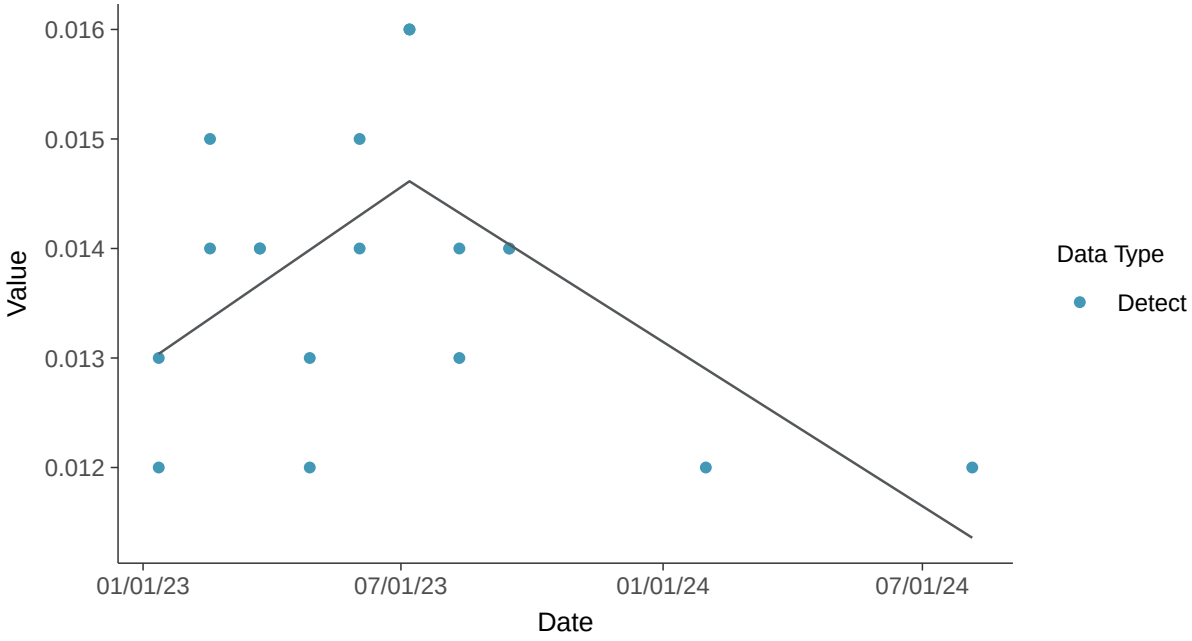
Trend Regression: Lognormal MLE

Molybdenum, MW-14 (mg/L)



Trend Regression: Piecewise Linear-Linear

Molybdenum, MW-14 (mg/L)

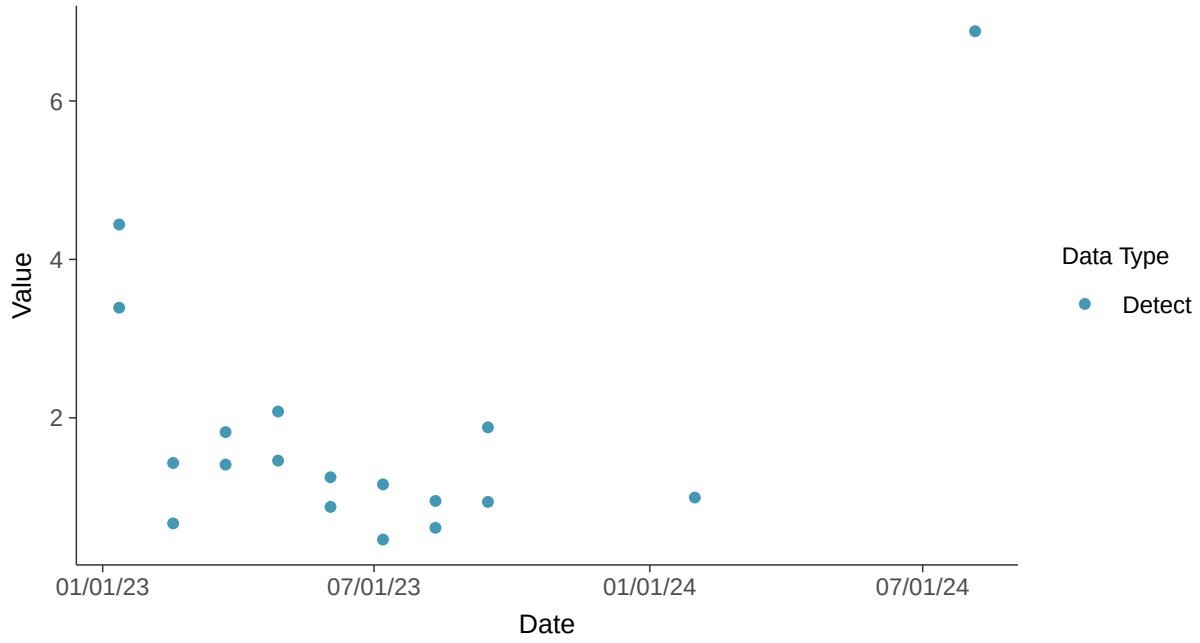


Appendix IV: Radium-226/228, MW-14

ID: 14_2_21

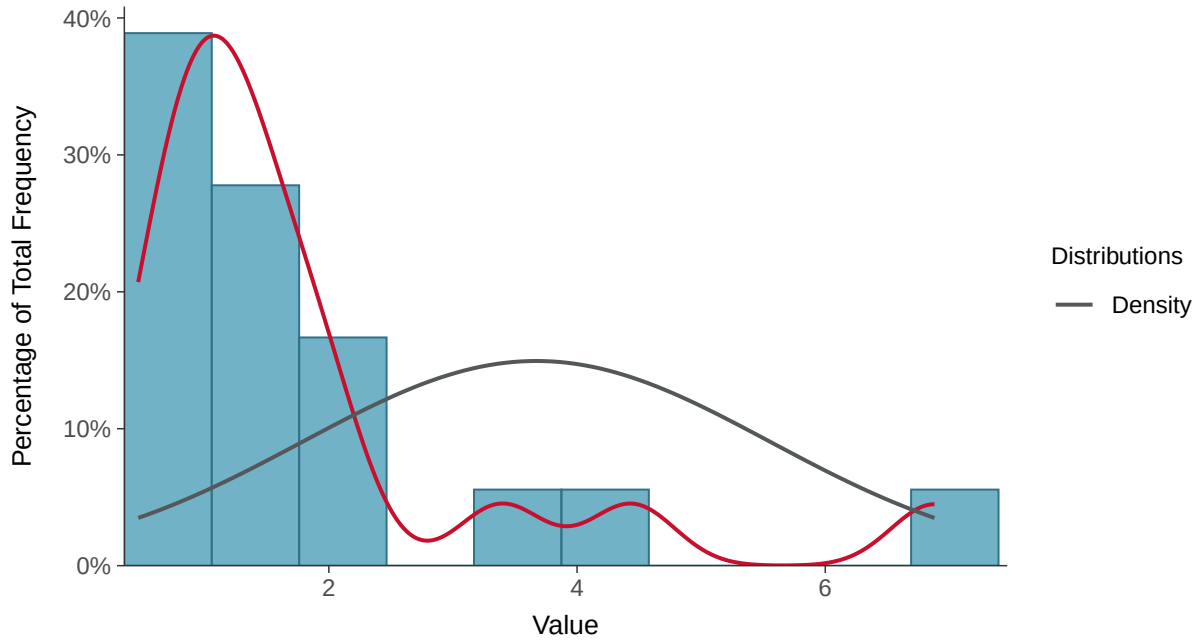
Scatter Plot

Radium-226/228, MW-14 (pCi/L)



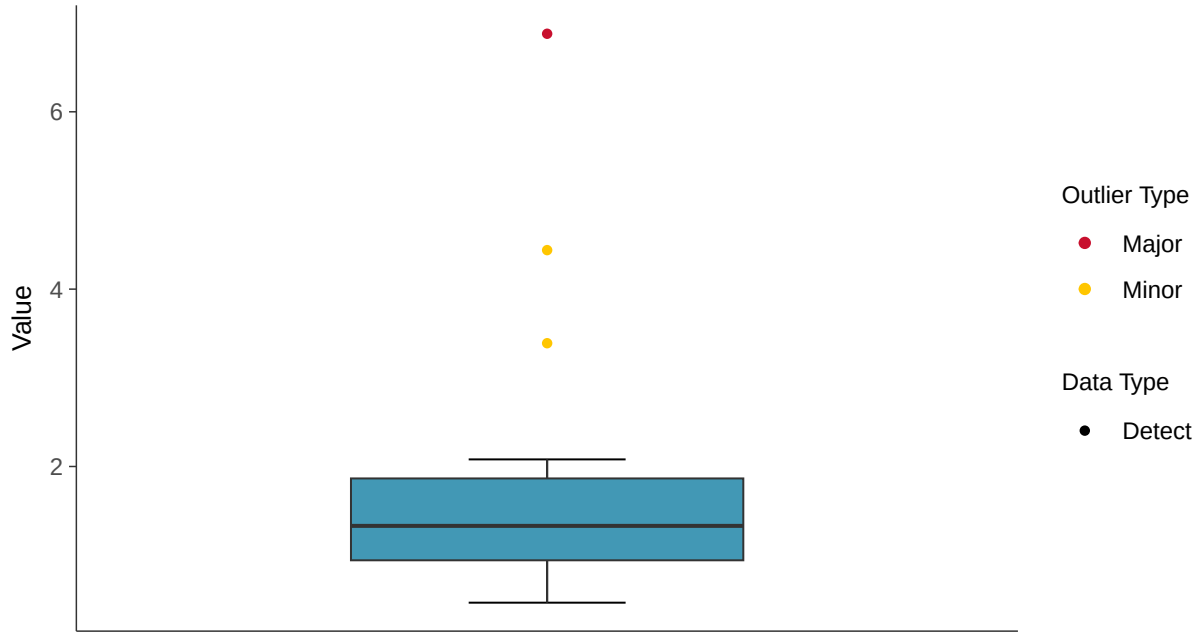
Histogram

Radium-226/228, MW-14 (pCi/L)



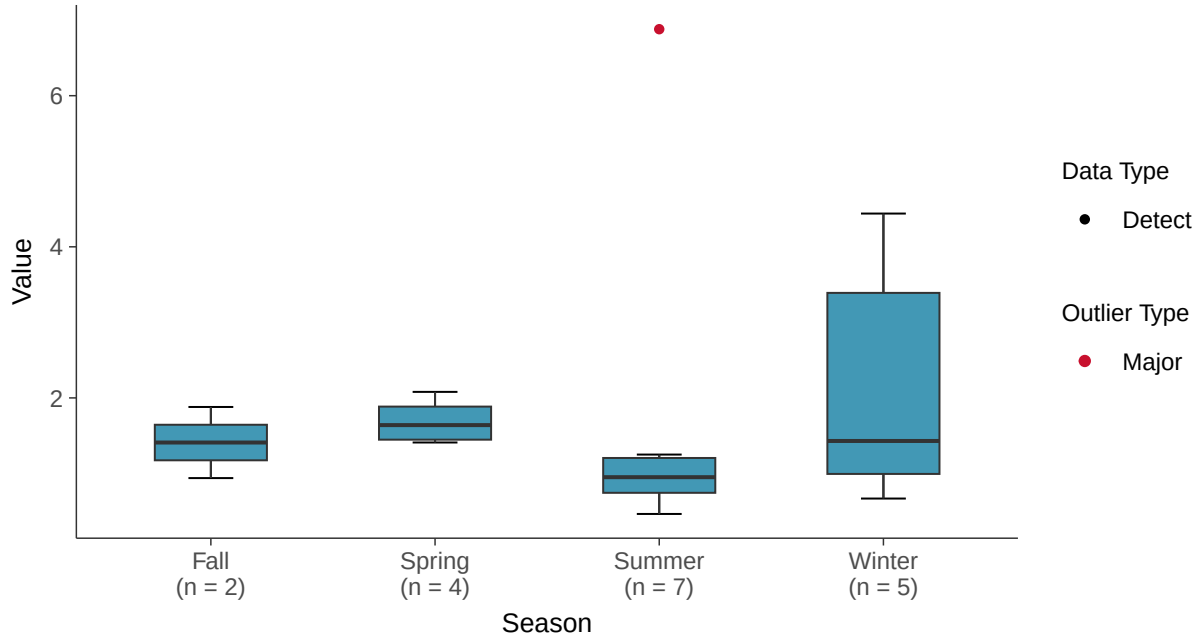
Boxplot

Radium-226/228, MW-14 (pCi/L)



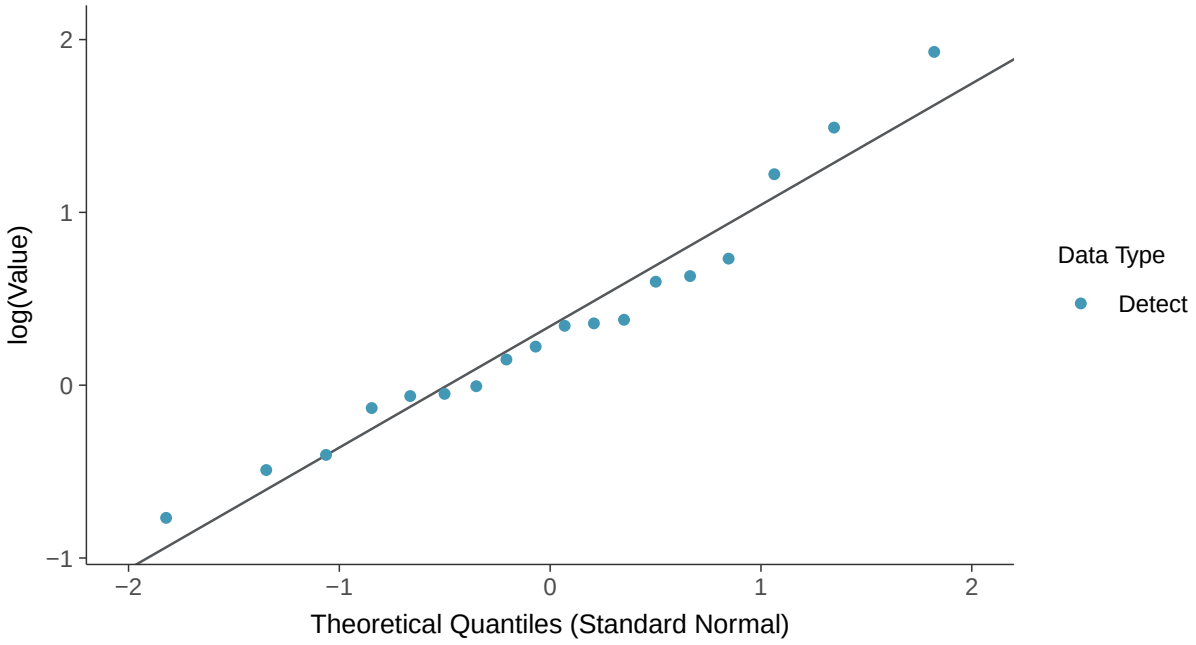
Boxplot by Season

Radium-226/228, MW-14 (pCi/L)



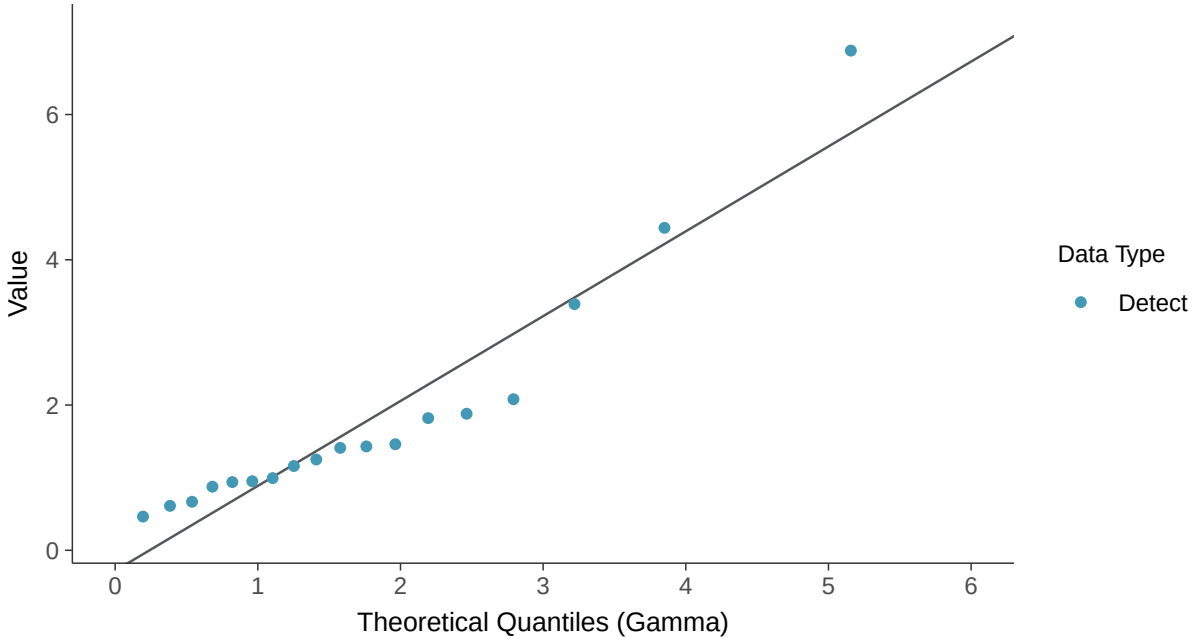
Lognormal Q-Q plot

Radium-226/228, MW-14 (pCi/L)



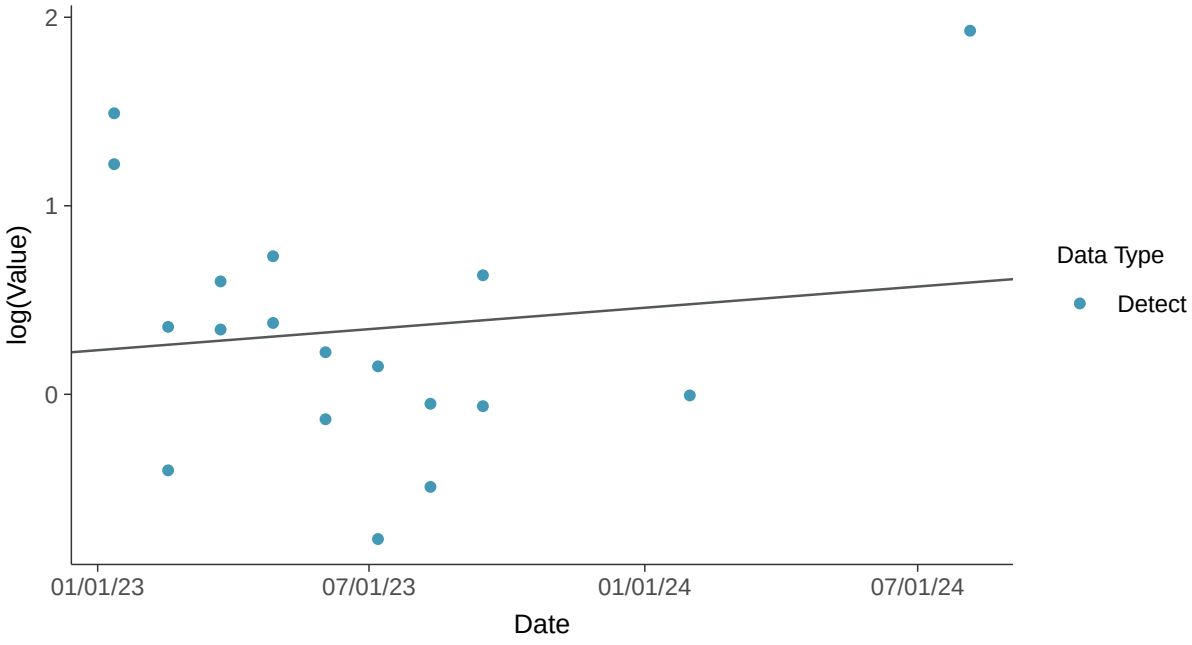
Gamma Q-Q plot

Radium-226/228, MW-14 (pCi/L)



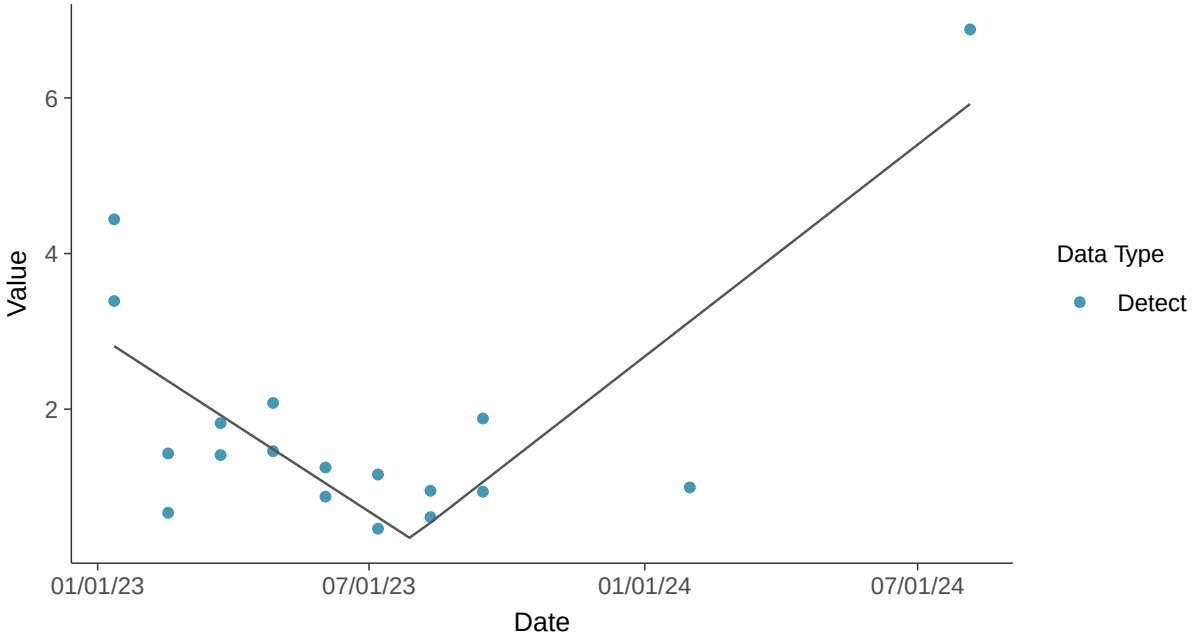
Trend Regression: Lognormal MLE

Radium-226/228, MW-14 (pCi/L)



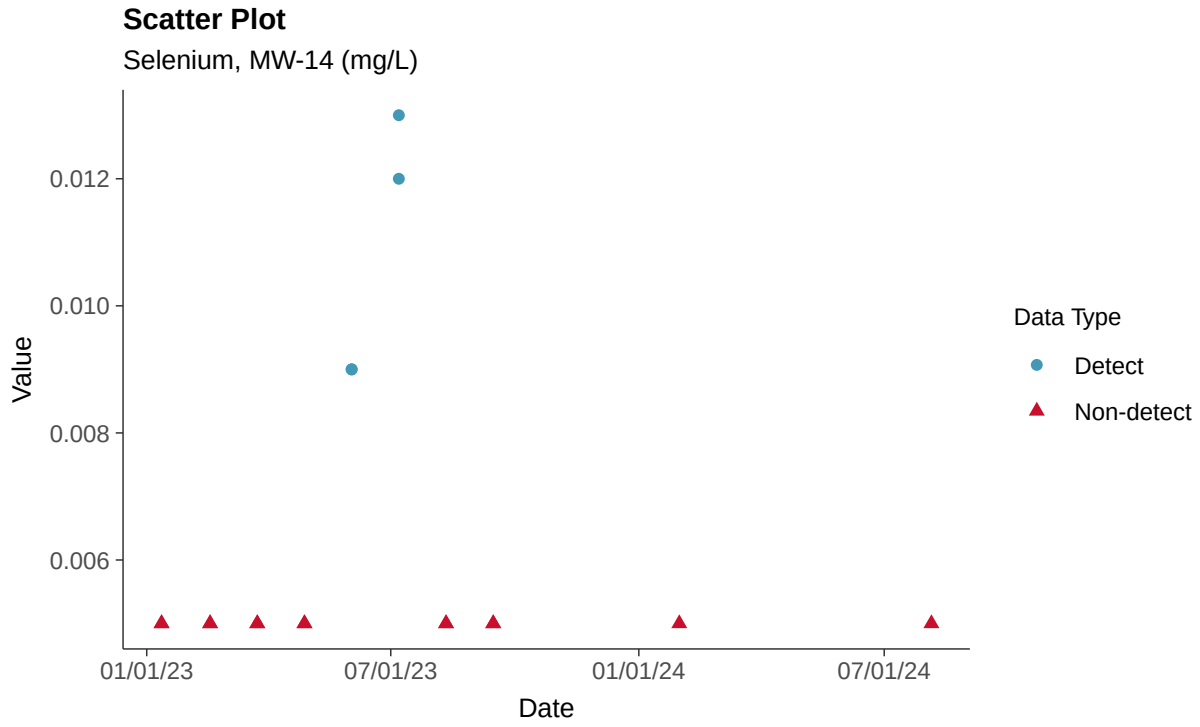
Trend Regression: Piecewise Linear-Linear

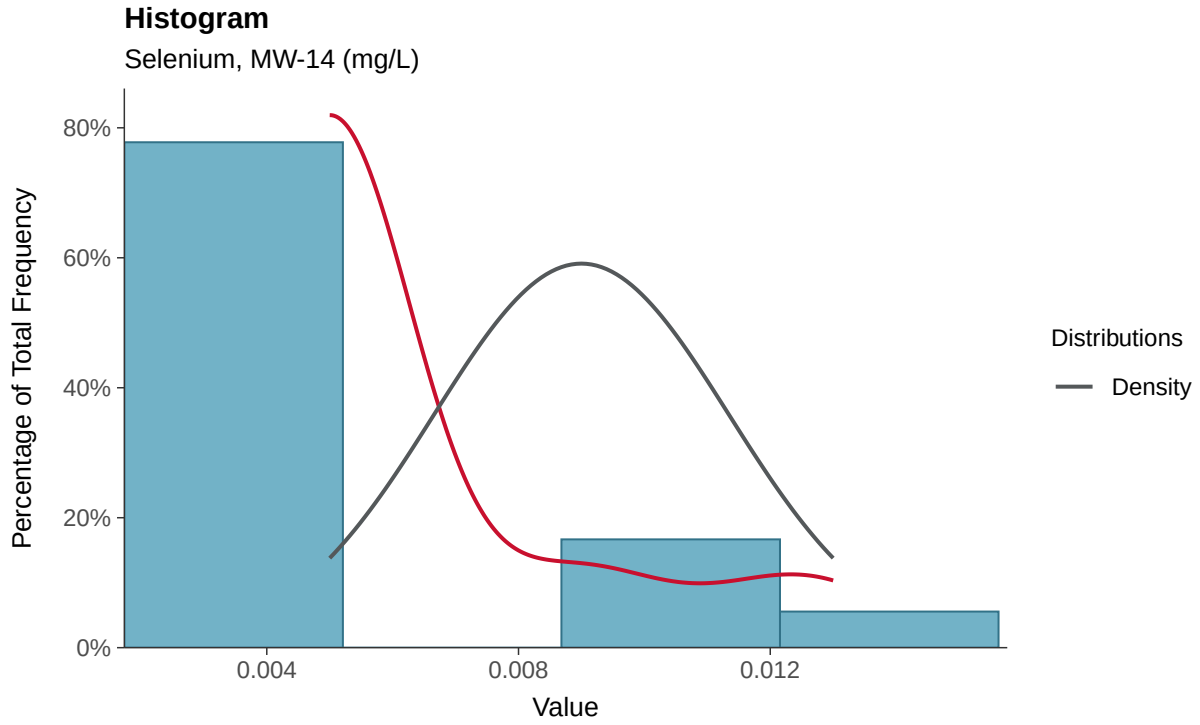
Radium-226/228, MW-14 (pCi/L)



Appendix IV: Selenium, MW-14

ID: 14_2_22



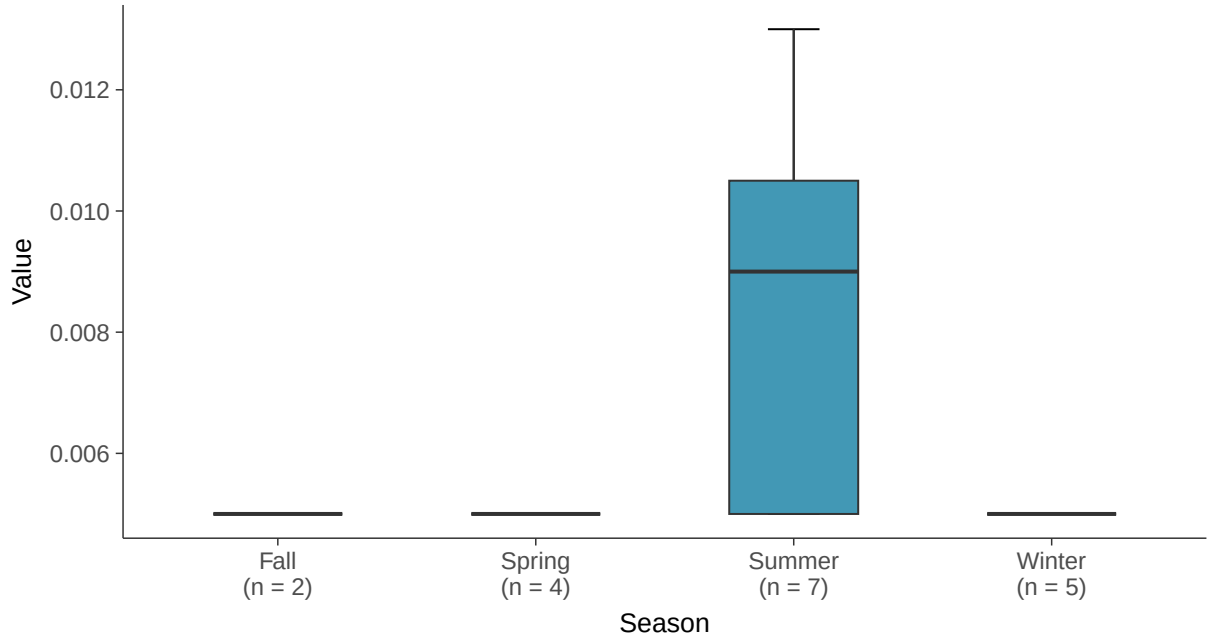


Boxplot

Selenium, MW-14 (mg/L)

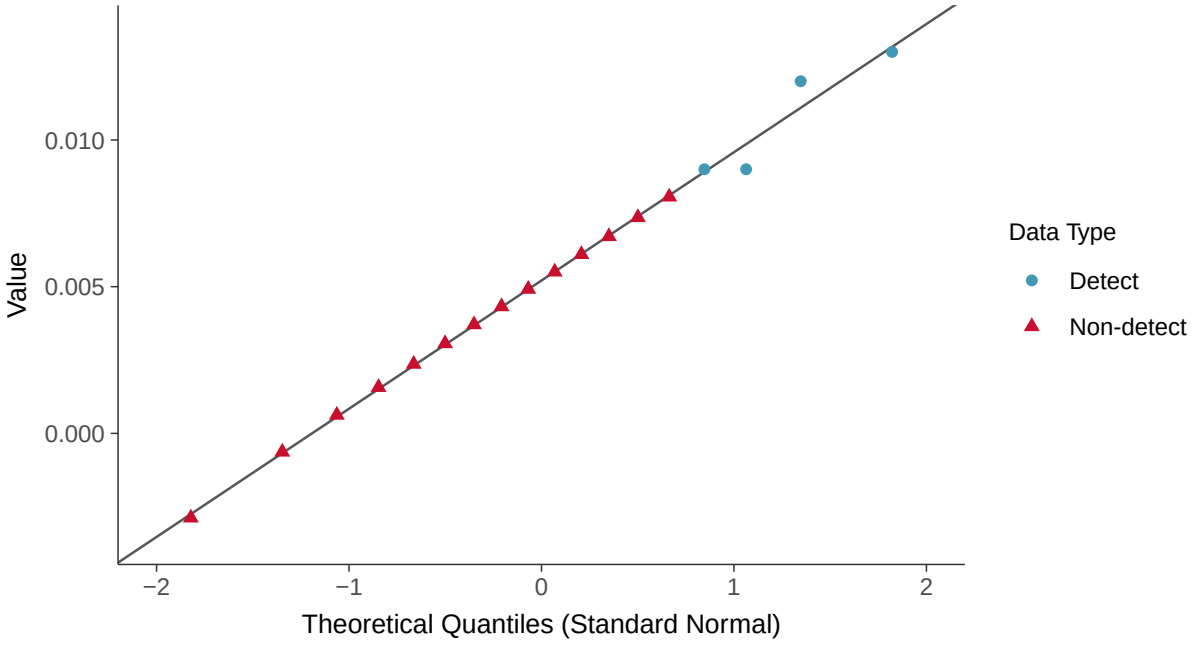
Boxplot by Season

Selenium, MW-14 (mg/L)



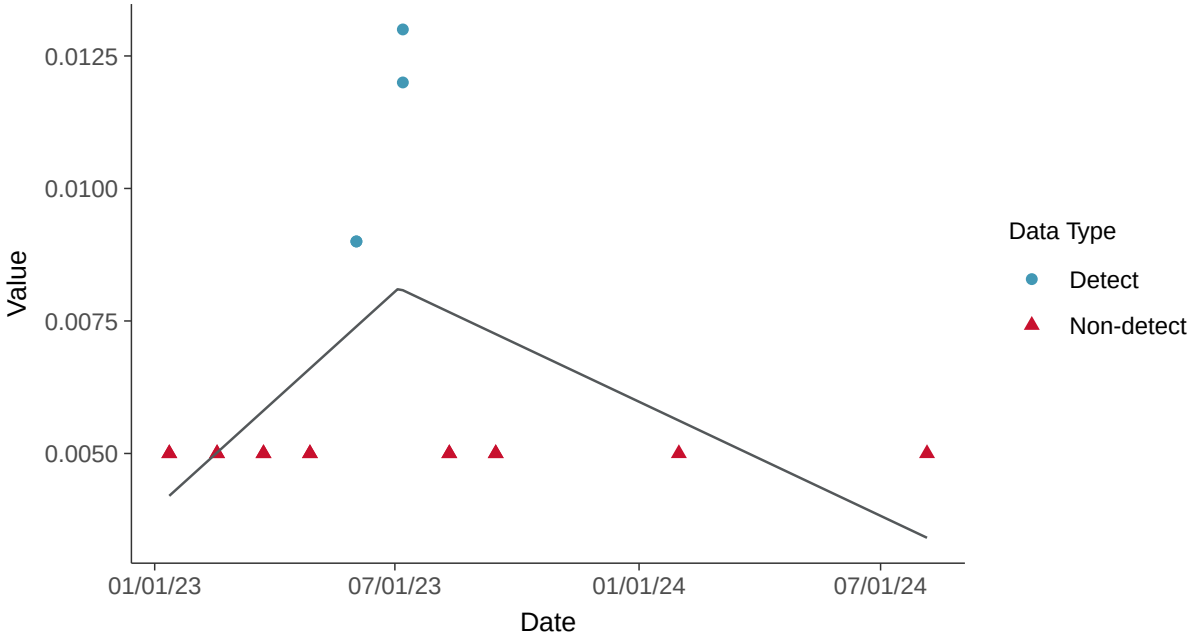
Normal Q-Q plot using ROS Imputed Estimates

Selenium, MW-14 (mg/L)



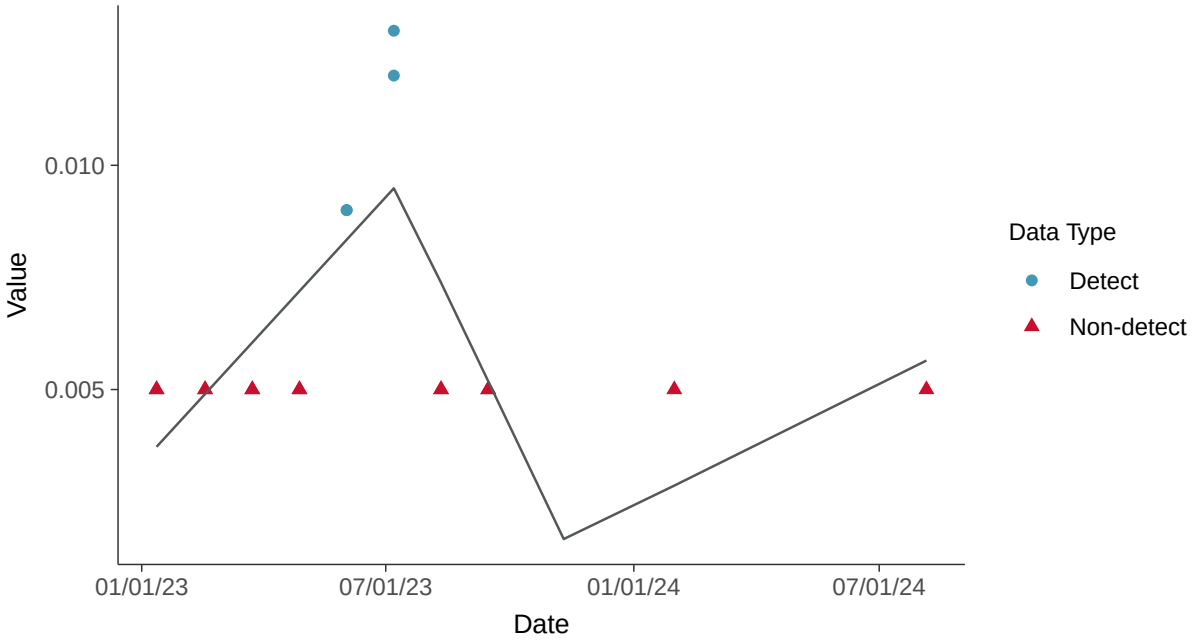
Trend Regression: Piecewise Linear-Linear

Selenium, MW-14 (mg/L)



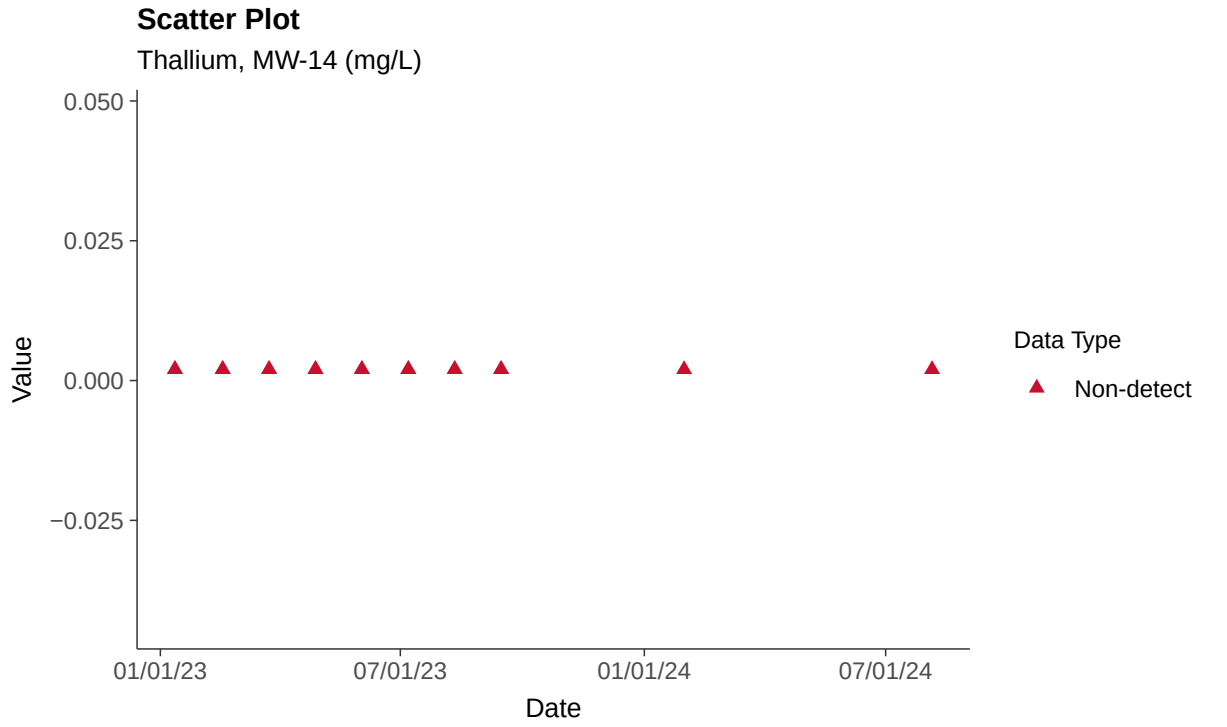
Trend Regression: Piecewise Linear-Linear-Linear

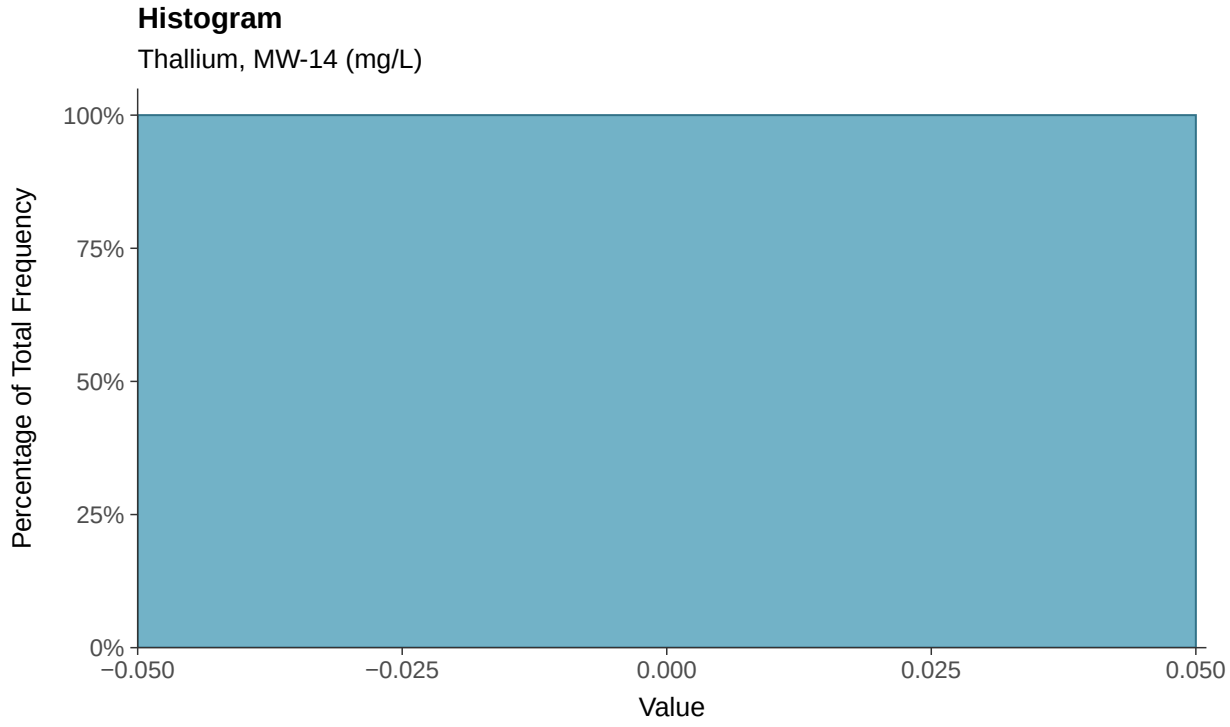
Selenium, MW-14 (mg/L)



Appendix IV: Thallium, MW-14

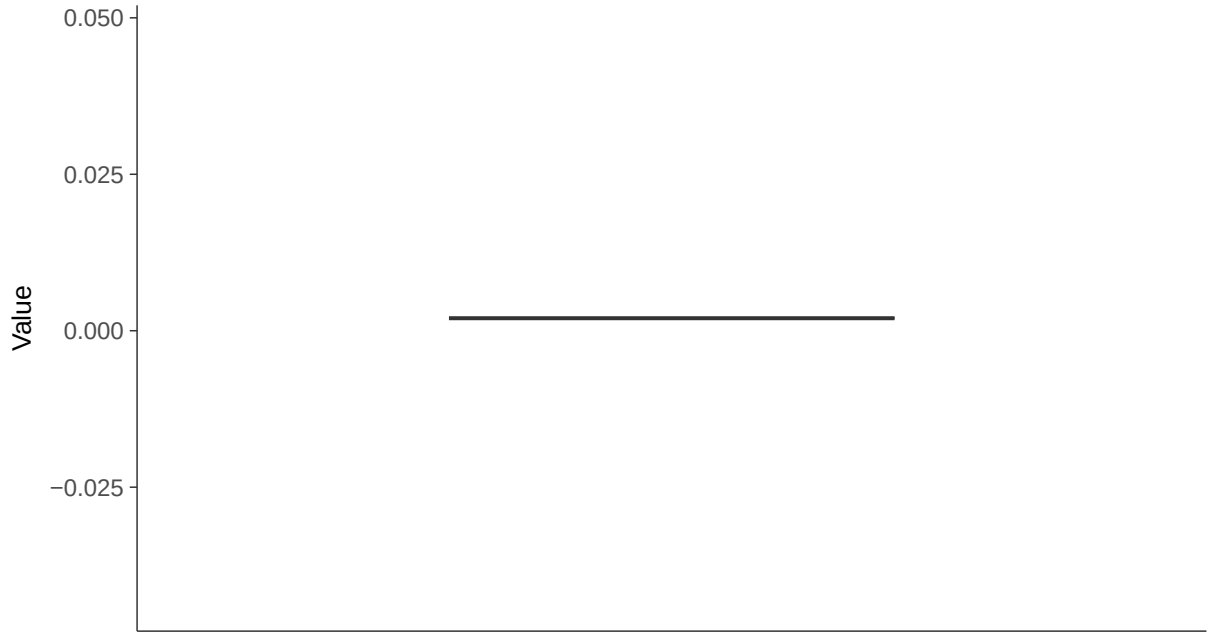
ID: 14_2_23





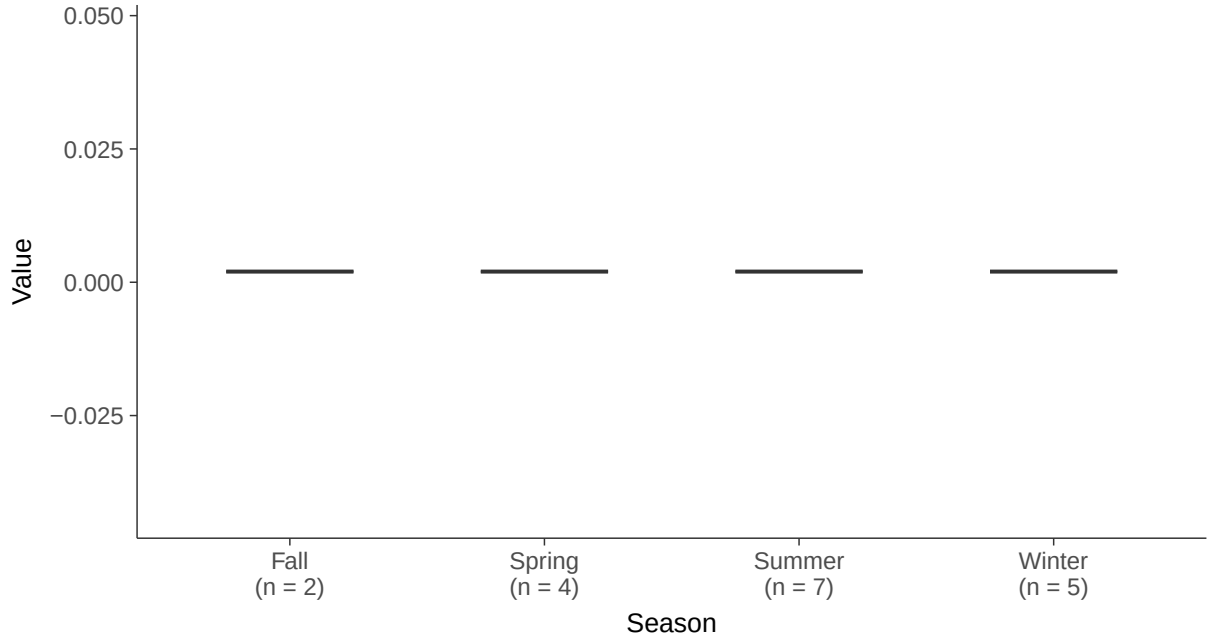
Boxplot

Thallium, MW-14 (mg/L)



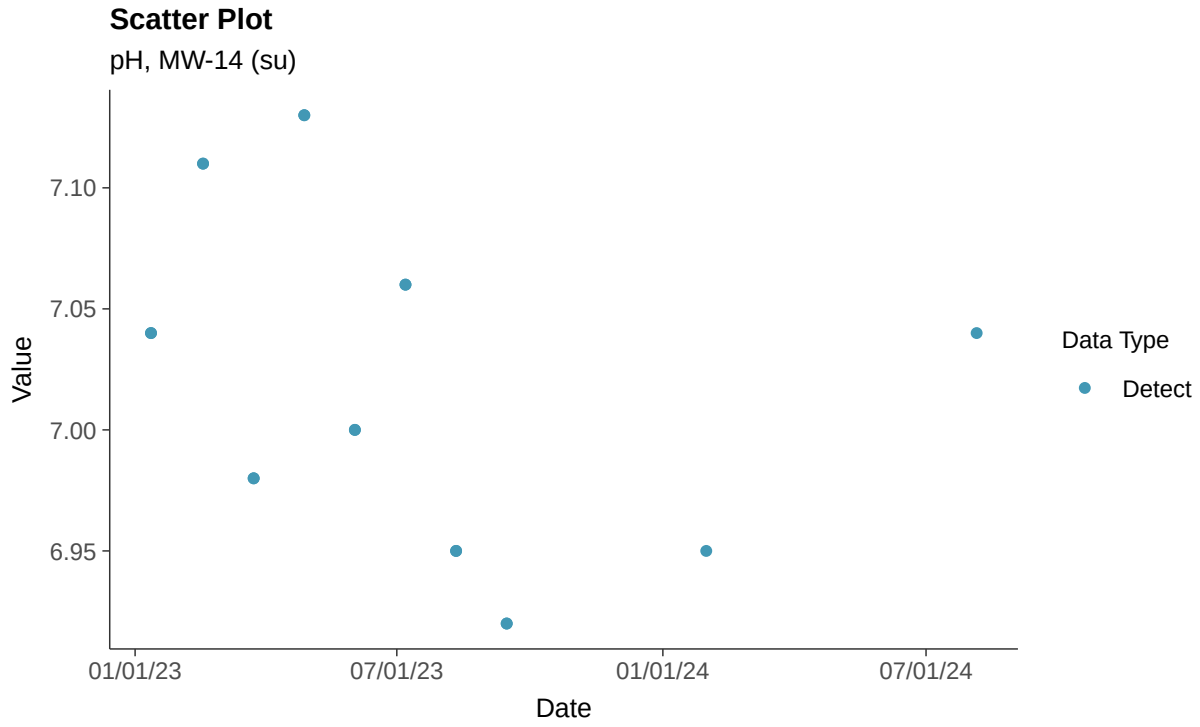
Boxplot by Season

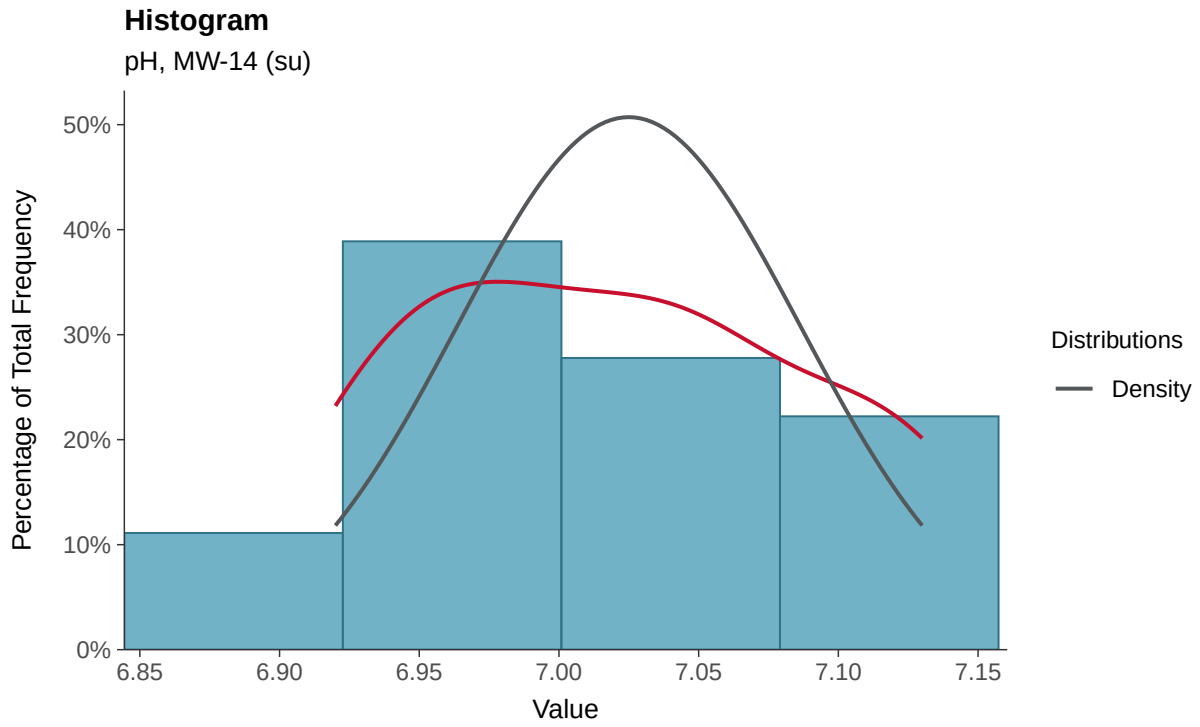
Thallium, MW-14 (mg/L)



Field Parameters: pH, MW-14

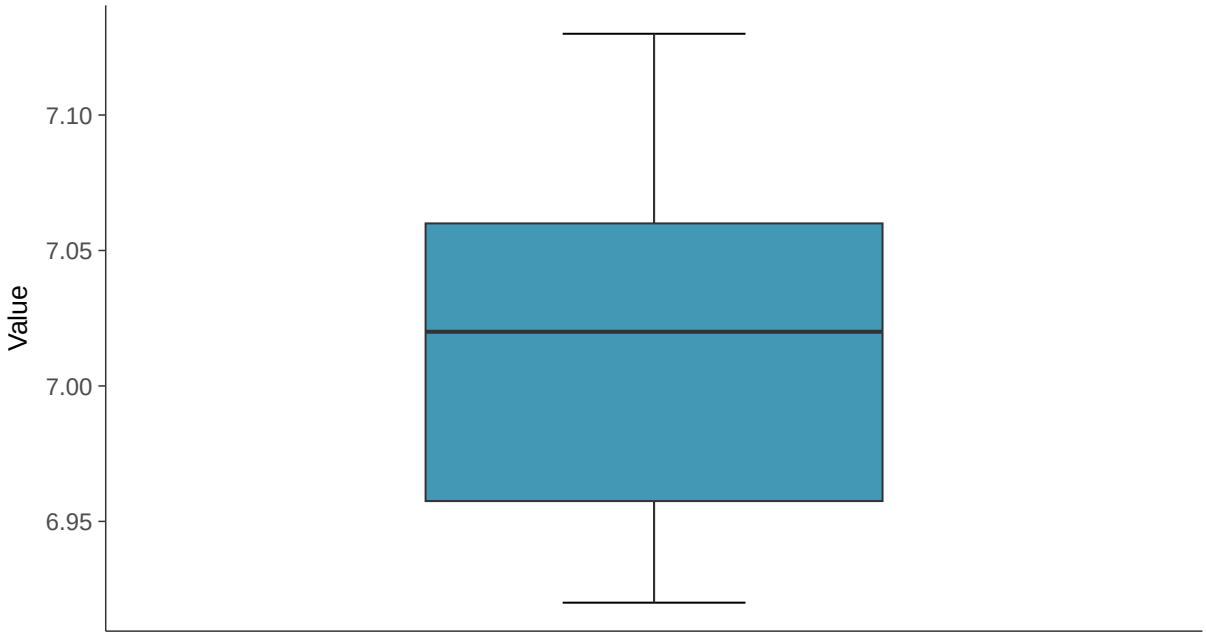
ID: 14_3_24





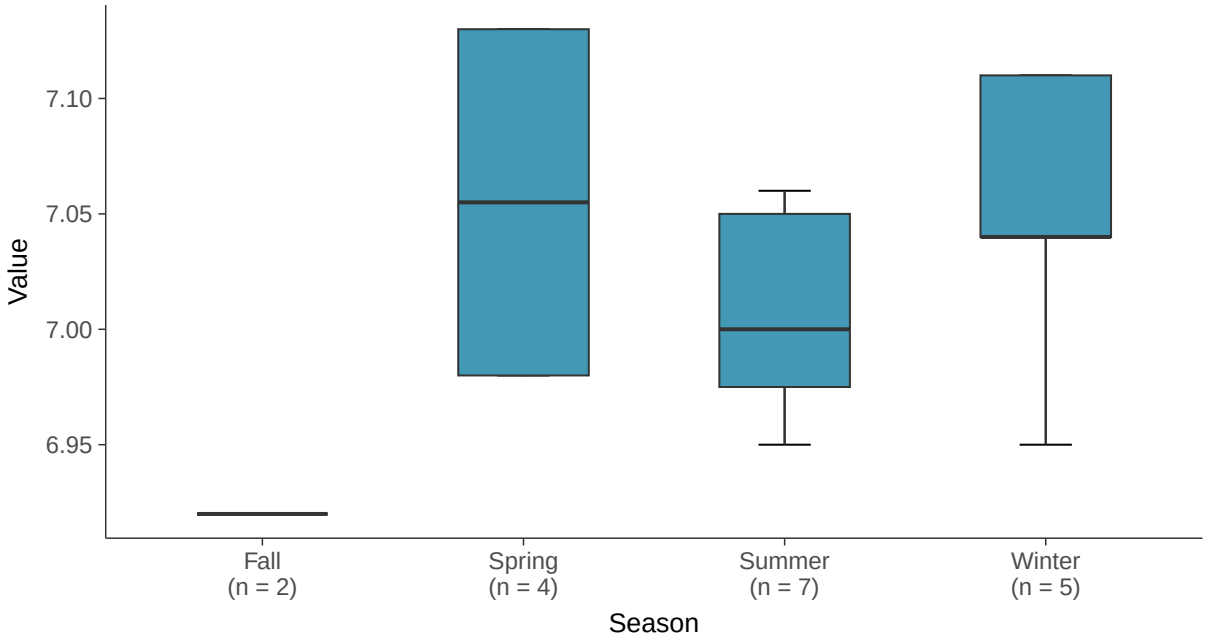
Boxplot

pH, MW-14 (su)



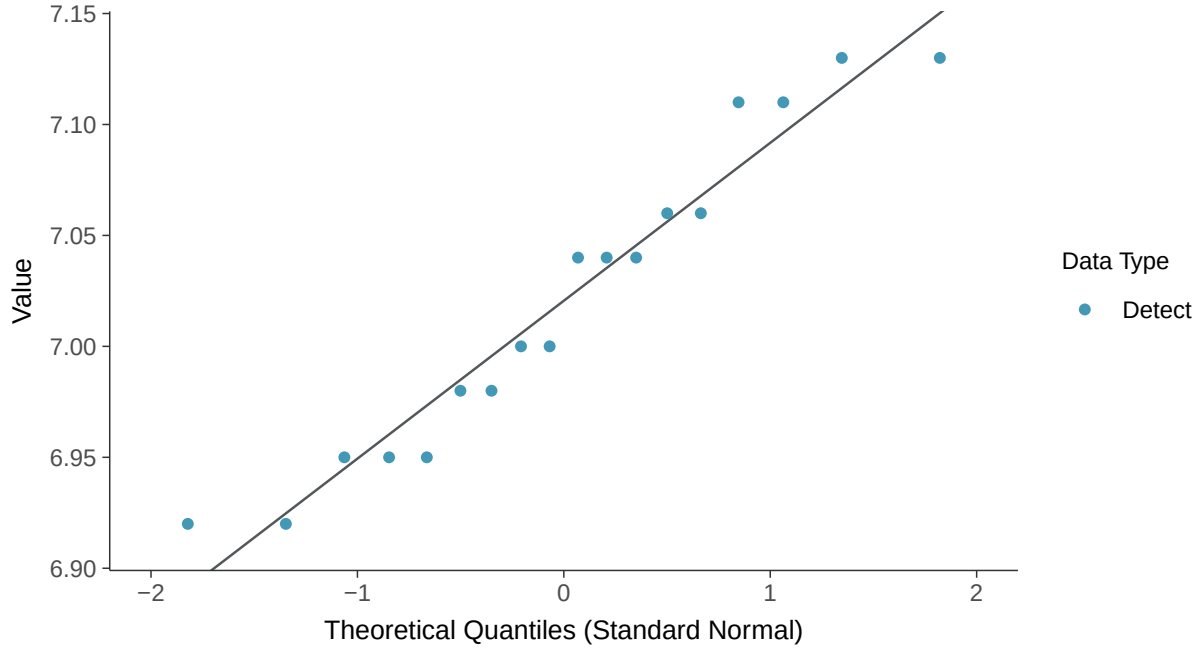
Boxplot by Season

pH, MW-14 (su)



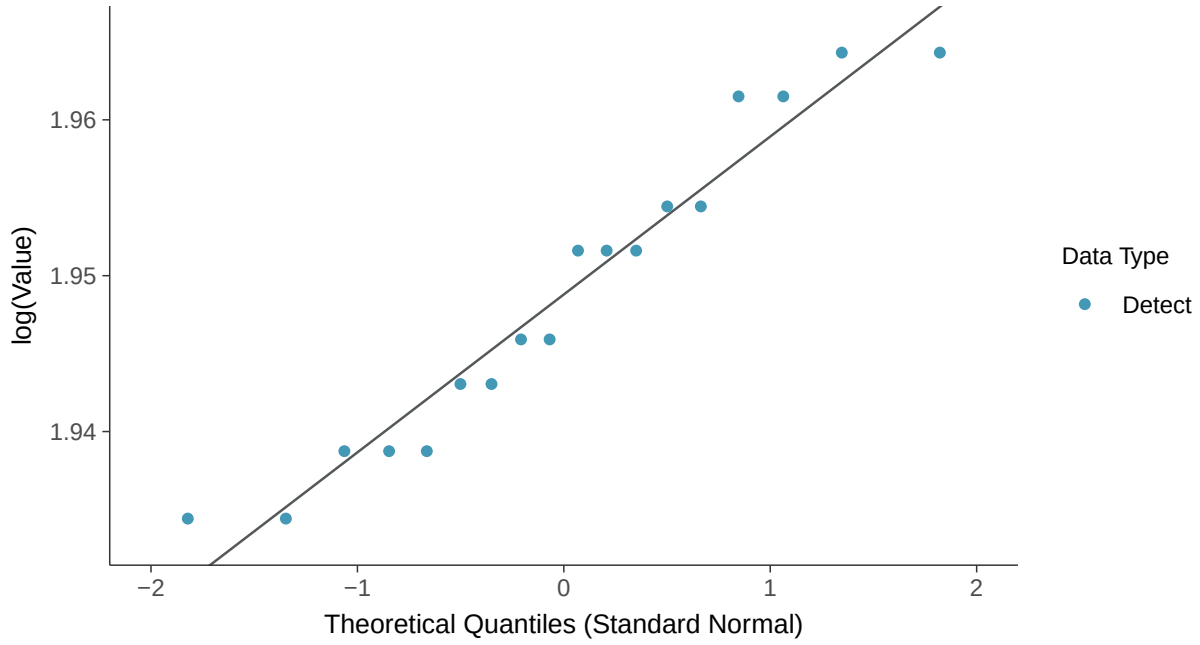
Normal Q-Q plot

pH, MW-14 (su)



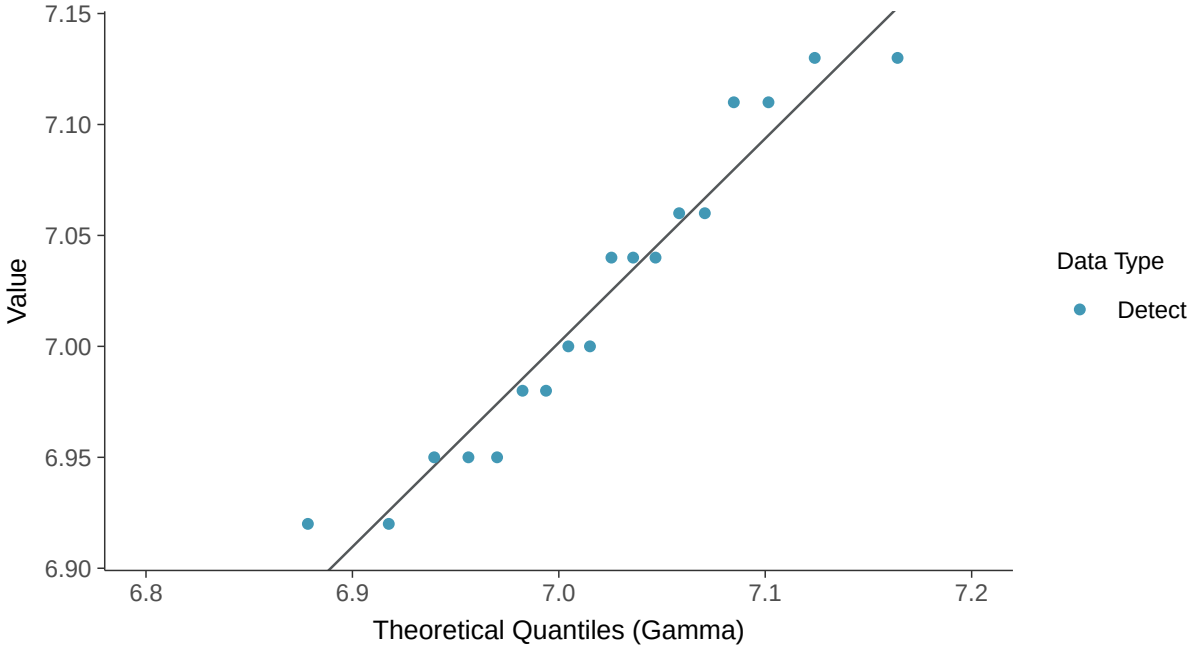
Lognormal Q-Q plot

pH, MW-14 (su)



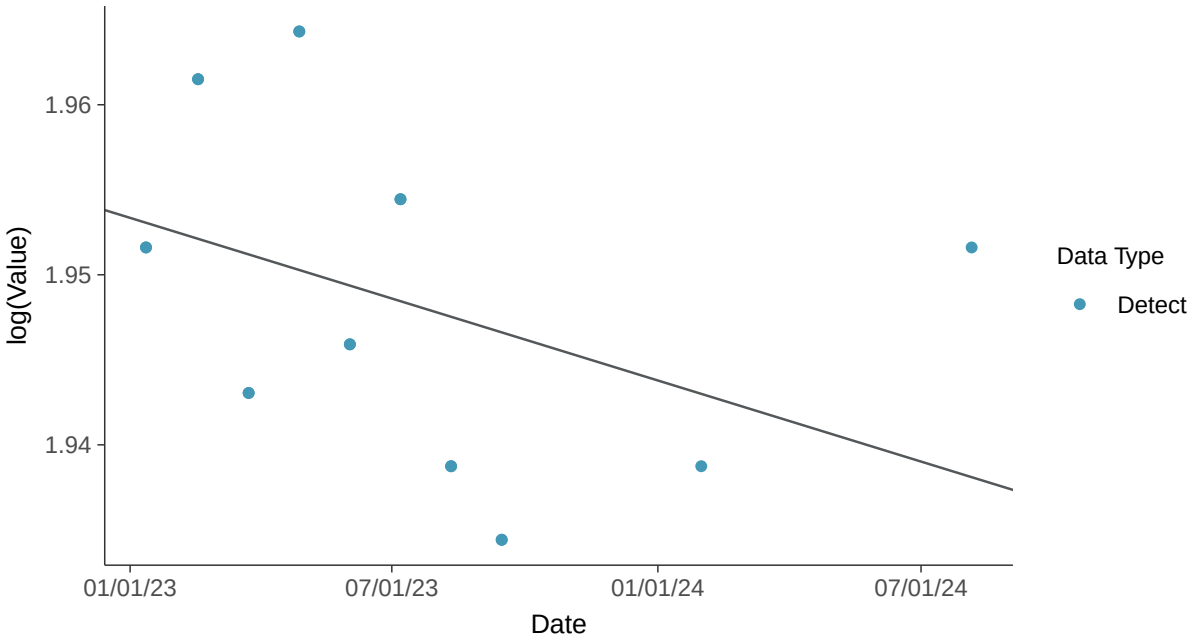
Gamma Q-Q plot

pH, MW-14 (su)



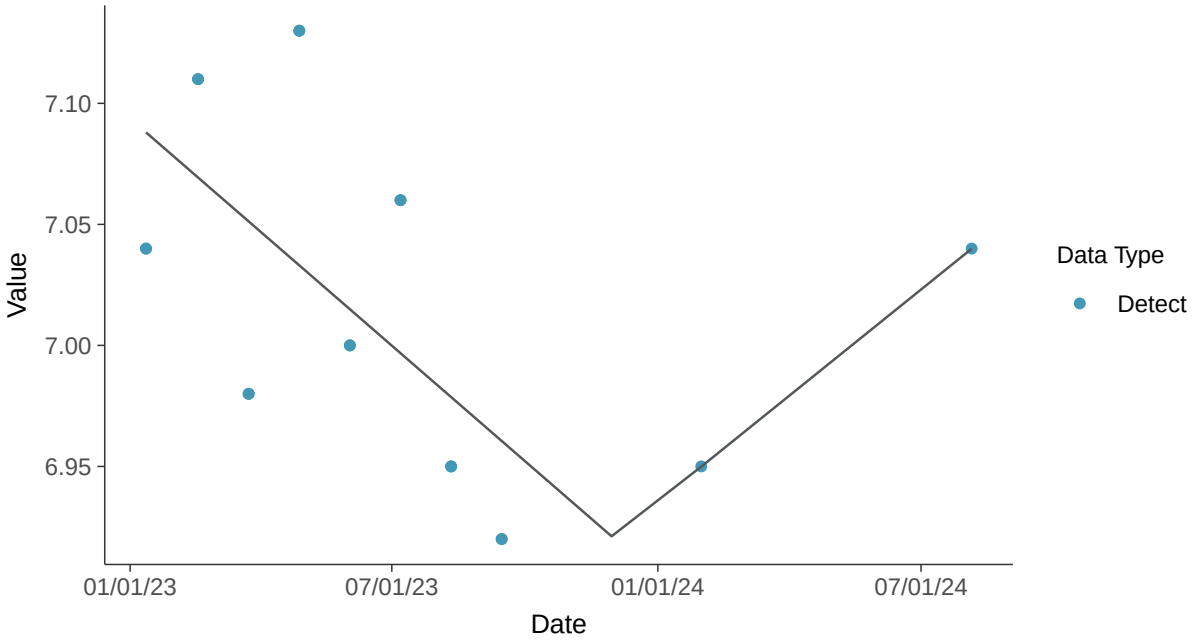
Trend Regression: Lognormal MLE

pH, MW-14 (su)



Trend Regression: Piecewise Linear-Linear

pH, MW-14 (su)

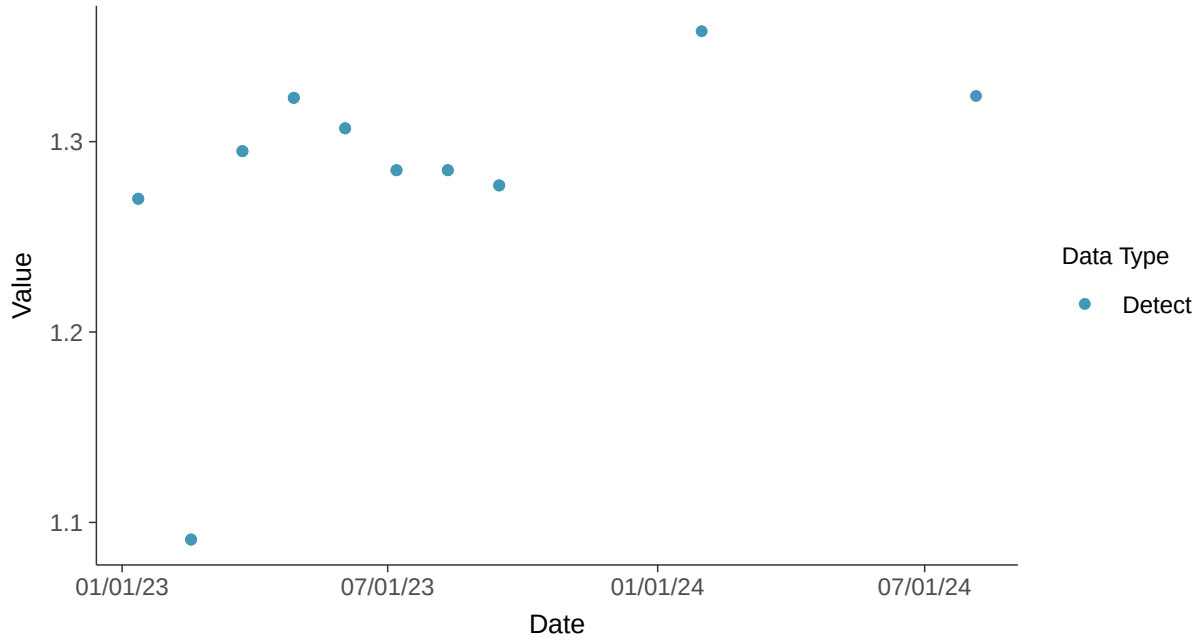


Field Parameters: Conductivity, MW-14

ID: 14_3_25

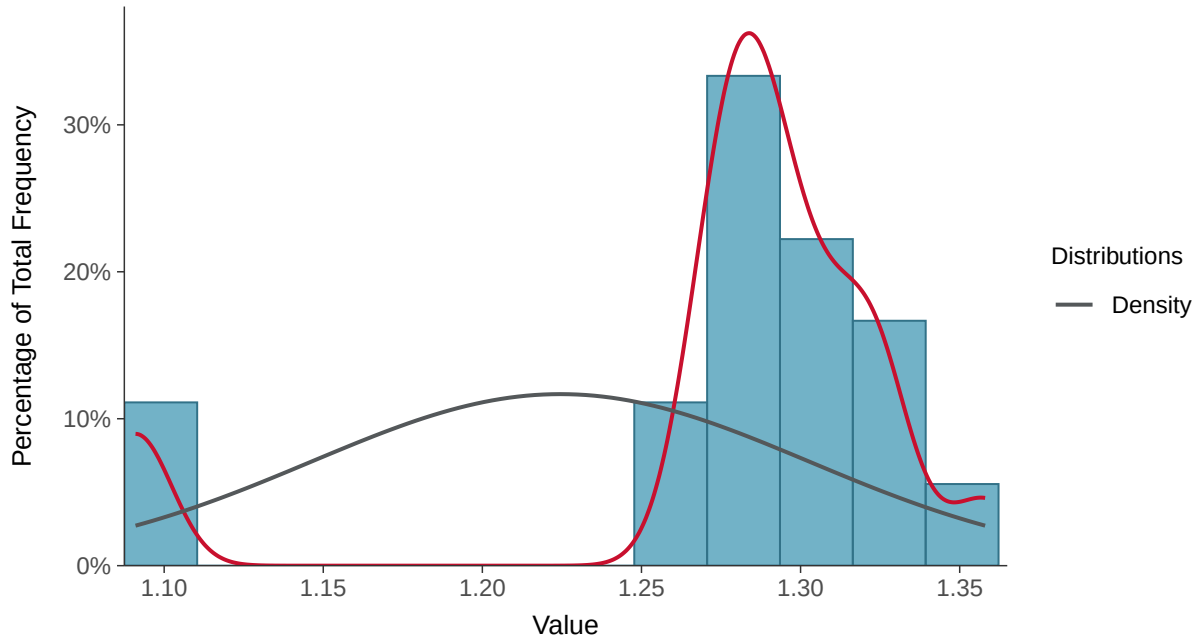
Scatter Plot

Conductivity, MW-14 (mS/cm)



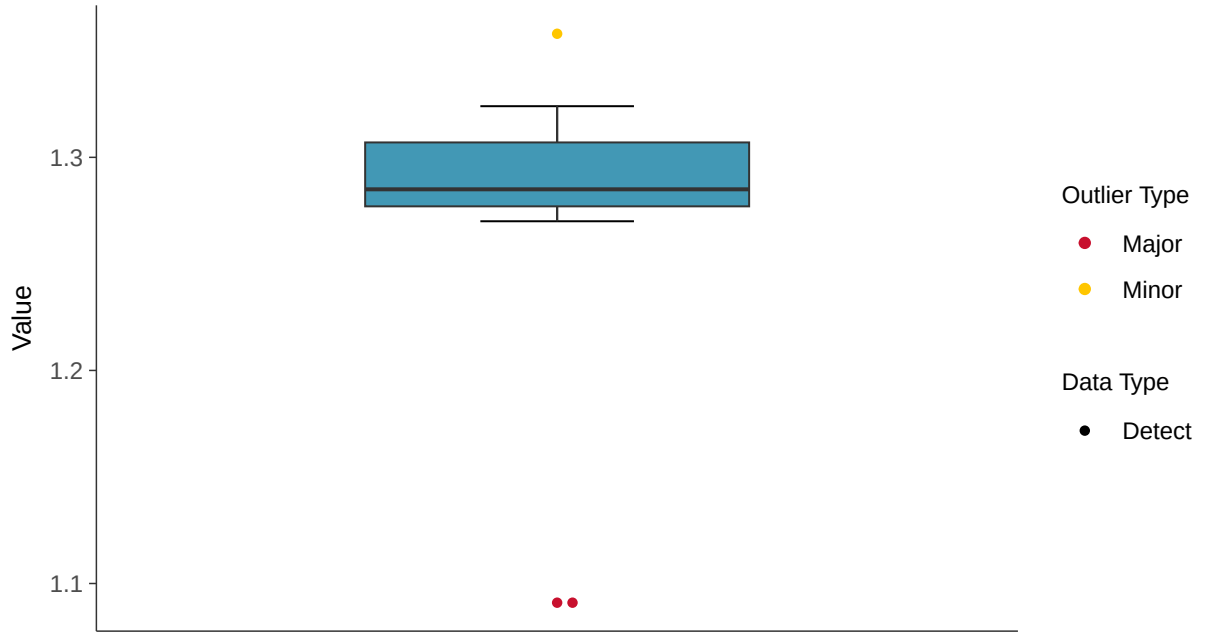
Histogram

Conductivity, MW-14 (mS/cm)



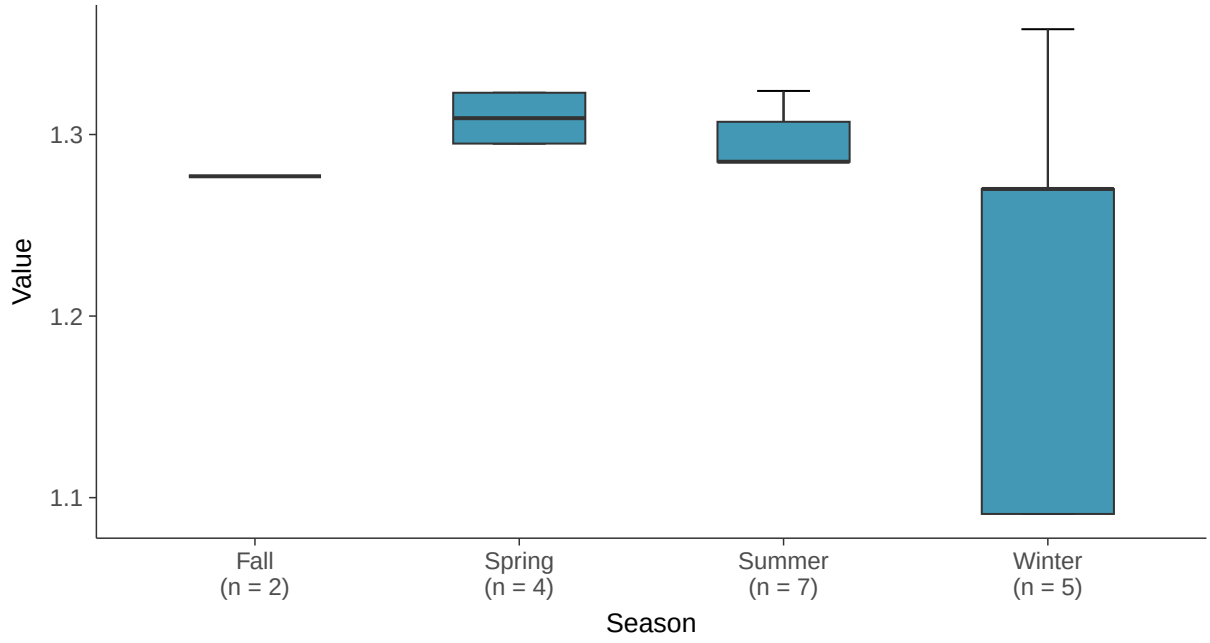
Boxplot

Conductivity, MW-14 (mS/cm)



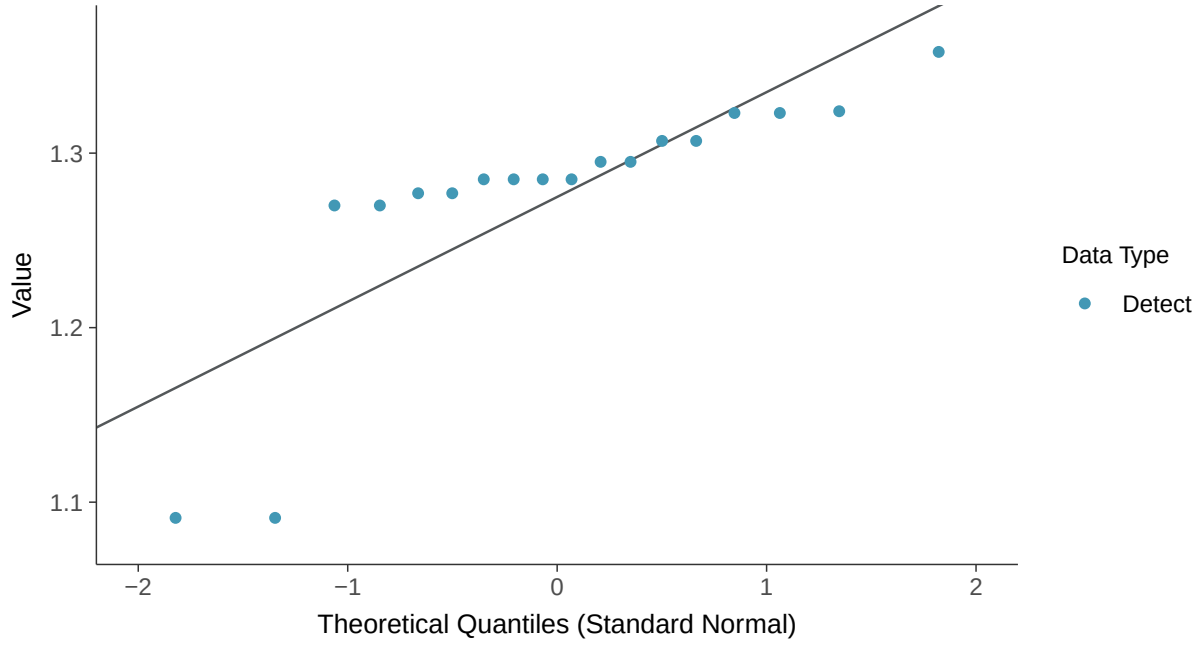
Boxplot by Season

Conductivity, MW-14 (mS/cm)



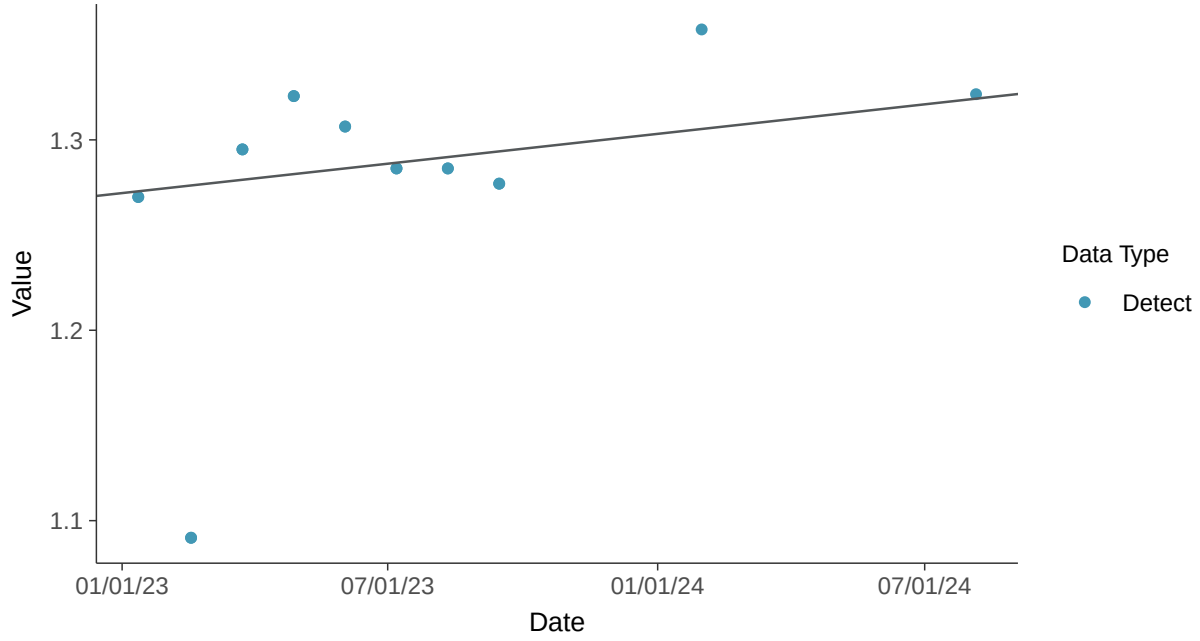
Normal Q-Q plot

Conductivity, MW-14 (mS/cm)



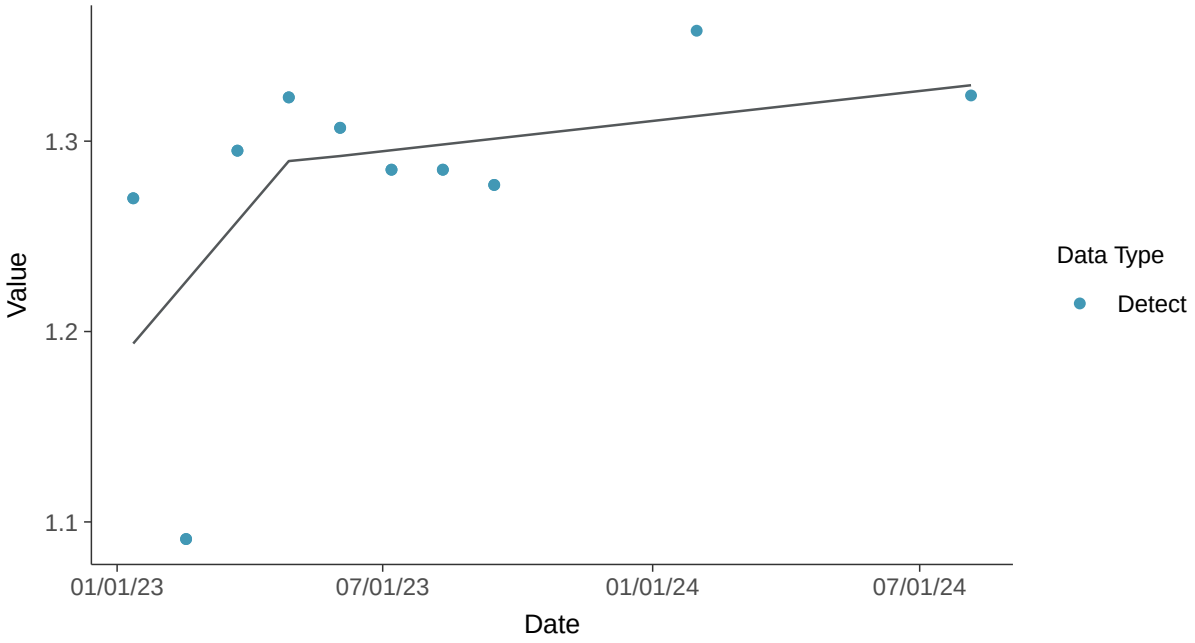
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Conductivity, MW-14 (mS/cm)



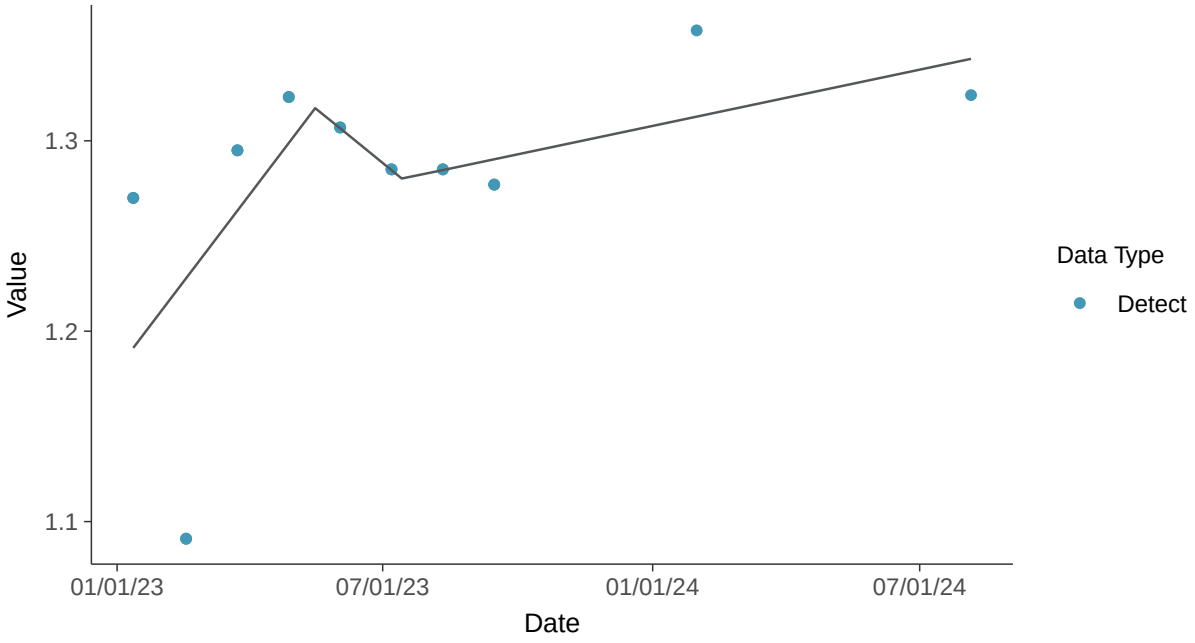
Trend Regression: Piecewise Linear-Linear

Conductivity, MW-14 (mS/cm)



Trend Regression: Piecewise Linear-Linear-Linear

Conductivity, MW-14 (mS/cm)

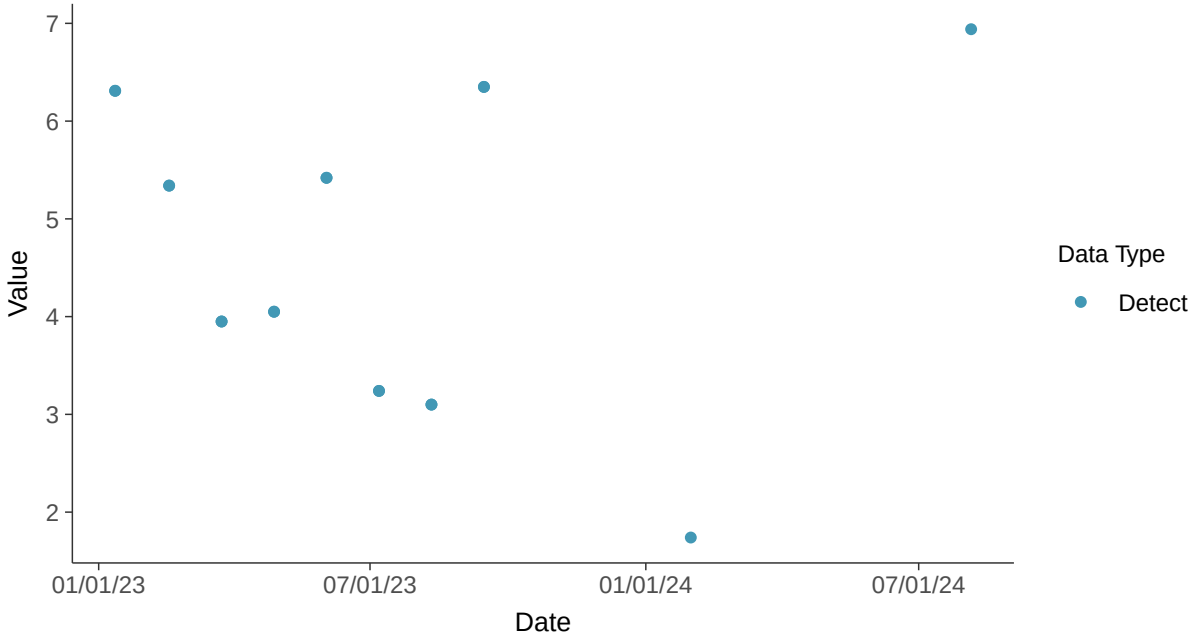


Field Parameters: Turbidity, MW-14

ID: 14_3_26

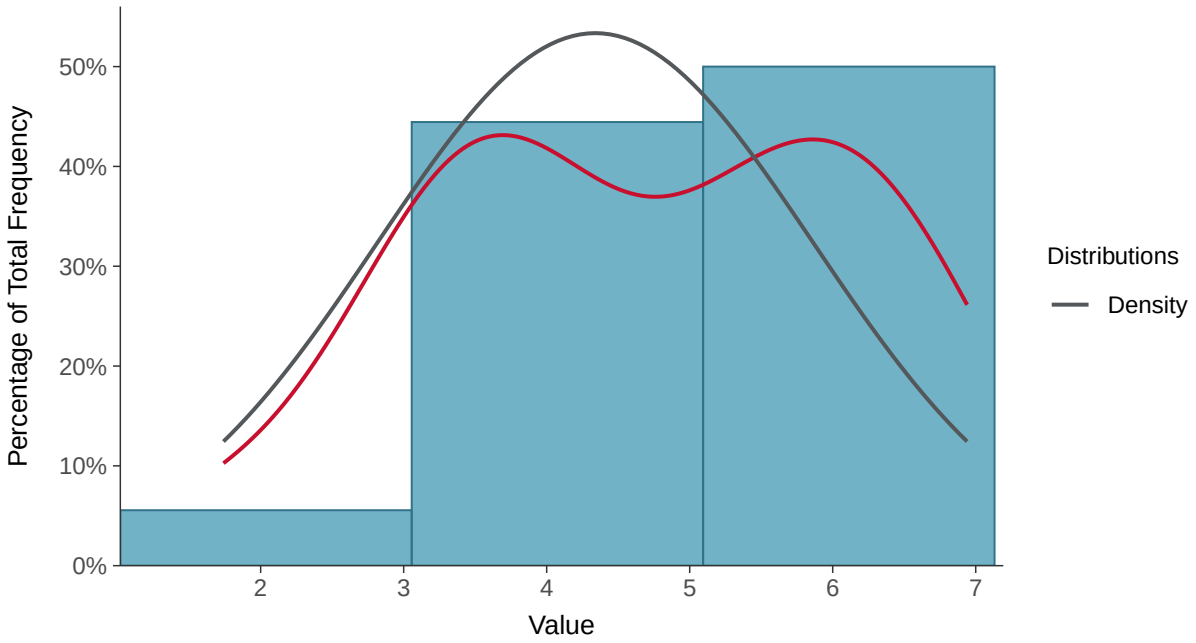
Scatter Plot

Turbidity, MW-14 (NTU)



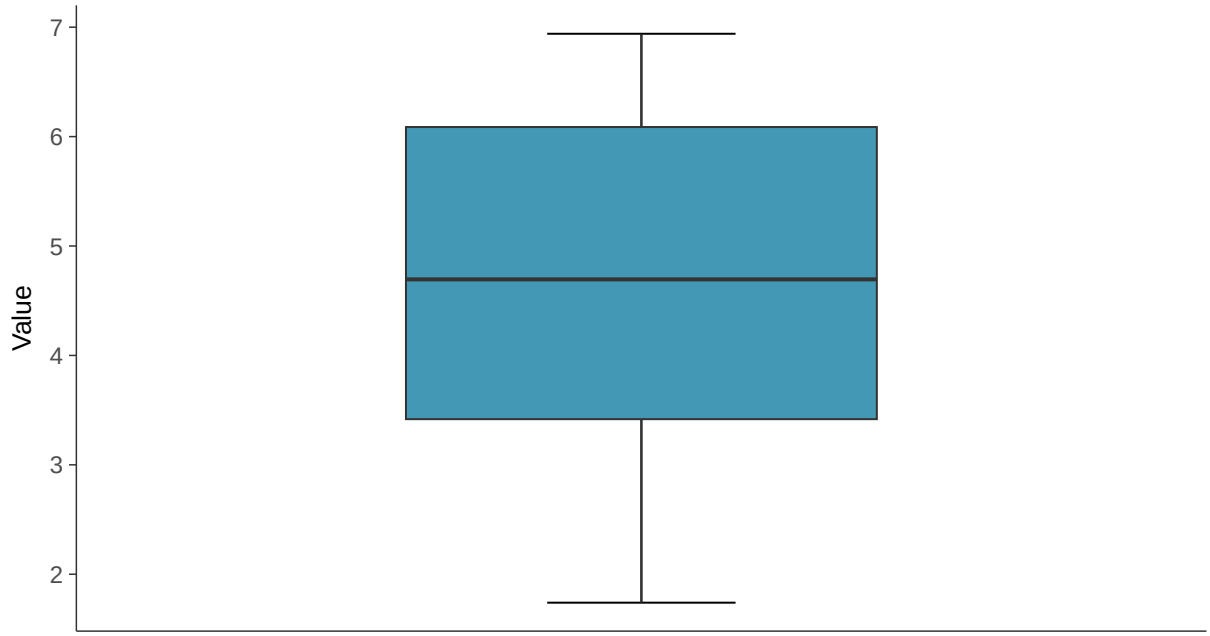
Histogram

Turbidity, MW-14 (NTU)



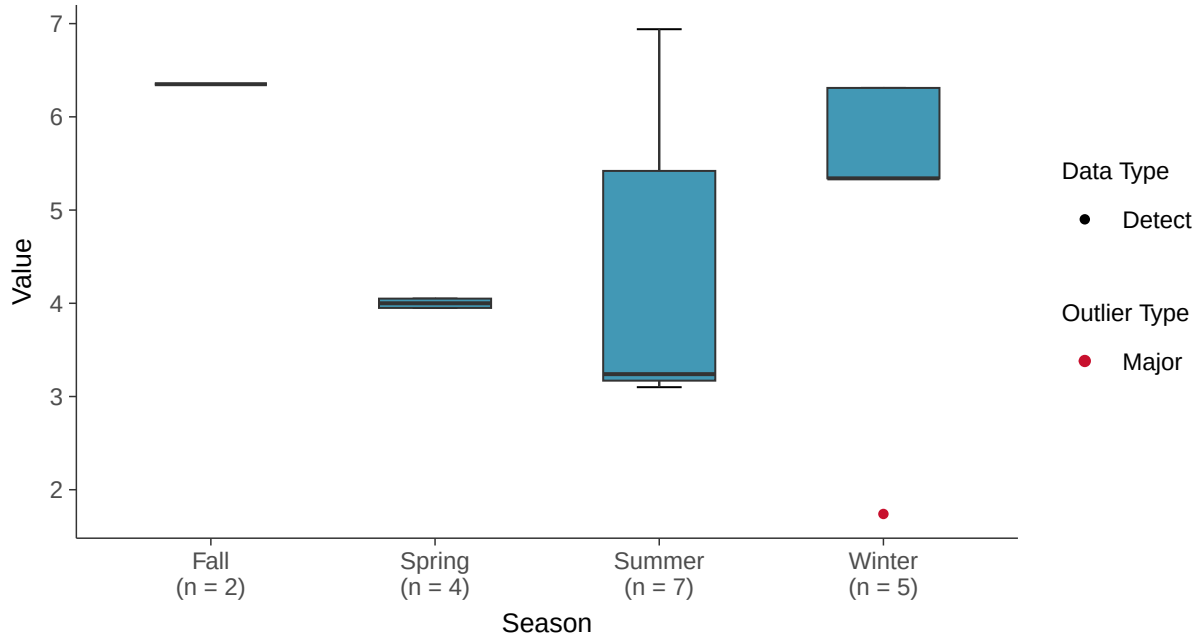
Boxplot

Turbidity, MW-14 (NTU)



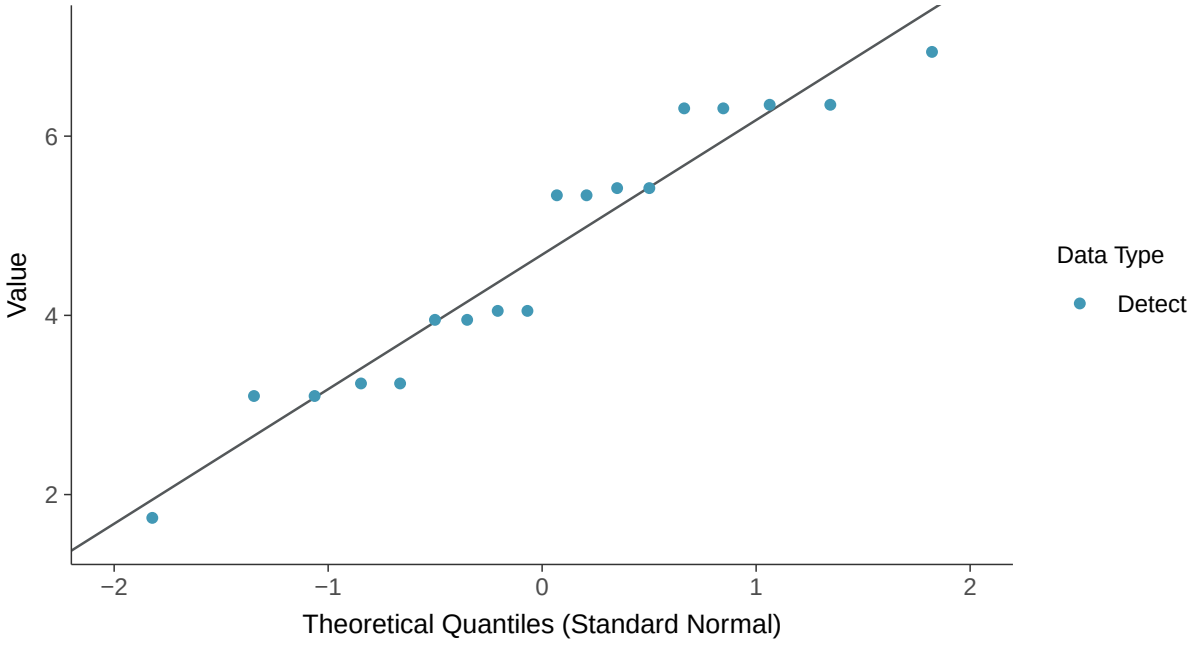
Boxplot by Season

Turbidity, MW-14 (NTU)



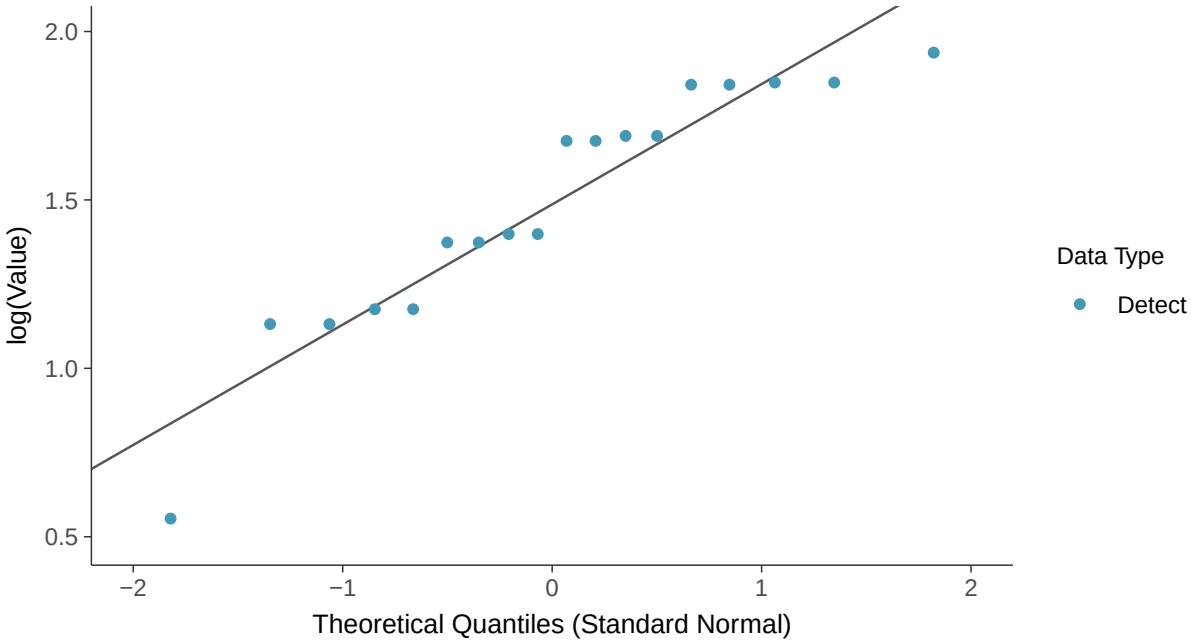
Normal Q-Q plot

Turbidity, MW-14 (NTU)



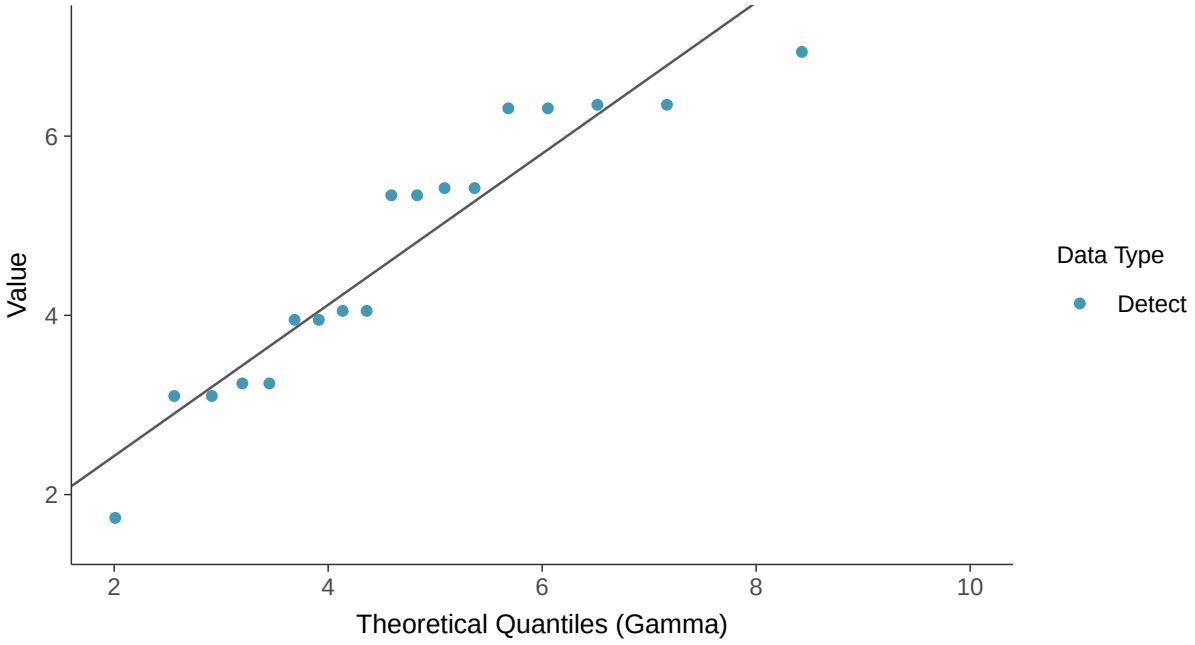
Lognormal Q-Q plot

Turbidity, MW-14 (NTU)



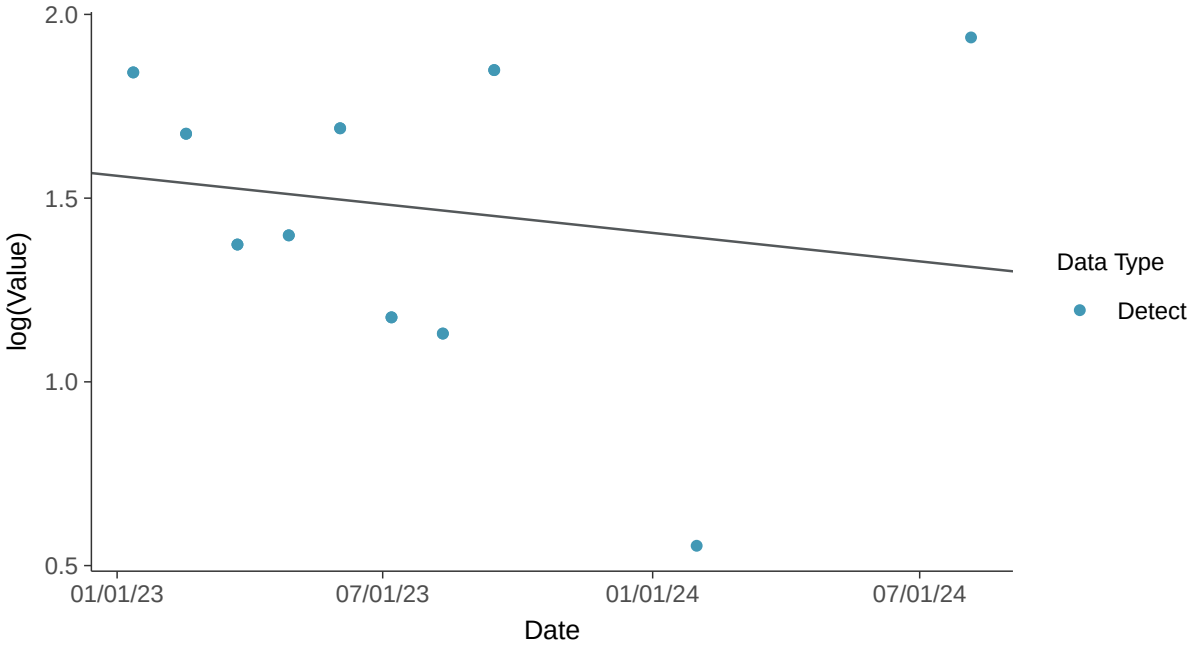
Gamma Q-Q plot

Turbidity, MW-14 (NTU)



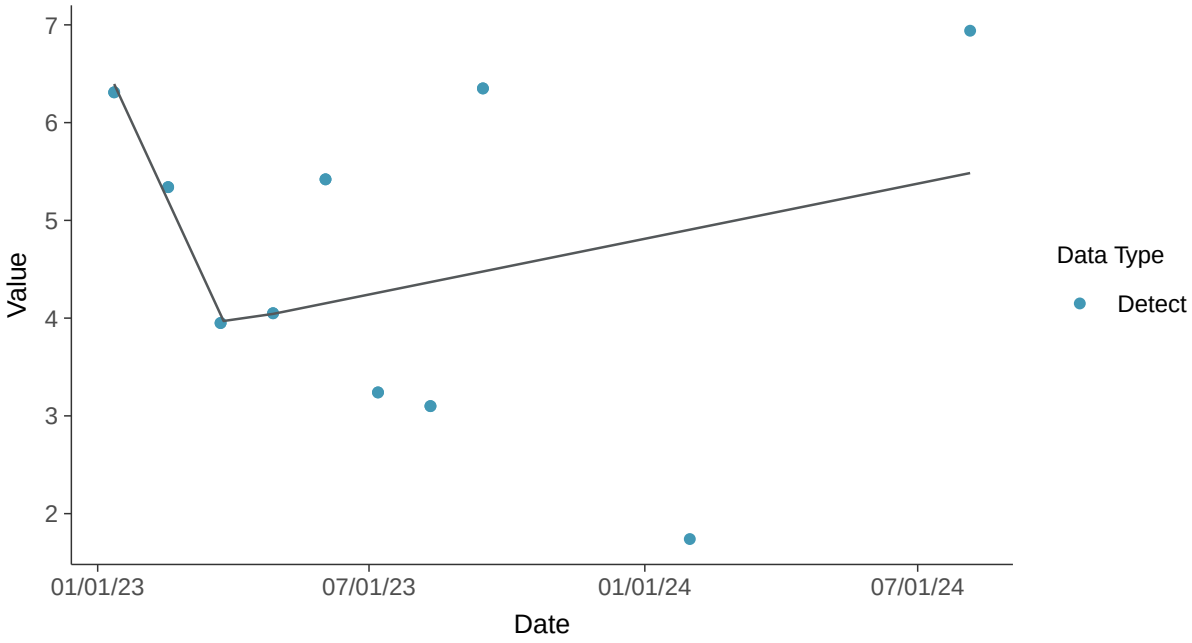
Trend Regression: Lognormal MLE

Turbidity, MW-14 (NTU)



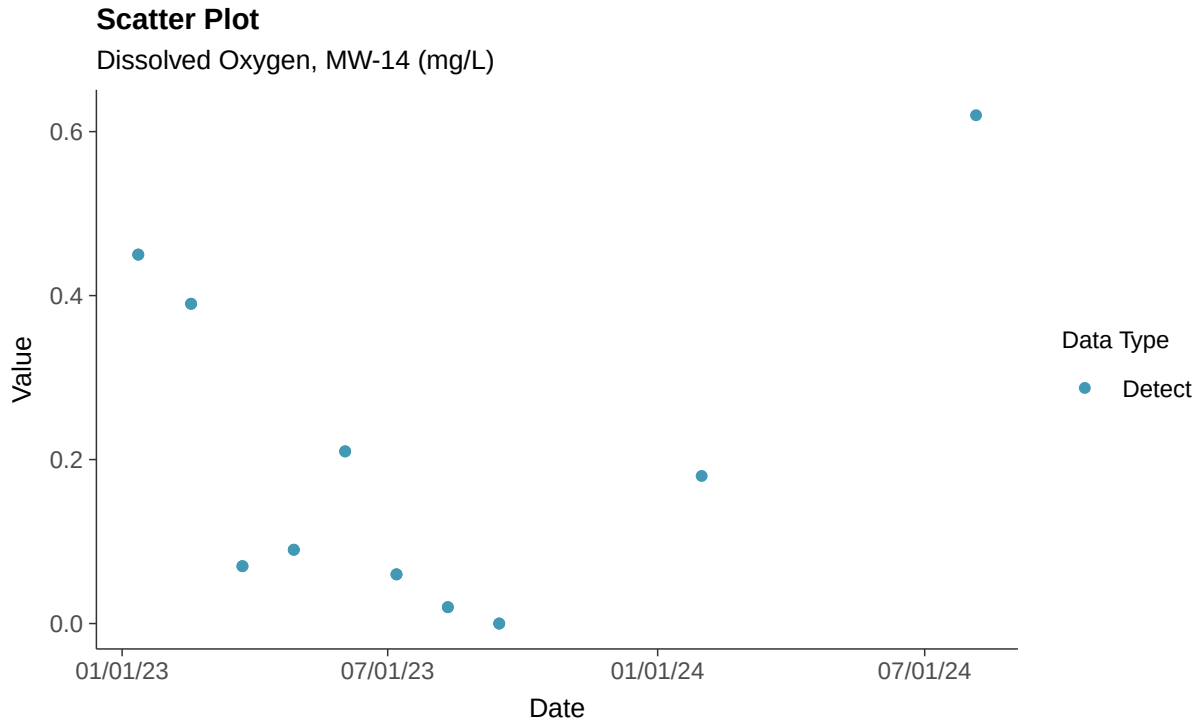
Trend Regression: Piecewise Linear-Linear

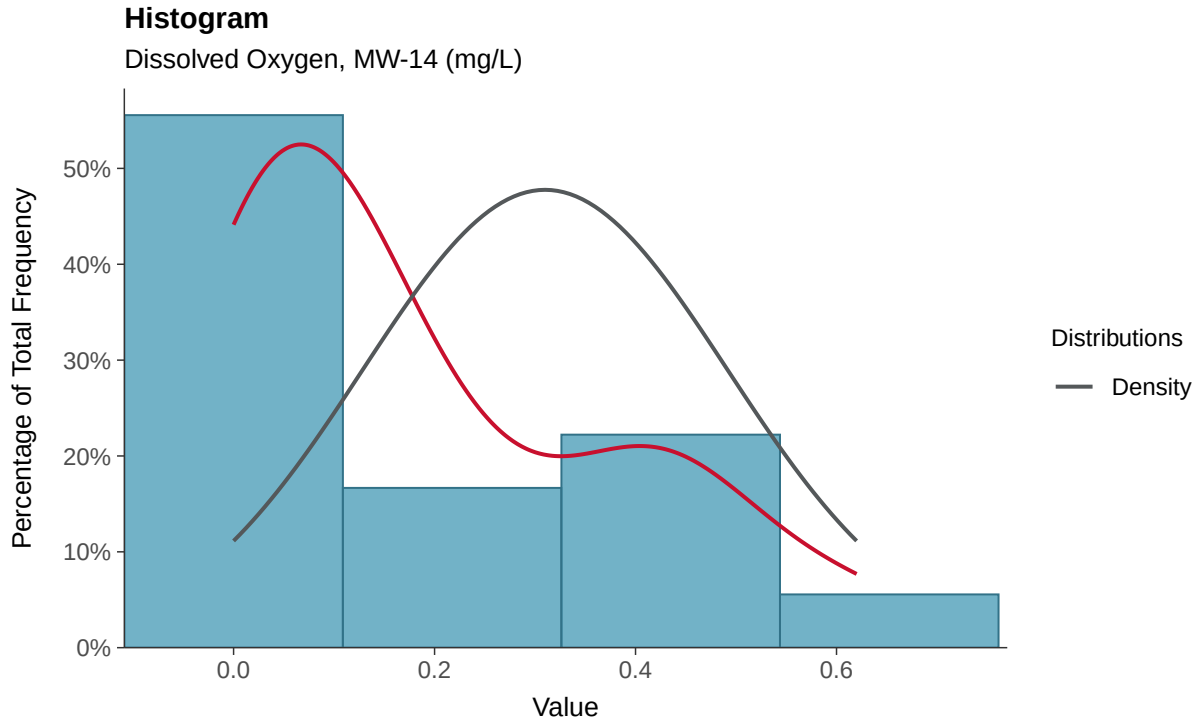
Turbidity, MW-14 (NTU)



Field Parameters: Dissolved Oxygen, MW-14

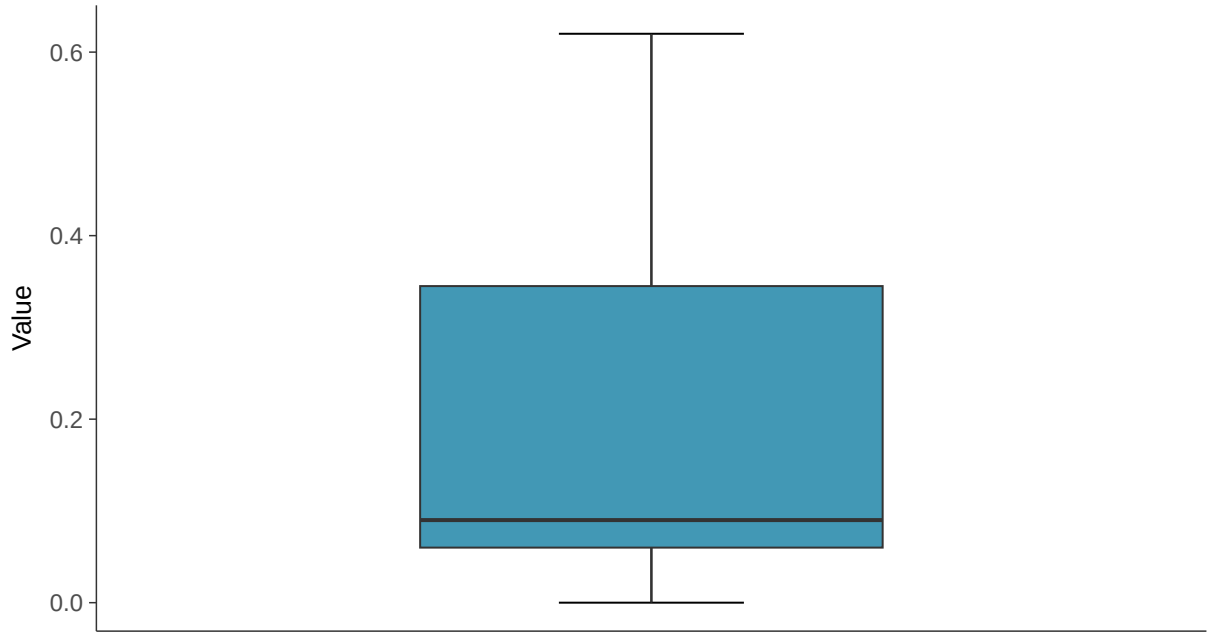
ID: 14_3_27





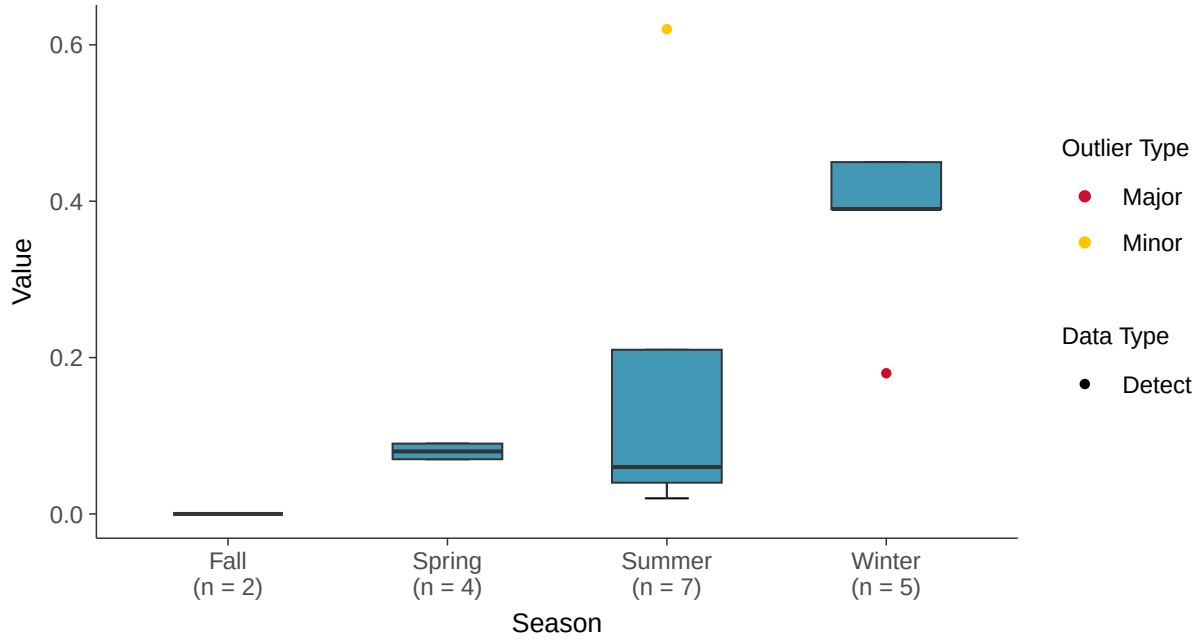
Boxplot

Dissolved Oxygen, MW-14 (mg/L)



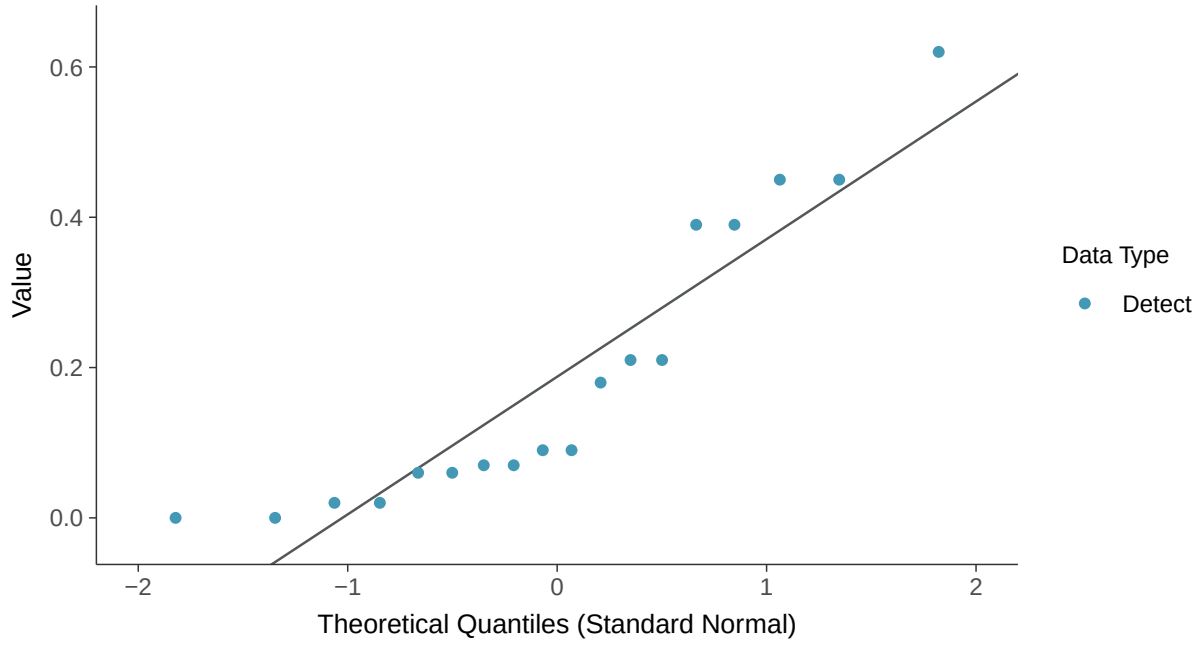
Boxplot by Season

Dissolved Oxygen, MW-14 (mg/L)



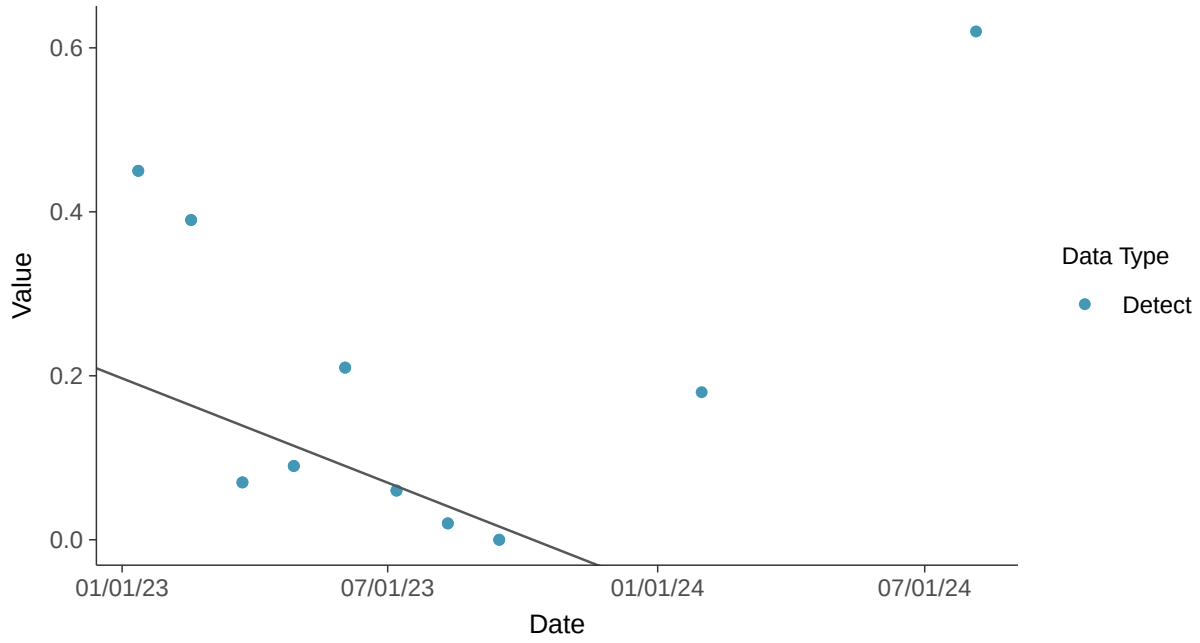
Normal Q-Q plot

Dissolved Oxygen, MW-14 (mg/L)



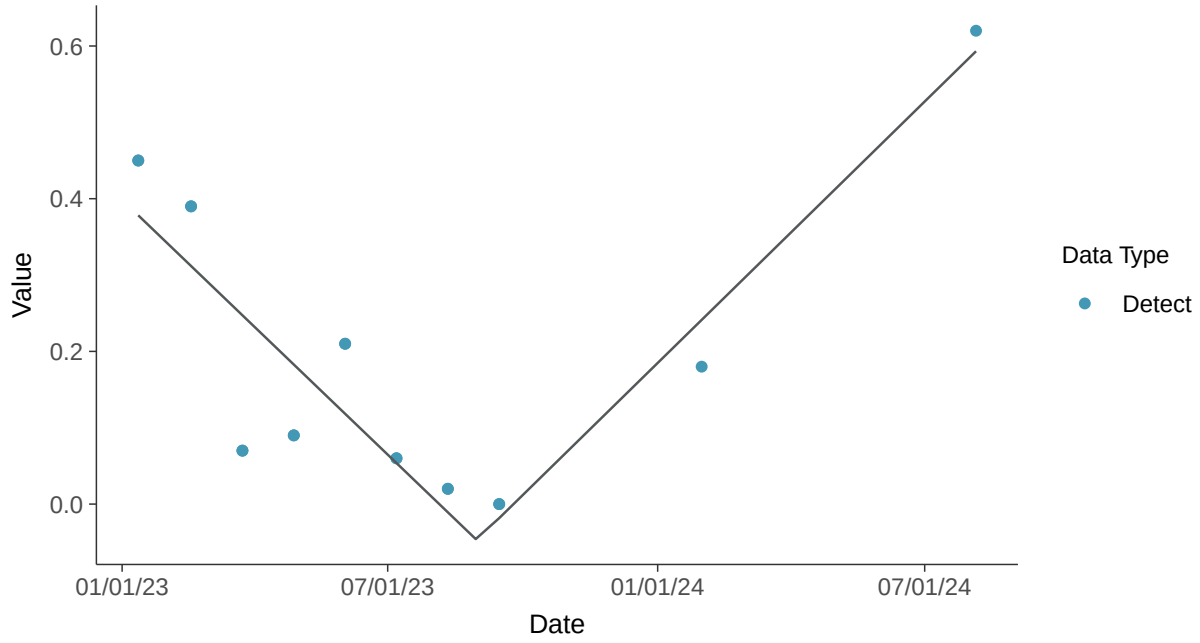
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Dissolved Oxygen, MW-14 (mg/L)



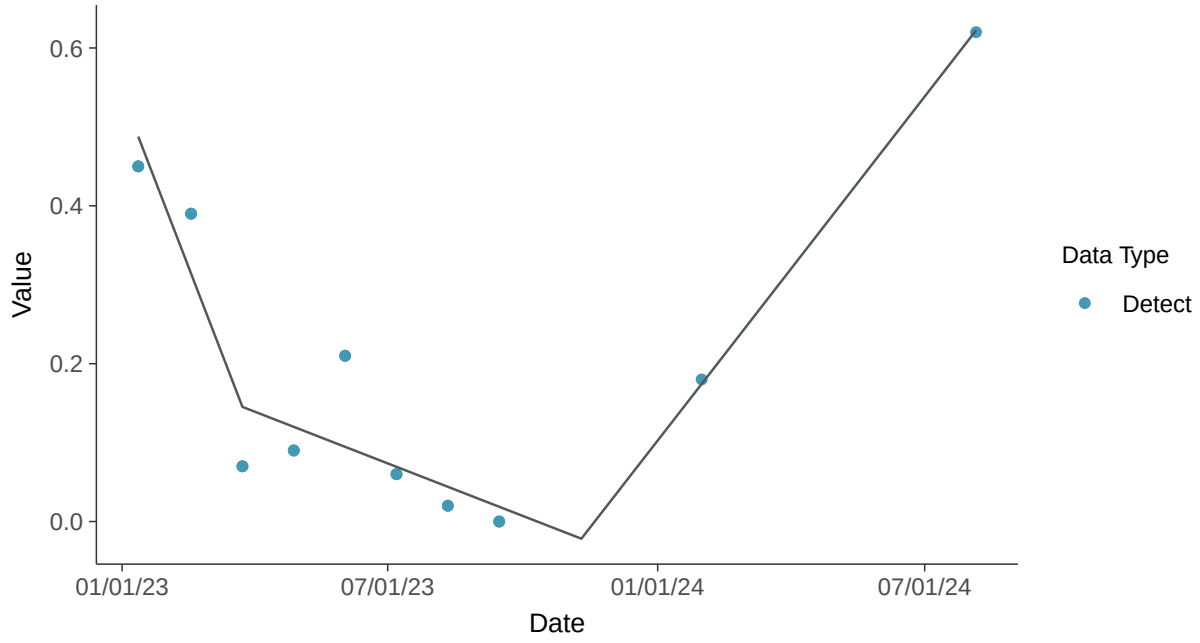
Trend Regression: Piecewise Linear-Linear

Dissolved Oxygen, MW-14 (mg/L)



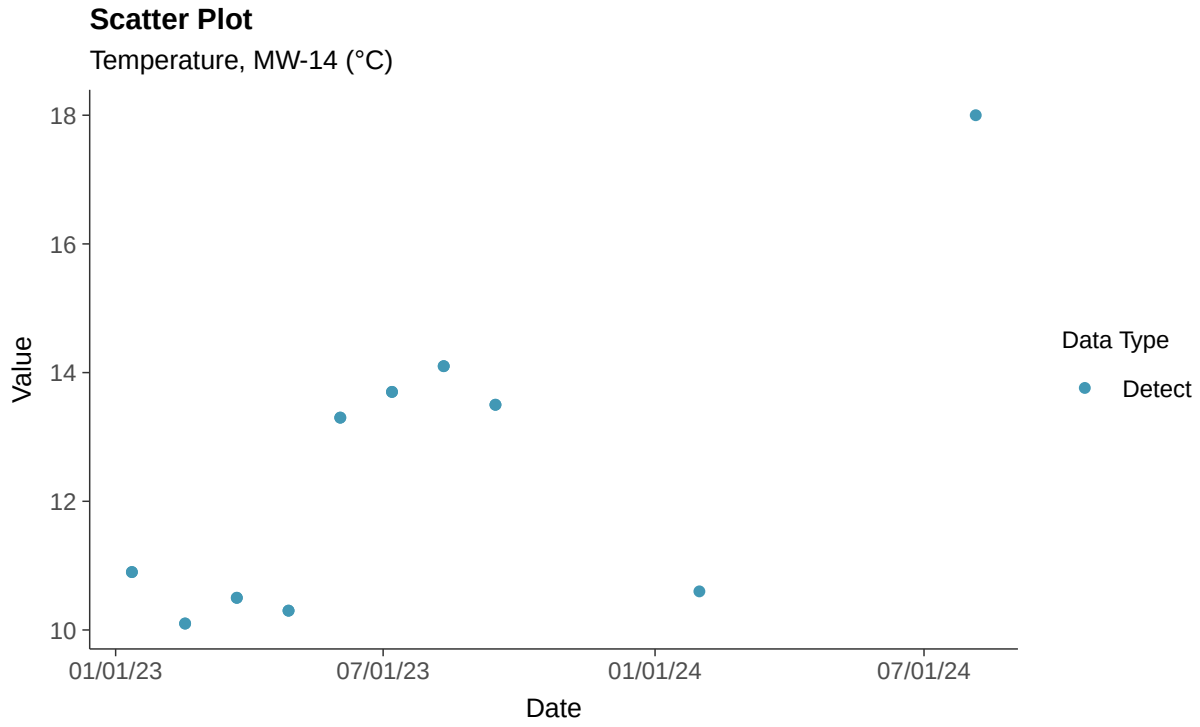
Trend Regression: Piecewise Linear-Linear-Linear

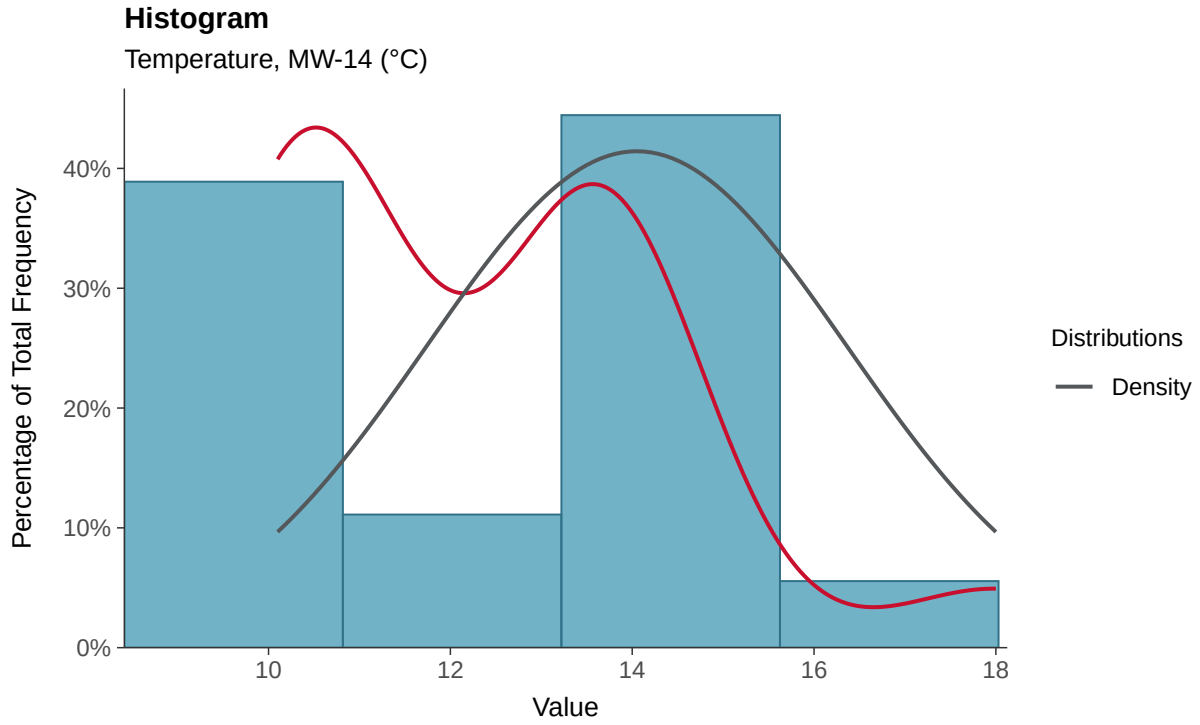
Dissolved Oxygen, MW-14 (mg/L)



Field Parameters: Temperature, MW-14

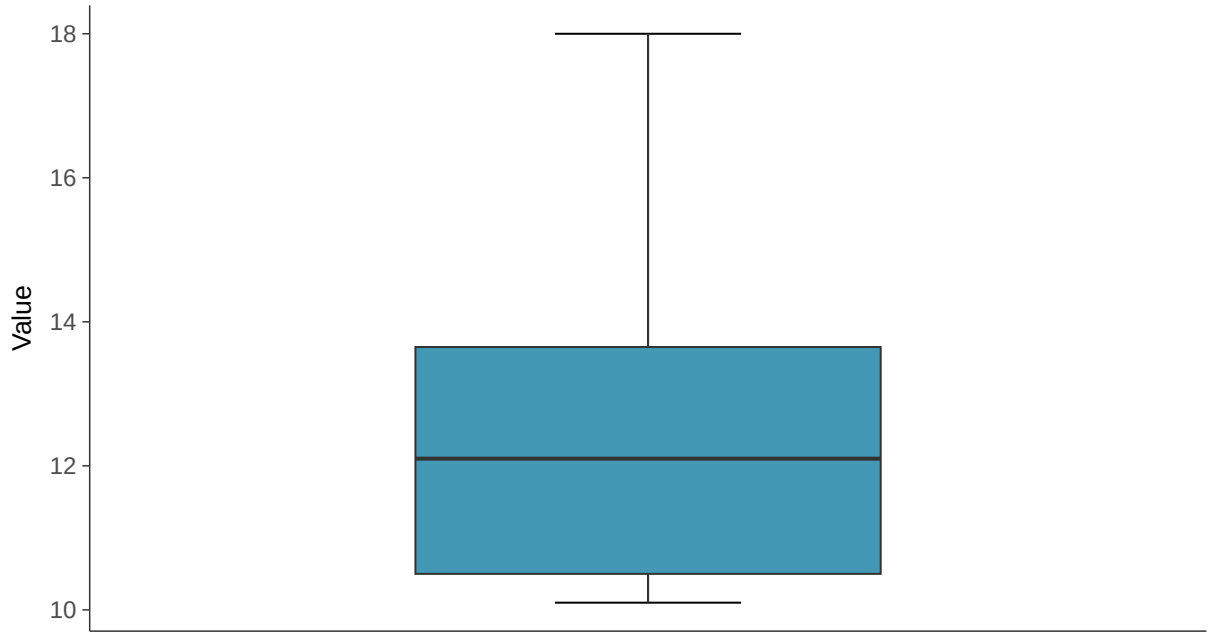
ID: 14_3_28





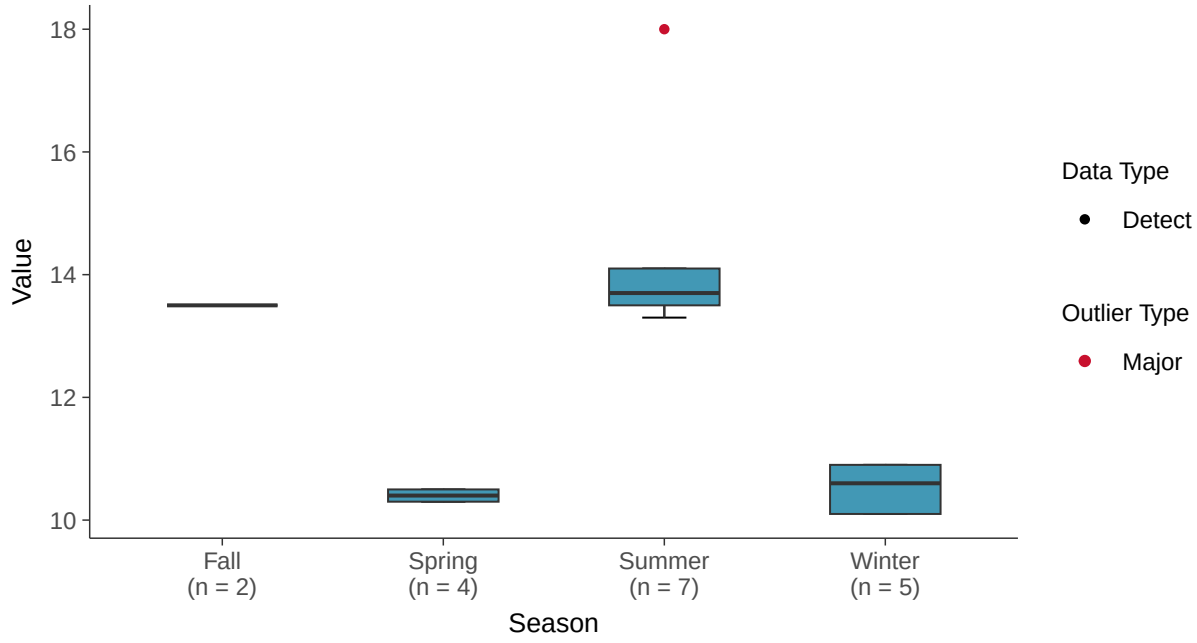
Boxplot

Temperature, MW-14 (°C)



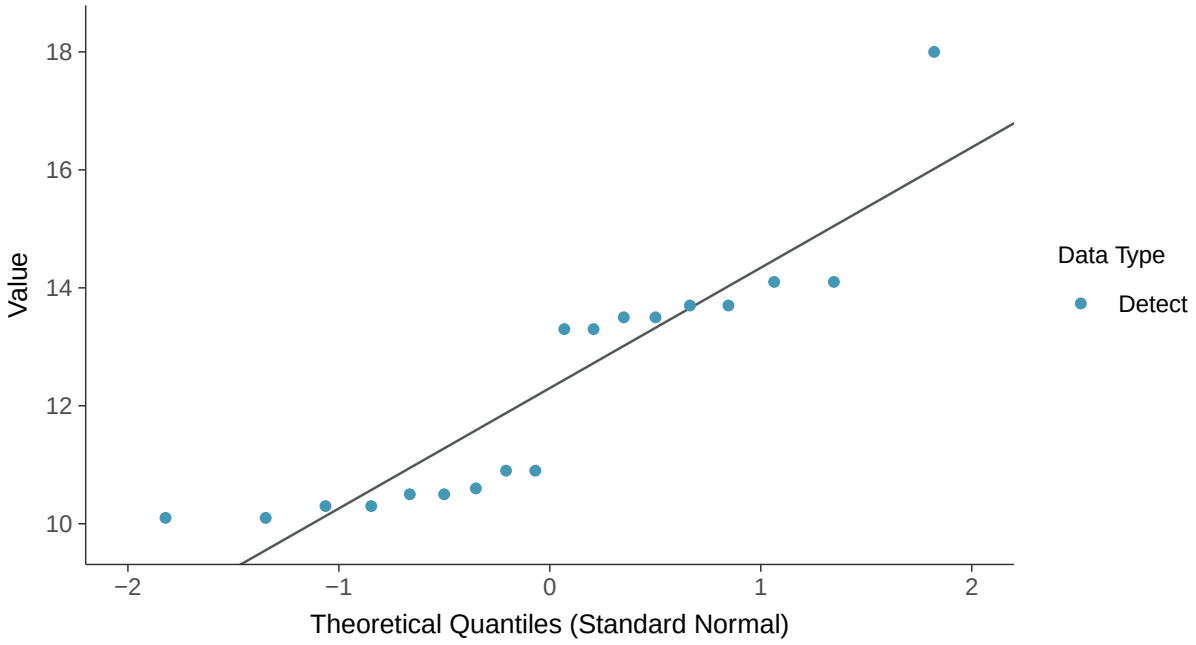
Boxplot by Season

Temperature, MW-14 (°C)



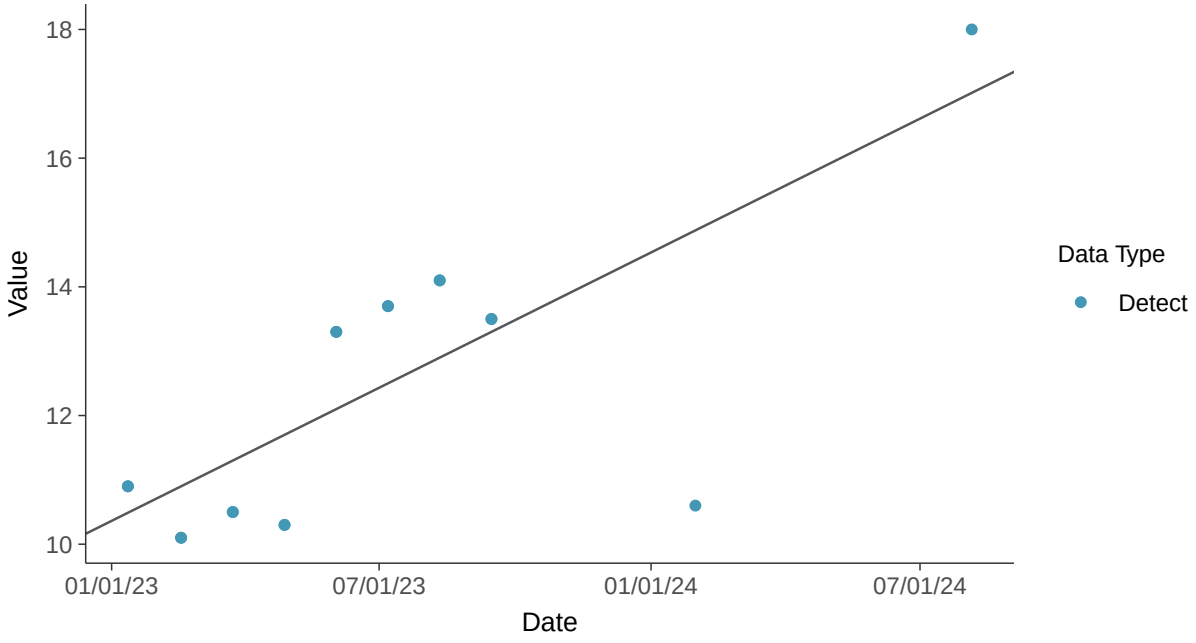
Normal Q-Q plot

Temperature, MW-14 (°C)



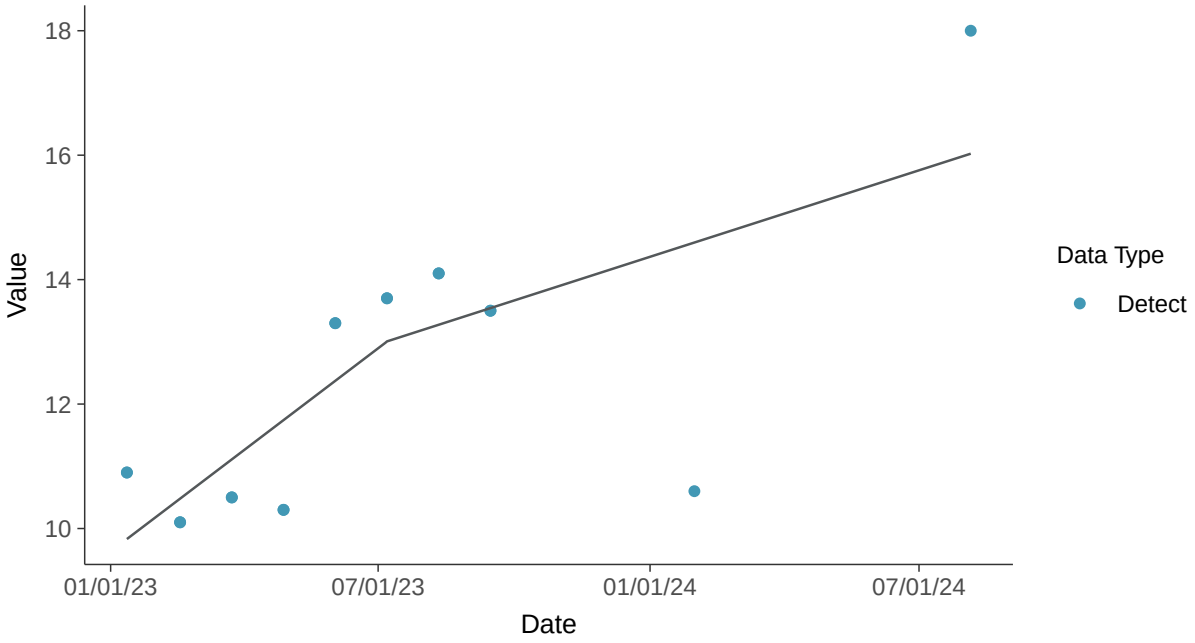
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Temperature, MW-14 (°C)



Trend Regression: Piecewise Linear-Linear

Temperature, MW-14 (°C)

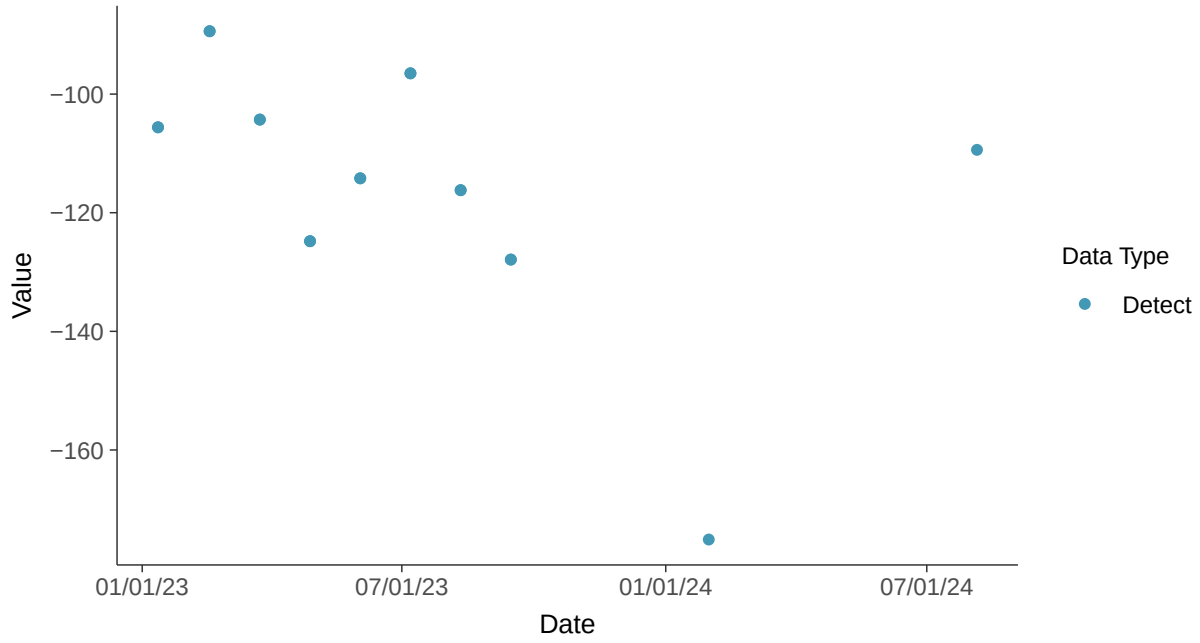


Field Parameters: Oxidation Reduction Potential, MW-14

ID: 14_3_29

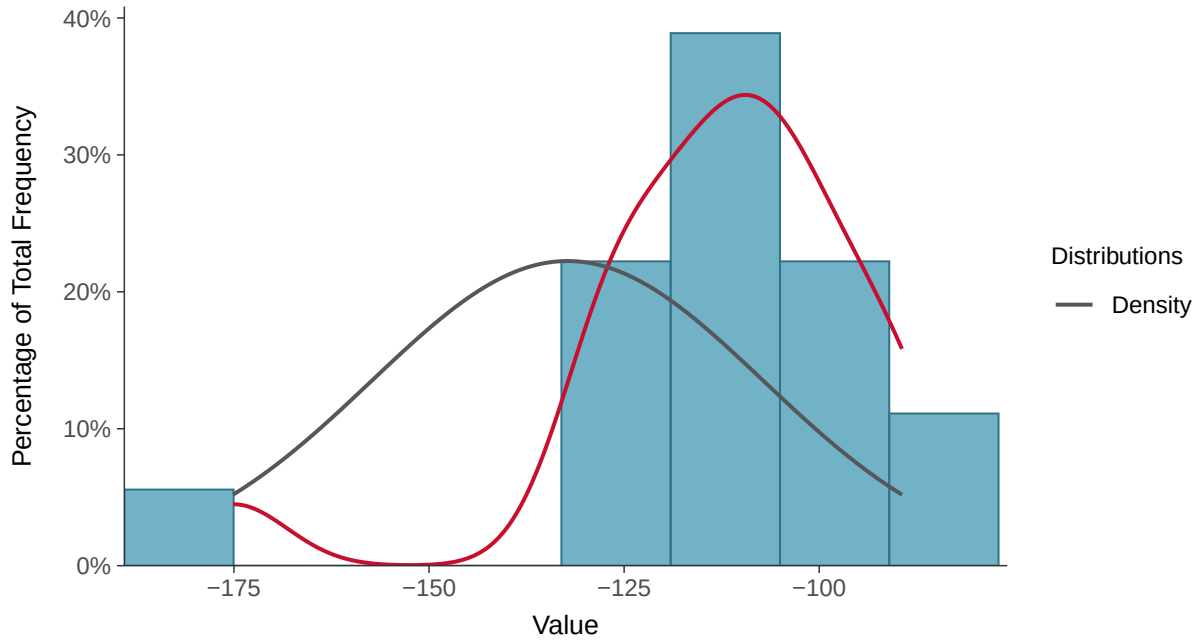
Scatter Plot

Oxidation Reduction Potential, MW-14 (mV)



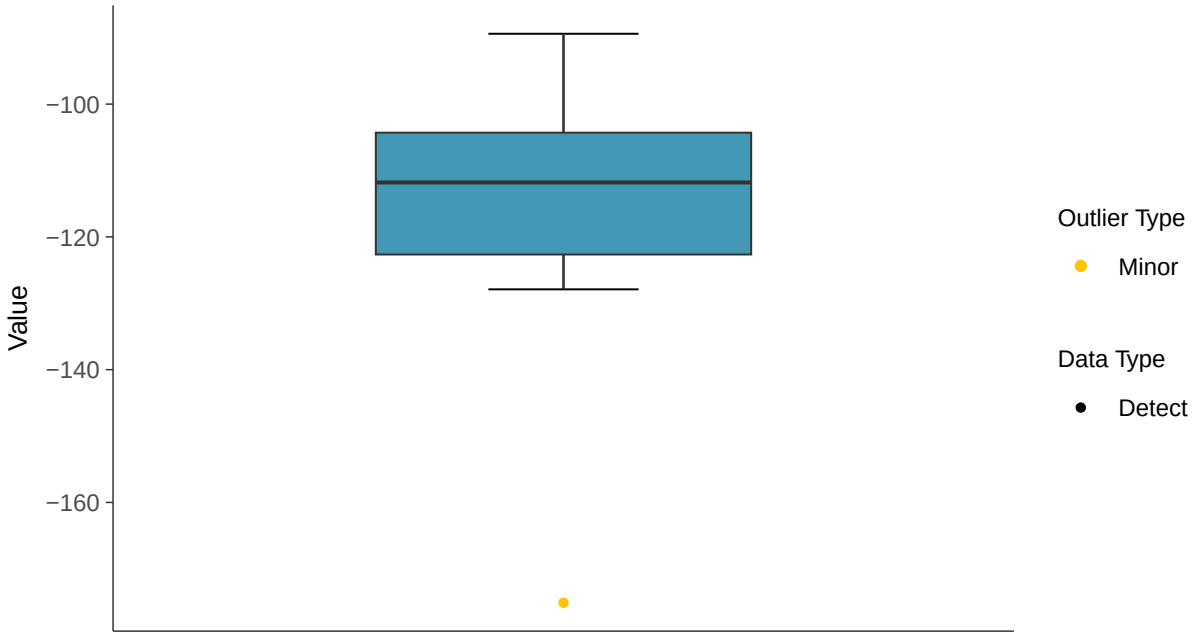
Histogram

Oxidation Reduction Potential, MW-14 (mV)



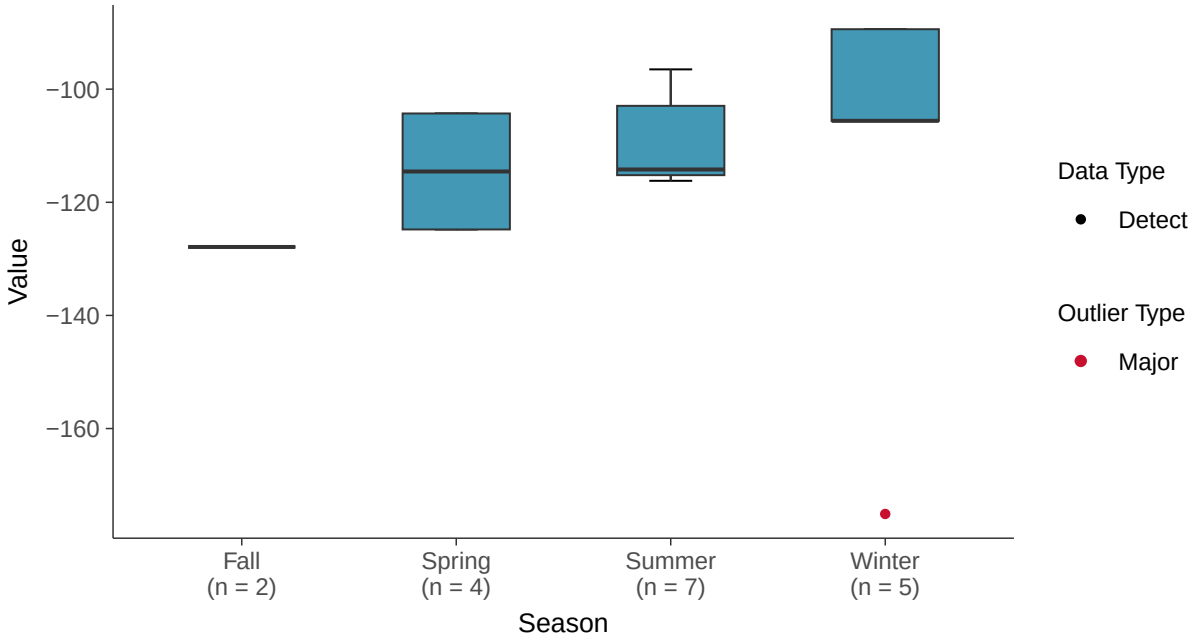
Boxplot

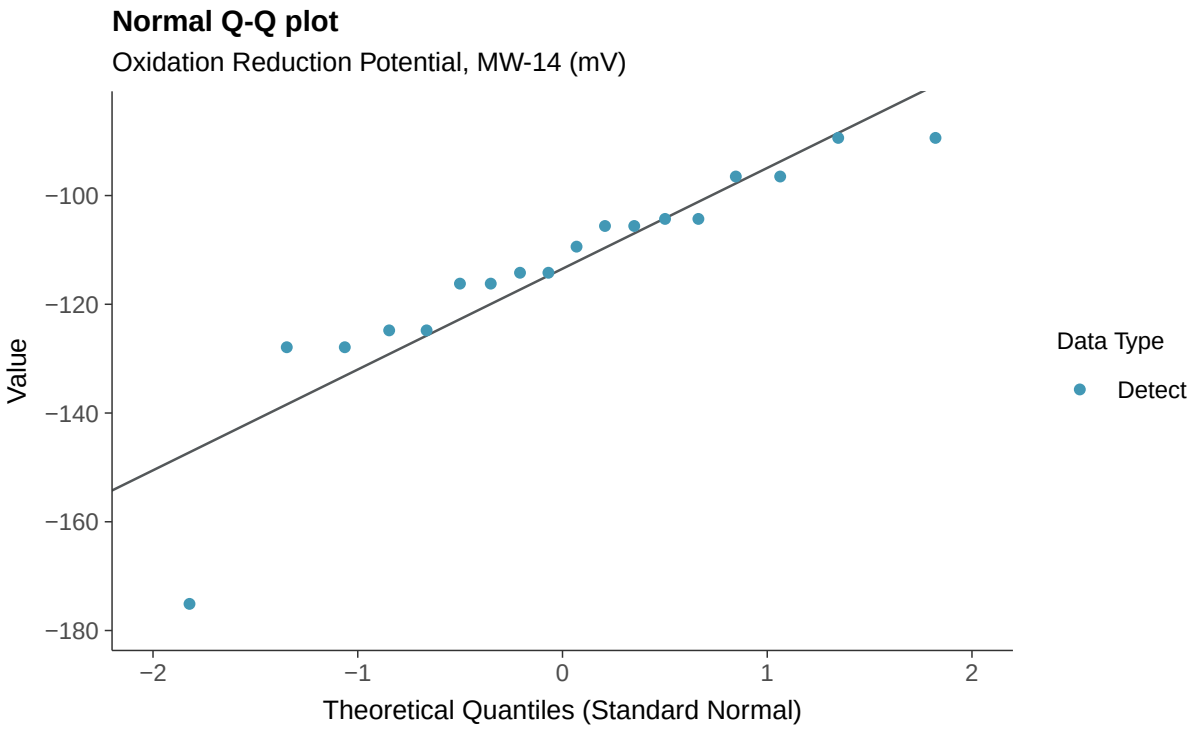
Oxidation Reduction Potential, MW-14 (mV)



Boxplot by Season

Oxidation Reduction Potential, MW-14 (mV)



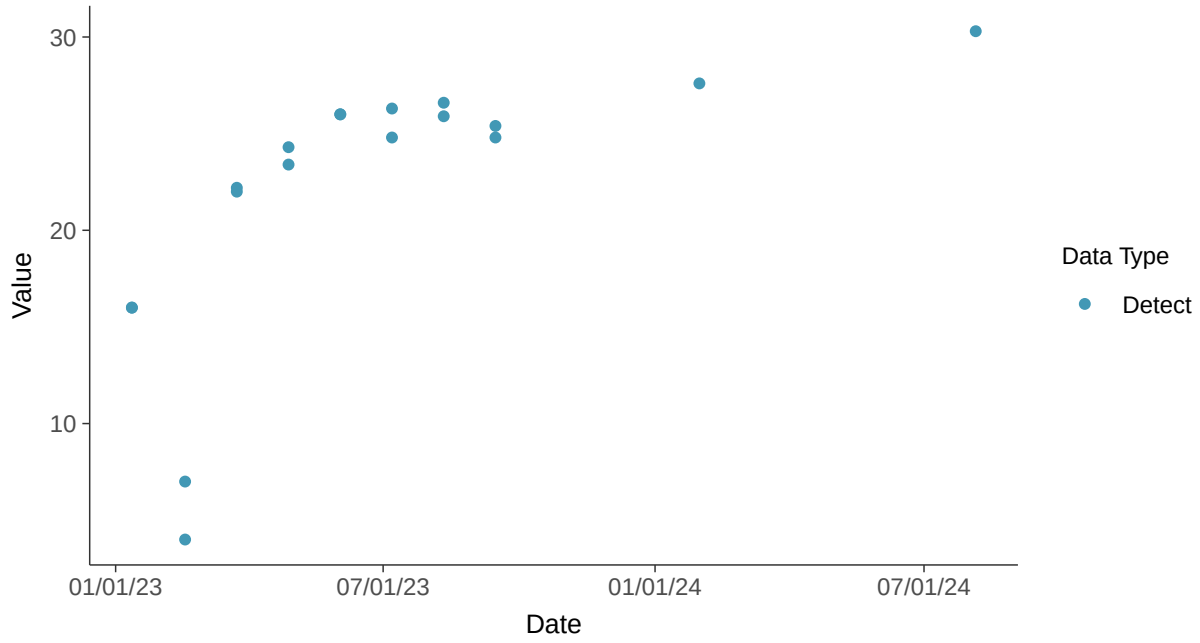

Normal Q-Q plot
Oxidation Reduction Potential, MW-14 (mV)
Value
−100
−120
−140
−160
−180
−2
−1
0
1
2
Theoretical Quantiles (Standard Normal)
Data Type
Detect

Other: Total Suspended Solids, MW-14

ID: 14_4_30

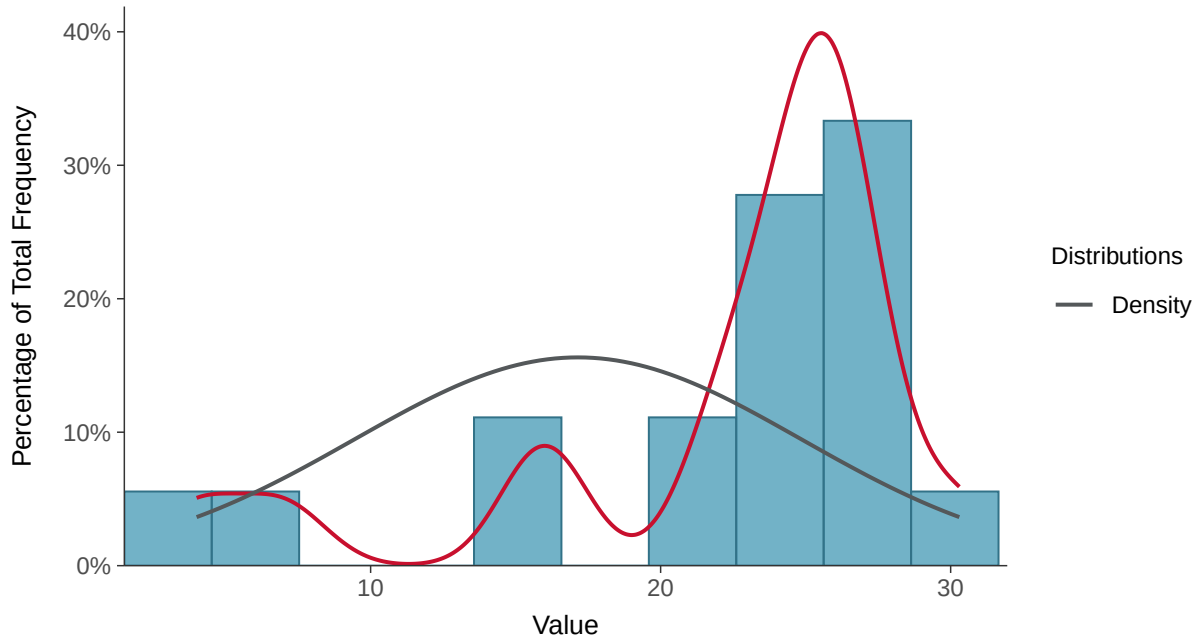
Scatter Plot

Total Suspended Solids, MW-14 (mg/L)



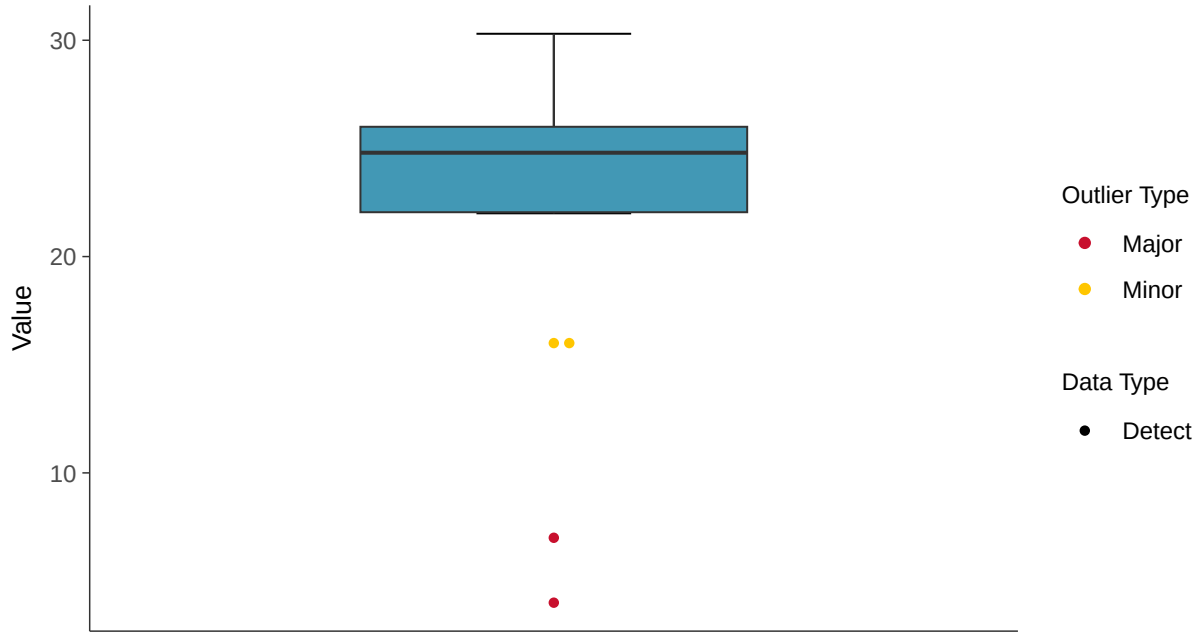
Histogram

Total Suspended Solids, MW-14 (mg/L)



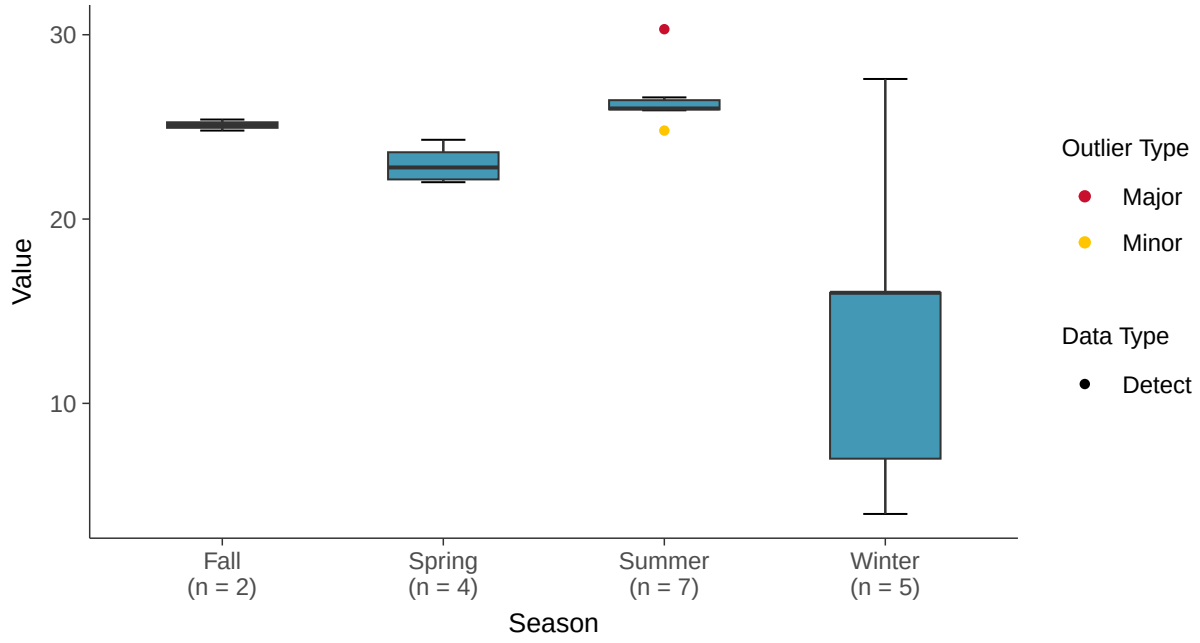
Boxplot

Total Suspended Solids, MW-14 (mg/L)



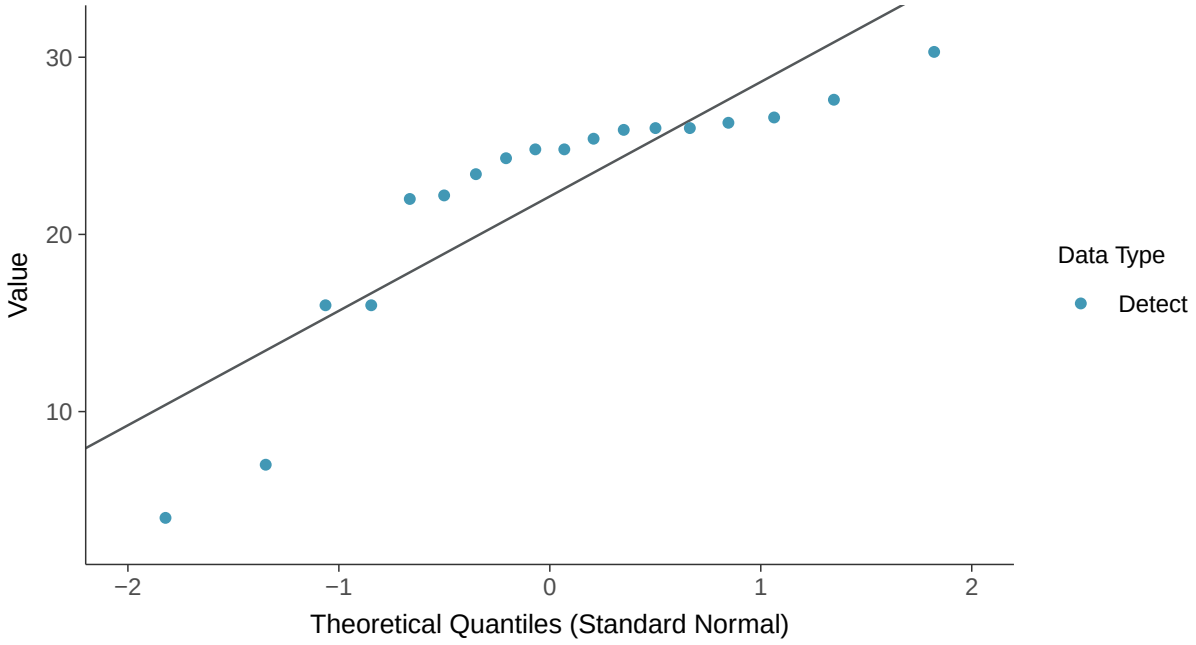
Boxplot by Season

Total Suspended Solids, MW-14 (mg/L)



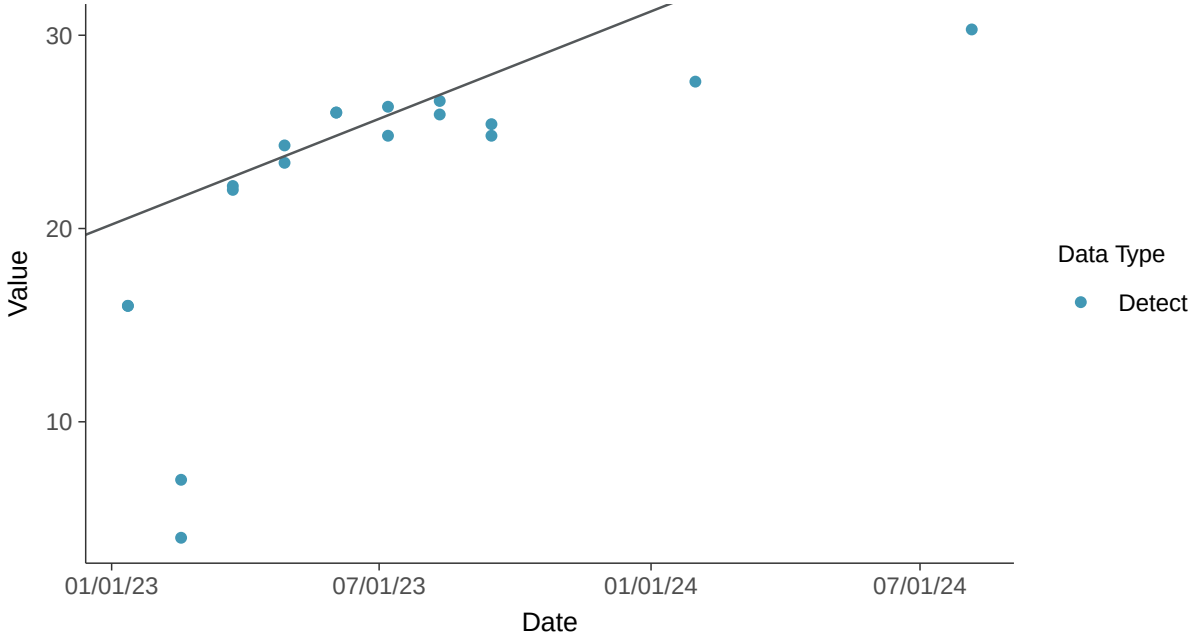
Normal Q-Q plot

Total Suspended Solids, MW-14 (mg/L)



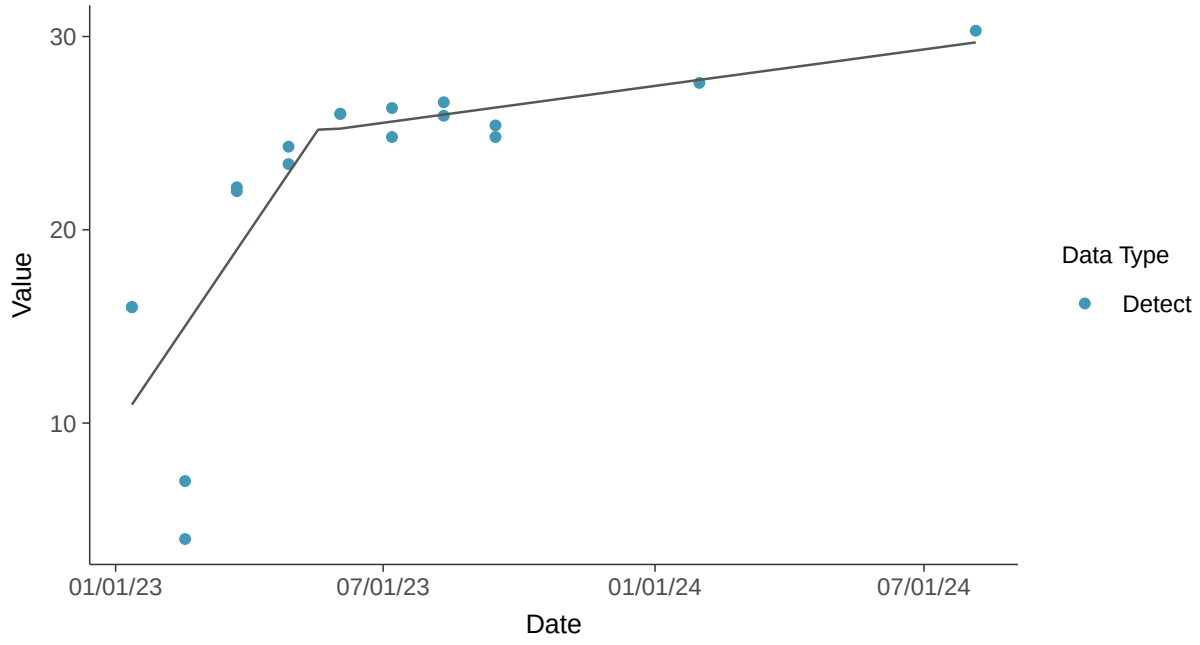
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Total Suspended Solids, MW-14 (mg/L)



Trend Regression: Piecewise Linear-Linear

Total Suspended Solids, MW-14 (mg/L)

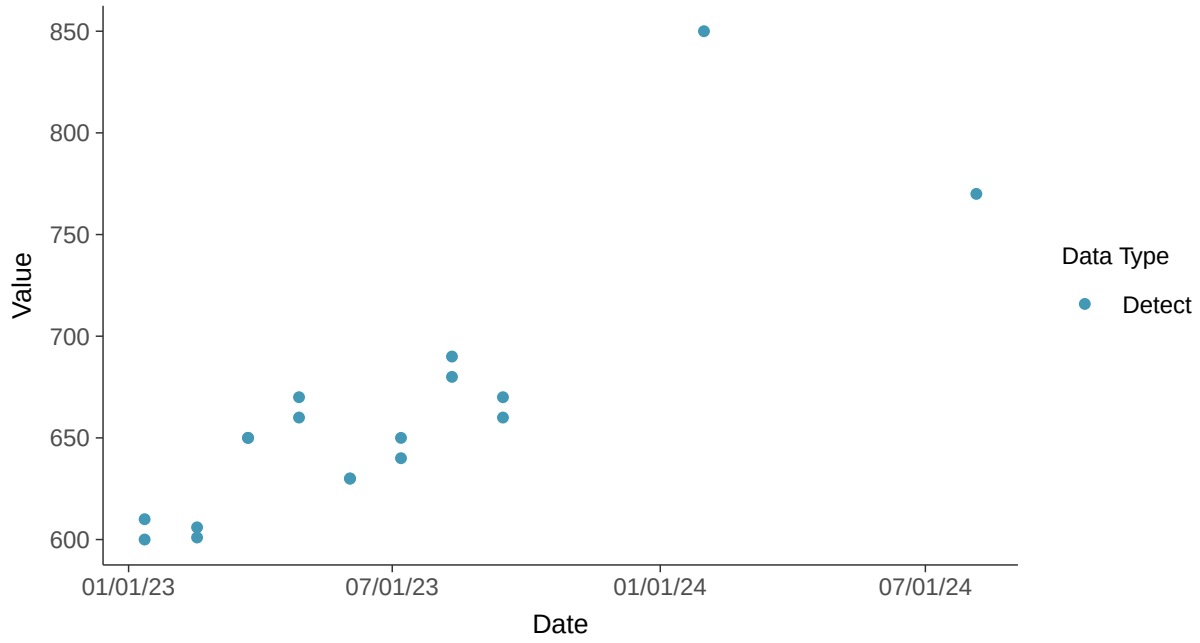


Other: Bicarbonate, MW-14

ID: 14_4_31

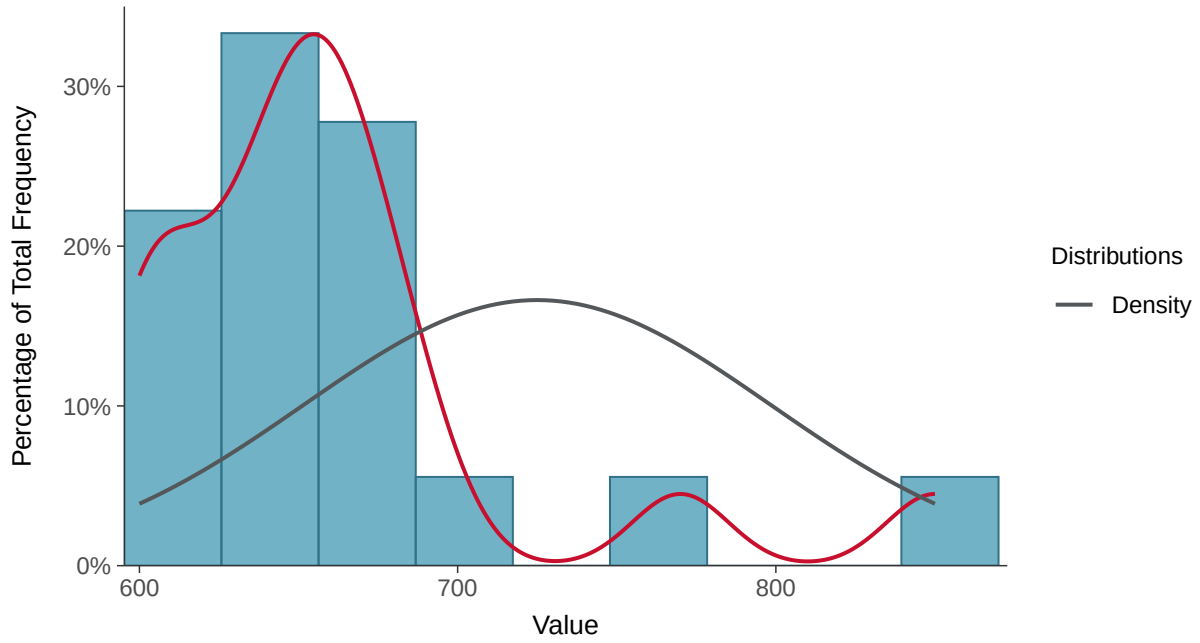
Scatter Plot

Bicarbonate, MW-14 (mg/L)



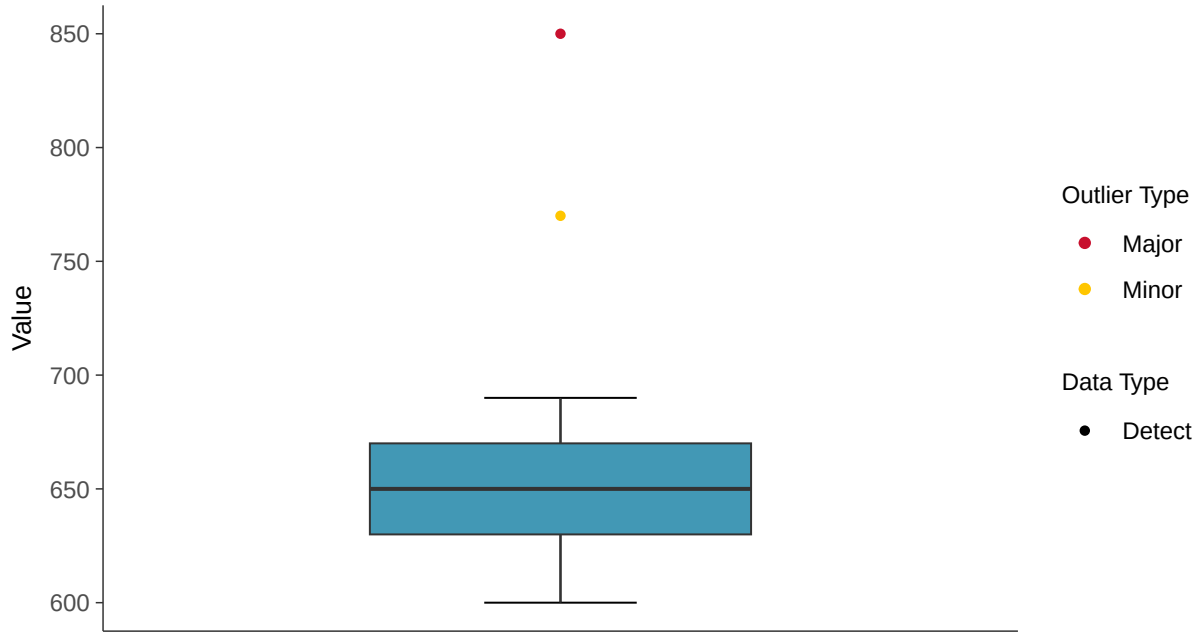
Histogram

Bicarbonate, MW-14 (mg/L)



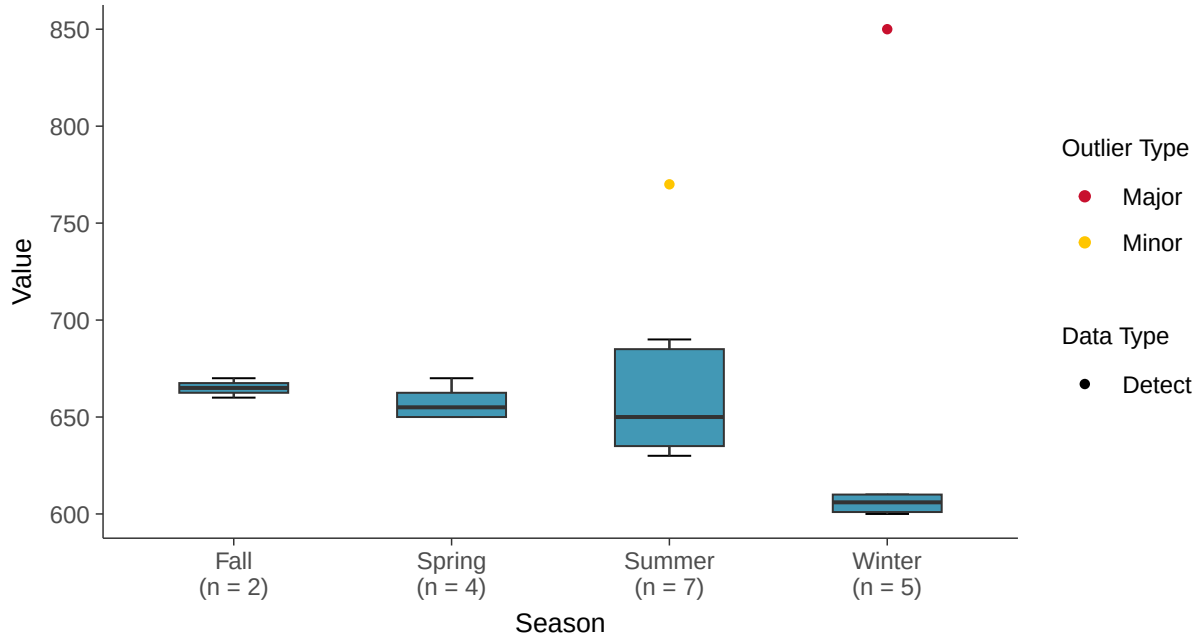
Boxplot

Bicarbonate, MW-14 (mg/L)



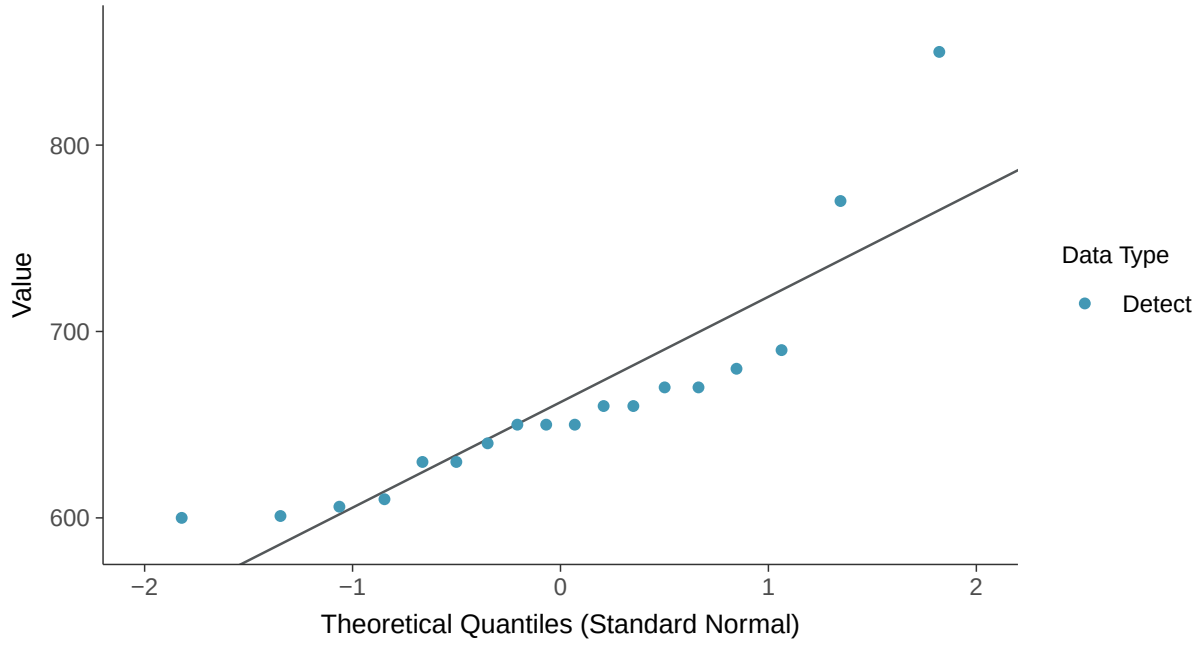
Boxplot by Season

Bicarbonate, MW-14 (mg/L)



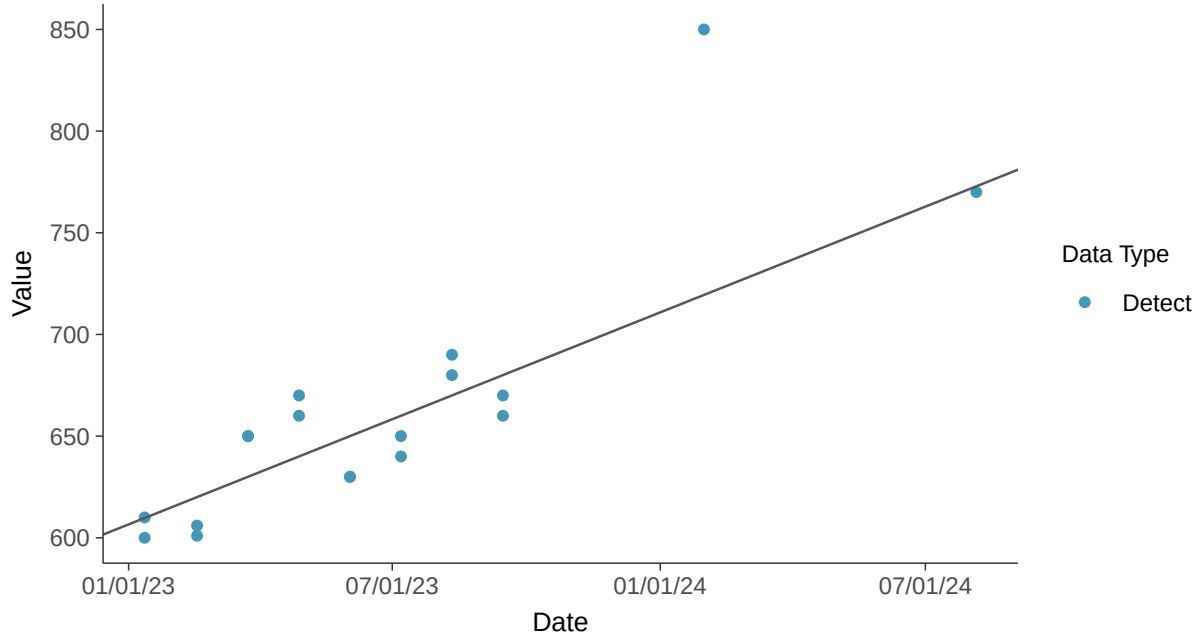
Normal Q-Q plot

Bicarbonate, MW-14 (mg/L)



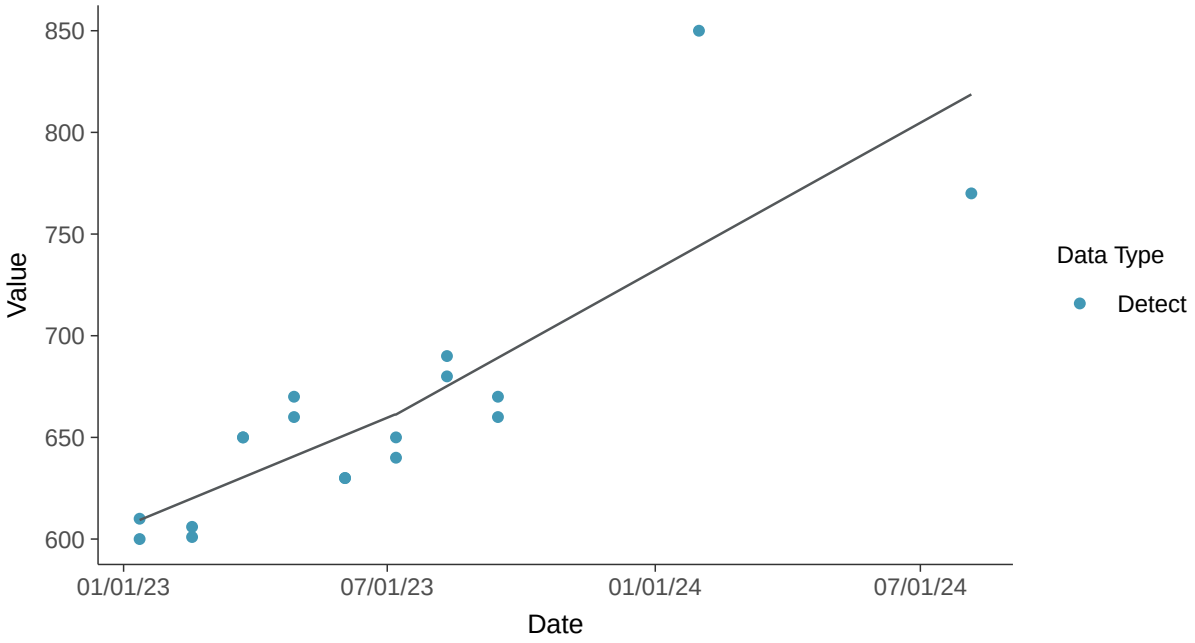
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Bicarbonate, MW-14 (mg/L)



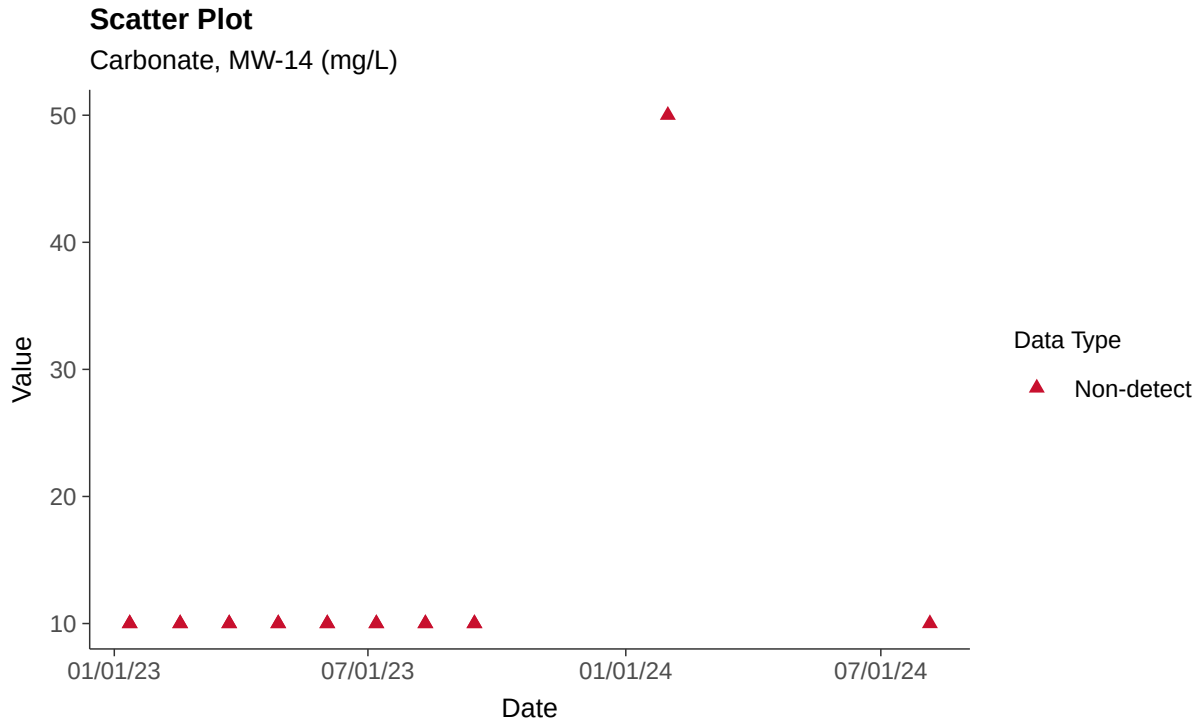
Trend Regression: Piecewise Linear-Linear

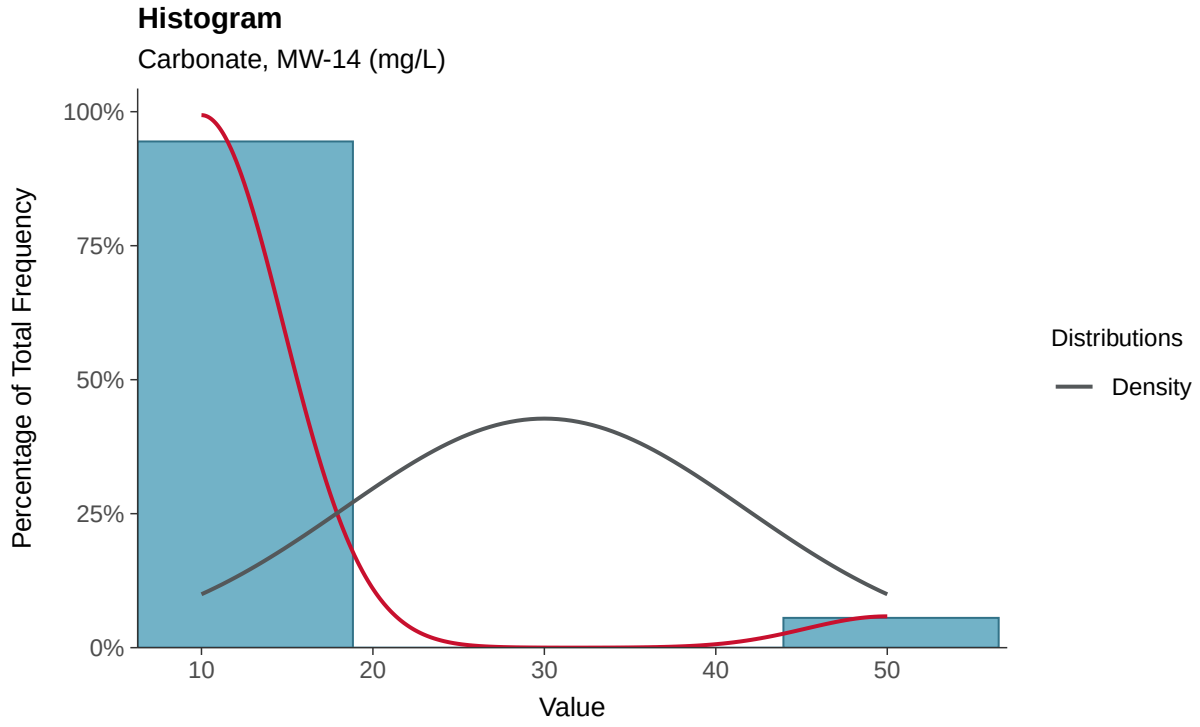
Bicarbonate, MW-14 (mg/L)



Other: Carbonate, MW-14

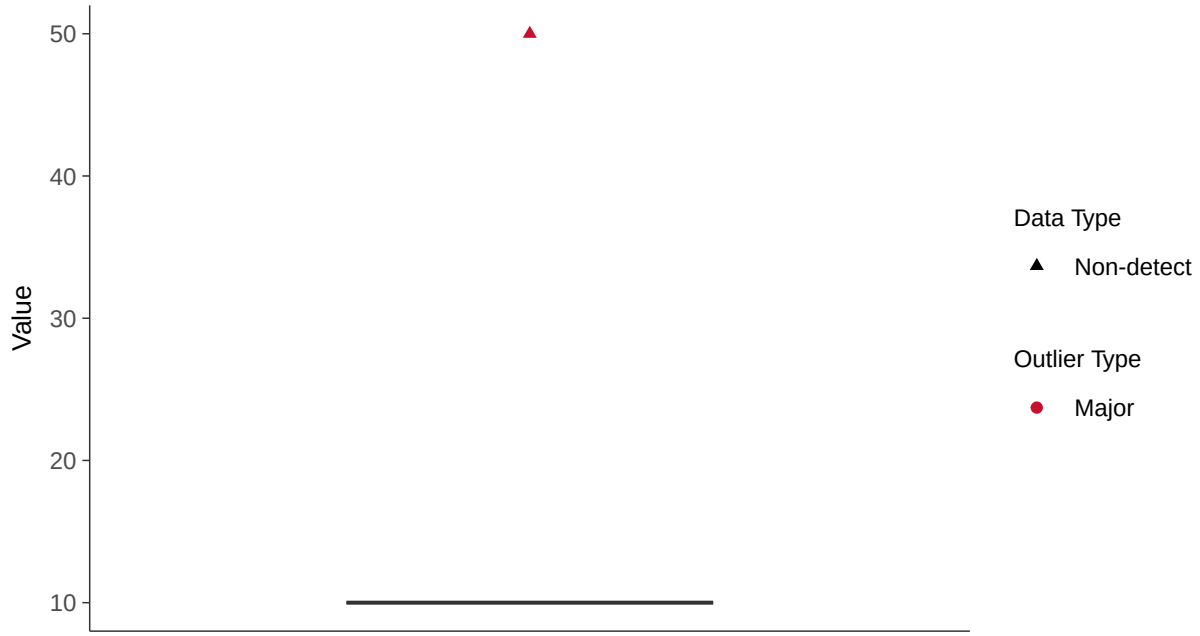
ID: 14_4_32





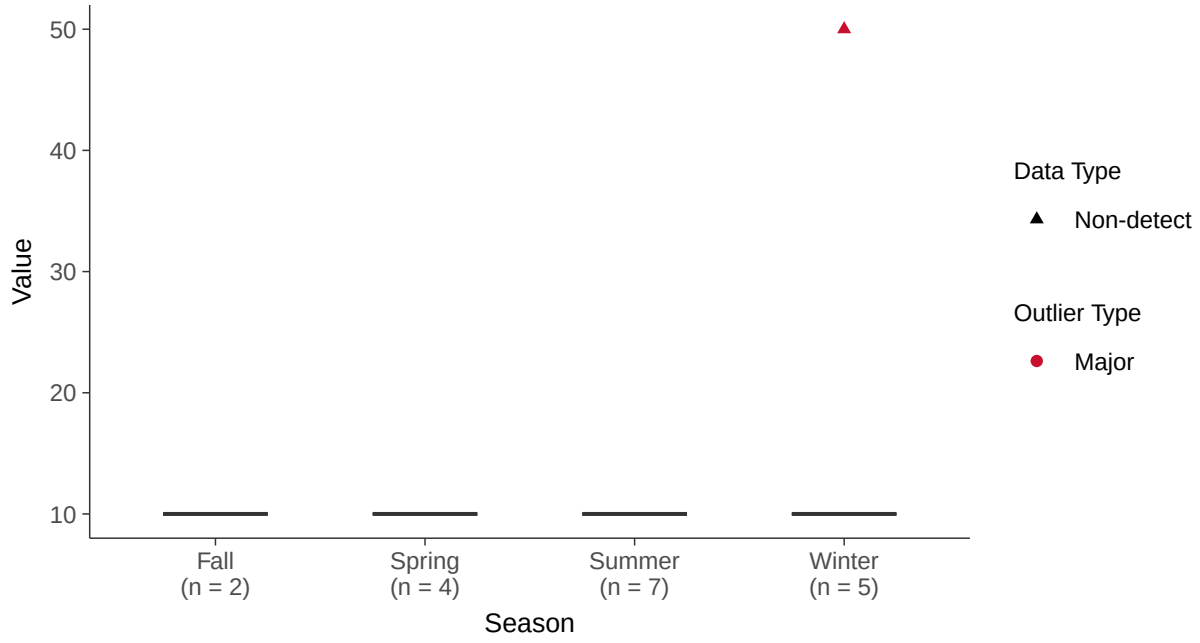
Boxplot

Carbonate, MW-14 (mg/L)



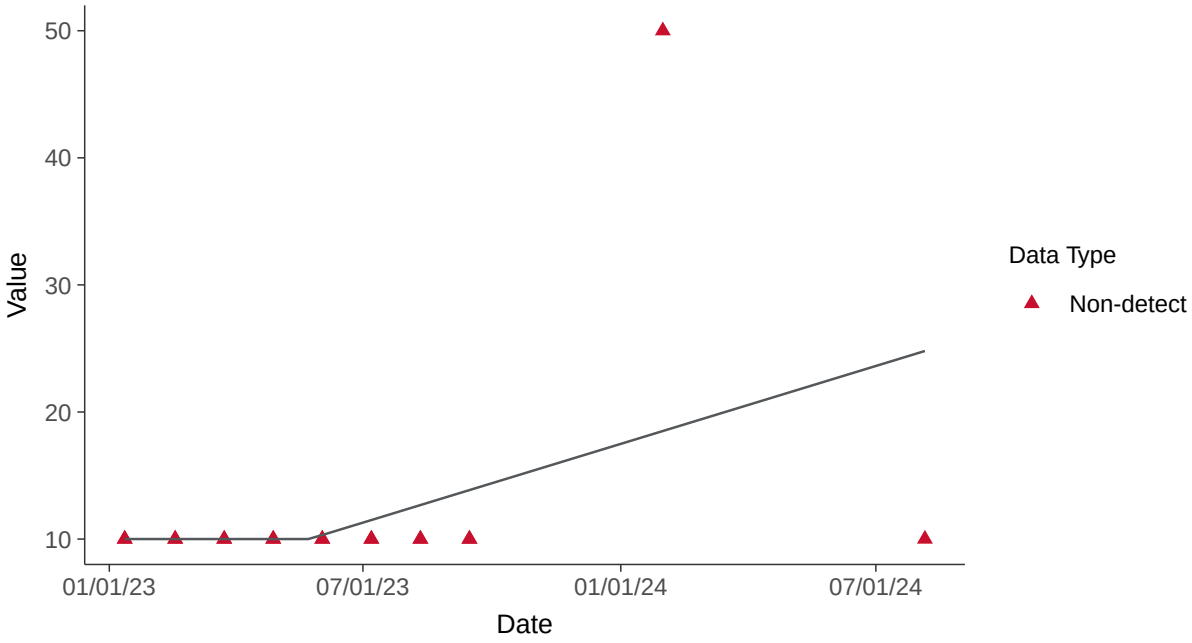
Boxplot by Season

Carbonate, MW-14 (mg/L)



Trend Regression: Piecewise Linear-Linear

Carbonate, MW-14 (mg/L)

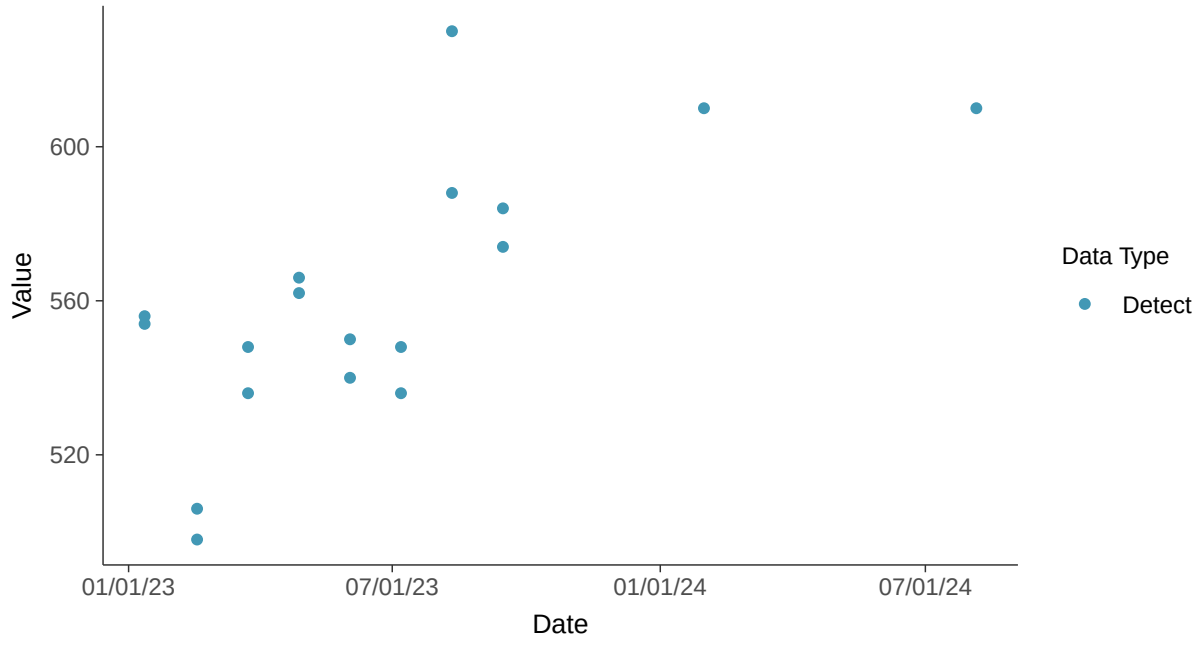


Other: Hardness, MW-14

ID: 14_4_33

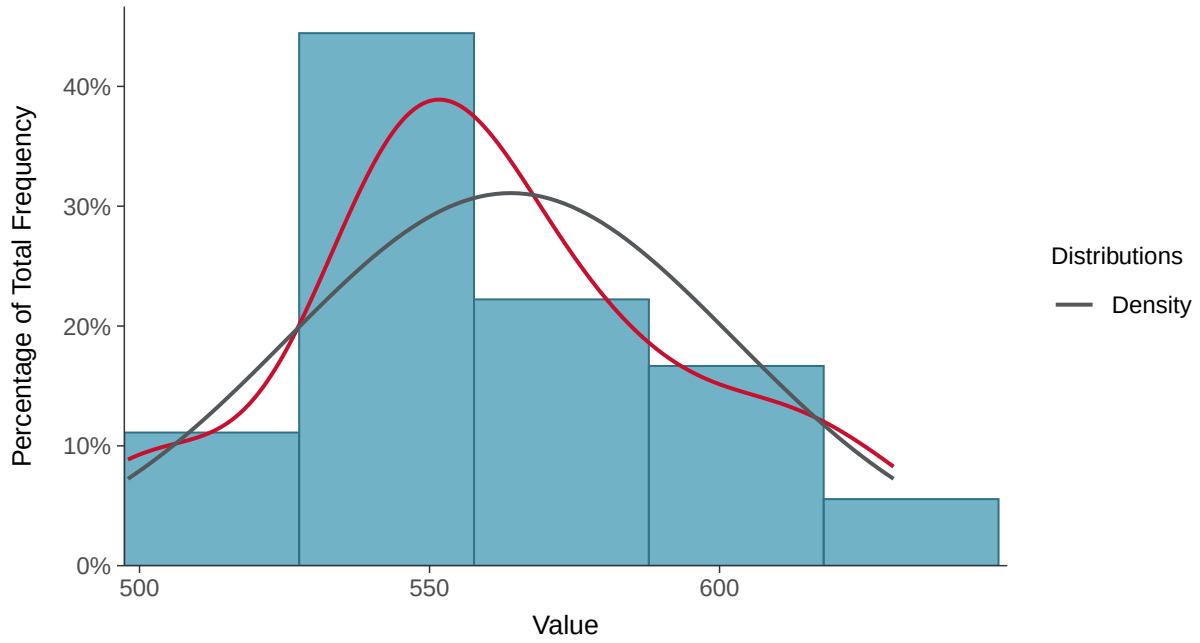
Scatter Plot

Hardness, MW-14 (mg/L)



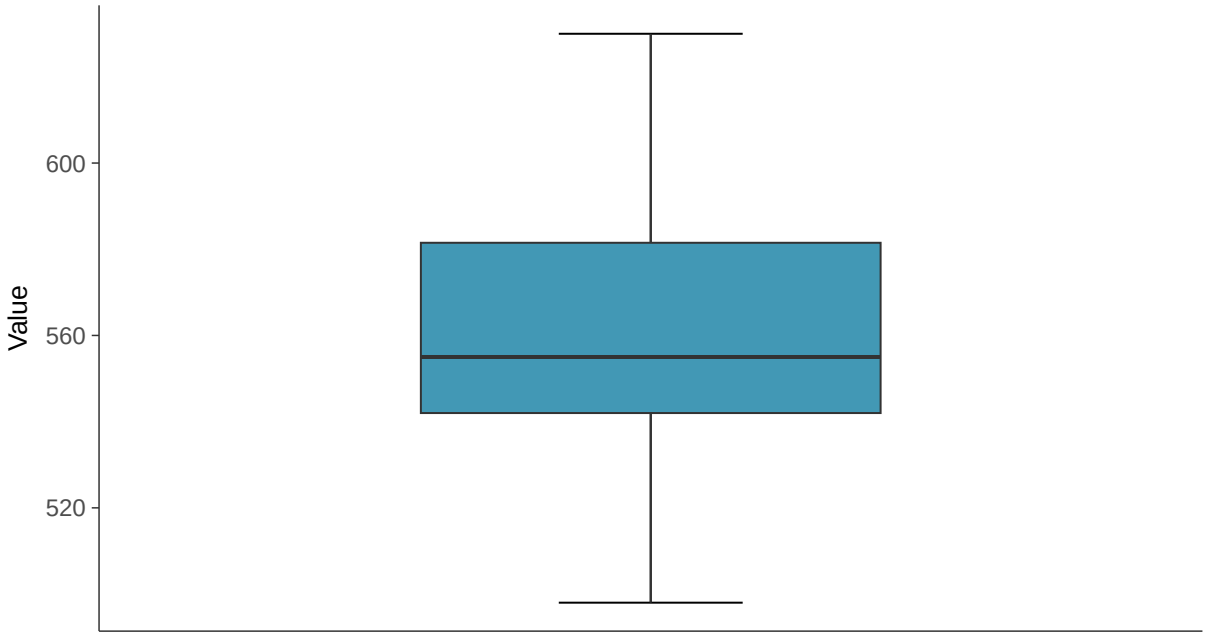
Histogram

Hardness, MW-14 (mg/L)



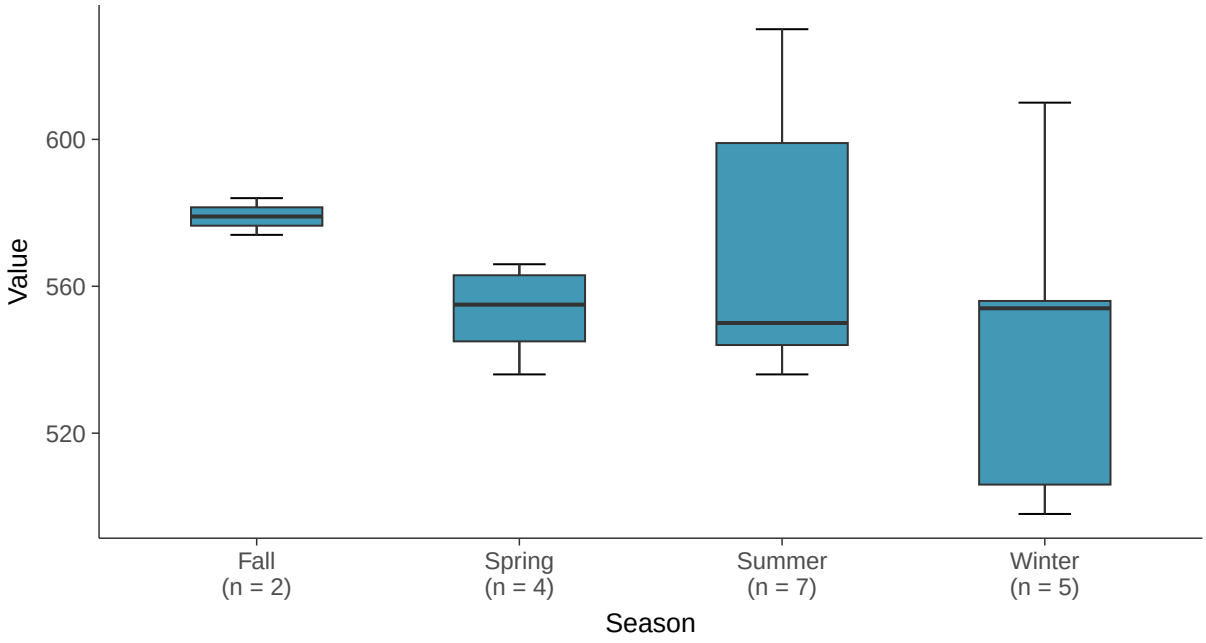
Boxplot

Hardness, MW-14 (mg/L)



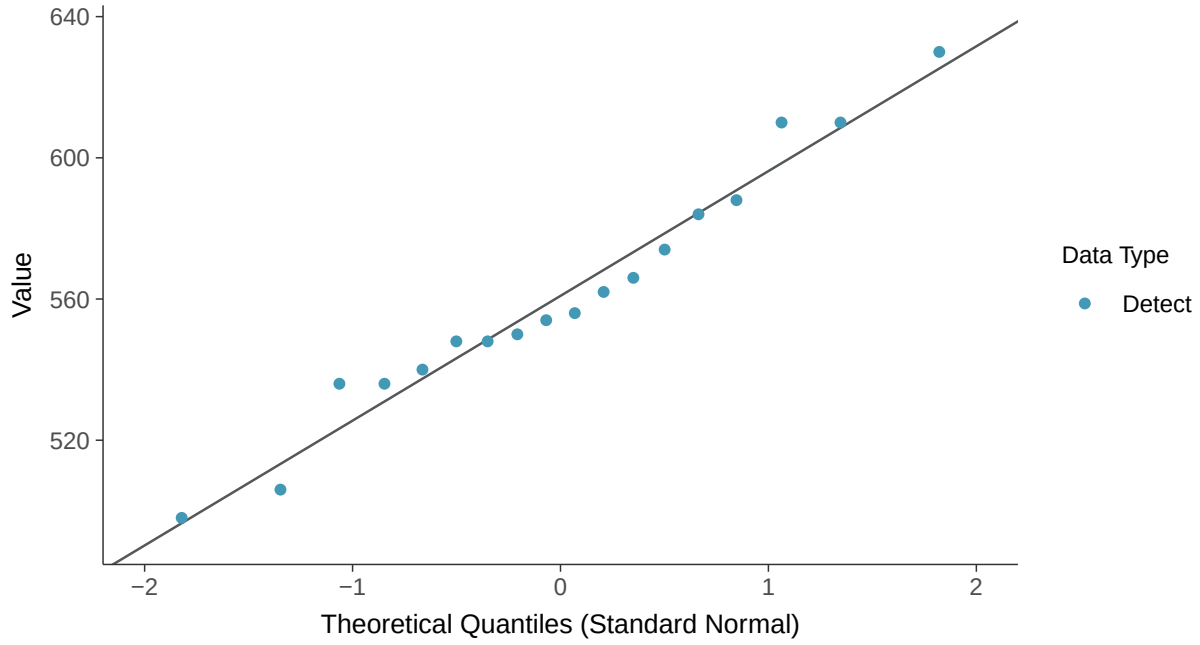
Boxplot by Season

Hardness, MW-14 (mg/L)



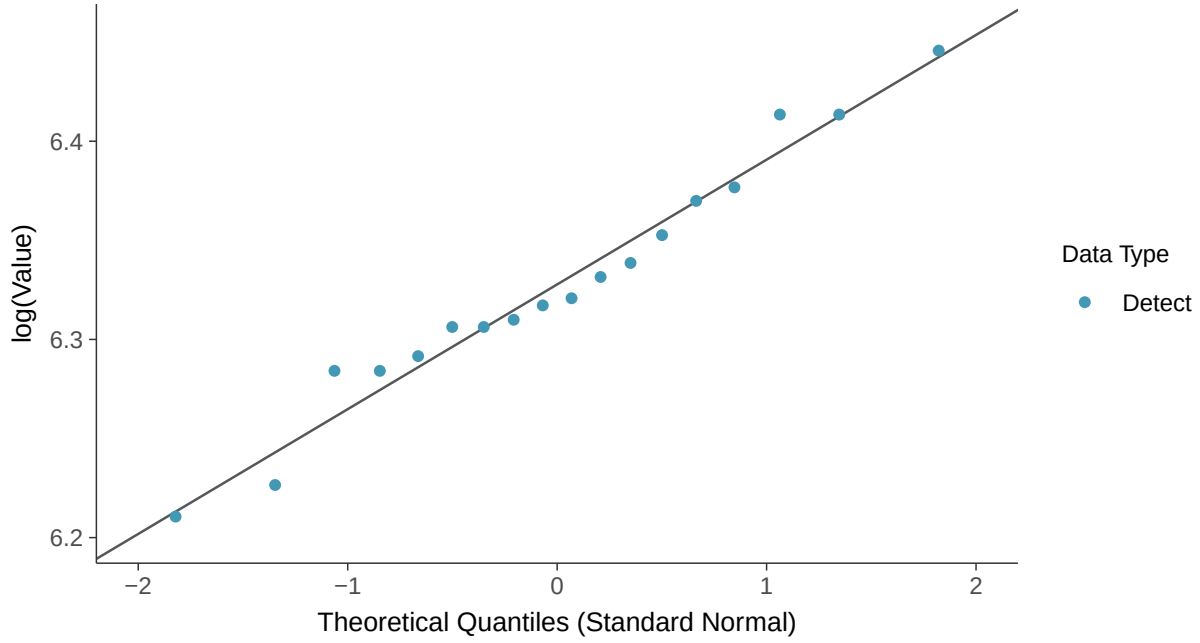
Normal Q-Q plot

Hardness, MW-14 (mg/L)



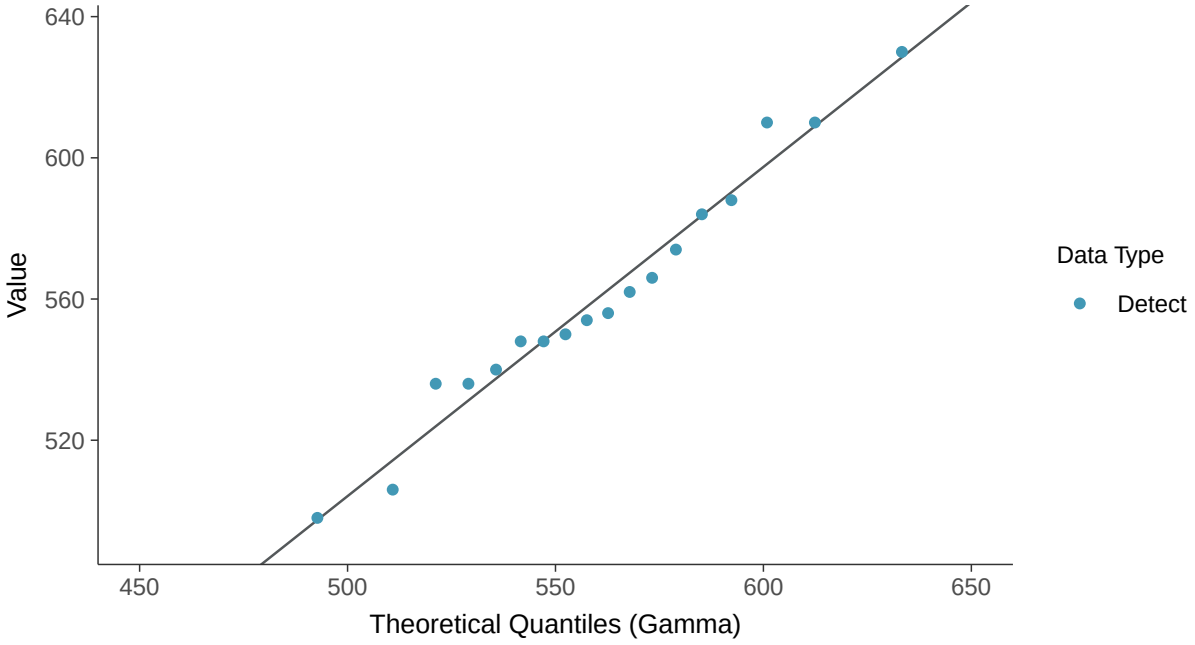
Lognormal Q-Q plot

Hardness, MW-14 (mg/L)



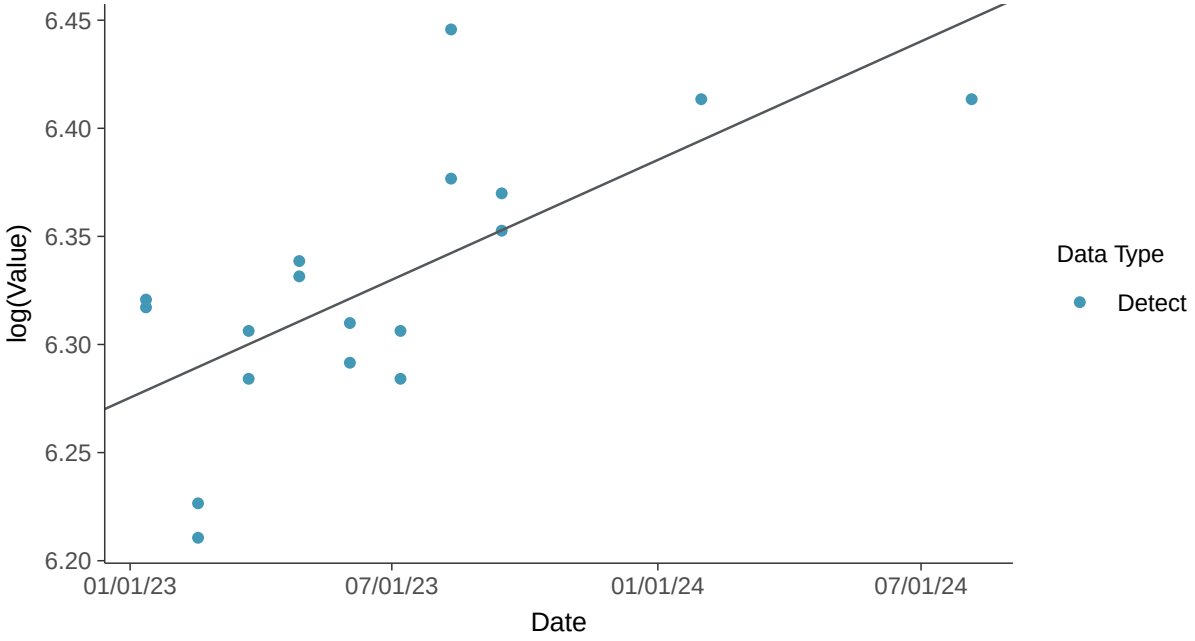
Gamma Q-Q plot

Hardness, MW-14 (mg/L)



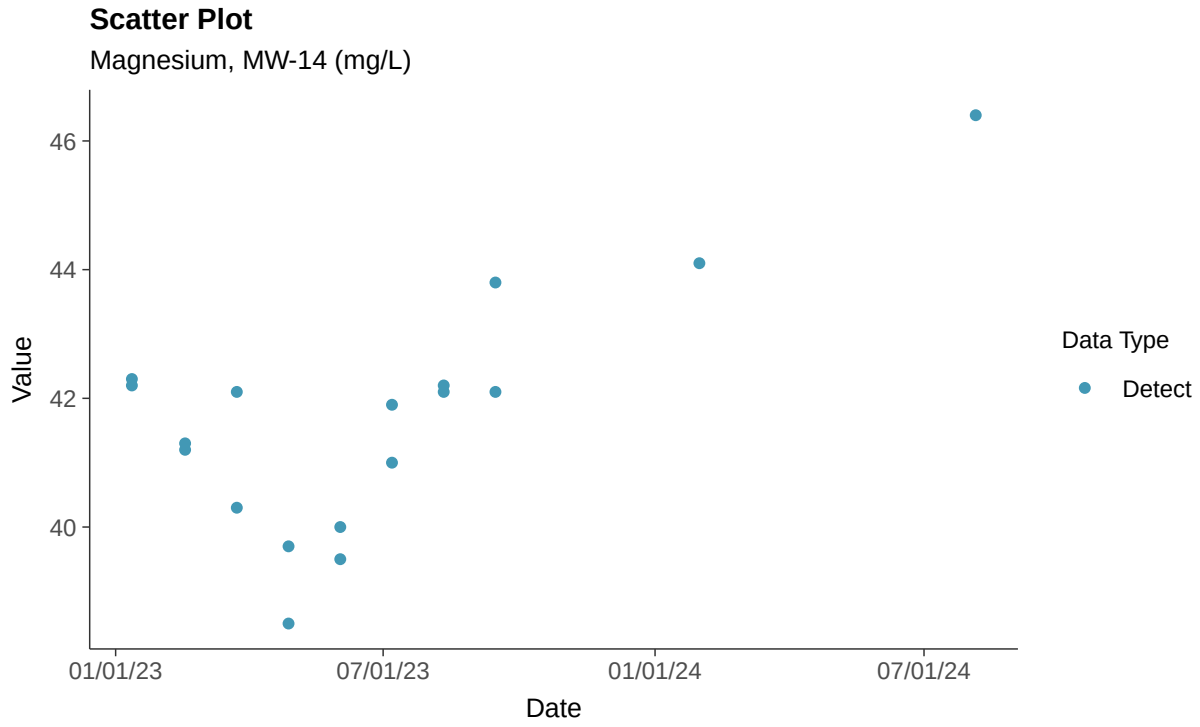
Trend Regression: Lognormal MLE

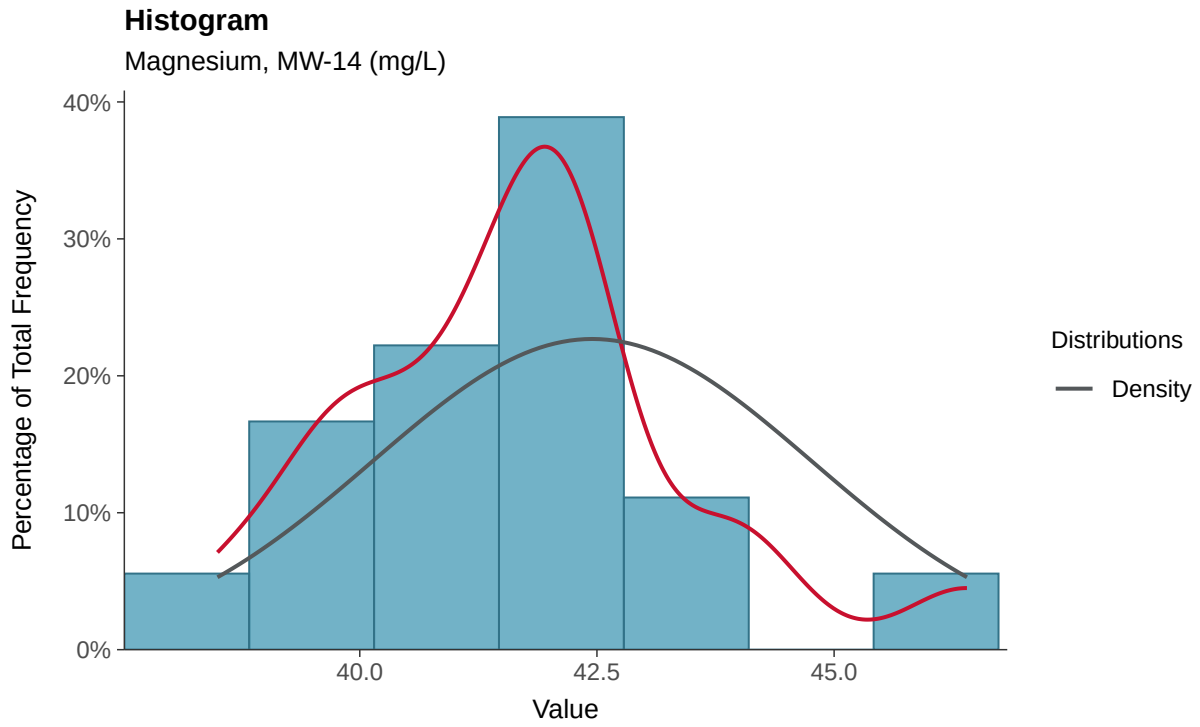
Hardness, MW-14 (mg/L)



Other: Magnesium, MW-14

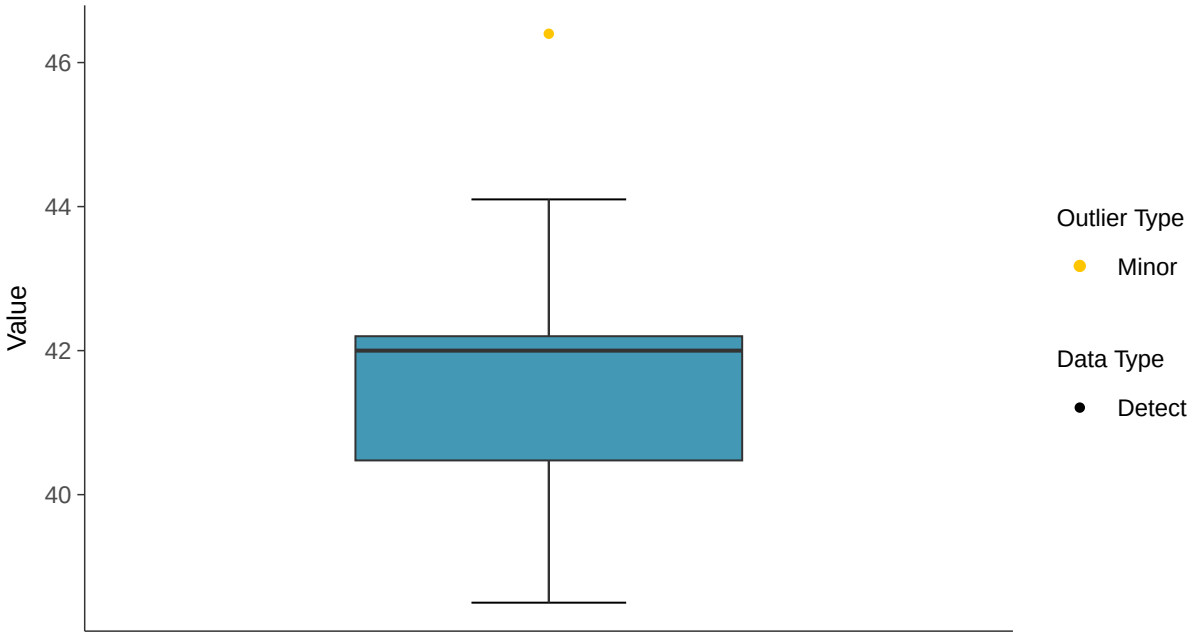
ID: 14_4_34





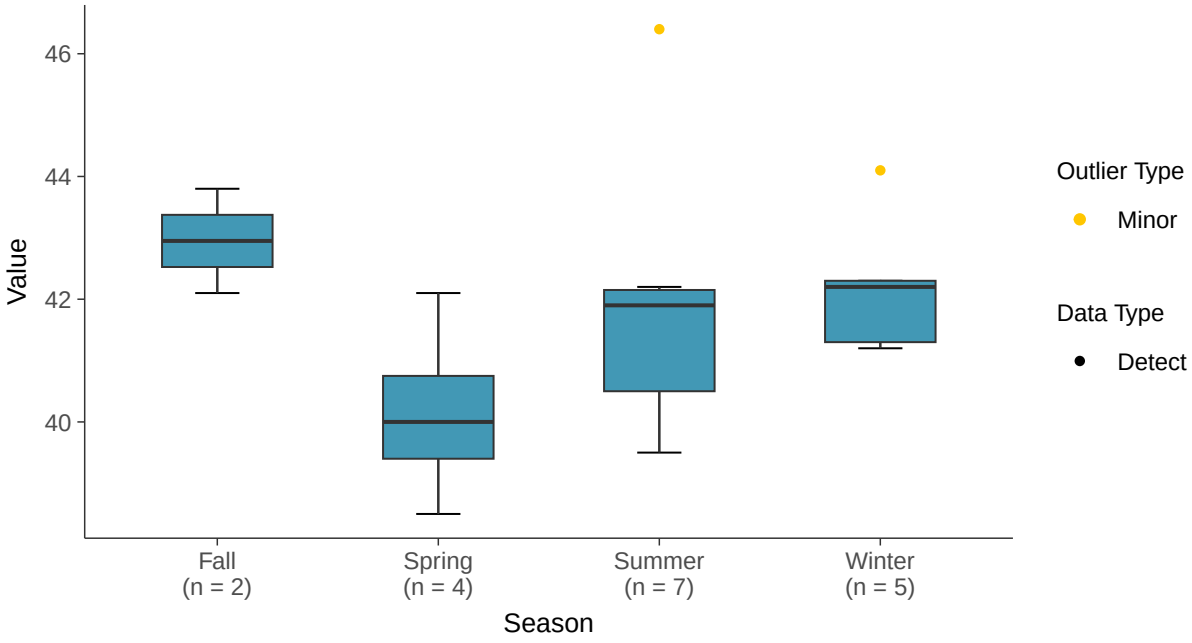
Boxplot

Magnesium, MW-14 (mg/L)



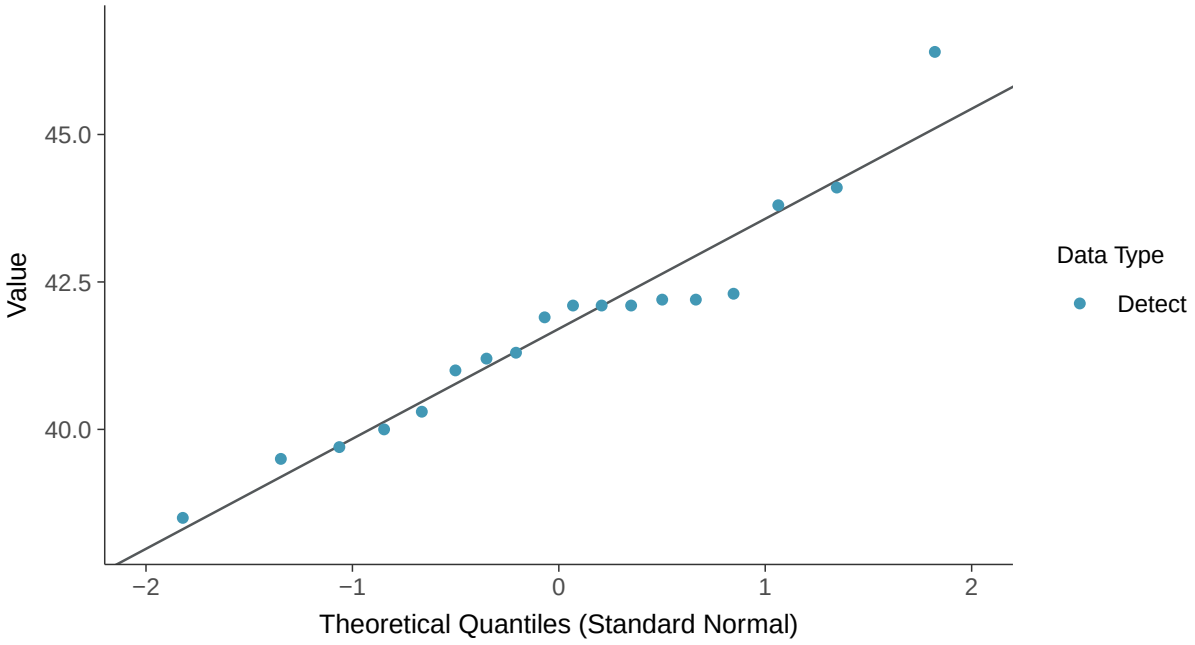
Boxplot by Season

Magnesium, MW-14 (mg/L)



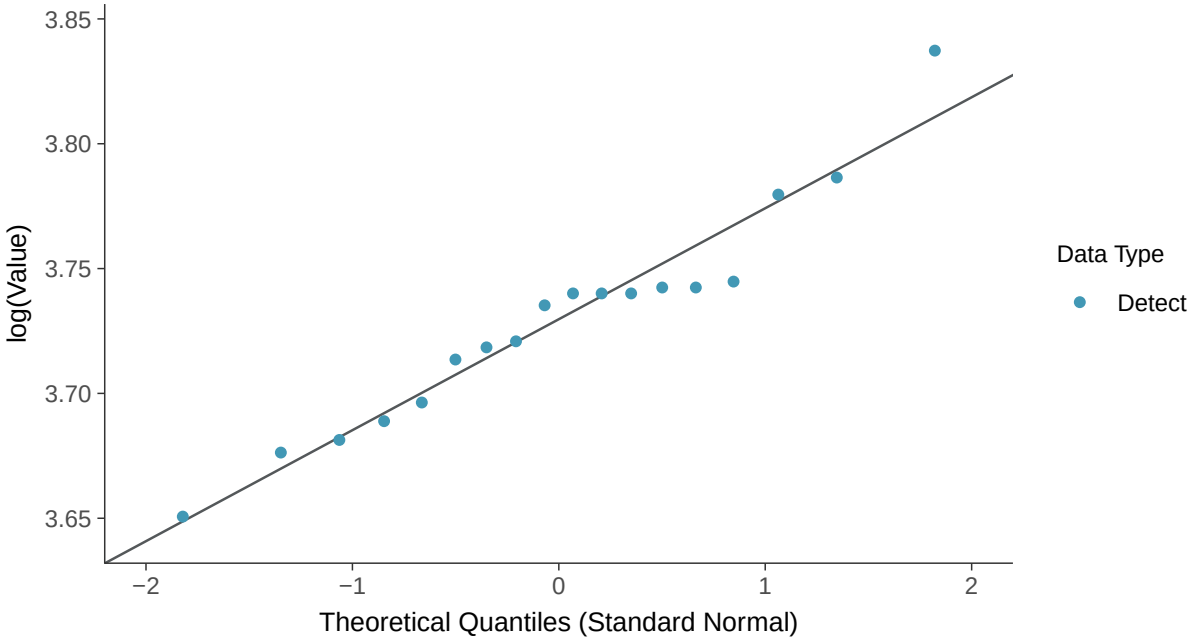
Normal Q-Q plot

Magnesium, MW-14 (mg/L)



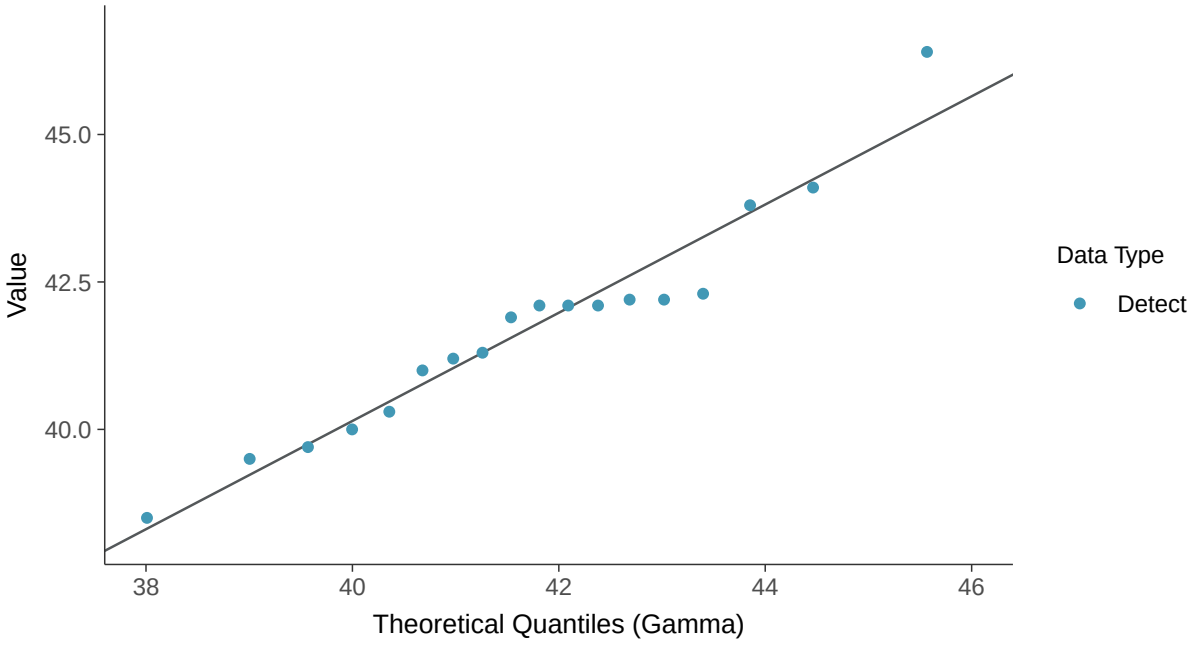
Lognormal Q-Q plot

Magnesium, MW-14 (mg/L)



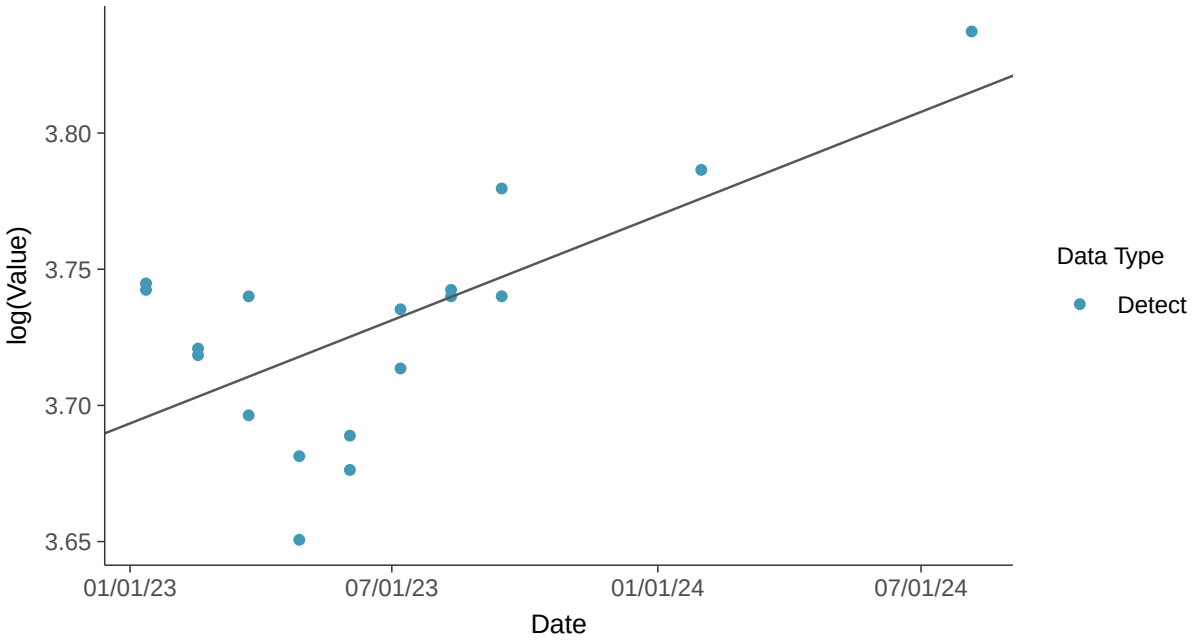
Gamma Q-Q plot

Magnesium, MW-14 (mg/L)



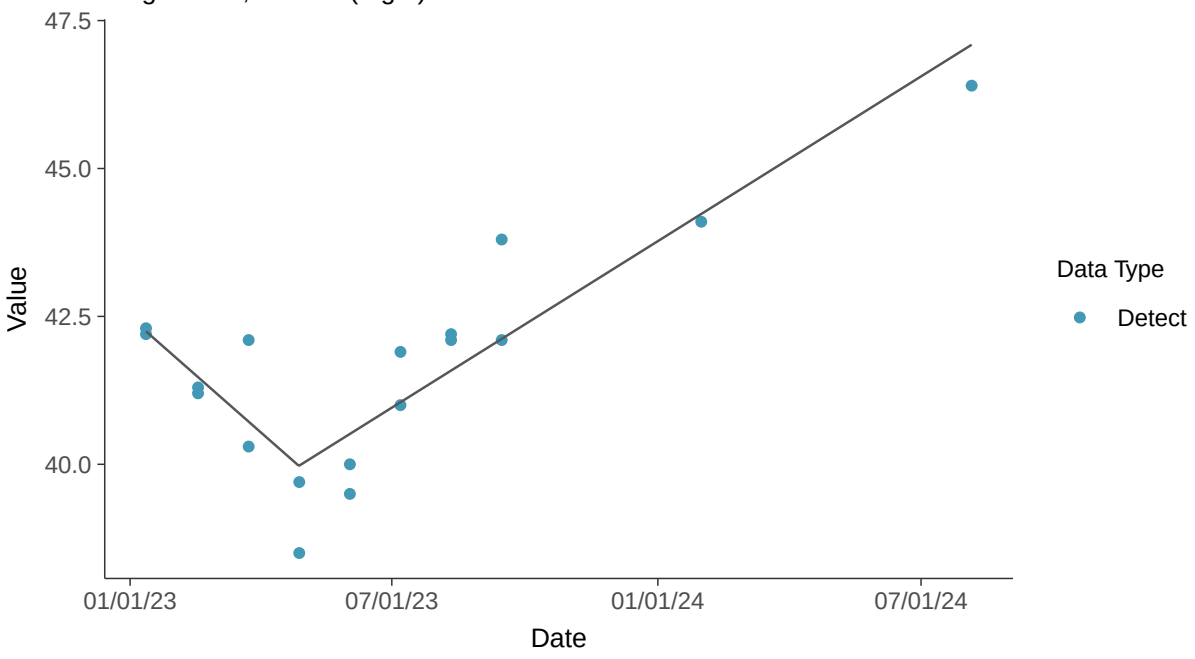
Trend Regression: Lognormal MLE

Magnesium, MW-14 (mg/L)



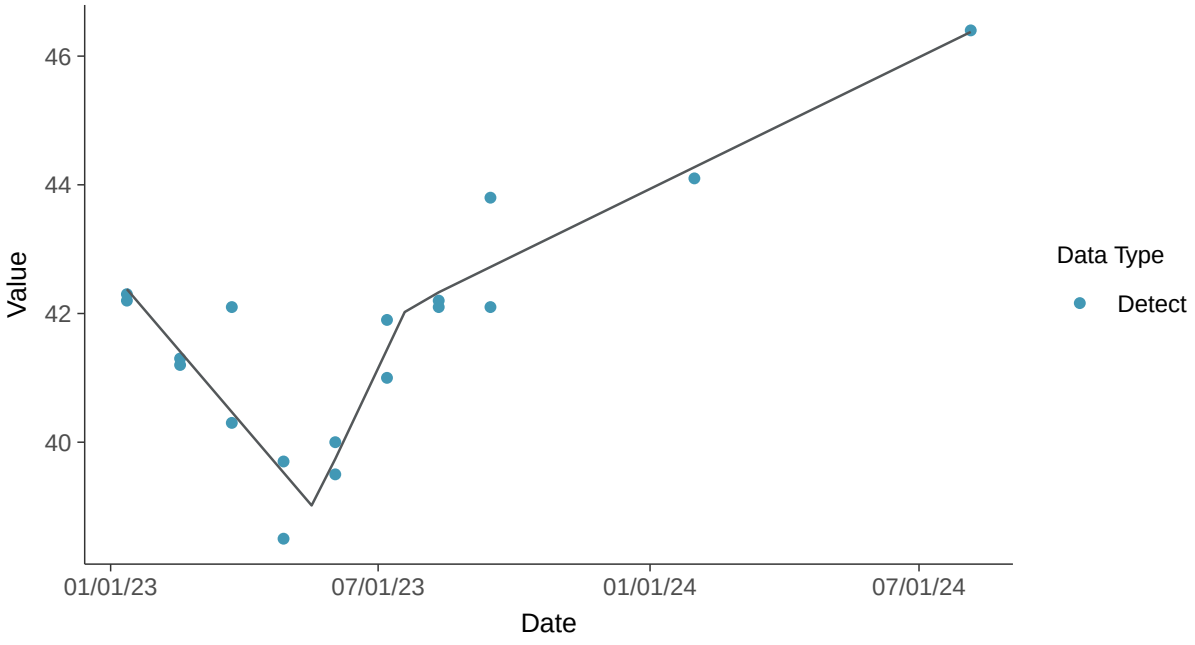
Trend Regression: Piecewise Linear-Linear

Magnesium, MW-14 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Magnesium, MW-14 (mg/L)

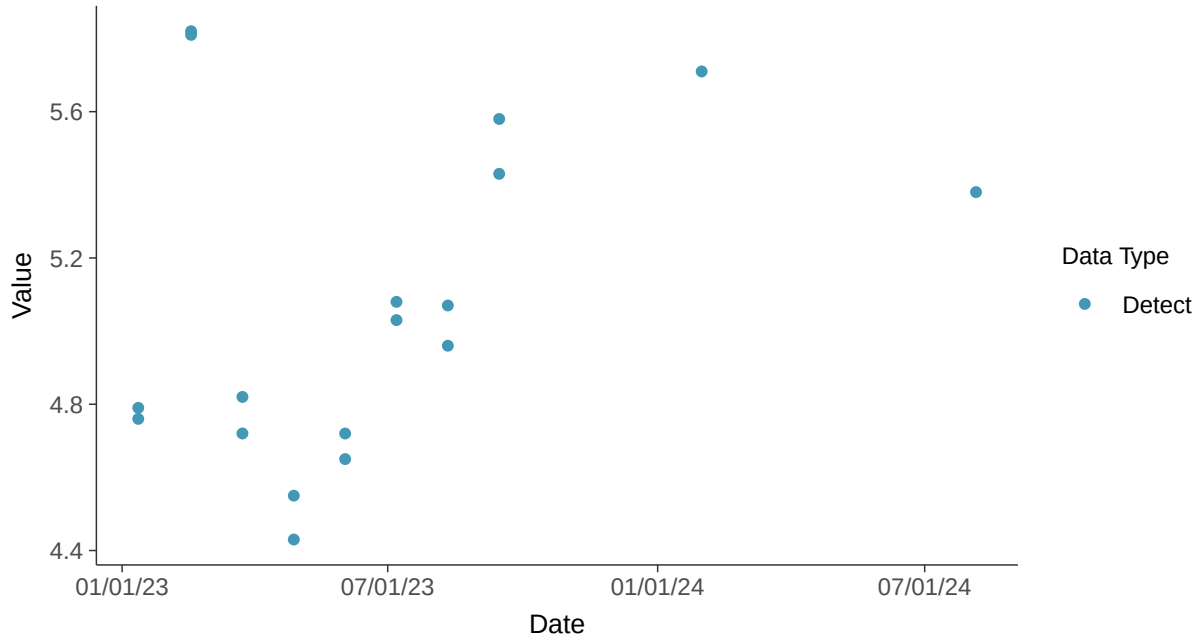


Other: Potassium, MW-14

ID: 14_4_35

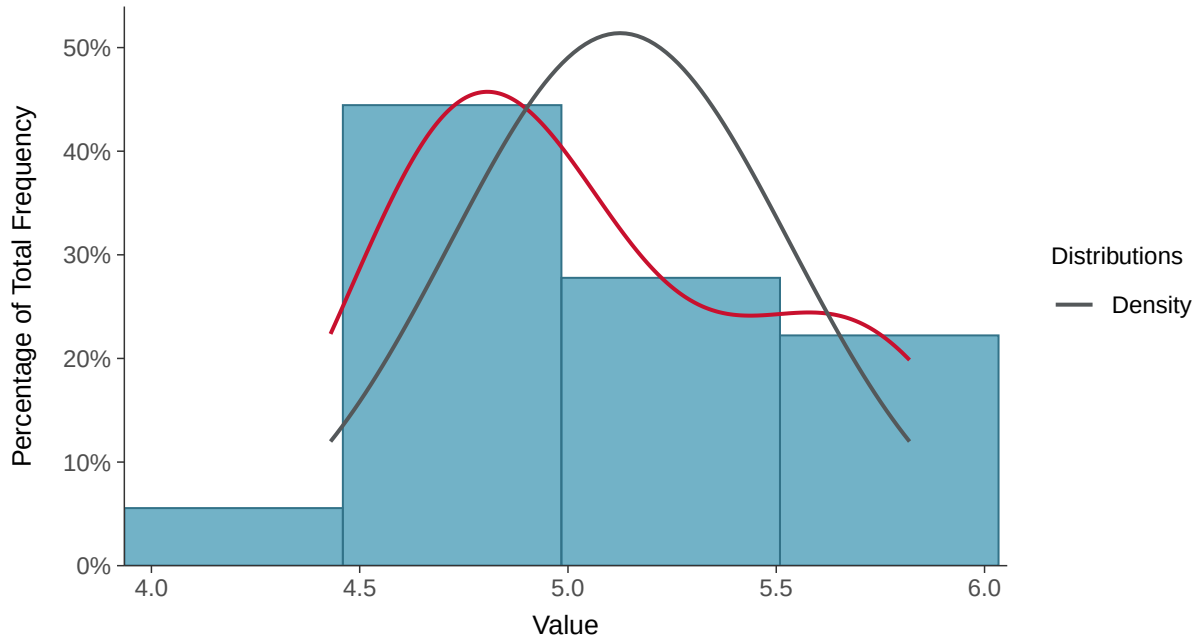
Scatter Plot

Potassium, MW-14 (mg/L)



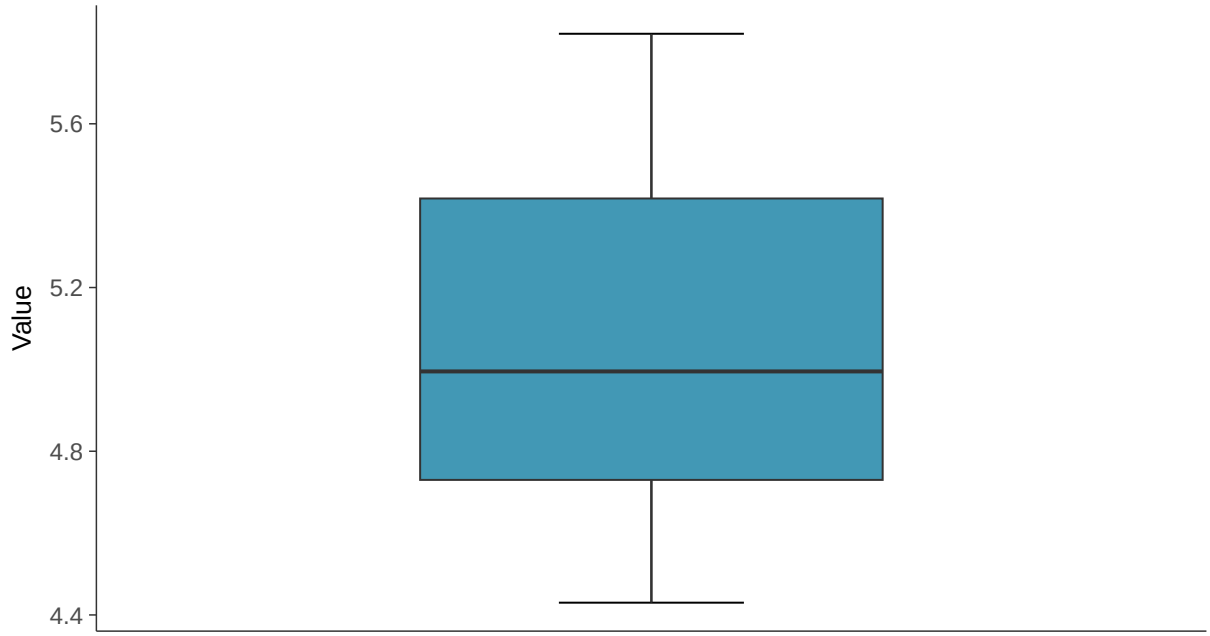
Histogram

Potassium, MW-14 (mg/L)



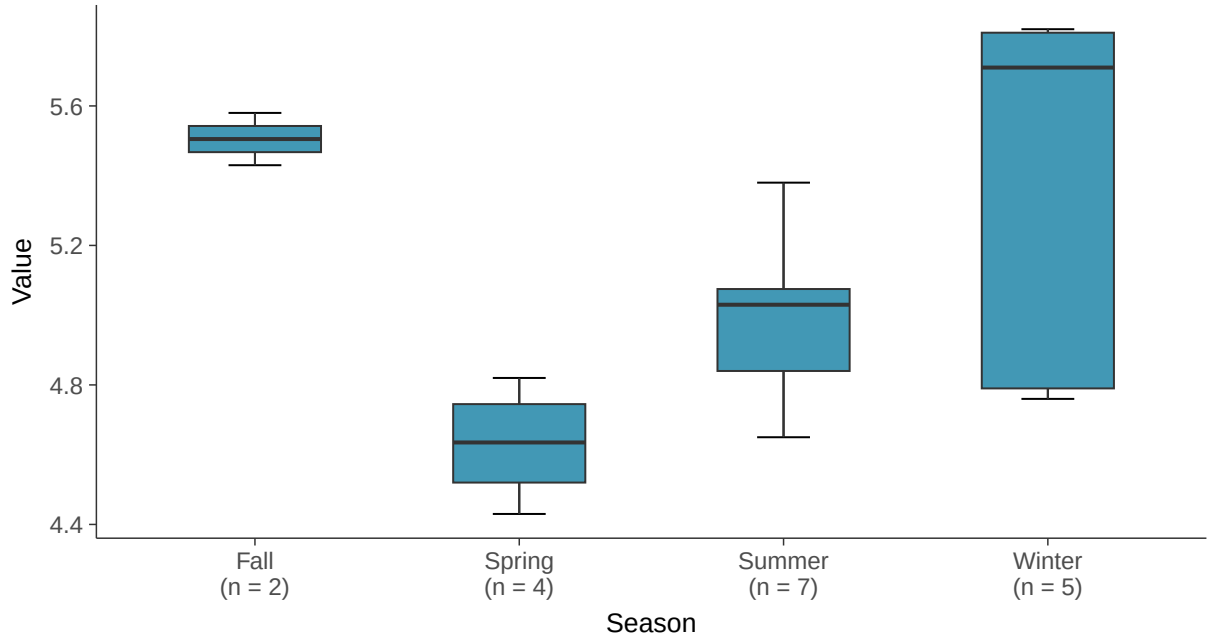
Boxplot

Potassium, MW-14 (mg/L)



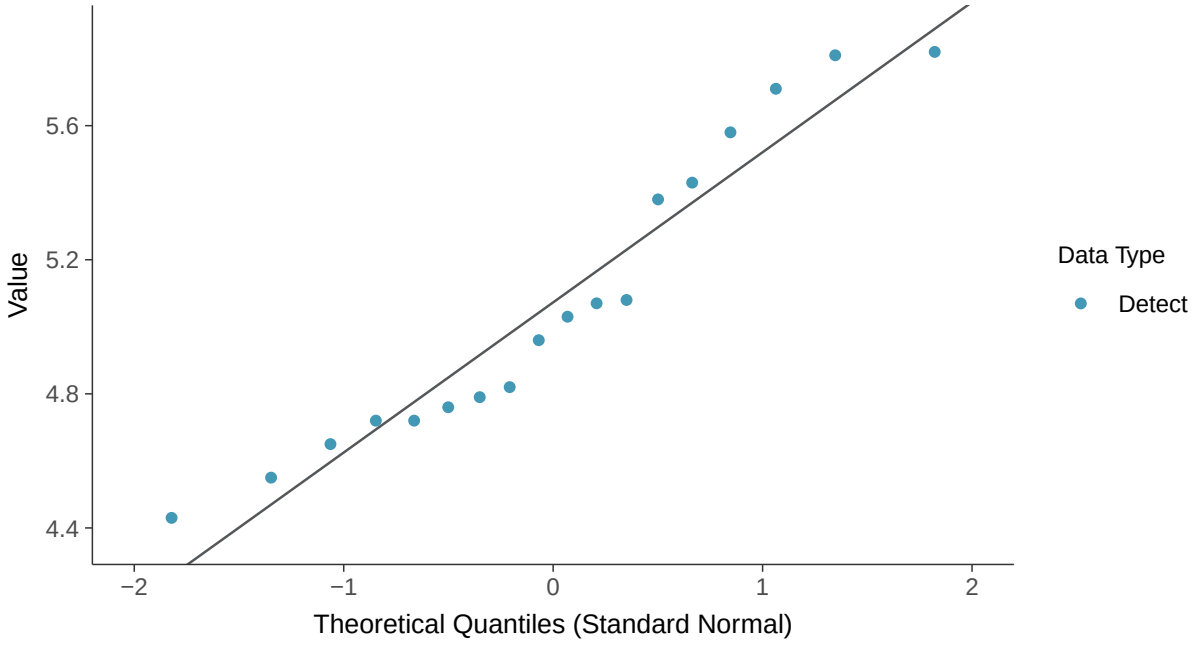
Boxplot by Season

Potassium, MW-14 (mg/L)



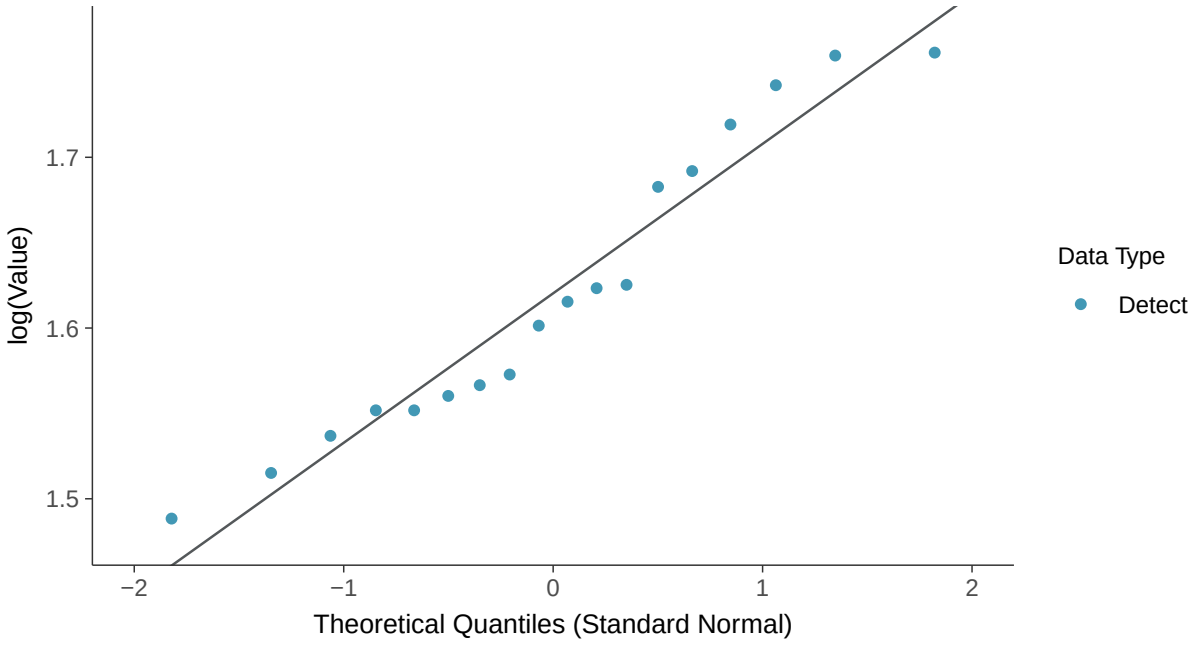
Normal Q-Q plot

Potassium, MW-14 (mg/L)



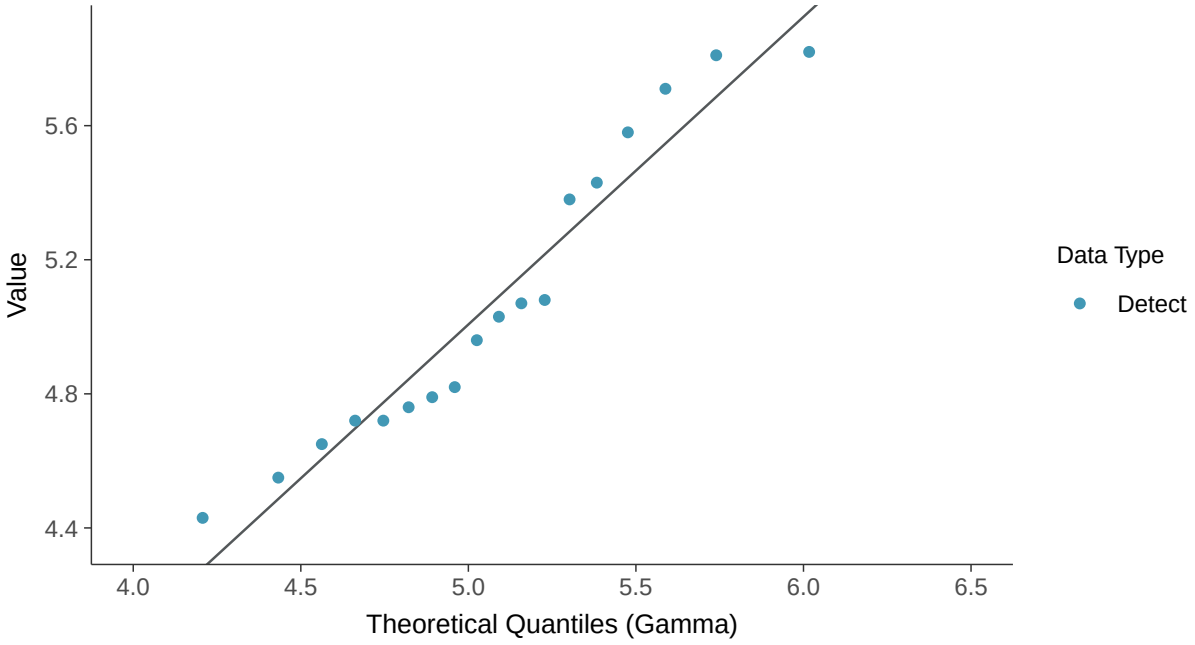
Lognormal Q-Q plot

Potassium, MW-14 (mg/L)



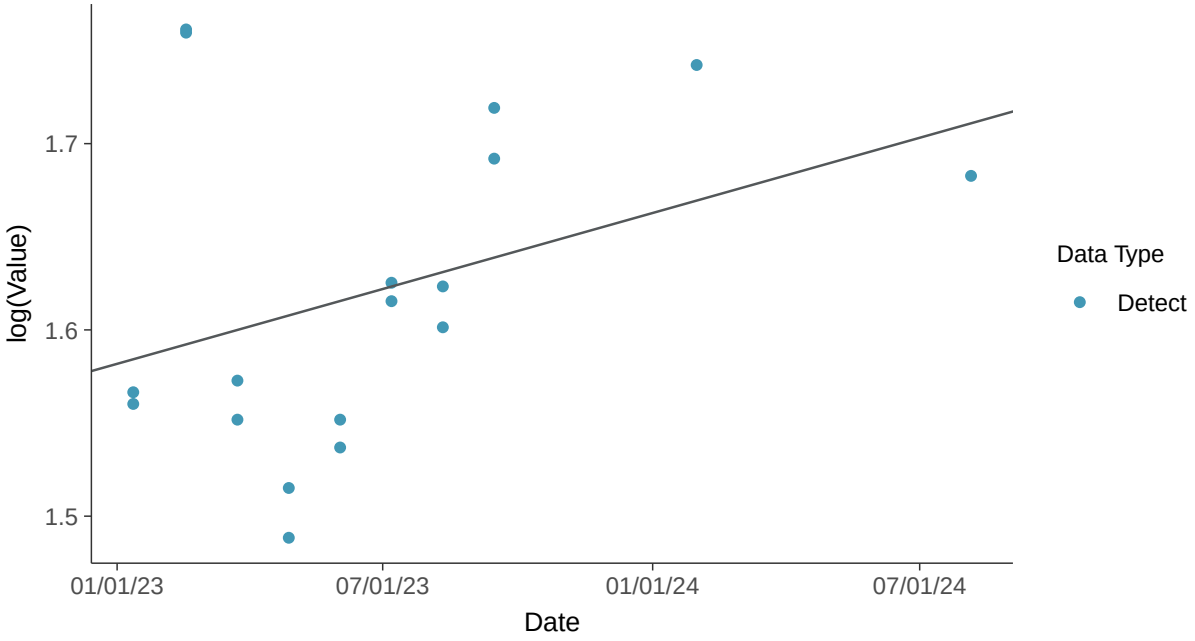
Gamma Q-Q plot

Potassium, MW-14 (mg/L)



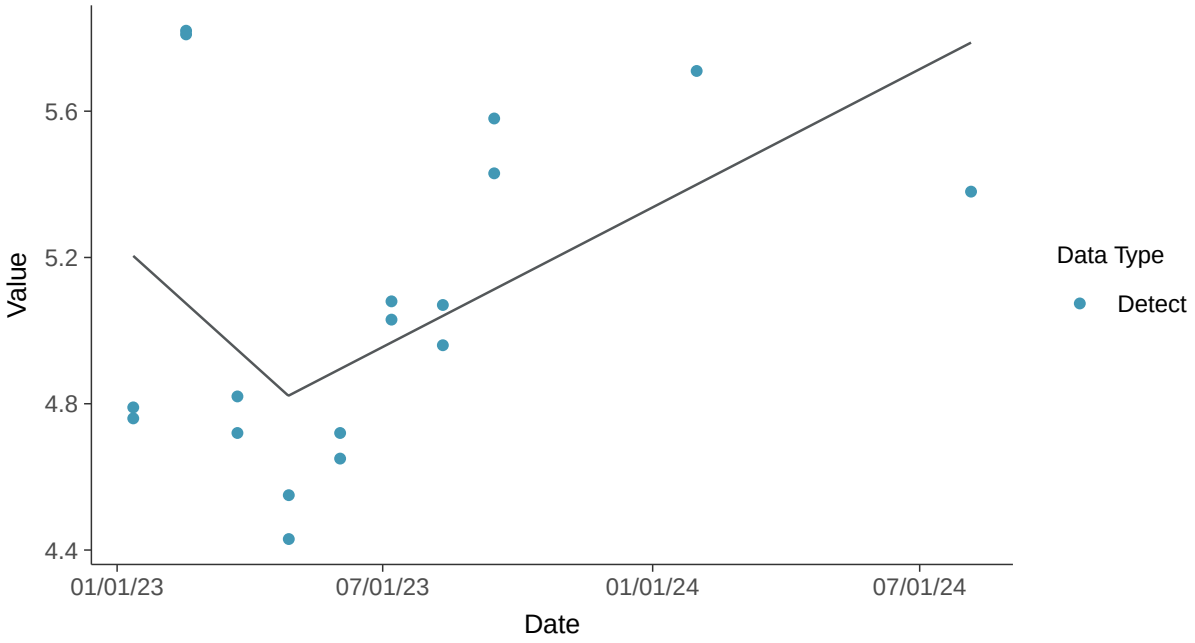
Trend Regression: Lognormal MLE

Potassium, MW-14 (mg/L)



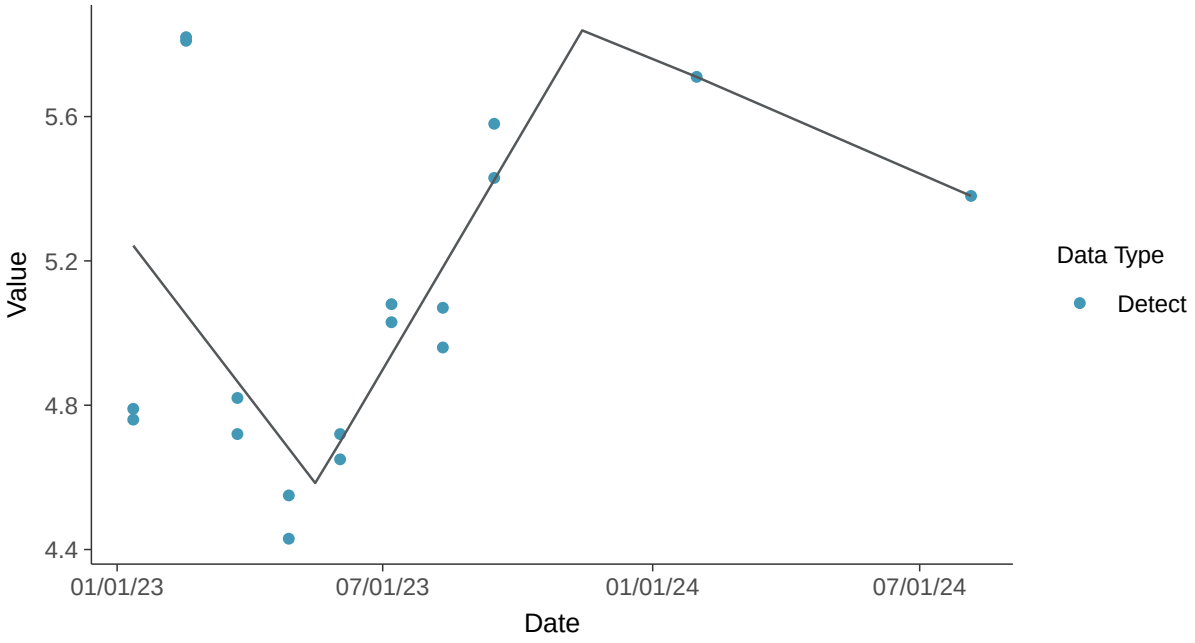
Trend Regression: Piecewise Linear-Linear

Potassium, MW-14 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Potassium, MW-14 (mg/L)

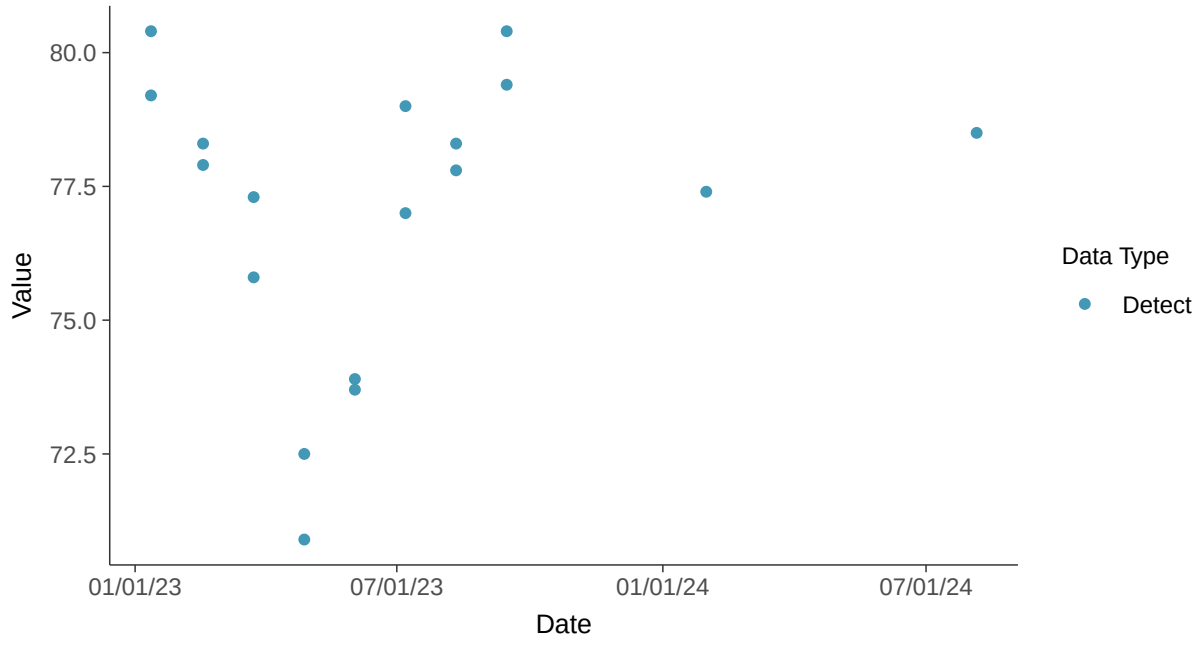


Other: Sodium, MW-14

ID: 14_4_36

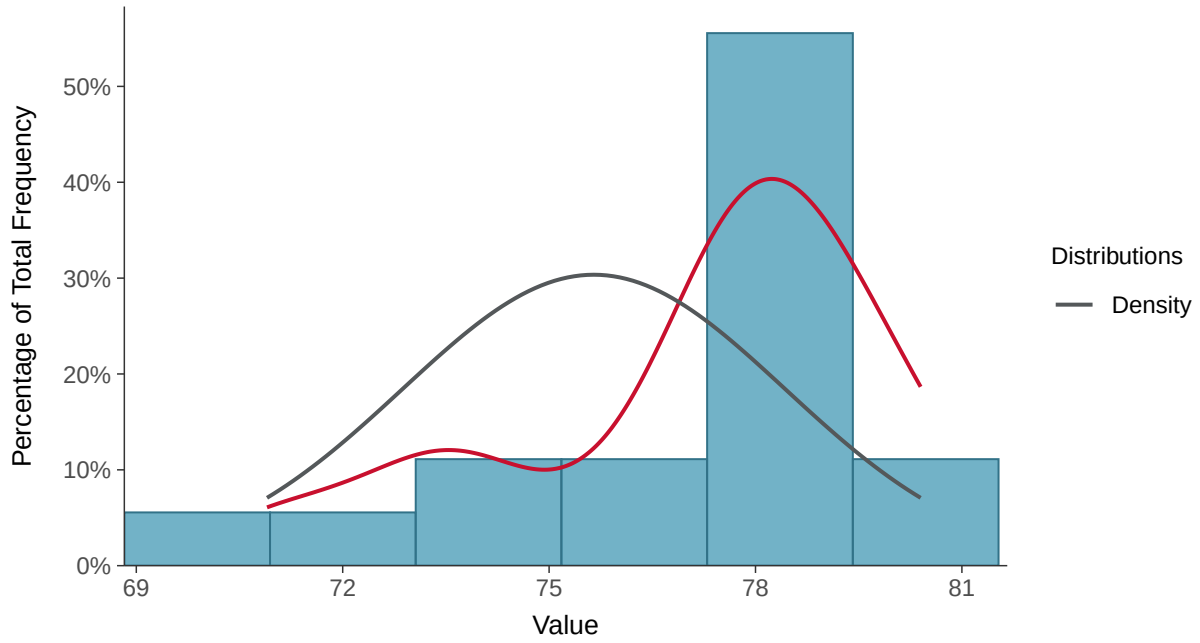
Scatter Plot

Sodium, MW-14 (mg/L)



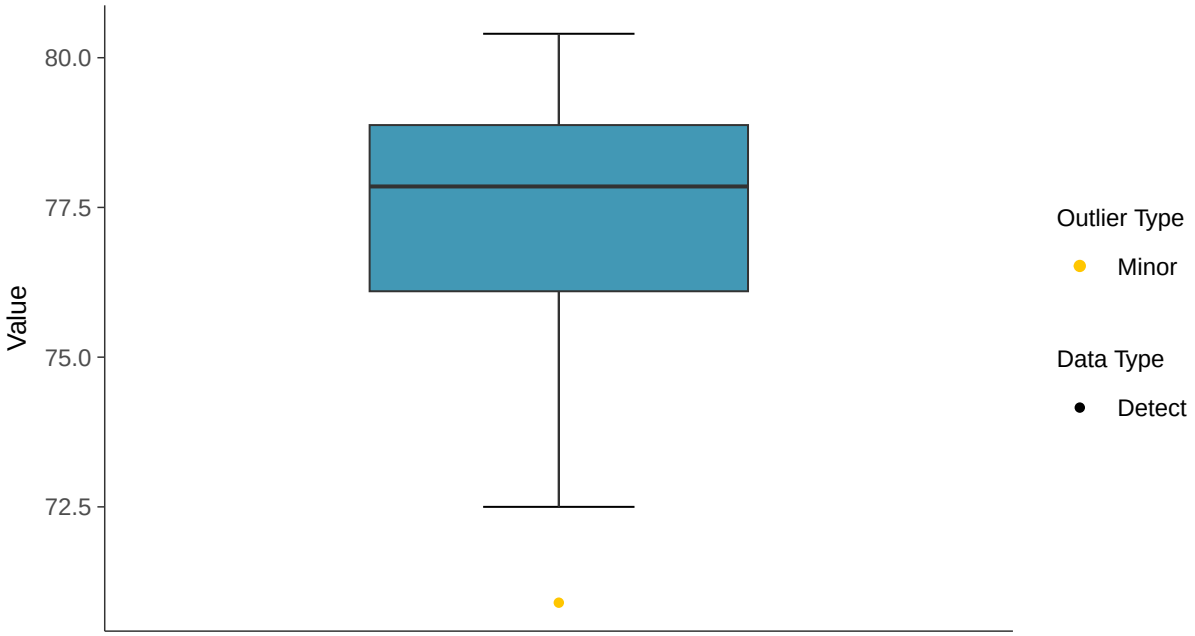
Histogram

Sodium, MW-14 (mg/L)



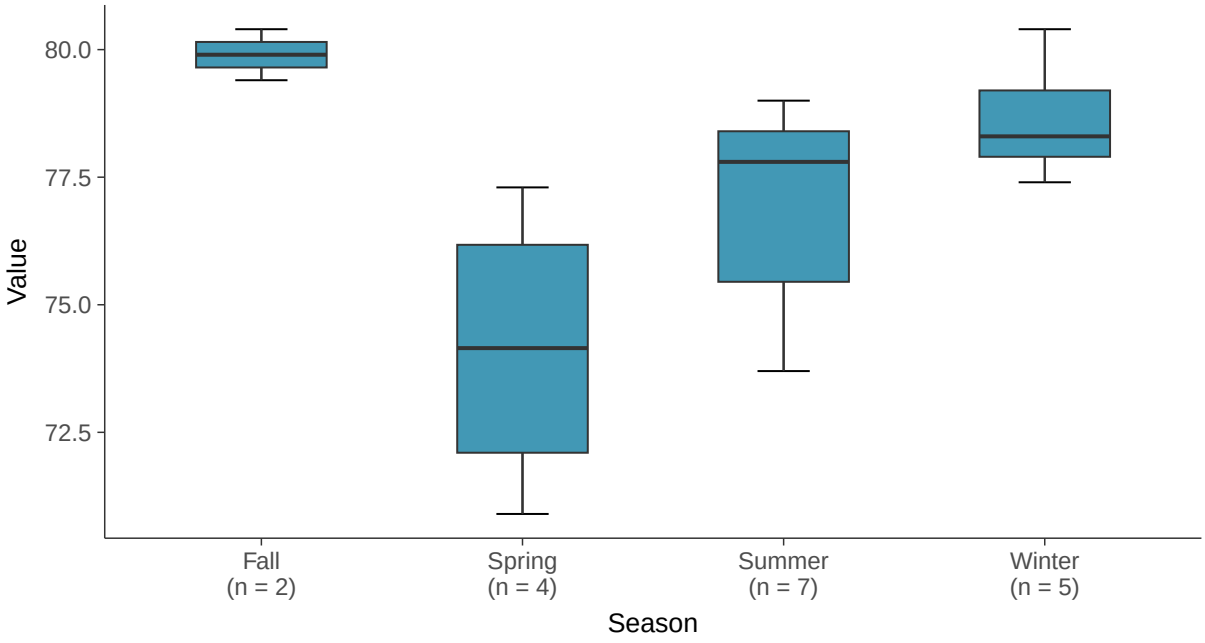
Boxplot

Sodium, MW-14 (mg/L)



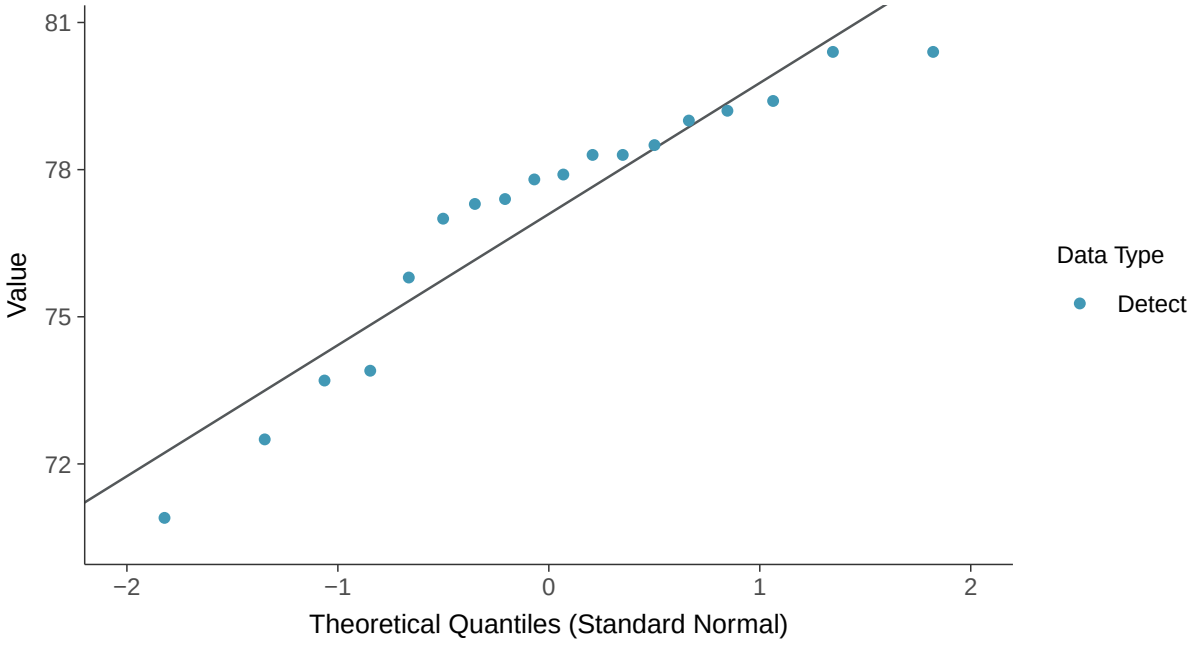
Boxplot by Season

Sodium, MW-14 (mg/L)



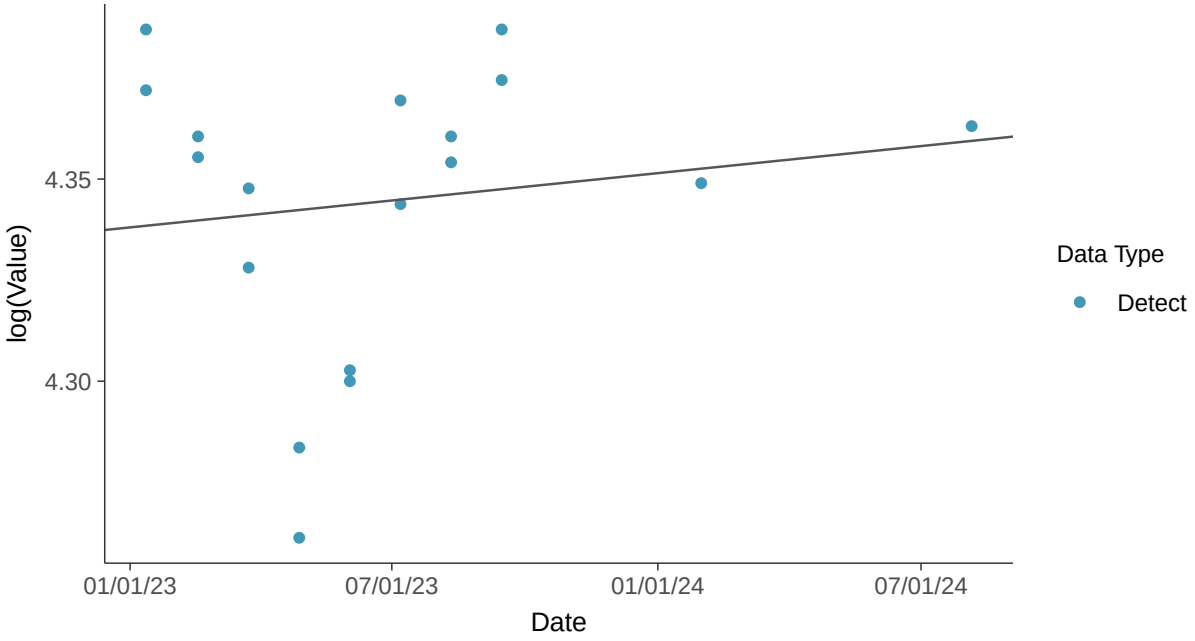
Normal Q-Q plot

Sodium, MW-14 (mg/L)



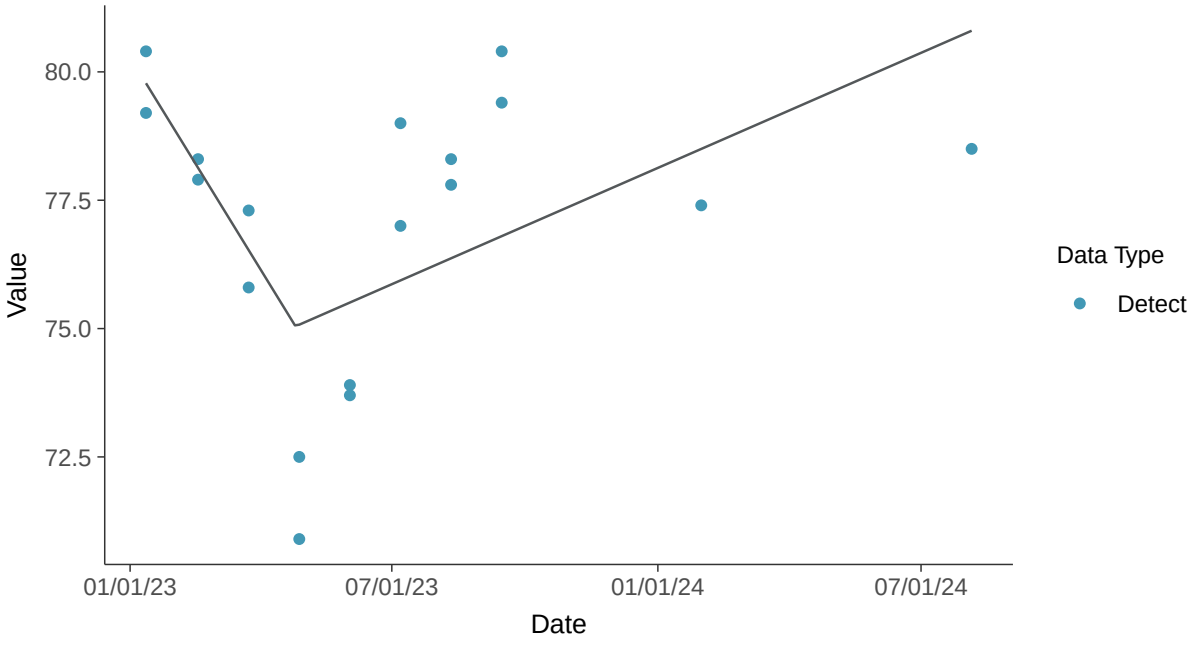
Trend Regression: Lognormal MLE

Sodium, MW-14 (mg/L)



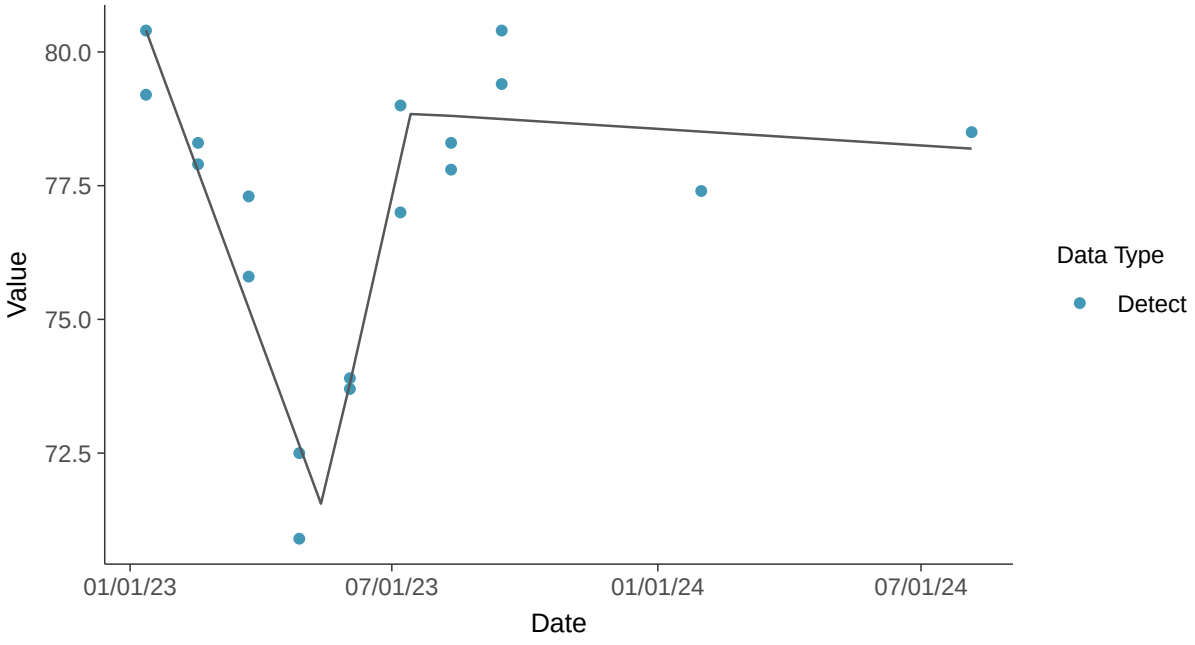
Trend Regression: Piecewise Linear-Linear

Sodium, MW-14 (mg/L)



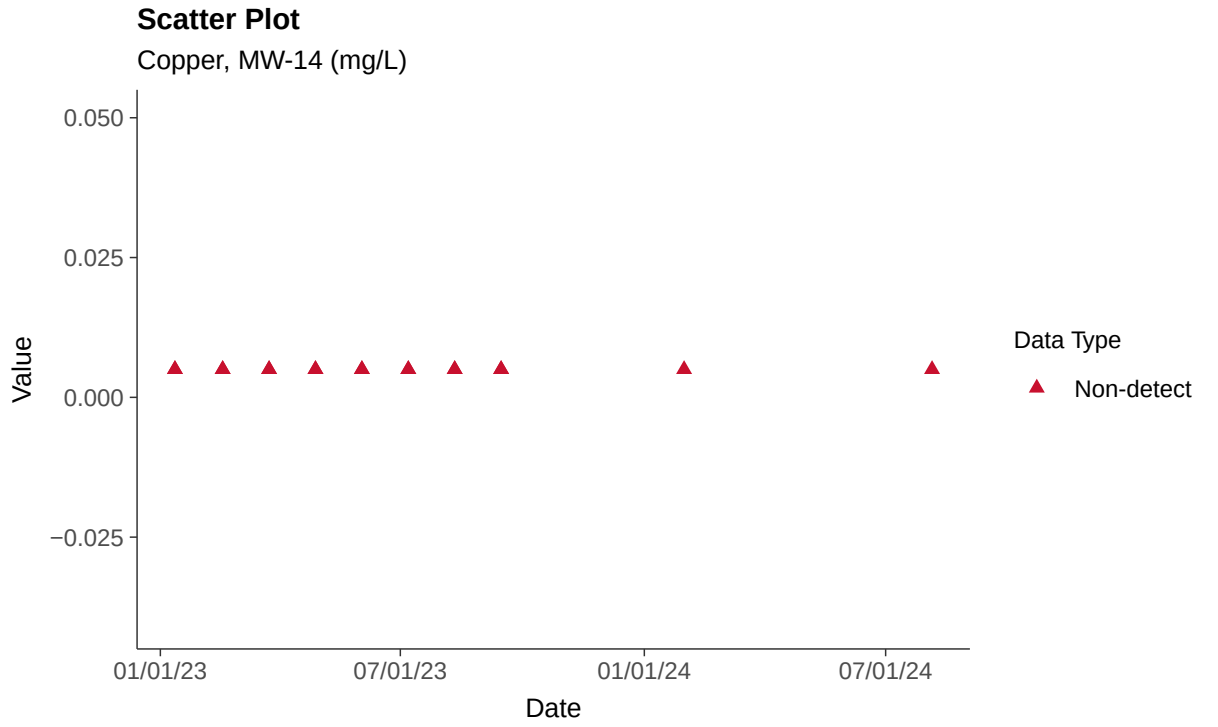
Trend Regression: Piecewise Linear-Linear-Linear

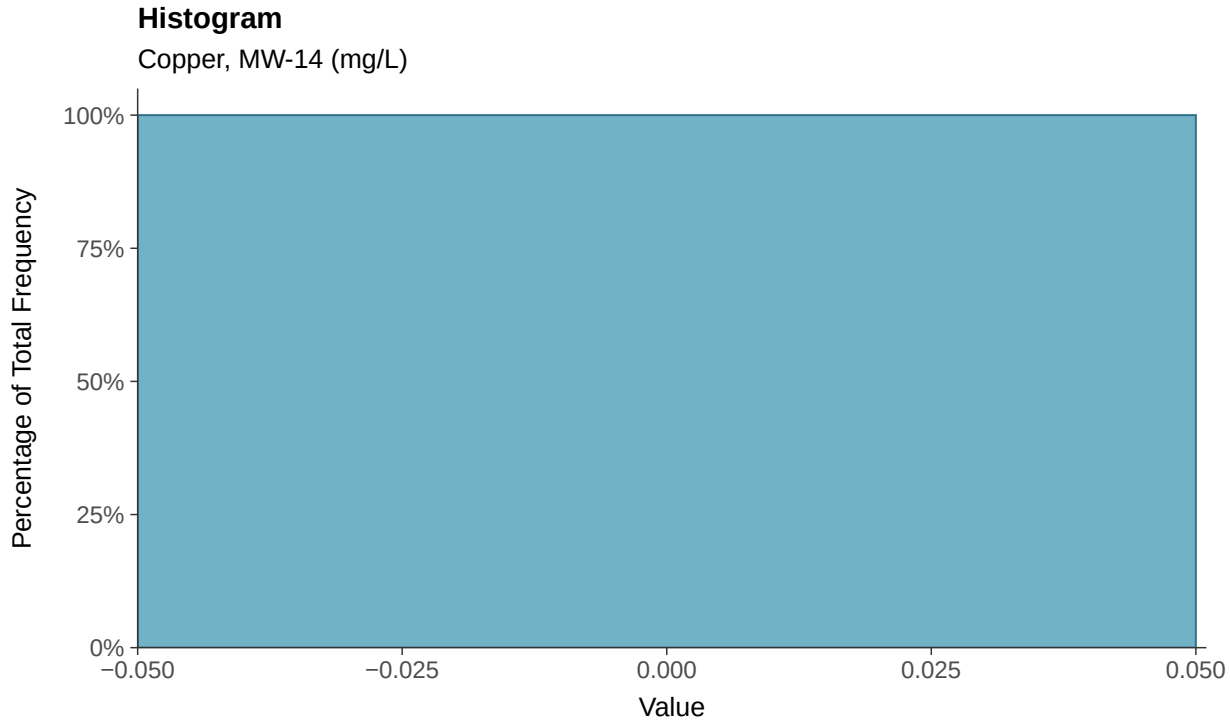
Sodium, MW-14 (mg/L)



Part 115: Copper, MW-14

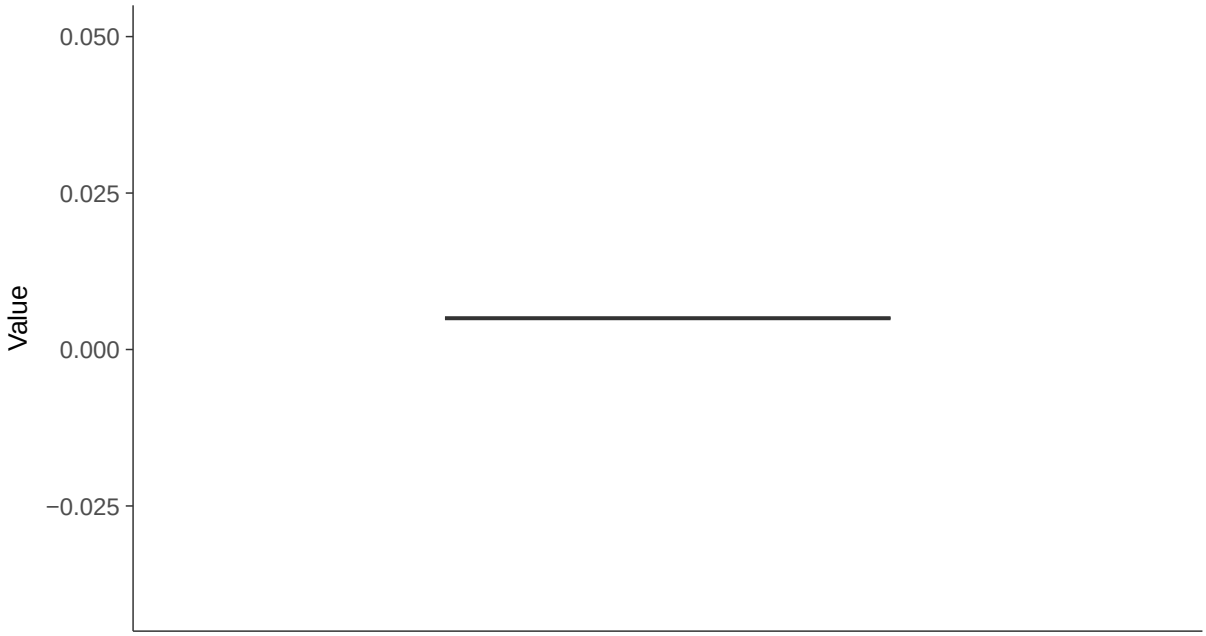
ID: 14_5_37





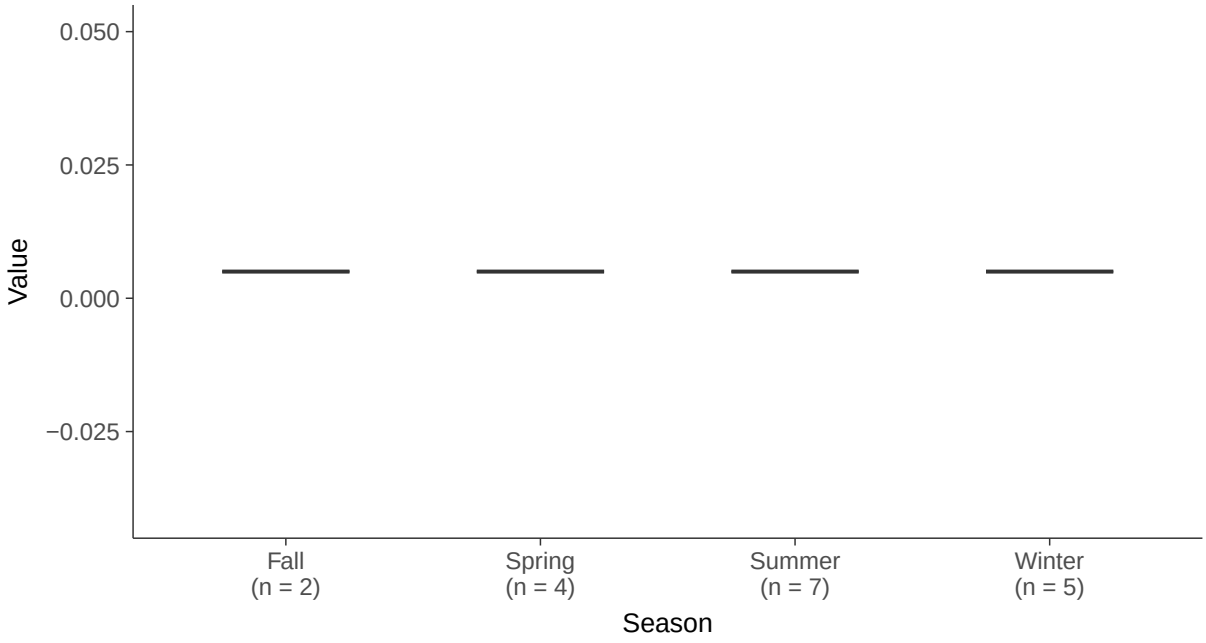
Boxplot

Copper, MW-14 (mg/L)



Boxplot by Season

Copper, MW-14 (mg/L)

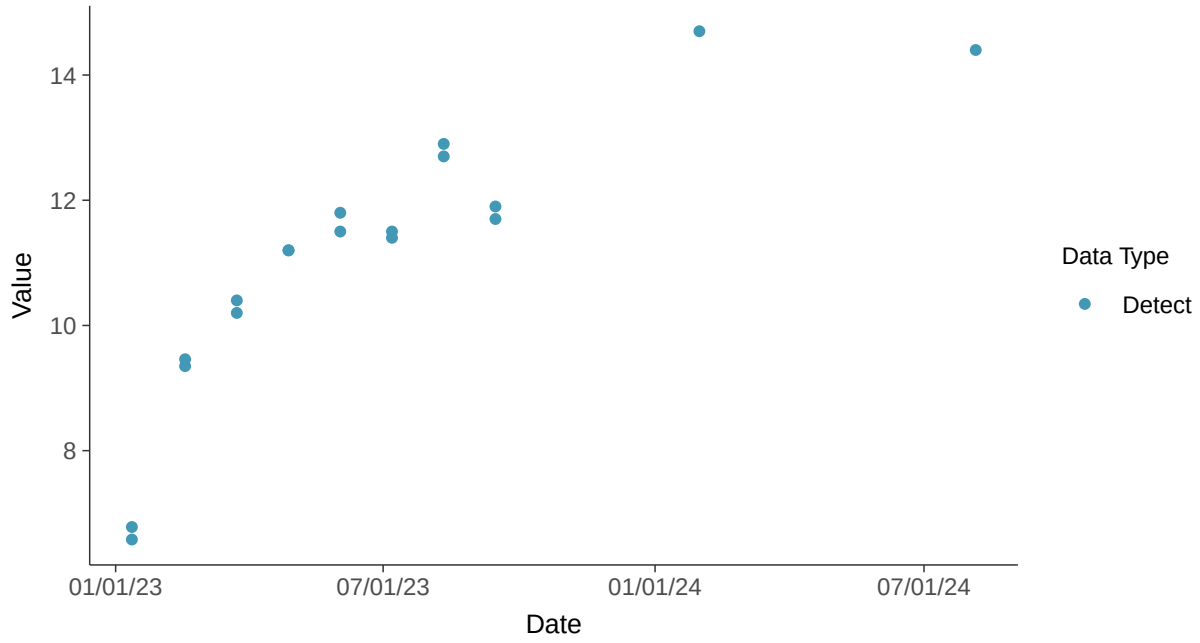


Part 115: Iron, MW-14

ID: 14_5_38

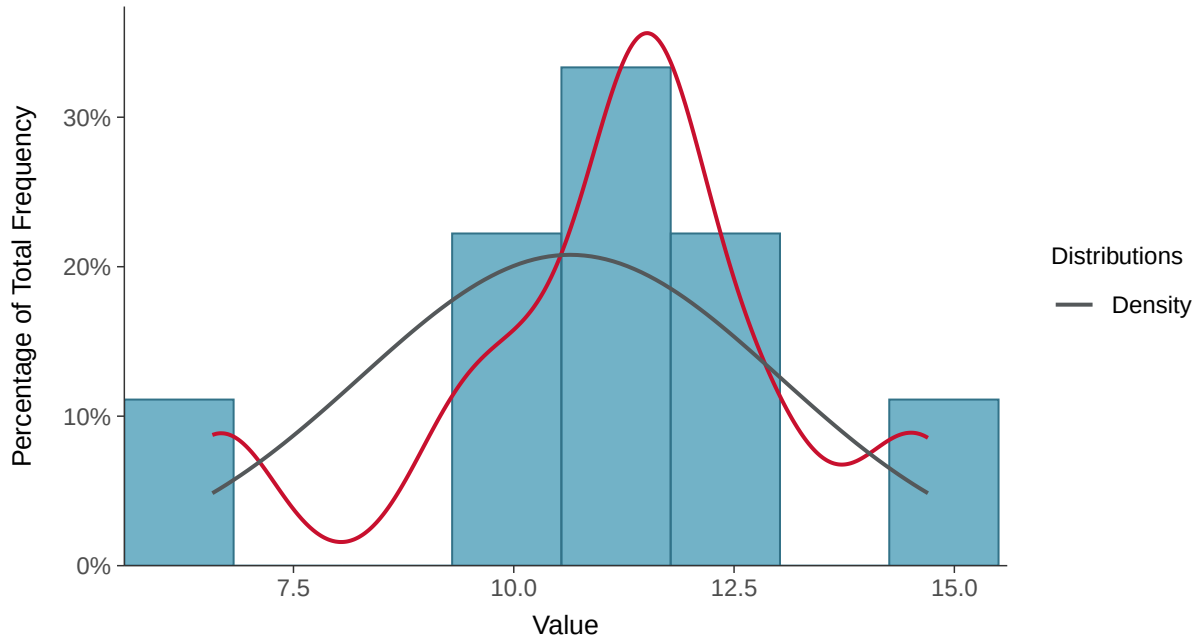
Scatter Plot

Iron, MW-14 (mg/L)



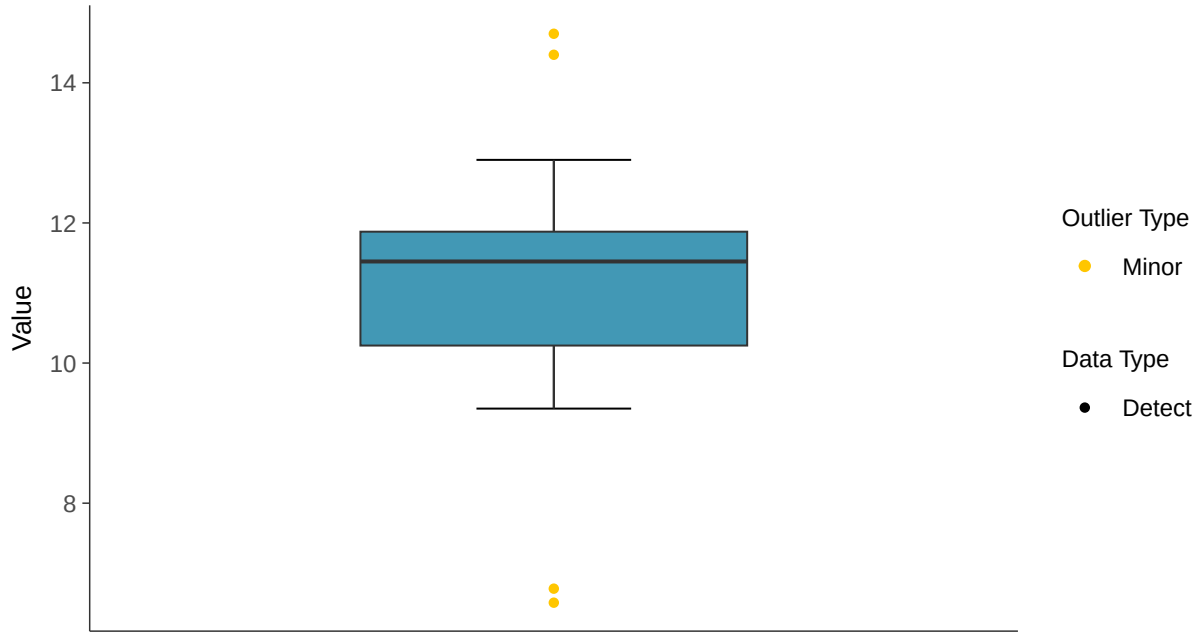
Histogram

Iron, MW-14 (mg/L)



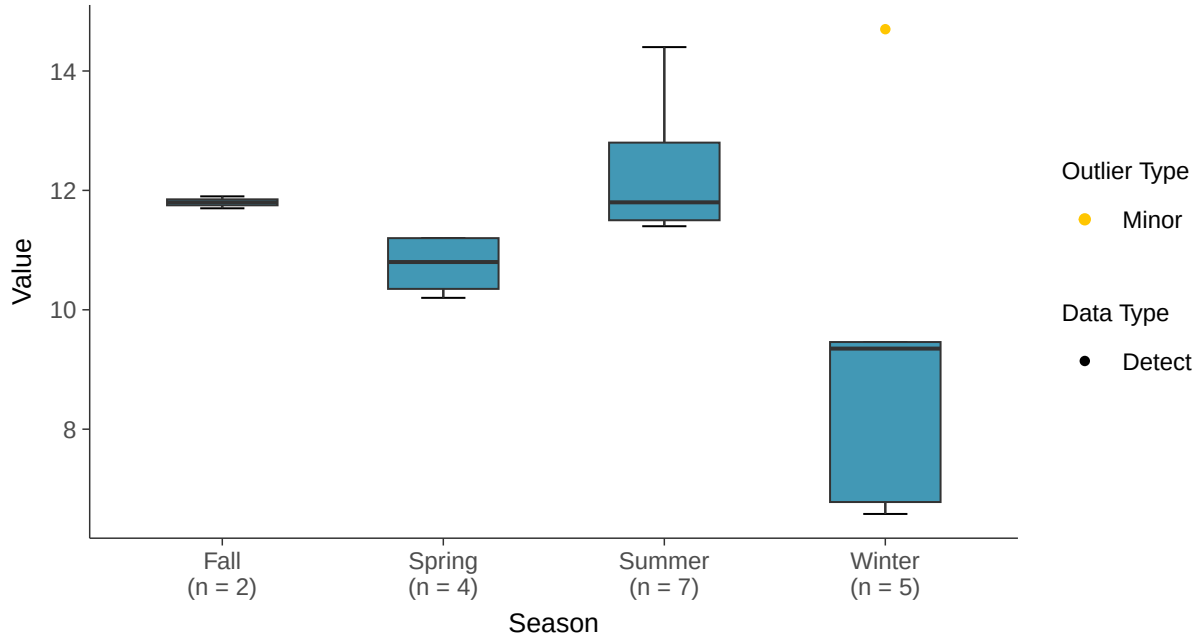
Boxplot

Iron, MW-14 (mg/L)



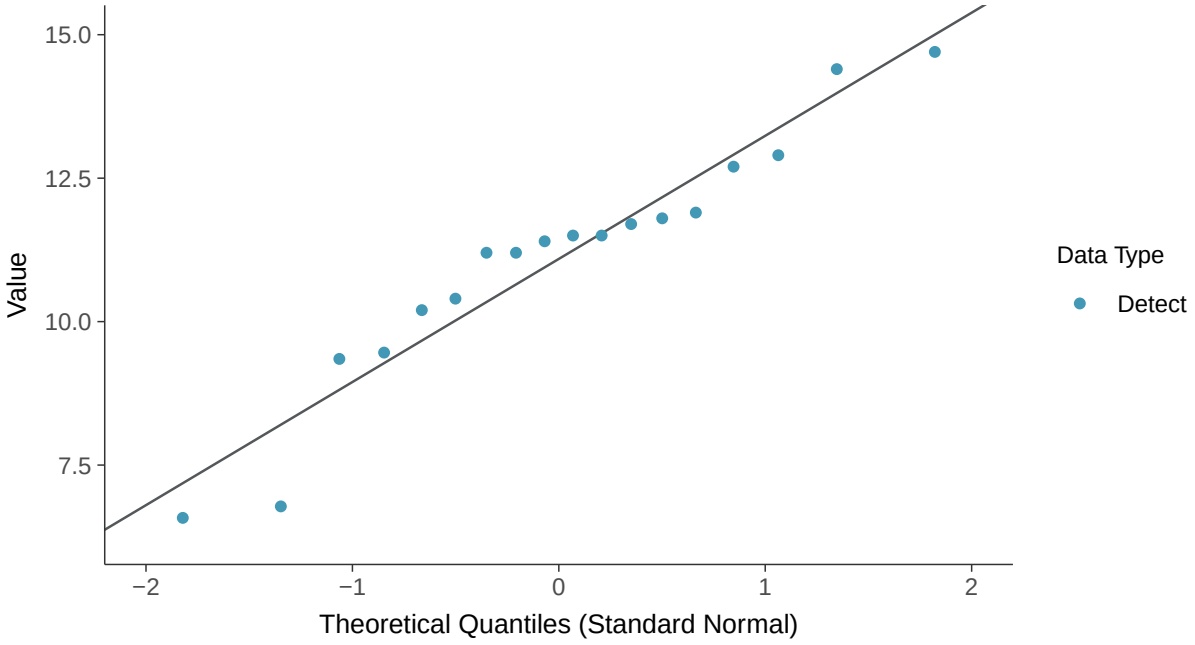
Boxplot by Season

Iron, MW-14 (mg/L)



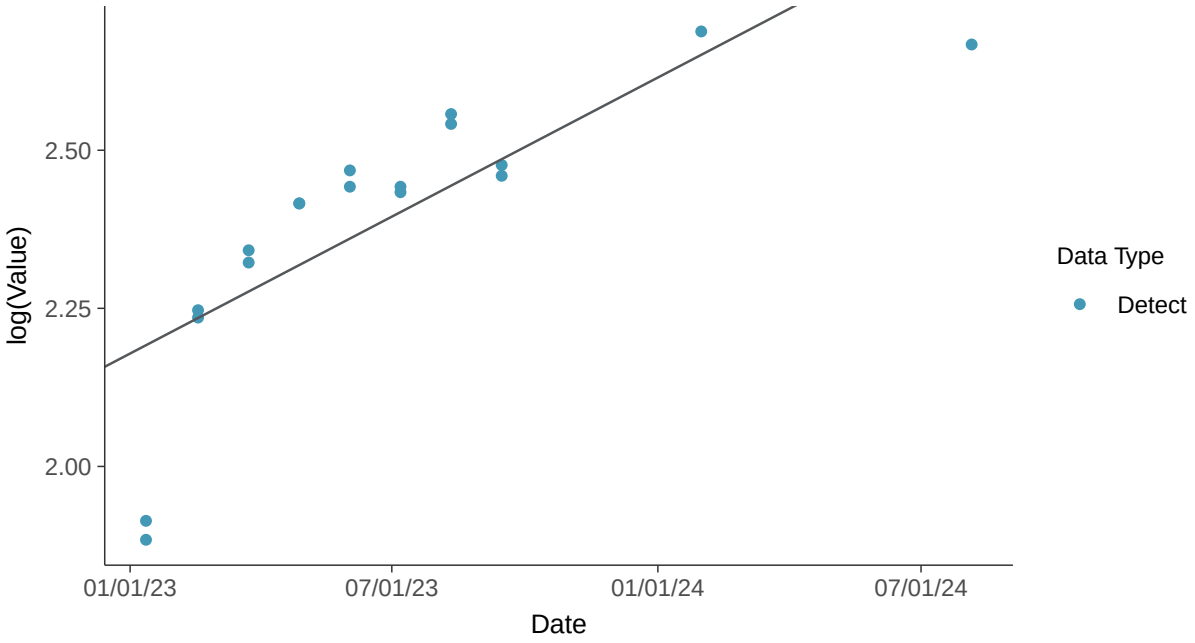
Normal Q-Q plot

Iron, MW-14 (mg/L)



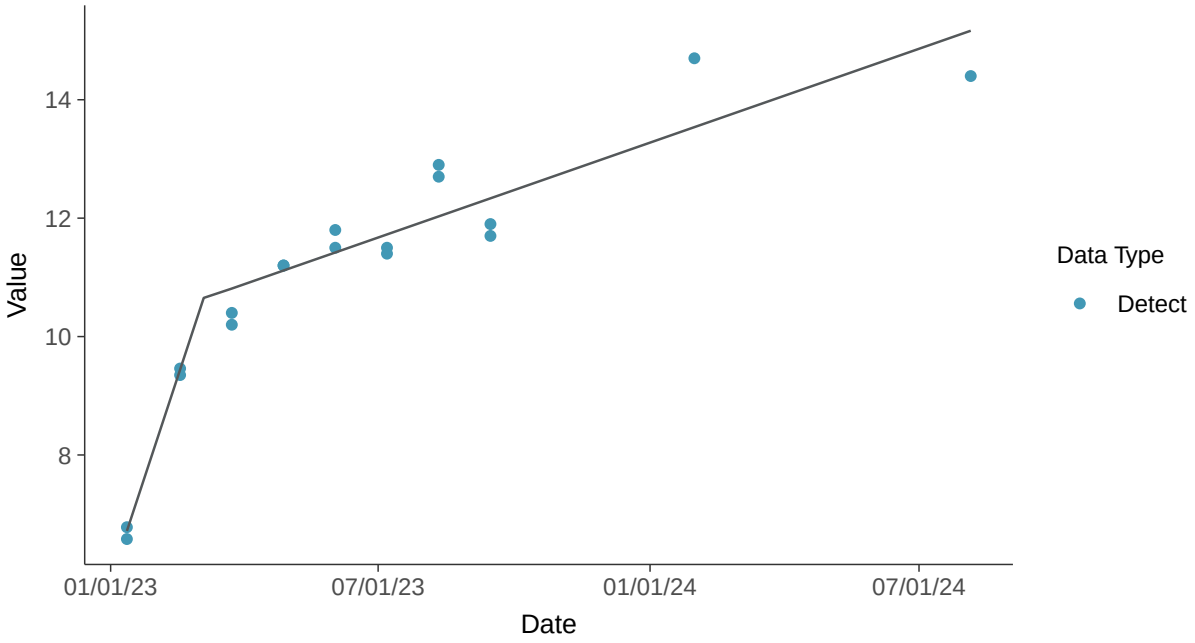
Trend Regression: Lognormal MLE

Iron, MW-14 (mg/L)



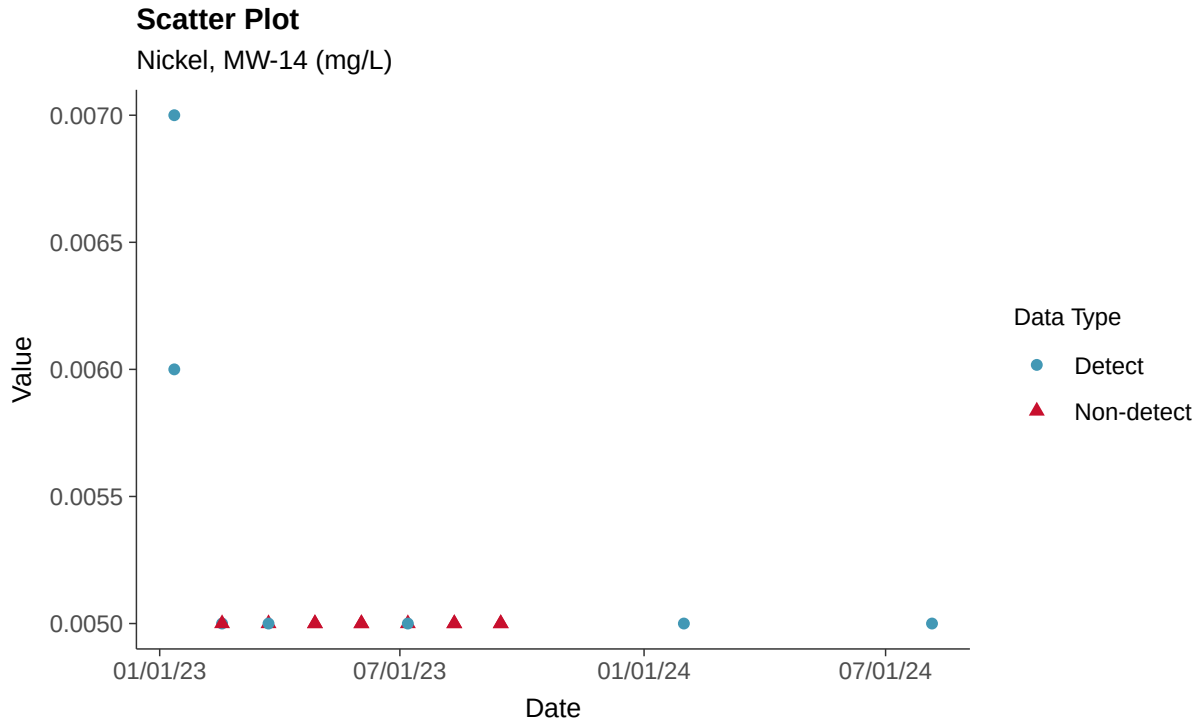
Trend Regression: Piecewise Linear-Linear

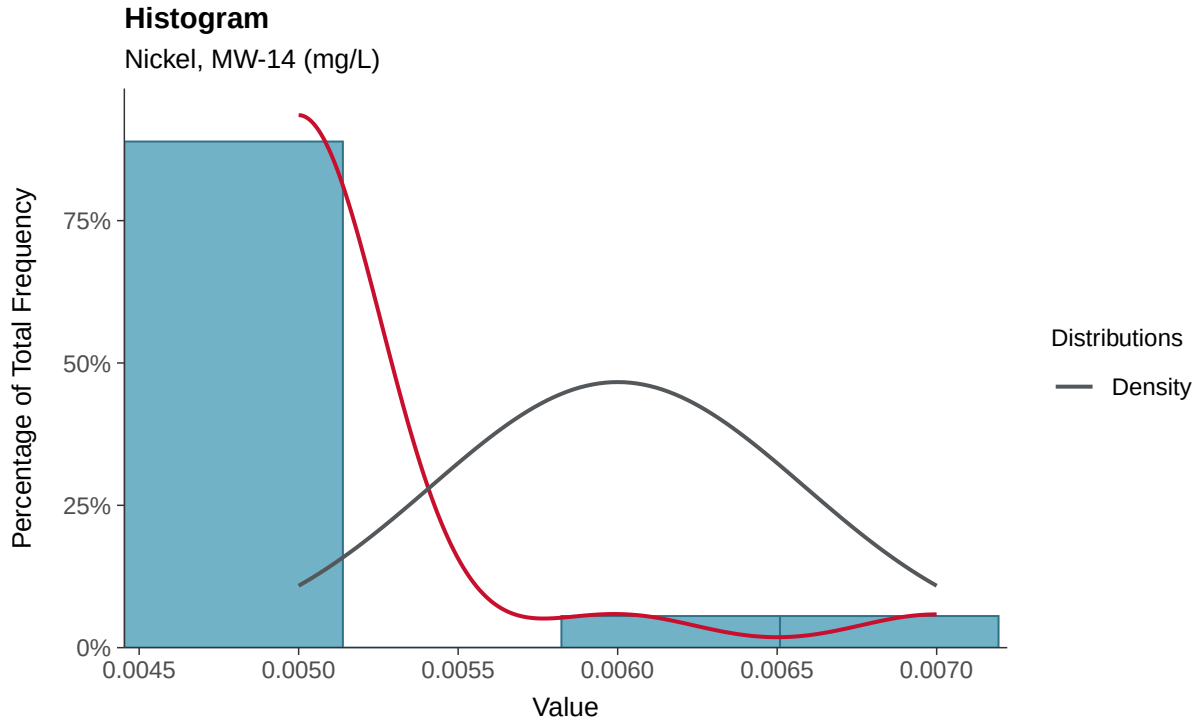
Iron, MW-14 (mg/L)



Part 115: Nickel, MW-14

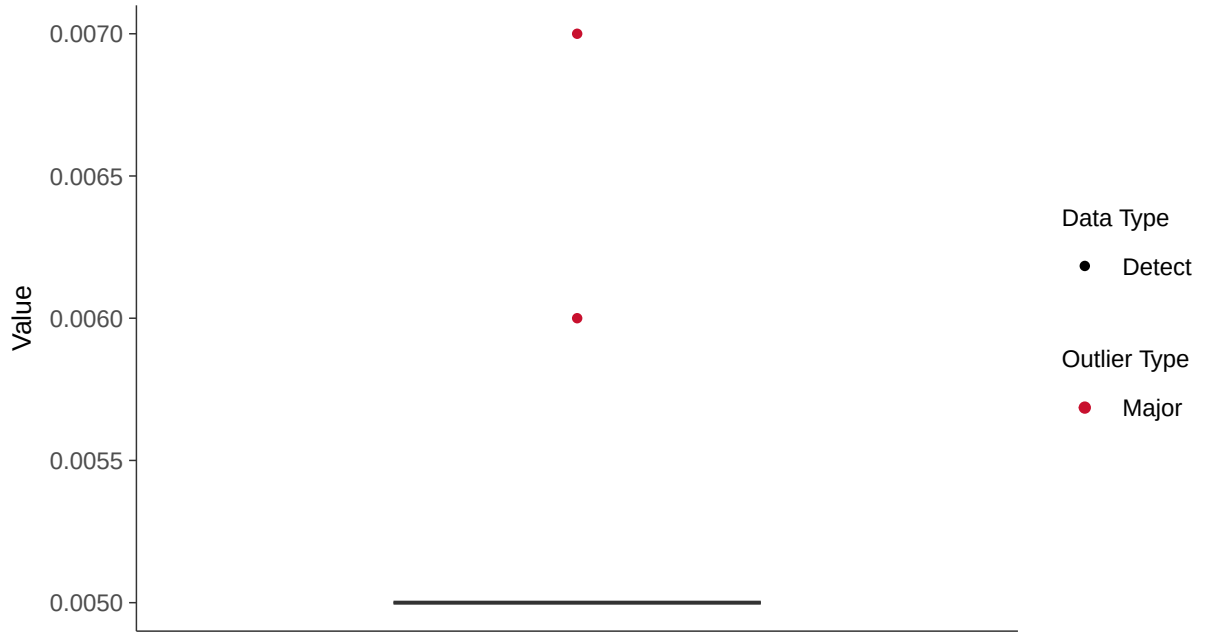
ID: 14_5_39





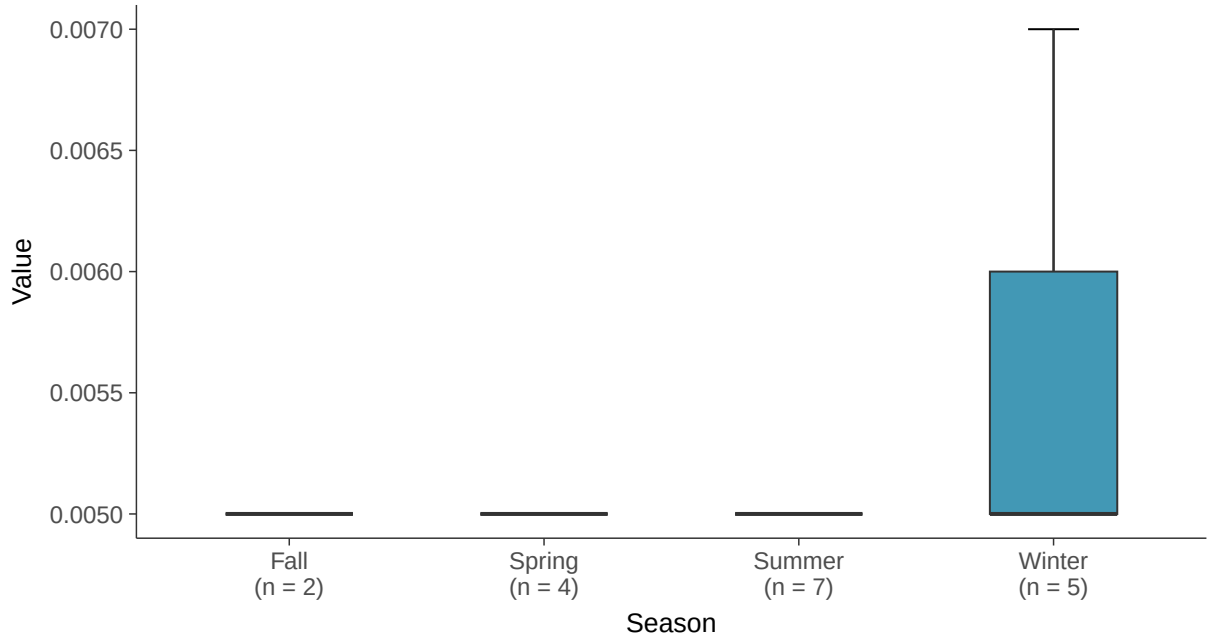
Boxplot

Nickel, MW-14 (mg/L)



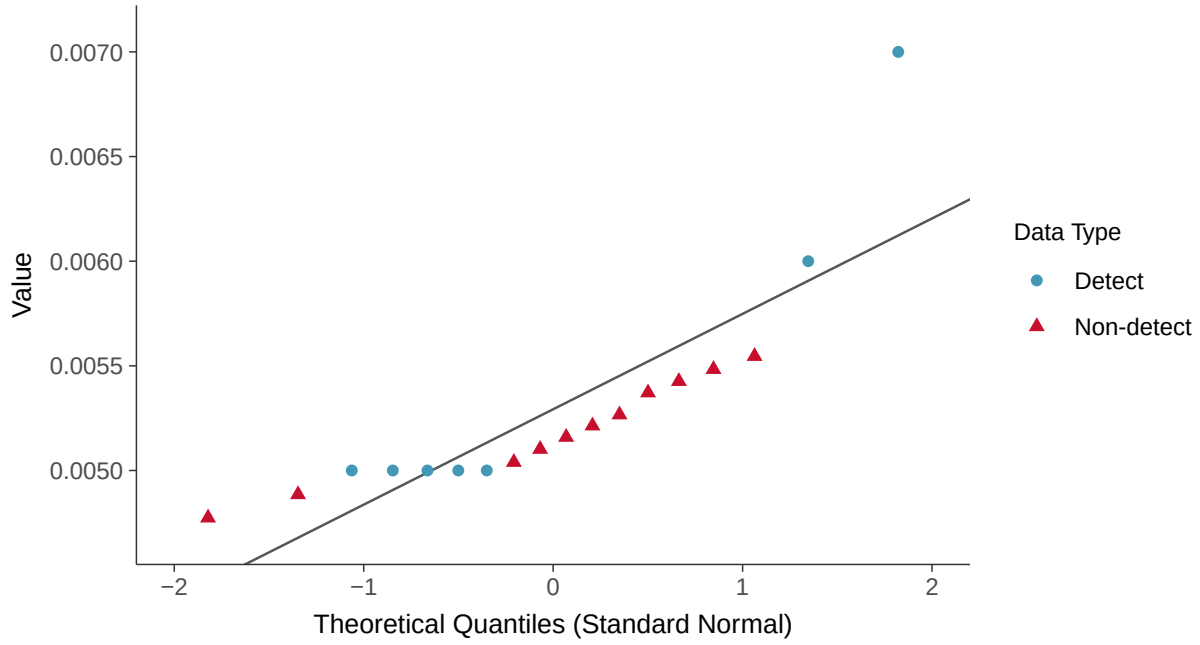
Boxplot by Season

Nickel, MW-14 (mg/L)



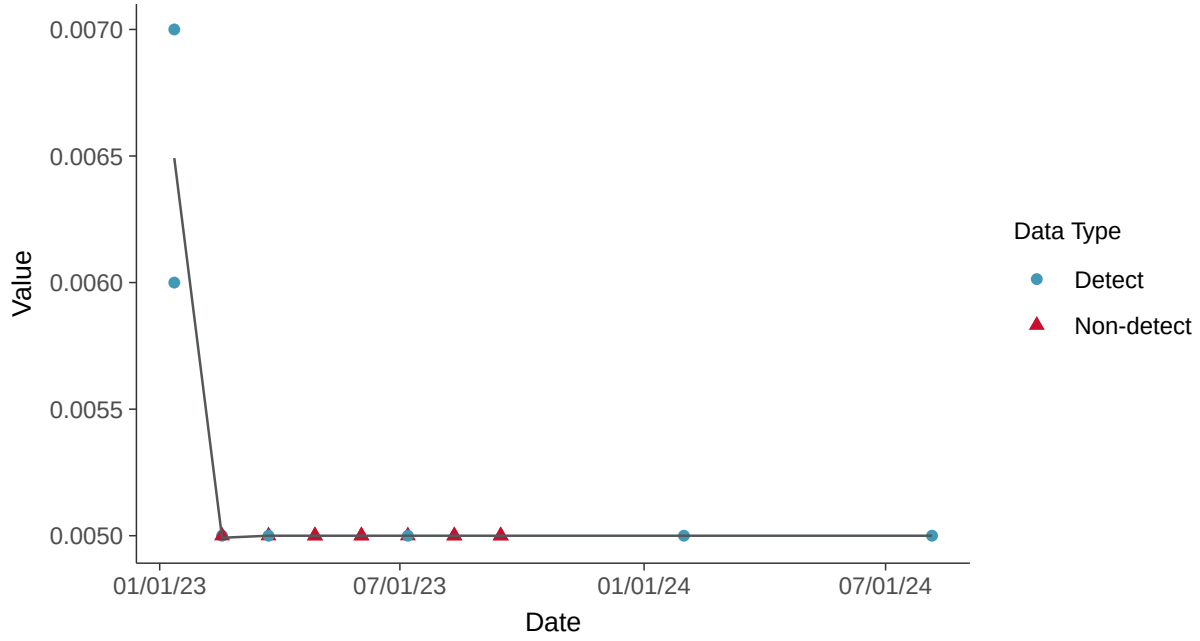
Normal Q-Q plot using ROS Imputed Estimates

Nickel, MW-14 (mg/L)



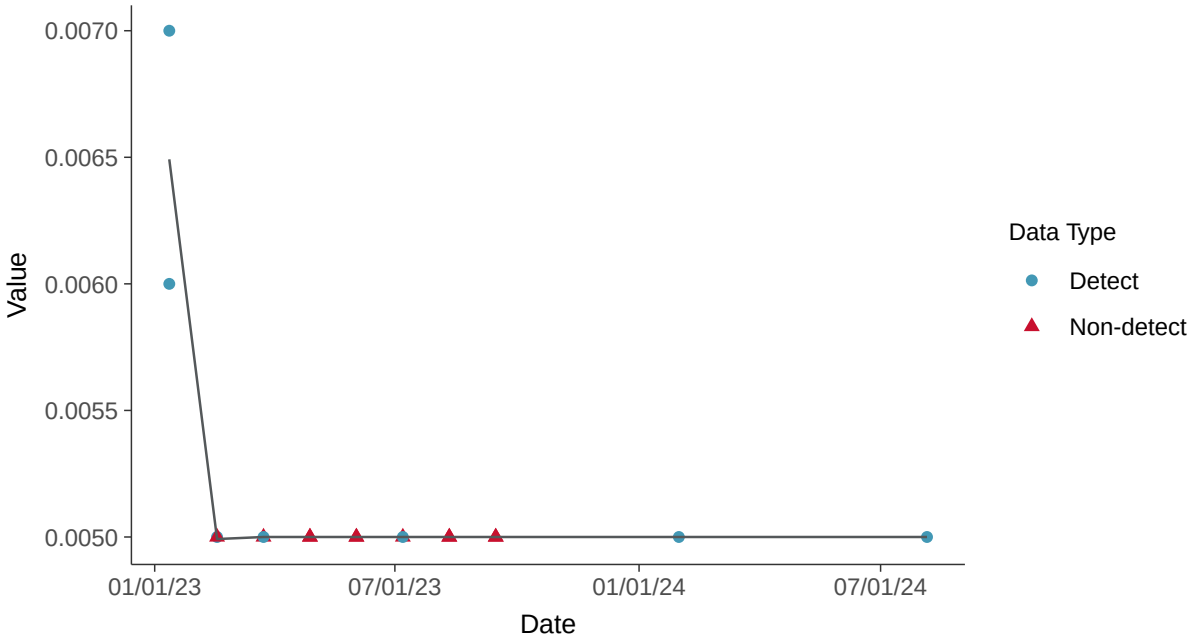
Trend Regression: Piecewise Linear-Linear

Nickel, MW-14 (mg/L)



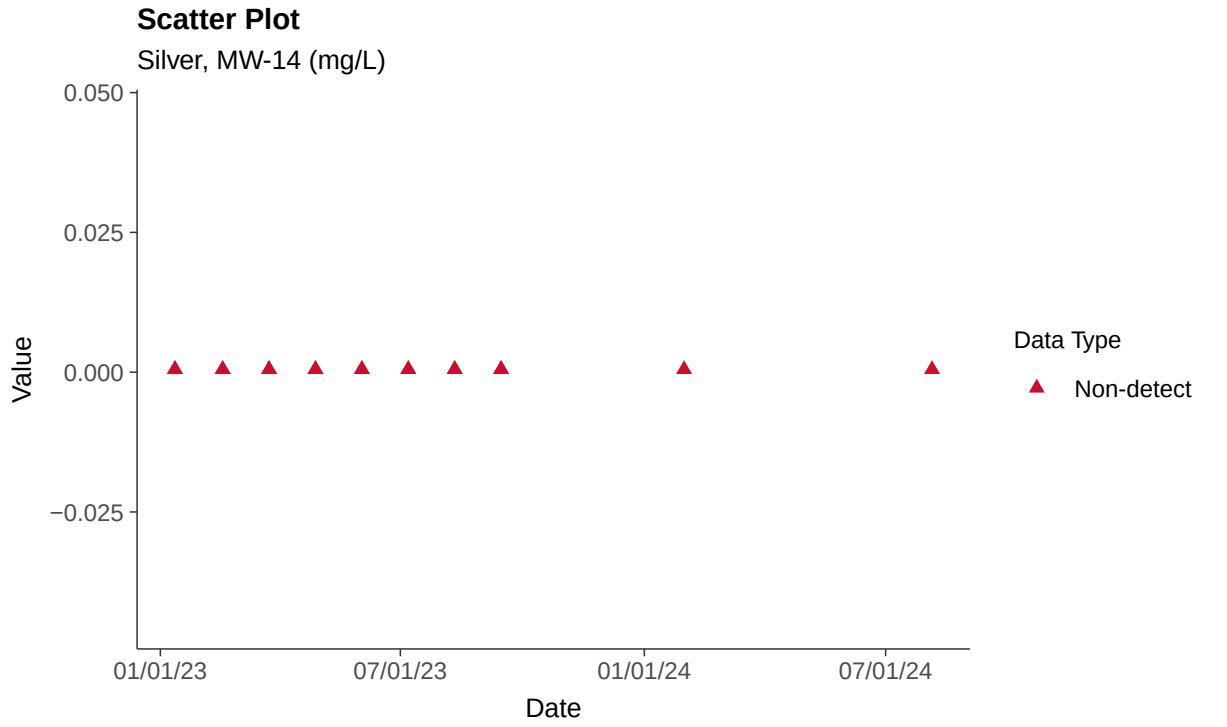
Trend Regression: Piecewise Linear-Linear-Linear

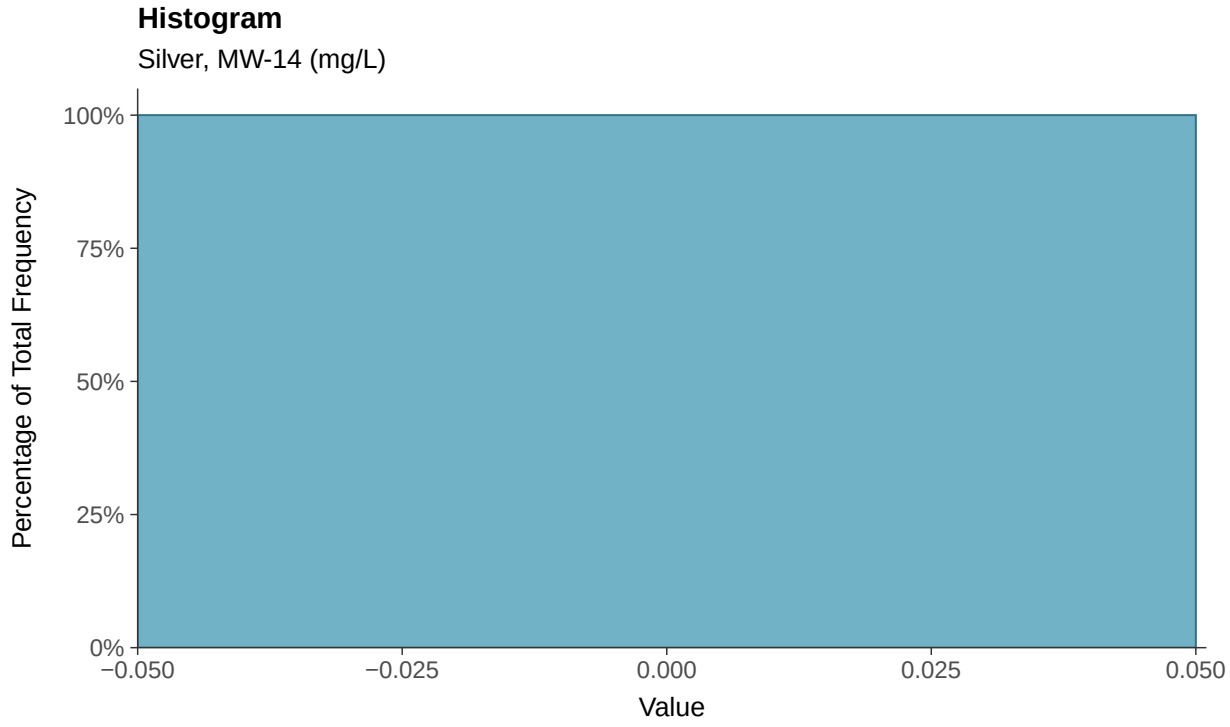
Nickel, MW-14 (mg/L)



Part 115: Silver, MW-14

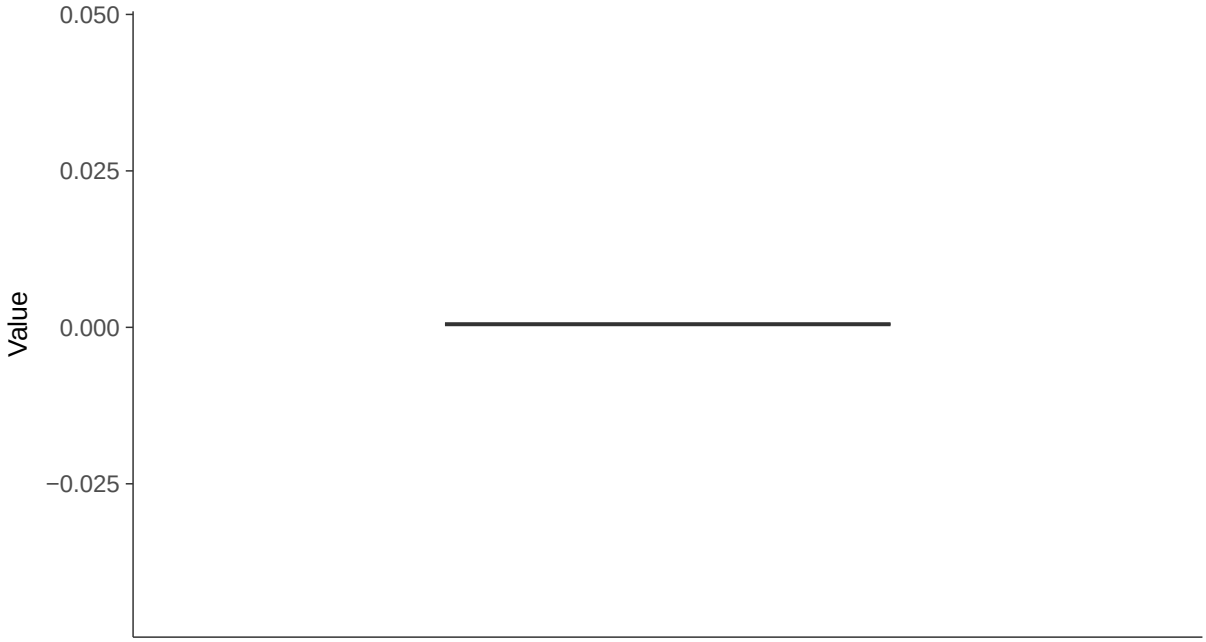
ID: 14_5_40





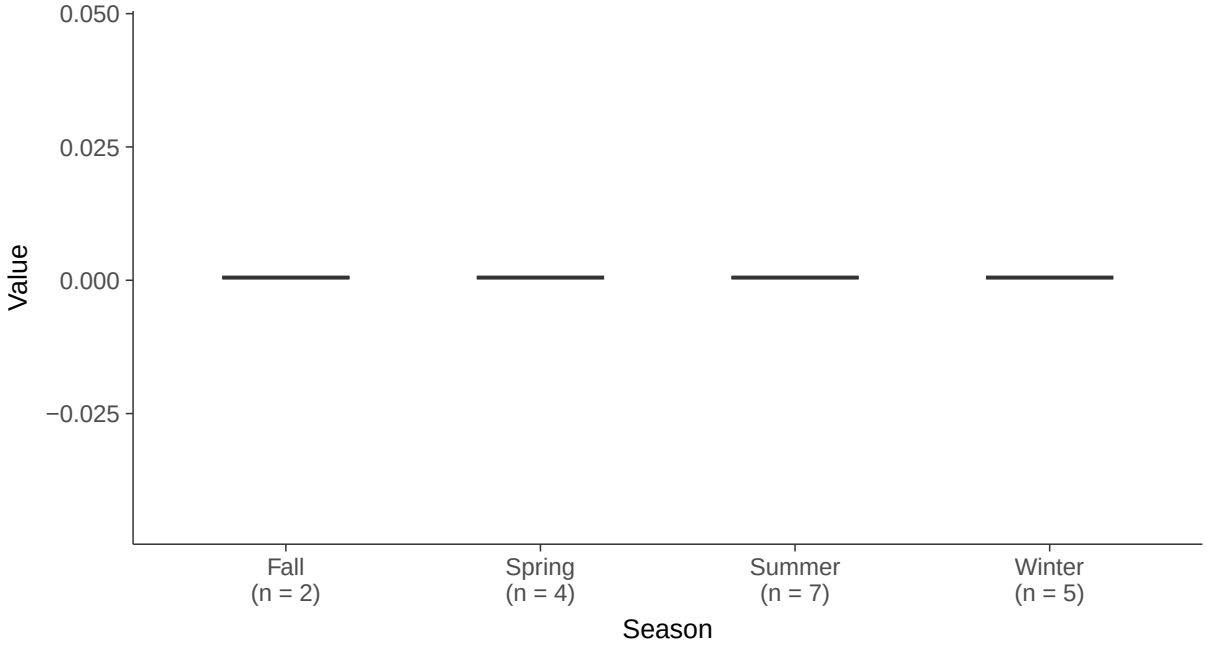
Boxplot

Silver, MW-14 (mg/L)



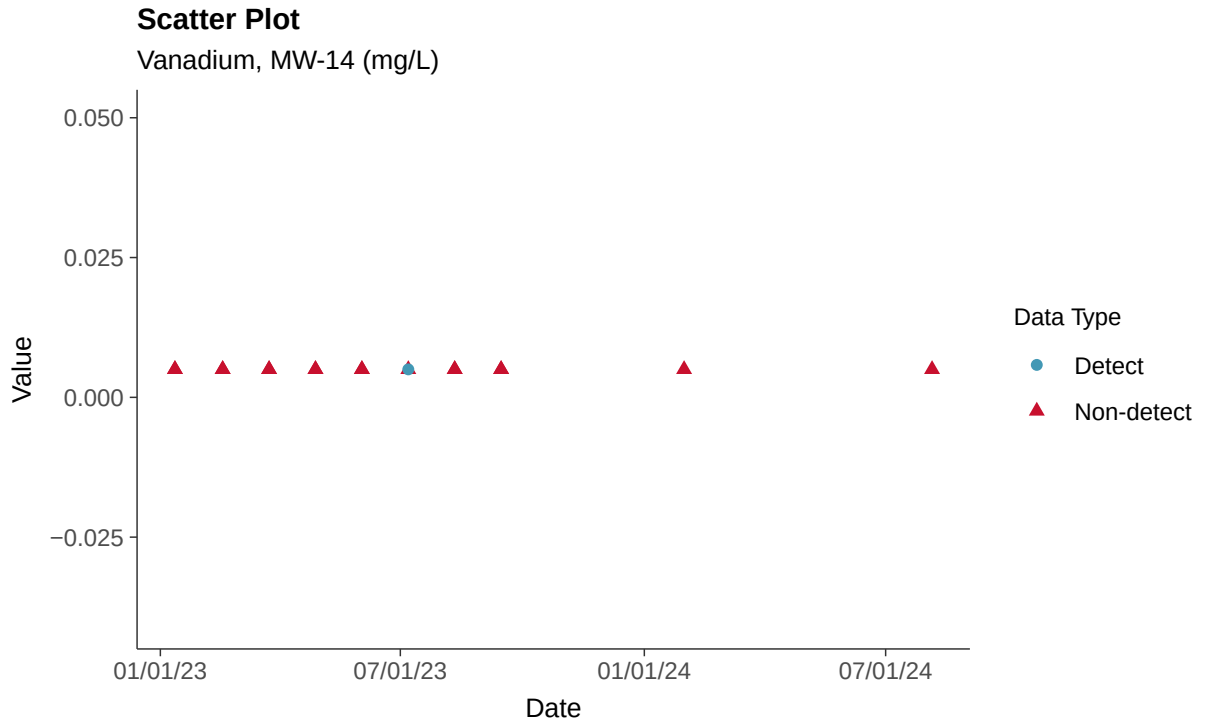
Boxplot by Season

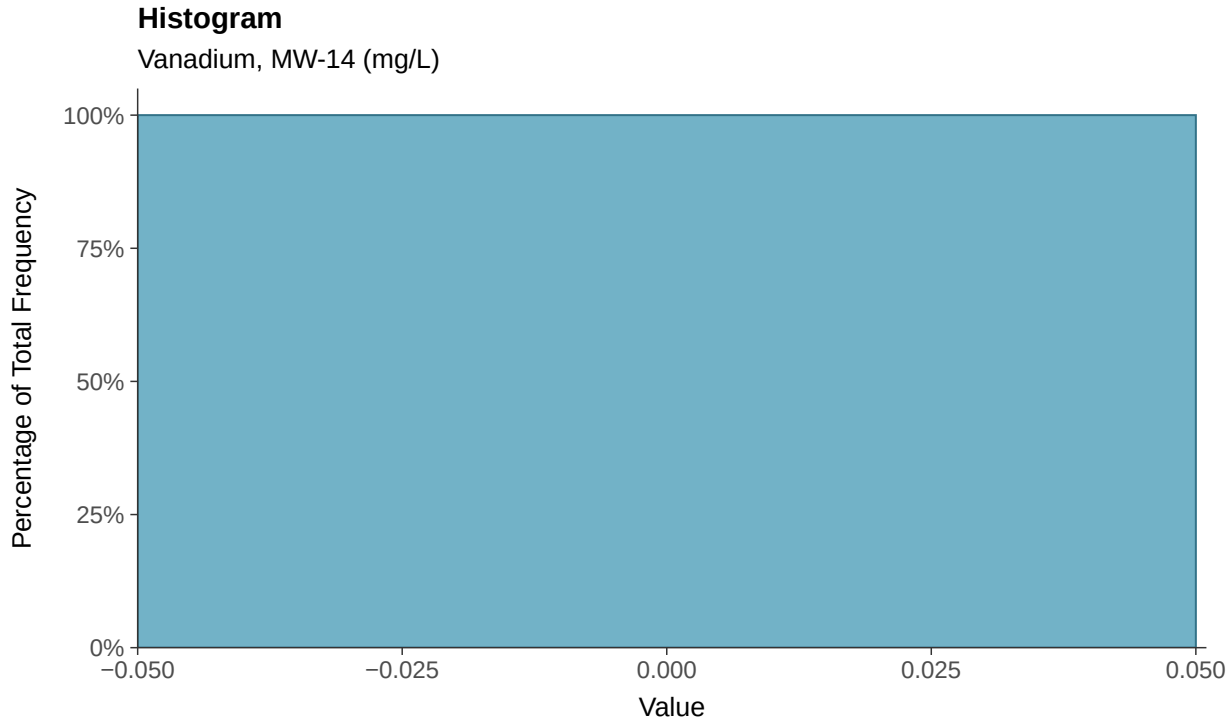
Silver, MW-14 (mg/L)



Part 115: Vanadium, MW-14

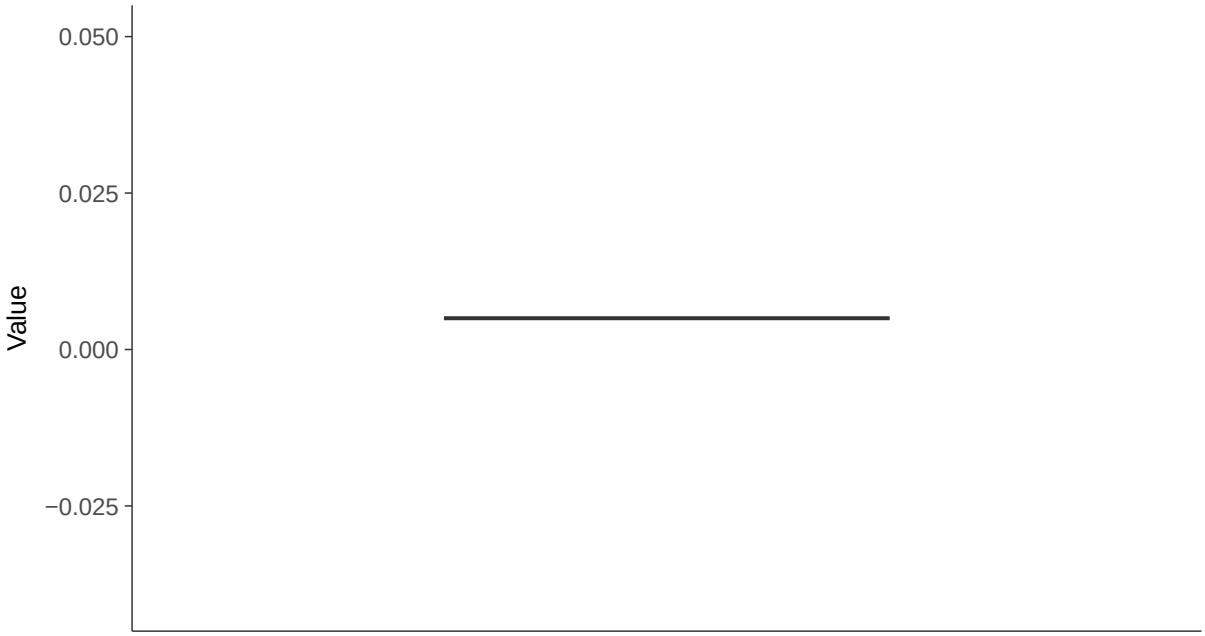
ID: 14_5_41





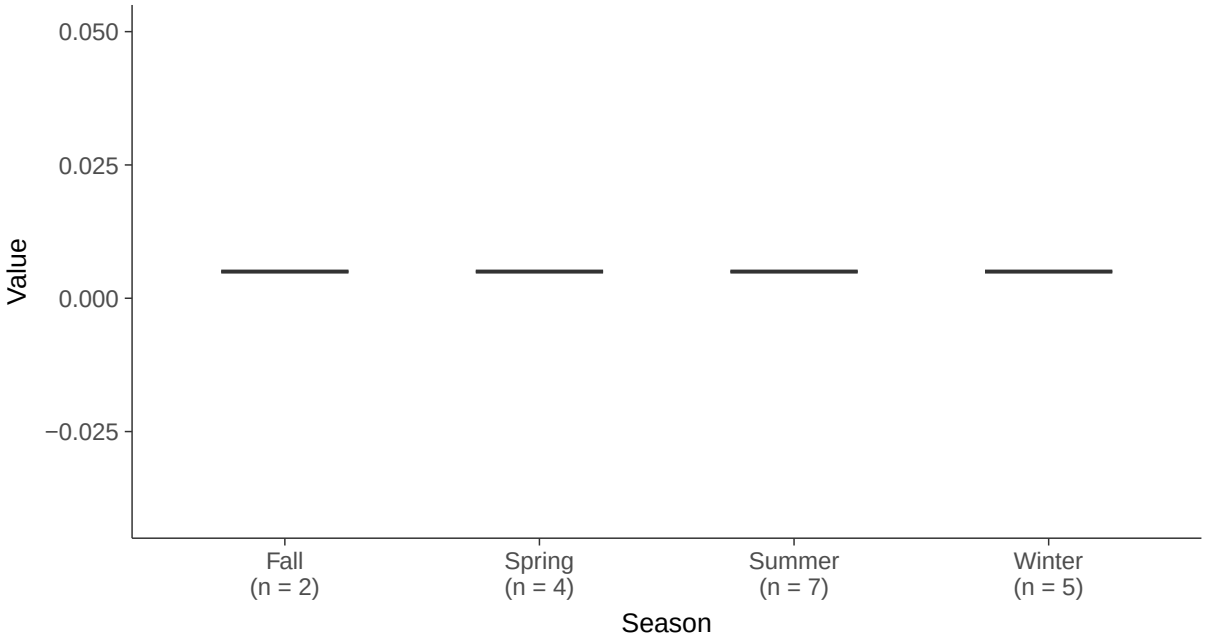
Boxplot

Vanadium, MW-14 (mg/L)



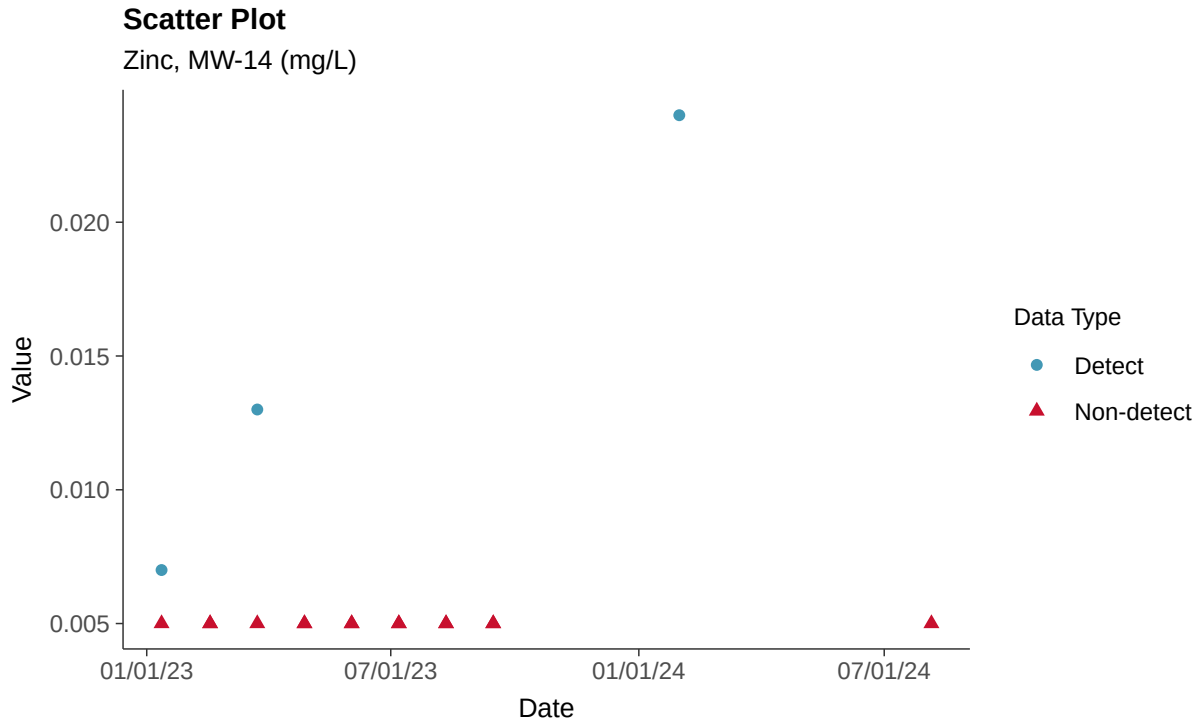
Boxplot by Season

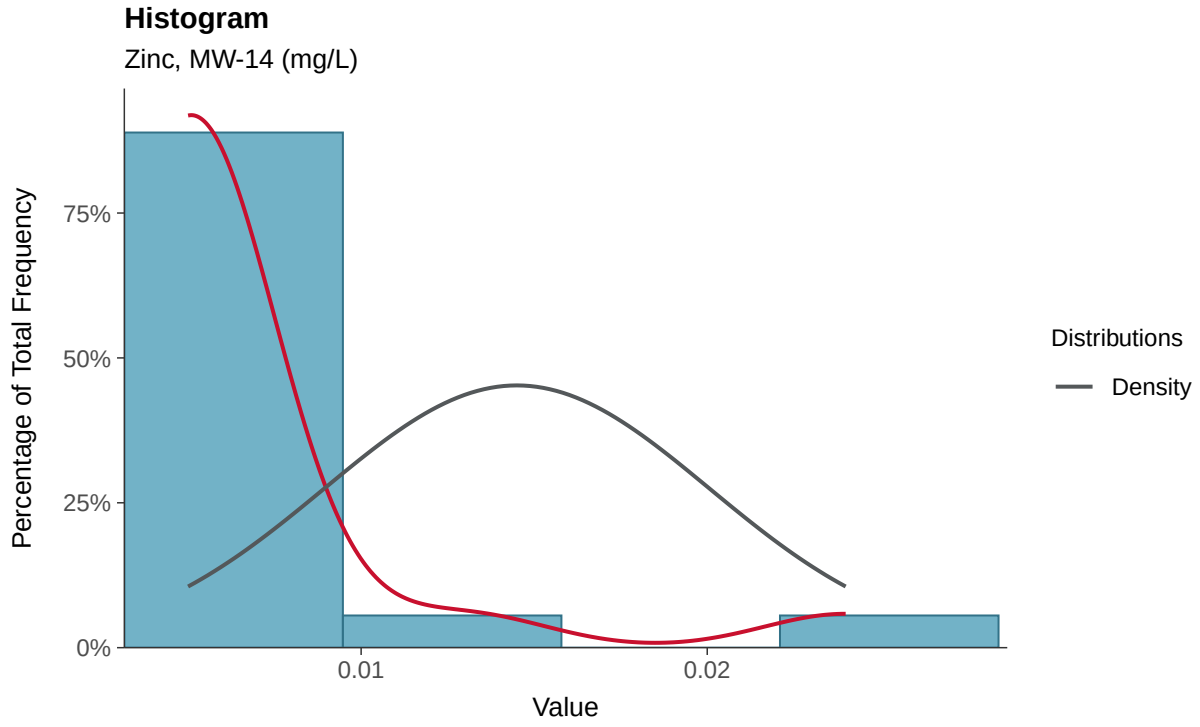
Vanadium, MW-14 (mg/L)



Part 115: Zinc, MW-14

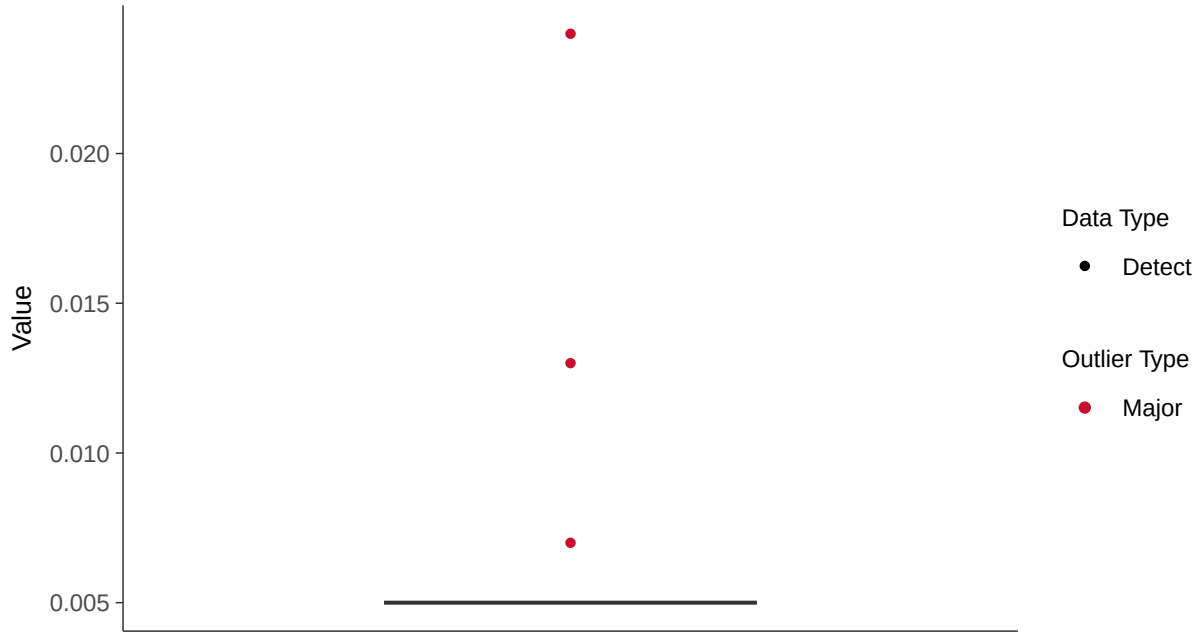
ID: 14_5_42





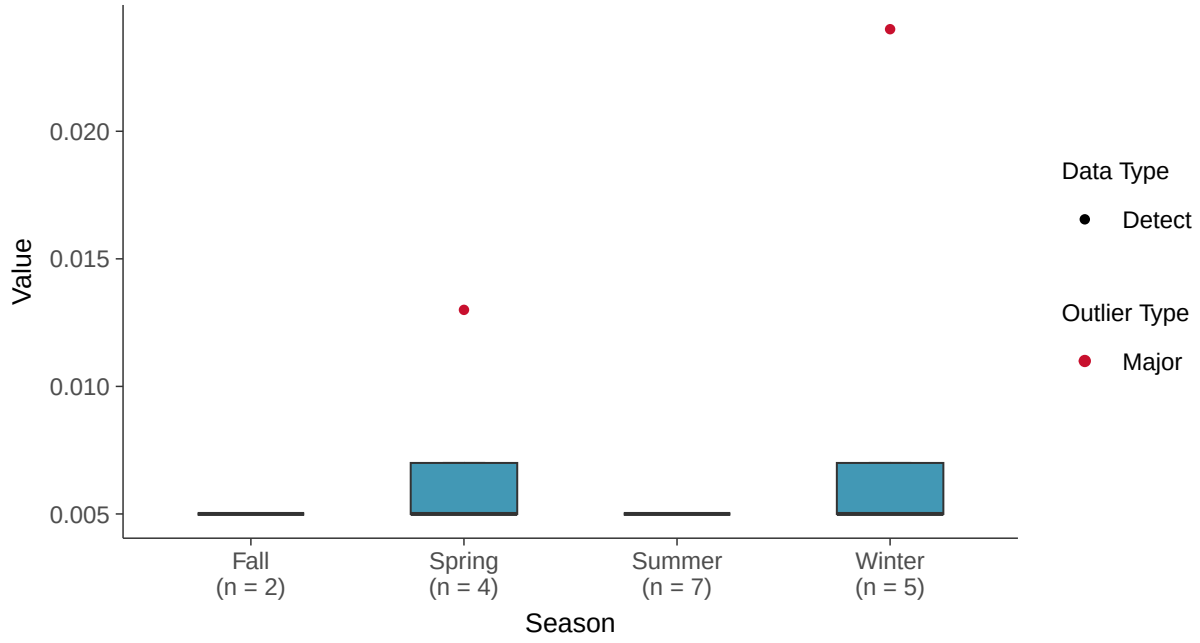
Boxplot

Zinc, MW-14 (mg/L)



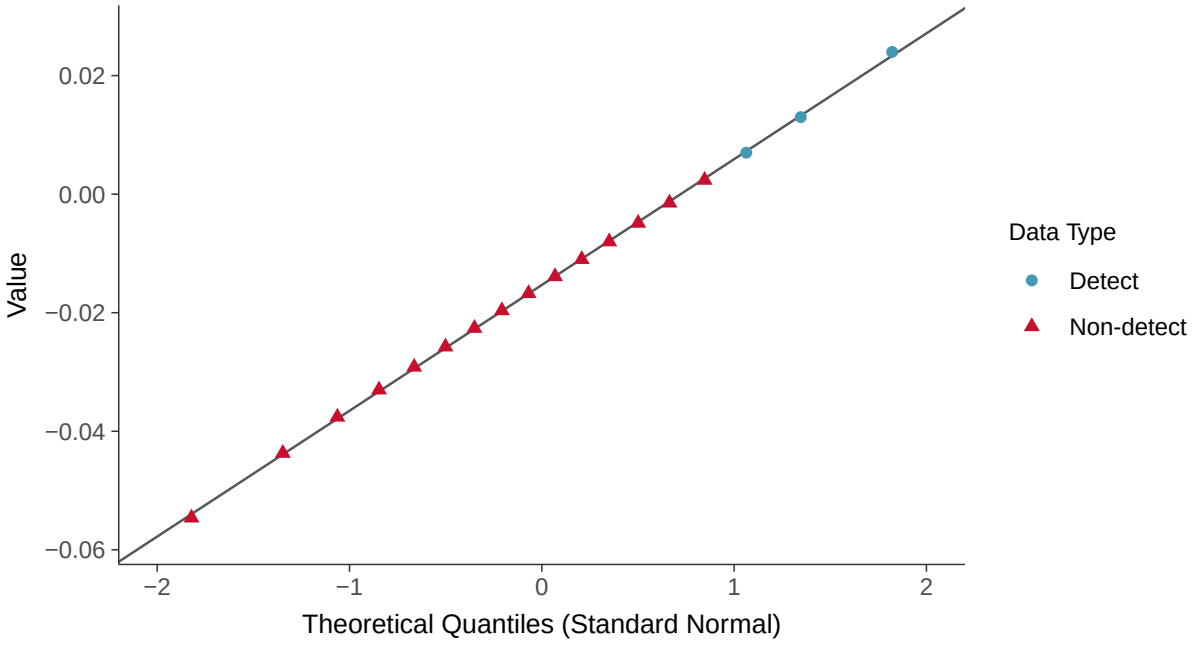
Boxplot by Season

Zinc, MW-14 (mg/L)



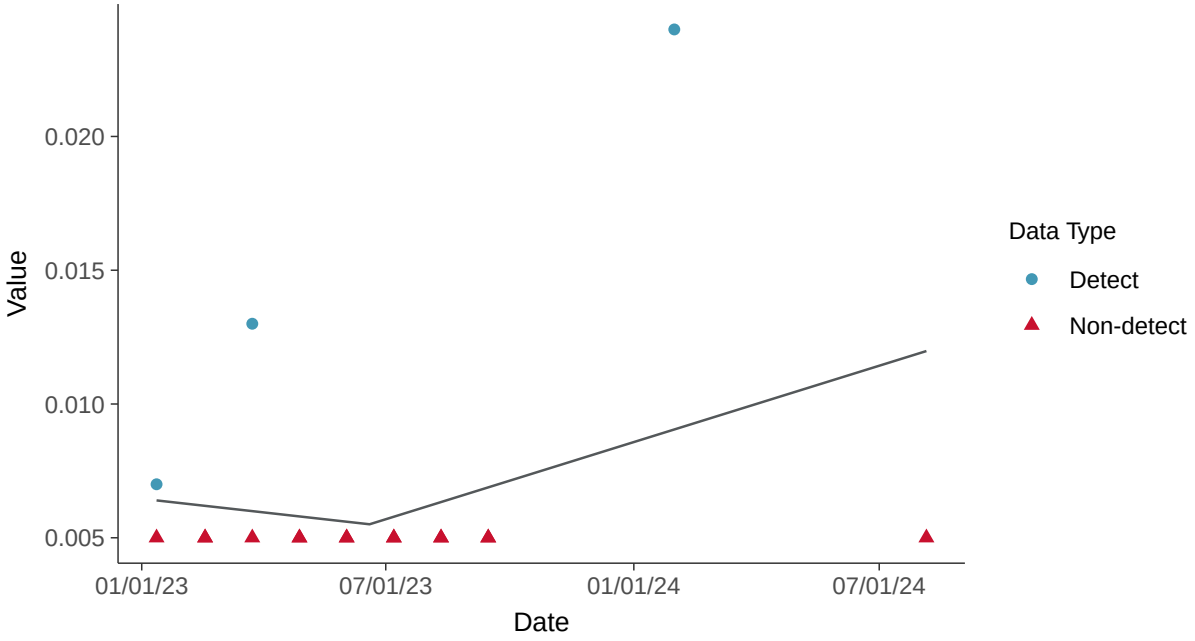
Normal Q-Q plot using ROS Imputed Estimates

Zinc, MW-14 (mg/L)



Trend Regression: Piecewise Linear-Linear

Zinc, MW-14 (mg/L)

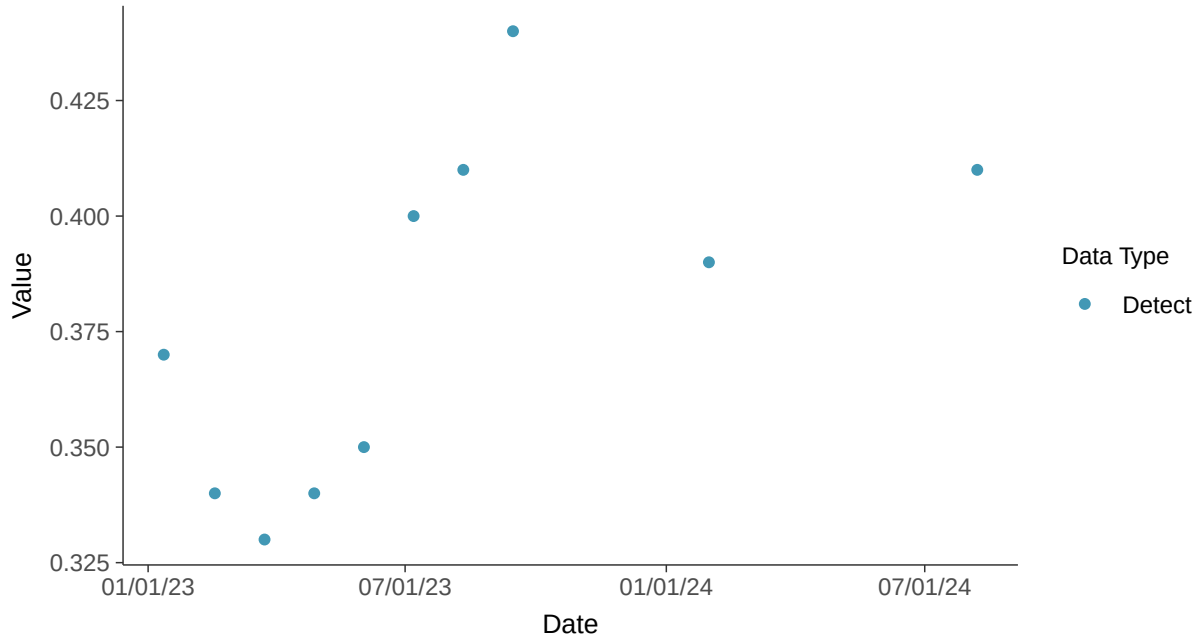


Appendix III: Boron, MW-15

ID: 15_1_01

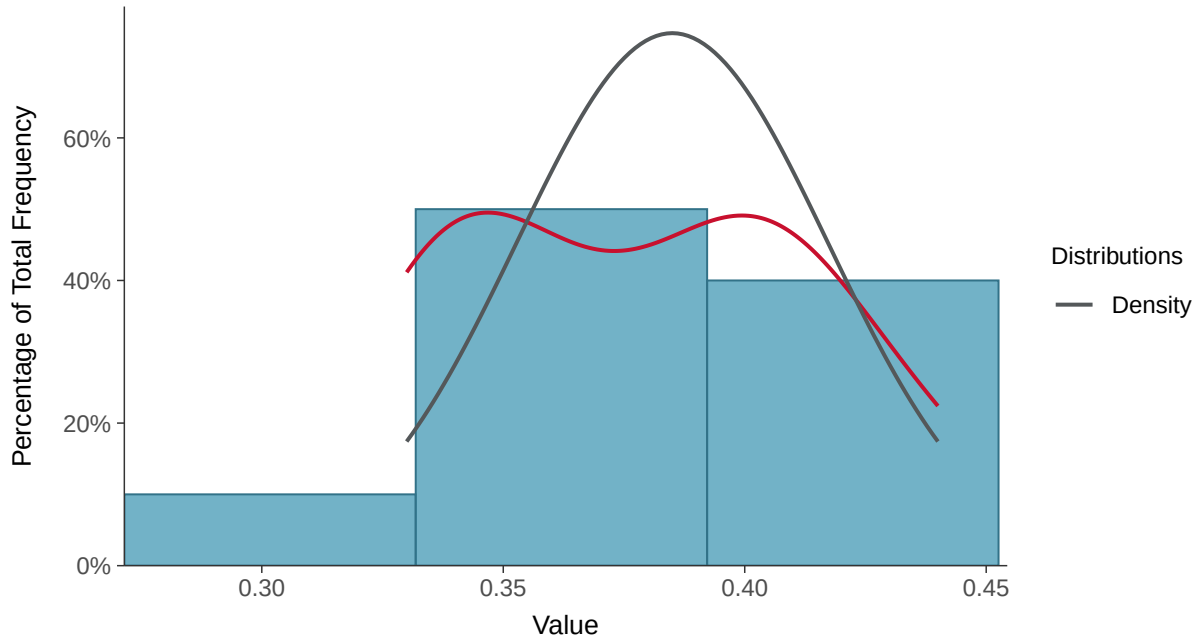
Scatter Plot

Boron, MW-15 (mg/L)



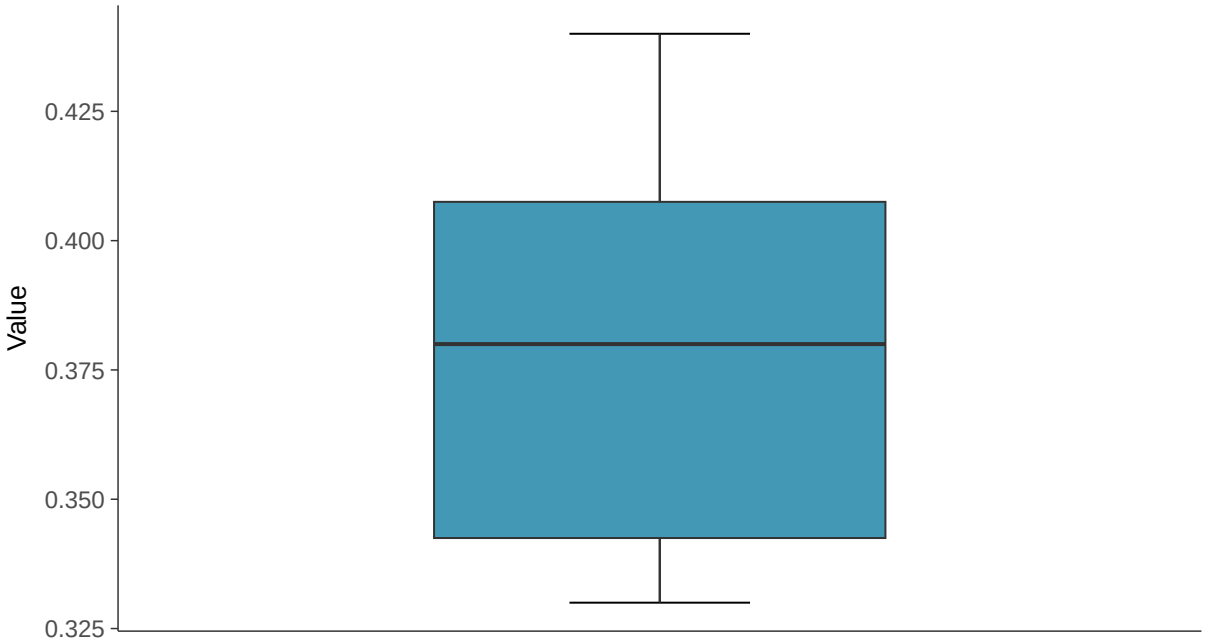
Histogram

Boron, MW-15 (mg/L)



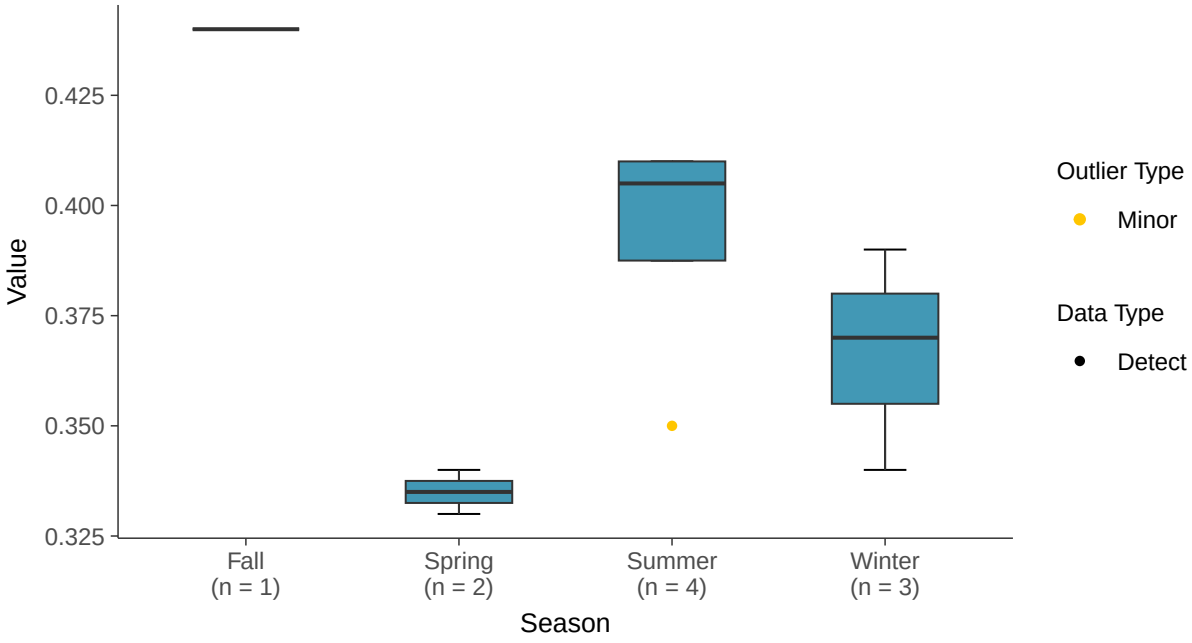
Boxplot

Boron, MW-15 (mg/L)



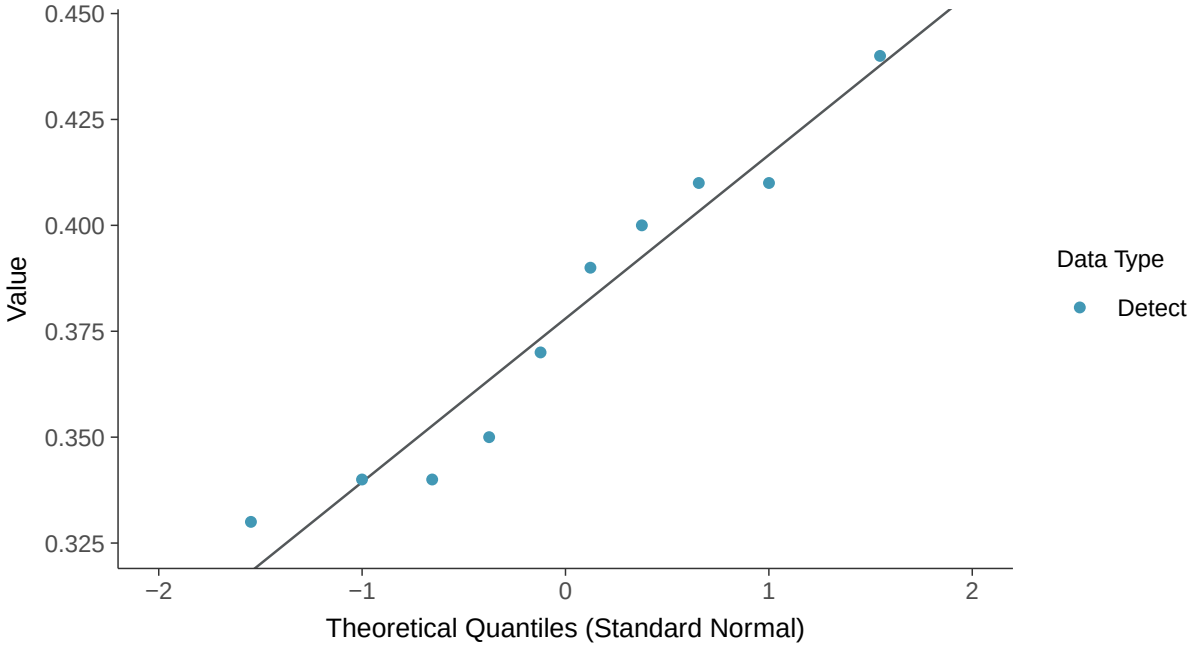
Boxplot by Season

Boron, MW-15 (mg/L)



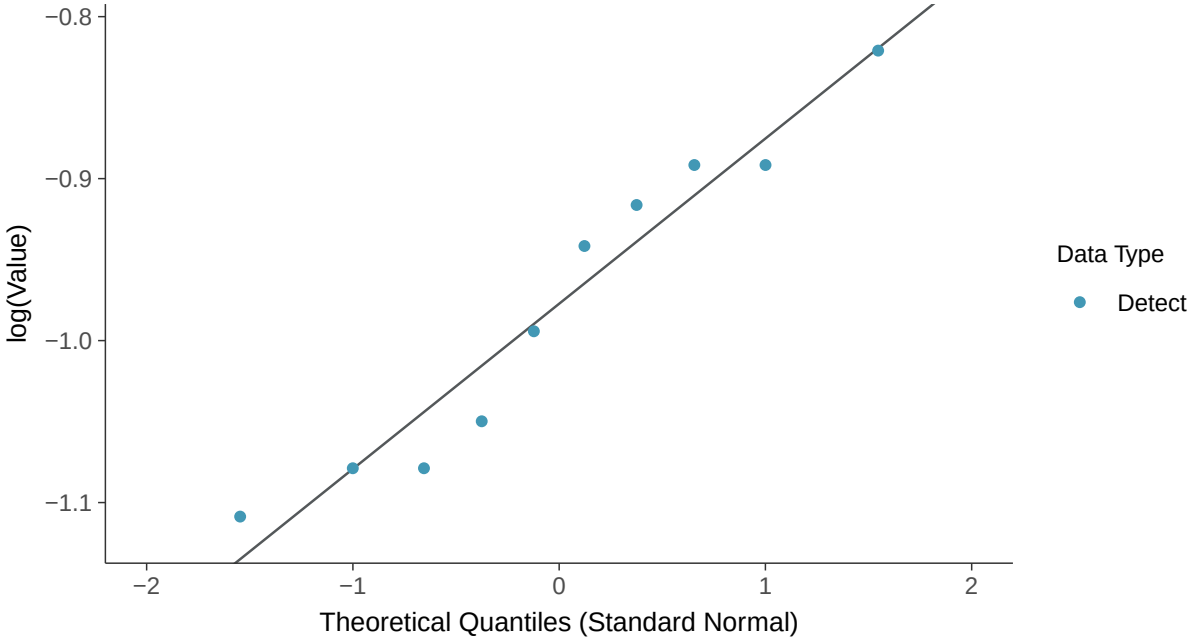
Normal Q-Q plot

Boron, MW-15 (mg/L)



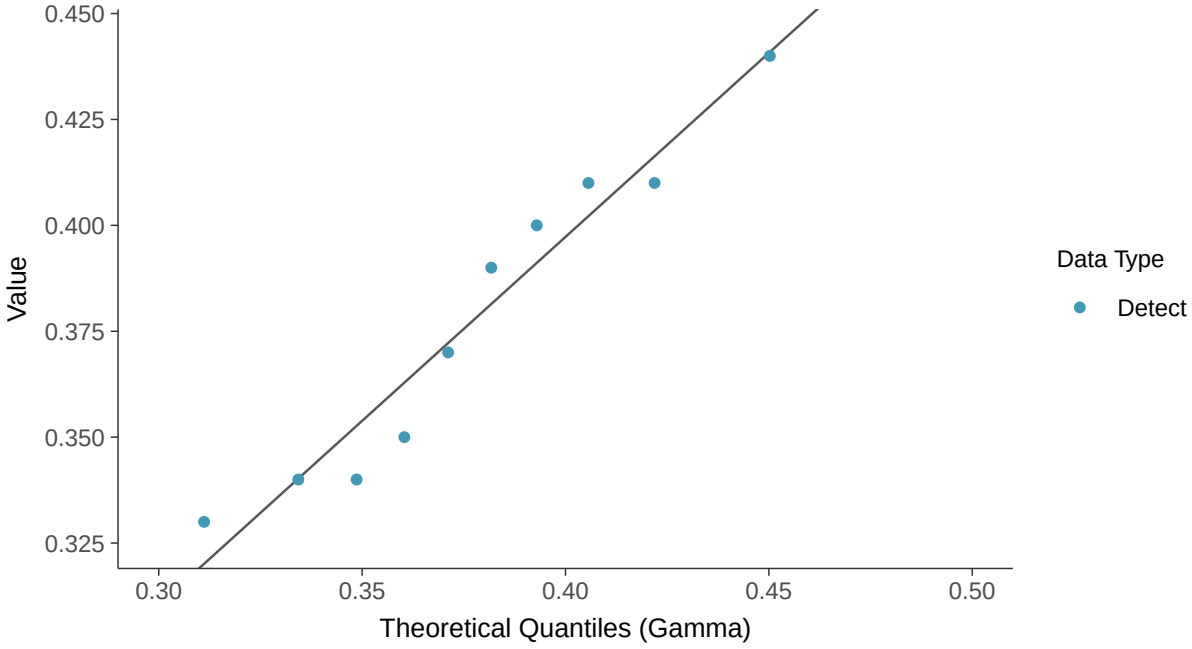
Lognormal Q-Q plot

Boron, MW-15 (mg/L)



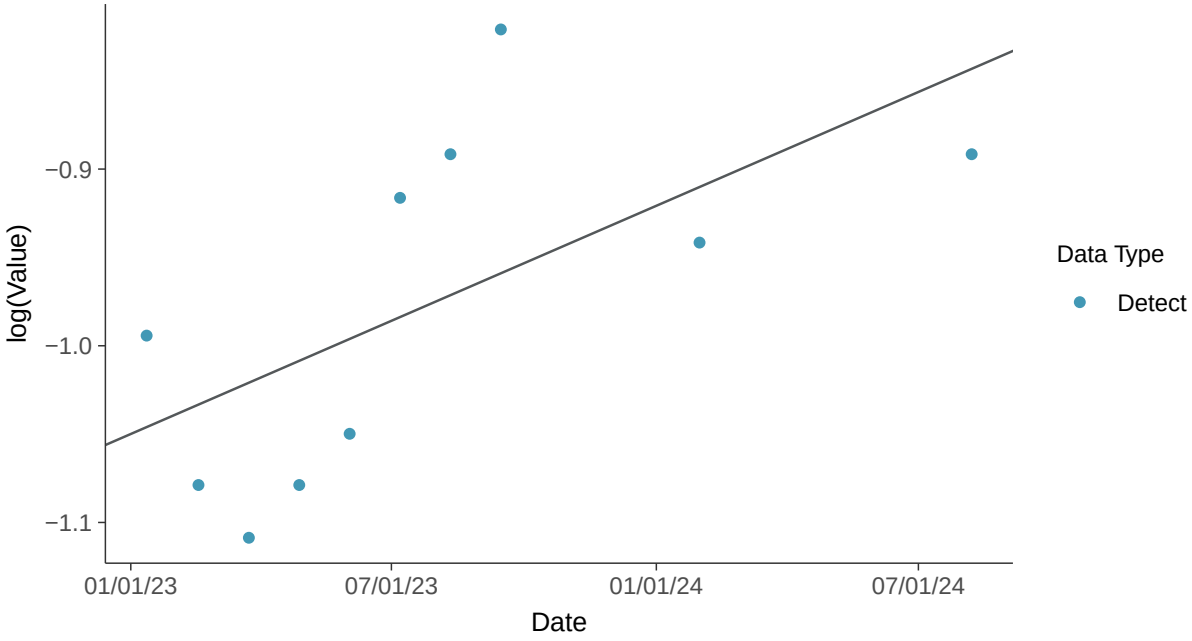
Gamma Q-Q plot

Boron, MW-15 (mg/L)



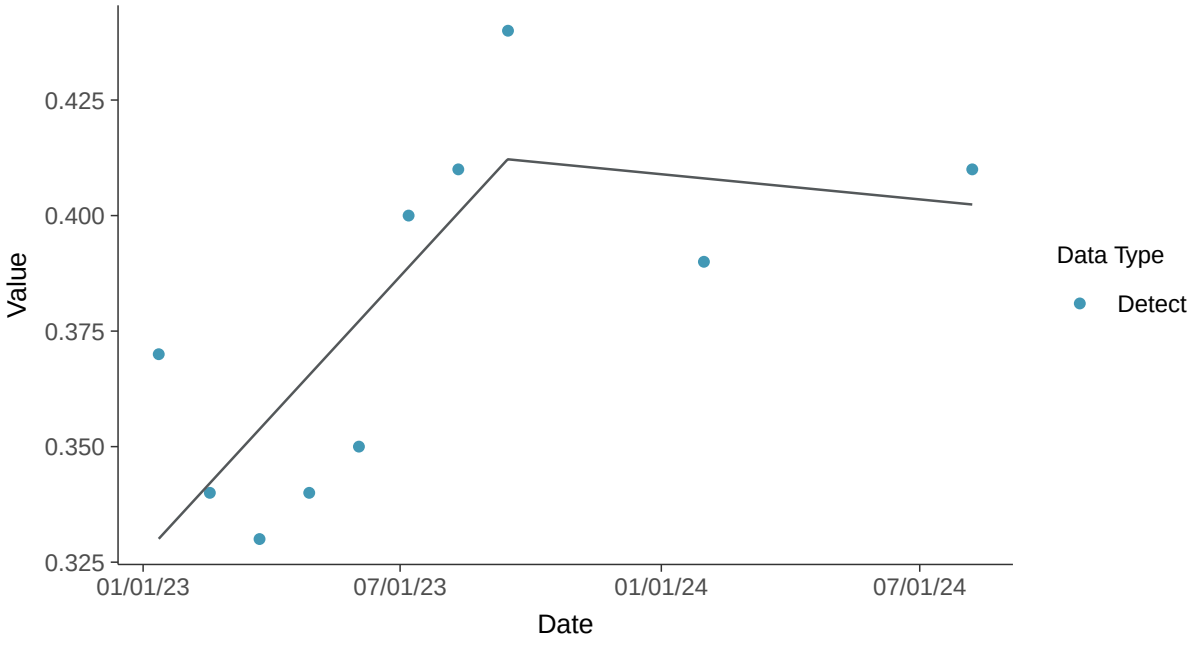
Trend Regression: Lognormal MLE

Boron, MW-15 (mg/L)



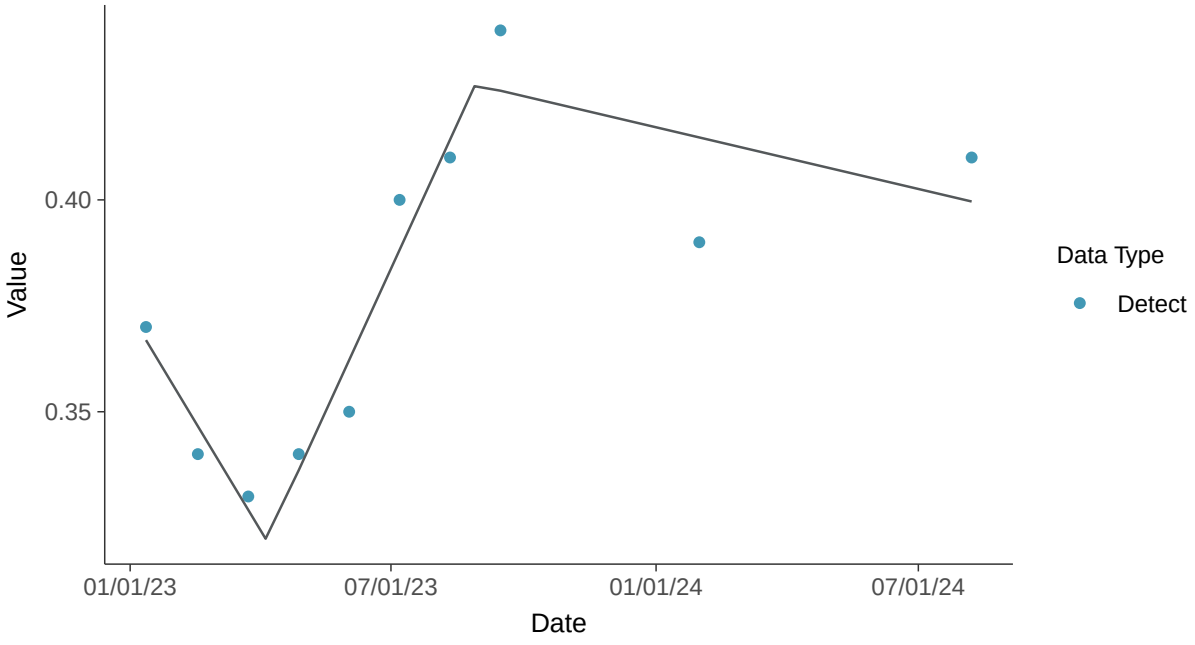
Trend Regression: Piecewise Linear-Linear

Boron, MW-15 (mg/L)



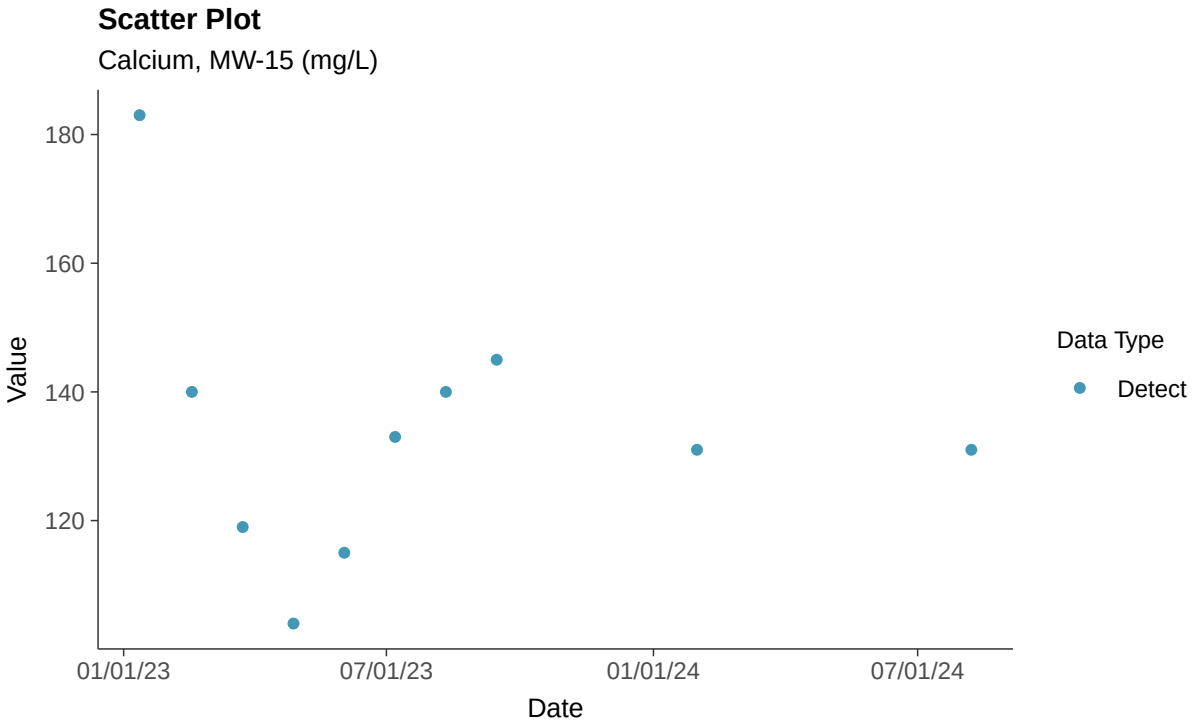
Trend Regression: Piecewise Linear-Linear-Linear

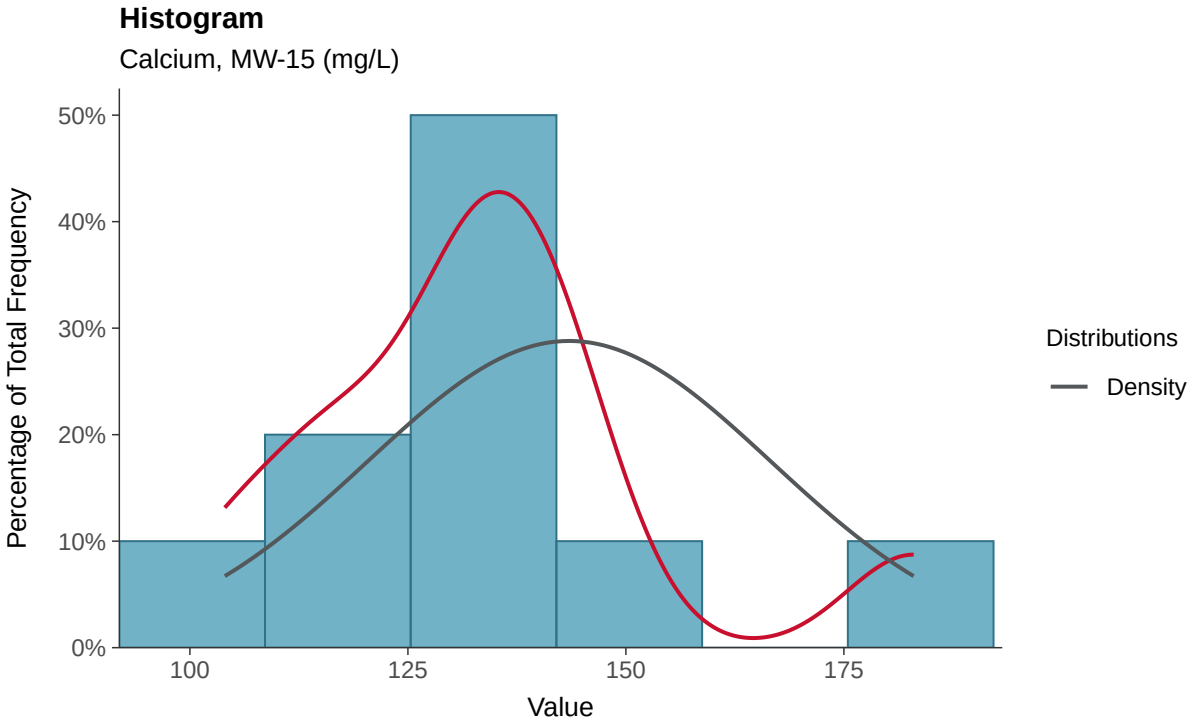
Boron, MW-15 (mg/L)



Appendix III: Calcium, MW-15

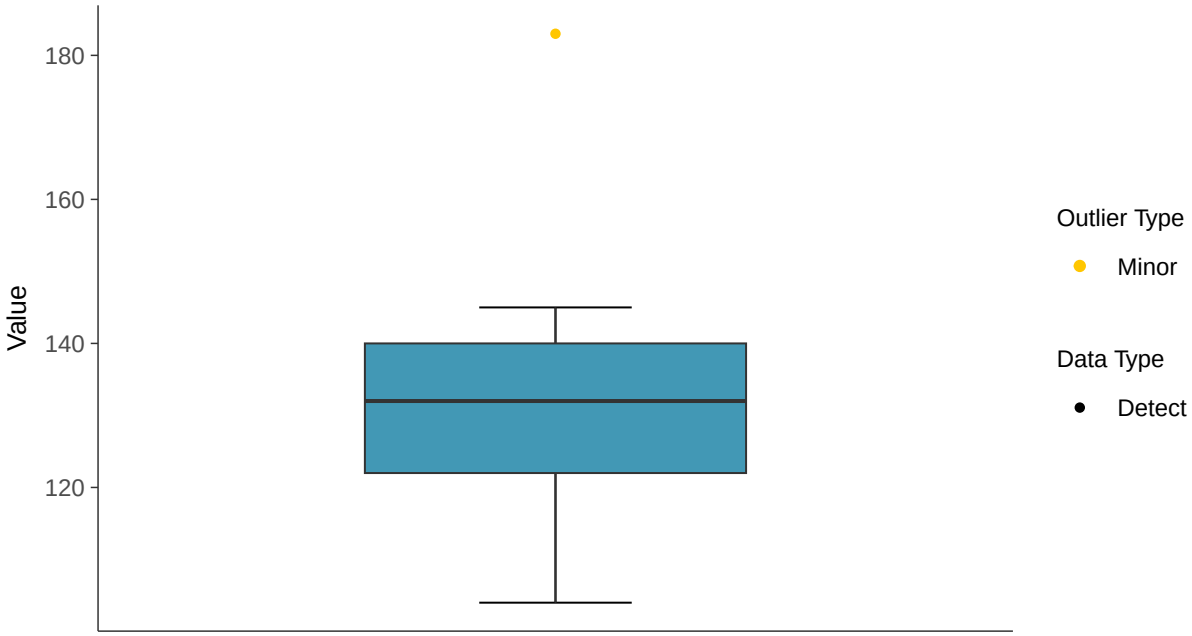
ID: 15_1_02





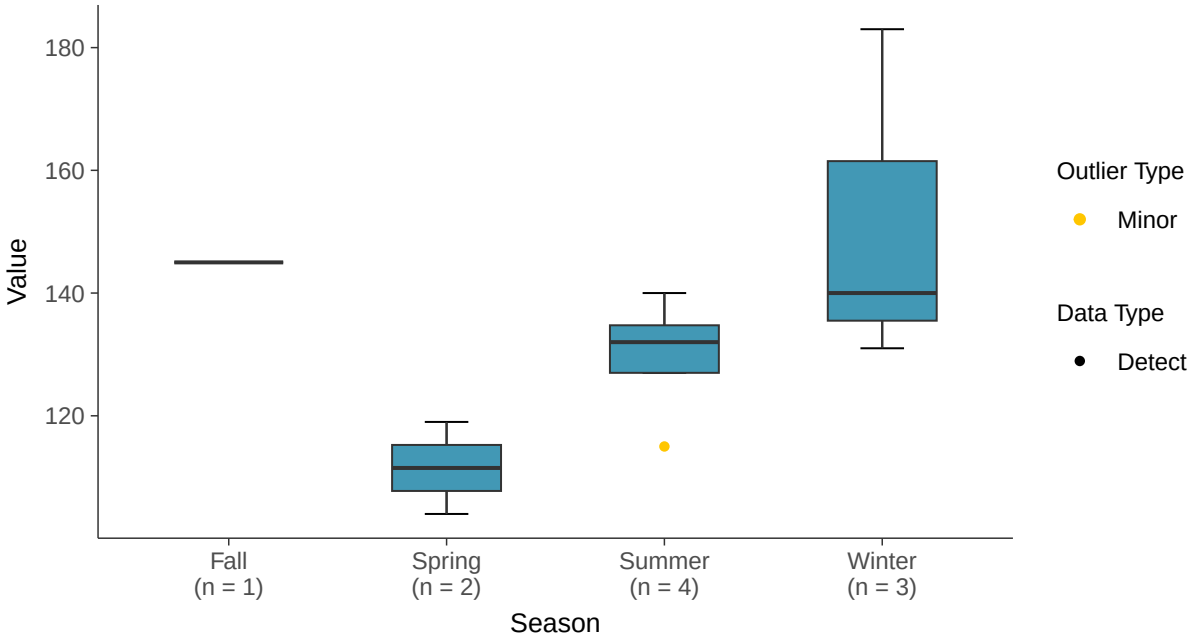
Boxplot

Calcium, MW-15 (mg/L)



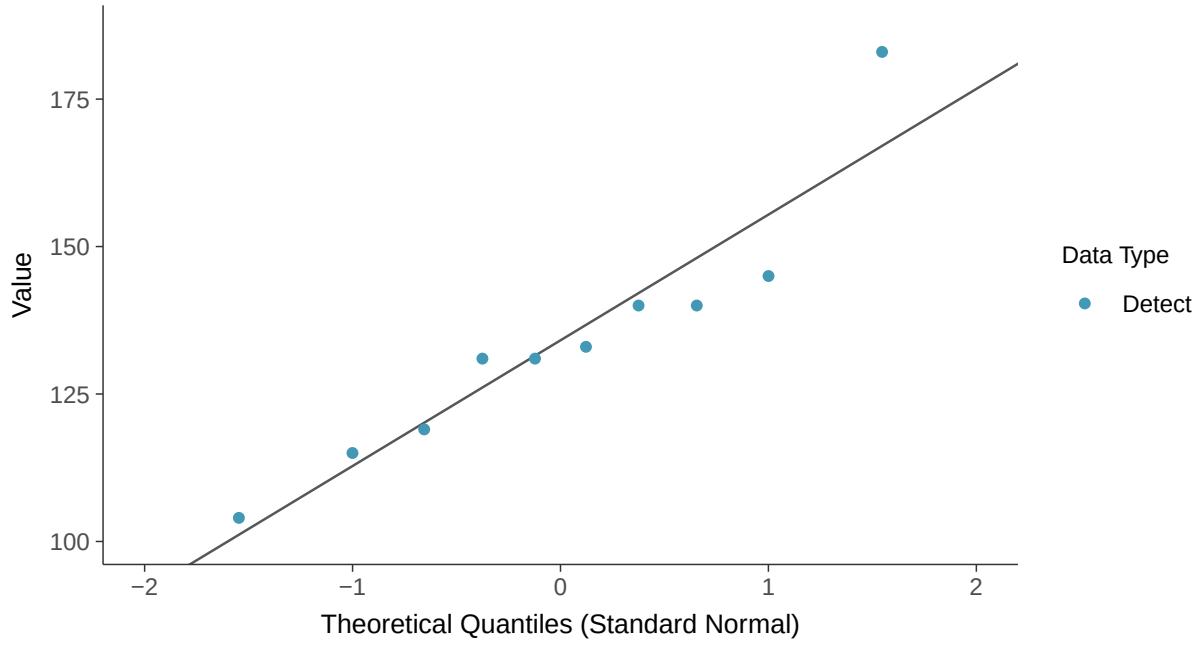
Boxplot by Season

Calcium, MW-15 (mg/L)



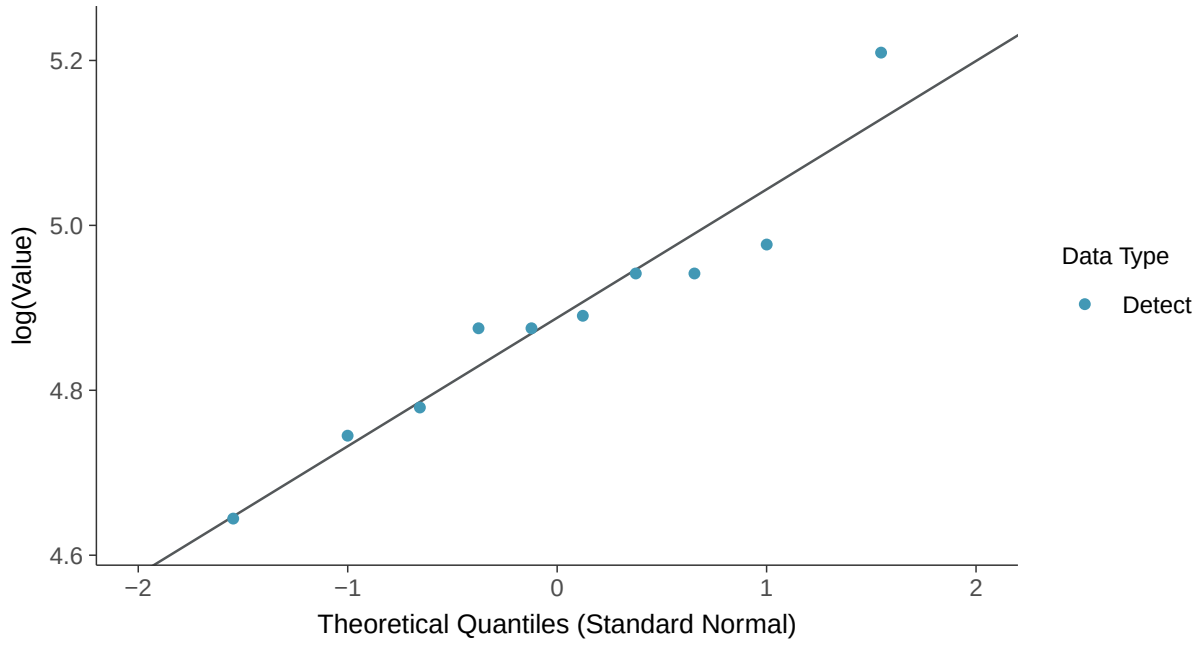
Normal Q-Q plot

Calcium, MW-15 (mg/L)



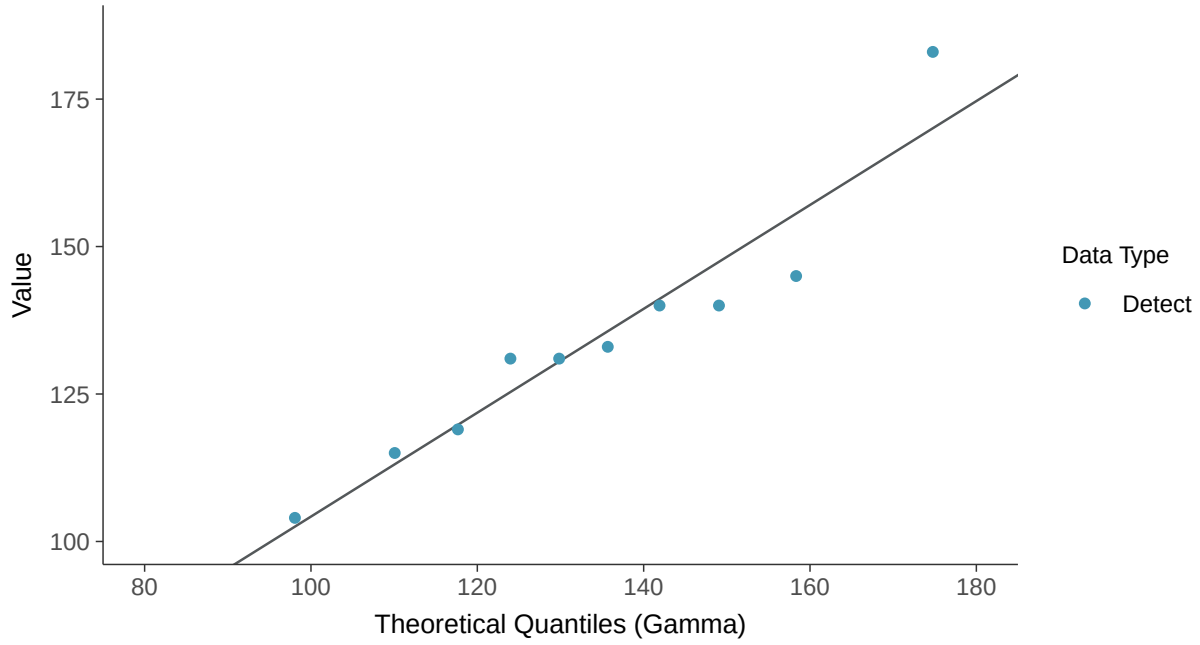
Lognormal Q-Q plot

Calcium, MW-15 (mg/L)



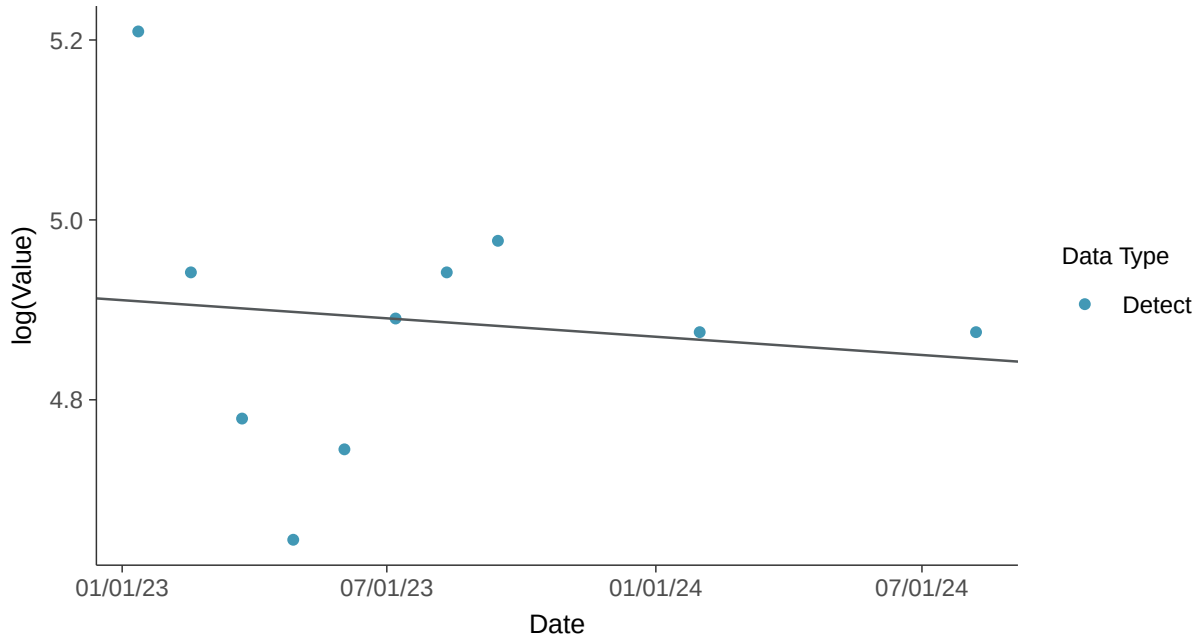
Gamma Q-Q plot

Calcium, MW-15 (mg/L)



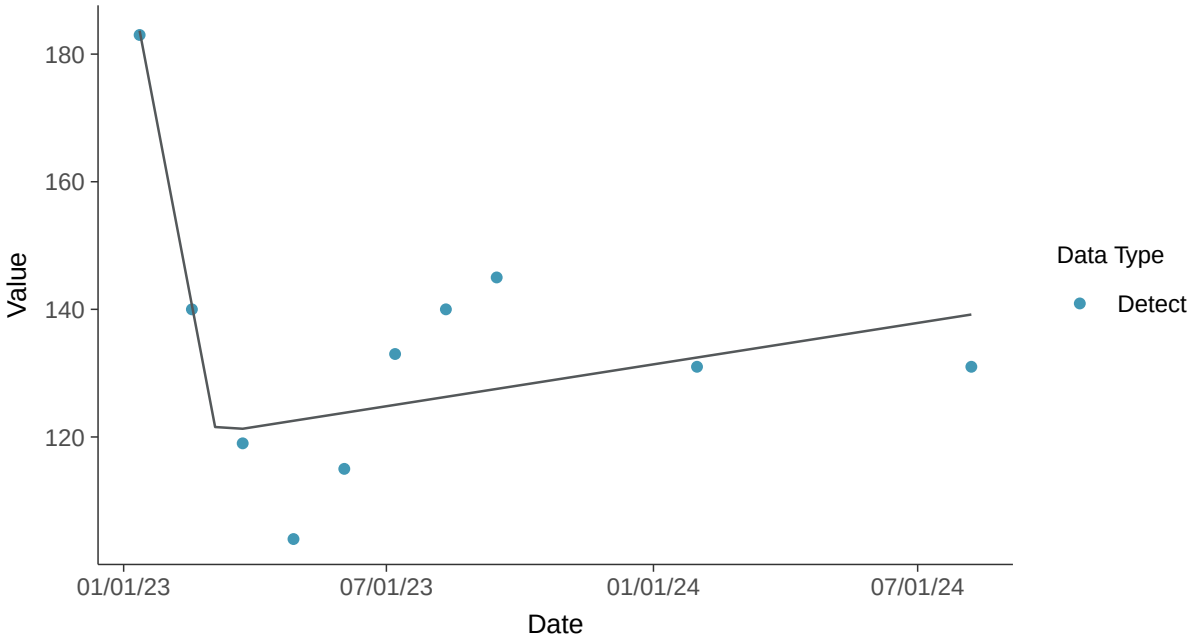
Trend Regression: Lognormal MLE

Calcium, MW-15 (mg/L)



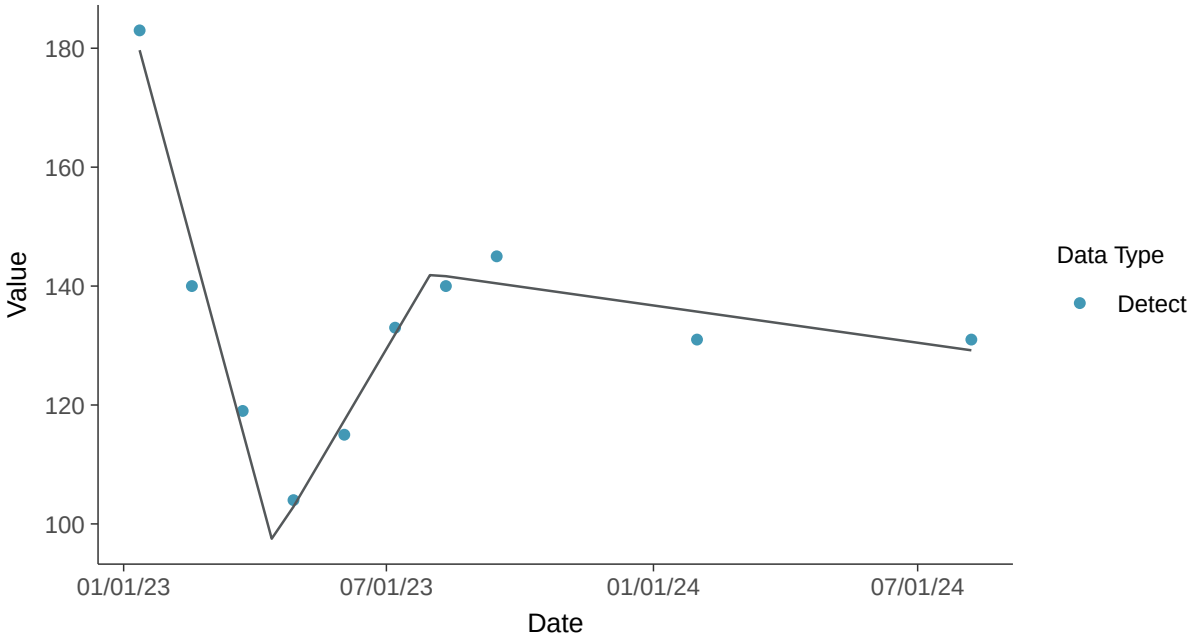
Trend Regression: Piecewise Linear-Linear

Calcium, MW-15 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Calcium, MW-15 (mg/L)

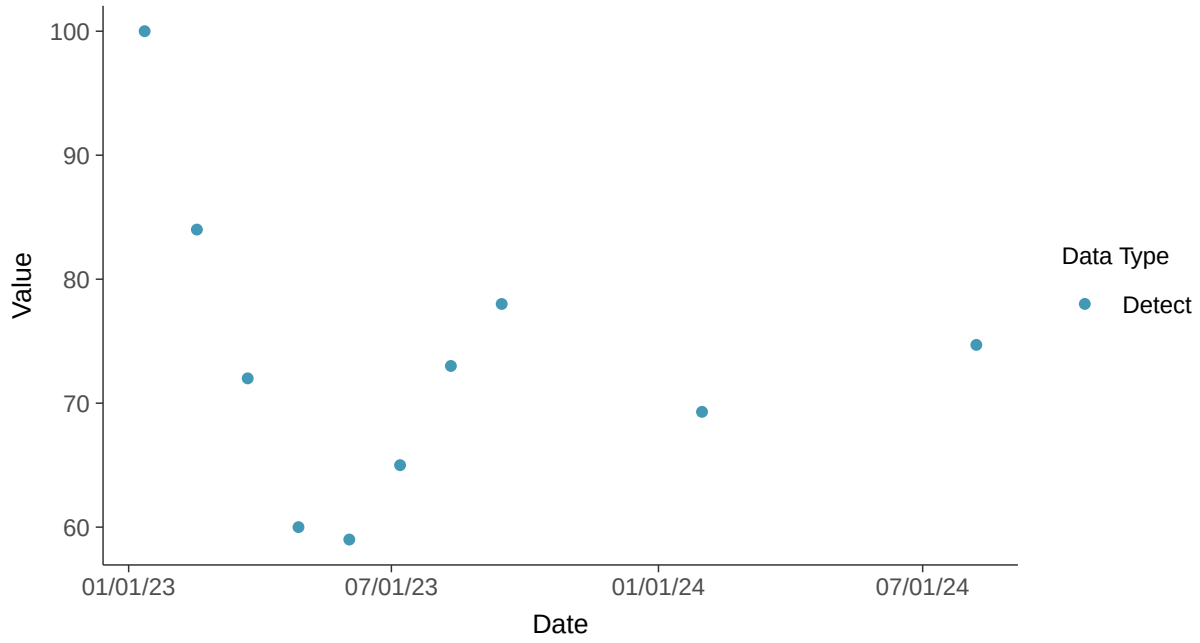


Appendix III: Chloride, MW-15

ID: 15_1_03

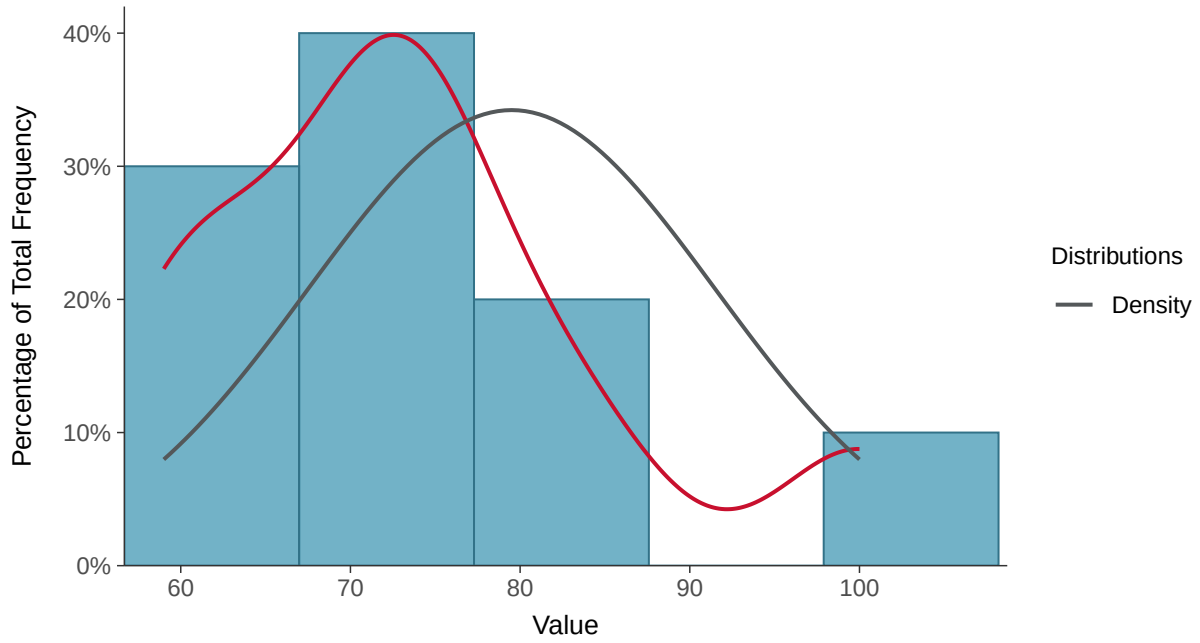
Scatter Plot

Chloride, MW-15 (mg/L)



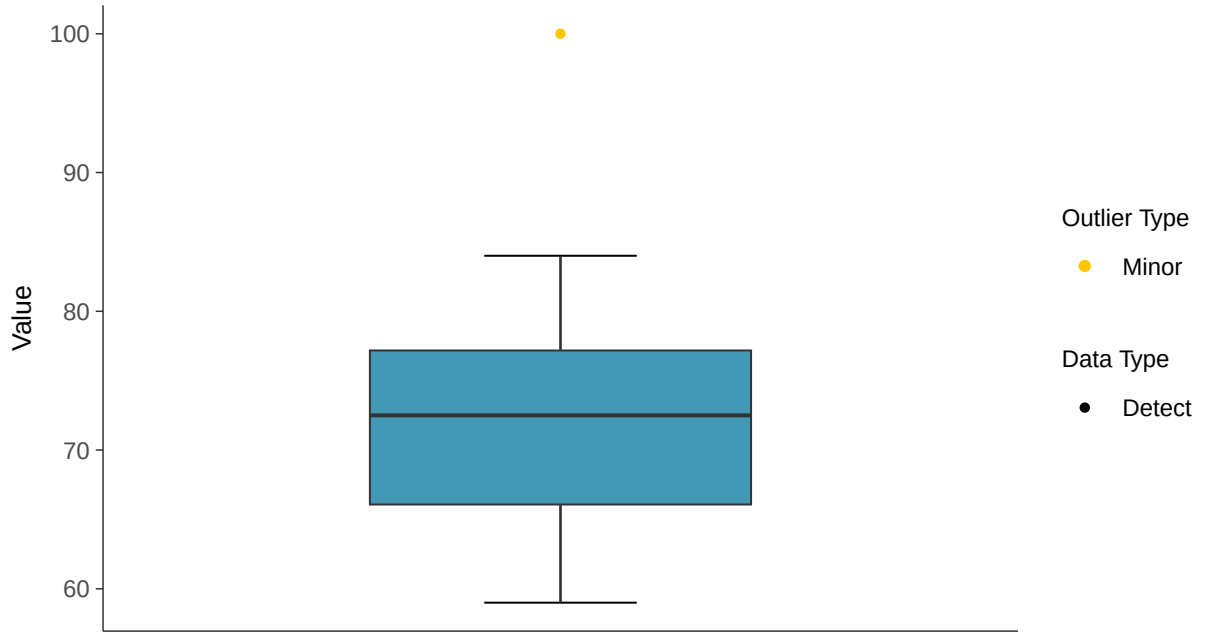
Histogram

Chloride, MW-15 (mg/L)



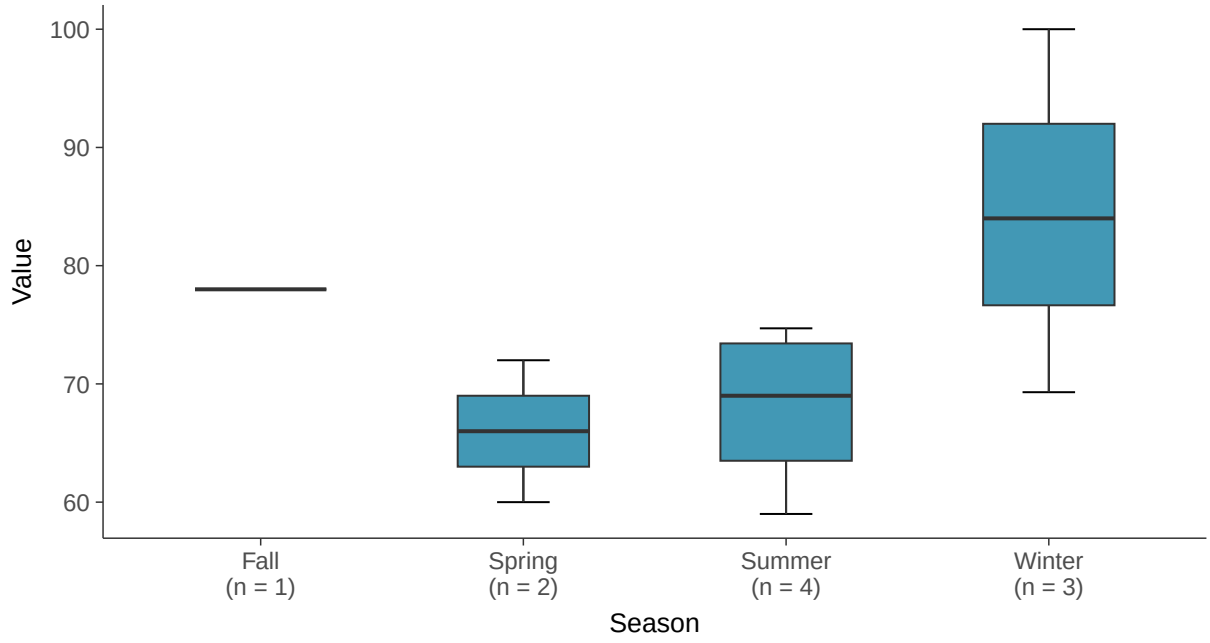
Boxplot

Chloride, MW-15 (mg/L)



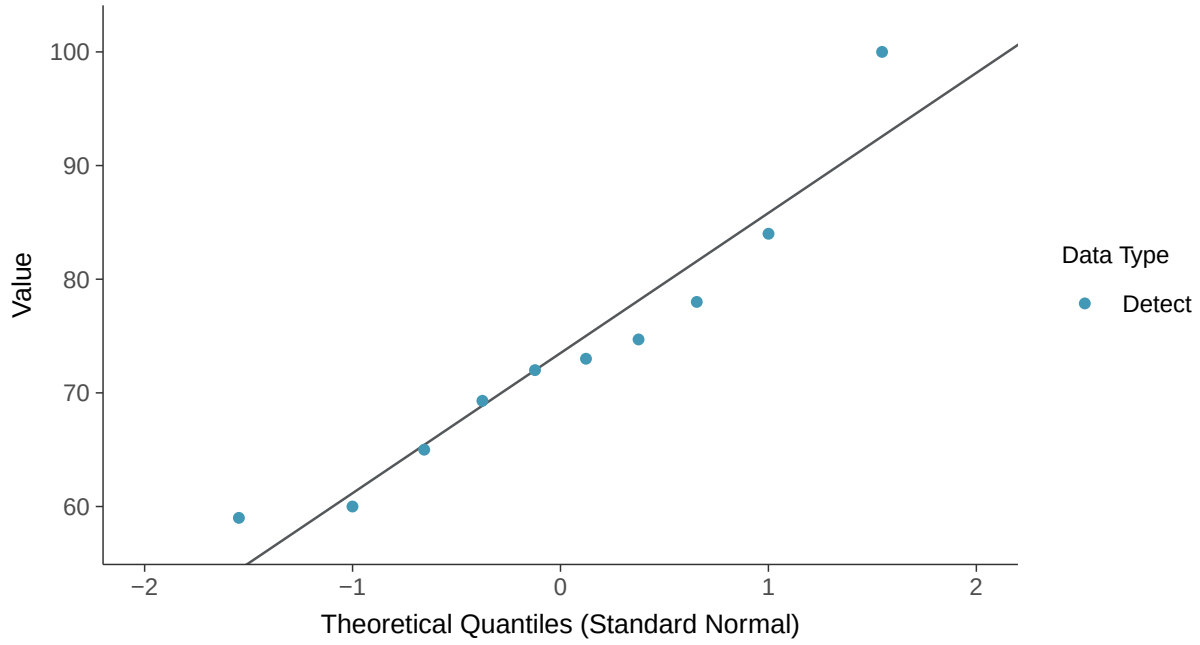
Boxplot by Season

Chloride, MW-15 (mg/L)



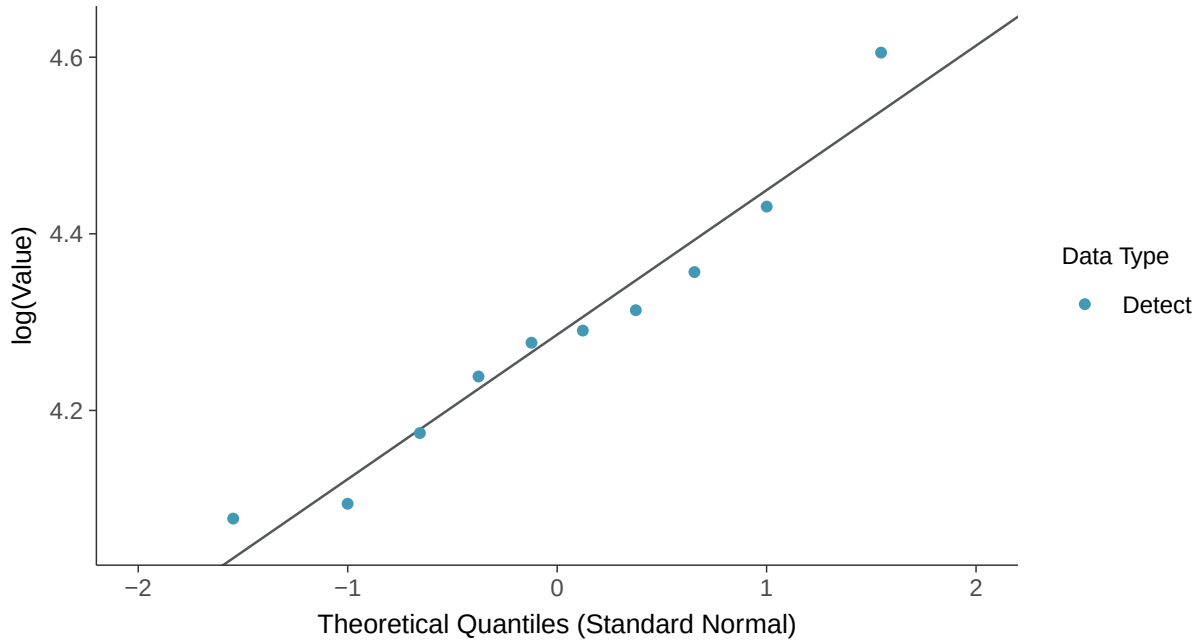
Normal Q-Q plot

Chloride, MW-15 (mg/L)



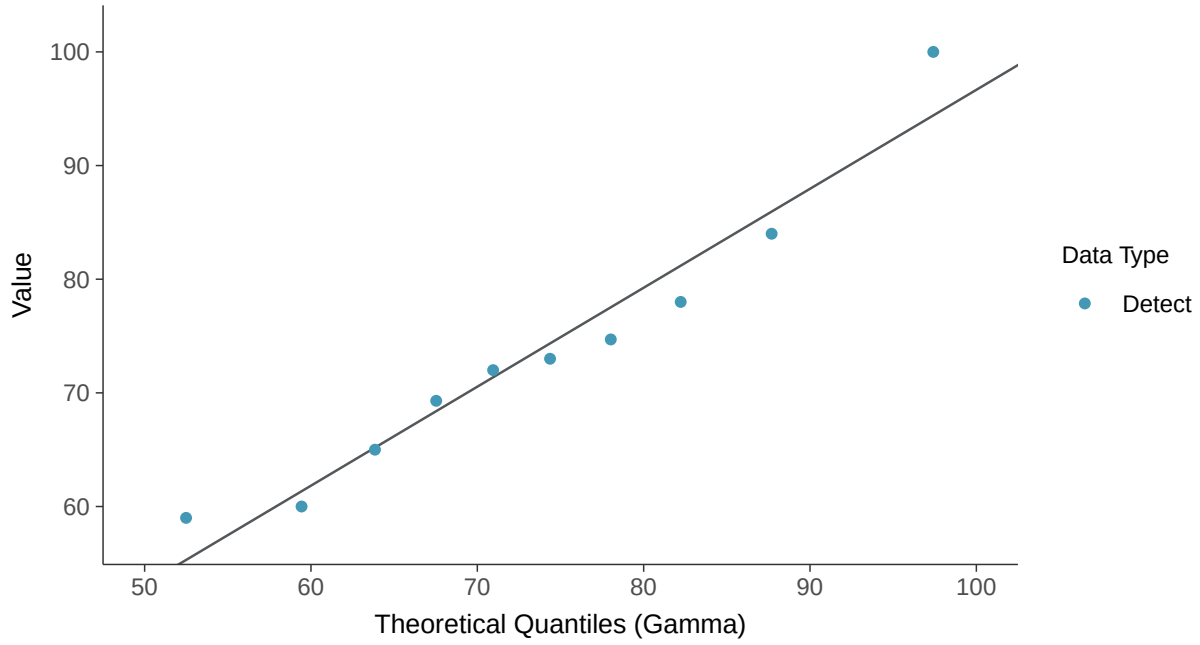
Lognormal Q-Q plot

Chloride, MW-15 (mg/L)



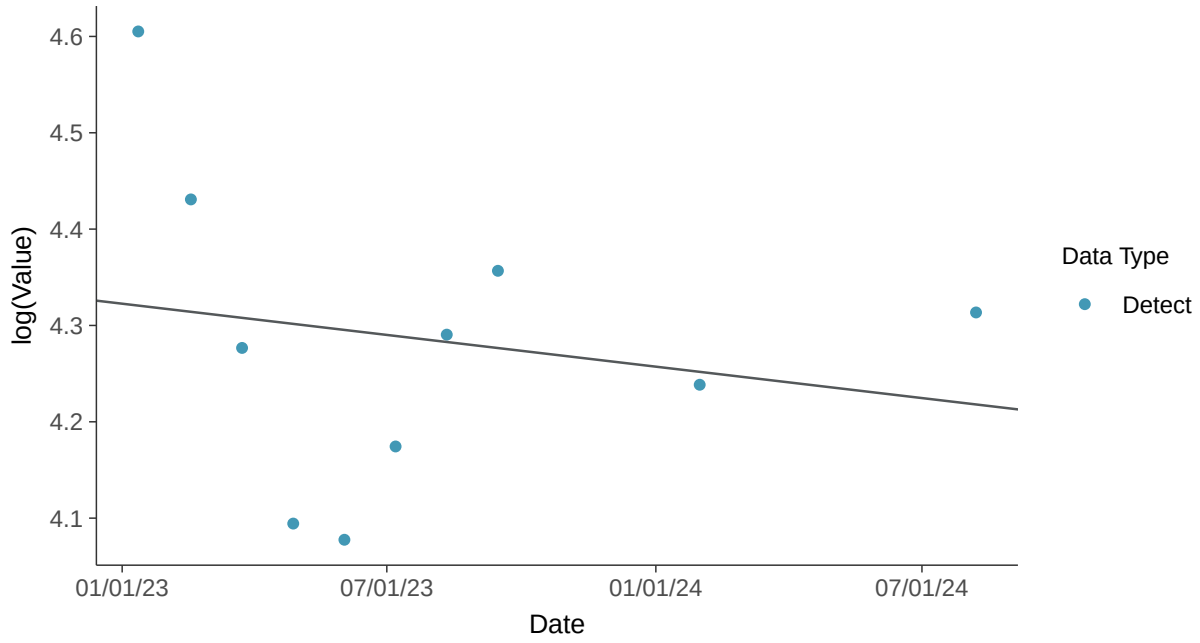
Gamma Q-Q plot

Chloride, MW-15 (mg/L)



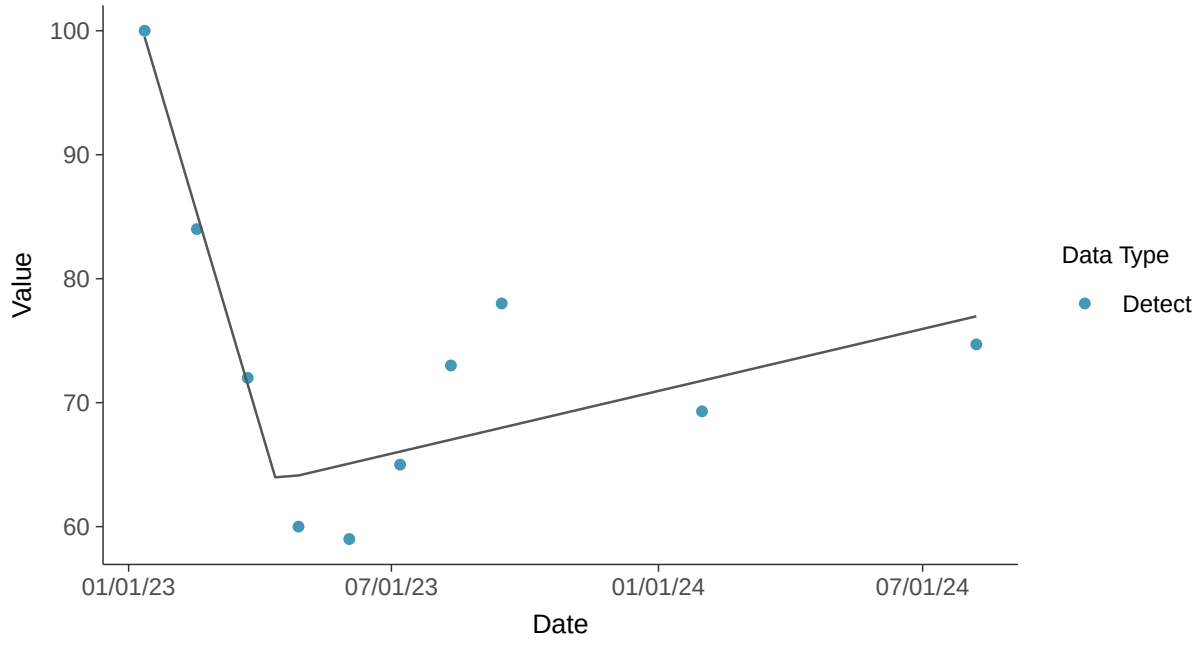
Trend Regression: Lognormal MLE

Chloride, MW-15 (mg/L)



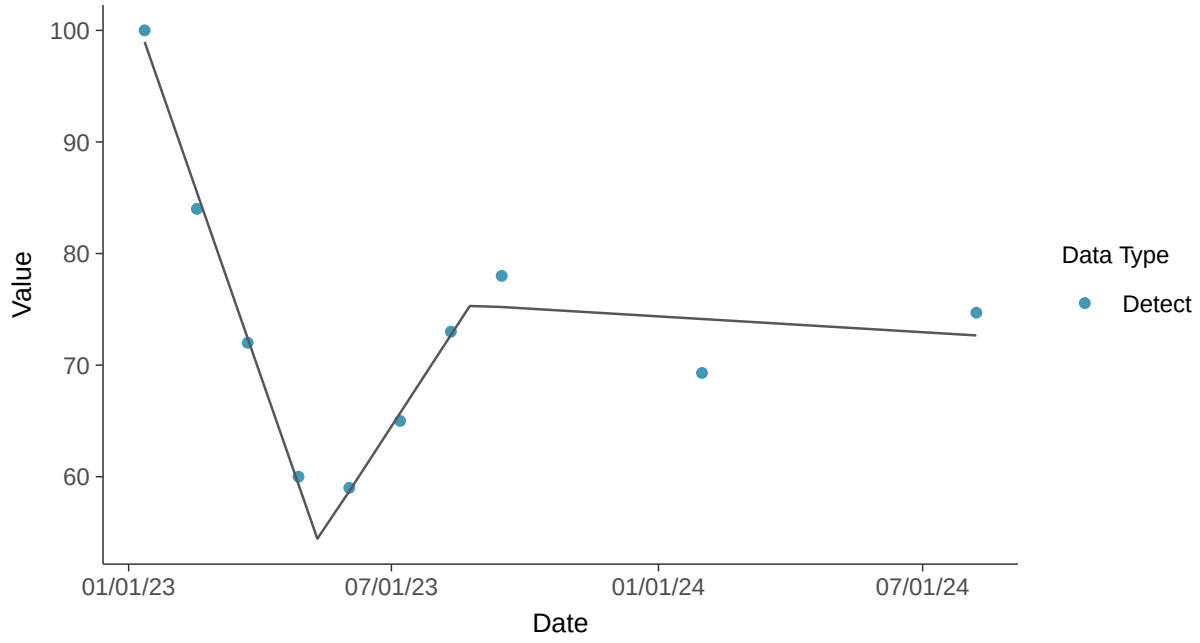
Trend Regression: Piecewise Linear-Linear

Chloride, MW-15 (mg/L)



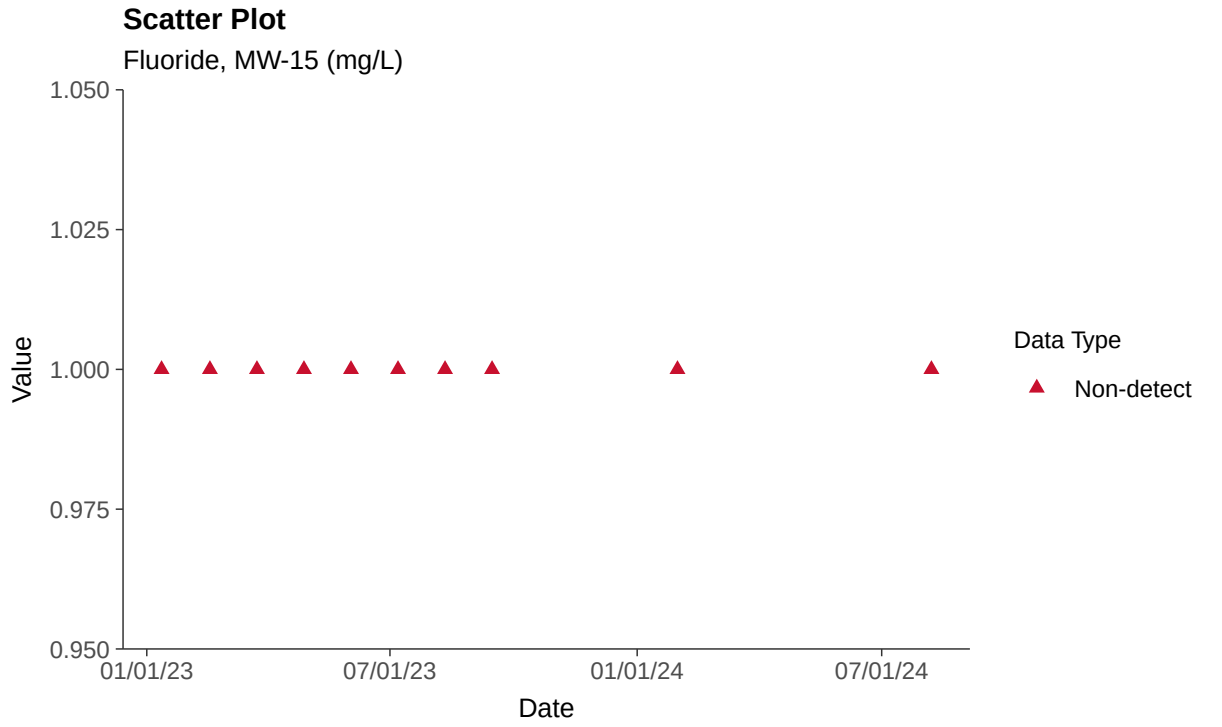
Trend Regression: Piecewise Linear-Linear-Linear

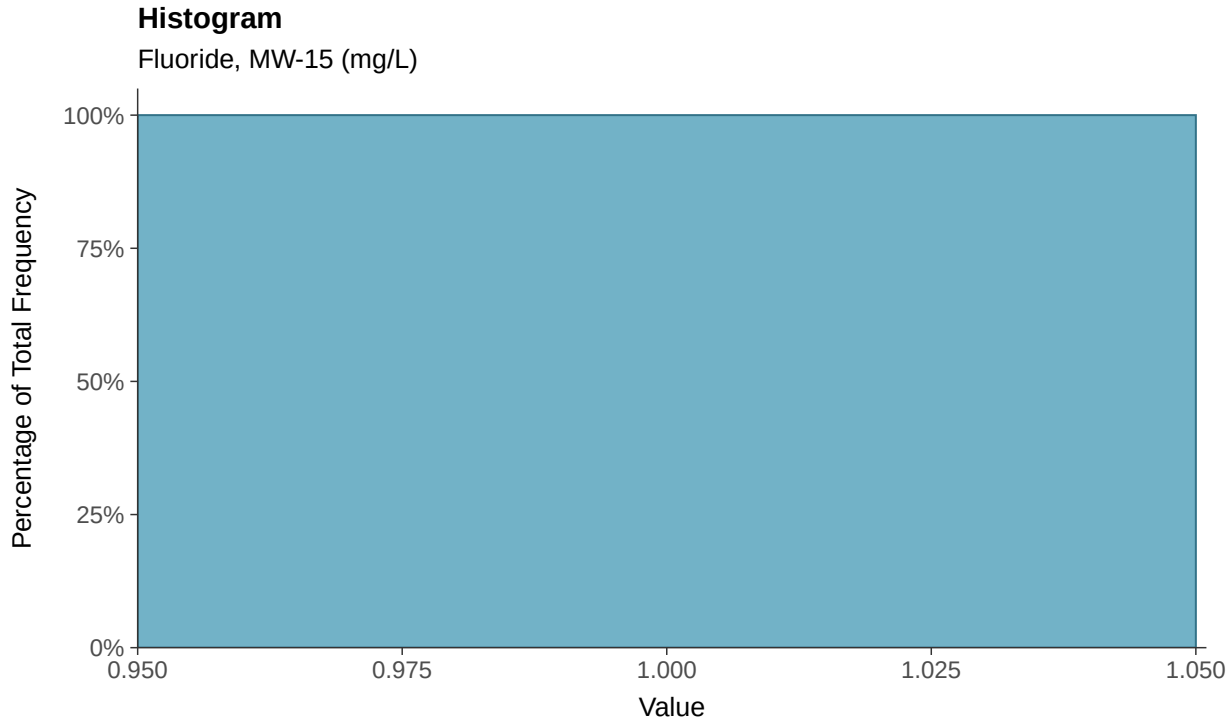
Chloride, MW-15 (mg/L)



Appendix III: Fluoride, MW-15

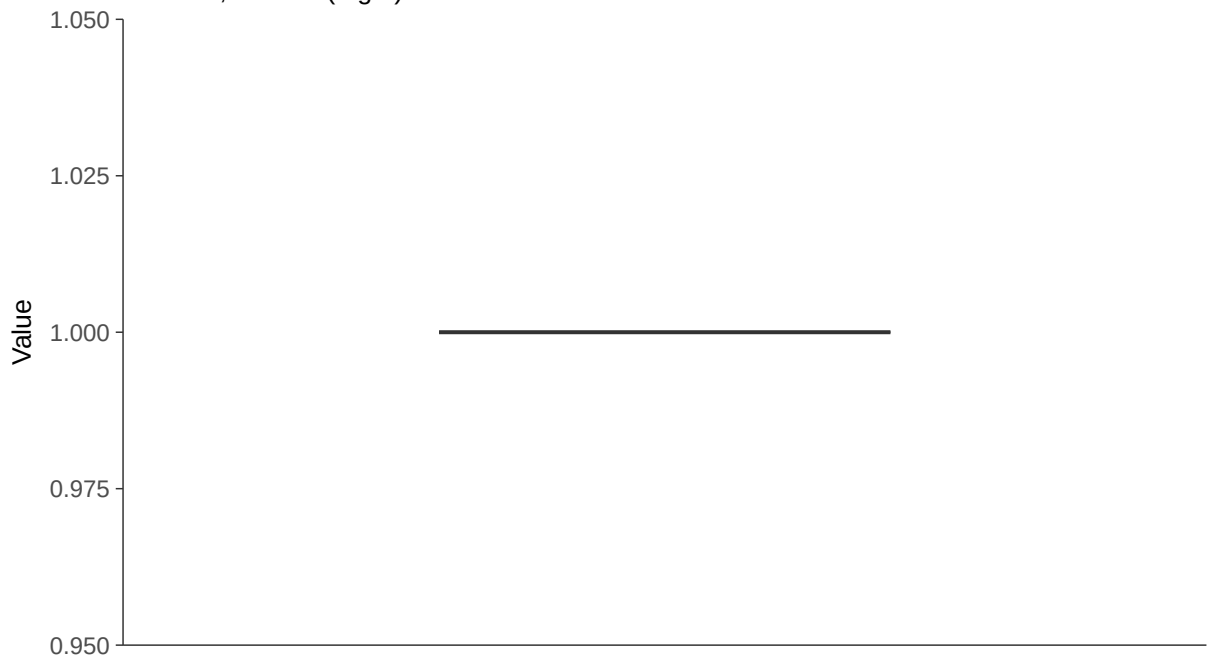
ID: 15_1_04





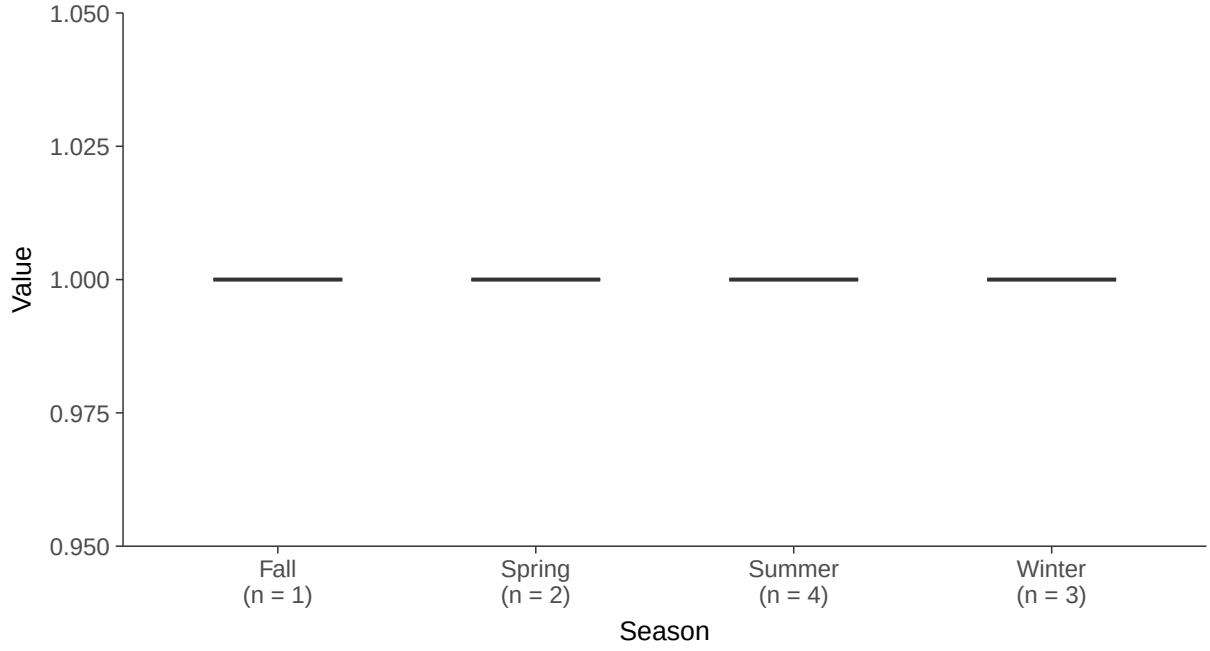
Boxplot

Fluoride, MW-15 (mg/L)



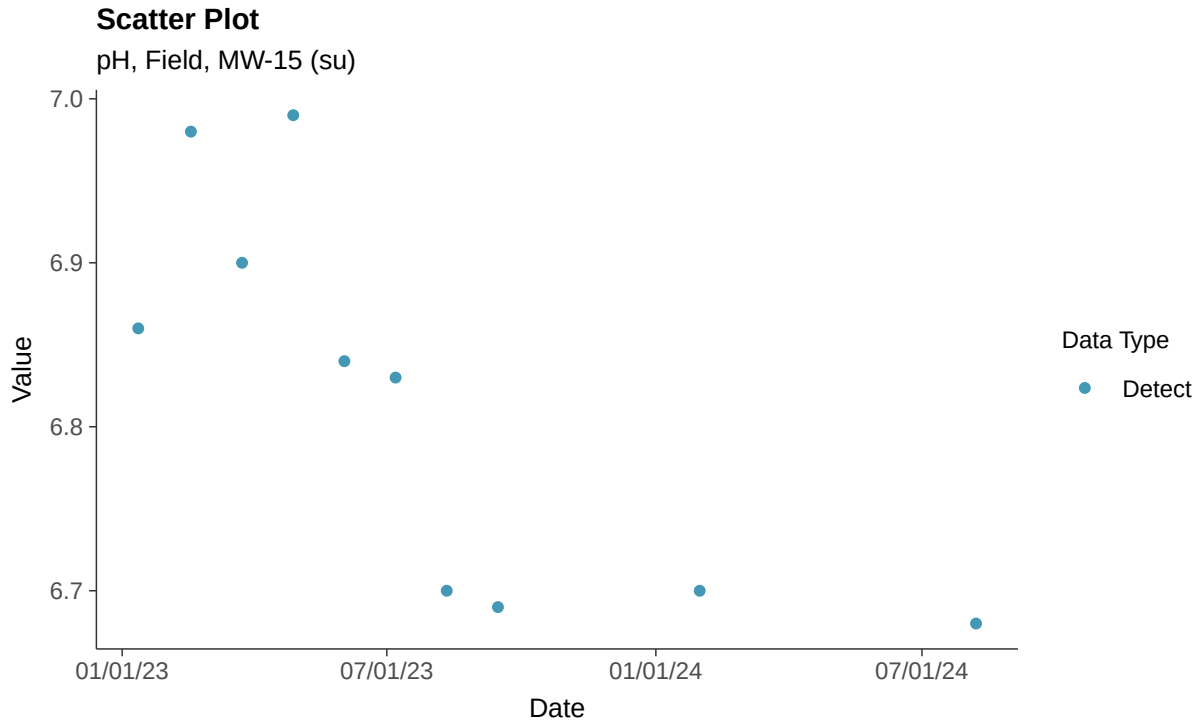
Boxplot by Season

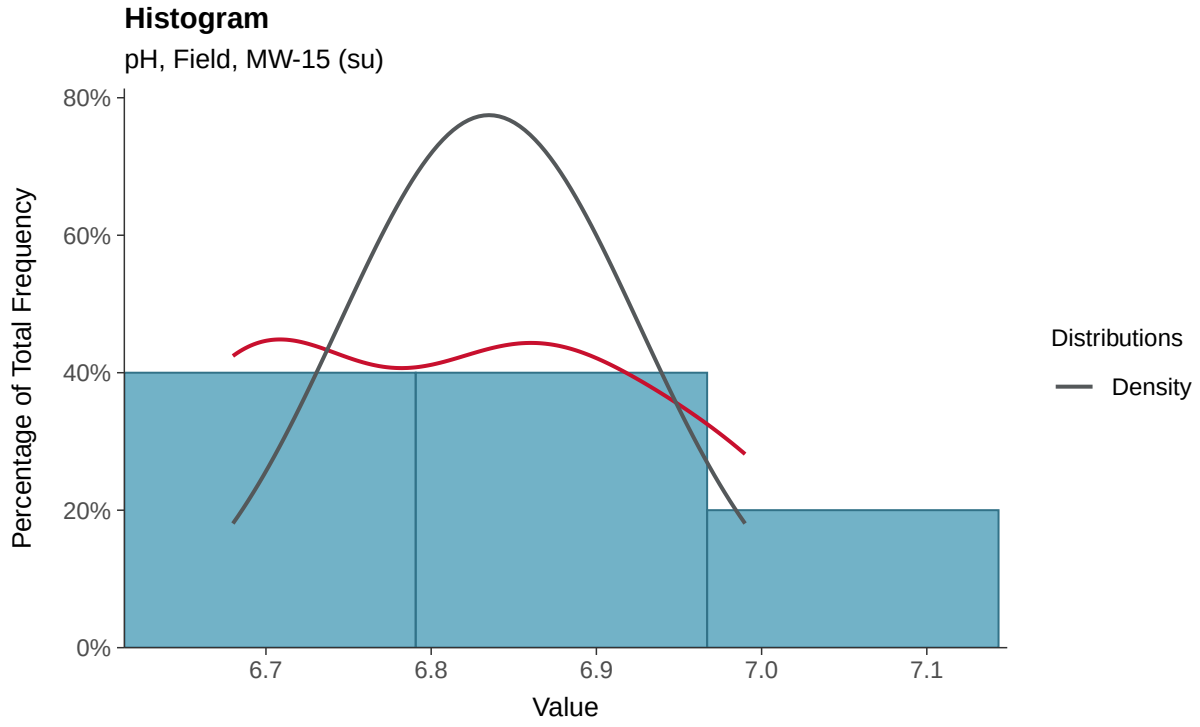
Fluoride, MW-15 (mg/L)



Appendix III: pH, Field, MW-15

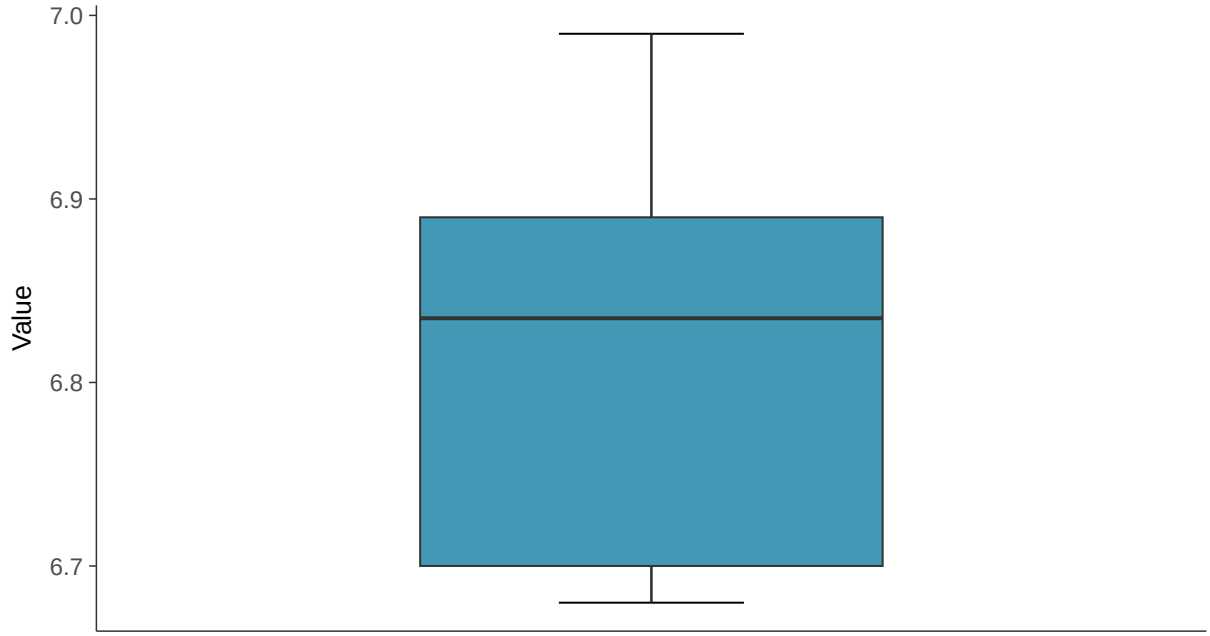
ID: 15_1_05





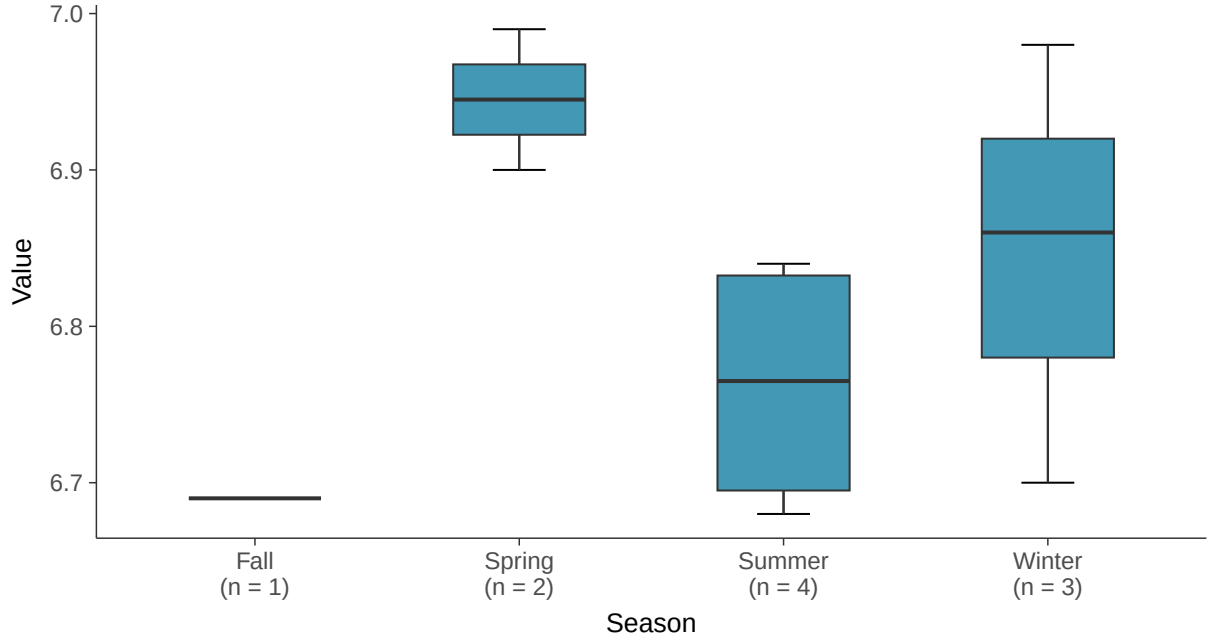
Boxplot

pH, Field, MW-15 (su)



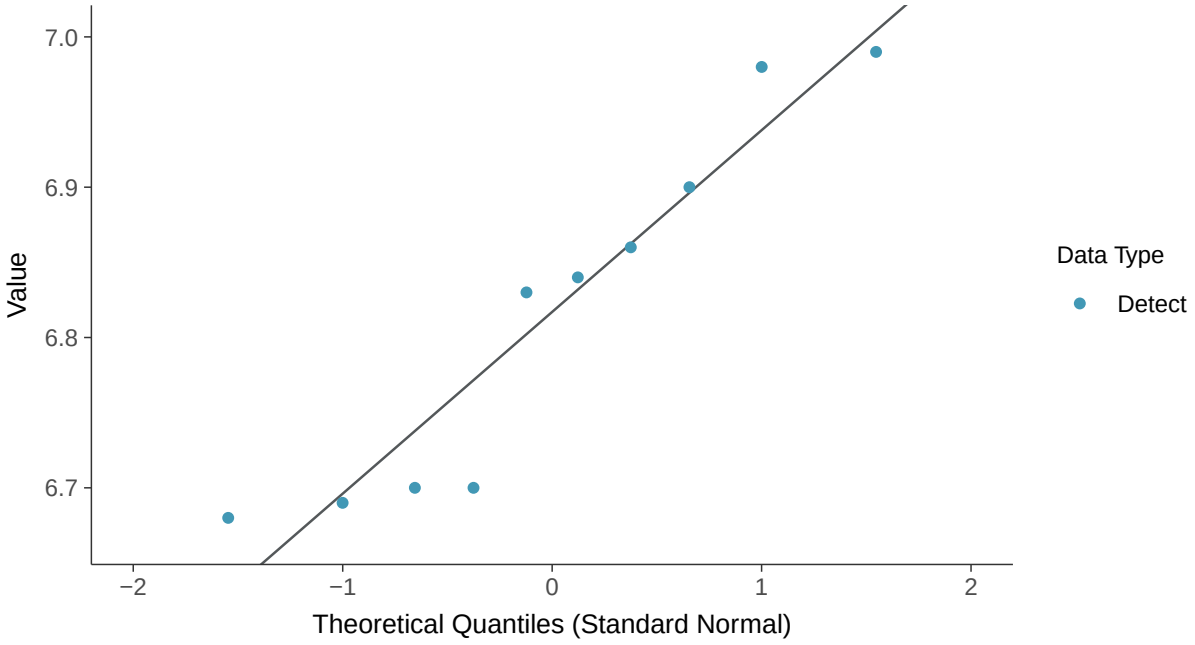
Boxplot by Season

pH, Field, MW-15 (su)



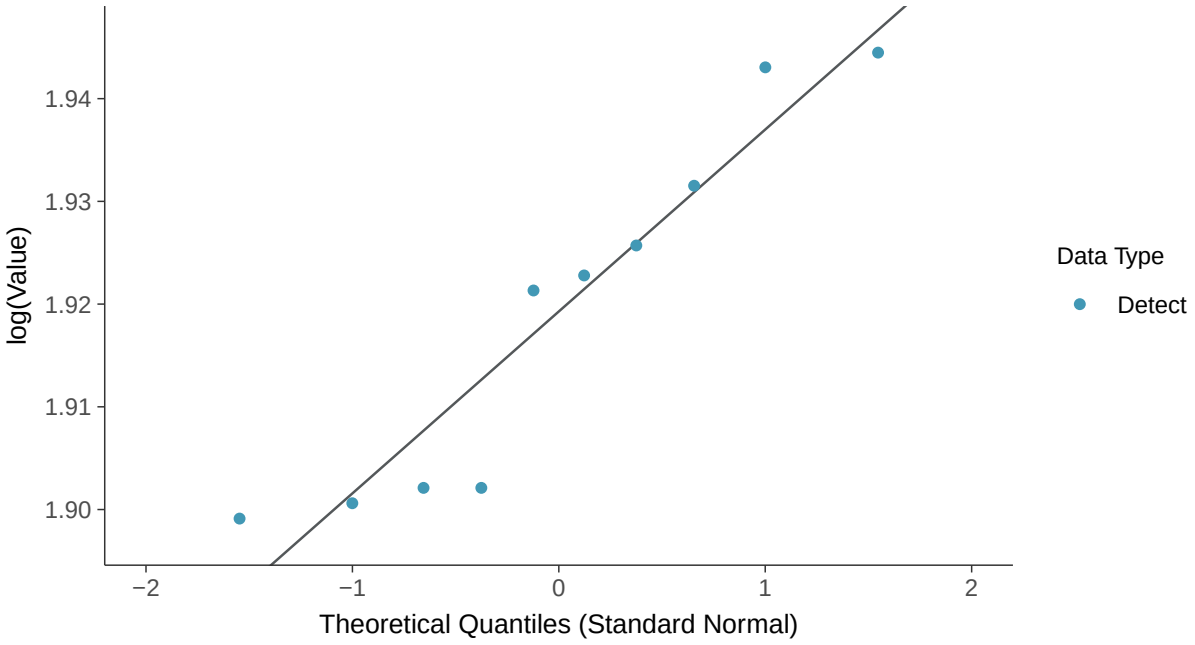
Normal Q-Q plot

pH, Field, MW-15 (su)



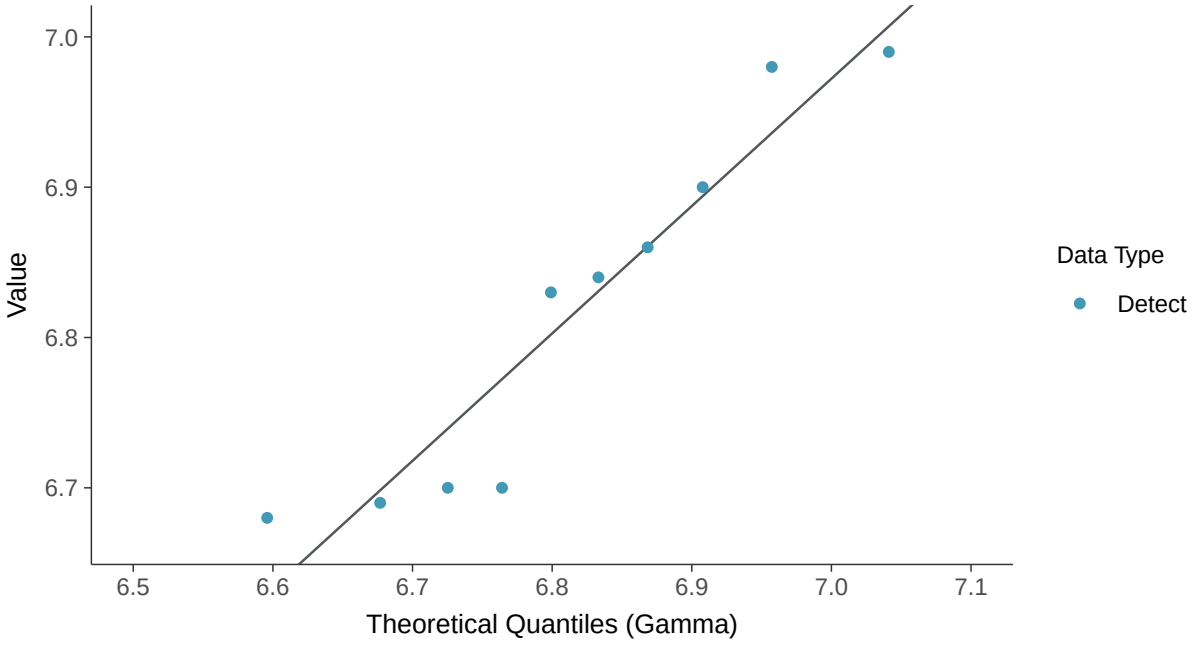
Lognormal Q-Q plot

pH, Field, MW-15 (su)



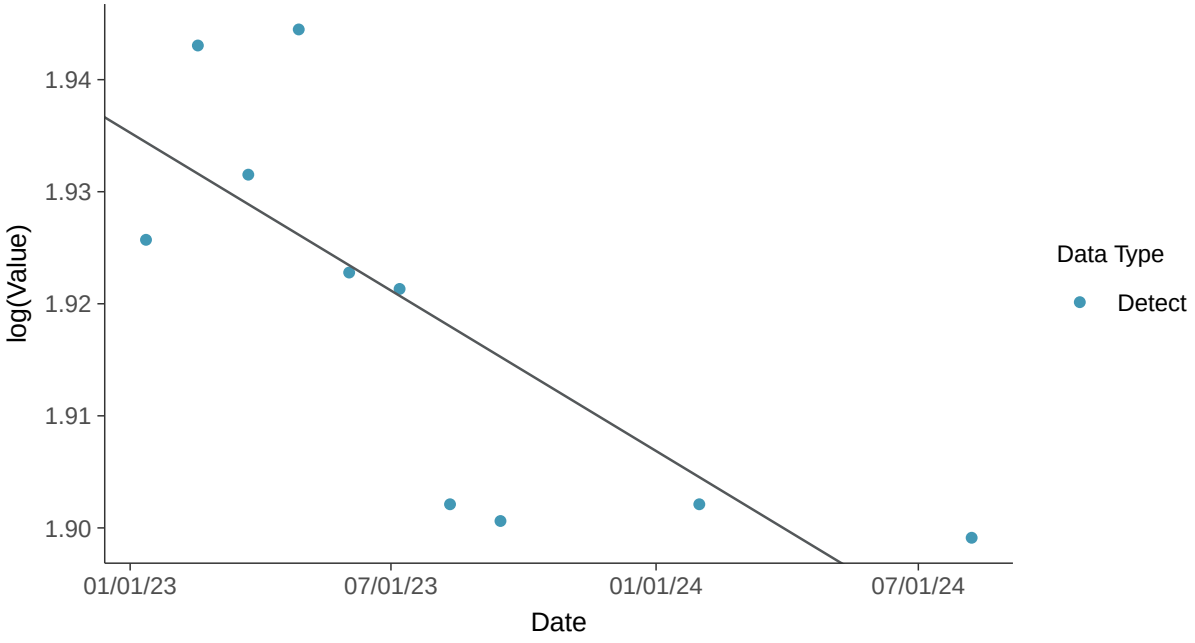
Gamma Q-Q plot

pH, Field, MW-15 (su)



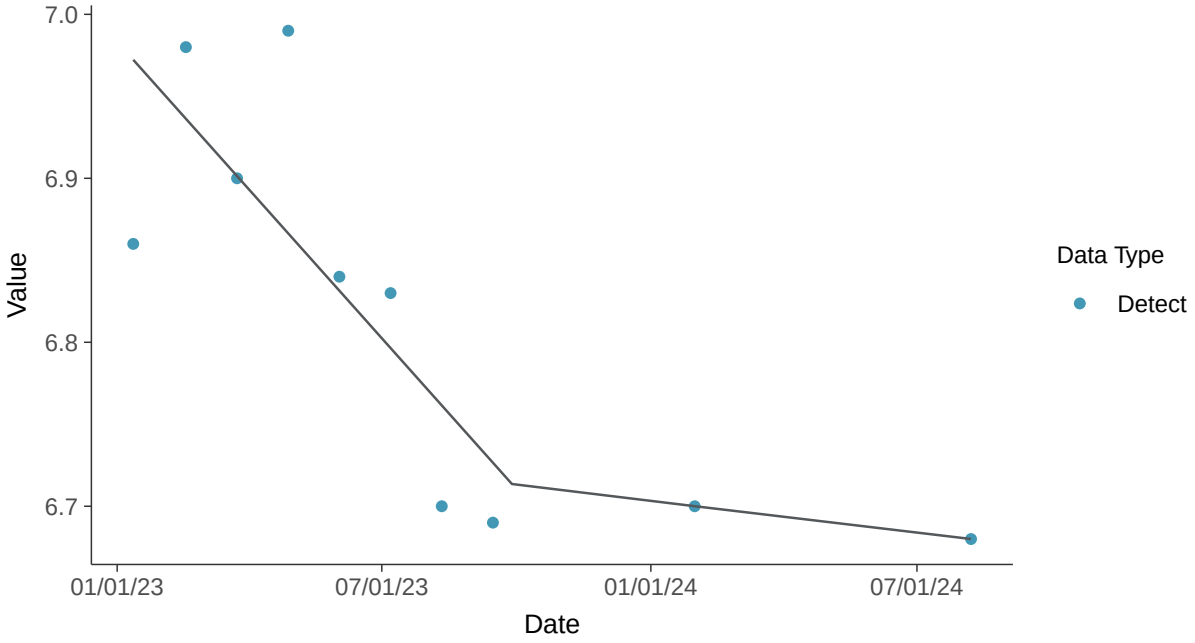
Trend Regression: Lognormal MLE

pH, Field, MW-15 (su)



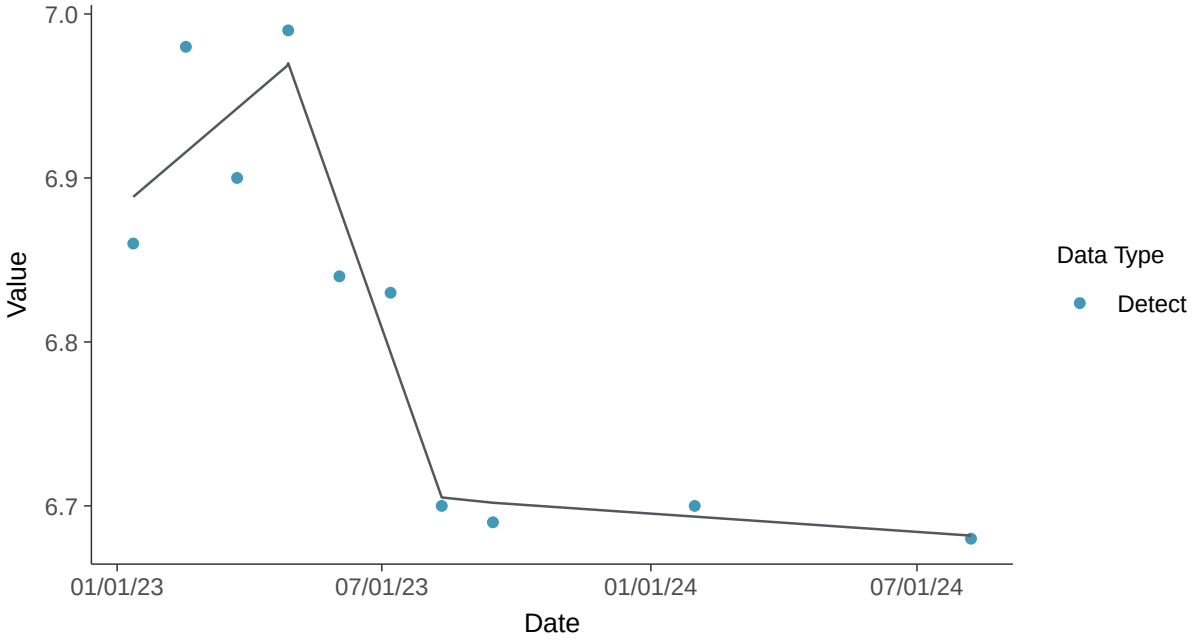
Trend Regression: Piecewise Linear-Linear

pH, Field, MW-15 (su)



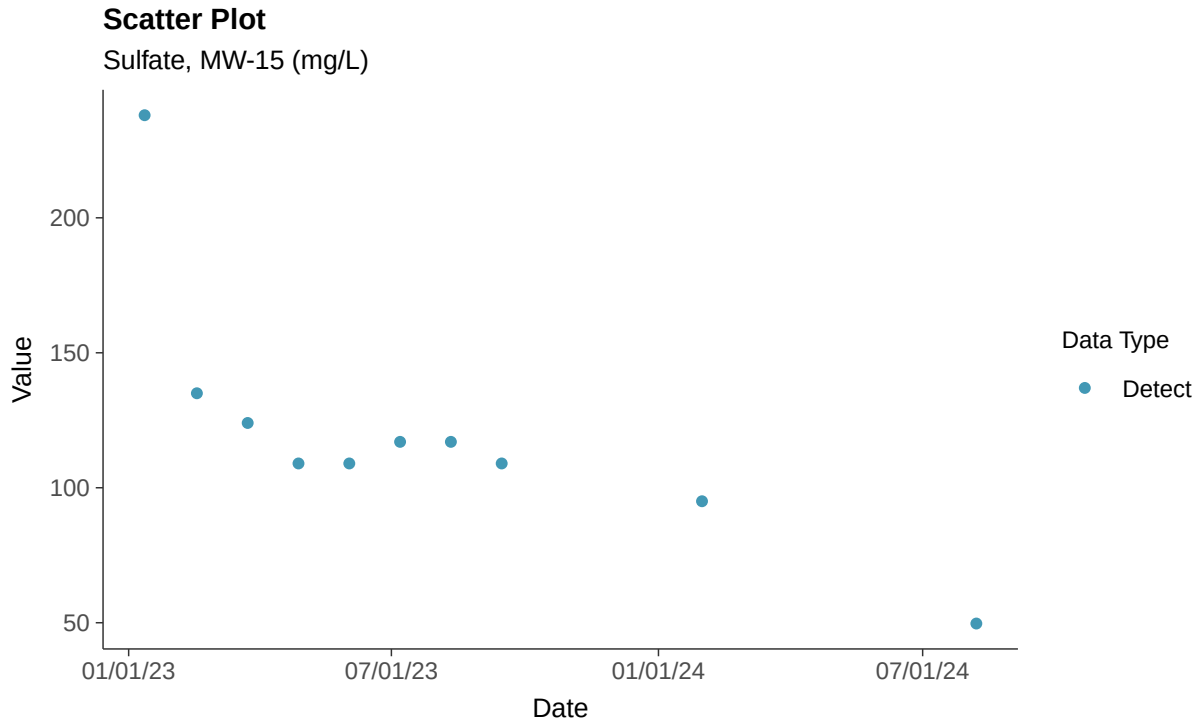
Trend Regression: Piecewise Linear-Linear-Linear

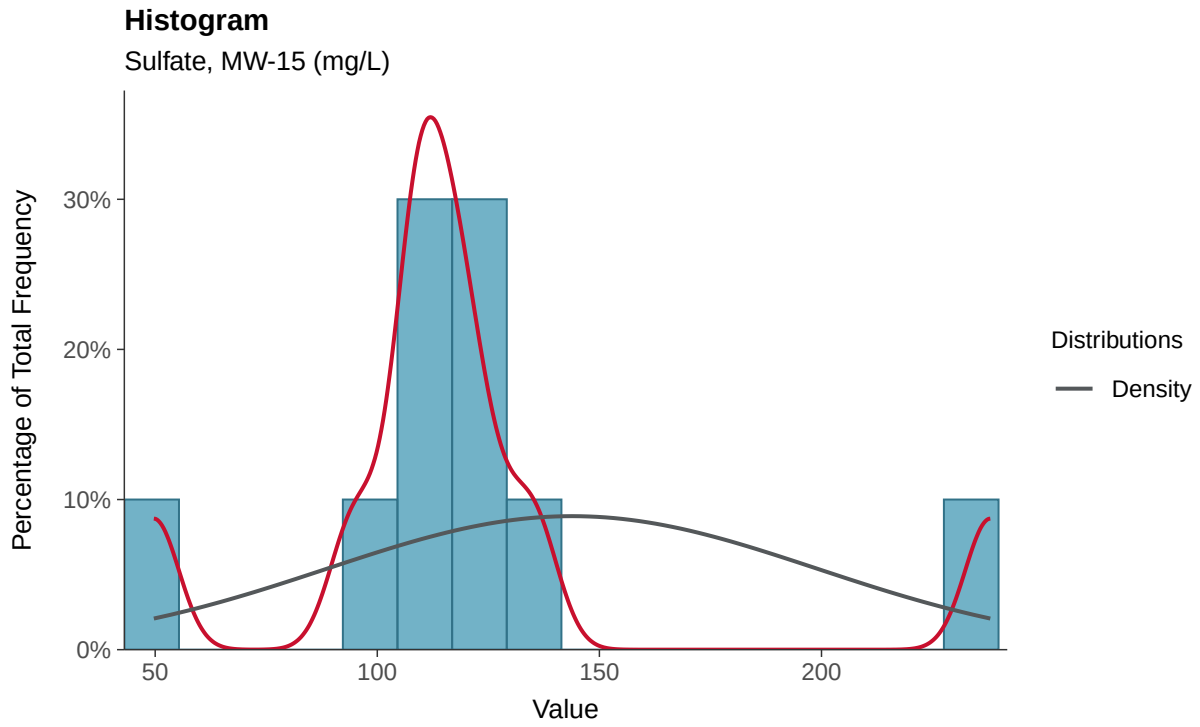
pH, Field, MW-15 (su)



Appendix III: Sulfate, MW-15

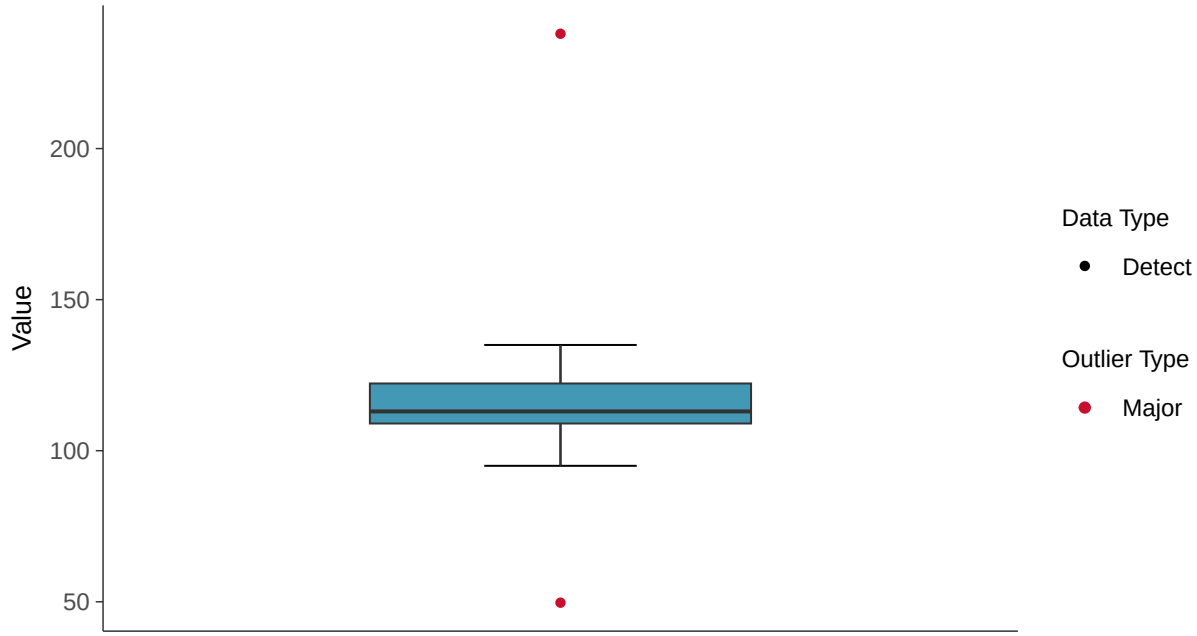
ID: 15_1_06





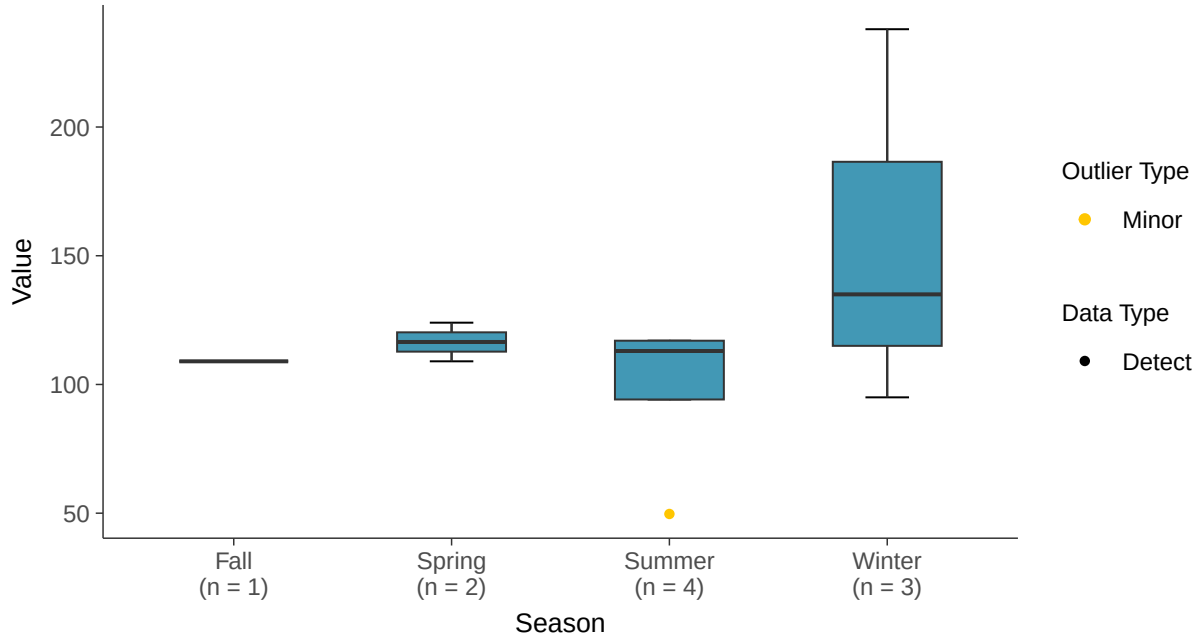
Boxplot

Sulfate, MW-15 (mg/L)



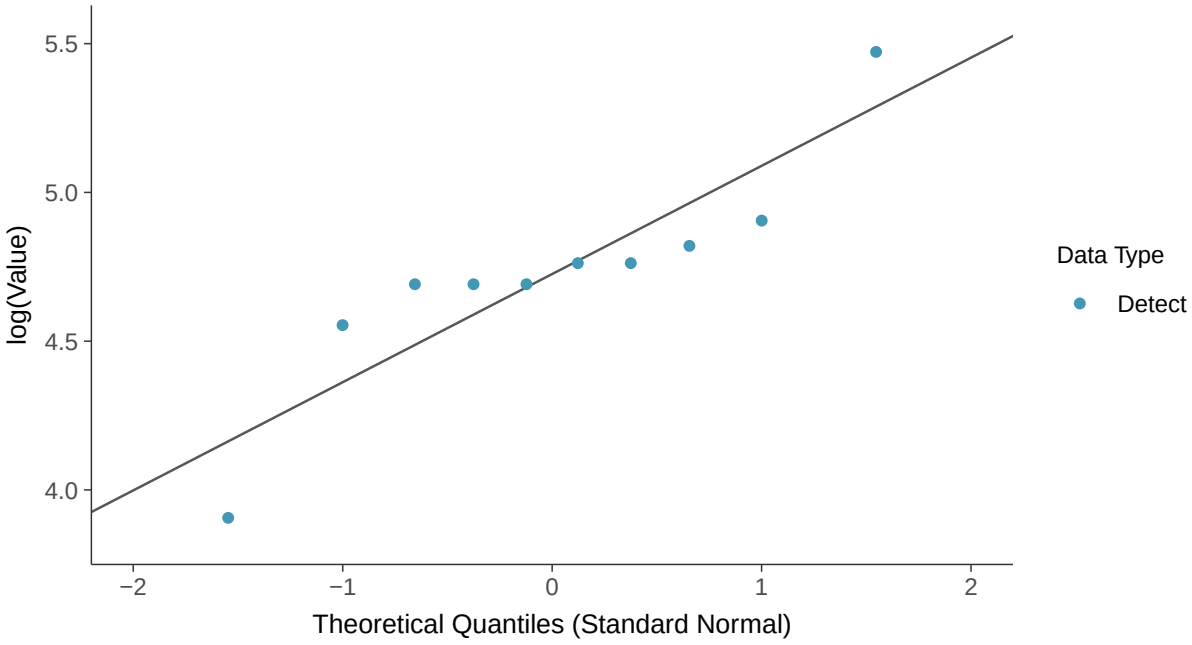
Boxplot by Season

Sulfate, MW-15 (mg/L)



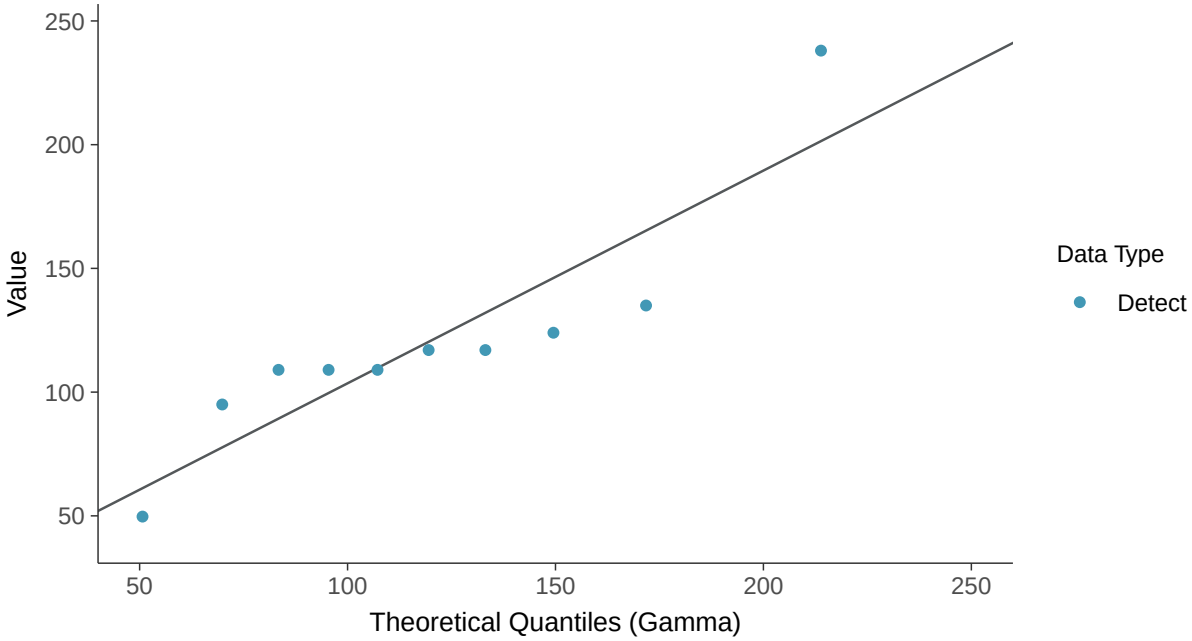
Lognormal Q-Q plot

Sulfate, MW-15 (mg/L)



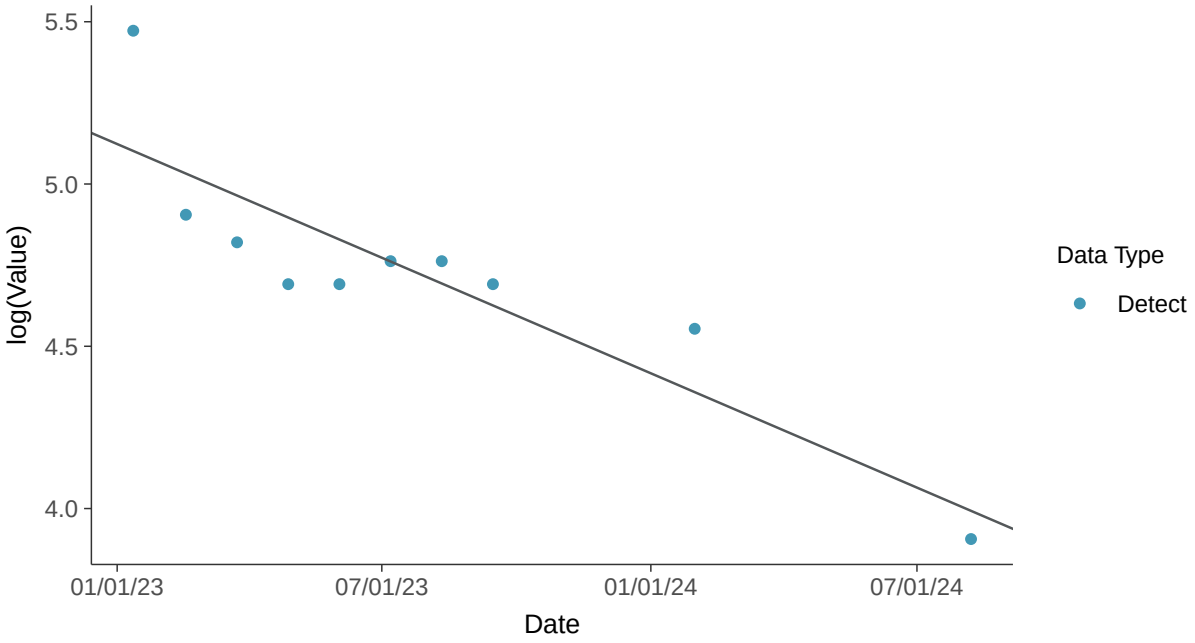
Gamma Q-Q plot

Sulfate, MW-15 (mg/L)



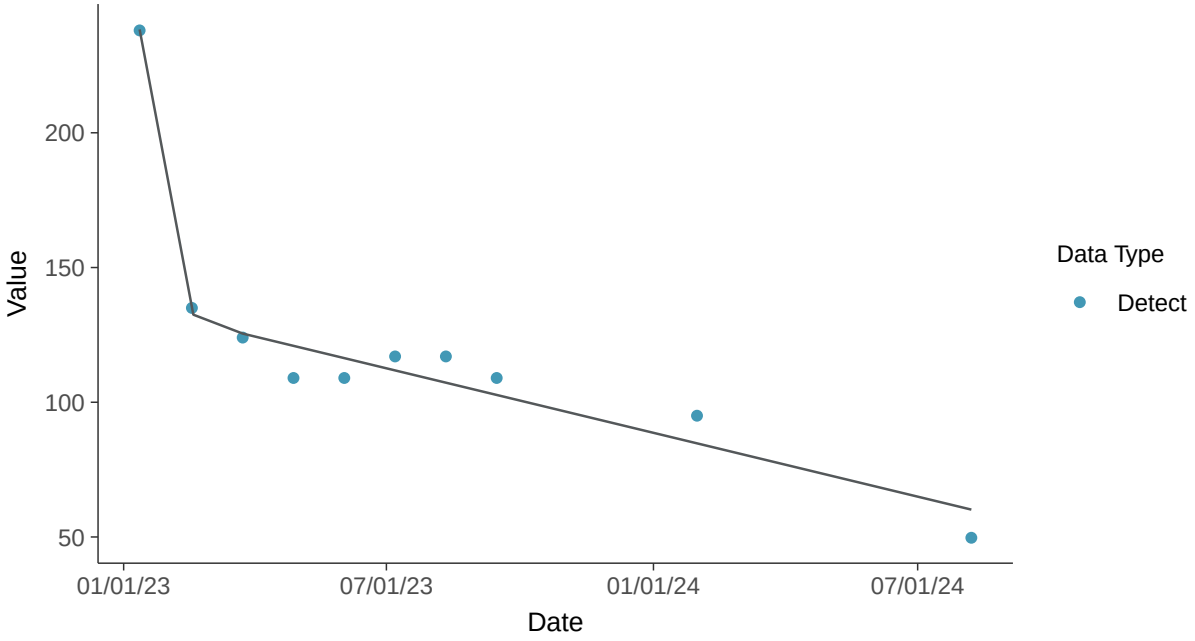
Trend Regression: Lognormal MLE

Sulfate, MW-15 (mg/L)



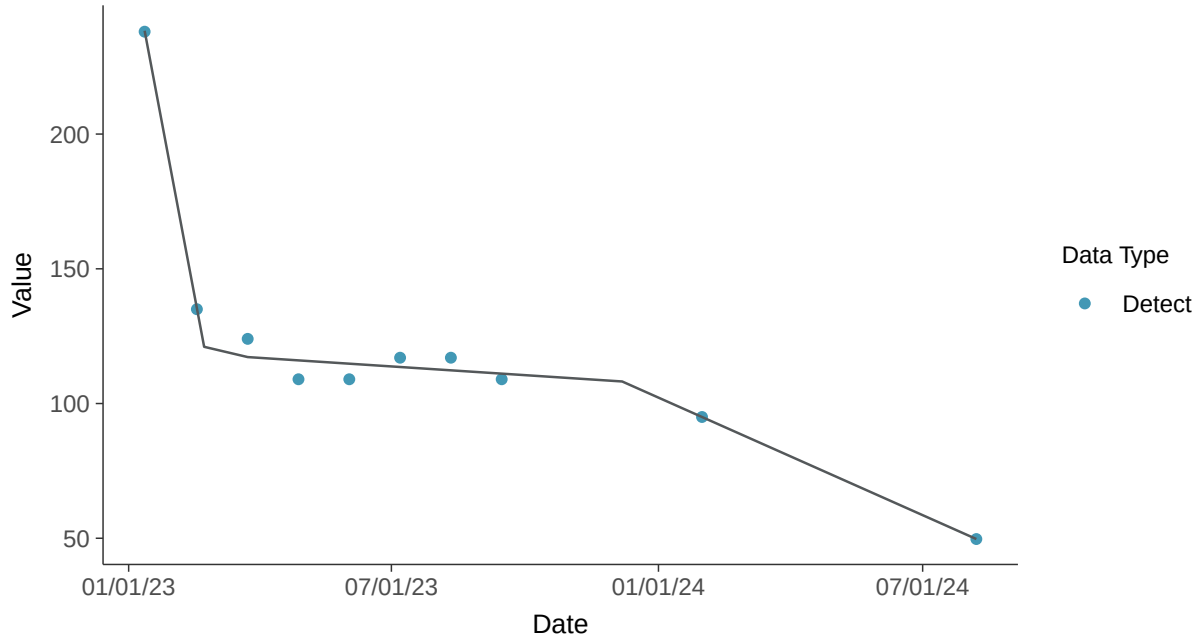
Trend Regression: Piecewise Linear-Linear

Sulfate, MW-15 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Sulfate, MW-15 (mg/L)

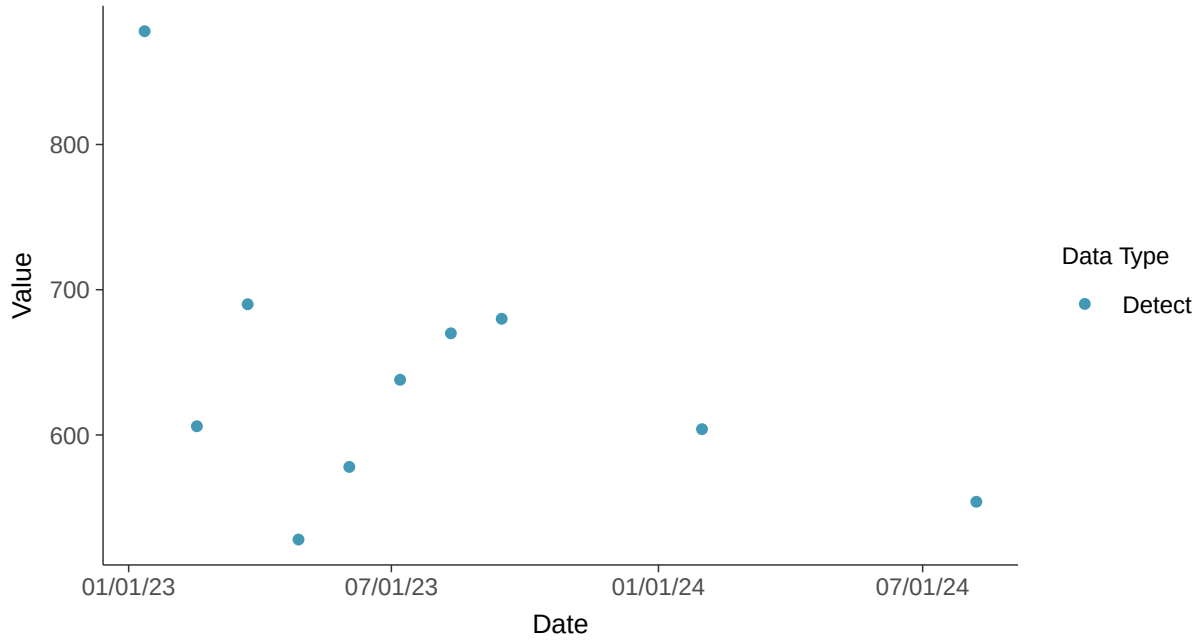


Appendix III: Total Dissolved Solids, MW-15

ID: 15_1_07

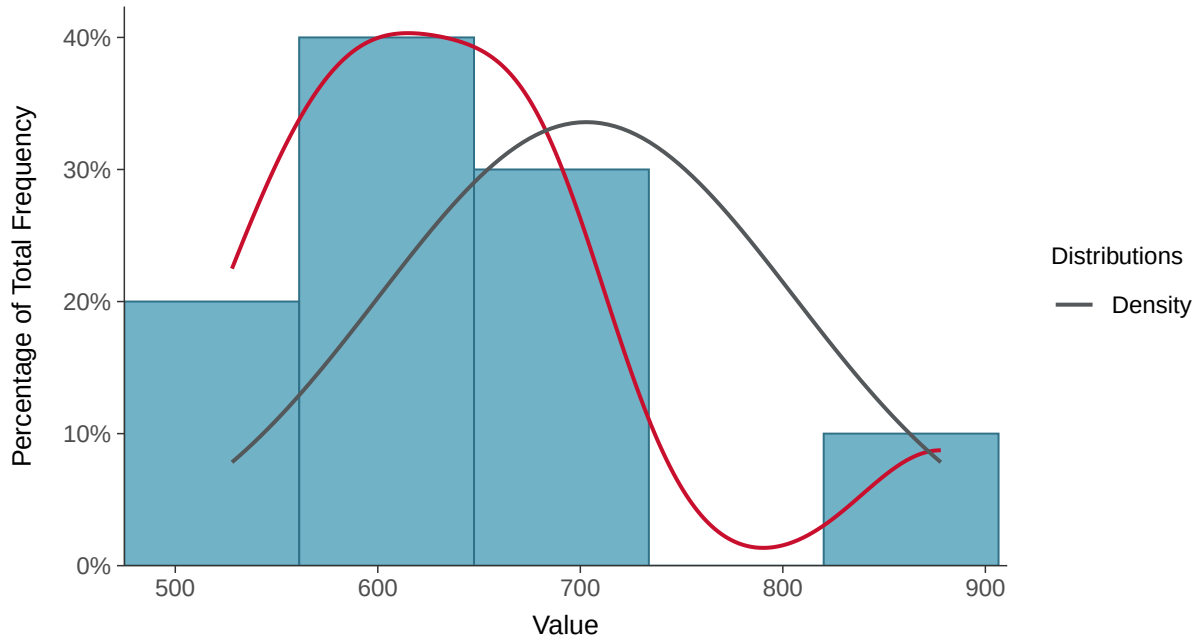
Scatter Plot

Total Dissolved Solids, MW-15 (mg/L)



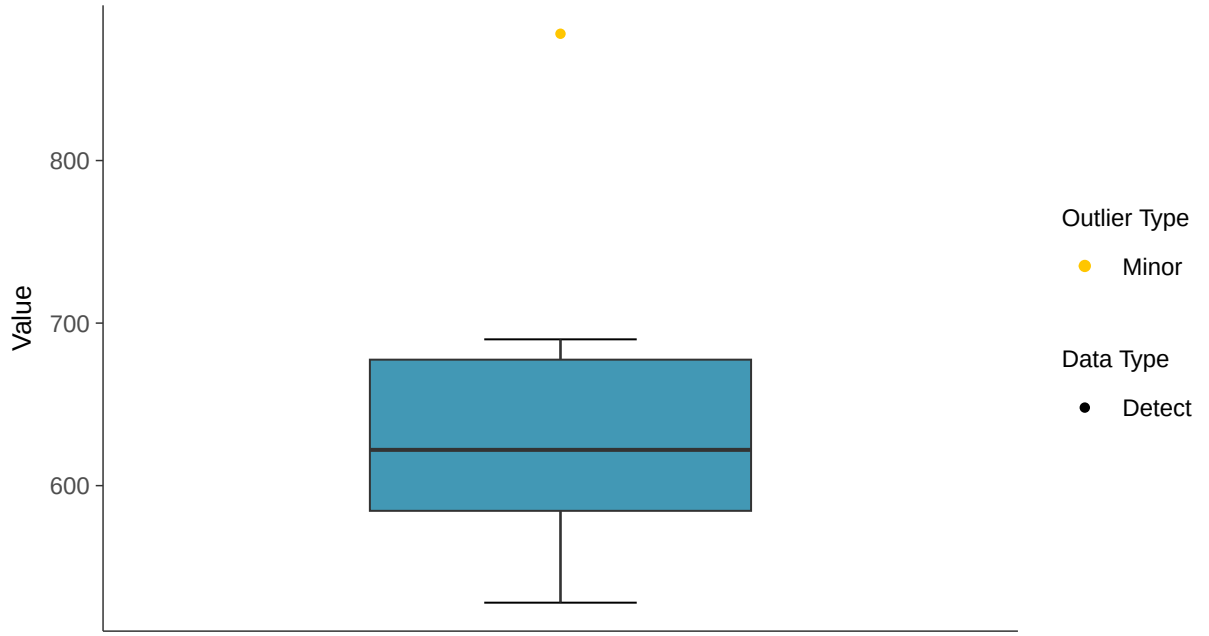
Histogram

Total Dissolved Solids, MW-15 (mg/L)



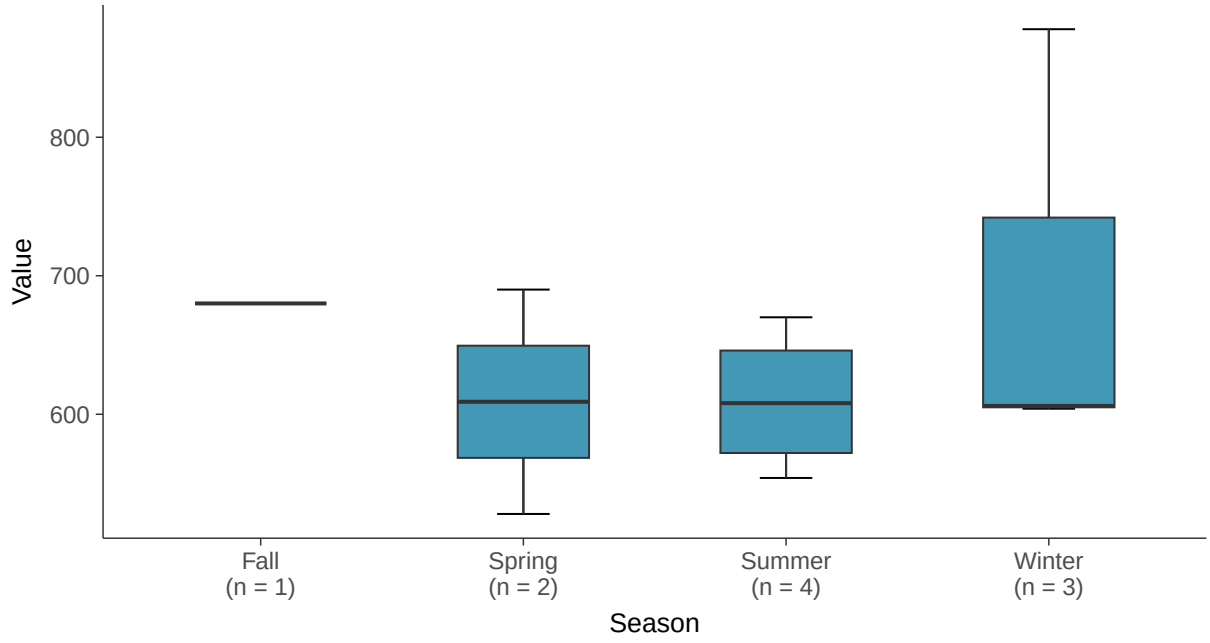
Boxplot

Total Dissolved Solids, MW-15 (mg/L)



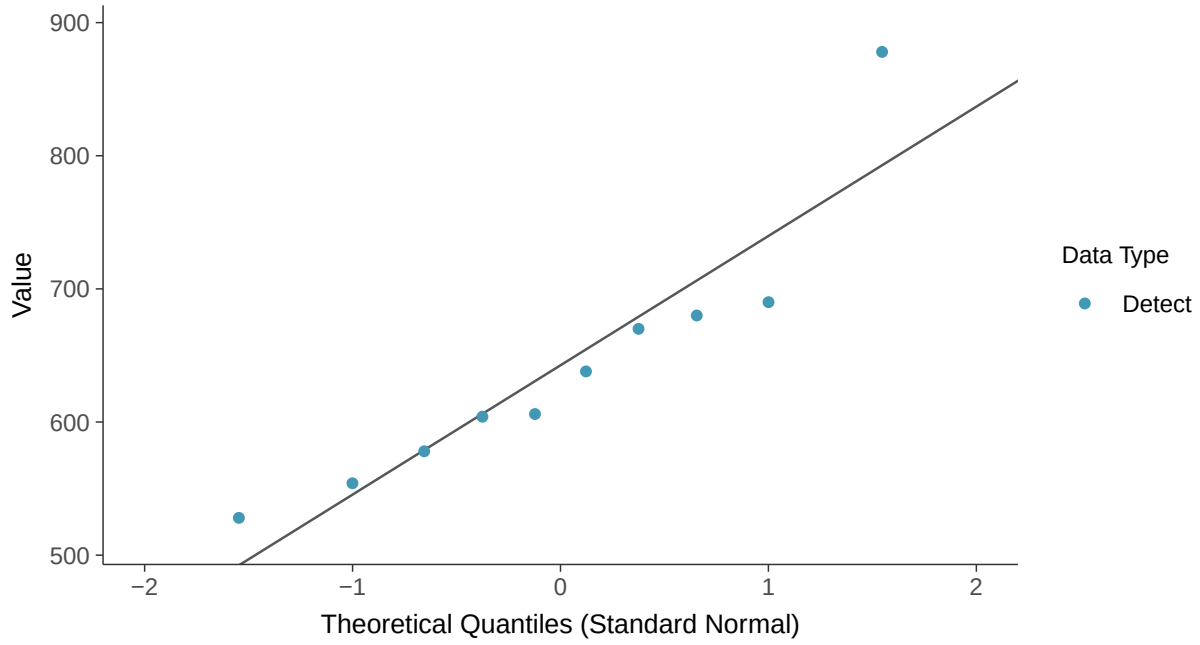
Boxplot by Season

Total Dissolved Solids, MW-15 (mg/L)



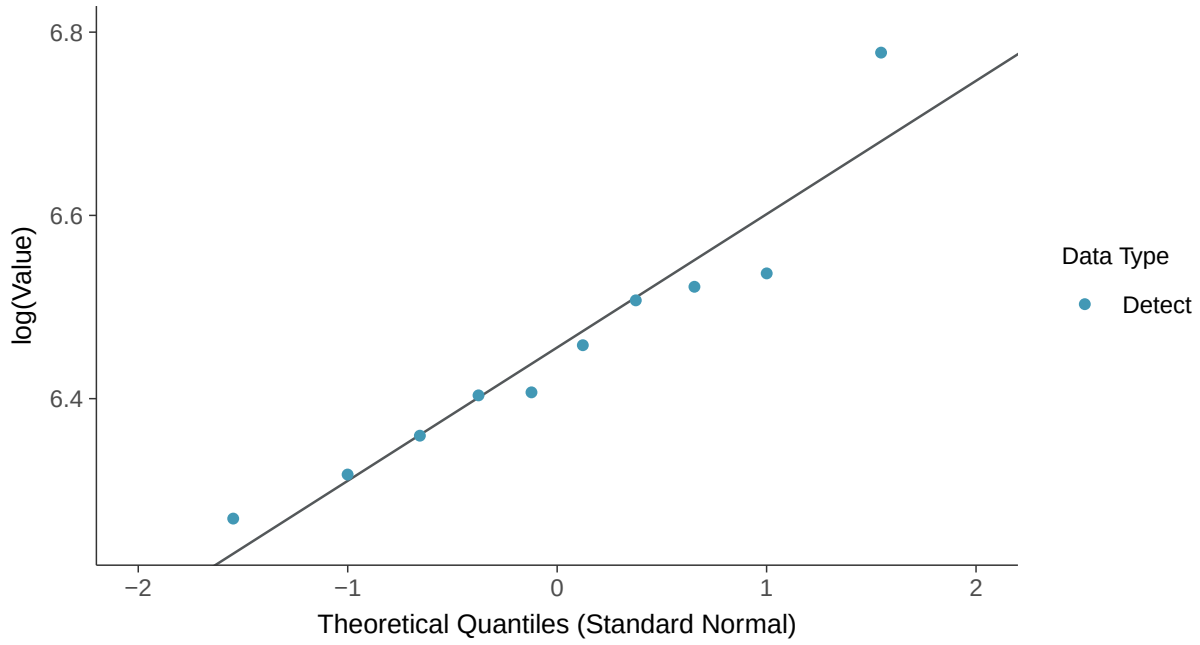
Normal Q-Q plot

Total Dissolved Solids, MW-15 (mg/L)



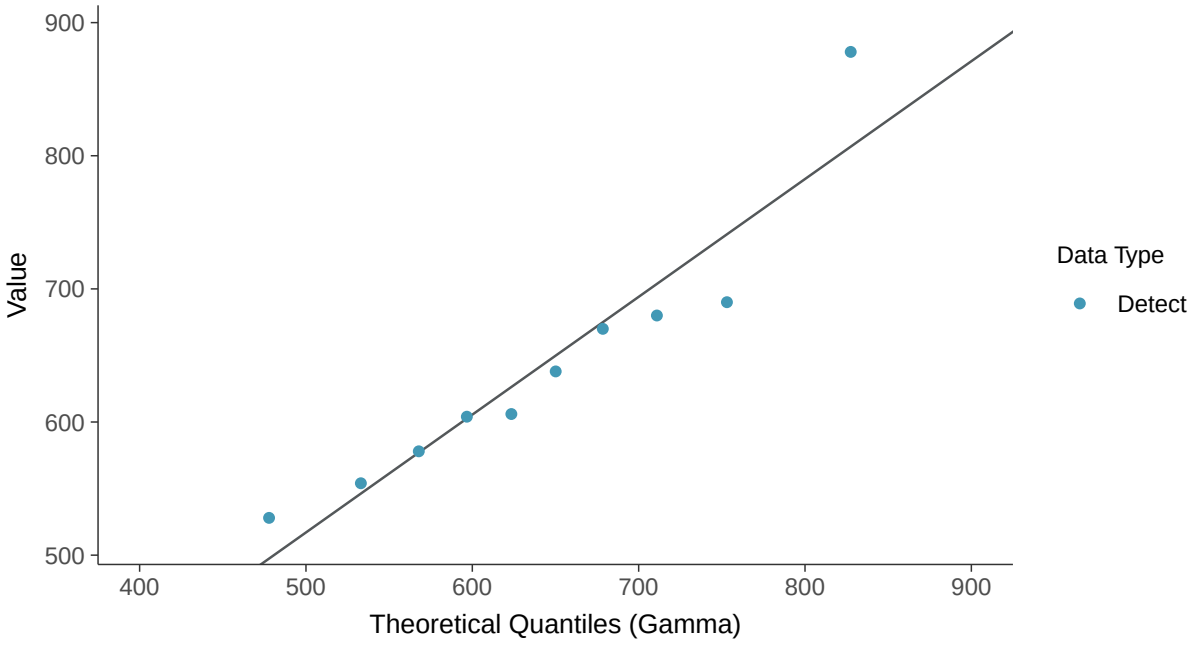
Lognormal Q-Q plot

Total Dissolved Solids, MW-15 (mg/L)



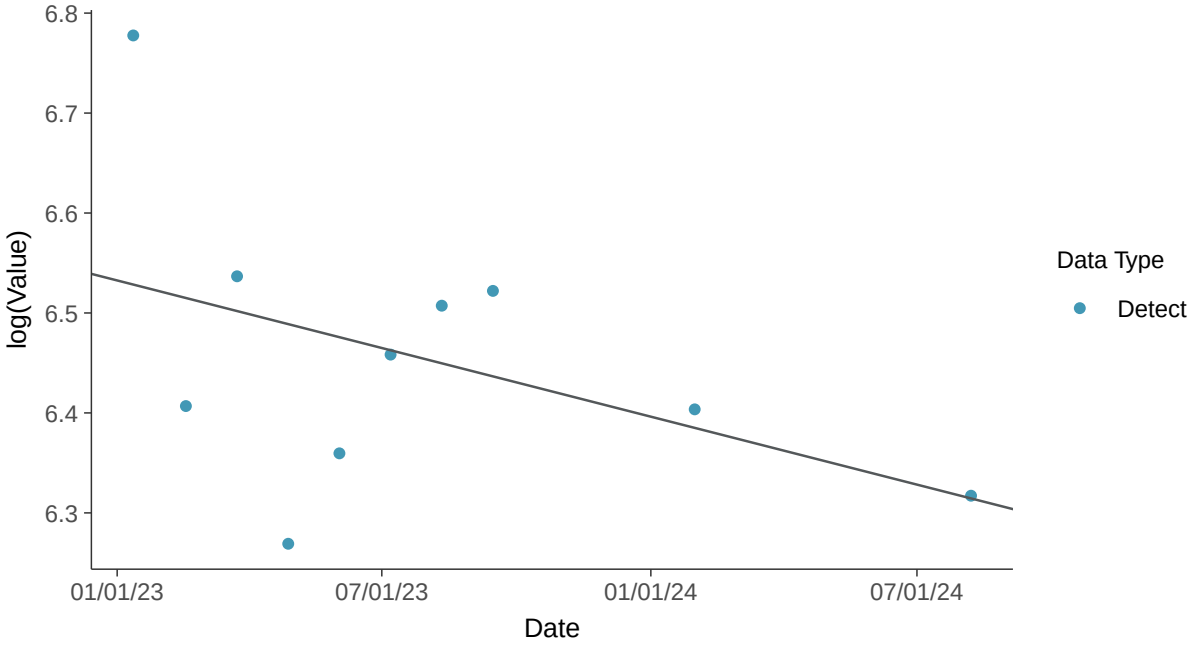
Gamma Q-Q plot

Total Dissolved Solids, MW-15 (mg/L)



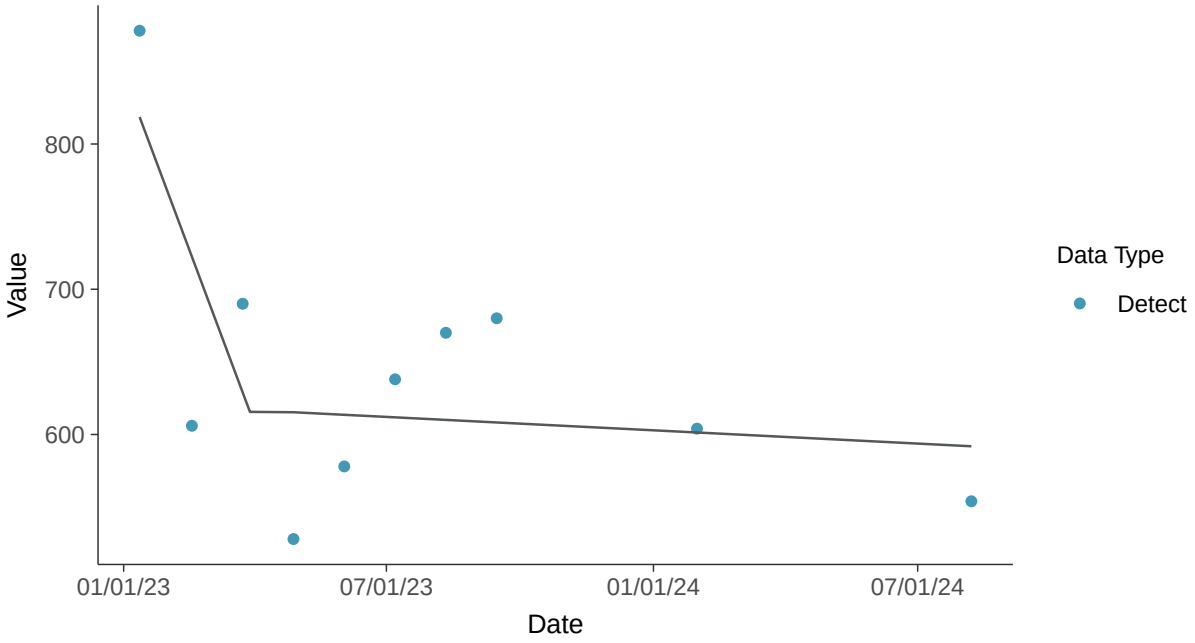
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-15 (mg/L)



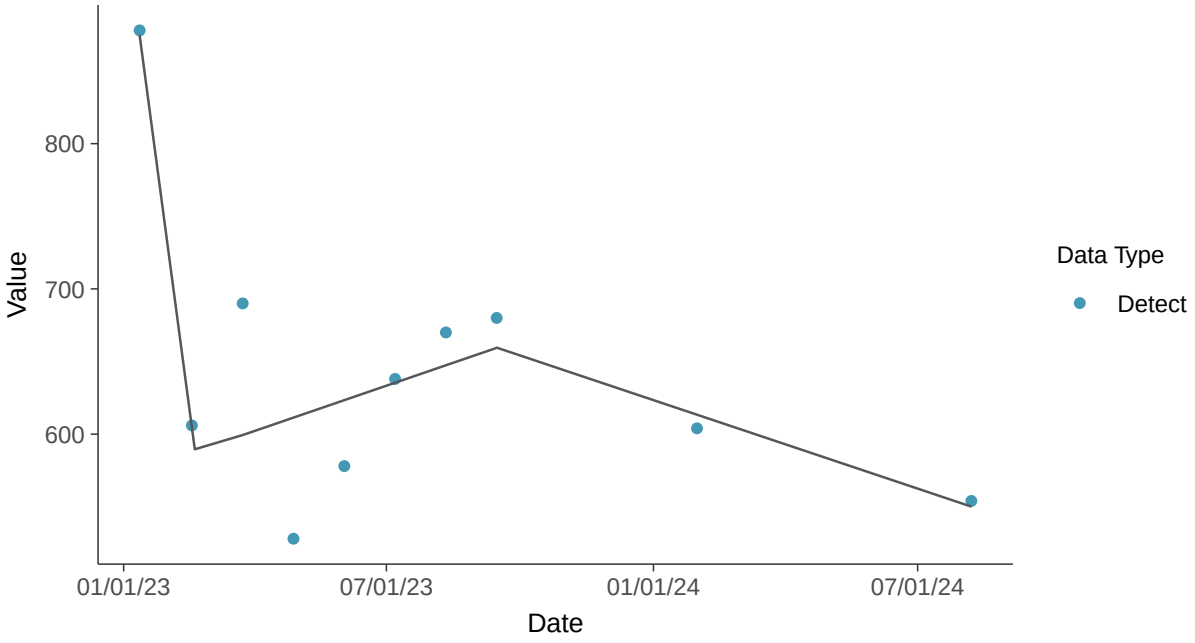
Trend Regression: Piecewise Linear-Linear

Total Dissolved Solids, MW-15 (mg/L)



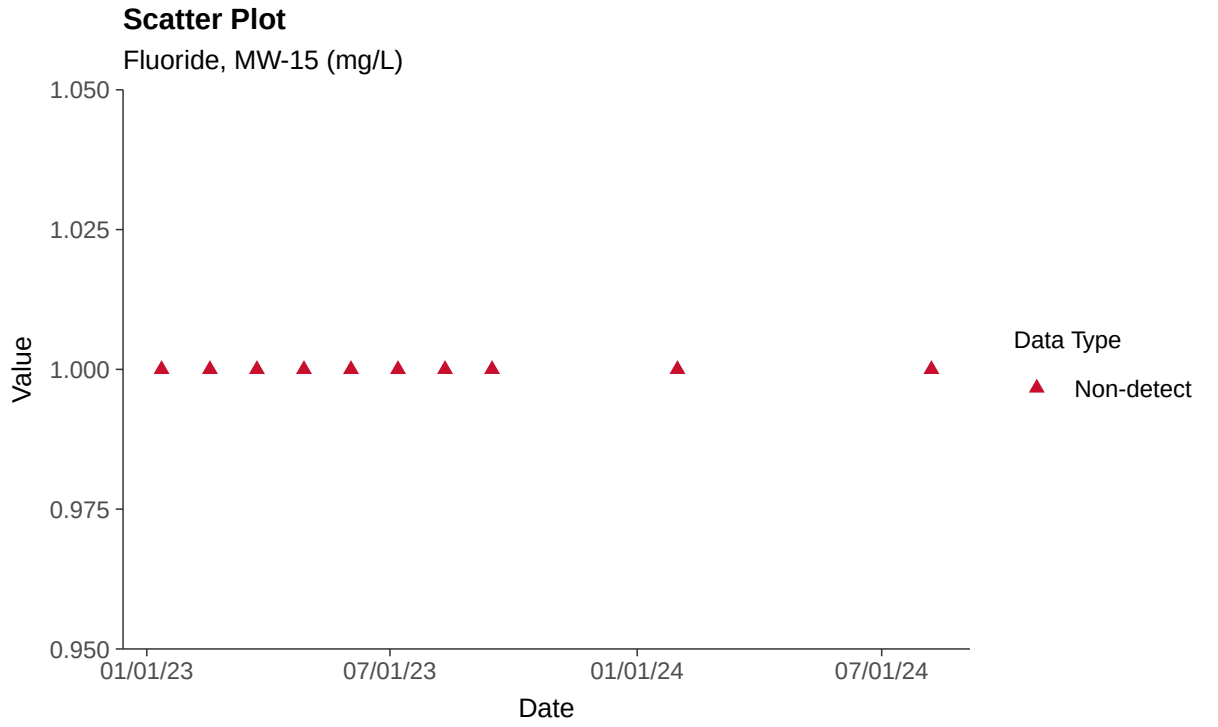
Trend Regression: Piecewise Linear-Linear-Linear

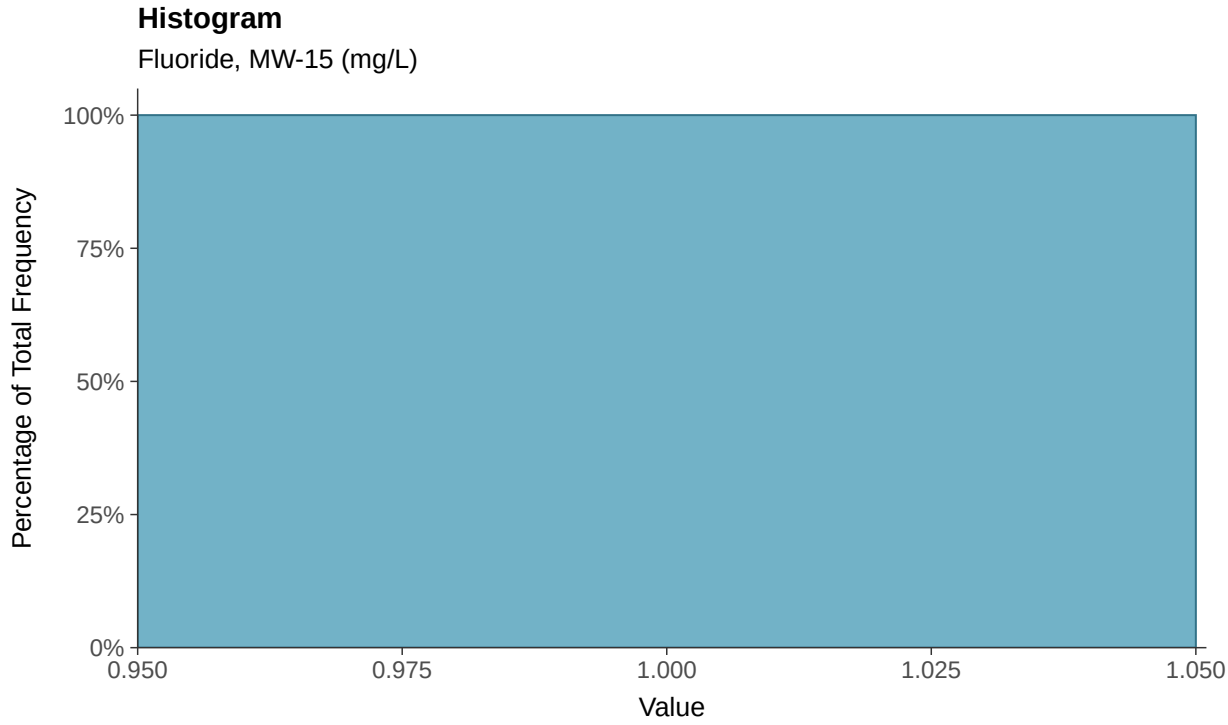
Total Dissolved Solids, MW-15 (mg/L)



Appendix IV: Fluoride, MW-15

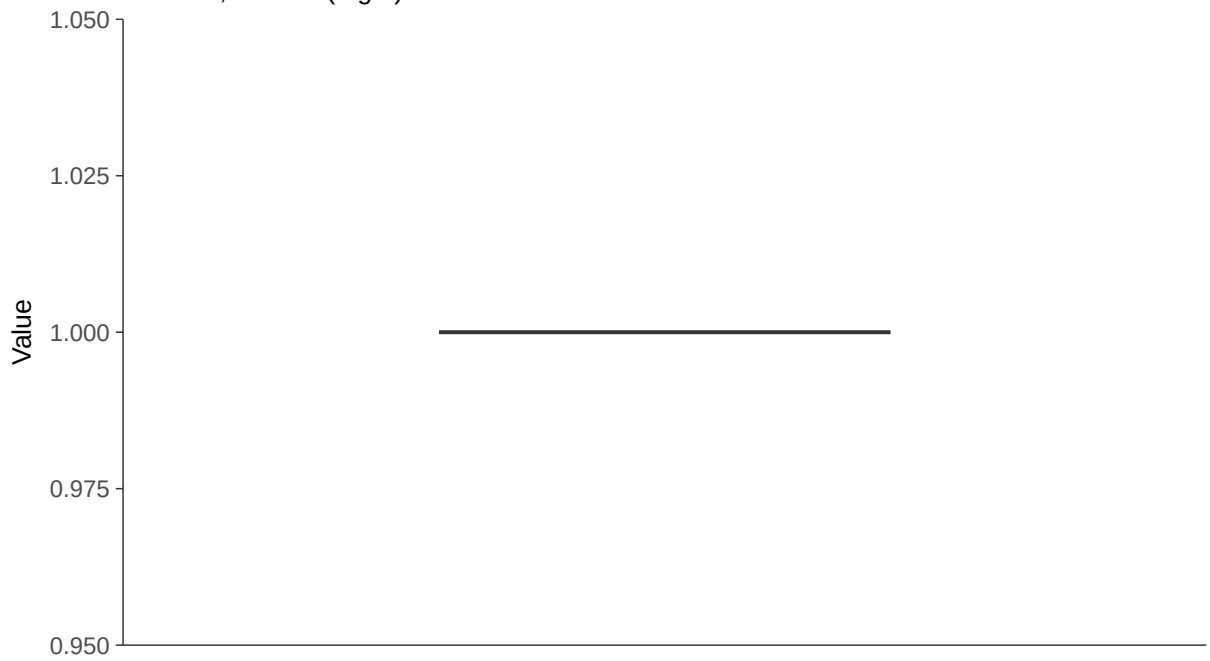
ID: 15_2_04





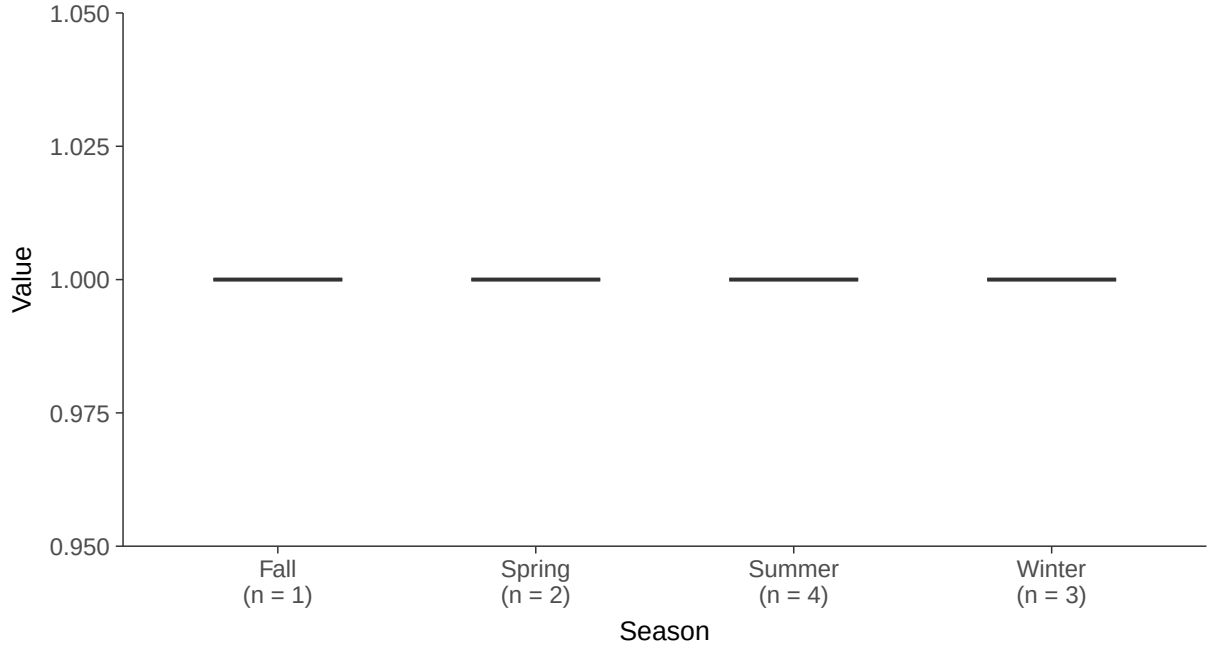
Boxplot

Fluoride, MW-15 (mg/L)



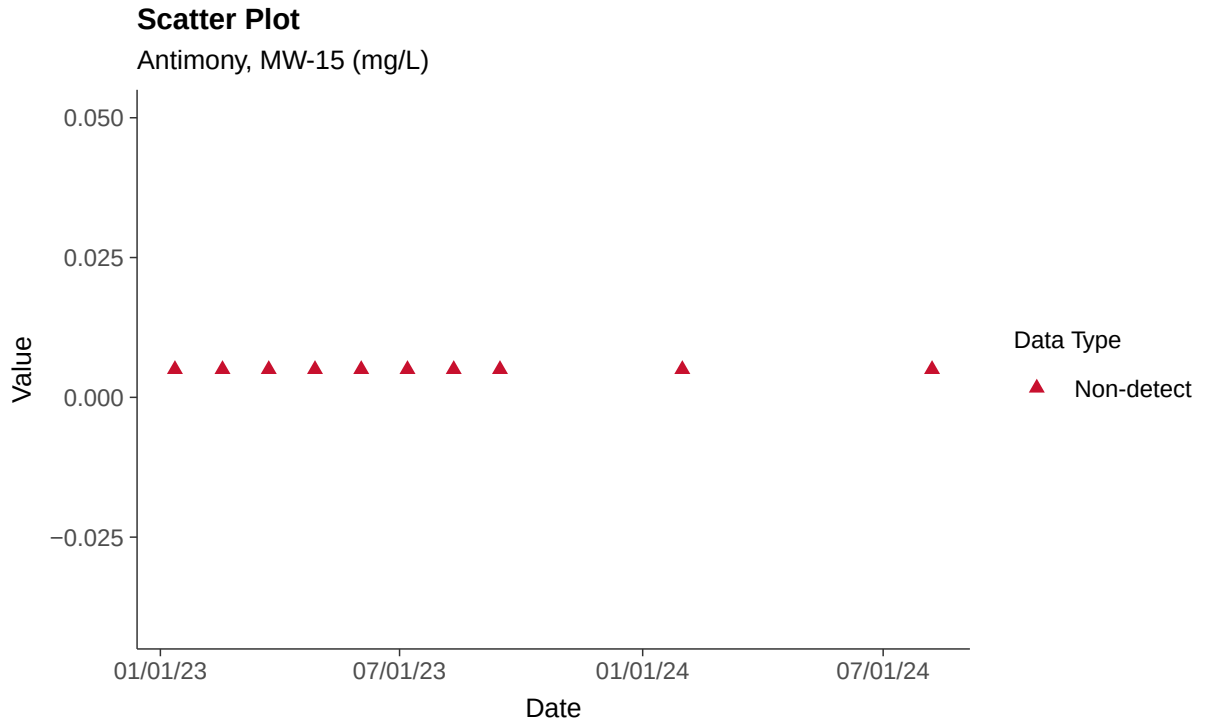
Boxplot by Season

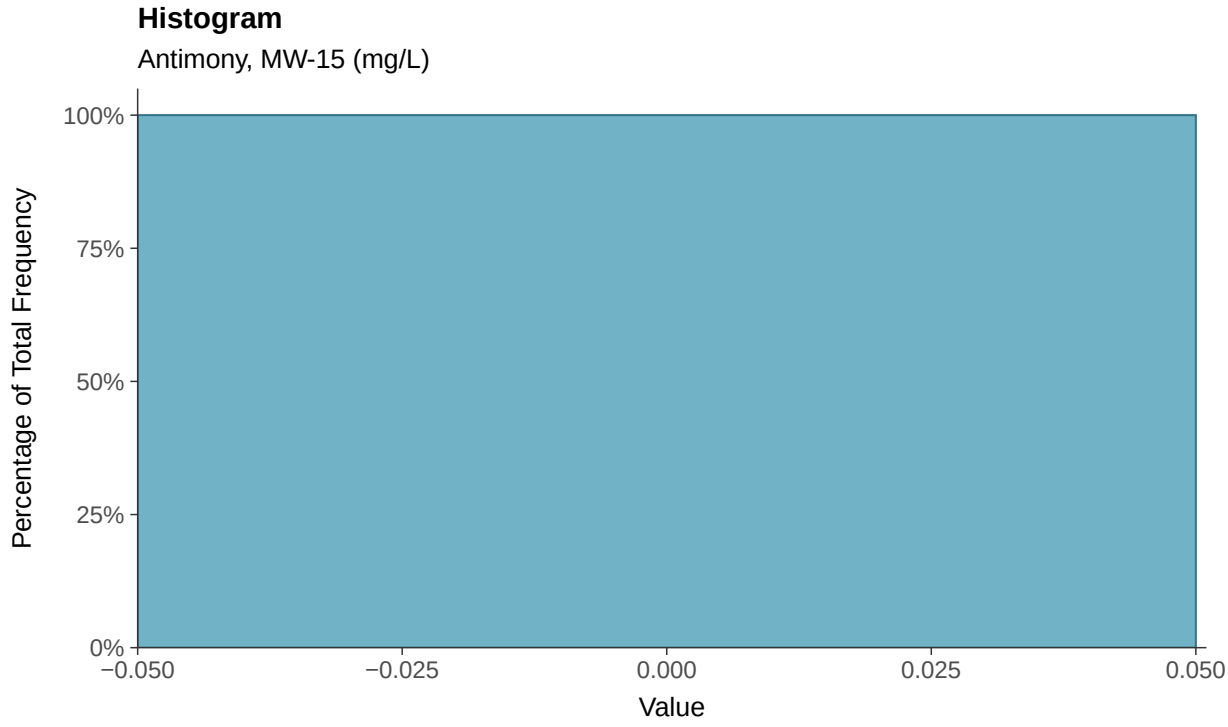
Fluoride, MW-15 (mg/L)



Appendix IV: Antimony, MW-15

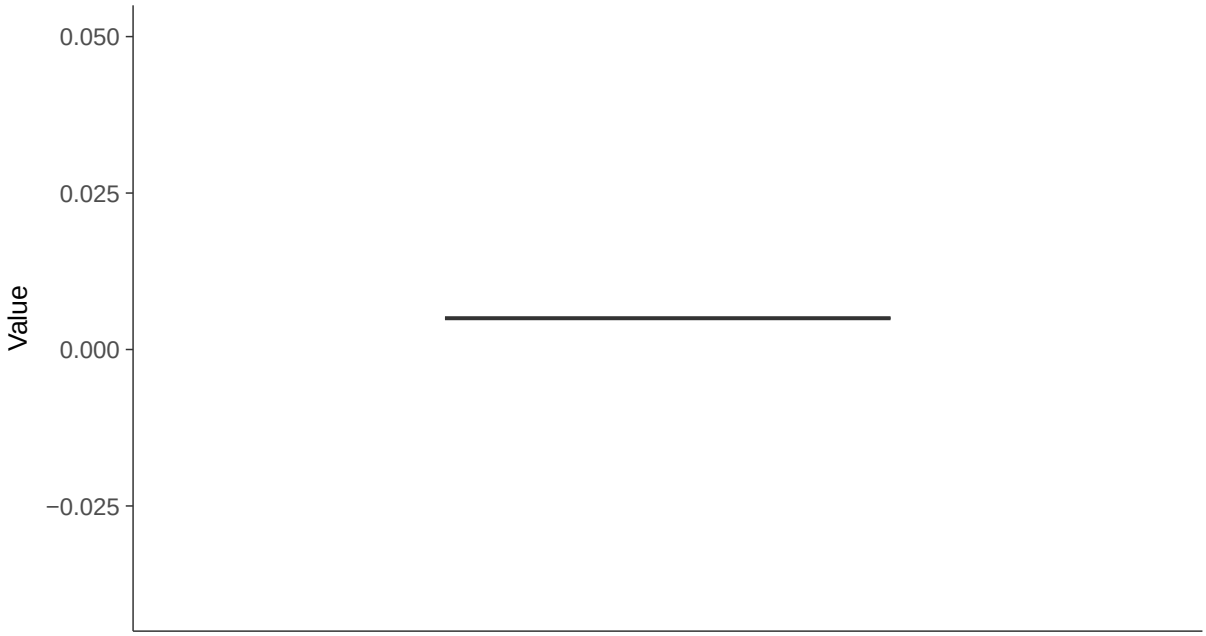
ID: 15_2_08





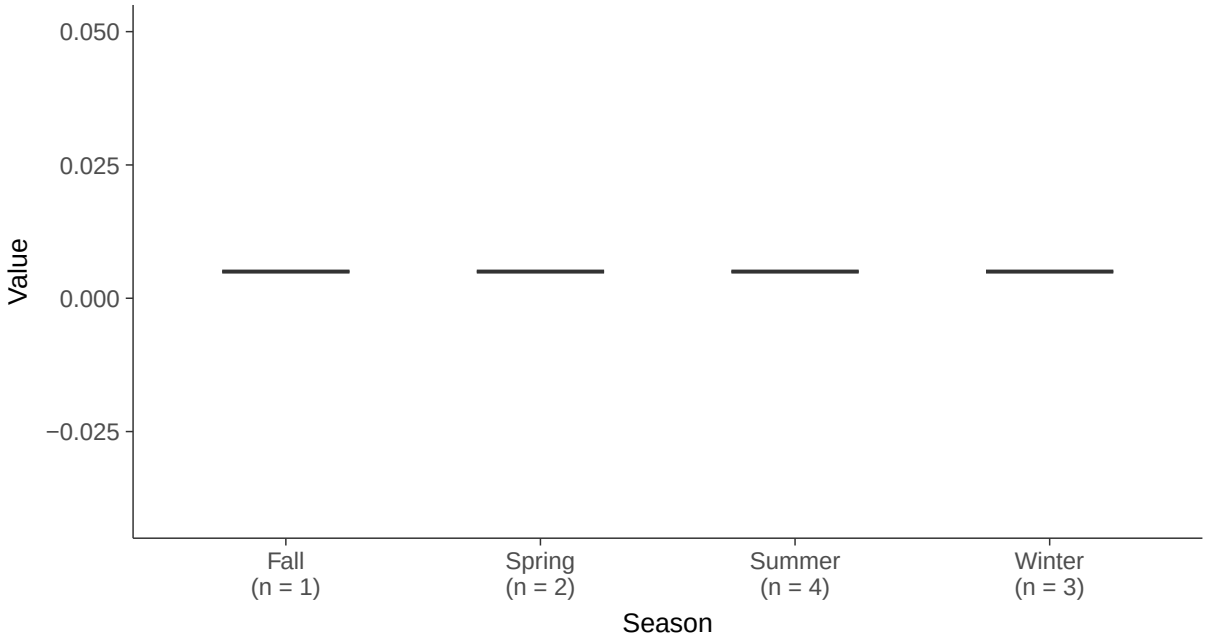
Boxplot

Antimony, MW-15 (mg/L)



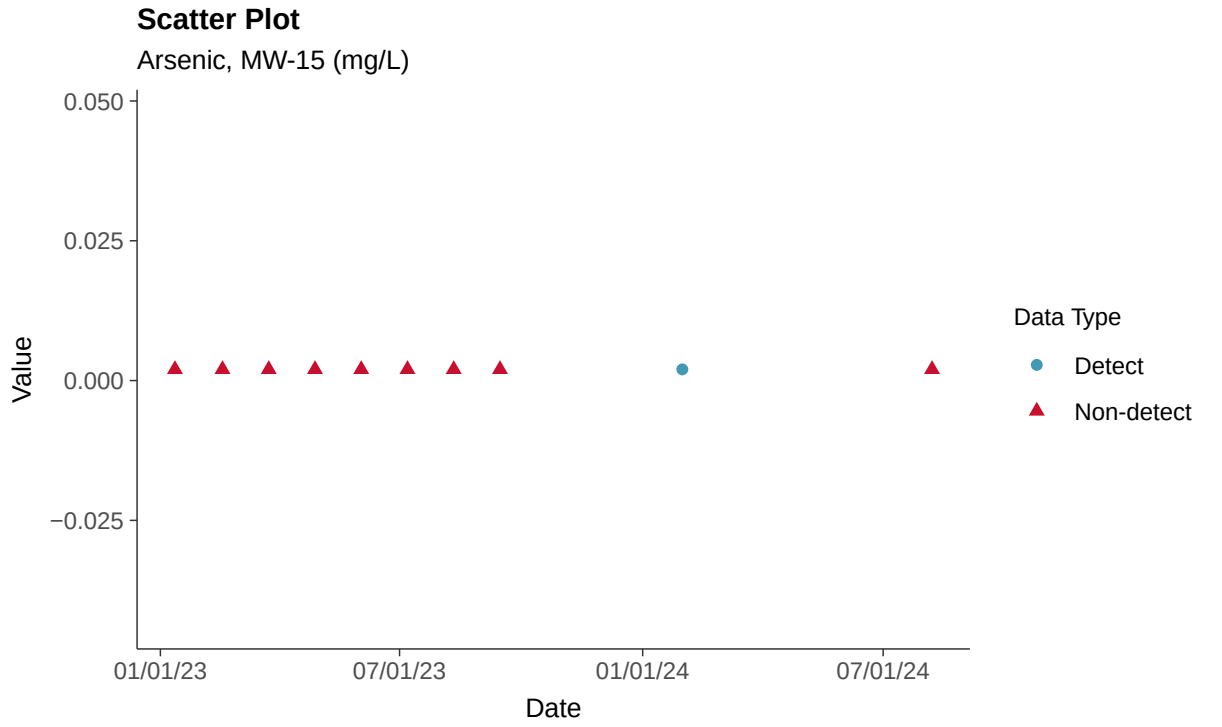
Boxplot by Season

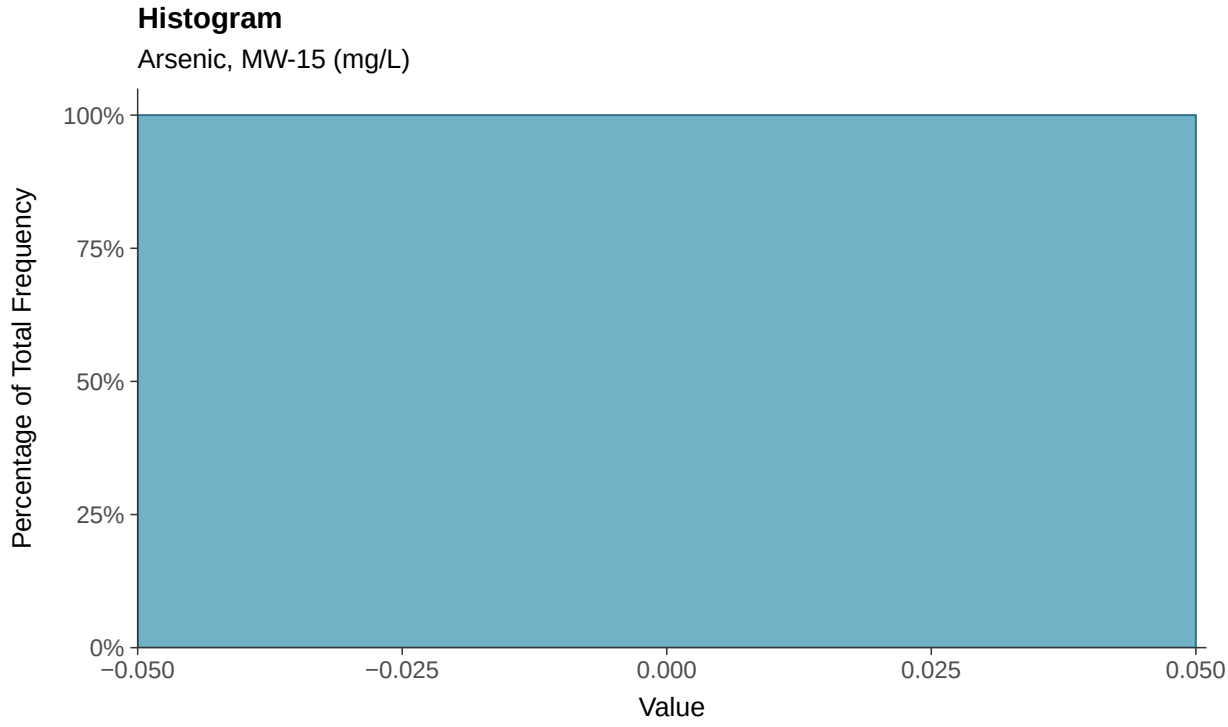
Antimony, MW-15 (mg/L)



Appendix IV: Arsenic, MW-15

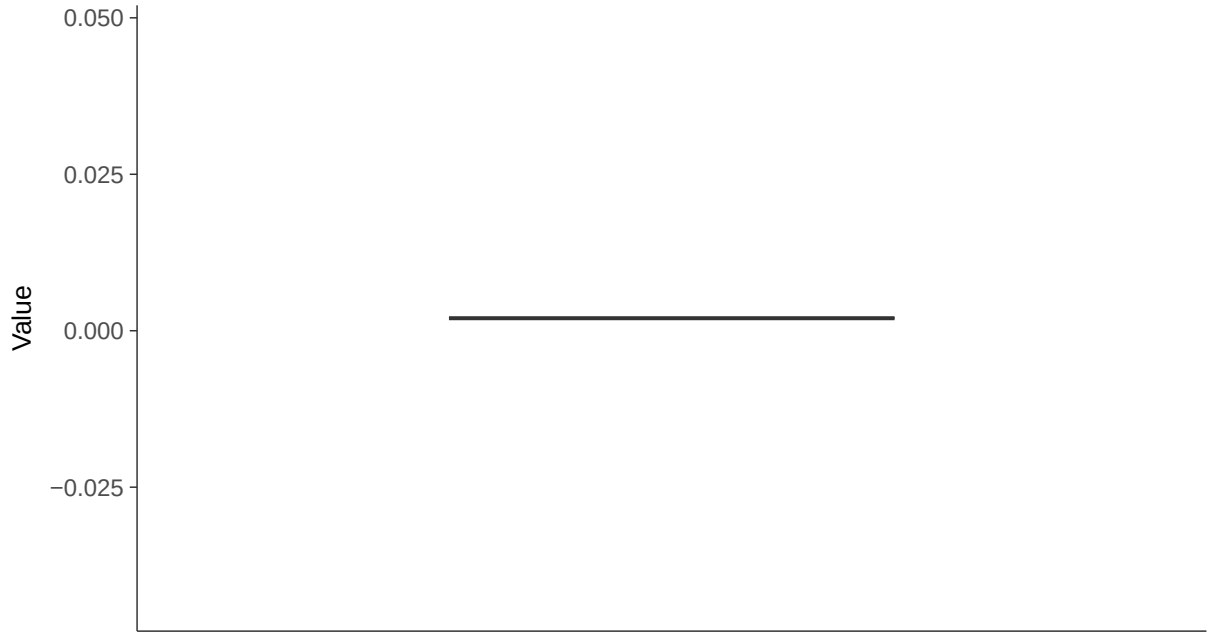
ID: 15_2_09





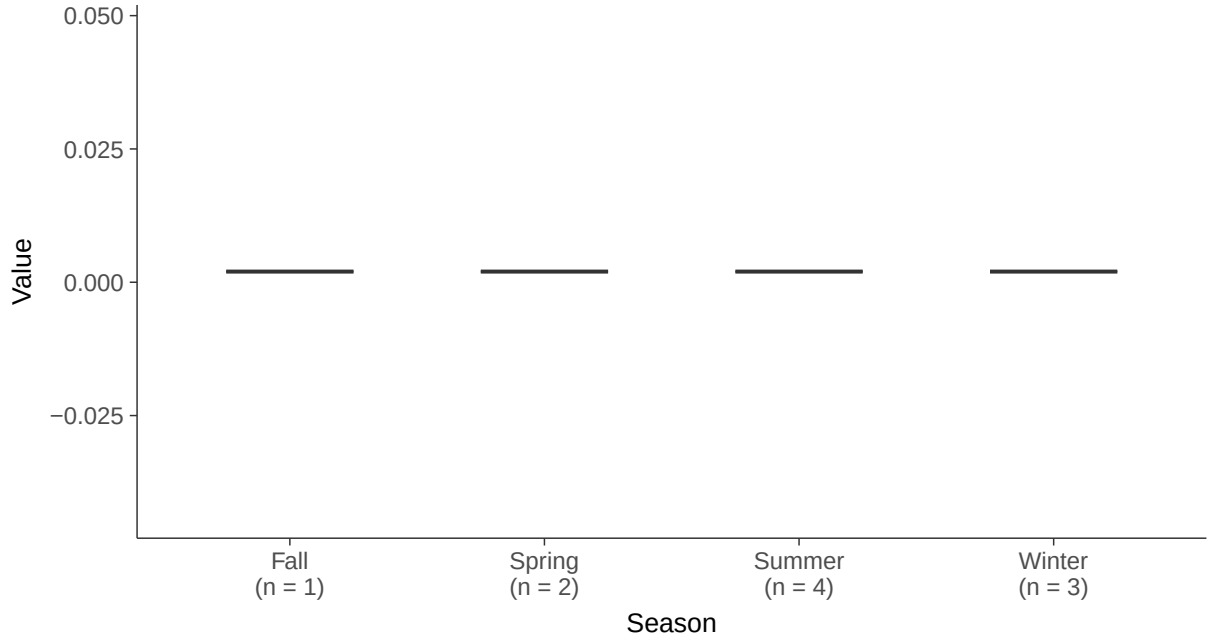
Boxplot

Arsenic, MW-15 (mg/L)



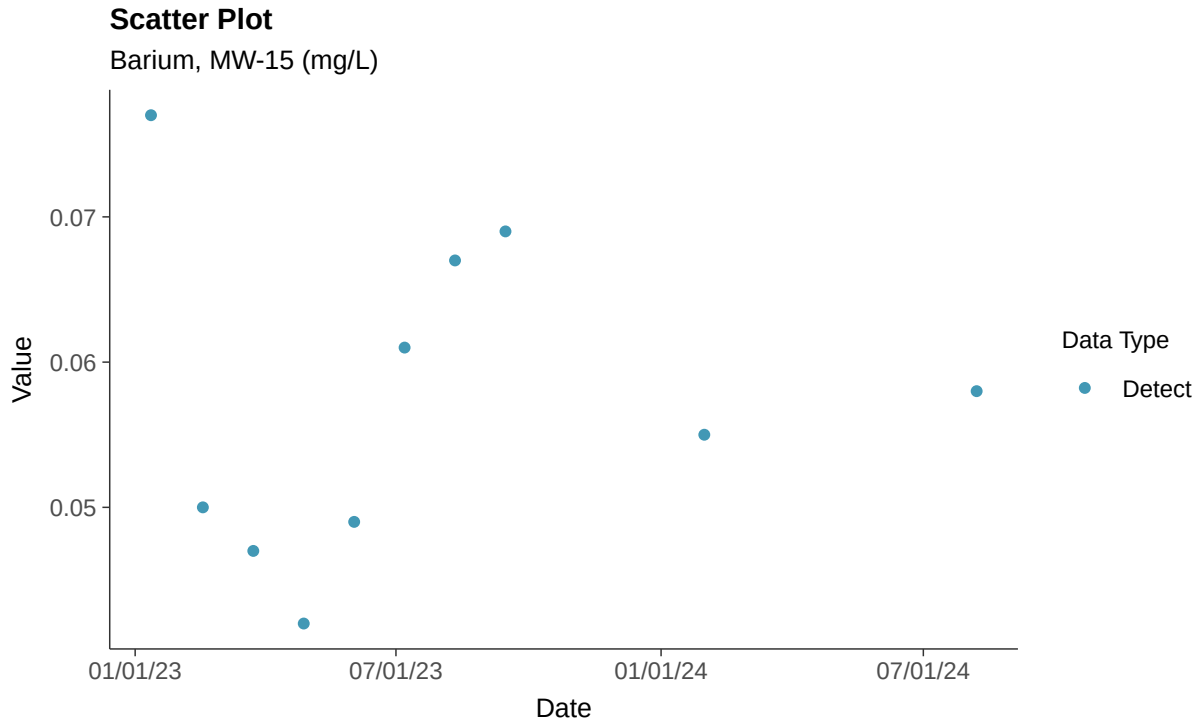
Boxplot by Season

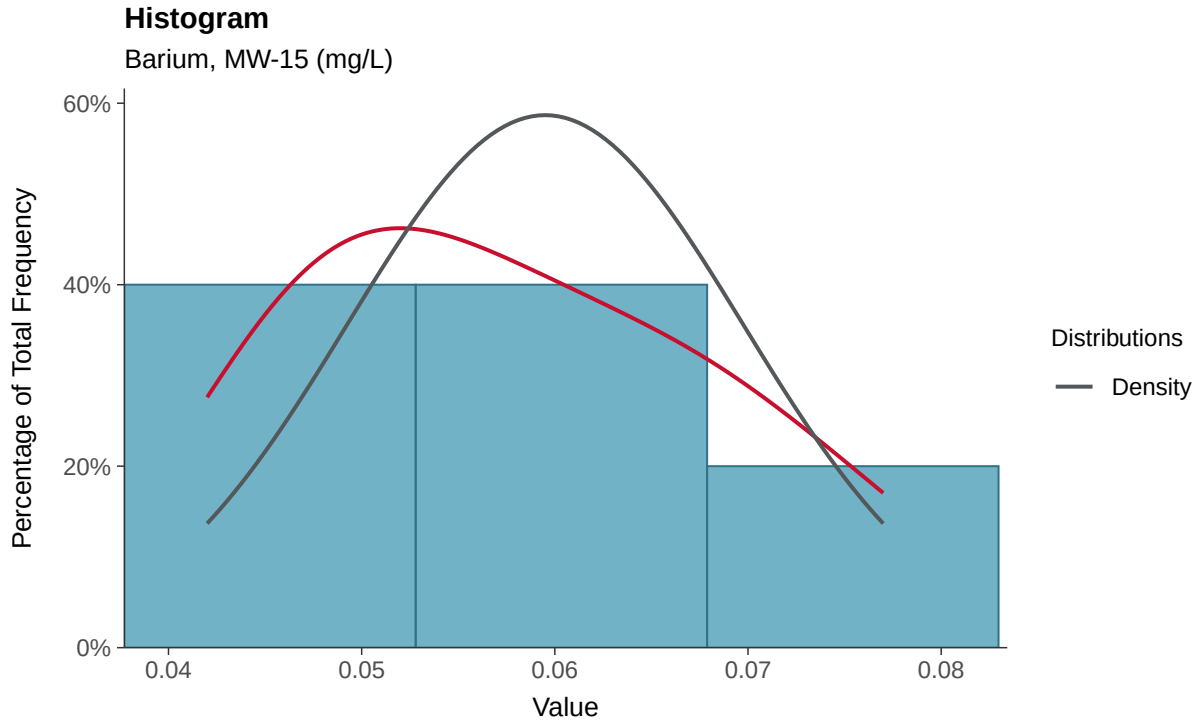
Arsenic, MW-15 (mg/L)



Appendix IV: Barium, MW-15

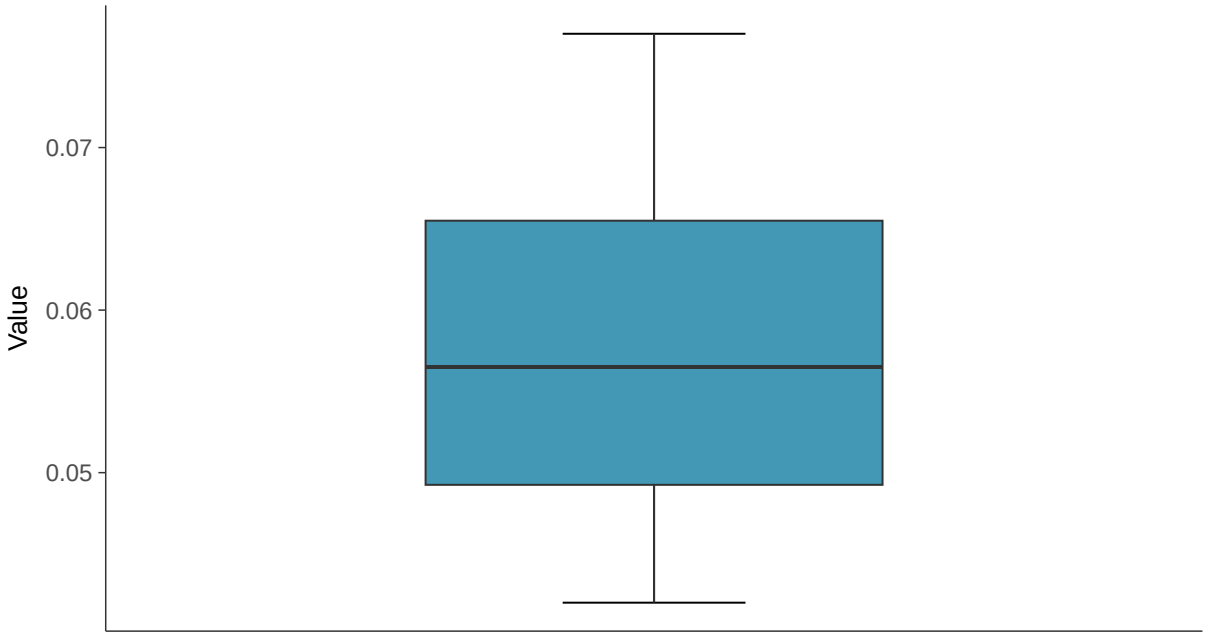
ID: 15_2_10





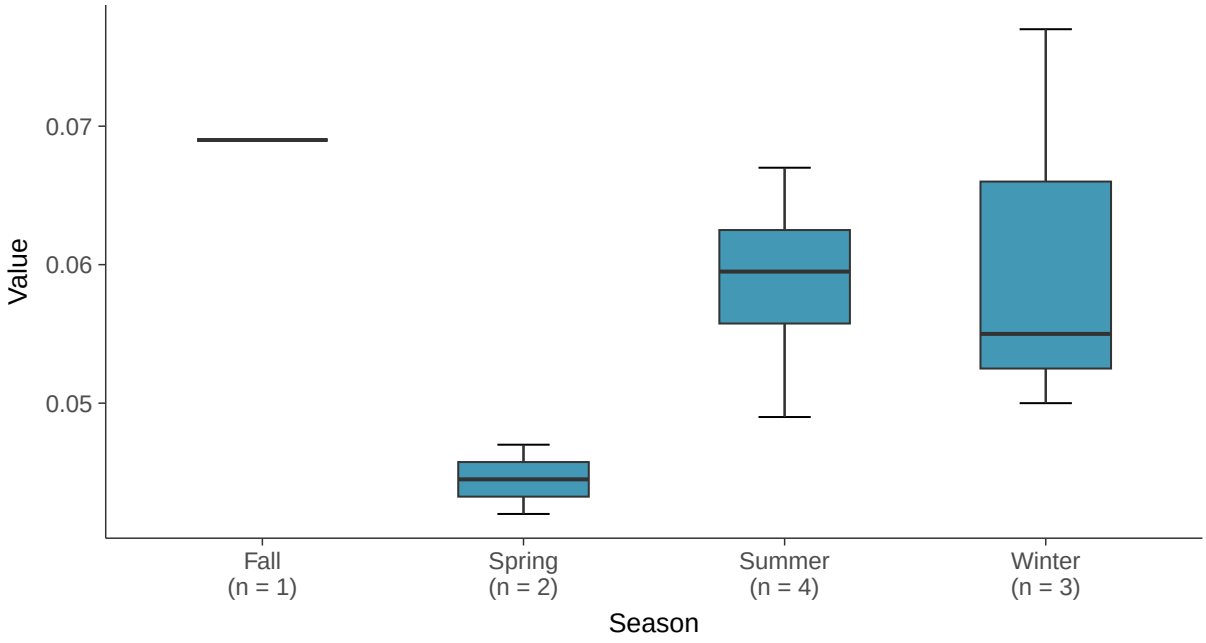
Boxplot

Barium, MW-15 (mg/L)



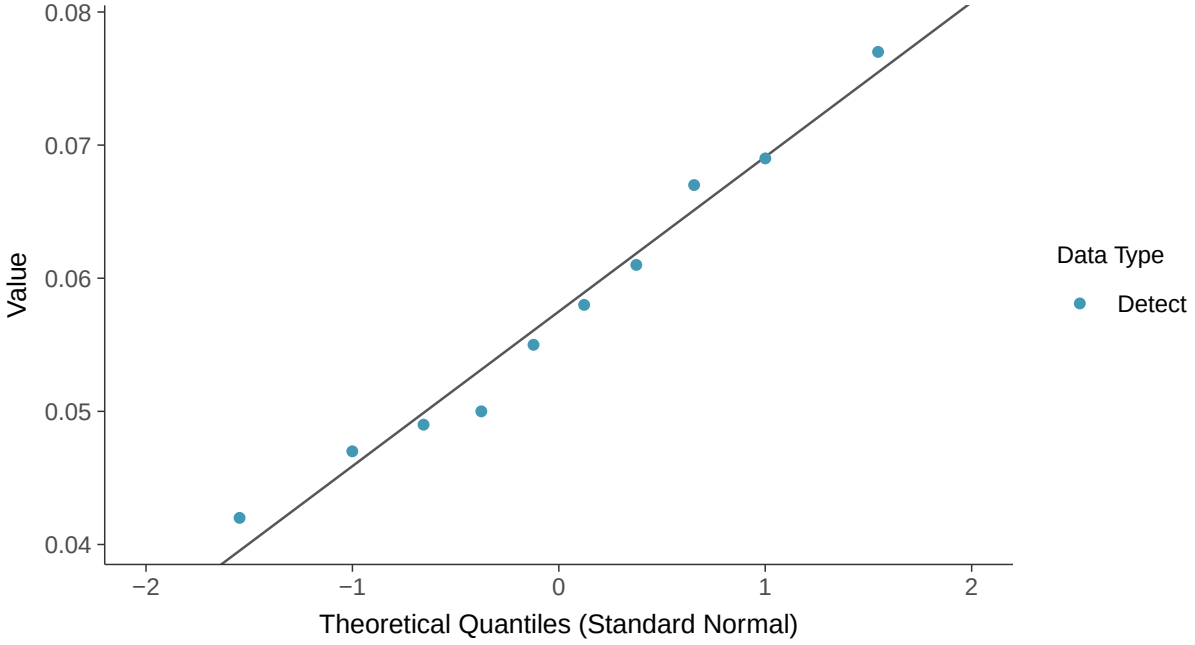
Boxplot by Season

Barium, MW-15 (mg/L)



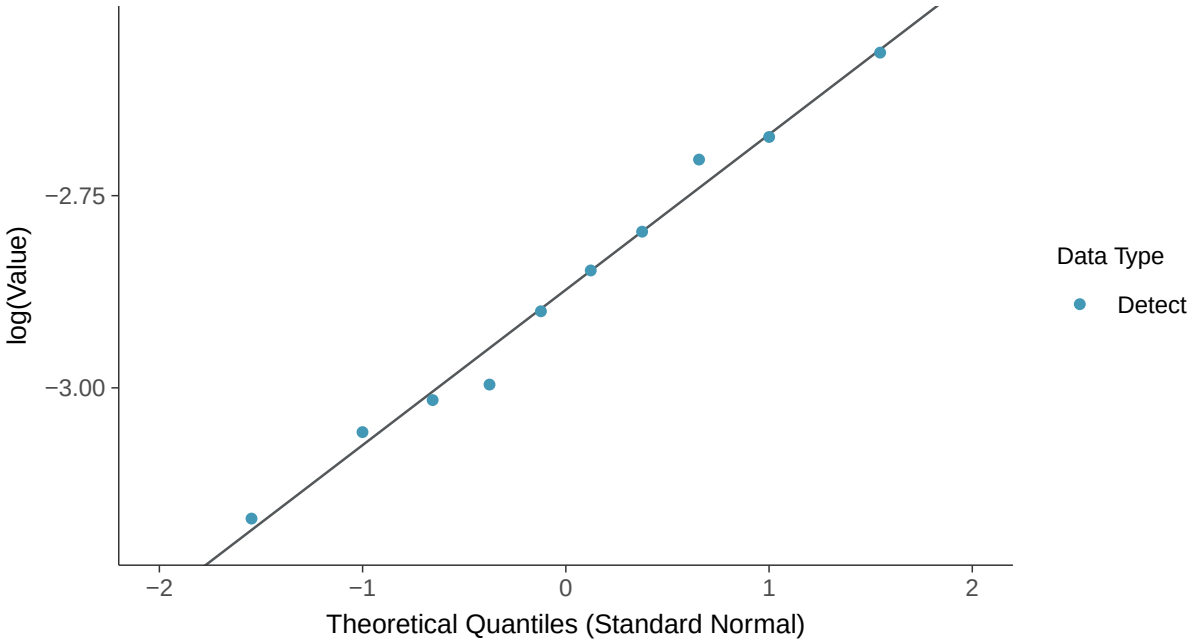
Normal Q-Q plot

Barium, MW-15 (mg/L)



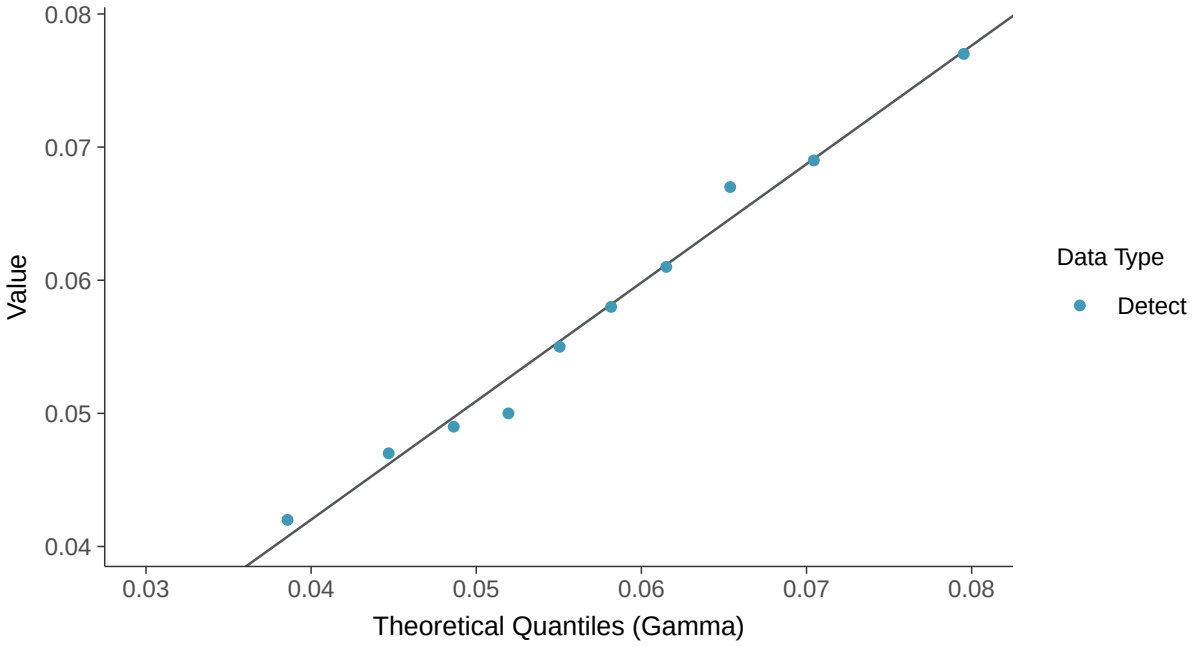
Lognormal Q-Q plot

Barium, MW-15 (mg/L)



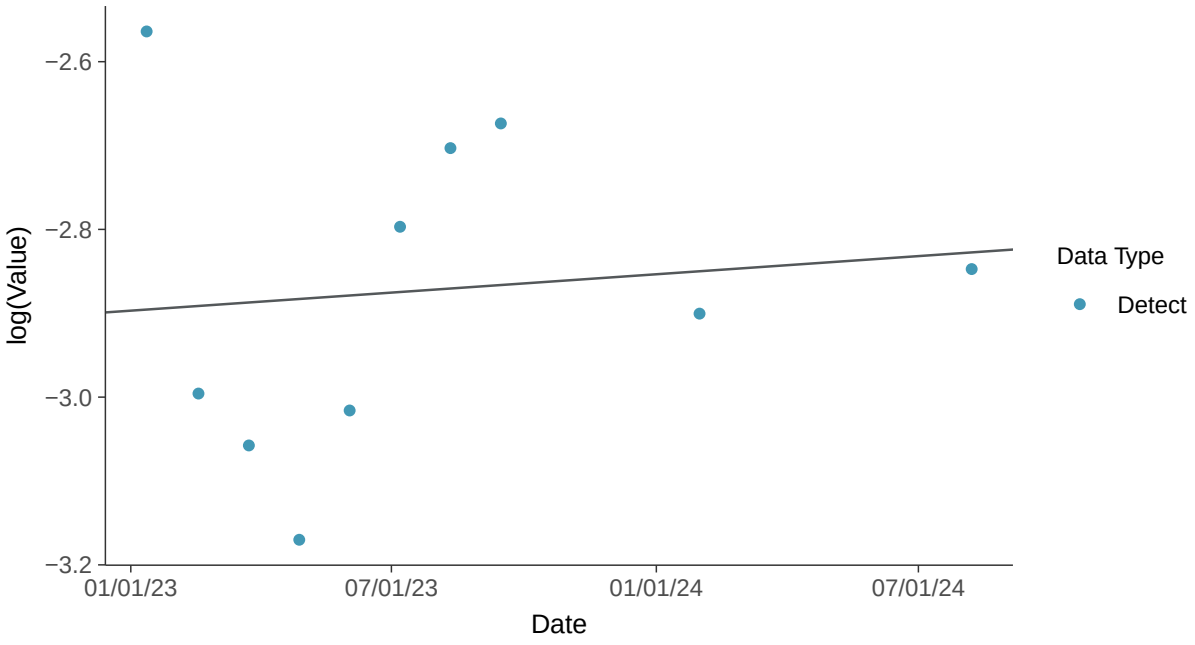
Gamma Q-Q plot

Barium, MW-15 (mg/L)



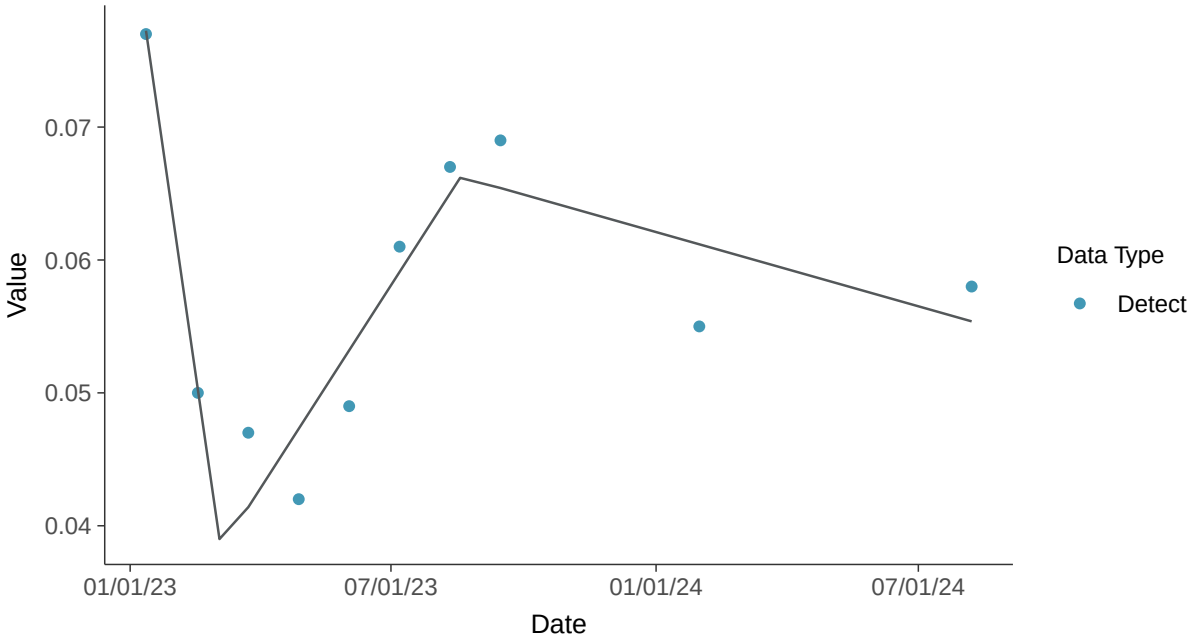
Trend Regression: Lognormal MLE

Barium, MW-15 (mg/L)



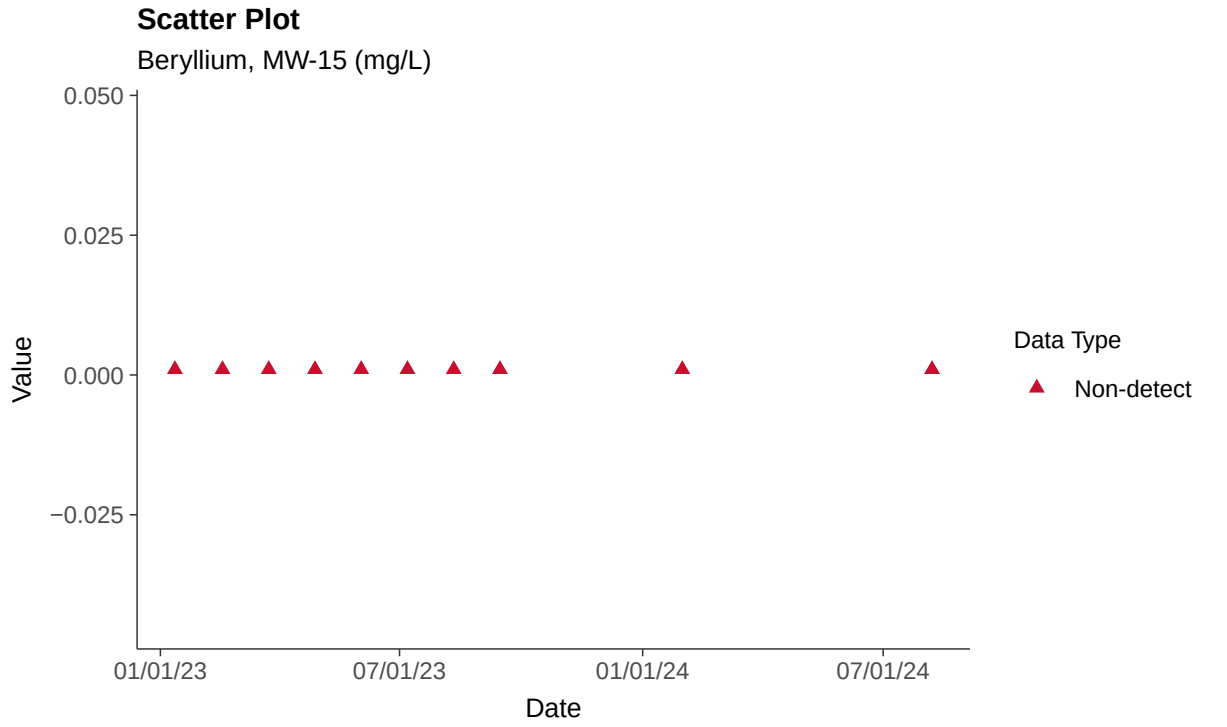
Trend Regression: Piecewise Linear-Linear-Linear

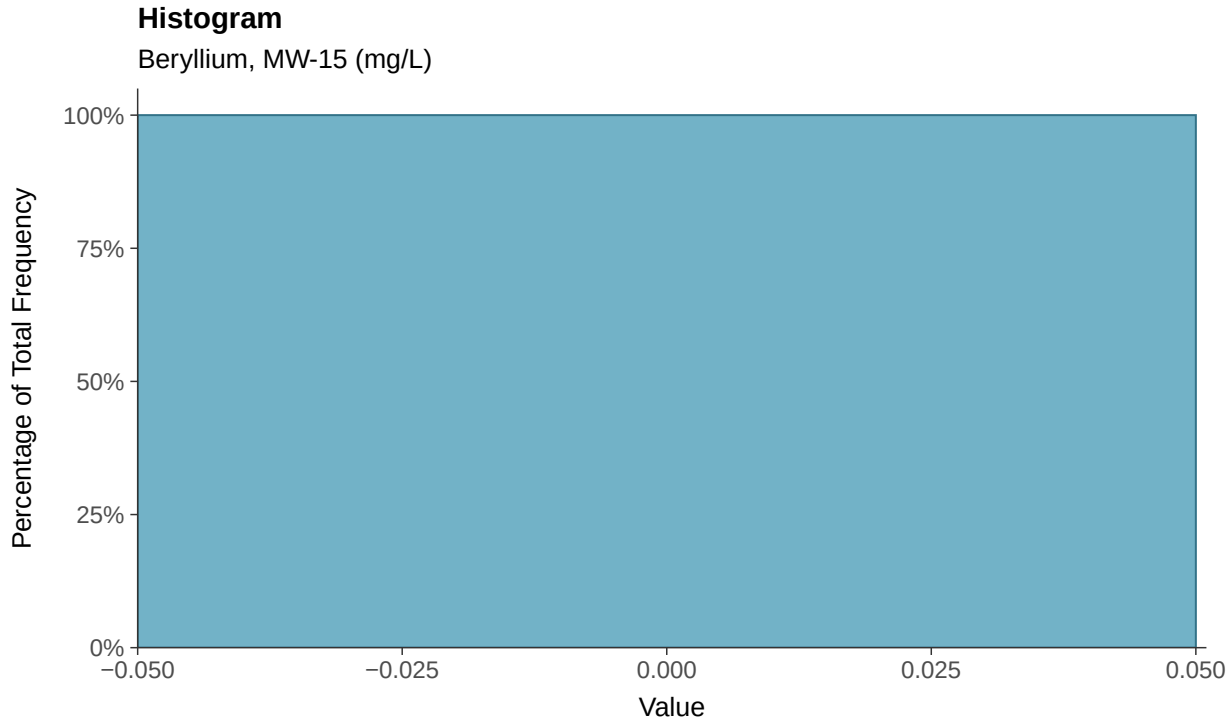
Barium, MW-15 (mg/L)



Appendix IV: Beryllium, MW-15

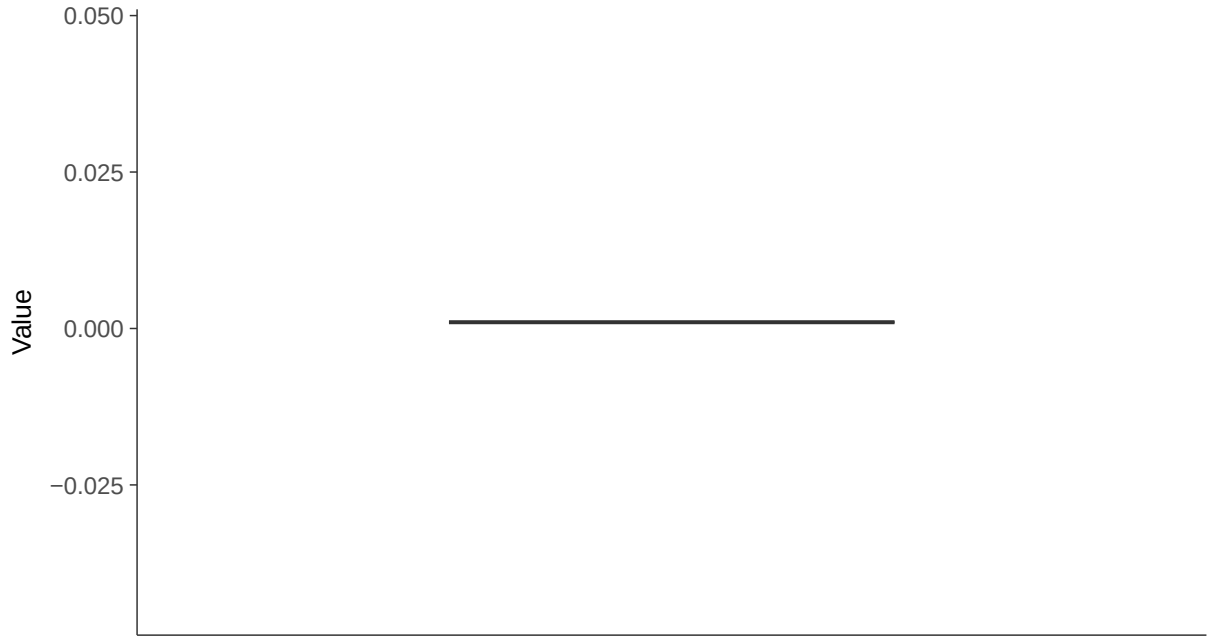
ID: 15_2_11





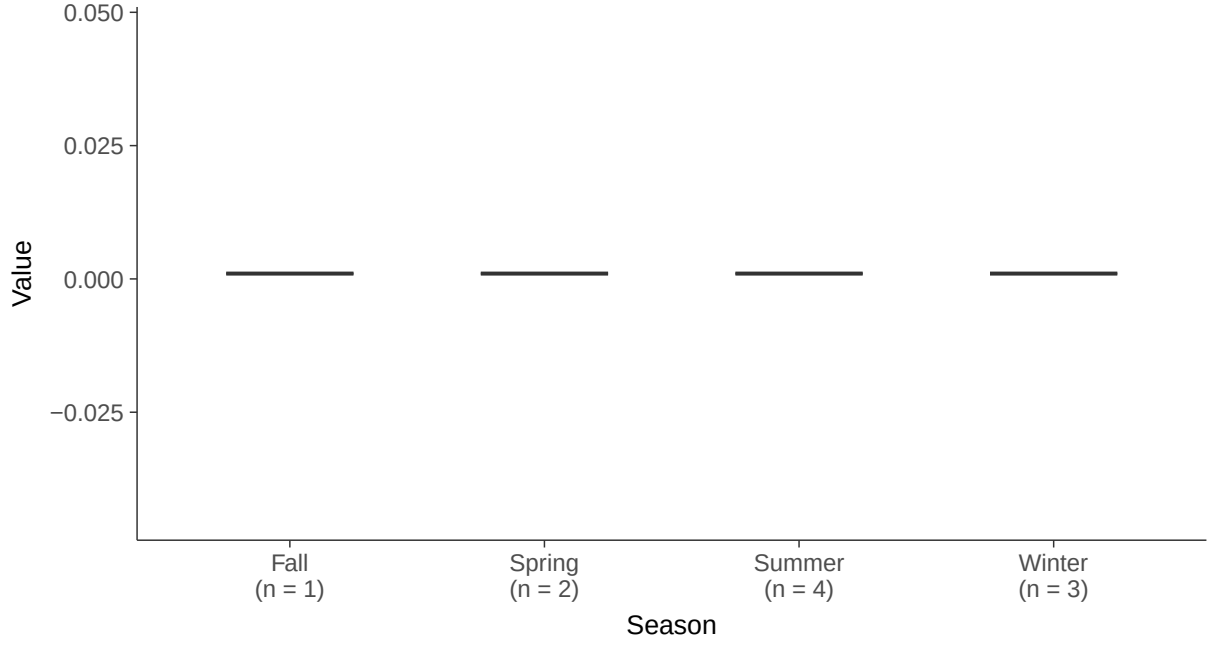
Boxplot

Beryllium, MW-15 (mg/L)



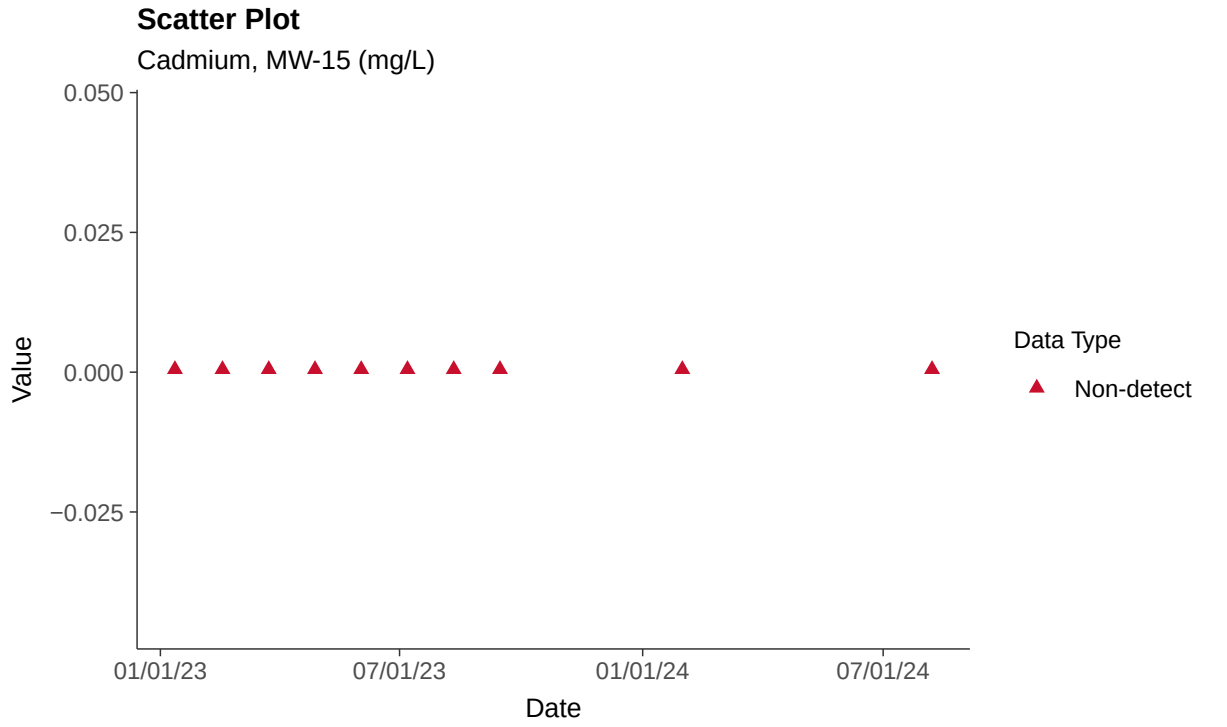
Boxplot by Season

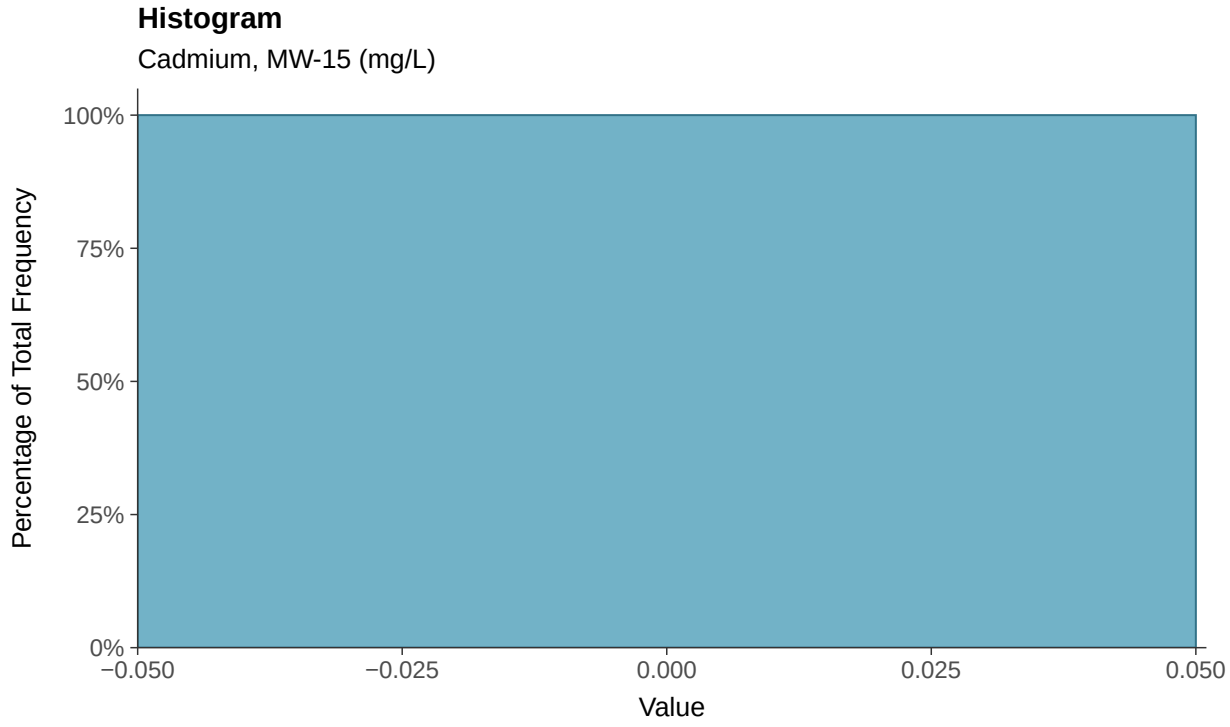
Beryllium, MW-15 (mg/L)



Appendix IV: Cadmium, MW-15

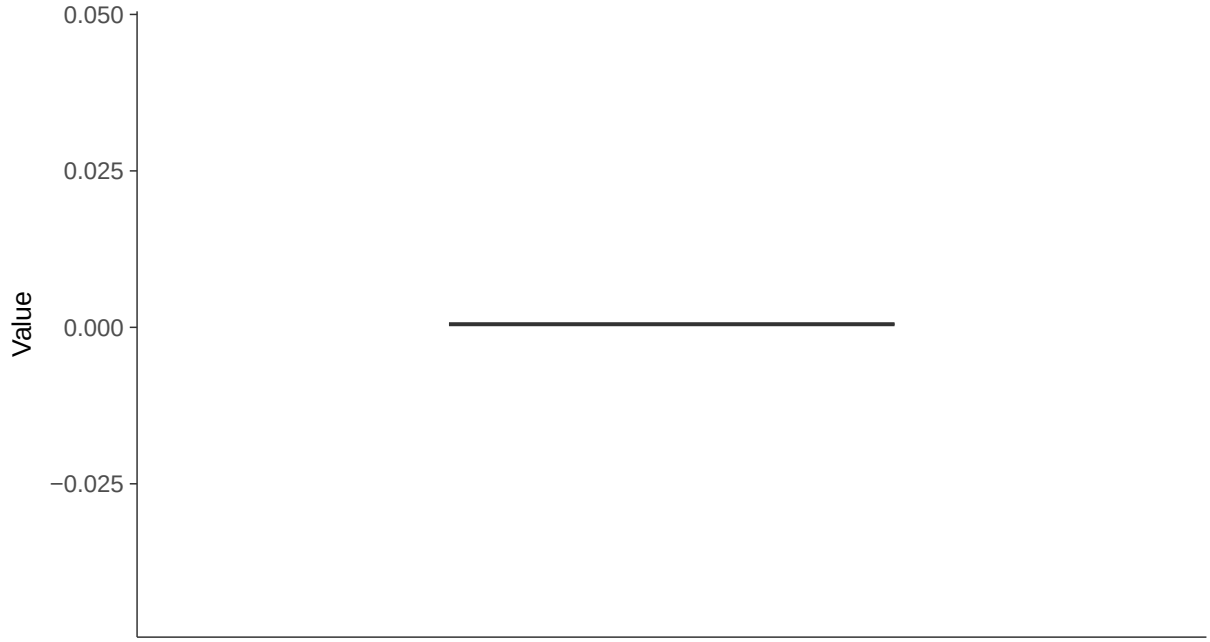
ID: 15_2_12





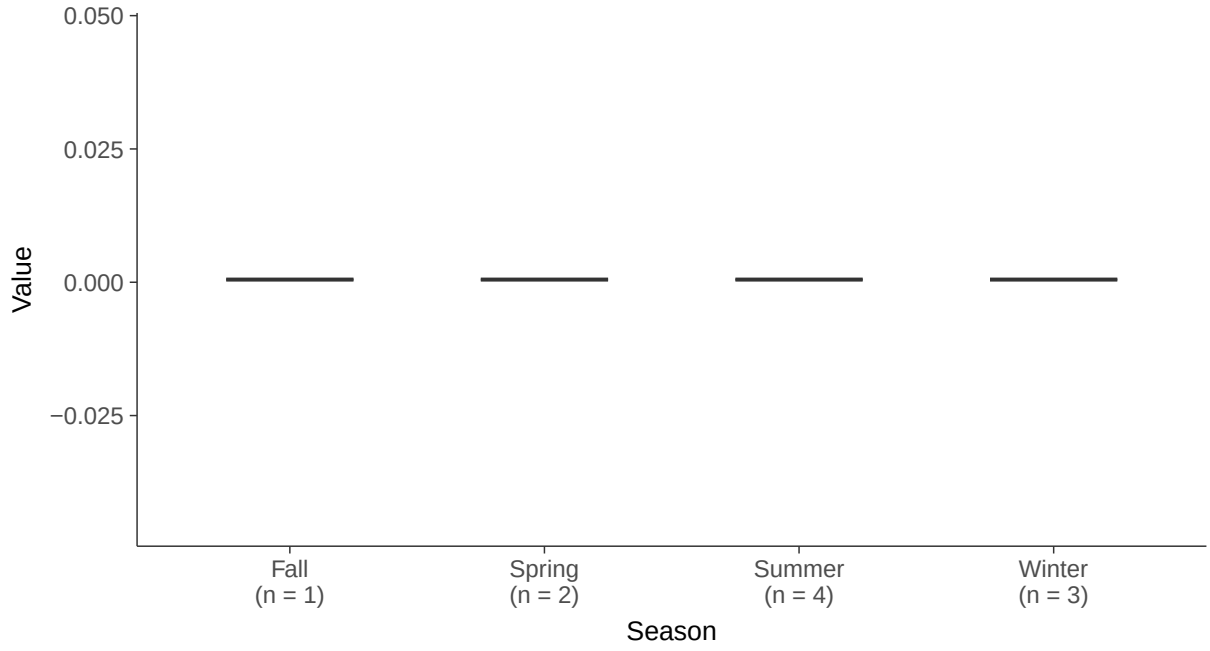
Boxplot

Cadmium, MW-15 (mg/L)



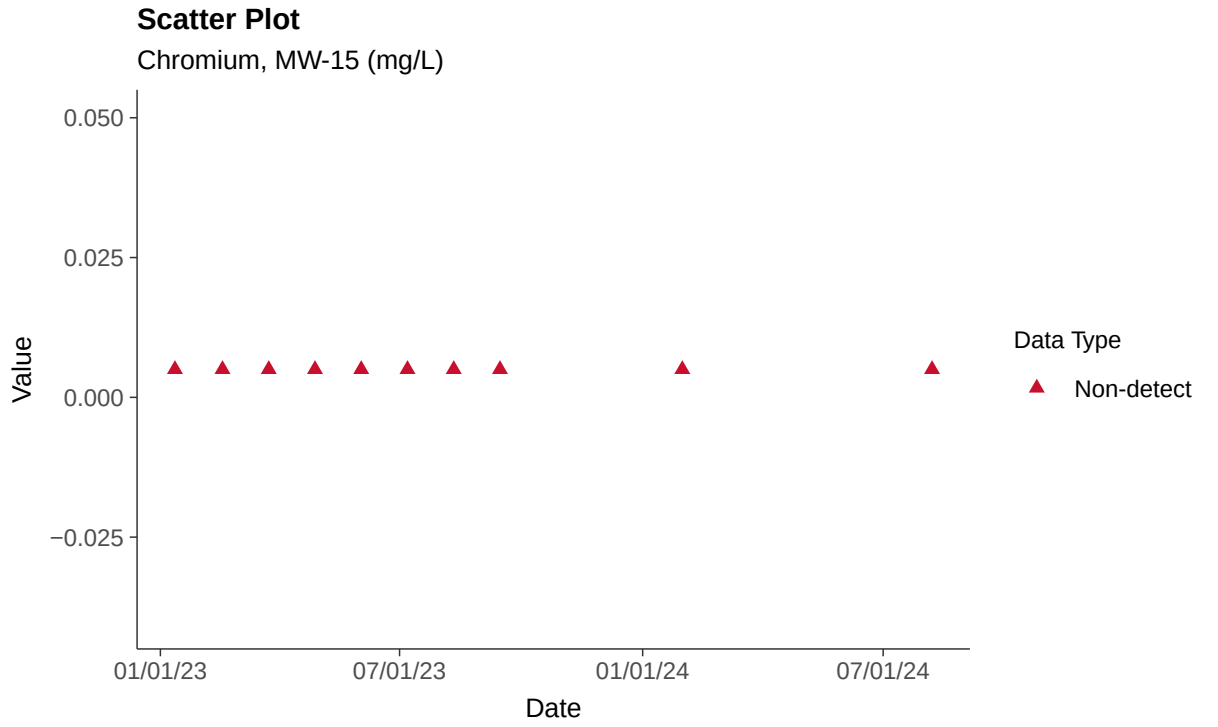
Boxplot by Season

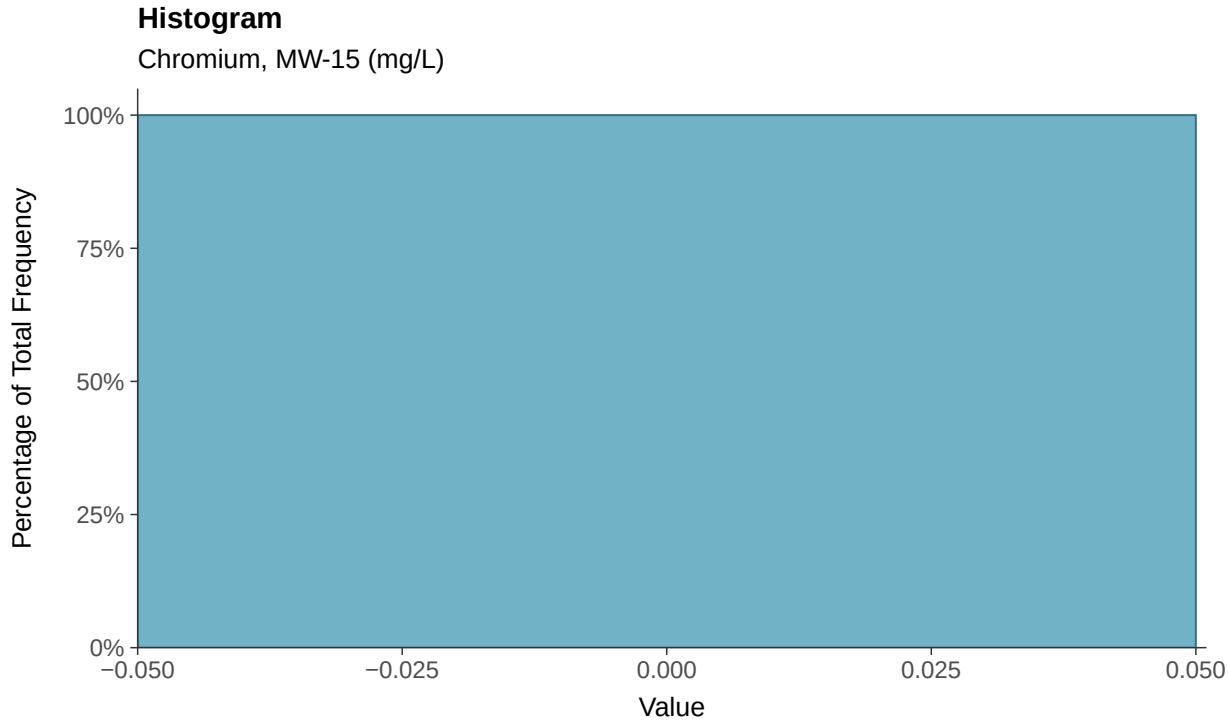
Cadmium, MW-15 (mg/L)



Appendix IV: Chromium, MW-15

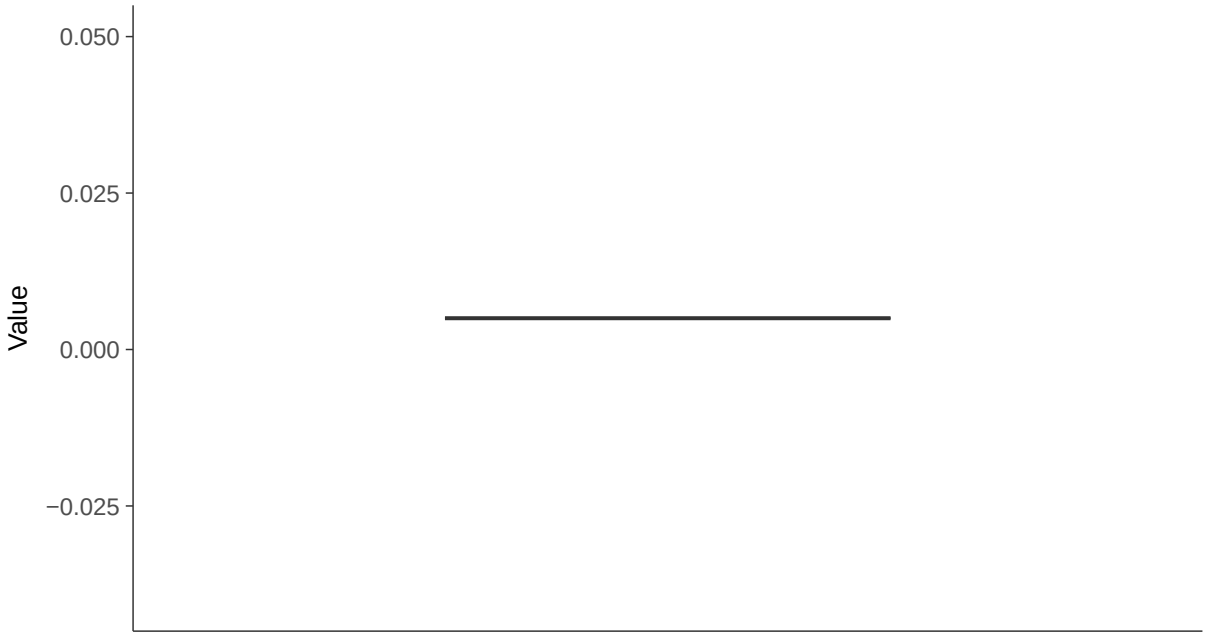
ID: 15_2_13





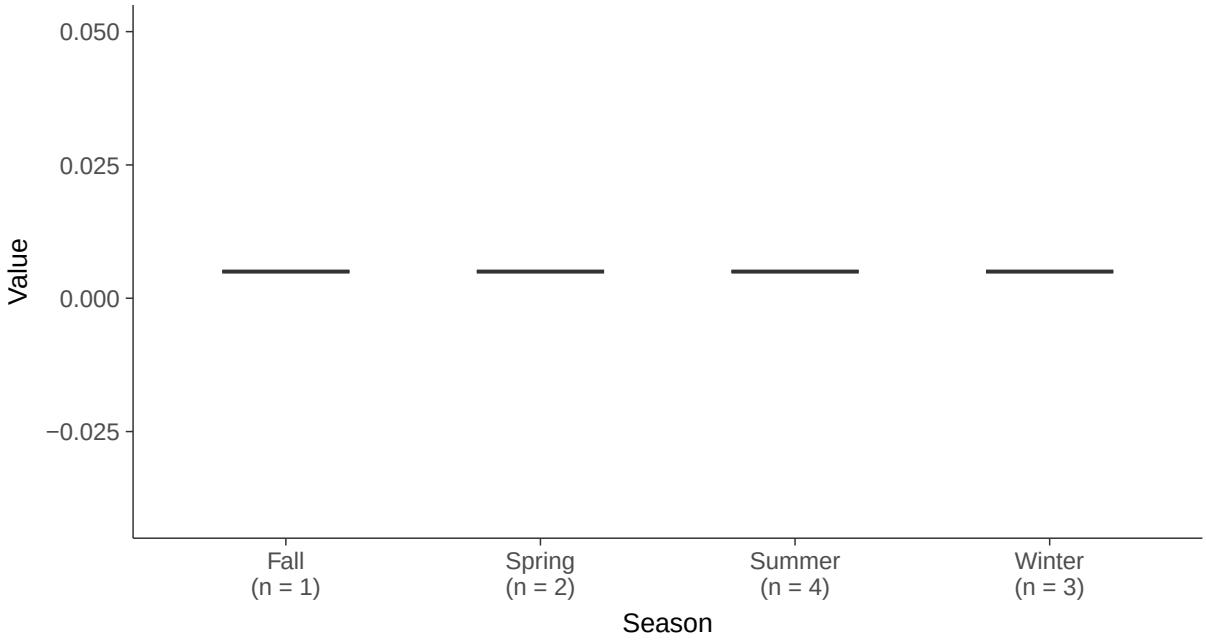
Boxplot

Chromium, MW-15 (mg/L)



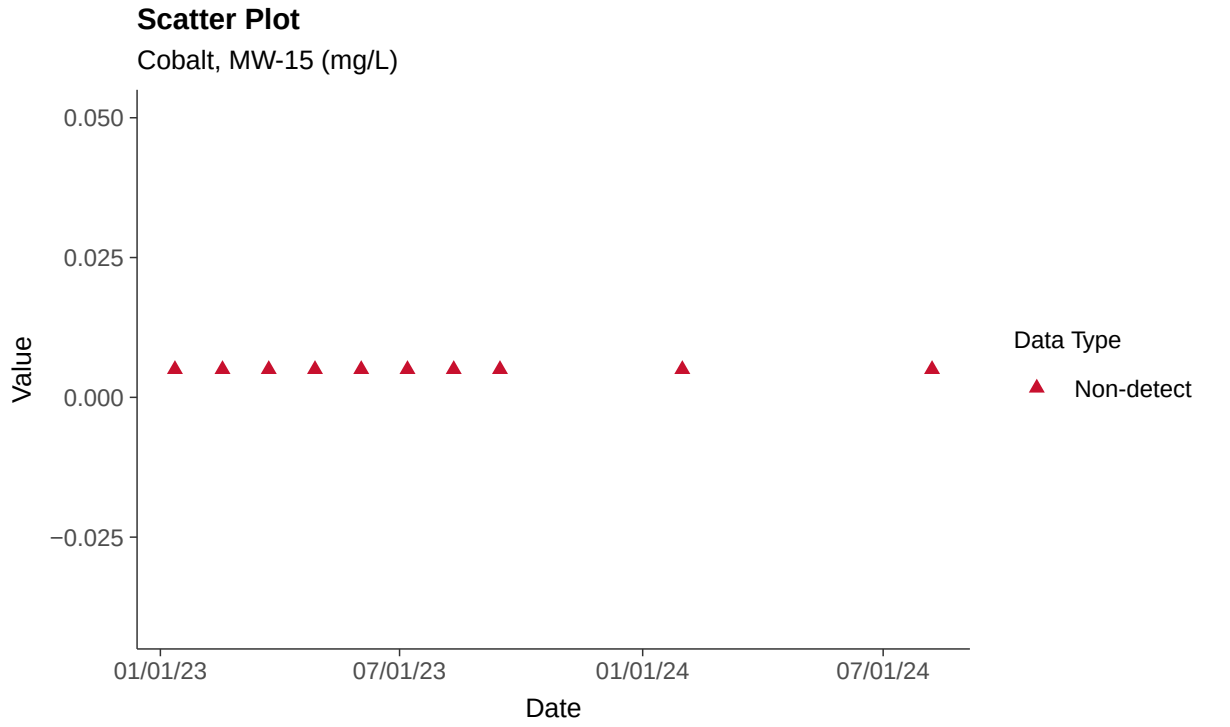
Boxplot by Season

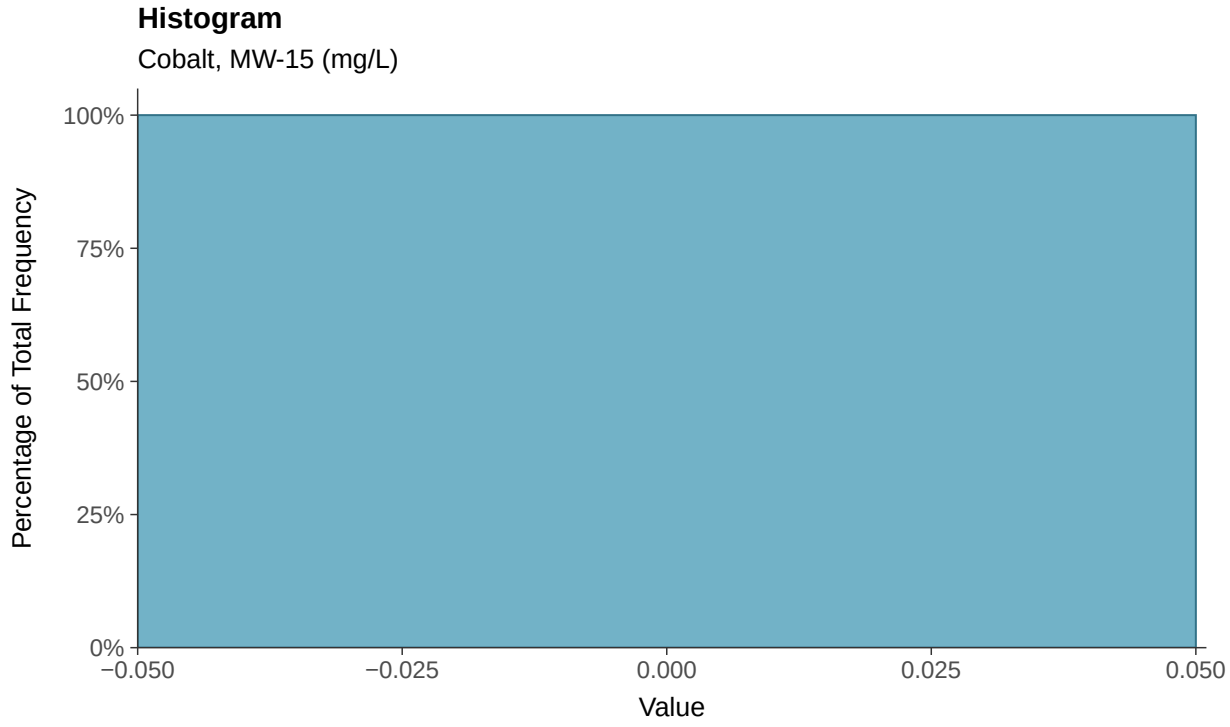
Chromium, MW-15 (mg/L)



Appendix IV: Cobalt, MW-15

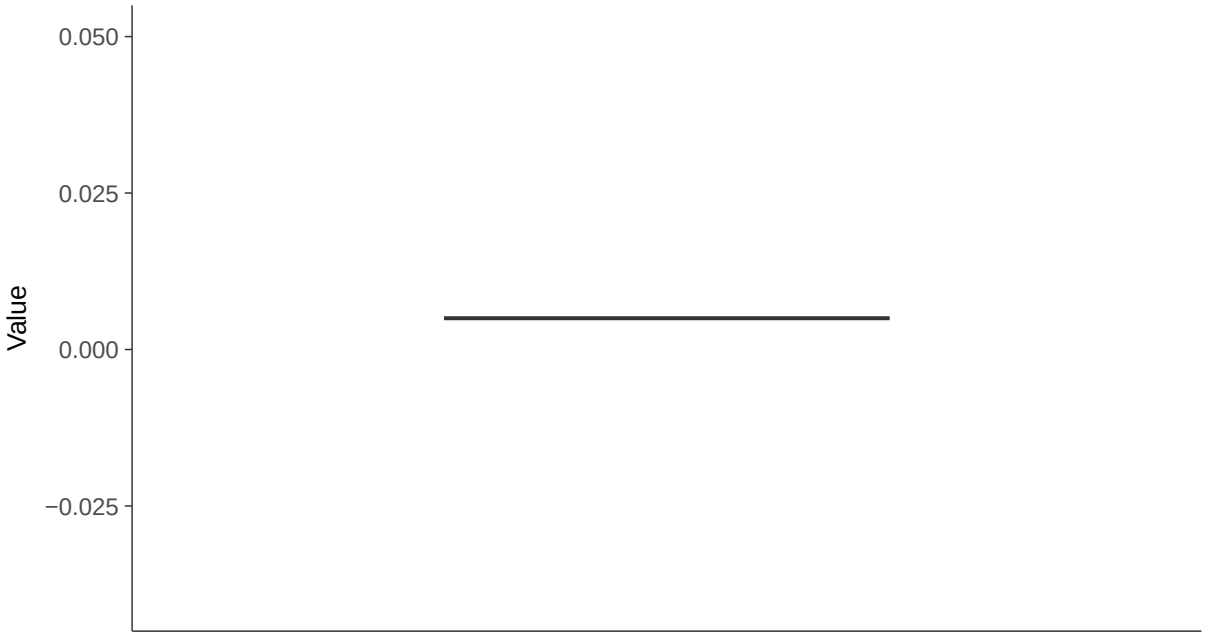
ID: 15_2_14





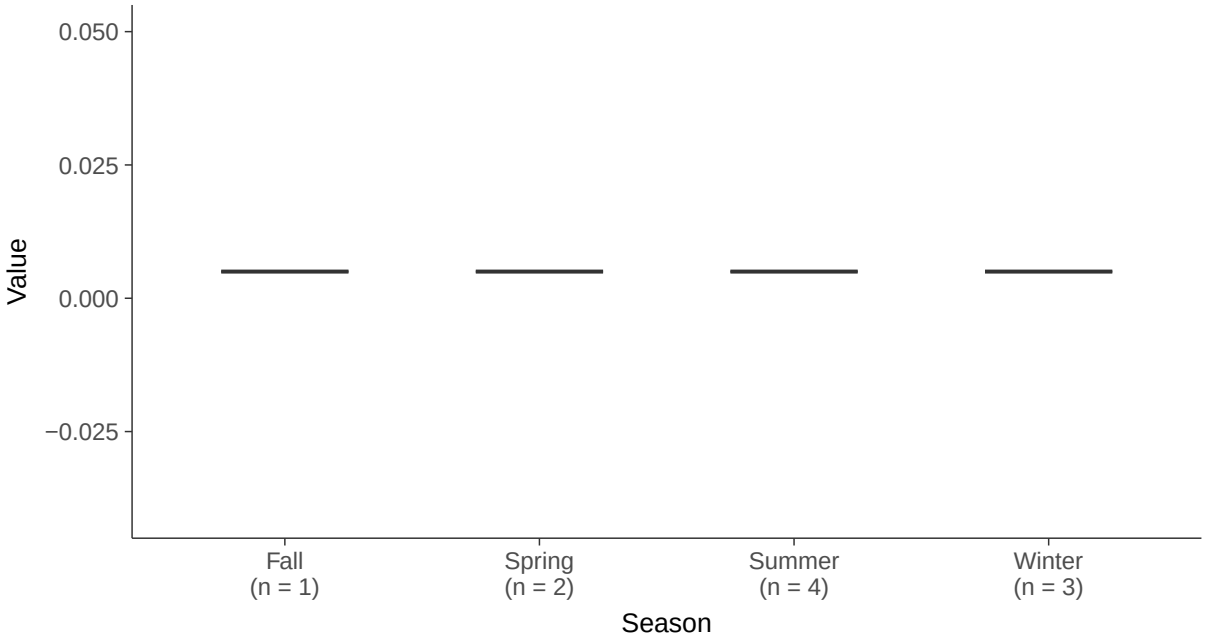
Boxplot

Cobalt, MW-15 (mg/L)



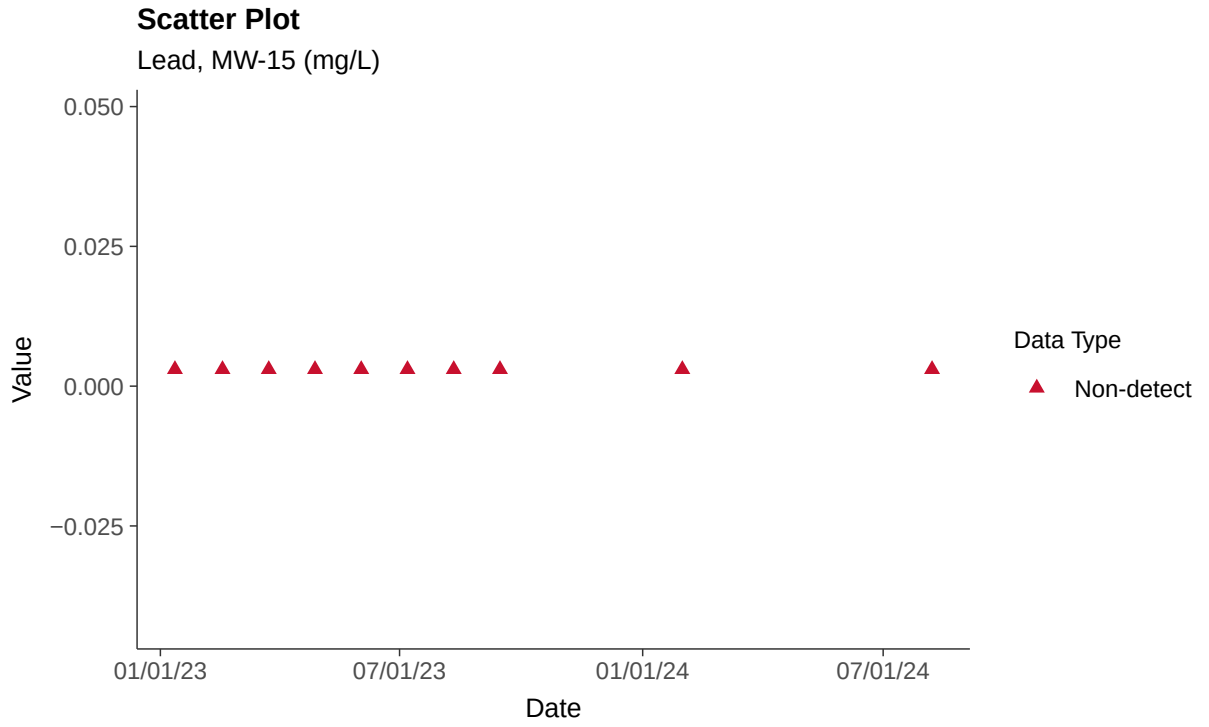
Boxplot by Season

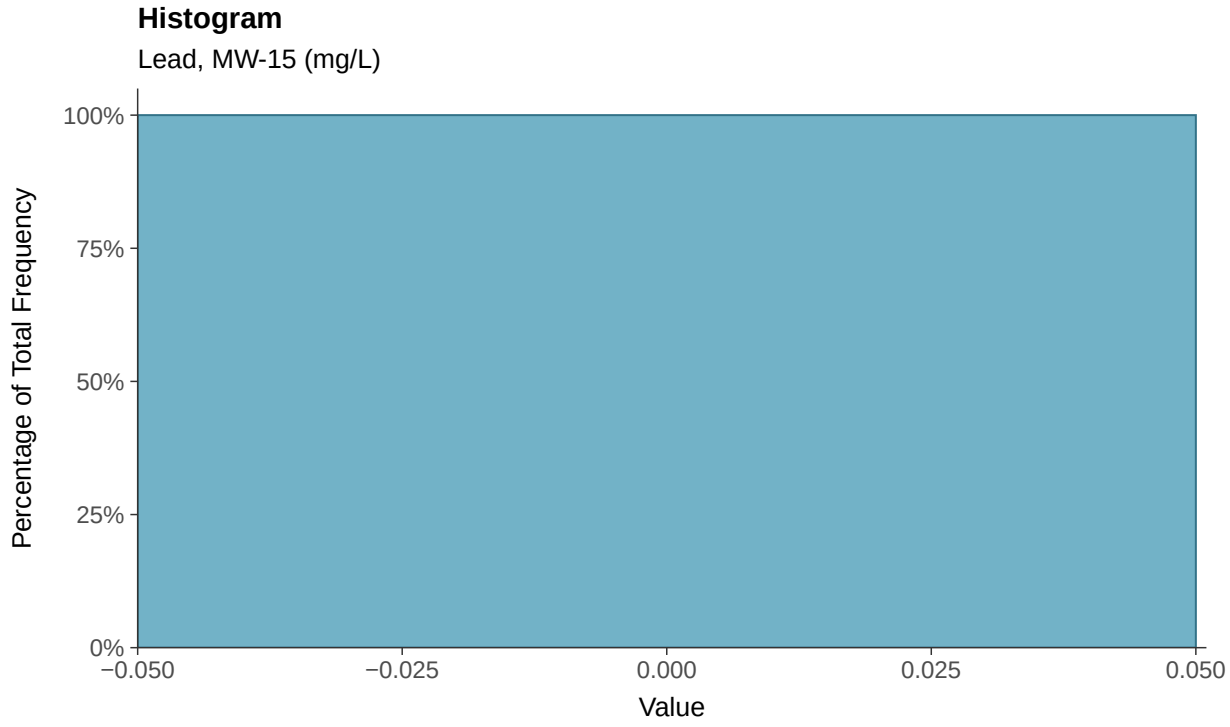
Cobalt, MW-15 (mg/L)



Appendix IV: Lead, MW-15

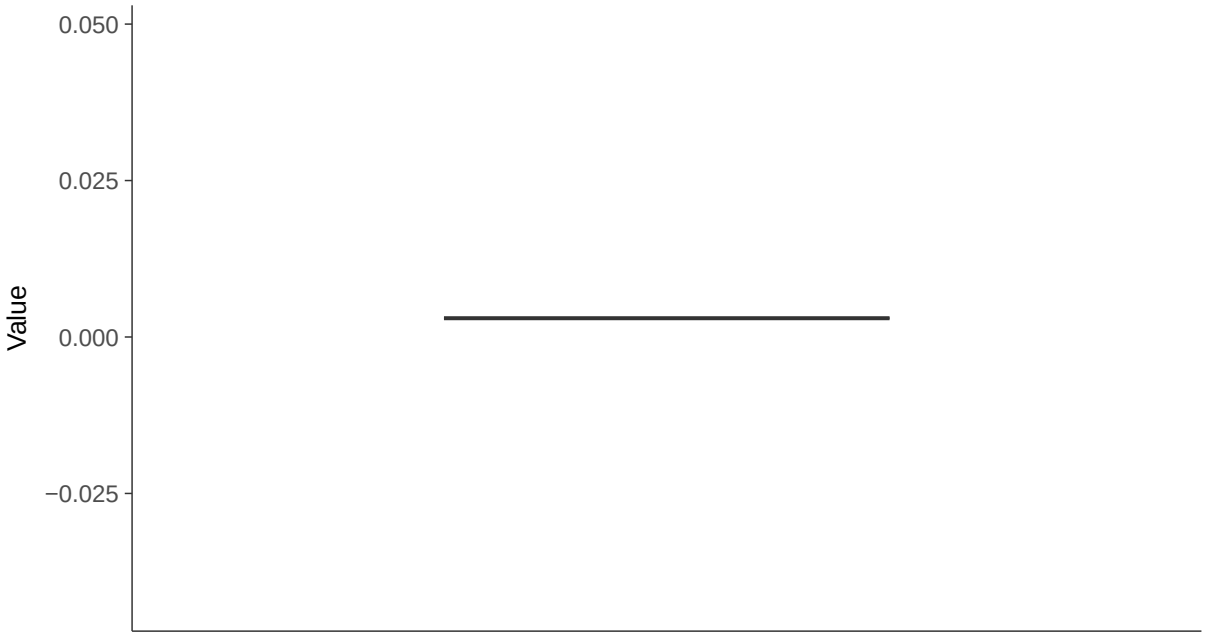
ID: 15_2_15





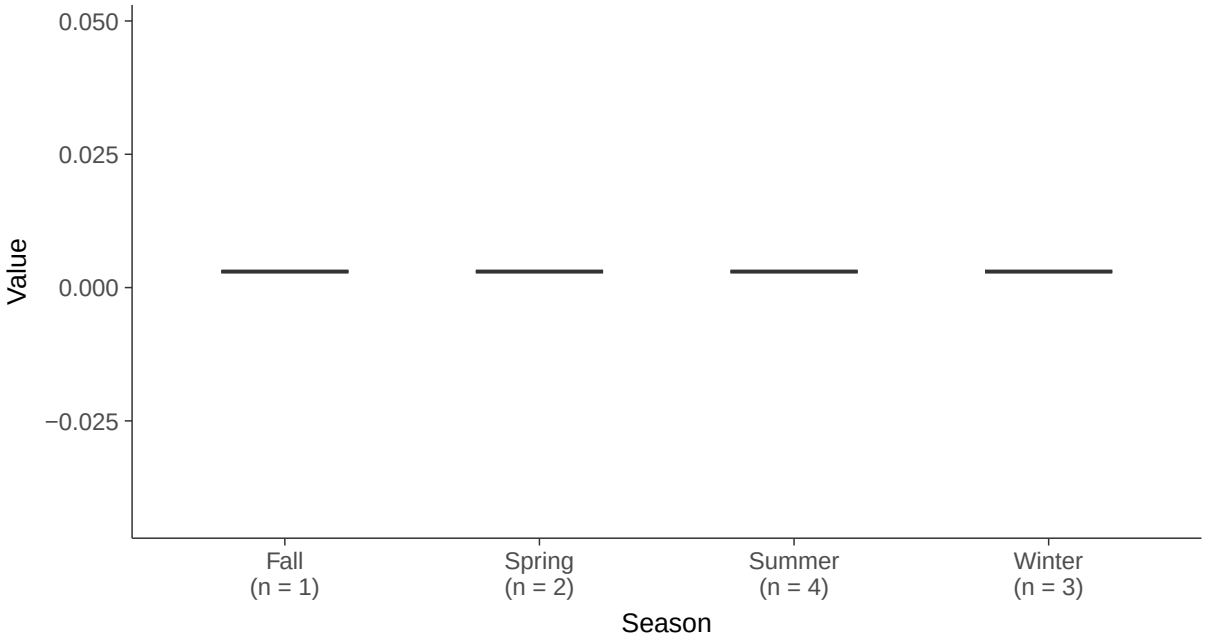
Boxplot

Lead, MW-15 (mg/L)



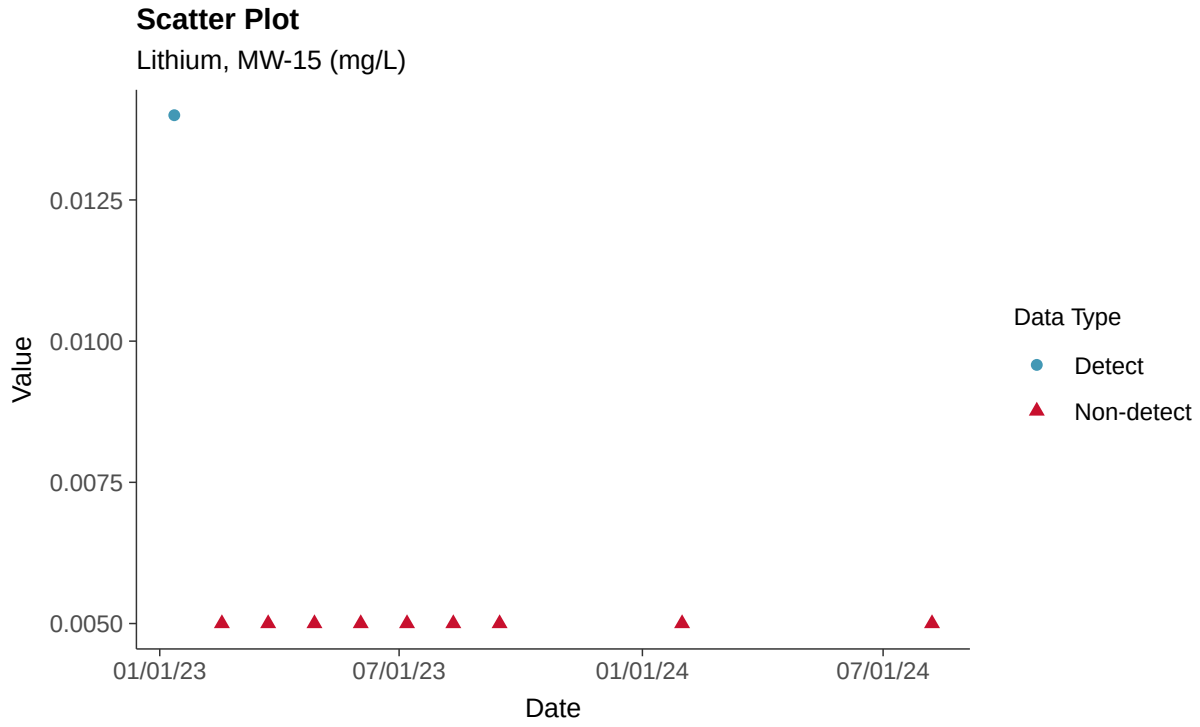
Boxplot by Season

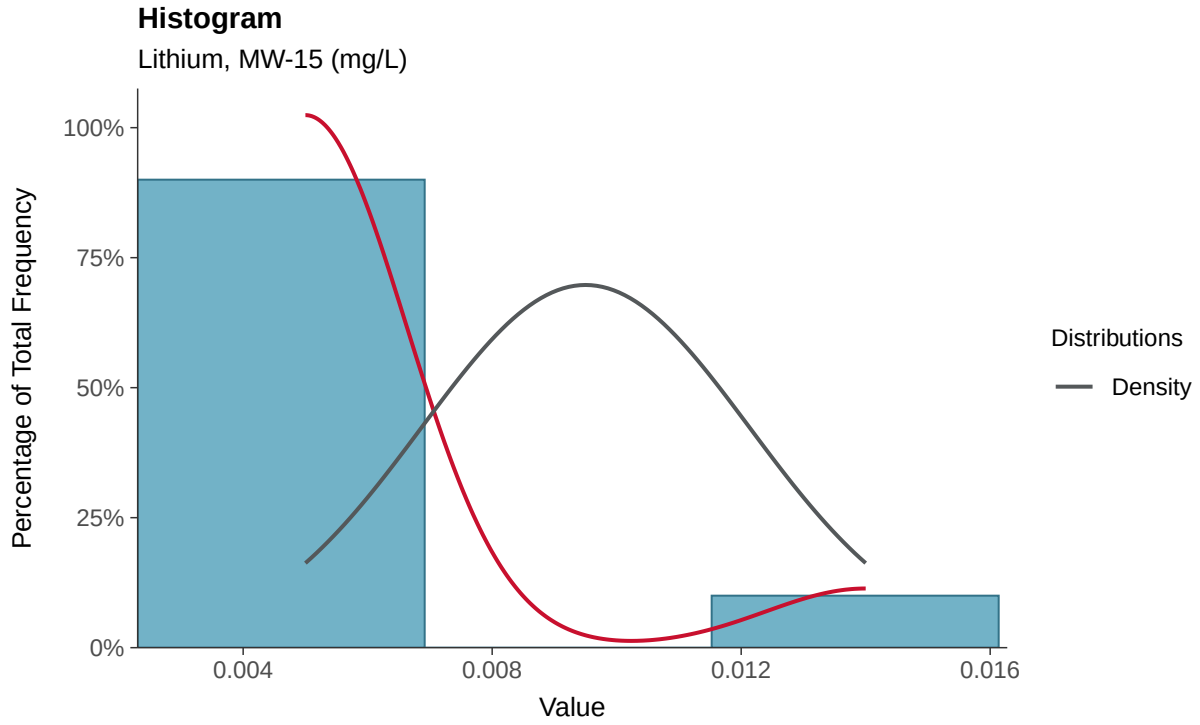
Lead, MW-15 (mg/L)



Appendix IV: Lithium, MW-15

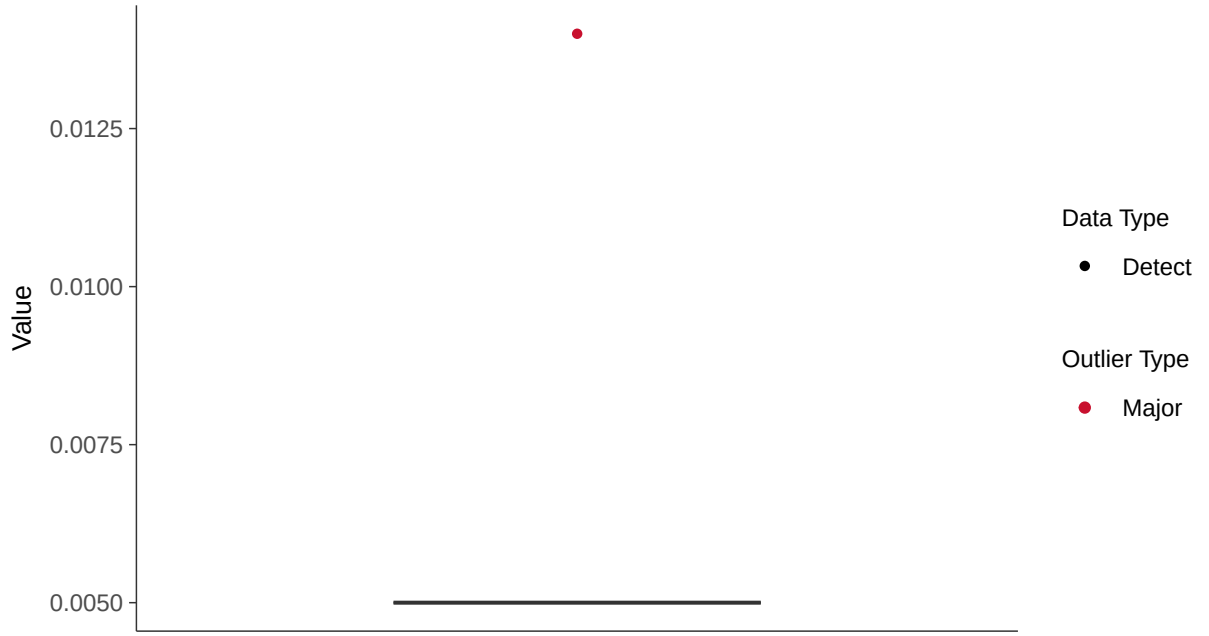
ID: 15_2_16





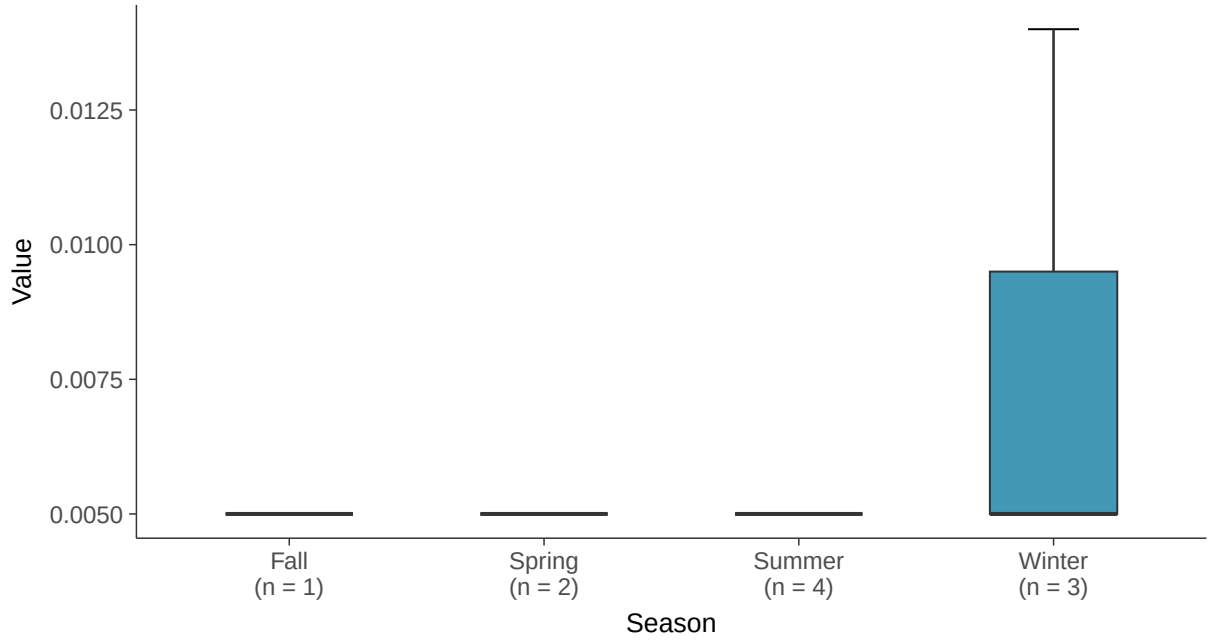
Boxplot

Lithium, MW-15 (mg/L)



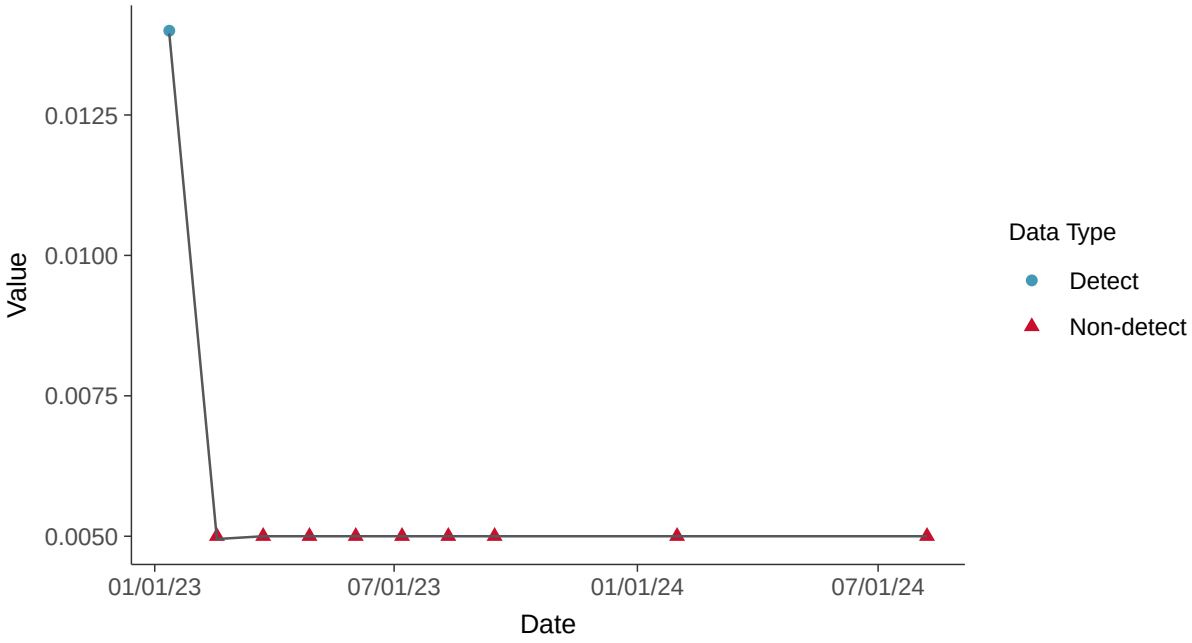
Boxplot by Season

Lithium, MW-15 (mg/L)



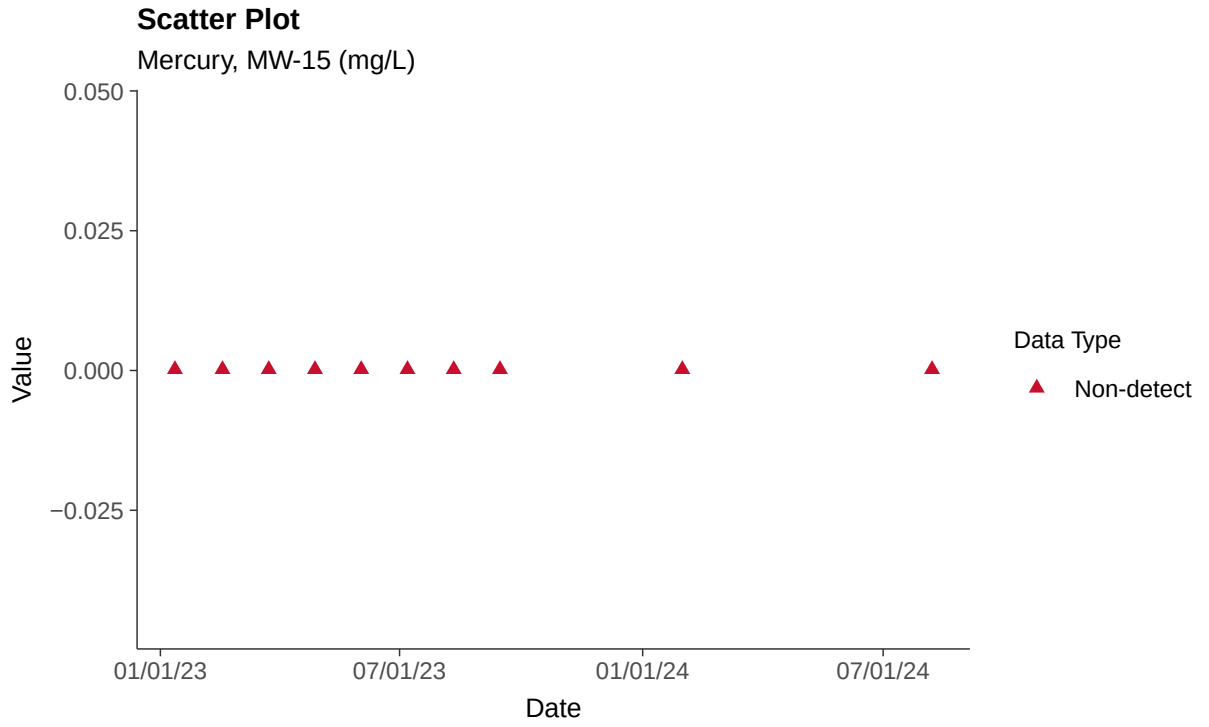
Trend Regression: Piecewise Linear-Linear

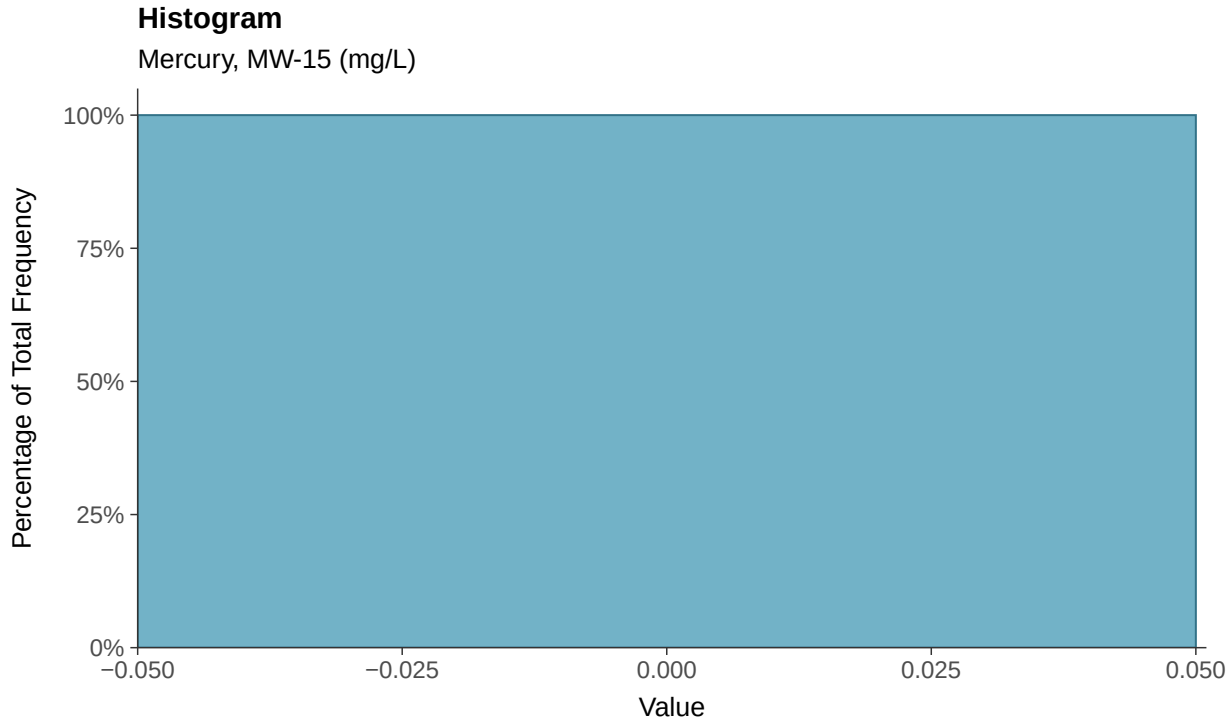
Lithium, MW-15 (mg/L)



Appendix IV: Mercury, MW-15

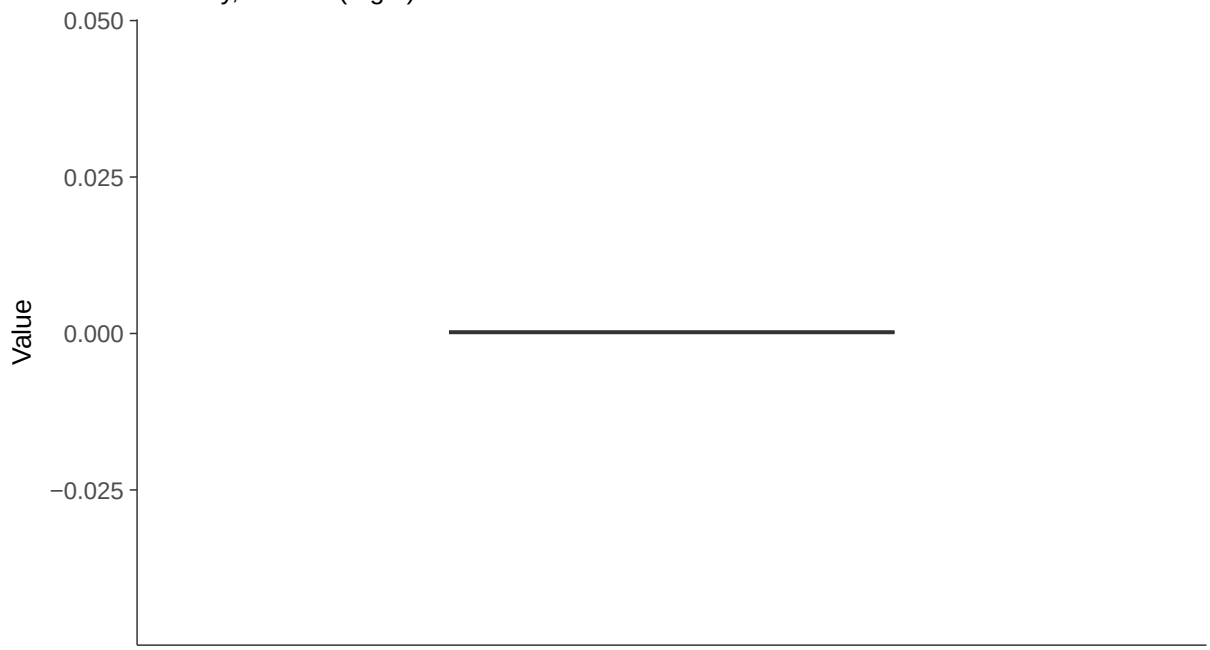
ID: 15_2_17





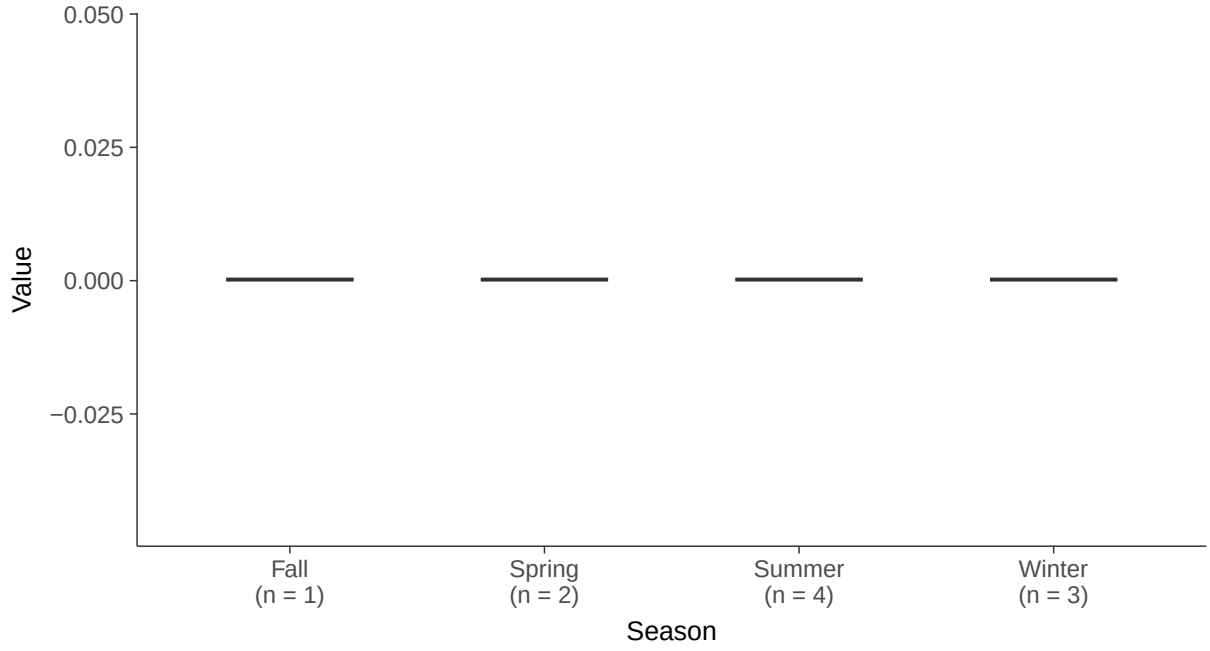
Boxplot

Mercury, MW-15 (mg/L)



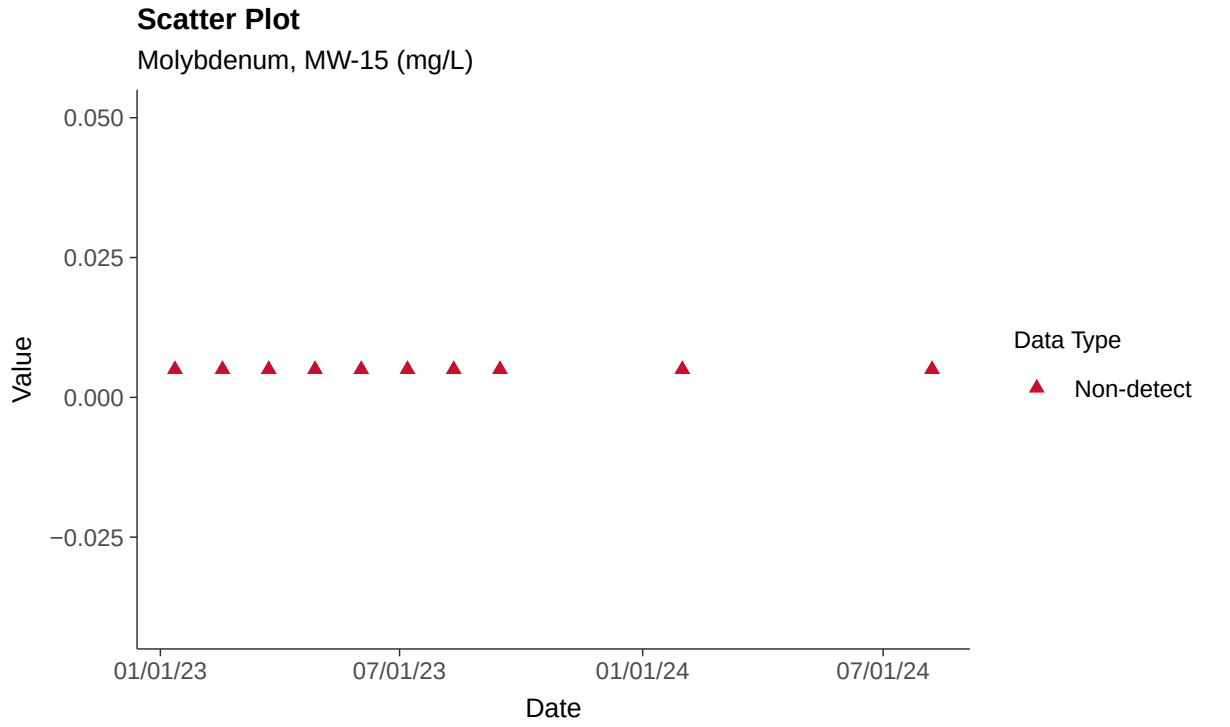
Boxplot by Season

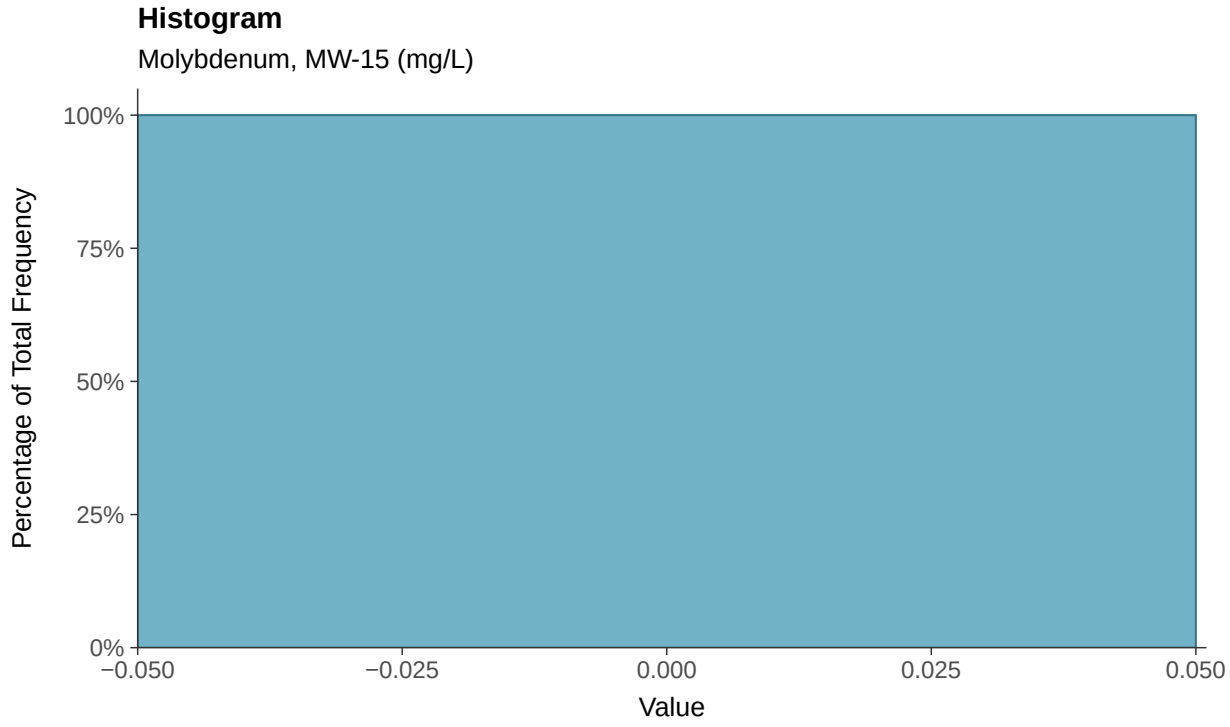
Mercury, MW-15 (mg/L)



Appendix IV: Molybdenum, MW-15

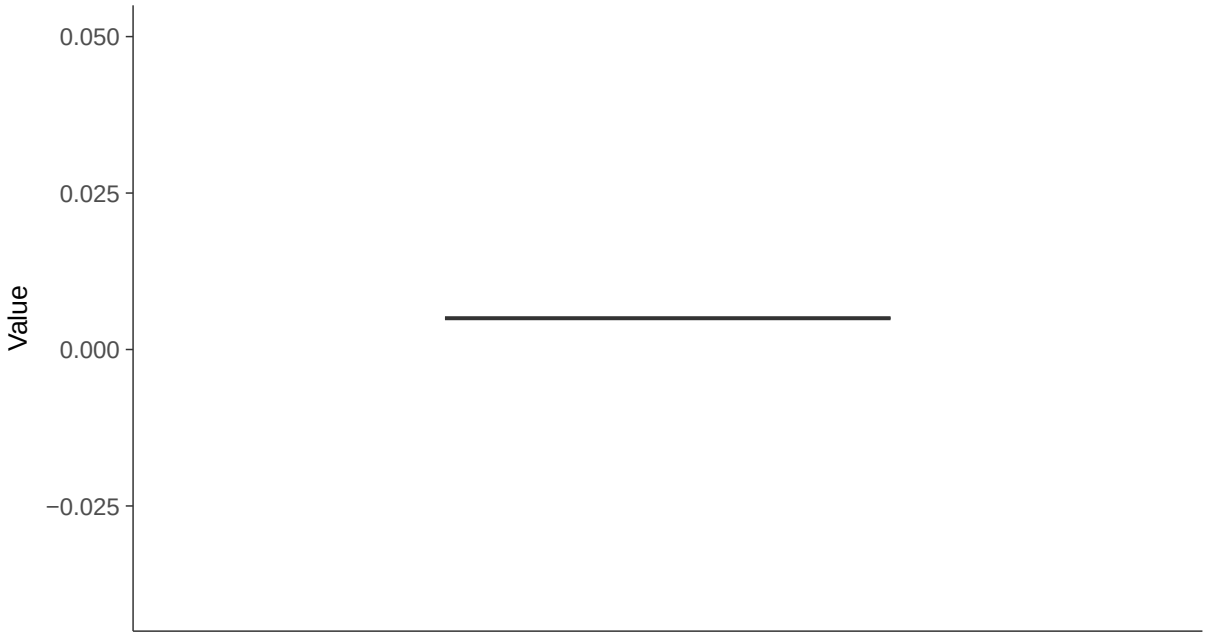
ID: 15_2_18





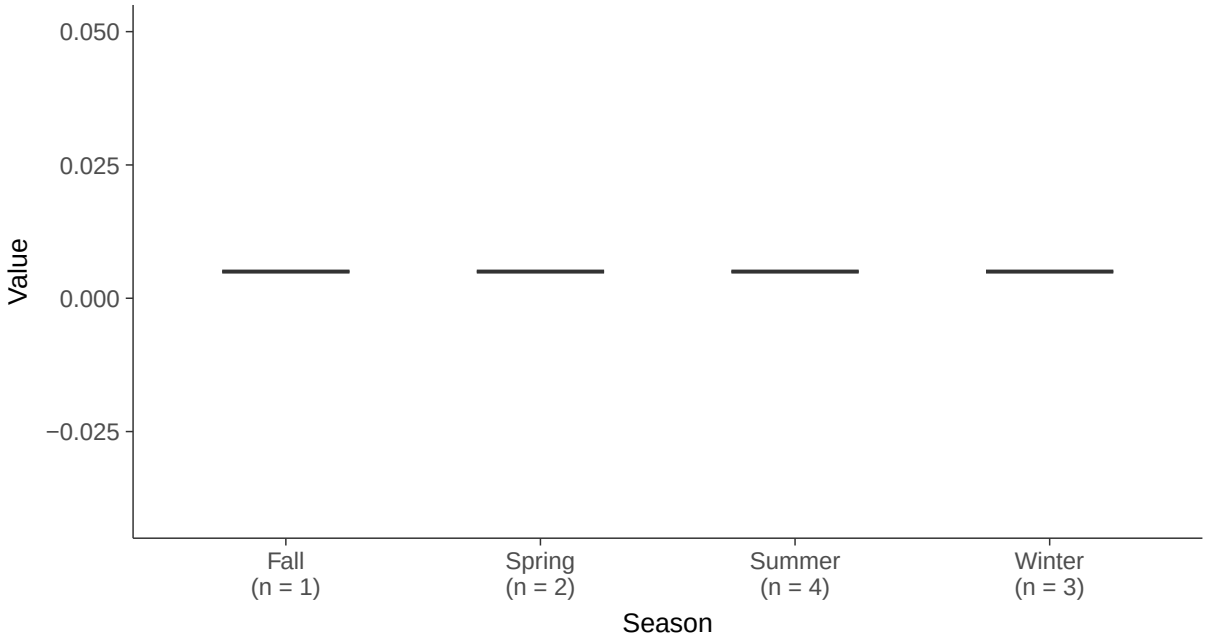
Boxplot

Molybdenum, MW-15 (mg/L)



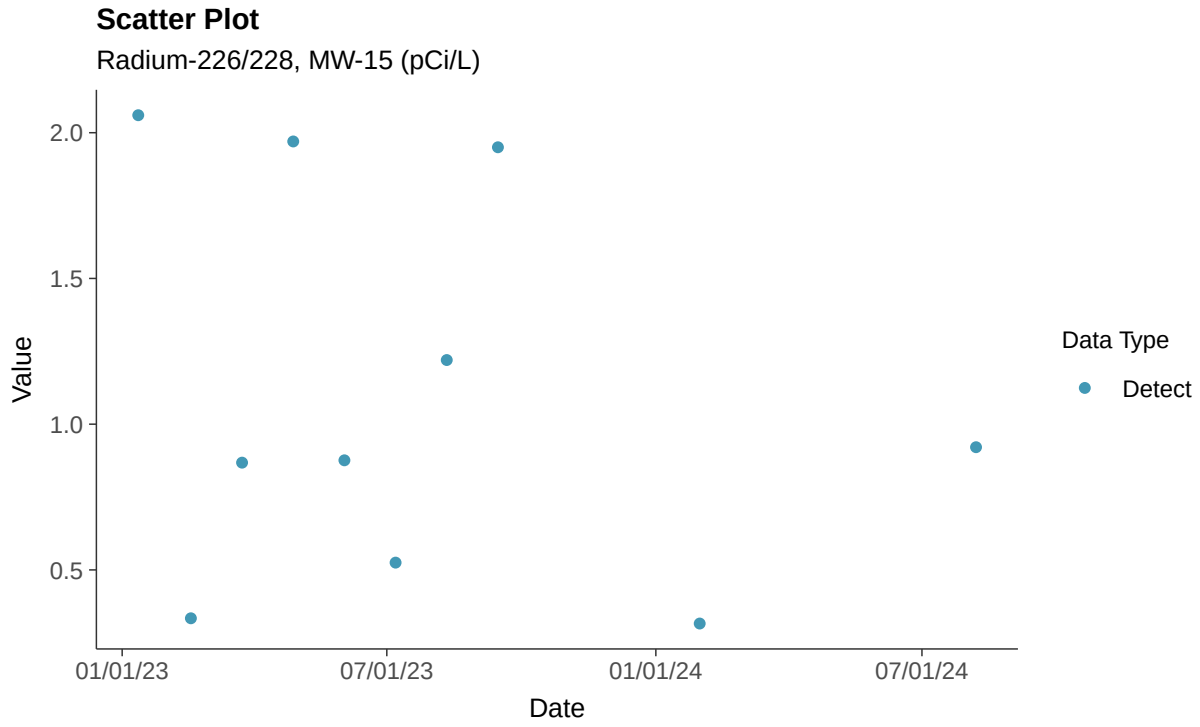
Boxplot by Season

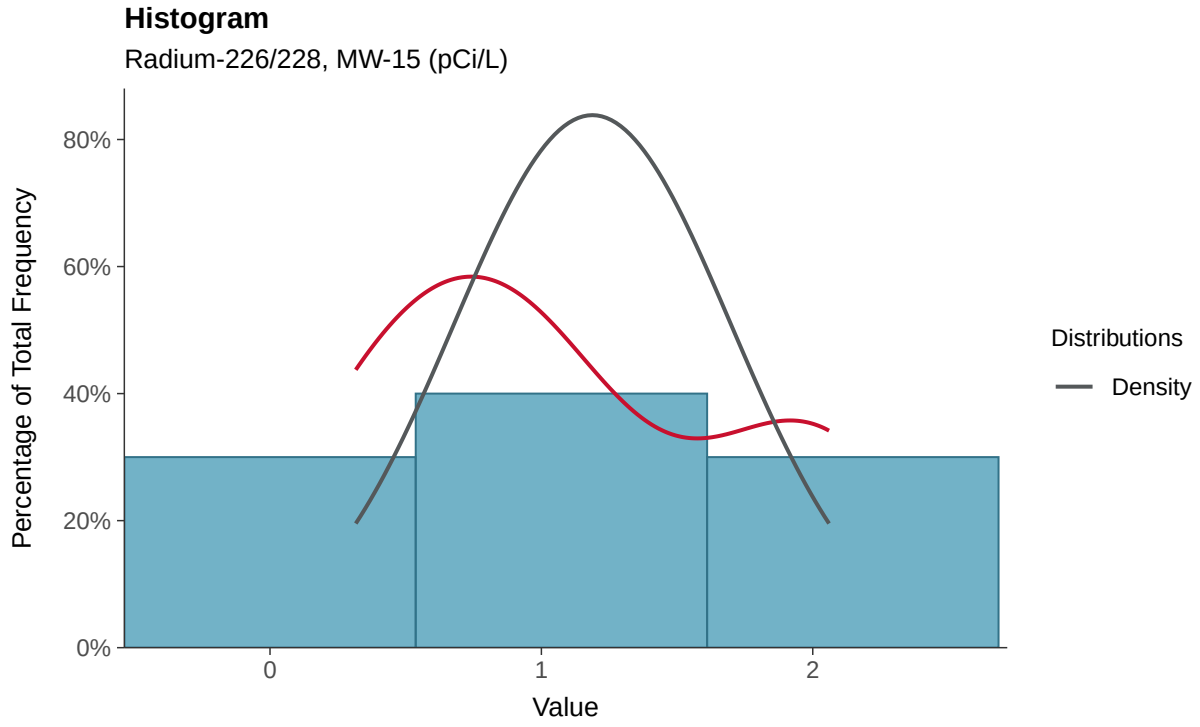
Molybdenum, MW-15 (mg/L)



Appendix IV: Radium-226/228, MW-15

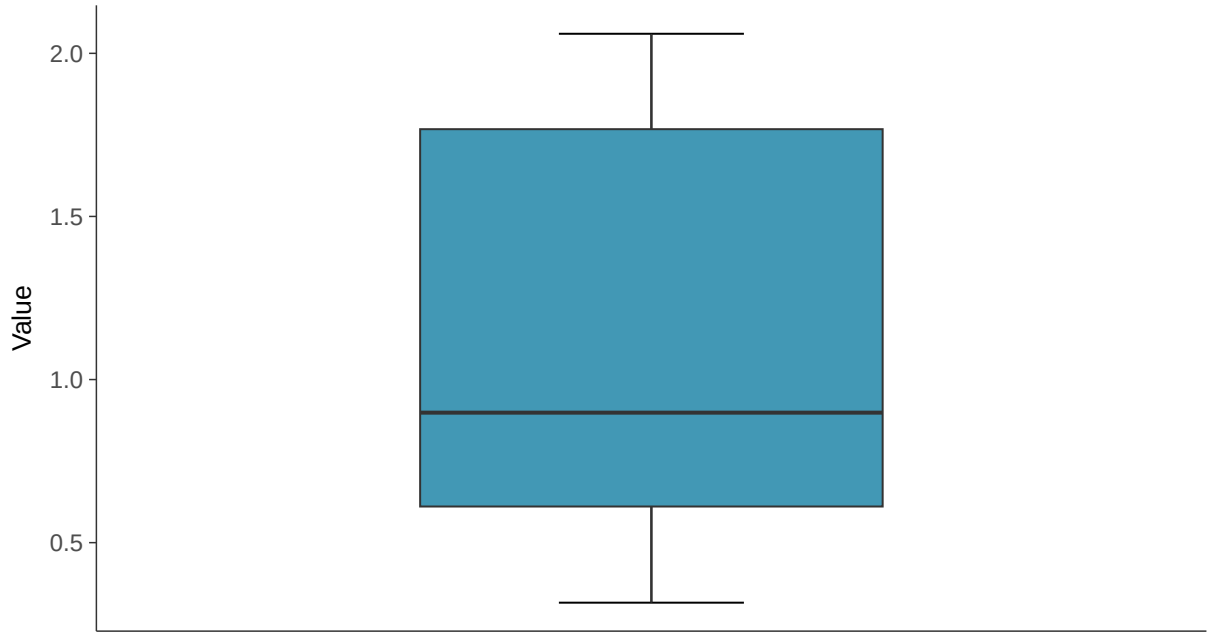
ID: 15_2_21





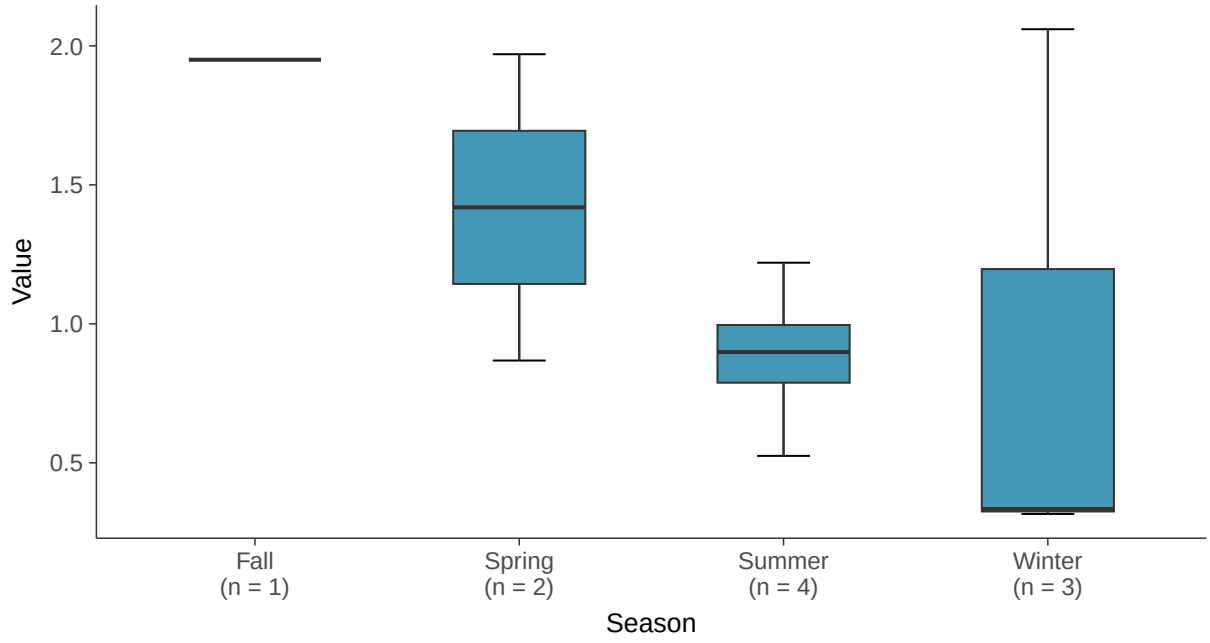
Boxplot

Radium-226/228, MW-15 (pCi/L)



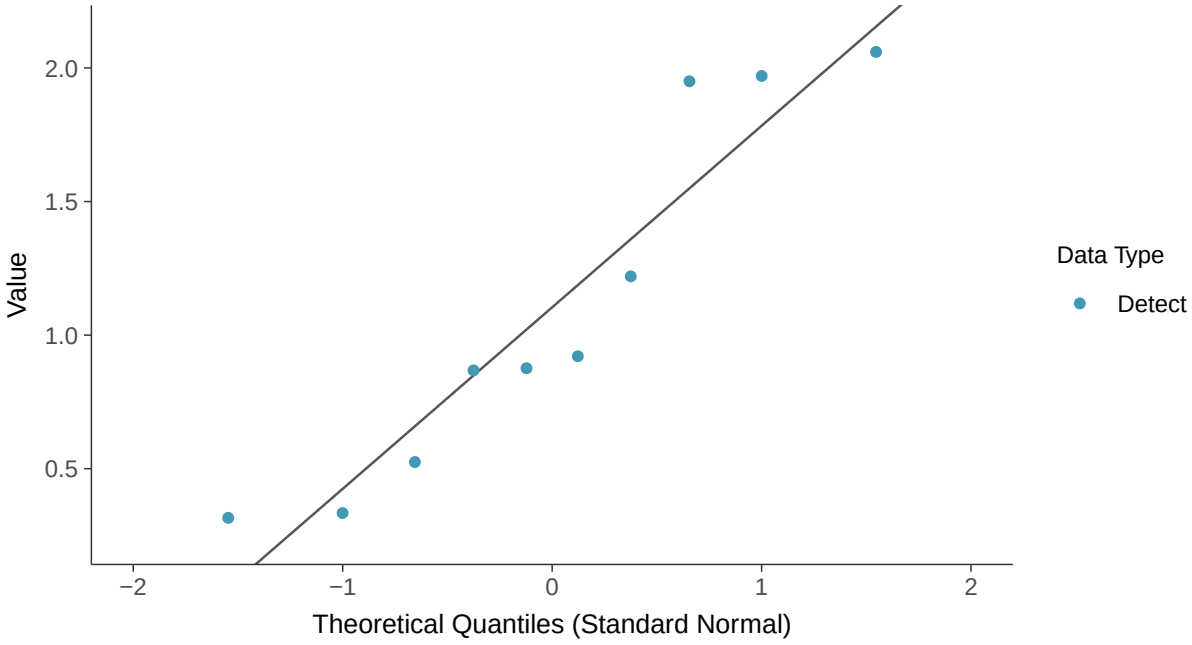
Boxplot by Season

Radium-226/228, MW-15 (pCi/L)



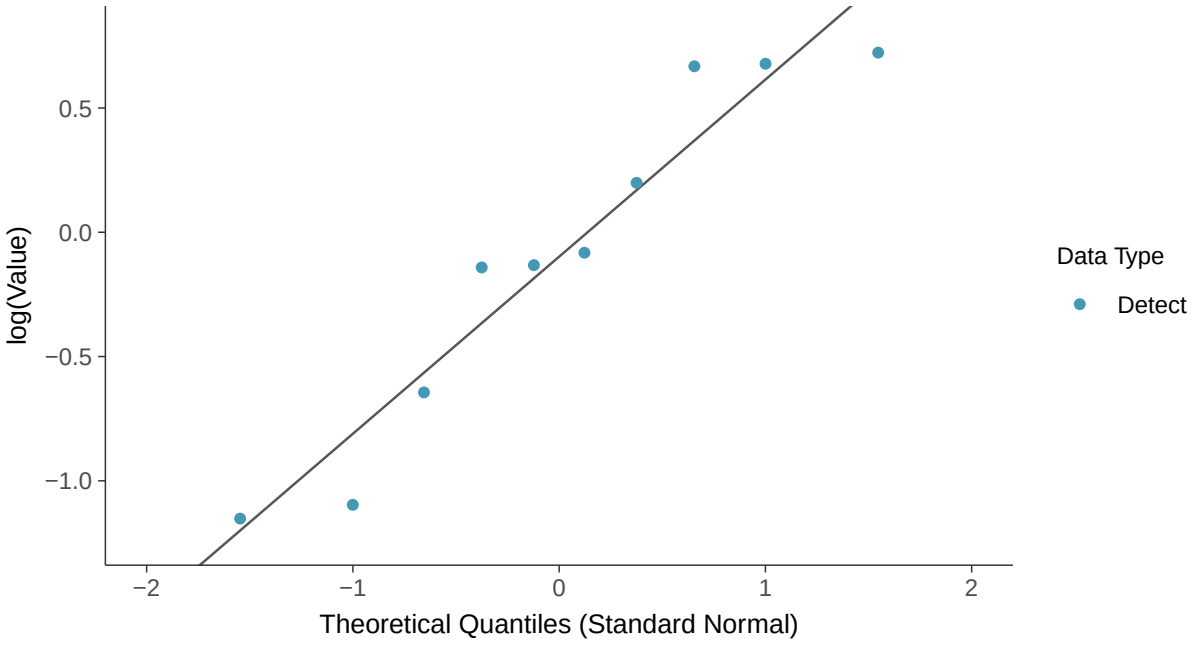
Normal Q-Q plot

Radium-226/228, MW-15 (pCi/L)



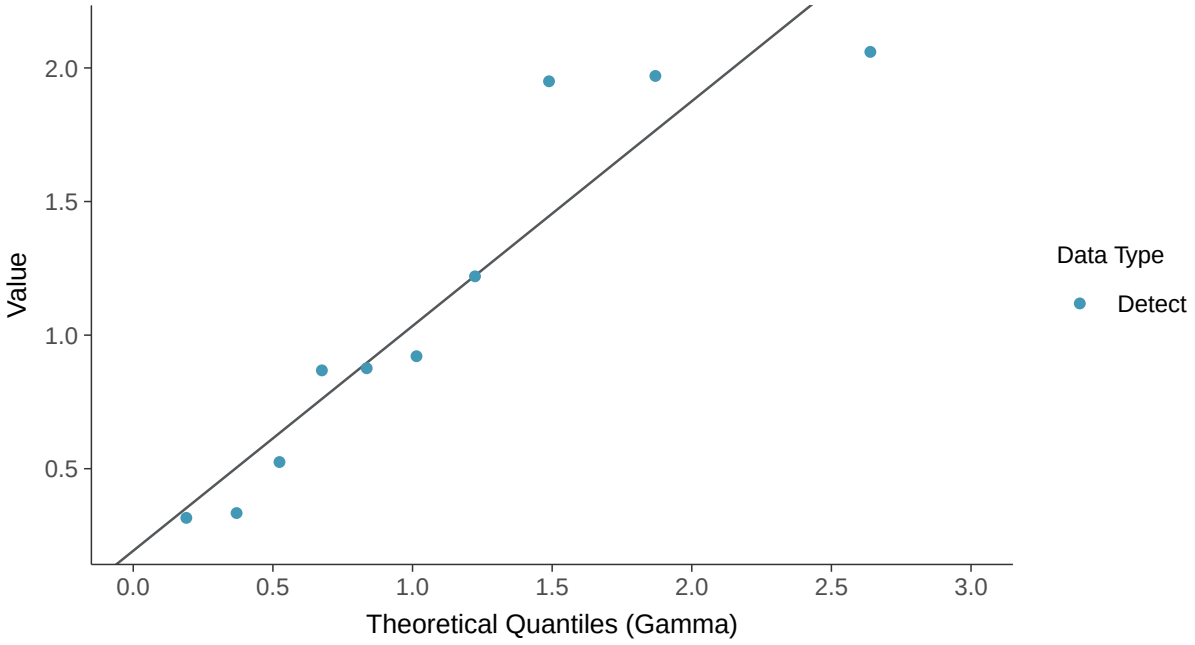
Lognormal Q-Q plot

Radium-226/228, MW-15 (pCi/L)



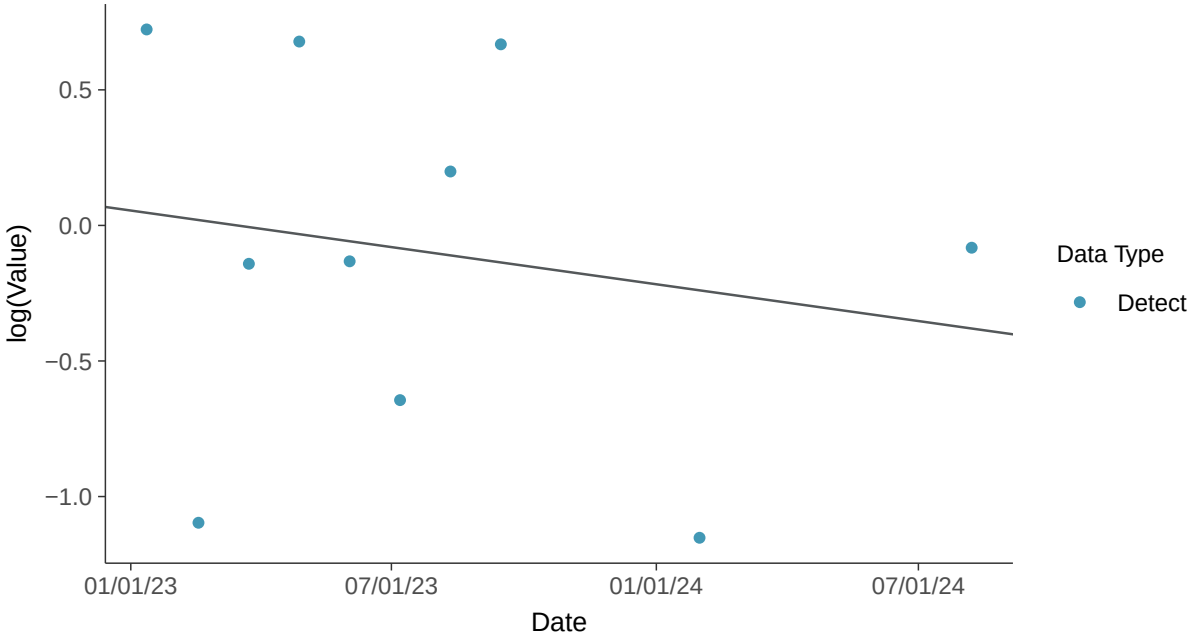
Gamma Q-Q plot

Radium-226/228, MW-15 (pCi/L)



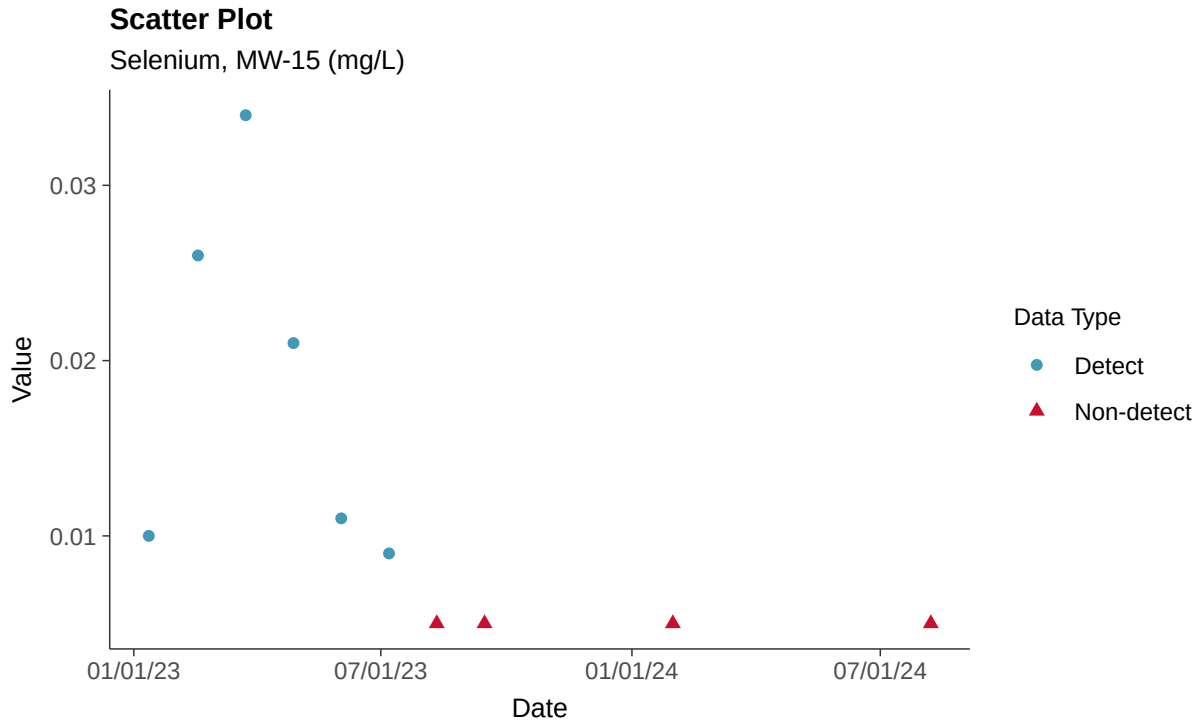
Trend Regression: Lognormal MLE

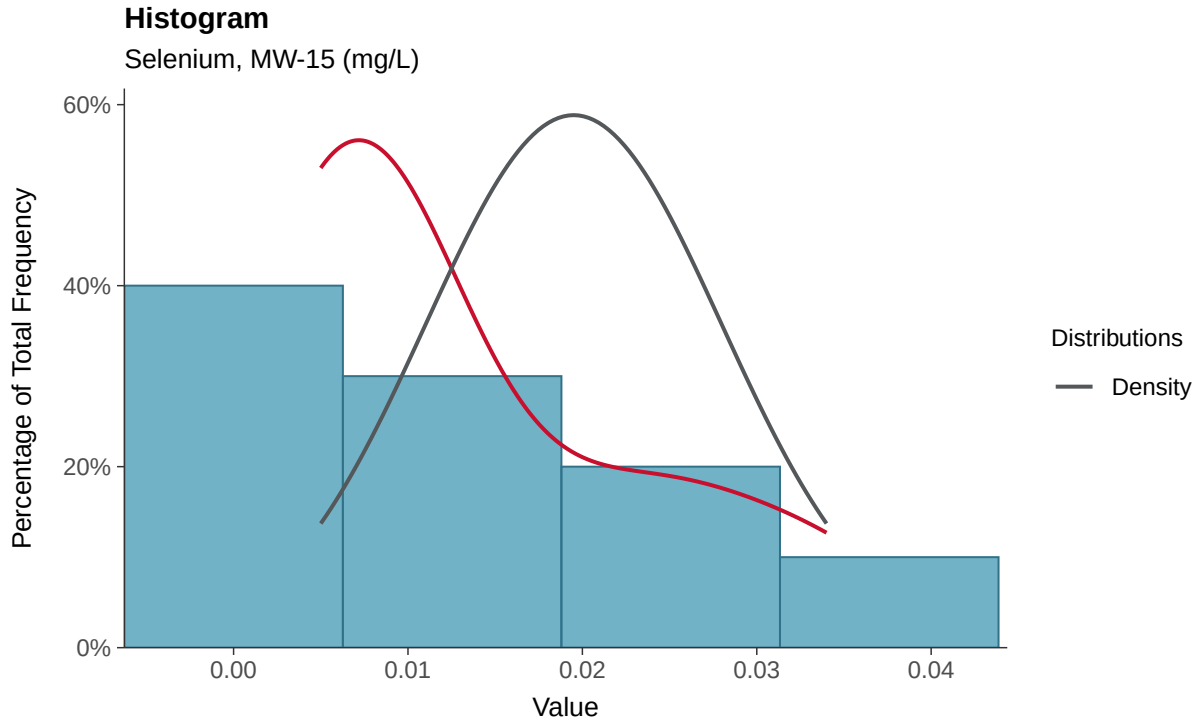
Radium-226/228, MW-15 (pCi/L)



Appendix IV: Selenium, MW-15

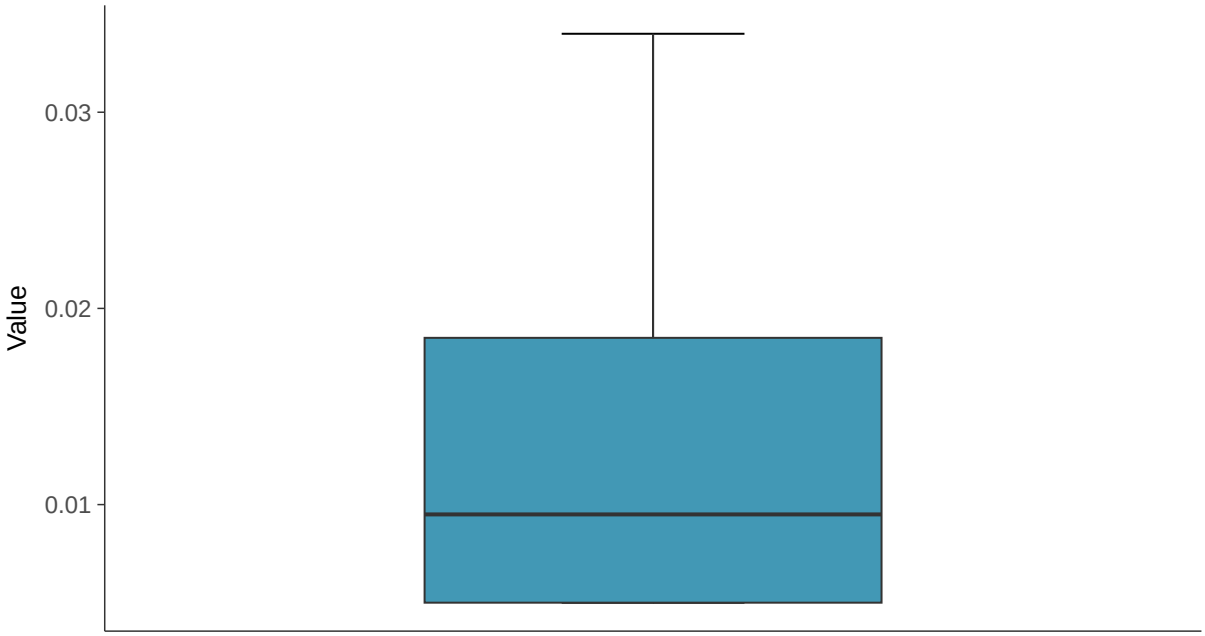
ID: 15_2_22





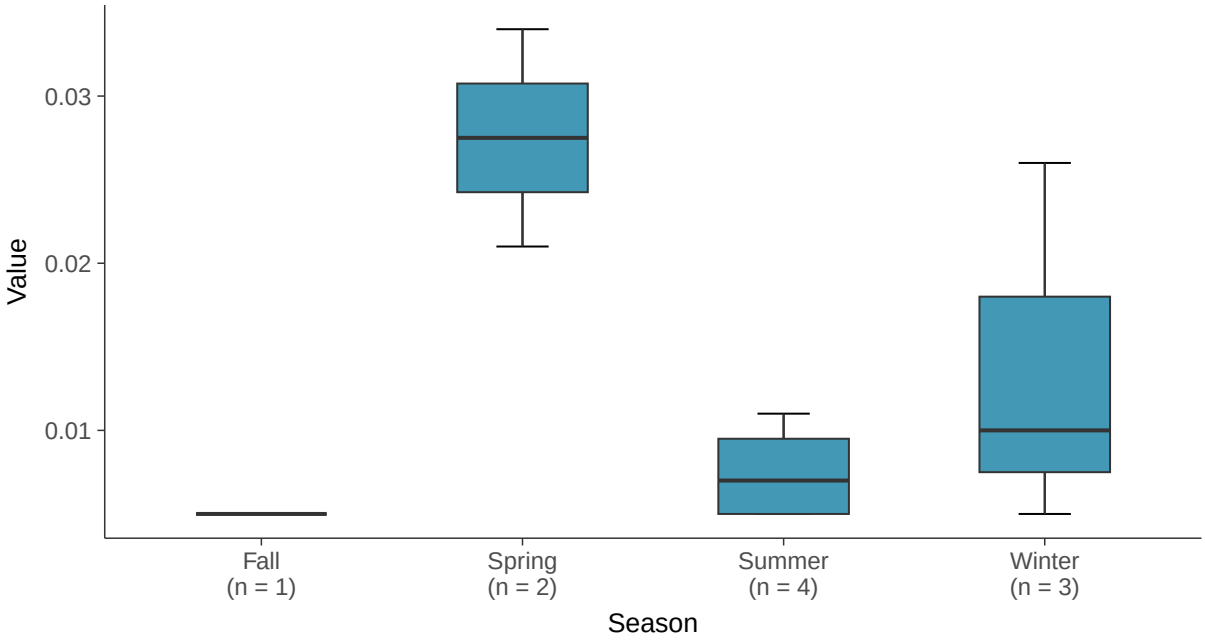
Boxplot

Selenium, MW-15 (mg/L)



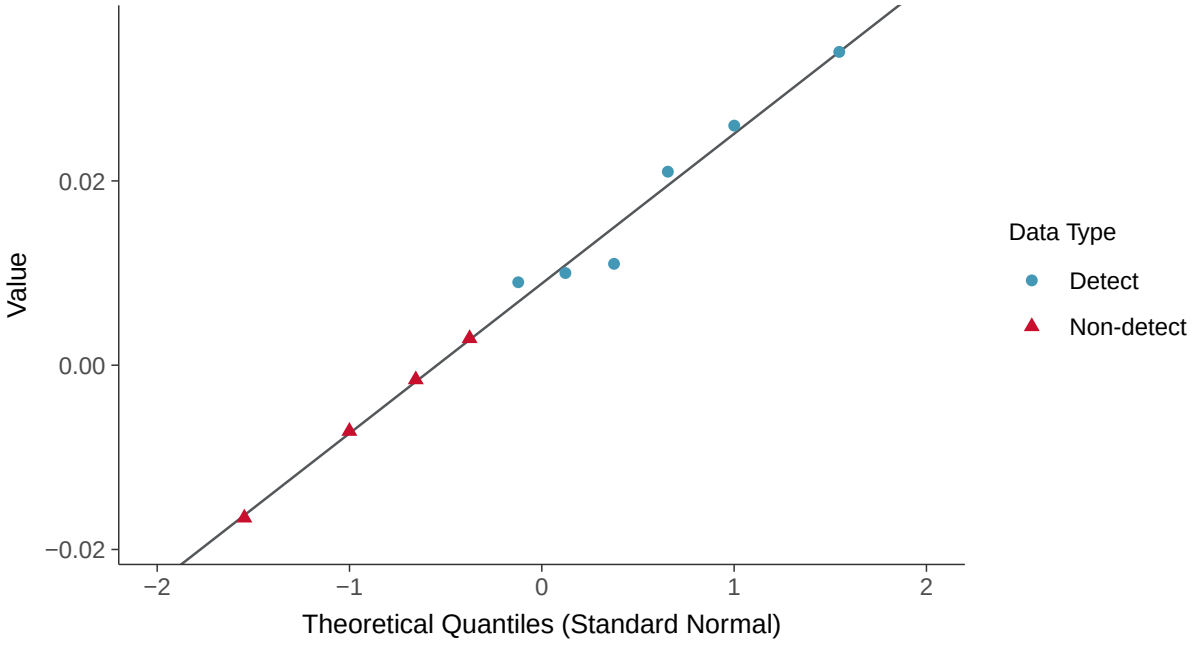
Boxplot by Season

Selenium, MW-15 (mg/L)



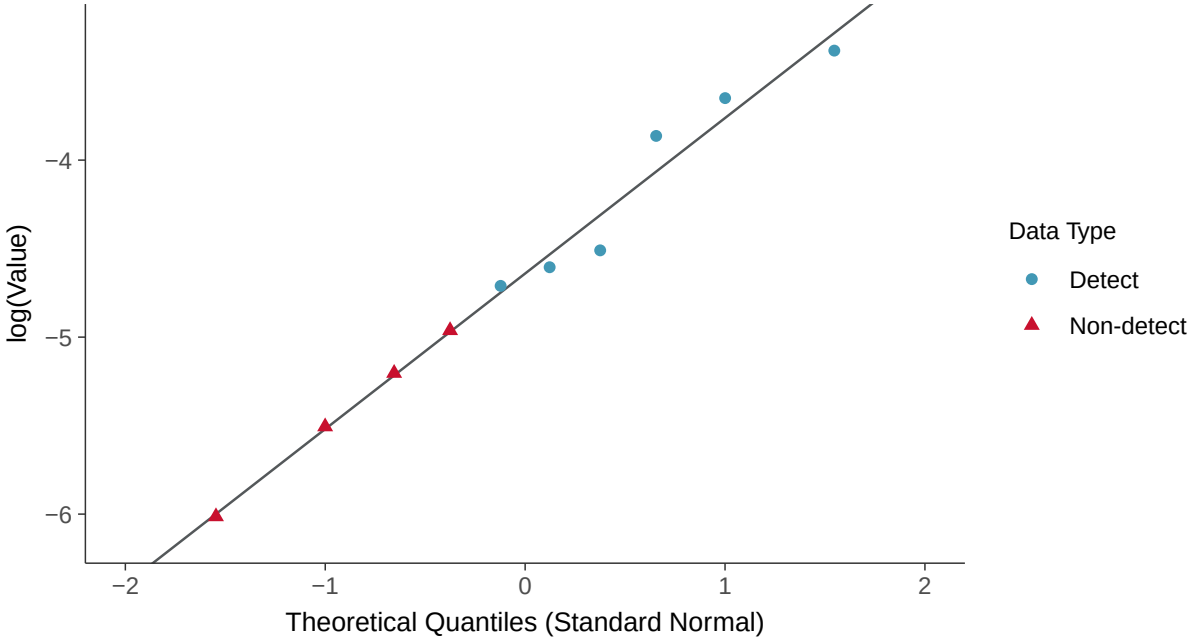
Normal Q-Q plot using ROS Imputed Estimates

Selenium, MW-15 (mg/L)



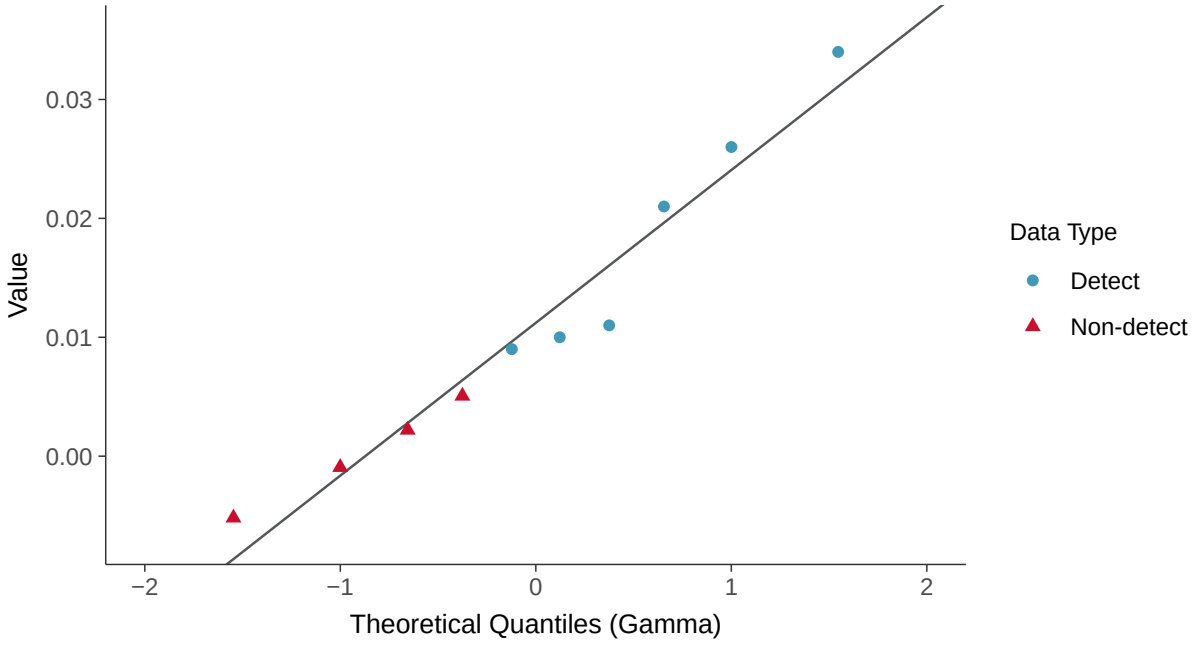
Lognormal Q-Q plot using ROS Imputed Estimates

Selenium, MW-15 (mg/L)



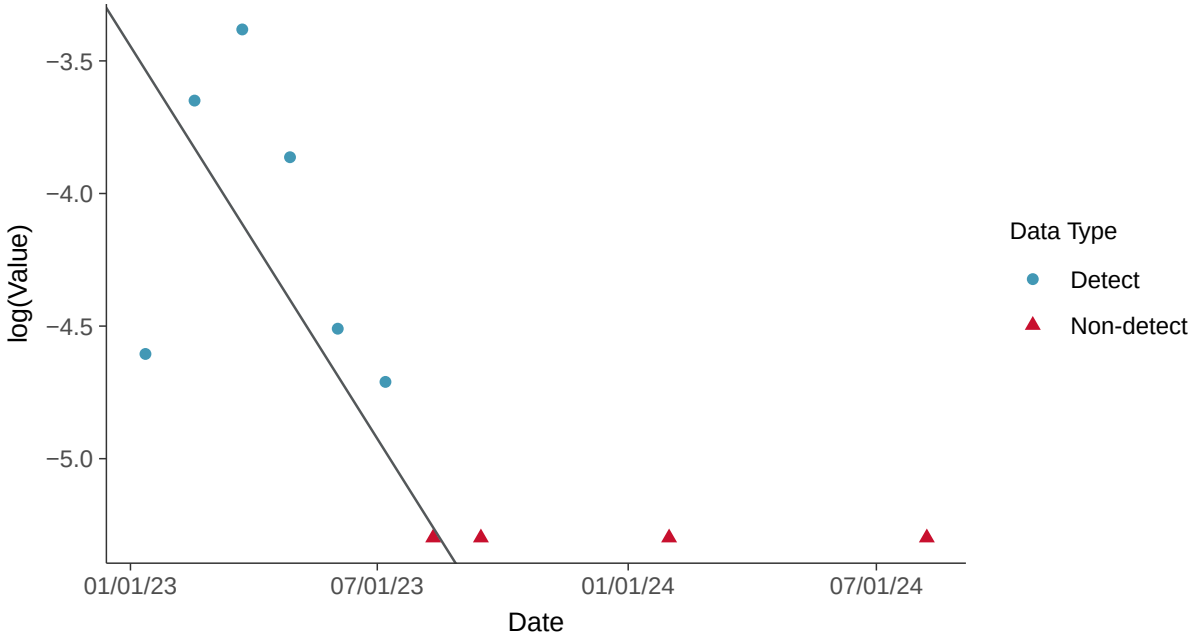
Gamma Q-Q plot using ROS Imputed Estimates

Selenium, MW-15 (mg/L)



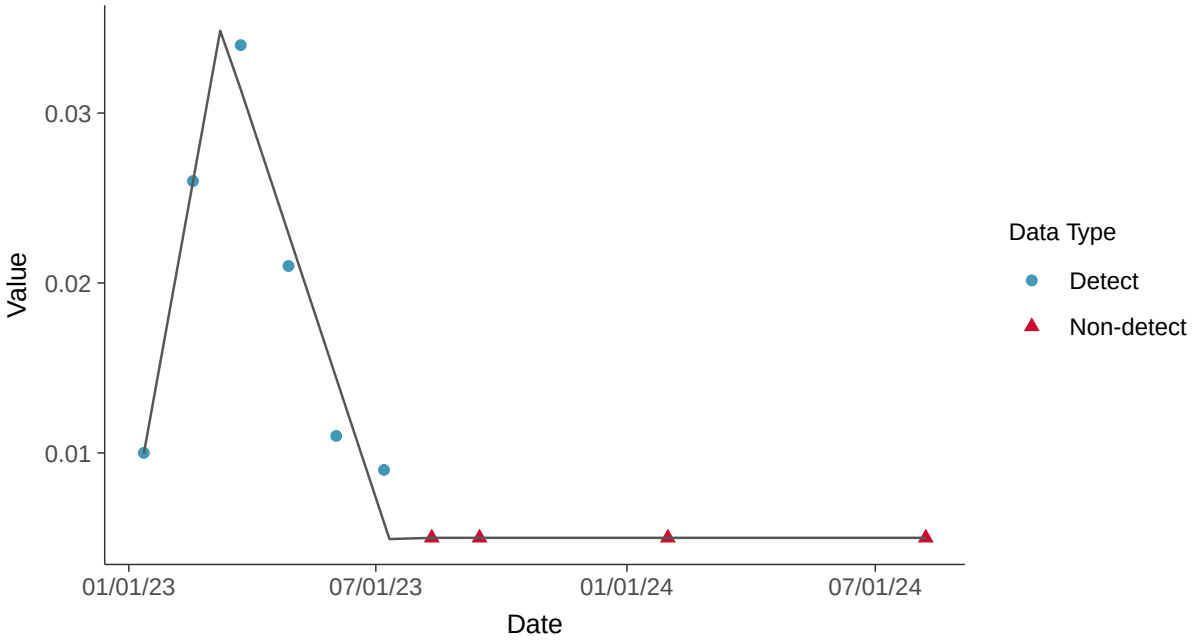
Trend Regression: Lognormal MLE

Selenium, MW-15 (mg/L)



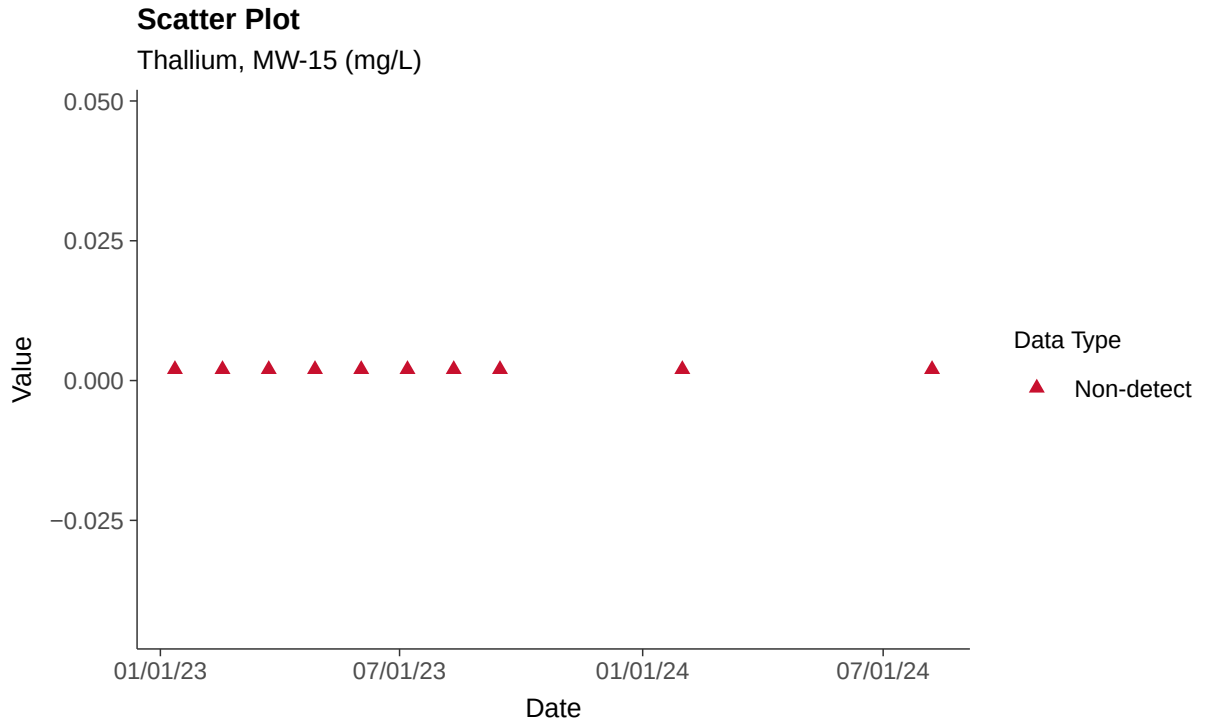
Trend Regression: Piecewise Linear-Linear-Linear

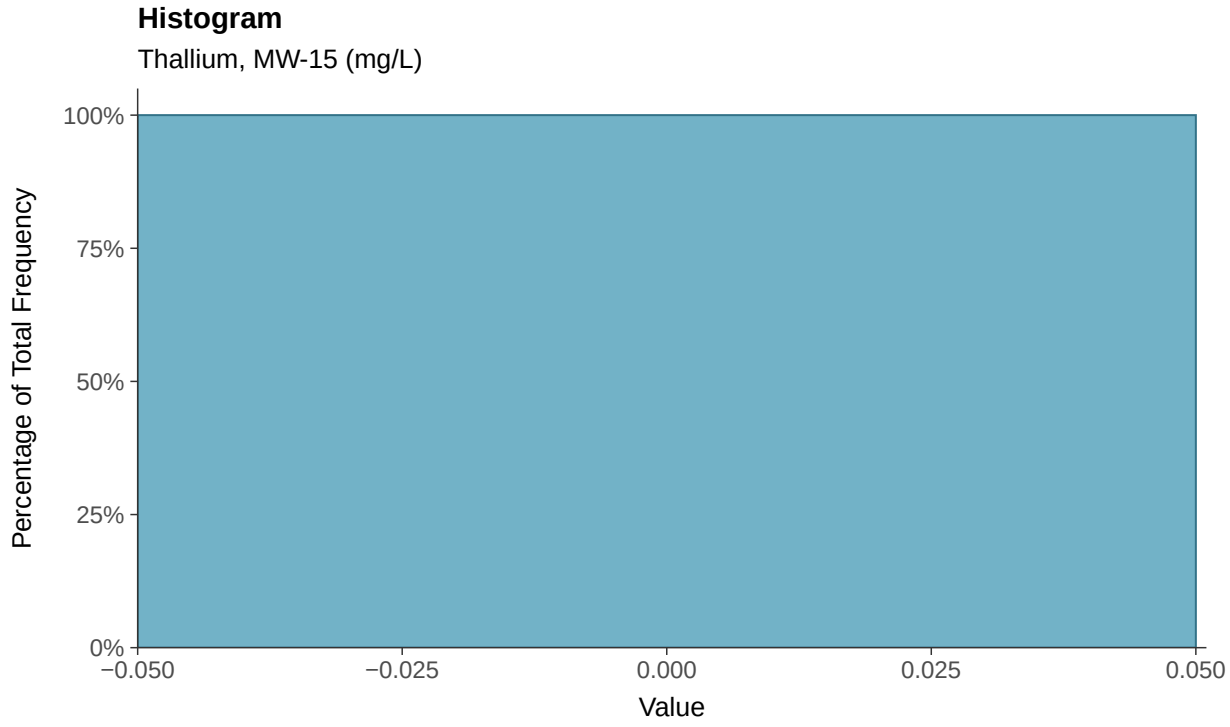
Selenium, MW-15 (mg/L)



Appendix IV: Thallium, MW-15

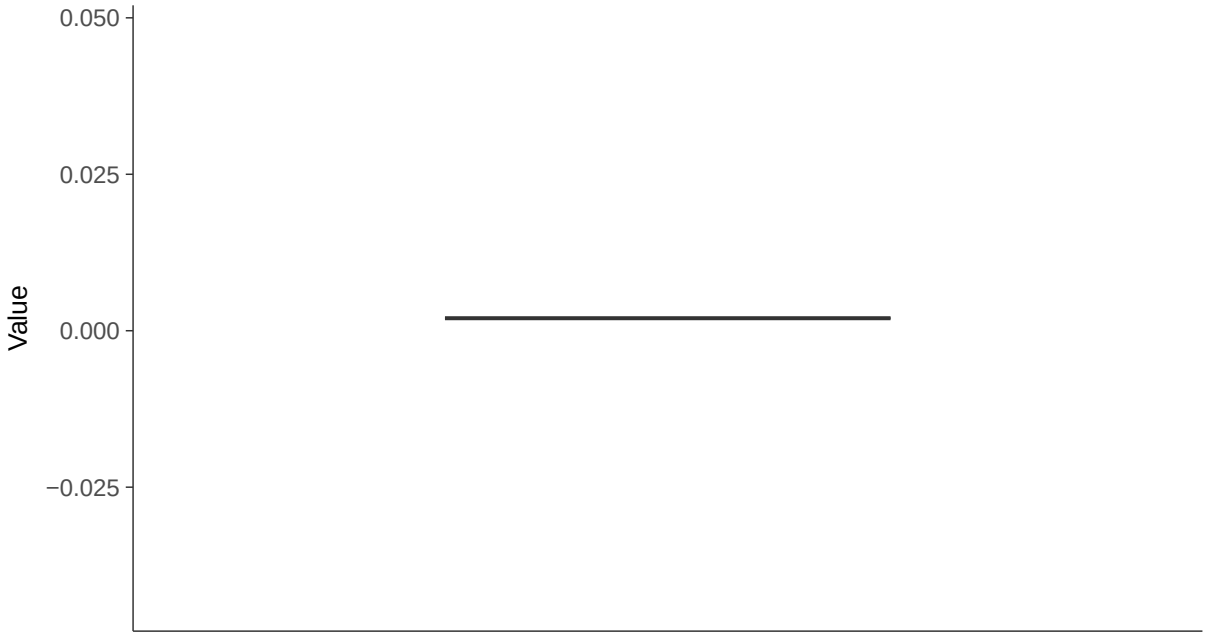
ID: 15_2_23





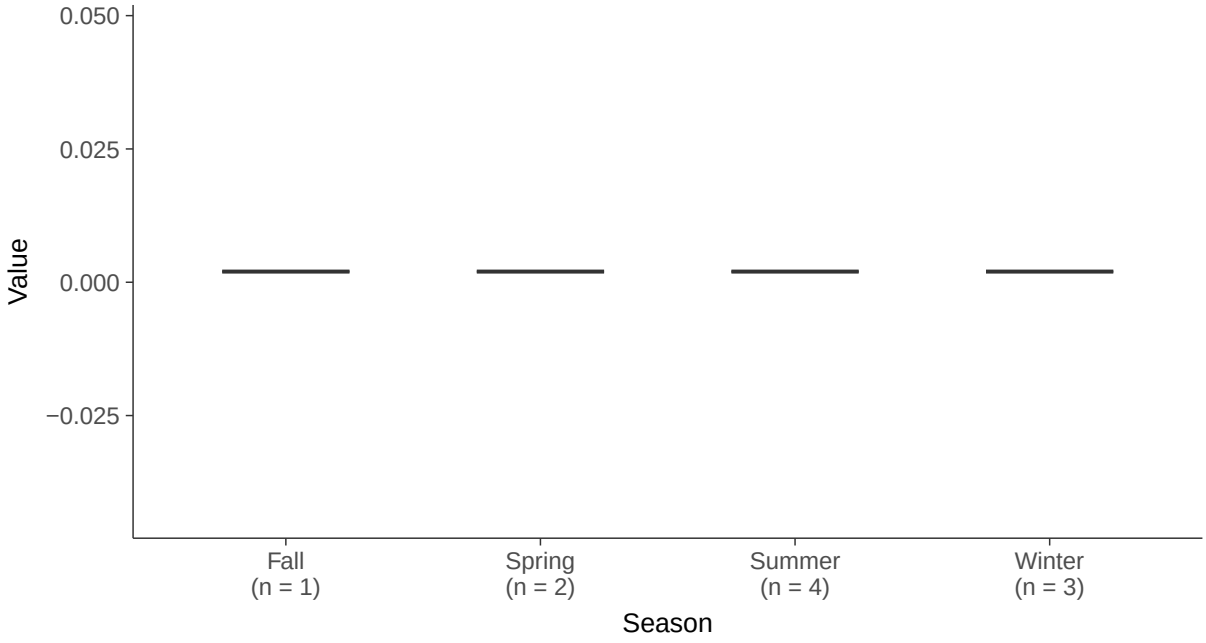
Boxplot

Thallium, MW-15 (mg/L)



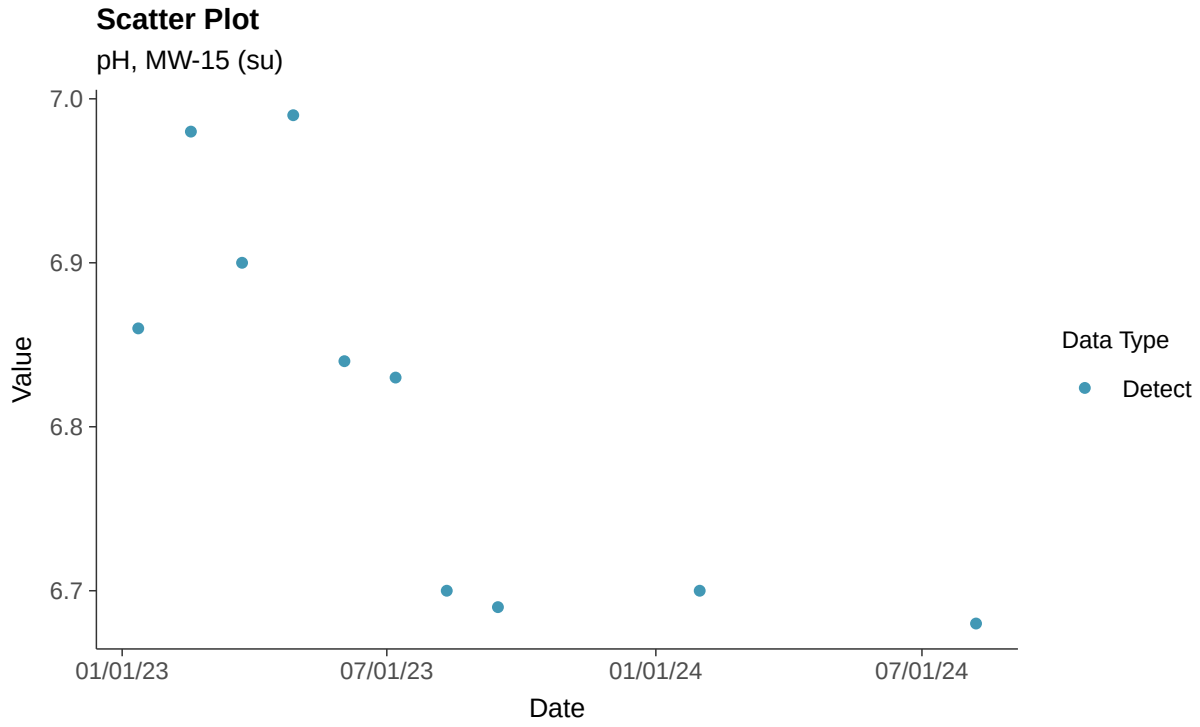
Boxplot by Season

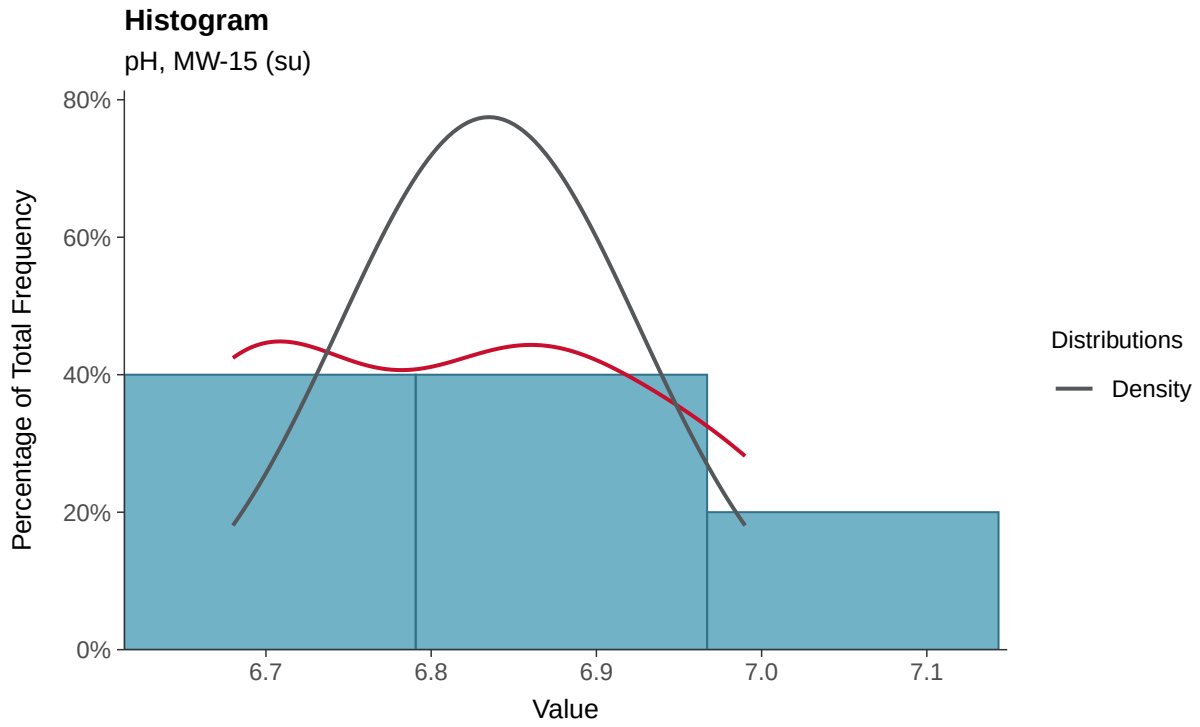
Thallium, MW-15 (mg/L)



Field Parameters: pH, MW-15

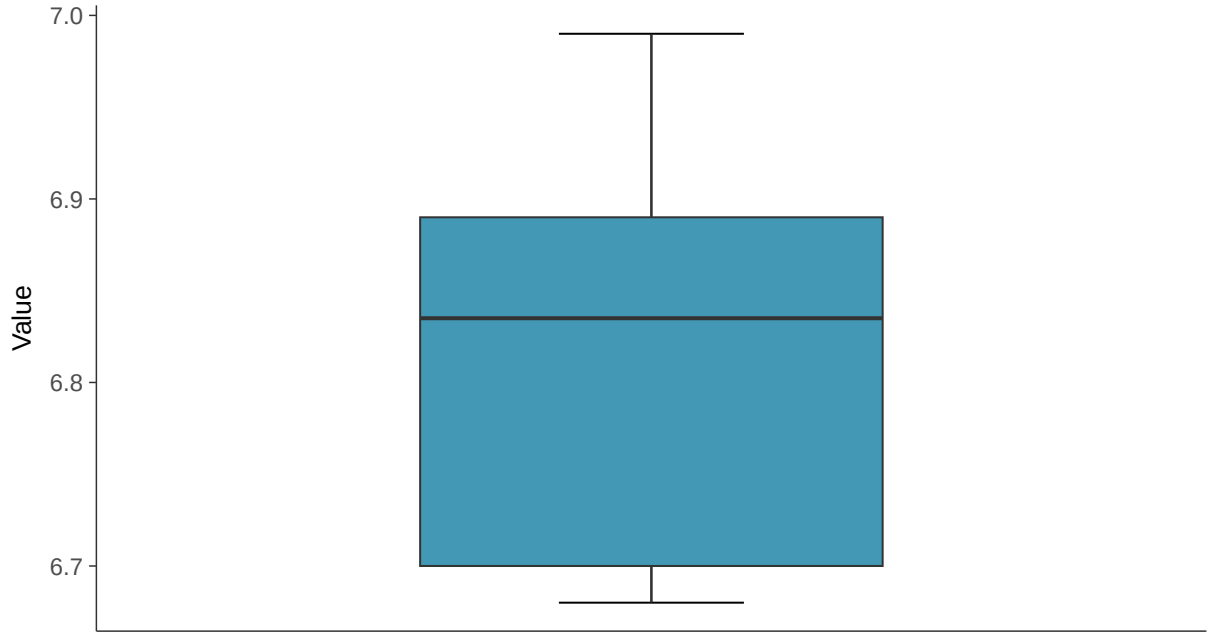
ID: 15_3_24





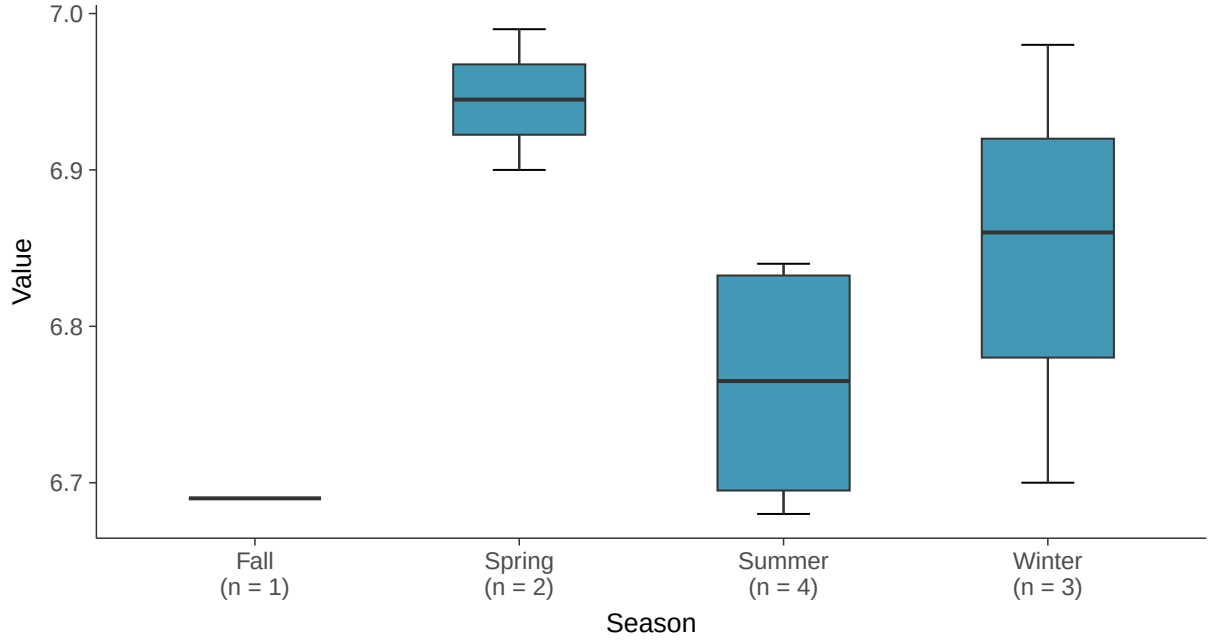
Boxplot

pH, MW-15 (su)



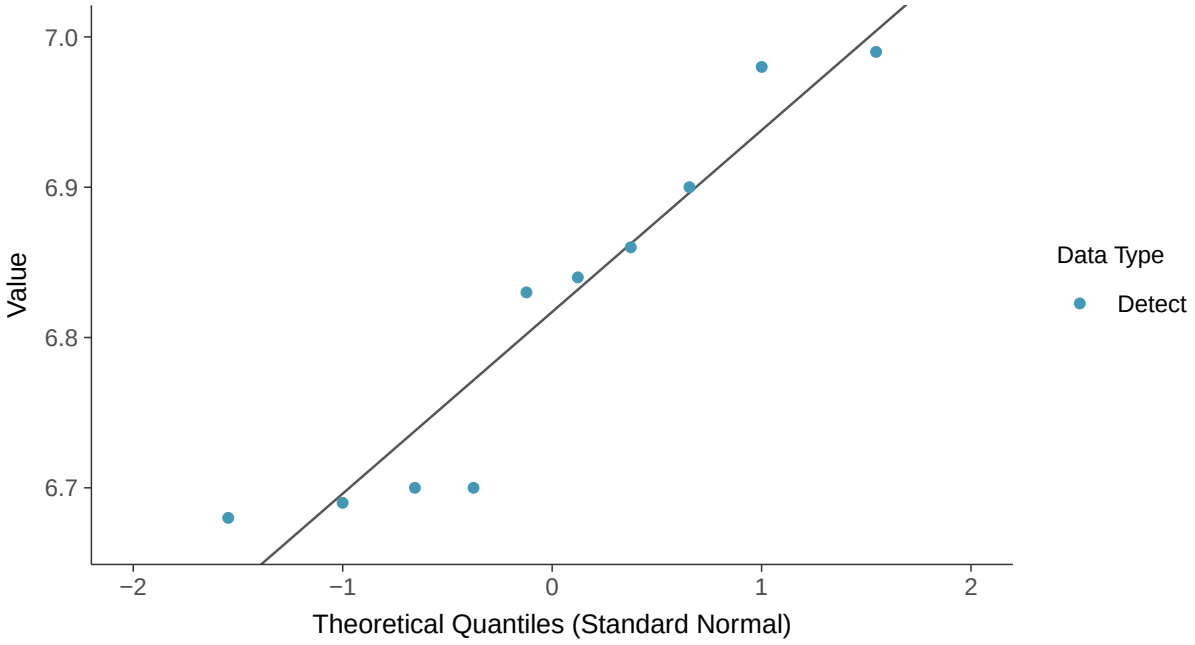
Boxplot by Season

pH, MW-15 (su)



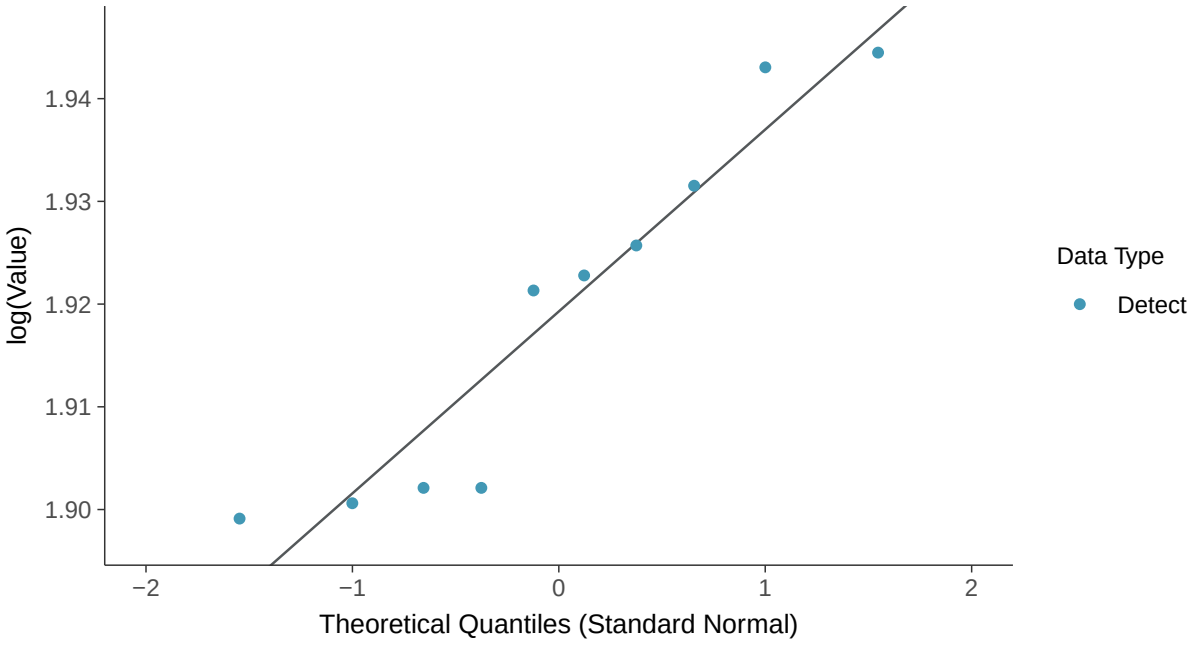
Normal Q-Q plot

pH, MW-15 (su)



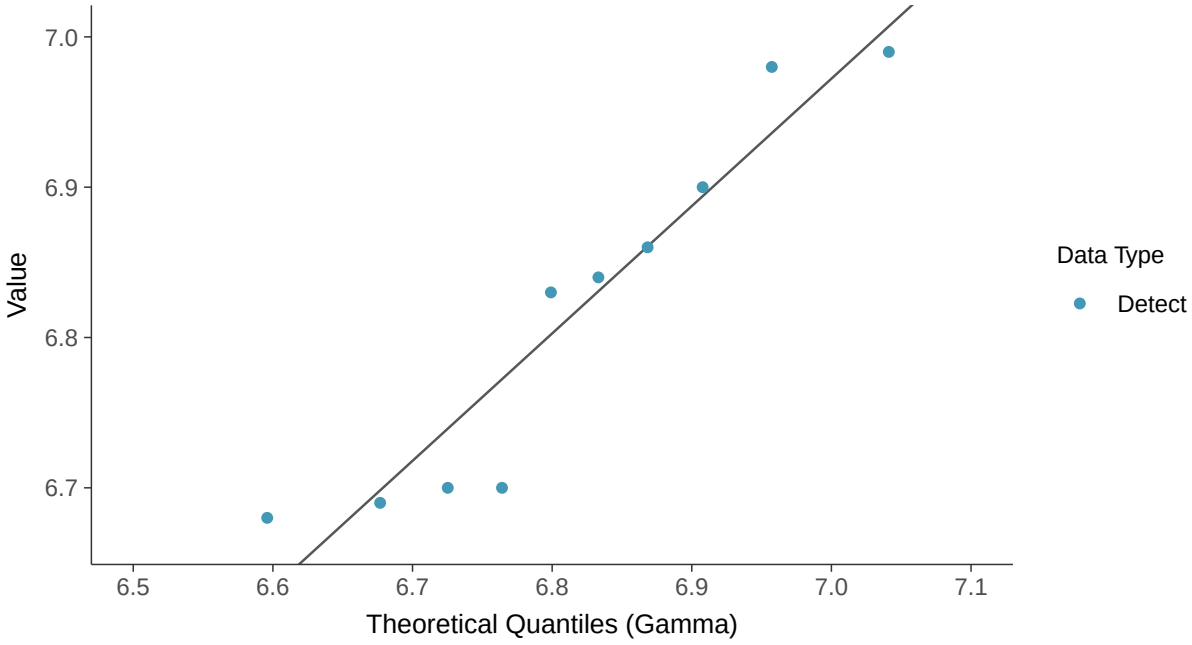
Lognormal Q-Q plot

pH, MW-15 (su)



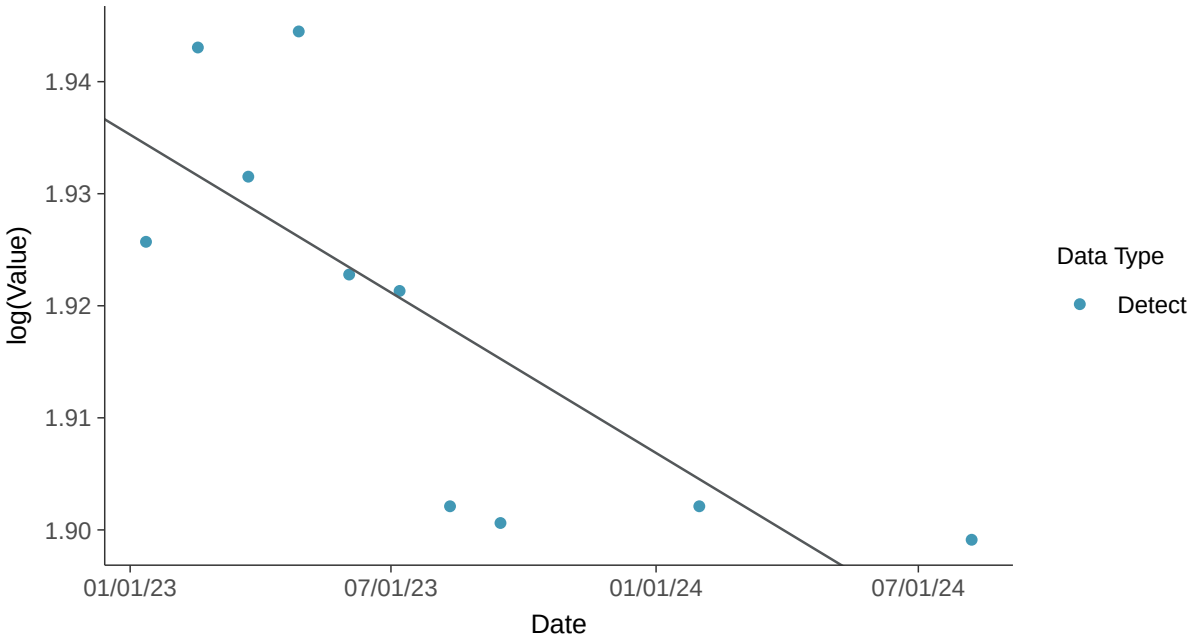
Gamma Q-Q plot

pH, MW-15 (su)



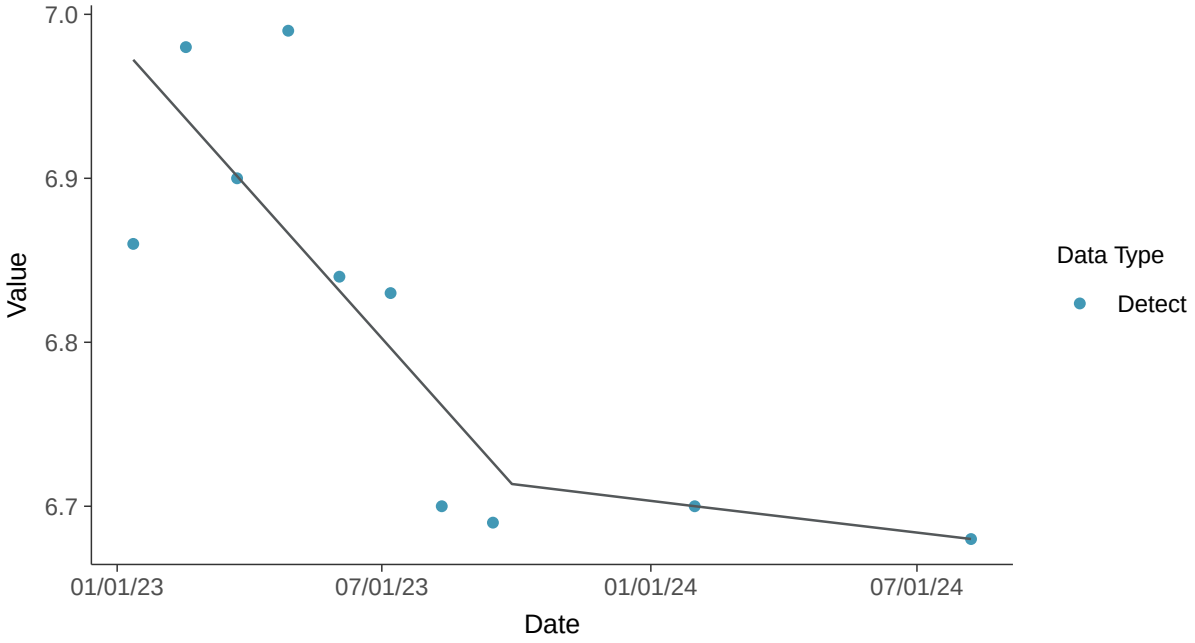
Trend Regression: Lognormal MLE

pH, MW-15 (su)



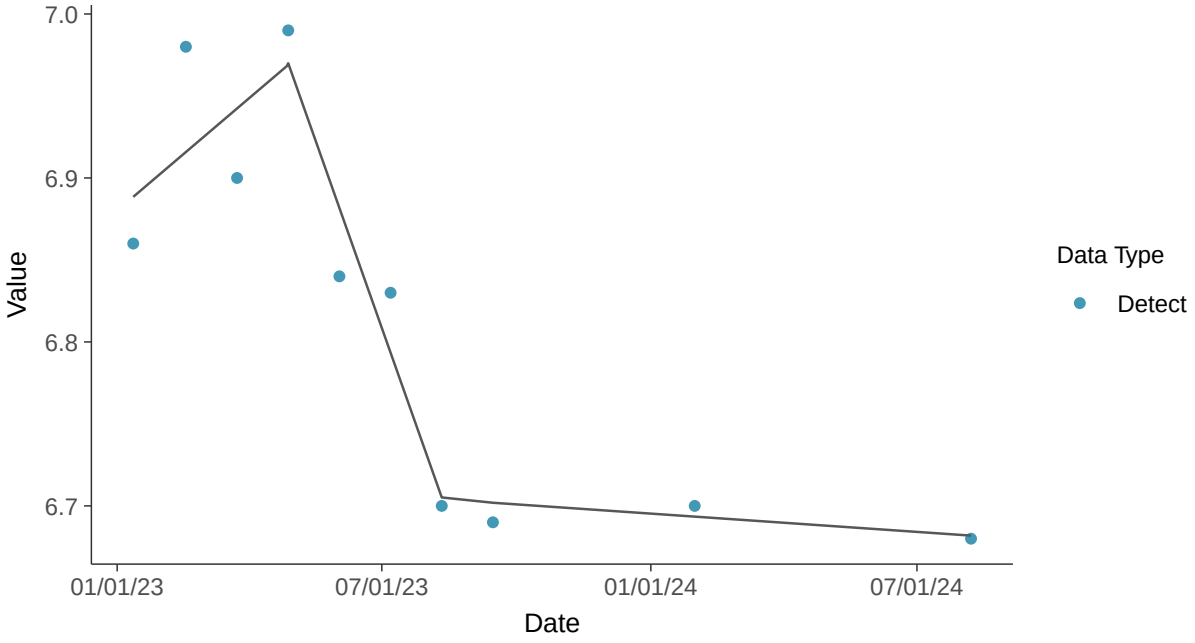
Trend Regression: Piecewise Linear-Linear

pH, MW-15 (su)



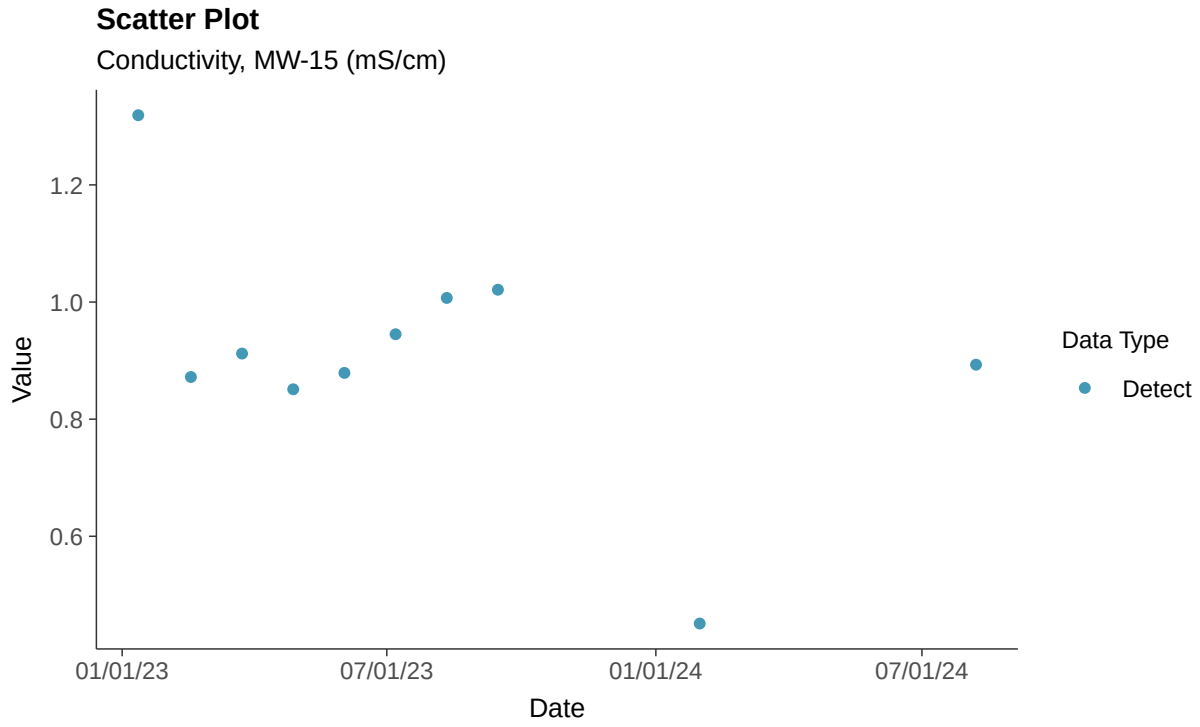
Trend Regression: Piecewise Linear-Linear-Linear

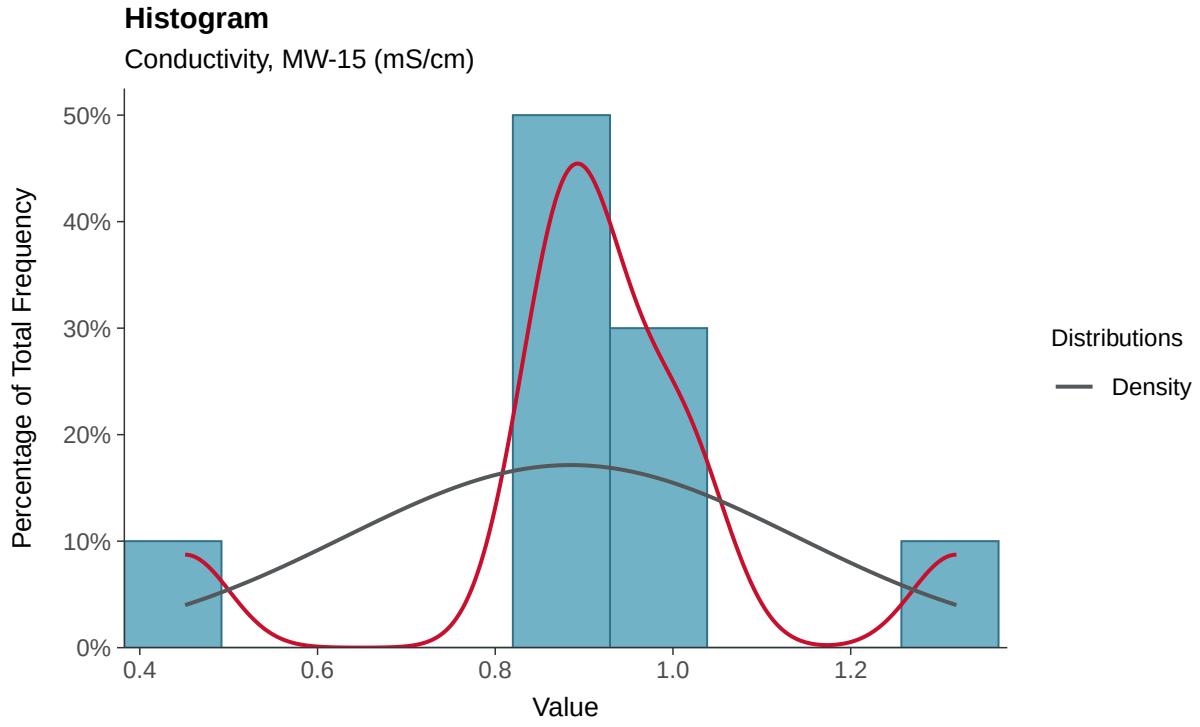
pH, MW-15 (su)



Field Parameters: Conductivity, MW-15

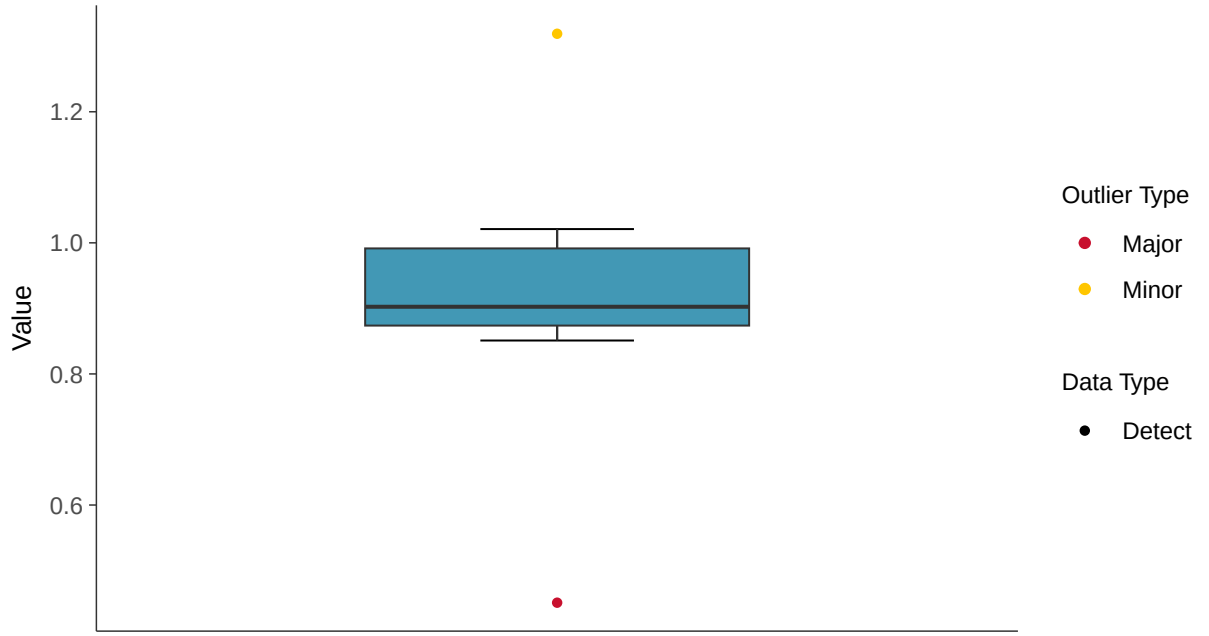
ID: 15_3_25





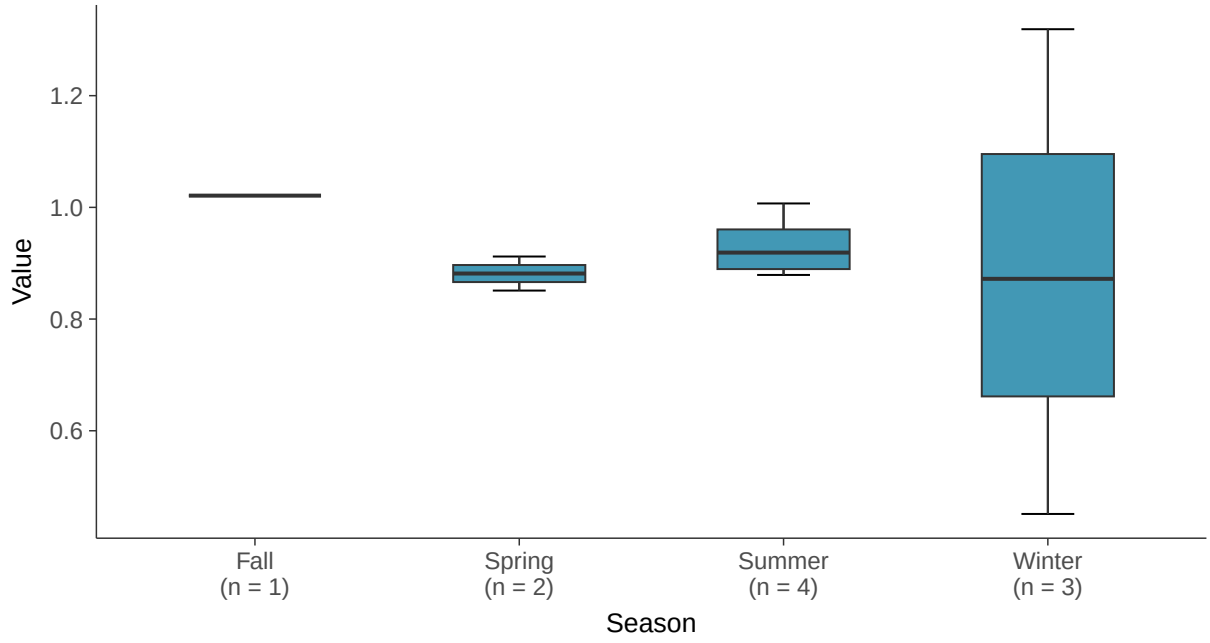
Boxplot

Conductivity, MW-15 (mS/cm)



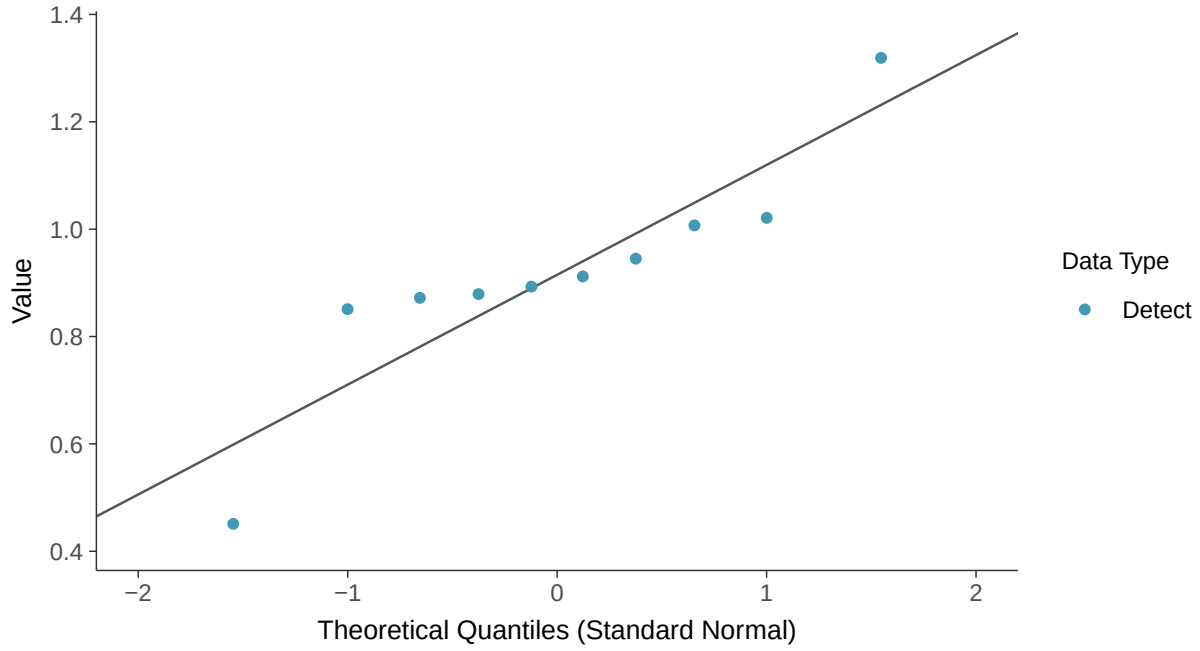
Boxplot by Season

Conductivity, MW-15 (mS/cm)



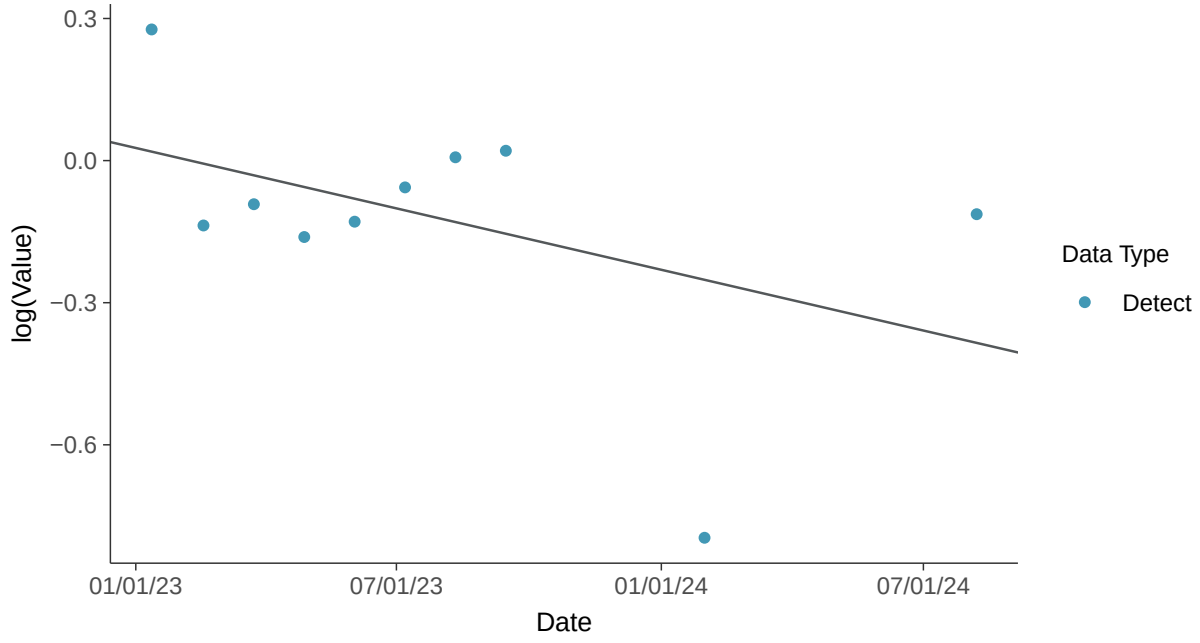
Normal Q-Q plot

Conductivity, MW-15 (mS/cm)



Trend Regression: Lognormal MLE

Conductivity, MW-15 (mS/cm)

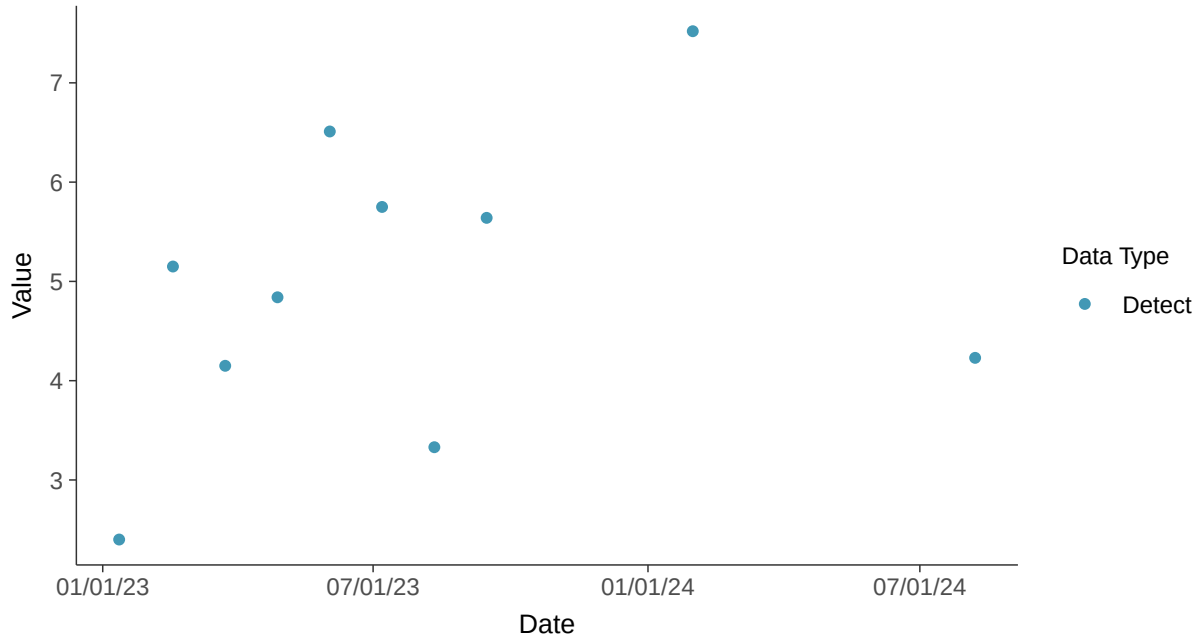


Field Parameters: Turbidity, MW-15

ID: 15_3_26

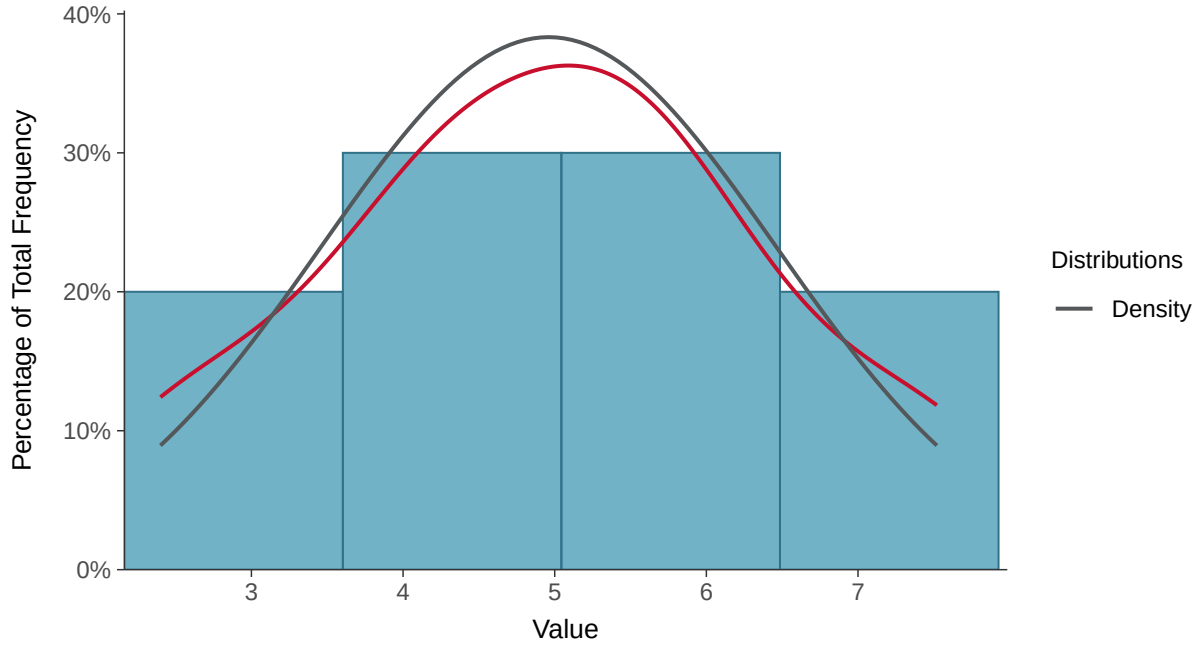
Scatter Plot

Turbidity, MW-15 (NTU)



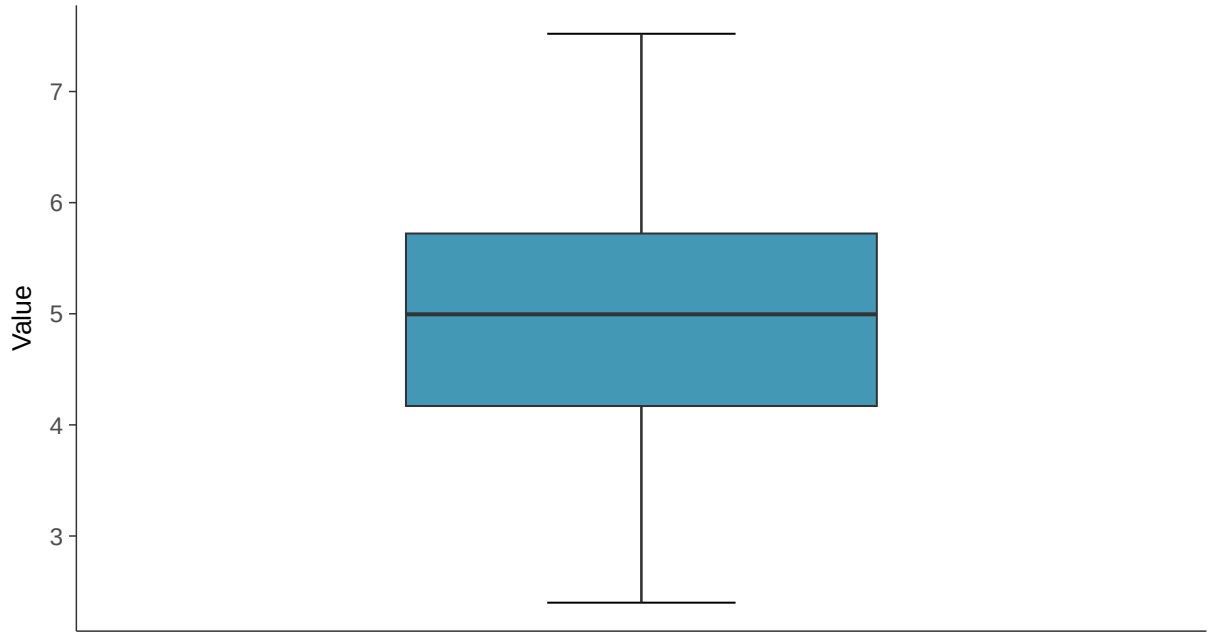
Histogram

Turbidity, MW-15 (NTU)



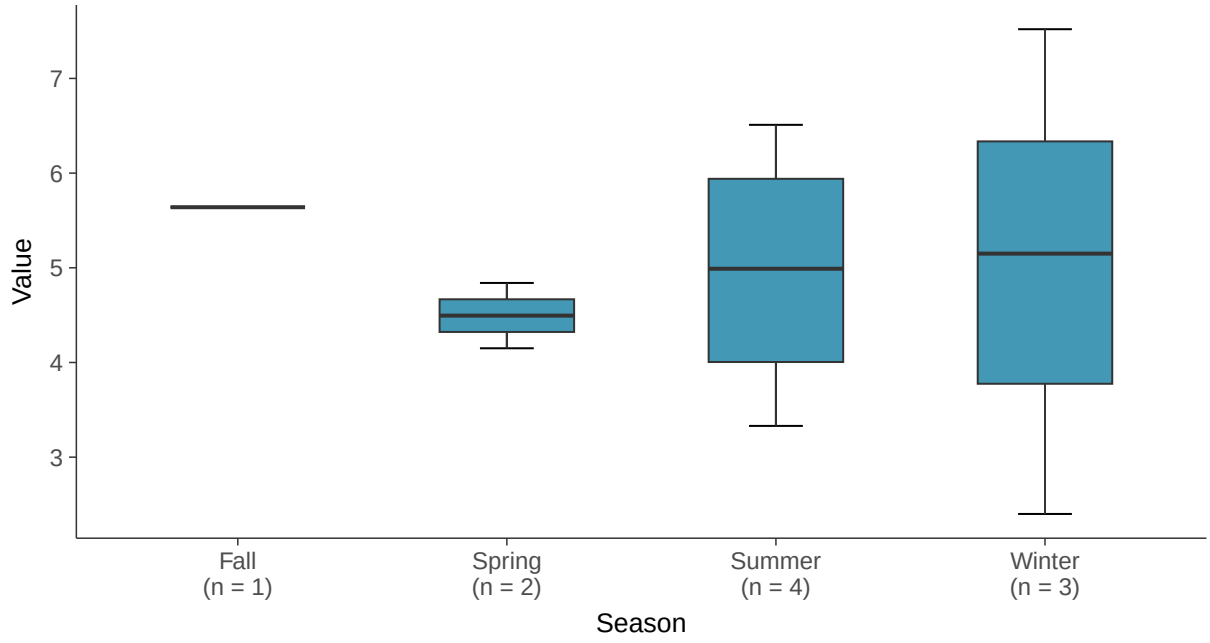
Boxplot

Turbidity, MW-15 (NTU)



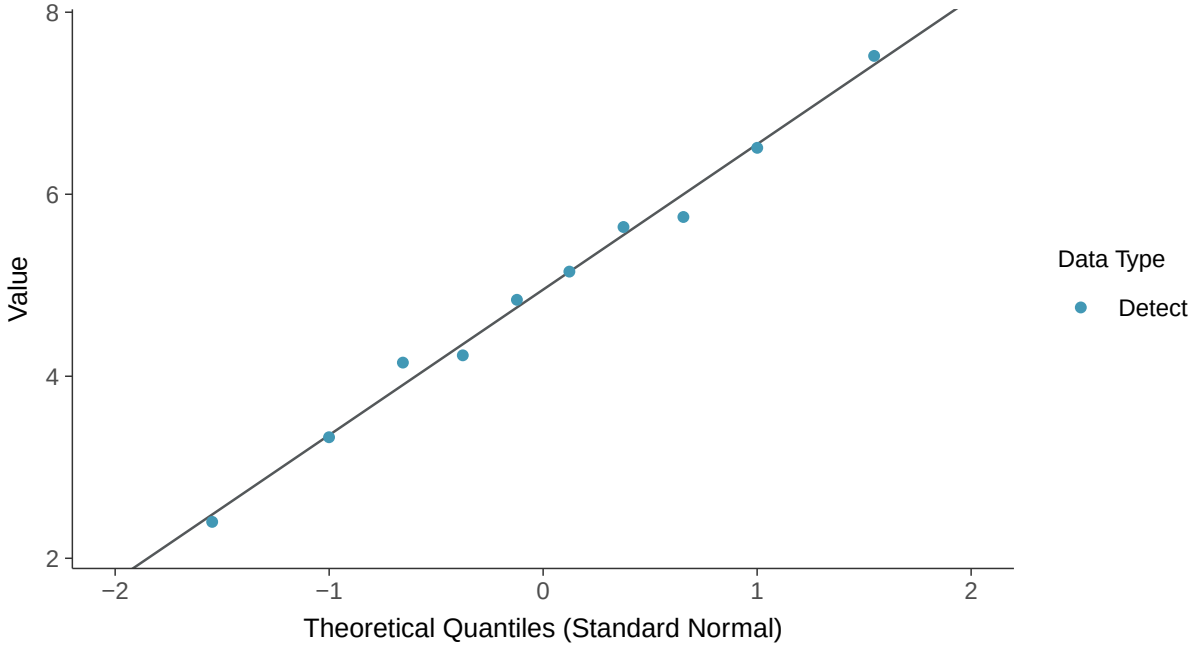
Boxplot by Season

Turbidity, MW-15 (NTU)



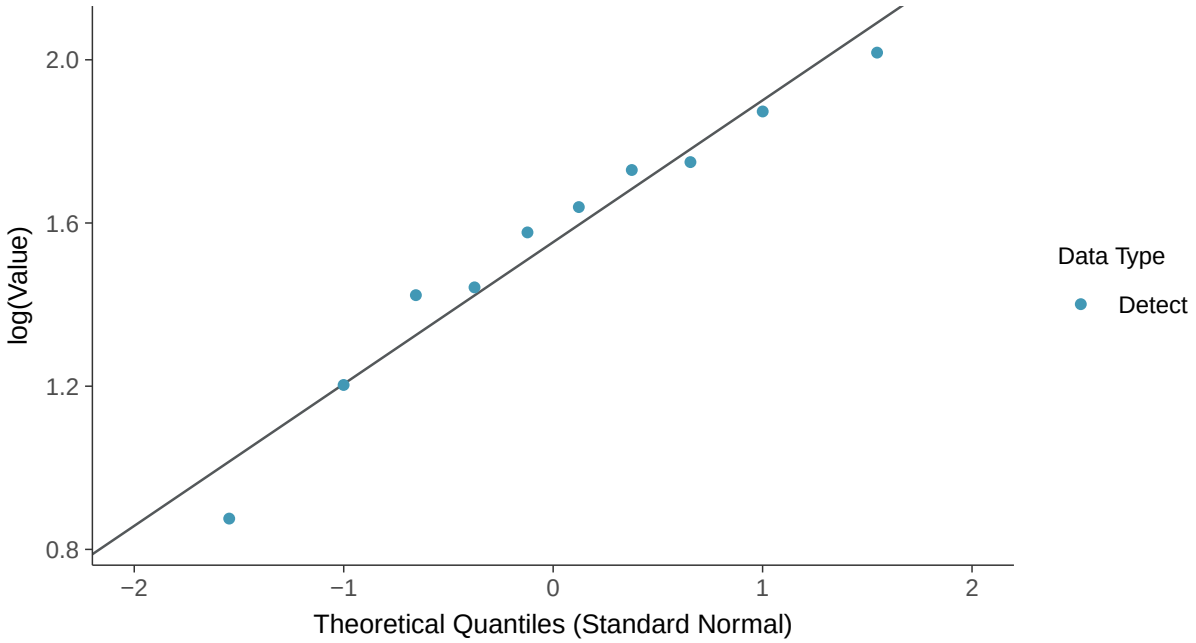
Normal Q-Q plot

Turbidity, MW-15 (NTU)



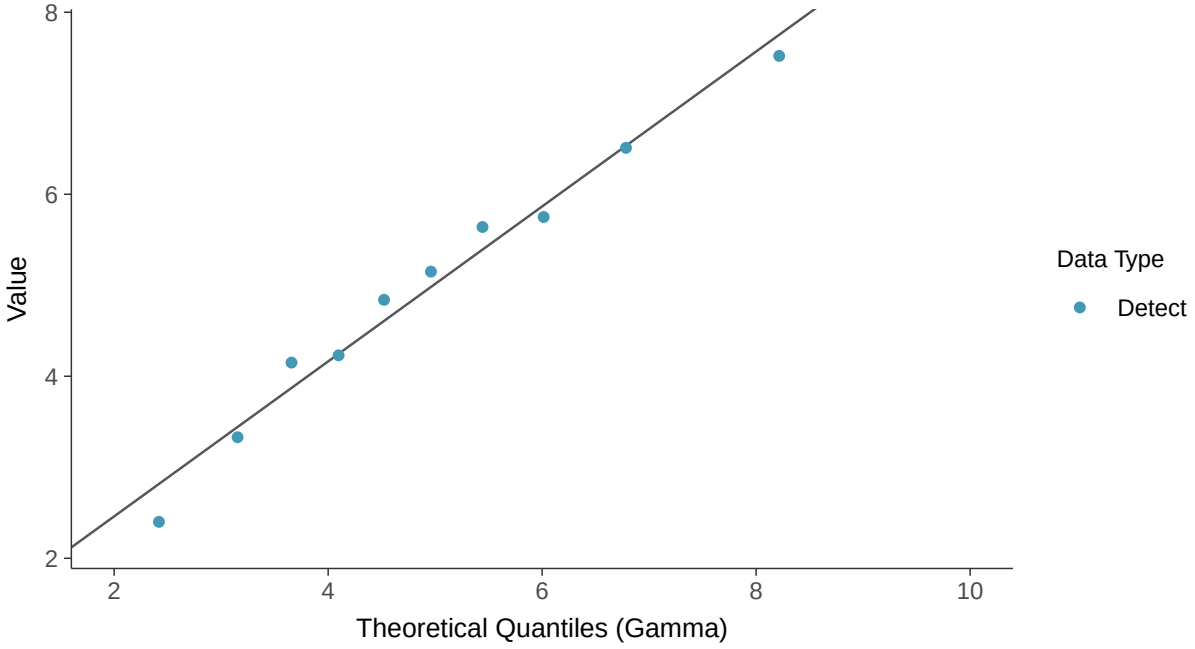
Lognormal Q-Q plot

Turbidity, MW-15 (NTU)



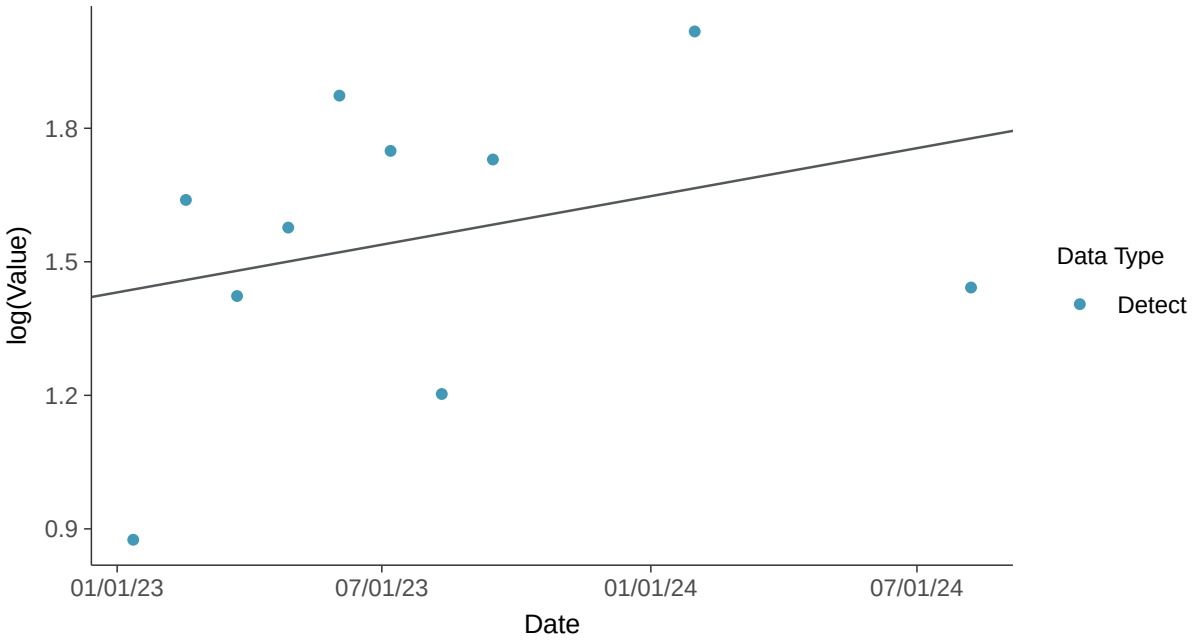
Gamma Q-Q plot

Turbidity, MW-15 (NTU)



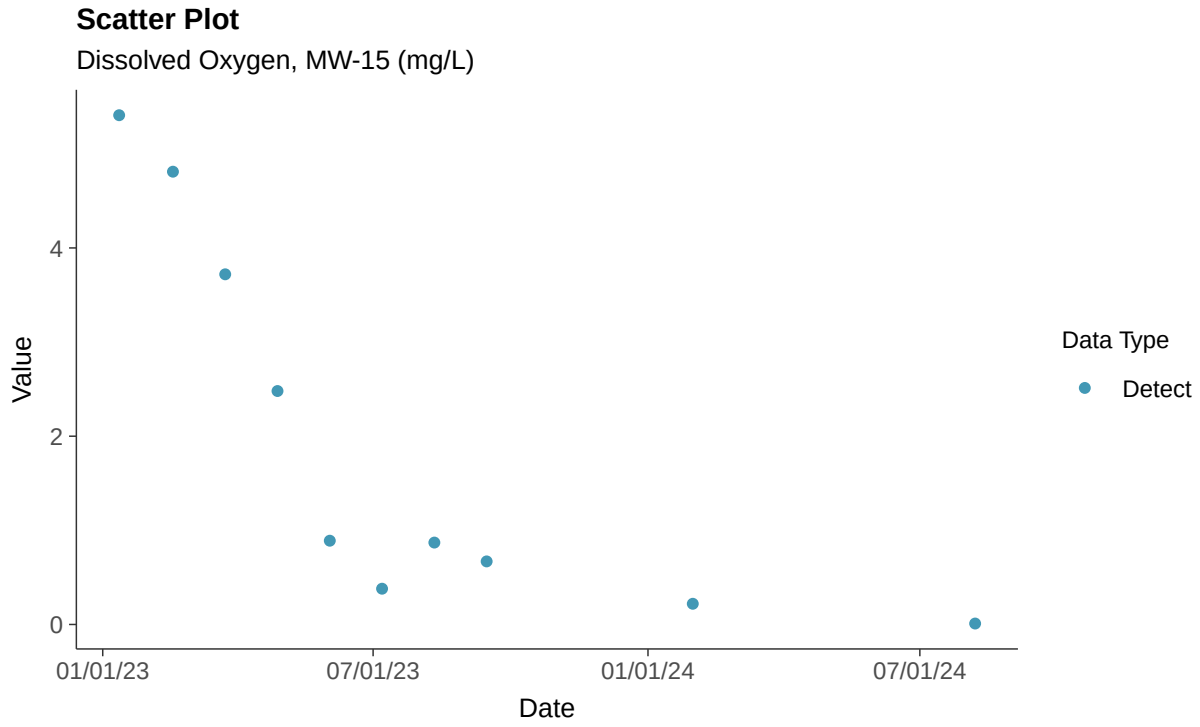
Trend Regression: Lognormal MLE

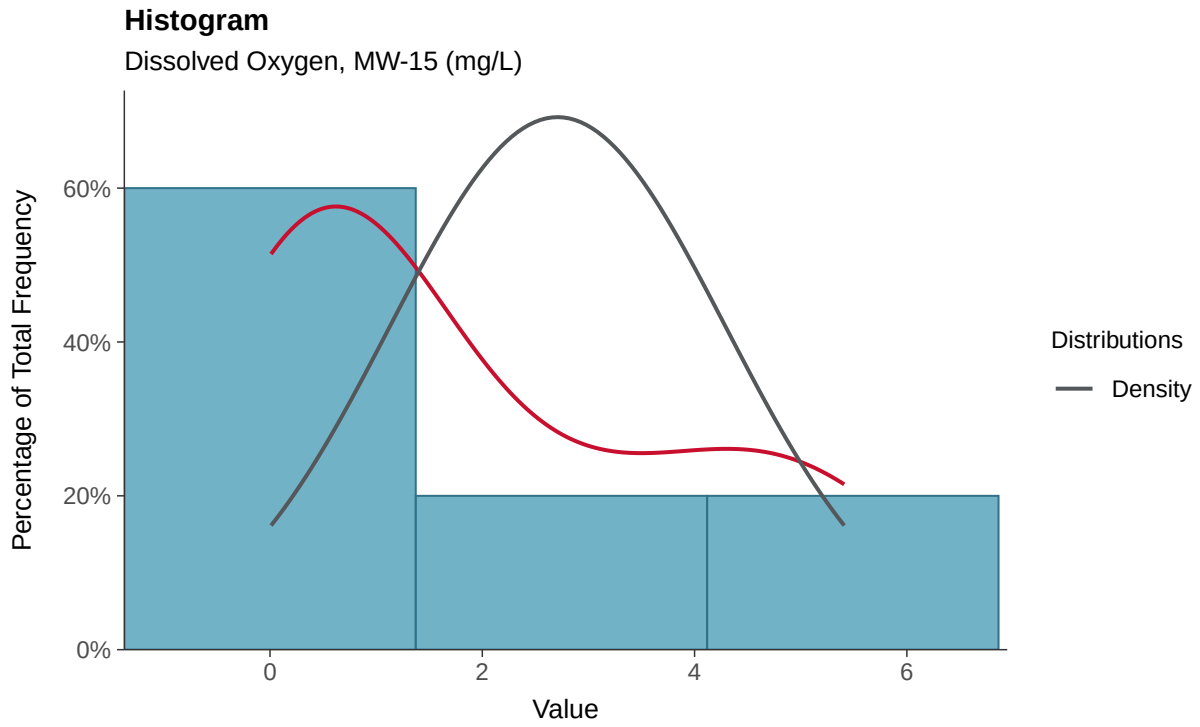
Turbidity, MW-15 (NTU)



Field Parameters: Dissolved Oxygen, MW-15

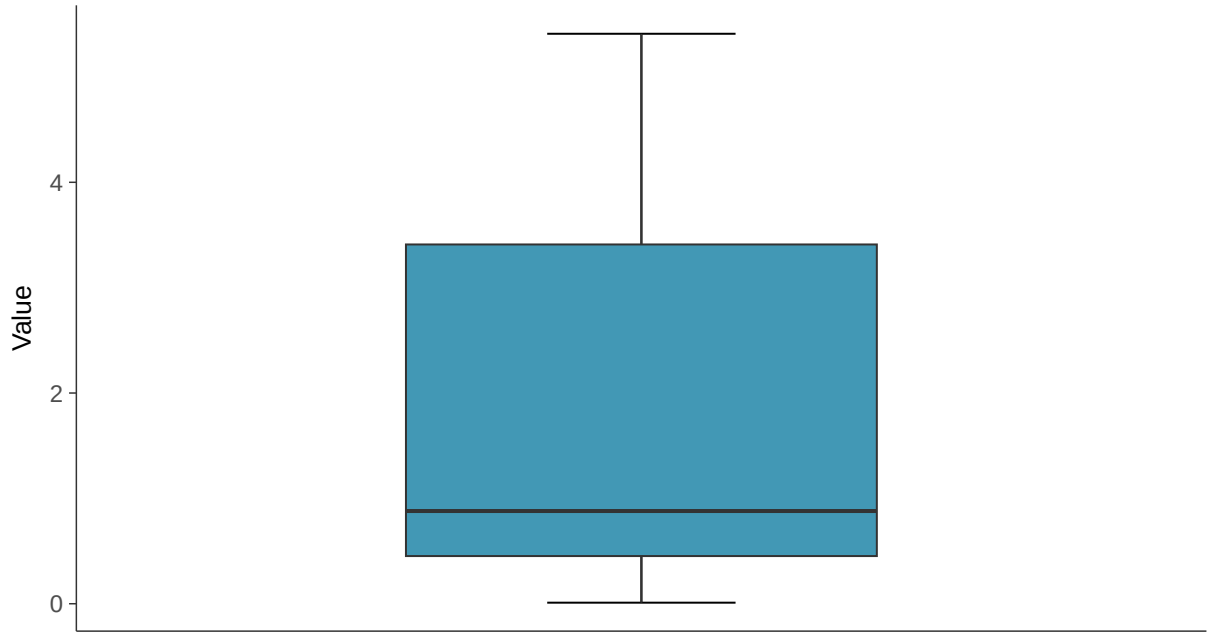
ID: 15_3_27





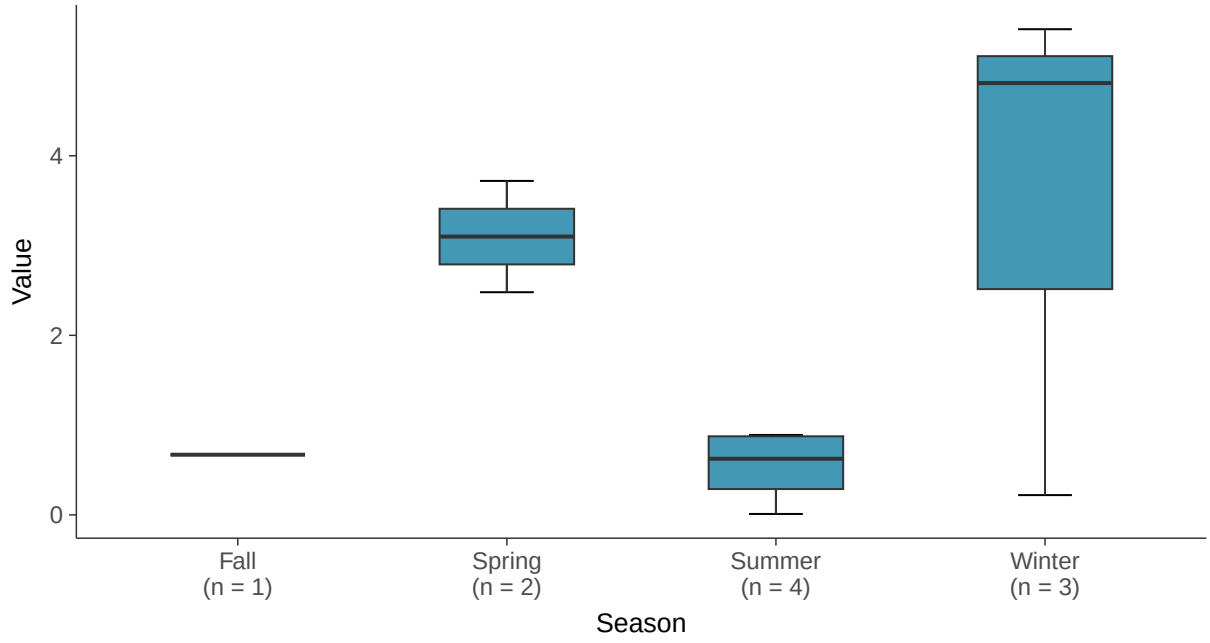
Boxplot

Dissolved Oxygen, MW-15 (mg/L)



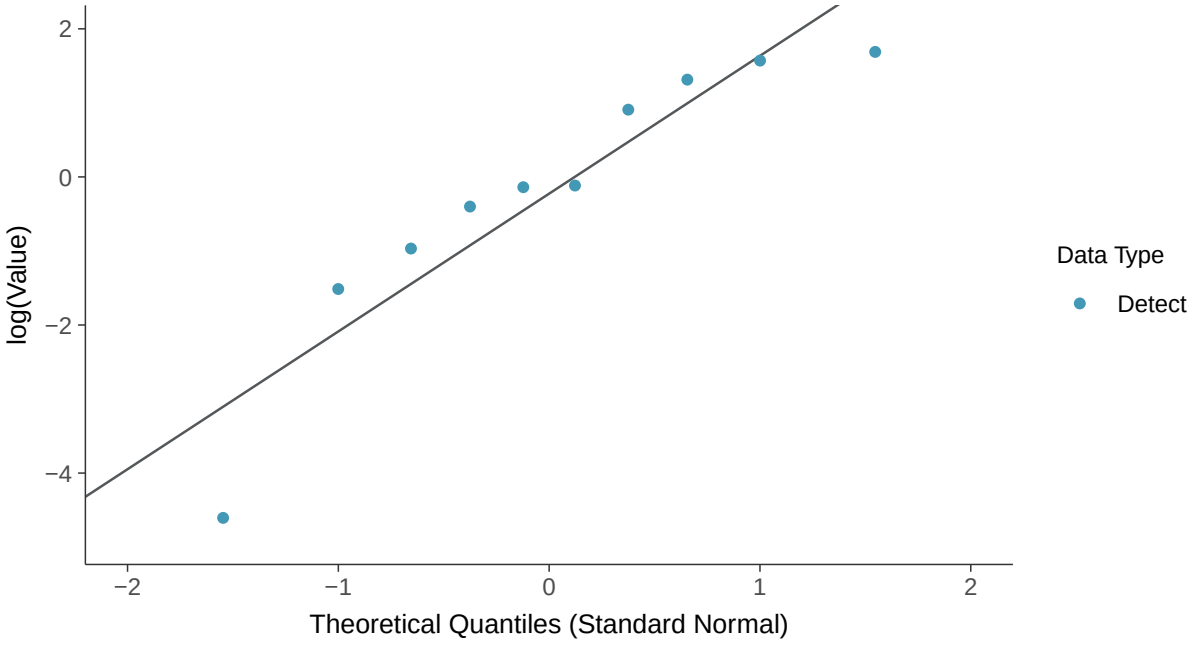
Boxplot by Season

Dissolved Oxygen, MW-15 (mg/L)



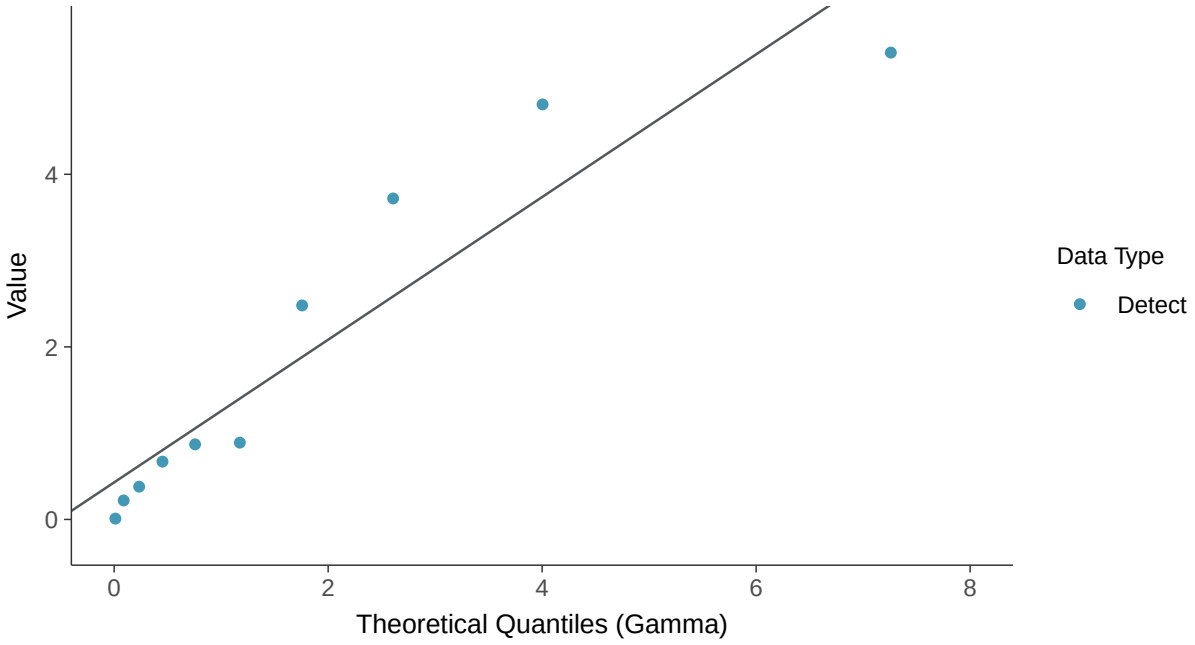
Lognormal Q-Q plot

Dissolved Oxygen, MW-15 (mg/L)



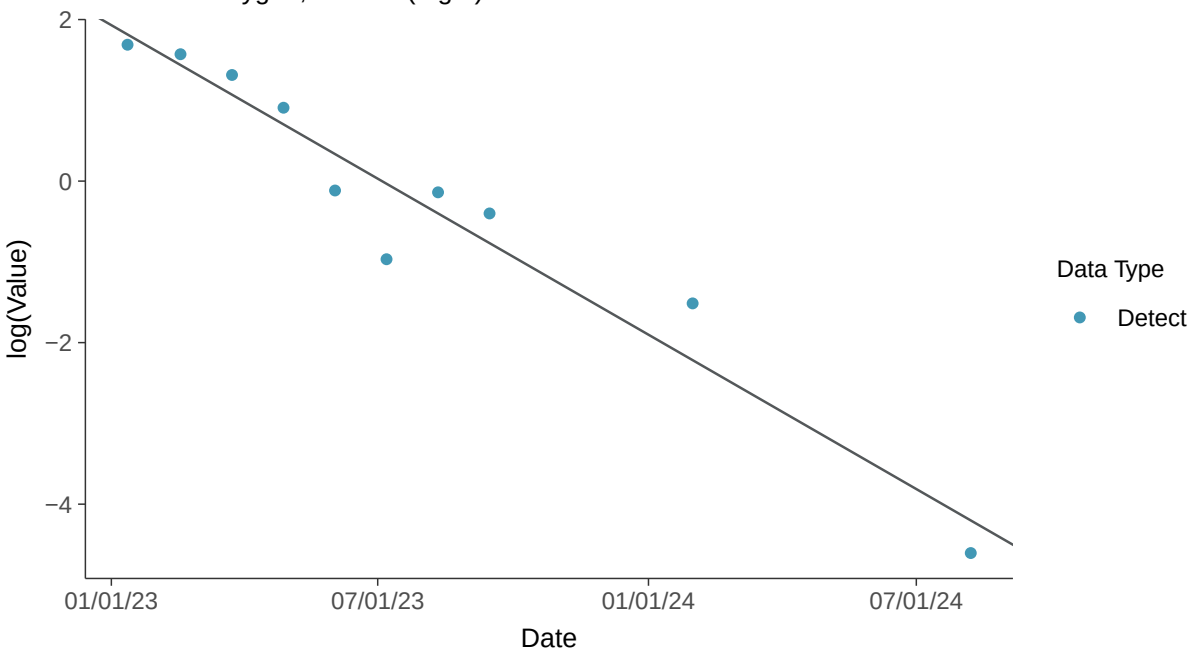
Gamma Q-Q plot

Dissolved Oxygen, MW-15 (mg/L)



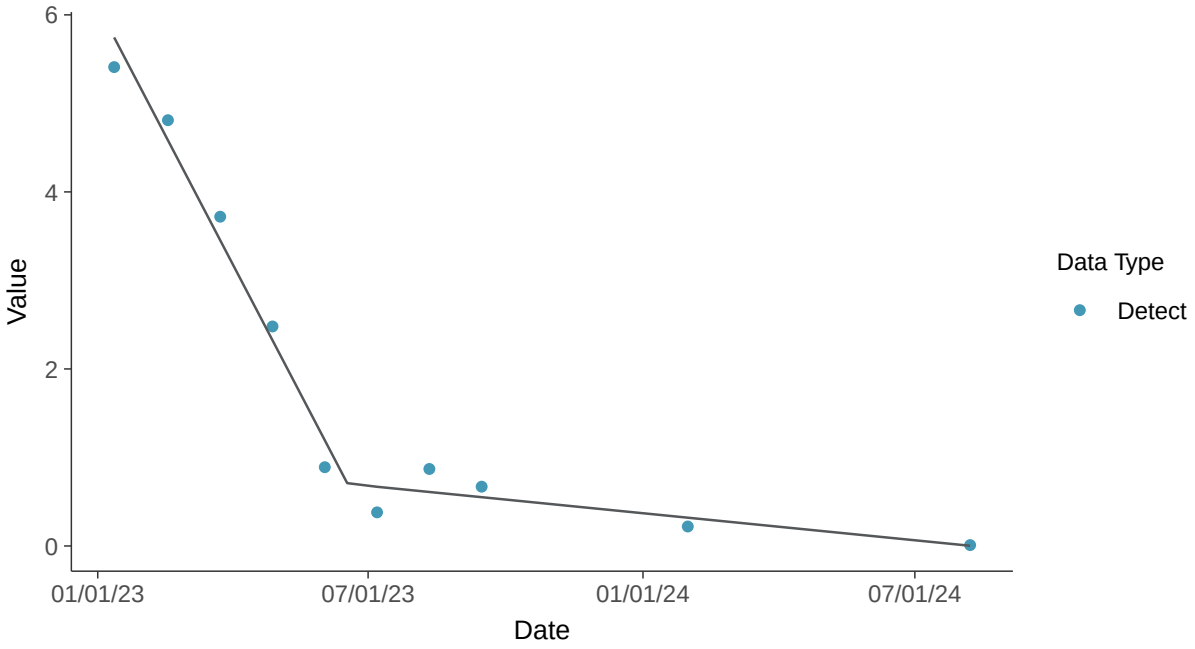
Trend Regression: Lognormal MLE

Dissolved Oxygen, MW-15 (mg/L)



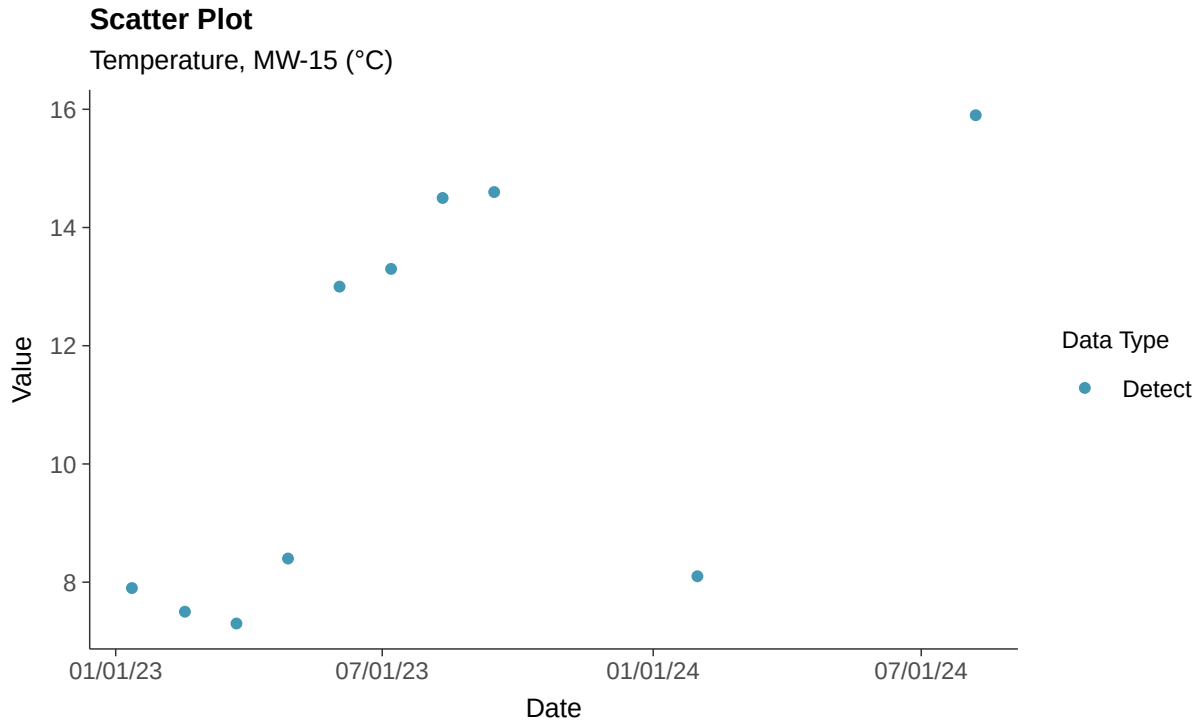
Trend Regression: Piecewise Linear-Linear

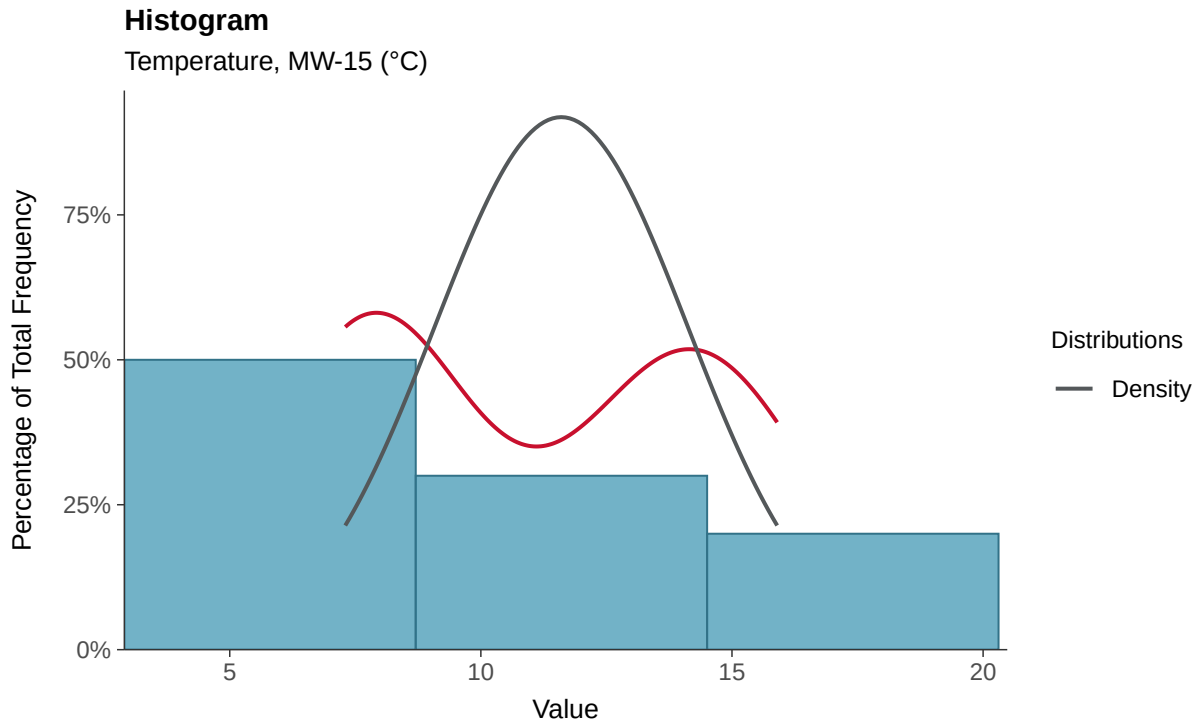
Dissolved Oxygen, MW-15 (mg/L)



Field Parameters: Temperature, MW-15

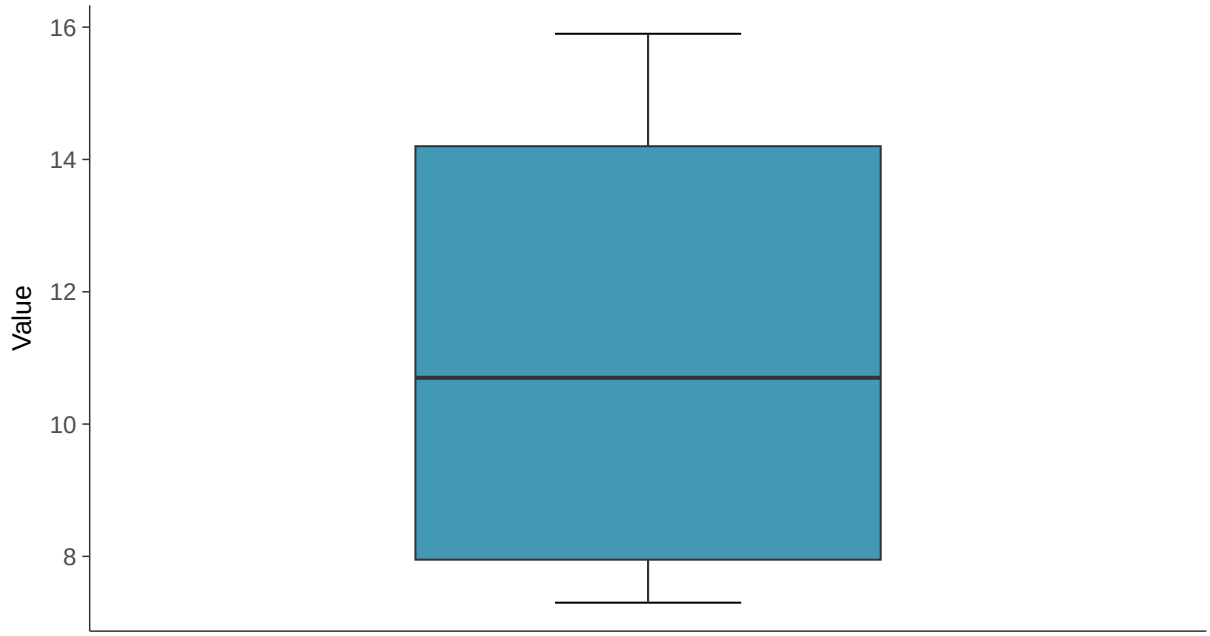
ID: 15_3_28





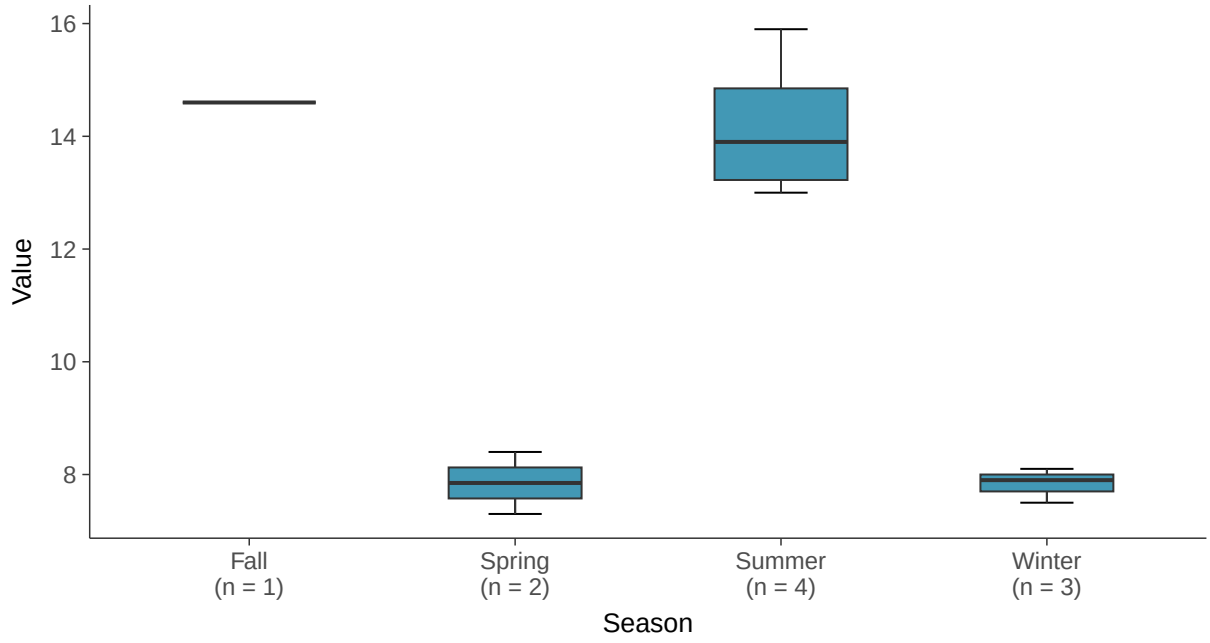
Boxplot

Temperature, MW-15 (°C)



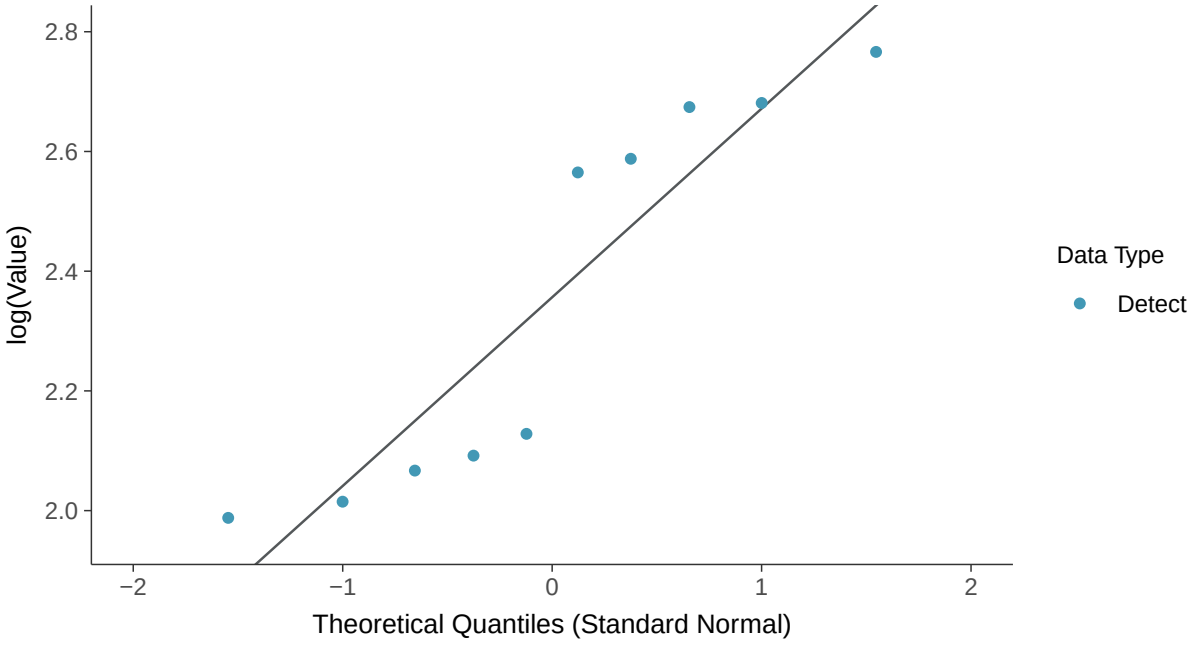
Boxplot by Season

Temperature, MW-15 (°C)



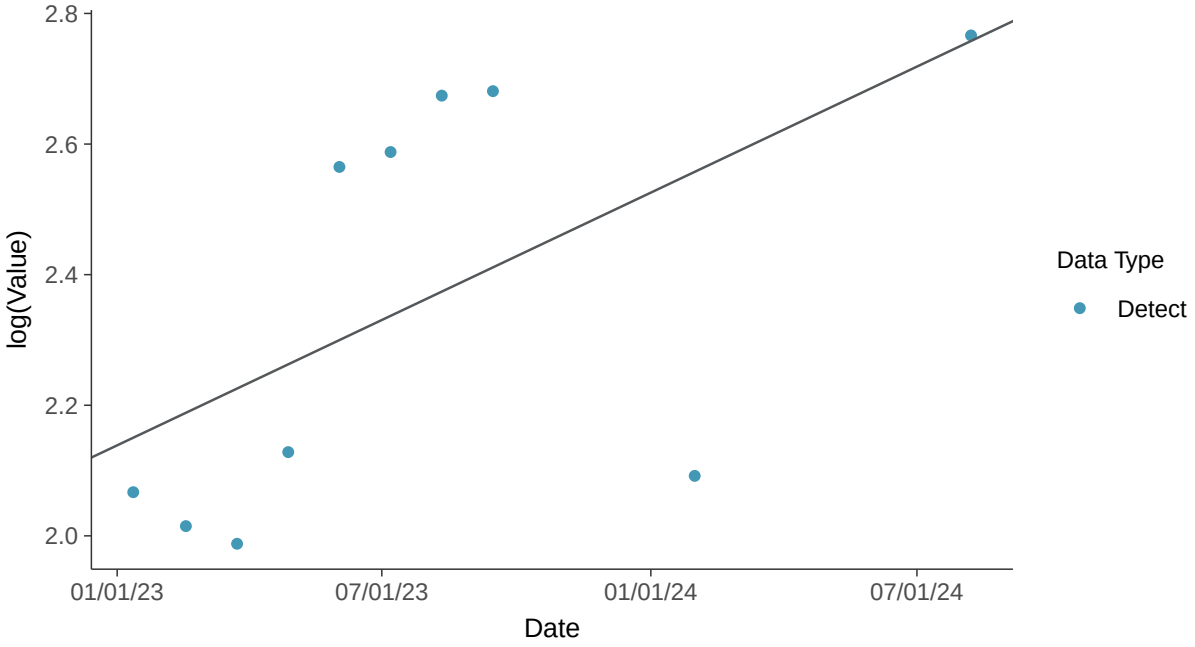
Lognormal Q-Q plot

Temperature, MW-15 (°C)



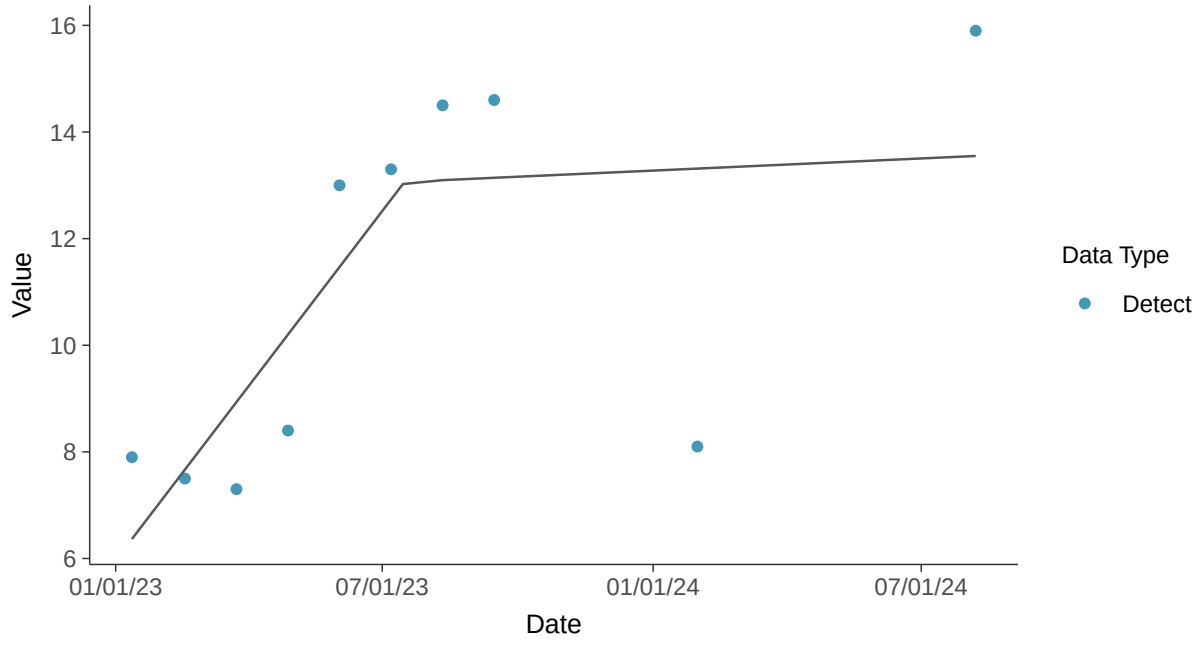
Trend Regression: Lognormal MLE

Temperature, MW-15 (°C)



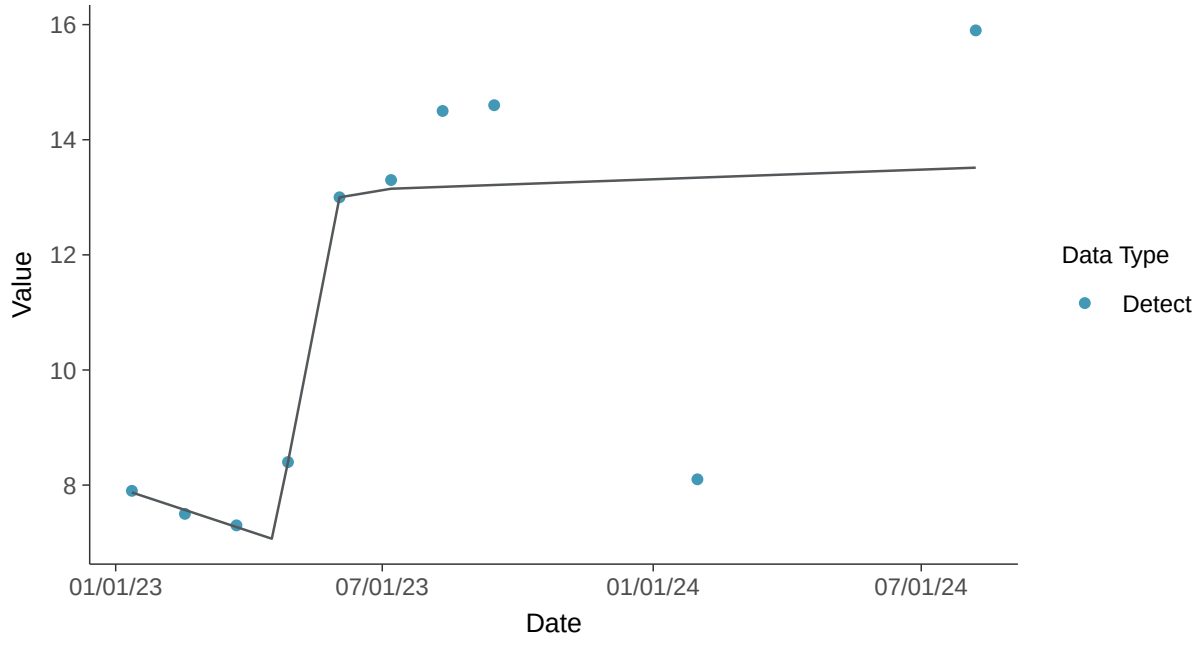
Trend Regression: Piecewise Linear-Linear

Temperature, MW-15 (°C)



Trend Regression: Piecewise Linear-Linear-Linear

Temperature, MW-15 (°C)

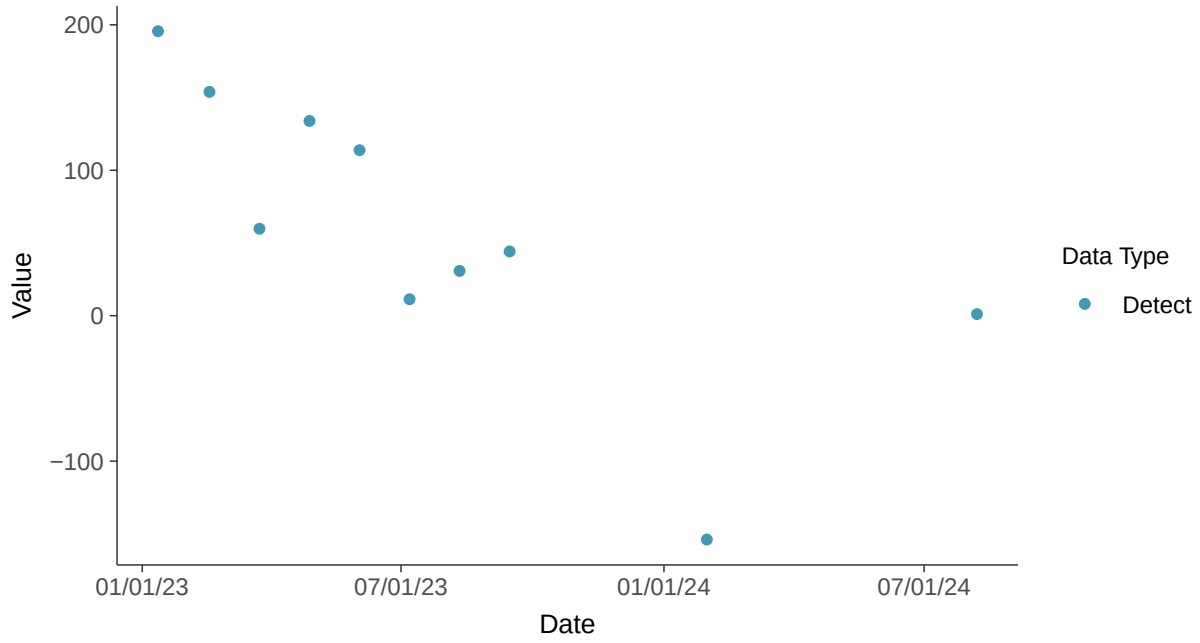


Field Parameters: Oxidation Reduction Potential, MW-15

ID: 15_3_29

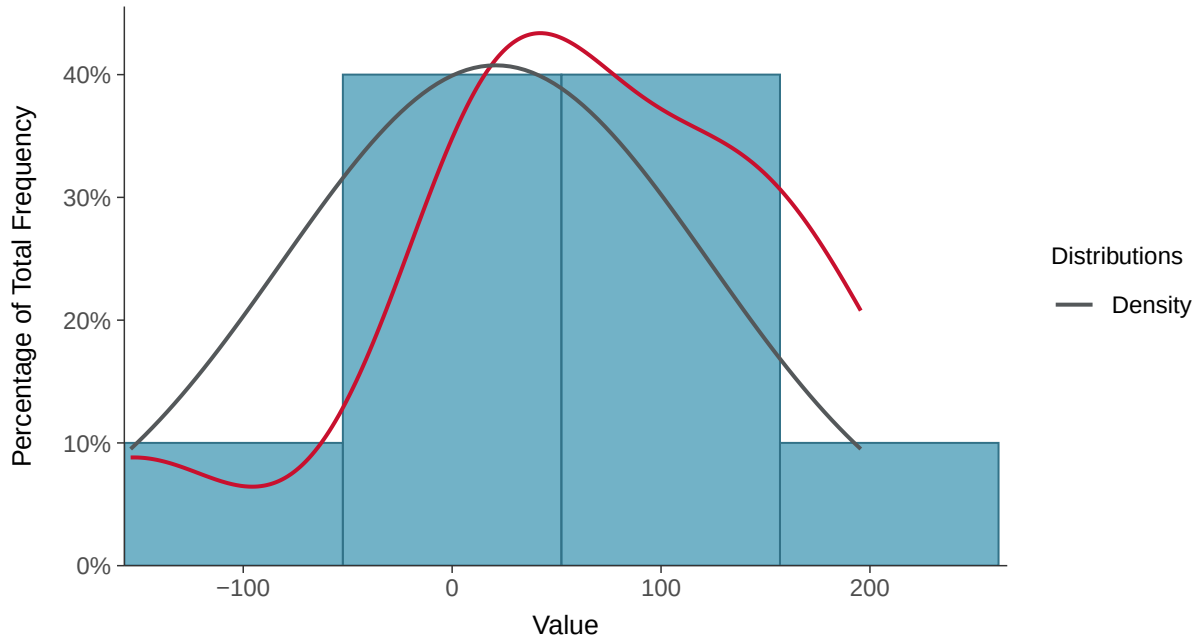
Scatter Plot

Oxidation Reduction Potential, MW-15 (mV)



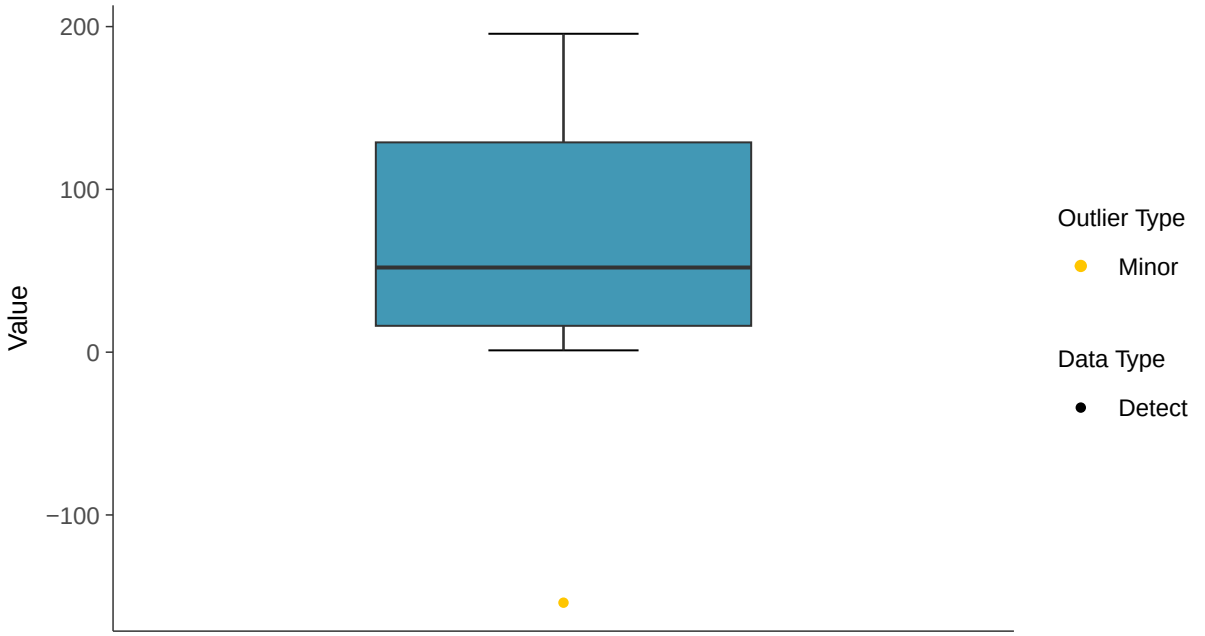
Histogram

Oxidation Reduction Potential, MW-15 (mV)



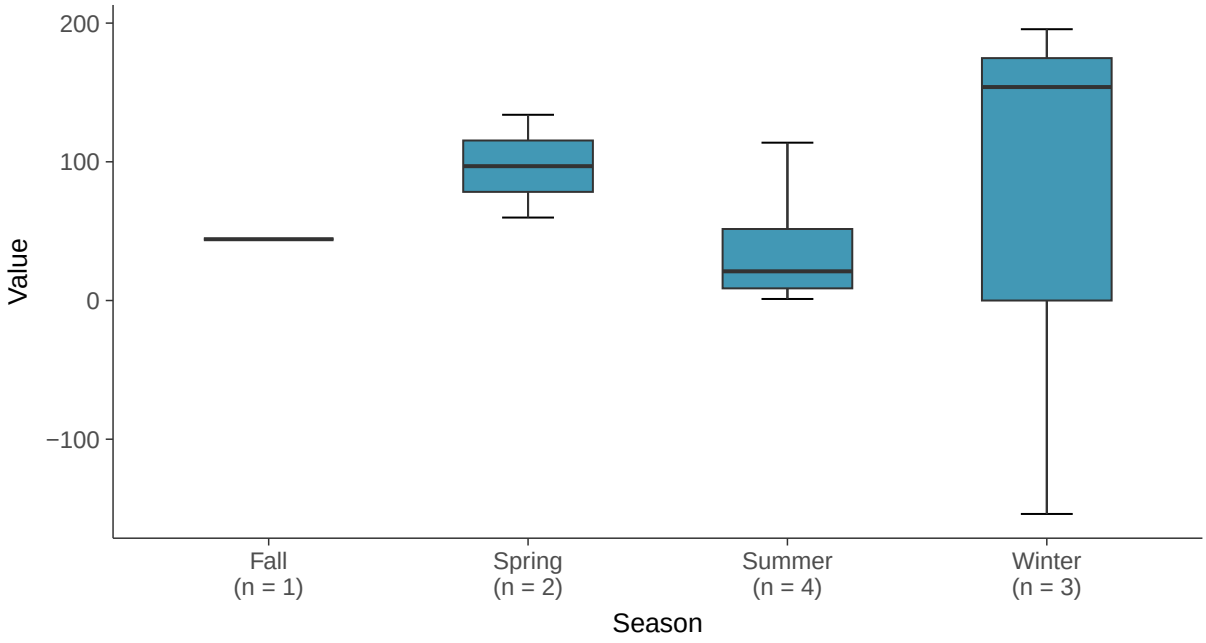
Boxplot

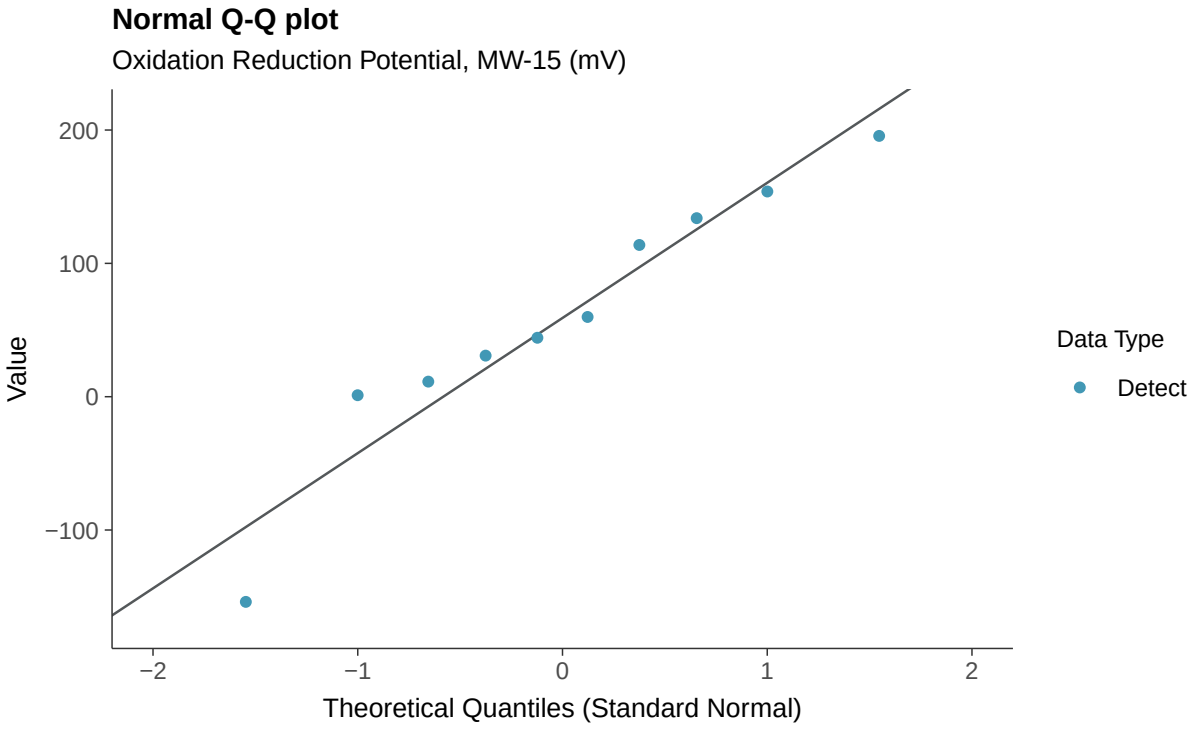
Oxidation Reduction Potential, MW-15 (mV)



Boxplot by Season

Oxidation Reduction Potential, MW-15 (mV)



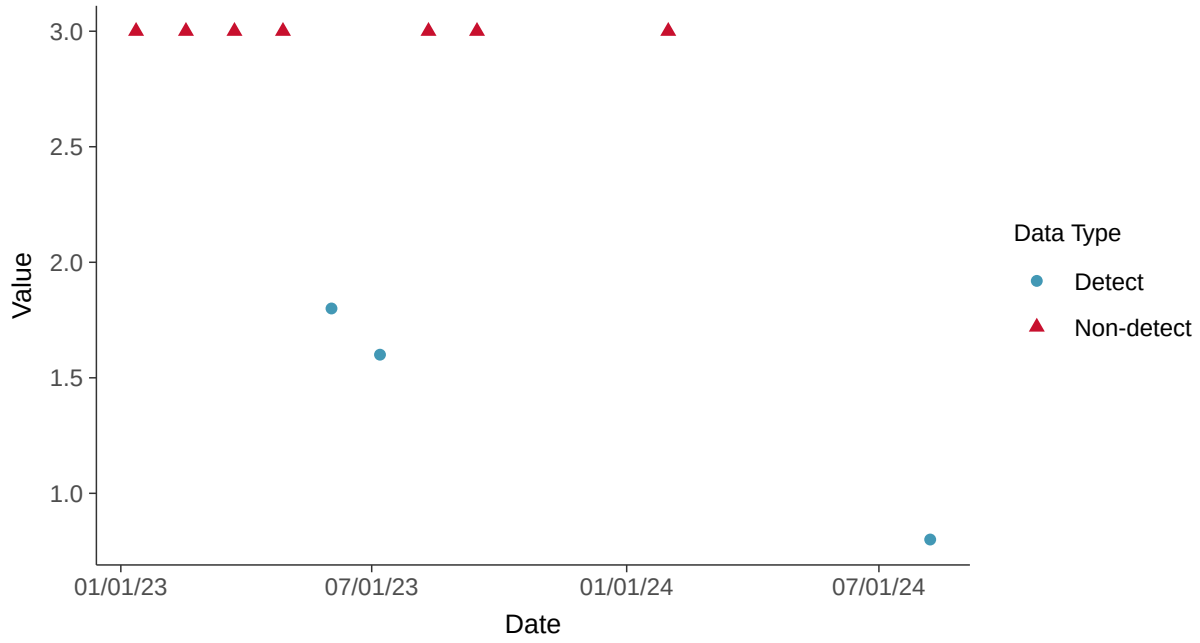

Normal Q-Q plot
Oxidation Reduction Potential, MW-15 (mV)
Value
200
100
0
−100
−2
−1
0
1
2
Theoretical Quantiles (Standard Normal)
Data Type
Detect

Other: Total Suspended Solids, MW-15

ID: 15_4_30

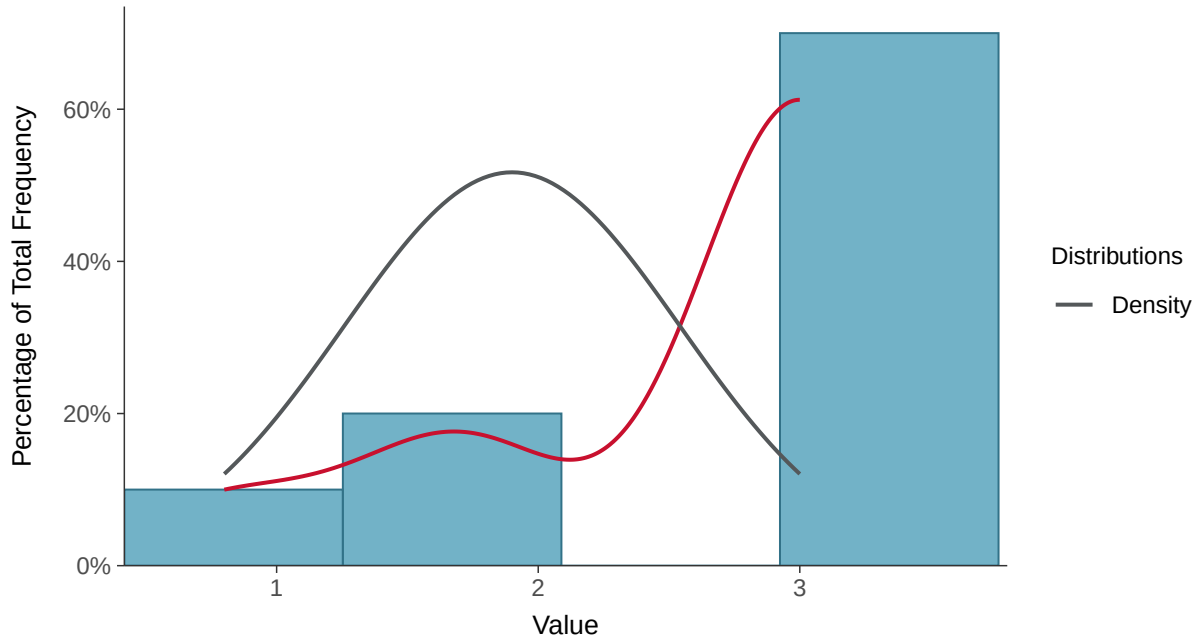
Scatter Plot

Total Suspended Solids, MW-15 (mg/L)



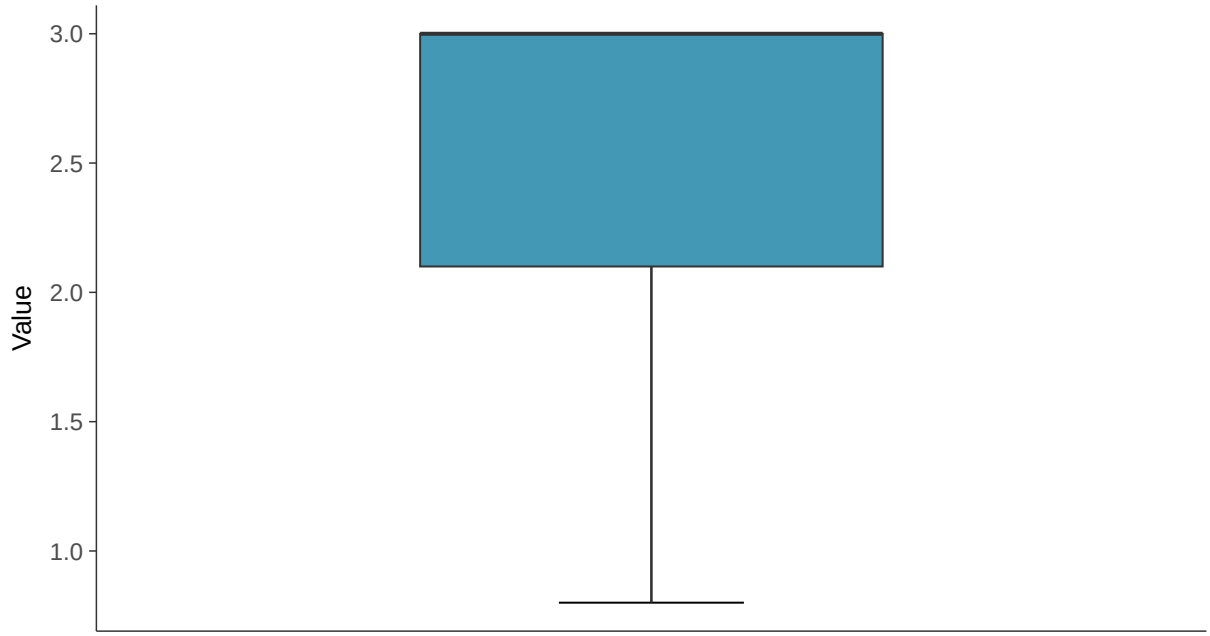
Histogram

Total Suspended Solids, MW-15 (mg/L)



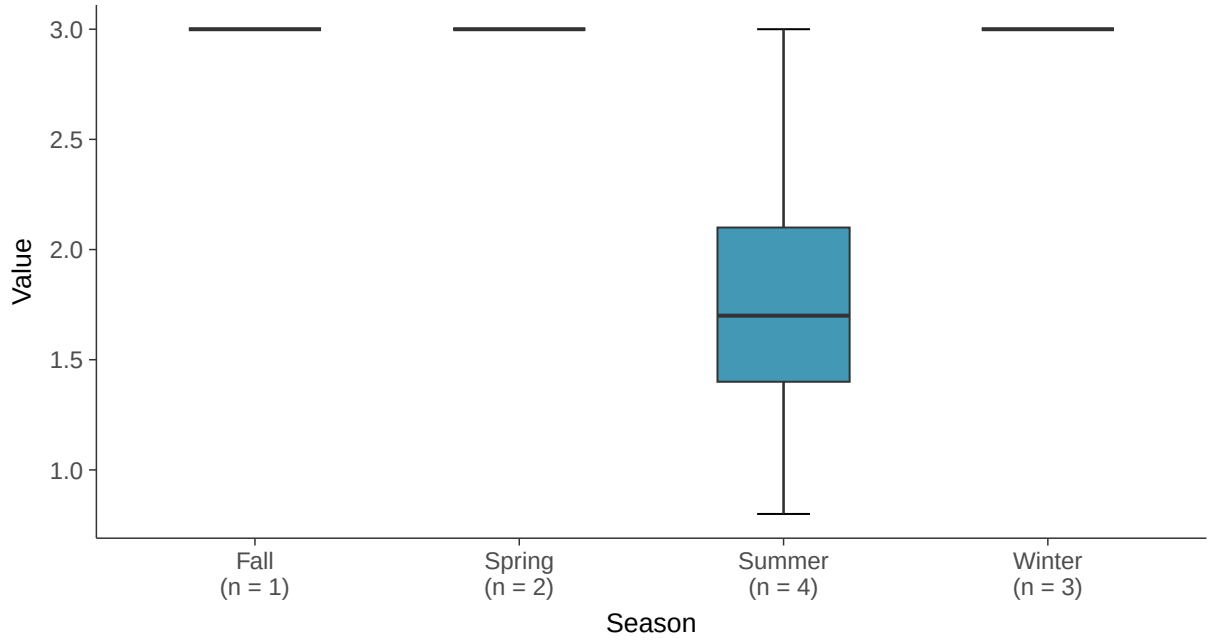
Boxplot

Total Suspended Solids, MW-15 (mg/L)



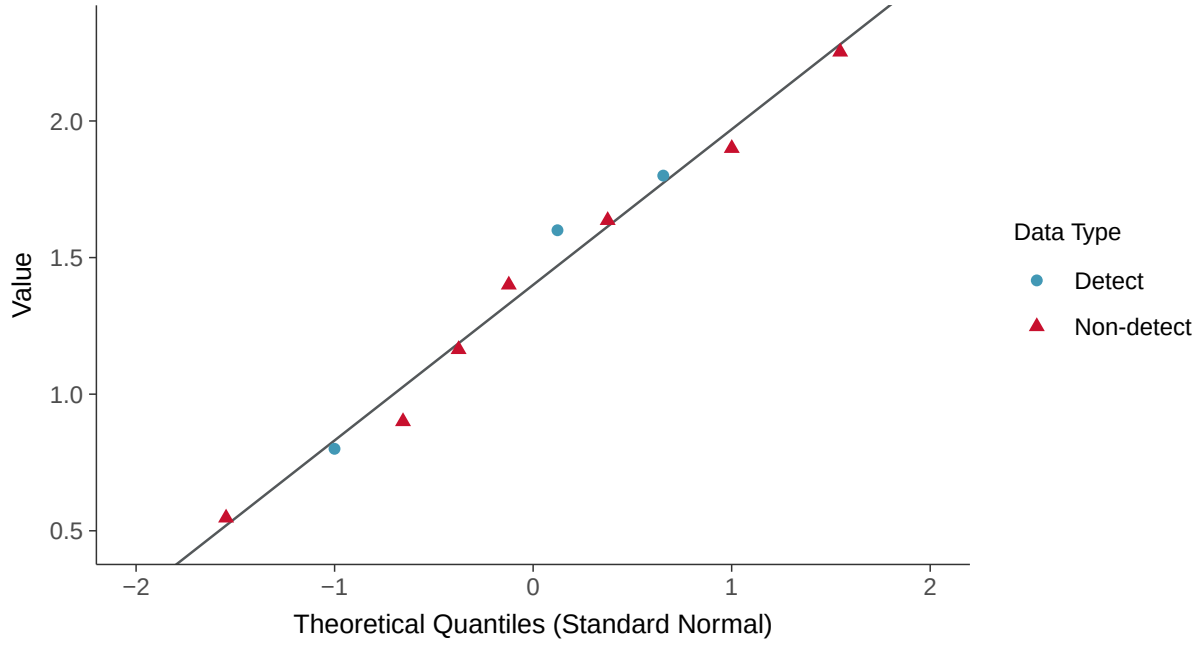
Boxplot by Season

Total Suspended Solids, MW-15 (mg/L)



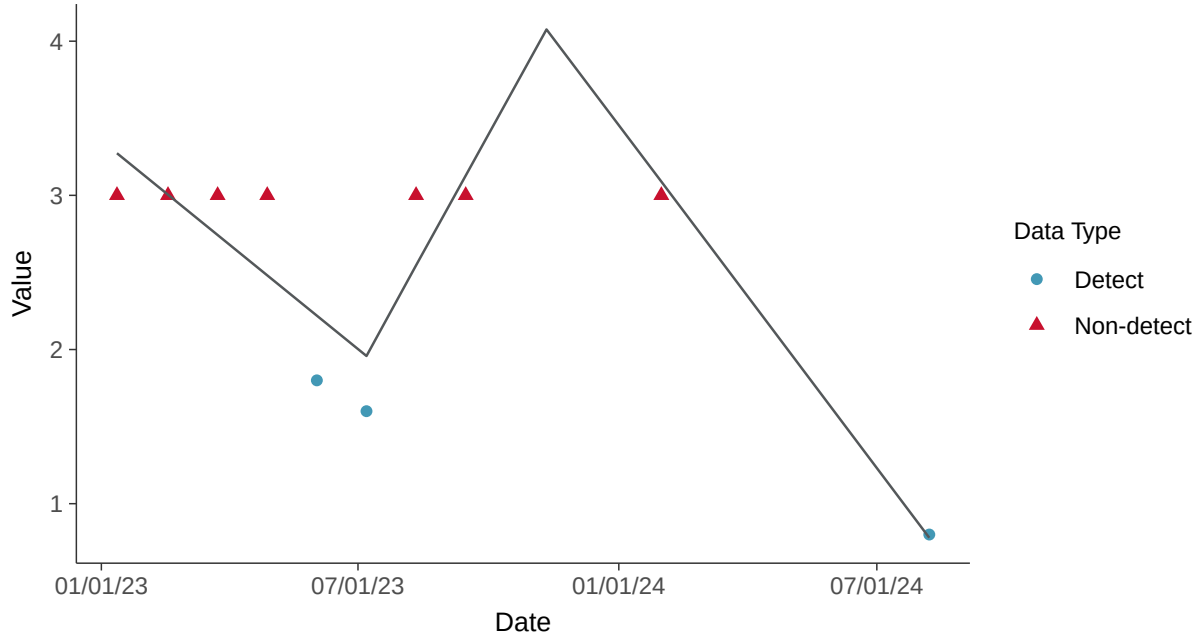
Normal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-15 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Total Suspended Solids, MW-15 (mg/L)

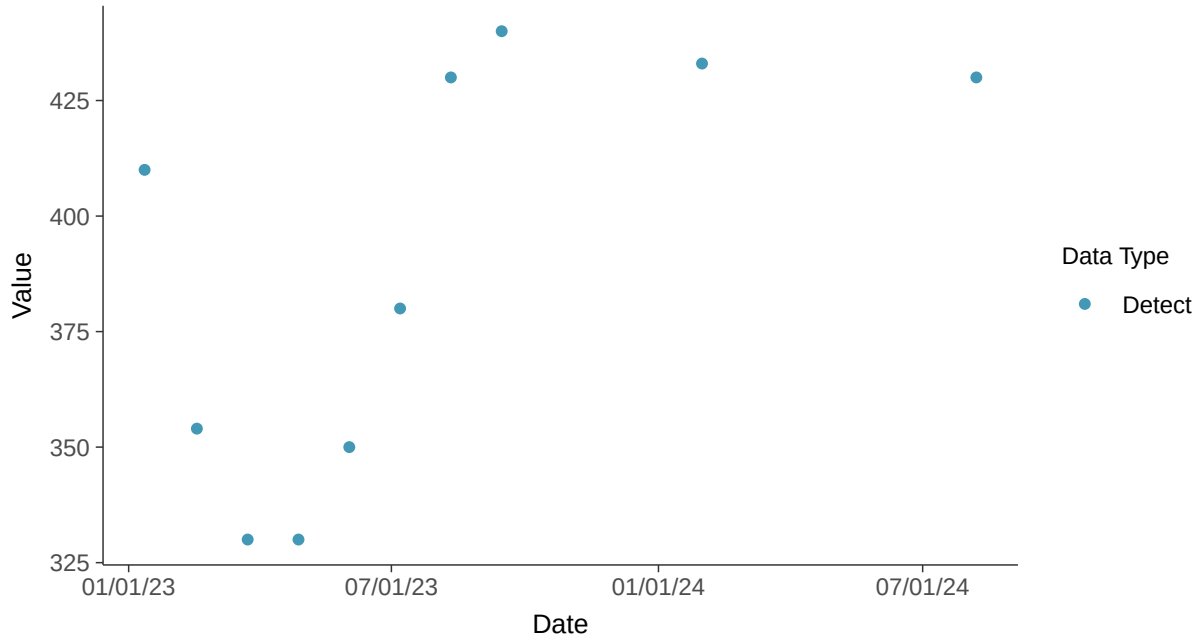


Other: Bicarbonate, MW-15

ID: 15_4_31

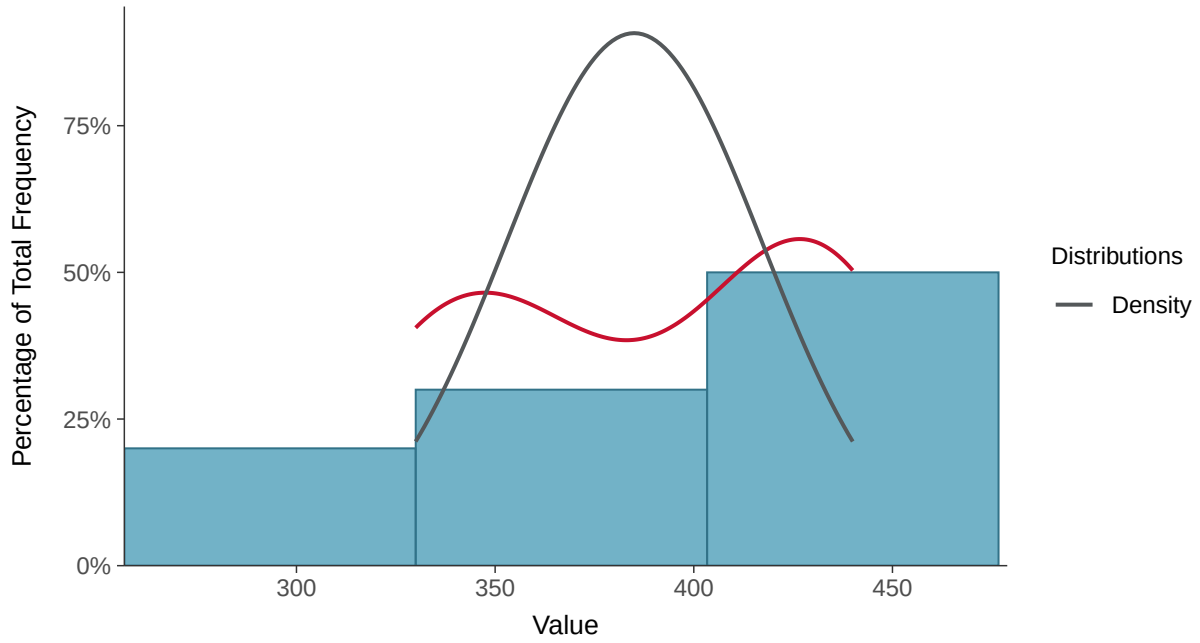
Scatter Plot

Bicarbonate, MW-15 (mg/L)



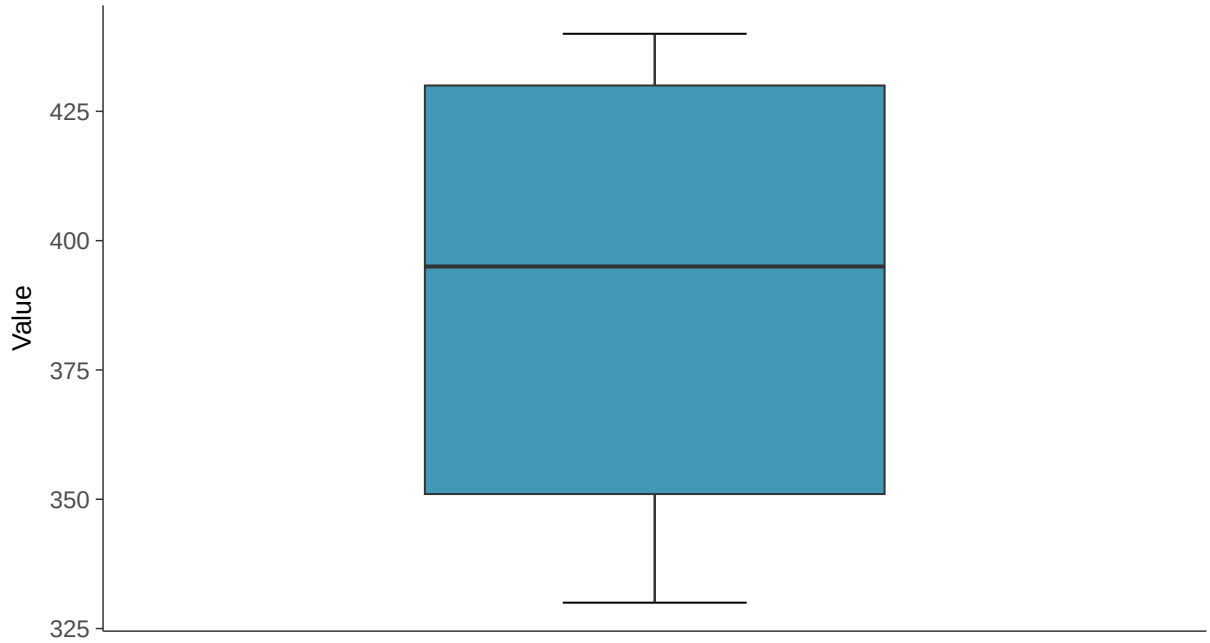
Histogram

Bicarbonate, MW-15 (mg/L)



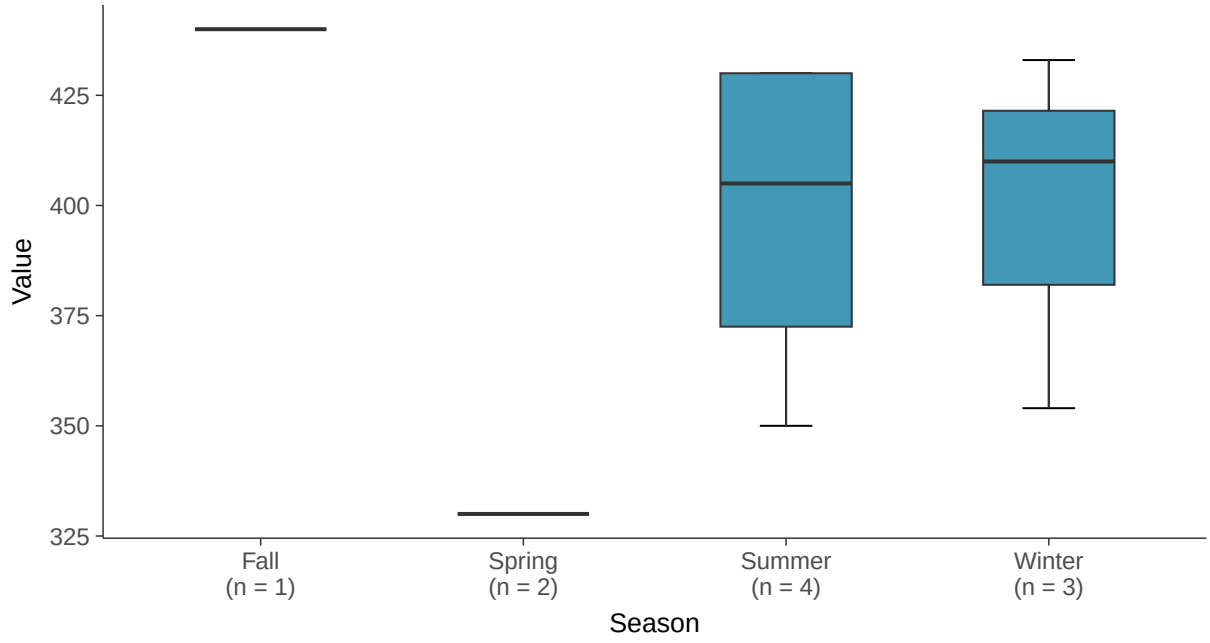
Boxplot

Bicarbonate, MW-15 (mg/L)



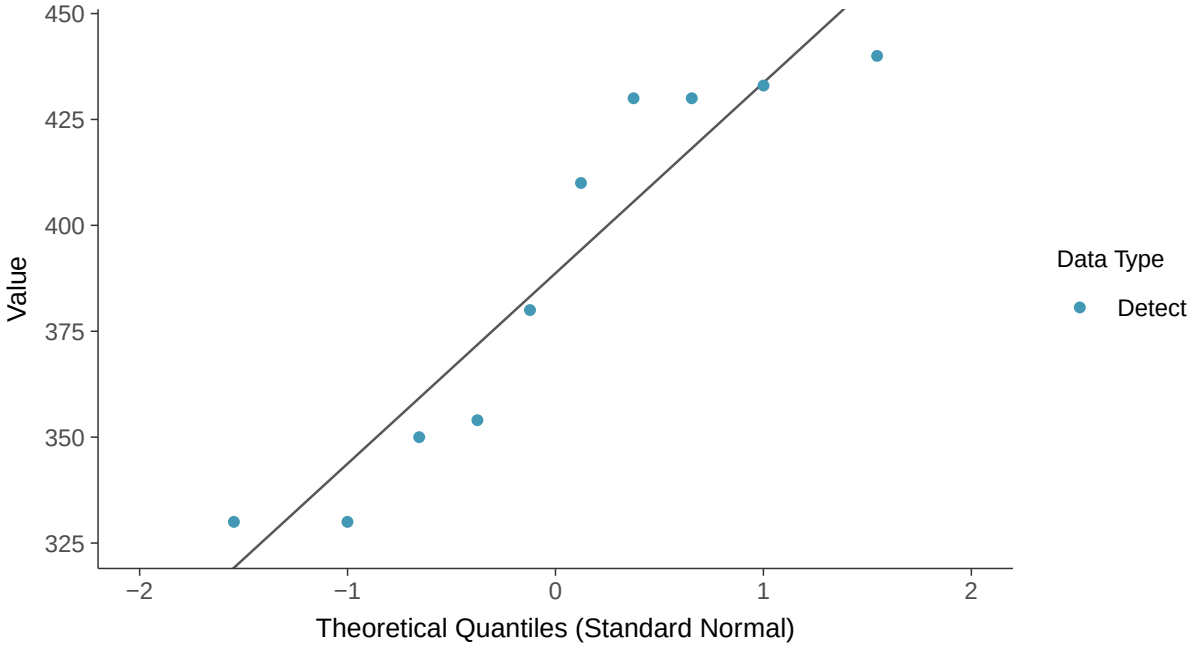
Boxplot by Season

Bicarbonate, MW-15 (mg/L)



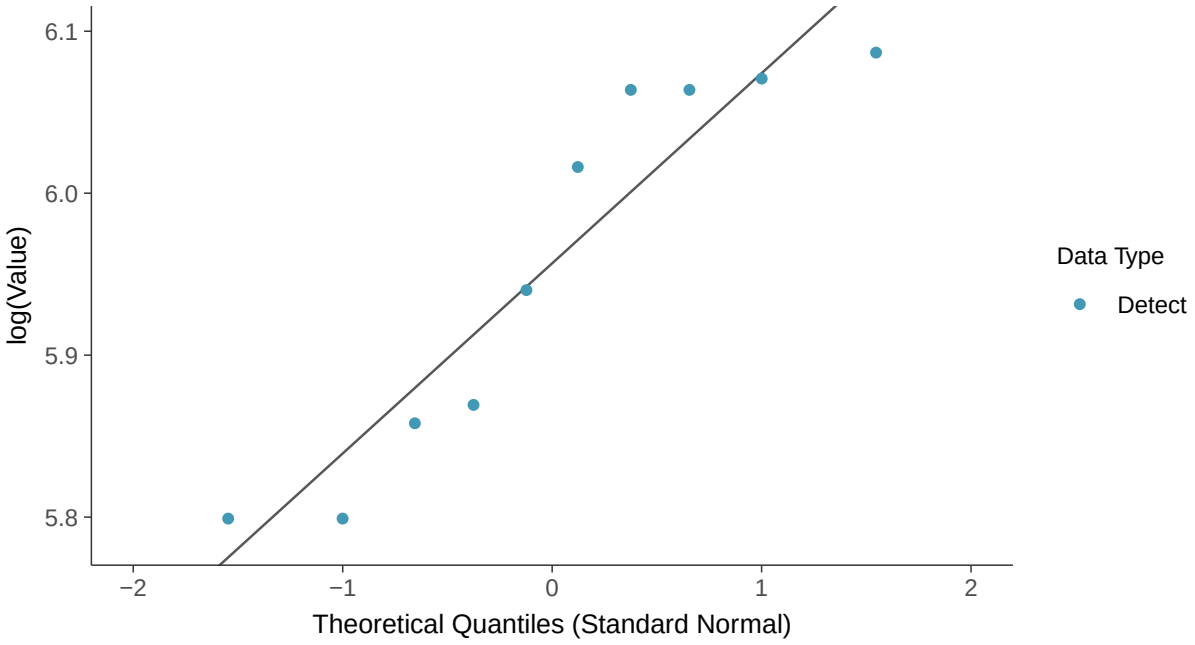
Normal Q-Q plot

Bicarbonate, MW-15 (mg/L)



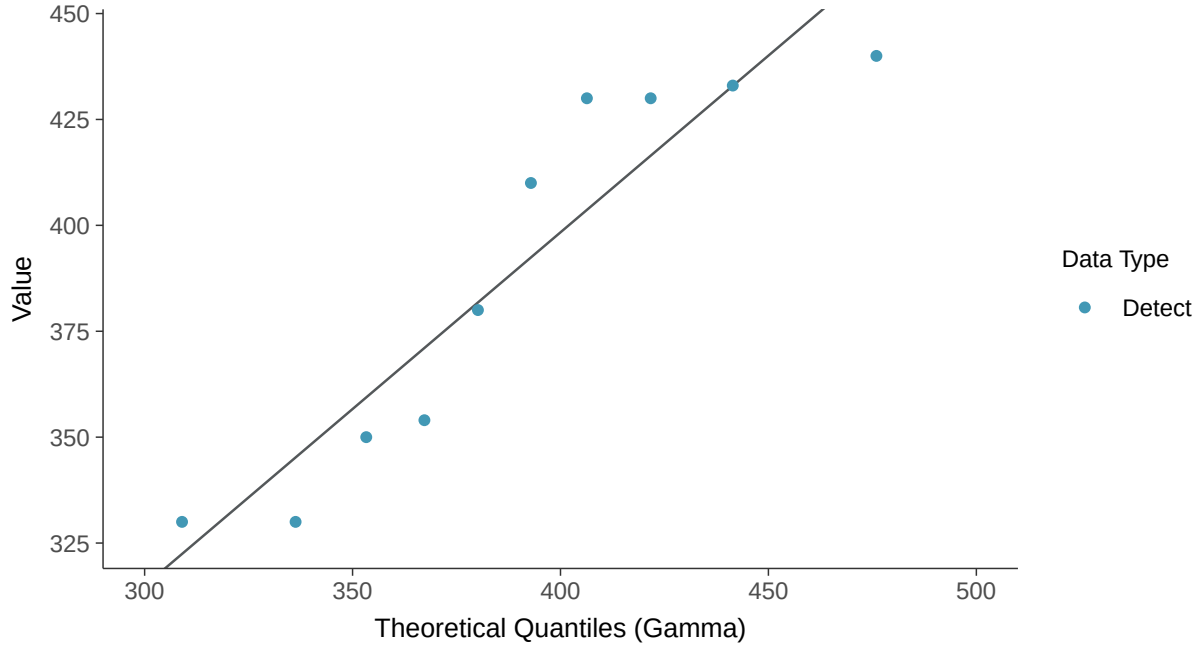
Lognormal Q-Q plot

Bicarbonate, MW-15 (mg/L)



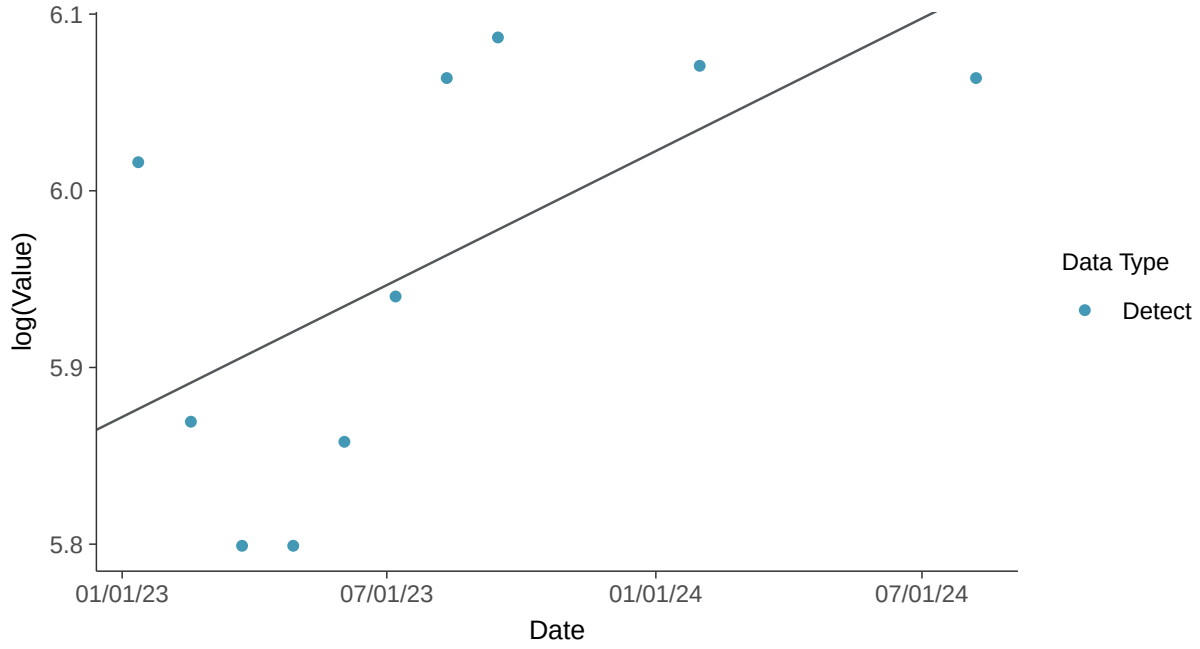
Gamma Q-Q plot

Bicarbonate, MW-15 (mg/L)



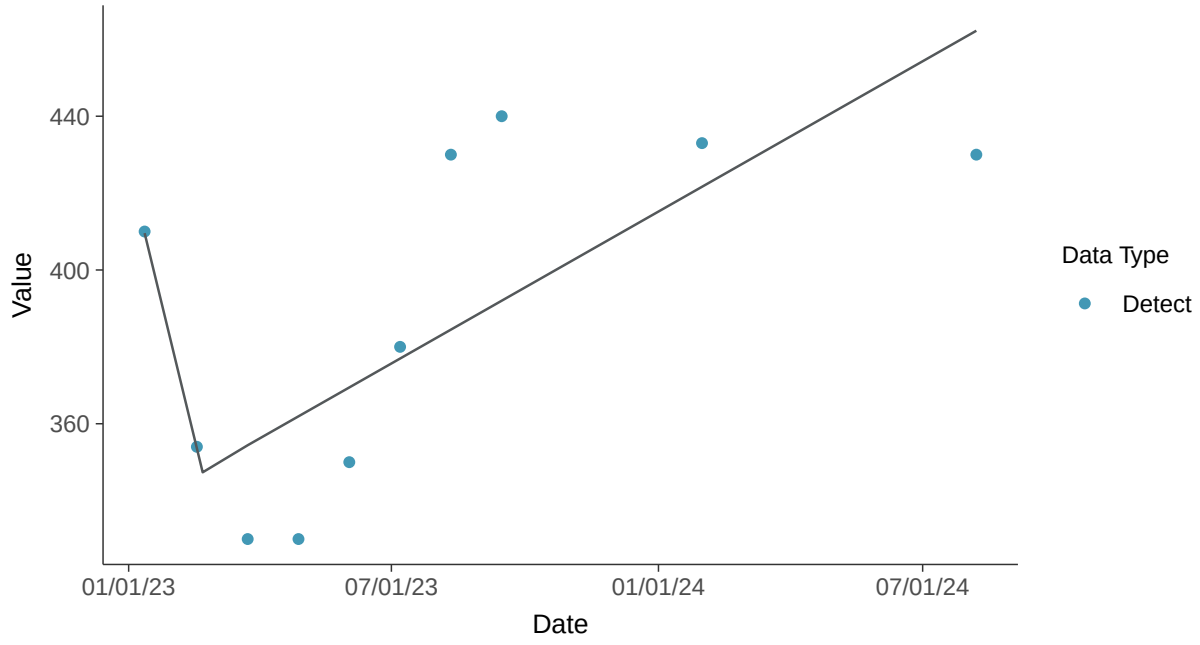
Trend Regression: Lognormal MLE

Bicarbonate, MW-15 (mg/L)



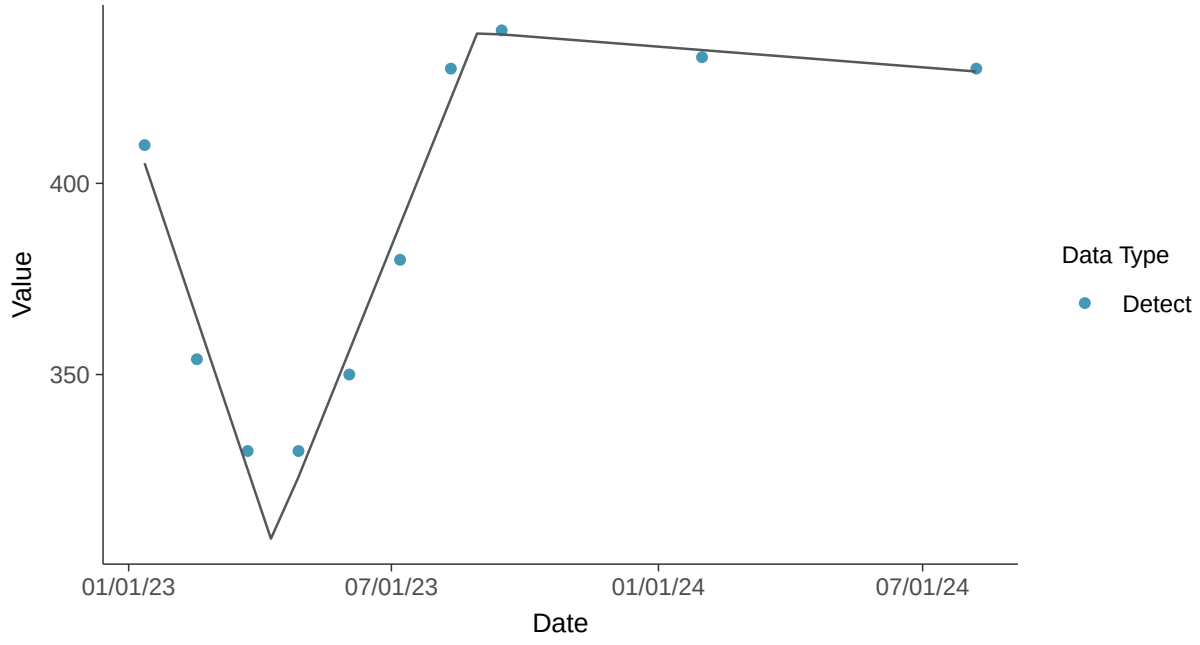
Trend Regression: Piecewise Linear-Linear

Bicarbonate, MW-15 (mg/L)



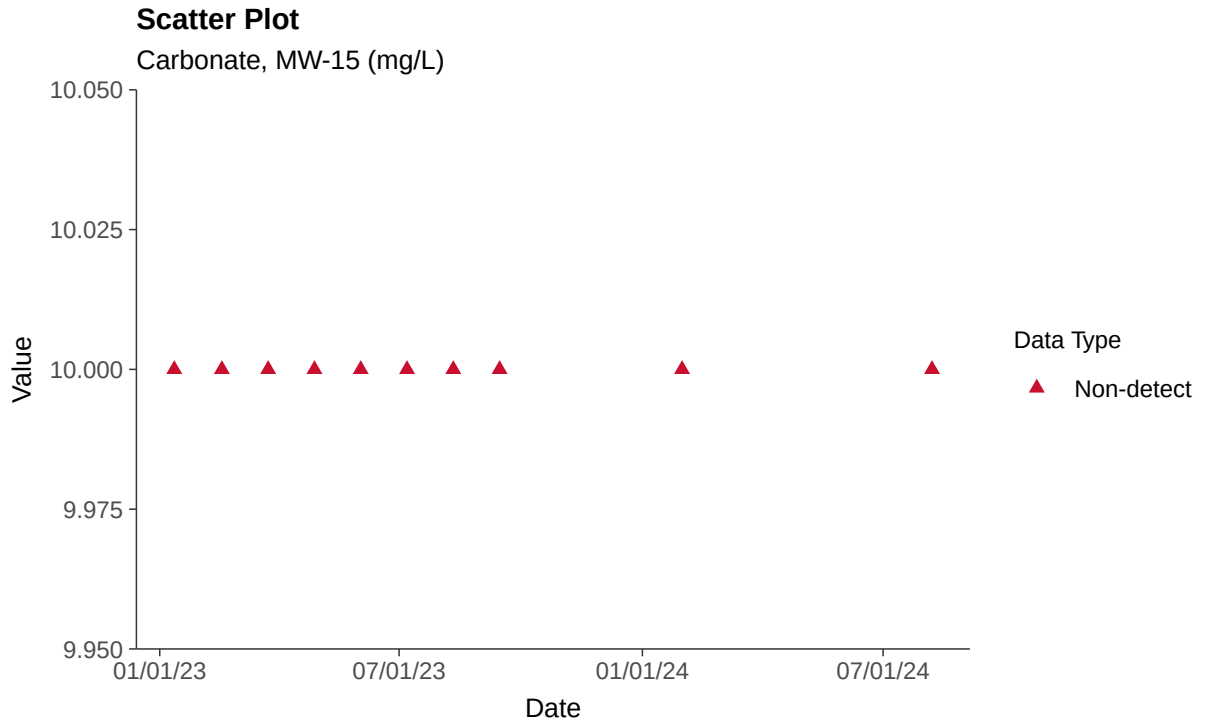
Trend Regression: Piecewise Linear-Linear-Linear

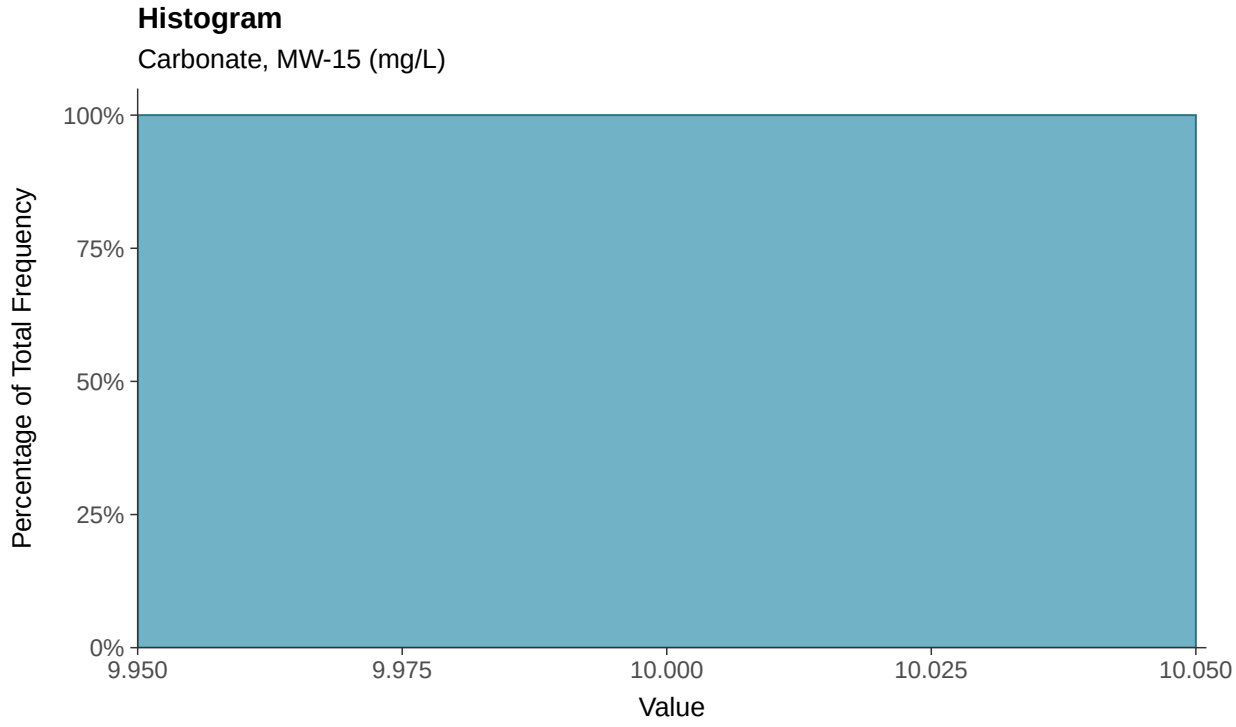
Bicarbonate, MW-15 (mg/L)



Other: Carbonate, MW-15

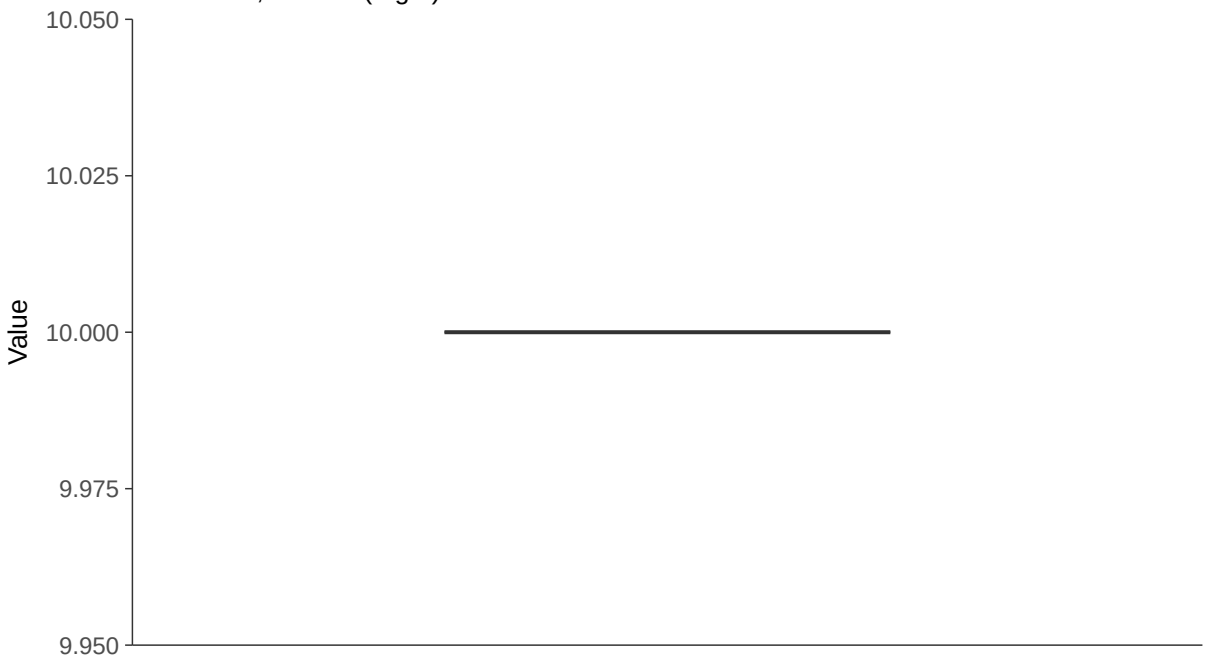
ID: 15_4_32





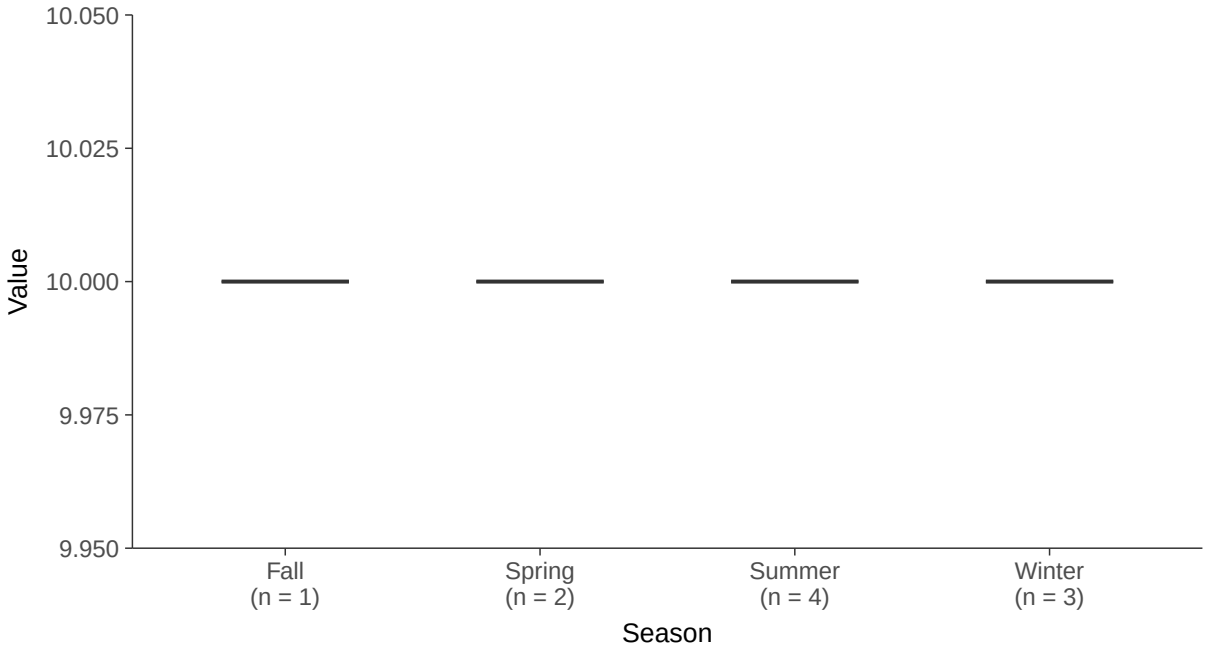
Boxplot

Carbonate, MW-15 (mg/L)



Boxplot by Season

Carbonate, MW-15 (mg/L)

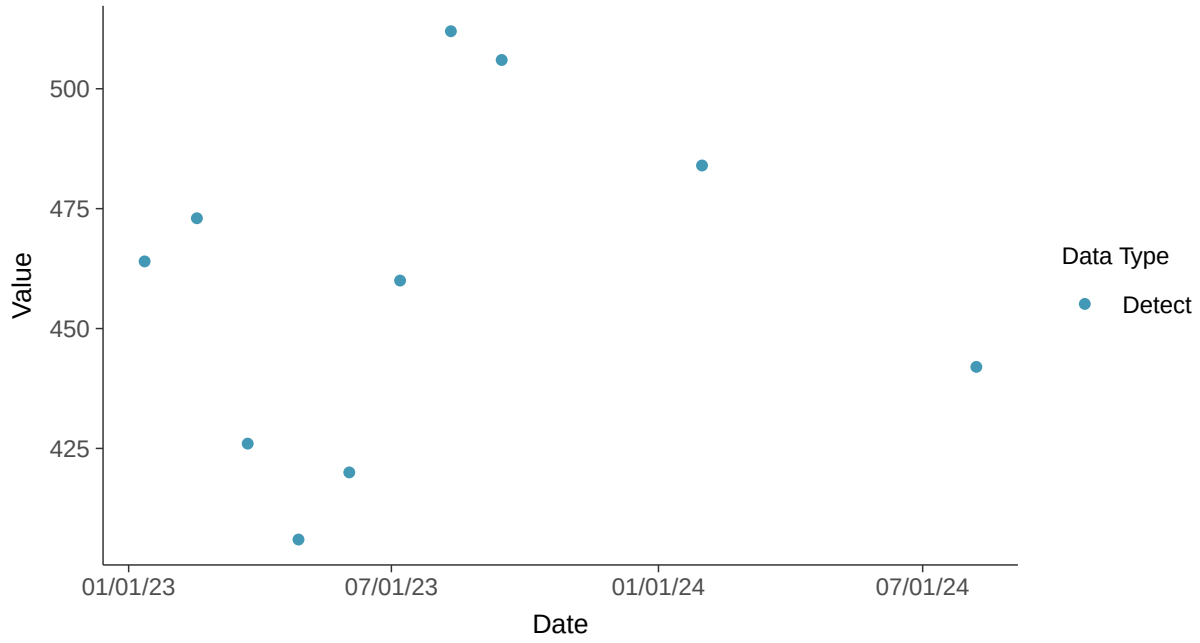


Other: Hardness, MW-15

ID: 15_4_33

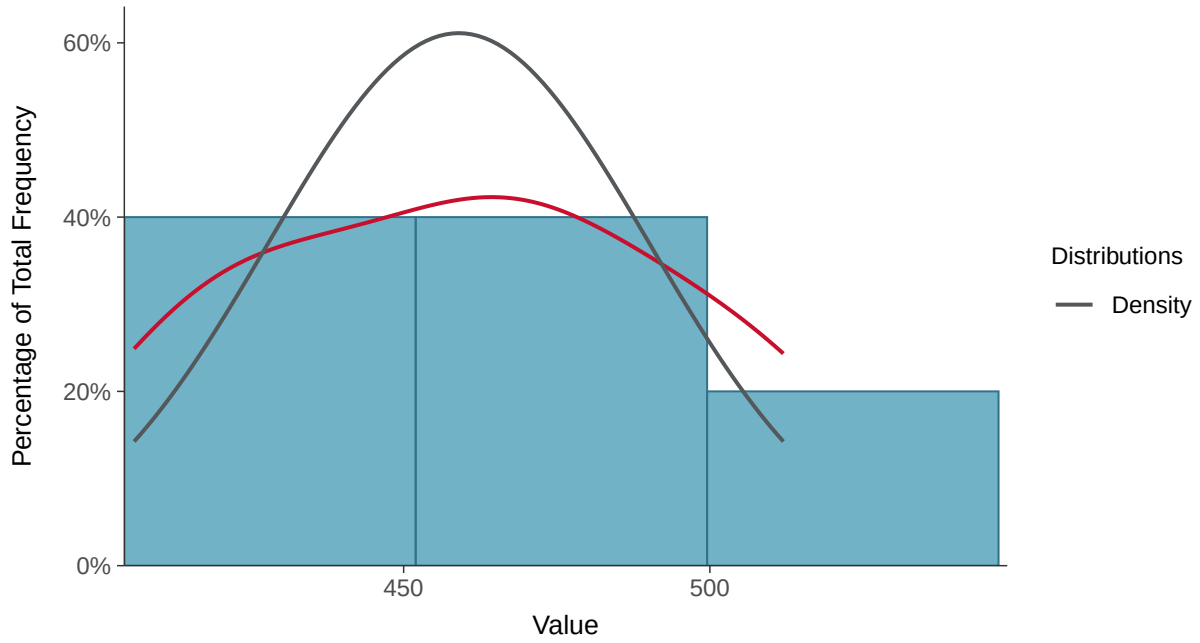
Scatter Plot

Hardness, MW-15 (mg/L)



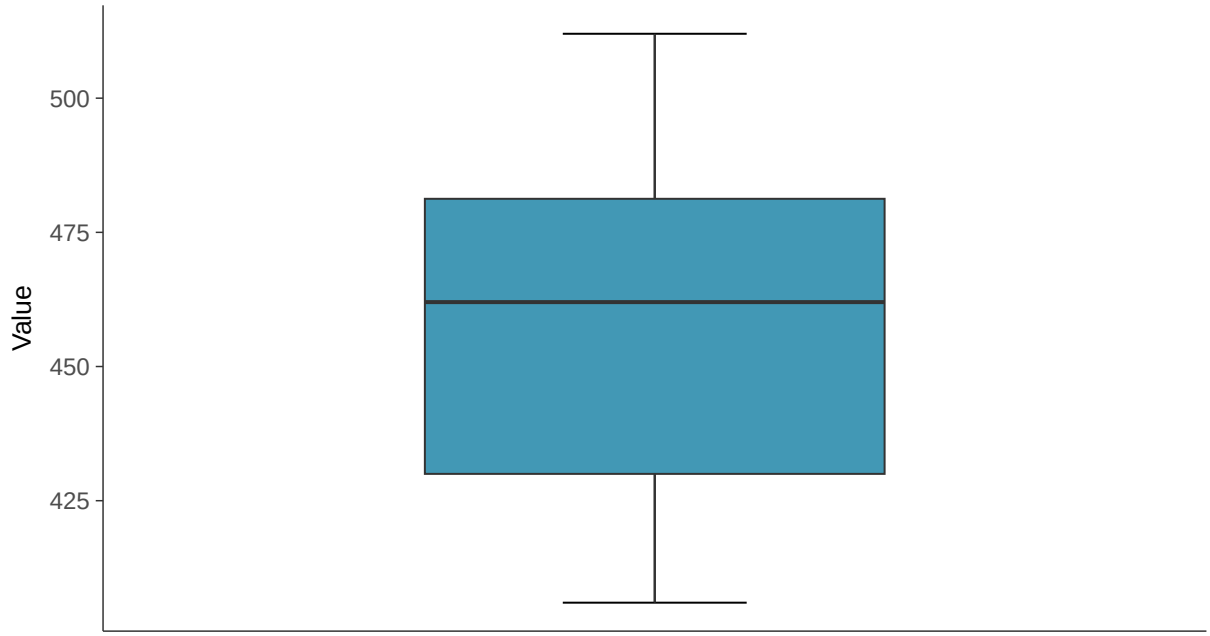
Histogram

Hardness, MW-15 (mg/L)



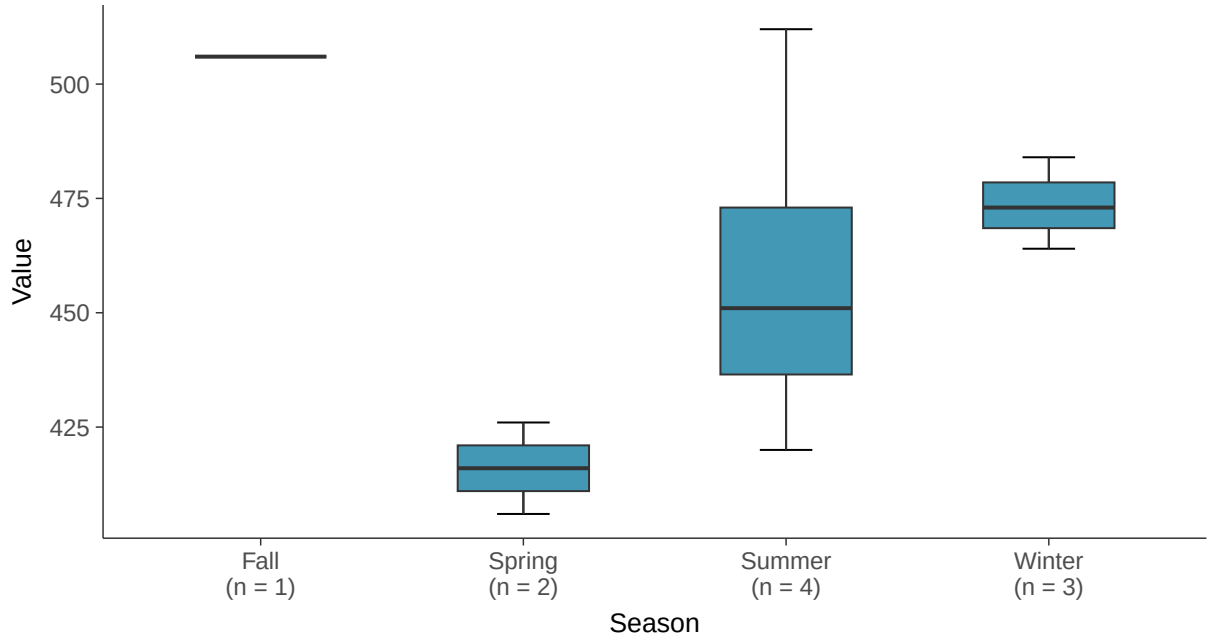
Boxplot

Hardness, MW-15 (mg/L)



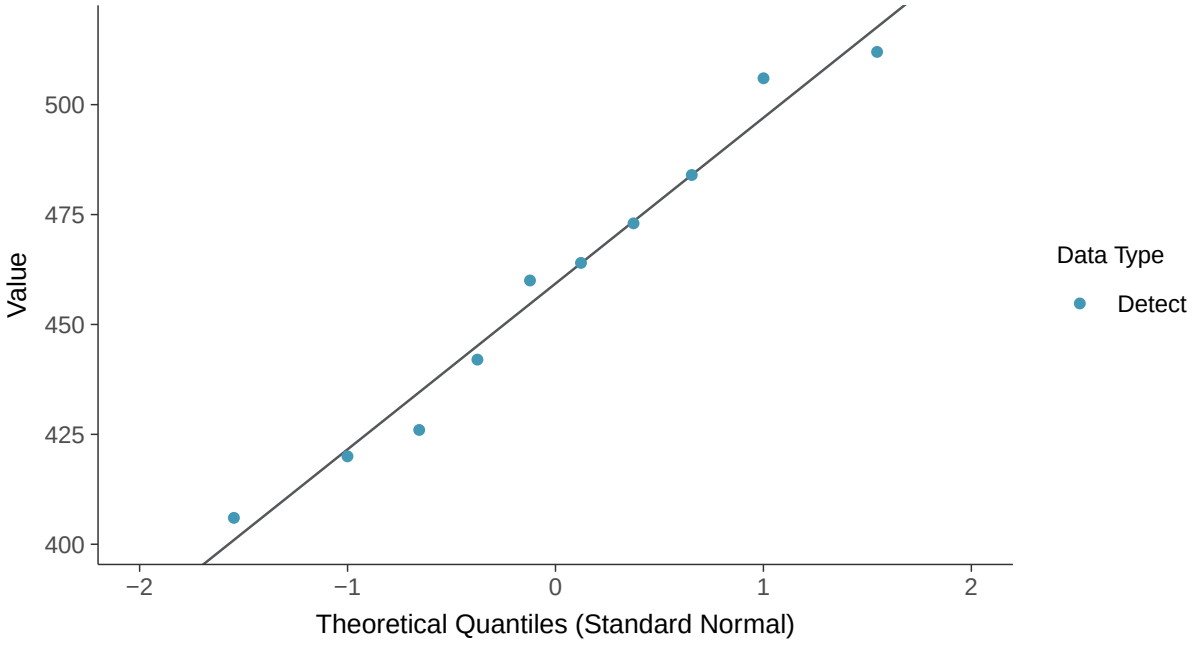
Boxplot by Season

Hardness, MW-15 (mg/L)



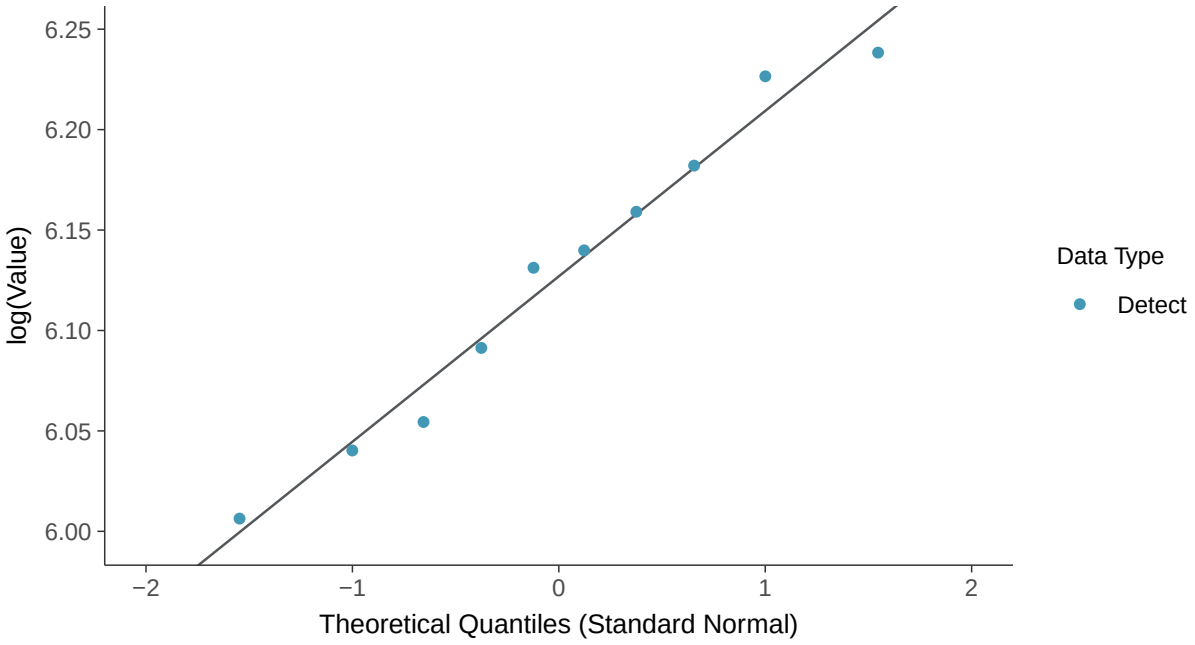
Normal Q-Q plot

Hardness, MW-15 (mg/L)



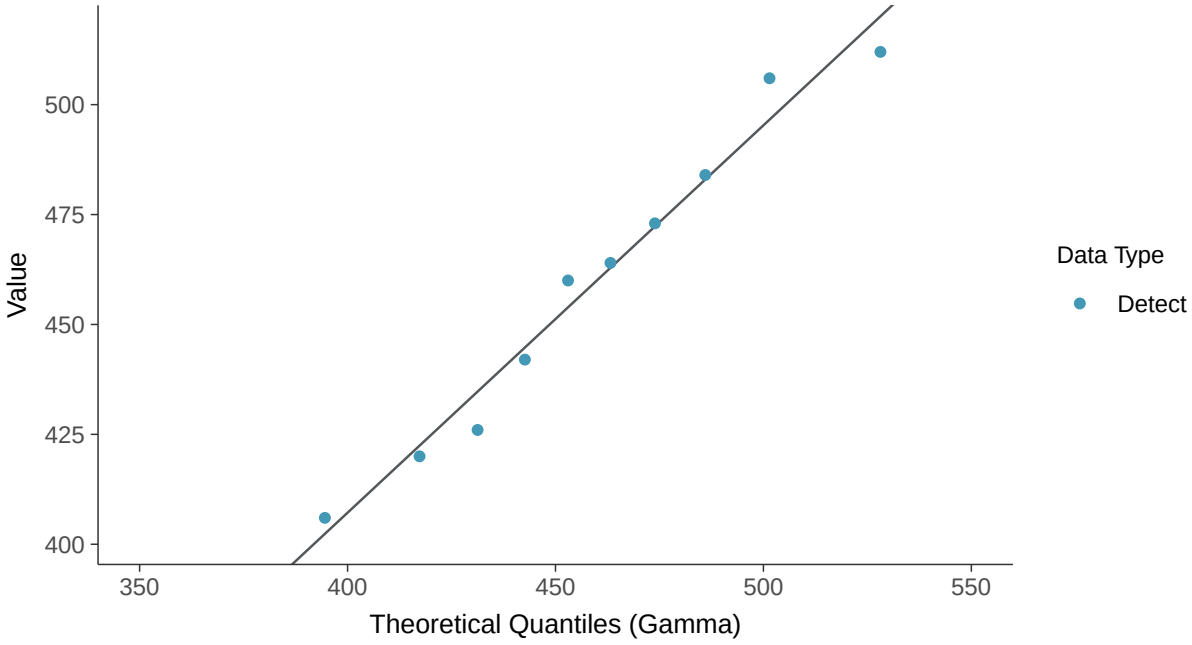
Lognormal Q-Q plot

Hardness, MW-15 (mg/L)



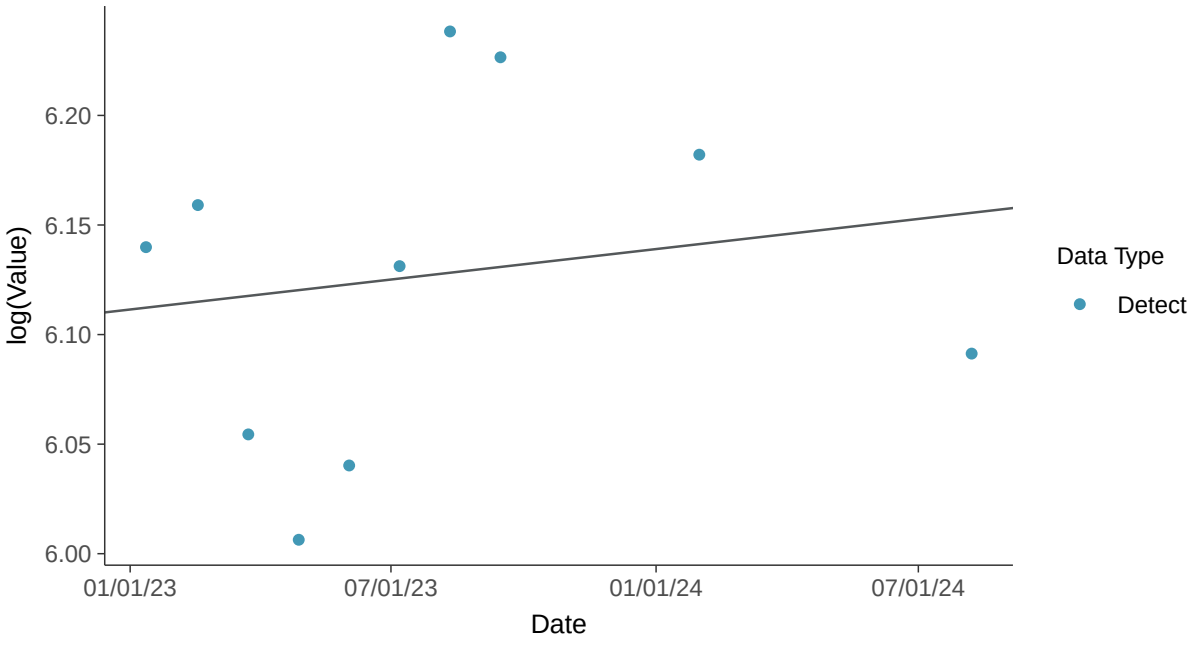
Gamma Q-Q plot

Hardness, MW-15 (mg/L)



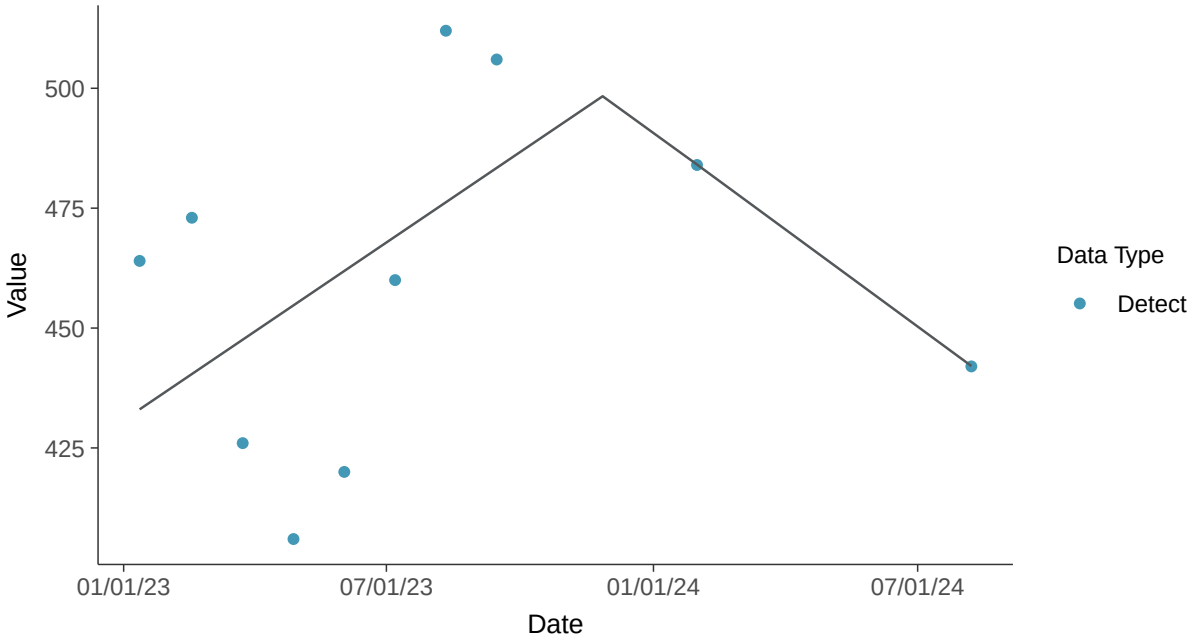
Trend Regression: Lognormal MLE

Hardness, MW-15 (mg/L)



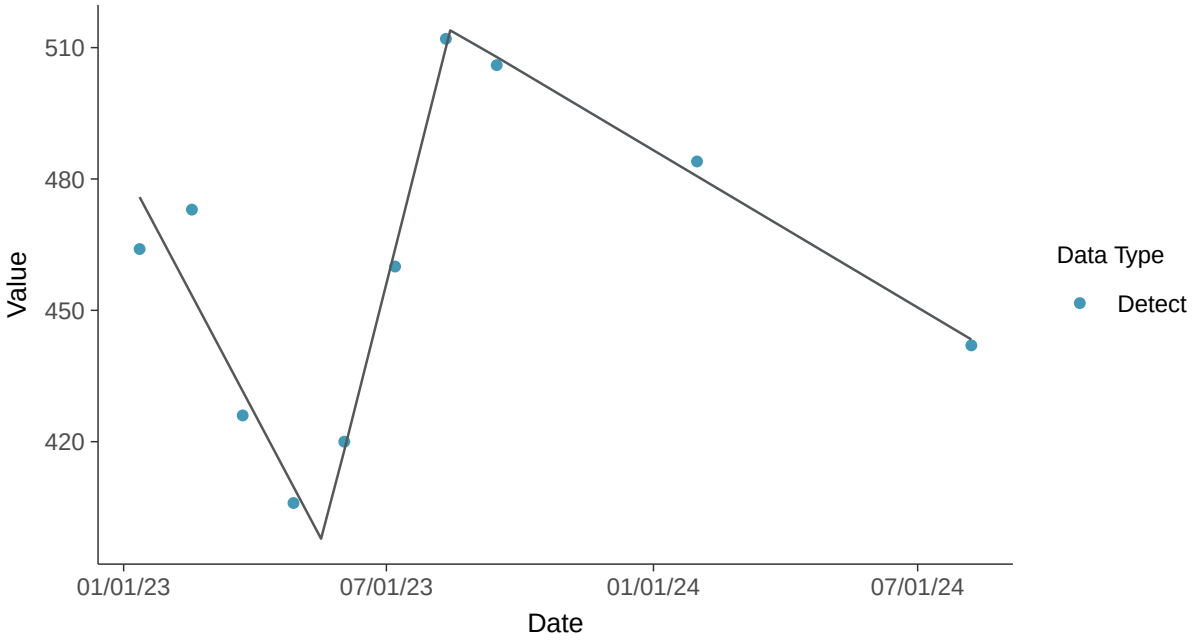
Trend Regression: Piecewise Linear-Linear

Hardness, MW-15 (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Hardness, MW-15 (mg/L)

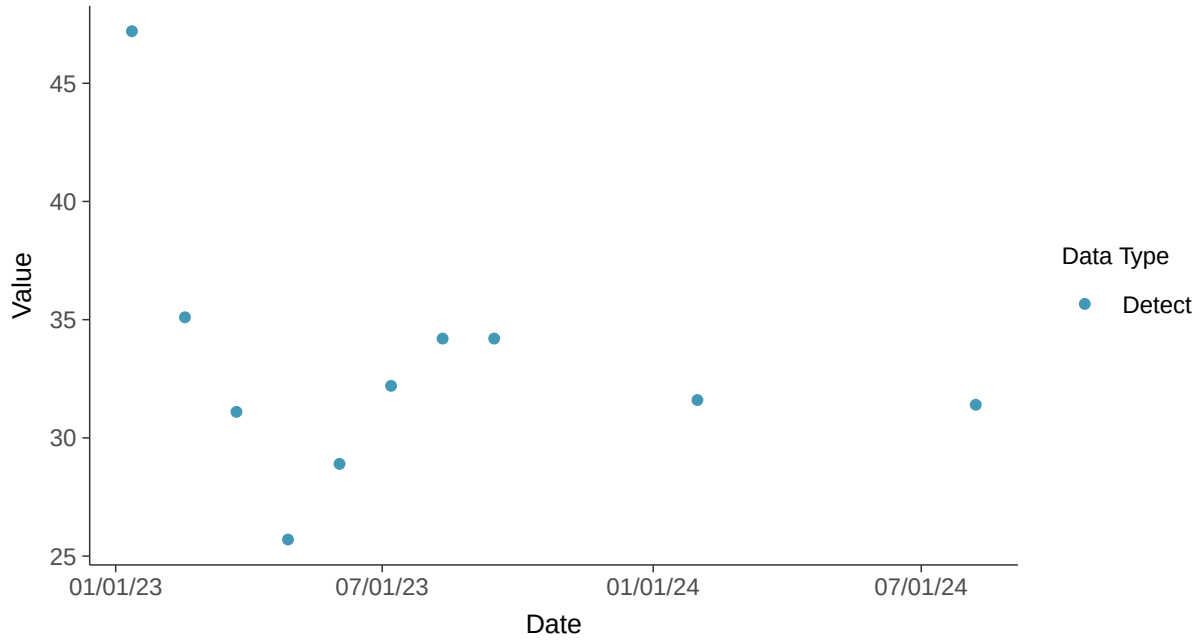


Other: Magnesium, MW-15

ID: 15_4_34

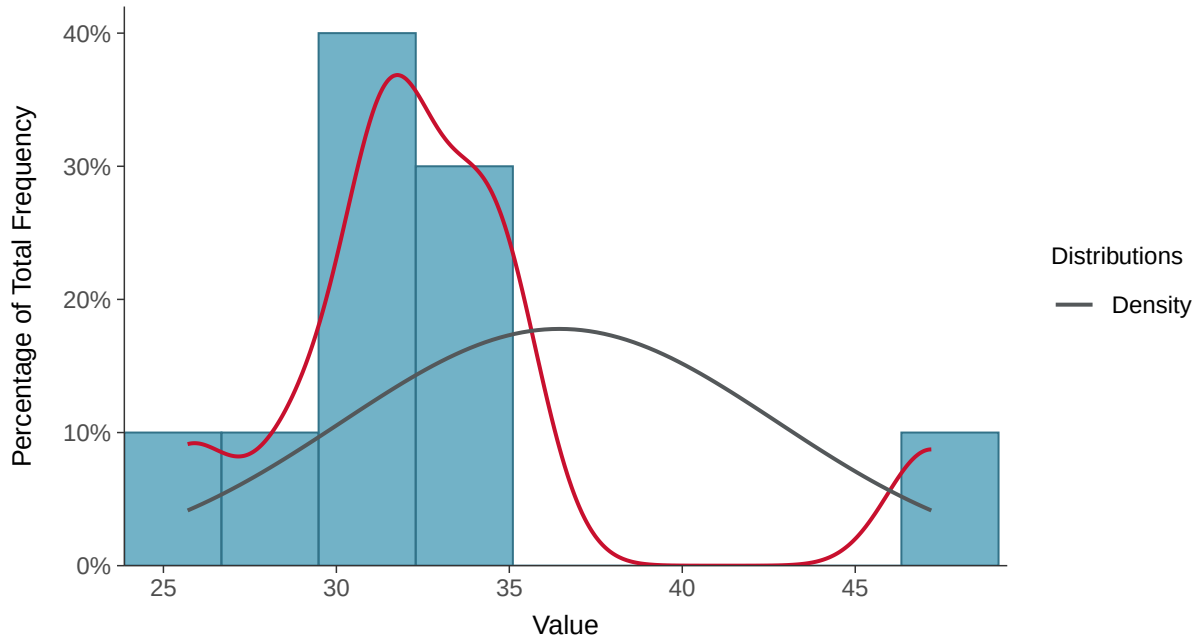
Scatter Plot

Magnesium, MW-15 (mg/L)



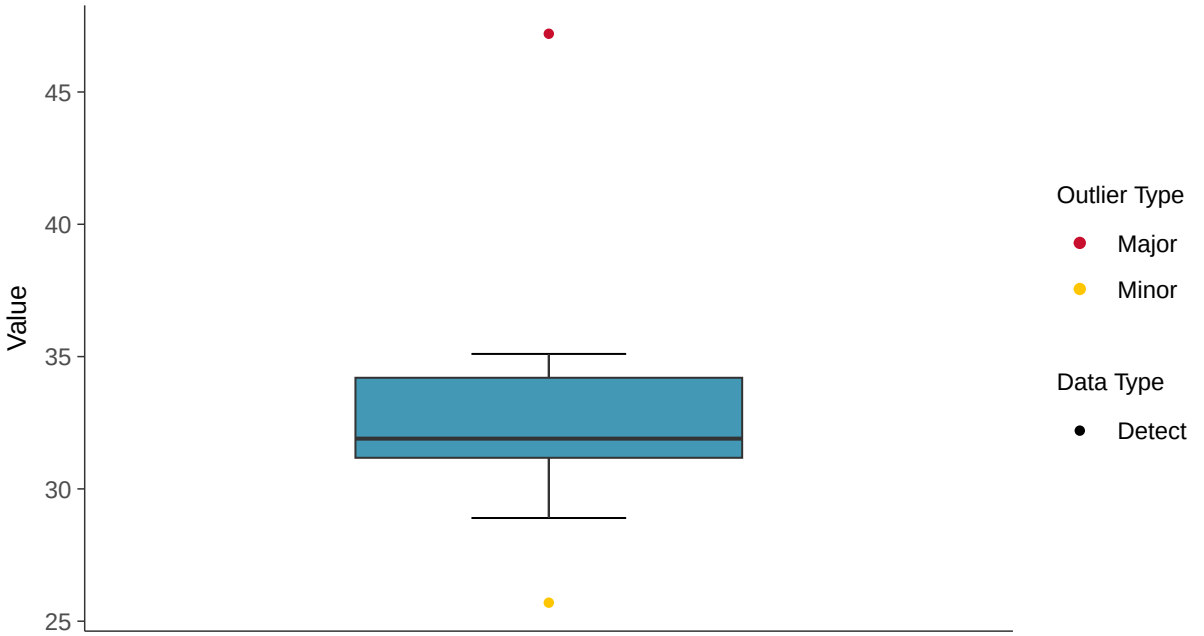
Histogram

Magnesium, MW-15 (mg/L)



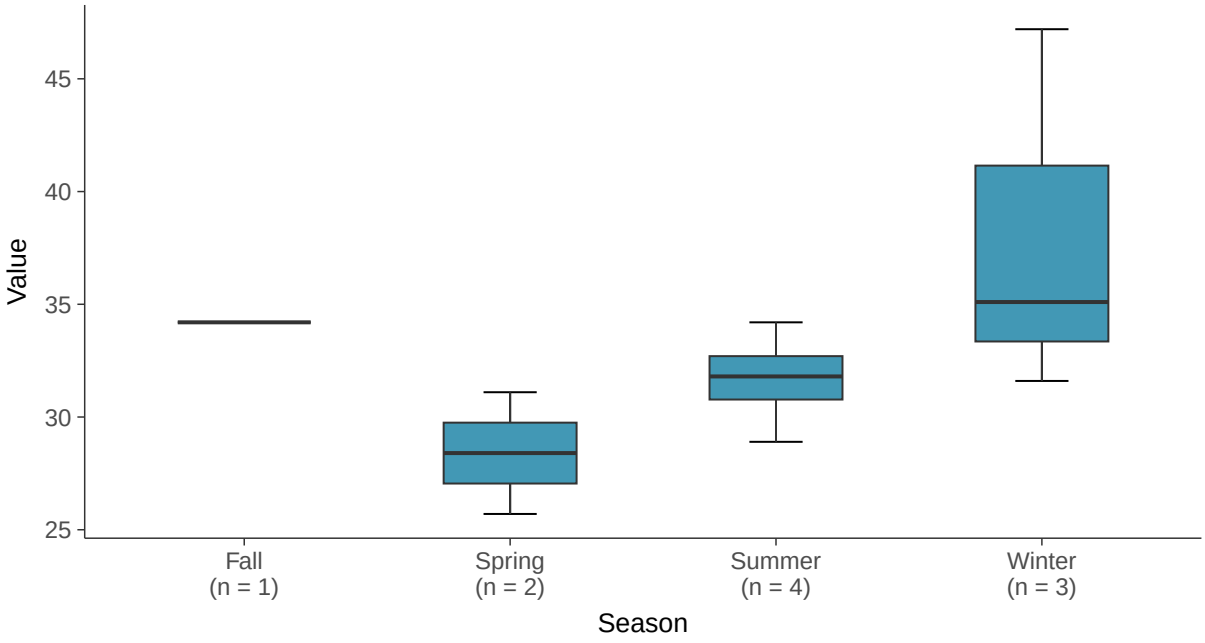
Boxplot

Magnesium, MW-15 (mg/L)



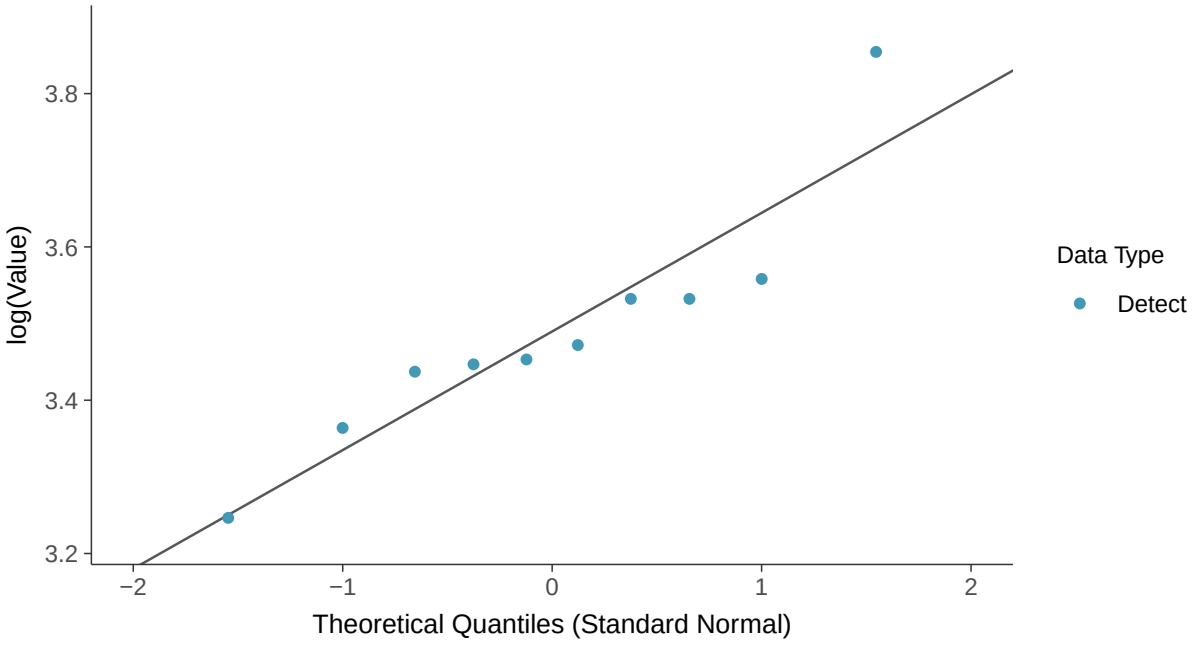
Boxplot by Season

Magnesium, MW-15 (mg/L)



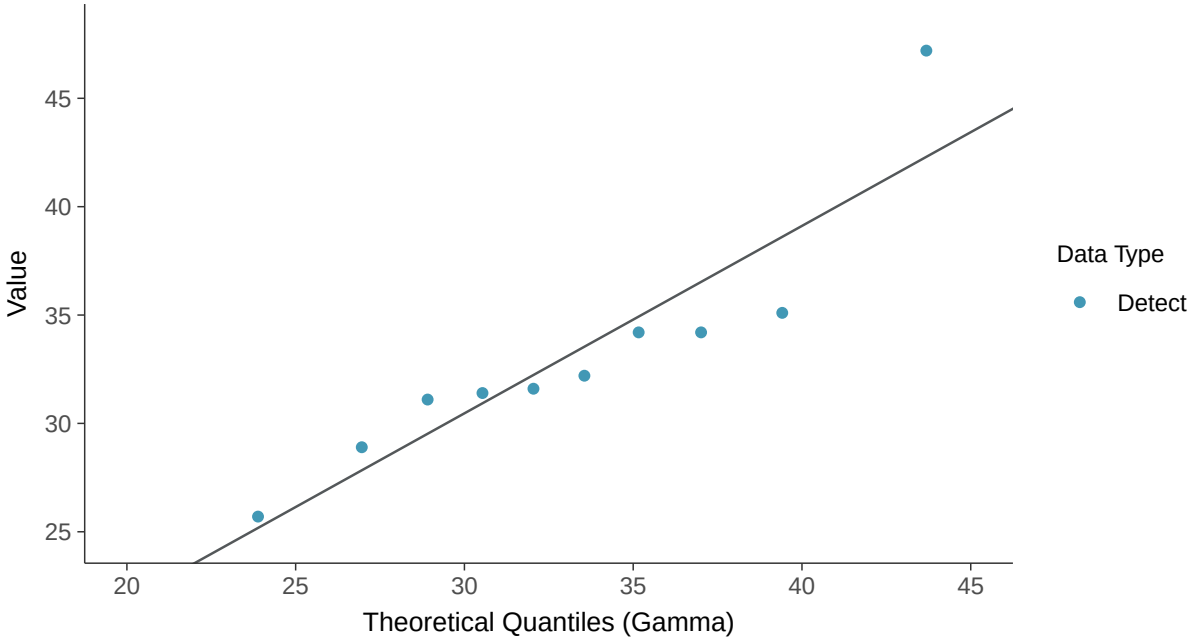
Lognormal Q-Q plot

Magnesium, MW-15 (mg/L)



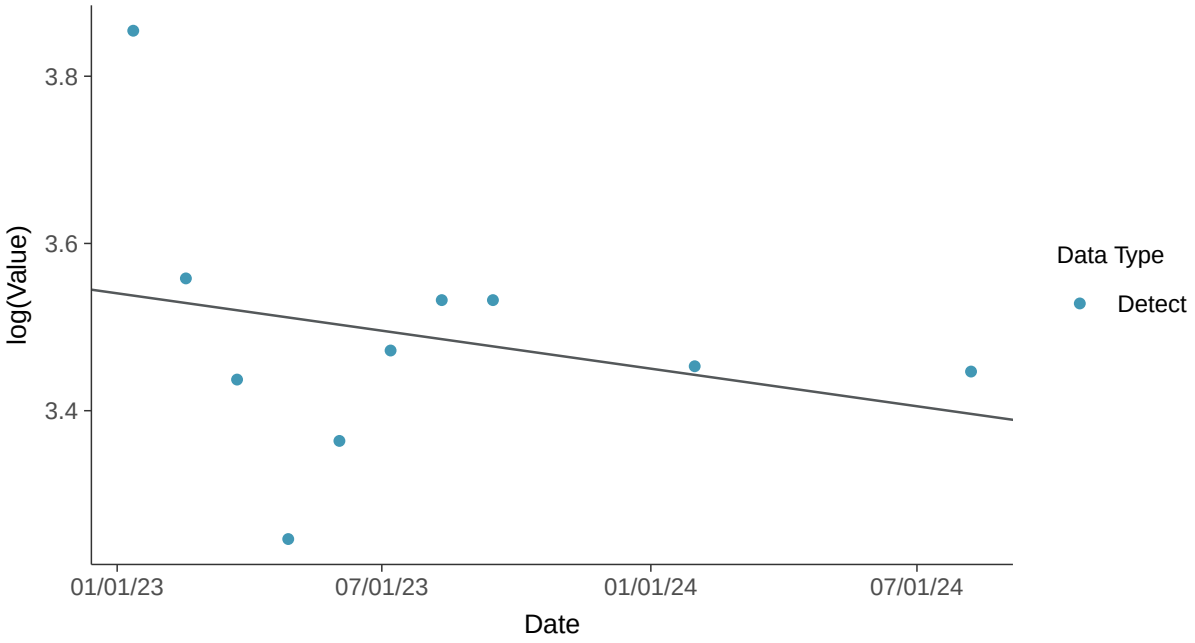
Gamma Q-Q plot

Magnesium, MW-15 (mg/L)



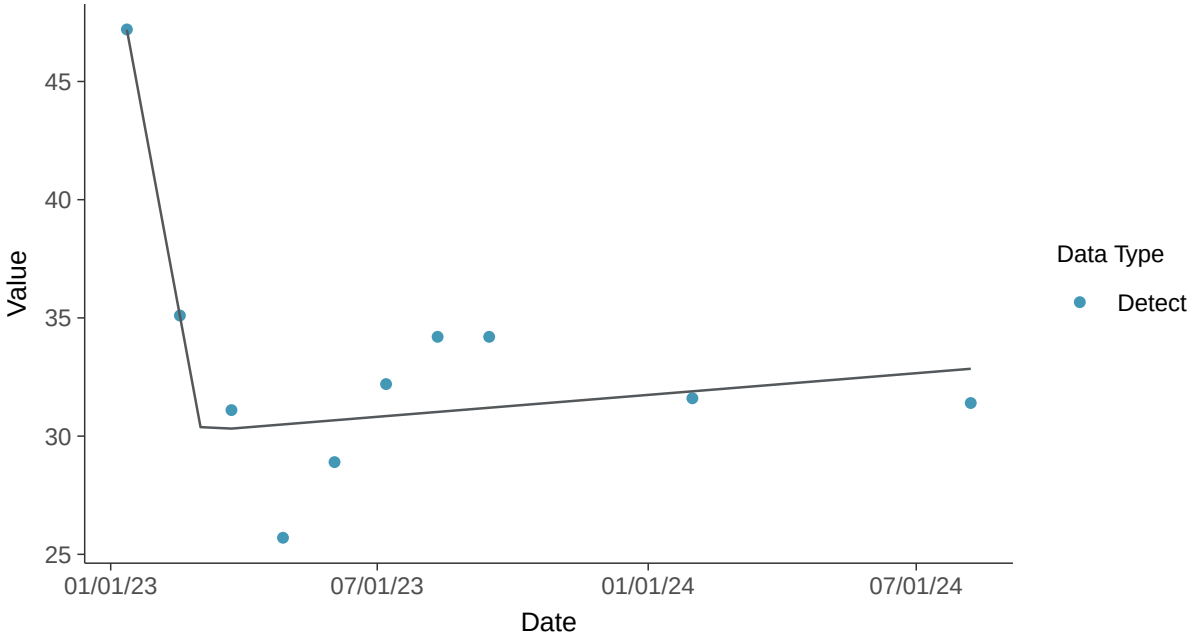
Trend Regression: Lognormal MLE

Magnesium, MW-15 (mg/L)



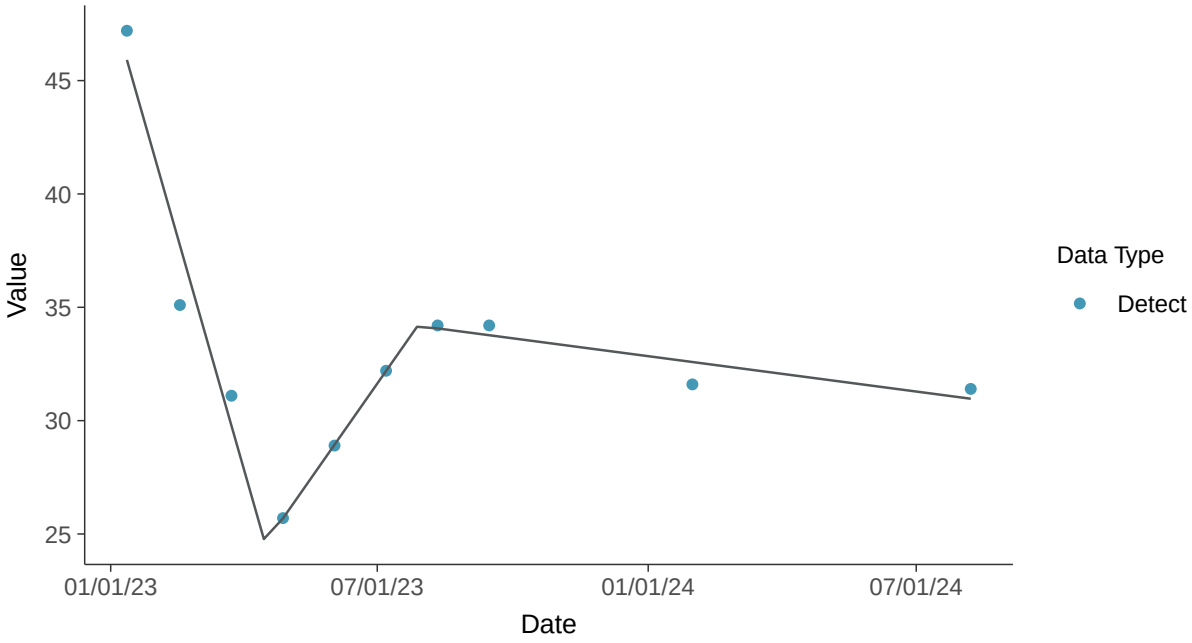
Trend Regression: Piecewise Linear-Linear

Magnesium, MW-15 (mg/L)



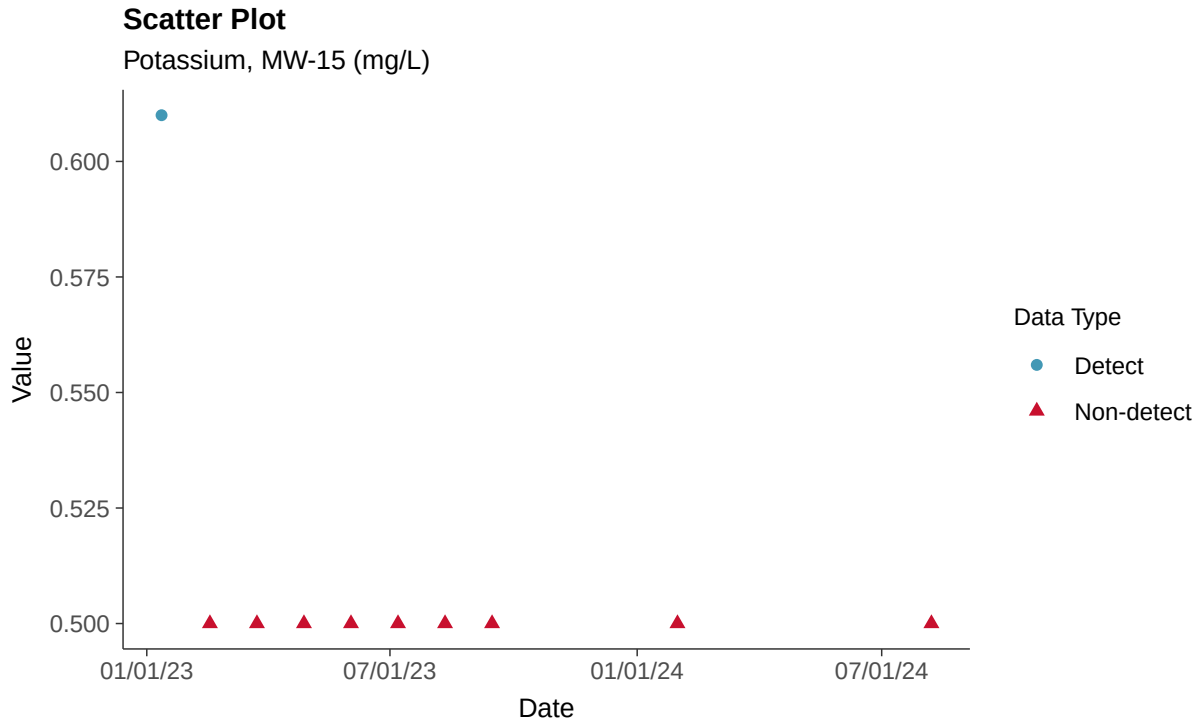
Trend Regression: Piecewise Linear-Linear-Linear

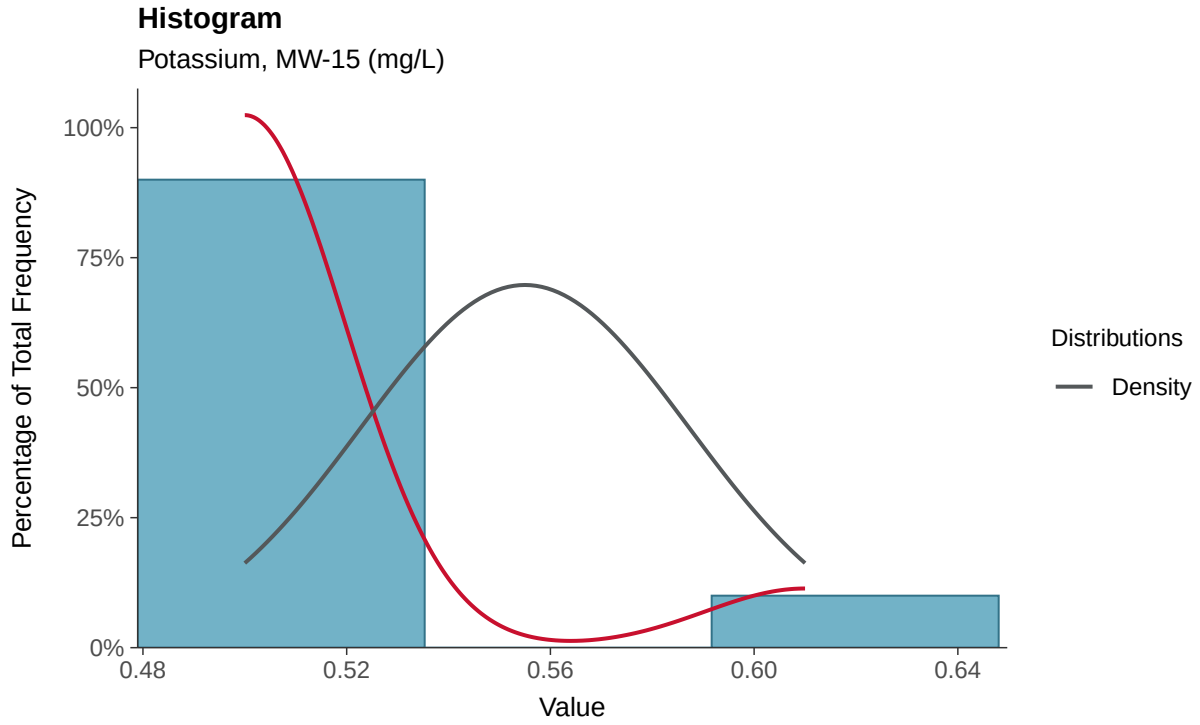
Magnesium, MW-15 (mg/L)



Other: Potassium, MW-15

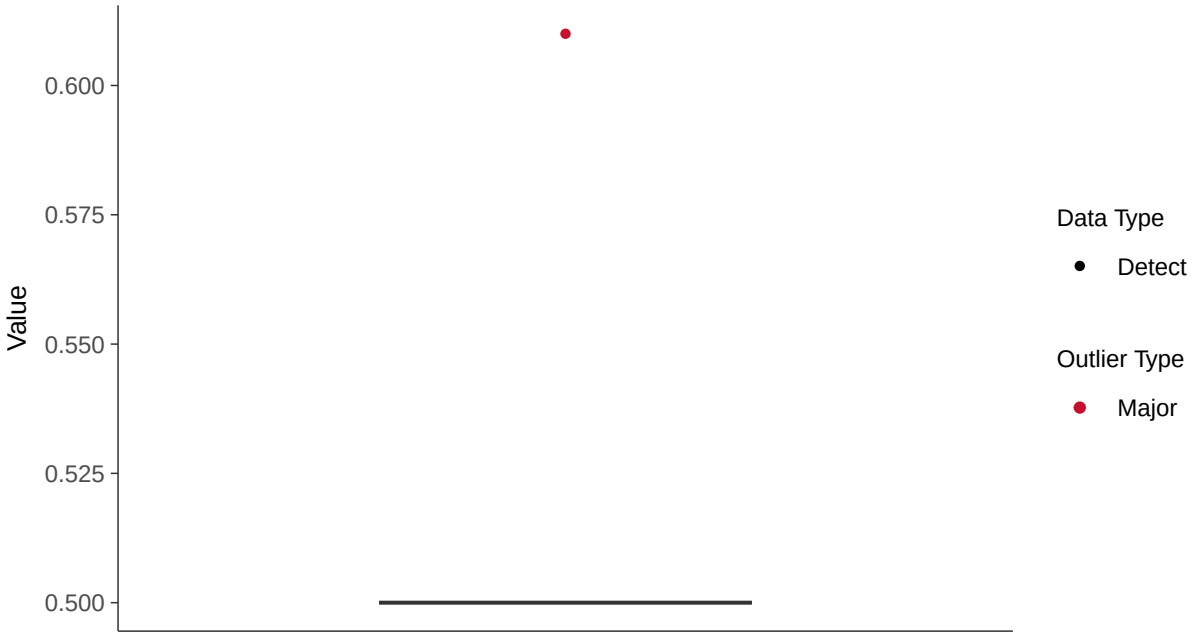
ID: 15_4_35





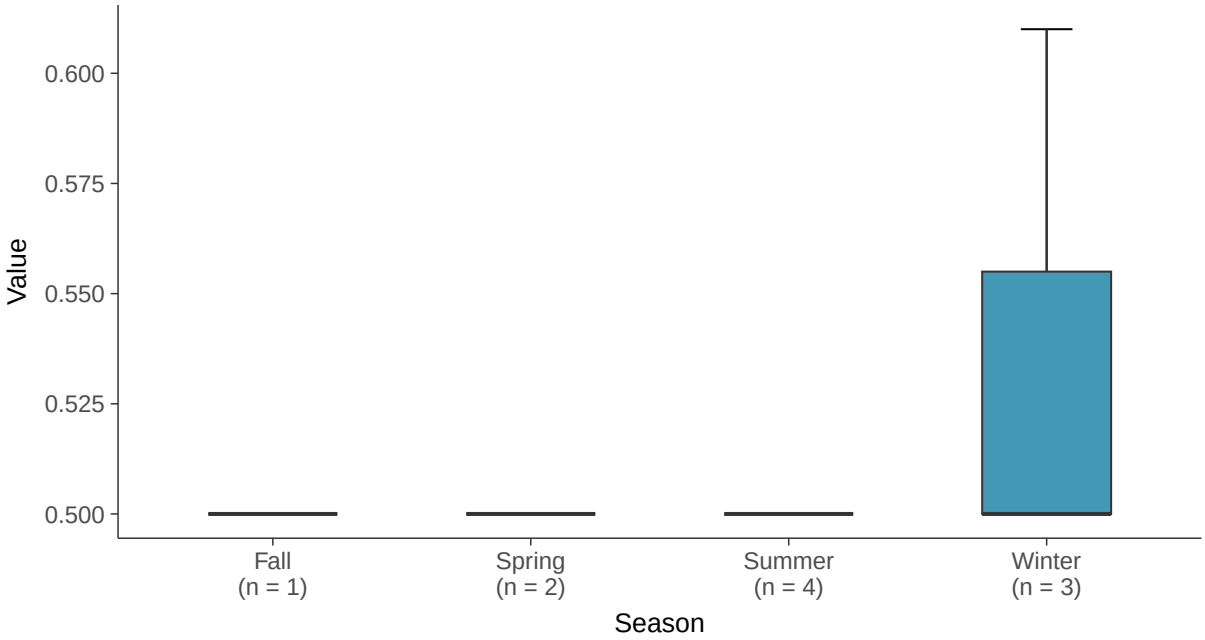
Boxplot

Potassium, MW-15 (mg/L)



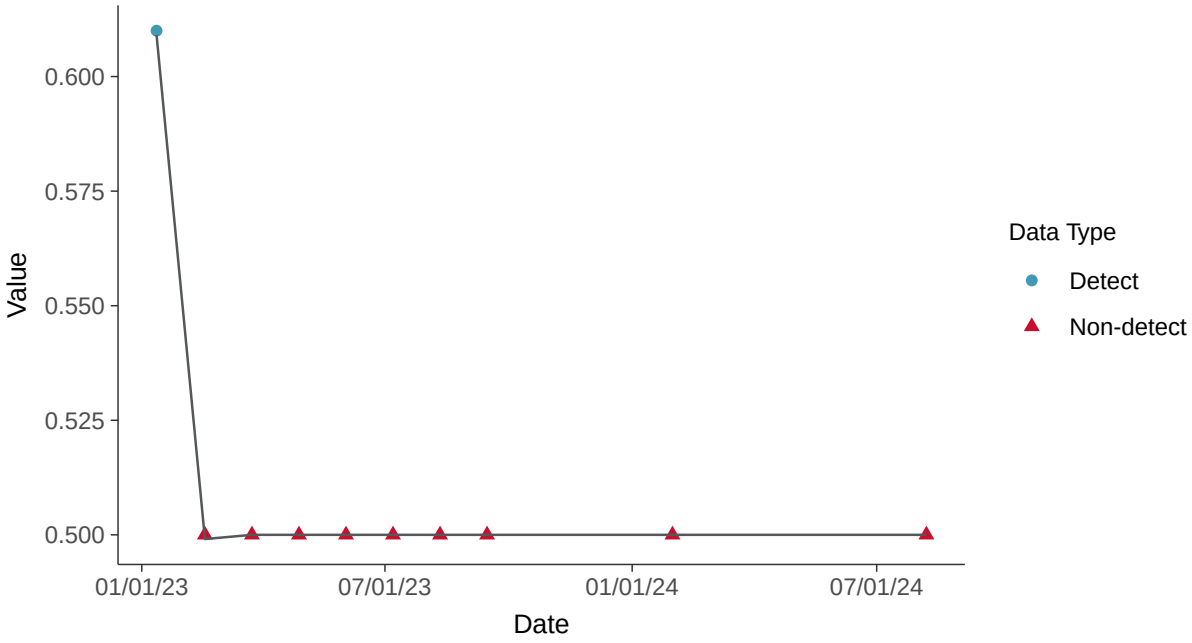
Boxplot by Season

Potassium, MW-15 (mg/L)



Trend Regression: Piecewise Linear-Linear

Potassium, MW-15 (mg/L)

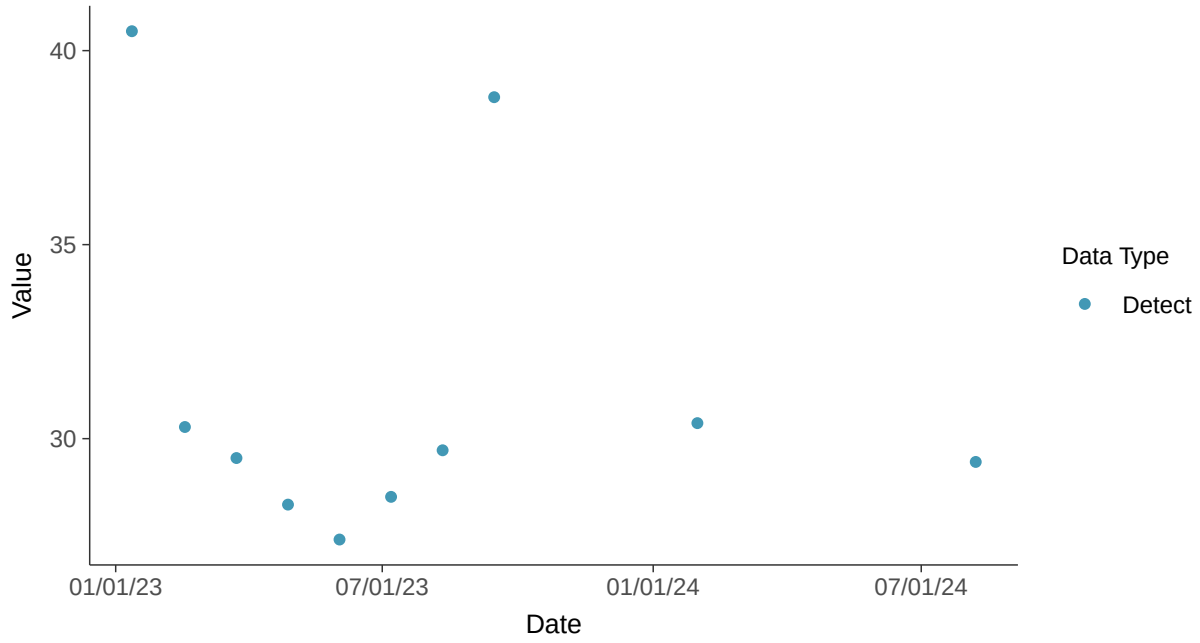


Other: Sodium, MW-15

ID: 15_4_36

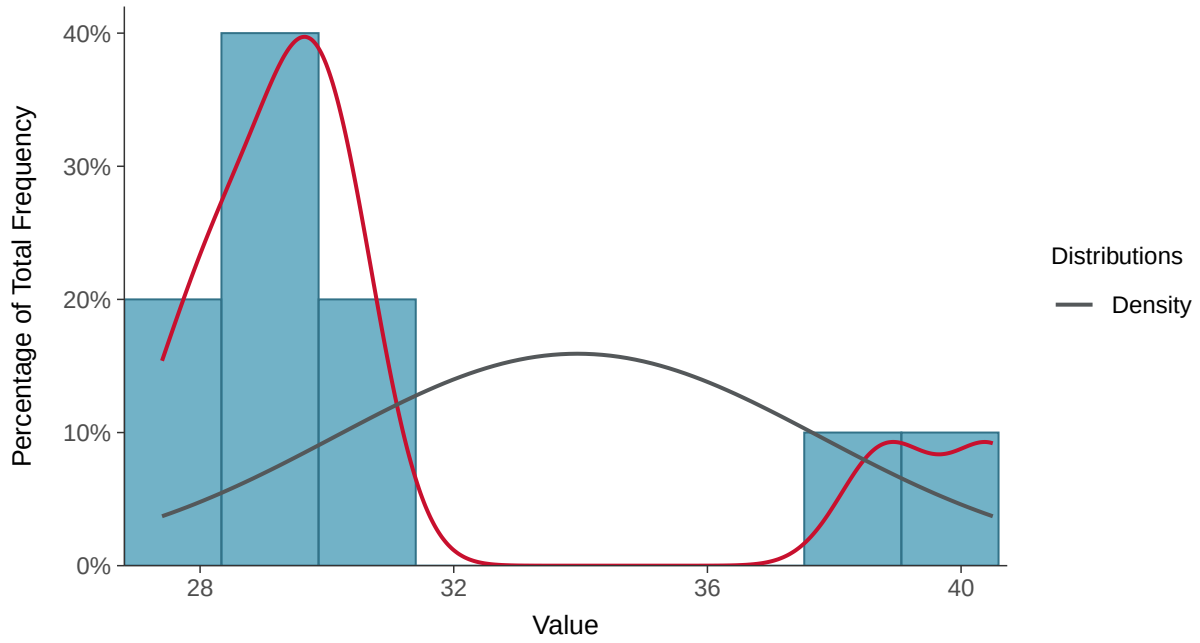
Scatter Plot

Sodium, MW-15 (mg/L)



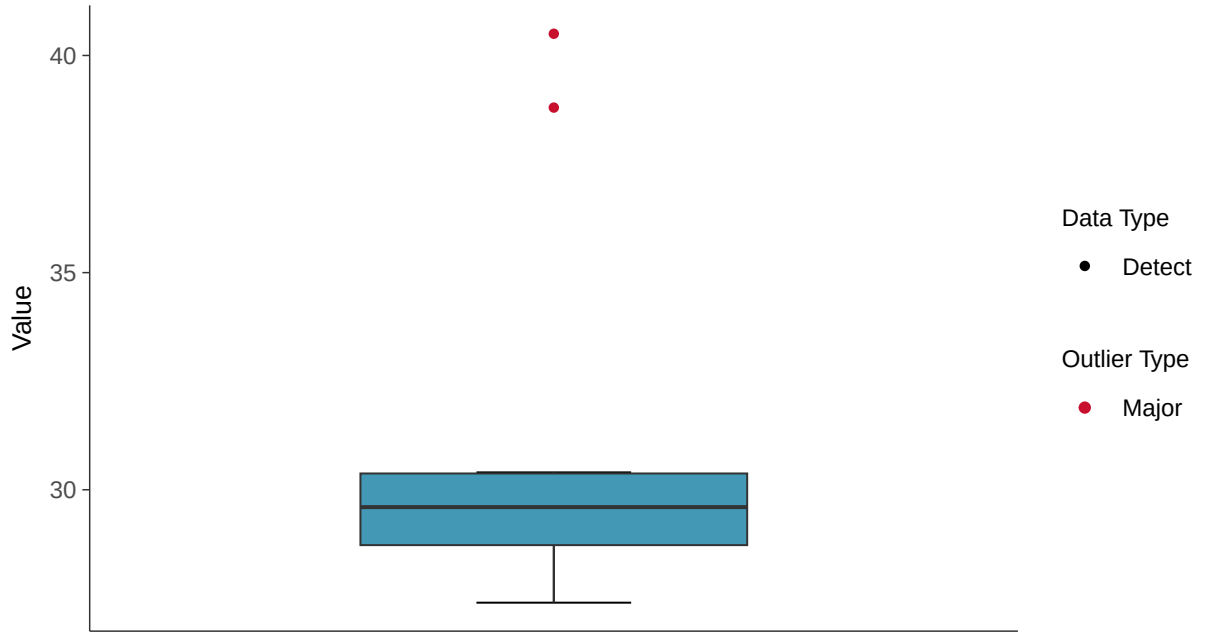
Histogram

Sodium, MW-15 (mg/L)



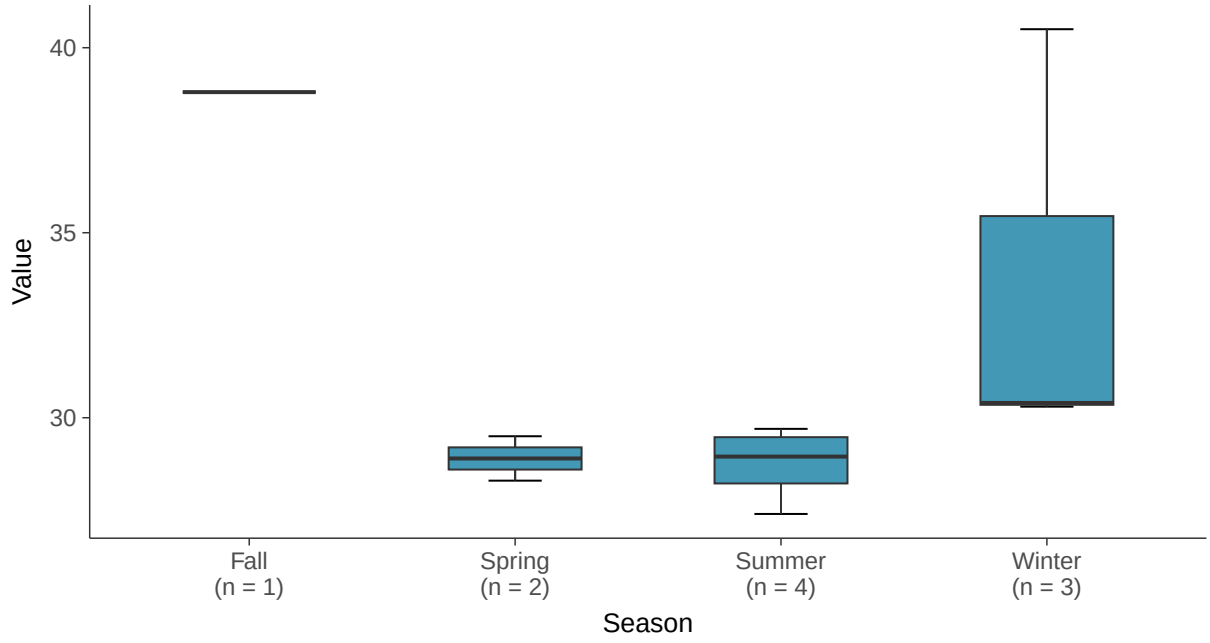
Boxplot

Sodium, MW-15 (mg/L)



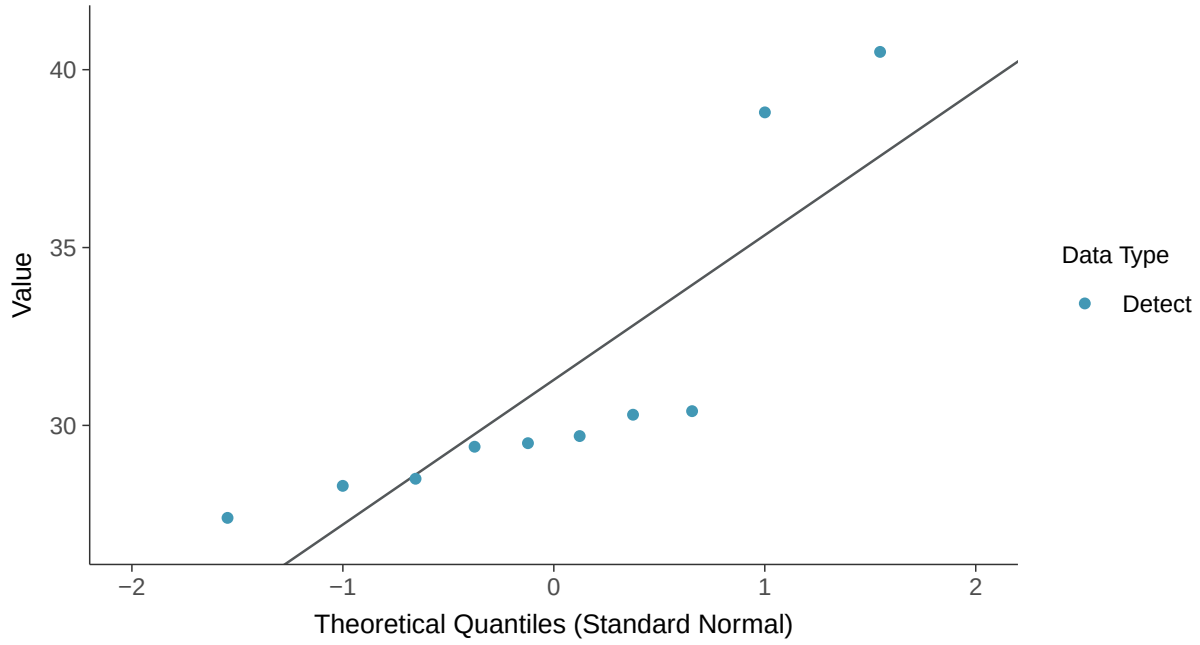
Boxplot by Season

Sodium, MW-15 (mg/L)



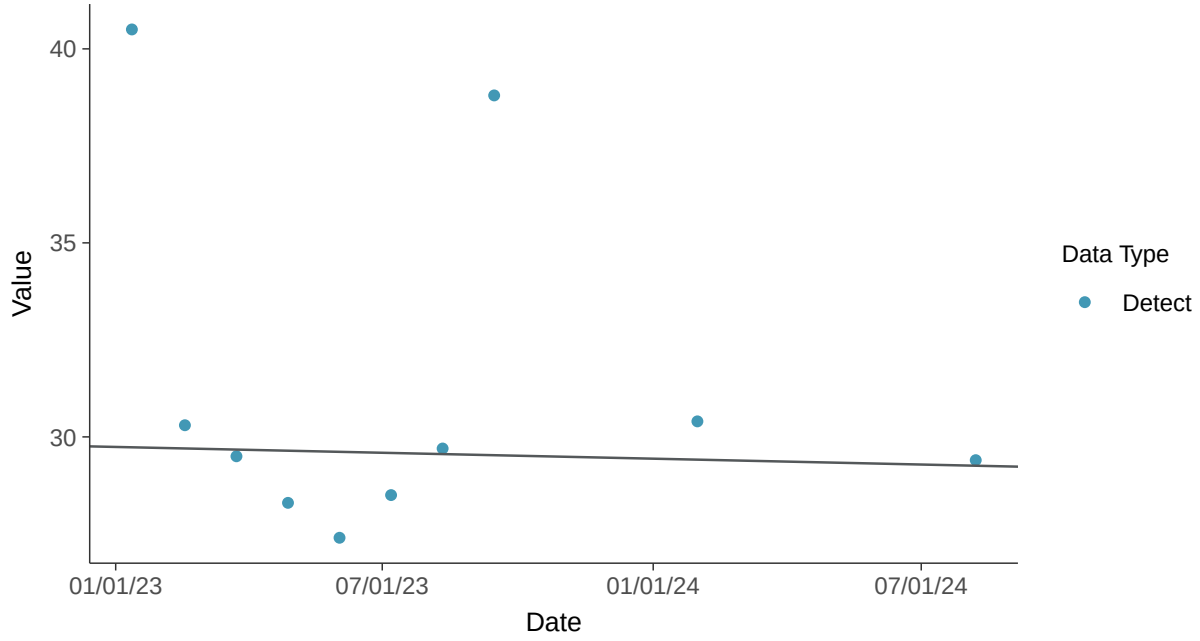
Normal Q-Q plot

Sodium, MW-15 (mg/L)



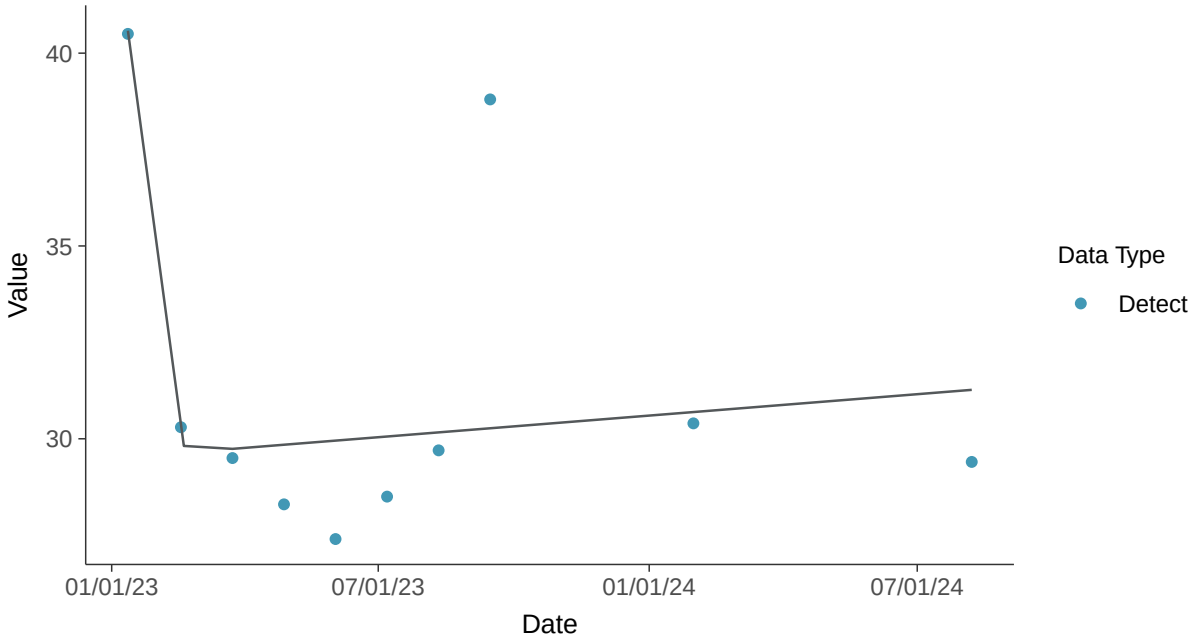
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Sodium, MW-15 (mg/L)



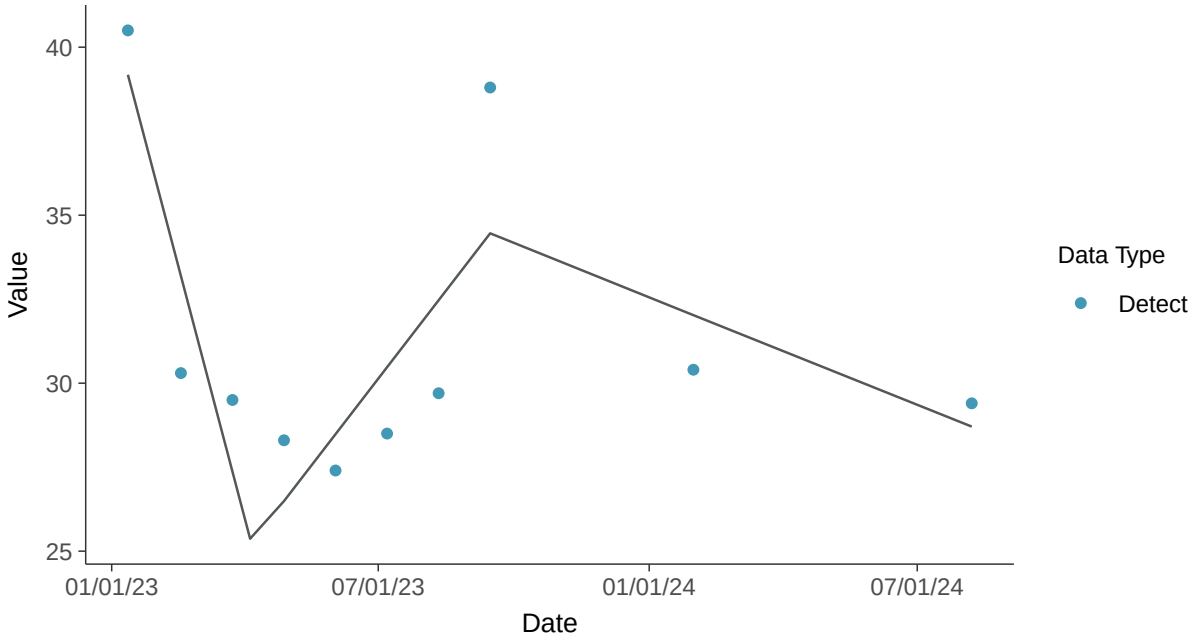
Trend Regression: Piecewise Linear-Linear

Sodium, MW-15 (mg/L)



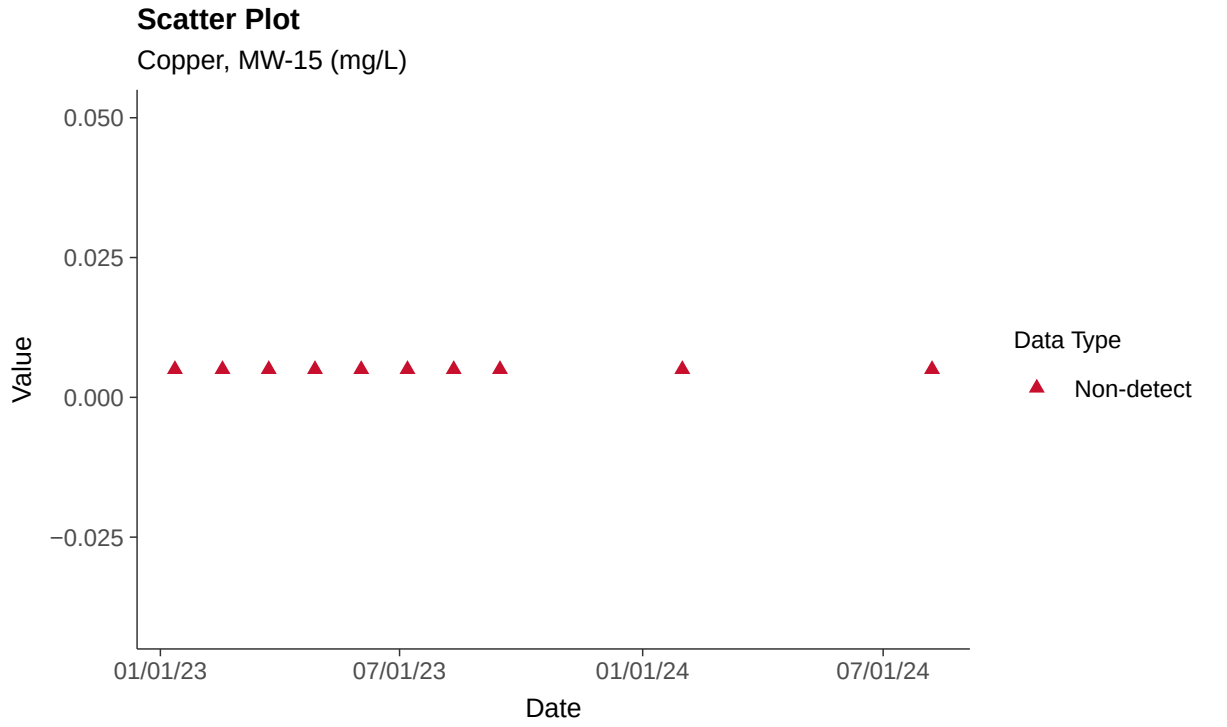
Trend Regression: Piecewise Linear-Linear-Linear

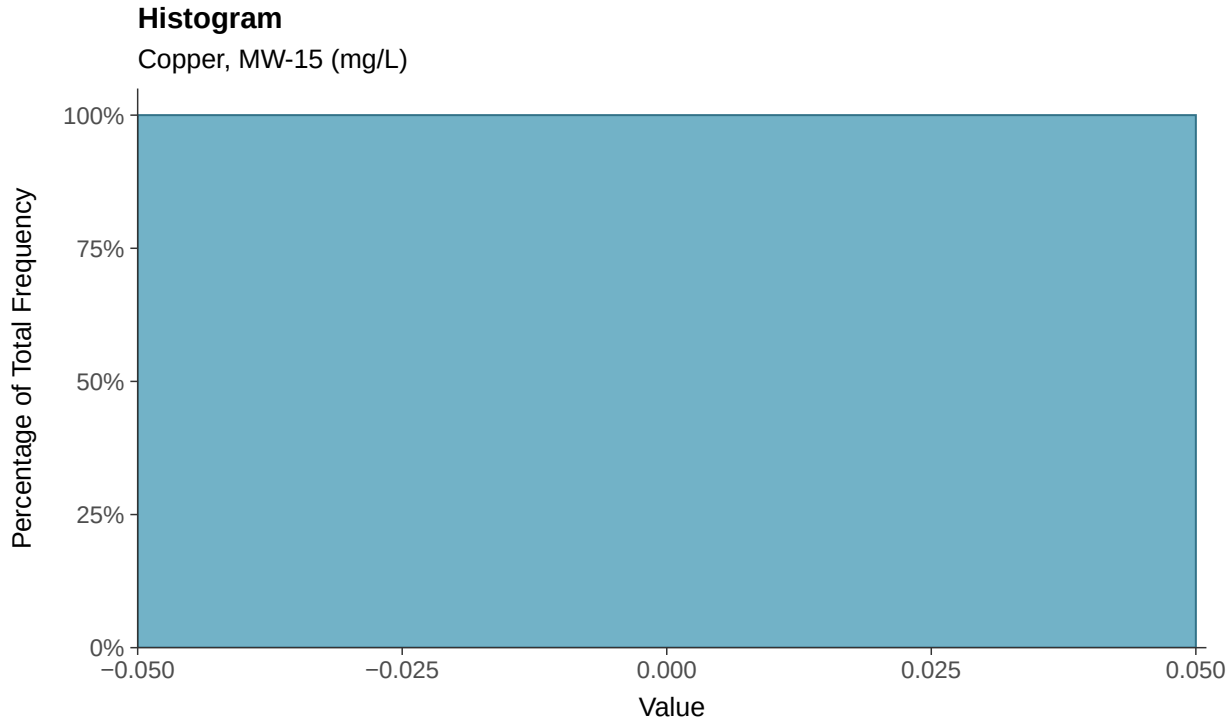
Sodium, MW-15 (mg/L)



Part 115: Copper, MW-15

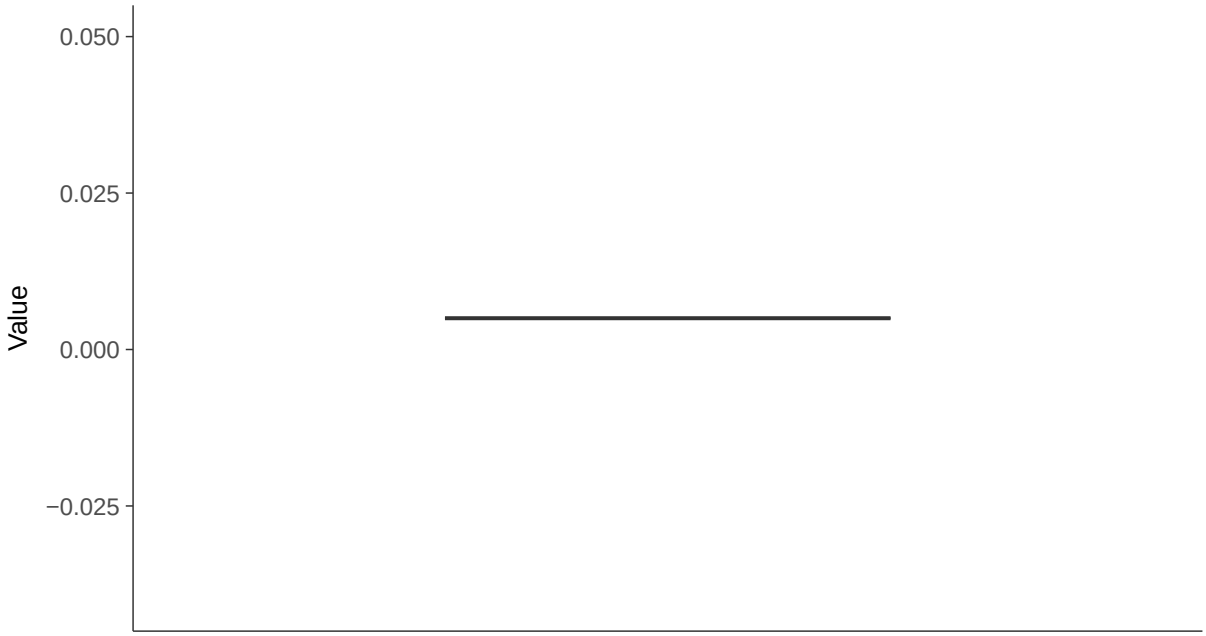
ID: 15_5_37





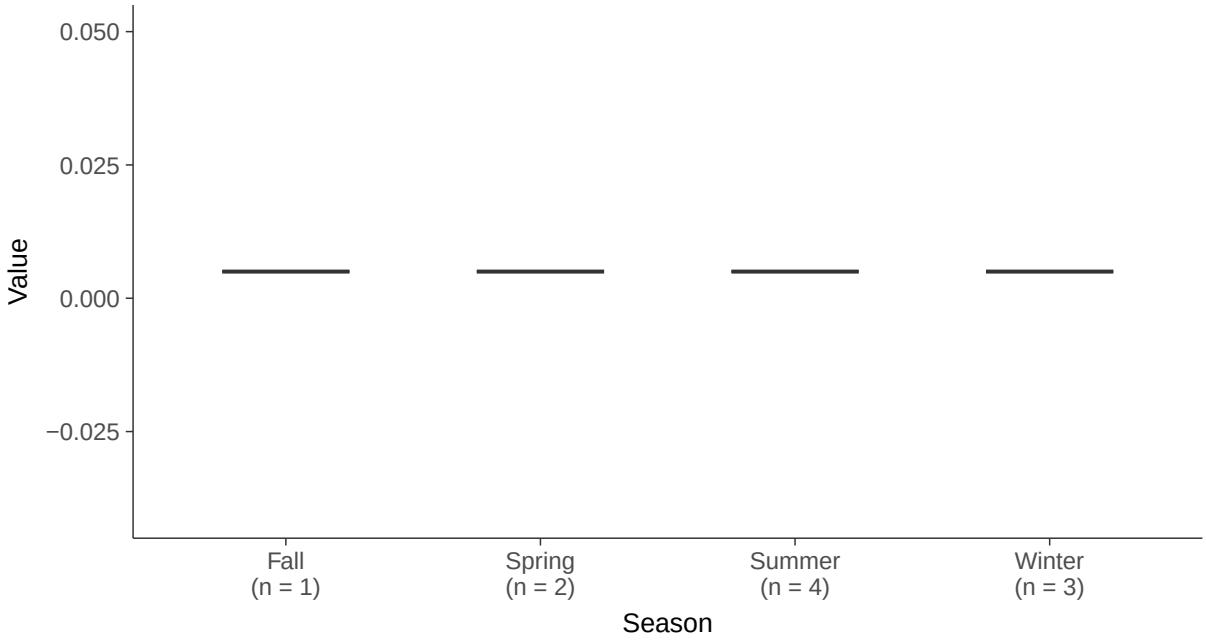
Boxplot

Copper, MW-15 (mg/L)



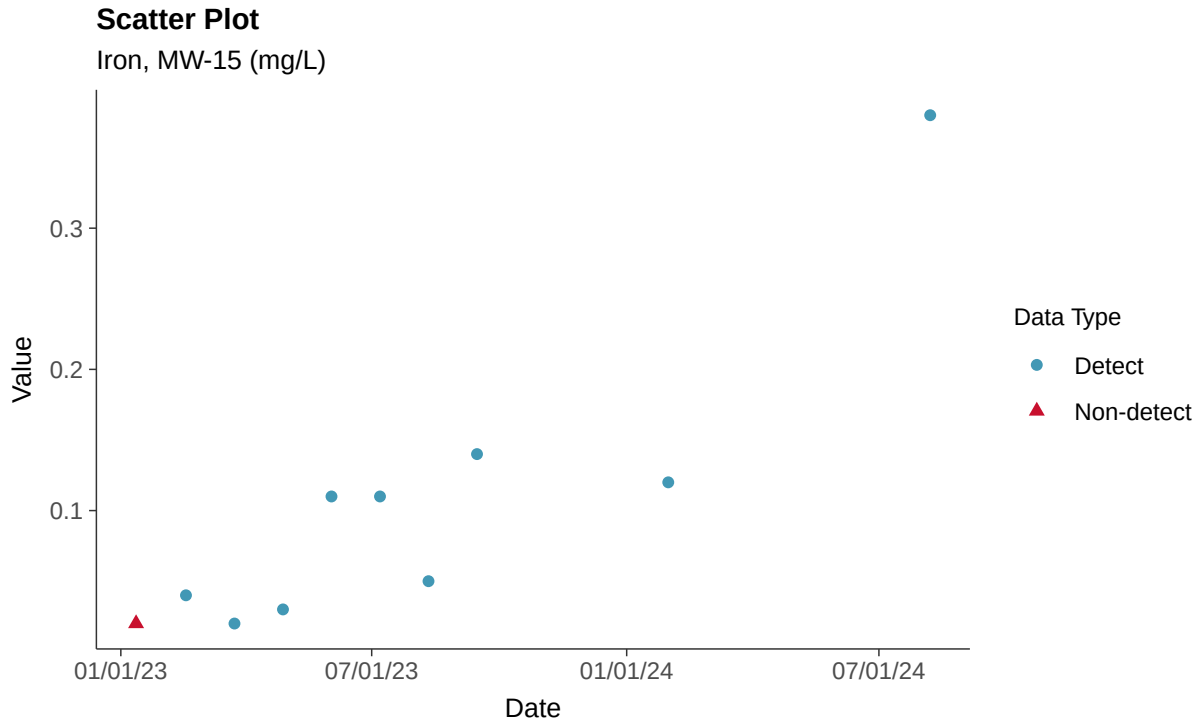
Boxplot by Season

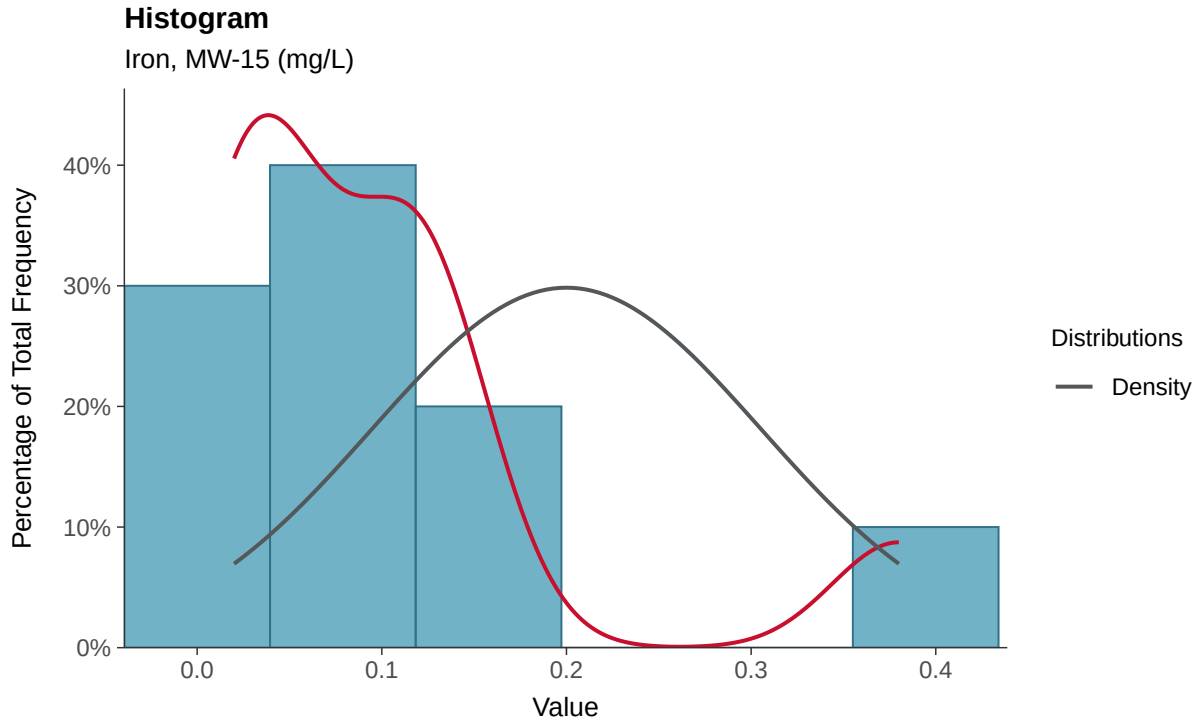
Copper, MW-15 (mg/L)



Part 115: Iron, MW-15

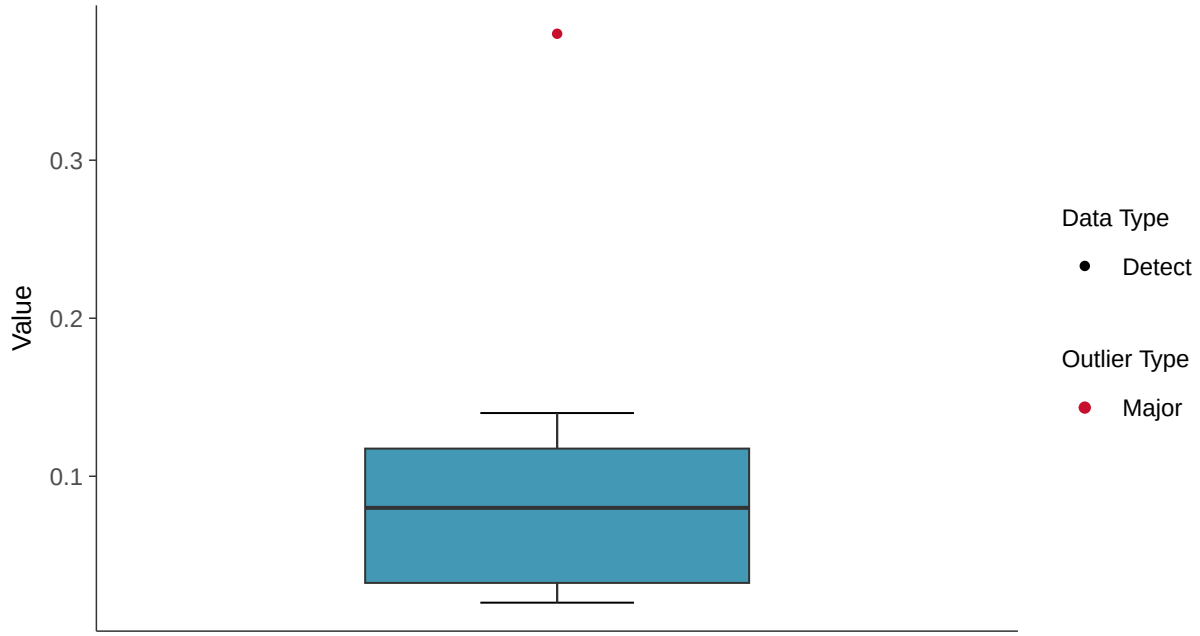
ID: 15_5_38





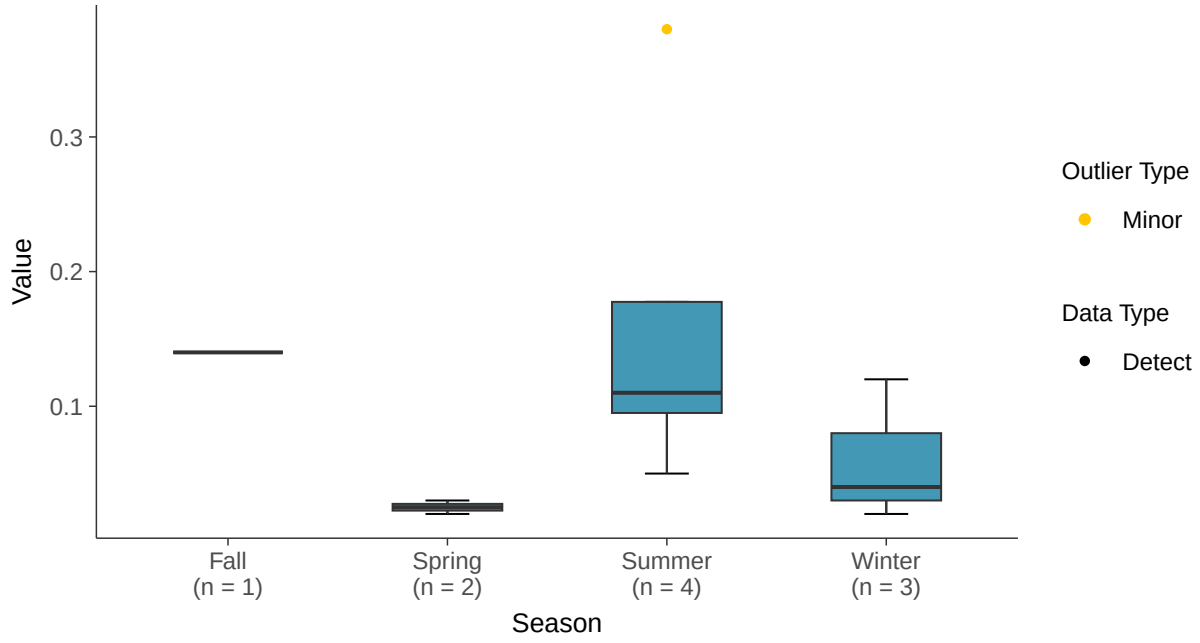
Boxplot

Iron, MW-15 (mg/L)



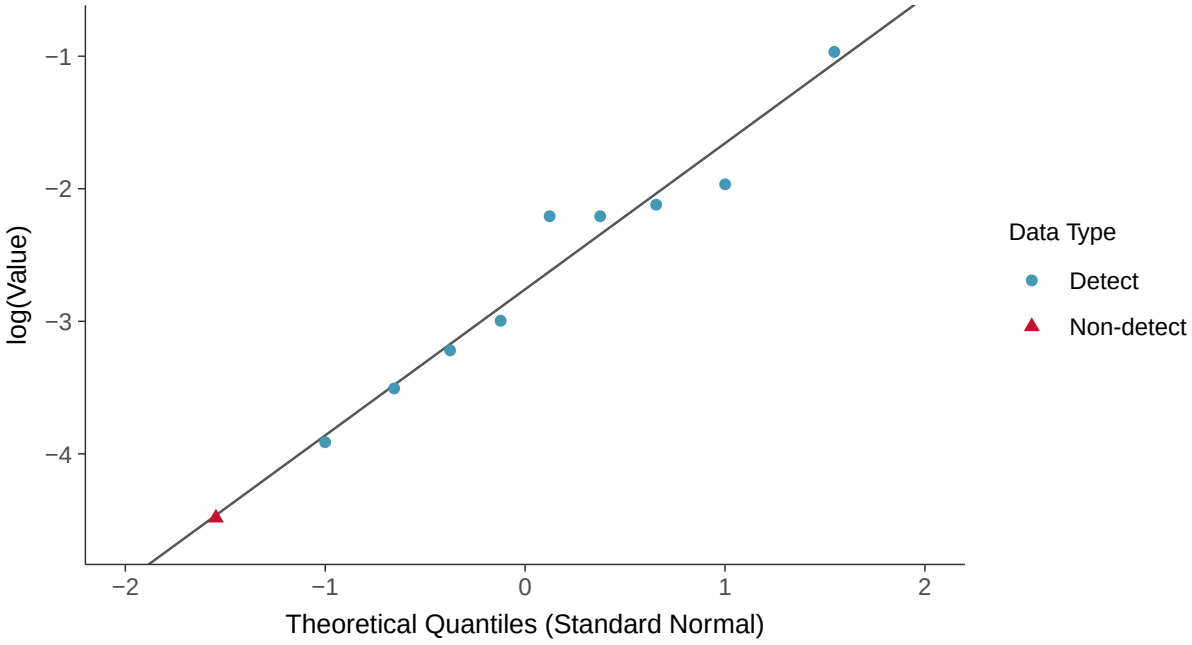
Boxplot by Season

Iron, MW-15 (mg/L)



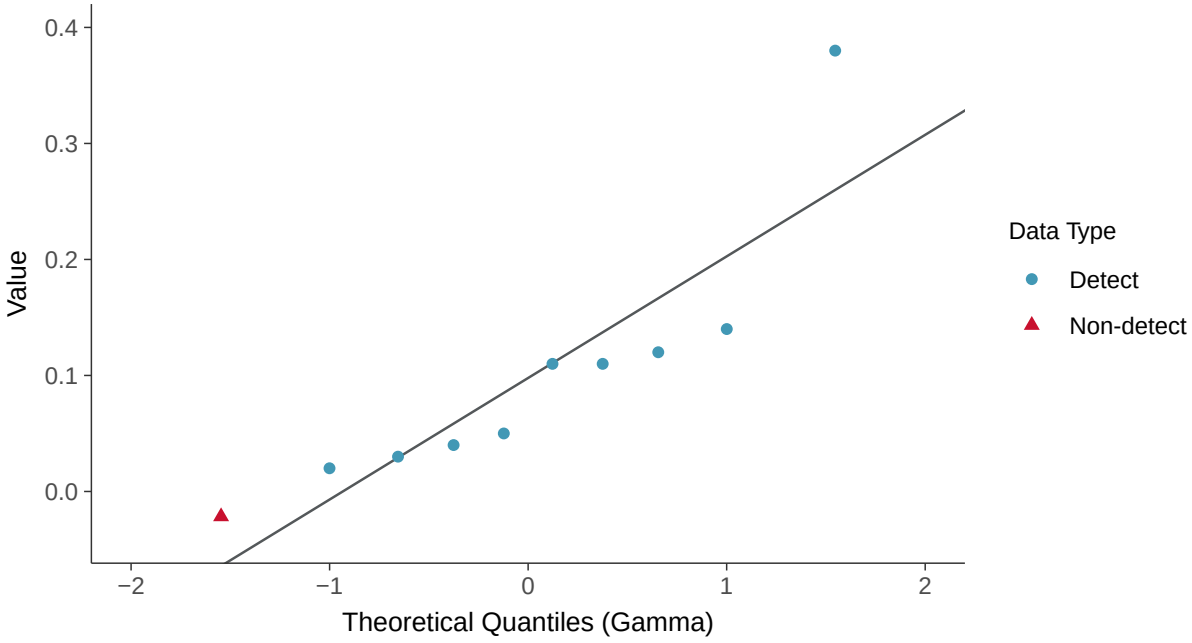
Lognormal Q-Q plot using ROS Imputed Estimates

Iron, MW-15 (mg/L)



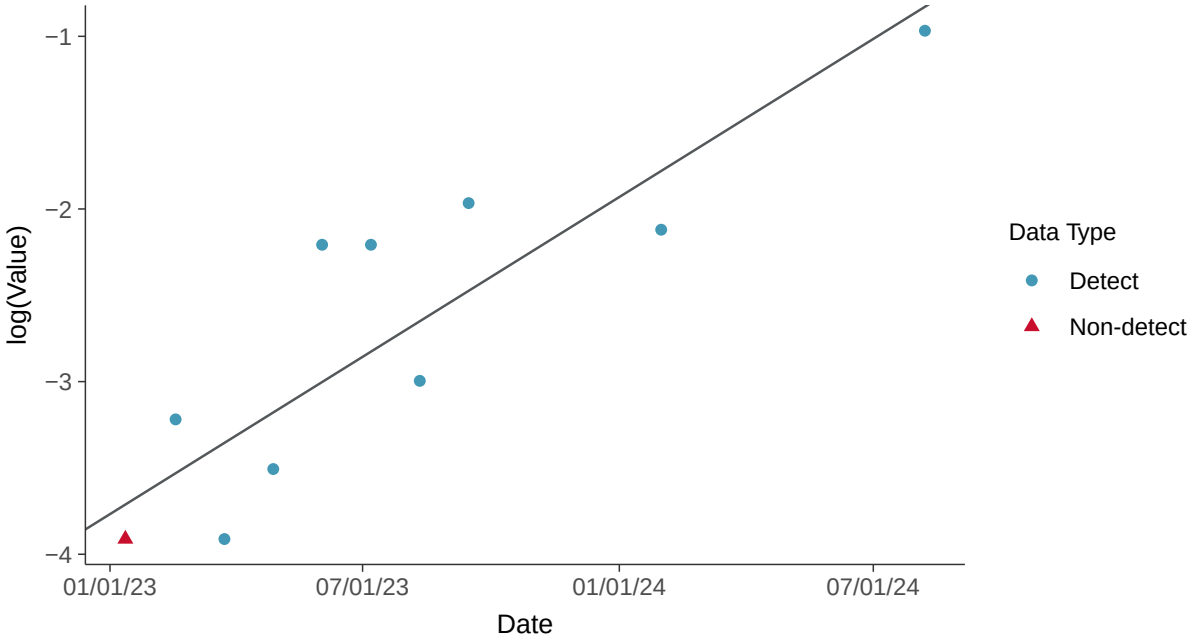
Gamma Q-Q plot using ROS Imputed Estimates

Iron, MW-15 (mg/L)



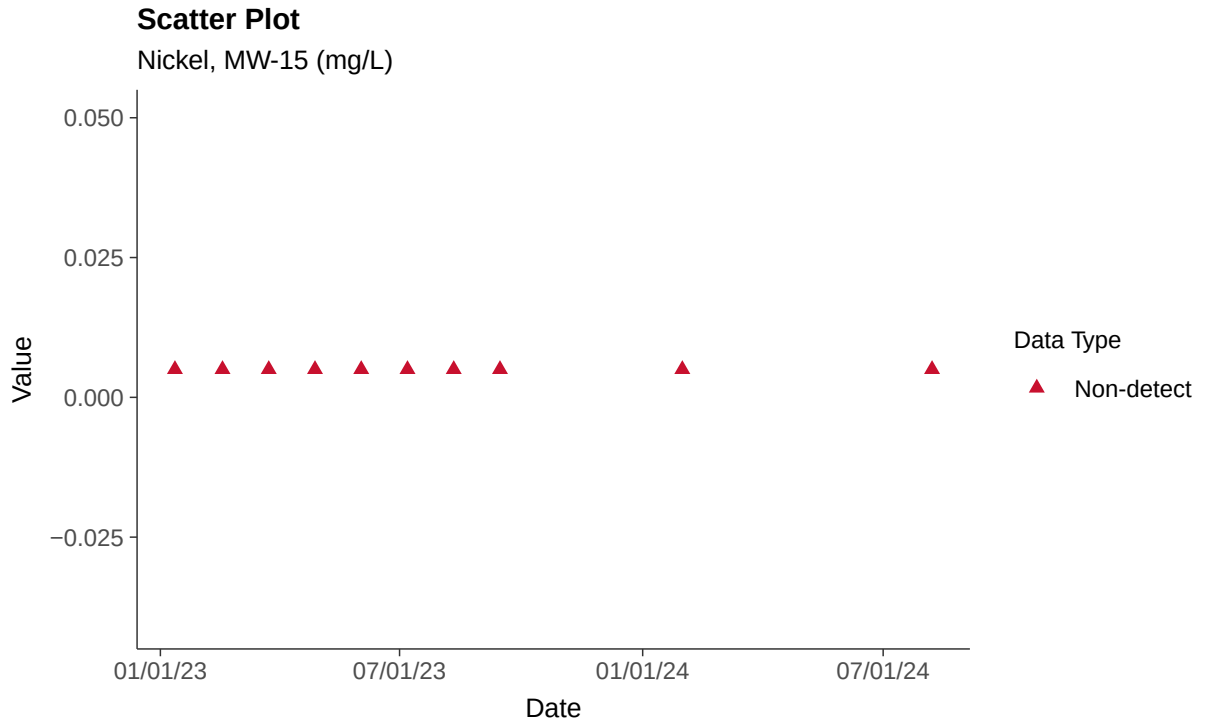
Trend Regression: Lognormal MLE

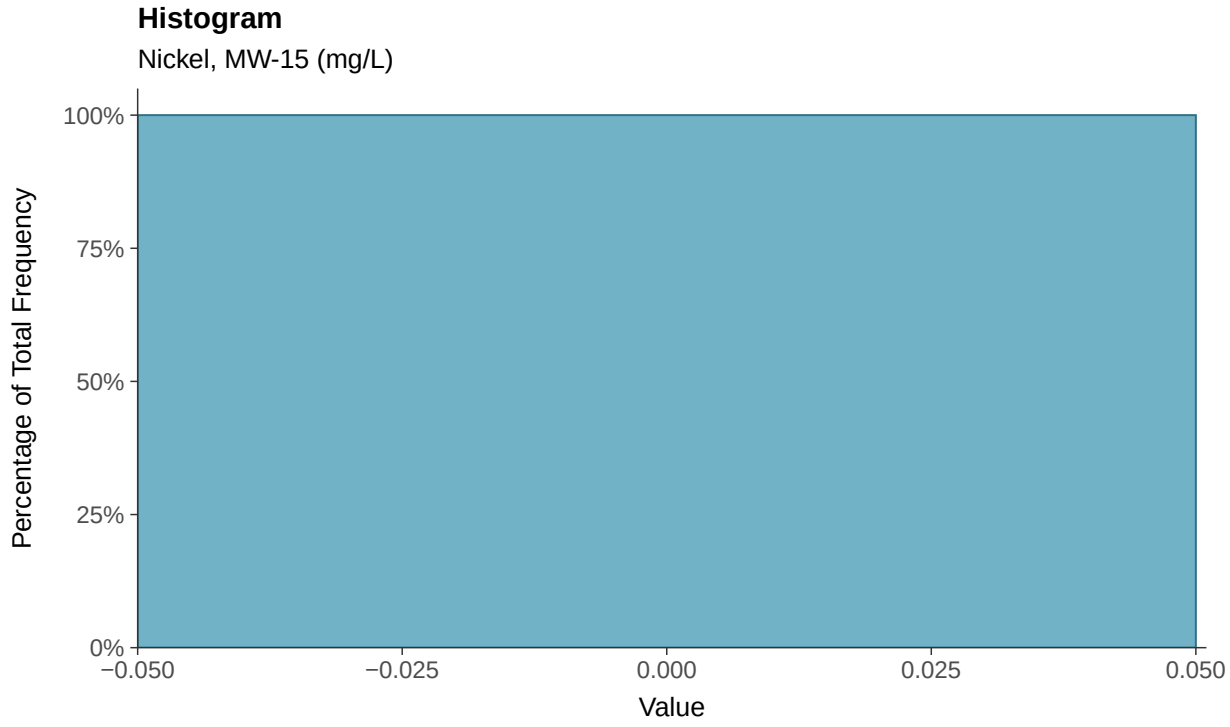
Iron, MW-15 (mg/L)



Part 115: Nickel, MW-15

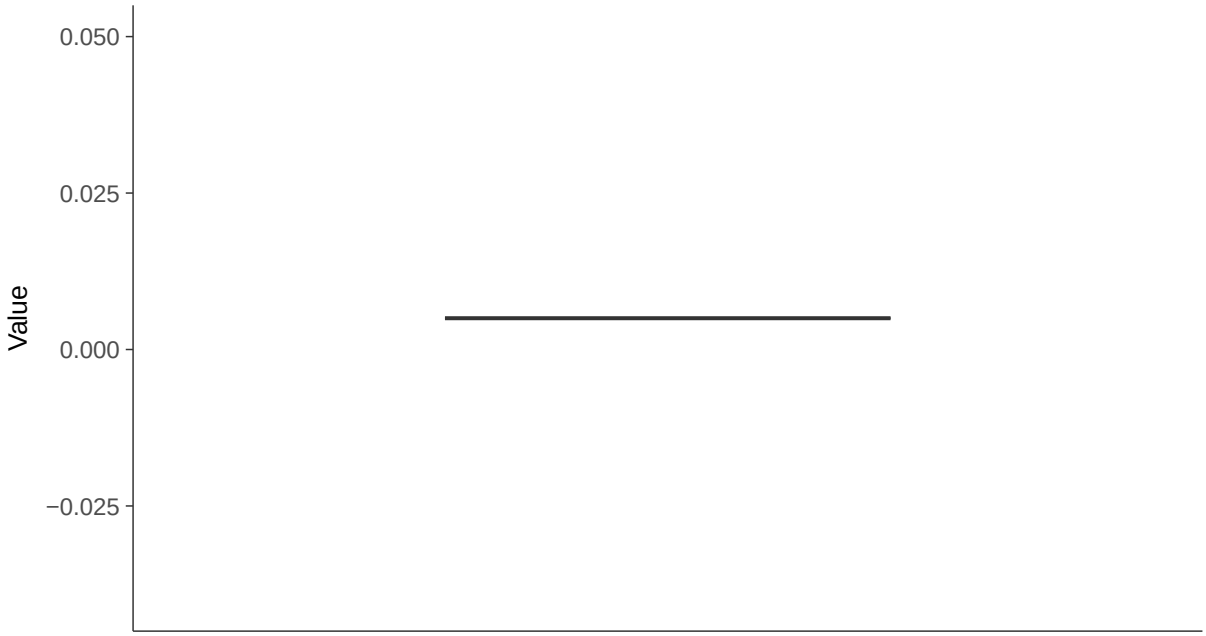
ID: 15_5_39





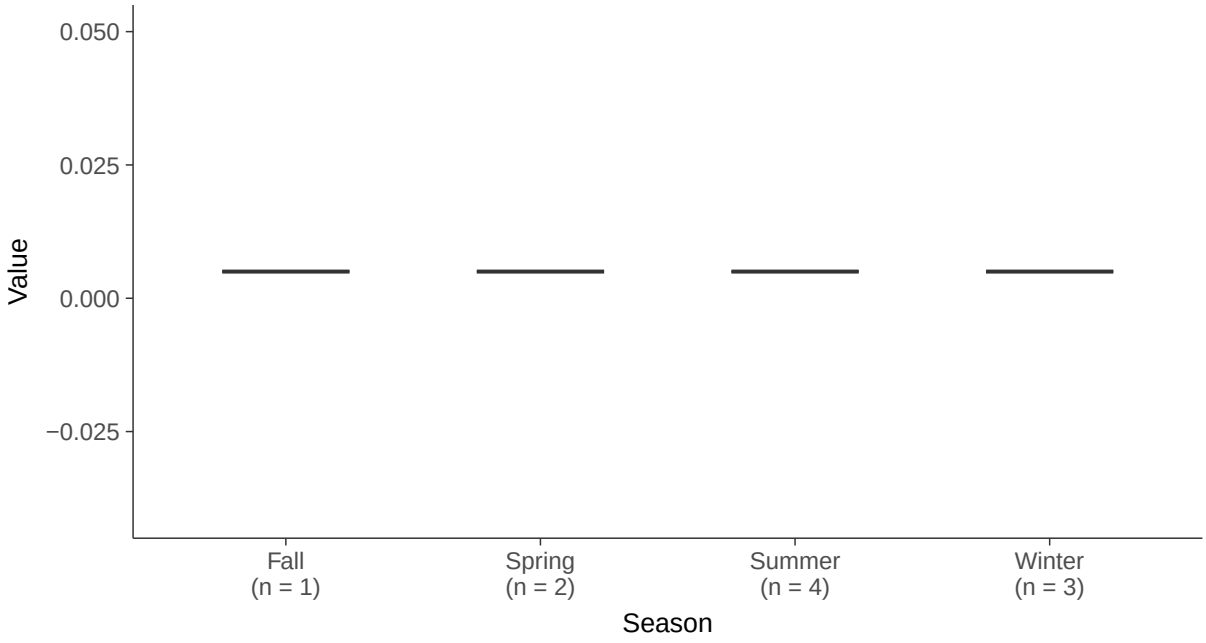
Boxplot

Nickel, MW-15 (mg/L)



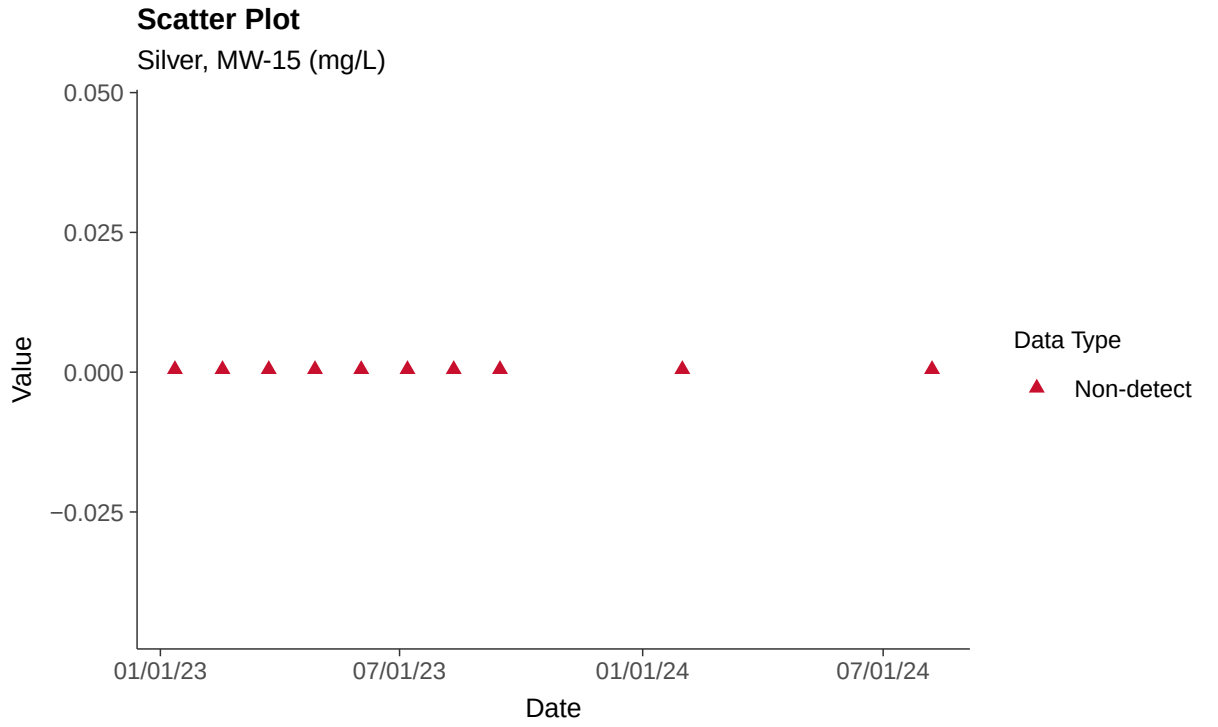
Boxplot by Season

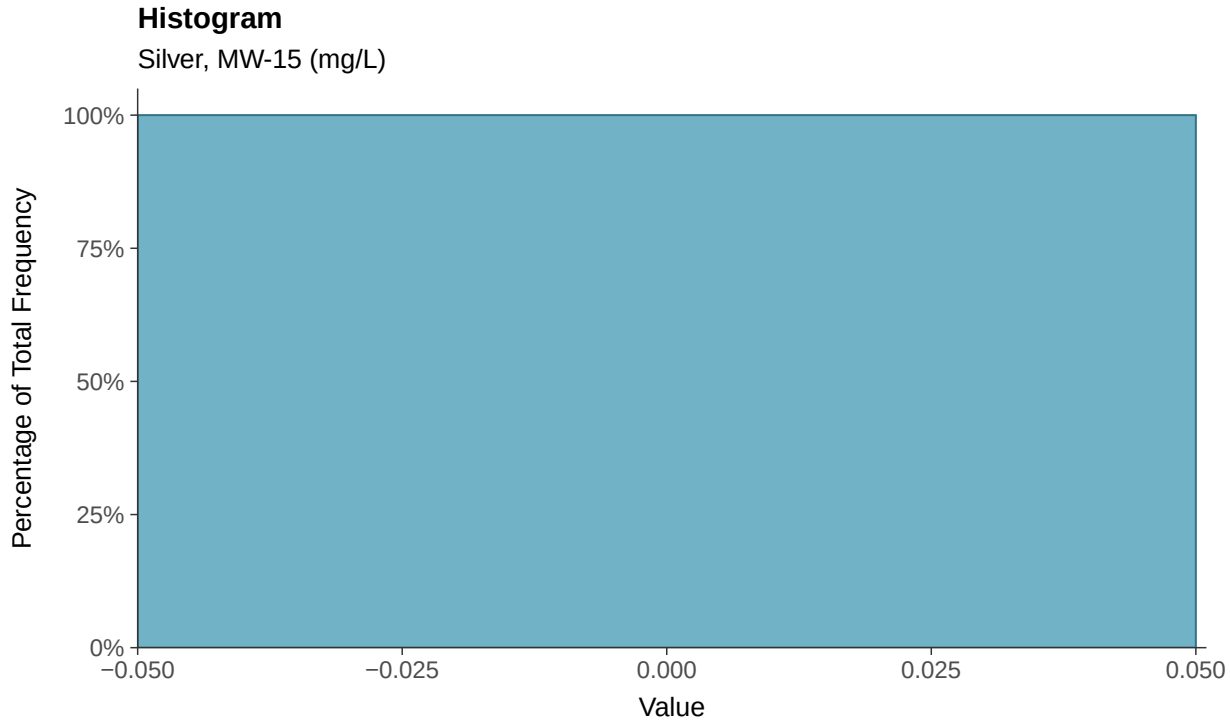
Nickel, MW-15 (mg/L)



Part 115: Silver, MW-15

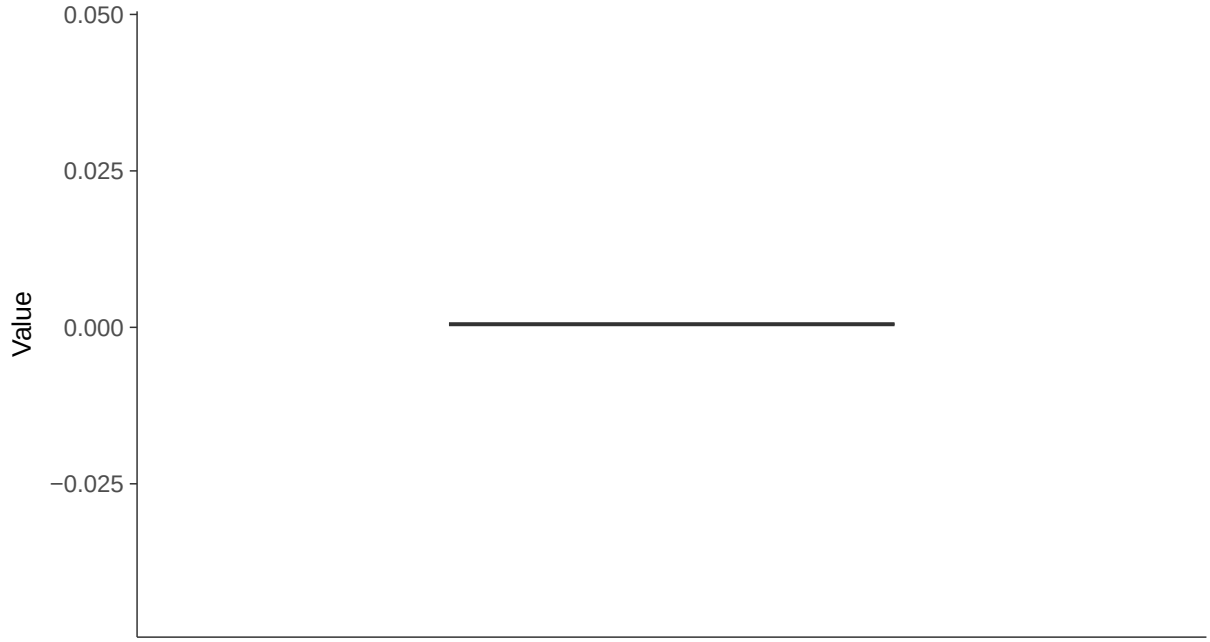
ID: 15_5_40





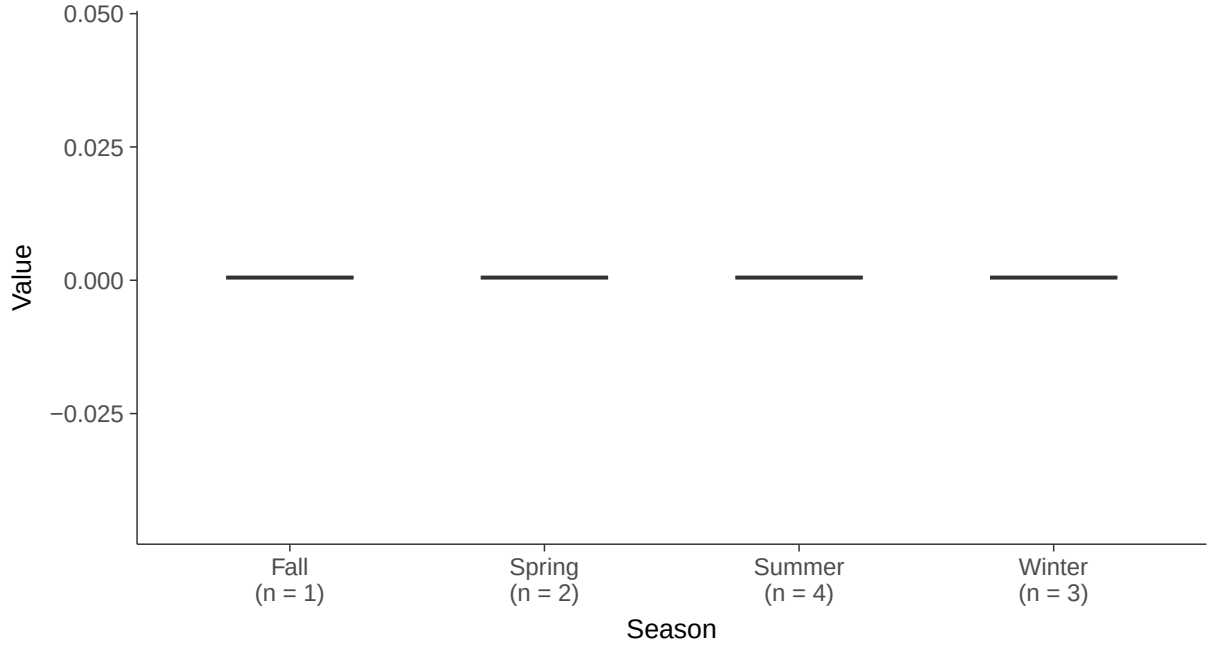
Boxplot

Silver, MW-15 (mg/L)



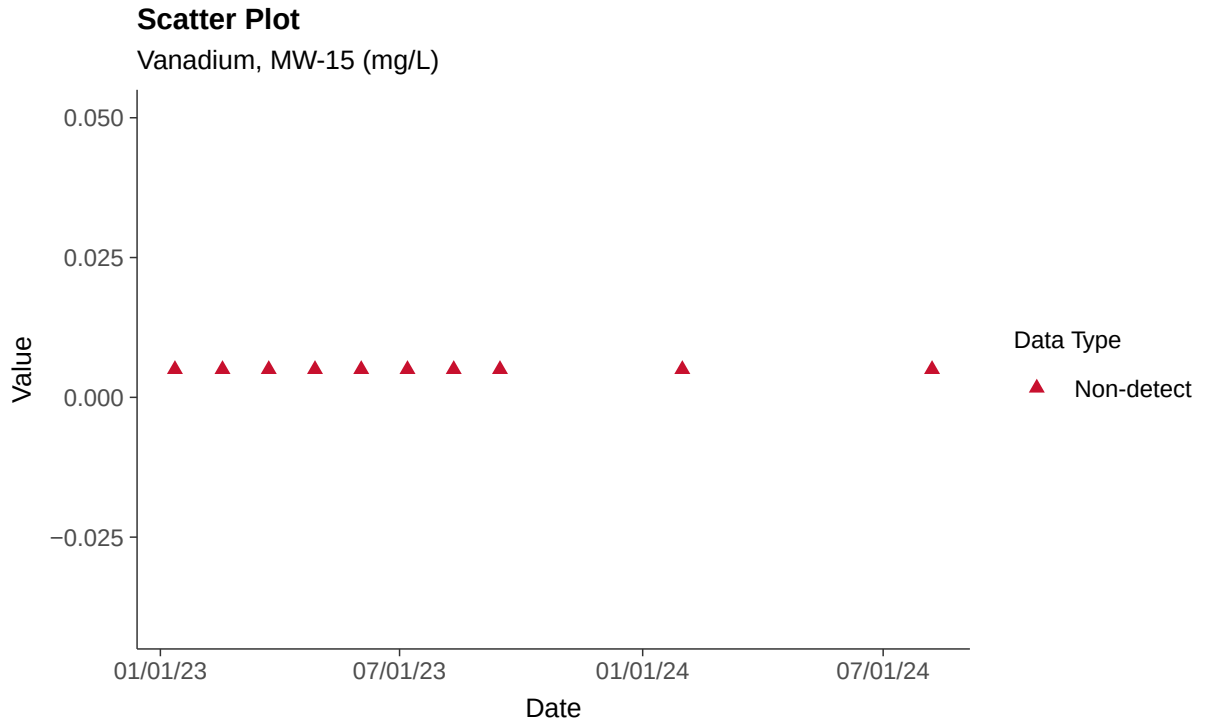
Boxplot by Season

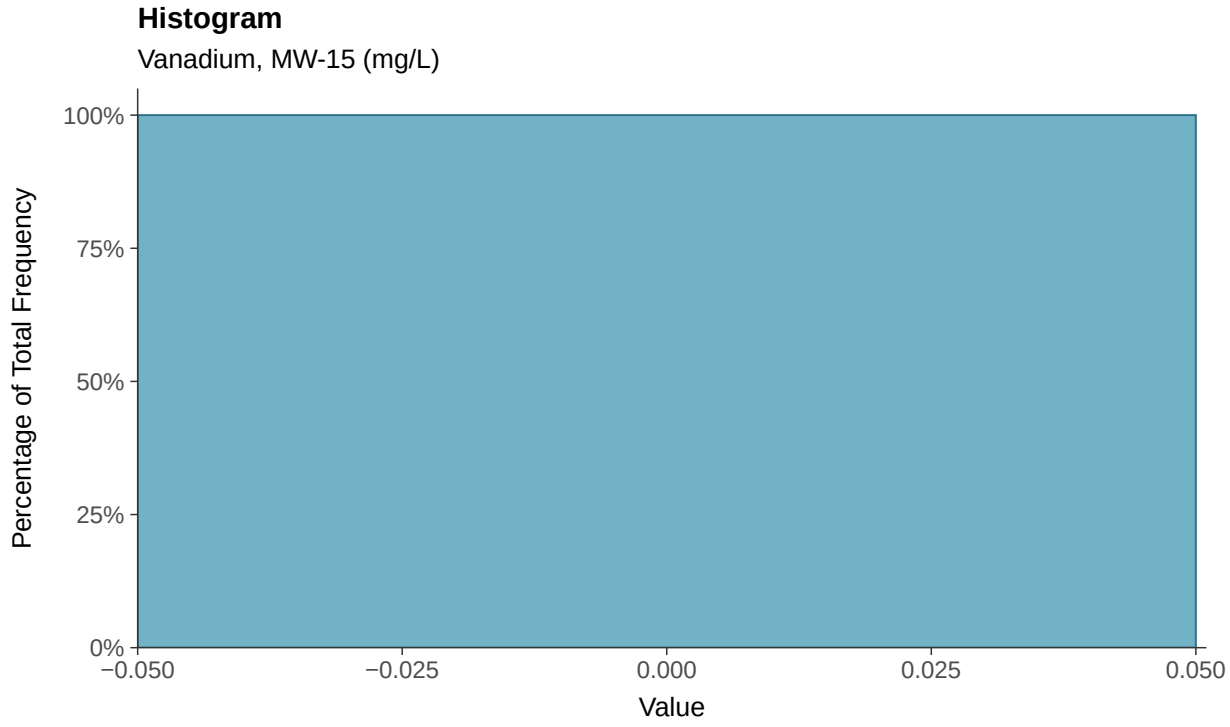
Silver, MW-15 (mg/L)



Part 115: Vanadium, MW-15

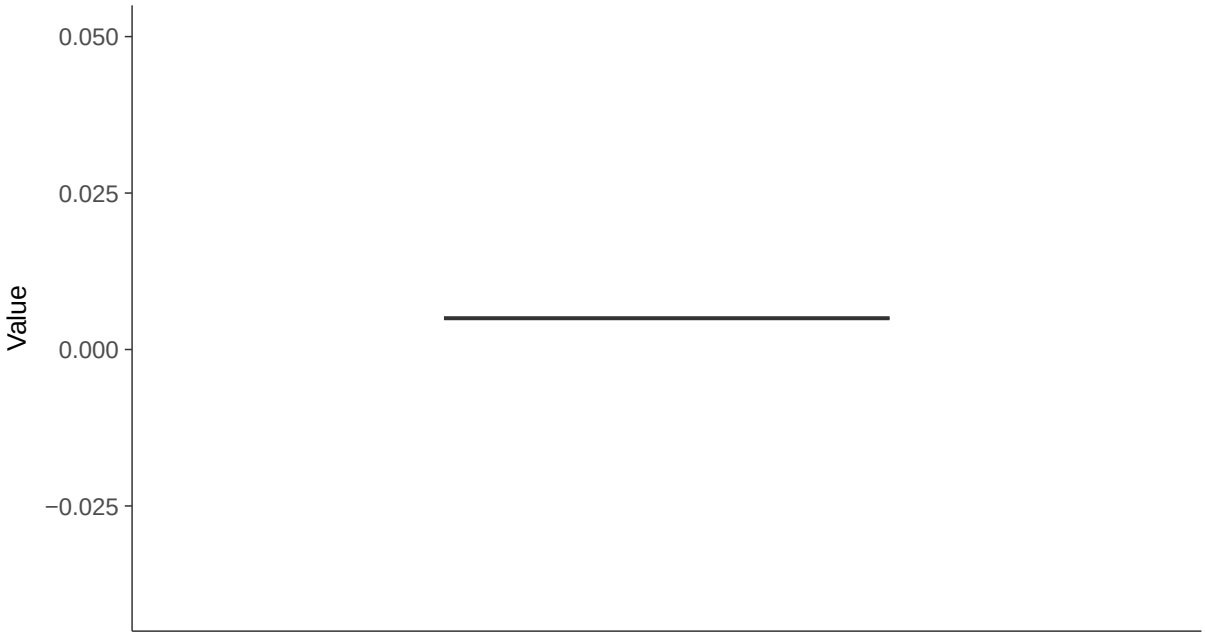
ID: 15_5_41





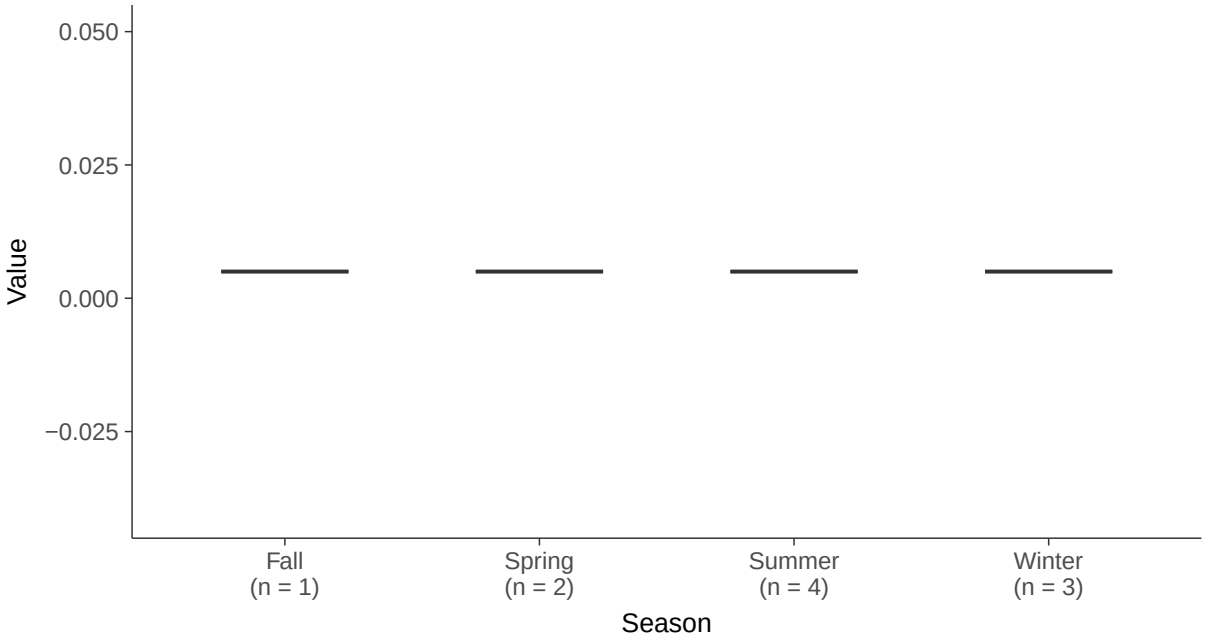
Boxplot

Vanadium, MW-15 (mg/L)



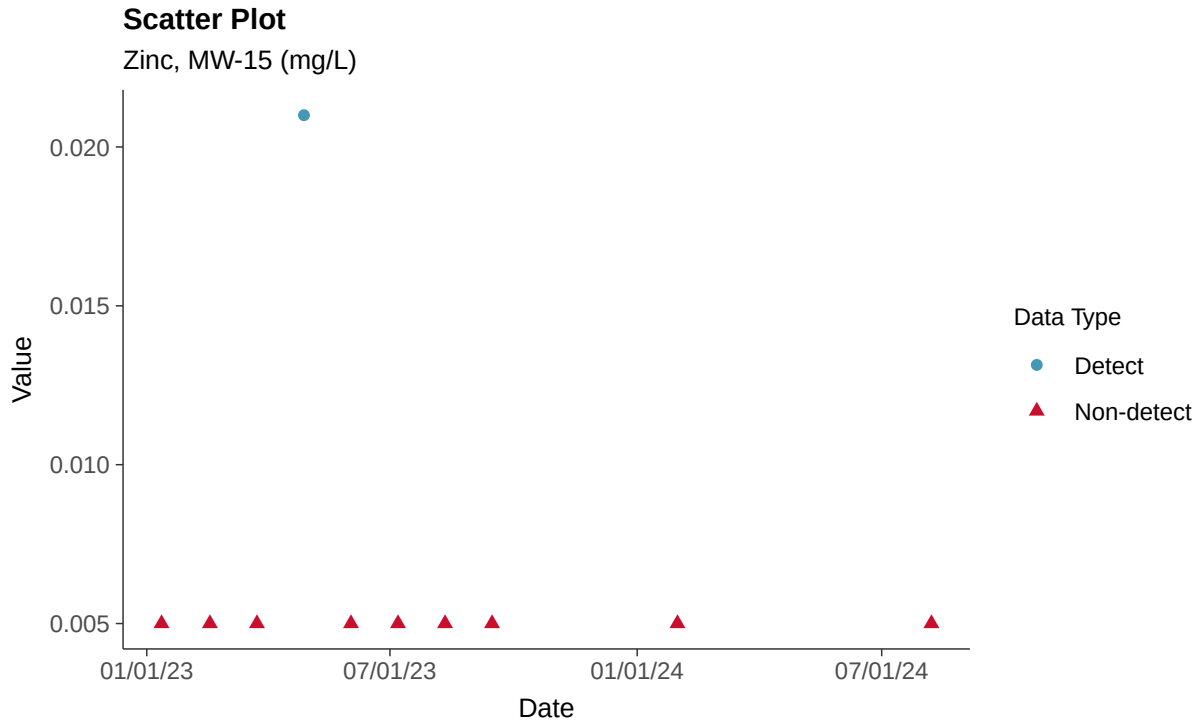
Boxplot by Season

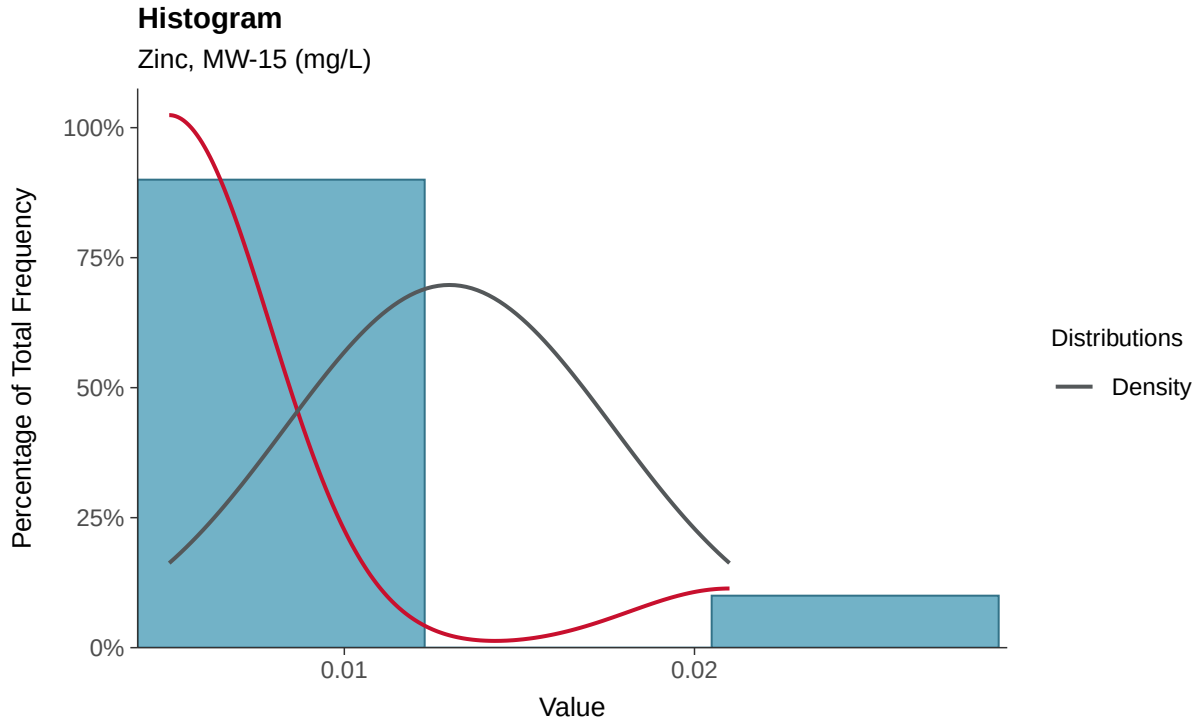
Vanadium, MW-15 (mg/L)



Part 115: Zinc, MW-15

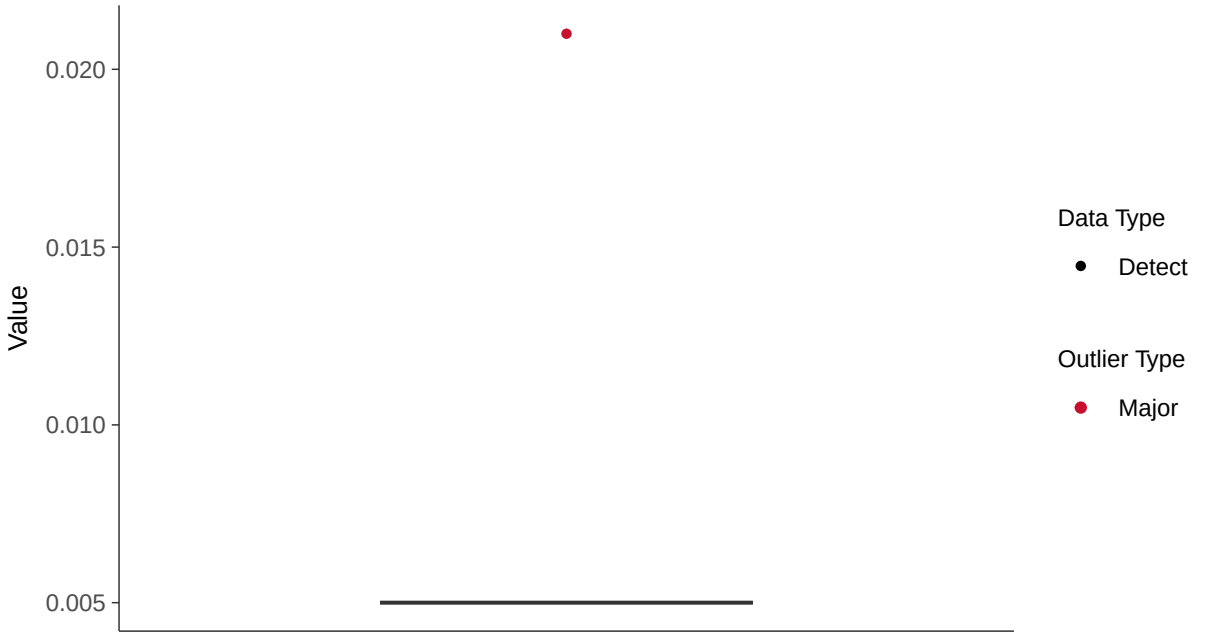
ID: 15_5_42





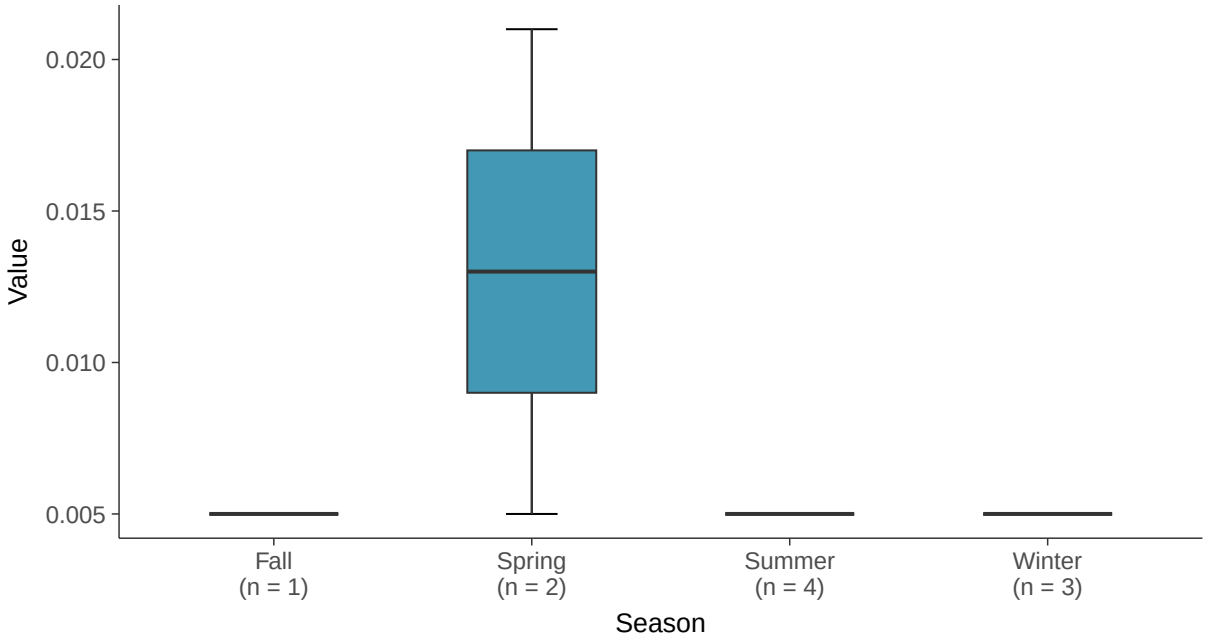
Boxplot

Zinc, MW-15 (mg/L)



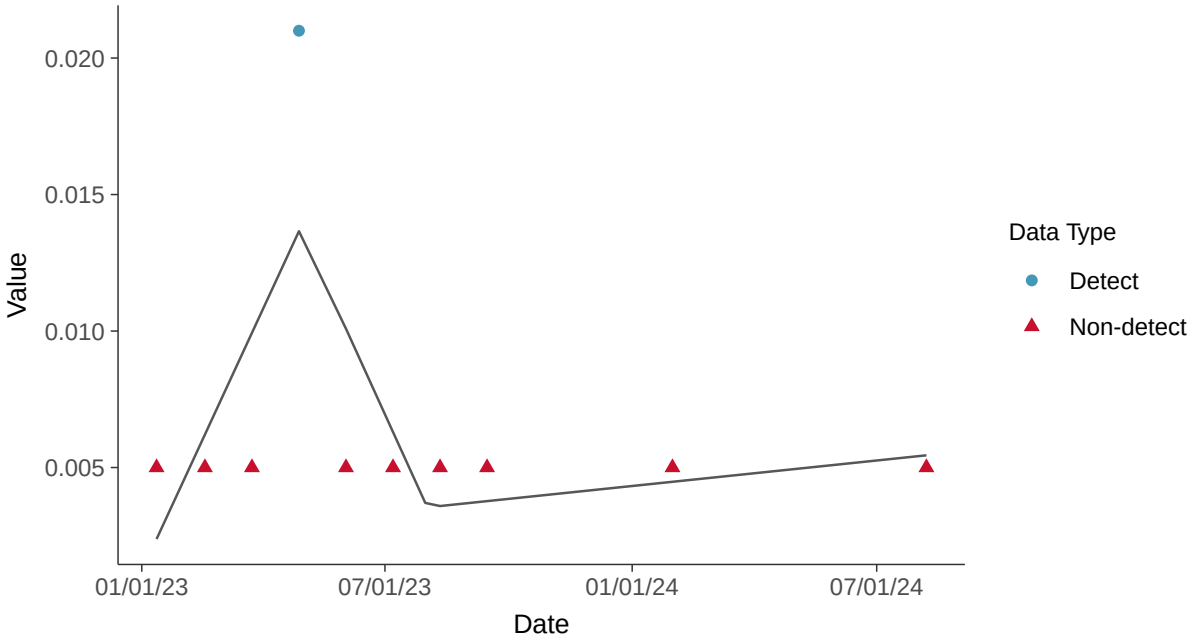
Boxplot by Season

Zinc, MW-15 (mg/L)



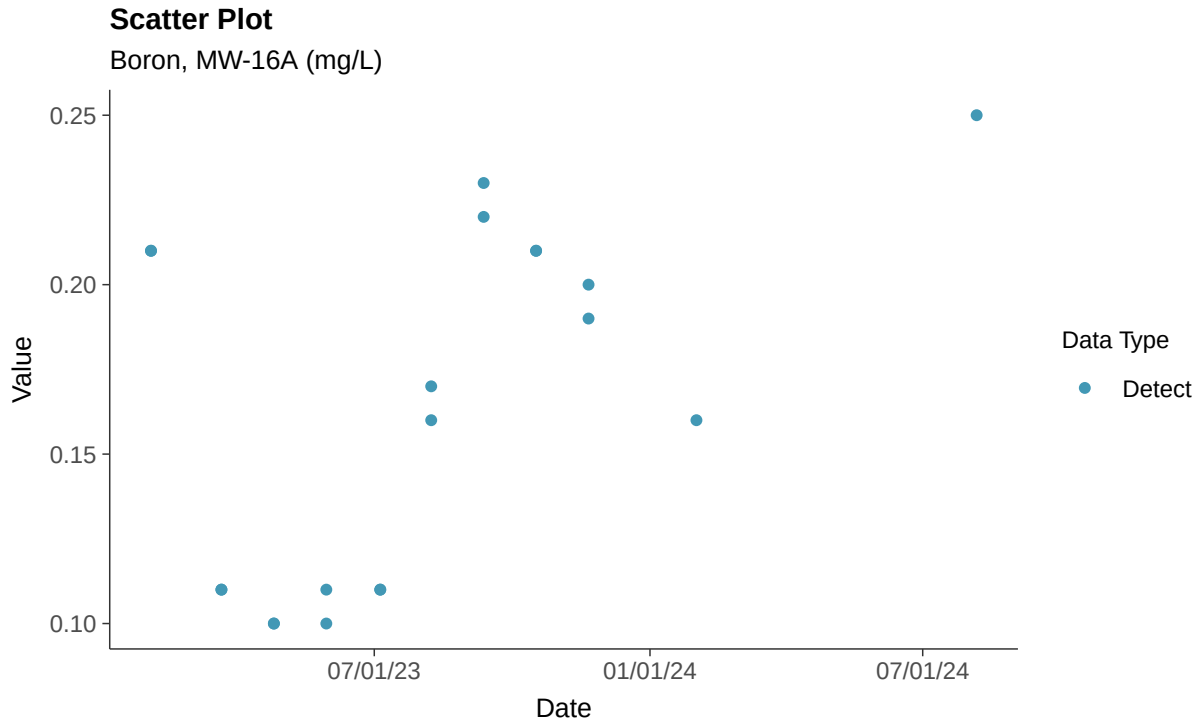
Trend Regression: Piecewise Linear-Linear-Linear

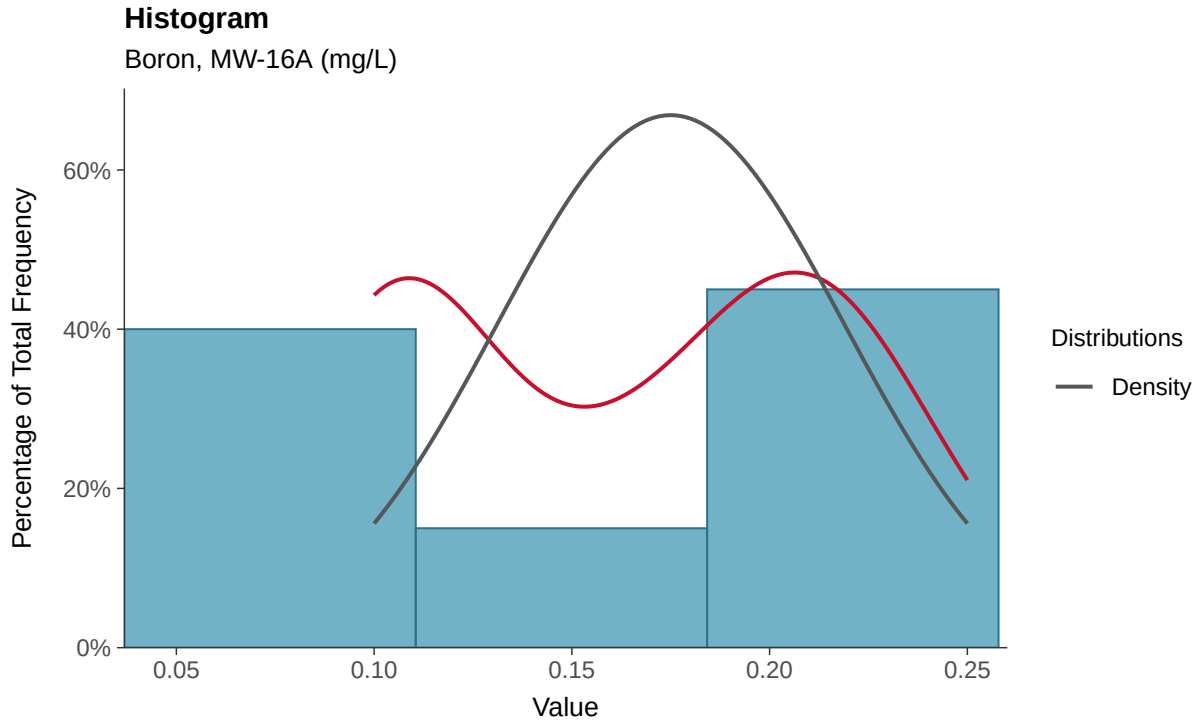
Zinc, MW-15 (mg/L)



Appendix III: Boron, MW-16A

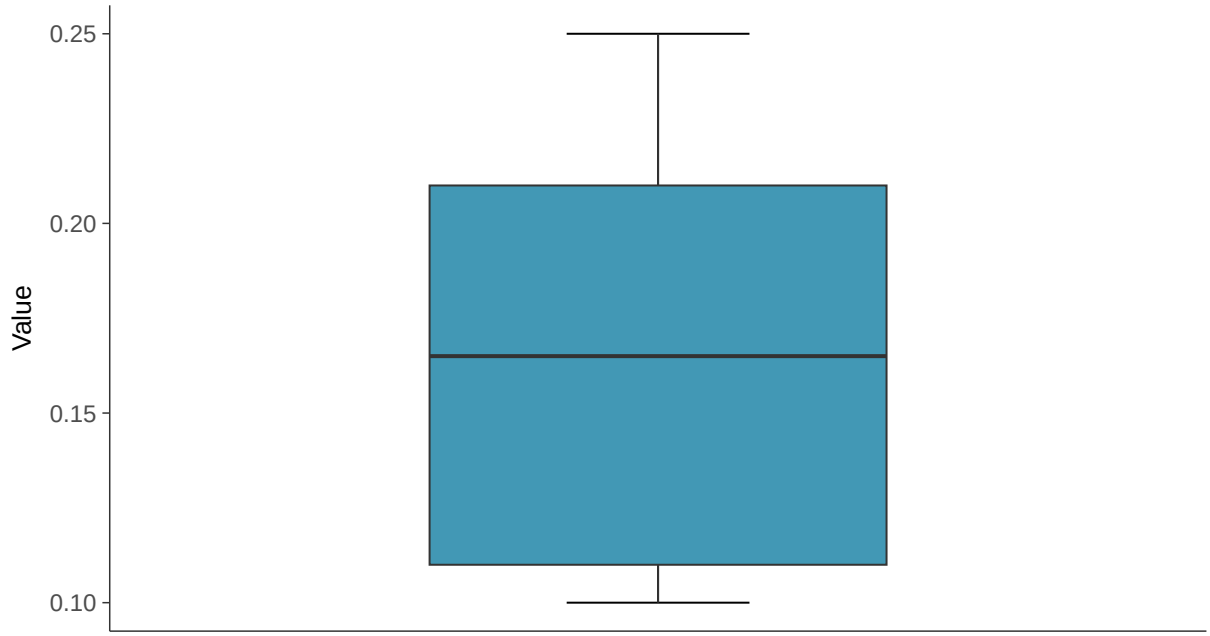
ID: 16A_1_01





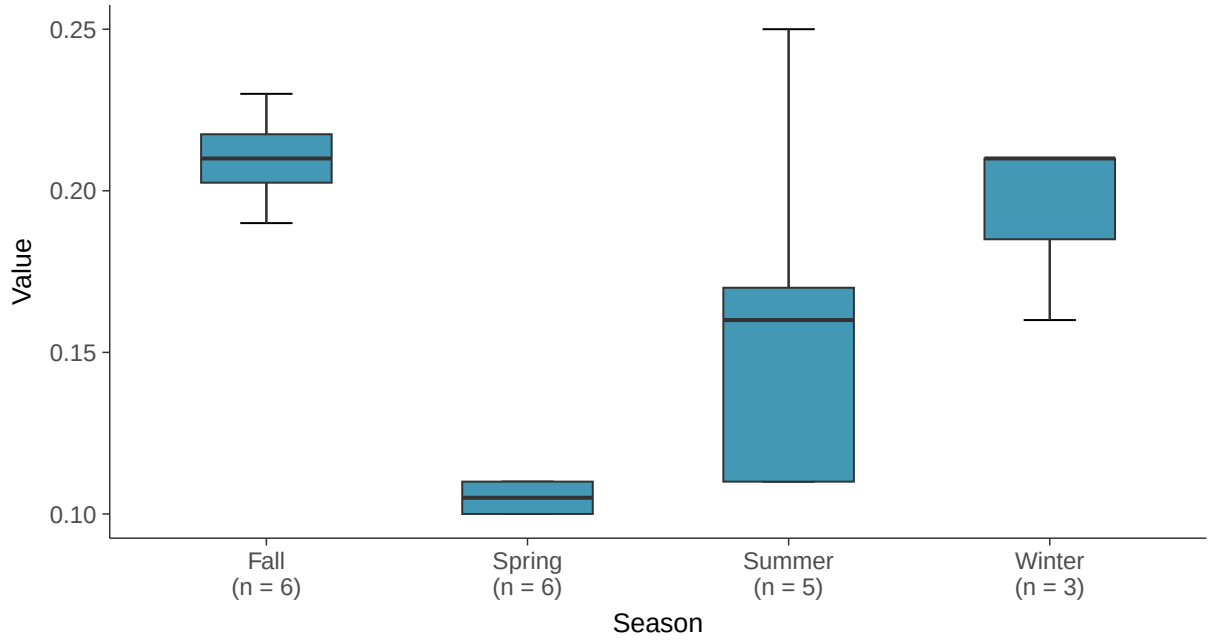
Boxplot

Boron, MW-16A (mg/L)



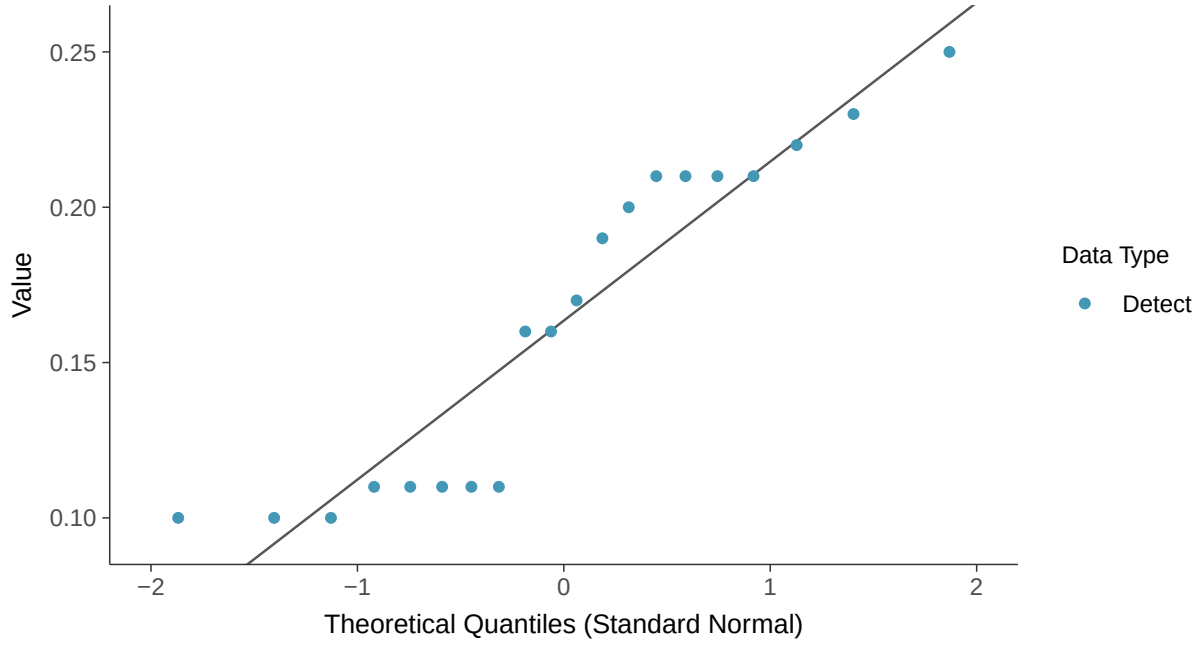
Boxplot by Season

Boron, MW-16A (mg/L)



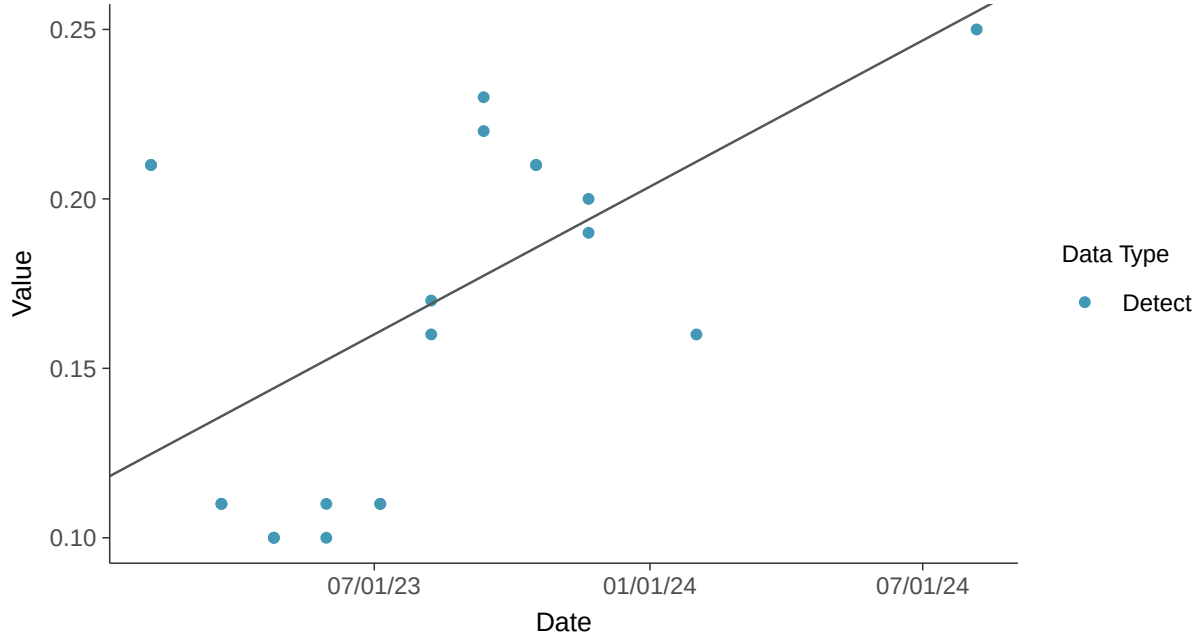
Normal Q-Q plot

Boron, MW-16A (mg/L)



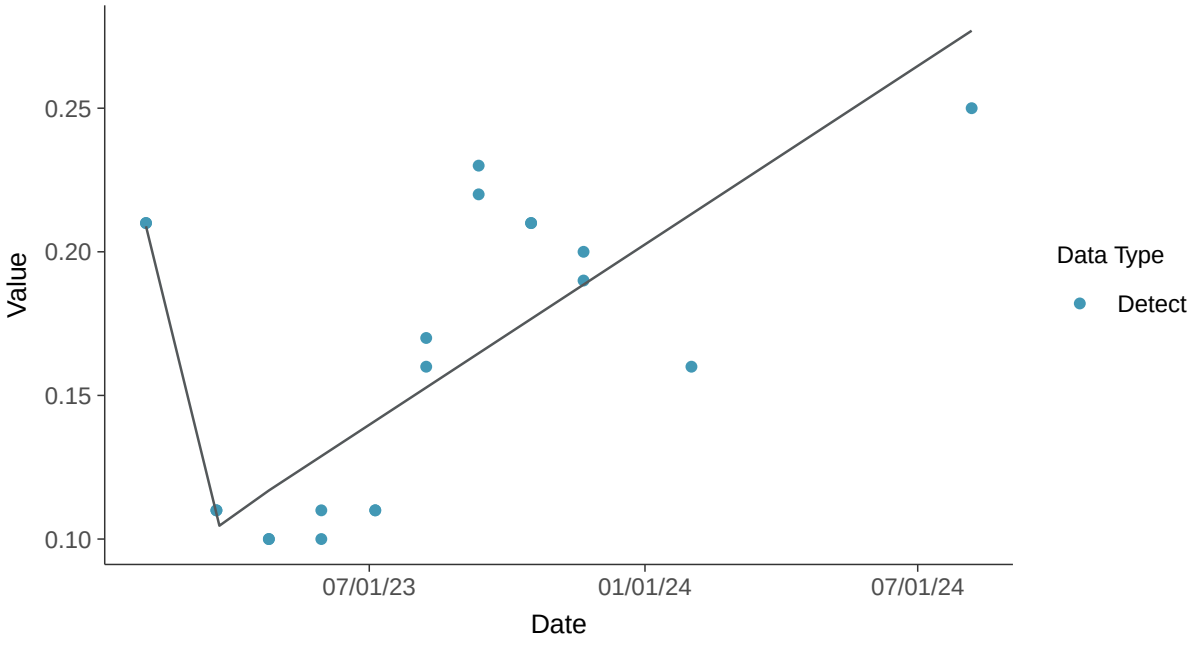
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Boron, MW-16A (mg/L)



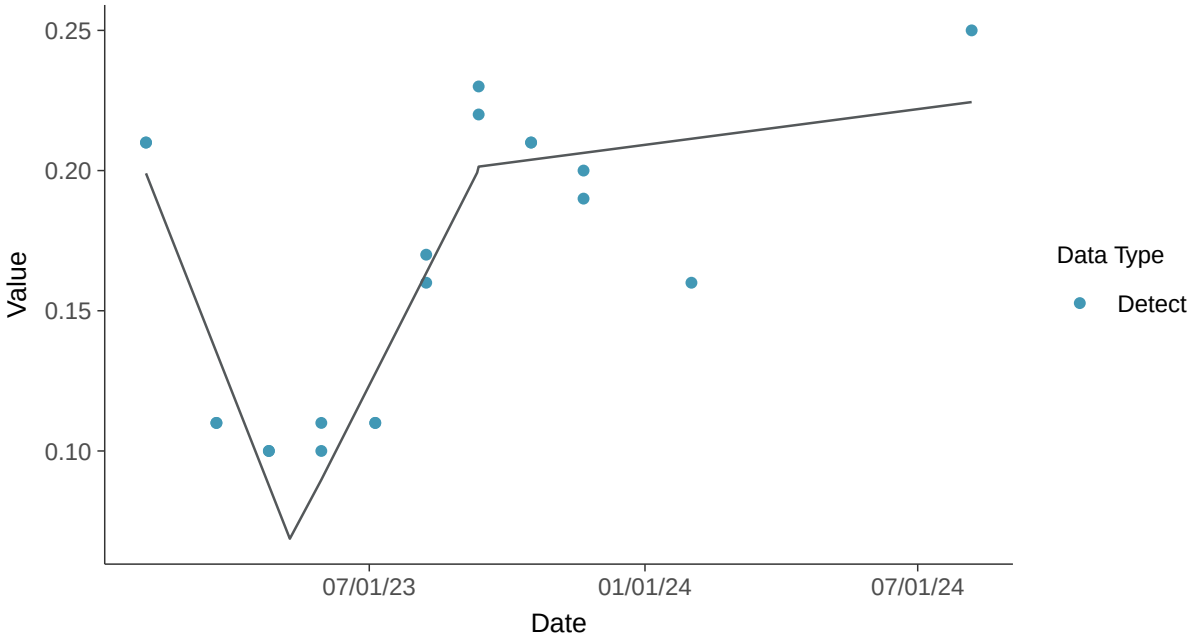
Trend Regression: Piecewise Linear-Linear

Boron, MW-16A (mg/L)



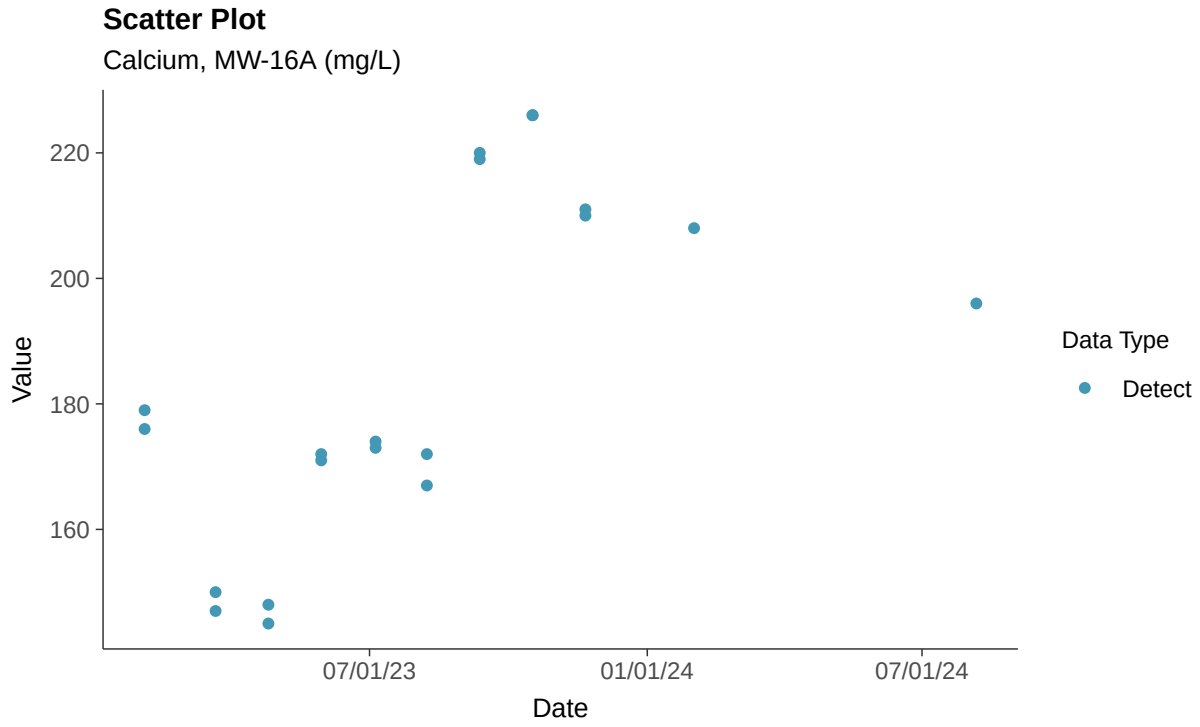
Trend Regression: Piecewise Linear-Linear-Linear

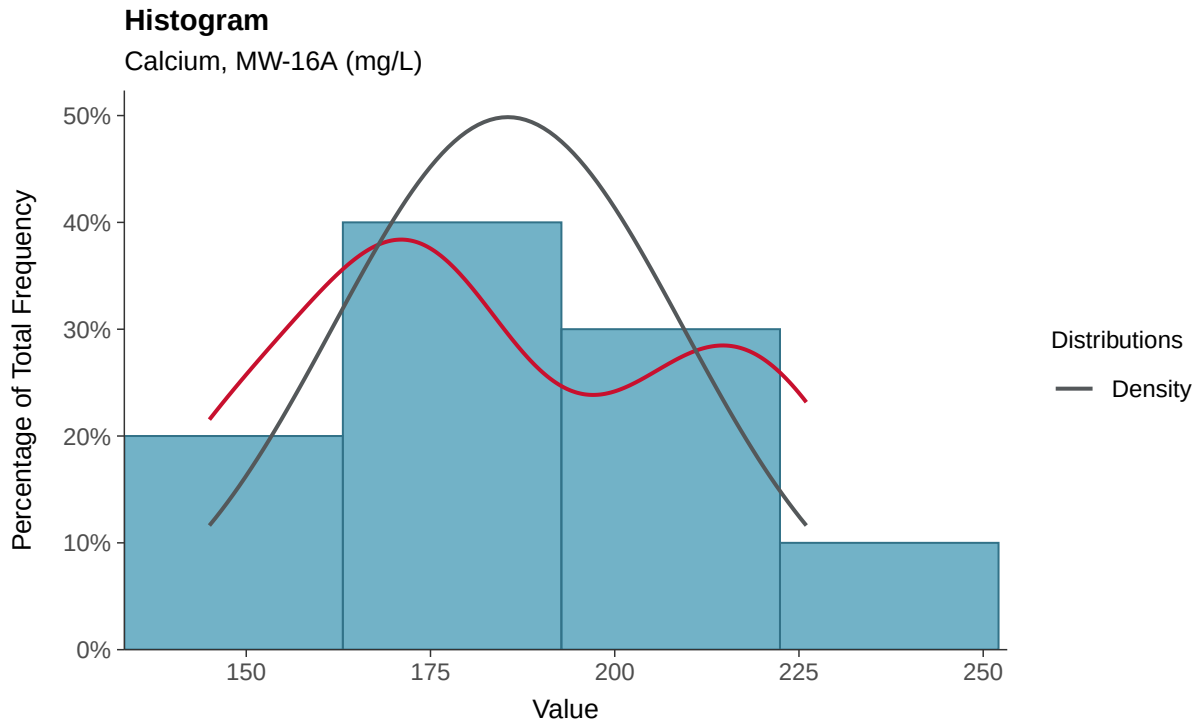
Boron, MW-16A (mg/L)



Appendix III: Calcium, MW-16A

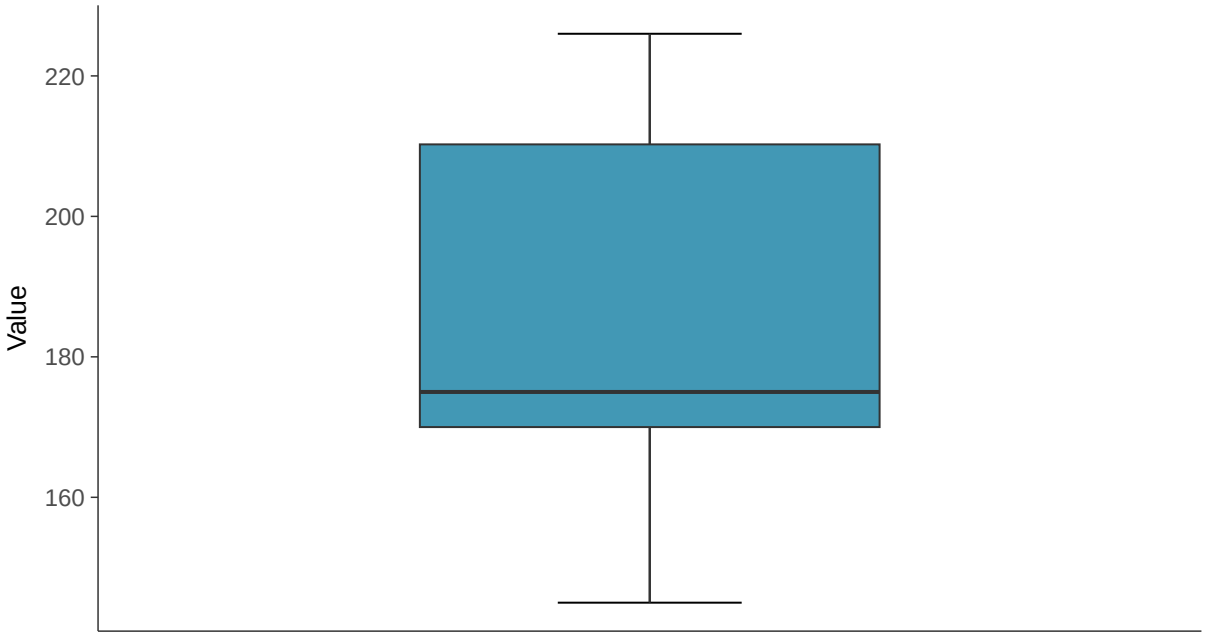
ID: 16A_1_02





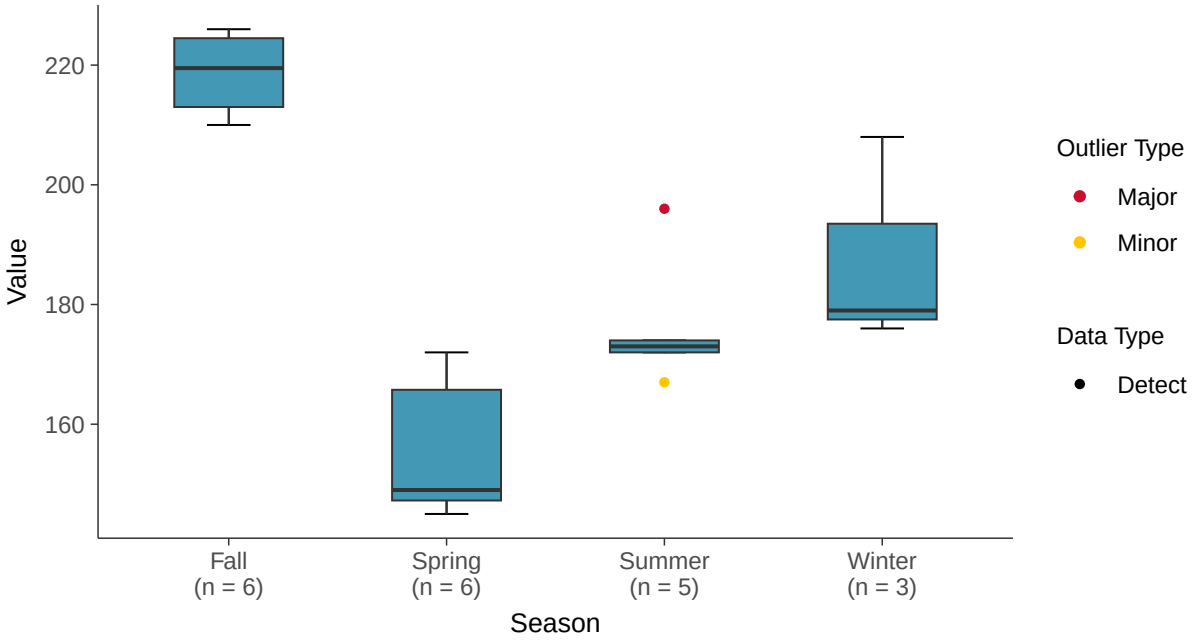
Boxplot

Calcium, MW-16A (mg/L)



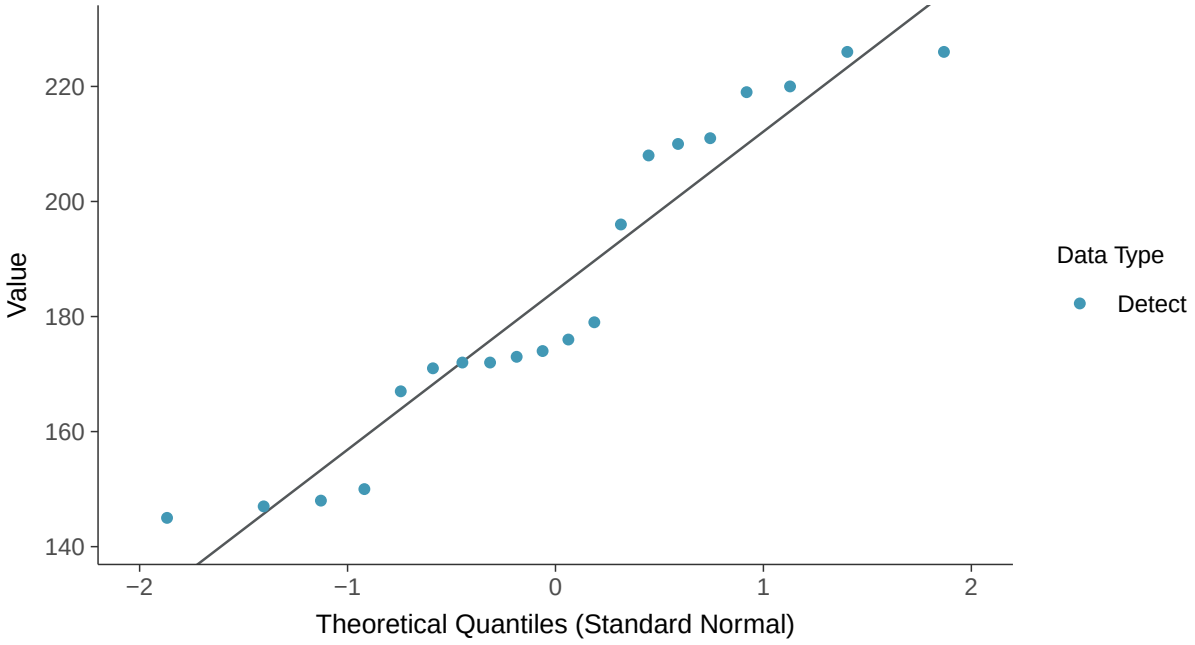
Boxplot by Season

Calcium, MW-16A (mg/L)



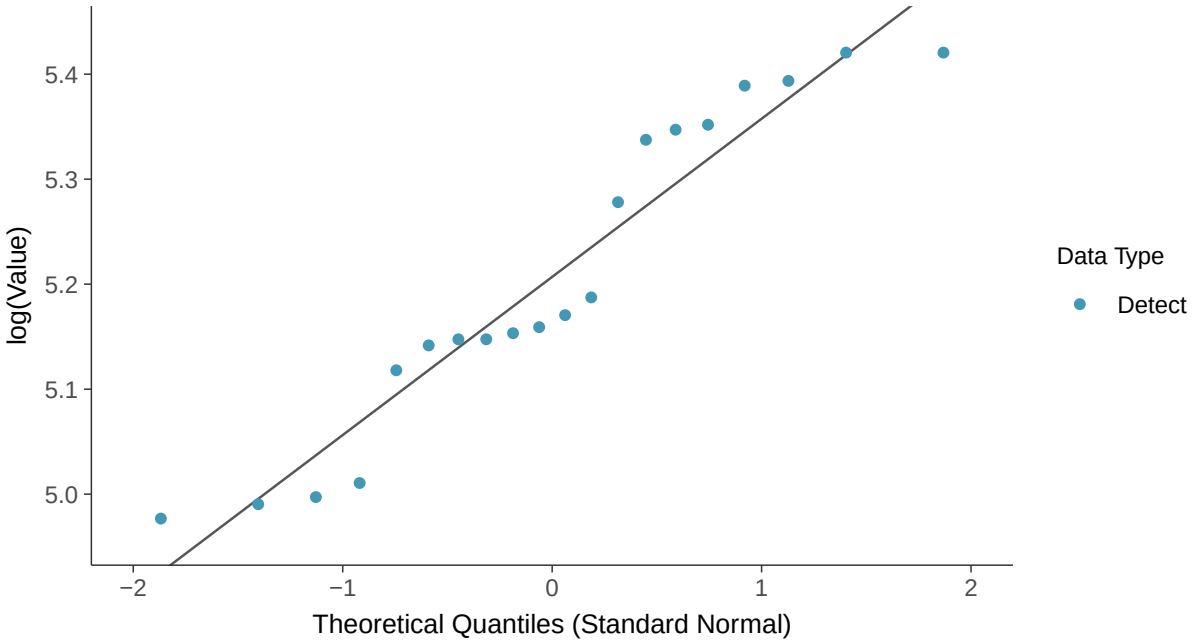
Normal Q-Q plot

Calcium, MW-16A (mg/L)



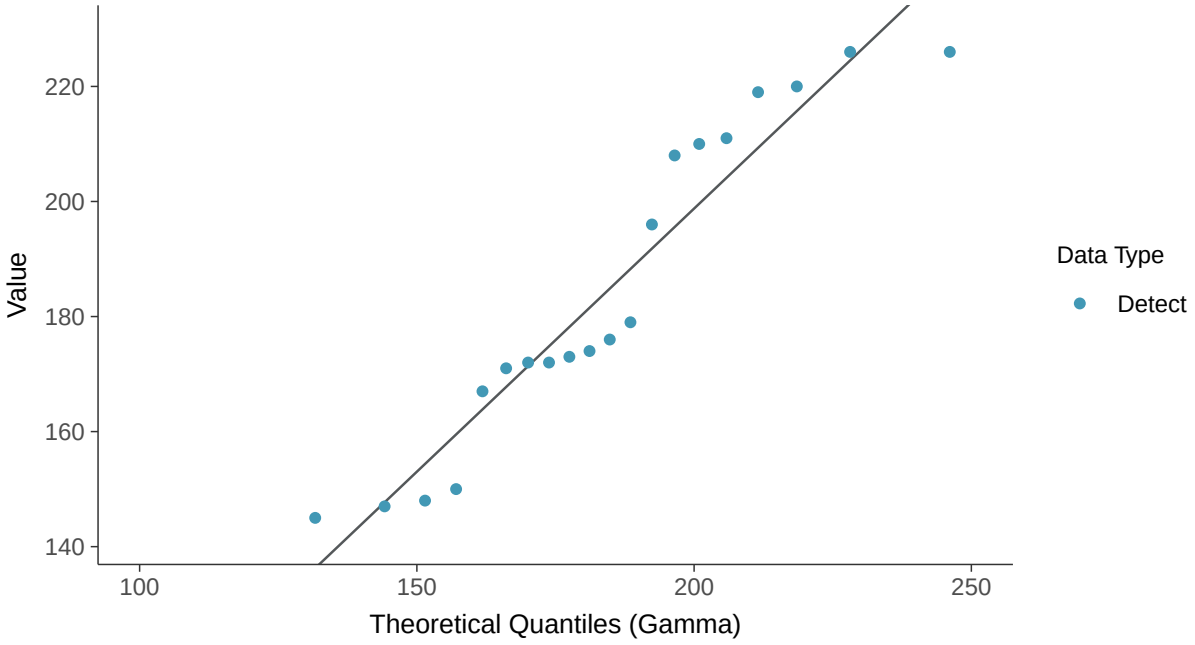
Lognormal Q-Q plot

Calcium, MW-16A (mg/L)



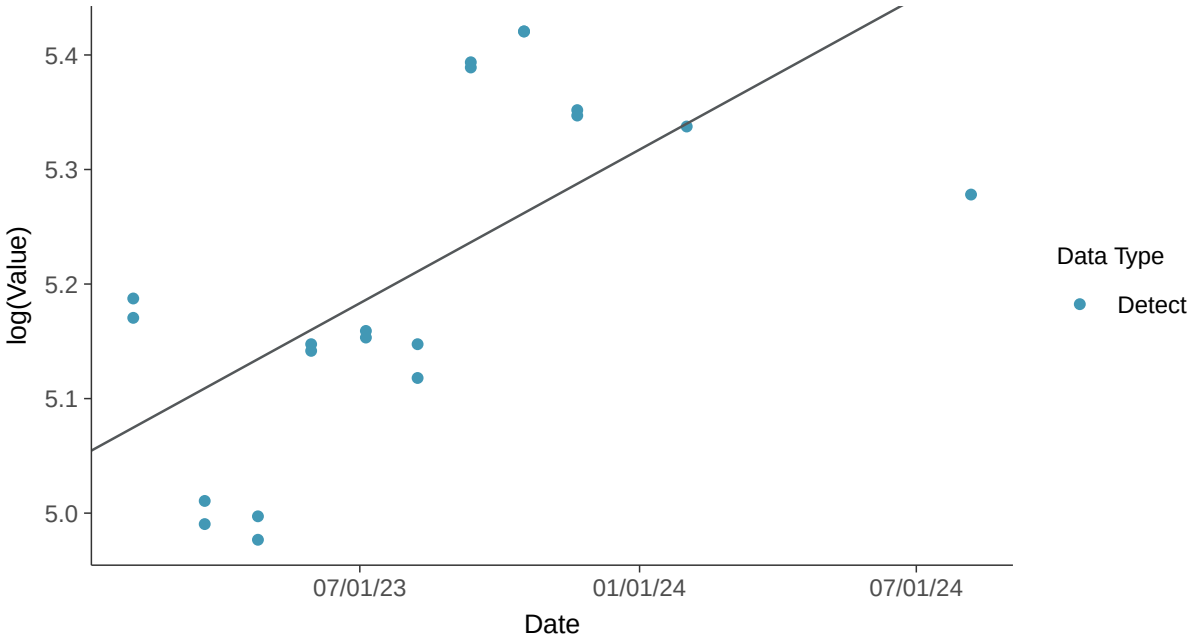
Gamma Q-Q plot

Calcium, MW-16A (mg/L)



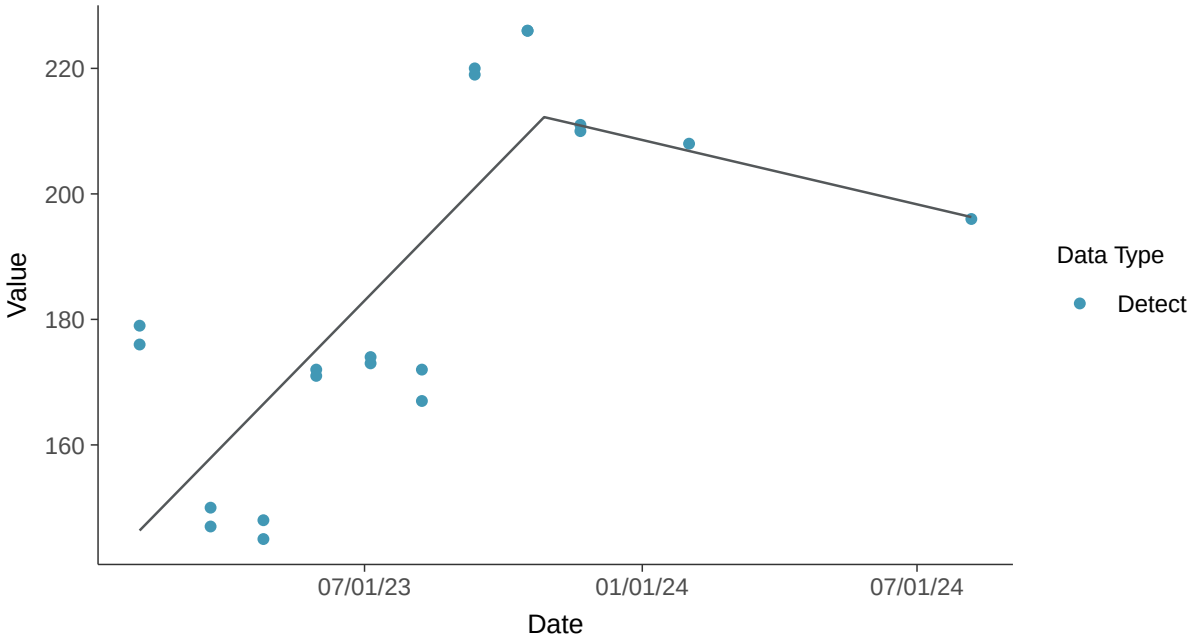
Trend Regression: Lognormal MLE

Calcium, MW-16A (mg/L)



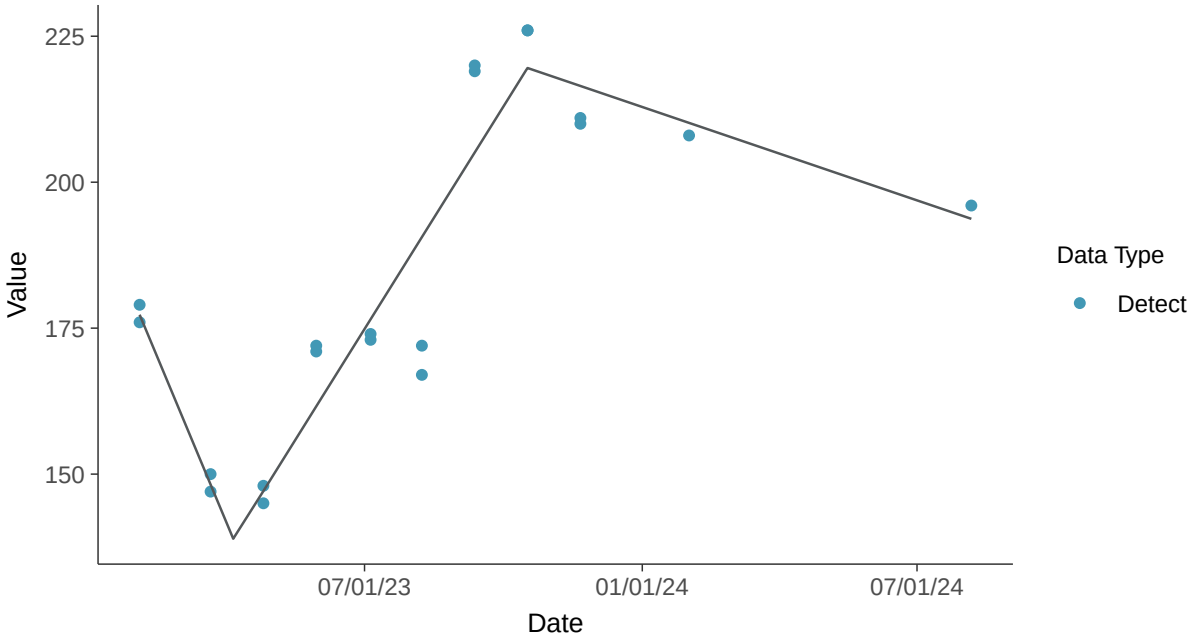
Trend Regression: Piecewise Linear-Linear

Calcium, MW-16A (mg/L)



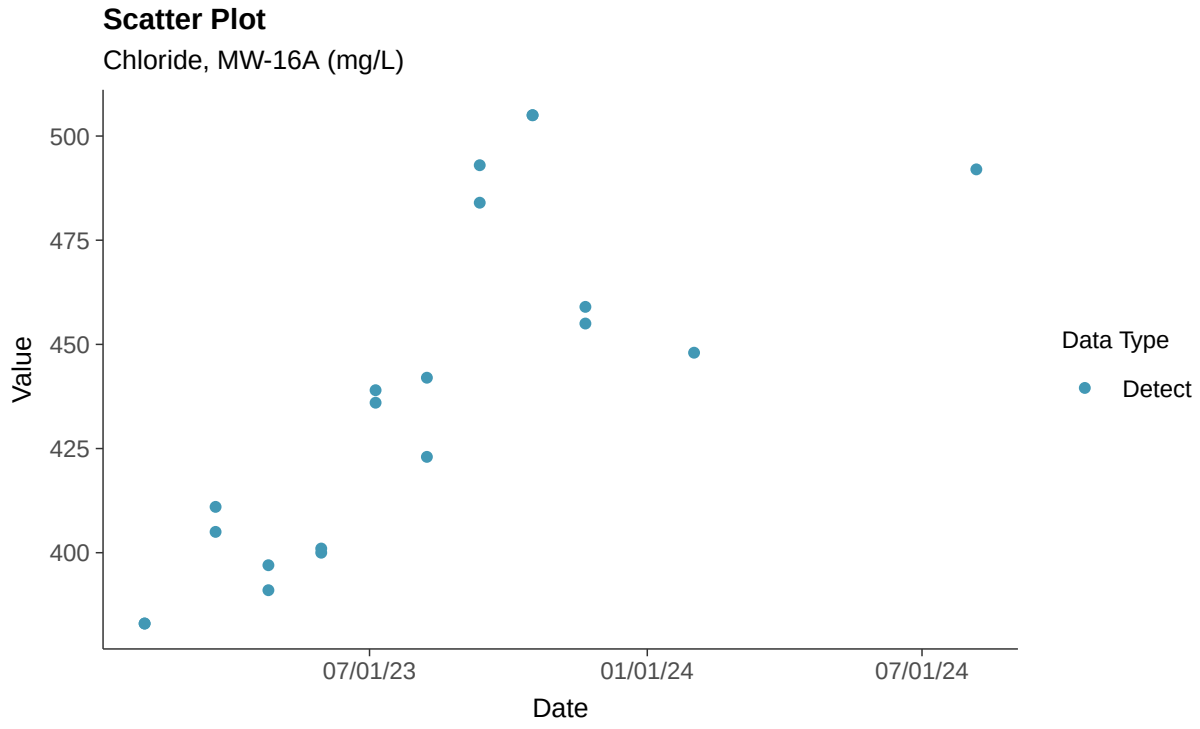
Trend Regression: Piecewise Linear-Linear-Linear

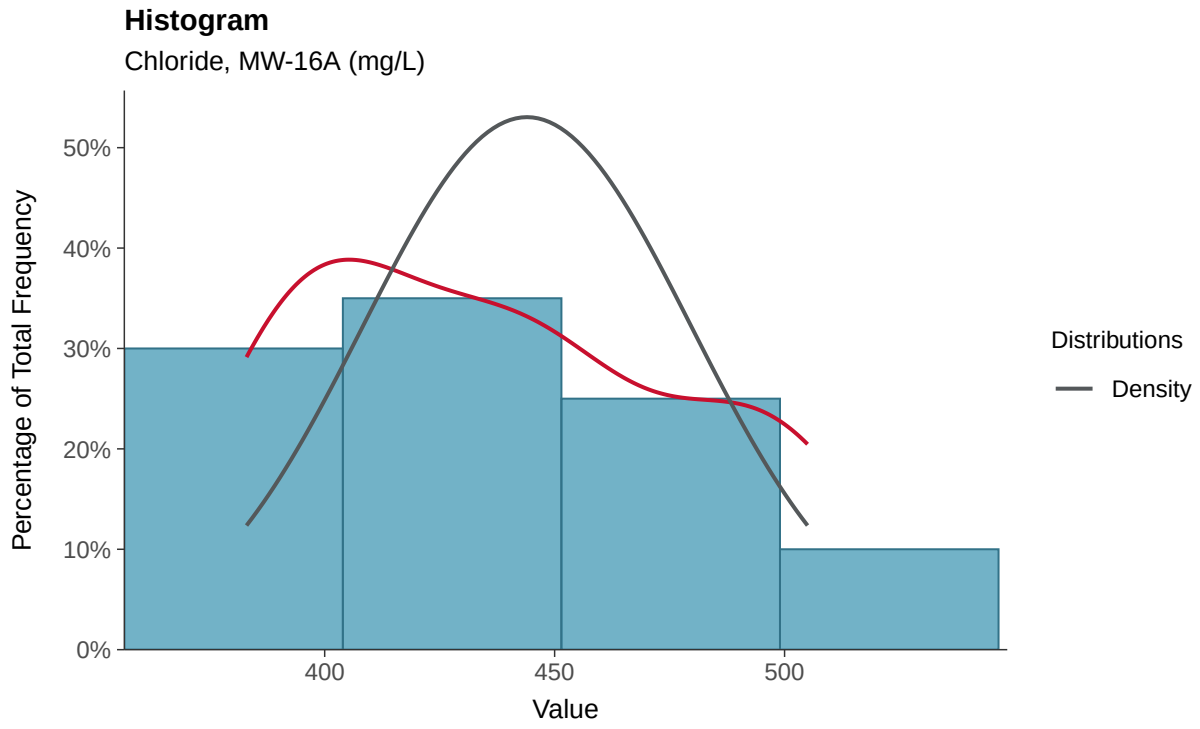
Calcium, MW-16A (mg/L)



Appendix III: Chloride, MW-16A

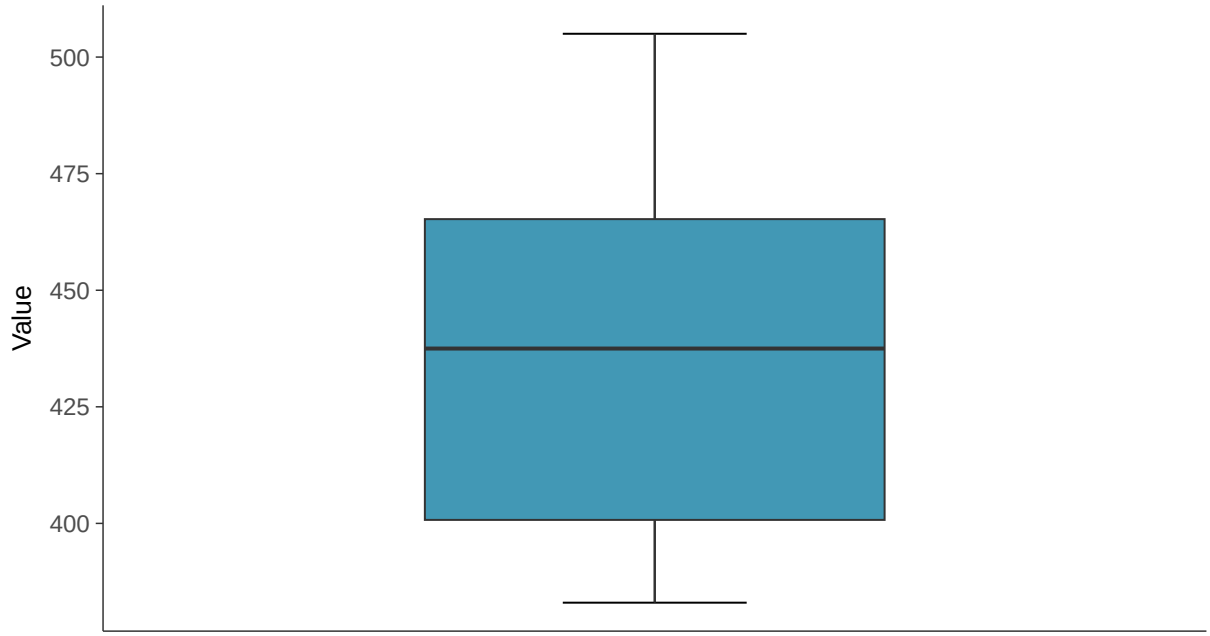
ID: 16A_1_03





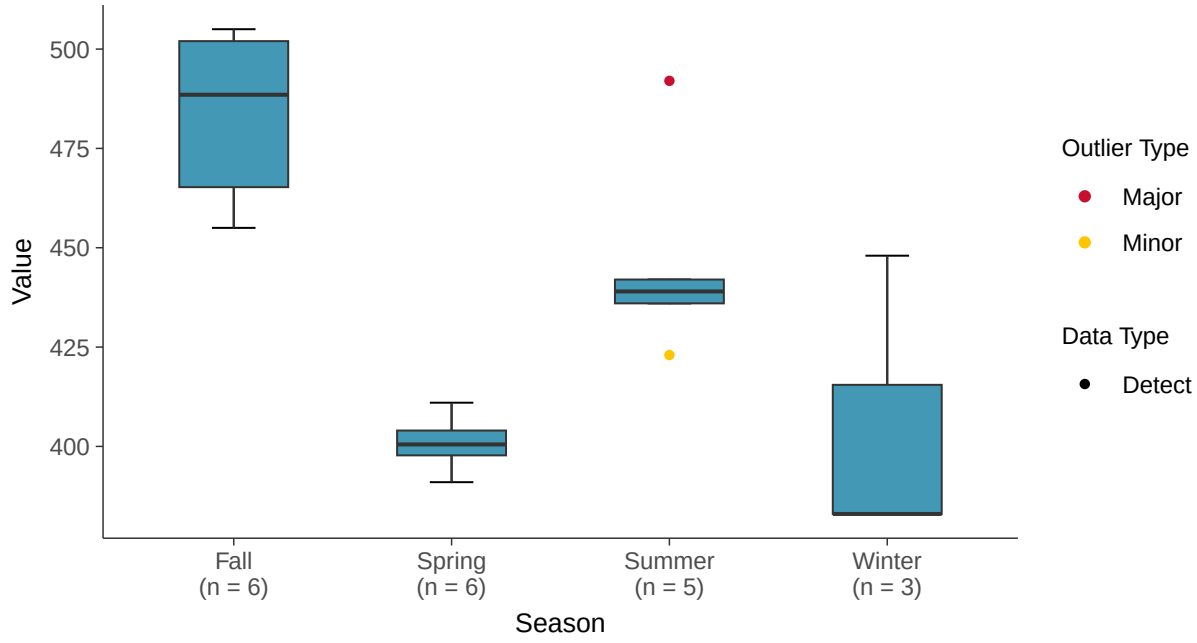
Boxplot

Chloride, MW-16A (mg/L)



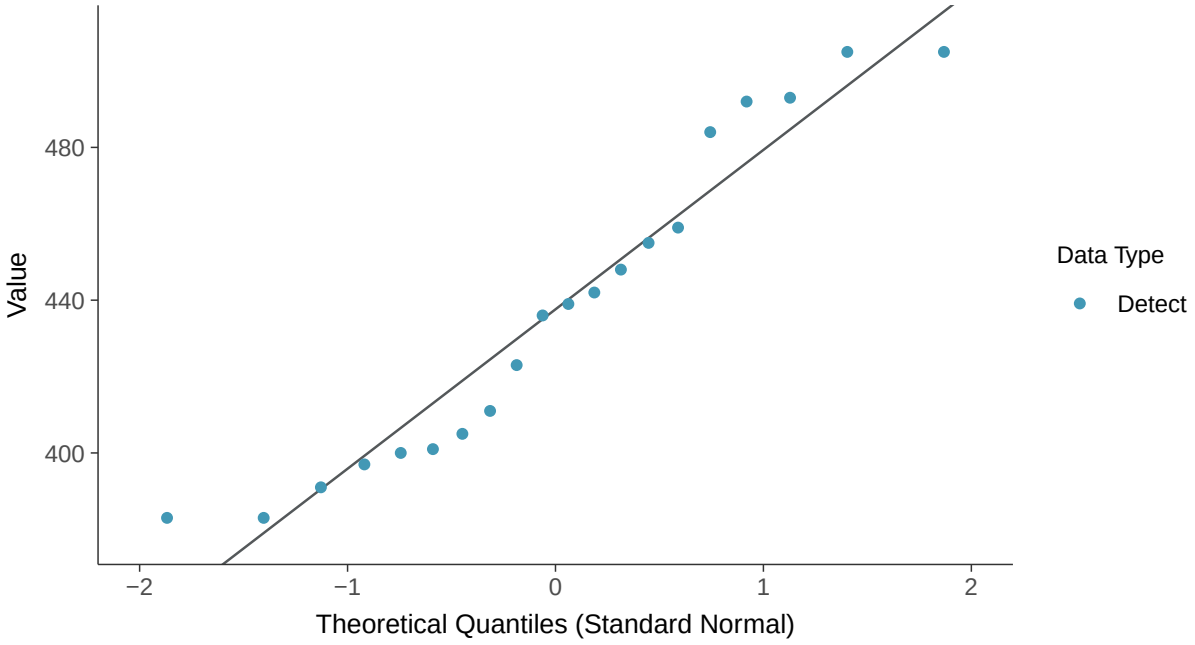
Boxplot by Season

Chloride, MW-16A (mg/L)



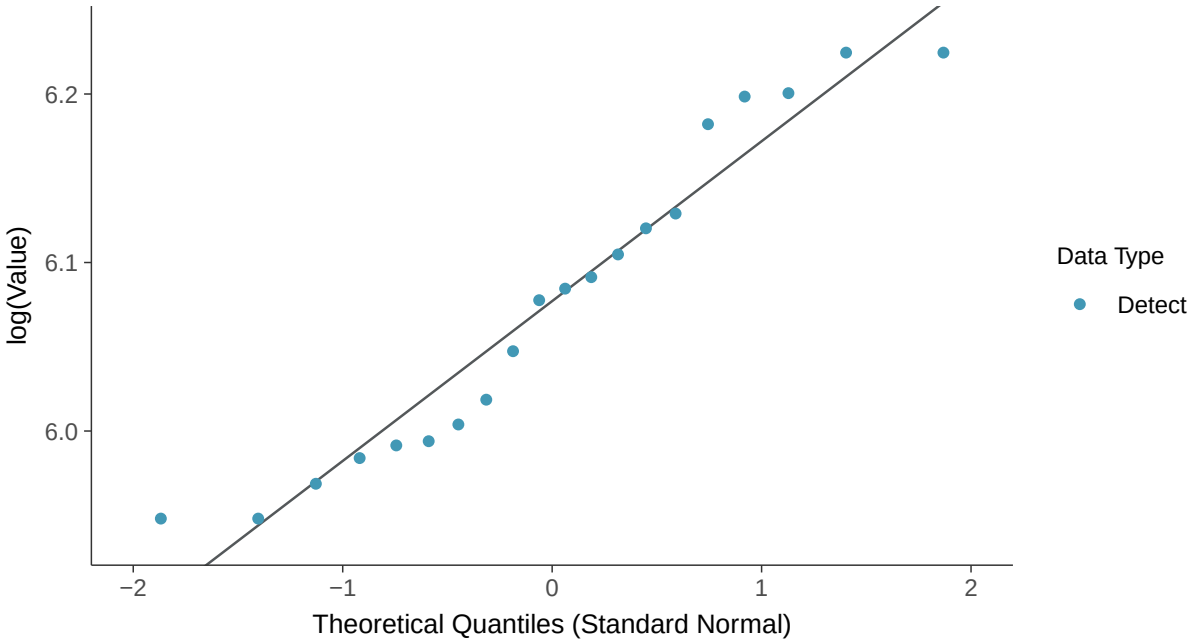
Normal Q-Q plot

Chloride, MW-16A (mg/L)



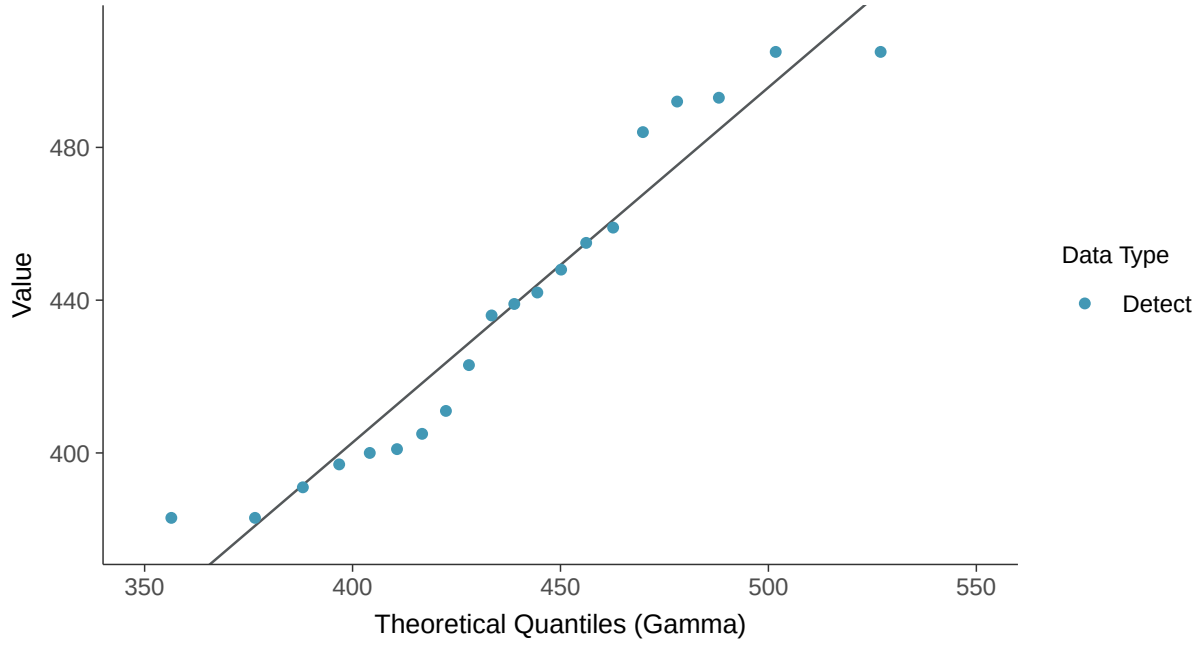
Lognormal Q-Q plot

Chloride, MW-16A (mg/L)



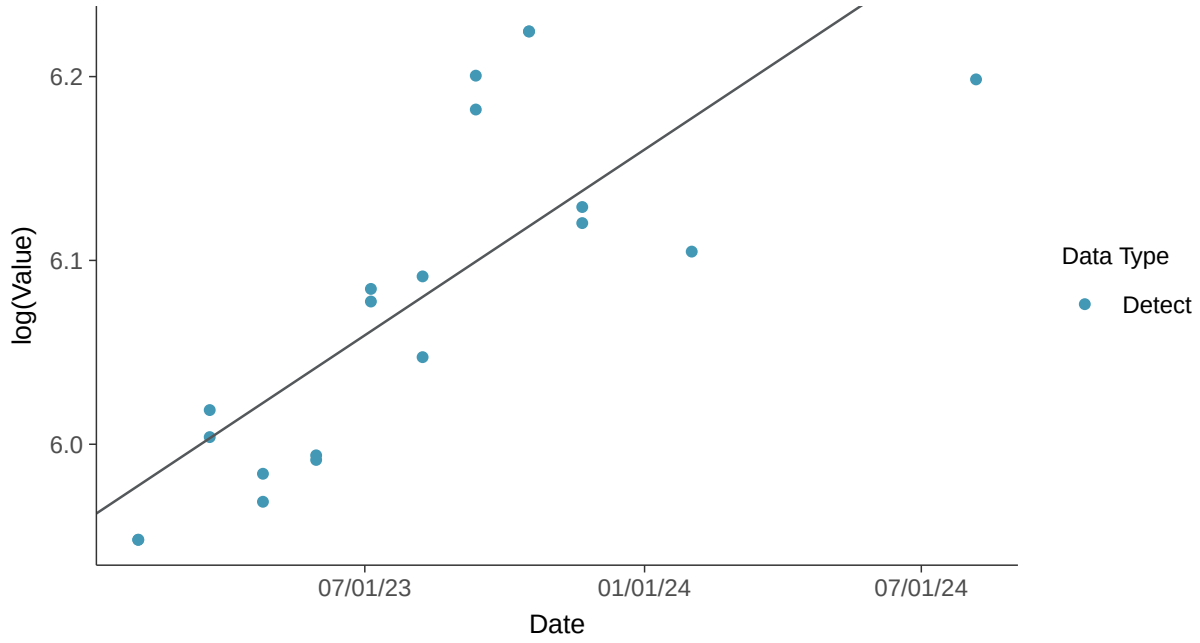
Gamma Q-Q plot

Chloride, MW-16A (mg/L)



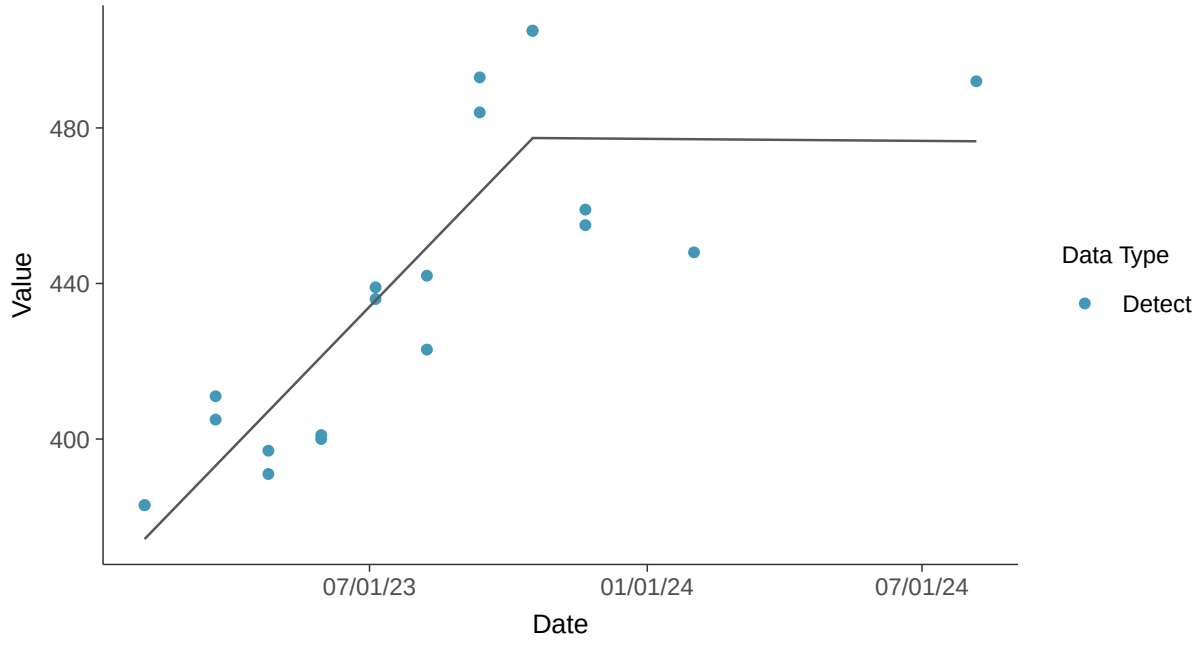
Trend Regression: Lognormal MLE

Chloride, MW-16A (mg/L)



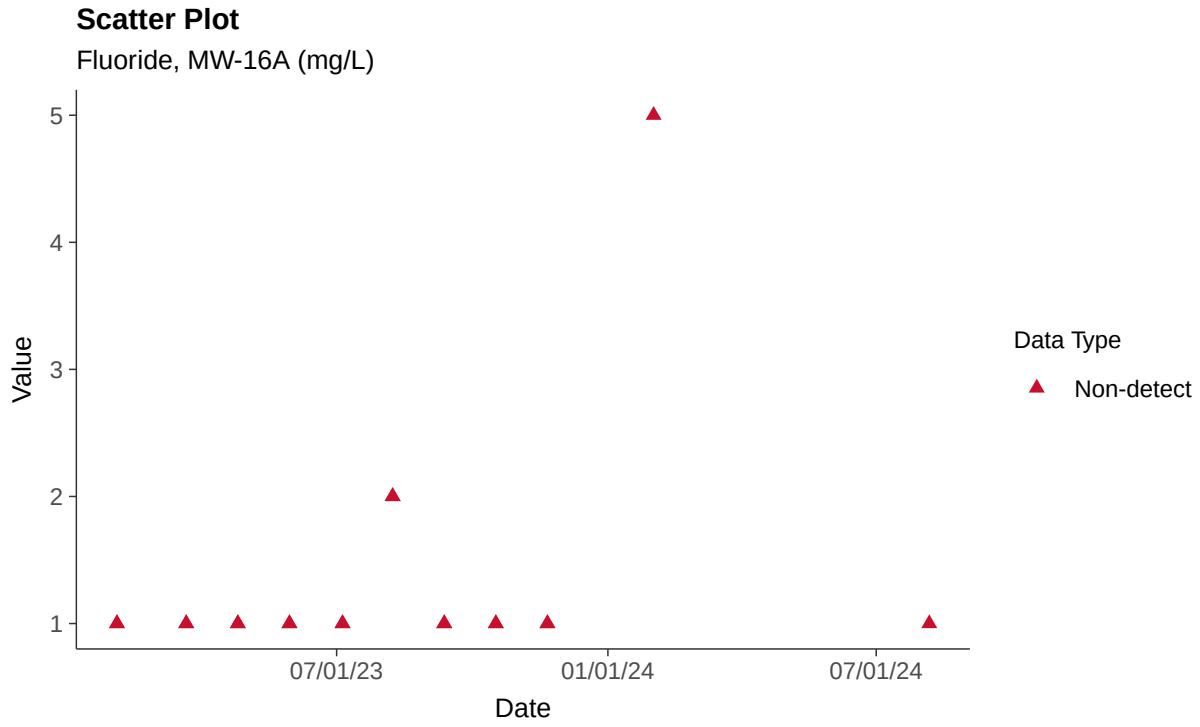
Trend Regression: Piecewise Linear-Linear

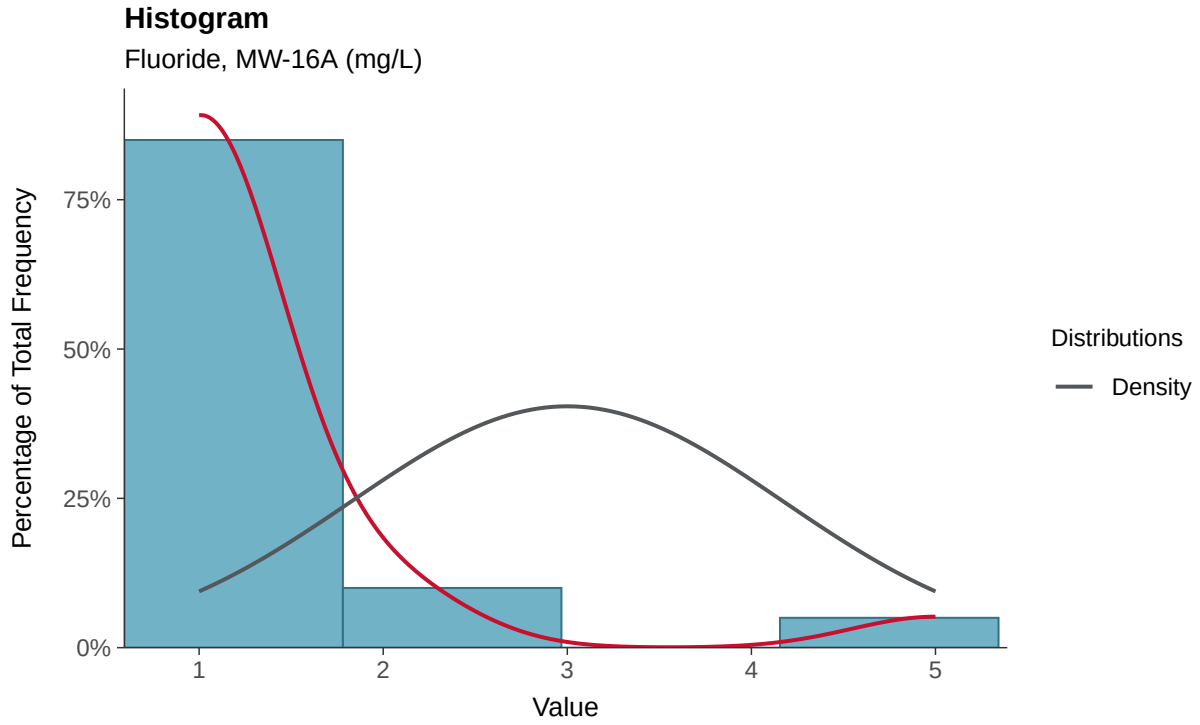
Chloride, MW-16A (mg/L)



Appendix III: Fluoride, MW-16A

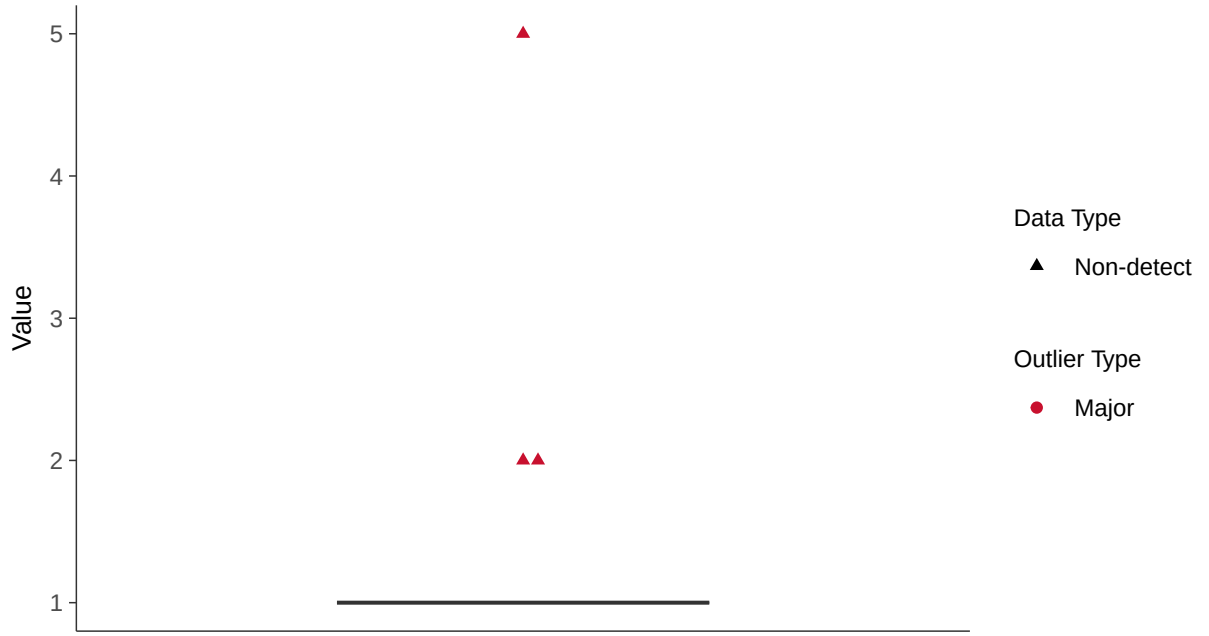
ID: 16A_1_04





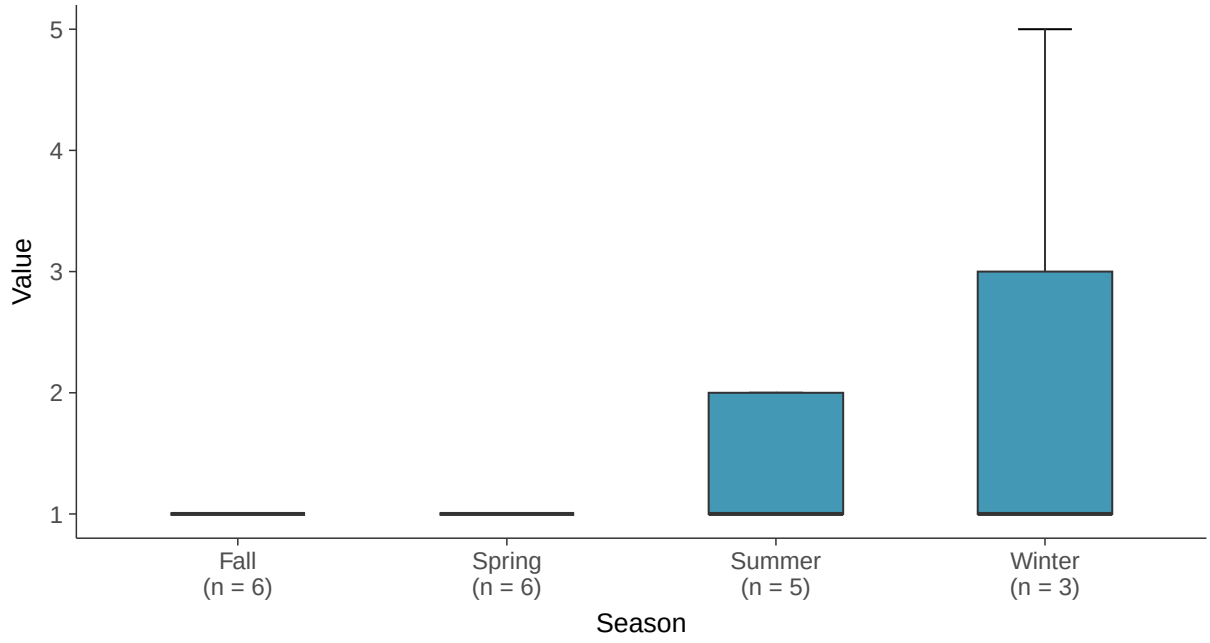
Boxplot

Fluoride, MW-16A (mg/L)



Boxplot by Season

Fluoride, MW-16A (mg/L)

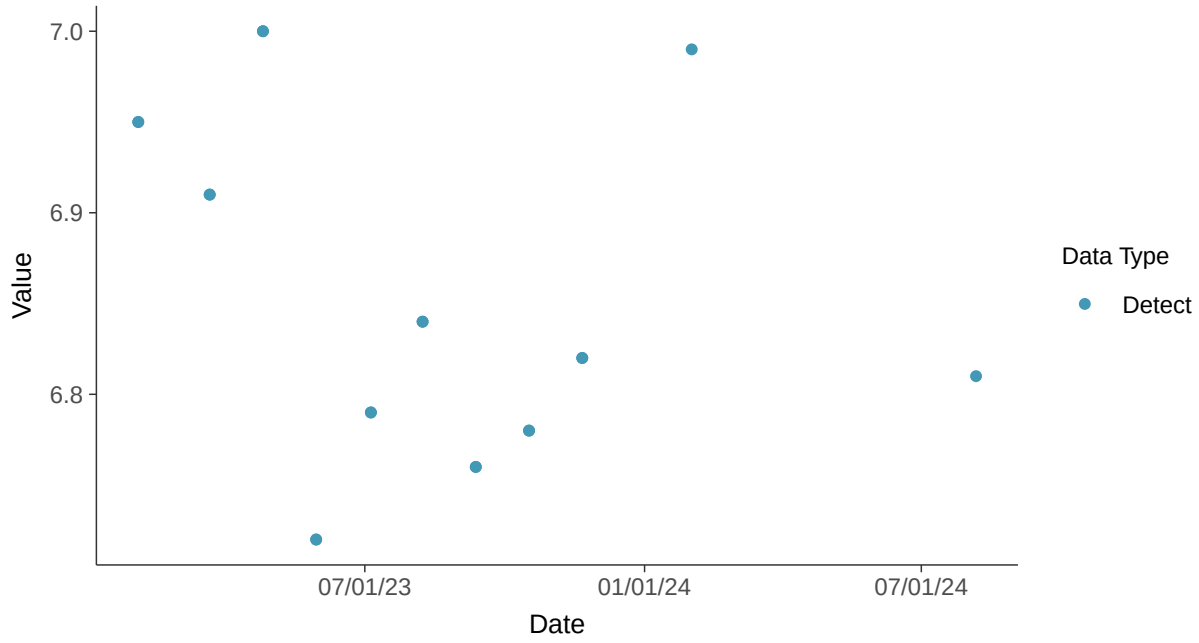


Appendix III: pH, Field, MW-16A

ID: 16A_1_05

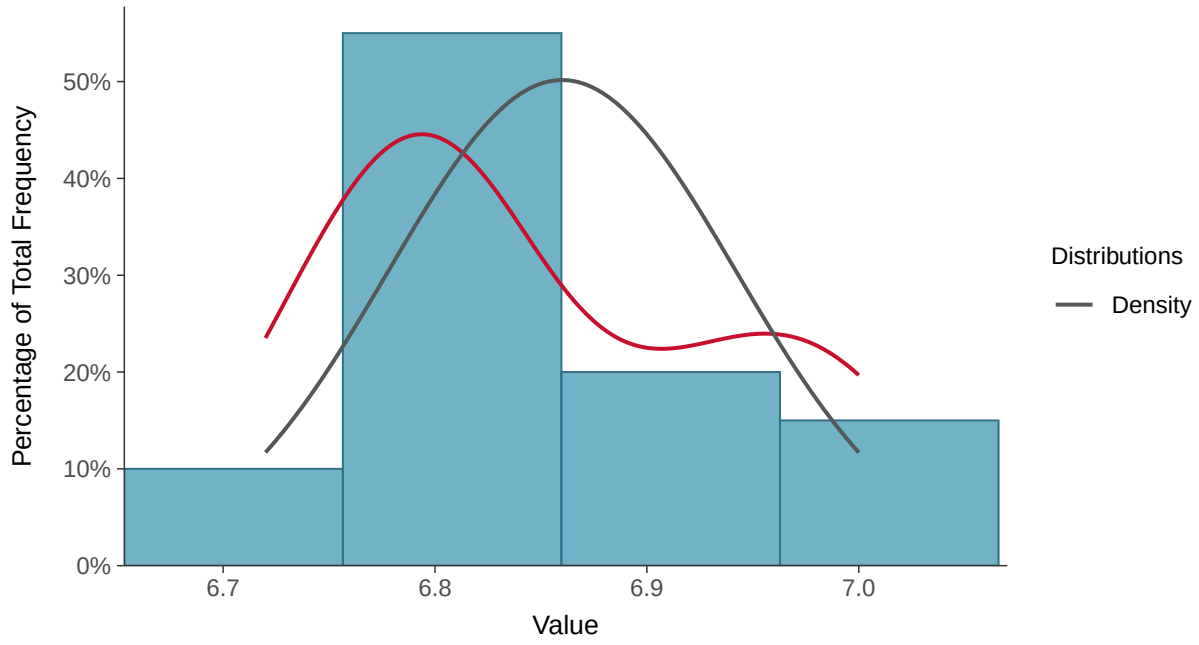
Scatter Plot

pH, Field, MW-16A (su)



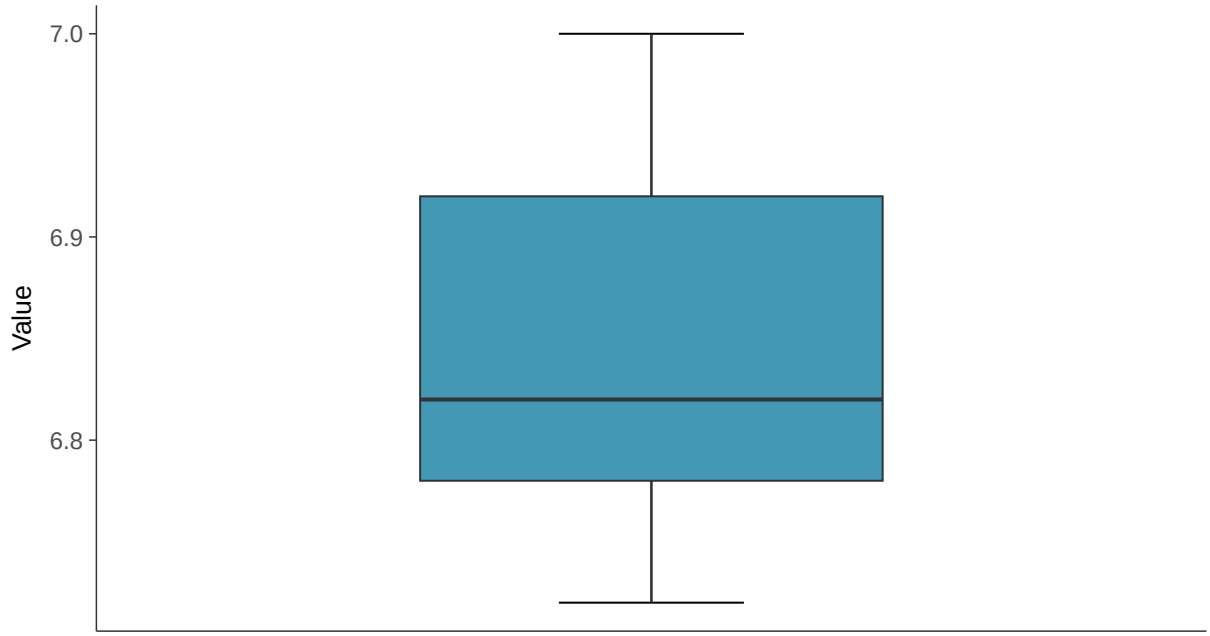
Histogram

pH, Field, MW-16A (su)



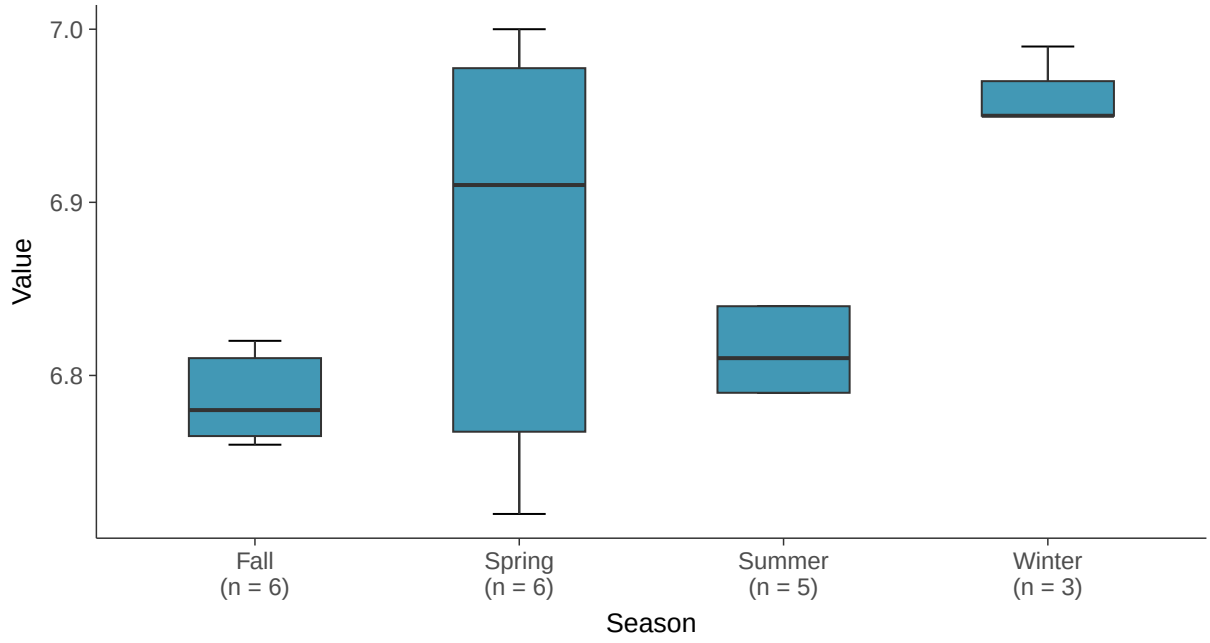
Boxplot

pH, Field, MW-16A (su)



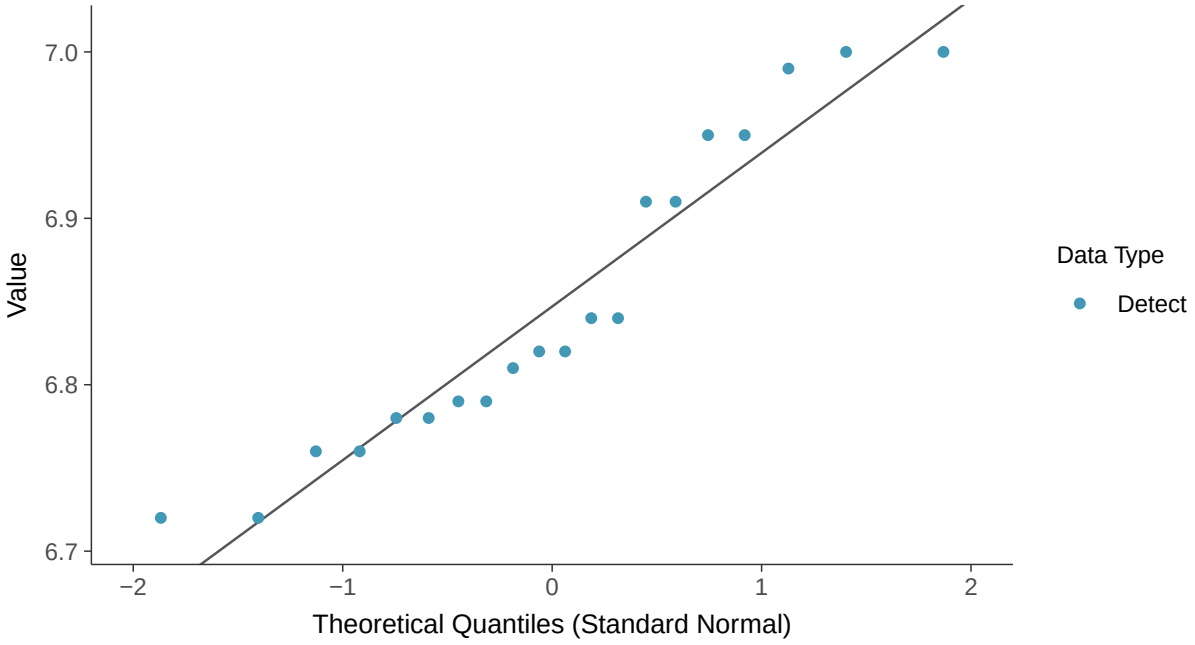
Boxplot by Season

pH, Field, MW-16A (su)



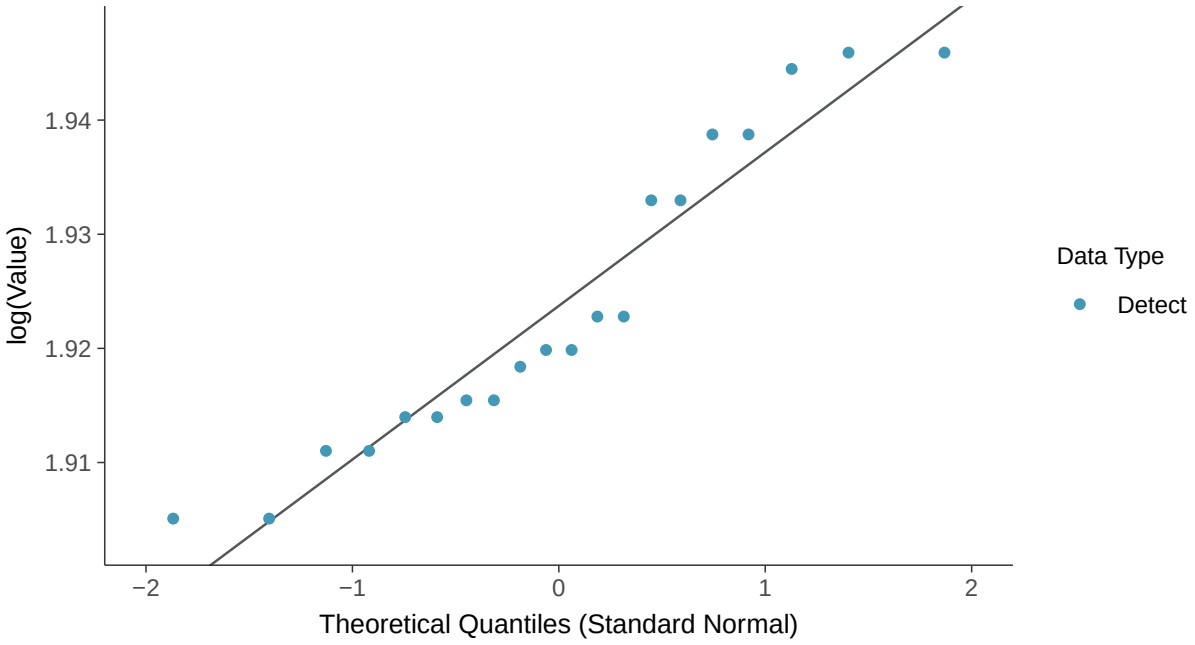
Normal Q-Q plot

pH, Field, MW-16A (su)



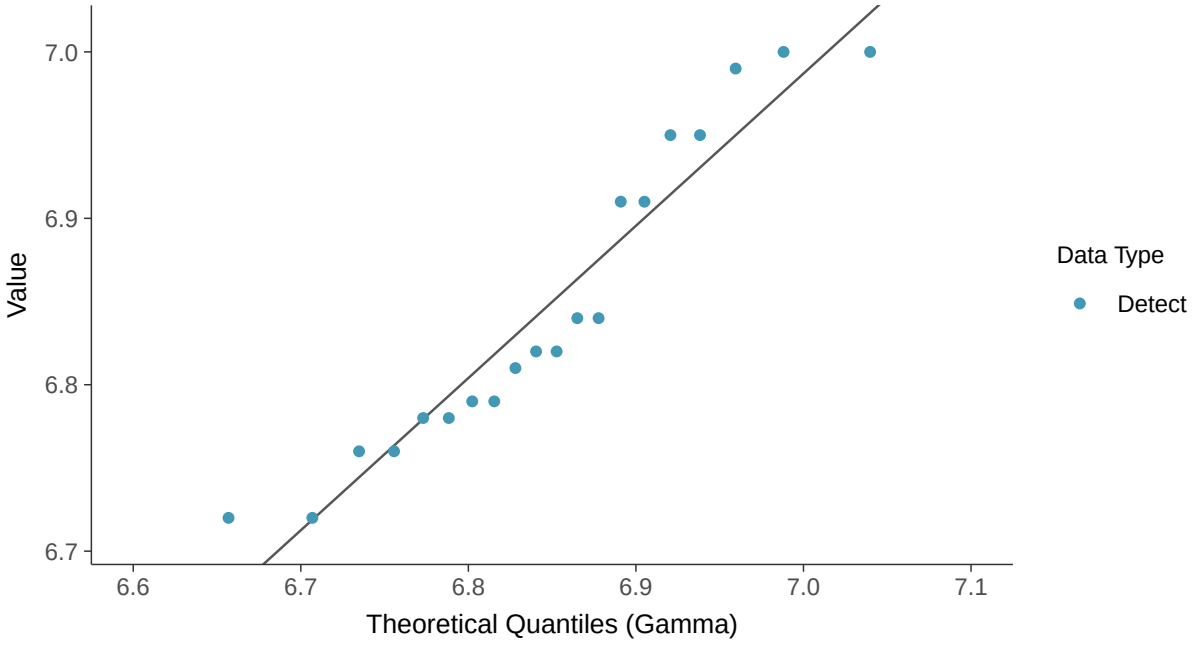
Lognormal Q-Q plot

pH, Field, MW-16A (su)



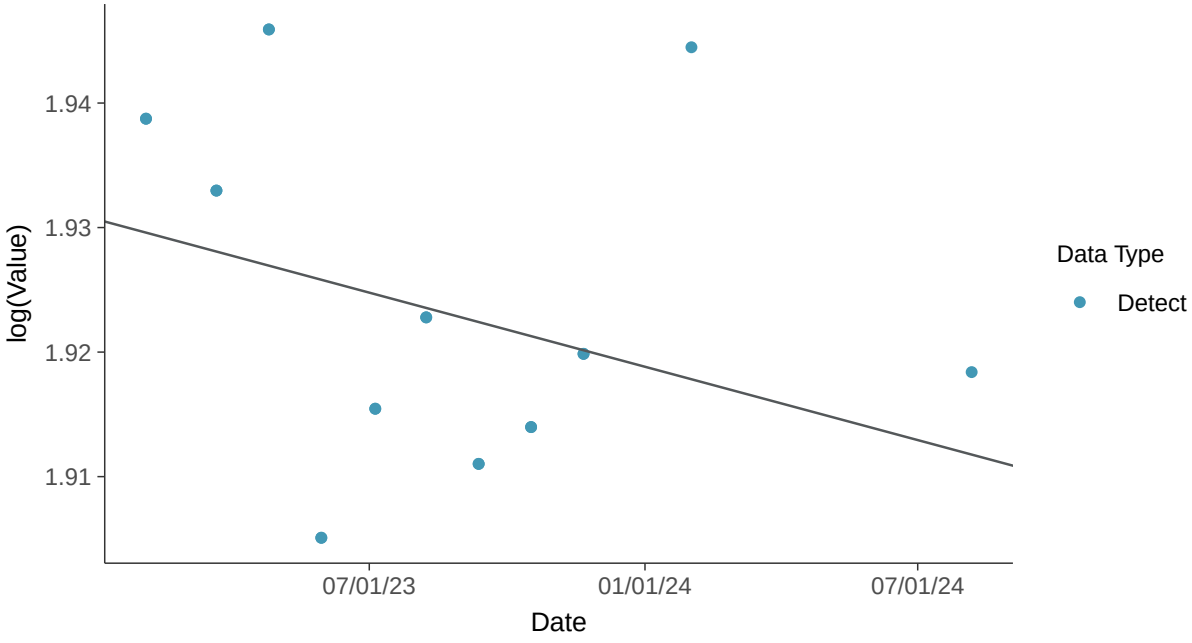
Gamma Q-Q plot

pH, Field, MW-16A (su)



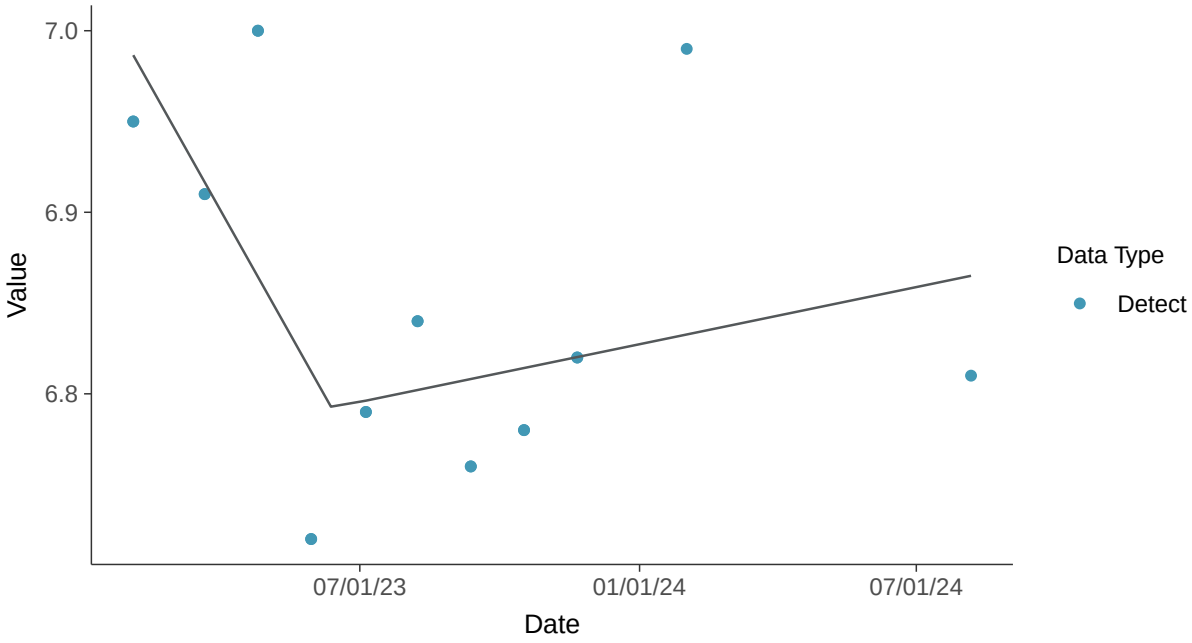
Trend Regression: Lognormal MLE

pH, Field, MW-16A (su)



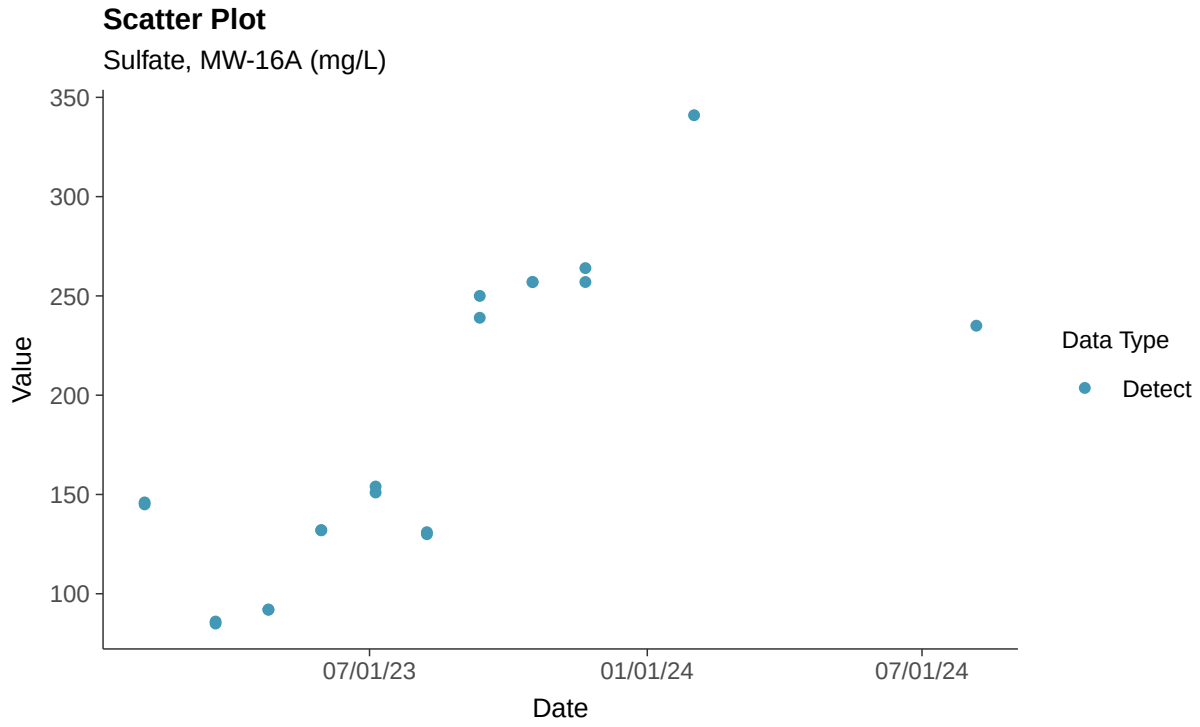
Trend Regression: Piecewise Linear-Linear

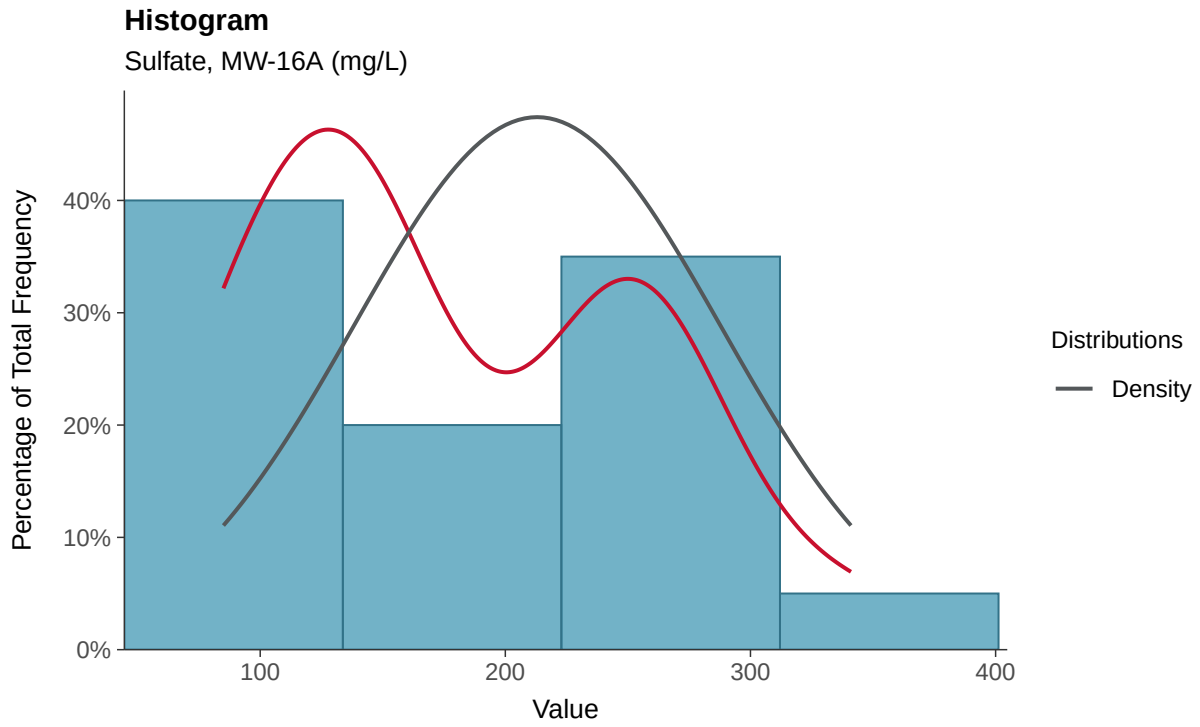
pH, Field, MW-16A (su)



Appendix III: Sulfate, MW-16A

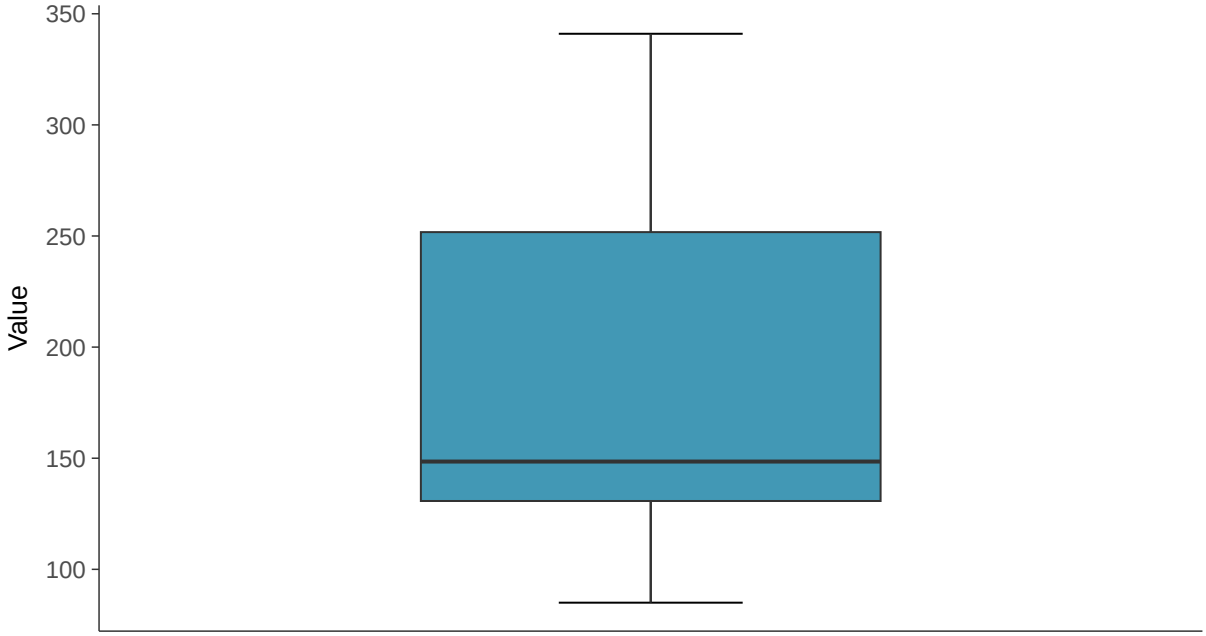
ID: 16A_1_06





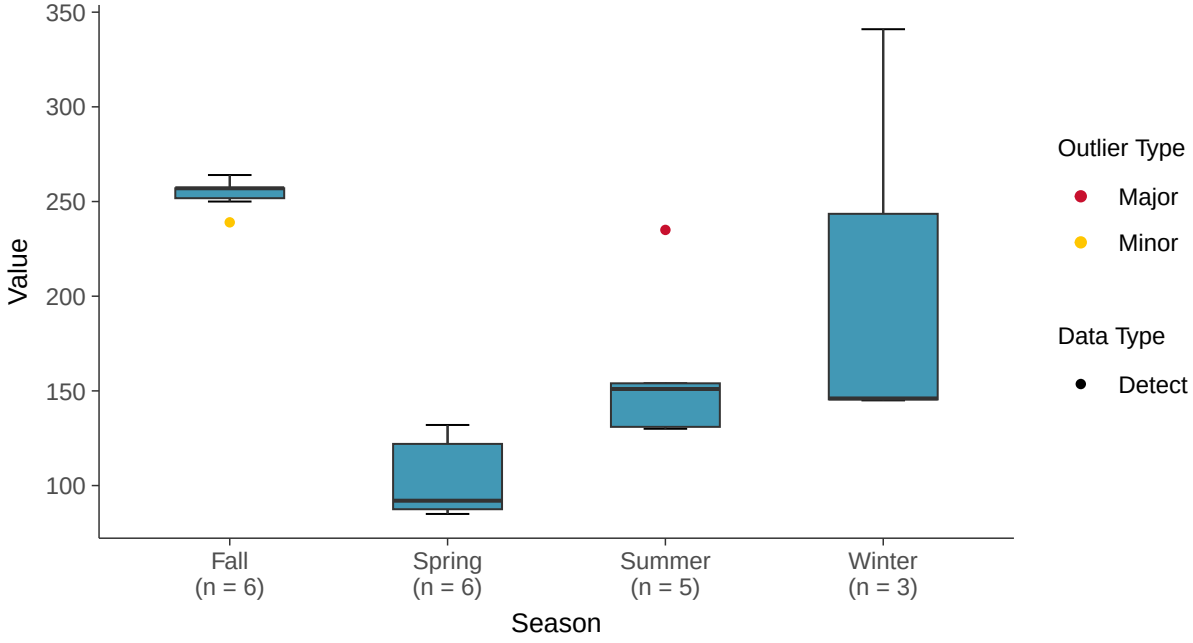
Boxplot

Sulfate, MW-16A (mg/L)



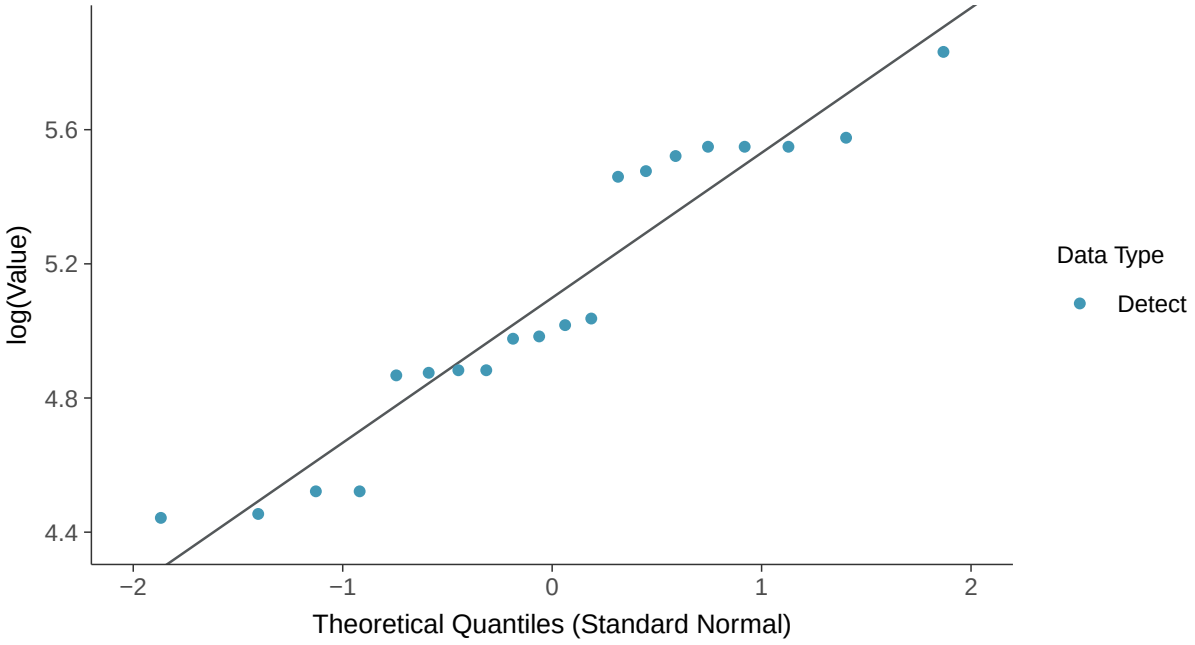
Boxplot by Season

Sulfate, MW-16A (mg/L)



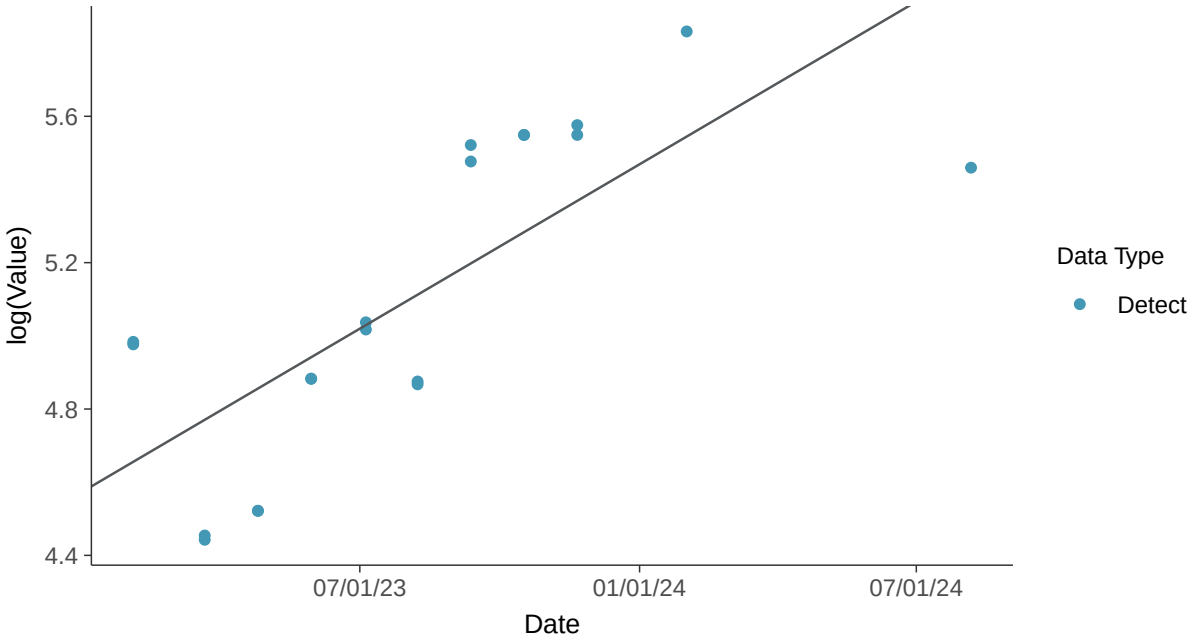
Lognormal Q-Q plot

Sulfate, MW-16A (mg/L)



Trend Regression: Lognormal MLE

Sulfate, MW-16A (mg/L)

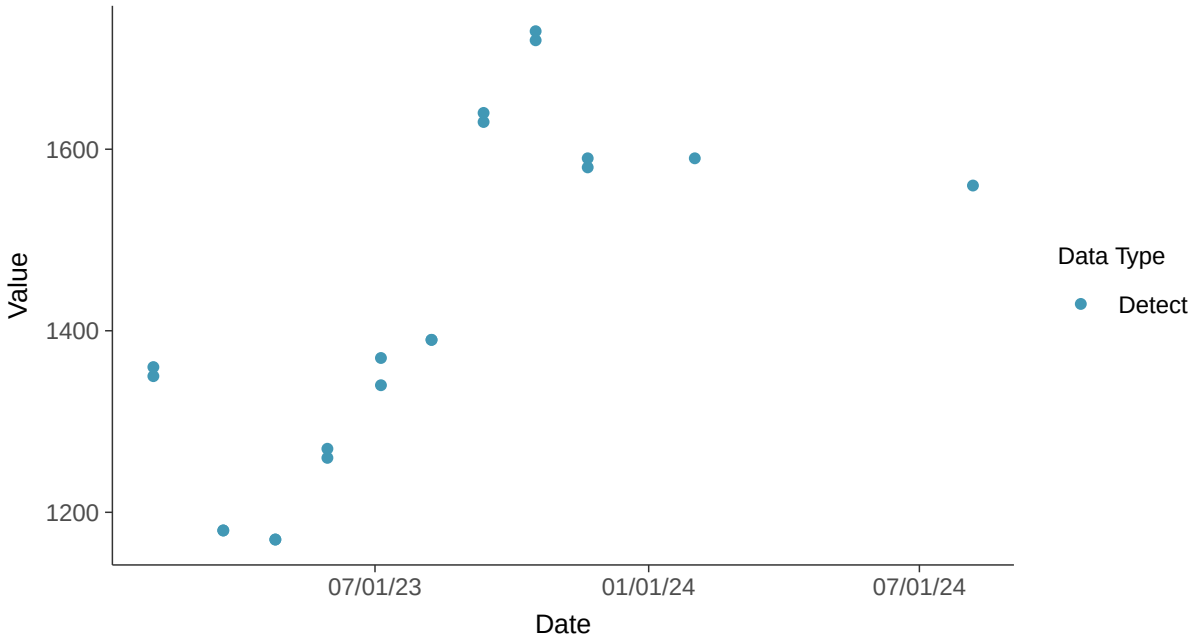


Appendix III: Total Dissolved Solids, MW-16A

ID: 16A_1_07

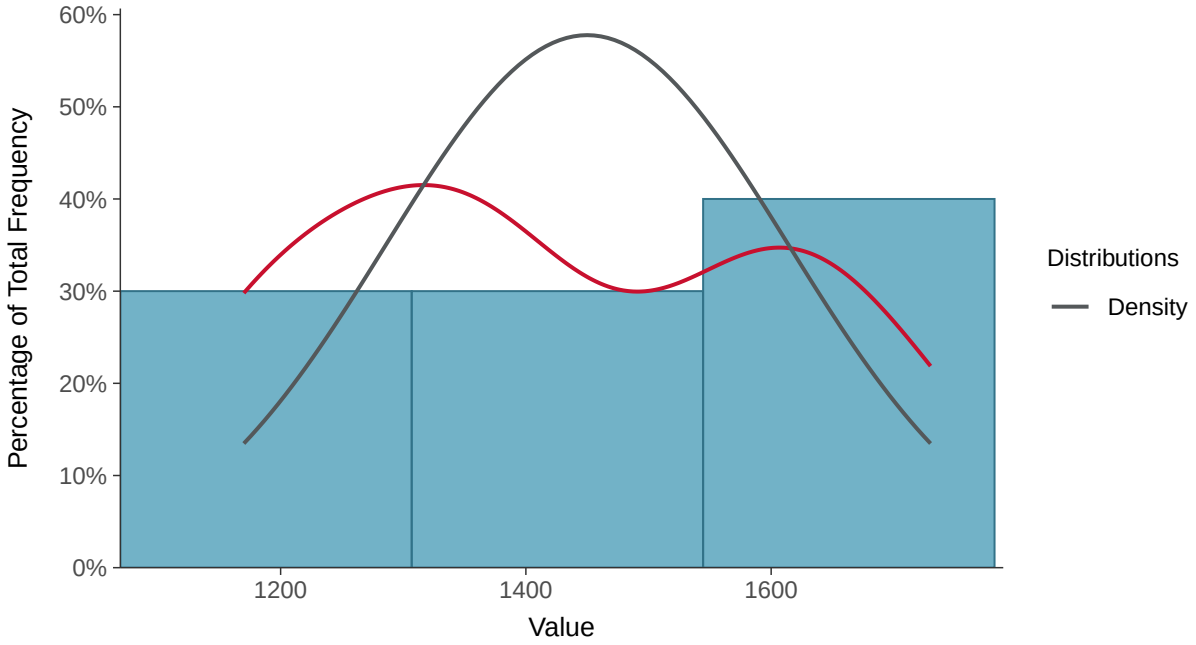
Scatter Plot

Total Dissolved Solids, MW-16A (mg/L)



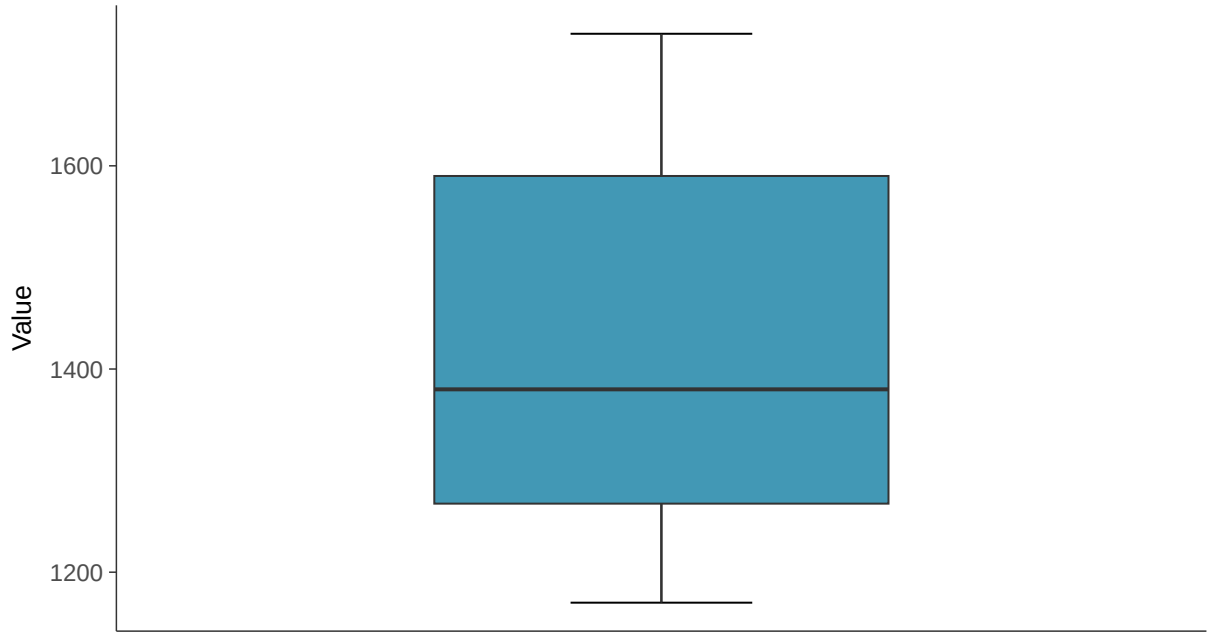
Histogram

Total Dissolved Solids, MW-16A (mg/L)



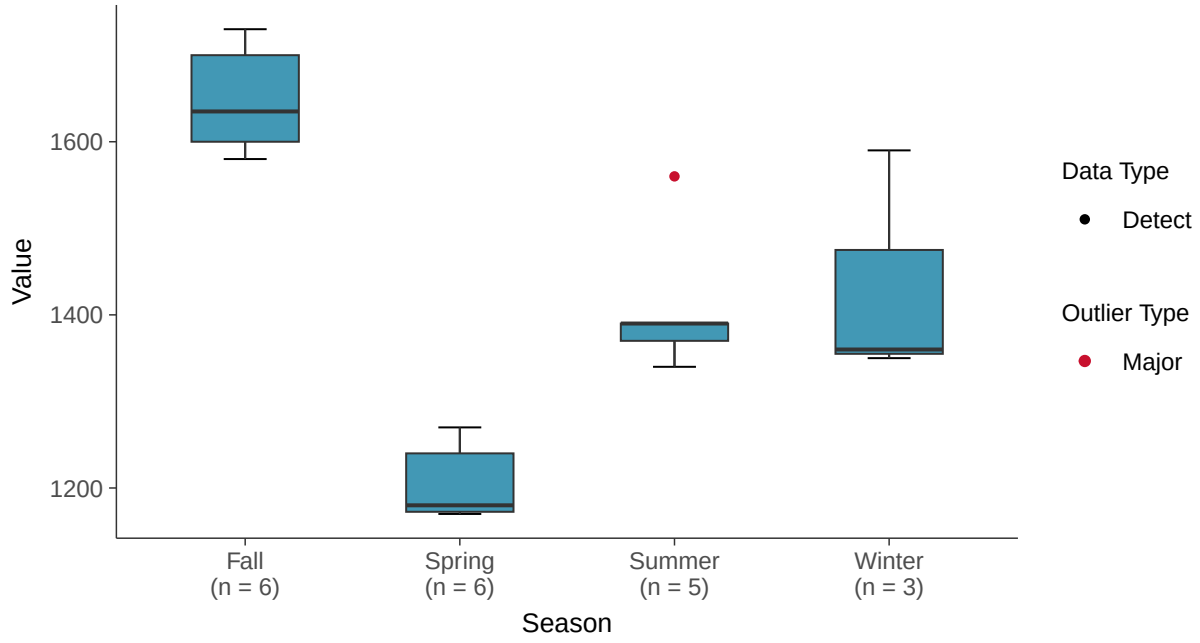
Boxplot

Total Dissolved Solids, MW-16A (mg/L)



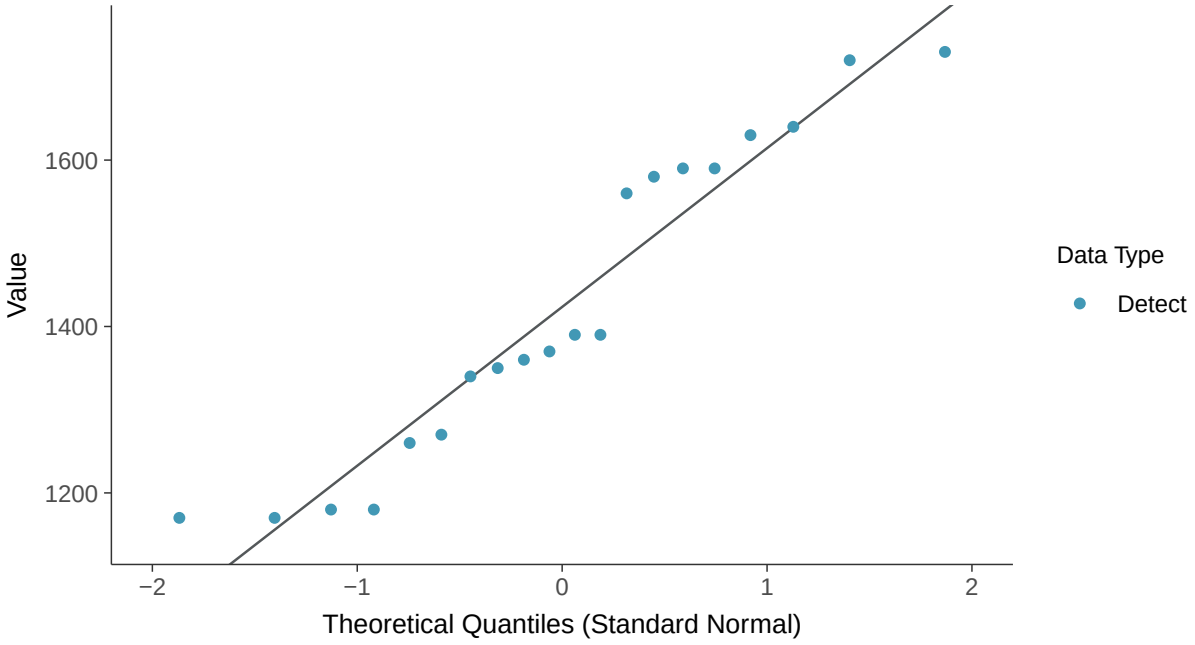
Boxplot by Season

Total Dissolved Solids, MW-16A (mg/L)



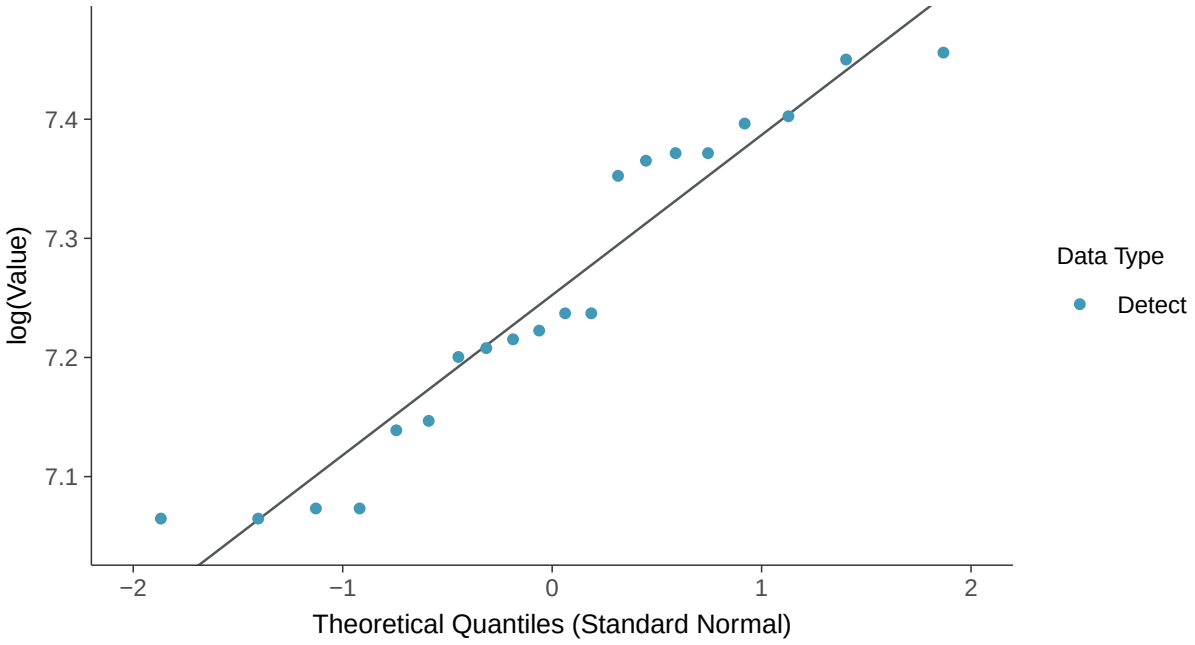
Normal Q-Q plot

Total Dissolved Solids, MW-16A (mg/L)



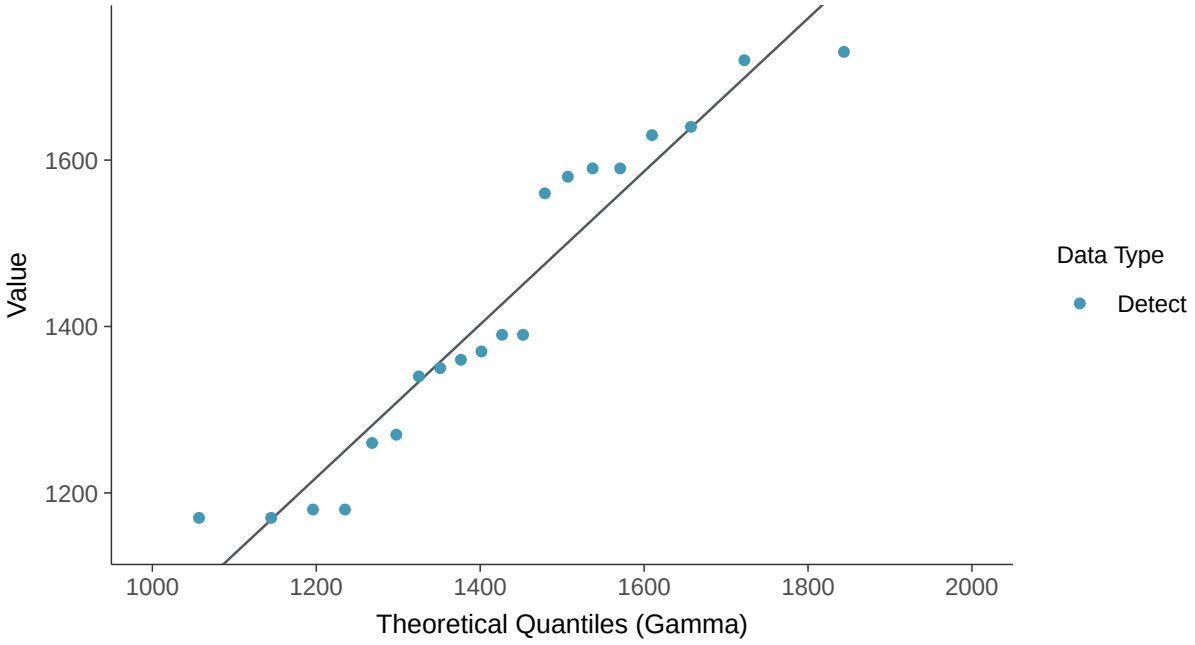
Lognormal Q-Q plot

Total Dissolved Solids, MW-16A (mg/L)



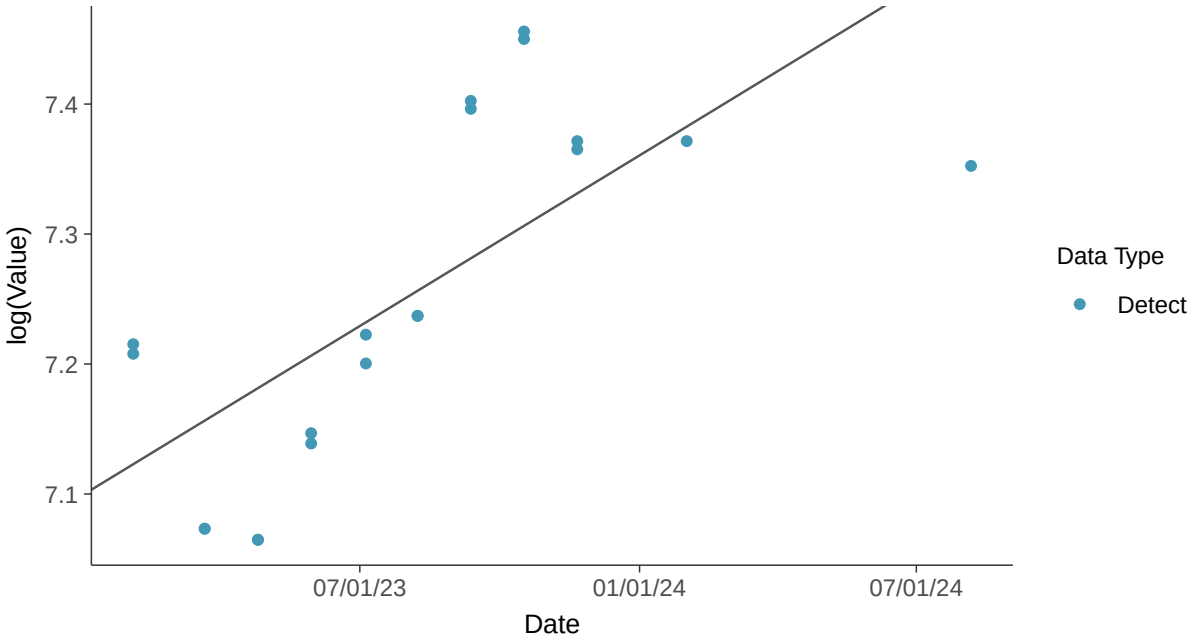
Gamma Q-Q plot

Total Dissolved Solids, MW-16A (mg/L)



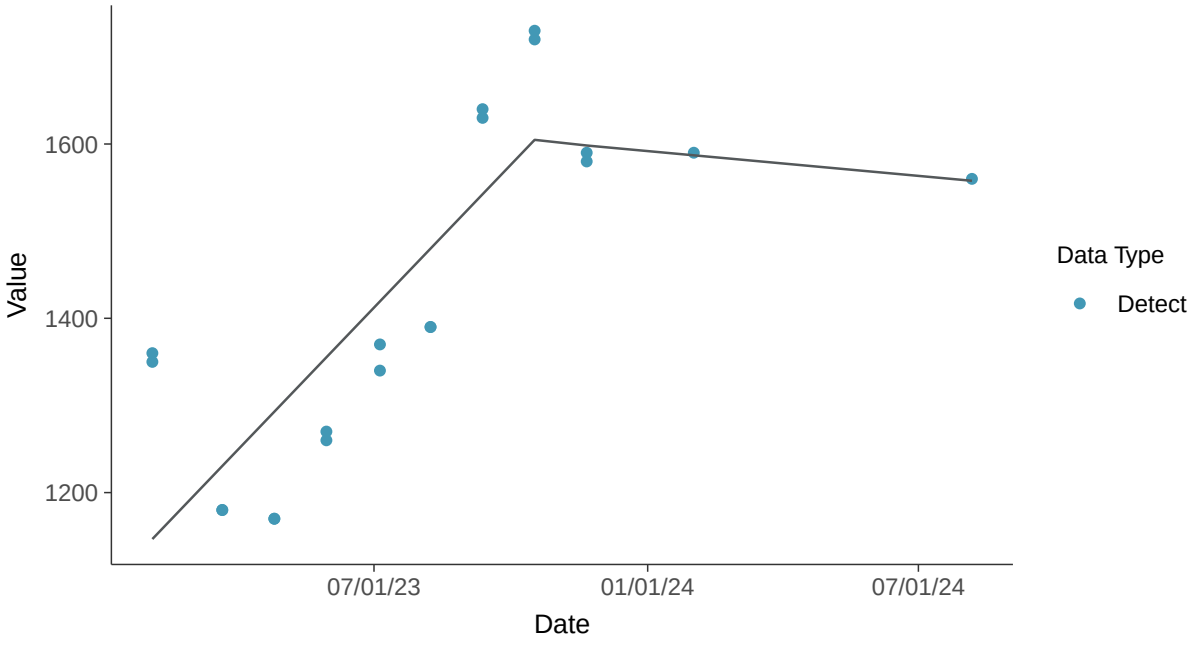
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-16A (mg/L)



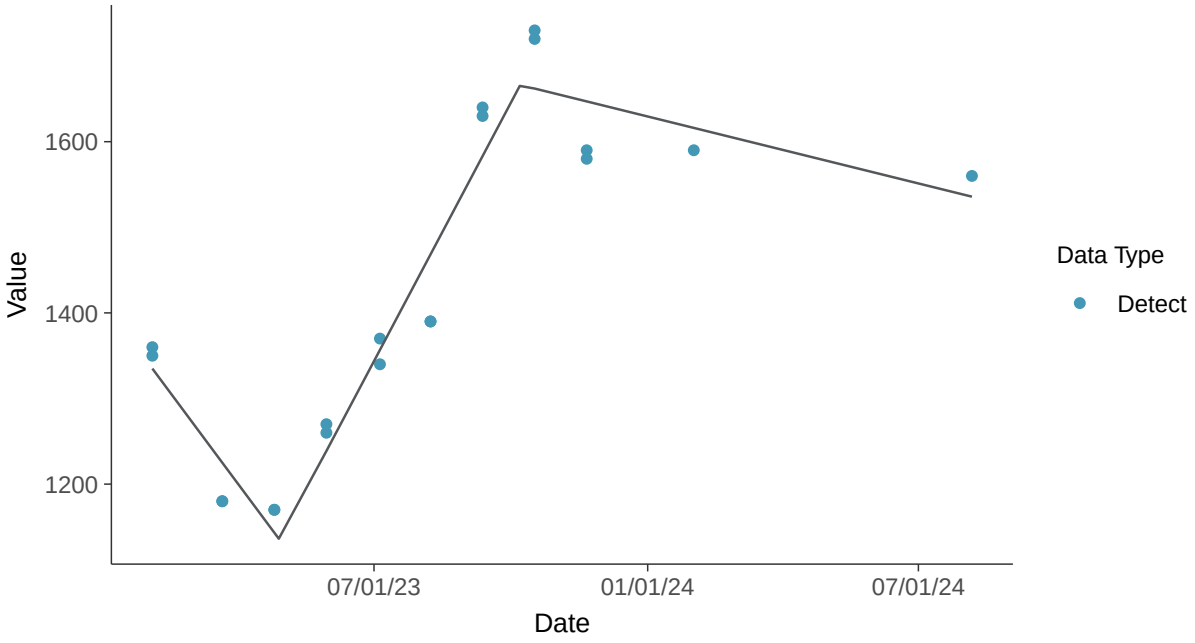
Trend Regression: Piecewise Linear-Linear

Total Dissolved Solids, MW-16A (mg/L)



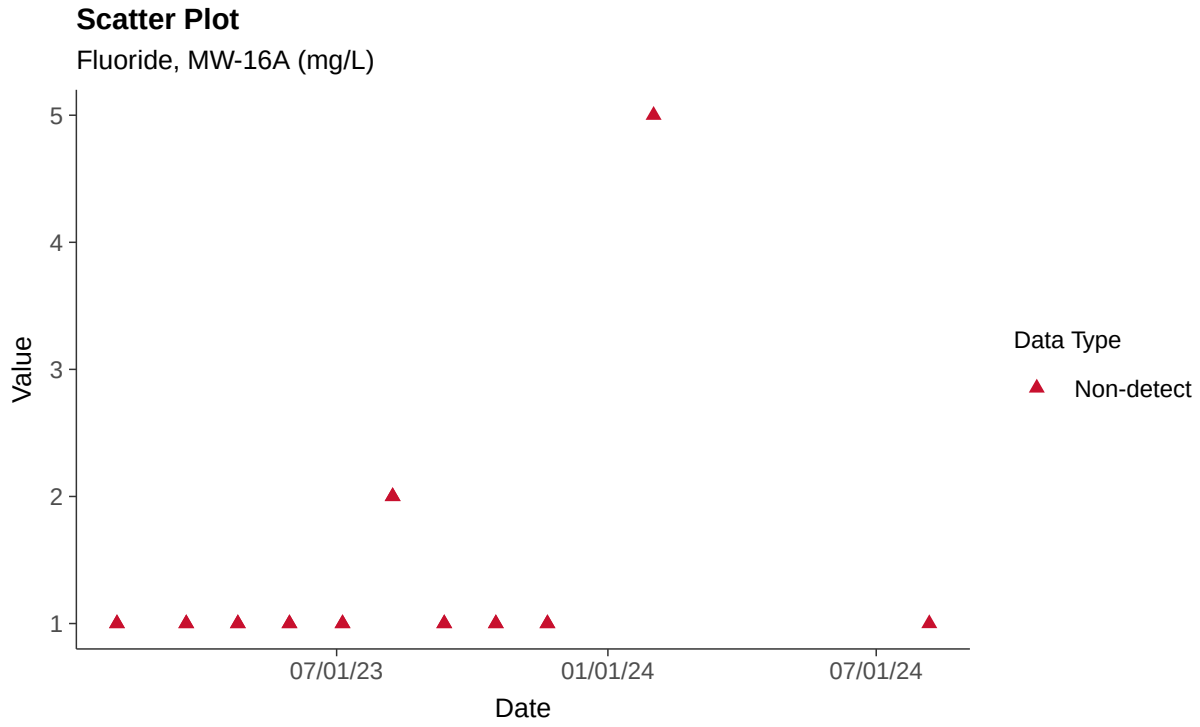
Trend Regression: Piecewise Linear-Linear-Linear

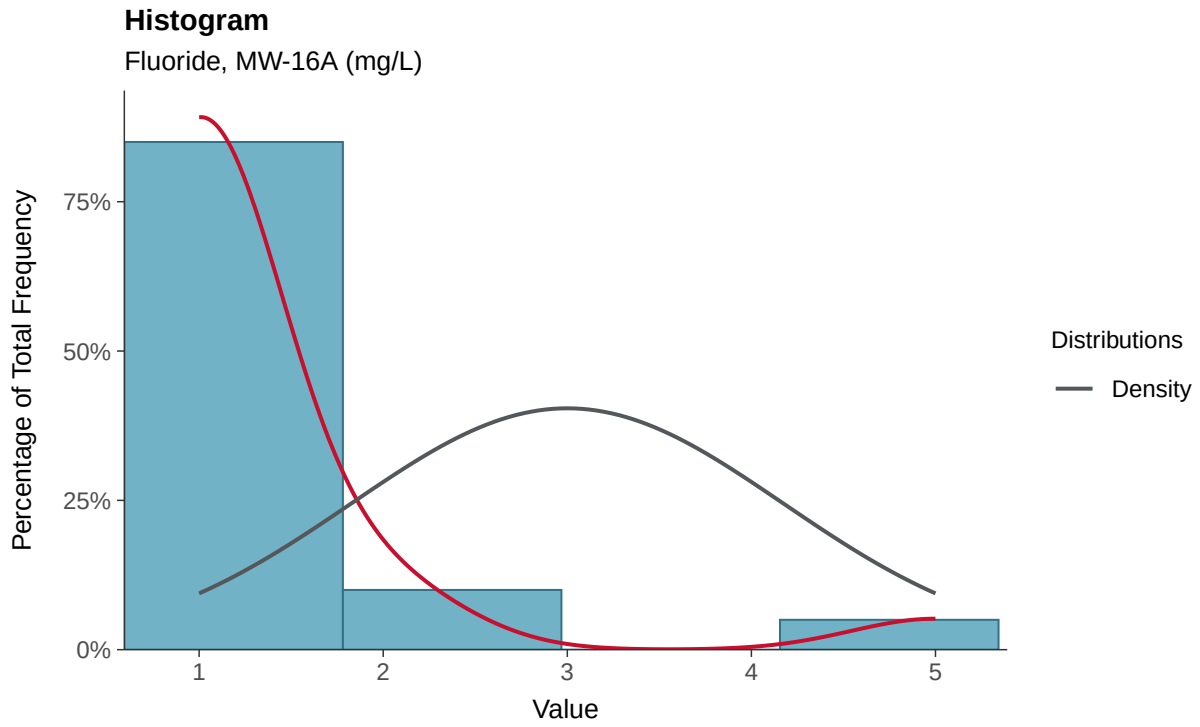
Total Dissolved Solids, MW-16A (mg/L)



Appendix IV: Fluoride, MW-16A

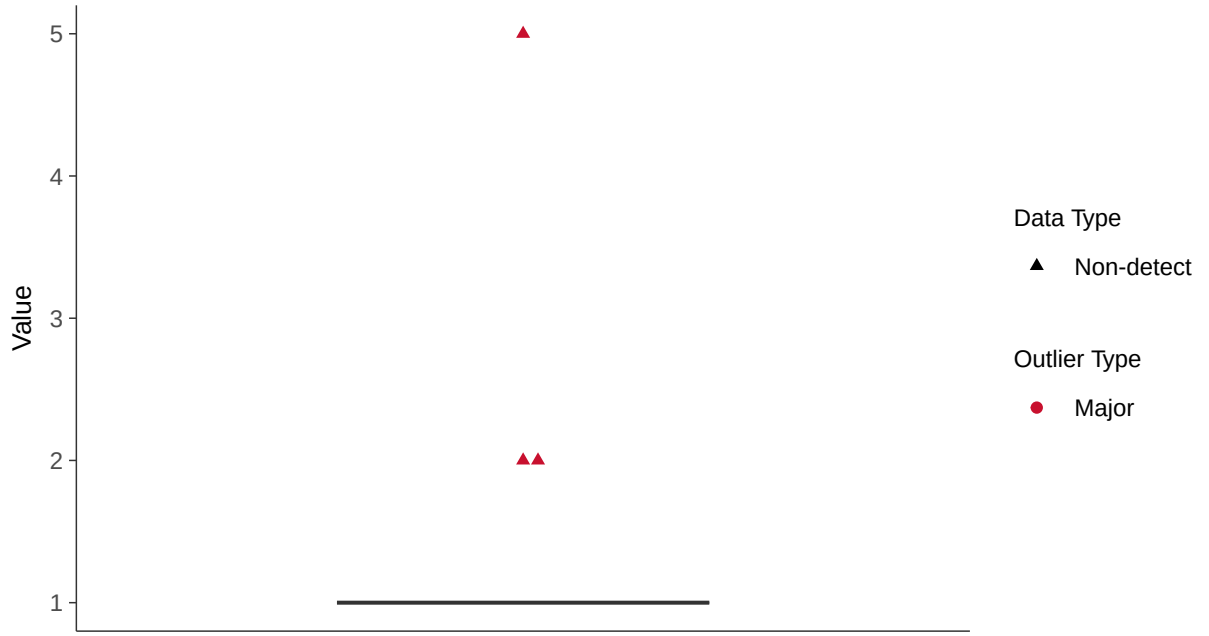
ID: 16A_2_04





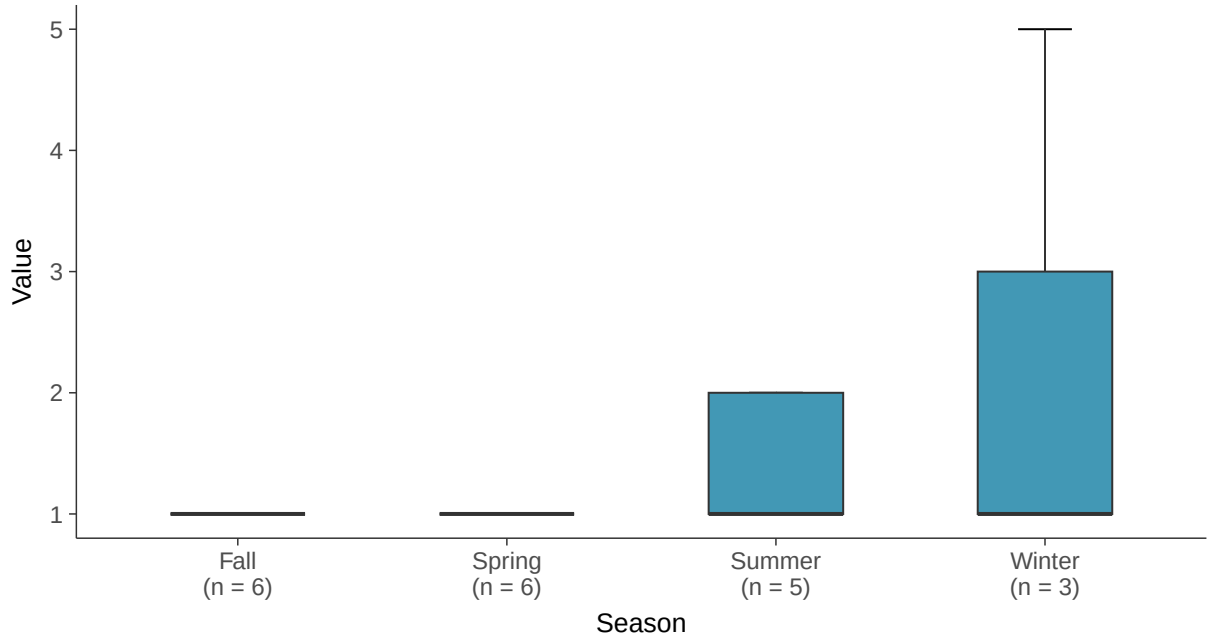
Boxplot

Fluoride, MW-16A (mg/L)



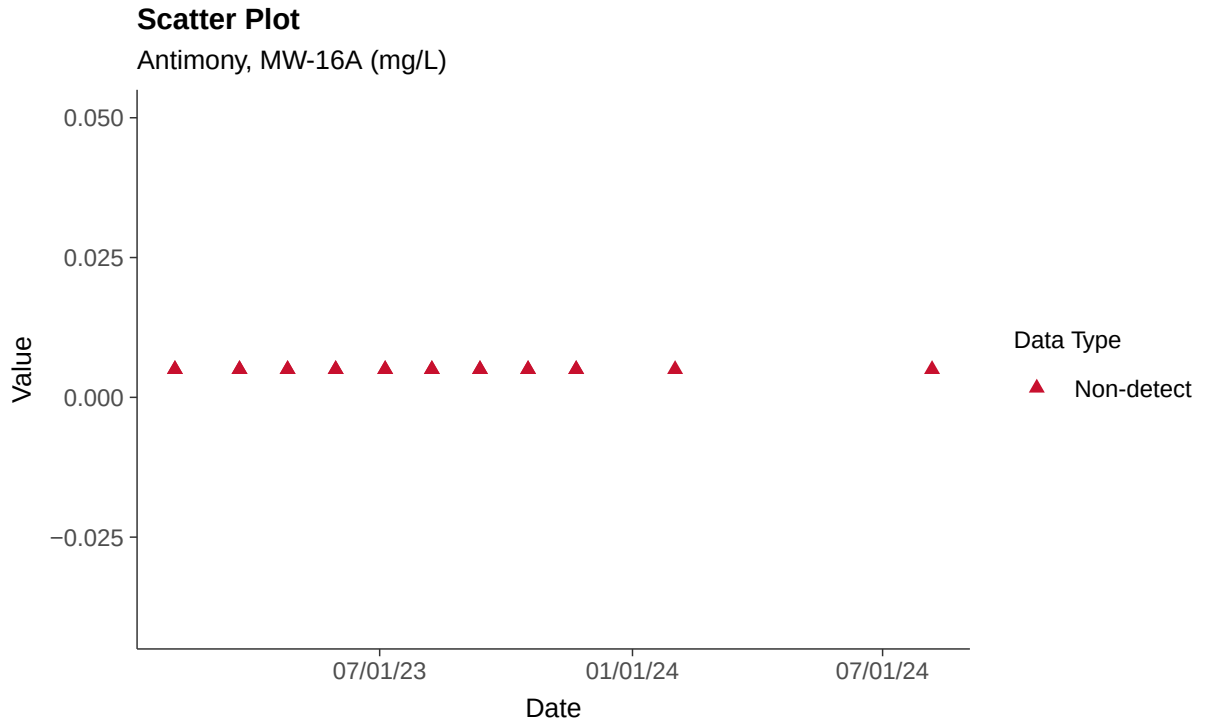
Boxplot by Season

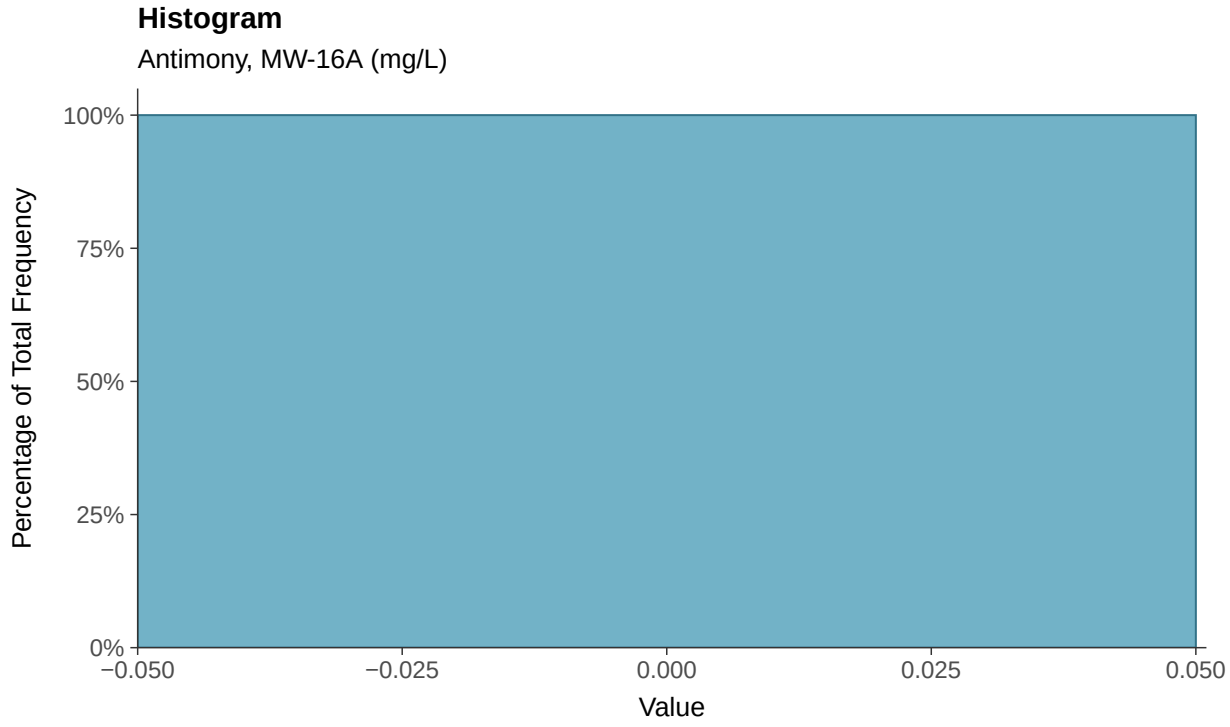
Fluoride, MW-16A (mg/L)



Appendix IV: Antimony, MW-16A

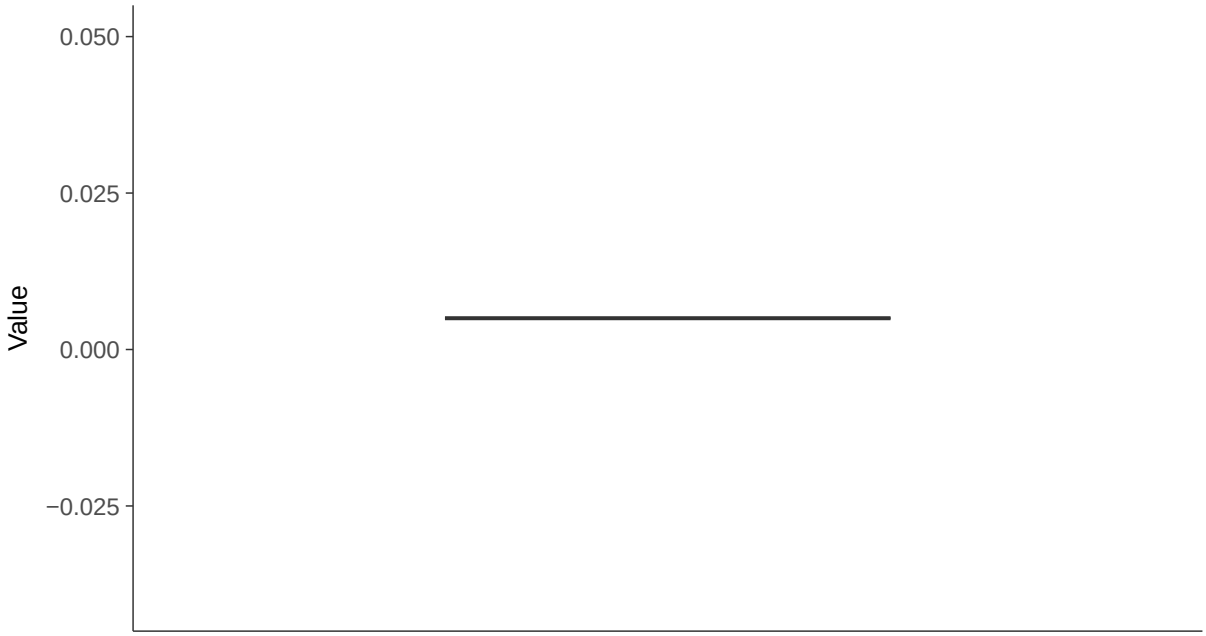
ID: 16A_2_08





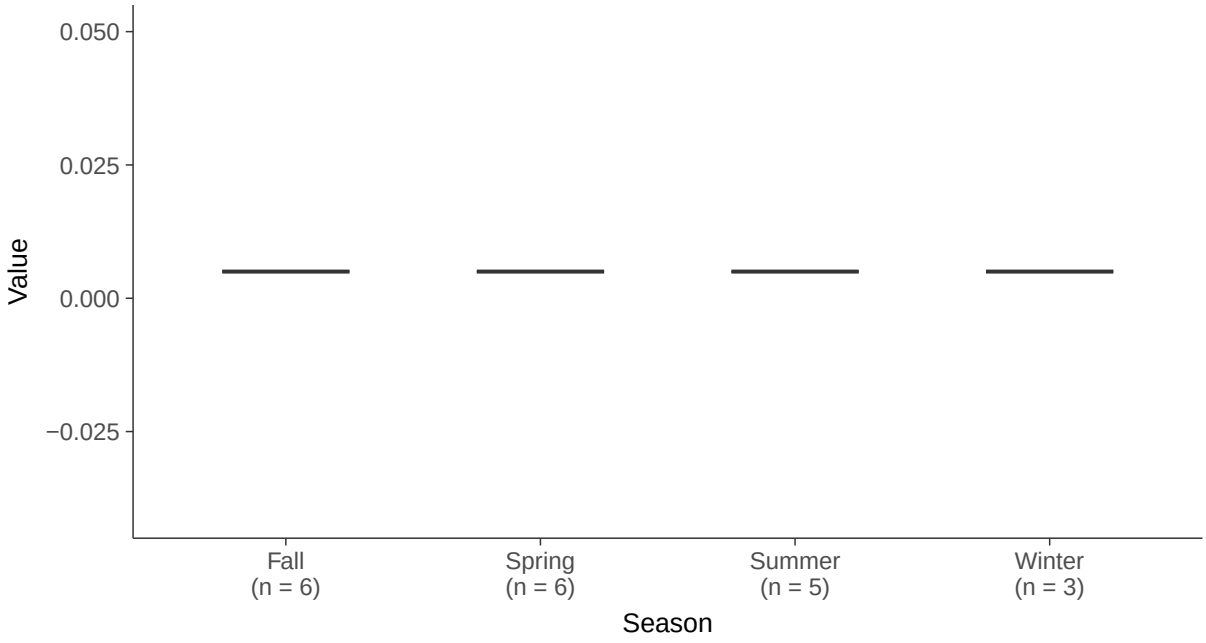
Boxplot

Antimony, MW-16A (mg/L)



Boxplot by Season

Antimony, MW-16A (mg/L)

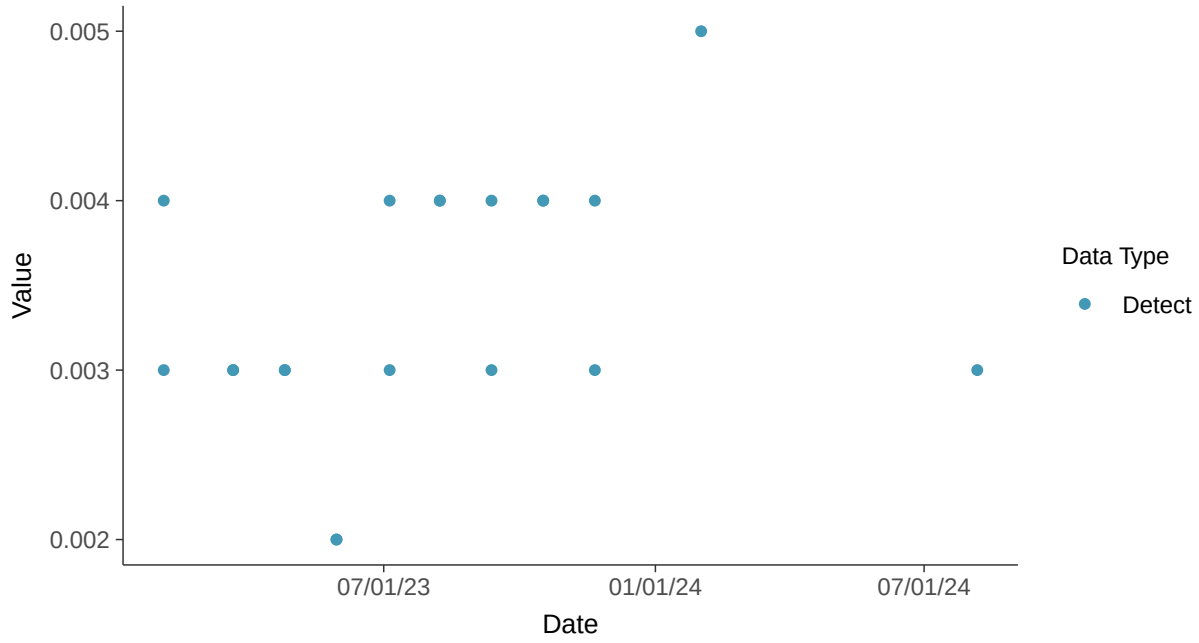


Appendix IV: Arsenic, MW-16A

ID: 16A_2_09

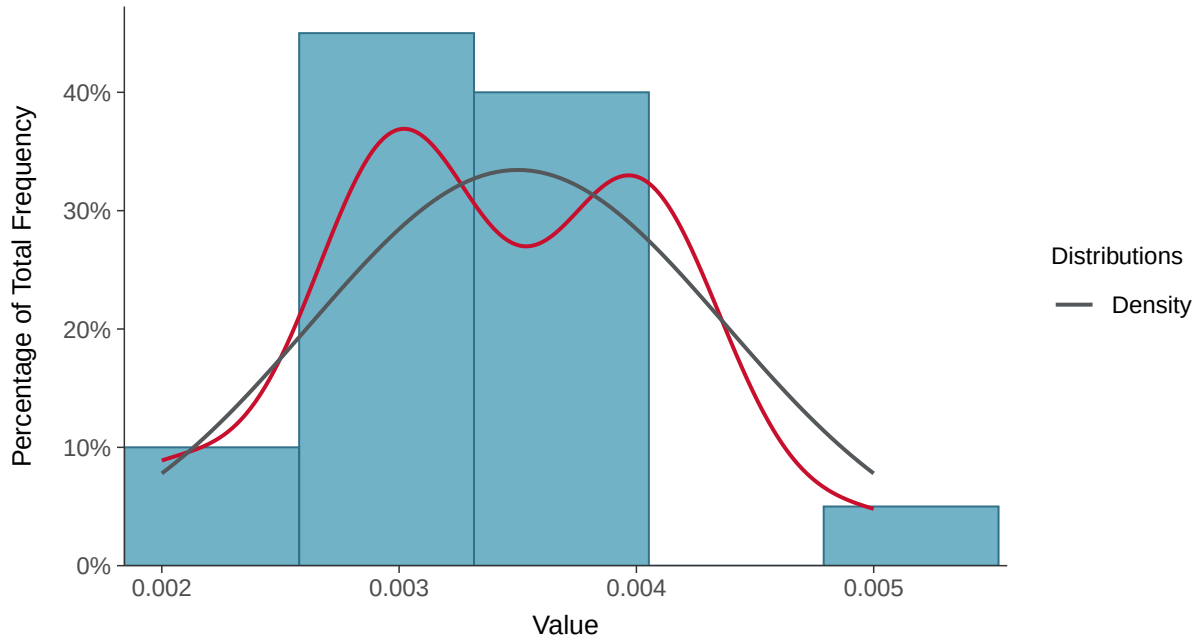
Scatter Plot

Arsenic, MW-16A (mg/L)



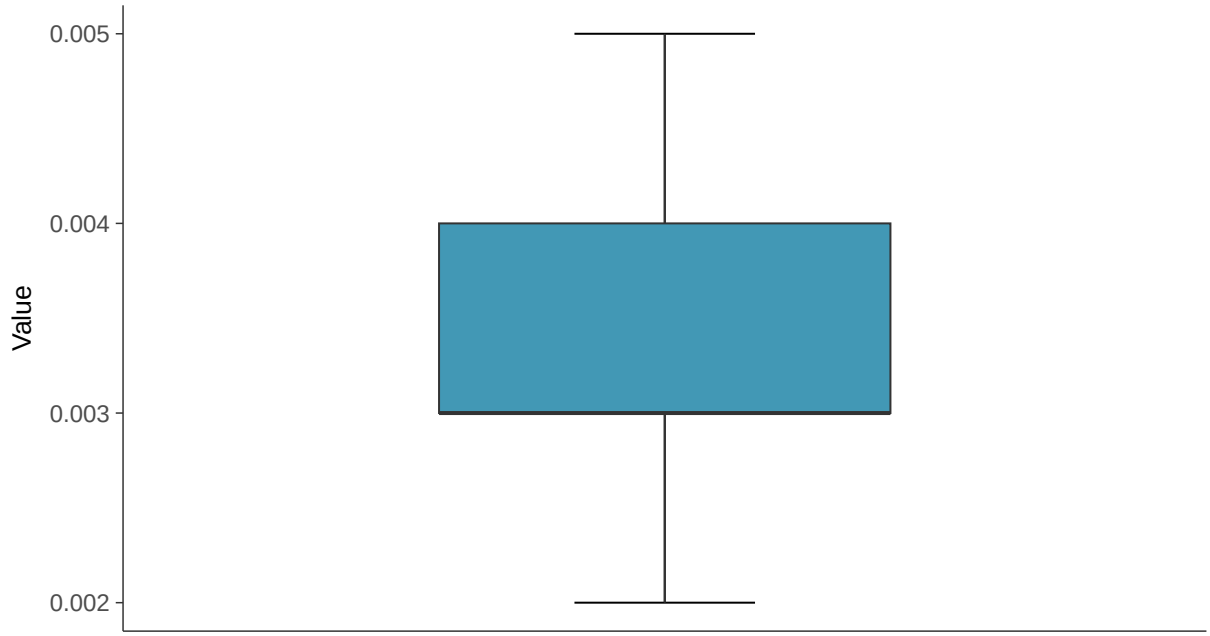
Histogram

Arsenic, MW-16A (mg/L)



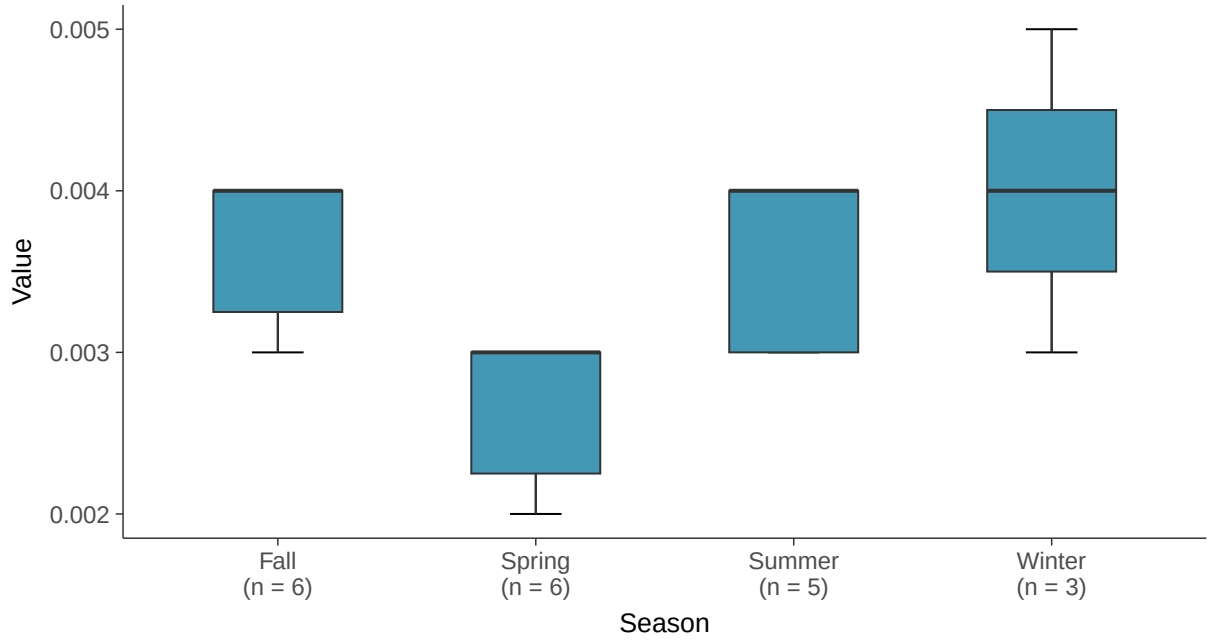
Boxplot

Arsenic, MW-16A (mg/L)



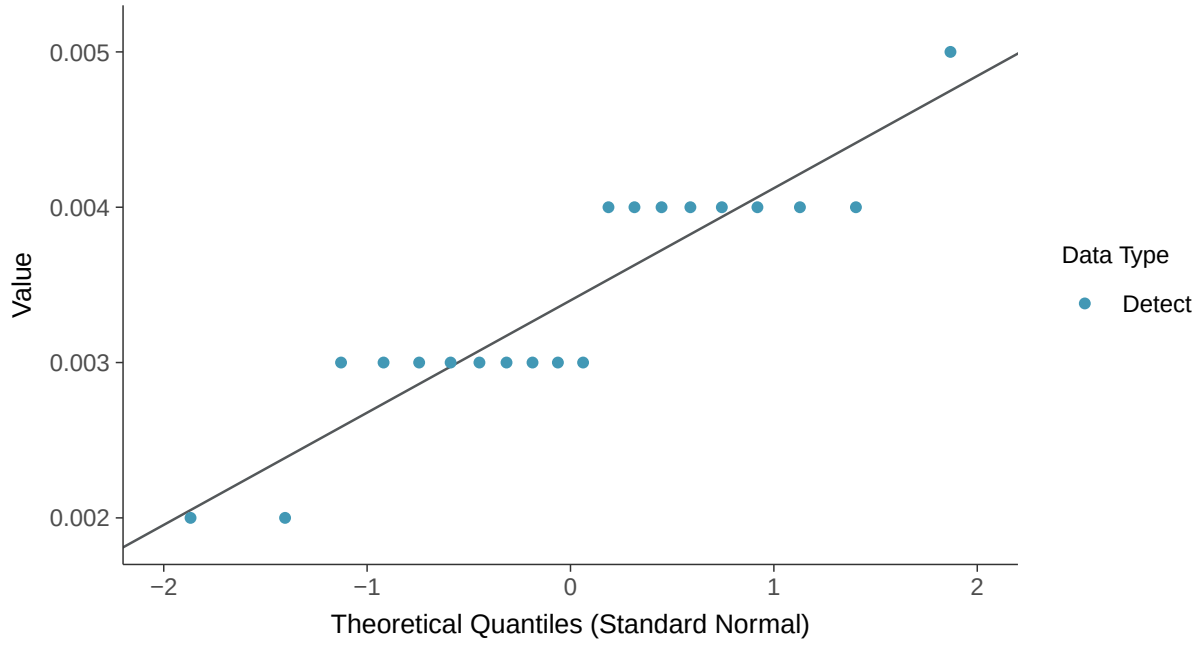
Boxplot by Season

Arsenic, MW-16A (mg/L)



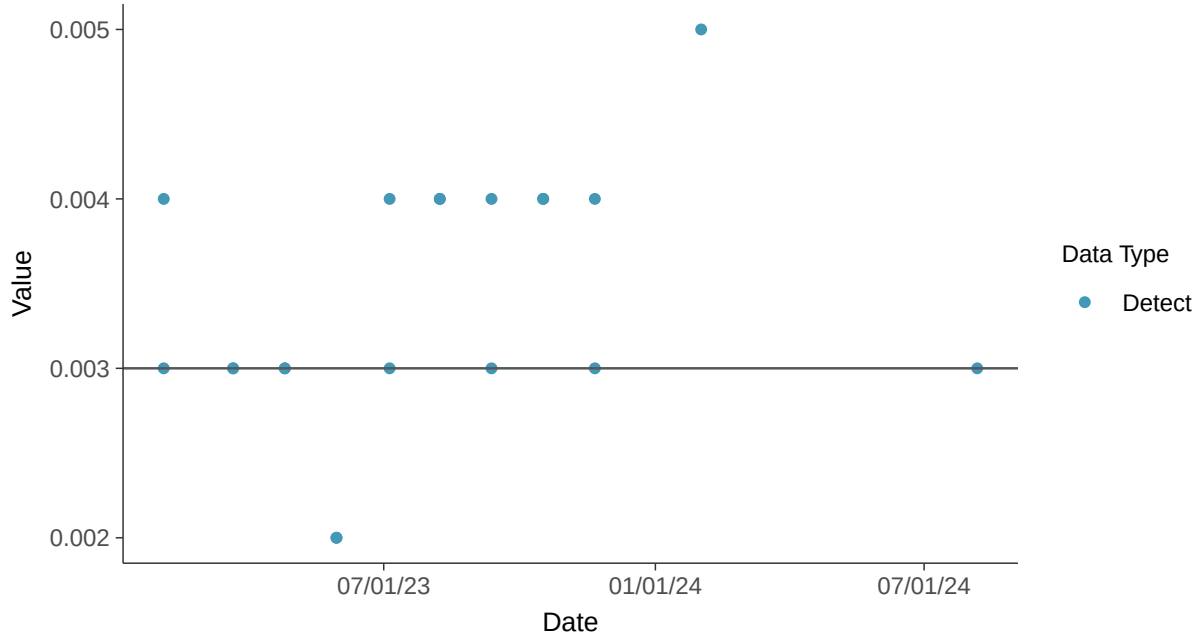
Normal Q-Q plot

Arsenic, MW-16A (mg/L)



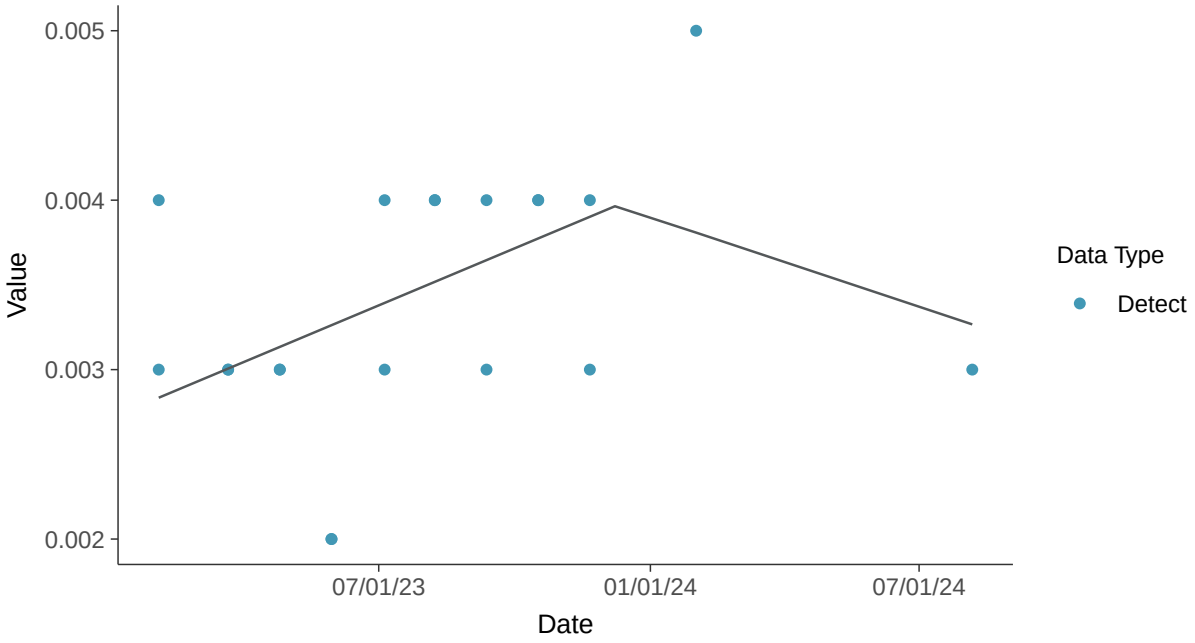
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Arsenic, MW-16A (mg/L)



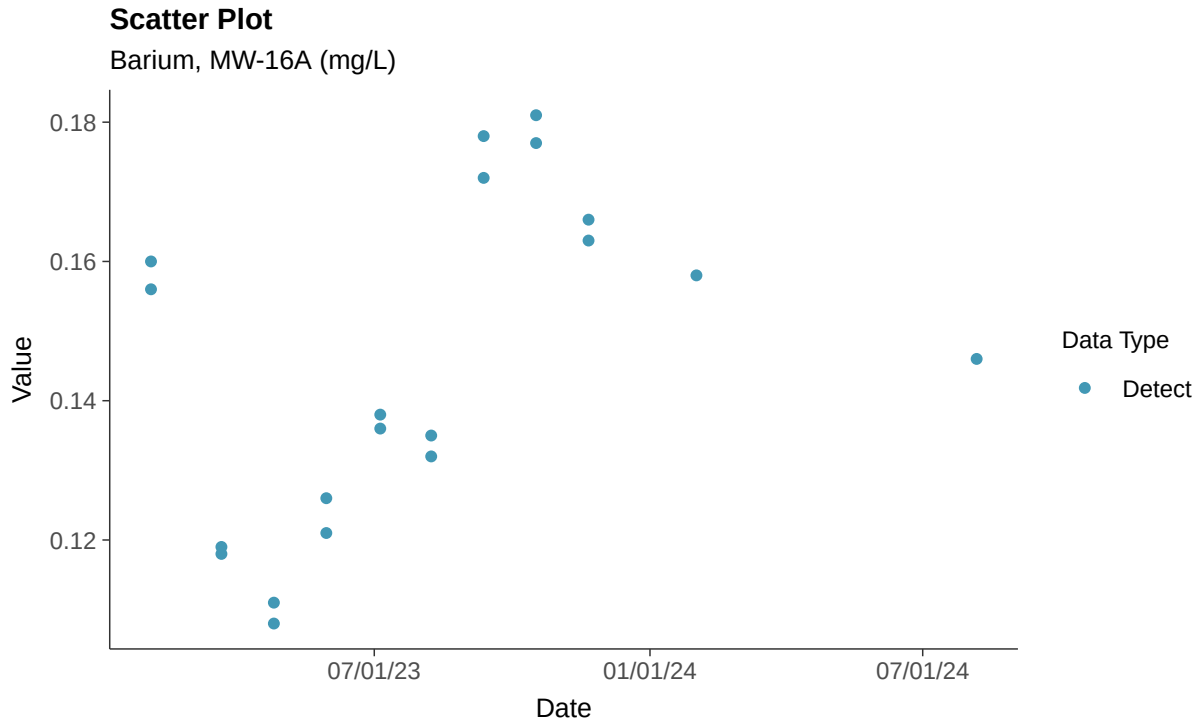
Trend Regression: Piecewise Linear-Linear

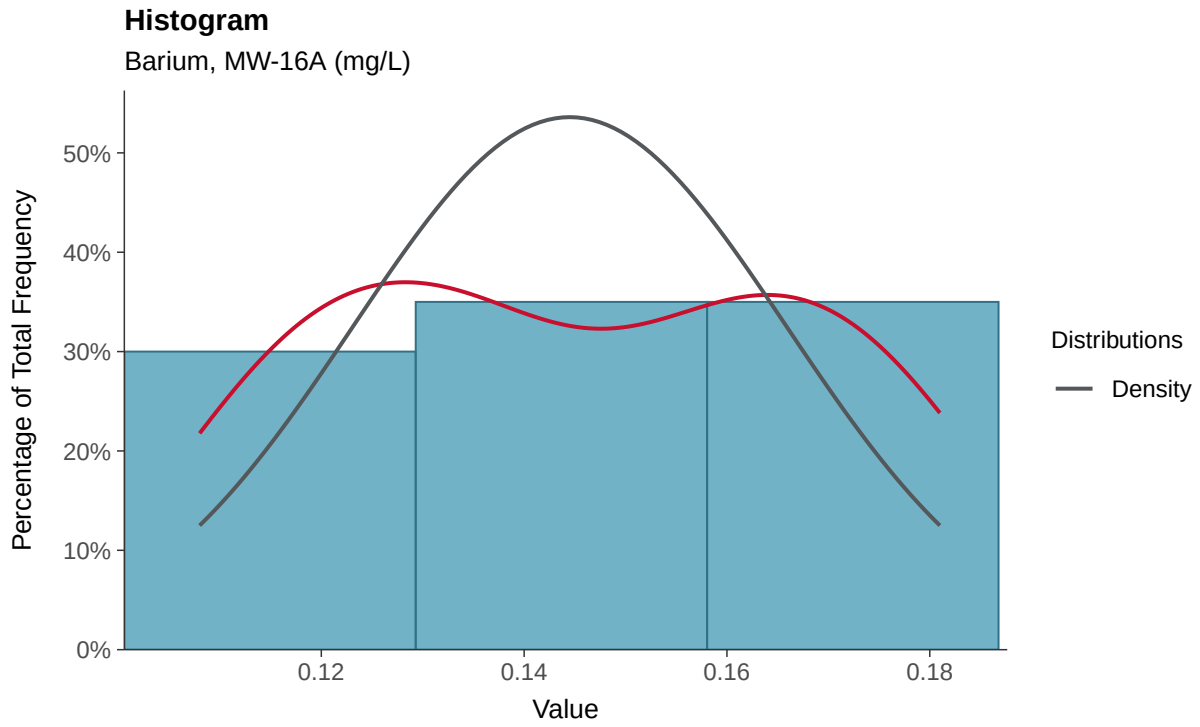
Arsenic, MW-16A (mg/L)



Appendix IV: Barium, MW-16A

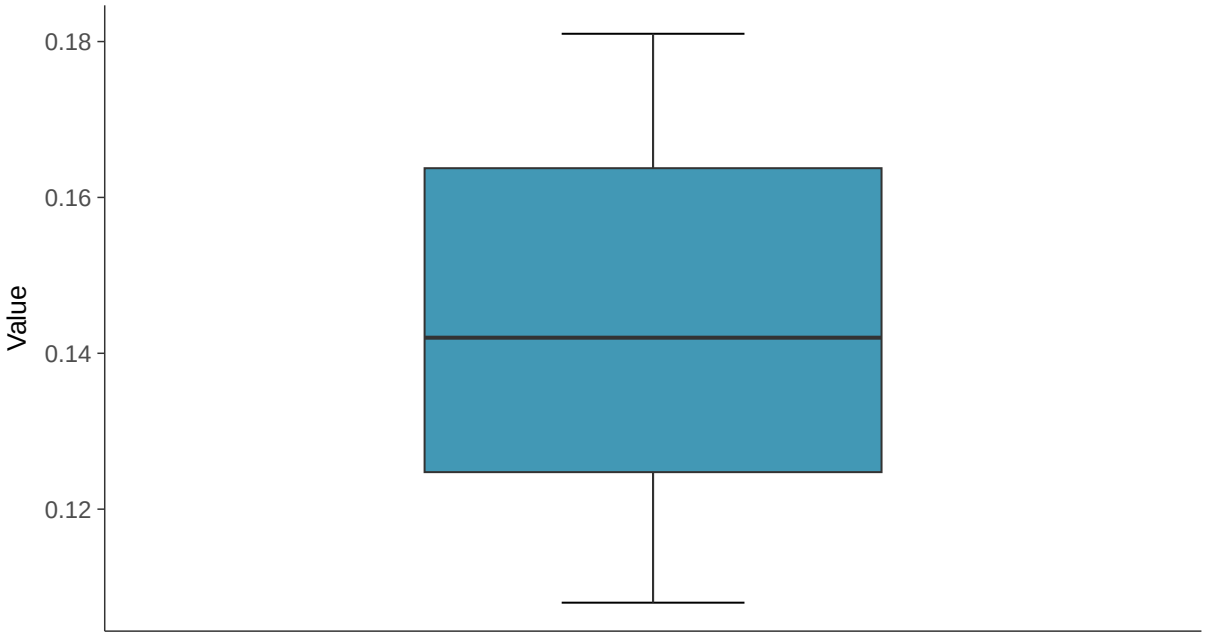
ID: 16A_2_10





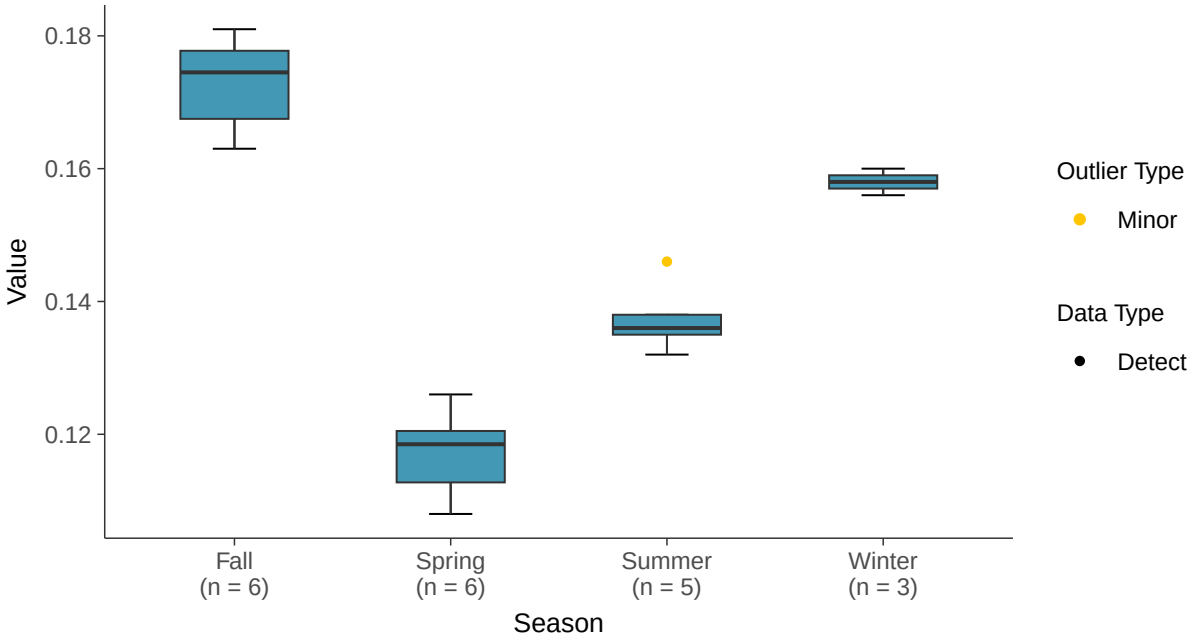
Boxplot

Barium, MW-16A (mg/L)



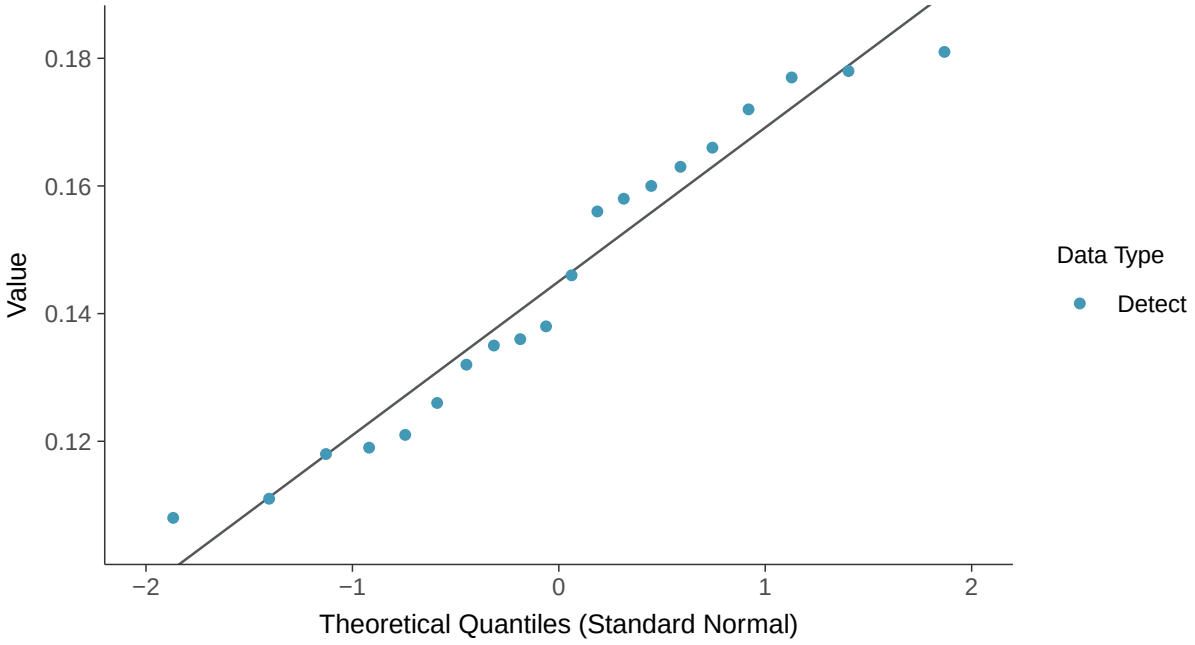
Boxplot by Season

Barium, MW-16A (mg/L)



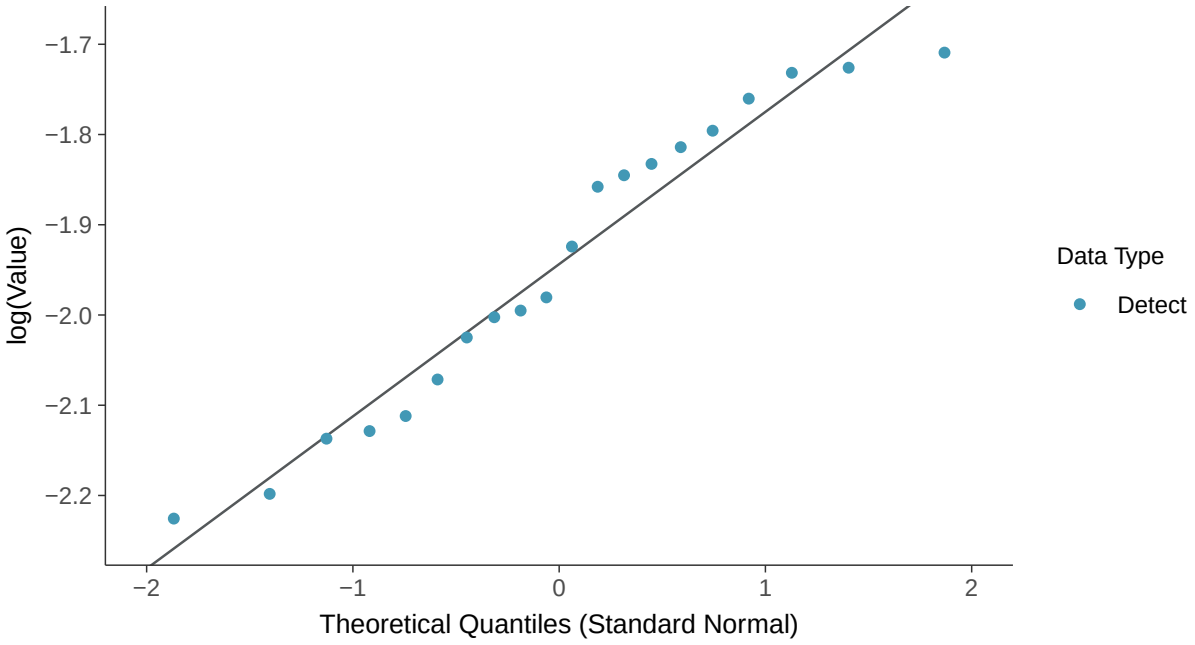
Normal Q-Q plot

Barium, MW-16A (mg/L)



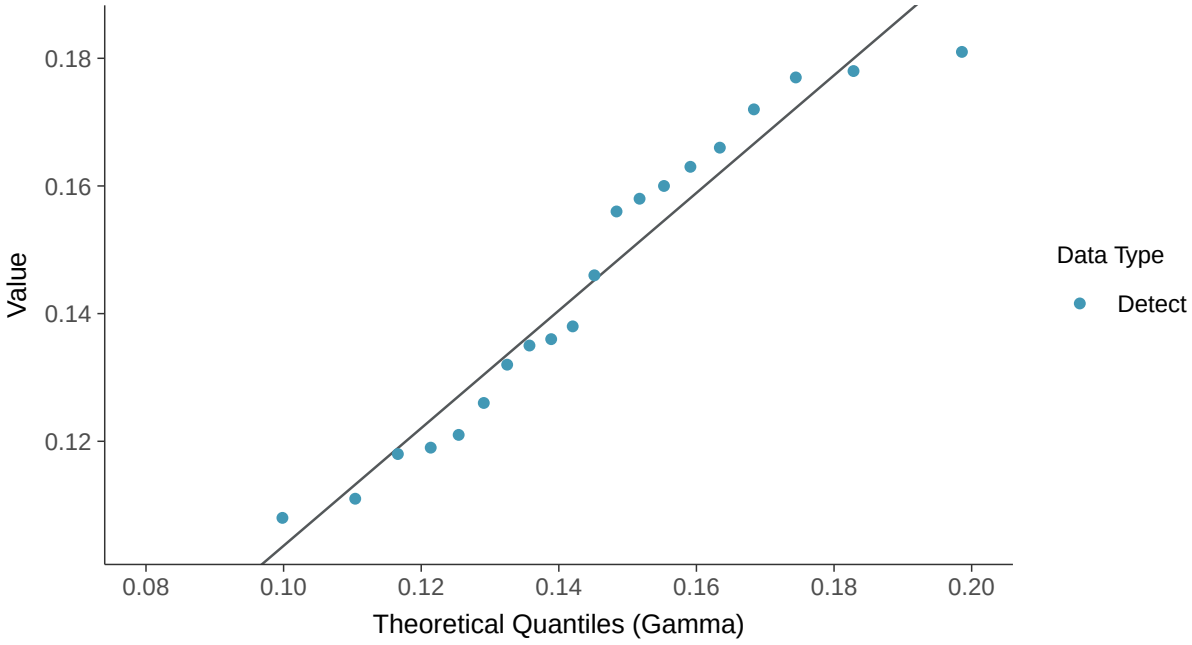
Lognormal Q-Q plot

Barium, MW-16A (mg/L)



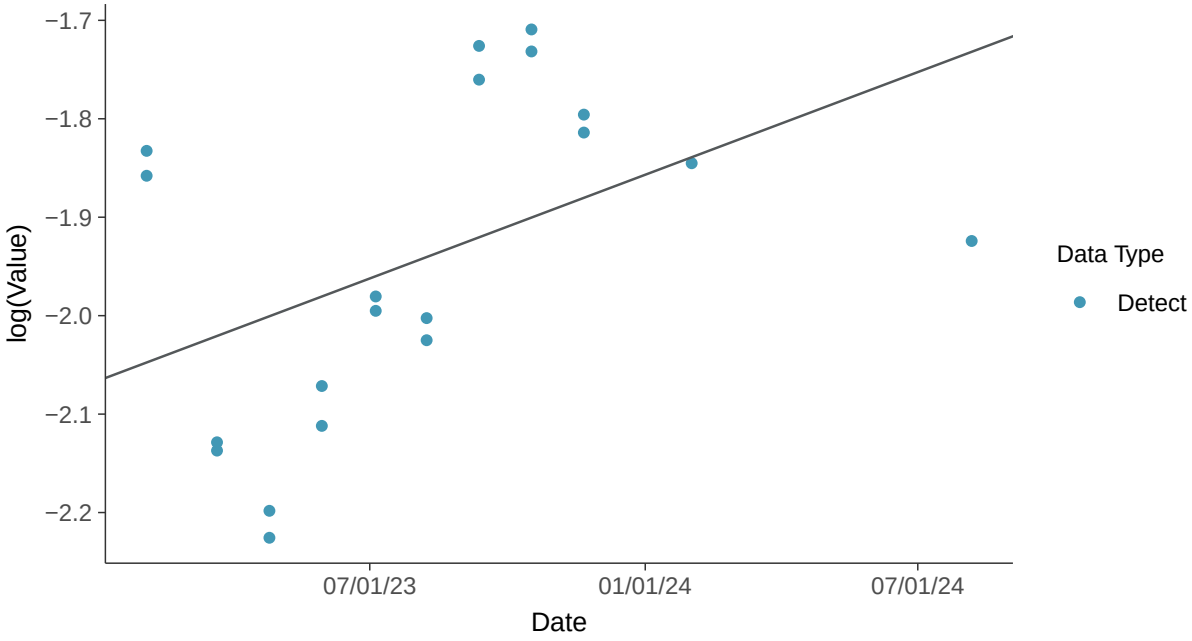
Gamma Q-Q plot

Barium, MW-16A (mg/L)



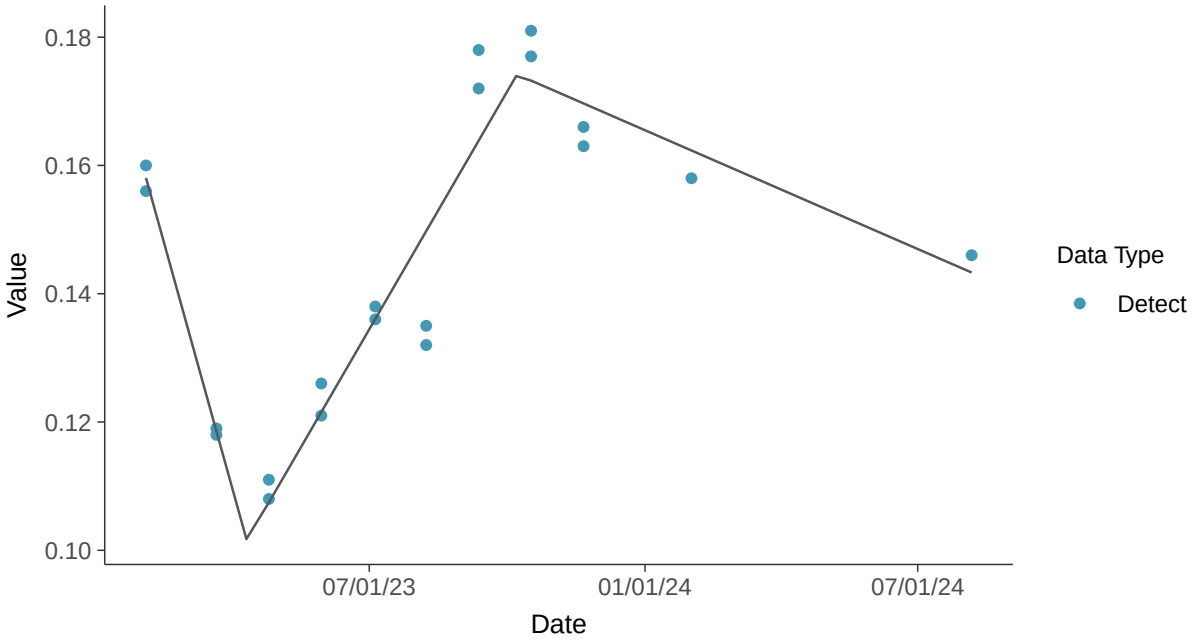
Trend Regression: Lognormal MLE

Barium, MW-16A (mg/L)



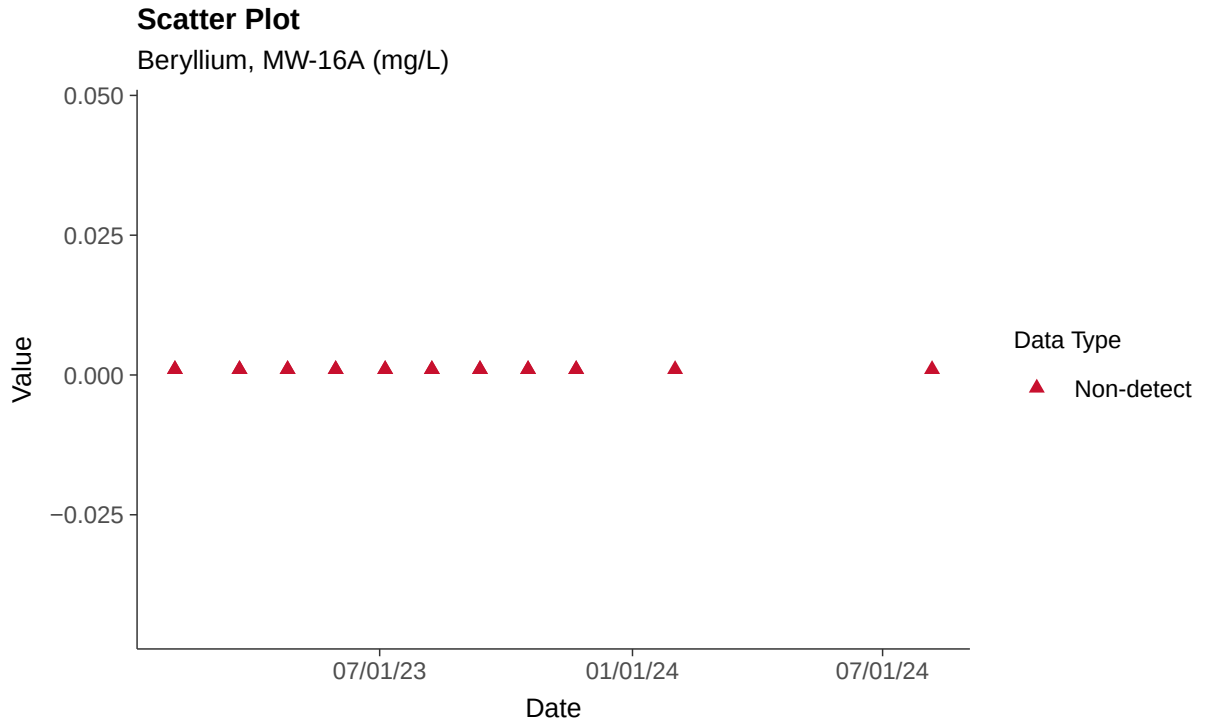
Trend Regression: Piecewise Linear-Linear-Linear

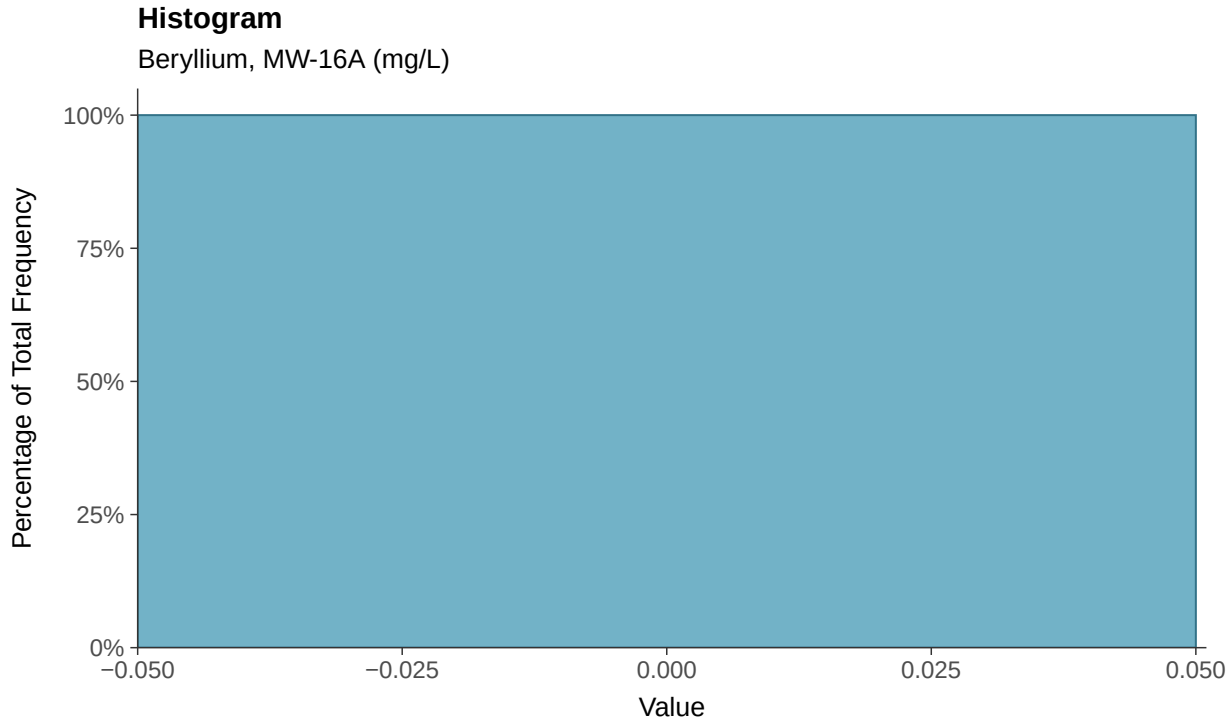
Barium, MW-16A (mg/L)



Appendix IV: Beryllium, MW-16A

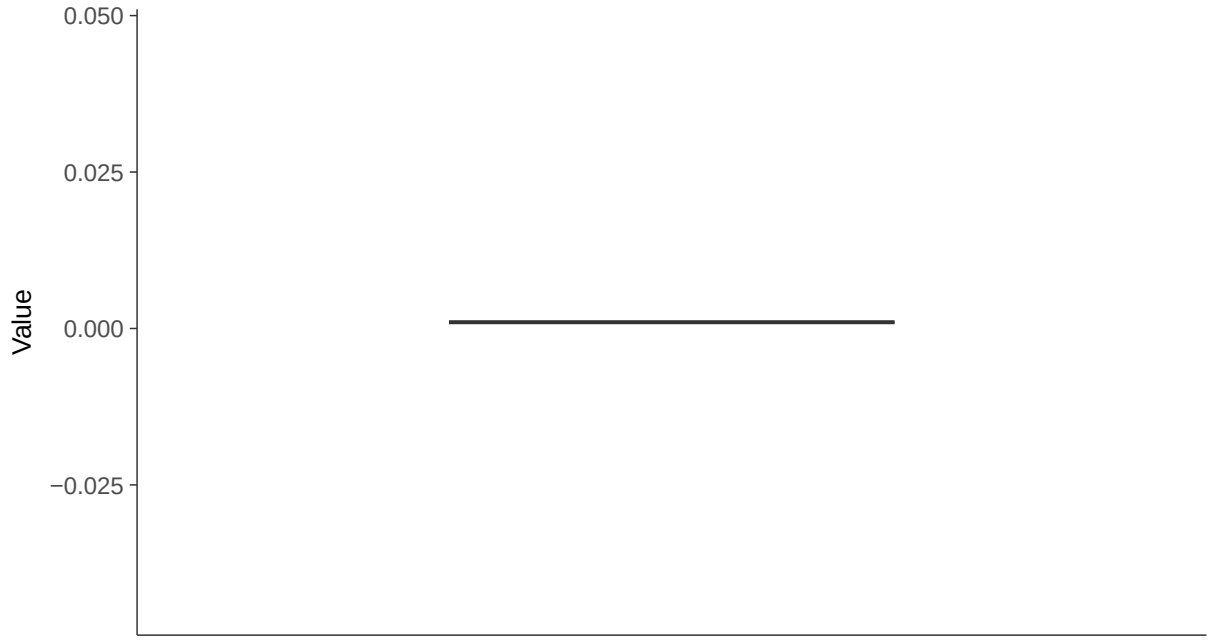
ID: 16A_2_11





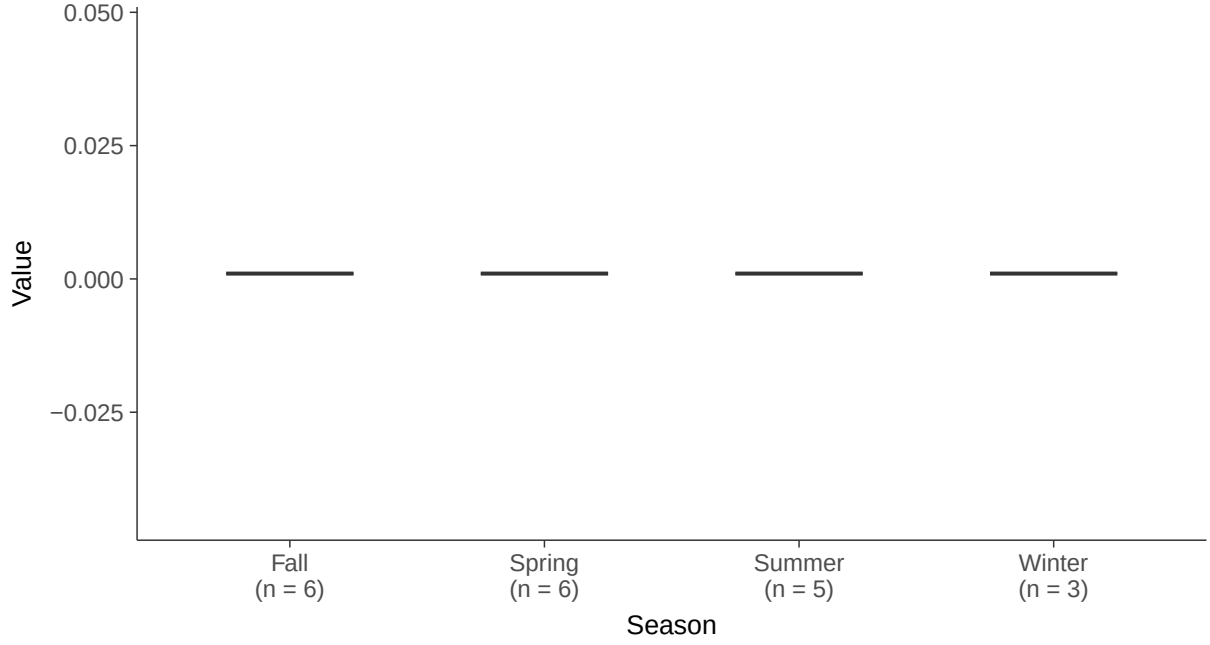
Boxplot

Beryllium, MW-16A (mg/L)



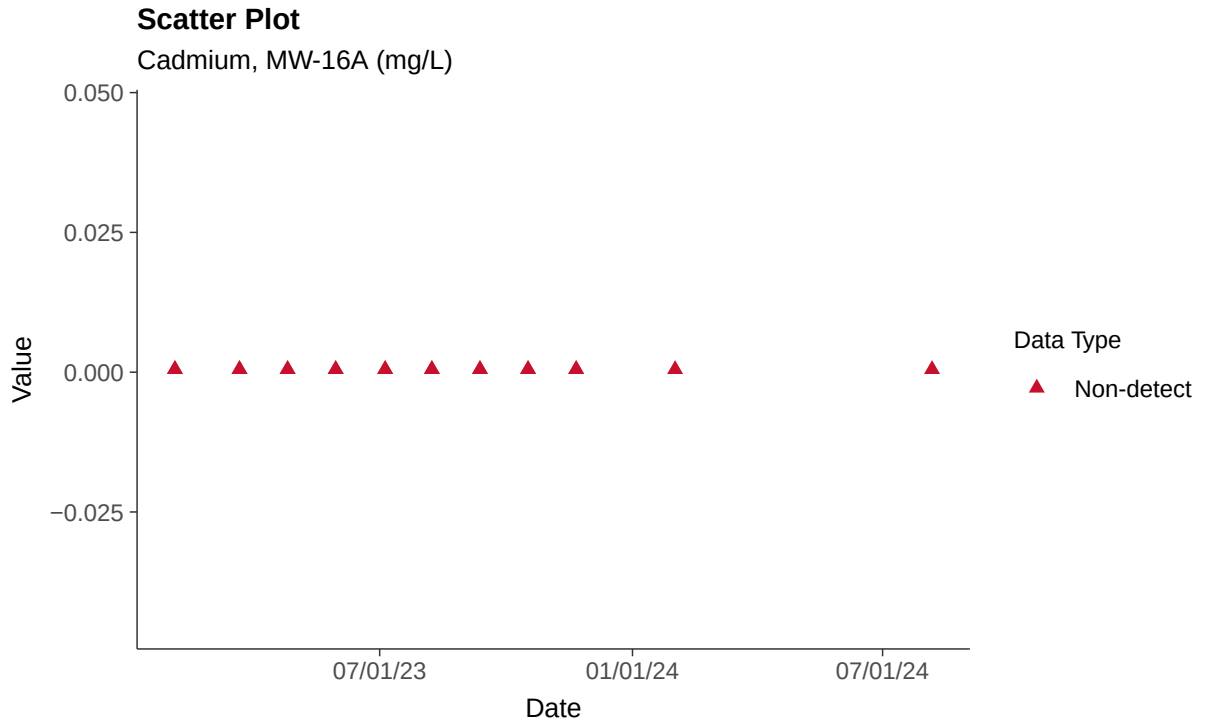
Boxplot by Season

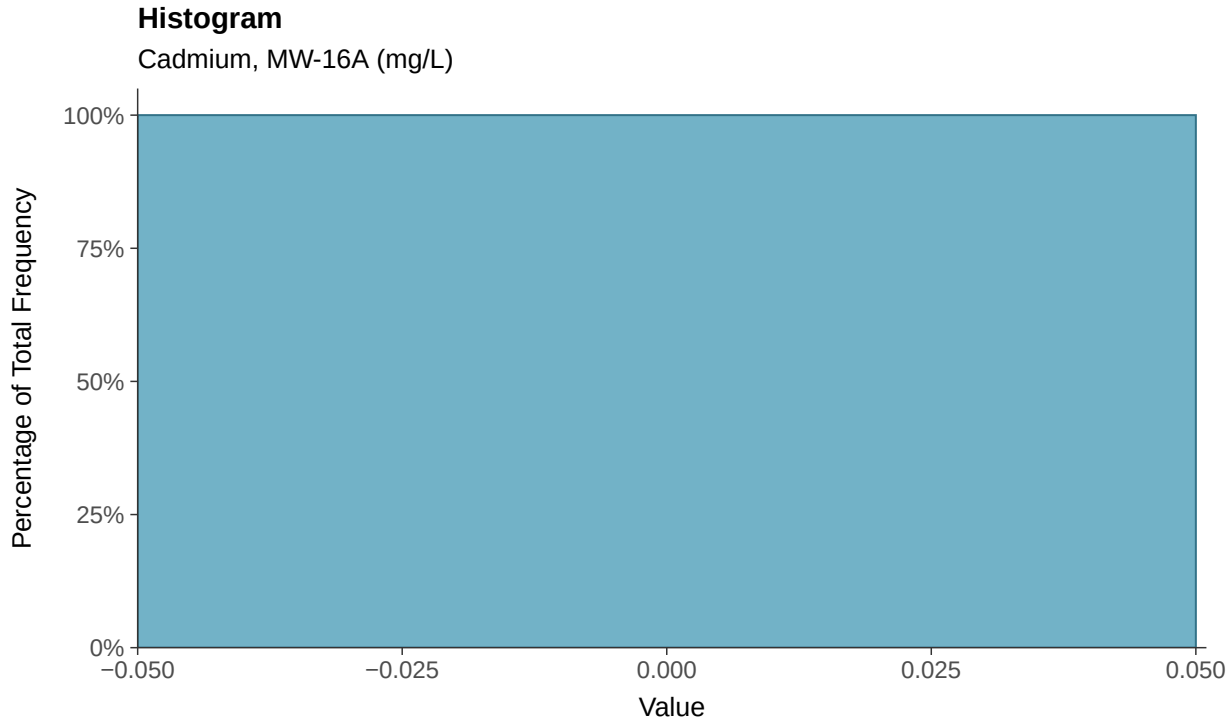
Beryllium, MW-16A (mg/L)



Appendix IV: Cadmium, MW-16A

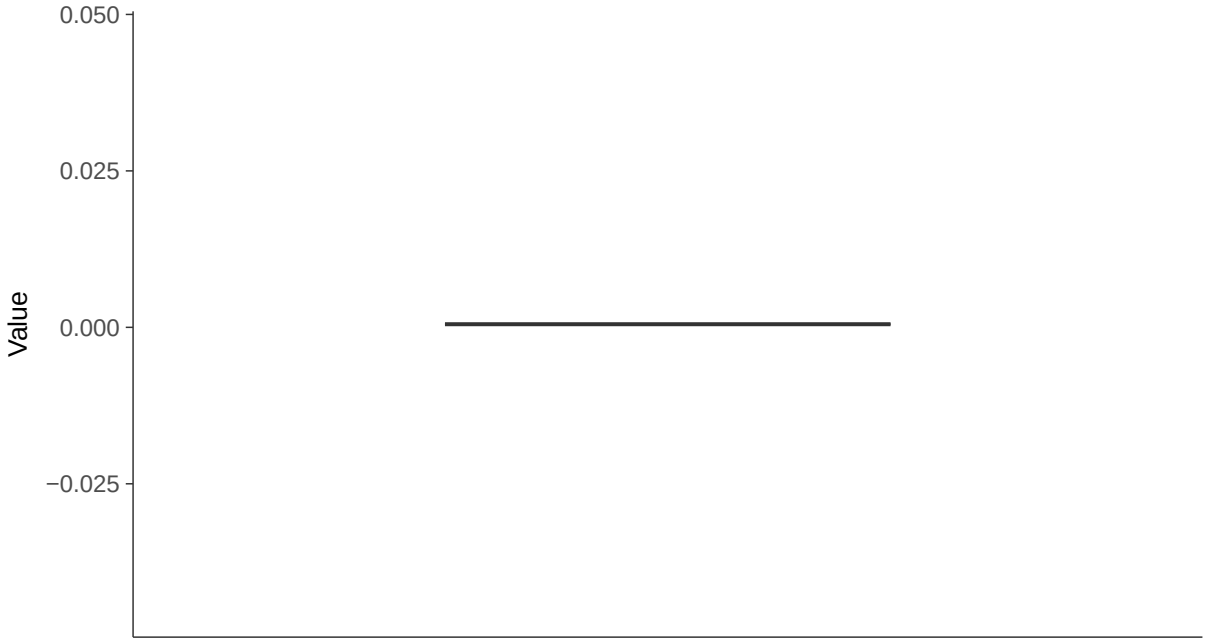
ID: 16A_2_12





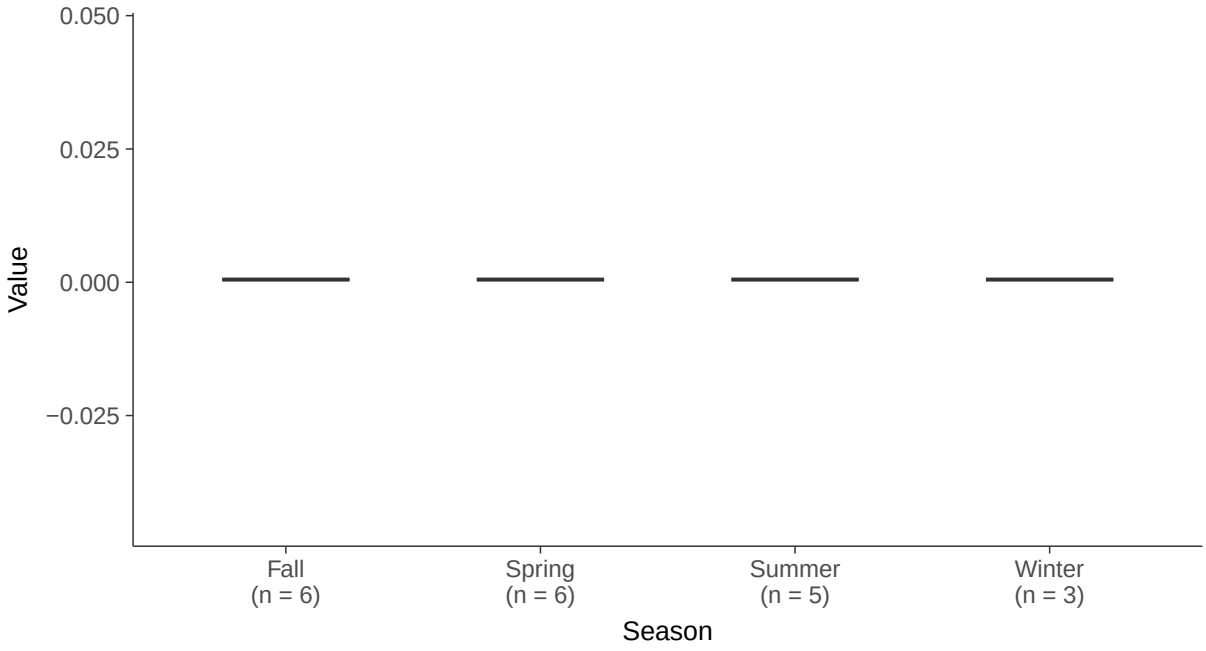
Boxplot

Cadmium, MW-16A (mg/L)



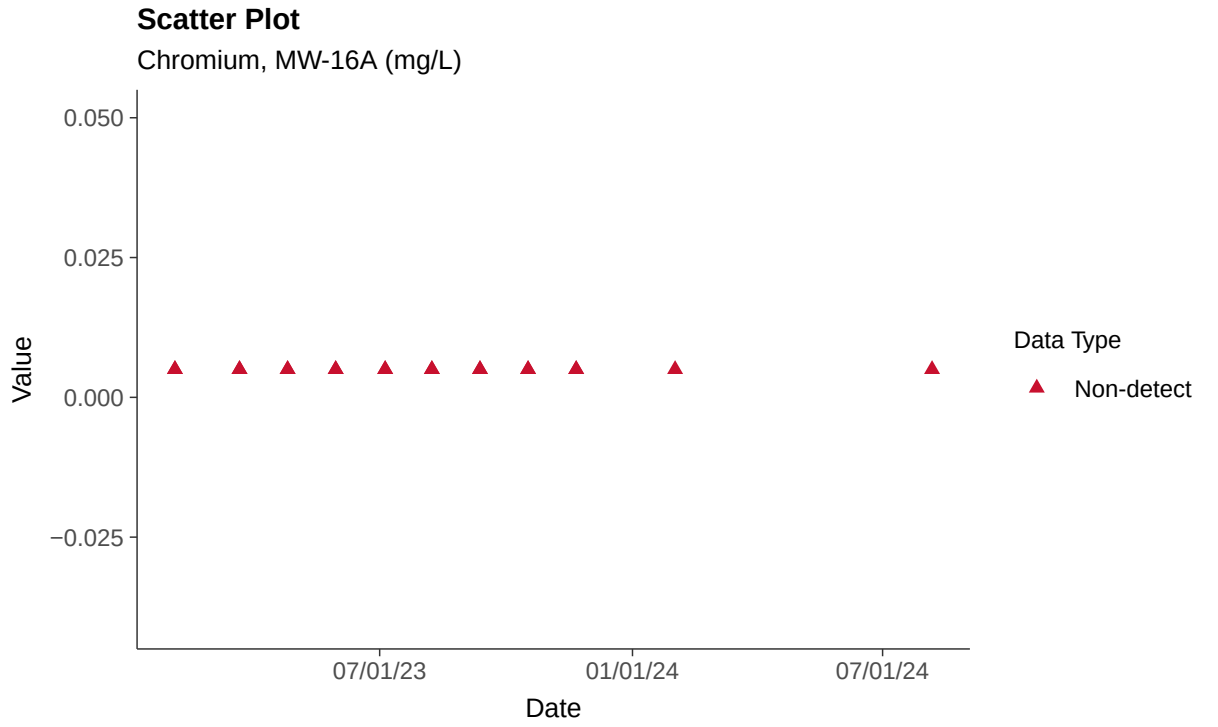
Boxplot by Season

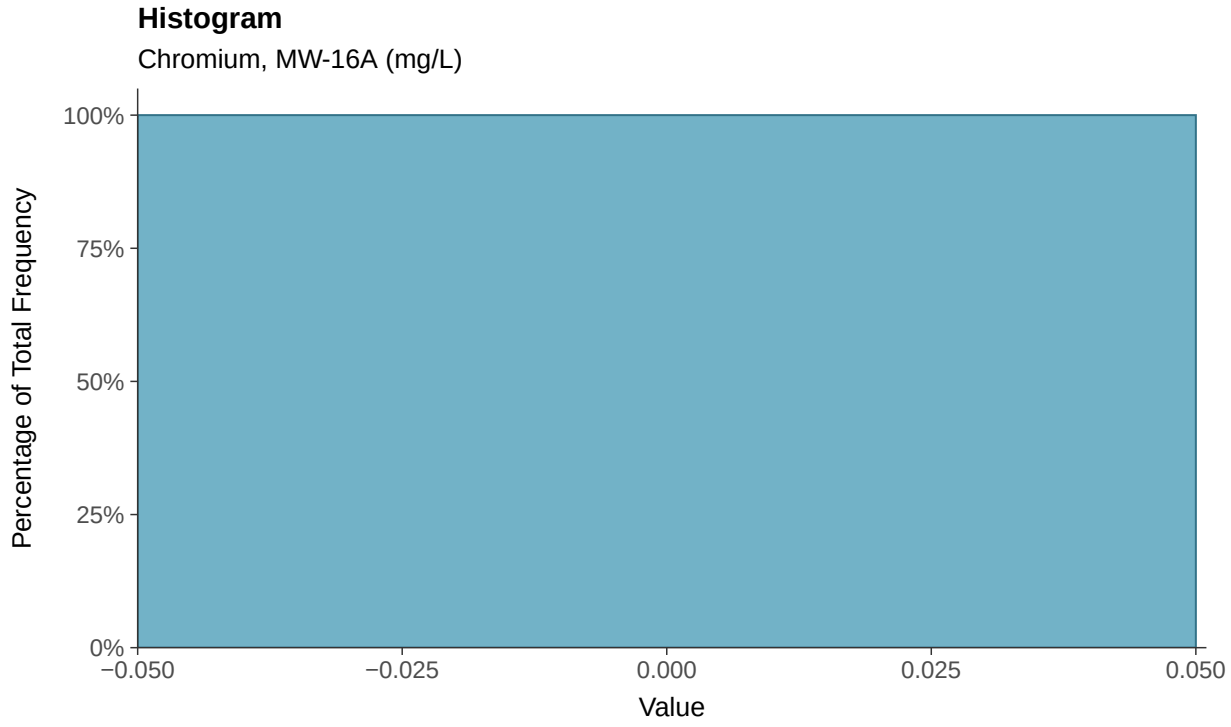
Cadmium, MW-16A (mg/L)



Appendix IV: Chromium, MW-16A

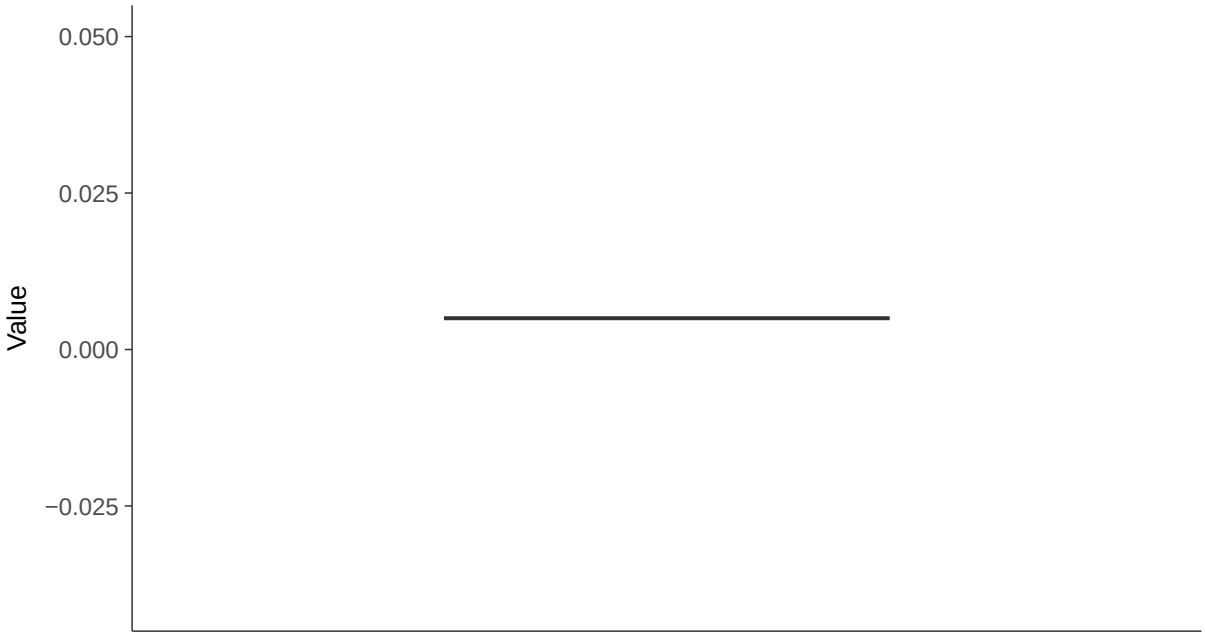
ID: 16A_2_13





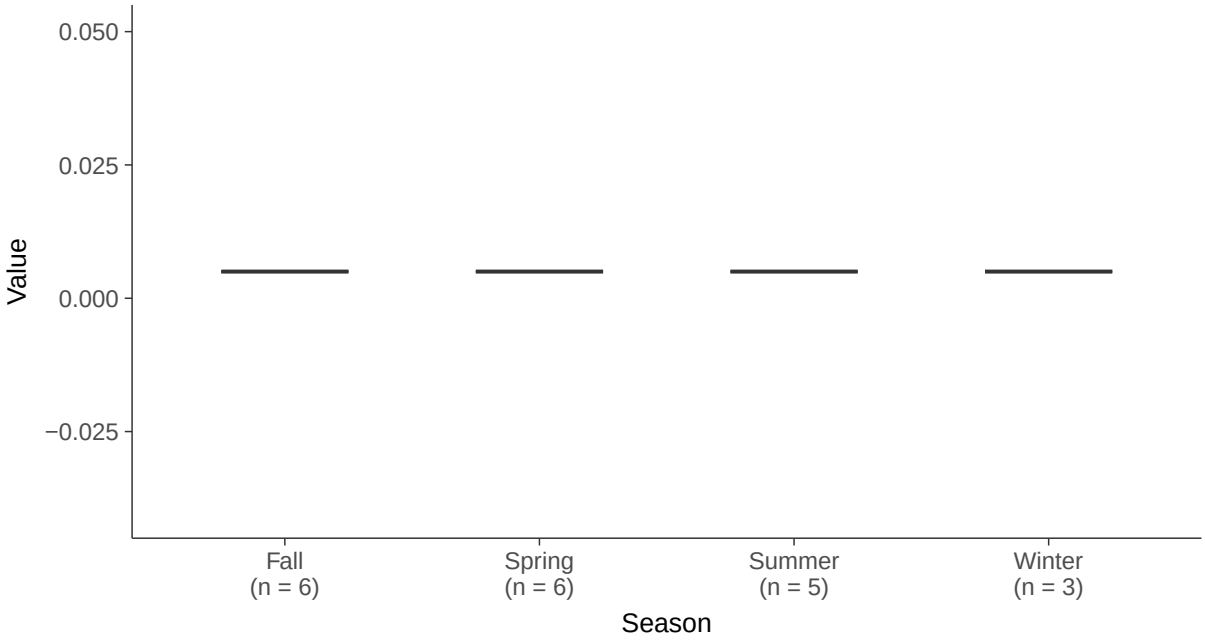
Boxplot

Chromium, MW-16A (mg/L)



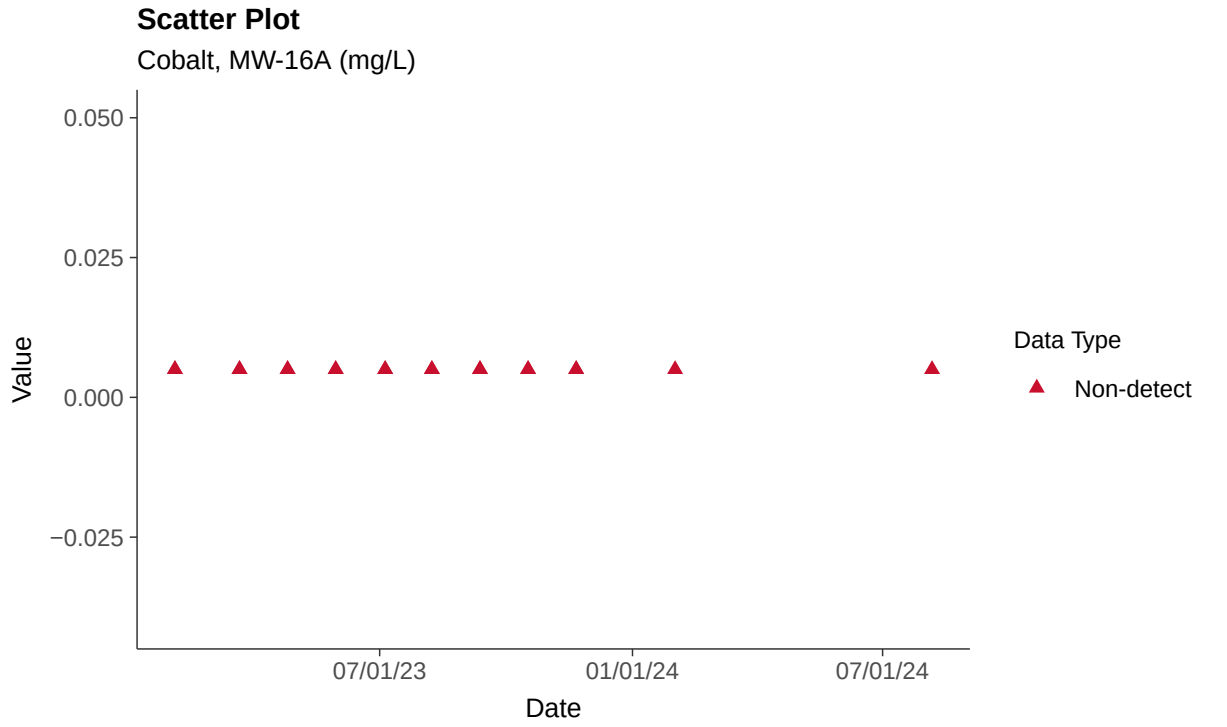
Boxplot by Season

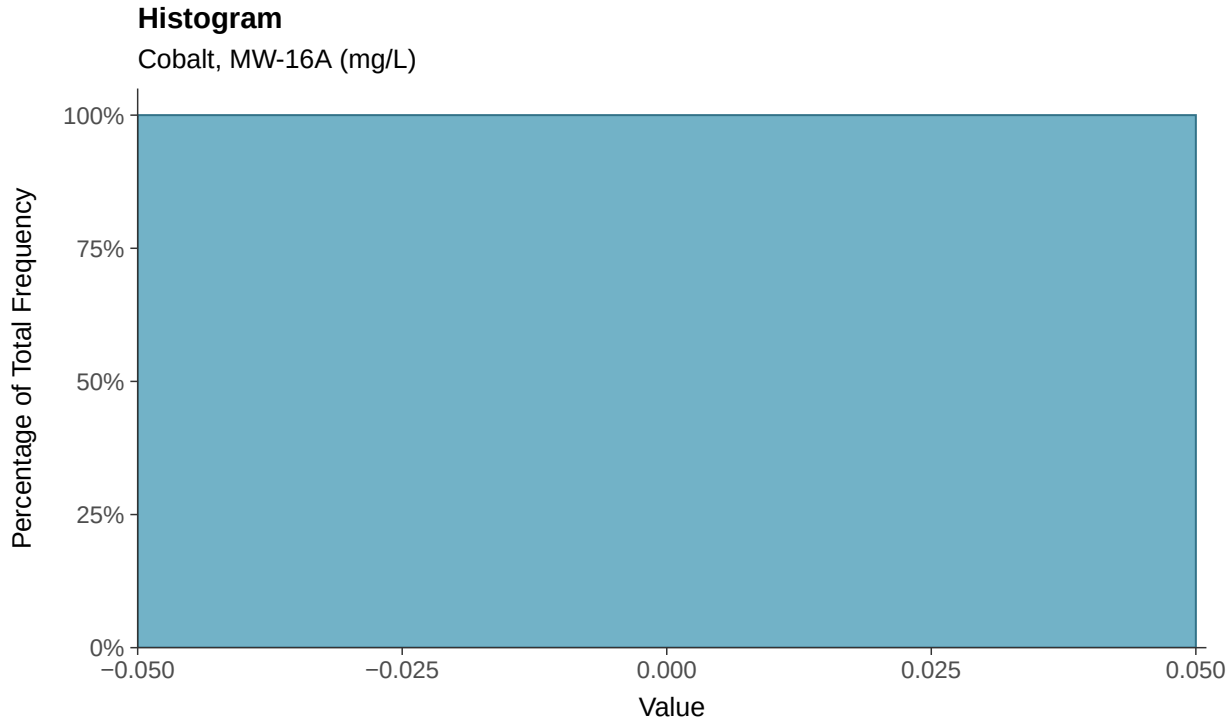
Chromium, MW-16A (mg/L)



Appendix IV: Cobalt, MW-16A

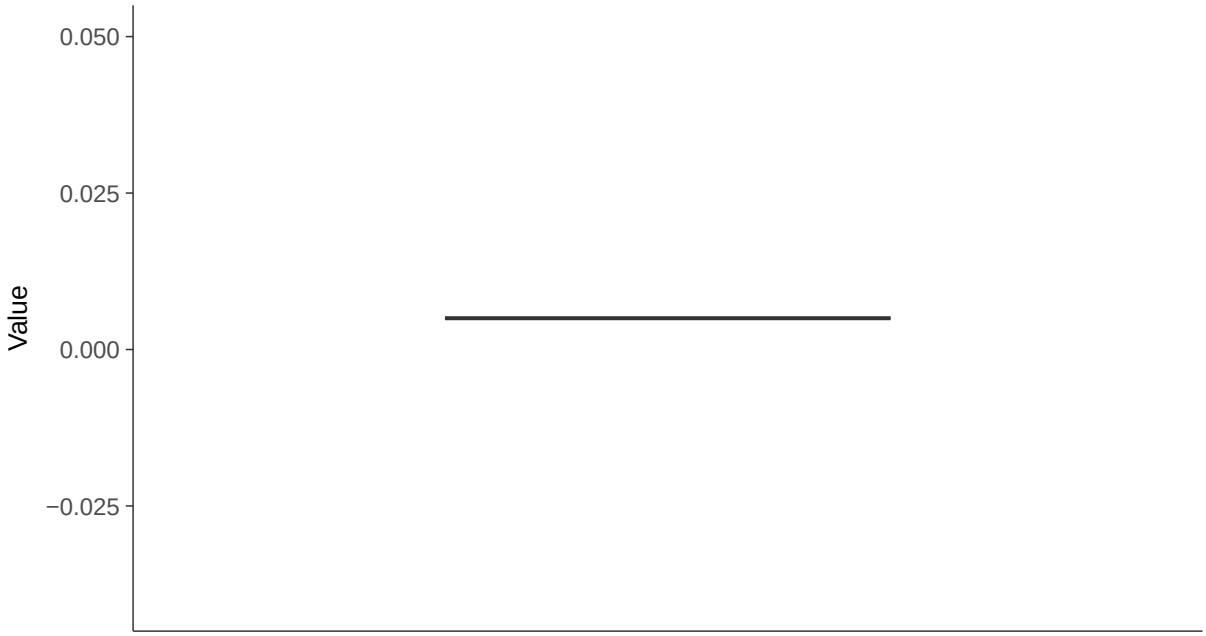
ID: 16A_2_14





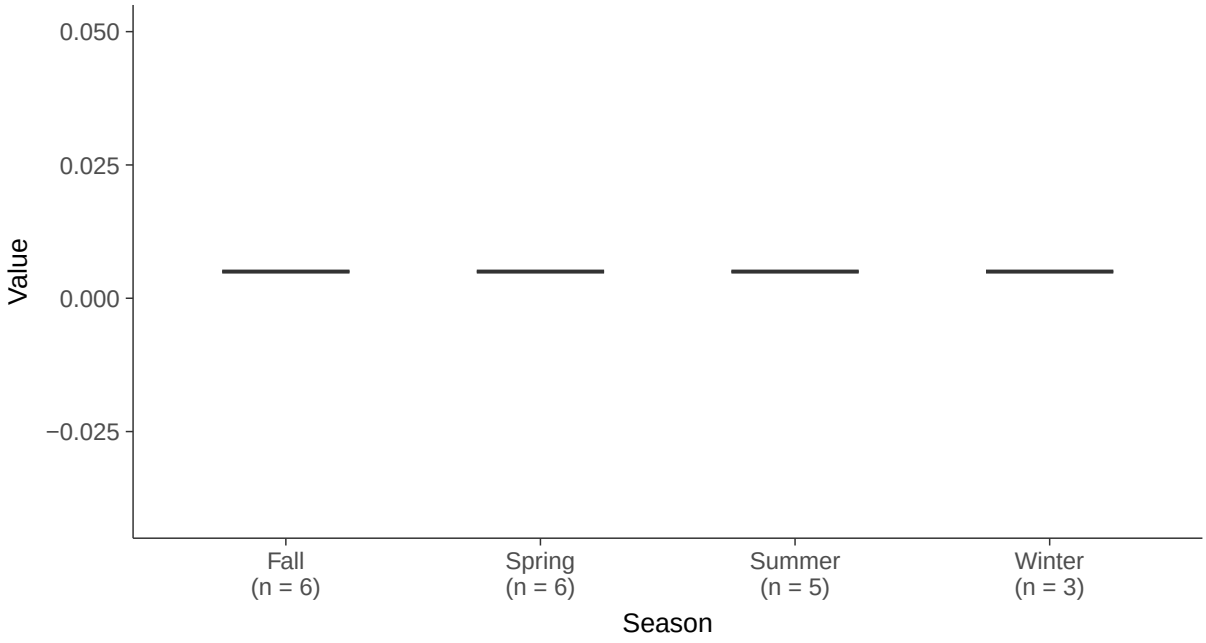
Boxplot

Cobalt, MW-16A (mg/L)



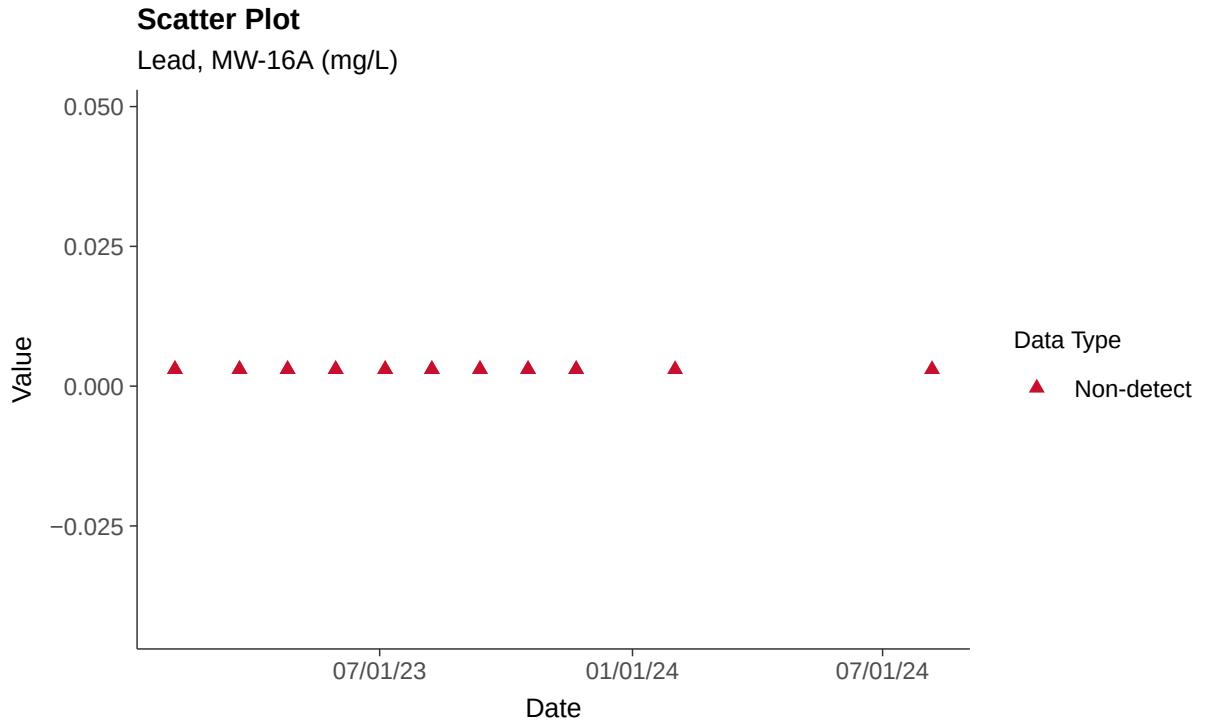
Boxplot by Season

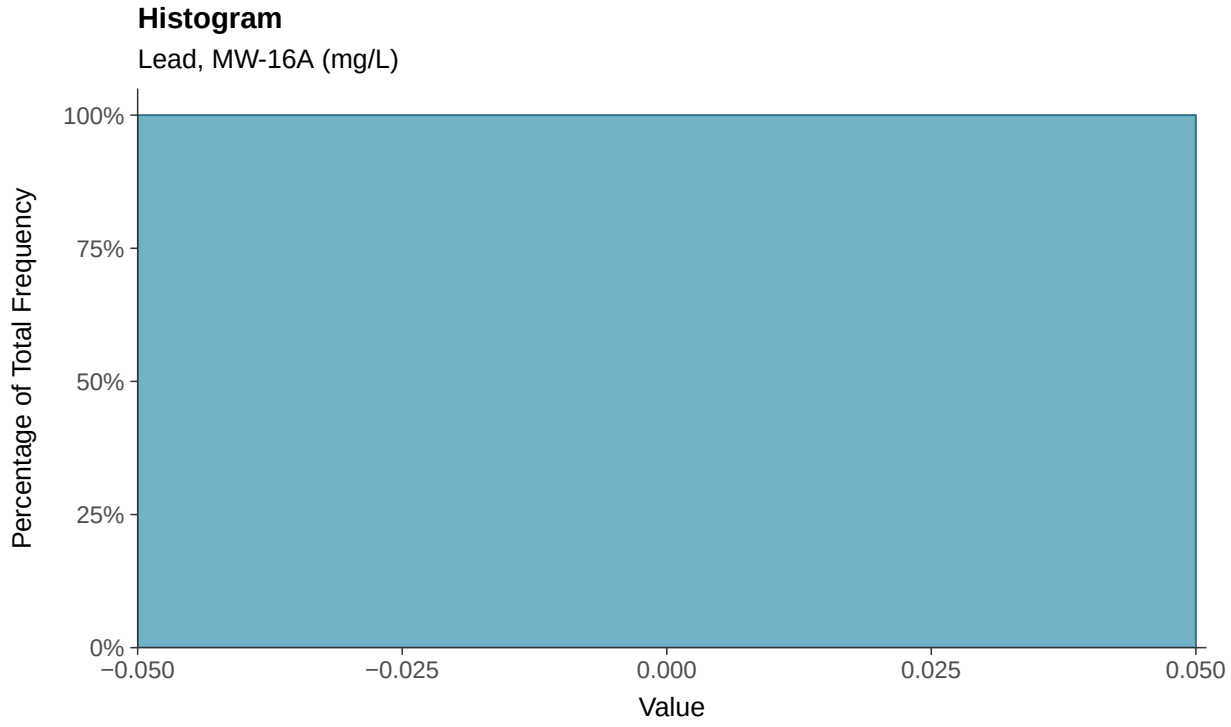
Cobalt, MW-16A (mg/L)



Appendix IV: Lead, MW-16A

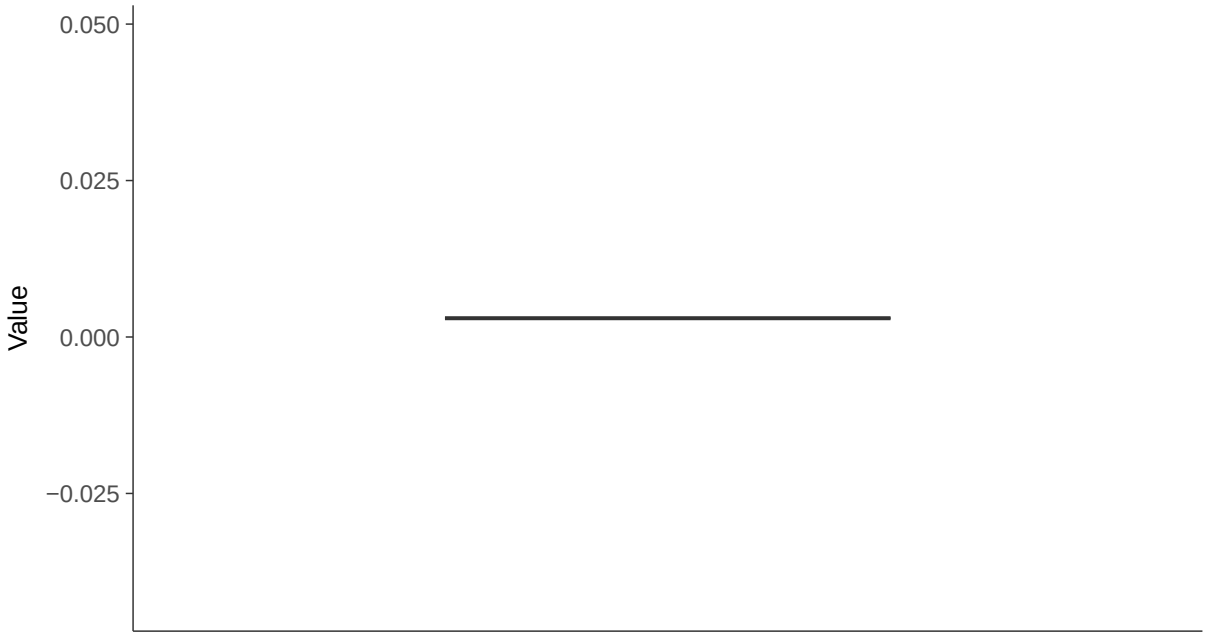
ID: 16A_2_15





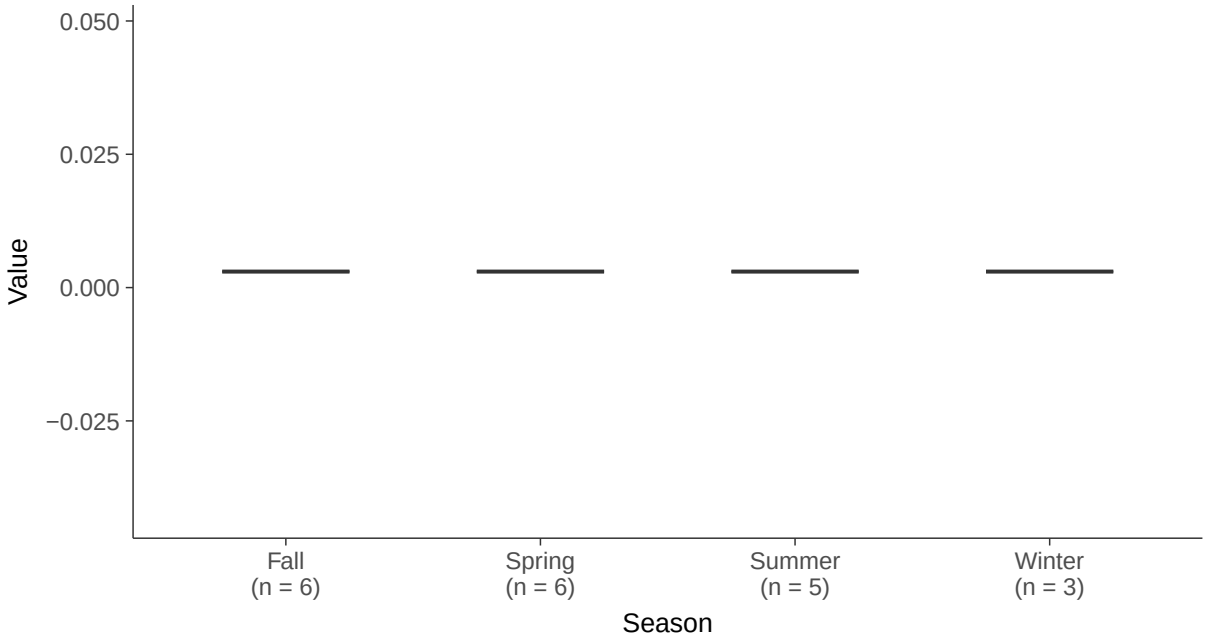
Boxplot

Lead, MW-16A (mg/L)



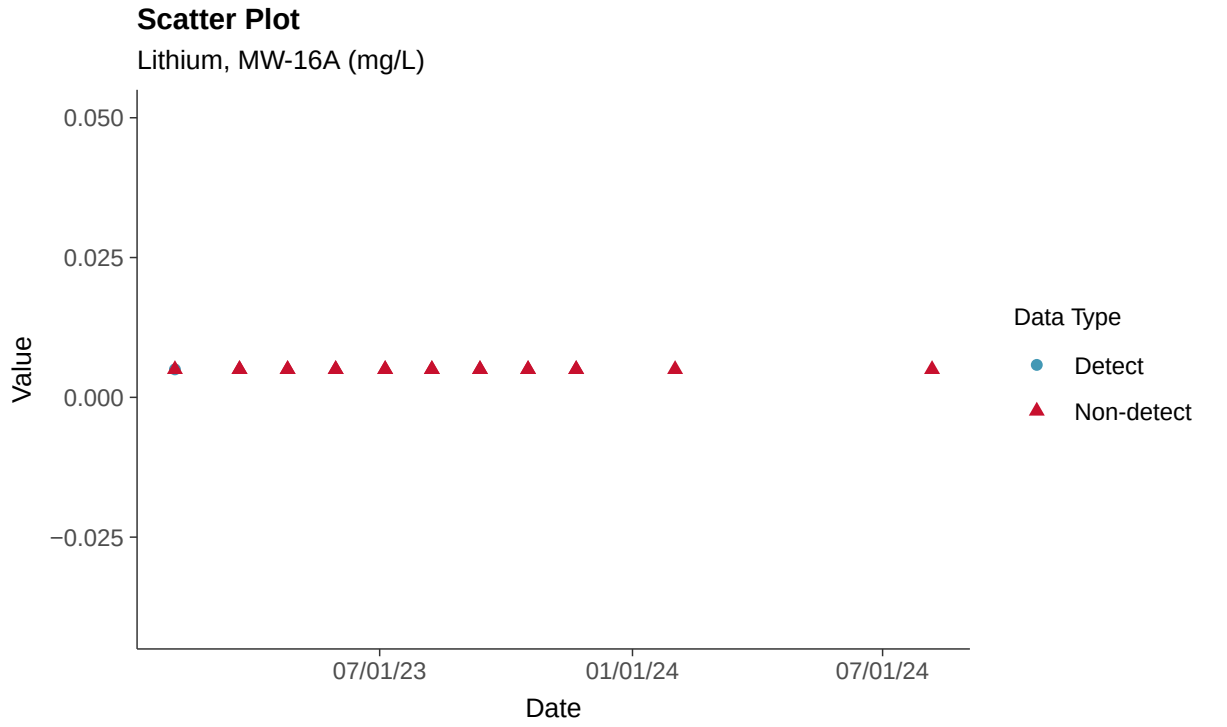
Boxplot by Season

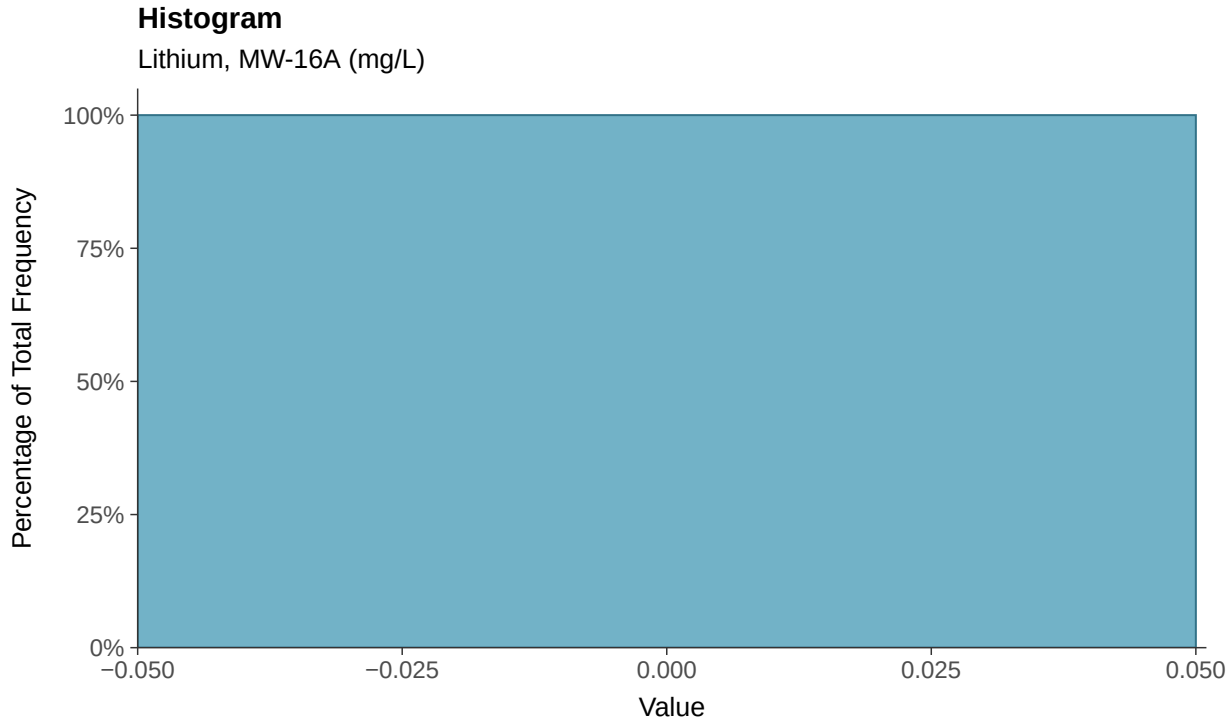
Lead, MW-16A (mg/L)



Appendix IV: Lithium, MW-16A

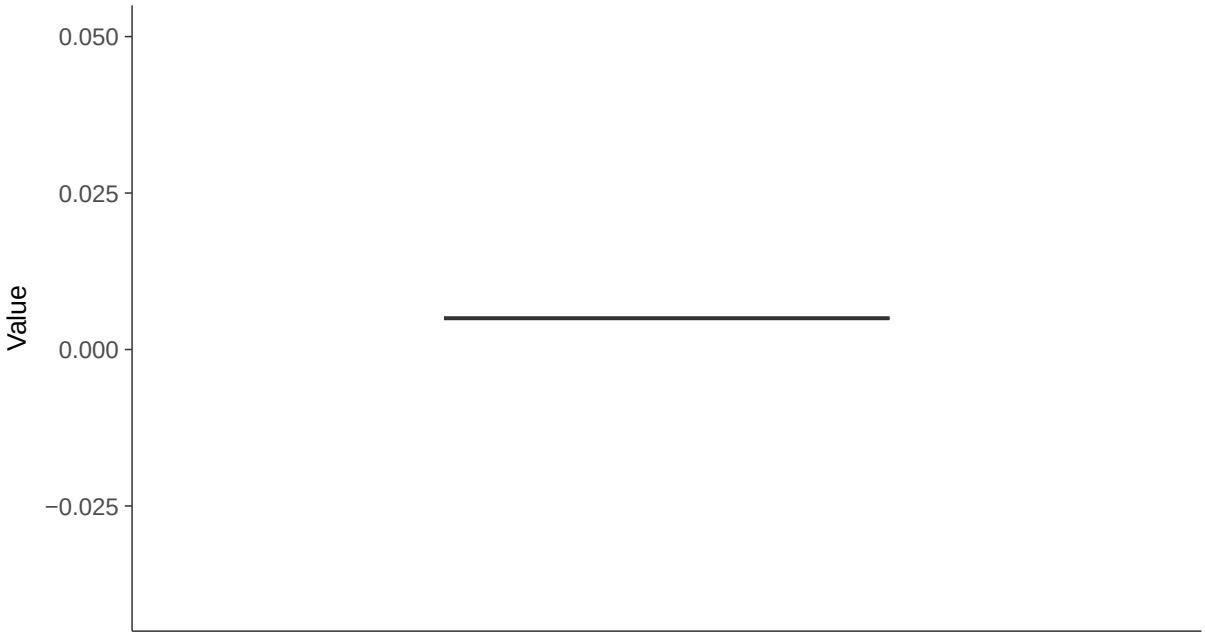
ID: 16A_2_16





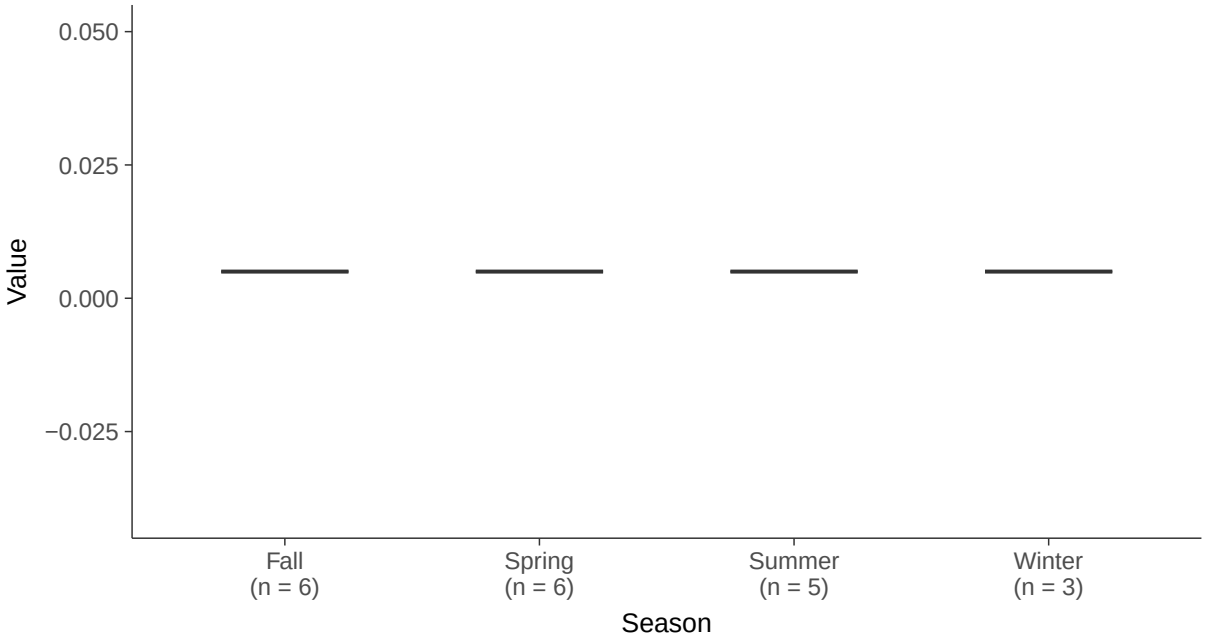
Boxplot

Lithium, MW-16A (mg/L)



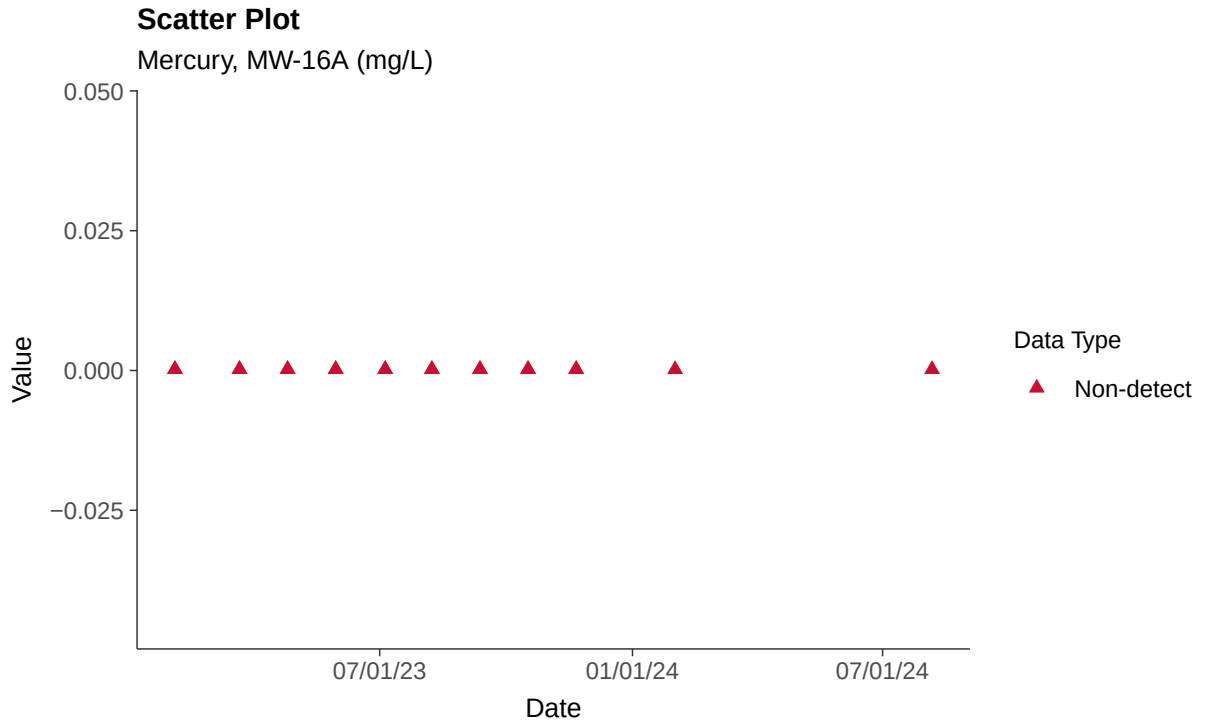
Boxplot by Season

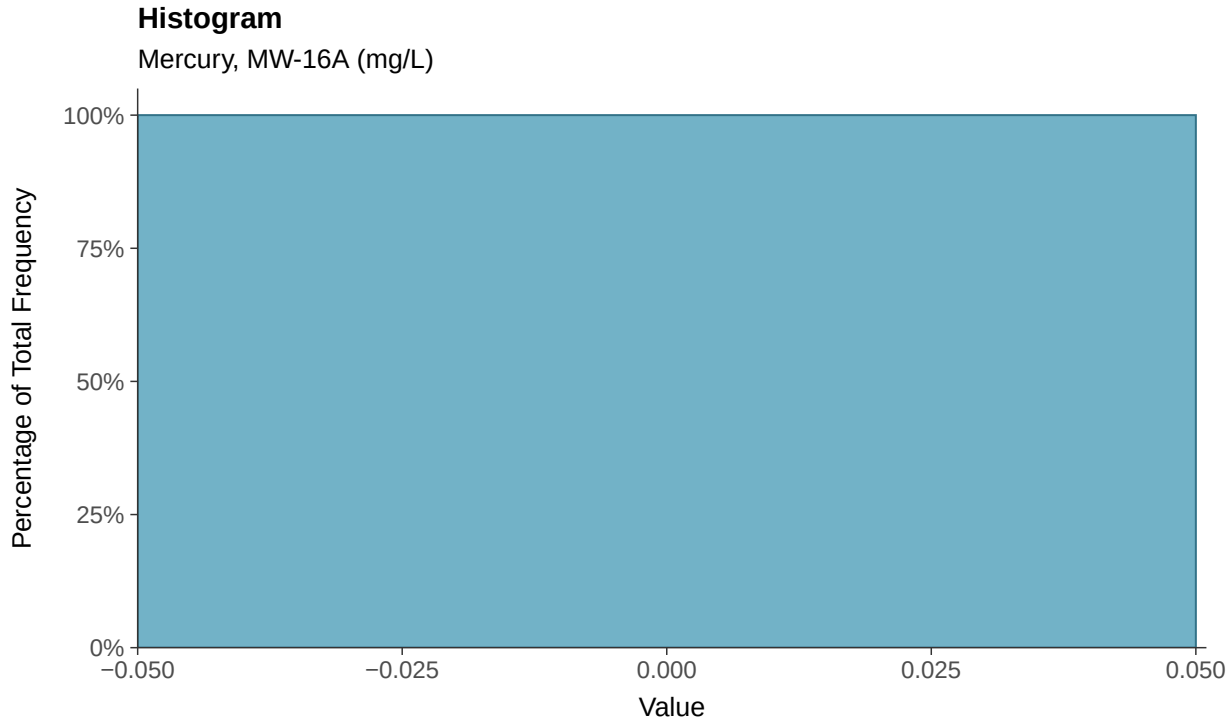
Lithium, MW-16A (mg/L)



Appendix IV: Mercury, MW-16A

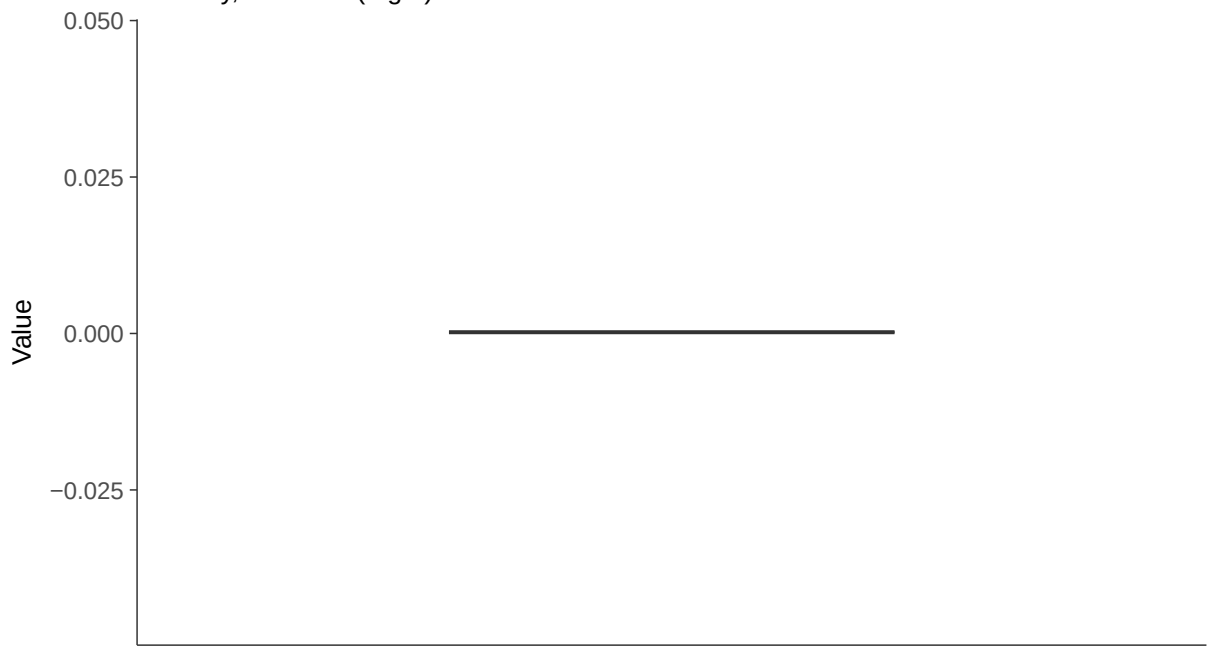
ID: 16A_2_17





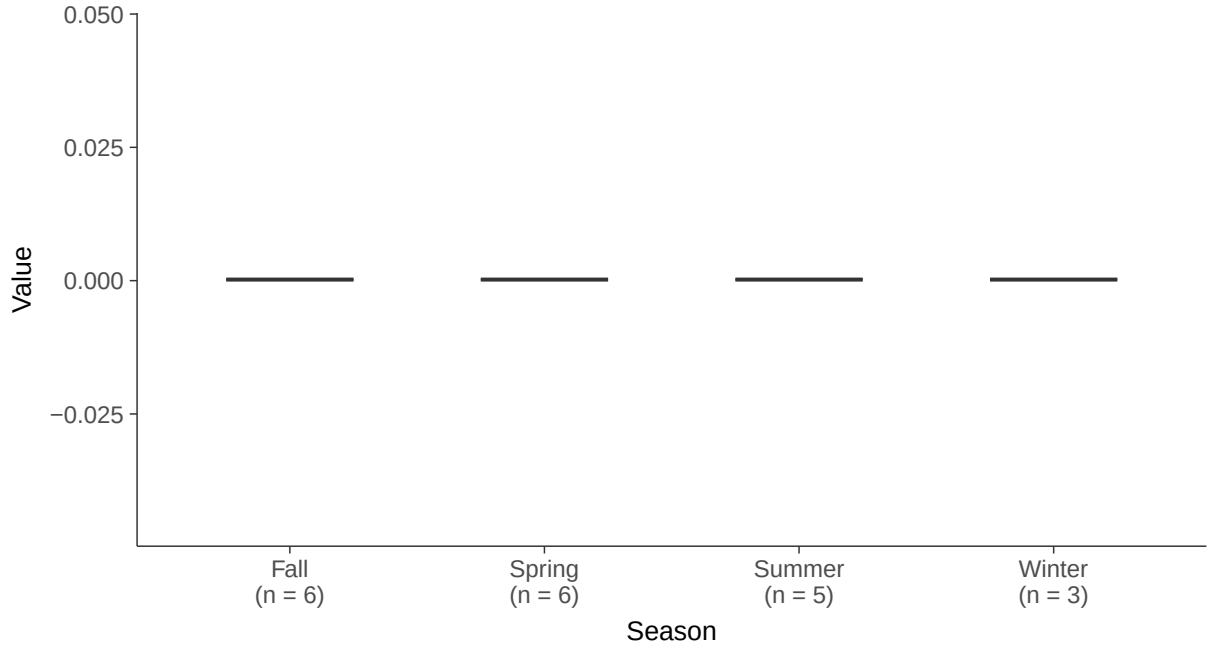
Boxplot

Mercury, MW-16A (mg/L)



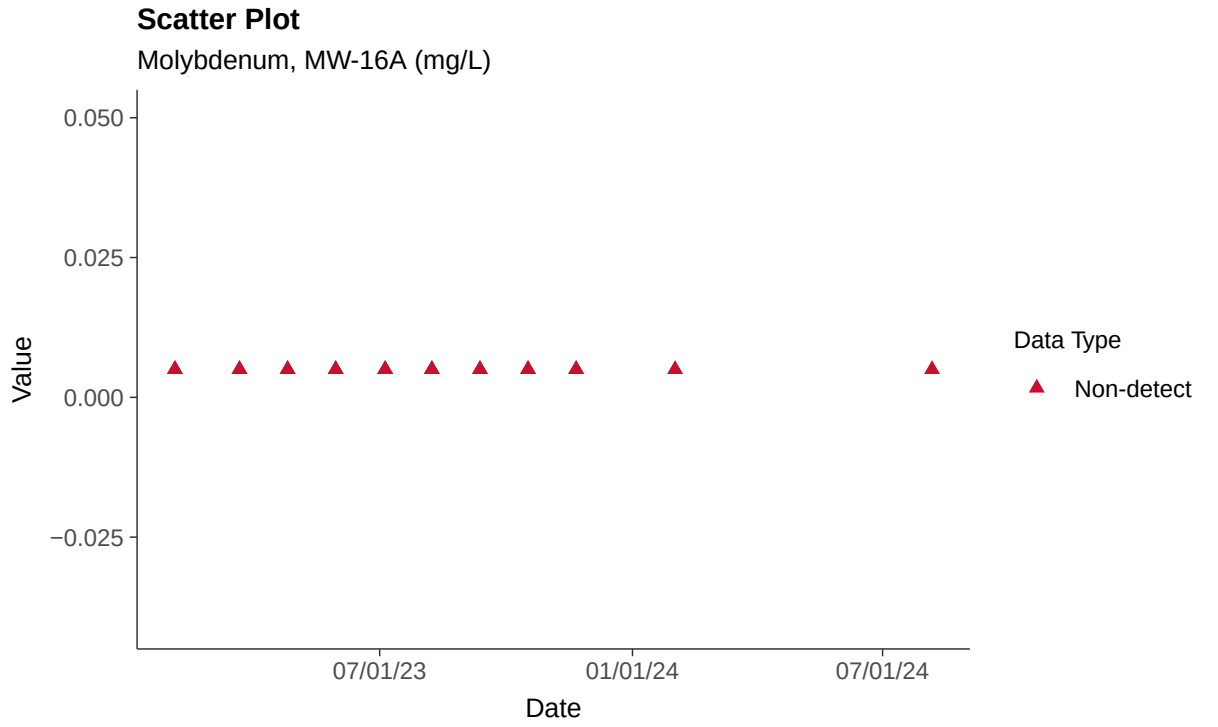
Boxplot by Season

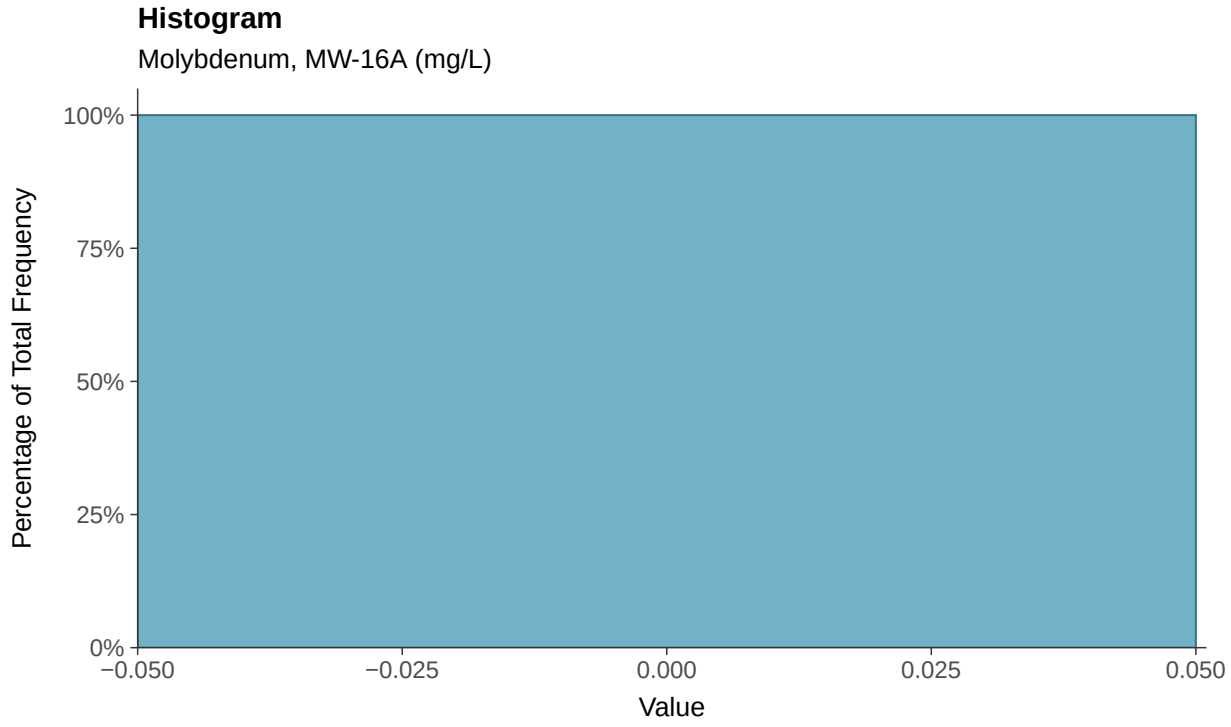
Mercury, MW-16A (mg/L)



Appendix IV: Molybdenum, MW-16A

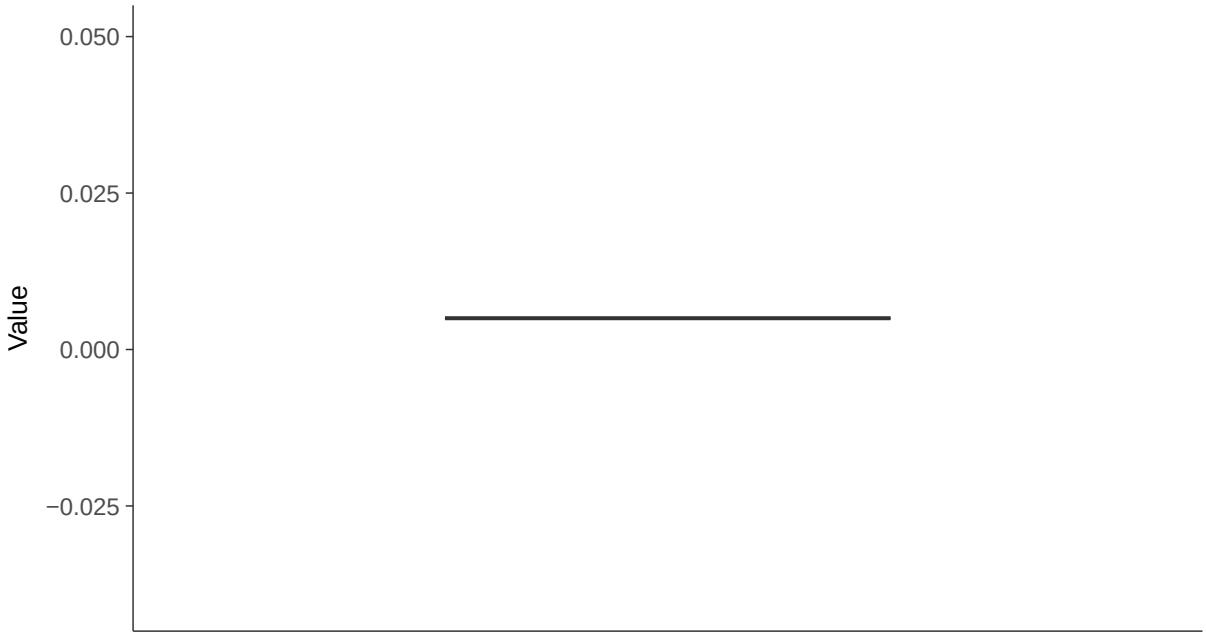
ID: 16A_2_18





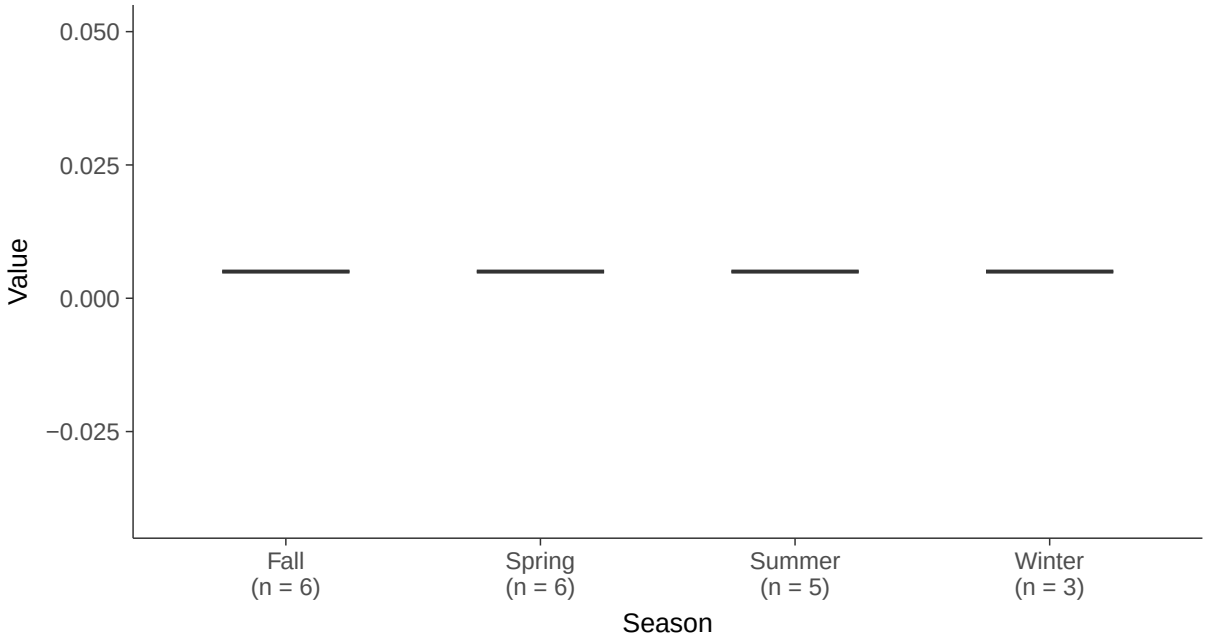
Boxplot

Molybdenum, MW-16A (mg/L)



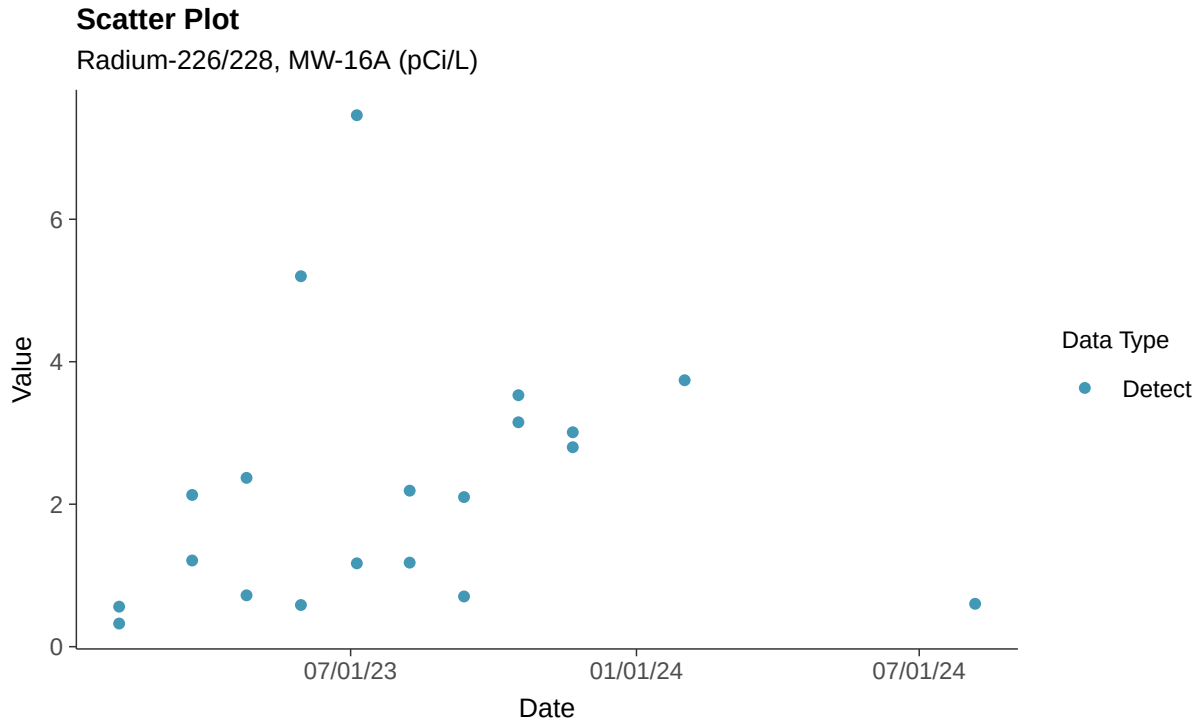
Boxplot by Season

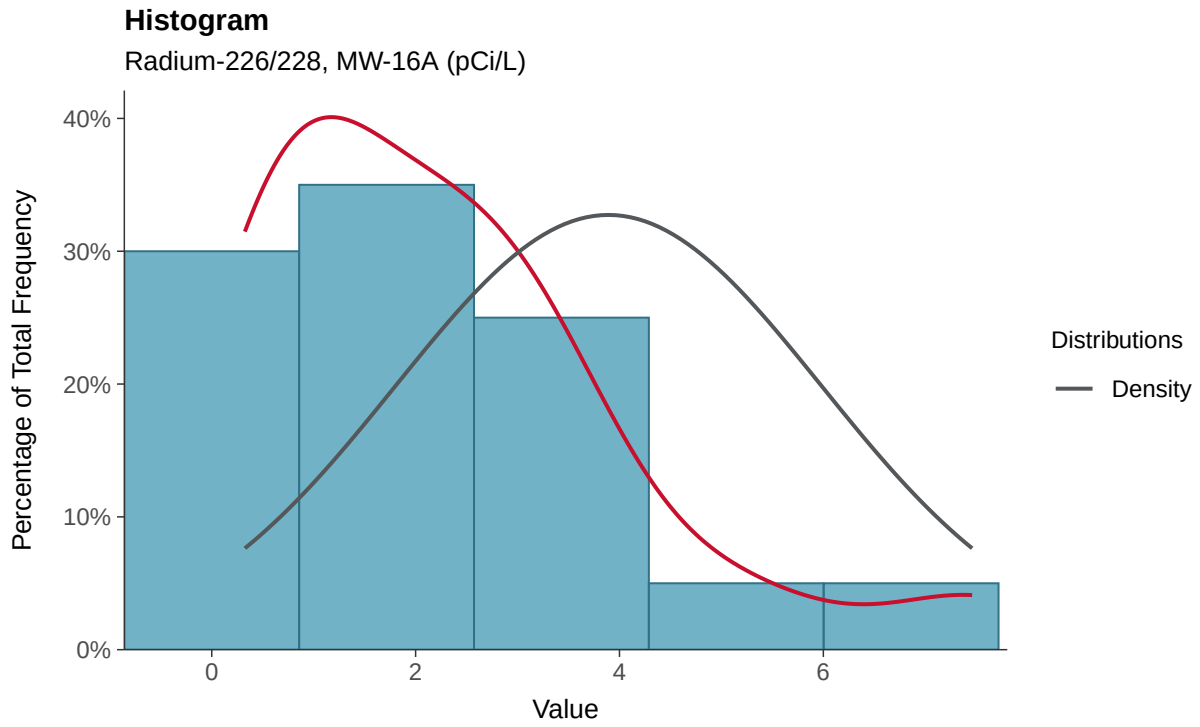
Molybdenum, MW-16A (mg/L)



Appendix IV: Radium-226/228, MW-16A

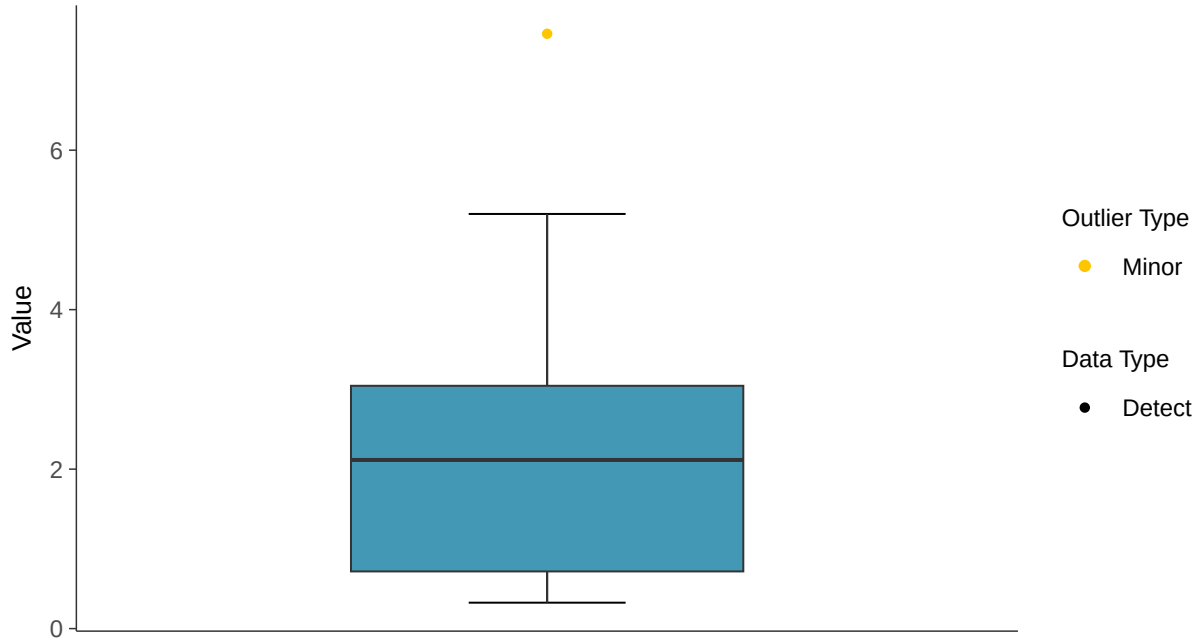
ID: 16A_2_21





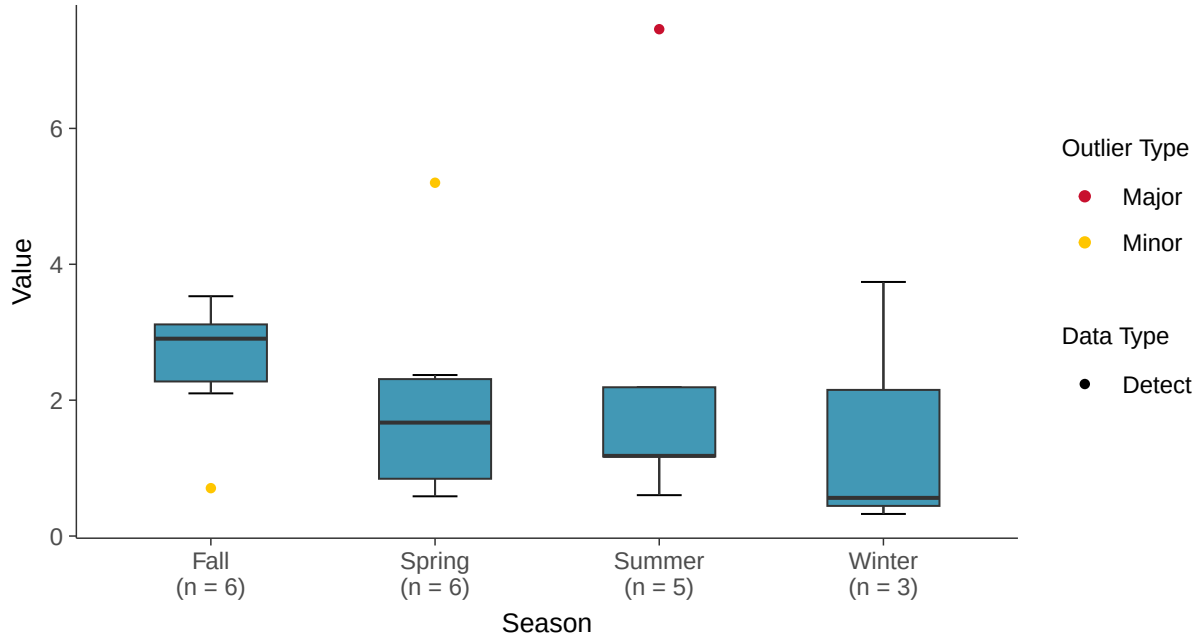
Boxplot

Radium-226/228, MW-16A (pCi/L)



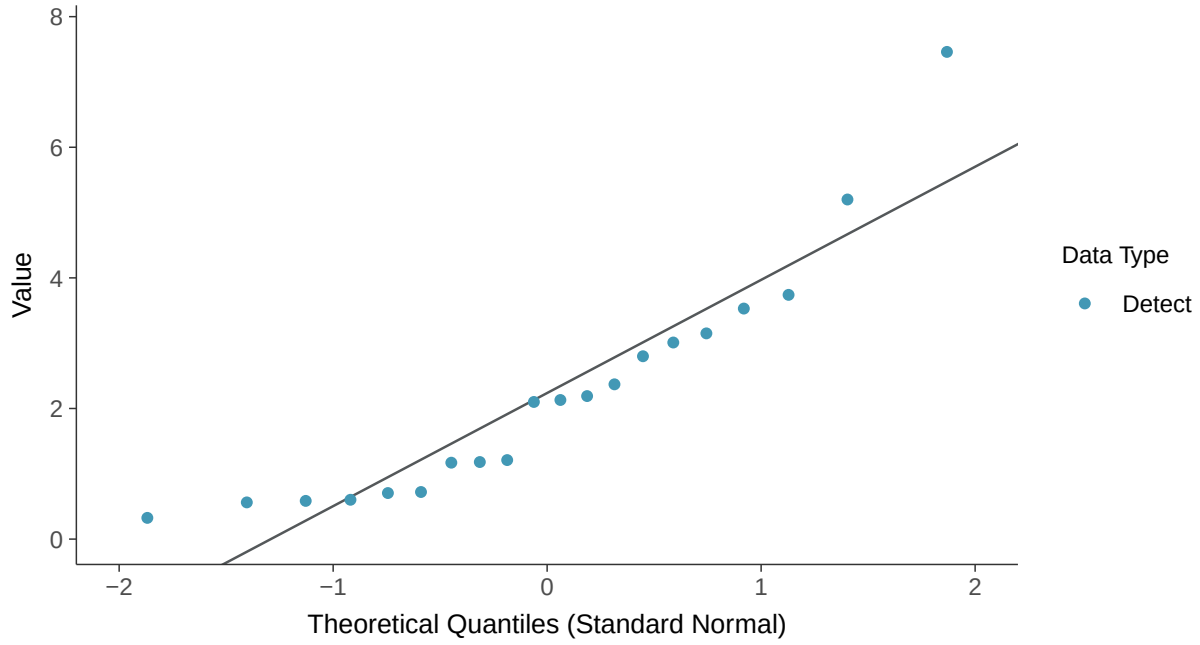
Boxplot by Season

Radium-226/228, MW-16A (pCi/L)



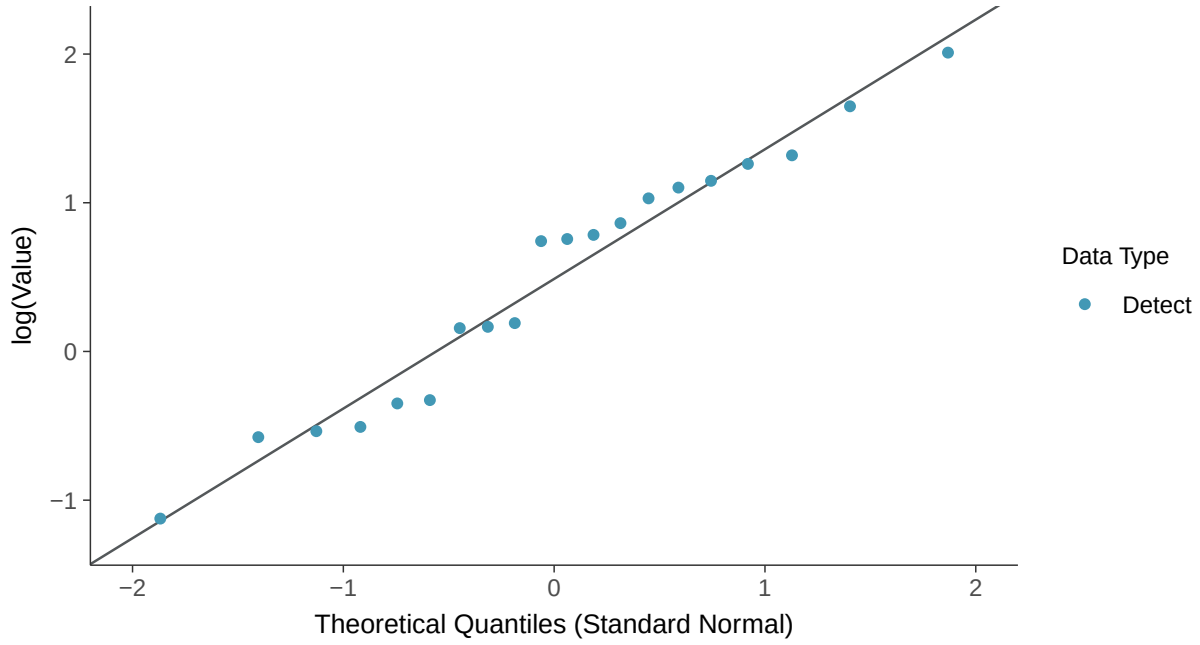
Normal Q-Q plot

Radium-226/228, MW-16A (pCi/L)



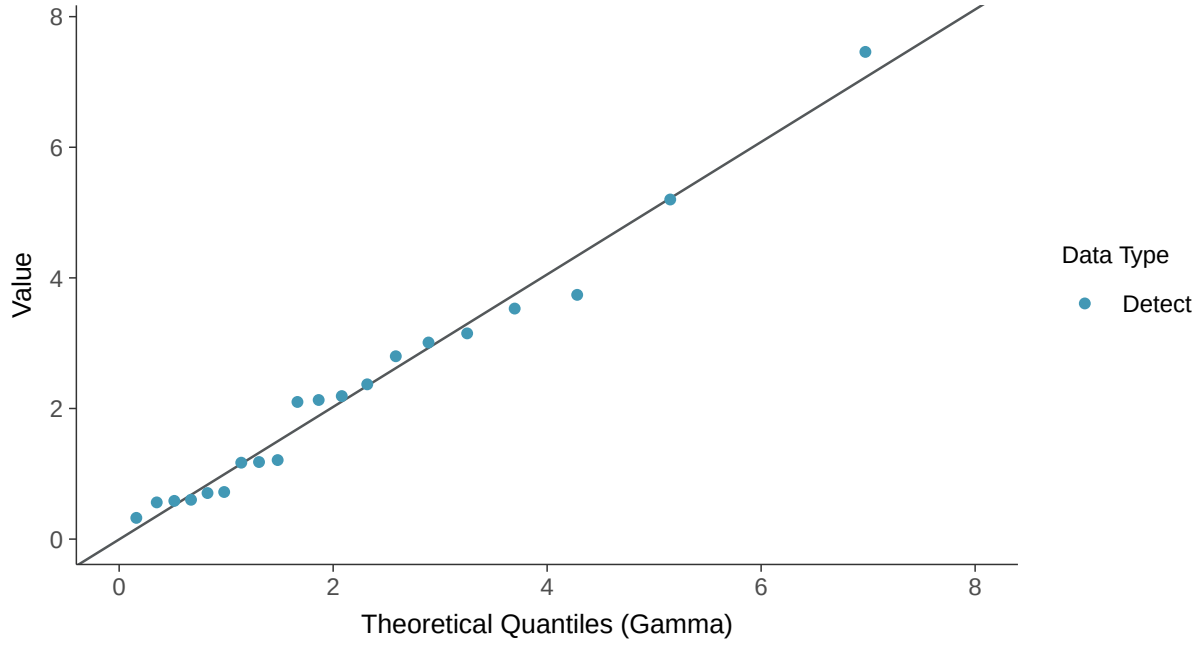
Lognormal Q-Q plot

Radium-226/228, MW-16A (pCi/L)



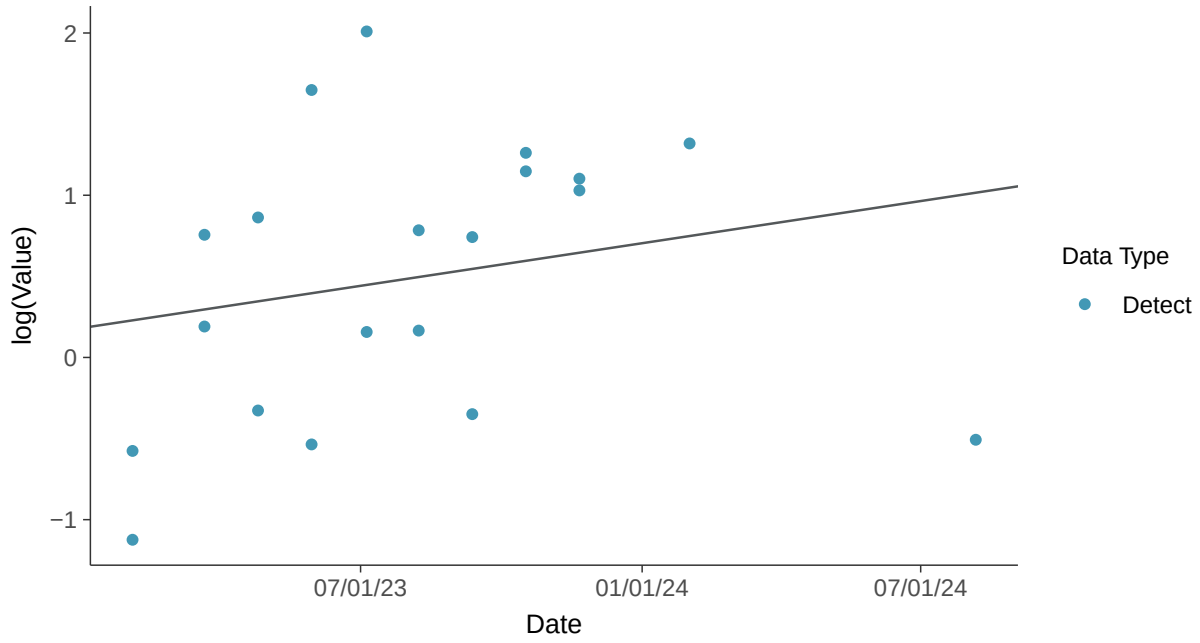
Gamma Q-Q plot

Radium-226/228, MW-16A (pCi/L)



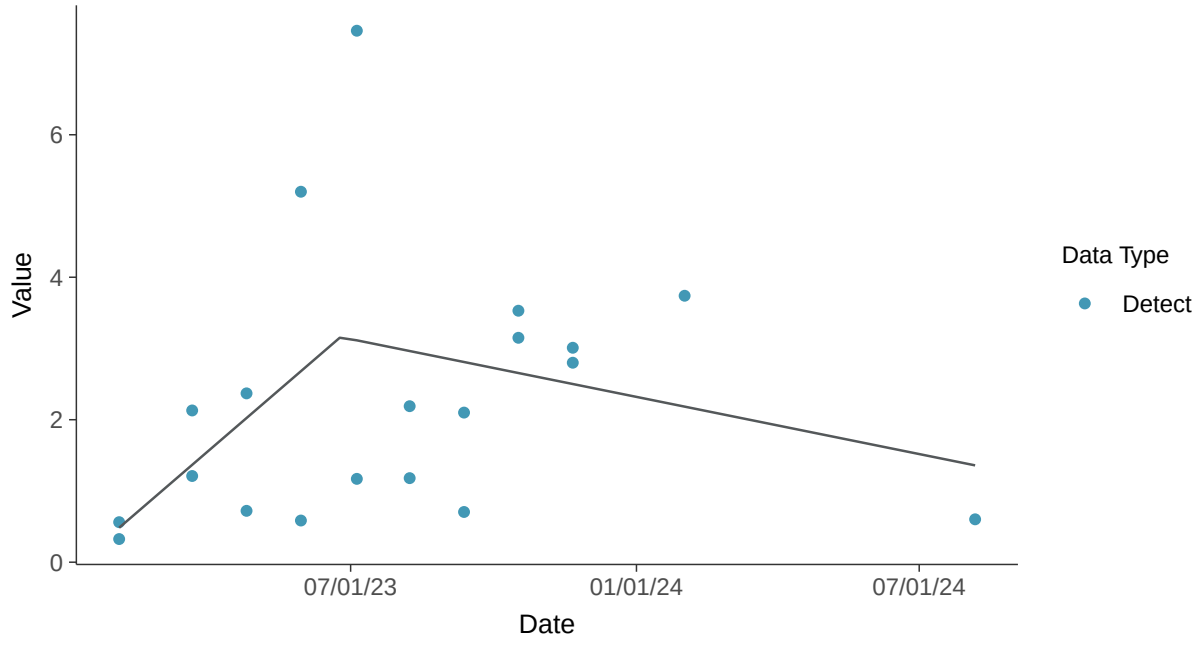
Trend Regression: Lognormal MLE

Radium-226/228, MW-16A (pCi/L)



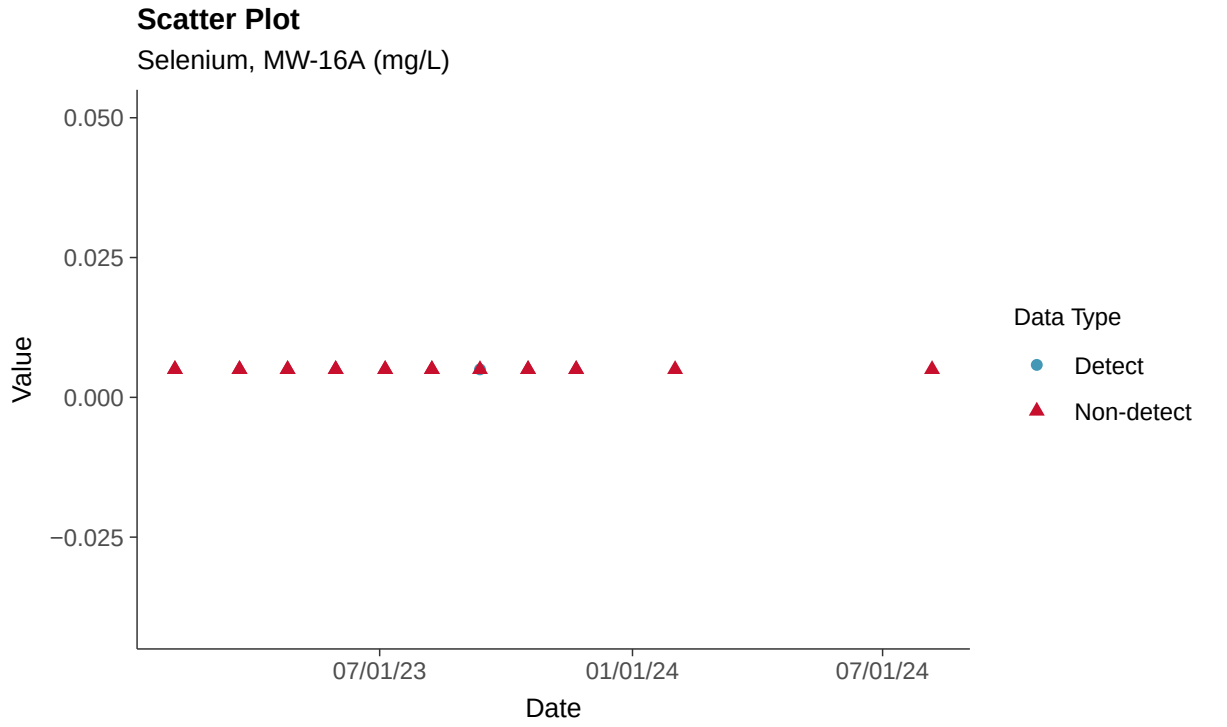
Trend Regression: Piecewise Linear-Linear

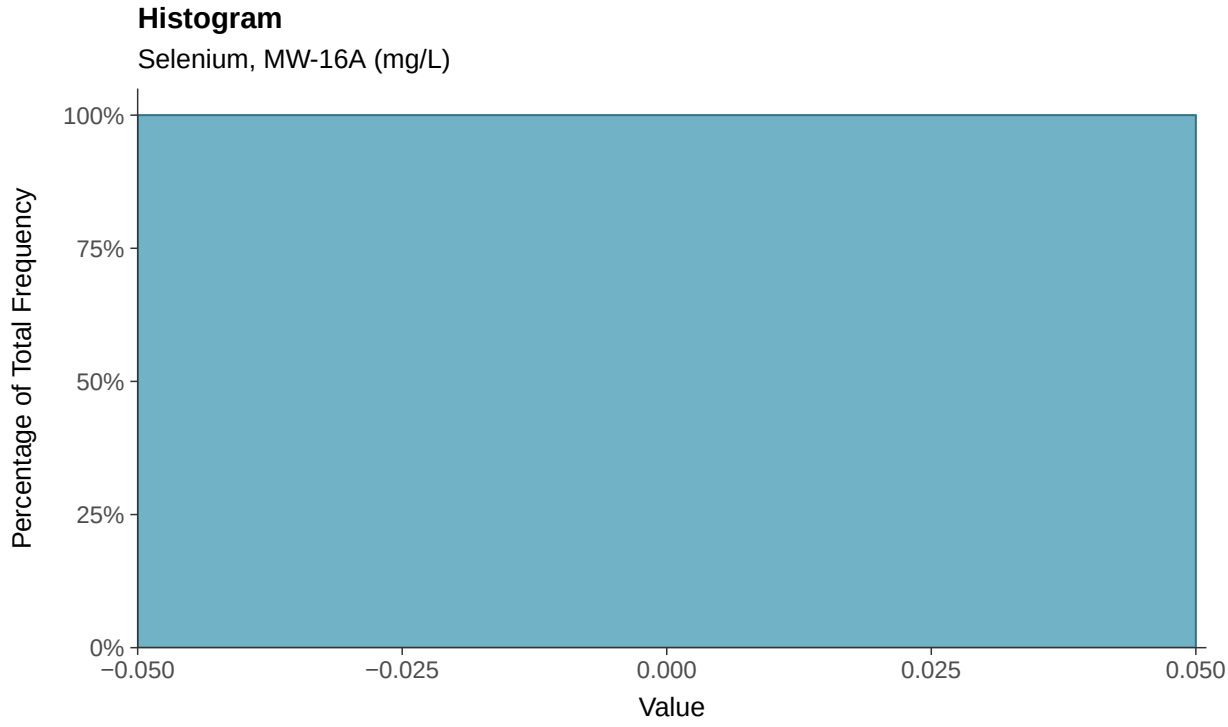
Radium-226/228, MW-16A (pCi/L)



Appendix IV: Selenium, MW-16A

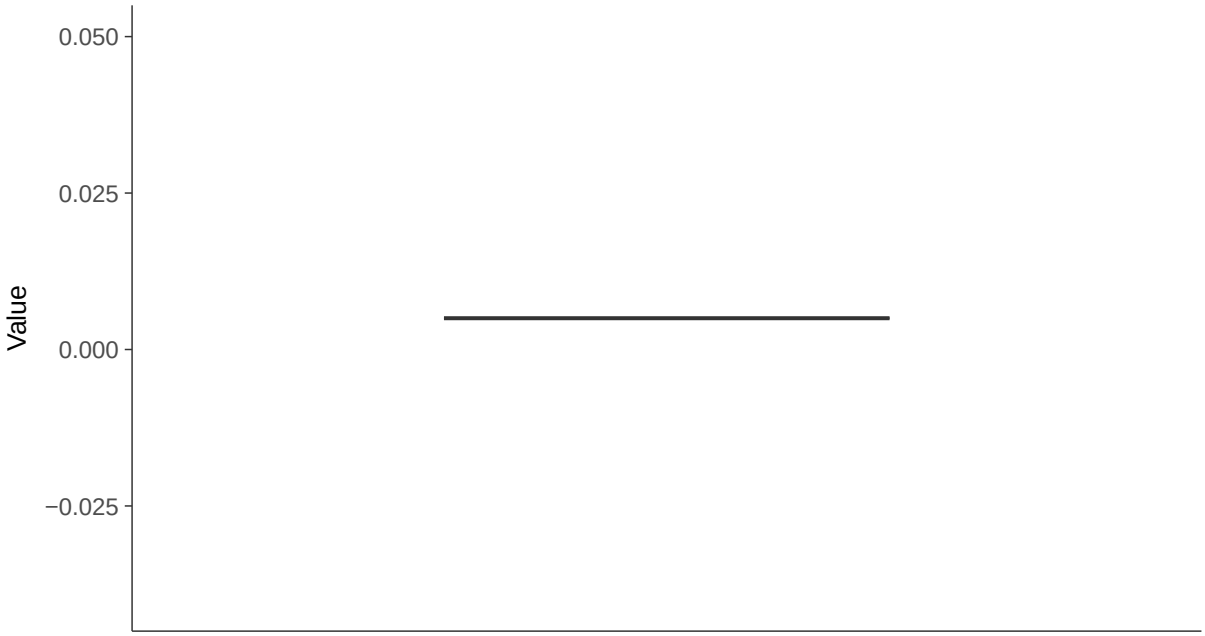
ID: 16A_2_22





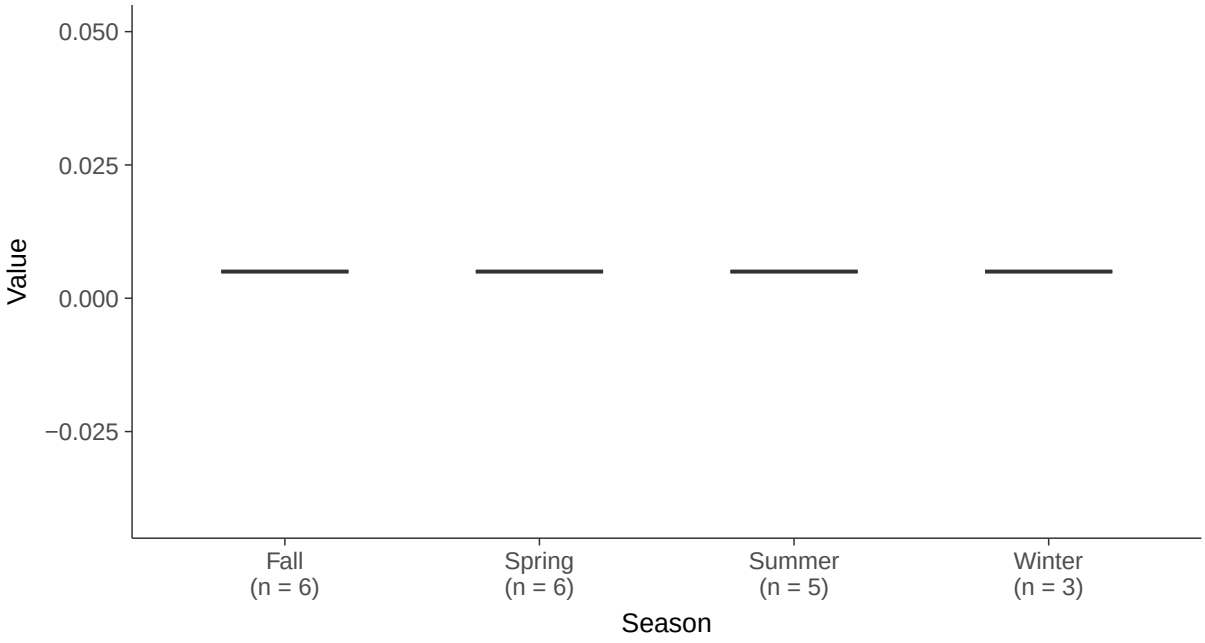
Boxplot

Selenium, MW-16A (mg/L)



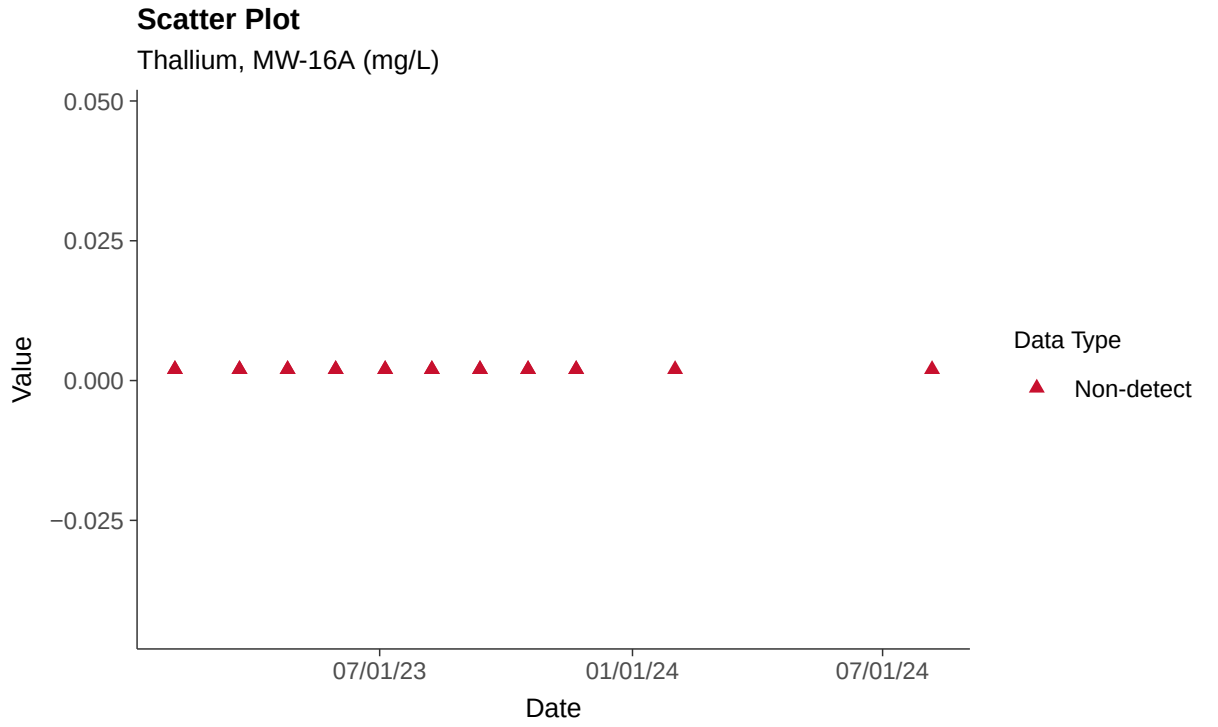
Boxplot by Season

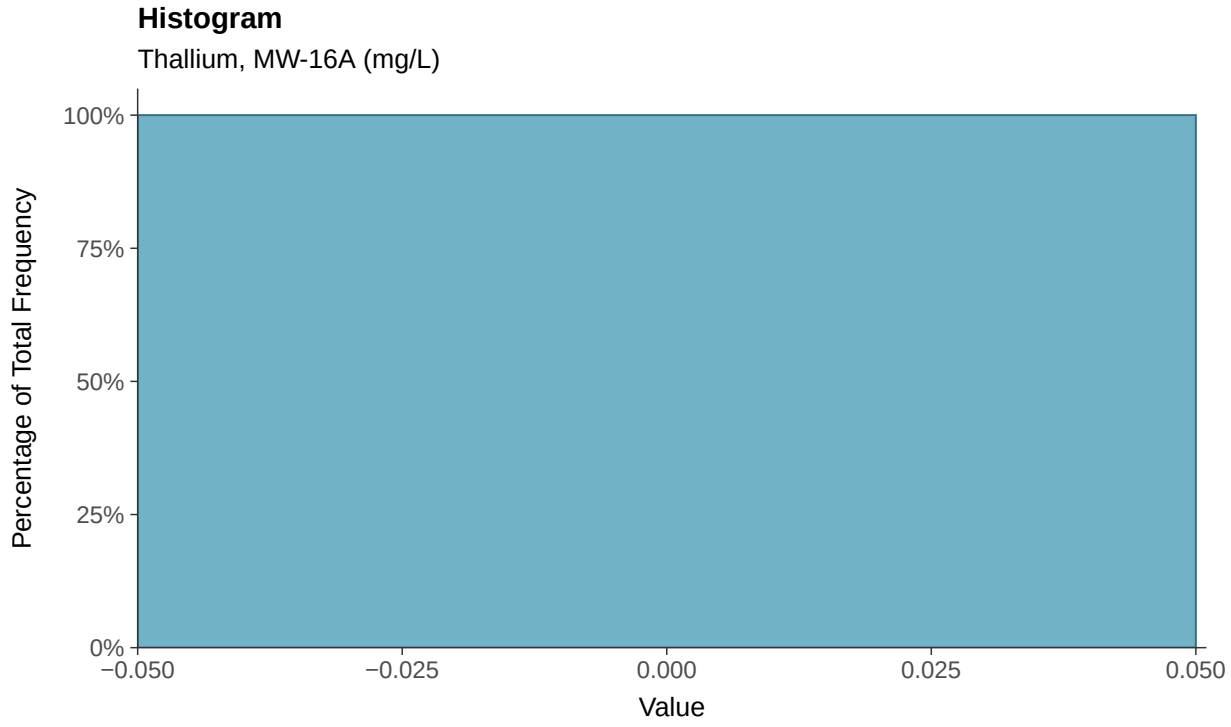
Selenium, MW-16A (mg/L)



Appendix IV: Thallium, MW-16A

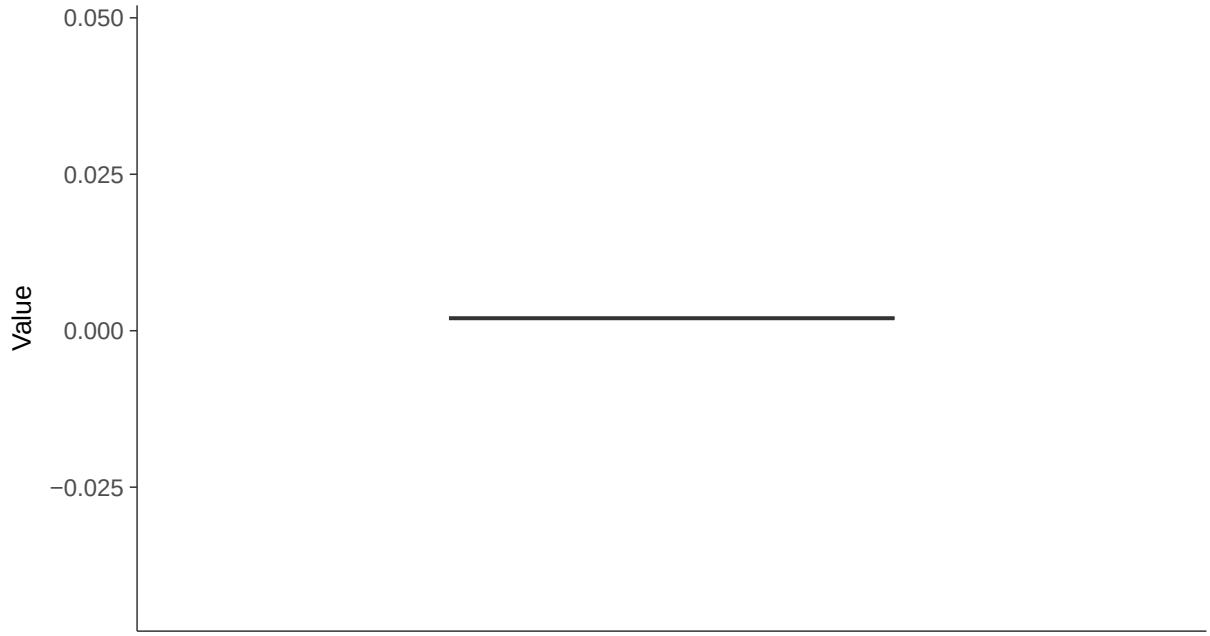
ID: 16A_2_23





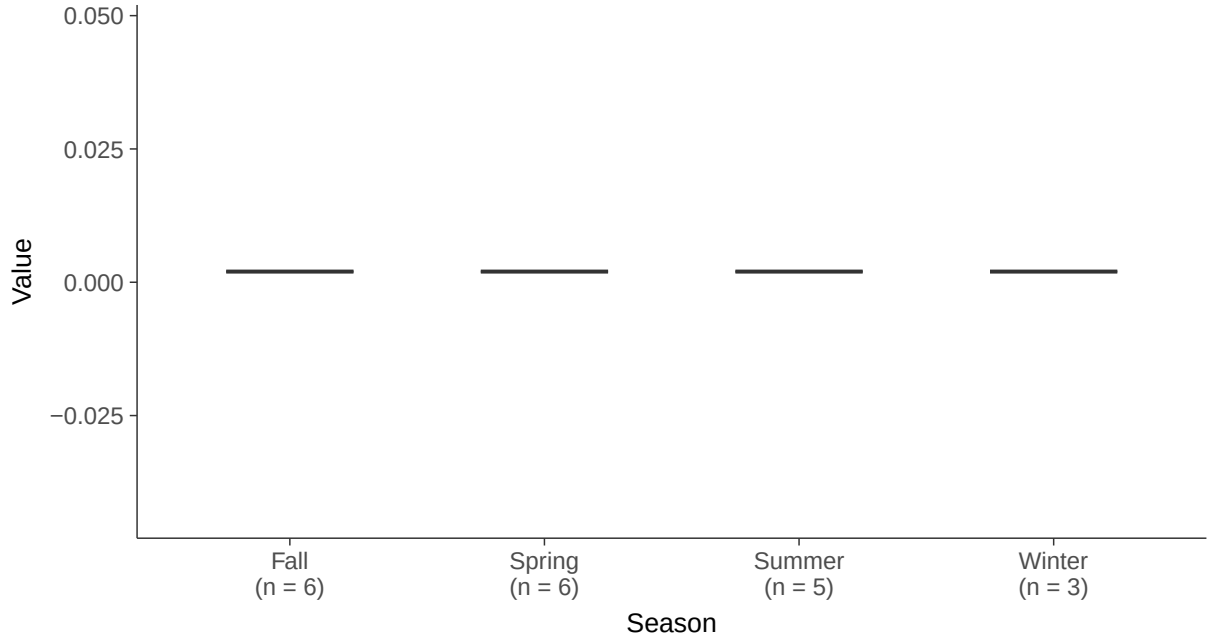
Boxplot

Thallium, MW-16A (mg/L)



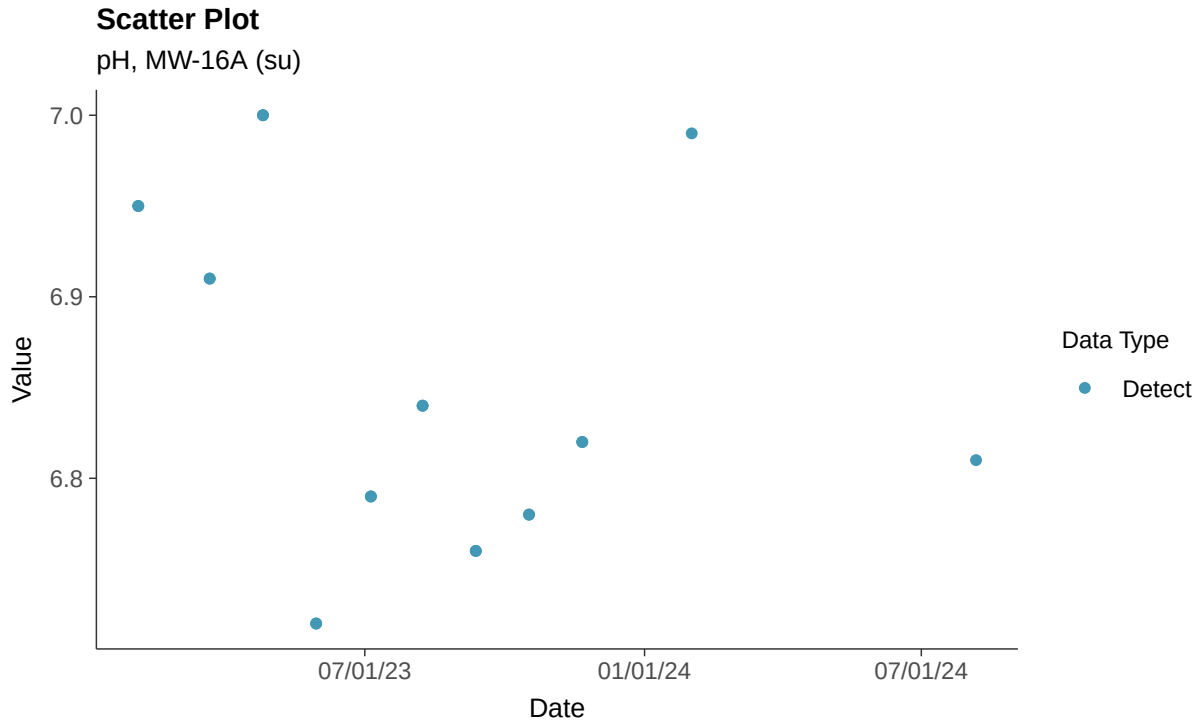
Boxplot by Season

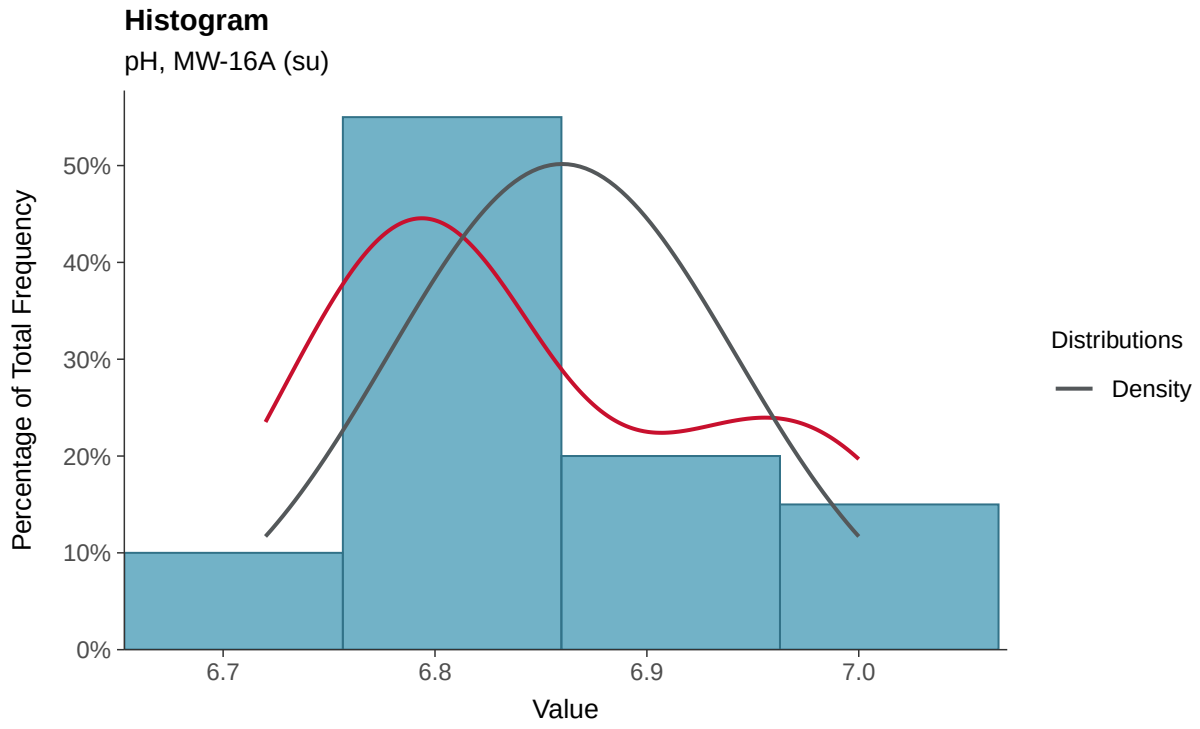
Thallium, MW-16A (mg/L)



Field Parameters: pH, MW-16A

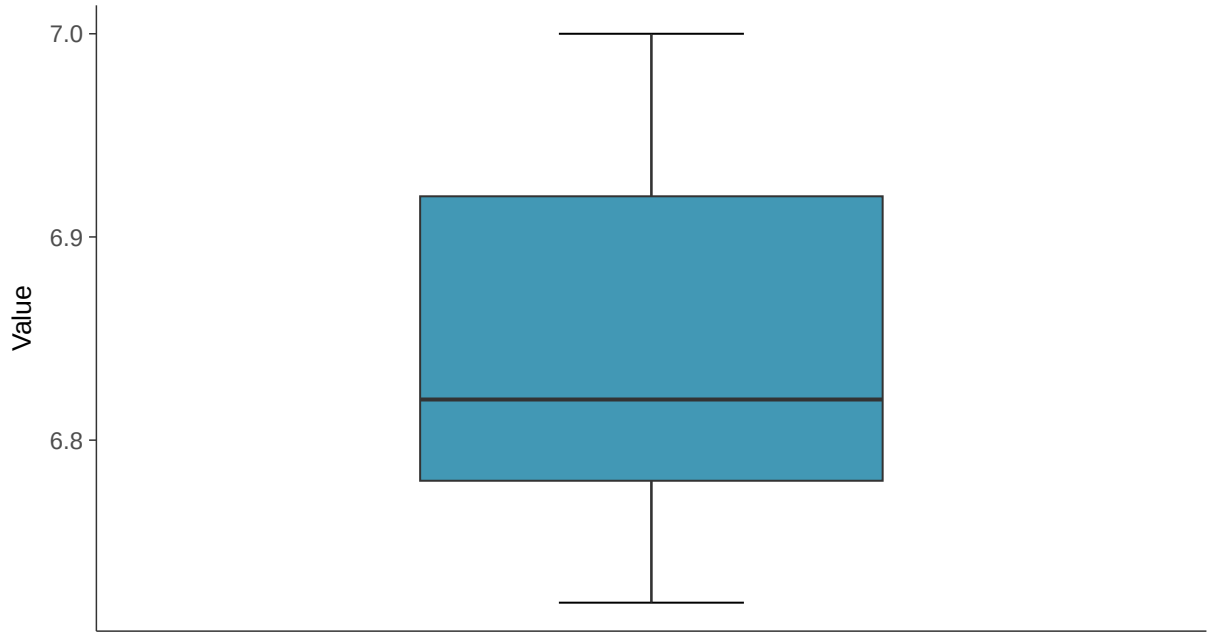
ID: 16A_3_24





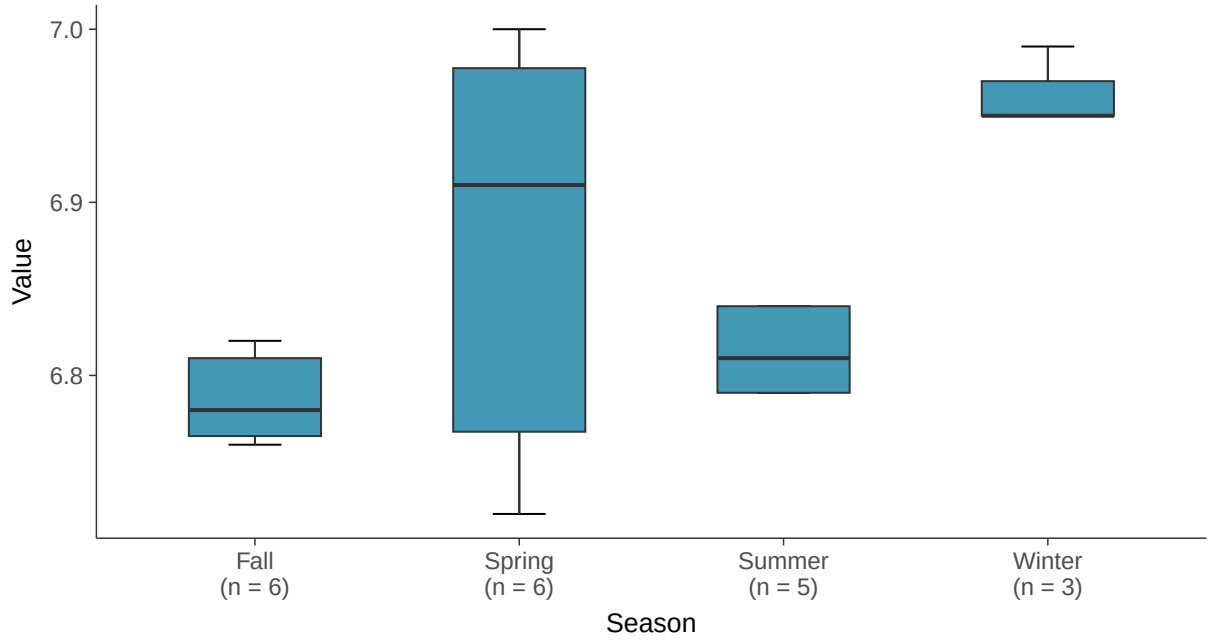
Boxplot

pH, MW-16A (su)



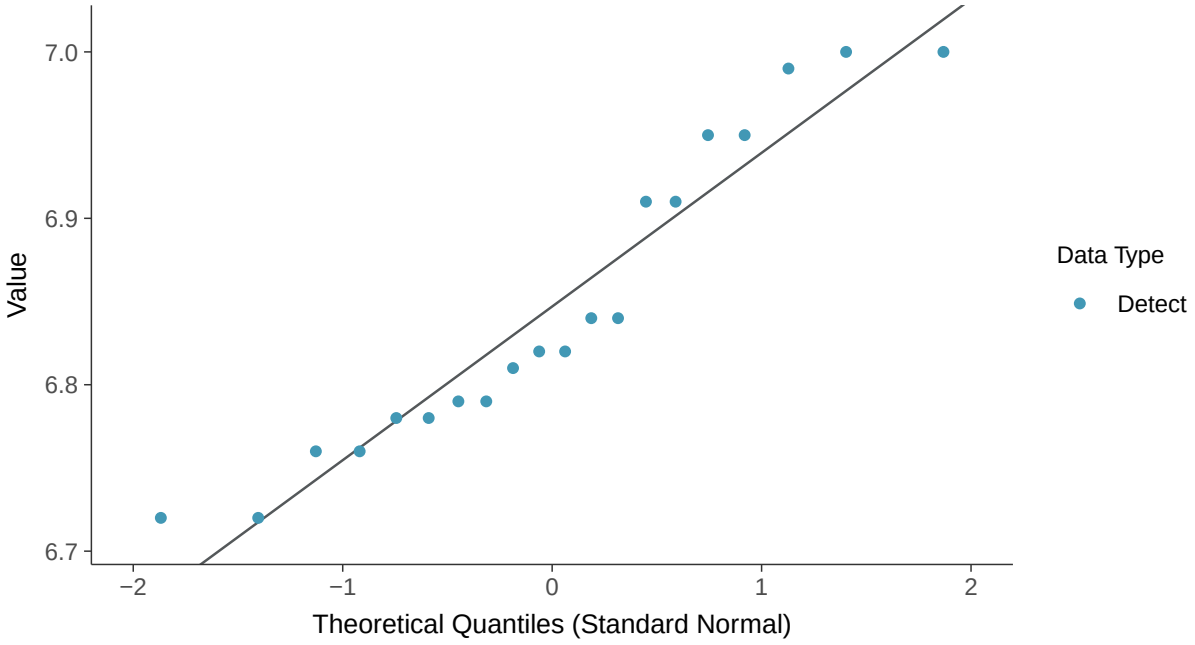
Boxplot by Season

pH, MW-16A (su)



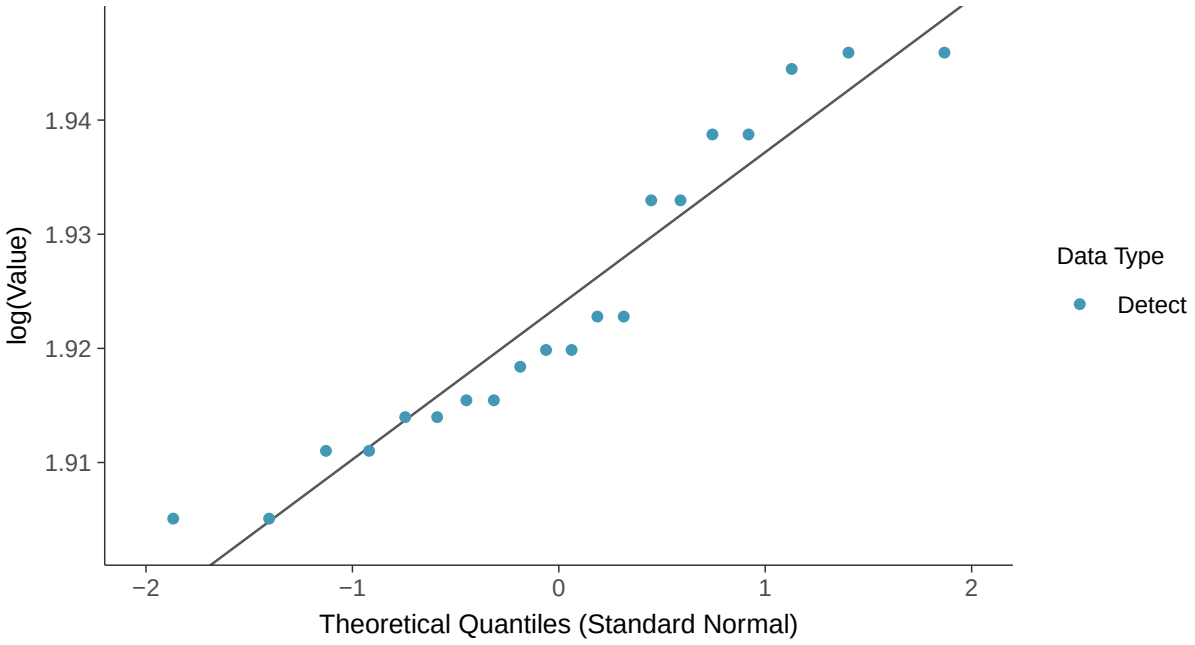
Normal Q-Q plot

pH, MW-16A (su)



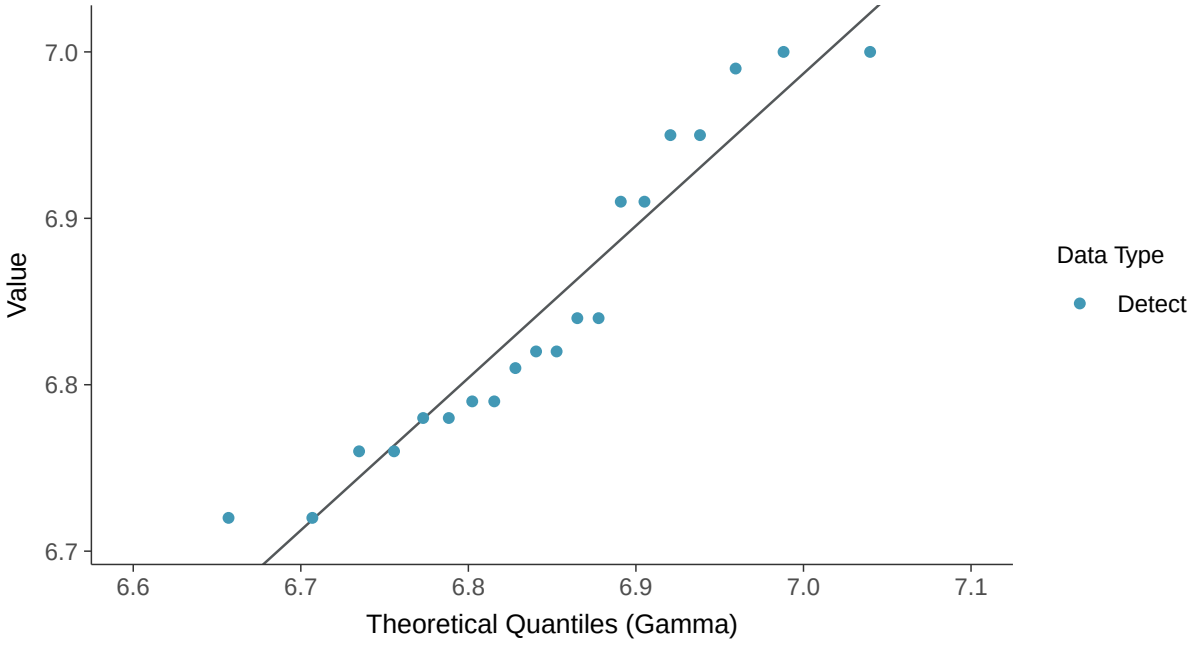
Lognormal Q-Q plot

pH, MW-16A (su)



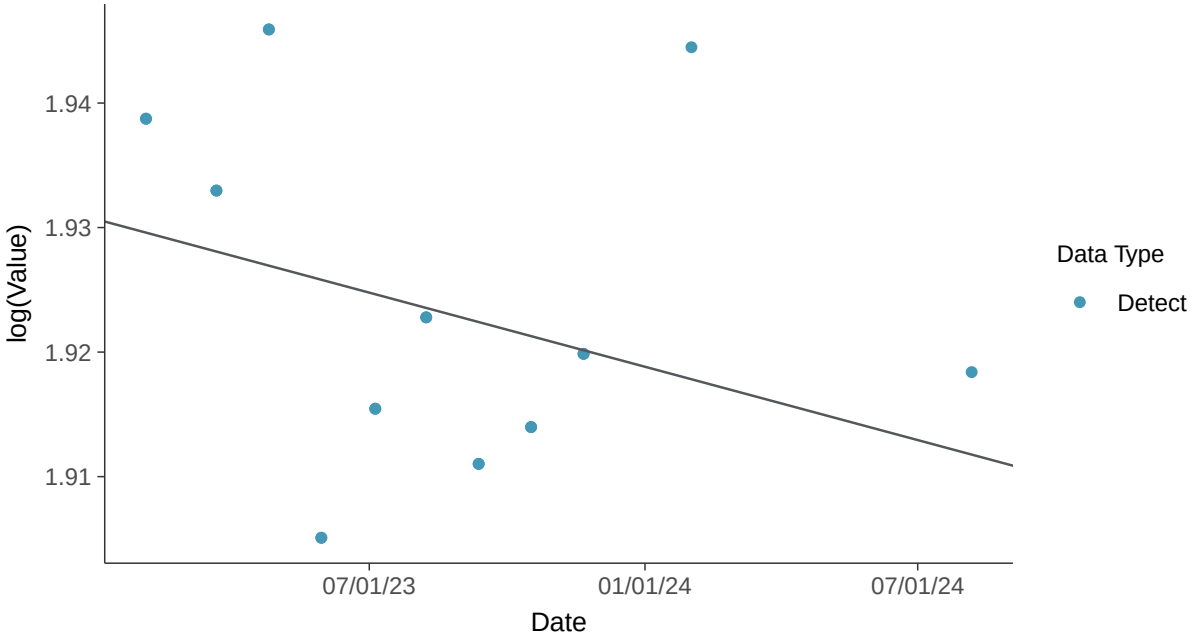
Gamma Q-Q plot

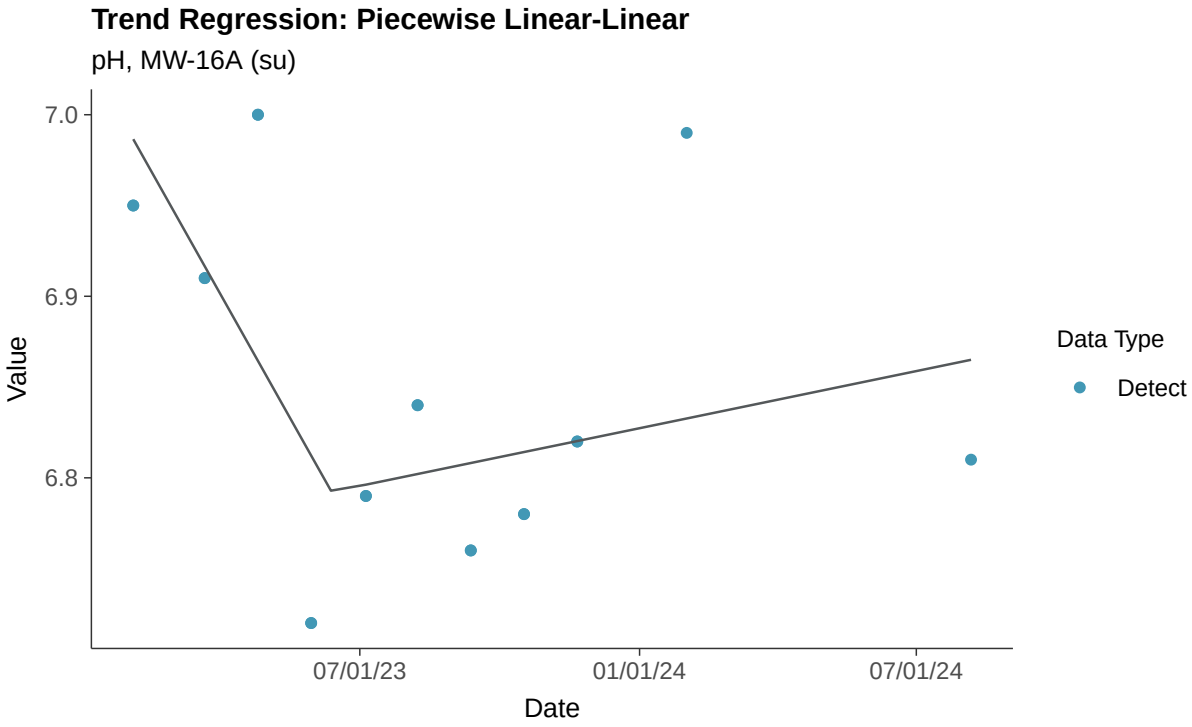
pH, MW-16A (su)



Trend Regression: Lognormal MLE

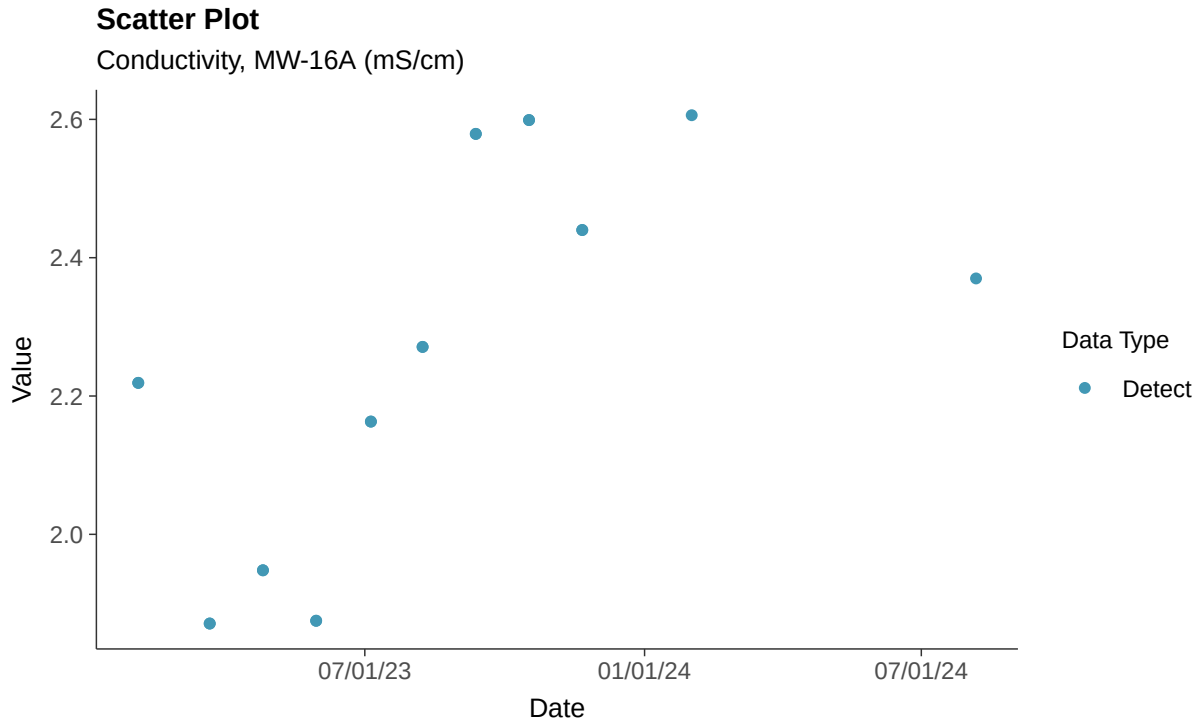
pH, MW-16A (su)

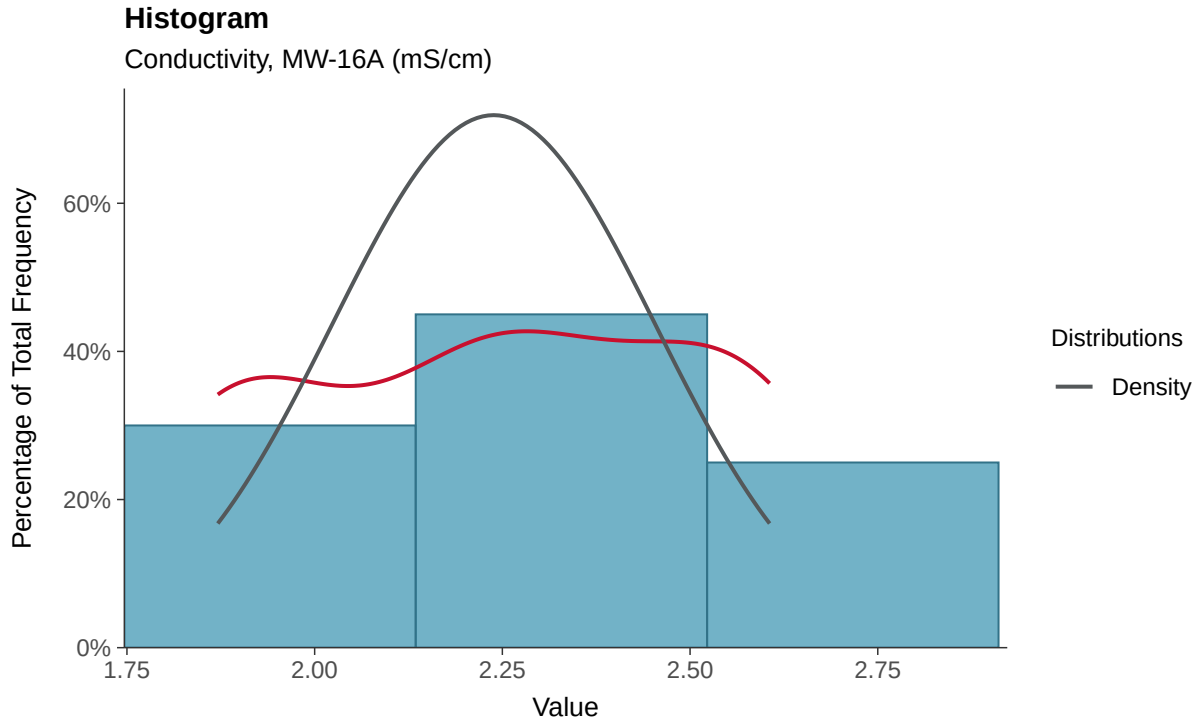



Trend Regression: Piecewise Linear-Linear
pH, MW-16A (su)
7.0
6.9
6.8
Value
07/01/23
01/01/24
07/01/24
Date
Data Type
Detect

Field Parameters: Conductivity, MW-16A

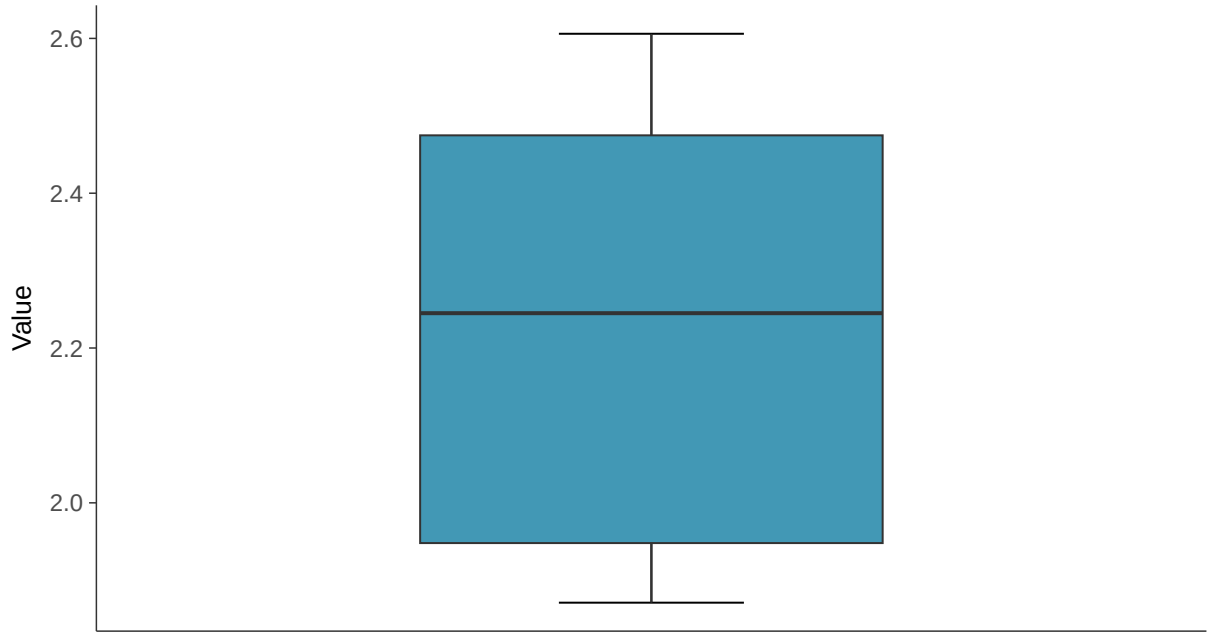
ID: 16A_3_25





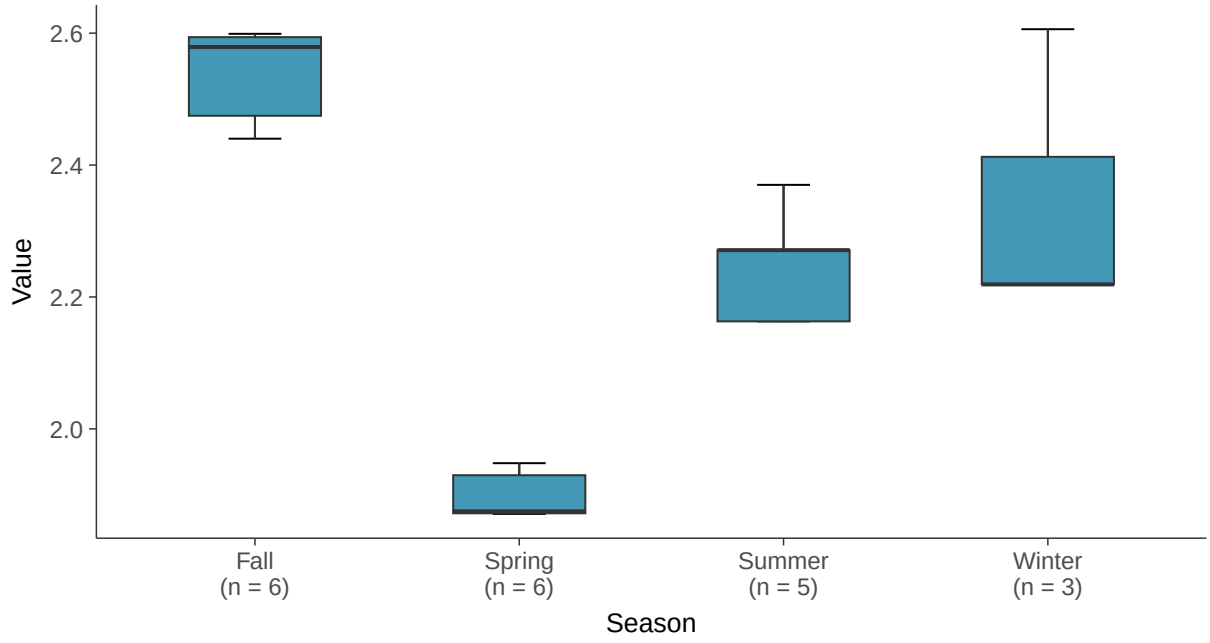
Boxplot

Conductivity, MW-16A (mS/cm)



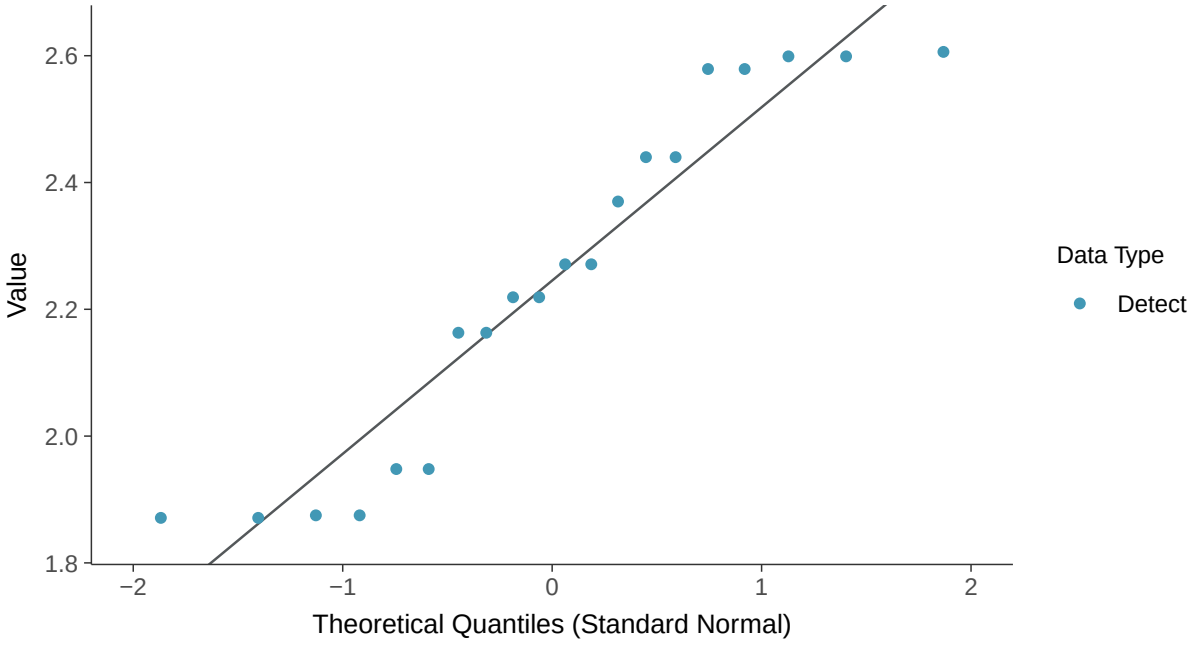
Boxplot by Season

Conductivity, MW-16A (mS/cm)



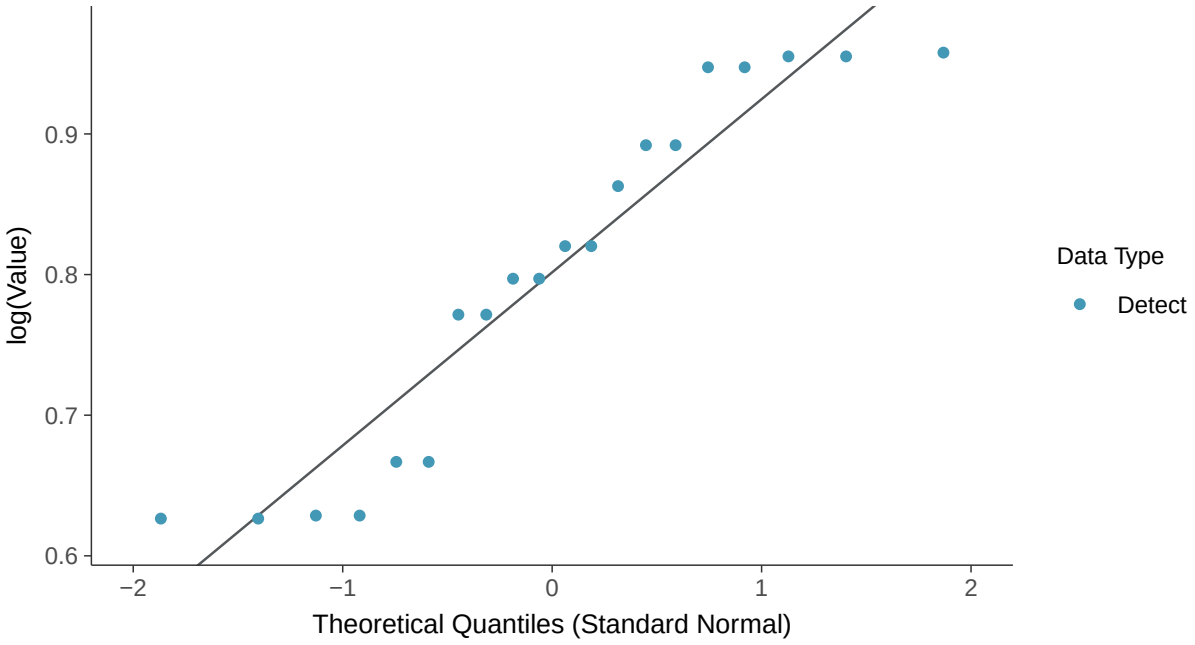
Normal Q-Q plot

Conductivity, MW-16A (mS/cm)



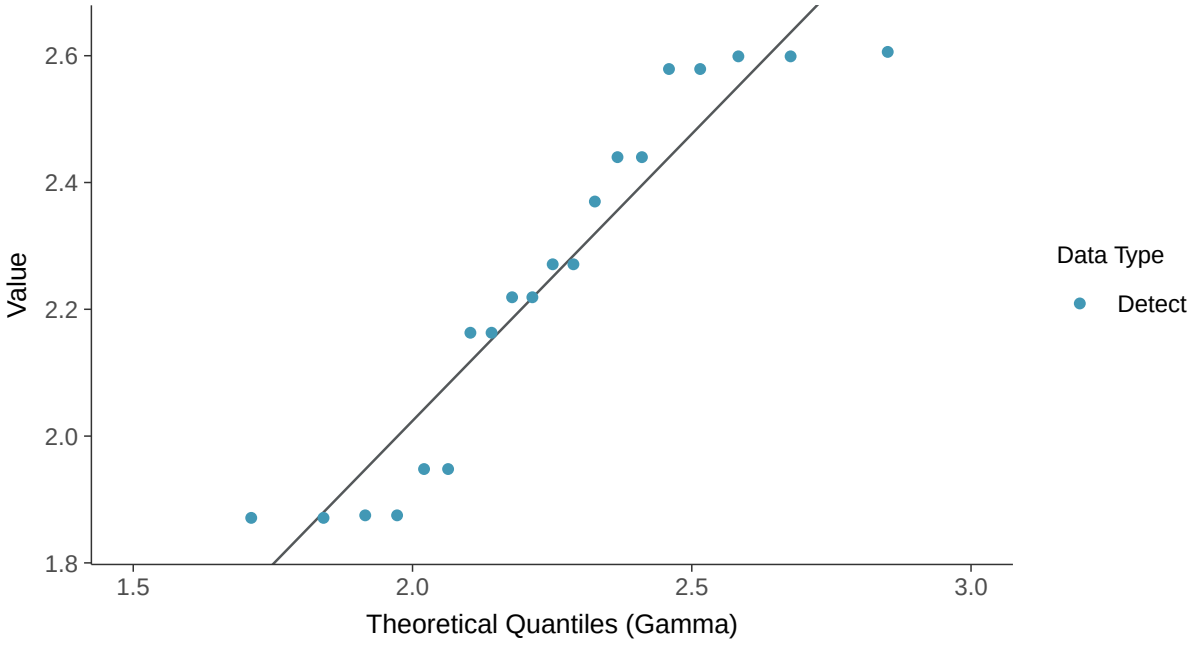
Lognormal Q-Q plot

Conductivity, MW-16A (mS/cm)



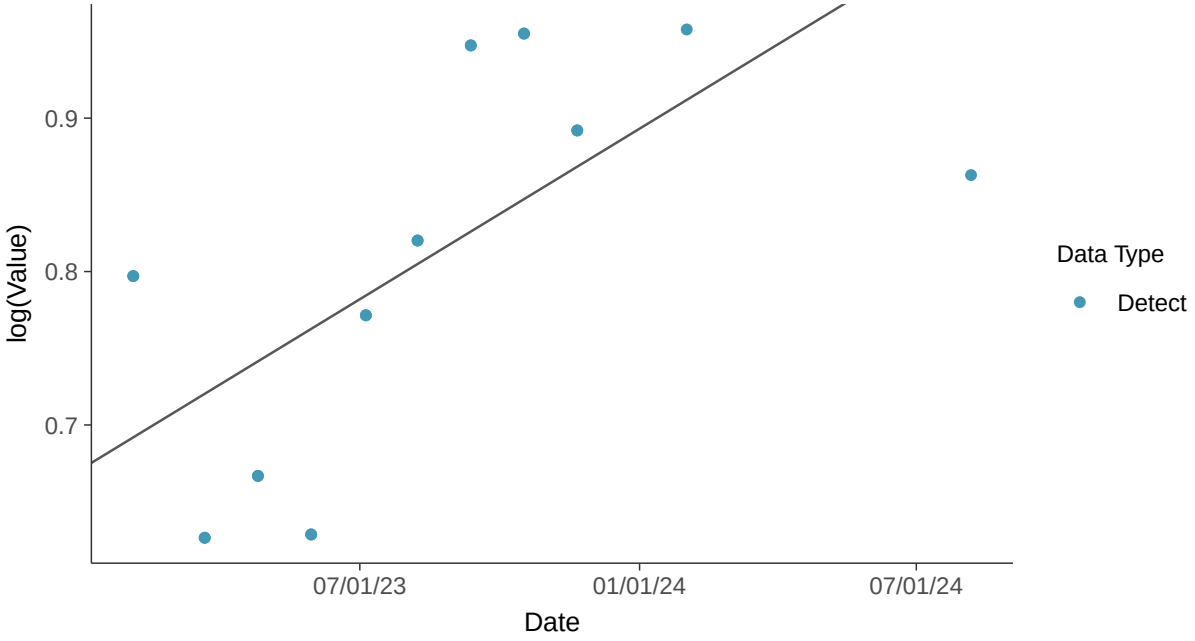
Gamma Q-Q plot

Conductivity, MW-16A (mS/cm)



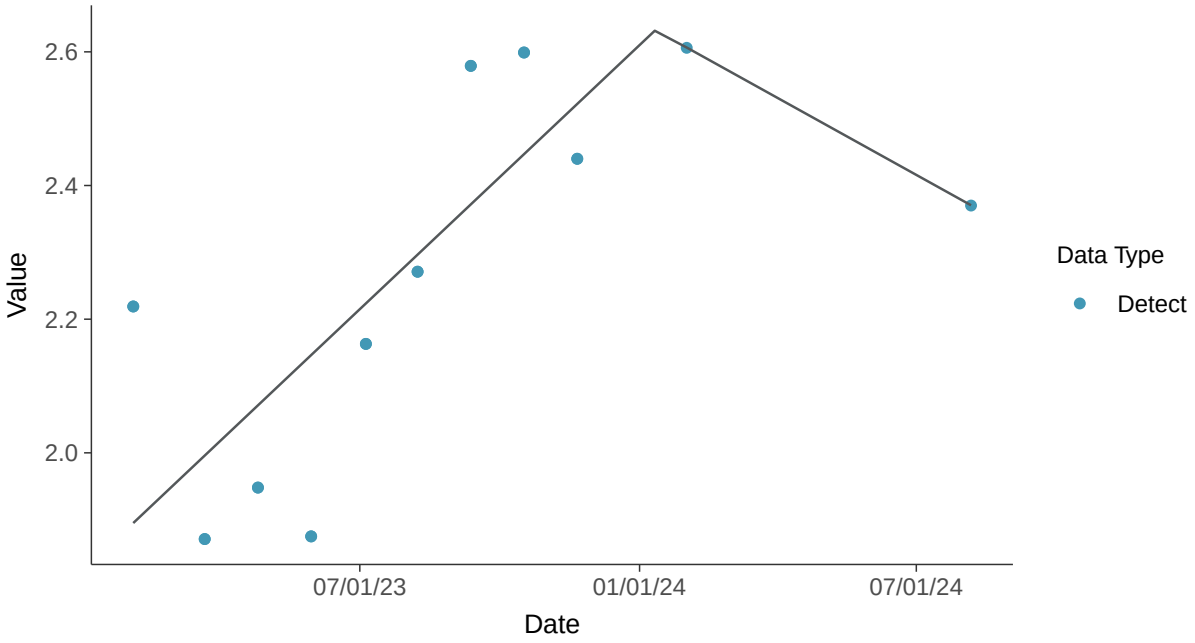
Trend Regression: Lognormal MLE

Conductivity, MW-16A (mS/cm)



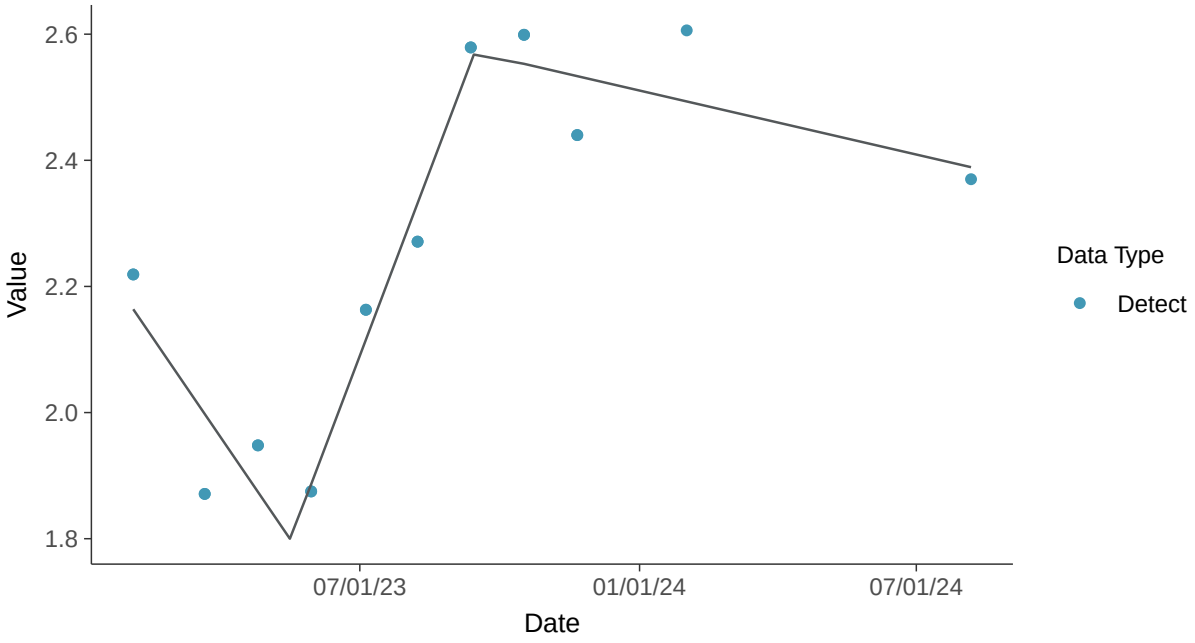
Trend Regression: Piecewise Linear-Linear

Conductivity, MW-16A (mS/cm)



Trend Regression: Piecewise Linear-Linear-Linear

Conductivity, MW-16A (mS/cm)

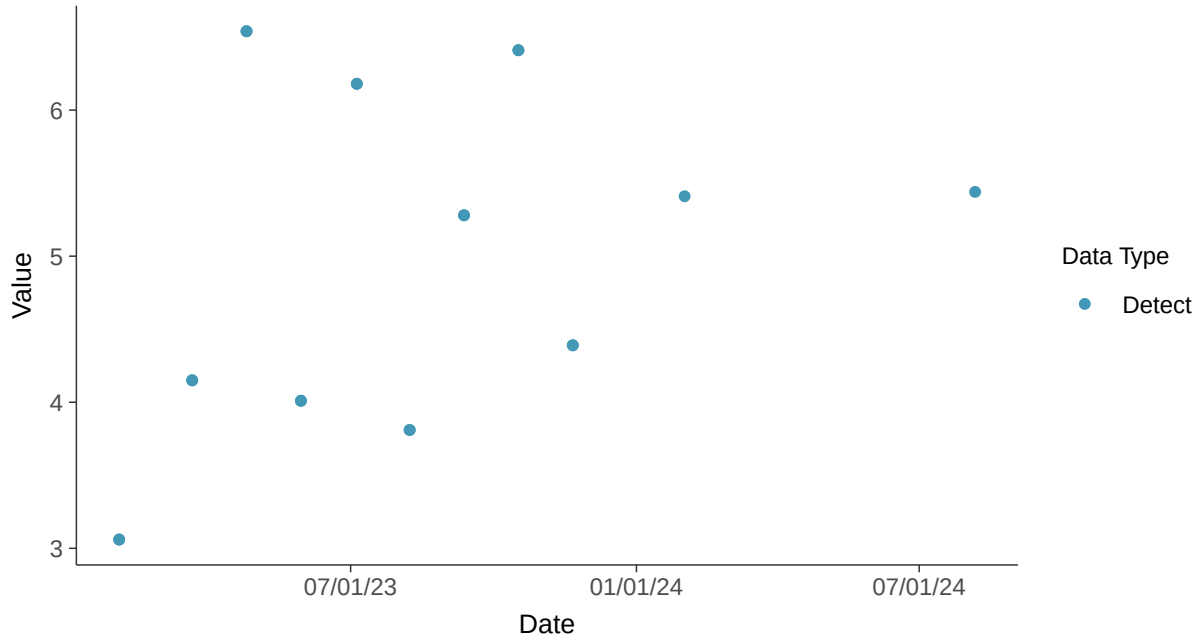


Field Parameters: Turbidity, MW-16A

ID: 16A_3_26

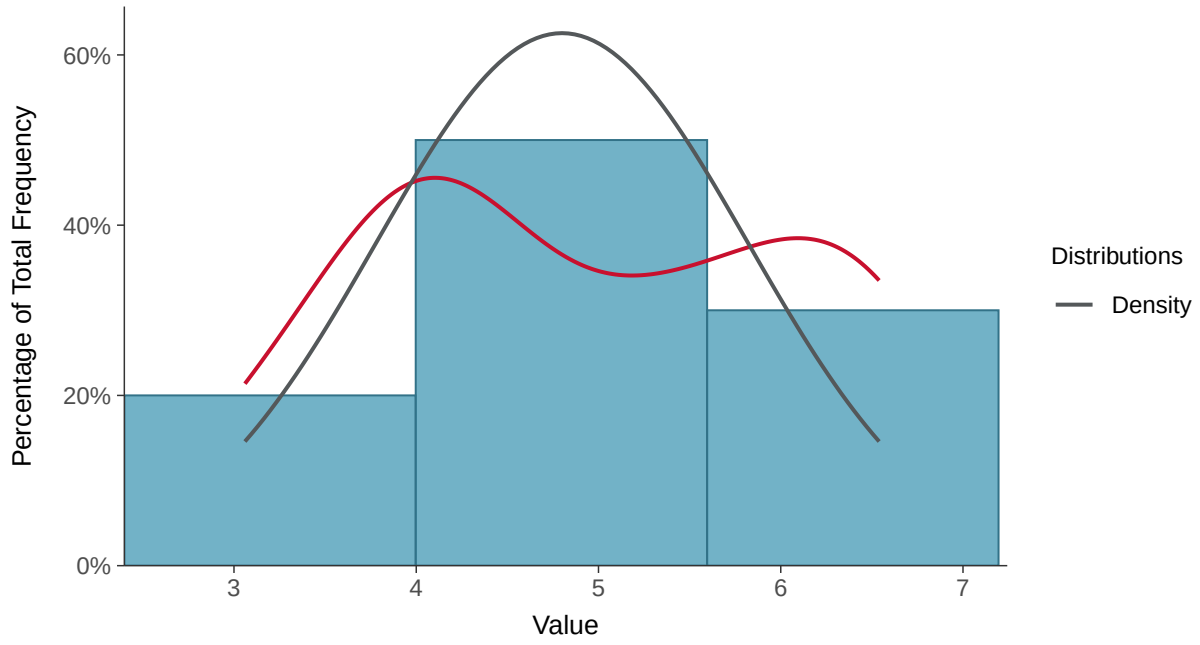
Scatter Plot

Turbidity, MW-16A (NTU)



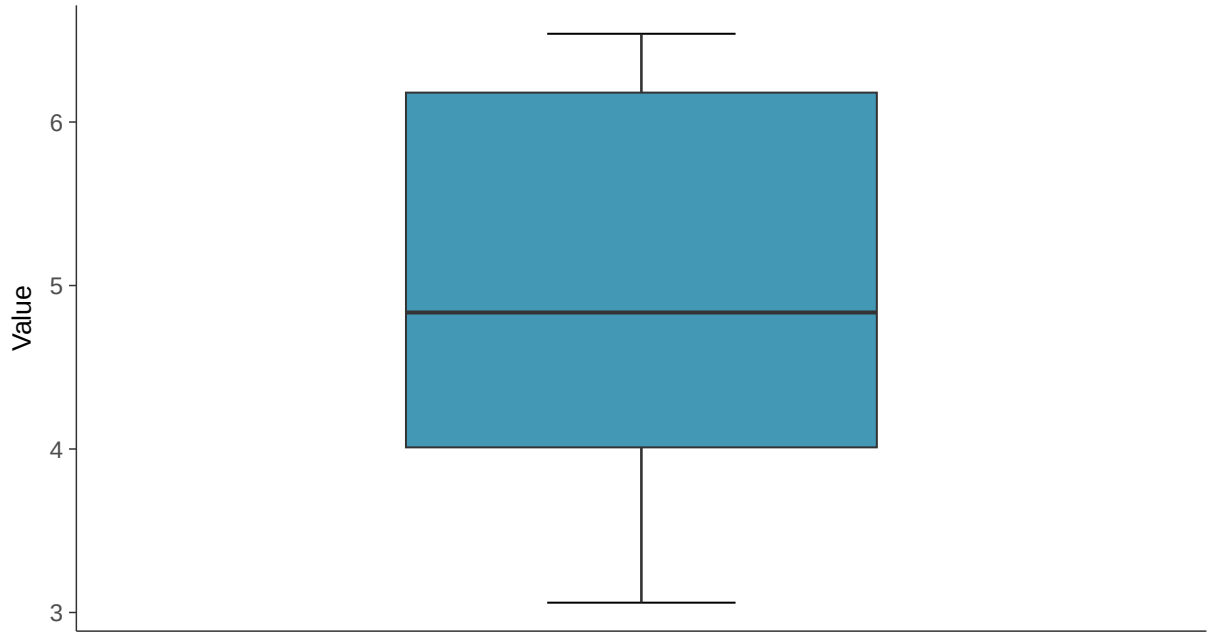
Histogram

Turbidity, MW-16A (NTU)



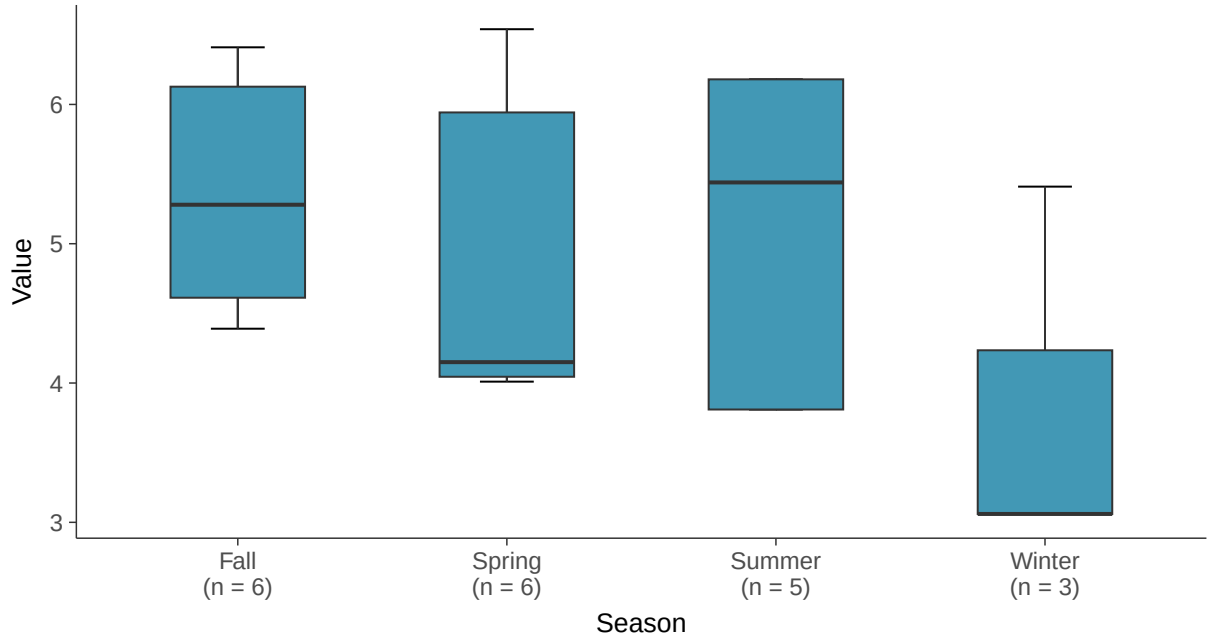
Boxplot

Turbidity, MW-16A (NTU)



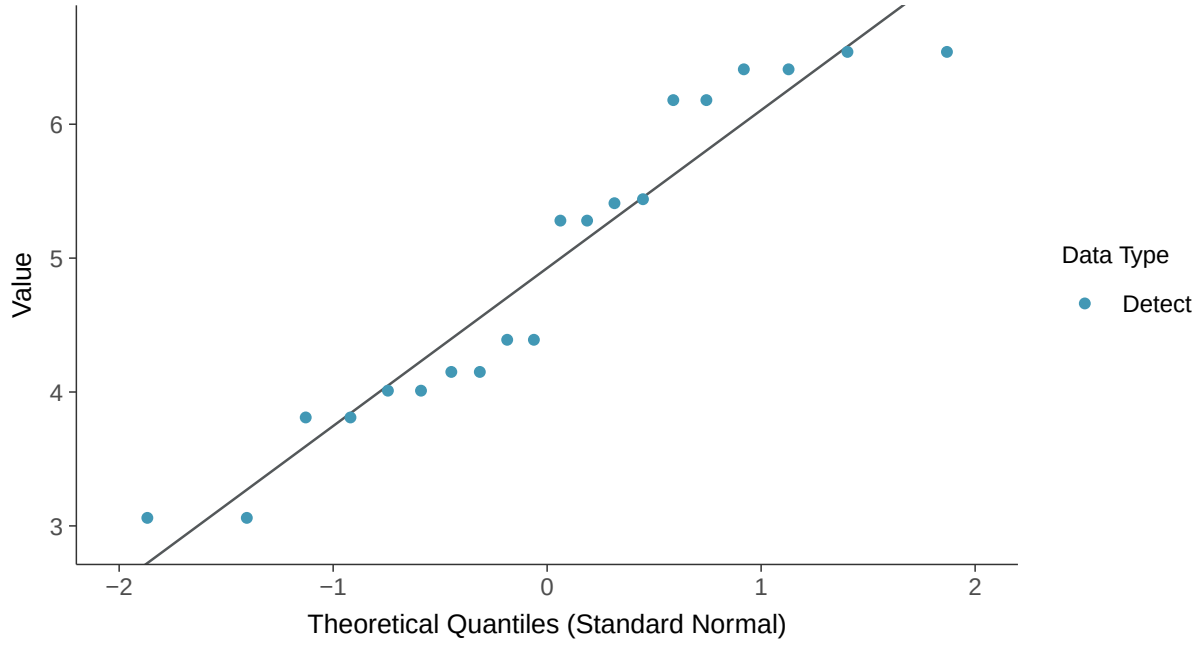
Boxplot by Season

Turbidity, MW-16A (NTU)



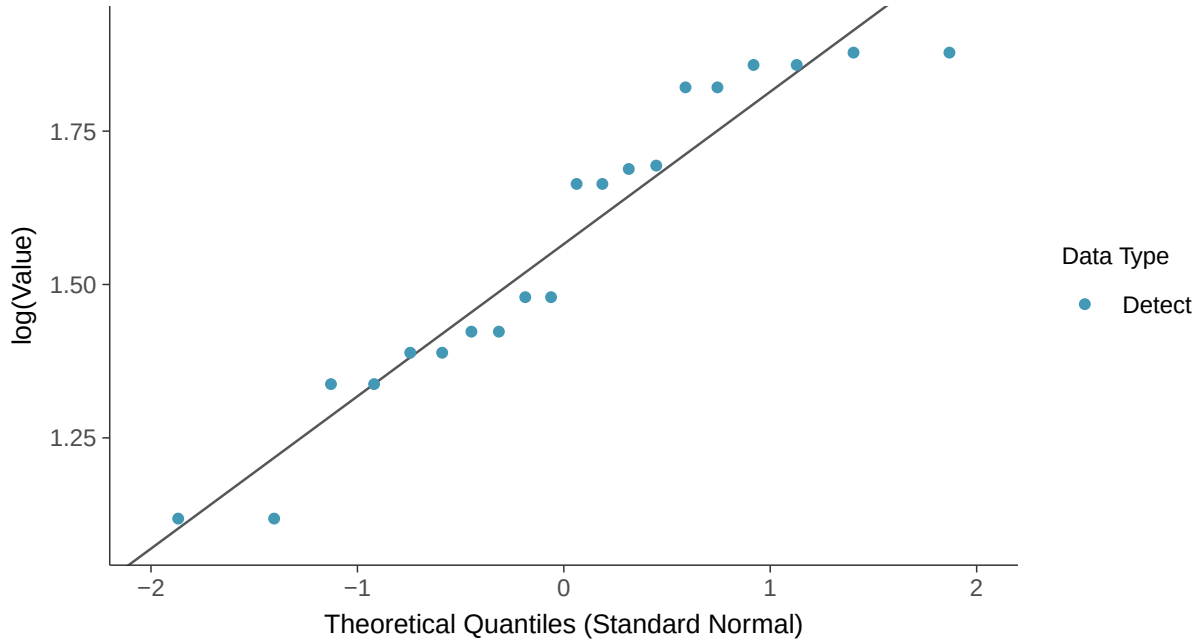
Normal Q-Q plot

Turbidity, MW-16A (NTU)



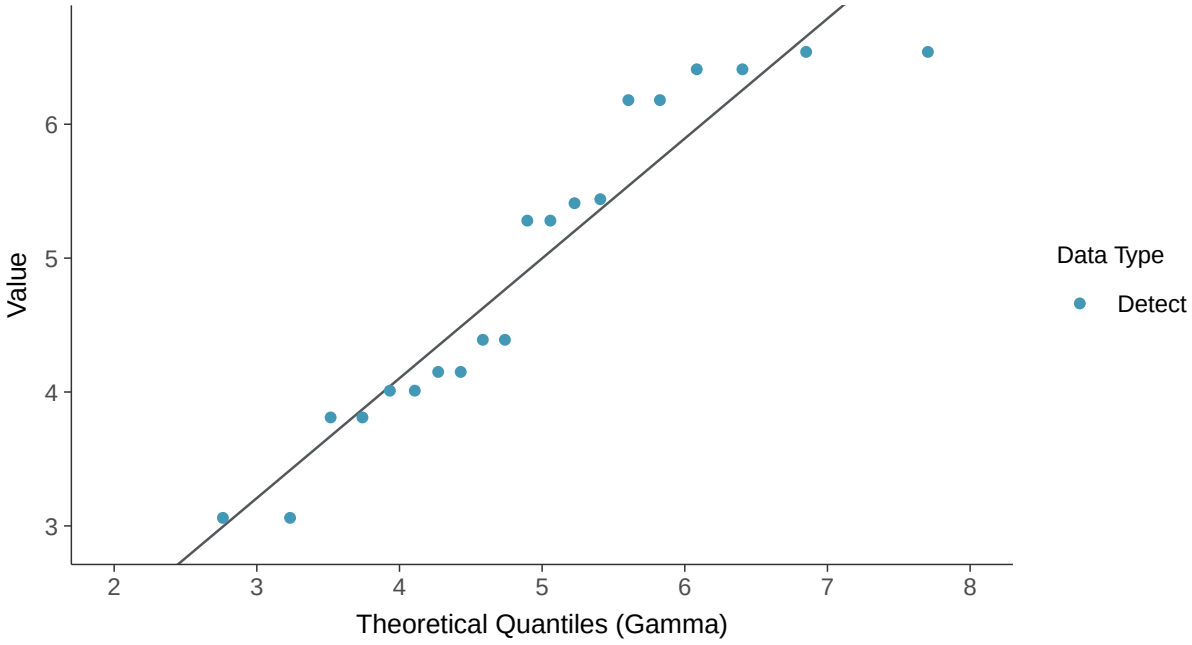
Lognormal Q-Q plot

Turbidity, MW-16A (NTU)



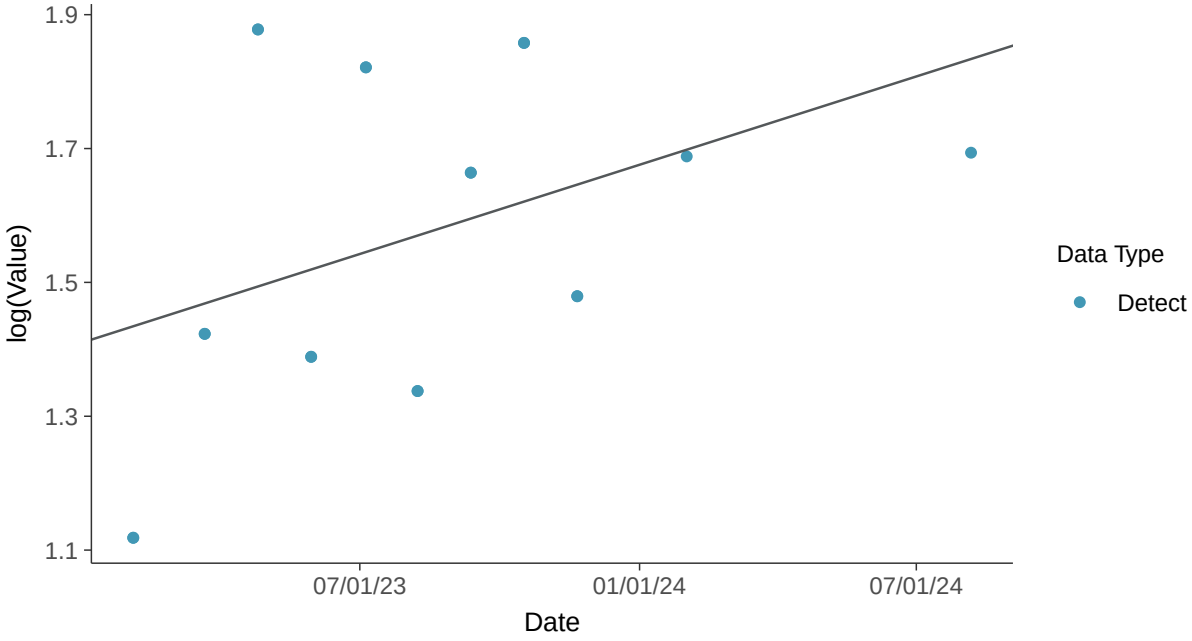
Gamma Q-Q plot

Turbidity, MW-16A (NTU)



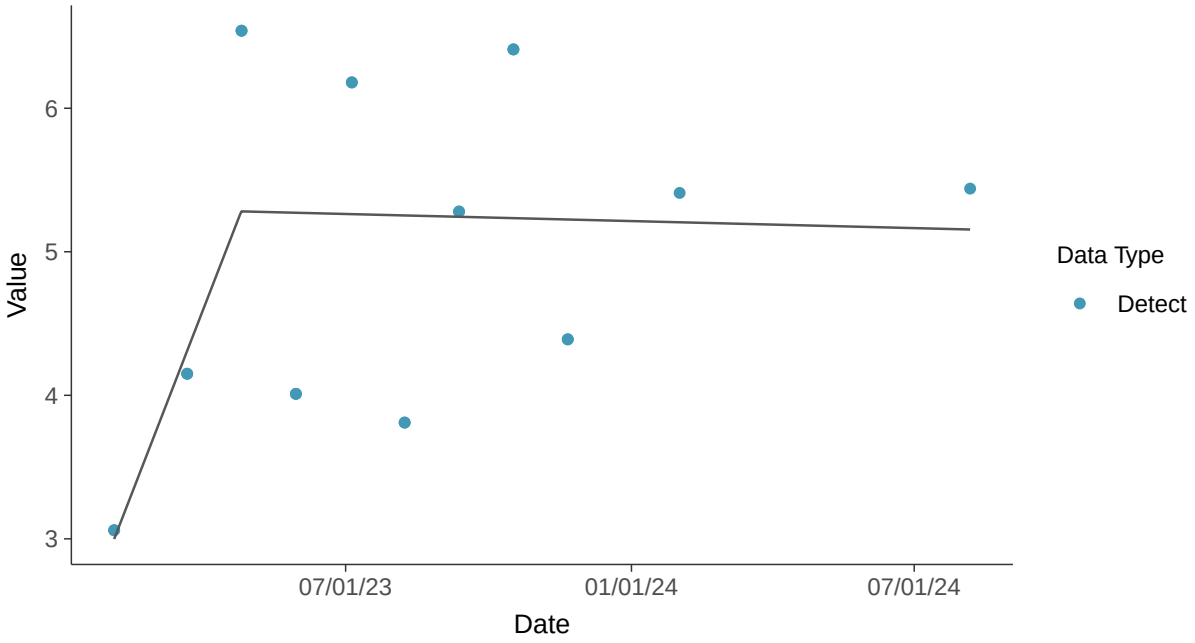
Trend Regression: Lognormal MLE

Turbidity, MW-16A (NTU)



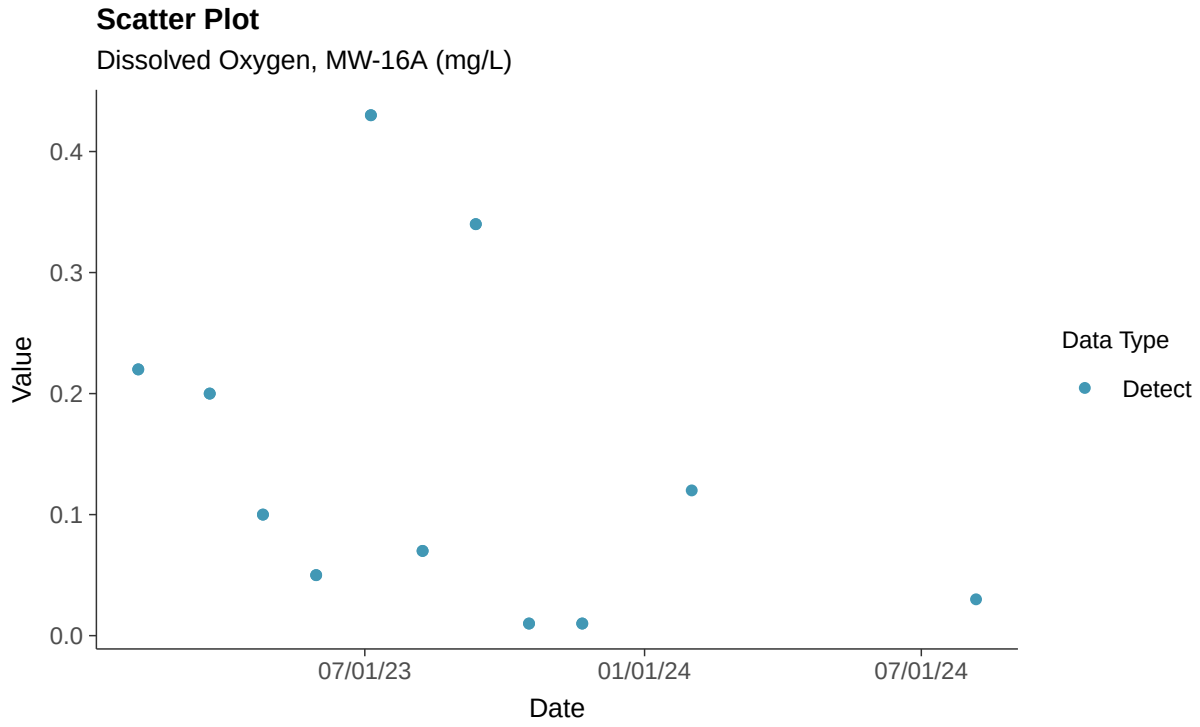
Trend Regression: Piecewise Linear-Linear

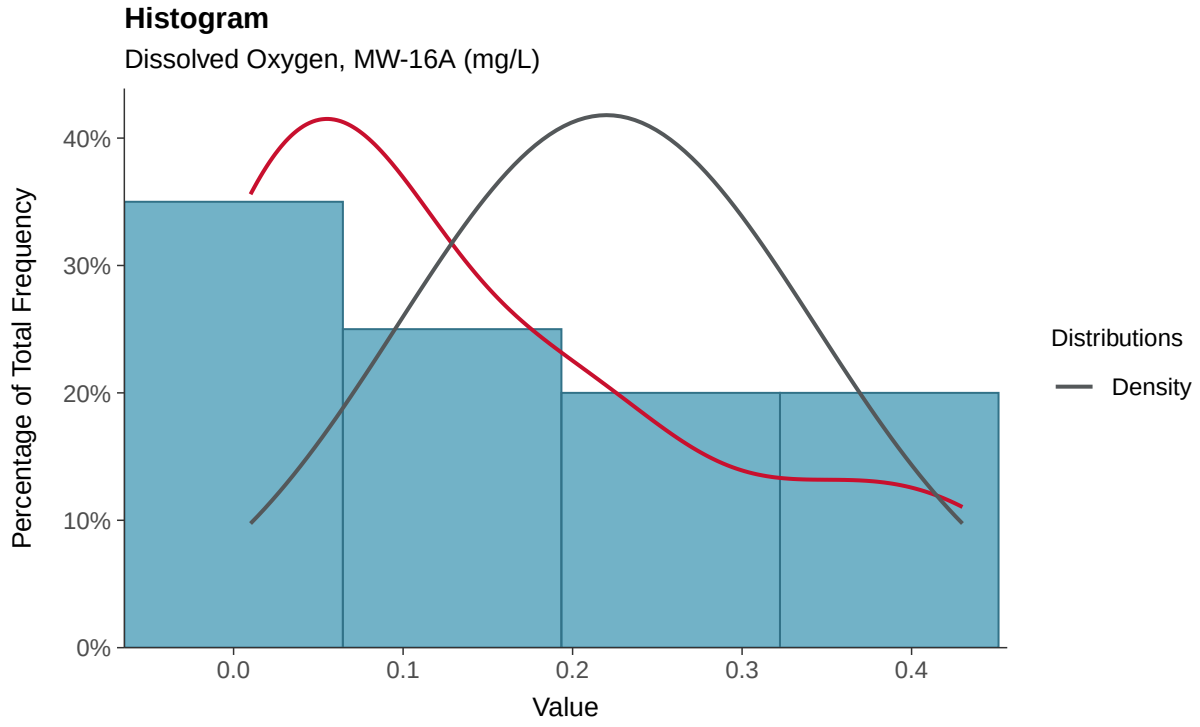
Turbidity, MW-16A (NTU)



Field Parameters: Dissolved Oxygen, MW-16A

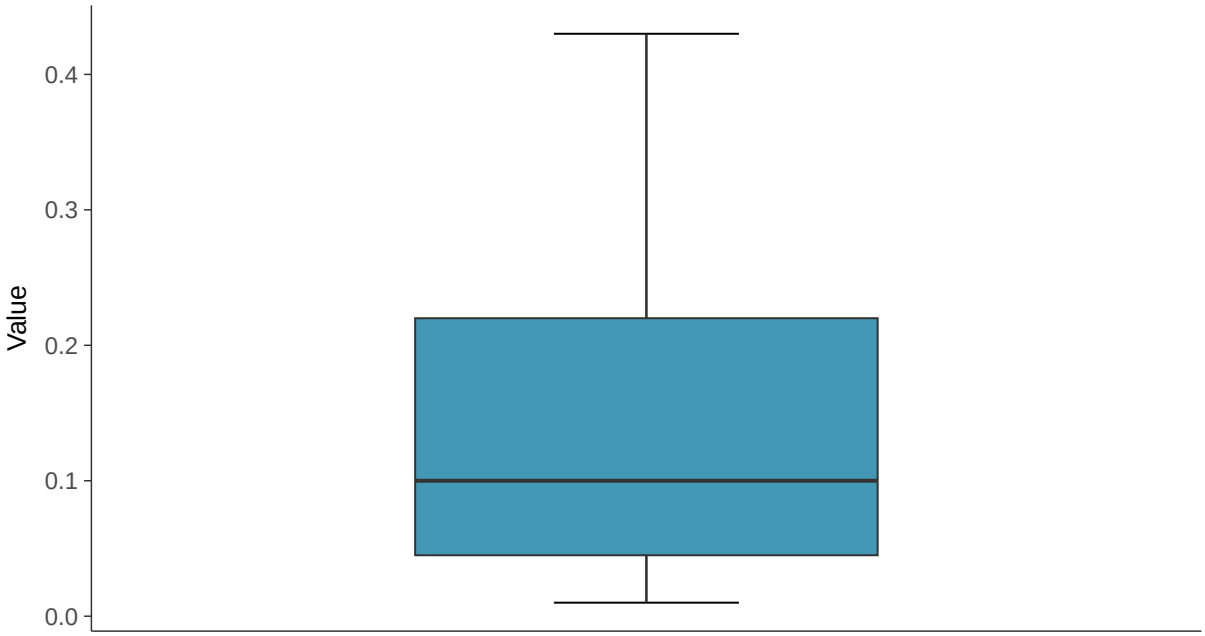
ID: 16A_3_27





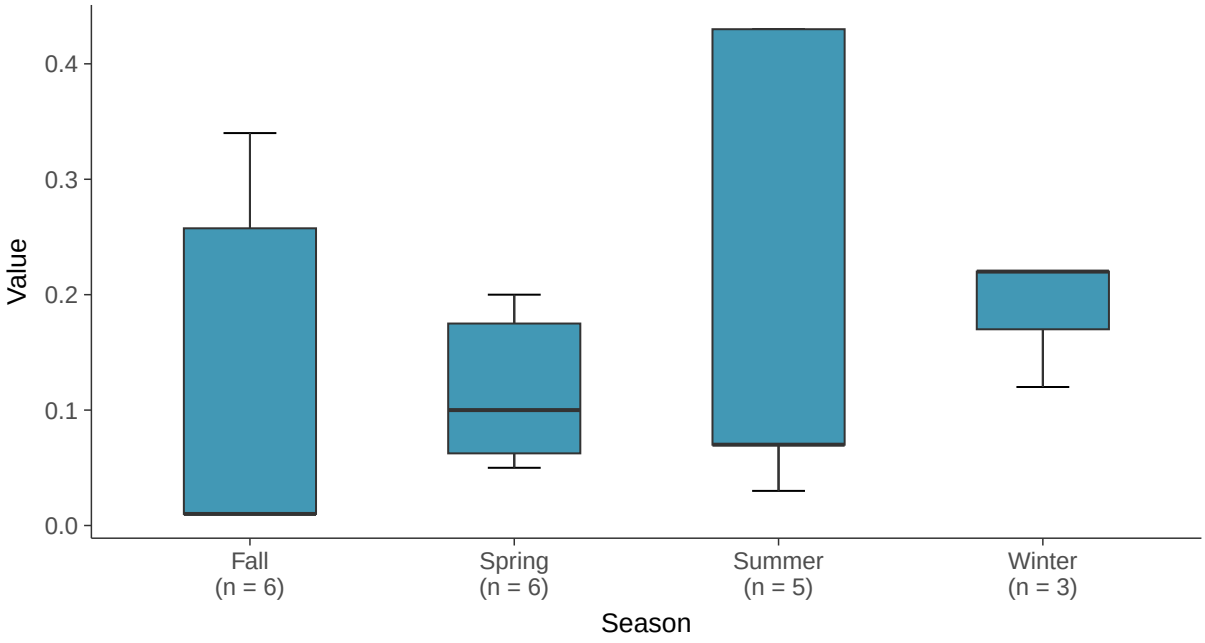
Boxplot

Dissolved Oxygen, MW-16A (mg/L)



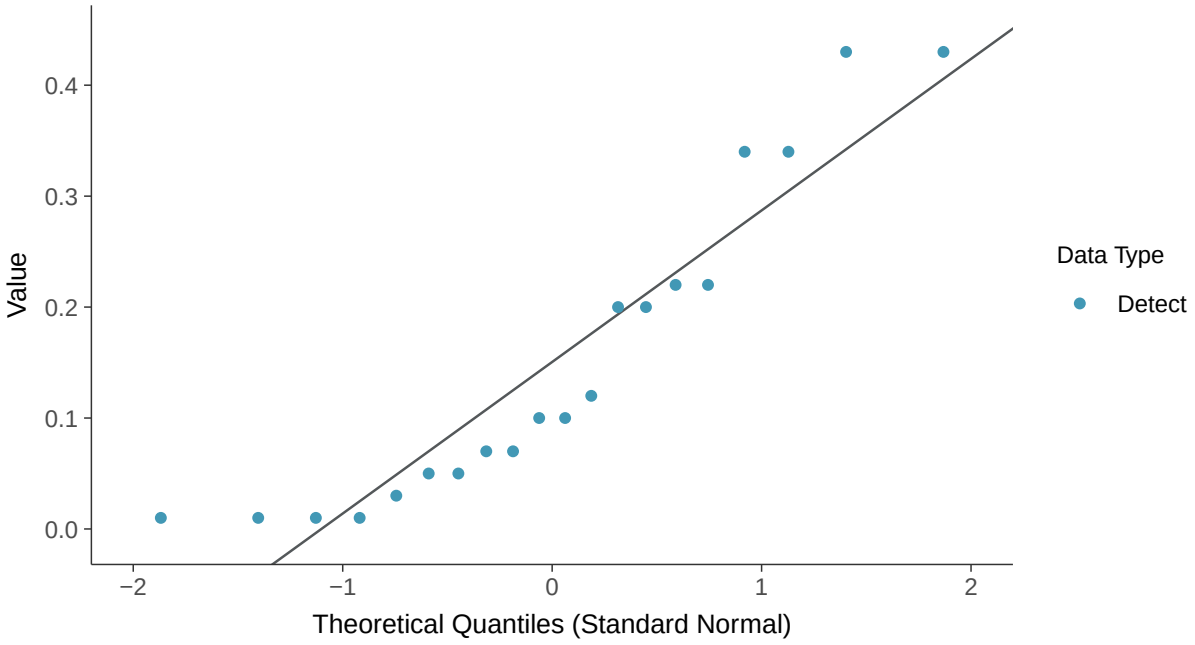
Boxplot by Season

Dissolved Oxygen, MW-16A (mg/L)



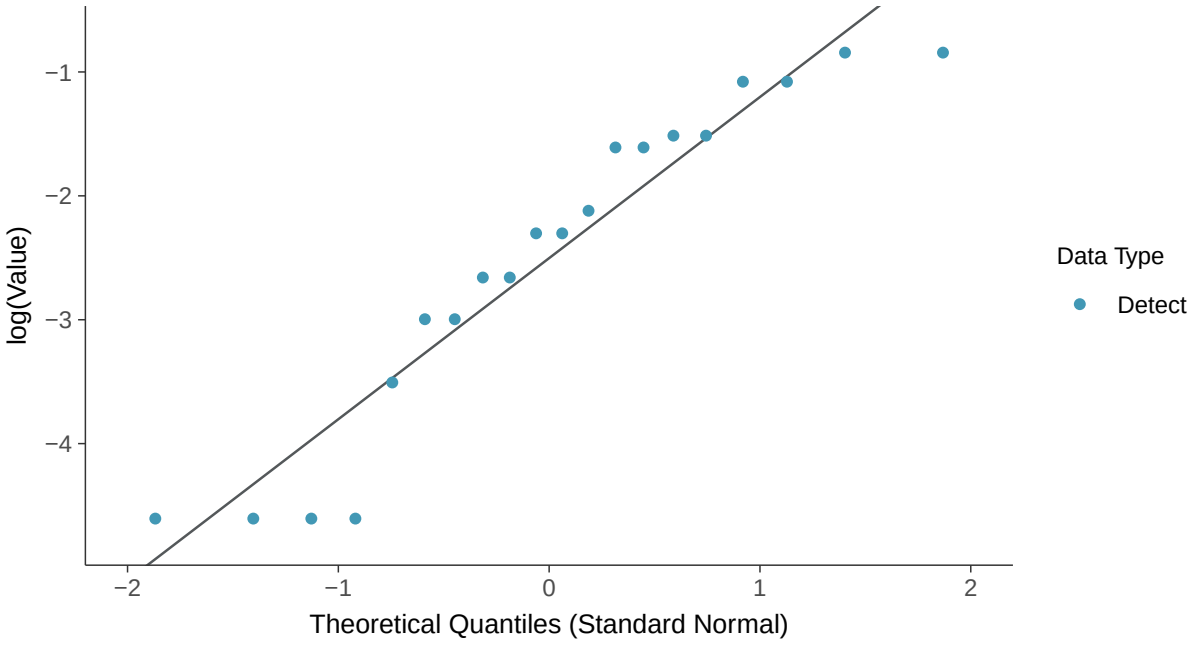
Normal Q-Q plot

Dissolved Oxygen, MW-16A (mg/L)



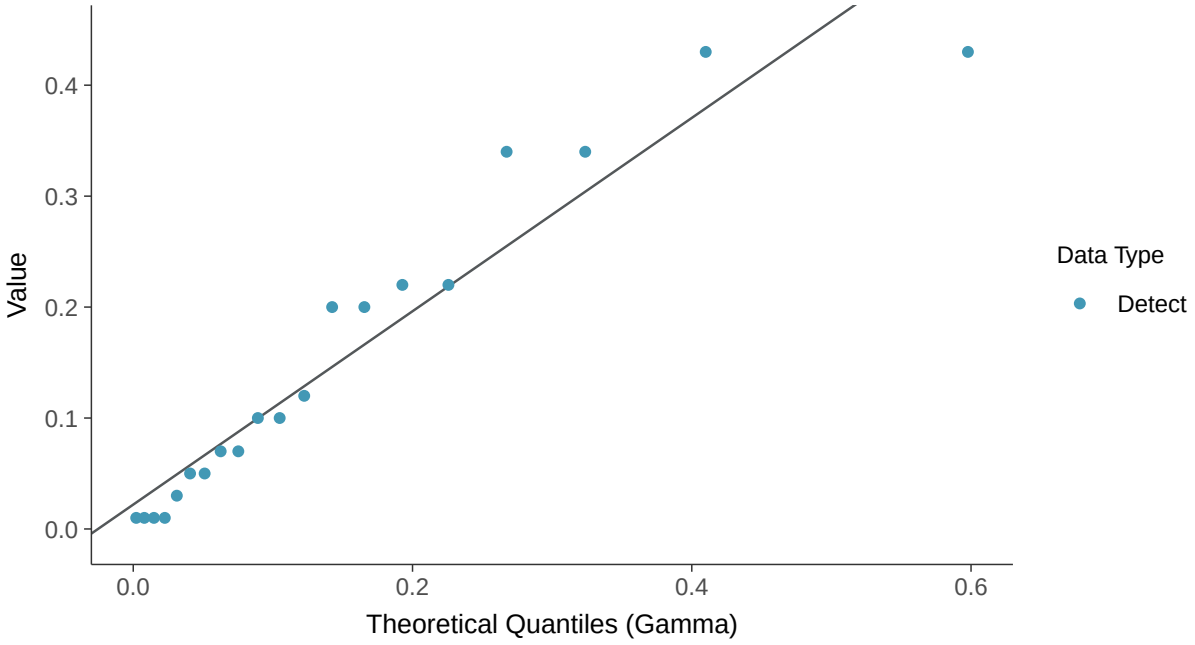
Lognormal Q-Q plot

Dissolved Oxygen, MW-16A (mg/L)



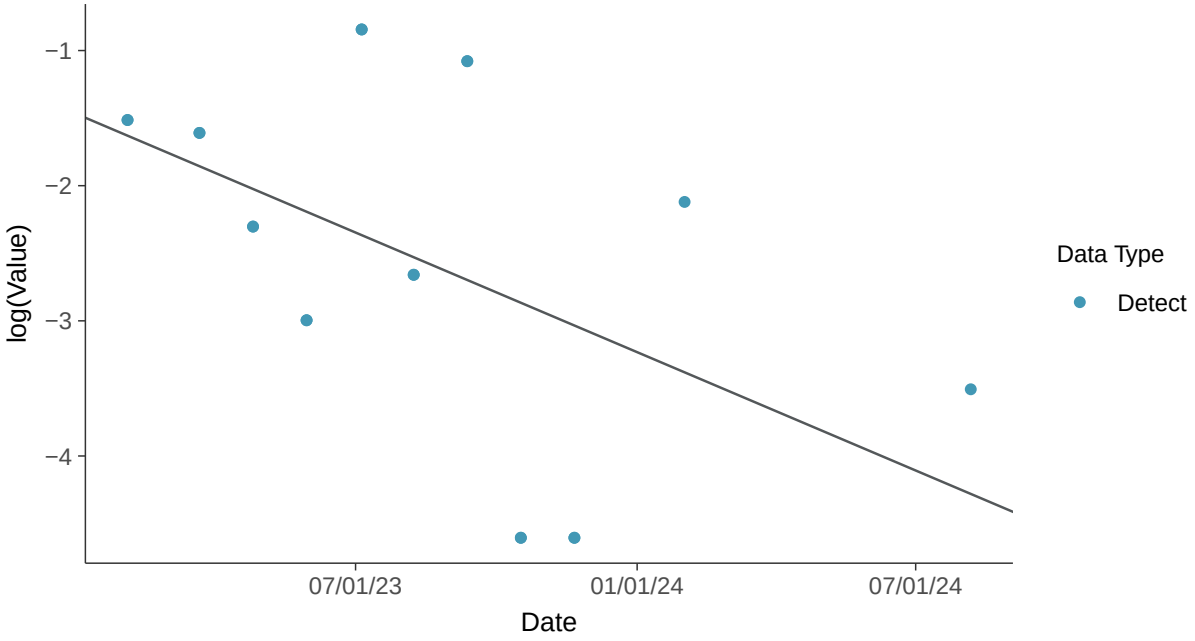
Gamma Q-Q plot

Dissolved Oxygen, MW-16A (mg/L)



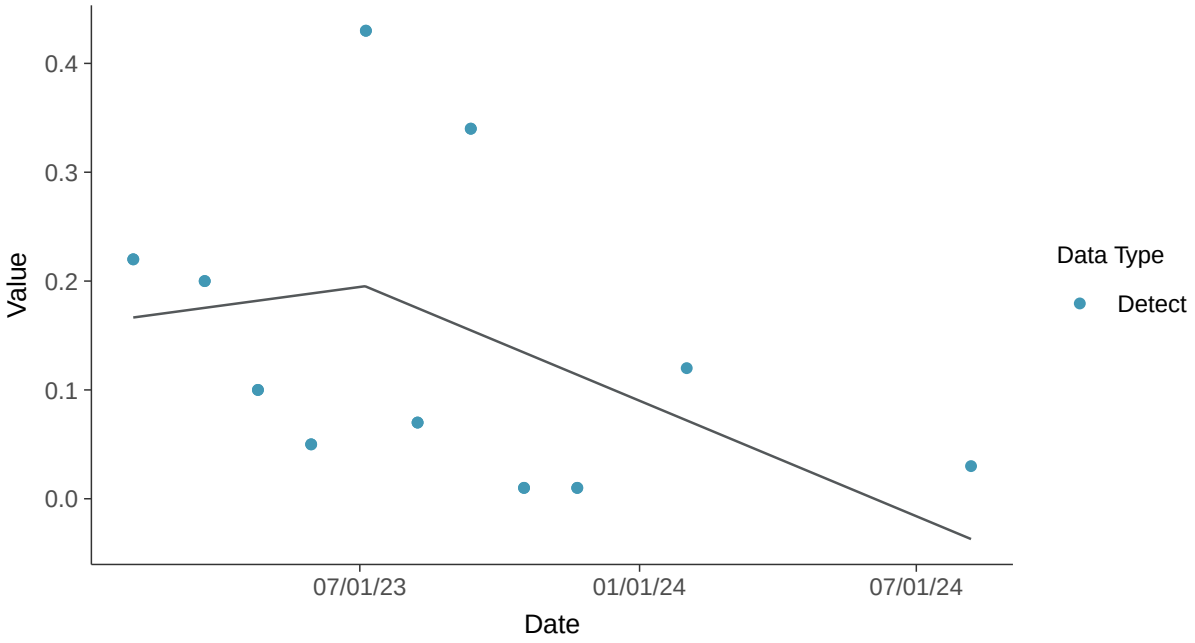
Trend Regression: Lognormal MLE

Dissolved Oxygen, MW-16A (mg/L)



Trend Regression: Piecewise Linear-Linear

Dissolved Oxygen, MW-16A (mg/L)

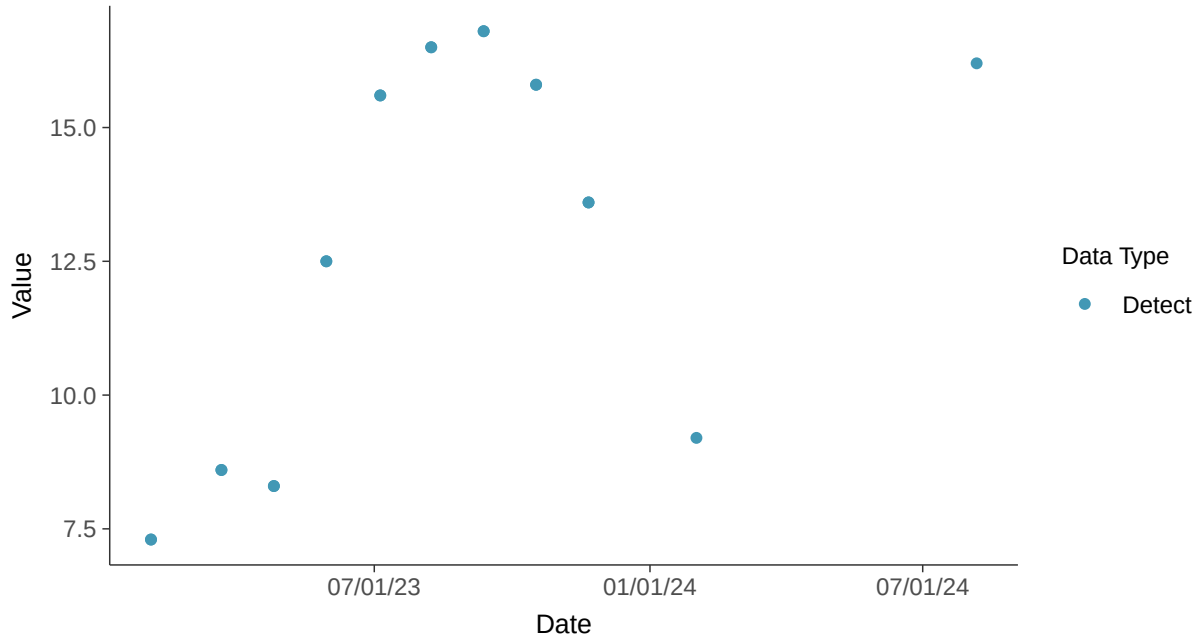


Field Parameters: Temperature, MW-16A

ID: 16A_3_28

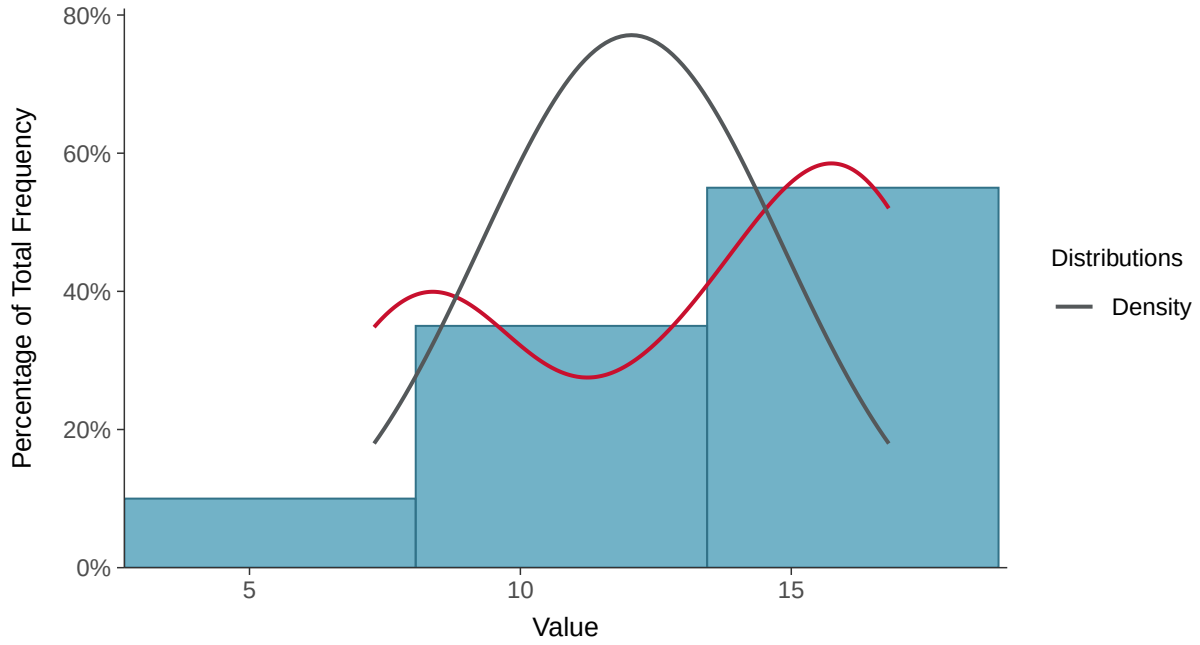
Scatter Plot

Temperature, MW-16A (°C)



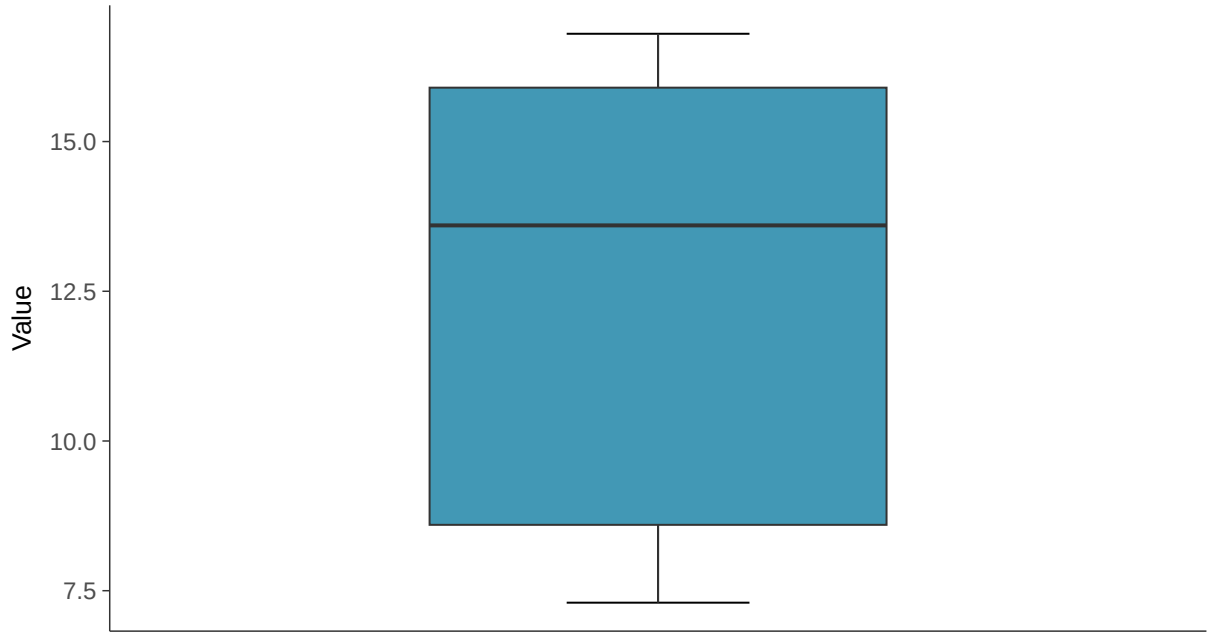
Histogram

Temperature, MW-16A (°C)



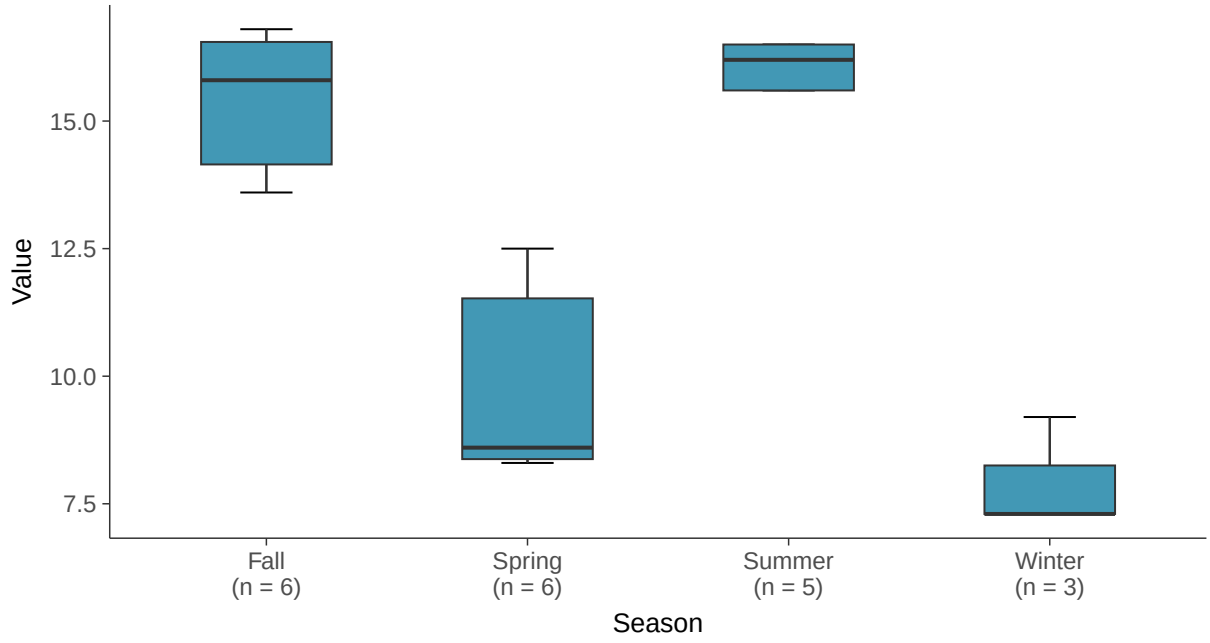
Boxplot

Temperature, MW-16A (°C)



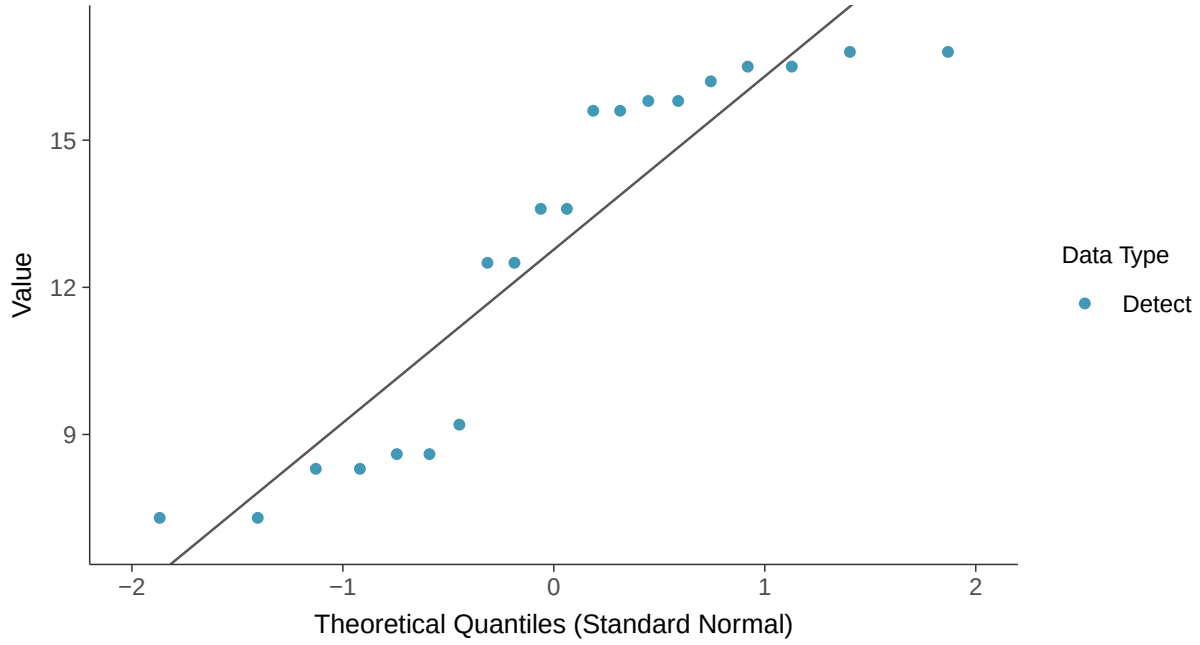
Boxplot by Season

Temperature, MW-16A (°C)



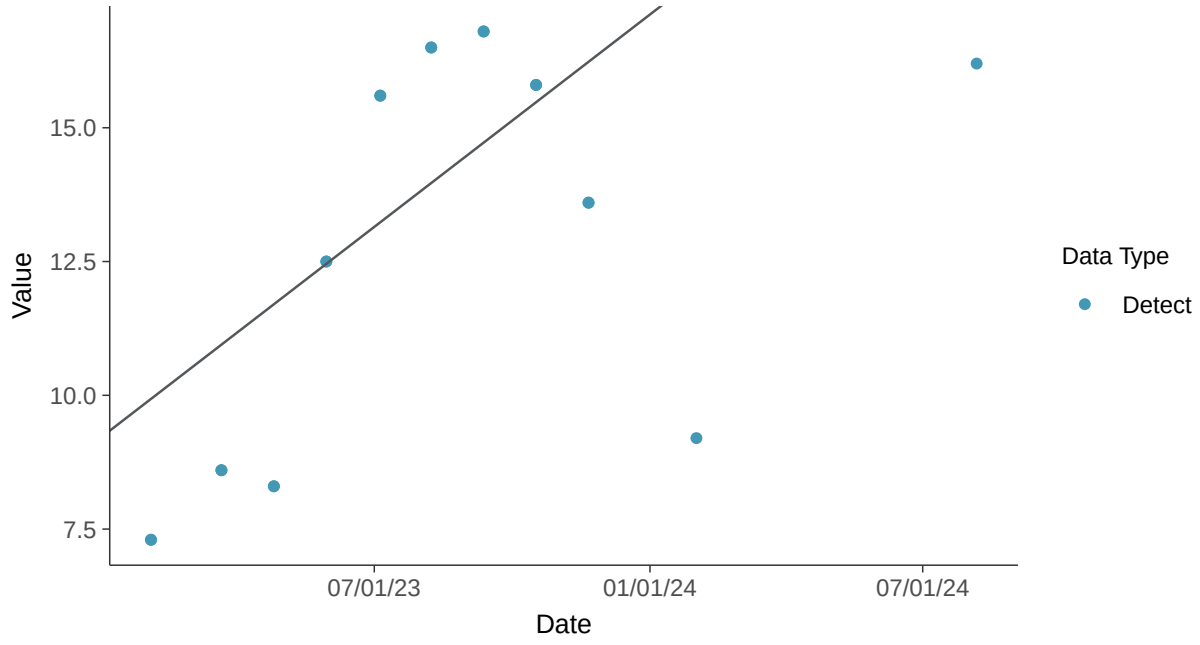
Normal Q-Q plot

Temperature, MW-16A (°C)



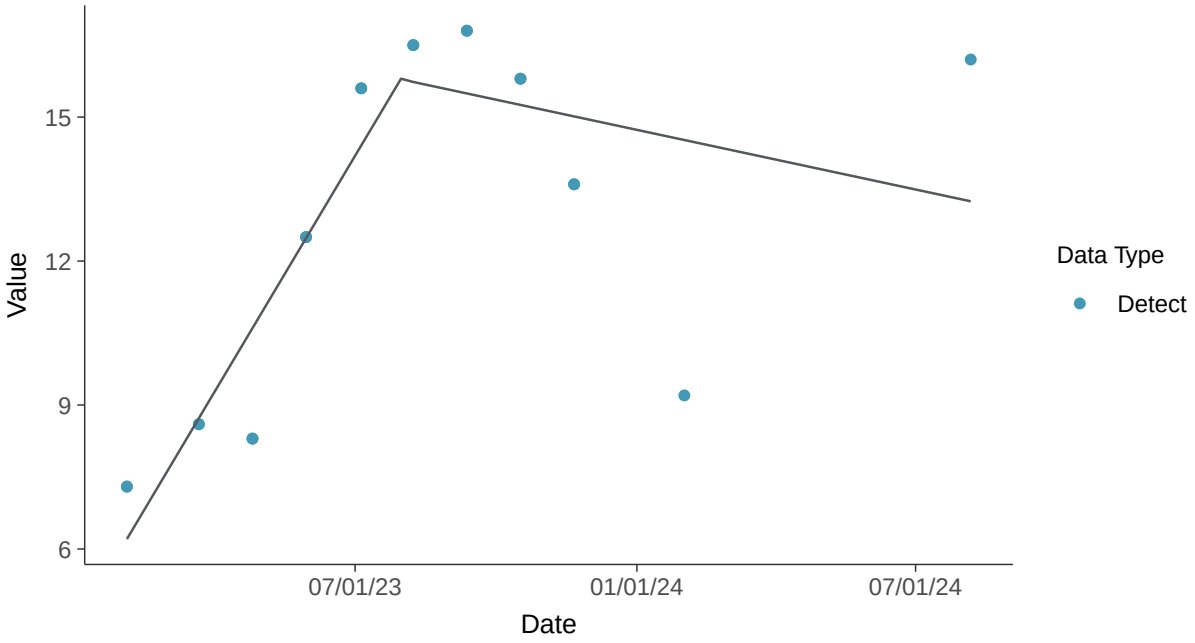
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Temperature, MW-16A (°C)



Trend Regression: Piecewise Linear-Linear

Temperature, MW-16A (°C)

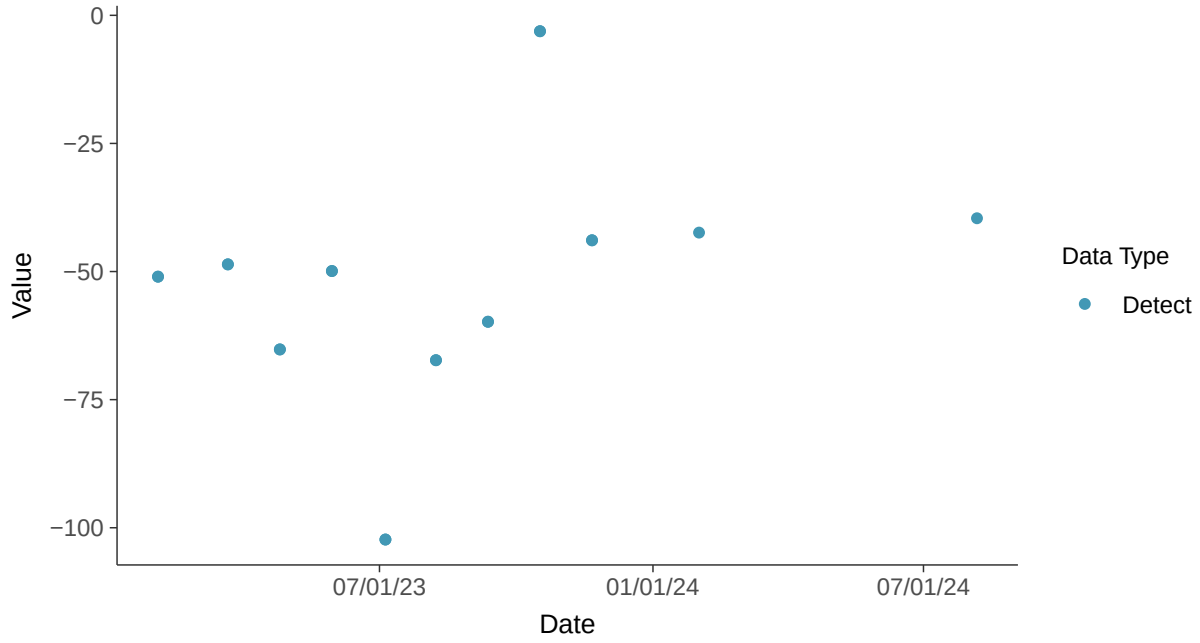


Field Parameters: Oxidation Reduction Potential, MW-16A

ID: 16A_3_29

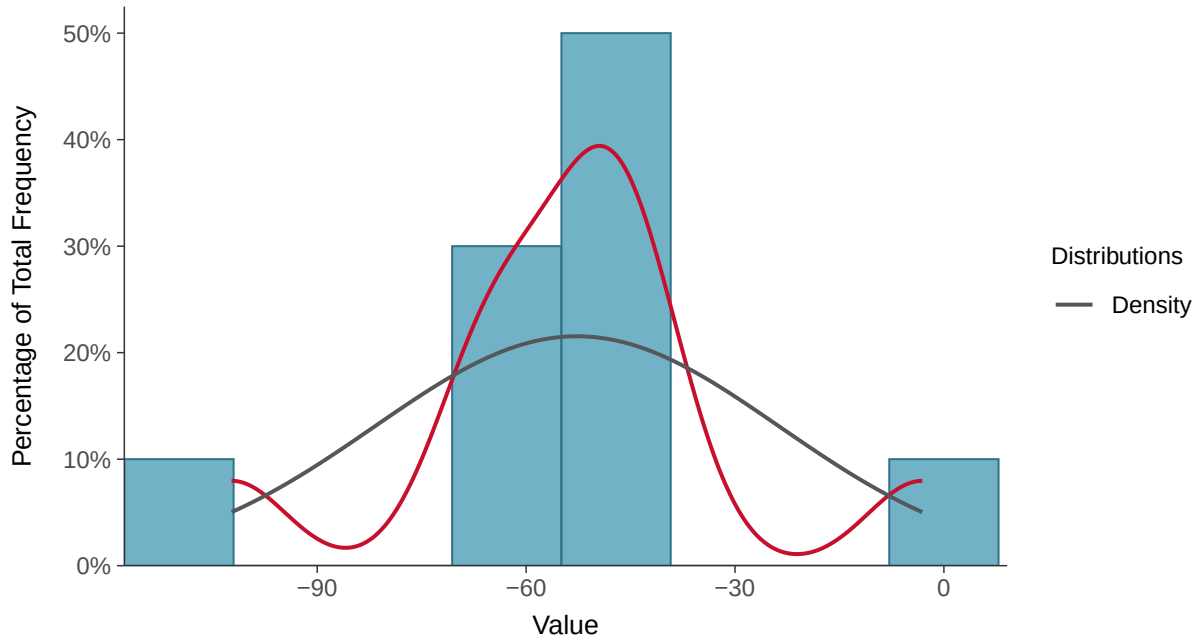
Scatter Plot

Oxidation Reduction Potential, MW-16A (mV)



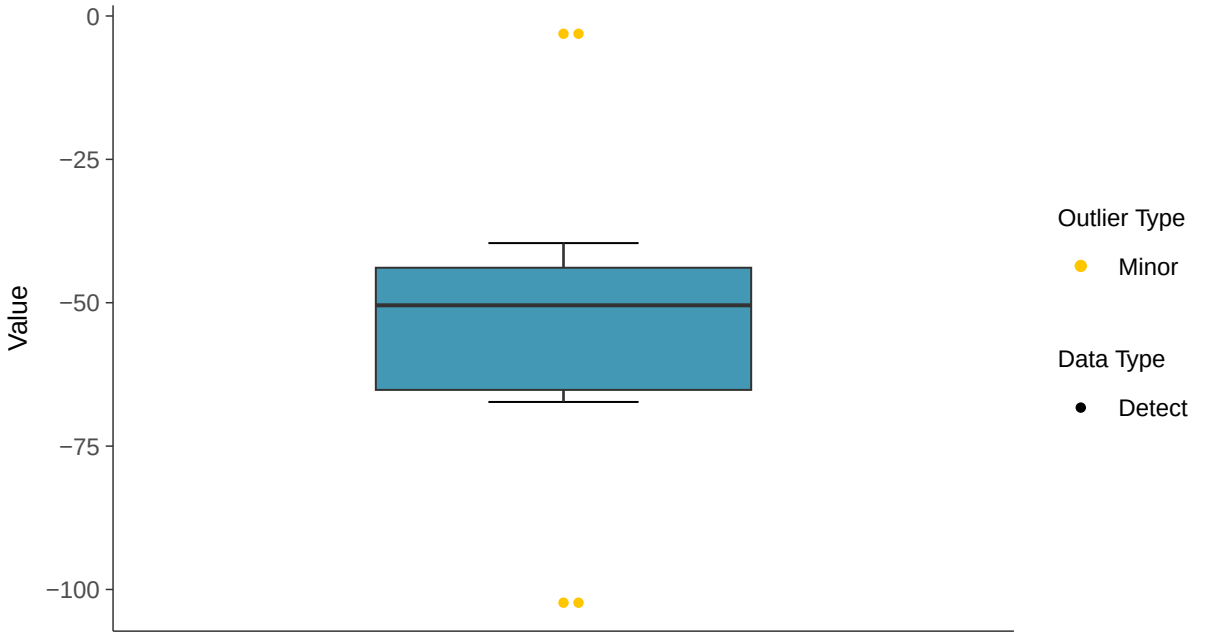
Histogram

Oxidation Reduction Potential, MW-16A (mV)



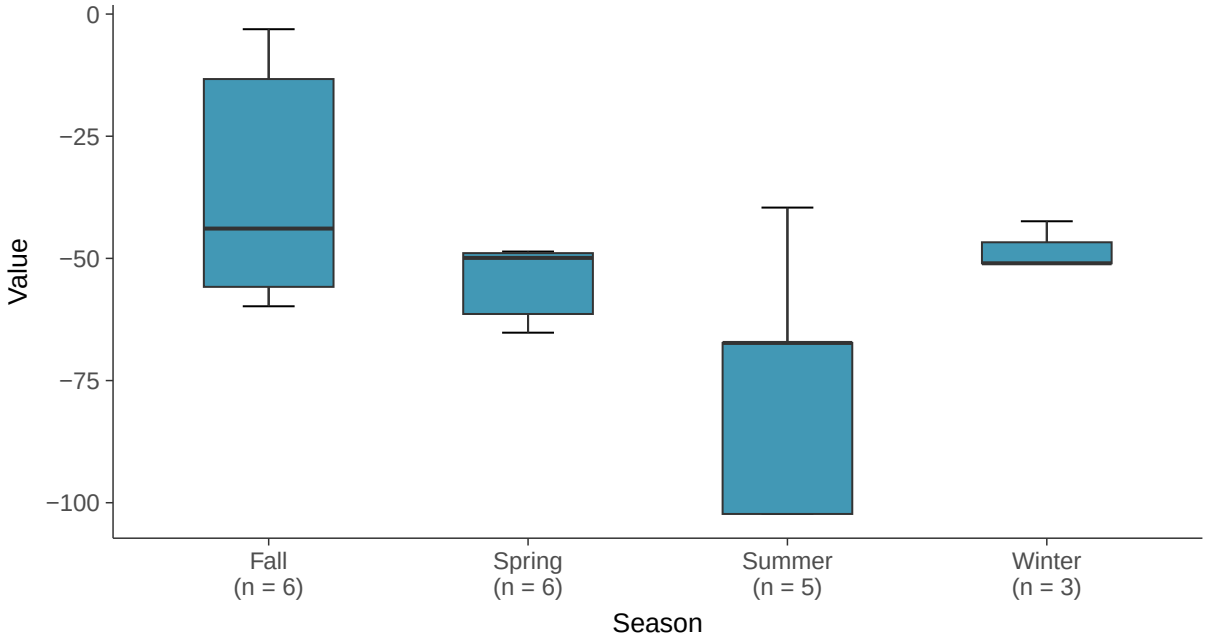
Boxplot

Oxidation Reduction Potential, MW-16A (mV)



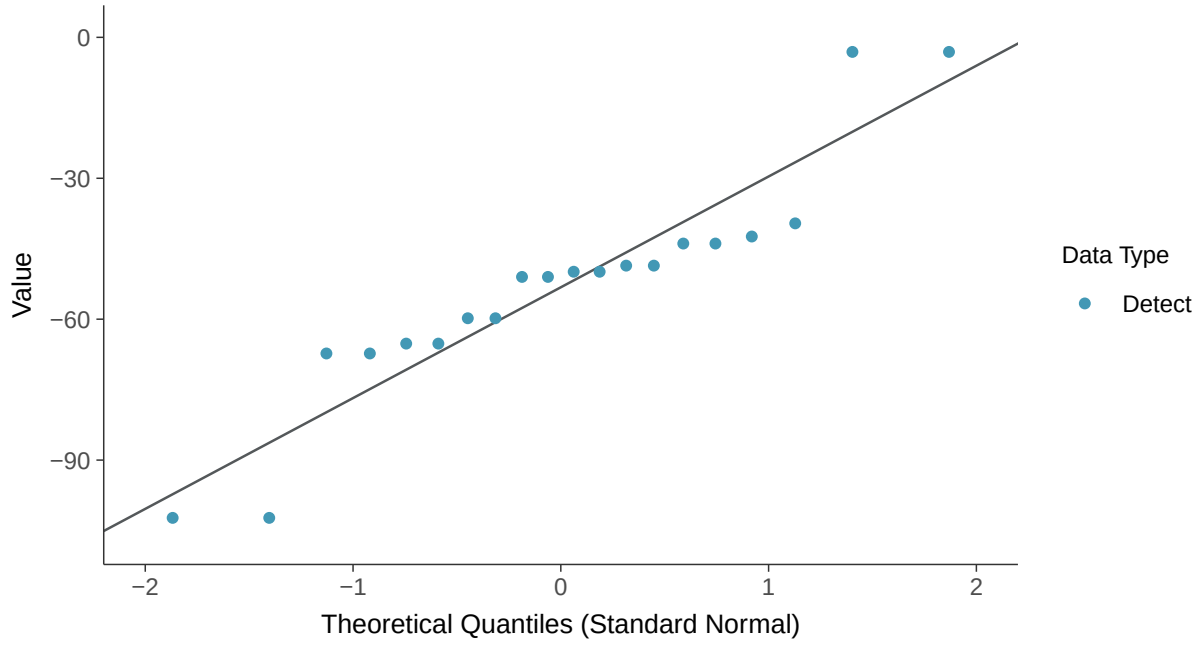
Boxplot by Season

Oxidation Reduction Potential, MW-16A (mV)



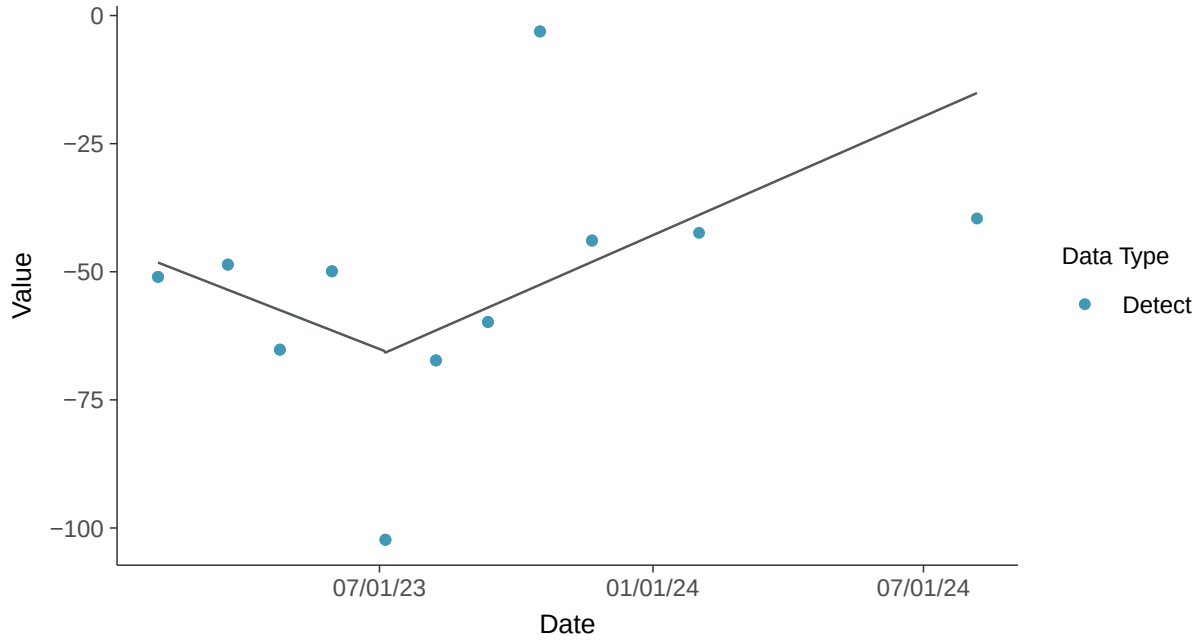
Normal Q-Q plot

Oxidation Reduction Potential, MW-16A (mV)



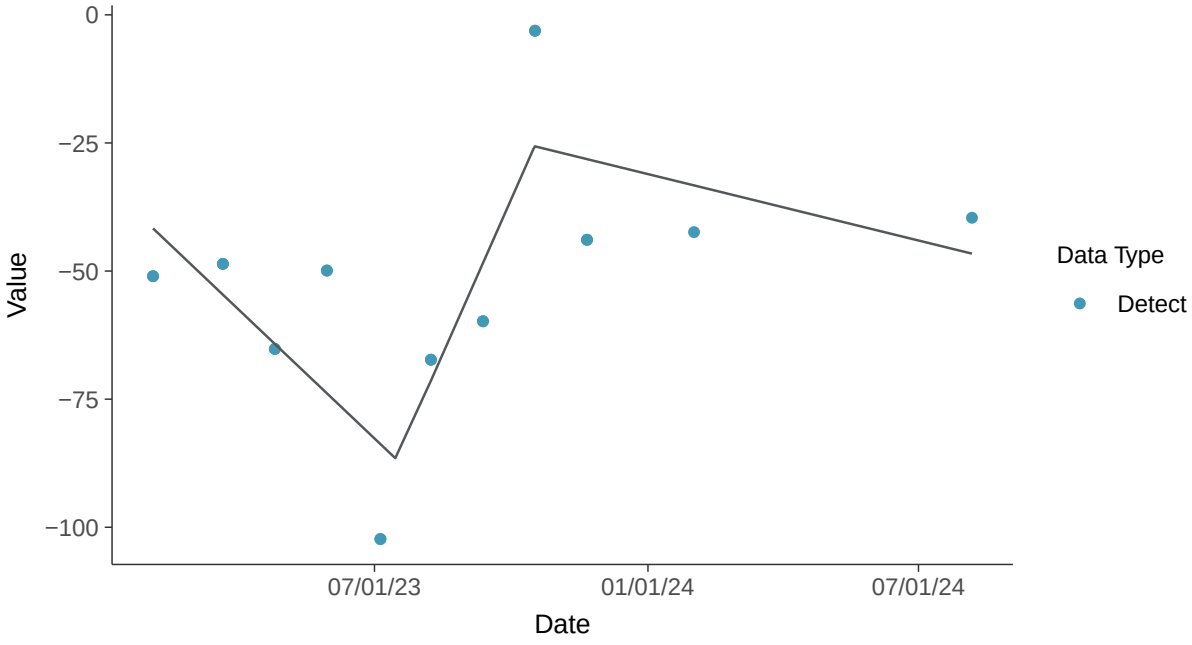
Trend Regression: Piecewise Linear-Linear

Oxidation Reduction Potential, MW-16A (mV)



Trend Regression: Piecewise Linear-Linear-Linear

Oxidation Reduction Potential, MW-16A (mV)

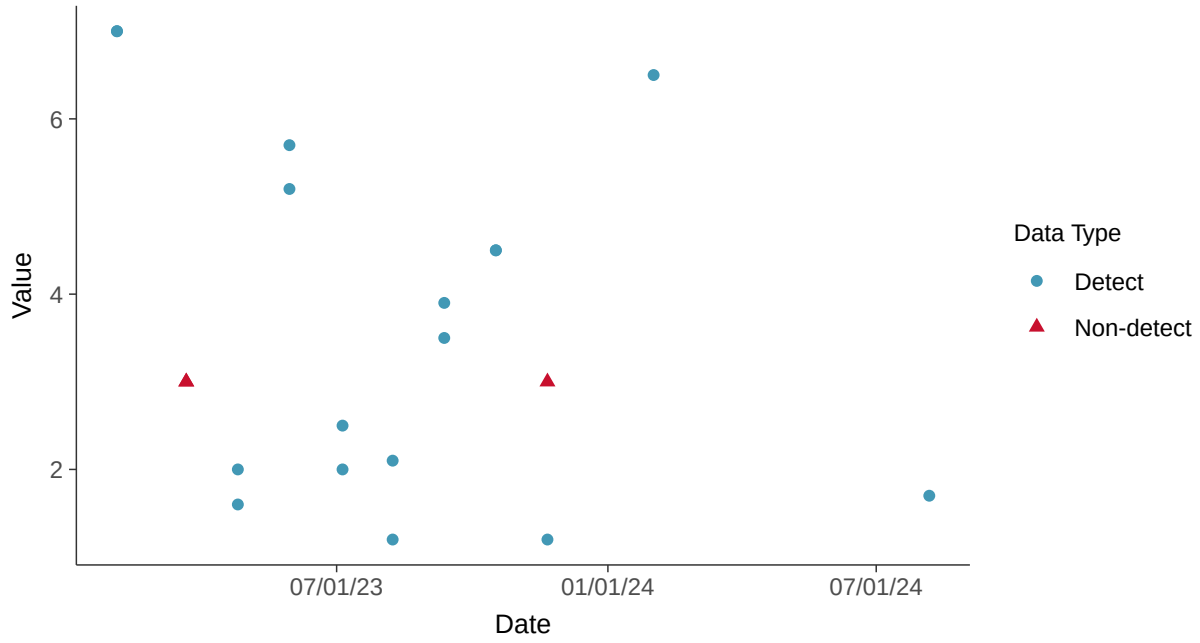


Other: Total Suspended Solids, MW-16A

ID: 16A_4_30

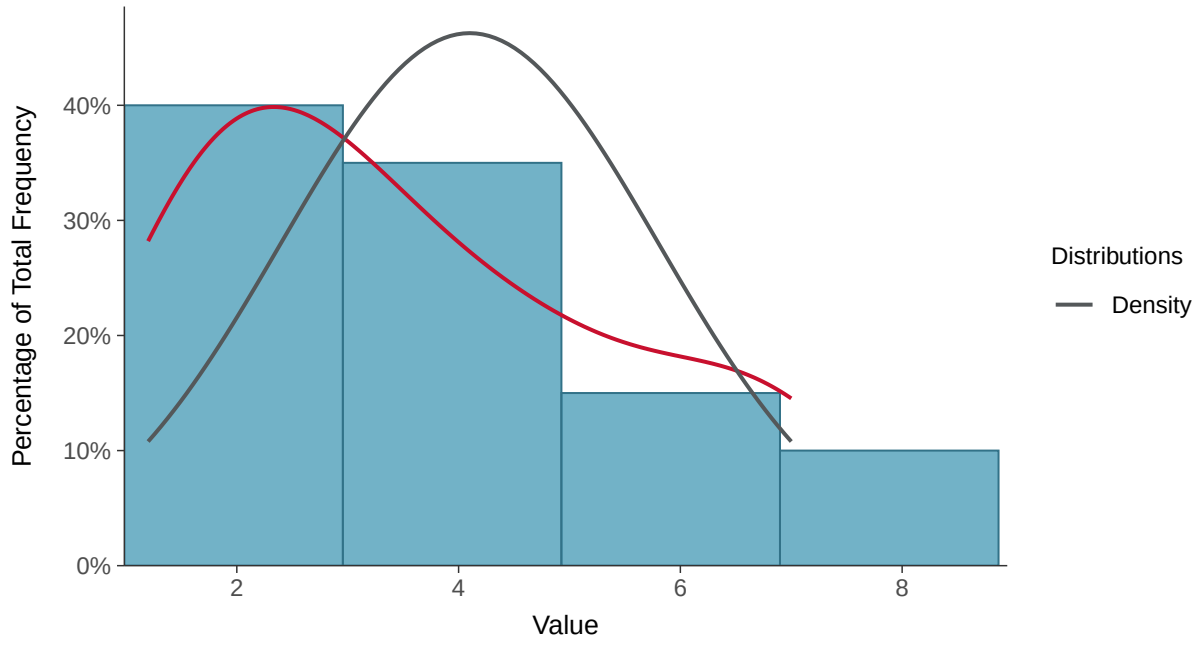
Scatter Plot

Total Suspended Solids, MW-16A (mg/L)



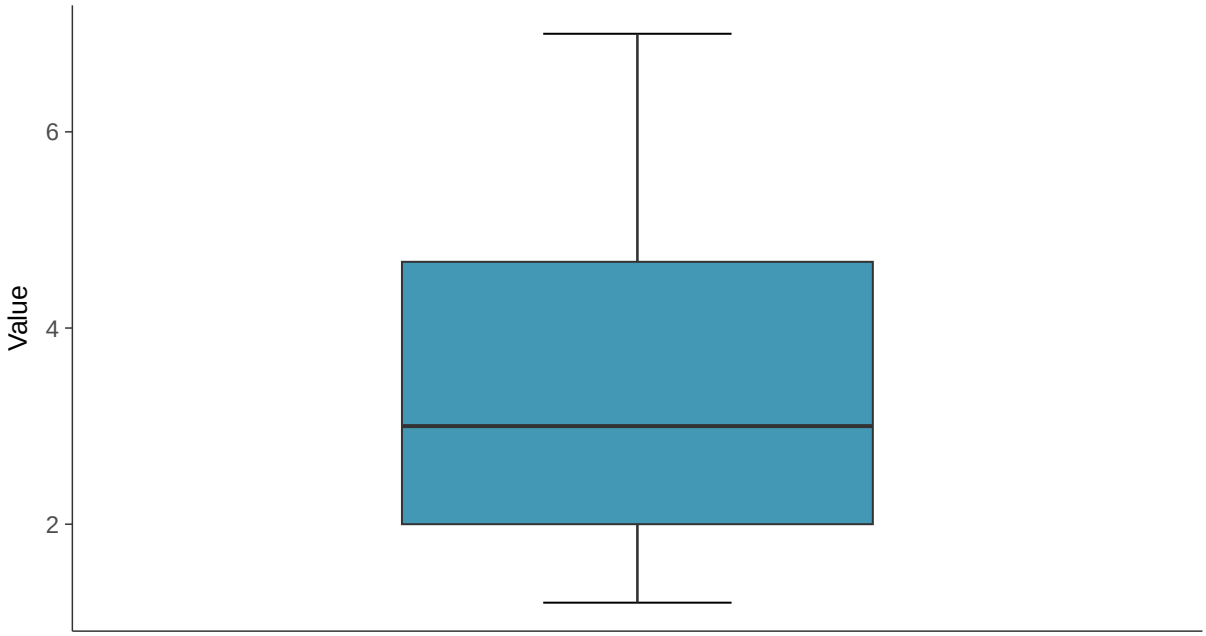
Histogram

Total Suspended Solids, MW-16A (mg/L)



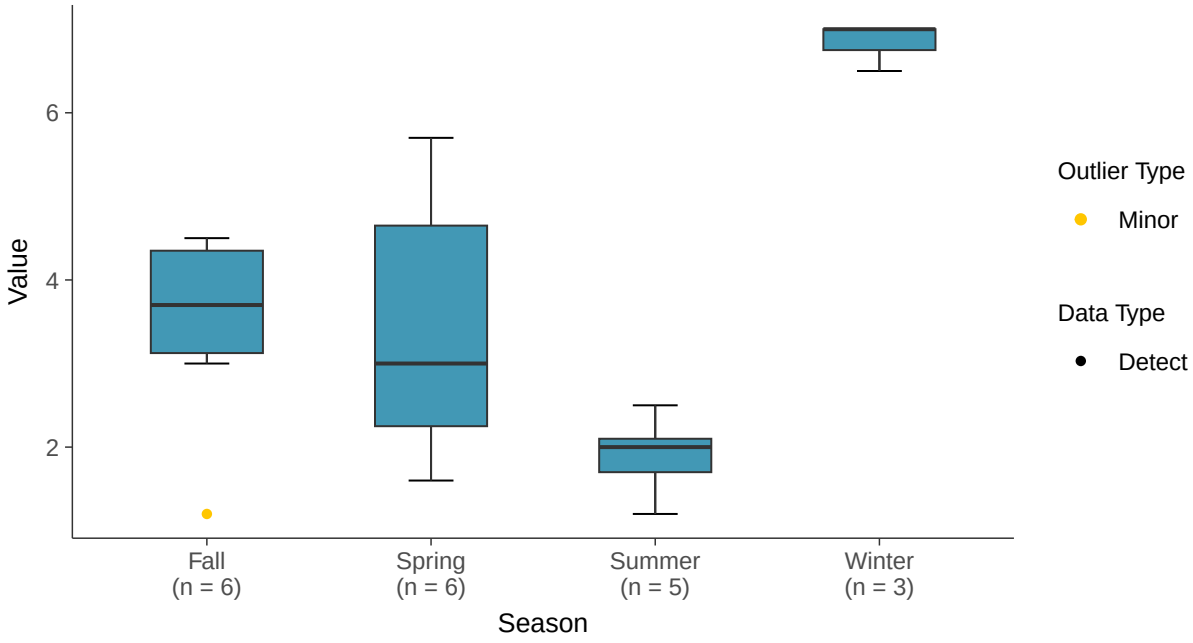
Boxplot

Total Suspended Solids, MW-16A (mg/L)



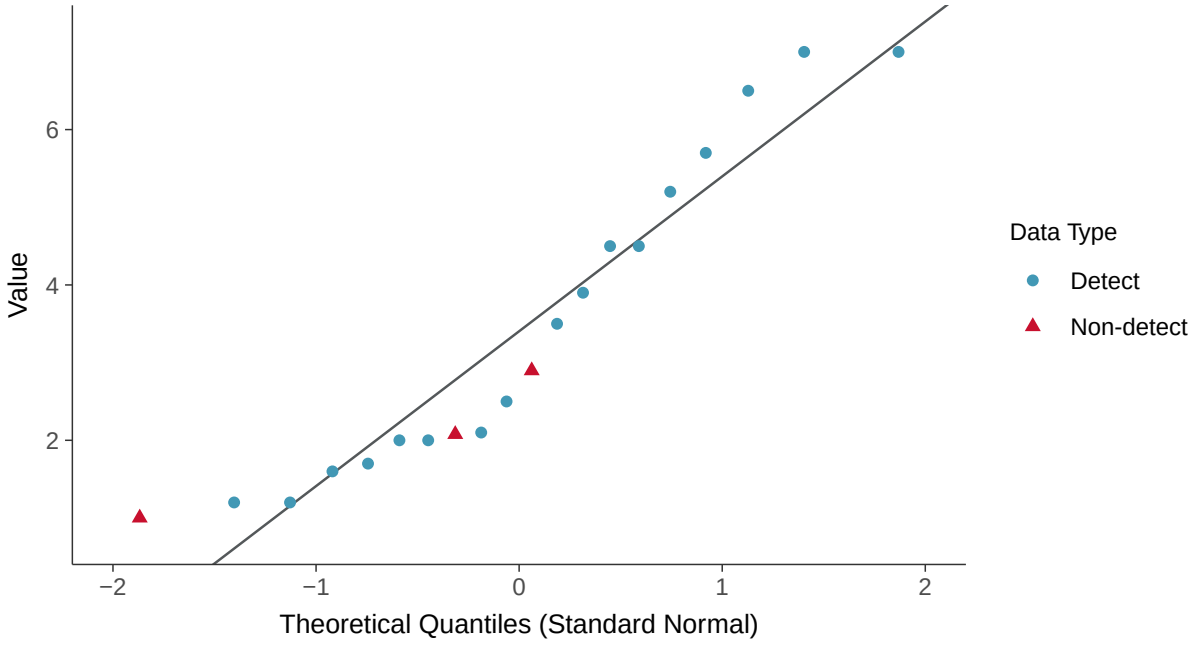
Boxplot by Season

Total Suspended Solids, MW-16A (mg/L)



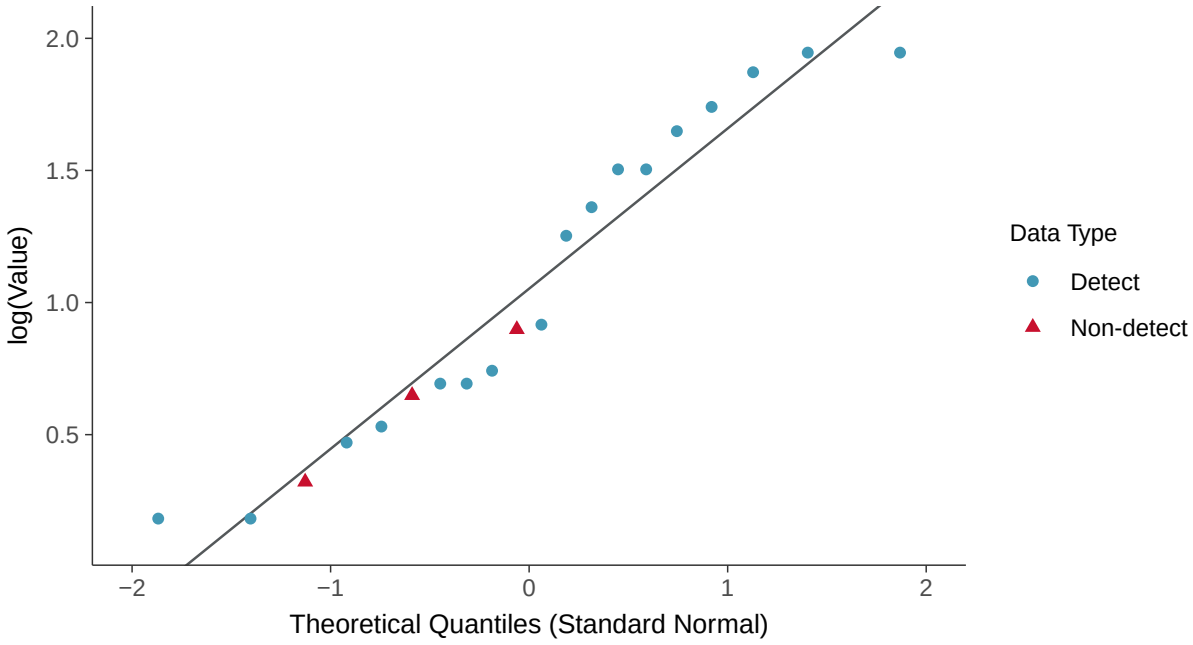
Normal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-16A (mg/L)



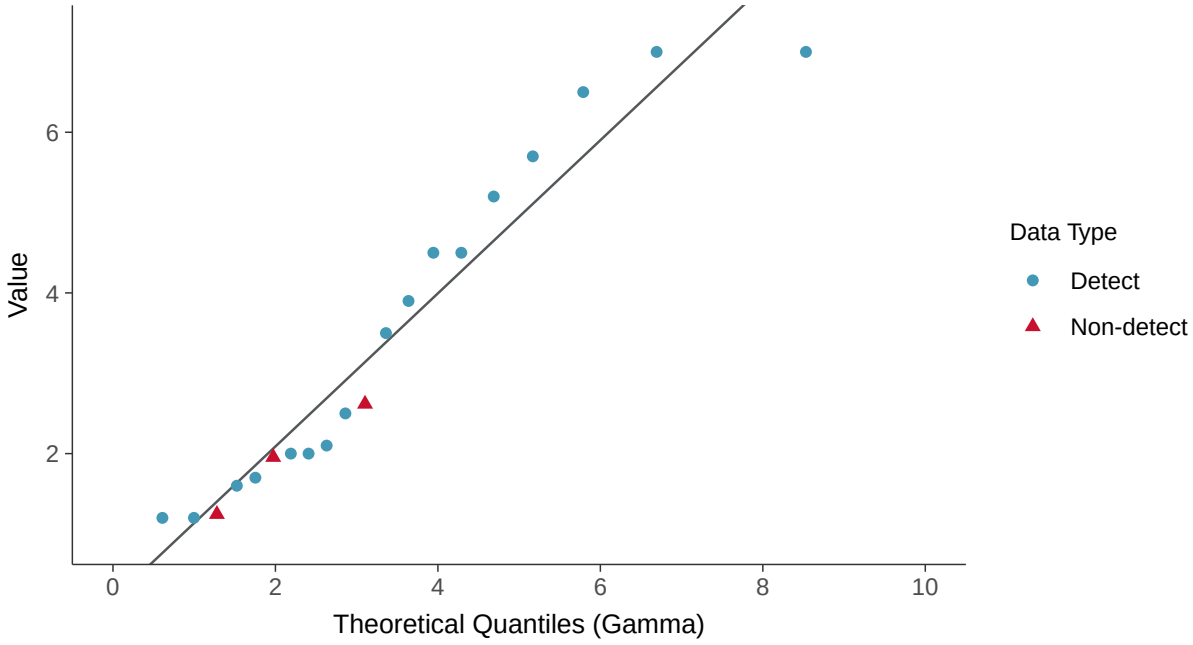
Lognormal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-16A (mg/L)



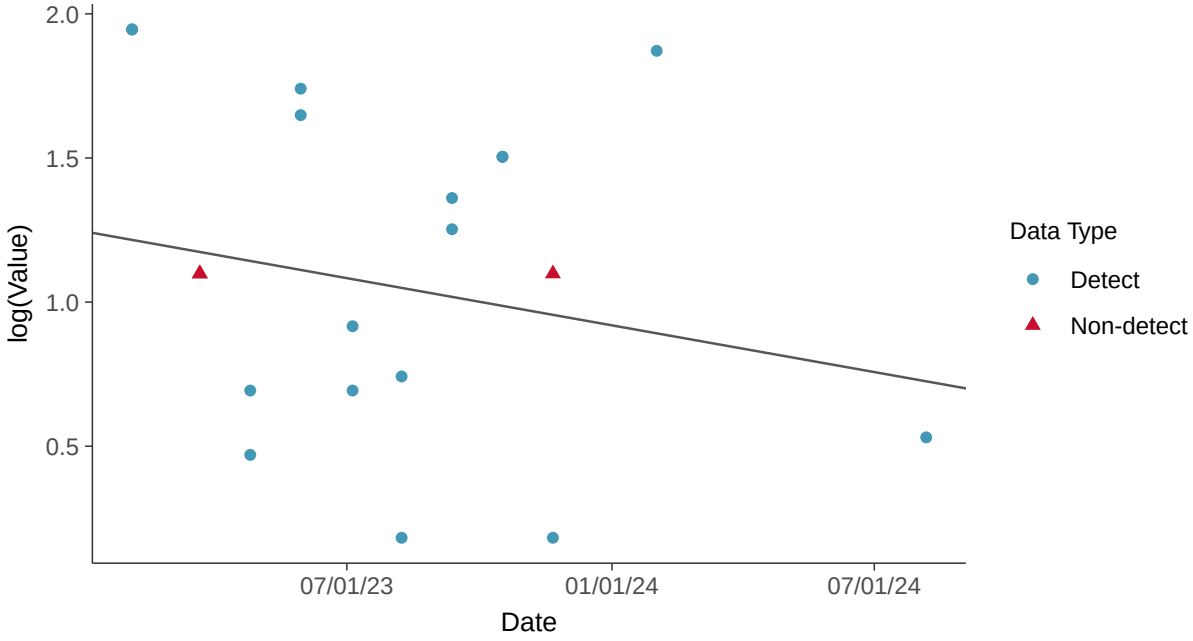
Gamma Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-16A (mg/L)



Trend Regression: Lognormal MLE

Total Suspended Solids, MW-16A (mg/L)

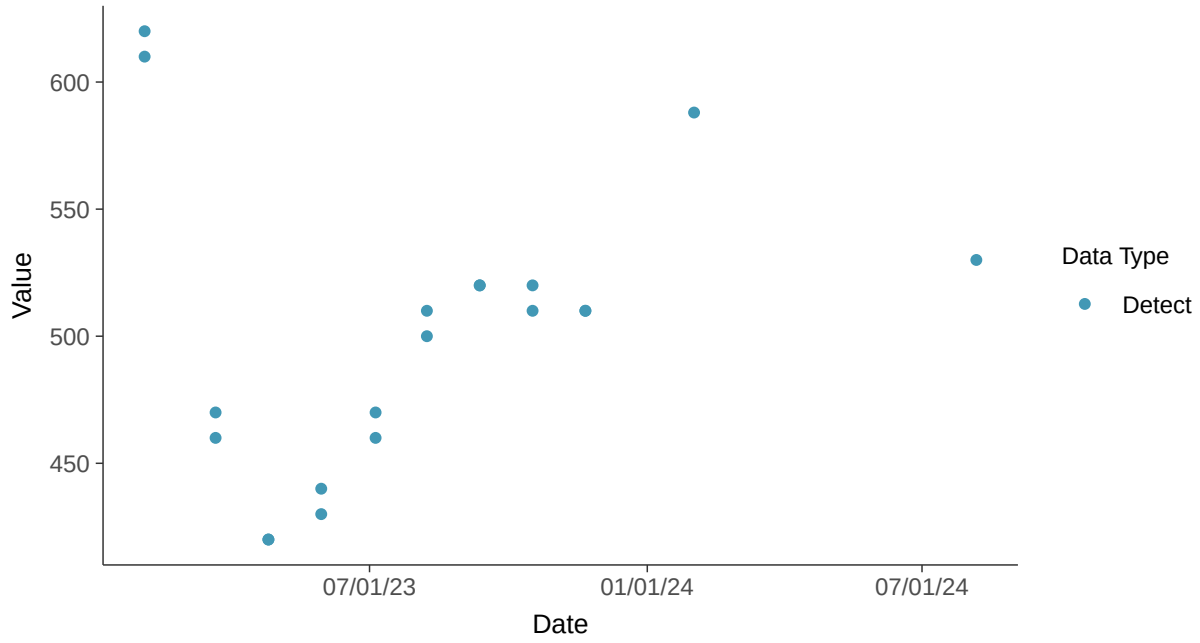


Other: Bicarbonate, MW-16A

ID: 16A_4_31

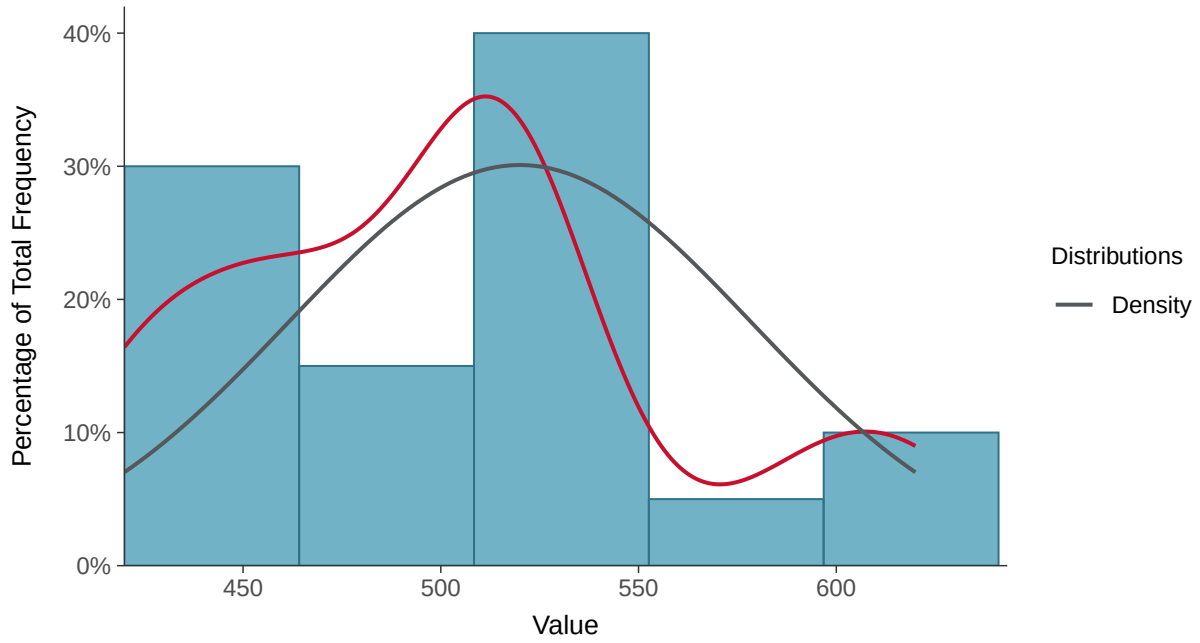
Scatter Plot

Bicarbonate, MW-16A (mg/L)



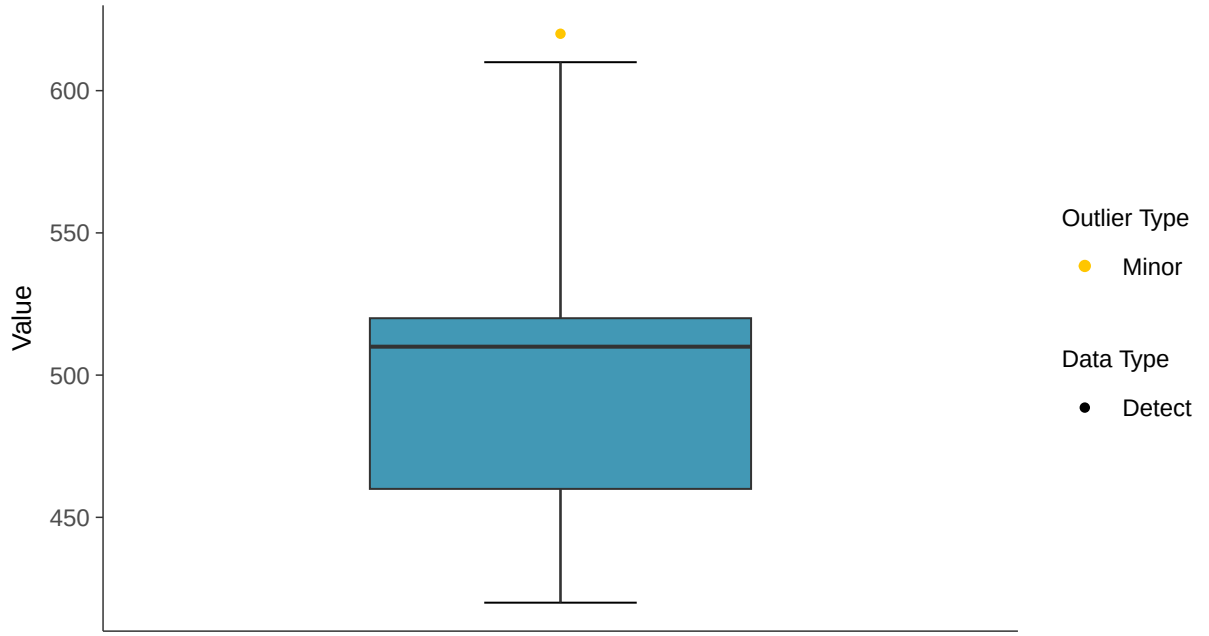
Histogram

Bicarbonate, MW-16A (mg/L)



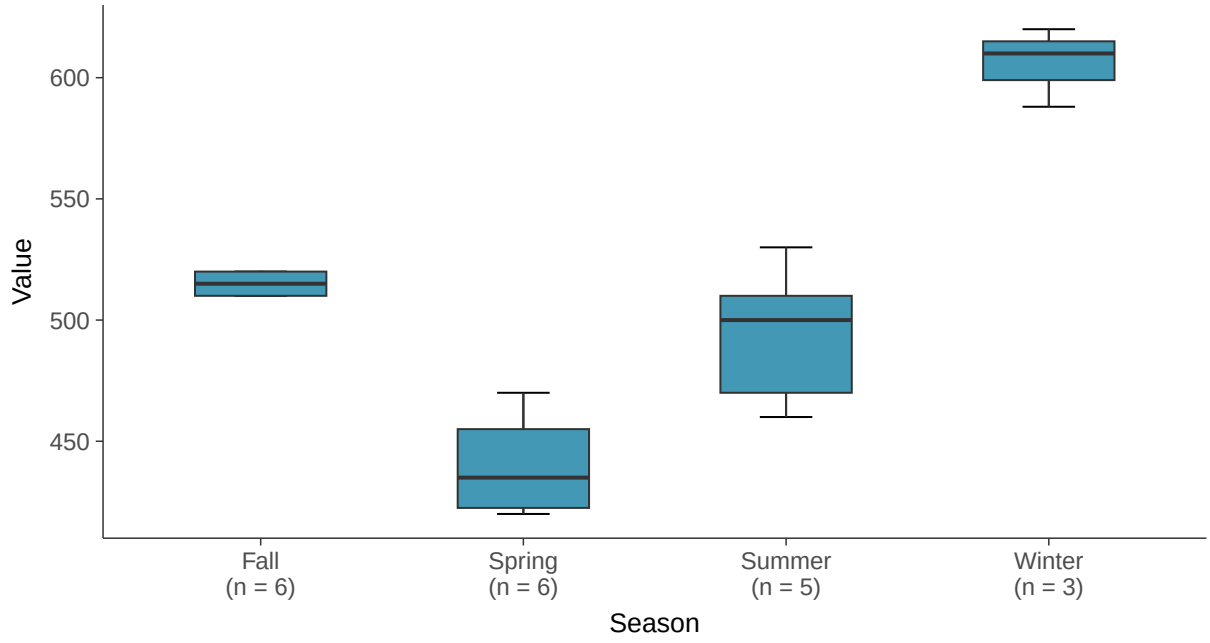
Boxplot

Bicarbonate, MW-16A (mg/L)



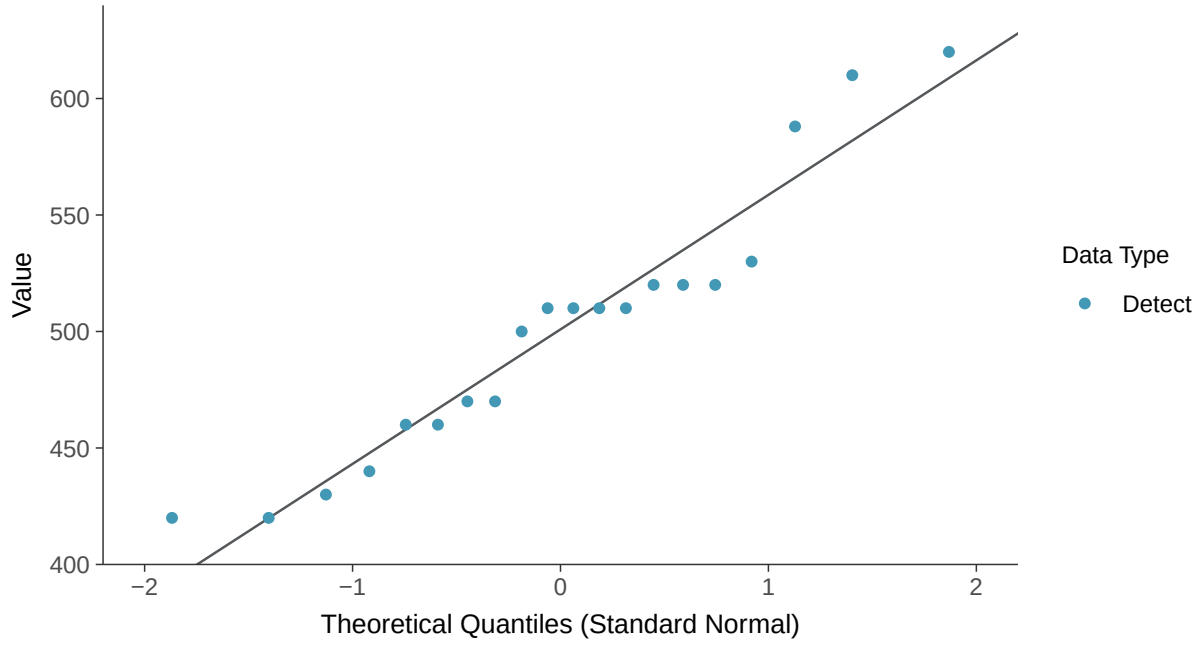
Boxplot by Season

Bicarbonate, MW-16A (mg/L)



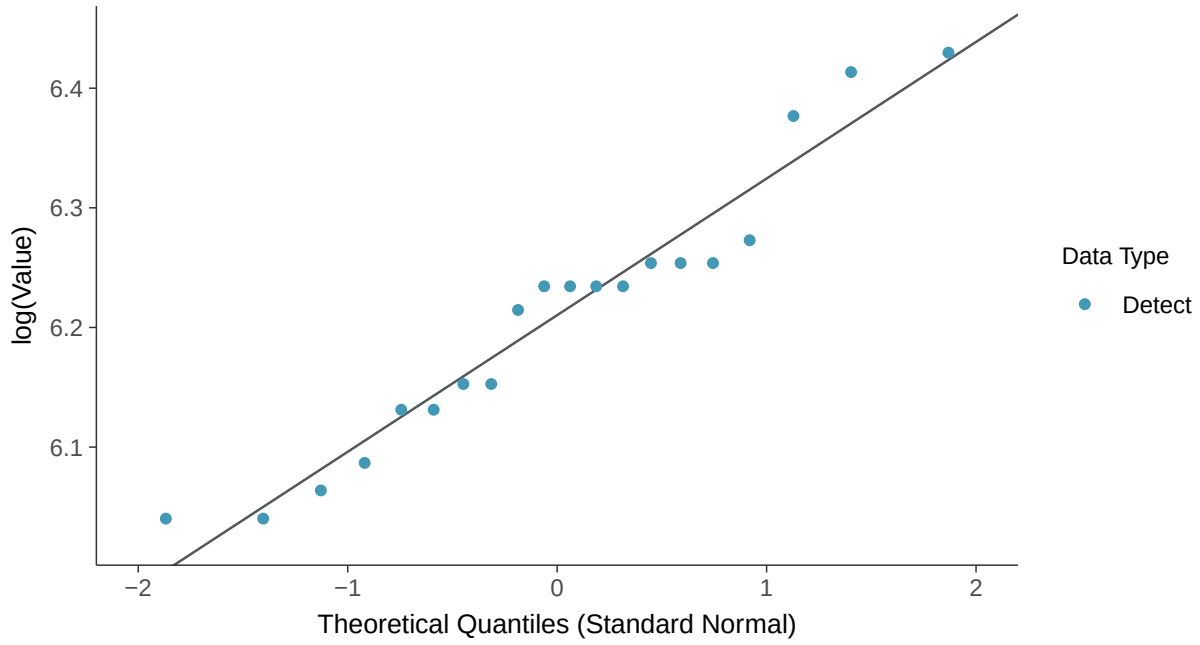
Normal Q-Q plot

Bicarbonate, MW-16A (mg/L)



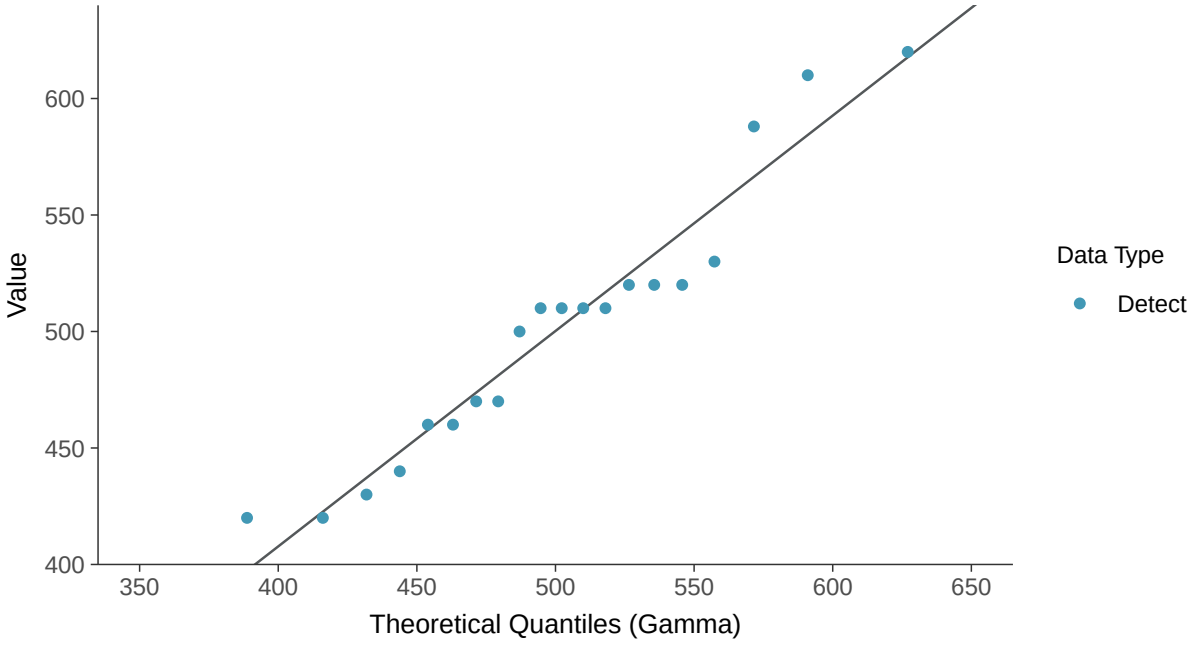
Lognormal Q-Q plot

Bicarbonate, MW-16A (mg/L)



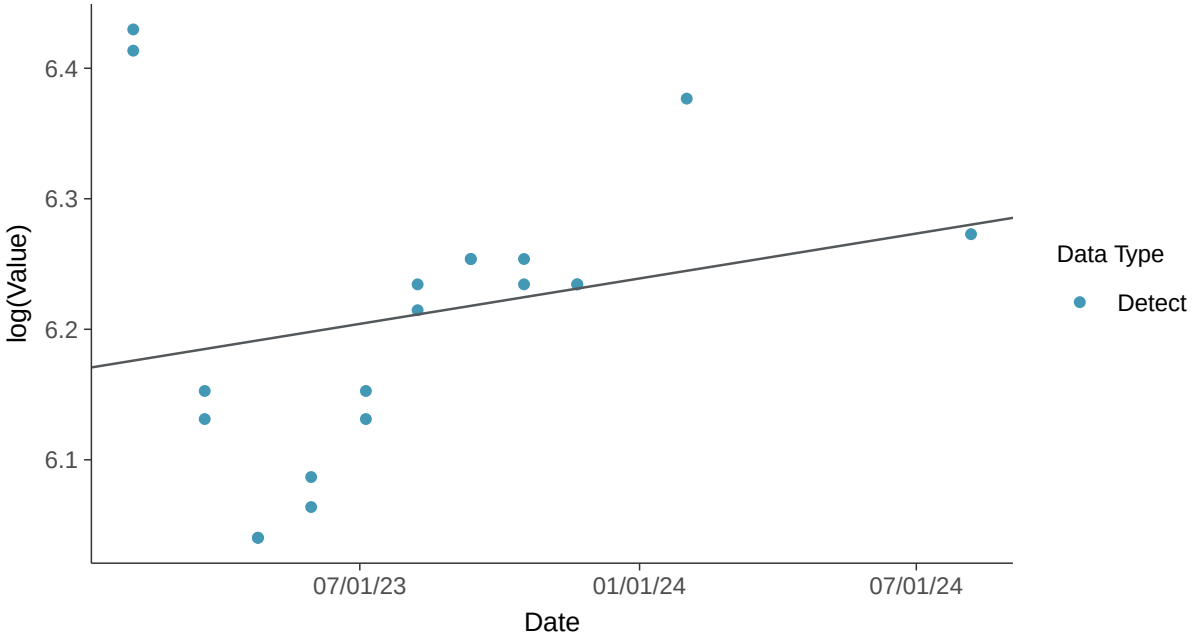
Gamma Q-Q plot

Bicarbonate, MW-16A (mg/L)



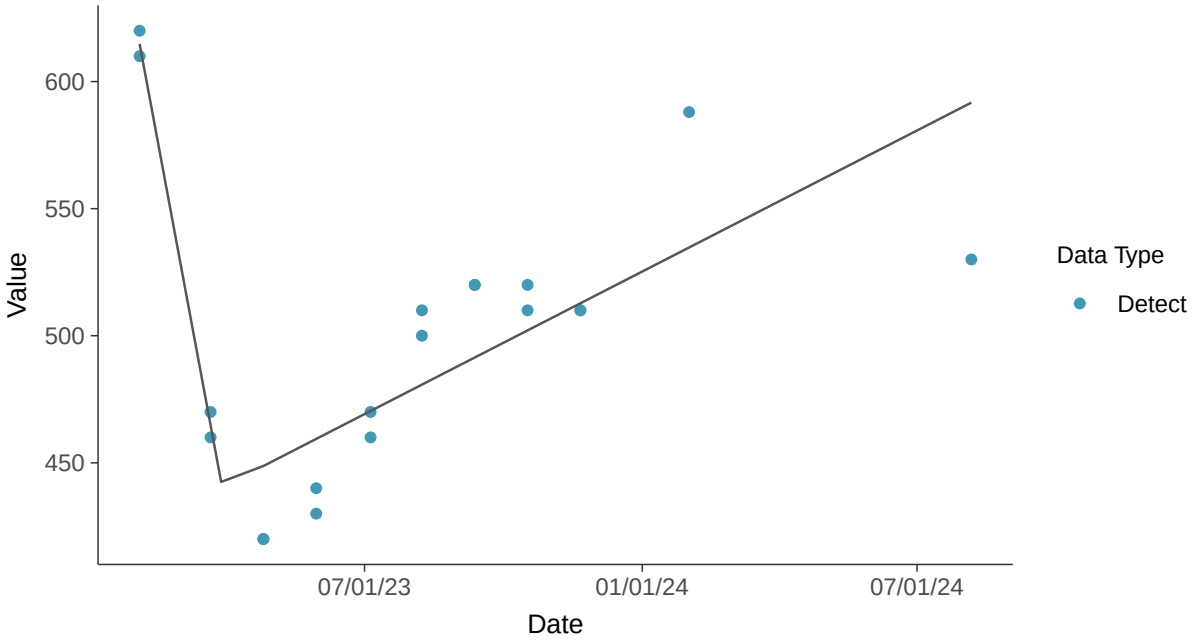
Trend Regression: Lognormal MLE

Bicarbonate, MW-16A (mg/L)



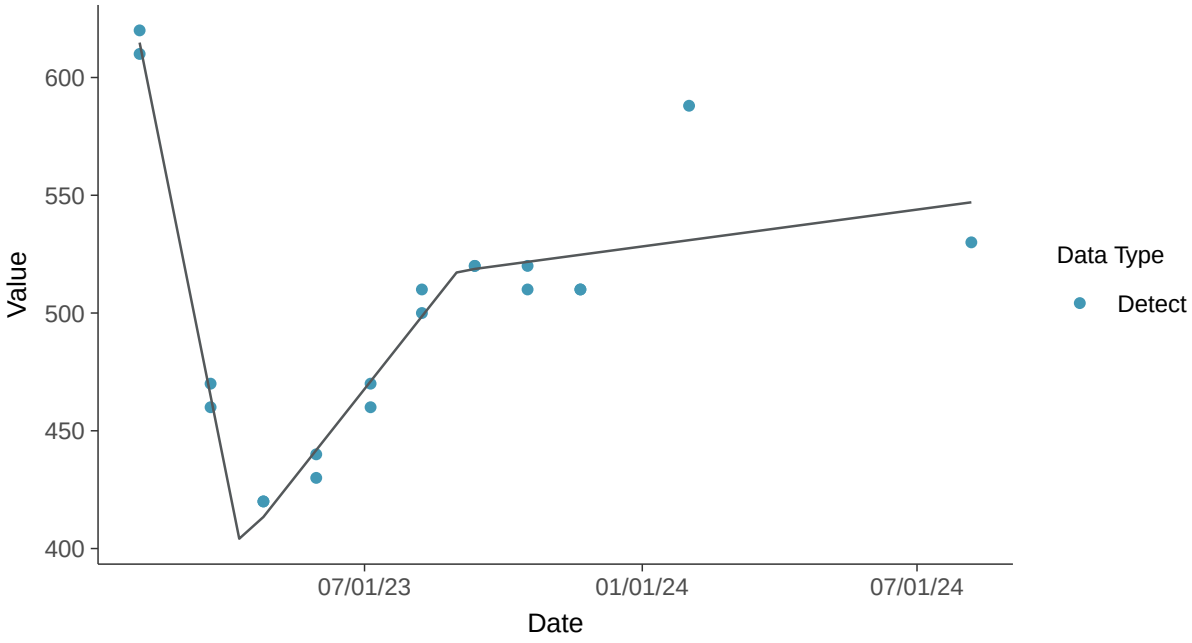
Trend Regression: Piecewise Linear-Linear

Bicarbonate, MW-16A (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Bicarbonate, MW-16A (mg/L)

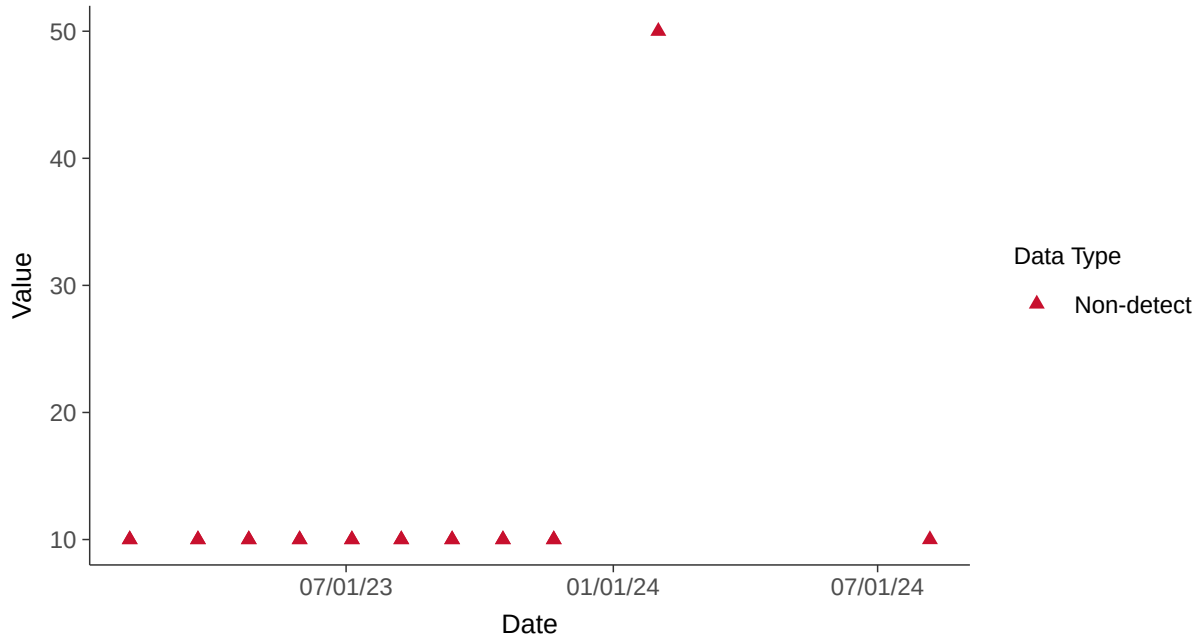


Other: Carbonate, MW-16A

ID: 16A_4_32

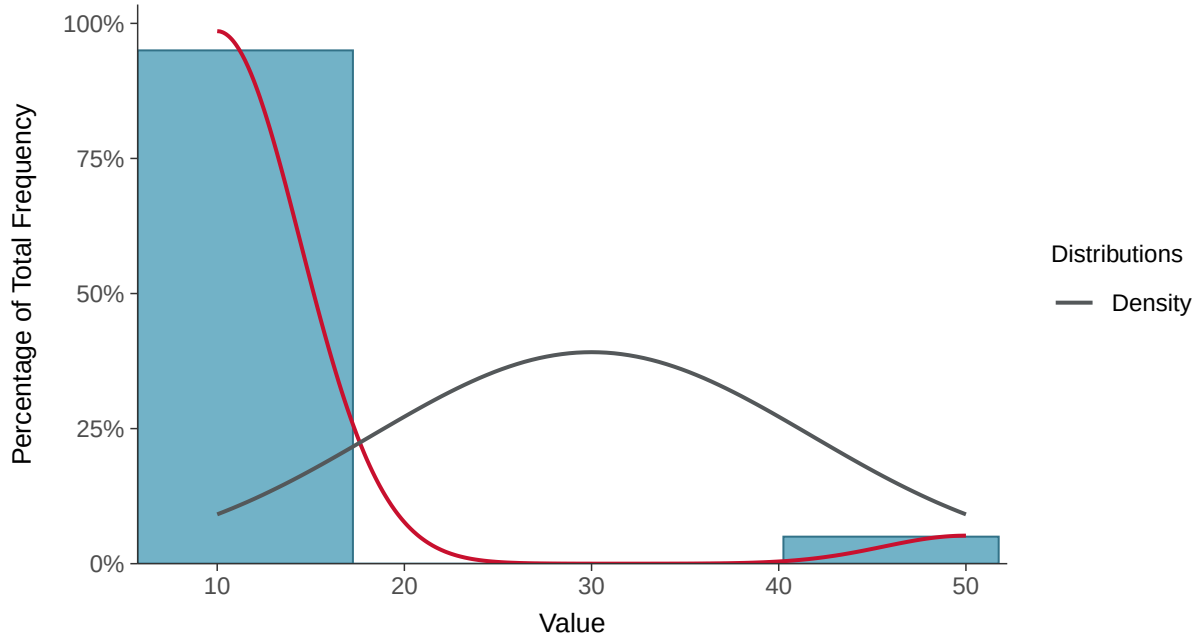
Scatter Plot

Carbonate, MW-16A (mg/L)



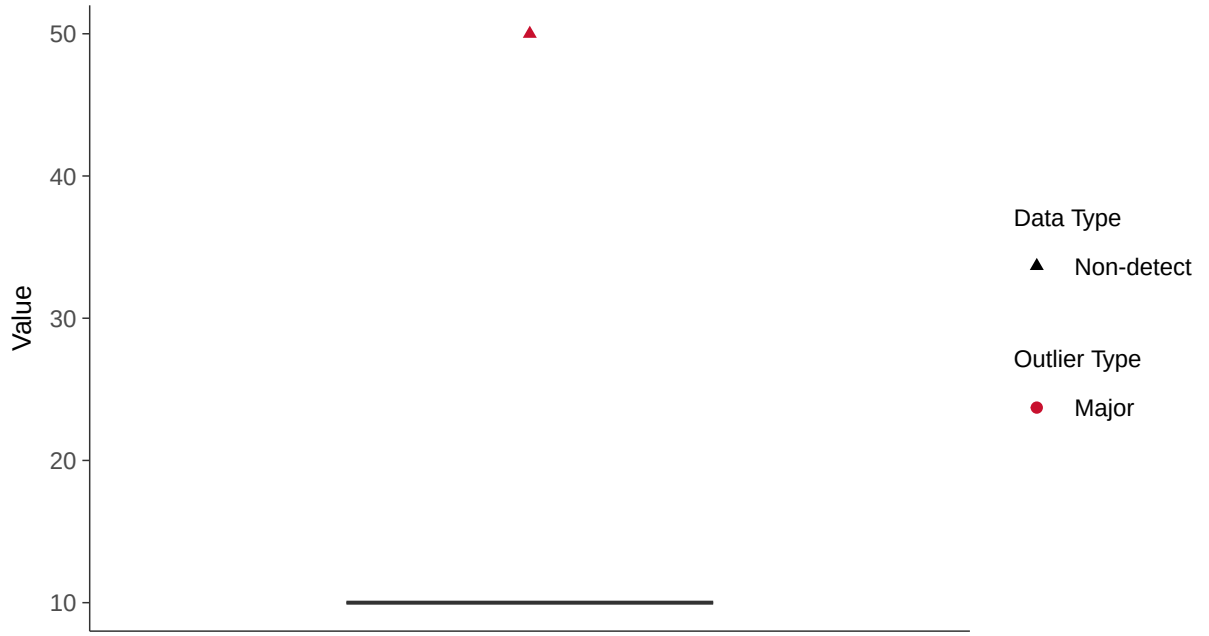
Histogram

Carbonate, MW-16A (mg/L)



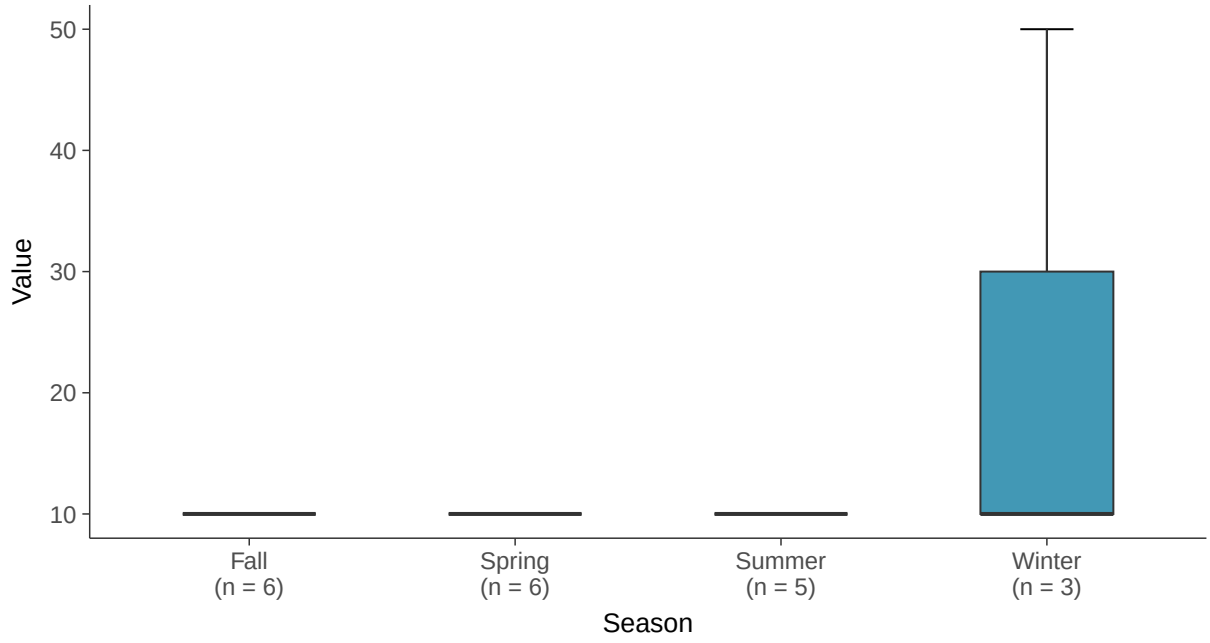
Boxplot

Carbonate, MW-16A (mg/L)



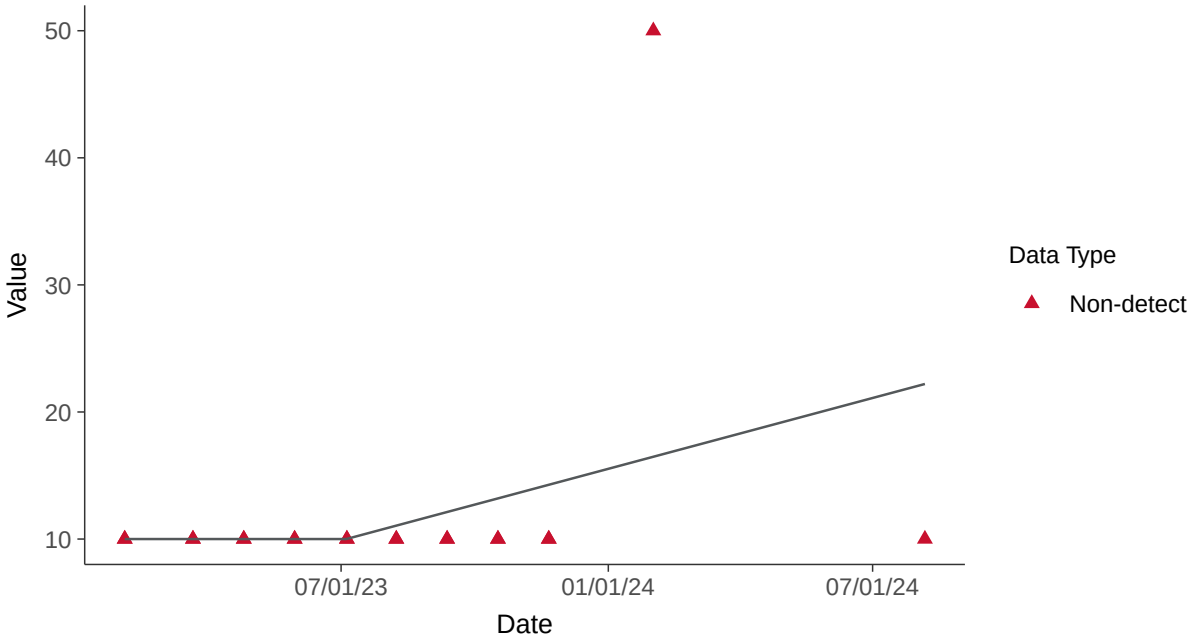
Boxplot by Season

Carbonate, MW-16A (mg/L)



Trend Regression: Piecewise Linear-Linear

Carbonate, MW-16A (mg/L)

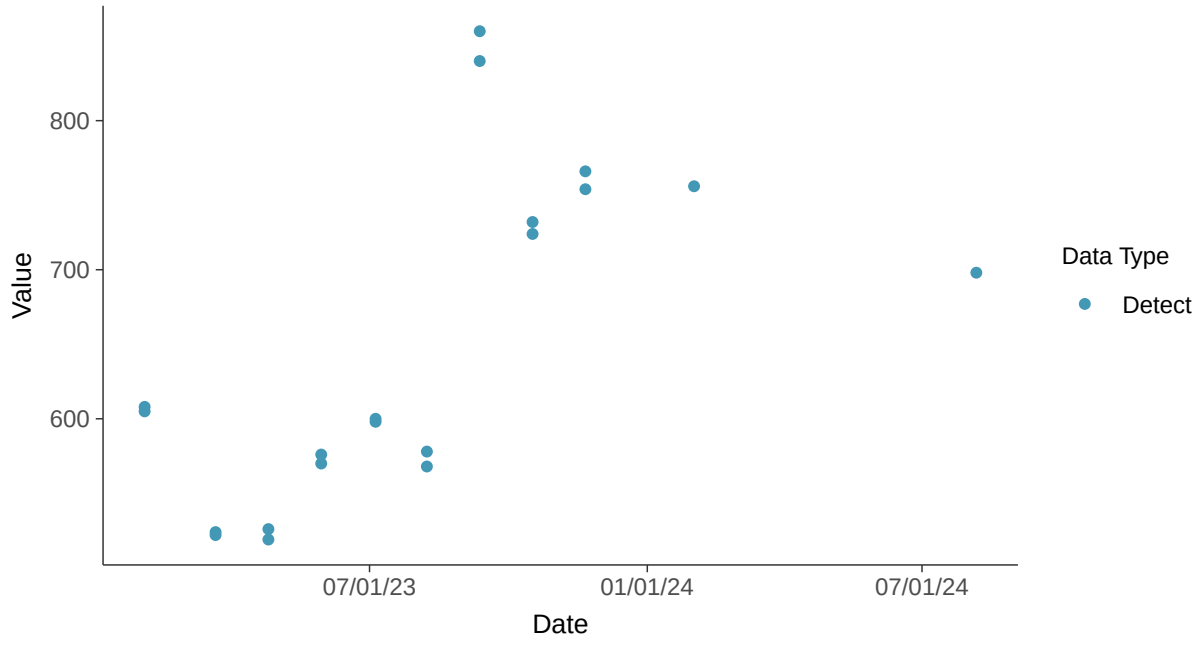


Other: Hardness, MW-16A

ID: 16A_4_33

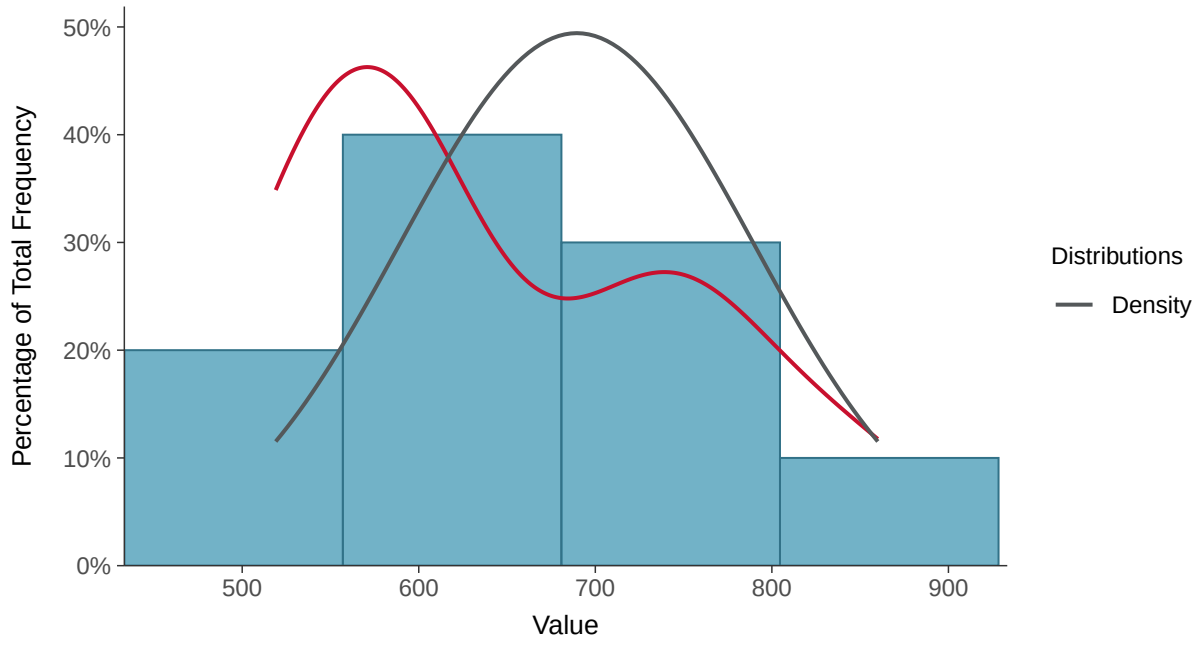
Scatter Plot

Hardness, MW-16A (mg/L)



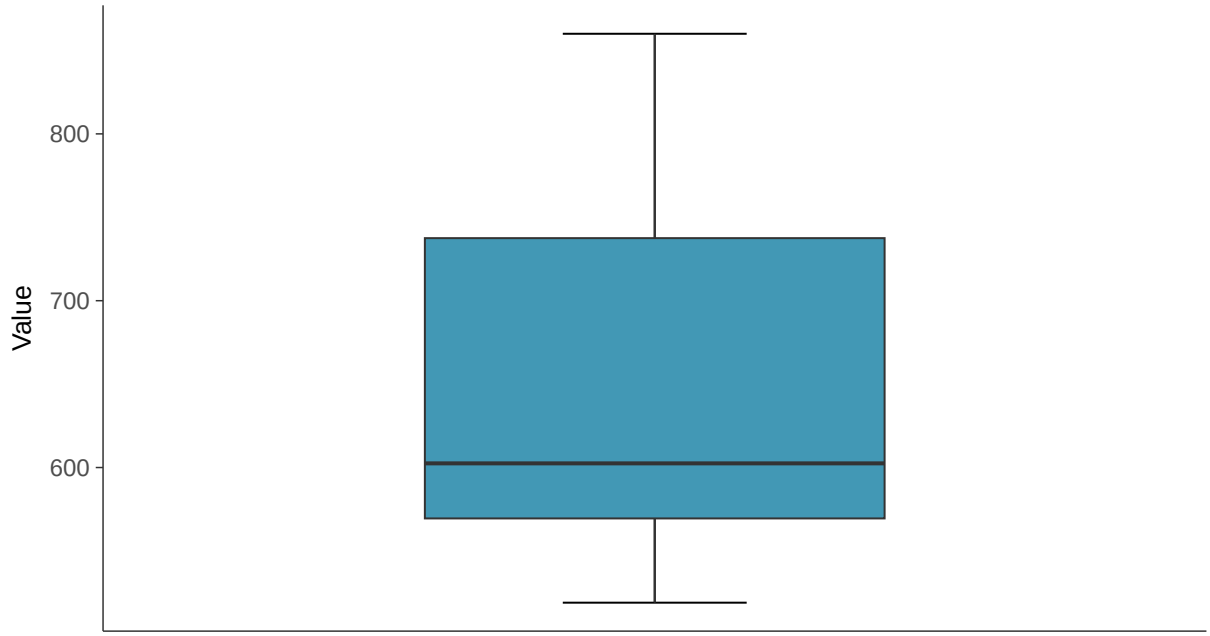
Histogram

Hardness, MW-16A (mg/L)



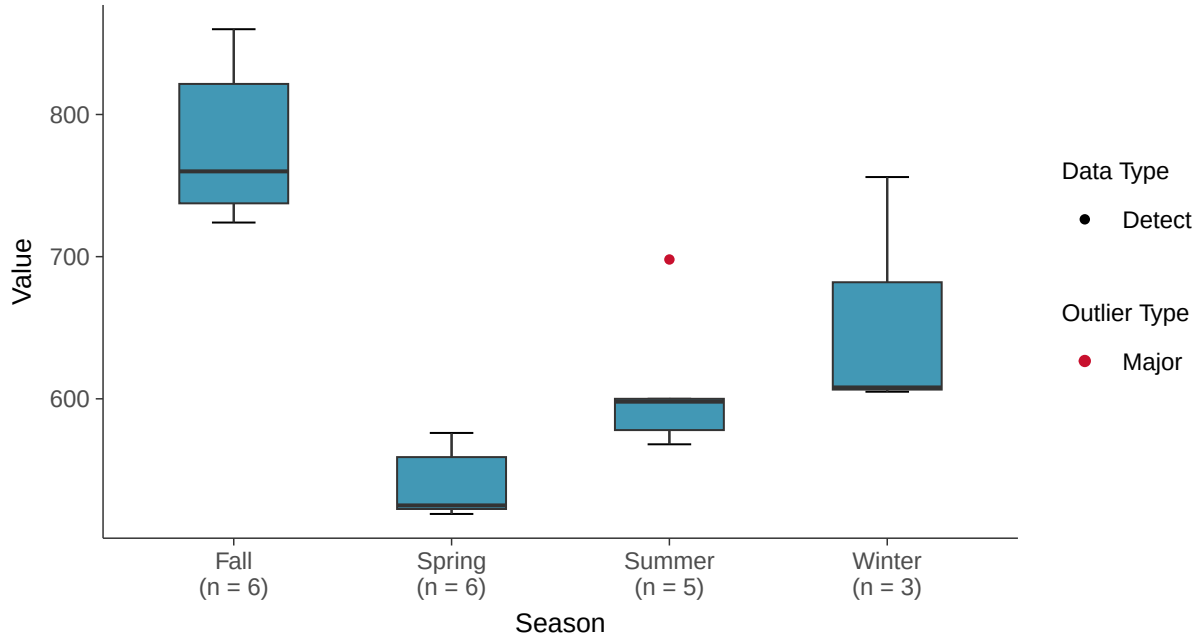
Boxplot

Hardness, MW-16A (mg/L)



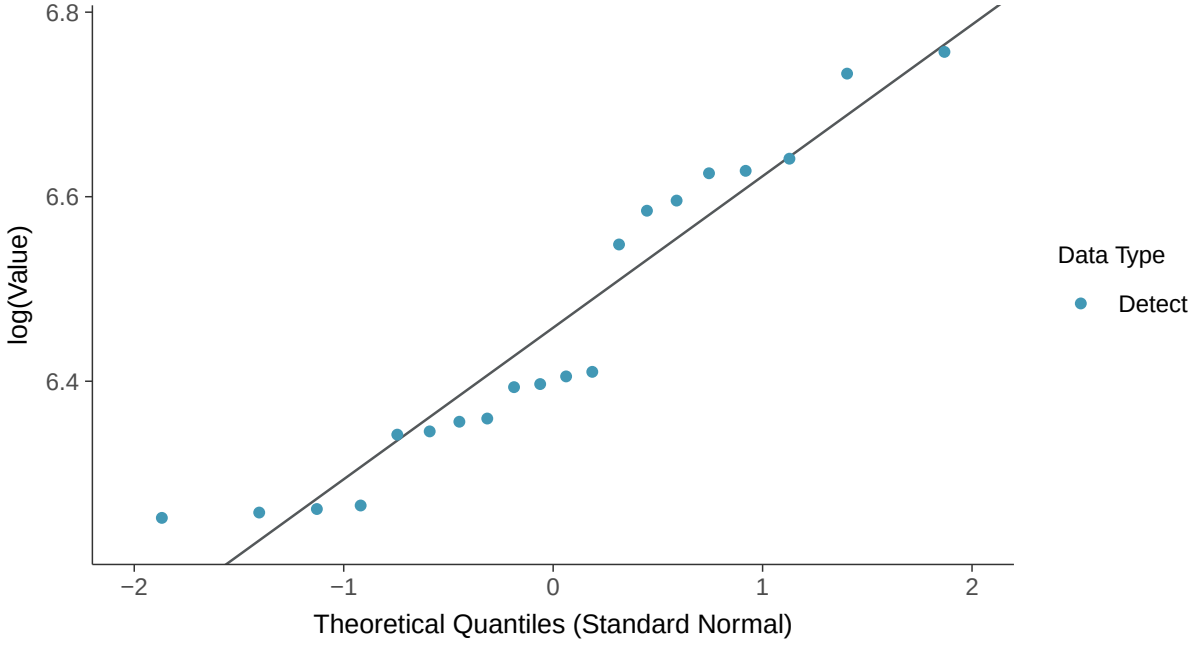
Boxplot by Season

Hardness, MW-16A (mg/L)



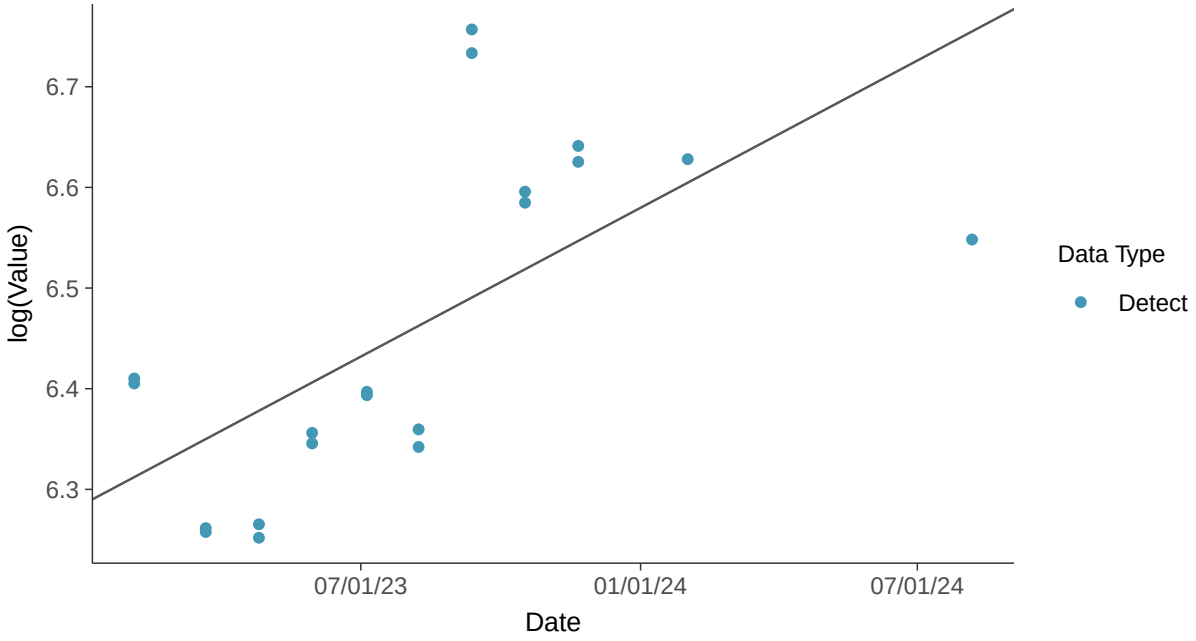
Lognormal Q-Q plot

Hardness, MW-16A (mg/L)



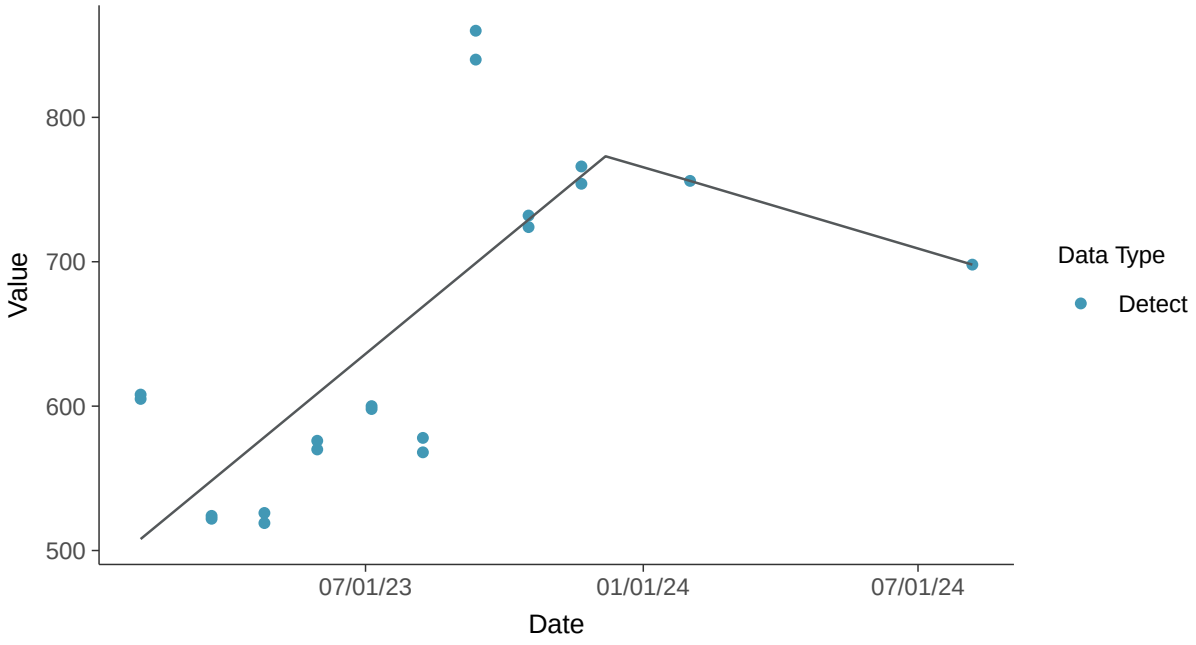
Trend Regression: Lognormal MLE

Hardness, MW-16A (mg/L)



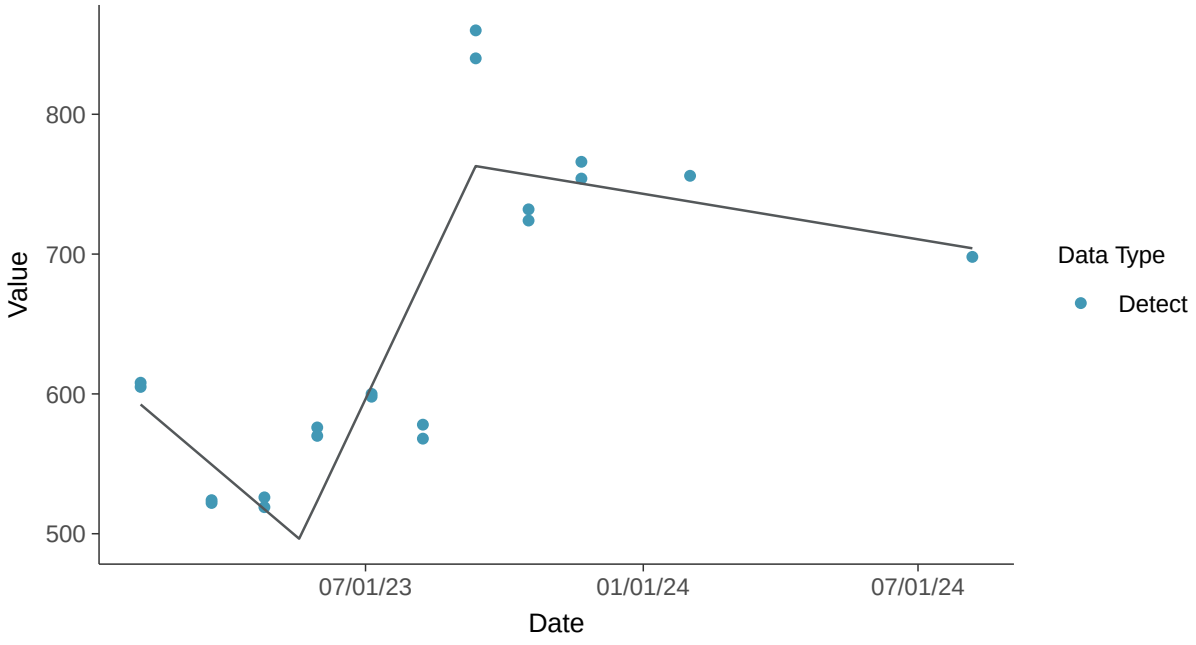
Trend Regression: Piecewise Linear-Linear

Hardness, MW-16A (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Hardness, MW-16A (mg/L)

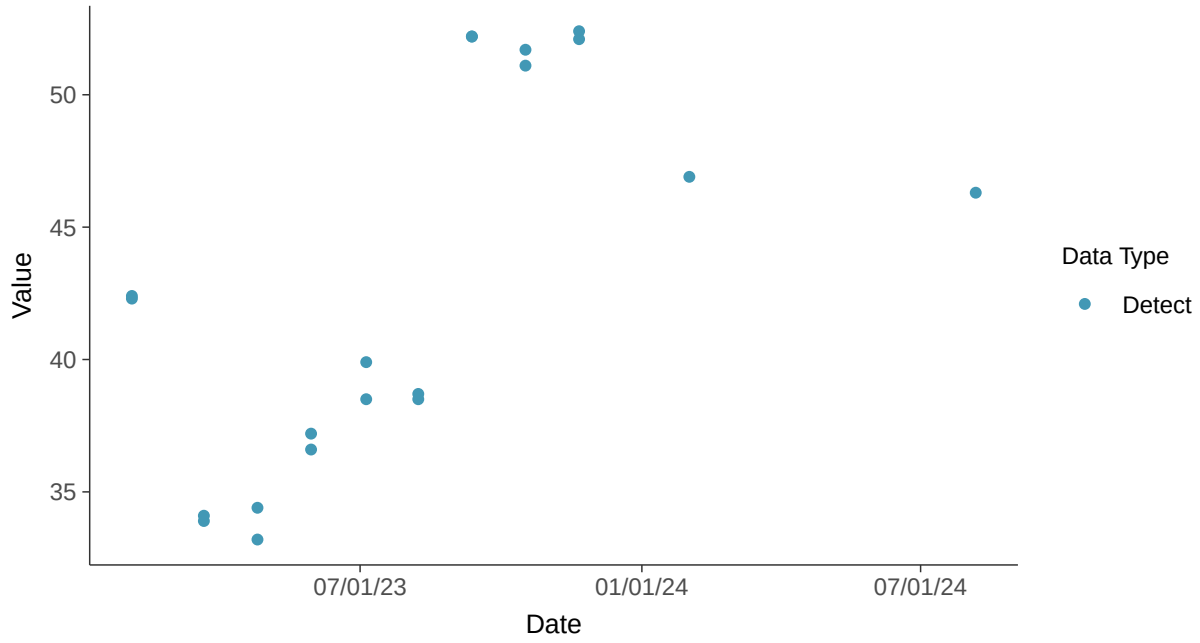


Other: Magnesium, MW-16A

ID: 16A_4_34

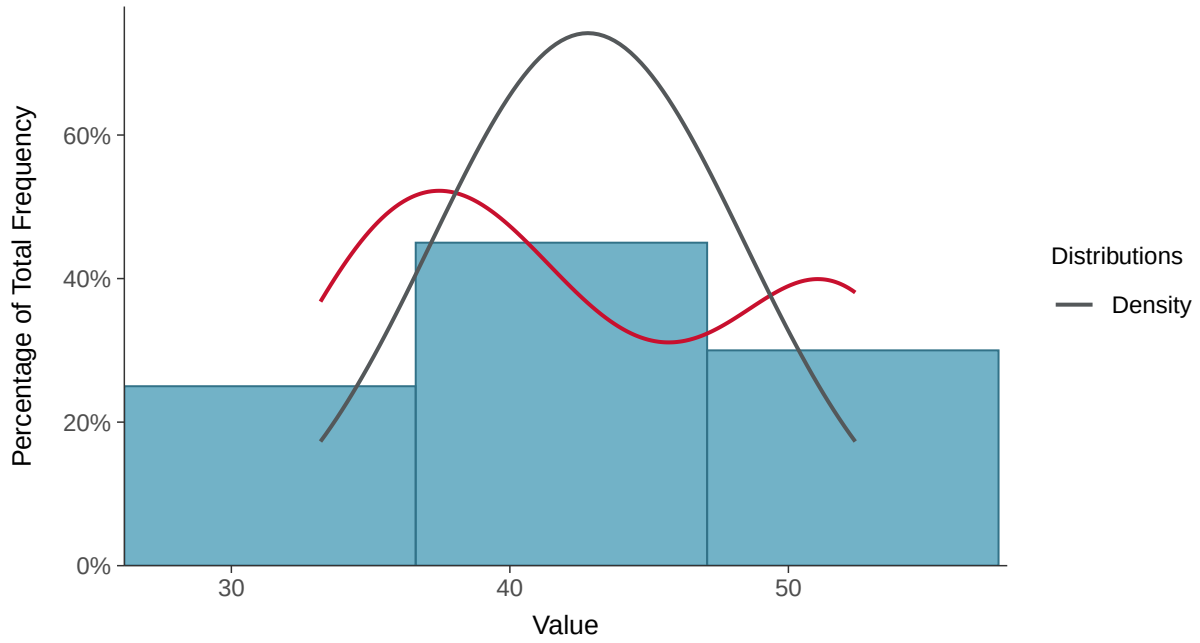
Scatter Plot

Magnesium, MW-16A (mg/L)



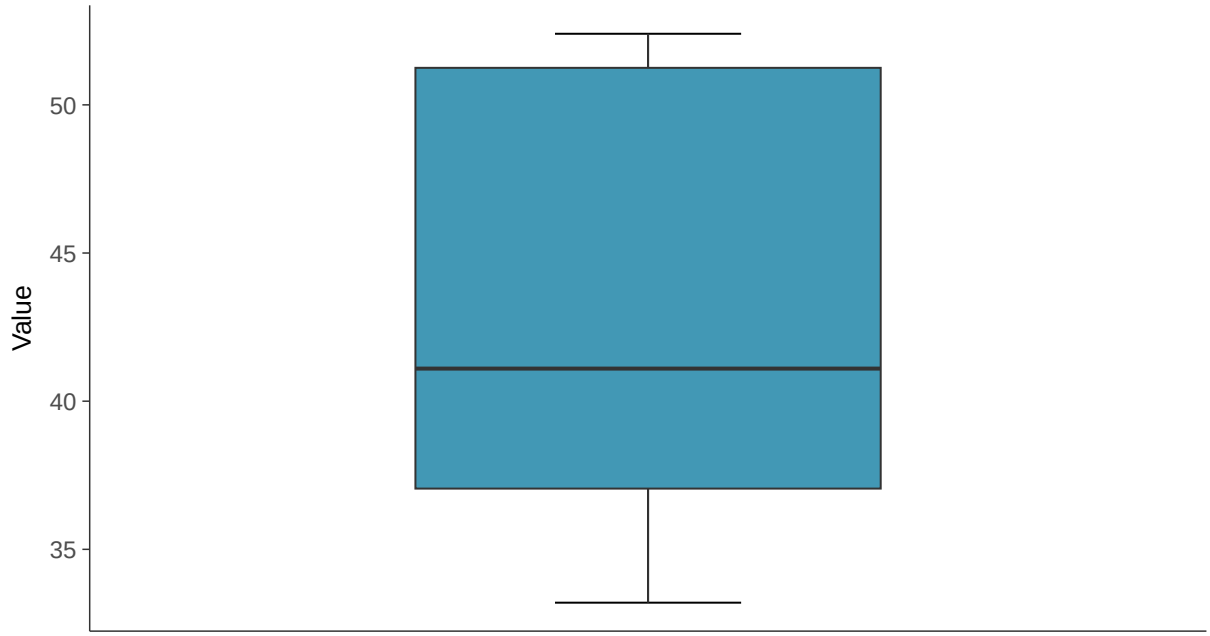
Histogram

Magnesium, MW-16A (mg/L)



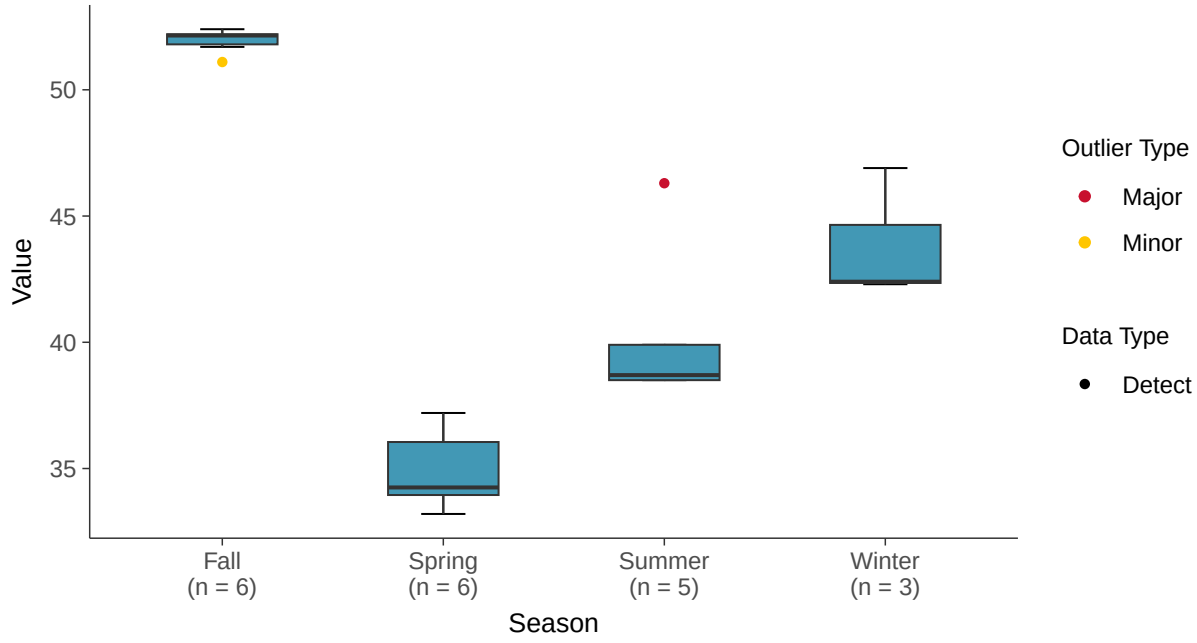
Boxplot

Magnesium, MW-16A (mg/L)



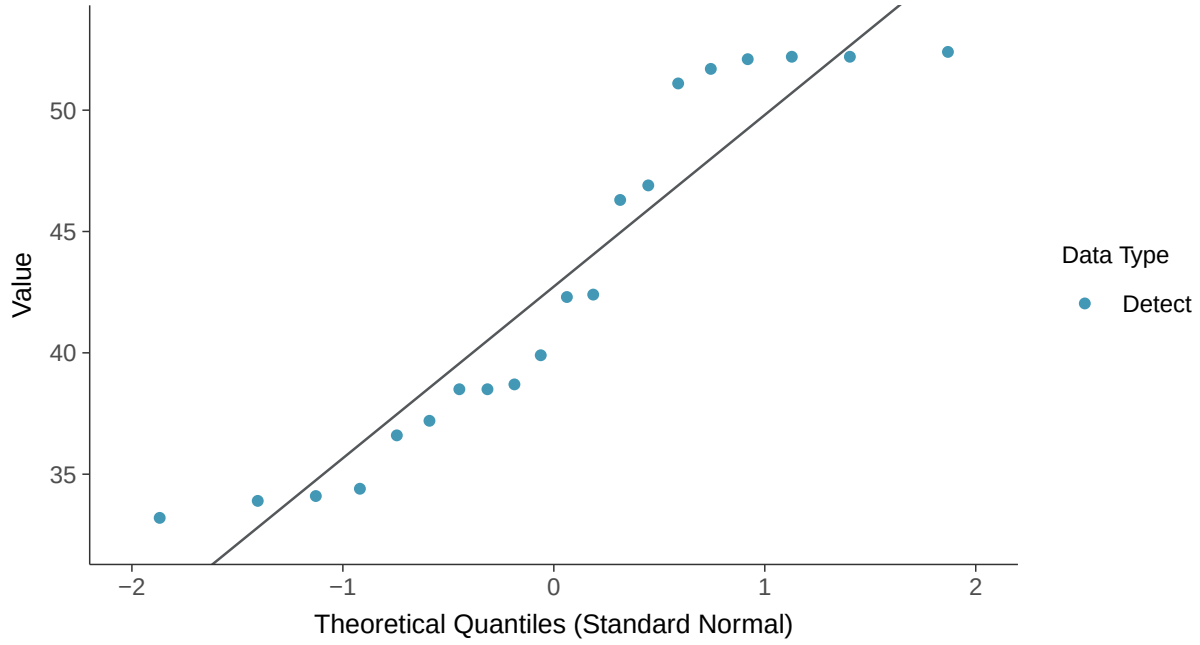
Boxplot by Season

Magnesium, MW-16A (mg/L)



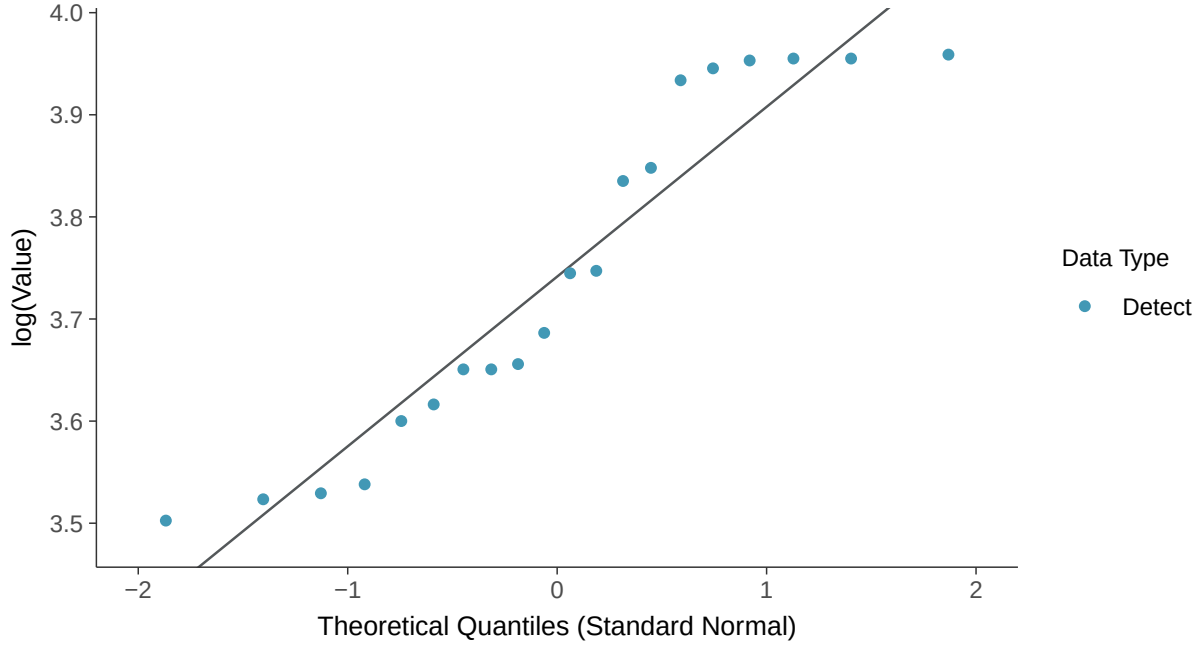
Normal Q-Q plot

Magnesium, MW-16A (mg/L)



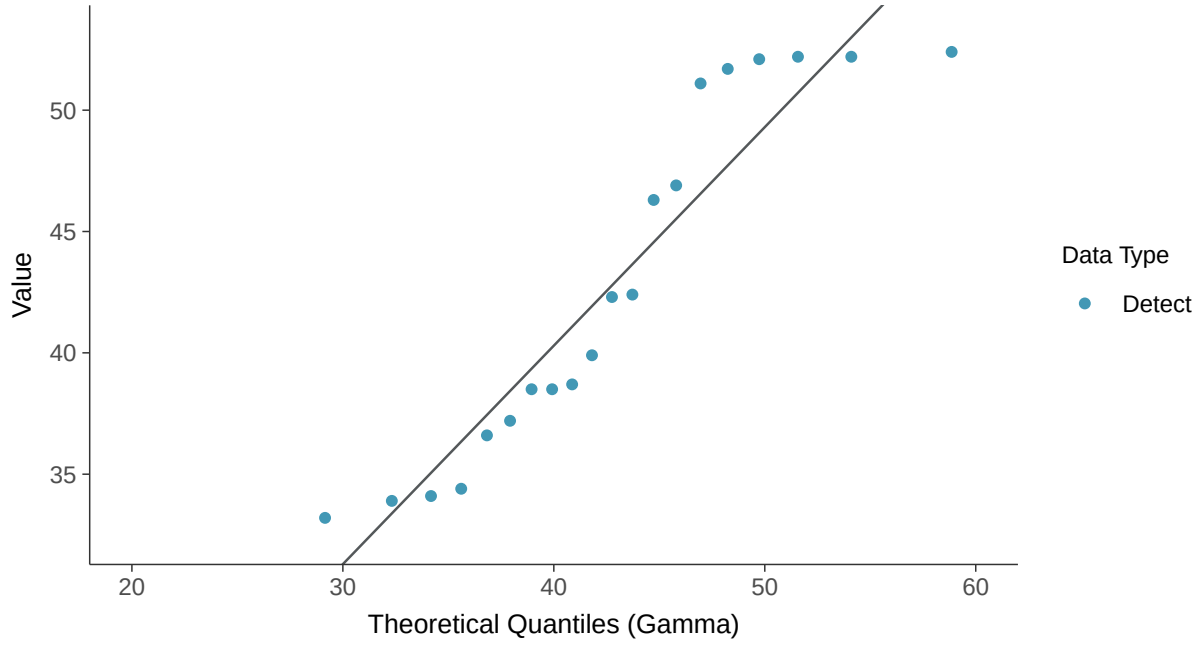
Lognormal Q-Q plot

Magnesium, MW-16A (mg/L)



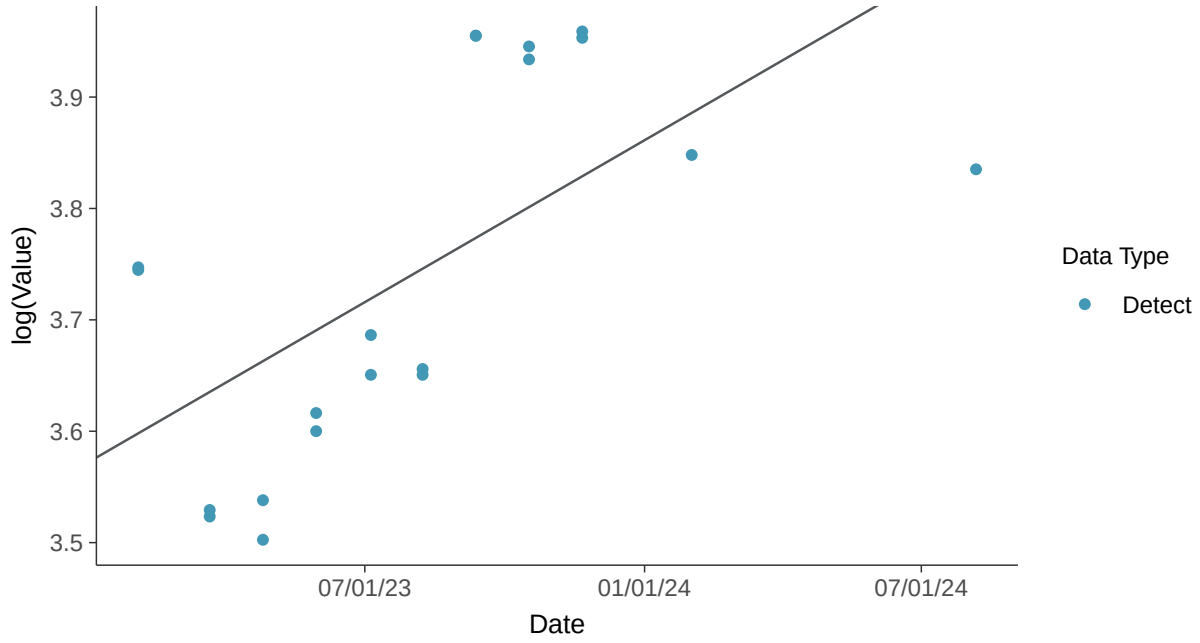
Gamma Q-Q plot

Magnesium, MW-16A (mg/L)



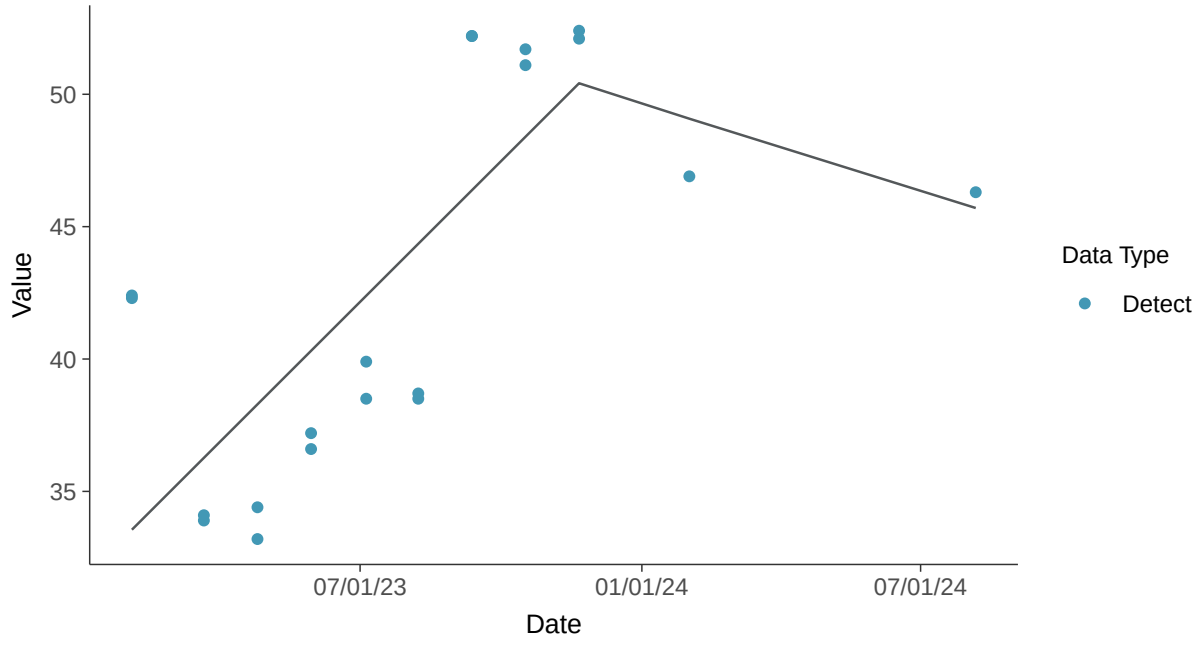
Trend Regression: Lognormal MLE

Magnesium, MW-16A (mg/L)



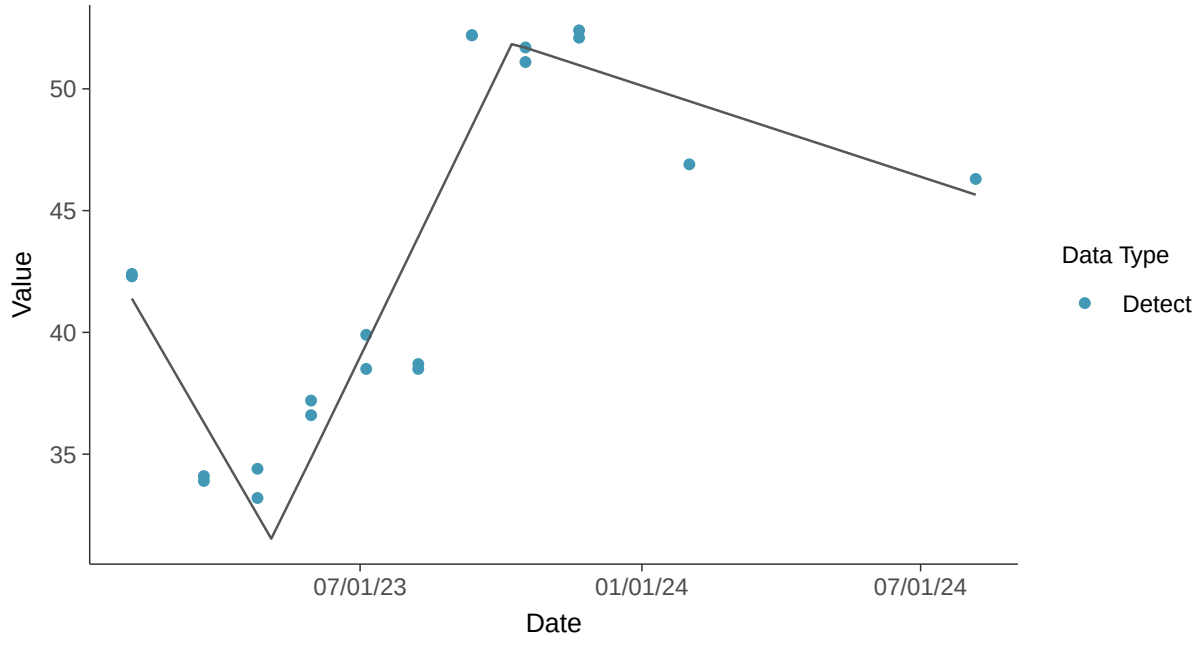
Trend Regression: Piecewise Linear-Linear

Magnesium, MW-16A (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Magnesium, MW-16A (mg/L)

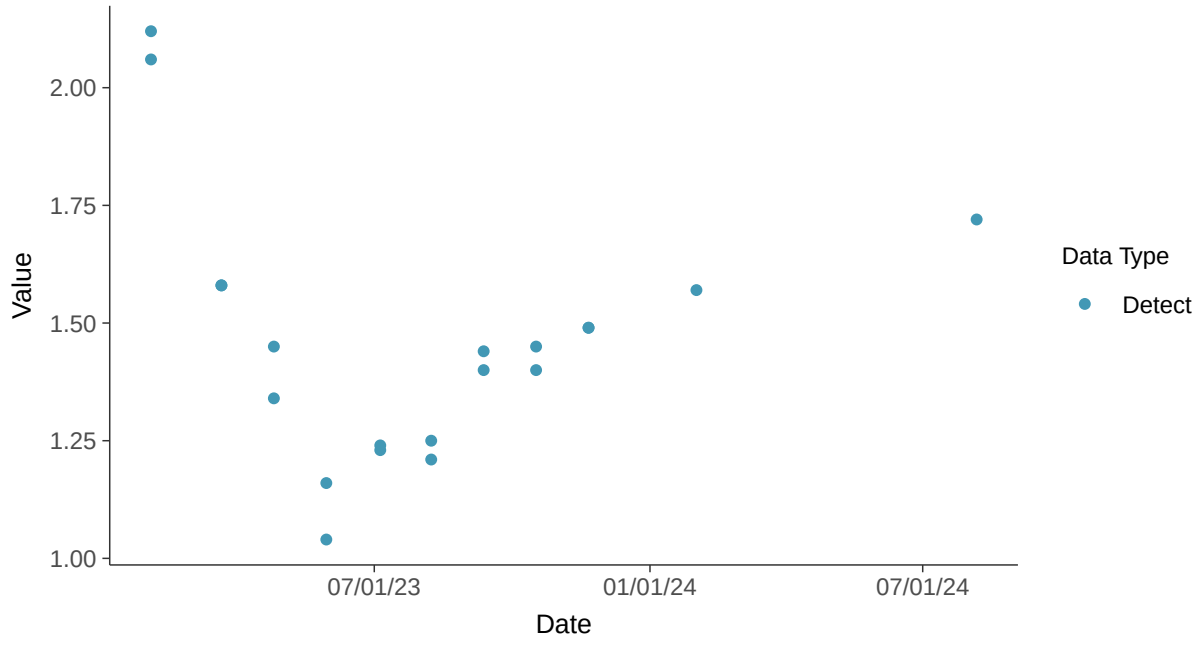


Other: Potassium, MW-16A

ID: 16A_4_35

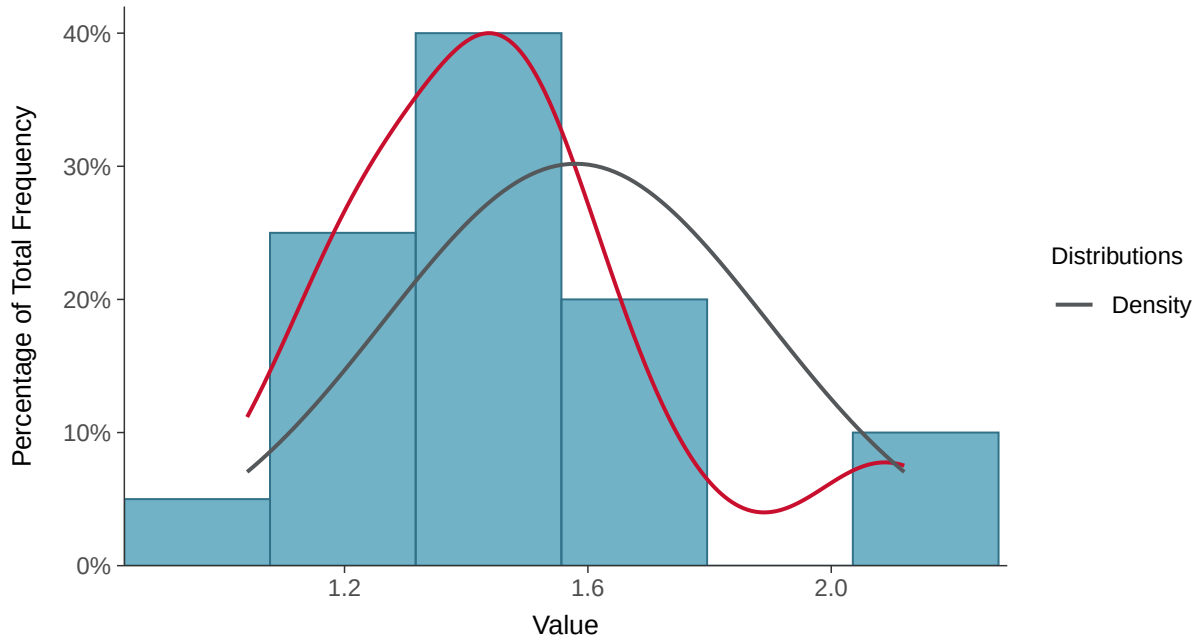
Scatter Plot

Potassium, MW-16A (mg/L)



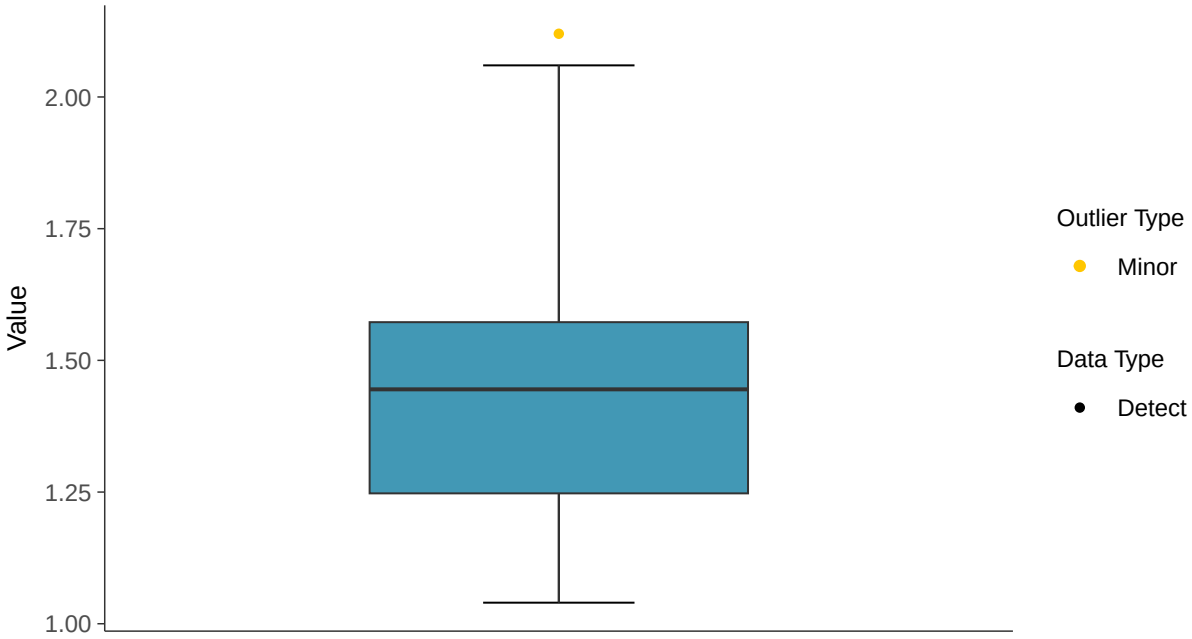
Histogram

Potassium, MW-16A (mg/L)



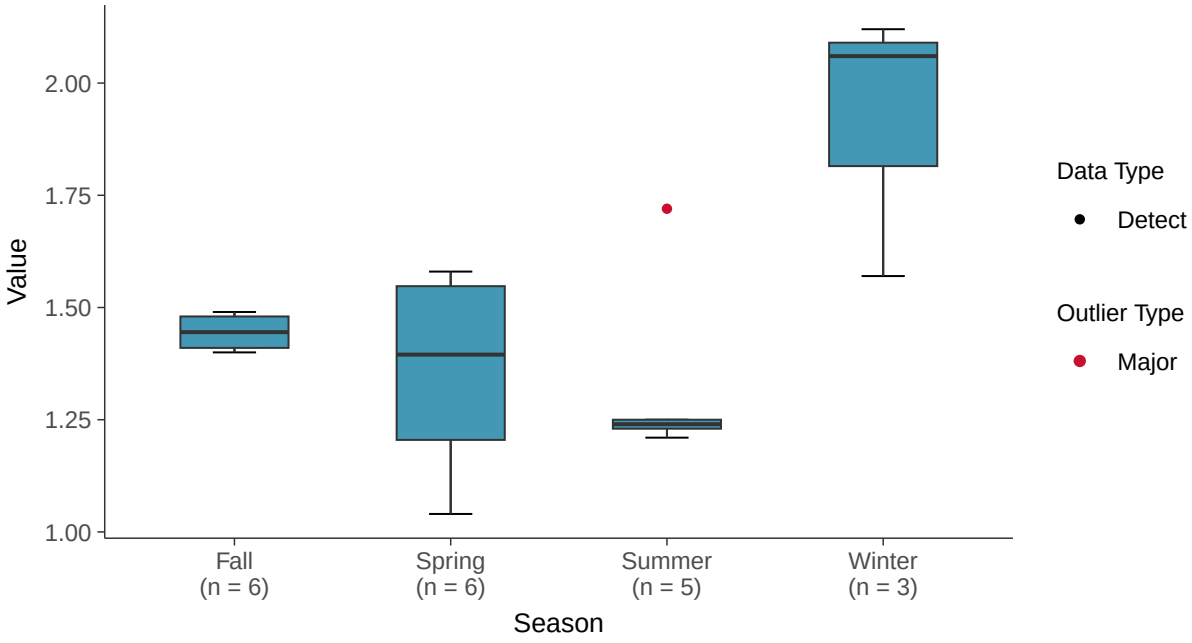
Boxplot

Potassium, MW-16A (mg/L)



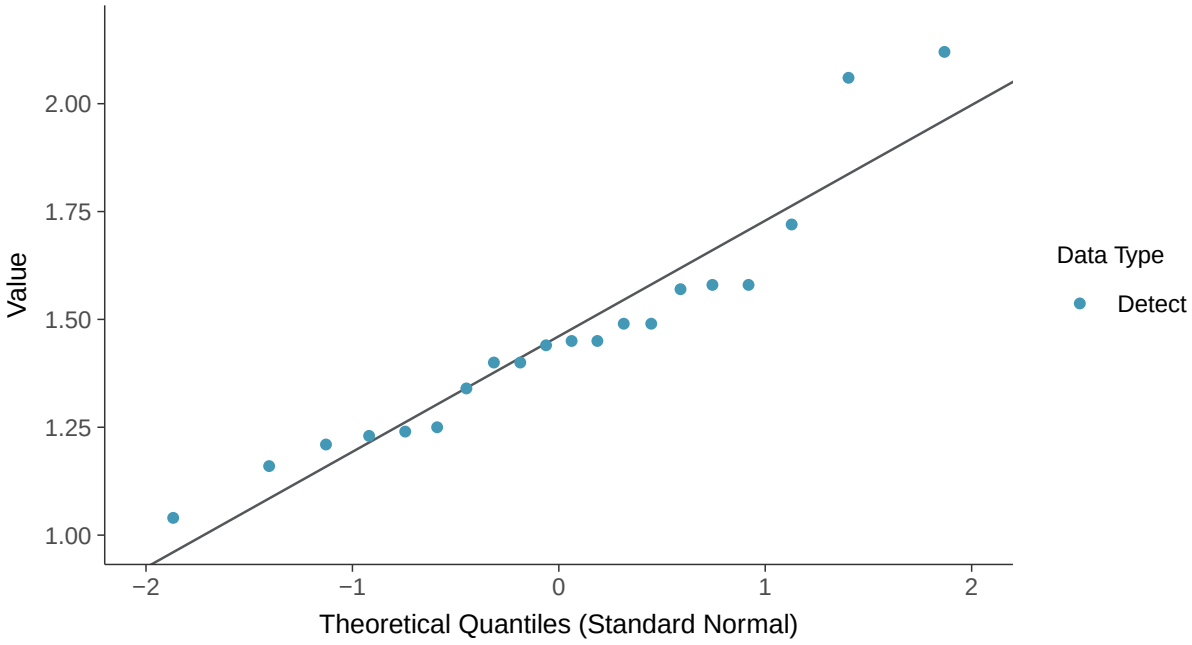
Boxplot by Season

Potassium, MW-16A (mg/L)



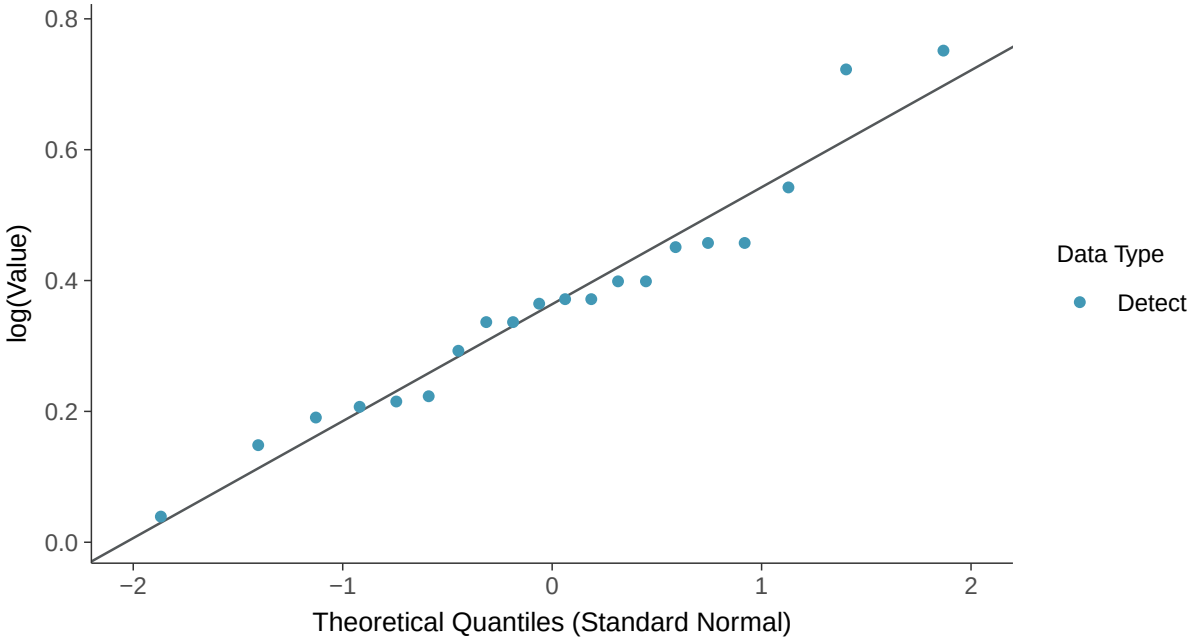
Normal Q-Q plot

Potassium, MW-16A (mg/L)



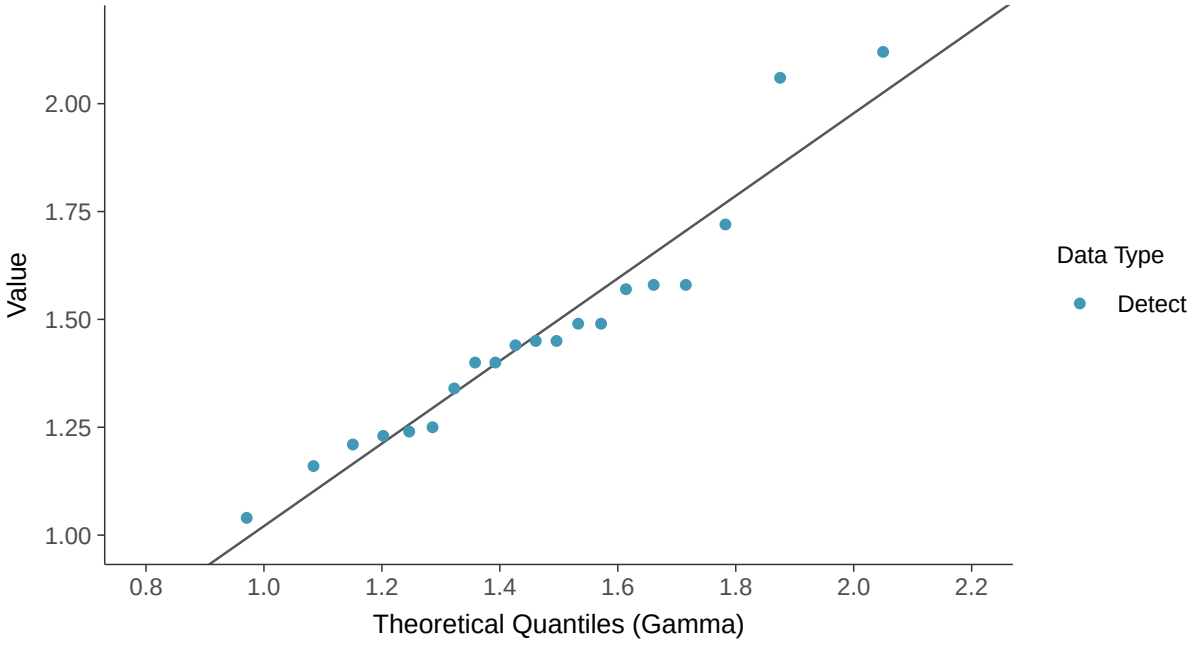
Lognormal Q-Q plot

Potassium, MW-16A (mg/L)



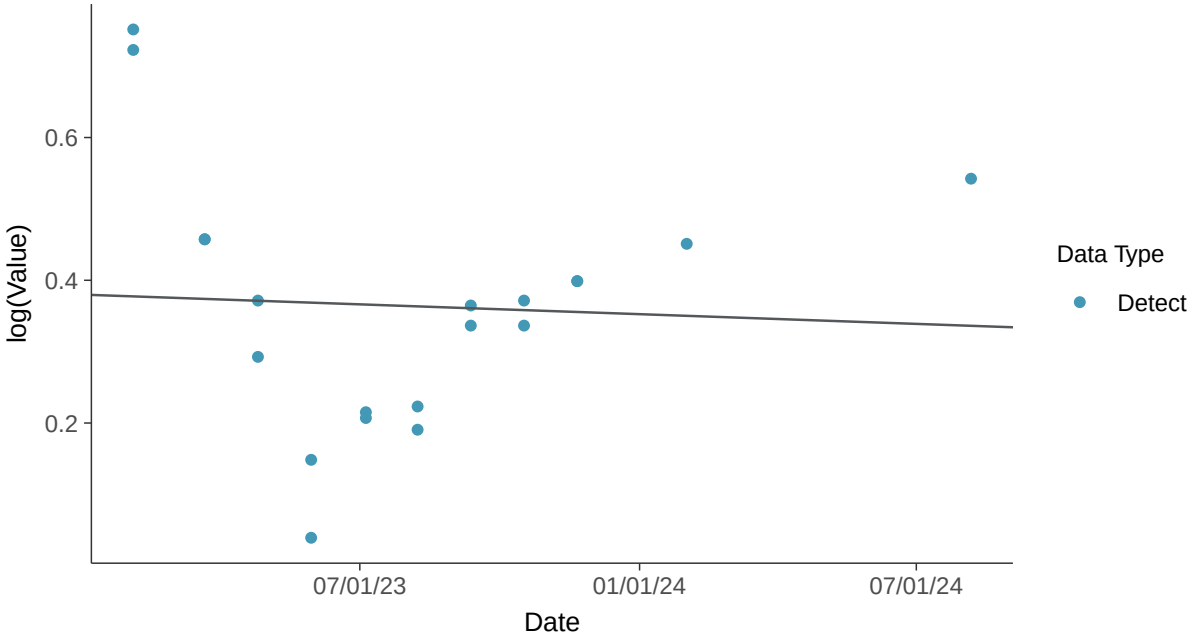
Gamma Q-Q plot

Potassium, MW-16A (mg/L)



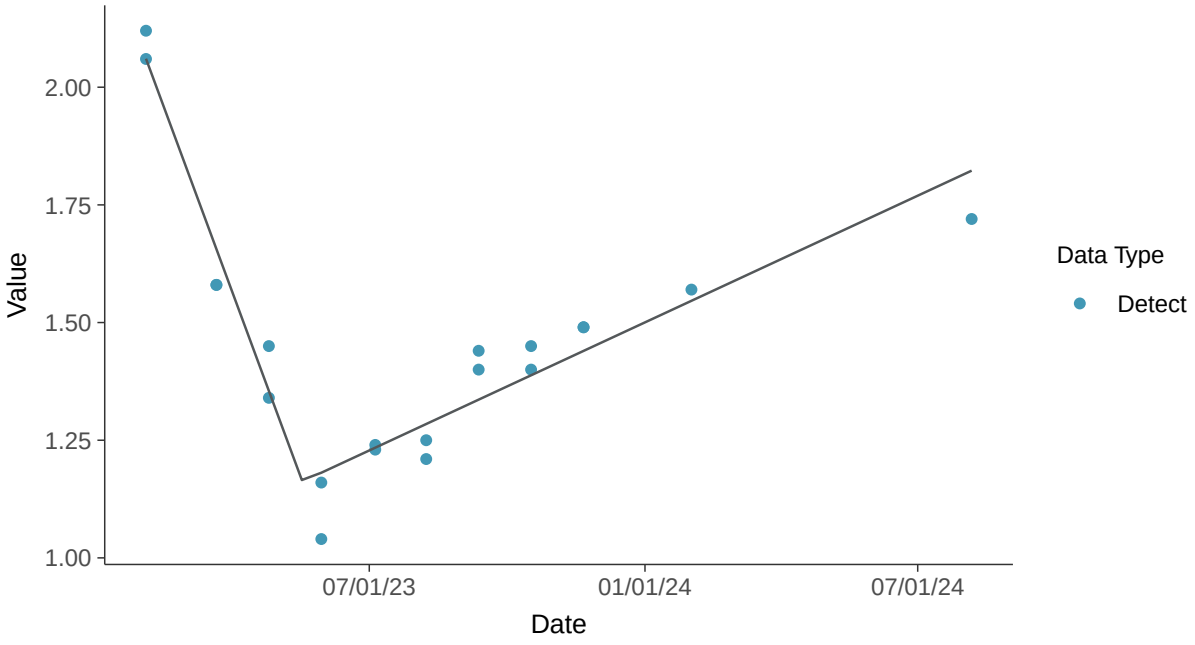
Trend Regression: Lognormal MLE

Potassium, MW-16A (mg/L)



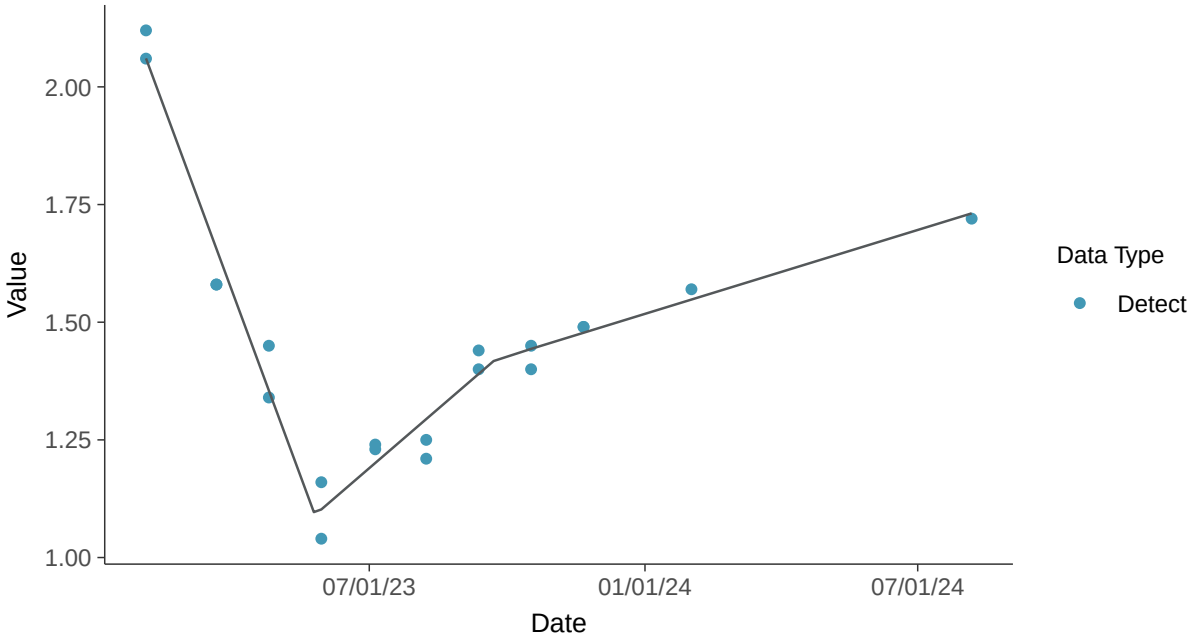
Trend Regression: Piecewise Linear-Linear

Potassium, MW-16A (mg/L)



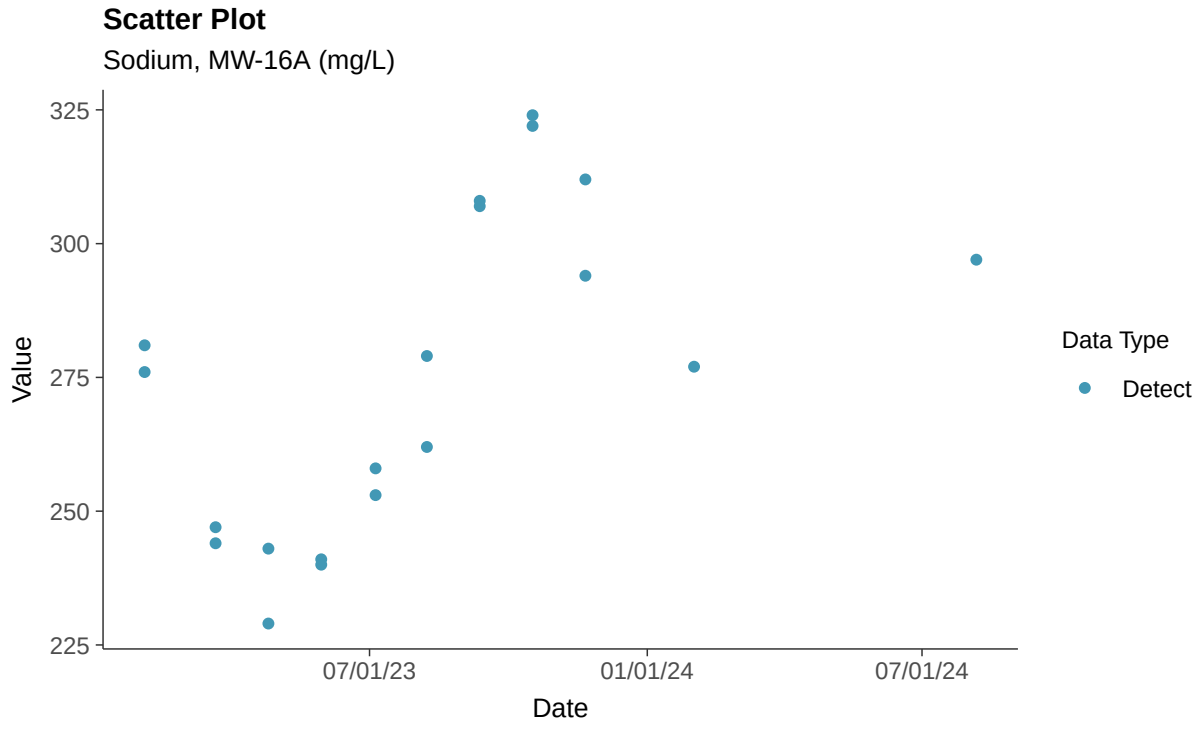
Trend Regression: Piecewise Linear-Linear-Linear

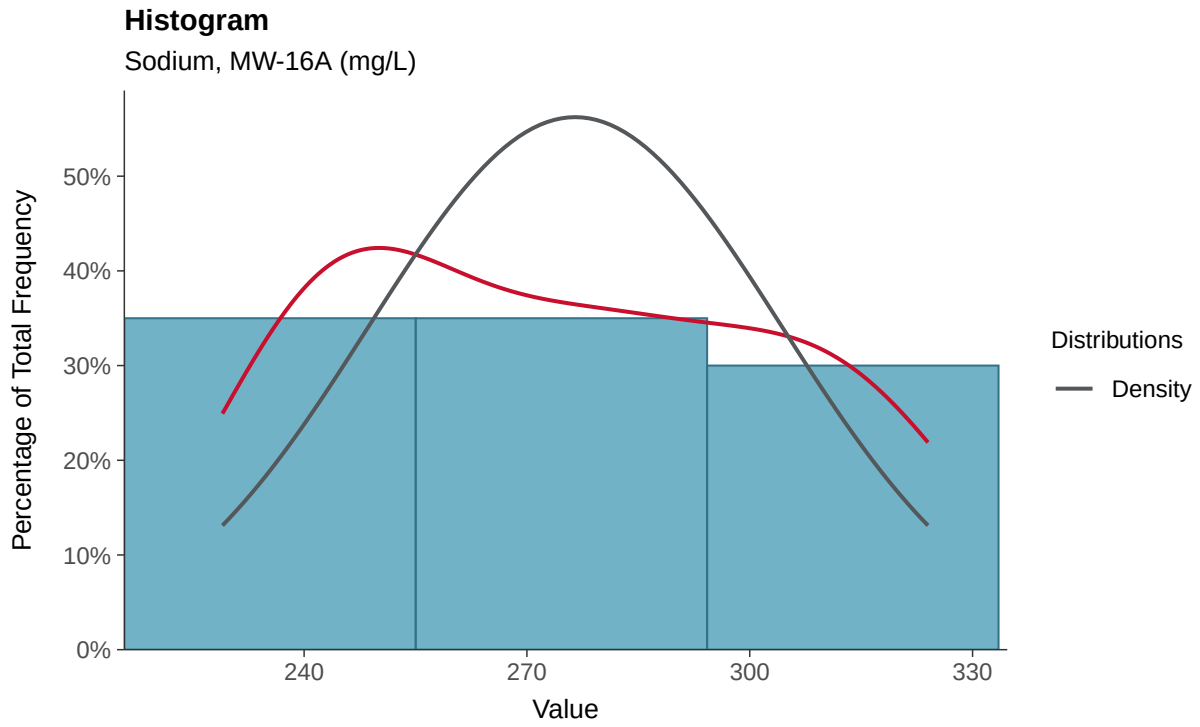
Potassium, MW-16A (mg/L)



Other: Sodium, MW-16A

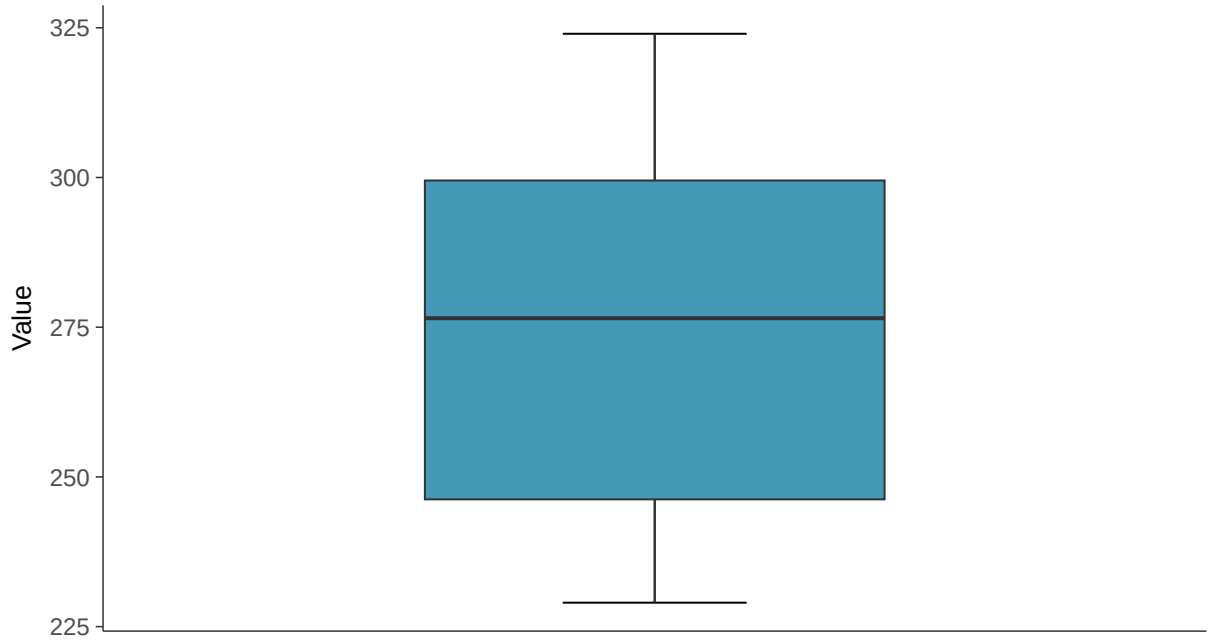
ID: 16A_4_36





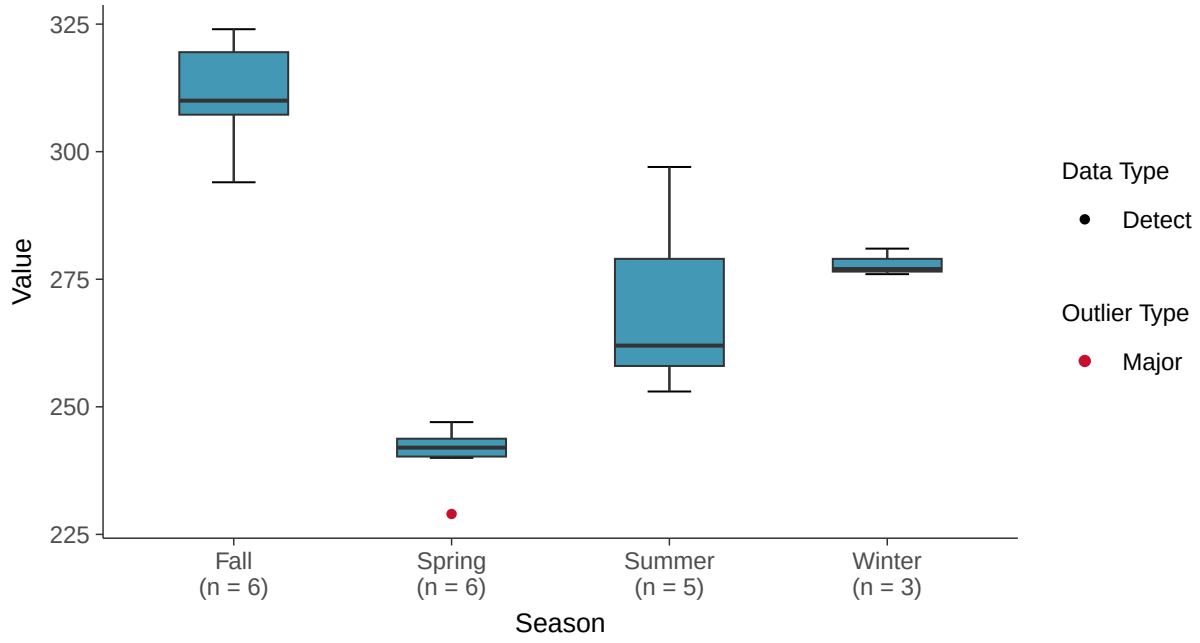
Boxplot

Sodium, MW-16A (mg/L)



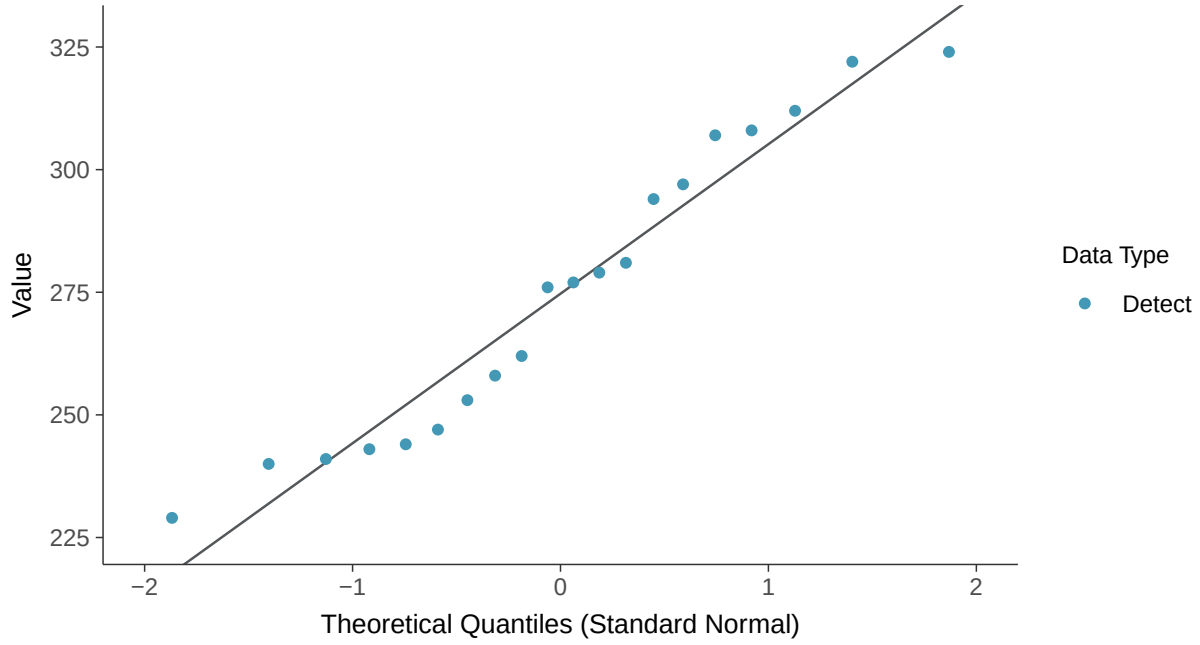
Boxplot by Season

Sodium, MW-16A (mg/L)



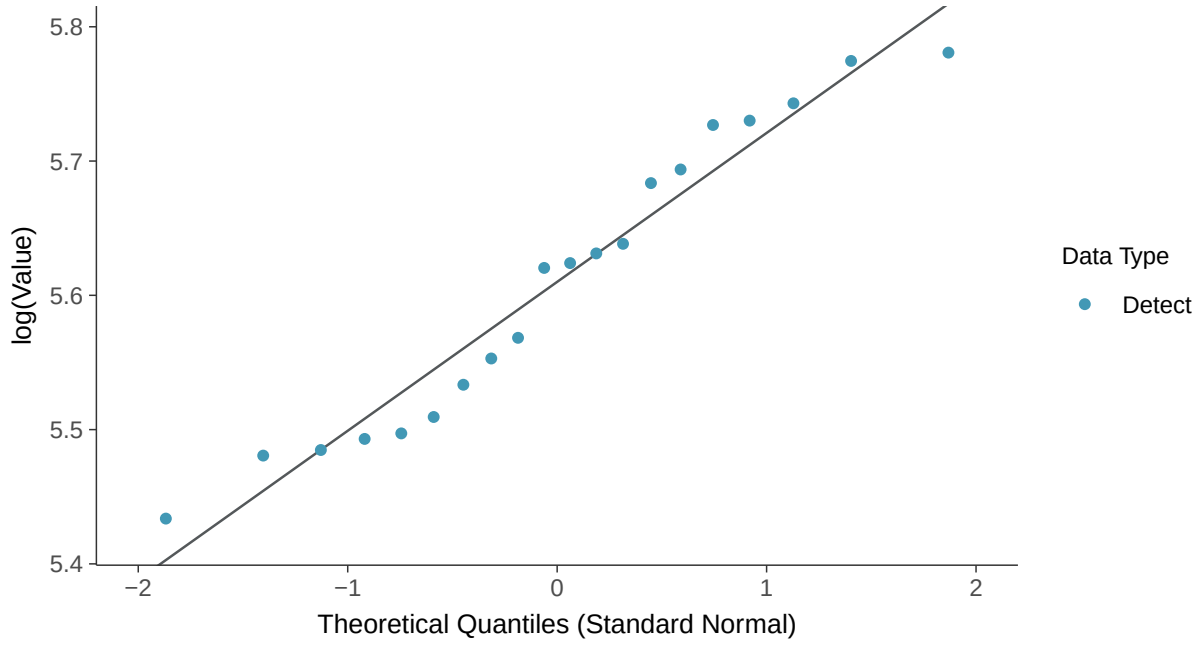
Normal Q-Q plot

Sodium, MW-16A (mg/L)



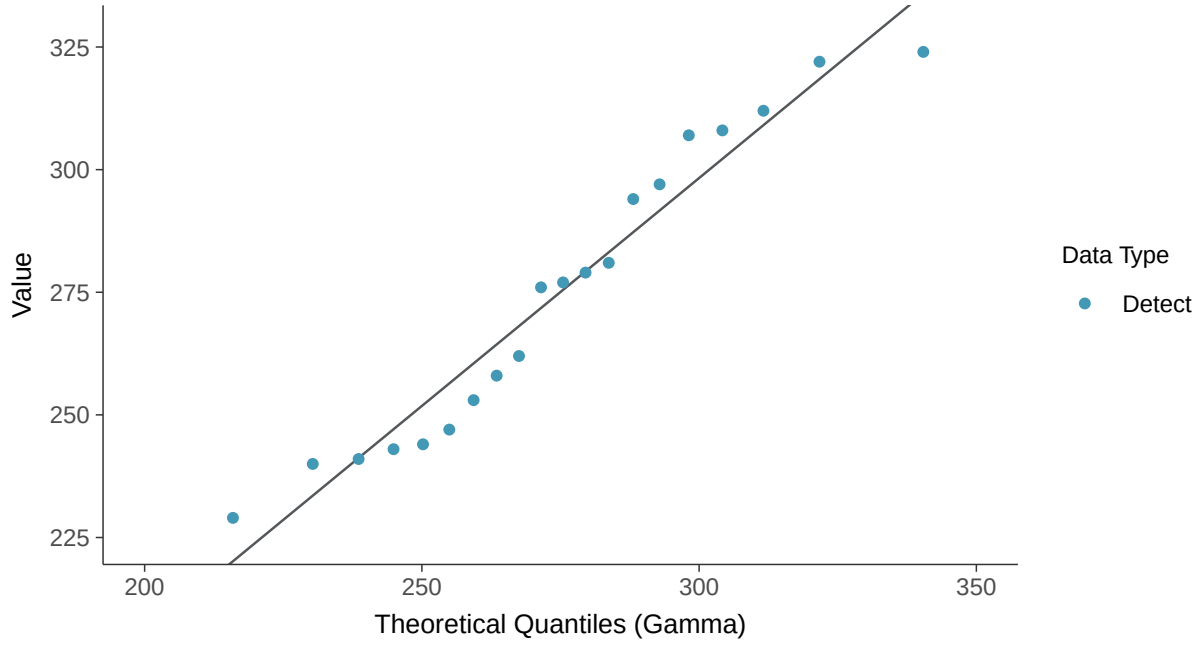
Lognormal Q-Q plot

Sodium, MW-16A (mg/L)



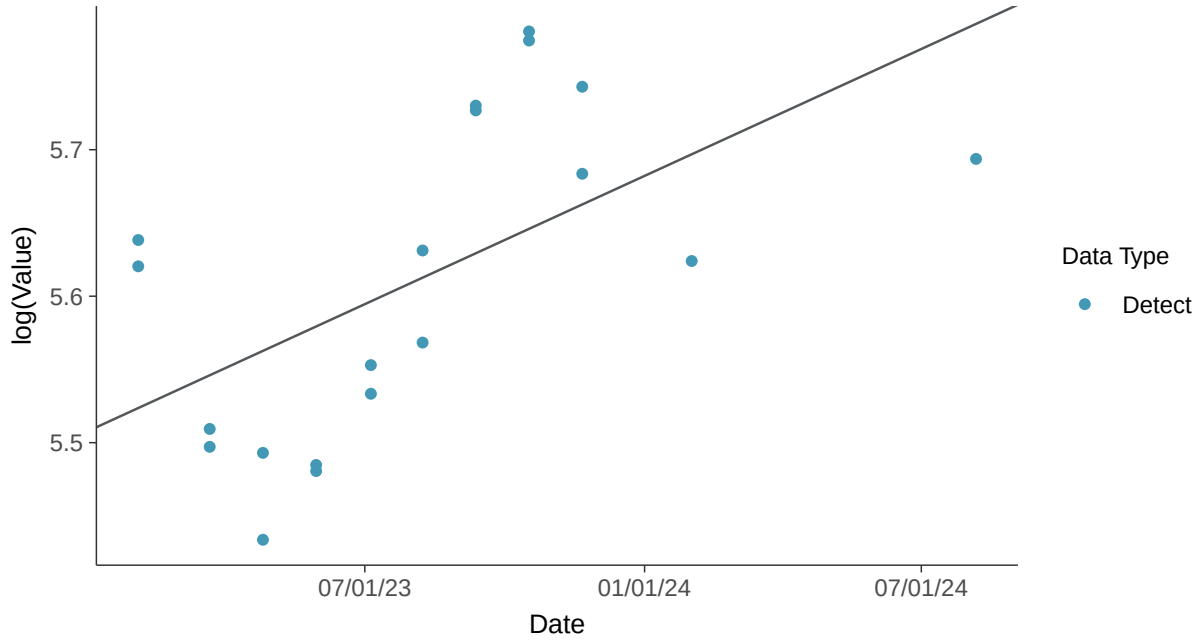
Gamma Q-Q plot

Sodium, MW-16A (mg/L)



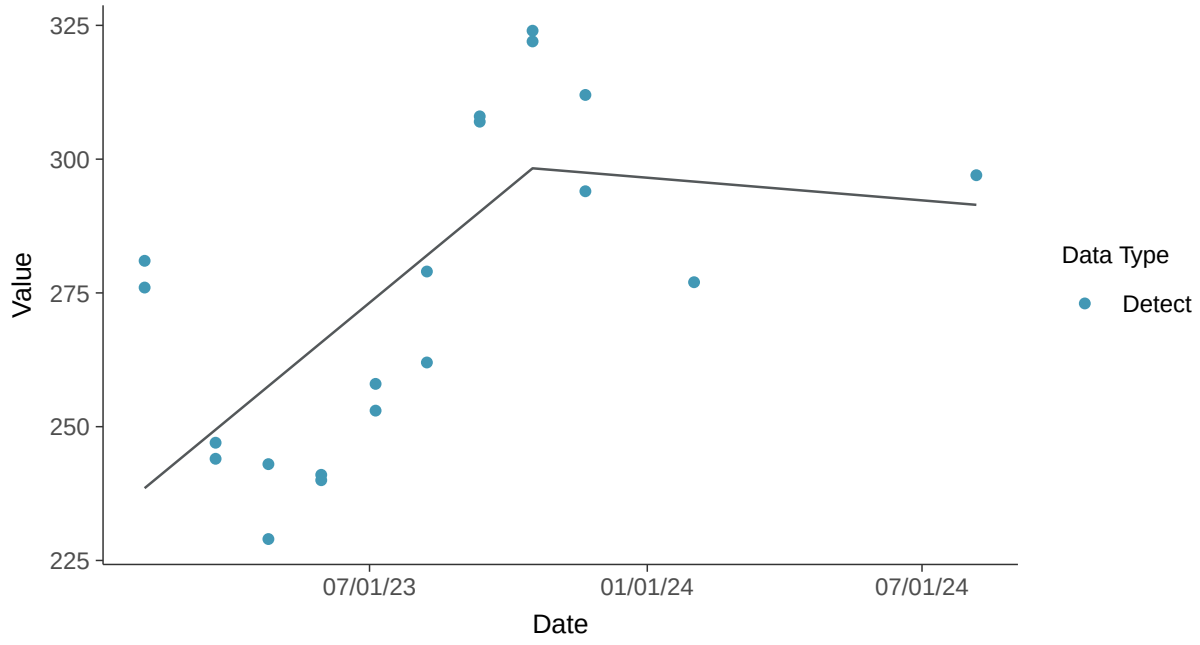
Trend Regression: Lognormal MLE

Sodium, MW-16A (mg/L)



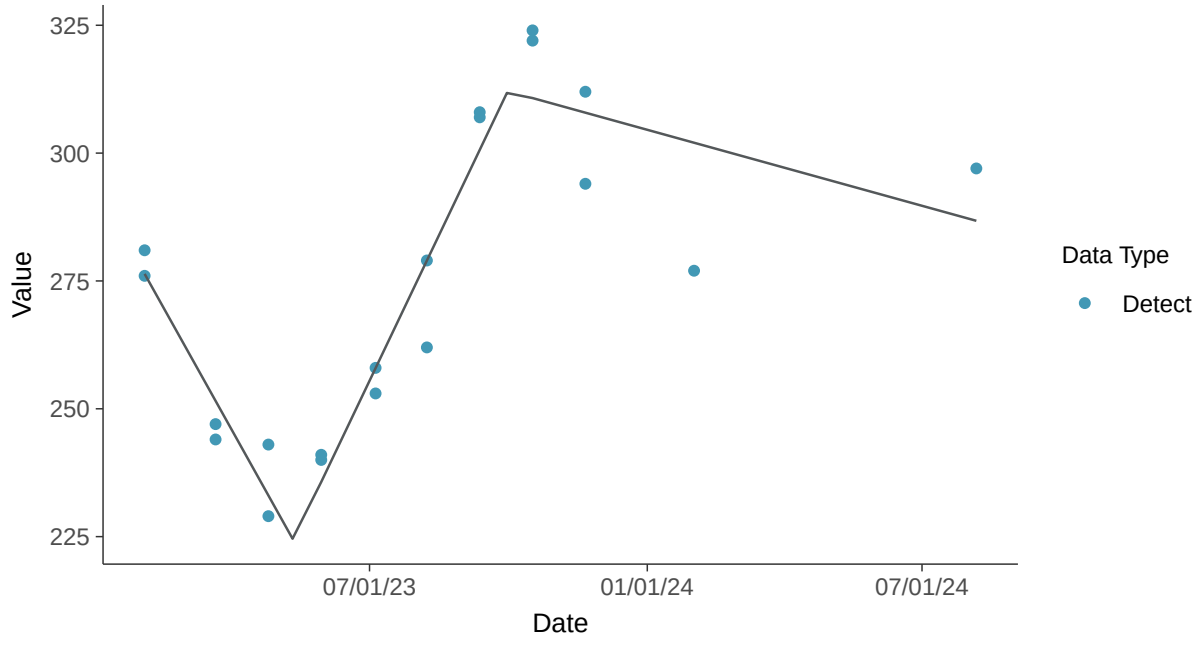
Trend Regression: Piecewise Linear-Linear

Sodium, MW-16A (mg/L)



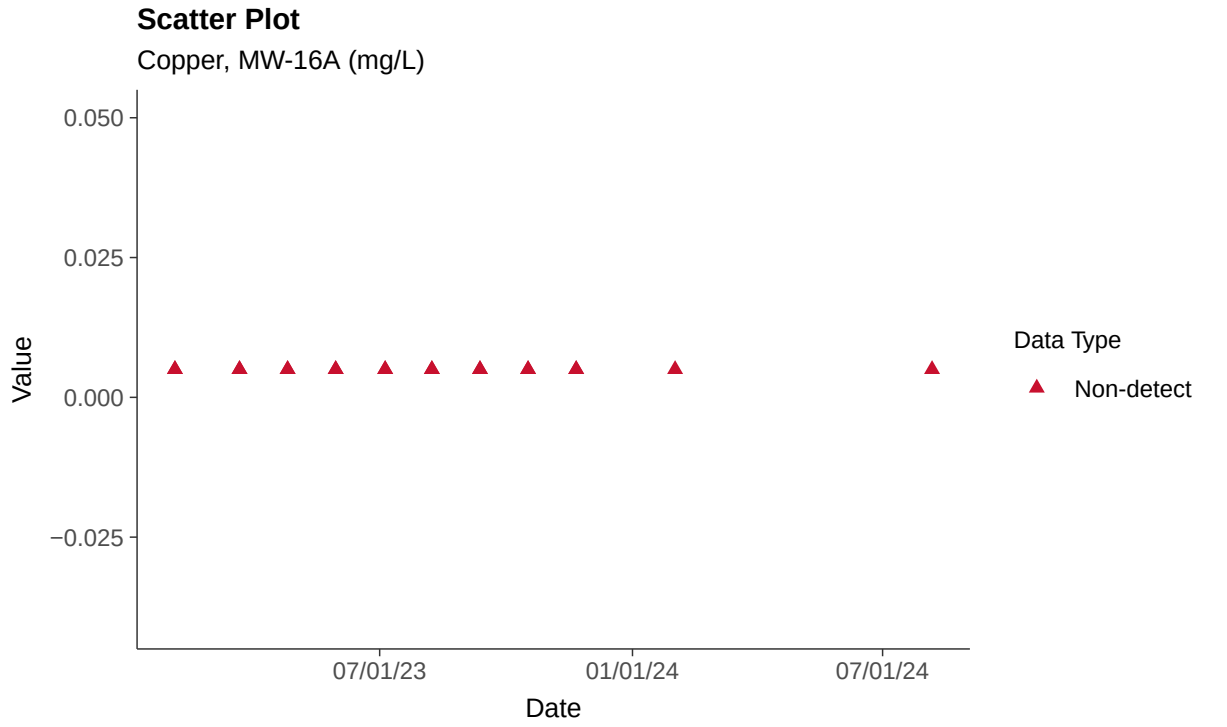
Trend Regression: Piecewise Linear-Linear-Linear

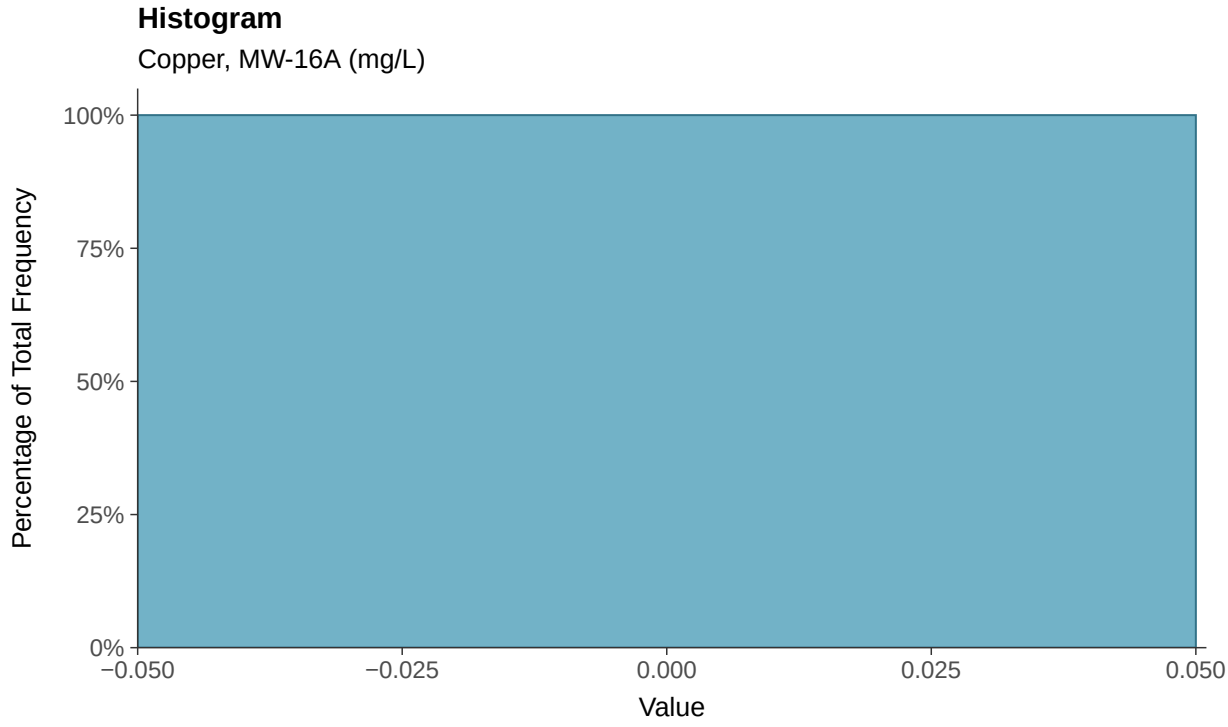
Sodium, MW-16A (mg/L)



Part 115: Copper, MW-16A

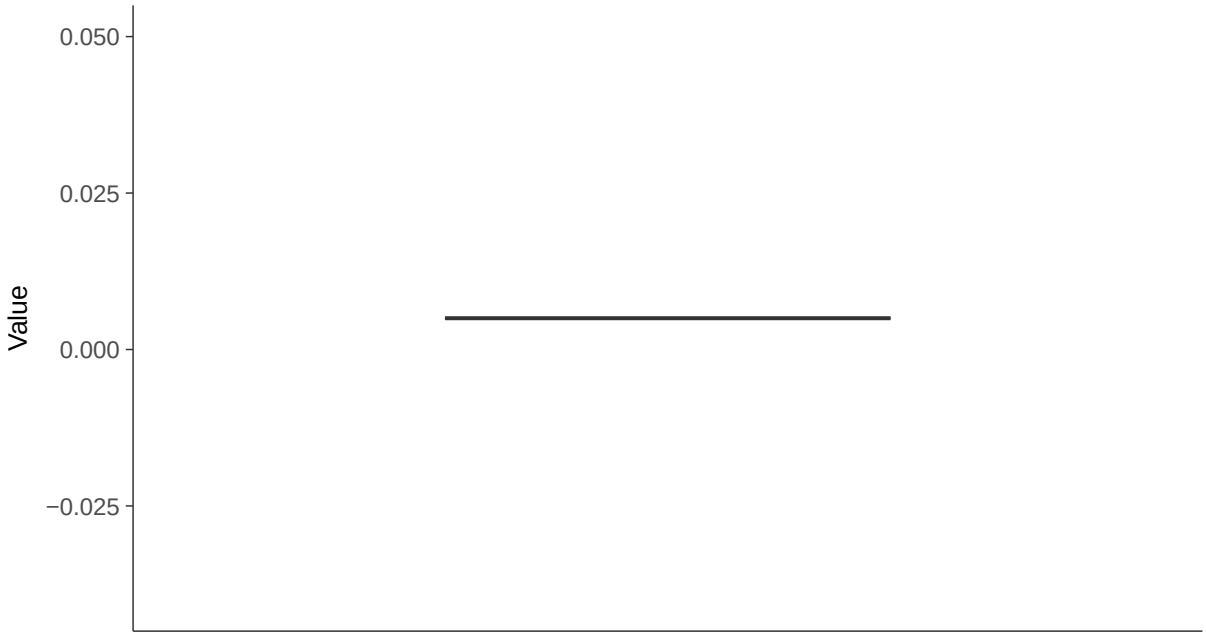
ID: 16A_5_37





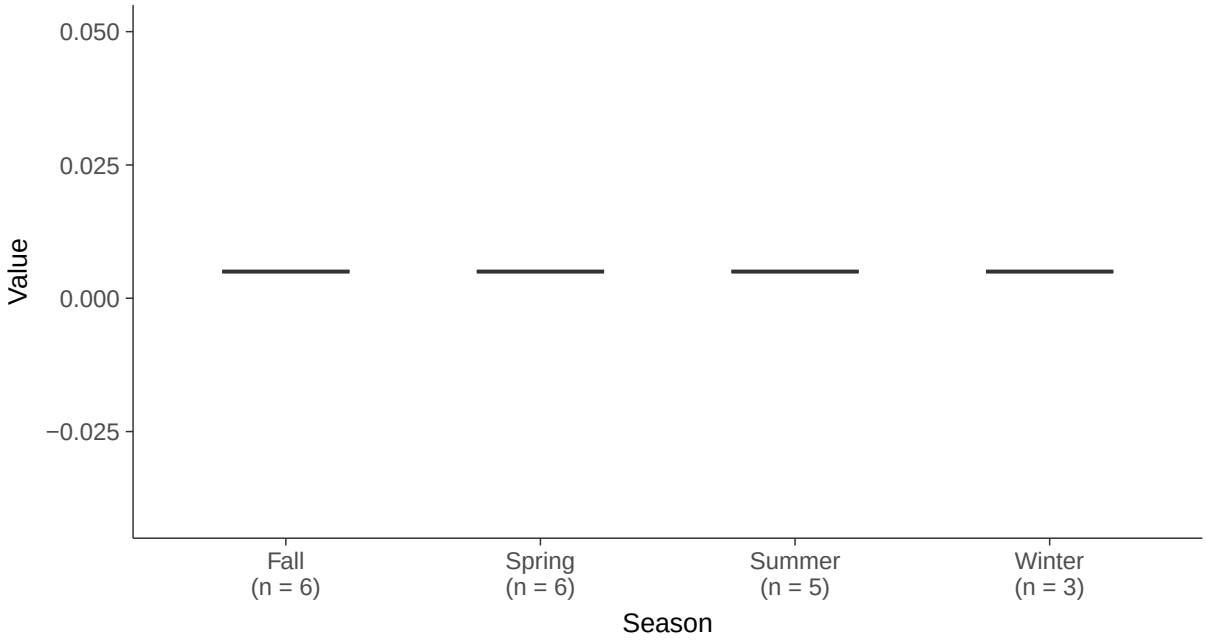
Boxplot

Copper, MW-16A (mg/L)



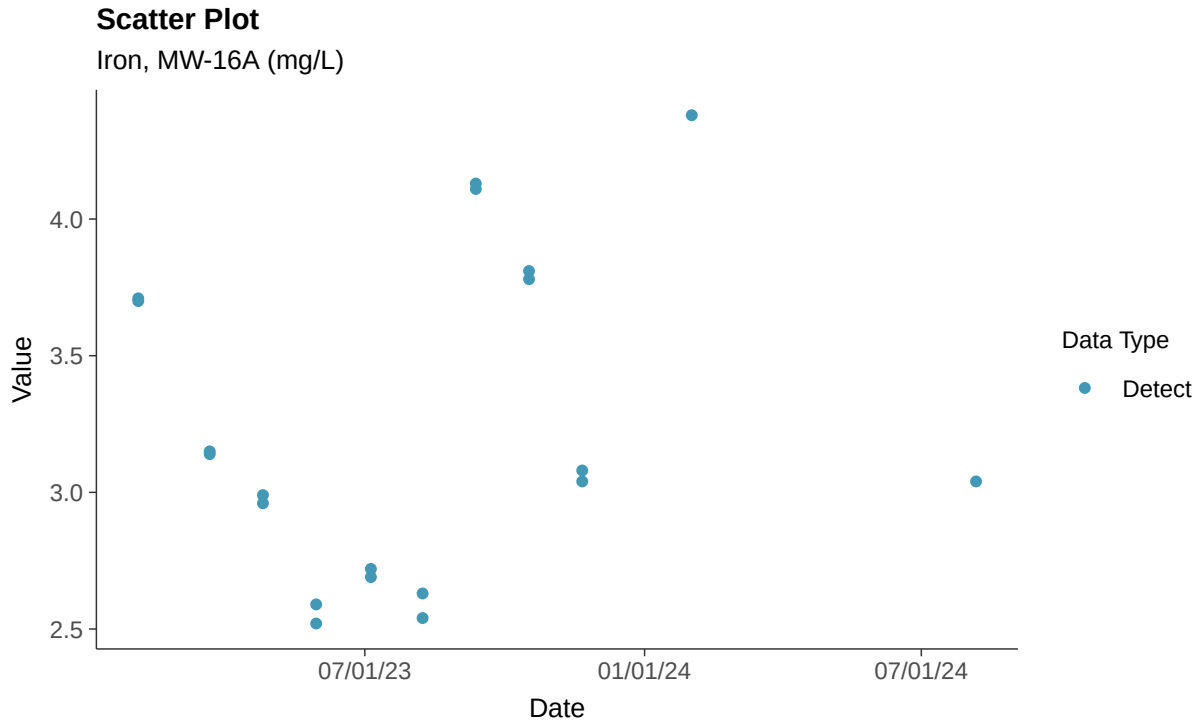
Boxplot by Season

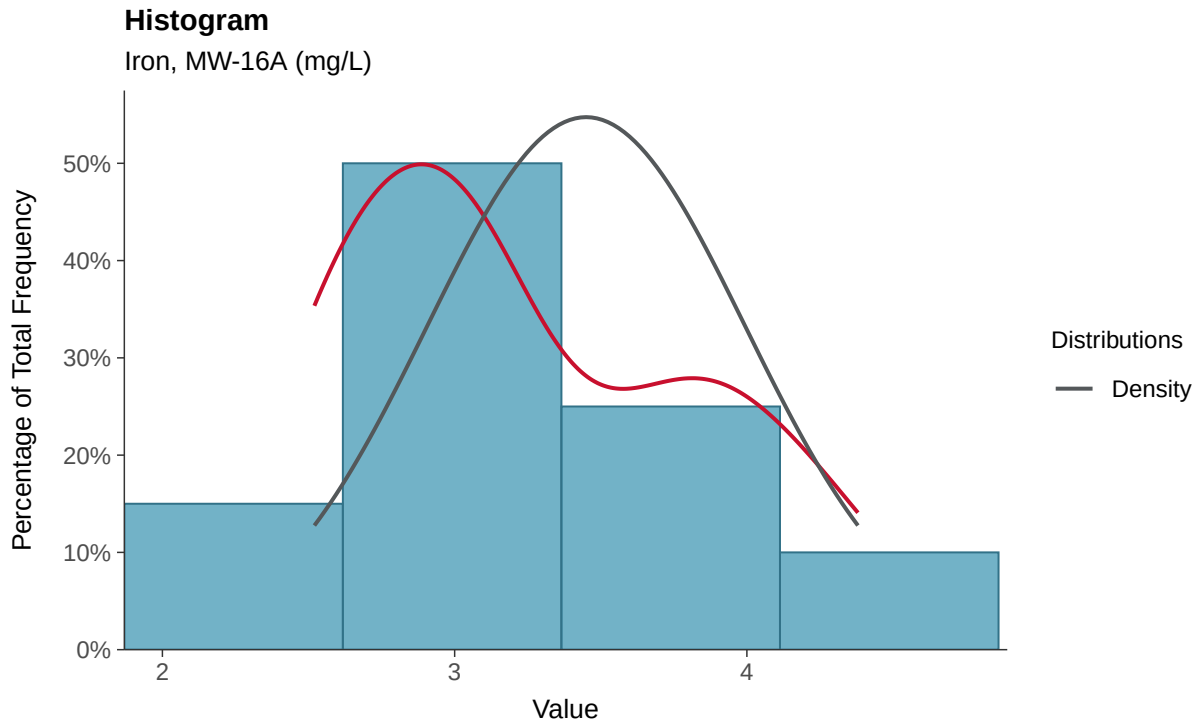
Copper, MW-16A (mg/L)



Part 115: Iron, MW-16A

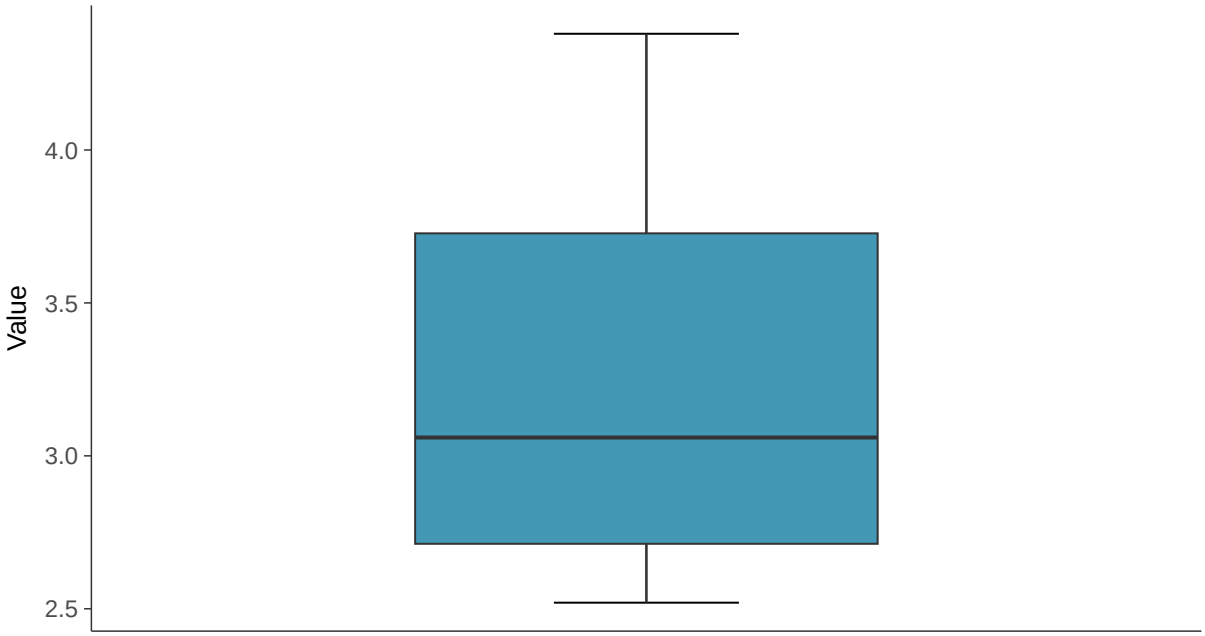
ID: 16A_5_38





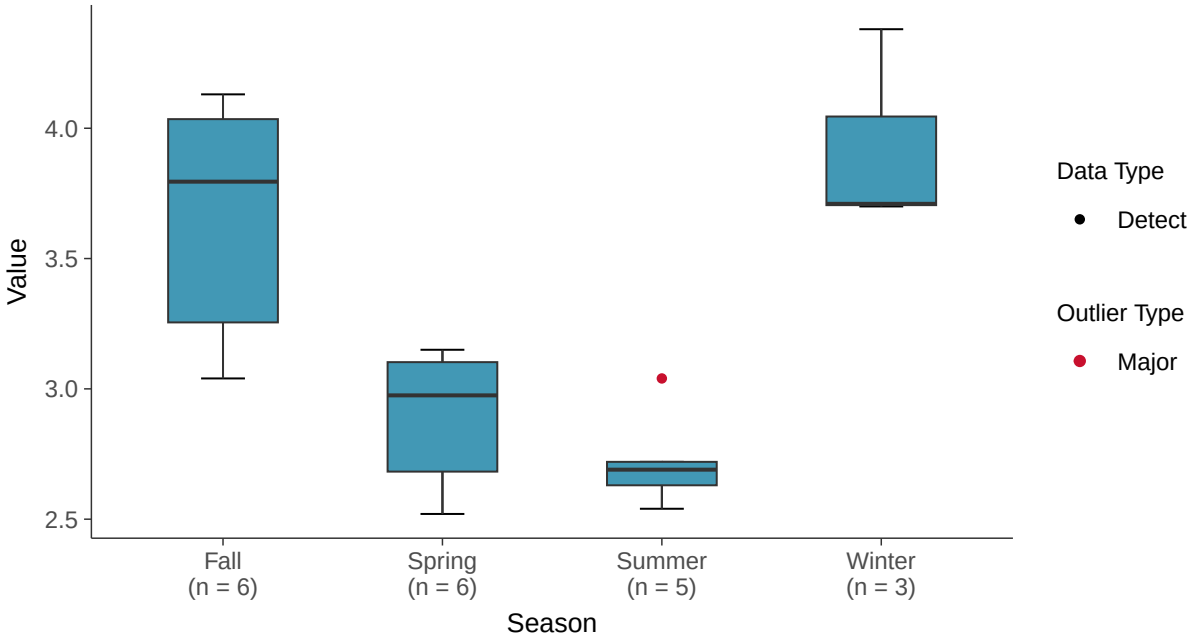
Boxplot

Iron, MW-16A (mg/L)



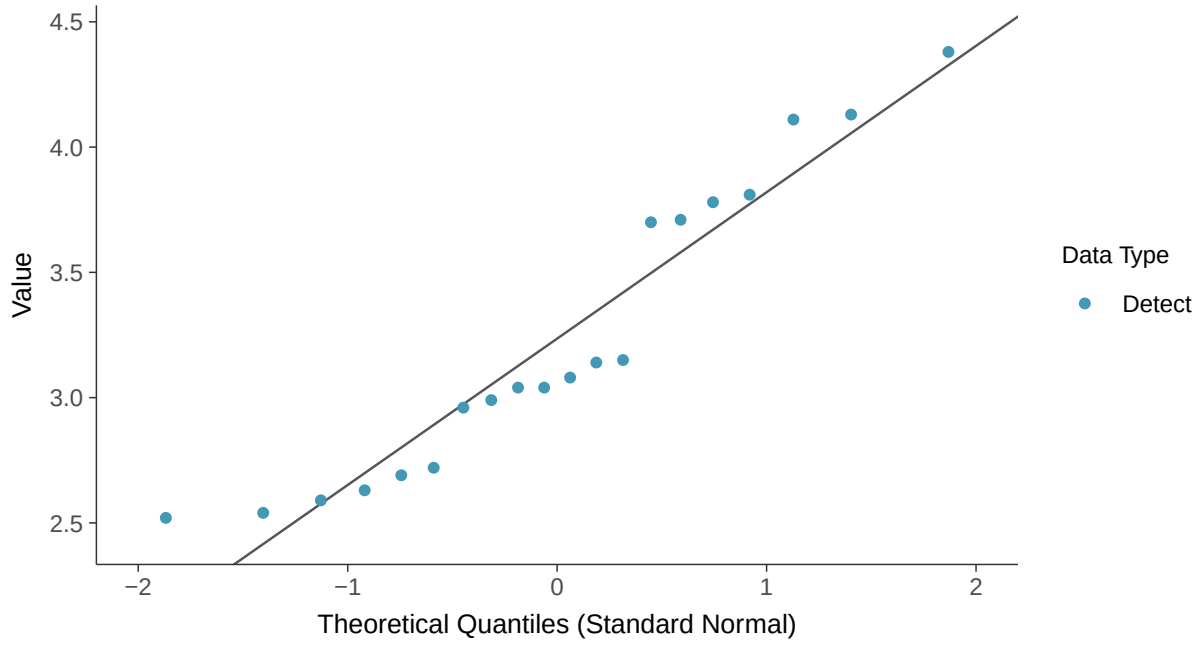
Boxplot by Season

Iron, MW-16A (mg/L)



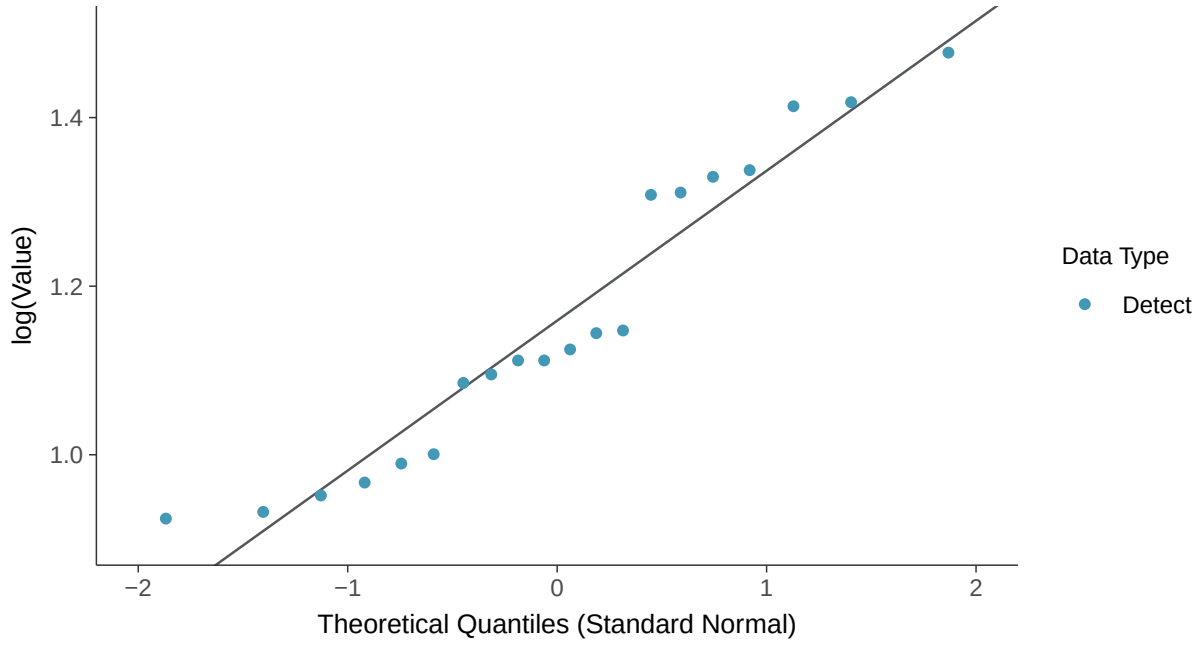
Normal Q-Q plot

Iron, MW-16A (mg/L)



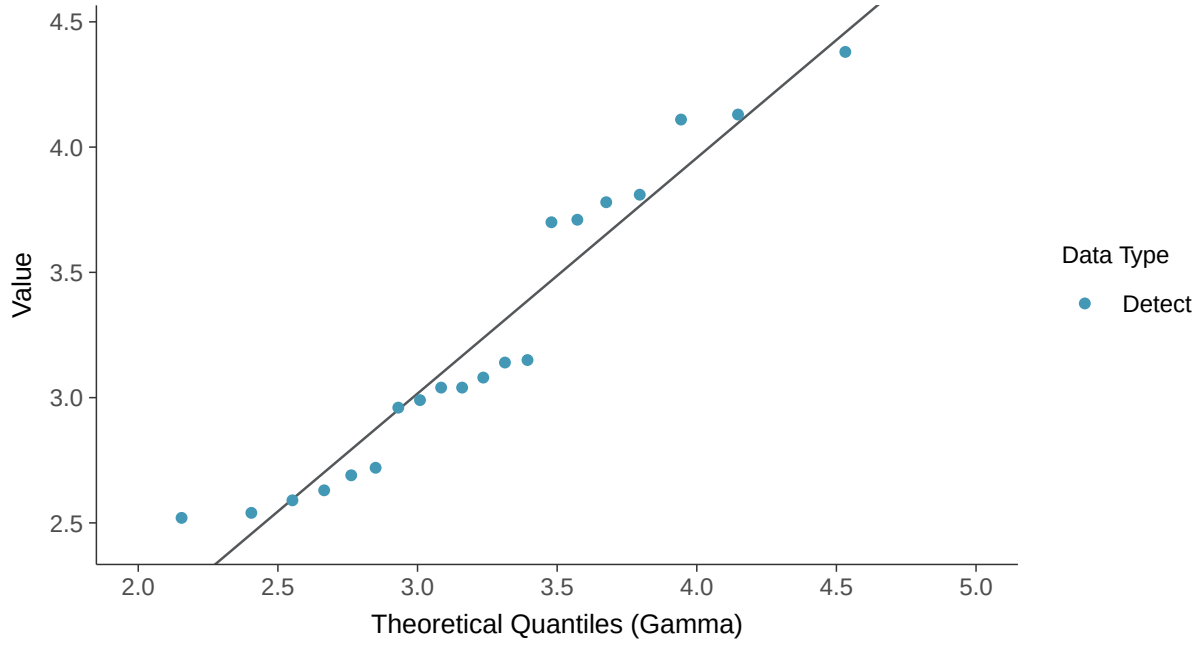
Lognormal Q-Q plot

Iron, MW-16A (mg/L)



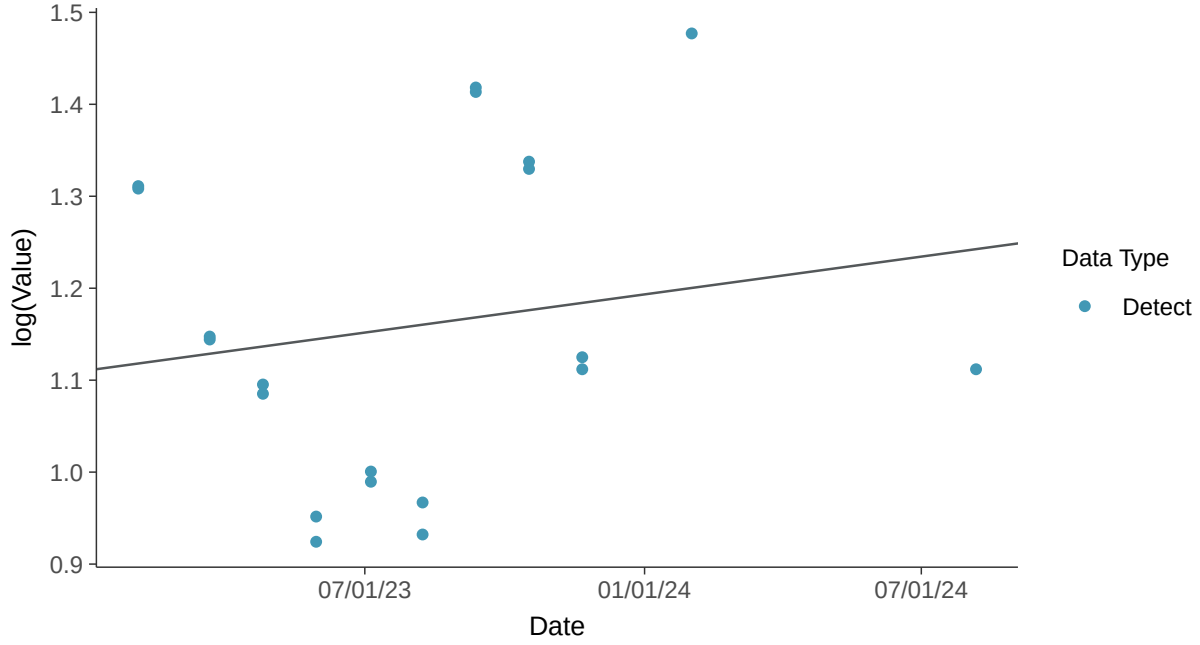
Gamma Q-Q plot

Iron, MW-16A (mg/L)



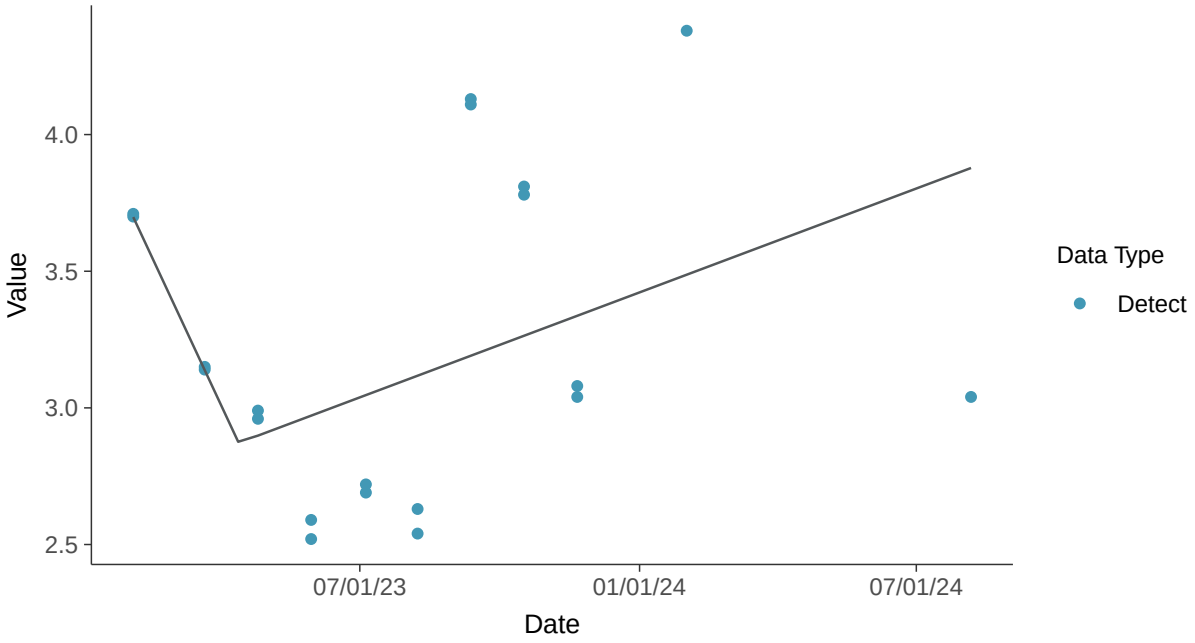
Trend Regression: Lognormal MLE

Iron, MW-16A (mg/L)



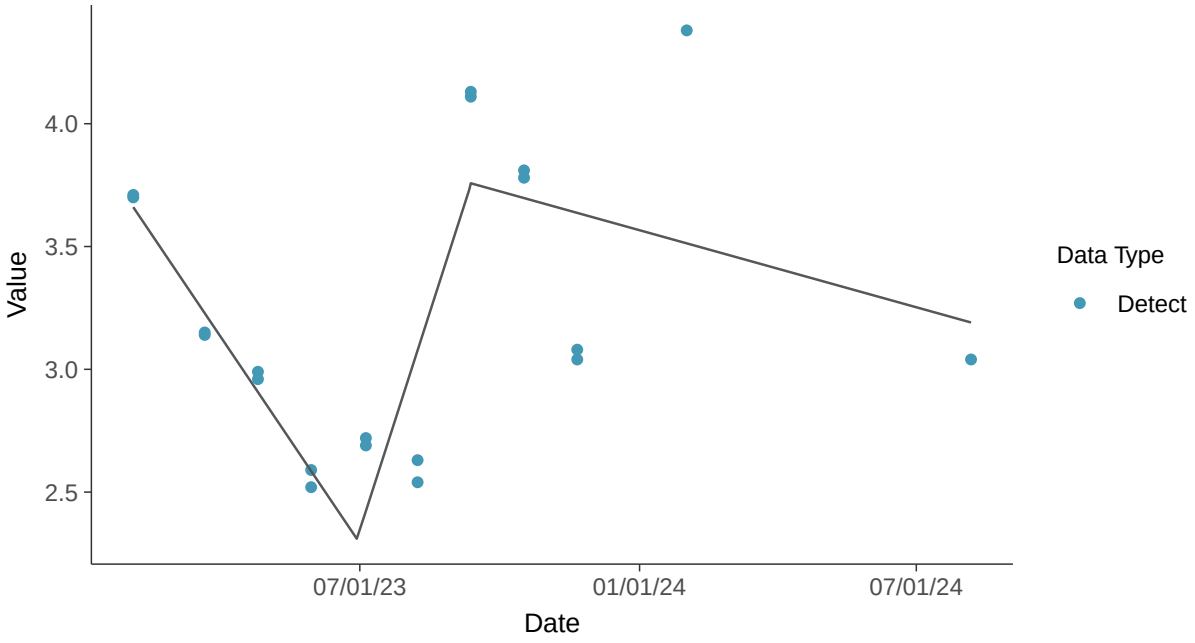
Trend Regression: Piecewise Linear-Linear

Iron, MW-16A (mg/L)



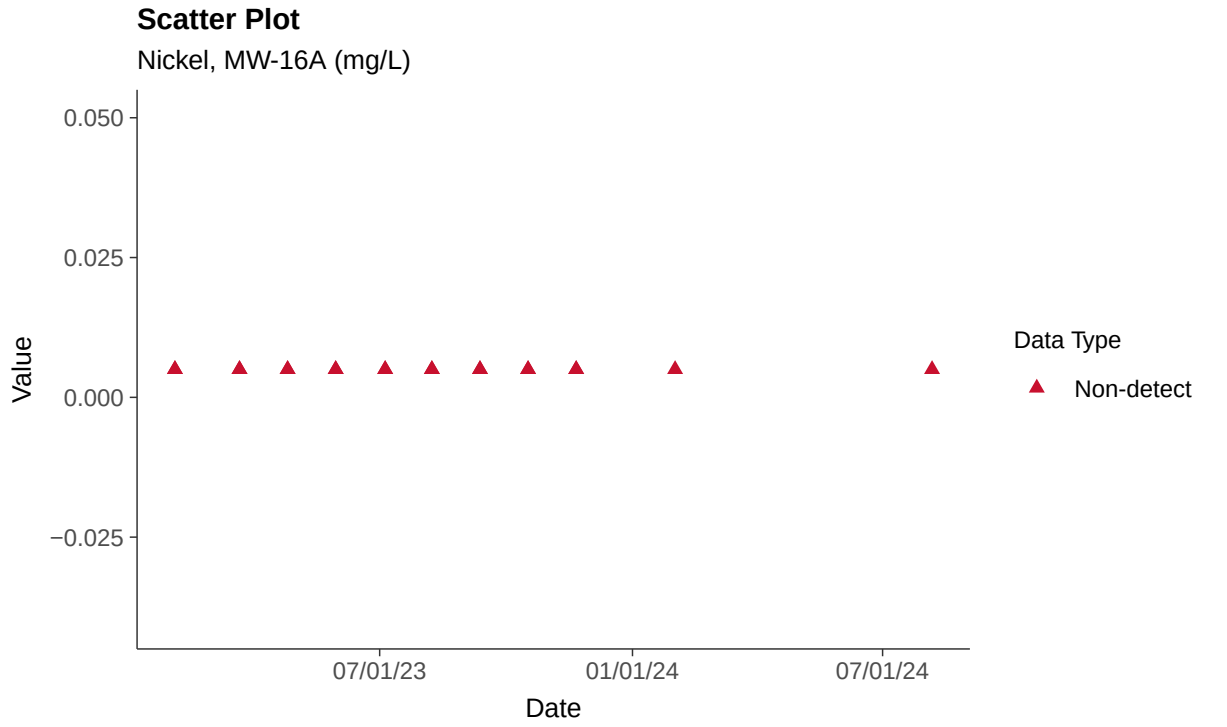
Trend Regression: Piecewise Linear-Linear-Linear

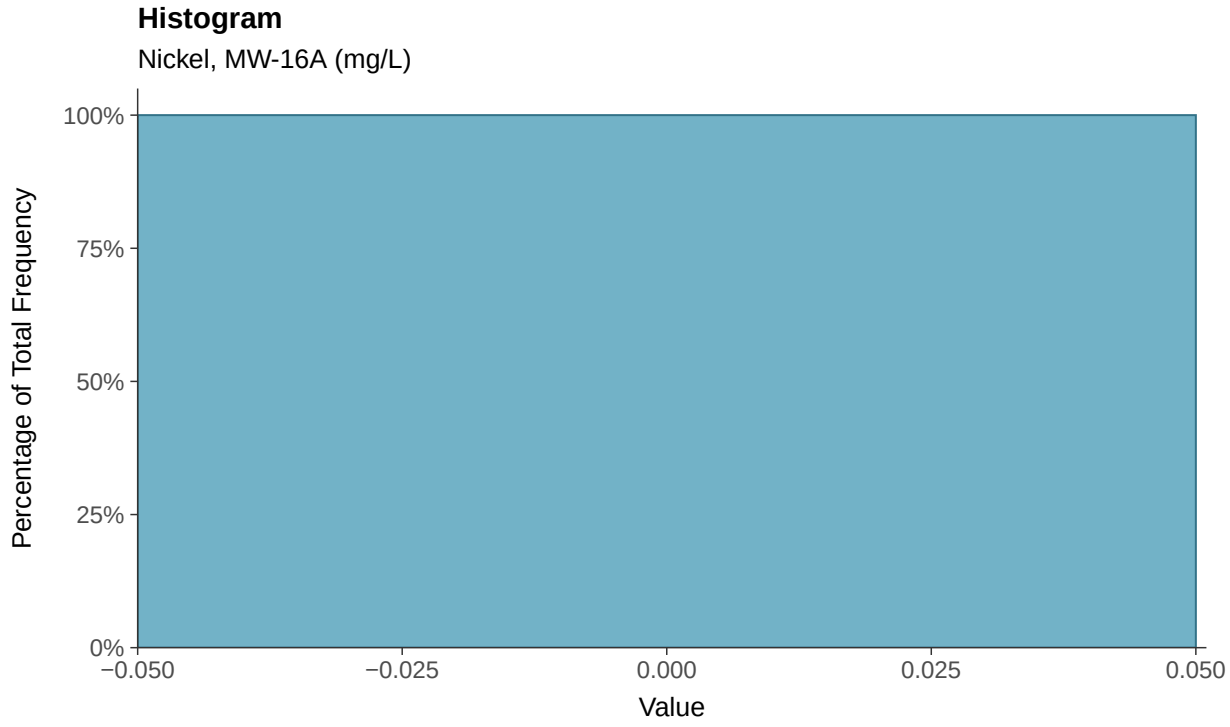
Iron, MW-16A (mg/L)



Part 115: Nickel, MW-16A

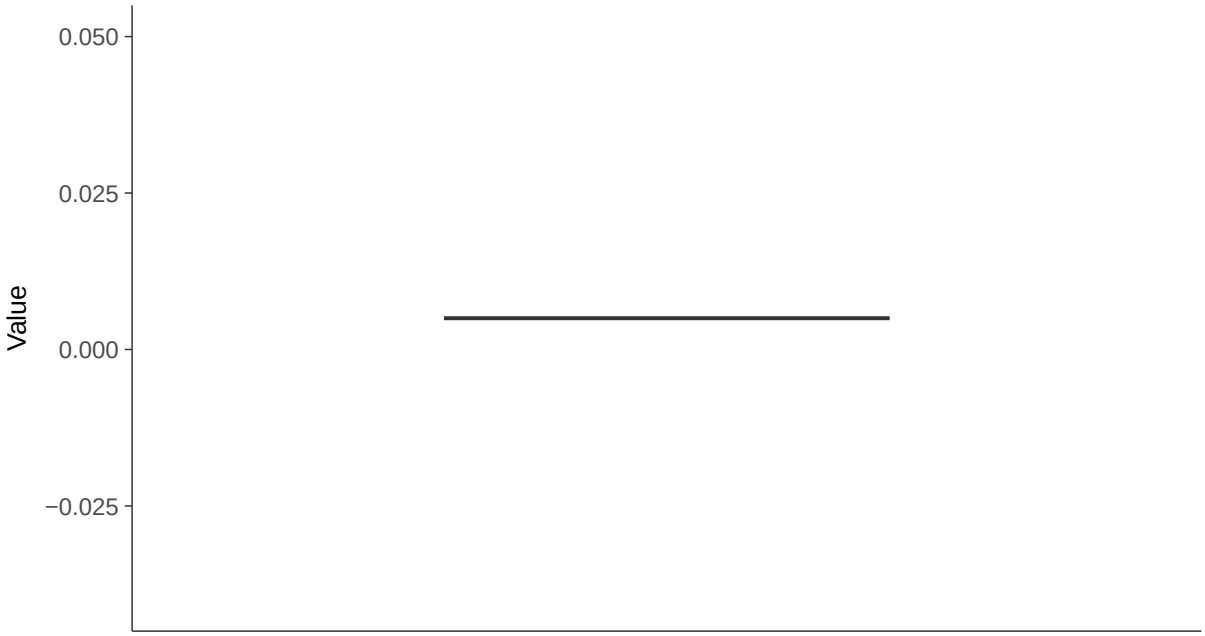
ID: 16A_5_39





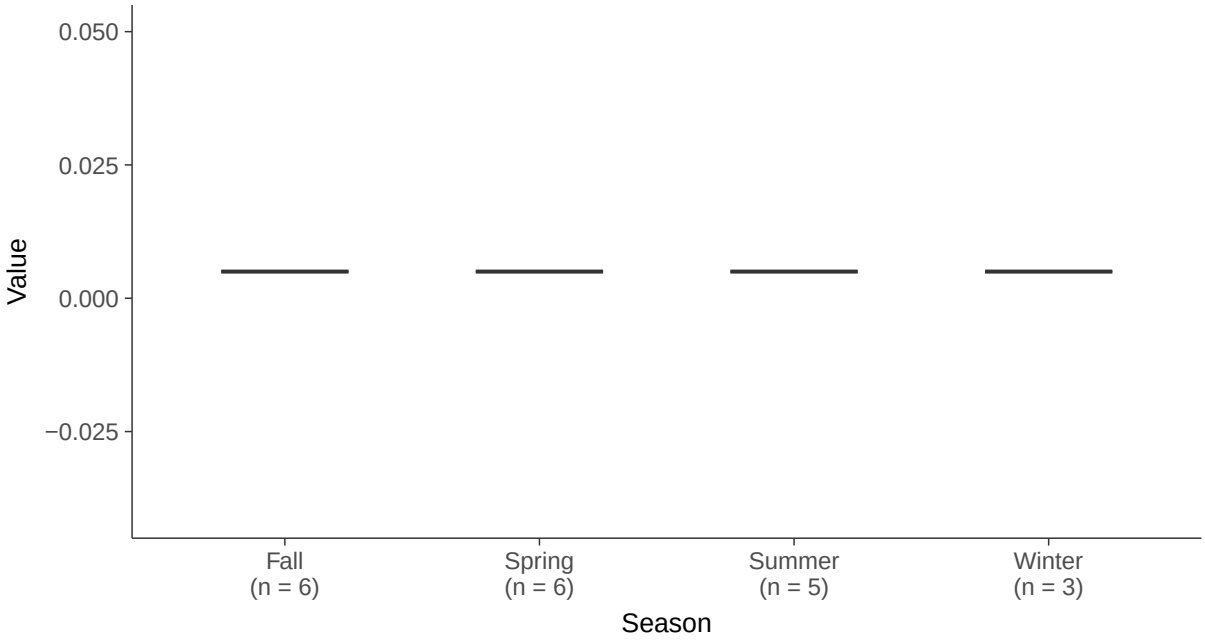
Boxplot

Nickel, MW-16A (mg/L)



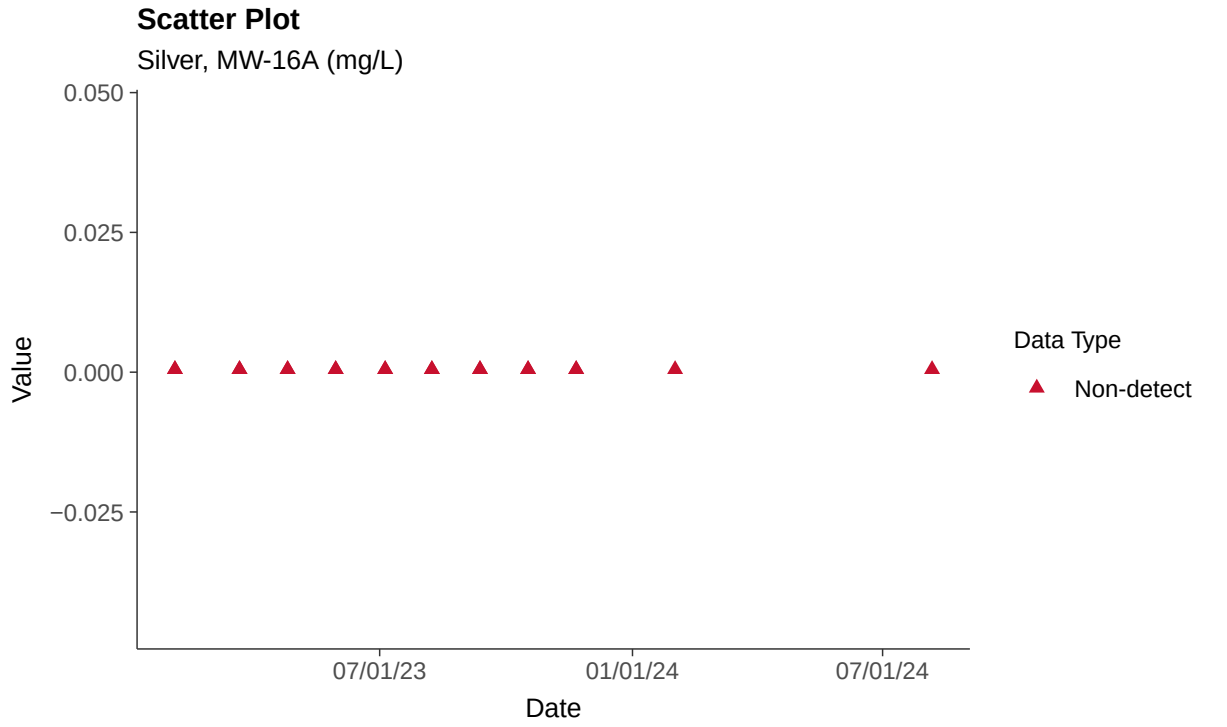
Boxplot by Season

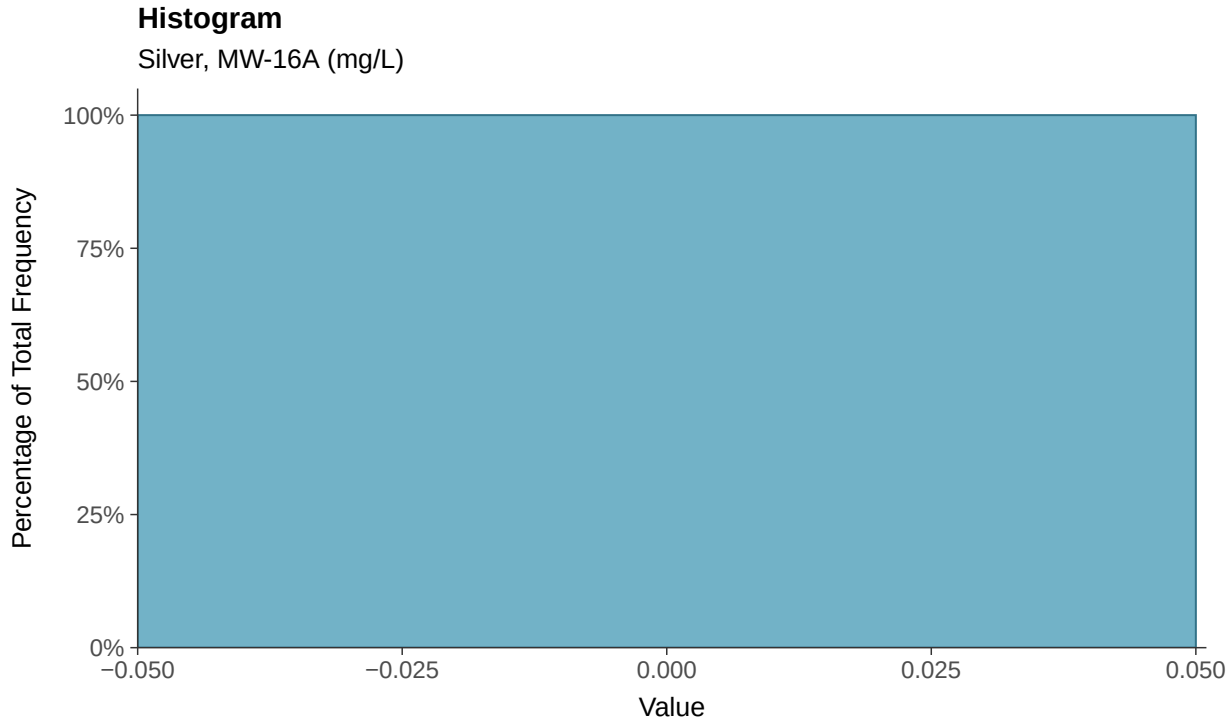
Nickel, MW-16A (mg/L)



Part 115: Silver, MW-16A

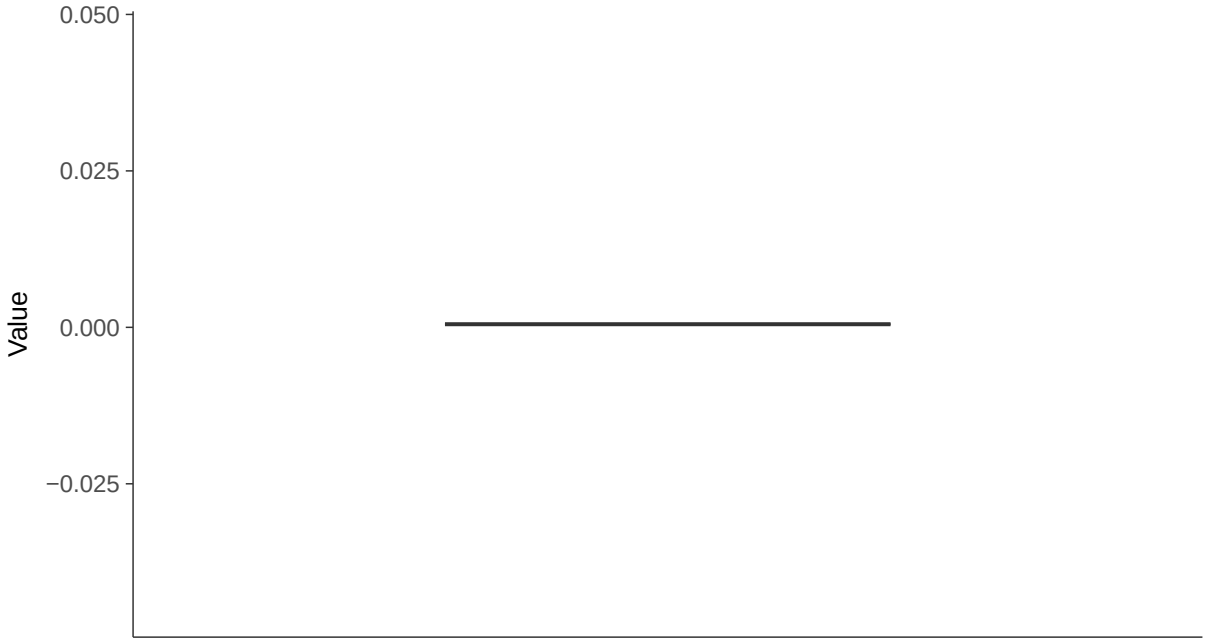
ID: 16A_5_40





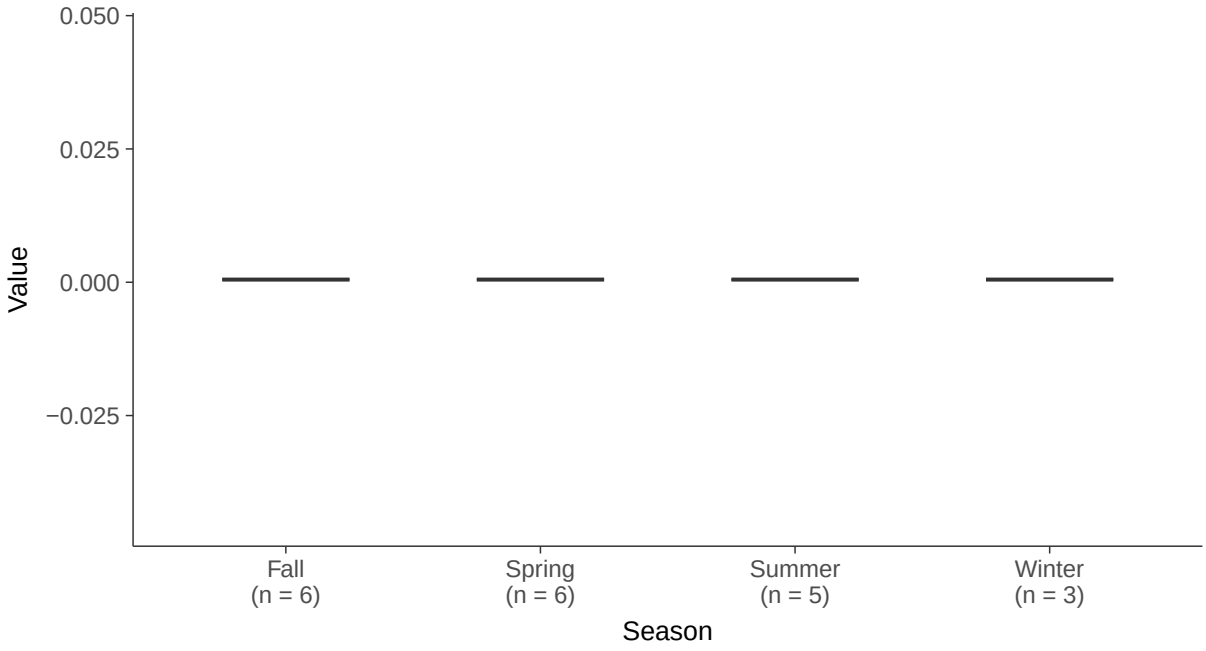
Boxplot

Silver, MW-16A (mg/L)



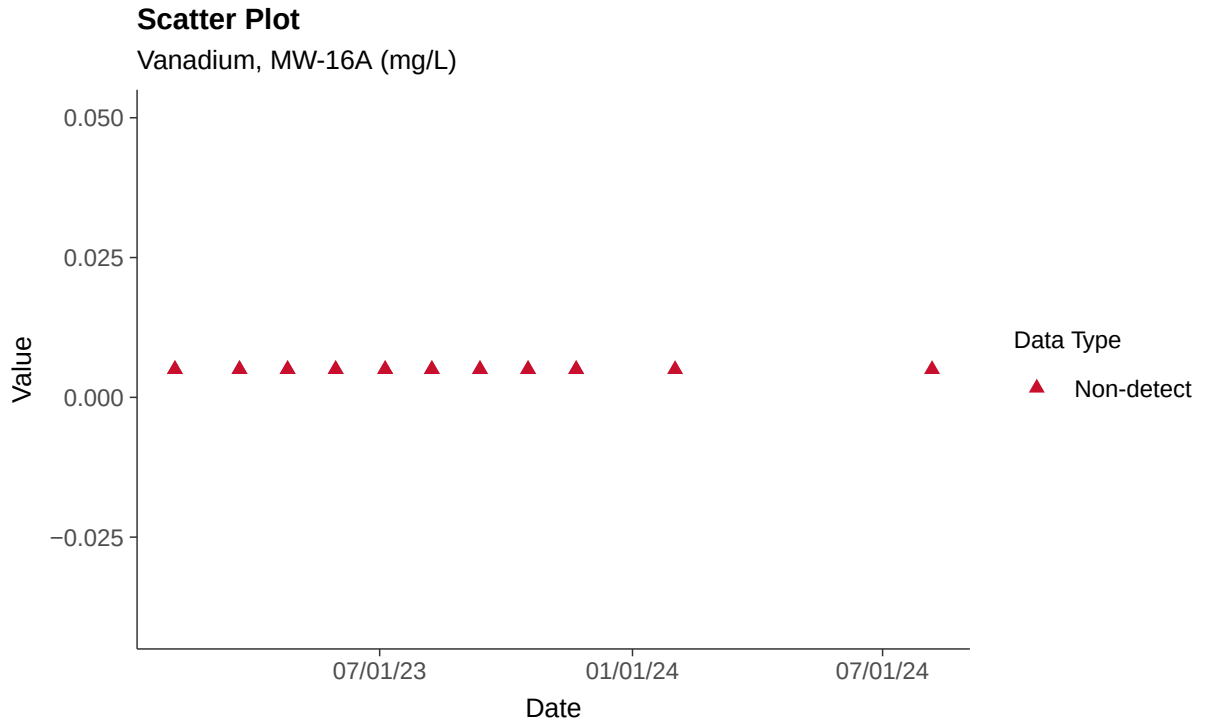
Boxplot by Season

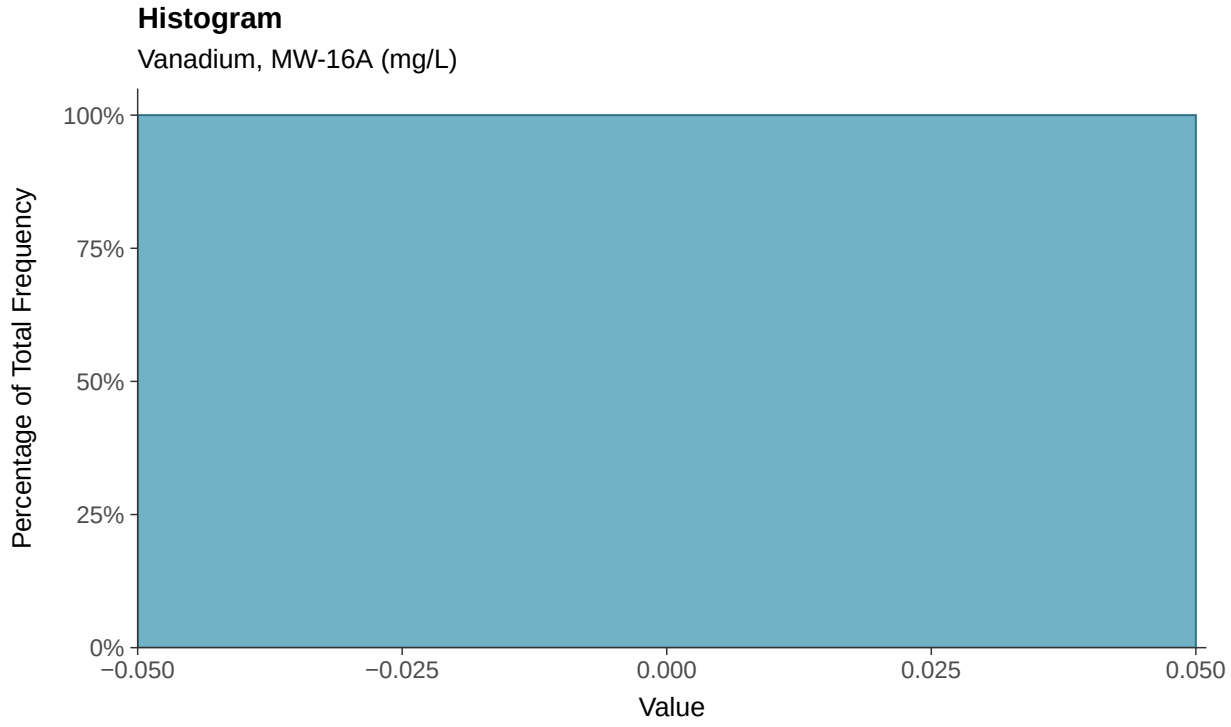
Silver, MW-16A (mg/L)



Part 115: Vanadium, MW-16A

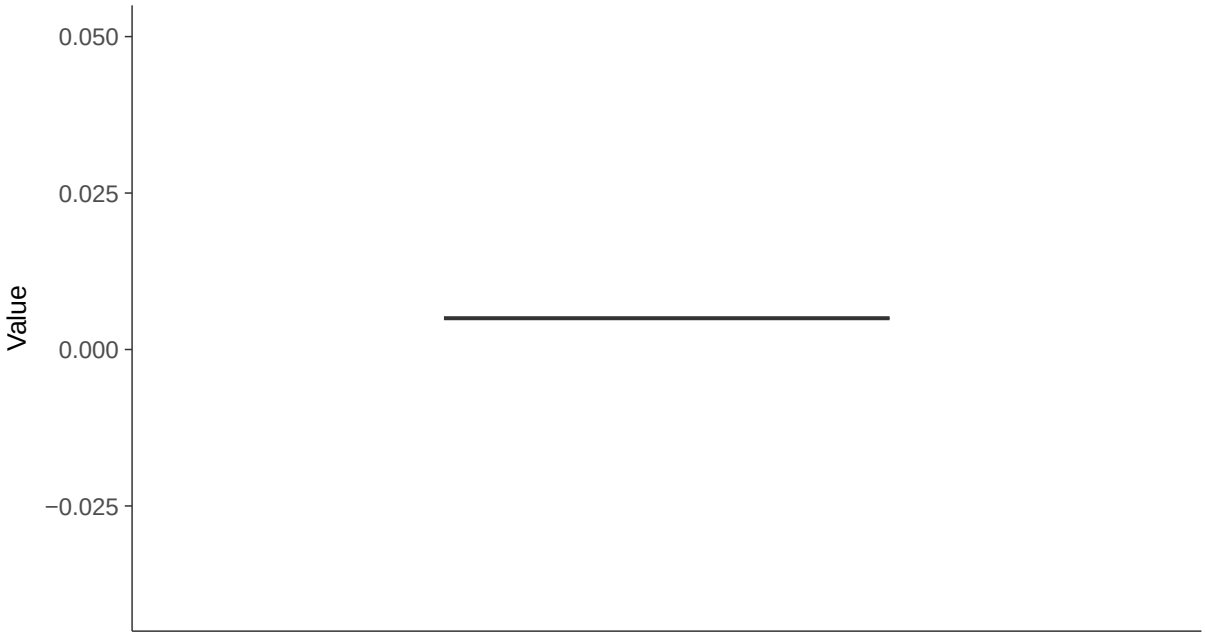
ID: 16A_5_41





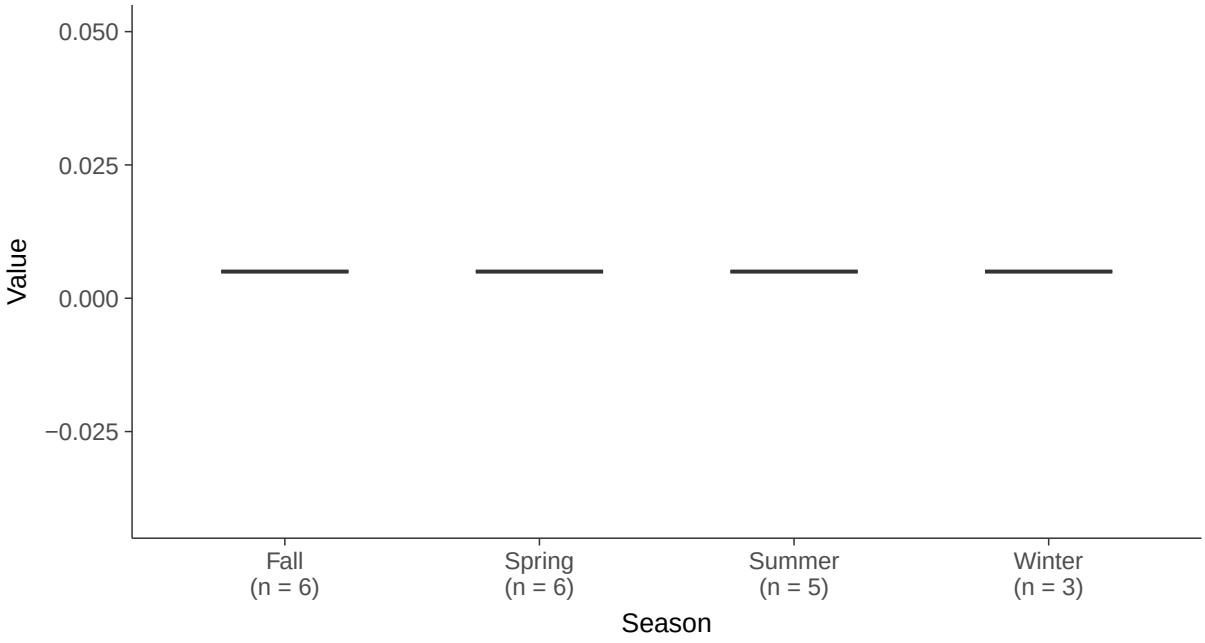
Boxplot

Vanadium, MW-16A (mg/L)



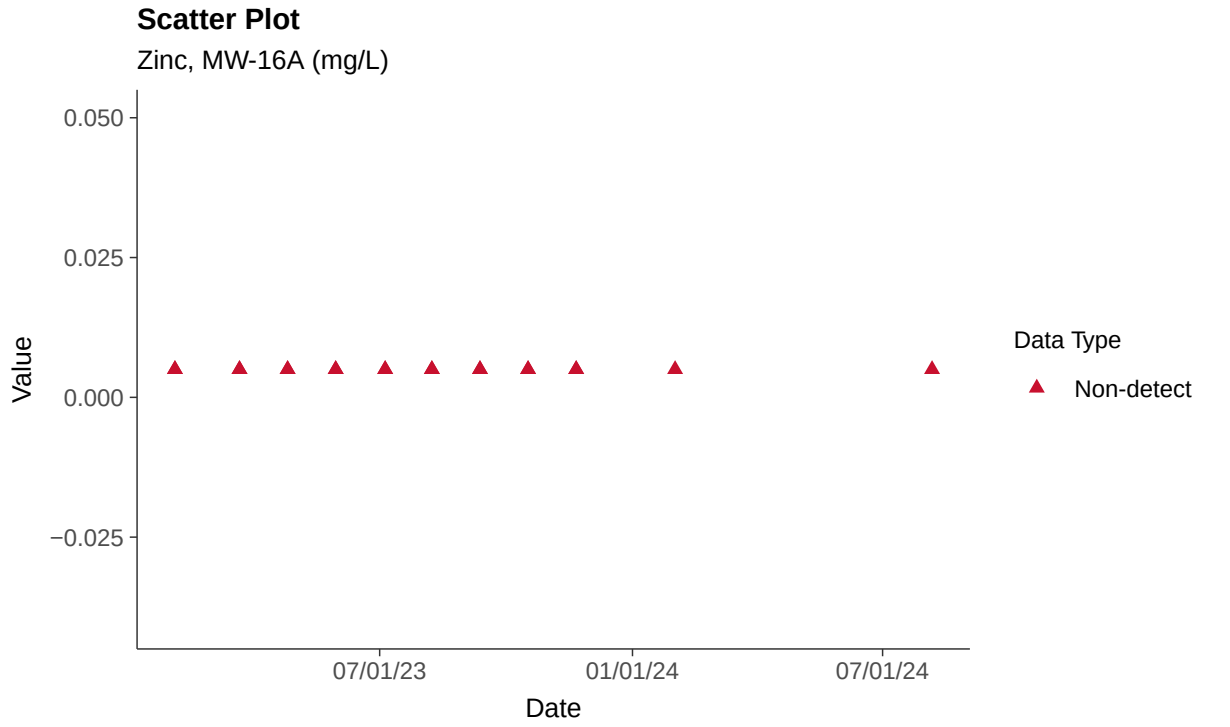
Boxplot by Season

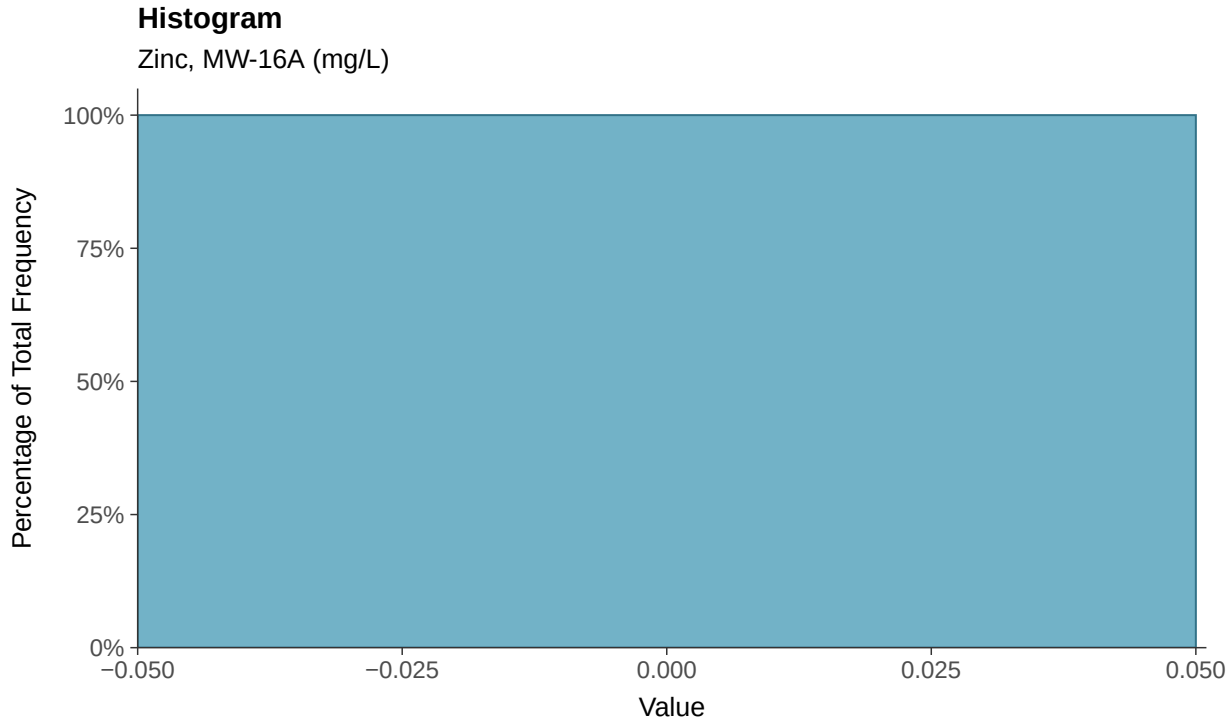
Vanadium, MW-16A (mg/L)



Part 115: Zinc, MW-16A

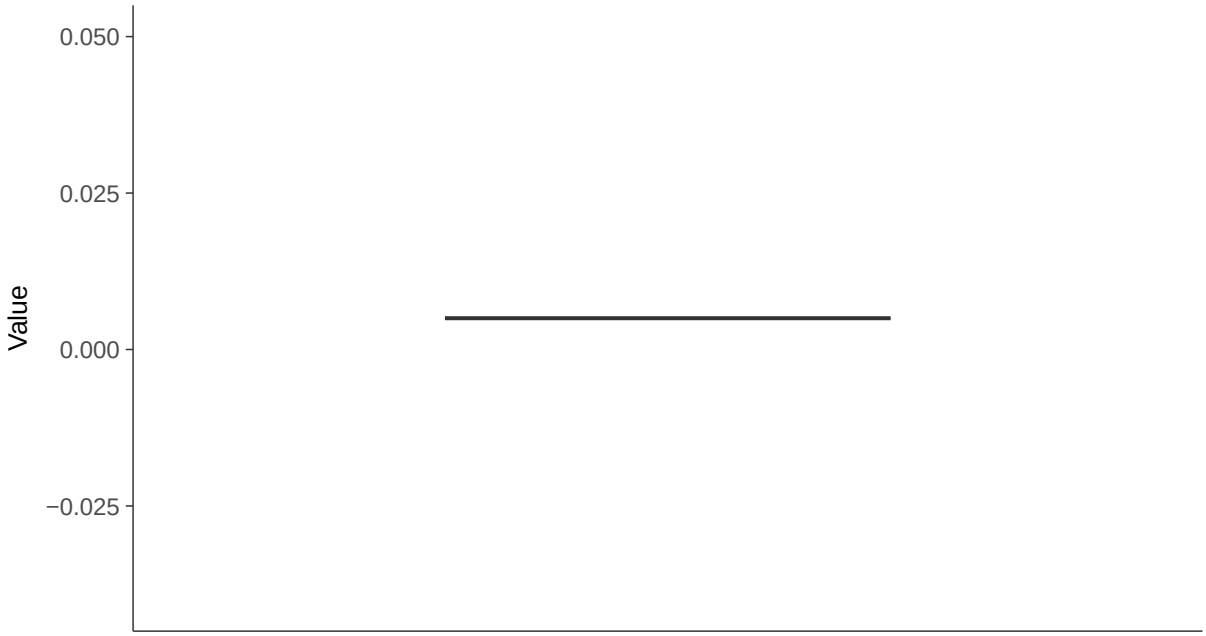
ID: 16A_5_42





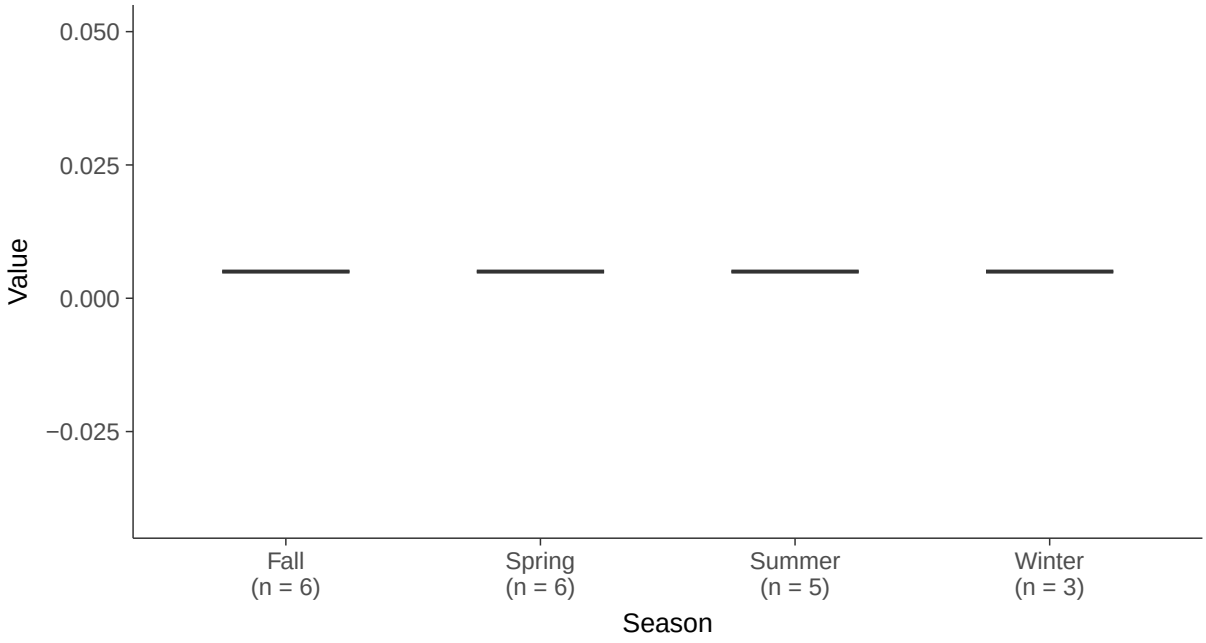
Boxplot

Zinc, MW-16A (mg/L)



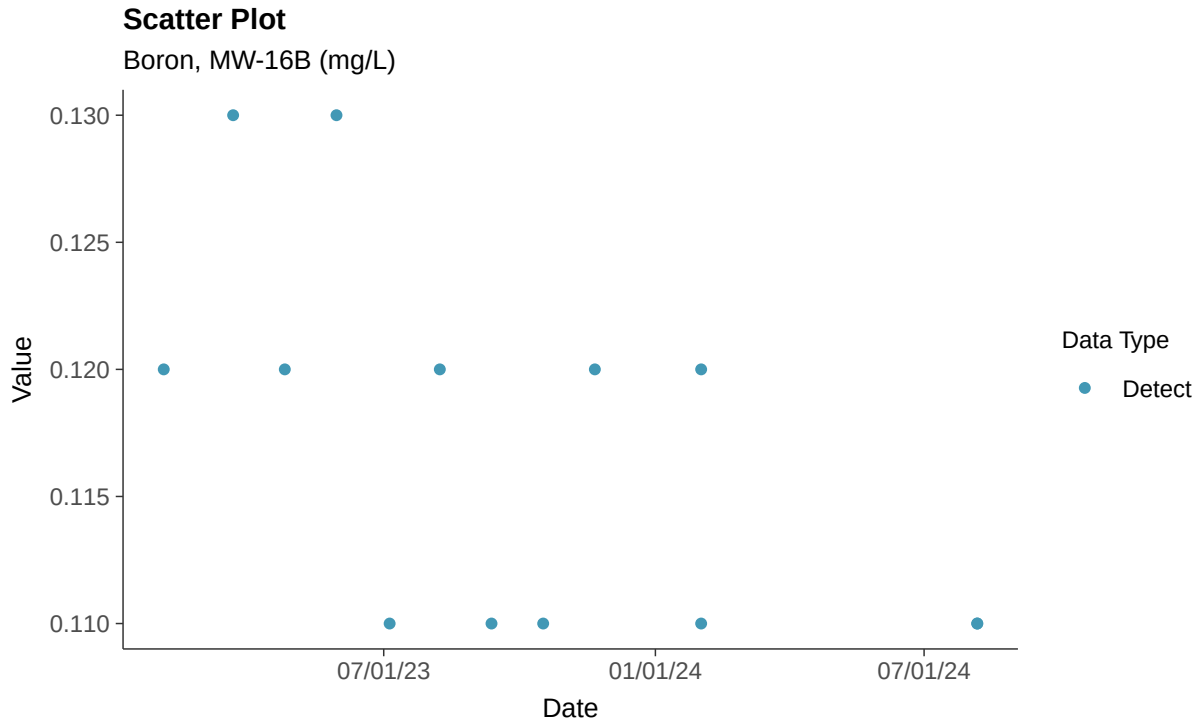
Boxplot by Season

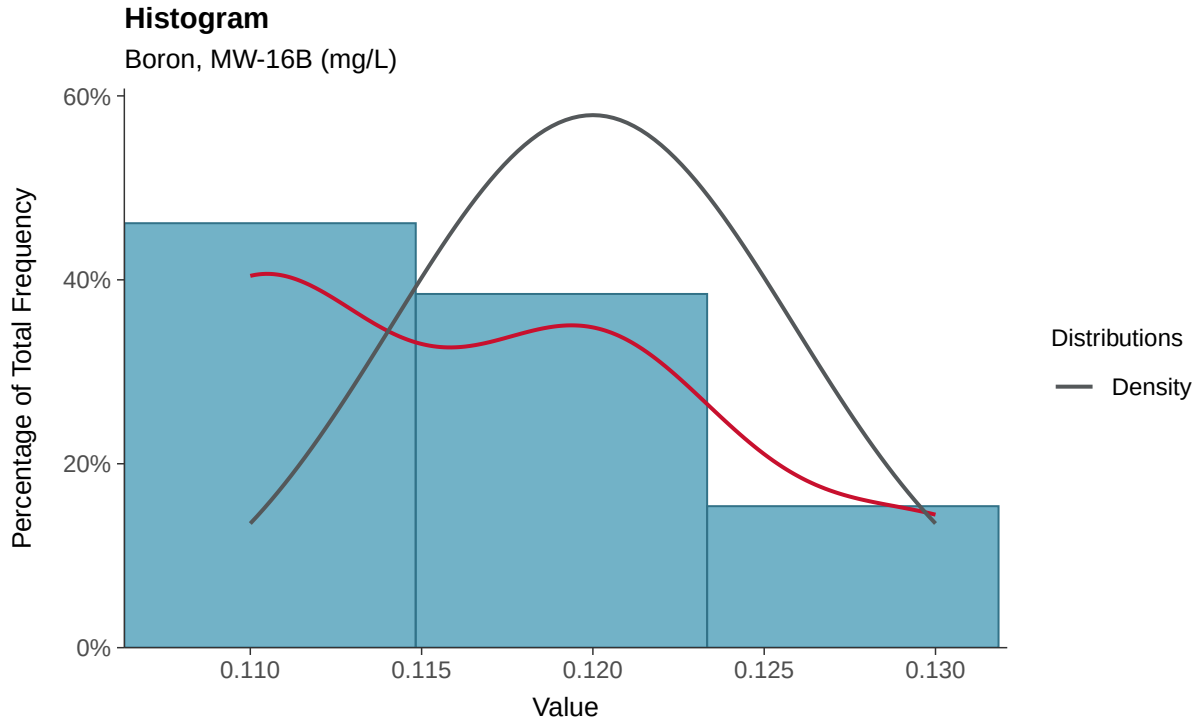
Zinc, MW-16A (mg/L)



Appendix III: Boron, MW-16B

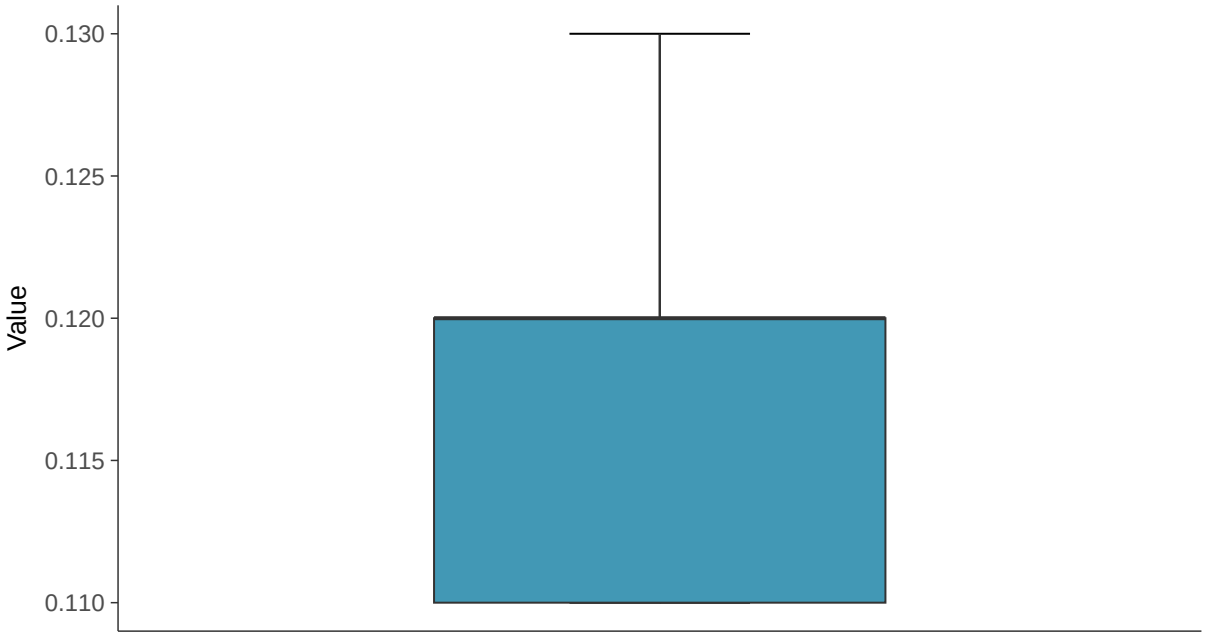
ID: 16B_1_01





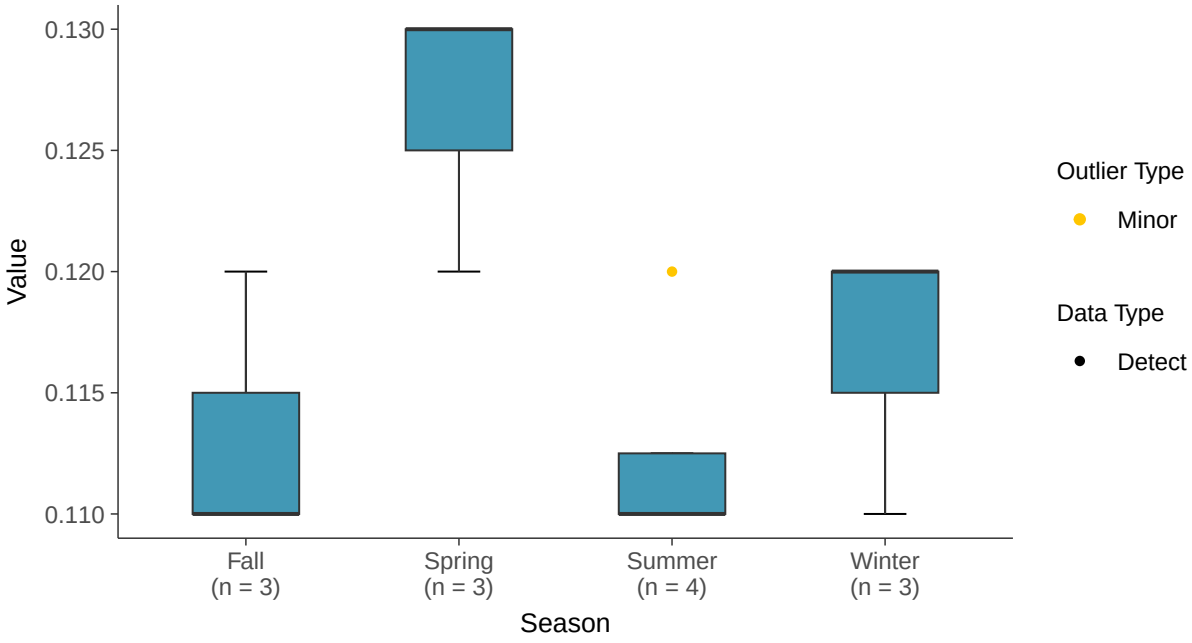
Boxplot

Boron, MW-16B (mg/L)



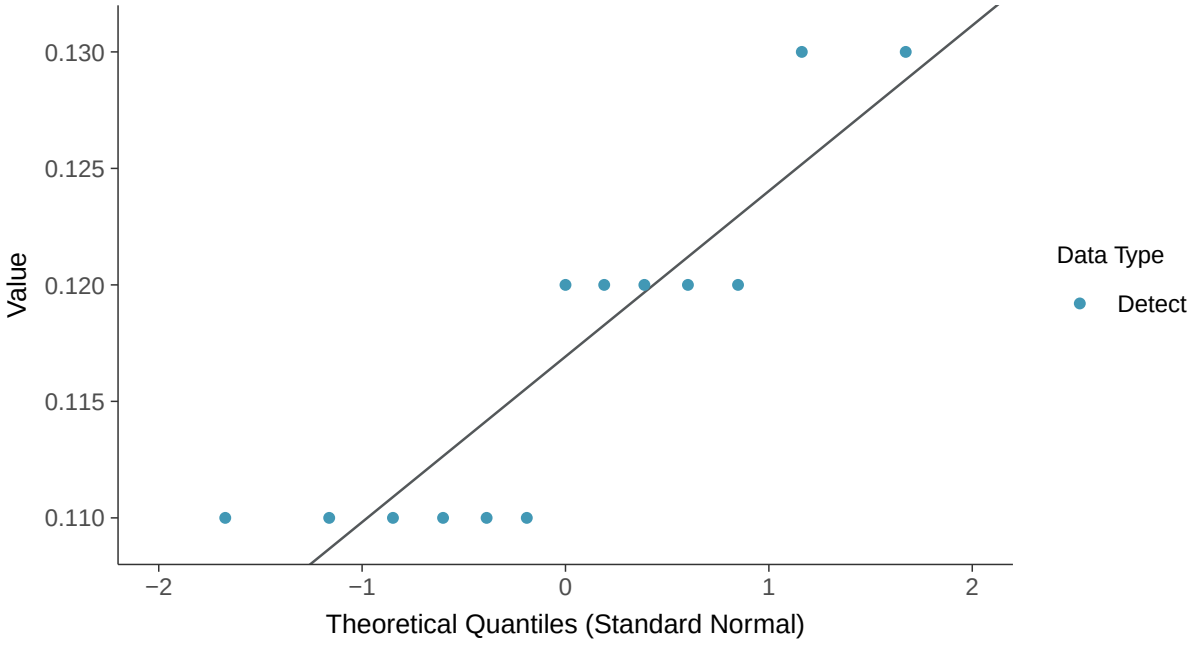
Boxplot by Season

Boron, MW-16B (mg/L)



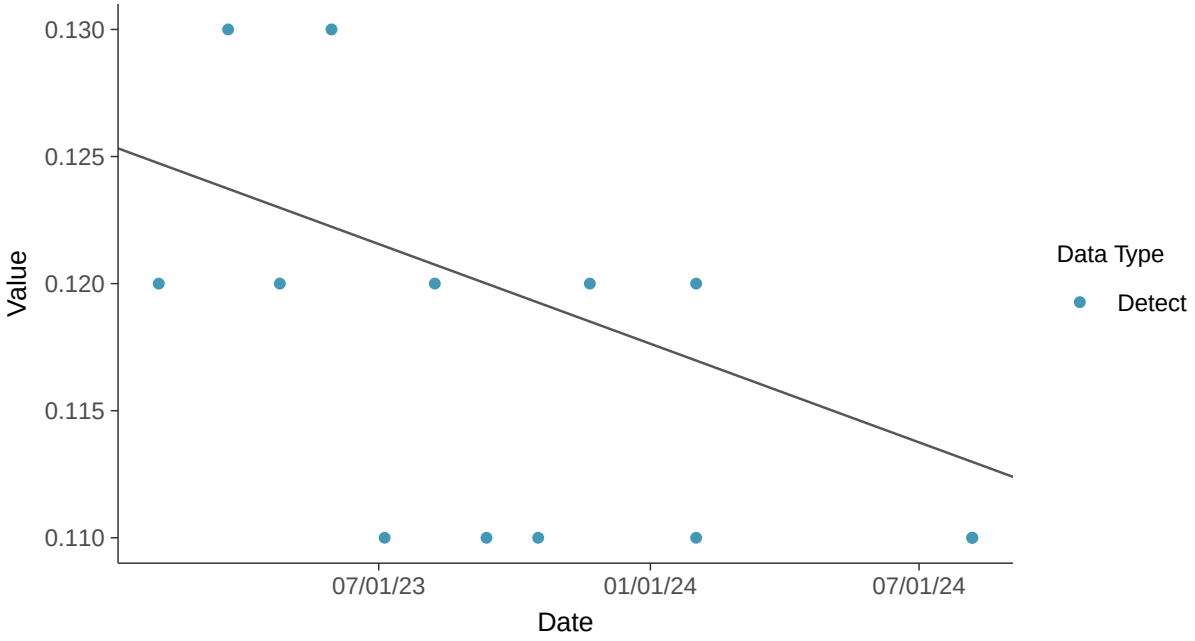
Normal Q-Q plot

Boron, MW-16B (mg/L)



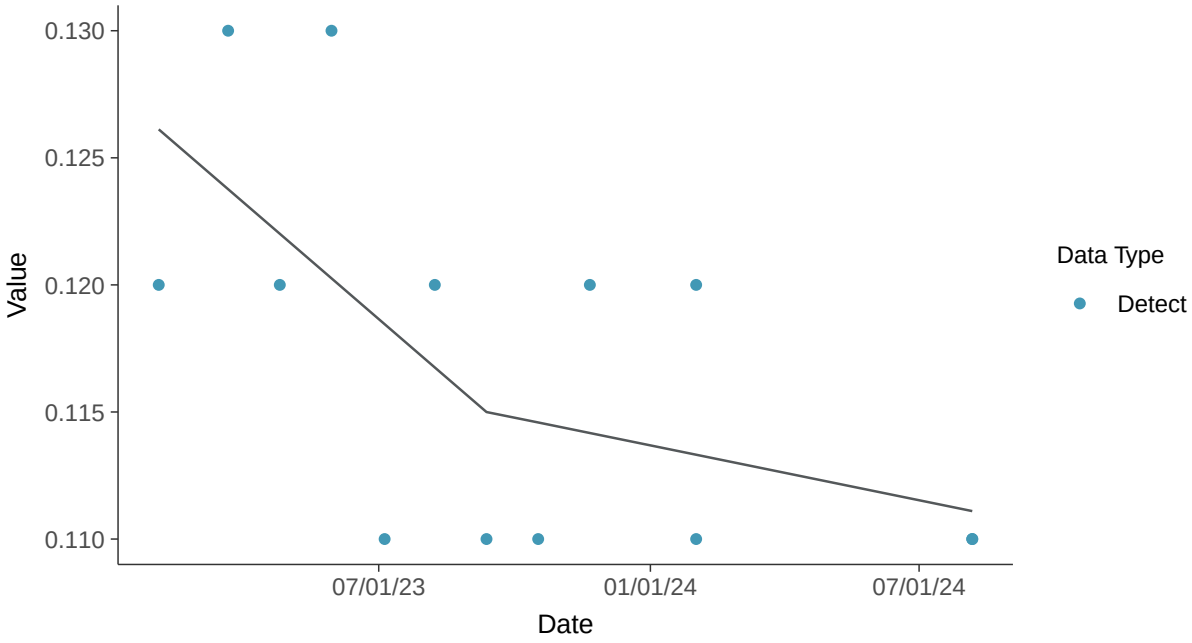
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Boron, MW-16B (mg/L)



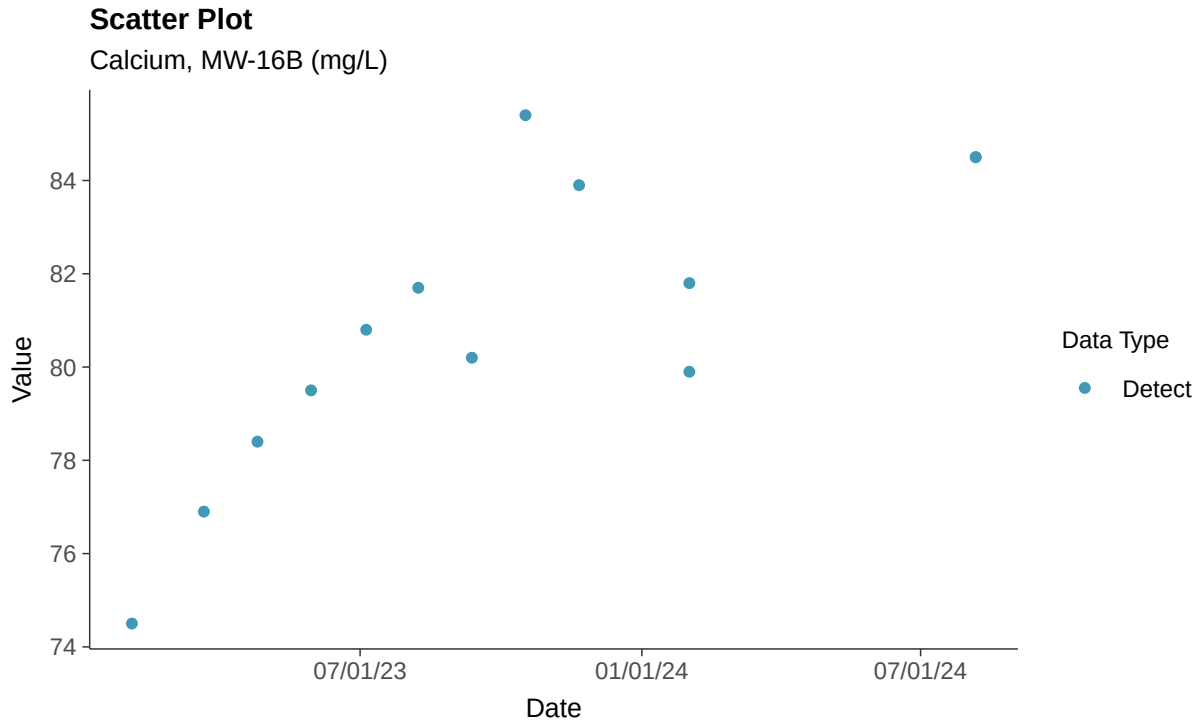
Trend Regression: Piecewise Linear-Linear

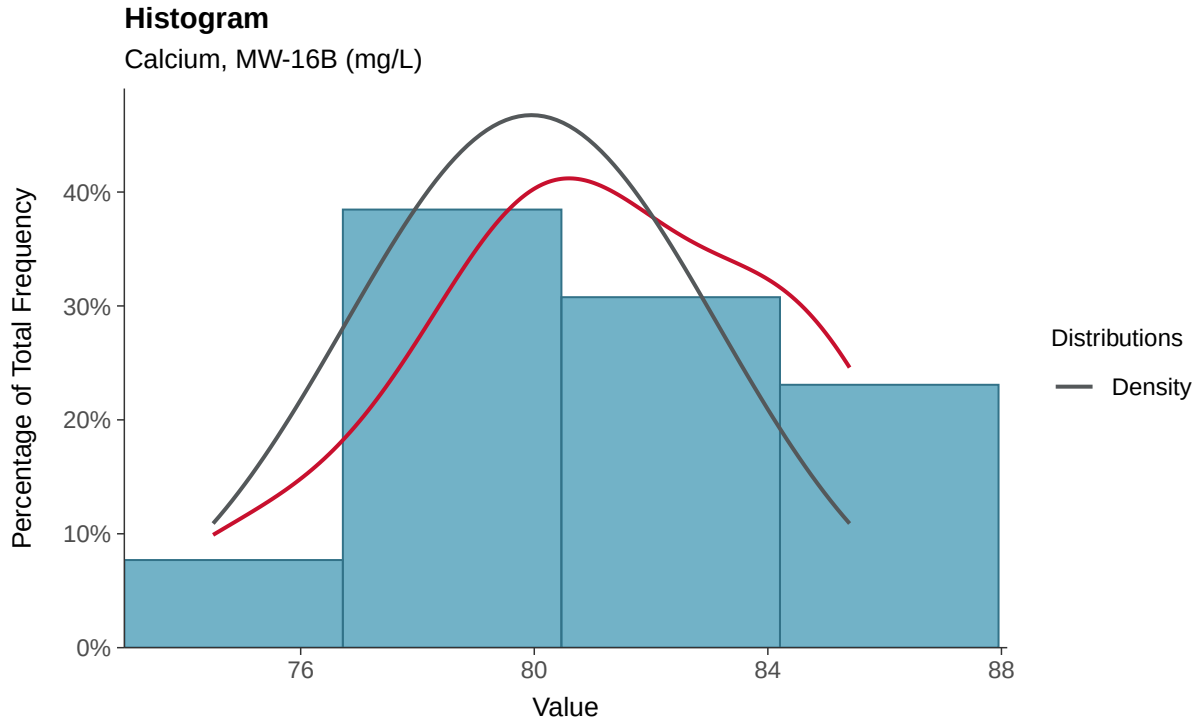
Boron, MW-16B (mg/L)



Appendix III: Calcium, MW-16B

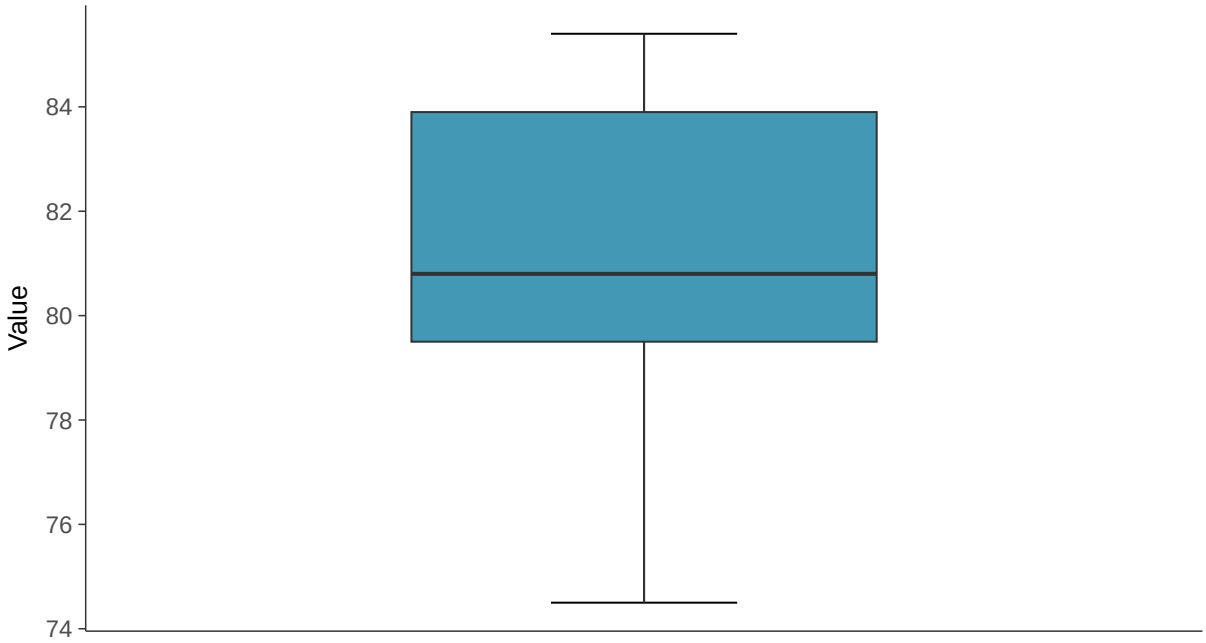
ID: 16B_1_02





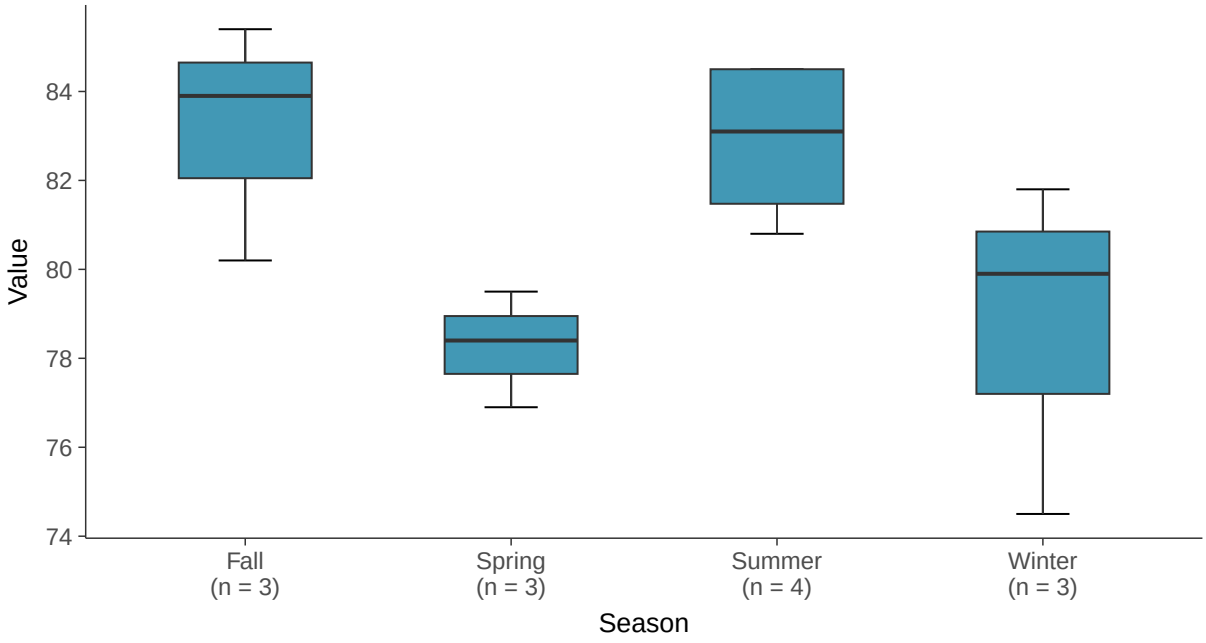
Boxplot

Calcium, MW-16B (mg/L)



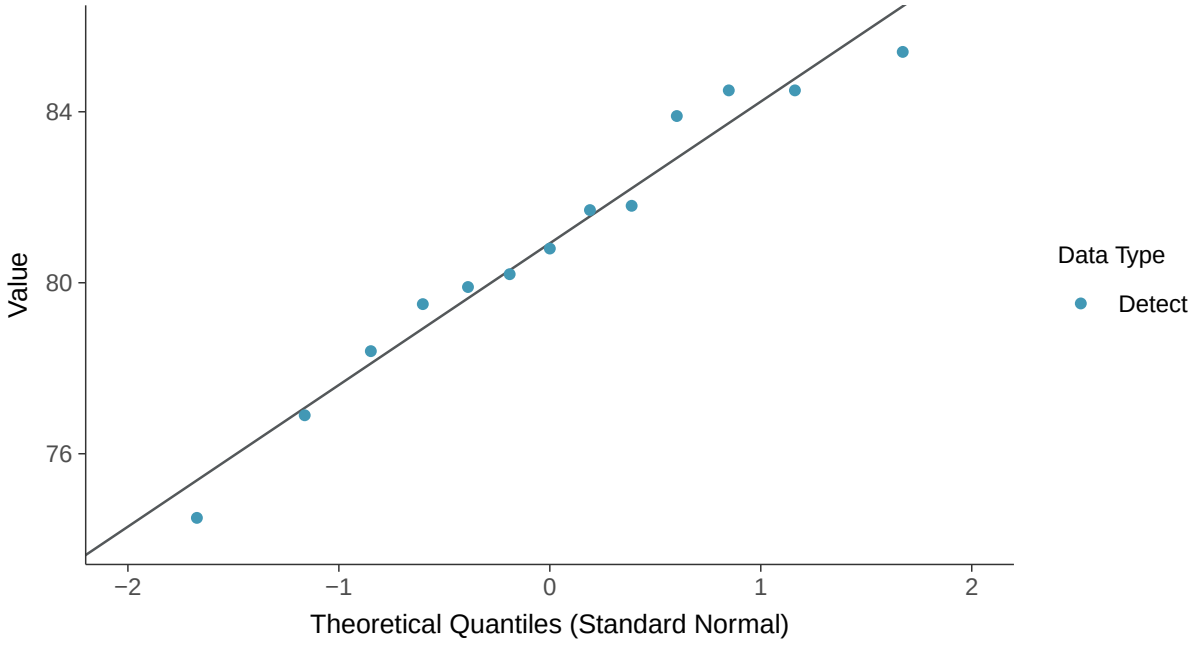
Boxplot by Season

Calcium, MW-16B (mg/L)



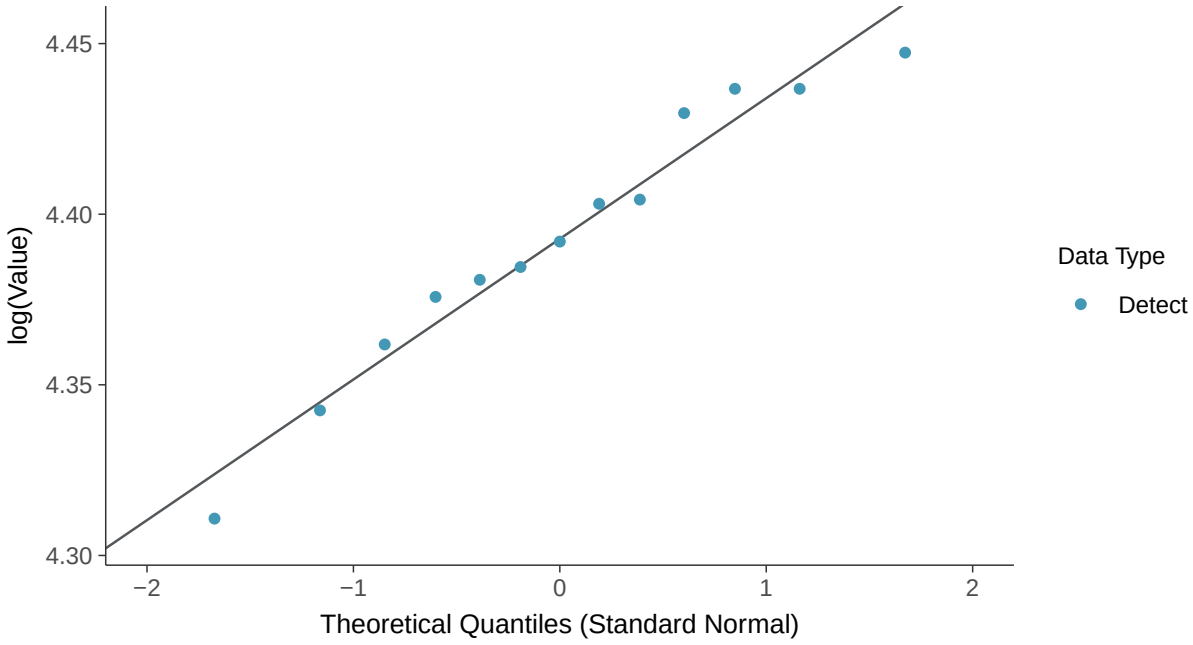
Normal Q-Q plot

Calcium, MW-16B (mg/L)



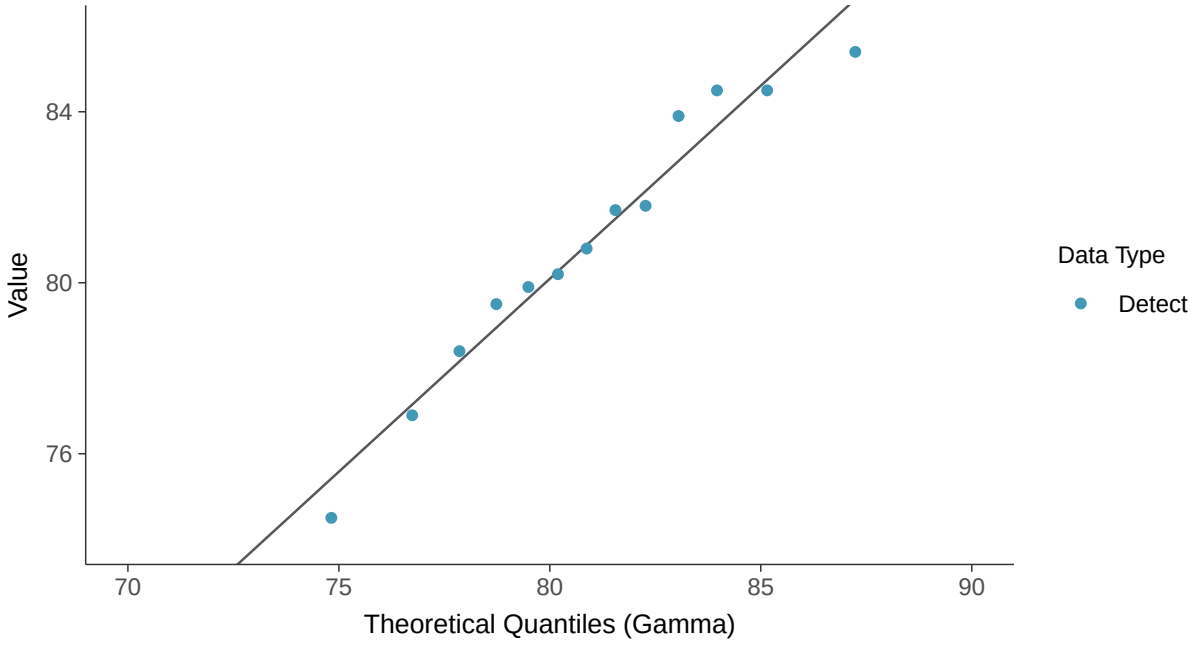
Lognormal Q-Q plot

Calcium, MW-16B (mg/L)



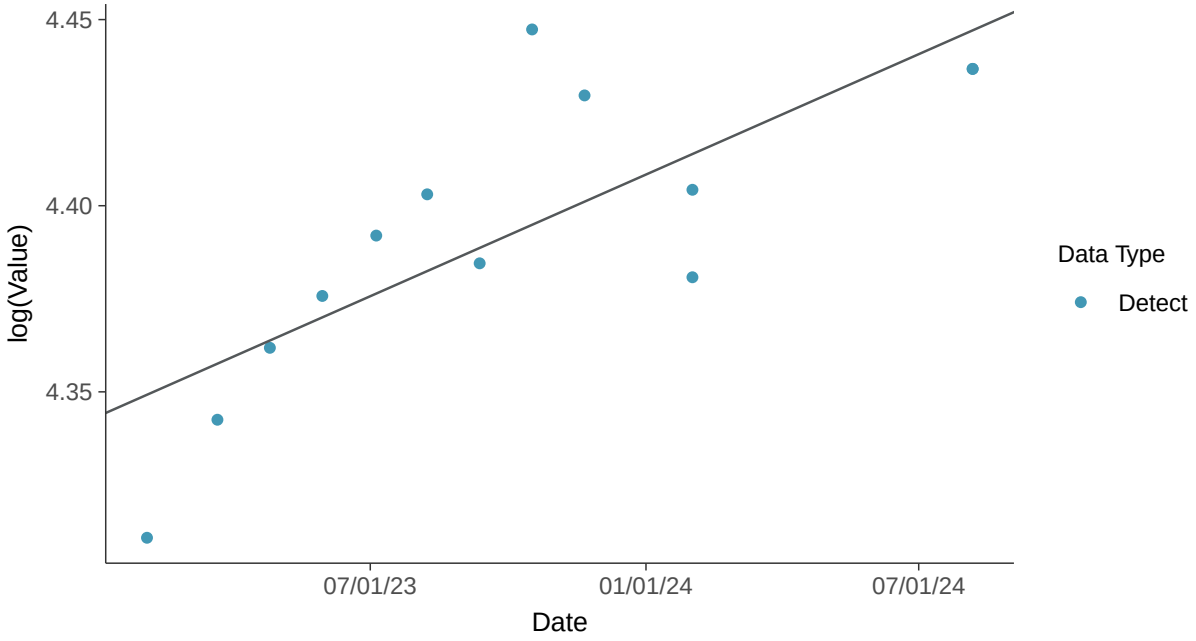
Gamma Q-Q plot

Calcium, MW-16B (mg/L)



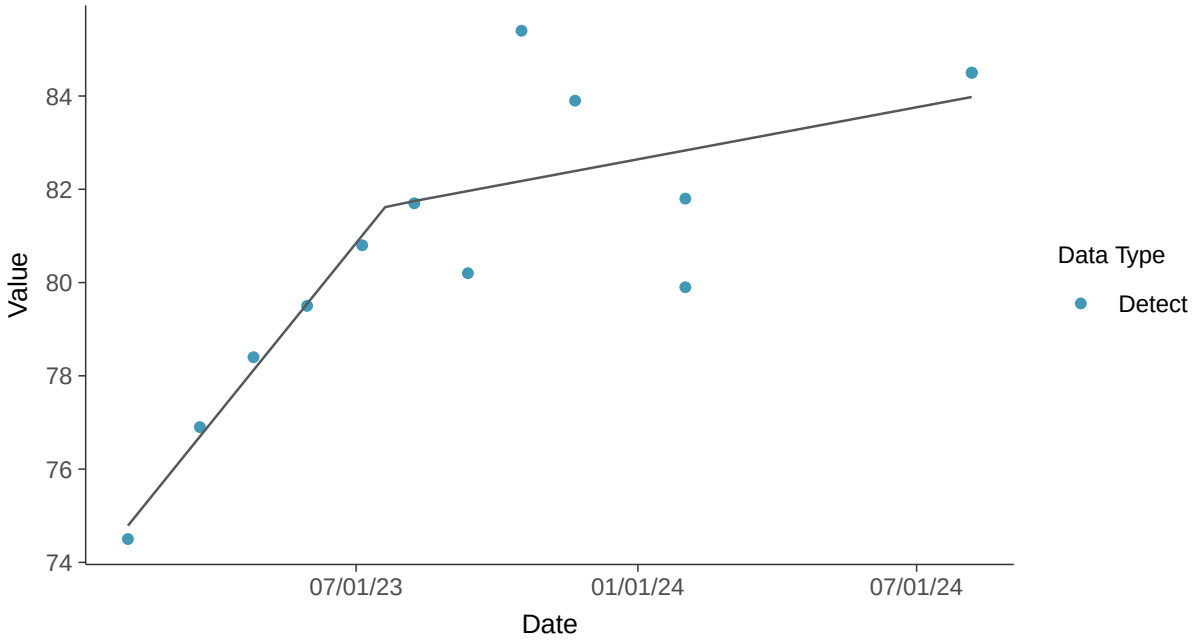
Trend Regression: Lognormal MLE

Calcium, MW-16B (mg/L)



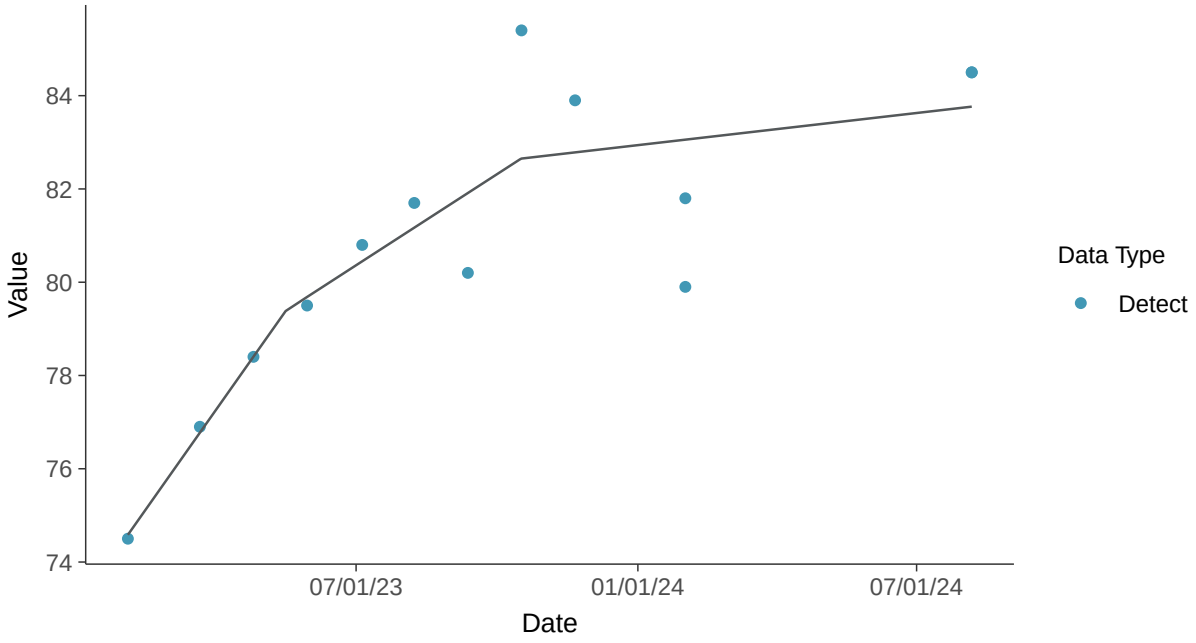
Trend Regression: Piecewise Linear-Linear

Calcium, MW-16B (mg/L)



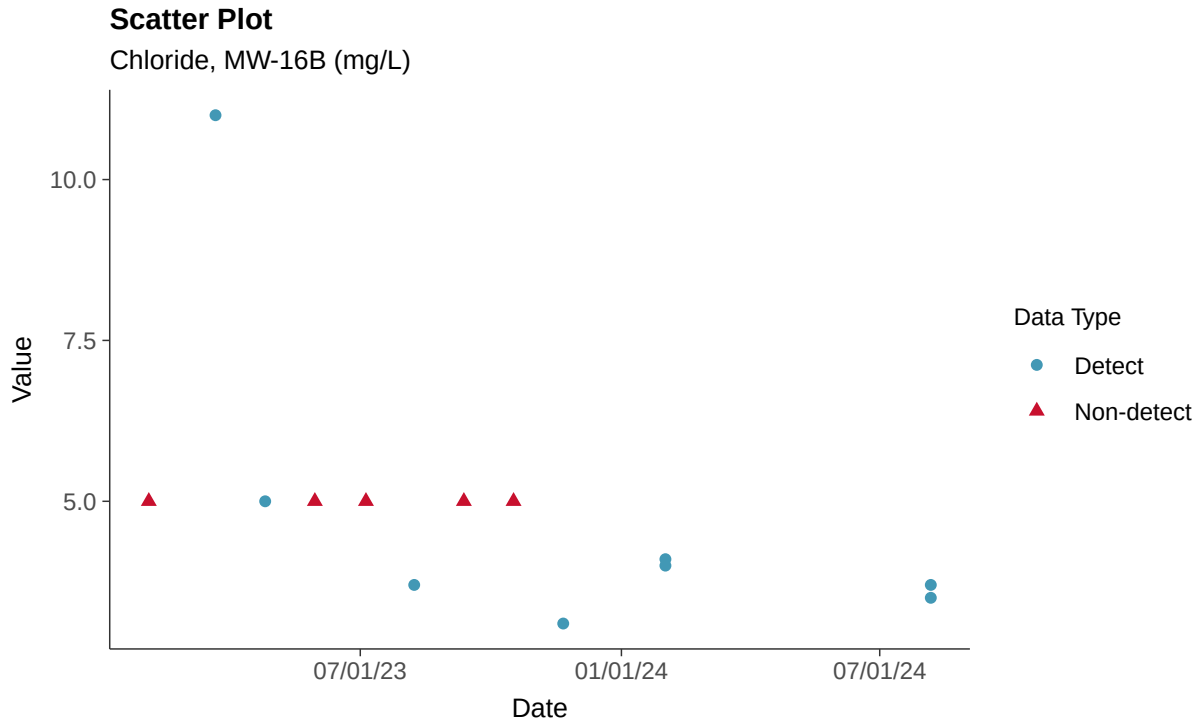
Trend Regression: Piecewise Linear-Linear-Linear

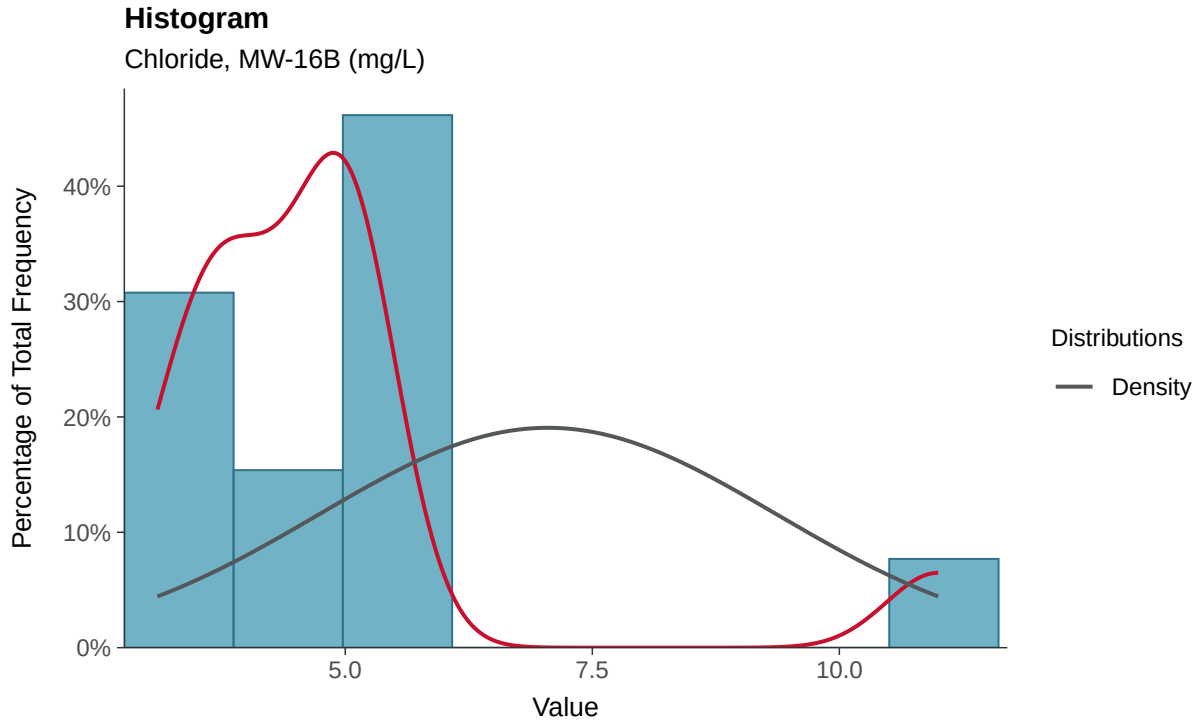
Calcium, MW-16B (mg/L)



Appendix III: Chloride, MW-16B

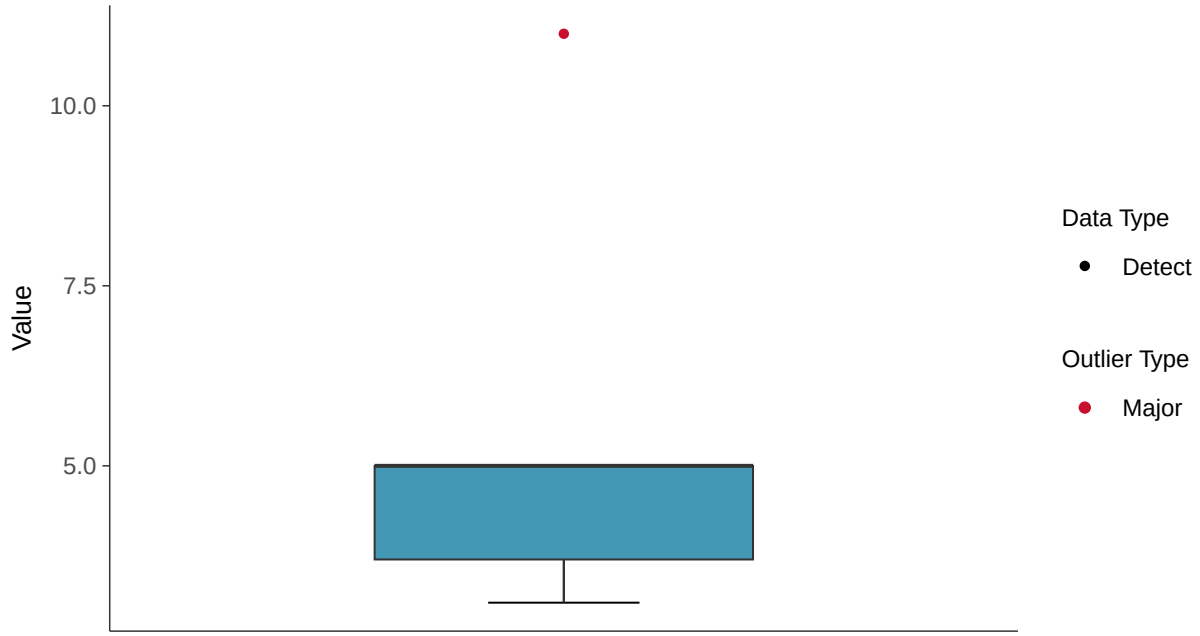
ID: 16B_1_03





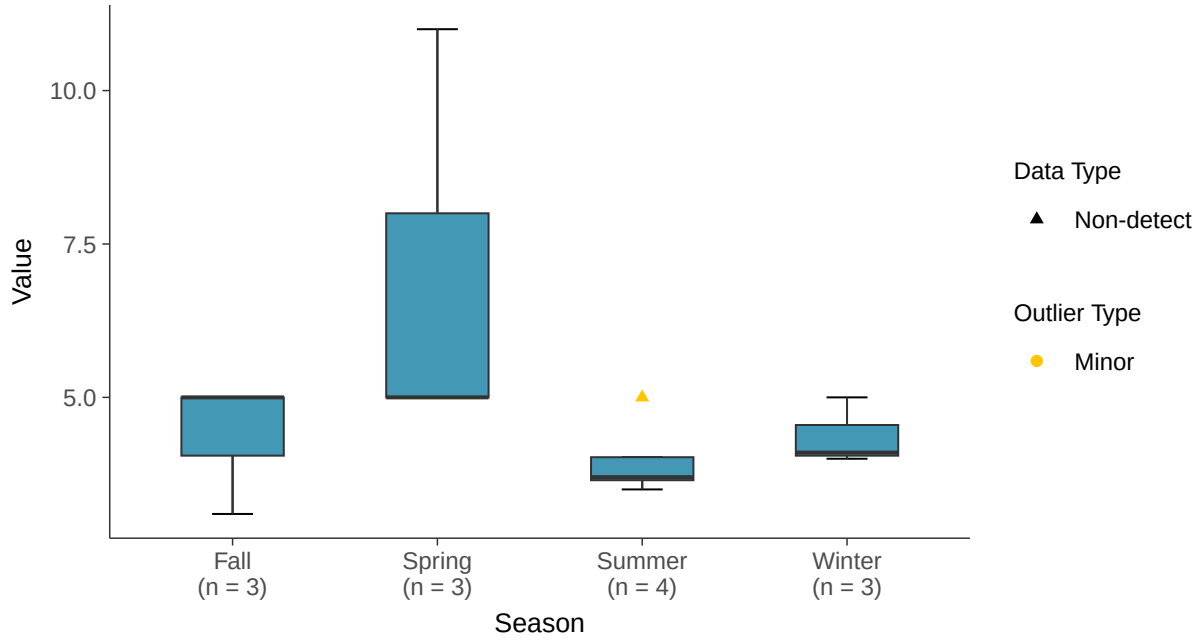
Boxplot

Chloride, MW-16B (mg/L)



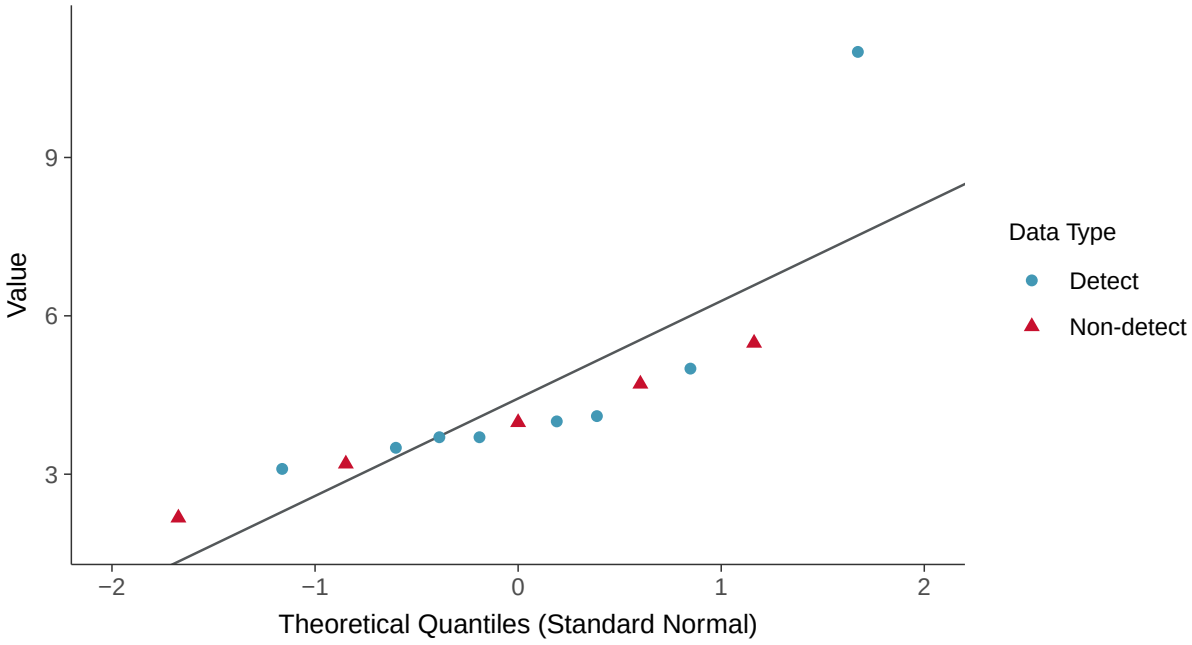
Boxplot by Season

Chloride, MW-16B (mg/L)



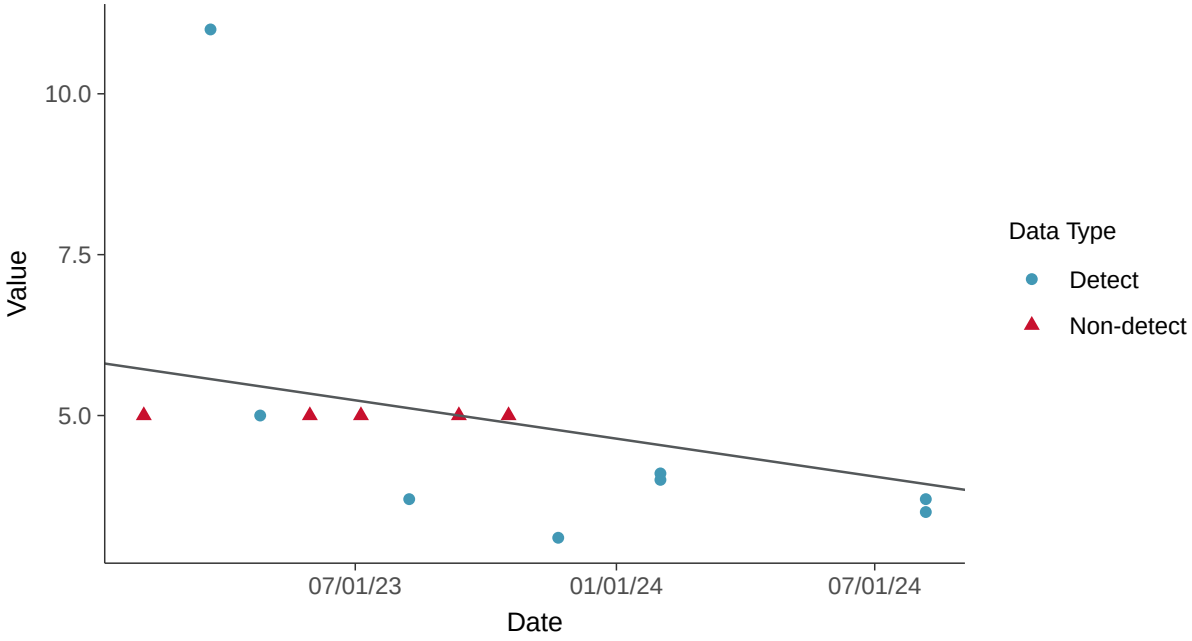
Normal Q-Q plot using ROS Imputed Estimates

Chloride, MW-16B (mg/L)



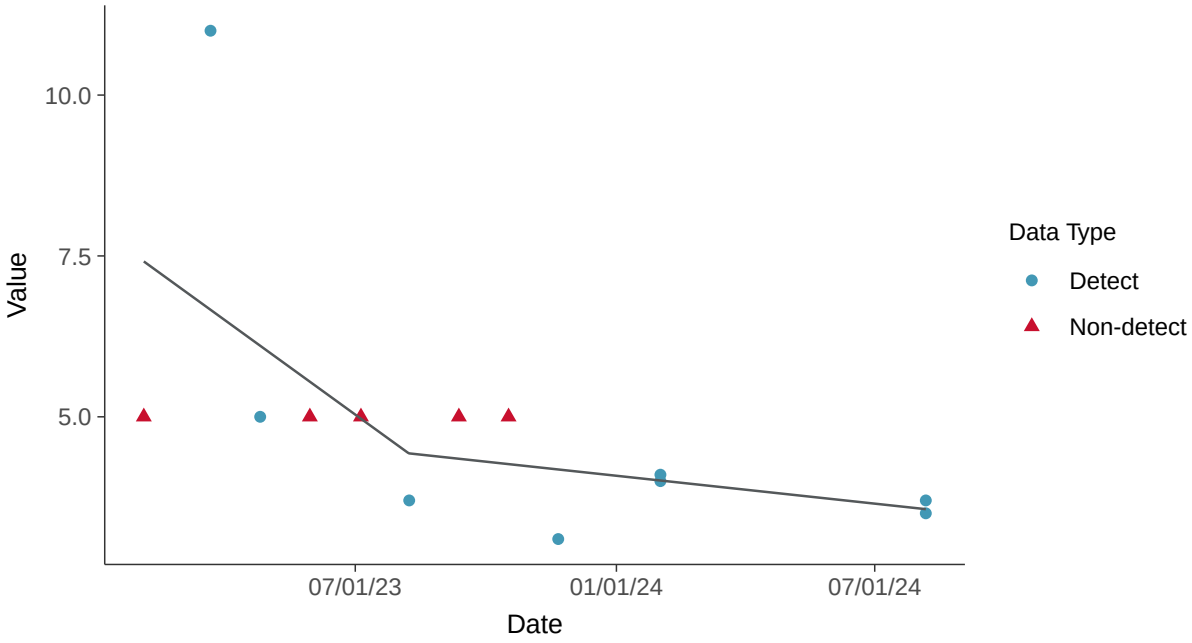
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Chloride, MW-16B (mg/L)



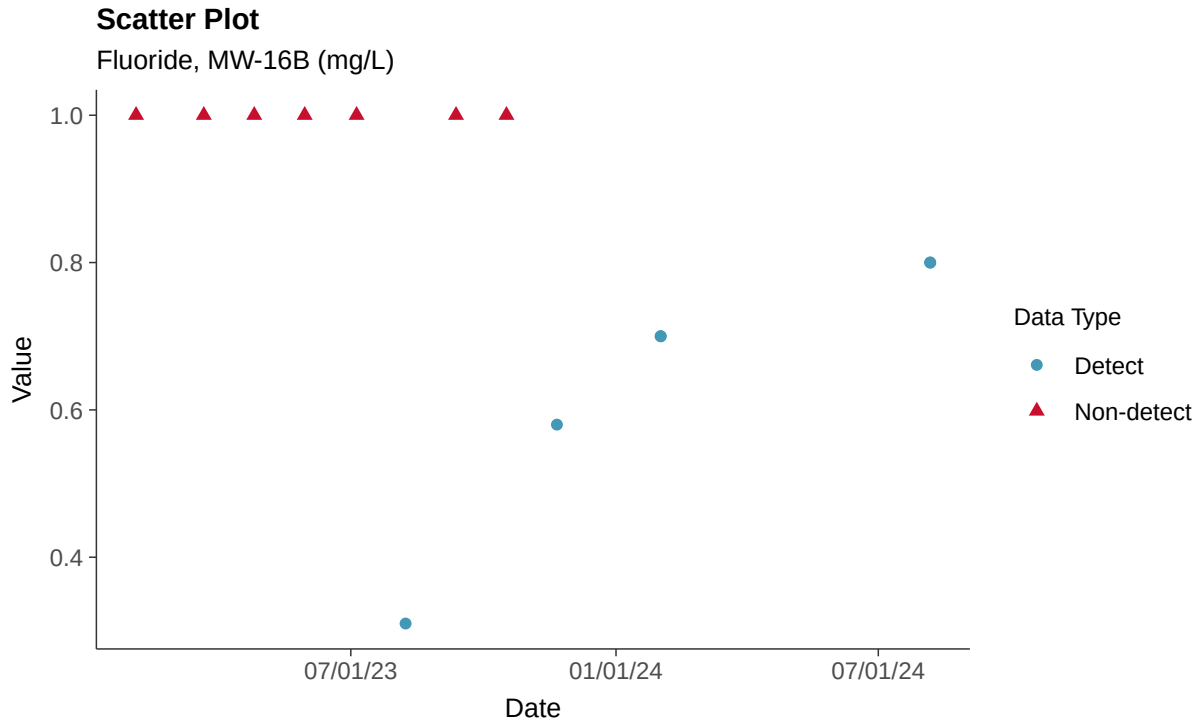
Trend Regression: Piecewise Linear-Linear

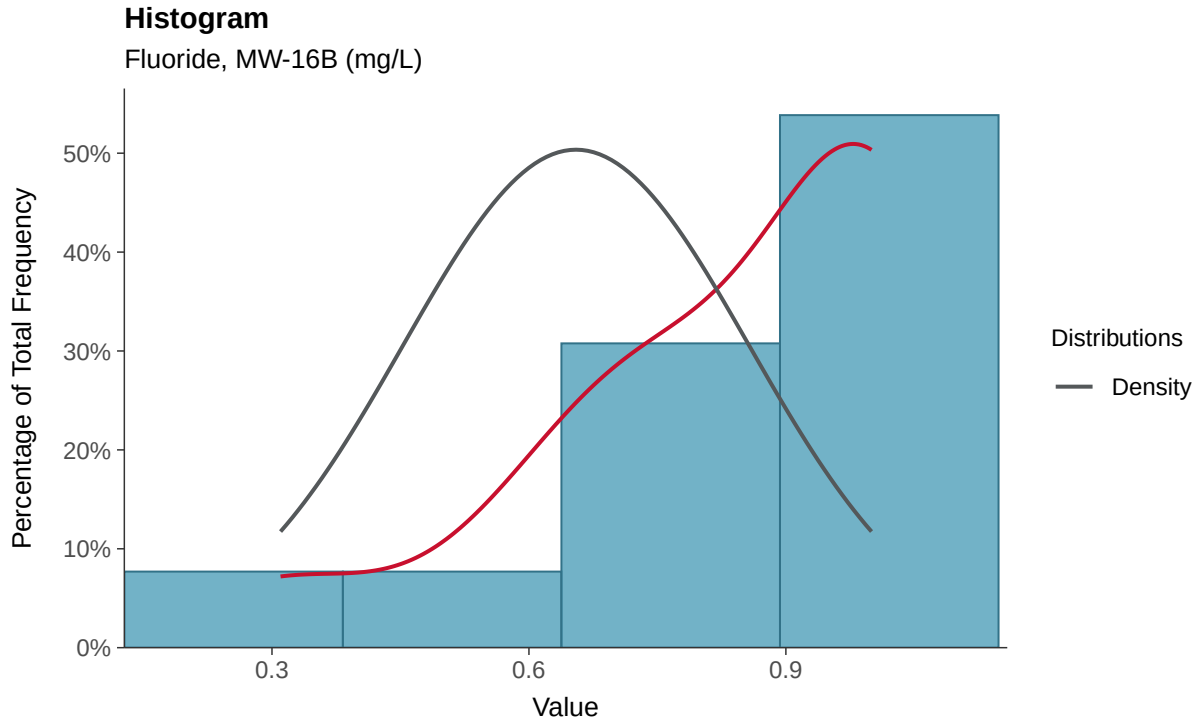
Chloride, MW-16B (mg/L)



Appendix III: Fluoride, MW-16B

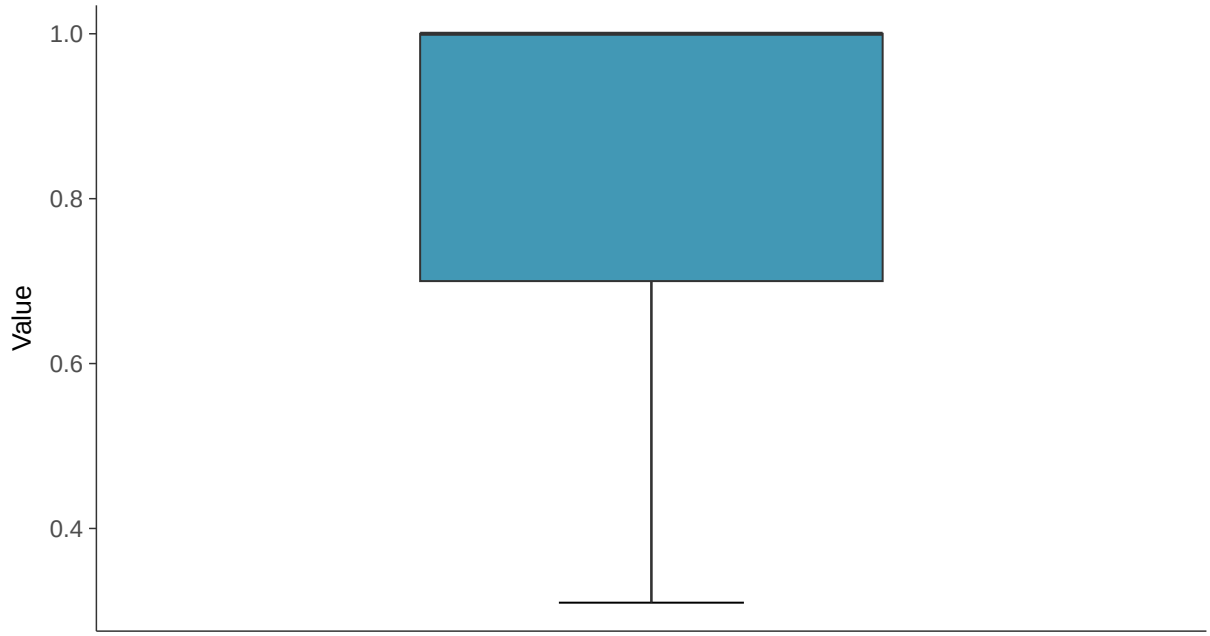
ID: 16B_1_04





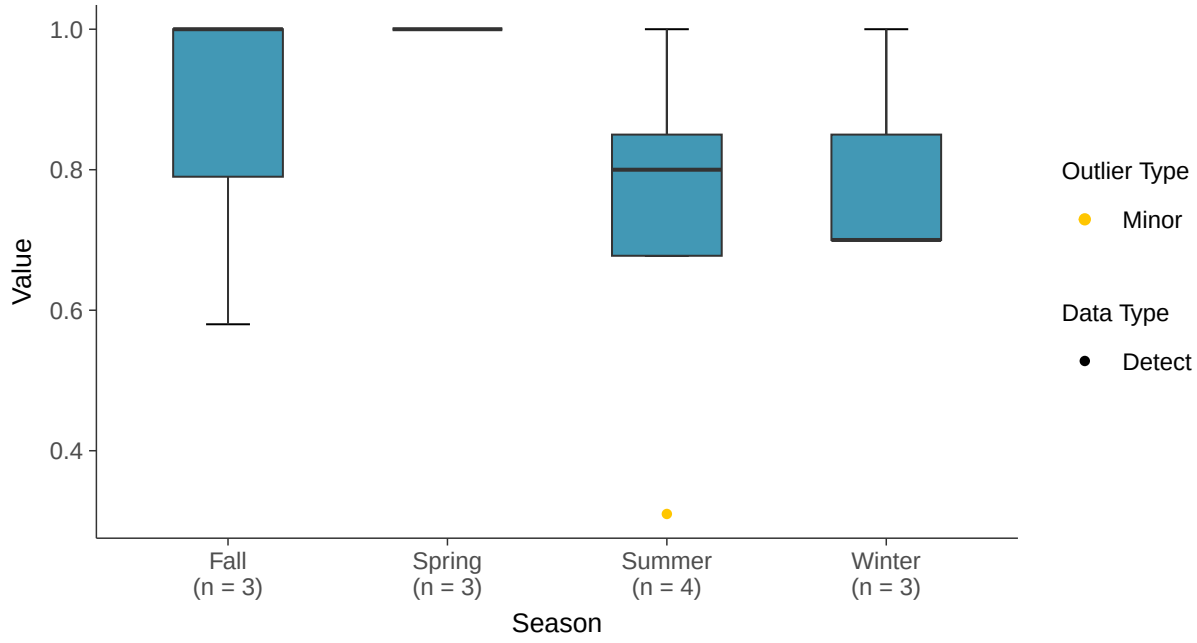
Boxplot

Fluoride, MW-16B (mg/L)



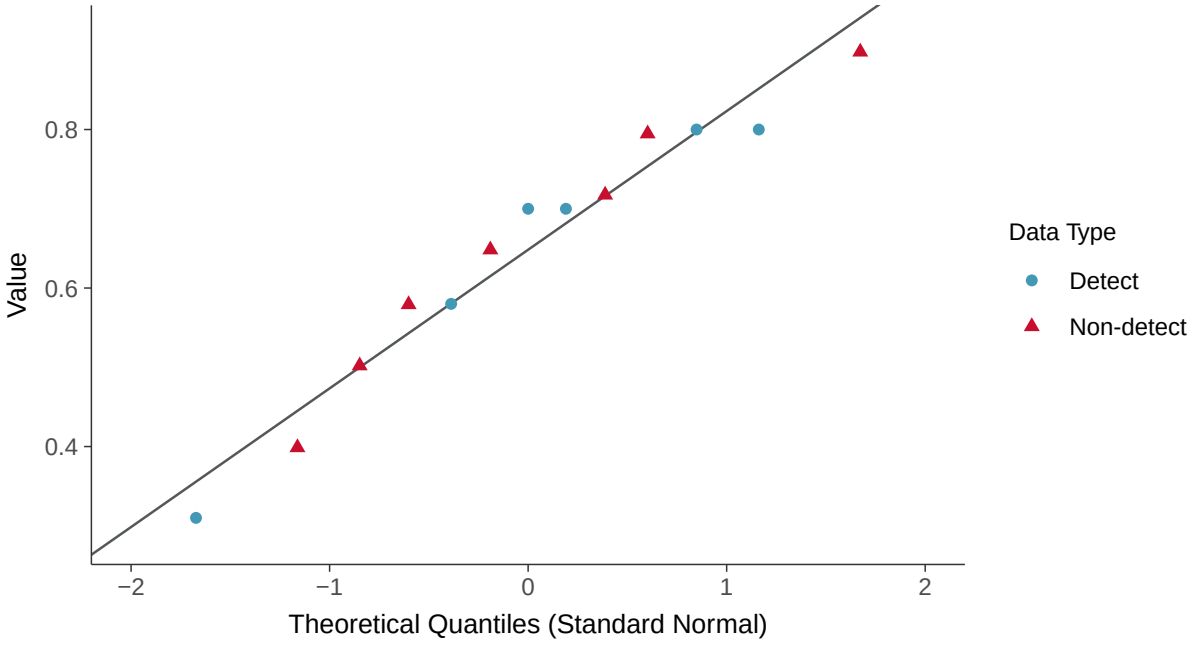
Boxplot by Season

Fluoride, MW-16B (mg/L)



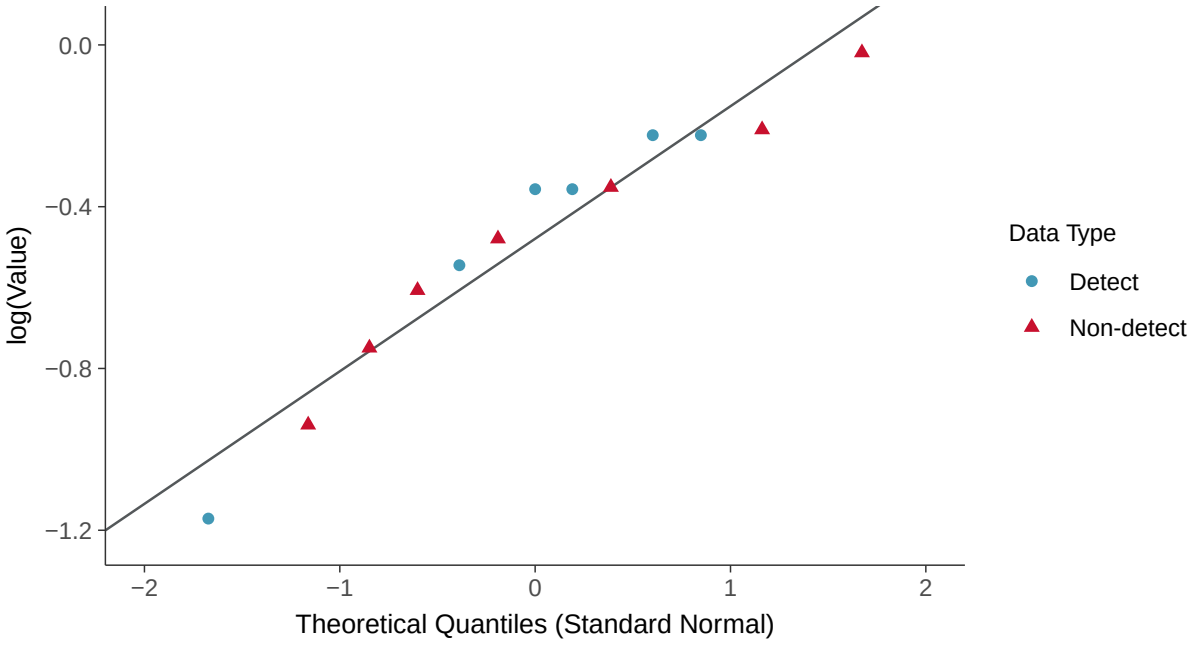
Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-16B (mg/L)



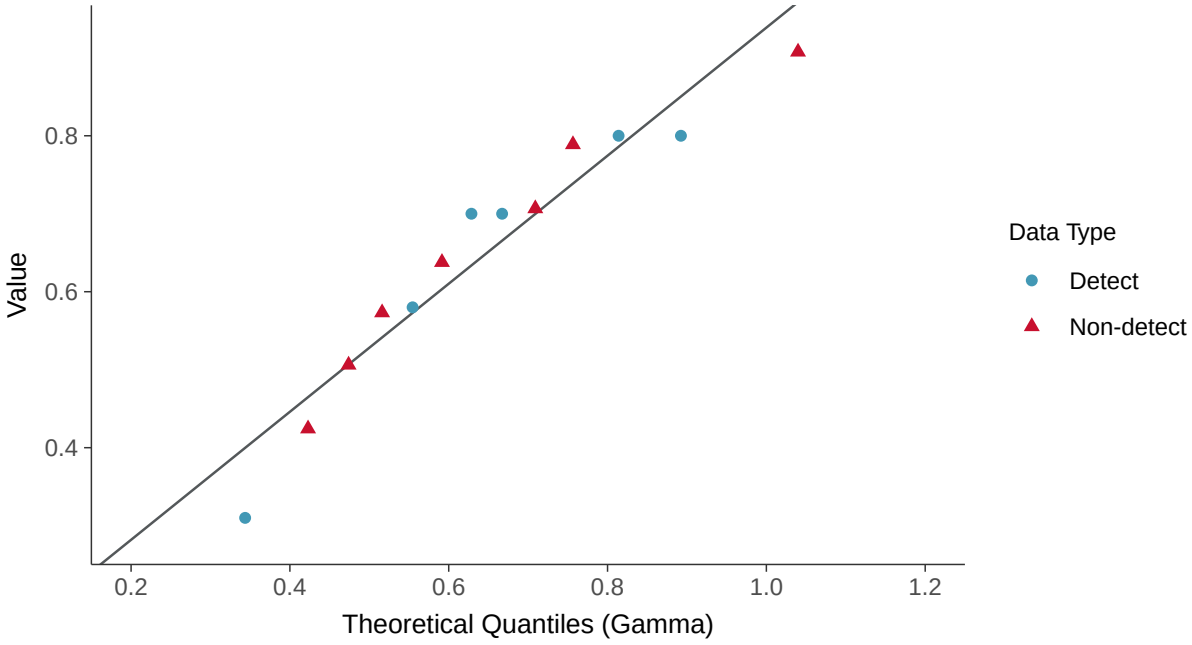
Lognormal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-16B (mg/L)



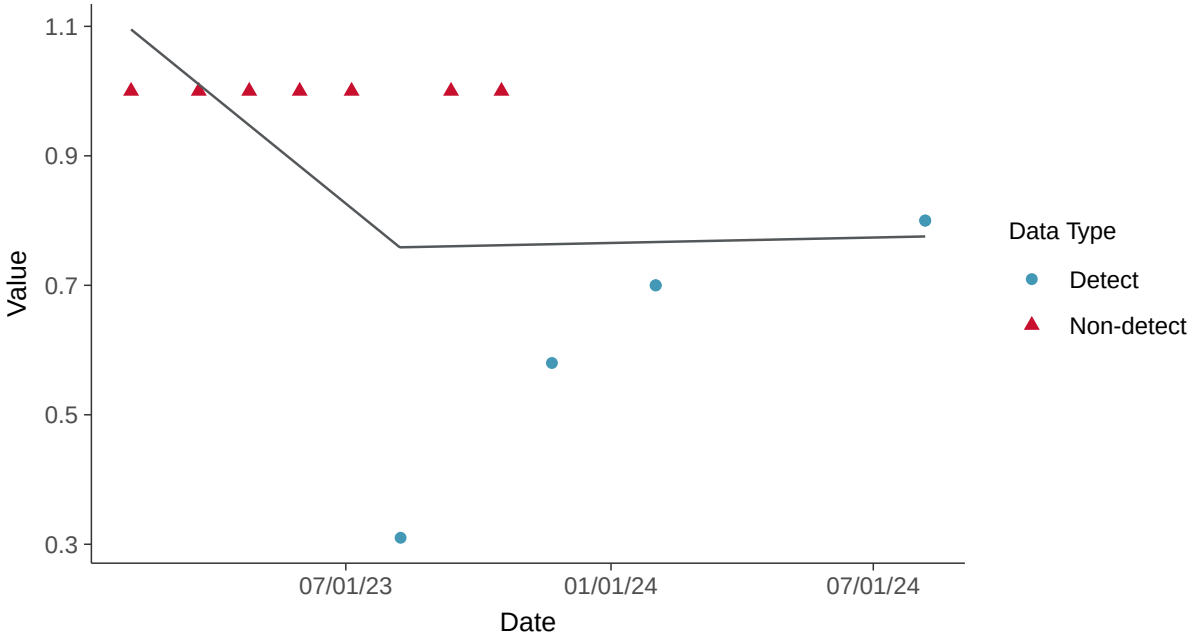
Gamma Q-Q plot using ROS Imputed Estimates

Fluoride, MW-16B (mg/L)



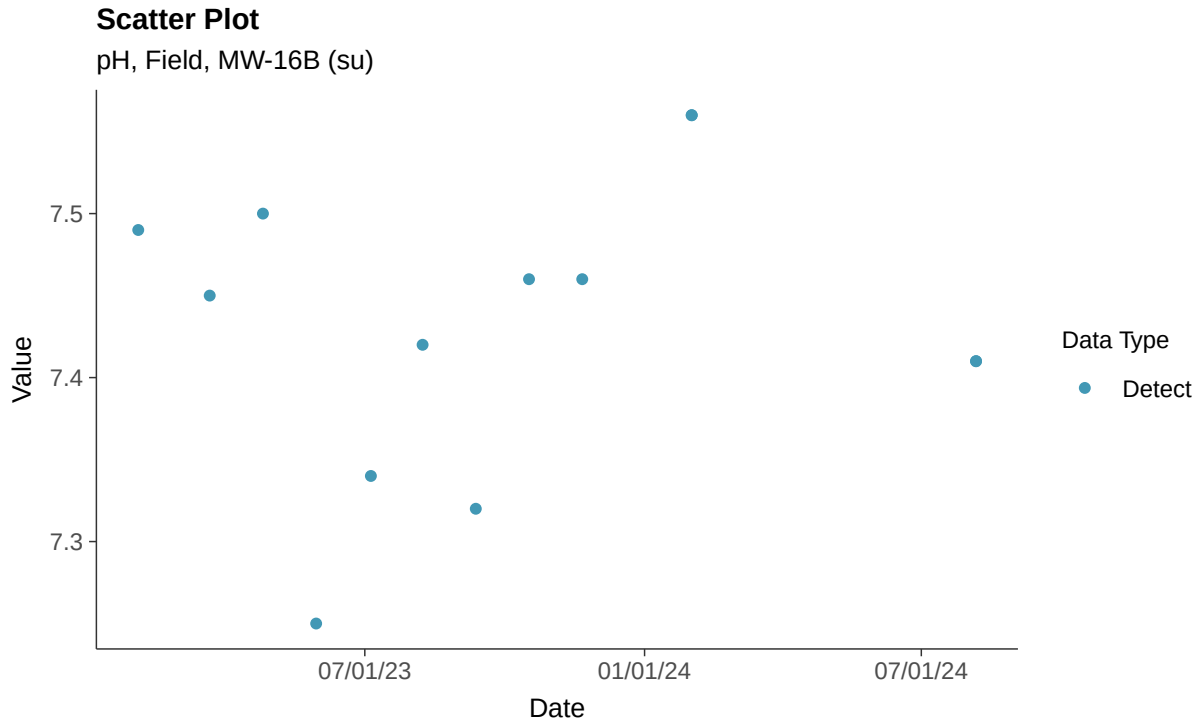
Trend Regression: Piecewise Linear-Linear

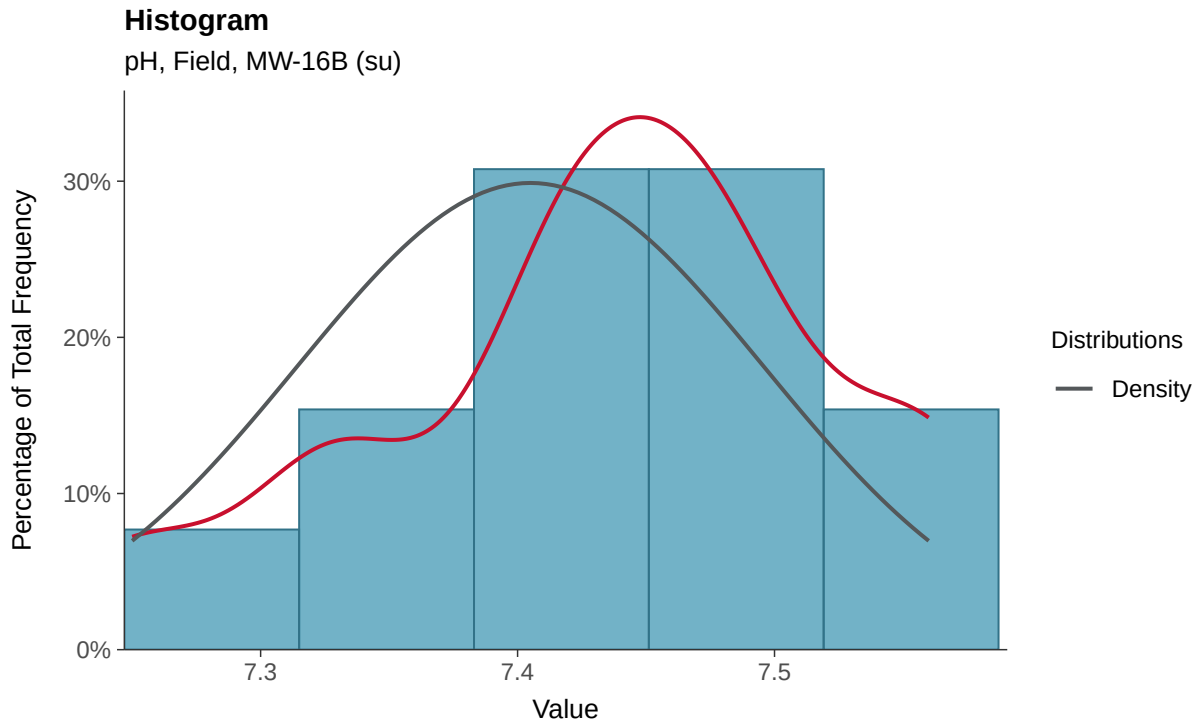
Fluoride, MW-16B (mg/L)



Appendix III: pH, Field, MW-16B

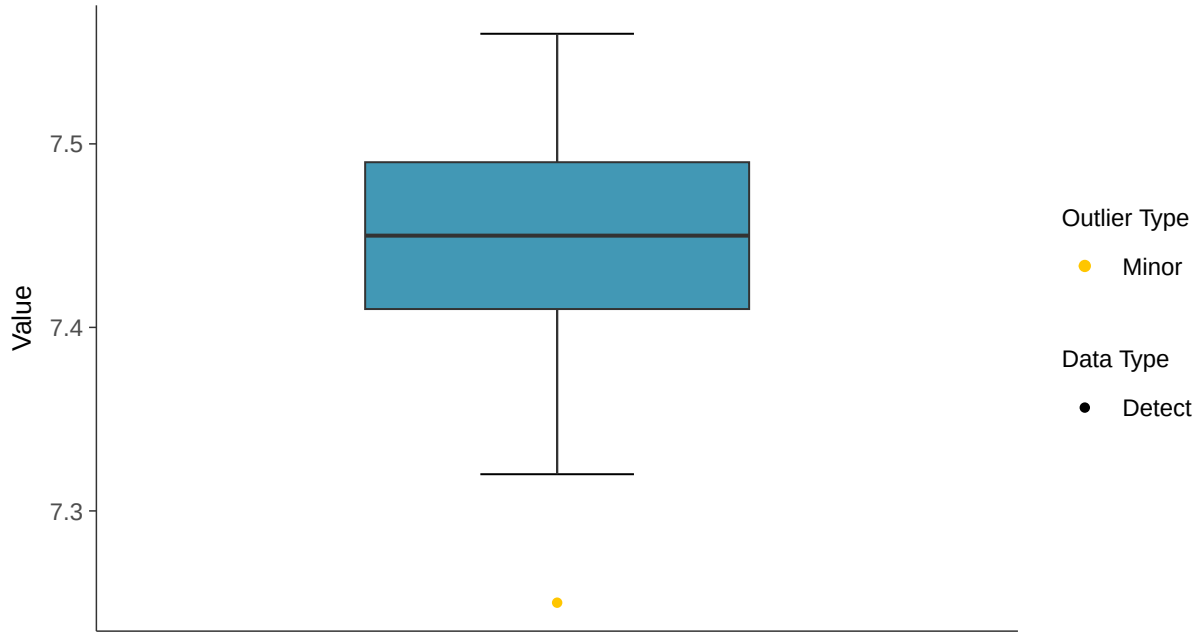
ID: 16B_1_05





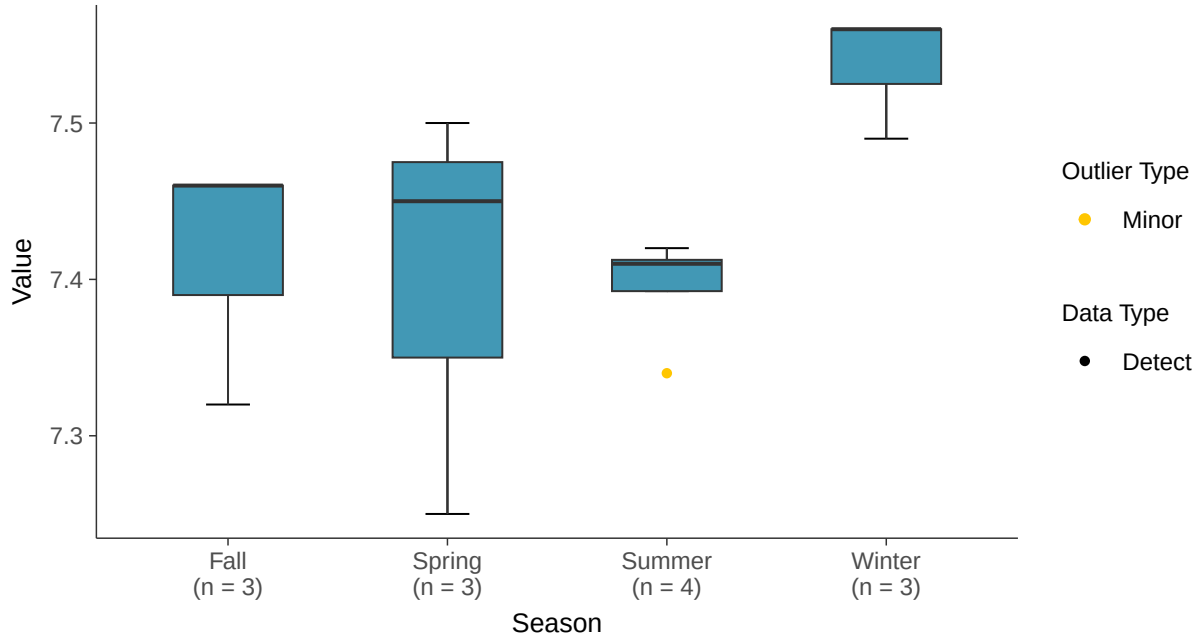
Boxplot

pH, Field, MW-16B (su)



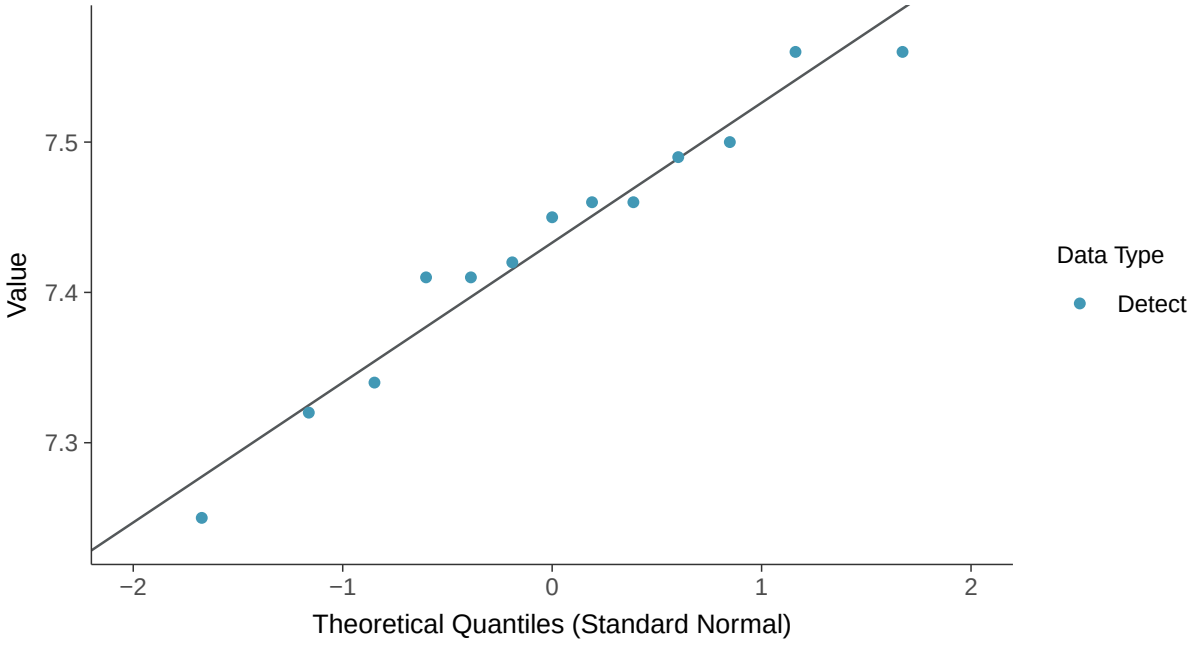
Boxplot by Season

pH, Field, MW-16B (su)



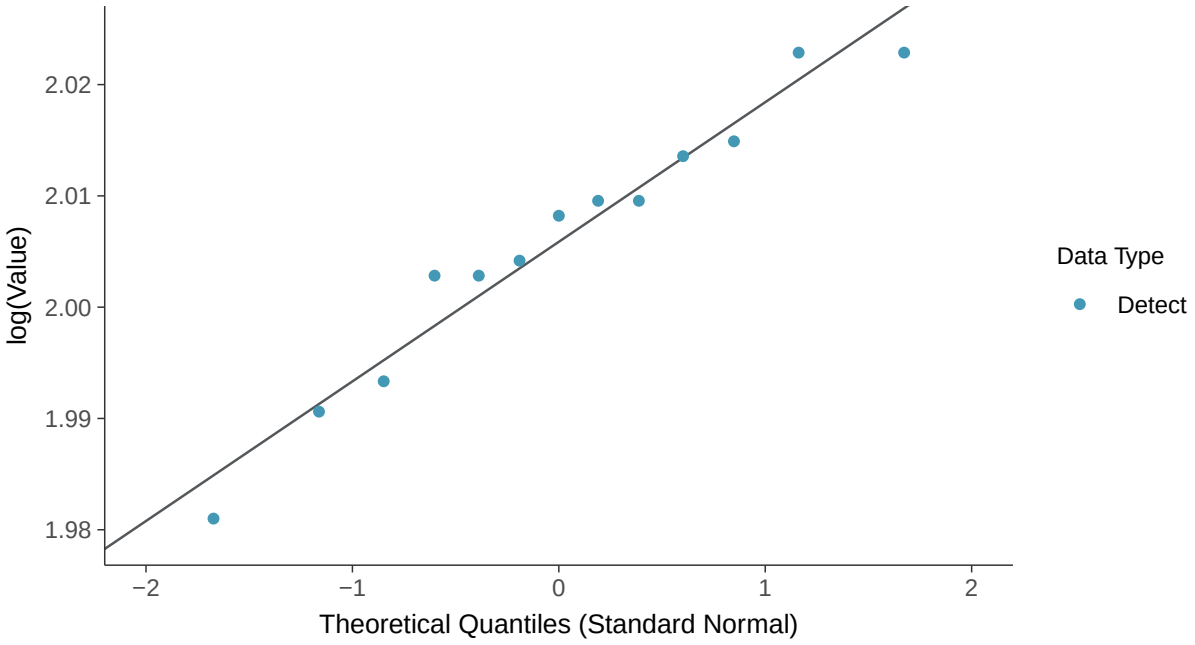
Normal Q-Q plot

pH, Field, MW-16B (su)



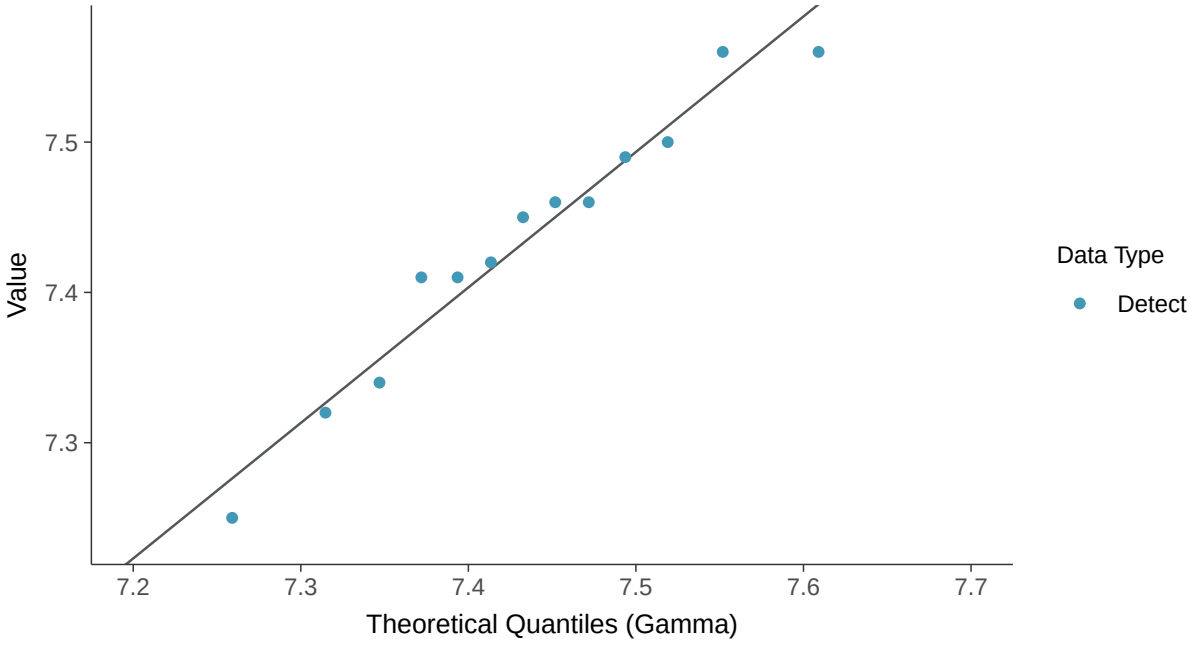
Lognormal Q-Q plot

pH, Field, MW-16B (su)



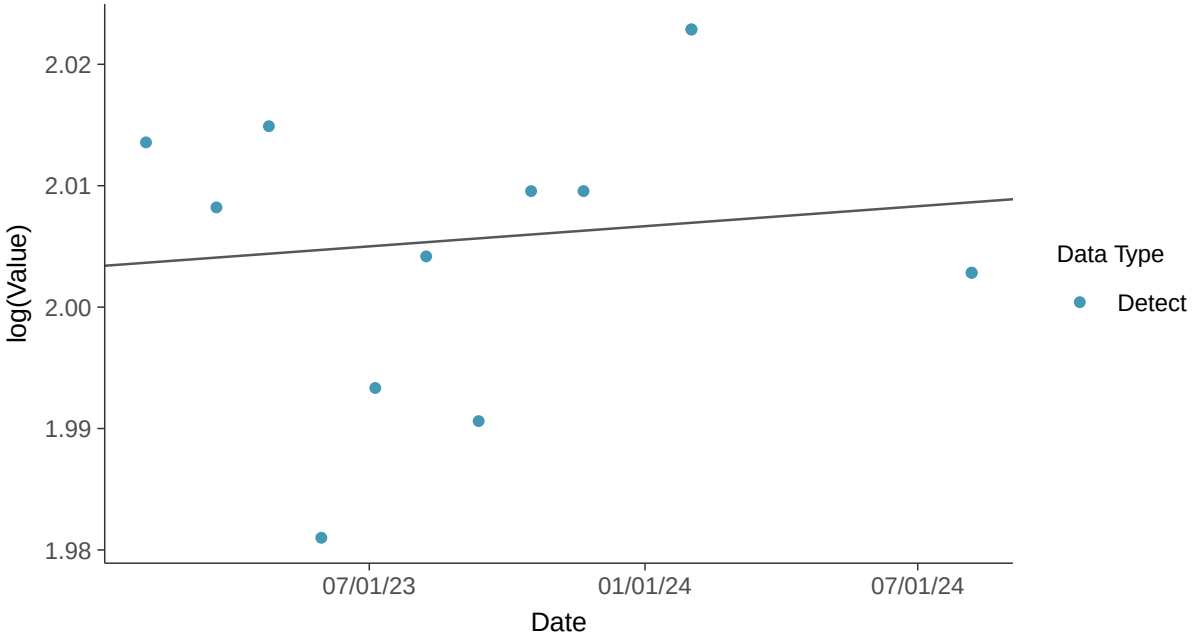
Gamma Q-Q plot

pH, Field, MW-16B (su)



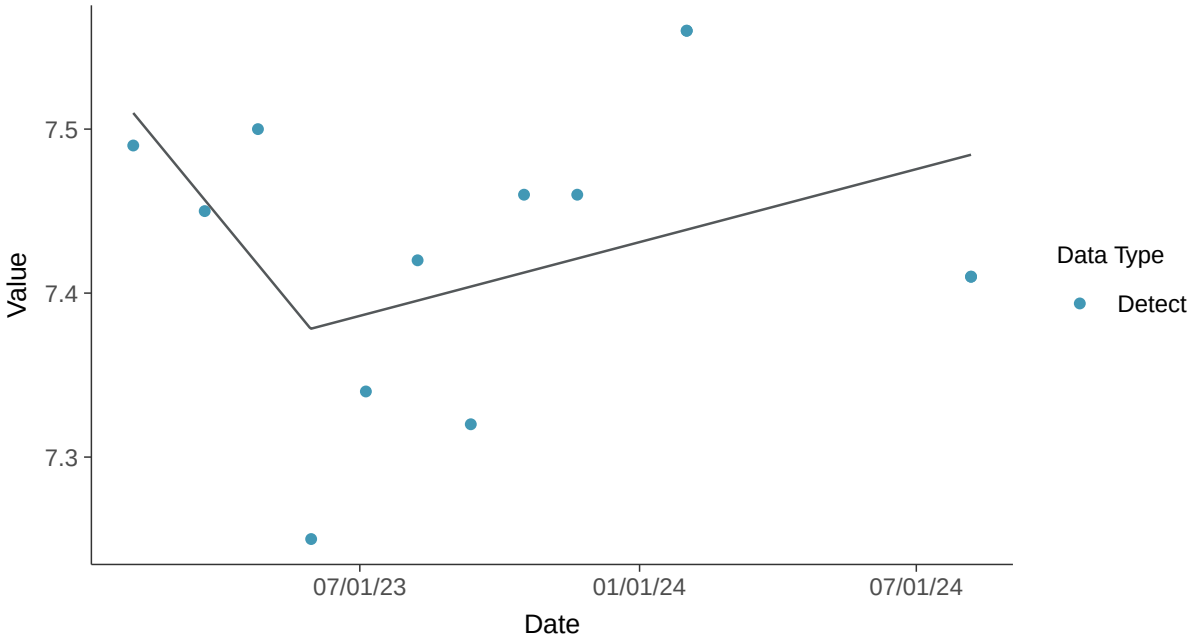
Trend Regression: Lognormal MLE

pH, Field, MW-16B (su)



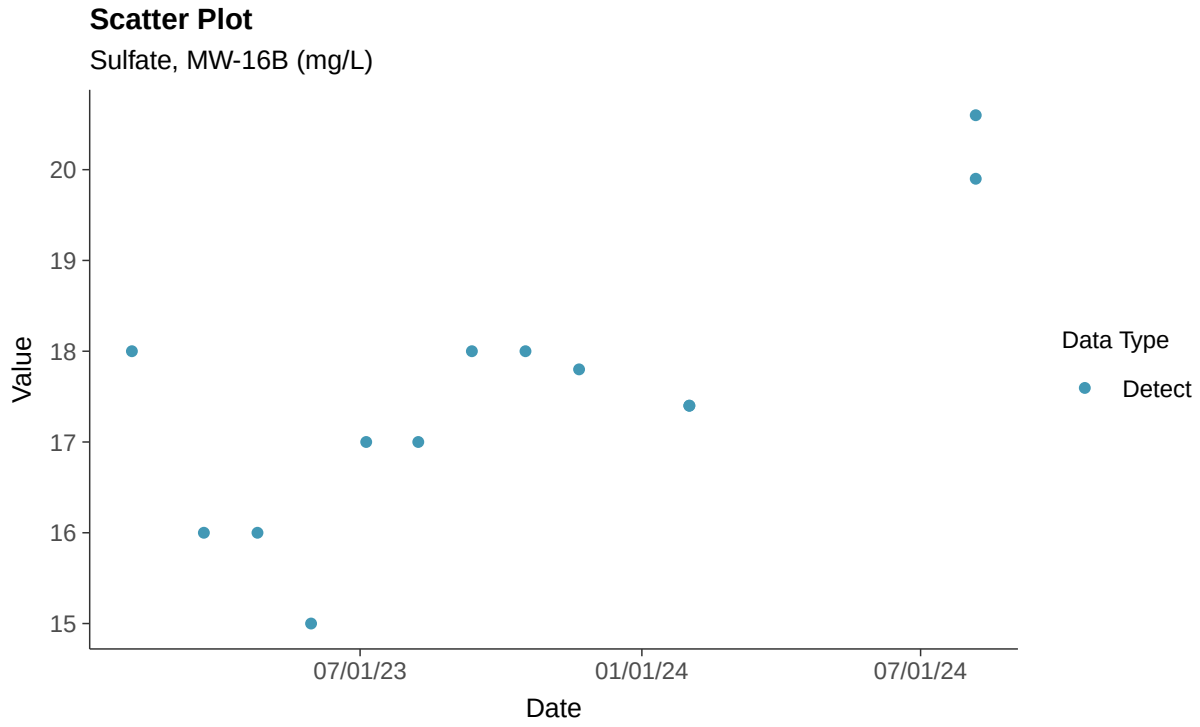
Trend Regression: Piecewise Linear-Linear

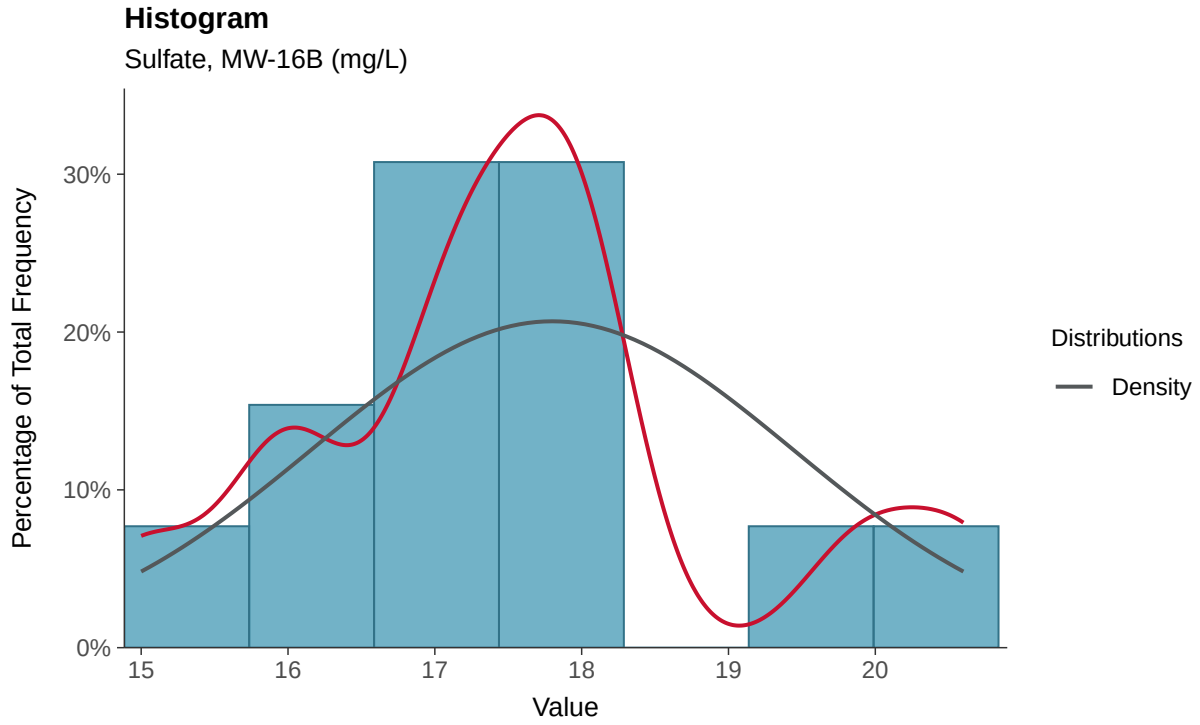
pH, Field, MW-16B (su)



Appendix III: Sulfate, MW-16B

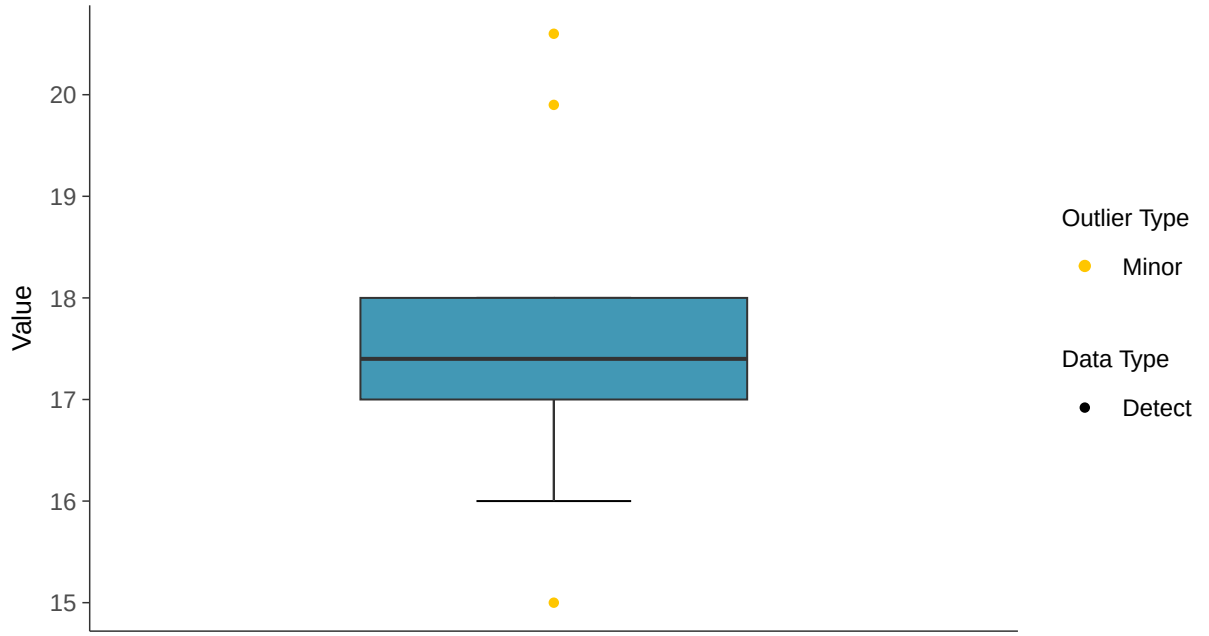
ID: 16B_1_06





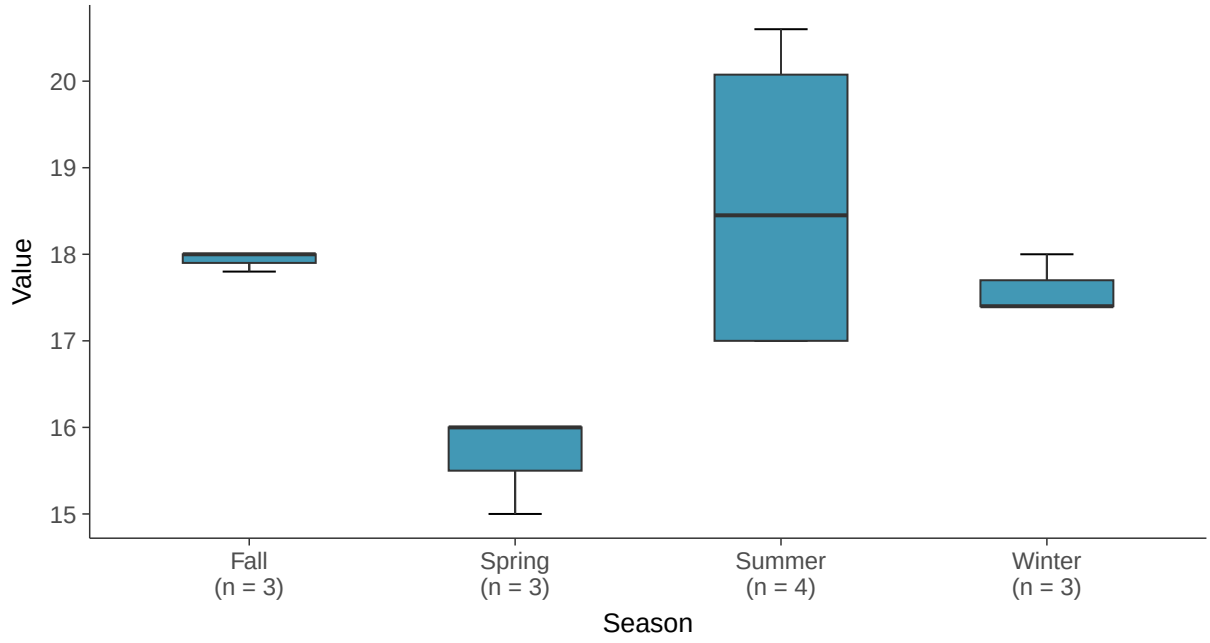
Boxplot

Sulfate, MW-16B (mg/L)



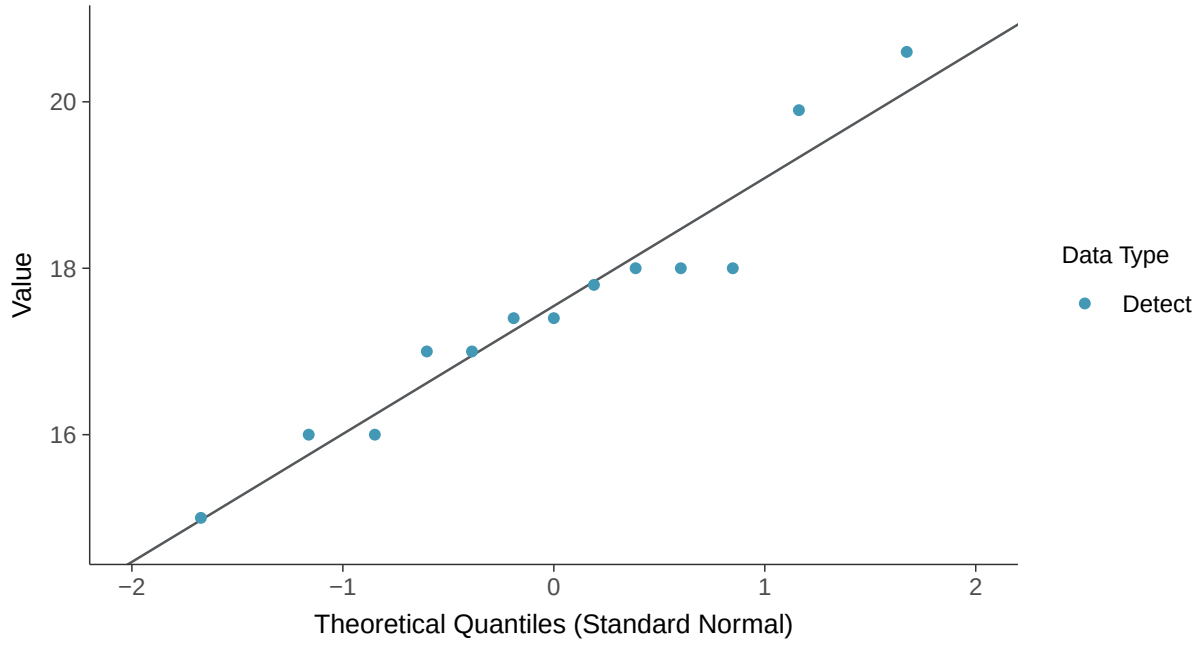
Boxplot by Season

Sulfate, MW-16B (mg/L)



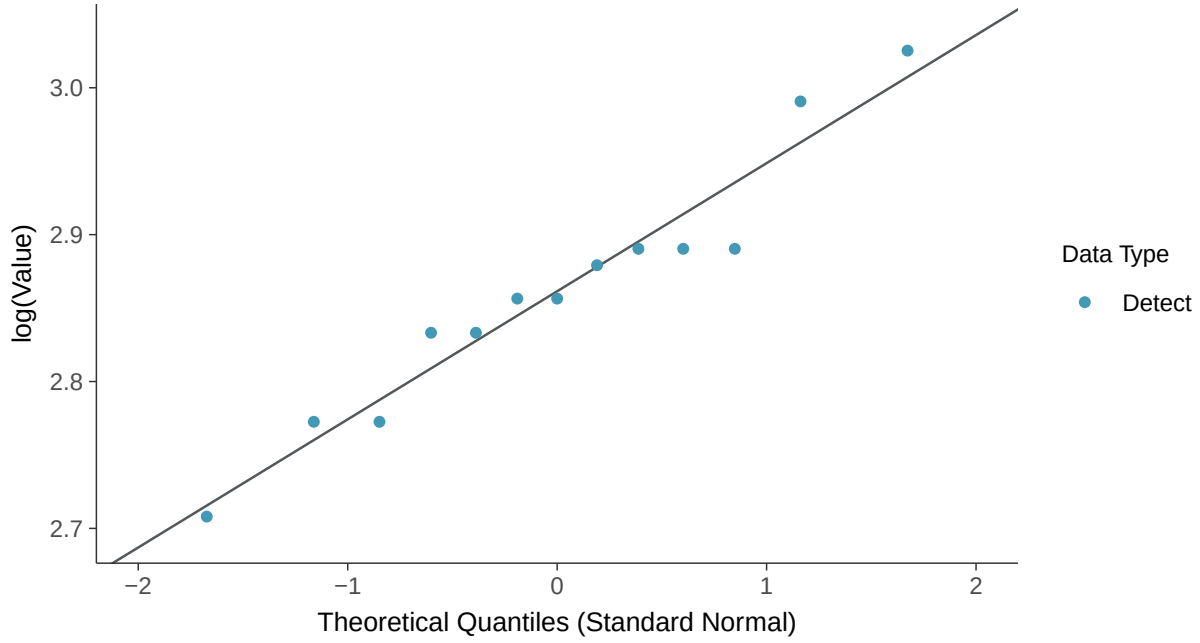
Normal Q-Q plot

Sulfate, MW-16B (mg/L)



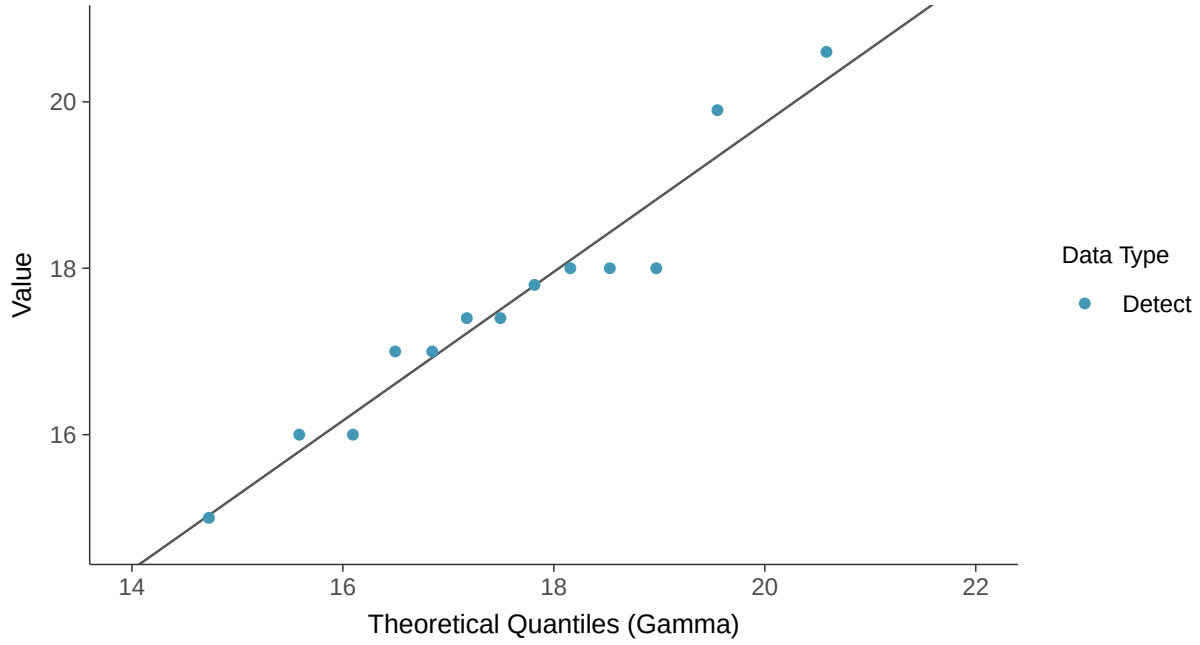
Lognormal Q-Q plot

Sulfate, MW-16B (mg/L)



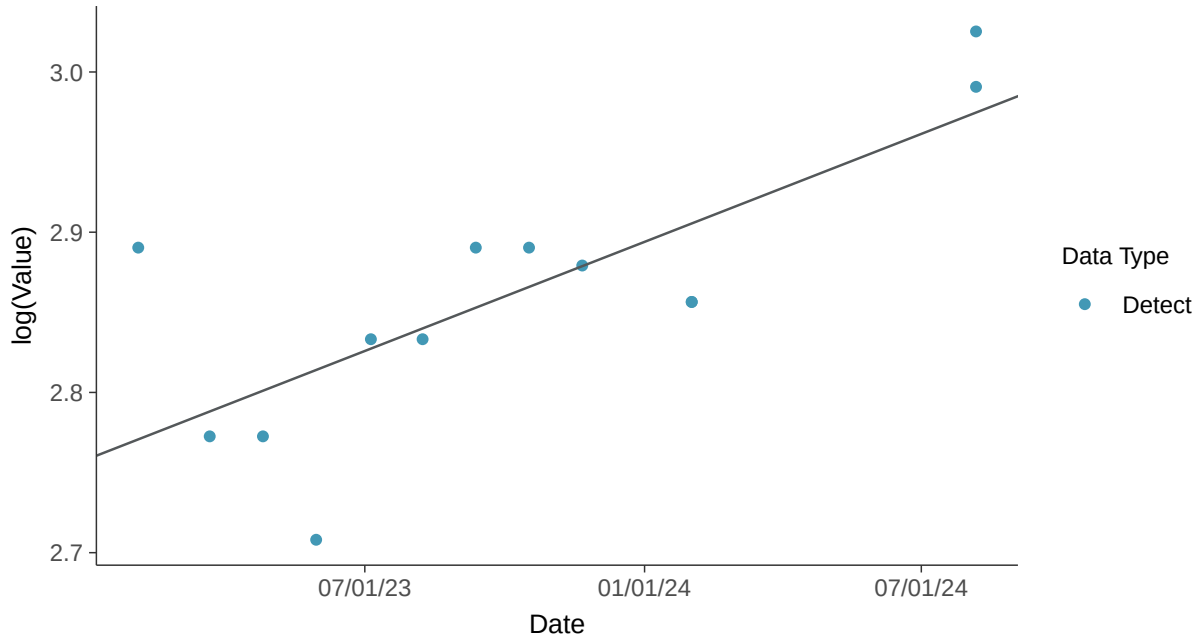
Gamma Q-Q plot

Sulfate, MW-16B (mg/L)



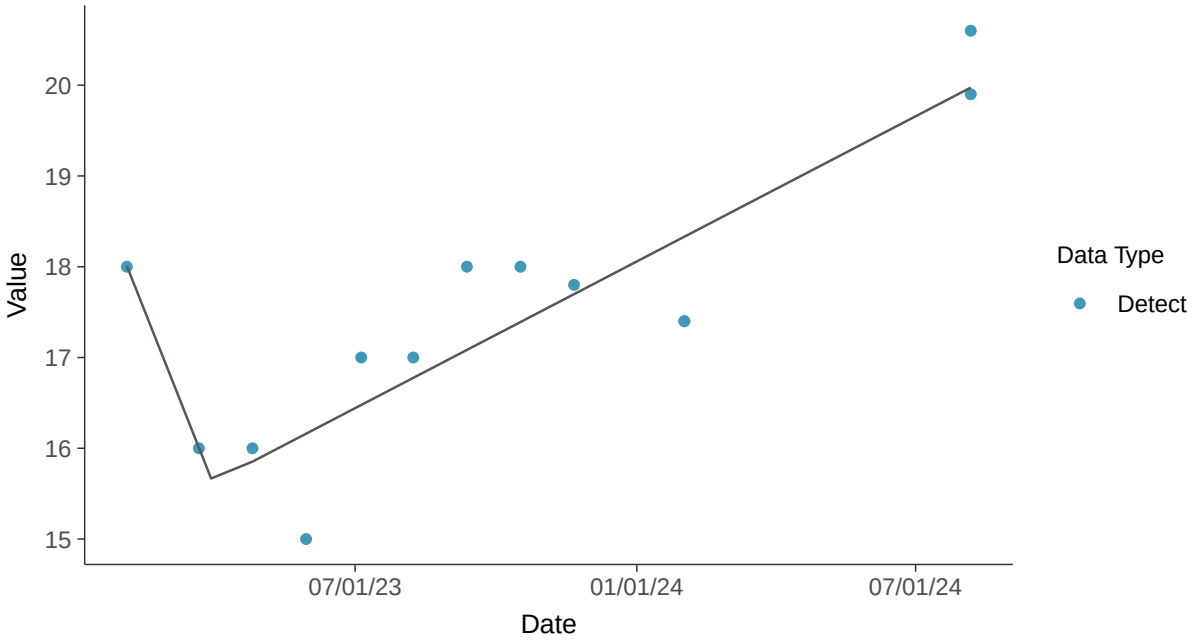
Trend Regression: Lognormal MLE

Sulfate, MW-16B (mg/L)



Trend Regression: Piecewise Linear-Linear

Sulfate, MW-16B (mg/L)

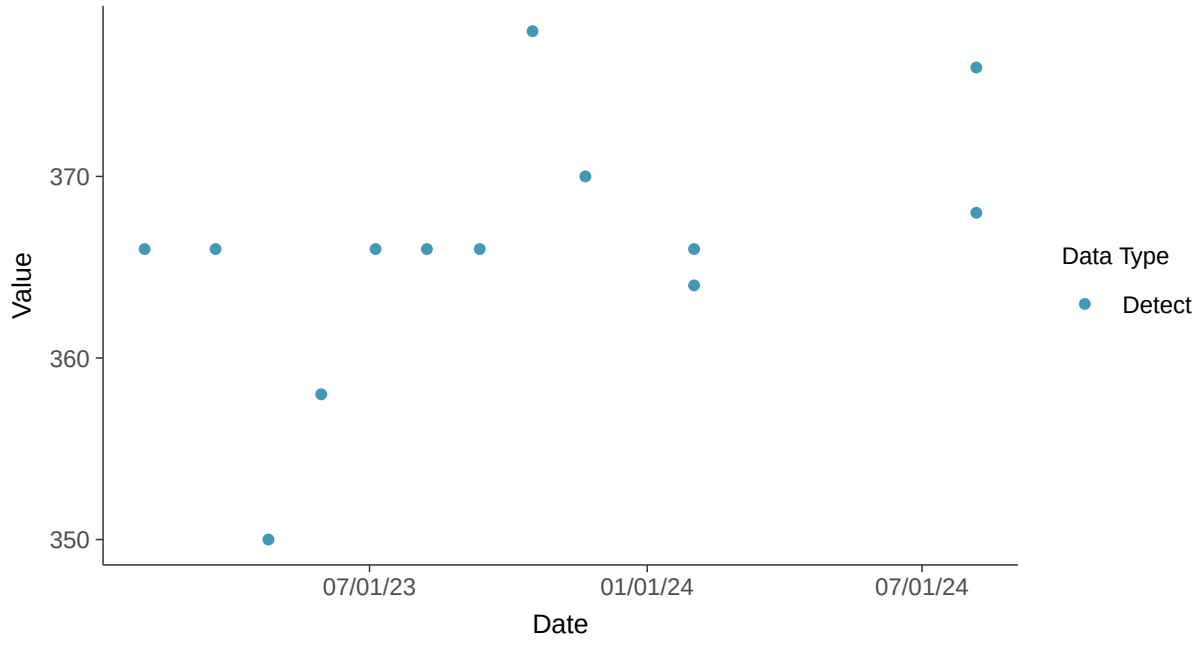


Appendix III: Total Dissolved Solids, MW-16B

ID: 16B_1_07

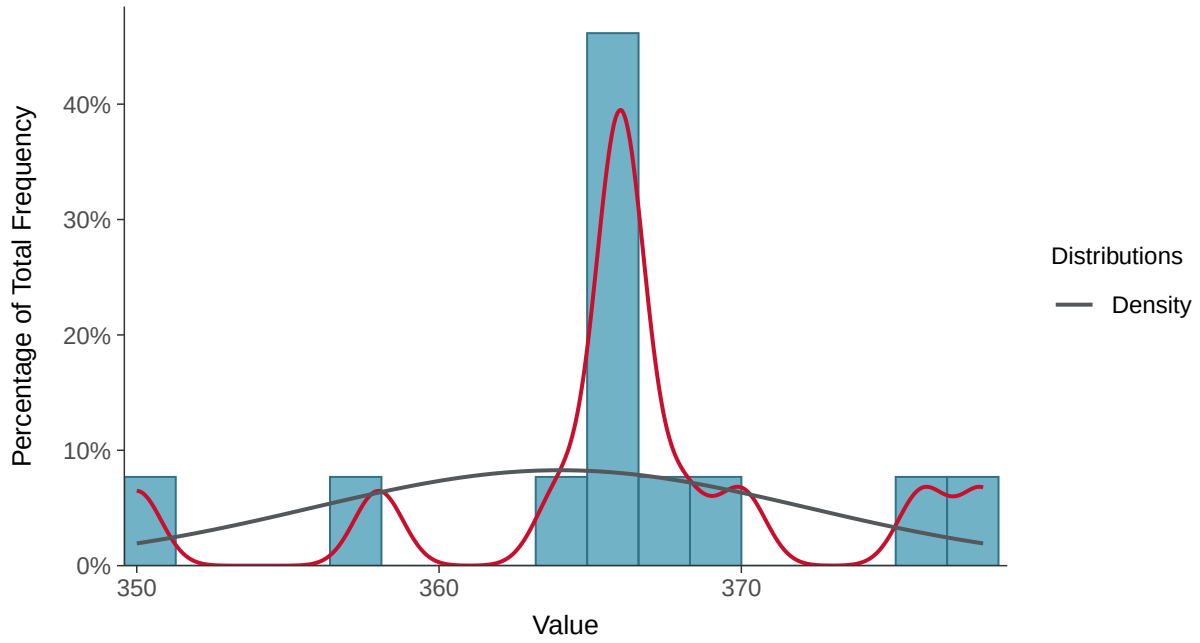
Scatter Plot

Total Dissolved Solids, MW-16B (mg/L)



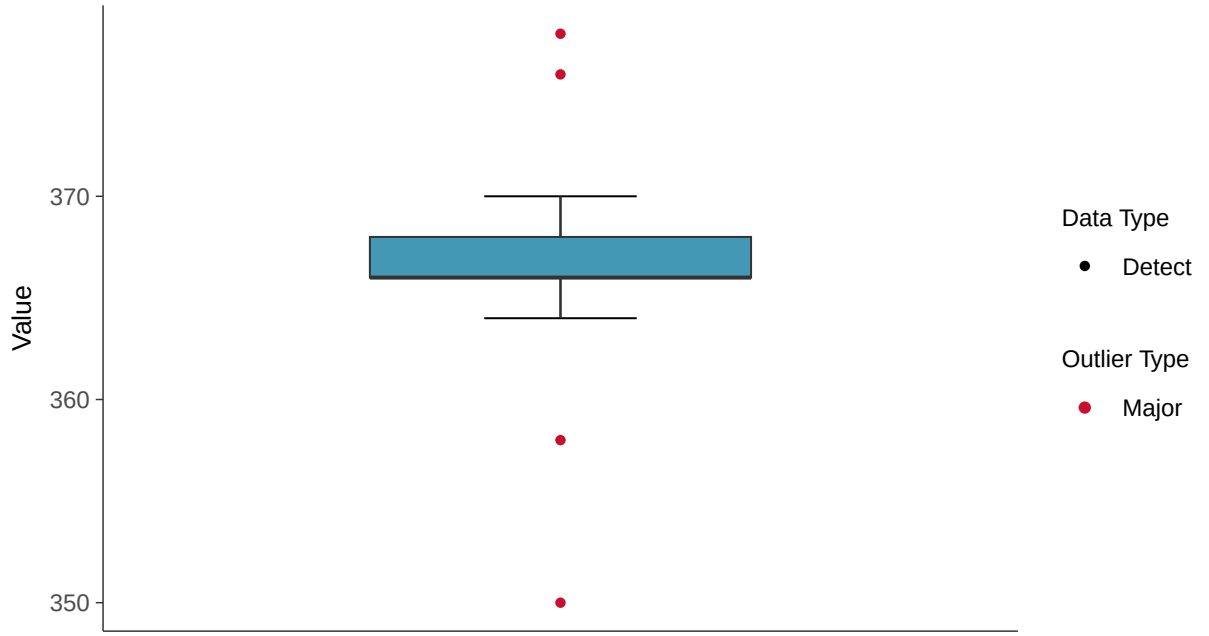
Histogram

Total Dissolved Solids, MW-16B (mg/L)



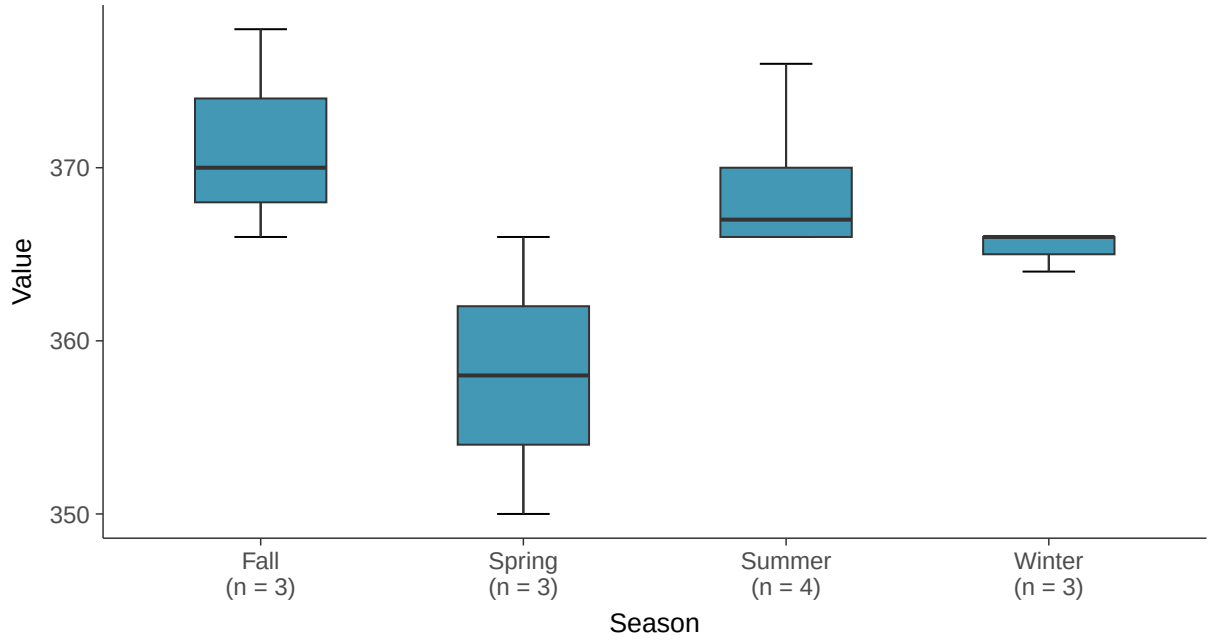
Boxplot

Total Dissolved Solids, MW-16B (mg/L)



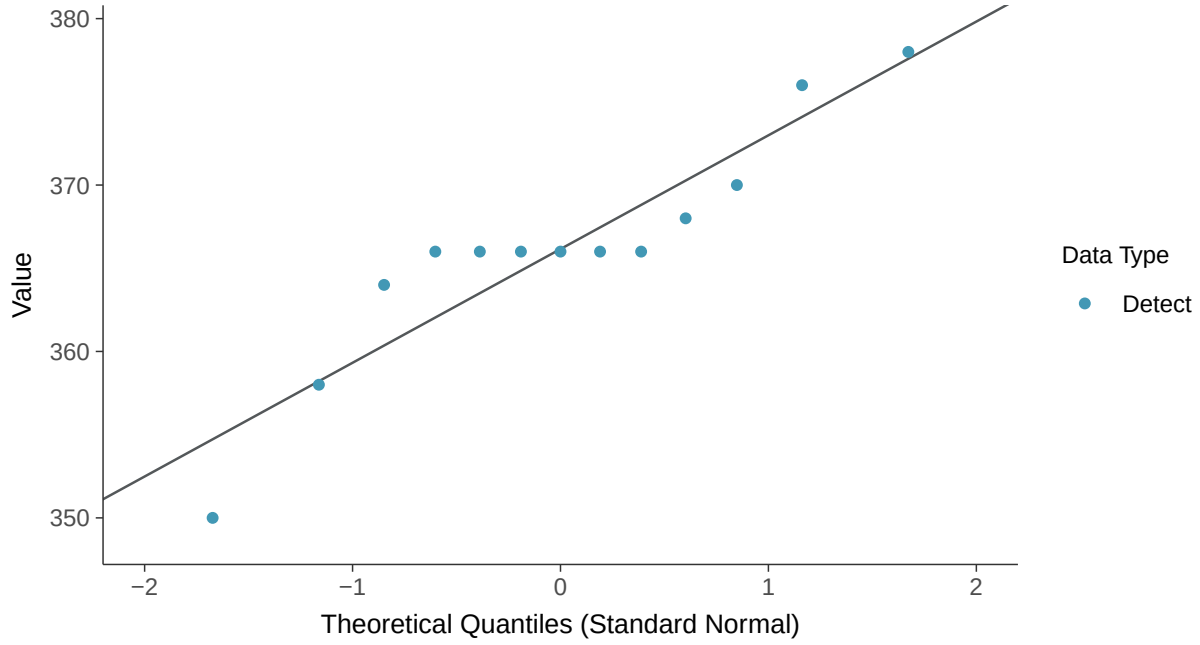
Boxplot by Season

Total Dissolved Solids, MW-16B (mg/L)



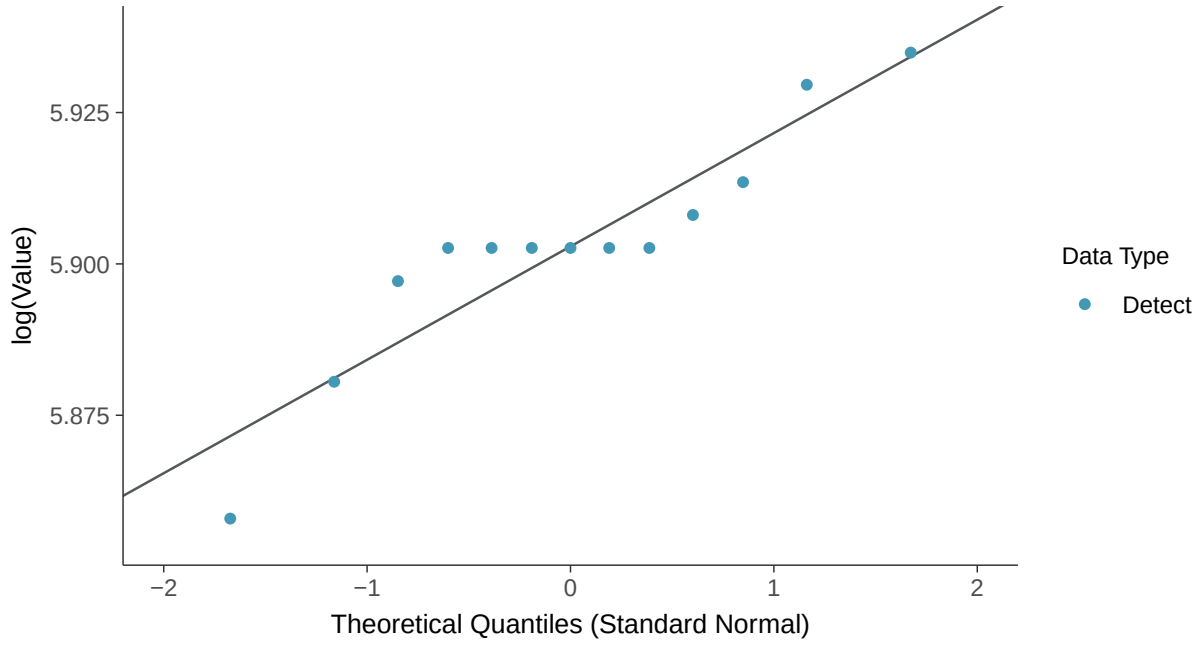
Normal Q-Q plot

Total Dissolved Solids, MW-16B (mg/L)



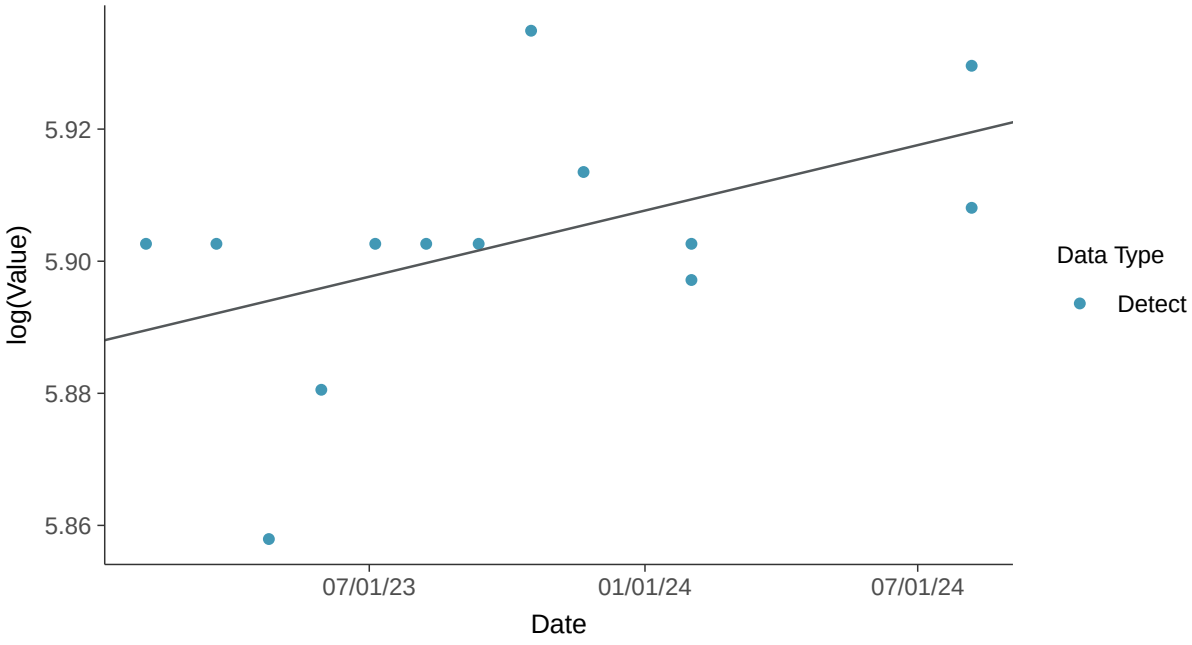
Lognormal Q-Q plot

Total Dissolved Solids, MW-16B (mg/L)



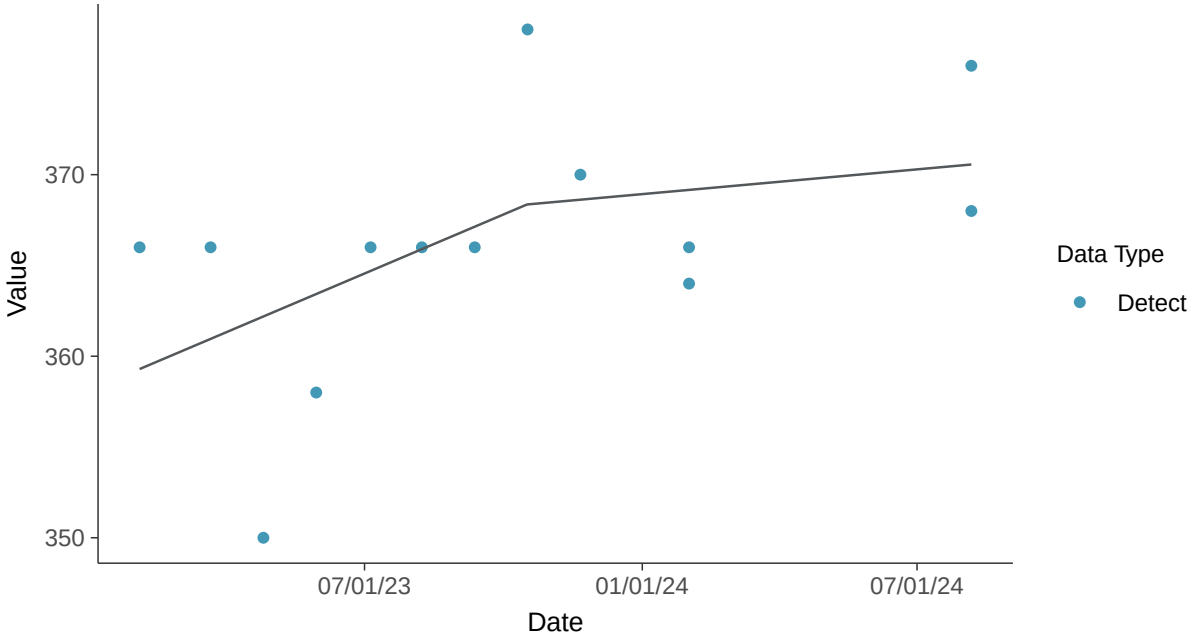
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-16B (mg/L)



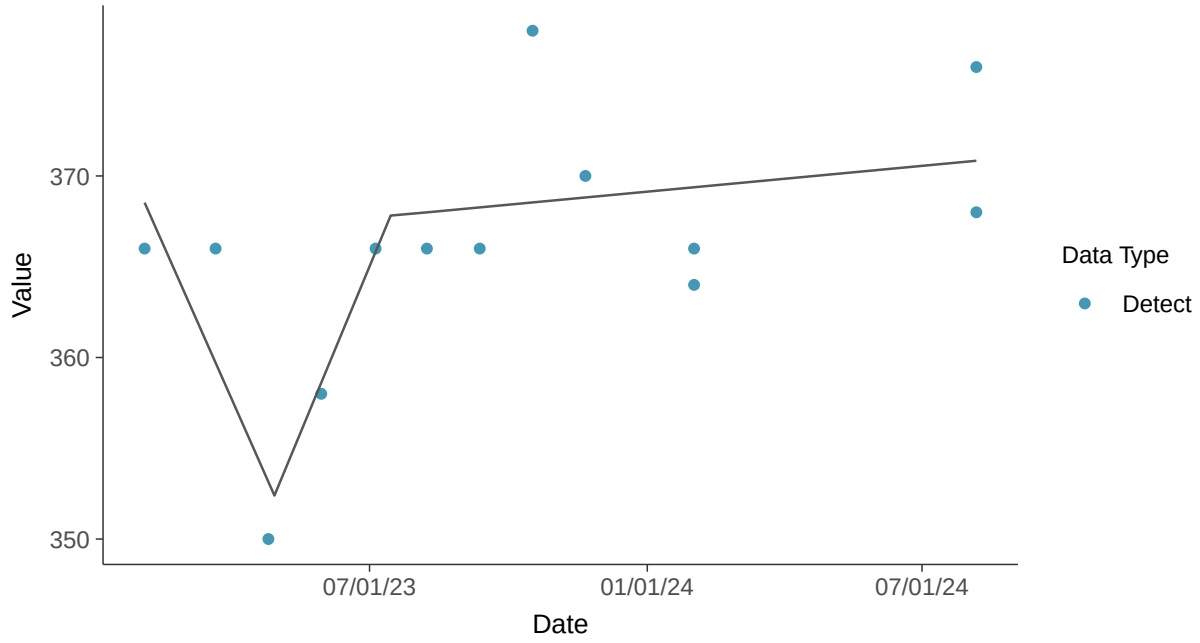
Trend Regression: Piecewise Linear-Linear

Total Dissolved Solids, MW-16B (mg/L)



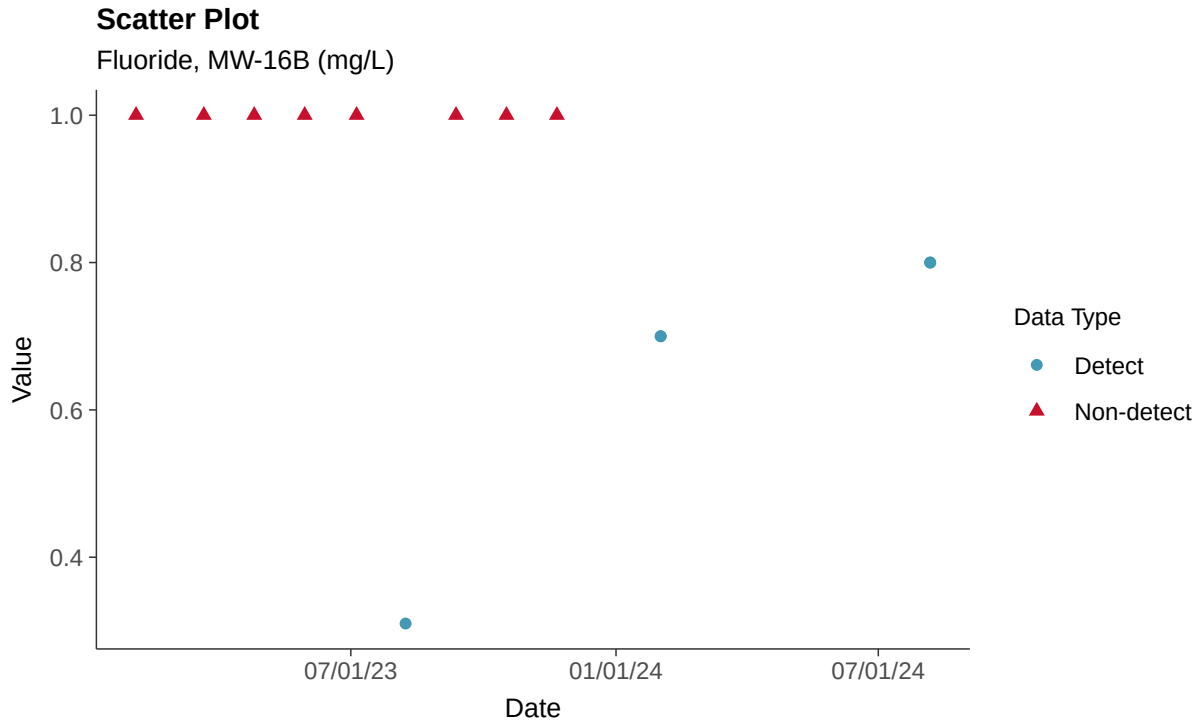
Trend Regression: Piecewise Linear-Linear-Linear

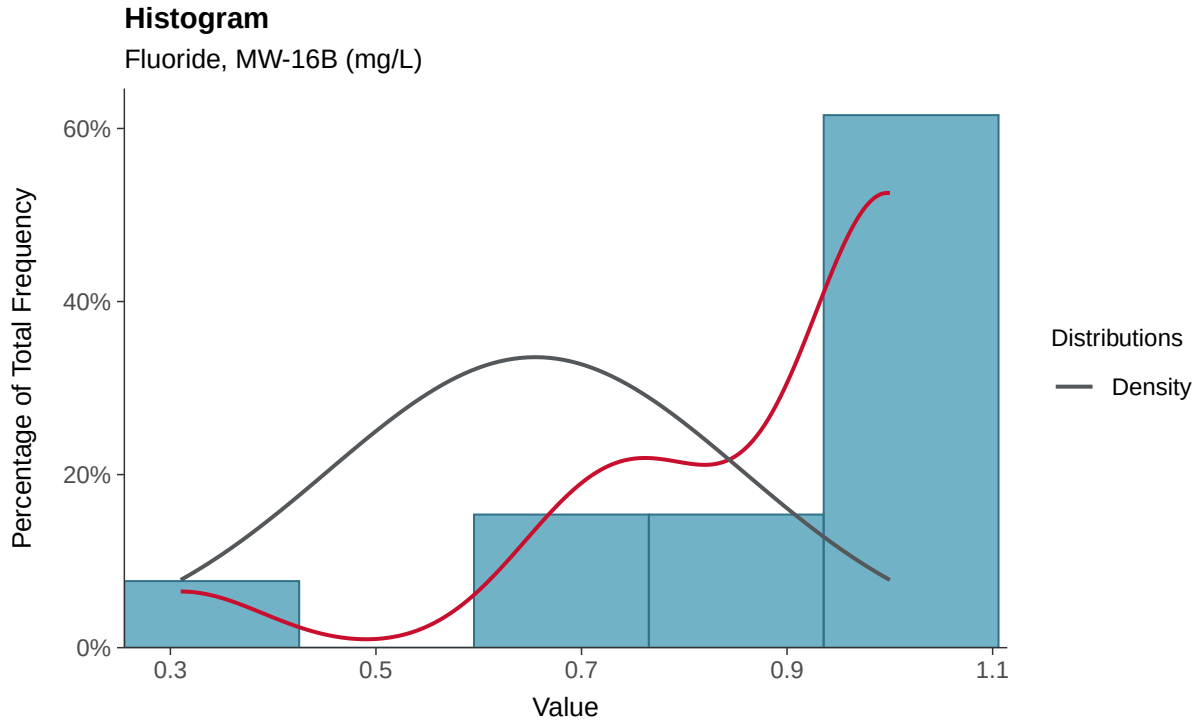
Total Dissolved Solids, MW-16B (mg/L)



Appendix IV: Fluoride, MW-16B

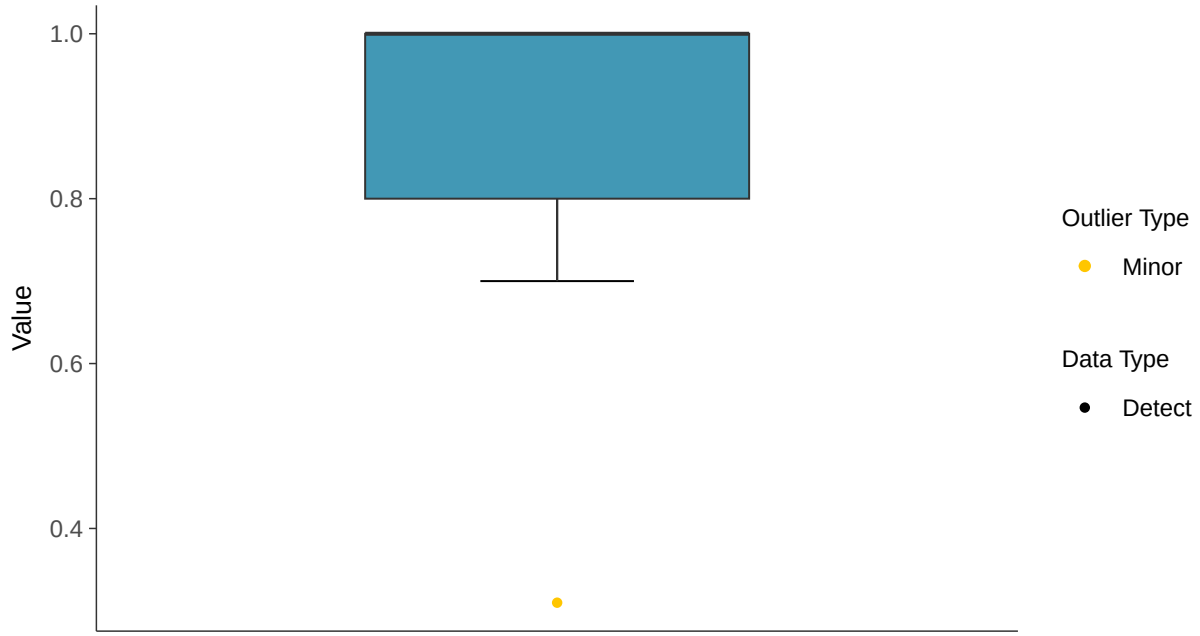
ID: 16B_2_04





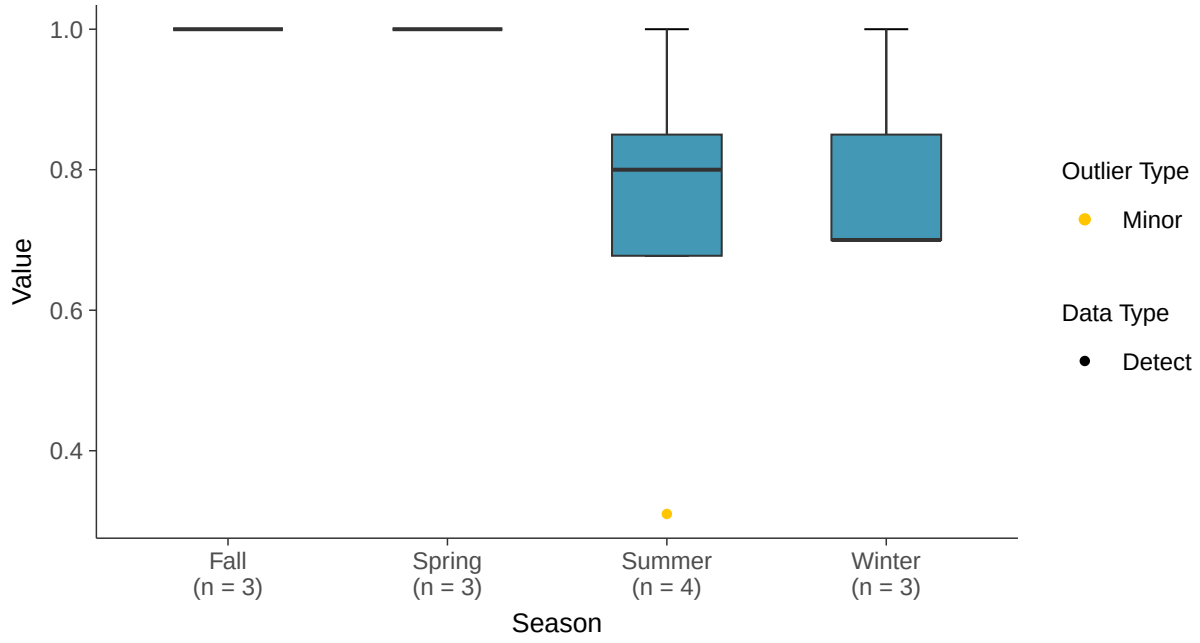
Boxplot

Fluoride, MW-16B (mg/L)



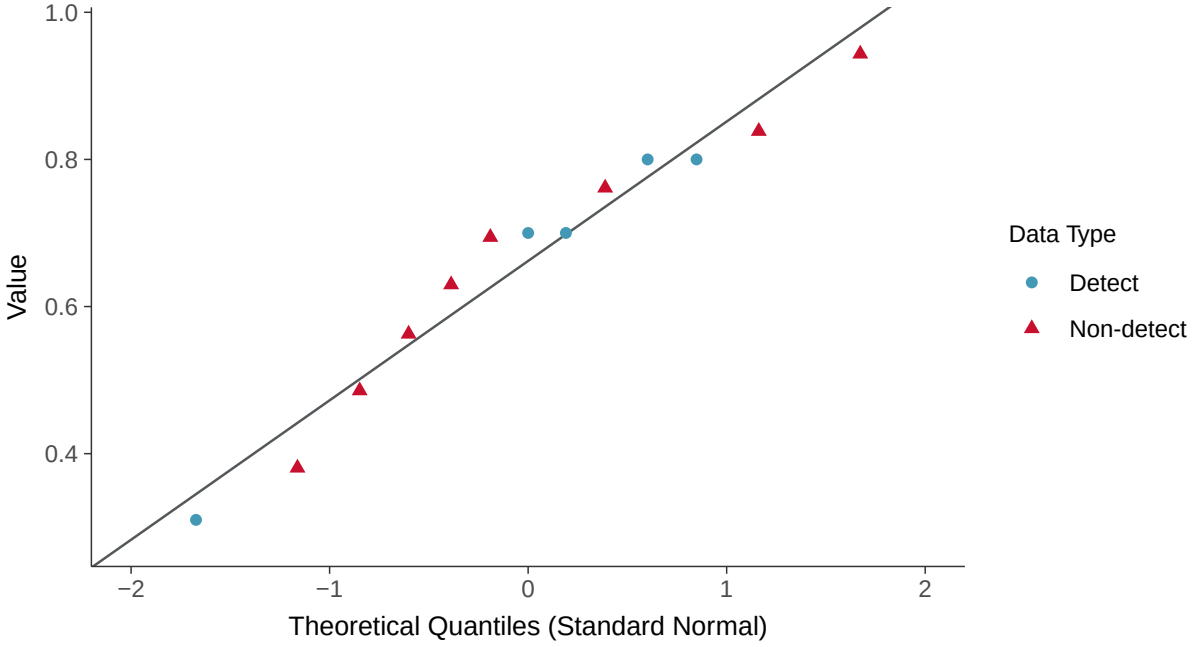
Boxplot by Season

Fluoride, MW-16B (mg/L)



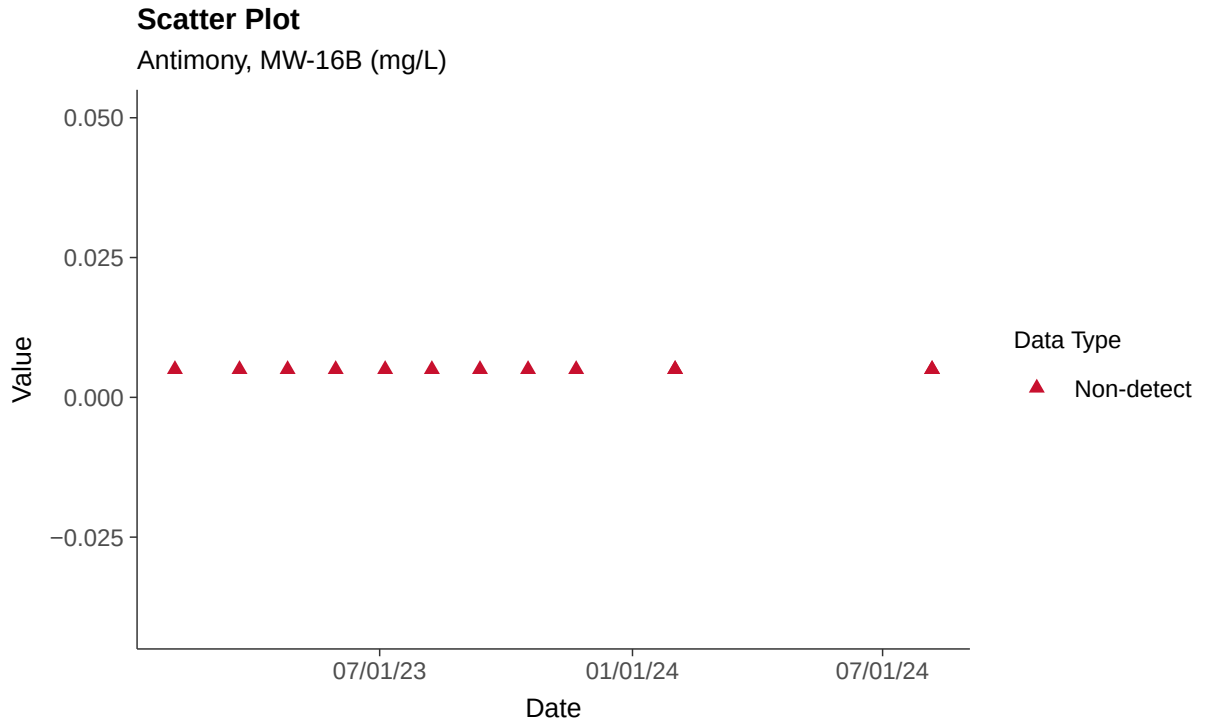
Normal Q-Q plot using ROS Imputed Estimates

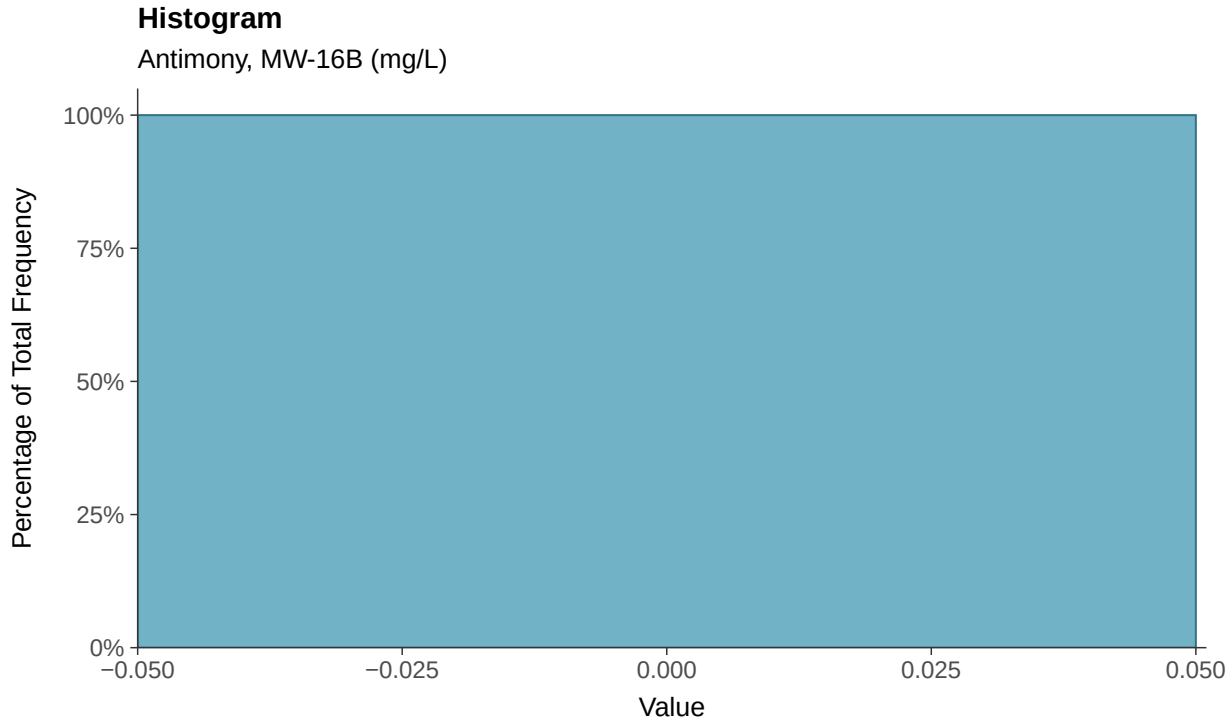
Fluoride, MW-16B (mg/L)



Appendix IV: Antimony, MW-16B

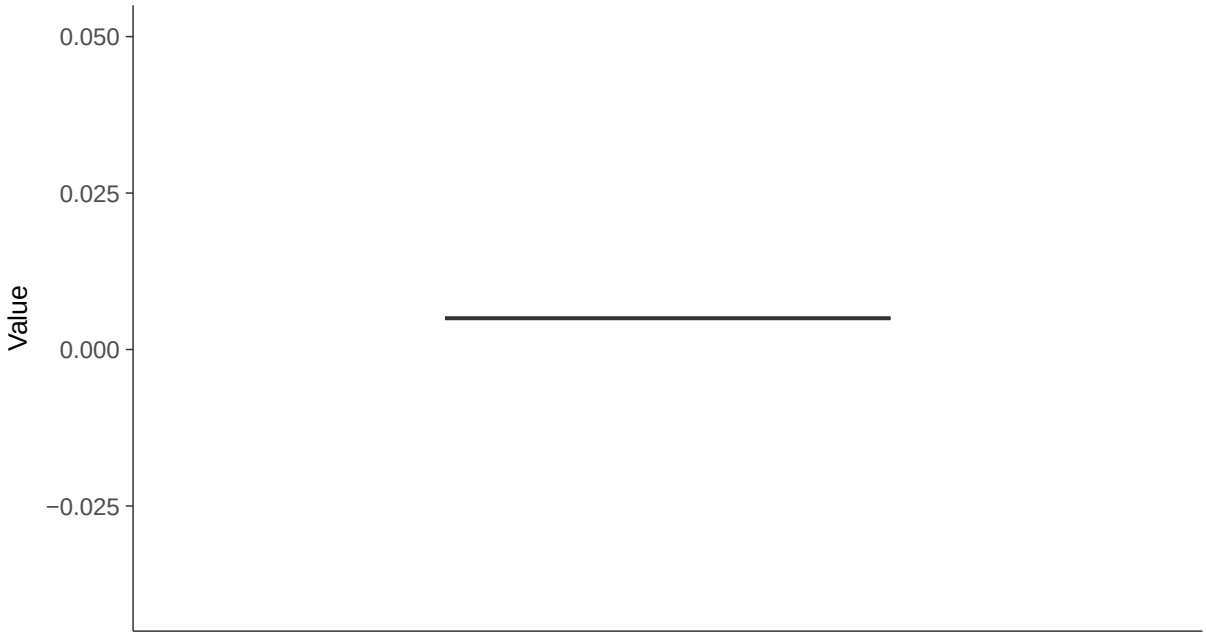
ID: 16B_2_08





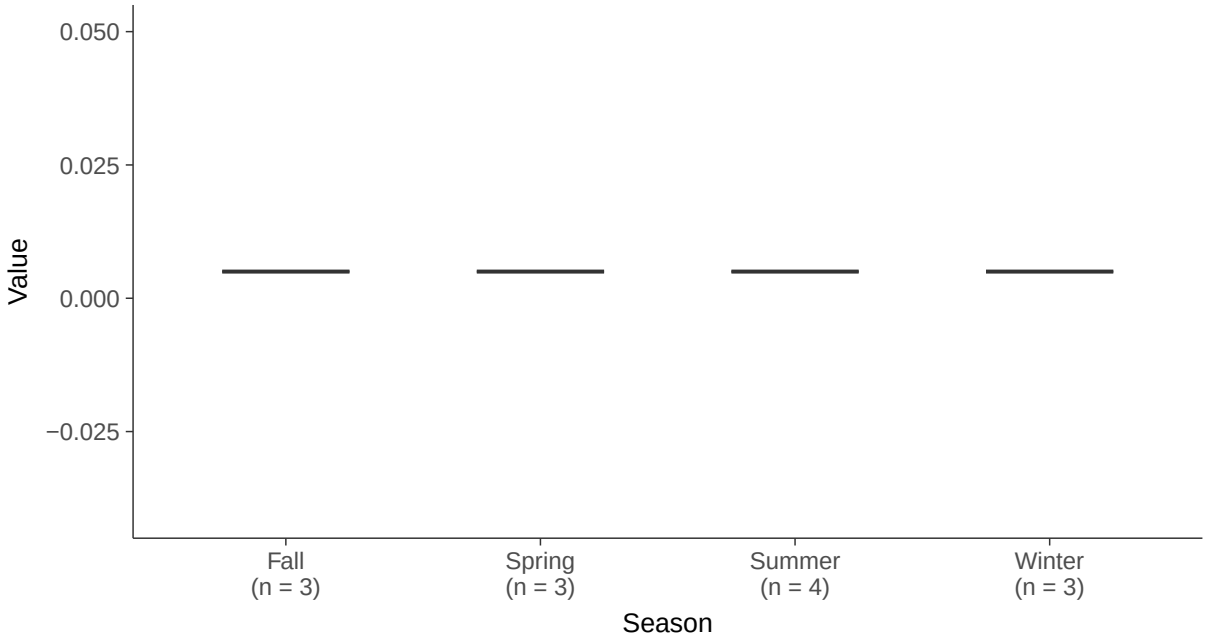
Boxplot

Antimony, MW-16B (mg/L)



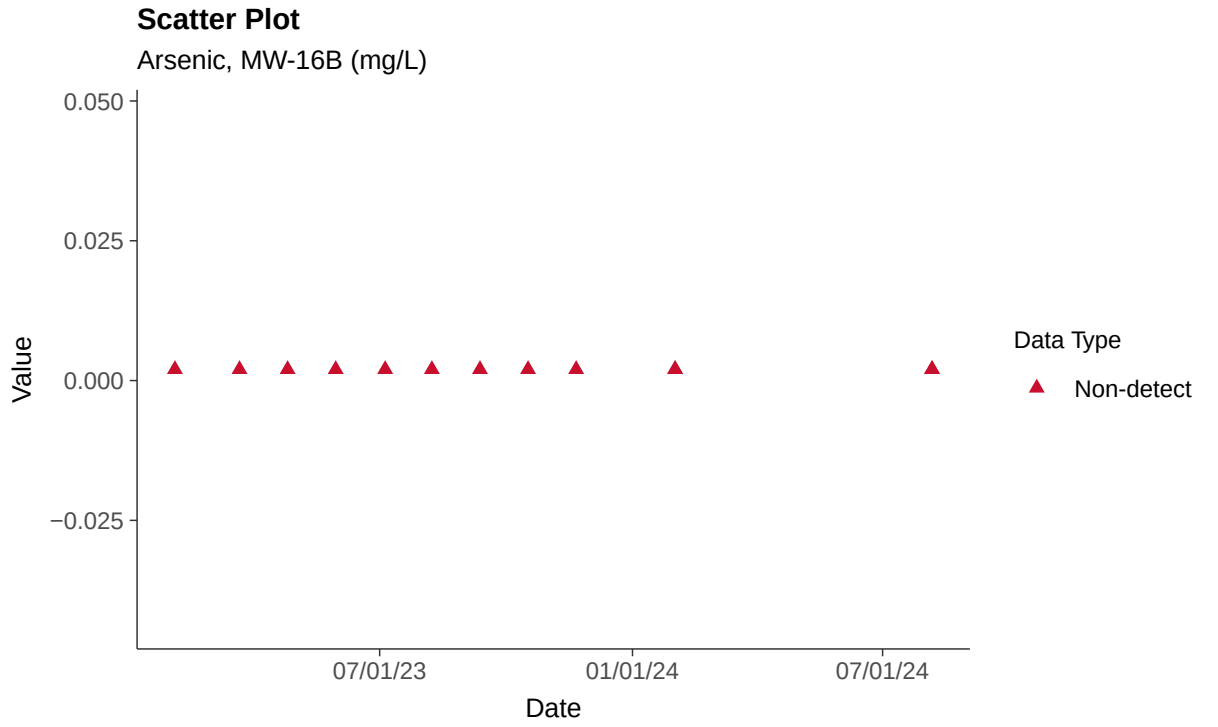
Boxplot by Season

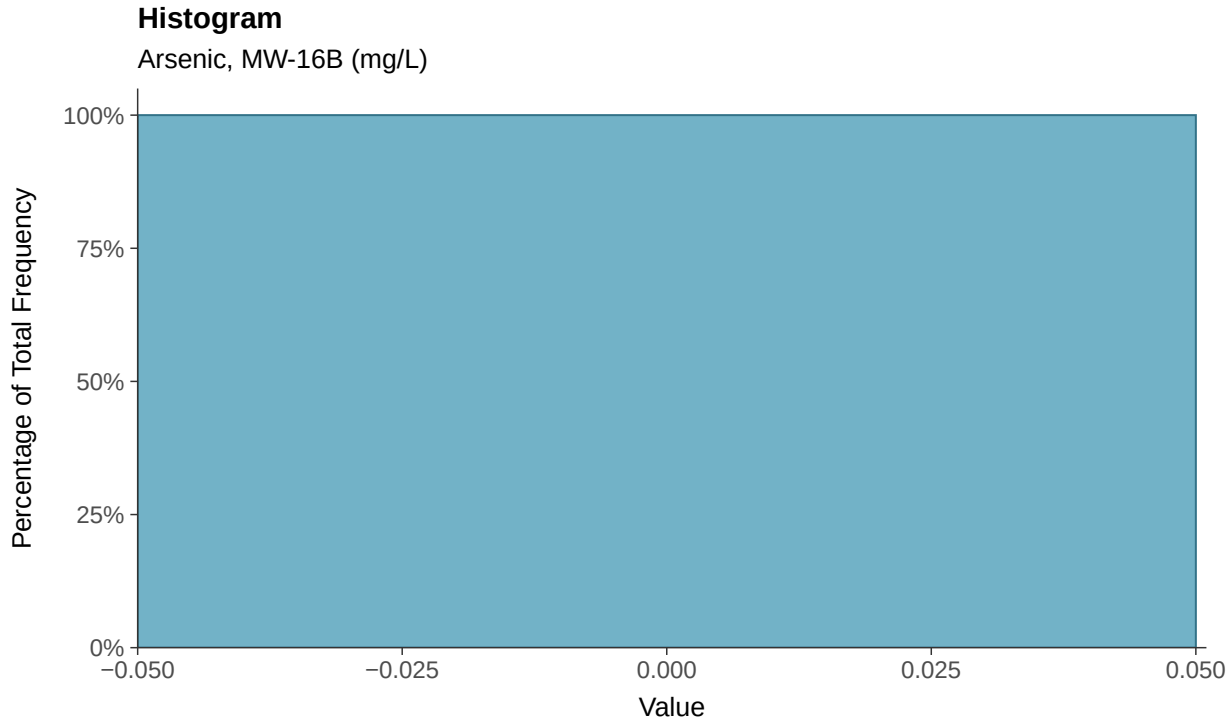
Antimony, MW-16B (mg/L)



Appendix IV: Arsenic, MW-16B

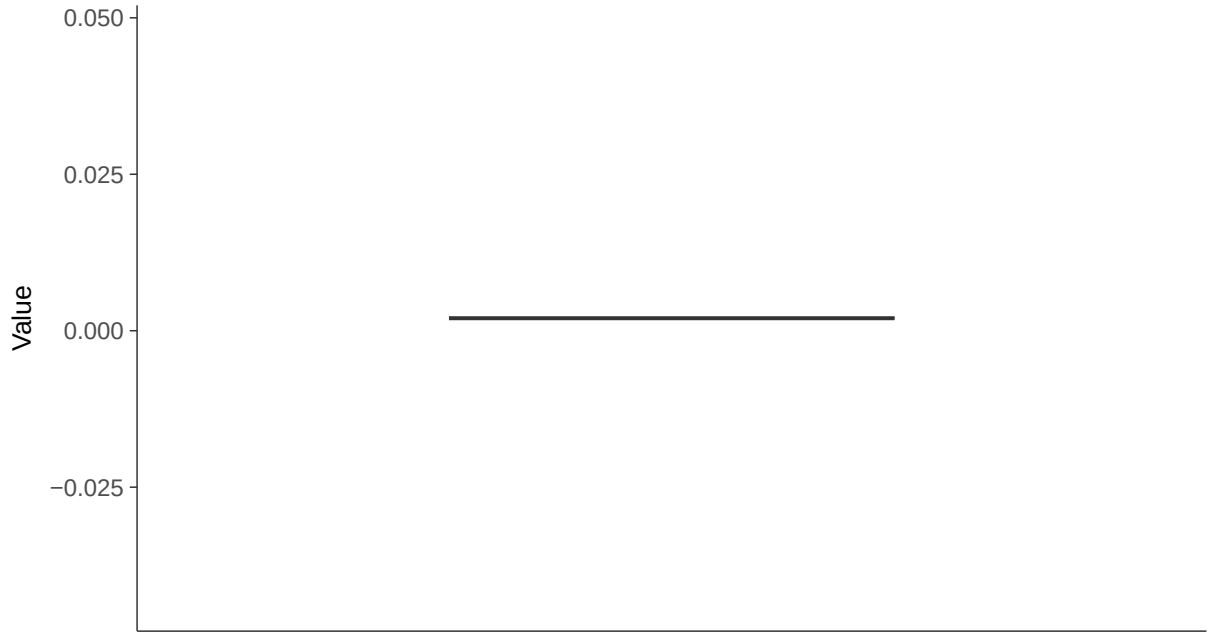
ID: 16B_2_09





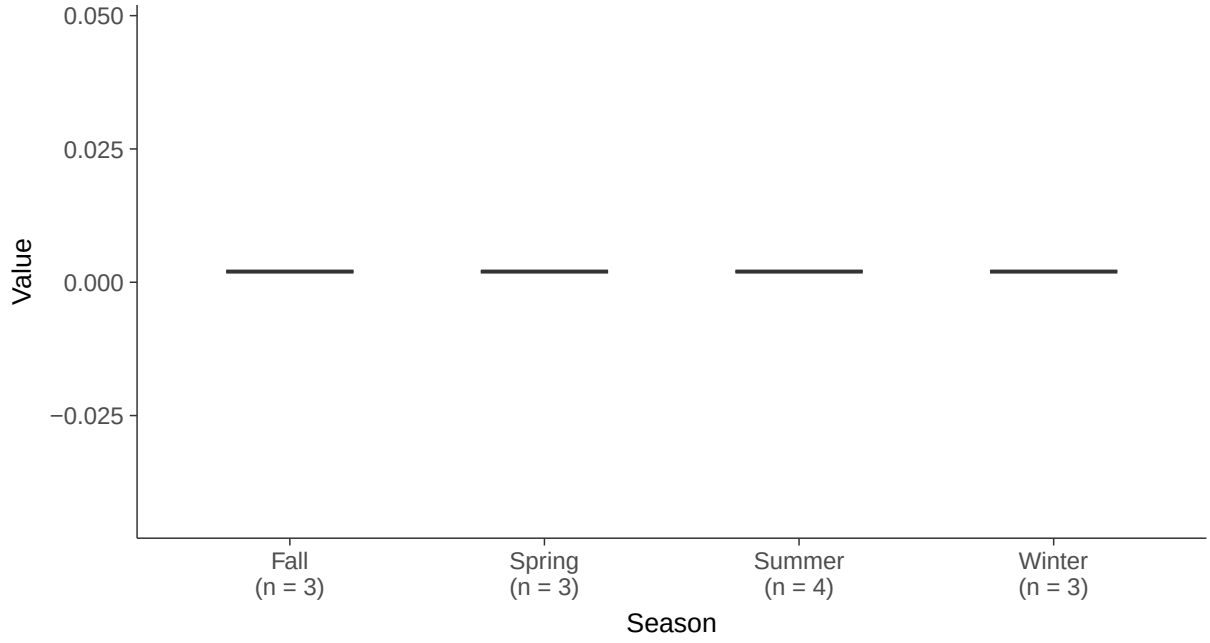
Boxplot

Arsenic, MW-16B (mg/L)



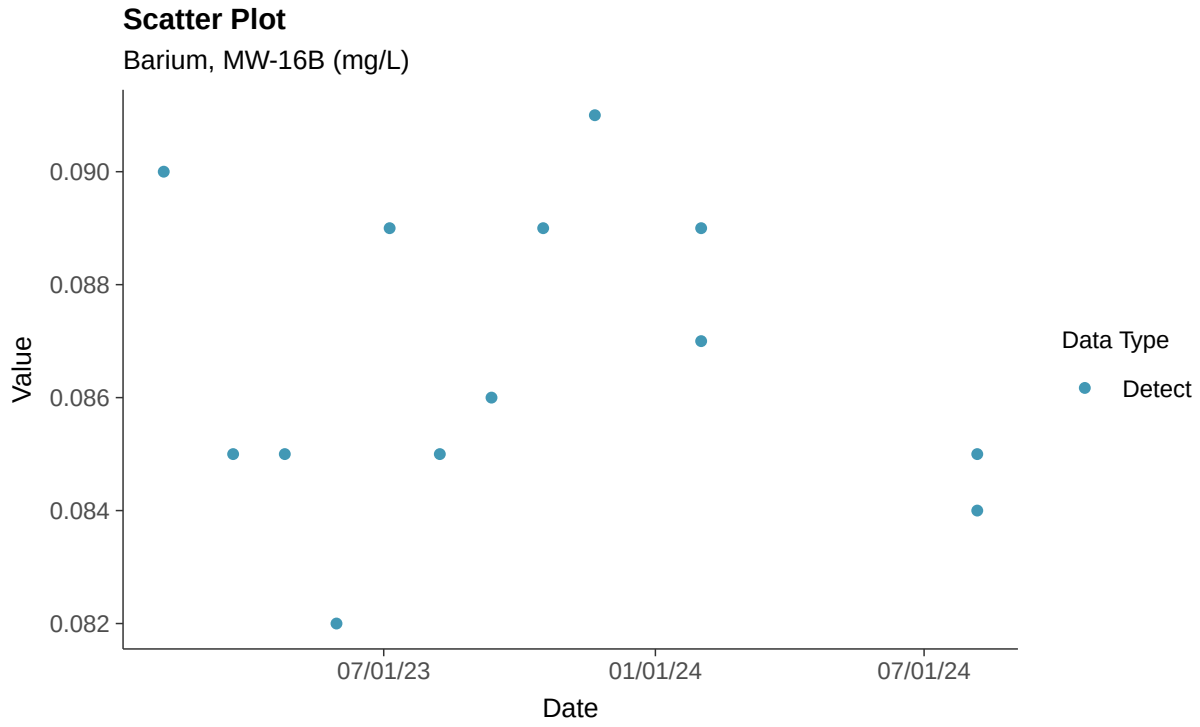
Boxplot by Season

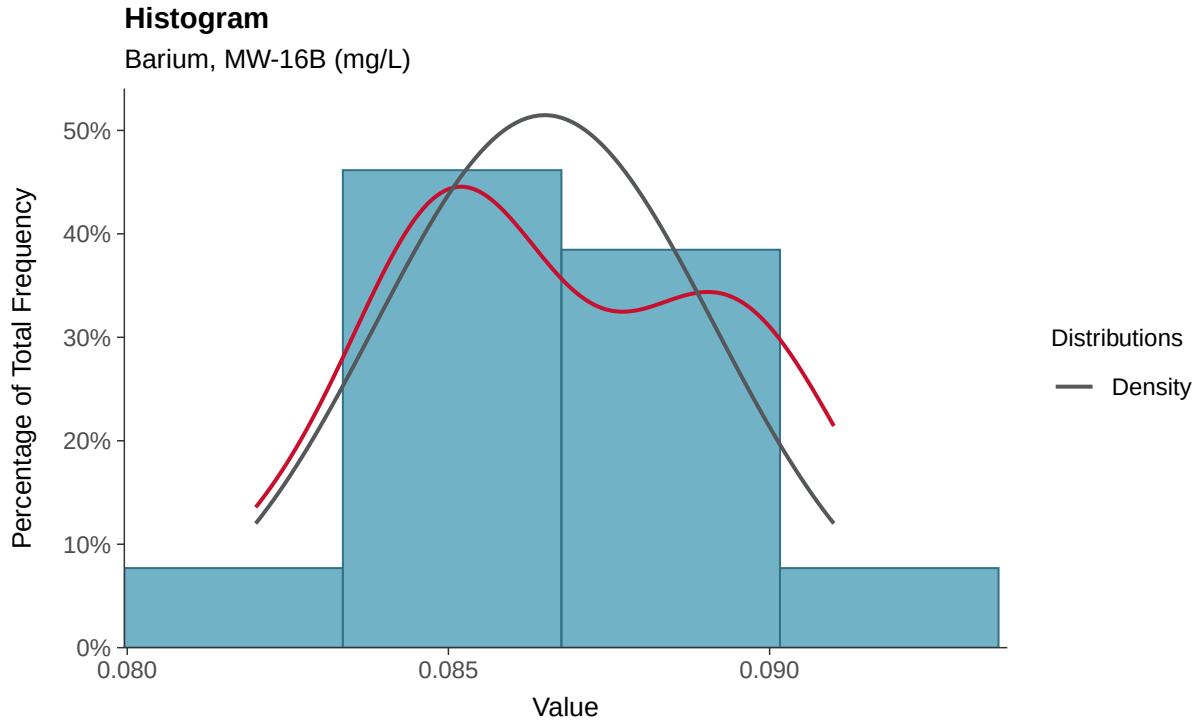
Arsenic, MW-16B (mg/L)



Appendix IV: Barium, MW-16B

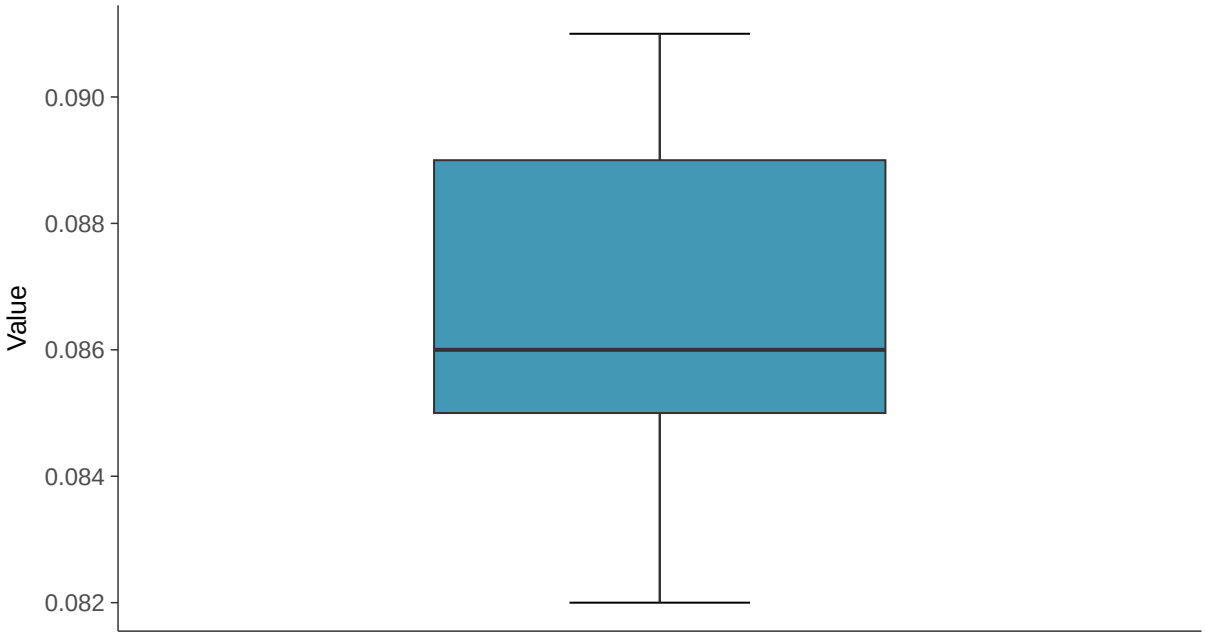
ID: 16B_2_10





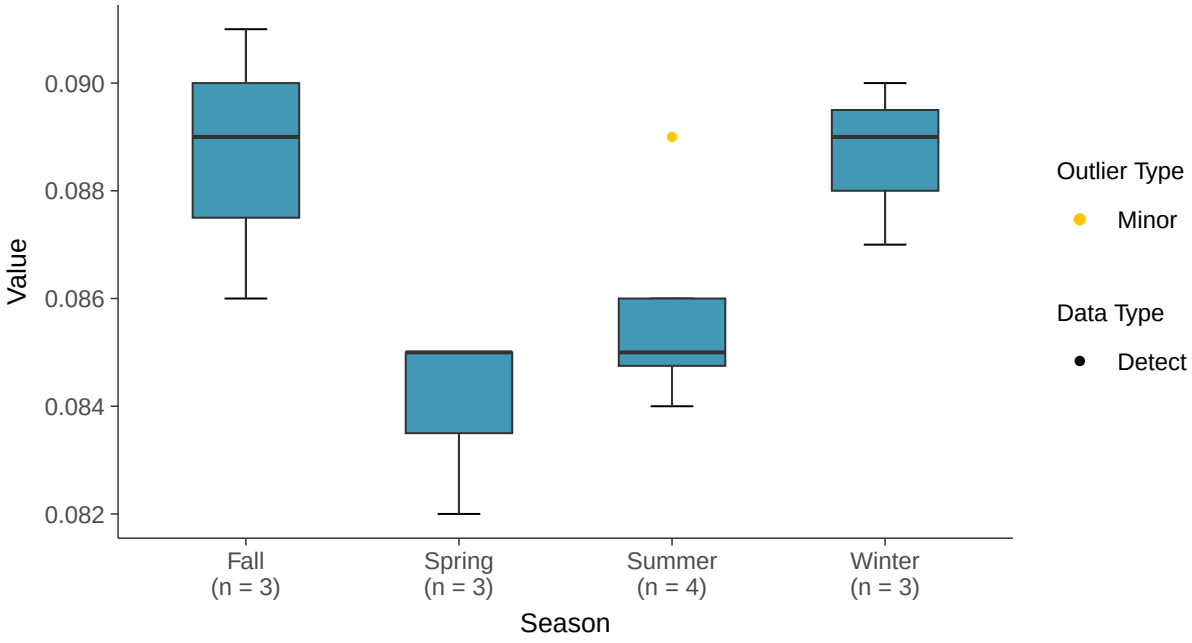
Boxplot

Barium, MW-16B (mg/L)



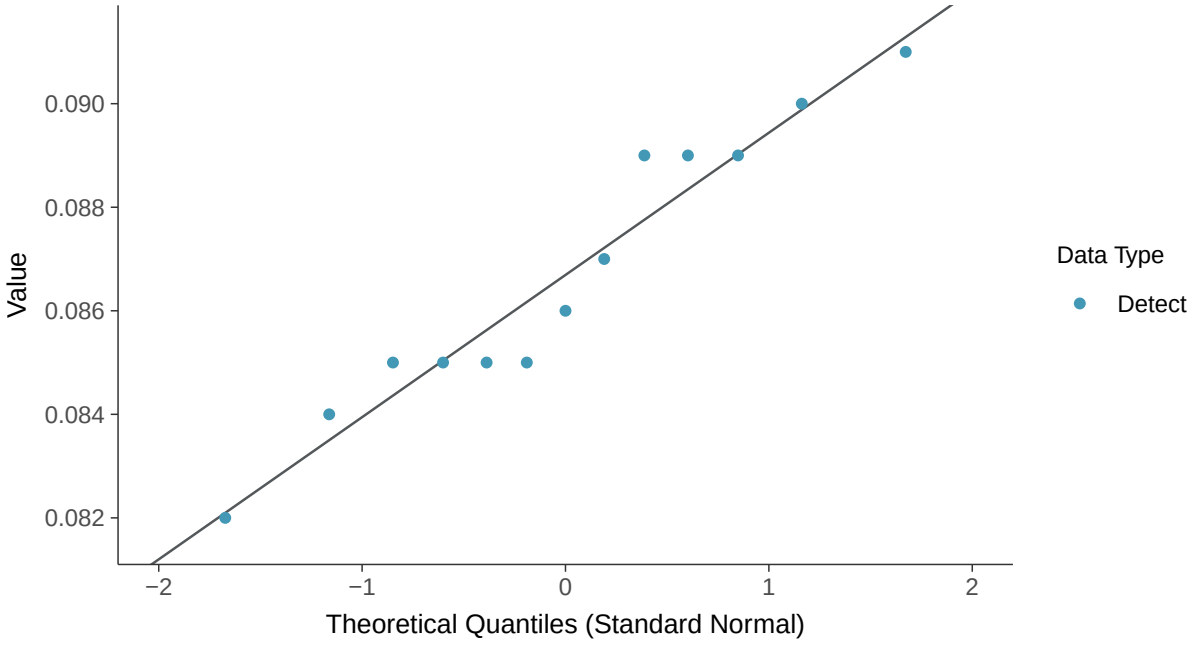
Boxplot by Season

Barium, MW-16B (mg/L)



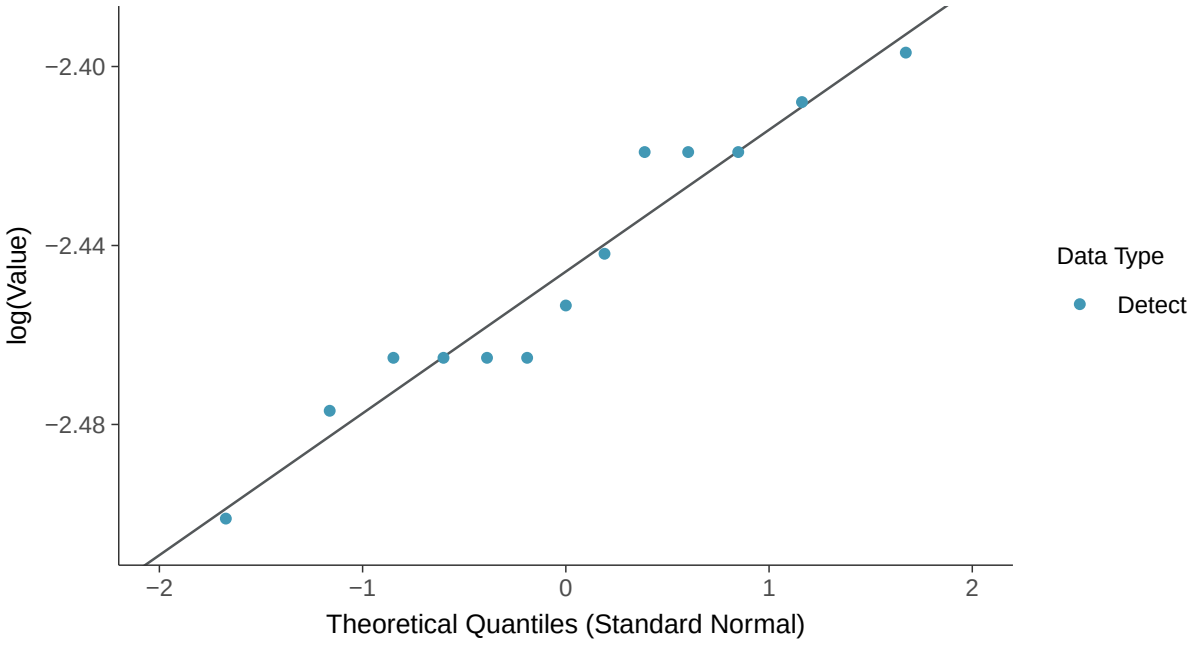
Normal Q-Q plot

Barium, MW-16B (mg/L)



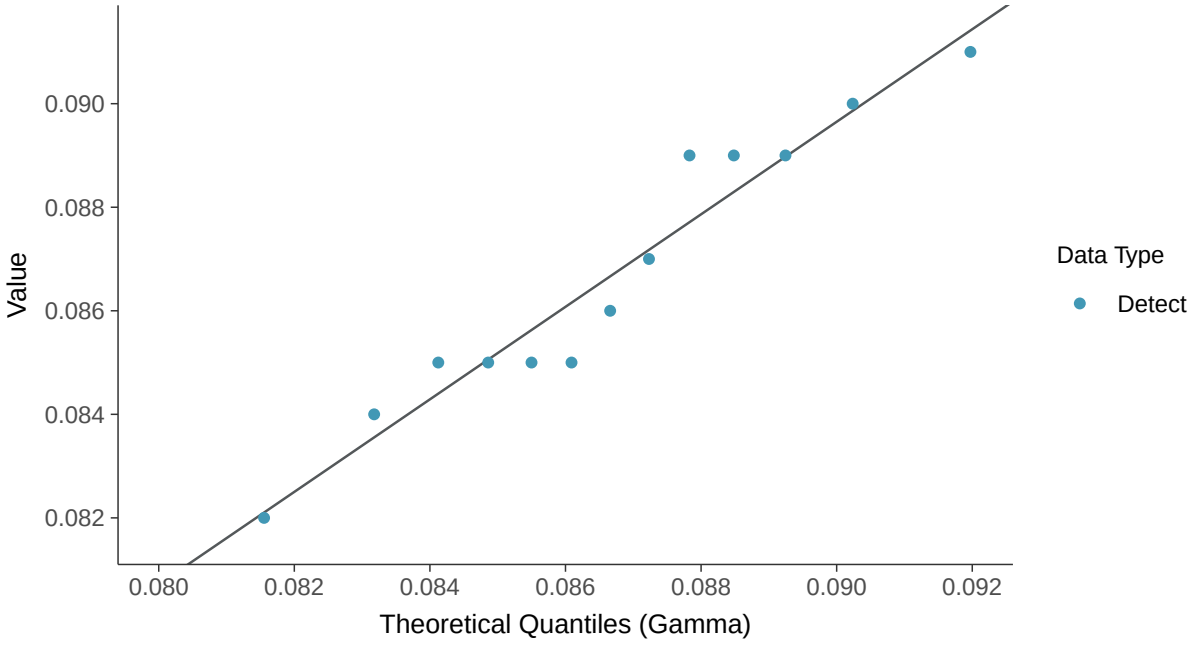
Lognormal Q-Q plot

Barium, MW-16B (mg/L)



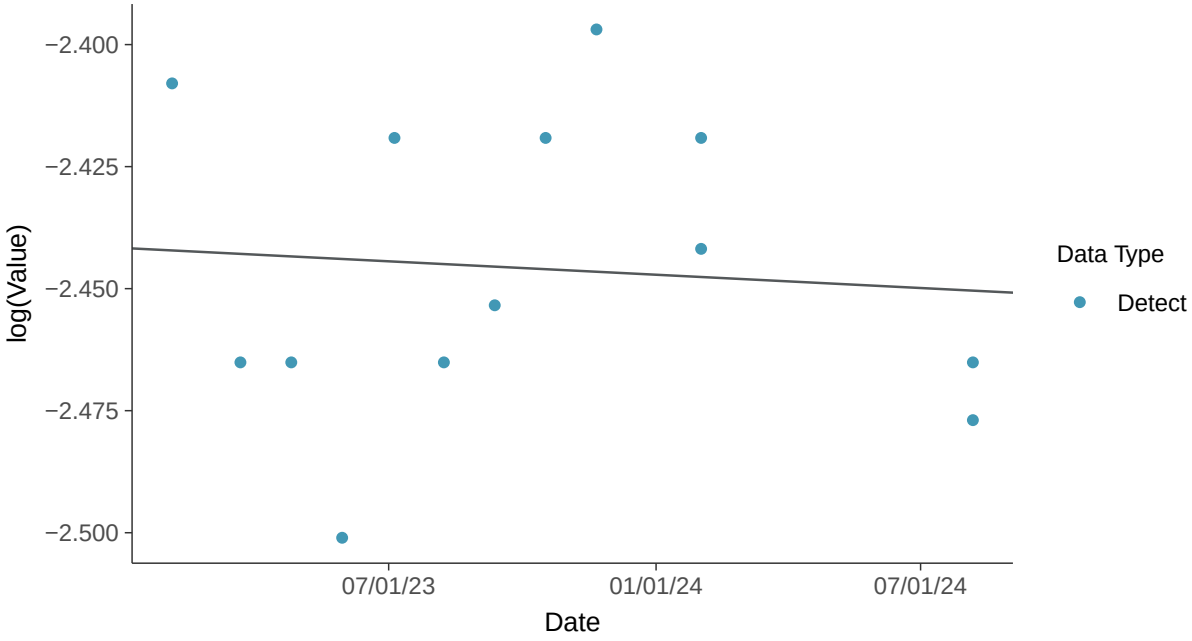
Gamma Q-Q plot

Barium, MW-16B (mg/L)



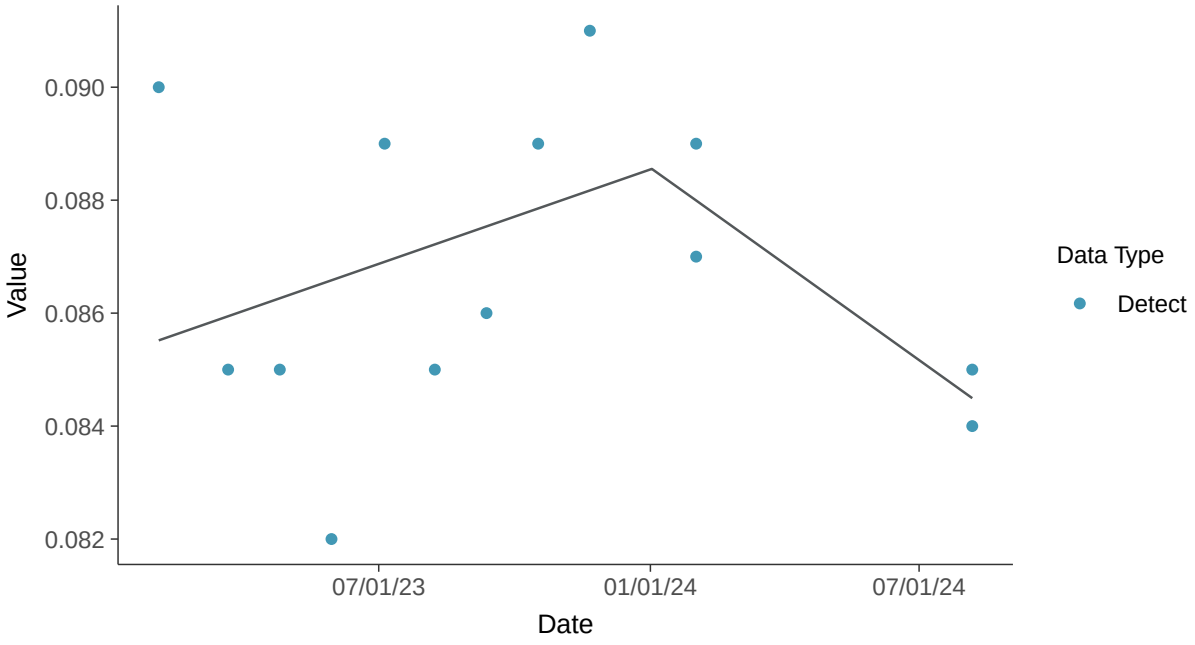
Trend Regression: Lognormal MLE

Barium, MW-16B (mg/L)



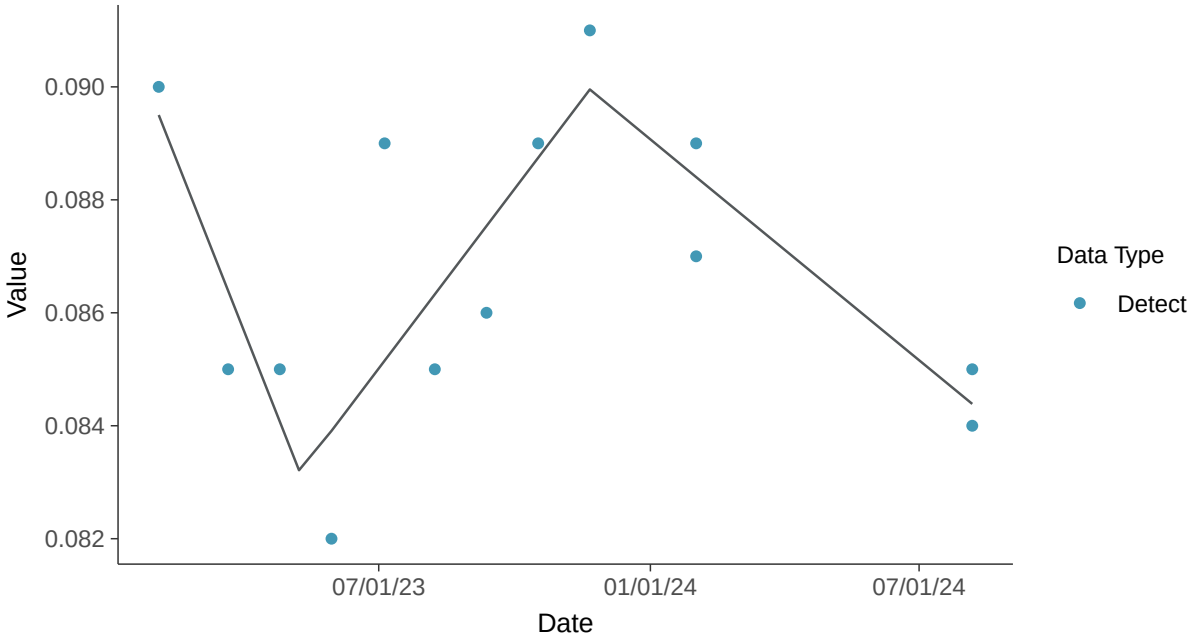
Trend Regression: Piecewise Linear-Linear

Barium, MW-16B (mg/L)



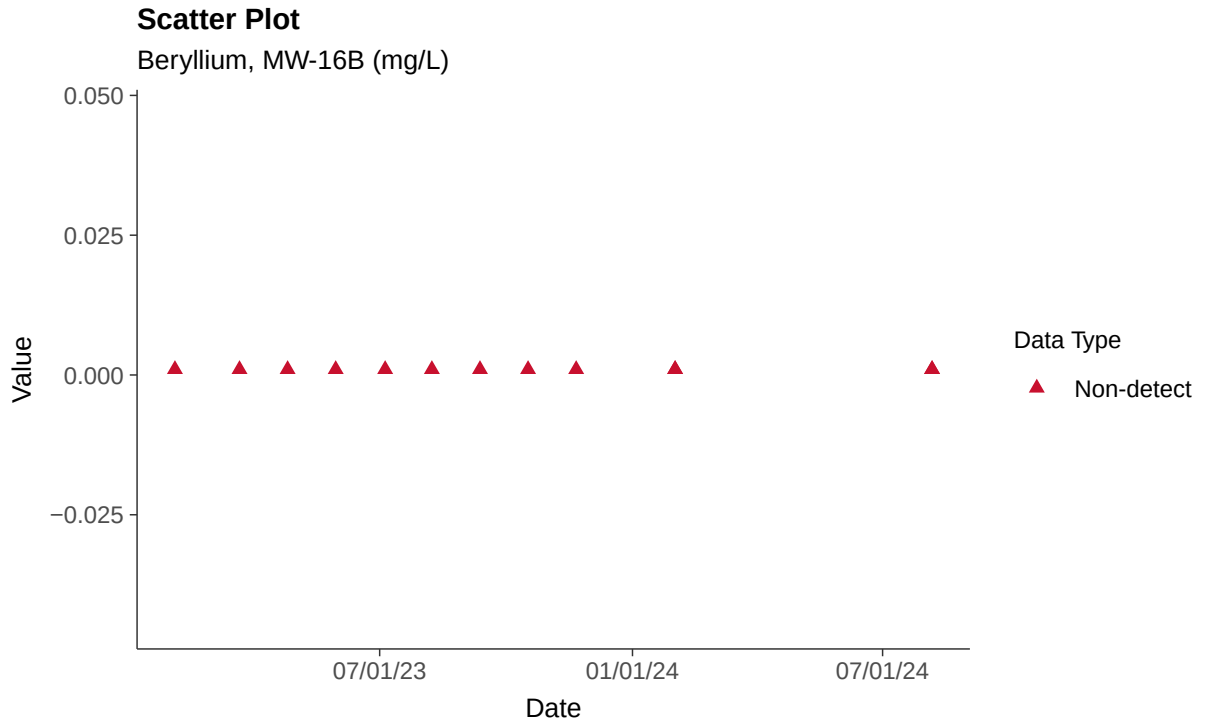
Trend Regression: Piecewise Linear-Linear-Linear

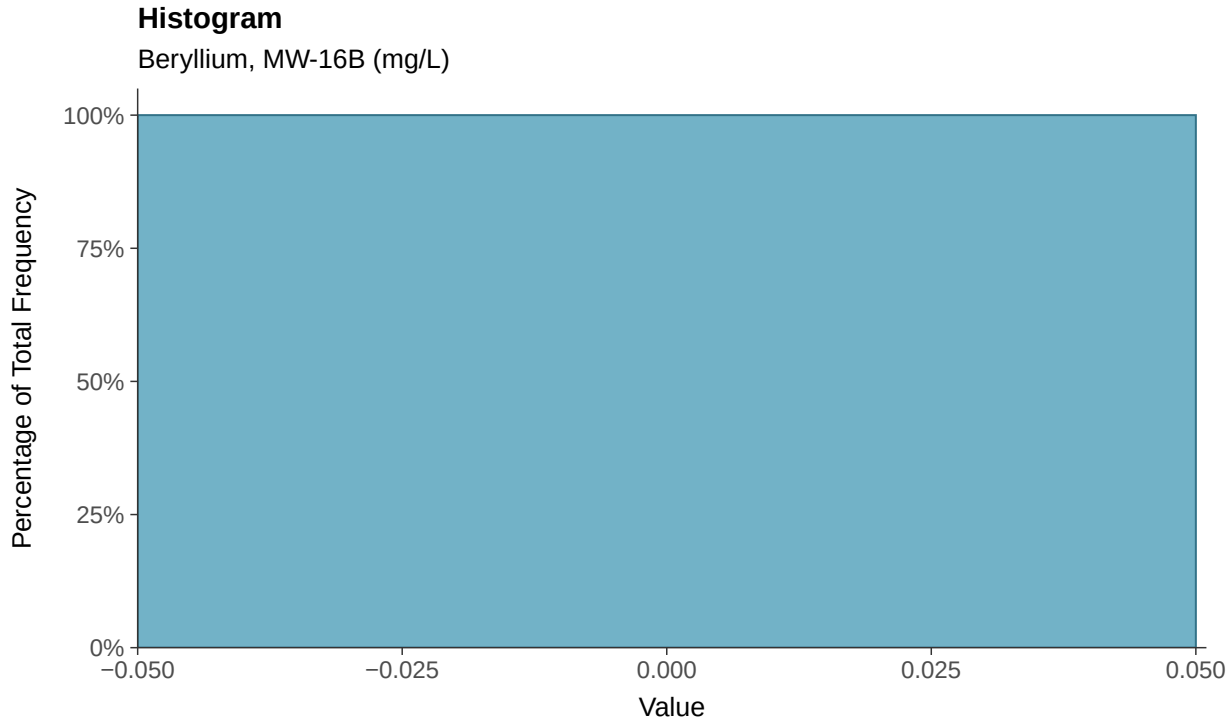
Barium, MW-16B (mg/L)



Appendix IV: Beryllium, MW-16B

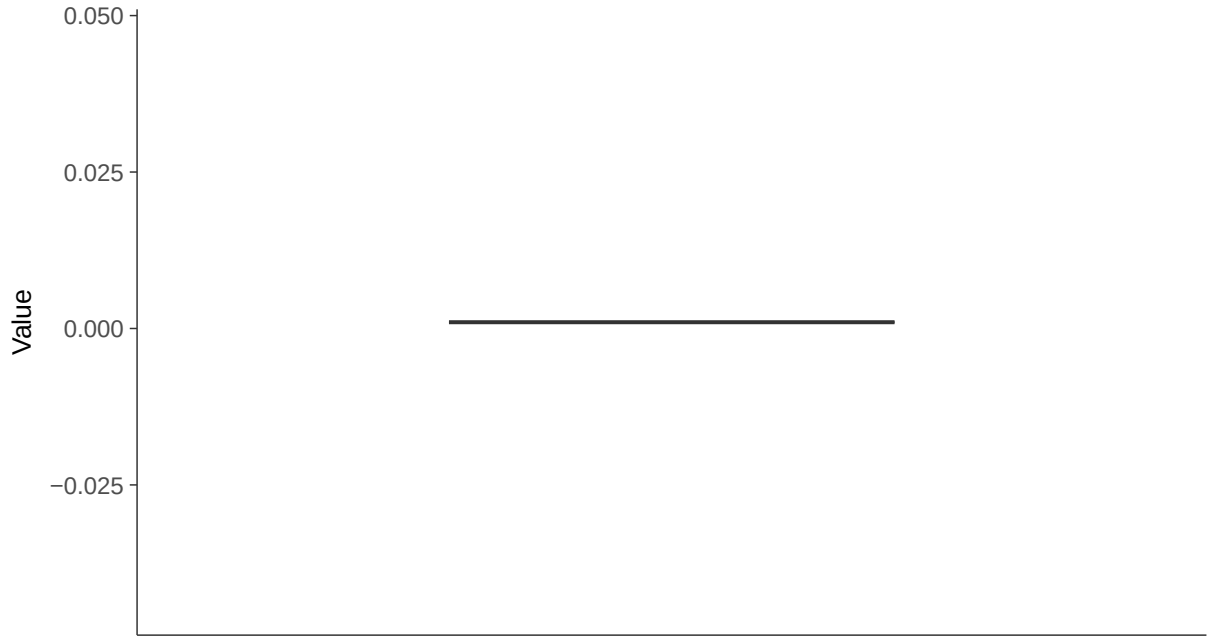
ID: 16B_2_11





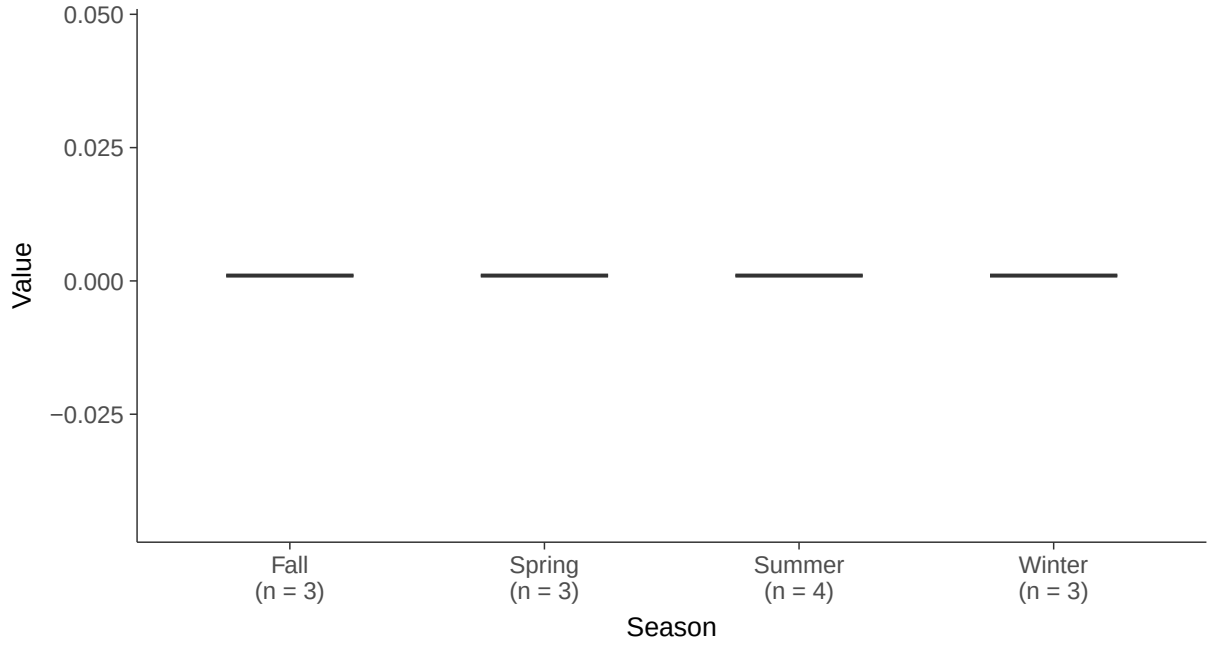
Boxplot

Beryllium, MW-16B (mg/L)



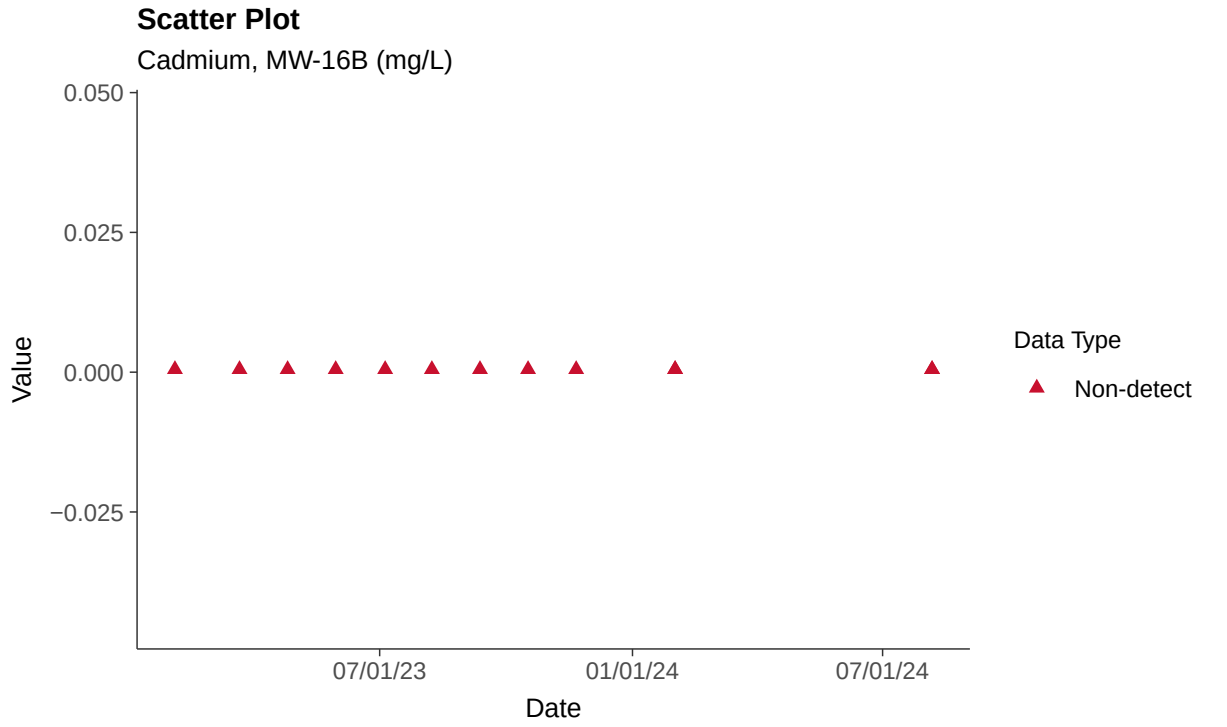
Boxplot by Season

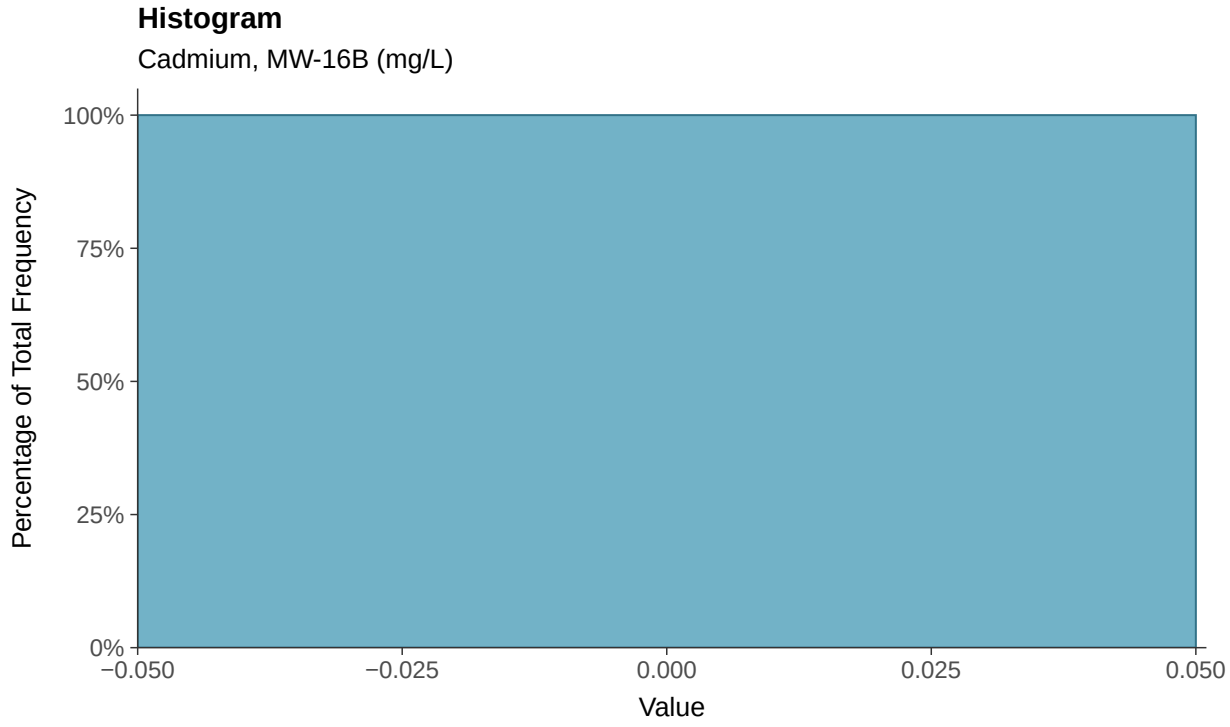
Beryllium, MW-16B (mg/L)



Appendix IV: Cadmium, MW-16B

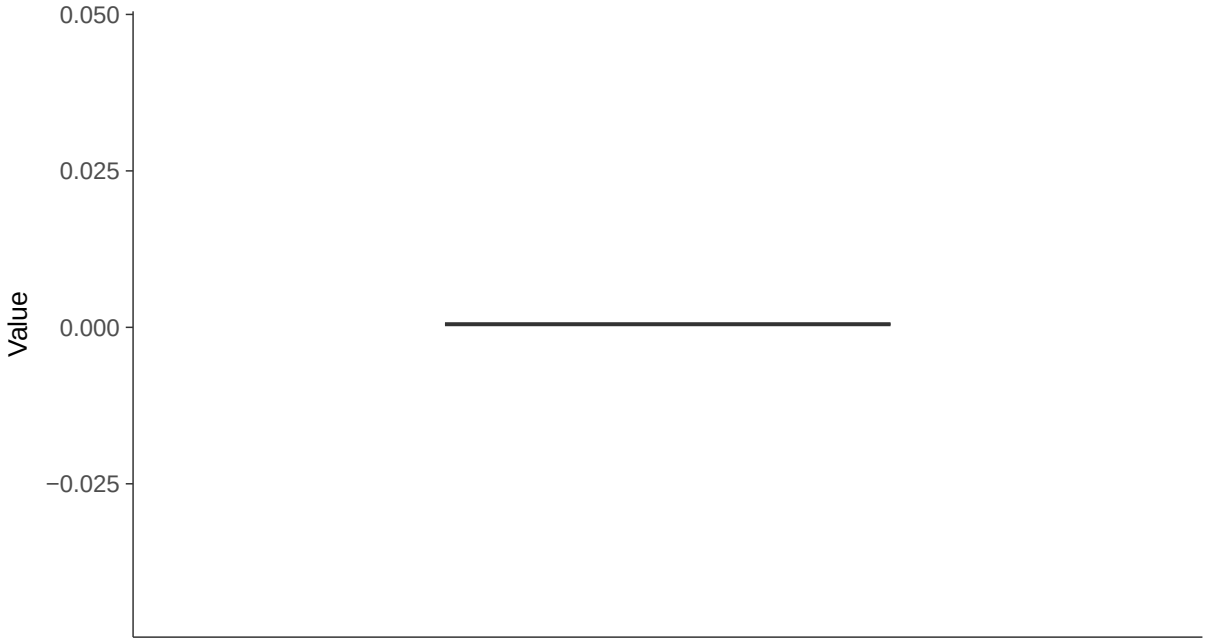
ID: 16B_2_12





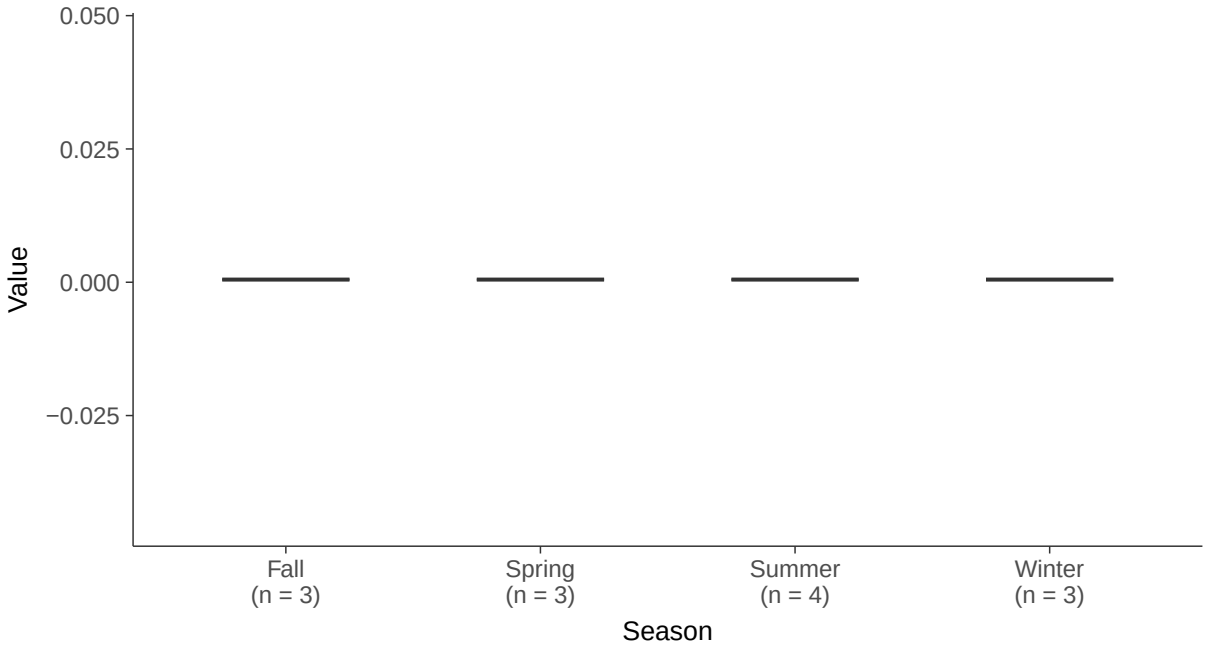
Boxplot

Cadmium, MW-16B (mg/L)



Boxplot by Season

Cadmium, MW-16B (mg/L)

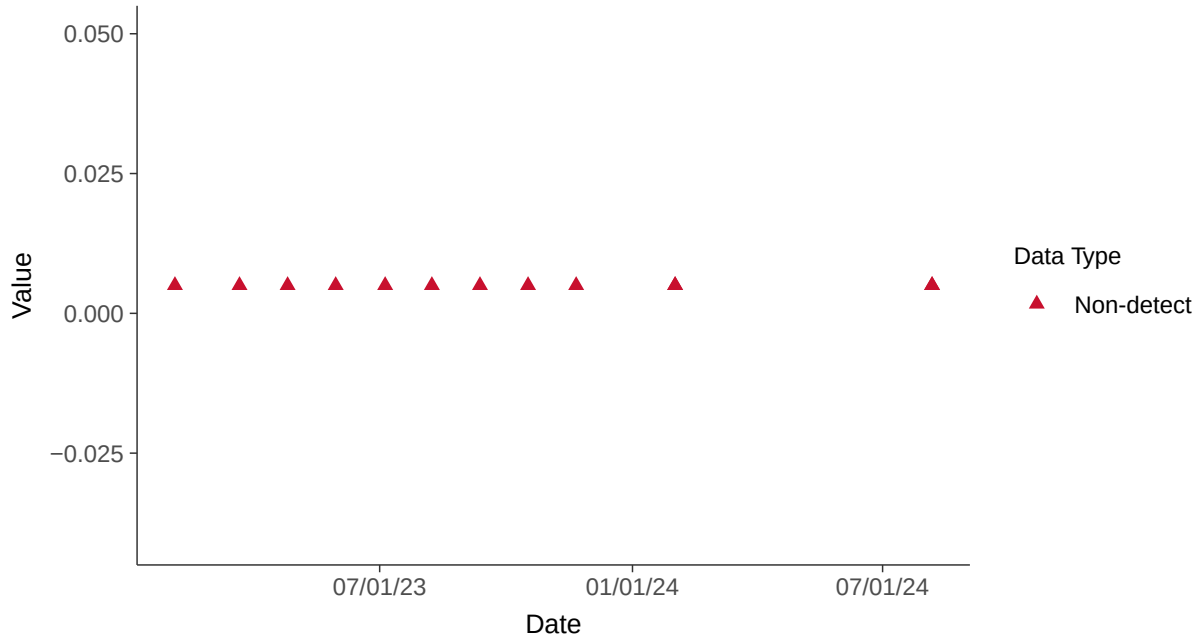


Appendix IV: Chromium, MW-16B

ID: 16B_2_13

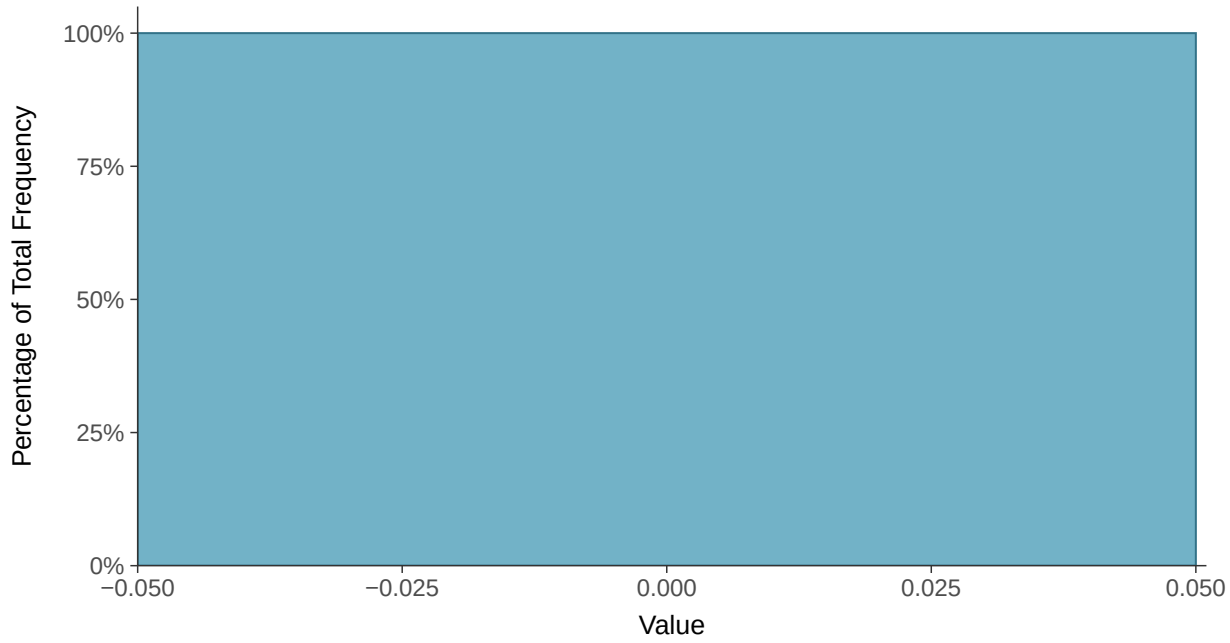
Scatter Plot

Chromium, MW-16B (mg/L)



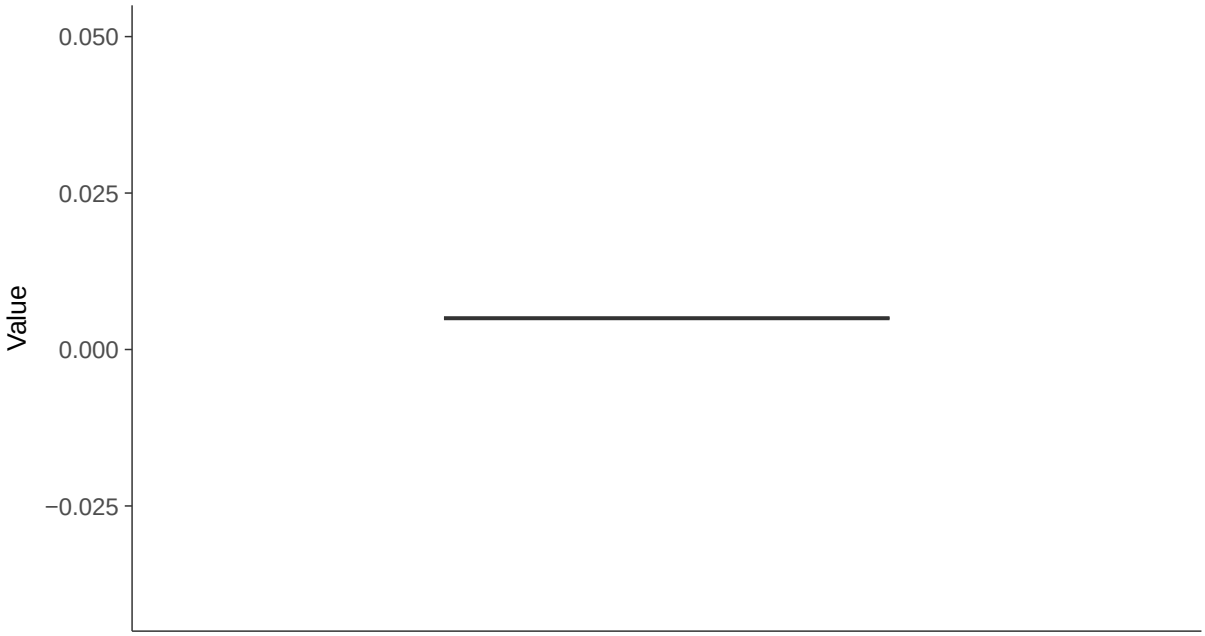
Histogram

Chromium, MW-16B (mg/L)



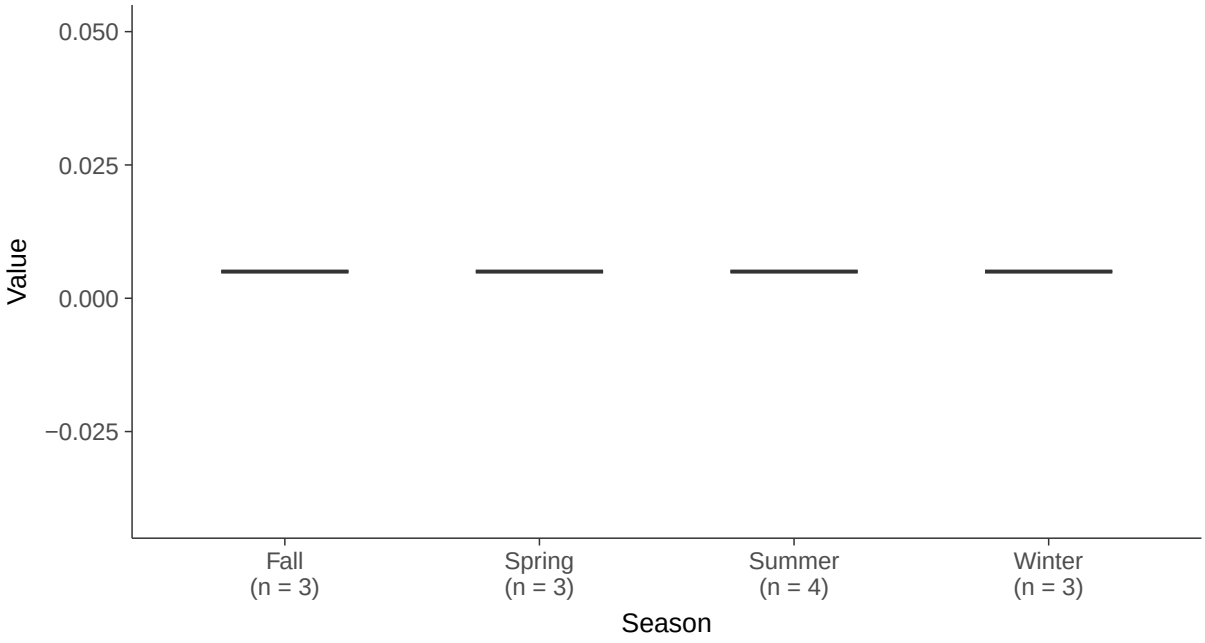
Boxplot

Chromium, MW-16B (mg/L)



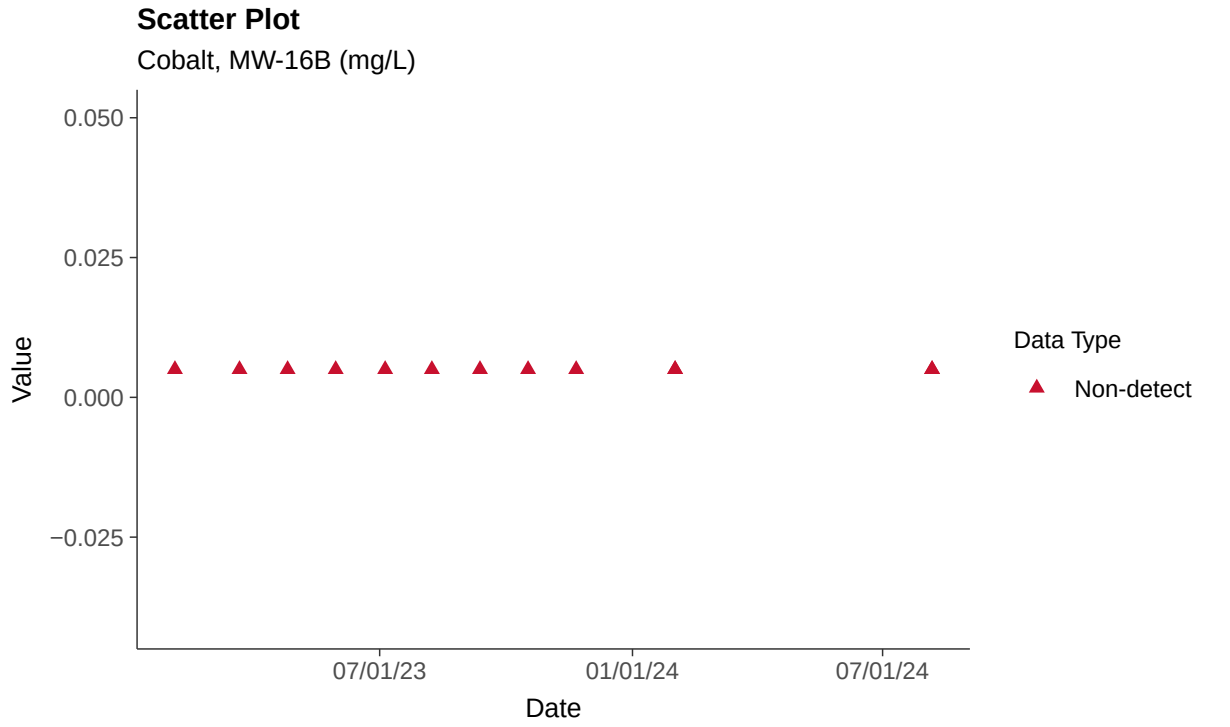
Boxplot by Season

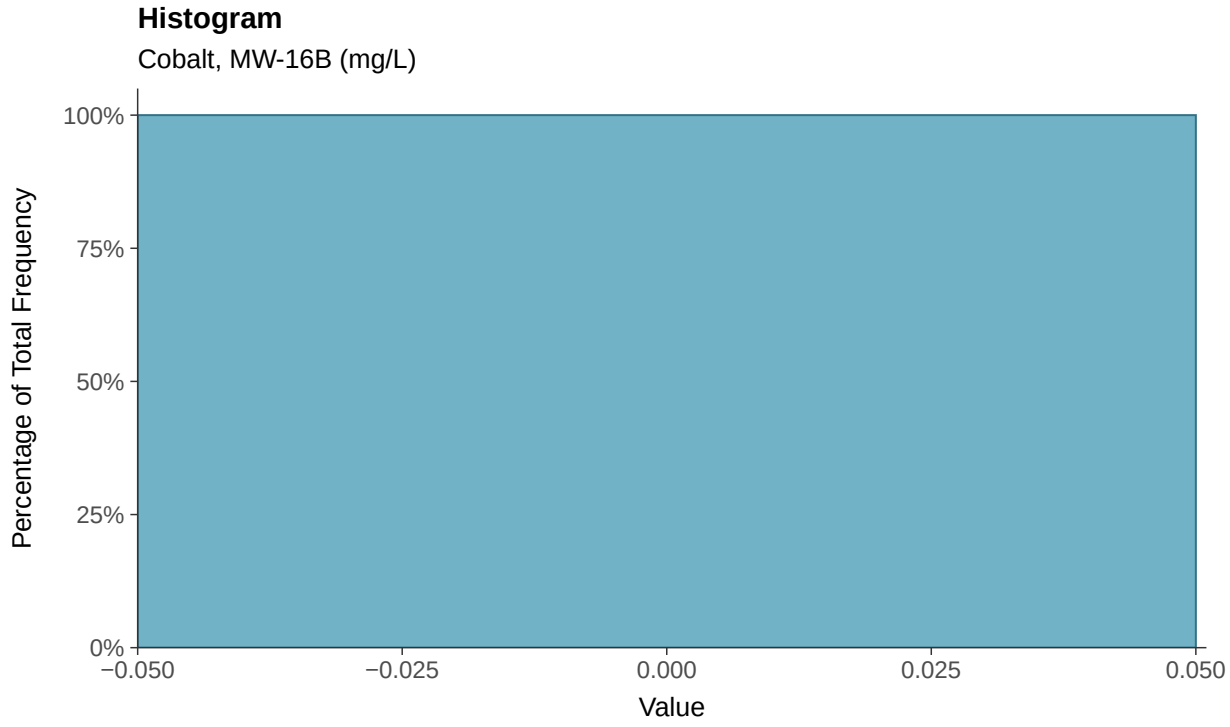
Chromium, MW-16B (mg/L)



Appendix IV: Cobalt, MW-16B

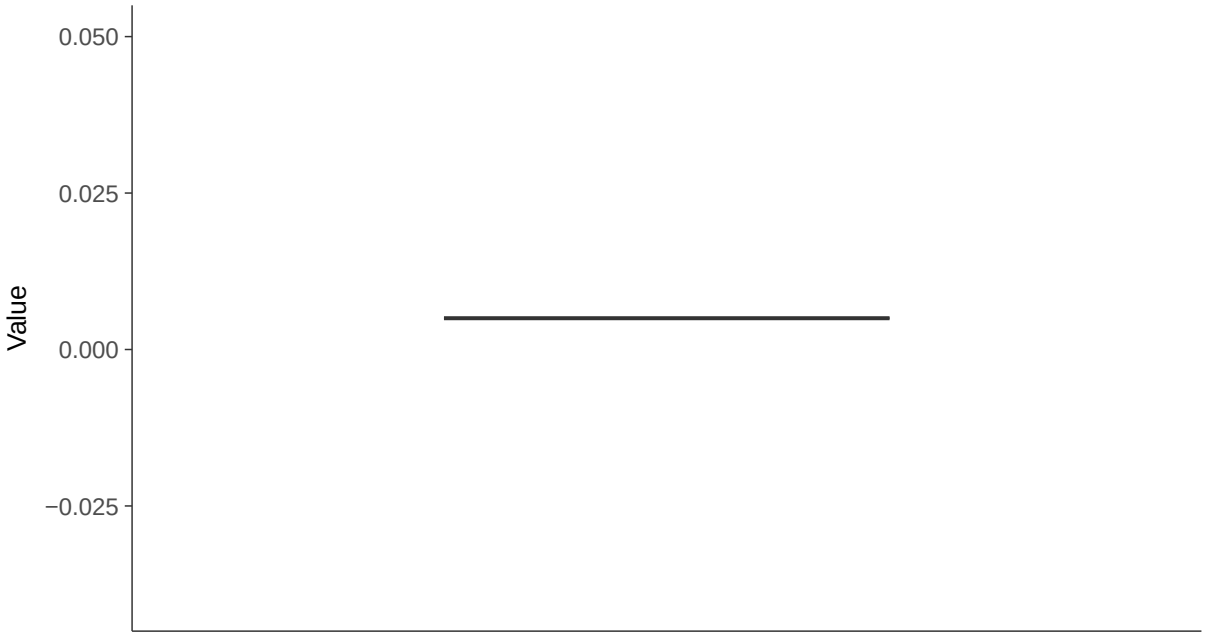
ID: 16B_2_14





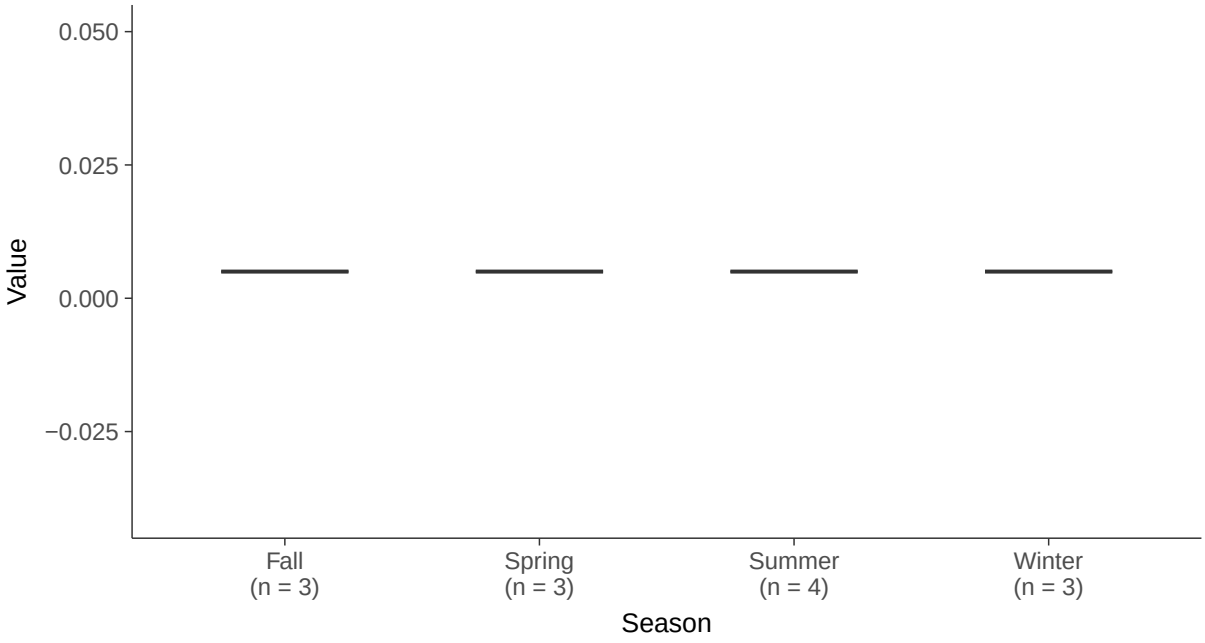
Boxplot

Cobalt, MW-16B (mg/L)



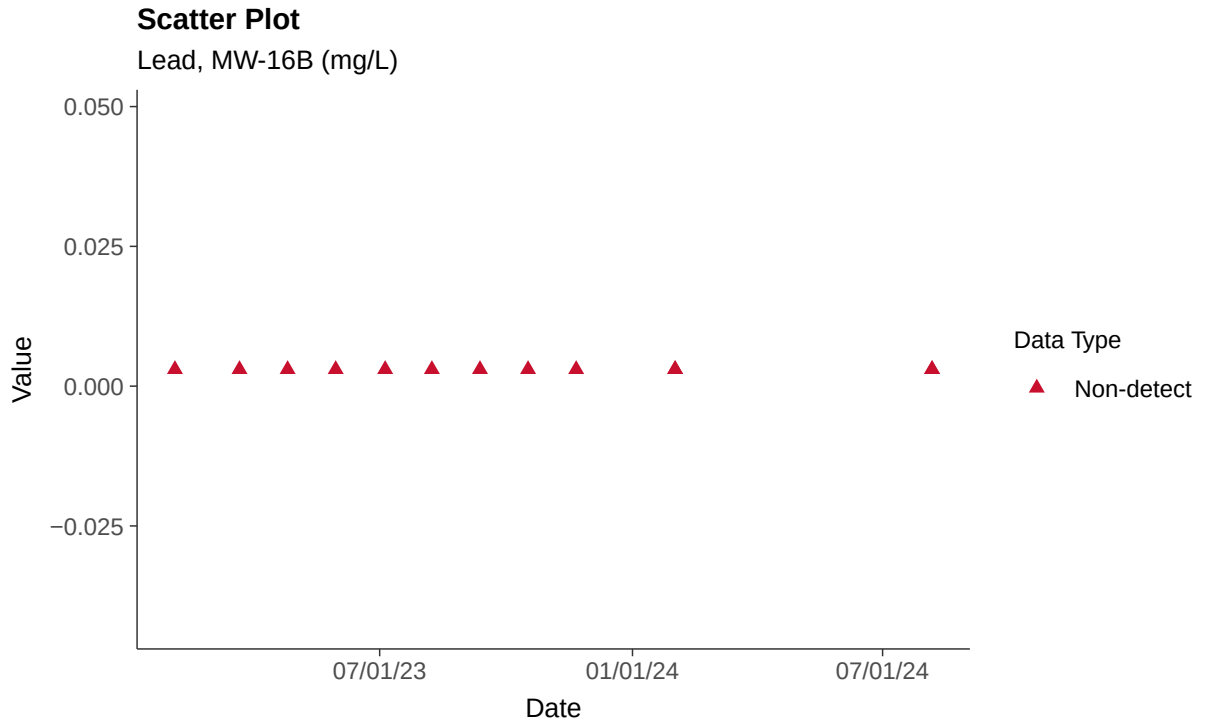
Boxplot by Season

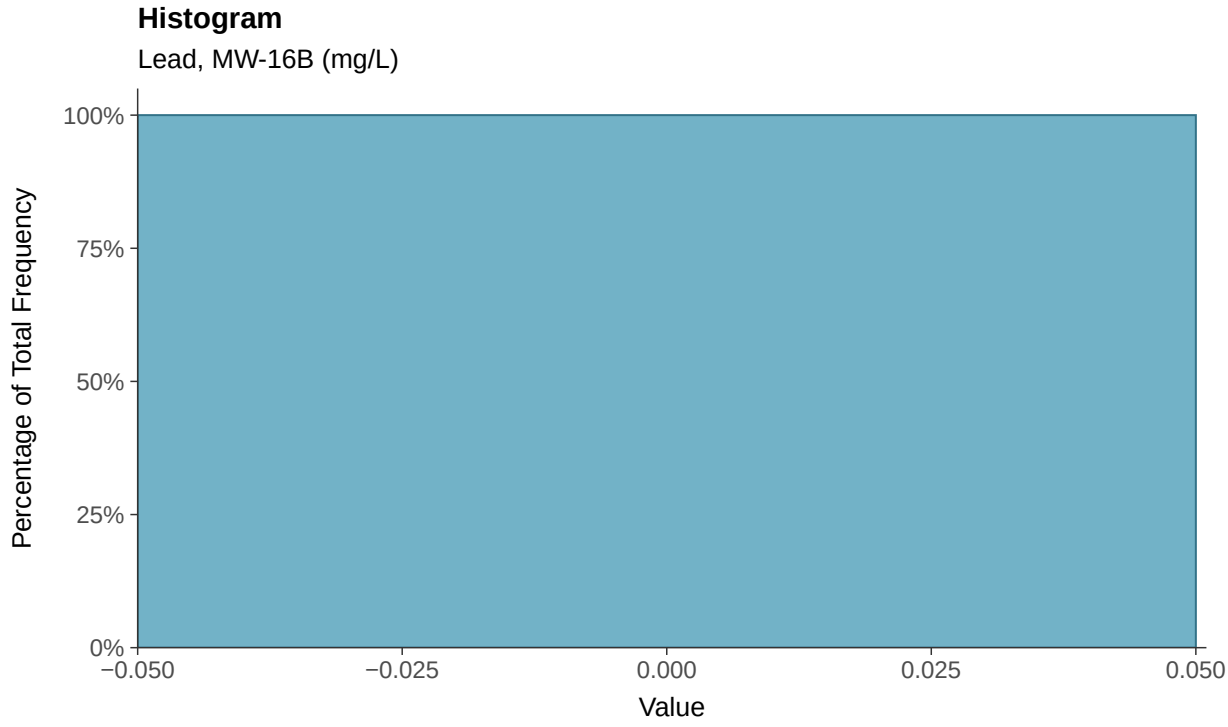
Cobalt, MW-16B (mg/L)



Appendix IV: Lead, MW-16B

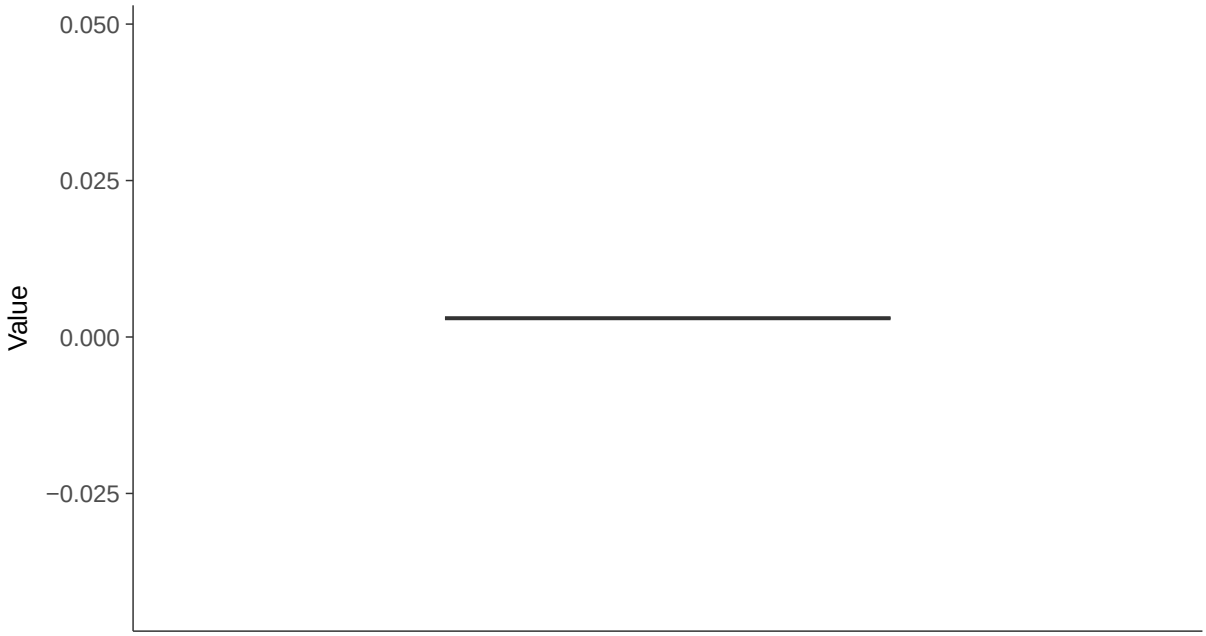
ID: 16B_2_15





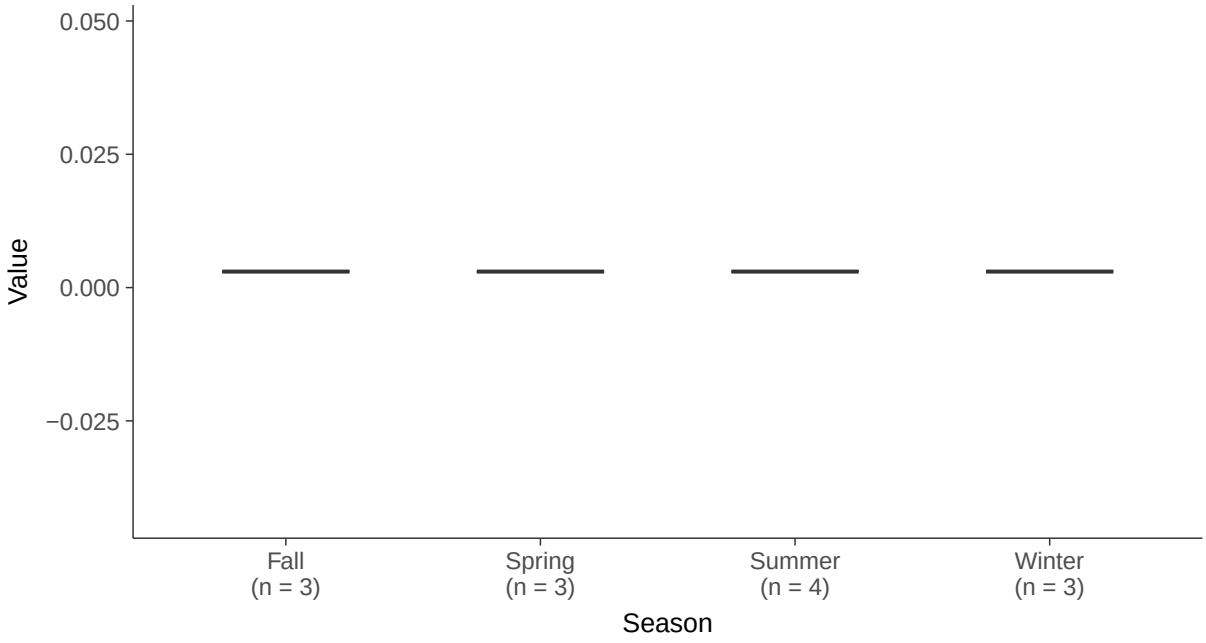
Boxplot

Lead, MW-16B (mg/L)



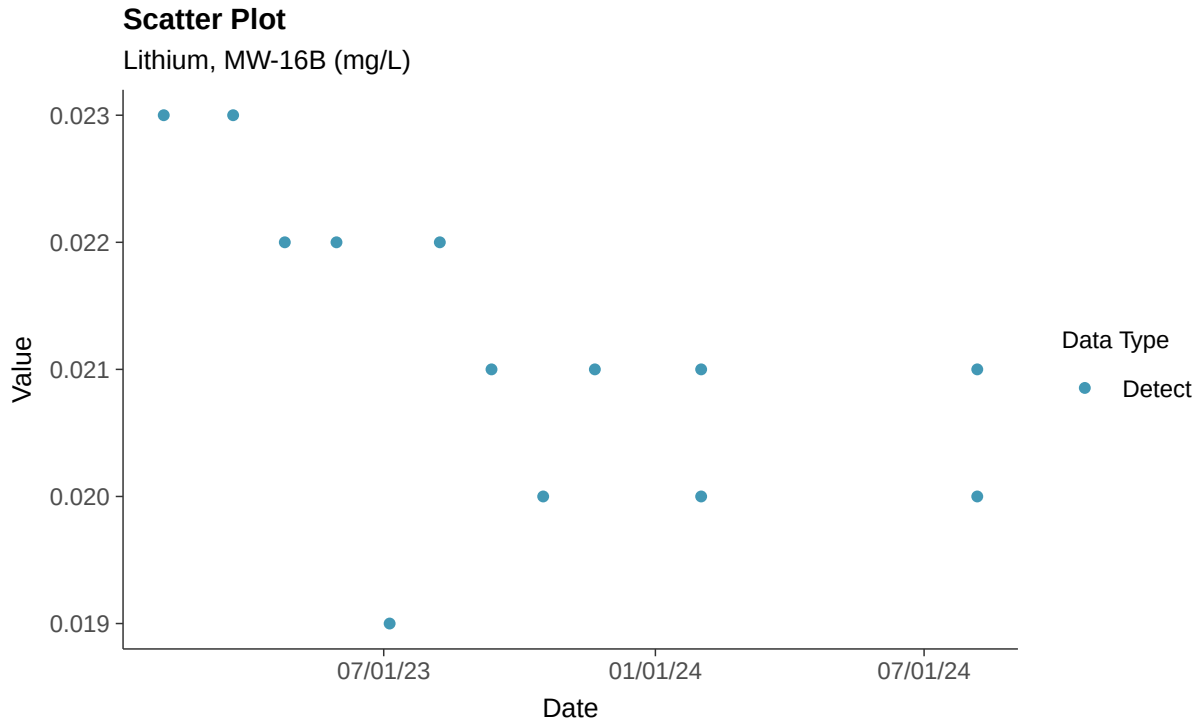
Boxplot by Season

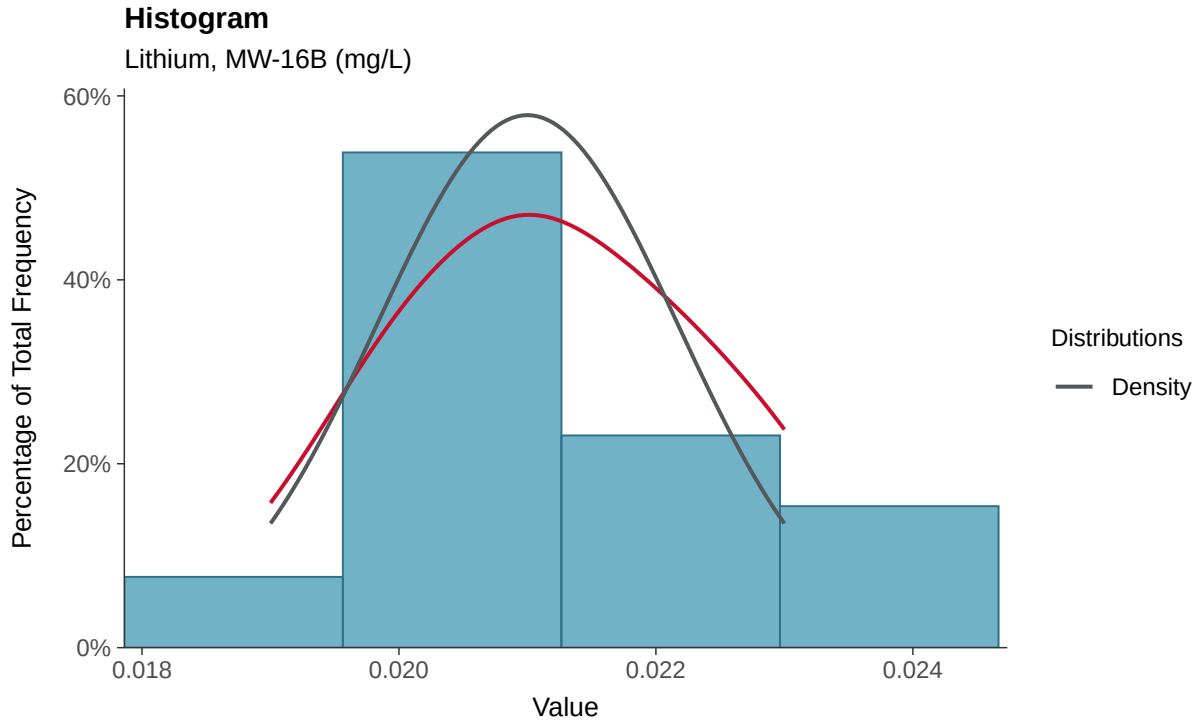
Lead, MW-16B (mg/L)



Appendix IV: Lithium, MW-16B

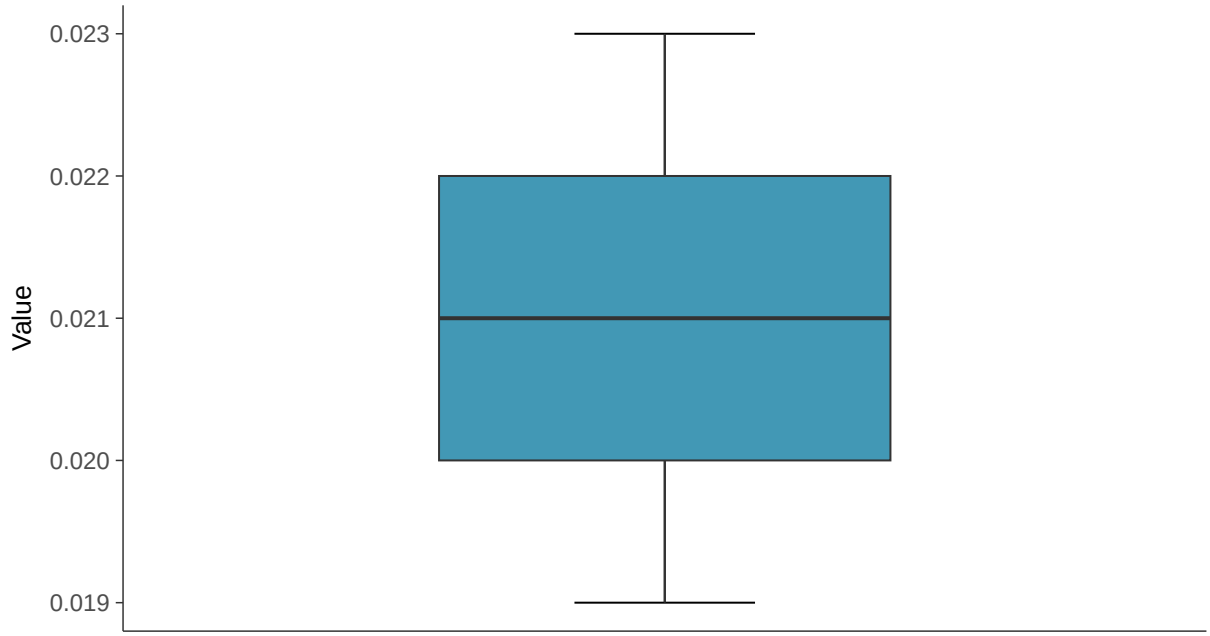
ID: 16B_2_16





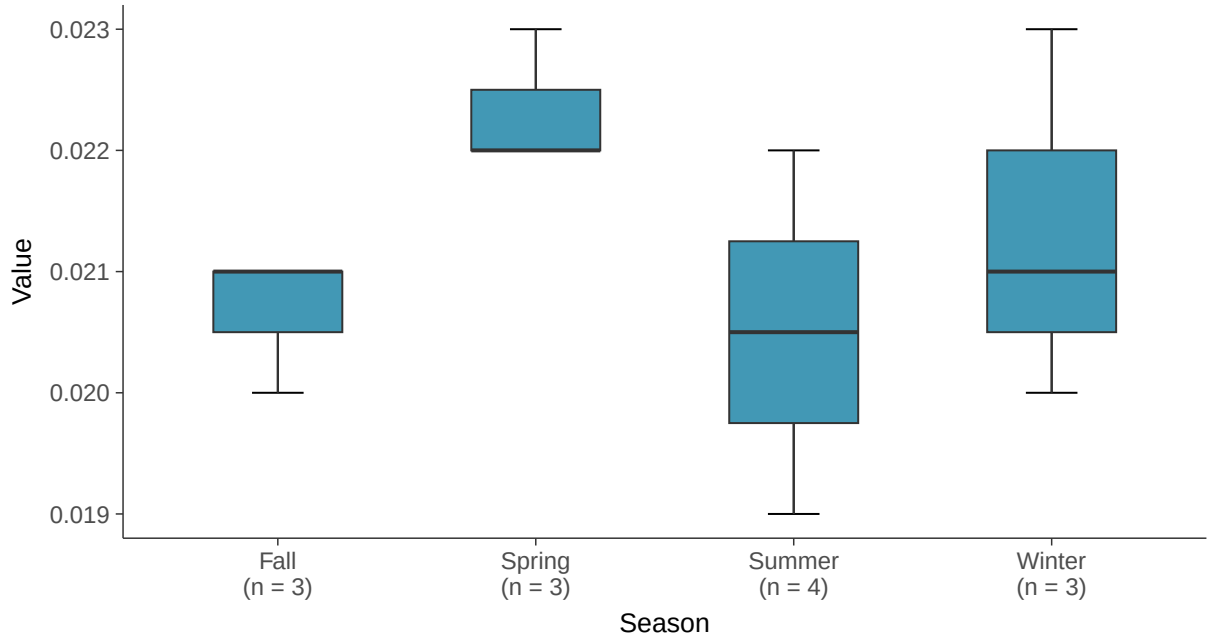
Boxplot

Lithium, MW-16B (mg/L)



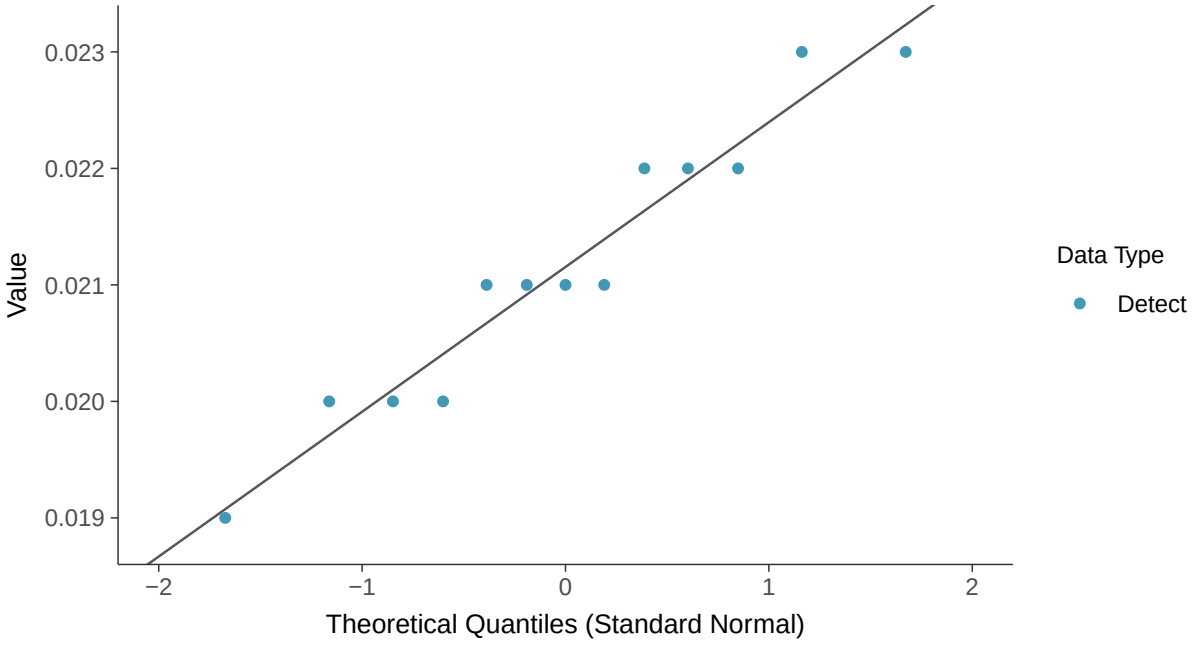
Boxplot by Season

Lithium, MW-16B (mg/L)



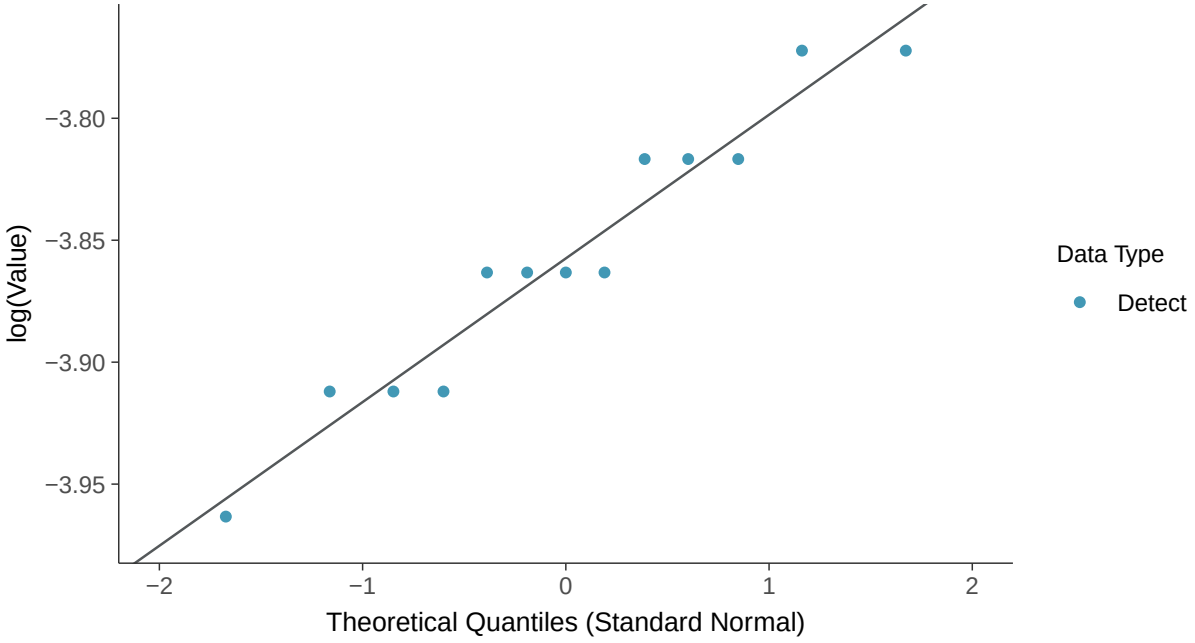
Normal Q-Q plot

Lithium, MW-16B (mg/L)



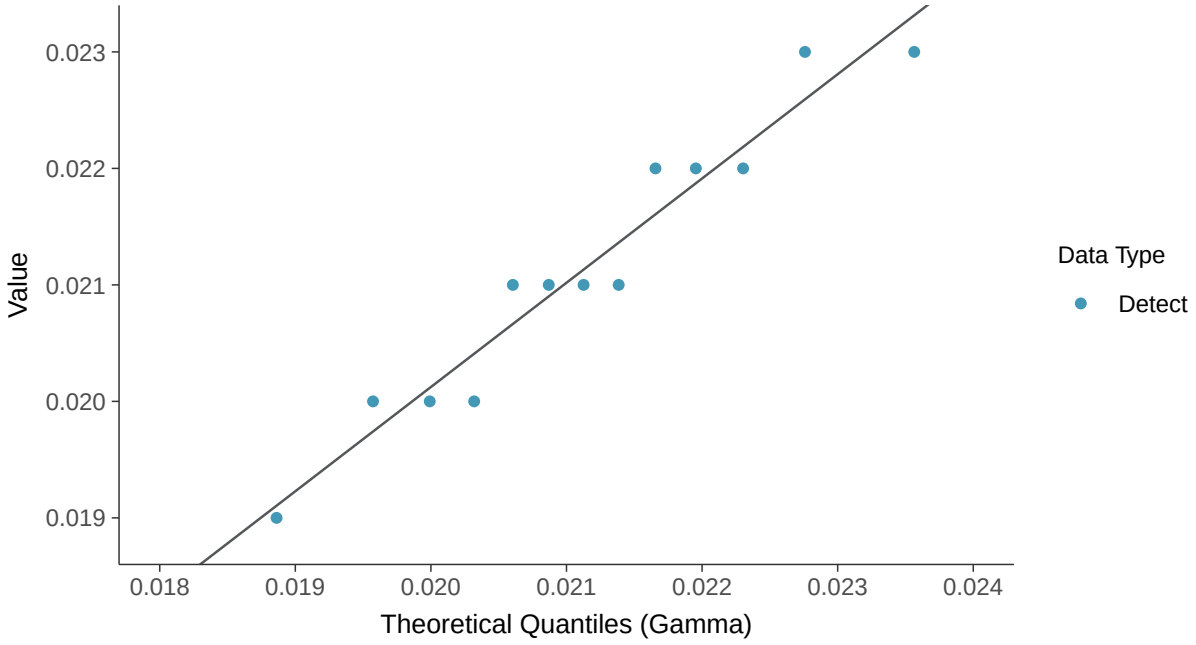
Lognormal Q-Q plot

Lithium, MW-16B (mg/L)



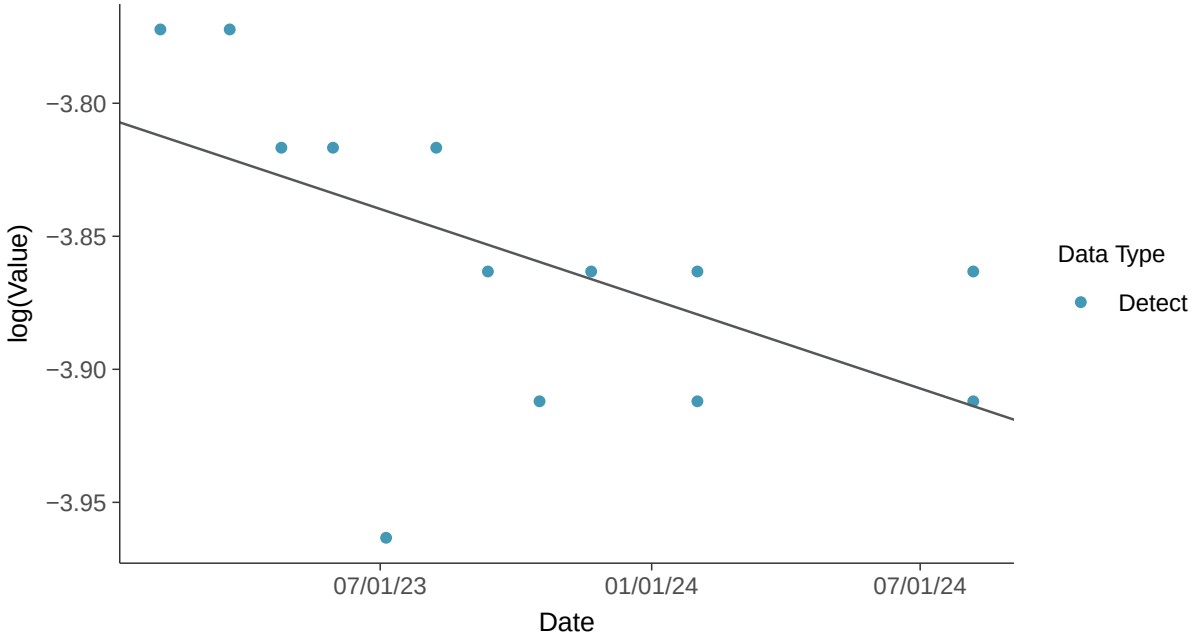
Gamma Q-Q plot

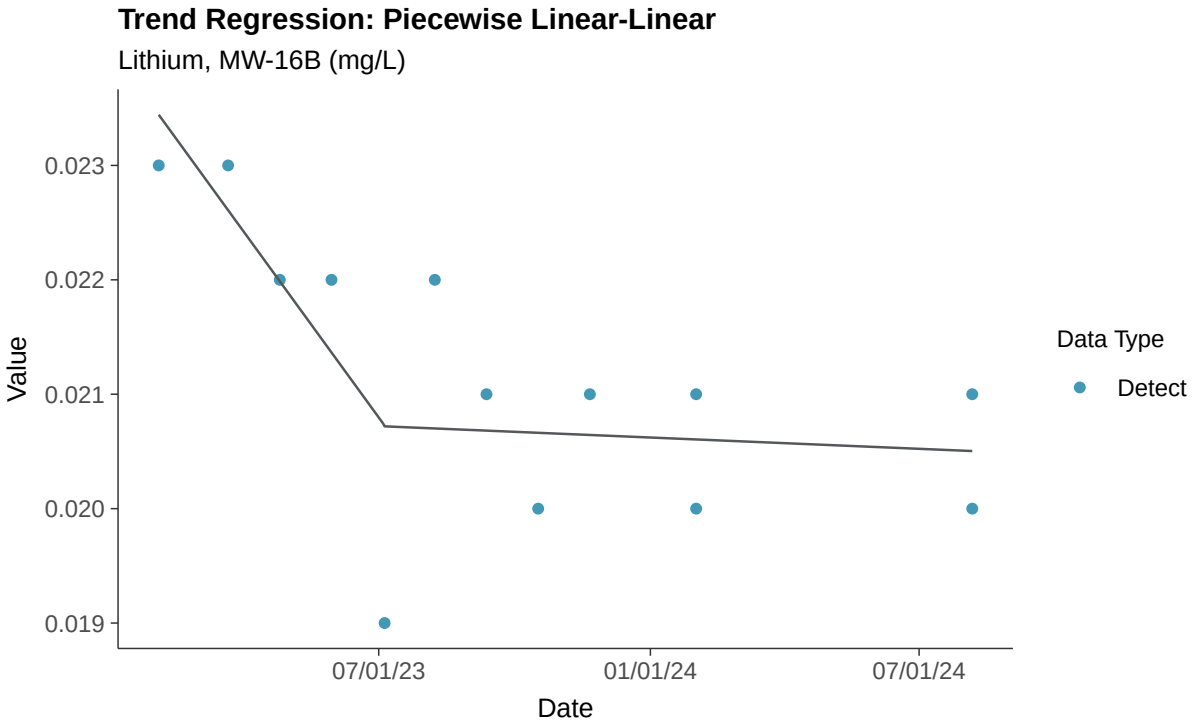
Lithium, MW-16B (mg/L)



Trend Regression: Lognormal MLE

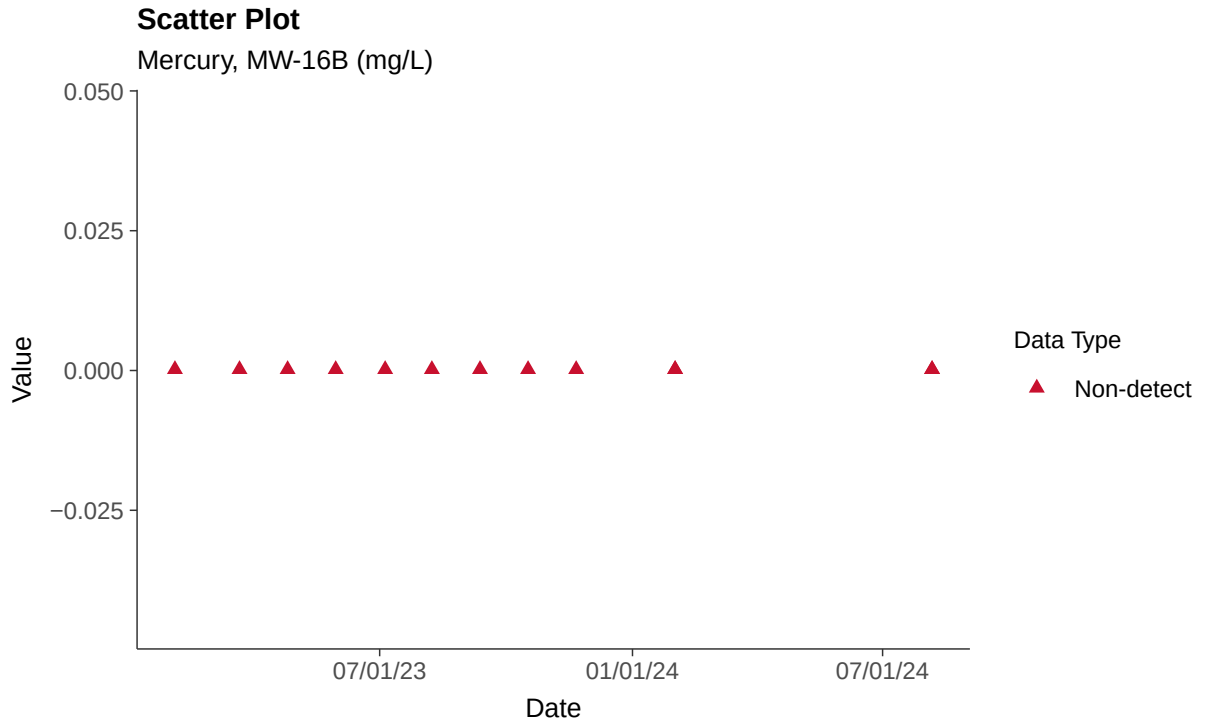
Lithium, MW-16B (mg/L)

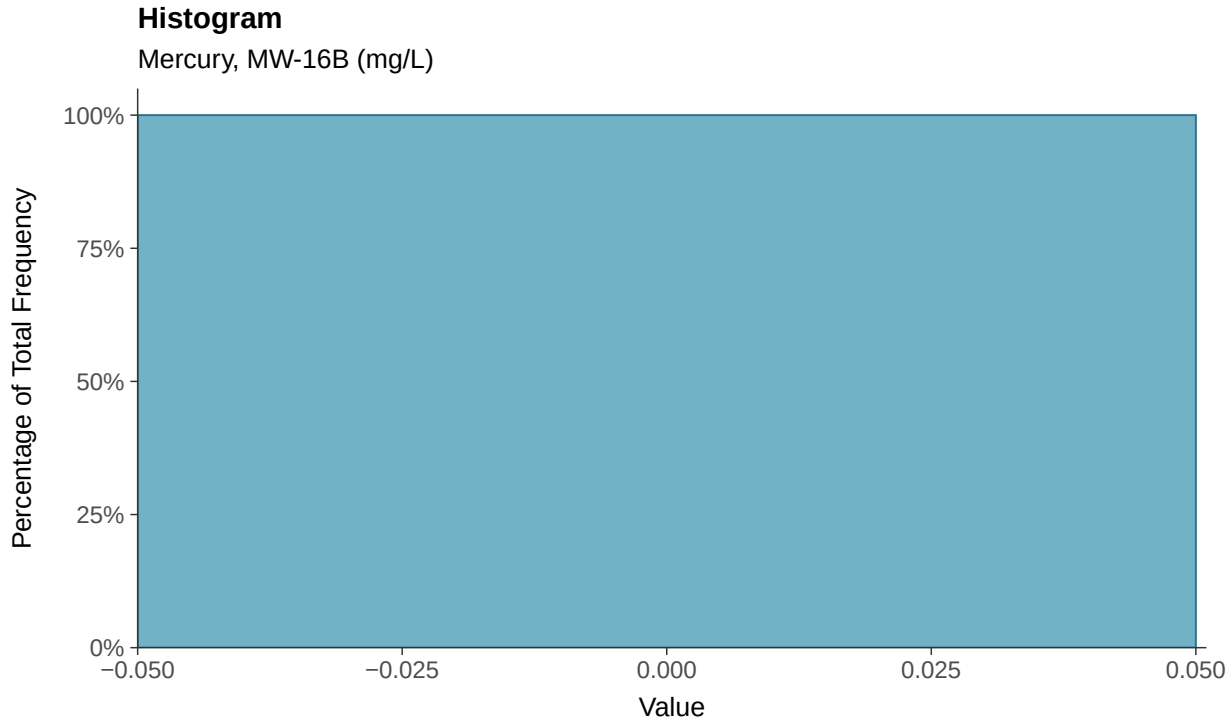



Trend Regression: Piecewise Linear-Linear
Lithium, MW-16B (mg/L)
Value
0.023
0.022
0.021
0.020
0.019
07/01/23
01/01/24
07/01/24
Date
Data Type
Detect

Appendix IV: Mercury, MW-16B

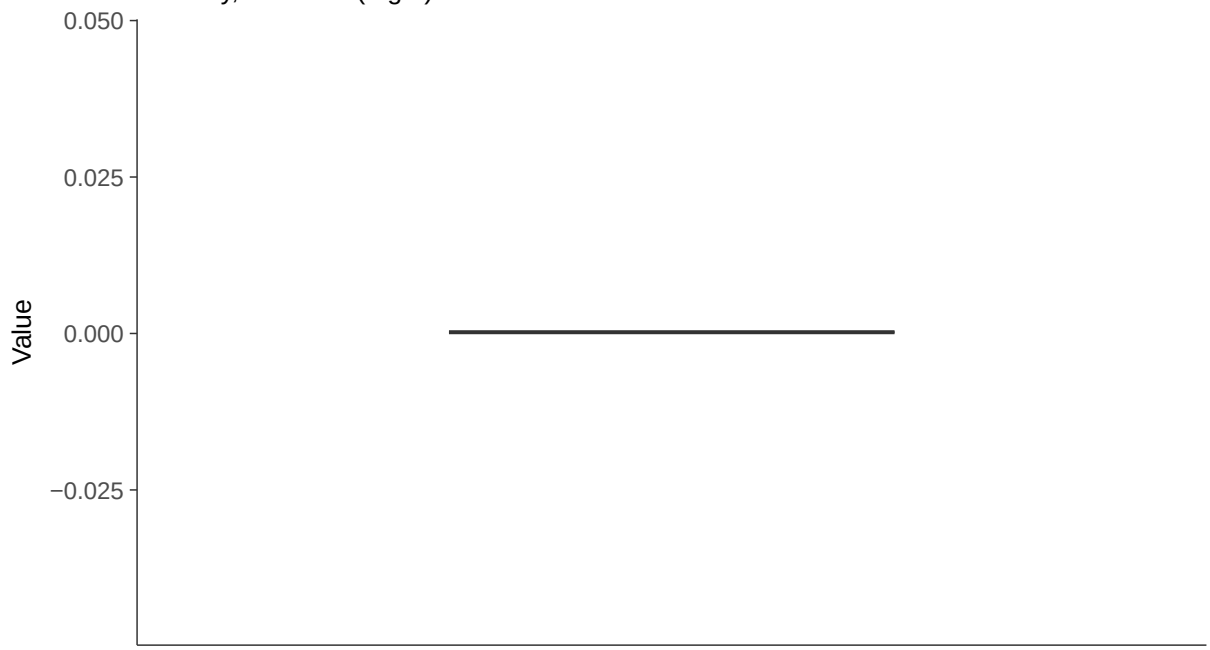
ID: 16B_2_17





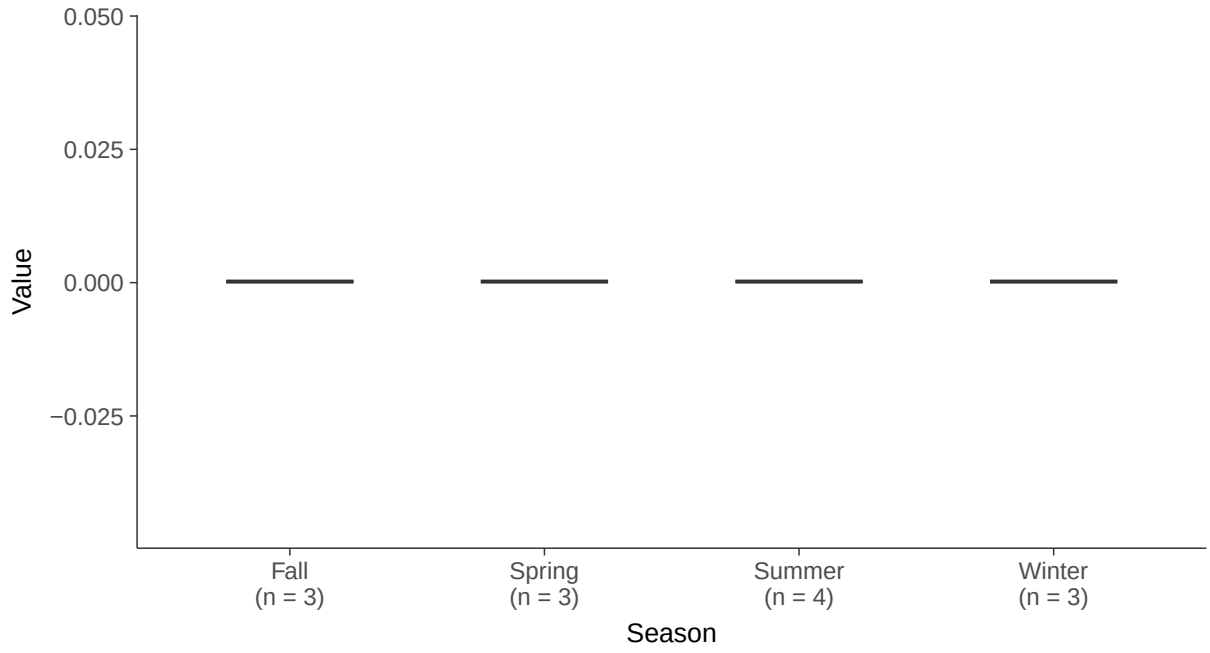
Boxplot

Mercury, MW-16B (mg/L)



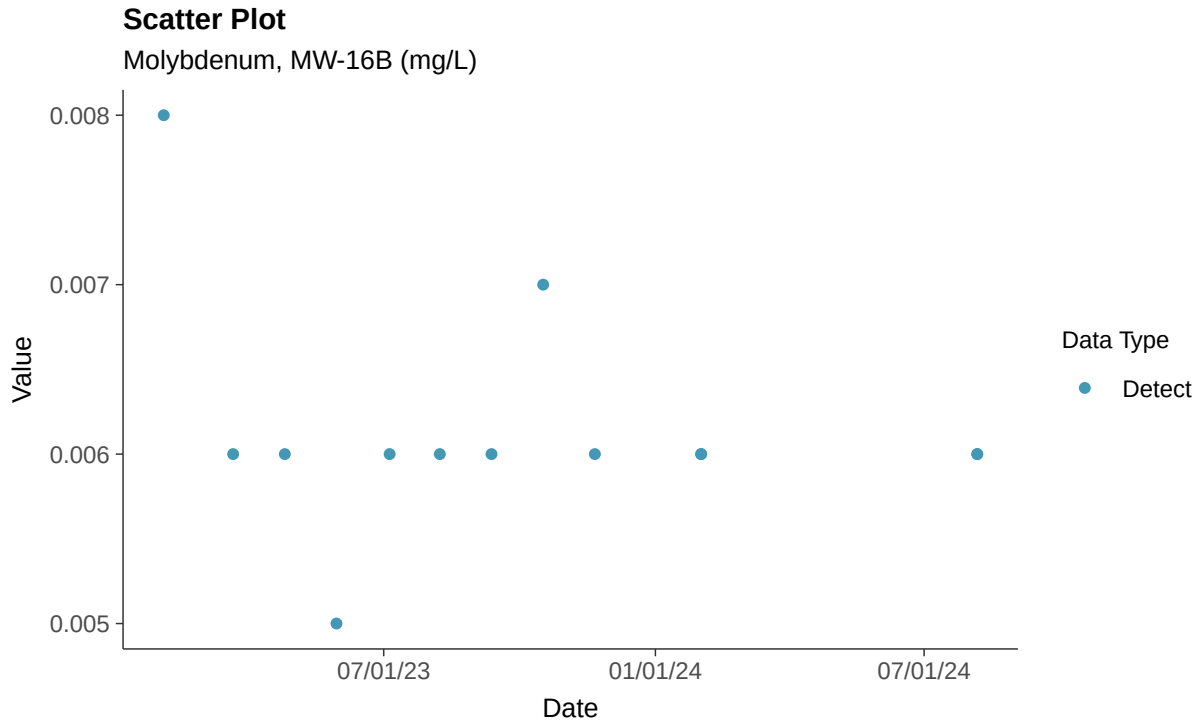
Boxplot by Season

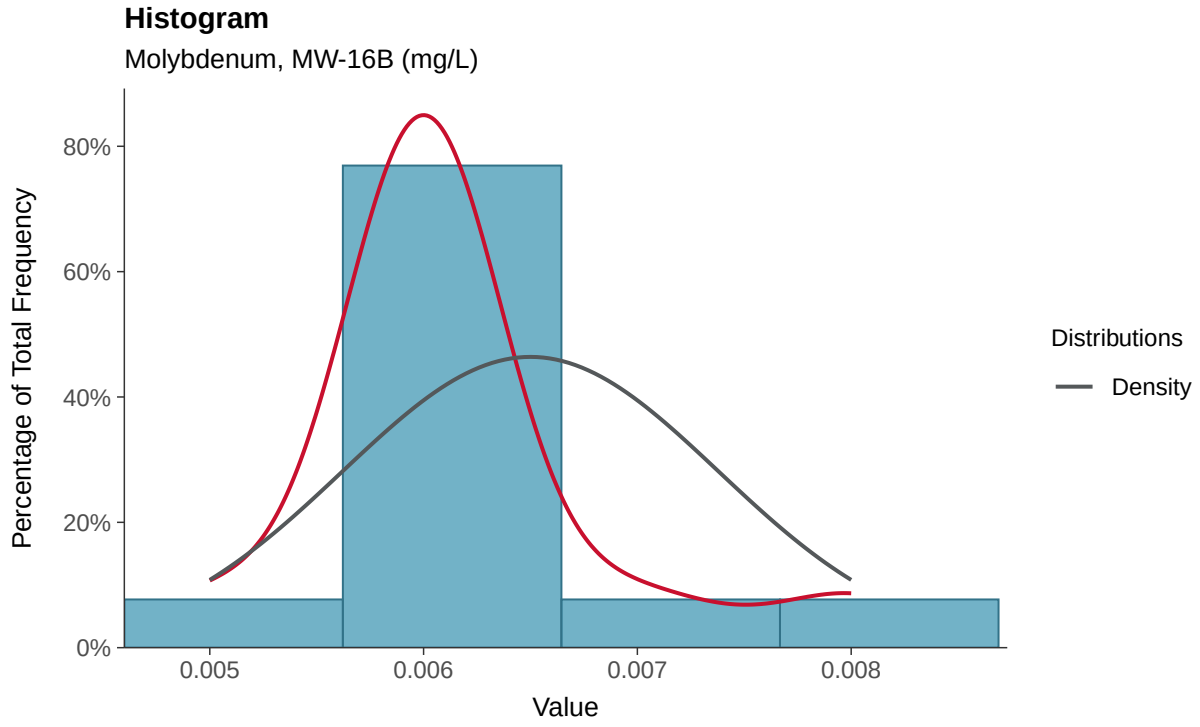
Mercury, MW-16B (mg/L)



Appendix IV: Molybdenum, MW-16B

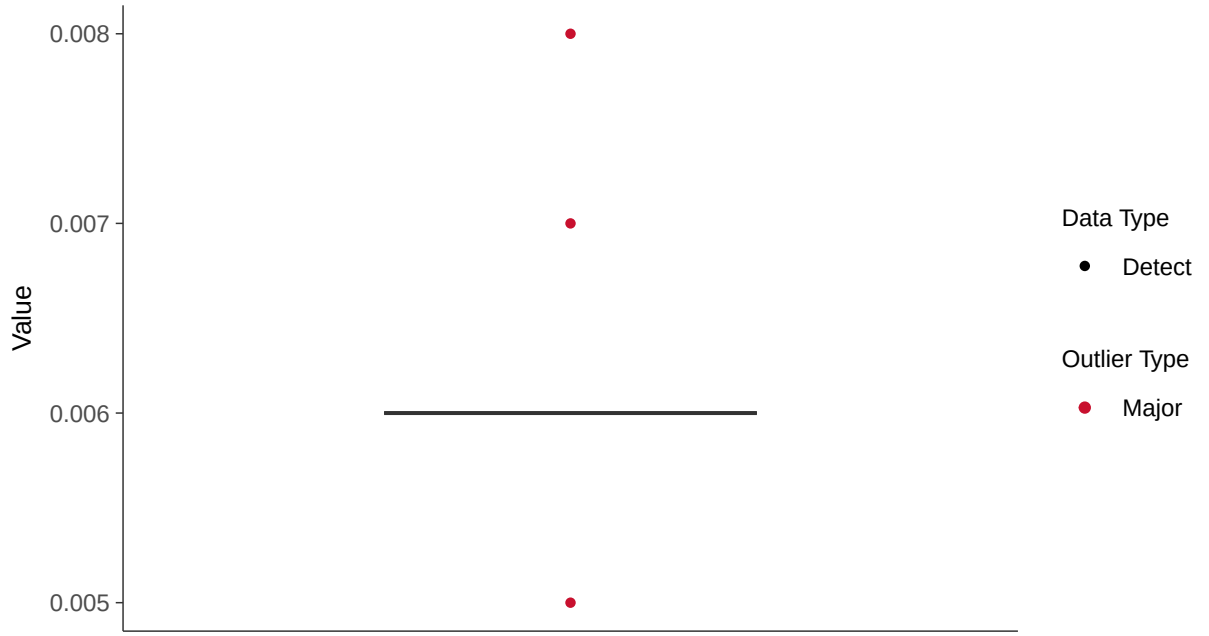
ID: 16B_2_18





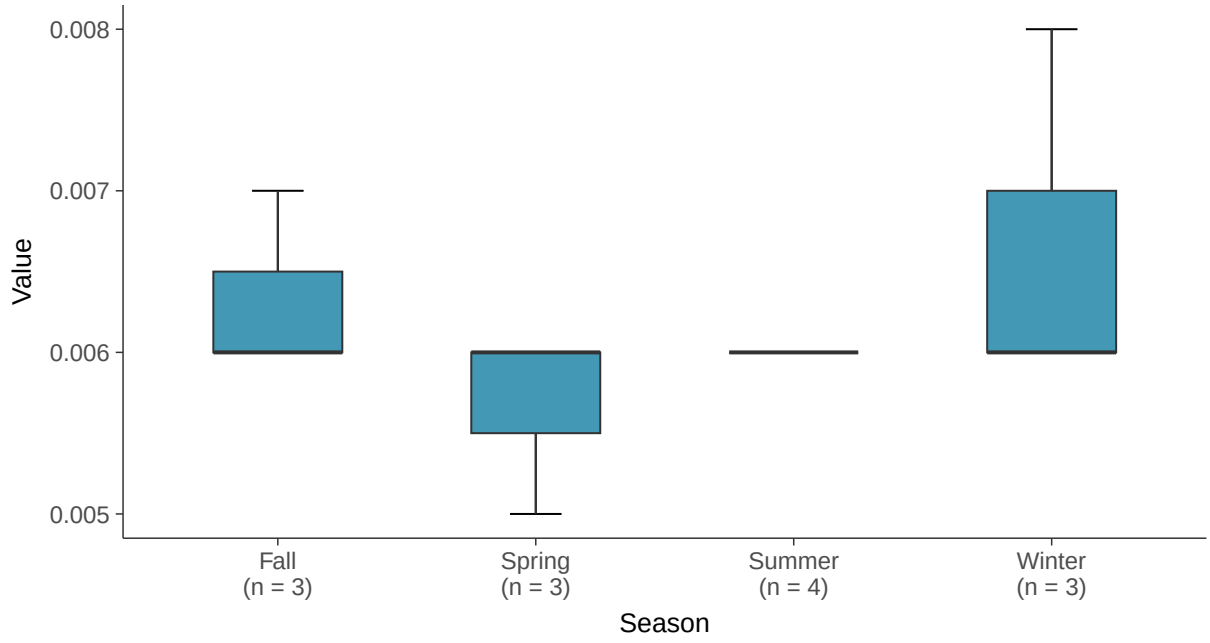
Boxplot

Molybdenum, MW-16B (mg/L)



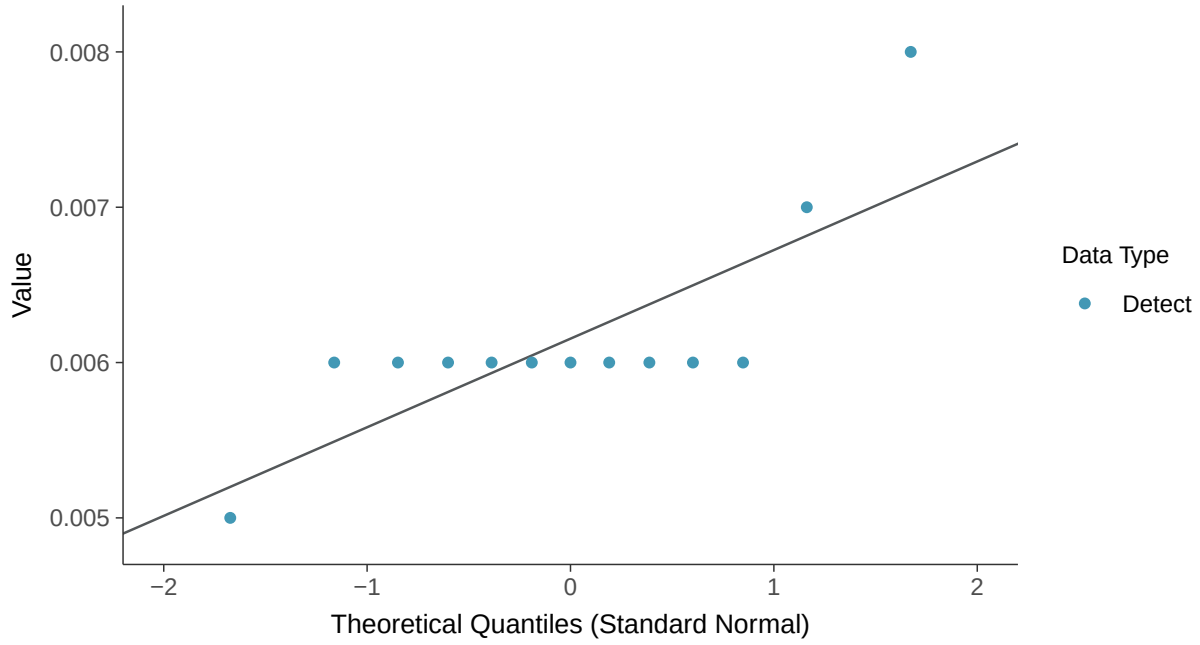
Boxplot by Season

Molybdenum, MW-16B (mg/L)



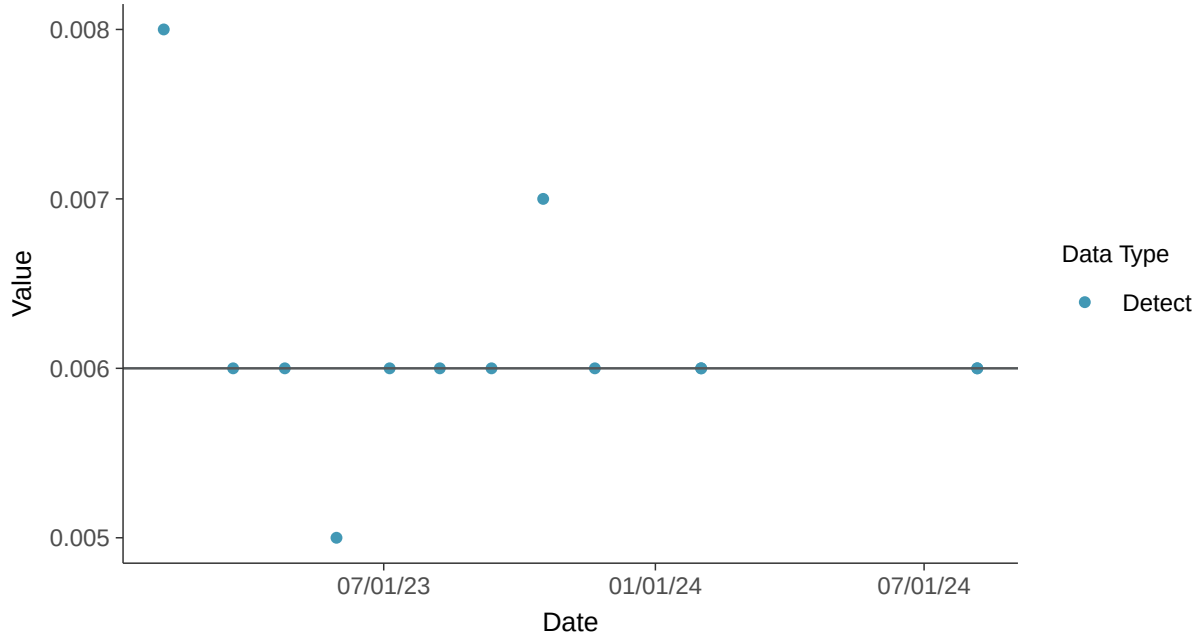
Normal Q-Q plot

Molybdenum, MW-16B (mg/L)



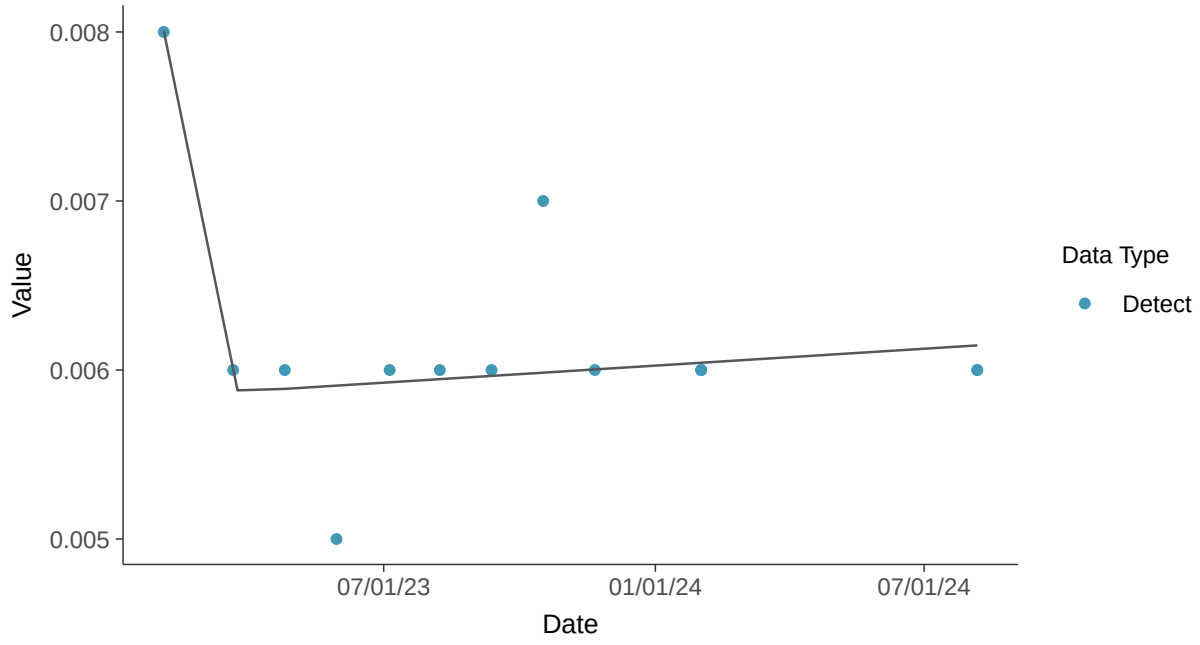
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Molybdenum, MW-16B (mg/L)



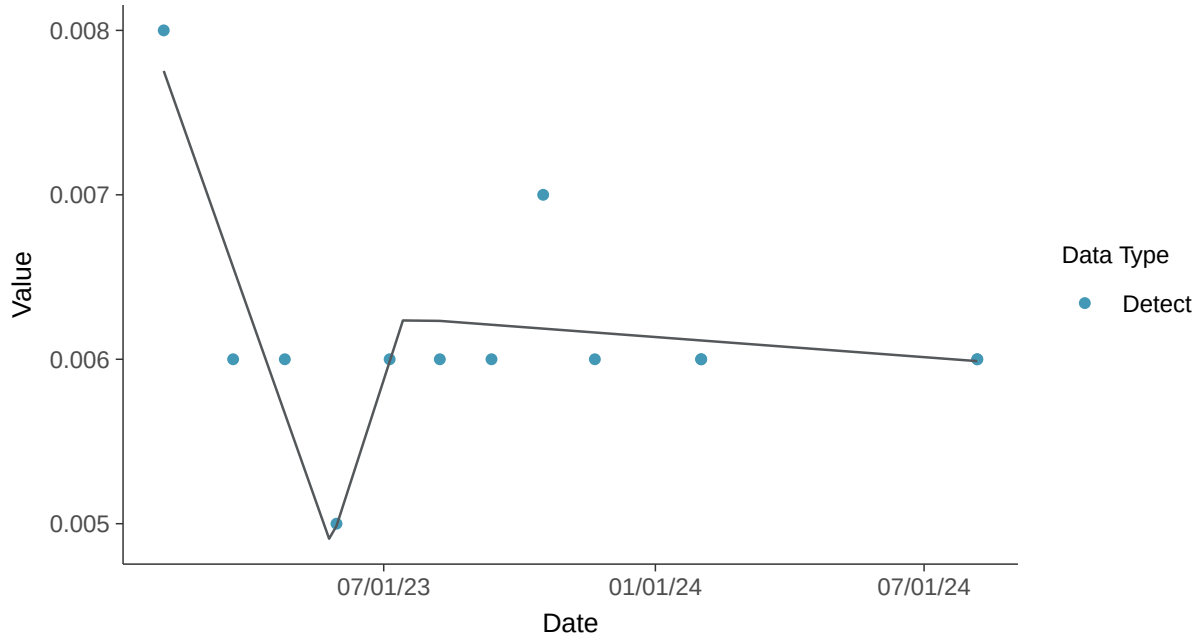
Trend Regression: Piecewise Linear-Linear

Molybdenum, MW-16B (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Molybdenum, MW-16B (mg/L)

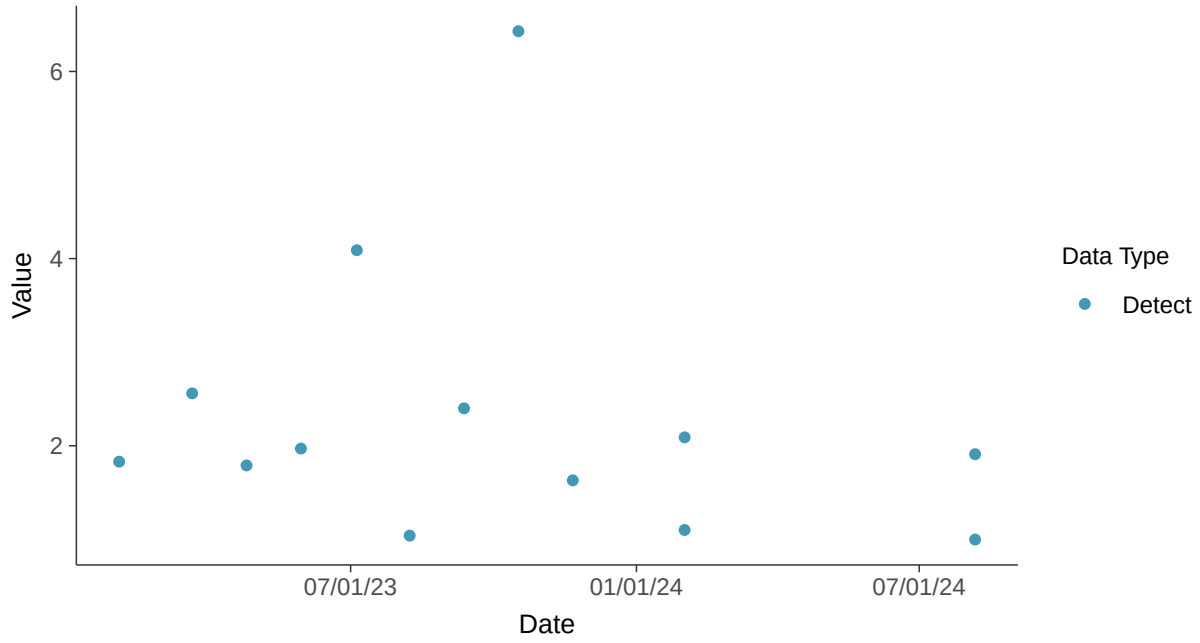


Appendix IV: Radium-226/228, MW-16B

ID: 16B_2_21

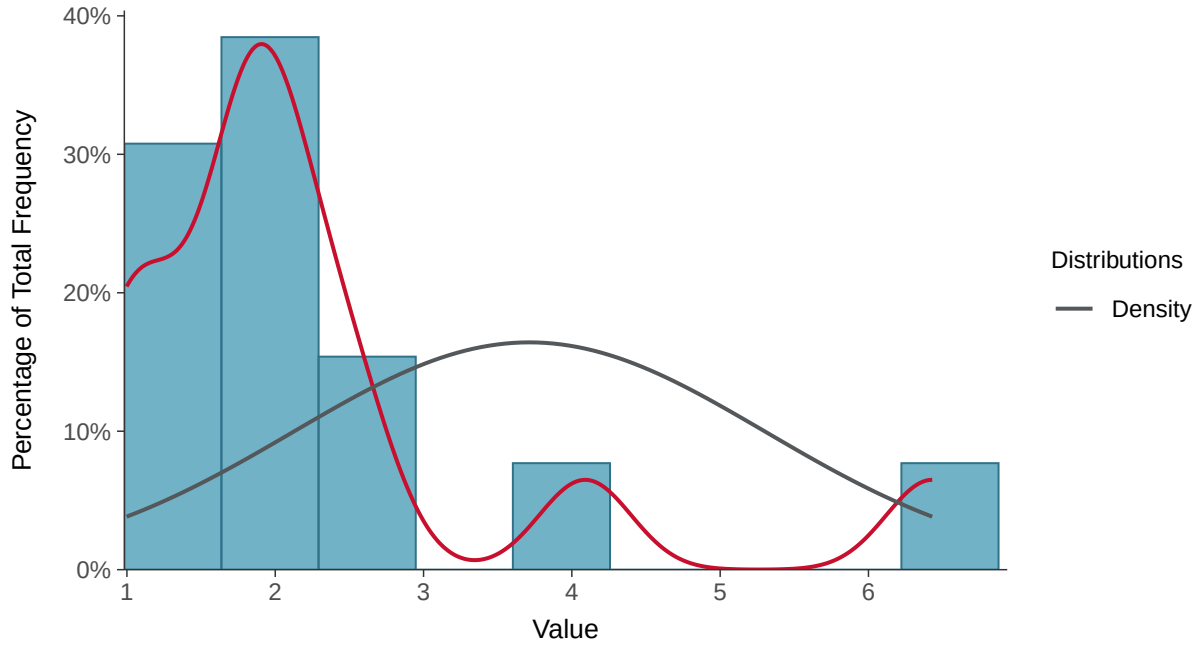
Scatter Plot

Radium-226/228, MW-16B (pCi/L)



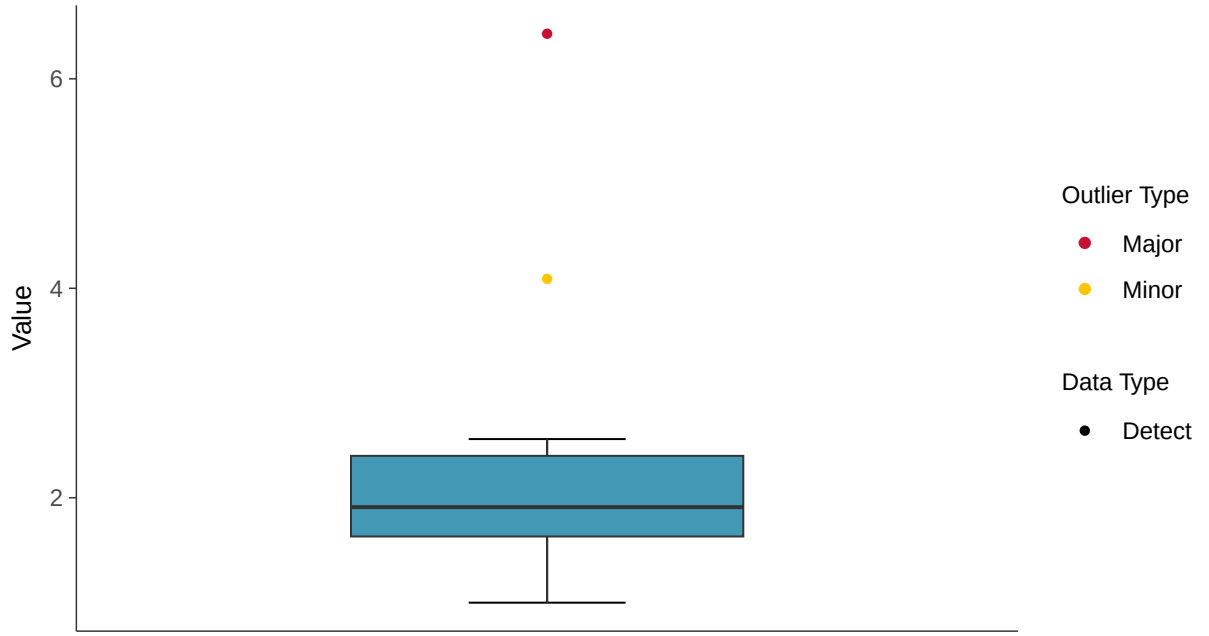
Histogram

Radium-226/228, MW-16B (pCi/L)



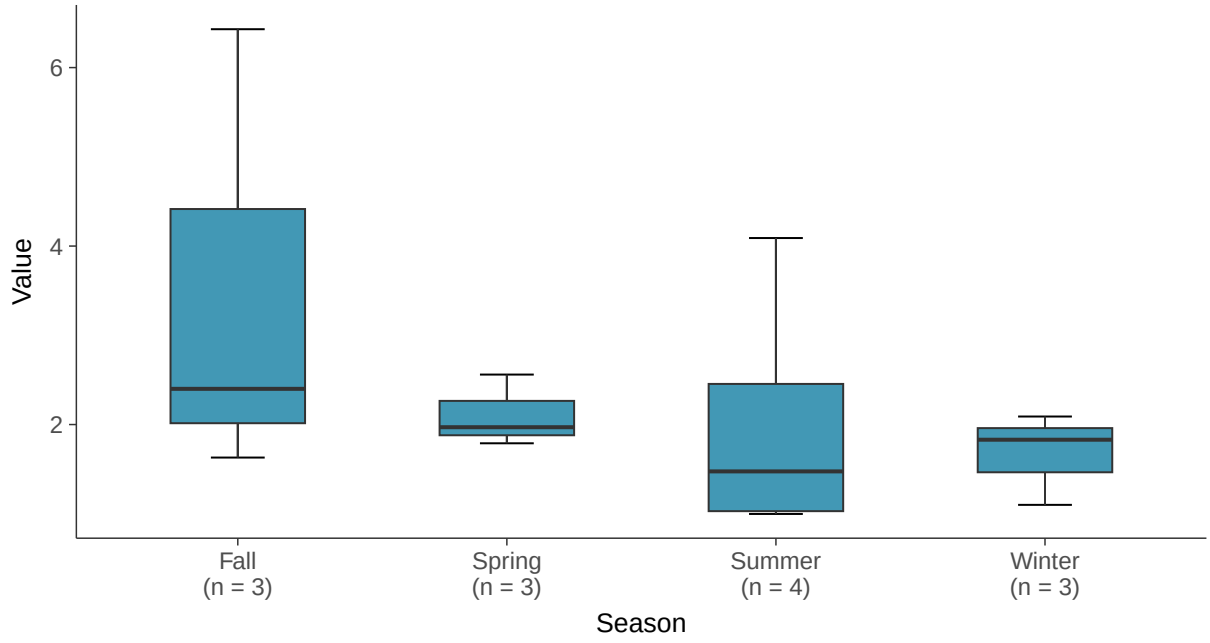
Boxplot

Radium-226/228, MW-16B (pCi/L)



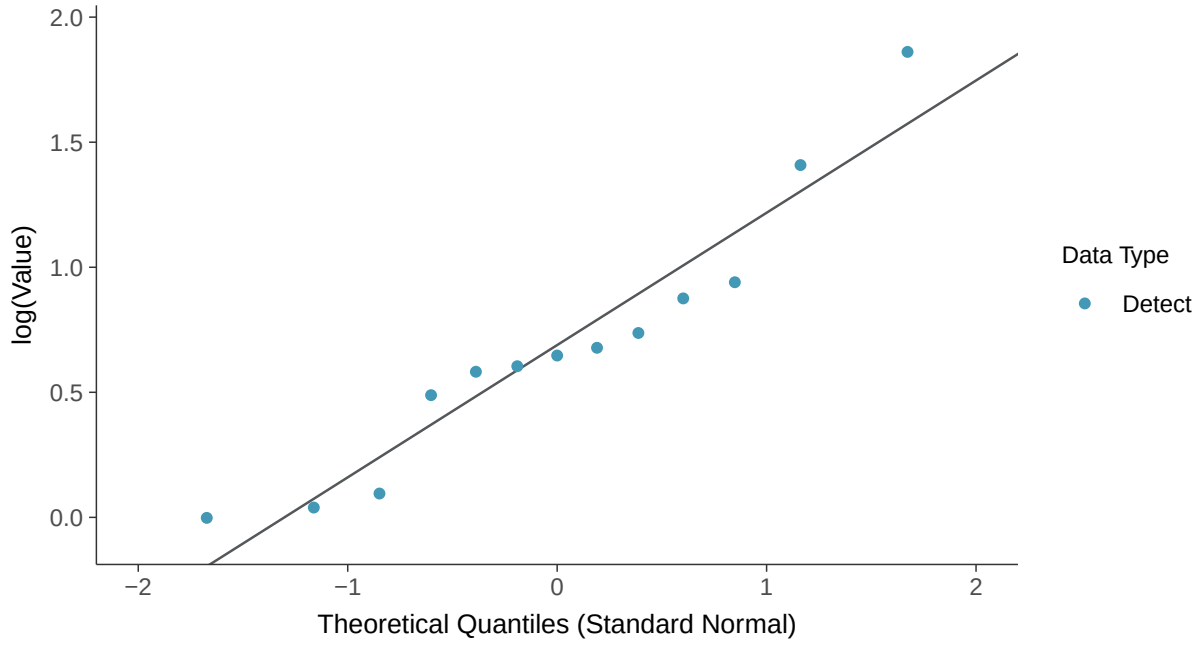
Boxplot by Season

Radium-226/228, MW-16B (pCi/L)



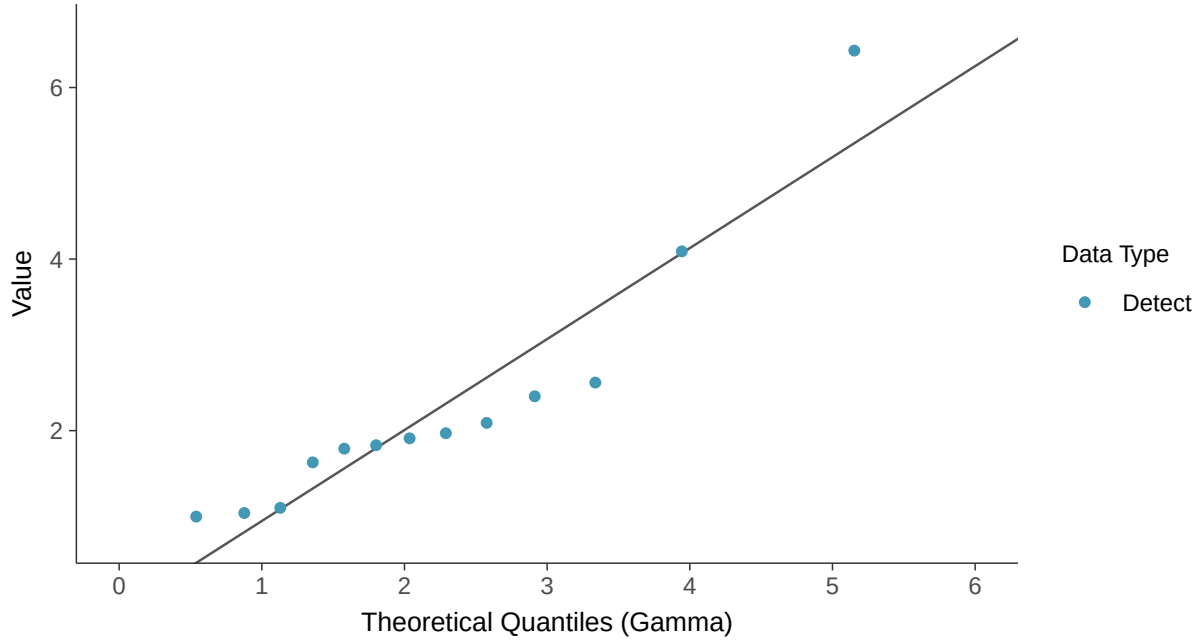
Lognormal Q-Q plot

Radium-226/228, MW-16B (pCi/L)



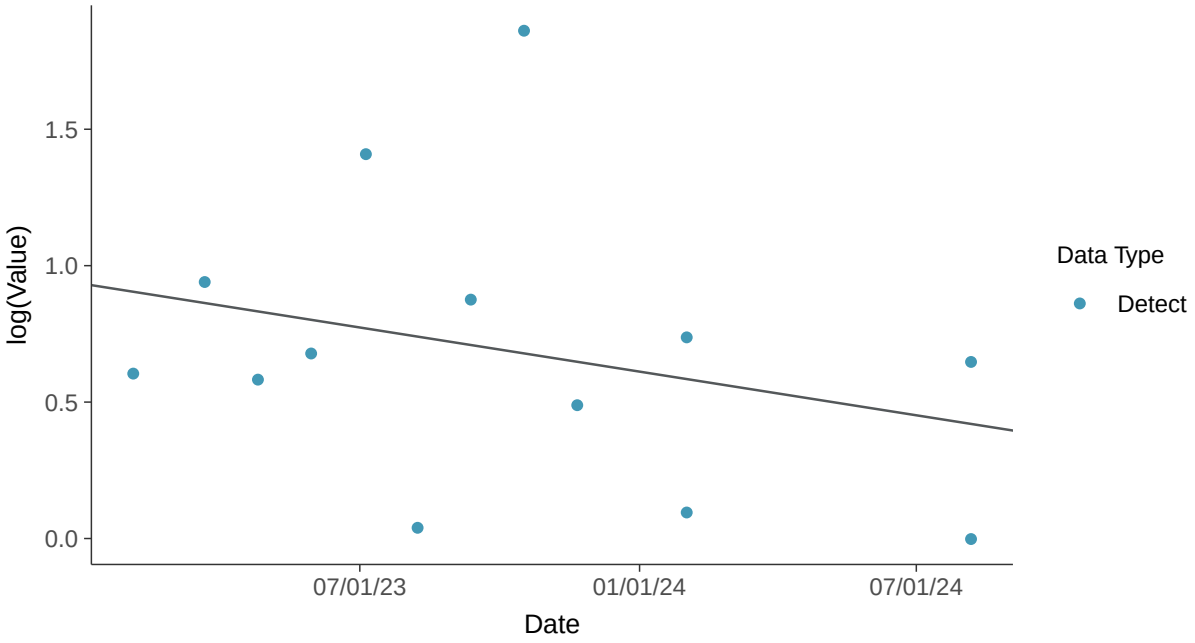
Gamma Q-Q plot

Radium-226/228, MW-16B (pCi/L)



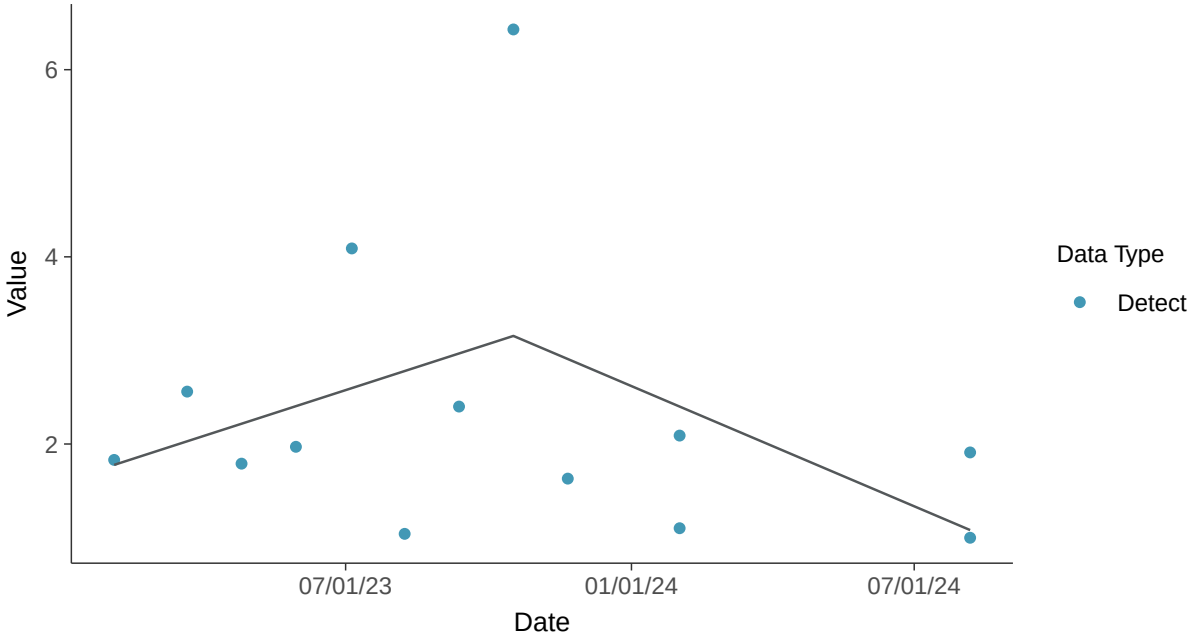
Trend Regression: Lognormal MLE

Radium-226/228, MW-16B (pCi/L)



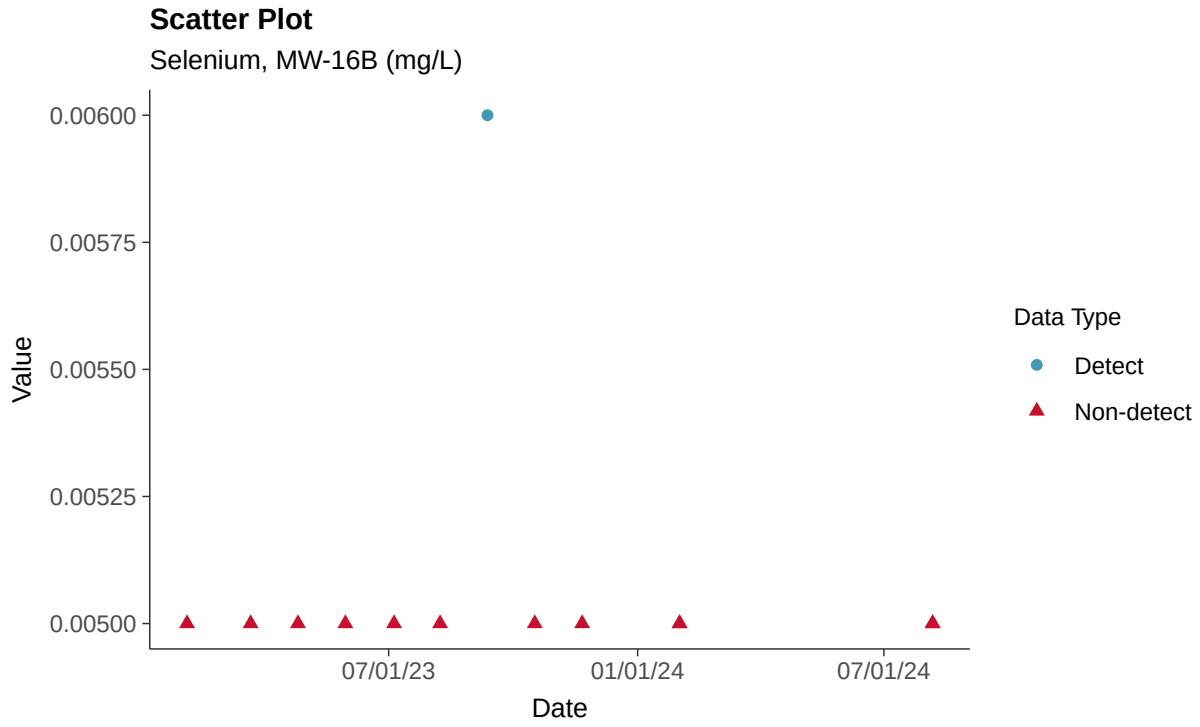
Trend Regression: Piecewise Linear-Linear

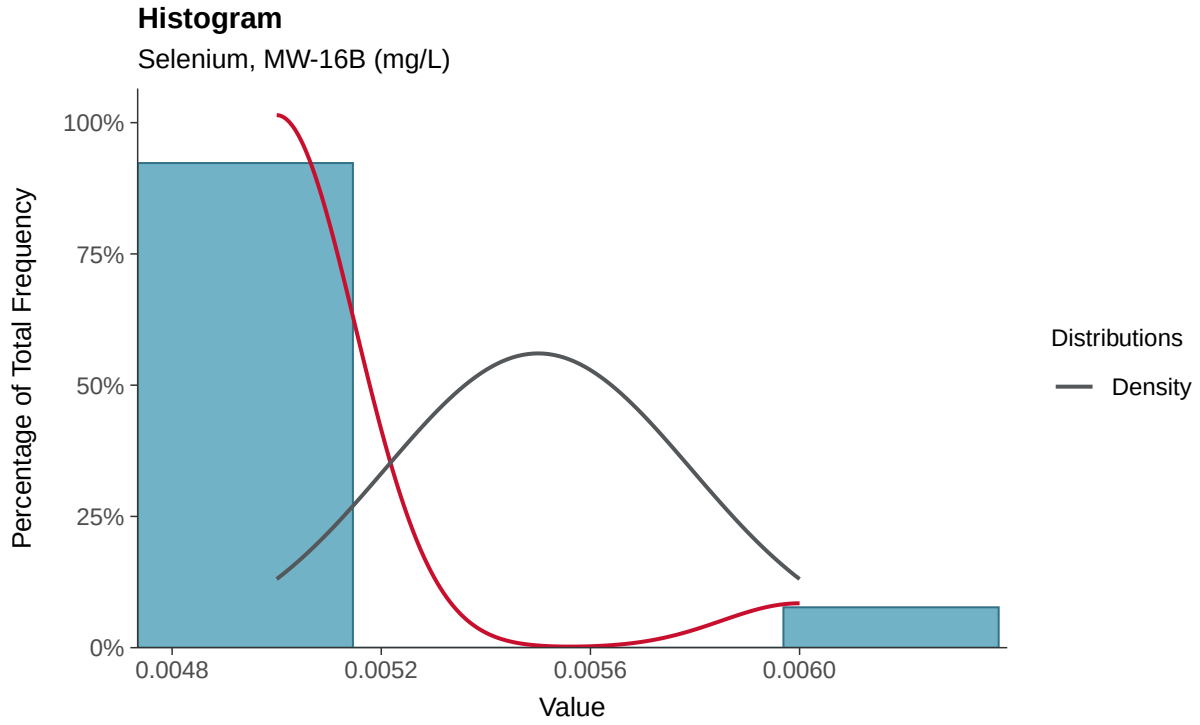
Radium-226/228, MW-16B (pCi/L)



Appendix IV: Selenium, MW-16B

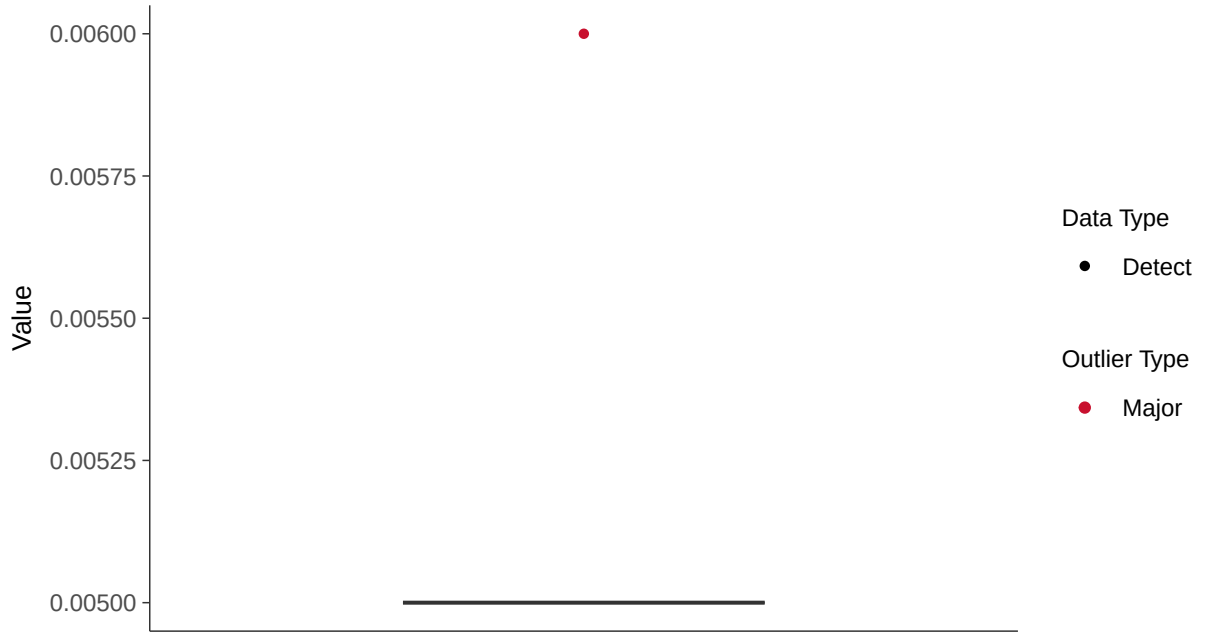
ID: 16B_2_22





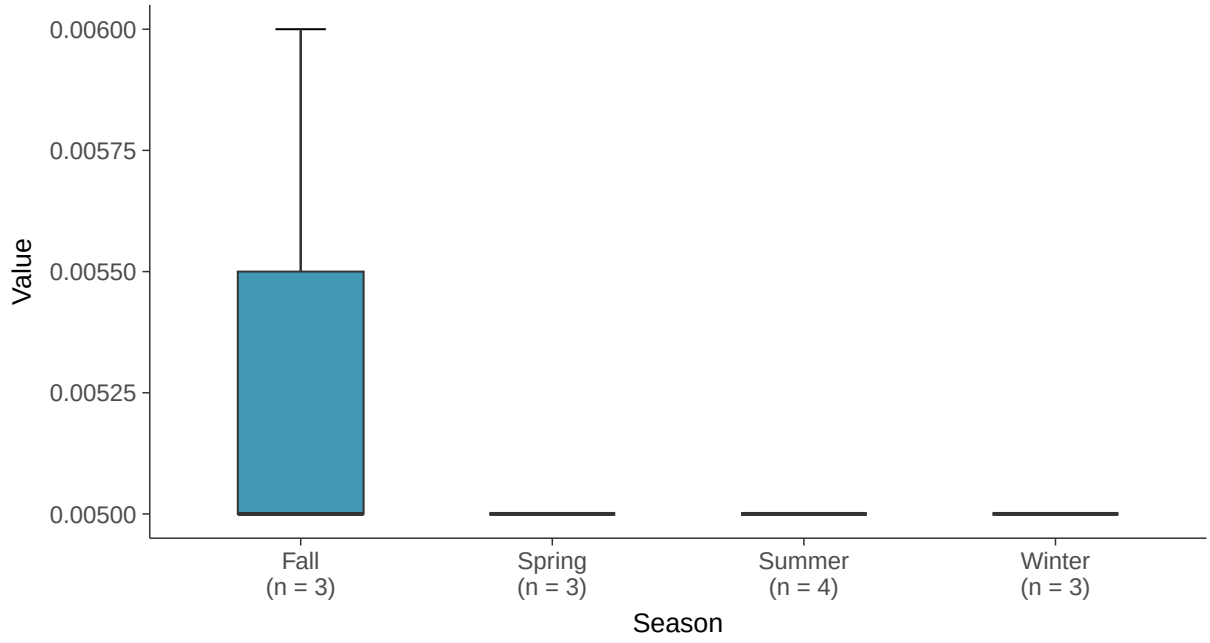
Boxplot

Selenium, MW-16B (mg/L)



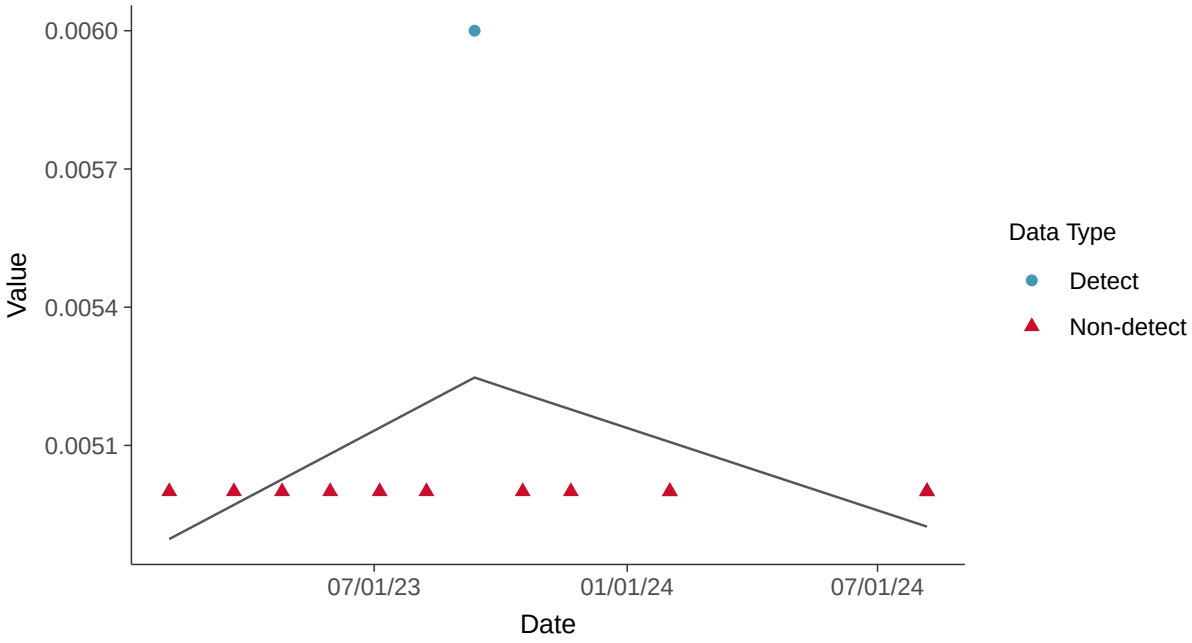
Boxplot by Season

Selenium, MW-16B (mg/L)



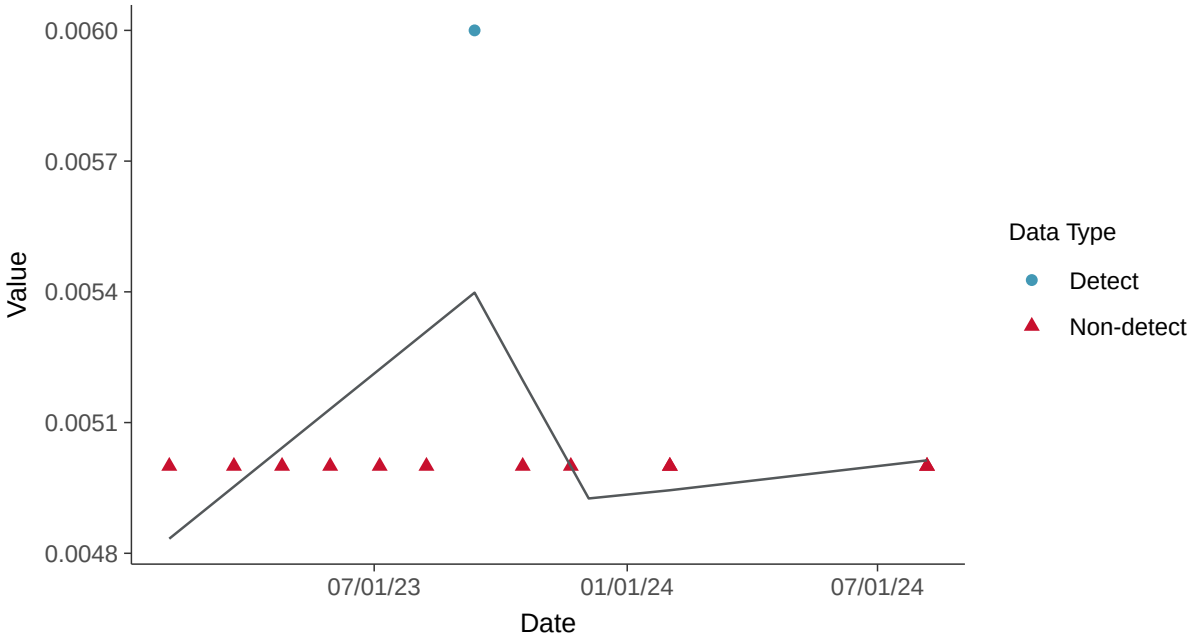
Trend Regression: Piecewise Linear-Linear

Selenium, MW-16B (mg/L)



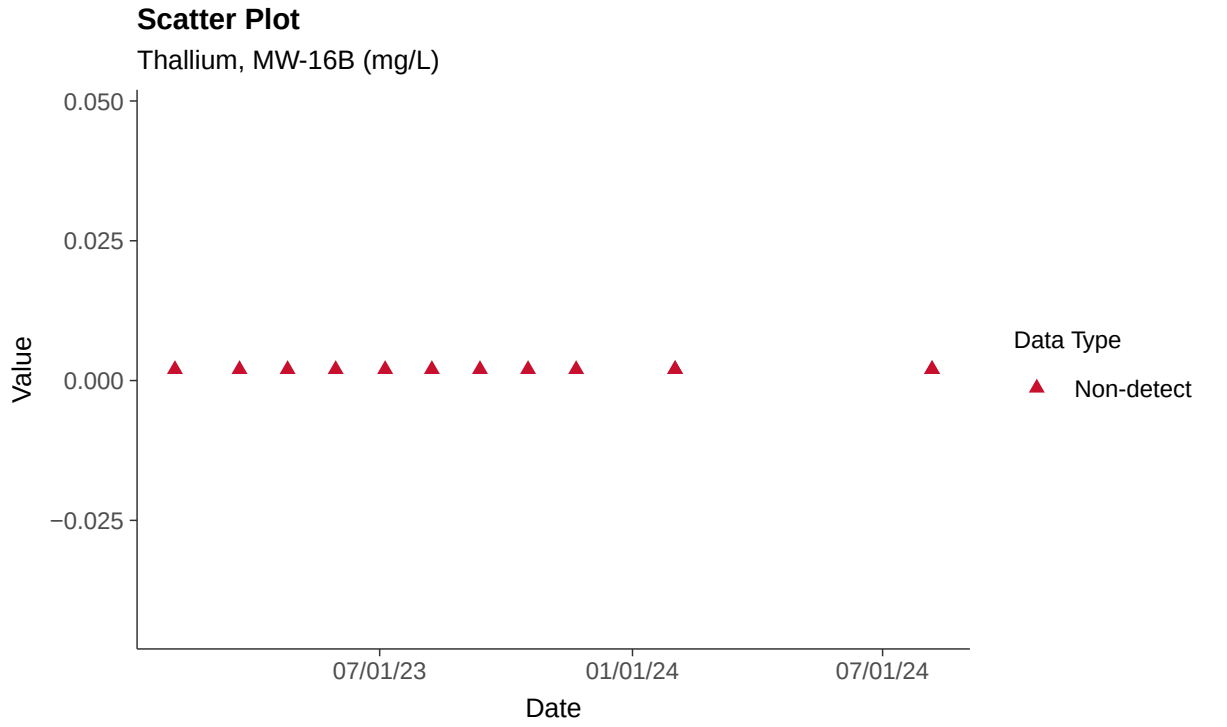
Trend Regression: Piecewise Linear-Linear-Linear

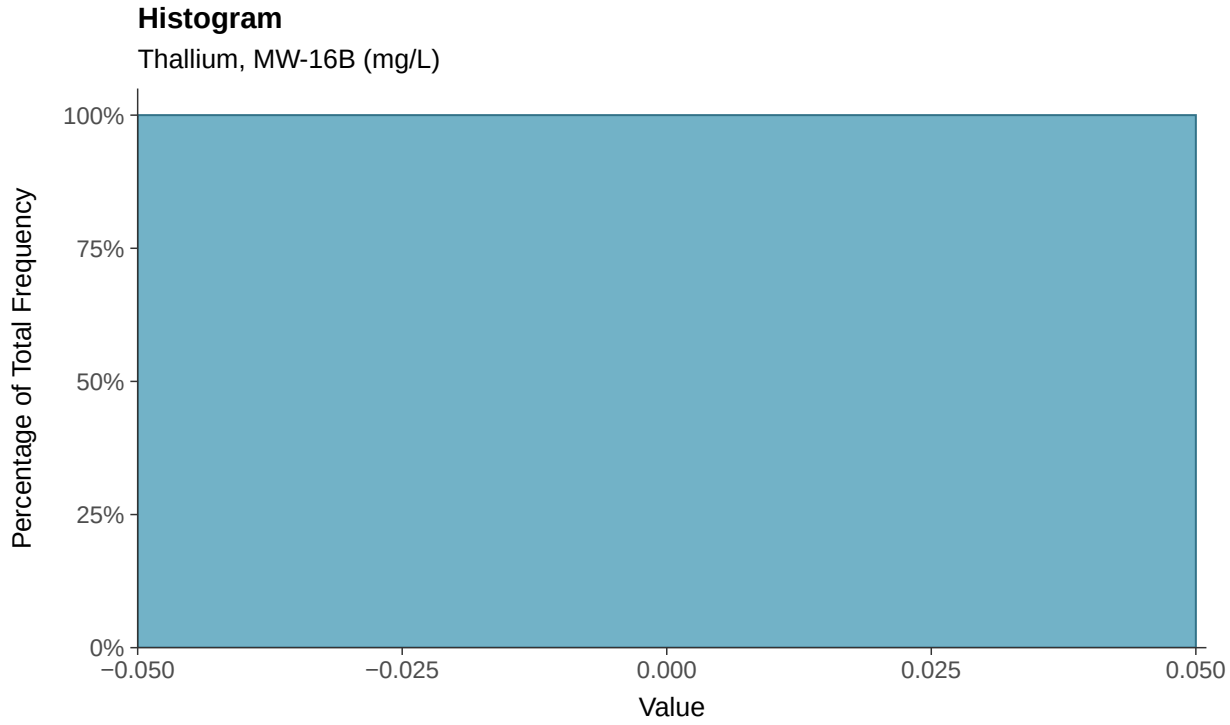
Selenium, MW-16B (mg/L)



Appendix IV: Thallium, MW-16B

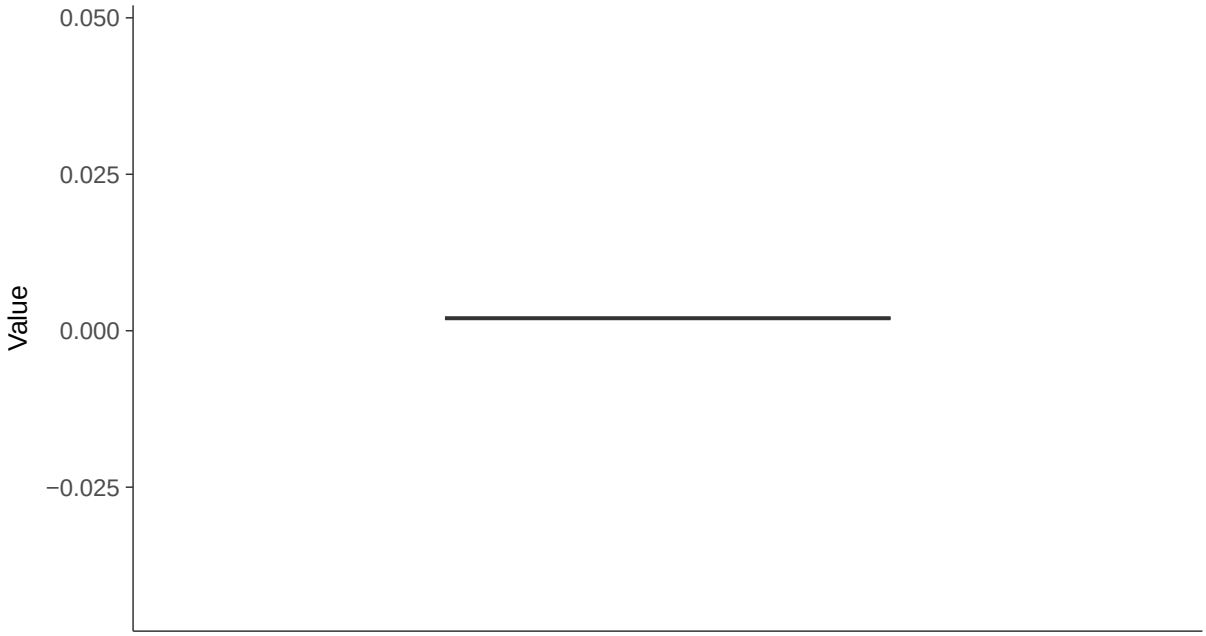
ID: 16B_2_23





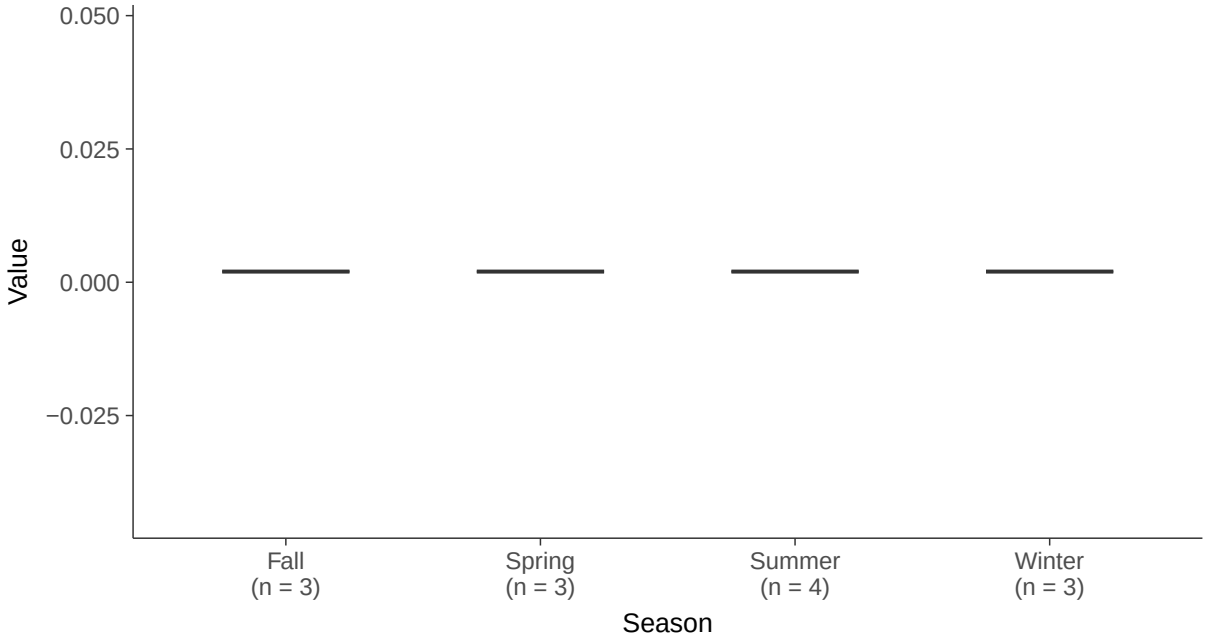
Boxplot

Thallium, MW-16B (mg/L)



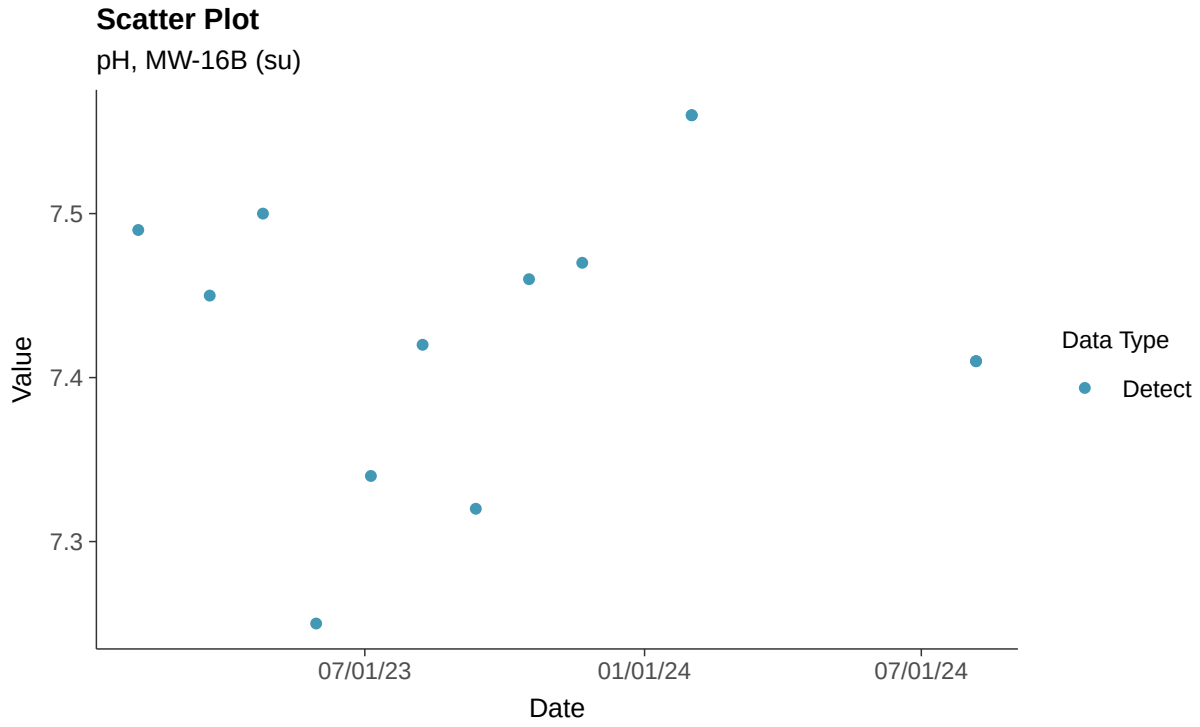
Boxplot by Season

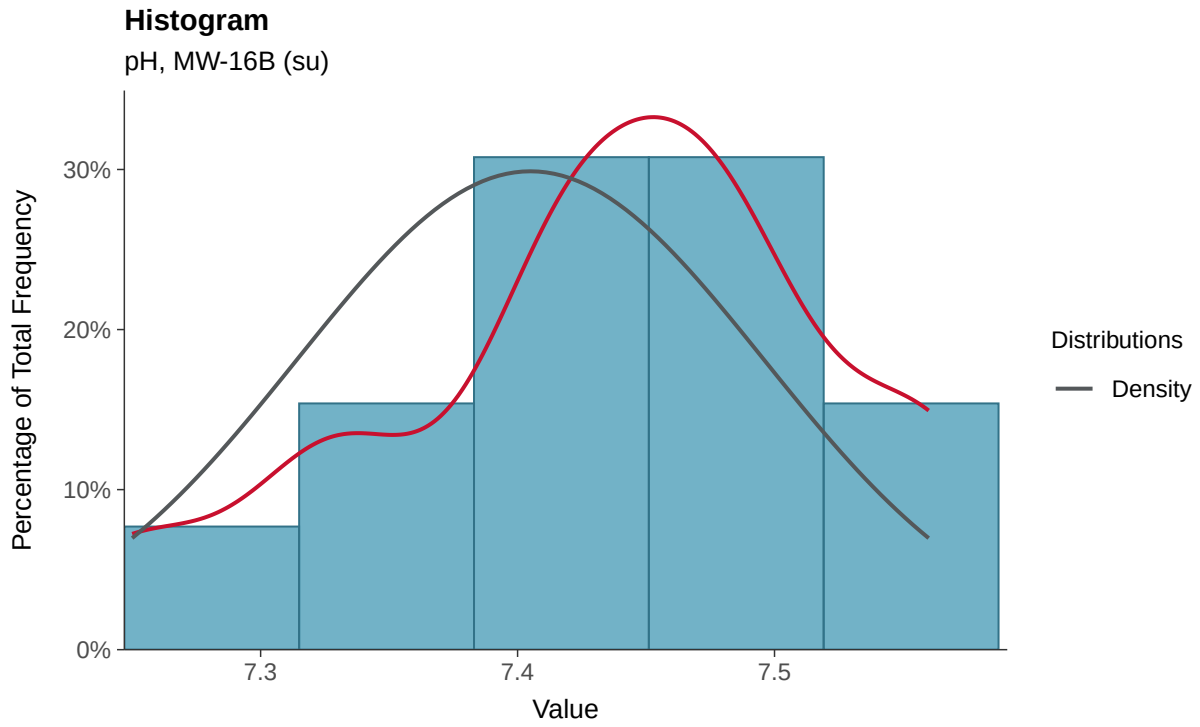
Thallium, MW-16B (mg/L)



Field Parameters: pH, MW-16B

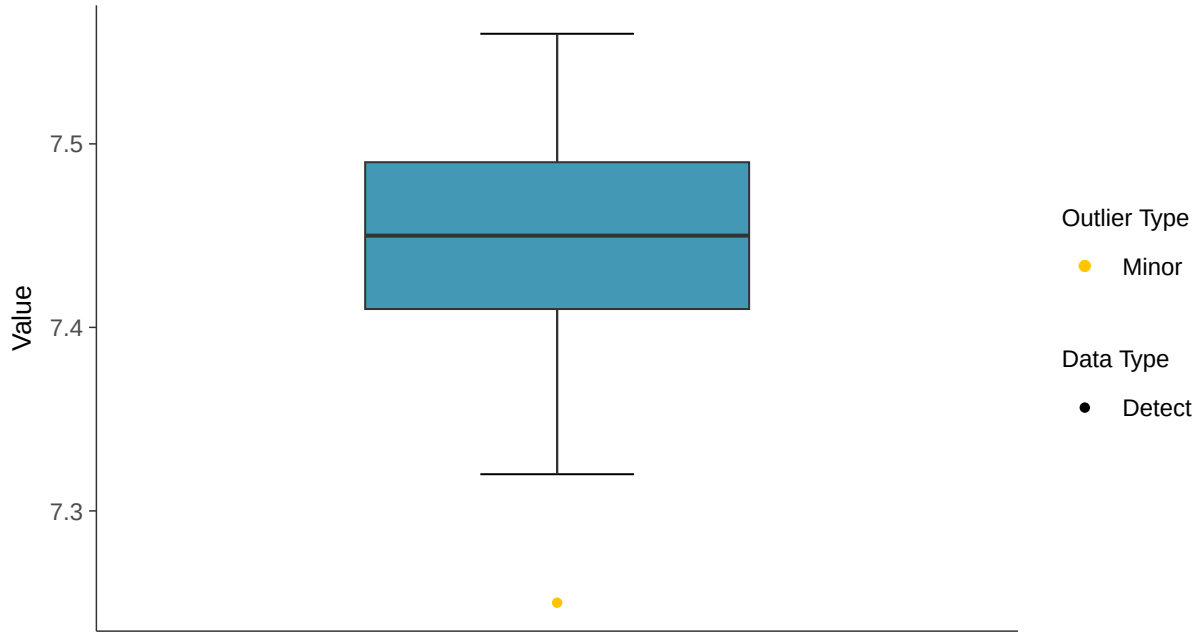
ID: 16B_3_24





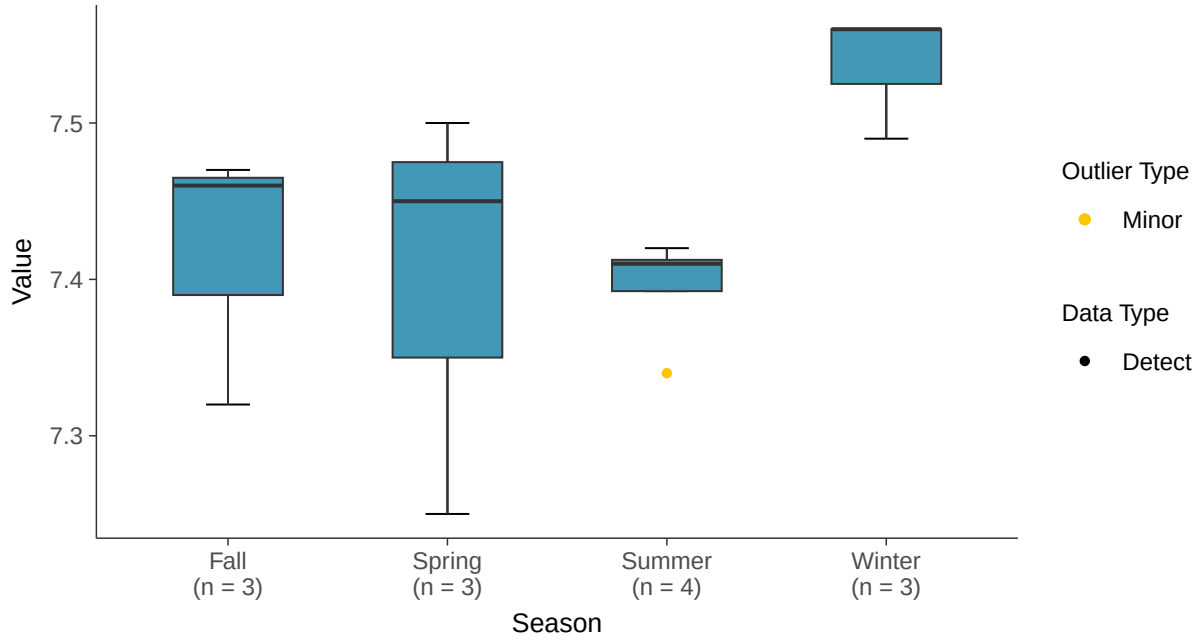
Boxplot

pH, MW-16B (su)



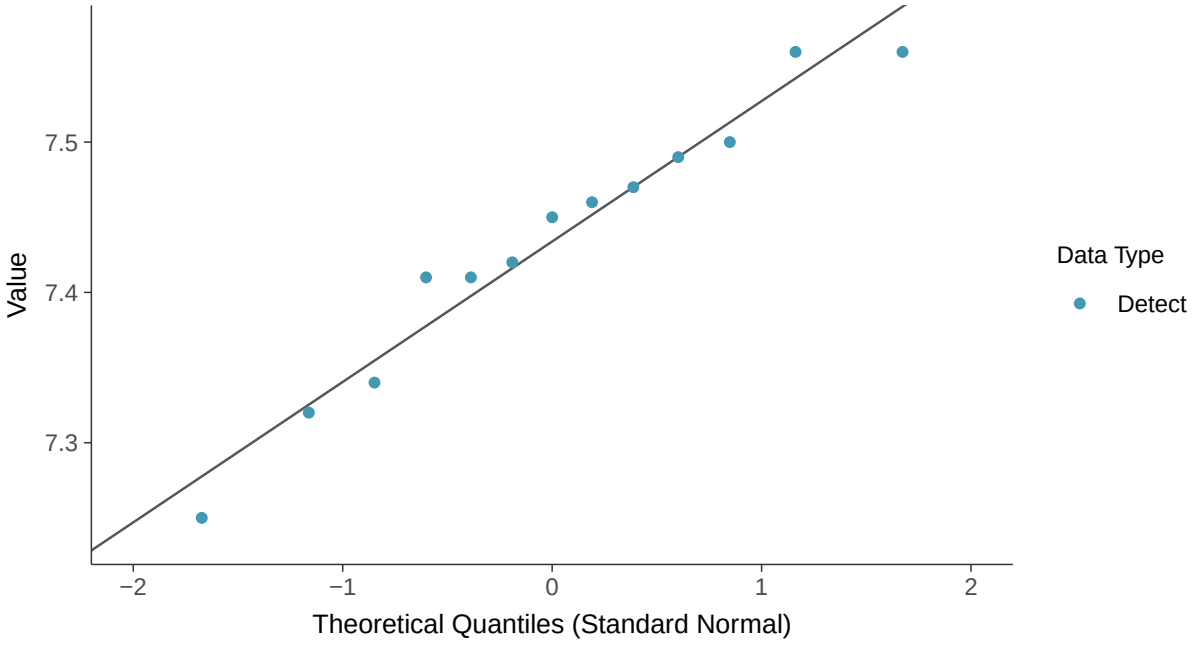
Boxplot by Season

pH, MW-16B (su)



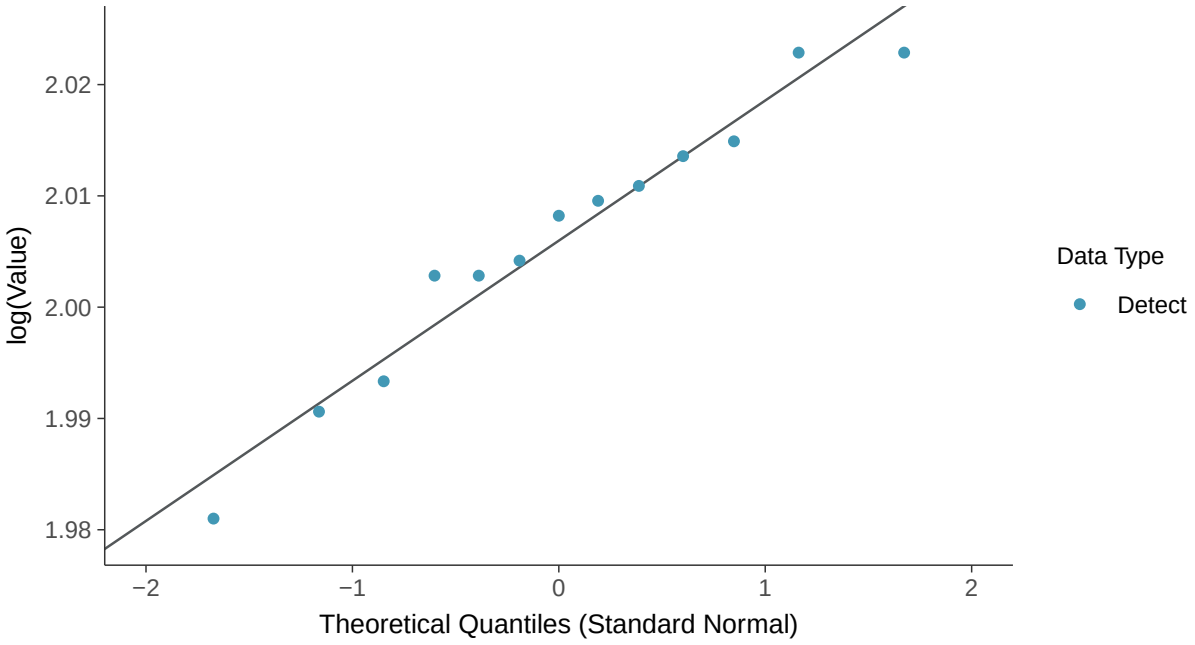
Normal Q-Q plot

pH, MW-16B (su)



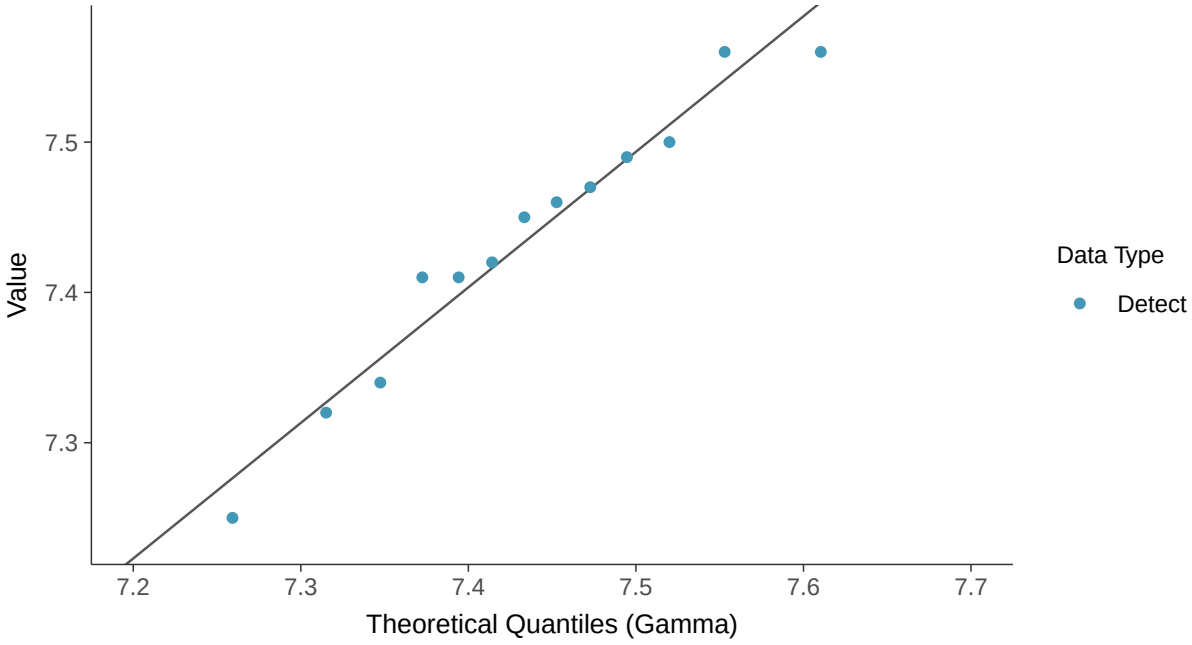
Lognormal Q-Q plot

pH, MW-16B (su)



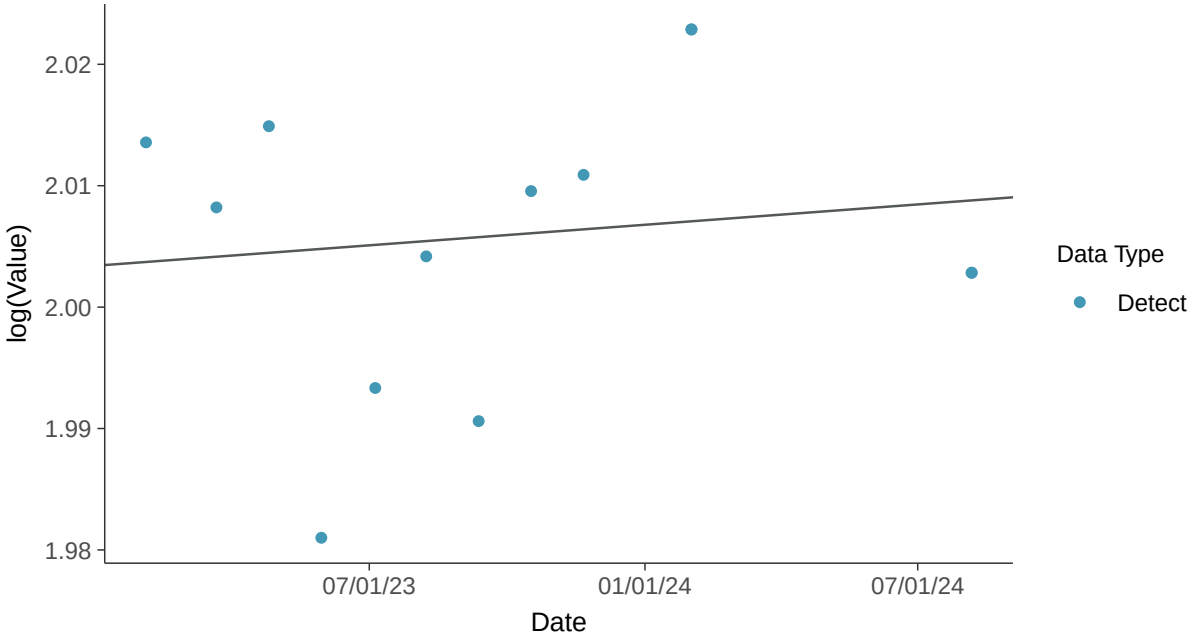
Gamma Q-Q plot

pH, MW-16B (su)



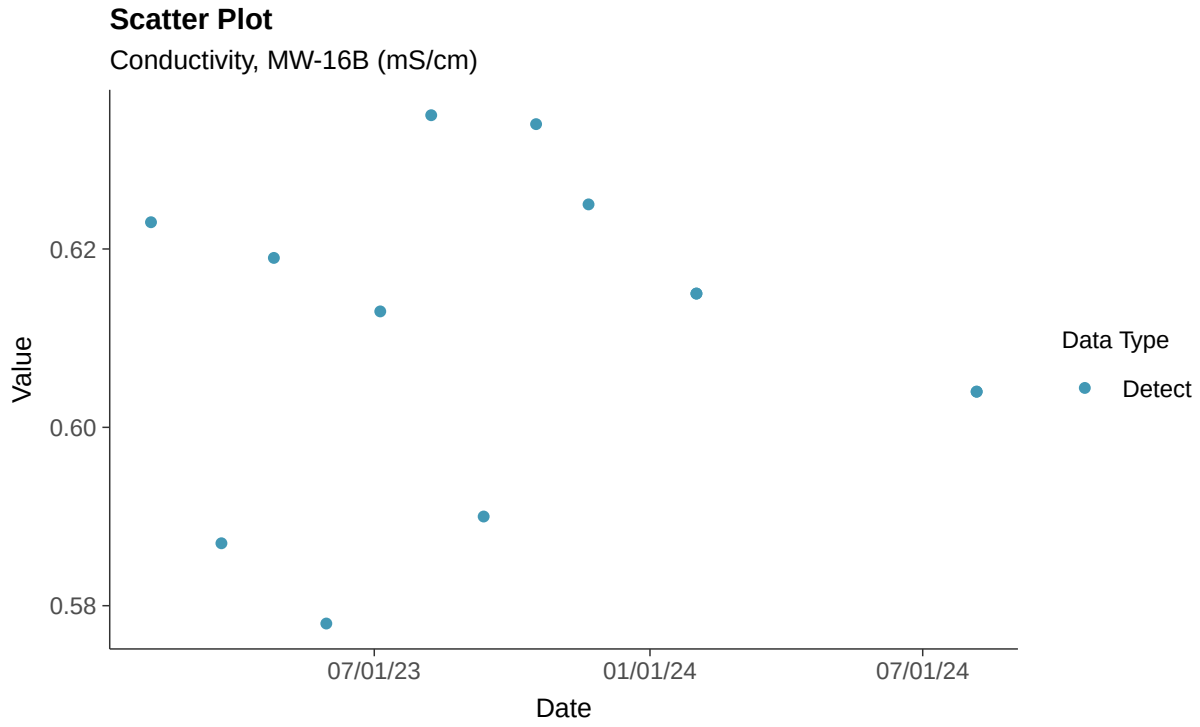
Trend Regression: Lognormal MLE

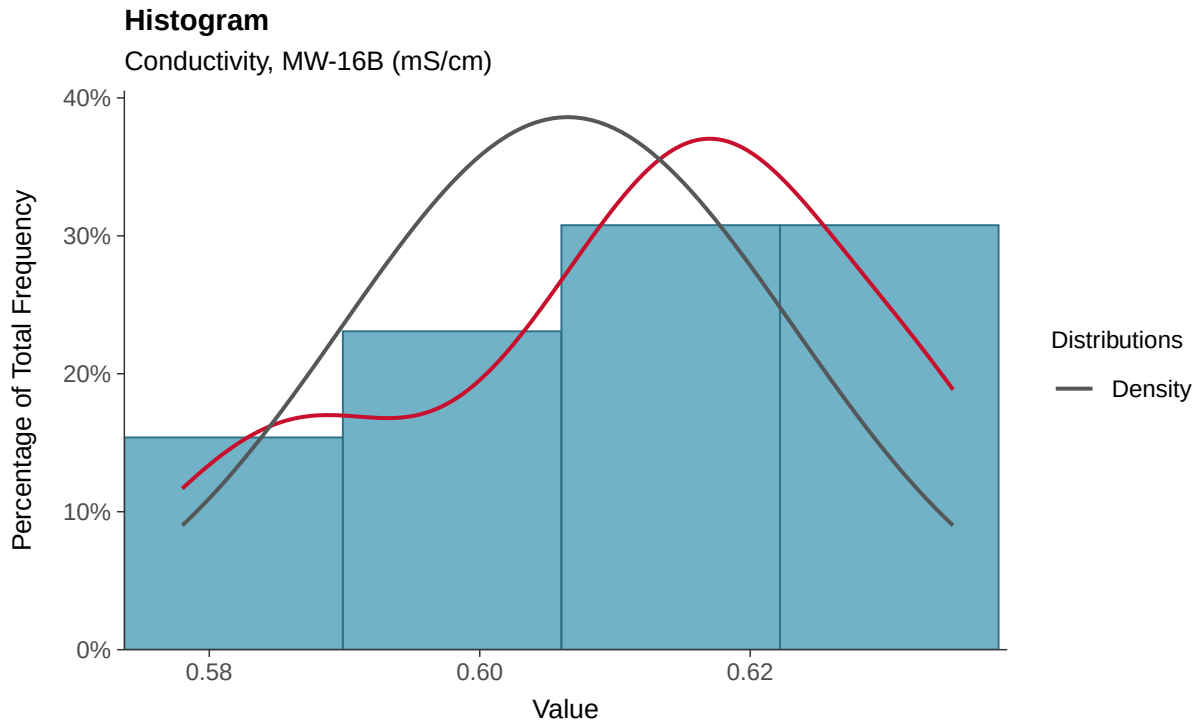
pH, MW-16B (su)



Field Parameters: Conductivity, MW-16B

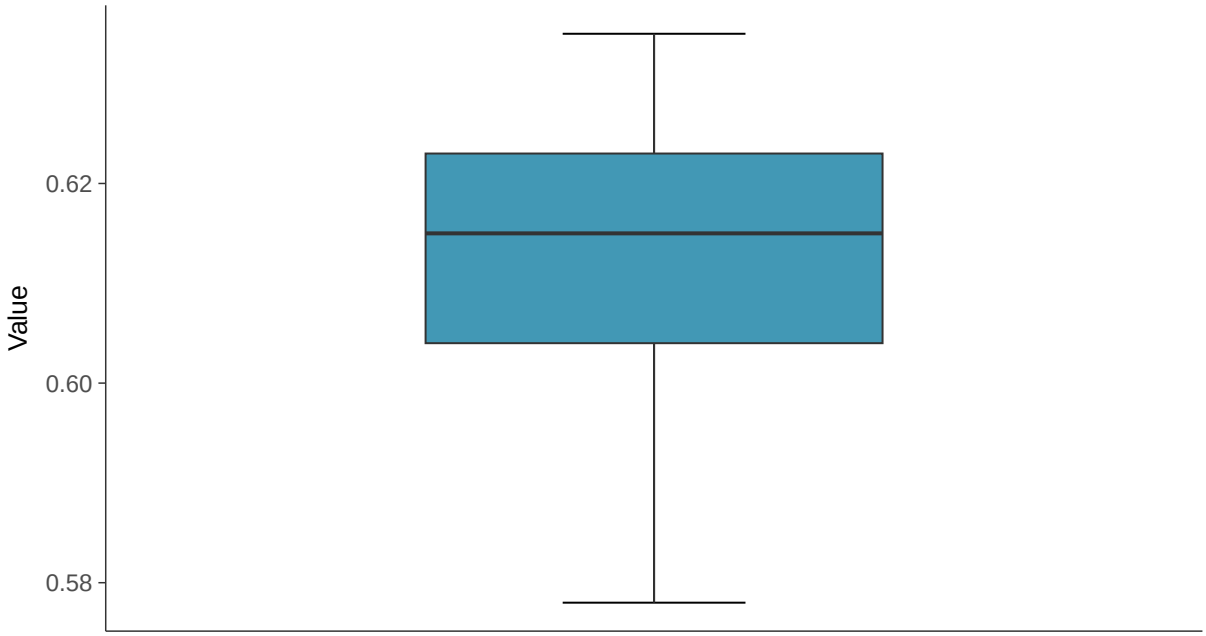
ID: 16B_3_25





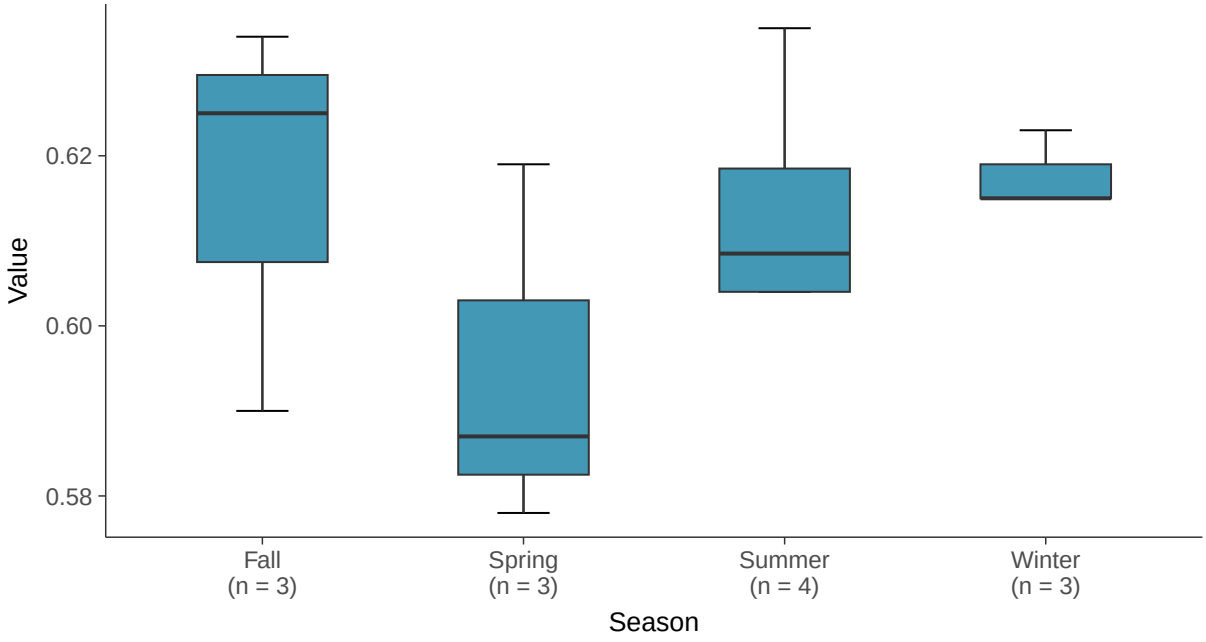
Boxplot

Conductivity, MW-16B (mS/cm)



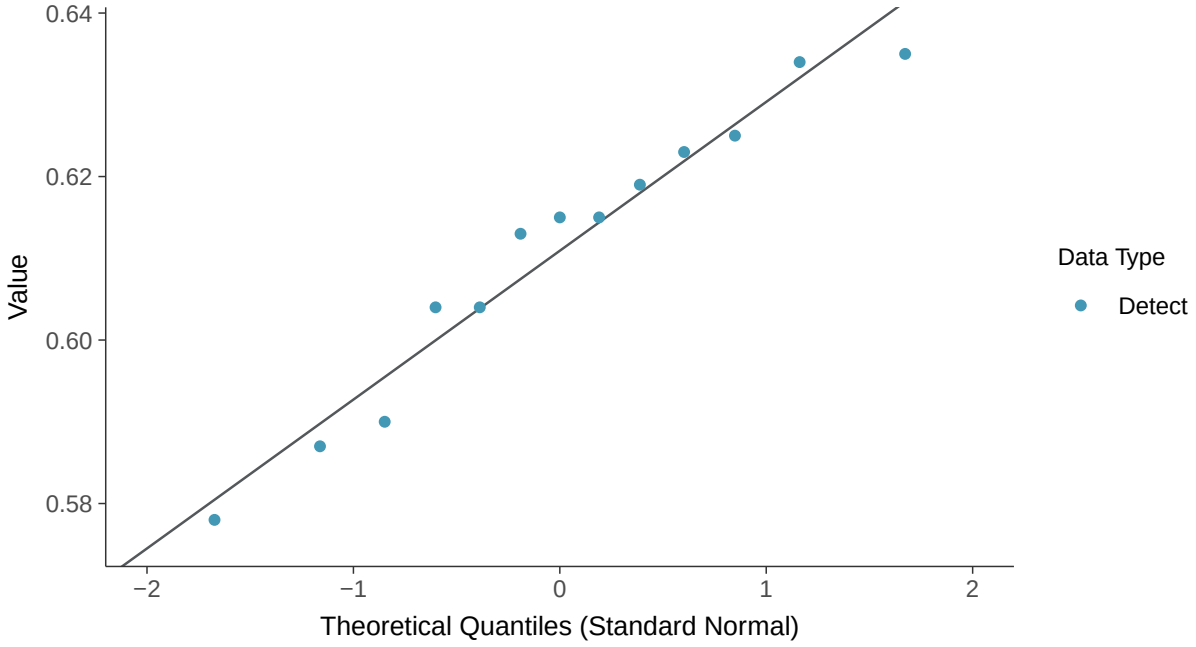
Boxplot by Season

Conductivity, MW-16B (mS/cm)



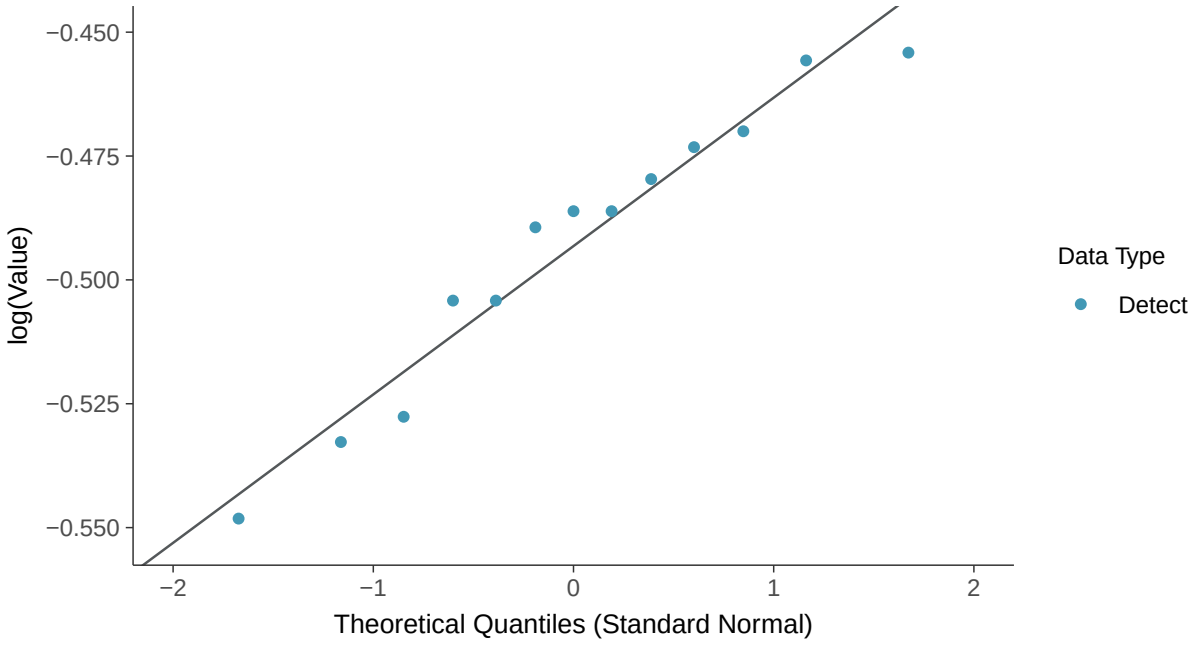
Normal Q-Q plot

Conductivity, MW-16B (mS/cm)



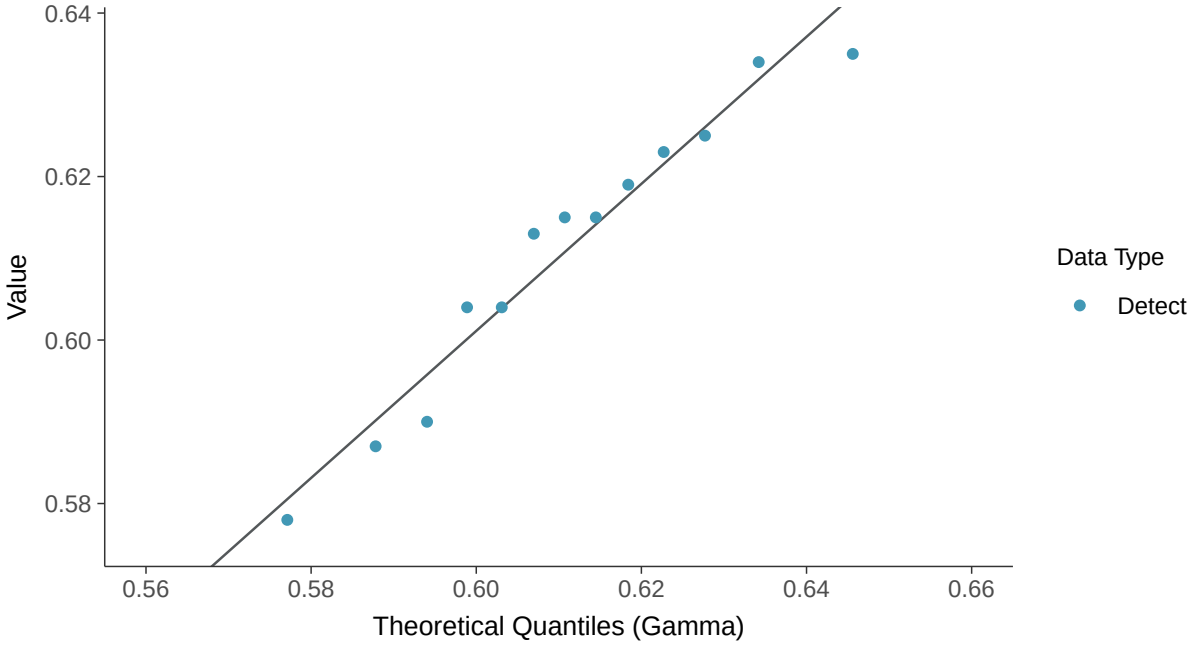
Lognormal Q-Q plot

Conductivity, MW-16B (mS/cm)



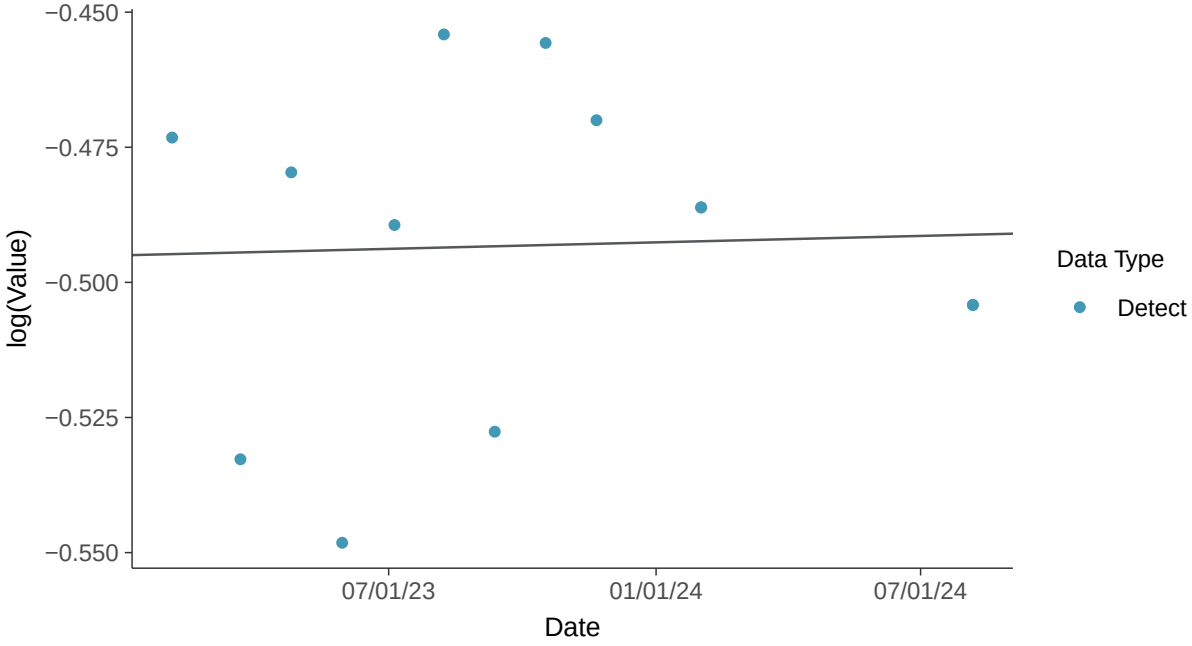
Gamma Q-Q plot

Conductivity, MW-16B (mS/cm)



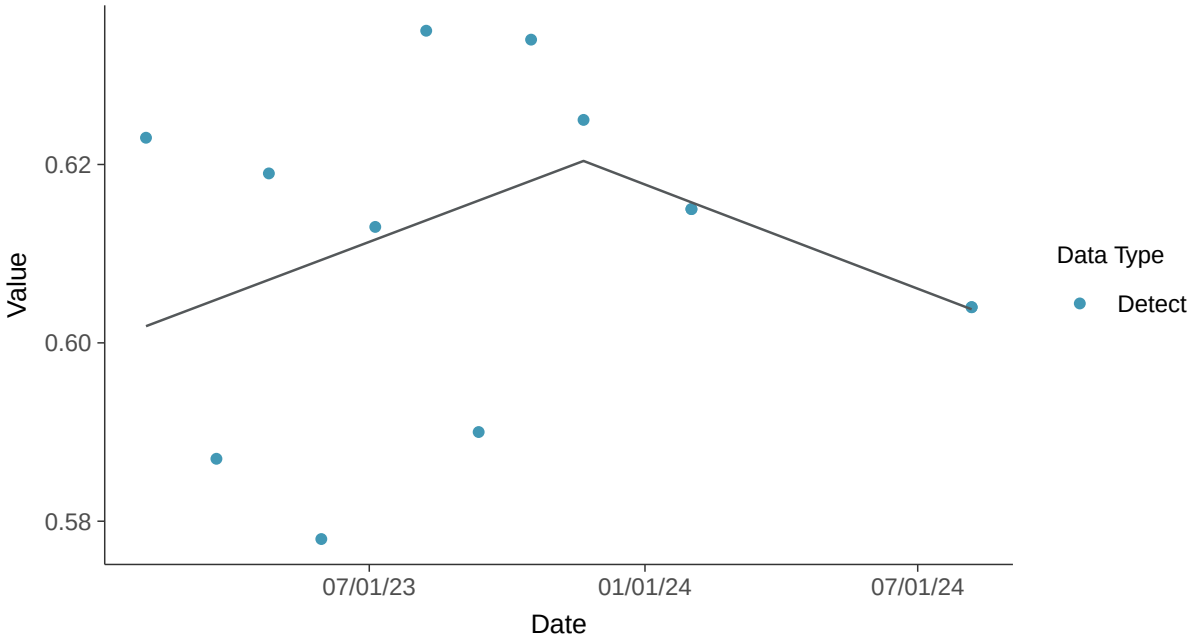
Trend Regression: Lognormal MLE

Conductivity, MW-16B (mS/cm)



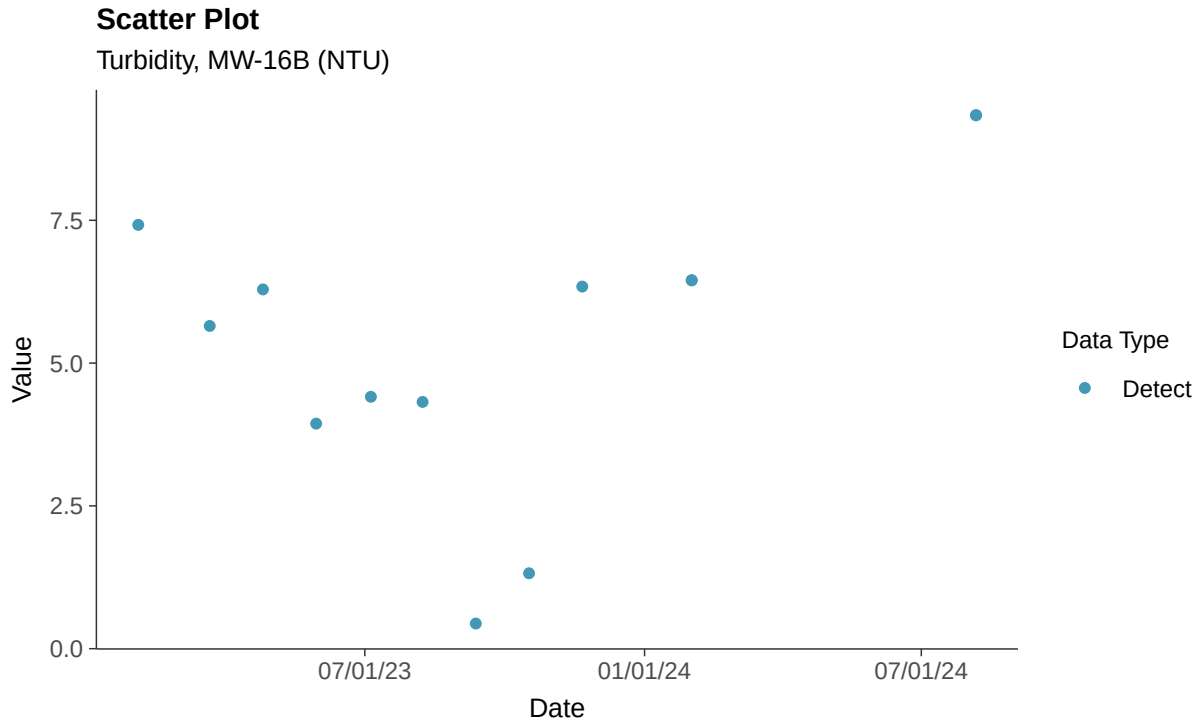
Trend Regression: Piecewise Linear-Linear

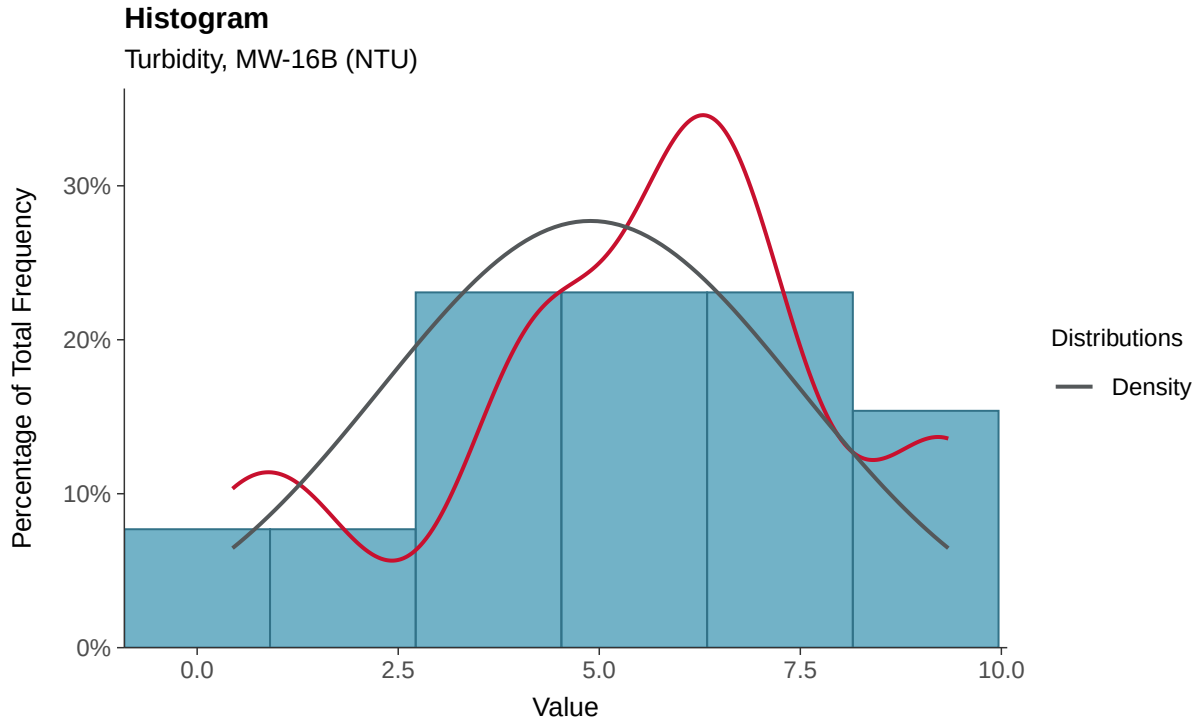
Conductivity, MW-16B (mS/cm)



Field Parameters: Turbidity, MW-16B

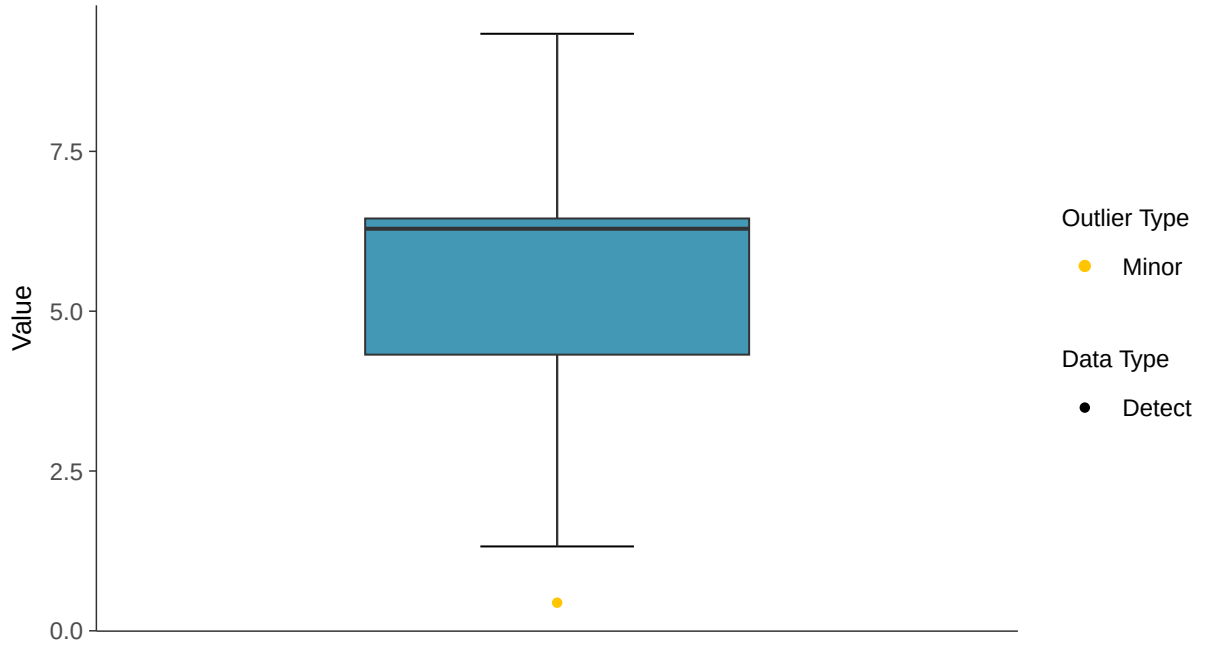
ID: 16B_3_26





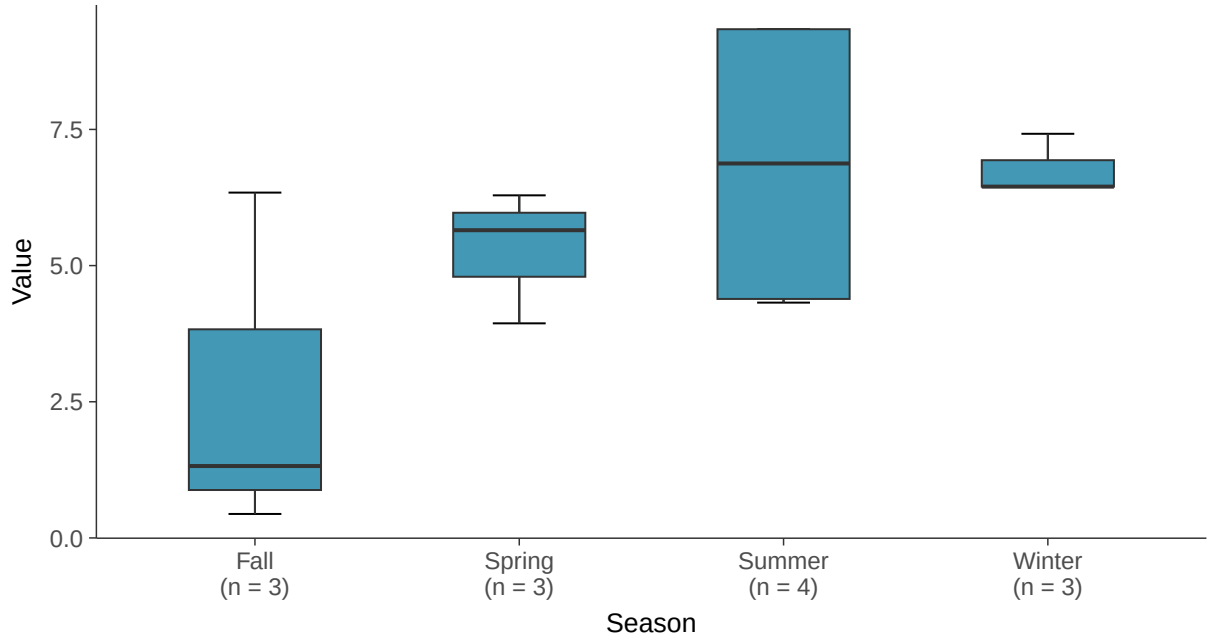
Boxplot

Turbidity, MW-16B (NTU)



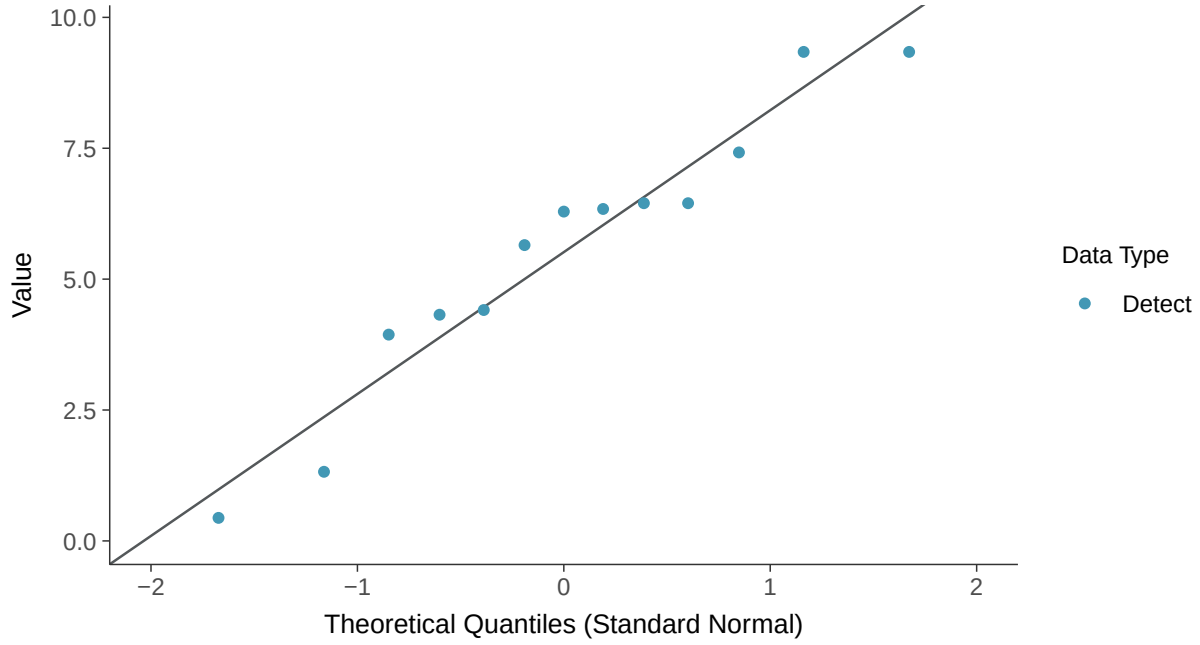
Boxplot by Season

Turbidity, MW-16B (NTU)



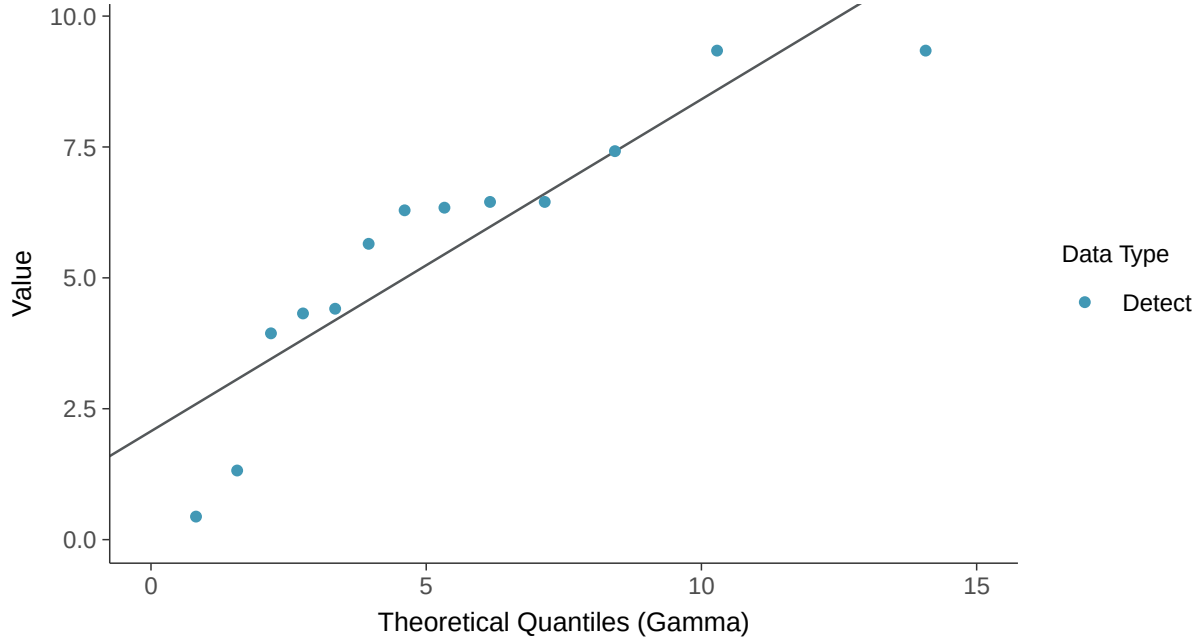
Normal Q-Q plot

Turbidity, MW-16B (NTU)



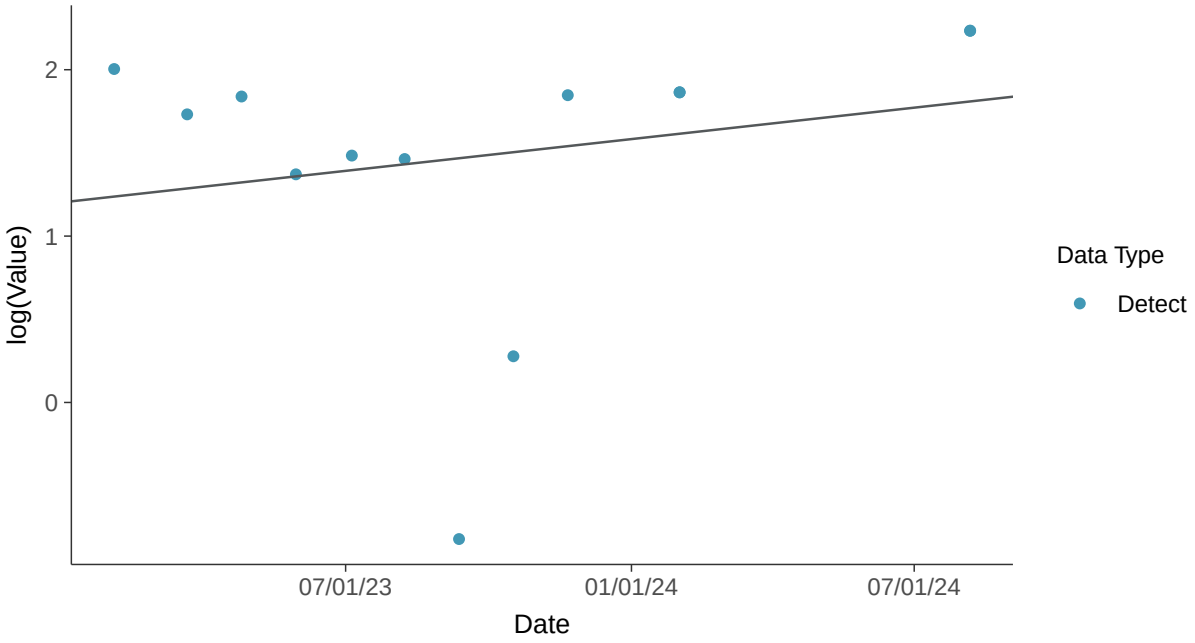
Gamma Q-Q plot

Turbidity, MW-16B (NTU)



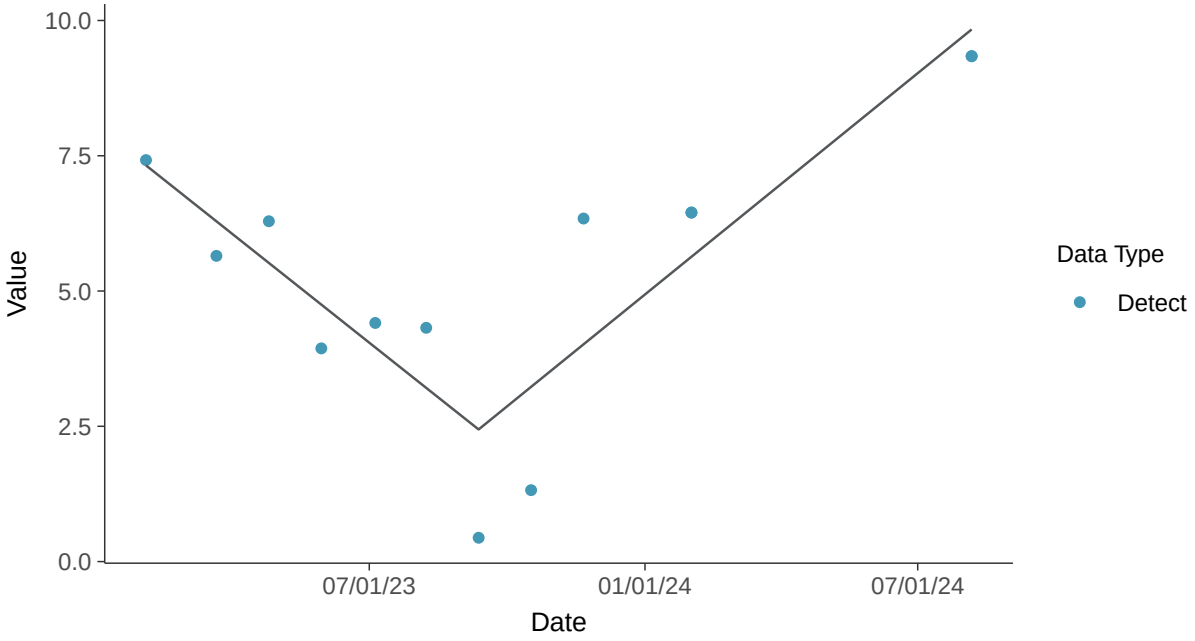
Trend Regression: Lognormal MLE

Turbidity, MW-16B (NTU)



Trend Regression: Piecewise Linear-Linear

Turbidity, MW-16B (NTU)

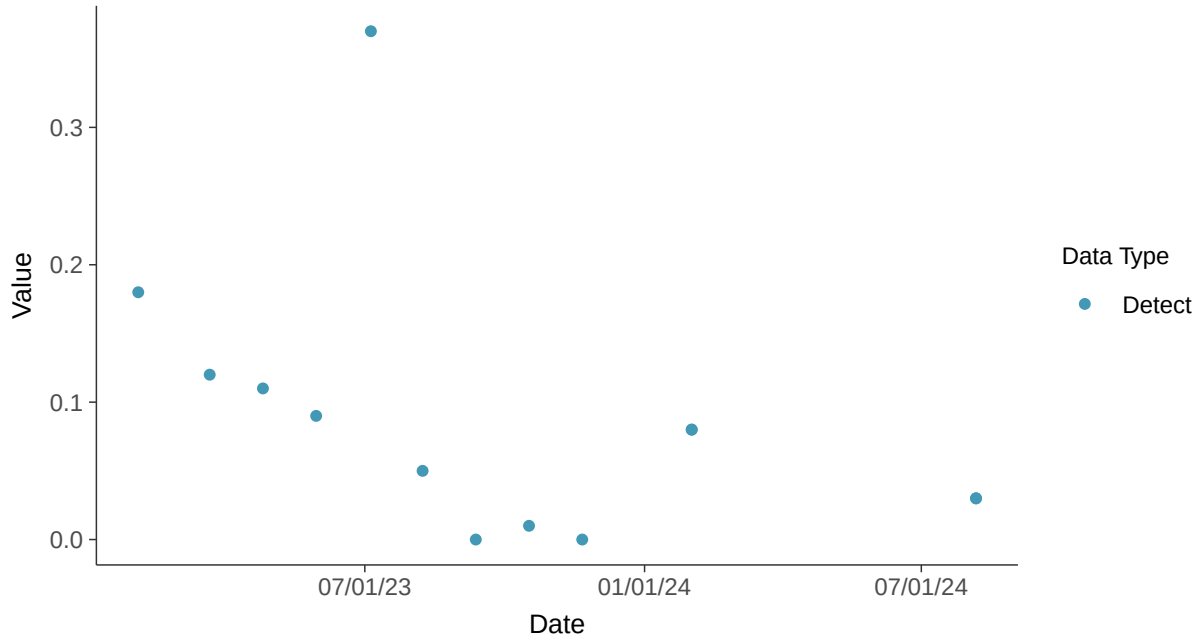


Field Parameters: Dissolved Oxygen, MW-16B

ID: 16B_3_27

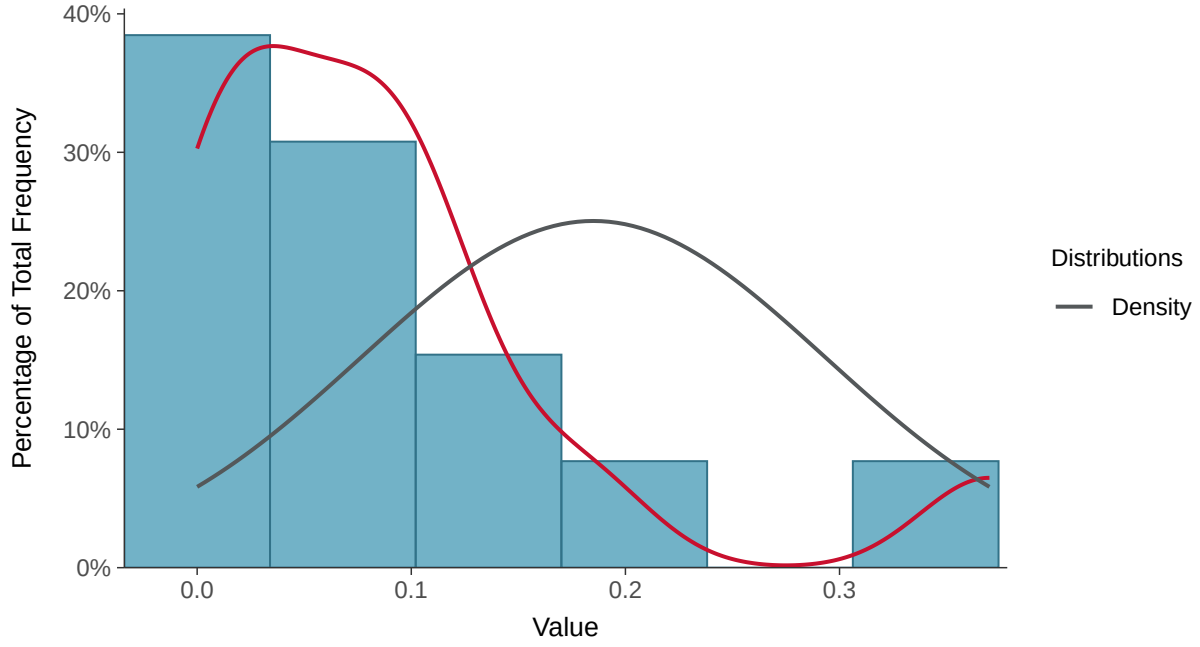
Scatter Plot

Dissolved Oxygen, MW-16B (mg/L)



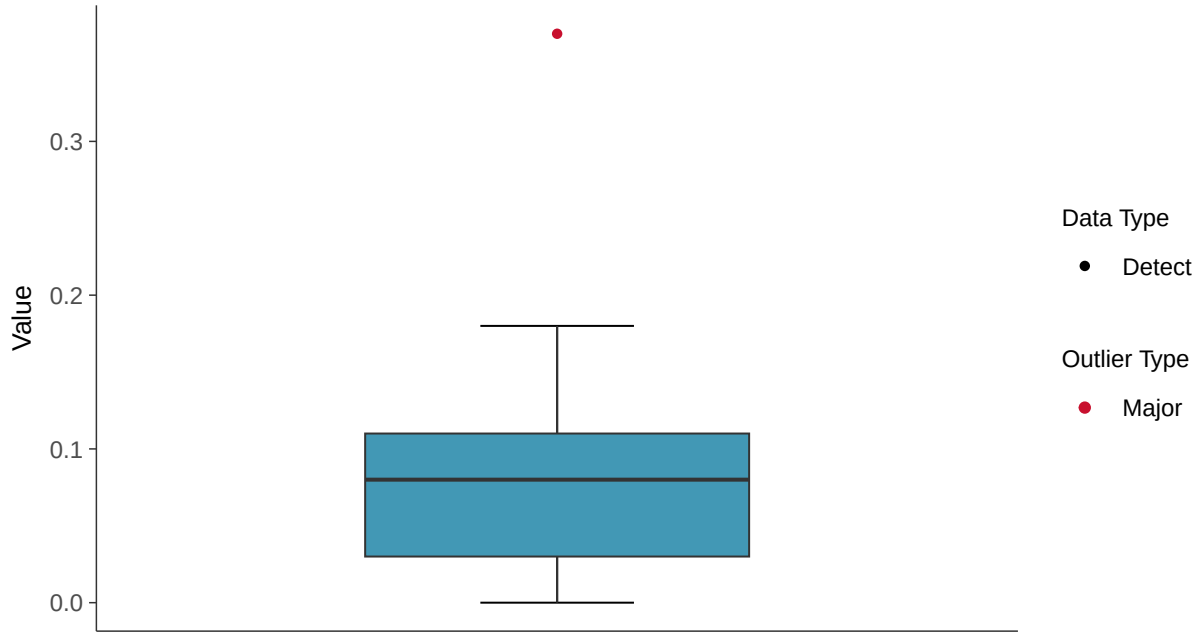
Histogram

Dissolved Oxygen, MW-16B (mg/L)



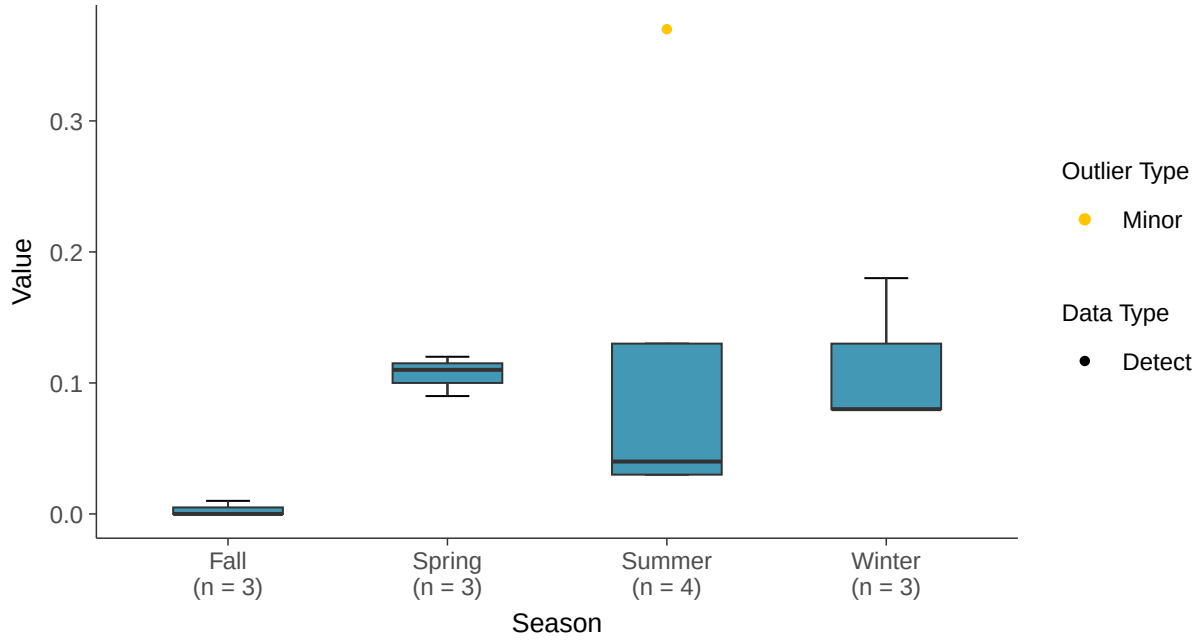
Boxplot

Dissolved Oxygen, MW-16B (mg/L)



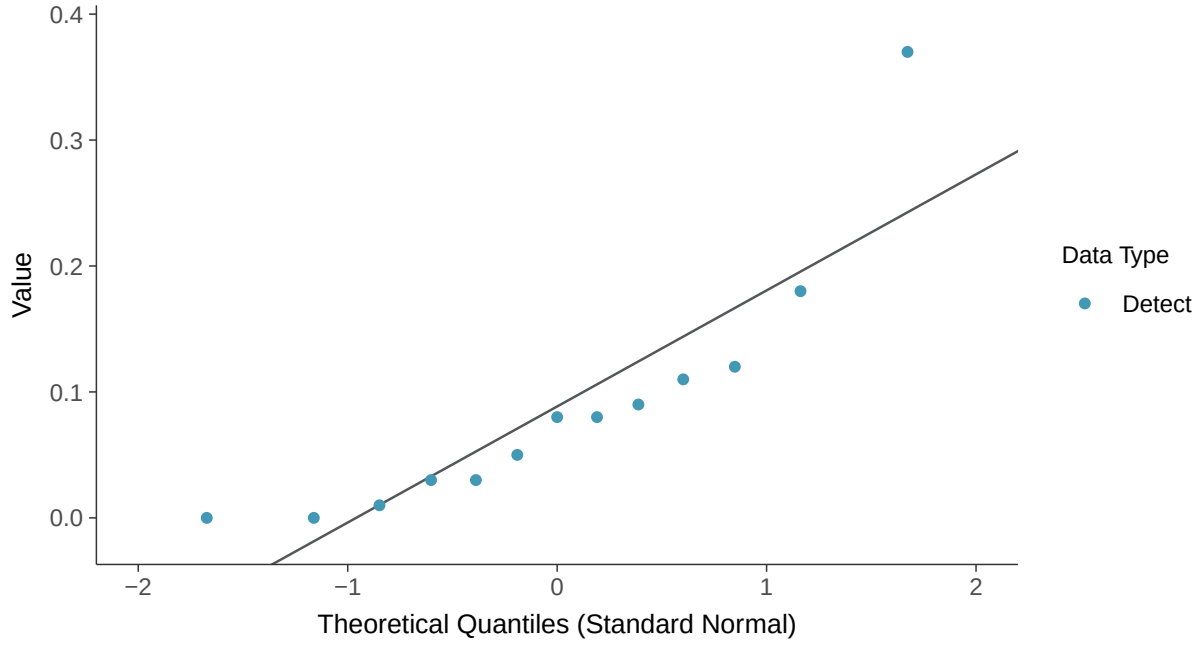
Boxplot by Season

Dissolved Oxygen, MW-16B (mg/L)



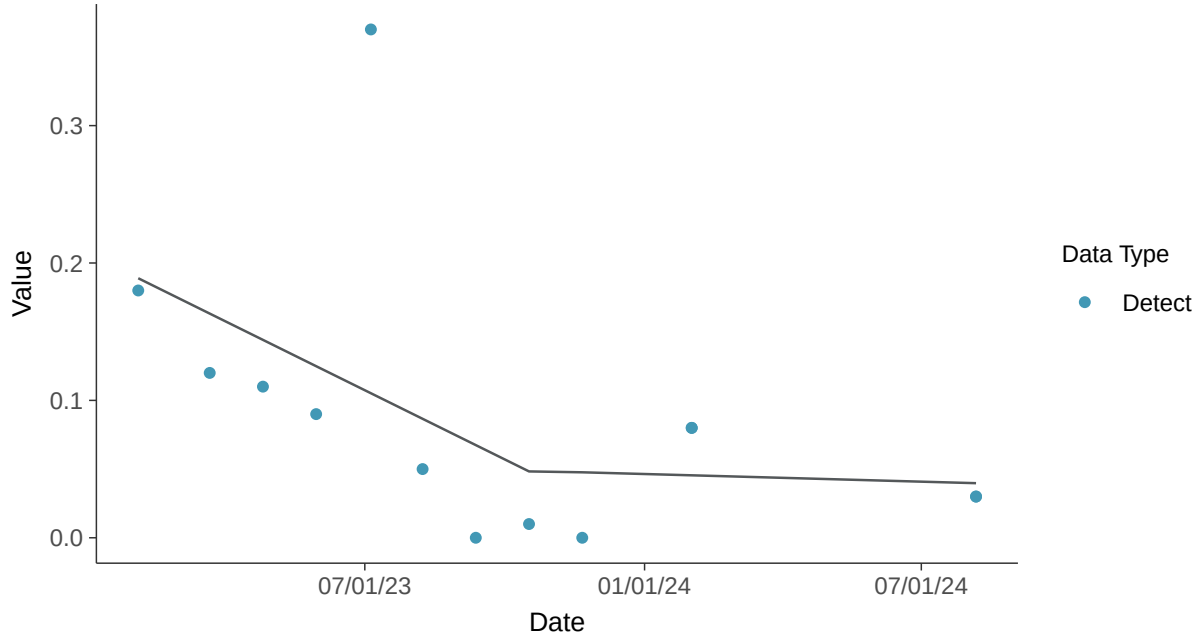
Normal Q-Q plot

Dissolved Oxygen, MW-16B (mg/L)



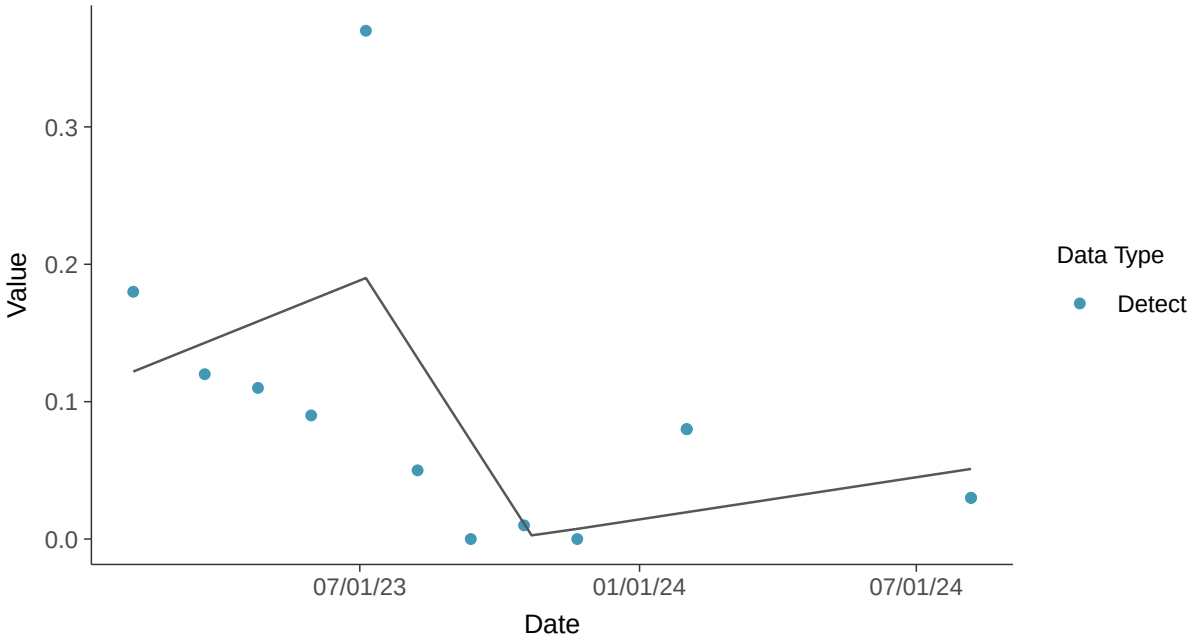
Trend Regression: Piecewise Linear-Linear

Dissolved Oxygen, MW-16B (mg/L)



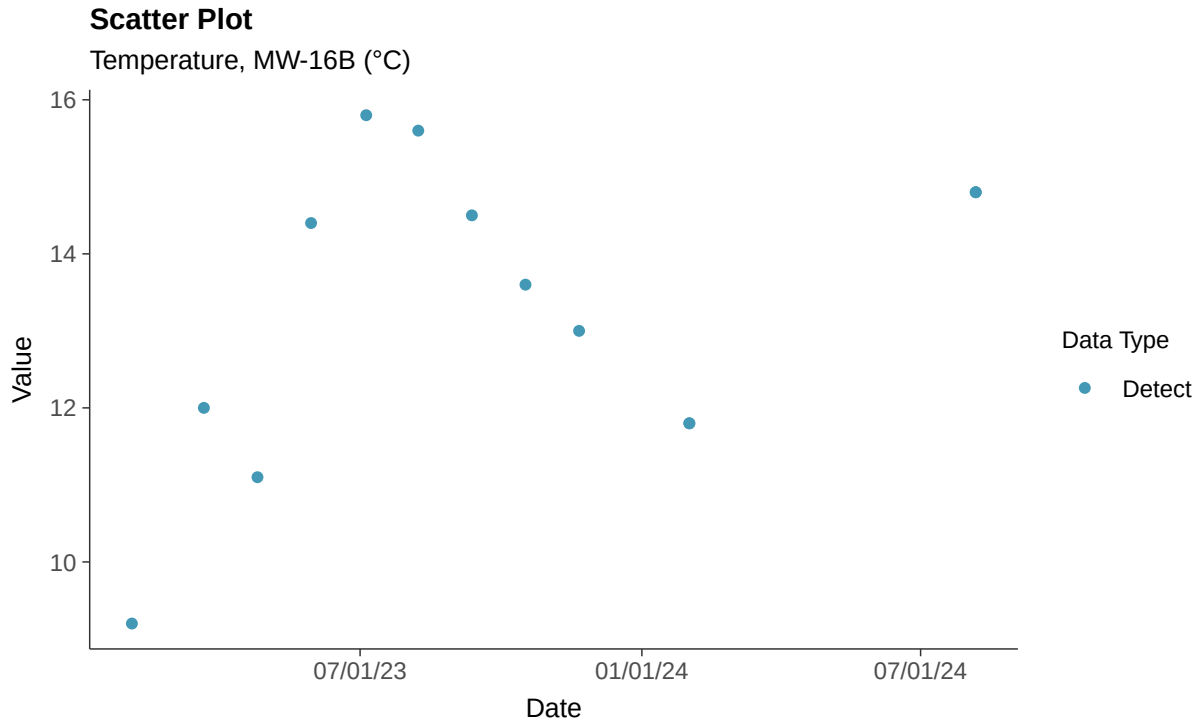
Trend Regression: Piecewise Linear-Linear-Linear

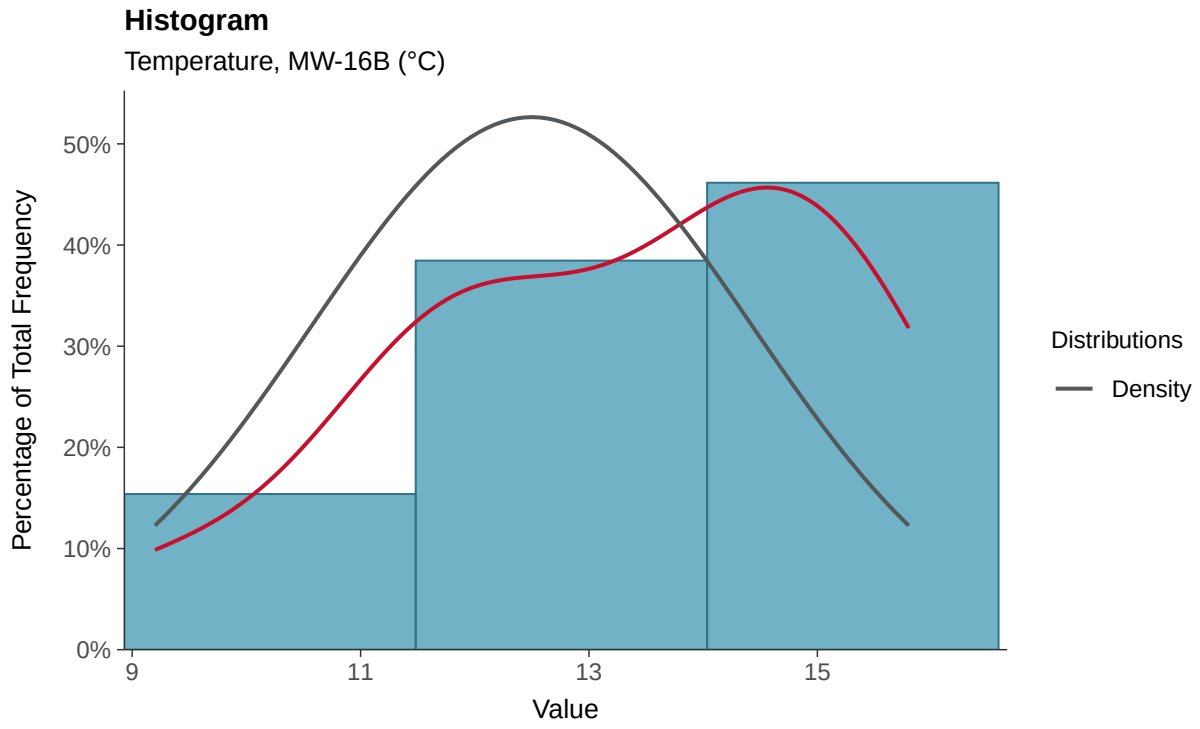
Dissolved Oxygen, MW-16B (mg/L)



Field Parameters: Temperature, MW-16B

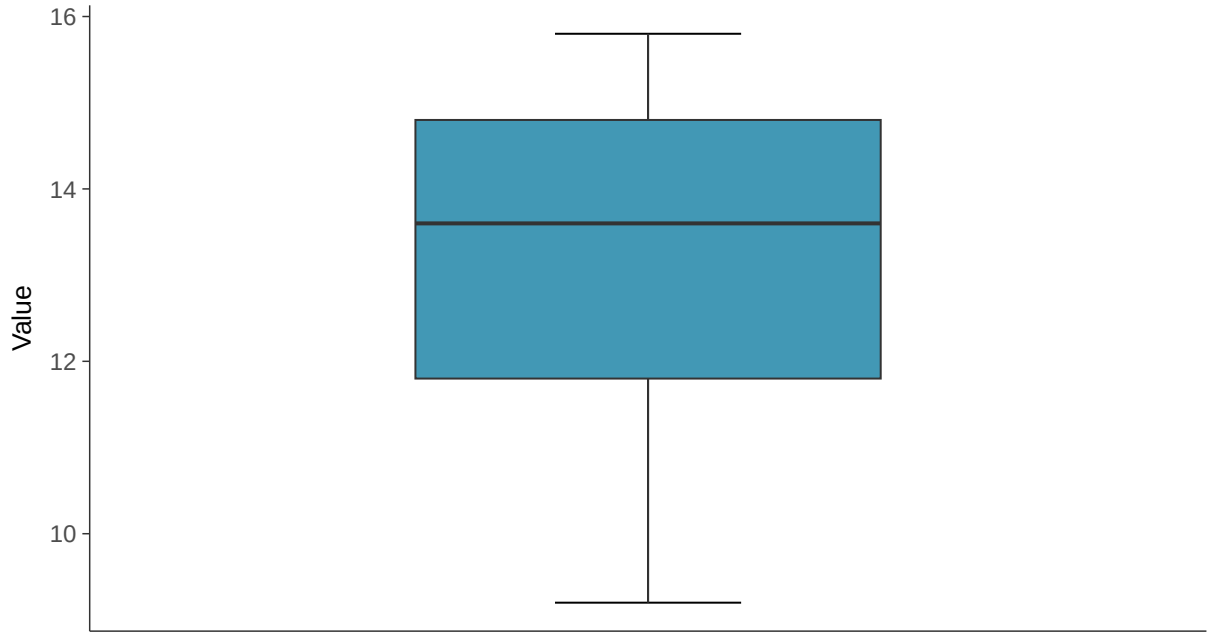
ID: 16B_3_28





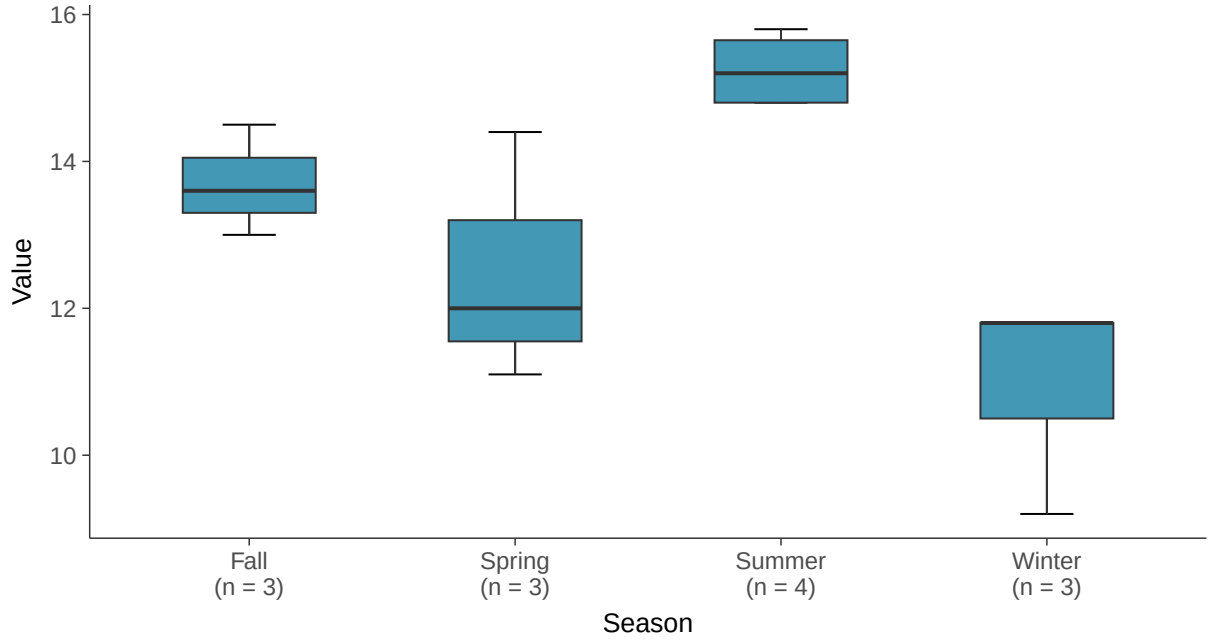
Boxplot

Temperature, MW-16B (°C)



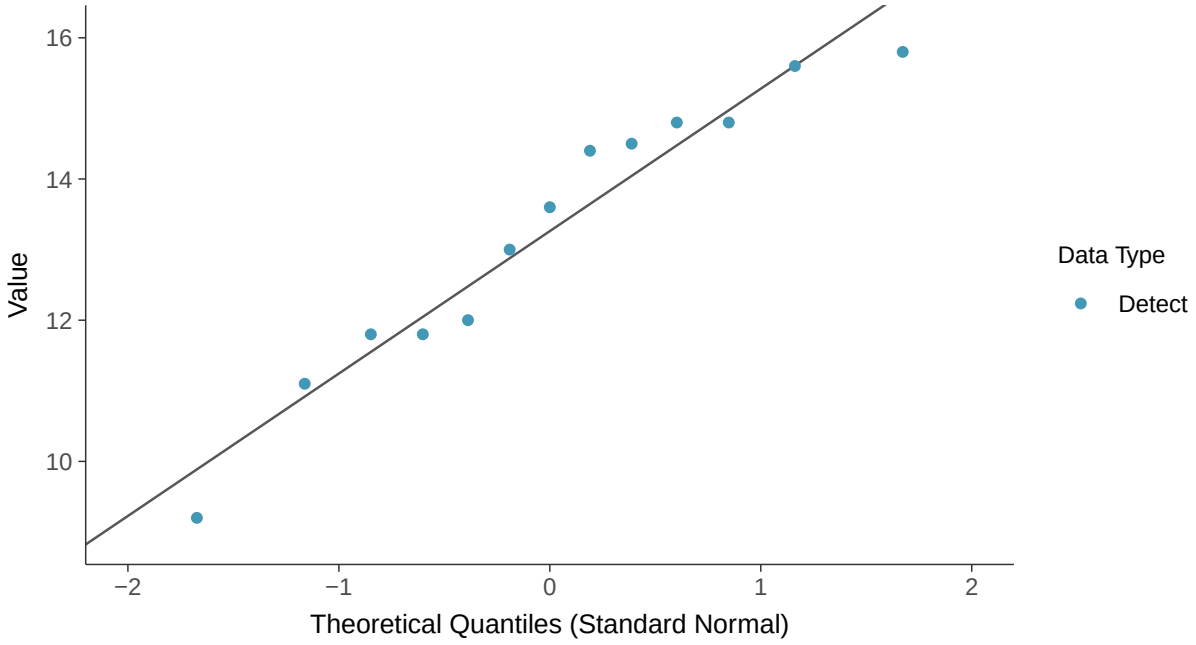
Boxplot by Season

Temperature, MW-16B (°C)



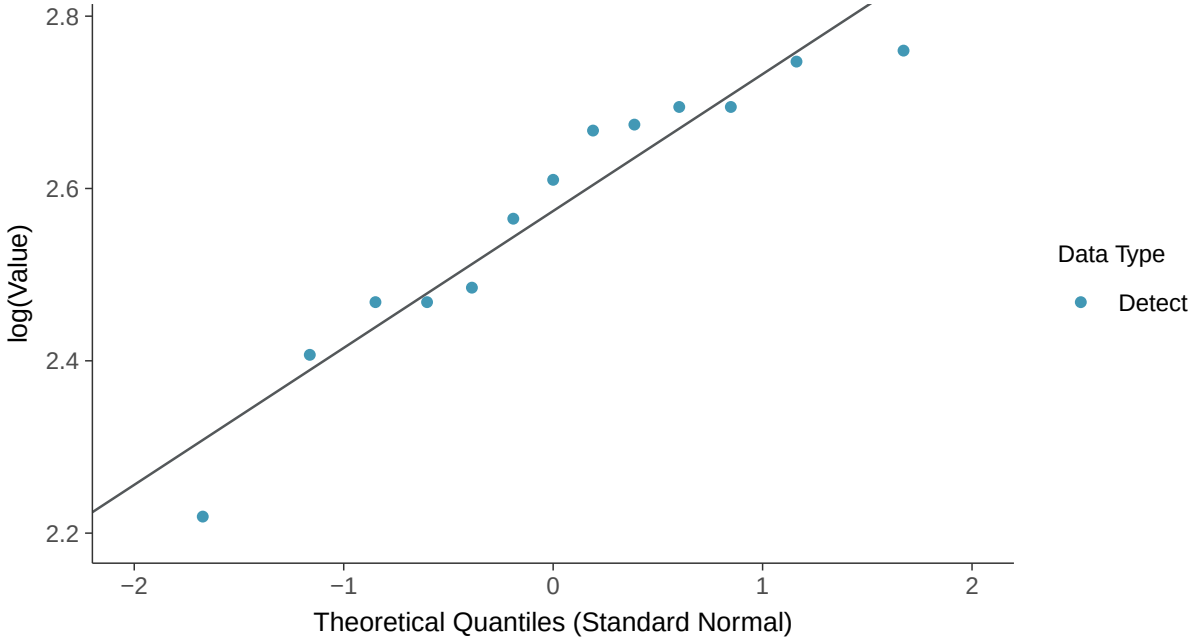
Normal Q-Q plot

Temperature, MW-16B (°C)



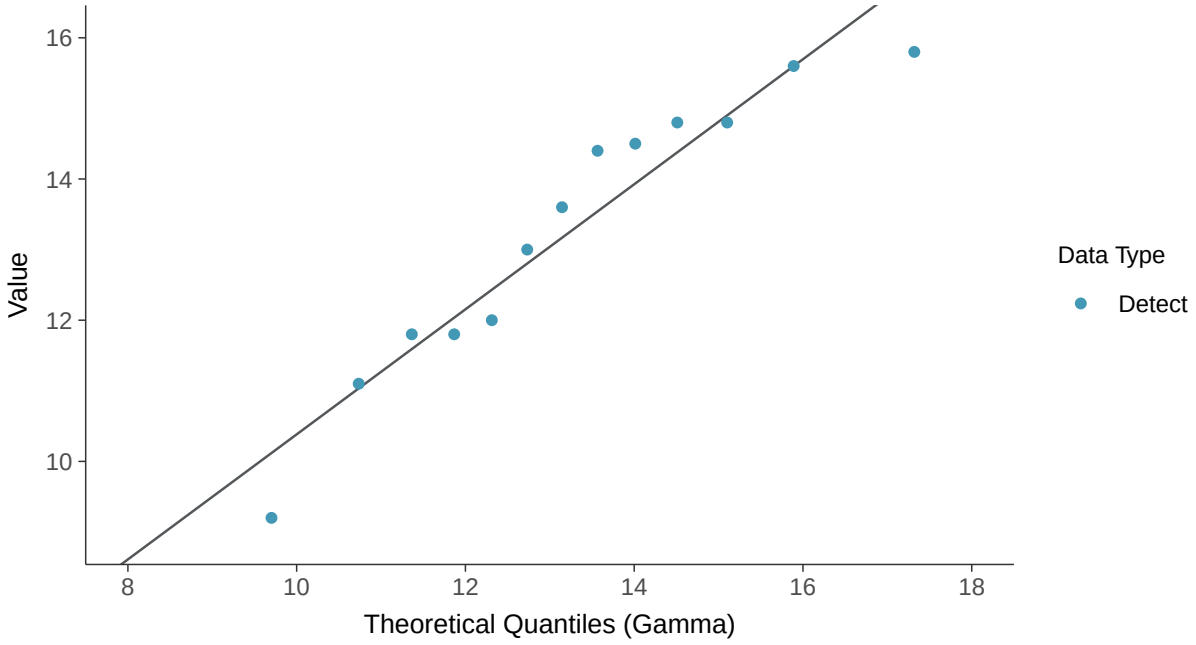
Lognormal Q-Q plot

Temperature, MW-16B (°C)



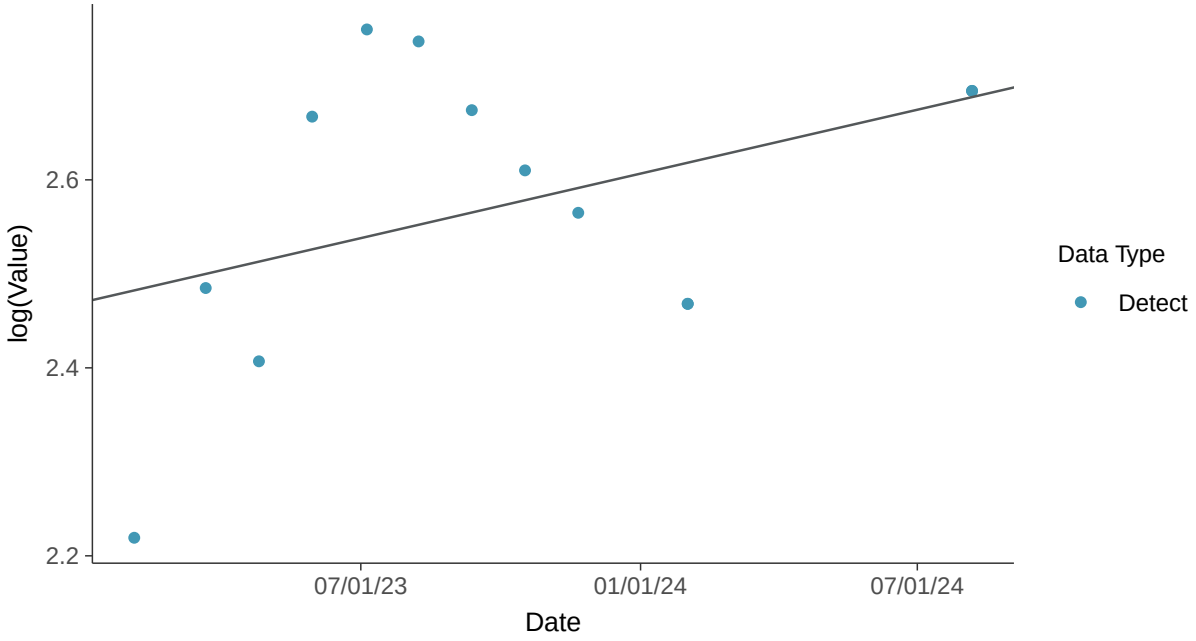
Gamma Q-Q plot

Temperature, MW-16B (°C)



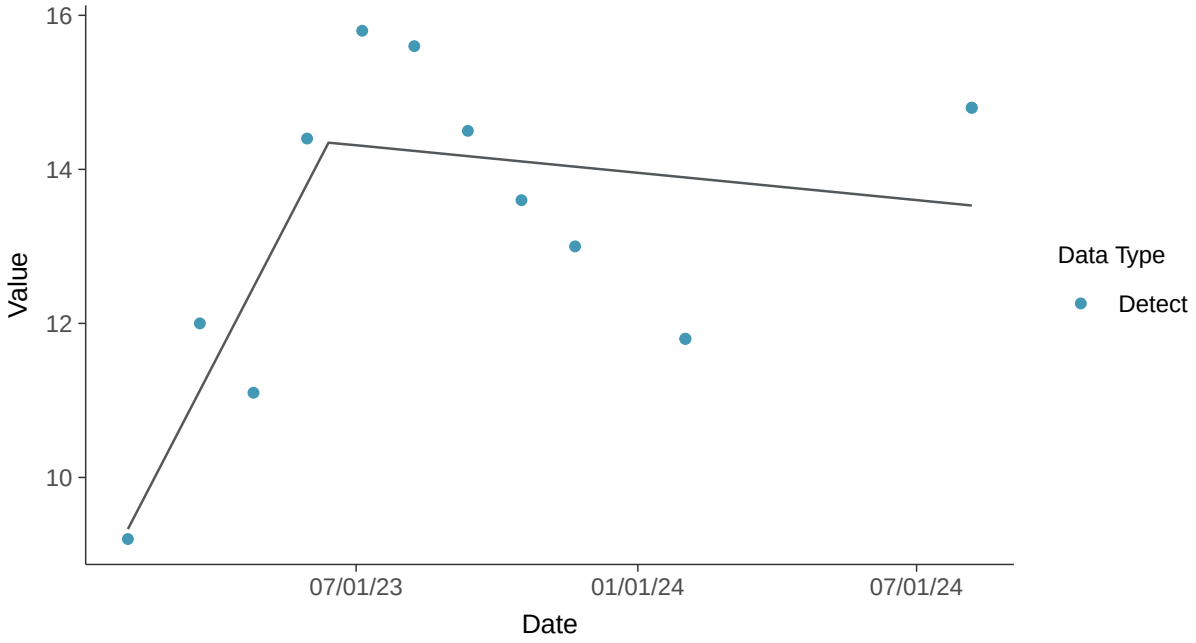
Trend Regression: Lognormal MLE

Temperature, MW-16B (°C)



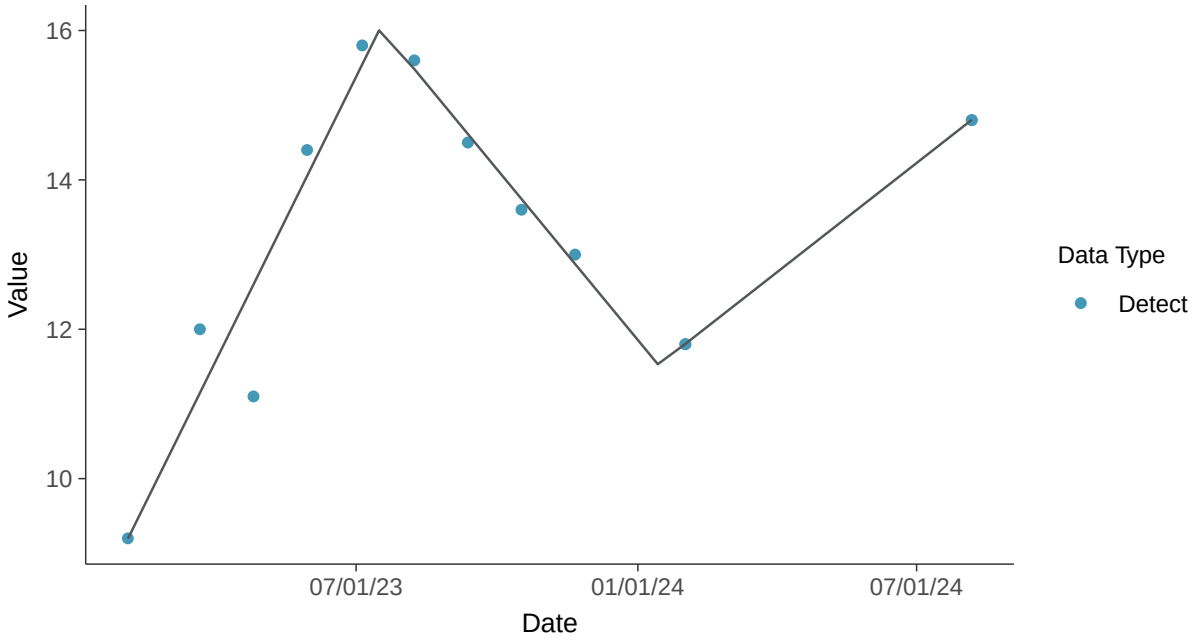
Trend Regression: Piecewise Linear-Linear

Temperature, MW-16B (°C)



Trend Regression: Piecewise Linear-Linear-Linear

Temperature, MW-16B (°C)

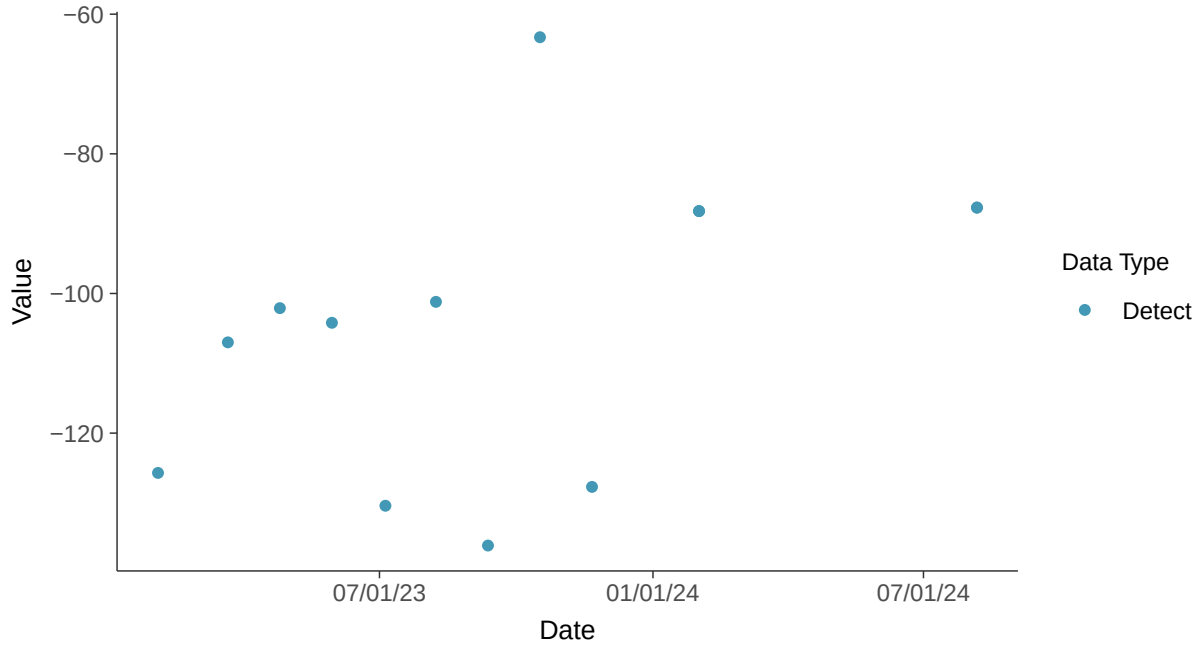


Field Parameters: Oxidation Reduction Potential, MW-16B

ID: 16B_3_29

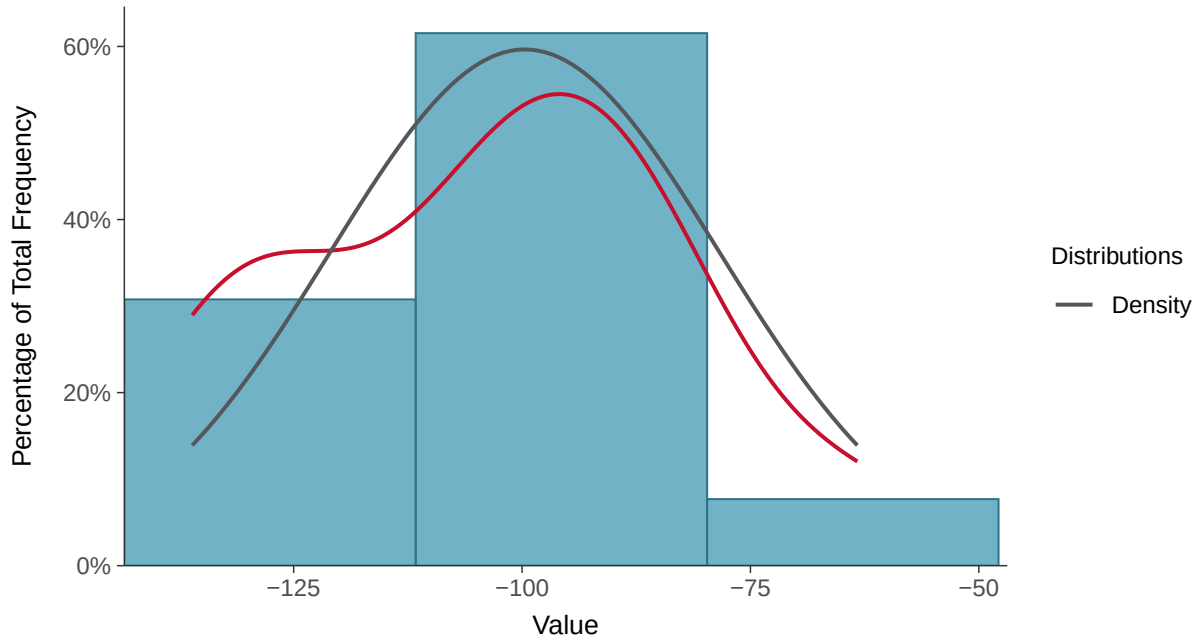
Scatter Plot

Oxidation Reduction Potential, MW-16B (mV)



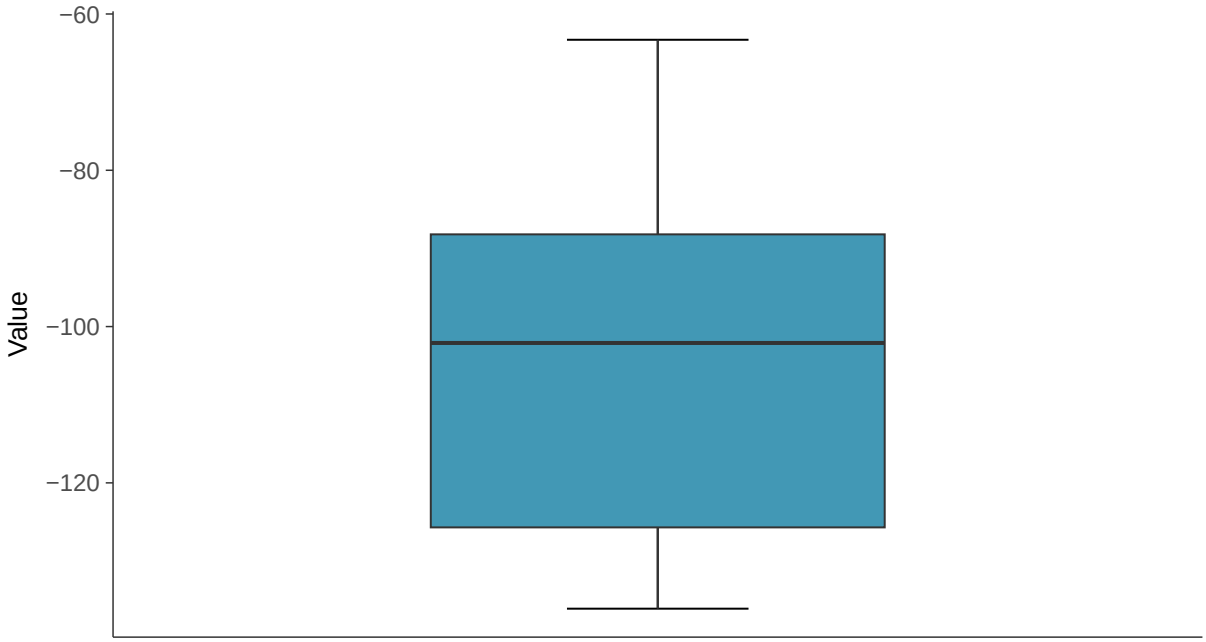
Histogram

Oxidation Reduction Potential, MW-16B (mV)



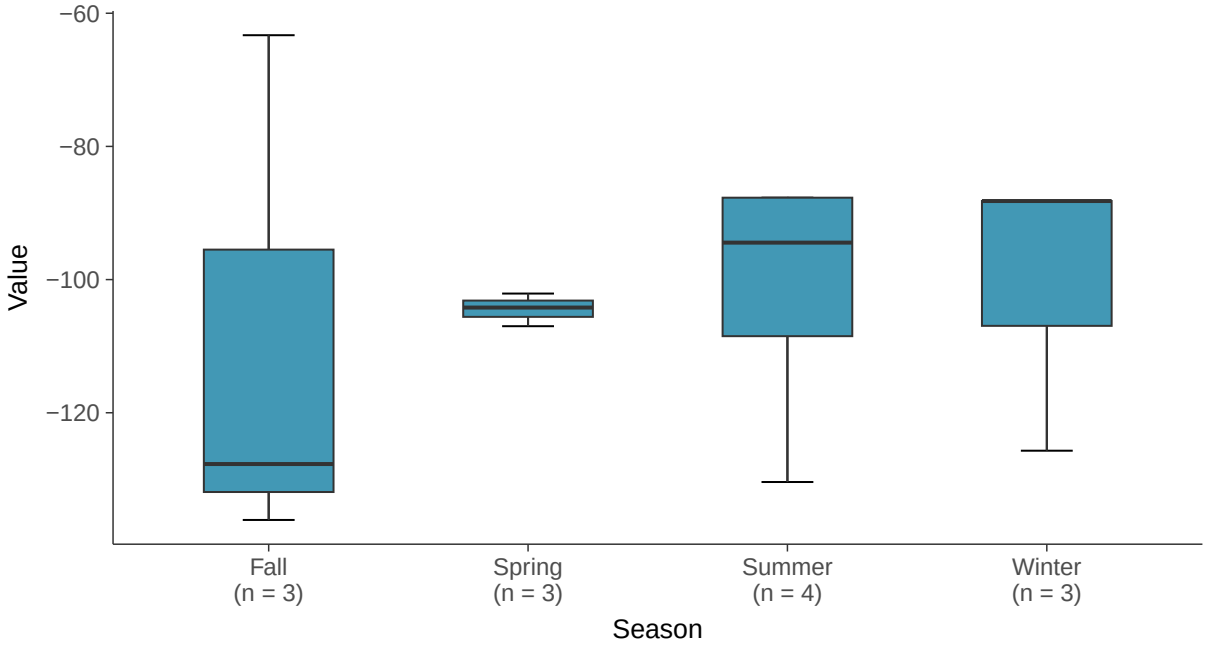
Boxplot

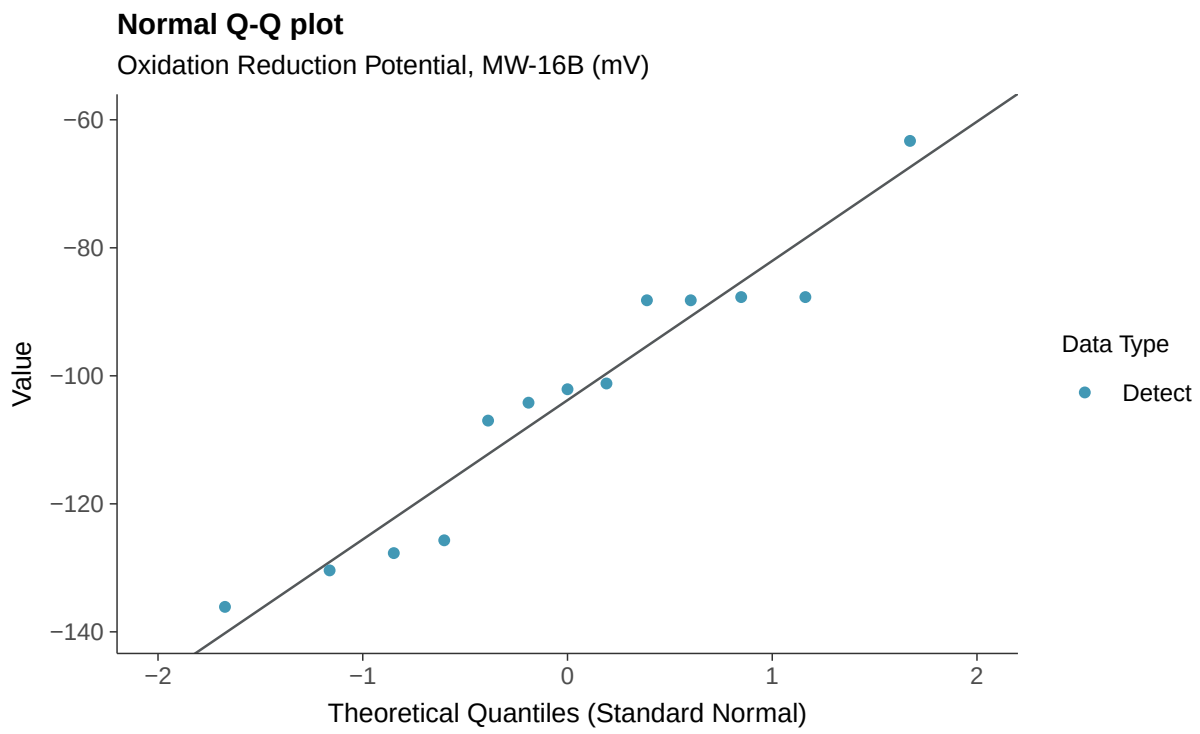
Oxidation Reduction Potential, MW-16B (mV)



Boxplot by Season

Oxidation Reduction Potential, MW-16B (mV)



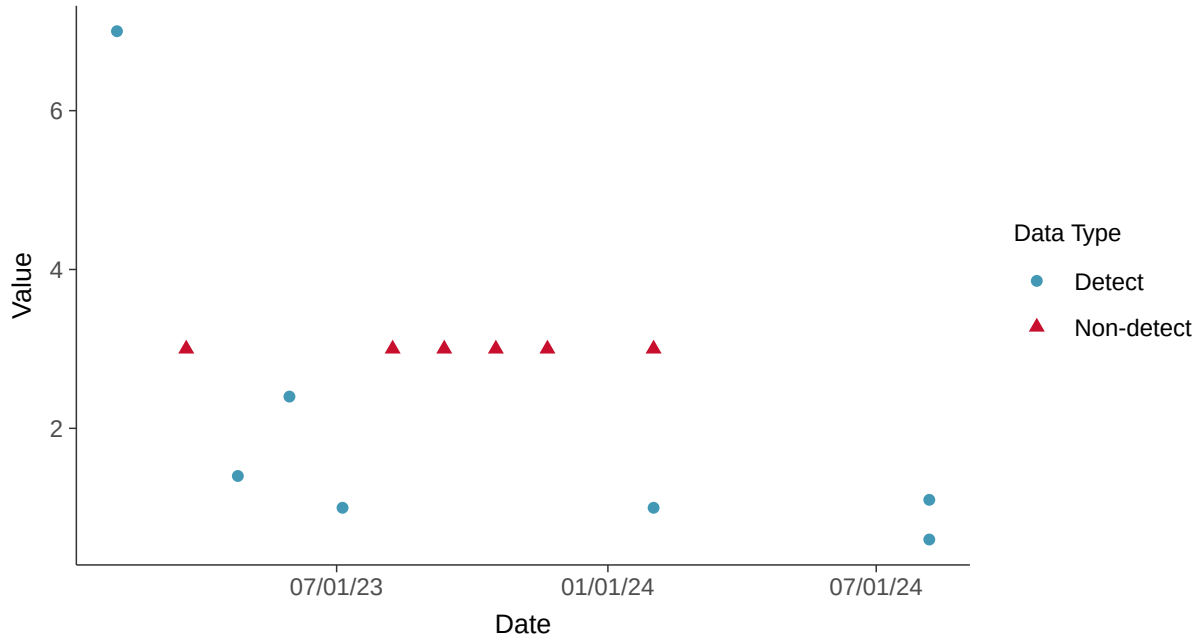

Normal Q-Q plot
Oxidation Reduction Potential, MW-16B (mV)
Value
−60
−80
−100
−120
−140
−2
−1
0
1
2
Theoretical Quantiles (Standard Normal)
Data Type
Detect

Other: Total Suspended Solids, MW-16B

ID: 16B_4_30

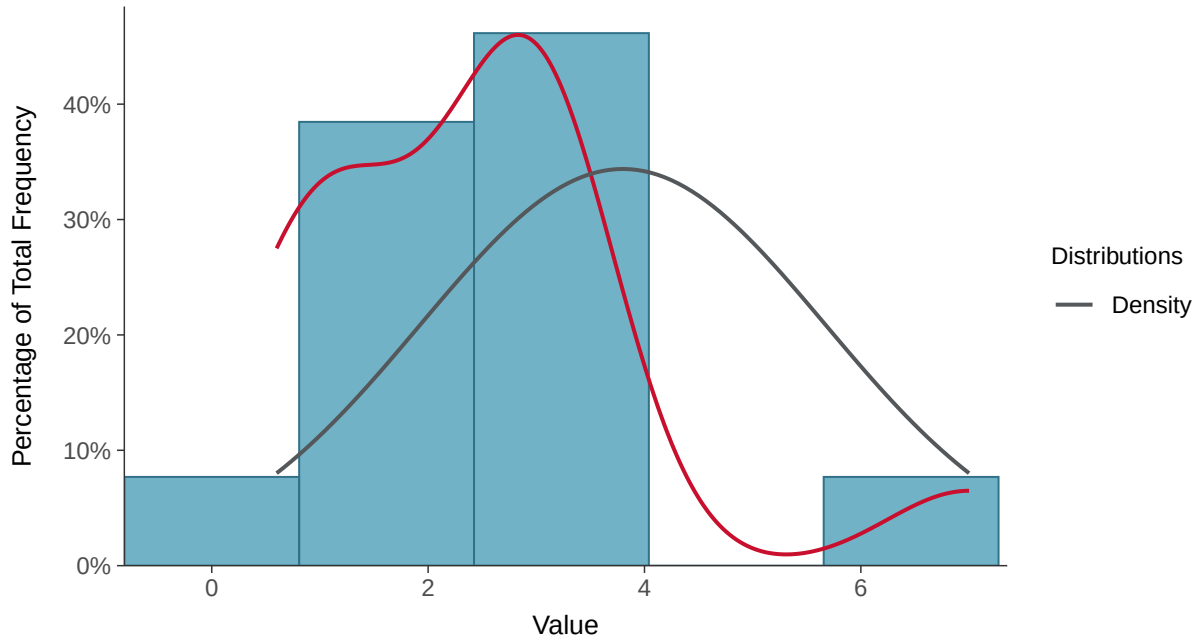
Scatter Plot

Total Suspended Solids, MW-16B (mg/L)



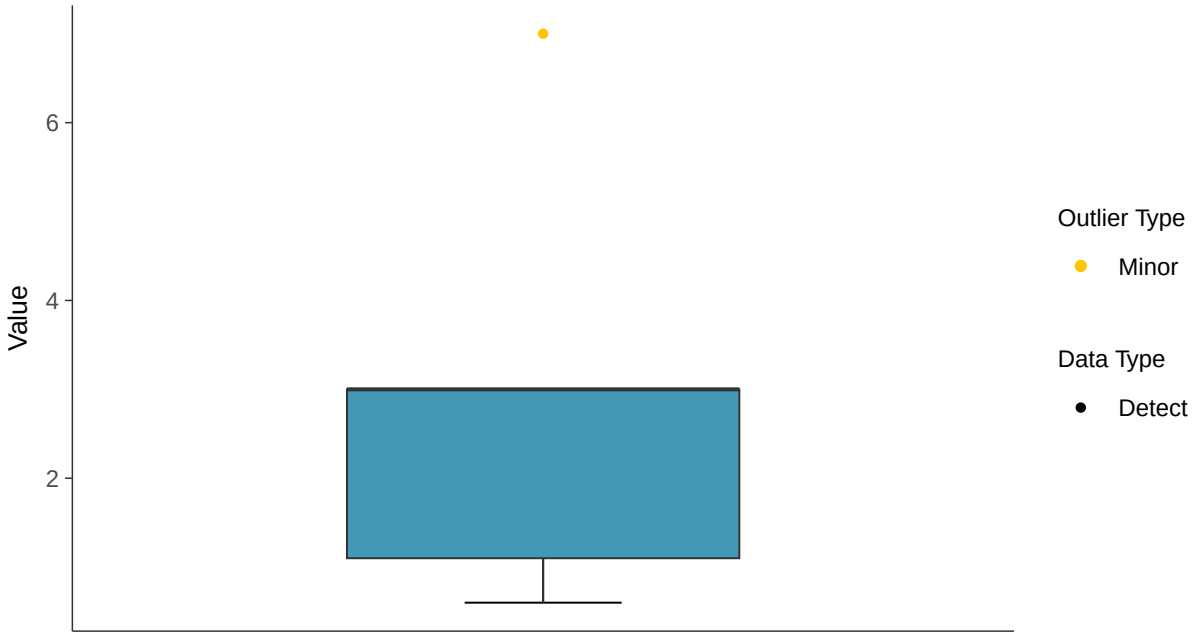
Histogram

Total Suspended Solids, MW-16B (mg/L)



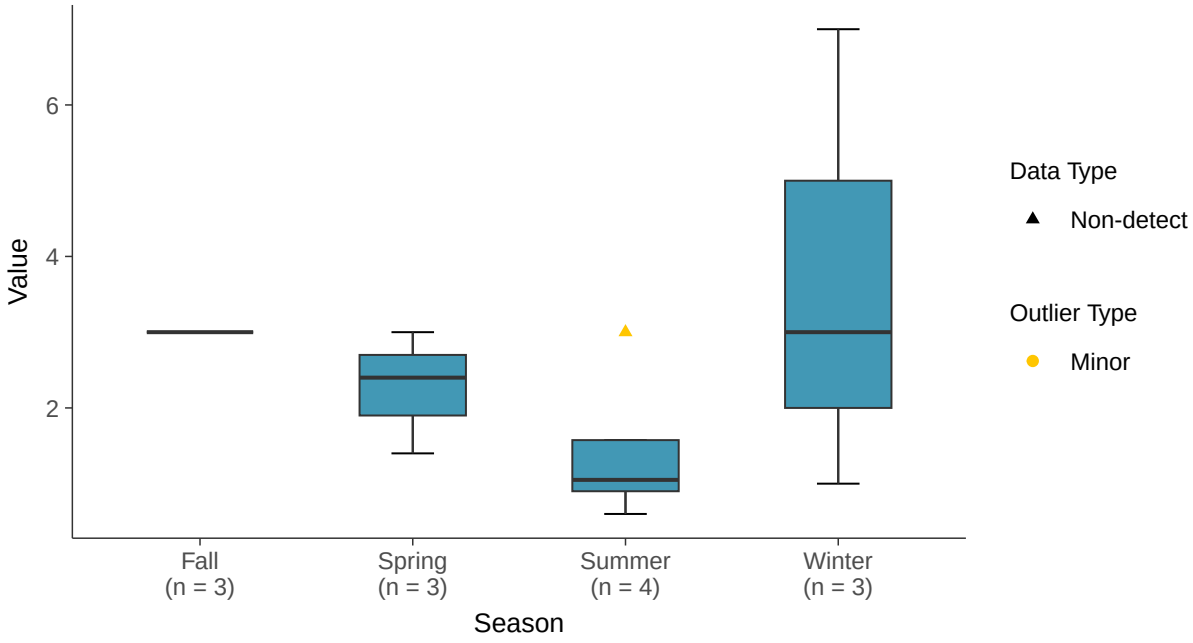
Boxplot

Total Suspended Solids, MW-16B (mg/L)



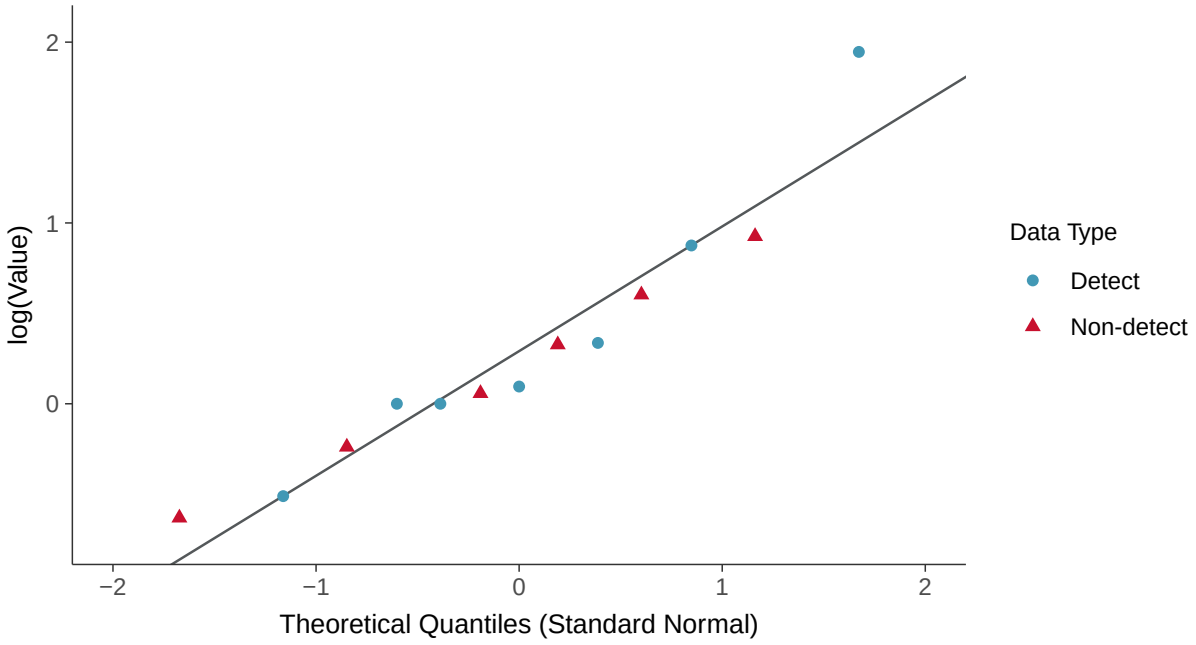
Boxplot by Season

Total Suspended Solids, MW-16B (mg/L)



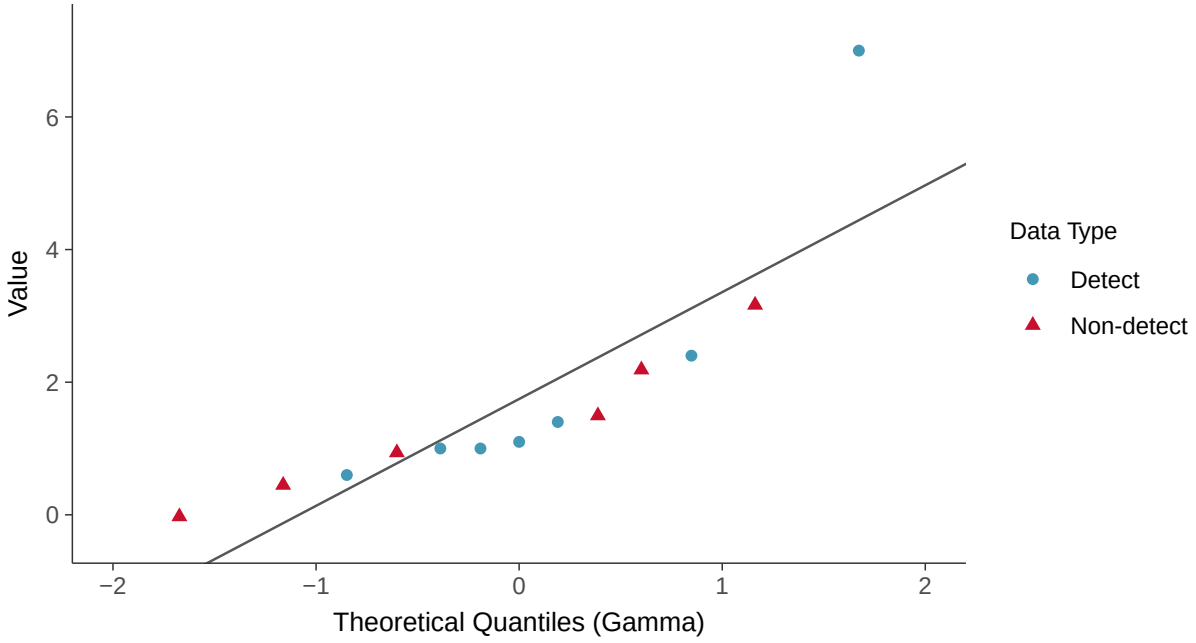
Lognormal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-16B (mg/L)



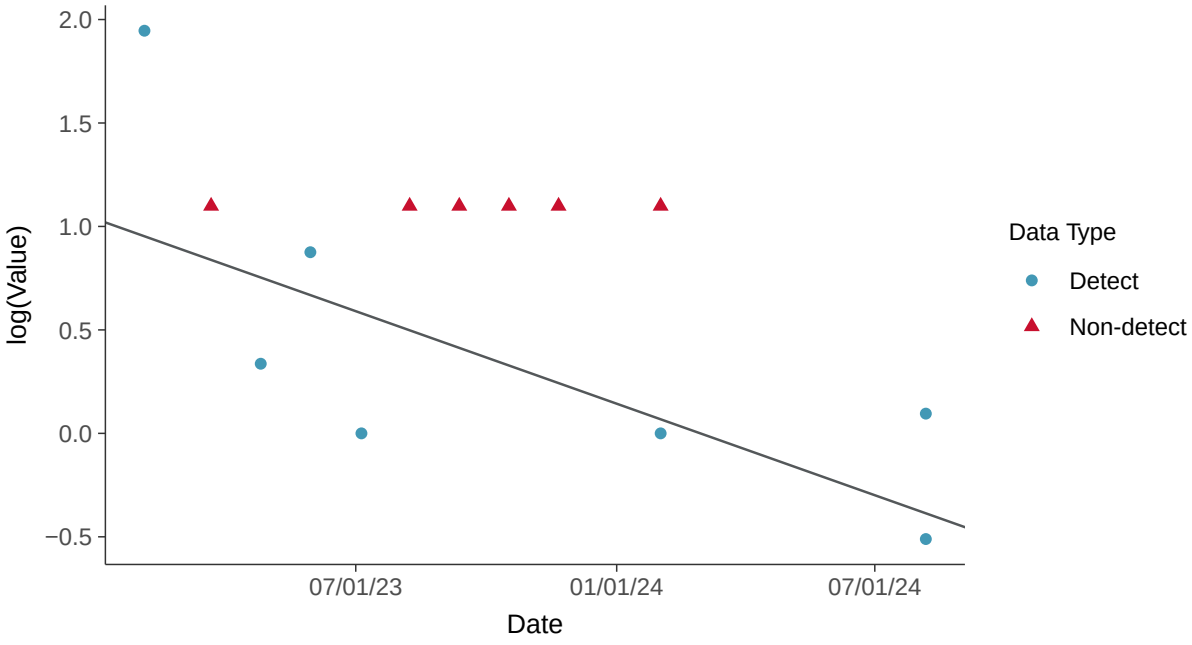
Gamma Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-16B (mg/L)



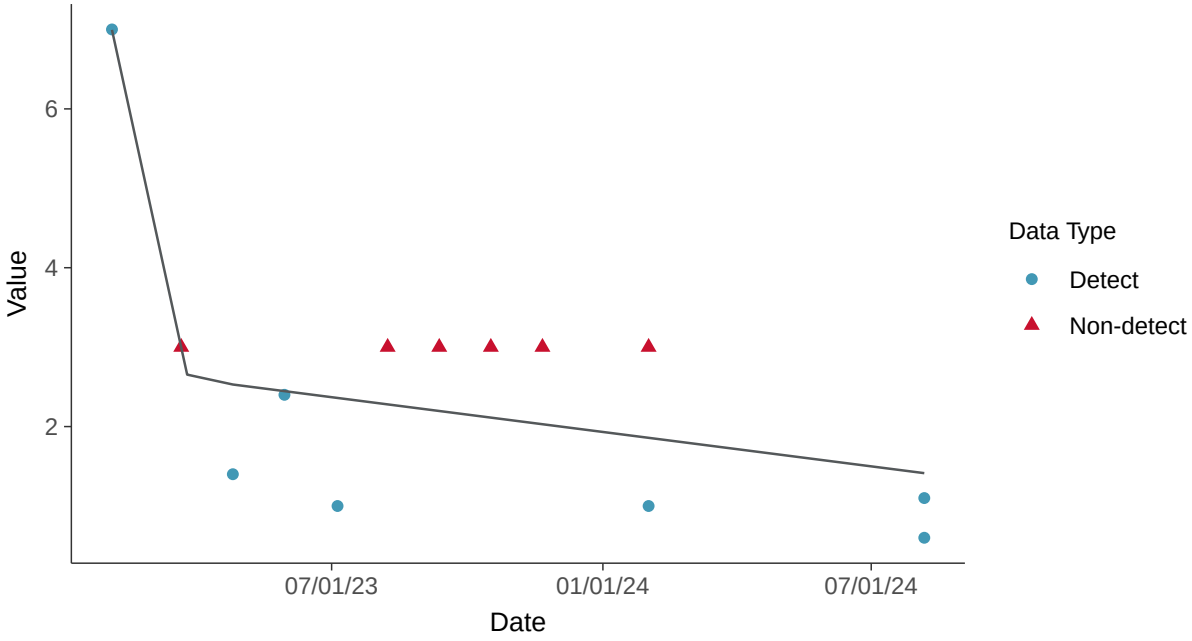
Trend Regression: Lognormal MLE

Total Suspended Solids, MW-16B (mg/L)



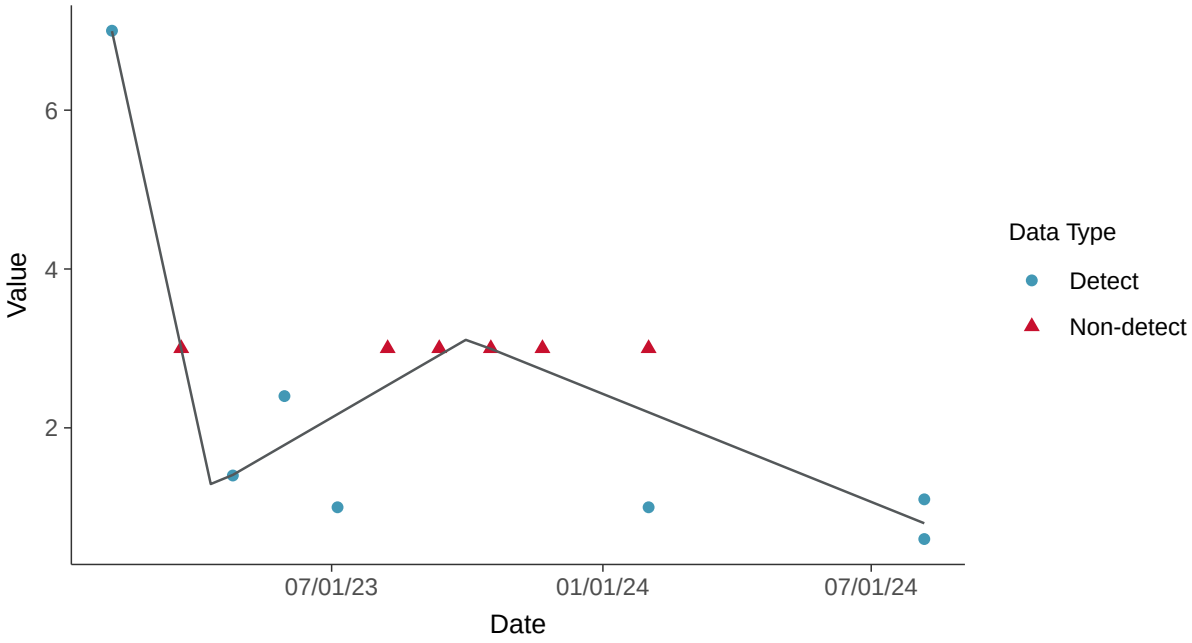
Trend Regression: Piecewise Linear-Linear

Total Suspended Solids, MW-16B (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Total Suspended Solids, MW-16B (mg/L)

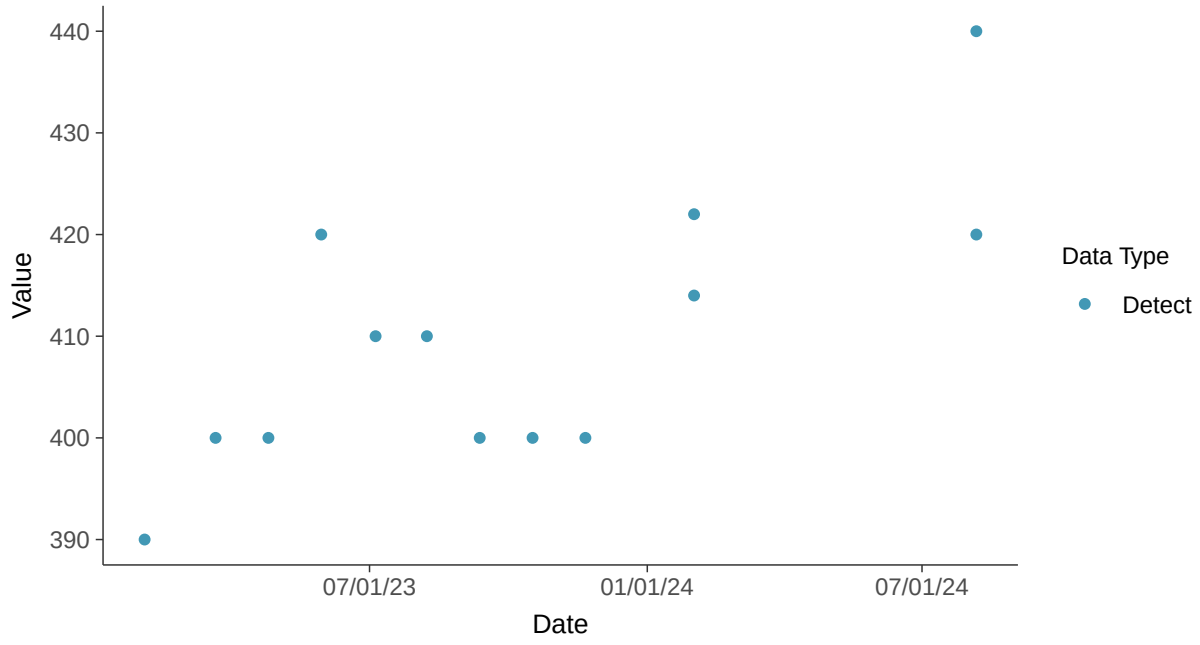


Other: Bicarbonate, MW-16B

ID: 16B_4_31

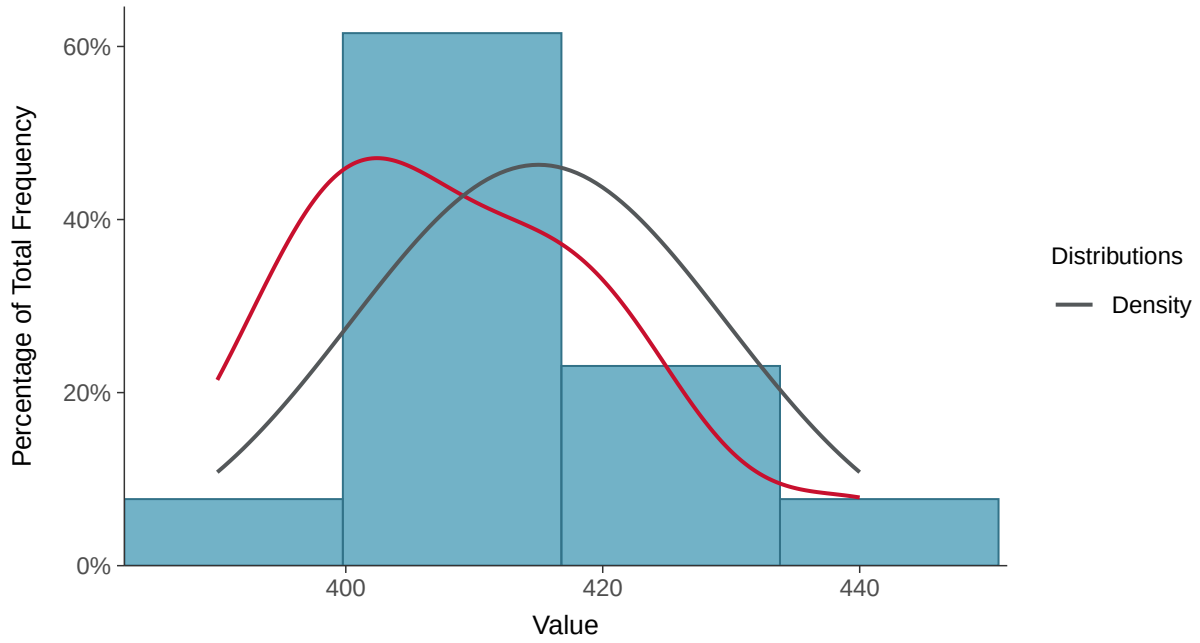
Scatter Plot

Bicarbonate, MW-16B (mg/L)



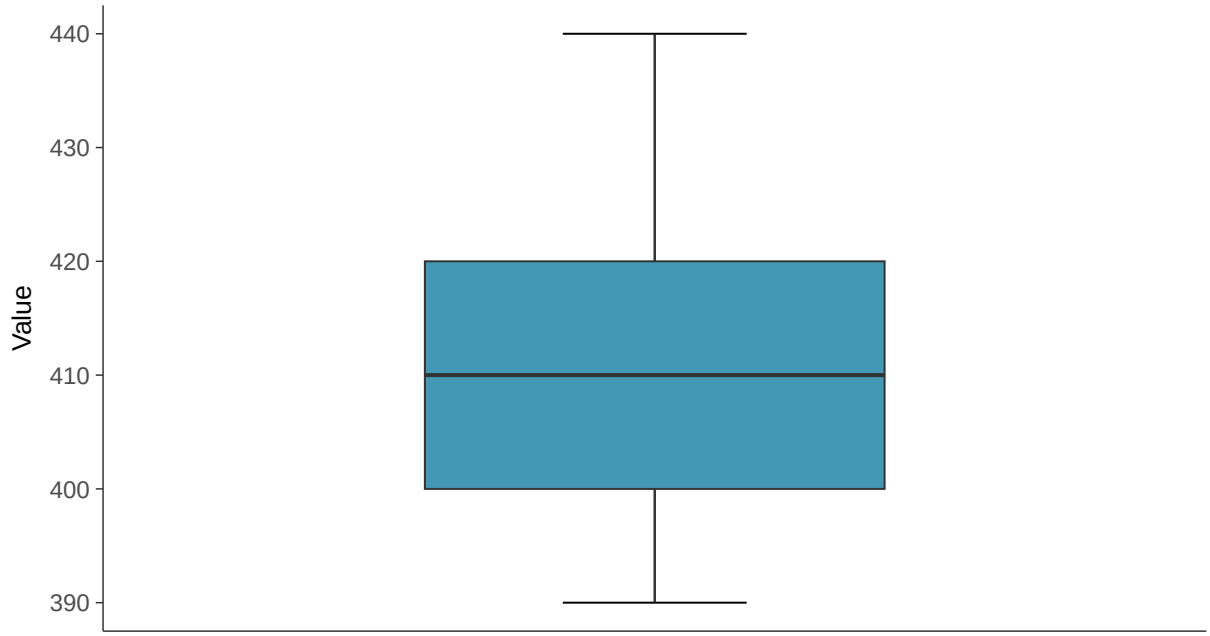
Histogram

Bicarbonate, MW-16B (mg/L)



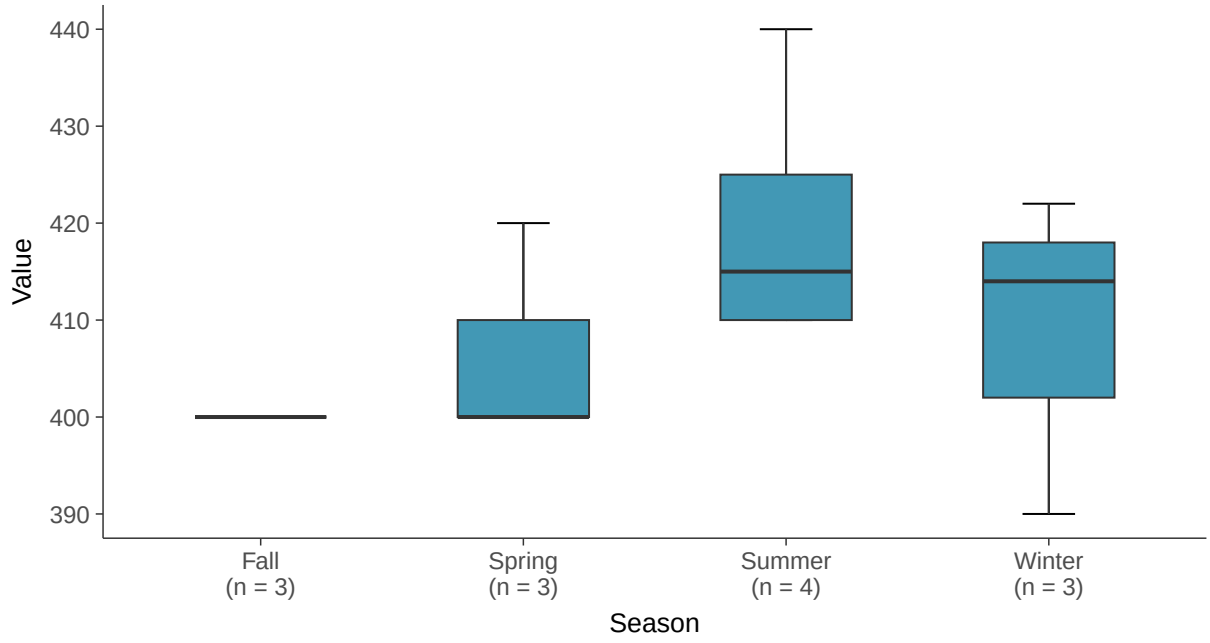
Boxplot

Bicarbonate, MW-16B (mg/L)



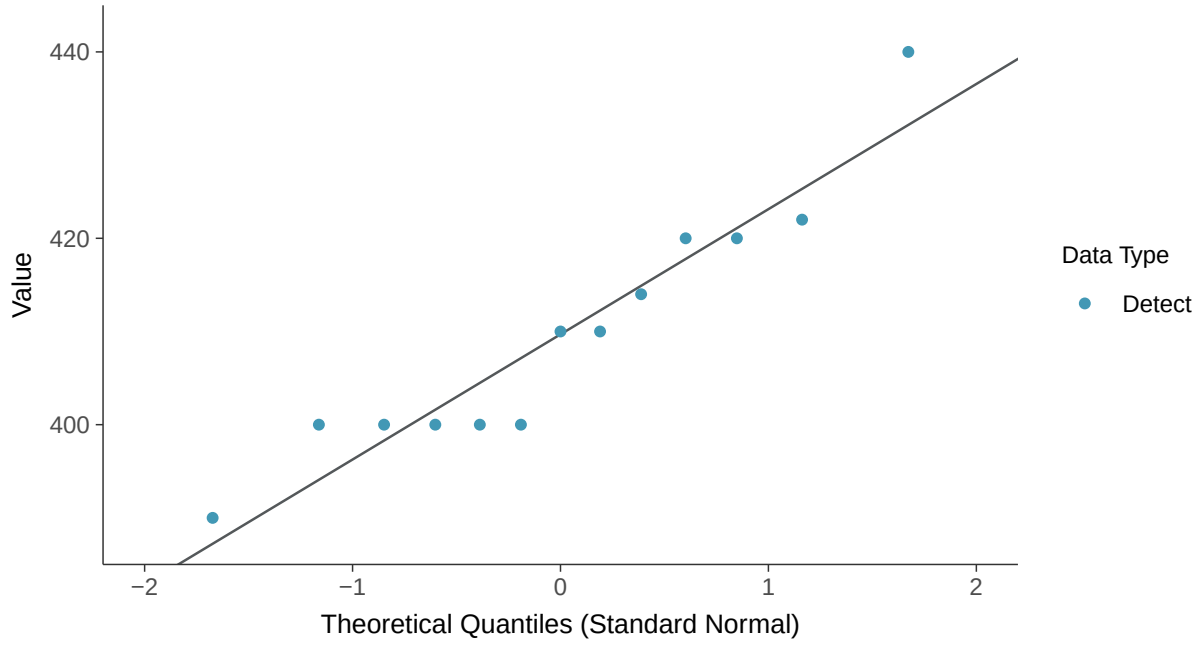
Boxplot by Season

Bicarbonate, MW-16B (mg/L)



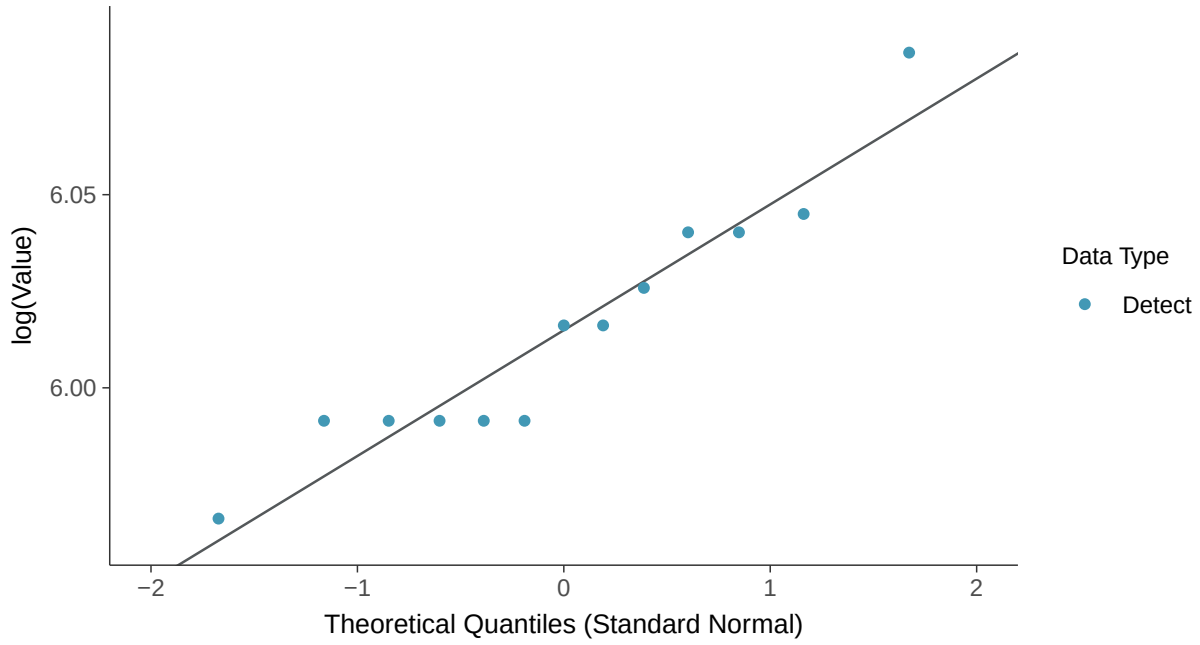
Normal Q-Q plot

Bicarbonate, MW-16B (mg/L)



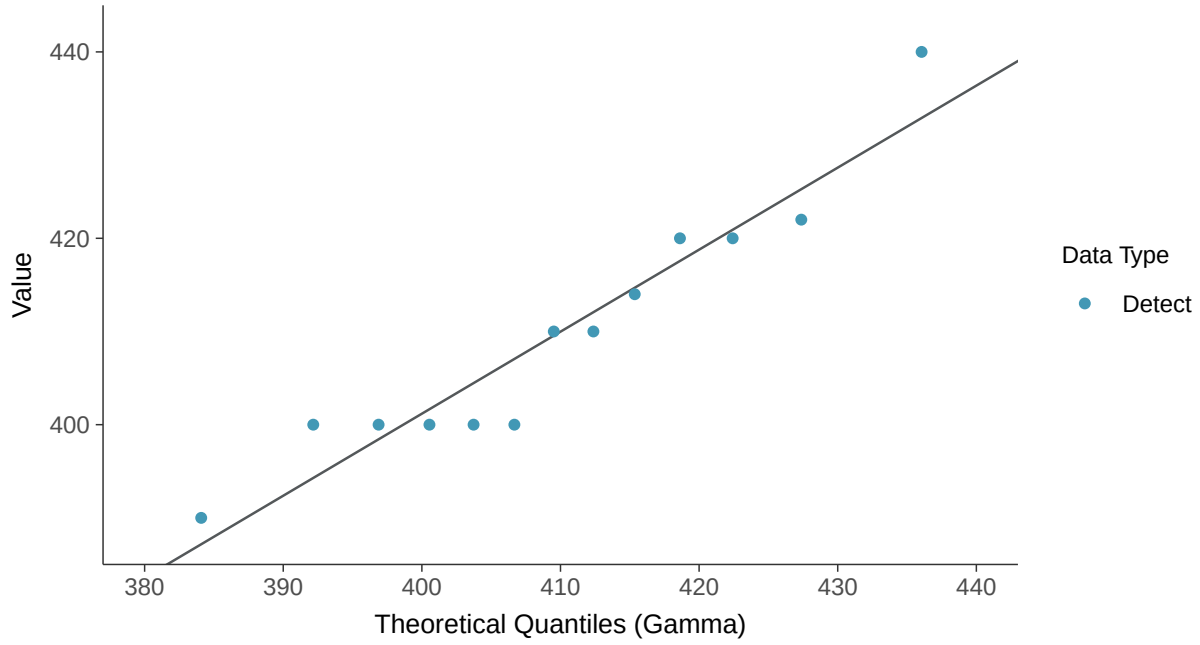
Lognormal Q-Q plot

Bicarbonate, MW-16B (mg/L)



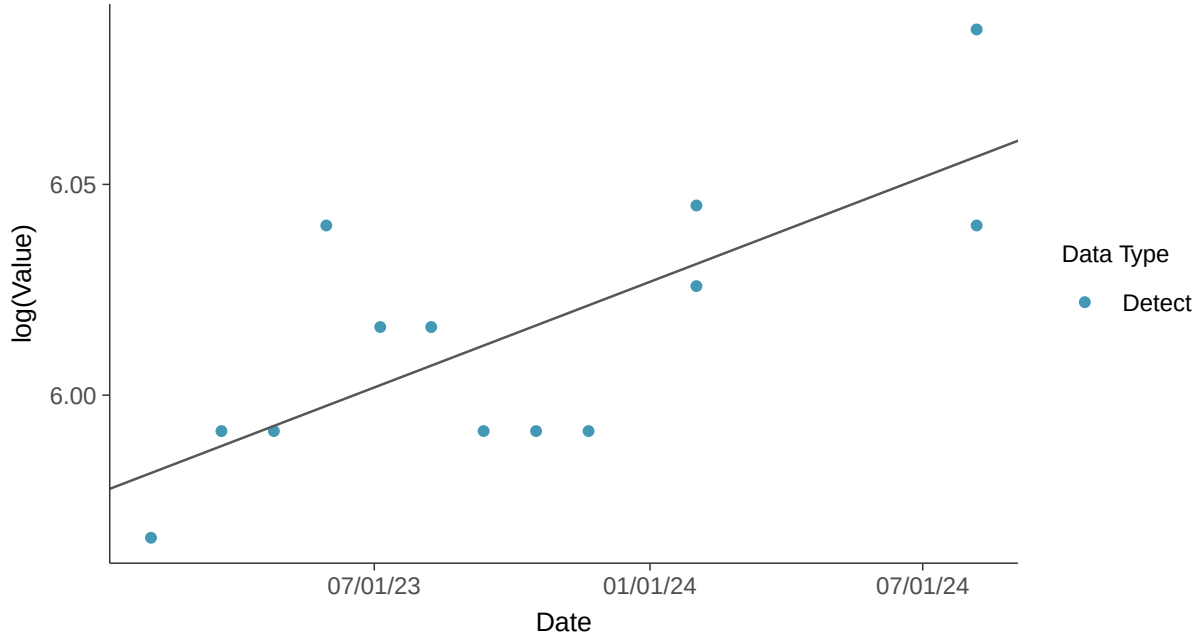
Gamma Q-Q plot

Bicarbonate, MW-16B (mg/L)



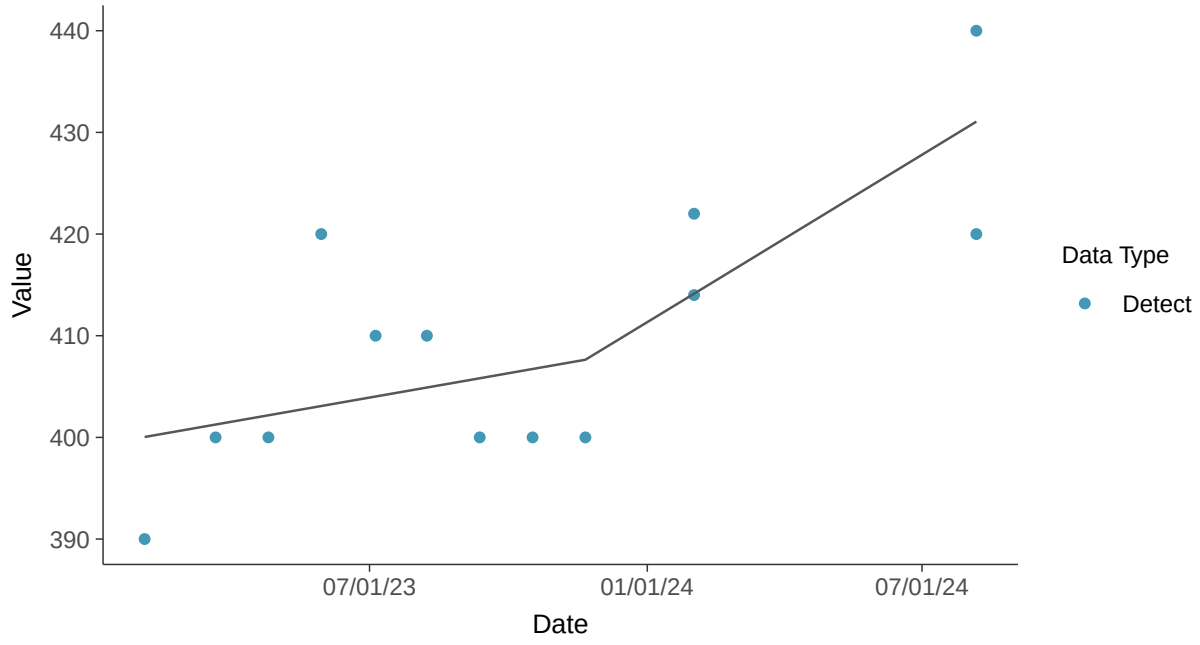
Trend Regression: Lognormal MLE

Bicarbonate, MW-16B (mg/L)



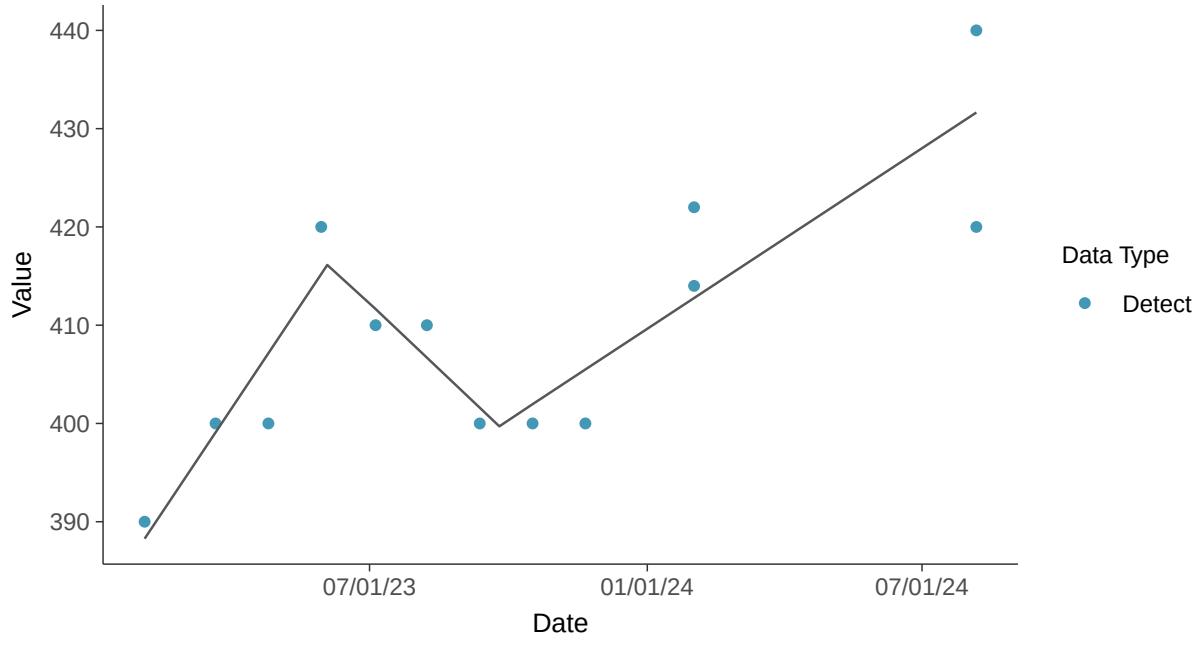
Trend Regression: Piecewise Linear-Linear

Bicarbonate, MW-16B (mg/L)



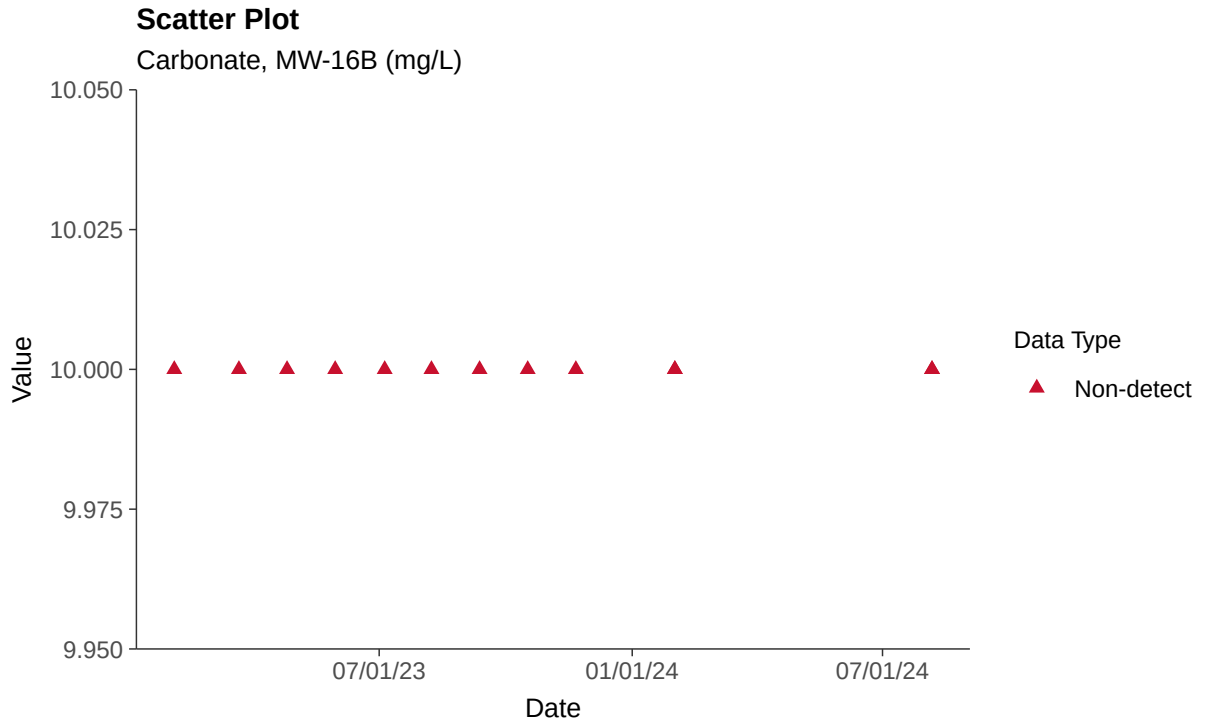
Trend Regression: Piecewise Linear-Linear-Linear

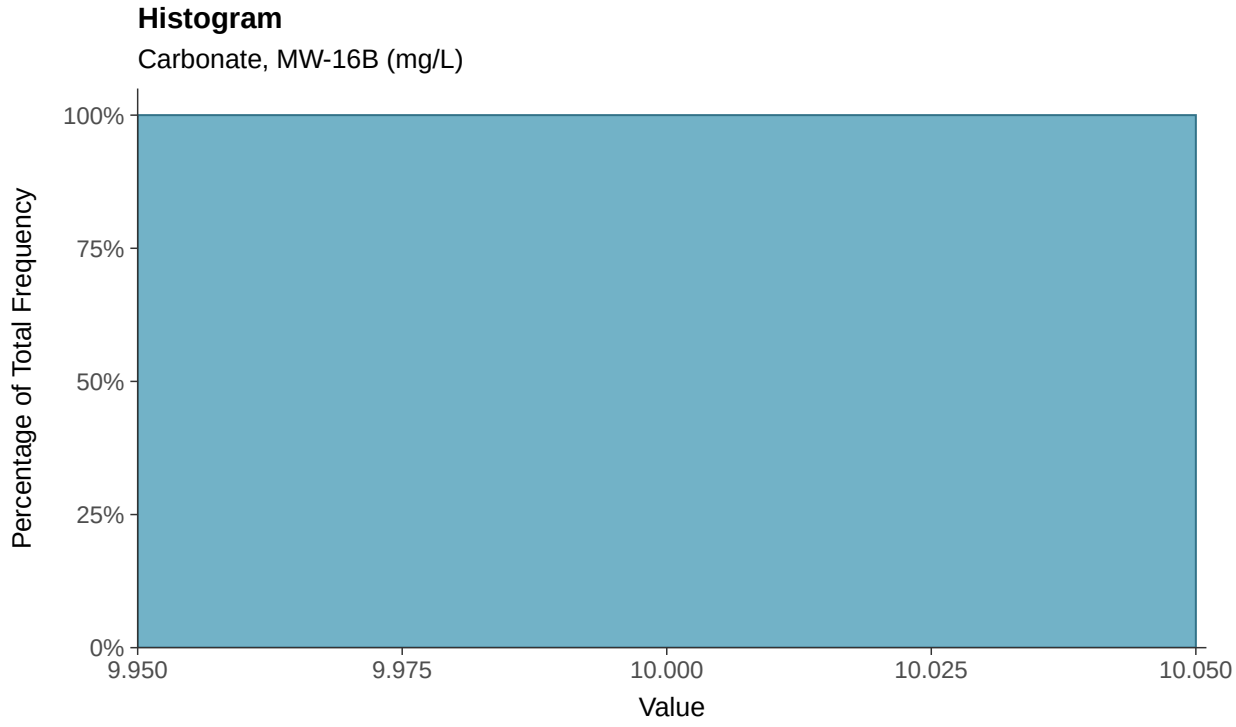
Bicarbonate, MW-16B (mg/L)



Other: Carbonate, MW-16B

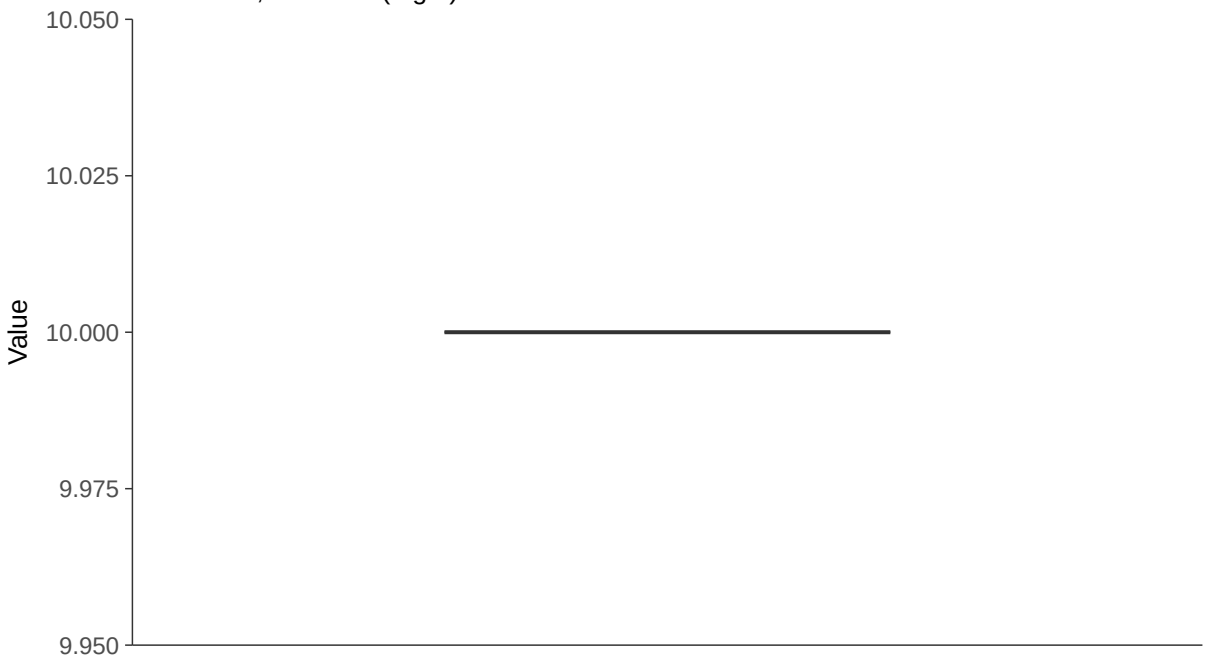
ID: 16B_4_32





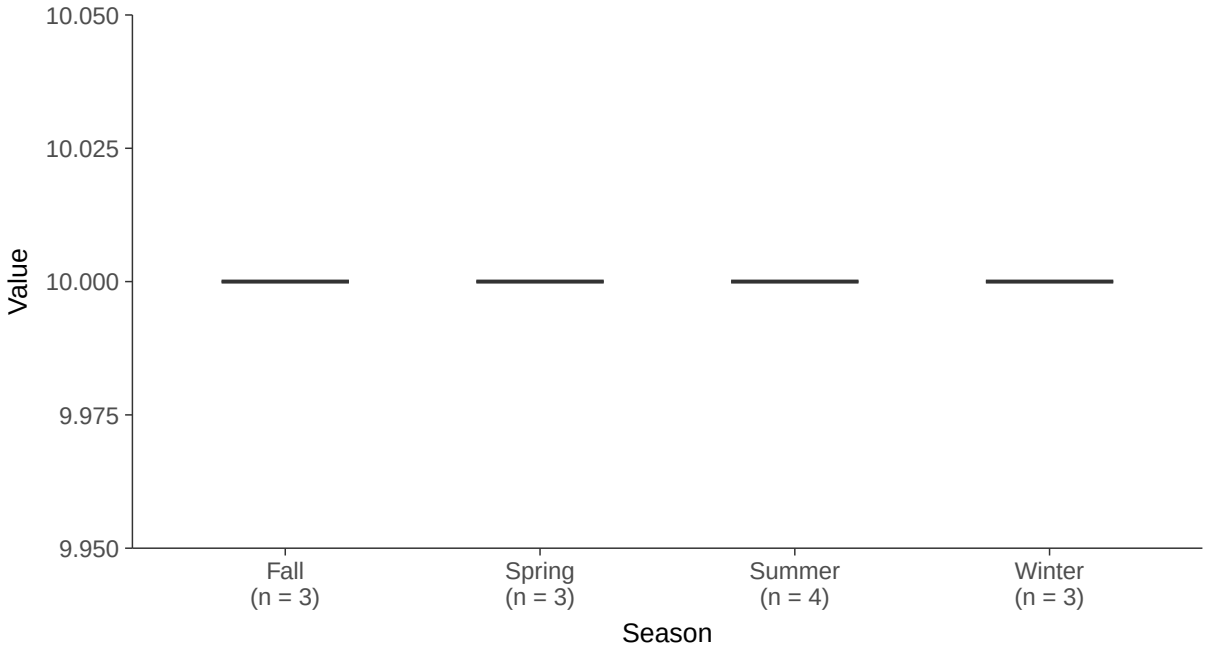
Boxplot

Carbonate, MW-16B (mg/L)



Boxplot by Season

Carbonate, MW-16B (mg/L)

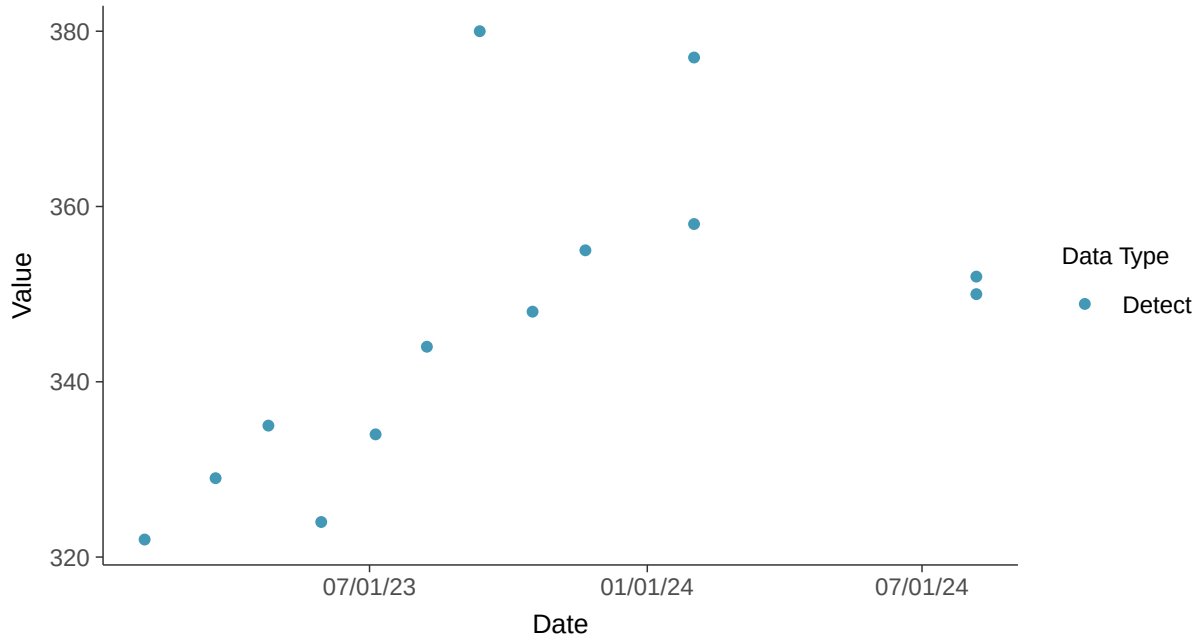


Other: Hardness, MW-16B

ID: 16B_4_33

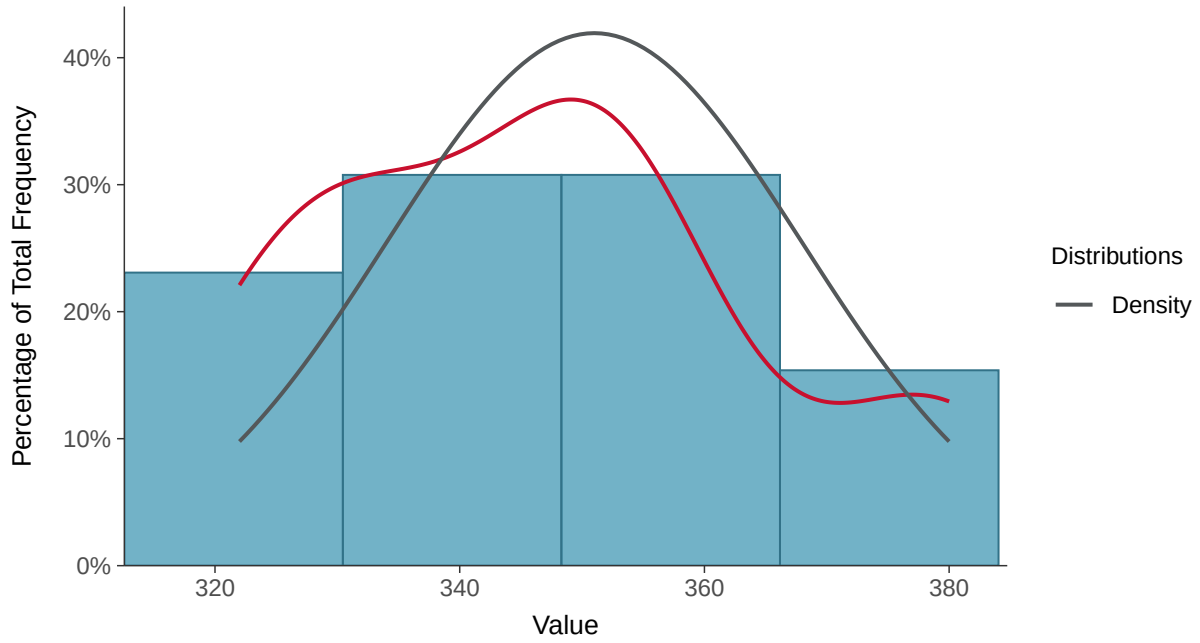
Scatter Plot

Hardness, MW-16B (mg/L)



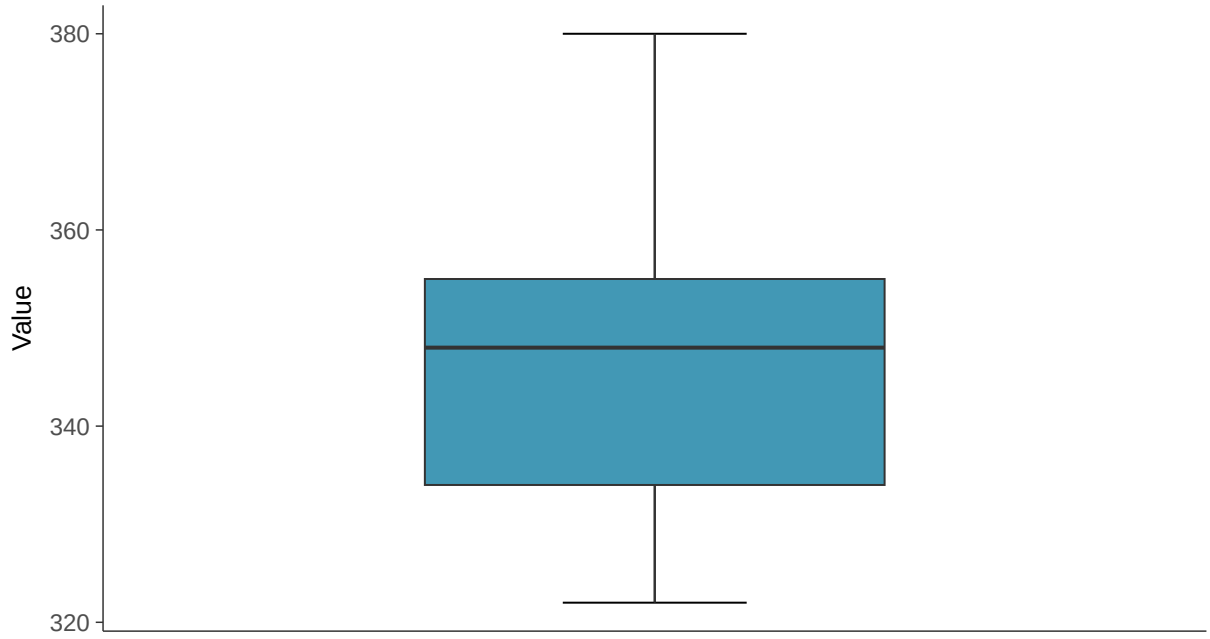
Histogram

Hardness, MW-16B (mg/L)



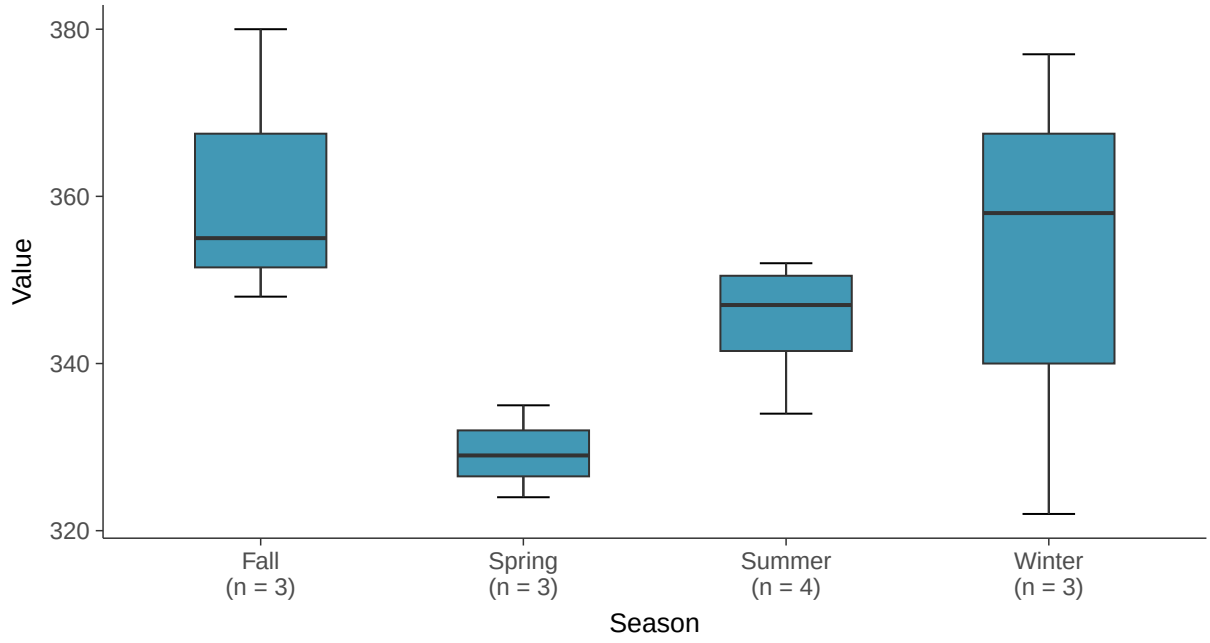
Boxplot

Hardness, MW-16B (mg/L)



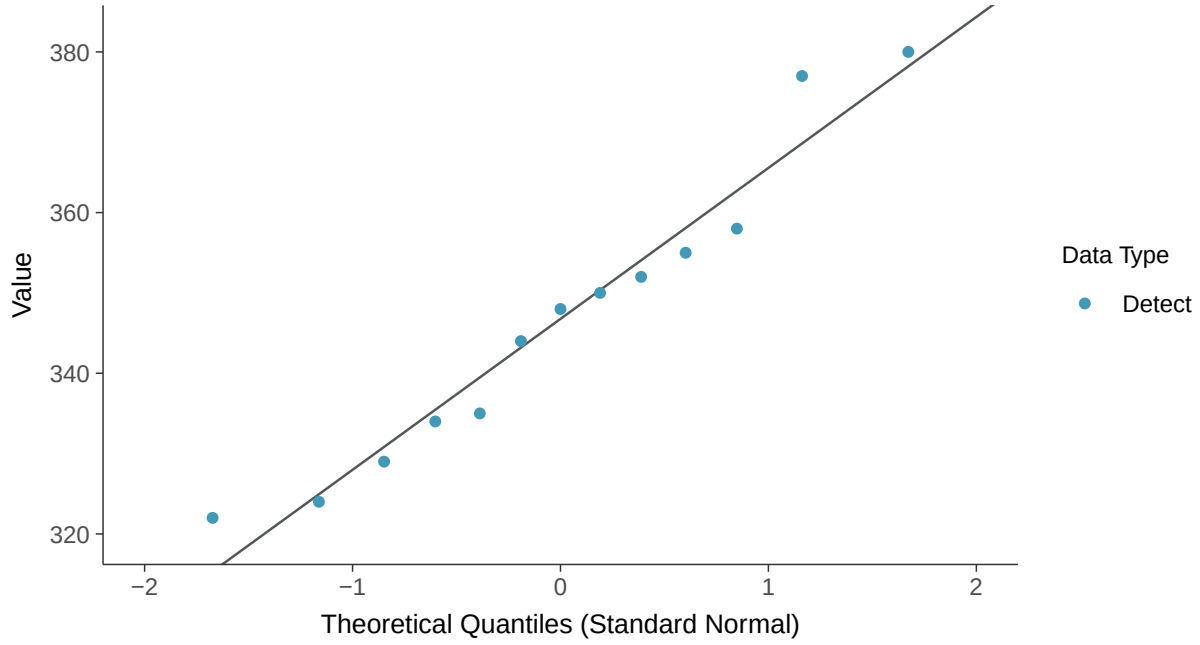
Boxplot by Season

Hardness, MW-16B (mg/L)



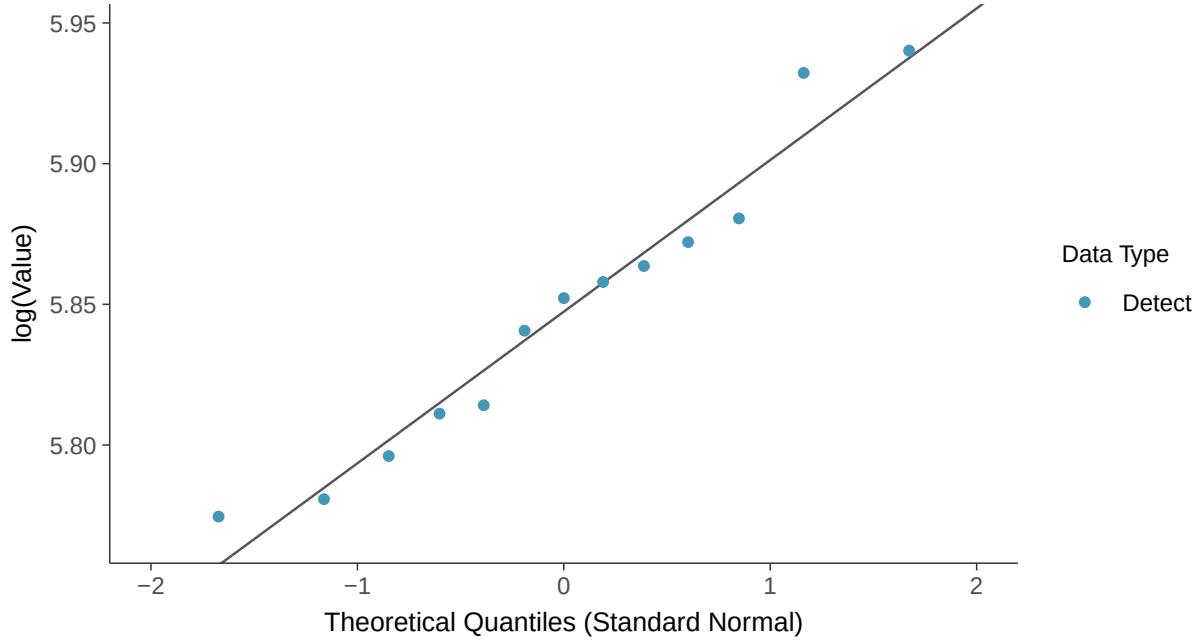
Normal Q-Q plot

Hardness, MW-16B (mg/L)



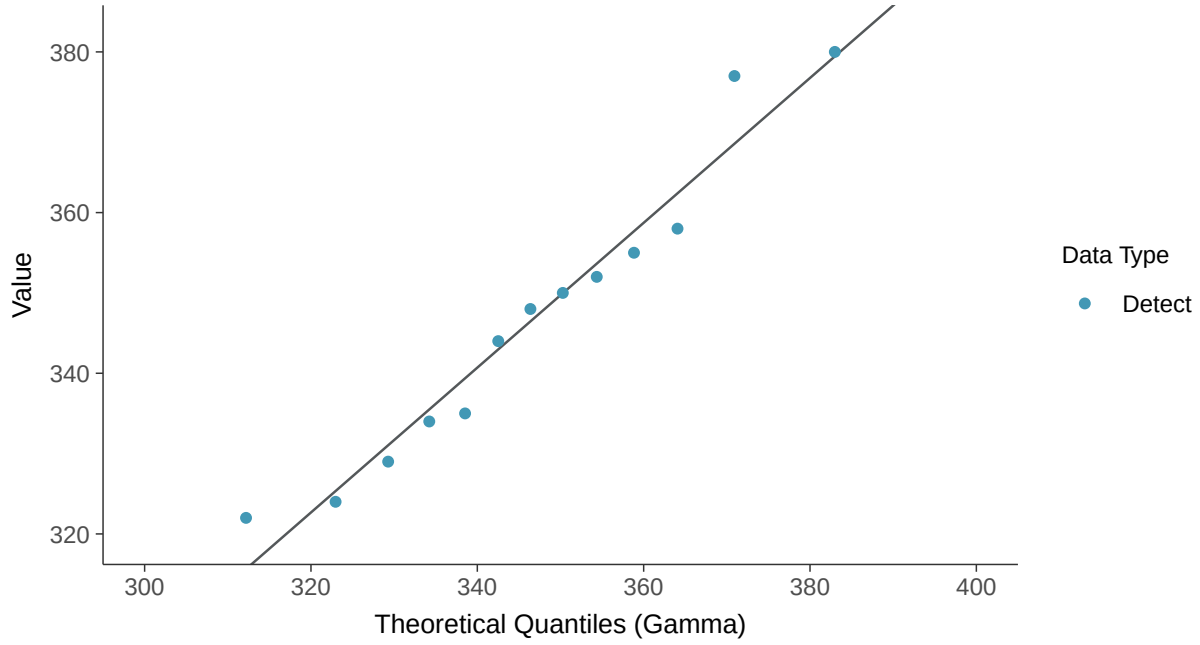
Lognormal Q-Q plot

Hardness, MW-16B (mg/L)



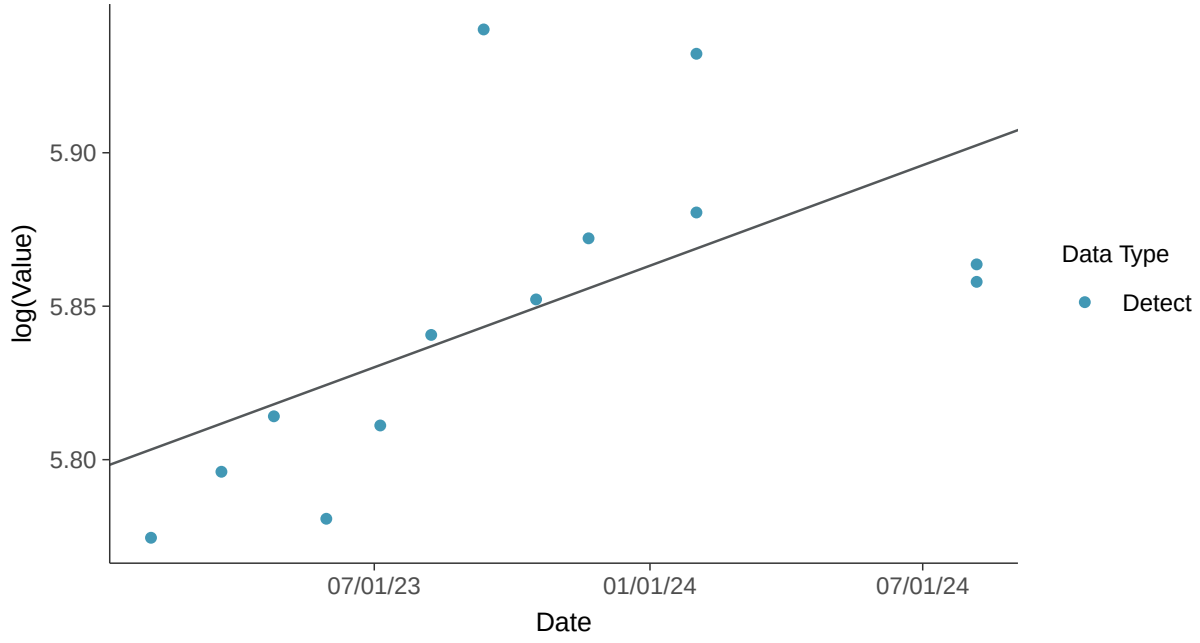
Gamma Q-Q plot

Hardness, MW-16B (mg/L)



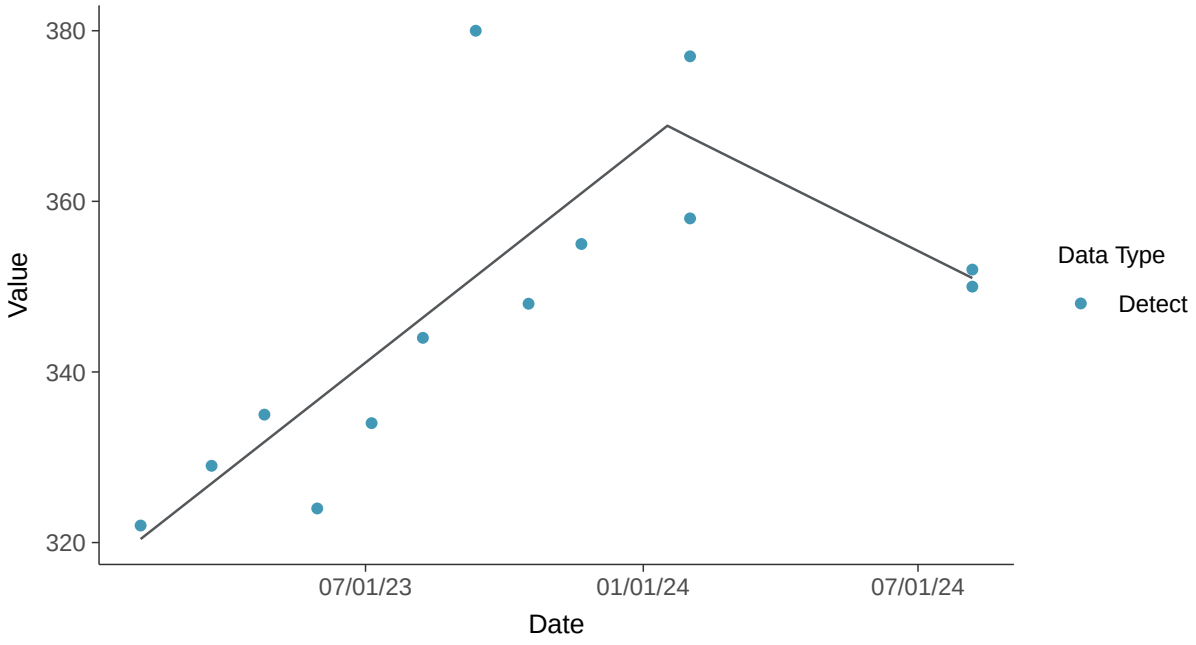
Trend Regression: Lognormal MLE

Hardness, MW-16B (mg/L)



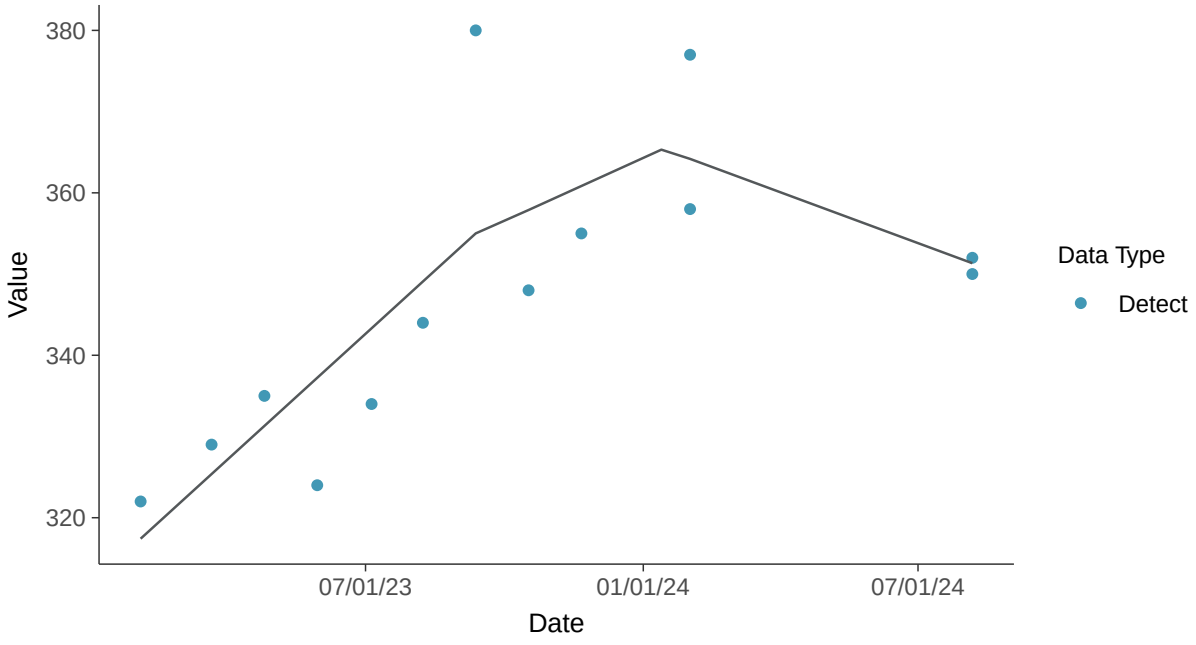
Trend Regression: Piecewise Linear-Linear

Hardness, MW-16B (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Hardness, MW-16B (mg/L)

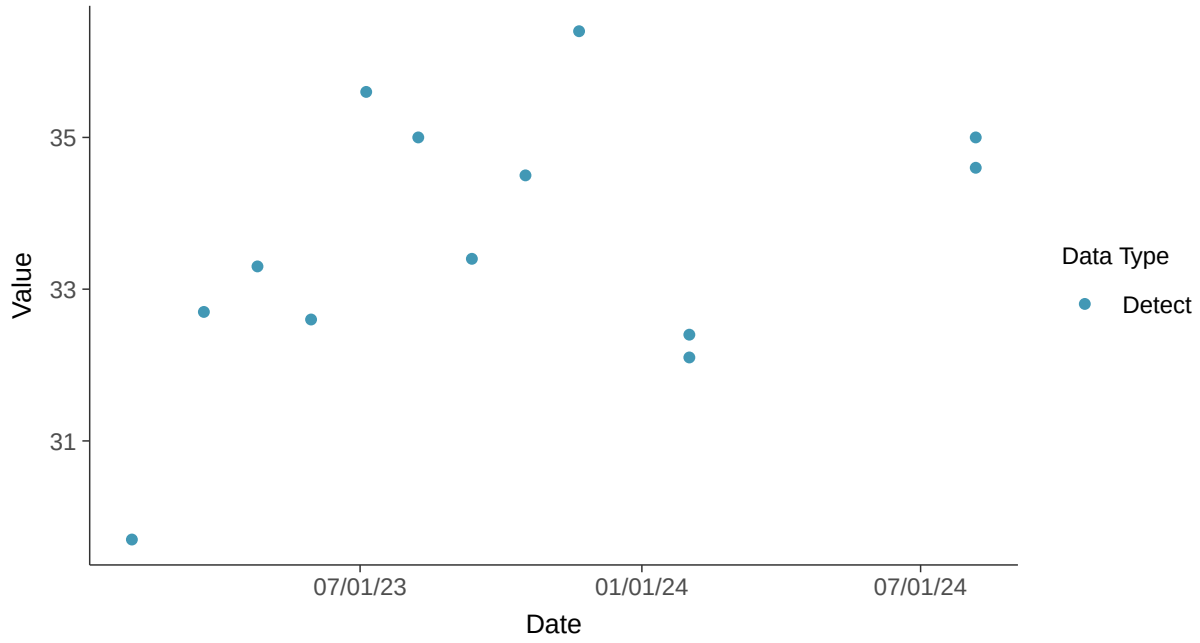


Other: Magnesium, MW-16B

ID: 16B_4_34

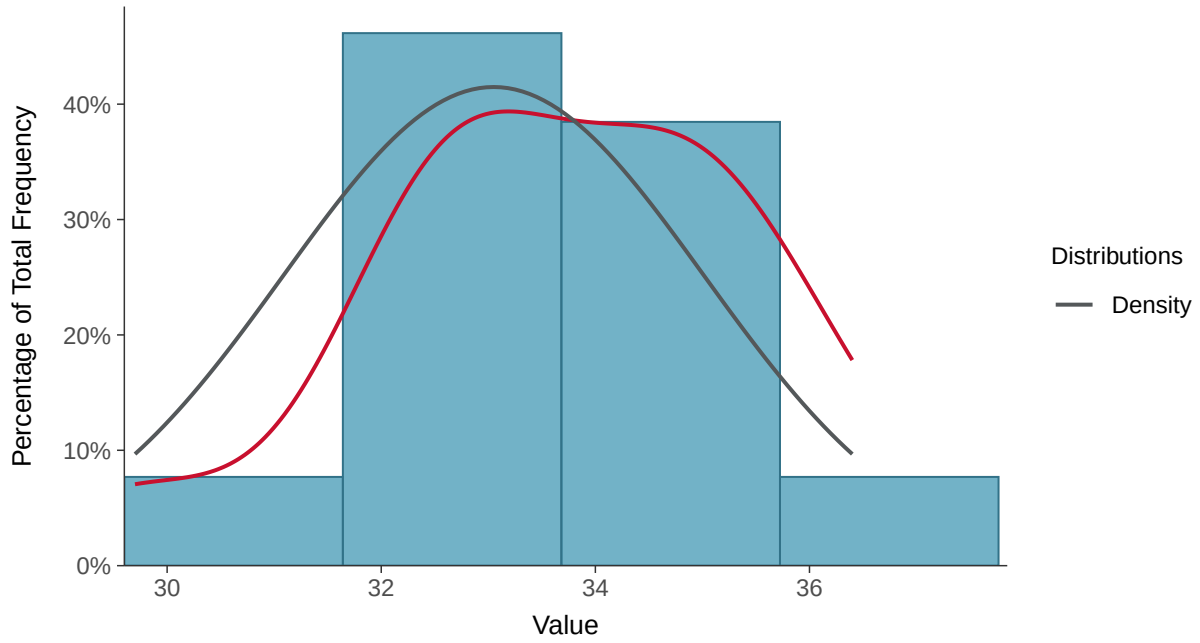
Scatter Plot

Magnesium, MW-16B (mg/L)



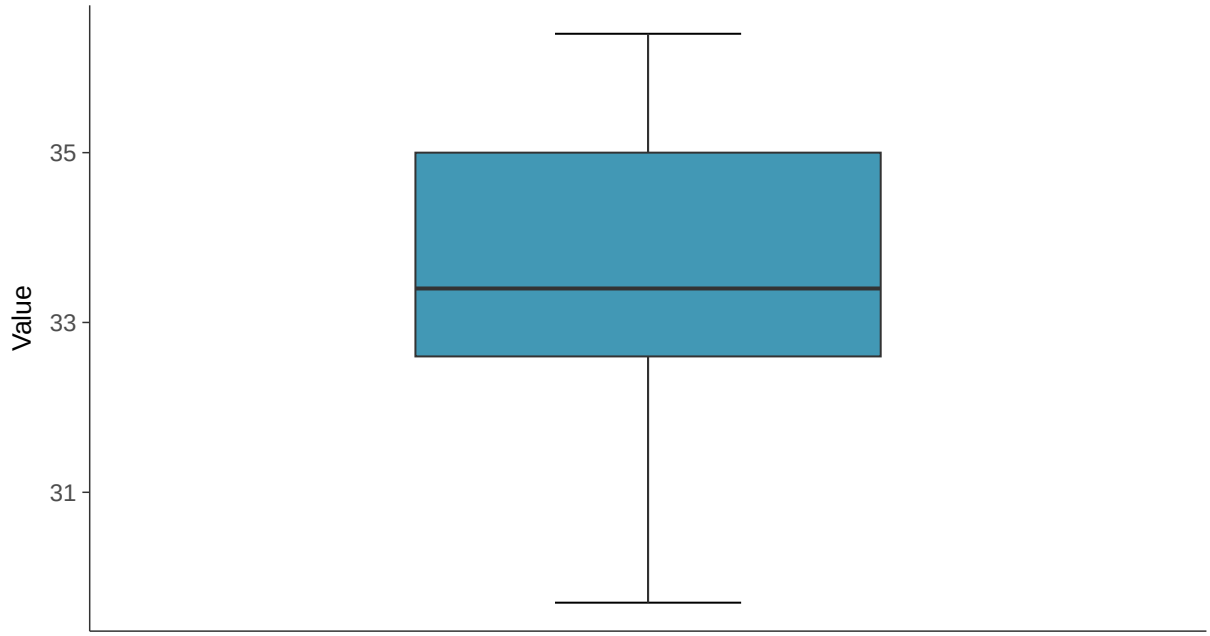
Histogram

Magnesium, MW-16B (mg/L)



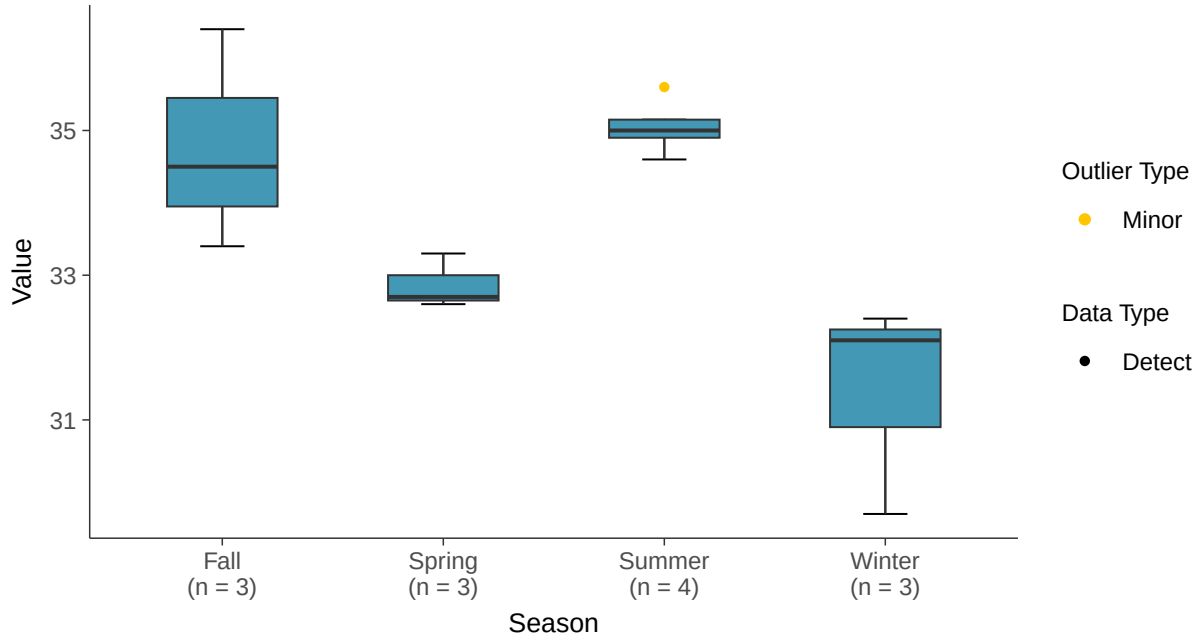
Boxplot

Magnesium, MW-16B (mg/L)



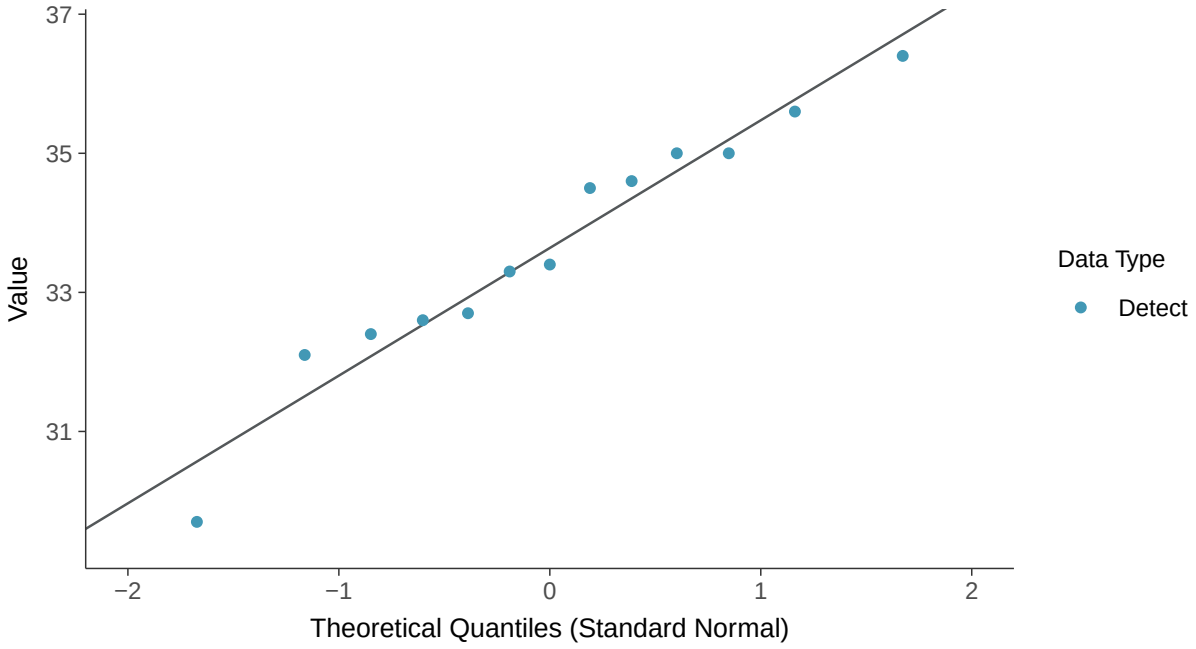
Boxplot by Season

Magnesium, MW-16B (mg/L)



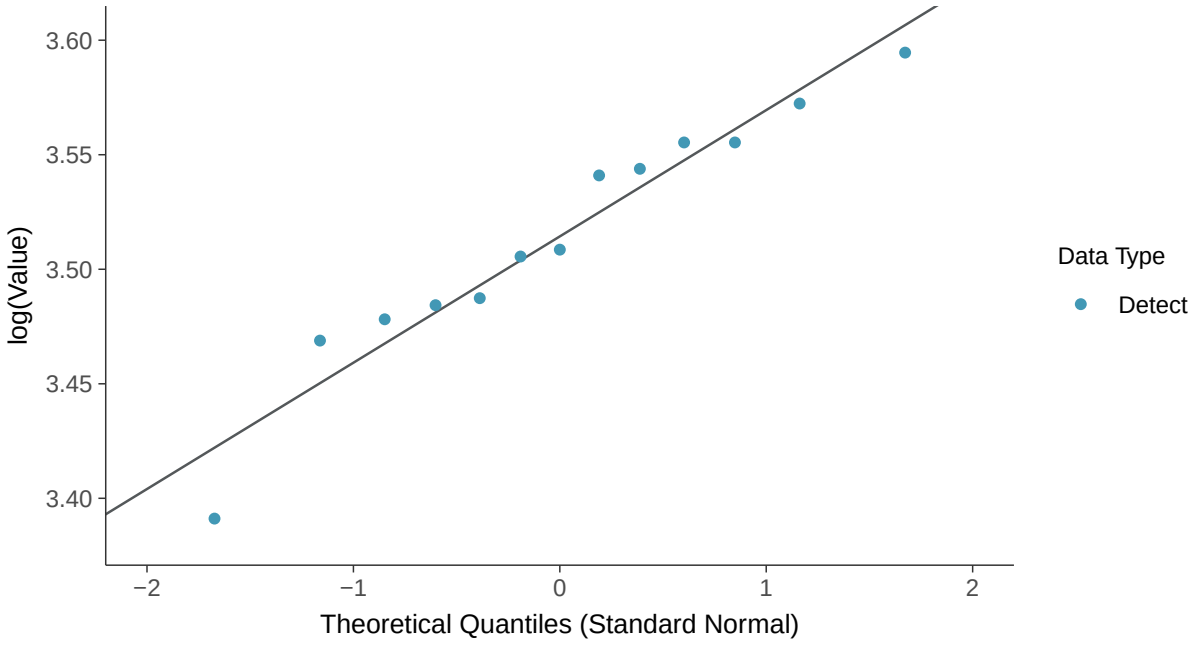
Normal Q-Q plot

Magnesium, MW-16B (mg/L)



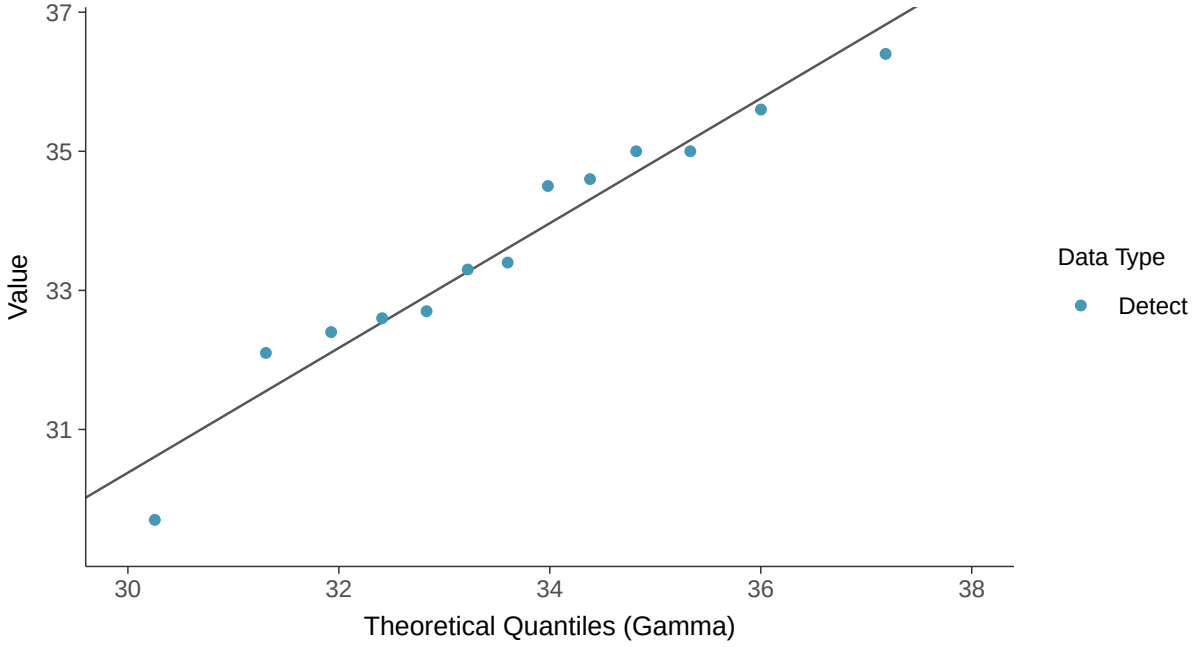
Lognormal Q-Q plot

Magnesium, MW-16B (mg/L)



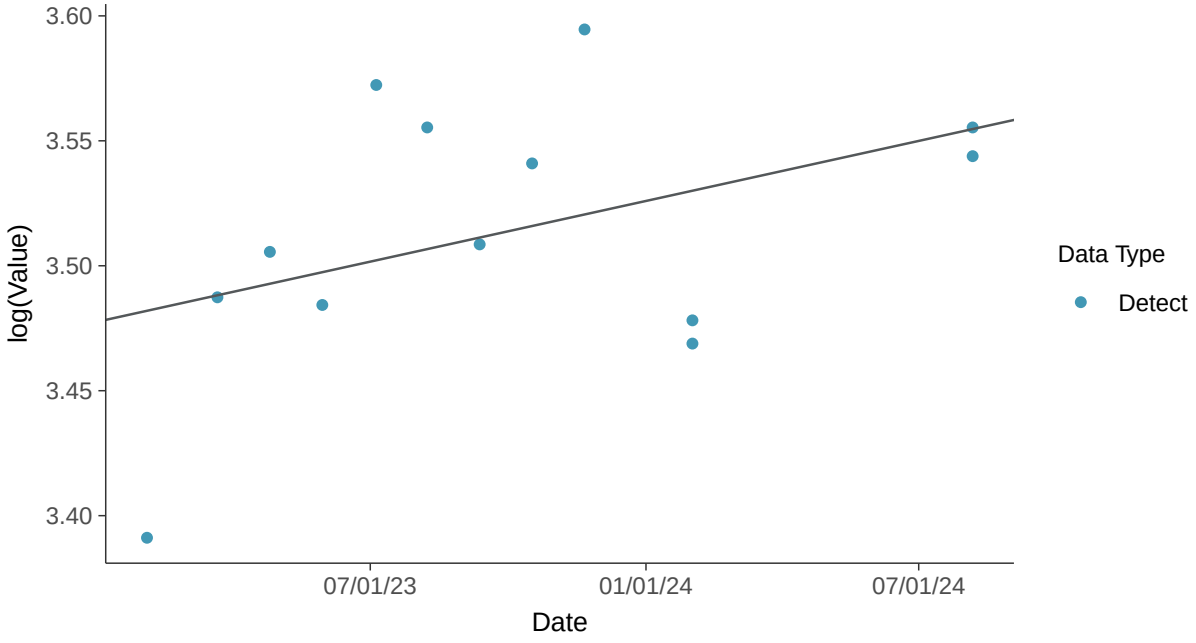
Gamma Q-Q plot

Magnesium, MW-16B (mg/L)



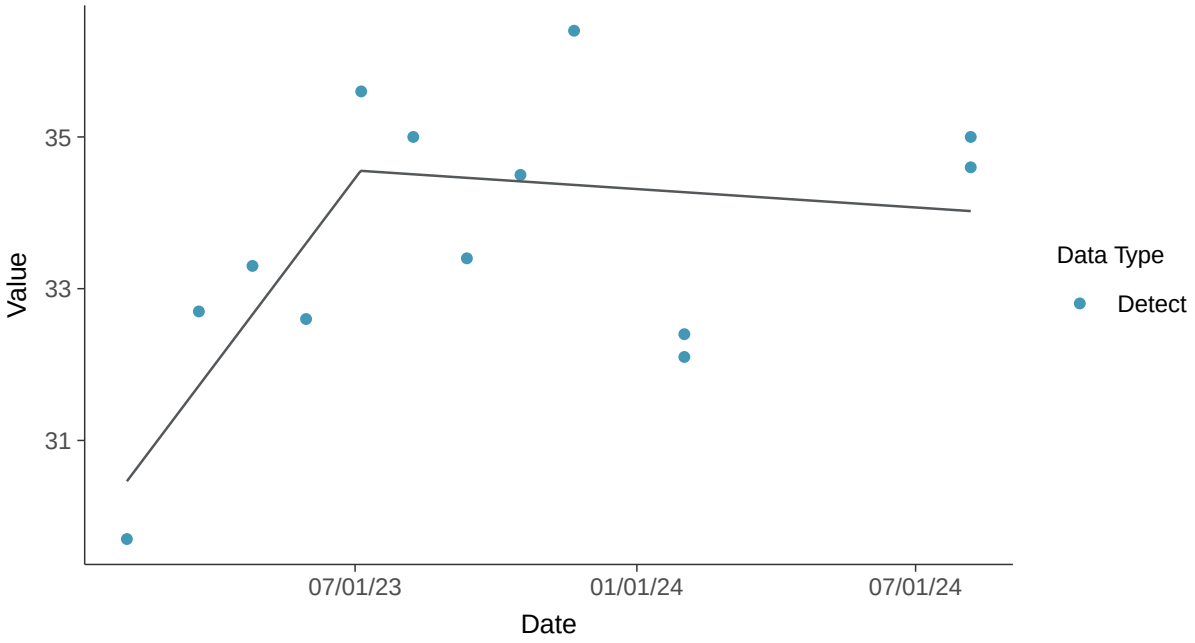
Trend Regression: Lognormal MLE

Magnesium, MW-16B (mg/L)



Trend Regression: Piecewise Linear-Linear

Magnesium, MW-16B (mg/L)

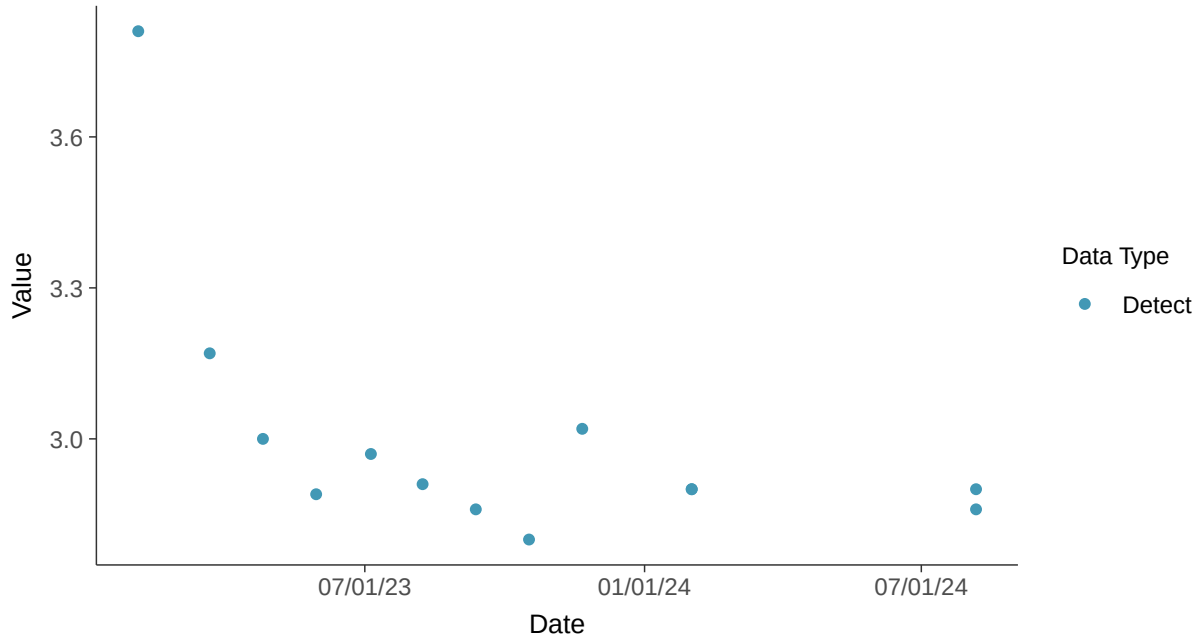


Other: Potassium, MW-16B

ID: 16B_4_35

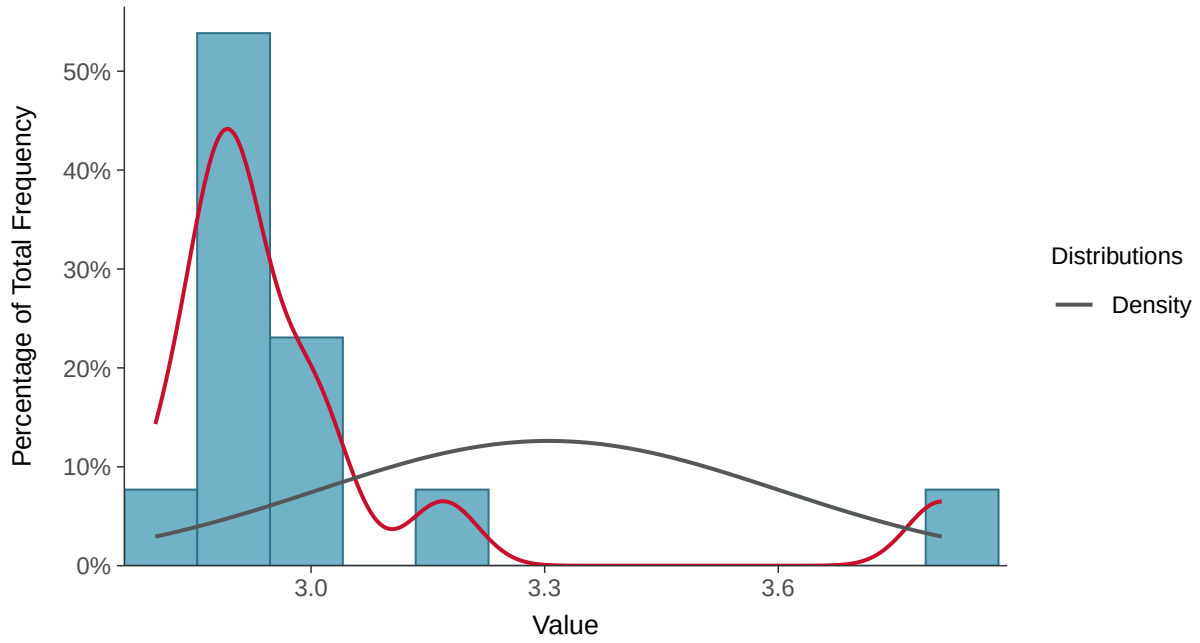
Scatter Plot

Potassium, MW-16B (mg/L)



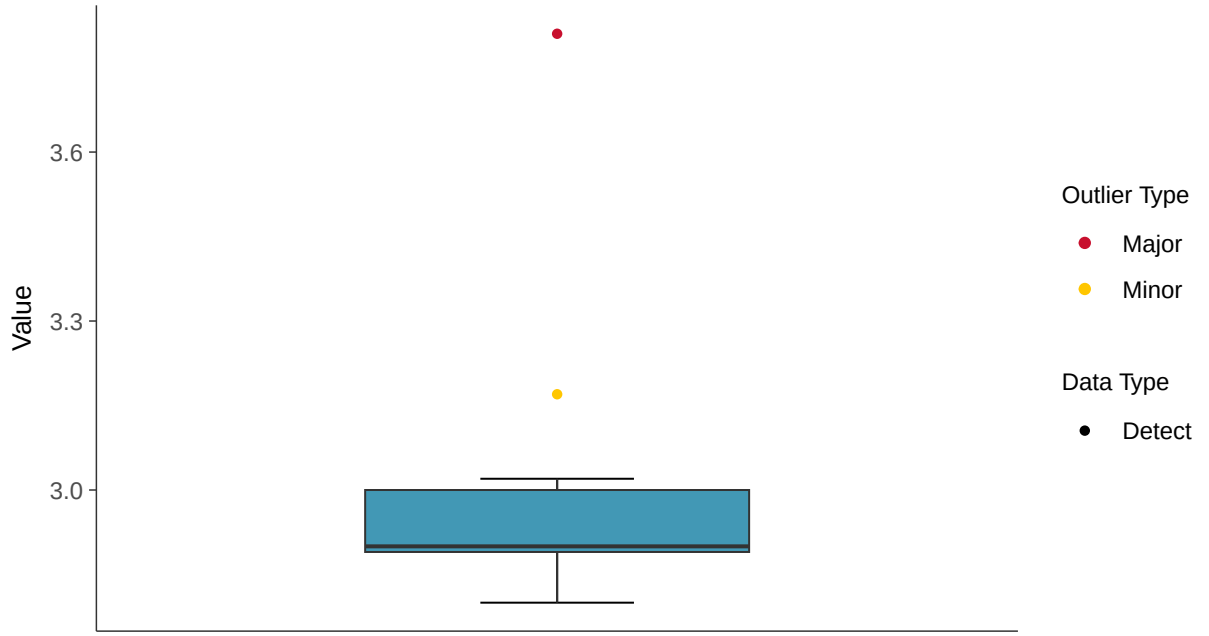
Histogram

Potassium, MW-16B (mg/L)



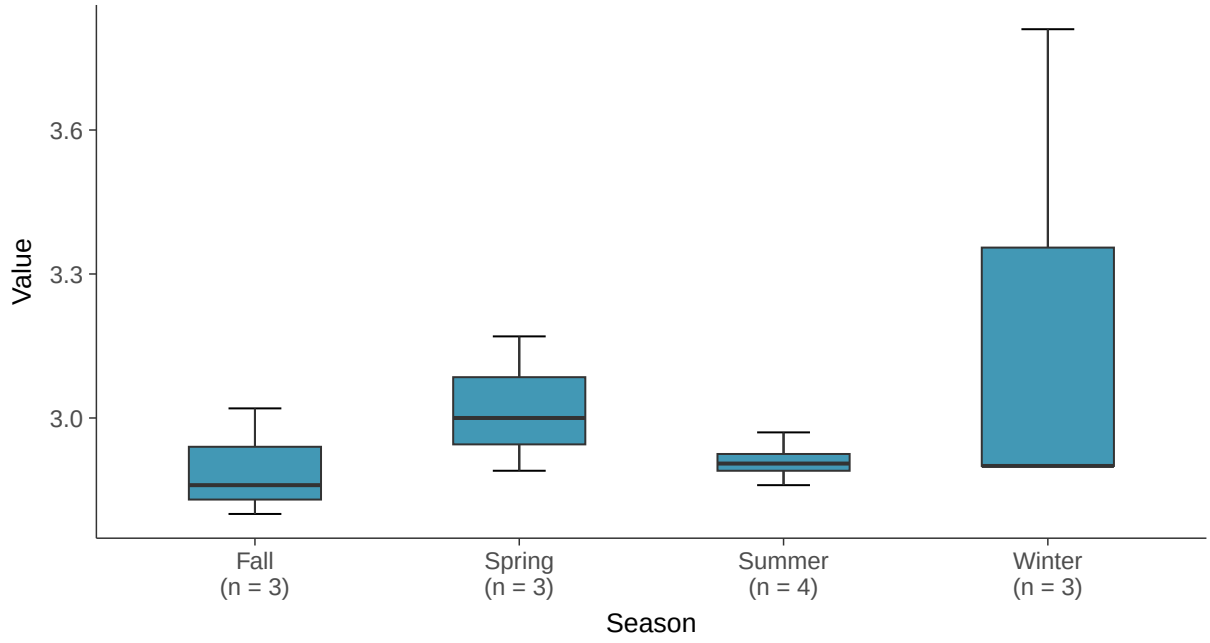
Boxplot

Potassium, MW-16B (mg/L)



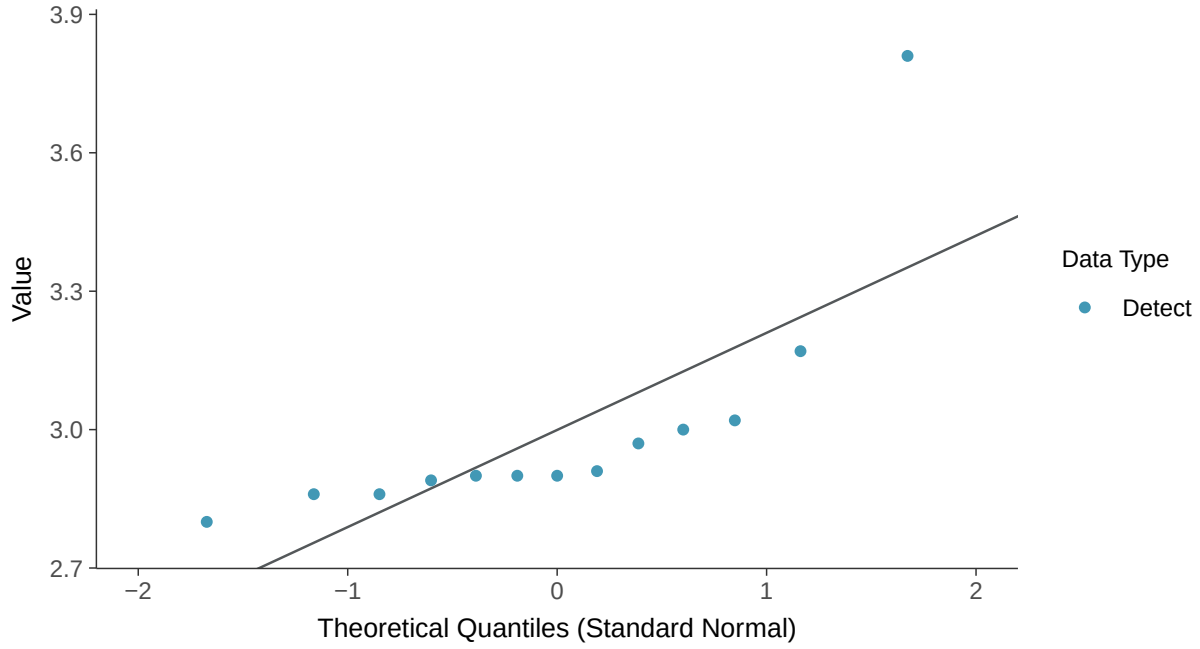
Boxplot by Season

Potassium, MW-16B (mg/L)



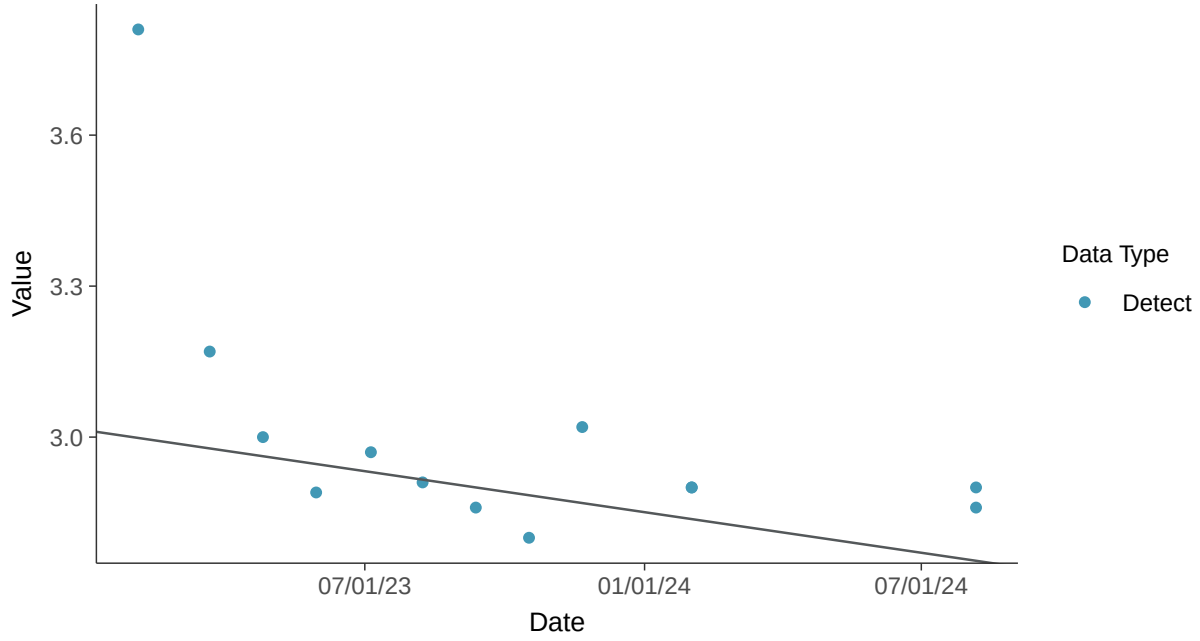
Normal Q-Q plot

Potassium, MW-16B (mg/L)



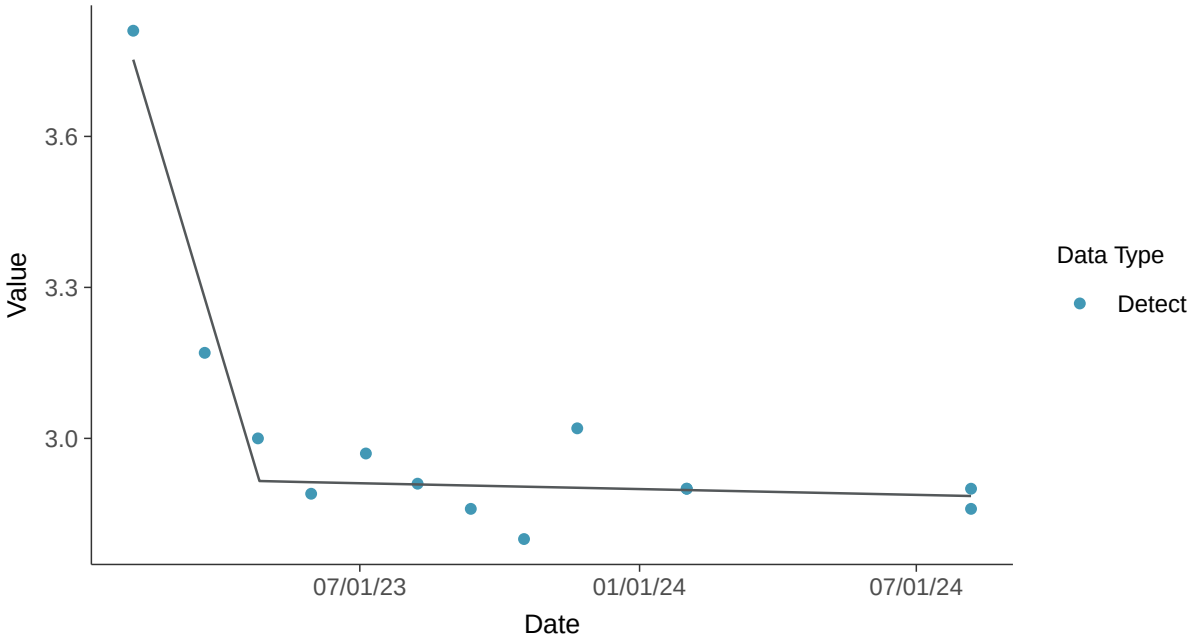
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Potassium, MW-16B (mg/L)



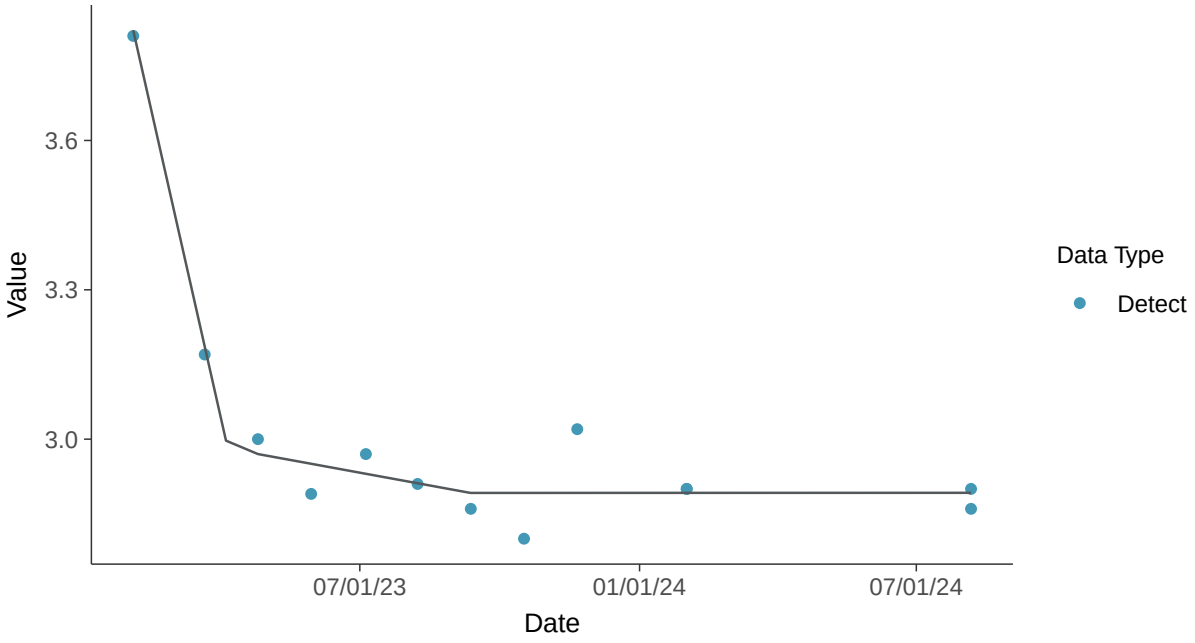
Trend Regression: Piecewise Linear-Linear

Potassium, MW-16B (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Potassium, MW-16B (mg/L)

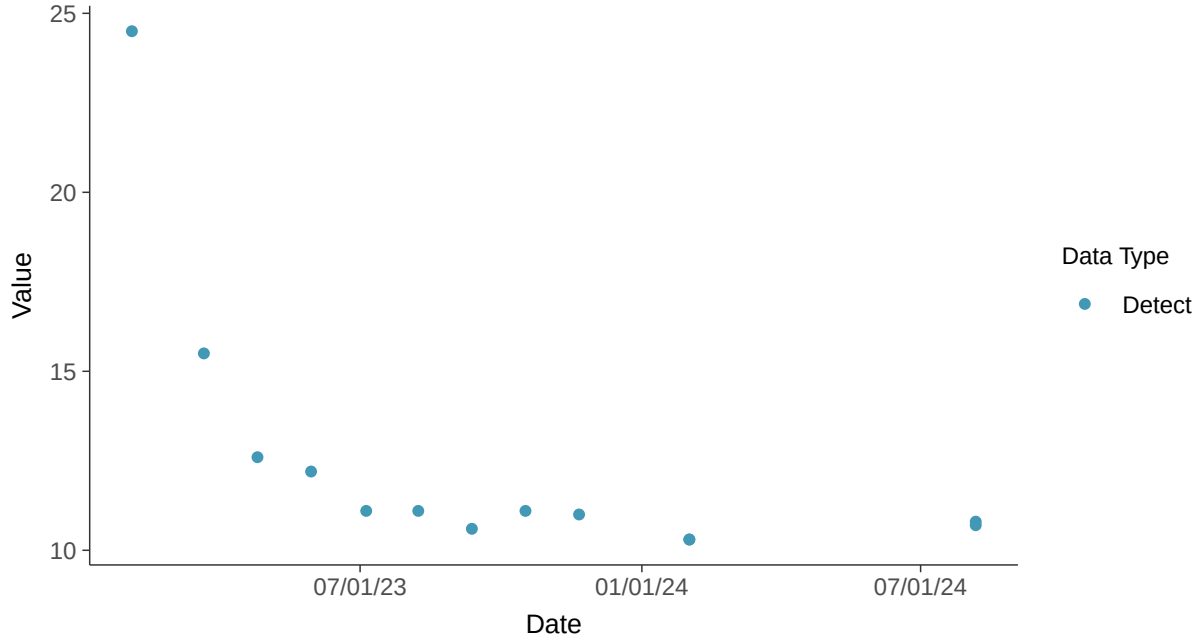


Other: Sodium, MW-16B

ID: 16B_4_36

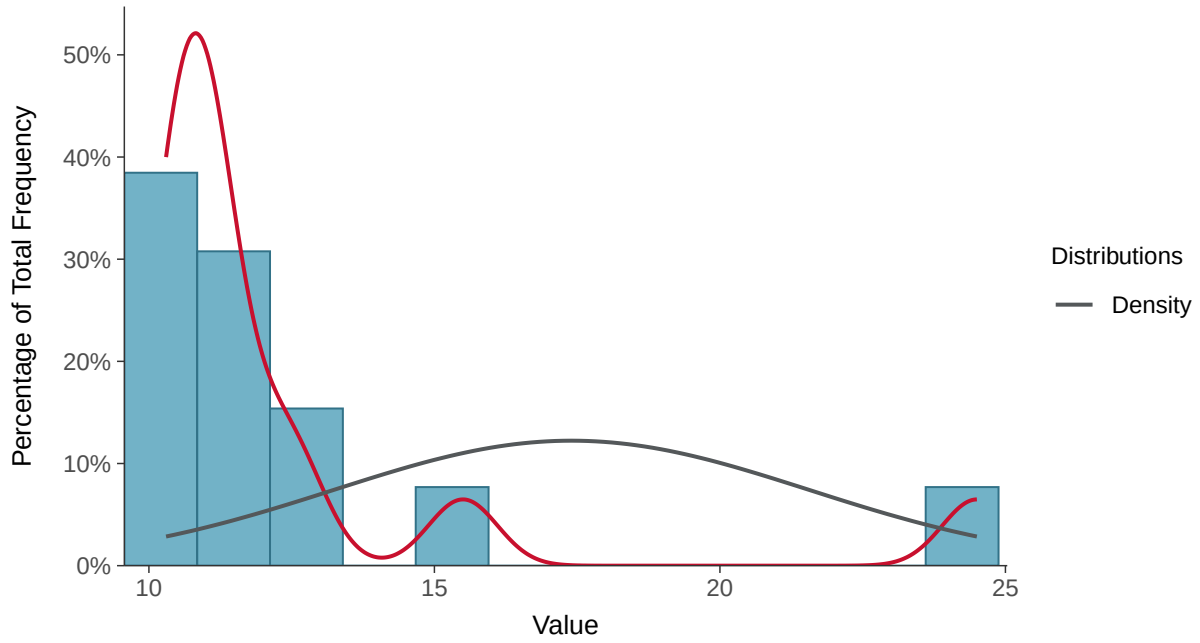
Scatter Plot

Sodium, MW-16B (mg/L)



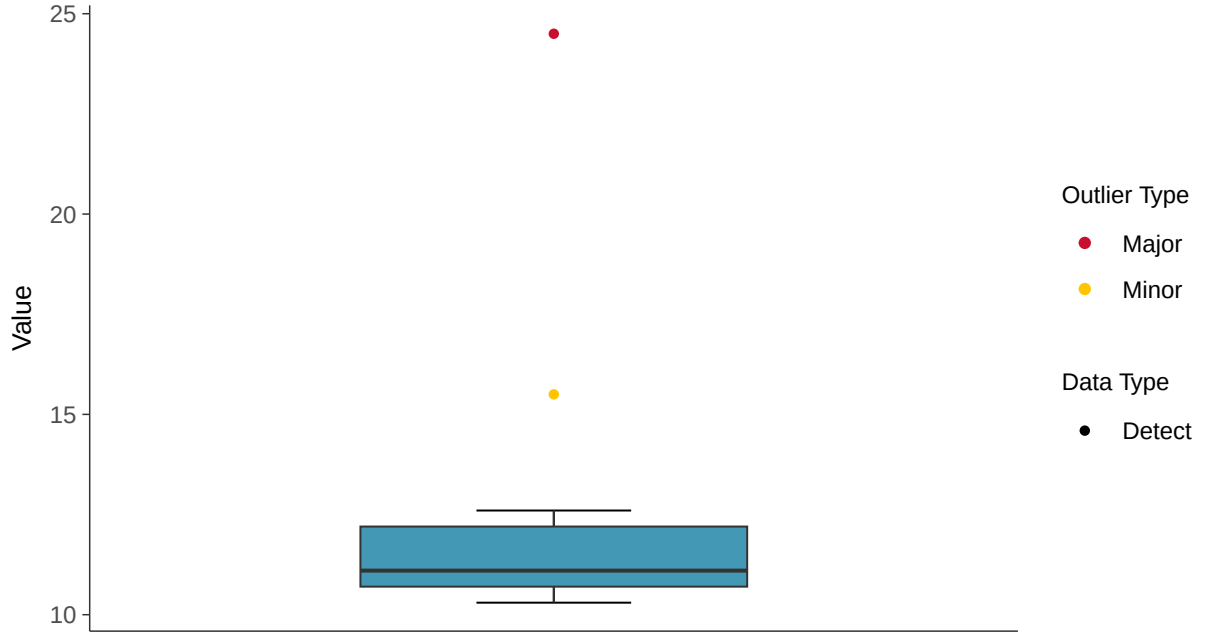
Histogram

Sodium, MW-16B (mg/L)



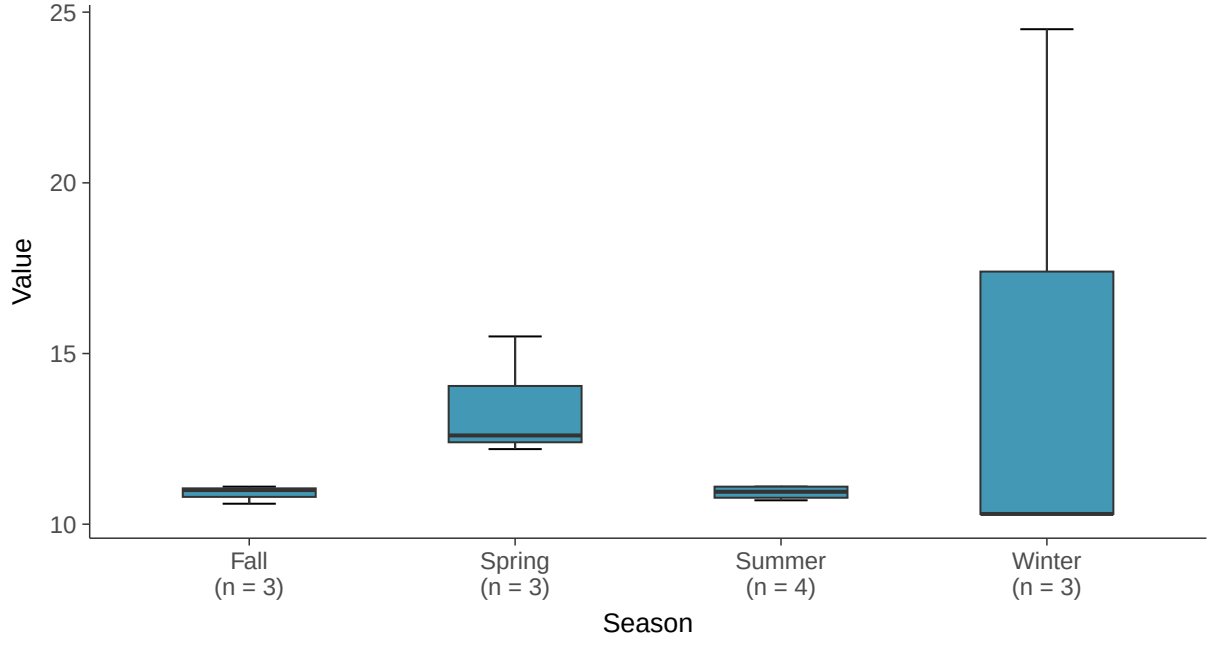
Boxplot

Sodium, MW-16B (mg/L)



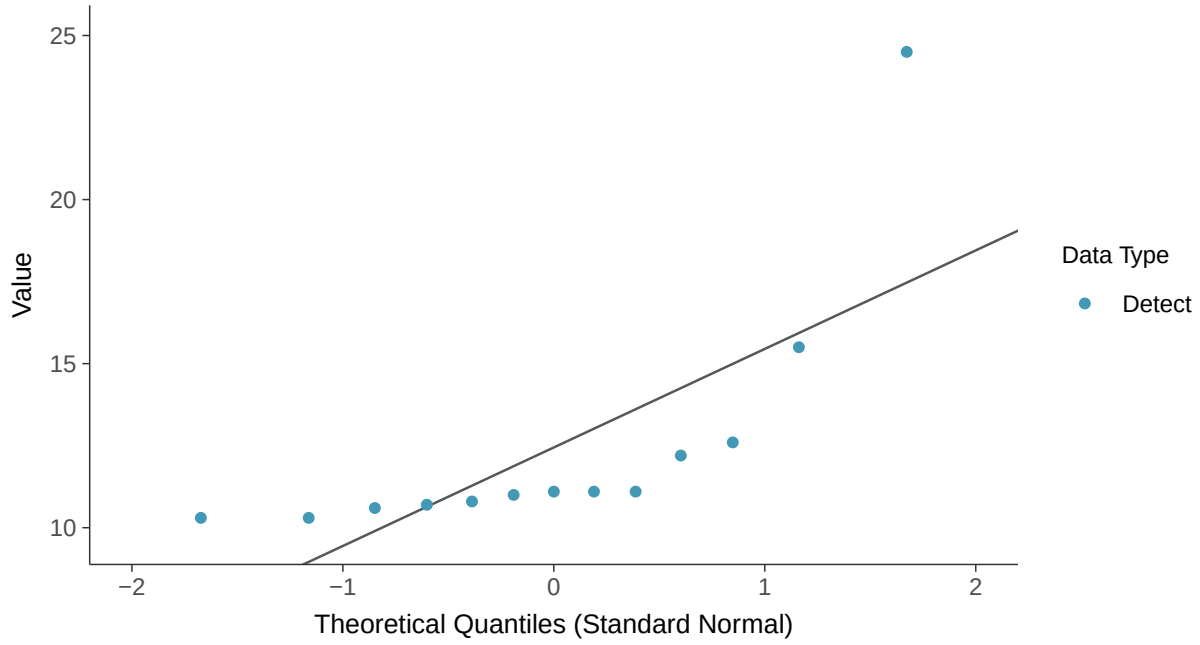
Boxplot by Season

Sodium, MW-16B (mg/L)



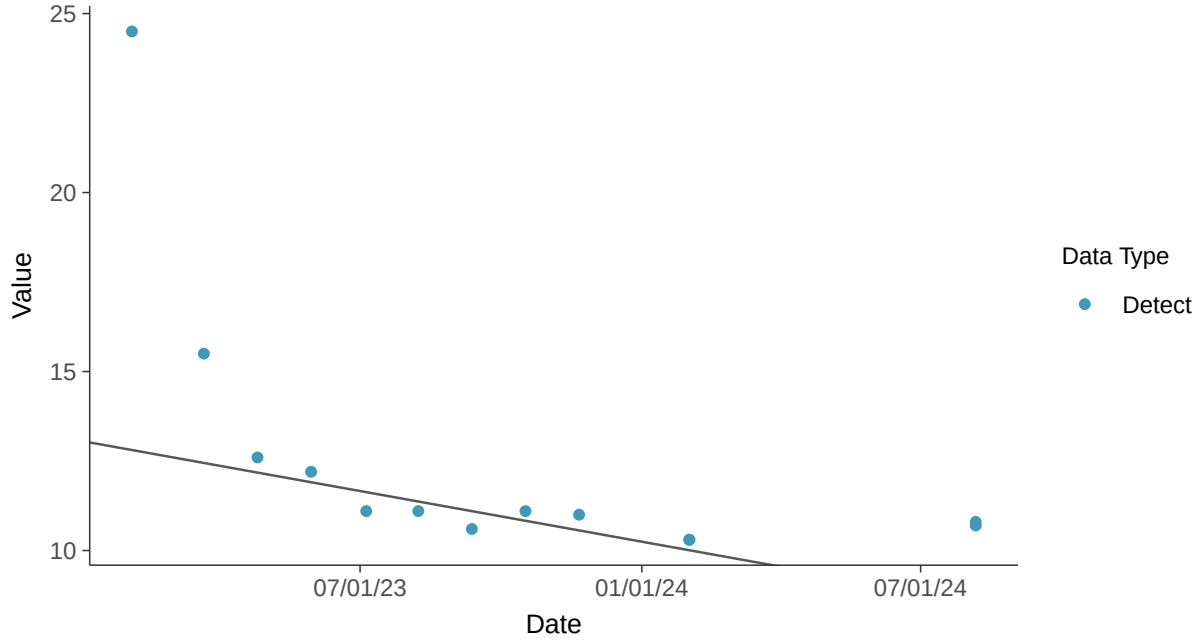
Normal Q-Q plot

Sodium, MW-16B (mg/L)



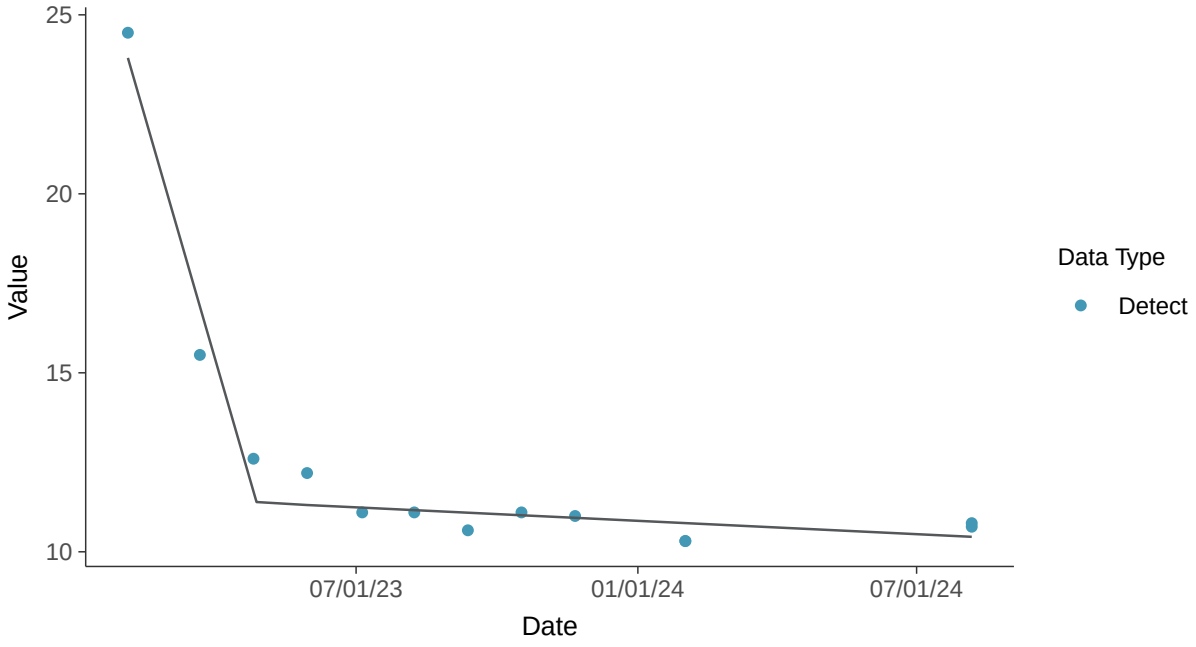
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Sodium, MW-16B (mg/L)



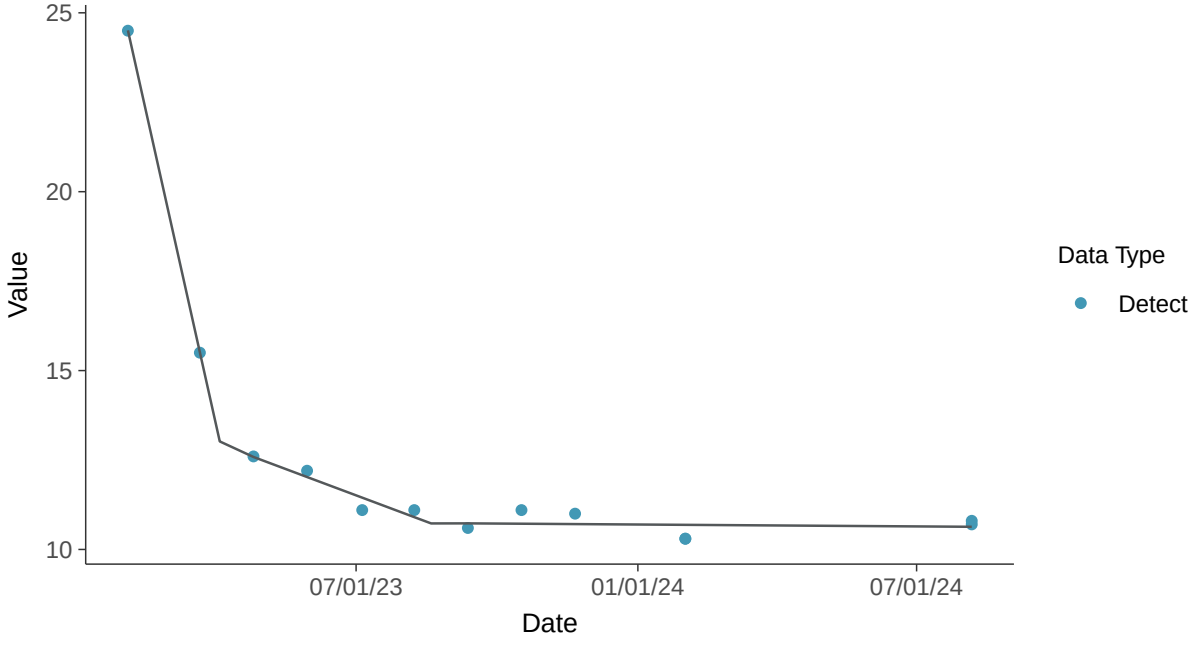
Trend Regression: Piecewise Linear-Linear

Sodium, MW-16B (mg/L)



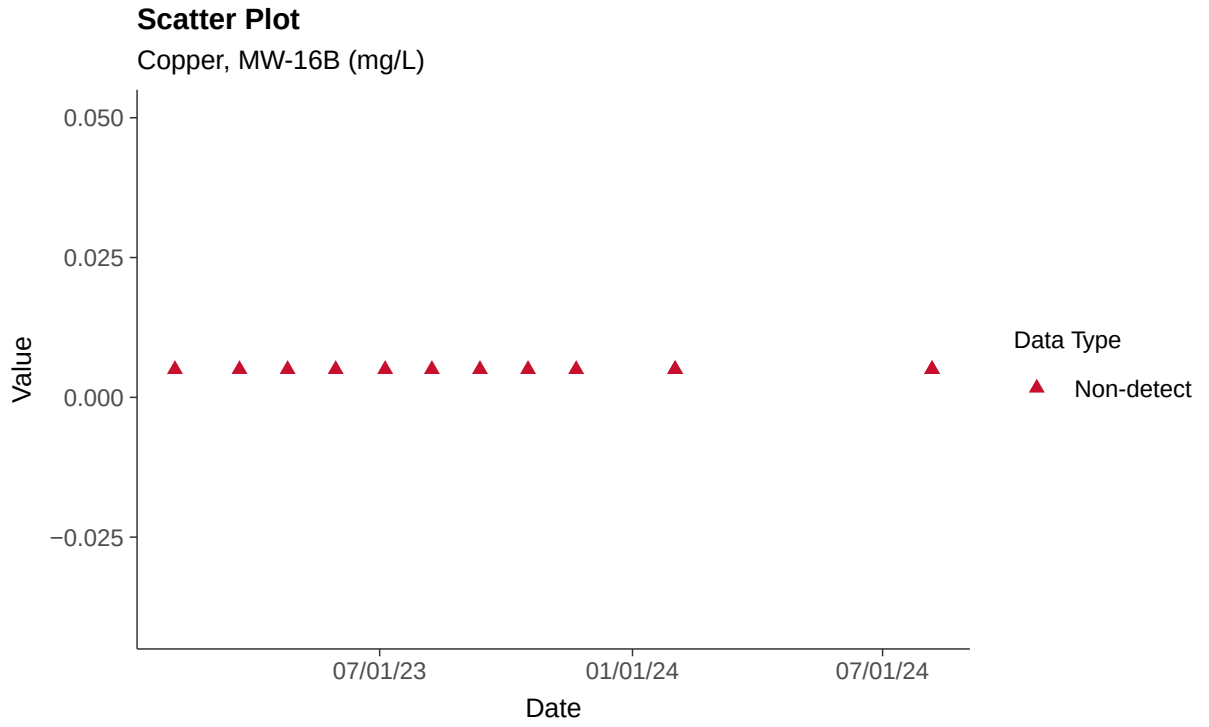
Trend Regression: Piecewise Linear-Linear-Linear

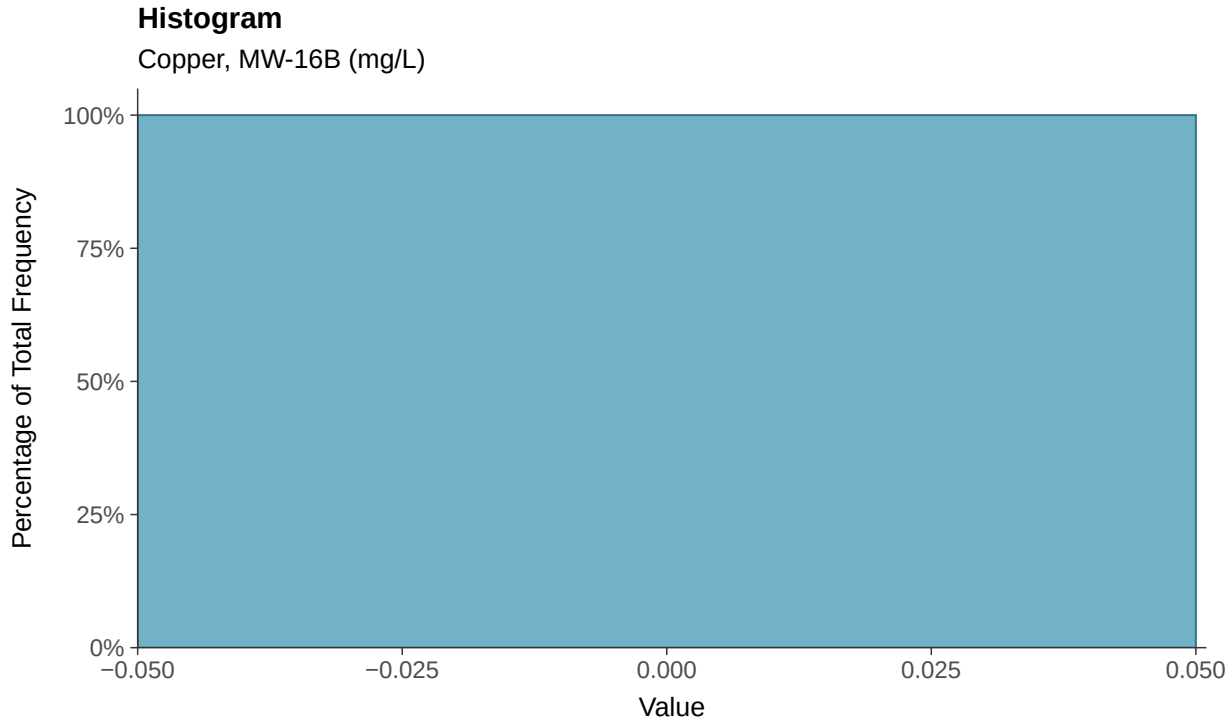
Sodium, MW-16B (mg/L)



Part 115: Copper, MW-16B

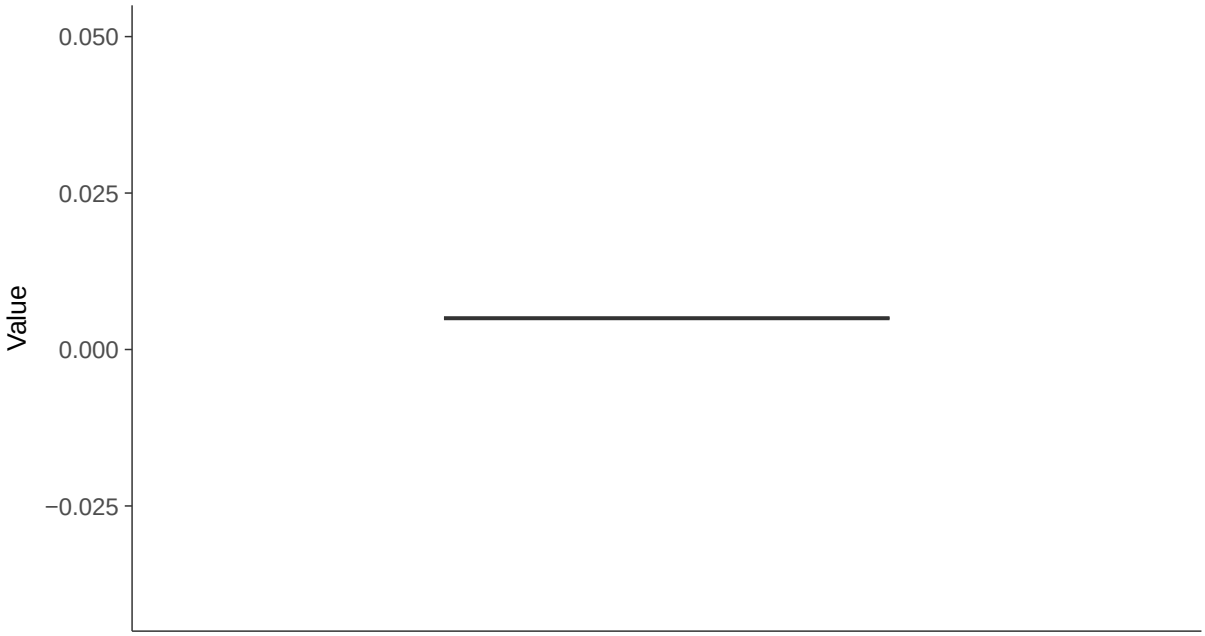
ID: 16B_5_37





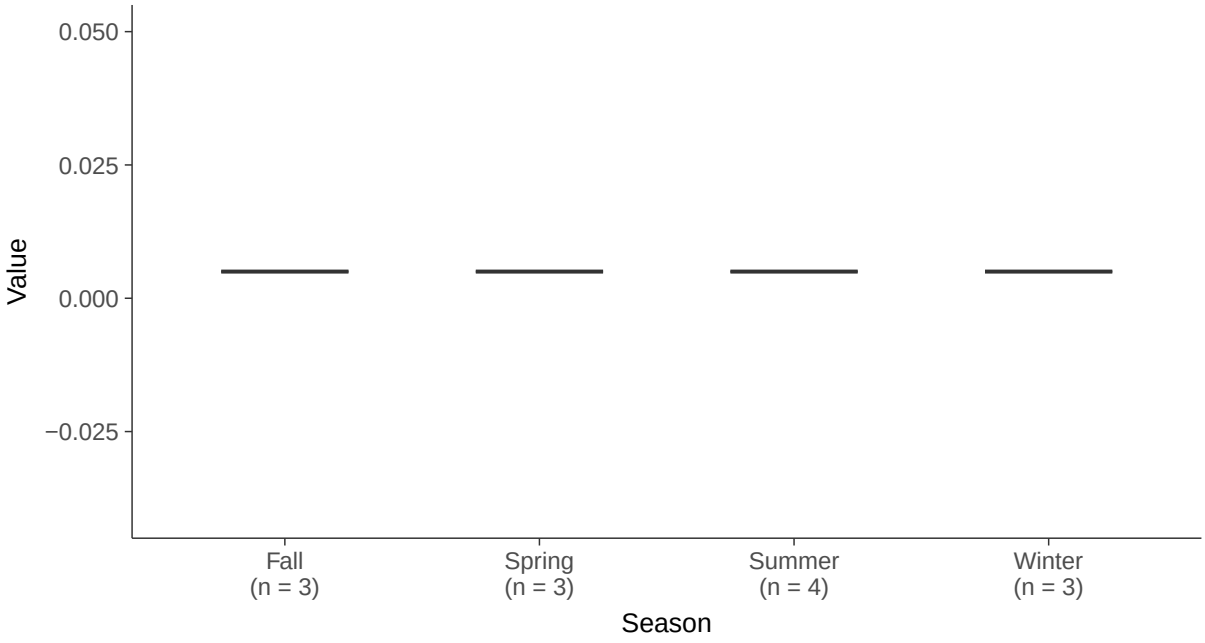
Boxplot

Copper, MW-16B (mg/L)



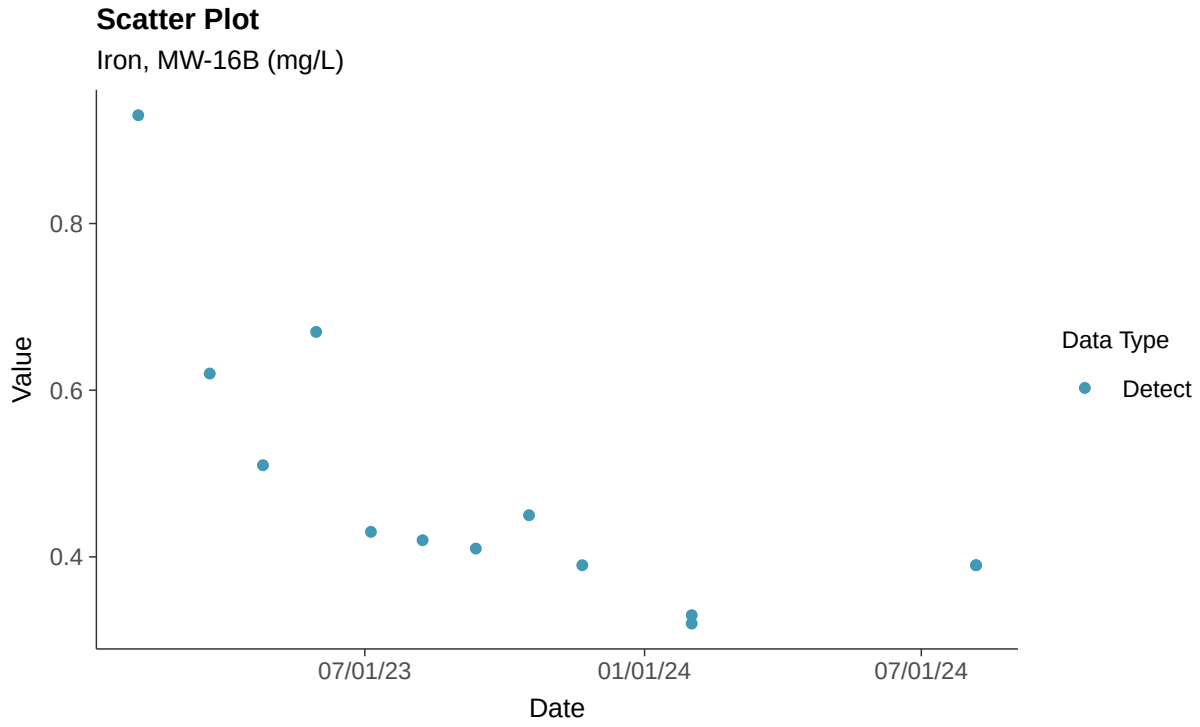
Boxplot by Season

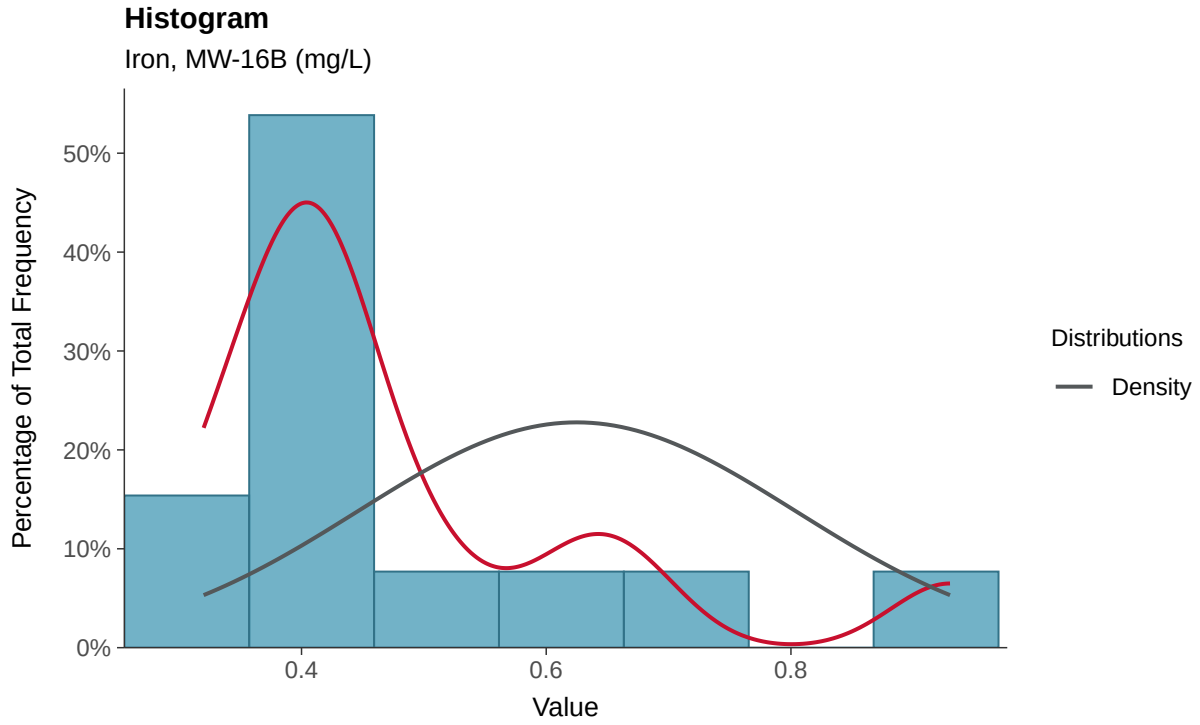
Copper, MW-16B (mg/L)



Part 115: Iron, MW-16B

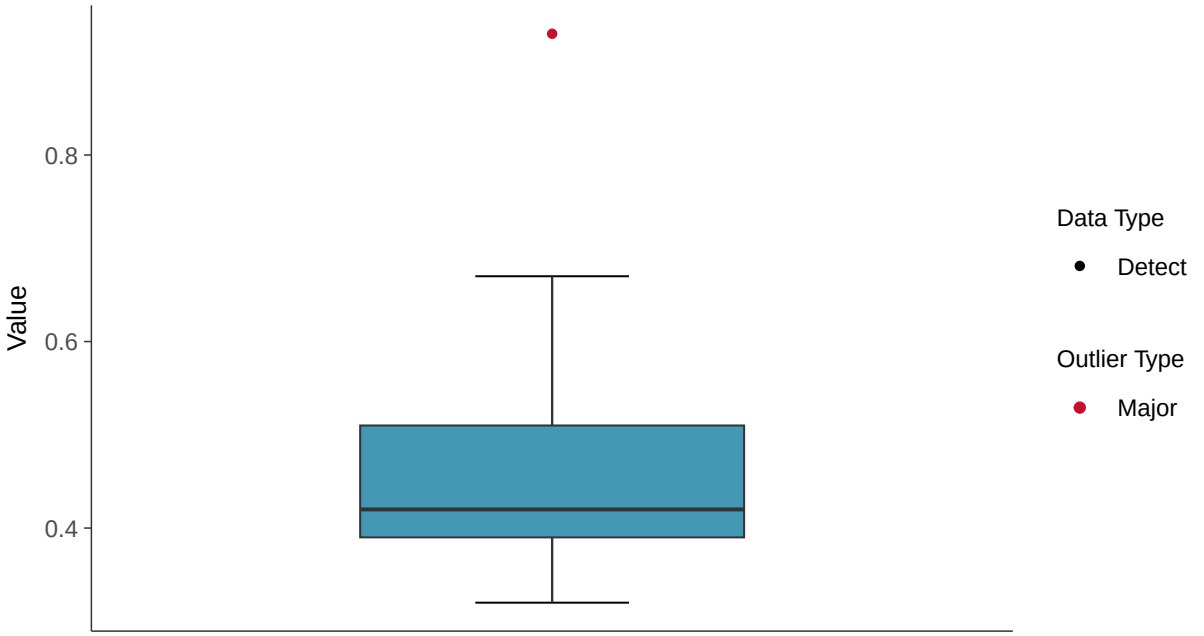
ID: 16B_5_38





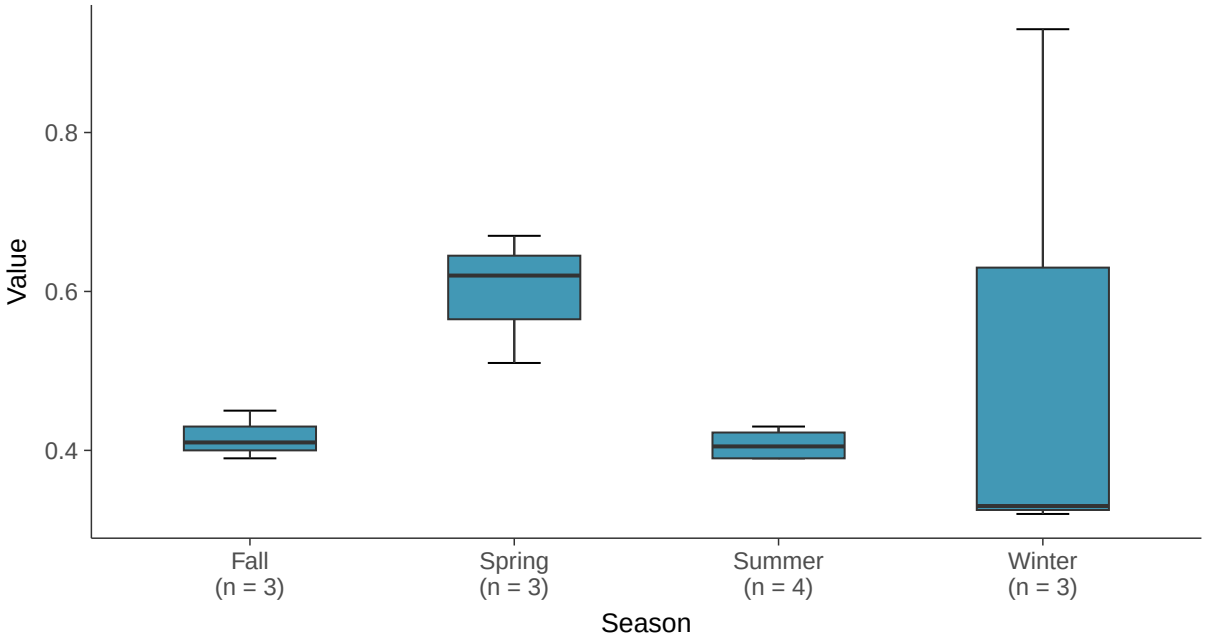
Boxplot

Iron, MW-16B (mg/L)



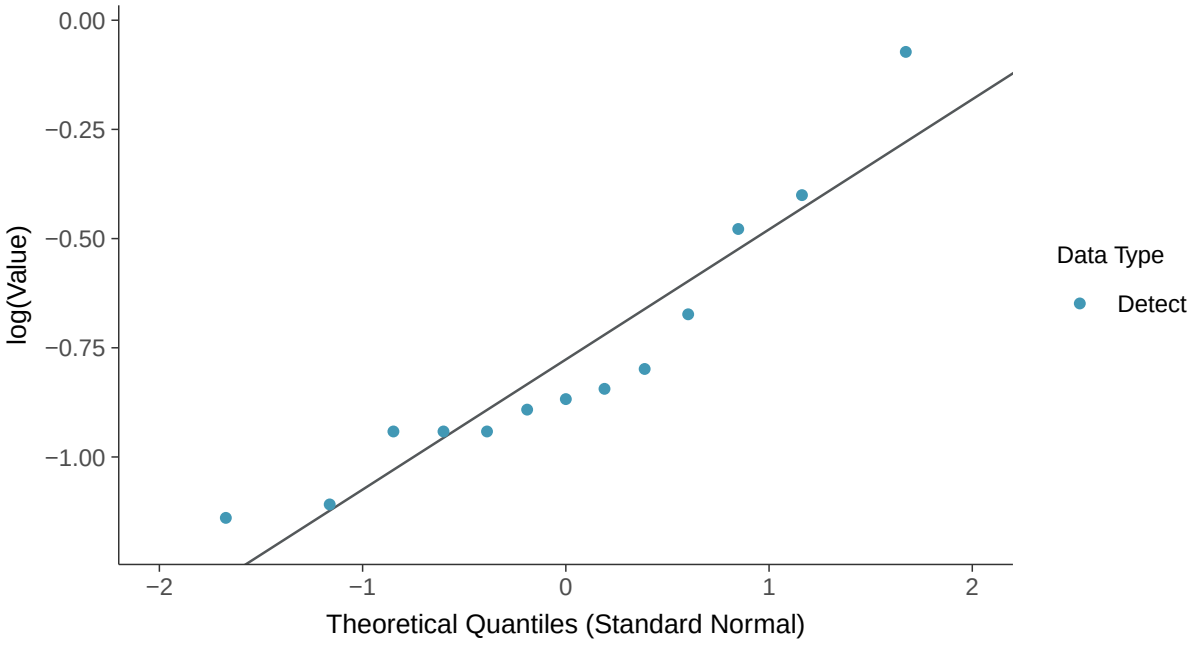
Boxplot by Season

Iron, MW-16B (mg/L)



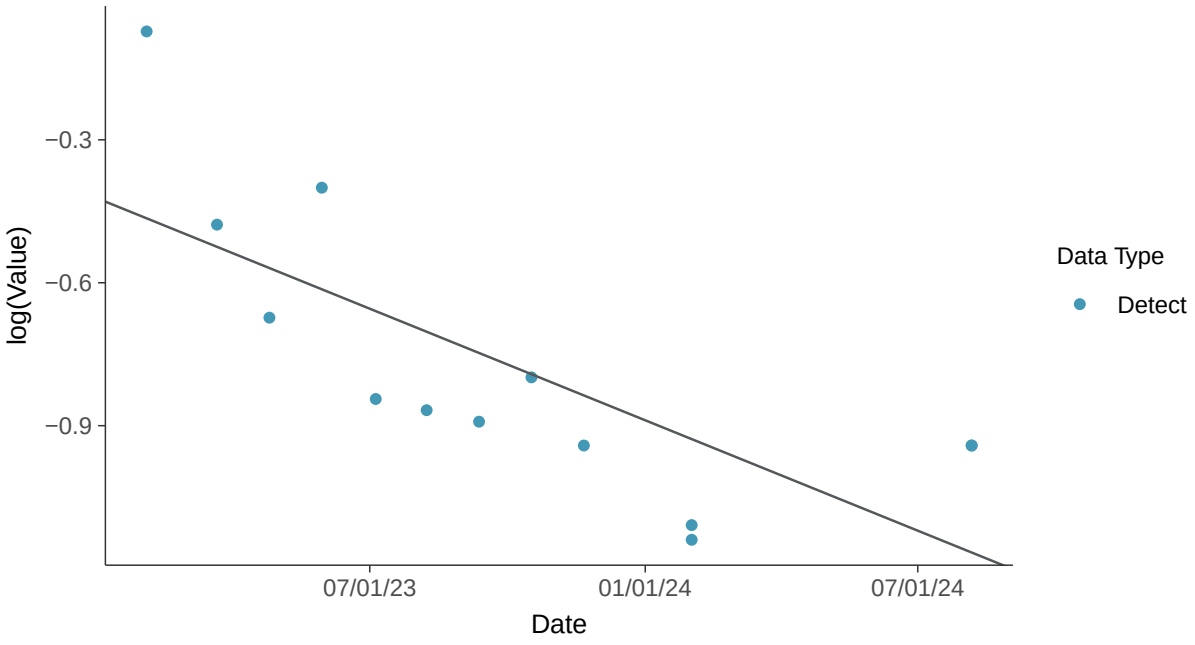
Lognormal Q-Q plot

Iron, MW-16B (mg/L)



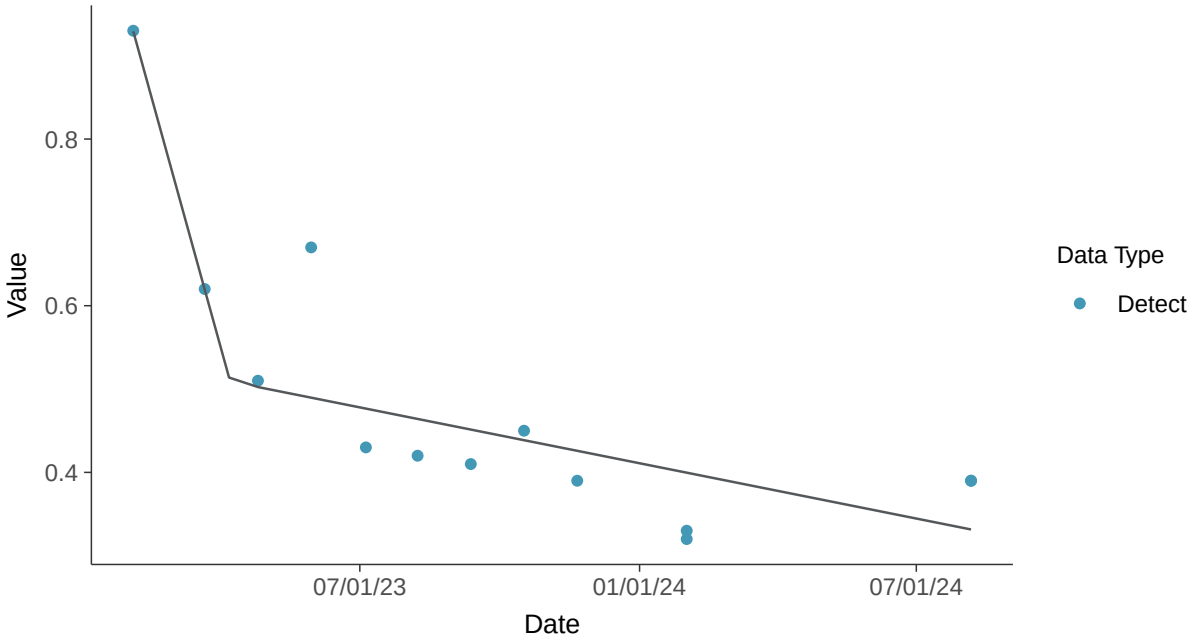
Trend Regression: Lognormal MLE

Iron, MW-16B (mg/L)



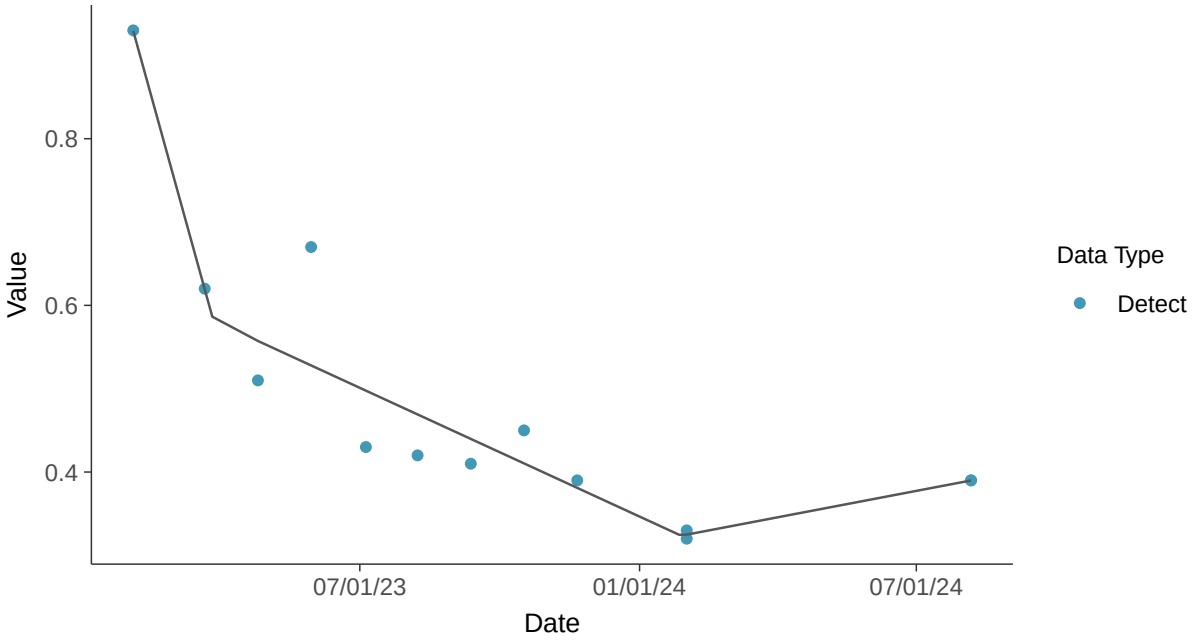
Trend Regression: Piecewise Linear-Linear

Iron, MW-16B (mg/L)



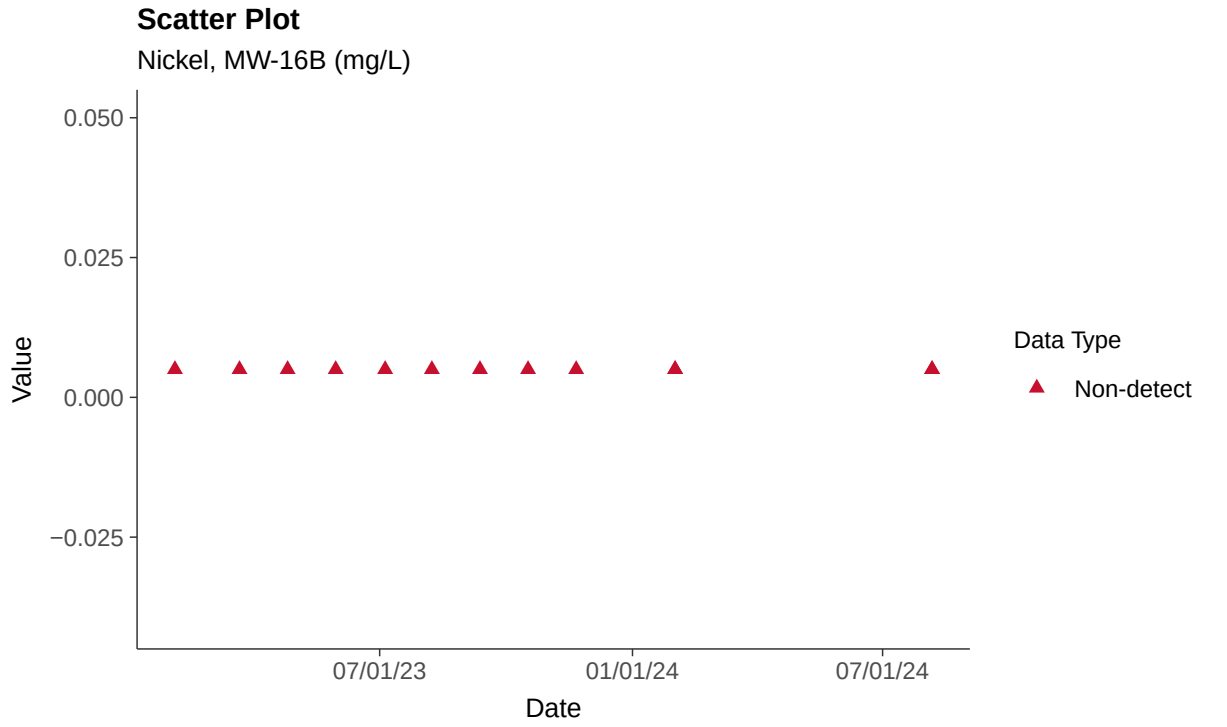
Trend Regression: Piecewise Linear-Linear-Linear

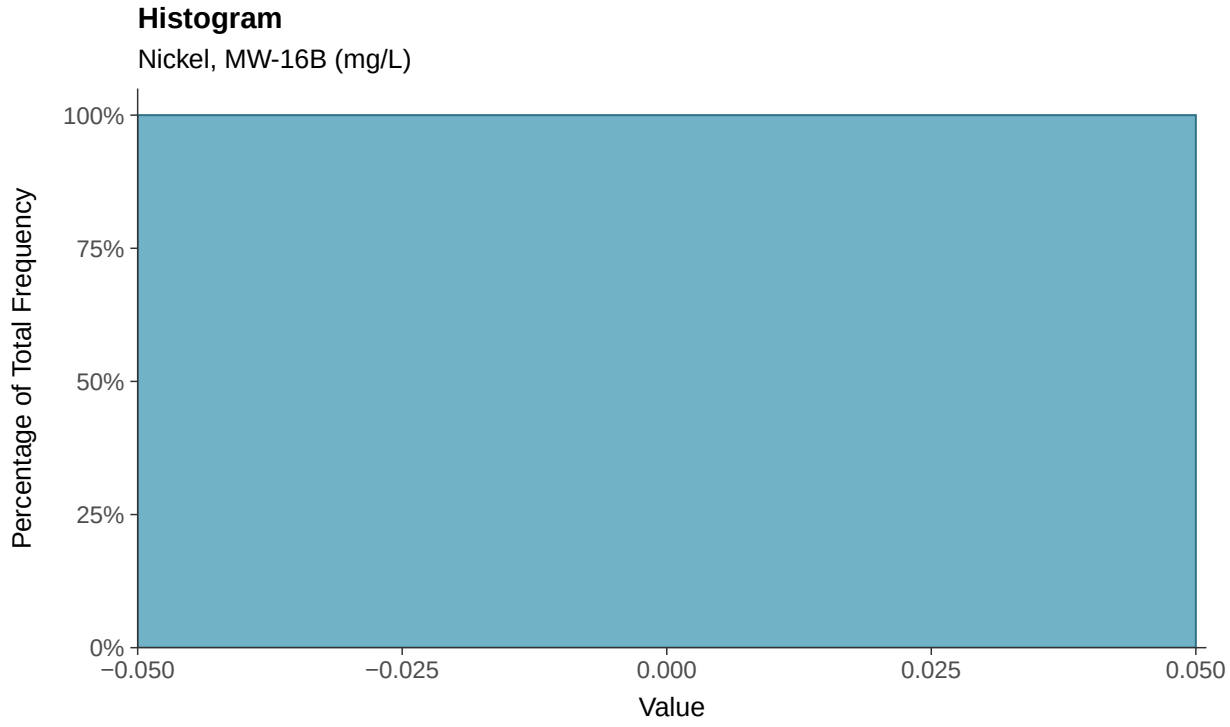
Iron, MW-16B (mg/L)



Part 115: Nickel, MW-16B

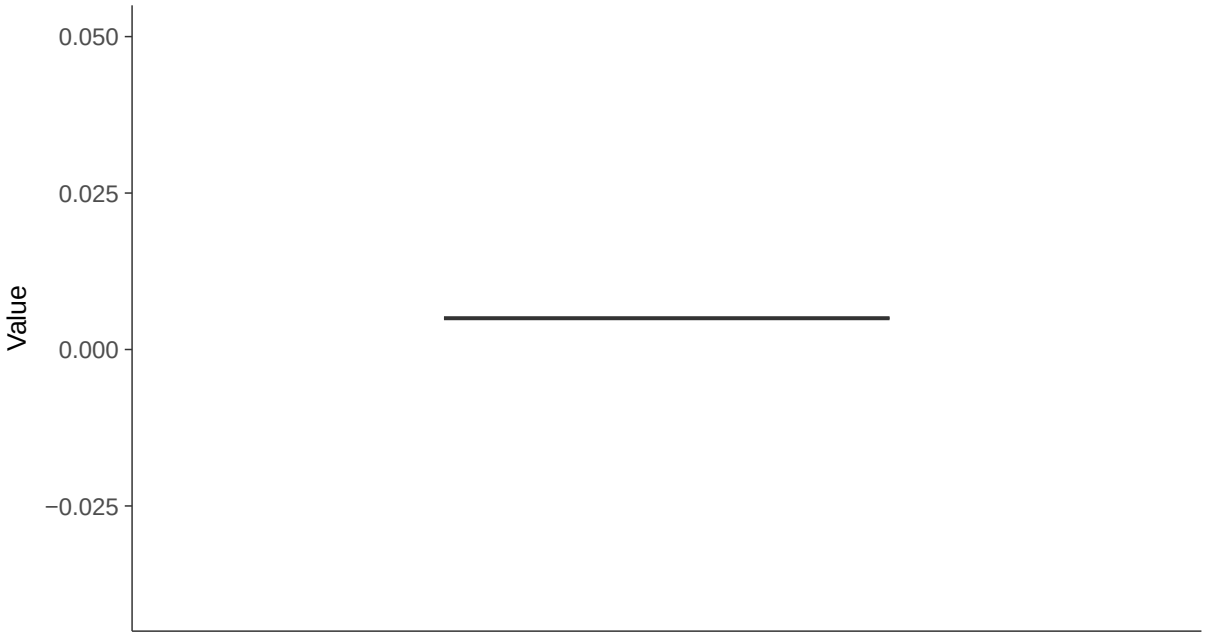
ID: 16B_5_39





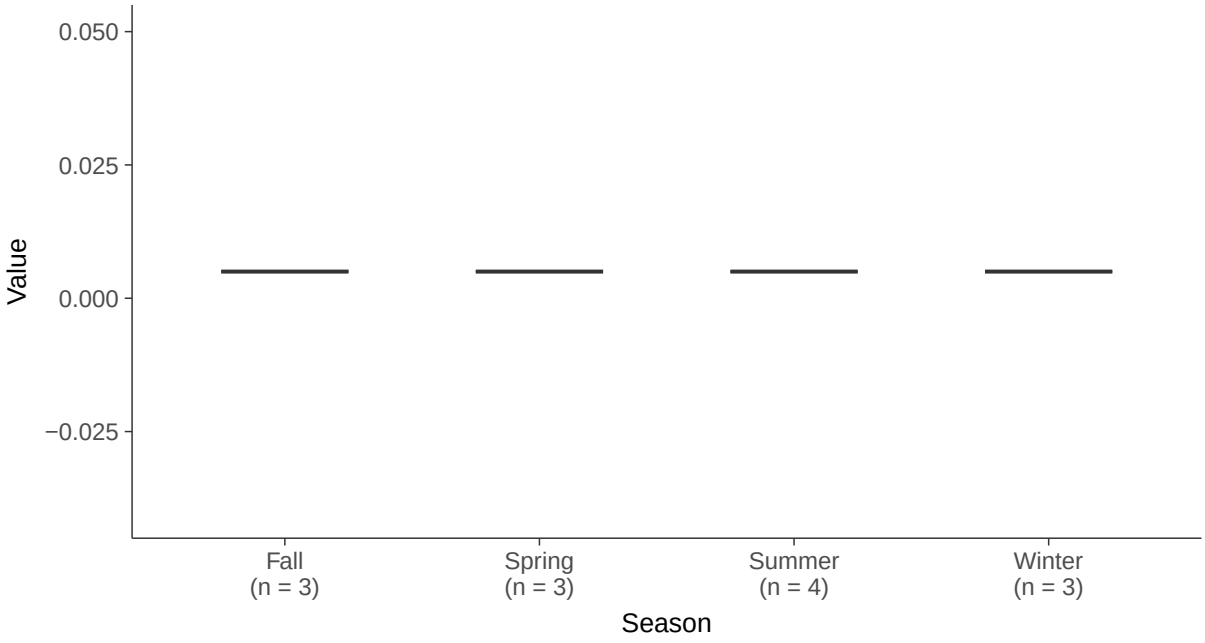
Boxplot

Nickel, MW-16B (mg/L)



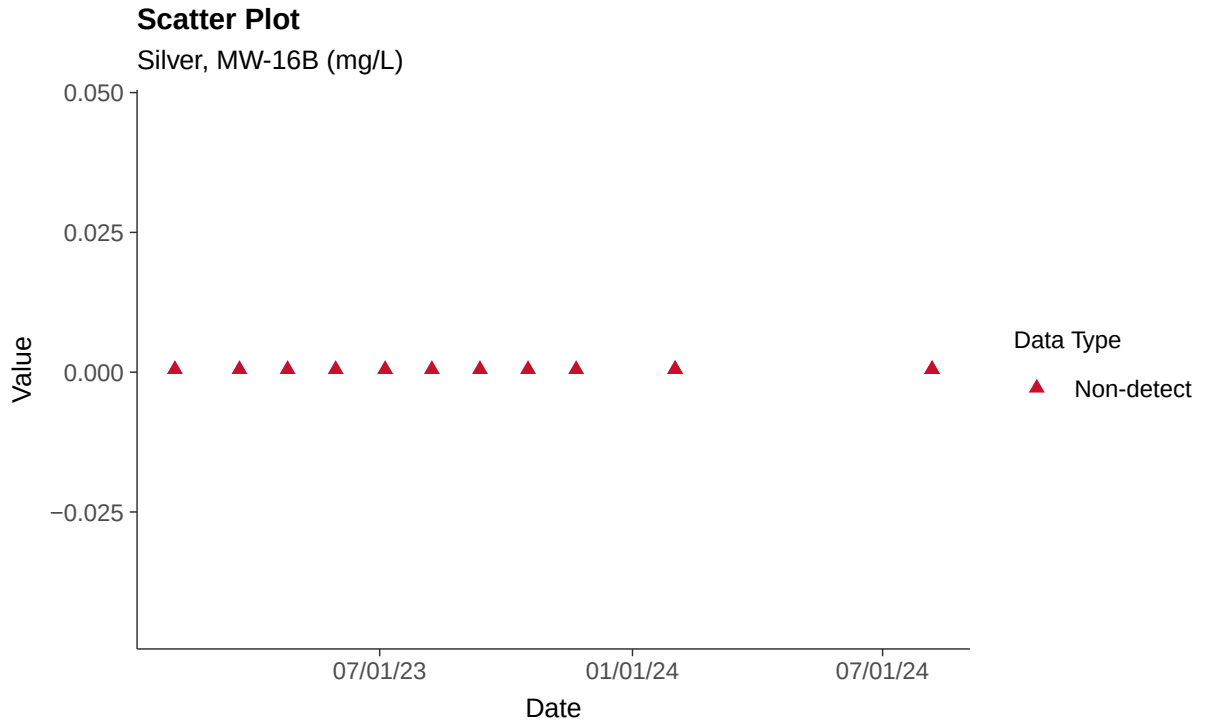
Boxplot by Season

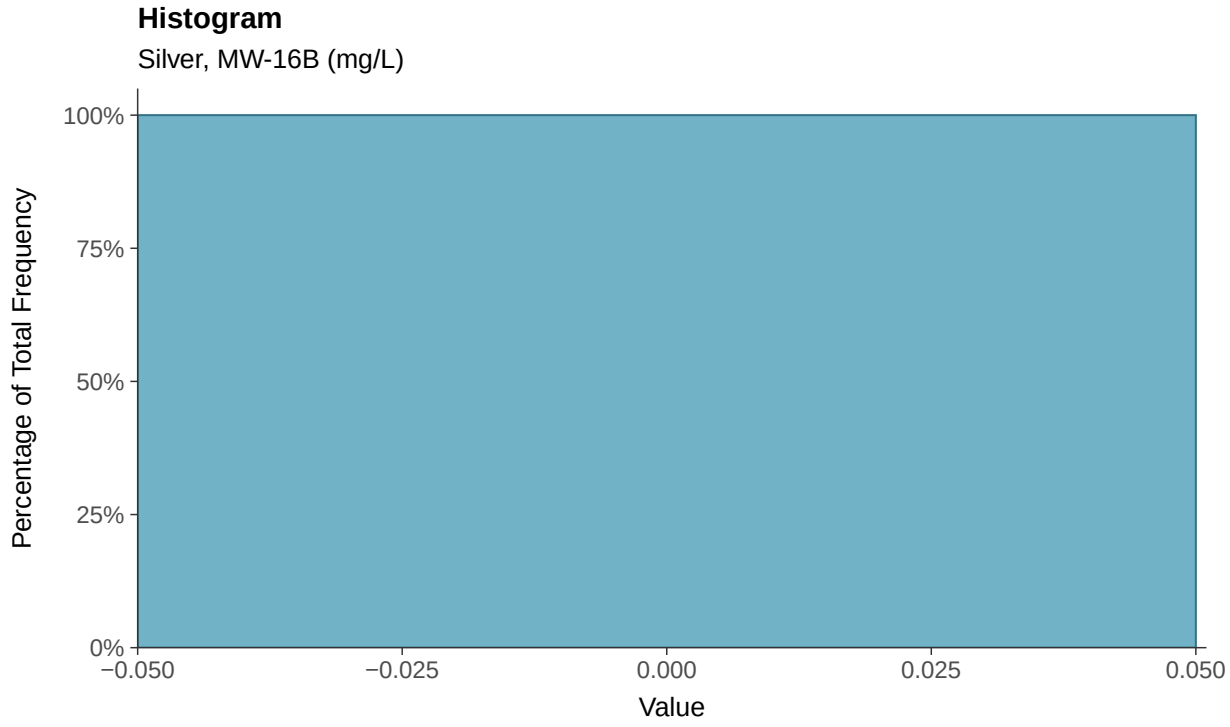
Nickel, MW-16B (mg/L)



Part 115: Silver, MW-16B

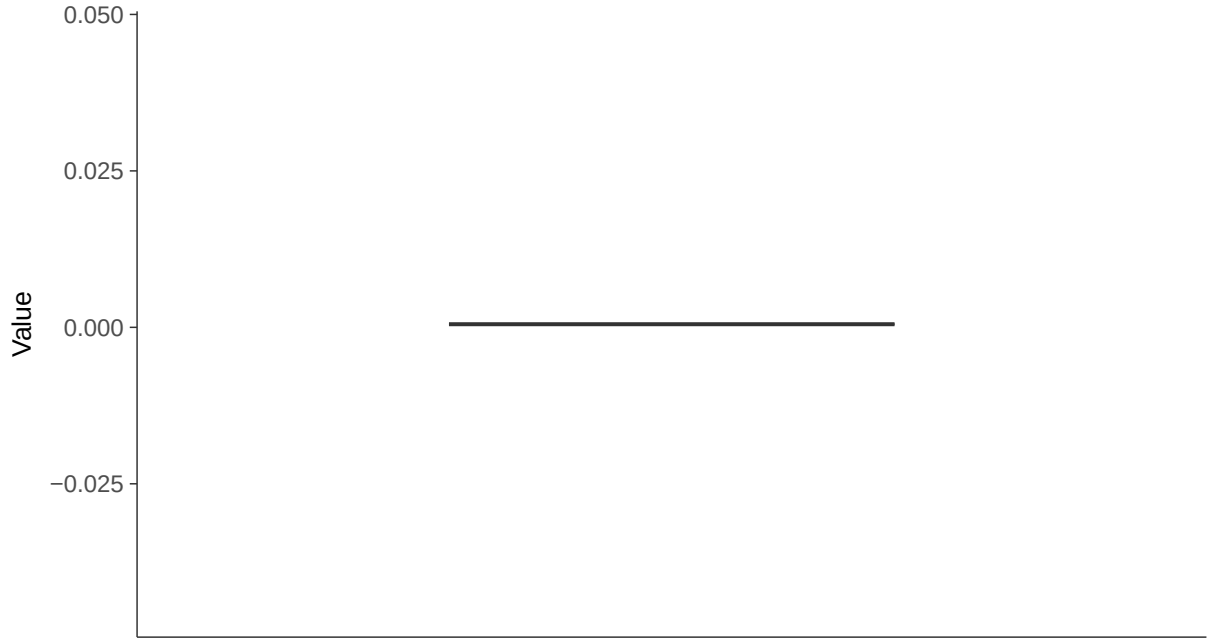
ID: 16B_5_40





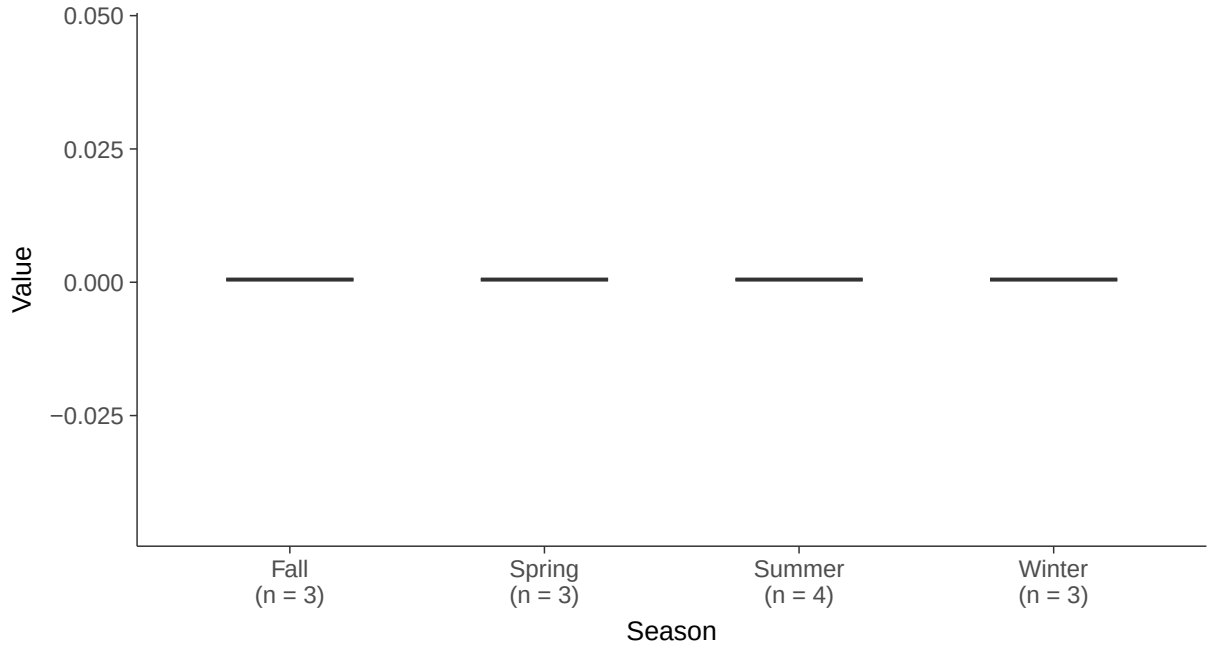
Boxplot

Silver, MW-16B (mg/L)



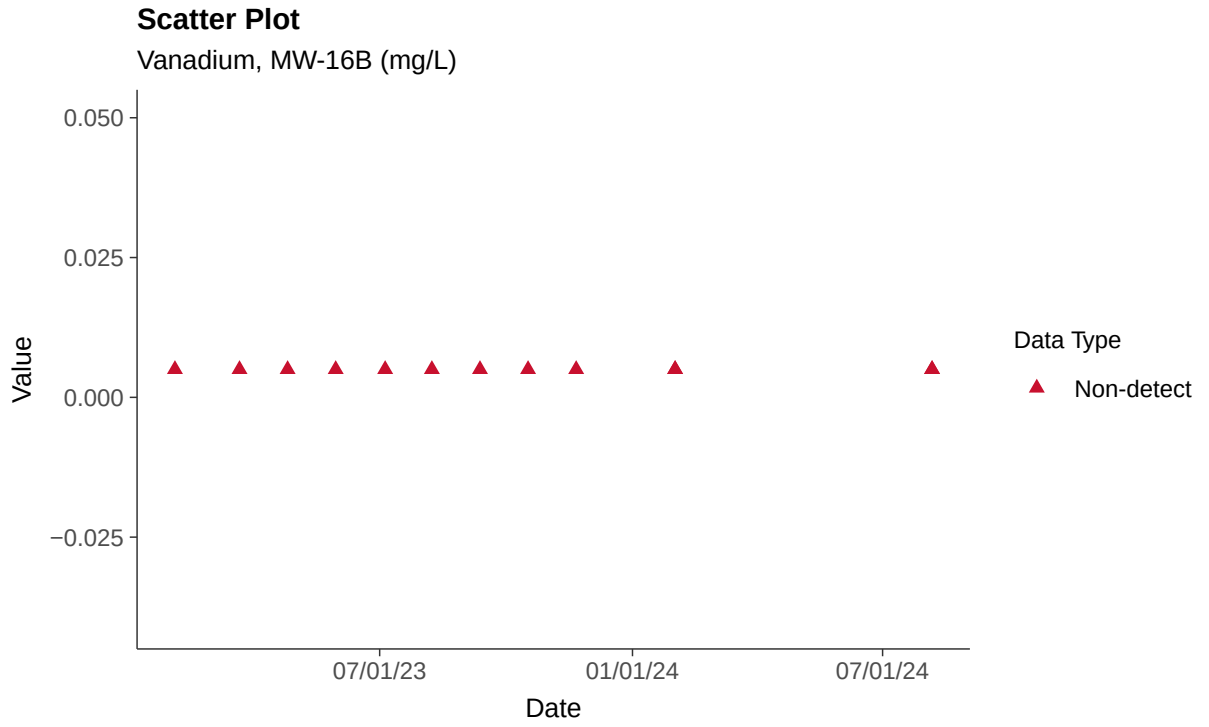
Boxplot by Season

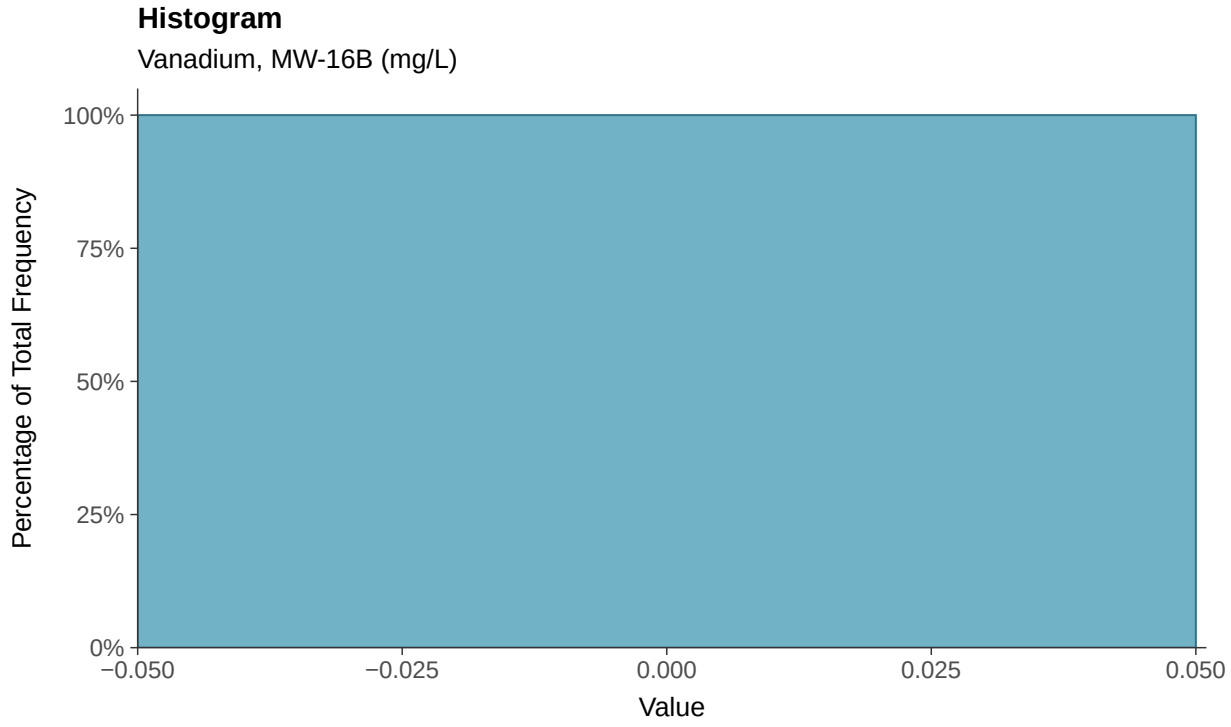
Silver, MW-16B (mg/L)



Part 115: Vanadium, MW-16B

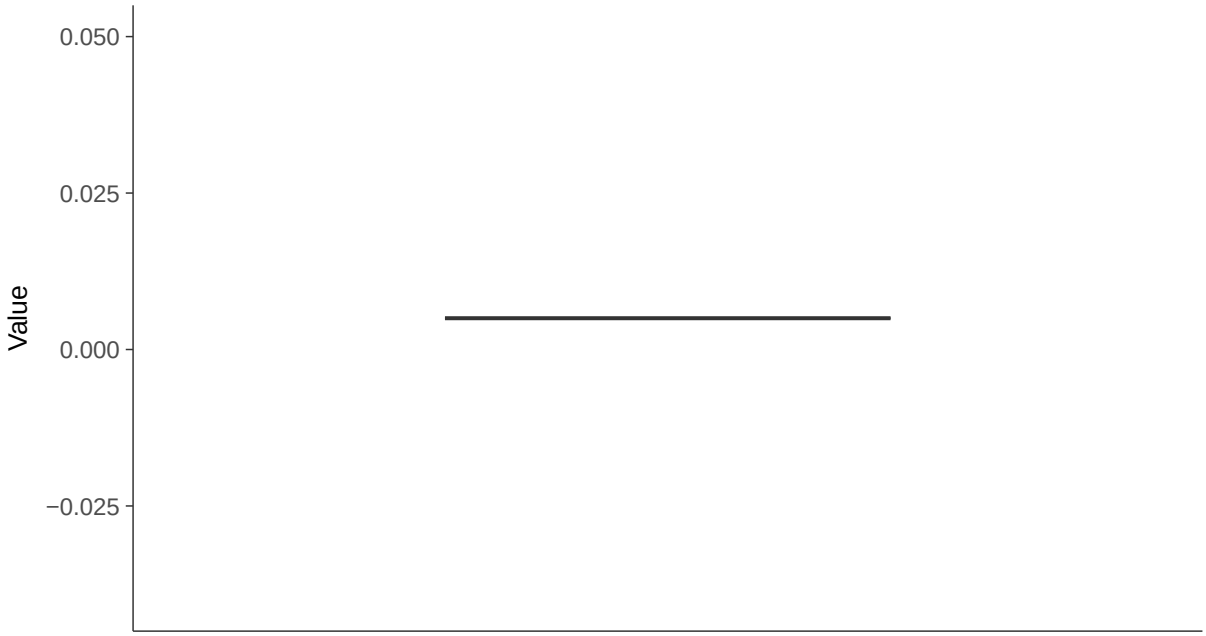
ID: 16B_5_41





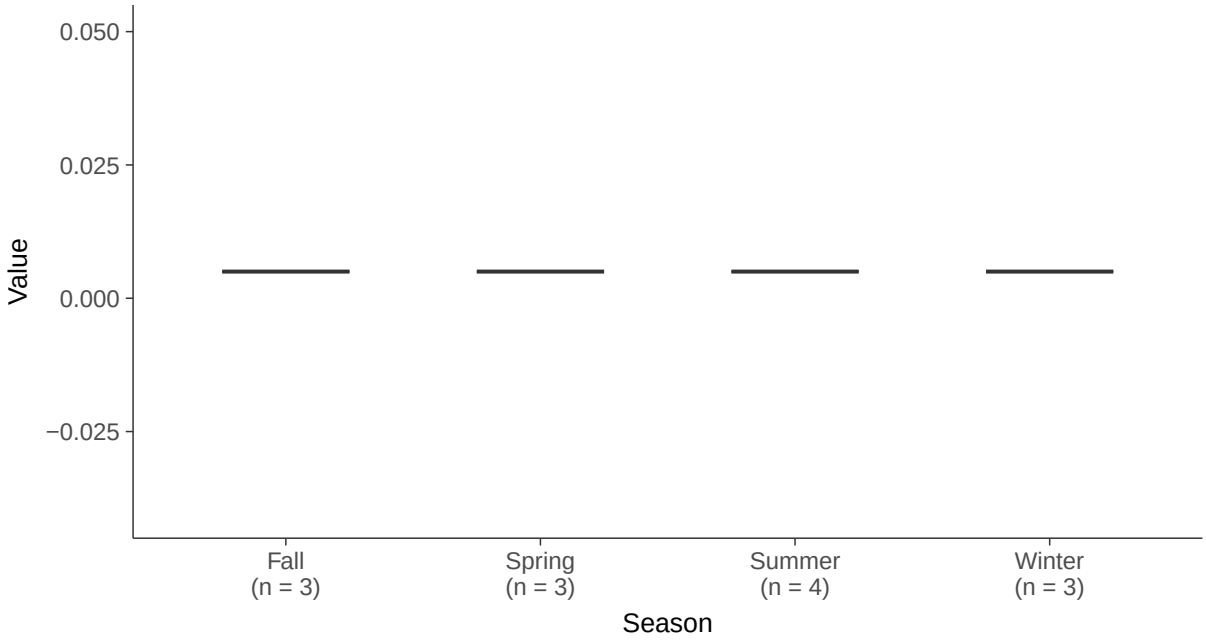
Boxplot

Vanadium, MW-16B (mg/L)



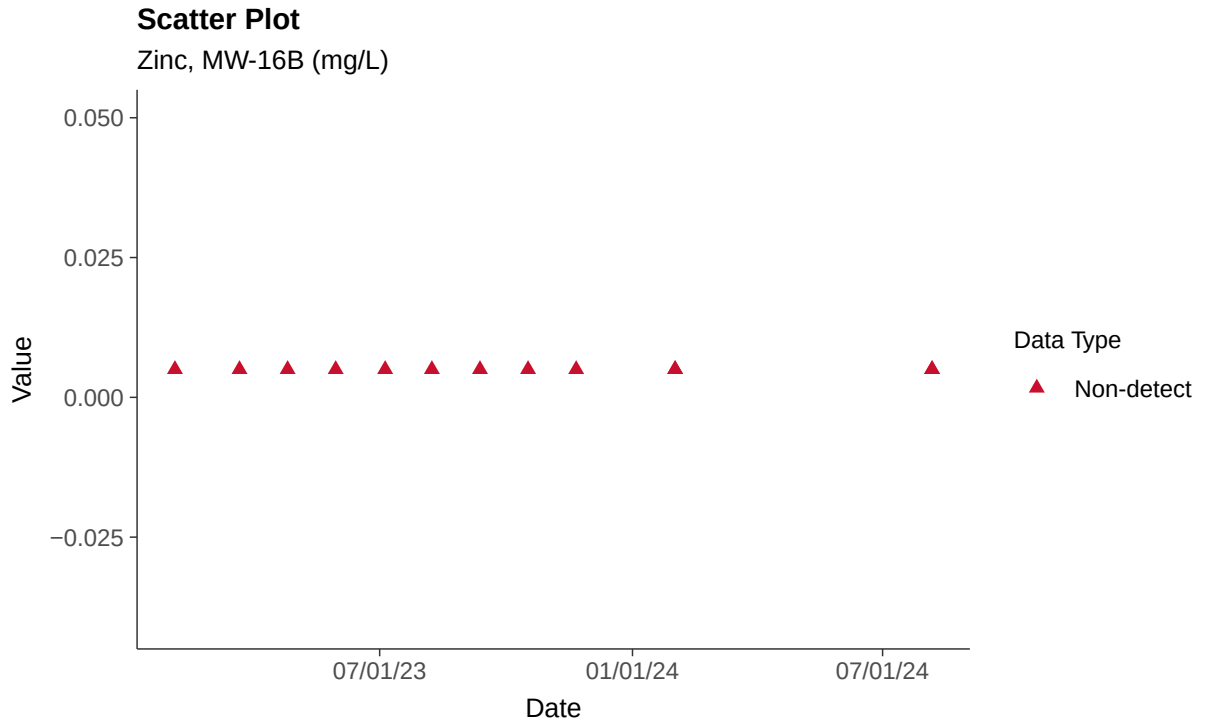
Boxplot by Season

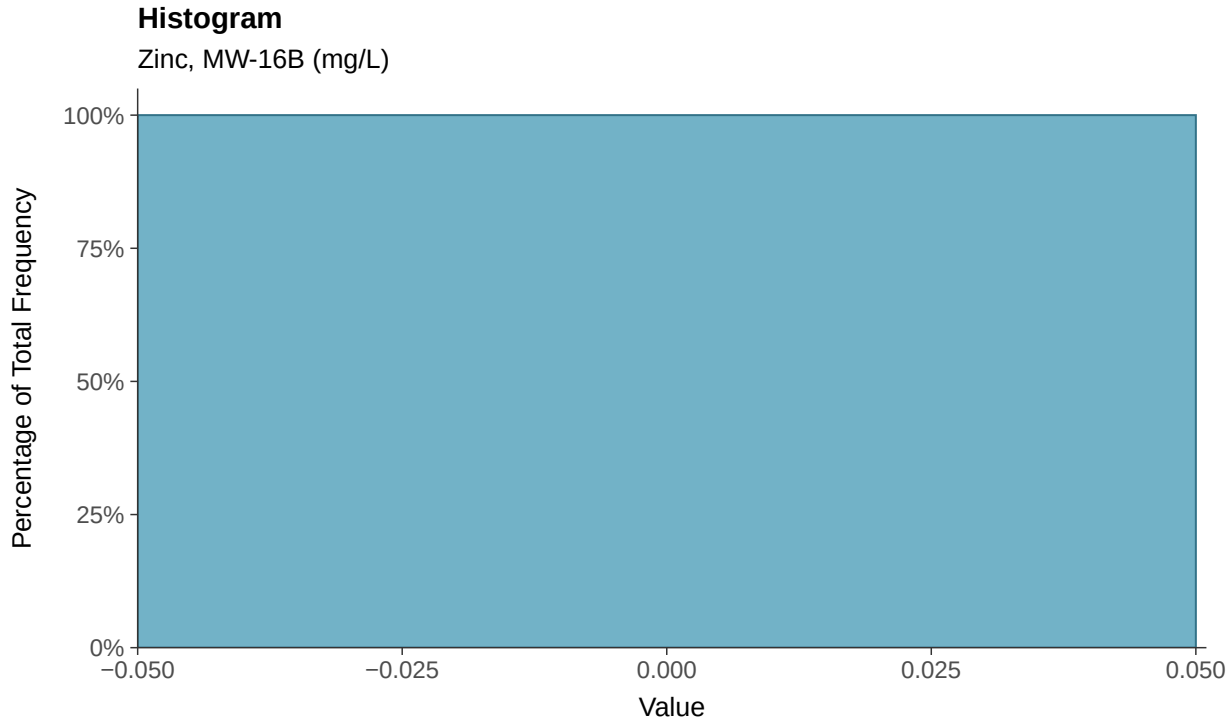
Vanadium, MW-16B (mg/L)



Part 115: Zinc, MW-16B

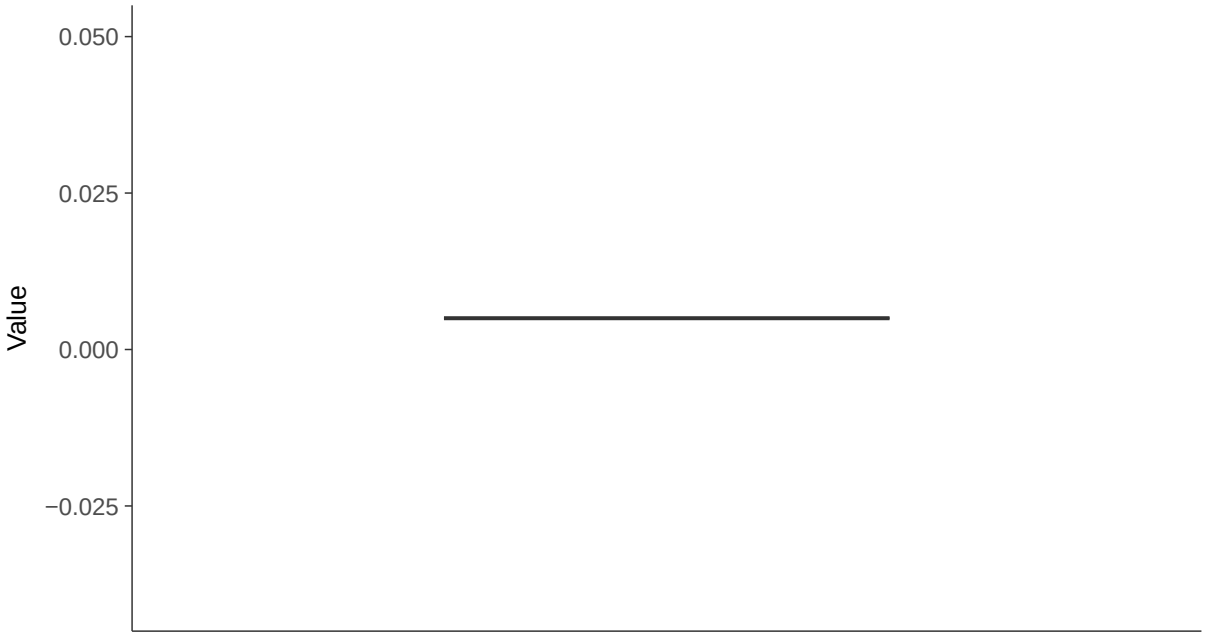
ID: 16B_5_42





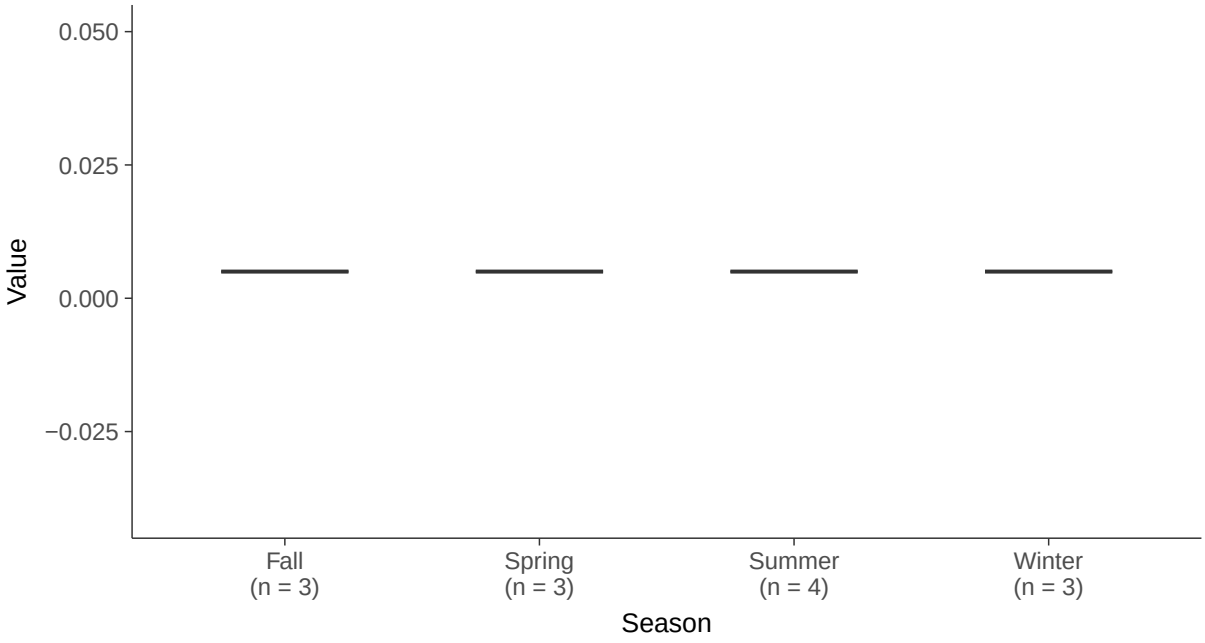
Boxplot

Zinc, MW-16B (mg/L)



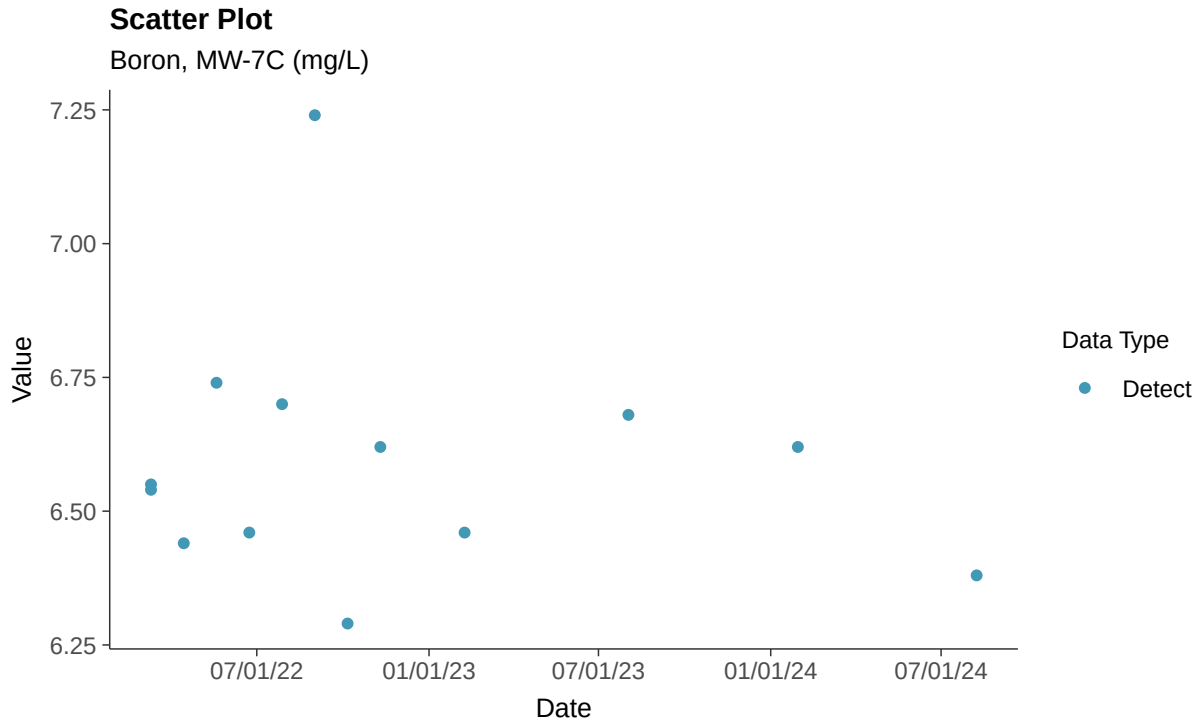
Boxplot by Season

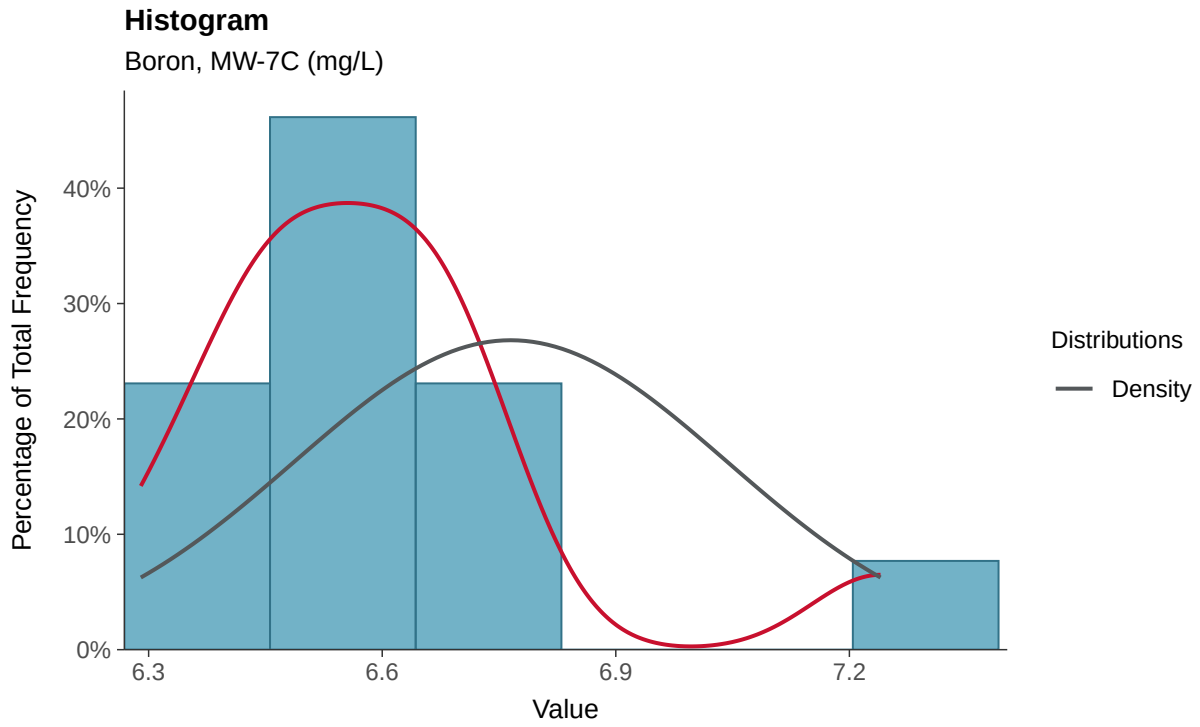
Zinc, MW-16B (mg/L)



Appendix III: Boron, MW-7C

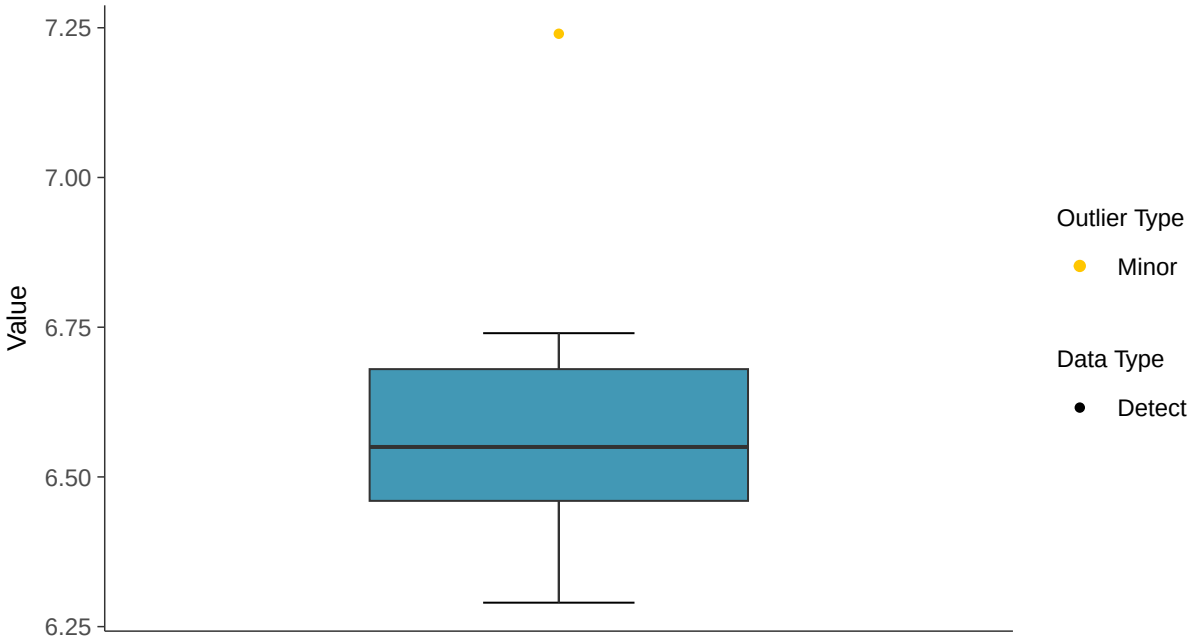
ID: 7C_1_01





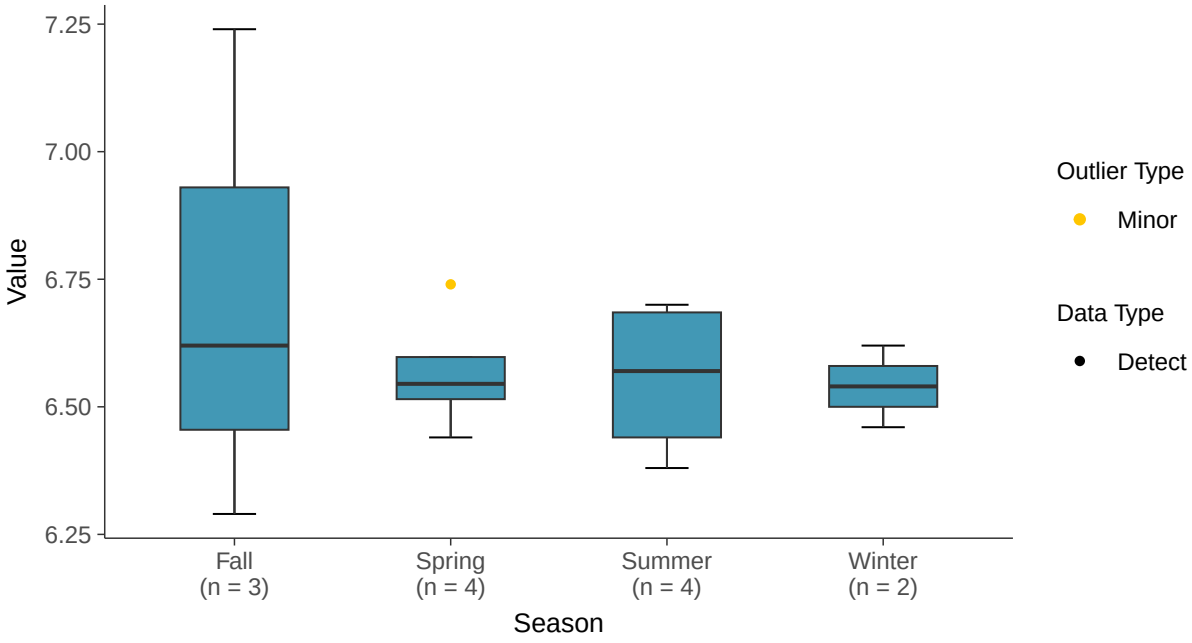
Boxplot

Boron, MW-7C (mg/L)



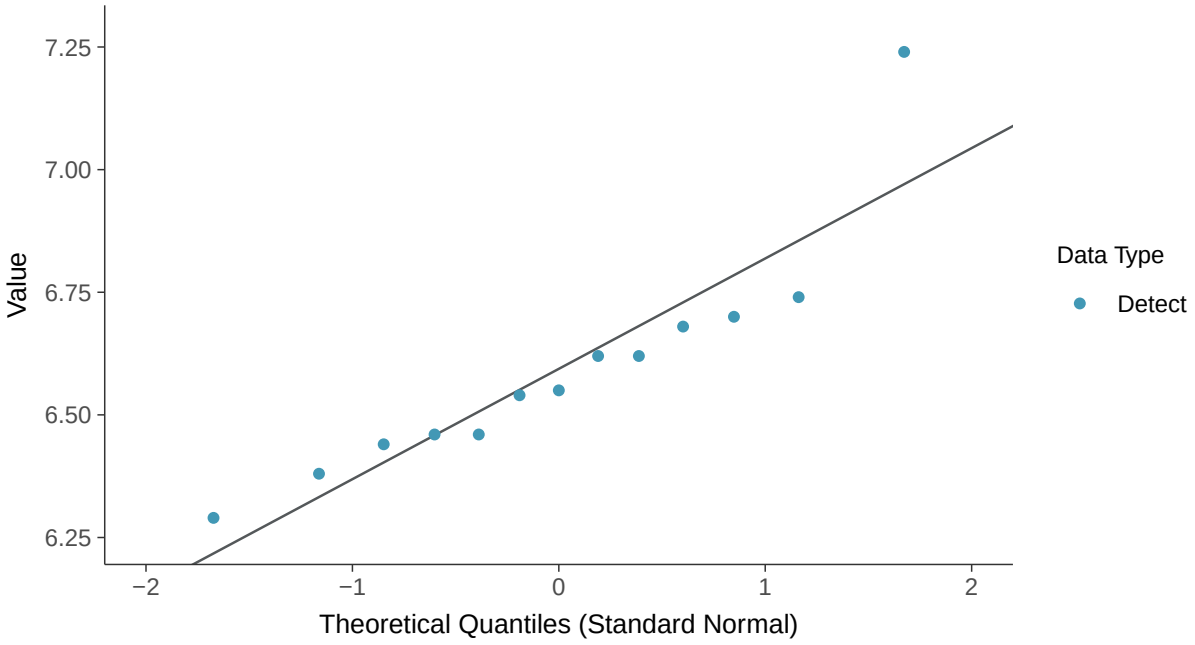
Boxplot by Season

Boron, MW-7C (mg/L)



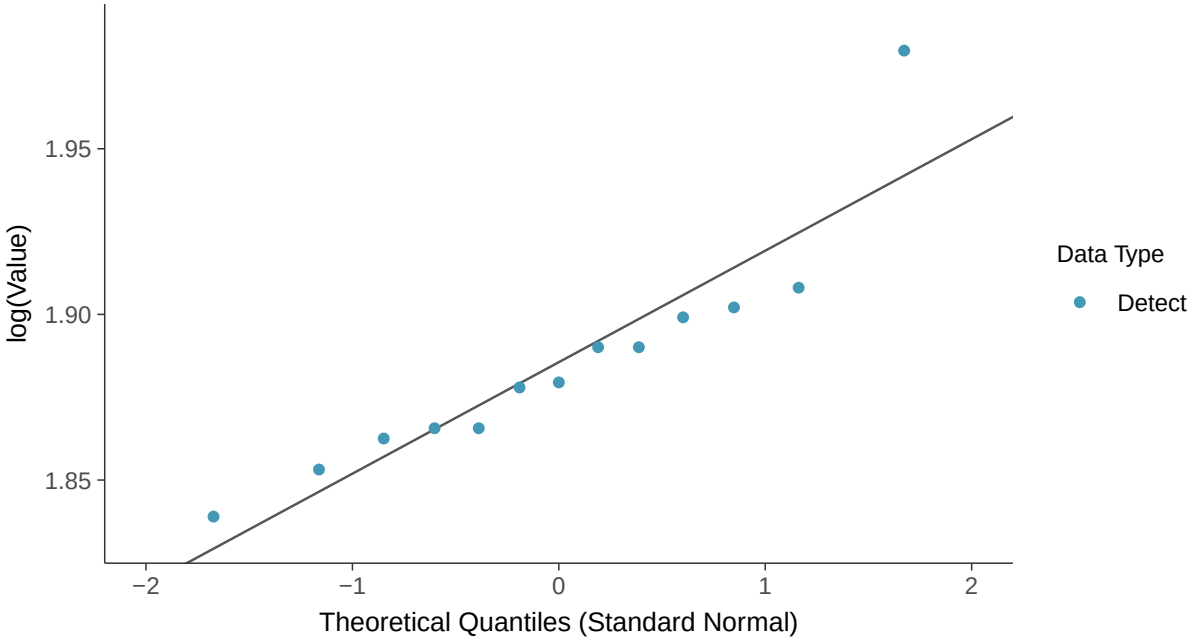
Normal Q-Q plot

Boron, MW-7C (mg/L)



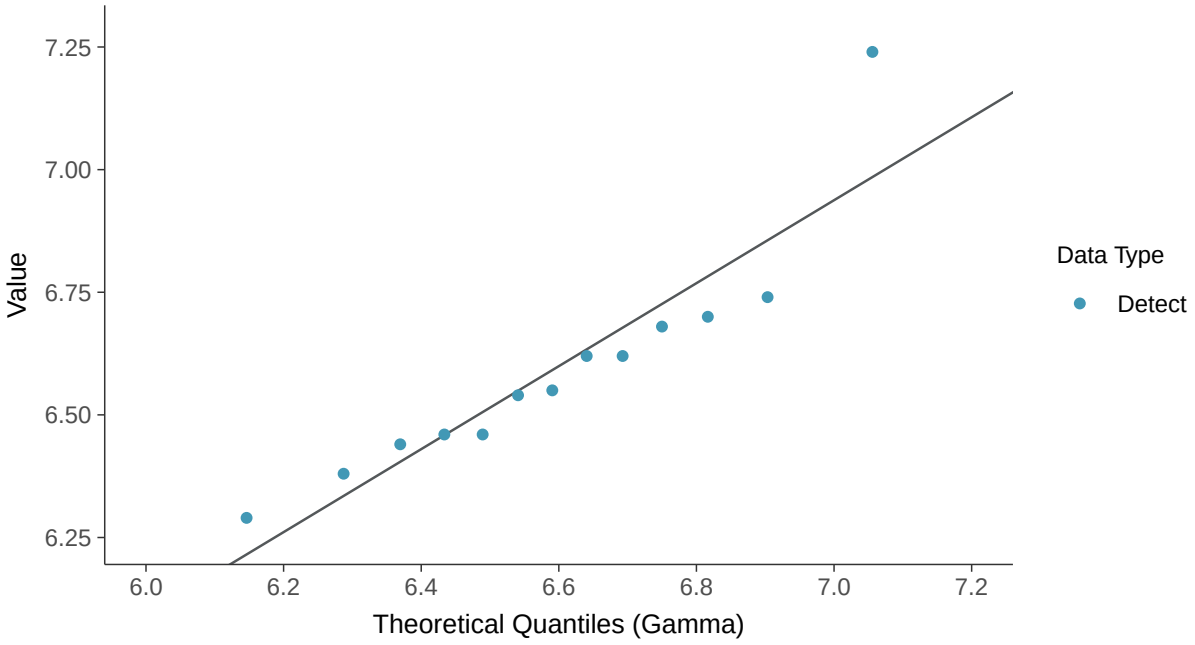
Lognormal Q-Q plot

Boron, MW-7C (mg/L)



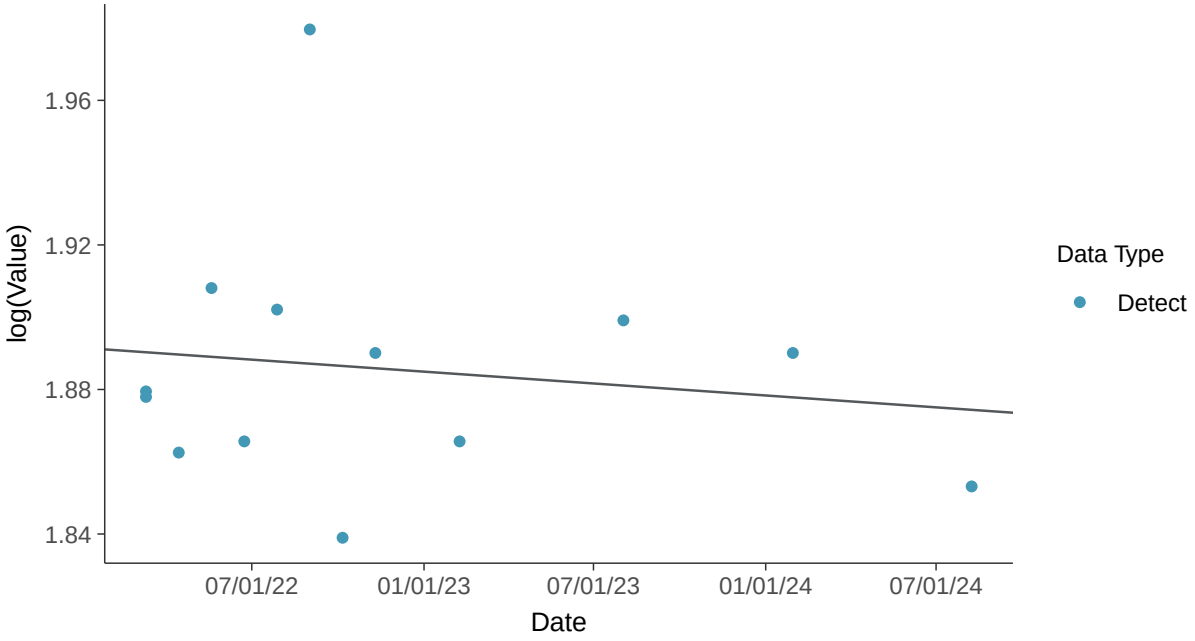
Gamma Q-Q plot

Boron, MW-7C (mg/L)



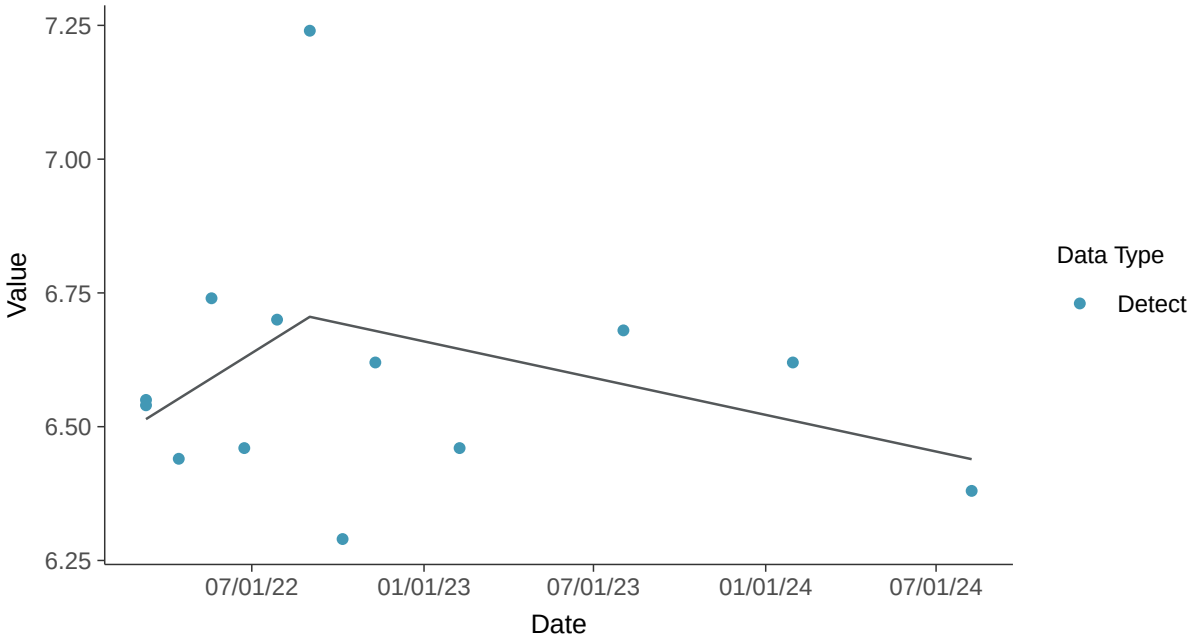
Trend Regression: Lognormal MLE

Boron, MW-7C (mg/L)



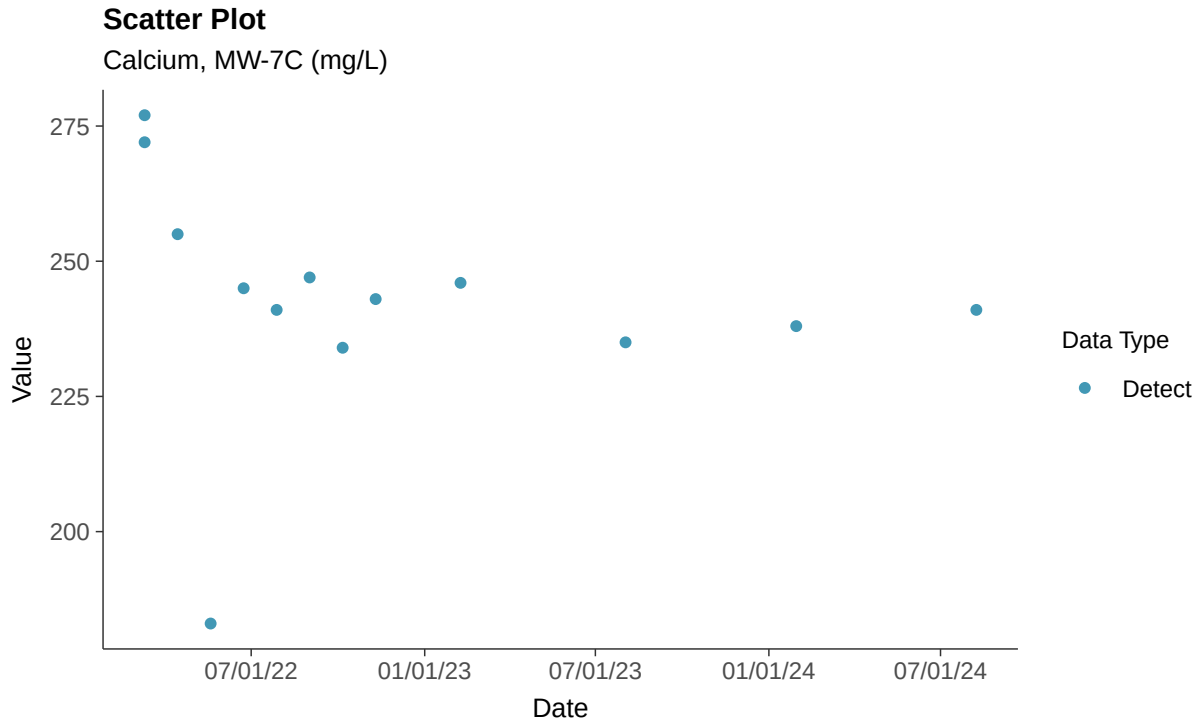
Trend Regression: Piecewise Linear-Linear

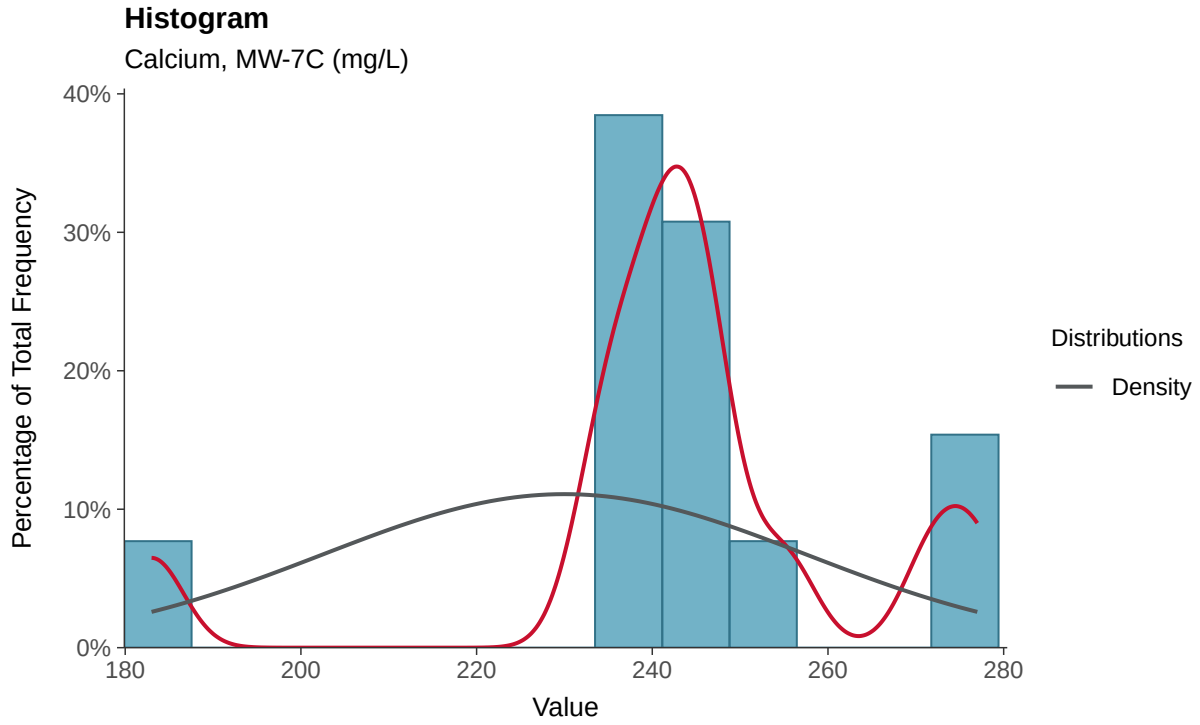
Boron, MW-7C (mg/L)



Appendix III: Calcium, MW-7C

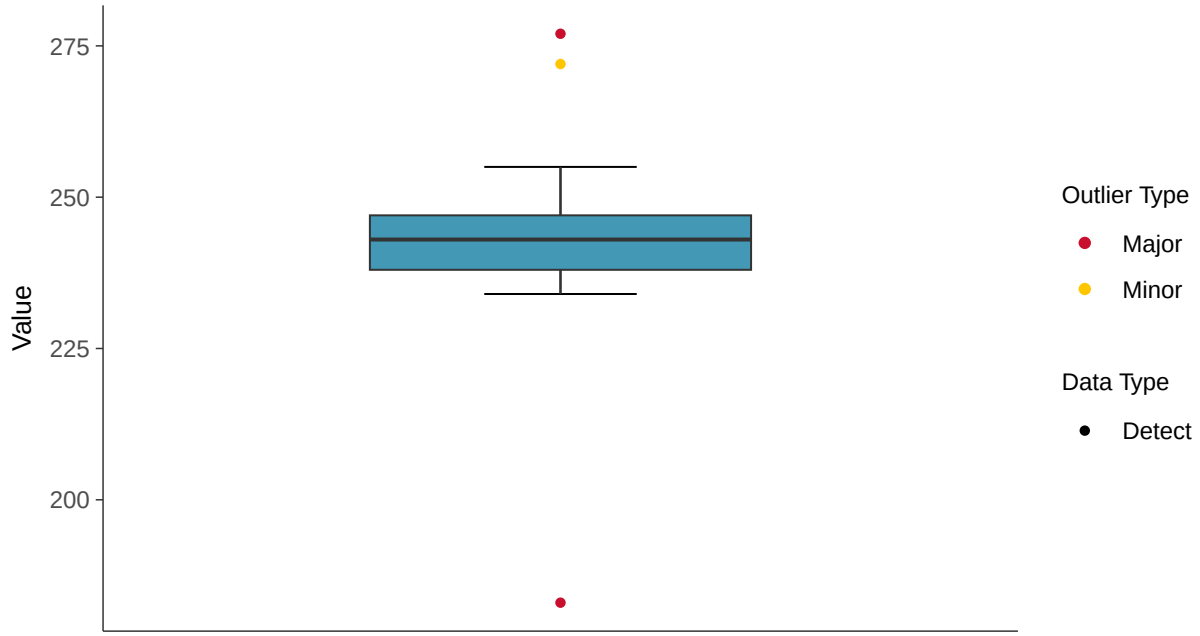
ID: 7C_1_02





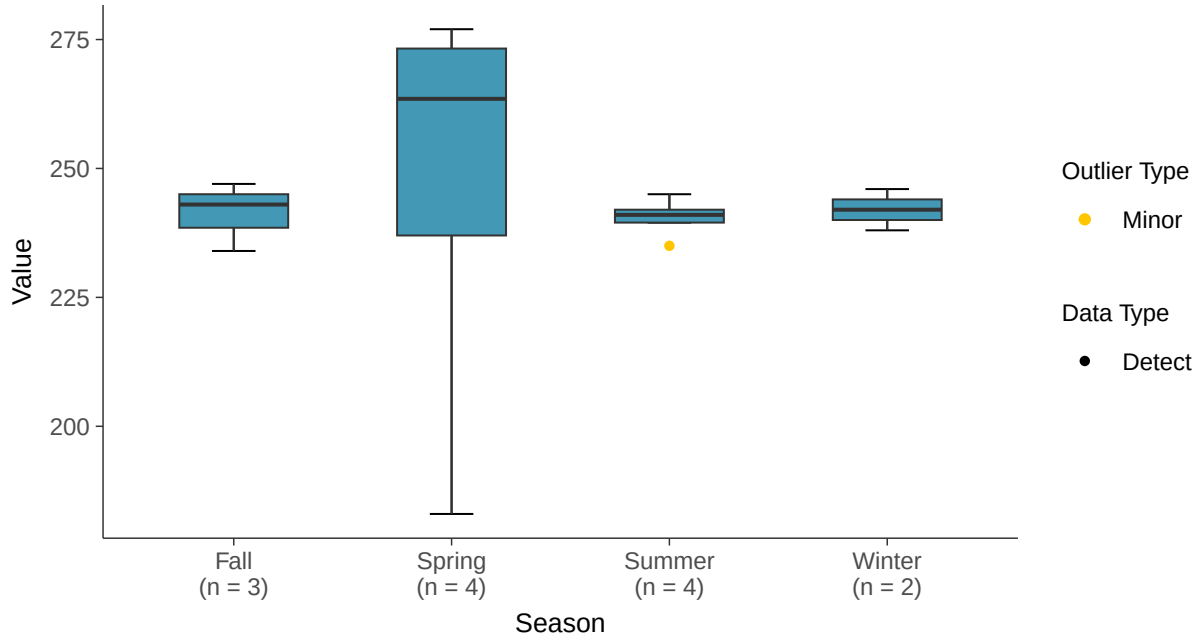
Boxplot

Calcium, MW-7C (mg/L)



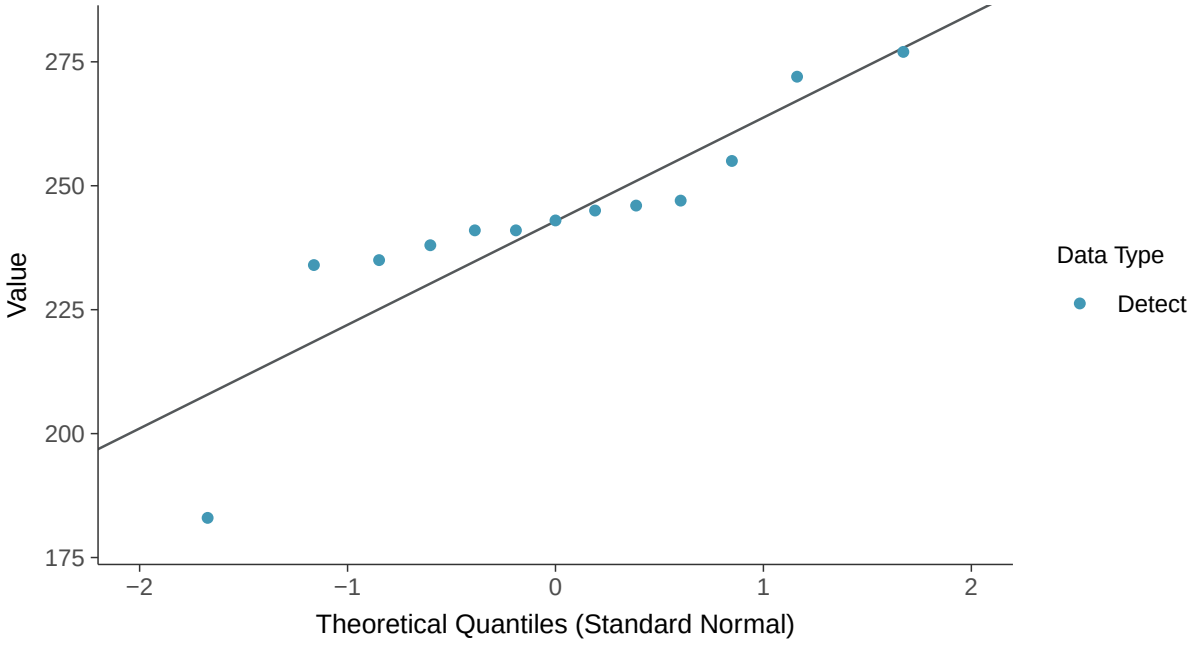
Boxplot by Season

Calcium, MW-7C (mg/L)



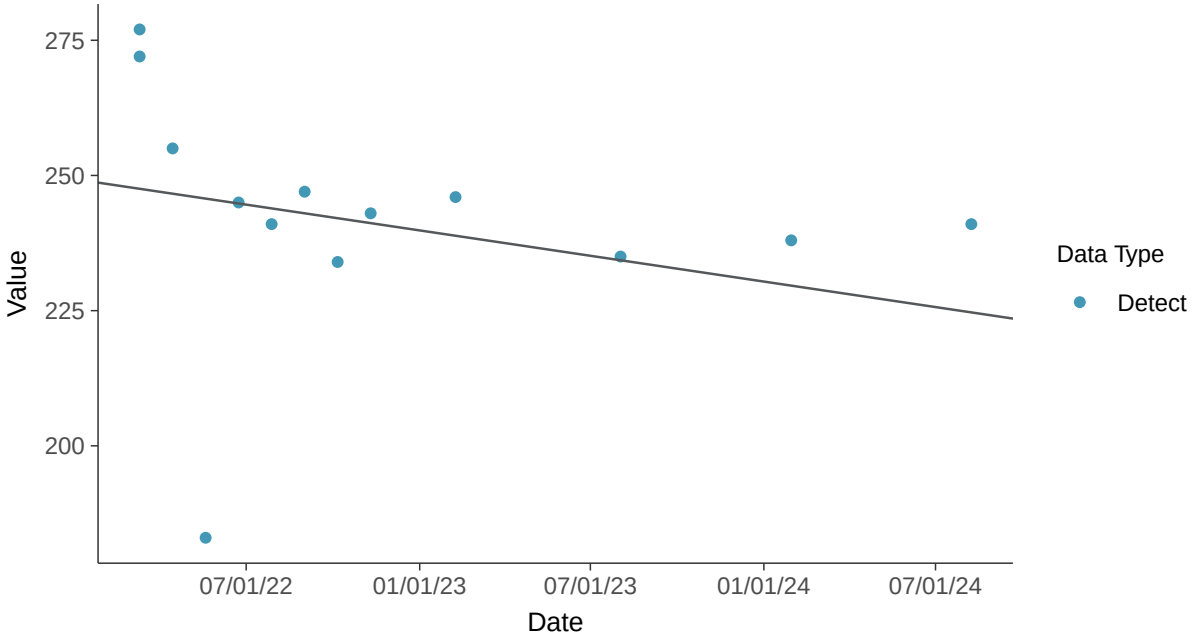
Normal Q-Q plot

Calcium, MW-7C (mg/L)



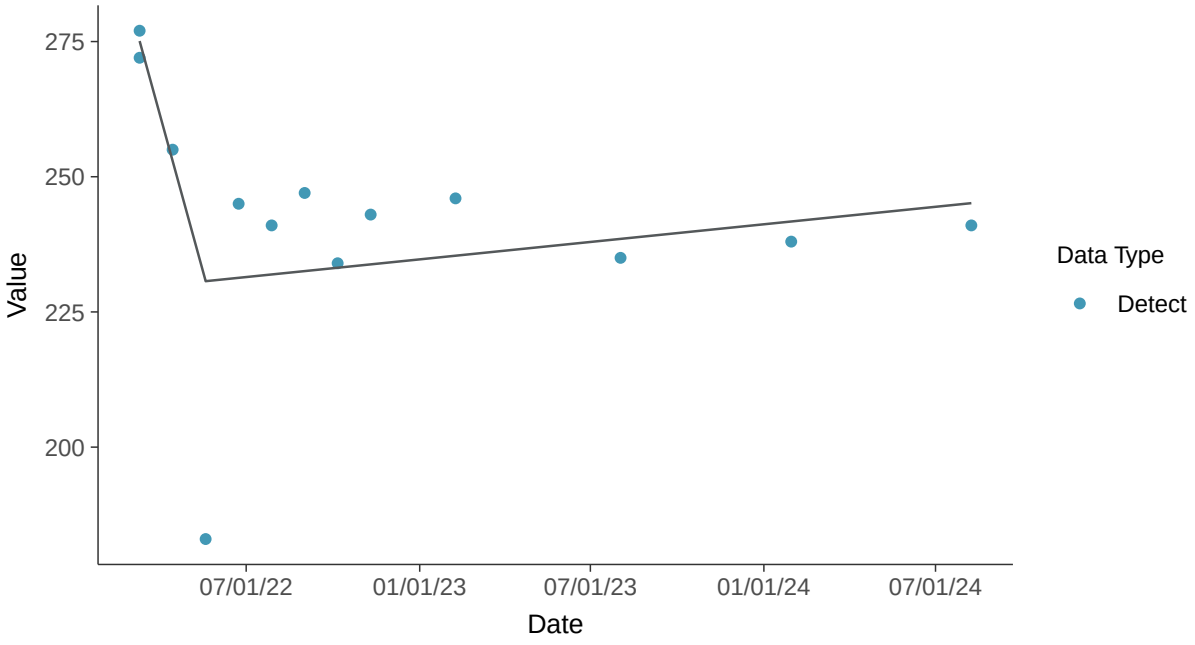
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Calcium, MW-7C (mg/L)



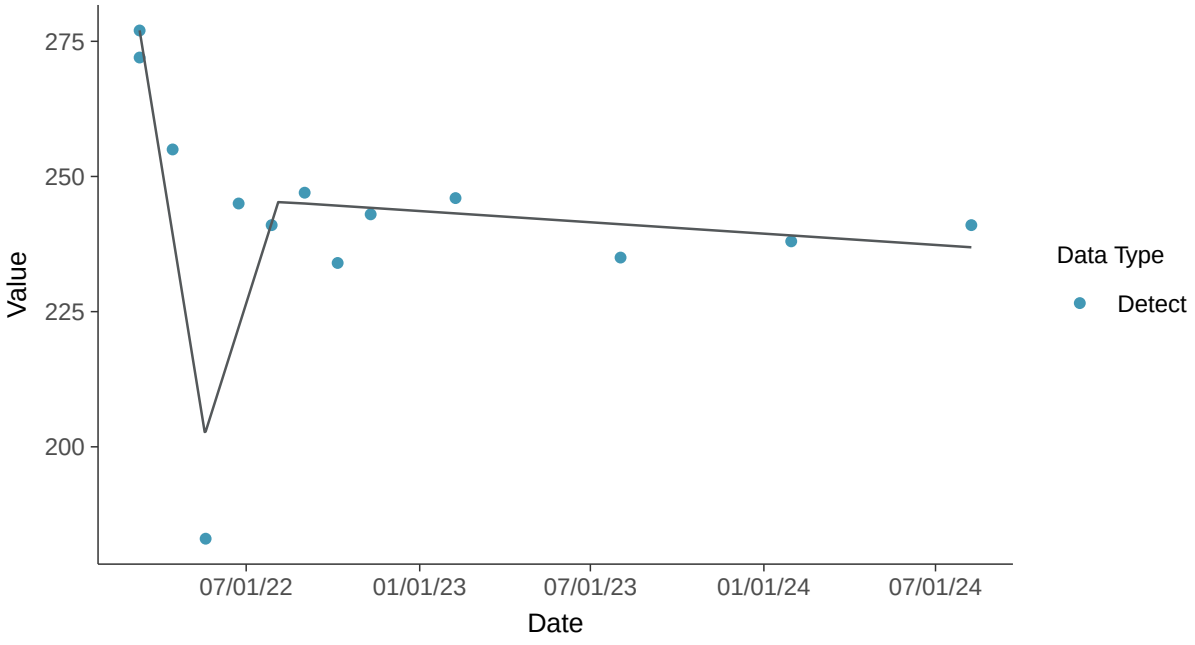
Trend Regression: Piecewise Linear-Linear

Calcium, MW-7C (mg/L)



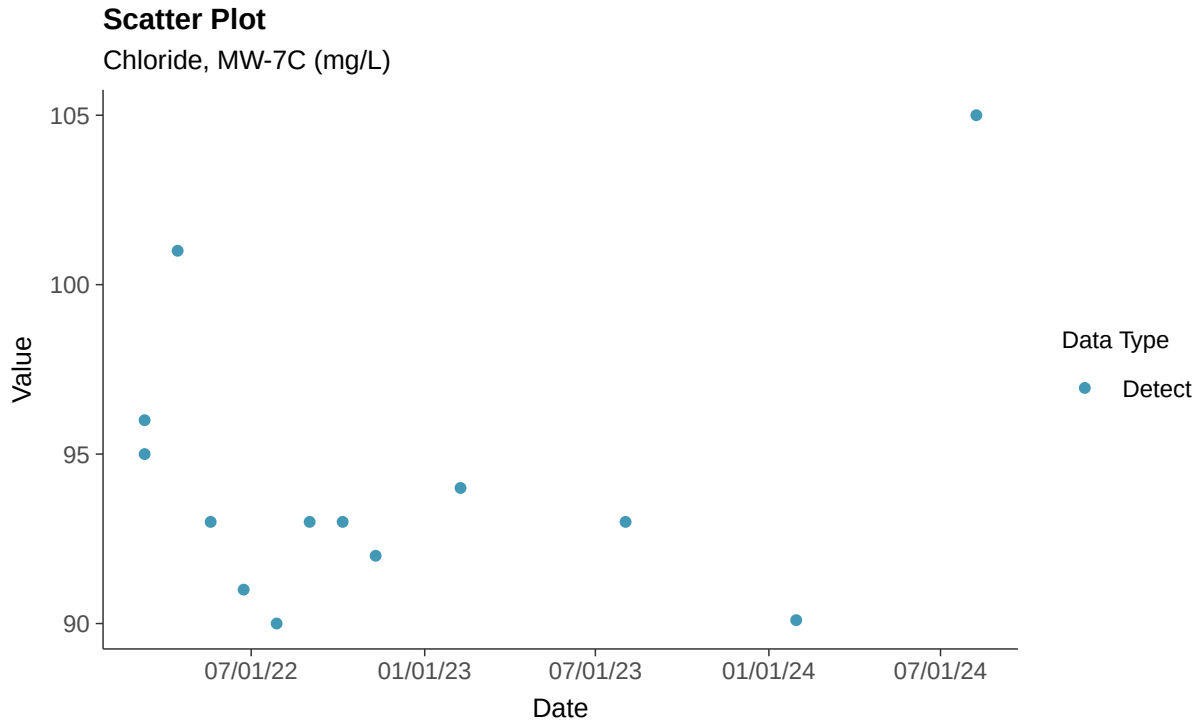
Trend Regression: Piecewise Linear-Linear-Linear

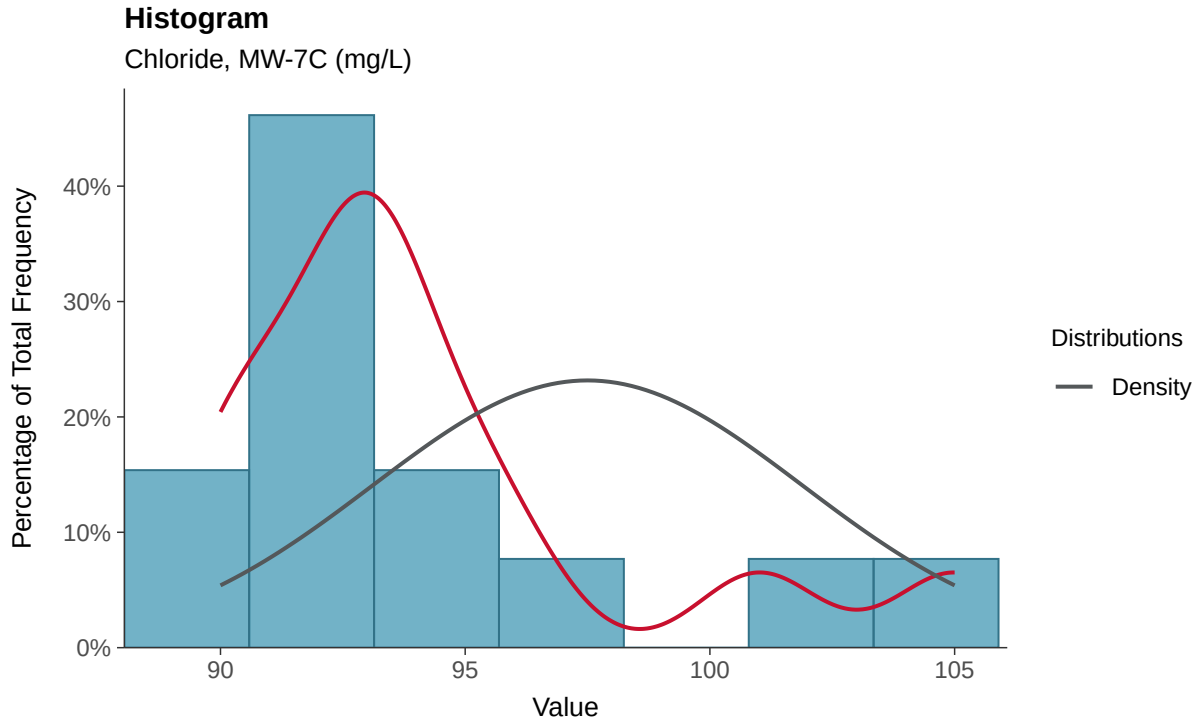
Calcium, MW-7C (mg/L)



Appendix III: Chloride, MW-7C

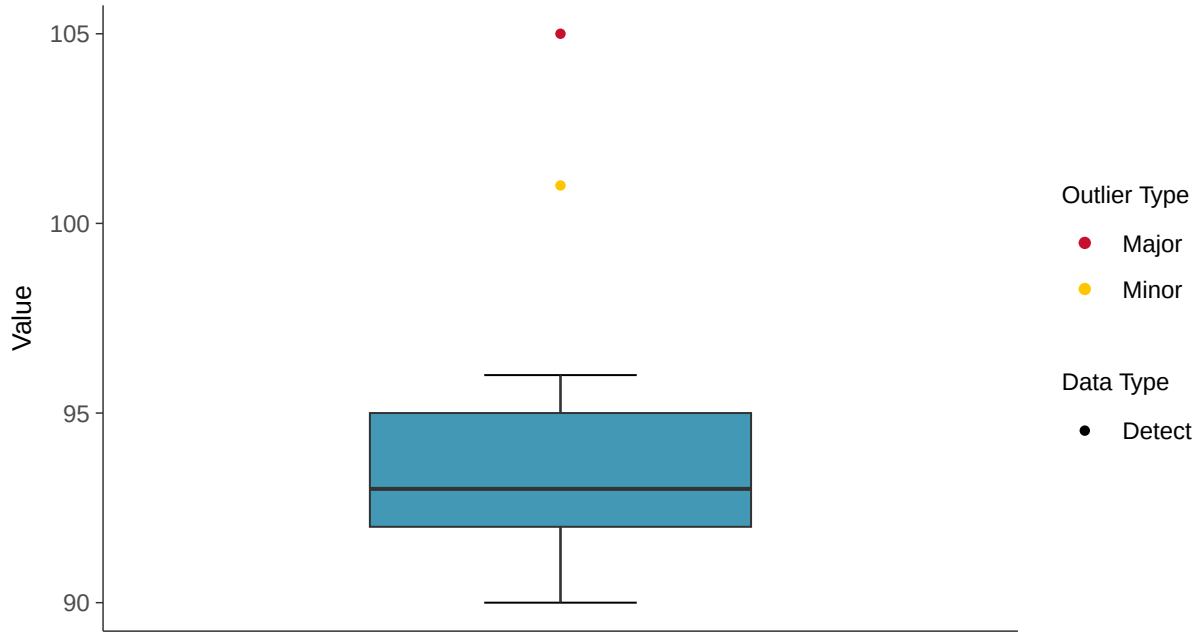
ID: 7C_1_03





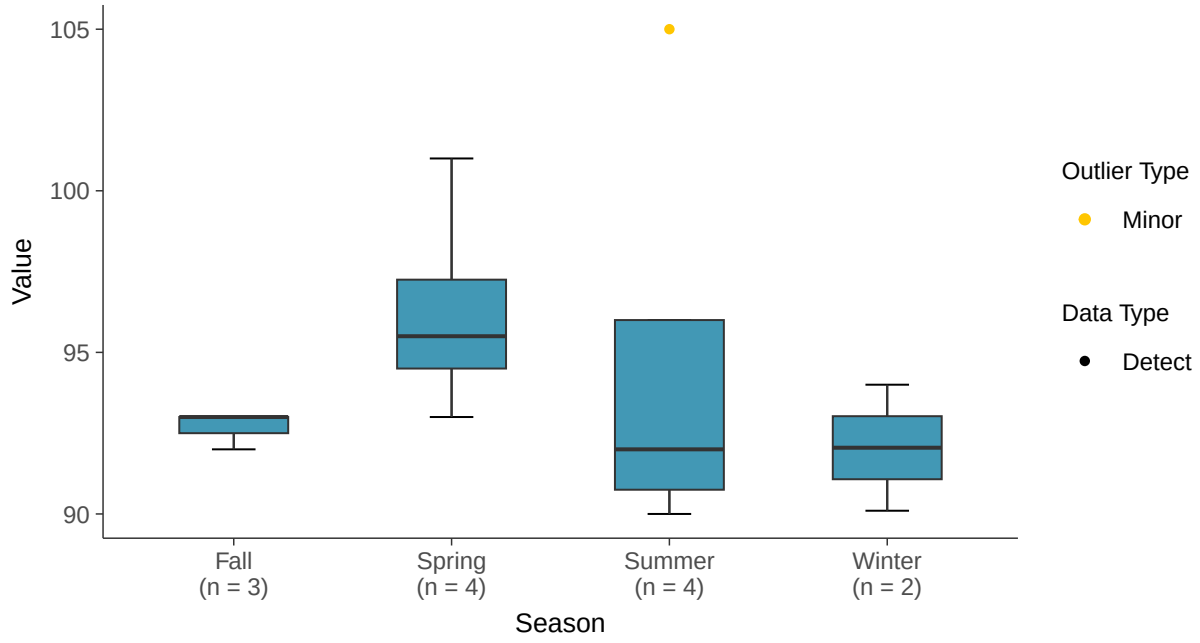
Boxplot

Chloride, MW-7C (mg/L)



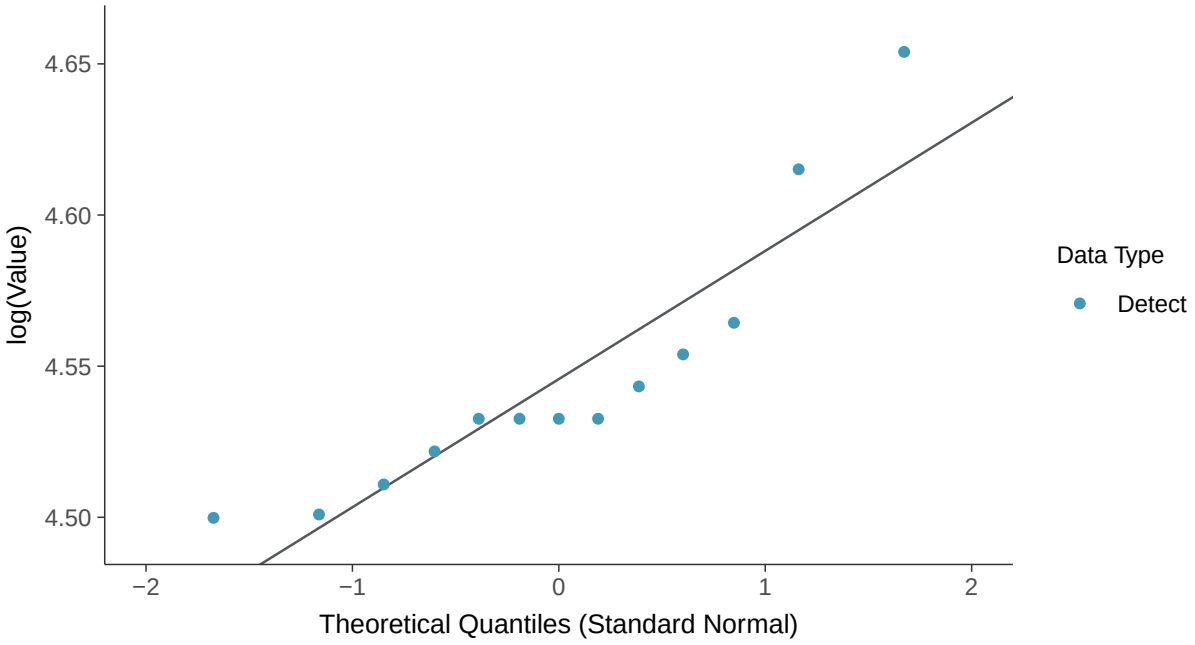
Boxplot by Season

Chloride, MW-7C (mg/L)



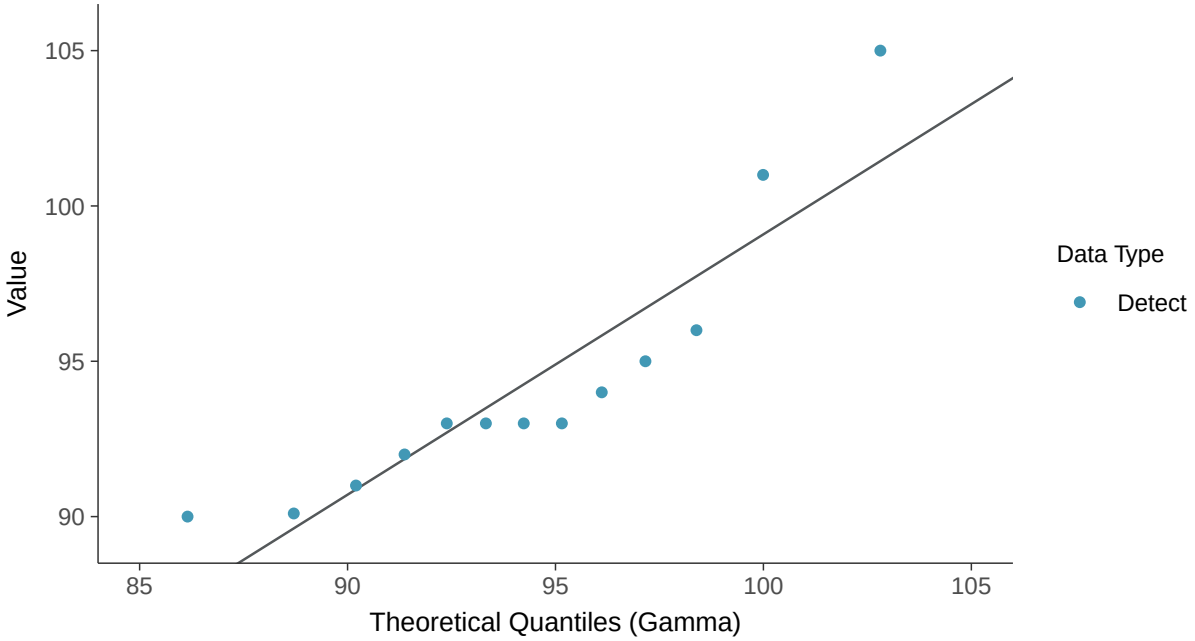
Lognormal Q-Q plot

Chloride, MW-7C (mg/L)



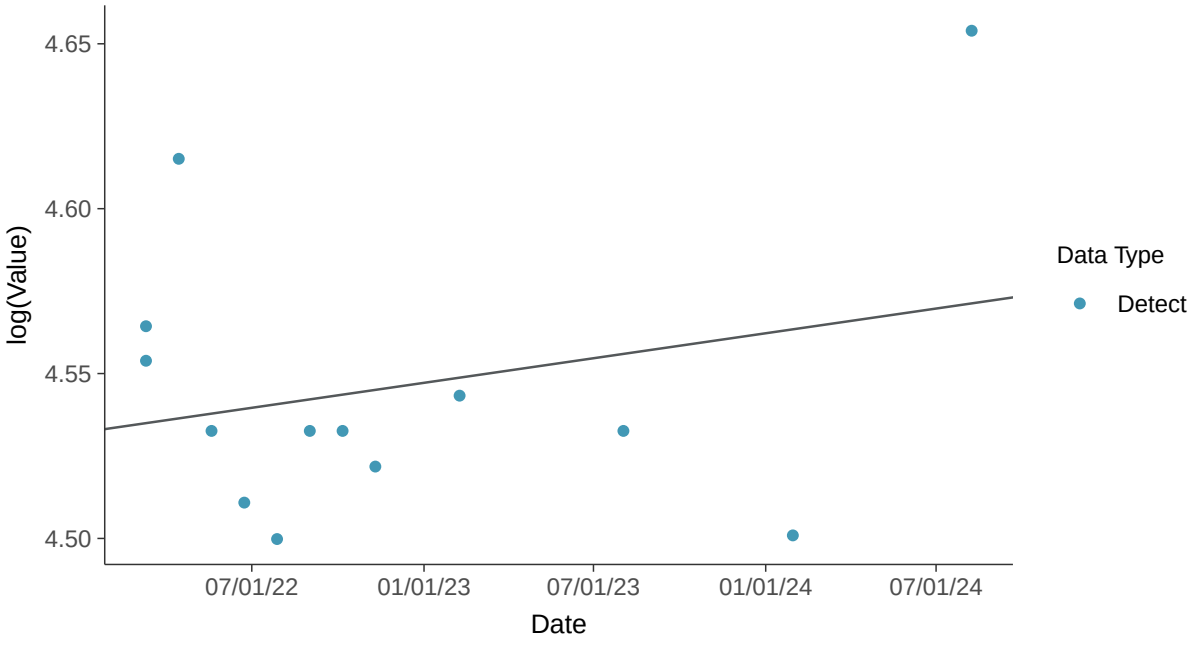
Gamma Q-Q plot

Chloride, MW-7C (mg/L)



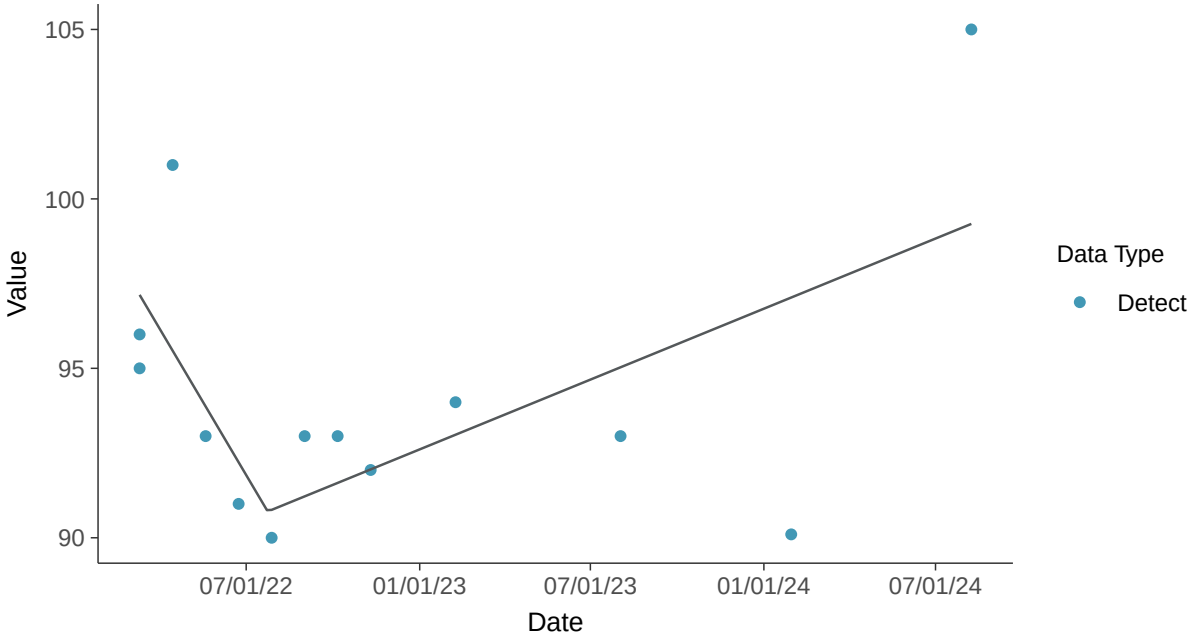
Trend Regression: Lognormal MLE

Chloride, MW-7C (mg/L)



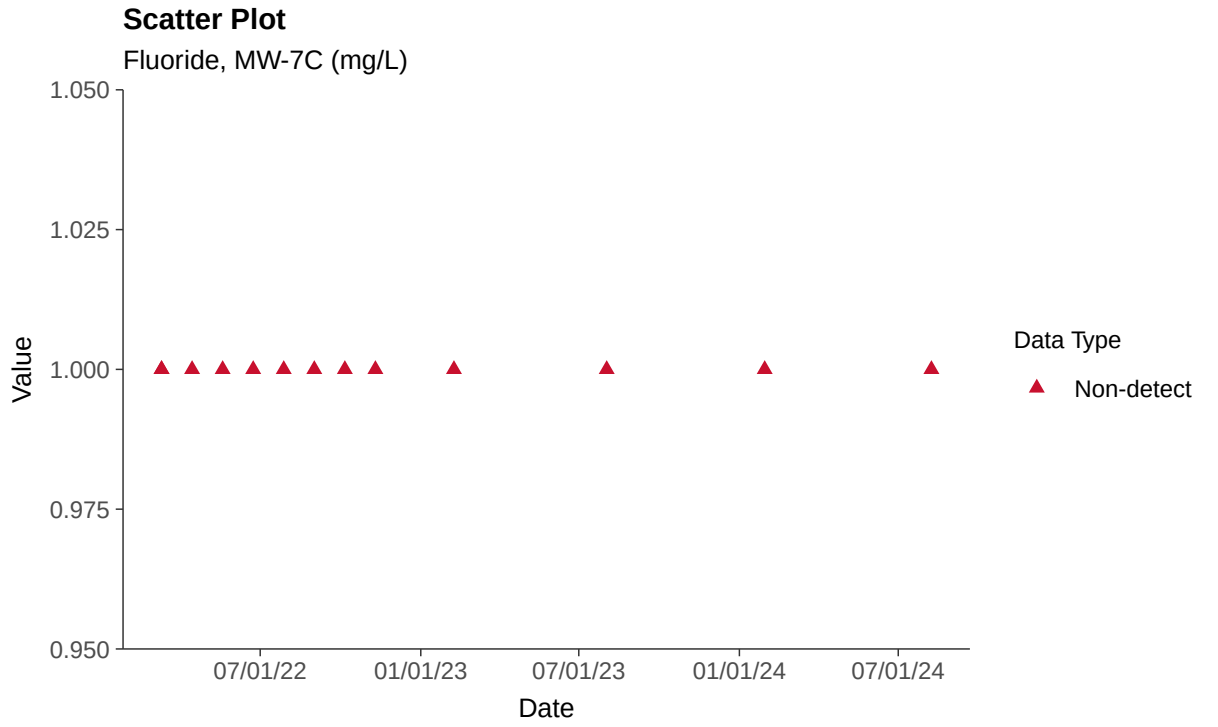
Trend Regression: Piecewise Linear-Linear

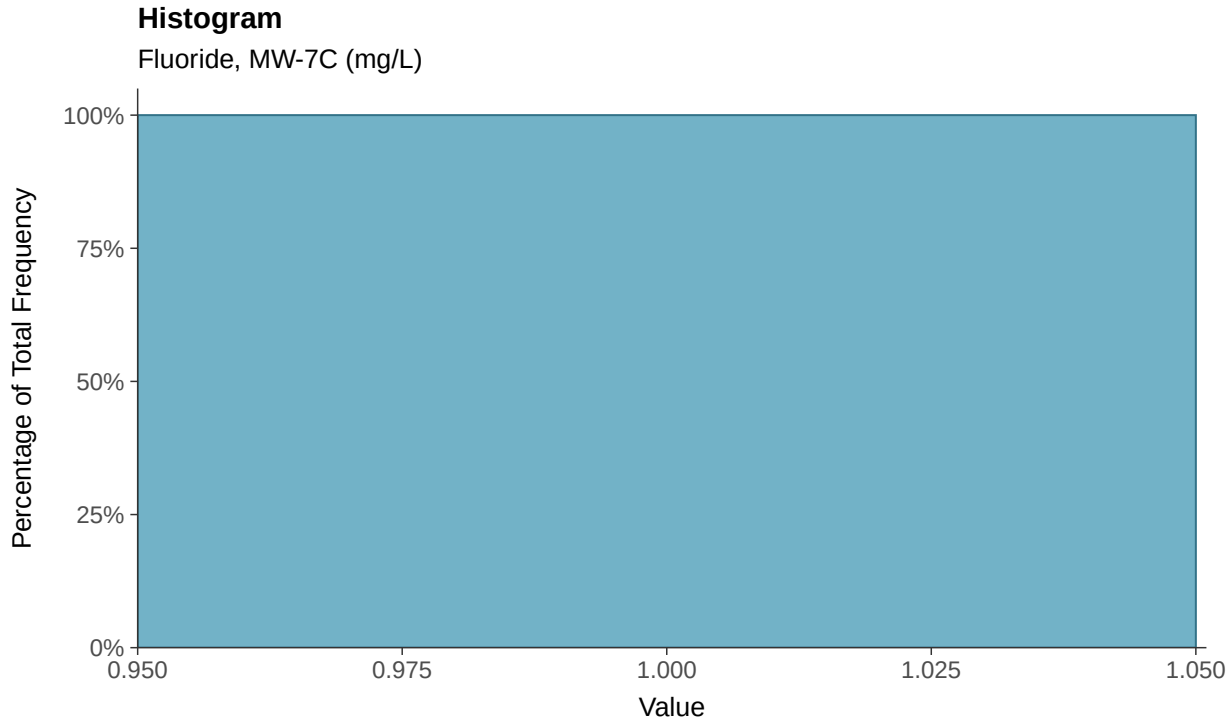
Chloride, MW-7C (mg/L)



Appendix III: Fluoride, MW-7C

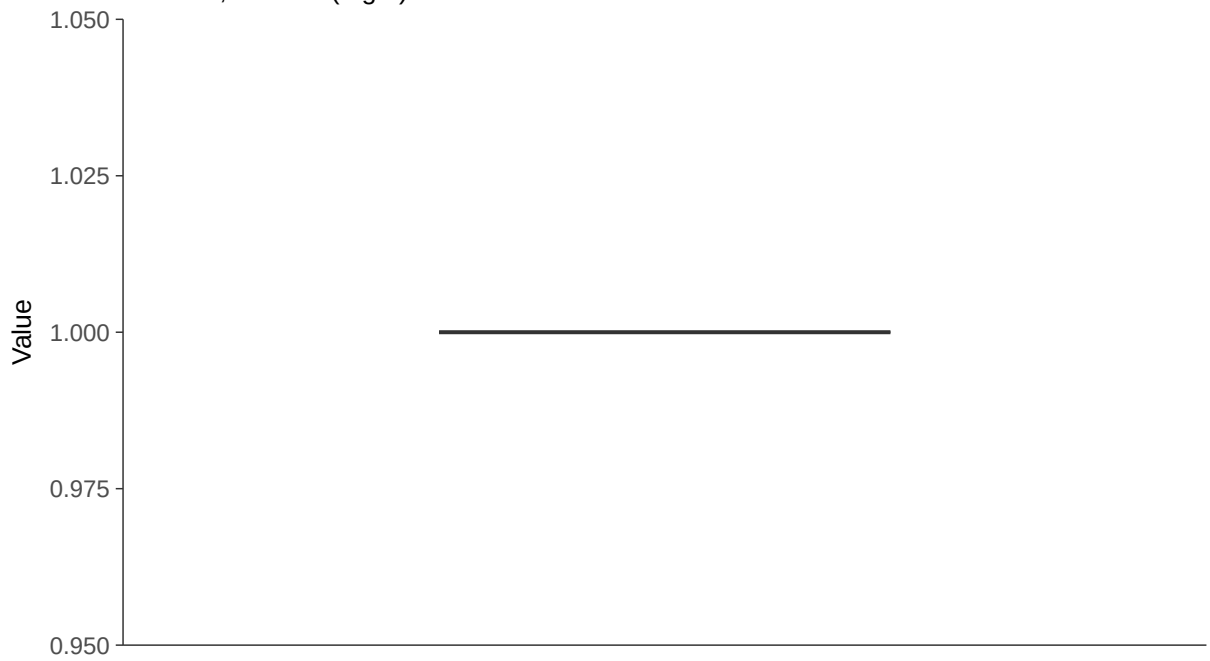
ID: 7C_1_04





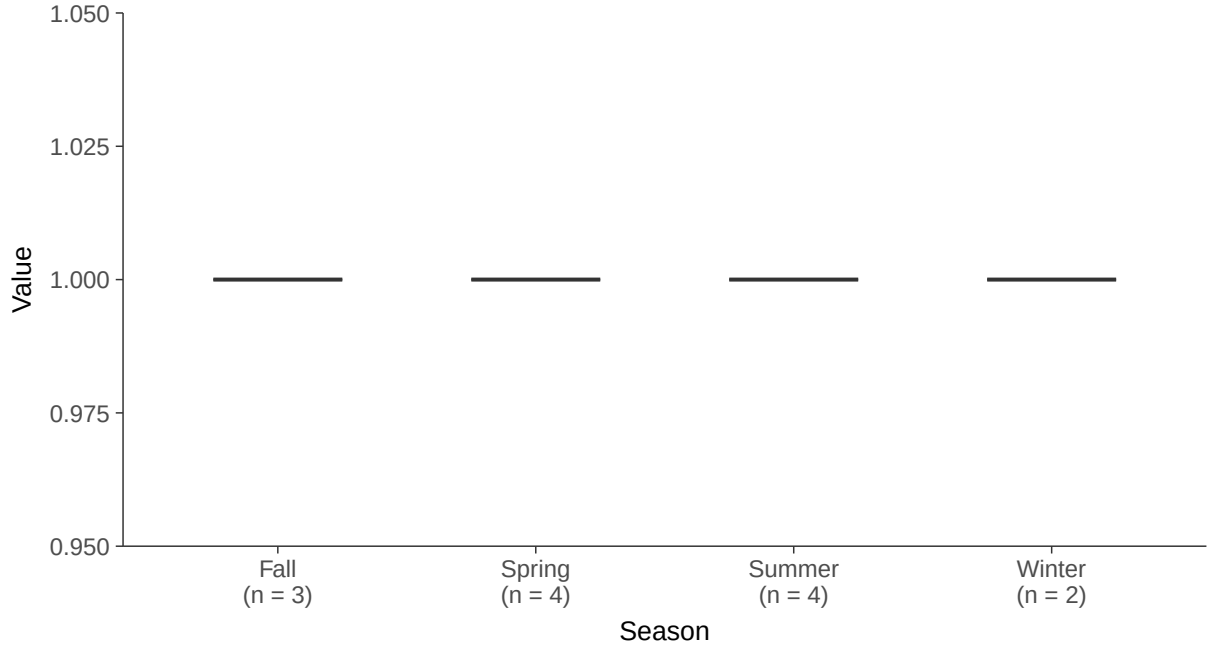
Boxplot

Fluoride, MW-7C (mg/L)



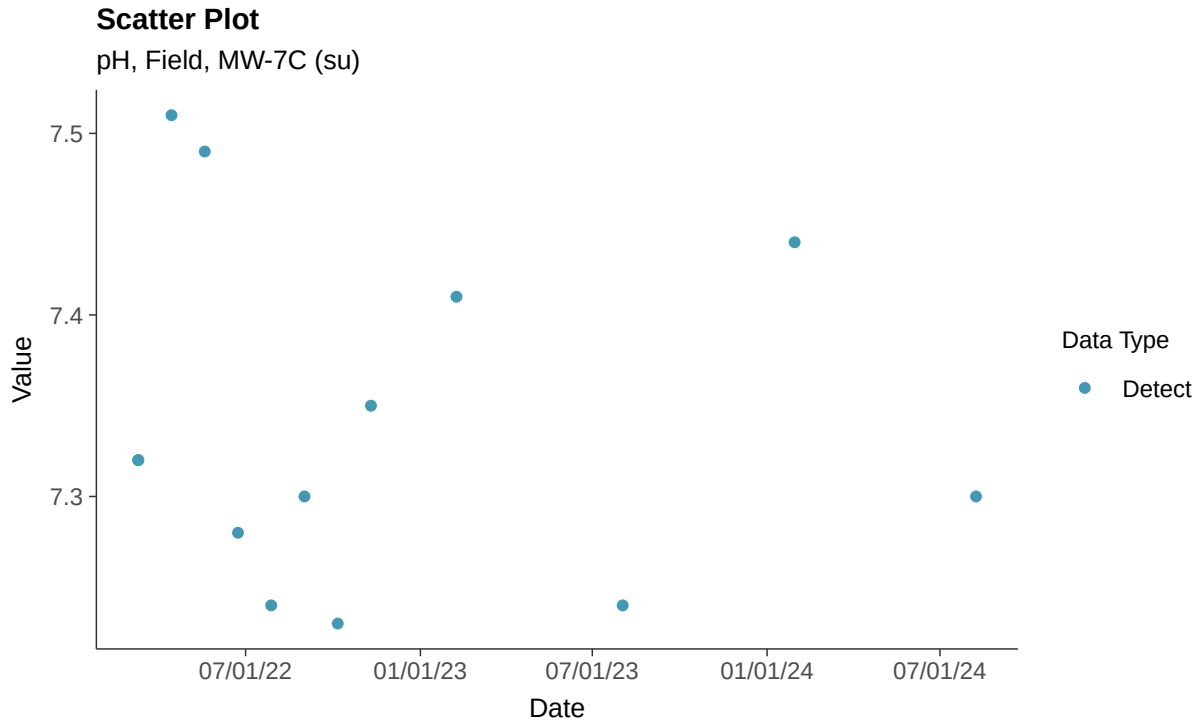
Boxplot by Season

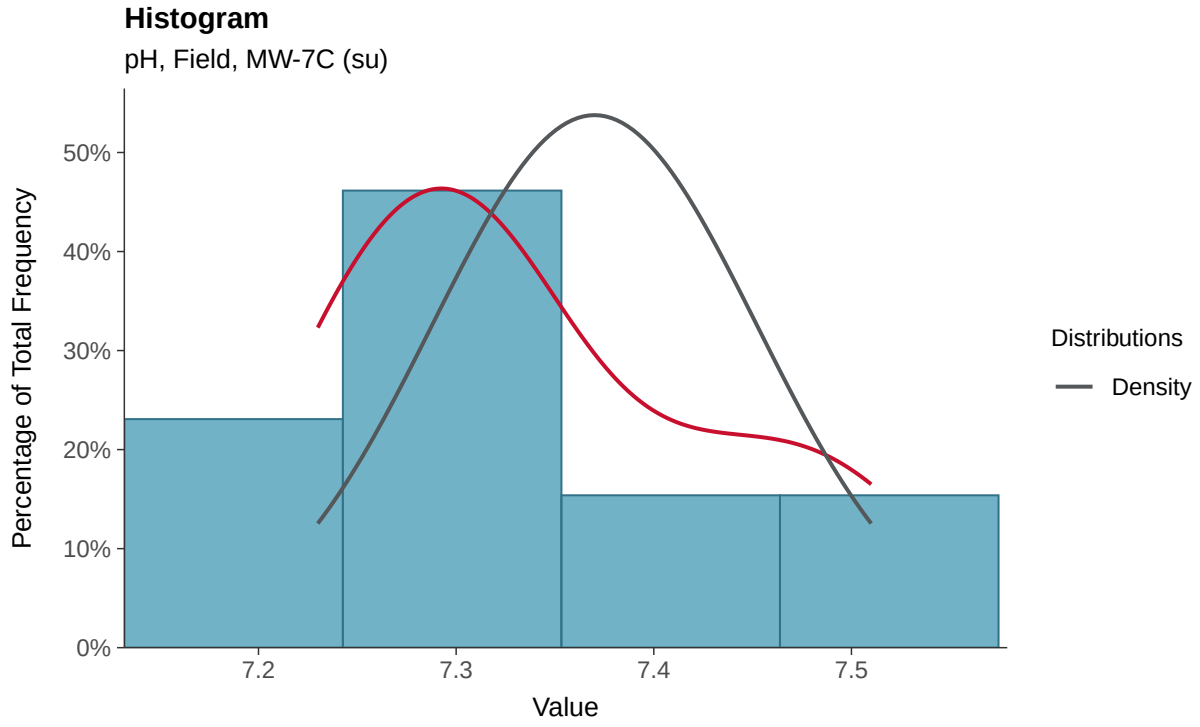
Fluoride, MW-7C (mg/L)



Appendix III: pH, Field, MW-7C

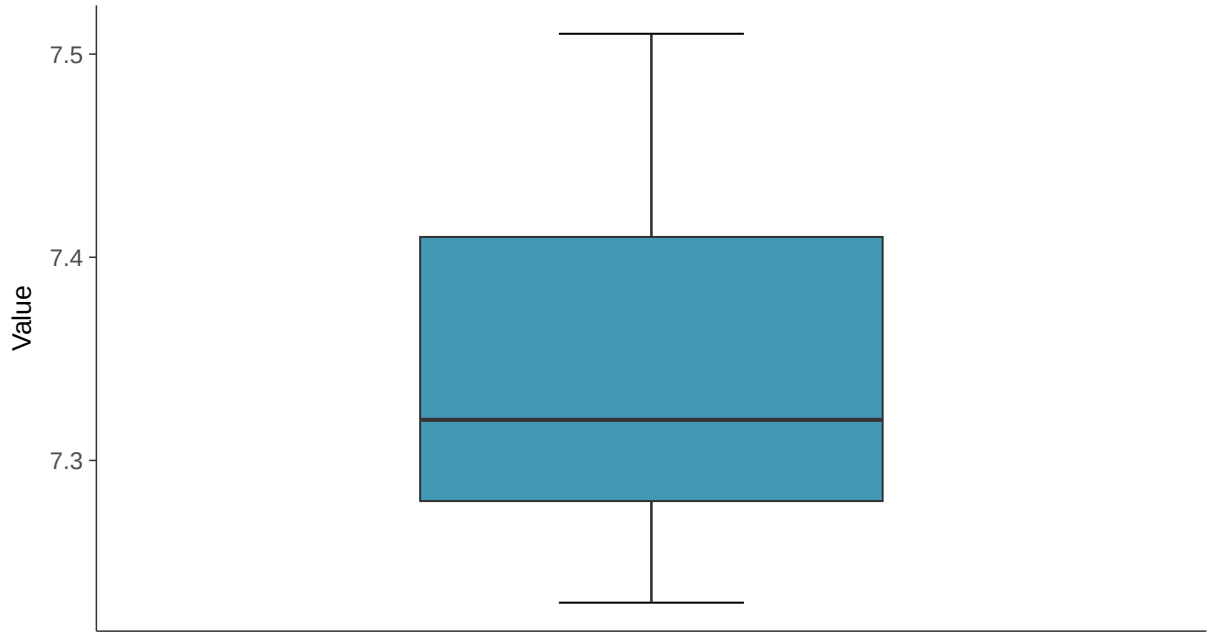
ID: 7C_1_05





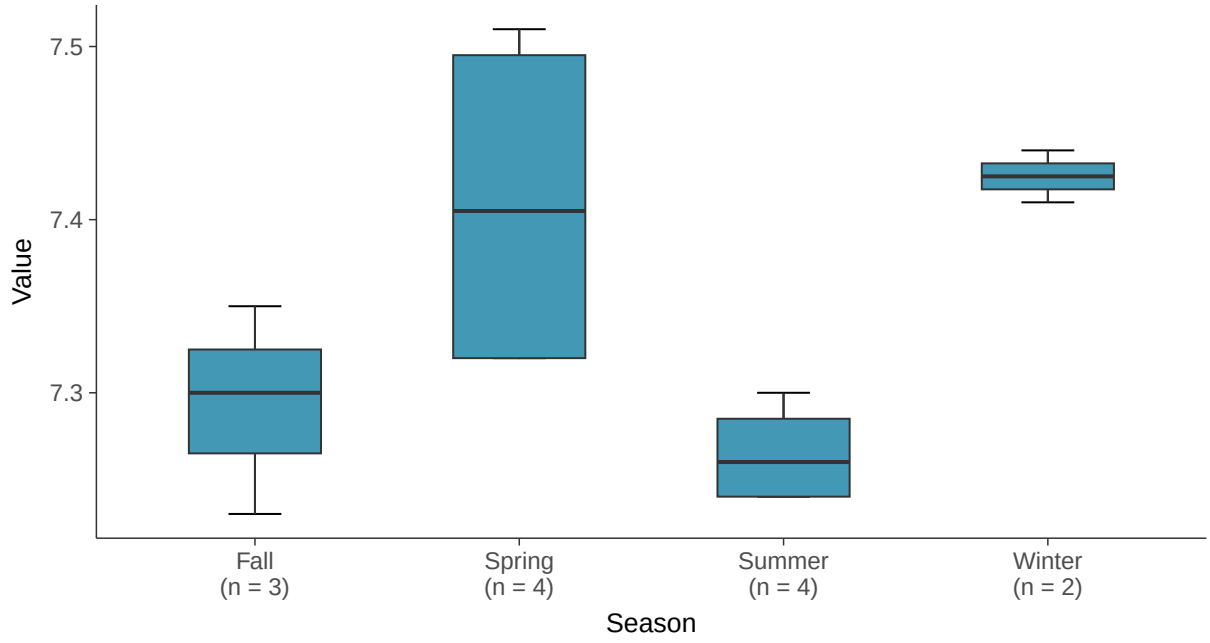
Boxplot

pH, Field, MW-7C (su)



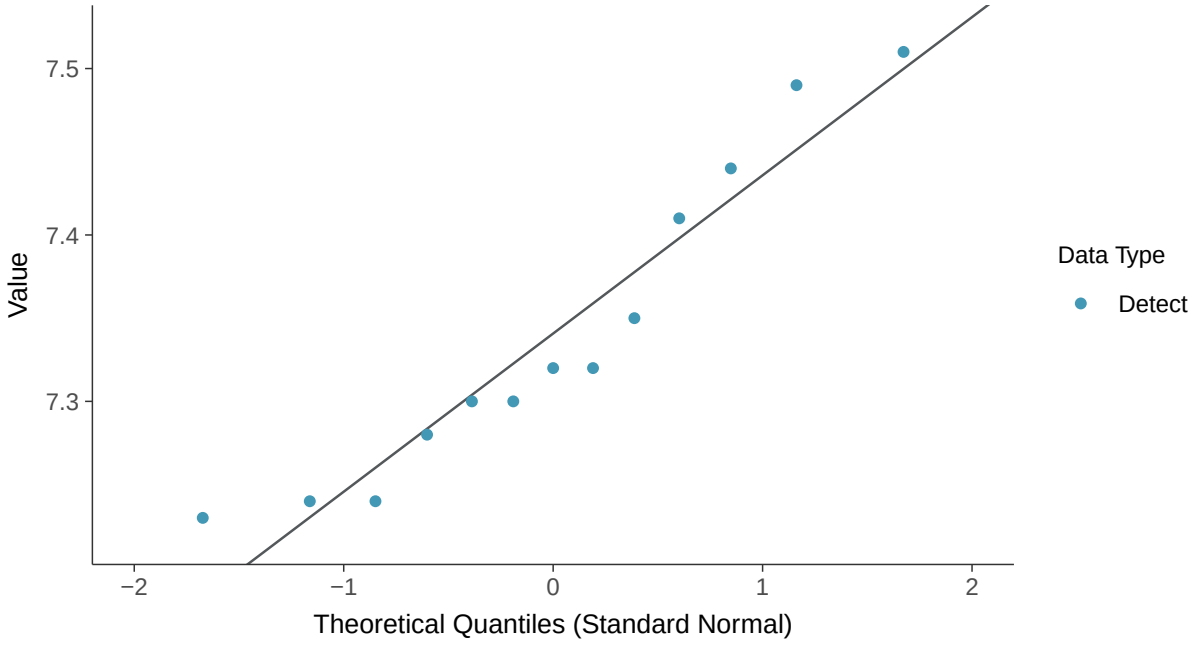
Boxplot by Season

pH, Field, MW-7C (su)



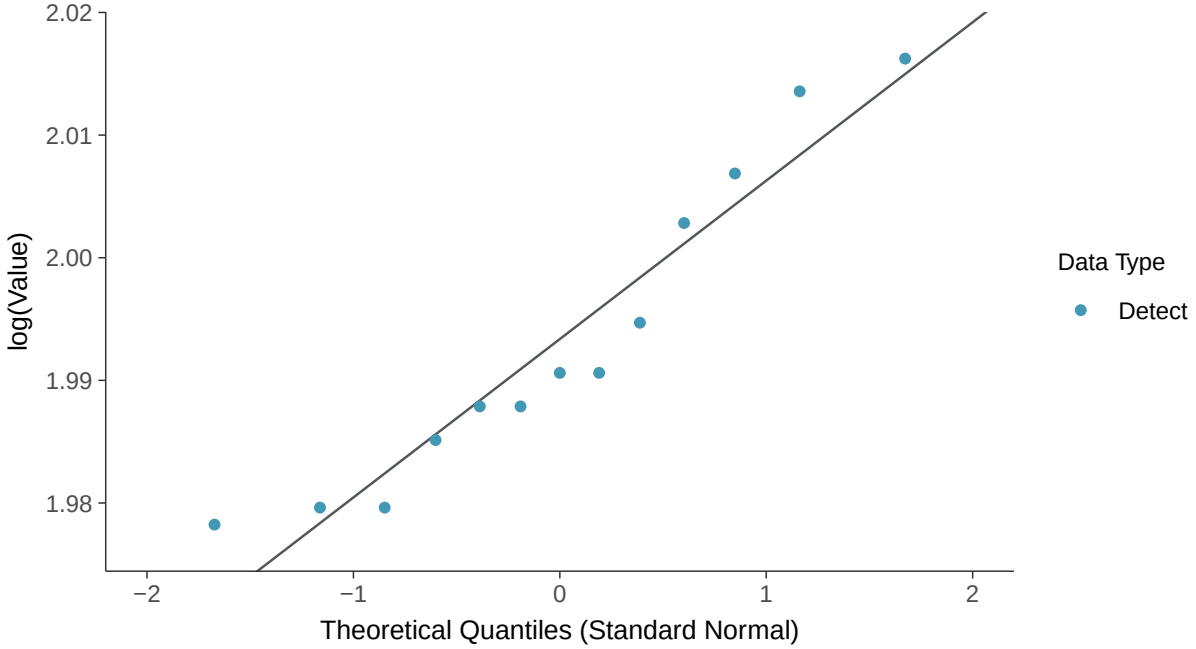
Normal Q-Q plot

pH, Field, MW-7C (su)



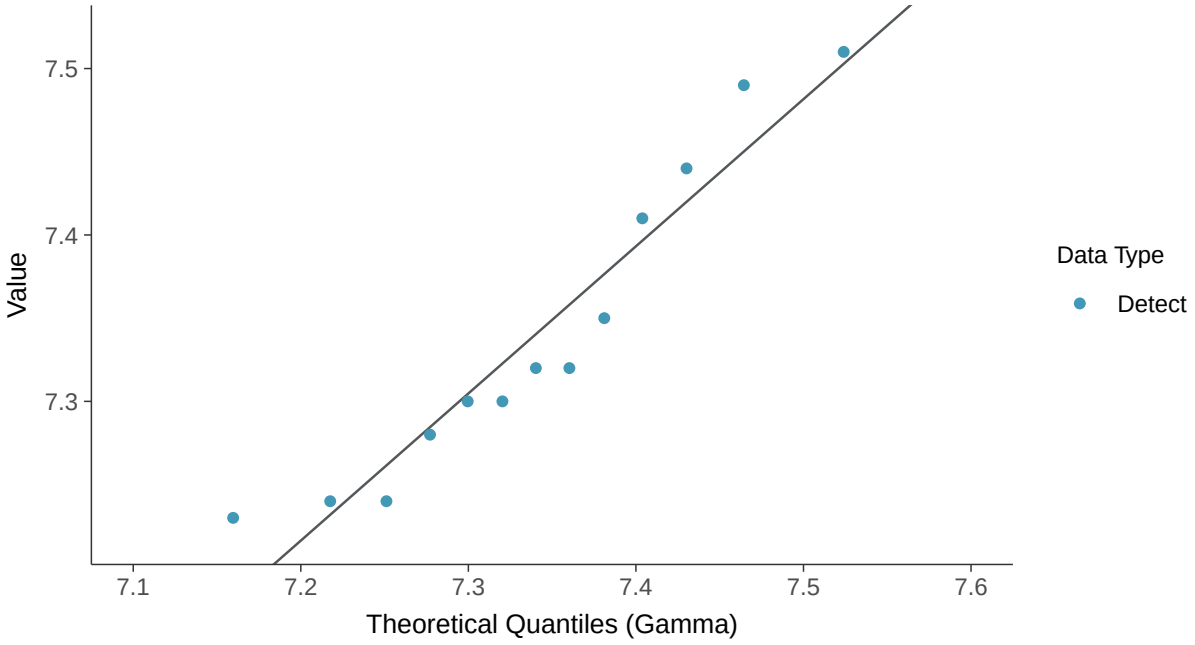
Lognormal Q-Q plot

pH, Field, MW-7C (su)



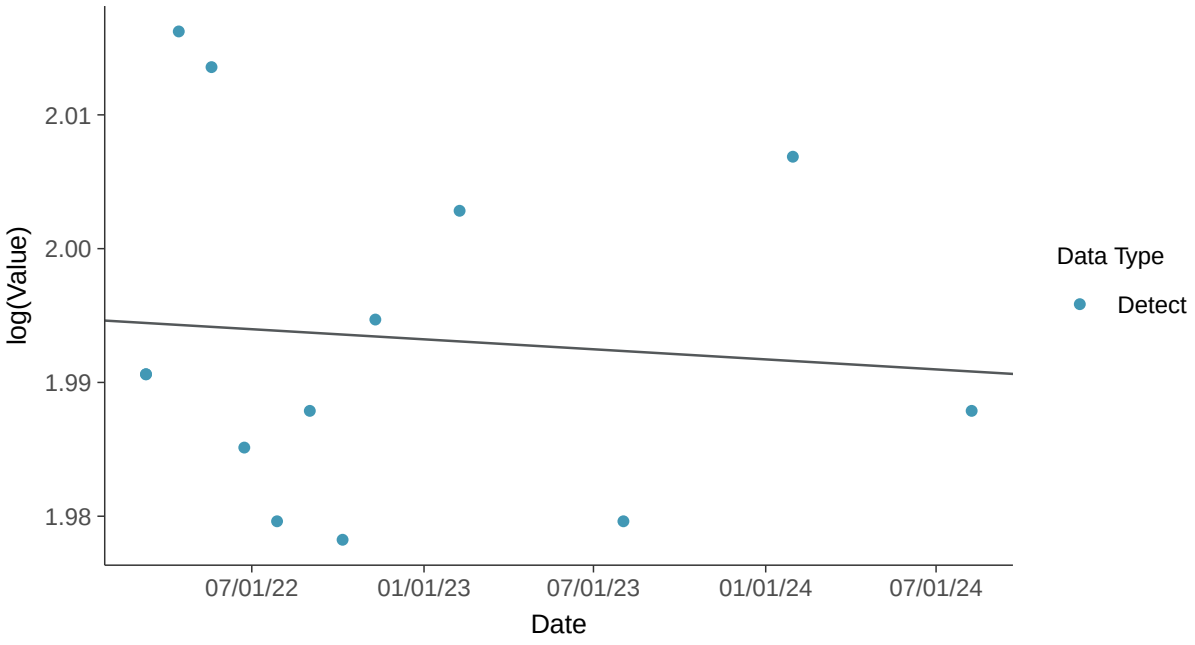
Gamma Q-Q plot

pH, Field, MW-7C (su)



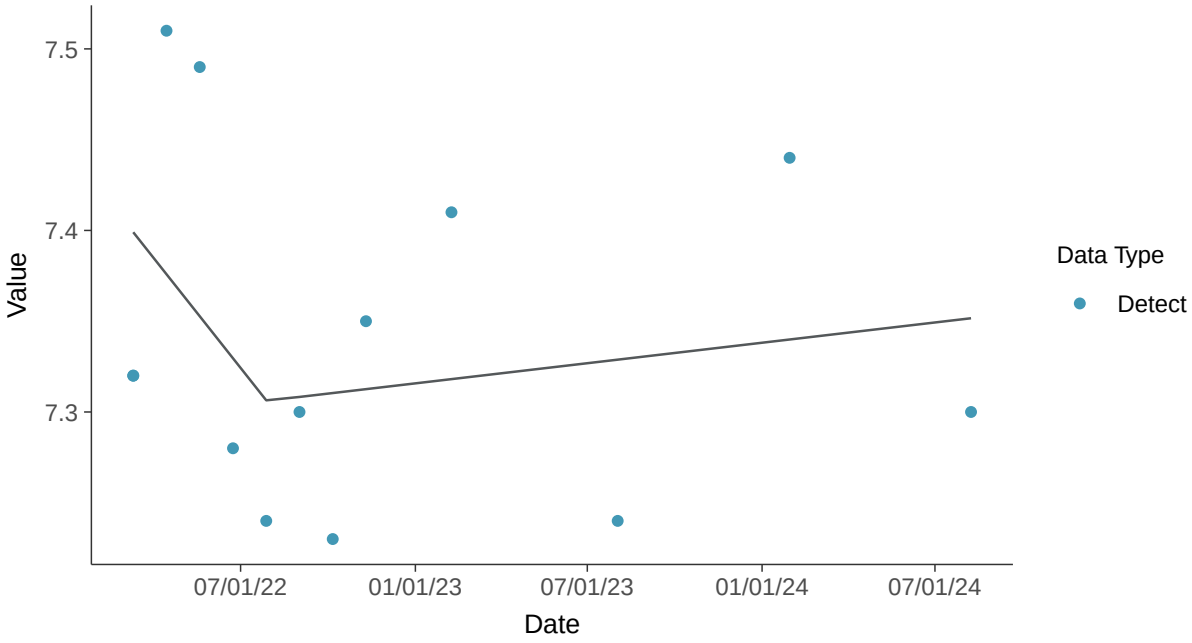
Trend Regression: Lognormal MLE

pH, Field, MW-7C (su)



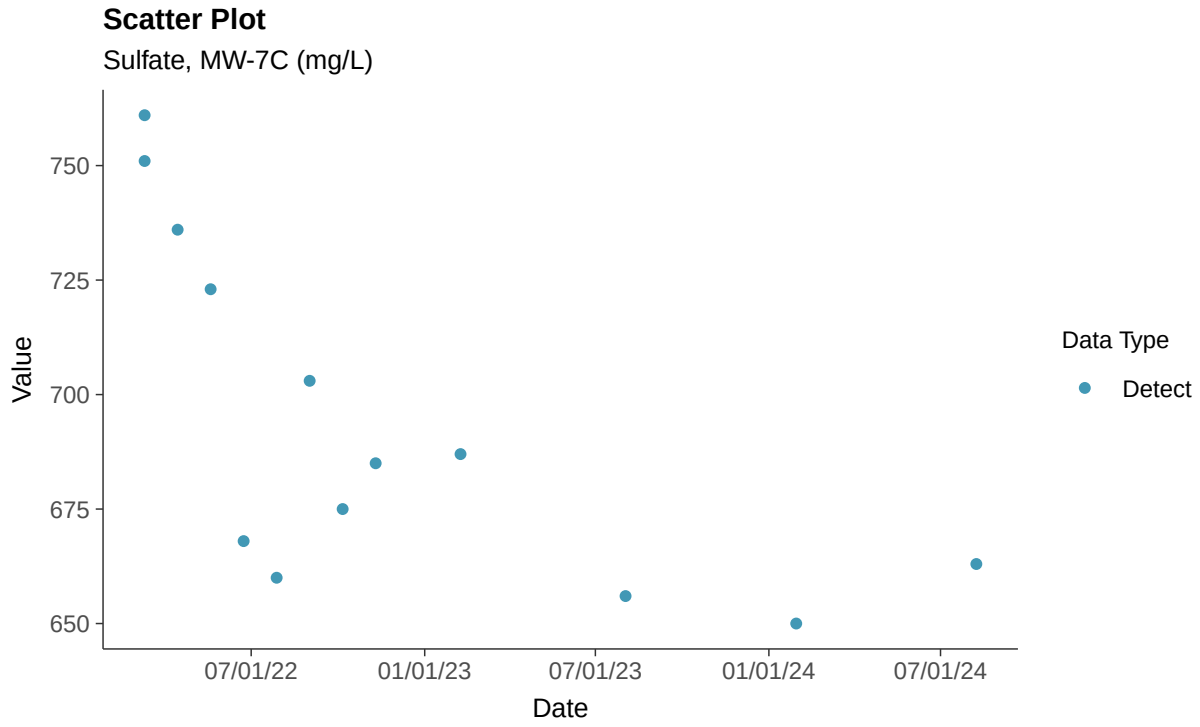
Trend Regression: Piecewise Linear-Linear

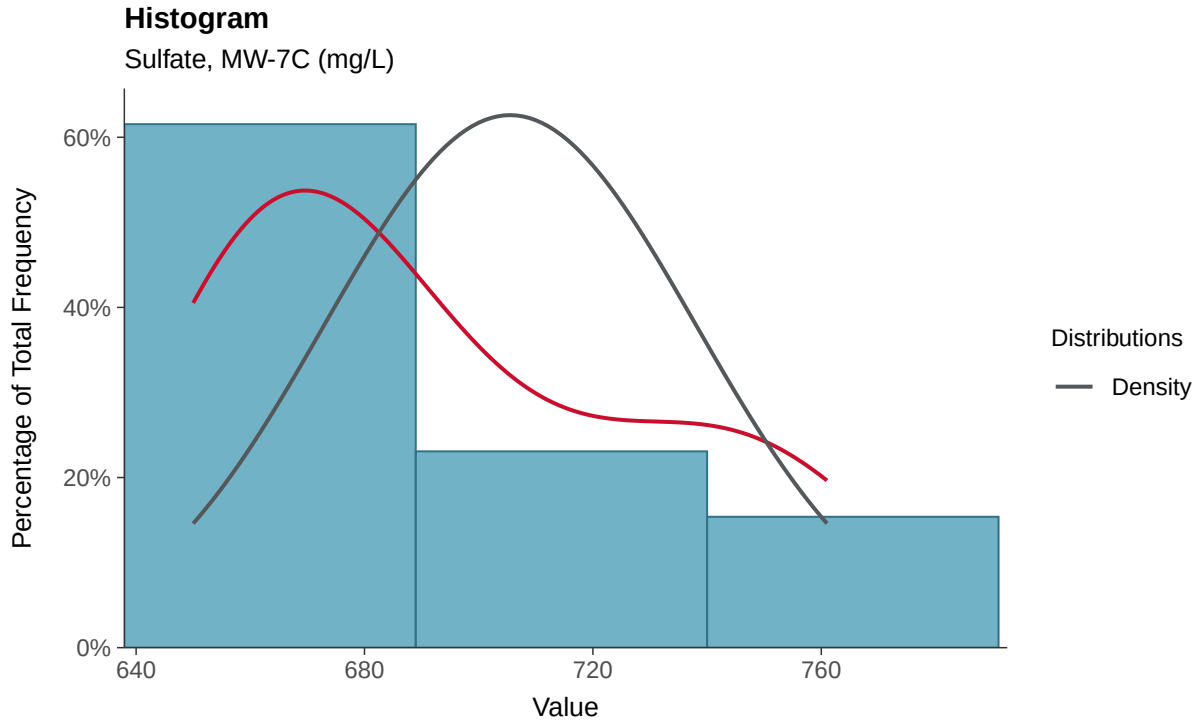
pH, Field, MW-7C (su)



Appendix III: Sulfate, MW-7C

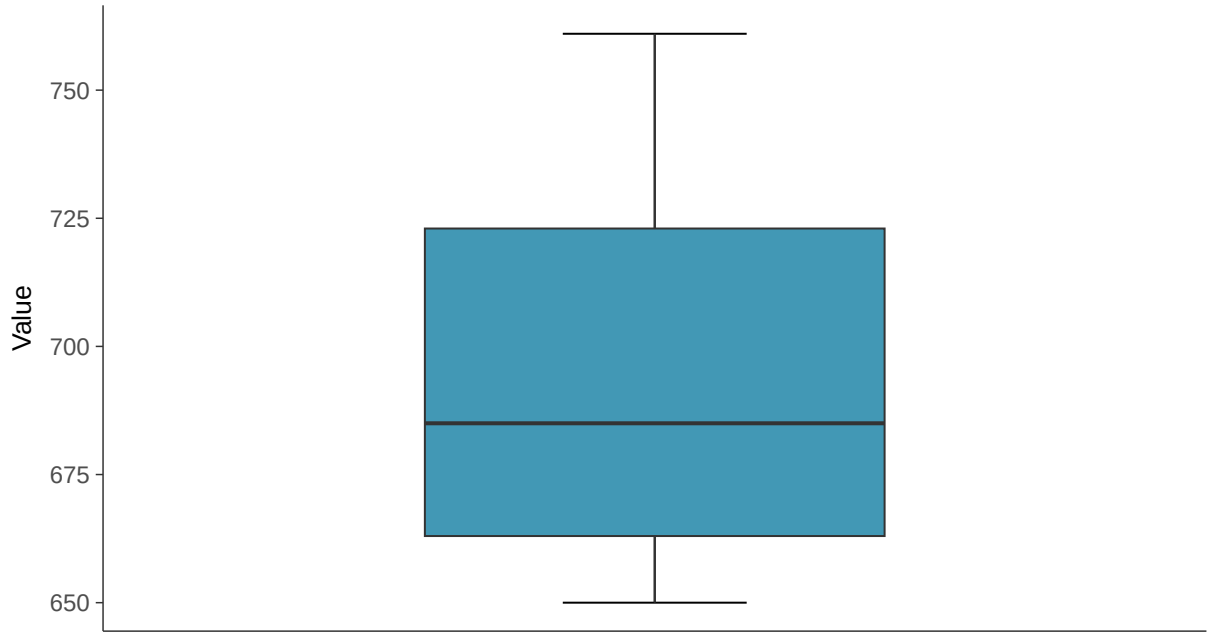
ID: 7C_1_06





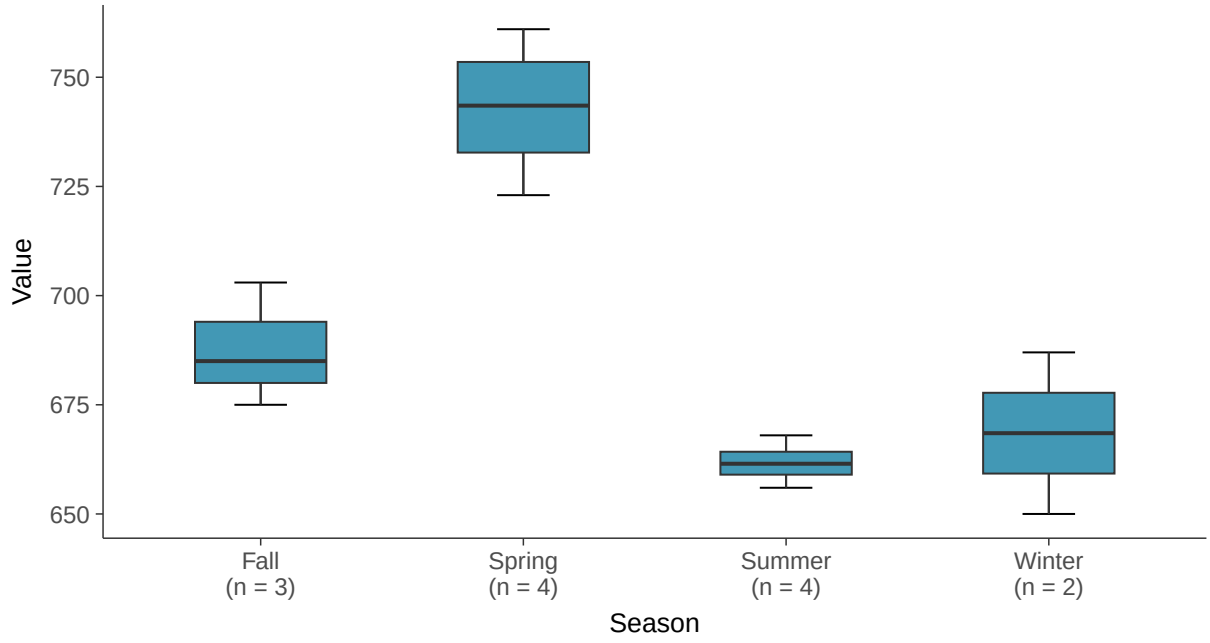
Boxplot

Sulfate, MW-7C (mg/L)



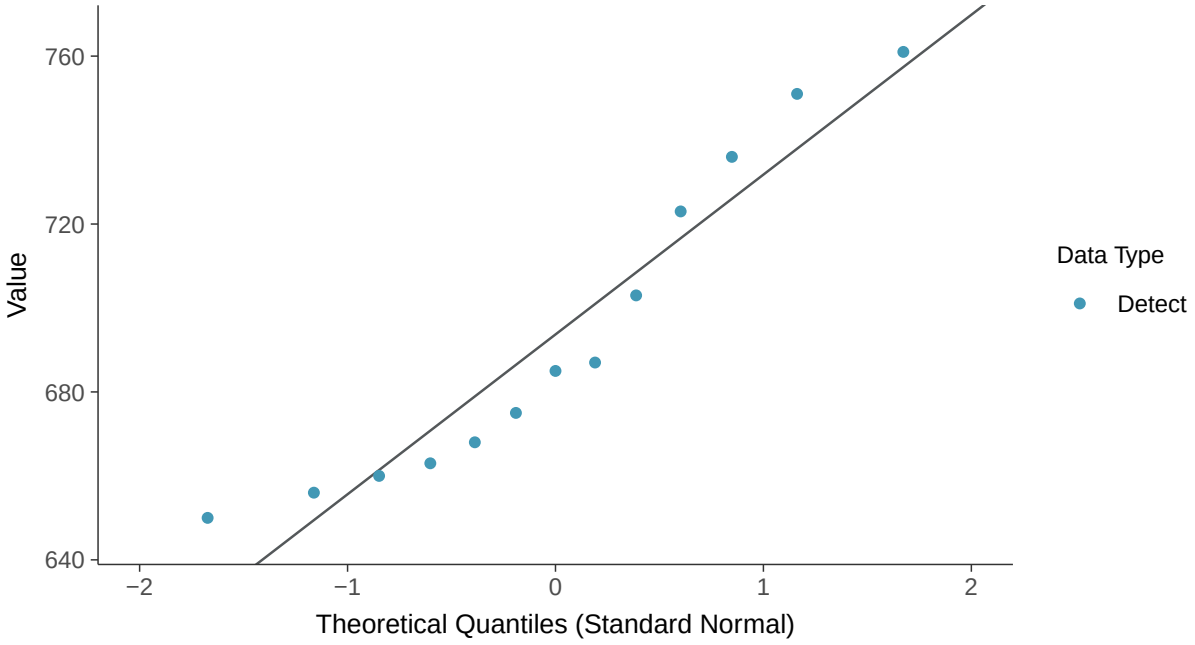
Boxplot by Season

Sulfate, MW-7C (mg/L)



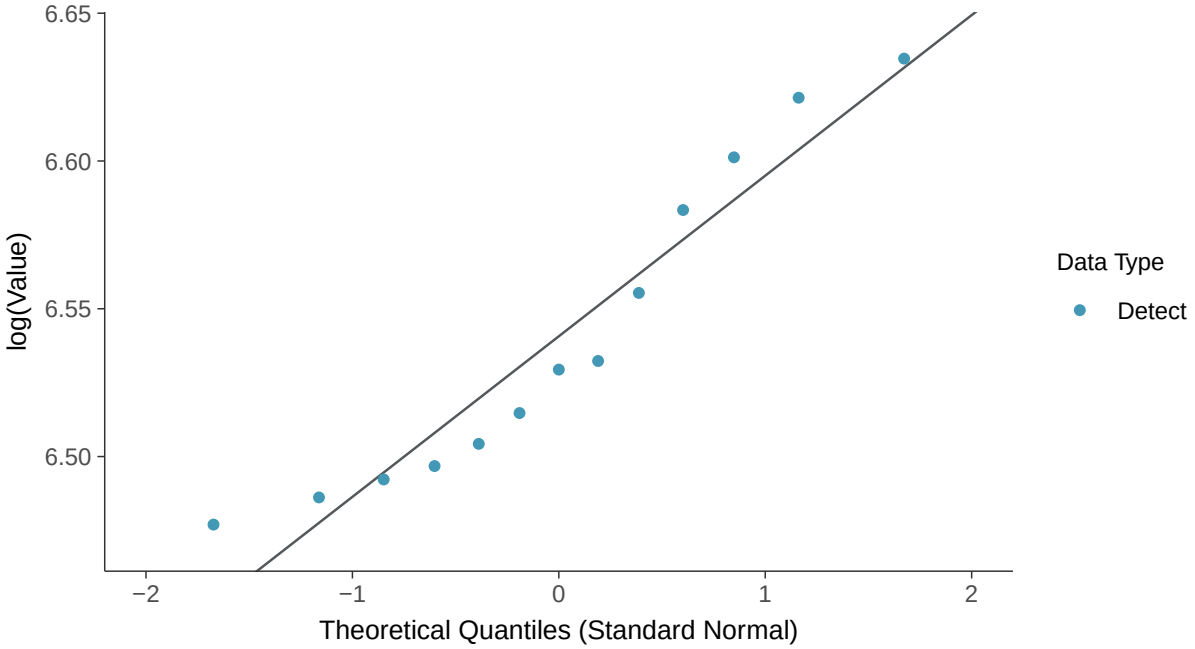
Normal Q-Q plot

Sulfate, MW-7C (mg/L)



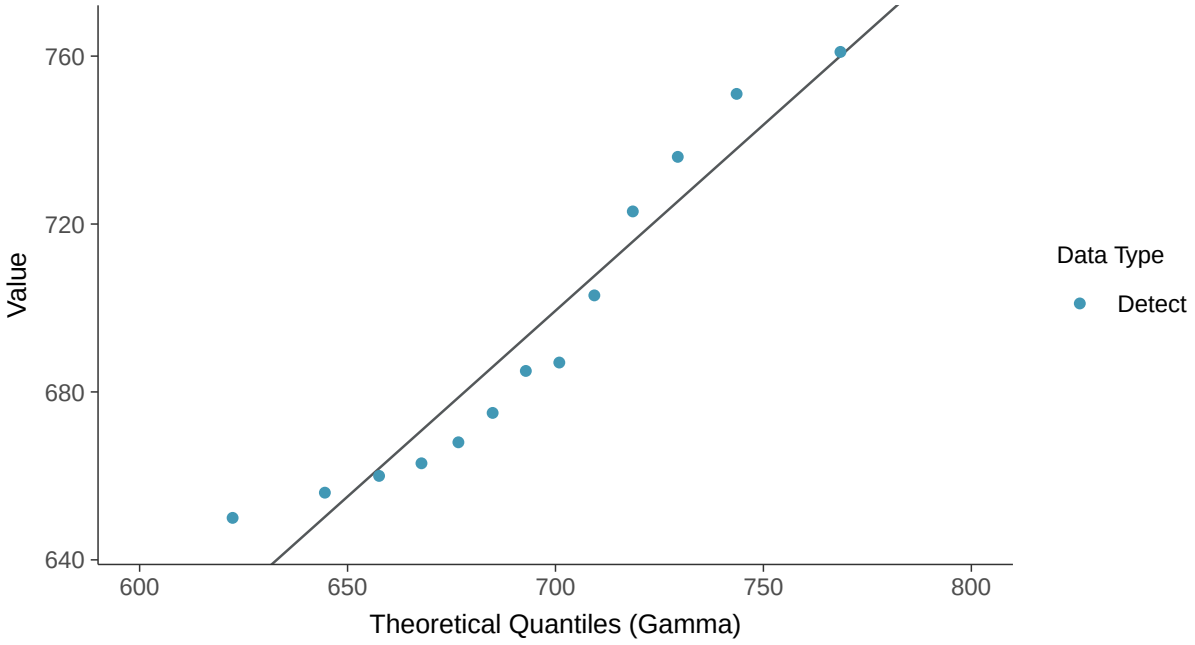
Lognormal Q-Q plot

Sulfate, MW-7C (mg/L)



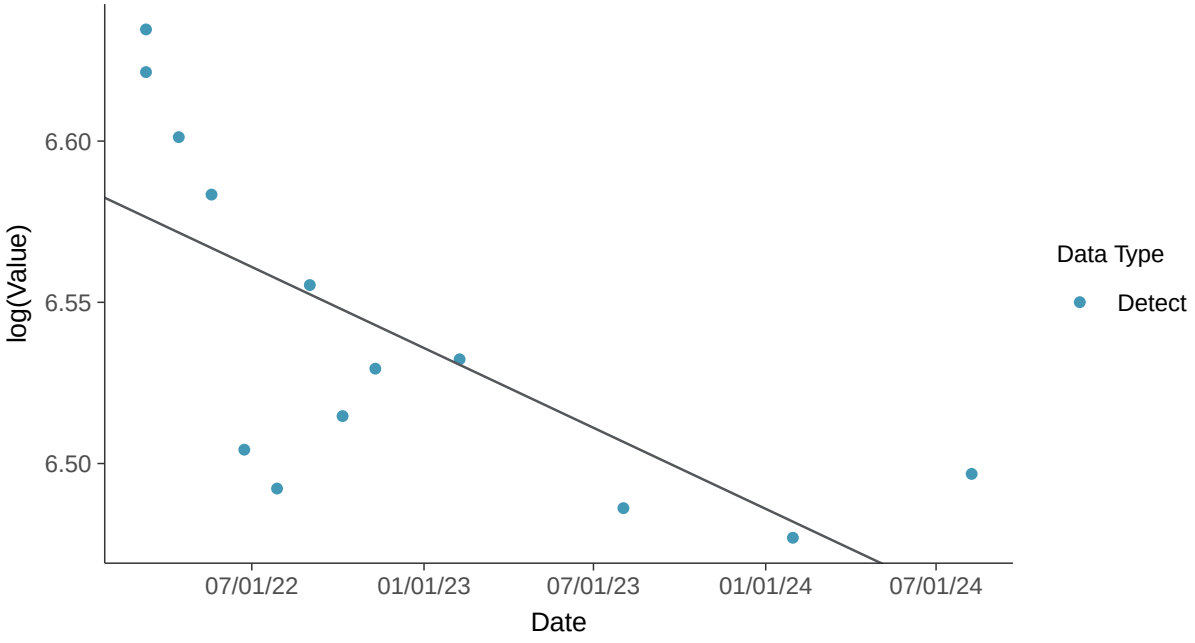
Gamma Q-Q plot

Sulfate, MW-7C (mg/L)



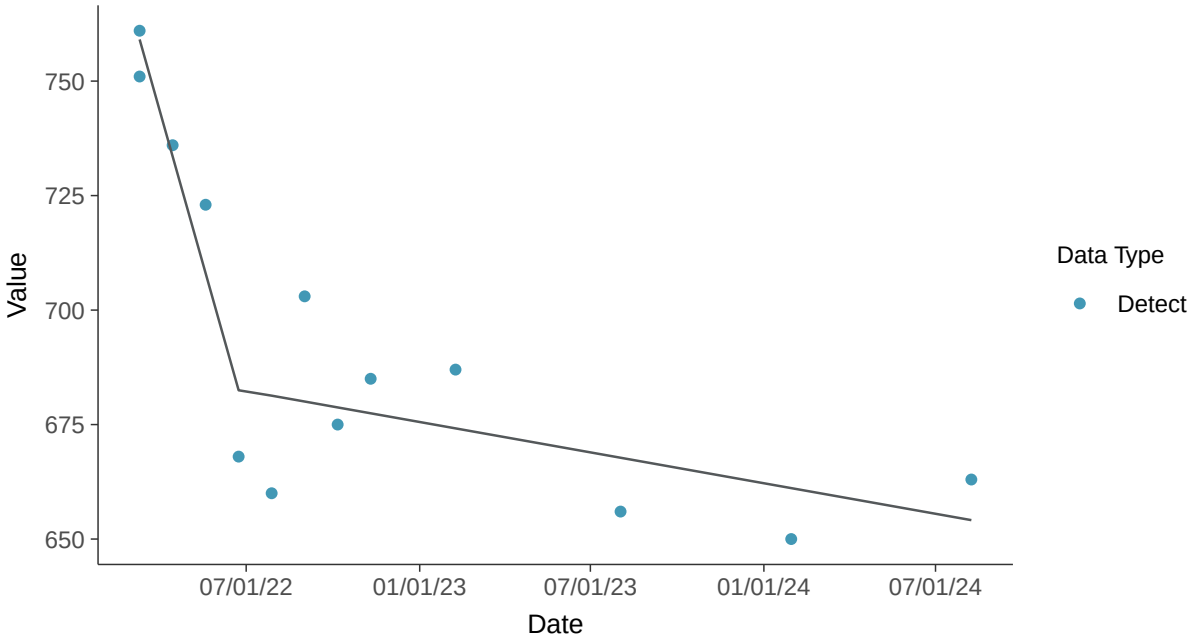
Trend Regression: Lognormal MLE

Sulfate, MW-7C (mg/L)



Trend Regression: Piecewise Linear-Linear

Sulfate, MW-7C (mg/L)

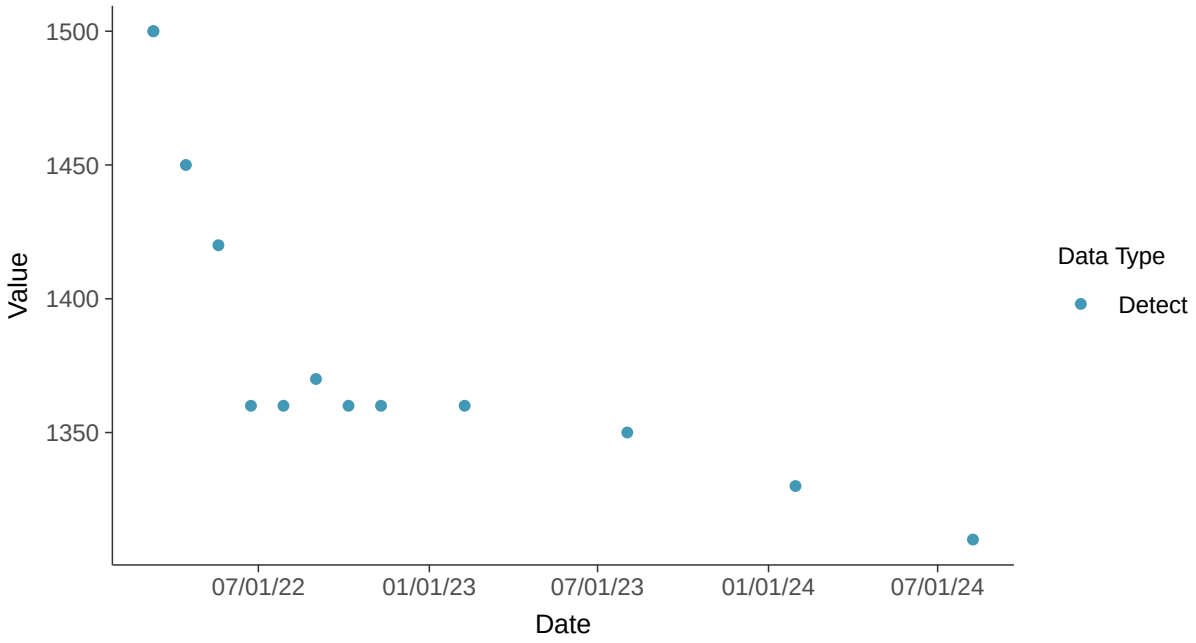


Appendix III: Total Dissolved Solids, MW-7C

ID: 7C_1_07

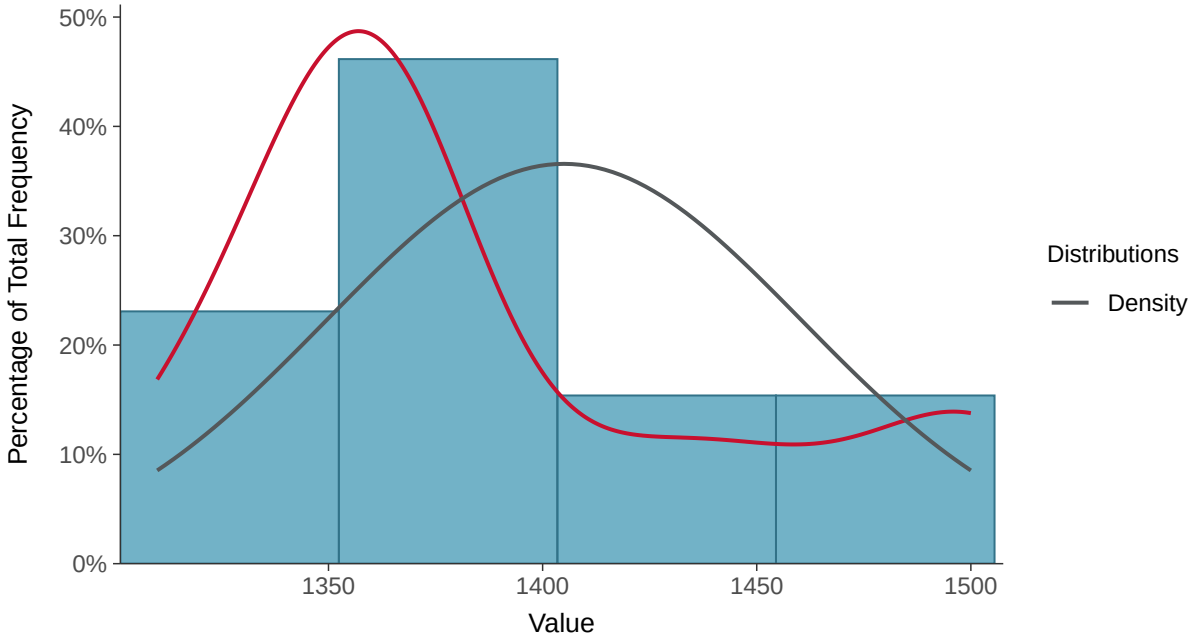
Scatter Plot

Total Dissolved Solids, MW-7C (mg/L)



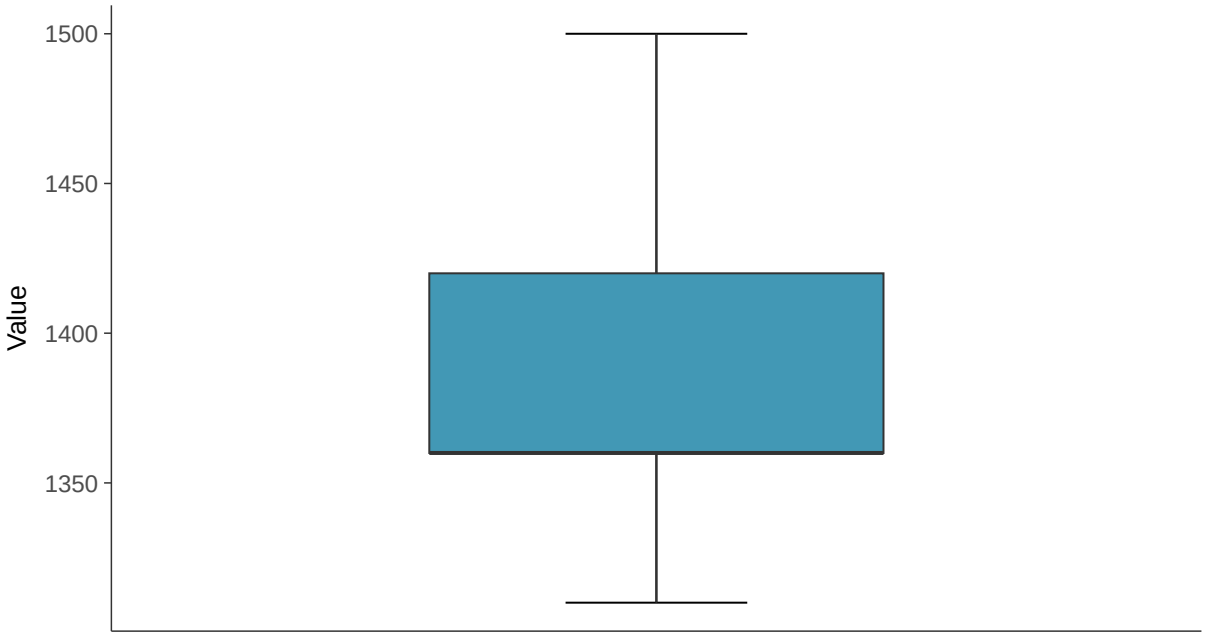
Histogram

Total Dissolved Solids, MW-7C (mg/L)



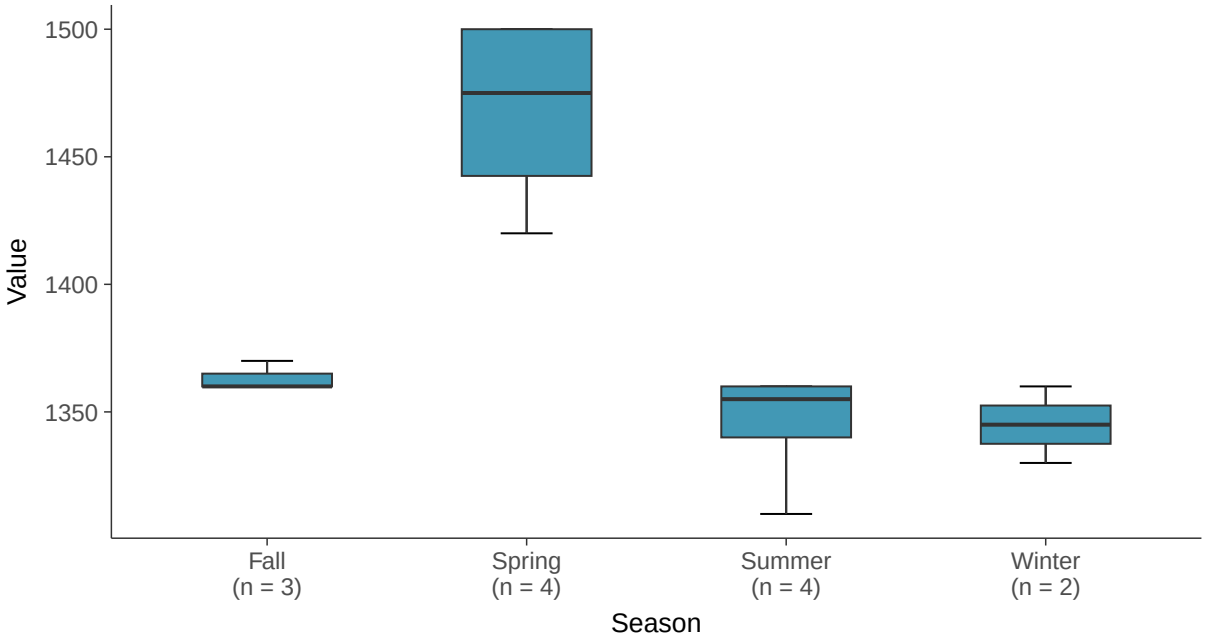
Boxplot

Total Dissolved Solids, MW-7C (mg/L)



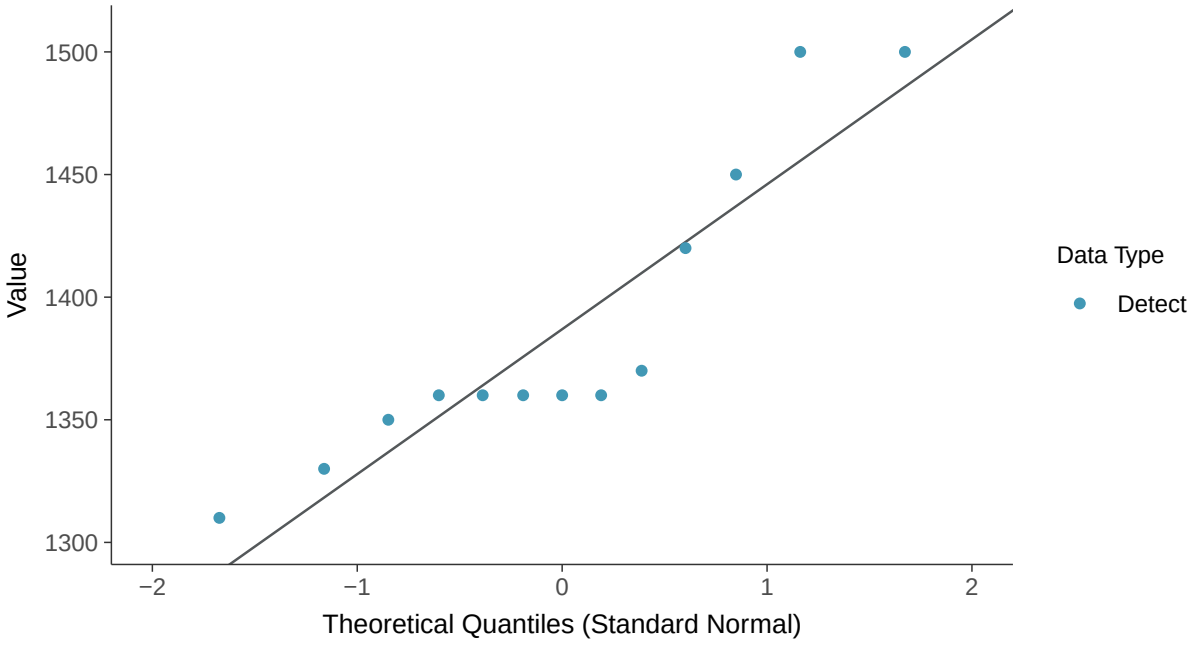
Boxplot by Season

Total Dissolved Solids, MW-7C (mg/L)



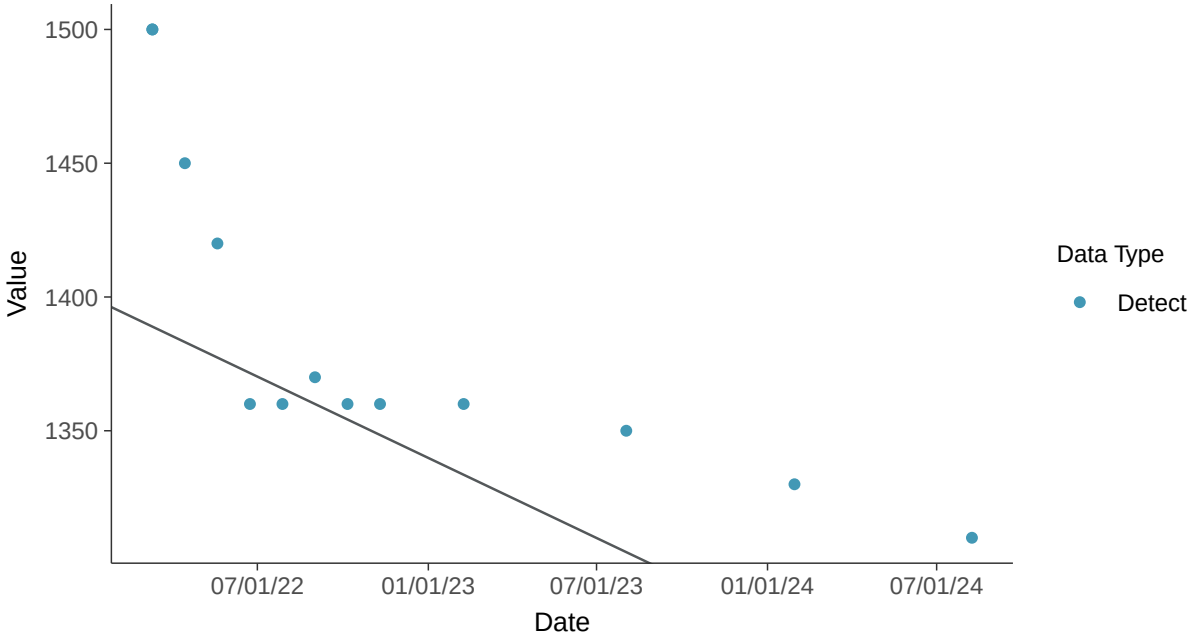
Normal Q-Q plot

Total Dissolved Solids, MW-7C (mg/L)



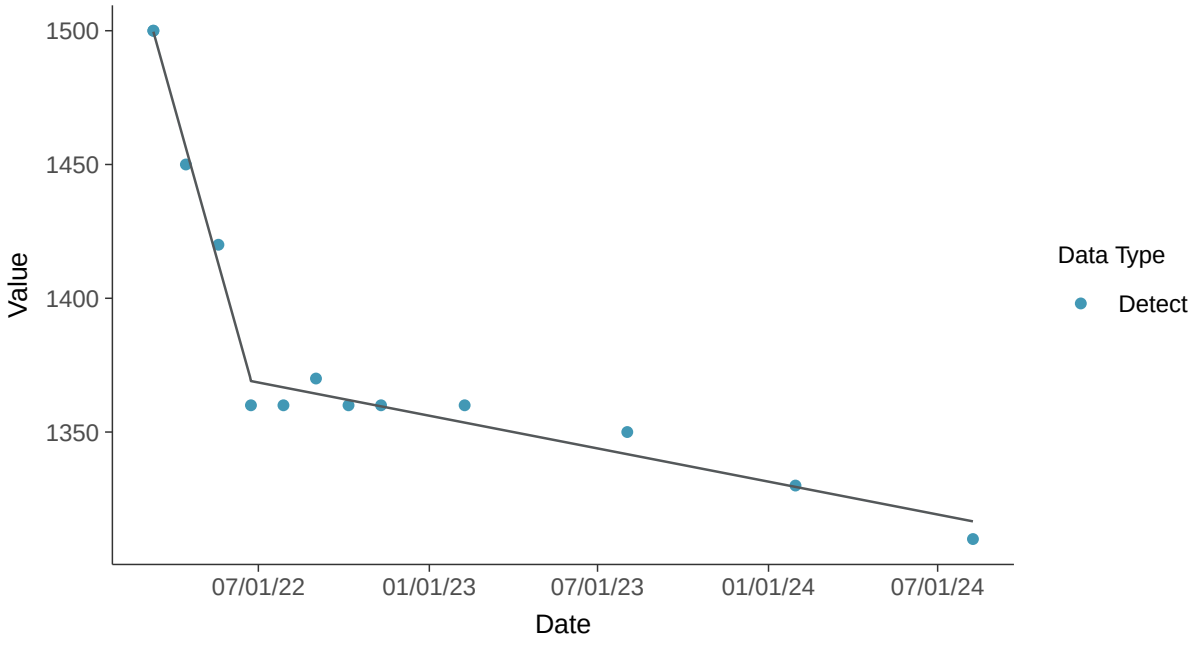
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Total Dissolved Solids, MW-7C (mg/L)



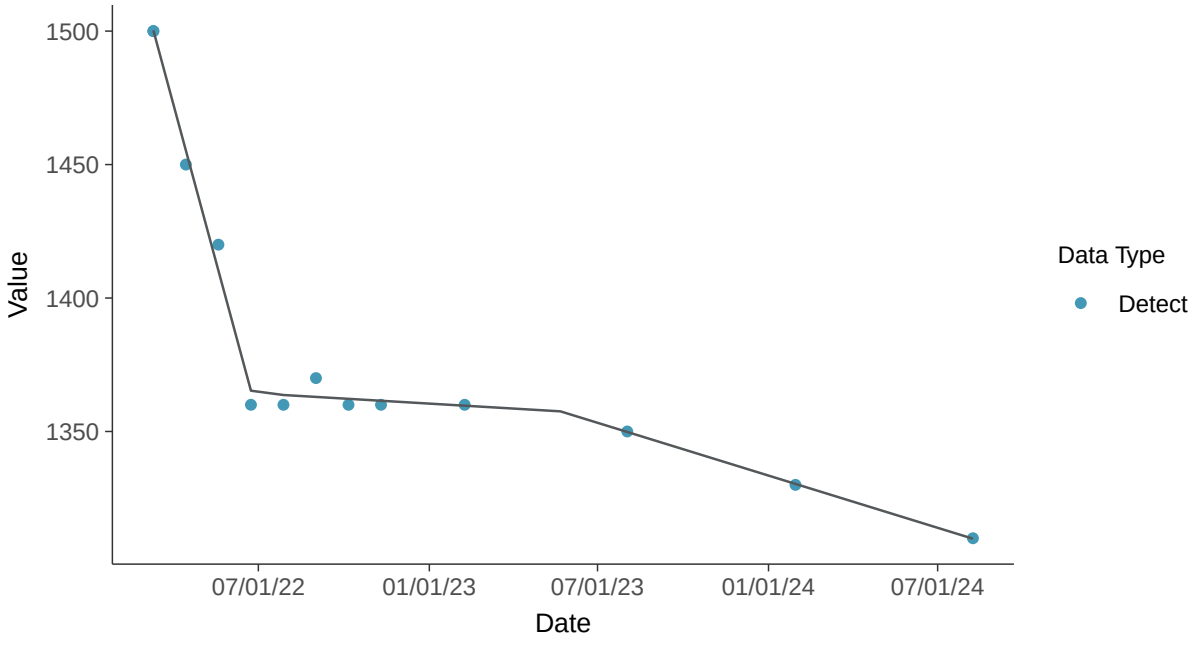
Trend Regression: Piecewise Linear-Linear

Total Dissolved Solids, MW-7C (mg/L)



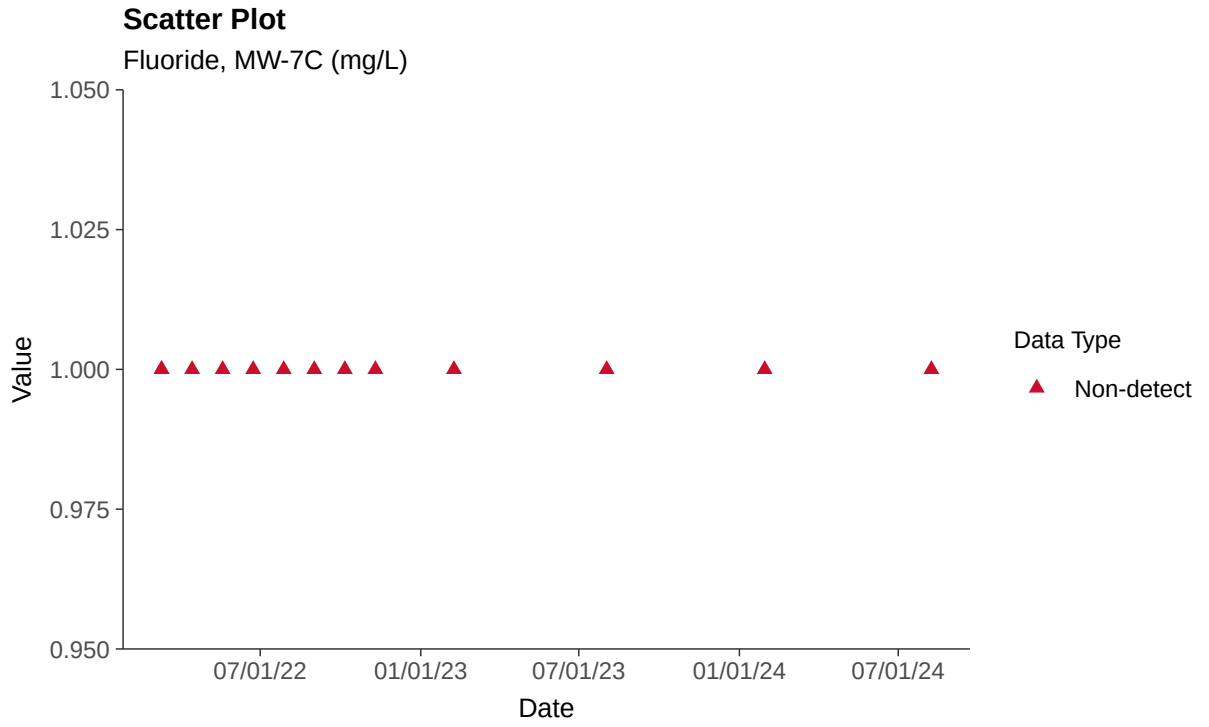
Trend Regression: Piecewise Linear-Linear-Linear

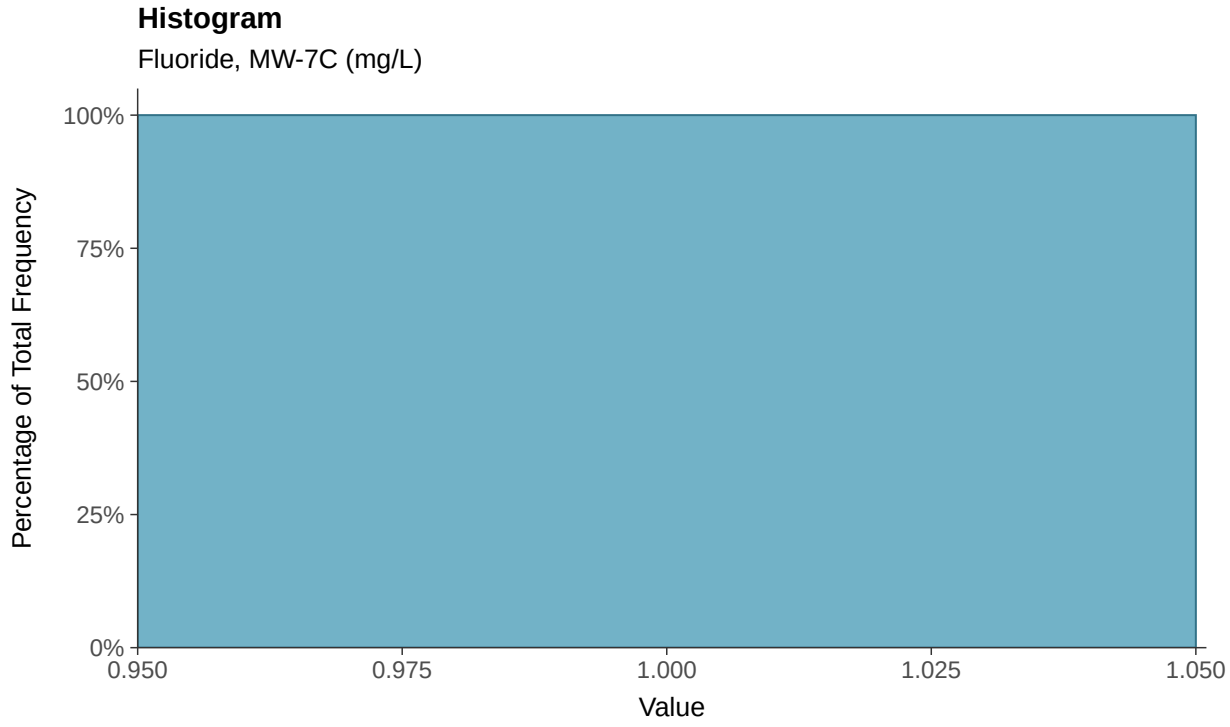
Total Dissolved Solids, MW-7C (mg/L)



Appendix IV: Fluoride, MW-7C

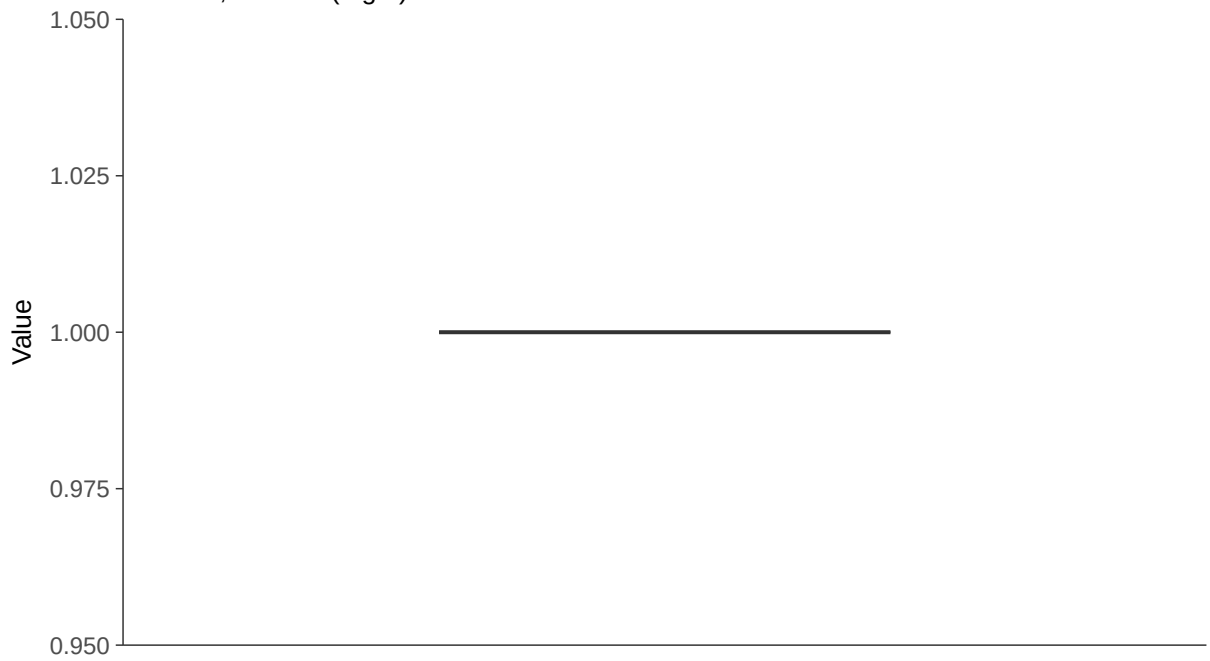
ID: 7C_2_04





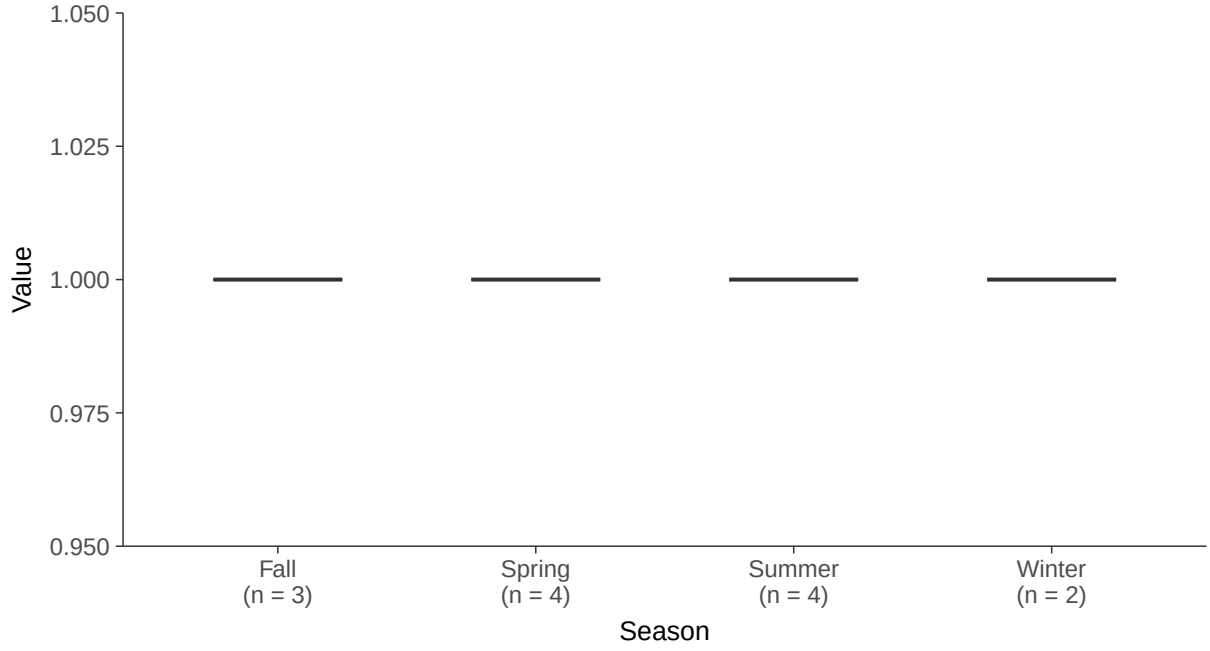
Boxplot

Fluoride, MW-7C (mg/L)



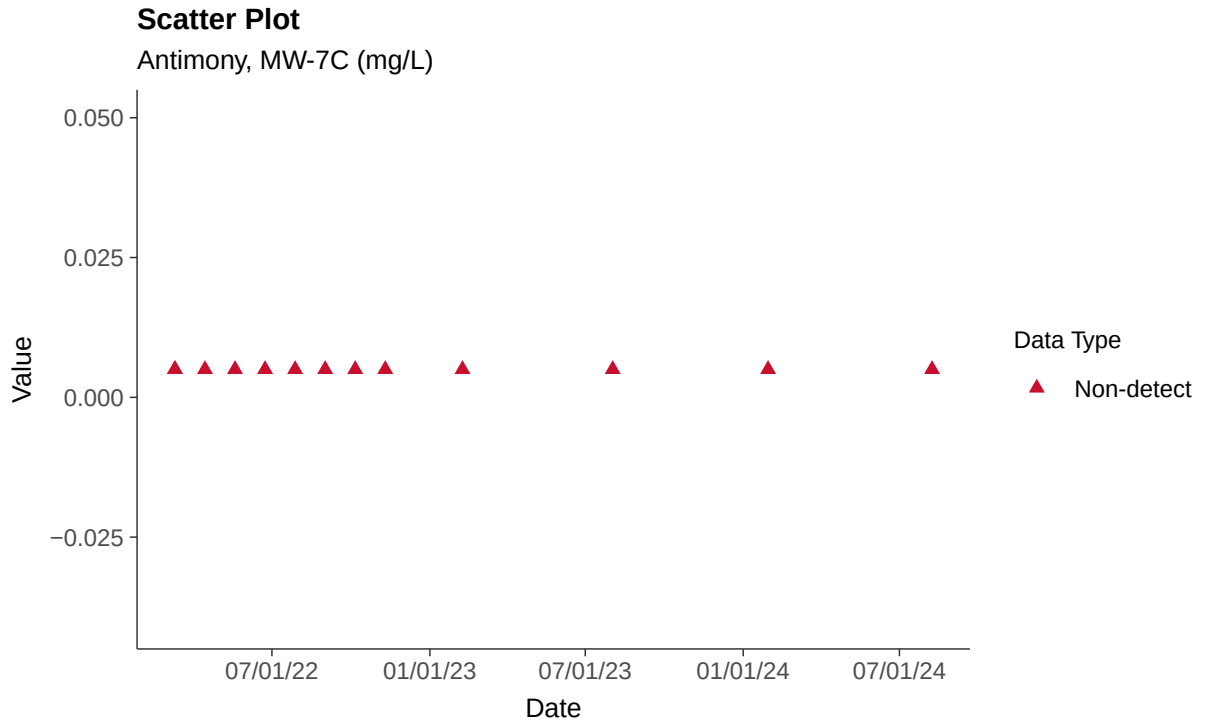
Boxplot by Season

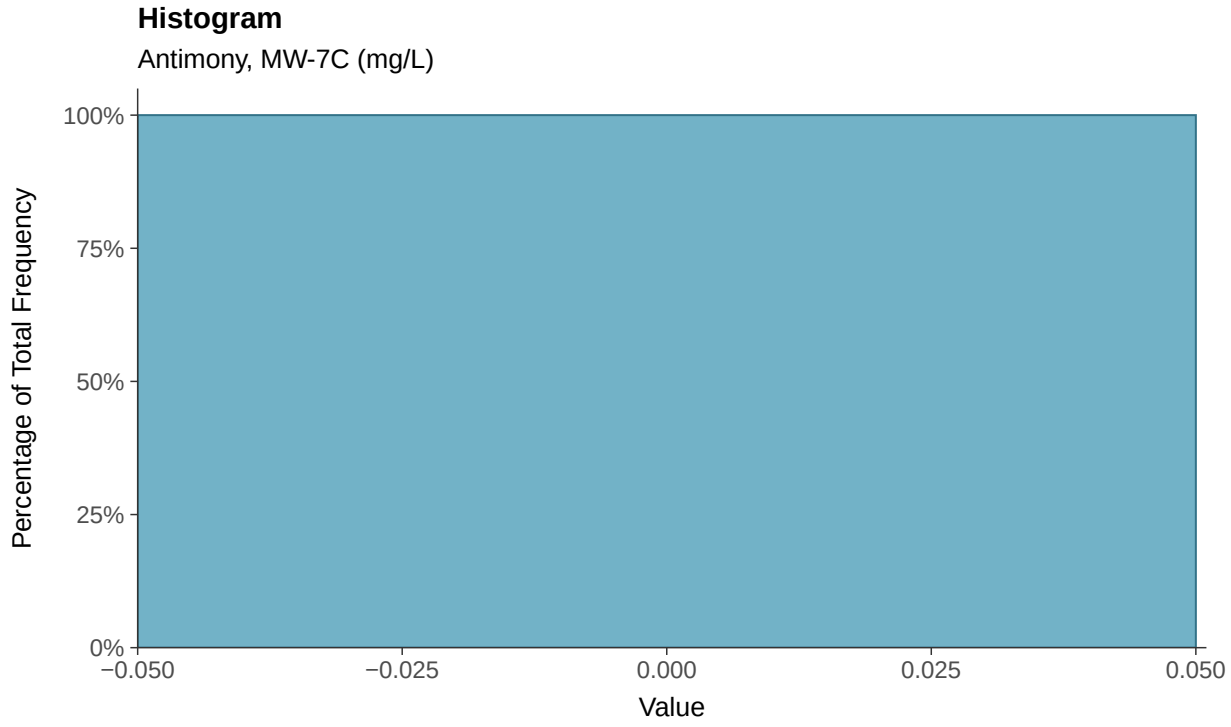
Fluoride, MW-7C (mg/L)



Appendix IV: Antimony, MW-7C

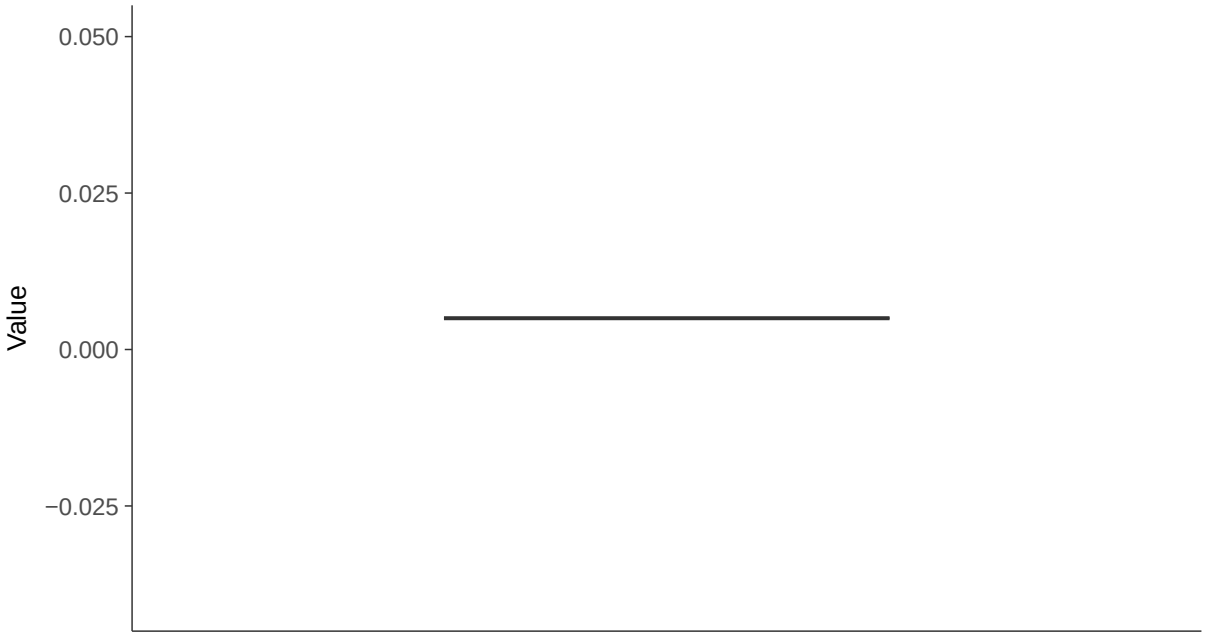
ID: 7C_2_08





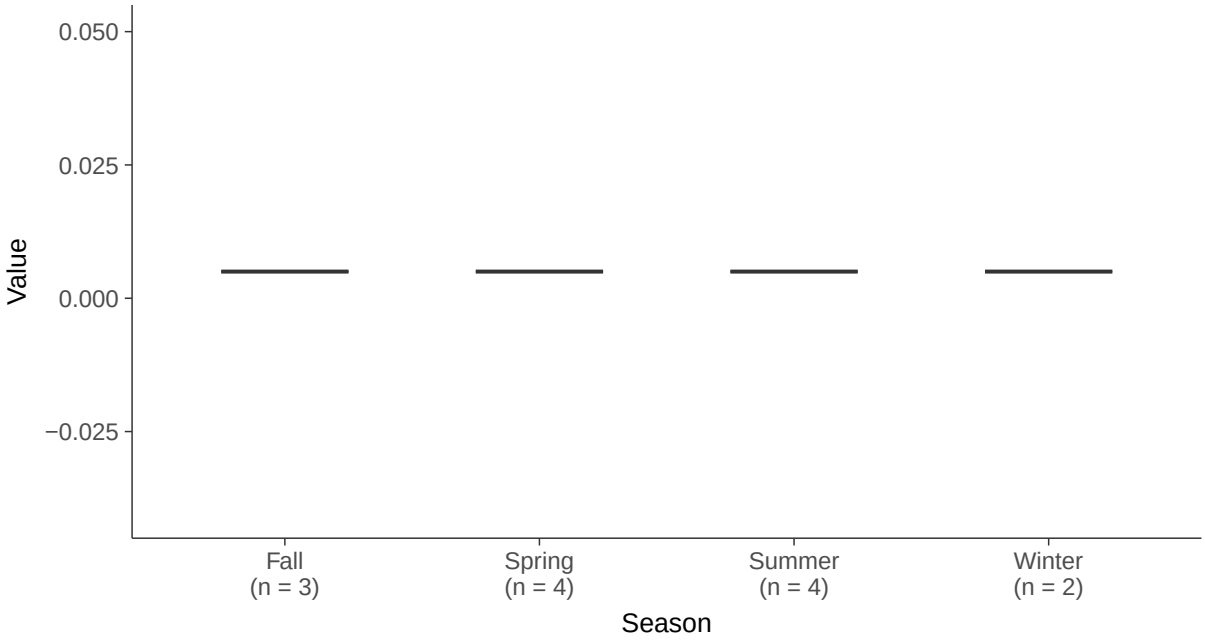
Boxplot

Antimony, MW-7C (mg/L)



Boxplot by Season

Antimony, MW-7C (mg/L)

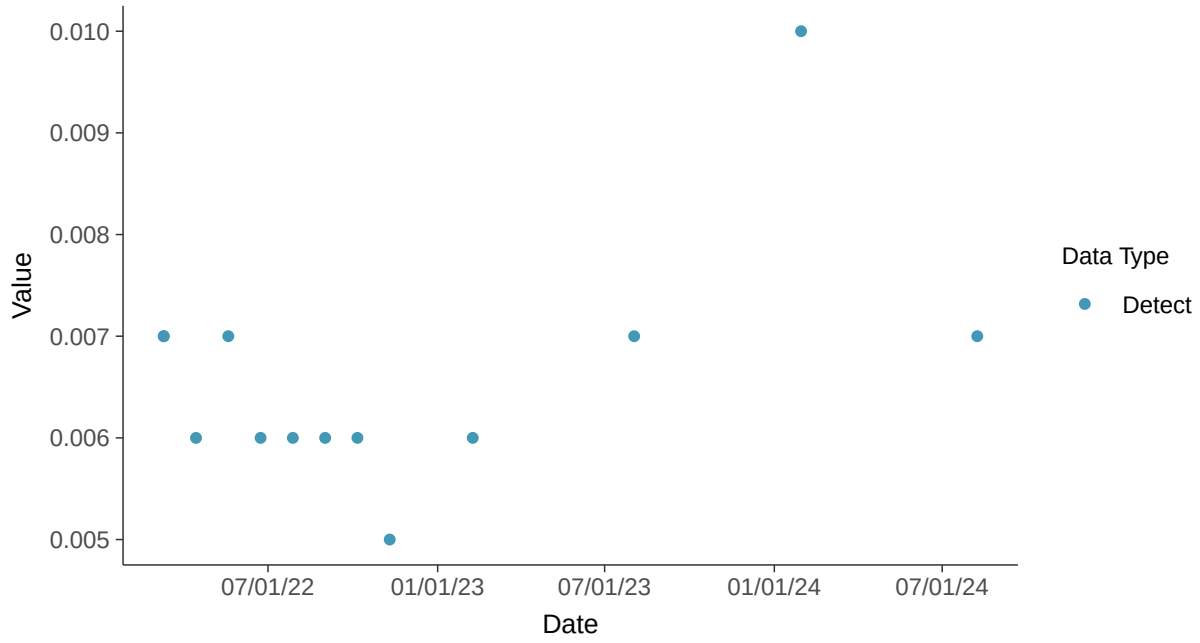


Appendix IV: Arsenic, MW-7C

ID: 7C_2_09

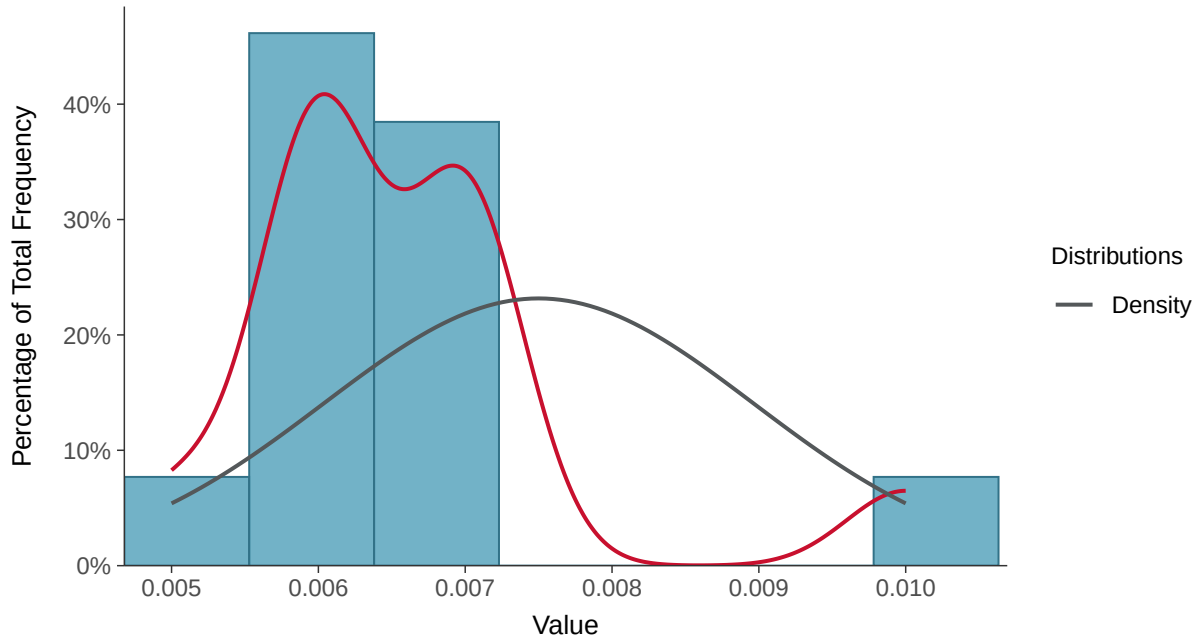
Scatter Plot

Arsenic, MW-7C (mg/L)



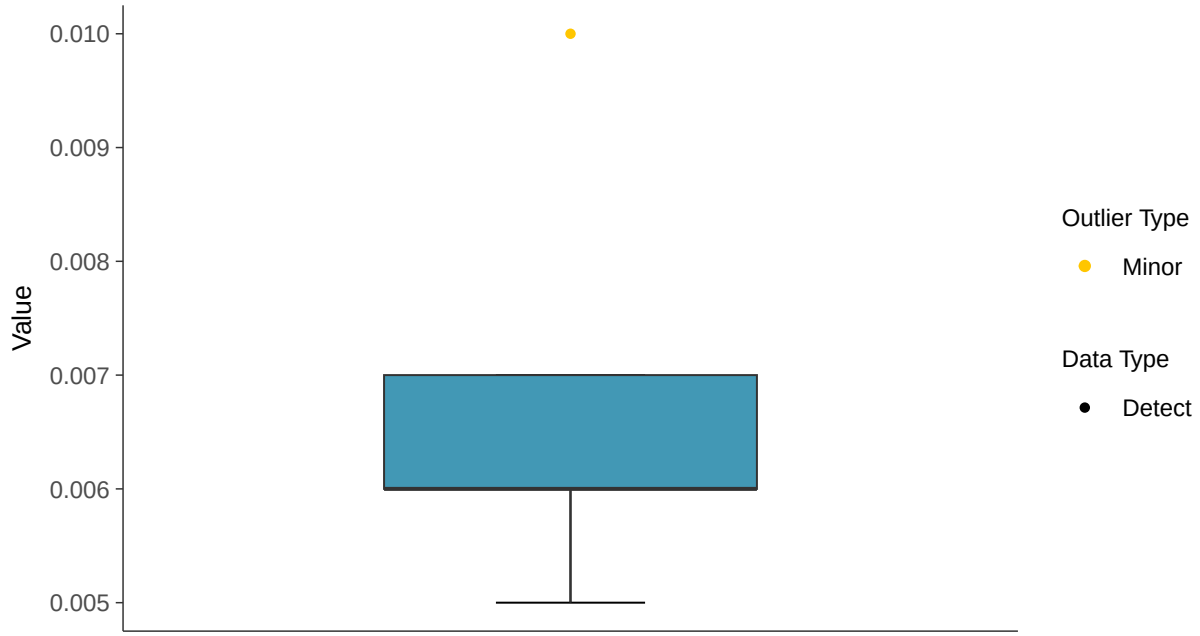
Histogram

Arsenic, MW-7C (mg/L)



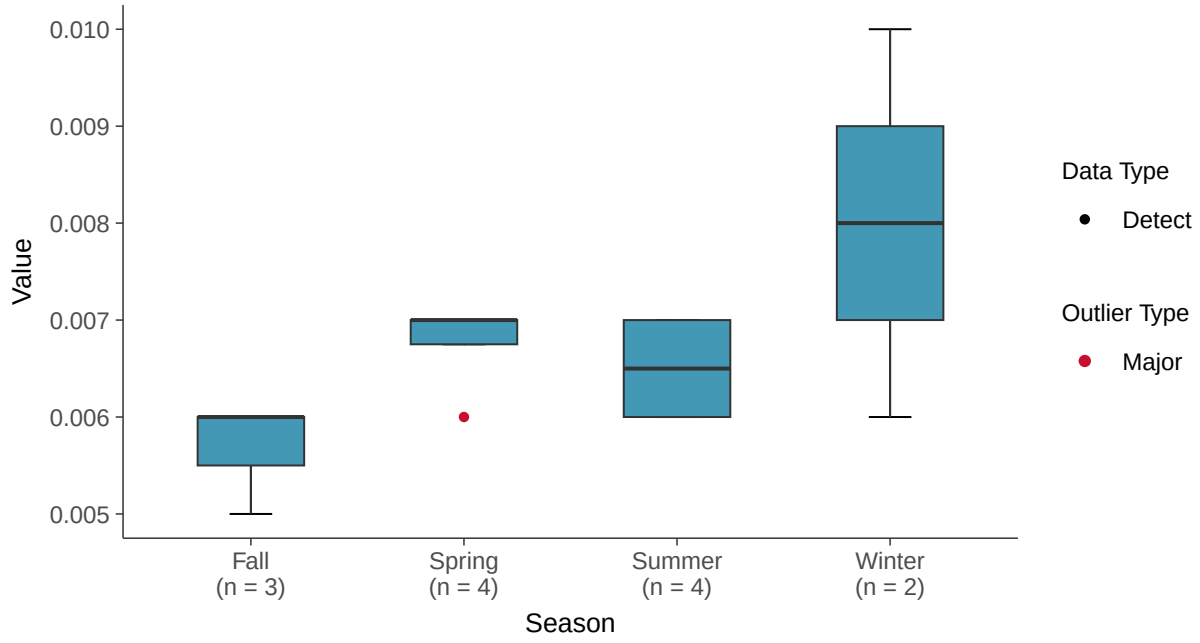
Boxplot

Arsenic, MW-7C (mg/L)



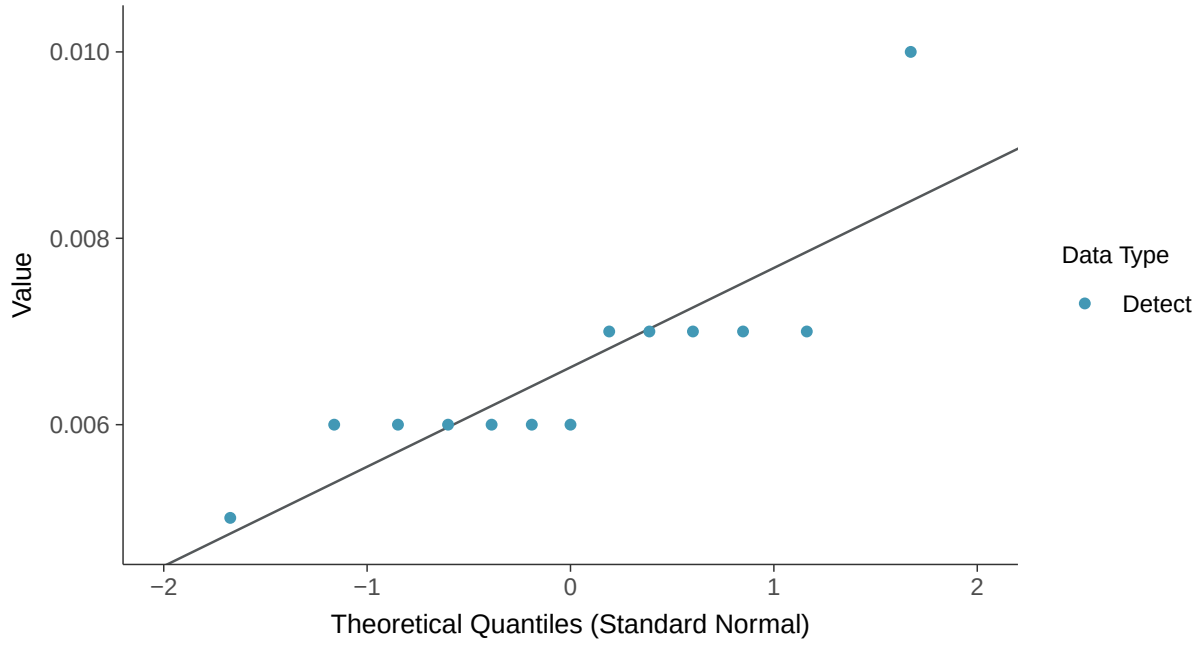
Boxplot by Season

Arsenic, MW-7C (mg/L)



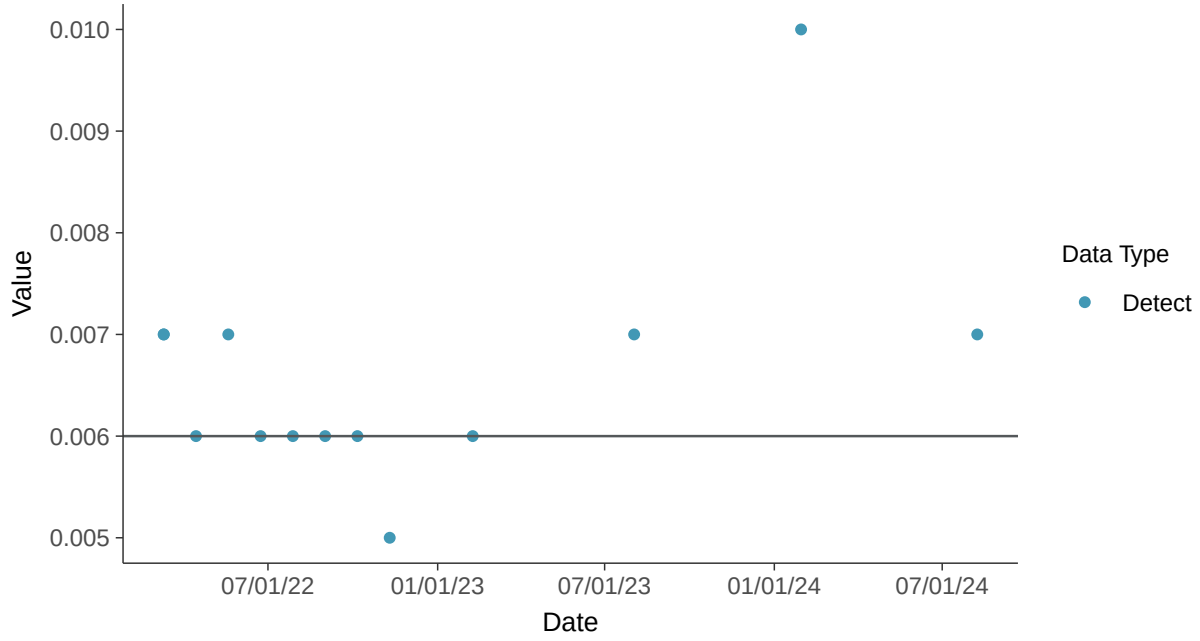
Normal Q-Q plot

Arsenic, MW-7C (mg/L)



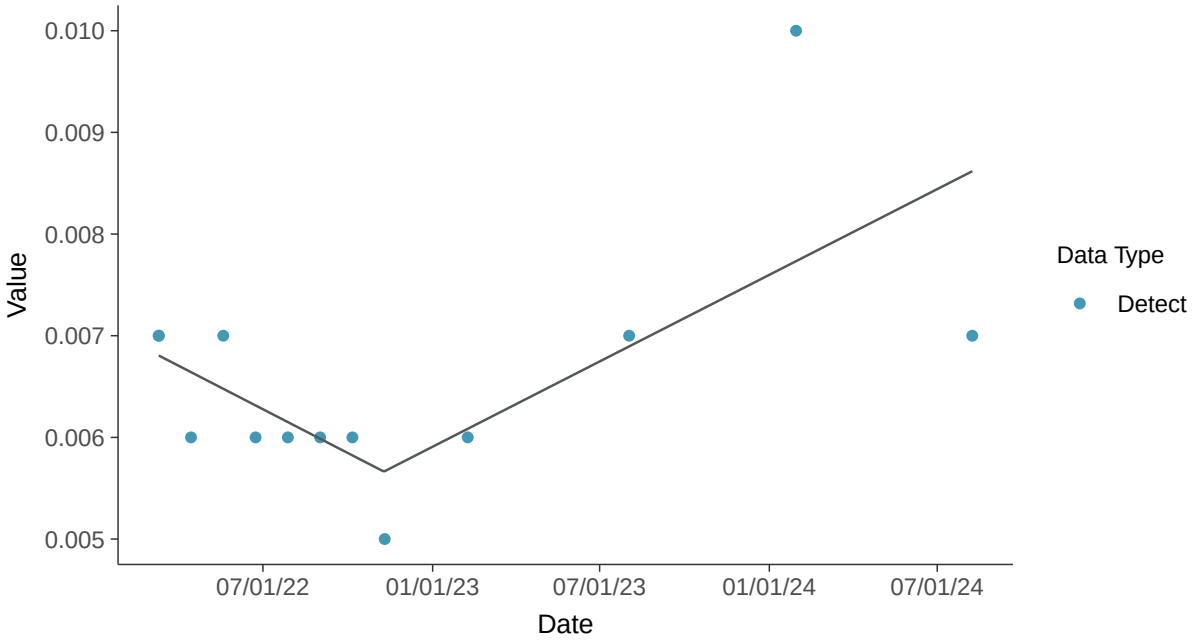
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Arsenic, MW-7C (mg/L)



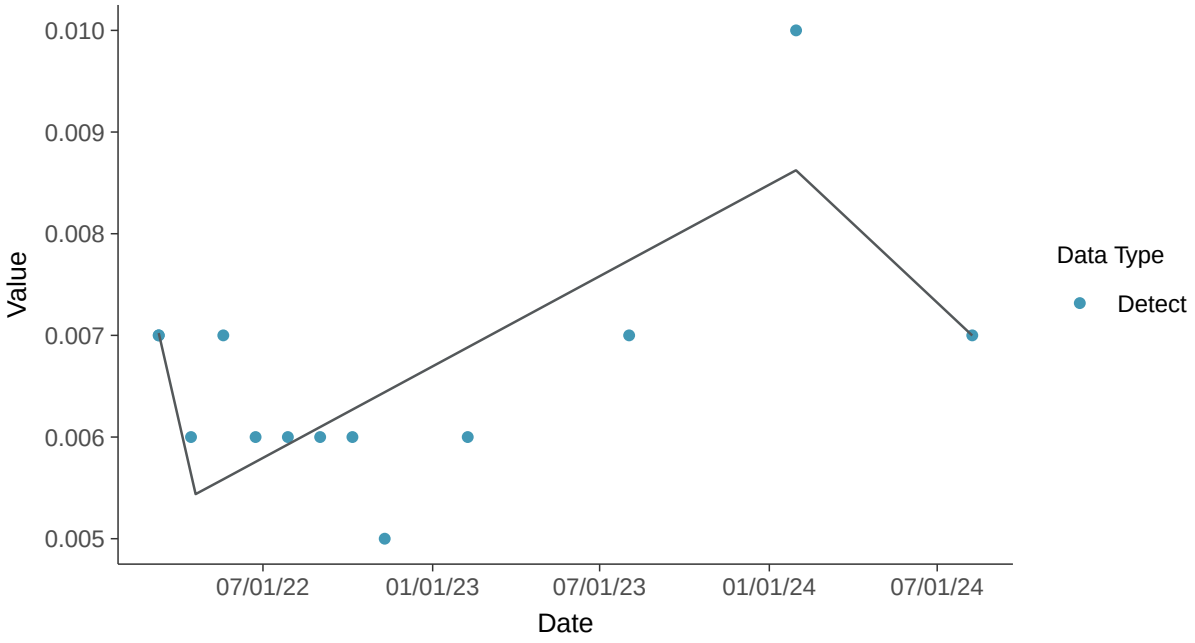
Trend Regression: Piecewise Linear-Linear

Arsenic, MW-7C (mg/L)



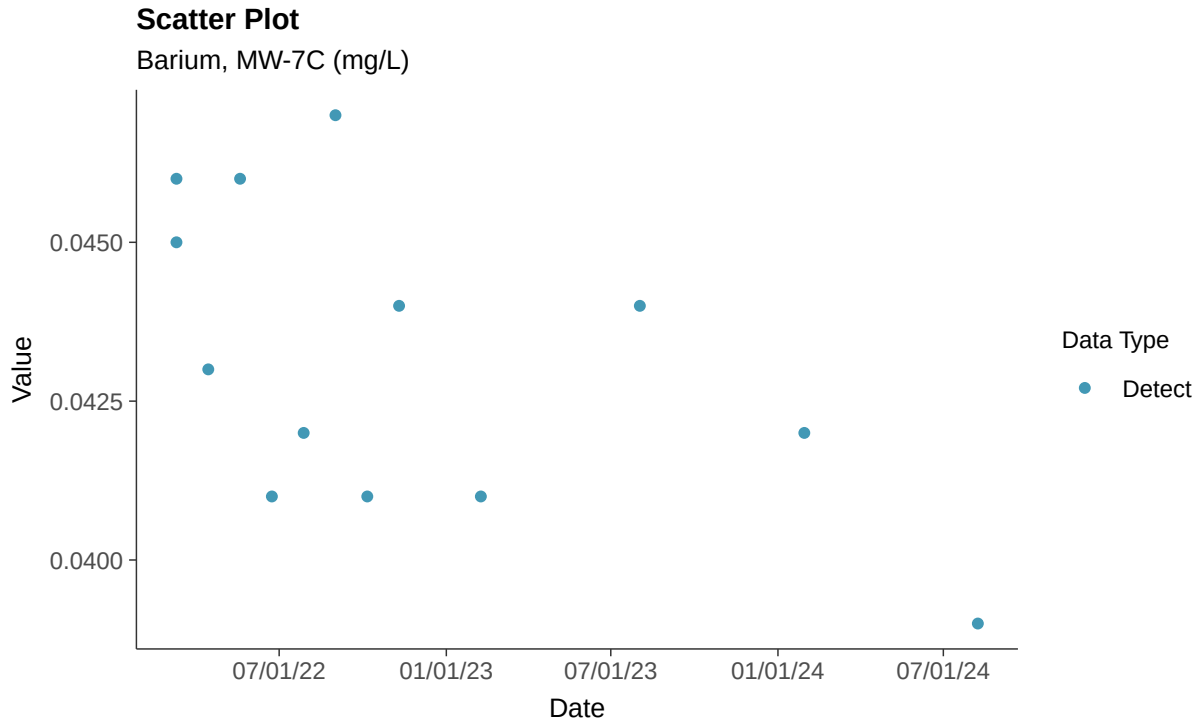
Trend Regression: Piecewise Linear-Linear-Linear

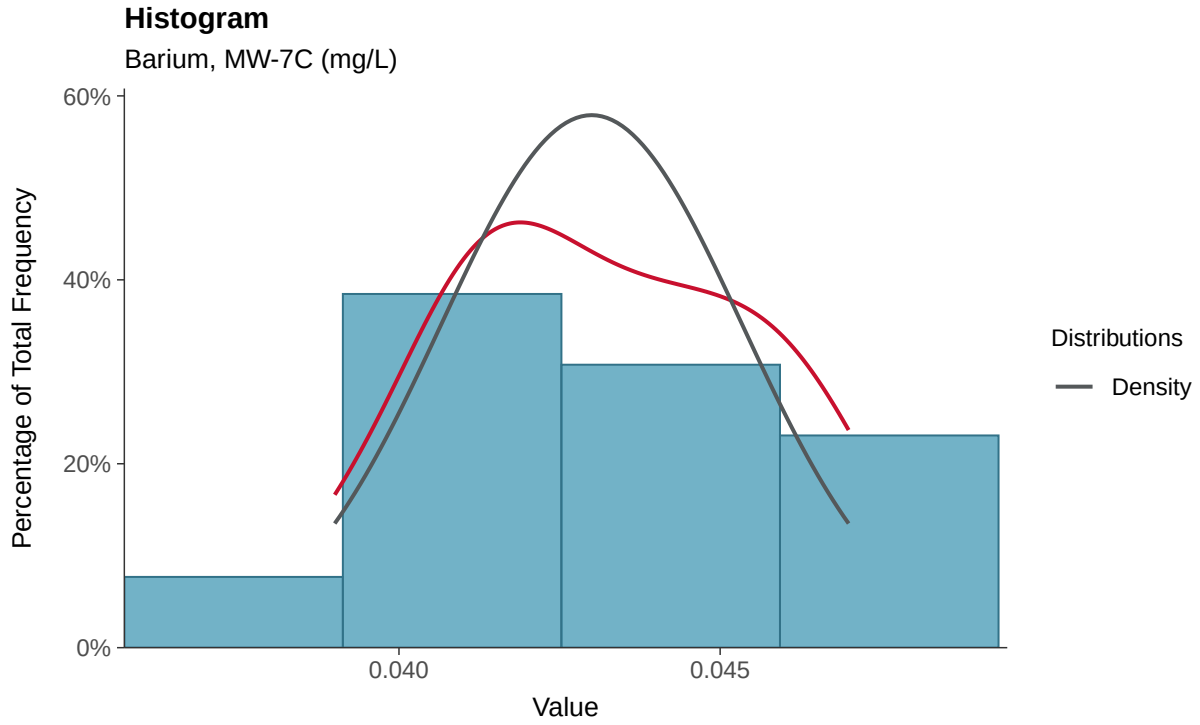
Arsenic, MW-7C (mg/L)



Appendix IV: Barium, MW-7C

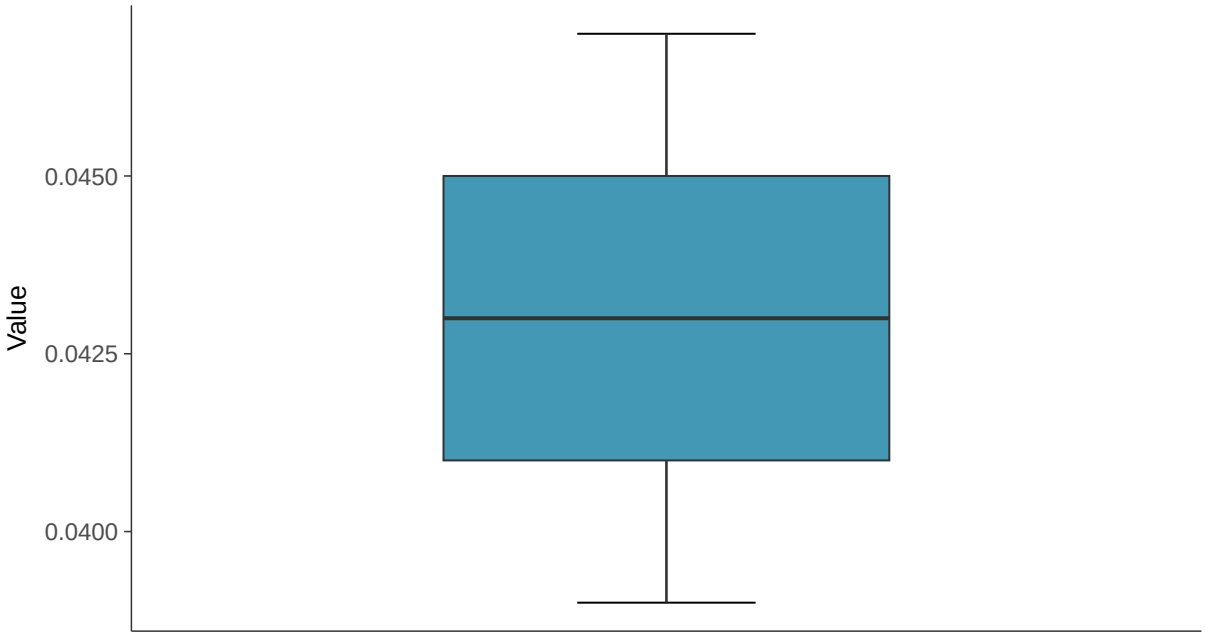
ID: 7C_2_10





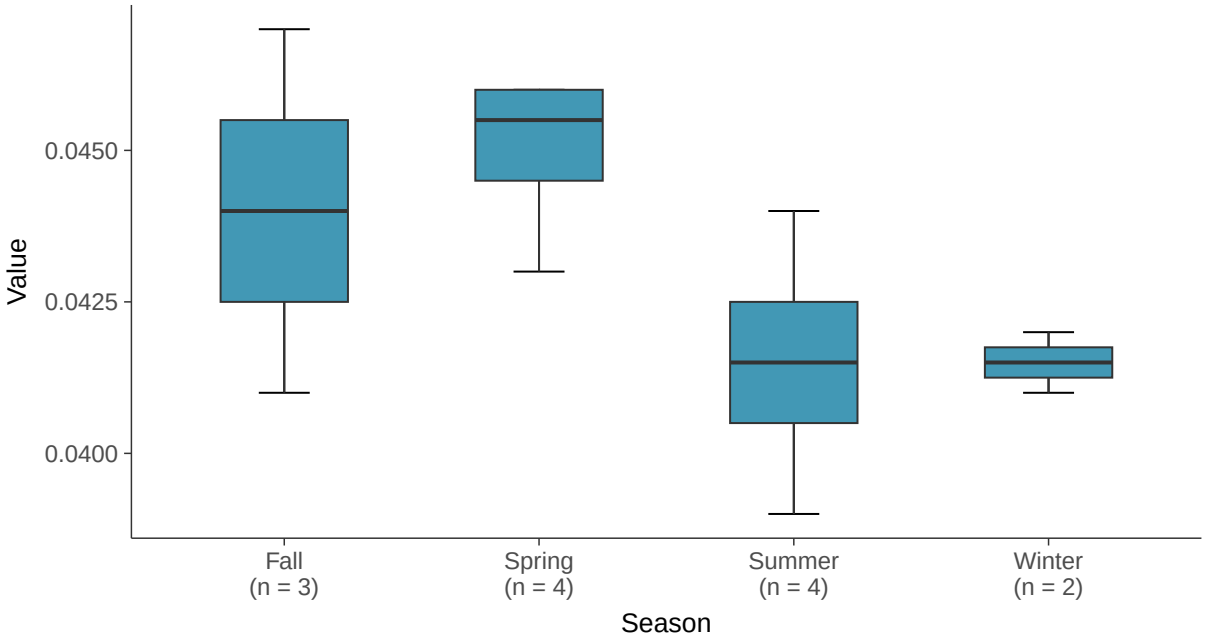
Boxplot

Barium, MW-7C (mg/L)



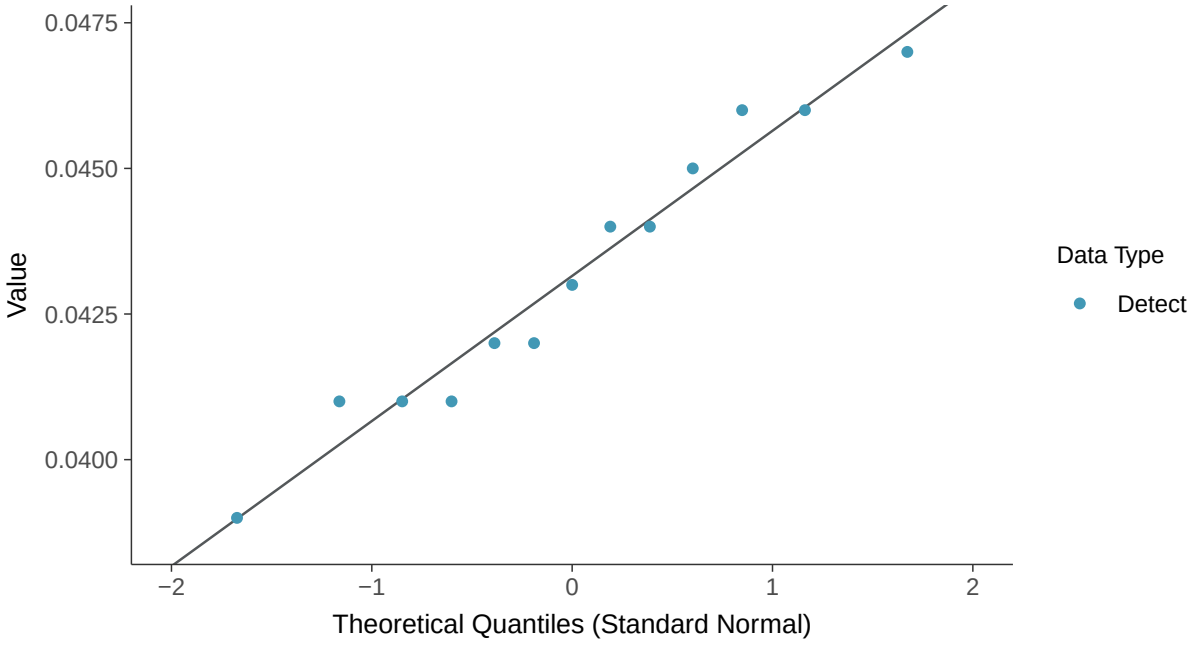
Boxplot by Season

Barium, MW-7C (mg/L)



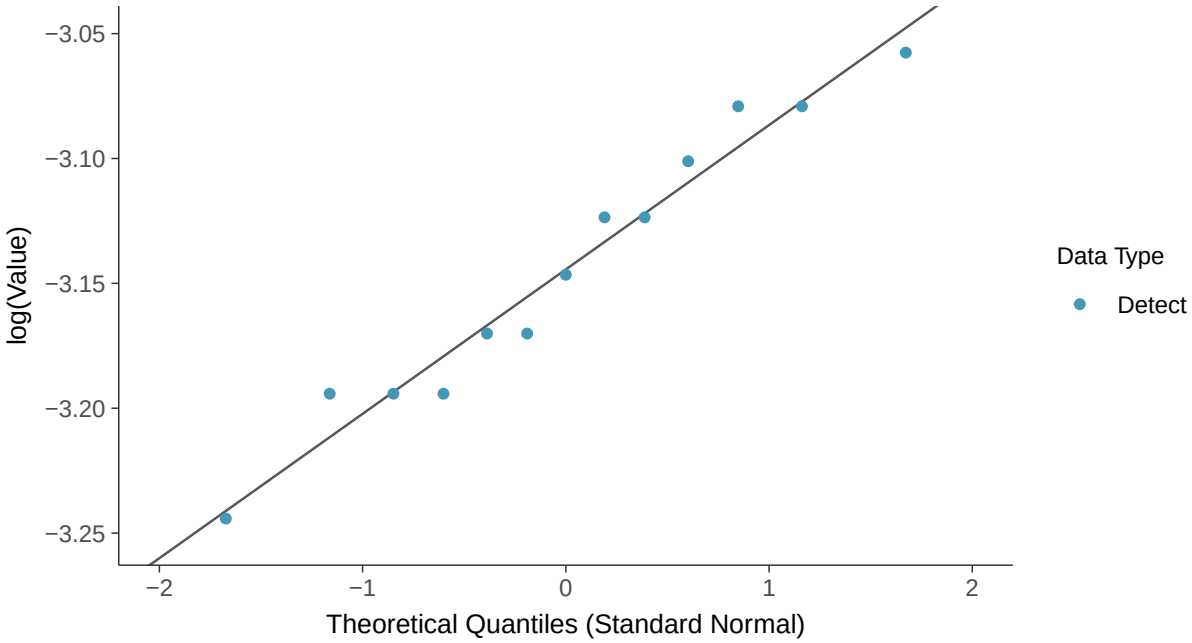
Normal Q-Q plot

Barium, MW-7C (mg/L)



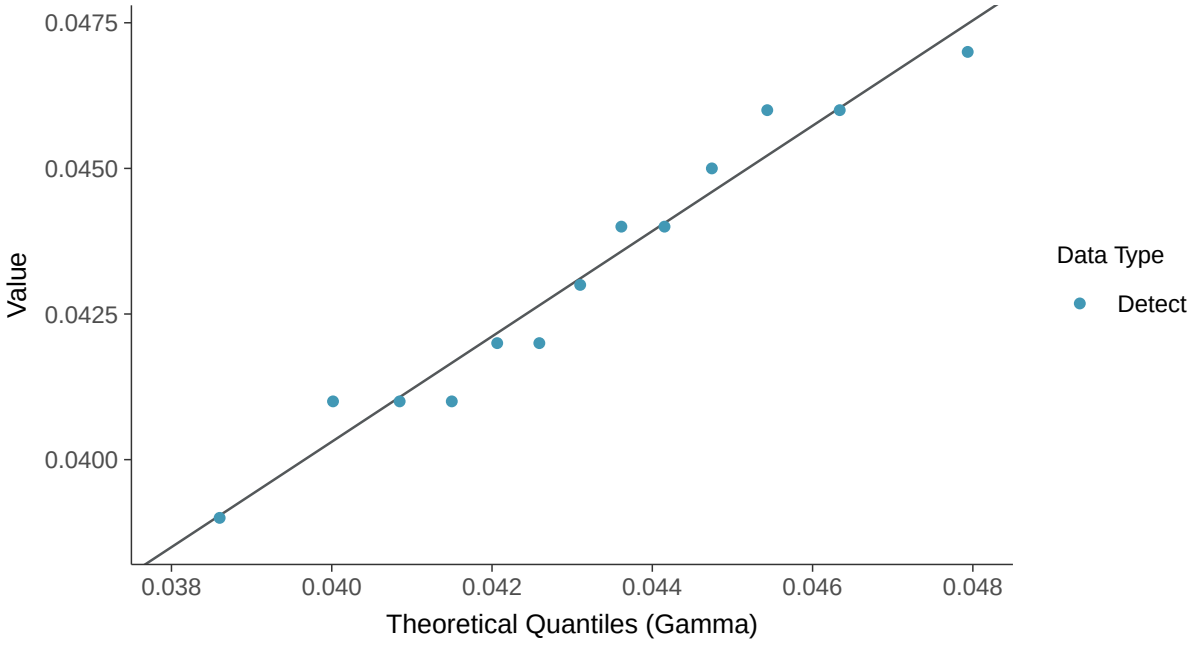
Lognormal Q-Q plot

Barium, MW-7C (mg/L)



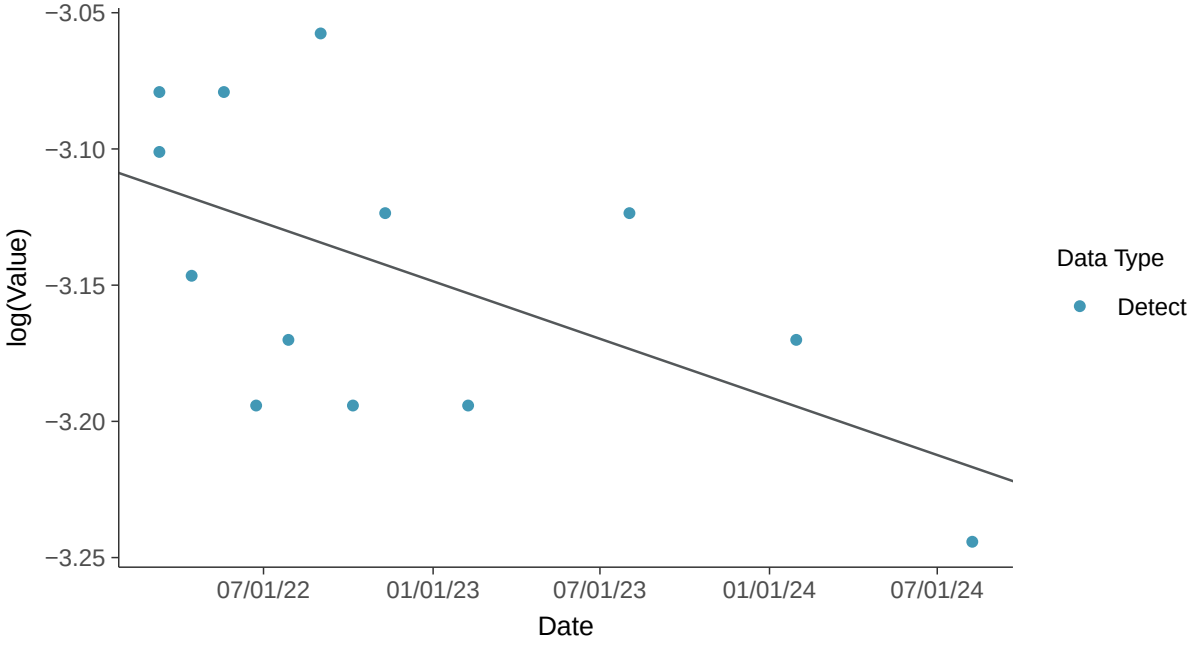
Gamma Q-Q plot

Barium, MW-7C (mg/L)



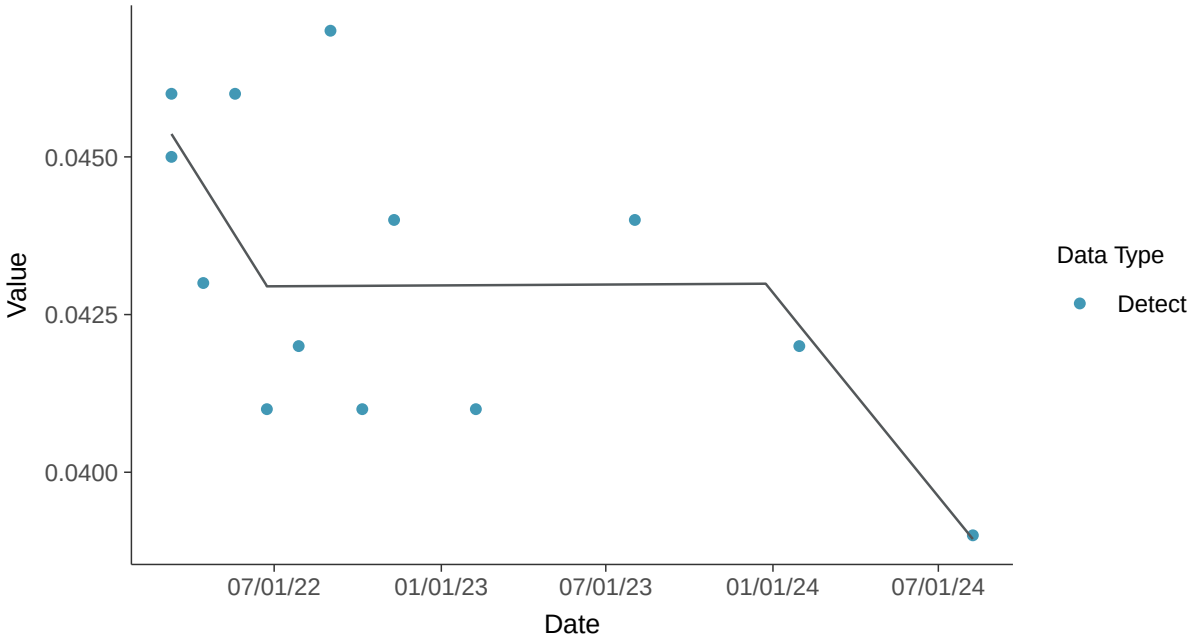
Trend Regression: Lognormal MLE

Barium, MW-7C (mg/L)



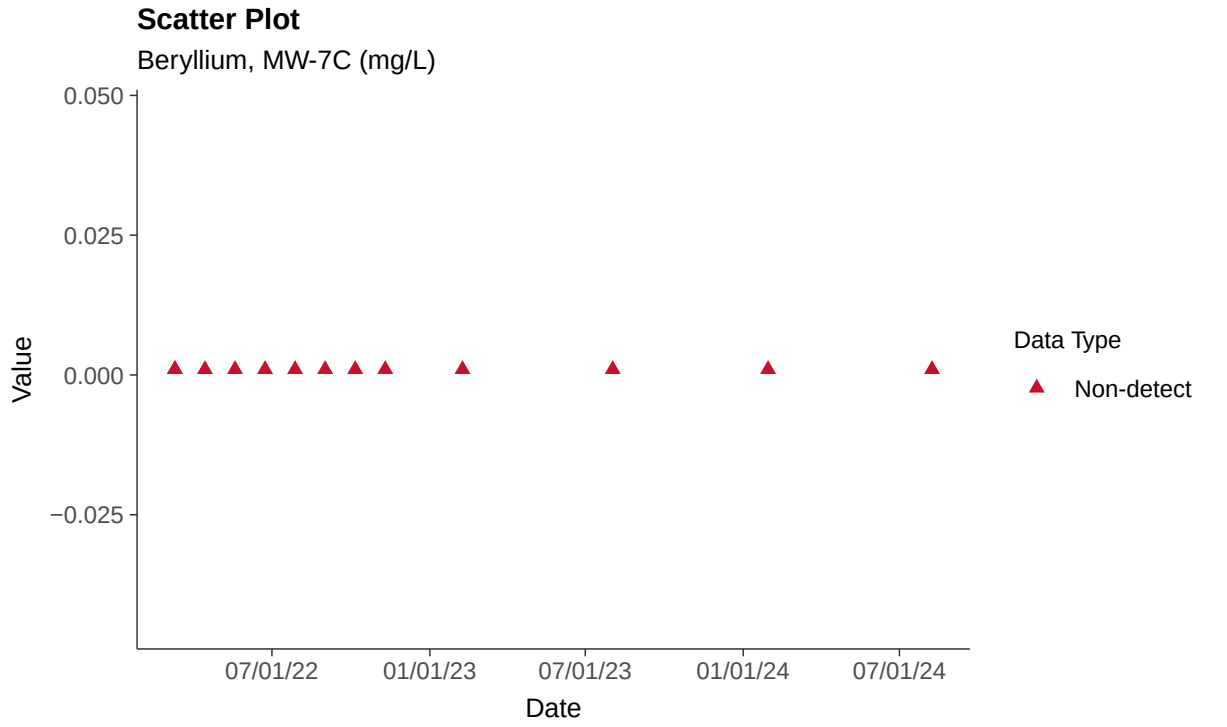
Trend Regression: Piecewise Linear-Linear-Linear

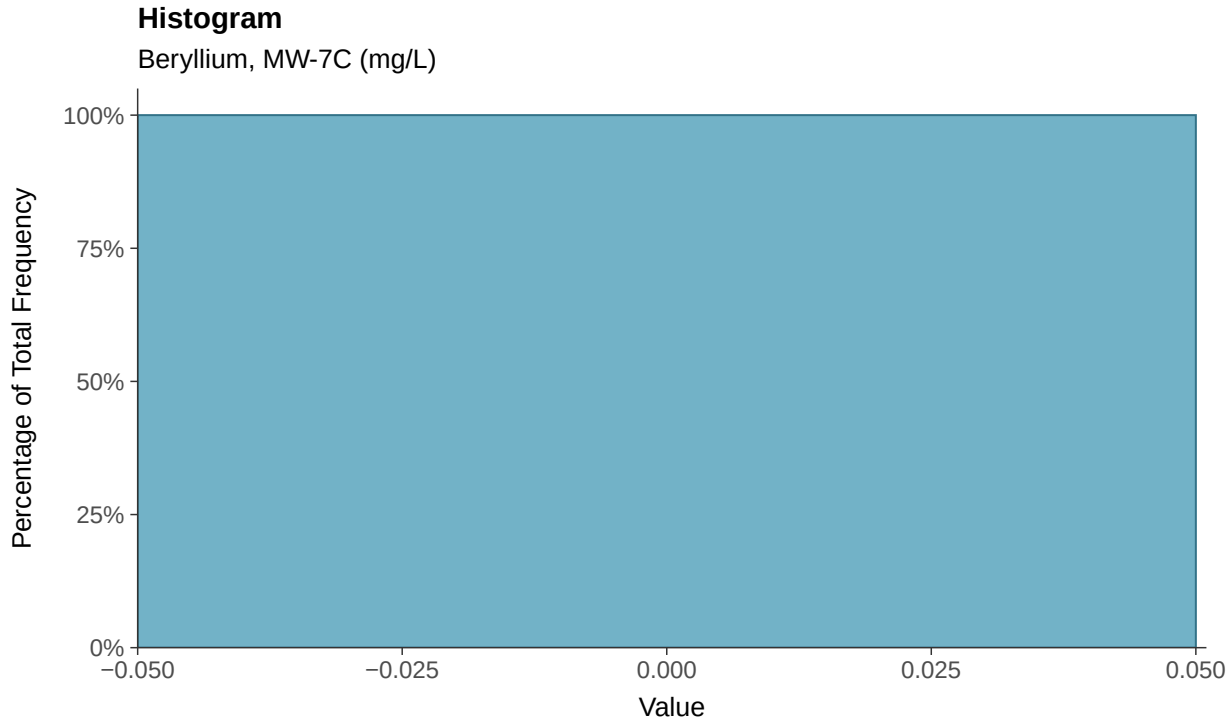
Barium, MW-7C (mg/L)



Appendix IV: Beryllium, MW-7C

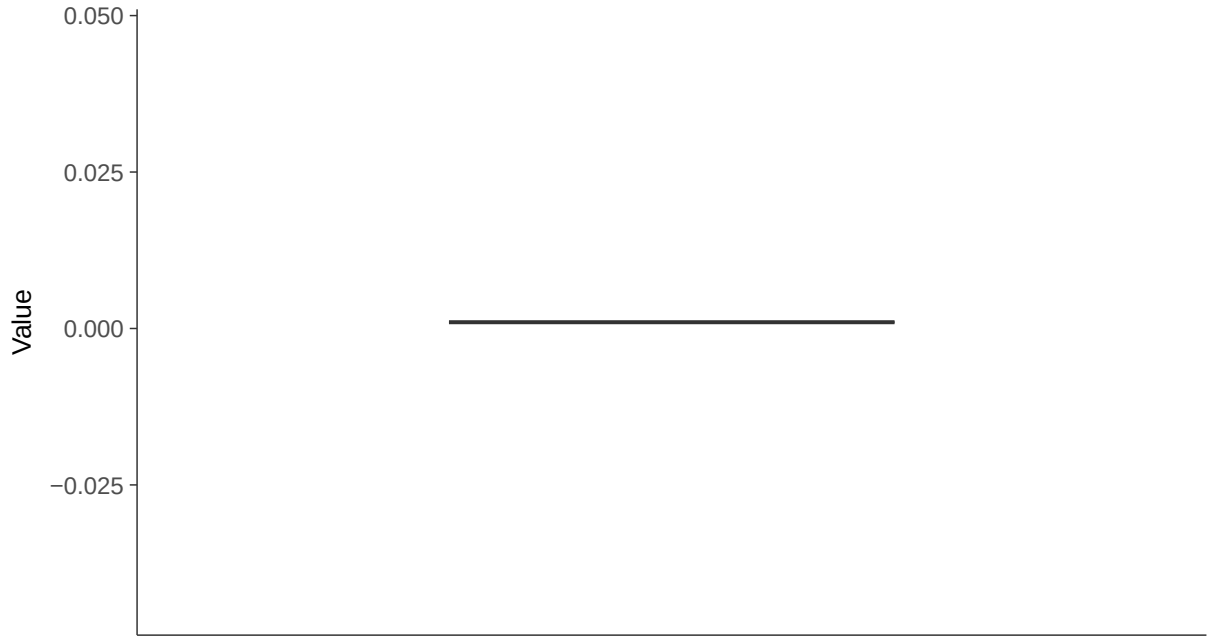
ID: 7C_2_11





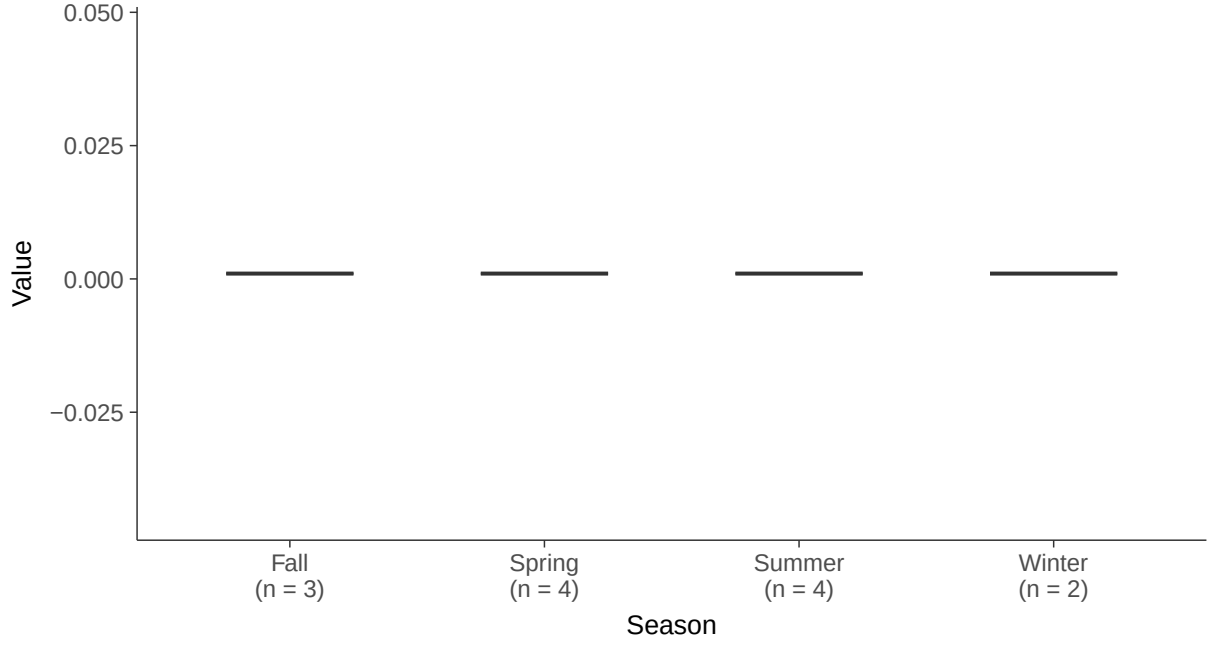
Boxplot

Beryllium, MW-7C (mg/L)



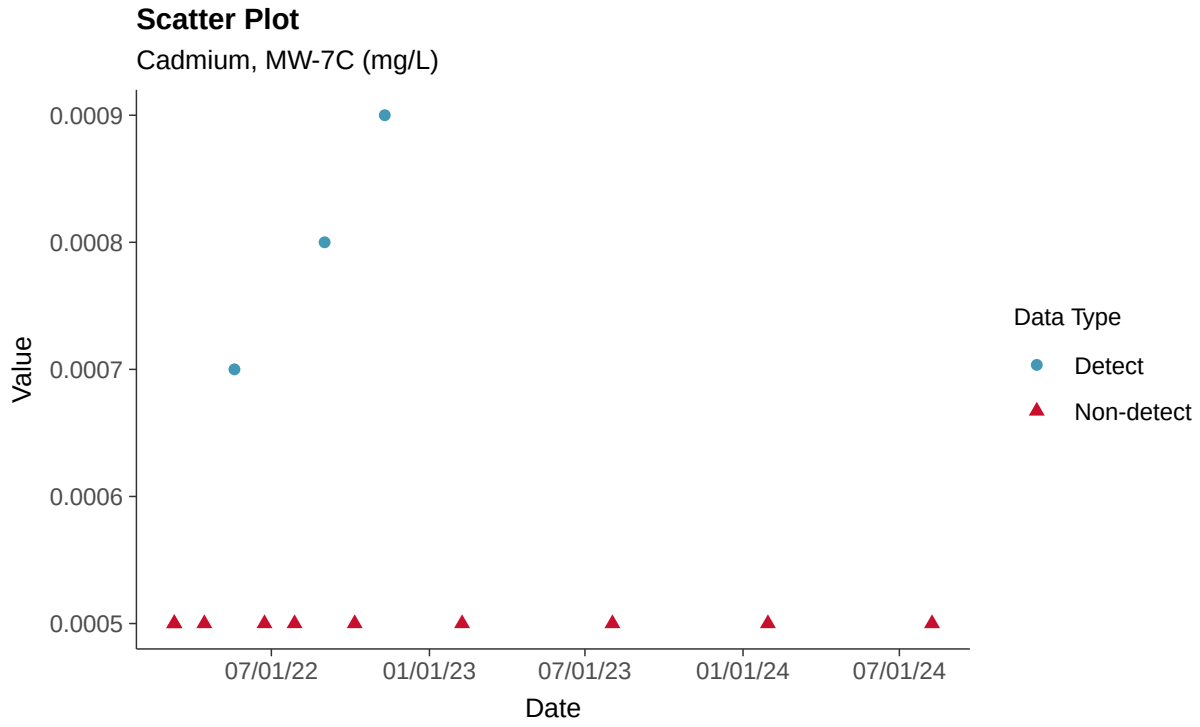
Boxplot by Season

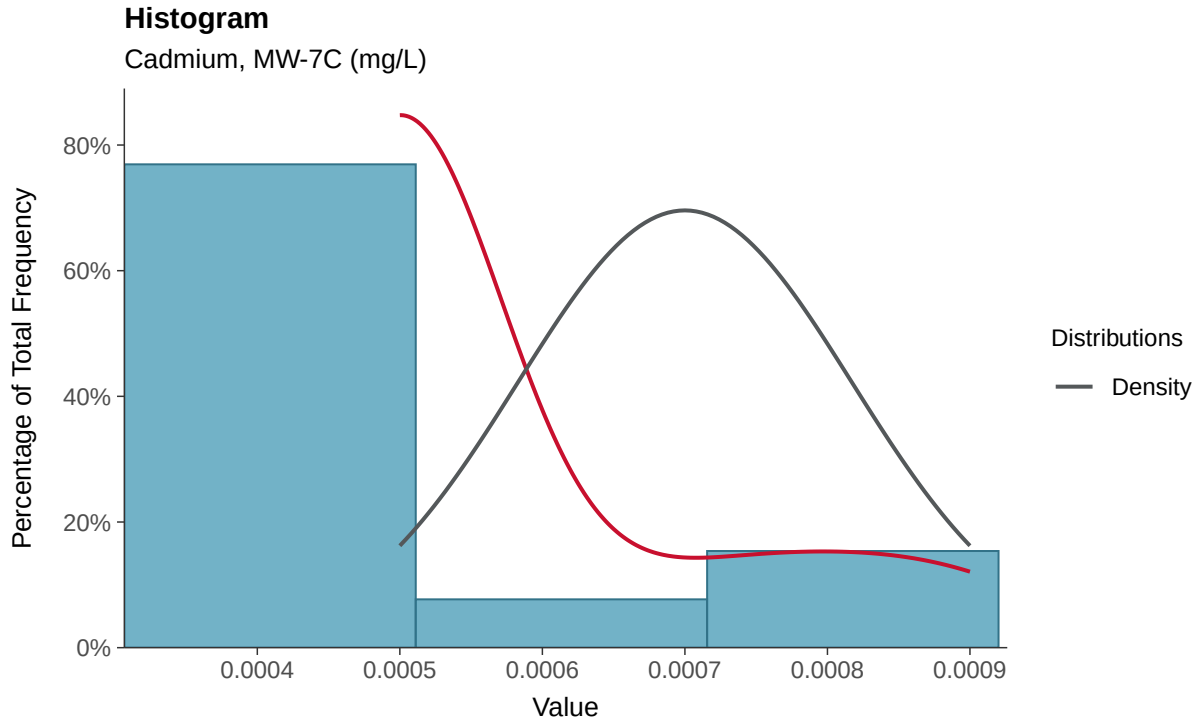
Beryllium, MW-7C (mg/L)



Appendix IV: Cadmium, MW-7C

ID: 7C_2_12



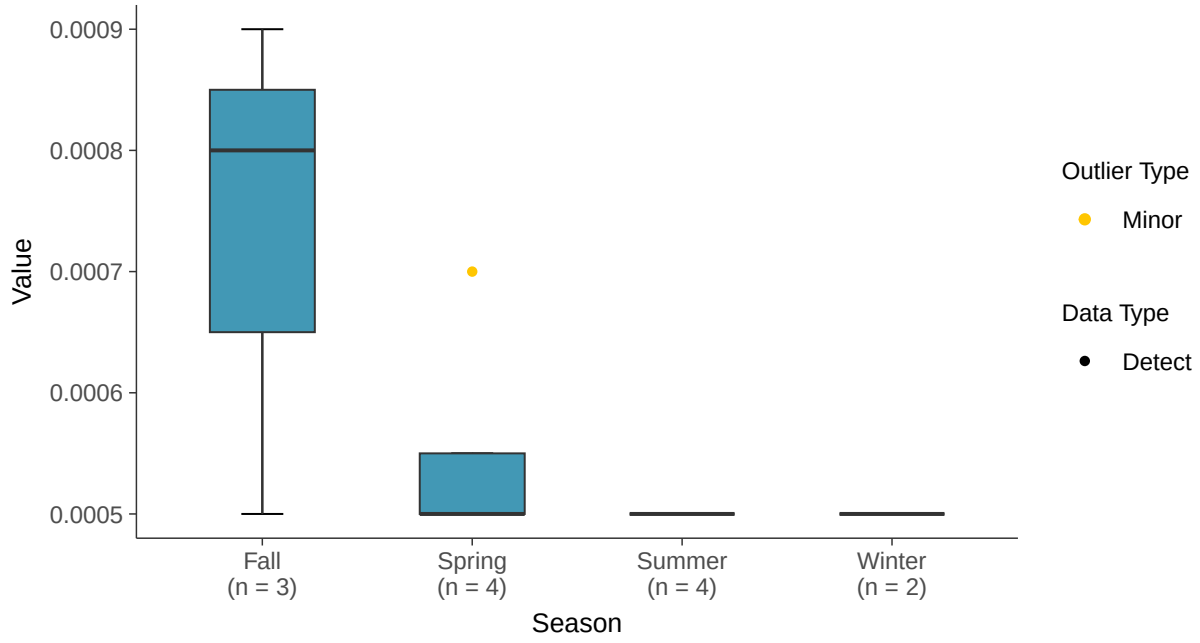


Boxplot

Cadmium, MW-7C (mg/L)

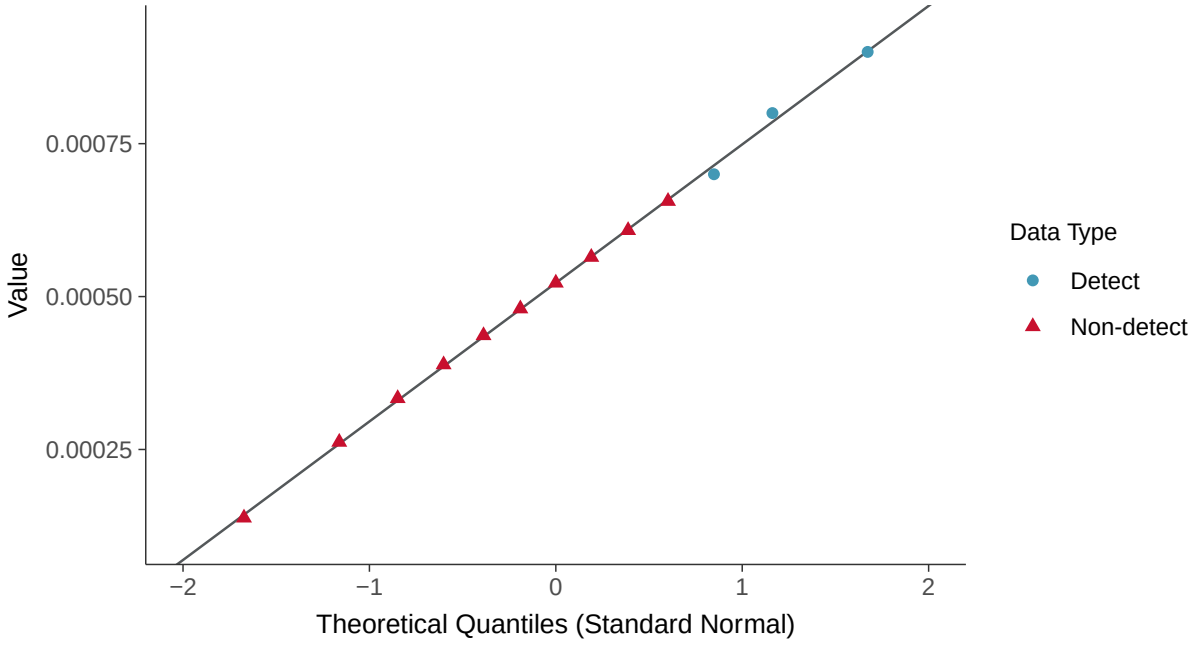
Boxplot by Season

Cadmium, MW-7C (mg/L)



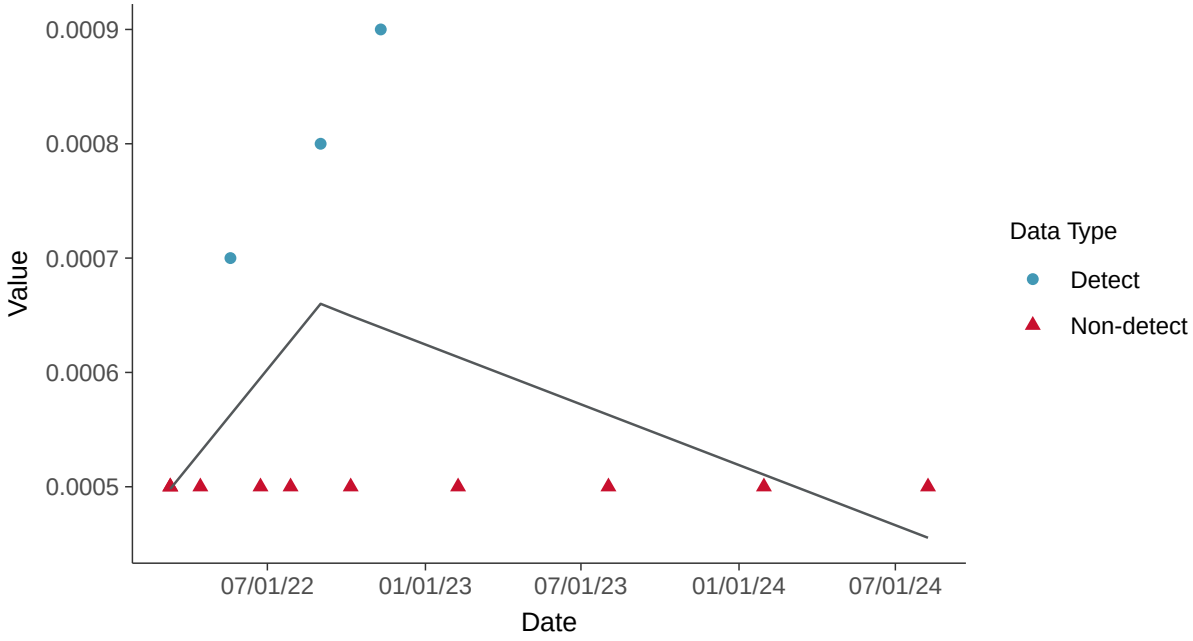
Normal Q-Q plot using ROS Imputed Estimates

Cadmium, MW-7C (mg/L)



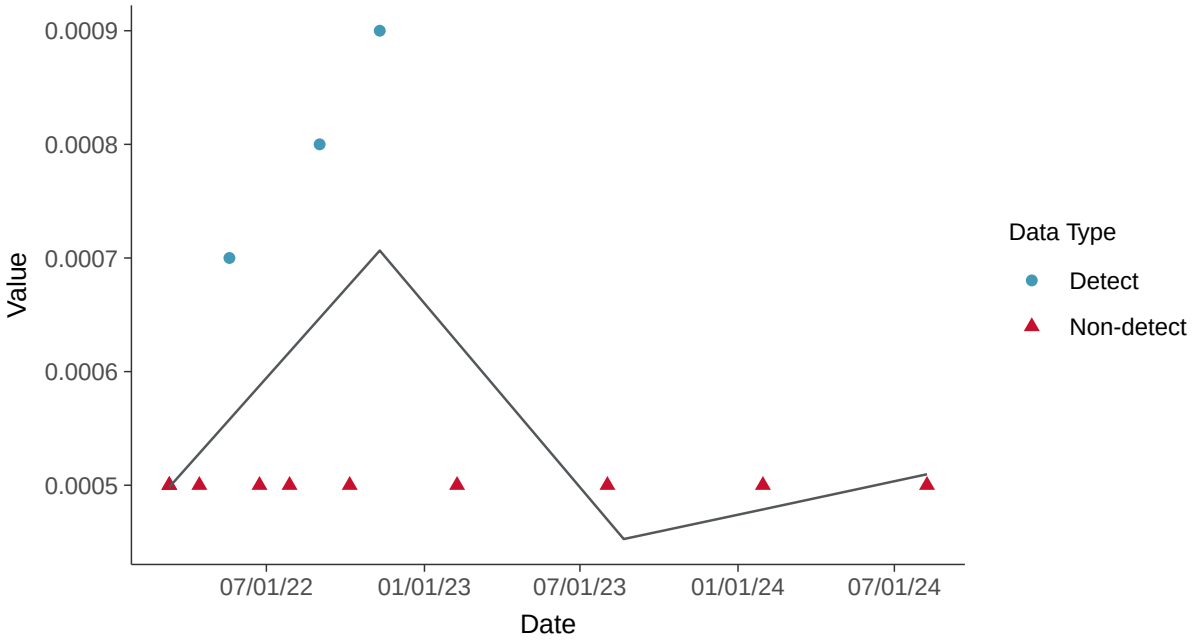
Trend Regression: Piecewise Linear-Linear

Cadmium, MW-7C (mg/L)



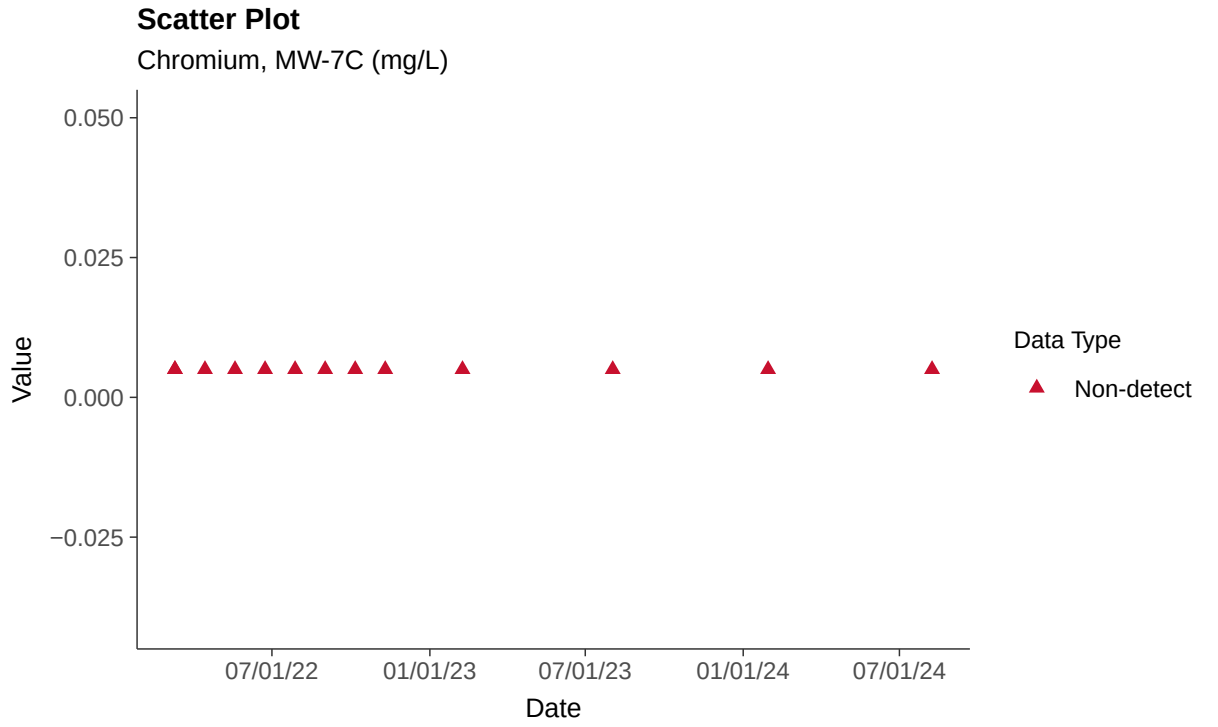
Trend Regression: Piecewise Linear-Linear-Linear

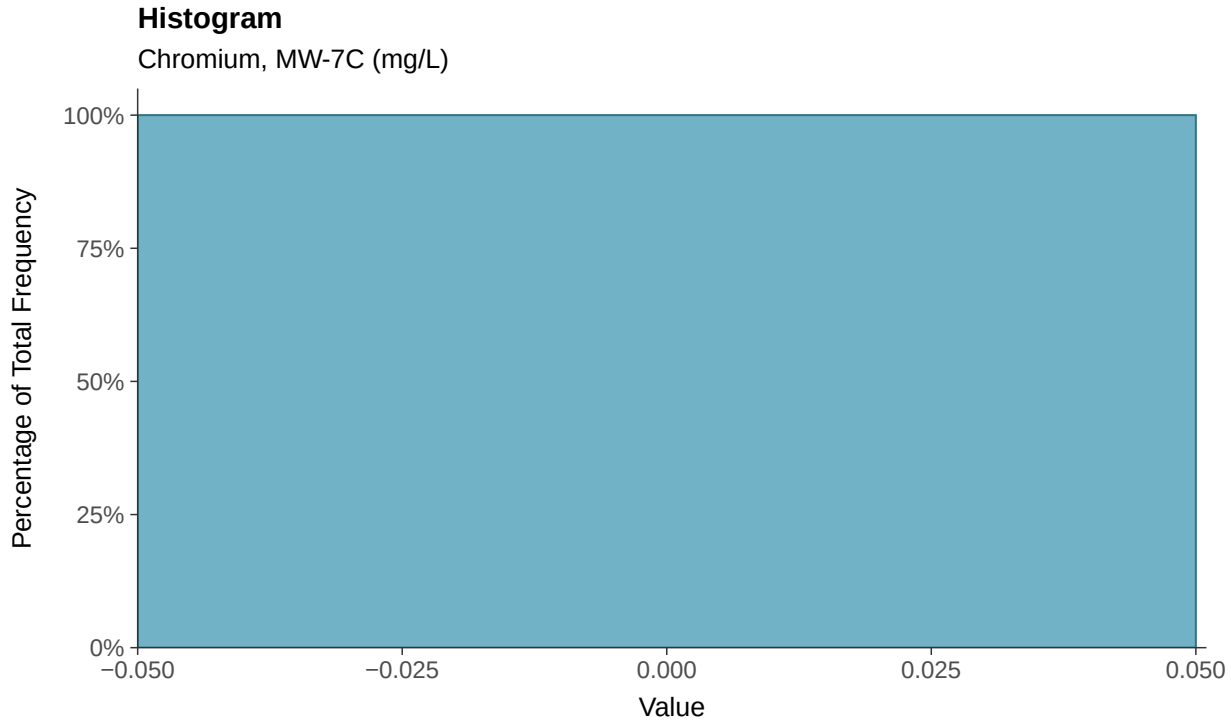
Cadmium, MW-7C (mg/L)



Appendix IV: Chromium, MW-7C

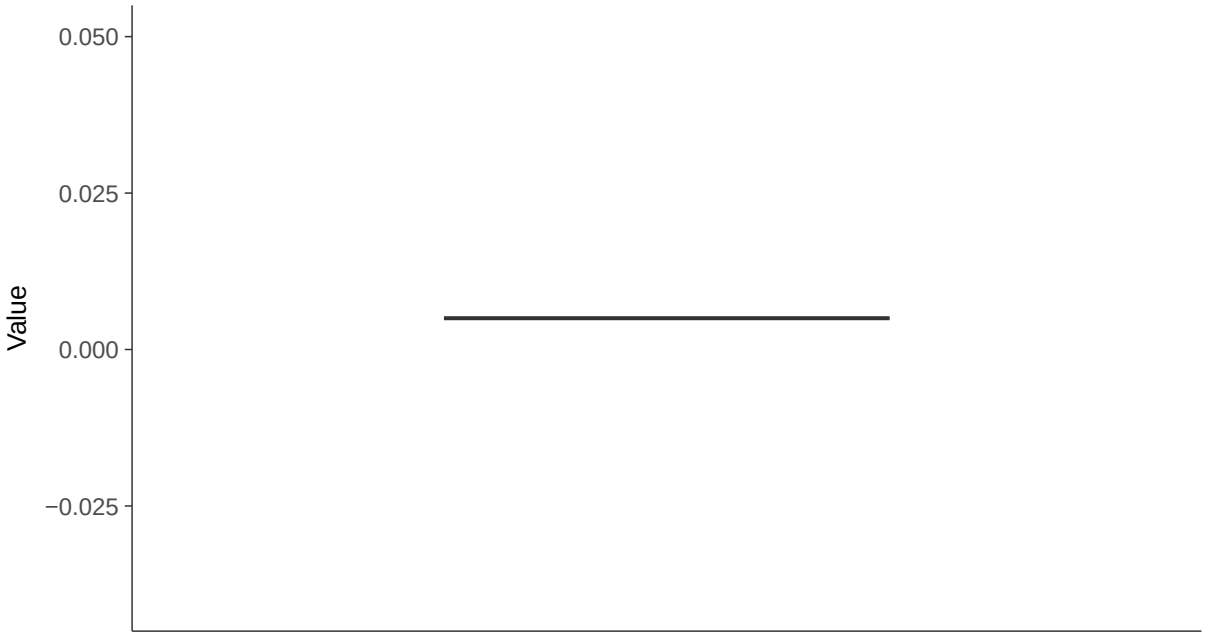
ID: 7C_2_13





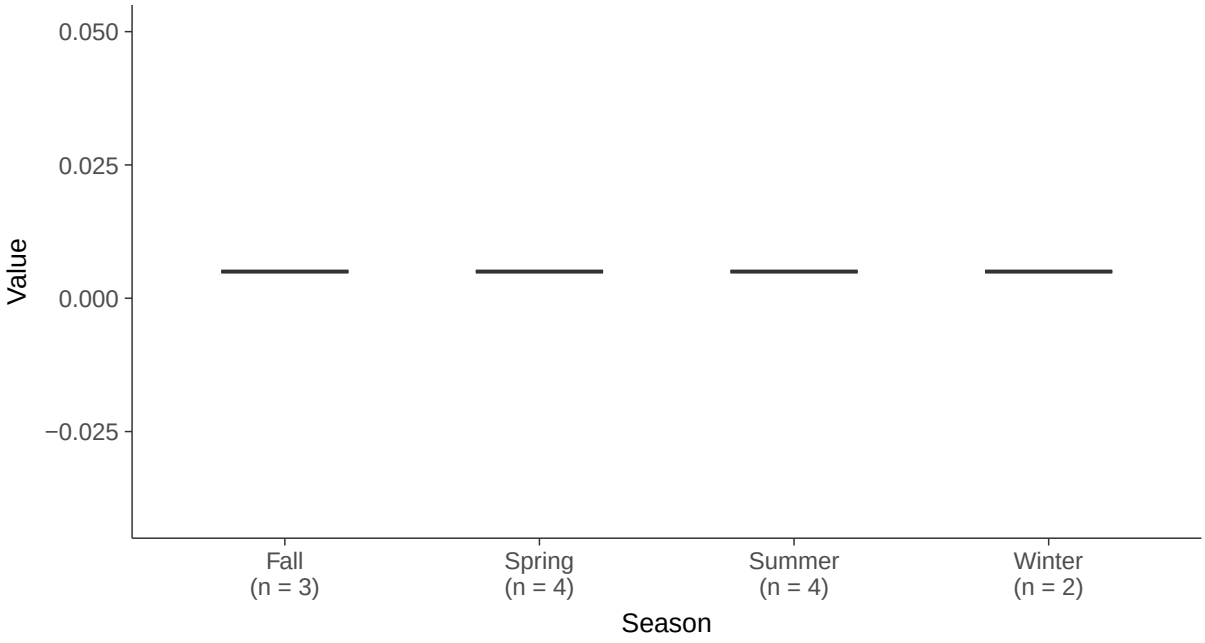
Boxplot

Chromium, MW-7C (mg/L)



Boxplot by Season

Chromium, MW-7C (mg/L)

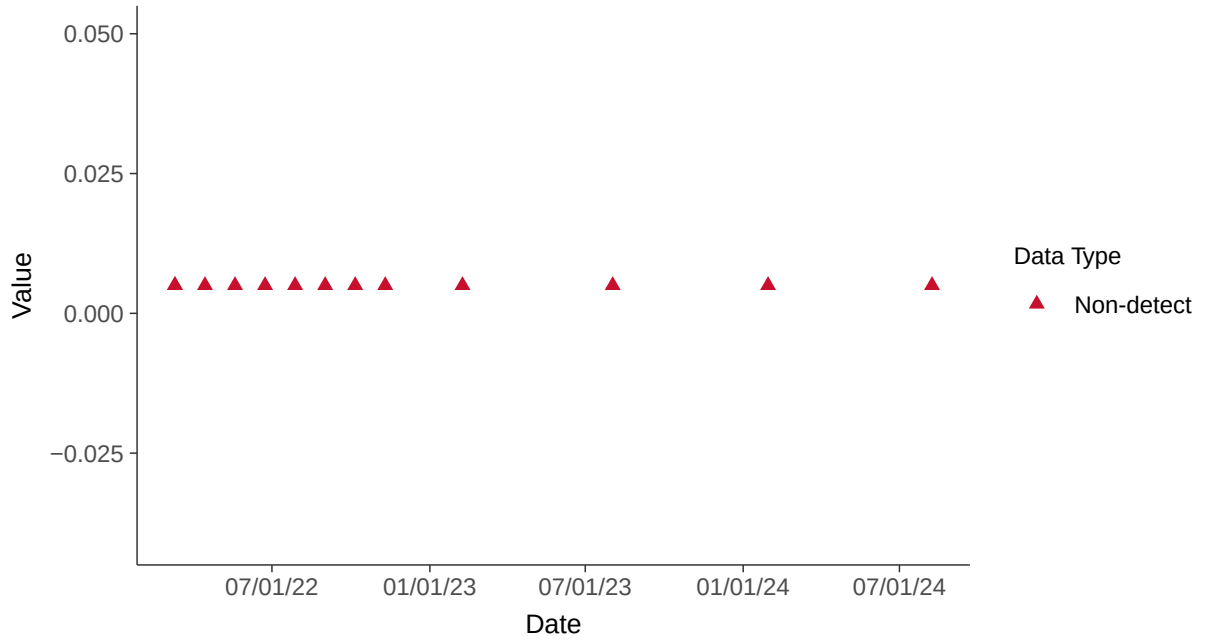


Appendix IV: Cobalt, MW-7C

ID: 7C_2_14

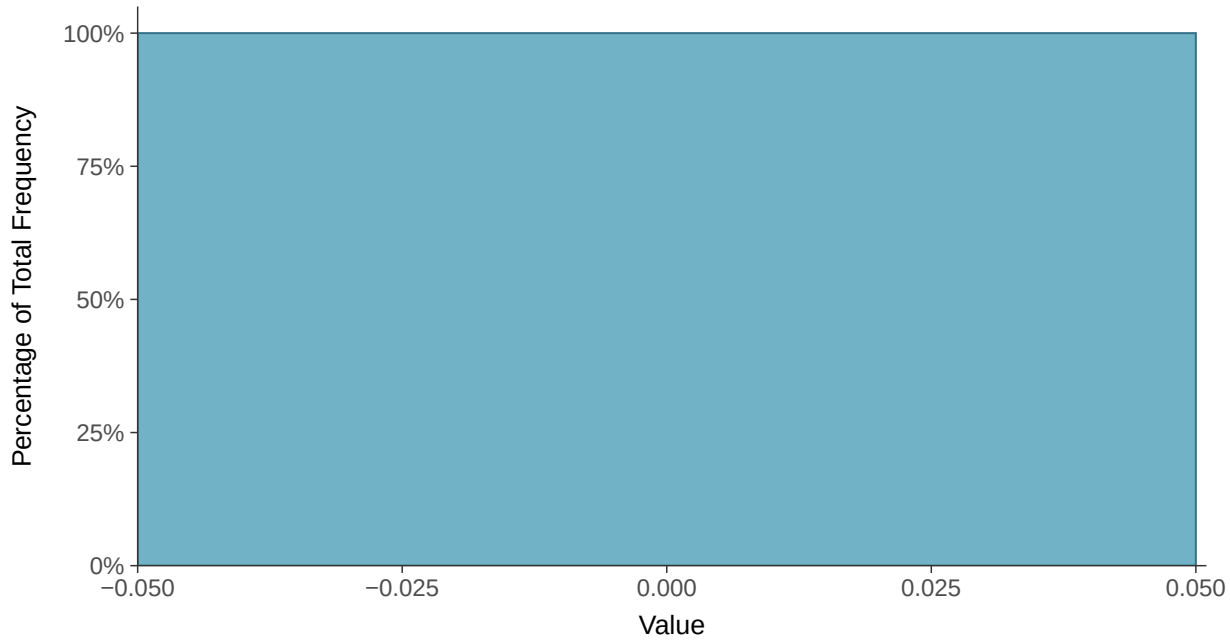
Scatter Plot

Cobalt, MW-7C (mg/L)



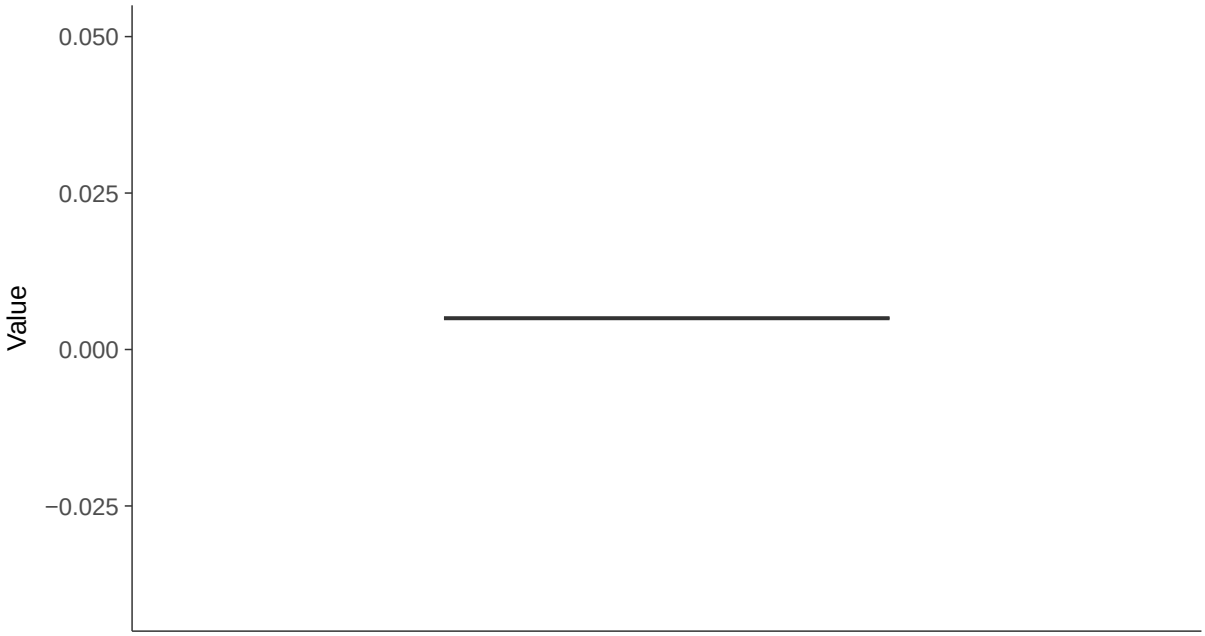
Histogram

Cobalt, MW-7C (mg/L)



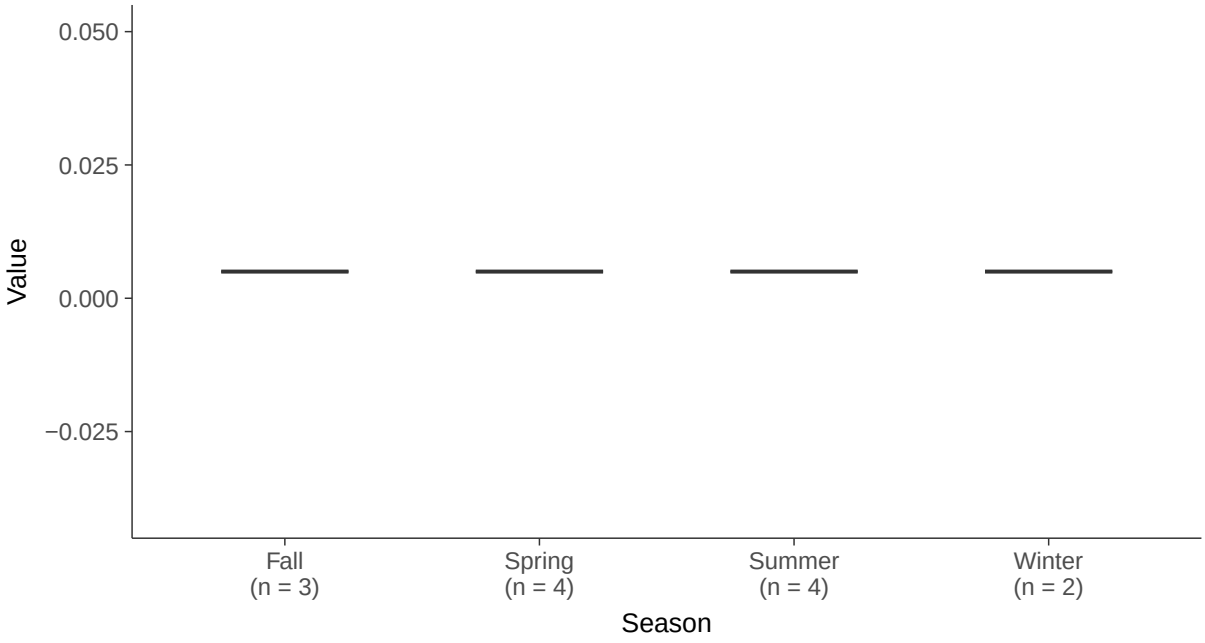
Boxplot

Cobalt, MW-7C (mg/L)



Boxplot by Season

Cobalt, MW-7C (mg/L)

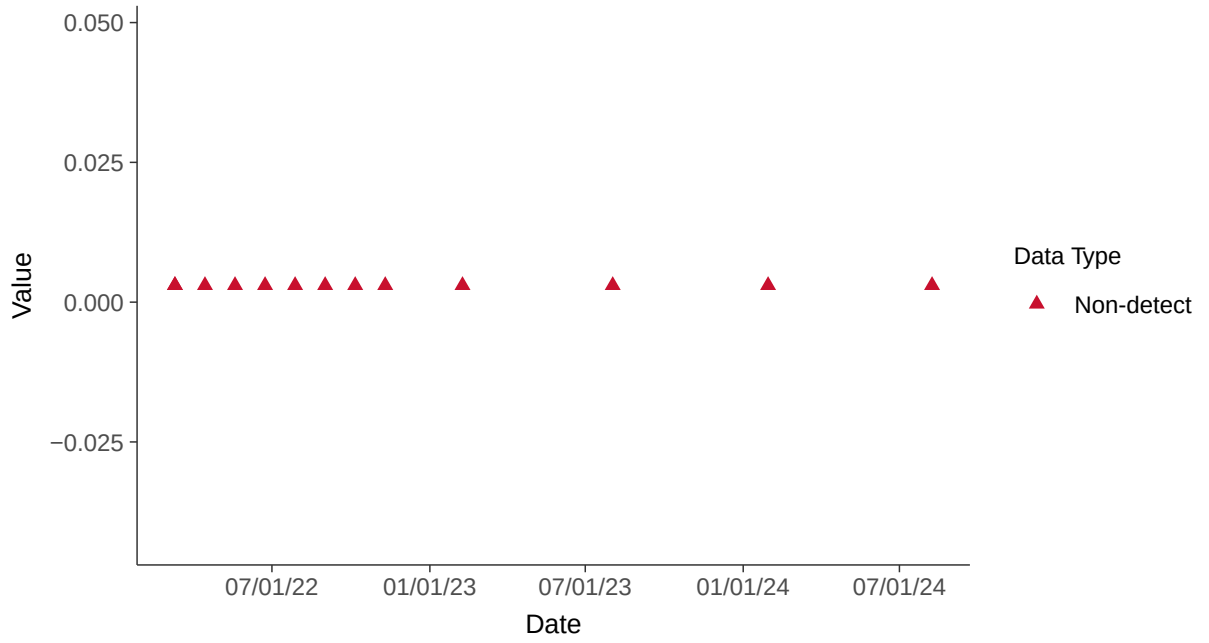


Appendix IV: Lead, MW-7C

ID: 7C_2_15

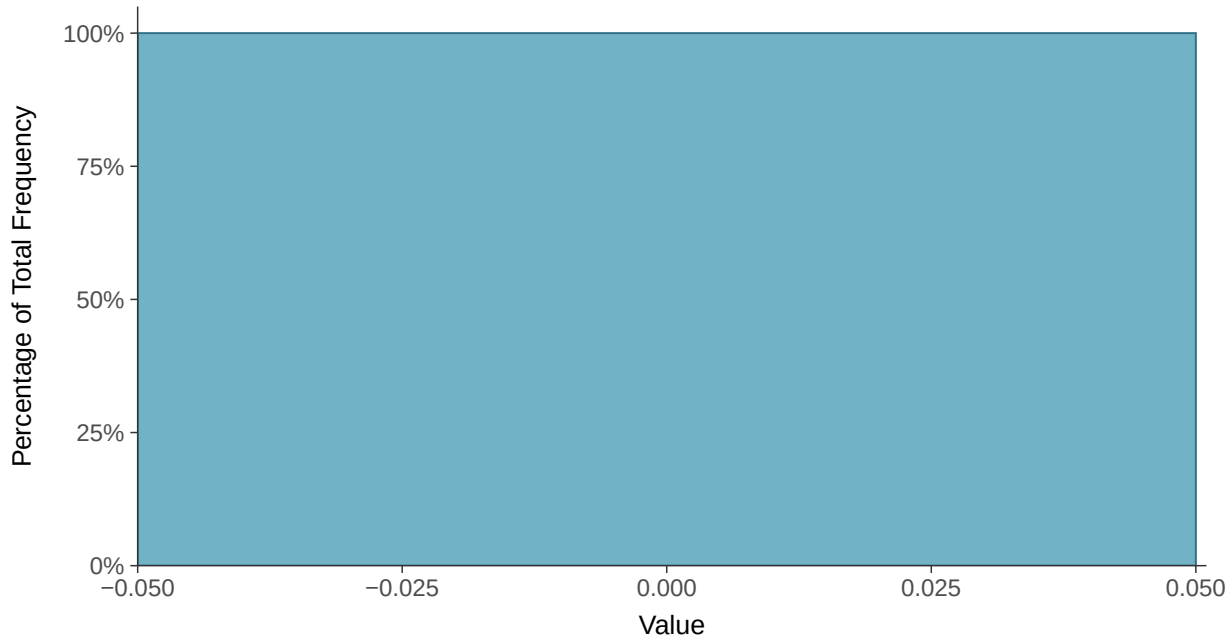
Scatter Plot

Lead, MW-7C (mg/L)



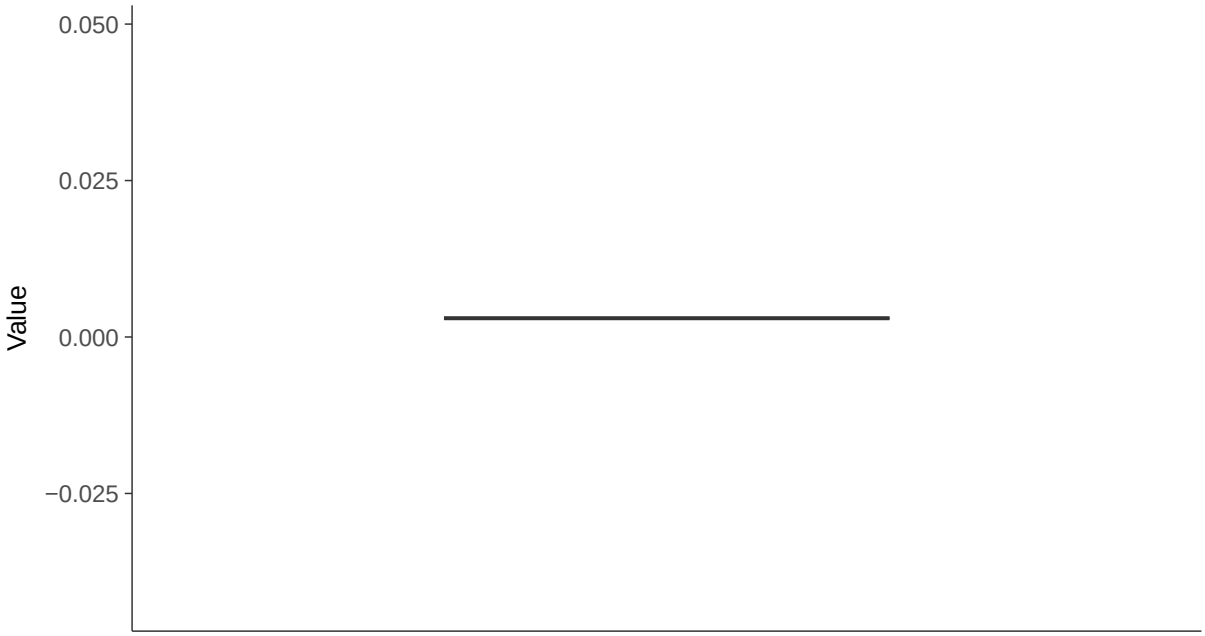
Histogram

Lead, MW-7C (mg/L)



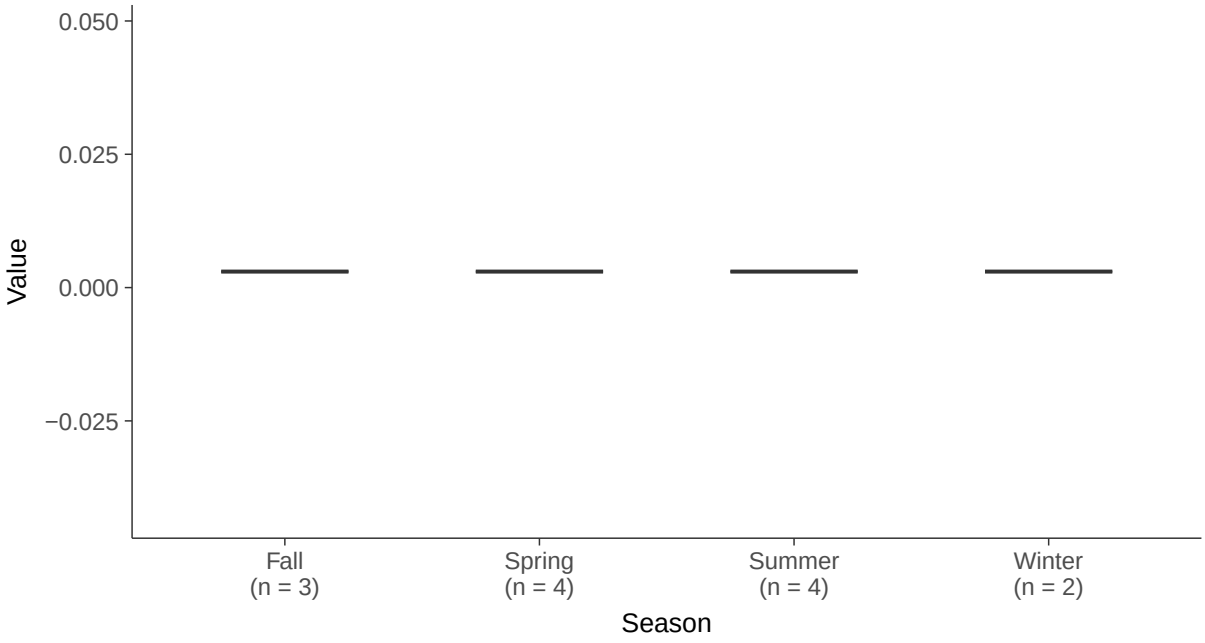
Boxplot

Lead, MW-7C (mg/L)



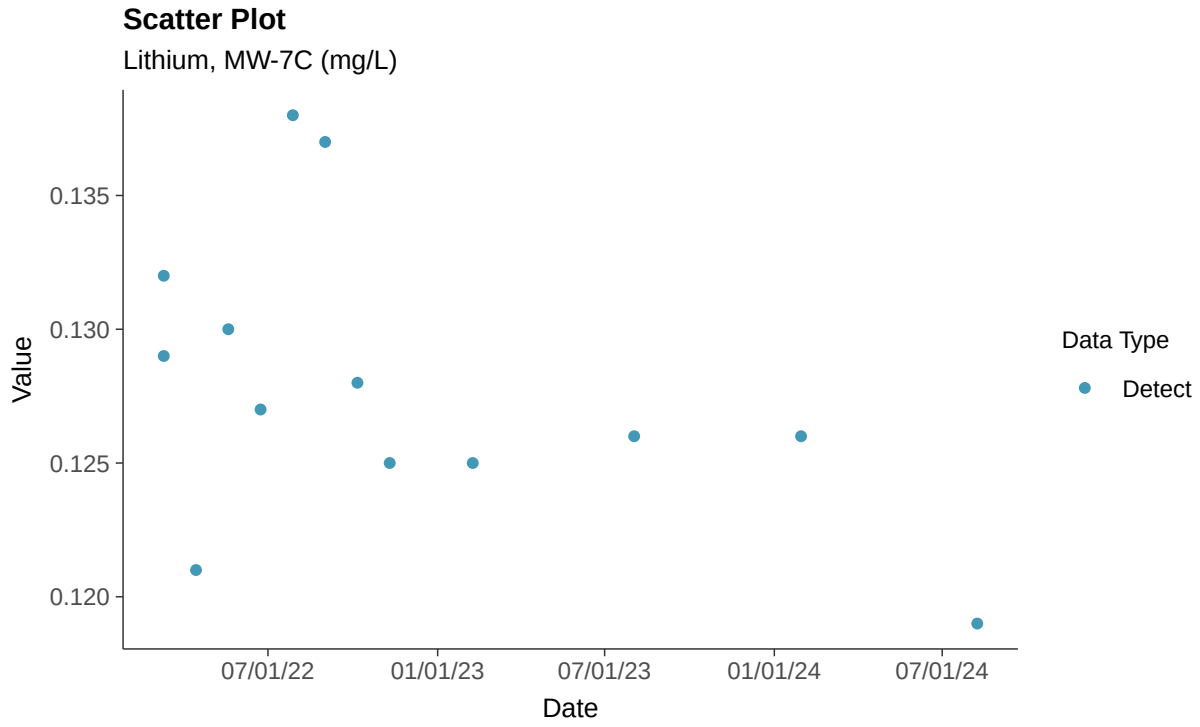
Boxplot by Season

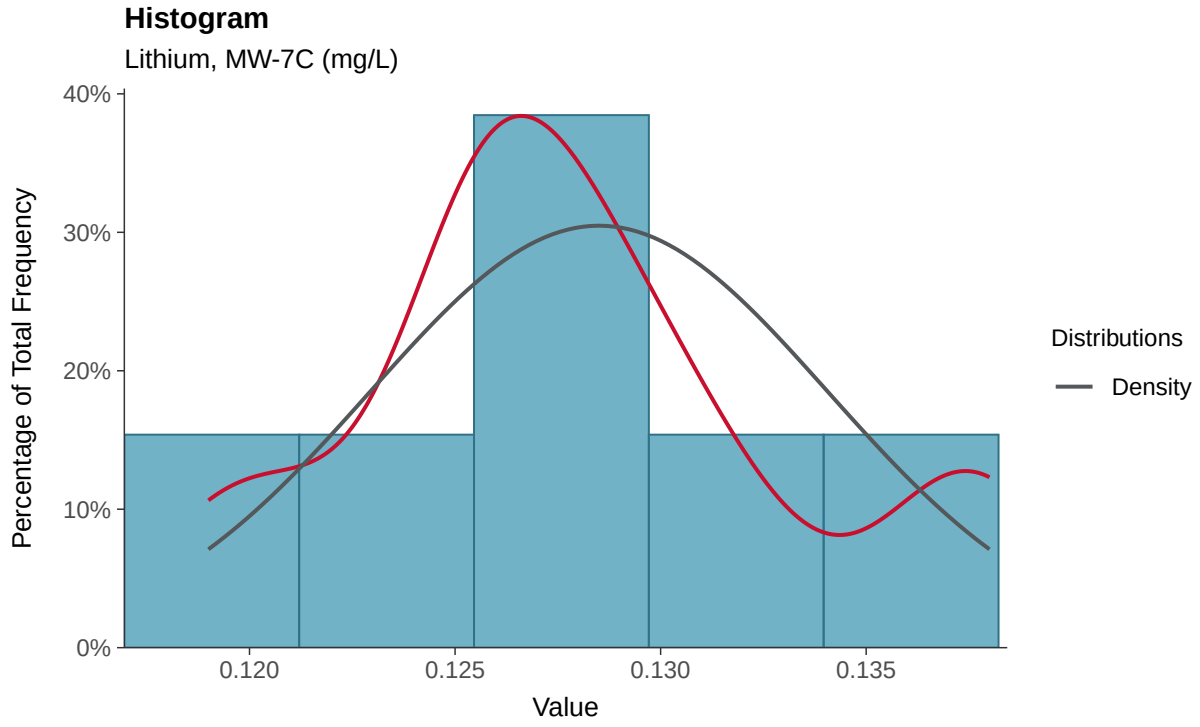
Lead, MW-7C (mg/L)



Appendix IV: Lithium, MW-7C

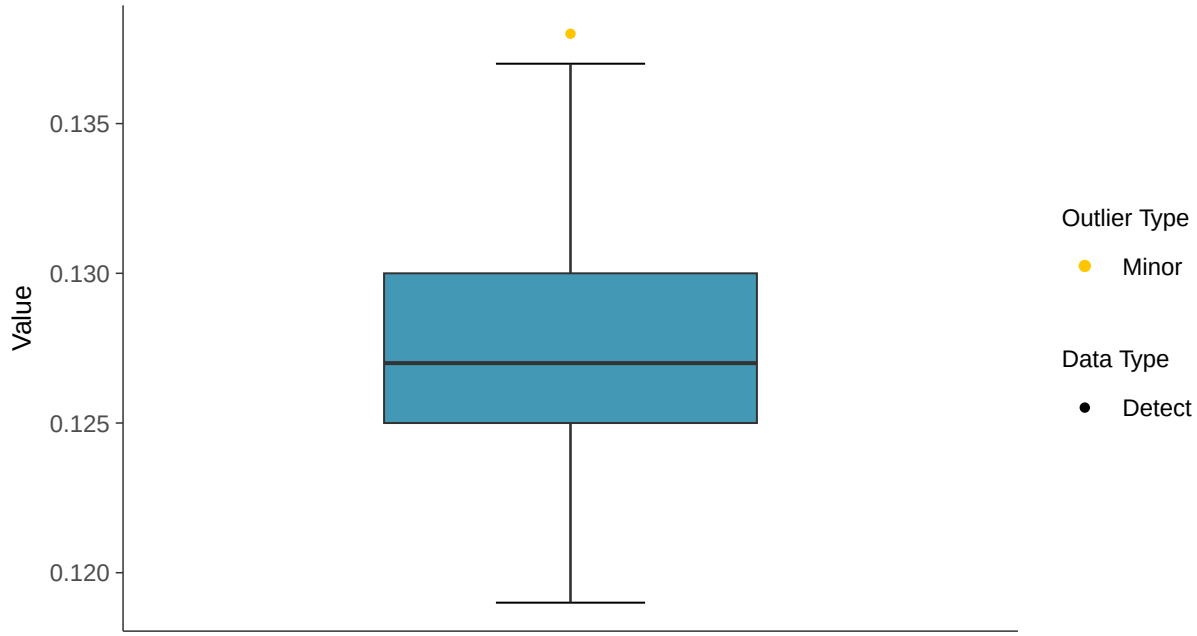
ID: 7C_2_16





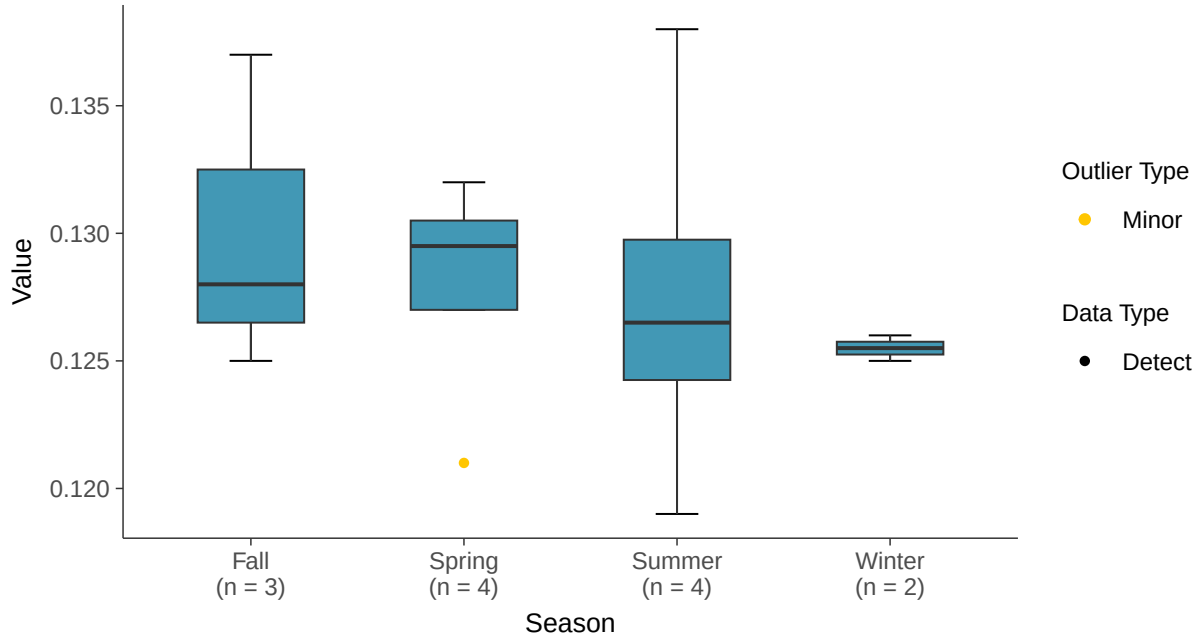
Boxplot

Lithium, MW-7C (mg/L)



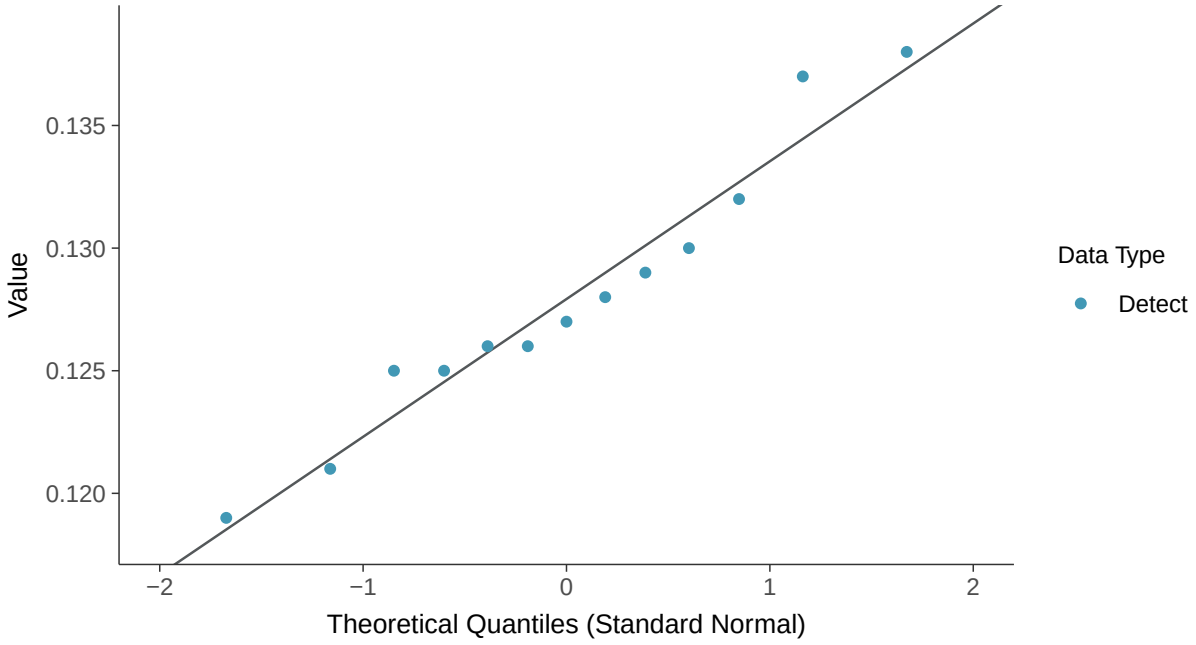
Boxplot by Season

Lithium, MW-7C (mg/L)



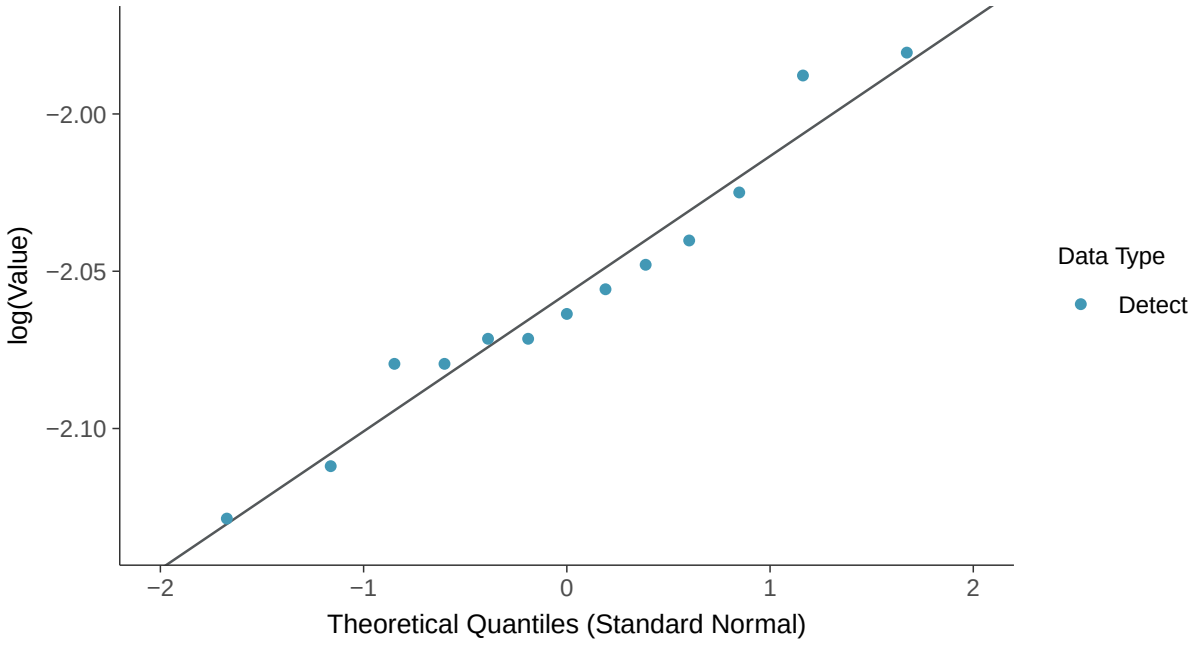
Normal Q-Q plot

Lithium, MW-7C (mg/L)



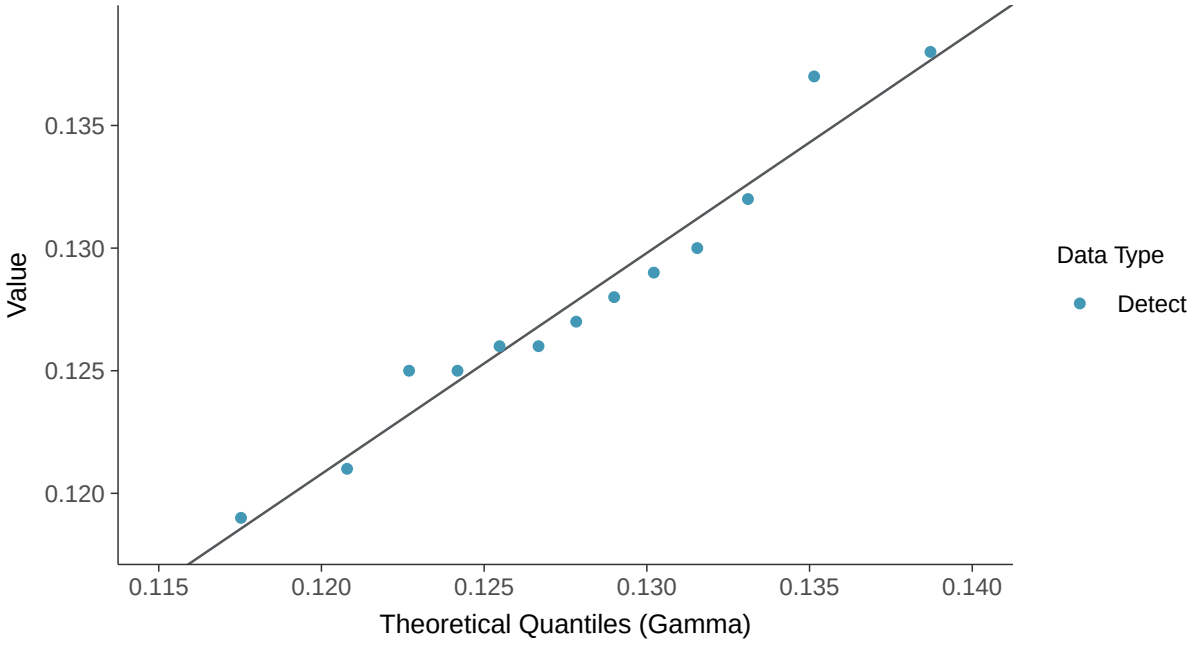
Lognormal Q-Q plot

Lithium, MW-7C (mg/L)



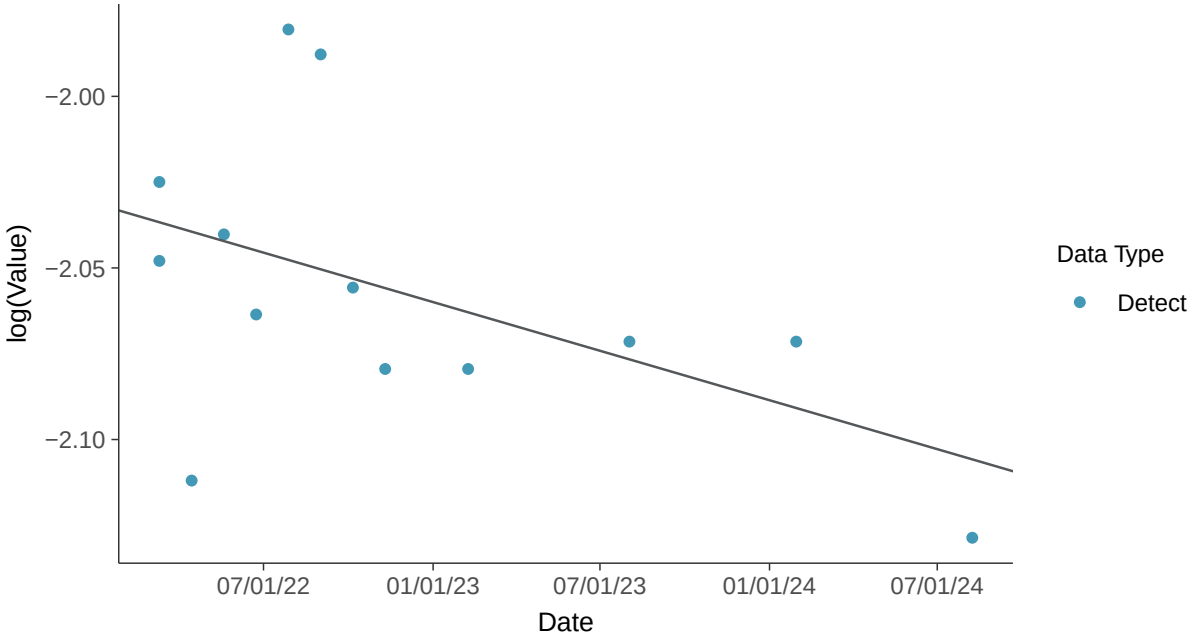
Gamma Q-Q plot

Lithium, MW-7C (mg/L)



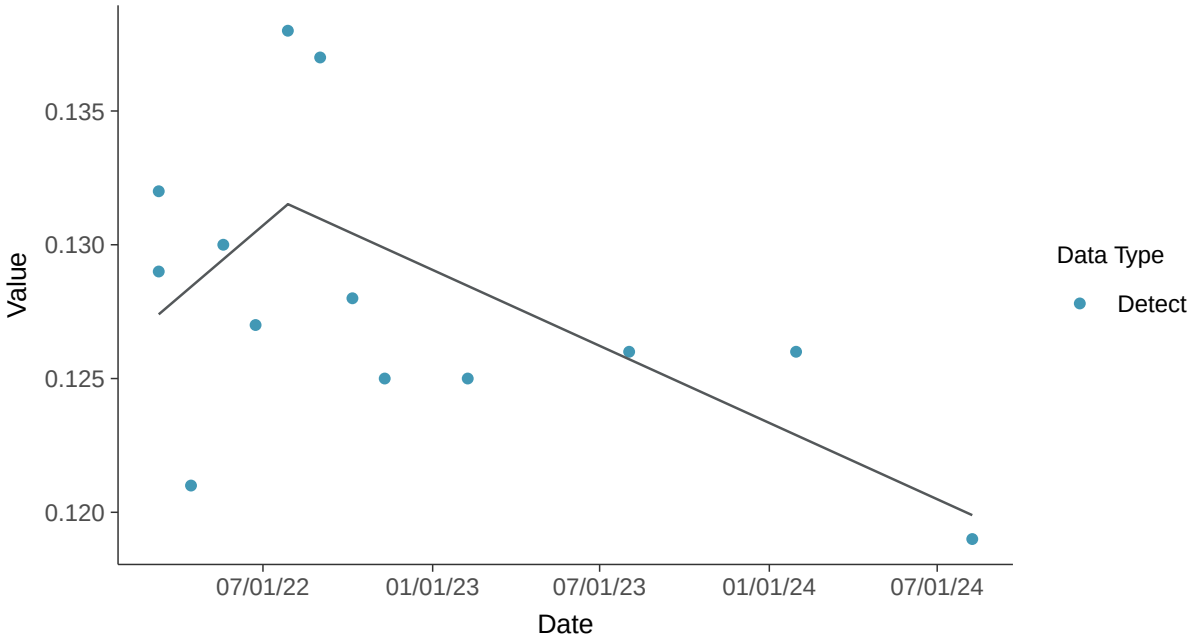
Trend Regression: Lognormal MLE

Lithium, MW-7C (mg/L)



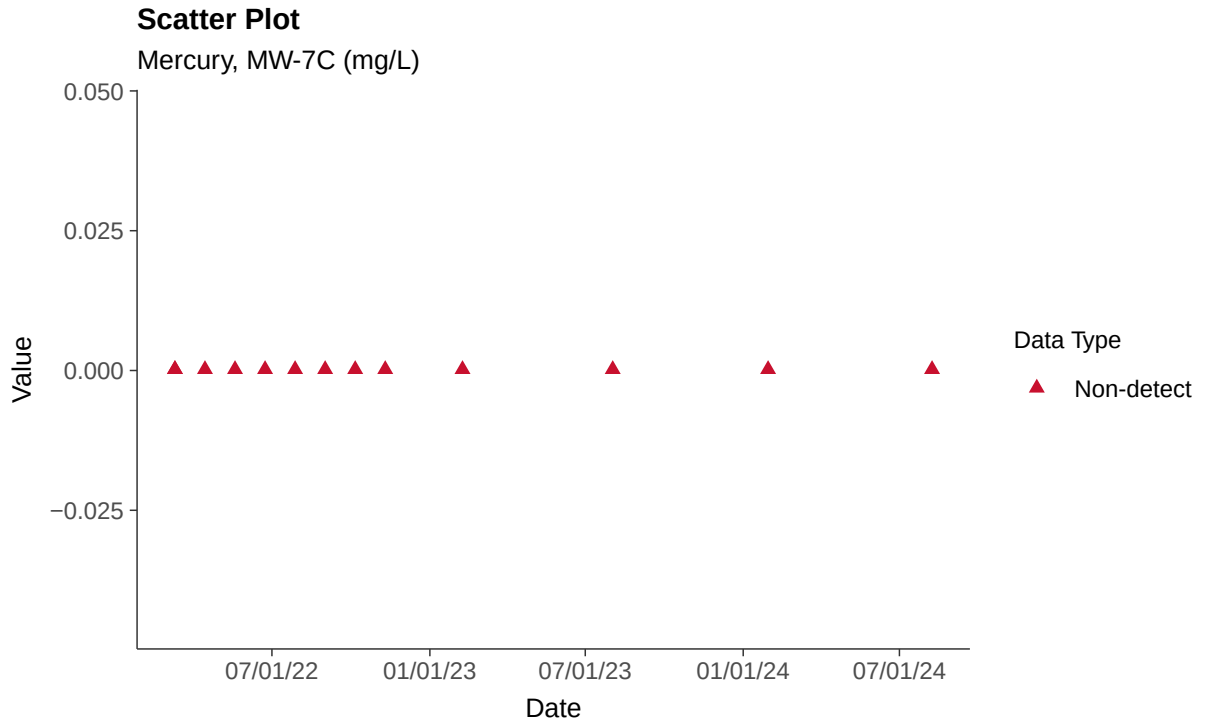
Trend Regression: Piecewise Linear-Linear

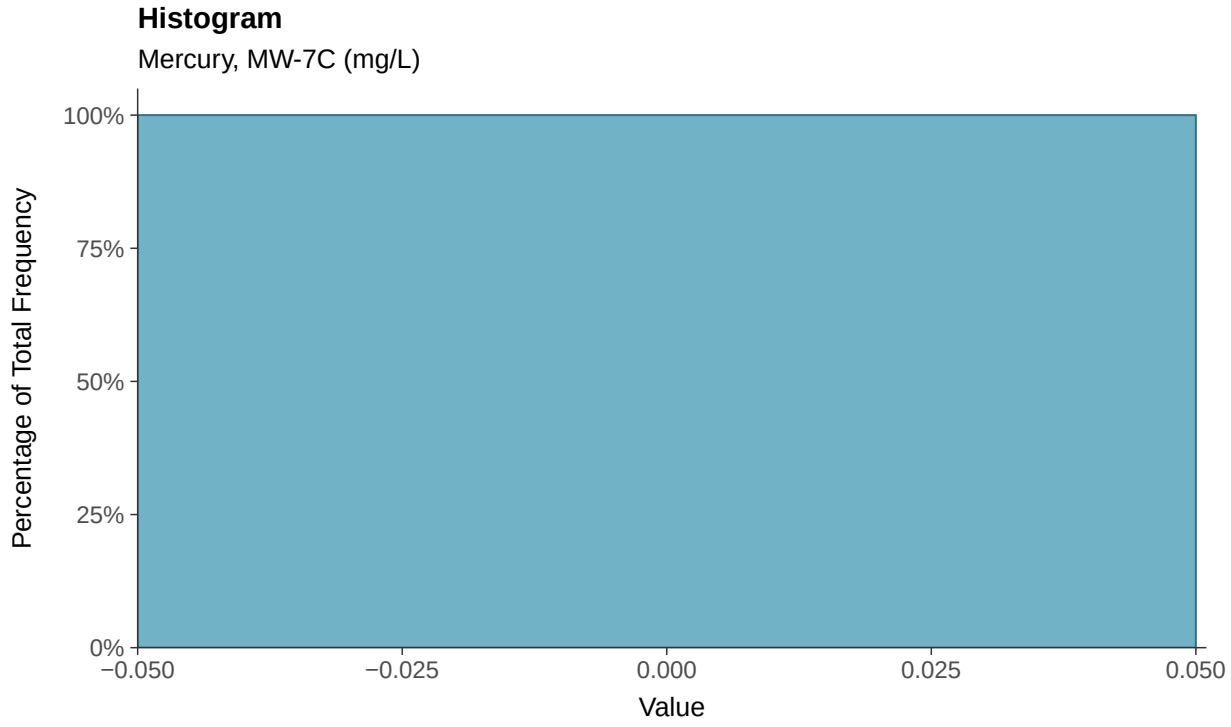
Lithium, MW-7C (mg/L)



Appendix IV: Mercury, MW-7C

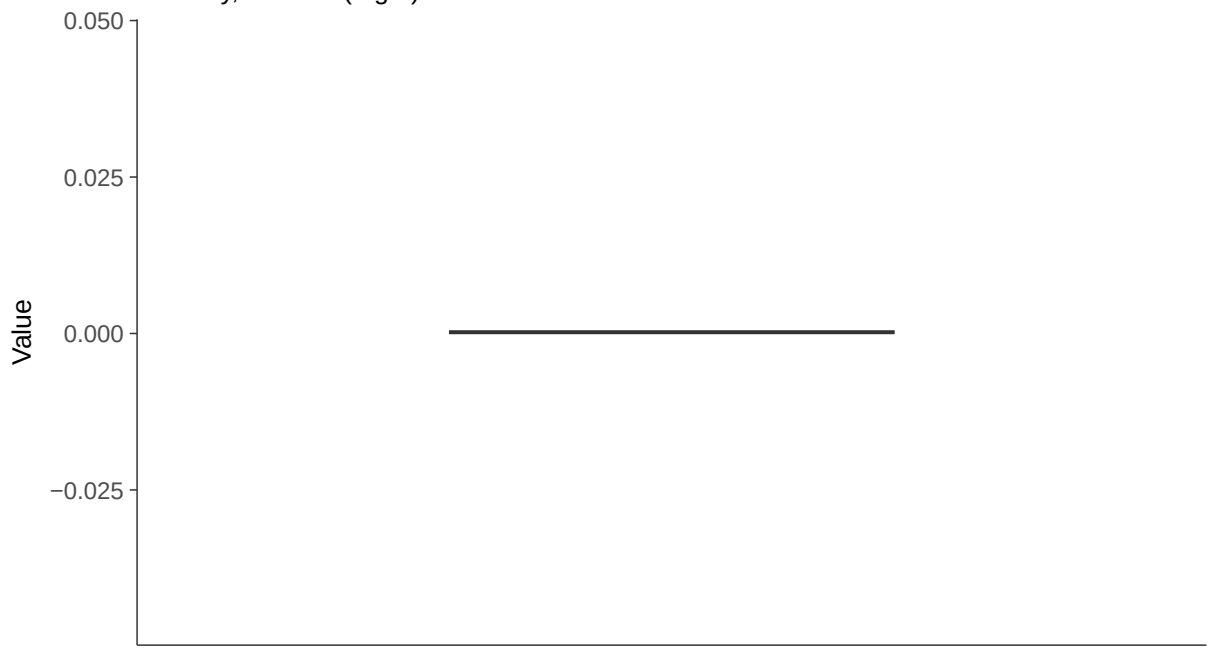
ID: 7C_2_17





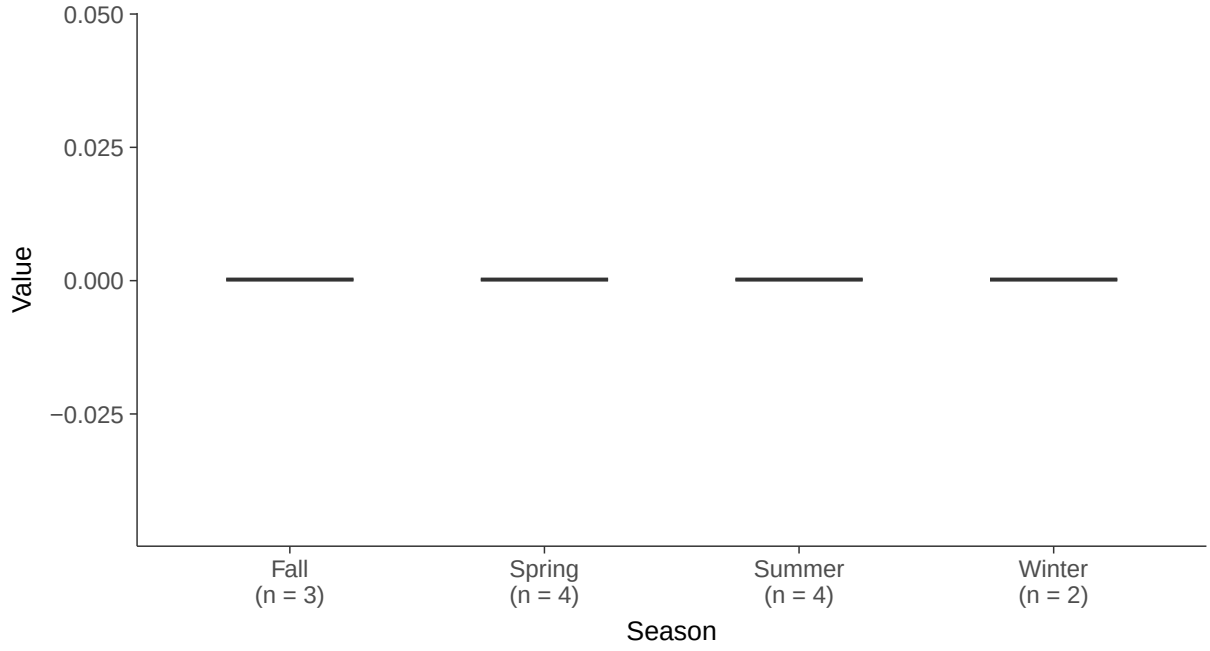
Boxplot

Mercury, MW-7C (mg/L)



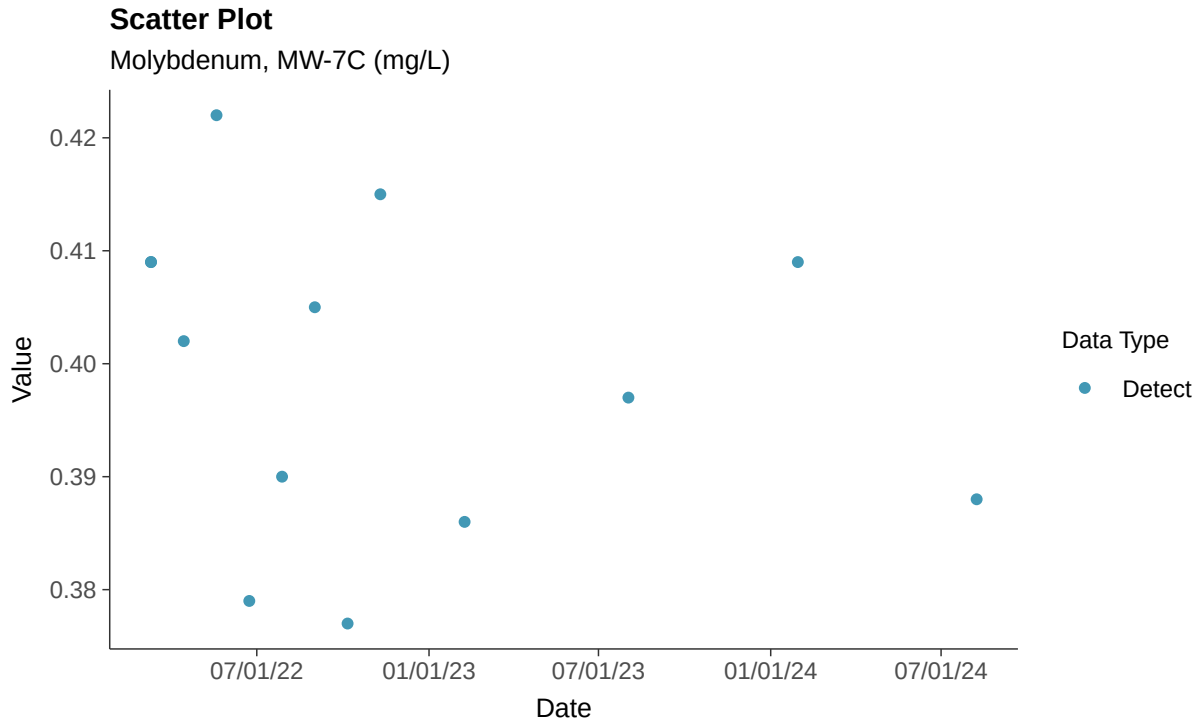
Boxplot by Season

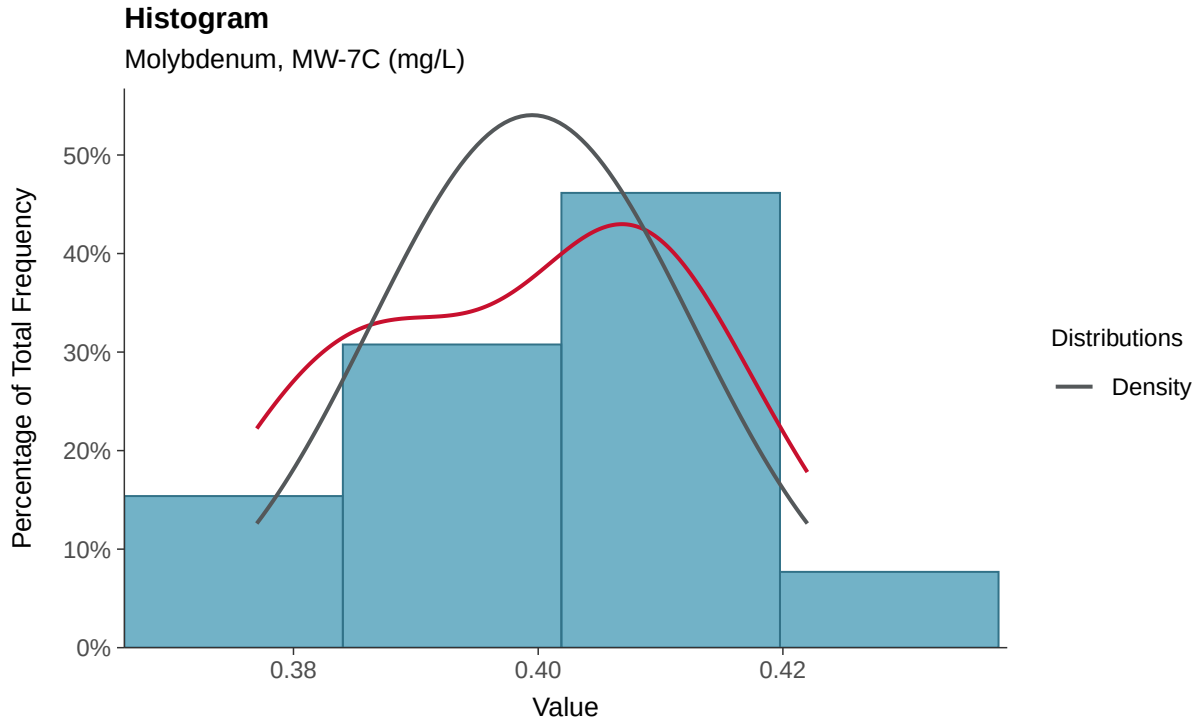
Mercury, MW-7C (mg/L)



Appendix IV: Molybdenum, MW-7C

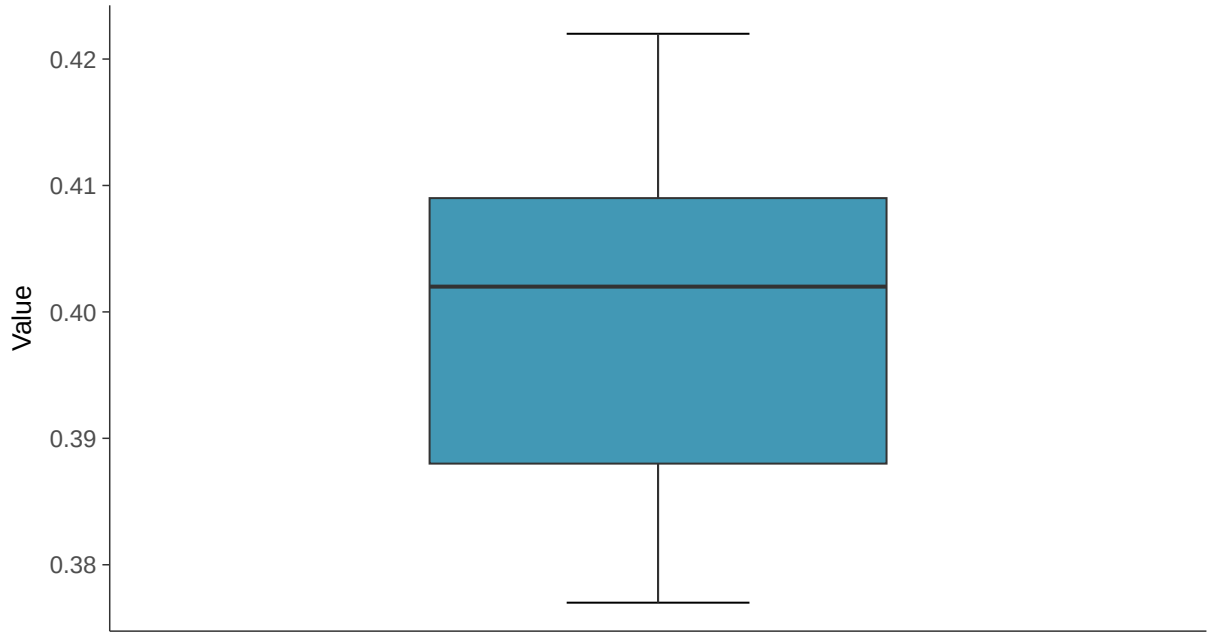
ID: 7C_2_18





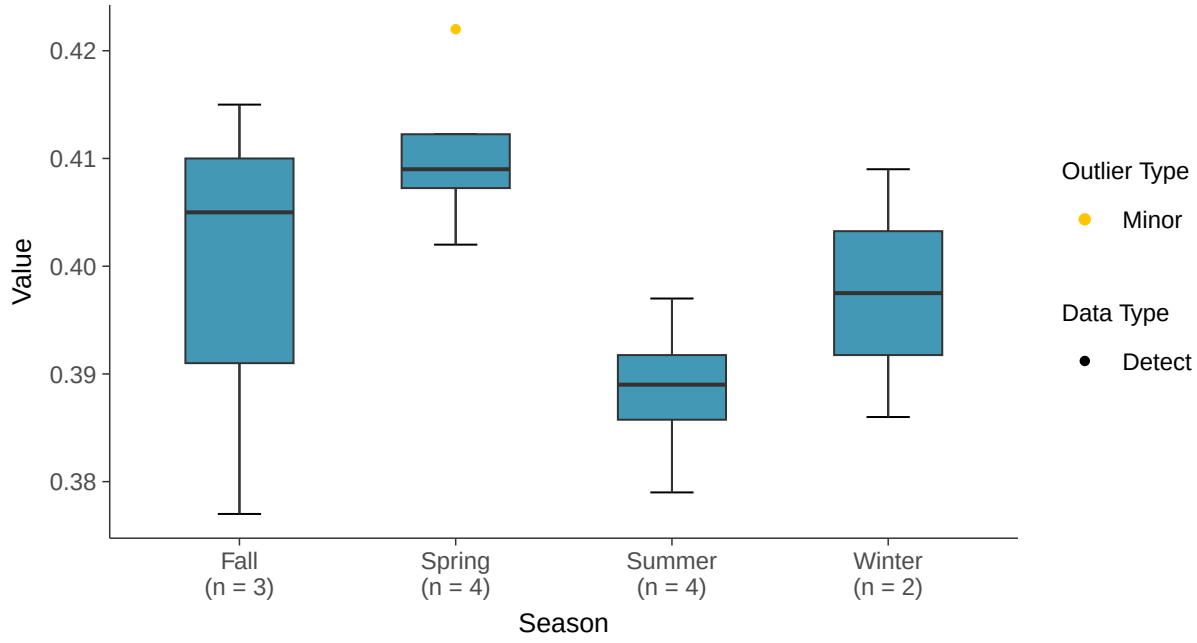
Boxplot

Molybdenum, MW-7C (mg/L)



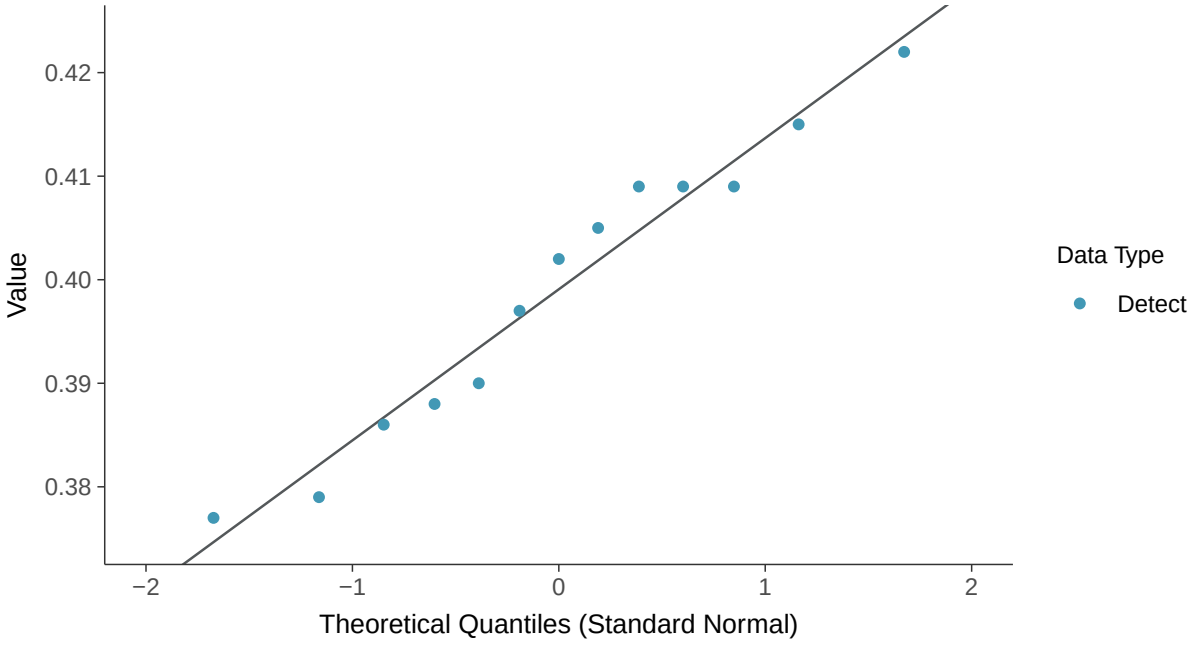
Boxplot by Season

Molybdenum, MW-7C (mg/L)



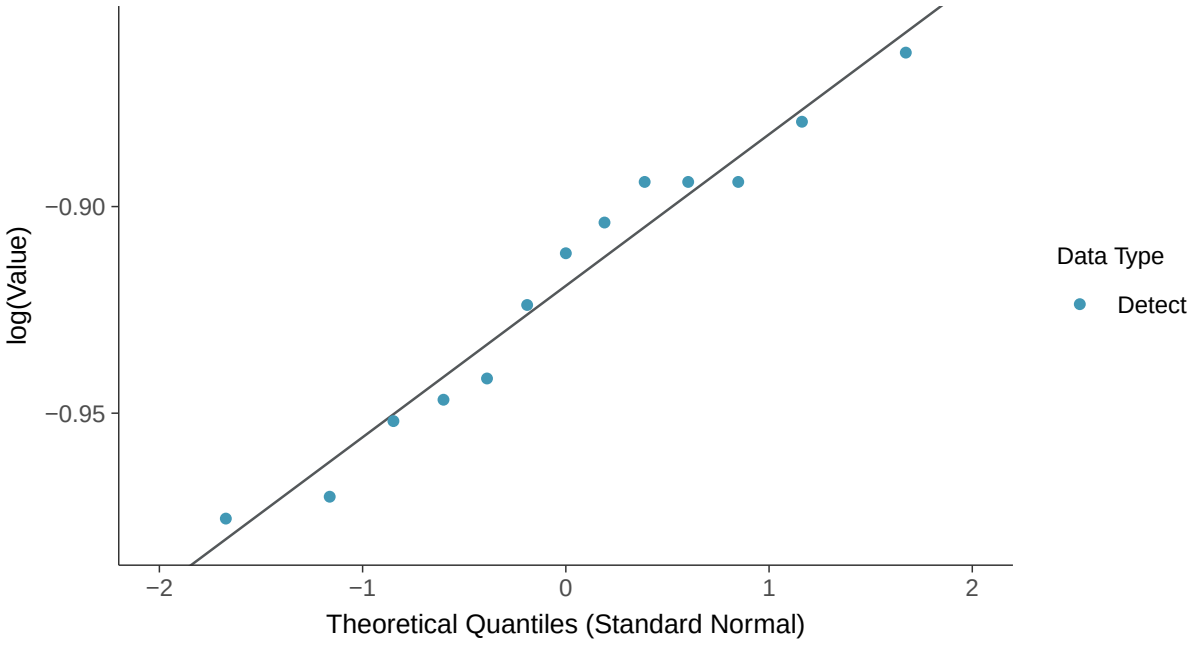
Normal Q-Q plot

Molybdenum, MW-7C (mg/L)



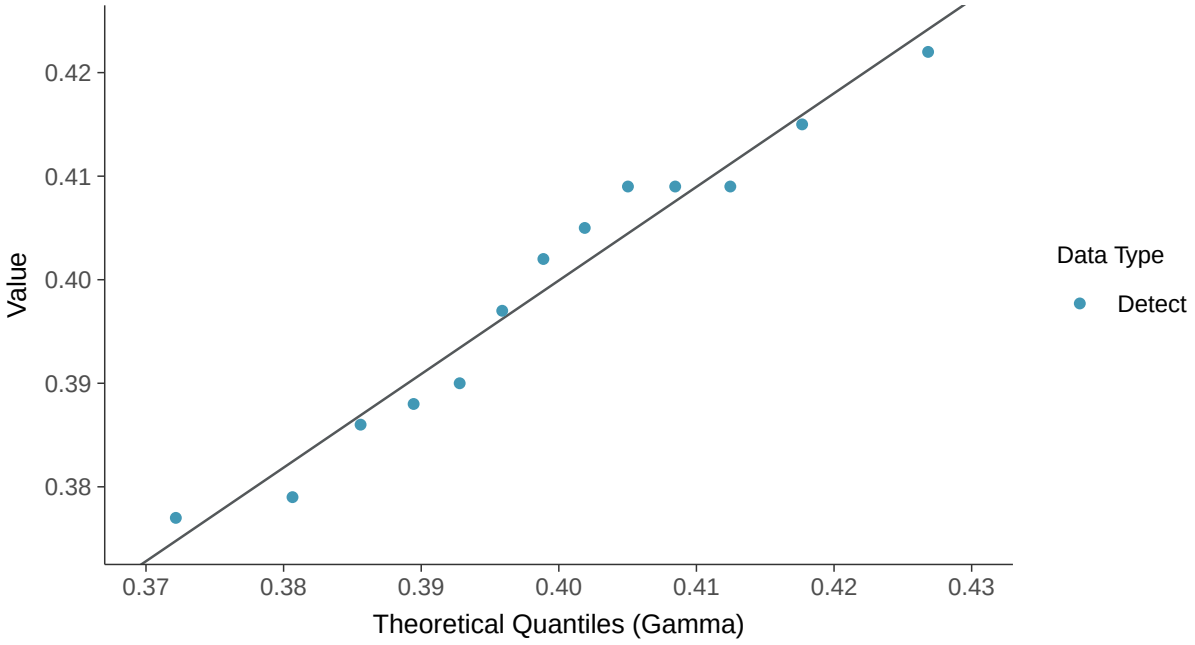
Lognormal Q-Q plot

Molybdenum, MW-7C (mg/L)



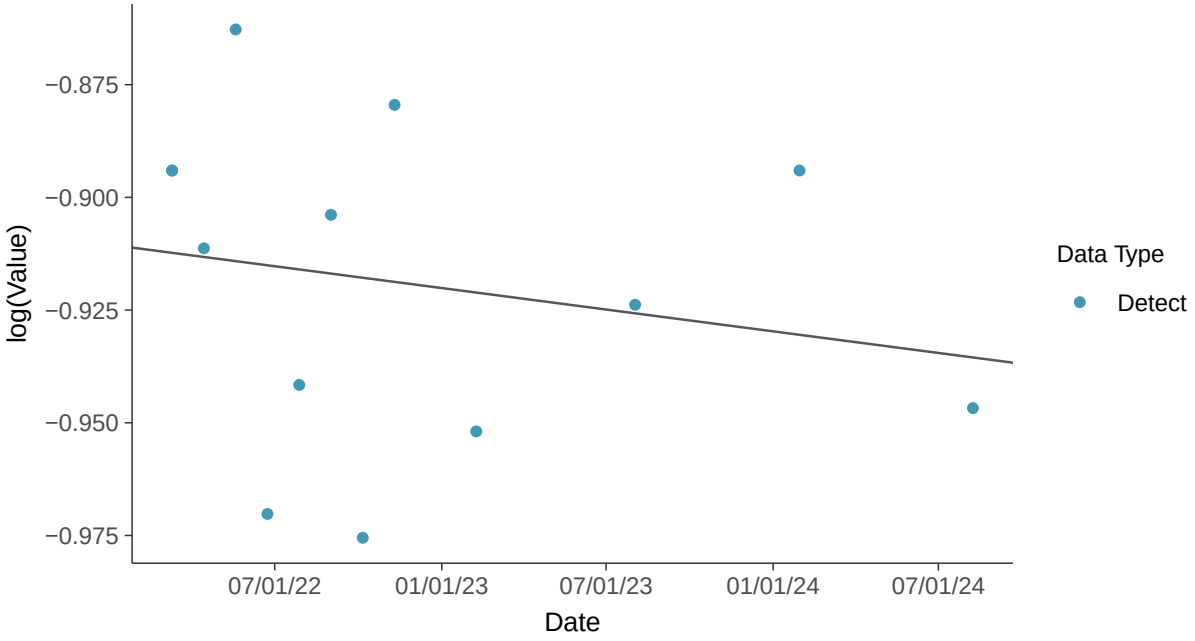
Gamma Q-Q plot

Molybdenum, MW-7C (mg/L)



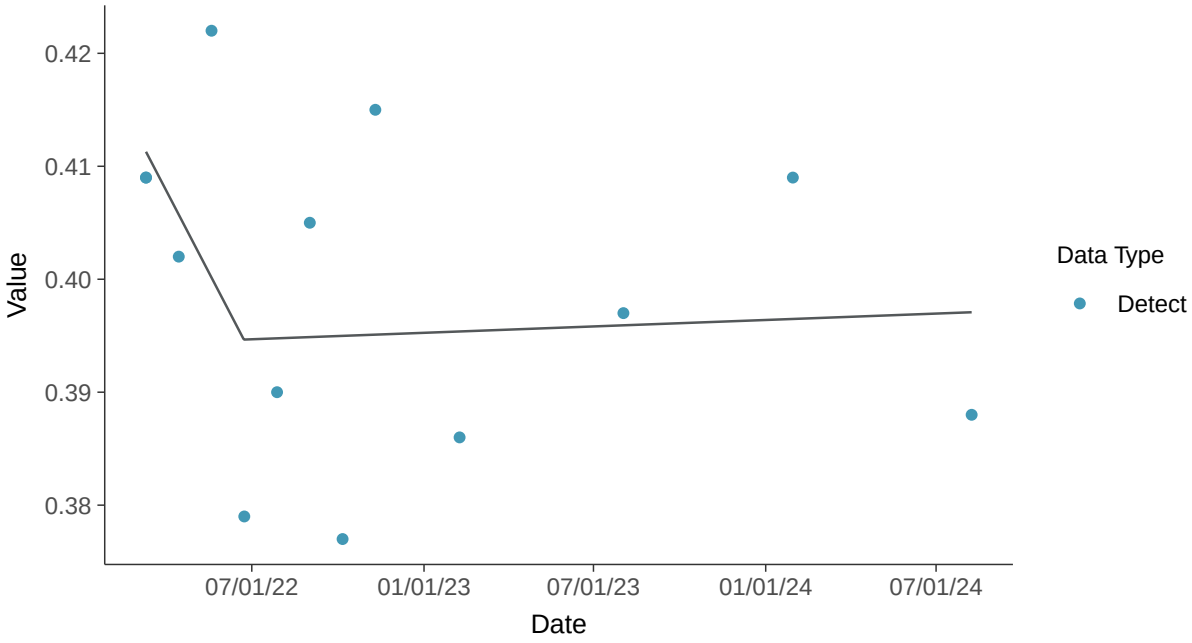
Trend Regression: Lognormal MLE

Molybdenum, MW-7C (mg/L)



Trend Regression: Piecewise Linear-Linear

Molybdenum, MW-7C (mg/L)

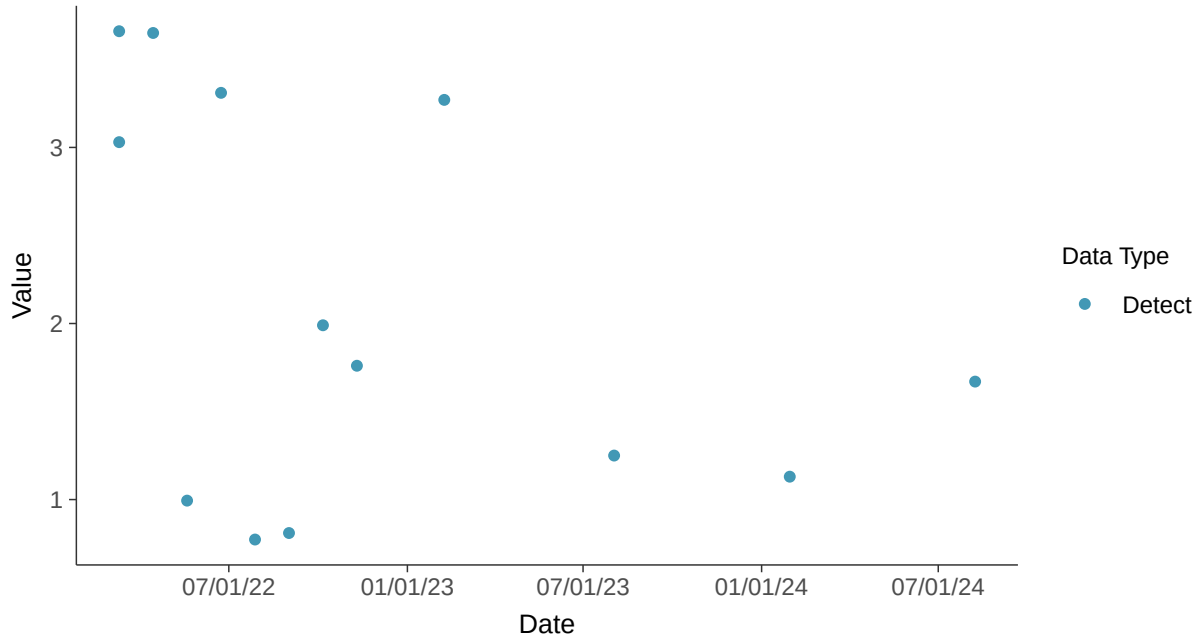


Appendix IV: Radium-226/228, MW-7C

ID: 7C_2_21

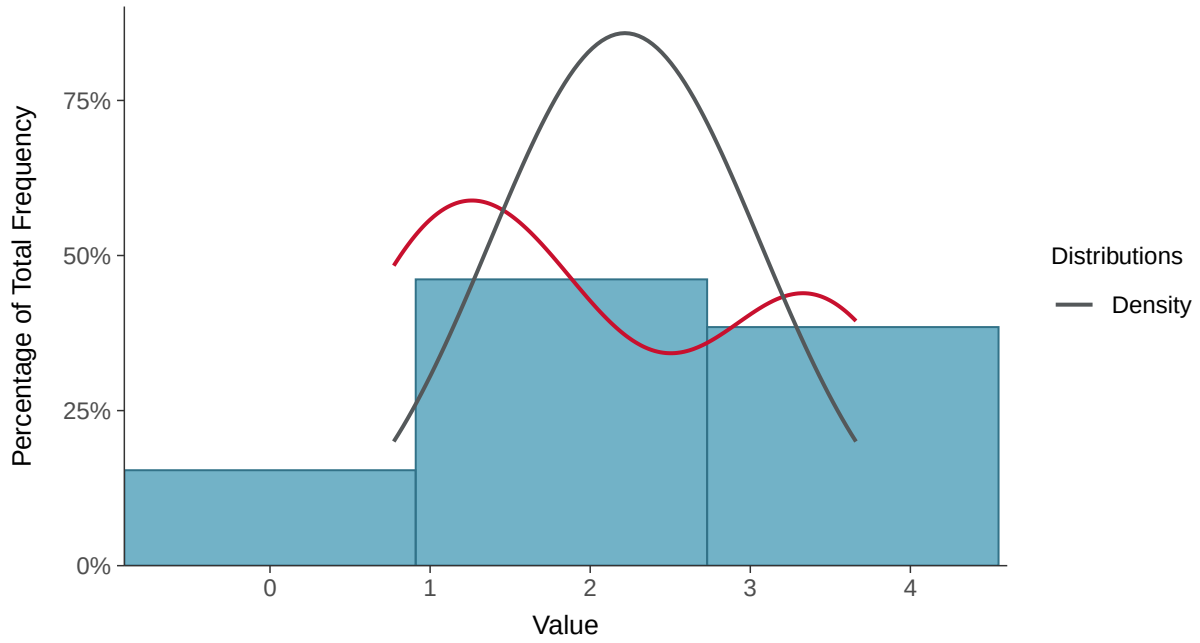
Scatter Plot

Radium-226/228, MW-7C (pCi/L)



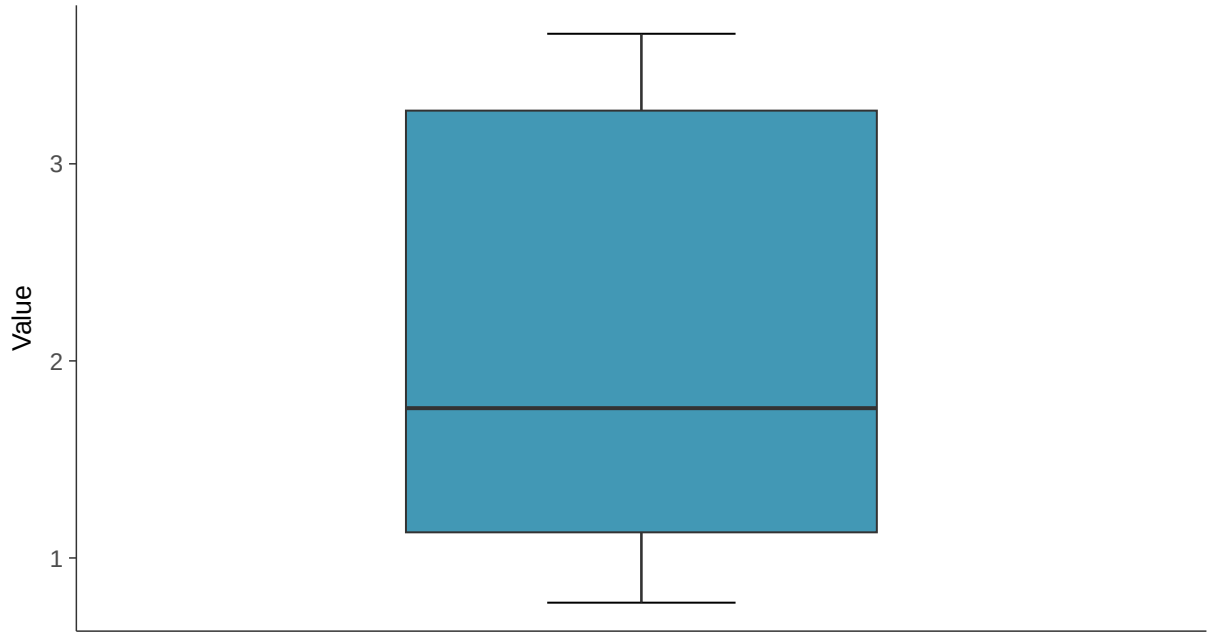
Histogram

Radium-226/228, MW-7C (pCi/L)



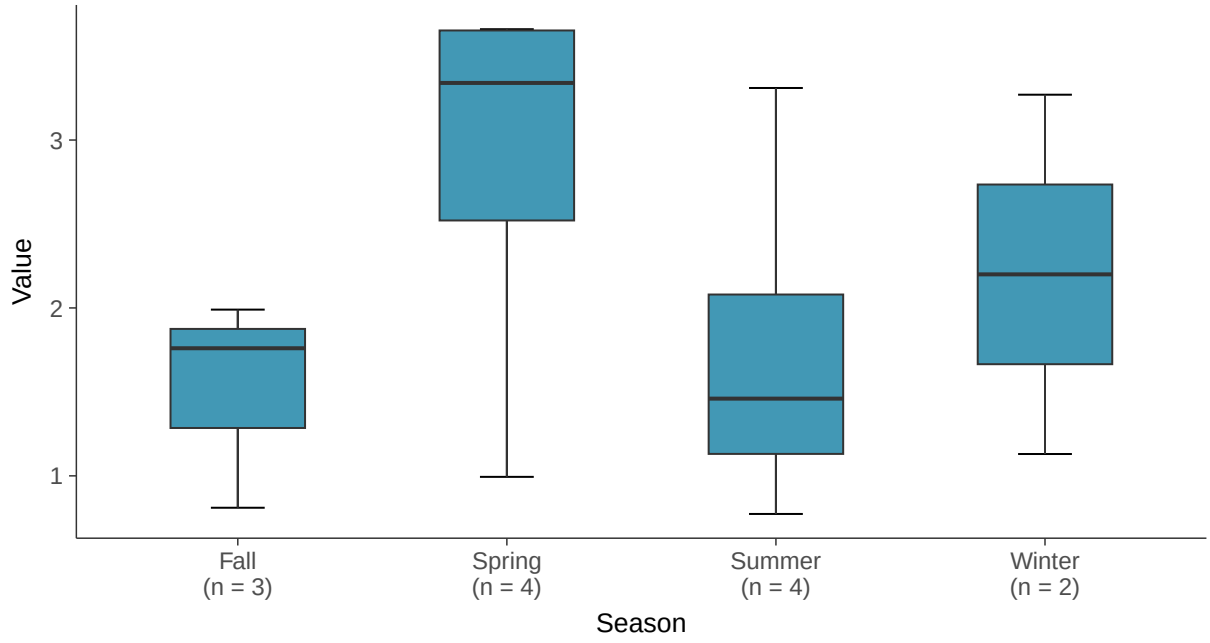
Boxplot

Radium-226/228, MW-7C (pCi/L)



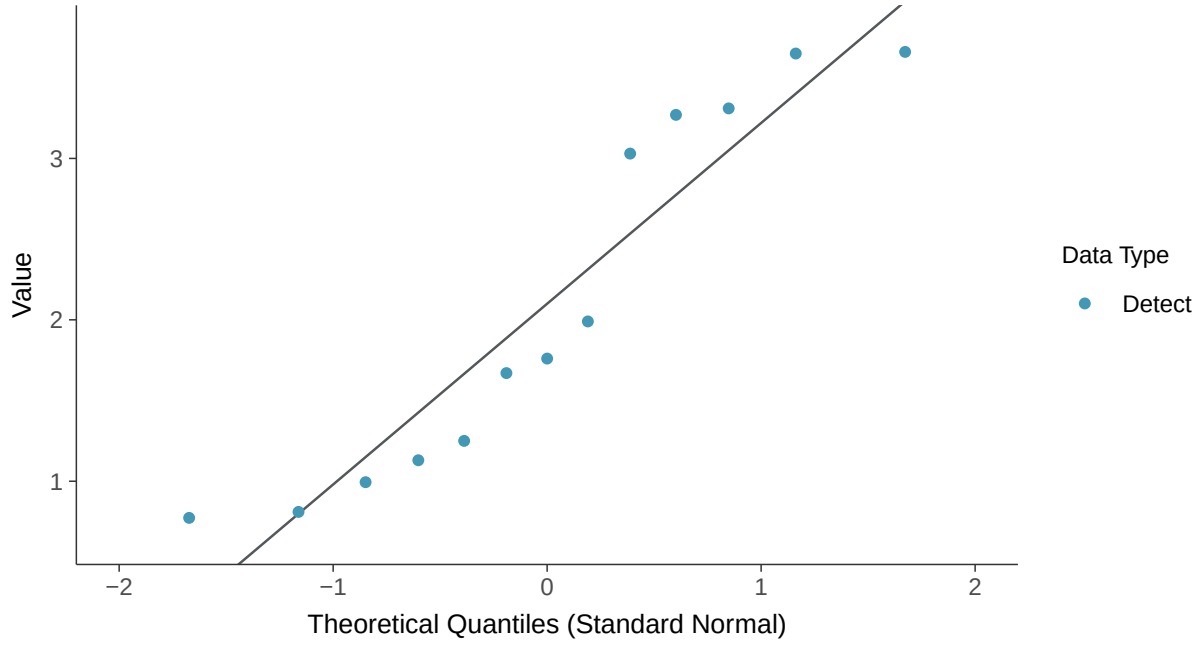
Boxplot by Season

Radium-226/228, MW-7C (pCi/L)



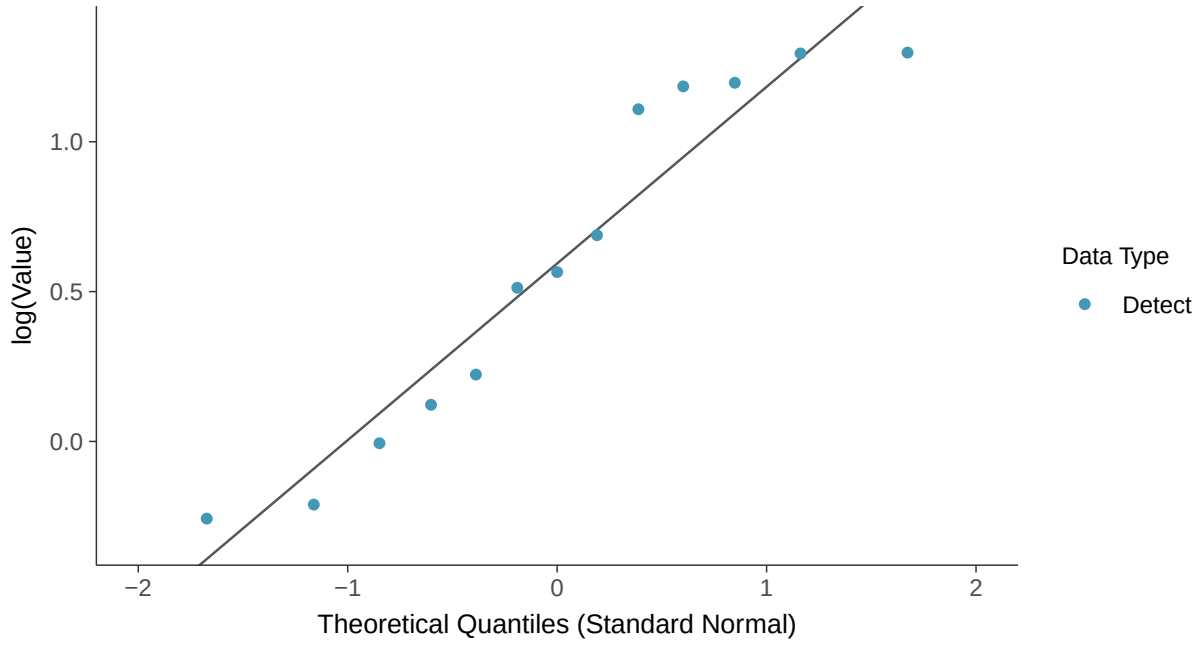
Normal Q-Q plot

Radium-226/228, MW-7C (pCi/L)



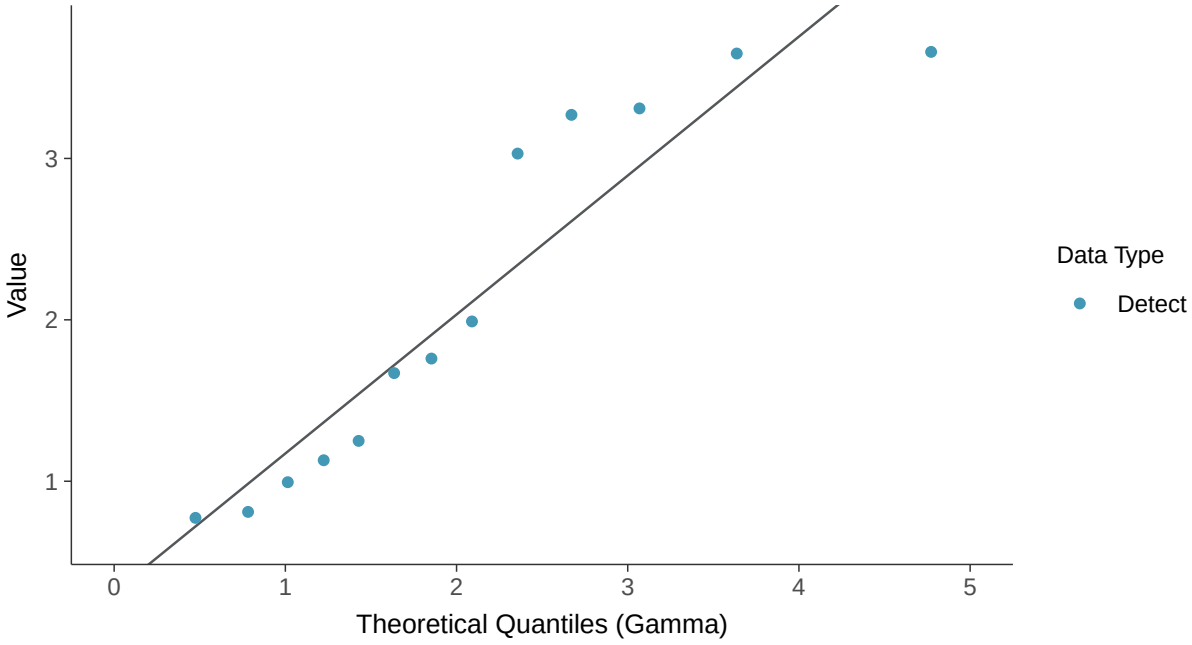
Lognormal Q-Q plot

Radium-226/228, MW-7C (pCi/L)



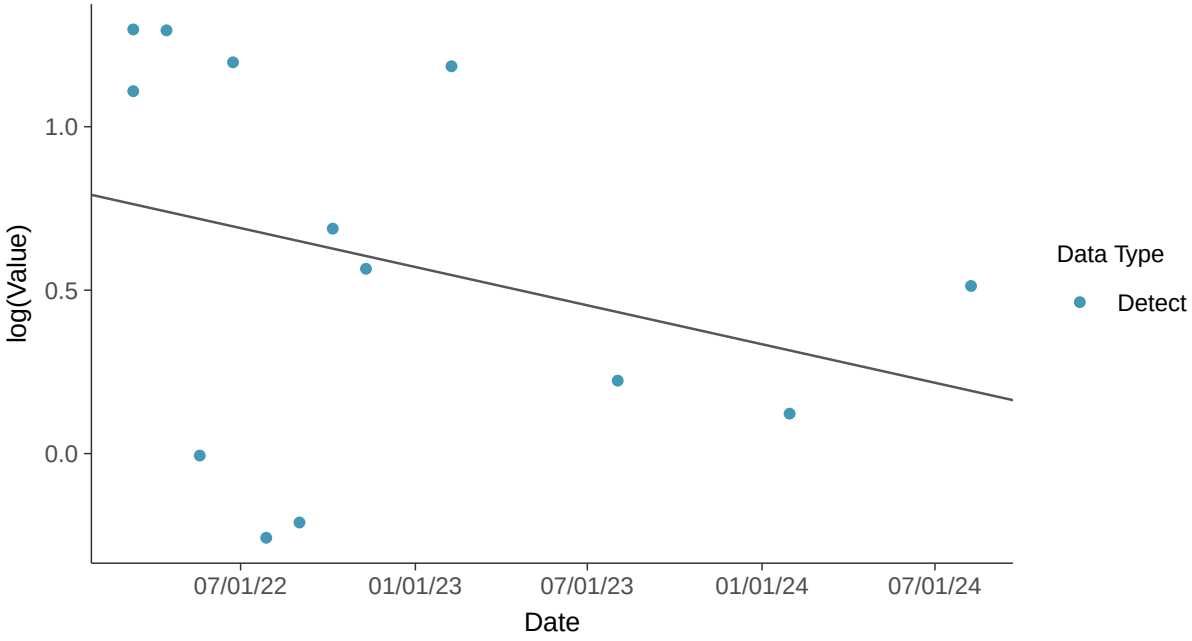
Gamma Q-Q plot

Radium-226/228, MW-7C (pCi/L)



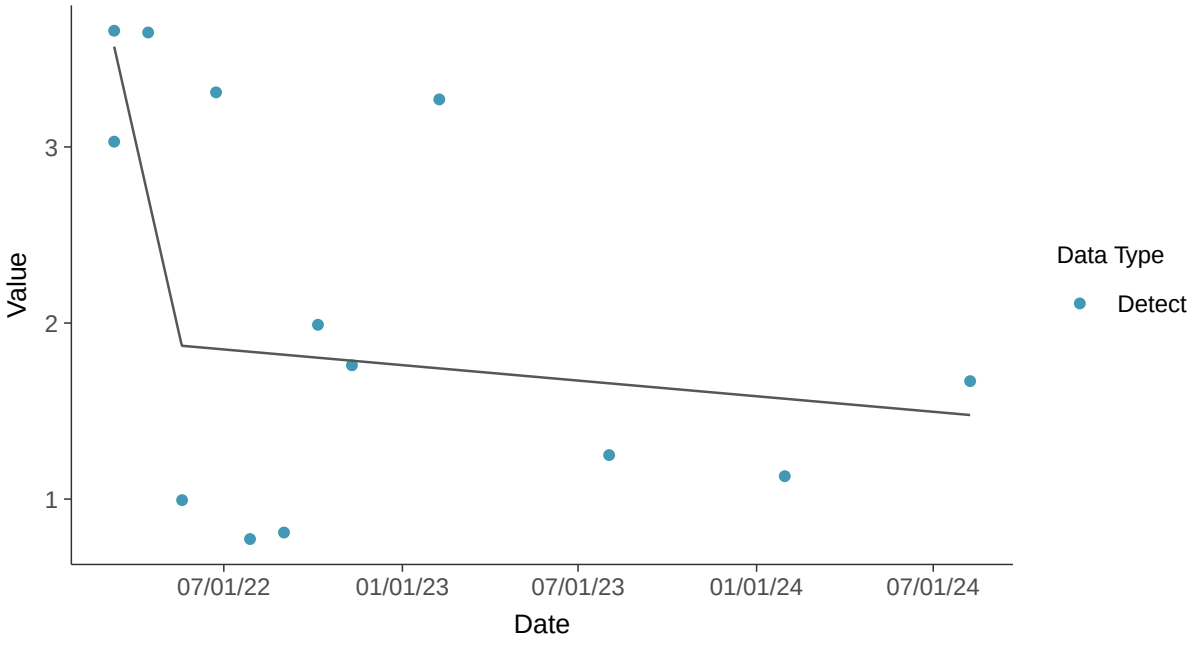
Trend Regression: Lognormal MLE

Radium-226/228, MW-7C (pCi/L)



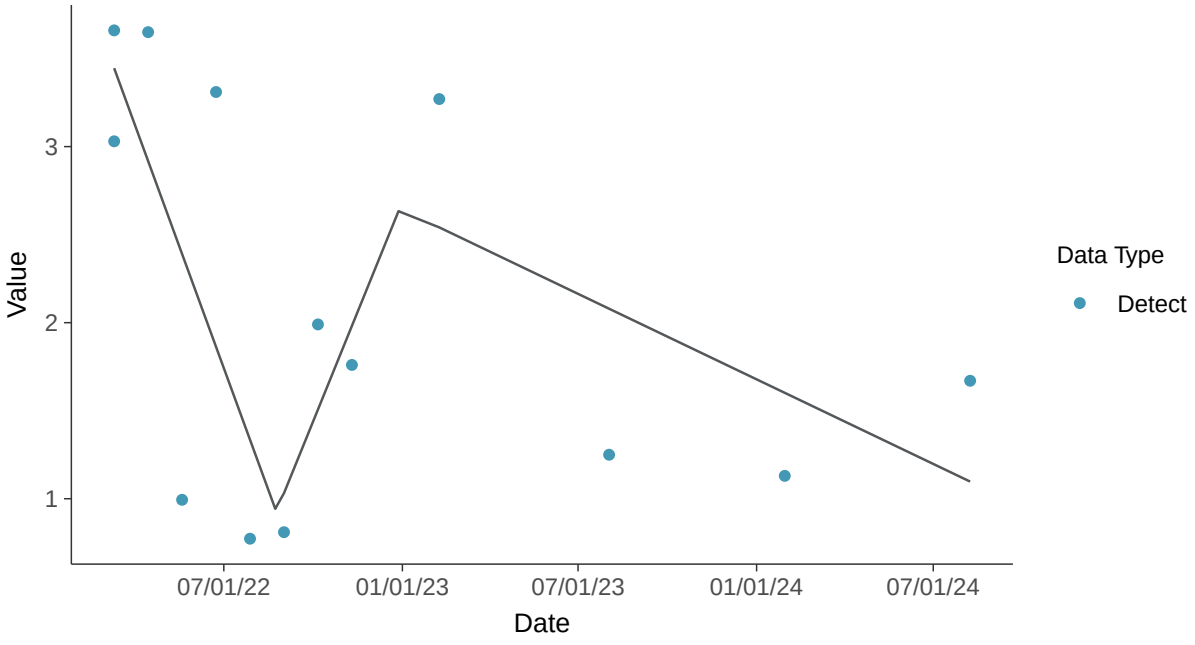
Trend Regression: Piecewise Linear-Linear

Radium-226/228, MW-7C (pCi/L)



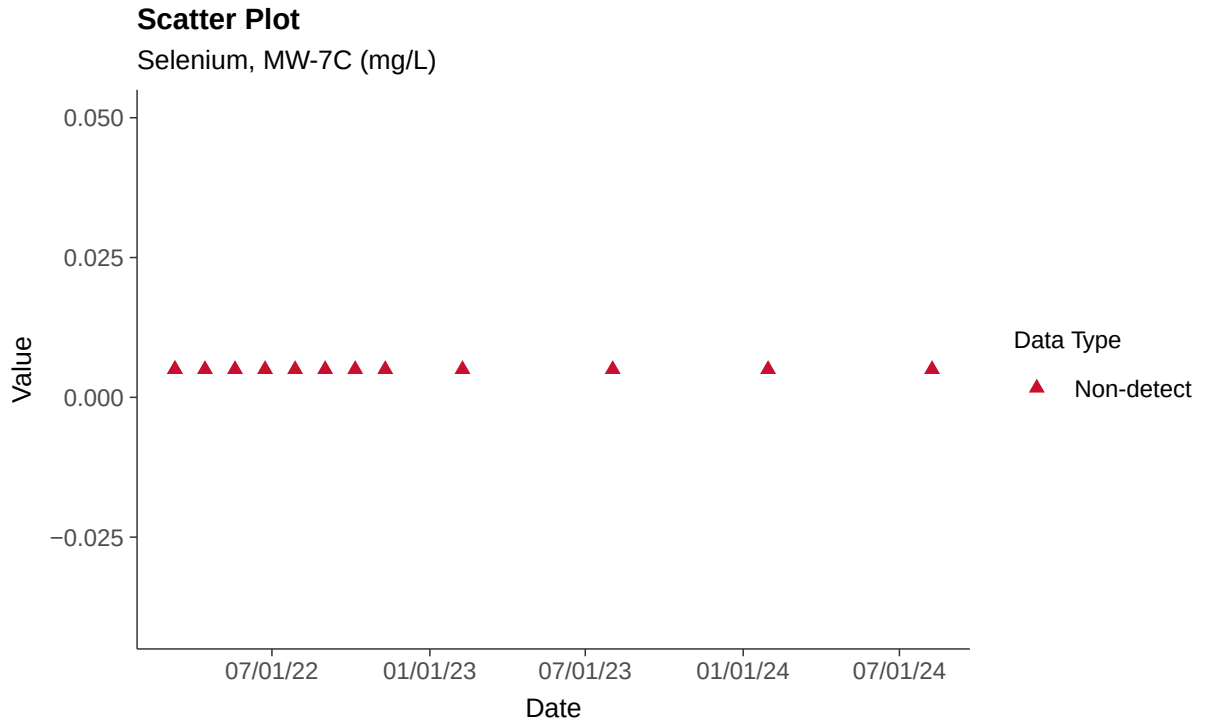
Trend Regression: Piecewise Linear-Linear-Linear

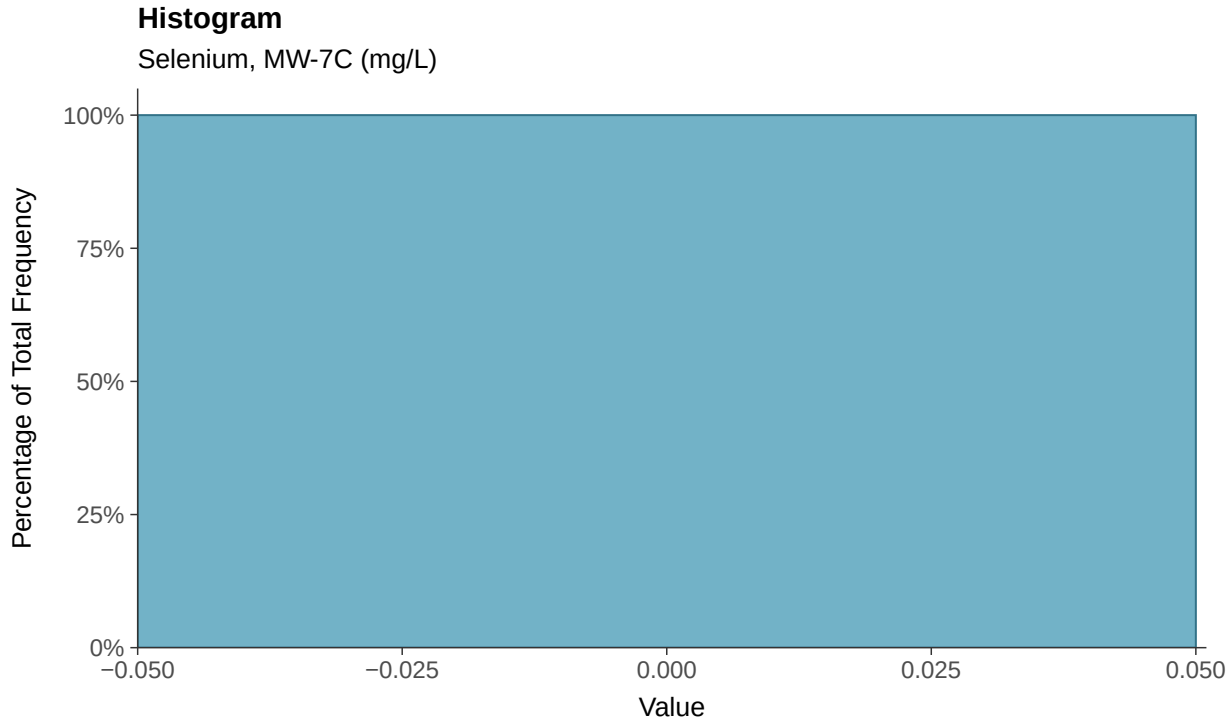
Radium-226/228, MW-7C (pCi/L)



Appendix IV: Selenium, MW-7C

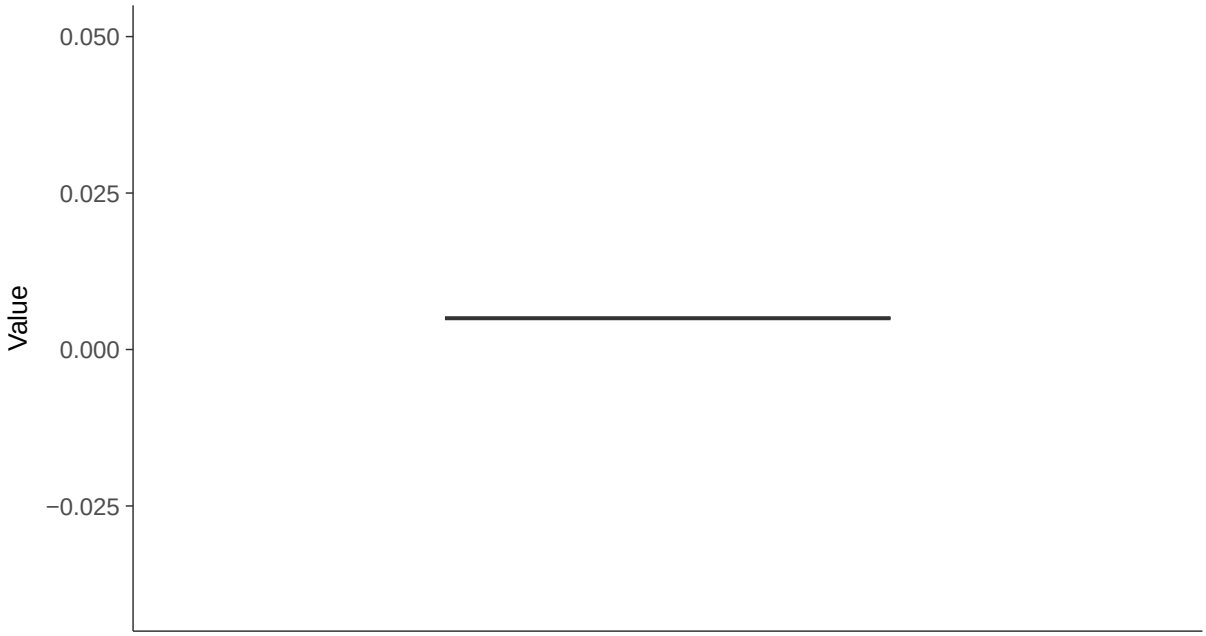
ID: 7C_2_22





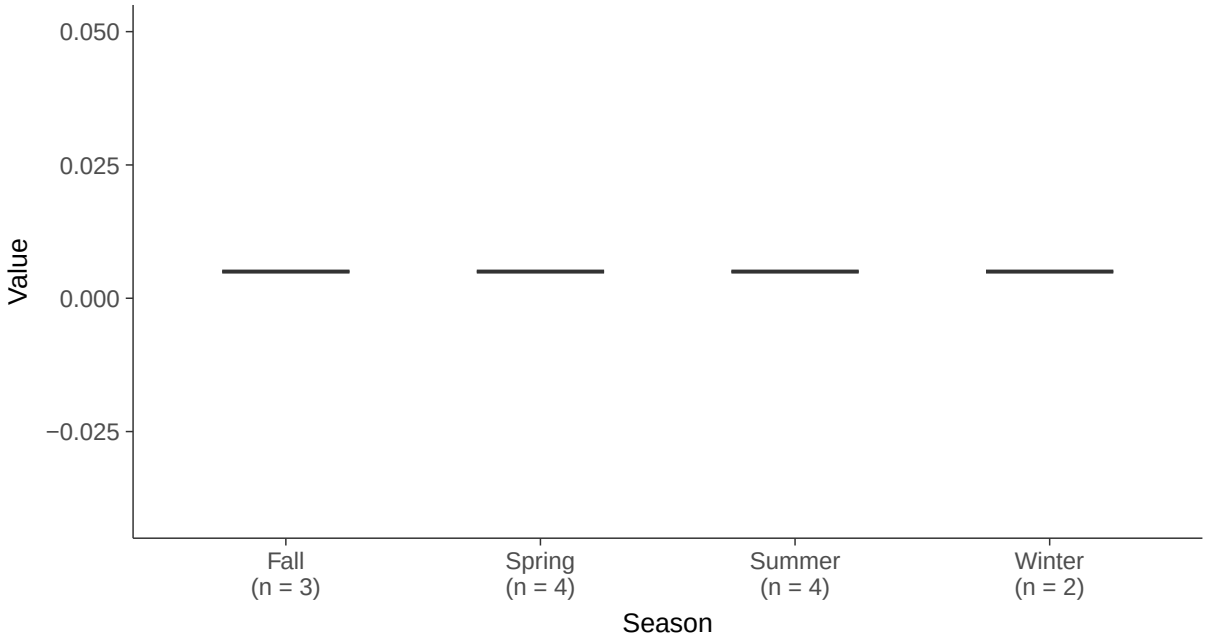
Boxplot

Selenium, MW-7C (mg/L)



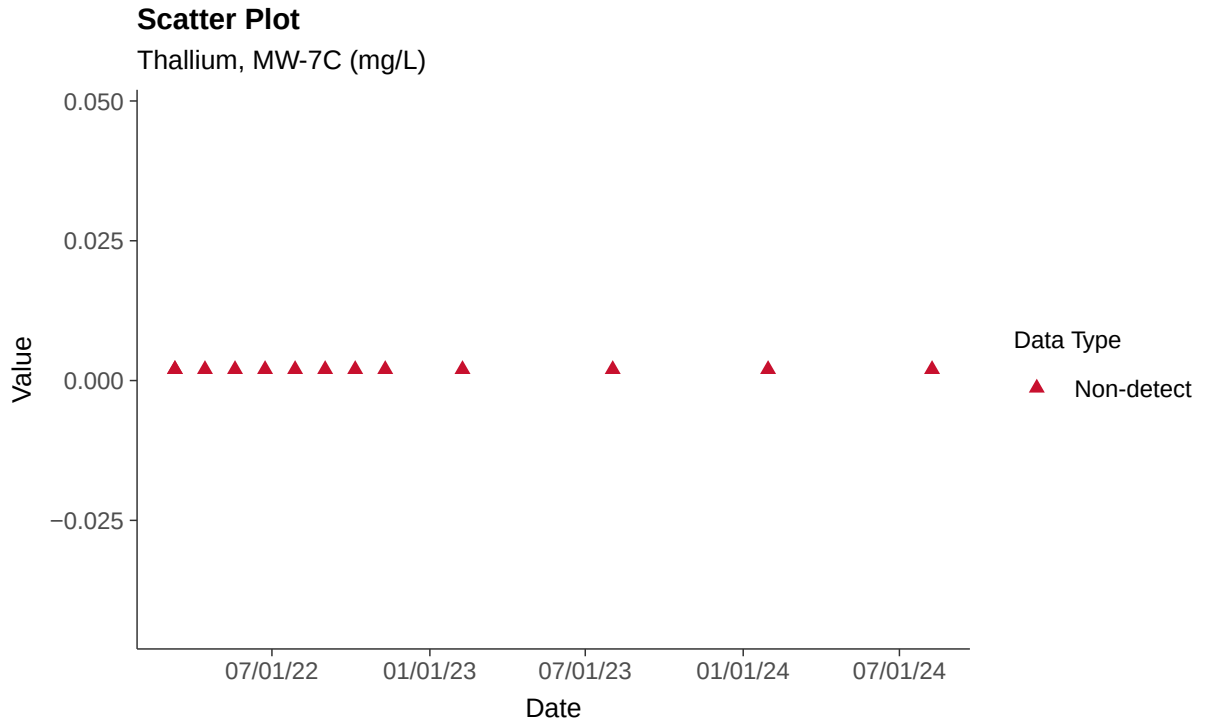
Boxplot by Season

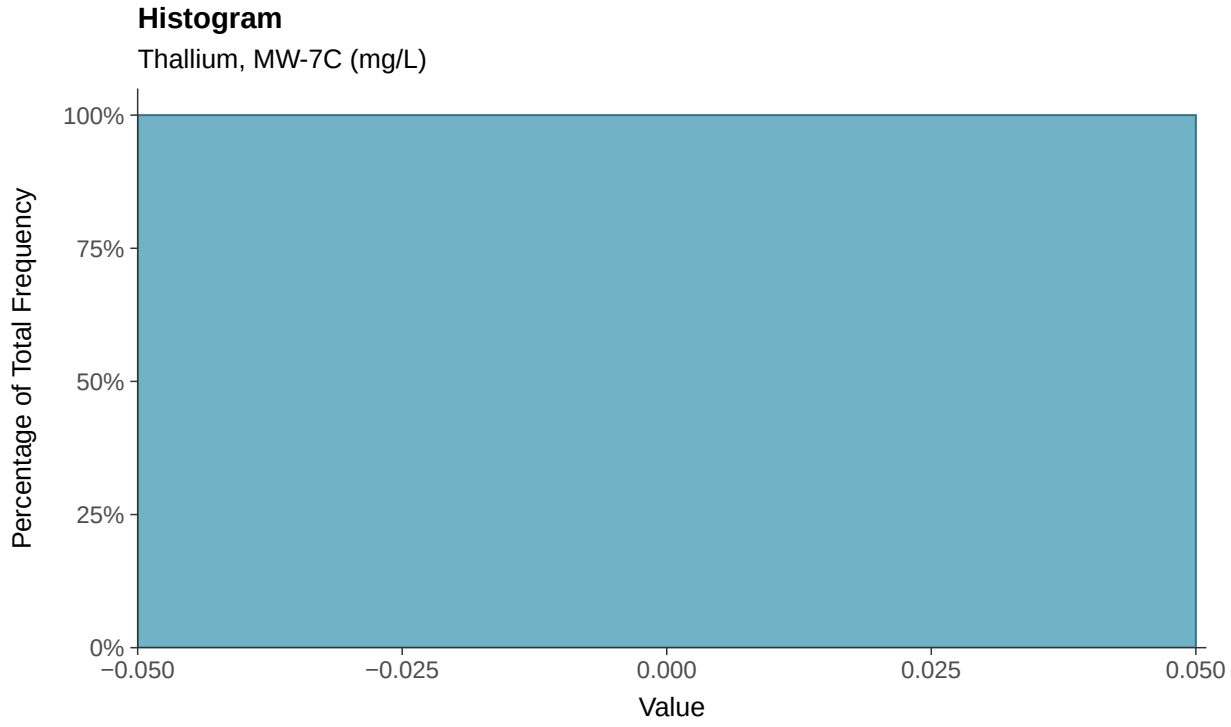
Selenium, MW-7C (mg/L)



Appendix IV: Thallium, MW-7C

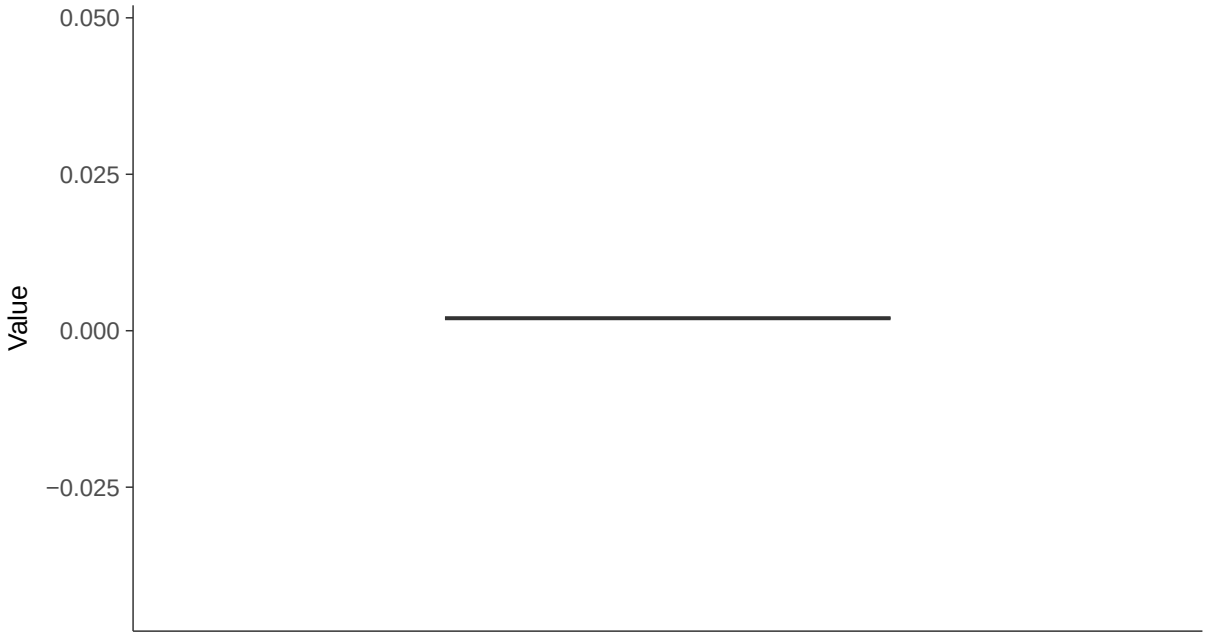
ID: 7C_2_23





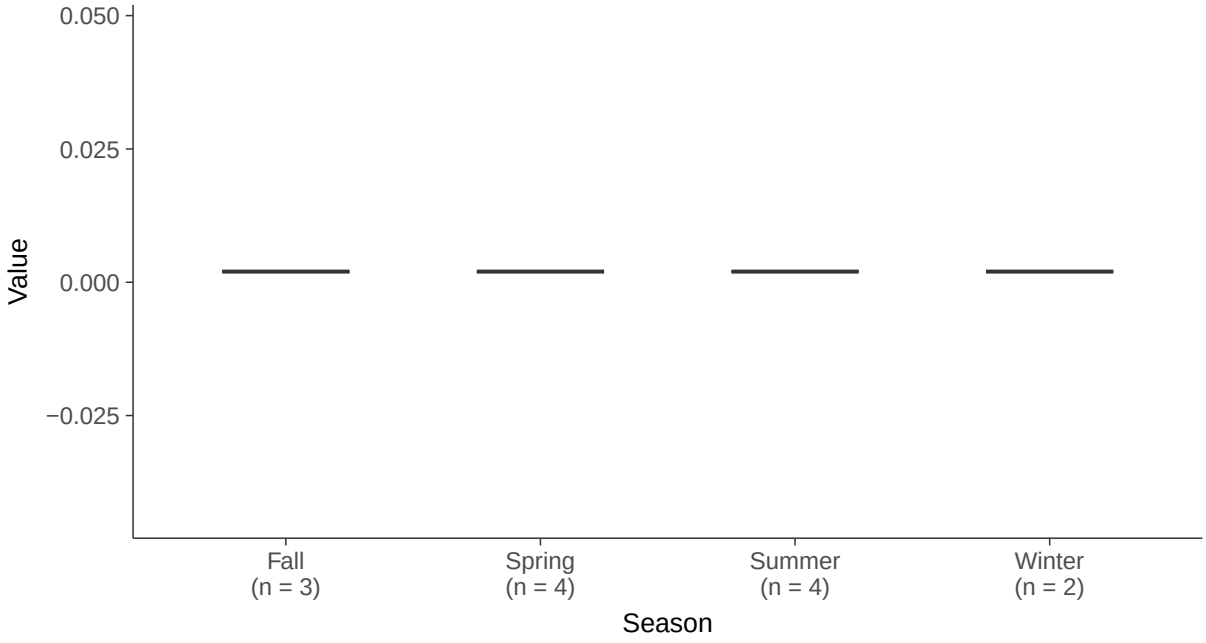
Boxplot

Thallium, MW-7C (mg/L)



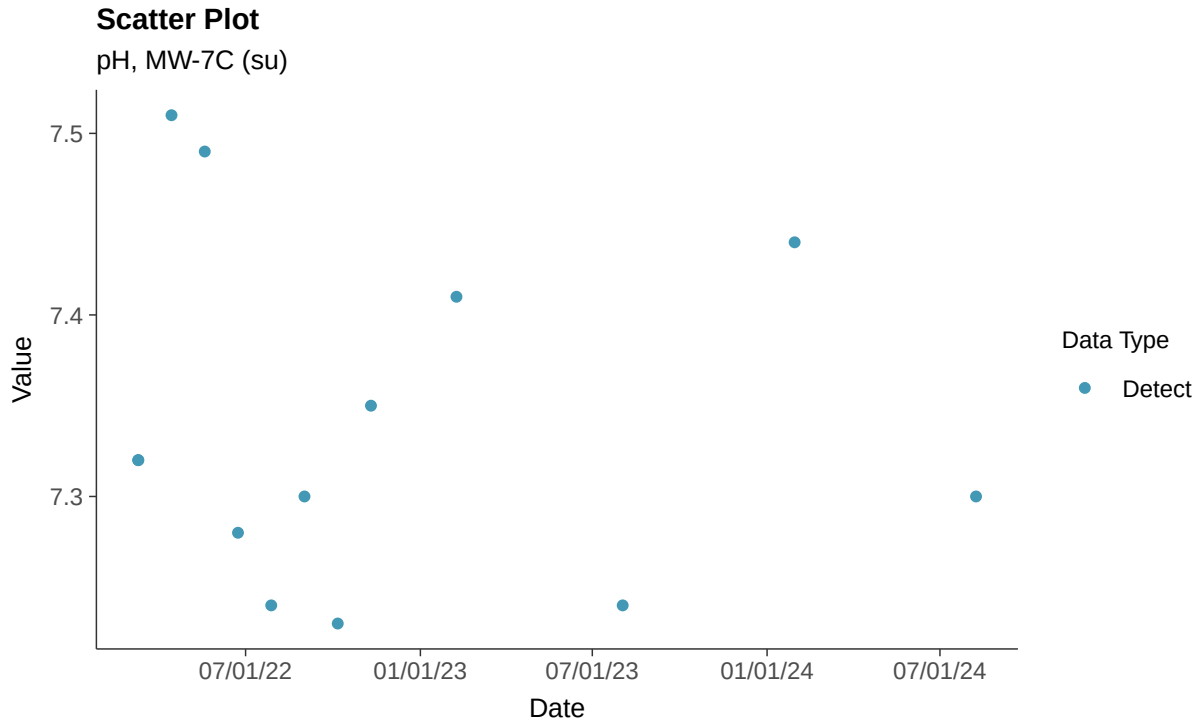
Boxplot by Season

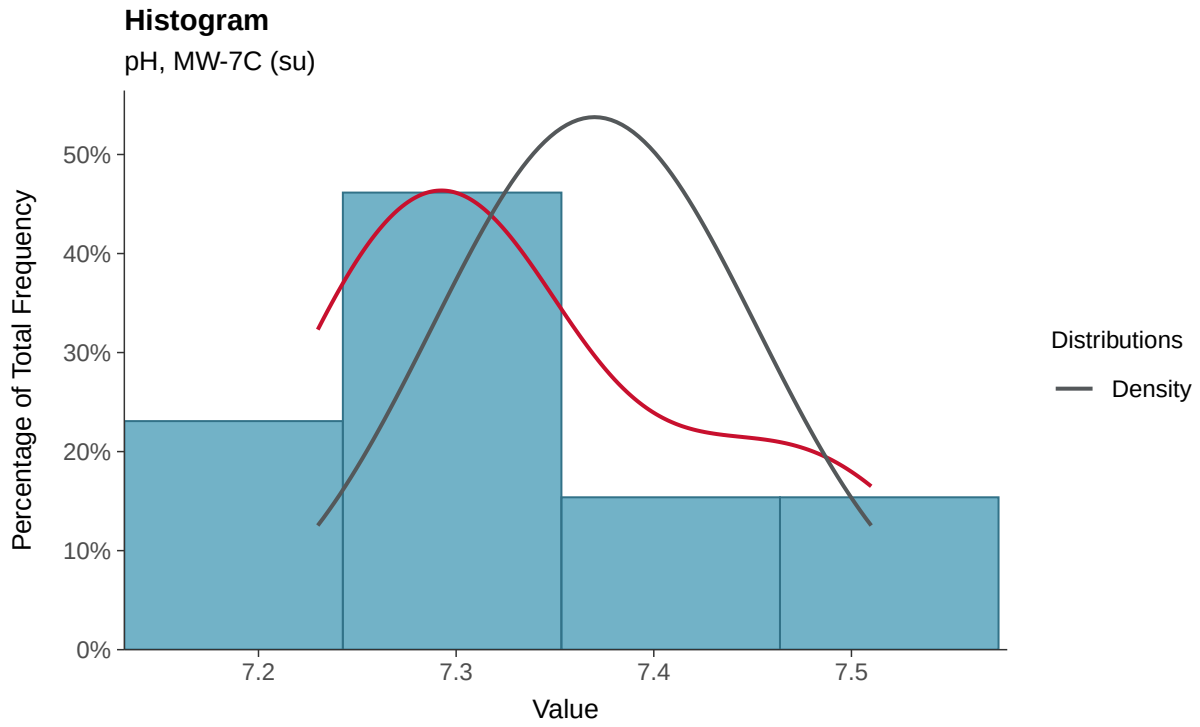
Thallium, MW-7C (mg/L)



Field Parameters: pH, MW-7C

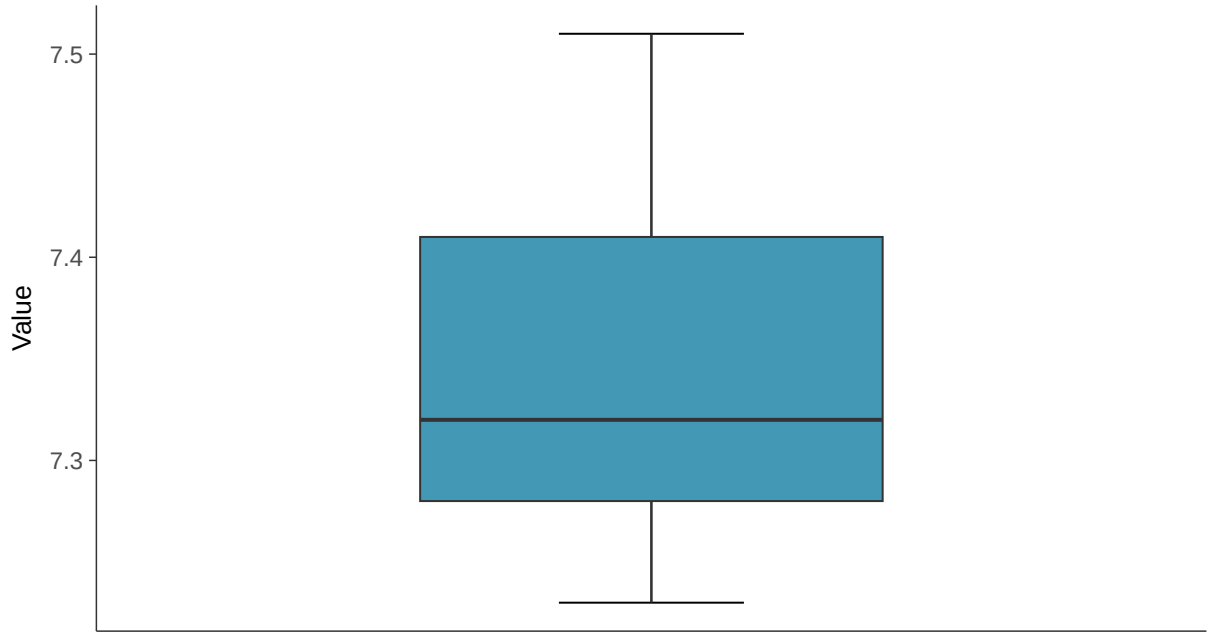
ID: 7C_3_24





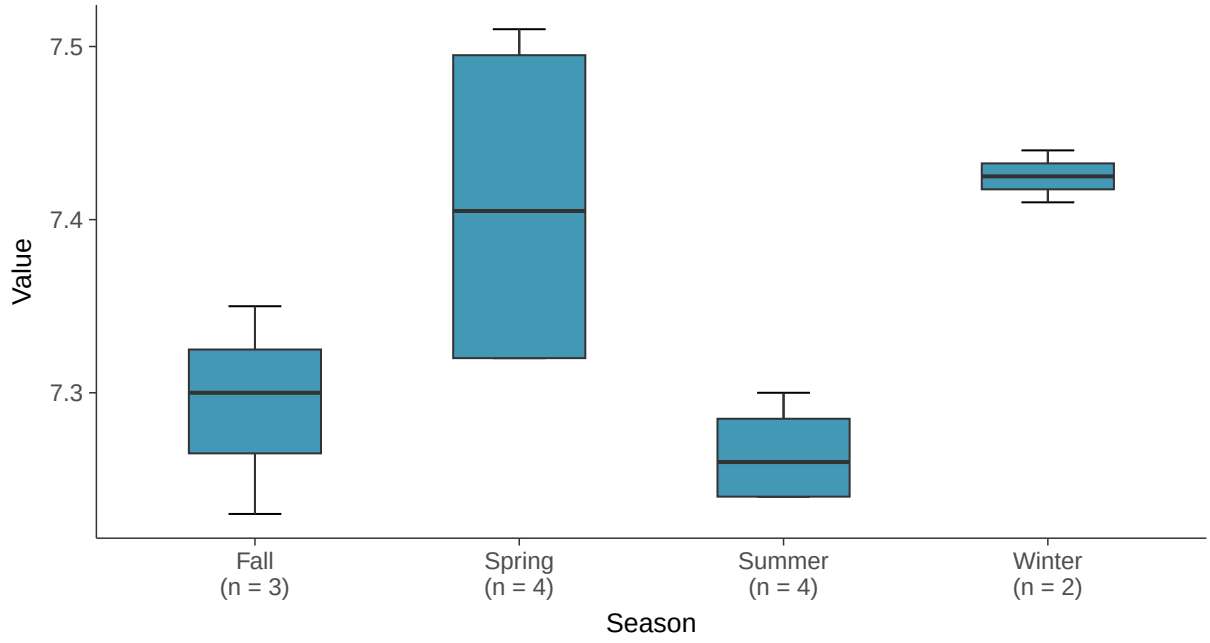
Boxplot

pH, MW-7C (su)



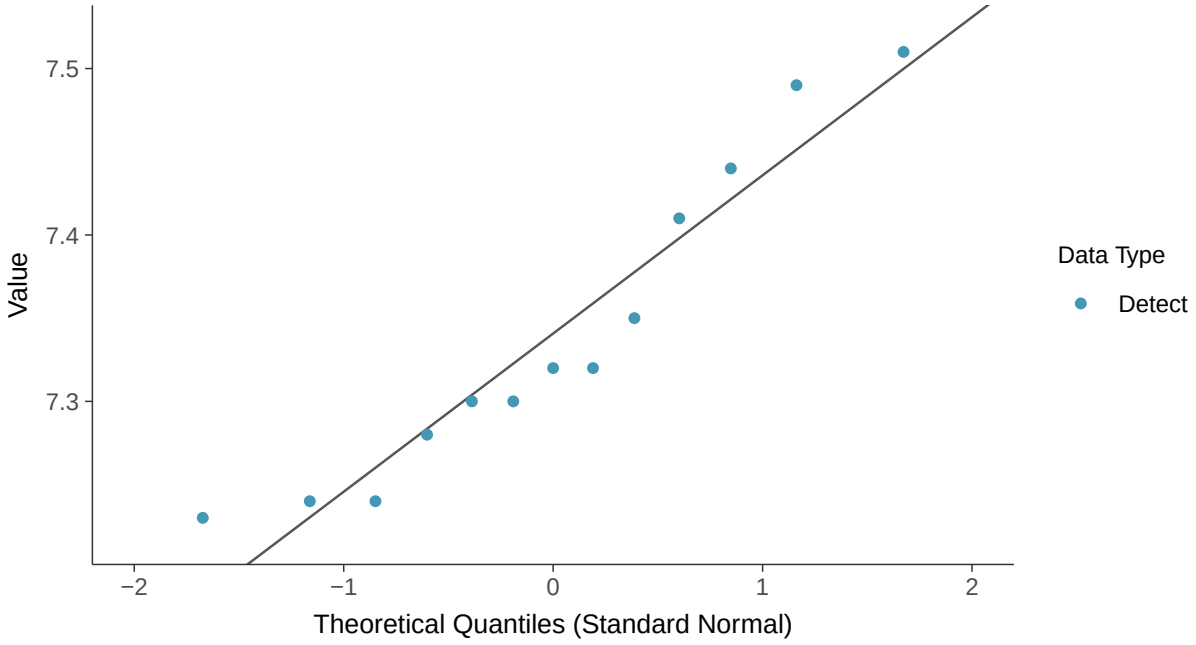
Boxplot by Season

pH, MW-7C (su)



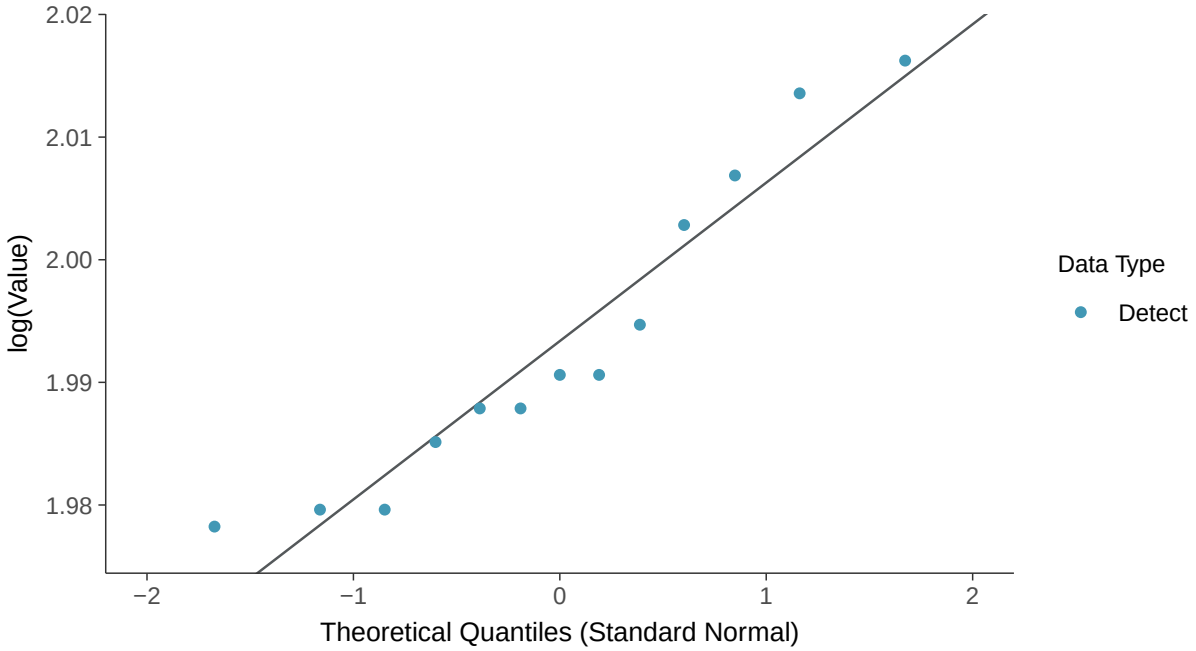
Normal Q-Q plot

pH, MW-7C (su)



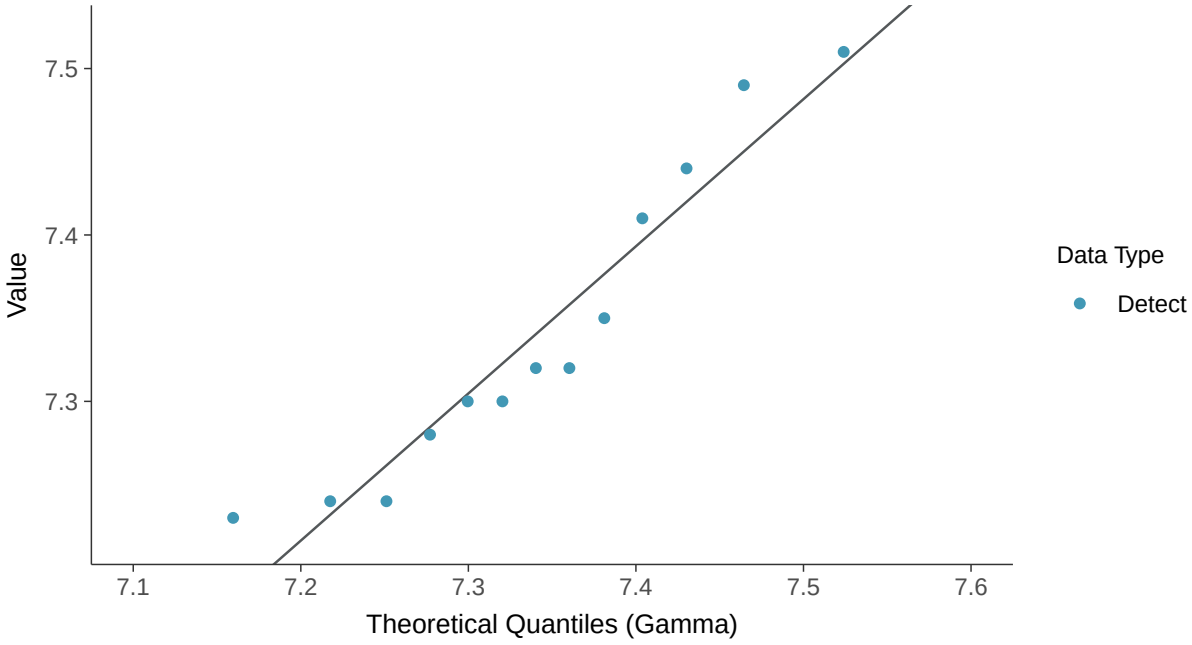
Lognormal Q-Q plot

pH, MW-7C (su)



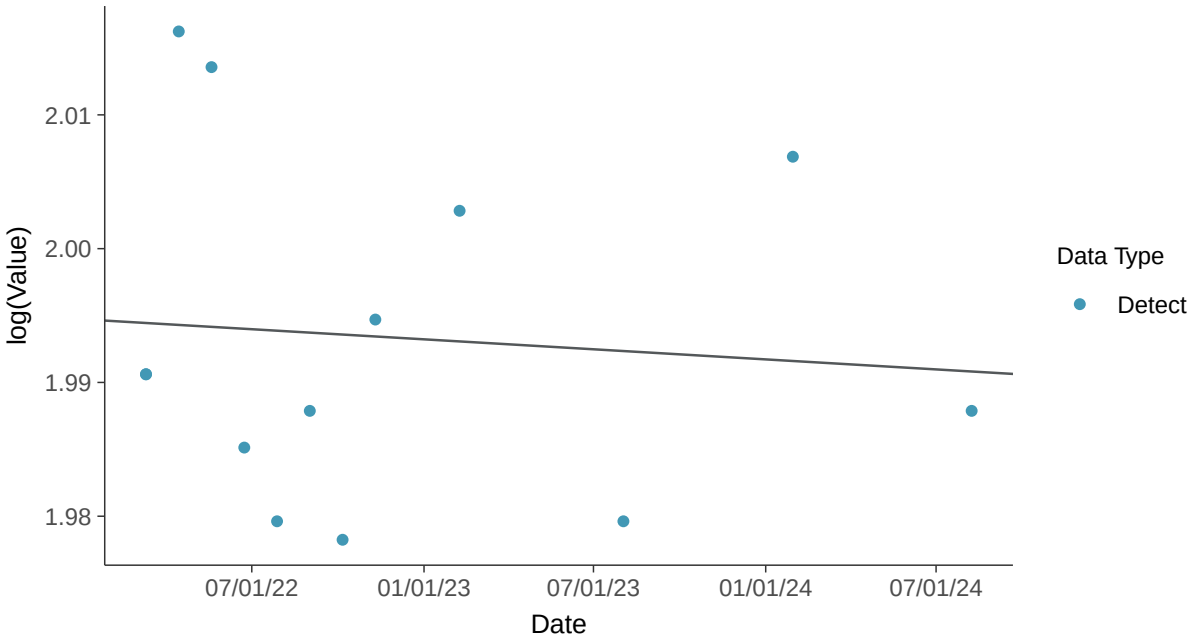
Gamma Q-Q plot

pH, MW-7C (su)



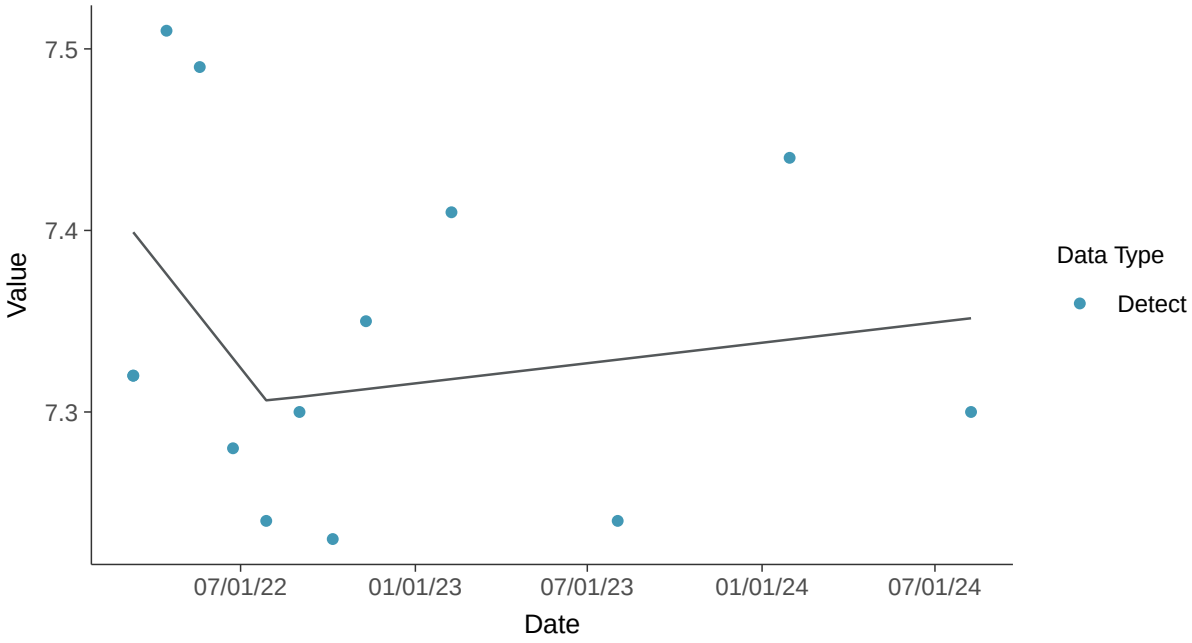
Trend Regression: Lognormal MLE

pH, MW-7C (su)



Trend Regression: Piecewise Linear-Linear

pH, MW-7C (su)

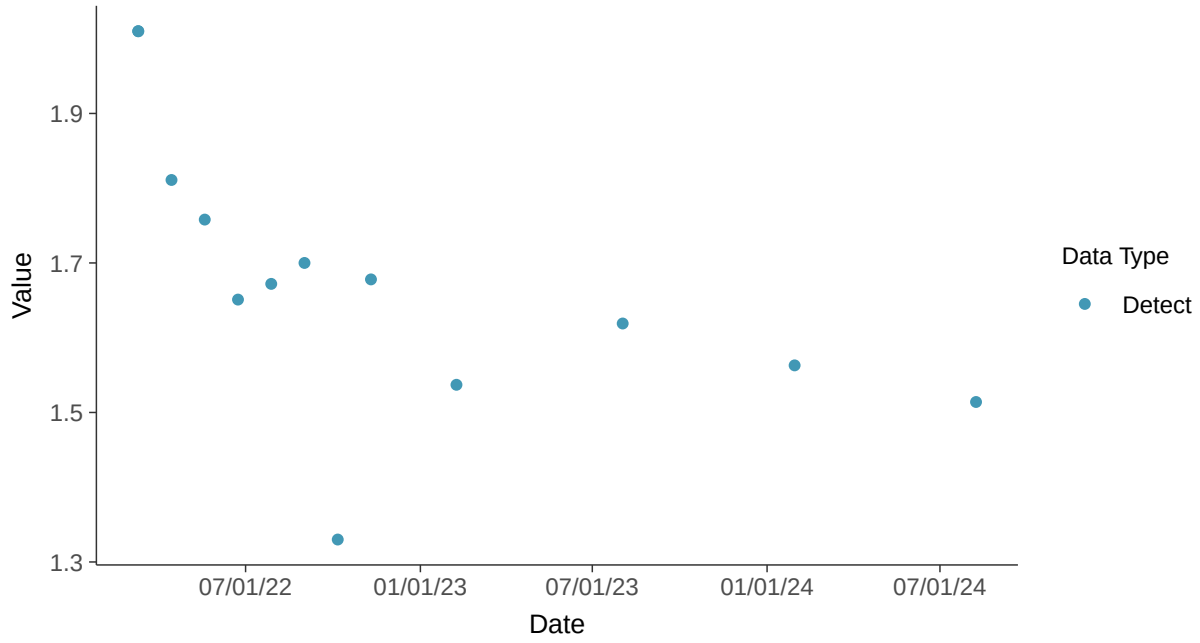


Field Parameters: Conductivity, MW-7C

ID: 7C_3_25

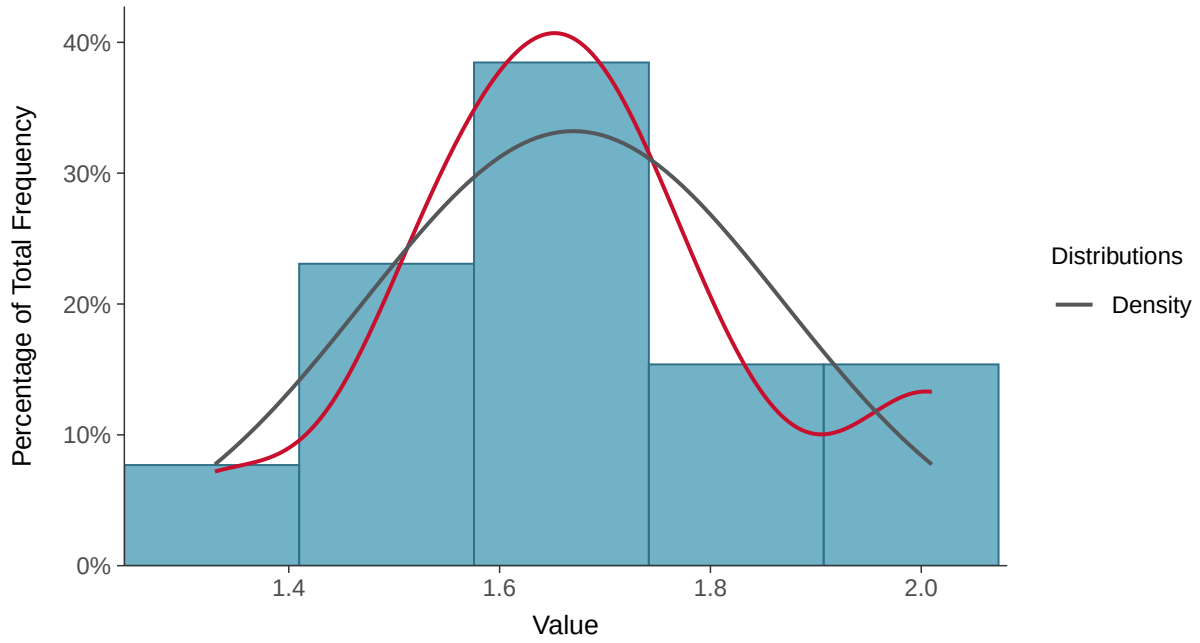
Scatter Plot

Conductivity, MW-7C (mS/cm)



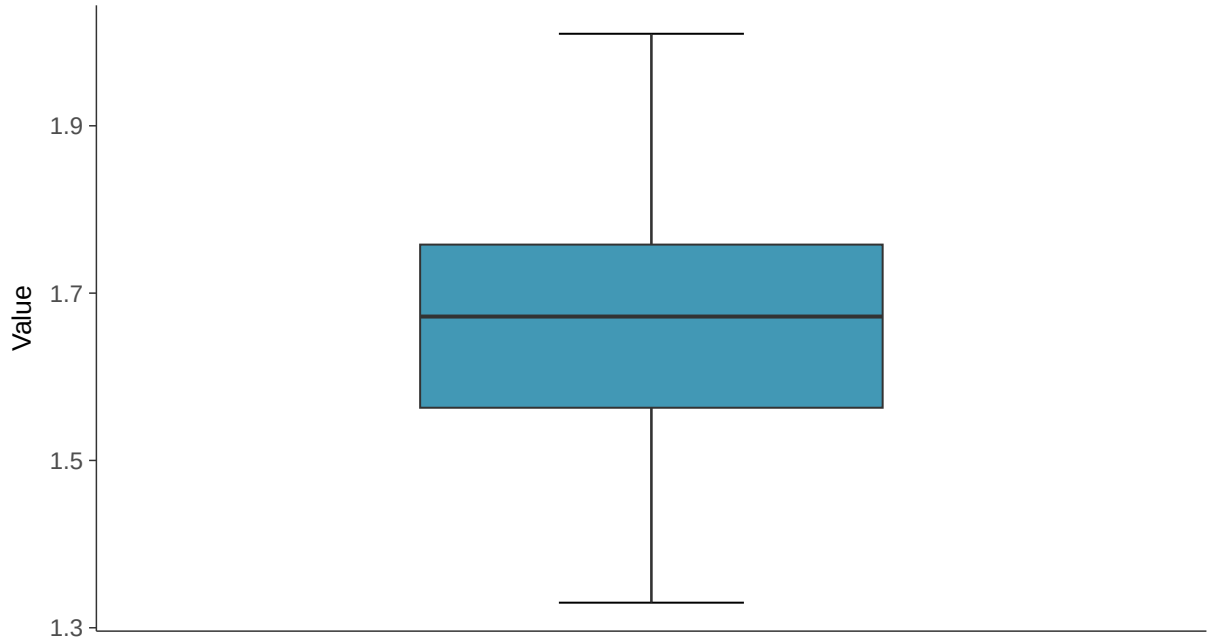
Histogram

Conductivity, MW-7C (mS/cm)



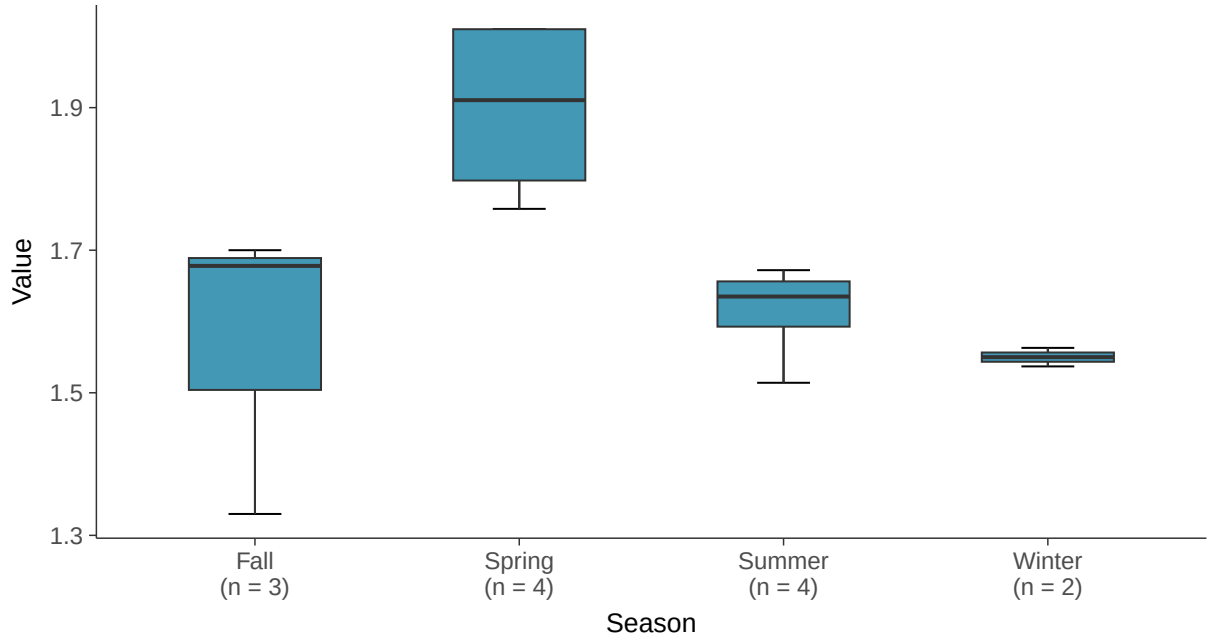
Boxplot

Conductivity, MW-7C (mS/cm)



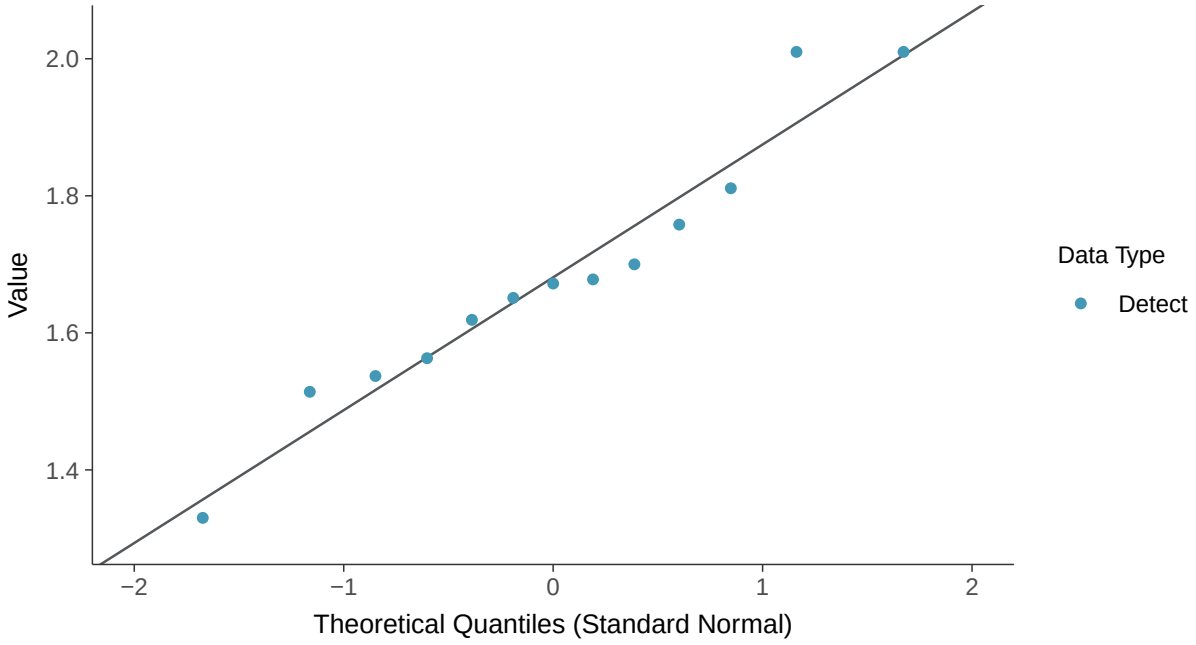
Boxplot by Season

Conductivity, MW-7C (mS/cm)



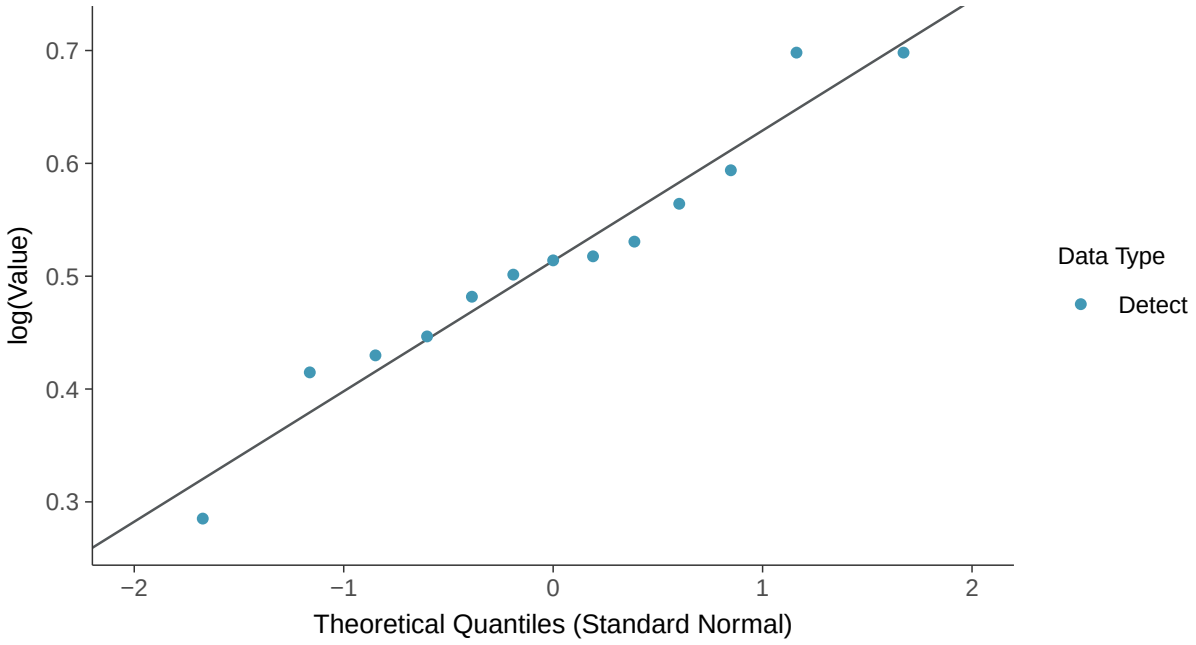
Normal Q-Q plot

Conductivity, MW-7C (mS/cm)



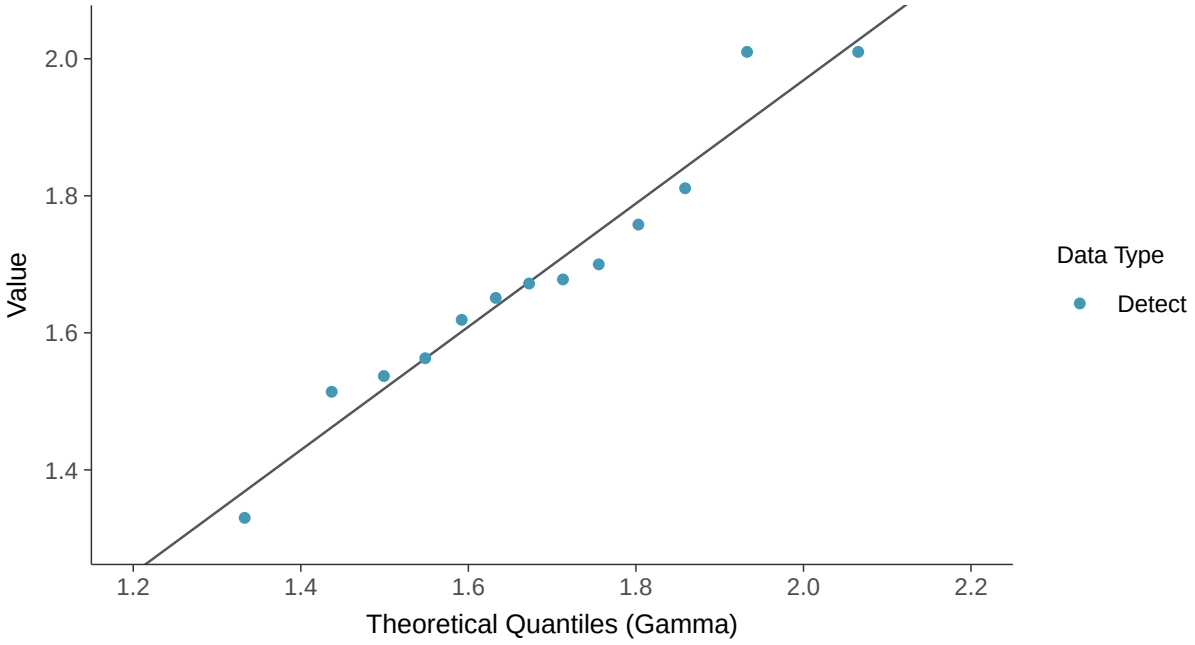
Lognormal Q-Q plot

Conductivity, MW-7C (mS/cm)



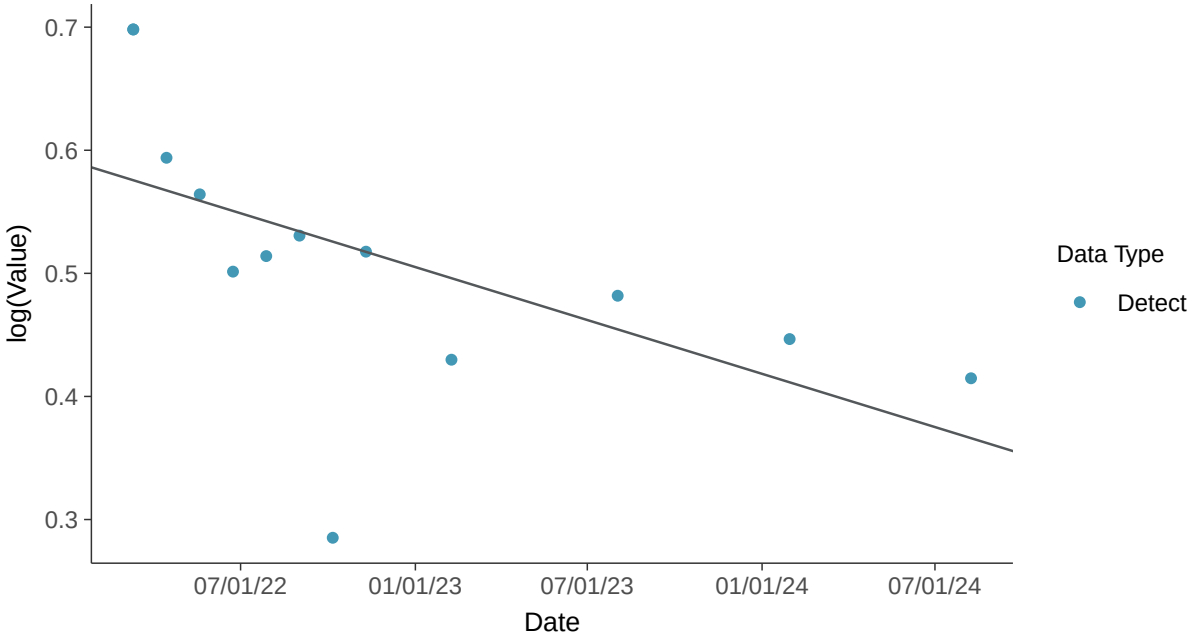
Gamma Q-Q plot

Conductivity, MW-7C (mS/cm)



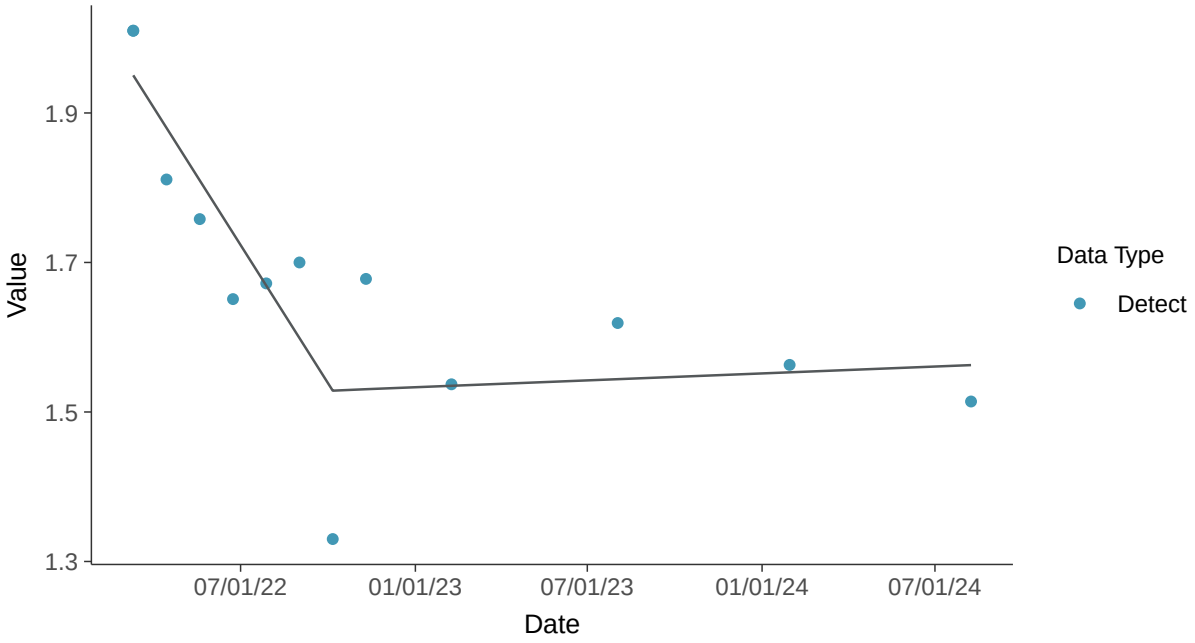
Trend Regression: Lognormal MLE

Conductivity, MW-7C (mS/cm)



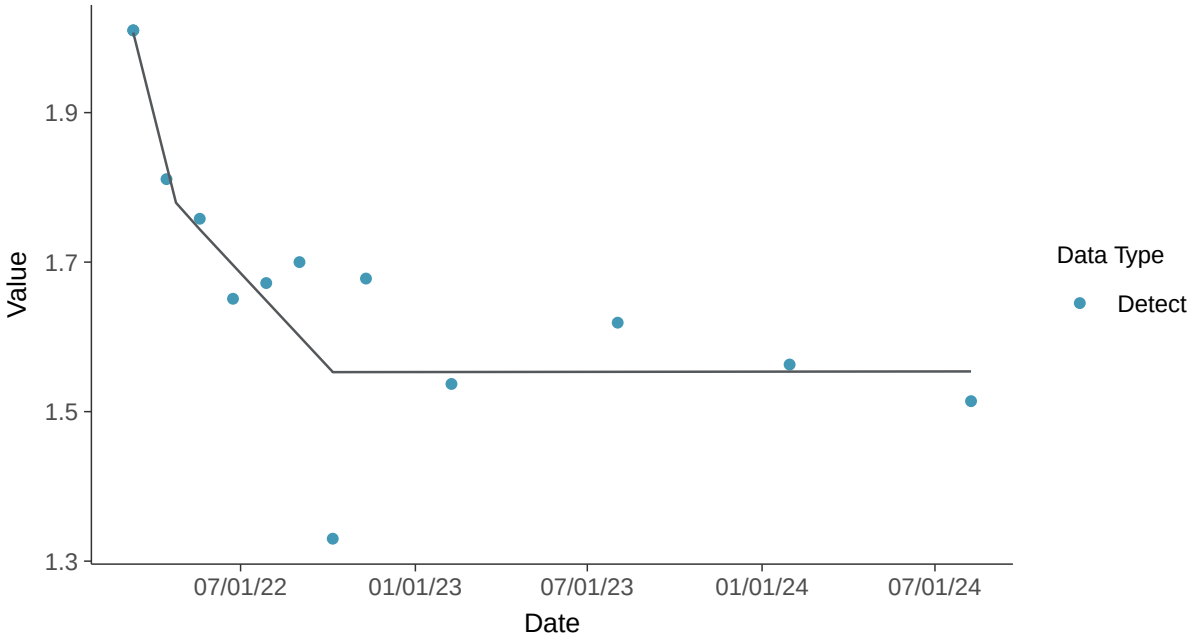
Trend Regression: Piecewise Linear-Linear

Conductivity, MW-7C (mS/cm)



Trend Regression: Piecewise Linear-Linear-Linear

Conductivity, MW-7C (mS/cm)

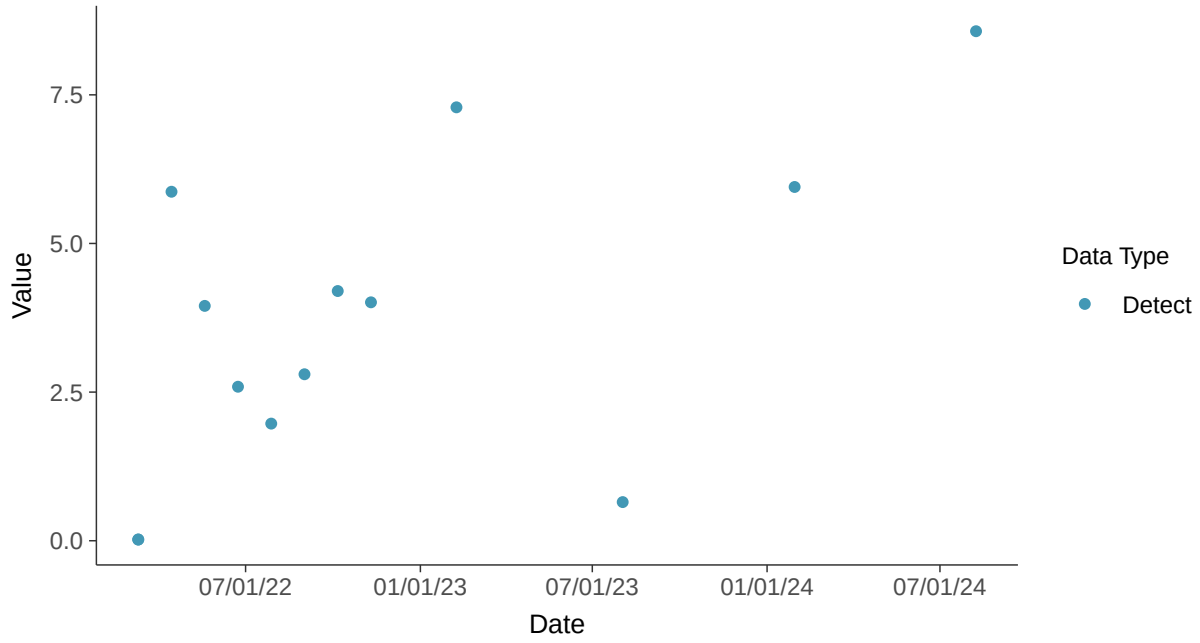


Field Parameters: Turbidity, MW-7C

ID: 7C_3_26

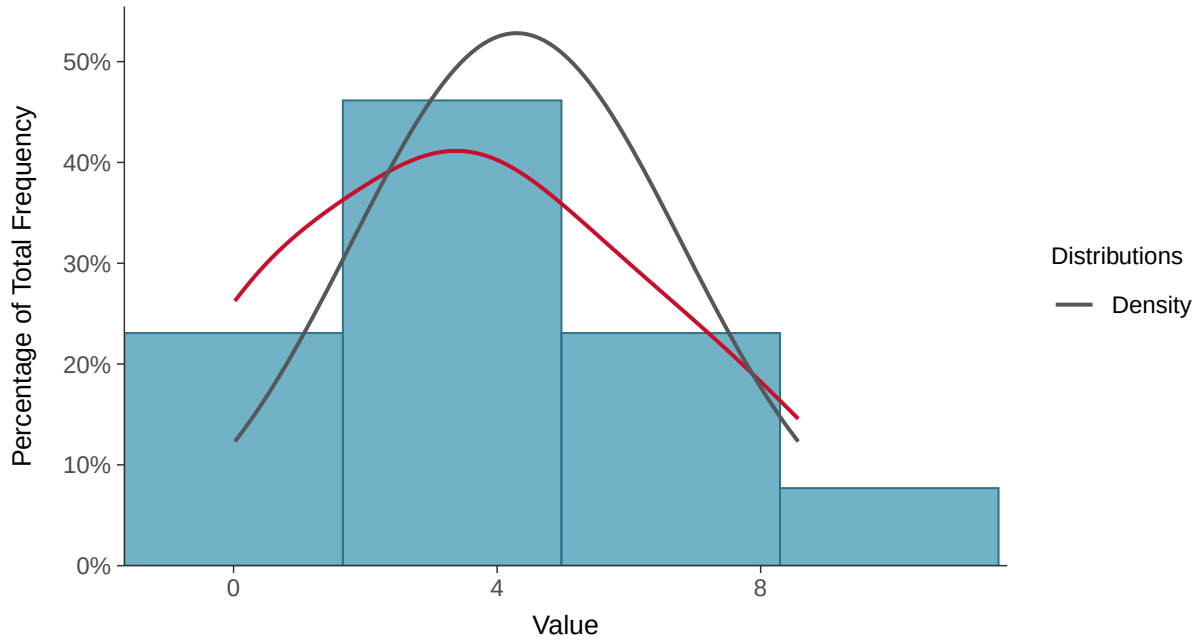
Scatter Plot

Turbidity, MW-7C (NTU)



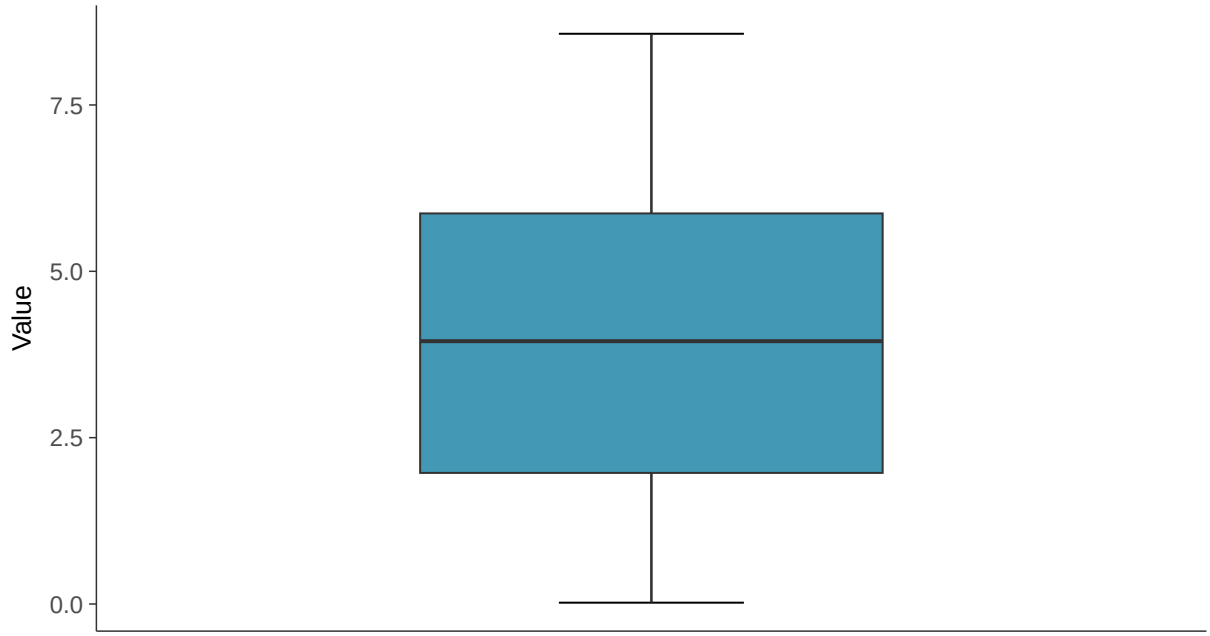
Histogram

Turbidity, MW-7C (NTU)



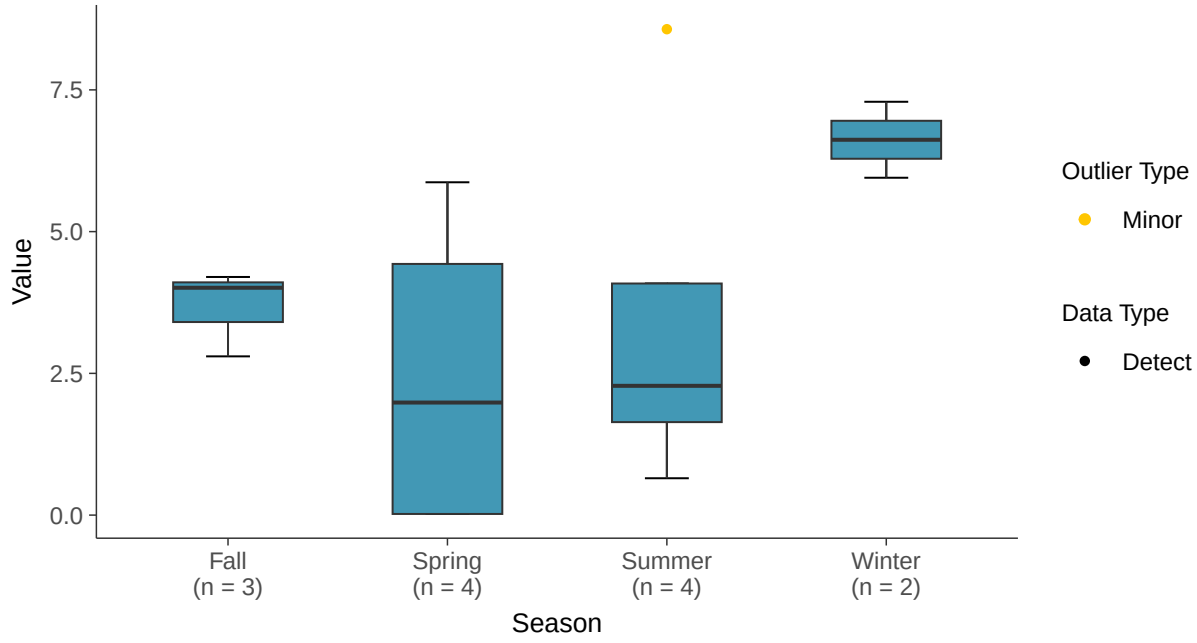
Boxplot

Turbidity, MW-7C (NTU)



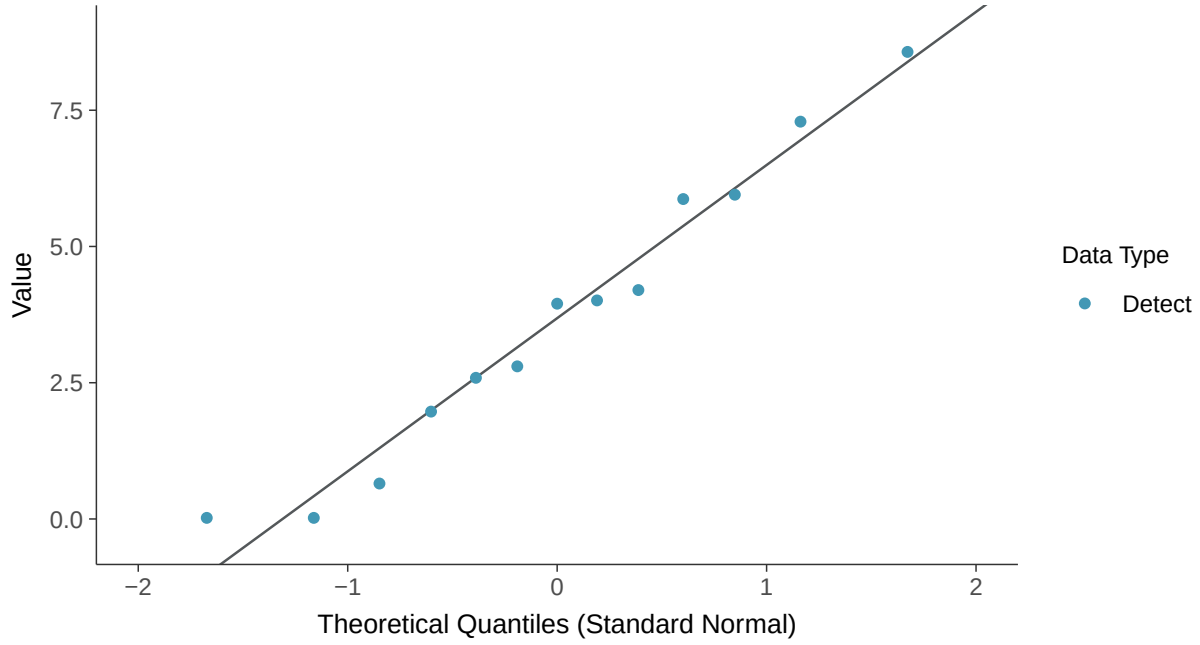
Boxplot by Season

Turbidity, MW-7C (NTU)



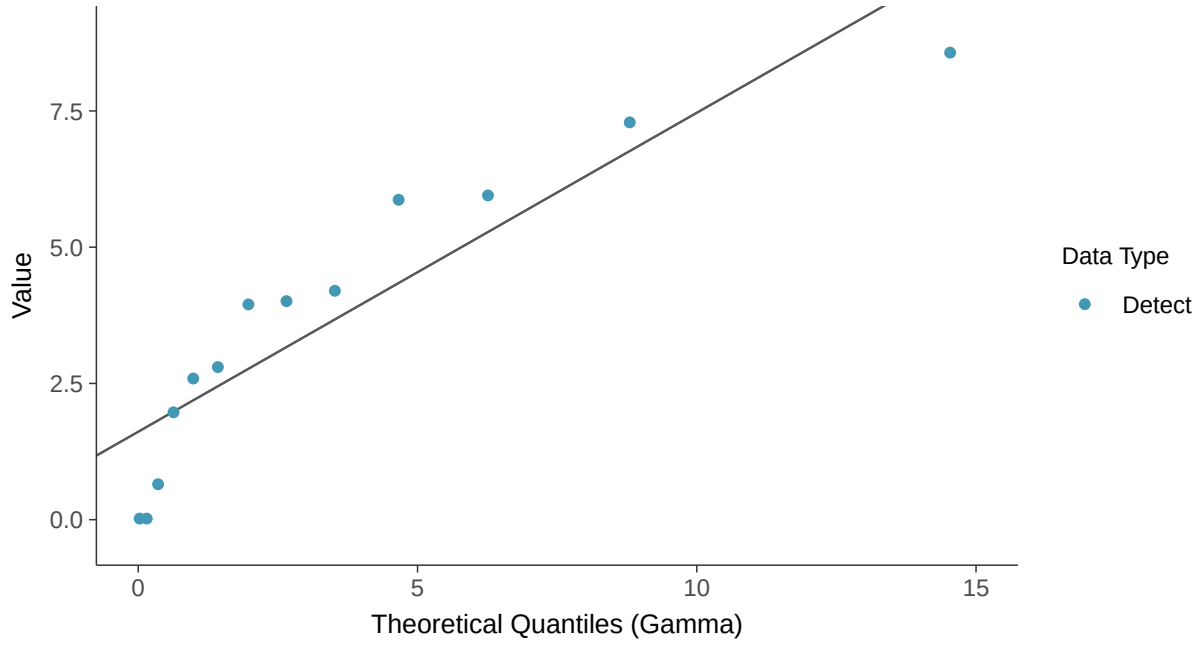
Normal Q-Q plot

Turbidity, MW-7C (NTU)



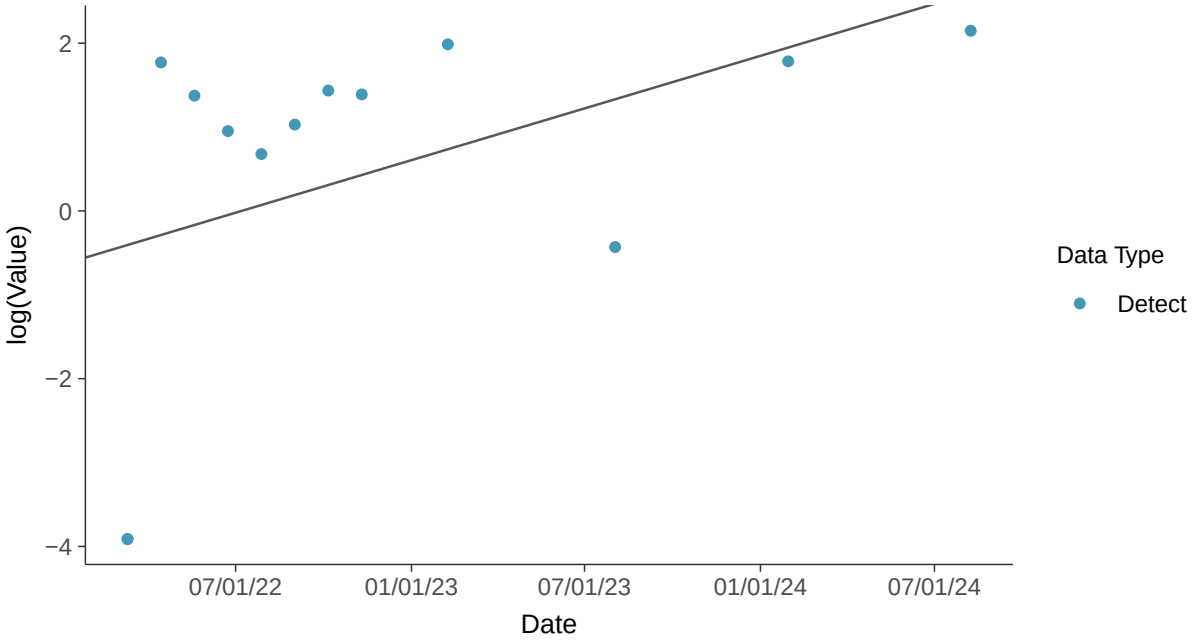
Gamma Q-Q plot

Turbidity, MW-7C (NTU)



Trend Regression: Lognormal MLE

Turbidity, MW-7C (NTU)

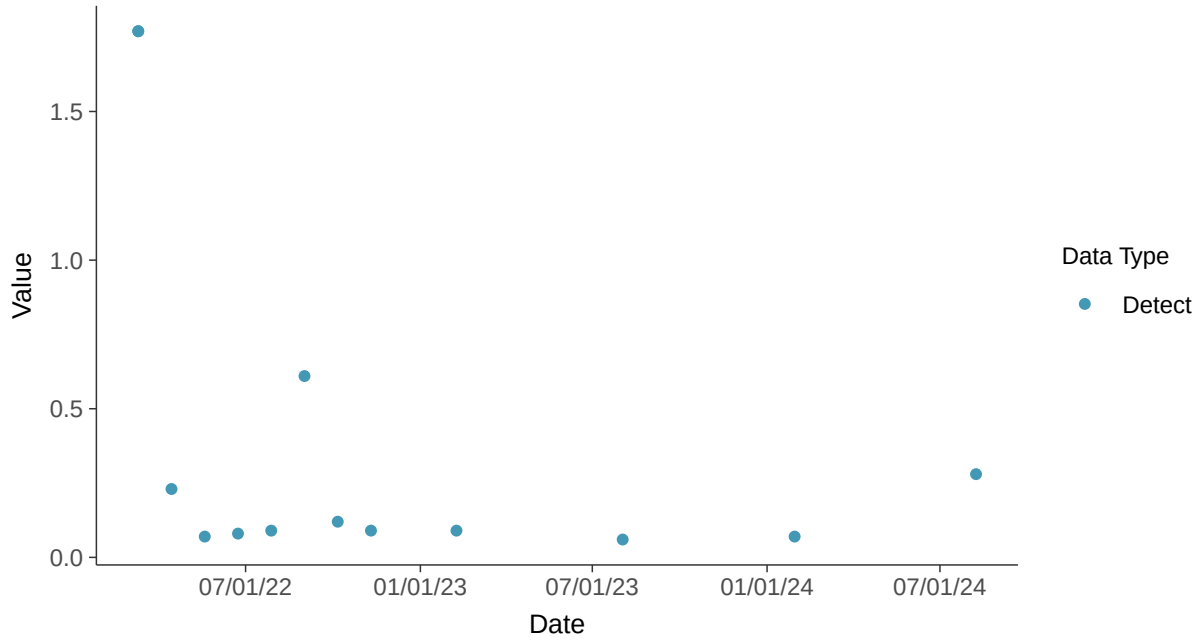


Field Parameters: Dissolved Oxygen, MW-7C

ID: 7C_3_27

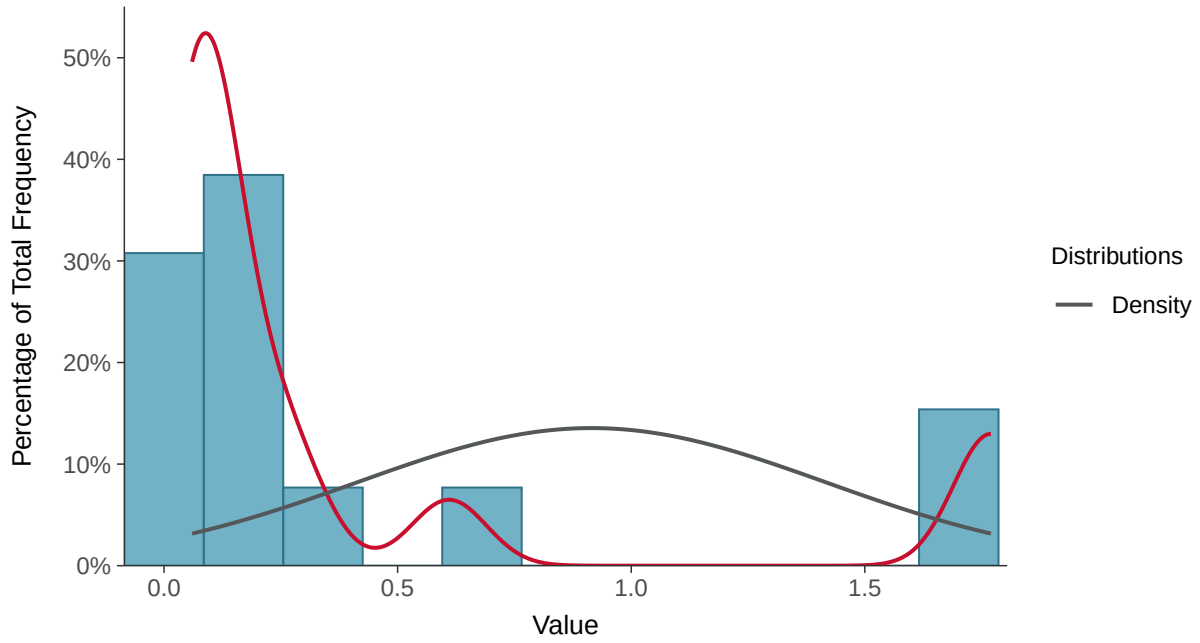
Scatter Plot

Dissolved Oxygen, MW-7C (mg/L)



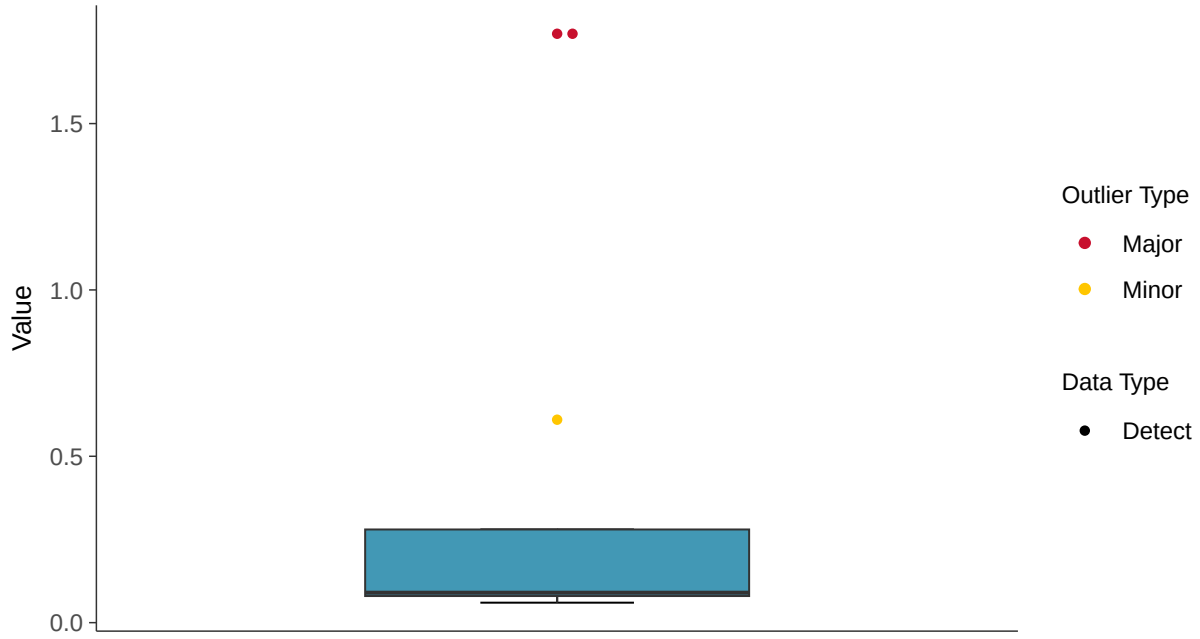
Histogram

Dissolved Oxygen, MW-7C (mg/L)



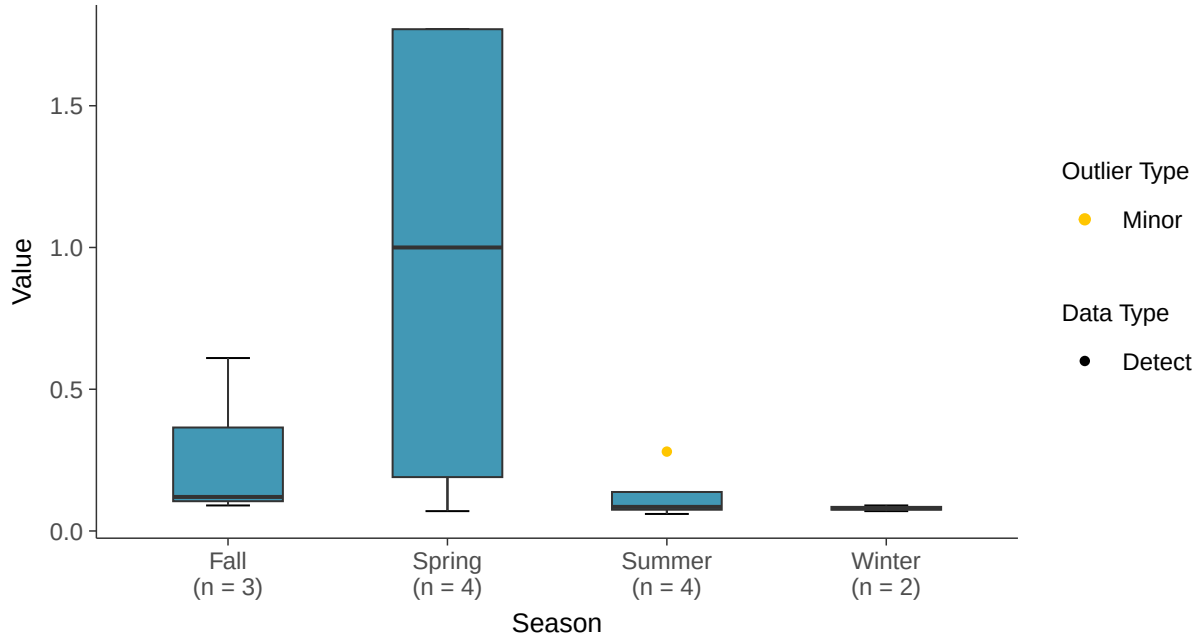
Boxplot

Dissolved Oxygen, MW-7C (mg/L)



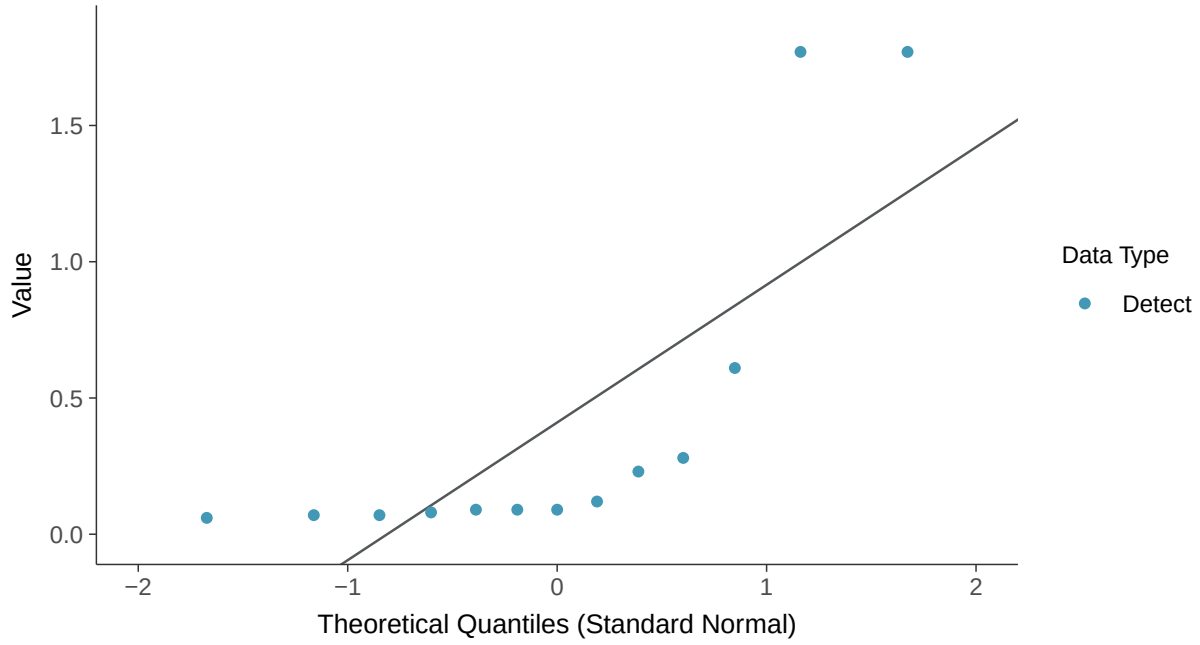
Boxplot by Season

Dissolved Oxygen, MW-7C (mg/L)



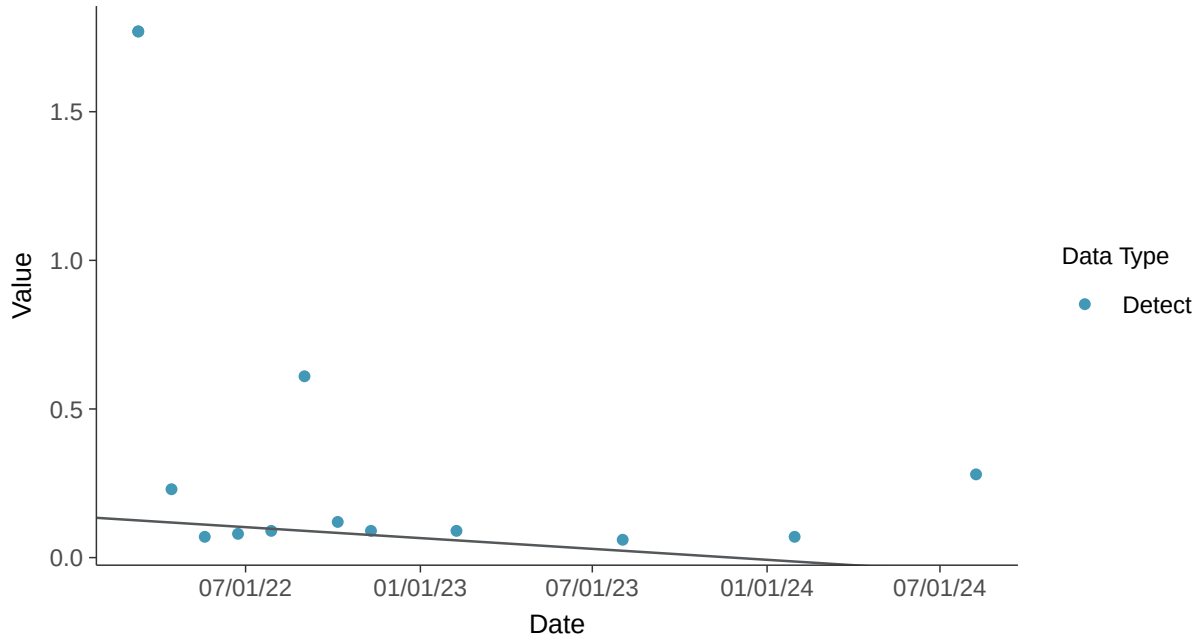
Normal Q-Q plot

Dissolved Oxygen, MW-7C (mg/L)



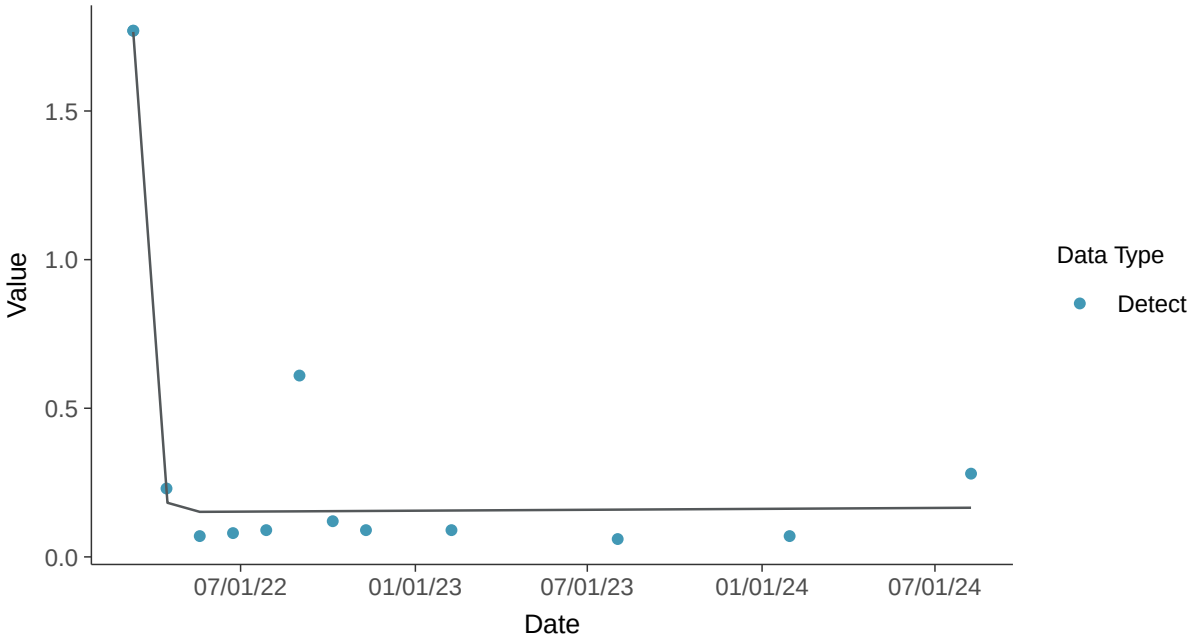
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Dissolved Oxygen, MW-7C (mg/L)



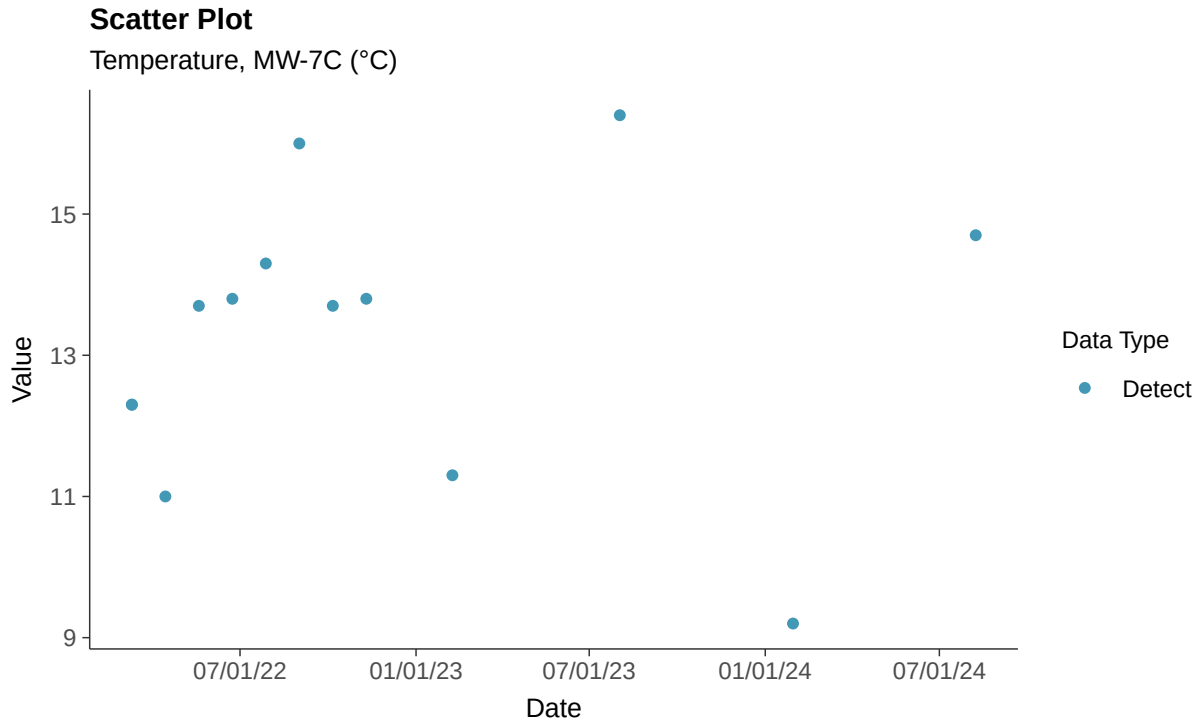
Trend Regression: Piecewise Linear-Linear

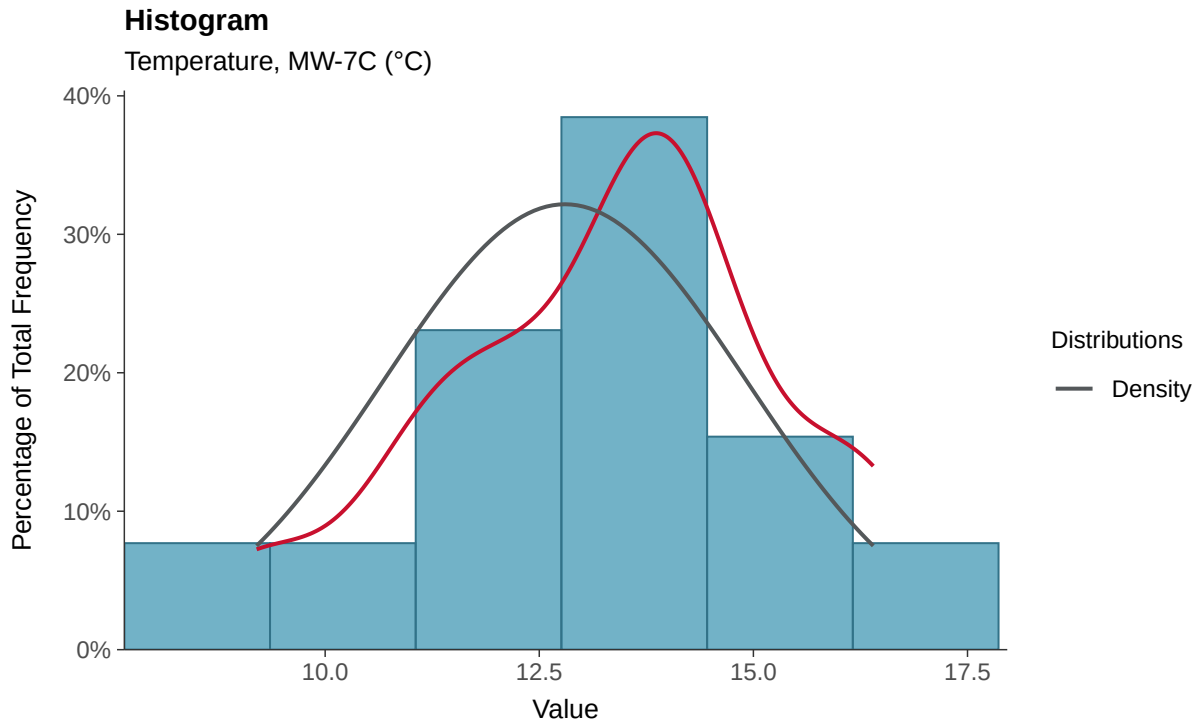
Dissolved Oxygen, MW-7C (mg/L)



Field Parameters: Temperature, MW-7C

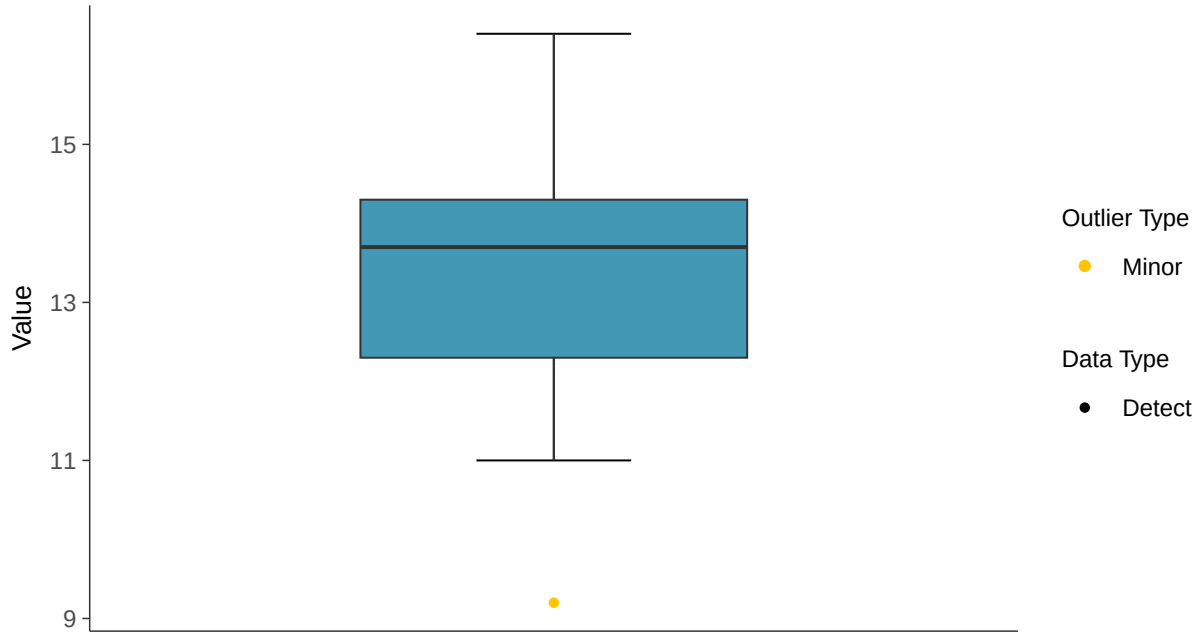
ID: 7C_3_28





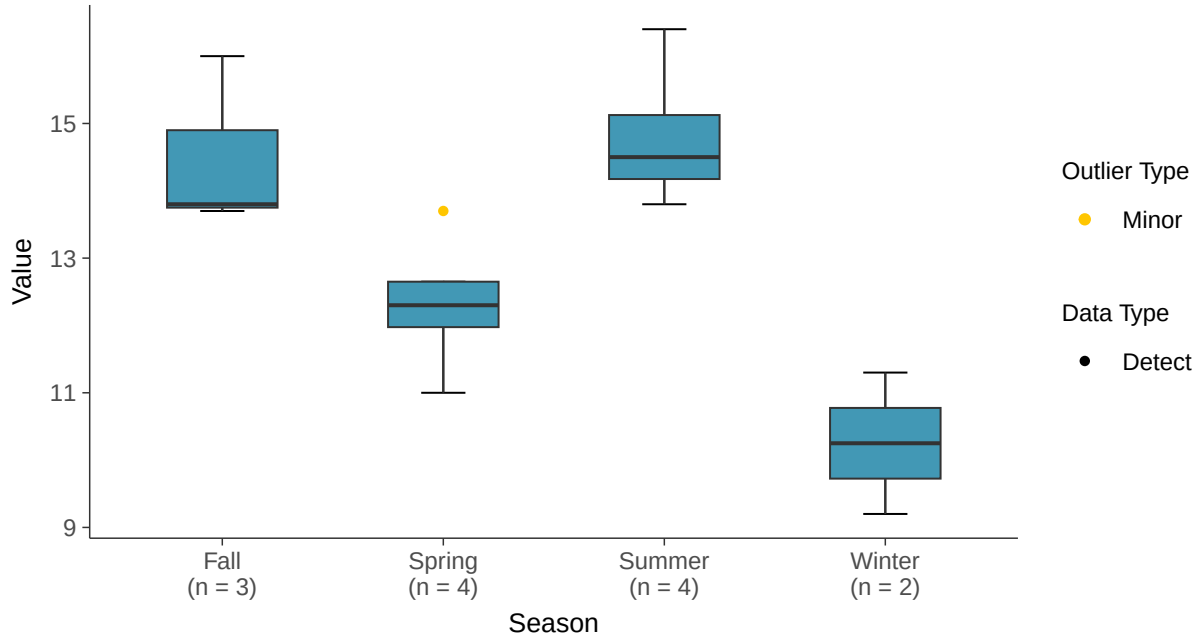
Boxplot

Temperature, MW-7C (°C)



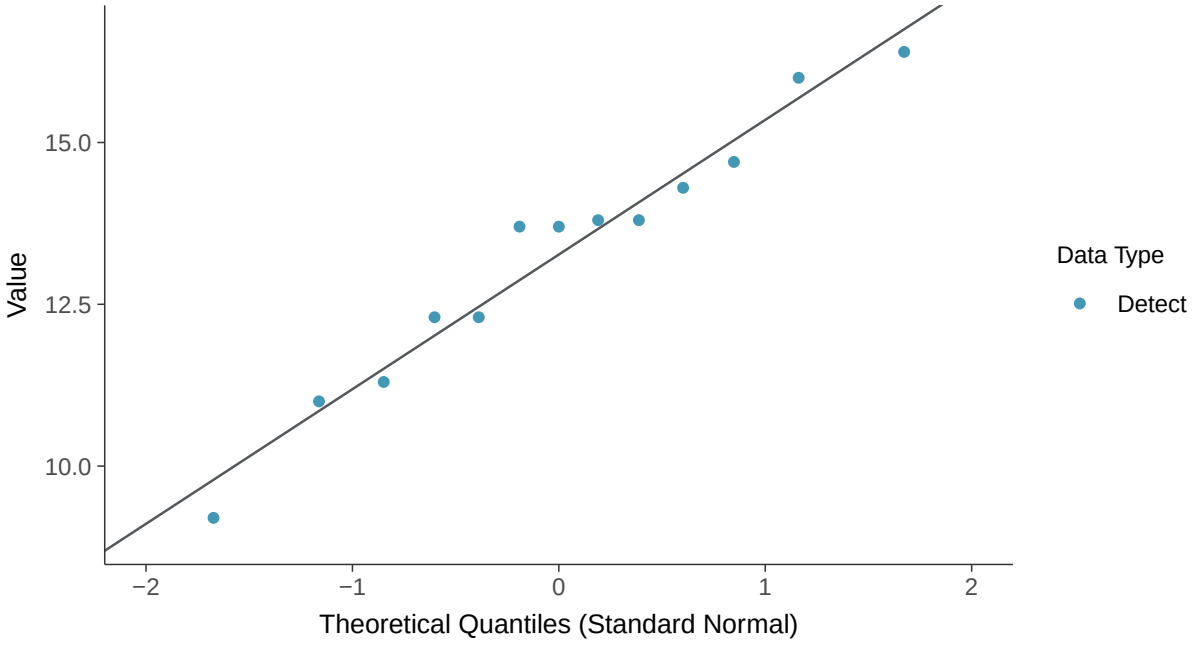
Boxplot by Season

Temperature, MW-7C (°C)



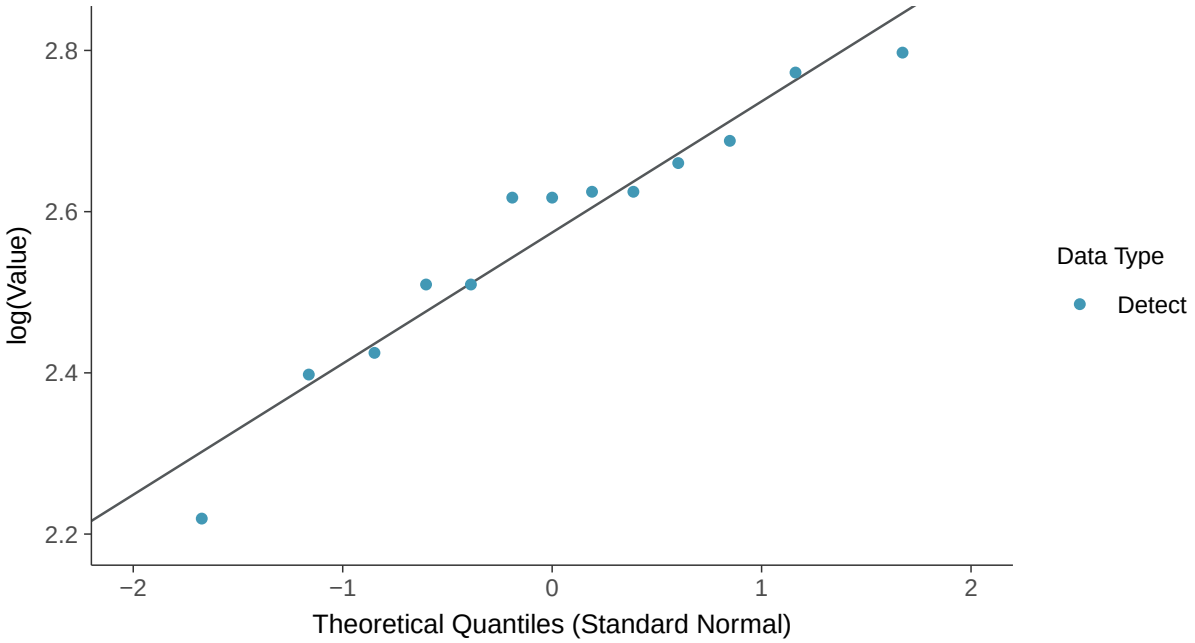
Normal Q-Q plot

Temperature, MW-7C (°C)



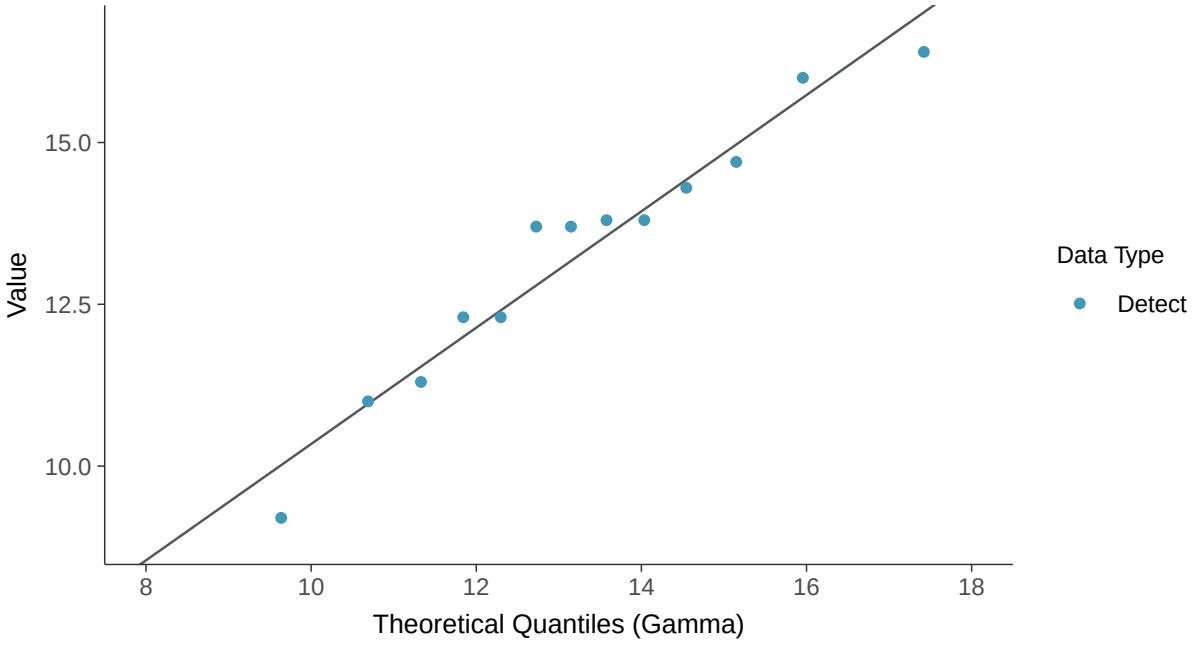
Lognormal Q-Q plot

Temperature, MW-7C (°C)



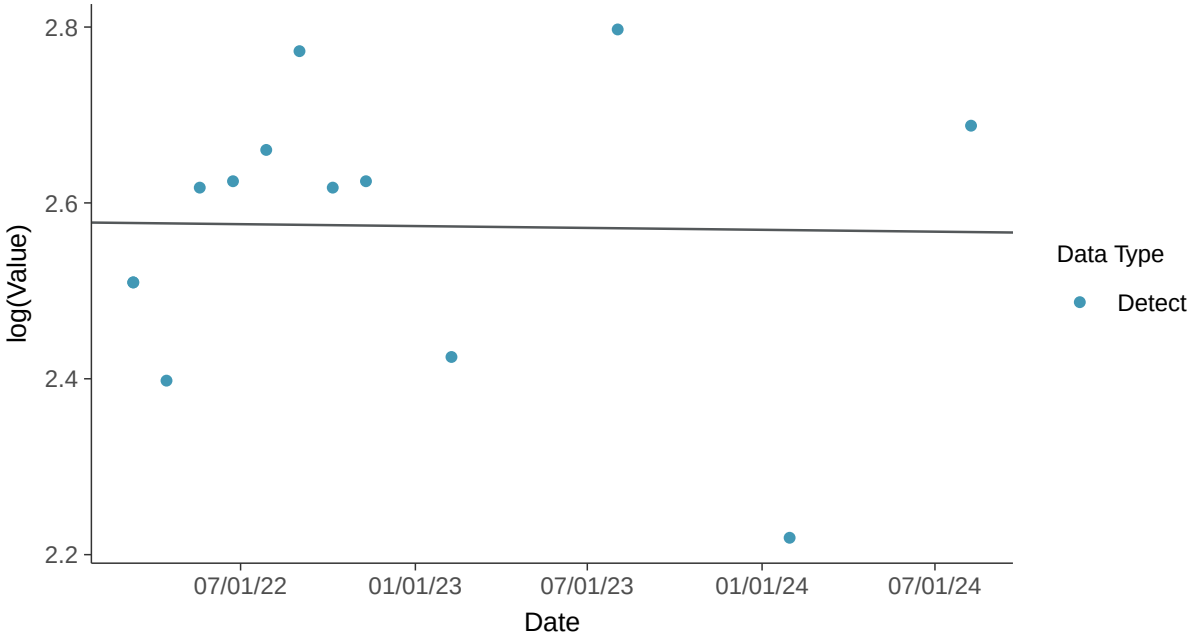
Gamma Q-Q plot

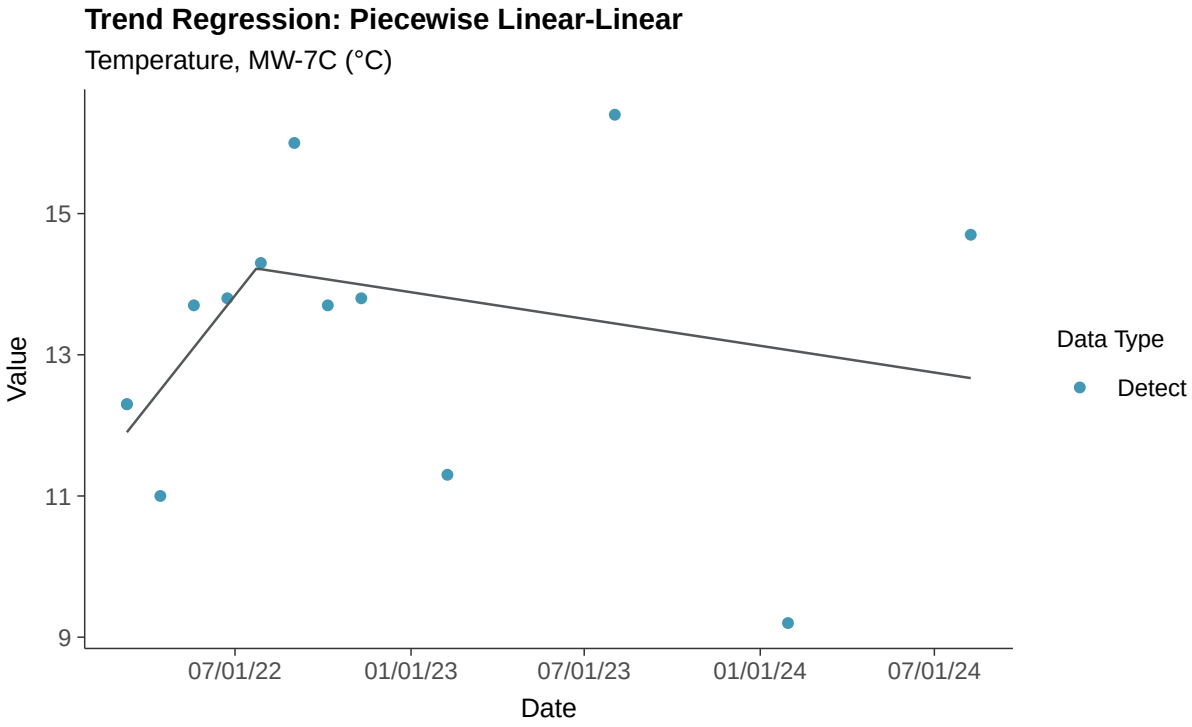
Temperature, MW-7C (°C)



Trend Regression: Lognormal MLE

Temperature, MW-7C (°C)



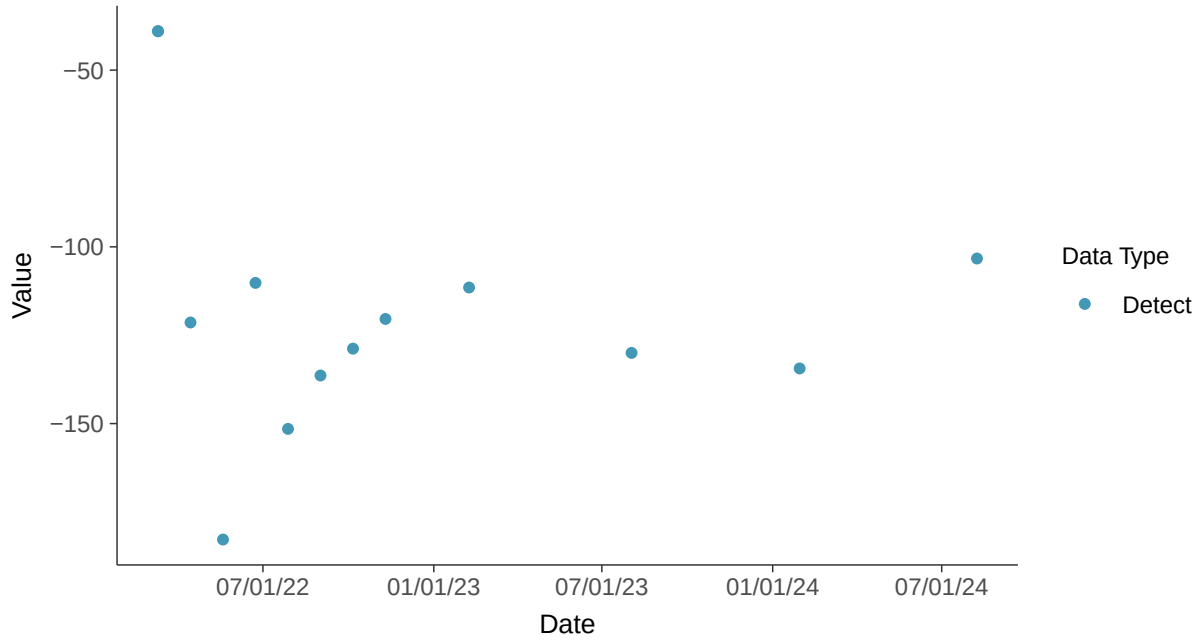

Trend Regression: Piecewise Linear-Linear
Temperature, MW-7C (°C)
Value
15
13
11
9
07/01/22
01/01/23
07/01/23
01/01/24
07/01/24
Date
Data Type
Detect

Field Parameters: Oxidation Reduction Potential, MW-7C

ID: 7C_3_29

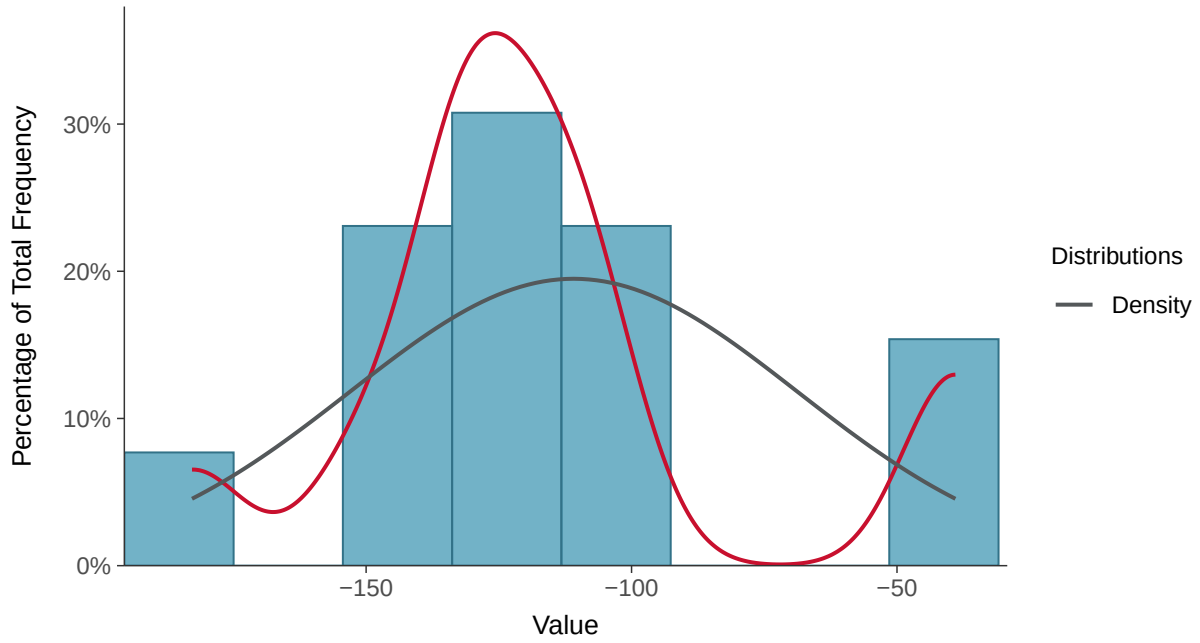
Scatter Plot

Oxidation Reduction Potential, MW-7C (mV)



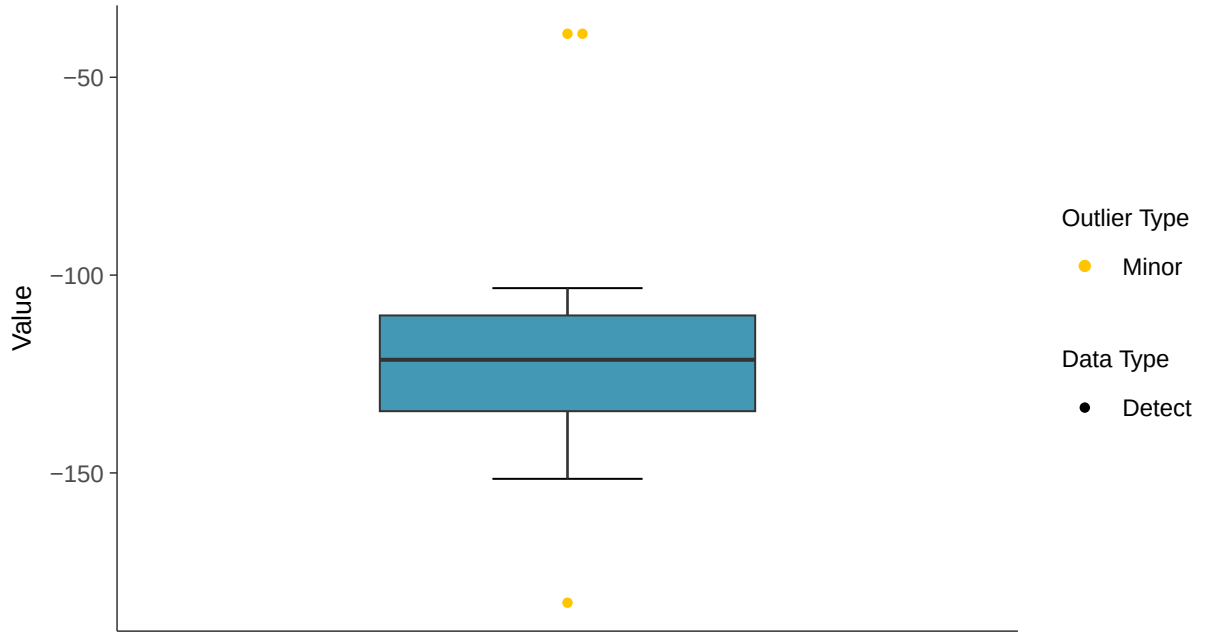
Histogram

Oxidation Reduction Potential, MW-7C (mV)



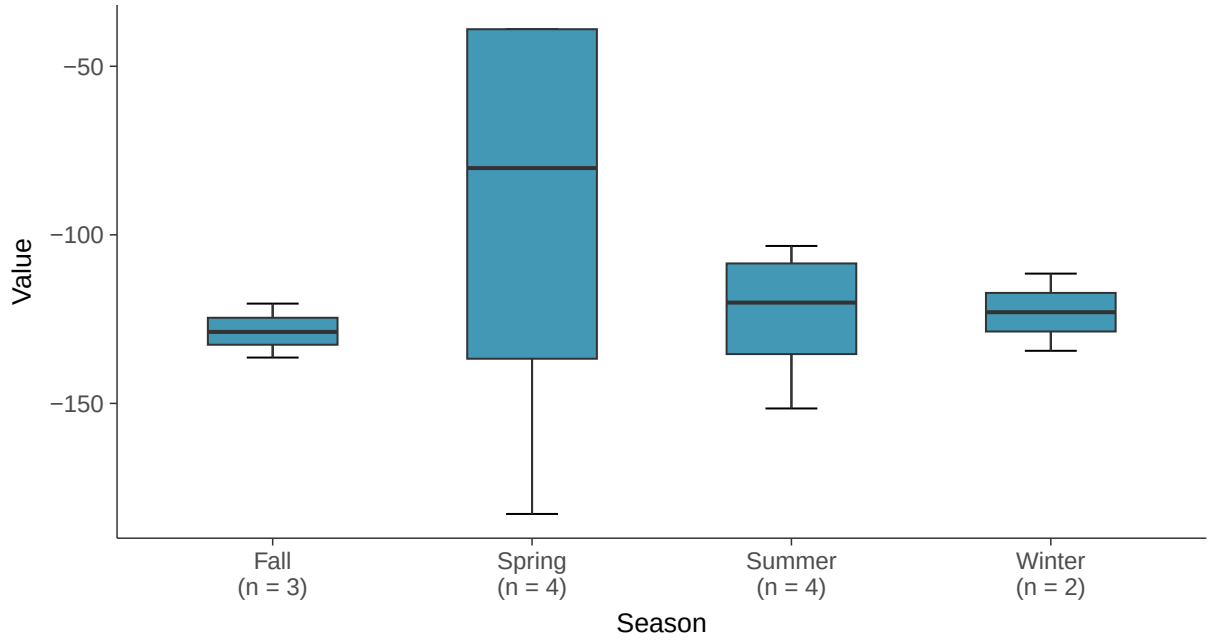
Boxplot

Oxidation Reduction Potential, MW-7C (mV)



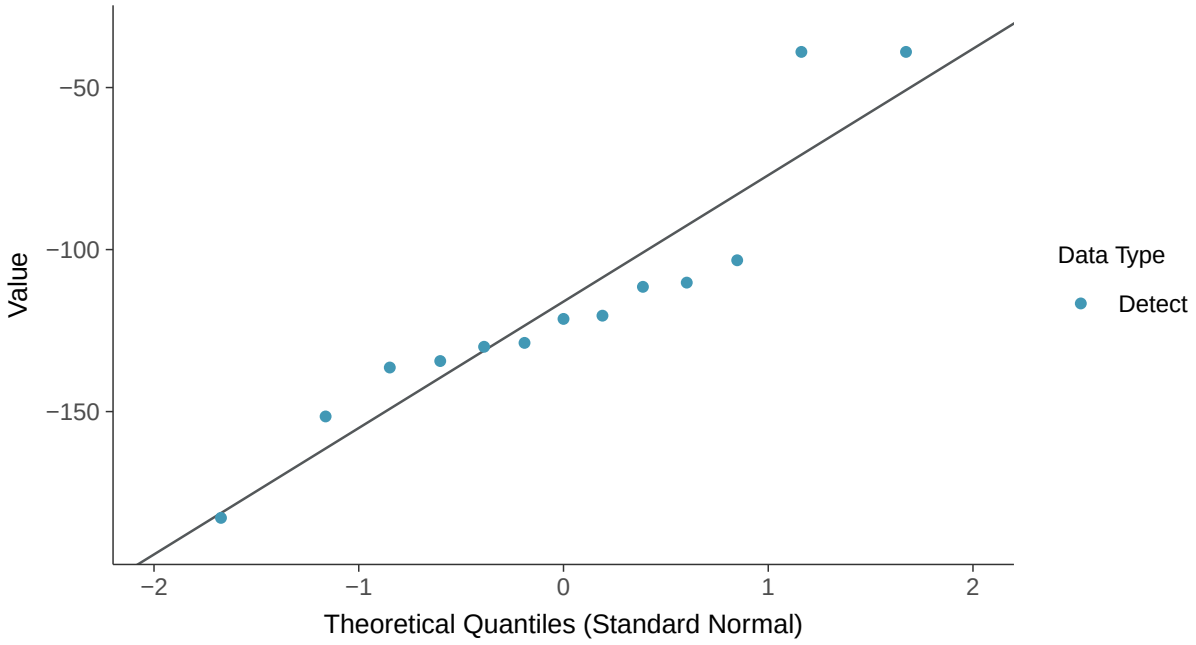
Boxplot by Season

Oxidation Reduction Potential, MW-7C (mV)



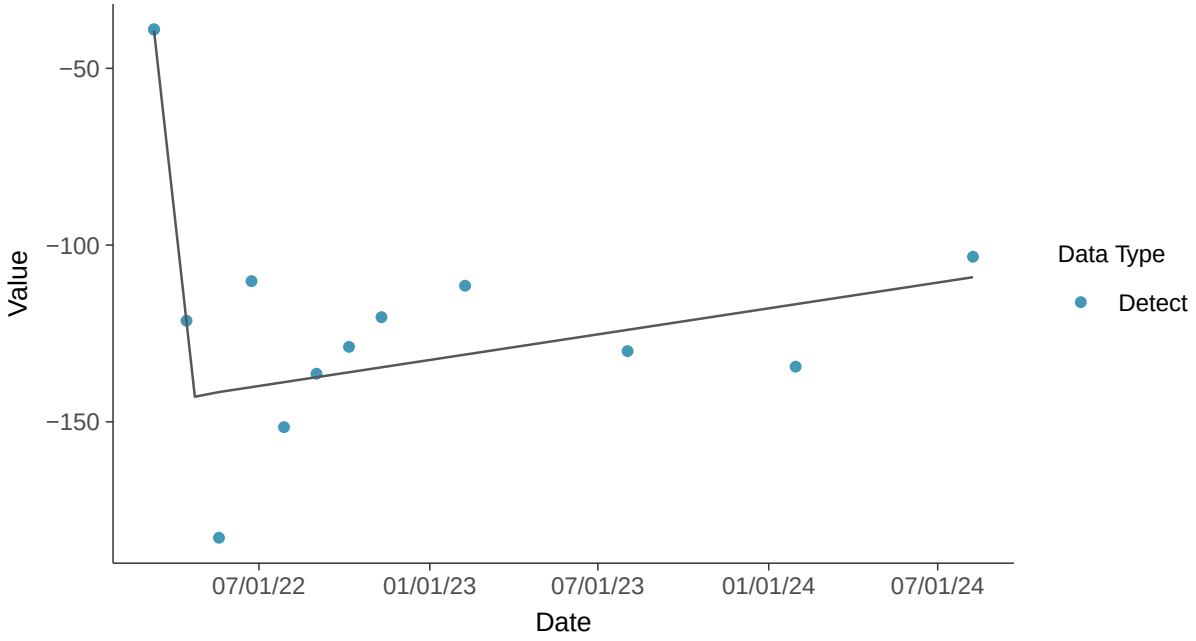
Normal Q-Q plot

Oxidation Reduction Potential, MW-7C (mV)



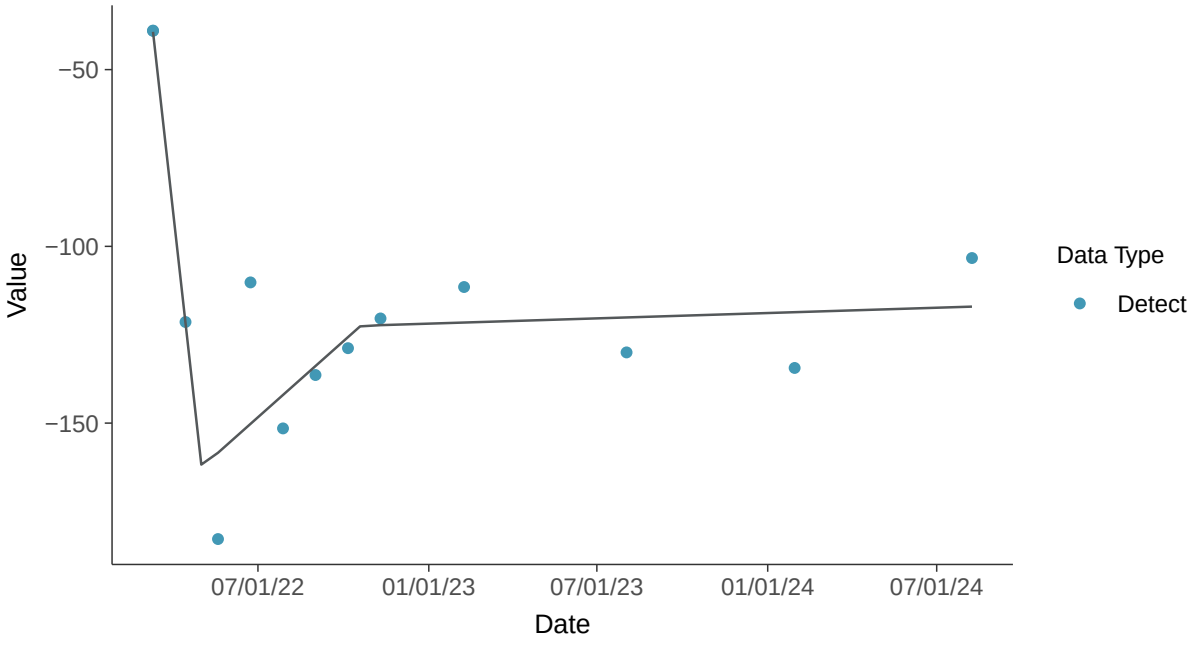
Trend Regression: Piecewise Linear-Linear

Oxidation Reduction Potential, MW-7C (mV)



Trend Regression: Piecewise Linear-Linear-Linear

Oxidation Reduction Potential, MW-7C (mV)

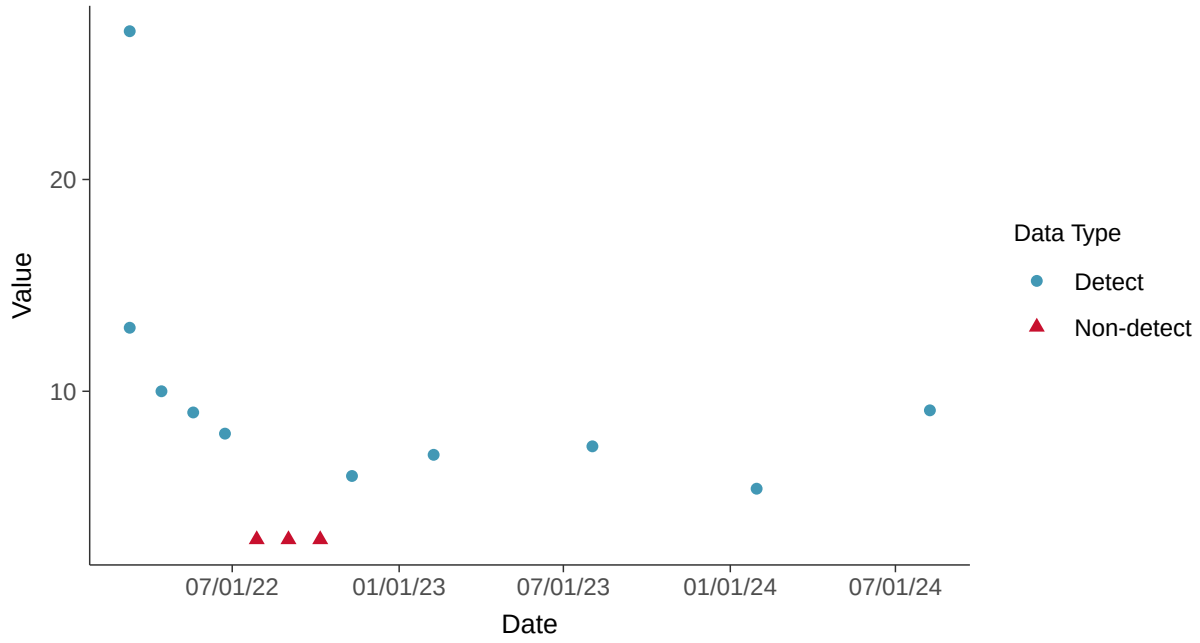


Other: Total Suspended Solids, MW-7C

ID: 7C_4_30

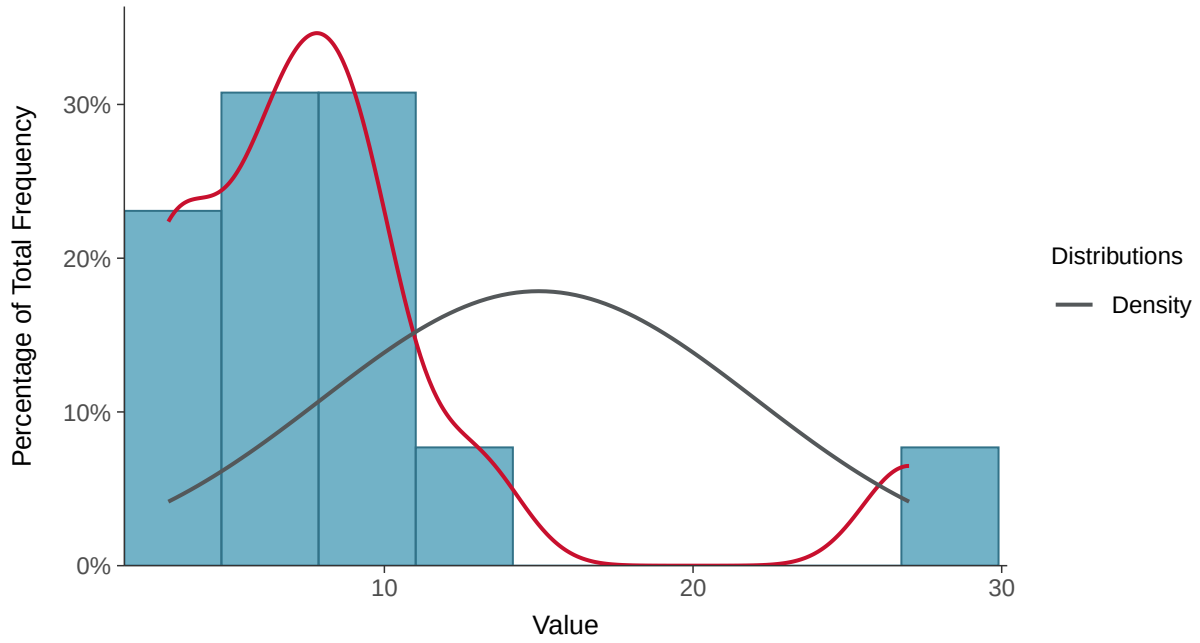
Scatter Plot

Total Suspended Solids, MW-7C (mg/L)



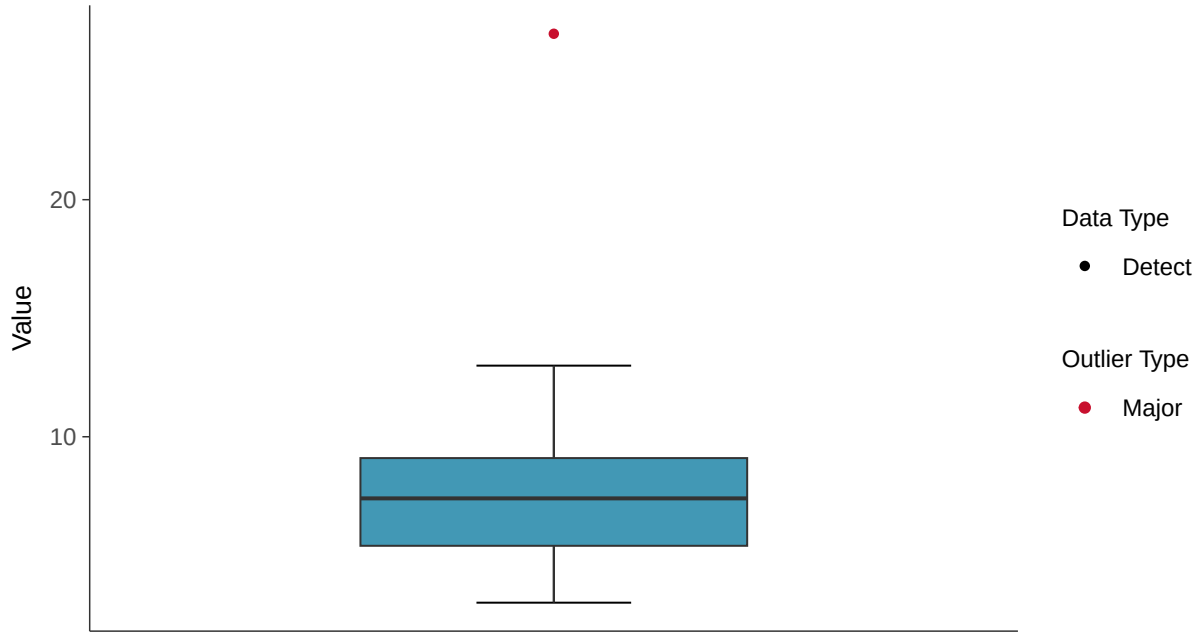
Histogram

Total Suspended Solids, MW-7C (mg/L)



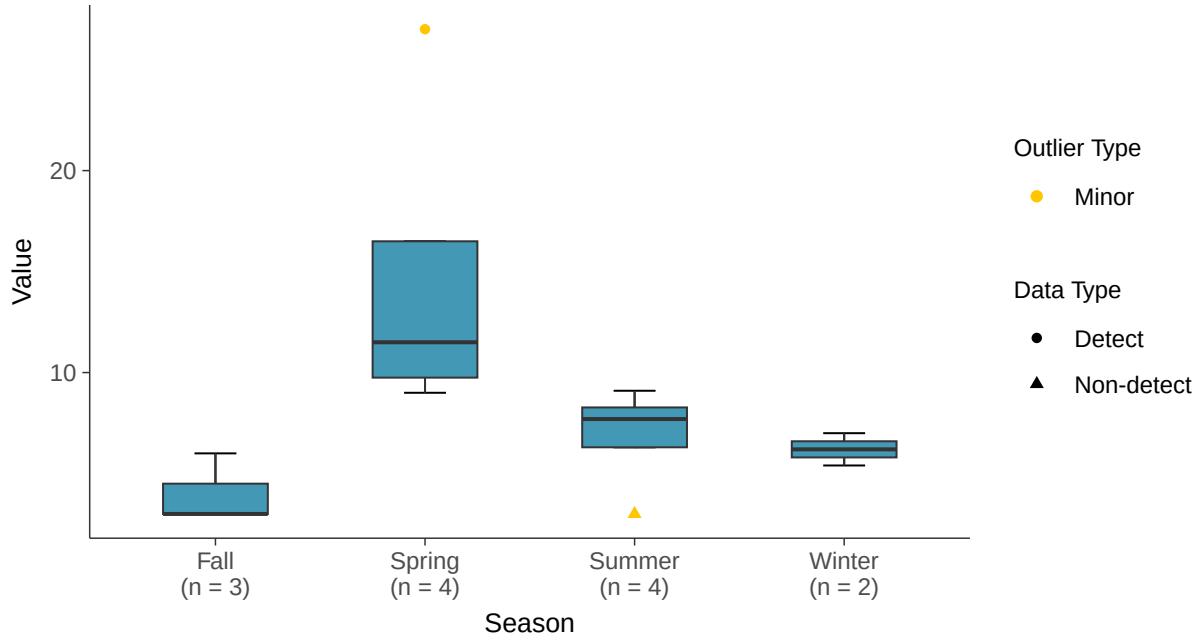
Boxplot

Total Suspended Solids, MW-7C (mg/L)



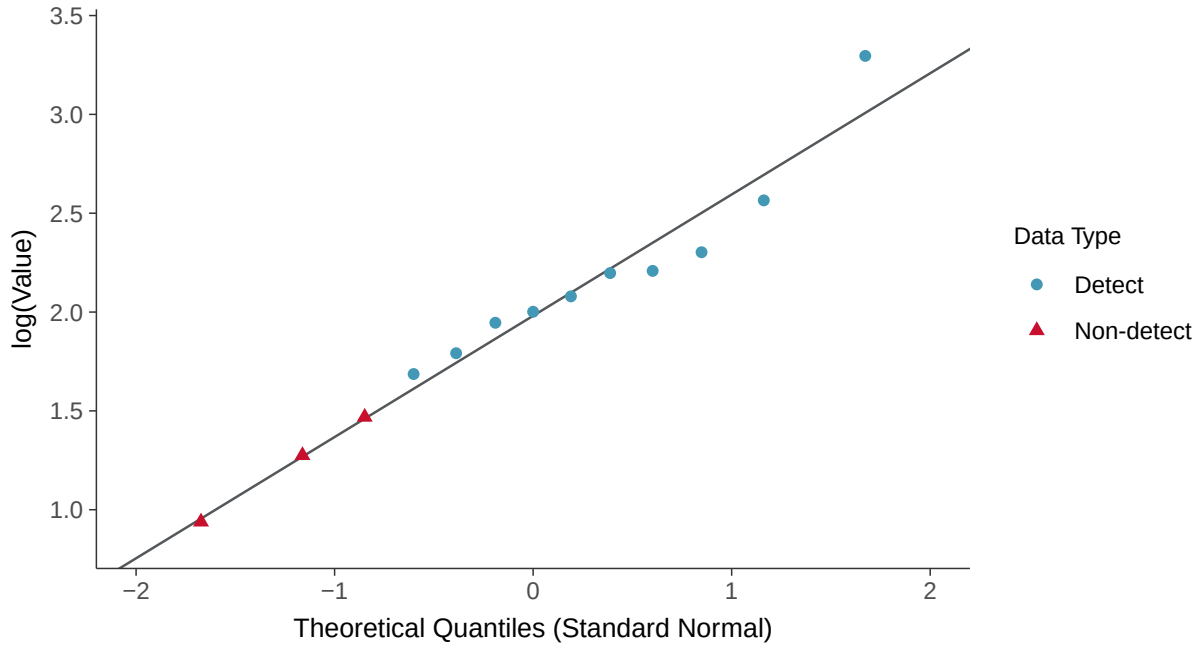
Boxplot by Season

Total Suspended Solids, MW-7C (mg/L)



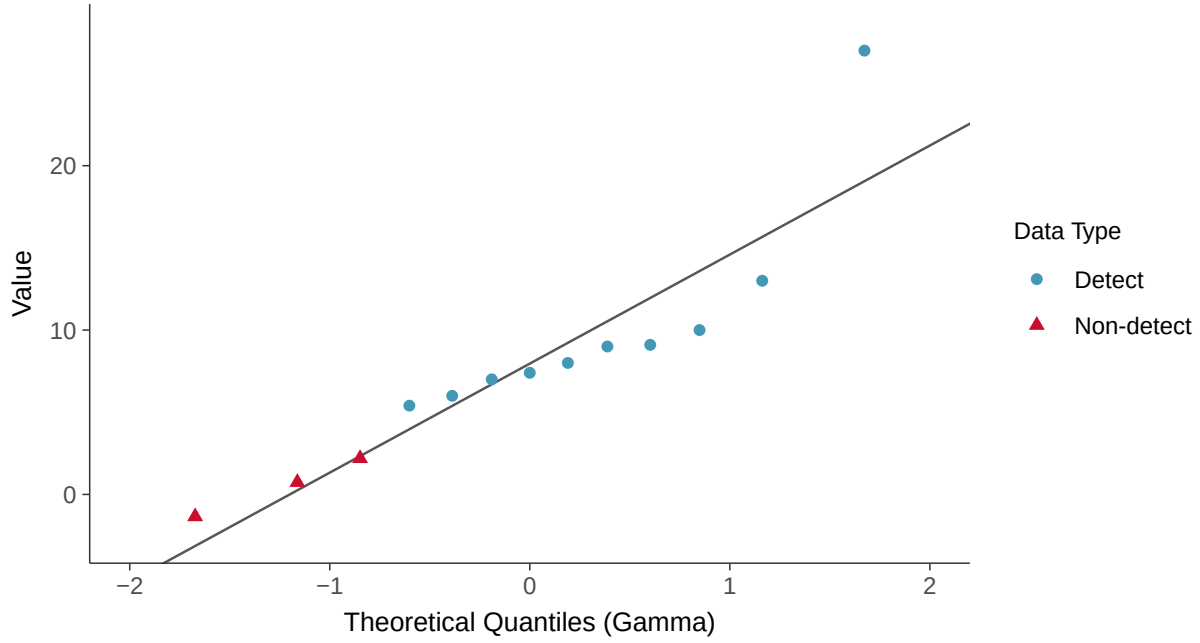
Lognormal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-7C (mg/L)



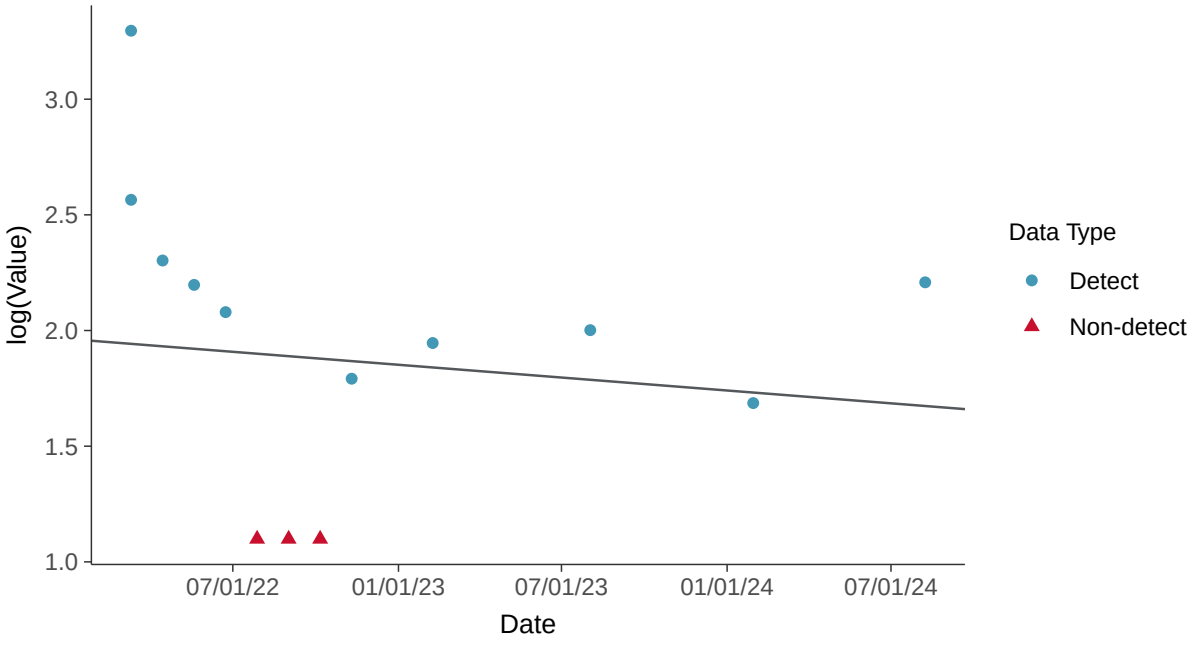
Gamma Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-7C (mg/L)



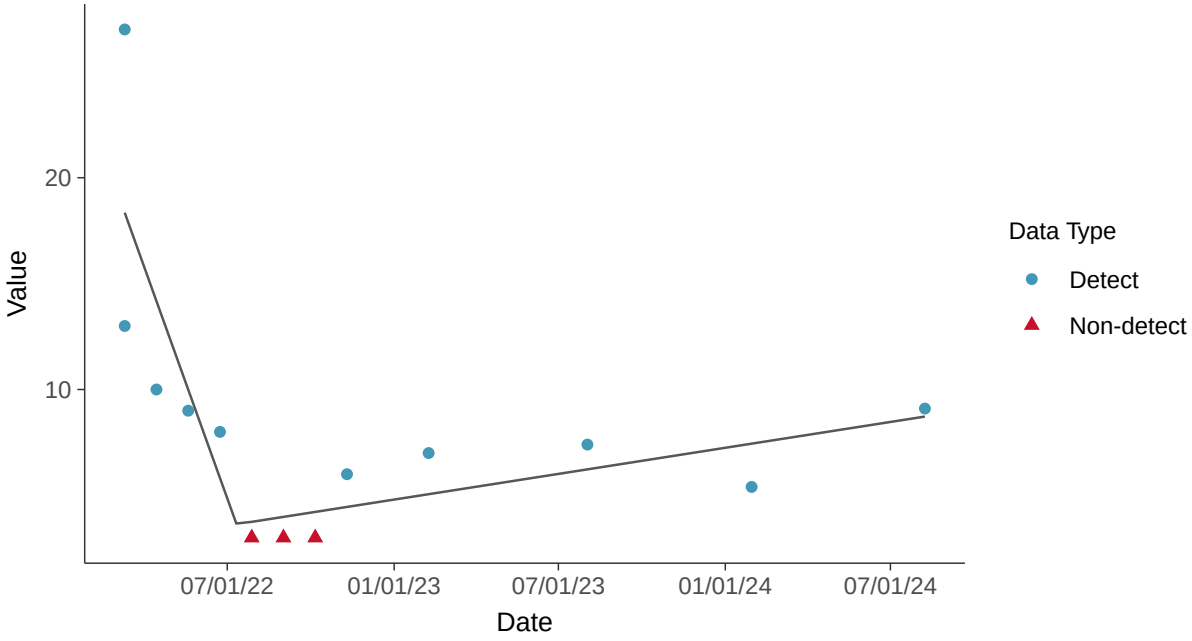
Trend Regression: Lognormal MLE

Total Suspended Solids, MW-7C (mg/L)



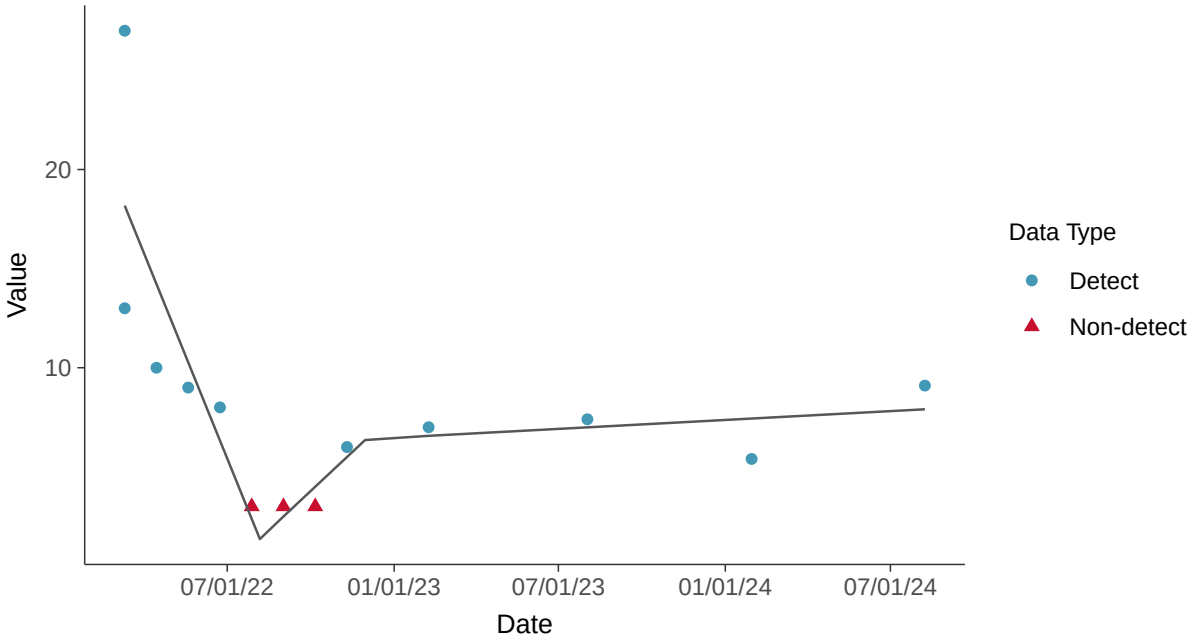
Trend Regression: Piecewise Linear-Linear

Total Suspended Solids, MW-7C (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Total Suspended Solids, MW-7C (mg/L)

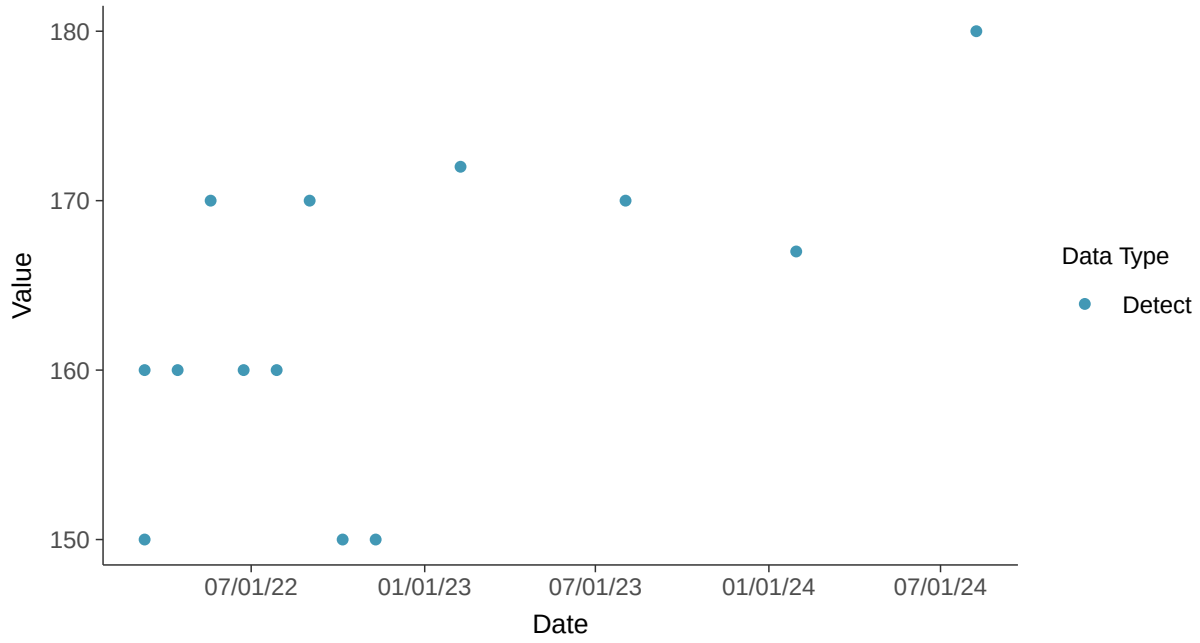


Other: Bicarbonate, MW-7C

ID: 7C_4_31

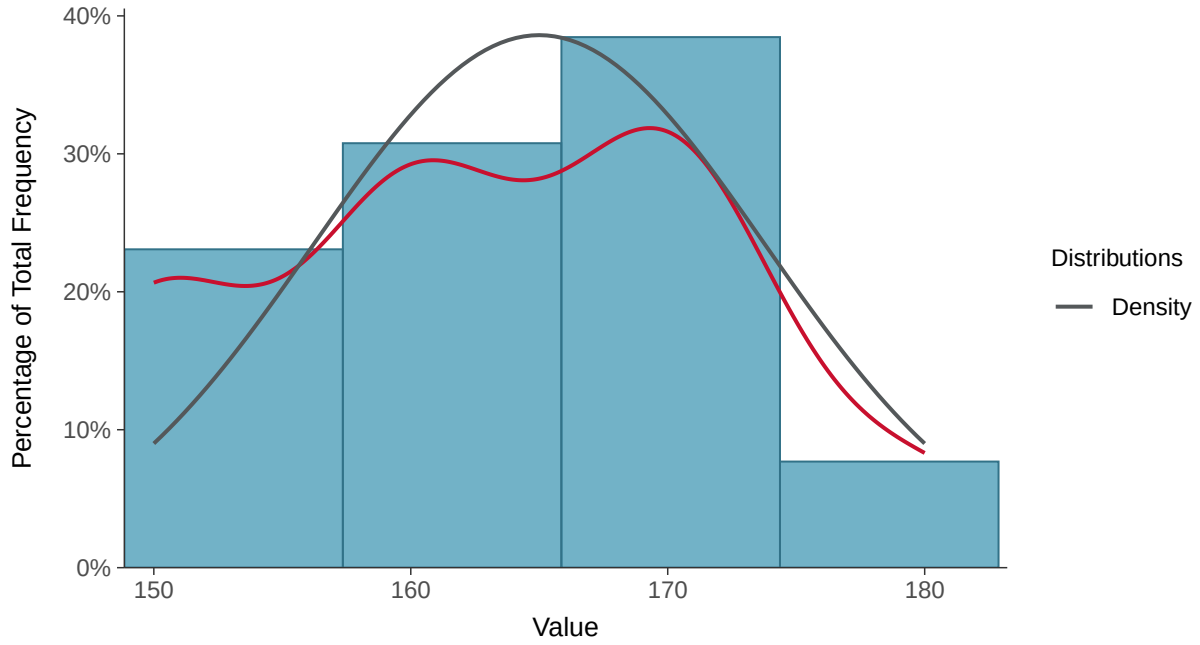
Scatter Plot

Bicarbonate, MW-7C (mg/L)



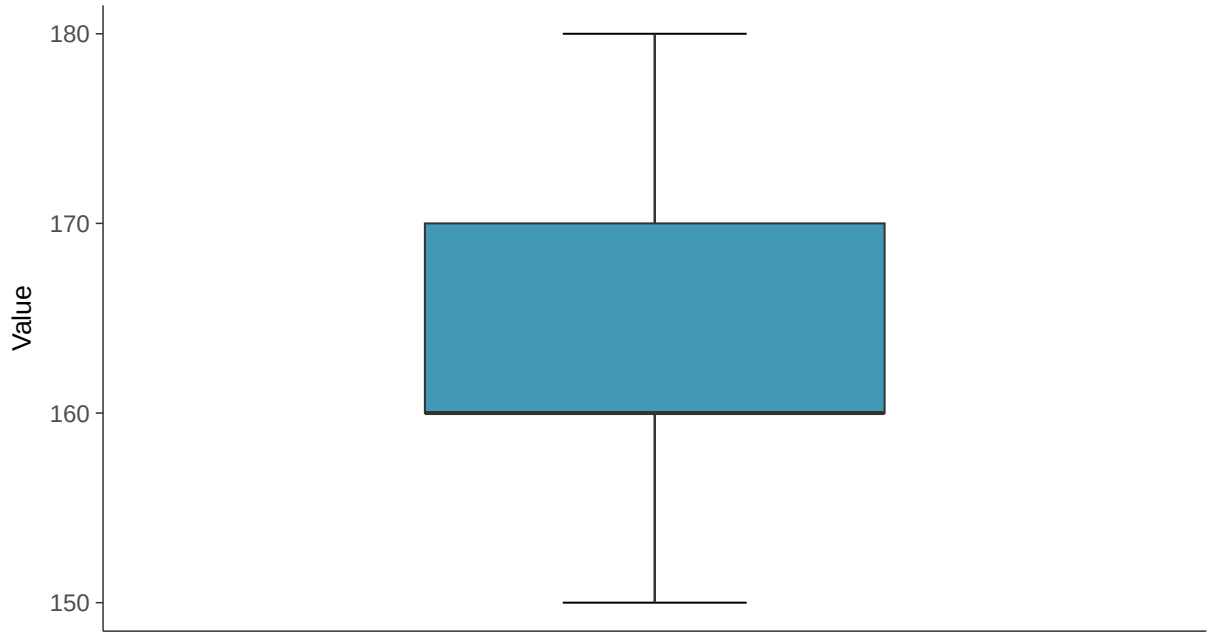
Histogram

Bicarbonate, MW-7C (mg/L)



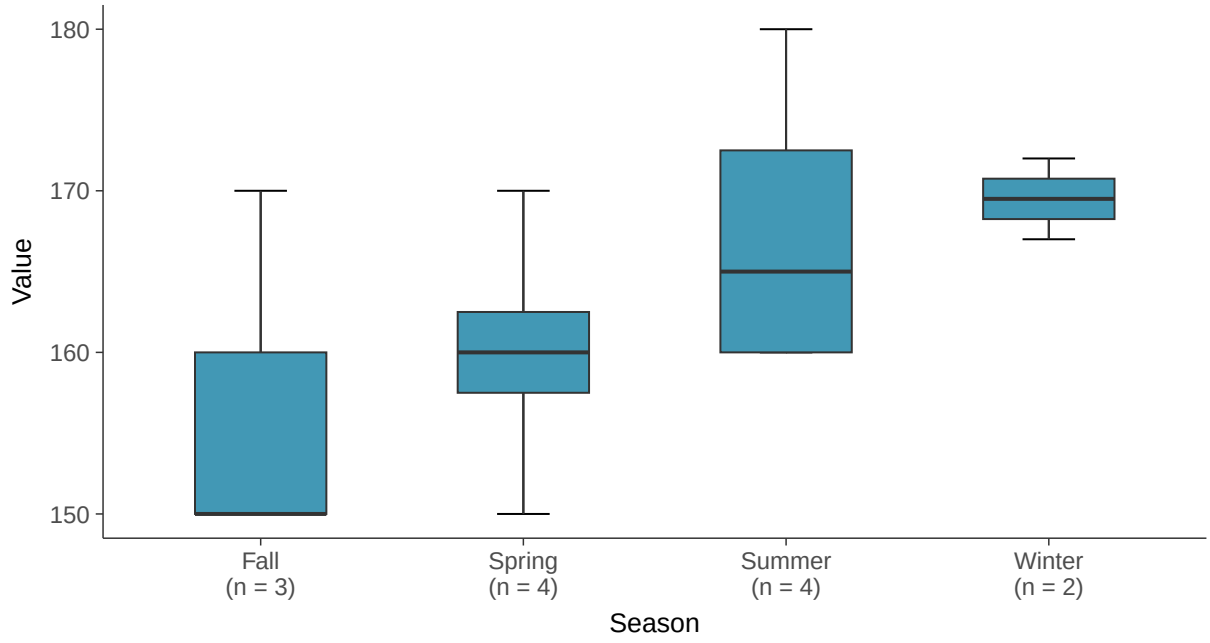
Boxplot

Bicarbonate, MW-7C (mg/L)



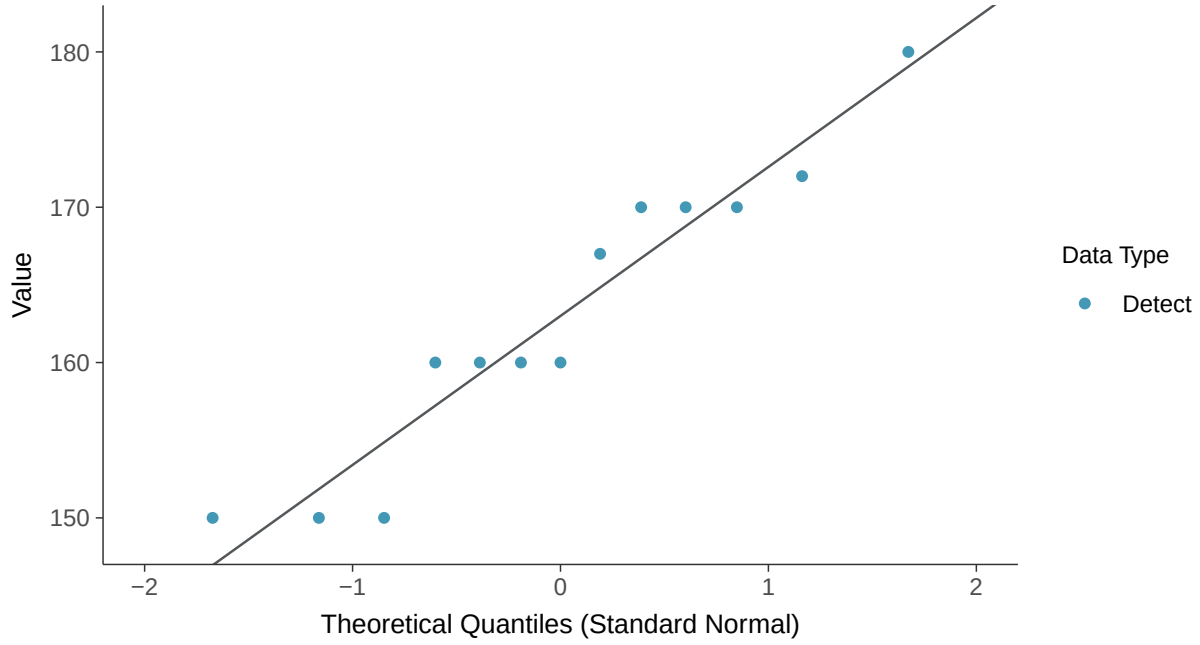
Boxplot by Season

Bicarbonate, MW-7C (mg/L)



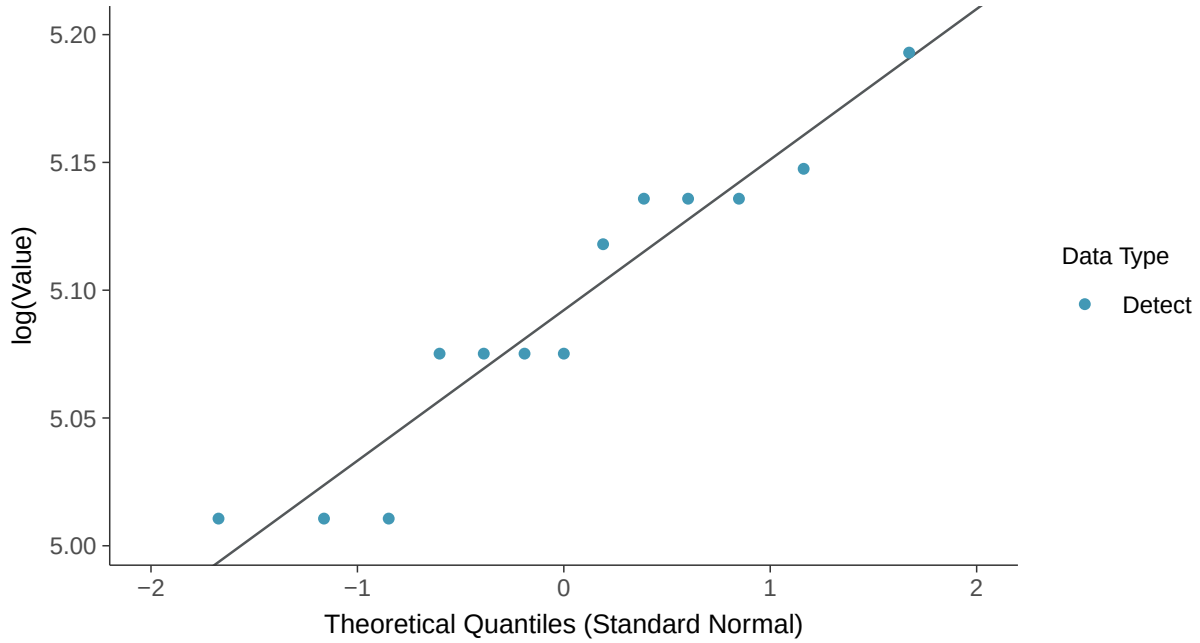
Normal Q-Q plot

Bicarbonate, MW-7C (mg/L)



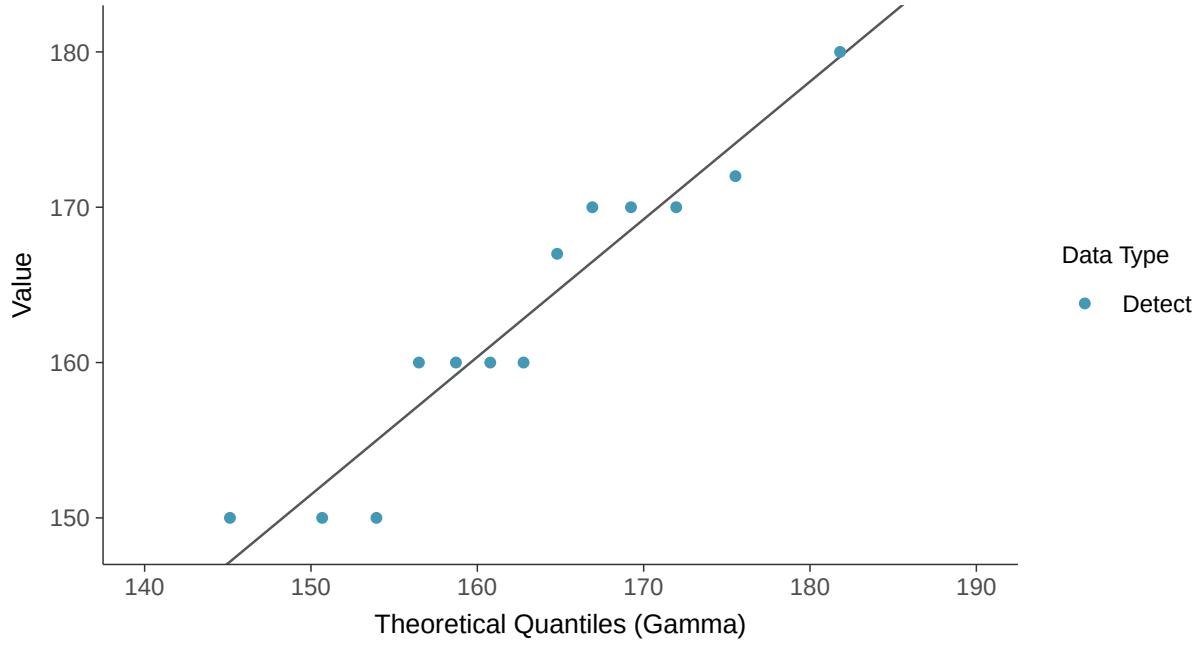
Lognormal Q-Q plot

Bicarbonate, MW-7C (mg/L)



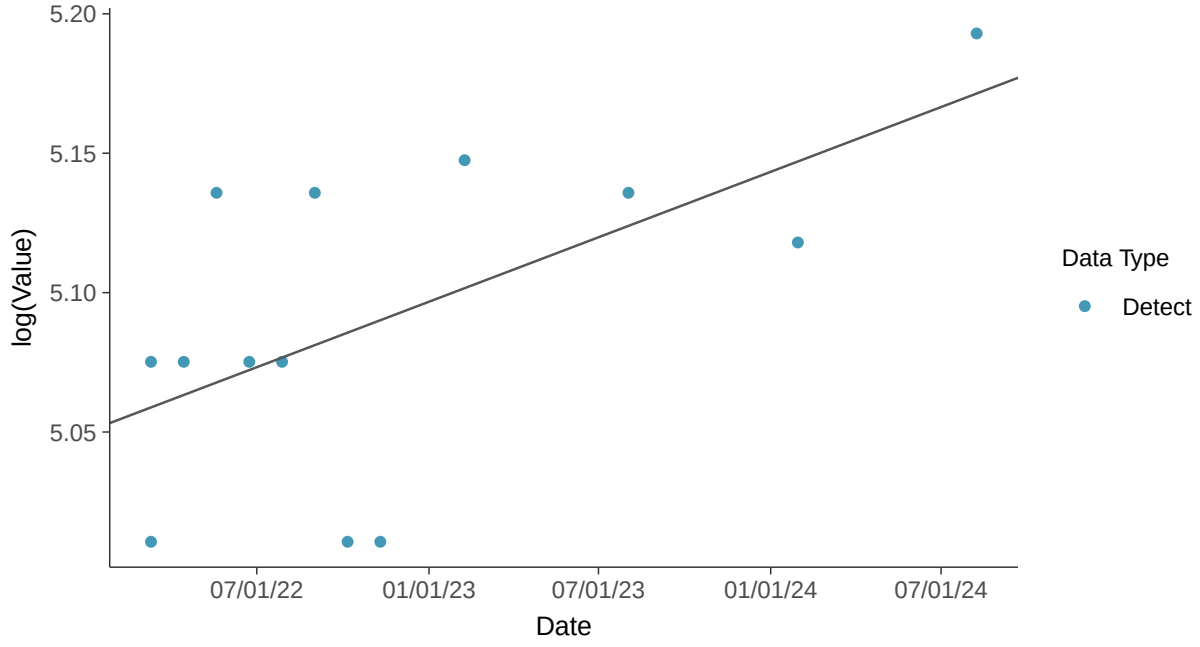
Gamma Q-Q plot

Bicarbonate, MW-7C (mg/L)



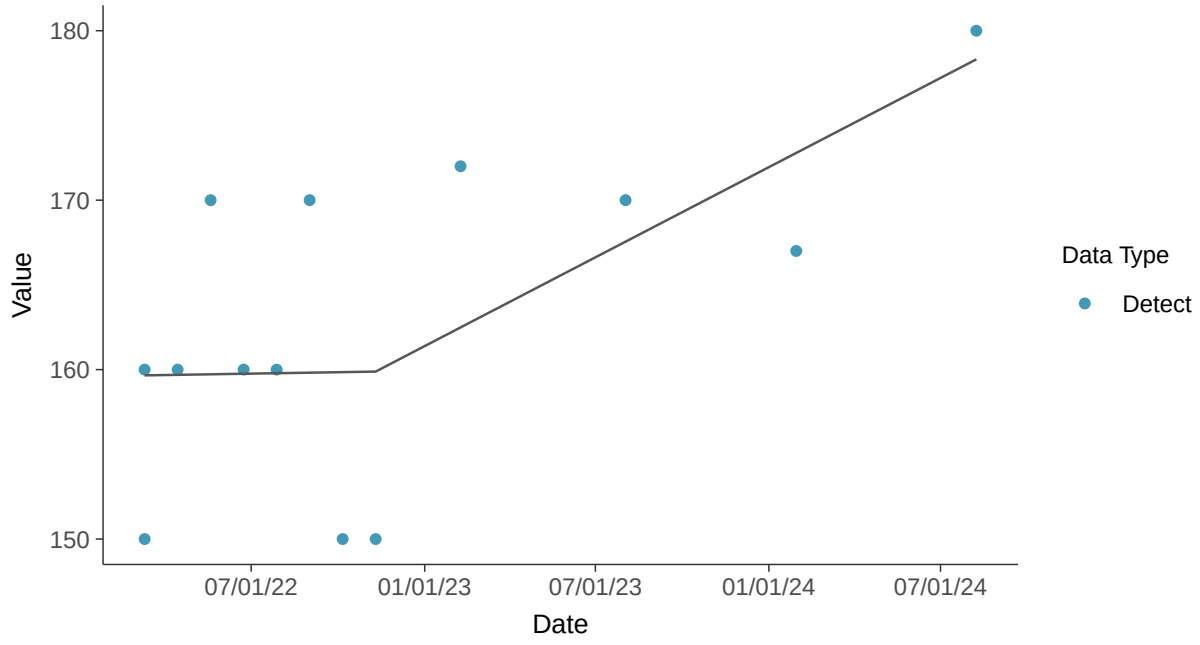
Trend Regression: Lognormal MLE

Bicarbonate, MW-7C (mg/L)



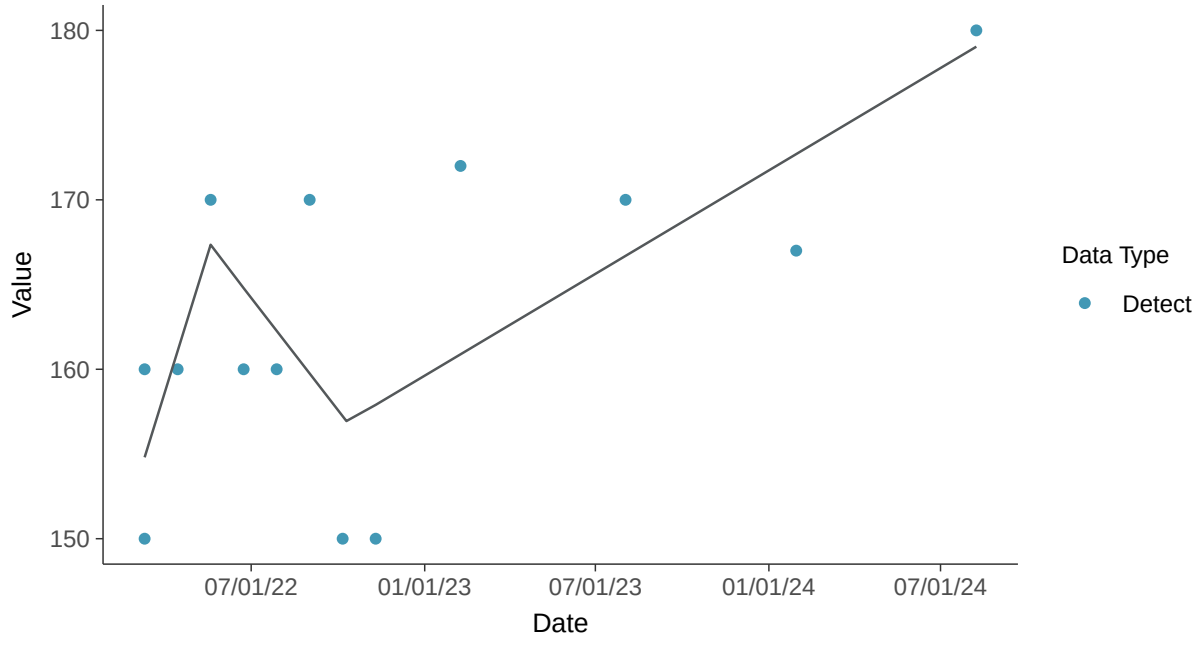
Trend Regression: Piecewise Linear-Linear

Bicarbonate, MW-7C (mg/L)



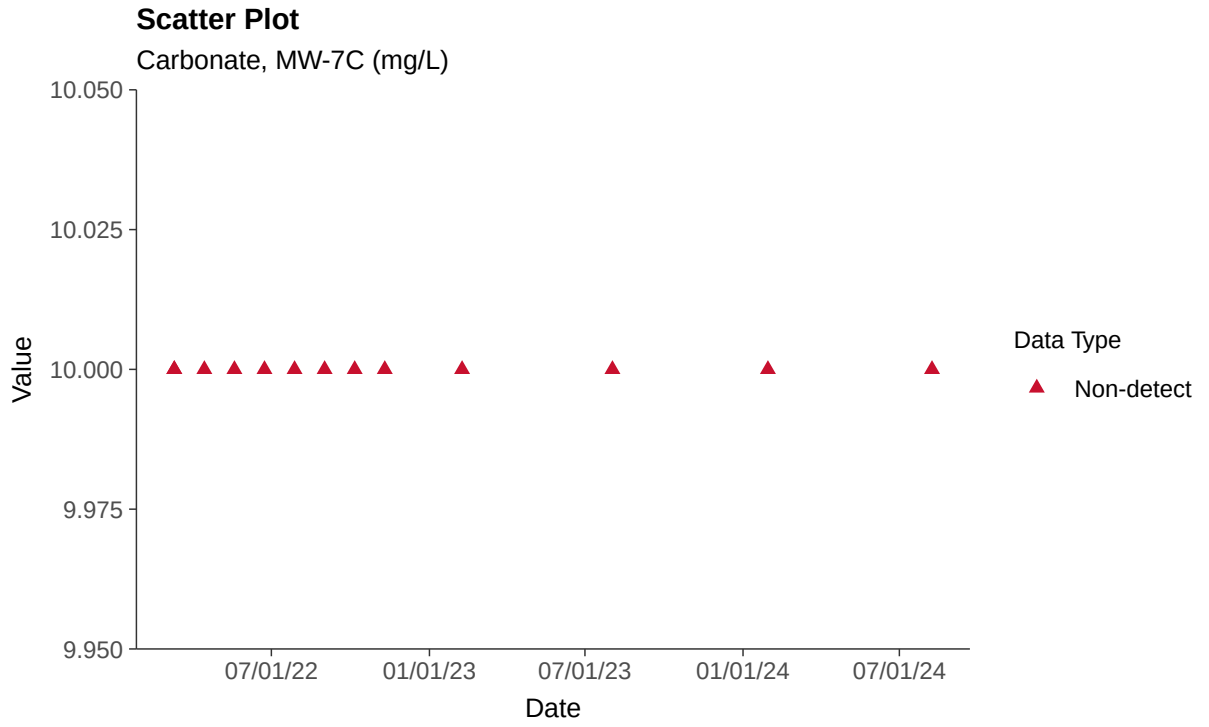
Trend Regression: Piecewise Linear-Linear-Linear

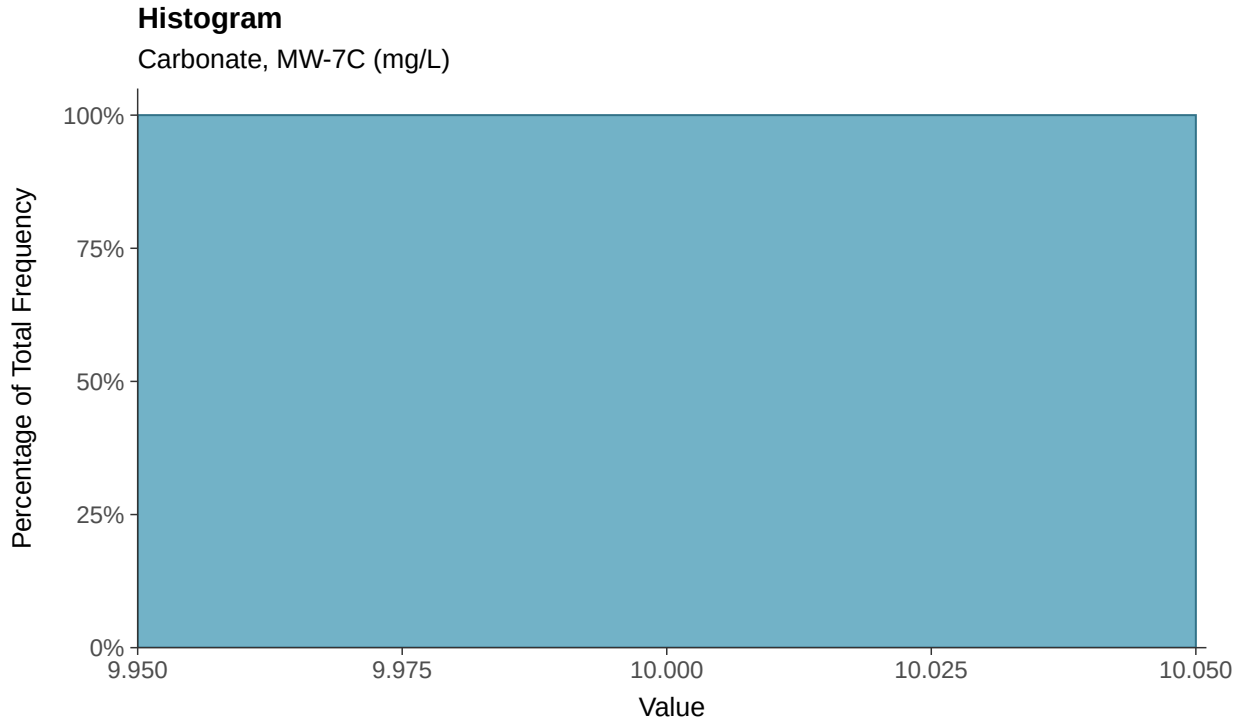
Bicarbonate, MW-7C (mg/L)



Other: Carbonate, MW-7C

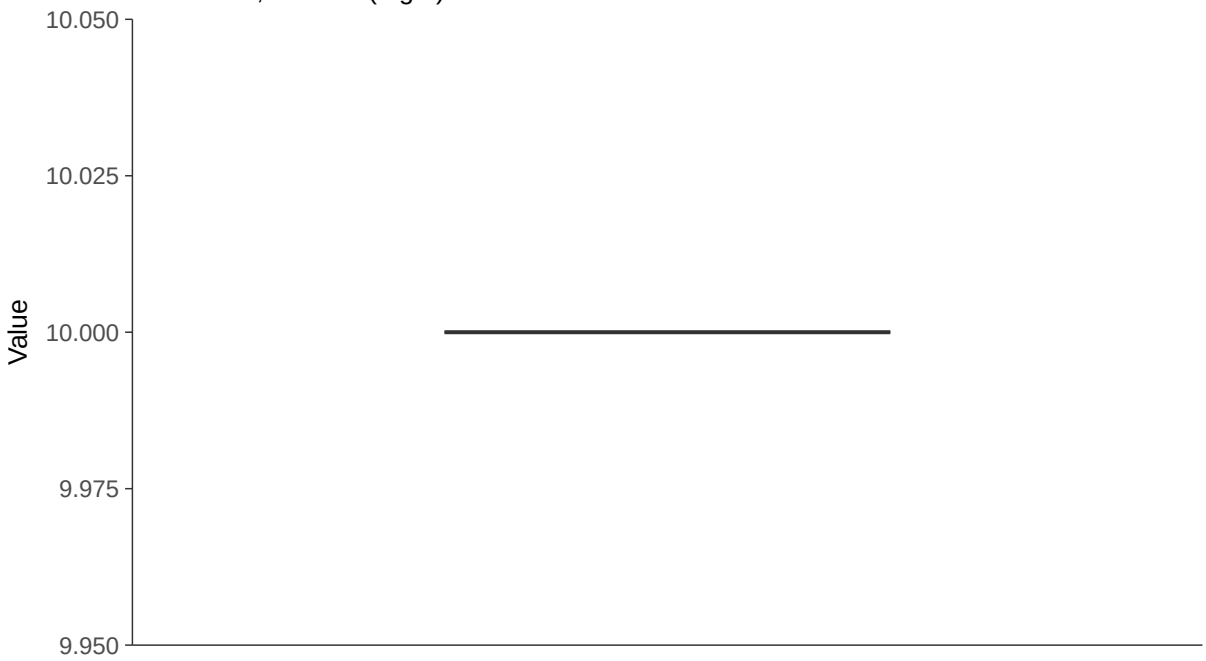
ID: 7C_4_32





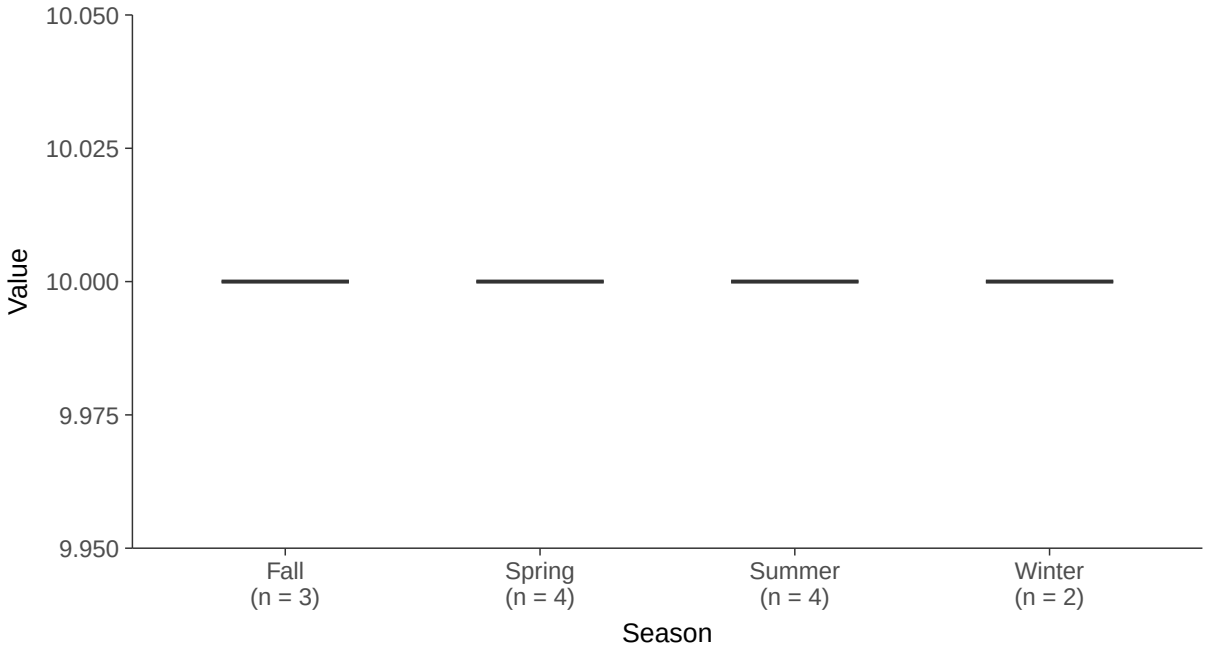
Boxplot

Carbonate, MW-7C (mg/L)



Boxplot by Season

Carbonate, MW-7C (mg/L)

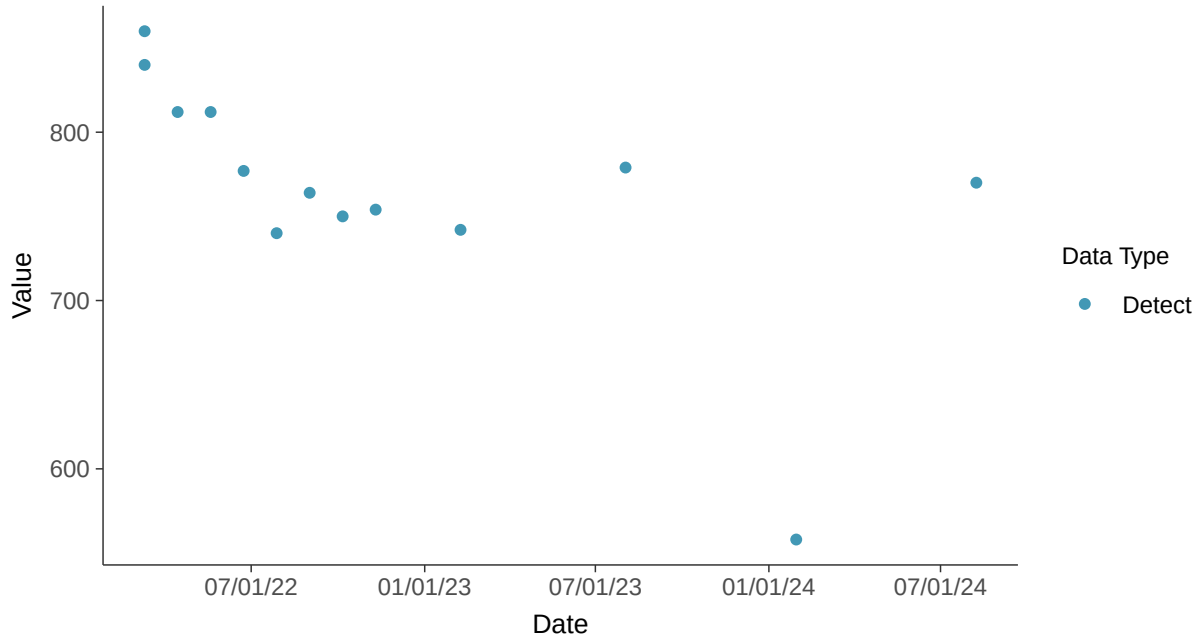


Other: Hardness, MW-7C

ID: 7C_4_33

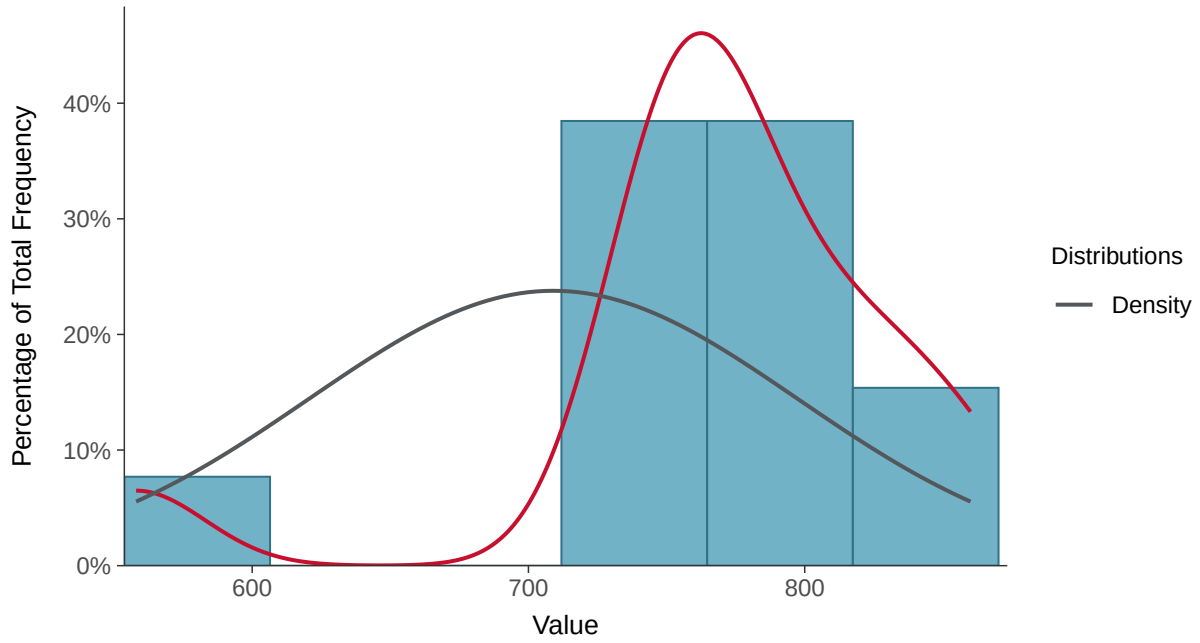
Scatter Plot

Hardness, MW-7C (mg/L)



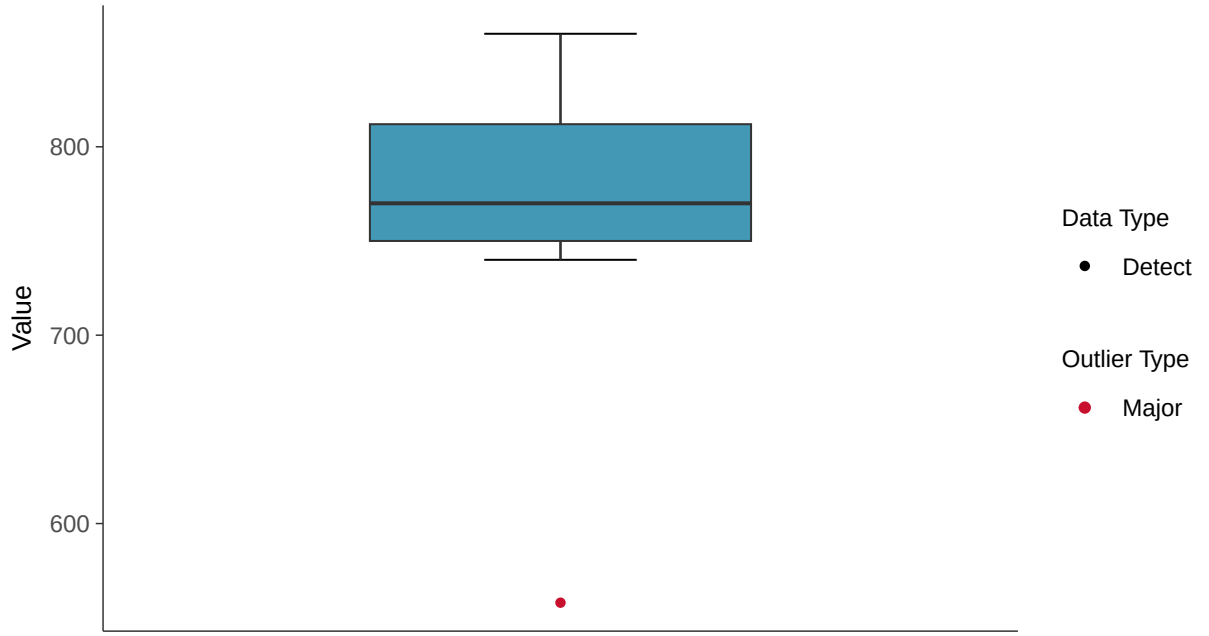
Histogram

Hardness, MW-7C (mg/L)



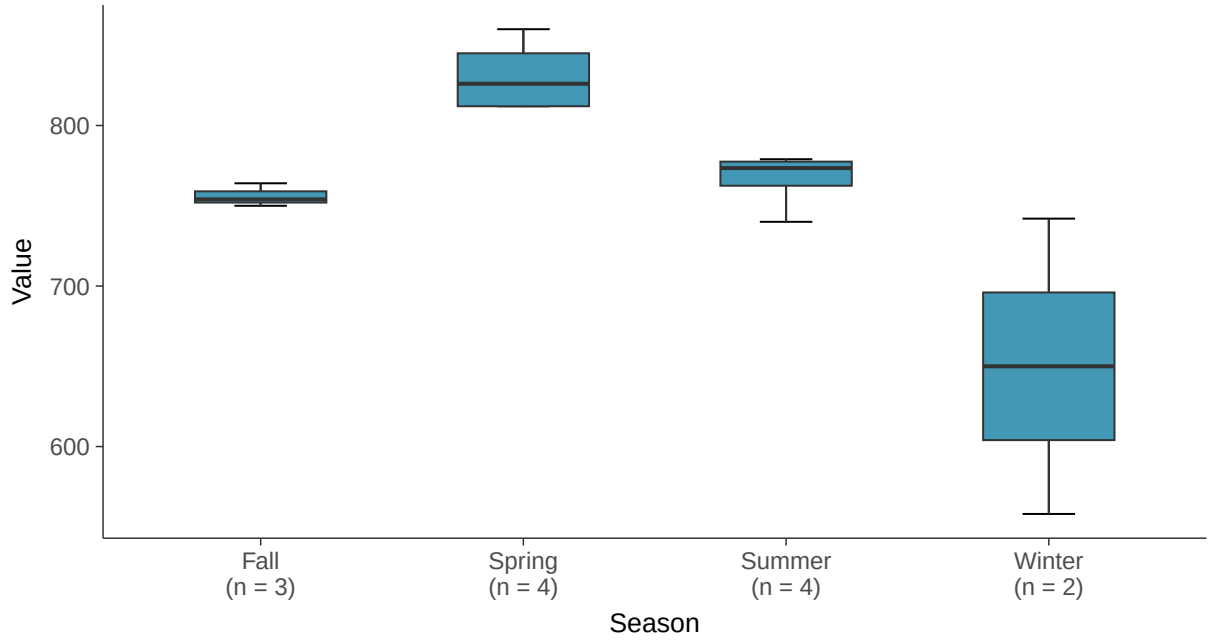
Boxplot

Hardness, MW-7C (mg/L)



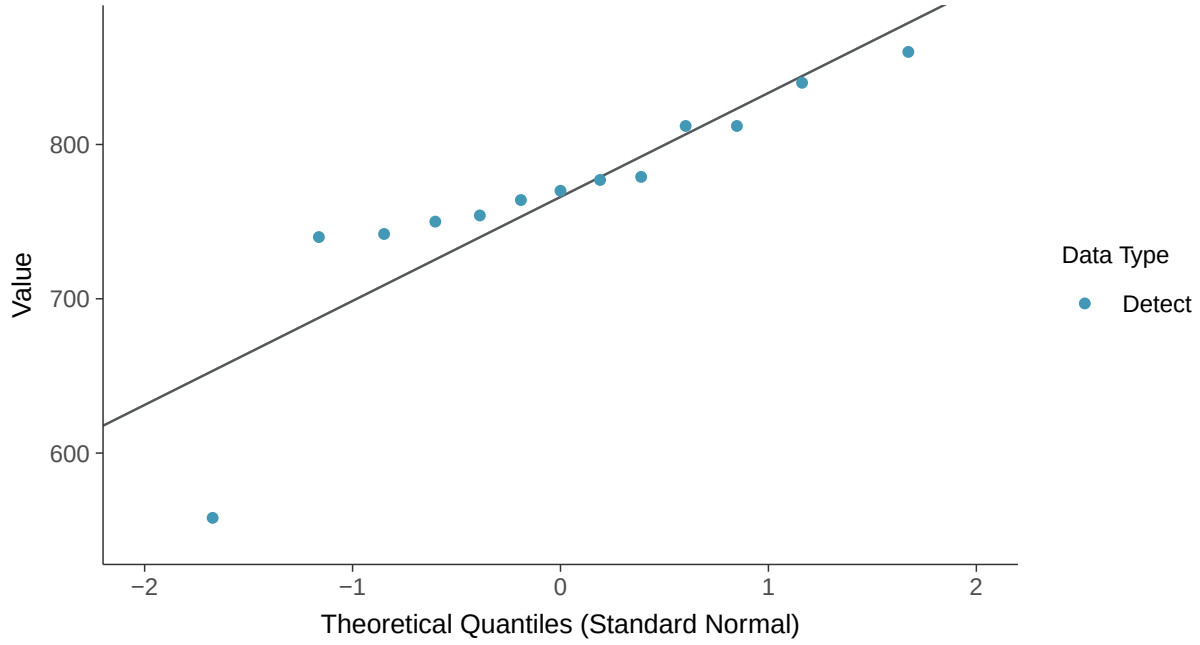
Boxplot by Season

Hardness, MW-7C (mg/L)



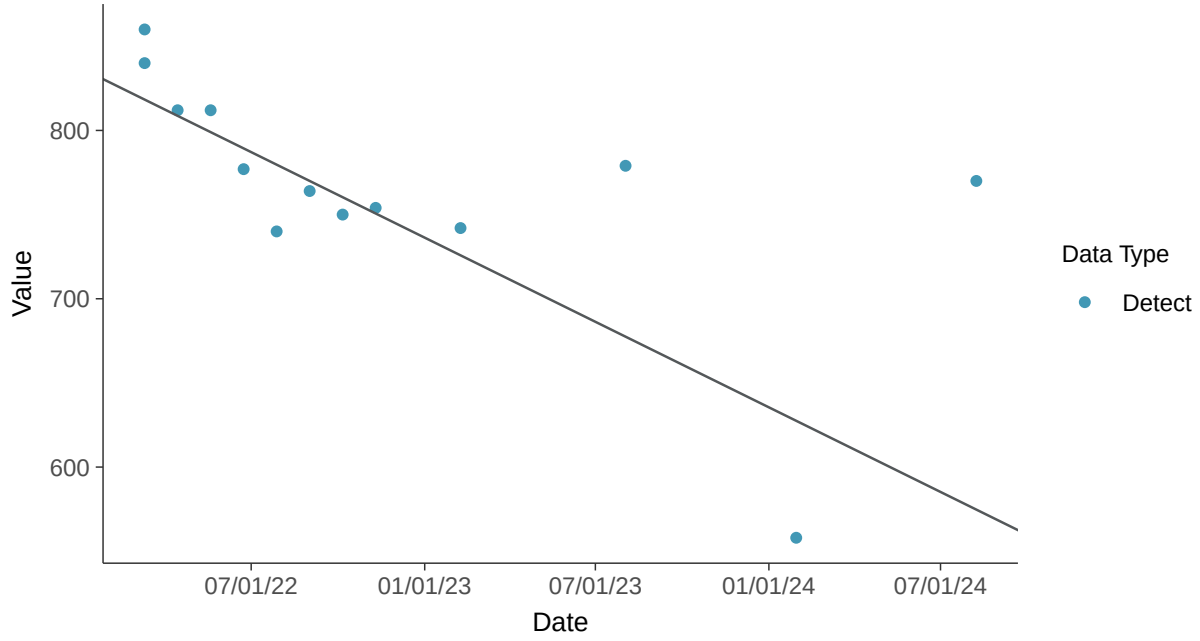
Normal Q-Q plot

Hardness, MW-7C (mg/L)



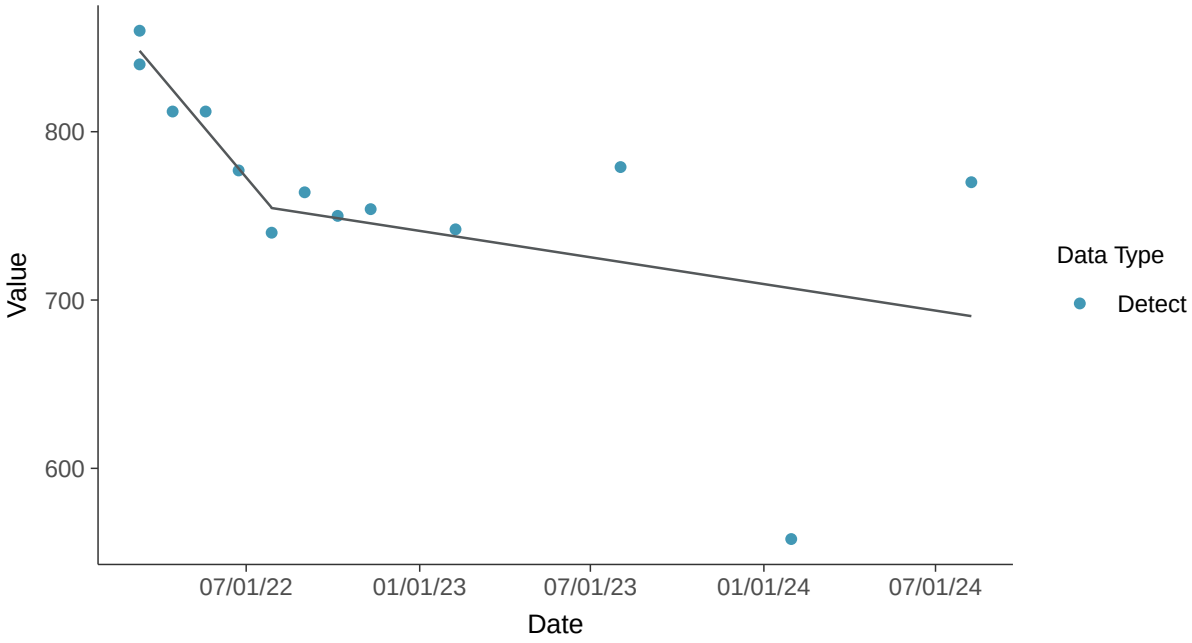
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Hardness, MW-7C (mg/L)



Trend Regression: Piecewise Linear-Linear

Hardness, MW-7C (mg/L)

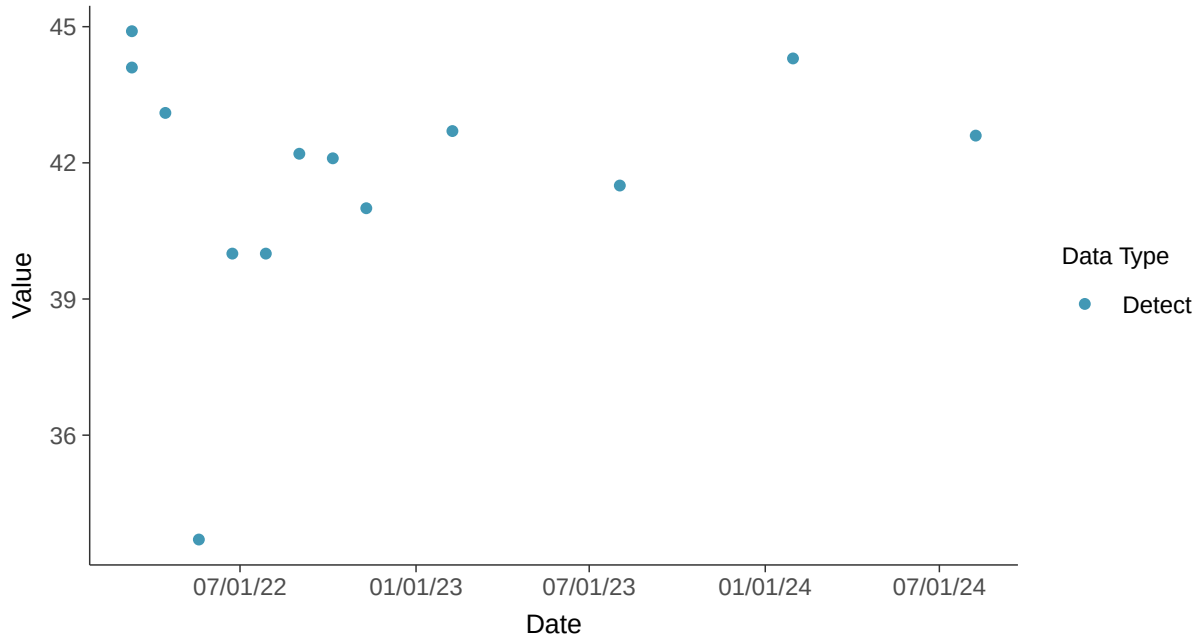


Other: Magnesium, MW-7C

ID: 7C_4_34

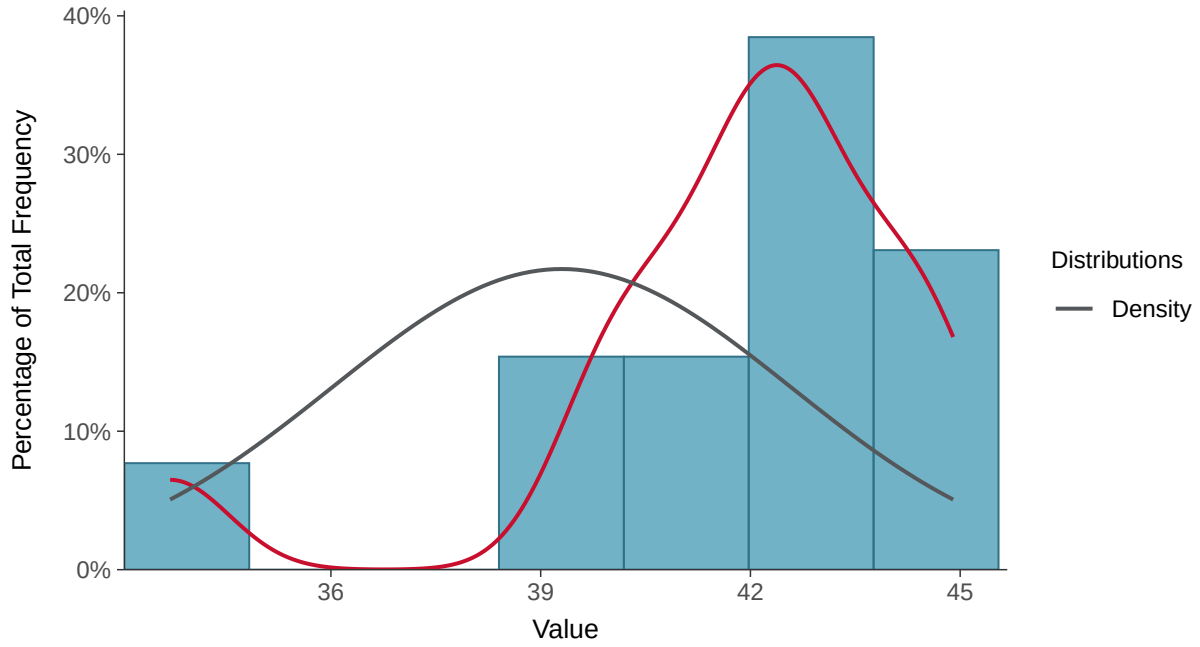
Scatter Plot

Magnesium, MW-7C (mg/L)



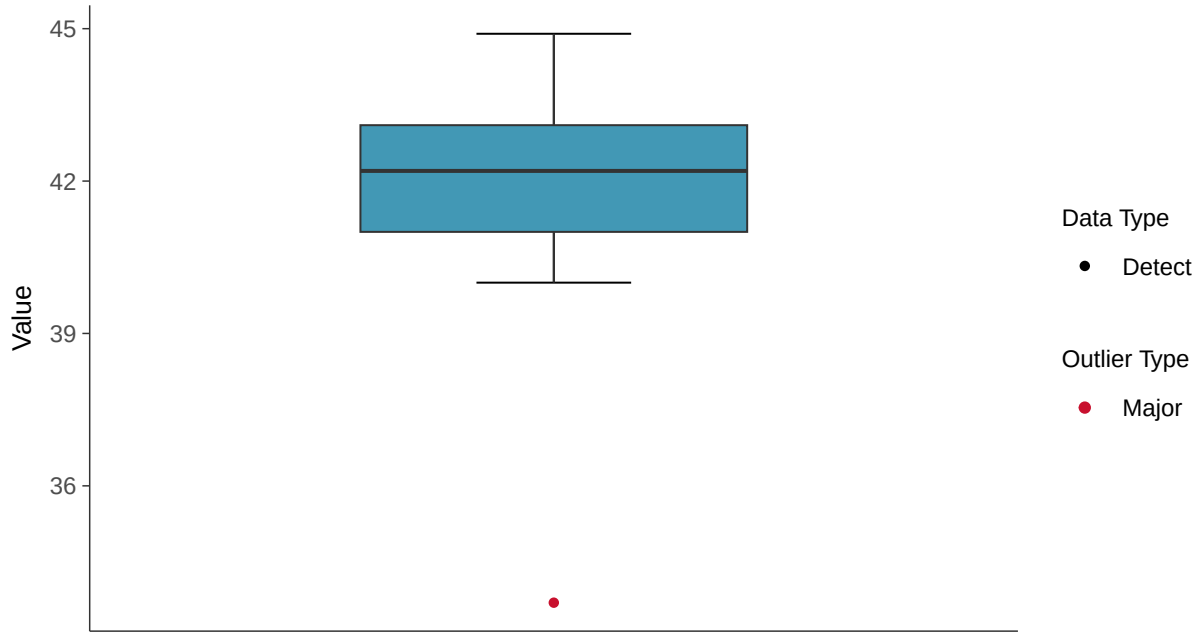
Histogram

Magnesium, MW-7C (mg/L)



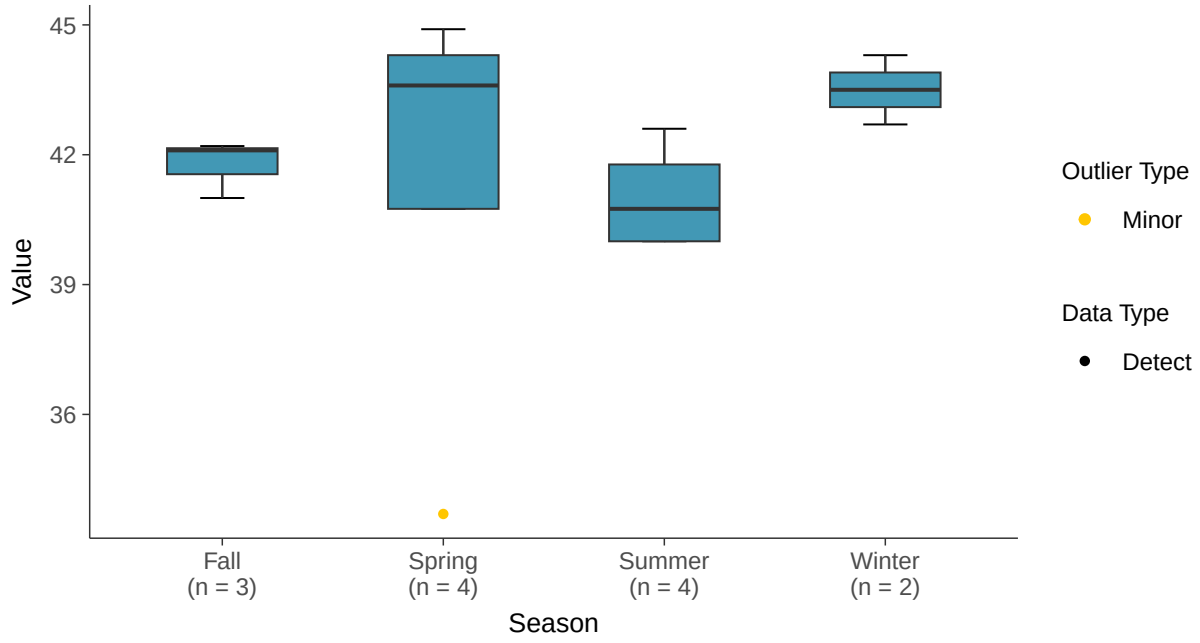
Boxplot

Magnesium, MW-7C (mg/L)



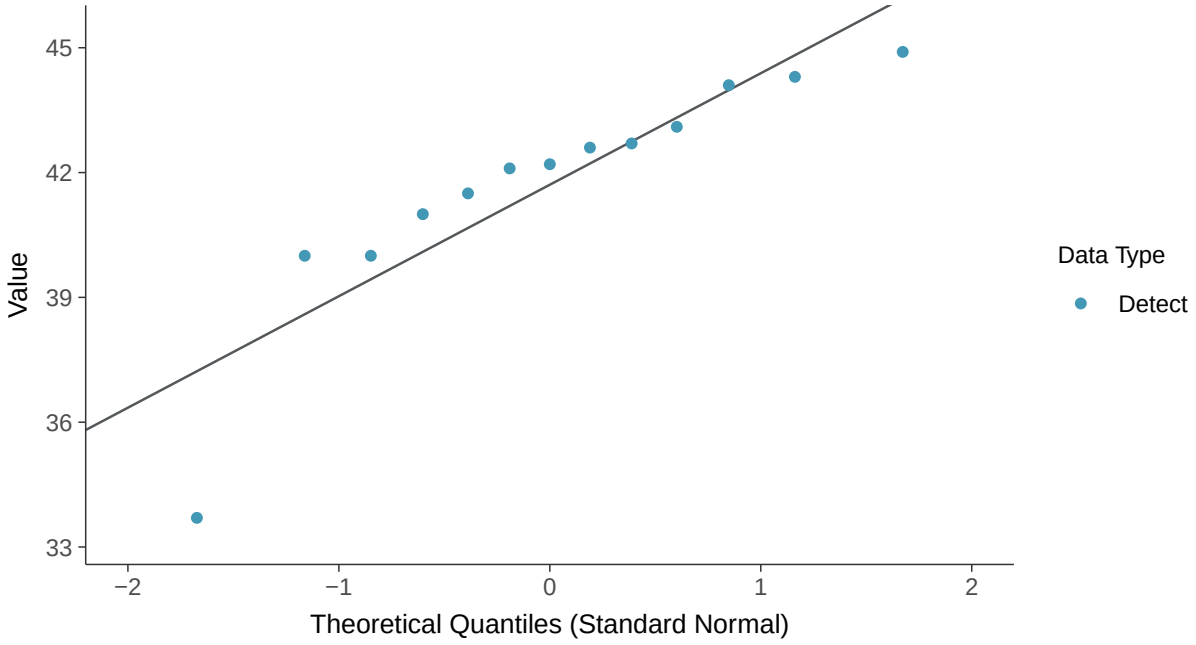
Boxplot by Season

Magnesium, MW-7C (mg/L)



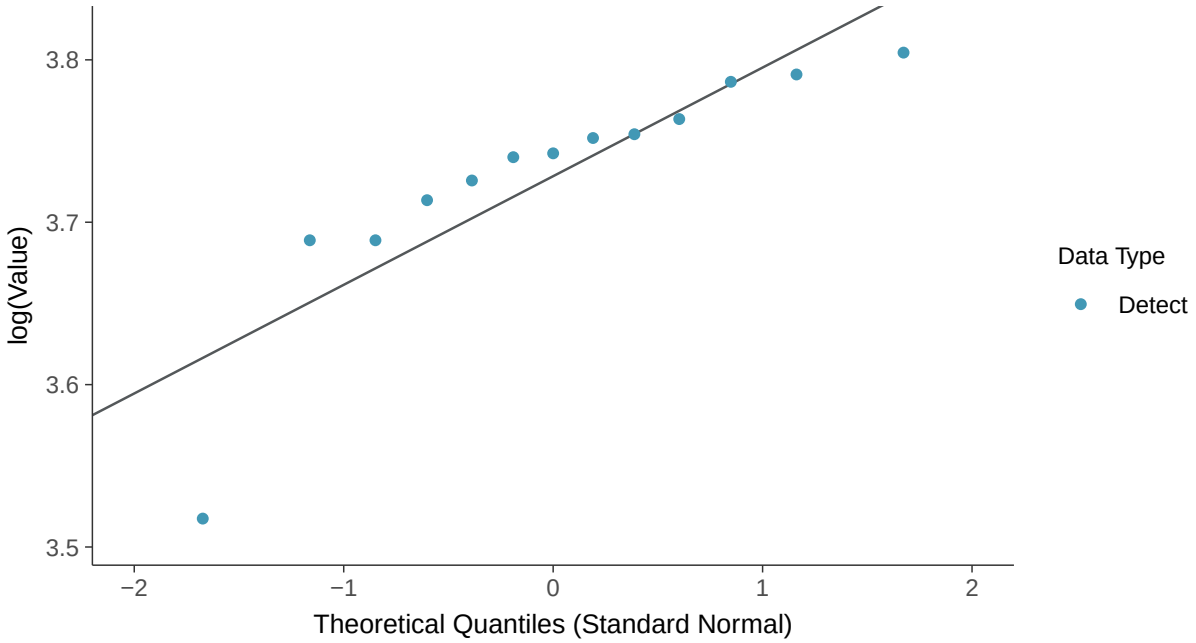
Normal Q-Q plot

Magnesium, MW-7C (mg/L)



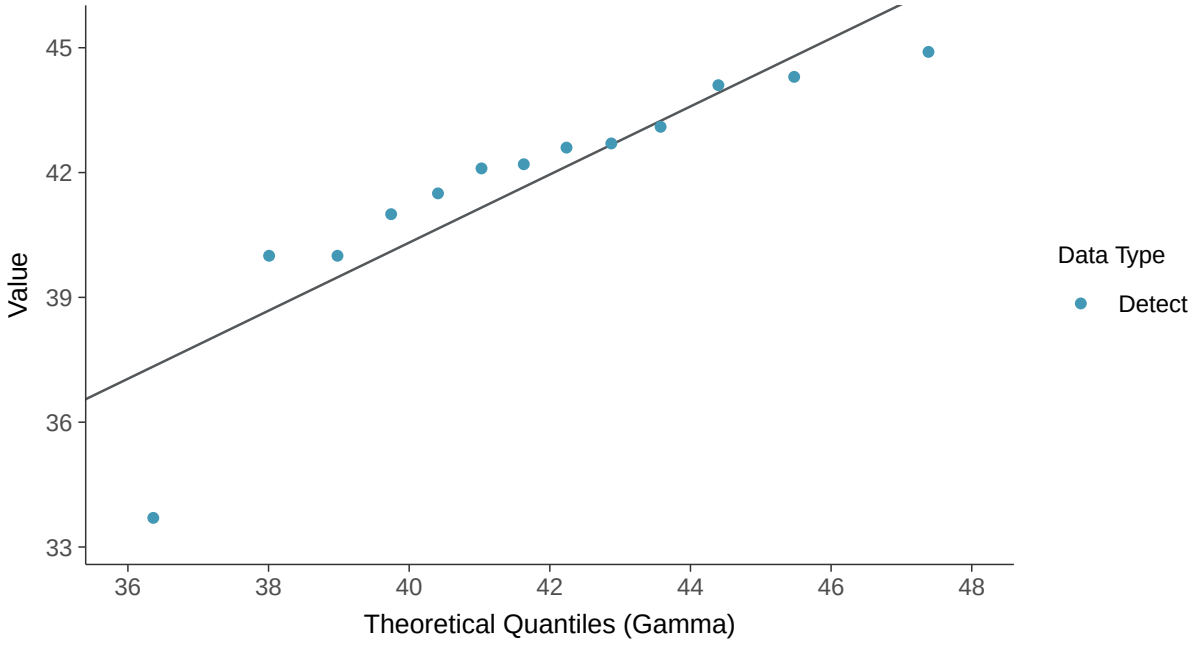
Lognormal Q-Q plot

Magnesium, MW-7C (mg/L)



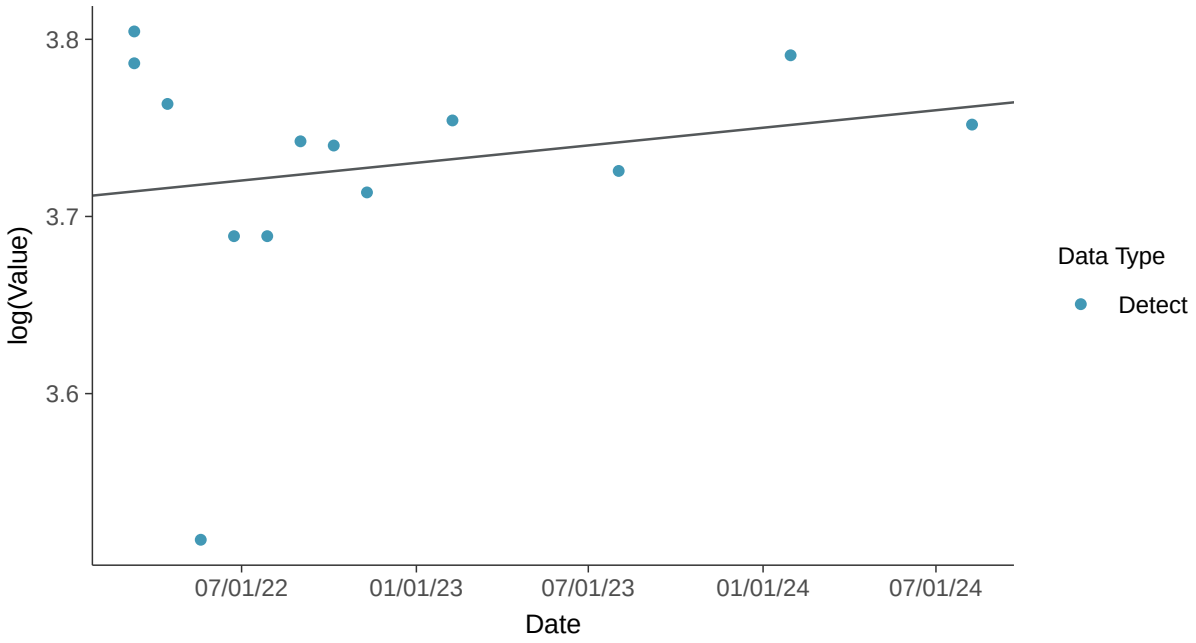
Gamma Q-Q plot

Magnesium, MW-7C (mg/L)



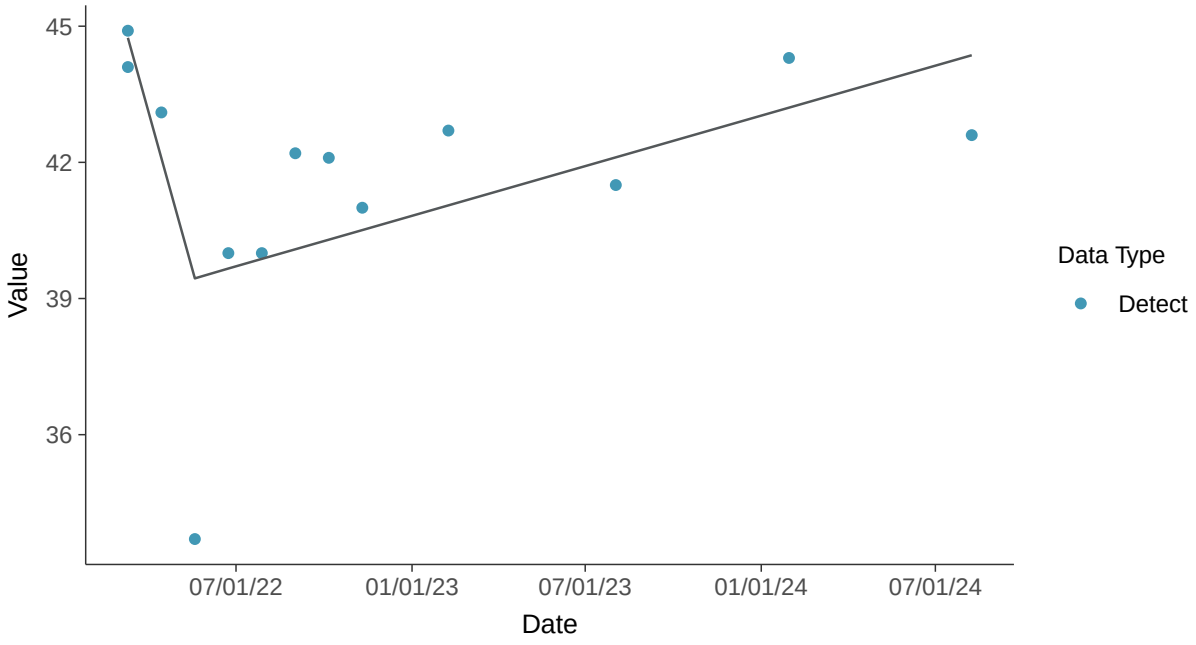
Trend Regression: Lognormal MLE

Magnesium, MW-7C (mg/L)



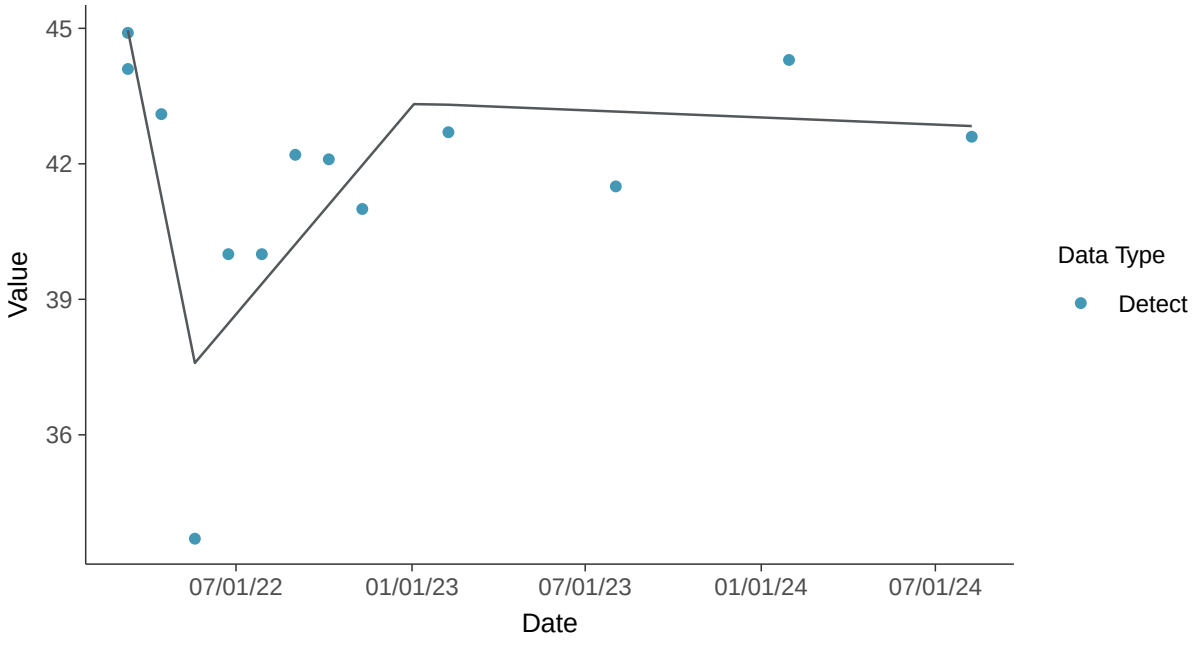
Trend Regression: Piecewise Linear-Linear

Magnesium, MW-7C (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Magnesium, MW-7C (mg/L)

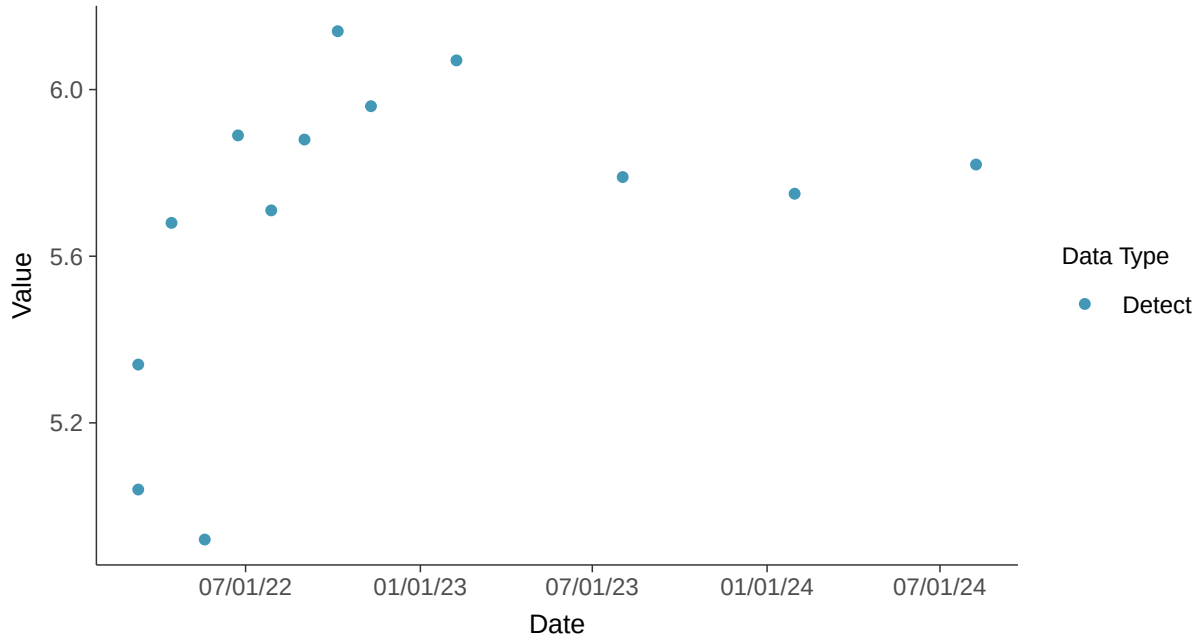


Other: Potassium, MW-7C

ID: 7C_4_35

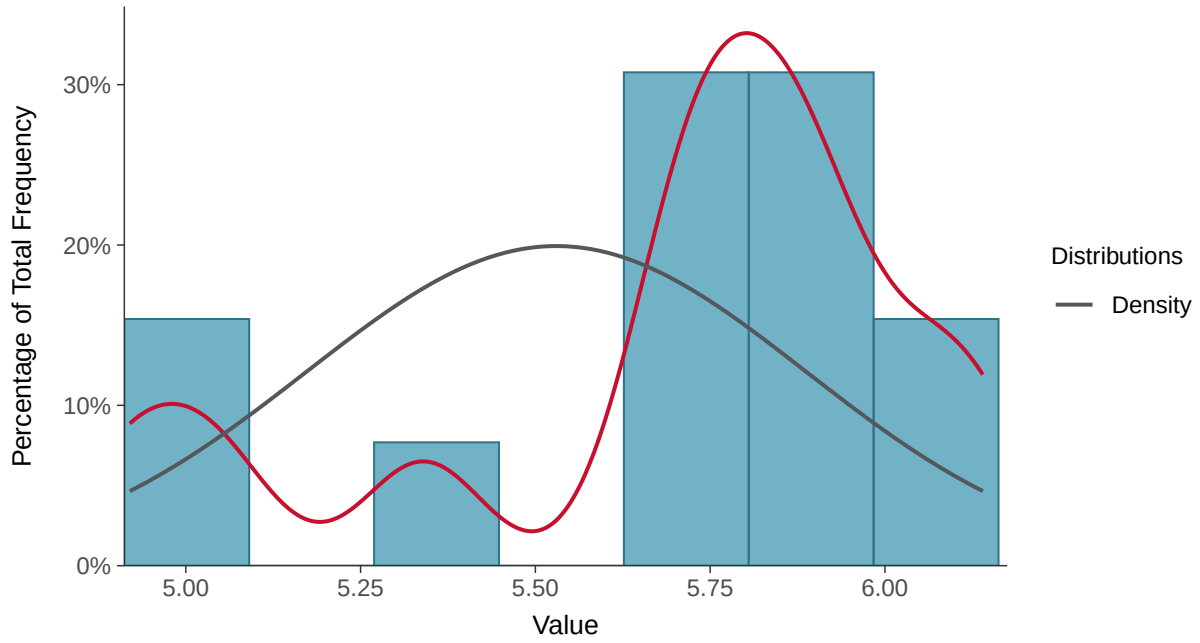
Scatter Plot

Potassium, MW-7C (mg/L)



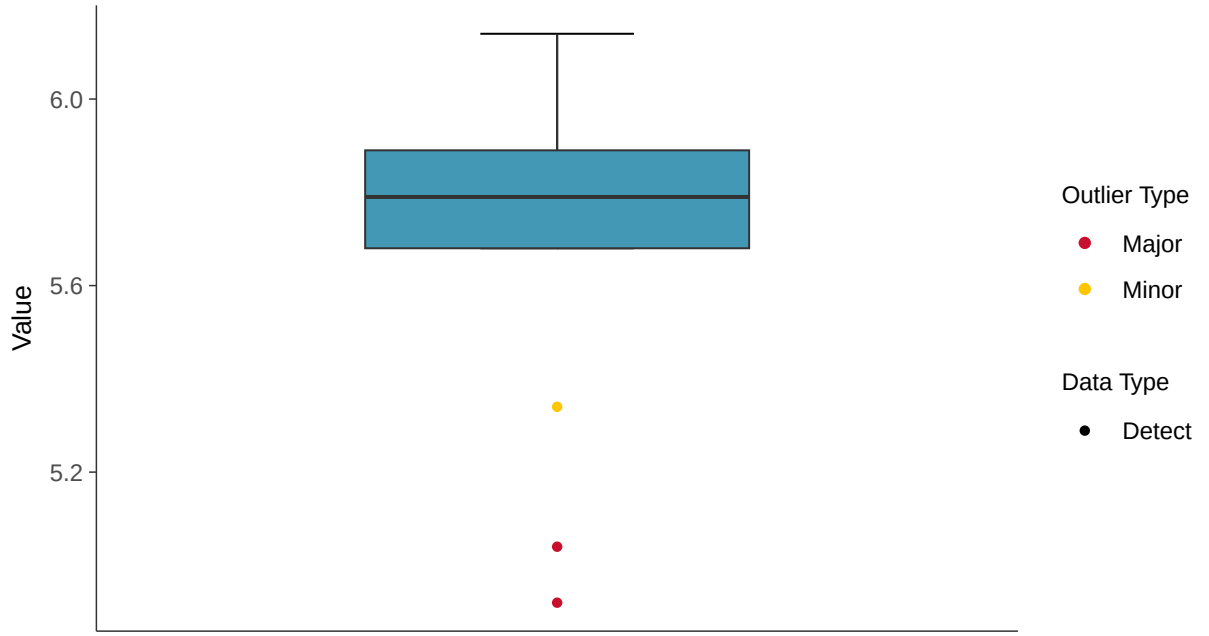
Histogram

Potassium, MW-7C (mg/L)



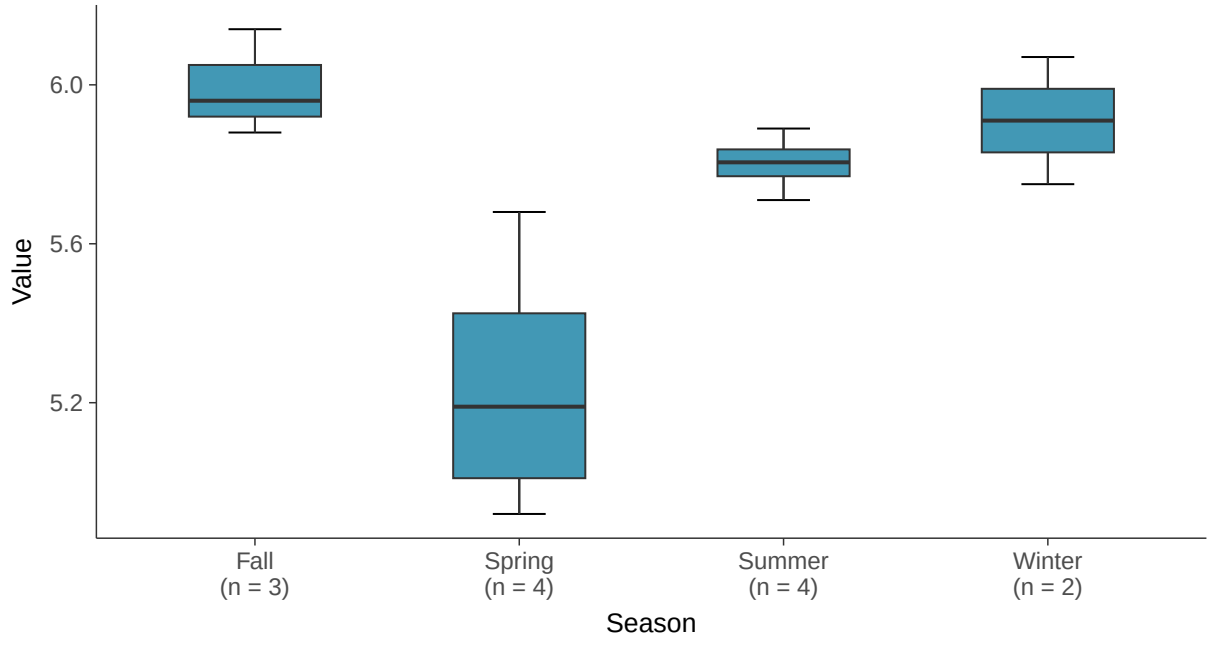
Boxplot

Potassium, MW-7C (mg/L)



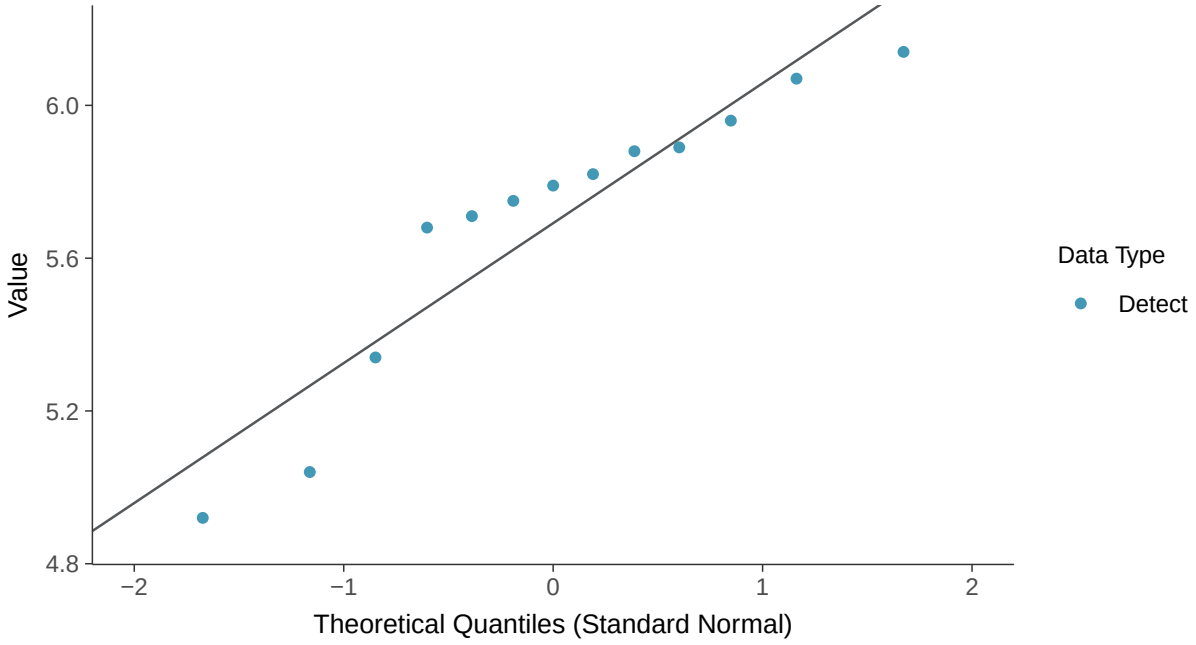
Boxplot by Season

Potassium, MW-7C (mg/L)



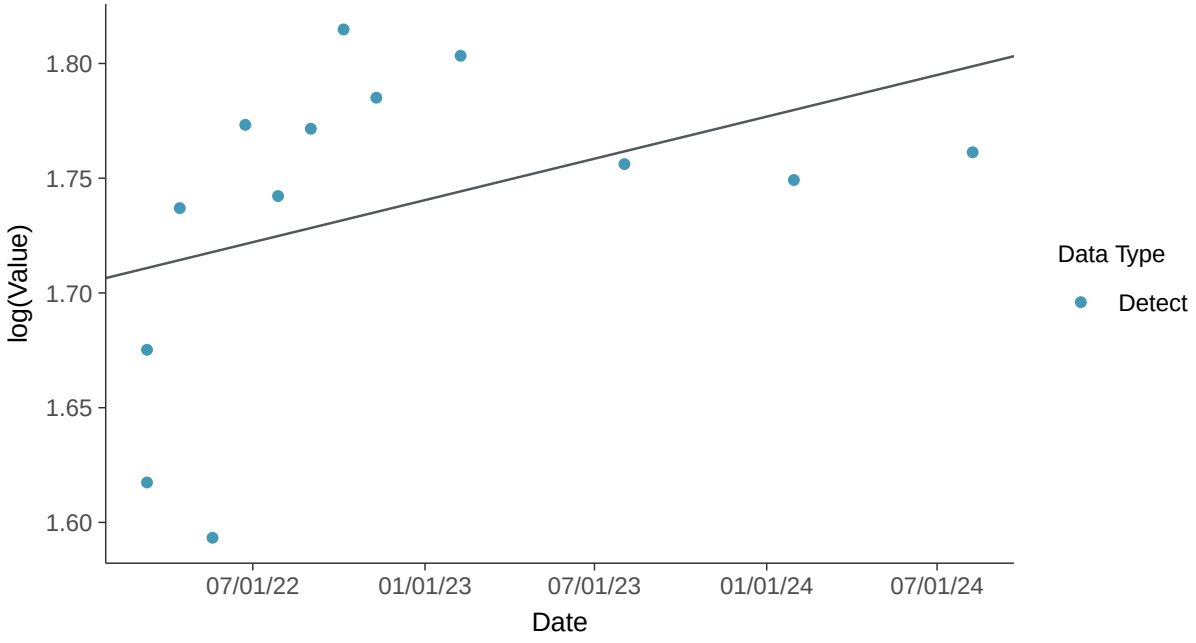
Normal Q-Q plot

Potassium, MW-7C (mg/L)



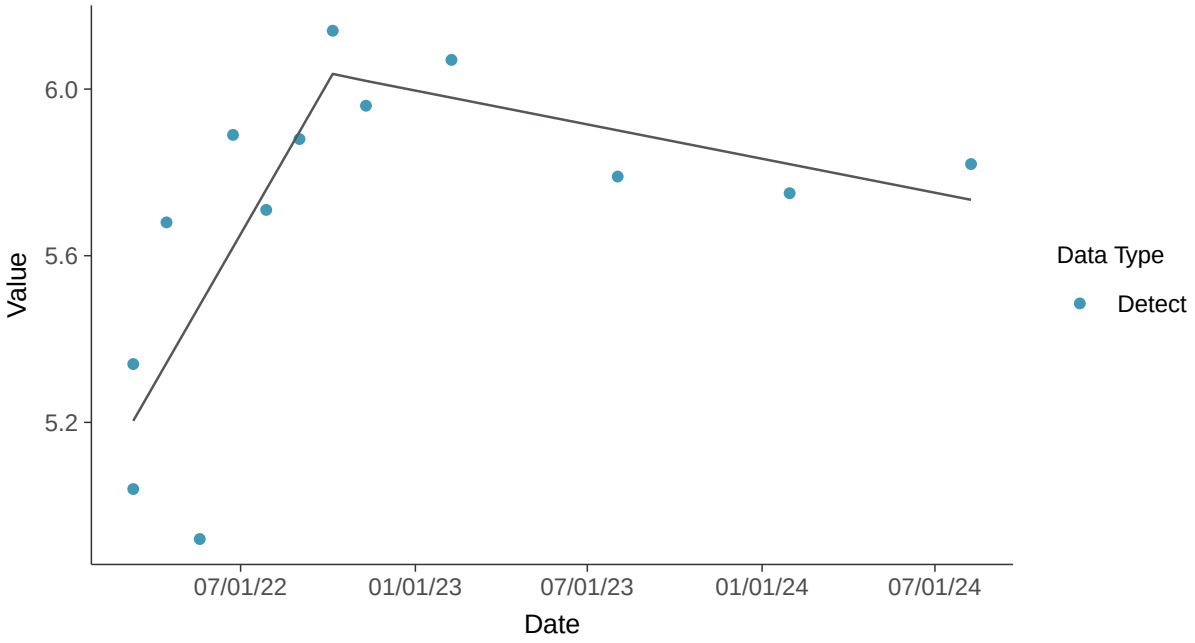
Trend Regression: Lognormal MLE

Potassium, MW-7C (mg/L)



Trend Regression: Piecewise Linear-Linear

Potassium, MW-7C (mg/L)

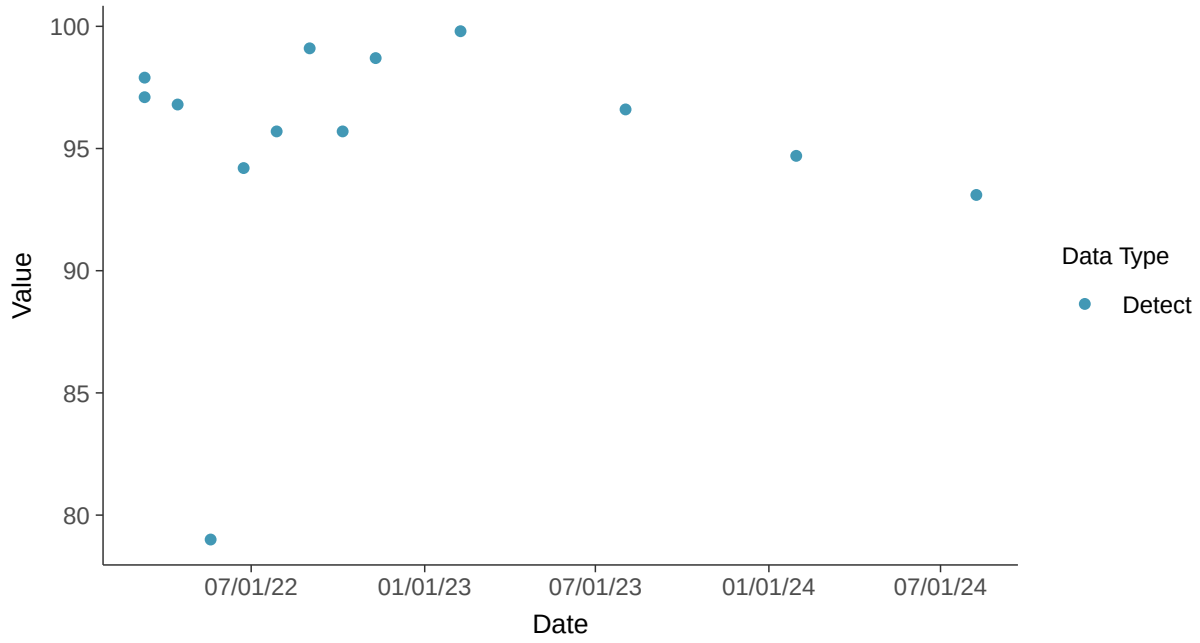


Other: Sodium, MW-7C

ID: 7C_4_36

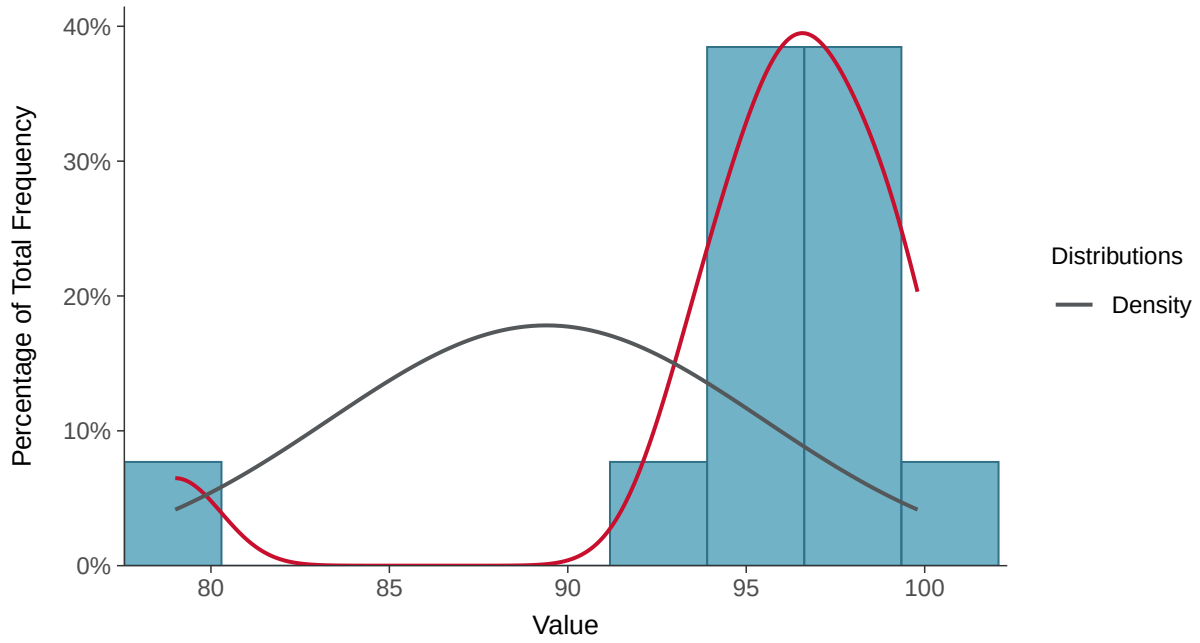
Scatter Plot

Sodium, MW-7C (mg/L)



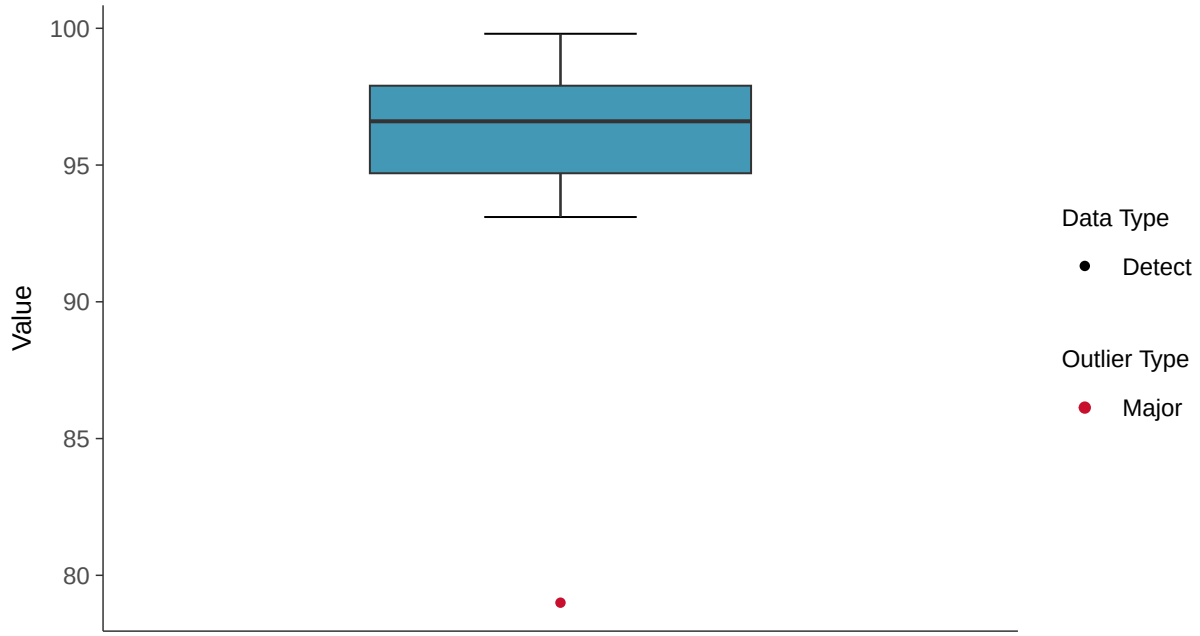
Histogram

Sodium, MW-7C (mg/L)



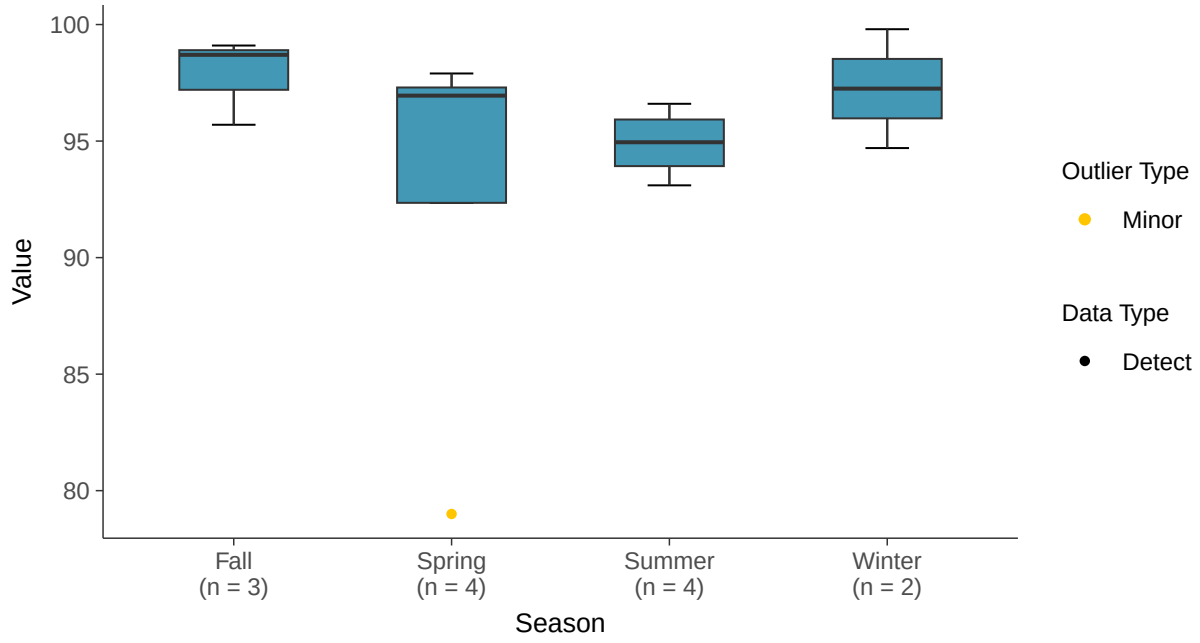
Boxplot

Sodium, MW-7C (mg/L)



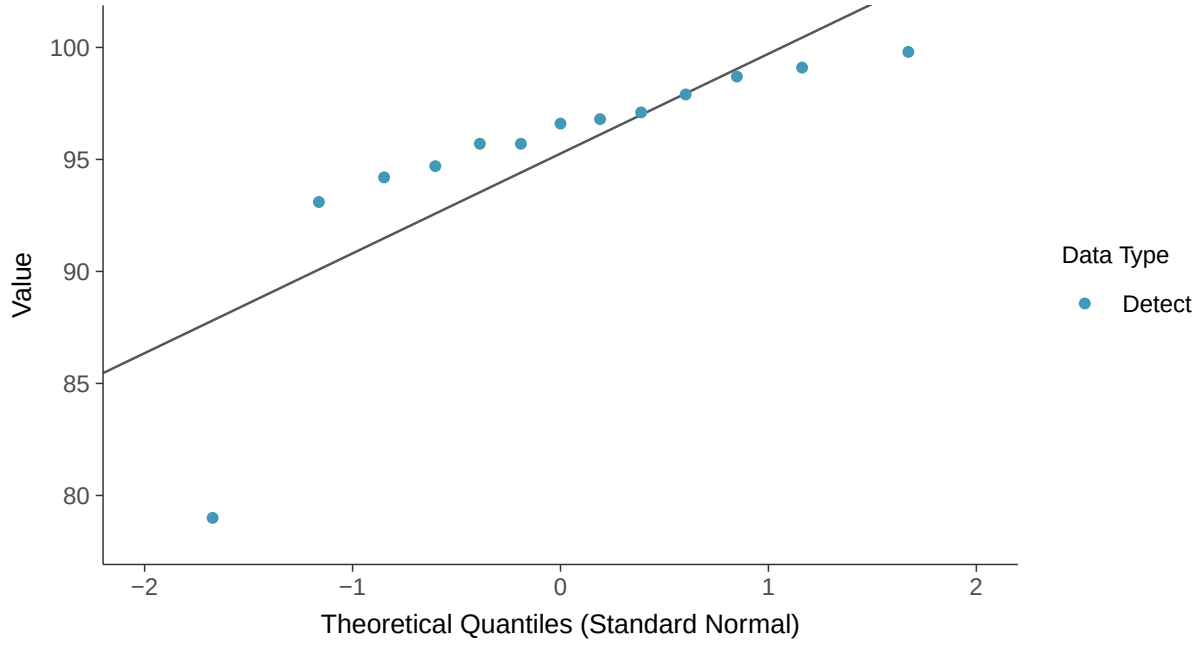
Boxplot by Season

Sodium, MW-7C (mg/L)



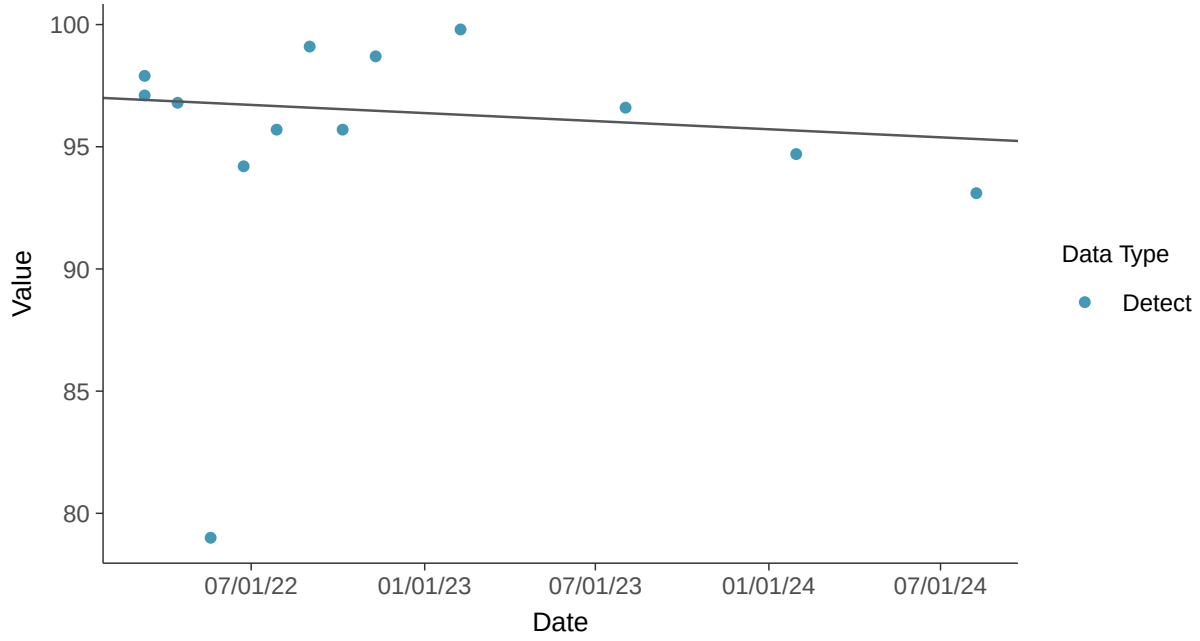
Normal Q-Q plot

Sodium, MW-7C (mg/L)



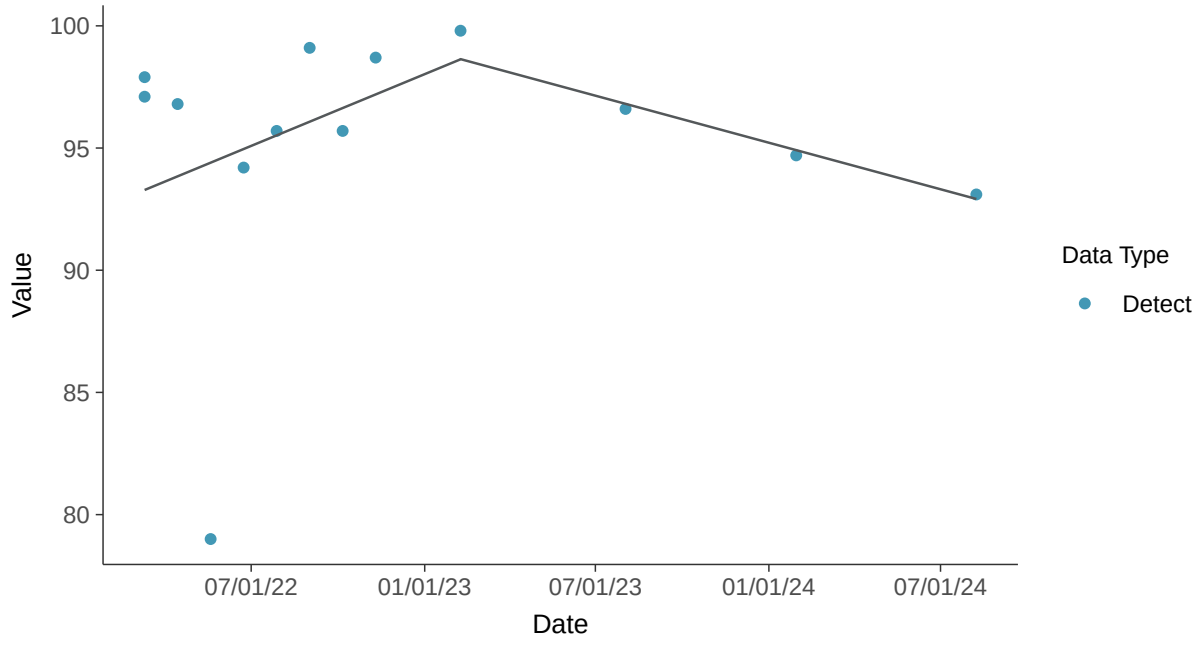
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Sodium, MW-7C (mg/L)



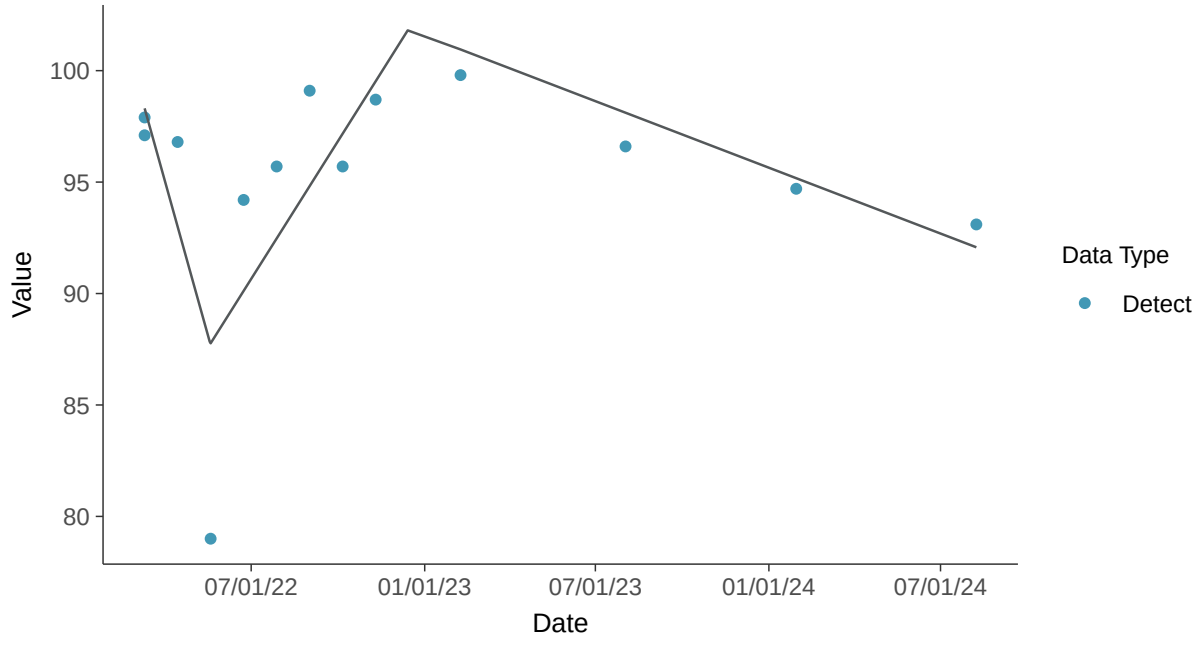
Trend Regression: Piecewise Linear-Linear

Sodium, MW-7C (mg/L)



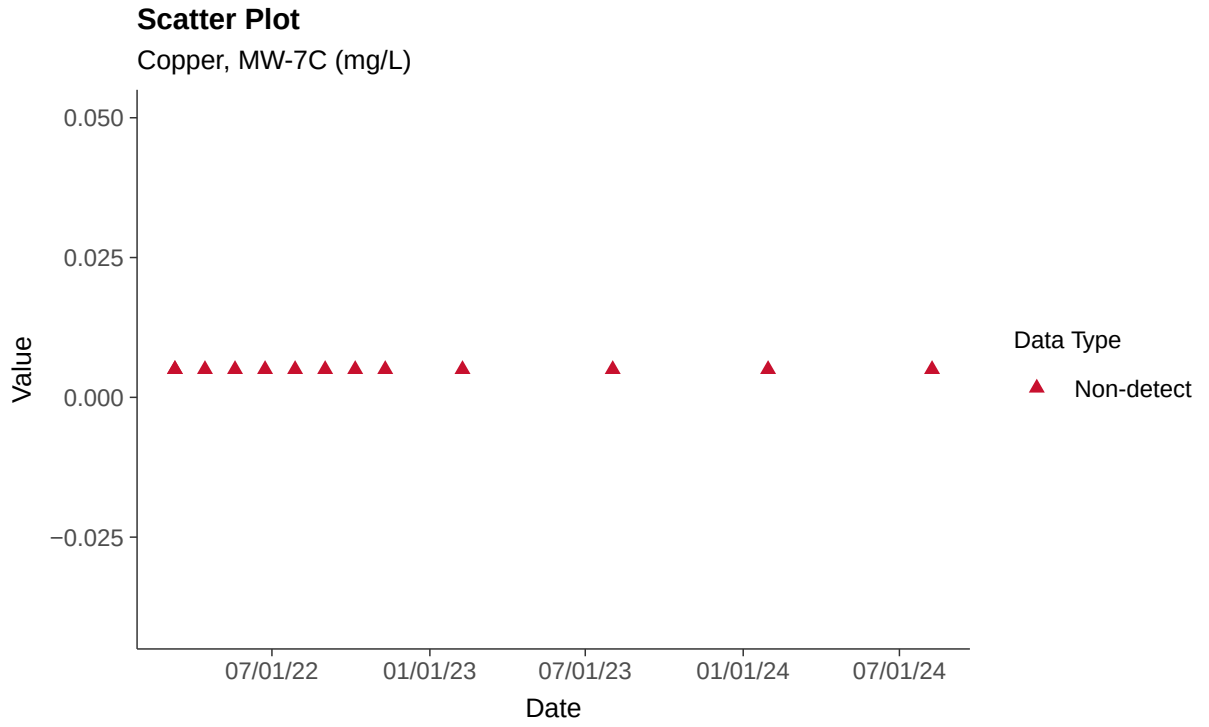
Trend Regression: Piecewise Linear-Linear-Linear

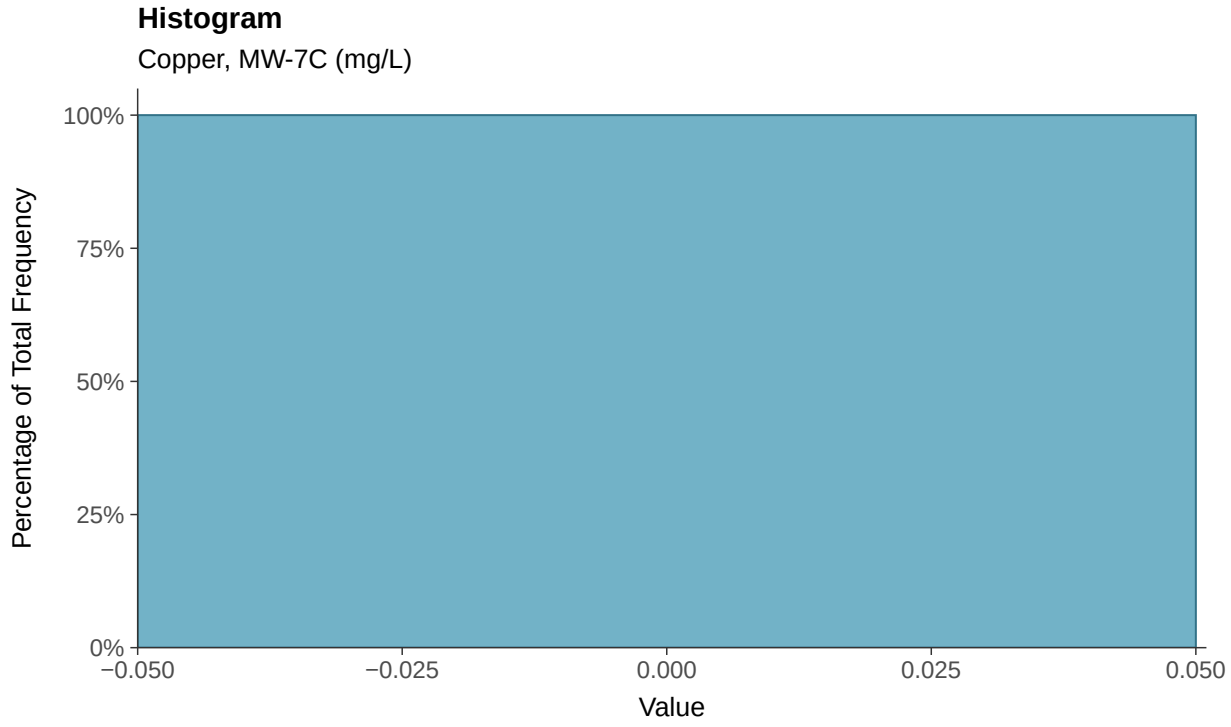
Sodium, MW-7C (mg/L)



Part 115: Copper, MW-7C

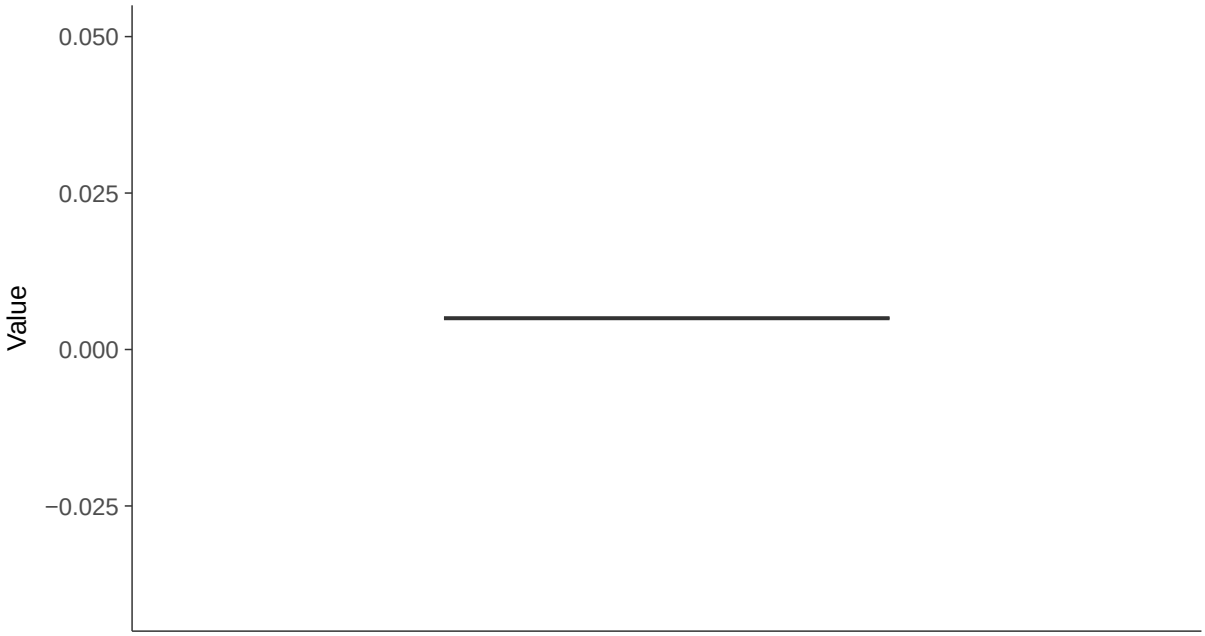
ID: 7C_5_37





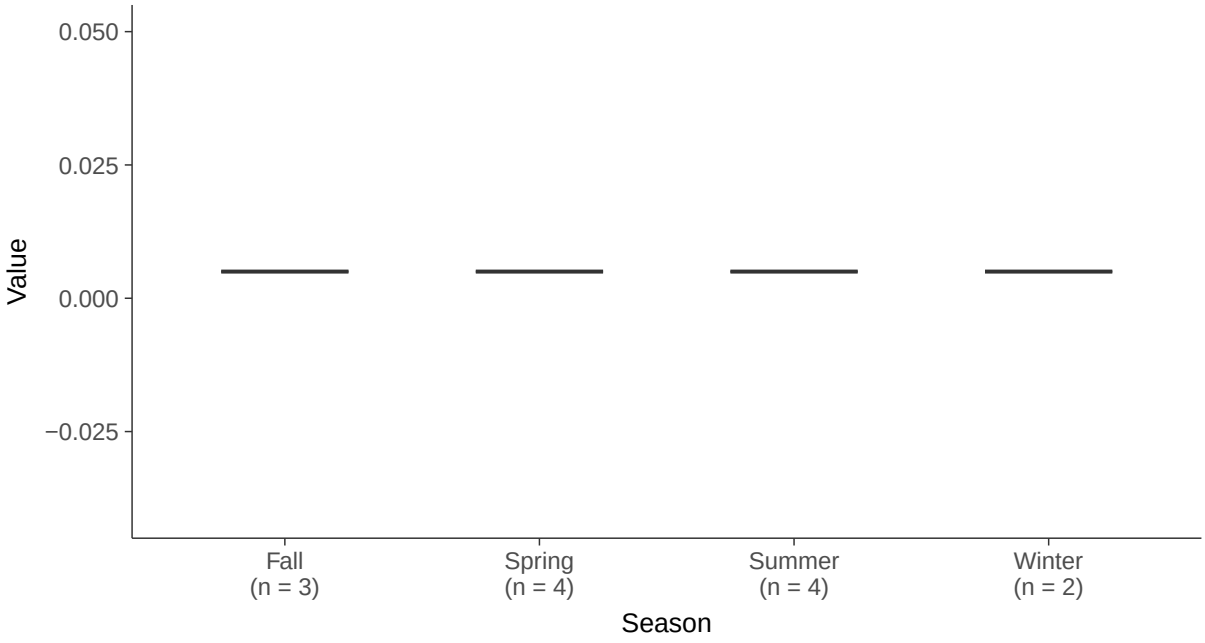
Boxplot

Copper, MW-7C (mg/L)



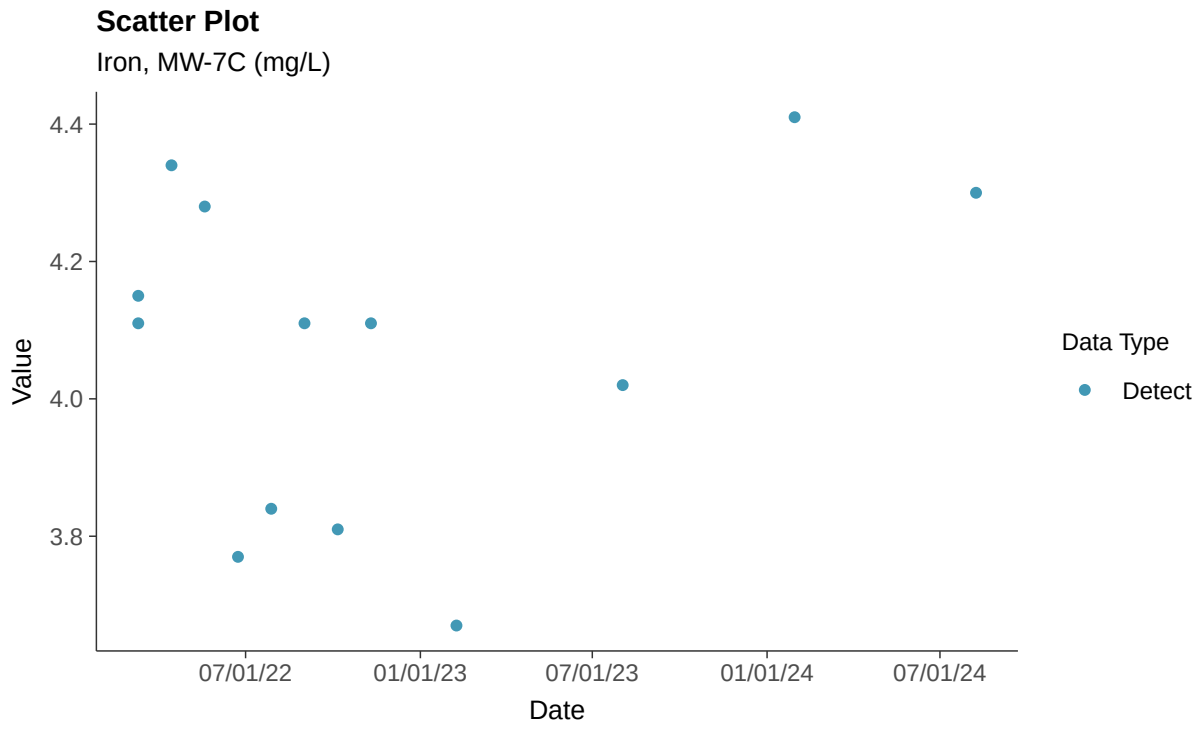
Boxplot by Season

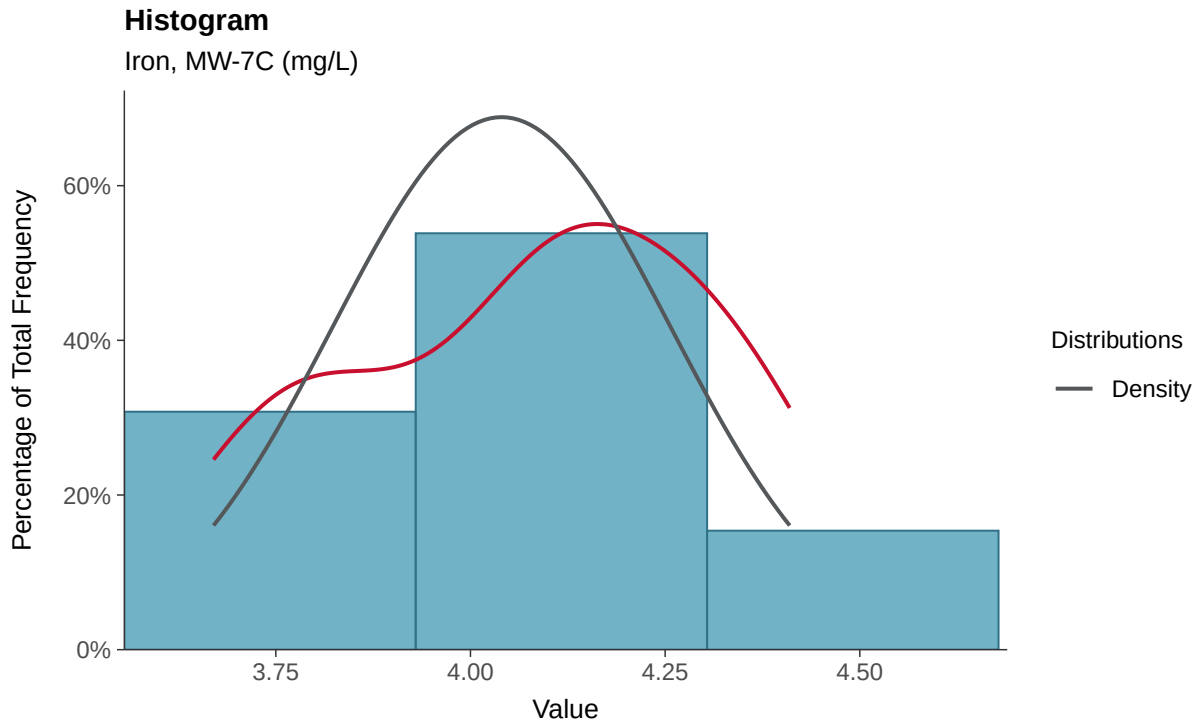
Copper, MW-7C (mg/L)



Part 115: Iron, MW-7C

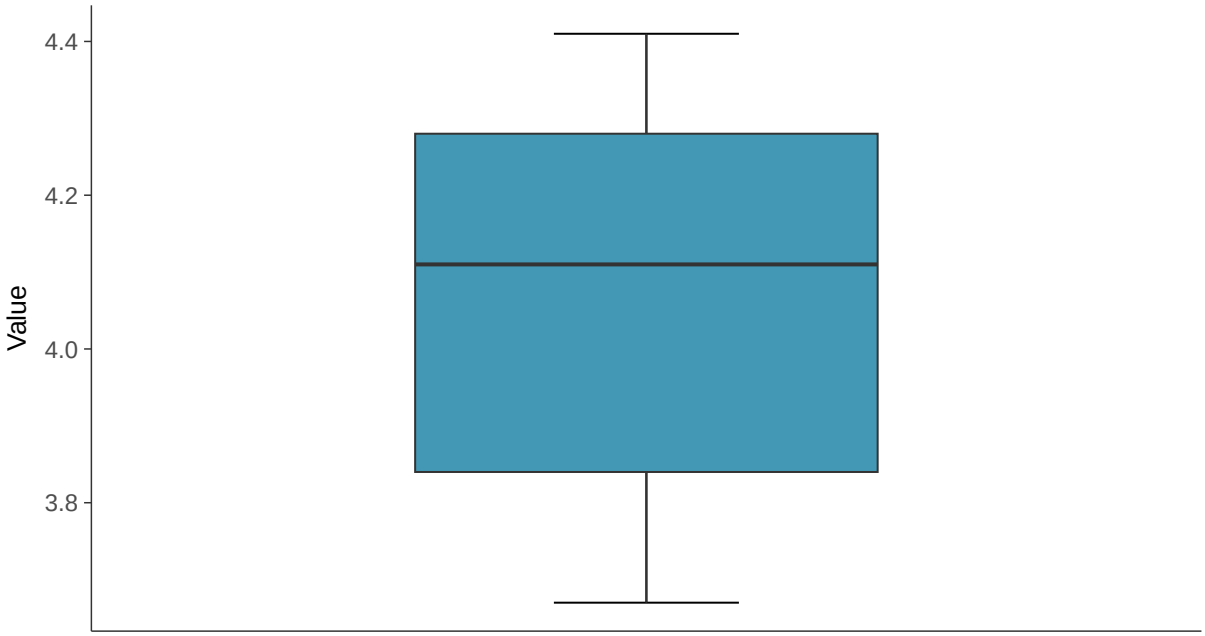
ID: 7C_5_38





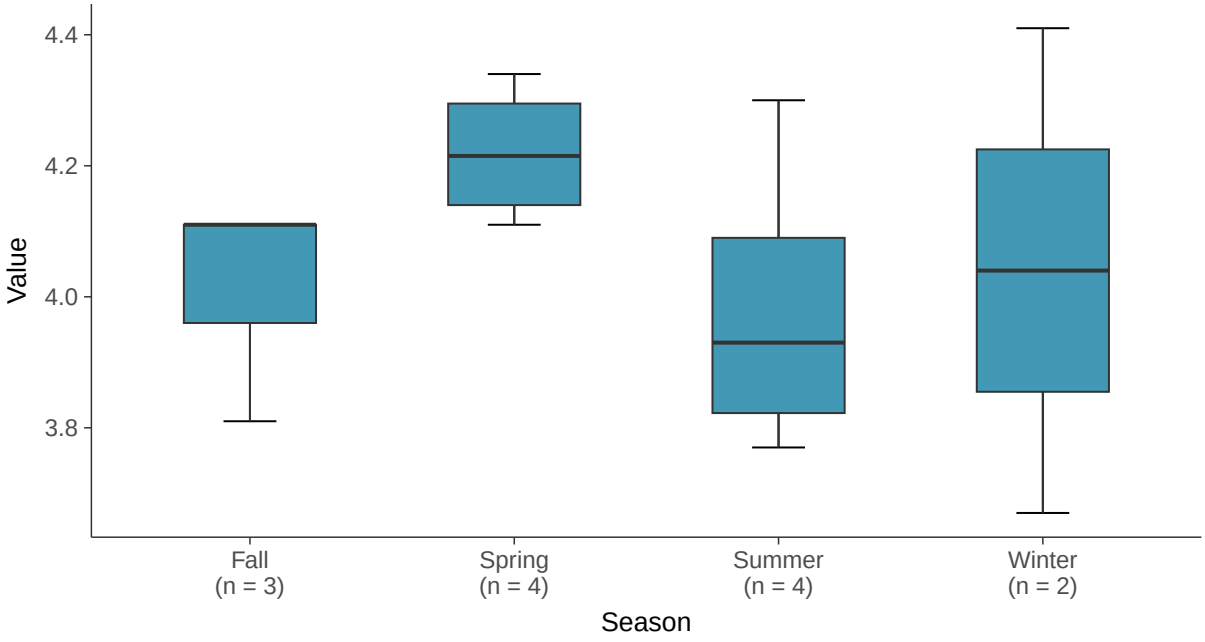
Boxplot

Iron, MW-7C (mg/L)



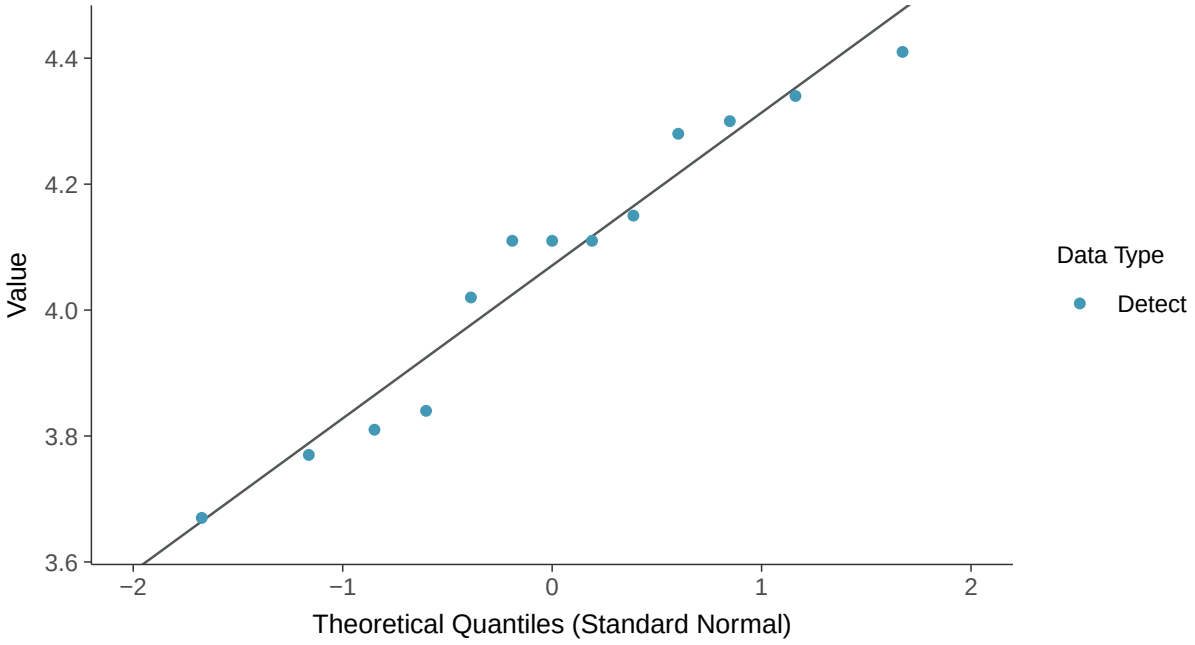
Boxplot by Season

Iron, MW-7C (mg/L)



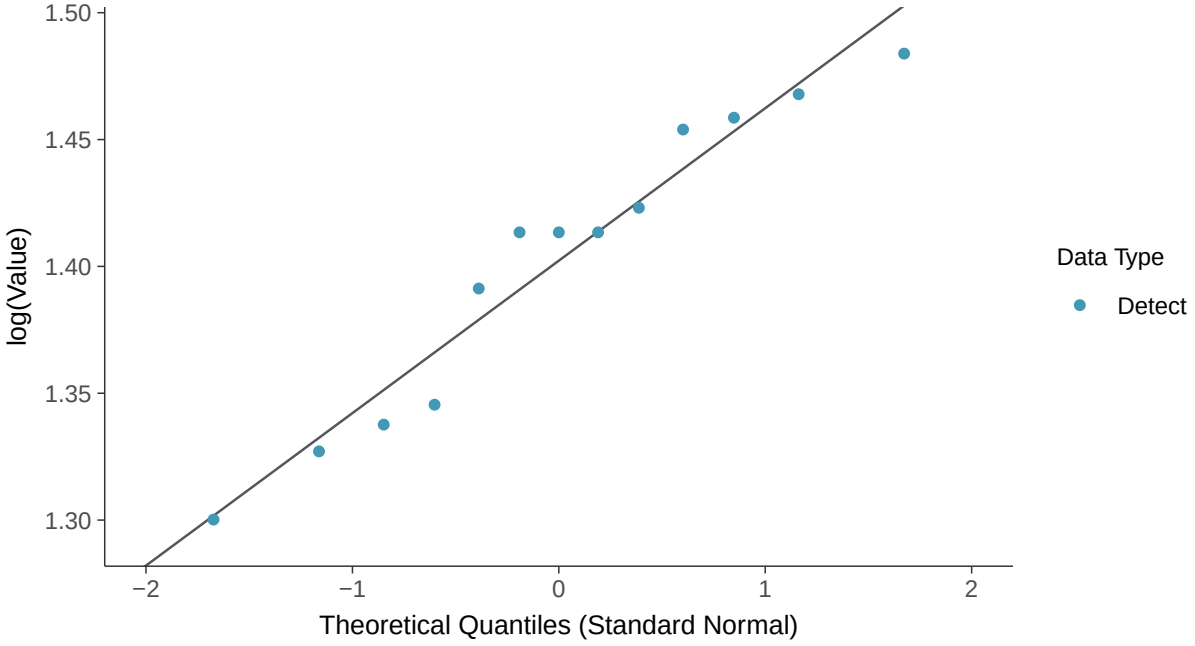
Normal Q-Q plot

Iron, MW-7C (mg/L)



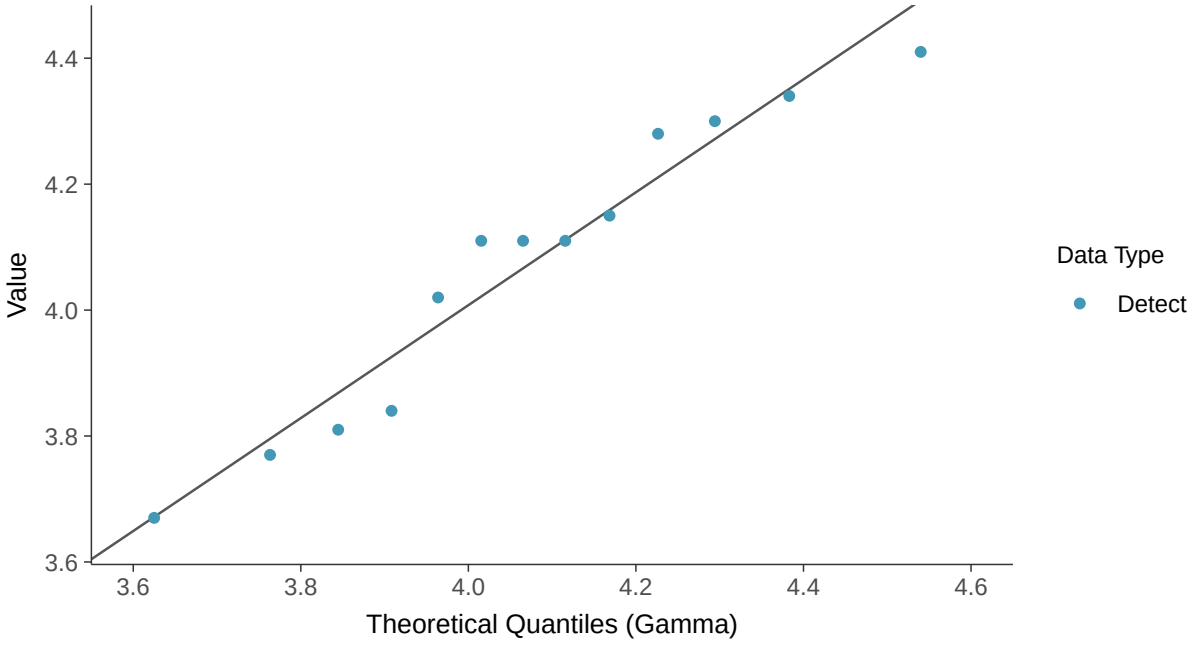
Lognormal Q-Q plot

Iron, MW-7C (mg/L)



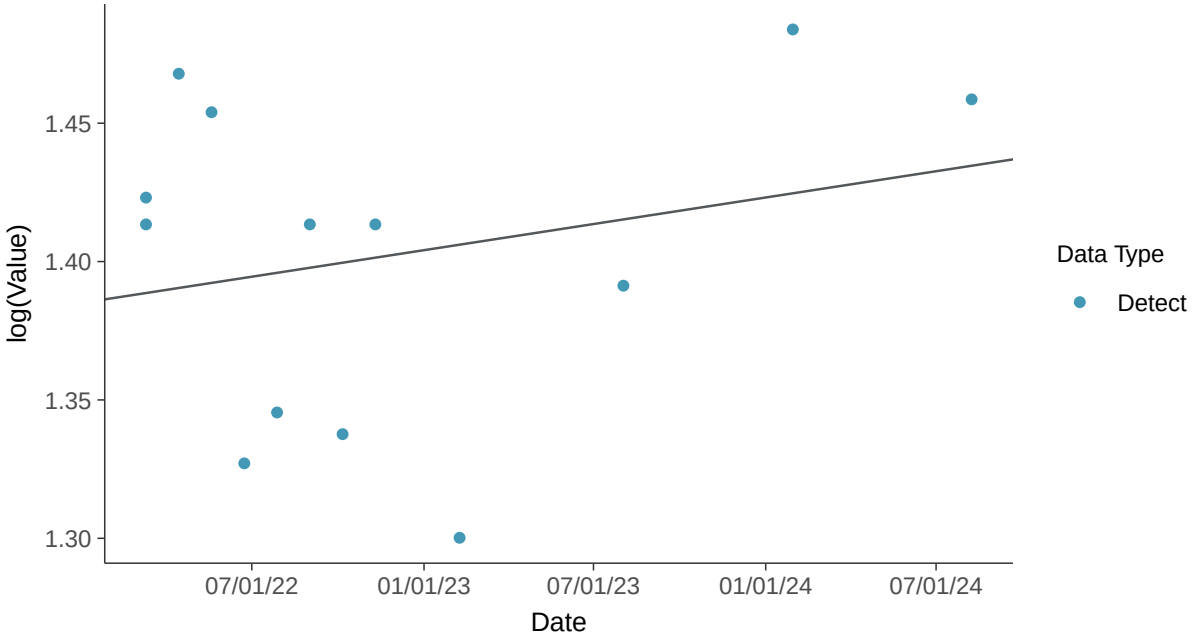
Gamma Q-Q plot

Iron, MW-7C (mg/L)



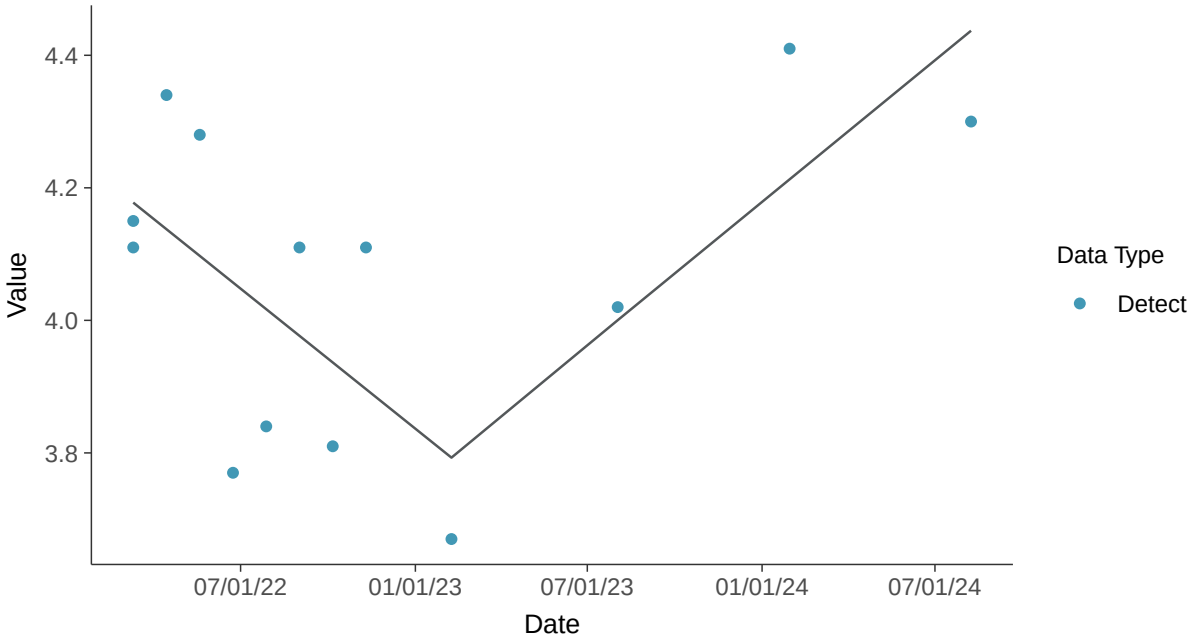
Trend Regression: Lognormal MLE

Iron, MW-7C (mg/L)



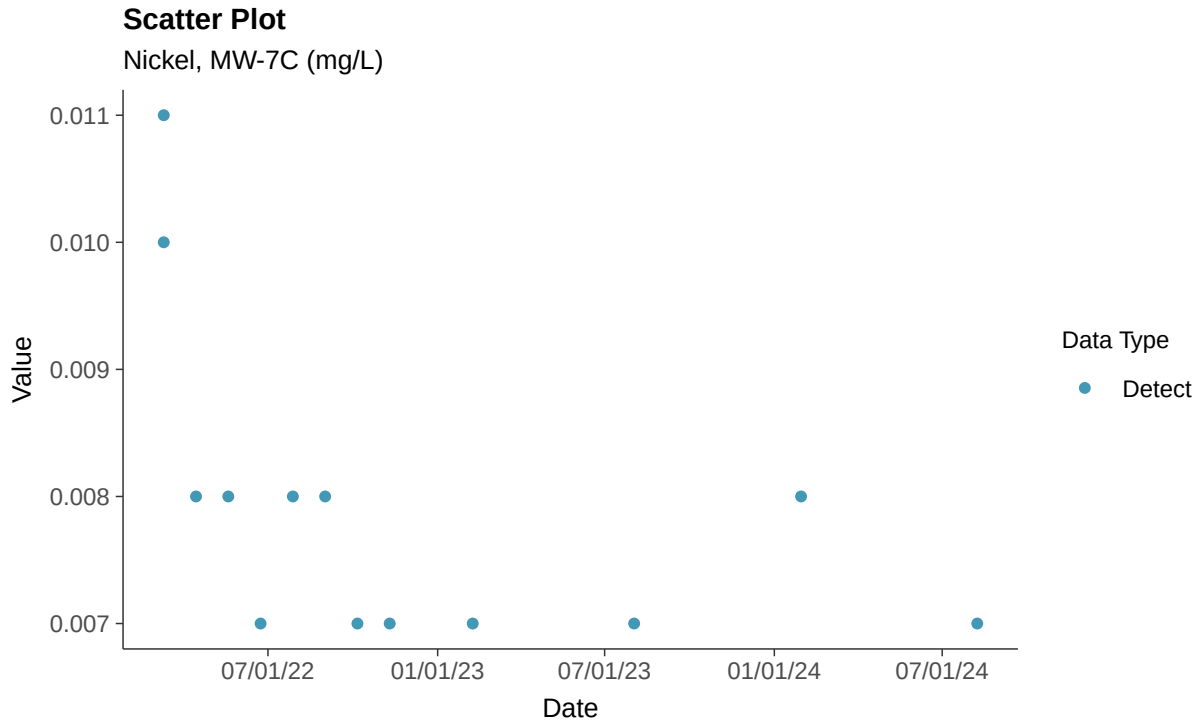
Trend Regression: Piecewise Linear-Linear

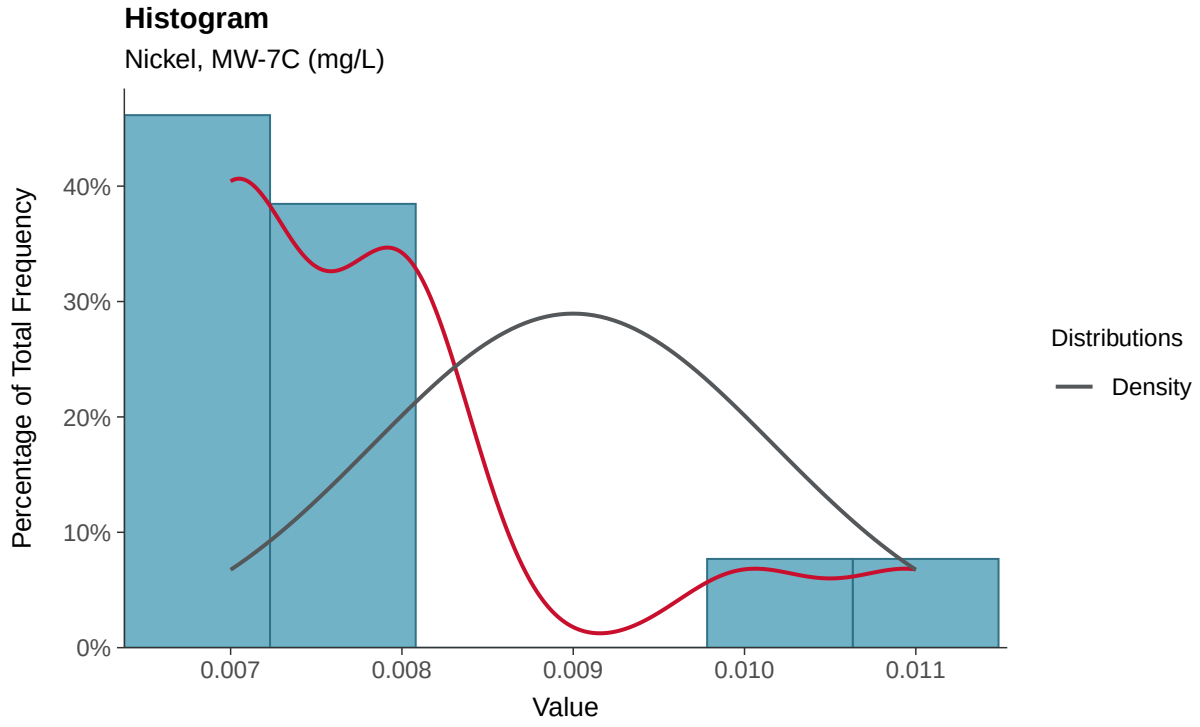
Iron, MW-7C (mg/L)



Part 115: Nickel, MW-7C

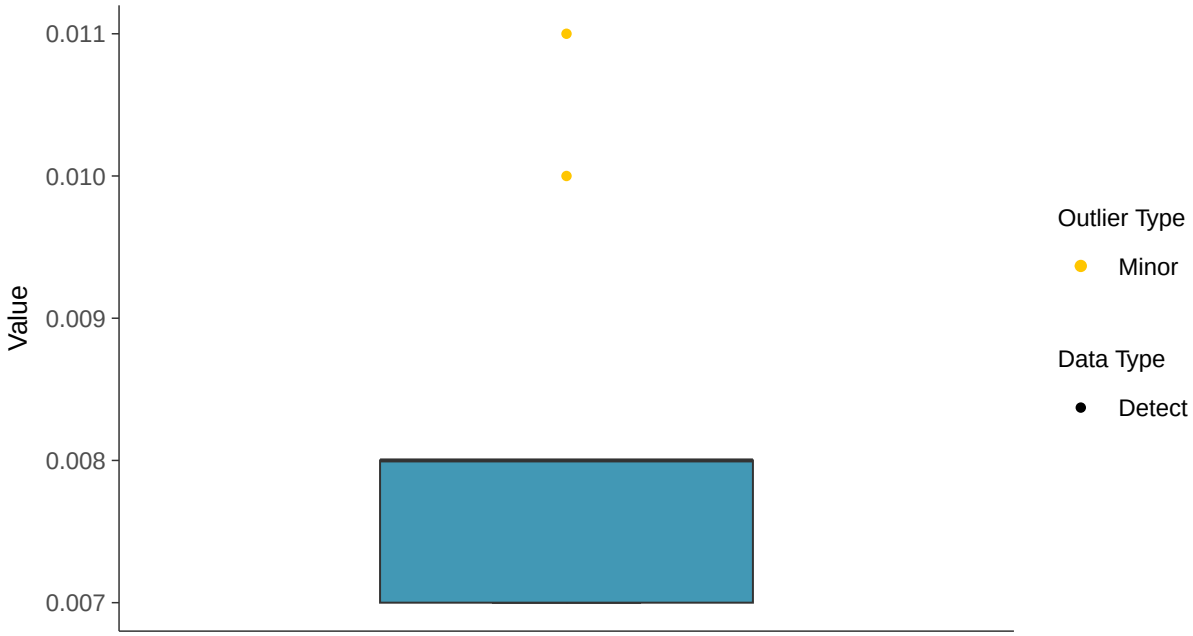
ID: 7C_5_39





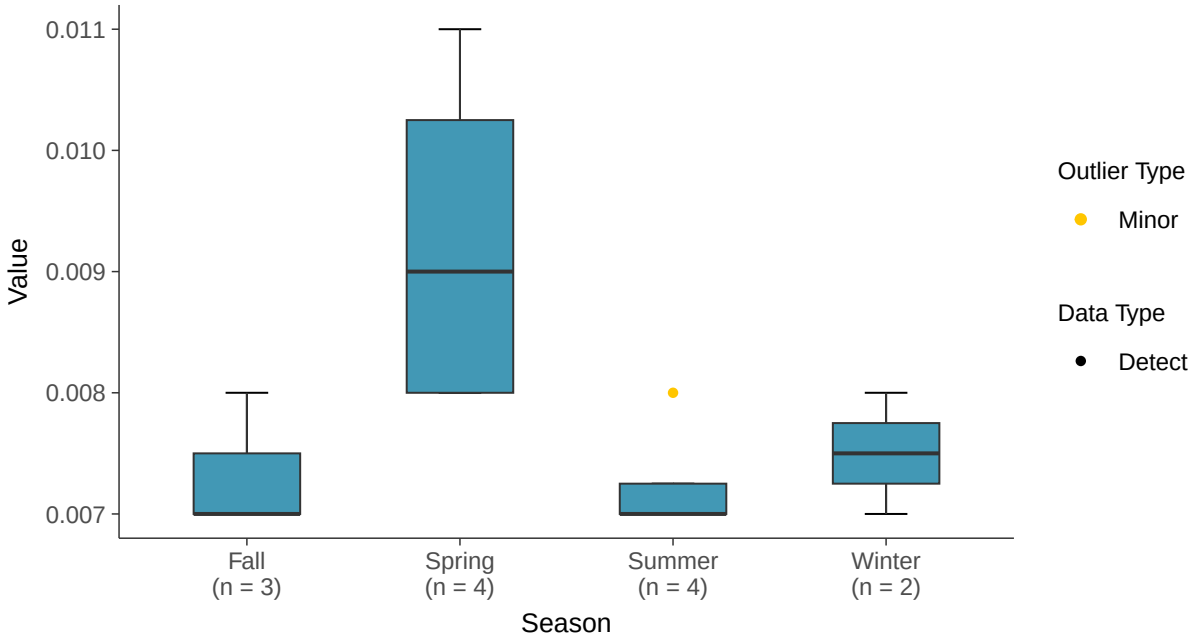
Boxplot

Nickel, MW-7C (mg/L)



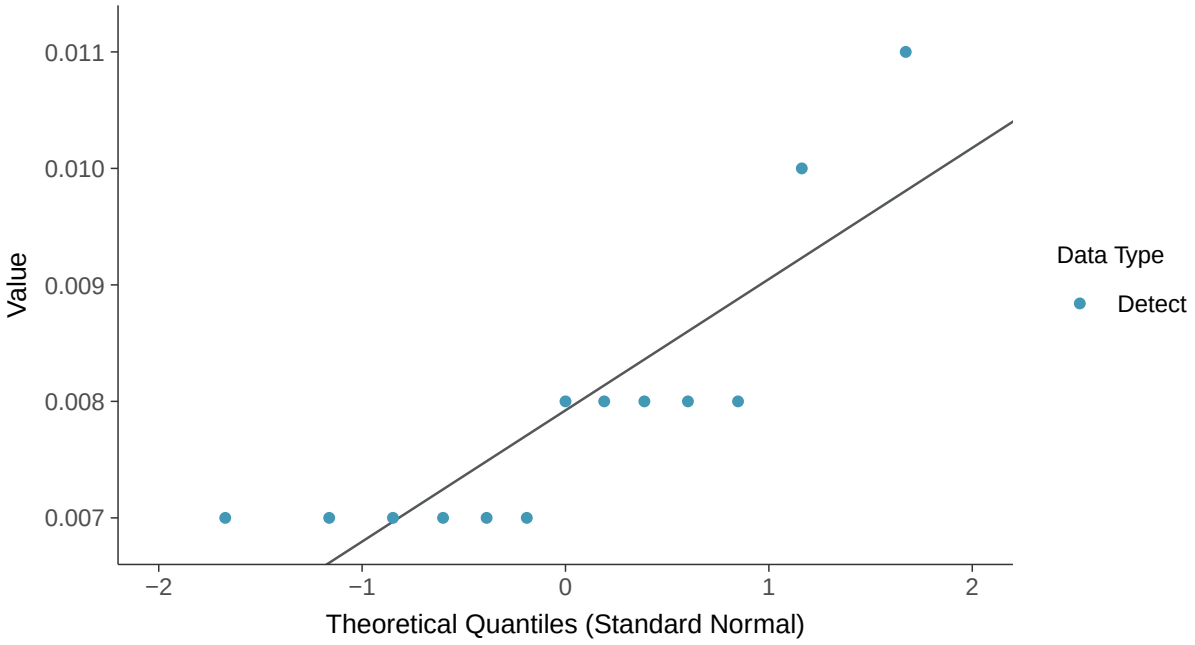
Boxplot by Season

Nickel, MW-7C (mg/L)



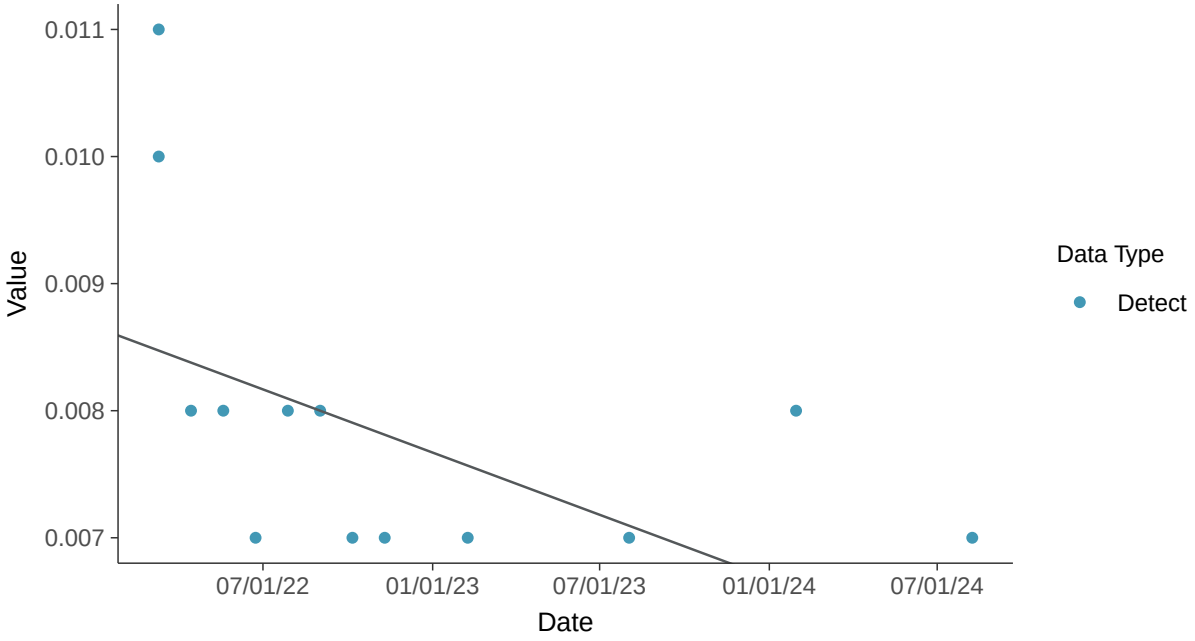
Normal Q-Q plot

Nickel, MW-7C (mg/L)



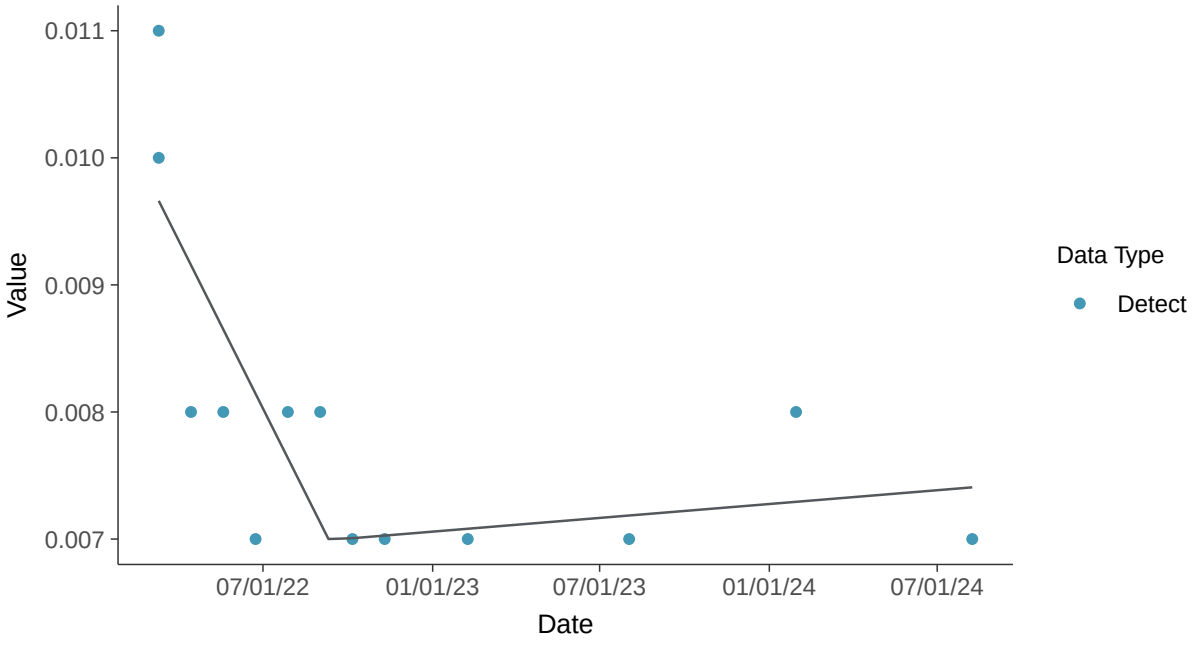
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Nickel, MW-7C (mg/L)



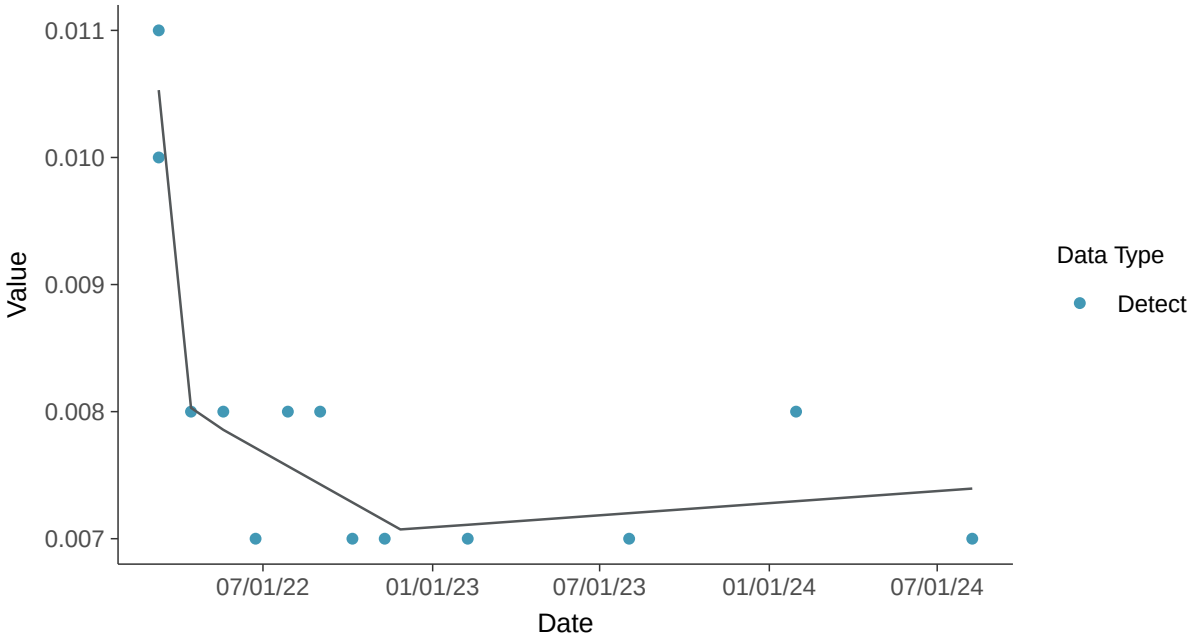
Trend Regression: Piecewise Linear-Linear

Nickel, MW-7C (mg/L)



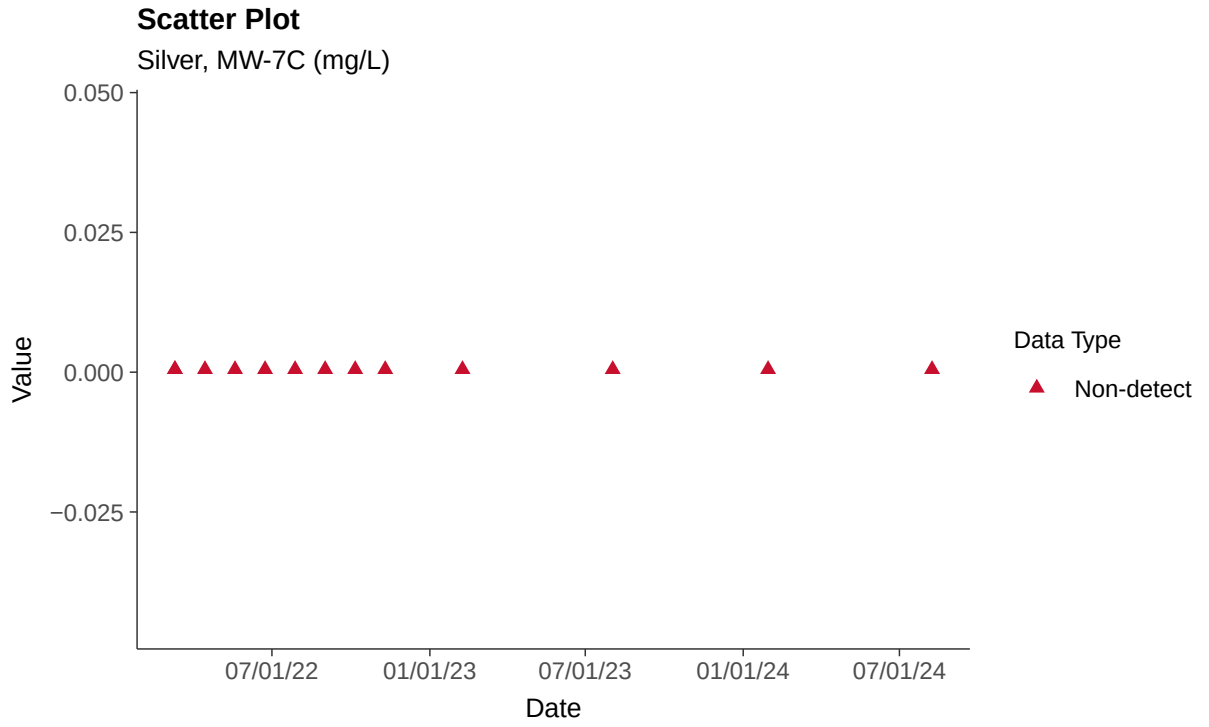
Trend Regression: Piecewise Linear-Linear-Linear

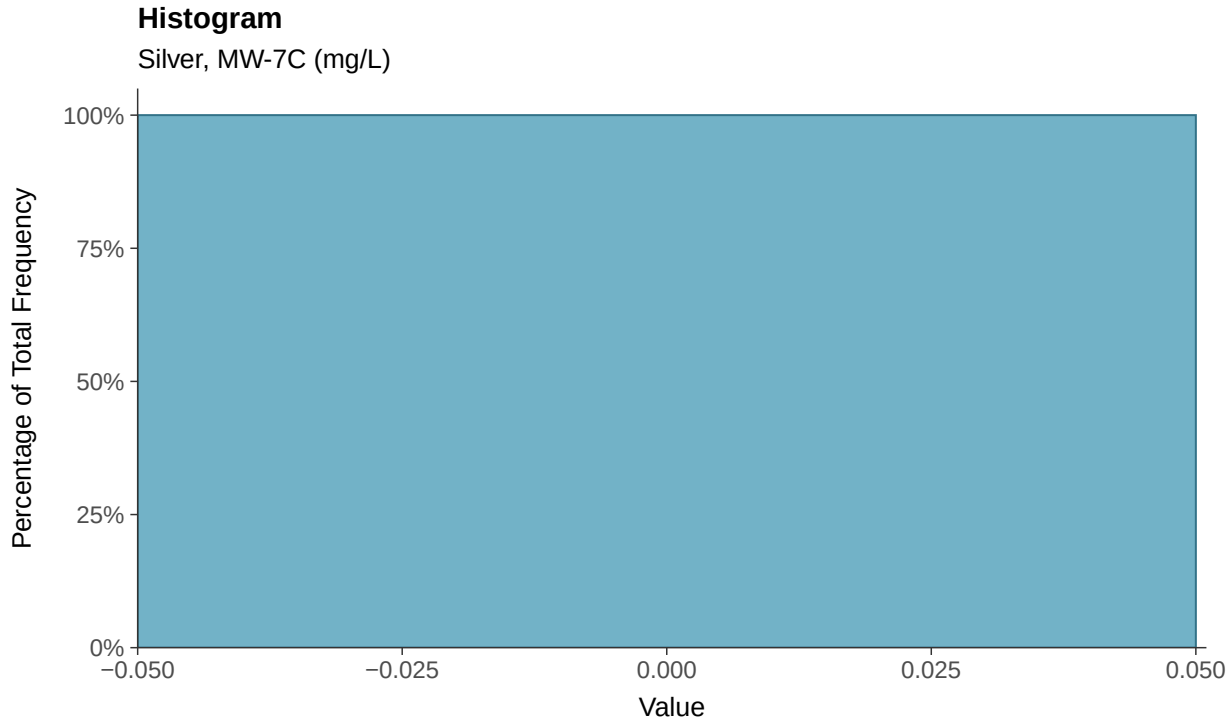
Nickel, MW-7C (mg/L)



Part 115: Silver, MW-7C

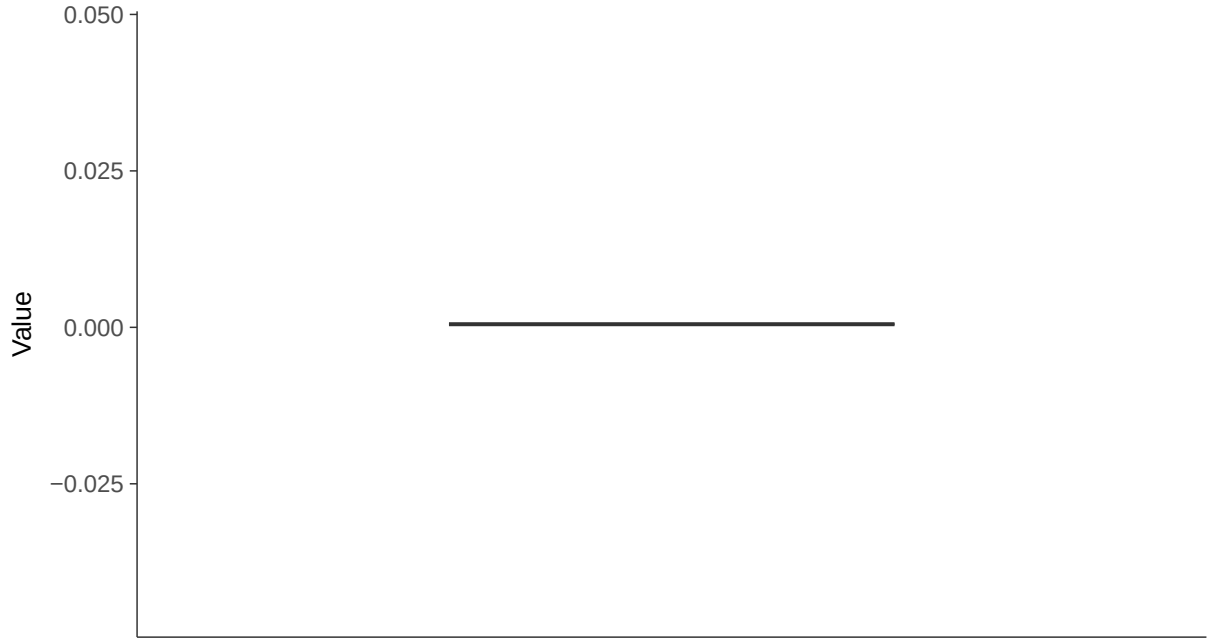
ID: 7C_5_40





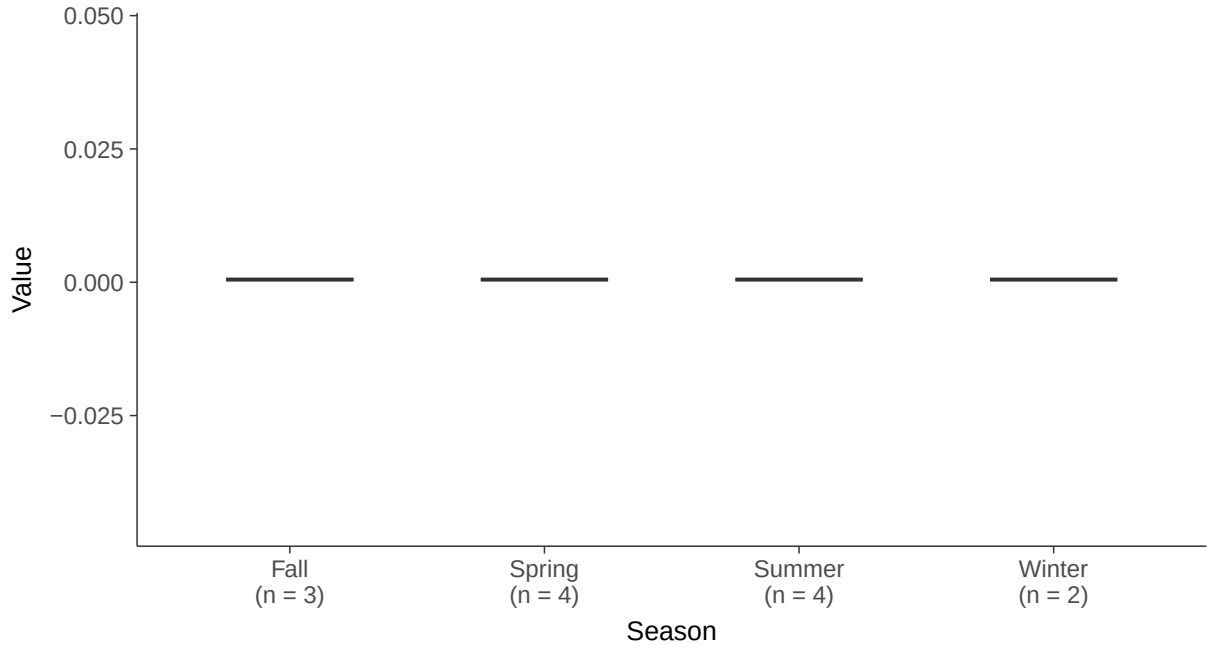
Boxplot

Silver, MW-7C (mg/L)



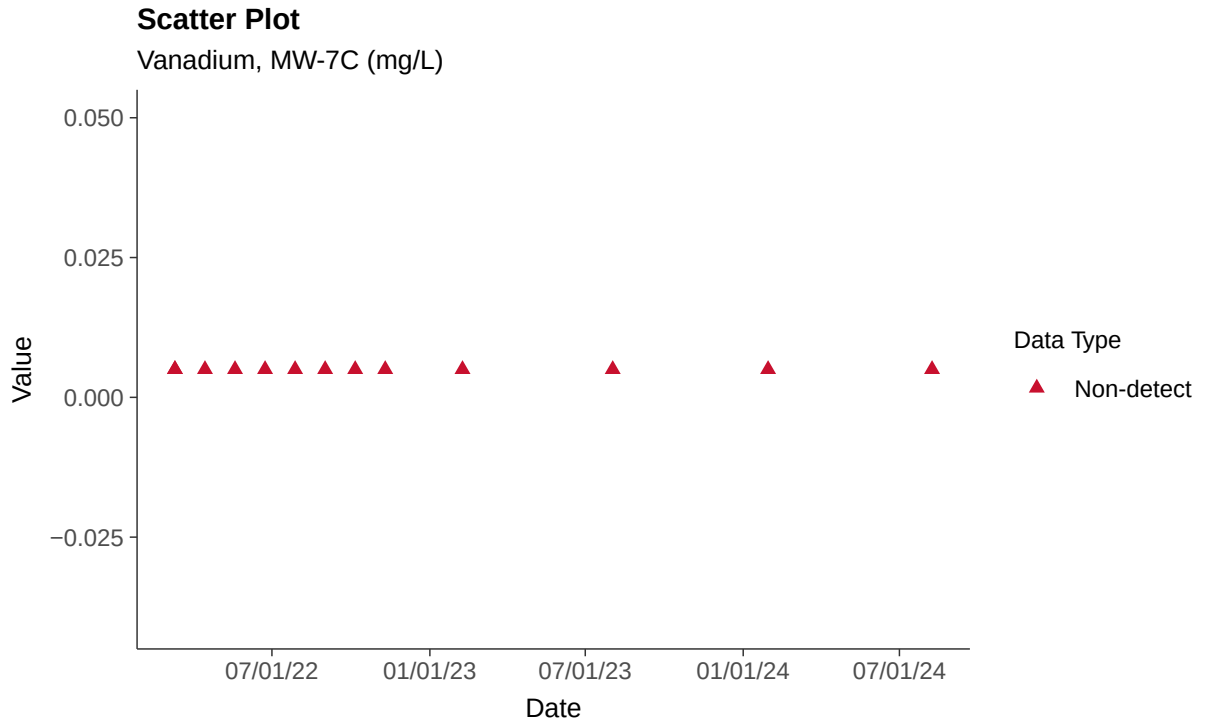
Boxplot by Season

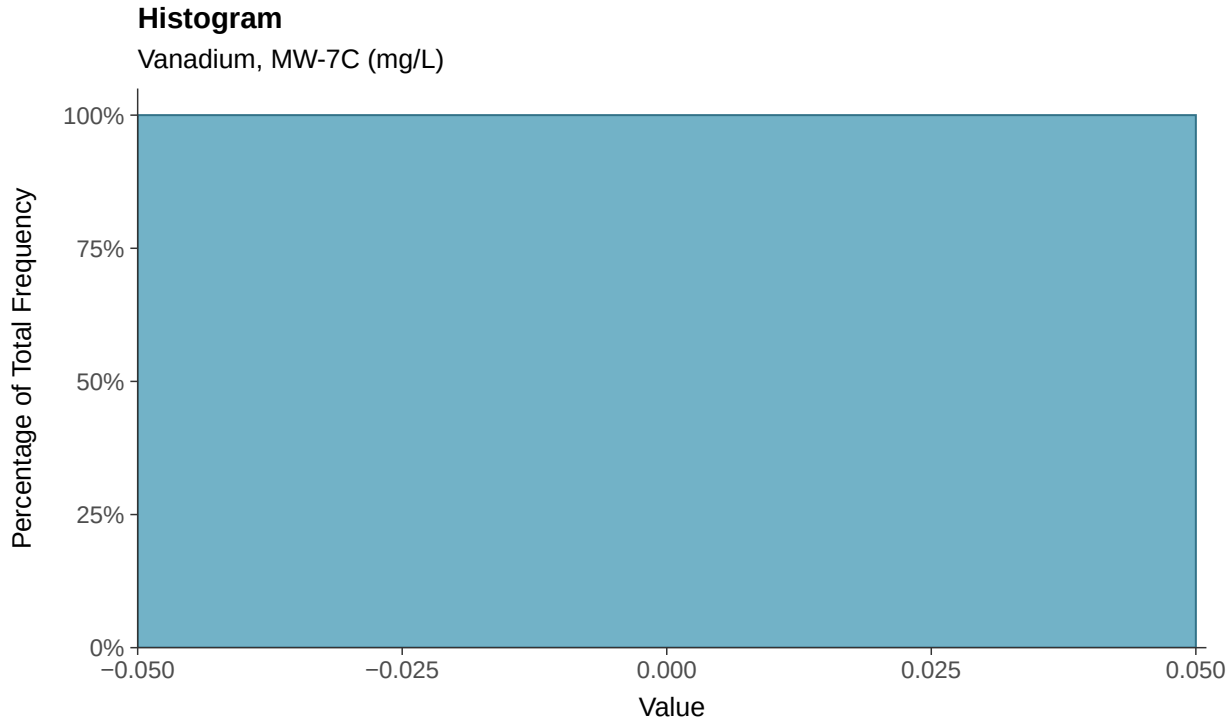
Silver, MW-7C (mg/L)



Part 115: Vanadium, MW-7C

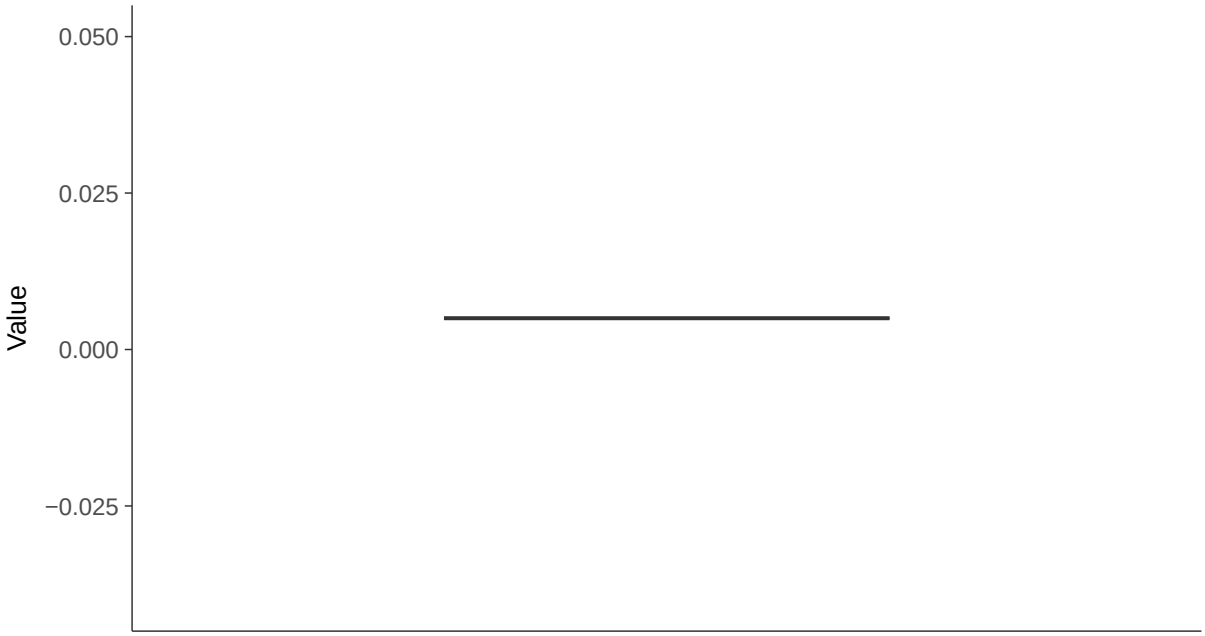
ID: 7C_5_41





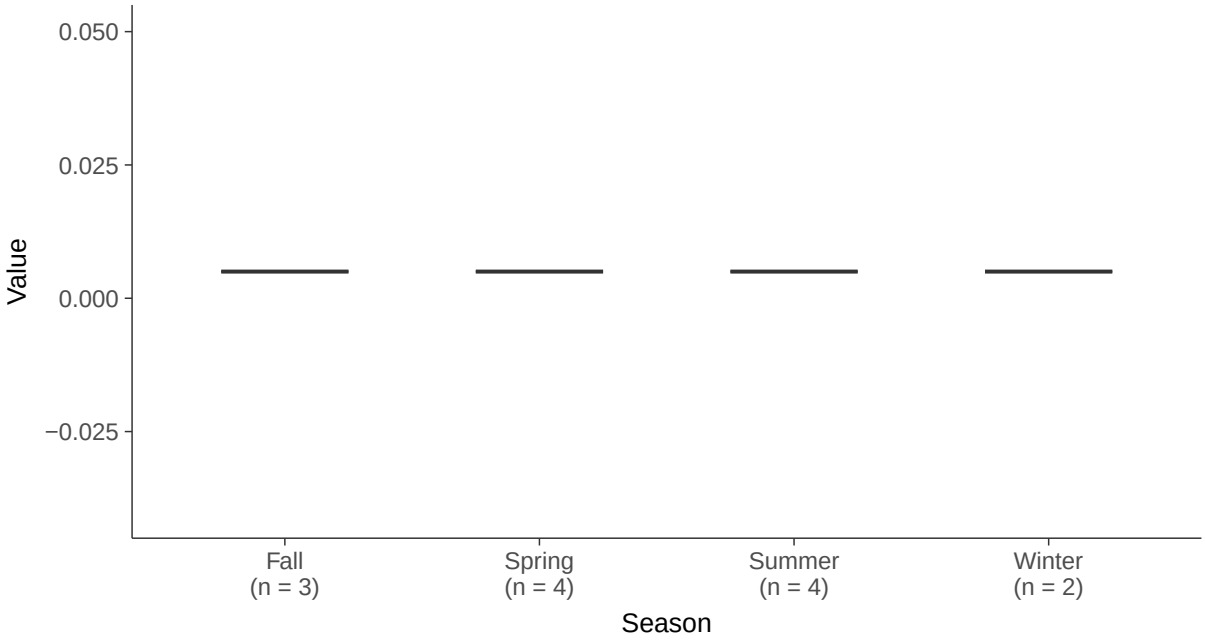
Boxplot

Vanadium, MW-7C (mg/L)



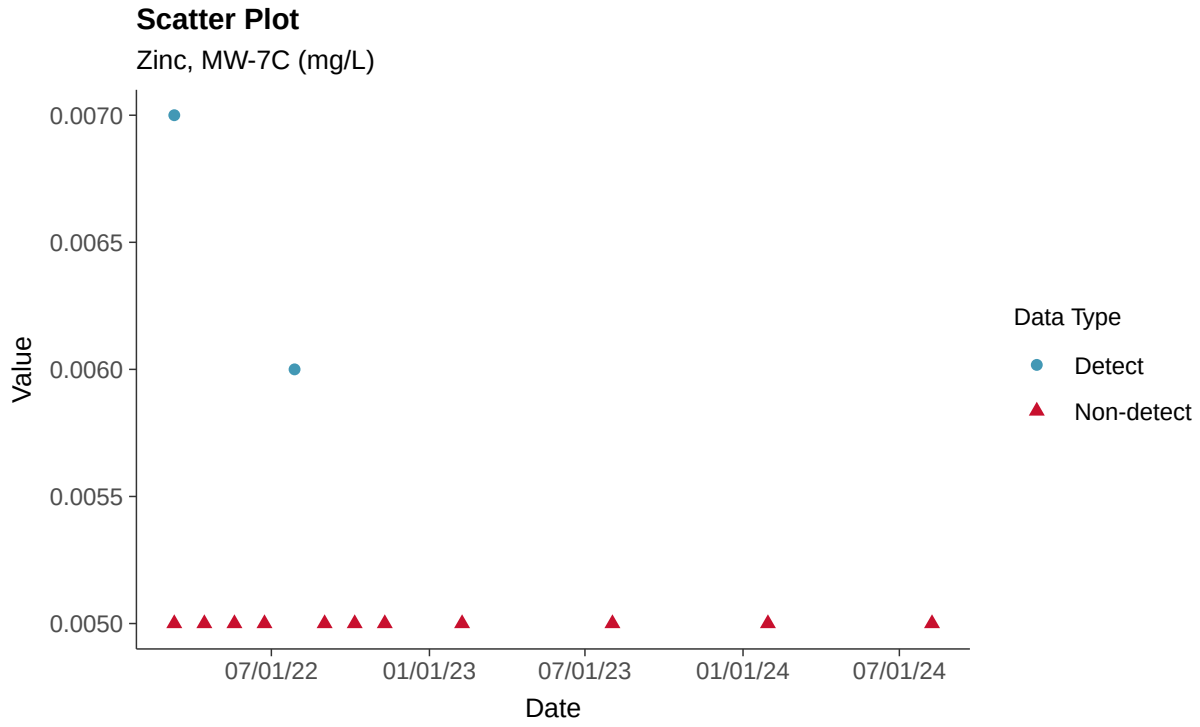
Boxplot by Season

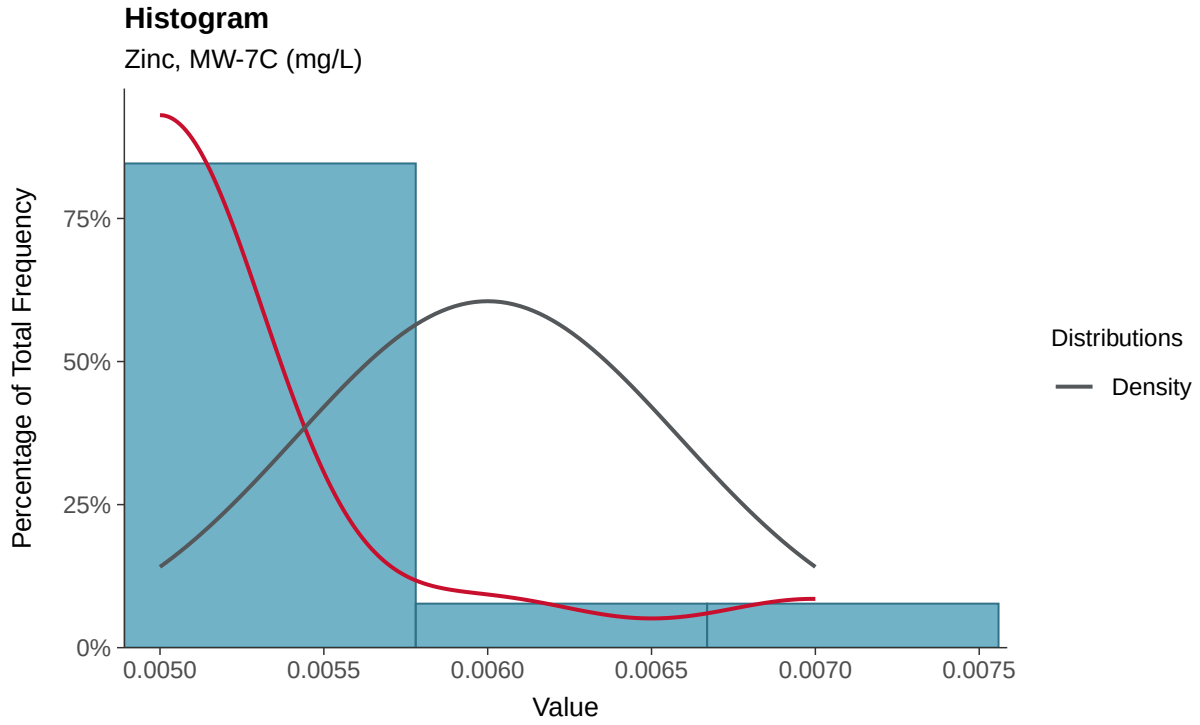
Vanadium, MW-7C (mg/L)



Part 115: Zinc, MW-7C

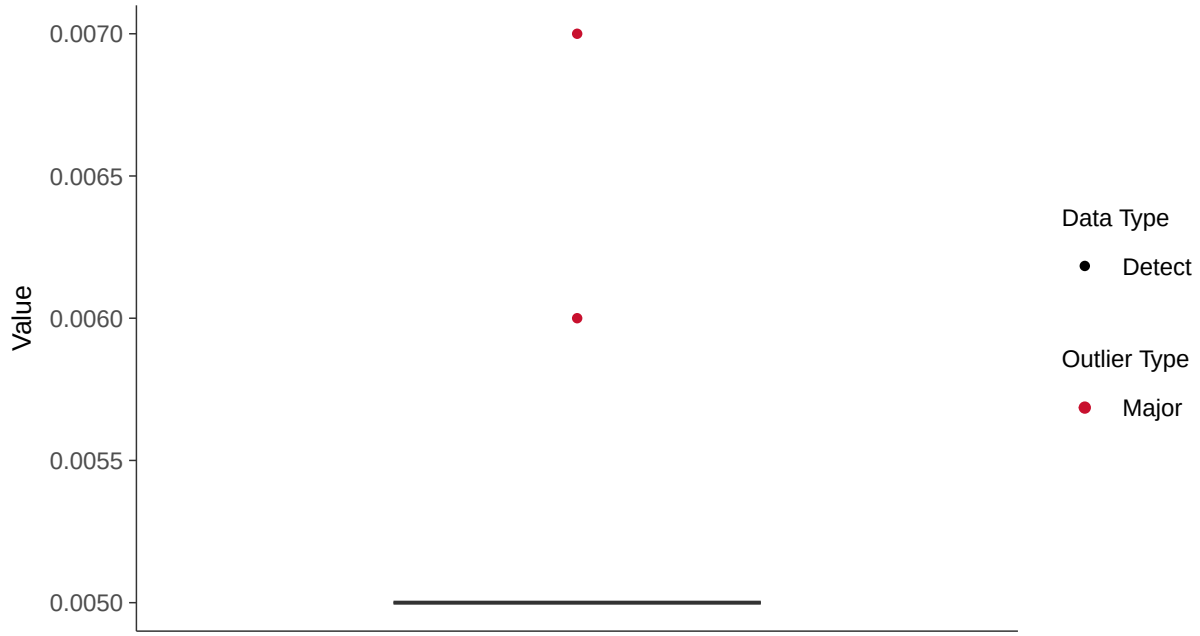
ID: 7C_5_42





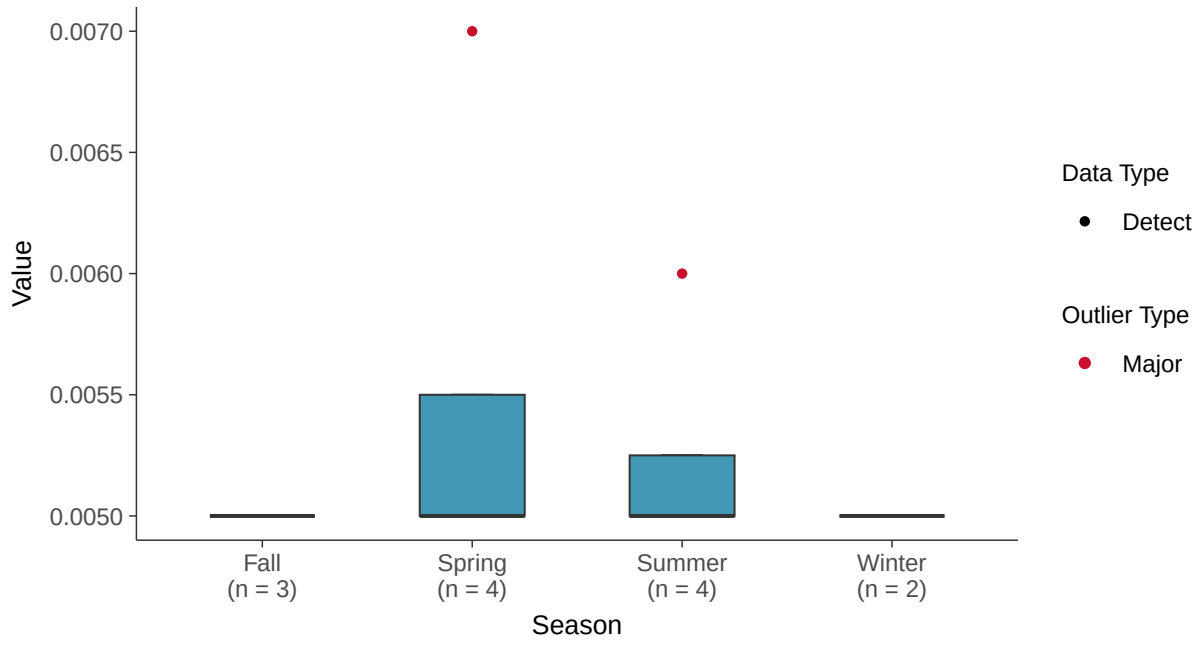
Boxplot

Zinc, MW-7C (mg/L)



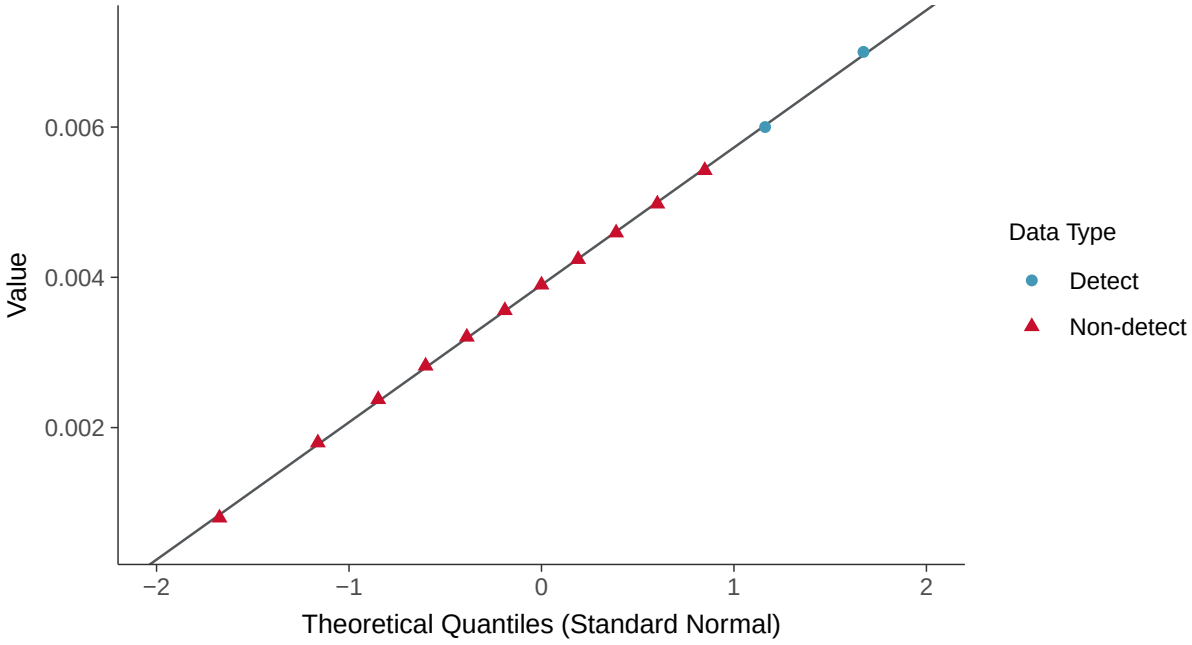
Boxplot by Season

Zinc, MW-7C (mg/L)



Normal Q-Q plot using ROS Imputed Estimates

Zinc, MW-7C (mg/L)



Trend Regression: Piecewise Linear-Linear

Zinc, MW-7C (mg/L)

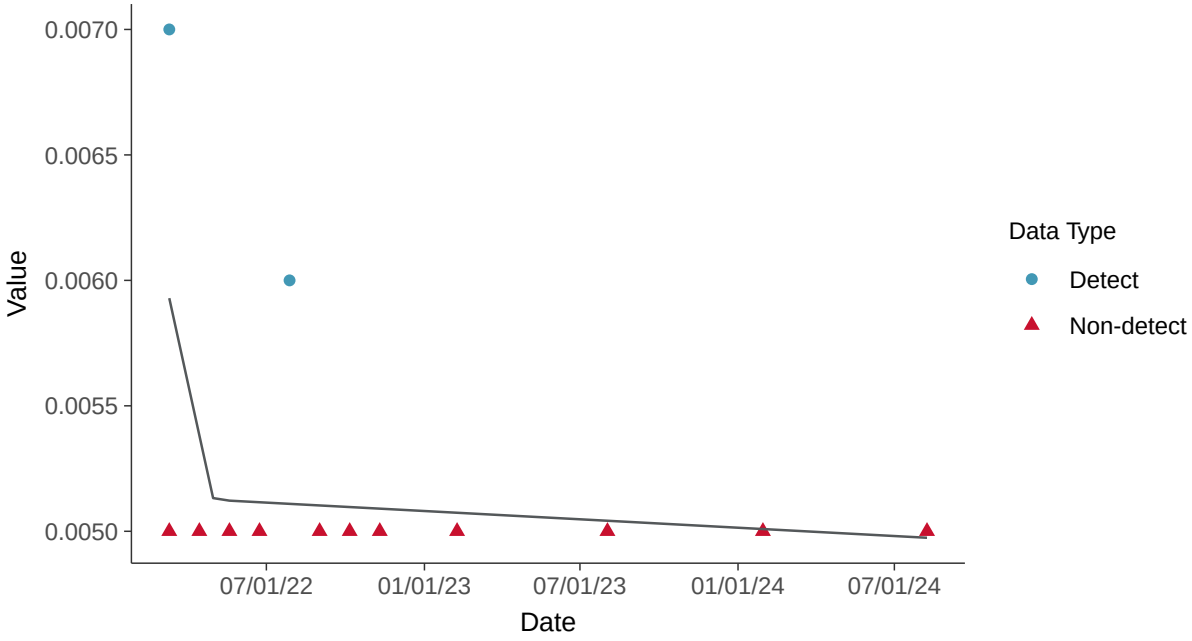


Table 1: Summary Statistics, Non-Detects Included

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
100C_1_01	MW-100C	Appendix III	Boron	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	1.79	1.81	1.54	1.91	0.0966	0.0541	-1.29	2.31
100C_1_02	MW-100C	Appendix III	Calcium	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	59.1	59.5	55.2	61.5	2.02	0.0341	-0.819	-0.353
100C_1_03	MW-100C	Appendix III	Chloride	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	6.17	5.00	4.60	14.0	2.74	0.444	2.27	4.93
100C_1_04	MW-100C	Appendix III	Fluoride	mg/L	14	11	79%	2023-06-05 to 2024-08-07		Nonparametric	0.838	1.00	0.130	1.00	0.324	0.387	-1.63	0.862
100C_1_05	MW-100C	Appendix III	pH, Field	su	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	7.36	7.37	7.23	7.54	0.0923	0.0125	0.322	-0.925
100C_1_06	MW-100C	Appendix III	Sulfate	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	8.57	6.00	4.90	27.0	6.00	0.700	2.60	7.22
100C_1_07	MW-100C	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	301	300	282	314	7.22	0.0240	-0.797	3.48
100C_2_04	MW-100C	Appendix IV	Fluoride	mg/L	14	11	79%	2023-06-05 to 2024-08-07		Nonparametric	0.838	1.00	0.130	1.00	0.324	0.387	-1.63	0.862
100C_2_08	MW-100C	Appendix IV	Antimony	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100C_2_09	MW-100C	Appendix IV	Arsenic	mg/L	14	13	93%	2023-06-05 to 2024-08-07		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
100C_2_10	MW-100C	Appendix IV	Barium	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0765	0.0780	0.0600	0.0920	0.00908	0.119	-0.396	-0.334
100C_2_11	MW-100C	Appendix IV	Beryllium	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
100C_2_12	MW-100C	Appendix IV	Cadmium	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
100C_2_13	MW-100C	Appendix IV	Chromium	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100C_2_14	MW-100C	Appendix IV	Cobalt	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100C_2_15	MW-100C	Appendix IV	Lead	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
100C_2_16	MW-100C	Appendix IV	Lithium	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0319	0.0320	0.0280	0.0350	0.00182	0.0569	-0.685	0.924
100C_2_17	MW-100C	Appendix IV	Mercury	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
100C_2_18	MW-100C	Appendix IV	Molybdenum	mg/L	14	11	79%	2023-06-05 to 2024-08-07		Nonparametric	0.00571	0.00500	0.00500	0.00900	0.00149	0.261	1.87	2.09
100C_2_21	MW-100C	Appendix IV	Radium-226/228	pCi/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	1.33	1.28	0.369	3.25	0.730	0.549	1.32	2.83
100C_2_22	MW-100C	Appendix IV	Selenium	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100C_2_23	MW-100C	Appendix IV	Thallium	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
100C_3_24	MW-100C	Field Parameters	pH	su	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	7.36	7.37	7.23	7.54	0.0923	0.0125	0.322	-0.925
100C_3_25	MW-100C	Field Parameters	Conductivity	mS/cm	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.528	0.529	0.512	0.544	0.0104	0.0197	-0.207	-1.21
100C_3_26	MW-100C	Field Parameters	Turbidity	NTU	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	3.46	4.15	0.0200	5.89	2.22	0.641	-0.538	-1.44
100C_3_27	MW-100C	Field Parameters	Dissolved Oxygen	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	0.0557	0	0	0.230	0.0958	1.72	1.46	0.299
100C_3_28	MW-100C	Field Parameters	Temperature	°C	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	12.3	12.3	10.2	14.1	1.41	0.114	-0.0786	-1.41
100C_3_29	MW-100C	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	2023-06-05 to 2024-08-07	Normal	Normal	-113	-113	-134	-89.9	15	-0.132	0.155	-0.870
100C_4_30	MW-100C	Other	Total Suspended Solids	mg/L	14	5	36%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	2.57	2.30	0.900	8.90	2.01	0.780	2.66	8.45
100C_4_31	MW-100C	Other	Bicarbonate	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	325	340	100	360	66	0.203	-3.53	12.8
100C_4_32	MW-100C	Other	Carbonate	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
100C_4_33	MW-100C	Other	Hardness	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	226	232	200	238	12.7	0.0563	-1.04	-0.0967
100C_4_34	MW-100C	Other	Magnesium	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	18.9	19.1	17.3	20.2	0.866	0.0459	-0.432	-0.621
100C_4_35	MW-100C	Other	Potassium	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	6.62	6.66	6.03	6.99	0.293	0.0442	-0.781	0.0862
100C_4_36	MW-100C	Other	Sodium	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	31.4	29.4	25.7	44.1	5.11	0.163	1.34	1.63
100C_5_37	MW-100C	Part 115	Copper	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100C_5_38	MW-100C	Part 115	Iron	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Normal	Normal	0.676	0.660	0.310	1.00	0.166	0.246	0.168	2.04
100C_5_39	MW-100C	Part 115	Nickel	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100C_5_40	MW-100C	Part 115	Silver	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
100C_5_41	MW-100C	Part 115	Vanadium	mg/L	14	14	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100C_5_42	MW-100C	Part 115	Zinc	mg/L	14	13	93%	2023-06-05 to 2024-08-07		Nonparametric	0.00536	0.00500	0.00500	0.0100	0.00134	0.249	3.74	14.0
100D_1_01	MW-100D	Appendix III	Boron	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	3.10	3.23	1.89	3.45	0.489	0.158	-2.34	5.75

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
100D_1_02	MW-100D	Appendix III	Calcium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	13.4	6.27	5.26	56.5	16.8	1.25	2.62	7.04
100D_1_03	MW-100D	Appendix III	Chloride	mg/L	9	4	44%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	6.18	5.00	4.20	13.1	2.98	0.483	2.02	3.57
100D_1_04	MW-100D	Appendix III	Fluoride	mg/L	9	5	56%	2023-06-05 to 2024-08-07		Nonparametric	0.743	1.00	0.300	1.00	0.310	0.417	-0.399	-2.19
100D_1_05	MW-100D	Appendix III	pH, Field	su	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	7.79	7.82	7.21	8.22	0.302	0.0388	-0.612	0.464
100D_1_06	MW-100D	Appendix III	Sulfate	mg/L	9	1	11%	2023-06-05 to 2024-08-07	Lognormal	Lognormal	17.4	10.0	5.00	60.5	17.9	1.03	2.18	4.70
100D_1_07	MW-100D	Appendix III	Total Dissolved Solids	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	419	392	366	584	68.7	0.164	2.13	4.63
100D_2_04	MW-100D	Appendix IV	Fluoride	mg/L	9	5	56%	2023-06-05 to 2024-08-07		Nonparametric	0.743	1.00	0.300	1.00	0.310	0.417	-0.399	-2.19
100D_2_08	MW-100D	Appendix IV	Antimony	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100D_2_09	MW-100D	Appendix IV	Arsenic	mg/L	9	2	22%	2023-06-05 to 2024-08-07		Nonparametric	0.00278	0.00300	0.00200	0.00300	0.000441	0.159	-1.62	0.735
100D_2_10	MW-100D	Appendix IV	Barium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0106	0.0100	0.00700	0.0190	0.00354	0.335	1.91	4.53
100D_2_11	MW-100D	Appendix IV	Beryllium	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
100D_2_12	MW-100D	Appendix IV	Cadmium	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
100D_2_13	MW-100D	Appendix IV	Chromium	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100D_2_14	MW-100D	Appendix IV	Cobalt	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100D_2_15	MW-100D	Appendix IV	Lead	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
100D_2_16	MW-100D	Appendix IV	Lithium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	0.0188	0.0170	0.0160	0.0310	0.00476	0.254	2.60	7.14
100D_2_17	MW-100D	Appendix IV	Mercury	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
100D_2_18	MW-100D	Appendix IV	Molybdenum	mg/L	9	1	11%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.00844	0.00800	0.00500	0.0120	0.00207	0.245	0.101	0.130
100D_2_21	MW-100D	Appendix IV	Radium-226/228	pCi/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal	Gamma	1.47	1.01	0.477	5.06	1.41	0.959	2.55	7.04
100D_2_22	MW-100D	Appendix IV	Selenium	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100D_2_23	MW-100D	Appendix IV	Thallium	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
100D_3_24	MW-100D	Field Parameters	pH	su	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	7.79	7.82	7.21	8.22	0.302	0.0388	-0.612	0.464
100D_3_25	MW-100D	Field Parameters	Conductivity	mS/cm	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	0.645	0.597	0.575	0.927	0.116	0.180	2.25	4.86
100D_3_26	MW-100D	Field Parameters	Turbidity	NTU	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	6.29	6.19	3.08	8.78	1.84	0.292	-0.293	-0.549
100D_3_27	MW-100D	Field Parameters	Dissolved Oxygen	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	0.0544	0.0200	0	0.230	0.0808	1.48	1.74	2.10
100D_3_28	MW-100D	Field Parameters	Temperature	°C	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	12.8	13.0	9.90	14.5	1.62	0.126	-0.775	-0.607
100D_3_29	MW-100D	Field Parameters	Oxidation Reduction Potential	mV	9	0	0%	2023-06-05 to 2024-08-07	Normal	Normal	-143	-163	-209	-73.2	56.0	-0.393	0.142	-2.20
100D_4_30	MW-100D	Other	Total Suspended Solids	mg/L	9	3	33%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	3.32	2.70	1.80	9.50	2.36	0.711	2.79	8.08
100D_4_31	MW-100D	Other	Bicarbonate	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	410	390	370	550	56.1	0.137	2.39	5.86
100D_4_32	MW-100D	Other	Carbonate	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
100D_4_33	MW-100D	Other	Hardness	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal	Gamma	49.0	30.0	17.0	178	51.2	1.04	2.45	6.36
100D_4_34	MW-100D	Other	Magnesium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	2.64	1.47	1.27	9.50	2.68	1.02	2.60	6.96
100D_4_35	MW-100D	Other	Potassium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	4.46	4.35	4.00	5.37	0.449	0.101	1.11	0.793
100D_4_36	MW-100D	Other	Sodium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	149	151	134	160	8.78	0.0591	-0.631	-0.280
100D_5_37	MW-100D	Part 115	Copper	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100D_5_38	MW-100D	Part 115	Iron	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.333	0.240	0.120	0.770	0.244	0.731	0.877	-0.590
100D_5_39	MW-100D	Part 115	Nickel	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100D_5_40	MW-100D	Part 115	Silver	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
100D_5_41	MW-100D	Part 115	Vanadium	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
100D_5_42	MW-100D	Part 115	Zinc	mg/L	9	9	100%	2023-06-05 to 2024-08-07		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16C_1_01	MW-16C	Appendix III	Boron	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.405	0.400	0.390	0.430	0.0121	0.0300	0.949	0.654
16C_1_02	MW-16C	Appendix III	Calcium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	71.4	72.6	62.1	77.2	5.34	0.0749	-0.705	-0.673

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
16C_1_03	MW-16C	Appendix III	Chloride	mg/L	11	6	55%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	4.25	5.00	1.80	8.00	1.86	0.437	0.357	0.0956
16C_1_04	MW-16C	Appendix III	Fluoride	mg/L	11	8	73%	2023-02-02 to 2024-08-06		Nonparametric	0.755	1.00	0.200	1.00	0.350	0.464	-0.849	-1.31
16C_1_05	MW-16C	Appendix III	pH, Field	su	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.32	7.36	7.17	7.46	0.113	0.0154	-0.0955	-1.78
16C_1_06	MW-16C	Appendix III	Sulfate	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	8.86	8.00	7.00	19.0	3.45	0.390	3.02	9.48
16C_1_07	MW-16C	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	343	332	320	418	28.4	0.0828	2.24	5.23
16C_2_04	MW-16C	Appendix IV	Fluoride	mg/L	11	8	73%	2023-02-02 to 2024-08-06		Nonparametric	0.755	1.00	0.200	1.00	0.350	0.464	-0.849	-1.31
16C_2_08	MW-16C	Appendix IV	Antimony	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16C_2_09	MW-16C	Appendix IV	Arsenic	mg/L	11	8	73%	2023-02-02 to 2024-08-06		Nonparametric	0.00218	0.00200	0.00200	0.00300	0.000405	0.185	1.92	2.04
16C_2_10	MW-16C	Appendix IV	Barium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal	Gamma	0.0384	0.0330	0.0270	0.0610	0.0110	0.286	1.10	0.0991
16C_2_11	MW-16C	Appendix IV	Beryllium	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
16C_2_12	MW-16C	Appendix IV	Cadmium	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
16C_2_13	MW-16C	Appendix IV	Chromium	mg/L	11	10	91%	2023-02-02 to 2024-08-06		Nonparametric	0.00555	0.00500	0.00500	0.0110	0.00181	0.326	3.32	11.0
16C_2_14	MW-16C	Appendix IV	Cobalt	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16C_2_15	MW-16C	Appendix IV	Lead	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
16C_2_16	MW-16C	Appendix IV	Lithium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	0.0276	0.0270	0.0260	0.0300	0.00157	0.0567	0.169	-1.91
16C_2_17	MW-16C	Appendix IV	Mercury	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
16C_2_18	MW-16C	Appendix IV	Molybdenum	mg/L	11	9	82%	2023-02-02 to 2024-08-06		Nonparametric	0.00555	0.00500	0.00500	0.00900	0.00129	0.233	2.42	5.51
16C_2_21	MW-16C	Appendix IV	Radium-226/228	pCi/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	1.51	1.30	0.225	3.60	1.07	0.712	0.549	-0.352
16C_2_22	MW-16C	Appendix IV	Selenium	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16C_2_23	MW-16C	Appendix IV	Thallium	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
16C_3_24	MW-16C	Field Parameters	pH	su	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.32	7.36	7.17	7.46	0.113	0.0154	-0.0955	-1.78
16C_3_25	MW-16C	Field Parameters	Conductivity	mS/cm	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.575	0.580	0.529	0.601	0.0204	0.0354	-1.08	1.34
16C_3_26	MW-16C	Field Parameters	Turbidity	NTU	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal	Gamma	6.93	6.01	0.450	34.2	9.38	1.35	2.92	9.15
16C_3_27	MW-16C	Field Parameters	Dissolved Oxygen	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	0.104	0.0700	0	0.360	0.118	1.14	1.25	0.891
16C_3_28	MW-16C	Field Parameters	Temperature	°C	11	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	11.9	13.2	1.10	14.9	3.94	0.332	-2.35	6.31
16C_3_29	MW-16C	Field Parameters	Oxidation Reduction Potential	mV	11	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	-100	-97.3	-146	-42.2	30.7	-0.307	0.312	0.0655
16C_4_30	MW-16C	Other	Total Suspended Solids	mg/L	11	3	27%	2023-02-02 to 2024-08-06	Gamma; Lognormal	Gamma	6.56	3.00	0.500	40.0	11.5	1.76	2.92	8.87
16C_4_31	MW-16C	Other	Bicarbonate	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	406	400	370	470	24.3	0.0600	1.82	5.60
16C_4_32	MW-16C	Other	Carbonate	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
16C_4_33	MW-16C	Other	Hardness	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	292	298	253	318	20.9	0.0715	-0.868	-0.369
16C_4_34	MW-16C	Other	Magnesium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	28.6	29.9	24.4	31.4	2.33	0.0815	-0.598	-0.862
16C_4_35	MW-16C	Other	Potassium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	4.51	4.75	3.56	5.11	0.569	0.126	-0.666	-1.29
16C_4_36	MW-16C	Other	Sodium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	22.1	15.8	12.5	41.4	10.2	0.463	1.19	0.00559
16C_5_37	MW-16C	Part 115	Copper	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16C_5_38	MW-16C	Part 115	Iron	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	0.583	0.480	0.450	1.10	0.198	0.340	2.10	4.63
16C_5_39	MW-16C	Part 115	Nickel	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16C_5_40	MW-16C	Part 115	Silver	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
16C_5_41	MW-16C	Part 115	Vanadium	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16C_5_42	MW-16C	Part 115	Zinc	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16D_1_01	MW-16D	Appendix III	Boron	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	4.65	4.65	4.33	5.01	0.188	0.0405	0.130	0.736
16D_1_02	MW-16D	Appendix III	Calcium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	29.4	29.3	28.5	30.5	0.654	0.0222	0.699	-0.417
16D_1_03	MW-16D	Appendix III	Chloride	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.26	7.20	6.00	8.00	0.614	0.0845	-0.469	0.348

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
16D_1_04	MW-16D	Appendix III	Fluoride	mg/L	11	8	73%	2023-02-02 to 2024-08-06		Nonparametric	0.796	1.00	0.360	1.00	0.285	0.358	-0.729	-1.72
16D_1_05	MW-16D	Appendix III	pH, Field	su	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.57	7.53	7.44	7.83	0.121	0.0160	1.14	0.536
16D_1_06	MW-16D	Appendix III	Sulfate	mg/L	11	1	9%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	6.47	6.00	4.20	13.0	2.61	0.403	1.78	3.48
16D_1_07	MW-16D	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	377	376	364	396	8.44	0.0224	0.860	2.38
16D_2_04	MW-16D	Appendix IV	Fluoride	mg/L	11	8	73%	2023-02-02 to 2024-08-06		Nonparametric	0.796	1.00	0.360	1.00	0.285	0.358	-0.729	-1.72
16D_2_08	MW-16D	Appendix IV	Antimony	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16D_2_09	MW-16D	Appendix IV	Arsenic	mg/L	11	3	27%	2023-02-02 to 2024-08-06		Nonparametric	0.00309	0.00300	0.00200	0.00400	0.000831	0.269	-0.190	-1.49
16D_2_10	MW-16D	Appendix IV	Barium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.0356	0.0360	0.0330	0.0380	0.00143	0.0402	-0.210	-0.0775
16D_2_11	MW-16D	Appendix IV	Beryllium	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
16D_2_12	MW-16D	Appendix IV	Cadmium	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
16D_2_13	MW-16D	Appendix IV	Chromium	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16D_2_14	MW-16D	Appendix IV	Cobalt	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16D_2_15	MW-16D	Appendix IV	Lead	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
16D_2_16	MW-16D	Appendix IV	Lithium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.0296	0.0300	0.0220	0.0390	0.00415	0.140	0.571	2.80
16D_2_17	MW-16D	Appendix IV	Mercury	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
16D_2_18	MW-16D	Appendix IV	Molybdenum	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	0.0101	0.0100	0.00500	0.0120	0.00181	0.180	-2.50	7.48
16D_2_21	MW-16D	Appendix IV	Radium-226/228	pCi/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	1.88	1.52	0.515	4.14	1.14	0.607	0.776	-0.236
16D_2_22	MW-16D	Appendix IV	Selenium	mg/L	11	10	91%	2023-02-02 to 2024-08-06		Nonparametric	0.00509	0.00500	0.00500	0.00600	0.000302	0.0592	3.32	11.0
16D_2_23	MW-16D	Appendix IV	Thallium	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
16D_3_24	MW-16D	Field Parameters	pH	su	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.57	7.53	7.44	7.83	0.125	0.0165	1.08	0.376
16D_3_25	MW-16D	Field Parameters	Conductivity	mS/cm	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.609	0.612	0.582	0.638	0.0163	0.0267	-0.0442	-0.164
16D_3_26	MW-16D	Field Parameters	Turbidity	NTU	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	6.36	6.85	4.32	8.31	1.34	0.211	-0.120	-1.39
16D_3_27	MW-16D	Field Parameters	Dissolved Oxygen	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Lognormal	Nonparametric	0.648	0.280	0.0600	4.82	1.39	2.14	3.26	10.7
16D_3_28	MW-16D	Field Parameters	Temperature	°C	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	13.4	12.5	3.90	22.5	5.68	0.424	0.0466	-0.829
16D_3_29	MW-16D	Field Parameters	Oxidation Reduction Potential	mV	11	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	-72.4	-103	-200	85.9	84.7	-1.17	0.651	-0.121
16D_4_30	MW-16D	Other	Total Suspended Solids	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	6.43	5.00	2.00	14.0	4.45	0.692	0.748	-1.05
16D_4_31	MW-16D	Other	Bicarbonate	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma	Gamma	395	394	380	430	14.3	0.0363	1.40	3.11
16D_4_32	MW-16D	Other	Carbonate	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
16D_4_33	MW-16D	Other	Hardness	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	106	103	96.0	124	10.1	0.0951	0.826	-0.796
16D_4_34	MW-16D	Other	Magnesium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.37	7.39	6.99	7.69	0.213	0.0288	-0.215	0.00933
16D_4_35	MW-16D	Other	Potassium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	9.53	9.54	9.18	9.90	0.251	0.0264	0.0844	-1.38
16D_4_36	MW-16D	Other	Sodium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	110	110	95.0	116	5.96	0.0542	-1.63	3.50
16D_5_37	MW-16D	Part 115	Copper	mg/L	11	10	91%	2023-02-02 to 2024-08-06		Nonparametric	0.00545	0.00500	0.00500	0.0100	0.00151	0.276	3.32	11.0
16D_5_38	MW-16D	Part 115	Iron	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.301	0.280	0.0600	0.550	0.159	0.530	-0.0796	-0.888
16D_5_39	MW-16D	Part 115	Nickel	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16D_5_40	MW-16D	Part 115	Silver	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
16D_5_41	MW-16D	Part 115	Vanadium	mg/L	11	11	100%	2023-02-02 to 2024-08-06		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
16D_5_42	MW-16D	Part 115	Zinc	mg/L	11	1	9%	2023-02-02 to 2024-08-06	Gamma; Lognormal	Gamma	0.0631	0.0230	0.00500	0.271	0.0884	1.40	1.75	2.22
7B_1_01	MW-7B	Appendix III	Boron	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	3.0	2.99	2.88	3.17	0.0844	0.0282	0.500	-0.396
7B_1_02	MW-7B	Appendix III	Calcium	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	9.22	9.23	8.24	10.4	0.568	0.0616	0.660	0.764
7B_1_03	MW-7B	Appendix III	Chloride	mg/L	14	12	86%	2022-03-09 to 2024-08-08		Nonparametric	4.56	5.00	1.90	5.00	1.13	0.247	-2.29	3.79
7B_1_04	MW-7B	Appendix III	Fluoride	mg/L	14	12	86%	2022-03-09 to 2024-08-08		Nonparametric	0.921	1.00	0.300	1.00	0.208	0.226	-2.66	6.59

(Table continues on next page)

[a] Non-detects are excluded from goodness-of-fit tests.

Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit[a]	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
7B_1_05	MW-7B	Appendix III	pH, Field	su	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	7.98	8.02	7.73	8.17	0.150	0.0188	-0.232	-1.45
7B_1_06	MW-7B	Appendix III	Sulfate	mg/L	14	12	86%	2022-03-09 to 2024-08-08		Nonparametric	4.46	5.00	1.10	5.00	1.38	0.310	-2.30	3.82
7B_1_07	MW-7B	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	365	366	356	376	6.58	0.0180	0.174	-0.806
7B_2_04	MW-7B	Appendix IV	Fluoride	mg/L	14	12	86%	2022-03-09 to 2024-08-08		Nonparametric	0.921	1.00	0.300	1.00	0.208	0.226	-2.66	6.59
7B_2_08	MW-7B	Appendix IV	Antimony	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7B_2_09	MW-7B	Appendix IV	Arsenic	mg/L	14	11	79%	2022-03-09 to 2024-08-08		Nonparametric	0.00214	0.00200	0.00200	0.00300	0.000363	0.169	2.29	3.79
7B_2_10	MW-7B	Appendix IV	Barium	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.00921	0.00900	0.00800	0.0110	0.00105	0.114	0.436	-0.812
7B_2_11	MW-7B	Appendix IV	Beryllium	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.00100	0.00100	0.00100	0.00100	0	0	NA	NA
7B_2_12	MW-7B	Appendix IV	Cadmium	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
7B_2_13	MW-7B	Appendix IV	Chromium	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7B_2_14	MW-7B	Appendix IV	Cobalt	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7B_2_15	MW-7B	Appendix IV	Lead	mg/L	14	13	93%	2022-03-09 to 2024-08-08		Nonparametric	0.00364	0.00300	0.00300	0.0120	0.00241	0.660	3.74	14.0
7B_2_16	MW-7B	Appendix IV	Lithium	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0317	0.0320	0.0280	0.0350	0.00177	0.0559	-0.365	1.02
7B_2_17	MW-7B	Appendix IV	Mercury	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.000200	0.000200	0.000200	0.000200	0	0	NA	NA
7B_2_18	MW-7B	Appendix IV	Molybdenum	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7B_2_21	MW-7B	Appendix IV	Radium-226/228	pCi/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	1.16	1.12	0.378	2.43	0.587	0.507	0.559	0.0817
7B_2_22	MW-7B	Appendix IV	Selenium	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7B_2_23	MW-7B	Appendix IV	Thallium	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.00200	0.00200	0.00200	0.00200	0	0	NA	NA
7B_3_24	MW-7B	Field Parameters	pH	su	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	7.98	8.02	7.73	8.17	0.150	0.0188	-0.232	-1.45
7B_3_25	MW-7B	Field Parameters	Conductivity	mS/cm	14	0	0%	2022-03-09 to 2024-08-08	Nonparametric	Nonparametric	0.604	0.587	0.565	0.730	0.0540	0.0895	2.22	3.60
7B_3_26	MW-7B	Field Parameters	Turbidity	NTU	14	0	0%	2022-03-09 to 2024-08-08	Normal	Normal	4.70	5.63	0.0200	9.44	2.81	0.599	-0.465	-0.450
7B_3_27	MW-7B	Field Parameters	Dissolved Oxygen	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal	Gamma	0.283	0.140	0.0200	0.850	0.289	1.02	1.36	0.409
7B_3_28	MW-7B	Field Parameters	Temperature	°C	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	12.6	13.2	9.40	14.9	1.60	0.127	-0.454	-0.664
7B_3_29	MW-7B	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	2022-03-09 to 2024-08-08	Nonparametric	Nonparametric	-92.4	-108	-153	19.2	54.4	-0.589	1.36	0.938
7B_4_30	MW-7B	Other	Total Suspended Solids	mg/L	14	12	86%	2022-03-09 to 2024-08-08		Nonparametric	2.71	3.00	1.00	3.00	0.726	0.268	-2.29	3.79
7B_4_31	MW-7B	Other	Bicarbonate	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	394	390	380	418	9.64	0.0245	0.961	2.15
7B_4_32	MW-7B	Other	Carbonate	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	10.0	10.0	10.0	10.0	0	0	NA	NA
7B_4_33	MW-7B	Other	Hardness	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Nonparametric	Nonparametric	33.4	30.0	27.0	51.0	6.63	0.198	1.61	2.68
7B_4_34	MW-7B	Other	Magnesium	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	2.80	2.80	2.43	3.00	0.149	0.0533	-0.901	1.72
7B_4_35	MW-7B	Other	Potassium	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Nonparametric	Nonparametric	5.57	5.59	4.80	5.85	0.244	0.0439	-2.64	8.76
7B_4_36	MW-7B	Other	Sodium	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Nonparametric	Nonparametric	132	136	87.5	146	14.6	0.110	-2.55	7.24
7B_5_37	MW-7B	Part 115	Copper	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7B_5_38	MW-7B	Part 115	Iron	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0614	0.0600	0.0300	0.120	0.0266	0.432	0.712	0.191
7B_5_39	MW-7B	Part 115	Nickel	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7B_5_40	MW-7B	Part 115	Silver	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.000500	0.000500	0.000500	0.000500	0	0	NA	NA
7B_5_41	MW-7B	Part 115	Vanadium	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA
7B_5_42	MW-7B	Part 115	Zinc	mg/L	14	14	100%	2022-03-09 to 2024-08-08		Nonparametric	0.00500	0.00500	0.00500	0.00500	0	0	NA	NA

[a] Non-detects are excluded from goodness-of-fit tests.

Table 2: Summary Statistics, Non-Detects Excluded

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
100C_1_01	MW-100C	Appendix III	Boron	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	1.79	1.81	1.54	1.91	0.0966	0.0541	-1.29	2.31
100C_1_02	MW-100C	Appendix III	Calcium	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	59.1	59.5	55.2	61.5	2.02	0.0341	-0.819	-0.353
100C_1_03	MW-100C	Appendix III	Chloride	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	6.17	5.00	4.60	14.0	2.74	0.444	2.27	4.93
100C_1_04	MW-100C	Appendix III	Fluoride	mg/L	14	11	79%	2023-06-05 to 2024-08-07		Nonparametric	0.243	0.300	0.130	0.300	0.0981	0.403	-1.73	NA
100C_1_05	MW-100C	Appendix III	pH, Field	su	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	7.36	7.37	7.23	7.54	0.0923	0.0125	0.322	-0.925
100C_1_06	MW-100C	Appendix III	Sulfate	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	8.57	6.00	4.90	27.0	6.00	0.700	2.60	7.22
100C_1_07	MW-100C	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	301	300	282	314	7.22	0.0240	-0.797	3.48
100C_2_04	MW-100C	Appendix IV	Fluoride	mg/L	14	11	79%	2023-06-05 to 2024-08-07		Nonparametric	0.243	0.300	0.130	0.300	0.0981	0.403	-1.73	NA
100C_2_09	MW-100C	Appendix IV	Arsenic	mg/L	14	13	93%	2023-06-05 to 2024-08-07		Nonparametric	0.00200	0.00200	0.00200	0.00200	NA	NA	NA	NA
100C_2_10	MW-100C	Appendix IV	Barium	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0765	0.0780	0.0600	0.0920	0.00908	0.119	-0.396	-0.334
100C_2_16	MW-100C	Appendix IV	Lithium	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0319	0.0320	0.0280	0.0350	0.00182	0.0569	-0.685	0.924
100C_2_18	MW-100C	Appendix IV	Molybdenum	mg/L	14	11	79%	2023-06-05 to 2024-08-07		Nonparametric	0.00833	0.00900	0.00700	0.00900	0.00115	0.139	-1.73	NA
100C_2_21	MW-100C	Appendix IV	Radium-226/228	pCi/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	1.33	1.28	0.369	3.25	0.730	0.549	1.32	2.83
100C_3_24	MW-100C	Field Parameters	pH	su	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	7.36	7.37	7.23	7.54	0.0923	0.0125	0.322	-0.925
100C_3_25	MW-100C	Field Parameters	Conductivity	mS/cm	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.528	0.529	0.512	0.544	0.0104	0.0197	-0.207	-1.21
100C_3_26	MW-100C	Field Parameters	Turbidity	NTU	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	3.46	4.15	0.0200	5.89	2.22	0.641	-0.538	-1.44
100C_3_27	MW-100C	Field Parameters	Dissolved Oxygen	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	0.0557	0	0	0.230	0.0958	1.72	1.46	0.299
100C_3_28	MW-100C	Field Parameters	Temperature	°C	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	12.3	12.3	10.2	14.1	1.41	0.114	-0.0786	-1.41
100C_3_29	MW-100C	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	2023-06-05 to 2024-08-07	Normal	Normal	-113	-113	-134	-89.9	15	-0.132	0.155	-0.870
100C_4_30	MW-100C	Other	Total Suspended Solids	mg/L	14	5	36%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	2.33	1.40	0.900	8.90	2.52	1.08	2.76	7.82
100C_4_31	MW-100C	Other	Bicarbonate	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	325	340	100	360	66	0.203	-3.53	12.8
100C_4_33	MW-100C	Other	Hardness	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	226	232	200	238	12.7	0.0563	-1.04	-0.0967
100C_4_34	MW-100C	Other	Magnesium	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	18.9	19.1	17.3	20.2	0.866	0.0459	-0.432	-0.621
100C_4_35	MW-100C	Other	Potassium	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	6.62	6.66	6.03	6.99	0.293	0.0442	-0.781	0.0862
100C_4_36	MW-100C	Other	Sodium	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	31.4	29.4	25.7	44.1	5.11	0.163	1.34	1.63
100C_5_38	MW-100C	Part 115	Iron	mg/L	14	0	0%	2023-06-05 to 2024-08-07	Normal	Normal	0.676	0.660	0.310	1.00	0.166	0.246	0.168	2.04
100C_5_42	MW-100C	Part 115	Zinc	mg/L	14	13	93%	2023-06-05 to 2024-08-07		Nonparametric	0.0100	0.0100	0.0100	0.0100	NA	NA	NA	NA
100D_1_01	MW-100D	Appendix III	Boron	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	3.10	3.23	1.89	3.45	0.489	0.158	-2.34	5.75
100D_1_02	MW-100D	Appendix III	Calcium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	13.4	6.27	5.26	56.5	16.8	1.25	2.62	7.04
100D_1_03	MW-100D	Appendix III	Chloride	mg/L	9	4	44%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	7.12	5.00	4.20	13.1	3.91	0.549	1.13	-0.212
100D_1_04	MW-100D	Appendix III	Fluoride	mg/L	9	5	56%	2023-06-05 to 2024-08-07		Nonparametric	0.422	0.445	0.300	0.500	0.0932	0.221	-0.886	-1.04
100D_1_05	MW-100D	Appendix III	pH, Field	su	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	7.79	7.82	7.21	8.22	0.302	0.0388	-0.612	0.464
100D_1_06	MW-100D	Appendix III	Sulfate	mg/L	9	1	11%	2023-06-05 to 2024-08-07	Lognormal	Lognormal	18.9	10.5	6.00	60.5	18.5	0.975	2.07	4.13
100D_1_07	MW-100D	Appendix III	Total Dissolved Solids	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	419	392	366	584	68.7	0.164	2.13	4.63
100D_2_04	MW-100D	Appendix IV	Fluoride	mg/L	9	5	56%	2023-06-05 to 2024-08-07		Nonparametric	0.422	0.445	0.300	0.500	0.0932	0.221	-0.886	-1.04
100D_2_09	MW-100D	Appendix IV	Arsenic	mg/L	9	2	22%	2023-06-05 to 2024-08-07		Nonparametric	0.00300	0.00300	0.00300	0.00300	0	0	NA	NA
100D_2_10	MW-100D	Appendix IV	Barium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.0106	0.0100	0.00700	0.0190	0.00354	0.335	1.91	4.53
100D_2_16	MW-100D	Appendix IV	Lithium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	0.0188	0.0170	0.0160	0.0310	0.00476	0.254	2.60	7.14
100D_2_18	MW-100D	Appendix IV	Molybdenum	mg/L	9	1	11%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.00887	0.00850	0.00700	0.0120	0.00173	0.195	0.697	-0.102
100D_2_21	MW-100D	Appendix IV	Radium-226/228	pCi/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal	Gamma	1.47	1.01	0.477	5.06	1.41	0.959	2.55	7.04
100D_3_24	MW-100D	Field Parameters	pH	su	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	7.79	7.82	7.21	8.22	0.302	0.0388	-0.612	0.464
100D_3_25	MW-100D	Field Parameters	Conductivity	mS/cm	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	0.645	0.597	0.575	0.927	0.116	0.180	2.25	4.86
100D_3_26	MW-100D	Field Parameters	Turbidity	NTU	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	6.29	6.19	3.08	8.78	1.84	0.292	-0.293	-0.549

(Table continues on next page)

Table 2: Summary Statistics, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
100D_3_27	MW-100D	Field Parameters	Dissolved Oxygen	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	0.0544	0.0200	0	0.230	0.0808	1.48	1.74	2.10
100D_3_28	MW-100D	Field Parameters	Temperature	°C	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	12.8	13.0	9.90	14.5	1.62	0.126	-0.775	-0.607
100D_3_29	MW-100D	Field Parameters	Oxidation Reduction Potential	mV	9	0	0%	2023-06-05 to 2024-08-07	Normal	Normal	-143	-163	-209	-73.2	56.0	-0.393	0.142	-2.20
100D_4_30	MW-100D	Other	Total Suspended Solids	mg/L	9	3	33%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	3.48	2.45	1.80	9.50	2.97	0.853	2.37	5.68
100D_4_31	MW-100D	Other	Bicarbonate	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	410	390	370	550	56.1	0.137	2.39	5.86
100D_4_33	MW-100D	Other	Hardness	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal	Gamma	49.0	30.0	17.0	178	51.2	1.04	2.45	6.36
100D_4_34	MW-100D	Other	Magnesium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Nonparametric	Nonparametric	2.64	1.47	1.27	9.50	2.68	1.02	2.60	6.96
100D_4_35	MW-100D	Other	Potassium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	4.46	4.35	4.00	5.37	0.449	0.101	1.11	0.793
100D_4_36	MW-100D	Other	Sodium	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	149	151	134	160	8.78	0.0591	-0.631	-0.280
100D_5_38	MW-100D	Part 115	Iron	mg/L	9	0	0%	2023-06-05 to 2024-08-07	Gamma; Lognormal; Normal	Normal	0.333	0.240	0.120	0.770	0.244	0.731	0.877	-0.590
16C_1_01	MW-16C	Appendix III	Boron	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.405	0.400	0.390	0.430	0.0121	0.0300	0.949	0.654
16C_1_02	MW-16C	Appendix III	Calcium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	71.4	72.6	62.1	77.2	5.34	0.0749	-0.705	-0.673
16C_1_03	MW-16C	Appendix III	Chloride	mg/L	11	6	55%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	3.36	2.30	1.80	8.00	2.61	0.776	2.18	4.81
16C_1_04	MW-16C	Appendix III	Fluoride	mg/L	11	8	73%	2023-02-02 to 2024-08-06		Nonparametric	0.267	0.200	0.200	0.400	0.115	0.433	1.73	NA
16C_1_05	MW-16C	Appendix III	pH, Field	su	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.32	7.36	7.17	7.46	0.113	0.0154	-0.0955	-1.78
16C_1_06	MW-16C	Appendix III	Sulfate	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	8.86	8.00	7.00	19.0	3.45	0.390	3.02	9.48
16C_1_07	MW-16C	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	343	332	320	418	28.4	0.0828	2.24	5.23
16C_2_04	MW-16C	Appendix IV	Fluoride	mg/L	11	8	73%	2023-02-02 to 2024-08-06		Nonparametric	0.267	0.200	0.200	0.400	0.115	0.433	1.73	NA
16C_2_09	MW-16C	Appendix IV	Arsenic	mg/L	11	8	73%	2023-02-02 to 2024-08-06		Nonparametric	0.00267	0.00300	0.00200	0.00300	0.000577	0.217	-1.73	NA
16C_2_10	MW-16C	Appendix IV	Barium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal	Gamma	0.0384	0.0330	0.0270	0.0610	0.0110	0.286	1.10	0.0991
16C_2_13	MW-16C	Appendix IV	Chromium	mg/L	11	10	91%	2023-02-02 to 2024-08-06		Nonparametric	0.0110	0.0110	0.0110	0.0110	NA	NA	NA	NA
16C_2_16	MW-16C	Appendix IV	Lithium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	0.0276	0.0270	0.0260	0.0300	0.00157	0.0567	0.169	-1.91
16C_2_18	MW-16C	Appendix IV	Molybdenum	mg/L	11	9	82%	2023-02-02 to 2024-08-06		Nonparametric	0.00800	0.00800	0.00700	0.00900	0.00141	0.177	NA	NA
16C_2_21	MW-16C	Appendix IV	Radium-226/228	pCi/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	1.51	1.30	0.225	3.60	1.07	0.712	0.549	-0.352
16C_3_24	MW-16C	Field Parameters	pH	su	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.32	7.36	7.17	7.46	0.113	0.0154	-0.0955	-1.78
16C_3_25	MW-16C	Field Parameters	Conductivity	mS/cm	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.575	0.580	0.529	0.601	0.0204	0.0354	-1.08	1.34
16C_3_26	MW-16C	Field Parameters	Turbidity	NTU	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal	Gamma	6.93	6.01	0.450	34.2	9.38	1.35	2.92	9.15
16C_3_27	MW-16C	Field Parameters	Dissolved Oxygen	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	0.104	0.0700	0	0.360	0.118	1.14	1.25	0.891
16C_3_28	MW-16C	Field Parameters	Temperature	°C	11	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	11.9	13.2	1.10	14.9	3.94	0.332	-2.35	6.31
16C_3_29	MW-16C	Field Parameters	Oxidation Reduction Potential	mV	11	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	-100	-97.3	-146	-42.2	30.7	-0.307	0.312	0.0655
16C_4_30	MW-16C	Other	Total Suspended Solids	mg/L	11	3	27%	2023-02-02 to 2024-08-06	Gamma; Lognormal	Gamma	7.90	1.50	0.500	40.0	13.5	1.71	2.44	6.16
16C_4_31	MW-16C	Other	Bicarbonate	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	406	400	370	470	24.3	0.0600	1.82	5.60
16C_4_33	MW-16C	Other	Hardness	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	292	298	253	318	20.9	0.0715	-0.868	-0.369
16C_4_34	MW-16C	Other	Magnesium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	28.6	29.9	24.4	31.4	2.33	0.0815	-0.598	-0.862
16C_4_35	MW-16C	Other	Potassium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	4.51	4.75	3.56	5.11	0.569	0.126	-0.666	-1.29
16C_4_36	MW-16C	Other	Sodium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	22.1	15.8	12.5	41.4	10.2	0.463	1.19	0.00559
16C_5_38	MW-16C	Part 115	Iron	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	0.583	0.480	0.450	1.10	0.198	0.340	2.10	4.63
16D_1_01	MW-16D	Appendix III	Boron	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	4.65	4.65	4.33	5.01	0.188	0.0405	0.130	0.736
16D_1_02	MW-16D	Appendix III	Calcium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	29.4	29.3	28.5	30.5	0.654	0.0222	0.699	-0.417
16D_1_03	MW-16D	Appendix III	Chloride	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.26	7.20	6.00	8.00	0.614	0.0845	-0.469	0.348
16D_1_04	MW-16D	Appendix III	Fluoride	mg/L	11	8	73%	2023-02-02 to 2024-08-06		Nonparametric	0.420	0.400	0.360	0.500	0.0721	0.172	1.15	NA
16D_1_05	MW-16D	Appendix III	pH, Field	su	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.57	7.53	7.44	7.83	0.121	0.0160	1.14	0.536
16D_1_06	MW-16D	Appendix III	Sulfate	mg/L	11	1	9%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	6.62	6.10	4.20	13.0	2.70	0.408	1.64	2.96

(Table continues on next page)

Table 2: Summary Statistics, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
16D_1_07	MW-16D	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	377	376	364	396	8.44	0.0224	0.860	2.38
16D_2_04	MW-16D	Appendix IV	Fluoride	mg/L	11	8	73%	2023-02-02 to 2024-08-06		Nonparametric	0.420	0.400	0.360	0.500	0.0721	0.172	1.15	NA
16D_2_09	MW-16D	Appendix IV	Arsenic	mg/L	11	3	27%	2023-02-02 to 2024-08-06		Nonparametric	0.00350	0.00350	0.00300	0.00400	0.000535	0.153	0	-2.80
16D_2_10	MW-16D	Appendix IV	Barium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.0356	0.0360	0.0330	0.0380	0.00143	0.0402	-0.210	-0.0775
16D_2_16	MW-16D	Appendix IV	Lithium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.0296	0.0300	0.0220	0.0390	0.00415	0.140	0.571	2.80
16D_2_18	MW-16D	Appendix IV	Molybdenum	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Nonparametric	Nonparametric	0.0101	0.0100	0.00500	0.0120	0.00181	0.180	-2.50	7.48
16D_2_21	MW-16D	Appendix IV	Radium-226/228	pCi/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	1.88	1.52	0.515	4.14	1.14	0.607	0.776	-0.236
16D_2_22	MW-16D	Appendix IV	Selenium	mg/L	11	10	91%	2023-02-02 to 2024-08-06		Nonparametric	0.00600	0.00600	0.00600	0.00600	NA	NA	NA	NA
16D_3_24	MW-16D	Field Parameters	pH	su	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.57	7.53	7.44	7.83	0.125	0.0165	1.08	0.376
16D_3_25	MW-16D	Field Parameters	Conductivity	mS/cm	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.609	0.612	0.582	0.638	0.0163	0.0267	-0.0442	-0.164
16D_3_26	MW-16D	Field Parameters	Turbidity	NTU	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	6.36	6.85	4.32	8.31	1.34	0.211	-0.120	-1.39
16D_3_27	MW-16D	Field Parameters	Dissolved Oxygen	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Lognormal	Nonparametric	0.648	0.280	0.0600	4.82	1.39	2.14	3.26	10.7
16D_3_28	MW-16D	Field Parameters	Temperature	°C	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	13.4	12.5	3.90	22.5	5.68	0.424	0.0466	-0.829
16D_3_29	MW-16D	Field Parameters	Oxidation Reduction Potential	mV	11	0	0%	2023-02-02 to 2024-08-06	Normal	Normal	-72.4	-103	-200	85.9	84.7	-1.17	0.651	-0.121
16D_4_30	MW-16D	Other	Total Suspended Solids	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	6.43	5.00	2.00	14.0	4.45	0.692	0.748	-1.05
16D_4_31	MW-16D	Other	Bicarbonate	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma	Gamma	395	394	380	430	14.3	0.0363	1.40	3.11
16D_4_33	MW-16D	Other	Hardness	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	106	103	96.0	124	10.1	0.0951	0.826	-0.796
16D_4_34	MW-16D	Other	Magnesium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	7.37	7.39	6.99	7.69	0.213	0.0288	-0.215	0.00933
16D_4_35	MW-16D	Other	Potassium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	9.53	9.54	9.18	9.90	0.251	0.0264	0.0844	-1.38
16D_4_36	MW-16D	Other	Sodium	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	110	110	95.0	116	5.96	0.0542	-1.63	3.50
16D_5_37	MW-16D	Part 115	Copper	mg/L	11	10	91%	2023-02-02 to 2024-08-06		Nonparametric	0.0100	0.0100	0.0100	0.0100	NA	NA	NA	NA
16D_5_38	MW-16D	Part 115	Iron	mg/L	11	0	0%	2023-02-02 to 2024-08-06	Gamma; Lognormal; Normal	Normal	0.301	0.280	0.0600	0.550	0.159	0.530	-0.0796	-0.888
16D_5_42	MW-16D	Part 115	Zinc	mg/L	11	1	9%	2023-02-02 to 2024-08-06	Gamma; Lognormal	Gamma	0.0689	0.0240	0.00800	0.271	0.0910	1.32	1.62	1.71
7B_1_01	MW-7B	Appendix III	Boron	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	3.0	2.99	2.88	3.17	0.0844	0.0282	0.500	-0.396
7B_1_02	MW-7B	Appendix III	Calcium	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	9.22	9.23	8.24	10.4	0.568	0.0616	0.660	0.764
7B_1_03	MW-7B	Appendix III	Chloride	mg/L	14	12	86%	2022-03-09 to 2024-08-08		Nonparametric	1.90	1.90	1.90	1.90	0	0	NA	NA
7B_1_04	MW-7B	Appendix III	Fluoride	mg/L	14	12	86%	2022-03-09 to 2024-08-08		Nonparametric	0.450	0.450	0.300	0.600	0.212	0.471	NA	NA
7B_1_05	MW-7B	Appendix III	pH, Field	su	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	7.98	8.02	7.73	8.17	0.150	0.0188	-0.232	-1.45
7B_1_06	MW-7B	Appendix III	Sulfate	mg/L	14	12	86%	2022-03-09 to 2024-08-08		Nonparametric	1.20	1.20	1.10	1.30	0.141	0.118	NA	NA
7B_1_07	MW-7B	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	365	366	356	376	6.58	0.0180	0.174	-0.806
7B_2_04	MW-7B	Appendix IV	Fluoride	mg/L	14	12	86%	2022-03-09 to 2024-08-08		Nonparametric	0.450	0.450	0.300	0.600	0.212	0.471	NA	NA
7B_2_09	MW-7B	Appendix IV	Arsenic	mg/L	14	11	79%	2022-03-09 to 2024-08-08		Nonparametric	0.00267	0.00300	0.00200	0.00300	0.000577	0.217	-1.73	NA
7B_2_10	MW-7B	Appendix IV	Barium	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.00921	0.00900	0.00800	0.0110	0.00105	0.114	0.436	-0.812
7B_2_15	MW-7B	Appendix IV	Lead	mg/L	14	13	93%	2022-03-09 to 2024-08-08		Nonparametric	0.0120	0.0120	0.0120	0.0120	NA	NA	NA	NA
7B_2_16	MW-7B	Appendix IV	Lithium	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0317	0.0320	0.0280	0.0350	0.00177	0.0559	-0.365	1.02
7B_2_21	MW-7B	Appendix IV	Radium-226/228	pCi/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	1.16	1.12	0.378	2.43	0.587	0.507	0.559	0.0817
7B_3_24	MW-7B	Field Parameters	pH	su	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	7.98	8.02	7.73	8.17	0.150	0.0188	-0.232	-1.45
7B_3_25	MW-7B	Field Parameters	Conductivity	mS/cm	14	0	0%	2022-03-09 to 2024-08-08	Nonparametric	Nonparametric	0.604	0.587	0.565	0.730	0.0540	0.0895	2.22	3.60
7B_3_26	MW-7B	Field Parameters	Turbidity	NTU	14	0	0%	2022-03-09 to 2024-08-08	Normal	Normal	4.70	5.63	0.0200	9.44	2.81	0.599	-0.465	-0.450
7B_3_27	MW-7B	Field Parameters	Dissolved Oxygen	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal	Gamma	0.283	0.140	0.0200	0.850	0.289	1.02	1.36	0.409
7B_3_28	MW-7B	Field Parameters	Temperature	°C	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	12.6	13.2	9.40	14.9	1.60	0.127	-0.454	-0.664
7B_3_29	MW-7B	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	2022-03-09 to 2024-08-08	Nonparametric	Nonparametric	-92.4	-108	-153	19.2	54.4	-0.589	1.36	0.938
7B_4_30	MW-7B	Other	Total Suspended Solids	mg/L	14	12	86%	2022-03-09 to 2024-08-08		Nonparametric	1.00	1.00	1.00	1.00	0	0	NA	NA

(Table continues on next page)

Table 2: Summary Statistics, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	Skewness	Kurtosis
7B_4_31	MW-7B	Other	Bicarbonate	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	394	390	380	418	9.64	0.0245	0.961	2.15
7B_4_33	MW-7B	Other	Hardness	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Nonparametric	Nonparametric	33.4	30.0	27.0	51.0	6.63	0.198	1.61	2.68
7B_4_34	MW-7B	Other	Magnesium	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	2.80	2.80	2.43	3.00	0.149	0.0533	-0.901	1.72
7B_4_35	MW-7B	Other	Potassium	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Nonparametric	Nonparametric	5.57	5.59	4.80	5.85	0.244	0.0439	-2.64	8.76
7B_4_36	MW-7B	Other	Sodium	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Nonparametric	Nonparametric	132	136	87.5	146	14.6	0.110	-2.55	7.24
7B_5_38	MW-7B	Part 115	Iron	mg/L	14	0	0%	2022-03-09 to 2024-08-08	Gamma; Lognormal; Normal	Normal	0.0614	0.0600	0.0300	0.120	0.0266	0.432	0.712	0.191

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
100C_1_01	MW-100C	Appendix III	Boron	mg/L	14	0	0%	0.907	0.143	0.172	0.313	0.887	0.073	0.185	0.217	0.174	>= 0.10	0.509	>= 0.10	0.056	Gamma; Lognormal; Normal	Normal
100C_1_02	MW-100C	Appendix III	Calcium	mg/L	14	0	0%	0.902	0.121	0.165	0.375	0.896	0.099	0.171	0.320	0.171	>= 0.10	0.599	>= 0.10	0.035	Gamma; Lognormal; Normal	Normal
100C_1_03	MW-100C	Appendix III	Chloride	mg/L	14	0	0%	0.624	0.000	0.374	0.000	0.686	0.000	0.370	0.000	0.380	< 0.01	2.128	< 0.01	0.342	Nonparametric	Nonparametric
100C_1_04	MW-100C	Appendix III	Fluoride	mg/L	14	11	79%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.483		Nonparametric
100C_1_05	MW-100C	Appendix III	pH, Field	su	14	0	0%	0.942	0.439	0.183	0.230	0.942	0.447	0.183	0.233	0.191	>= 0.10	0.426	>= 0.10	0.013	Gamma; Lognormal; Normal	Normal
100C_1_06	MW-100C	Appendix III	Sulfate	mg/L	14	0	0%	0.610	0.000	0.324	0.000	0.742	0.001	0.303	0.001	0.315	< 0.01	1.832	< 0.01	0.488	Nonparametric	Nonparametric
100C_1_07	MW-100C	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	0.859	0.030	0.282	0.004	0.852	0.023	0.287	0.003	0.279	< 0.01	0.917	0.01 <= p < 0.05	0.024	Nonparametric	Nonparametric
100C_2_04	MW-100C	Appendix IV	Fluoride	mg/L	14	11	79%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.483		Nonparametric
100C_2_08	MW-100C	Appendix IV	Antimony	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_2_09	MW-100C	Appendix IV	Arsenic	mg/L	14	13	93%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_2_10	MW-100C	Appendix IV	Barium	mg/L	14	0	0%	0.946	0.497	0.190	0.186	0.930	0.308	0.199	0.139	0.203	>= 0.10	0.478	>= 0.10	0.123	Gamma; Lognormal; Normal	Normal
100C_2_11	MW-100C	Appendix IV	Beryllium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_2_12	MW-100C	Appendix IV	Cadmium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_2_13	MW-100C	Appendix IV	Chromium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_2_14	MW-100C	Appendix IV	Cobalt	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_2_15	MW-100C	Appendix IV	Lead	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_2_16	MW-100C	Appendix IV	Lithium	mg/L	14	0	0%	0.928	0.285	0.230	0.043	0.915	0.188	0.240	0.028	0.238	0.01 <= p < 0.05	0.602	>= 0.10	0.058	Gamma; Lognormal; Normal	Normal
100C_2_17	MW-100C	Appendix IV	Mercury	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_2_18	MW-100C	Appendix IV	Molybdenum	mg/L	14	11	79%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.145		Nonparametric
100C_2_21	MW-100C	Appendix IV	Radium-226/228	pCi/L	14	0	0%	0.908	0.147	0.168	0.349	0.978	0.961	0.113	0.897	0.114	>= 0.10	0.172	>= 0.10	0.565	Gamma; Lognormal; Normal	Normal
100C_2_22	MW-100C	Appendix IV	Selenium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_2_23	MW-100C	Appendix IV	Thallium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_3_24	MW-100C	Field Parameters	pH	su	14	0	0%	0.942	0.439	0.183	0.230	0.942	0.447	0.183	0.233	0.191	>= 0.10	0.426	>= 0.10	0.013	Gamma; Lognormal; Normal	Normal
100C_3_25	MW-100C	Field Parameters	Conductivity	mS/cm	14	0	0%	0.927	0.276	0.172	0.312	0.926	0.268	0.175	0.293	0.180	>= 0.10	0.487	>= 0.10	0.020	Gamma; Lognormal; Normal	Normal
100C_3_26	MW-100C	Field Parameters	Turbidity	NTU	14	0	0%	0.854	0.025	0.242	0.026	0.655	0.000	0.317	0.000	0.338	< 0.01	1.645	< 0.01	1.969	Nonparametric	Nonparametric
100C_3_27	MW-100C	Field Parameters	Dissolved Oxygen	mg/L	14	0	0%	0.600	0.000	0.360	0.000	NA	NA	NA	NA	NA		NA		NA	Nonparametric	Nonparametric
100C_3_28	MW-100C	Field Parameters	Temperature	°C	14	0	0%	0.899	0.111	0.193	0.171	0.899	0.109	0.183	0.230	0.195	>= 0.10	0.569	>= 0.10	0.116	Gamma; Lognormal; Normal	Normal
100C_3_29	MW-100C	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	0.913	0.175	0.151	0.524	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
100C_4_30	MW-100C	Other	Total Suspended Solids	mg/L	14	5	36%	0.562	0.000	0.362	0.001	0.776	0.011	0.297	0.022	0.322	0.01 <= p < 0.05	1.270	< 0.01	0.684	Nonparametric	Nonparametric
100C_4_31	MW-100C	Other	Bicarbonate	mg/L	14	0	0%	0.451	0.000	0.386	0.000	0.387	0.000	0.418	0.000	0.414	< 0.01	3.698	< 0.01	0.331	Nonparametric	Nonparametric
100C_4_32	MW-100C	Other	Carbonate	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_4_33	MW-100C	Other	Hardness	mg/L	14	0	0%	0.835	0.014	0.262	0.010	0.827	0.011	0.268	0.007	0.273	< 0.01	1.056	< 0.01	0.058	Nonparametric	Nonparametric
100C_4_34	MW-100C	Other	Magnesium	mg/L	14	0	0%	0.962	0.751	0.134	0.713	0.956	0.657	0.141	0.630	0.142	>= 0.10	0.286	>= 0.10	0.046	Gamma; Lognormal; Normal	Normal
100C_4_35	MW-100C	Other	Potassium	mg/L	14	0	0%	0.927	0.276	0.127	0.787	0.918	0.209	0.136	0.692	0.129	>= 0.10	0.418	>= 0.10	0.045	Gamma; Lognormal; Normal	Normal
100C_4_36	MW-100C	Other	Sodium	mg/L	14	0	0%	0.871	0.044	0.220	0.065	0.910	0.155	0.207	0.105	0.209	>= 0.10	0.600	>= 0.10	0.152	Gamma; Lognormal; Normal	Normal
100C_5_37	MW-100C	Part 115	Copper	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_5_38	MW-100C	Part 115	Iron	mg/L	14	0	0%	0.875	0.049	0.209	0.097	0.825	0.010	0.254	0.014	0.231	0.01 <= p < 0.05	0.923	0.01 <= p < 0.05	0.271	Normal	Normal
100C_5_39	MW-100C	Part 115	Nickel	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_5_40	MW-100C	Part 115	Silver	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
100C_5_41	MW-100C	Part 115	Vanadium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100C_5_42	MW-100C	Part 115	Zinc	mg/L	14	13	93%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_1_01	MW-100D	Appendix III	Boron	mg/L	9	0	0%	0.685	0.001	0.348	0.002	0.632	0.000	0.365	0.001	0.365	< 0.01	1.406	< 0.01	0.190	Nonparametric	Nonparametric
100D_1_02	MW-100D	Appendix III	Calcium	mg/L	9	0	0%	0.554	0.000	0.409	0.000	0.701	0.001	0.356	0.002	0.398	< 0.01	1.534	< 0.01	0.796	Nonparametric	Nonparametric
100D_1_03	MW-100D	Appendix III	Chloride	mg/L	9	4	44%	0.823	0.123	0.306	0.128	0.844	0.177	0.282	0.213	0.313	>= 0.10	0.515	>= 0.10	0.513	Gamma; Lognormal; Normal	Normal
100D_1_04	MW-100D	Appendix III	Fluoride	mg/L	9	5	56%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.237		Nonparametric
100D_1_05	MW-100D	Appendix III	pH, Field	su	9	0	0%	0.969	0.888	0.133	0.920	0.963	0.826	0.137	0.894	0.121	>= 0.10	0.214	>= 0.10	0.039	Gamma; Lognormal; Normal	Normal
100D_1_06	MW-100D	Appendix III	Sulfate	mg/L	9	1	11%	0.693	0.002	0.355	0.004	0.864	0.130	0.254	0.134	0.304	0.01 <= p < 0.05	0.823	0.01 <= p < 0.05	0.753	Lognormal	Lognormal
100D_1_07	MW-100D	Appendix III	Total Dissolved Solids	mg/L	9	0	0%	0.723	0.003	0.306	0.015	0.766	0.008	0.289	0.029	0.288	0.01 <= p < 0.05	0.979	< 0.01	0.147	Nonparametric	Nonparametric
100D_2_04	MW-100D	Appendix IV	Fluoride	mg/L	9	5	56%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.237		Nonparametric
100D_2_08	MW-100D	Appendix IV	Antimony	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_2_09	MW-100D	Appendix IV	Arsenic	mg/L	9	2	22%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.000		Nonparametric
100D_2_10	MW-100D	Appendix IV	Barium	mg/L	9	0	0%	0.800	0.021	0.230	0.182	0.901	0.256	0.184	0.507	0.204	>= 0.10	0.538	>= 0.10	0.291	Gamma; Lognormal; Normal	Normal
100D_2_11	MW-100D	Appendix IV	Beryllium	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_2_12	MW-100D	Appendix IV	Cadmium	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_2_13	MW-100D	Appendix IV	Chromium	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_2_14	MW-100D	Appendix IV	Cobalt	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_2_15	MW-100D	Appendix IV	Lead	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_2_16	MW-100D	Appendix IV	Lithium	mg/L	9	0	0%	0.621	0.000	0.343	0.003	0.685	0.001	0.316	0.010	0.330	< 0.01	1.292	< 0.01	0.209	Nonparametric	Nonparametric
100D_2_17	MW-100D	Appendix IV	Mercury	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_2_18	MW-100D	Appendix IV	Molybdenum	mg/L	9	1	11%	0.919	0.425	0.194	0.505	0.933	0.542	0.178	0.639	0.191	>= 0.10	0.303	>= 0.10	0.190	Gamma; Lognormal; Normal	Normal
100D_2_21	MW-100D	Appendix IV	Radium-226/228	pCi/L	9	0	0%	0.658	0.000	0.351	0.002	0.916	0.359	0.198	0.389	0.248	>= 0.10	0.604	>= 0.10	0.707	Gamma; Lognormal	Gamma
100D_2_22	MW-100D	Appendix IV	Selenium	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_2_23	MW-100D	Appendix IV	Thallium	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_3_24	MW-100D	Field Parameters	pH	su	9	0	0%	0.969	0.888	0.133	0.920	0.963	0.826	0.137	0.894	0.121	>= 0.10	0.214	>= 0.10	0.039	Gamma; Lognormal; Normal	Normal
100D_3_25	MW-100D	Field Parameters	Conductivity	mS/cm	9	0	0%	0.616	0.000	0.429	0.000	0.640	0.000	0.427	0.000	0.437	< 0.01	1.654	< 0.01	0.159	Nonparametric	Nonparametric
100D_3_26	MW-100D	Field Parameters	Turbidity	NTU	9	0	0%	0.963	0.829	0.150	0.808	0.923	0.420	0.163	0.701	0.156	>= 0.10	0.266	>= 0.10	0.327	Gamma; Lognormal; Normal	Normal
100D_3_27	MW-100D	Field Parameters	Dissolved Oxygen	mg/L	9	0	0%	0.713	0.002	0.332	0.005	NA	NA	NA	NA	NA		NA		NA	Nonparametric	Nonparametric
100D_3_28	MW-100D	Field Parameters	Temperature	°C	9	0	0%	0.899	0.248	0.210	0.299	0.885	0.177	0.231	0.182	0.228	>= 0.10	0.482	>= 0.10	0.132	Gamma; Lognormal; Normal	Normal
100D_3_29	MW-100D	Field Parameters	Oxidation Reduction Potential	mV	9	0	0%	0.850	0.074	0.232	0.174	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
100D_4_30	MW-100D	Other	Total Suspended Solids	mg/L	9	3	33%	0.611	0.001	0.437	0.001	0.739	0.015	0.371	0.010	0.410	< 0.01	0.995	< 0.01	0.610	Nonparametric	Nonparametric
100D_4_31	MW-100D	Other	Bicarbonate	mg/L	9	0	0%	0.634	0.000	0.419	0.000	0.664	0.001	0.417	0.000	0.414	< 0.01	1.464	< 0.01	0.123	Nonparametric	Nonparametric
100D_4_32	MW-100D	Other	Carbonate	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_4_33	MW-100D	Other	Hardness	mg/L	9	0	0%	0.657	0.000	0.297	0.022	0.878	0.148	0.227	0.198	0.272	0.05 <= p < 0.10	0.738	0.01 <= p < 0.05	0.755	Gamma; Lognormal	Gamma
100D_4_34	MW-100D	Other	Magnesium	mg/L	9	0	0%	0.586	0.000	0.368	0.001	0.745	0.005	0.276	0.047	0.325	0.01 <= p < 0.05	1.256	< 0.01	0.672	Nonparametric	Nonparametric
100D_4_35	MW-100D	Other	Potassium	mg/L	9	0	0%	0.905	0.281	0.155	0.768	0.923	0.419	0.148	0.827	0.155	>= 0.10	0.332	>= 0.10	0.097	Gamma; Lognormal; Normal	Normal
100D_4_36	MW-100D	Other	Sodium	mg/L	9	0	0%	0.913	0.335	0.207	0.320	0.903	0.271	0.219	0.246	0.210	>= 0.10	0.466	>= 0.10	0.060	Gamma; Lognormal; Normal	Normal
100D_5_37	MW-100D	Part 115	Copper	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_5_38	MW-100D	Part 115	Iron	mg/L	9	0	0%	0.853	0.080	0.218	0.247	0.879	0.155	0.217	0.257	0.235	>= 0.10	0.513	>= 0.10	0.743	Gamma; Lognormal; Normal	Normal

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
100D_5_39	MW-100D	Part 115	Nickel	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_5_40	MW-100D	Part 115	Silver	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_5_41	MW-100D	Part 115	Vanadium	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
100D_5_42	MW-100D	Part 115	Zinc	mg/L	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_1_01	MW-16C	Appendix III	Boron	mg/L	11	0	0%	0.882	0.110	0.282	0.014	0.887	0.126	0.280	0.016	0.286	0.01 <= p < 0.05	0.651	0.05 <= p < 0.10	0.030	Gamma; Lognormal; Normal	Normal
16C_1_02	MW-16C	Appendix III	Calcium	mg/L	11	0	0%	0.896	0.166	0.163	0.569	0.886	0.125	0.178	0.428	0.172	>= 0.10	0.532	>= 0.10	0.077	Gamma; Lognormal; Normal	Normal
16C_1_03	MW-16C	Appendix III	Chloride	mg/L	11	6	55%	0.647	0.002	0.429	0.003	0.743	0.026	0.383	0.016	0.418	< 0.01	0.883	0.01 <= p < 0.05	0.593	Nonparametric	Nonparametric
16C_1_04	MW-16C	Appendix III	Fluoride	mg/L	11	8	73%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.400		Nonparametric
16C_1_05	MW-16C	Appendix III	pH, Field	su	11	0	0%	0.889	0.135	0.198	0.265	0.889	0.135	0.197	0.274	0.207	>= 0.10	0.542	>= 0.10	0.015	Gamma; Lognormal; Normal	Normal
16C_1_06	MW-16C	Appendix III	Sulfate	mg/L	11	0	0%	0.529	0.000	0.417	0.000	0.620	0.000	0.398	0.000	0.412	< 0.01	1.942	< 0.01	0.284	Nonparametric	Nonparametric
16C_1_07	MW-16C	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	0.717	0.001	0.300	0.006	0.744	0.002	0.284	0.013	0.289	0.01 <= p < 0.05	1.207	< 0.01	0.077	Nonparametric	Nonparametric
16C_2_04	MW-16C	Appendix IV	Fluoride	mg/L	11	8	73%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.400		Nonparametric
16C_2_08	MW-16C	Appendix IV	Antimony	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_2_09	MW-16C	Appendix IV	Arsenic	mg/L	11	8	73%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.234		Nonparametric
16C_2_10	MW-16C	Appendix IV	Barium	mg/L	11	0	0%	0.848	0.041	0.257	0.041	0.888	0.130	0.224	0.128	0.241	0.05 <= p < 0.10	0.707	0.05 <= p < 0.10	0.264	Gamma; Lognormal	Gamma
16C_2_11	MW-16C	Appendix IV	Beryllium	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_2_12	MW-16C	Appendix IV	Cadmium	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_2_13	MW-16C	Appendix IV	Chromium	mg/L	11	10	91%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_2_14	MW-16C	Appendix IV	Cobalt	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_2_15	MW-16C	Appendix IV	Lead	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_2_16	MW-16C	Appendix IV	Lithium	mg/L	11	0	0%	0.818	0.016	0.263	0.033	0.817	0.016	0.264	0.030	0.275	0.01 <= p < 0.05	0.998	< 0.01	0.057	Nonparametric	Nonparametric
16C_2_17	MW-16C	Appendix IV	Mercury	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_2_18	MW-16C	Appendix IV	Molybdenum	mg/L	11	9	82%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.178		Nonparametric
16C_2_21	MW-16C	Appendix IV	Radium-226/228	pCi/L	11	0	0%	0.939	0.514	0.122	0.917	0.909	0.236	0.198	0.268	0.156	>= 0.10	0.308	>= 0.10	0.945	Gamma; Lognormal; Normal	Normal
16C_2_22	MW-16C	Appendix IV	Selenium	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_2_23	MW-16C	Appendix IV	Thallium	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_3_24	MW-16C	Field Parameters	pH	su	11	0	0%	0.889	0.135	0.198	0.265	0.889	0.135	0.197	0.274	0.207	>= 0.10	0.542	>= 0.10	0.015	Gamma; Lognormal; Normal	Normal
16C_3_25	MW-16C	Field Parameters	Conductivity	mS/cm	11	0	0%	0.926	0.375	0.148	0.722	0.917	0.292	0.152	0.682	0.159	>= 0.10	0.380	>= 0.10	0.036	Gamma; Lognormal; Normal	Normal
16C_3_26	MW-16C	Field Parameters	Turbidity	NTU	11	0	0%	0.587	0.000	0.396	0.000	0.938	0.503	0.204	0.225	0.261	0.05 <= p < 0.10	0.598	>= 0.10	1.149	Gamma; Lognormal	Gamma
16C_3_27	MW-16C	Field Parameters	Dissolved Oxygen	mg/L	11	0	0%	0.853	0.047	0.190	0.325	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
16C_3_28	MW-16C	Field Parameters	Temperature	°C	11	0	0%	0.725	0.001	0.230	0.105	0.505	0.000	0.390	0.000	0.347	< 0.01	2.020	< 0.01	0.753	Normal	Normal
16C_3_29	MW-16C	Field Parameters	Oxidation Reduction Potential	mV	11	0	0%	0.957	0.736	0.178	0.427	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
16C_4_30	MW-16C	Other	Total Suspended Solids	mg/L	11	3	27%	0.616	0.000	0.312	0.021	0.904	0.316	0.276	0.074	0.323	0.01 <= p < 0.05	0.729	0.05 <= p < 0.10	1.463	Gamma; Lognormal	Gamma
16C_4_31	MW-16C	Other	Bicarbonate	mg/L	11	0	0%	0.773	0.004	0.277	0.018	0.797	0.009	0.264	0.031	0.265	0.01 <= p < 0.05	1.099	< 0.01	0.058	Nonparametric	Nonparametric
16C_4_32	MW-16C	Other	Carbonate	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_4_33	MW-16C	Other	Hardness	mg/L	11	0	0%	0.902	0.194	0.220	0.142	0.889	0.136	0.234	0.095	0.229	>= 0.10	0.605	>= 0.10	0.074	Gamma; Lognormal; Normal	Normal
16C_4_34	MW-16C	Other	Magnesium	mg/L	11	0	0%	0.916	0.290	0.251	0.050	0.909	0.237	0.256	0.043	0.266	0.01 <= p < 0.05	0.498	>= 0.10	0.083	Gamma; Lognormal; Normal	Normal
16C_4_35	MW-16C	Other	Potassium	mg/L	11	0	0%	0.863	0.063	0.232	0.101	0.853	0.047	0.249	0.056	0.251	0.05 <= p < 0.10	0.807	0.01 <= p < 0.05	0.132	Gamma; Lognormal; Normal	Normal
16C_4_36	MW-16C	Other	Sodium	mg/L	11	0	0%	0.775	0.004	0.320	0.002	0.827	0.021	0.293	0.009	0.312	< 0.01	1.070	< 0.01	0.413	Nonparametric	Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
16C_5_37	MW-16C	Part 115	Copper	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_5_38	MW-16C	Part 115	Iron	mg/L	11	0	0%	0.715	0.001	0.280	0.016	0.786	0.006	0.265	0.030	0.278	0.01 <= p < 0.05	1.074	< 0.01	0.282	Nonparametric	Nonparametric
16C_5_39	MW-16C	Part 115	Nickel	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_5_40	MW-16C	Part 115	Silver	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_5_41	MW-16C	Part 115	Vanadium	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16C_5_42	MW-16C	Part 115	Zinc	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_1_01	MW-16D	Appendix III	Boron	mg/L	11	0	0%	0.946	0.591	0.208	0.203	0.946	0.593	0.205	0.221	0.198	>= 0.10	0.388	>= 0.10	0.040	Gamma; Lognormal; Normal	Normal
16D_1_02	MW-16D	Appendix III	Calcium	mg/L	11	0	0%	0.895	0.161	0.238	0.081	0.899	0.180	0.234	0.093	0.236	>= 0.10	0.572	>= 0.10	0.022	Gamma; Lognormal; Normal	Normal
16D_1_03	MW-16D	Appendix III	Chloride	mg/L	11	0	0%	0.907	0.222	0.159	0.609	0.898	0.176	0.170	0.505	0.168	>= 0.10	0.477	>= 0.10	0.087	Gamma; Lognormal; Normal	Normal
16D_1_04	MW-16D	Appendix III	Fluoride	mg/L	11	8	73%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.168		Nonparametric
16D_1_05	MW-16D	Appendix III	pH, Field	su	11	0	0%	0.886	0.124	0.206	0.212	0.889	0.136	0.203	0.230	0.203	>= 0.10	0.568	>= 0.10	0.016	Gamma; Lognormal; Normal	Normal
16D_1_06	MW-16D	Appendix III	Sulfate	mg/L	11	1	9%	0.831	0.035	0.244	0.095	0.917	0.335	0.170	0.567	0.190	>= 0.10	0.427	>= 0.10	0.358	Gamma; Lognormal; Normal	Normal
16D_1_07	MW-16D	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	0.903	0.201	0.250	0.053	0.908	0.234	0.246	0.061	0.241	0.05 <= p < 0.10	0.482	>= 0.10	0.022	Gamma; Lognormal; Normal	Normal
16D_2_04	MW-16D	Appendix IV	Fluoride	mg/L	11	8	73%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.168		Nonparametric
16D_2_08	MW-16D	Appendix IV	Antimony	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_2_09	MW-16D	Appendix IV	Arsenic	mg/L	11	3	27%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.154		Nonparametric
16D_2_10	MW-16D	Appendix IV	Barium	mg/L	11	0	0%	0.968	0.866	0.147	0.730	0.966	0.838	0.153	0.672	0.155	>= 0.10	0.276	>= 0.10	0.040	Gamma; Lognormal; Normal	Normal
16D_2_11	MW-16D	Appendix IV	Beryllium	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_2_12	MW-16D	Appendix IV	Cadmium	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_2_13	MW-16D	Appendix IV	Chromium	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_2_14	MW-16D	Appendix IV	Cobalt	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_2_15	MW-16D	Appendix IV	Lead	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_2_16	MW-16D	Appendix IV	Lithium	mg/L	11	0	0%	0.902	0.194	0.194	0.296	0.913	0.264	0.196	0.278	0.191	>= 0.10	0.577	>= 0.10	0.140	Gamma; Lognormal; Normal	Normal
16D_2_17	MW-16D	Appendix IV	Mercury	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_2_18	MW-16D	Appendix IV	Molybdenum	mg/L	11	0	0%	0.669	0.000	0.389	0.000	0.579	0.000	0.429	0.000	0.418	< 0.01	1.845	< 0.01	0.234	Nonparametric	Nonparametric
16D_2_21	MW-16D	Appendix IV	Radium-226/228	pCi/L	11	0	0%	0.931	0.417	0.169	0.515	0.974	0.920	0.115	0.950	0.125	>= 0.10	0.189	>= 0.10	0.648	Gamma; Lognormal; Normal	Normal
16D_2_22	MW-16D	Appendix IV	Selenium	mg/L	11	10	91%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_2_23	MW-16D	Appendix IV	Thallium	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_3_24	MW-16D	Field Parameters	pH	su	11	0	0%	0.892	0.148	0.195	0.285	0.895	0.162	0.192	0.308	0.192	>= 0.10	0.502	>= 0.10	0.016	Gamma; Lognormal; Normal	Normal
16D_3_25	MW-16D	Field Parameters	Conductivity	mS/cm	11	0	0%	0.979	0.962	0.139	0.803	0.979	0.958	0.143	0.761	0.142	>= 0.10	0.196	>= 0.10	0.027	Gamma; Lognormal; Normal	Normal
16D_3_26	MW-16D	Field Parameters	Turbidity	NTU	11	0	0%	0.931	0.426	0.189	0.330	0.922	0.333	0.215	0.165	0.215	>= 0.10	0.454	>= 0.10	0.219	Gamma; Lognormal; Normal	Normal
16D_3_27	MW-16D	Field Parameters	Dissolved Oxygen	mg/L	11	0	0%	0.431	0.000	0.477	0.000	0.861	0.059	0.251	0.051	0.374	< 0.01	1.409	< 0.01	1.207	Lognormal	Nonparametric
16D_3_28	MW-16D	Field Parameters	Temperature	°C	11	0	0%	0.974	0.923	0.112	0.964	0.926	0.372	0.144	0.754	0.125	>= 0.10	0.231	>= 0.10	0.505	Gamma; Lognormal; Normal	Normal
16D_3_29	MW-16D	Field Parameters	Oxidation Reduction Potential	mV	11	0	0%	0.926	0.376	0.270	0.025	NA	NA	NA	NA	NA		NA		NA	Normal	Normal
16D_4_30	MW-16D	Other	Total Suspended Solids	mg/L	11	0	0%	0.860	0.057	0.177	0.434	0.920	0.316	0.154	0.656	0.171	>= 0.10	0.420	>= 0.10	0.721	Gamma; Lognormal; Normal	Normal
16D_4_31	MW-16D	Other	Bicarbonate	mg/L	11	0	0%	0.831	0.024	0.270	0.024	0.841	0.033	0.262	0.033	0.260	0.01 <= p < 0.05	0.675	0.05 <= p < 0.10	0.036	Gamma	Gamma
16D_4_32	MW-16D	Other	Carbonate	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_4_33	MW-16D	Other	Hardness	mg/L	11	0	0%	0.865	0.068	0.191	0.314	0.877	0.095	0.174	0.468	0.178	>= 0.10	0.599	>= 0.10	0.093	Gamma; Lognormal; Normal	Normal
16D_4_34	MW-16D	Other	Magnesium	mg/L	11	0	0%	0.957	0.731	0.146	0.734	0.956	0.716	0.151	0.693	0.141	>= 0.10	0.260	>= 0.10	0.029	Gamma; Lognormal; Normal	Normal

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
16D_4_35	MW-16D	Other	Potassium	mg/L	11	0	0%	0.944	0.573	0.147	0.729	0.945	0.576	0.144	0.757	0.153	>= 0.10	0.276	>= 0.10	0.026	Gamma; Lognormal; Normal	Normal
16D_4_36	MW-16D	Other	Sodium	mg/L	11	0	0%	0.846	0.038	0.192	0.305	0.824	0.020	0.206	0.215	0.192	>= 0.10	0.647	0.05 <= p < 0.10	0.056	Gamma; Lognormal; Normal	Normal
16D_5_37	MW-16D	Part 115	Copper	mg/L	11	10	91%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_5_38	MW-16D	Part 115	Iron	mg/L	11	0	0%	0.965	0.832	0.102	0.988	0.879	0.100	0.229	0.110	0.188	>= 0.10	0.406	>= 0.10	0.723	Gamma; Lognormal; Normal	Normal
16D_5_39	MW-16D	Part 115	Nickel	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_5_40	MW-16D	Part 115	Silver	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_5_41	MW-16D	Part 115	Vanadium	mg/L	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
16D_5_42	MW-16D	Part 115	Zinc	mg/L	11	1	9%	0.726	0.002	0.341	0.002	0.896	0.198	0.176	0.516	0.247	>= 0.10	0.700	0.05 <= p < 0.10	1.290	Gamma; Lognormal	Gamma
7B_1_01	MW-7B	Appendix III	Boron	mg/L	14	0	0%	0.959	0.702	0.132	0.734	0.961	0.743	0.130	0.756	0.136	>= 0.10	0.239	>= 0.10	0.028	Gamma; Lognormal; Normal	Normal
7B_1_02	MW-7B	Appendix III	Calcium	mg/L	14	0	0%	0.932	0.329	0.190	0.184	0.943	0.457	0.179	0.261	0.180	>= 0.10	0.454	>= 0.10	0.061	Gamma; Lognormal; Normal	Normal
7B_1_03	MW-7B	Appendix III	Chloride	mg/L	14	12	86%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.000		Nonparametric
7B_1_04	MW-7B	Appendix III	Fluoride	mg/L	14	12	86%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.490		Nonparametric
7B_1_05	MW-7B	Appendix III	pH, Field	su	14	0	0%	0.917	0.196	0.158	0.454	0.916	0.195	0.160	0.430	0.165	>= 0.10	0.515	>= 0.10	0.019	Gamma; Lognormal; Normal	Normal
7B_1_06	MW-7B	Appendix III	Sulfate	mg/L	14	12	86%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.118		Nonparametric
7B_1_07	MW-7B	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	0.944	0.466	0.127	0.779	0.944	0.475	0.125	0.796	0.133	>= 0.10	0.294	>= 0.10	0.018	Gamma; Lognormal; Normal	Normal
7B_2_04	MW-7B	Appendix IV	Fluoride	mg/L	14	12	86%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.490		Nonparametric
7B_2_08	MW-7B	Appendix IV	Antimony	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_2_09	MW-7B	Appendix IV	Arsenic	mg/L	14	11	79%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.234		Nonparametric
7B_2_10	MW-7B	Appendix IV	Barium	mg/L	14	0	0%	0.876	0.052	0.224	0.056	0.880	0.058	0.205	0.114	0.214	0.05 <= p < 0.10	0.715	0.05 <= p < 0.10	0.113	Gamma; Lognormal; Normal	Normal
7B_2_11	MW-7B	Appendix IV	Beryllium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_2_12	MW-7B	Appendix IV	Cadmium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_2_13	MW-7B	Appendix IV	Chromium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_2_14	MW-7B	Appendix IV	Cobalt	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_2_15	MW-7B	Appendix IV	Lead	mg/L	14	13	93%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_2_16	MW-7B	Appendix IV	Lithium	mg/L	14	0	0%	0.920	0.220	0.222	0.061	0.912	0.171	0.216	0.076	0.216	0.05 <= p < 0.10	0.700	0.05 <= p < 0.10	0.057	Gamma; Lognormal; Normal	Normal
7B_2_17	MW-7B	Appendix IV	Mercury	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_2_18	MW-7B	Appendix IV	Molybdenum	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_2_21	MW-7B	Appendix IV	Radium-226/228	pCi/L	14	0	0%	0.960	0.717	0.092	0.988	0.953	0.604	0.124	0.811	0.110	>= 0.10	0.199	>= 0.10	0.564	Gamma; Lognormal; Normal	Normal
7B_2_22	MW-7B	Appendix IV	Selenium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_2_23	MW-7B	Appendix IV	Thallium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_3_24	MW-7B	Field Parameters	pH	su	14	0	0%	0.917	0.196	0.158	0.454	0.916	0.195	0.160	0.430	0.165	>= 0.10	0.515	>= 0.10	0.019	Gamma; Lognormal; Normal	Normal
7B_3_25	MW-7B	Field Parameters	Conductivity	mS/cm	14	0	0%	0.541	0.000	0.463	0.000	0.556	0.000	0.457	0.000	0.457	< 0.01	2.997	< 0.01	0.083	Nonparametric	Nonparametric
7B_3_26	MW-7B	Field Parameters	Turbidity	NTU	14	0	0%	0.925	0.262	0.180	0.255	0.621	0.000	0.351	0.000	0.314	< 0.01	1.910	< 0.01	2.067	Normal	Normal
7B_3_27	MW-7B	Field Parameters	Dissolved Oxygen	mg/L	14	0	0%	0.755	0.001	0.262	0.010	0.940	0.419	0.141	0.634	0.189	>= 0.10	0.627	>= 0.10	1.052	Gamma; Lognormal	Gamma
7B_3_28	MW-7B	Field Parameters	Temperature	°C	14	0	0%	0.938	0.399	0.194	0.162	0.924	0.251	0.210	0.095	0.212	0.05 <= p < 0.10	0.519	>= 0.10	0.132	Gamma; Lognormal; Normal	Normal
7B_3_29	MW-7B	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	0.812	0.007	0.305	0.001	NA	NA	NA	NA	NA		NA		NA	Nonparametric	Nonparametric
7B_4_30	MW-7B	Other	Total Suspended Solids	mg/L	14	12	86%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.000		Nonparametric
7B_4_31	MW-7B	Other	Bicarbonate	mg/L	14	0	0%	0.872	0.044	0.224	0.055	0.877	0.053	0.222	0.060	0.227	0.05 <= p < 0.10	0.777	0.01 <= p < 0.05	0.024	Gamma; Lognormal; Normal	Normal
7B_4_32	MW-7B	Other	Carbonate	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
7B_4_33	MW-7B	Other	Hardness	mg/L	14	0	0%	0.786	0.003	0.284	0.003	0.826	0.011	0.270	0.007	0.280	< 0.01	1.161	< 0.01	0.180	Nonparametric	Nonparametric
7B_4_34	MW-7B	Other	Magnesium	mg/L	14	0	0%	0.928	0.284	0.163	0.395	0.913	0.173	0.175	0.292	0.165	>= 0.10	0.400	>= 0.10	0.055	Gamma; Lognormal; Normal	Normal
7B_4_35	MW-7B	Other	Potassium	mg/L	14	0	0%	0.698	0.000	0.285	0.003	0.671	0.000	0.297	0.002	0.288	< 0.01	1.585	< 0.01	0.046	Nonparametric	Nonparametric
7B_4_36	MW-7B	Other	Sodium	mg/L	14	0	0%	0.689	0.000	0.325	0.000	0.633	0.000	0.351	0.000	0.338	< 0.01	1.919	< 0.01	0.128	Nonparametric	Nonparametric
7B_5_37	MW-7B	Part 115	Copper	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_5_38	MW-7B	Part 115	Iron	mg/L	14	0	0%	0.930	0.300	0.164	0.386	0.940	0.424	0.137	0.675	0.134	>= 0.10	0.301	>= 0.10	0.441	Gamma; Lognormal; Normal	Normal
7B_5_39	MW-7B	Part 115	Nickel	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_5_40	MW-7B	Part 115	Silver	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_5_41	MW-7B	Part 115	Vanadium	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7B_5_42	MW-7B	Part 115	Zinc	mg/L	14	14	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 4: Autocorrelation Tests, Non-Detects Excluded

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
100C_1_01	MW-100C	Appendix III	Boron	mg/L	14	0	0%	0.308	0.201	
100C_1_02	MW-100C	Appendix III	Calcium	mg/L	14	0	0%	0.625	0.009	**
100C_1_03	MW-100C	Appendix III	Chloride	mg/L	14	0	0%	0.544	0.024	*
100C_1_04	MW-100C	Appendix III	Fluoride	mg/L	14	11	79%	-0.167	0.648	
100C_1_05	MW-100C	Appendix III	pH, Field	su	14	0	0%	0.374	0.120	
100C_1_06	MW-100C	Appendix III	Sulfate	mg/L	14	0	0%	0.419	0.082	
100C_1_07	MW-100C	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	0.047	0.847	
100C_2_04	MW-100C	Appendix IV	Fluoride	mg/L	14	11	79%	-0.167	0.648	
100C_2_09	MW-100C	Appendix IV	Arsenic	mg/L	14	13	93%	NA	NA	
100C_2_10	MW-100C	Appendix IV	Barium	mg/L	14	0	0%	0.494	0.040	*
100C_2_16	MW-100C	Appendix IV	Lithium	mg/L	14	0	0%	0.424	0.078	
100C_2_18	MW-100C	Appendix IV	Molybdenum	mg/L	14	11	79%	-0.167	0.648	
100C_2_21	MW-100C	Appendix IV	Radium-226/228	pCi/L	14	0	0%	0.293	0.223	
100C_3_24	MW-100C	Field Parameters	pH	su	14	0	0%	0.374	0.120	
100C_3_25	MW-100C	Field Parameters	Conductivity	mS/cm	14	0	0%	0.497	0.039	*
100C_3_26	MW-100C	Field Parameters	Turbidity	NTU	14	0	0%	0.045	0.853	
100C_3_27	MW-100C	Field Parameters	Dissolved Oxygen	mg/L	14	0	0%	0.315	0.191	
100C_3_28	MW-100C	Field Parameters	Temperature	°C	14	0	0%	0.615	0.011	*
100C_3_29	MW-100C	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	0.131	0.586	
100C_4_30	MW-100C	Other	Total Suspended Solids	mg/L	14	5	36%	0.035	0.901	
100C_4_31	MW-100C	Other	Bicarbonate	mg/L	14	0	0%	0.090	0.710	
100C_4_33	MW-100C	Other	Hardness	mg/L	14	0	0%	0.647	0.007	**
100C_4_34	MW-100C	Other	Magnesium	mg/L	14	0	0%	0.362	0.133	
100C_4_35	MW-100C	Other	Potassium	mg/L	14	0	0%	0.170	0.480	
100C_4_36	MW-100C	Other	Sodium	mg/L	14	0	0%	0.563	0.019	*
100C_5_38	MW-100C	Part 115	Iron	mg/L	14	0	0%	0.050	0.834	
100C_5_42	MW-100C	Part 115	Zinc	mg/L	14	13	93%	NA	NA	
100D_1_01	MW-100D	Appendix III	Boron	mg/L	9	0	0%	0.277	0.329	
100D_1_02	MW-100D	Appendix III	Calcium	mg/L	9	0	0%	0.242	0.395	
100D_1_03	MW-100D	Appendix III	Chloride	mg/L	9	4	44%	0.339	0.316	
100D_1_04	MW-100D	Appendix III	Fluoride	mg/L	9	5	56%	-0.011	0.976	
100D_1_05	MW-100D	Appendix III	pH, Field	su	9	0	0%	0.120	0.673	
100D_1_06	MW-100D	Appendix III	Sulfate	mg/L	9	1	11%	0.311	0.293	
100D_1_07	MW-100D	Appendix III	Total Dissolved Solids	mg/L	9	0	0%	0.278	0.329	
100D_2_04	MW-100D	Appendix IV	Fluoride	mg/L	9	5	56%	-0.011	0.976	
100D_2_09	MW-100D	Appendix IV	Arsenic	mg/L	9	2	22%	NA	NA	
100D_2_10	MW-100D	Appendix IV	Barium	mg/L	9	0	0%	0.239	0.401	
100D_2_16	MW-100D	Appendix IV	Lithium	mg/L	9	0	0%	-0.113	0.691	
100D_2_18	MW-100D	Appendix IV	Molybdenum	mg/L	9	1	11%	0.622	0.035	*
100D_2_21	MW-100D	Appendix IV	Radium-226/228	pCi/L	9	0	0%	-0.013	0.962	
100D_3_24	MW-100D	Field Parameters	pH	su	9	0	0%	0.120	0.673	
100D_3_25	MW-100D	Field Parameters	Conductivity	mS/cm	9	0	0%	0.351	0.217	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
100D_3_26	MW-100D	Field Parameters	Turbidity	NTU	9	0	0%	0.507	0.075	
100D_3_27	MW-100D	Field Parameters	Dissolved Oxygen	mg/L	9	0	0%	-0.015	0.958	
100D_3_28	MW-100D	Field Parameters	Temperature	°C	9	0	0%	0.439	0.122	
100D_3_29	MW-100D	Field Parameters	Oxidation Reduction Potential	mV	9	0	0%	0.284	0.318	
100D_4_30	MW-100D	Other	Total Suspended Solids	mg/L	9	3	33%	-0.093	0.773	
100D_4_31	MW-100D	Other	Bicarbonate	mg/L	9	0	0%	0.302	0.289	
100D_4_33	MW-100D	Other	Hardness	mg/L	9	0	0%	0.234	0.410	
100D_4_34	MW-100D	Other	Magnesium	mg/L	9	0	0%	0.242	0.395	
100D_4_35	MW-100D	Other	Potassium	mg/L	9	0	0%	-0.056	0.845	
100D_4_36	MW-100D	Other	Sodium	mg/L	9	0	0%	0.037	0.895	
100D_5_38	MW-100D	Part 115	Iron	mg/L	9	0	0%	0.091	0.749	
16C_1_01	MW-16C	Appendix III	Boron	mg/L	11	0	0%	0.338	0.201	
16C_1_02	MW-16C	Appendix III	Calcium	mg/L	11	0	0%	0.617	0.020	*
16C_1_03	MW-16C	Appendix III	Chloride	mg/L	11	6	55%	-0.004	0.990	
16C_1_04	MW-16C	Appendix III	Fluoride	mg/L	11	8	73%	-0.167	0.648	
16C_1_05	MW-16C	Appendix III	pH, Field	su	11	0	0%	0.331	0.211	
16C_1_06	MW-16C	Appendix III	Sulfate	mg/L	11	0	0%	0.019	0.942	
16C_1_07	MW-16C	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	0.327	0.216	
16C_2_04	MW-16C	Appendix IV	Fluoride	mg/L	11	8	73%	-0.167	0.648	
16C_2_09	MW-16C	Appendix IV	Arsenic	mg/L	11	8	73%	-0.167	0.648	
16C_2_10	MW-16C	Appendix IV	Barium	mg/L	11	0	0%	0.726	0.006	**
16C_2_13	MW-16C	Appendix IV	Chromium	mg/L	11	10	91%	NA	NA	
16C_2_16	MW-16C	Appendix IV	Lithium	mg/L	11	0	0%	0.013	0.960	
16C_2_18	MW-16C	Appendix IV	Molybdenum	mg/L	11	9	82%	-0.500	0.157	
16C_2_21	MW-16C	Appendix IV	Radium-226/228	pCi/L	11	0	0%	-0.504	0.057	
16C_3_24	MW-16C	Field Parameters	pH	su	11	0	0%	0.331	0.211	
16C_3_25	MW-16C	Field Parameters	Conductivity	mS/cm	11	0	0%	-0.188	0.478	
16C_3_26	MW-16C	Field Parameters	Turbidity	NTU	11	0	0%	0.143	0.589	
16C_3_27	MW-16C	Field Parameters	Dissolved Oxygen	mg/L	11	0	0%	-0.086	0.745	
16C_3_28	MW-16C	Field Parameters	Temperature	°C	11	0	0%	-0.297	0.262	
16C_3_29	MW-16C	Field Parameters	Oxidation Reduction Potential	mV	11	0	0%	-0.046	0.862	
16C_4_30	MW-16C	Other	Total Suspended Solids	mg/L	11	3	27%	0.204	0.490	
16C_4_31	MW-16C	Other	Bicarbonate	mg/L	11	0	0%	-0.020	0.939	
16C_4_33	MW-16C	Other	Hardness	mg/L	11	0	0%	0.708	0.007	**
16C_4_34	MW-16C	Other	Magnesium	mg/L	11	0	0%	0.510	0.054	
16C_4_35	MW-16C	Other	Potassium	mg/L	11	0	0%	0.675	0.011	*
16C_4_36	MW-16C	Other	Sodium	mg/L	11	0	0%	0.688	0.009	**
16C_5_38	MW-16C	Part 115	Iron	mg/L	11	0	0%	0.505	0.056	
16D_1_01	MW-16D	Appendix III	Boron	mg/L	11	0	0%	-0.206	0.436	
16D_1_02	MW-16D	Appendix III	Calcium	mg/L	11	0	0%	0.359	0.175	
16D_1_03	MW-16D	Appendix III	Chloride	mg/L	11	0	0%	0.281	0.288	
16D_1_04	MW-16D	Appendix III	Fluoride	mg/L	11	8	73%	-0.038	0.916	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
16D_1_05	MW-16D	Appendix III	pH, Field	su	11	0	0%	-0.098	0.710	
16D_1_06	MW-16D	Appendix III	Sulfate	mg/L	11	1	9%	0.505	0.065	
16D_1_07	MW-16D	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	0.112	0.671	
16D_2_04	MW-16D	Appendix IV	Fluoride	mg/L	11	8	73%	-0.038	0.916	
16D_2_09	MW-16D	Appendix IV	Arsenic	mg/L	11	3	27%	-0.375	0.205	
16D_2_10	MW-16D	Appendix IV	Barium	mg/L	11	0	0%	0.299	0.258	
16D_2_16	MW-16D	Appendix IV	Lithium	mg/L	11	0	0%	0.204	0.441	
16D_2_18	MW-16D	Appendix IV	Molybdenum	mg/L	11	0	0%	-0.078	0.769	
16D_2_21	MW-16D	Appendix IV	Radium-226/228	pCi/L	11	0	0%	-0.314	0.235	
16D_2_22	MW-16D	Appendix IV	Selenium	mg/L	11	10	91%	NA	NA	
16D_3_24	MW-16D	Field Parameters	pH	su	11	0	0%	-0.141	0.594	
16D_3_25	MW-16D	Field Parameters	Conductivity	mS/cm	11	0	0%	0.305	0.249	
16D_3_26	MW-16D	Field Parameters	Turbidity	NTU	11	0	0%	-0.027	0.917	
16D_3_27	MW-16D	Field Parameters	Dissolved Oxygen	mg/L	11	0	0%	0.035	0.896	
16D_3_28	MW-16D	Field Parameters	Temperature	°C	11	0	0%	0.395	0.136	
16D_3_29	MW-16D	Field Parameters	Oxidation Reduction Potential	mV	11	0	0%	0.551	0.037	*
16D_4_30	MW-16D	Other	Total Suspended Solids	mg/L	11	0	0%	-0.028	0.916	
16D_4_31	MW-16D	Other	Bicarbonate	mg/L	11	0	0%	-0.200	0.451	
16D_4_33	MW-16D	Other	Hardness	mg/L	11	0	0%	0.648	0.014	*
16D_4_34	MW-16D	Other	Magnesium	mg/L	11	0	0%	0.063	0.810	
16D_4_35	MW-16D	Other	Potassium	mg/L	11	0	0%	-0.309	0.243	
16D_4_36	MW-16D	Other	Sodium	mg/L	11	0	0%	-0.036	0.892	
16D_5_37	MW-16D	Part 115	Copper	mg/L	11	10	91%	NA	NA	
16D_5_38	MW-16D	Part 115	Iron	mg/L	11	0	0%	0.431	0.103	
16D_5_42	MW-16D	Part 115	Zinc	mg/L	11	1	9%	0.588	0.032	*
7B_1_01	MW-7B	Appendix III	Boron	mg/L	14	0	0%	-0.083	0.731	
7B_1_02	MW-7B	Appendix III	Calcium	mg/L	14	0	0%	0.380	0.115	
7B_1_03	MW-7B	Appendix III	Chloride	mg/L	14	12	86%	NA	NA	
7B_1_04	MW-7B	Appendix III	Fluoride	mg/L	14	12	86%	-0.500	0.157	
7B_1_05	MW-7B	Appendix III	pH, Field	su	14	0	0%	0.198	0.412	
7B_1_06	MW-7B	Appendix III	Sulfate	mg/L	14	12	86%	-0.500	0.157	
7B_1_07	MW-7B	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	-0.554	0.021	*
7B_2_04	MW-7B	Appendix IV	Fluoride	mg/L	14	12	86%	-0.500	0.157	
7B_2_09	MW-7B	Appendix IV	Arsenic	mg/L	14	11	79%	-0.667	0.068	
7B_2_10	MW-7B	Appendix IV	Barium	mg/L	14	0	0%	0.440	0.068	
7B_2_15	MW-7B	Appendix IV	Lead	mg/L	14	13	93%	NA	NA	
7B_2_16	MW-7B	Appendix IV	Lithium	mg/L	14	0	0%	0.176	0.464	
7B_2_21	MW-7B	Appendix IV	Radium-226/228	pCi/L	14	0	0%	-0.480	0.046	*
7B_3_24	MW-7B	Field Parameters	pH	su	14	0	0%	0.198	0.412	
7B_3_25	MW-7B	Field Parameters	Conductivity	mS/cm	14	0	0%	0.510	0.034	*
7B_3_26	MW-7B	Field Parameters	Turbidity	NTU	14	0	0%	0.267	0.268	
7B_3_27	MW-7B	Field Parameters	Dissolved Oxygen	mg/L	14	0	0%	0.390	0.105	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
7B_3_28	MW-7B	Field Parameters	Temperature	°C	14	0	0%	-0.244	0.312	
7B_3_29	MW-7B	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	0.419	0.082	
7B_4_30	MW-7B	Other	Total Suspended Solids	mg/L	14	12	86%	NA	NA	
7B_4_31	MW-7B	Other	Bicarbonate	mg/L	14	0	0%	0.254	0.291	
7B_4_33	MW-7B	Other	Hardness	mg/L	14	0	0%	0.192	0.425	
7B_4_34	MW-7B	Other	Magnesium	mg/L	14	0	0%	0.254	0.291	
7B_4_35	MW-7B	Other	Potassium	mg/L	14	0	0%	0.024	0.919	
7B_4_36	MW-7B	Other	Sodium	mg/L	14	0	0%	-0.240	0.320	
7B_5_38	MW-7B	Part 115	Iron	mg/L	14	0	0%	0.660	0.006	**

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 5: Outlier Counts by Date

Date	Count
2022-03-09	1
2022-04-13	1
2022-05-19	1
2023-02-02	8
2023-02-08	1
2023-03-21	1
2023-05-30	1
2023-06-05	4
2023-07-05	1
2023-07-10	1
2023-08-14	2
2023-11-27	2
2024-01-03	1
2024-01-30	1
2024-08-06	2
2024-08-07	5

Table 6: Outliers Identified at the 1% Significance Level, Non-Detects Excluded

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	No. Detects	Date	Value
100C_1_03	MW-100C	Appendix III	Chloride	mg/L	14	0	0%	14	2023-06-05	14.0
100C_1_04	MW-100C	Appendix III	Fluoride	mg/L	14	11	79%	3	2023-11-27	0.130
100C_1_06	MW-100C	Appendix III	Sulfate	mg/L	14	0	0%	14	2023-06-05	27.0
100C_1_07	MW-100C	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	14	2024-01-03	282
100C_2_04	MW-100C	Appendix IV	Fluoride	mg/L	14	11	79%	3	2023-11-27	0.130
100C_2_18	MW-100C	Appendix IV	Molybdenum	mg/L	14	11	79%	3	2023-08-14	0.00700
100C_4_30	MW-100C	Other	Total Suspended Solids	mg/L	14	5	36%	9	2023-08-14	8.90
100C_4_31	MW-100C	Other	Bicarbonate	mg/L	14	0	0%	14	2023-07-10	100
100D_1_02	MW-100D	Appendix III	Calcium	mg/L	9	0	0%	9	2024-08-07	56.5
100D_2_10	MW-100D	Appendix IV	Barium	mg/L	9	0	0%	9	2024-08-07	0.0190
100D_2_16	MW-100D	Appendix IV	Lithium	mg/L	9	0	0%	9	2023-06-05	0.0310
100D_2_21	MW-100D	Appendix IV	Radium-226/228	pCi/L	9	0	0%	9	2023-06-05	5.06
100D_4_30	MW-100D	Other	Total Suspended Solids	mg/L	9	3	33%	6	2024-08-07	9.50
100D_4_33	MW-100D	Other	Hardness	mg/L	9	0	0%	9	2024-08-07	178
100D_4_34	MW-100D	Other	Magnesium	mg/L	9	0	0%	9	2024-08-07	9.50
16C_1_03	MW-16C	Appendix III	Chloride	mg/L	11	6	55%	5	2023-02-02	8.00
16C_1_04	MW-16C	Appendix III	Fluoride	mg/L	11	8	73%	3	2024-08-06	0.400
16C_1_06	MW-16C	Appendix III	Sulfate	mg/L	11	0	0%	11	2023-02-02	19.0
16C_1_07	MW-16C	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	11	2023-02-02	418
16C_2_04	MW-16C	Appendix IV	Fluoride	mg/L	11	8	73%	3	2024-08-06	0.400
16C_2_09	MW-16C	Appendix IV	Arsenic	mg/L	11	8	73%	3	2023-02-02	0.00200

(Table continues on next page)

Table 6: Outliers Identified at the 1% Significance Level, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	No. Detects	Date	Value
16C_3_26	MW-16C	Field Parameters	Turbidity	NTU	11	0	0%	11	2023-02-02	34.2
16C_3_28	MW-16C	Field Parameters	Temperature	°C	11	0	0%	11	2023-07-05	1.10
16C_4_30	MW-16C	Other	Total Suspended Solids	mg/L	11	3	27%	8	2023-02-02	40.0
16C_4_31	MW-16C	Other	Bicarbonate	mg/L	11	0	0%	11	2023-05-30	470
16C_5_38	MW-16C	Part 115	Iron	mg/L	11	0	0%	11	2023-03-21	1.10
16D_2_18	MW-16D	Appendix IV	Molybdenum	mg/L	11	0	0%	11	2023-02-02	0.00500
16D_3_27	MW-16D	Field Parameters	Dissolved Oxygen	mg/L	11	0	0%	11	2023-02-02	4.82
7B_2_09	MW-7B	Appendix IV	Arsenic	mg/L	14	11	79%	3	2022-04-13	0.00200
7B_3_25	MW-7B	Field Parameters	Conductivity	mS/cm	14	0	0%	14	2022-03-09	0.730
7B_4_31	MW-7B	Other	Bicarbonate	mg/L	14	0	0%	14	2023-02-08	418
7B_4_35	MW-7B	Other	Potassium	mg/L	14	0	0%	14	2022-05-19	4.80
7B_4_36	MW-7B	Other	Sodium	mg/L	14	0	0%	14	2024-01-30	87.5

Table 7: Seasonality Tests

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
100C_1_01	MW-100C	Appendix III	Boron	mg/L	0%	4	0	5	5	14	0.971	0.864	0.829	4	0	5	5	14	0.971	0.864	0.829
100C_1_02	MW-100C	Appendix III	Calcium	mg/L	0%	4	0	5	5	14	0.009 **	0.004 **	0.004 **	4	0	5	5	14	0.009 **	0.004 **	0.004 **
100C_1_03	MW-100C	Appendix III	Chloride	mg/L	0%	4	0	5	5	14	0.226	0.096	0.089	4	0	5	5	14	0.226	0.096	0.089
100C_1_04	MW-100C	Appendix III	Fluoride	mg/L	79%	4	0	5	5	14	0.432	0.471	0.552	0	0	2	1	3	0.157	0.000 ***	0.000 ***
100C_1_05	MW-100C	Appendix III	pH, Field	su	0%	4	0	5	5	14	0.007 **	0.002 **	0.002 **	4	0	5	5	14	0.007 **	0.002 **	0.002 **
100C_1_06	MW-100C	Appendix III	Sulfate	mg/L	0%	4	0	5	5	14	0.020 *	0.083	0.039 *	4	0	5	5	14	0.020 *	0.083	0.039 *
100C_1_07	MW-100C	Appendix III	Total Dissolved Solids	mg/L	0%	4	0	5	5	14	0.096	0.101	0.101	4	0	5	5	14	0.096	0.101	0.101
100C_2_04	MW-100C	Appendix IV	Fluoride	mg/L	79%	4	0	5	5	14	0.432	0.471	0.552	0	0	2	1	3	0.157	0.000 ***	0.000 ***
100C_2_08	MW-100C	Appendix IV	Antimony	mg/L	100%	4	0	5	5	14	NA	0.441	0.441	NA	NA	NA	NA	NA	NA	NA	NA
100C_2_09	MW-100C	Appendix IV	Arsenic	mg/L	93%	4	0	5	5	14	NA	0.441	0.441	0	0	0	1	1	NA	NA	NA
100C_2_10	MW-100C	Appendix IV	Barium	mg/L	0%	4	0	5	5	14	0.033 *	0.023 *	0.027 *	4	0	5	5	14	0.033 *	0.023 *	0.027 *
100C_2_11	MW-100C	Appendix IV	Beryllium	mg/L	100%	4	0	5	5	14	NA	0.441	0.441	NA	NA	NA	NA	NA	NA	NA	NA
100C_2_12	MW-100C	Appendix IV	Cadmium	mg/L	100%	4	0	5	5	14	NA	0.441	NA	NA	NA	NA	NA	NA	NA	NA	NA
100C_2_13	MW-100C	Appendix IV	Chromium	mg/L	100%	4	0	5	5	14	NA	0.441	0.441	NA	NA	NA	NA	NA	NA	NA	NA
100C_2_14	MW-100C	Appendix IV	Cobalt	mg/L	100%	4	0	5	5	14	NA	0.441	0.441	NA	NA	NA	NA	NA	NA	NA	NA
100C_2_15	MW-100C	Appendix IV	Lead	mg/L	100%	4	0	5	5	14	NA	NA	0.441	NA	NA	NA	NA	NA	NA	NA	NA
100C_2_16	MW-100C	Appendix IV	Lithium	mg/L	0%	4	0	5	5	14	0.075	0.043 *	0.042 *	4	0	5	5	14	0.075	0.043 *	0.042 *
100C_2_17	MW-100C	Appendix IV	Mercury	mg/L	100%	4	0	5	5	14	NA	0.441	0.441	NA	NA	NA	NA	NA	NA	NA	NA
100C_2_18	MW-100C	Appendix IV	Molybdenum	mg/L	79%	4	0	5	5	14	0.043 *	0.039 *	0.034 *	0	0	3	0	3	NA	NA	NA
100C_2_21	MW-100C	Appendix IV	Radium-226/228	pCi/L	0%	4	0	5	5	14	0.522	0.729	0.638	4	0	5	5	14	0.522	0.729	0.638
100C_2_22	MW-100C	Appendix IV	Selenium	mg/L	100%	4	0	5	5	14	NA	0.441	0.441	NA	NA	NA	NA	NA	NA	NA	NA
100C_2_23	MW-100C	Appendix IV	Thallium	mg/L	100%	4	0	5	5	14	NA	0.441	0.441	NA	NA	NA	NA	NA	NA	NA	NA
100C_3_24	MW-100C	Field Parameters	pH	su	0%	4	0	5	5	14	0.007 **	0.002 **	0.002 **	4	0	5	5	14	0.007 **	0.002 **	0.002 **
100C_3_25	MW-100C	Field Parameters	Conductivity	mS/cm	0%	4	0	5	5	14	0.693	0.923	0.926	4	0	5	5	14	0.693	0.923	0.926
100C_3_26	MW-100C	Field Parameters	Turbidity	NTU	0%	4	0	5	5	14	0.738	0.810	0.301	4	0	5	5	14	0.738	0.810	0.301
100C_3_27	MW-100C	Field Parameters	Dissolved Oxygen	mg/L	0%	4	0	5	5	14	0.004 **	0.004 **	NA	4	0	5	5	14	0.004 **	0.004 **	NA
100C_3_28	MW-100C	Field Parameters	Temperature	°C	0%	4	0	5	5	14	0.009 **	0.001 ***	0.001 **	4	0	5	5	14	0.009 **	0.001 ***	0.001 **
100C_3_29	MW-100C	Field Parameters	Oxidation Reduction Potential	mV	0%	4	0	5	5	14	0.974	0.880	NA	4	0	5	5	14	0.974	0.880	NA
100C_4_30	MW-100C	Other	Total Suspended Solids	mg/L	36%	4	0	5	5	14	0.530	0.907	0.803	2	0	5	2	9	0.988	0.820	0.896
100C_4_31	MW-100C	Other	Bicarbonate	mg/L	0%	4	0	5	5	14	0.093	0.386	0.406	4	0	5	5	14	0.093	0.386	0.406
100C_4_32	MW-100C	Other	Carbonate	mg/L	100%	4	0	5	5	14	NA	0.441	0.441	NA	NA	NA	NA	NA	NA	NA	NA
100C_4_33	MW-100C	Other	Hardness	mg/L	0%	4	0	5	5	14	0.010 *	0.000 ***	0.000 ***	4	0	5	5	14	0.010 *	0.000 ***	0.000 ***
100C_4_34	MW-100C	Other	Magnesium	mg/L	0%	4	0	5	5	14	0.167	0.283	0.280	4	0	5	5	14	0.167	0.283	0.280
100C_4_35	MW-100C	Other	Potassium	mg/L	0%	4	0	5	5	14	0.617	0.621	0.592	4	0	5	5	14	0.617	0.621	0.592
100C_4_36	MW-100C	Other	Sodium	mg/L	0%	4	0	5	5	14	0.009 **	0.001 **	0.001 ***	4	0	5	5	14	0.009 **	0.001 **	0.001 ***
100C_5_37	MW-100C	Part 115	Copper	mg/L	100%	4	0	5	5	14	NA	0.441	0.441	NA	NA	NA	NA	NA	NA	NA	NA
100C_5_38	MW-100C	Part 115	Iron	mg/L	0%	4	0	5	5	14	0.066	0.526	0.788	4	0	5	5	14	0.066	0.526	0.788
100C_5_39	MW-100C	Part 115	Nickel	mg/L	100%	4	0	5	5	14	NA	0.441	0.441	NA	NA	NA	NA	NA	NA	NA	NA
100C_5_40	MW-100C	Part 115	Silver	mg/L	100%	4	0	5	5	14	NA	0.441	NA	NA	NA	NA	NA	NA	NA	NA	NA

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
100C_5_41	MW-100C	Part 115	Vanadium	mg/L	100%	4	0	5	5	14	NA	0.441	0.441	NA	NA	NA	NA	NA	NA	NA	NA
100C_5_42	MW-100C	Part 115	Zinc	mg/L	93%	4	0	5	5	14	0.407	0.441	0.441	0	0	0	1	1	NA	NA	NA
100D_1_01	MW-100D	Appendix III	Boron	mg/L	0%	2	0	4	3	9	0.342	0.719	0.719	2	0	4	3	9	0.342	0.719	0.719
100D_1_02	MW-100D	Appendix III	Calcium	mg/L	0%	2	0	4	3	9	0.192	0.637	0.562	2	0	4	3	9	0.192	0.637	0.562
100D_1_03	MW-100D	Appendix III	Chloride	mg/L	44%	2	0	4	3	9	0.515	0.648	0.631	2	0	2	1	5	0.398	0.732	0.725
100D_1_04	MW-100D	Appendix III	Fluoride	mg/L	56%	2	0	4	3	9	0.156	0.208	0.180	2	0	1	1	4	0.407	0.832	0.844
100D_1_05	MW-100D	Appendix III	pH, Field	su	0%	2	0	4	3	9	0.607	0.664	0.673	2	0	4	3	9	0.607	0.664	0.673
100D_1_06	MW-100D	Appendix III	Sulfate	mg/L	11%	2	0	4	3	9	0.842	0.741	0.793	2	0	3	3	8	0.757	0.610	0.686
100D_1_07	MW-100D	Appendix III	Total Dissolved Solids	mg/L	0%	2	0	4	3	9	0.856	0.721	0.739	2	0	4	3	9	0.856	0.721	0.739
100D_2_04	MW-100D	Appendix IV	Fluoride	mg/L	56%	2	0	4	3	9	0.156	0.208	0.180	2	0	1	1	4	0.407	0.832	0.844
100D_2_08	MW-100D	Appendix IV	Antimony	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100D_2_09	MW-100D	Appendix IV	Arsenic	mg/L	22%	2	0	4	3	9	0.240	0.266	0.266	2	0	2	3	7	NA	0.340	0.340
100D_2_10	MW-100D	Appendix IV	Barium	mg/L	0%	2	0	4	3	9	0.289	0.373	0.318	2	0	4	3	9	0.289	0.373	0.318
100D_2_11	MW-100D	Appendix IV	Beryllium	mg/L	100%	2	0	4	3	9	NA	0.601	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100D_2_12	MW-100D	Appendix IV	Cadmium	mg/L	100%	2	0	4	3	9	NA	0.601	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100D_2_13	MW-100D	Appendix IV	Chromium	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100D_2_14	MW-100D	Appendix IV	Cobalt	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100D_2_15	MW-100D	Appendix IV	Lead	mg/L	100%	2	0	4	3	9	NA	0.601	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100D_2_16	MW-100D	Appendix IV	Lithium	mg/L	0%	2	0	4	3	9	0.315	0.842	0.875	2	0	4	3	9	0.315	0.842	0.875
100D_2_17	MW-100D	Appendix IV	Mercury	mg/L	100%	2	0	4	3	9	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA	NA
100D_2_18	MW-100D	Appendix IV	Molybdenum	mg/L	11%	2	0	4	3	9	0.599	0.780	0.781	2	0	3	3	8	0.392	0.450	0.457
100D_2_21	MW-100D	Appendix IV	Radium-226/228	pCi/L	0%	2	0	4	3	9	0.086	0.358	0.092	2	0	4	3	9	0.086	0.358	0.092
100D_2_22	MW-100D	Appendix IV	Selenium	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100D_2_23	MW-100D	Appendix IV	Thallium	mg/L	100%	2	0	4	3	9	NA	0.601	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100D_3_24	MW-100D	Field Parameters	pH	su	0%	2	0	4	3	9	0.607	0.664	0.673	2	0	4	3	9	0.607	0.664	0.673
100D_3_25	MW-100D	Field Parameters	Conductivity	mS/cm	0%	2	0	4	3	9	0.754	0.729	0.728	2	0	4	3	9	0.754	0.729	0.728
100D_3_26	MW-100D	Field Parameters	Turbidity	NTU	0%	2	0	4	3	9	0.050 *	0.017 *	0.036 *	2	0	4	3	9	0.050 *	0.017 *	0.036 *
100D_3_27	MW-100D	Field Parameters	Dissolved Oxygen	mg/L	0%	2	0	4	3	9	0.177	0.190	NA	2	0	4	3	9	0.177	0.190	NA
100D_3_28	MW-100D	Field Parameters	Temperature	°C	0%	2	0	4	3	9	0.046 *	0.034 *	0.050	2	0	4	3	9	0.046 *	0.034 *	0.050
100D_3_29	MW-100D	Field Parameters	Oxidation Reduction Potential	mV	0%	2	0	4	3	9	0.447	0.281	NA	2	0	4	3	9	0.447	0.281	NA
100D_4_30	MW-100D	Other	Total Suspended Solids	mg/L	33%	2	0	4	3	9	0.836	0.617	0.618	1	0	4	1	6	0.159	0.755	0.617
100D_4_31	MW-100D	Other	Bicarbonate	mg/L	0%	2	0	4	3	9	0.137	0.563	0.537	2	0	4	3	9	0.137	0.563	0.537
100D_4_32	MW-100D	Other	Carbonate	mg/L	100%	2	0	4	3	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
100D_4_33	MW-100D	Other	Hardness	mg/L	0%	2	0	4	3	9	0.500	0.708	0.666	2	0	4	3	9	0.500	0.708	0.666
100D_4_34	MW-100D	Other	Magnesium	mg/L	0%	2	0	4	3	9	0.169	0.576	0.451	2	0	4	3	9	0.169	0.576	0.451
100D_4_35	MW-100D	Other	Potassium	mg/L	0%	2	0	4	3	9	0.095	0.137	0.128	2	0	4	3	9	0.095	0.137	0.128
100D_4_36	MW-100D	Other	Sodium	mg/L	0%	2	0	4	3	9	0.119	0.013 *	0.009 **	2	0	4	3	9	0.119	0.013 *	0.009 **
100D_5_37	MW-100D	Part 115	Copper	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100D_5_38	MW-100D	Part 115	Iron	mg/L	0%	2	0	4	3	9	0.070	0.075	0.042 *	2	0	4	3	9	0.070	0.075	0.042 *

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
100D_5_39	MW-100D	Part 115	Nickel	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100D_5_40	MW-100D	Part 115	Silver	mg/L	100%	2	0	4	3	9	NA	0.601	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100D_5_41	MW-100D	Part 115	Vanadium	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
100D_5_42	MW-100D	Part 115	Zinc	mg/L	100%	2	0	4	3	9	NA	NA	0.601	NA	NA	NA	NA	NA	NA	NA	NA
16C_1_01	MW-16C	Appendix III	Boron	mg/L	0%	2	3	3	3	11	0.534	0.582	0.581	2	3	3	3	11	0.534	0.582	0.581
16C_1_02	MW-16C	Appendix III	Calcium	mg/L	0%	2	3	3	3	11	0.079	0.062	0.067	2	3	3	3	11	0.079	0.062	0.067
16C_1_03	MW-16C	Appendix III	Chloride	mg/L	55%	2	3	3	3	11	0.558	0.616	0.591	2	0	2	1	5	0.497	0.607	0.591
16C_1_04	MW-16C	Appendix III	Fluoride	mg/L	73%	2	3	3	3	11	0.525	0.597	0.632	1	0	1	1	3	0.368	NA	NA
16C_1_05	MW-16C	Appendix III	pH, Field	su	0%	2	3	3	3	11	0.180	0.127	0.128	2	3	3	3	11	0.180	0.127	0.128
16C_1_06	MW-16C	Appendix III	Sulfate	mg/L	0%	2	3	3	3	11	0.466	0.272	0.304	2	3	3	3	11	0.466	0.272	0.304
16C_1_07	MW-16C	Appendix III	Total Dissolved Solids	mg/L	0%	2	3	3	3	11	0.275	0.313	0.314	2	3	3	3	11	0.275	0.313	0.314
16C_2_04	MW-16C	Appendix IV	Fluoride	mg/L	73%	2	3	3	3	11	0.525	0.597	0.632	1	0	1	1	3	0.368	NA	NA
16C_2_08	MW-16C	Appendix IV	Antimony	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16C_2_09	MW-16C	Appendix IV	Arsenic	mg/L	73%	2	3	3	3	11	0.412	0.471	0.471	2	1	0	0	3	0.480	0.667	0.667
16C_2_10	MW-16C	Appendix IV	Barium	mg/L	0%	2	3	3	3	11	0.158	0.057	0.049 *	2	3	3	3	11	0.158	0.057	0.049 *
16C_2_11	MW-16C	Appendix IV	Beryllium	mg/L	100%	2	3	3	3	11	NA	0.217	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16C_2_12	MW-16C	Appendix IV	Cadmium	mg/L	100%	2	3	3	3	11	NA	0.217	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16C_2_13	MW-16C	Appendix IV	Chromium	mg/L	91%	2	3	3	3	11	0.446	0.510	0.510	0	0	1	0	1	NA	NA	NA
16C_2_14	MW-16C	Appendix IV	Cobalt	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16C_2_15	MW-16C	Appendix IV	Lead	mg/L	100%	2	3	3	3	11	NA	0.217	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16C_2_16	MW-16C	Appendix IV	Lithium	mg/L	0%	2	3	3	3	11	0.182	0.143	0.149	2	3	3	3	11	0.182	0.143	0.149
16C_2_17	MW-16C	Appendix IV	Mercury	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16C_2_18	MW-16C	Appendix IV	Molybdenum	mg/L	82%	2	3	3	3	11	0.440	0.557	0.549	1	1	0	0	2	0.317	NA	NA
16C_2_21	MW-16C	Appendix IV	Radium-226/228	pCi/L	0%	2	3	3	3	11	0.849	0.970	0.711	2	3	3	3	11	0.849	0.970	0.711
16C_2_22	MW-16C	Appendix IV	Selenium	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16C_2_23	MW-16C	Appendix IV	Thallium	mg/L	100%	2	3	3	3	11	NA	0.217	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16C_3_24	MW-16C	Field Parameters	pH	su	0%	2	3	3	3	11	0.180	0.127	0.128	2	3	3	3	11	0.180	0.127	0.128
16C_3_25	MW-16C	Field Parameters	Conductivity	mS/cm	0%	2	3	3	3	11	0.689	0.743	0.739	2	3	3	3	11	0.689	0.743	0.739
16C_3_26	MW-16C	Field Parameters	Turbidity	NTU	0%	2	3	3	3	11	0.236	0.159	0.222	2	3	3	3	11	0.236	0.159	0.222
16C_3_27	MW-16C	Field Parameters	Dissolved Oxygen	mg/L	0%	2	3	3	3	11	0.081	0.133	NA	2	3	3	3	11	0.081	0.133	NA
16C_3_28	MW-16C	Field Parameters	Temperature	°C	0%	2	3	3	3	11	0.436	0.775	0.657	2	3	3	3	11	0.436	0.775	0.657
16C_3_29	MW-16C	Field Parameters	Oxidation Reduction Potential	mV	0%	2	3	3	3	11	0.433	0.375	NA	2	3	3	3	11	0.433	0.375	NA
16C_4_30	MW-16C	Other	Total Suspended Solids	mg/L	27%	2	3	3	3	11	0.167	0.225	0.163	1	3	2	2	8	0.112	0.003 **	0.047 *
16C_4_31	MW-16C	Other	Bicarbonate	mg/L	0%	2	3	3	3	11	0.903	0.562	0.563	2	3	3	3	11	0.903	0.562	0.563
16C_4_32	MW-16C	Other	Carbonate	mg/L	100%	2	3	3	3	11	NA	0.217	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16C_4_33	MW-16C	Other	Hardness	mg/L	0%	2	3	3	3	11	0.095	0.096	0.103	2	3	3	3	11	0.095	0.096	0.103
16C_4_34	MW-16C	Other	Magnesium	mg/L	0%	2	3	3	3	11	0.055	0.005 **	0.007 **	2	3	3	3	11	0.055	0.005 **	0.007 **
16C_4_35	MW-16C	Other	Potassium	mg/L	0%	2	3	3	3	11	0.148	0.038 *	0.040 *	2	3	3	3	11	0.148	0.038 *	0.040 *
16C_4_36	MW-16C	Other	Sodium	mg/L	0%	2	3	3	3	11	0.075	0.088	0.052	2	3	3	3	11	0.075	0.088	0.052

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
16C_5_37	MW-16C	Part 115	Copper	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16C_5_38	MW-16C	Part 115	Iron	mg/L	0%	2	3	3	3	11	0.165	0.166	0.107	2	3	3	3	11	0.165	0.166	0.107
16C_5_39	MW-16C	Part 115	Nickel	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16C_5_40	MW-16C	Part 115	Silver	mg/L	100%	2	3	3	3	11	NA	0.217	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16C_5_41	MW-16C	Part 115	Vanadium	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16C_5_42	MW-16C	Part 115	Zinc	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16D_1_01	MW-16D	Appendix III	Boron	mg/L	0%	2	3	3	3	11	0.374	0.168	0.164	2	3	3	3	11	0.374	0.168	0.164
16D_1_02	MW-16D	Appendix III	Calcium	mg/L	0%	2	3	3	3	11	0.148	0.309	0.308	2	3	3	3	11	0.148	0.309	0.308
16D_1_03	MW-16D	Appendix III	Chloride	mg/L	0%	2	3	3	3	11	0.606	0.497	0.492	2	3	3	3	11	0.606	0.497	0.492
16D_1_04	MW-16D	Appendix III	Fluoride	mg/L	73%	2	3	3	3	11	0.547	0.566	0.604	1	0	1	1	3	0.368	NA	NA
16D_1_05	MW-16D	Appendix III	pH, Field	su	0%	2	3	3	3	11	0.144	0.073	0.073	2	3	3	3	11	0.144	0.073	0.073
16D_1_06	MW-16D	Appendix III	Sulfate	mg/L	9%	2	3	3	3	11	0.085	0.052	0.037 *	1	3	3	3	10	0.084	0.088	0.061
16D_1_07	MW-16D	Appendix III	Total Dissolved Solids	mg/L	0%	2	3	3	3	11	0.940	0.876	0.883	2	3	3	3	11	0.940	0.876	0.883
16D_2_04	MW-16D	Appendix IV	Fluoride	mg/L	73%	2	3	3	3	11	0.547	0.566	0.604	1	0	1	1	3	0.368	NA	NA
16D_2_08	MW-16D	Appendix IV	Antimony	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16D_2_09	MW-16D	Appendix IV	Arsenic	mg/L	27%	2	3	3	3	11	0.961	0.966	0.939	1	2	3	2	8	0.761	0.847	0.847
16D_2_10	MW-16D	Appendix IV	Barium	mg/L	0%	2	3	3	3	11	0.153	0.118	0.119	2	3	3	3	11	0.153	0.118	0.119
16D_2_11	MW-16D	Appendix IV	Beryllium	mg/L	100%	2	3	3	3	11	NA	0.217	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16D_2_12	MW-16D	Appendix IV	Cadmium	mg/L	100%	2	3	3	3	11	NA	0.217	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16D_2_13	MW-16D	Appendix IV	Chromium	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16D_2_14	MW-16D	Appendix IV	Cobalt	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16D_2_15	MW-16D	Appendix IV	Lead	mg/L	100%	2	3	3	3	11	NA	0.217	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16D_2_16	MW-16D	Appendix IV	Lithium	mg/L	0%	2	3	3	3	11	0.642	0.383	0.379	2	3	3	3	11	0.642	0.383	0.379
16D_2_17	MW-16D	Appendix IV	Mercury	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16D_2_18	MW-16D	Appendix IV	Molybdenum	mg/L	0%	2	3	3	3	11	0.258	0.142	0.151	2	3	3	3	11	0.258	0.142	0.151
16D_2_21	MW-16D	Appendix IV	Radium-226/228	pCi/L	0%	2	3	3	3	11	0.959	0.982	0.973	2	3	3	3	11	0.959	0.982	0.973
16D_2_22	MW-16D	Appendix IV	Selenium	mg/L	91%	2	3	3	3	11	0.446	0.510	0.510	0	0	0	1	1	NA	NA	NA
16D_2_23	MW-16D	Appendix IV	Thallium	mg/L	100%	2	3	3	3	11	NA	0.217	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16D_3_24	MW-16D	Field Parameters	pH	su	0%	2	3	3	3	11	0.145	0.063	0.063	2	3	3	3	11	0.145	0.063	0.063
16D_3_25	MW-16D	Field Parameters	Conductivity	mS/cm	0%	2	3	3	3	11	0.387	0.414	0.414	2	3	3	3	11	0.387	0.414	0.414
16D_3_26	MW-16D	Field Parameters	Turbidity	NTU	0%	2	3	3	3	11	0.197	0.061	0.050	2	3	3	3	11	0.197	0.061	0.050
16D_3_27	MW-16D	Field Parameters	Dissolved Oxygen	mg/L	0%	2	3	3	3	11	0.567	0.270	0.673	2	3	3	3	11	0.567	0.270	0.673
16D_3_28	MW-16D	Field Parameters	Temperature	°C	0%	2	3	3	3	11	0.177	0.150	0.219	2	3	3	3	11	0.177	0.150	0.219
16D_3_29	MW-16D	Field Parameters	Oxidation Reduction Potential	mV	0%	2	3	3	3	11	0.168	0.217	NA	2	3	3	3	11	0.168	0.217	NA
16D_4_30	MW-16D	Other	Total Suspended Solids	mg/L	0%	2	3	3	3	11	0.956	0.899	0.937	2	3	3	3	11	0.956	0.899	0.937
16D_4_31	MW-16D	Other	Bicarbonate	mg/L	0%	2	3	3	3	11	0.748	0.839	0.843	2	3	3	3	11	0.748	0.839	0.843
16D_4_32	MW-16D	Other	Carbonate	mg/L	100%	2	3	3	3	11	NA	0.217	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16D_4_33	MW-16D	Other	Hardness	mg/L	0%	2	3	3	3	11	0.911	0.920	0.931	2	3	3	3	11	0.911	0.920	0.931
16D_4_34	MW-16D	Other	Magnesium	mg/L	0%	2	3	3	3	11	0.047 *	0.003 **	0.002 **	2	3	3	3	11	0.047 *	0.003 **	0.002 **

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
16D_4_35	MW-16D	Other	Potassium	mg/L	0%	2	3	3	3	11	0.183	0.150	0.154	2	3	3	3	11	0.183	0.150	0.154
16D_4_36	MW-16D	Other	Sodium	mg/L	0%	2	3	3	3	11	0.123	0.045 *	0.045 *	2	3	3	3	11	0.123	0.045 *	0.045 *
16D_5_37	MW-16D	Part 115	Copper	mg/L	91%	2	3	3	3	11	0.212	0.217	0.217	1	0	0	0	1	NA	NA	NA
16D_5_38	MW-16D	Part 115	Iron	mg/L	0%	2	3	3	3	11	0.552	0.498	0.262	2	3	3	3	11	0.552	0.498	0.262
16D_5_39	MW-16D	Part 115	Nickel	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16D_5_40	MW-16D	Part 115	Silver	mg/L	100%	2	3	3	3	11	NA	0.217	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16D_5_41	MW-16D	Part 115	Vanadium	mg/L	100%	2	3	3	3	11	NA	NA	0.217	NA	NA	NA	NA	NA	NA	NA	NA
16D_5_42	MW-16D	Part 115	Zinc	mg/L	9%	2	3	3	3	11	0.144	0.100	0.091	2	3	2	3	10	0.175	0.163	0.154
7B_1_01	MW-7B	Appendix III	Boron	mg/L	0%	2	5	4	3	14	0.920	0.939	0.940	2	5	4	3	14	0.920	0.939	0.940
7B_1_02	MW-7B	Appendix III	Calcium	mg/L	0%	2	5	4	3	14	0.214	0.426	0.462	2	5	4	3	14	0.214	0.426	0.462
7B_1_03	MW-7B	Appendix III	Chloride	mg/L	86%	2	5	4	3	14	0.318	0.347	0.347	1	0	1	0	2	NA	NA	NA
7B_1_04	MW-7B	Appendix III	Fluoride	mg/L	86%	2	5	4	3	14	0.284	0.208	0.164	1	0	1	0	2	0.317	NA	NA
7B_1_05	MW-7B	Appendix III	pH, Field	su	0%	2	5	4	3	14	0.013 *	0.001 ***	0.001 ***	2	5	4	3	14	0.013 *	0.001 ***	0.001 ***
7B_1_06	MW-7B	Appendix III	Sulfate	mg/L	86%	2	5	4	3	14	0.353	0.362	0.381	1	0	1	0	2	0.317	NA	NA
7B_1_07	MW-7B	Appendix III	Total Dissolved Solids	mg/L	0%	2	5	4	3	14	0.795	0.881	0.877	2	5	4	3	14	0.795	0.881	0.877
7B_2_04	MW-7B	Appendix IV	Fluoride	mg/L	86%	2	5	4	3	14	0.284	0.208	0.164	1	0	1	0	2	0.317	NA	NA
7B_2_08	MW-7B	Appendix IV	Antimony	mg/L	100%	2	5	4	3	14	NA	0.668	0.668	NA	NA	NA	NA	NA	NA	NA	NA
7B_2_09	MW-7B	Appendix IV	Arsenic	mg/L	79%	2	5	4	3	14	0.370	0.408	0.408	1	2	0	0	3	0.480	0.667	0.667
7B_2_10	MW-7B	Appendix IV	Barium	mg/L	0%	2	5	4	3	14	0.068	0.035 *	0.038 *	2	5	4	3	14	0.068	0.035 *	0.038 *
7B_2_11	MW-7B	Appendix IV	Beryllium	mg/L	100%	2	5	4	3	14	NA	0.668	0.668	NA	NA	NA	NA	NA	NA	NA	NA
7B_2_12	MW-7B	Appendix IV	Cadmium	mg/L	100%	2	5	4	3	14	NA	0.668	NA	NA	NA	NA	NA	NA	NA	NA	NA
7B_2_13	MW-7B	Appendix IV	Chromium	mg/L	100%	2	5	4	3	14	NA	0.668	0.668	NA	NA	NA	NA	NA	NA	NA	NA
7B_2_14	MW-7B	Appendix IV	Cobalt	mg/L	100%	2	5	4	3	14	NA	0.668	0.668	NA	NA	NA	NA	NA	NA	NA	NA
7B_2_15	MW-7B	Appendix IV	Lead	mg/L	93%	2	5	4	3	14	0.475	0.525	0.525	0	0	1	0	1	NA	NA	NA
7B_2_16	MW-7B	Appendix IV	Lithium	mg/L	0%	2	5	4	3	14	0.642	0.904	0.883	2	5	4	3	14	0.642	0.904	0.883
7B_2_17	MW-7B	Appendix IV	Mercury	mg/L	100%	2	5	4	3	14	NA	0.668	0.668	NA	NA	NA	NA	NA	NA	NA	NA
7B_2_18	MW-7B	Appendix IV	Molybdenum	mg/L	100%	2	5	4	3	14	NA	0.668	0.668	NA	NA	NA	NA	NA	NA	NA	NA
7B_2_21	MW-7B	Appendix IV	Radium-226/228	pCi/L	0%	2	5	4	3	14	0.971	0.915	0.955	2	5	4	3	14	0.971	0.915	0.955
7B_2_22	MW-7B	Appendix IV	Selenium	mg/L	100%	2	5	4	3	14	NA	0.668	0.668	NA	NA	NA	NA	NA	NA	NA	NA
7B_2_23	MW-7B	Appendix IV	Thallium	mg/L	100%	2	5	4	3	14	NA	0.668	0.668	NA	NA	NA	NA	NA	NA	NA	NA
7B_3_24	MW-7B	Field Parameters	pH	su	0%	2	5	4	3	14	0.013 *	0.001 ***	0.001 ***	2	5	4	3	14	0.013 *	0.001 ***	0.001 ***
7B_3_25	MW-7B	Field Parameters	Conductivity	mS/cm	0%	2	5	4	3	14	0.030 *	0.206	0.198	2	5	4	3	14	0.030 *	0.206	0.198
7B_3_26	MW-7B	Field Parameters	Turbidity	NTU	0%	2	5	4	3	14	0.999	0.951	0.480	2	5	4	3	14	0.999	0.951	0.480
7B_3_27	MW-7B	Field Parameters	Dissolved Oxygen	mg/L	0%	2	5	4	3	14	0.134	0.270	0.165	2	5	4	3	14	0.134	0.270	0.165
7B_3_28	MW-7B	Field Parameters	Temperature	°C	0%	2	5	4	3	14	0.014 *	0.001 ***	0.001 ***	2	5	4	3	14	0.014 *	0.001 ***	0.001 ***
7B_3_29	MW-7B	Field Parameters	Oxidation Reduction Potential	mV	0%	2	5	4	3	14	0.165	0.279	NA	2	5	4	3	14	0.165	0.279	NA
7B_4_30	MW-7B	Other	Total Suspended Solids	mg/L	86%	2	5	4	3	14	0.318	0.347	0.347	1	0	1	0	2	NA	NA	NA
7B_4_31	MW-7B	Other	Bicarbonate	mg/L	0%	2	5	4	3	14	0.299	0.149	0.151	2	5	4	3	14	0.299	0.149	0.151
7B_4_32	MW-7B	Other	Carbonate	mg/L	100%	2	5	4	3	14	NA	0.668	0.668	NA	NA	NA	NA	NA	NA	NA	NA

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
7B_4_33	MW-7B	Other	Hardness	mg/L	0%	2	5	4	3	14	0.202	0.103	0.087	2	5	4	3	14	0.202	0.103	0.087
7B_4_34	MW-7B	Other	Magnesium	mg/L	0%	2	5	4	3	14	0.328	0.757	0.814	2	5	4	3	14	0.328	0.757	0.814
7B_4_35	MW-7B	Other	Potassium	mg/L	0%	2	5	4	3	14	0.229	0.334	0.351	2	5	4	3	14	0.229	0.334	0.351
7B_4_36	MW-7B	Other	Sodium	mg/L	0%	2	5	4	3	14	0.129	0.212	0.195	2	5	4	3	14	0.129	0.212	0.195
7B_5_37	MW-7B	Part 115	Copper	mg/L	100%	2	5	4	3	14	NA	0.668	0.668	NA	NA	NA	NA	NA	NA	NA	NA
7B_5_38	MW-7B	Part 115	Iron	mg/L	0%	2	5	4	3	14	0.141	0.140	0.109	2	5	4	3	14	0.141	0.140	0.109
7B_5_39	MW-7B	Part 115	Nickel	mg/L	100%	2	5	4	3	14	NA	0.668	0.668	NA	NA	NA	NA	NA	NA	NA	NA
7B_5_40	MW-7B	Part 115	Silver	mg/L	100%	2	5	4	3	14	NA	0.668	NA	NA	NA	NA	NA	NA	NA	NA	NA
7B_5_41	MW-7B	Part 115	Vanadium	mg/L	100%	2	5	4	3	14	NA	0.668	0.668	NA	NA	NA	NA	NA	NA	NA	NA
7B_5_42	MW-7B	Part 115	Zinc	mg/L	100%	2	5	4	3	14	NA	0.668	0.668	NA	NA	NA	NA	NA	NA	NA	NA

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 8: Trend Tests: Lognormal MLE and MK

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
100C_1_01	MW-100C	Appendix III	Boron	mg/L	14	0	0%	Parametric	Lognormal MLE	0.000326	0.000	↑
100C_1_02	MW-100C	Appendix III	Calcium	mg/L	14	0	0%	Parametric	Lognormal MLE	0.000107	0.109	↔
100C_1_03	MW-100C	Appendix III	Chloride	mg/L	14	0	0%	Nonparametric	MK	-0.00880	0.000	↓
100C_1_05	MW-100C	Appendix III	pH, Field	su	14	0	0%	Parametric	Lognormal MLE	0.0000180	0.487	↔
100C_1_06	MW-100C	Appendix III	Sulfate	mg/L	14	0	0%	Nonparametric	MK	-0.0204	0.015	↔
100C_1_07	MW-100C	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	Nonparametric	MK	-0.0189	0.048	↔
100C_2_10	MW-100C	Appendix IV	Barium	mg/L	14	0	0%	Parametric	Lognormal MLE	-0.000641	0.001	↓
100C_2_16	MW-100C	Appendix IV	Lithium	mg/L	14	0	0%	Parametric	Lognormal MLE	0.000166	0.147	↔
100C_2_21	MW-100C	Appendix IV	Radium-226/228	pCi/L	14	0	0%	Parametric	Lognormal MLE	0.000961	0.408	↔
100C_3_24	MW-100C	Field Parameters	pH	su	14	0	0%	Parametric	Lognormal MLE	0.0000180	0.487	↔
100C_3_25	MW-100C	Field Parameters	Conductivity	mS/cm	14	0	0%	Parametric	Lognormal MLE	-0.000134	0.000	↓
100C_3_26	MW-100C	Field Parameters	Turbidity	NTU	14	0	0%	Nonparametric	MK	-0.0102	0.243	↔
100C_3_27	MW-100C	Field Parameters	Dissolved Oxygen	mg/L	14	0	0%	Nonparametric	MK	0	0.578	↔
100C_3_28	MW-100C	Field Parameters	Temperature	°C	14	0	0%	Parametric	Lognormal MLE	0.0000190	0.938	↔
100C_4_30	MW-100C	Other	Total Suspended Solids	mg/L	14	5	36%	Nonparametric	MK	-0.00133	0.255	↔
100C_4_31	MW-100C	Other	Bicarbonate	mg/L	14	0	0%	Nonparametric	MK	0.0935	0.001	↑
100C_4_33	MW-100C	Other	Hardness	mg/L	14	0	0%	Nonparametric	MK	0.0222	0.437	↔
100C_4_34	MW-100C	Other	Magnesium	mg/L	14	0	0%	Parametric	Lognormal MLE	0.0000299	0.759	↔
100C_4_35	MW-100C	Other	Potassium	mg/L	14	0	0%	Parametric	Lognormal MLE	0.0000354	0.708	↔
100C_4_36	MW-100C	Other	Sodium	mg/L	14	0	0%	Parametric	Lognormal MLE	-0.000483	0.100	↔
100C_5_38	MW-100C	Part 115	Iron	mg/L	14	0	0%	Parametric	Lognormal MLE	0.000157	0.784	↔
100D_1_01	MW-100D	Appendix III	Boron	mg/L	9	0	0%	Nonparametric	MK	-0.00213	0.009	↓
100D_1_02	MW-100D	Appendix III	Calcium	mg/L	9	0	0%	Nonparametric	MK	-0.00689	0.602	↔
100D_1_03	MW-100D	Appendix III	Chloride	mg/L	9	4	44%	Parametric	Lognormal MLE	0.00357	0.000	↑
100D_1_05	MW-100D	Appendix III	pH, Field	su	9	0	0%	Parametric	Lognormal MLE	-0.000169	0.042	↔
100D_1_06	MW-100D	Appendix III	Sulfate	mg/L	9	1	11%	Parametric	Lognormal MLE	0.00569	0.000	↑
100D_1_07	MW-100D	Appendix III	Total Dissolved Solids	mg/L	9	0	0%	Nonparametric	MK	0.295	0.348	↔
100D_2_09	MW-100D	Appendix IV	Arsenic	mg/L	9	2	22%	Nonparametric	MK	0	0.057	↔
100D_2_10	MW-100D	Appendix IV	Barium	mg/L	9	0	0%	Parametric	Lognormal MLE	0.00118	0.064	↔
100D_2_16	MW-100D	Appendix IV	Lithium	mg/L	9	0	0%	Nonparametric	MK	0.00000467	0.667	↔
100D_2_18	MW-100D	Appendix IV	Molybdenum	mg/L	9	1	11%	Parametric	Lognormal MLE	-0.000258	0.724	↔
100D_2_21	MW-100D	Appendix IV	Radium-226/228	pCi/L	9	0	0%	Parametric	Lognormal MLE	-0.00221	0.180	↔
100D_3_24	MW-100D	Field Parameters	pH	su	9	0	0%	Parametric	Lognormal MLE	-0.000169	0.042	↔
100D_3_25	MW-100D	Field Parameters	Conductivity	mS/cm	9	0	0%	Nonparametric	MK	0.000248	0.021	↔
100D_3_26	MW-100D	Field Parameters	Turbidity	NTU	9	0	0%	Parametric	Lognormal MLE	-0.000843	0.285	↔
100D_3_27	MW-100D	Field Parameters	Dissolved Oxygen	mg/L	9	0	0%	Nonparametric	MK	0	1.000	↔
100D_3_28	MW-100D	Field Parameters	Temperature	°C	9	0	0%	Parametric	Lognormal MLE	-0.000224	0.499	↔
100D_4_30	MW-100D	Other	Total Suspended Solids	mg/L	9	3	33%	Nonparametric	MK	0.00170	0.454	↔
100D_4_31	MW-100D	Other	Bicarbonate	mg/L	9	0	0%	Nonparametric	MK	0.0467	0.300	↔
100D_4_33	MW-100D	Other	Hardness	mg/L	9	0	0%	Parametric	Lognormal MLE	0.00467	0.000	↑
100D_4_34	MW-100D	Other	Magnesium	mg/L	9	0	0%	Nonparametric	MK	-0.000286	0.675	↔
100D_4_35	MW-100D	Other	Potassium	mg/L	9	0	0%	Parametric	Lognormal MLE	0.000152	0.532	↔
100D_4_36	MW-100D	Other	Sodium	mg/L	9	0	0%	Parametric	Lognormal MLE	0.00000853	0.956	↔

(Table continues on next page)

Table 8: Trend Tests: Lognormal MLE and MK *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
100D_5_38	MW-100D	Part 115	Iron	mg/L	9	0	0%	Parametric	Lognormal MLE	0.000155	0.935	↔
16C_1_01	MW-16C	Appendix III	Boron	mg/L	11	0	0%	Parametric	Lognormal MLE	0.000106	0.023	↔
16C_1_02	MW-16C	Appendix III	Calcium	mg/L	11	0	0%	Parametric	Lognormal MLE	0.000382	0.000	↑
16C_1_05	MW-16C	Appendix III	pH, Field	su	11	0	0%	Parametric	Lognormal MLE	-0.0000241	0.398	↔
16C_1_06	MW-16C	Appendix III	Sulfate	mg/L	11	0	0%	Nonparametric	MK	0	0.936	↔
16C_1_07	MW-16C	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	Nonparametric	MK	-0.0571	0.241	↔
16C_2_10	MW-16C	Appendix IV	Barium	mg/L	11	0	0%	Parametric	Lognormal MLE	-0.00142	0.000	↓
16C_2_16	MW-16C	Appendix IV	Lithium	mg/L	11	0	0%	Nonparametric	MK	0	0.457	↔
16C_2_21	MW-16C	Appendix IV	Radium-226/228	pCi/L	11	0	0%	Parametric	Lognormal MLE	0.00211	0.212	↔
16C_3_24	MW-16C	Field Parameters	pH	su	11	0	0%	Parametric	Lognormal MLE	-0.0000241	0.398	↔
16C_3_25	MW-16C	Field Parameters	Conductivity	mS/cm	11	0	0%	Parametric	Lognormal MLE	-0.0000635	0.338	↔
16C_3_26	MW-16C	Field Parameters	Turbidity	NTU	11	0	0%	Parametric	Lognormal MLE	-0.000946	0.664	↔
16C_3_28	MW-16C	Field Parameters	Temperature	°C	11	0	0%	Parametric	Lognormal MLE	0.000996	0.479	↔
16C_4_30	MW-16C	Other	Total Suspended Solids	mg/L	11	3	27%	Parametric	Lognormal MLE	-0.00673	0.000	↓
16C_4_31	MW-16C	Other	Bicarbonate	mg/L	11	0	0%	Nonparametric	MK	0	0.564	↔
16C_4_33	MW-16C	Other	Hardness	mg/L	11	0	0%	Parametric	Lognormal MLE	0.000355	0.000	↑
16C_4_34	MW-16C	Other	Magnesium	mg/L	11	0	0%	Parametric	Lognormal MLE	0.000330	0.008	↑
16C_4_35	MW-16C	Other	Potassium	mg/L	11	0	0%	Parametric	Lognormal MLE	0.000674	0.000	↑
16C_4_36	MW-16C	Other	Sodium	mg/L	11	0	0%	Nonparametric	MK	-0.0554	0.006	↓
16C_5_38	MW-16C	Part 115	Iron	mg/L	11	0	0%	Nonparametric	MK	-0.000857	0.000	↓
16D_1_01	MW-16D	Appendix III	Boron	mg/L	11	0	0%	Parametric	Lognormal MLE	-0.0000153	0.843	↔
16D_1_02	MW-16D	Appendix III	Calcium	mg/L	11	0	0%	Parametric	Lognormal MLE	0.0000966	0.002	↑
16D_1_03	MW-16D	Appendix III	Chloride	mg/L	11	0	0%	Parametric	Lognormal MLE	0.0000898	0.582	↔
16D_1_05	MW-16D	Appendix III	pH, Field	su	11	0	0%	Parametric	Lognormal MLE	0.00000414	0.892	↔
16D_1_06	MW-16D	Appendix III	Sulfate	mg/L	11	1	9%	Parametric	Lognormal MLE	-0.00132	0.019	↔
16D_1_07	MW-16D	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	Parametric	Lognormal MLE	0.0000329	0.426	↔
16D_2_09	MW-16D	Appendix IV	Arsenic	mg/L	11	3	27%	Nonparametric	MK	0	0.279	↔
16D_2_10	MW-16D	Appendix IV	Barium	mg/L	11	0	0%	Parametric	Lognormal MLE	-0.000209	0.000	↓
16D_2_16	MW-16D	Appendix IV	Lithium	mg/L	11	0	0%	Parametric	Lognormal MLE	-0.0000701	0.793	↔
16D_2_18	MW-16D	Appendix IV	Molybdenum	mg/L	11	0	0%	Nonparametric	MK	0	0.498	↔
16D_2_21	MW-16D	Appendix IV	Radium-226/228	pCi/L	11	0	0%	Parametric	Lognormal MLE	0.000377	0.760	↔
16D_3_24	MW-16D	Field Parameters	pH	su	11	0	0%	Parametric	Lognormal MLE	0.00000229	0.942	↔
16D_3_25	MW-16D	Field Parameters	Conductivity	mS/cm	11	0	0%	Parametric	Lognormal MLE	0.0000194	0.703	↔
16D_3_26	MW-16D	Field Parameters	Turbidity	NTU	11	0	0%	Parametric	Lognormal MLE	-0.000372	0.357	↔
16D_3_27	MW-16D	Field Parameters	Dissolved Oxygen	mg/L	11	0	0%	Nonparametric	MK	-0.00113	0.024	↔
16D_3_28	MW-16D	Field Parameters	Temperature	°C	11	0	0%	Parametric	Lognormal MLE	0.00103	0.259	↔
16D_4_30	MW-16D	Other	Total Suspended Solids	mg/L	11	0	0%	Parametric	Lognormal MLE	-0.00110	0.411	↔
16D_4_31	MW-16D	Other	Bicarbonate	mg/L	11	0	0%	Parametric	Lognormal MLE	0.0000479	0.472	↔
16D_4_33	MW-16D	Other	Hardness	mg/L	11	0	0%	Parametric	Lognormal MLE	0.000438	0.000	↑
16D_4_34	MW-16D	Other	Magnesium	mg/L	11	0	0%	Parametric	Lognormal MLE	0.0000755	0.134	↔
16D_4_35	MW-16D	Other	Potassium	mg/L	11	0	0%	Parametric	Lognormal MLE	-0.0000302	0.543	↔
16D_4_36	MW-16D	Other	Sodium	mg/L	11	0	0%	Parametric	Lognormal MLE	-0.0000809	0.442	↔
16D_5_38	MW-16D	Part 115	Iron	mg/L	11	0	0%	Parametric	Lognormal MLE	0.00338	0.000	↑

(Table continues on next page)

Table 8: Trend Tests: Lognormal MLE and MK *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
16D_5_42	MW-16D	Part 115	Zinc	mg/L	11	1	9%	Parametric	Lognormal MLE	-0.00950	0.000	↓
7B_1_01	MW-7B	Appendix III	Boron	mg/L	14	0	0%	Parametric	Lognormal MLE	-0.0000206	0.445	↔
7B_1_02	MW-7B	Appendix III	Calcium	mg/L	14	0	0%	Parametric	Lognormal MLE	-0.0000903	0.099	↔
7B_1_05	MW-7B	Appendix III	pH, Field	su	14	0	0%	Parametric	Lognormal MLE	0.00000379	0.837	↔
7B_1_07	MW-7B	Appendix III	Total Dissolved Solids	mg/L	14	0	0%	Parametric	Lognormal MLE	-0.0000161	0.349	↔
7B_2_10	MW-7B	Appendix IV	Barium	mg/L	14	0	0%	Parametric	Lognormal MLE	-0.000303	0.000	↓
7B_2_16	MW-7B	Appendix IV	Lithium	mg/L	14	0	0%	Parametric	Lognormal MLE	0.0000284	0.606	↔
7B_2_21	MW-7B	Appendix IV	Radium-226/228	pCi/L	14	0	0%	Parametric	Lognormal MLE	0.0000194	0.972	↔
7B_3_24	MW-7B	Field Parameters	pH	su	14	0	0%	Parametric	Lognormal MLE	0.00000379	0.837	↔
7B_3_25	MW-7B	Field Parameters	Conductivity	mS/cm	14	0	0%	Nonparametric	MK	-0.0000483	0.001	↓
7B_3_26	MW-7B	Field Parameters	Turbidity	NTU	14	0	0%	Parametric	Lognormal MLE	0.00269	0.158	↔
7B_3_27	MW-7B	Field Parameters	Dissolved Oxygen	mg/L	14	0	0%	Parametric	Lognormal MLE	-0.00142	0.141	↔
7B_3_28	MW-7B	Field Parameters	Temperature	°C	14	0	0%	Parametric	Lognormal MLE	0.0000438	0.734	↔
7B_3_29	MW-7B	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	Nonparametric	MK	-0.116	0.003	↓
7B_4_31	MW-7B	Other	Bicarbonate	mg/L	14	0	0%	Parametric	Lognormal MLE	-0.00000421	0.860	↔
7B_4_33	MW-7B	Other	Hardness	mg/L	14	0	0%	Nonparametric	MK	-0.0123	0.014	↔
7B_4_34	MW-7B	Other	Magnesium	mg/L	14	0	0%	Parametric	Lognormal MLE	-0.0000790	0.109	↔
7B_4_35	MW-7B	Other	Potassium	mg/L	14	0	0%	Nonparametric	MK	0.000227	0.053	↔
7B_4_36	MW-7B	Other	Sodium	mg/L	14	0	0%	Nonparametric	MK	0.0216	0.032	↔
7B_5_38	MW-7B	Part 115	Iron	mg/L	14	0	0%	Parametric	Lognormal MLE	0.00130	0.000	↑

Table 9: Trend Tests: Piecewise Linear-Linear

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
100C_1_01	MW-100C	Appendix III	Boron	mg/L	14	0	0%	0.00400	0.063	↔	0.000330	0.026	↔	2023-07-31	0.815	↔
100C_1_02	MW-100C	Appendix III	Calcium	mg/L	14	0	0%	0.0401	0.028	↔	-0.00550	0.182	↔	2023-10-22	0.718	↔
100C_1_03	MW-100C	Appendix III	Chloride	mg/L	14	0	0%	-0.0743	0.000	↓	-0.00144	0.225	↔	2023-09-25	0.987	↔
100C_1_05	MW-100C	Appendix III	pH, Field	su	14	0	0%	-0.00686	0.044	↔	0.000380	0.080	↔	2023-07-11	0.512	↔
100C_1_06	MW-100C	Appendix III	Sulfate	mg/L	14	0	0%	-0.200	0.000	↓	-0.00218	0.676	↔	2023-09-06	0.935	↔
100C_2_09	MW-100C	Appendix IV	Arsenic	mg/L	14	13	93%	-0.00000000000000000497	0.033	↔	0.00000000000000000816	0.594	↔	2023-12-12	0.480	↔
100C_2_10	MW-100C	Appendix IV	Barium	mg/L	14	0	0%	0.000214	0.015	↔	-0.0000835	0.000	↓	2023-08-31	0.876	↔
100C_2_16	MW-100C	Appendix IV	Lithium	mg/L	14	0	0%	0.0000495	0.009	↑	-0.00000384	0.327	↔	2023-09-18	0.672	↔
100C_2_18	MW-100C	Appendix IV	Molybdenum	mg/L	14	11	79%	-0.0000400	0.000	↓	-0.00000000000523	1.000	↔	2023-09-27	0.958	↔
100C_2_23	MW-100C	Appendix IV	Thallium	mg/L	14	14	100%	-0.00000000000000000497	0.033	↔	0.00000000000000000816	0.594	↔	2023-12-12	0.480	↔
100C_3_24	MW-100C	Field Parameters	pH	su	14	0	0%	-0.00686	0.044	↔	0.000380	0.080	↔	2023-07-11	0.512	↔
100C_3_25	MW-100C	Field Parameters	Conductivity	mS/cm	14	0	0%	-0.000100	0.426	↔	-0.0000655	0.004	↓	2023-09-10	0.747	↔
100C_3_27	MW-100C	Field Parameters	Dissolved Oxygen	mg/L	14	0	0%	-0.000444	0.143	↔	0.00126	0.004	↑	2024-01-25	0.687	↔
100C_3_28	MW-100C	Field Parameters	Temperature	°C	14	0	0%	-0.0196	0.000	↓	0.0137	0.001	↑	2023-12-09	0.837	↔
100C_4_30	MW-100C	Other	Total Suspended Solids	mg/L	14	5	36%	0.0440	0.570	↔	-0.0106	0.058	↔	2023-08-13	0.342	↔
100C_4_31	MW-100C	Other	Bicarbonate	mg/L	14	0	0%	0.943	0.242	↔	0.0580	0.762	↔	2023-10-06	0.378	↔

(Table continues on next page)

Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
100C_4_33	MW-100C	Other	Hardness	mg/L	14	0	0%	0.271	0.000	↑	-0.0785	0.000	↓	2023-11-02	0.945	↔
100C_4_34	MW-100C	Other	Magnesium	mg/L	14	0	0%	0.00971	0.403	↔	-0.00248	0.387	↔	2023-10-21	0.222	↔
100C_4_35	MW-100C	Other	Potassium	mg/L	14	0	0%	0.00203	0.634	↔	-0.000259	0.804	↔	2023-10-10	0.067	↔
100C_4_36	MW-100C	Other	Sodium	mg/L	14	0	0%	-0.104	0.000	↓	0.0203	0.008	↑	2023-11-07	0.914	↔
100C_5_42	MW-100C	Part 115	Zinc	mg/L	14	13	93%	0.00000839	0.657	↔	-0.00000437	0.355	↔	2023-10-22	0.113	↔
100D_1_01	MW-100D	Appendix III	Boron	mg/L	9	0	0%	-0.000384	0.599	↔	-0.00574	0.000	↓	2023-12-03	0.974	↔
100D_1_02	MW-100D	Appendix III	Calcium	mg/L	9	0	0%	-0.0123	0.467	↔	0.224	0.000	↑	2023-12-18	0.988	↔
100D_1_03	MW-100D	Appendix III	Chloride	mg/L	9	4	44%	-0.00323	0.711	↔	0.0348	0.005	↑	2023-11-27	0.898	↔
100D_1_05	MW-100D	Appendix III	pH, Field	su	9	0	0%	0.000466	0.801	↔	-0.00333	0.085	↔	2024-01-02	0.552	↔
100D_1_06	MW-100D	Appendix III	Sulfate	mg/L	9	1	11%	0.0244	0.530	↔	0.210	0.001	↑	2023-12-13	0.945	↔
100D_1_07	MW-100D	Appendix III	Total Dissolved Solids	mg/L	9	0	0%	0.0702	0.705	↔	0.865	0.003	↑	2023-12-31	0.913	↔
100D_2_09	MW-100D	Appendix IV	Arsenic	mg/L	9	2	22%	0.0000143	0.012	↔	-0.00000000000000103	1.000	↔	2023-08-25	0.893	↔
100D_2_10	MW-100D	Appendix IV	Barium	mg/L	9	0	0%	-0.0000155	0.128	↔	0.0000498	0.001	↑	2023-12-19	0.922	↔
100D_2_18	MW-100D	Appendix IV	Molybdenum	mg/L	9	1	11%	0.000143	0.030	↔	-0.0000121	0.030	↔	2023-07-14	0.798	↔
100D_3_24	MW-100D	Field Parameters	pH	su	9	0	0%	0.000466	0.801	↔	-0.00333	0.085	↔	2024-01-02	0.552	↔
100D_3_25	MW-100D	Field Parameters	Conductivity	mS/cm	9	0	0%	0.000105	0.632	↔	0.00136	0.001	↑	2023-12-06	0.958	↔
100D_3_26	MW-100D	Field Parameters	Turbidity	NTU	9	0	0%	-0.0252	0.014	↔	0.0131	0.084	↔	2023-12-16	0.813	↔
100D_3_27	MW-100D	Field Parameters	Dissolved Oxygen	mg/L	9	0	0%	-0.000274	0.390	↔	0.00115	0.041	↔	2024-01-20	0.717	↔
100D_3_28	MW-100D	Field Parameters	Temperature	°C	9	0	0%	-0.0203	0.034	↔	0.0143	0.071	↔	2023-12-18	0.747	↔
100D_3_29	MW-100D	Field Parameters	Oxidation Reduction Potential	mV	9	0	0%	-1.59	0.108	↔	0.337	0.085	↔	2023-08-31	0.674	↔
100D_4_31	MW-100D	Other	Bicarbonate	mg/L	9	0	0%	-0.0881	0.294	↔	0.690	0.000	↑	2023-11-27	0.976	↔
100D_4_33	MW-100D	Other	Hardness	mg/L	9	0	0%	0.0441	0.644	↔	0.661	0.000	↑	2023-12-29	0.959	↔
100D_4_34	MW-100D	Other	Magnesium	mg/L	9	0	0%	-0.00441	0.151	↔	0.0360	0.000	↑	2023-12-14	0.987	↔
100D_4_35	MW-100D	Other	Potassium	mg/L	9	0	0%	-0.00331	0.019	↔	0.00753	0.003	↑	2024-01-31	0.897	↔
100D_5_38	MW-100D	Part 115	Iron	mg/L	9	0	0%	-0.00172	0.105	↔	0.00352	0.039	↔	2024-01-23	0.722	↔
16C_1_02	MW-16C	Appendix III	Calcium	mg/L	11	0	0%	0.0748	0.006	↑	0.00787	0.348	↔	2023-07-20	0.869	↔
16C_1_05	MW-16C	Appendix III	pH, Field	su	11	0	0%	-0.00197	0.151	↔	0.000163	0.627	↔	2023-05-30	0.383	↔
16C_1_06	MW-16C	Appendix III	Sulfate	mg/L	11	0	0%	-0.234	0.000	↓	0.00519	0.004	↑	2023-03-26	0.985	↔
16C_1_07	MW-16C	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	-1.07	0.000	↓	0.00122	0.958	↔	2023-04-25	0.941	↔
16C_2_09	MW-16C	Appendix IV	Arsenic	mg/L	11	8	73%	-0.00000211	0.608	↔	0.000000668	0.686	↔	2023-07-05	0.066	↔
16C_2_10	MW-16C	Appendix IV	Barium	mg/L	11	0	0%	-0.000137	0.003	↓	-0.0000153	0.427	↔	2023-08-08	0.870	↔
16C_2_15	MW-16C	Appendix IV	Lead	mg/L	11	11	100%	0.0000000000000000000344	0.148	↔	-0.00000000000000000000241	0.853	↔	2023-08-26	0.456	↔
16C_2_18	MW-16C	Appendix IV	Molybdenum	mg/L	11	9	82%	-0.0000242	0.069	↔	0.0000000000366	1.000	↔	2023-06-05	0.604	↔
16C_3_24	MW-16C	Field Parameters	pH	su	11	0	0%	-0.00197	0.151	↔	0.000163	0.627	↔	2023-05-30	0.383	↔
16C_3_26	MW-16C	Field Parameters	Turbidity	NTU	11	0	0%	-0.575	0.000	↓	0.00797	0.203	↔	2023-03-29	0.958	↔
16C_3_27	MW-16C	Field Parameters	Dissolved Oxygen	mg/L	11	0	0%	-0.000512	0.255	↔	0.00102	0.279	↔	2023-12-04	0.341	↔
16C_3_28	MW-16C	Field Parameters	Temperature	°C	11	0	0%	-0.00384	0.942	↔	0.0122	0.390	↔	2023-07-03	0.134	↔
16C_3_29	MW-16C	Field Parameters	Oxidation Reduction Potential	mV	11	0	0%	-0.175	0.050	↔	0.355	0.056	↔	2023-11-21	0.686	↔
16C_4_30	MW-16C	Other	Total Suspended Solids	mg/L	11	3	27%	-0.604	0.000	↓	-0.00418	0.325	↔	2023-04-04	0.986	↔
16C_4_31	MW-16C	Other	Bicarbonate	mg/L	11	0	0%	0.435	0.299	↔	-0.0768	0.252	↔	2023-05-29	0.399	↔
16C_4_33	MW-16C	Other	Hardness	mg/L	11	0	0%	0.245	0.001	↑	-0.00578	0.875	↔	2023-09-13	0.896	↔
16C_4_34	MW-16C	Other	Magnesium	mg/L	11	0	0%	0.0339	0.008	↑	-0.00317	0.426	↔	2023-08-07	0.843	↔

(Table continues on next page)

Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
16C_4_35	MW-16C	Other	Potassium	mg/L	11	0	0%	0.00662	0.002	↑	0.000563	0.528	↔	2023-08-31	0.894	↔
16C_4_36	MW-16C	Other	Sodium	mg/L	11	0	0%	-0.158	0.000	↓	-0.00858	0.396	↔	2023-07-20	0.947	↔
16C_5_38	MW-16C	Part 115	Iron	mg/L	11	0	0%	-0.00249	0.059	↔	-0.0000810	0.861	↔	2023-07-31	0.691	↔
16D_1_02	MW-16D	Appendix III	Calcium	mg/L	11	0	0%	-0.00638	0.695	↔	0.00362	0.025	↔	2023-04-14	0.558	↔
16D_1_03	MW-16D	Appendix III	Chloride	mg/L	11	0	0%	0.0213	0.173	↔	-0.00142	0.254	↔	2023-04-21	0.596	↔
16D_1_05	MW-16D	Appendix III	pH, Field	su	11	0	0%	-0.00133	0.397	↔	0.000387	0.349	↔	2023-06-19	0.230	↔
16D_1_06	MW-16D	Appendix III	Sulfate	mg/L	11	1	9%	0.0851	0.215	↔	-0.0133	0.035	↔	2023-03-21	0.557	↔
16D_1_07	MW-16D	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	0.159	0.272	↔	-0.0147	0.510	↔	2023-05-26	0.409	↔
16D_2_09	MW-16D	Appendix IV	Arsenic	mg/L	11	3	27%	0.0000192	0.205	↔	-0.0000000828	0.971	↔	2023-04-25	0.352	↔
16D_2_10	MW-16D	Appendix IV	Barium	mg/L	11	0	0%	0.000000737	0.981	↔	-0.00000819	0.011	↔	2023-04-24	0.676	↔
16D_2_15	MW-16D	Appendix IV	Lead	mg/L	11	11	100%	0.00000000000000000344	0.148	↔	-0.000000000000000000241	0.853	↔	2023-08-26	0.456	↔
16D_2_16	MW-16D	Appendix IV	Lithium	mg/L	11	0	0%	-0.000153	0.081	↔	0.0000111	0.114	↔	2023-04-24	0.748	↔
16D_2_18	MW-16D	Appendix IV	Molybdenum	mg/L	11	0	0%	0.000128	0.000	↑	-0.00000287	0.110	↔	2023-03-22	0.913	↔
16D_2_21	MW-16D	Appendix IV	Radium-226/228	pCi/L	11	0	0%	-0.00833	0.437	↔	0.00450	0.307	↔	2023-07-28	0.220	↔
16D_2_22	MW-16D	Appendix IV	Selenium	mg/L	11	10	91%	0.00000170	0.444	↔	-0.00000114	0.389	↔	2023-09-11	0.193	↔
16D_3_24	MW-16D	Field Parameters	pH	su	11	0	0%	-0.00133	0.410	↔	0.000386	0.364	↔	2023-06-22	0.226	↔
16D_3_25	MW-16D	Field Parameters	Conductivity	mS/cm	11	0	0%	0.000454	0.100	↔	-0.0000392	0.337	↔	2023-04-30	0.485	↔
16D_3_26	MW-16D	Field Parameters	Turbidity	NTU	11	0	0%	-0.0292	0.490	↔	0.000114	0.973	↔	2023-04-24	0.311	↔
16D_3_27	MW-16D	Field Parameters	Dissolved Oxygen	mg/L	11	0	0%	-0.0943	0.000	↓	0.0000131	0.971	↔	2023-03-22	0.993	↔
16D_3_28	MW-16D	Field Parameters	Temperature	°C	11	0	0%	0.0728	0.280	↔	-0.0122	0.479	↔	2023-07-04	0.371	↔
16D_3_29	MW-16D	Field Parameters	Oxidation Reduction Potential	mV	11	0	0%	-0.968	0.013	↔	0.0408	0.821	↔	2023-09-09	0.799	↔
16D_4_30	MW-16D	Other	Total Suspended Solids	mg/L	11	0	0%	0.0608	0.263	↔	-0.0190	0.191	↔	2023-06-02	0.339	↔
16D_4_31	MW-16D	Other	Bicarbonate	mg/L	11	0	0%	0.195	0.473	↔	-0.0157	0.712	↔	2023-05-29	0.234	↔
16D_4_33	MW-16D	Other	Hardness	mg/L	11	0	0%	-0.00607	0.923	↔	0.0676	0.028	↔	2023-07-13	0.644	↔
16D_4_34	MW-16D	Other	Magnesium	mg/L	11	0	0%	0.00167	0.081	↔	-0.000615	0.562	↔	2023-10-17	0.433	↔
16D_4_36	MW-16D	Other	Sodium	mg/L	11	0	0%	0.0900	0.437	↔	-0.0181	0.331	↔	2023-04-25	0.202	↔
16D_5_38	MW-16D	Part 115	Iron	mg/L	11	0	0%	0.00153	0.221	↔	0.000721	0.047	↔	2023-05-30	0.731	↔
16D_5_42	MW-16D	Part 115	Zinc	mg/L	11	1	9%	-0.00102	0.045	↔	-0.0000278	0.913	↔	2023-08-08	0.629	↔
7B_1_02	MW-7B	Appendix III	Calcium	mg/L	14	0	0%	-0.0247	0.027	↔	0.0000354	0.933	↔	2022-05-02	0.733	↔
7B_1_03	MW-7B	Appendix III	Chloride	mg/L	14	12	86%	-0.0000000000195	1.000	↔	-0.00826	0.000	↓	2023-05-28	0.898	↔
7B_1_04	MW-7B	Appendix III	Fluoride	mg/L	14	12	86%	0.00000000000450	1.000	↔	-0.00105	0.060	↔	2023-02-18	0.698	↔
7B_1_05	MW-7B	Appendix III	pH, Field	su	14	0	0%	-0.00293	0.161	↔	0.000329	0.053	↔	2022-06-22	0.546	↔
7B_1_06	MW-7B	Appendix III	Sulfate	mg/L	14	12	86%	0.0000000000124	1.000	↔	-0.0104	0.000	↓	2023-06-03	0.913	↔
7B_2_04	MW-7B	Appendix IV	Fluoride	mg/L	14	12	86%	0.00000000000450	1.000	↔	-0.00105	0.060	↔	2023-02-18	0.698	↔
7B_2_10	MW-7B	Appendix IV	Barium	mg/L	14	0	0%	-0.00000602	0.066	↔	-0.00000143	0.469	↔	2022-11-10	0.581	↔
7B_2_15	MW-7B	Appendix IV	Lead	mg/L	14	13	93%	-0.00000173	0.752	↔	0.000000000000546	1.000	↔	2023-10-18	0.023	↔
7B_2_21	MW-7B	Appendix IV	Radium-226/228	pCi/L	14	0	0%	-0.00889	0.645	↔	0.0000705	0.932	↔	2022-04-17	0.042	↔
7B_3_24	MW-7B	Field Parameters	pH	su	14	0	0%	-0.00293	0.161	↔	0.000329	0.053	↔	2022-06-22	0.546	↔
7B_3_25	MW-7B	Field Parameters	Conductivity	mS/cm	14	0	0%	-0.00406	0.000	↓	-0.00000928	0.272	↔	2022-04-13	0.989	↔
7B_3_27	MW-7B	Field Parameters	Dissolved Oxygen	mg/L	14	0	0%	-0.00151	0.074	↔	0.000755	0.468	↔	2023-04-07	0.362	↔
7B_3_28	MW-7B	Field Parameters	Temperature	°C	14	0	0%	0.0180	0.319	↔	-0.00142	0.538	↔	2022-07-11	0.241	↔
7B_3_29	MW-7B	Field Parameters	Oxidation Reduction Potential	mV	14	0	0%	-0.815	0.098	↔	-0.0354	0.553	↔	2022-06-27	0.558	↔

(Table continues on next page)

Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
7B_4_30	MW-7B	Other	Total Suspended Solids	mg/L	14	12	86%	-0.00000000000702	1.000	↔	-0.00533	0.000	↓	2023-05-28	0.898	↔
7B_4_31	MW-7B	Other	Bicarbonate	mg/L	14	0	0%	0.0495	0.067	↔	-0.0540	0.119	↔	2023-04-08	0.425	↔
7B_4_33	MW-7B	Other	Hardness	mg/L	14	0	0%	-0.103	0.108	↔	-0.000516	0.947	↔	2022-06-29	0.494	↔
7B_4_34	MW-7B	Other	Magnesium	mg/L	14	0	0%	-0.00363	0.112	↔	-0.0000399	0.809	↔	2022-05-19	0.474	↔
7B_4_35	MW-7B	Other	Potassium	mg/L	14	0	0%	0.000691	0.370	↔	-0.000183	0.854	↔	2023-05-18	0.163	↔
7B_4_36	MW-7B	Other	Sodium	mg/L	14	0	0%	0.0351	0.561	↔	-0.0357	0.370	↔	2022-12-19	0.133	↔

Table 10: Trend Tests: Piecewise Linear-Linear-Linear

								Line 1			Line 2			Line 3						
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	Break 2	R-Squared	Overall Trend
100C_1_01	MW-100C	Appendix III	Boron	mg/L	14	0	0%	0.00433	0.050	↔	-0.000718	0.711	↔	0.000446	0.015	↔	2023-08-10	2023-10-21	0.858	↔
100C_1_03	MW-100C	Appendix III	Chloride	mg/L	14	0	0%	-0.0743	0.000	↓	-0.00281	0.619	↔	-0.000824	0.712	↔	2023-09-24	2024-02-02	0.987	↔
100C_2_10	MW-100C	Appendix IV	Barium	mg/L	14	0	0%	0.000228	0.010	↔	-0.000136	0.005	↓	-0.0000651	0.008	↓	2023-09-08	2024-01-03	0.914	↔
100C_2_16	MW-100C	Appendix IV	Lithium	mg/L	14	0	0%	0.0000590	0.006	↑	-0.0000209	0.570	↔	-0.000000779	0.887	↔	2023-09-18	2023-11-29	0.715	↔
100C_5_42	MW-100C	Part 115	Zinc	mg/L	14	13	93%	0.0000151	0.224	↔	-0.0000242	0.557	↔	0.00000137	0.868	↔	2023-10-23	2024-01-07	0.264	↔
100D_1_02	MW-100D	Appendix III	Calcium	mg/L	9	0	0%	-0.0203	0.754	↔	-0.00780	0.904	↔	0.224	0.001	↑	2023-08-14	2023-12-20	0.989	↔
100D_1_04	MW-100D	Appendix III	Fluoride	mg/L	9	5	56%	0.00000000000595	1.000	↔	-0.00702	0.057	↔	0.000549	0.594	↔	2023-10-10	2024-01-19	0.945	↔
100D_1_05	MW-100D	Appendix III	pH, Field	su	9	0	0%	-0.00371	0.183	↔	0.0120	0.176	↔	-0.00408	0.028	↔	2023-10-17	2023-12-09	0.884	↔
100D_1_06	MW-100D	Appendix III	Sulfate	mg/L	9	1	11%	0.127	0.371	↔	-0.0410	0.876	↔	0.208	0.006	↑	2023-08-14	2023-11-25	0.958	↔
100D_1_07	MW-100D	Appendix III	Total Dissolved Solids	mg/L	9	0	0%	0.743	0.552	↔	-0.240	0.544	↔	0.865	0.014	↔	2023-08-05	2023-12-10	0.940	↔
100D_2_04	MW-100D	Appendix IV	Fluoride	mg/L	9	5	56%	0.00000000000595	1.000	↔	-0.00702	0.057	↔	0.000549	0.594	↔	2023-10-10	2024-01-19	0.945	↔
100D_2_09	MW-100D	Appendix IV	Arsenic	mg/L	9	2	22%	0.0000143	0.058	↔	-0.0000000000253	1.000	↔	0.00000000000168	1.000	↔	2023-08-25	2023-11-26	0.893	↔
100D_2_18	MW-100D	Appendix IV	Molybdenum	mg/L	9	1	11%	0.000143	0.004	↑	-0.0000429	0.019	↔	-0.00000379	0.202	↔	2023-07-27	2023-11-13	0.982	↔
100D_3_24	MW-100D	Field Parameters	pH	su	9	0	0%	-0.00371	0.183	↔	0.0120	0.176	↔	-0.00408	0.028	↔	2023-10-17	2023-12-09	0.884	↔
100D_3_25	MW-100D	Field Parameters	Conductivity	mS/cm	9	0	0%	0.000329	0.699	↔	-0.0000714	0.932	↔	0.00136	0.010	↑	2023-08-23	2023-11-30	0.960	↔
100D_3_26	MW-100D	Field Parameters	Turbidity	NTU	9	0	0%	-0.0278	0.093	↔	-0.00596	0.914	↔	0.0128	0.285	↔	2024-01-03	2023-10-31	0.821	↔
100D_3_28	MW-100D	Field Parameters	Temperature	°C	9	0	0%	0.0167	0.622	↔	-0.0389	0.083	↔	0.0144	0.034	↔	2023-08-08	2023-11-26	0.919	↔
100D_4_33	MW-100D	Other	Hardness	mg/L	9	0	0%	-0.143	0.635	↔	0.219	0.285	↔	0.635	0.009	↑	2023-09-16	2024-01-03	0.974	↔
100D_4_34	MW-100D	Other	Magnesium	mg/L	9	0	0%	-0.00783	0.712	↔	-0.00239	0.722	↔	0.0360	0.001	↑	2023-08-13	2023-12-17	0.988	↔
100D_4_36	MW-100D	Other	Sodium	mg/L	9	0	0%	0.0914	0.248	↔	-0.197	0.138	↔	0.132	0.043	↔	2023-09-23	2024-01-20	0.878	↔
16C_1_05	MW-16C	Appendix III	pH, Field	su	11	0	0%	-0.00212	0.044	↔	0.00135	0.082	↔	-0.00128	0.056	↔	2023-07-01	2024-01-27	0.815	↔
16C_1_07	MW-16C	Appendix III	Total Dissolved Solids	mg/L	11	0	0%	-1.03	0.014	↔	-0.104	0.791	↔	0.0135	0.649	↔	2023-04-22	2023-07-04	0.947	↔
16C_2_18	MW-16C	Appendix IV	Molybdenum	mg/L	11	9	82%	-0.0000242	0.129	↔	-0.000000000262	1.000	↔	0.000000000101	1.000	↔	2023-06-05	2024-01-15	0.604	↔
16C_3_24	MW-16C	Field Parameters	pH	su	11	0	0%	-0.00212	0.044	↔	0.00135	0.082	↔	-0.00128	0.056	↔	2023-07-01	2024-01-27	0.815	↔
16C_3_28	MW-16C	Field Parameters	Temperature	°C	11	0	0%	-0.0202	0.639	↔	0.0500	0.630	↔	-0.000649	0.981	↔	2023-07-05	2023-10-18	0.246	↔
16C_3_29	MW-16C	Field Parameters	Oxidation Reduction Potential	mV	11	0	0%	-0.469	0.528	↔	-0.117	0.490	↔	0.336	0.040	↔	2023-04-14	2023-11-20	0.719	↔
16C_4_31	MW-16C	Other	Bicarbonate	mg/L	11	0	0%	0.712	0.070	↔	-0.665	0.128	↔	0.0173	0.813	↔	2023-05-29	2023-08-11	0.724	↔
16C_4_35	MW-16C	Other	Potassium	mg/L	11	0	0%	0.00652	0.012	↔	0.00142	0.898	↔	0.000363	0.803	↔	2023-08-28	2023-11-18	0.895	↔
16D_1_01	MW-16D	Appendix III	Boron	mg/L	11	0	0%	-0.0000439	0.949	↔	0.00448	0.415	↔	-0.00360	0.013	↔	2023-09-29	2024-01-12	0.780	↔

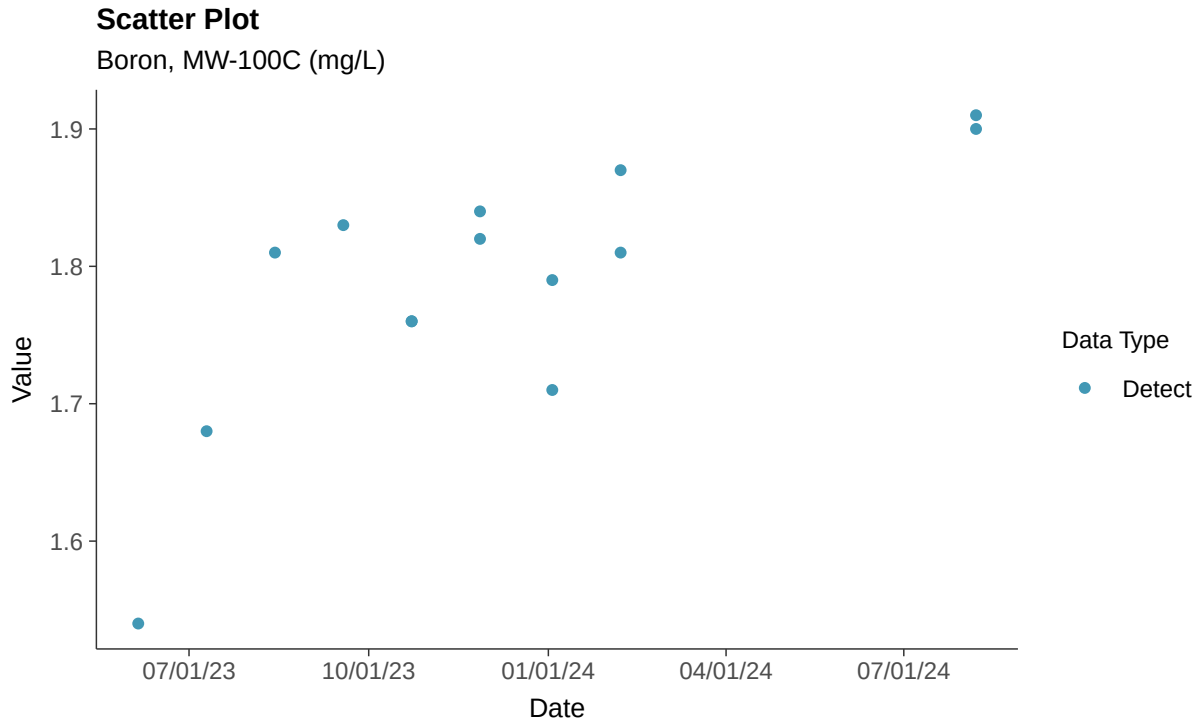
(Table continues on next page)

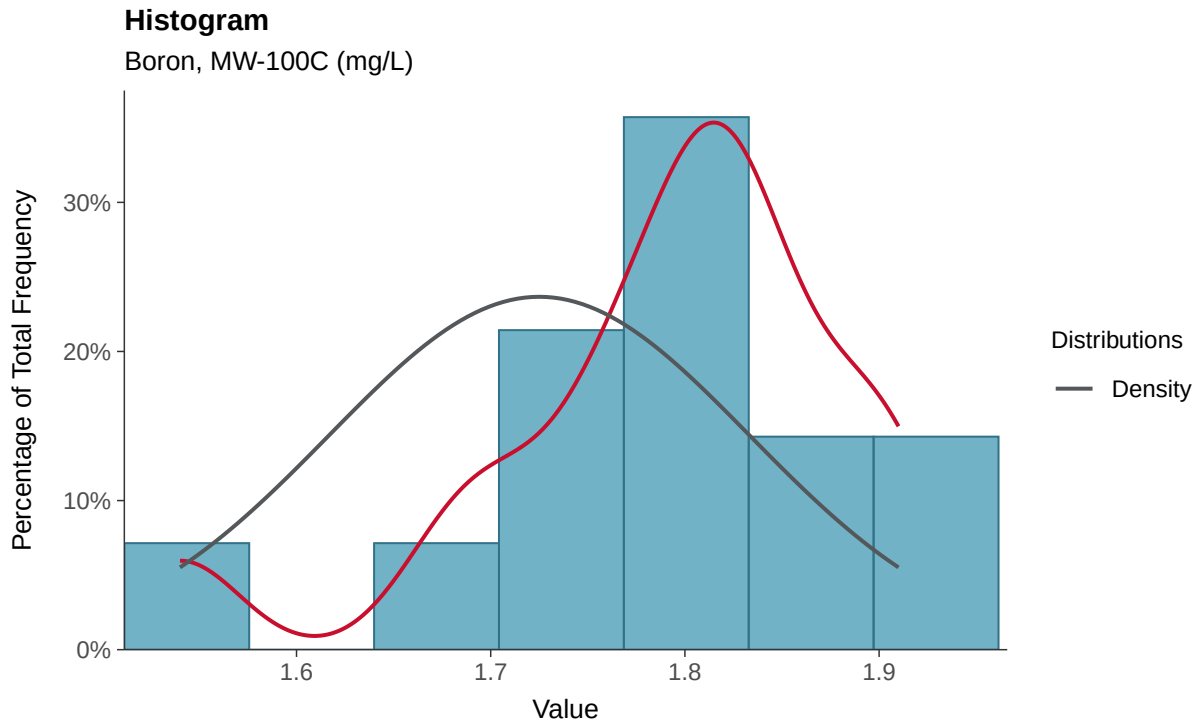
Table 10: Trend Tests: Piecewise Linear-Linear-Linear *(continued)*

								Line 1			Line 2			Line 3						
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	Break 2	R-Squared	Overall Trend
16D_1_02	MW-16D	Appendix III	Calcium	mg/L	11	0	0%	-0.00423	0.460	↔	0.0127	0.233	↔	0.000813	0.703	↔	2023-07-02	2023-10-16	0.755	↔
16D_1_03	MW-16D	Appendix III	Chloride	mg/L	11	0	0%	0.0246	0.006	↑	-0.0156	0.259	↔	0.000833	0.466	↔	2023-05-13	2023-08-07	0.871	↔
16D_2_09	MW-16D	Appendix IV	Arsenic	mg/L	11	3	27%	0.0000185	0.306	↔	0.000000478	0.958	↔	-0.000000476	0.928	↔	2023-04-25	2023-10-25	0.354	↔
16D_2_16	MW-16D	Appendix IV	Lithium	mg/L	11	0	0%	-0.000203	0.000	↓	0.0000733	0.242	↔	-0.00000121	0.810	↔	2023-04-25	2023-07-27	0.943	↔
16D_2_22	MW-16D	Appendix IV	Selenium	mg/L	11	10	91%	-0.000000873	0.895	↔	0.00000383	0.626	↔	-0.00000142	0.355	↔	2023-05-28	2023-09-11	0.266	↔
16D_3_25	MW-16D	Field Parameters	Conductivity	mS/cm	11	0	0%	0.000493	0.005	↑	-0.000345	0.117	↔	0.0000379	0.378	↔	2023-05-30	2023-09-12	0.850	↔
16D_3_26	MW-16D	Field Parameters	Turbidity	NTU	11	0	0%	-0.0192	0.145	↔	0.0142	0.440	↔	-0.0117	0.295	↔	2023-07-05	2023-12-27	0.510	↔
16D_4_30	MW-16D	Other	Total Suspended Solids	mg/L	11	0	0%	0.0429	0.216	↔	-0.0757	0.460	↔	-0.00107	0.977	↔	2023-08-18	2023-12-09	0.446	↔
16D_4_33	MW-16D	Other	Hardness	mg/L	11	0	0%	-0.0139	0.562	↔	0.371	0.086	↔	-0.0214	0.541	↔	2023-09-28	2023-12-10	0.909	↔
16D_5_37	MW-16D	Part 115	Copper	mg/L	11	10	91%	-0.0000557	0.013	↔	-0.0000621	0.022	↔	-0.000000570	0.886	↔	2023-09-17	2023-05-01	0.837	↔
7B_1_03	MW-7B	Appendix III	Chloride	mg/L	14	12	86%	-0.0000000000595	1.000	↔	0.0000000000252	1.000	↔	-0.00826	0.001	↓	2022-04-21	2023-05-28	0.898	↔
7B_2_15	MW-7B	Appendix IV	Lead	mg/L	14	13	93%	0.0000417	0.156	↔	-0.0000271	0.414	↔	0.00000287	0.647	↔	2022-06-23	2022-12-21	0.356	↔
7B_3_27	MW-7B	Field Parameters	Dissolved Oxygen	mg/L	14	0	0%	-0.0169	0.013	↔	-0.000381	0.465	↔	0.00105	0.471	↔	2022-04-14	2023-11-13	0.742	↔
7B_4_30	MW-7B	Other	Total Suspended Solids	mg/L	14	12	86%	-0.000000000000231	1.000	↔	0.00000000000158	1.000	↔	-0.00533	0.001	↓	2022-10-06	2023-05-28	0.898	↔
7B_4_31	MW-7B	Other	Bicarbonate	mg/L	14	0	0%	-0.0438	0.393	↔	0.166	0.014	↔	-0.0634	0.030	↔	2022-08-19	2023-02-08	0.733	↔
7B_4_33	MW-7B	Other	Hardness	mg/L	14	0	0%	-0.117	0.083	↔	0.0170	0.655	↔	-0.0235	0.292	↔	2022-07-04	2023-08-01	0.580	↔
7B_4_34	MW-7B	Other	Magnesium	mg/L	14	0	0%	-0.00571	0.116	↔	0.00173	0.267	↔	-0.000247	0.229	↔	2022-05-18	2022-09-15	0.643	↔
7B_4_35	MW-7B	Other	Potassium	mg/L	14	0	0%	-0.00546	0.208	↔	0.00383	0.446	↔	-0.0000701	0.864	↔	2022-05-19	2022-09-25	0.423	↔
7B_5_38	MW-7B	Part 115	Iron	mg/L	14	0	0%	-0.000857	0.002	↓	0.000196	0.002	↑	0.0000664	0.003	↑	2022-04-16	2022-12-10	0.962	↔

Appendix III: Boron, MW-100C

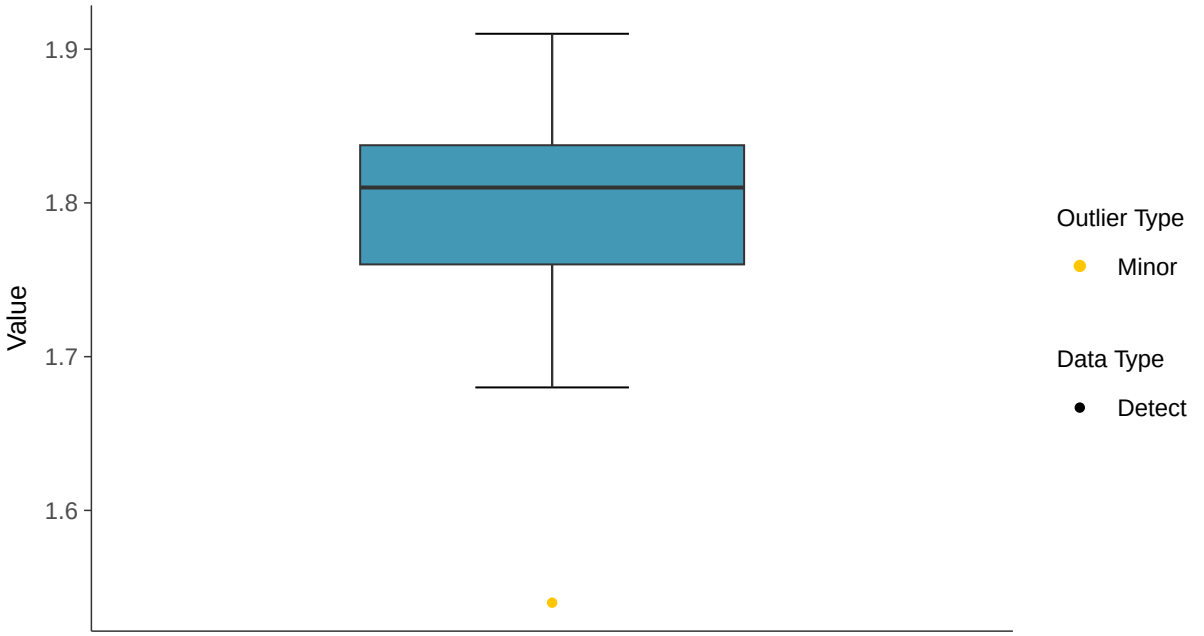
ID: 100C_1_01





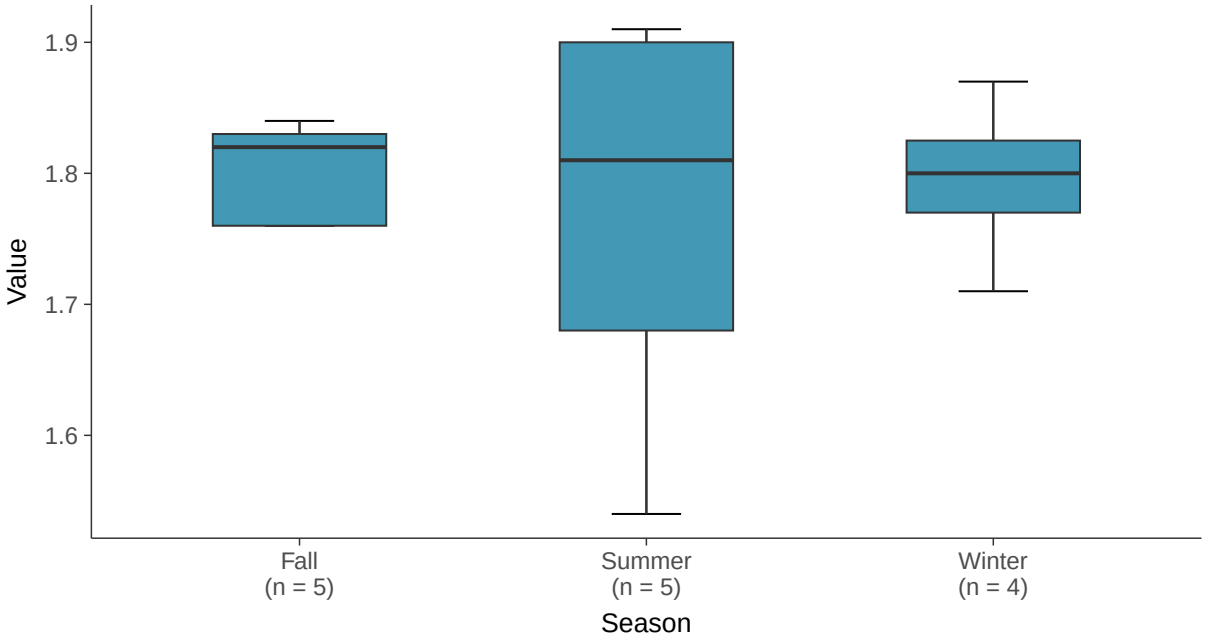
Boxplot

Boron, MW-100C (mg/L)



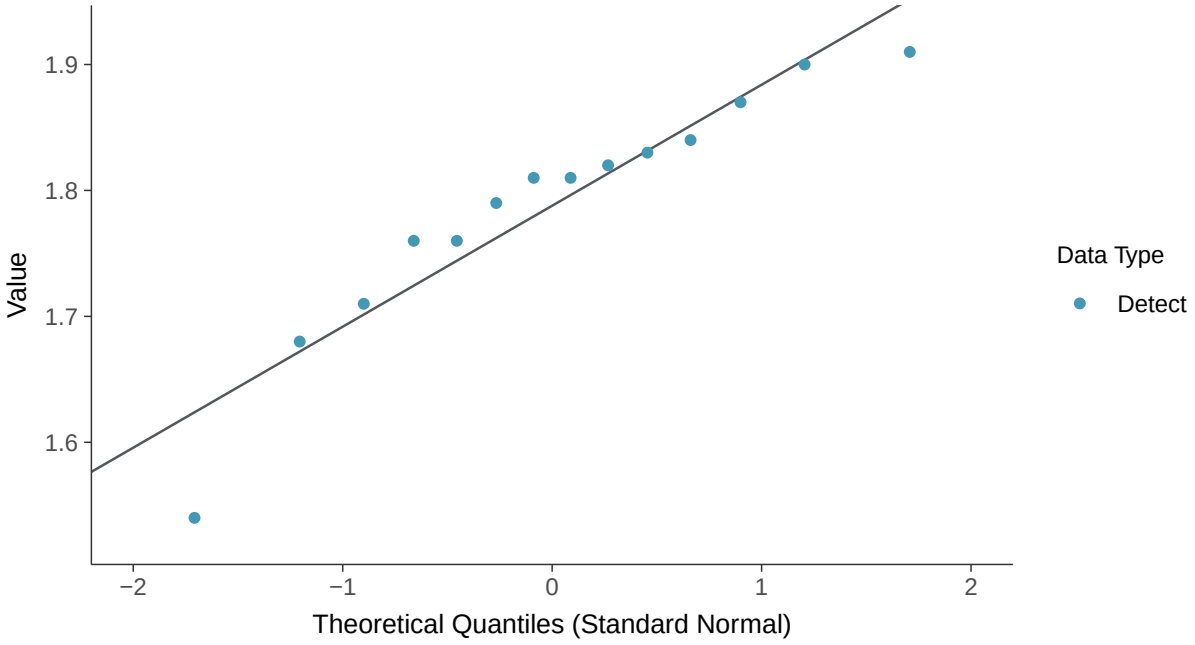
Boxplot by Season

Boron, MW-100C (mg/L)



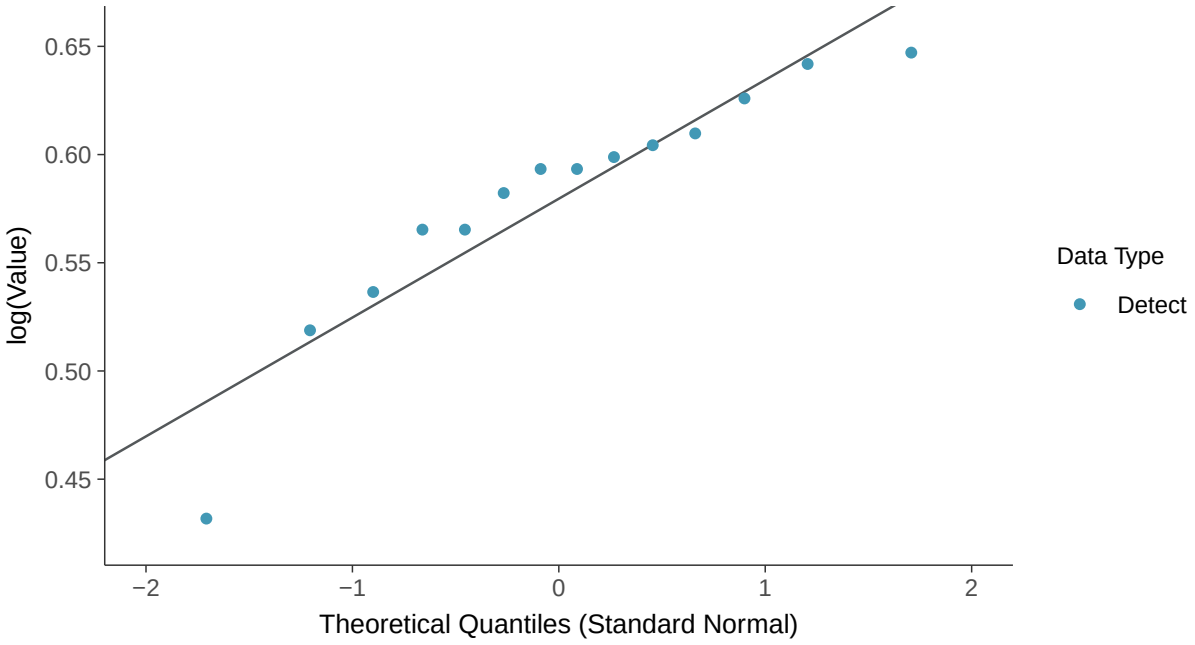
Normal Q-Q plot

Boron, MW-100C (mg/L)



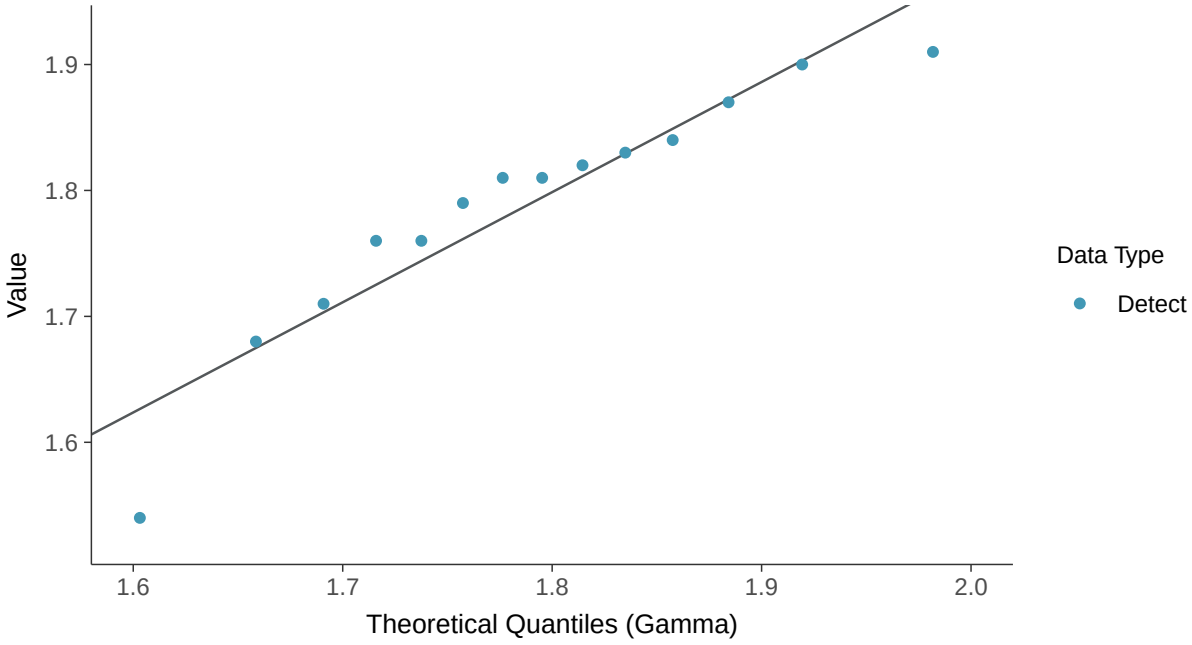
Lognormal Q-Q plot

Boron, MW-100C (mg/L)



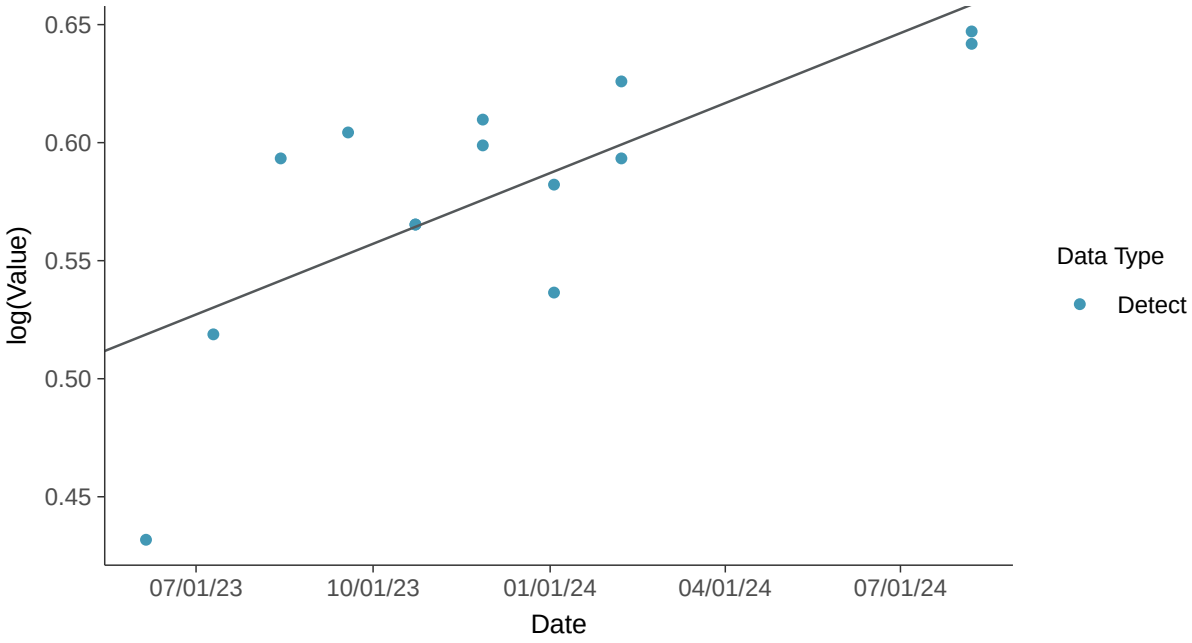
Gamma Q-Q plot

Boron, MW-100C (mg/L)



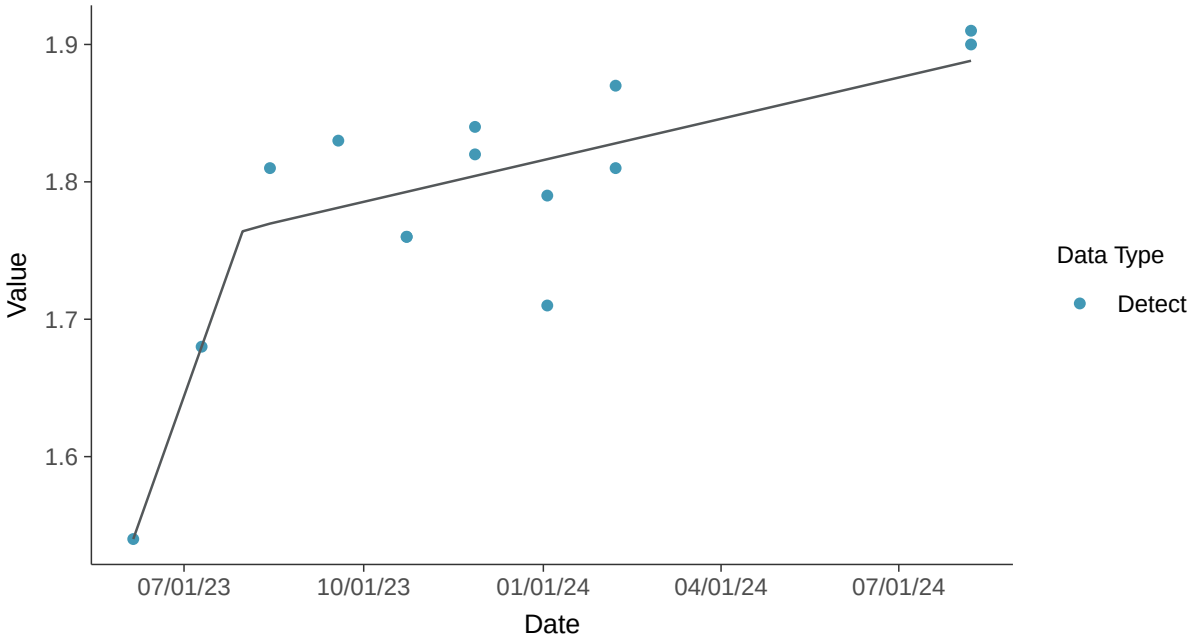
Trend Regression: Lognormal MLE

Boron, MW-100C (mg/L)



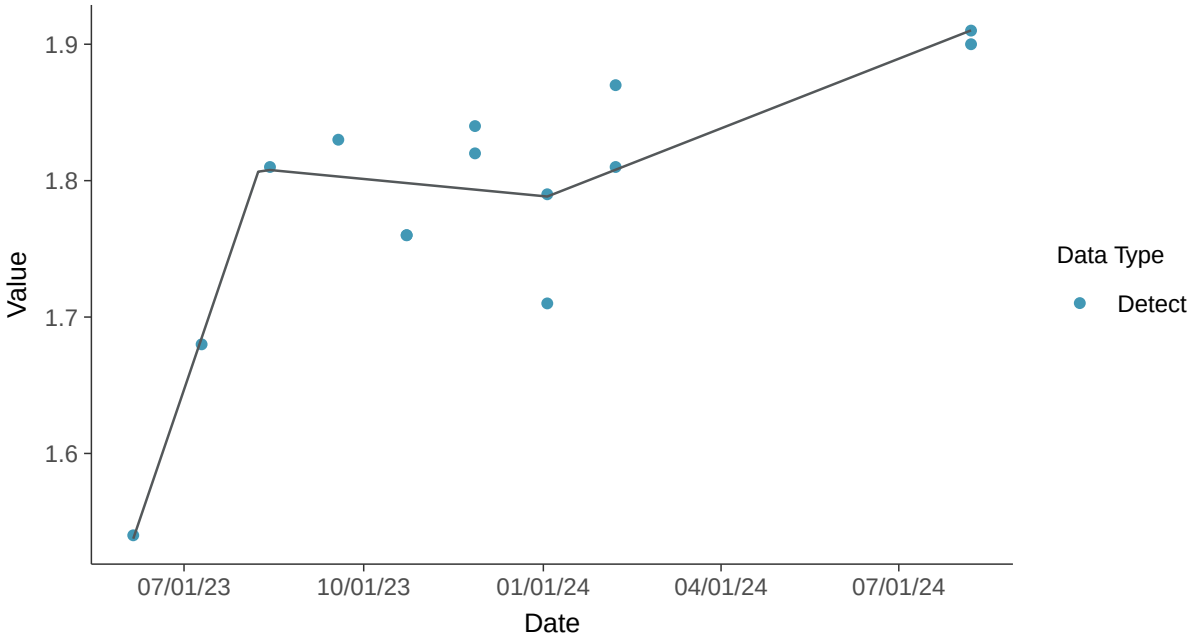
Trend Regression: Piecewise Linear-Linear

Boron, MW-100C (mg/L)



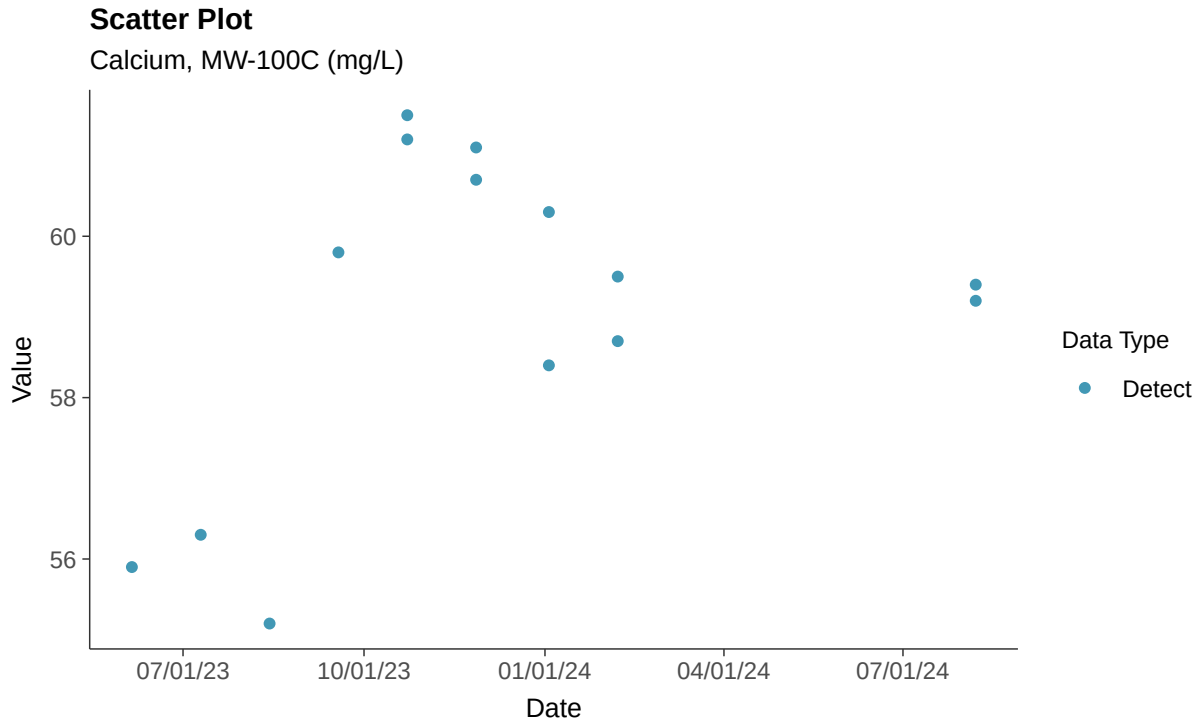
Trend Regression: Piecewise Linear-Linear-Linear

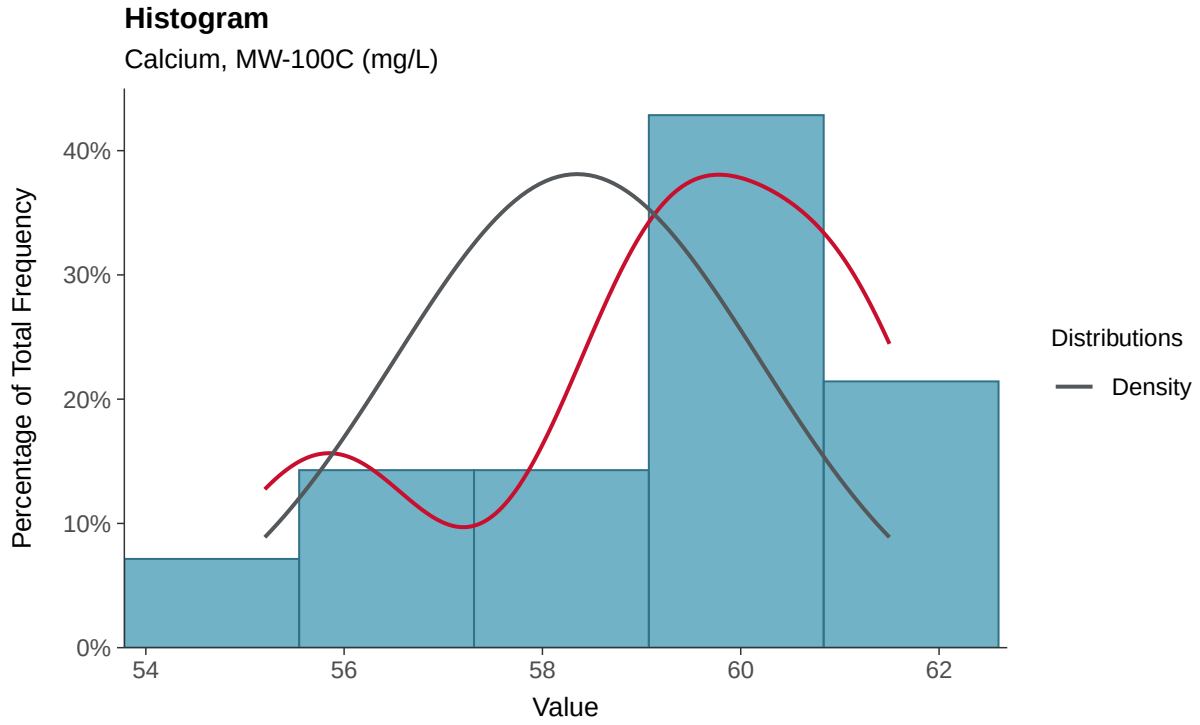
Boron, MW-100C (mg/L)



Appendix III: Calcium, MW-100C

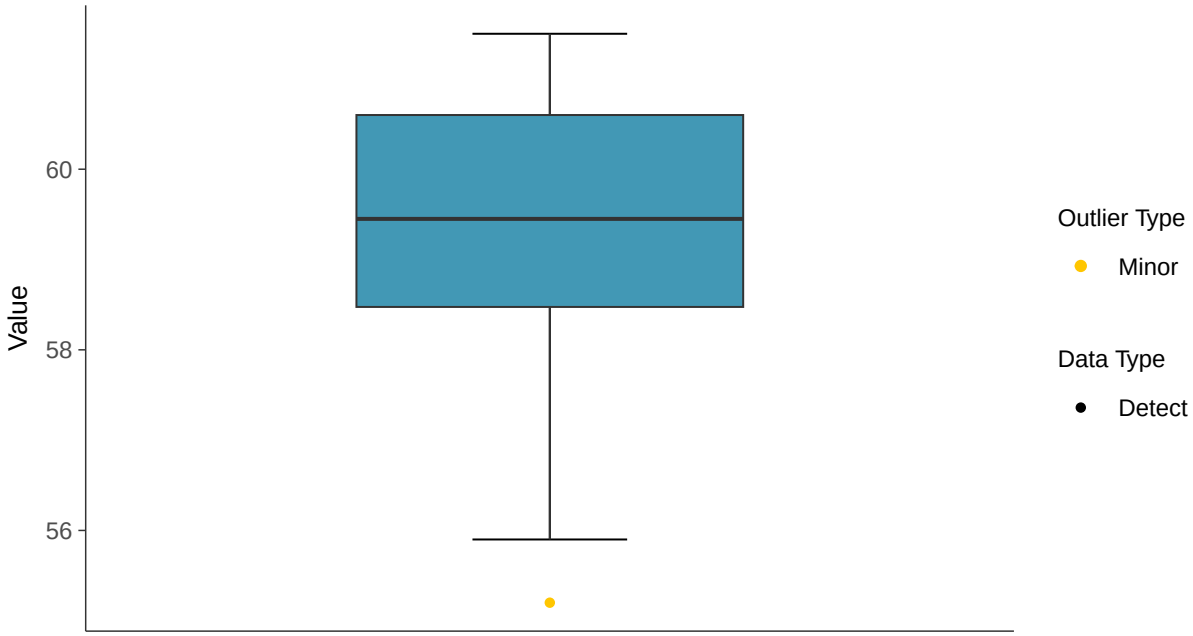
ID: 100C_1_02





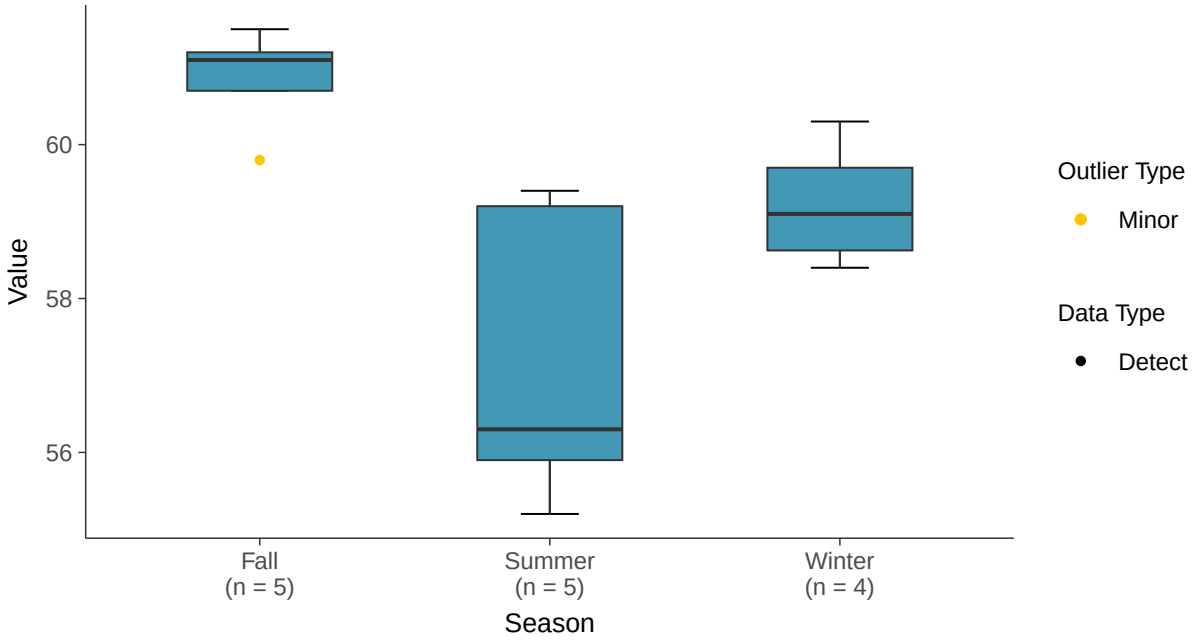
Boxplot

Calcium, MW-100C (mg/L)



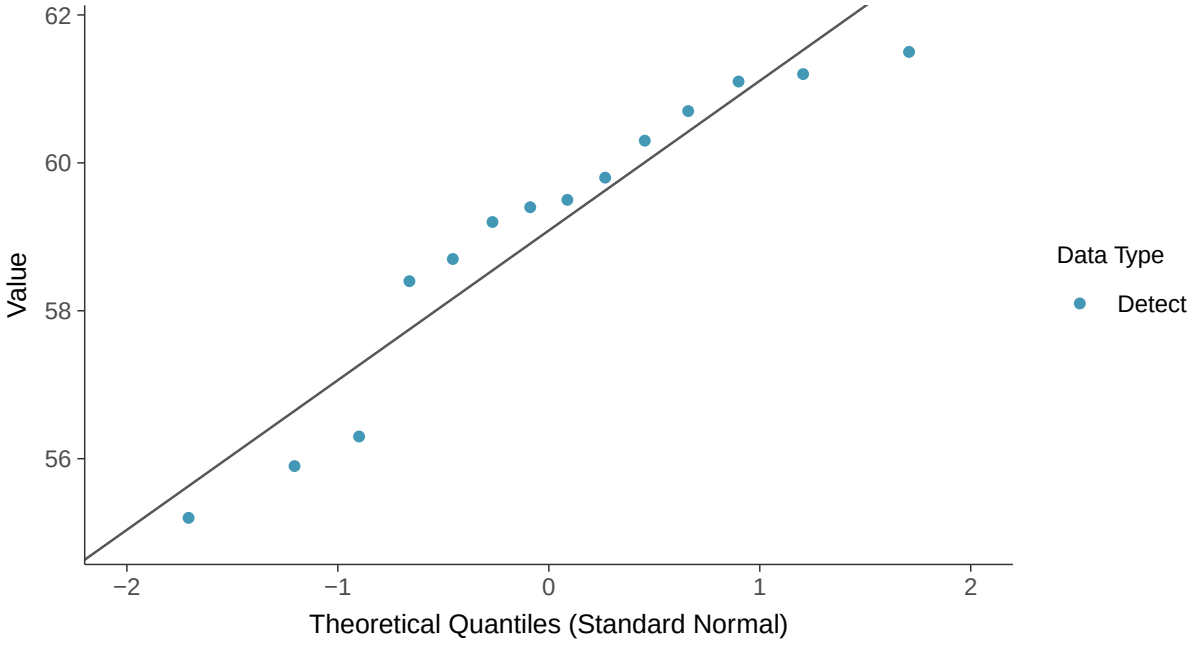
Boxplot by Season

Calcium, MW-100C (mg/L)



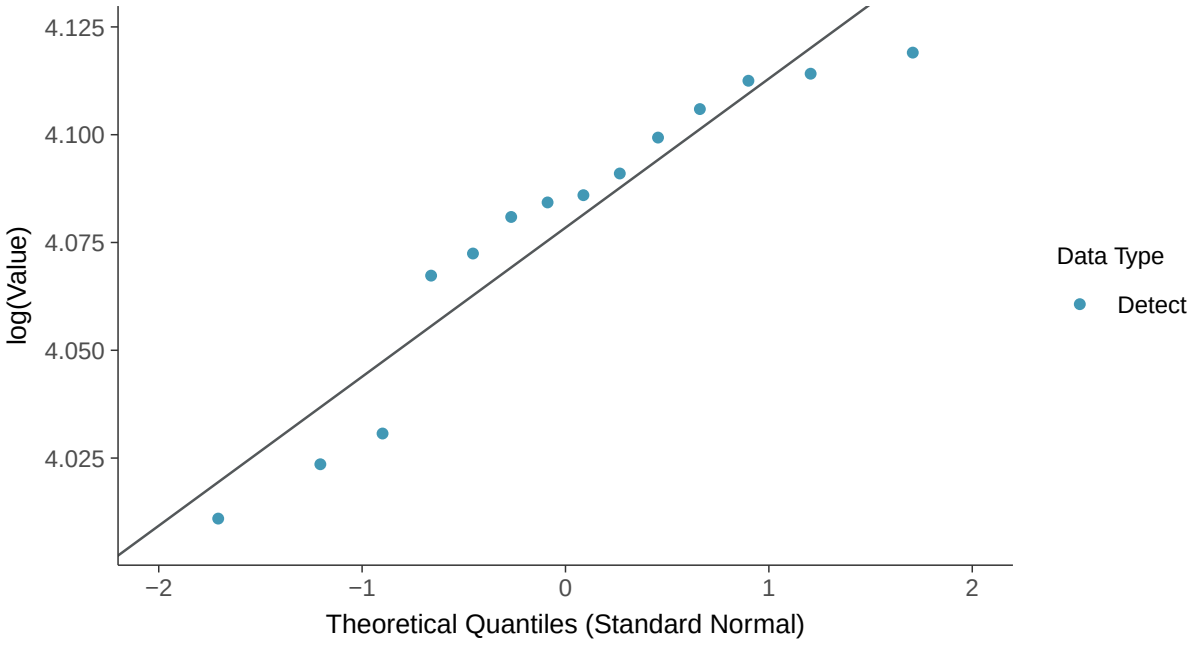
Normal Q-Q plot

Calcium, MW-100C (mg/L)



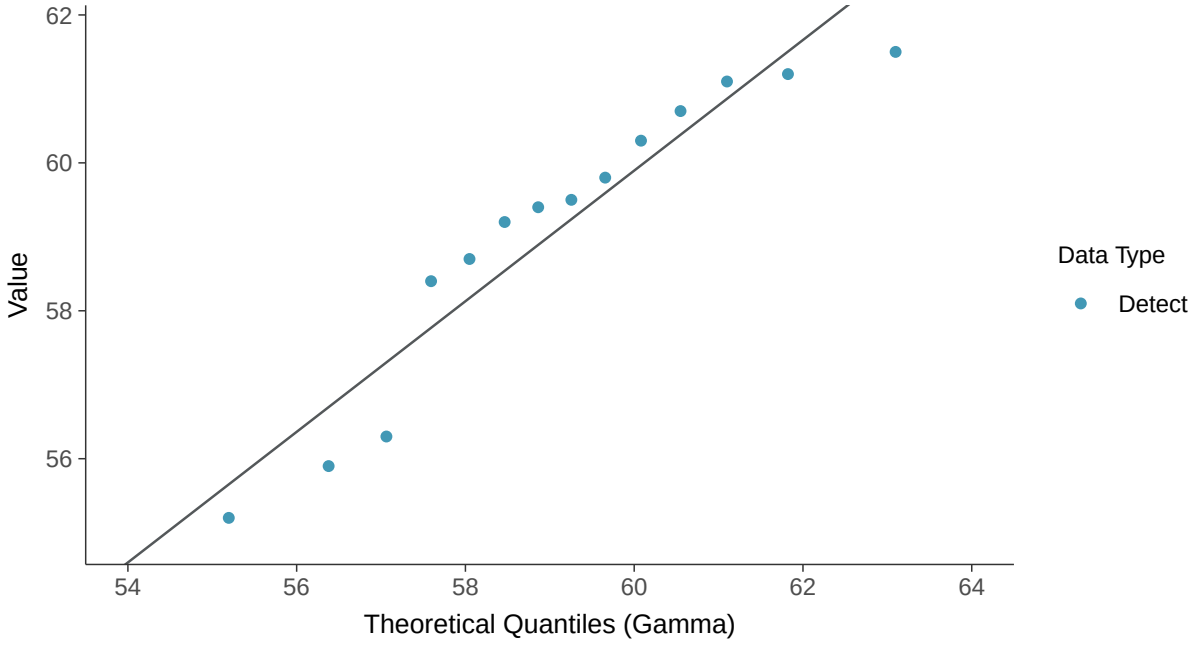
Lognormal Q-Q plot

Calcium, MW-100C (mg/L)



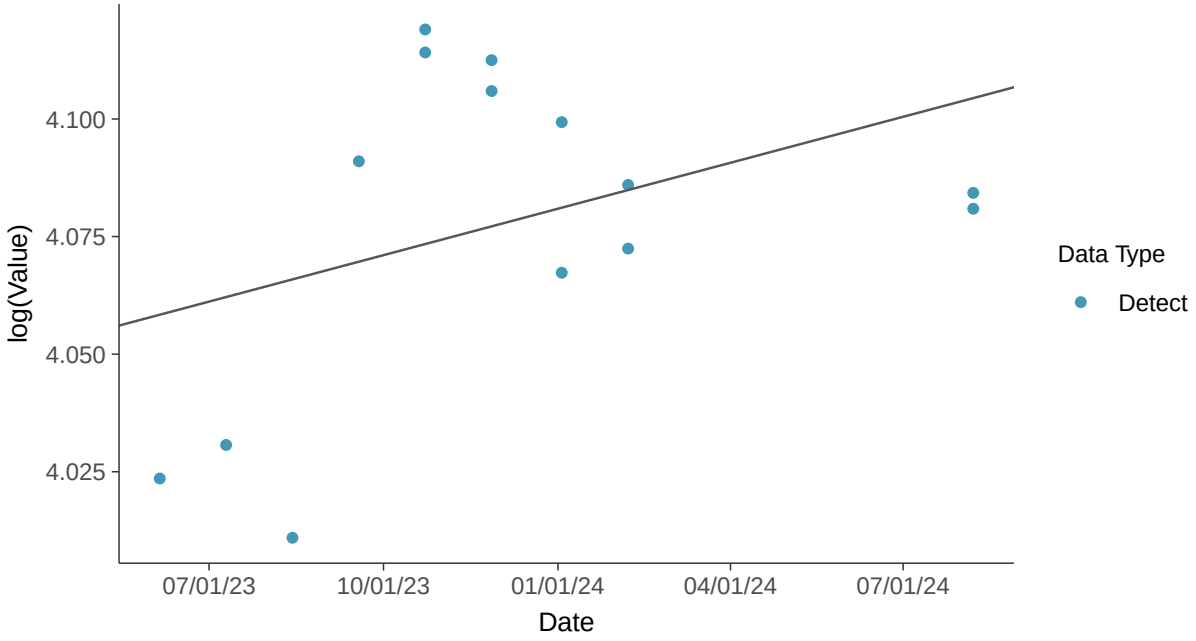
Gamma Q-Q plot

Calcium, MW-100C (mg/L)



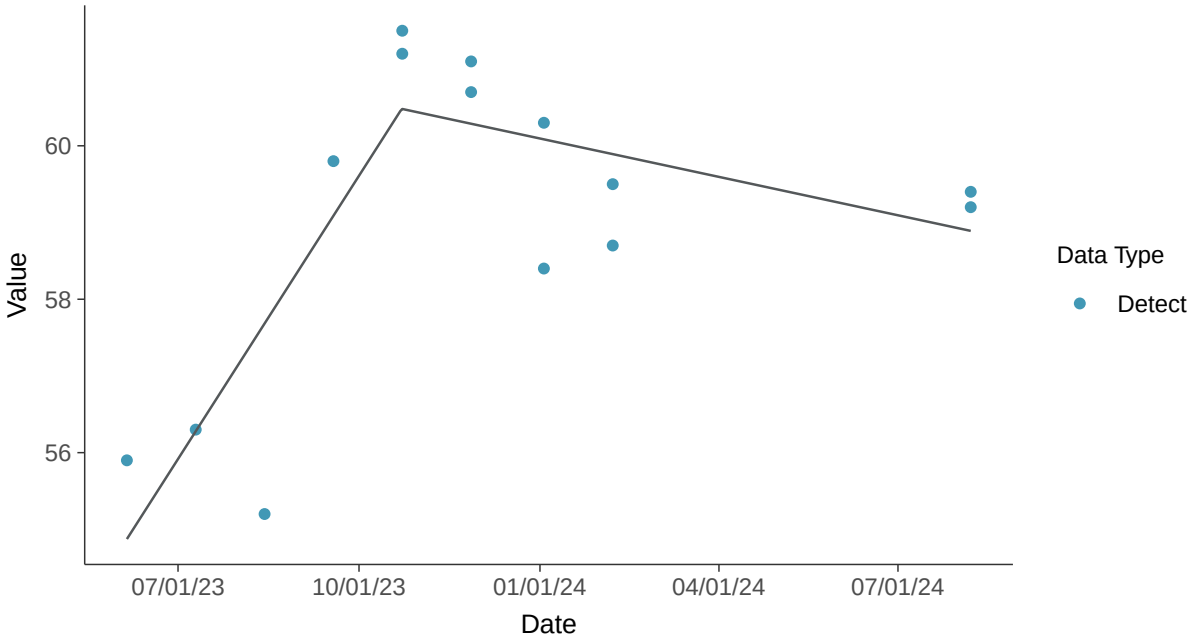
Trend Regression: Lognormal MLE

Calcium, MW-100C (mg/L)



Trend Regression: Piecewise Linear-Linear

Calcium, MW-100C (mg/L)



Appendix III: Chloride, MW-100C

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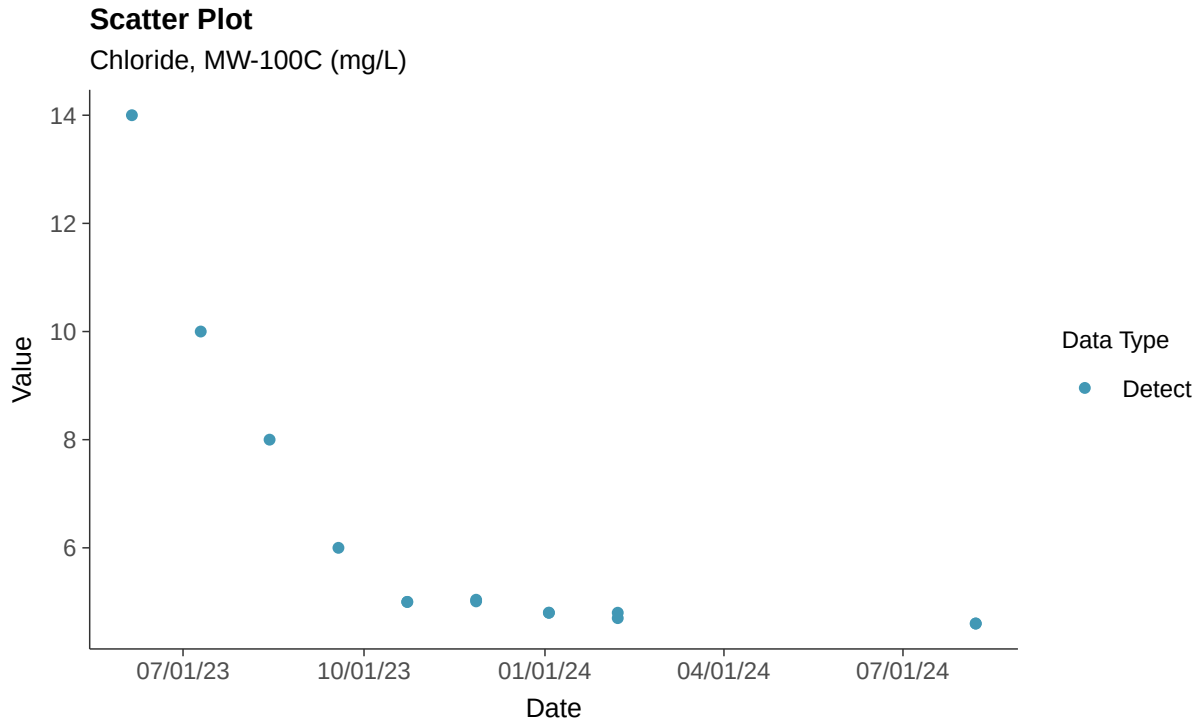
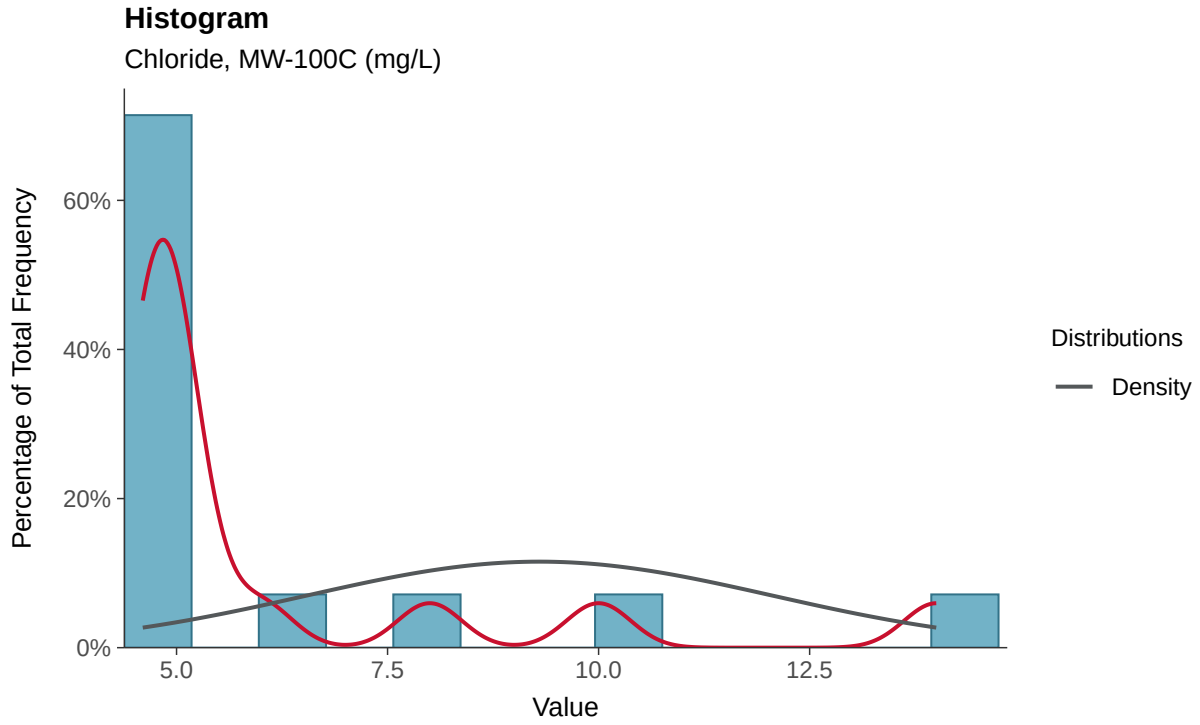
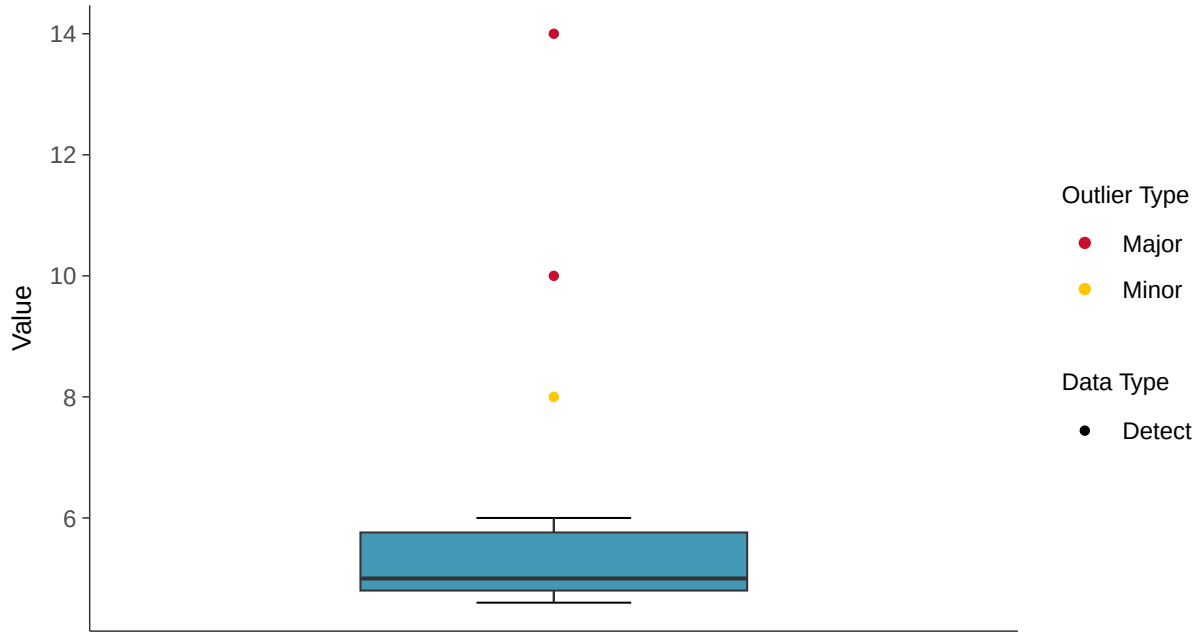




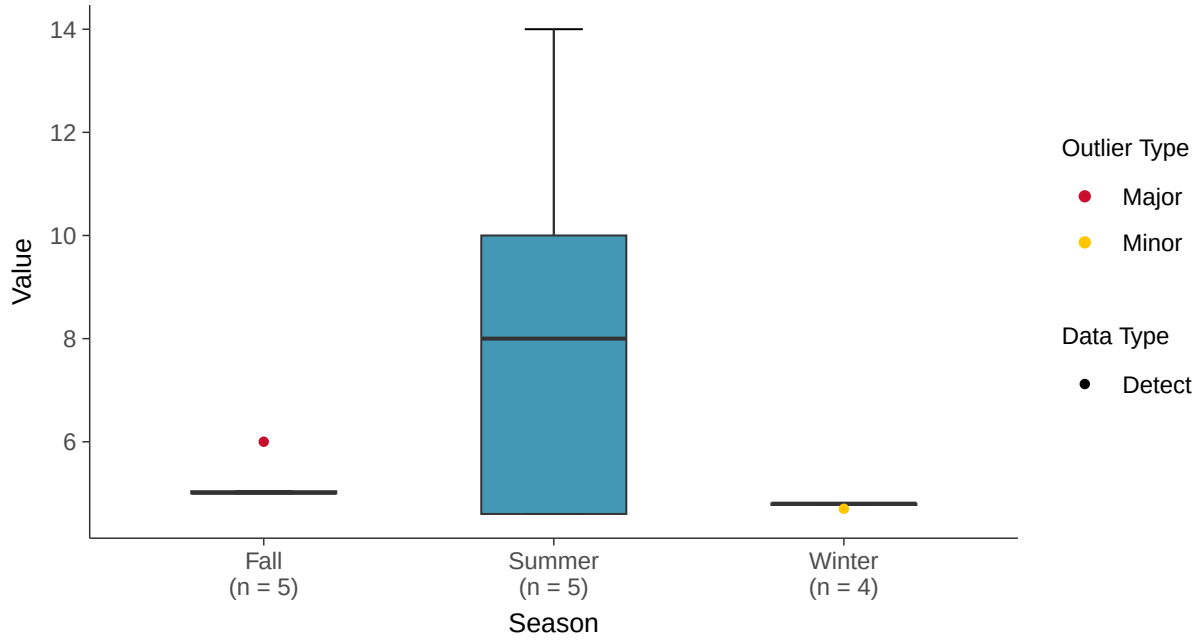
Boxplot

Chloride, MW-100C (mg/L)



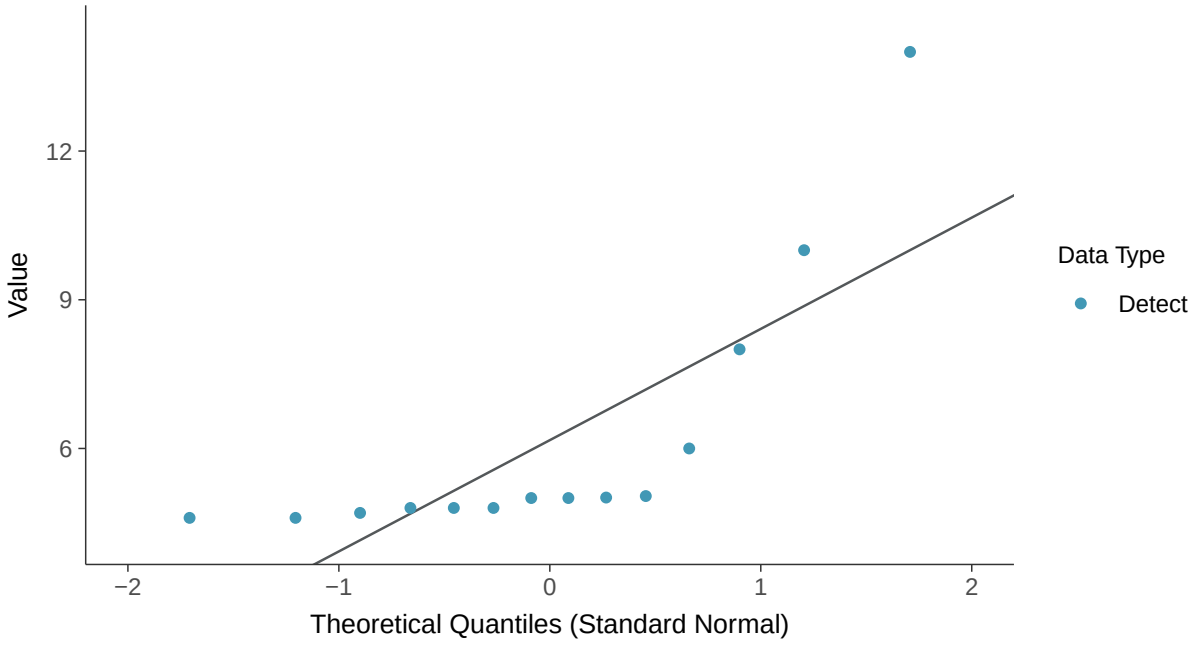
Boxplot by Season

Chloride, MW-100C (mg/L)



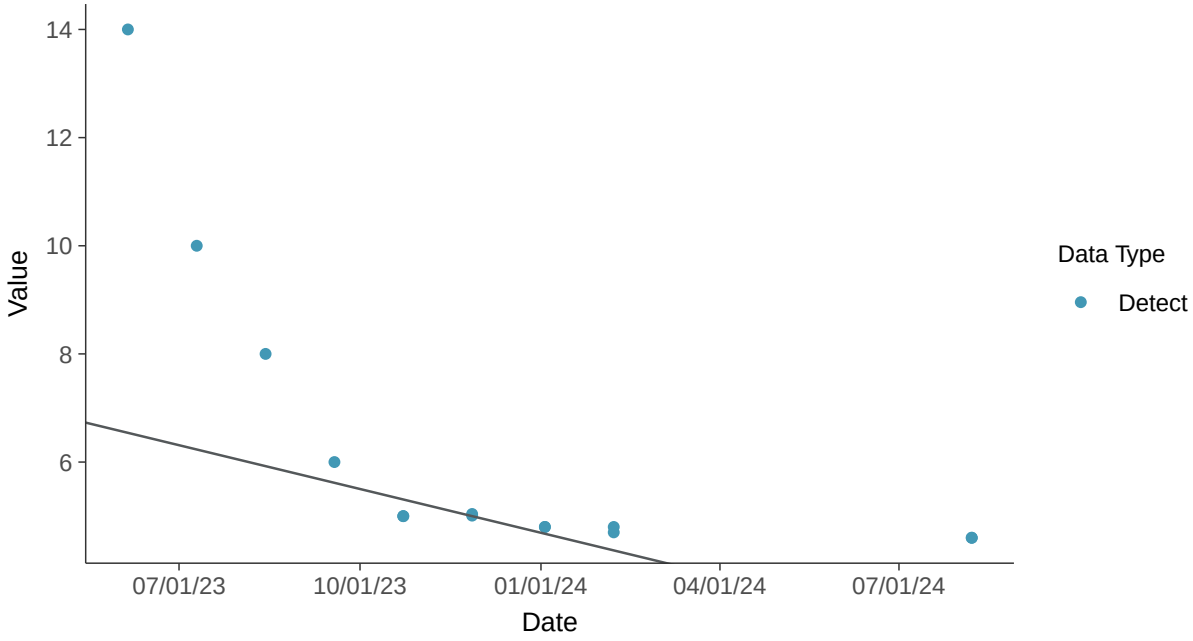
Normal Q-Q plot

Chloride, MW-100C (mg/L)



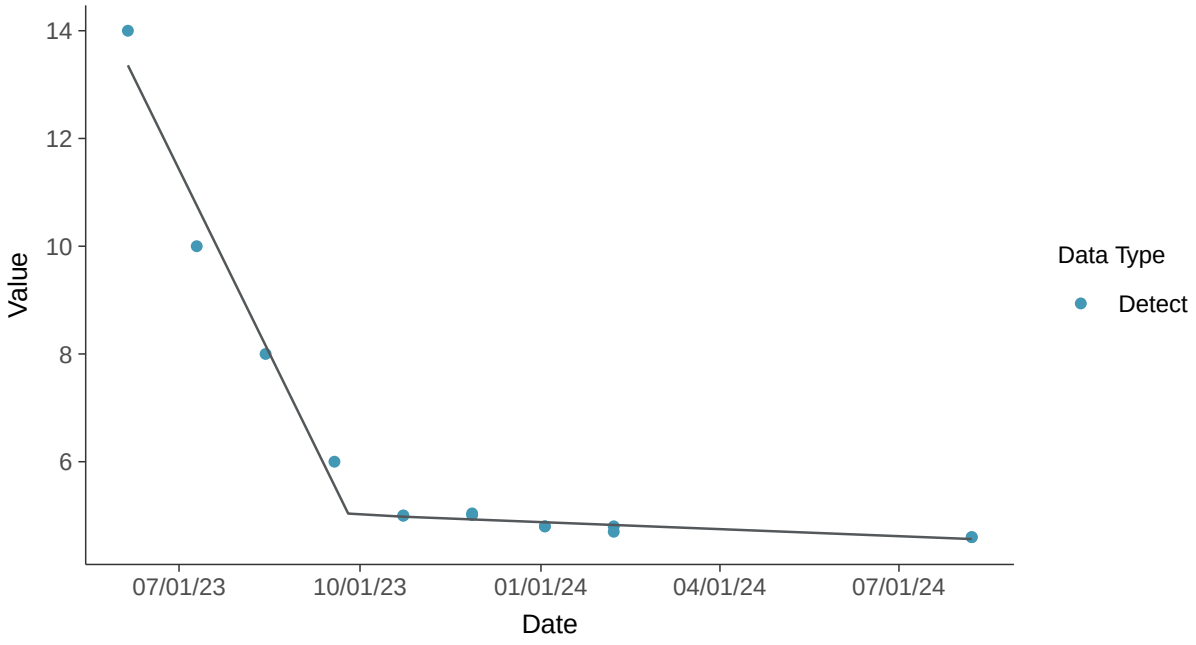
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Chloride, MW-100C (mg/L)



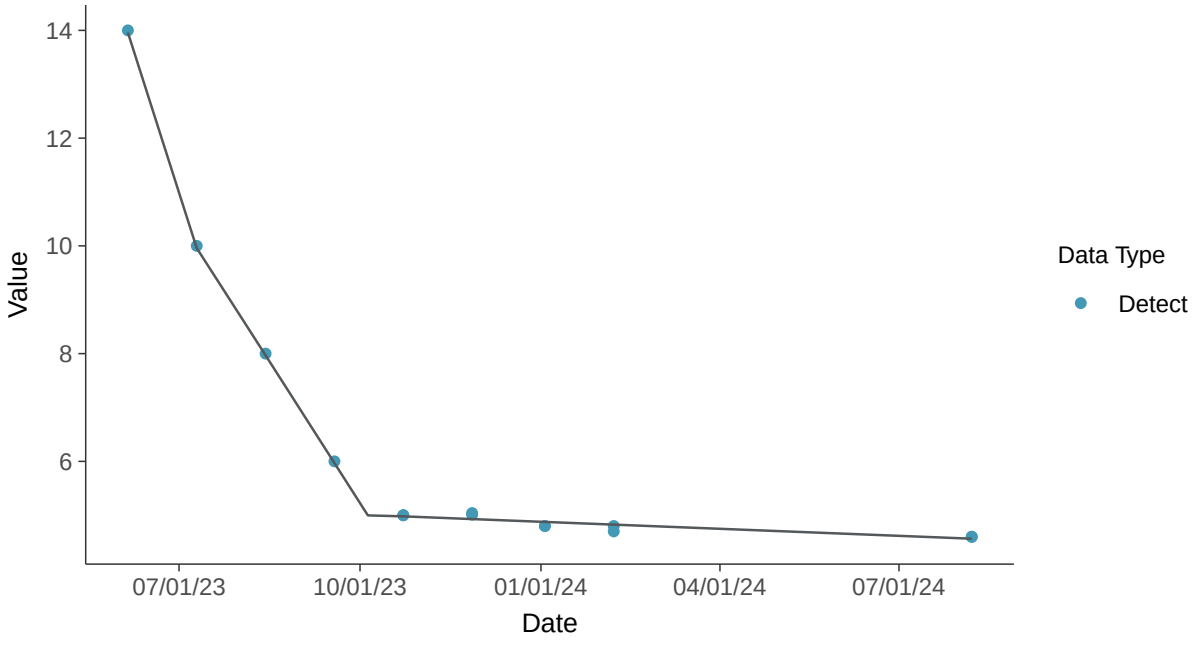
Trend Regression: Piecewise Linear-Linear

Chloride, MW-100C (mg/L)



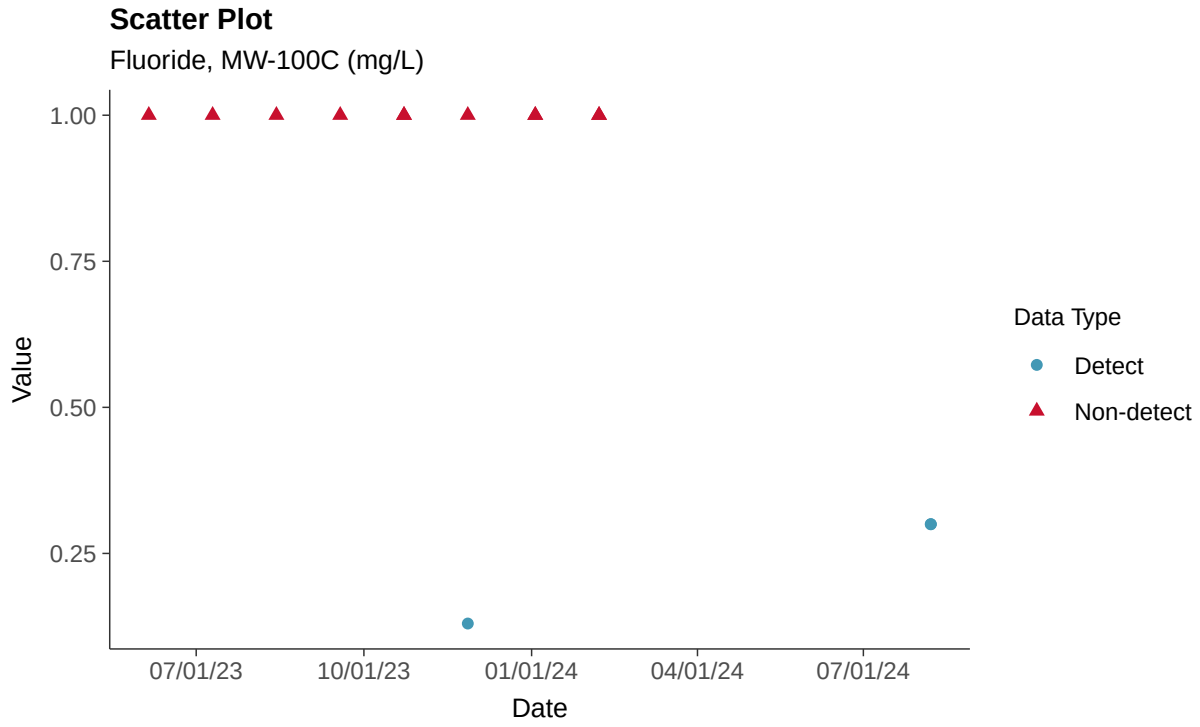
Trend Regression: Piecewise Linear-Linear-Linear

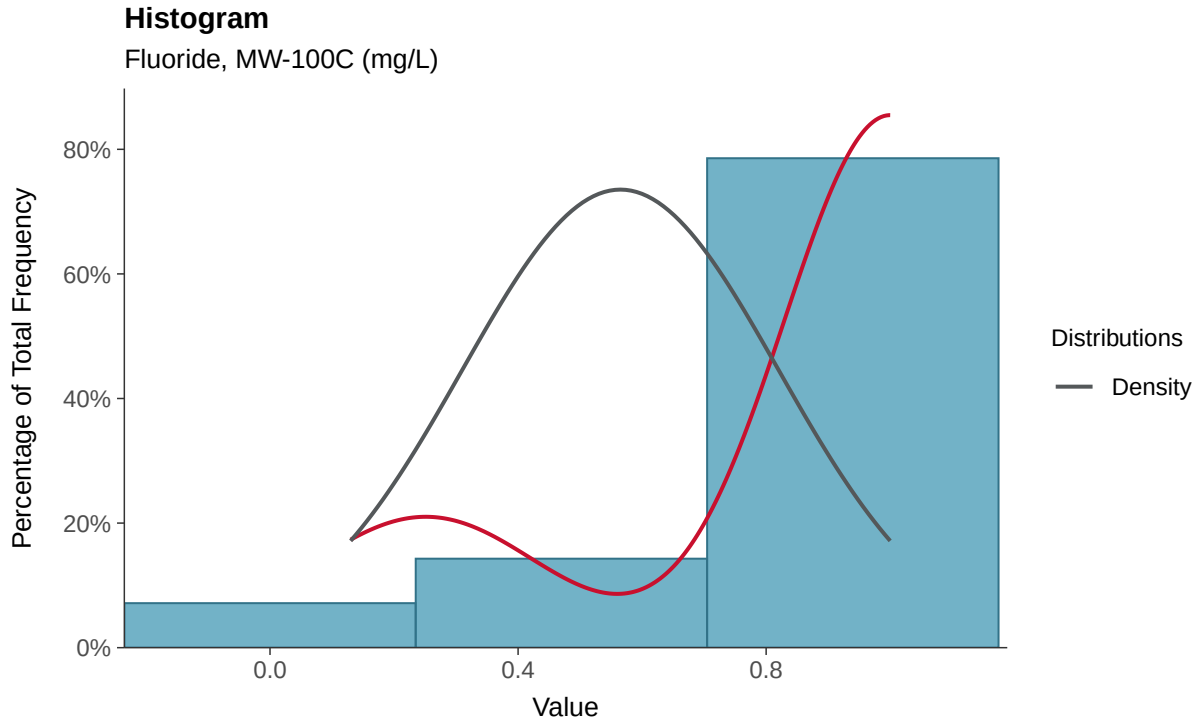
Chloride, MW-100C (mg/L)



Appendix III: Fluoride, MW-100C

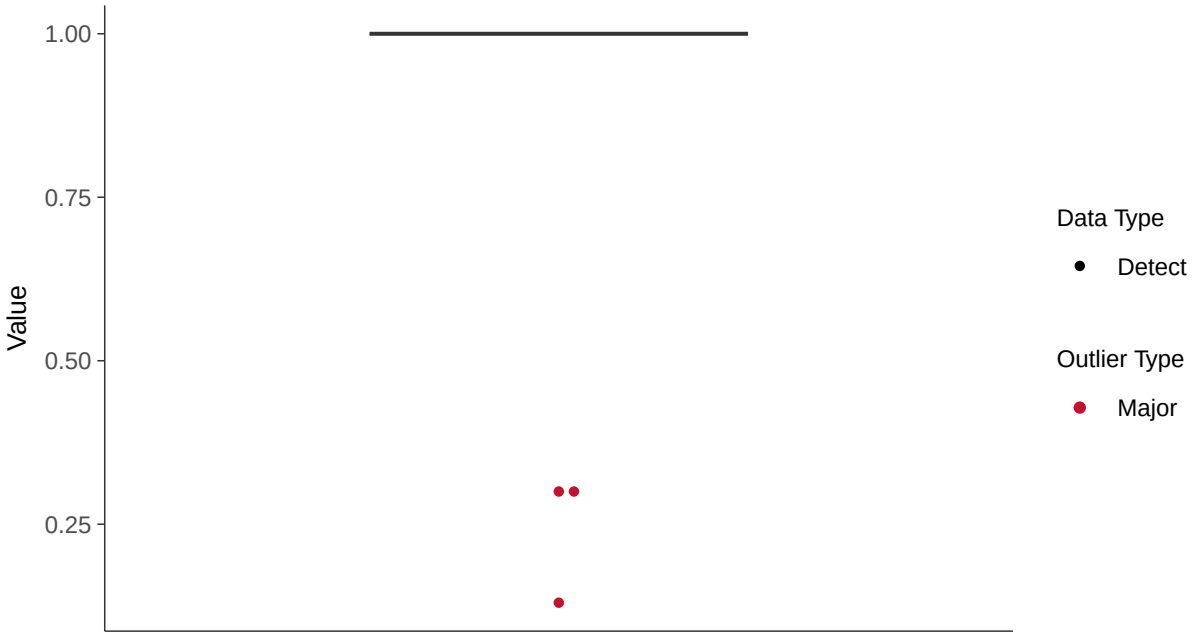
ID: 100C_1_04





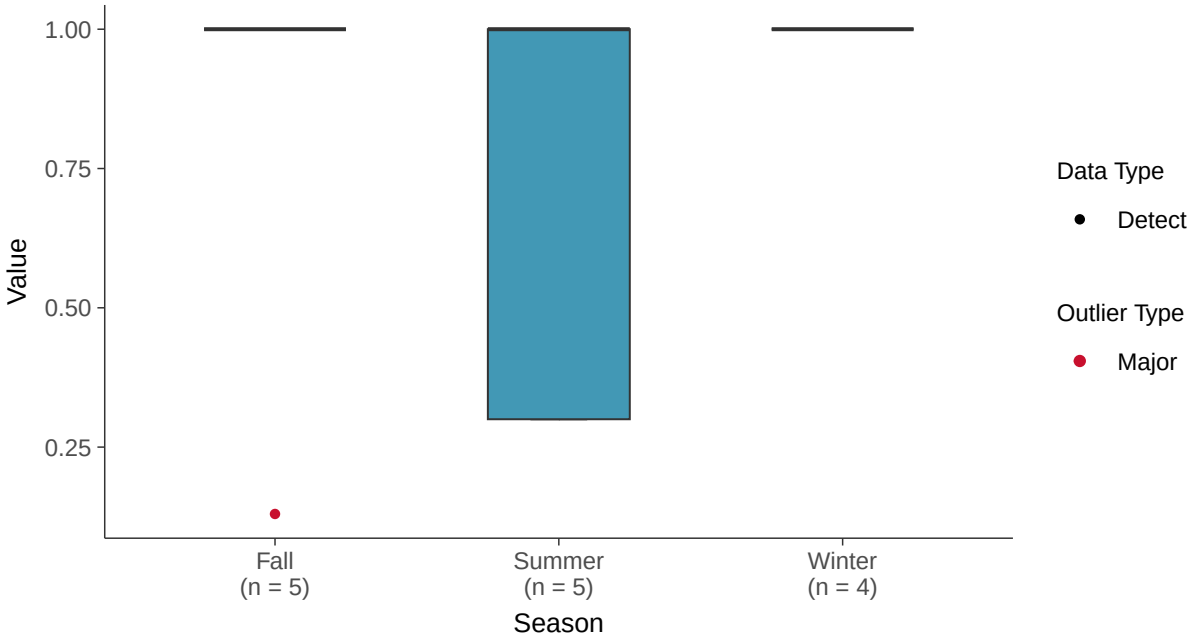
Boxplot

Fluoride, MW-100C (mg/L)



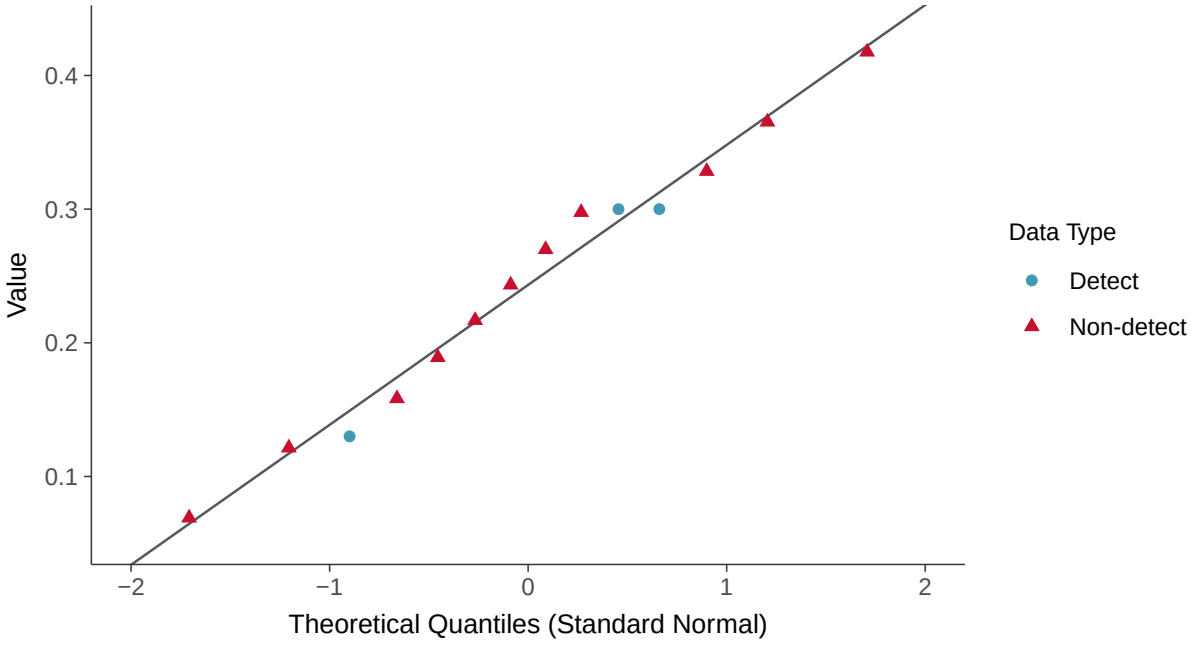
Boxplot by Season

Fluoride, MW-100C (mg/L)



Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-100C (mg/L)

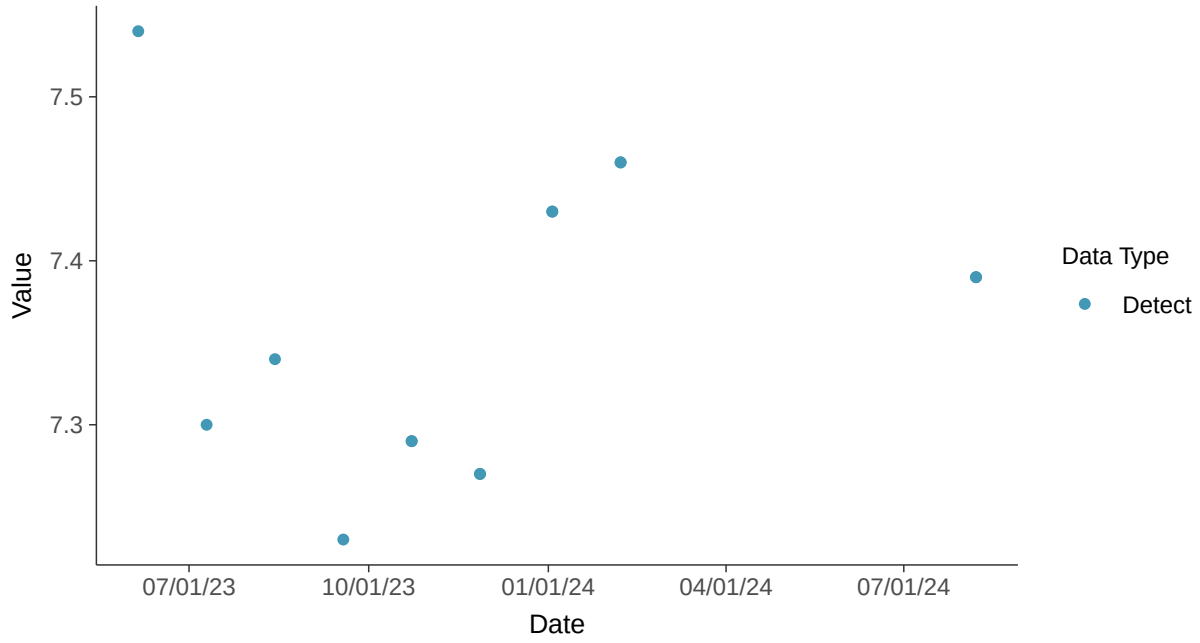


Appendix III: pH, Field, MW-100C

ID: 100C_1_05

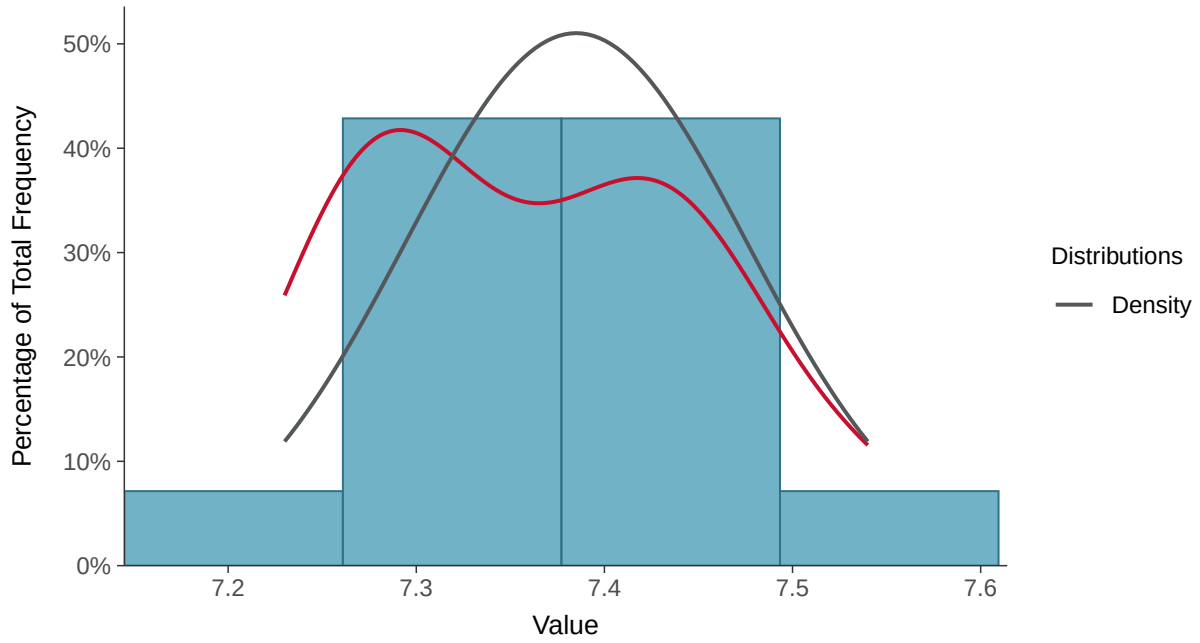
Scatter Plot

pH, Field, MW-100C (su)



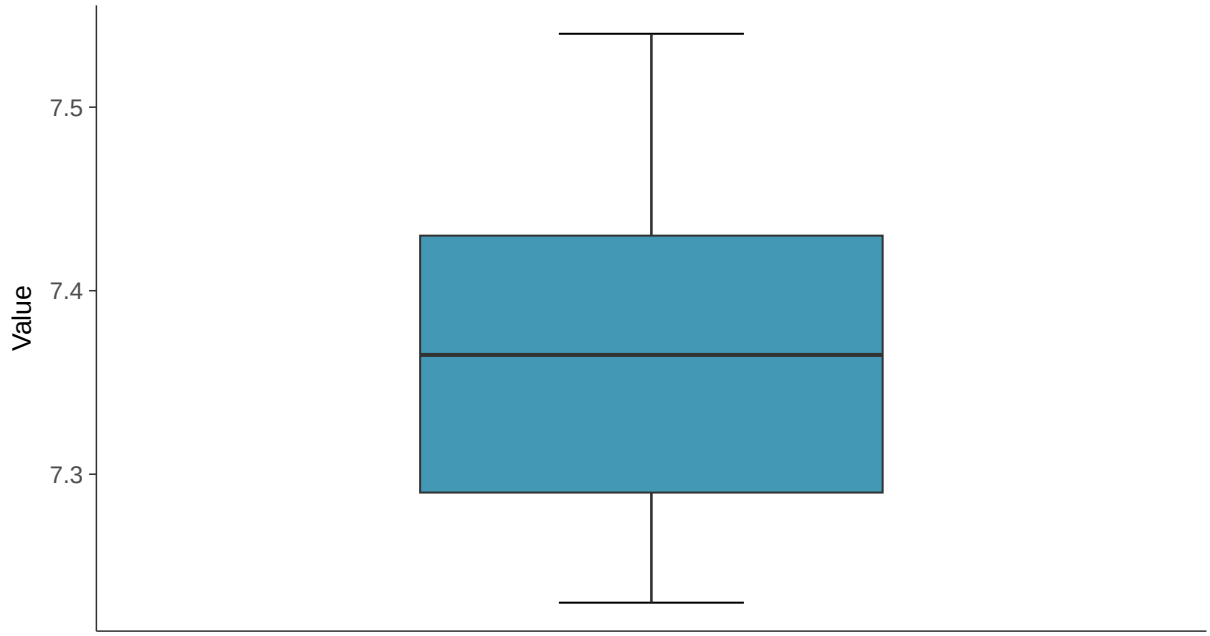
Histogram

pH, Field, MW-100C (su)



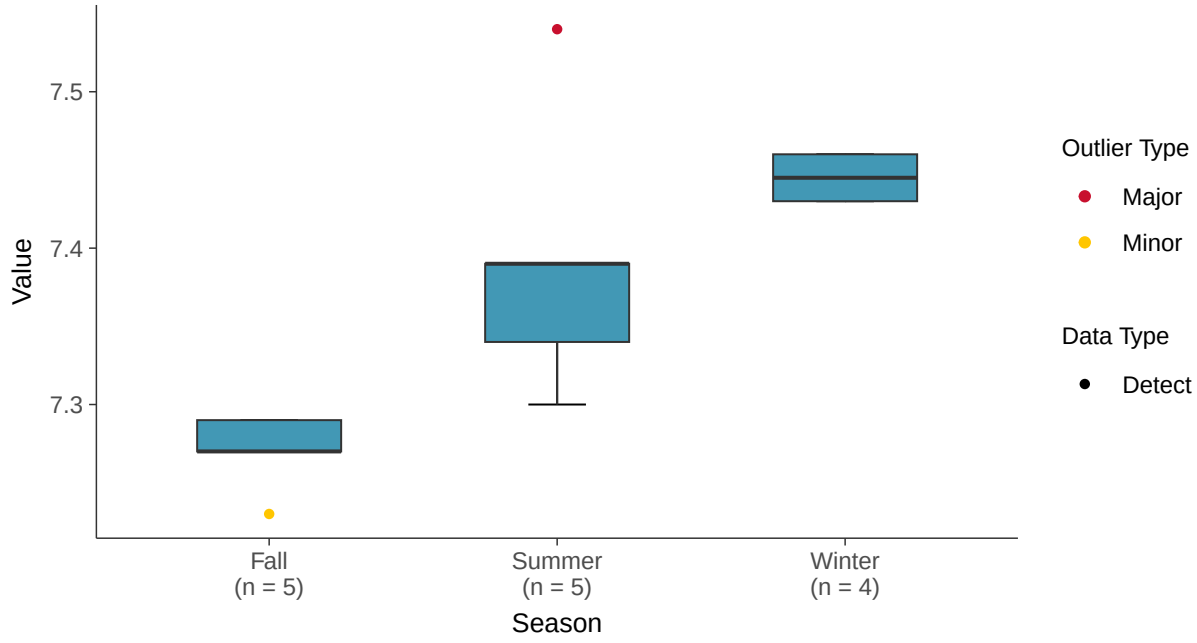
Boxplot

pH, Field, MW-100C (su)



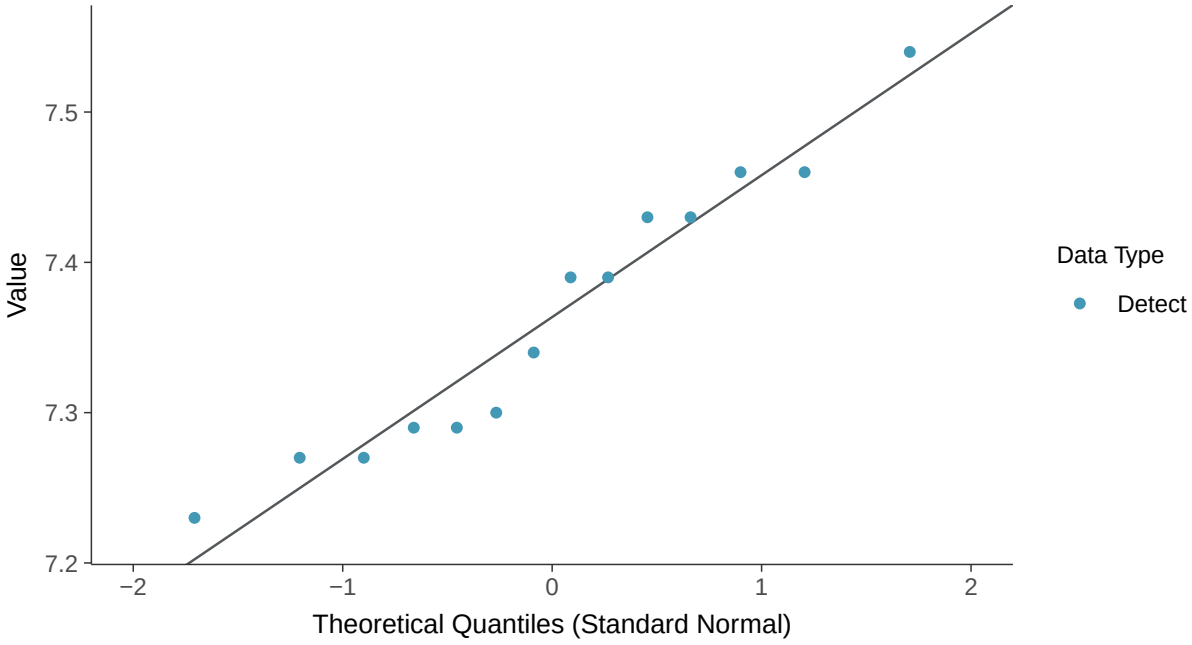
Boxplot by Season

pH, Field, MW-100C (su)



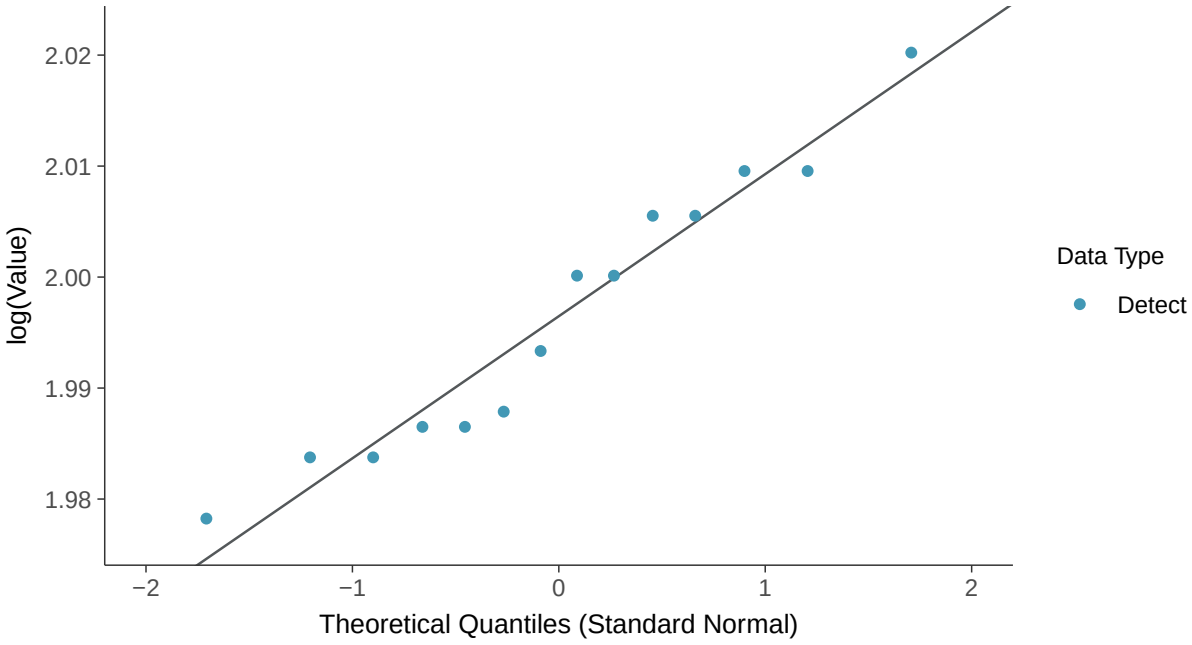
Normal Q-Q plot

pH, Field, MW-100C (su)



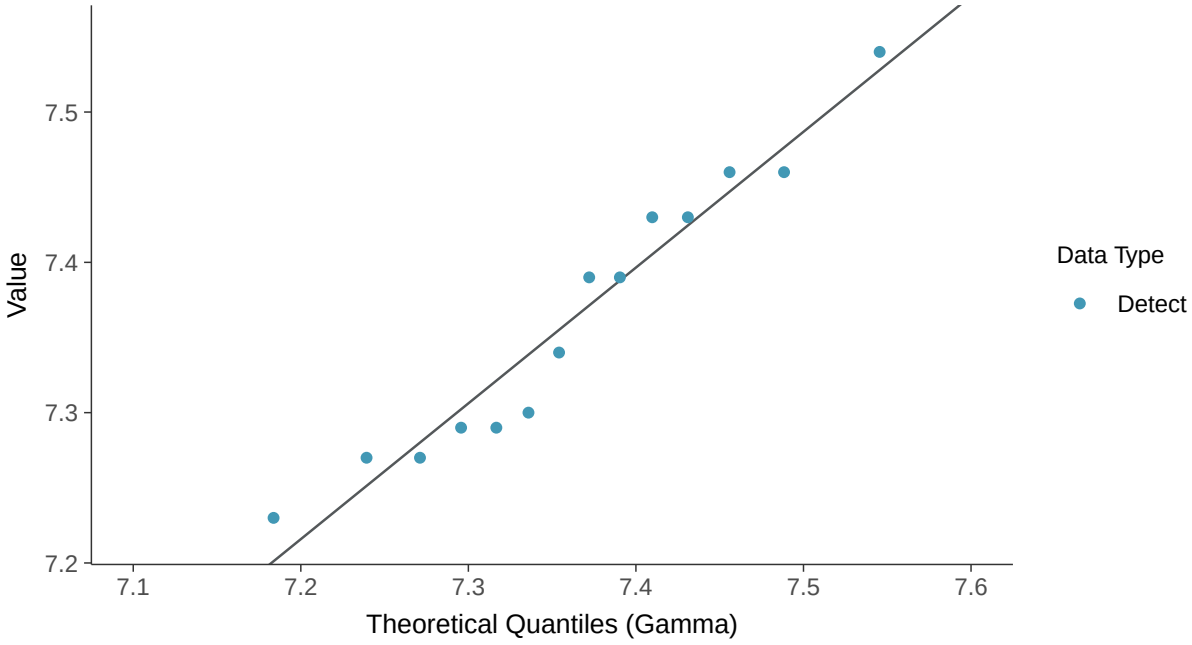
Lognormal Q-Q plot

pH, Field, MW-100C (su)



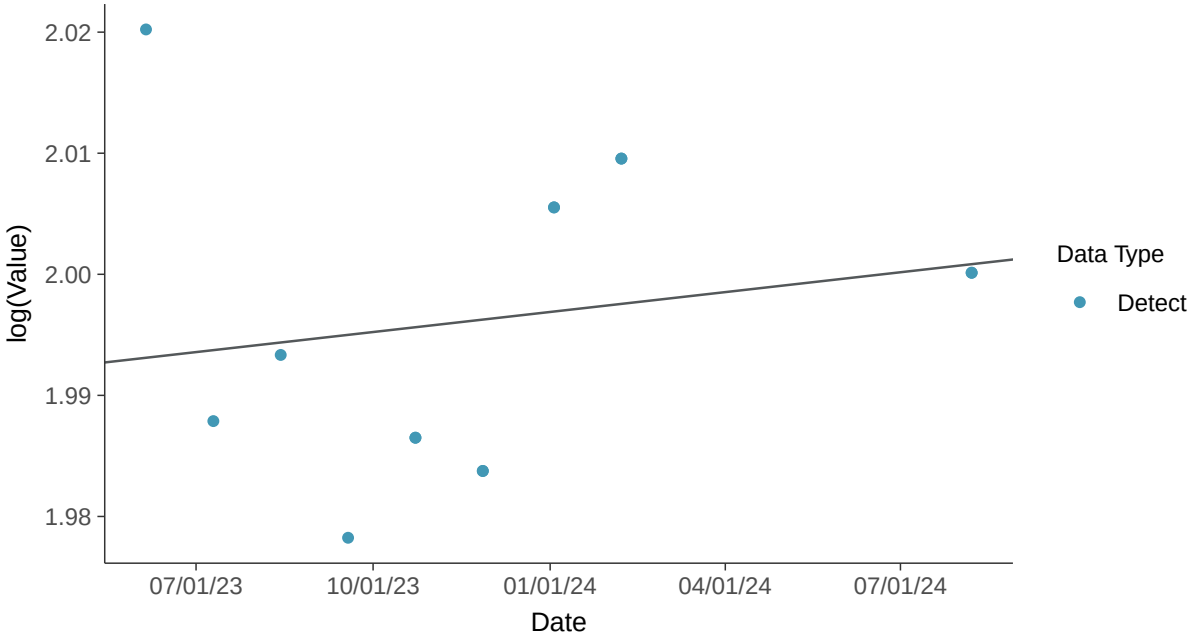
Gamma Q-Q plot

pH, Field, MW-100C (su)



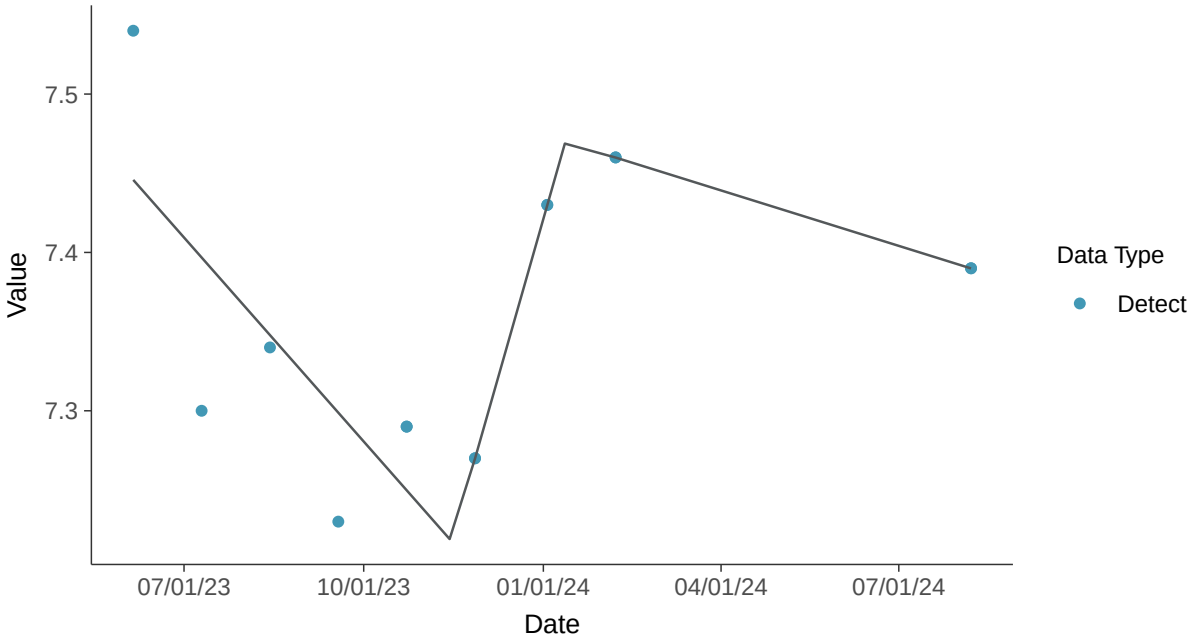
Trend Regression: Lognormal MLE

pH, Field, MW-100C (su)



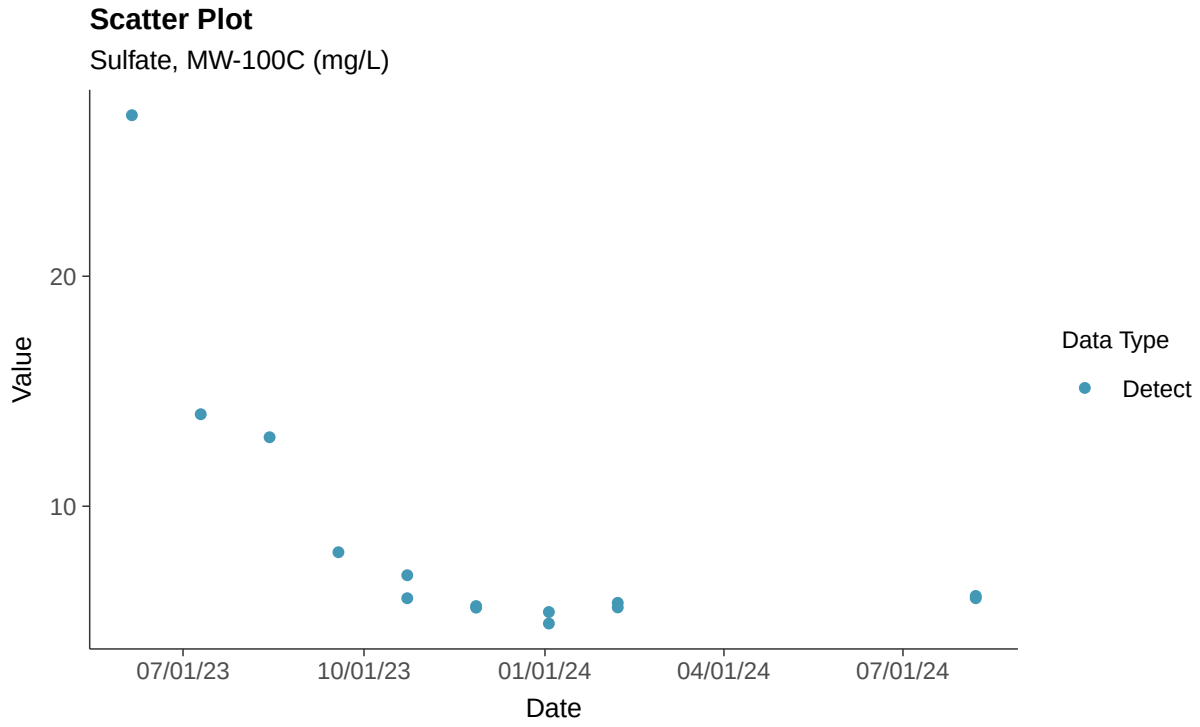
Trend Regression: Piecewise Linear-Linear-Linear

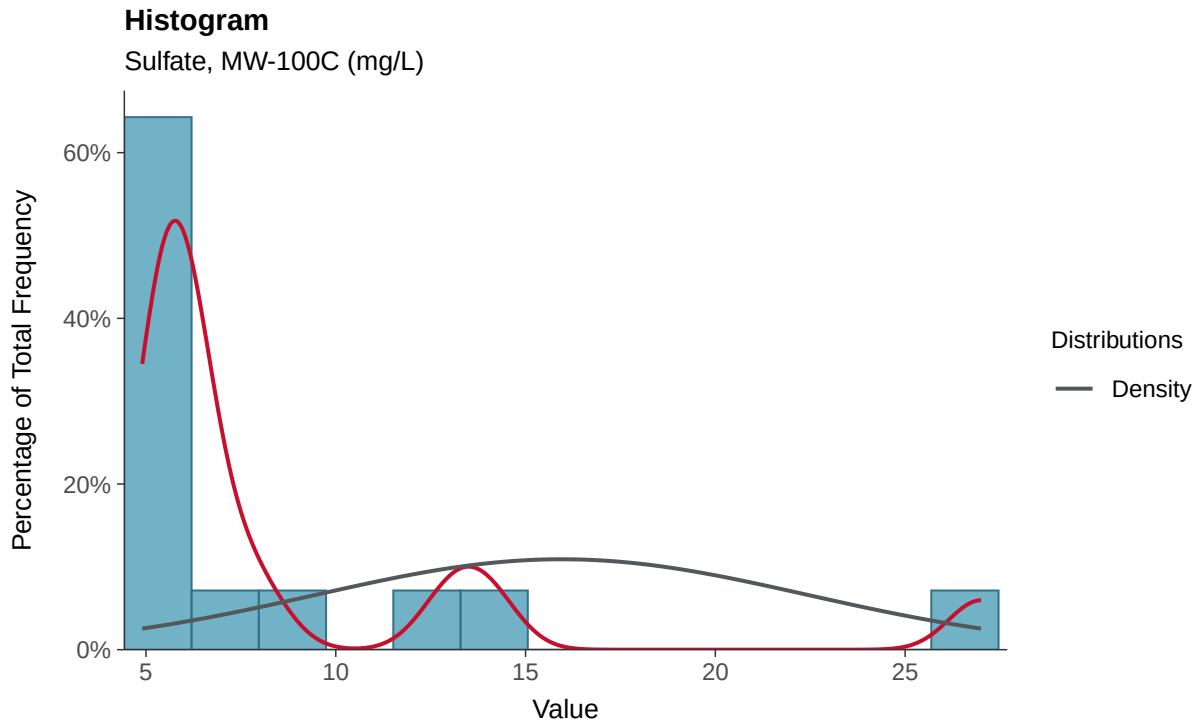
pH, Field, MW-100C (su)



Appendix III: Sulfate, MW-100C

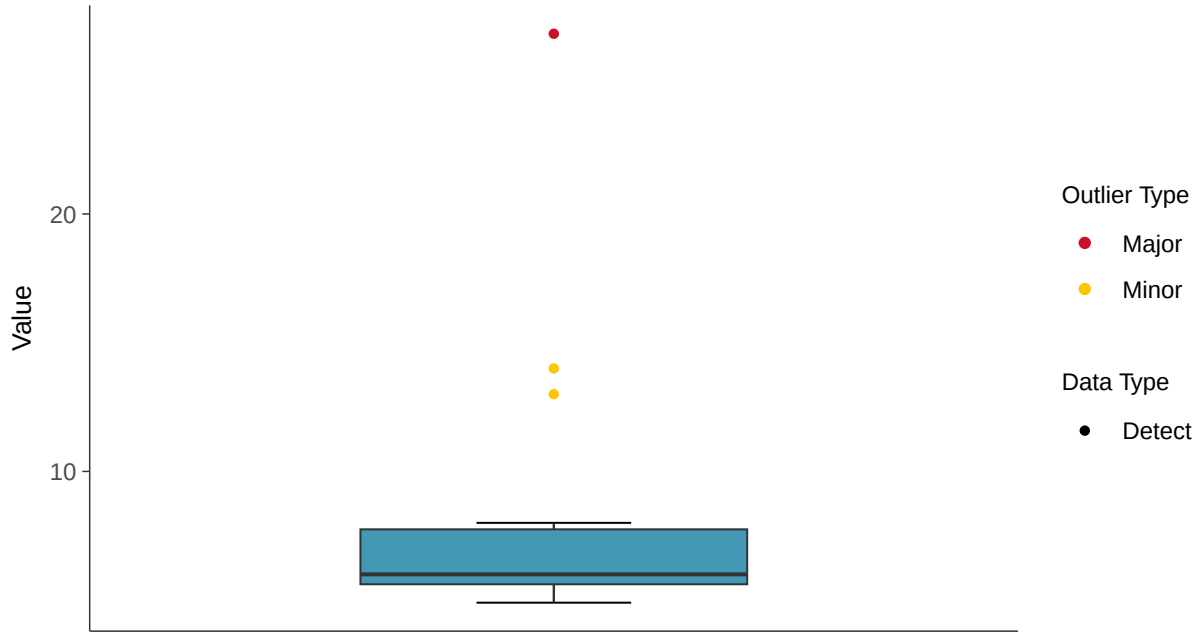
ID: 100C_1_06





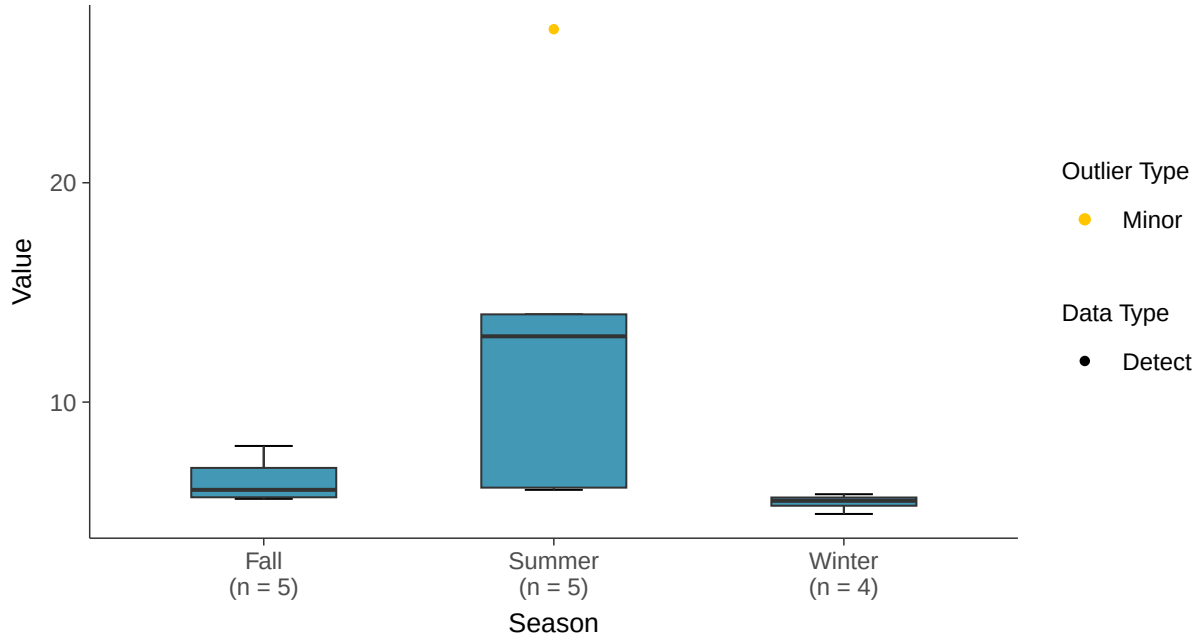
Boxplot

Sulfate, MW-100C (mg/L)



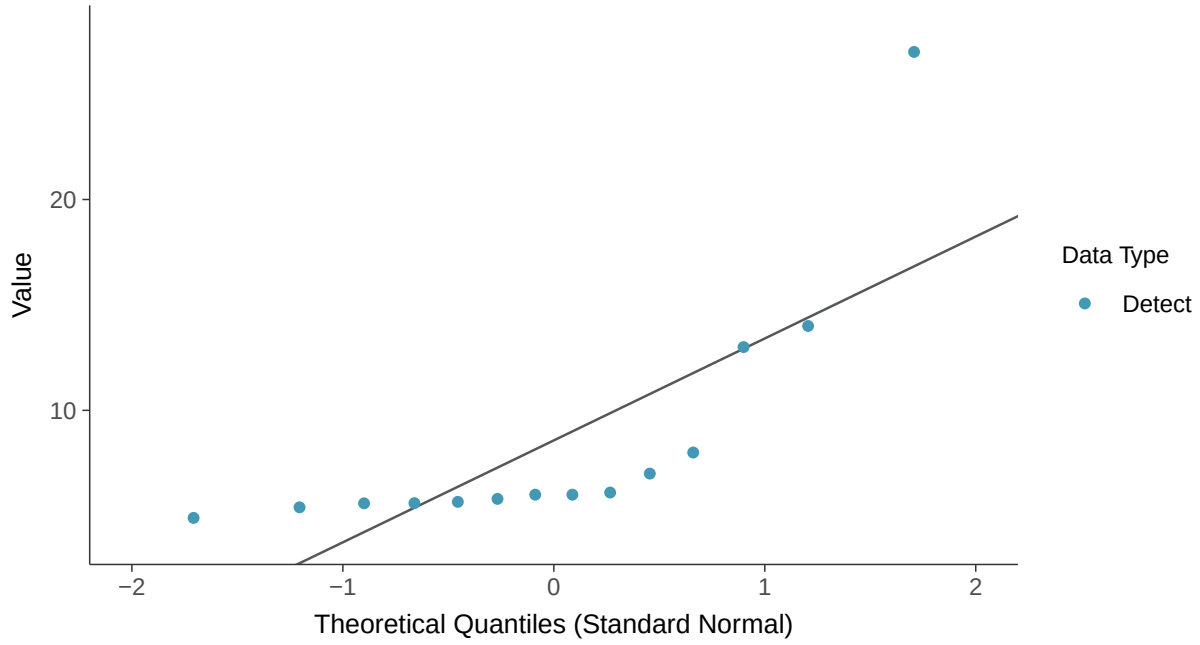
Boxplot by Season

Sulfate, MW-100C (mg/L)



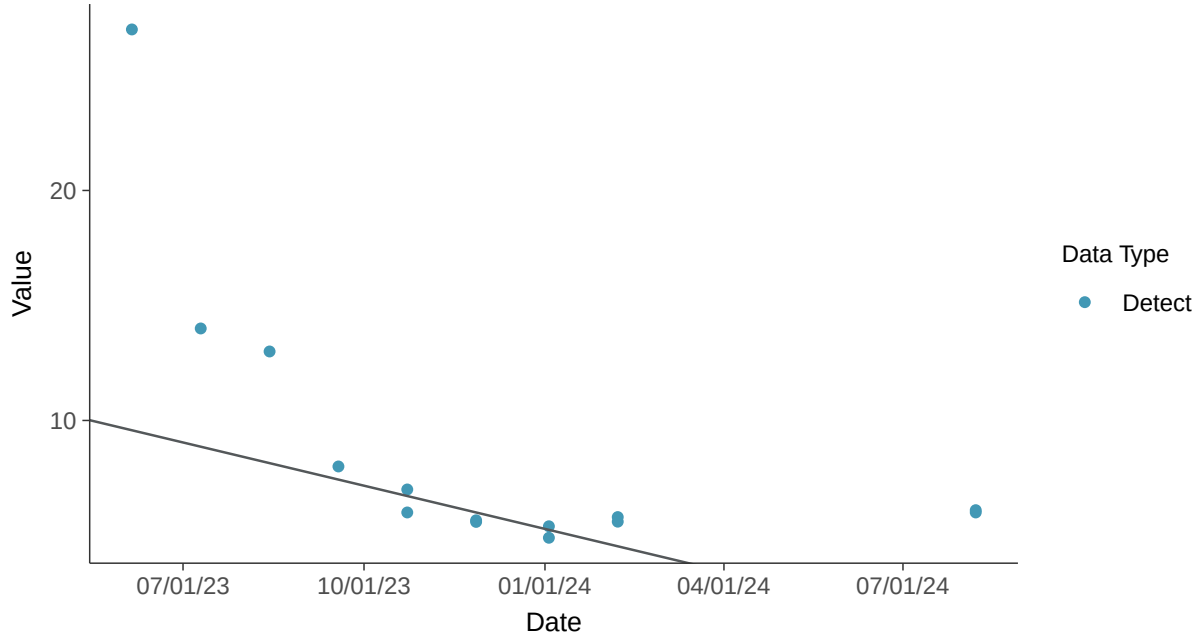
Normal Q-Q plot

Sulfate, MW-100C (mg/L)



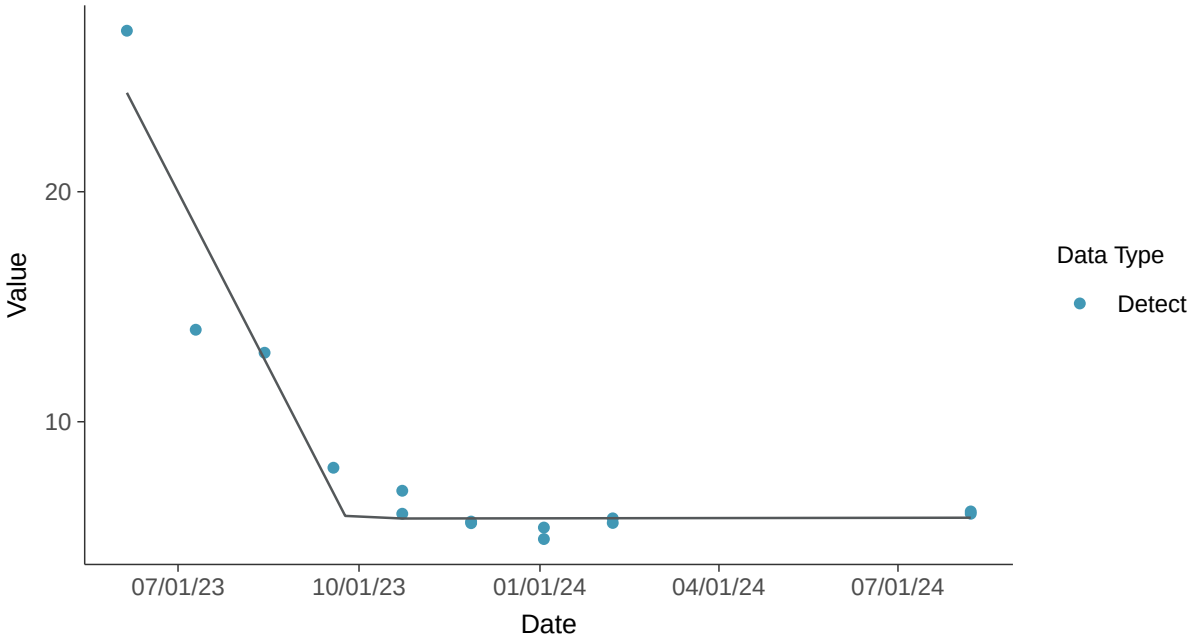
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Sulfate, MW-100C (mg/L)



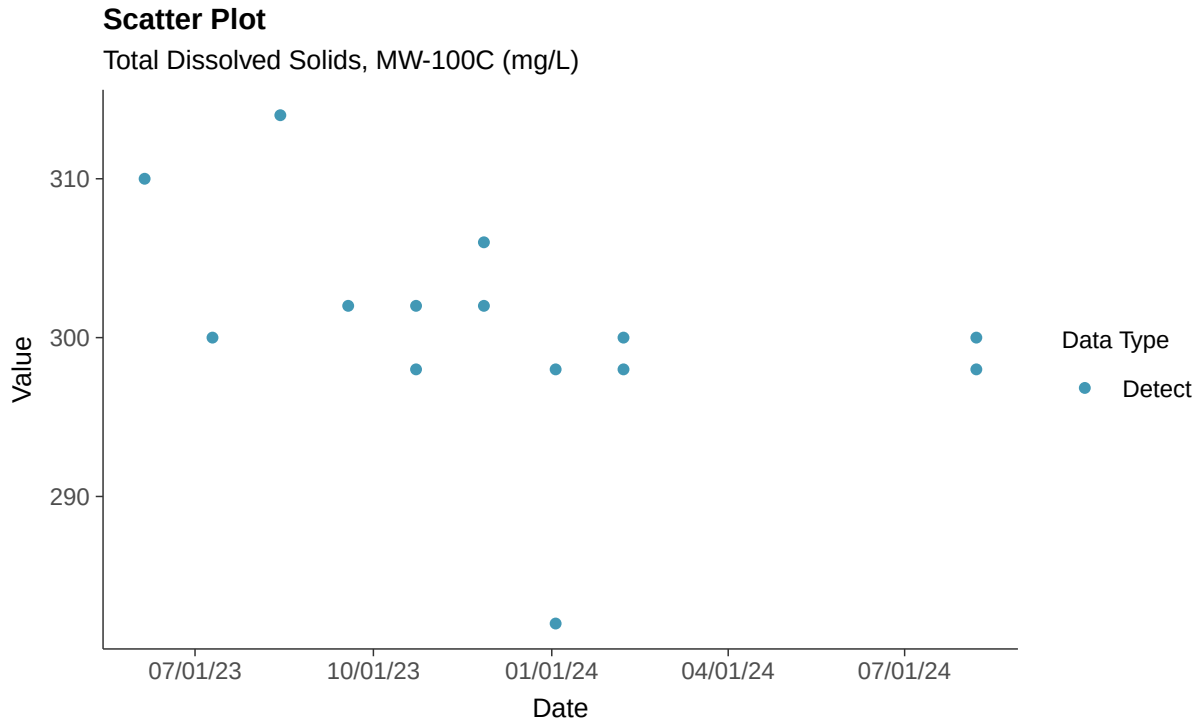
Trend Regression: Piecewise Linear-Linear

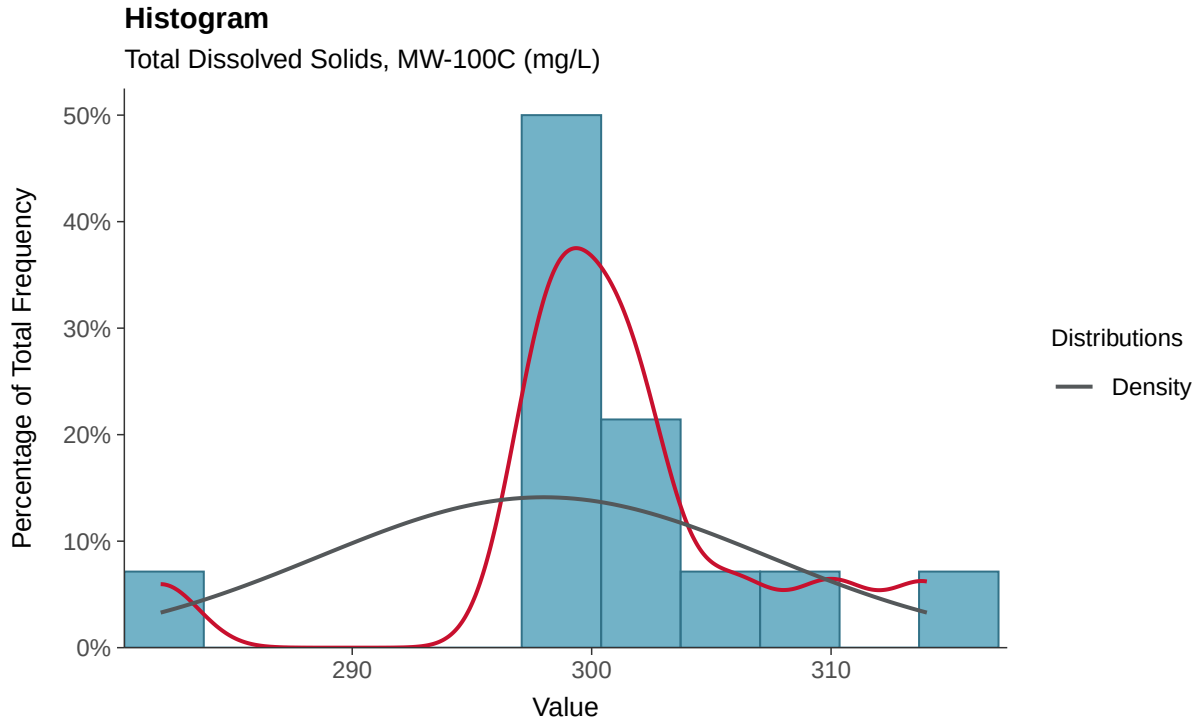
Sulfate, MW-100C (mg/L)



Appendix III: Total Dissolved Solids, MW-100C

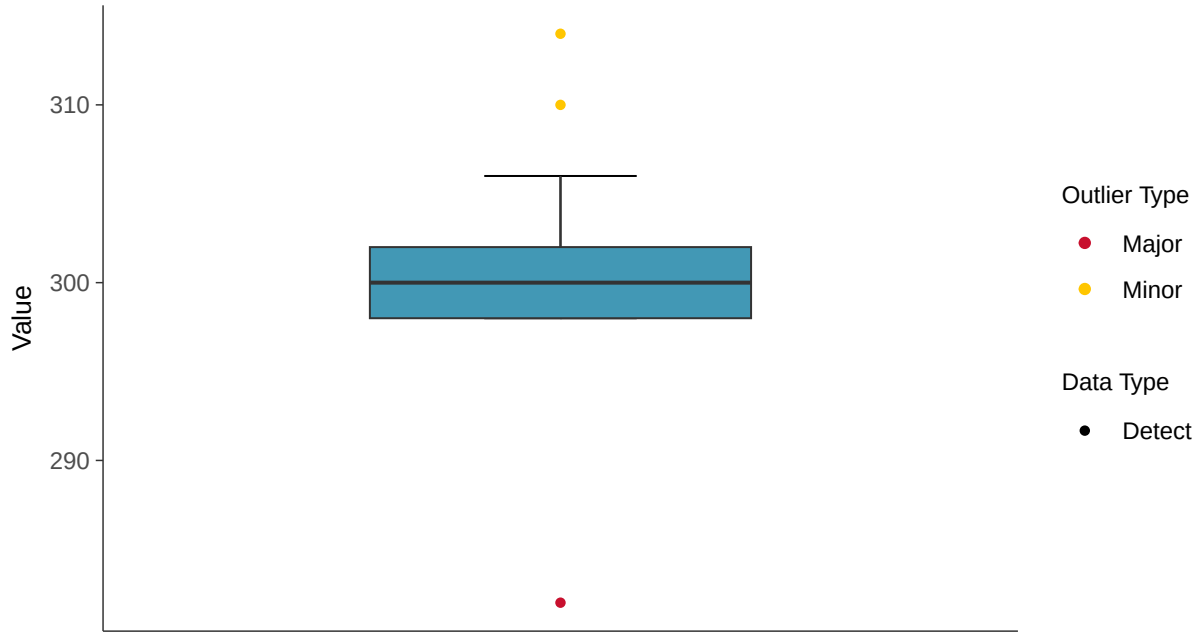
ID: 100C_1_07





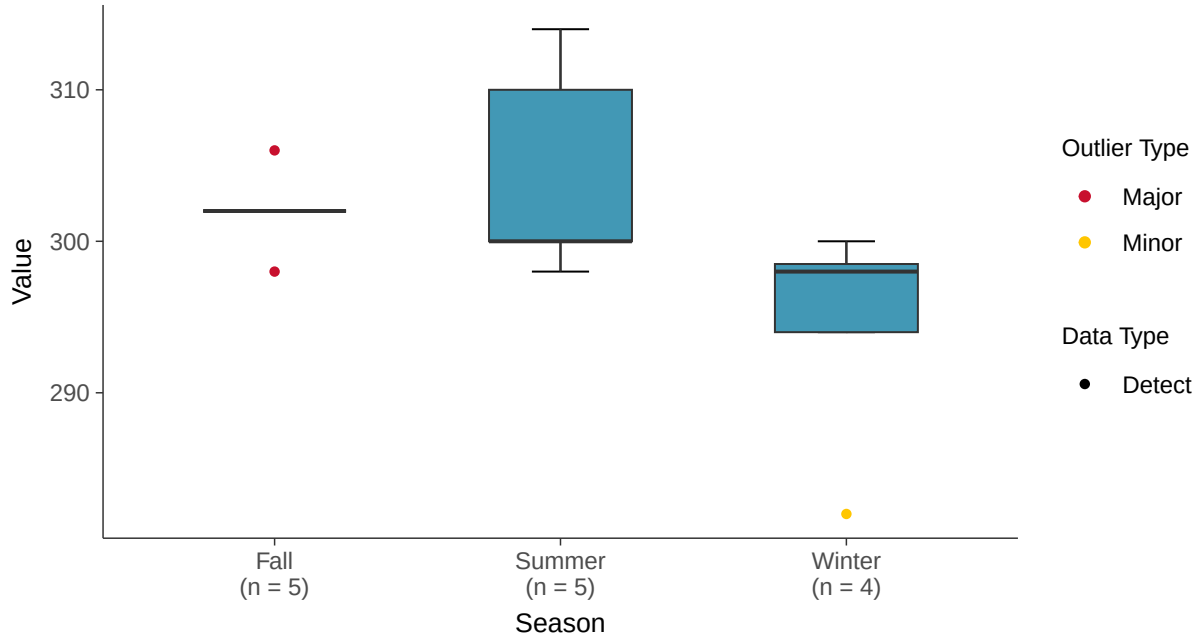
Boxplot

Total Dissolved Solids, MW-100C (mg/L)



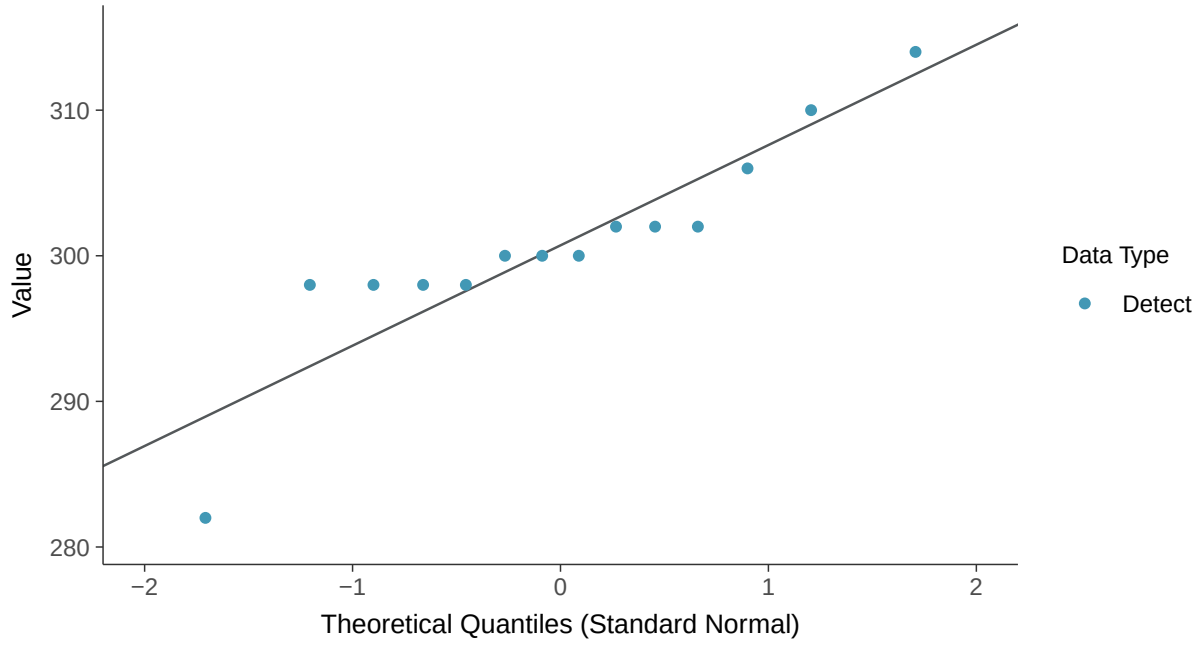
Boxplot by Season

Total Dissolved Solids, MW-100C (mg/L)



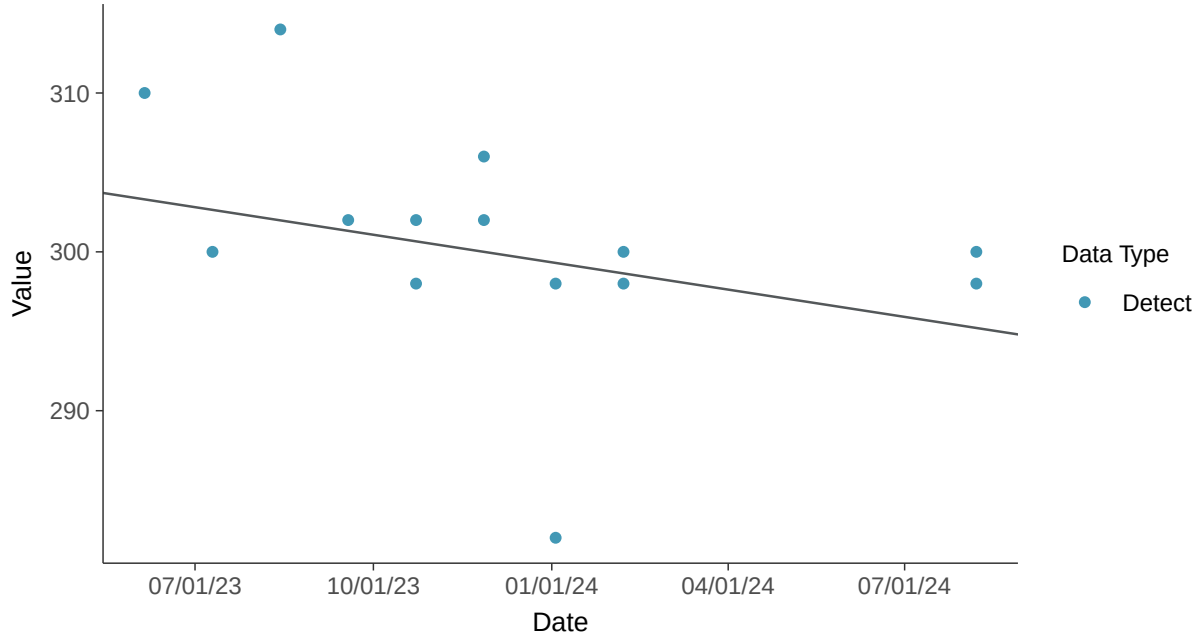
Normal Q-Q plot

Total Dissolved Solids, MW-100C (mg/L)



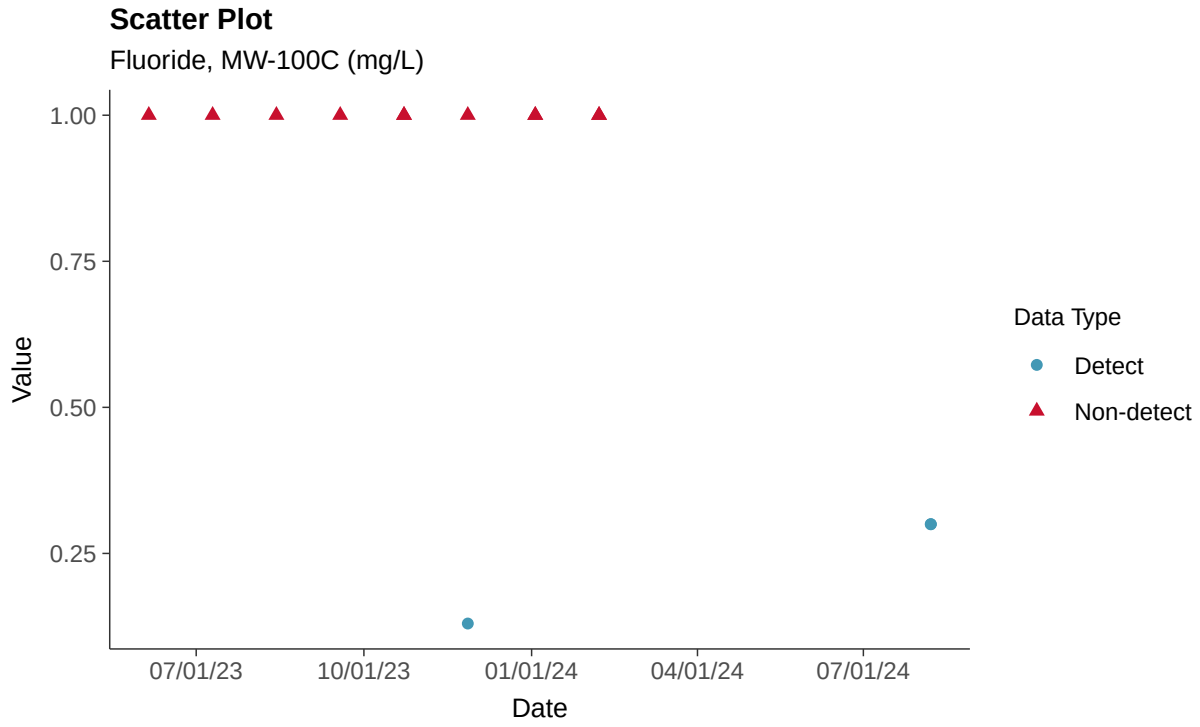
Trend Regression: Mann-Kendall/Theil-Sen Estimate

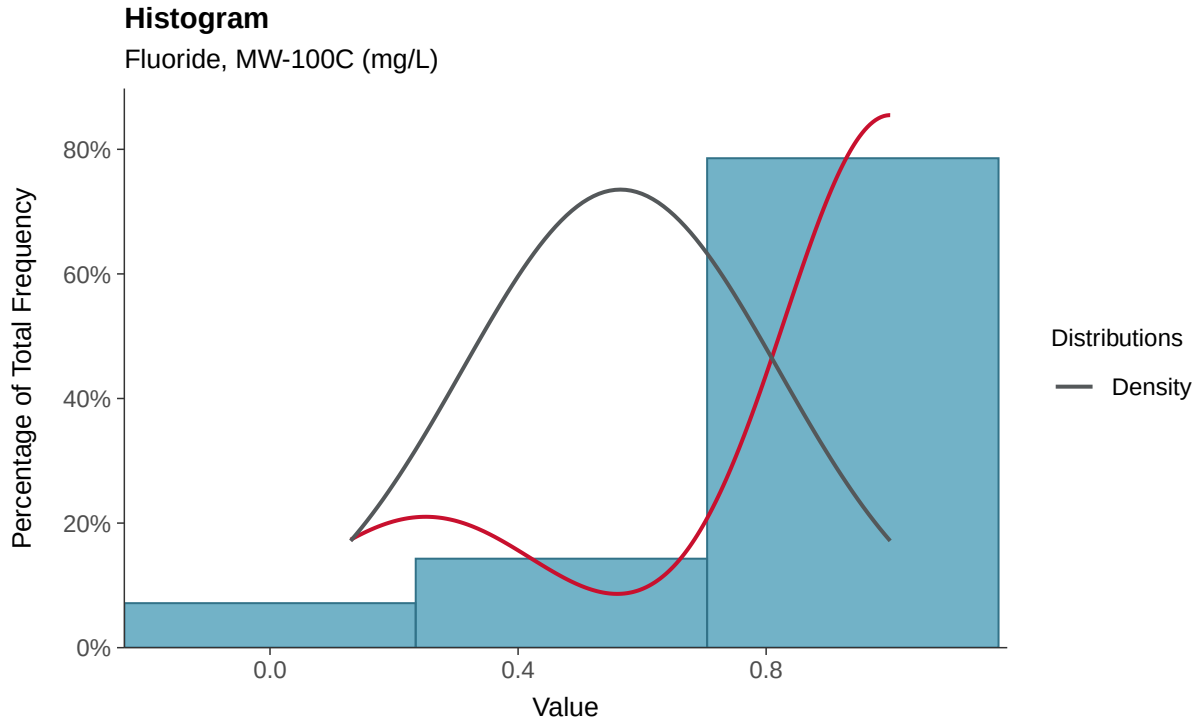
Total Dissolved Solids, MW-100C (mg/L)



Appendix IV: Fluoride, MW-100C

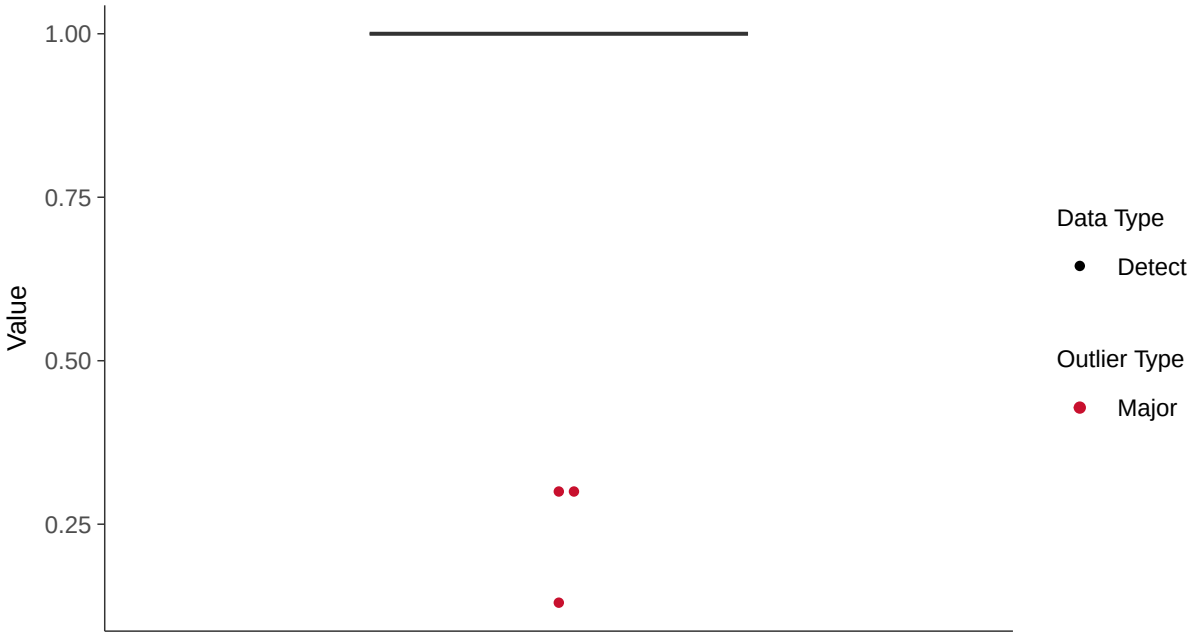
ID: 100C_2_04





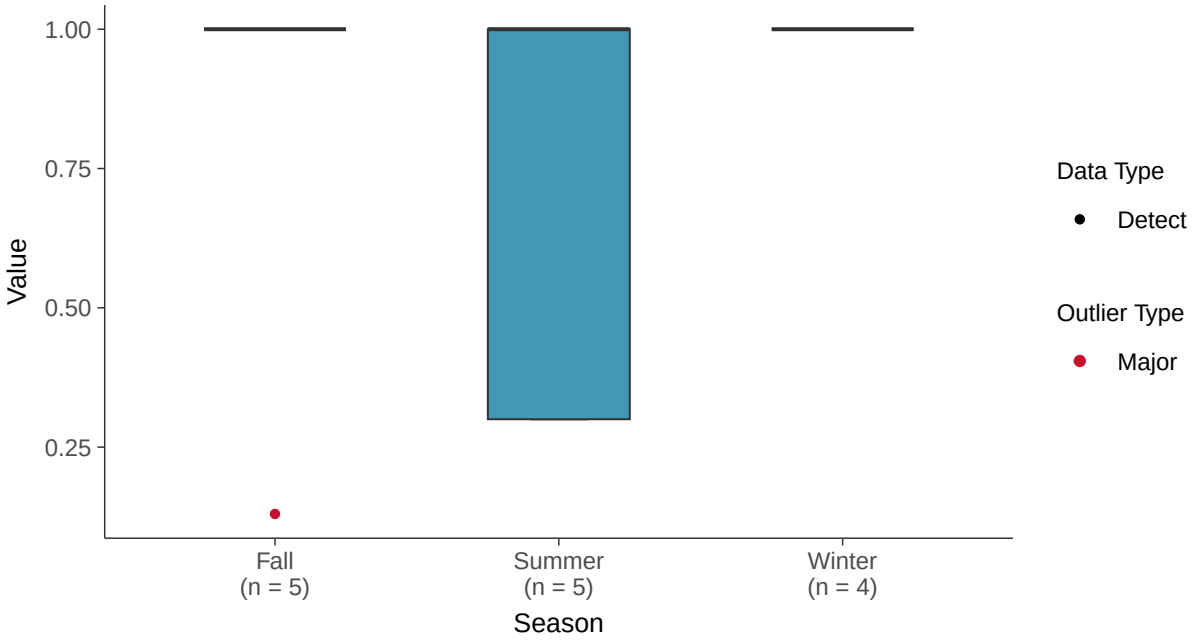
Boxplot

Fluoride, MW-100C (mg/L)



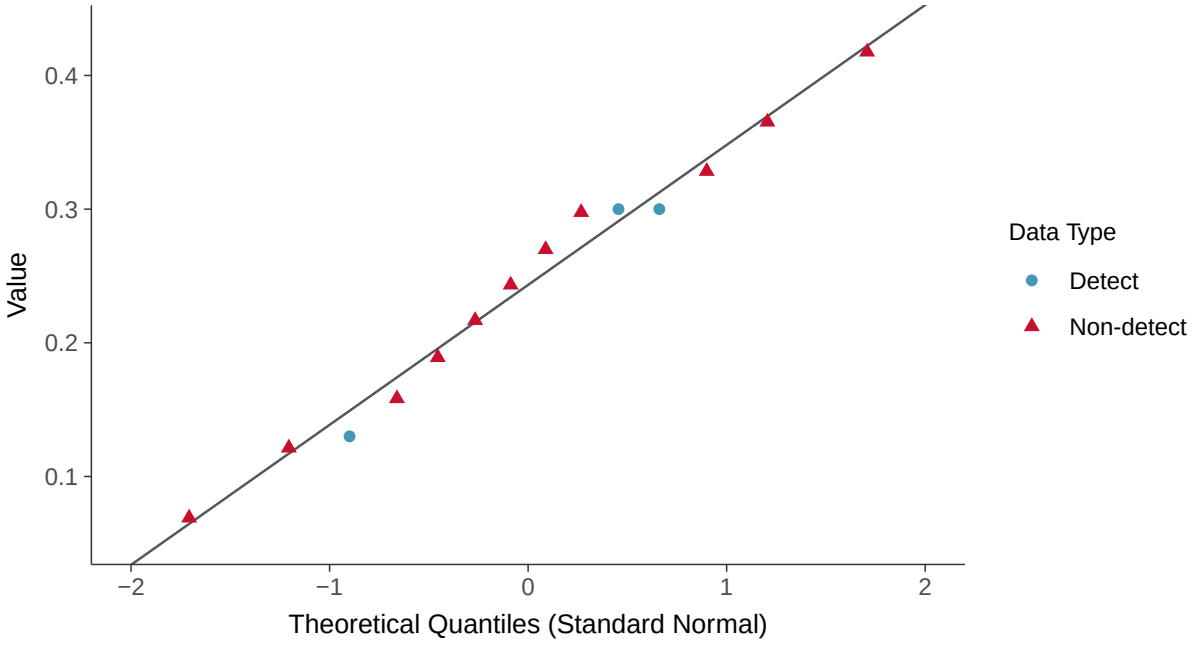
Boxplot by Season

Fluoride, MW-100C (mg/L)



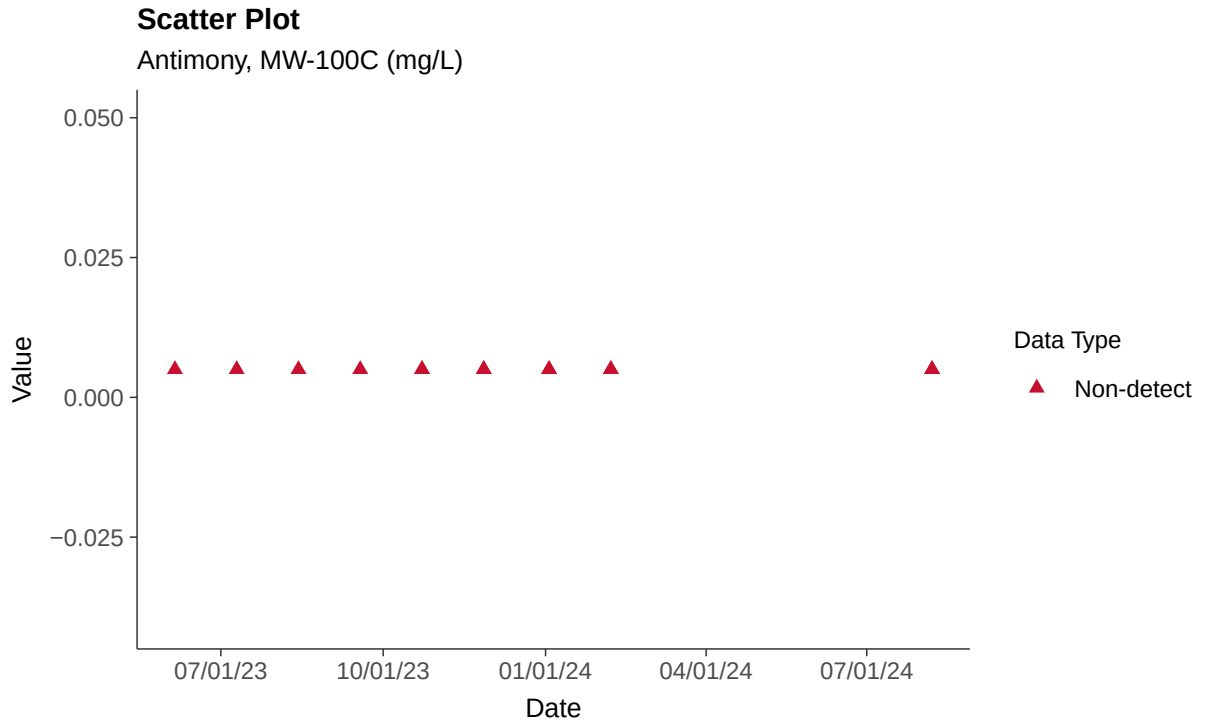
Normal Q-Q plot using ROS Imputed Estimates

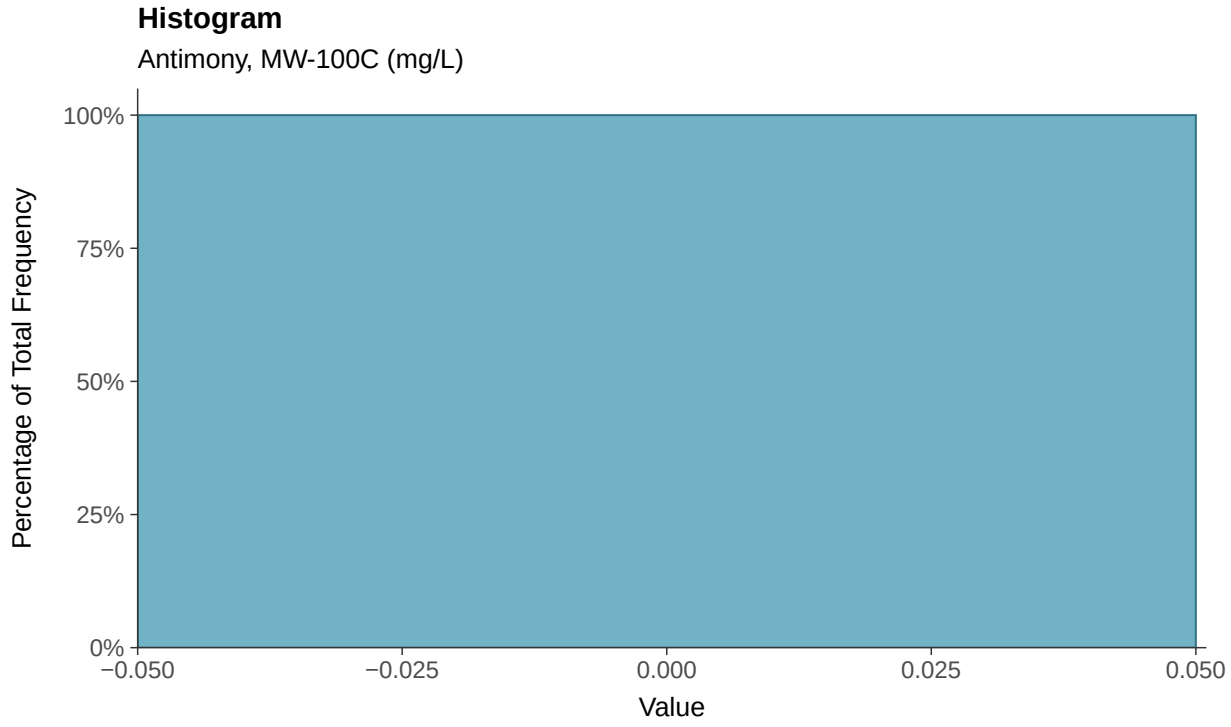
Fluoride, MW-100C (mg/L)



Appendix IV: Antimony, MW-100C

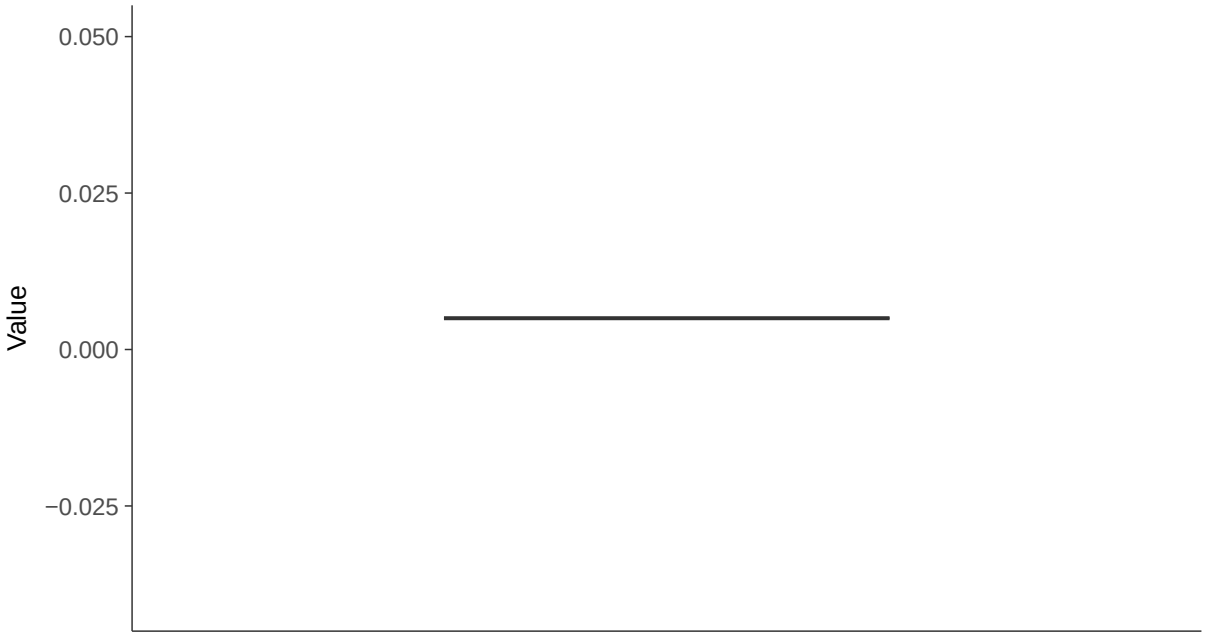
ID: 100C_2_08





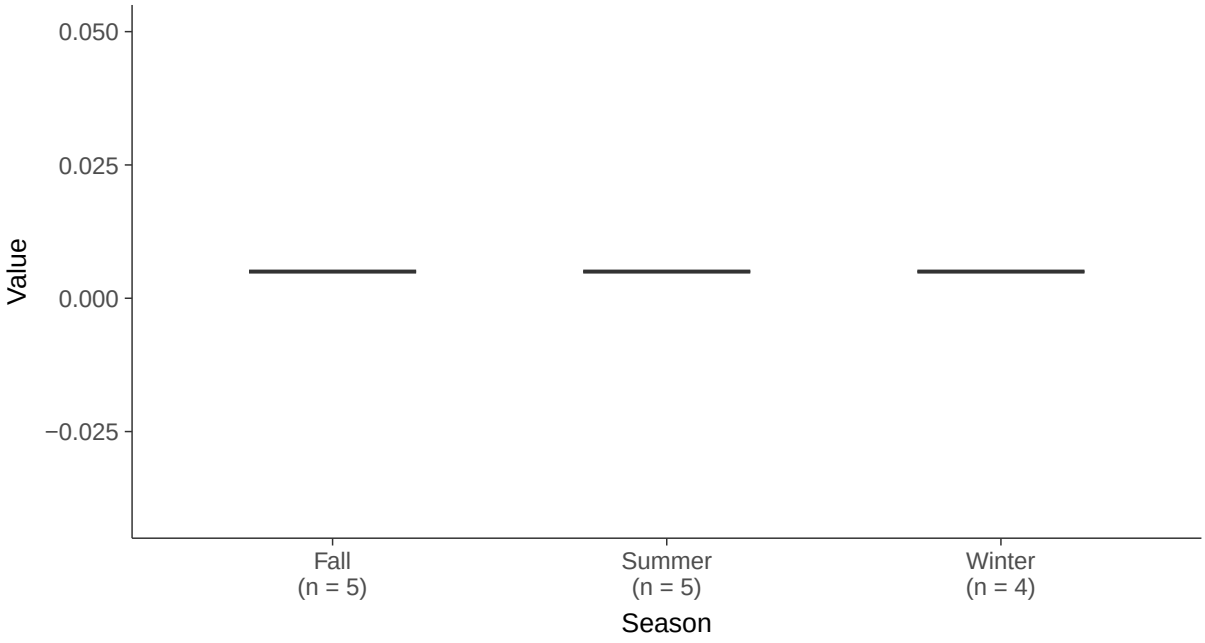
Boxplot

Antimony, MW-100C (mg/L)



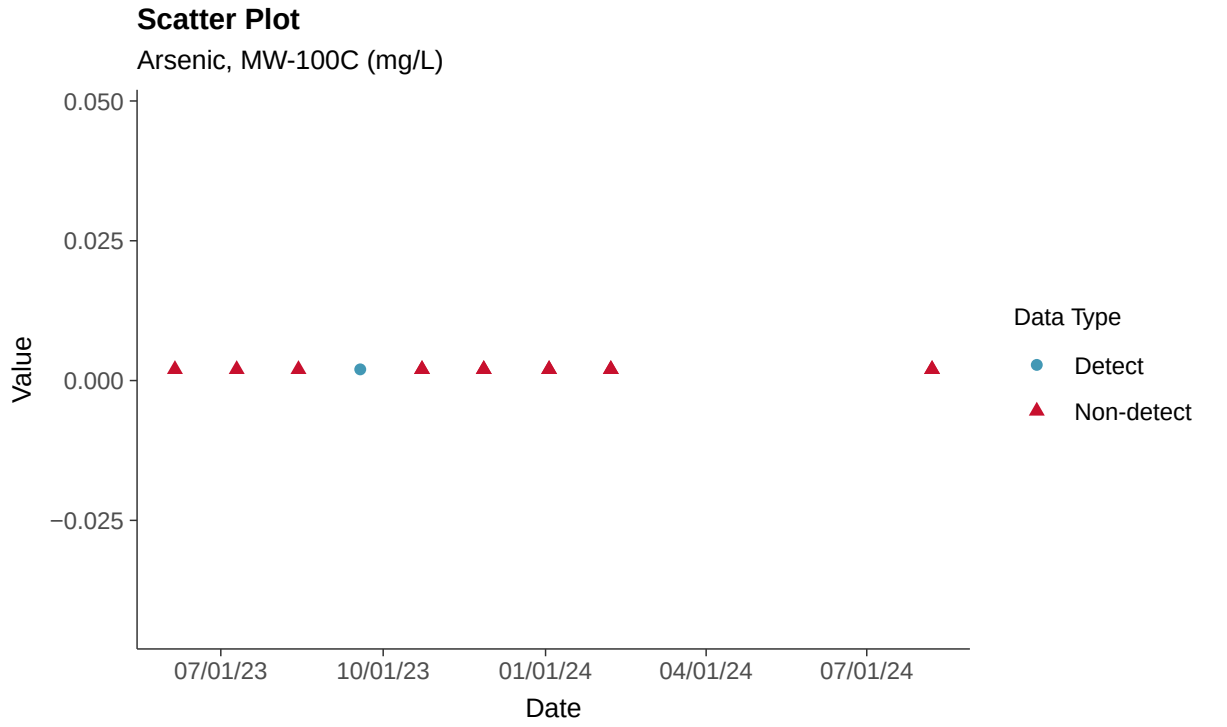
Boxplot by Season

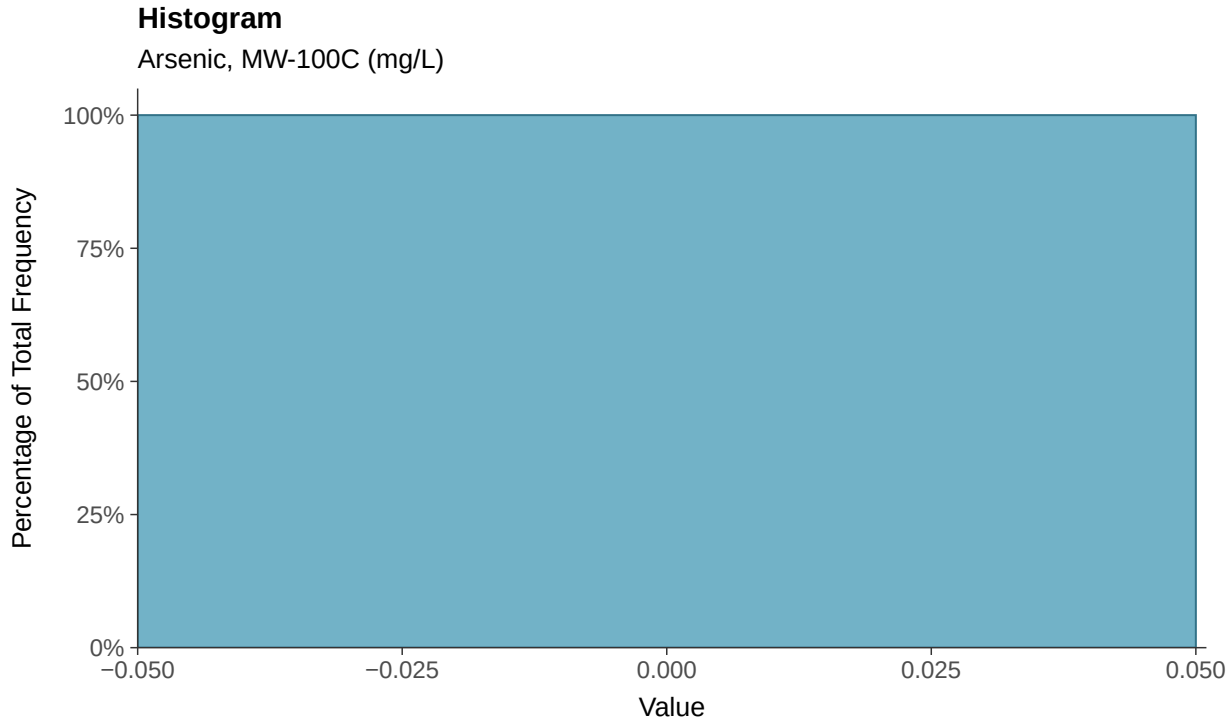
Antimony, MW-100C (mg/L)



Appendix IV: Arsenic, MW-100C

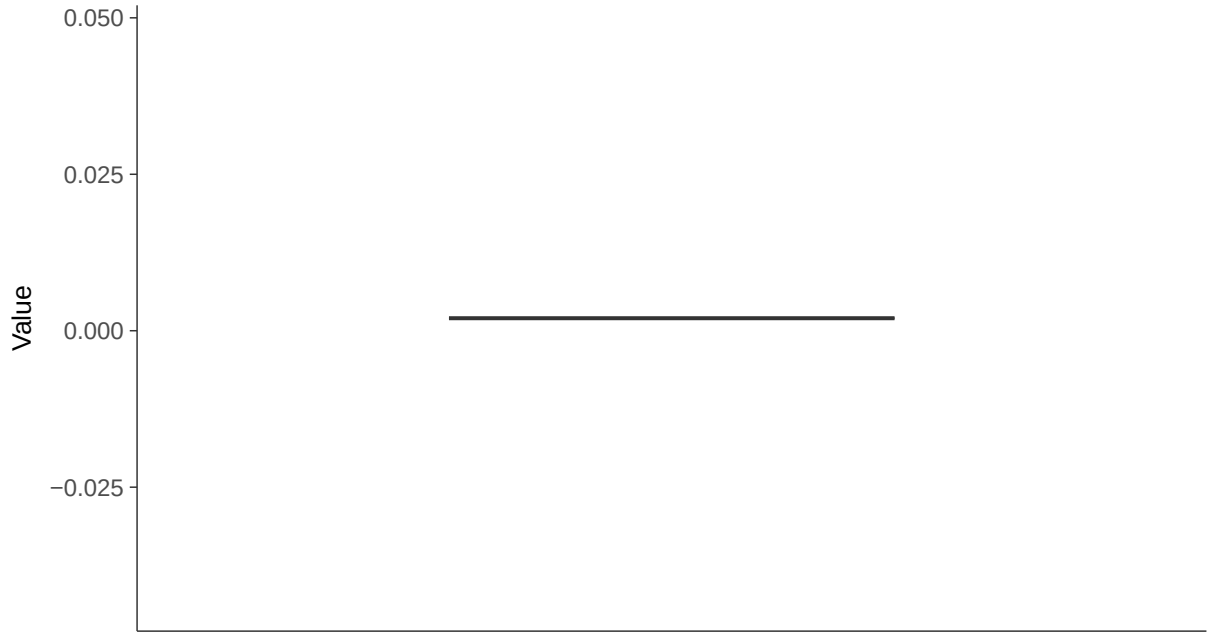
ID: 100C_2_09





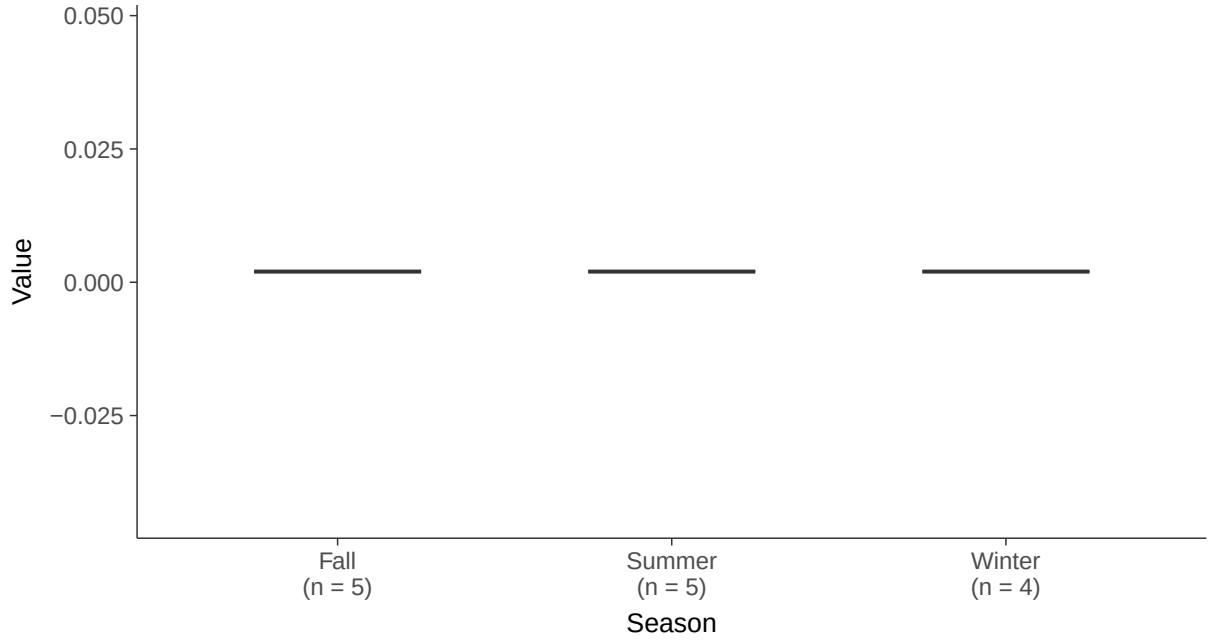
Boxplot

Arsenic, MW-100C (mg/L)



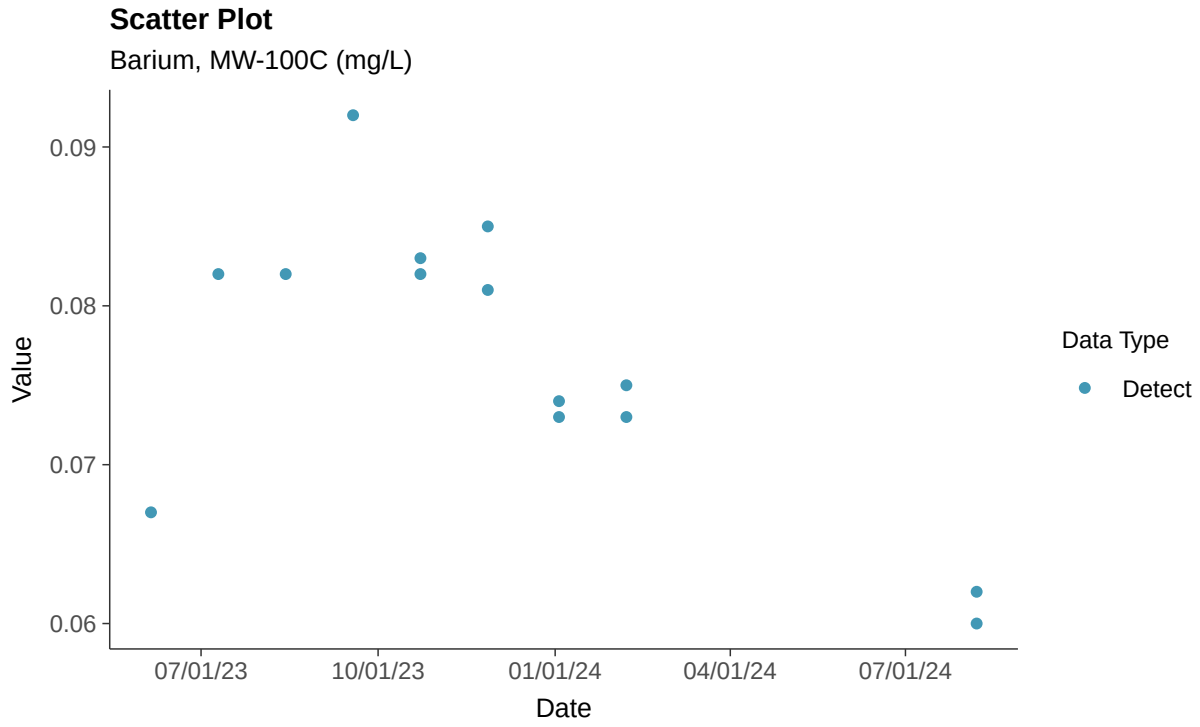
Boxplot by Season

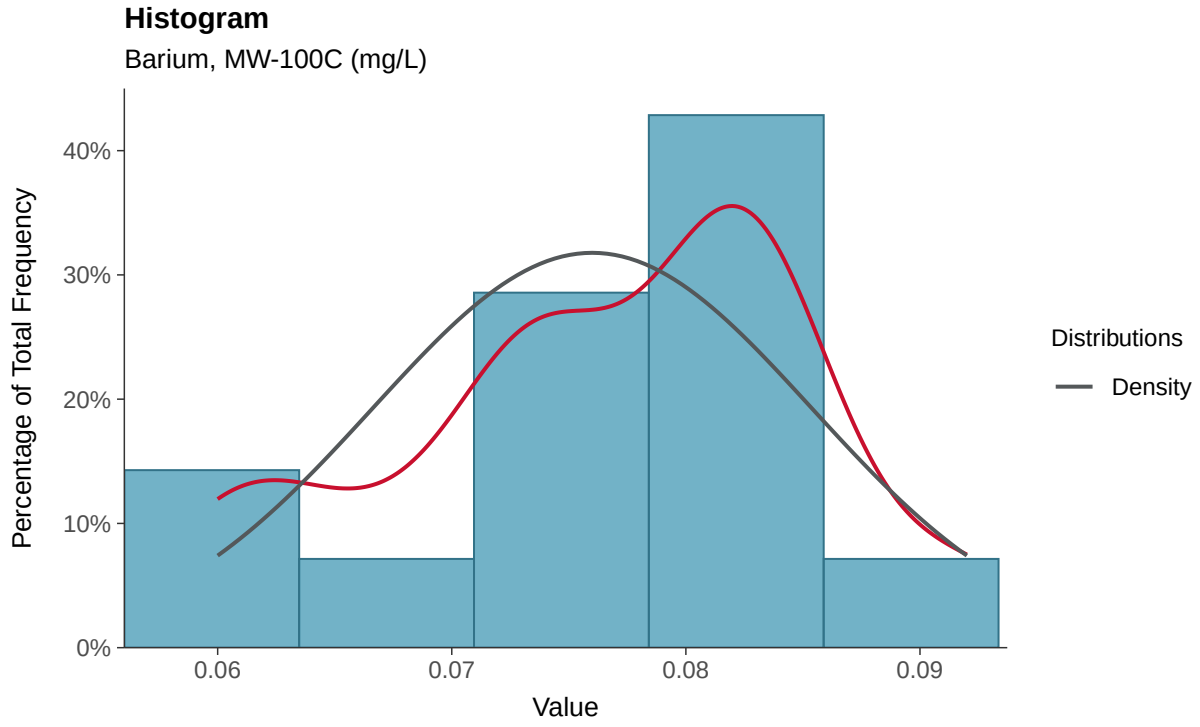
Arsenic, MW-100C (mg/L)



Appendix IV: Barium, MW-100C

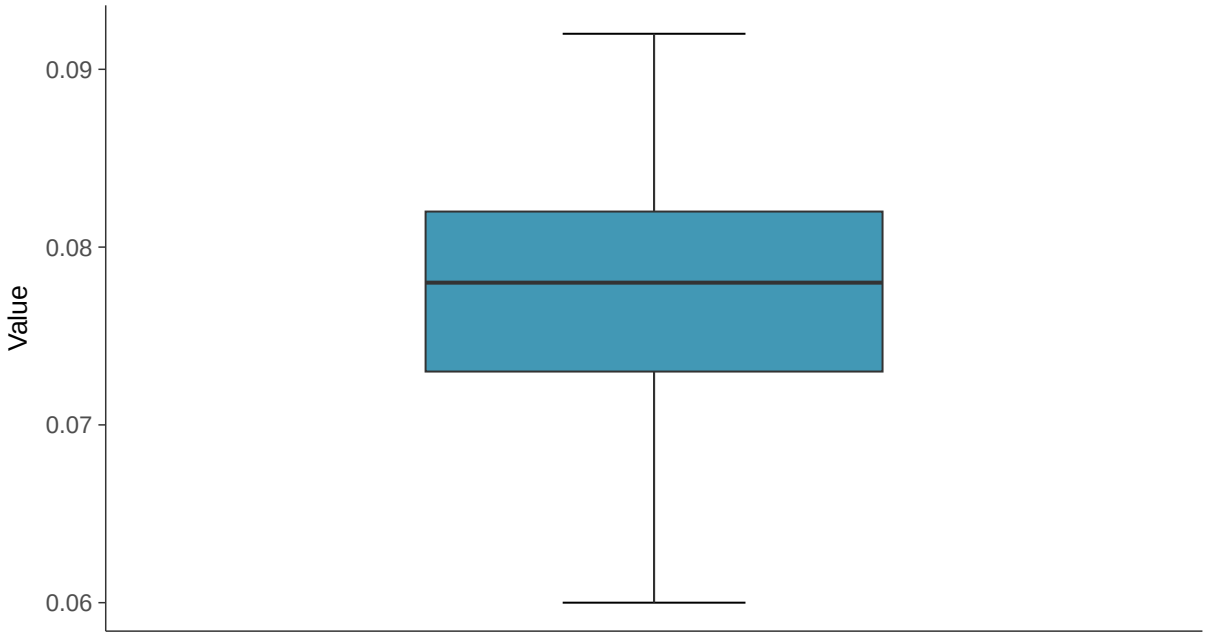
ID: 100C_2_10





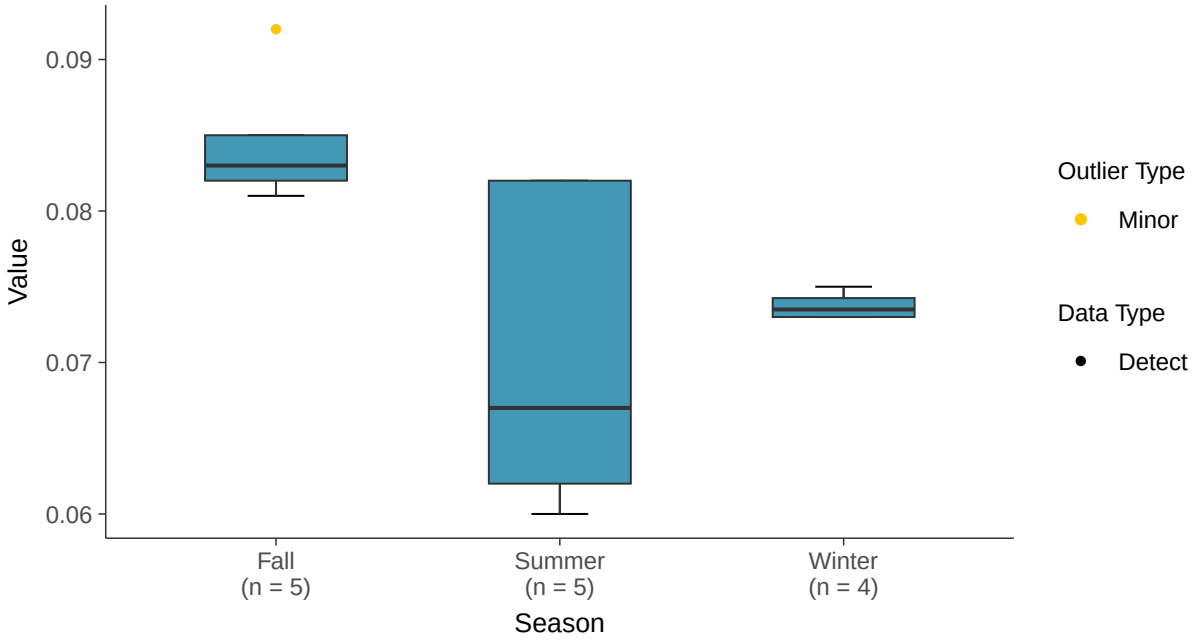
Boxplot

Barium, MW-100C (mg/L)



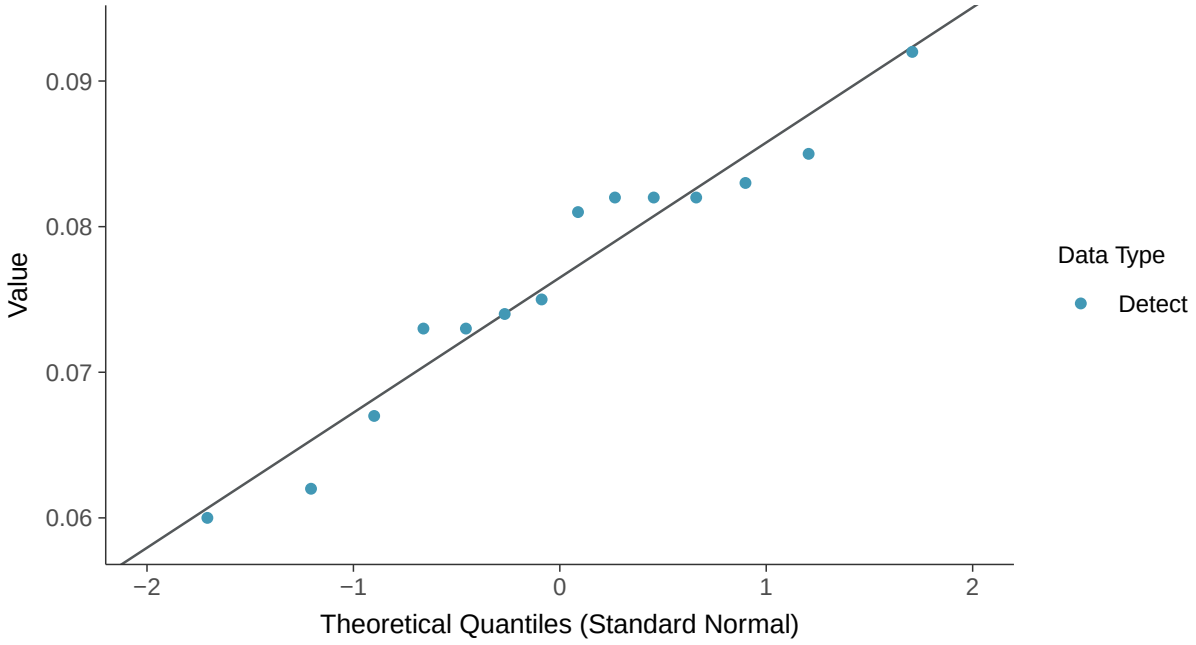
Boxplot by Season

Barium, MW-100C (mg/L)



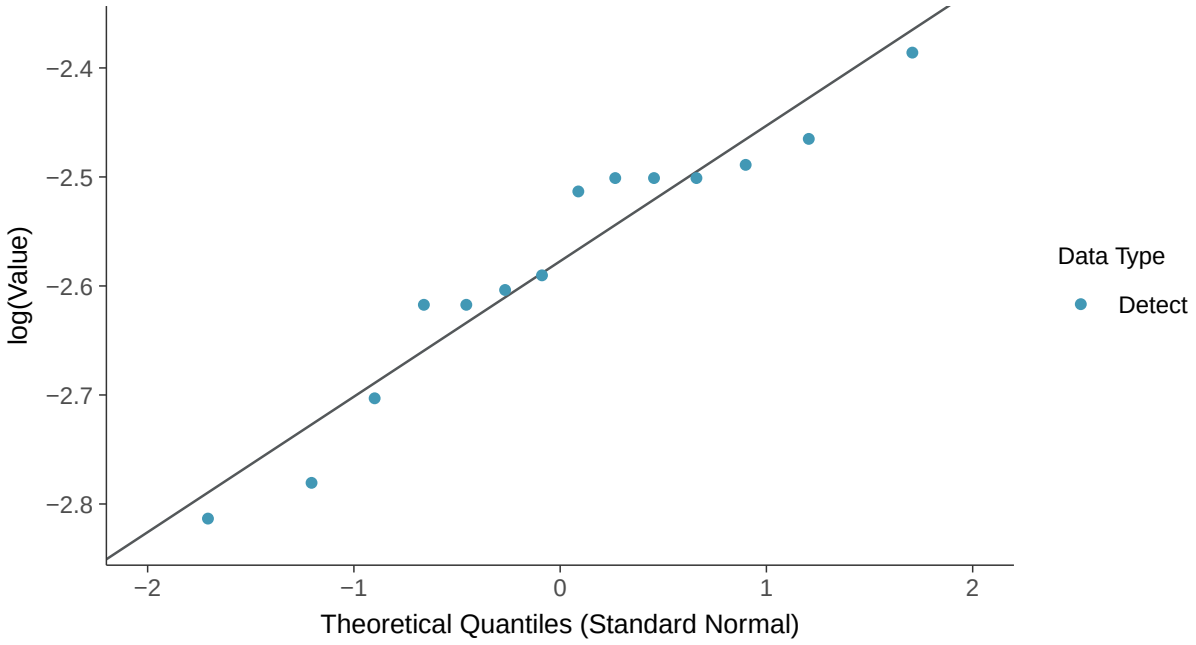
Normal Q-Q plot

Barium, MW-100C (mg/L)



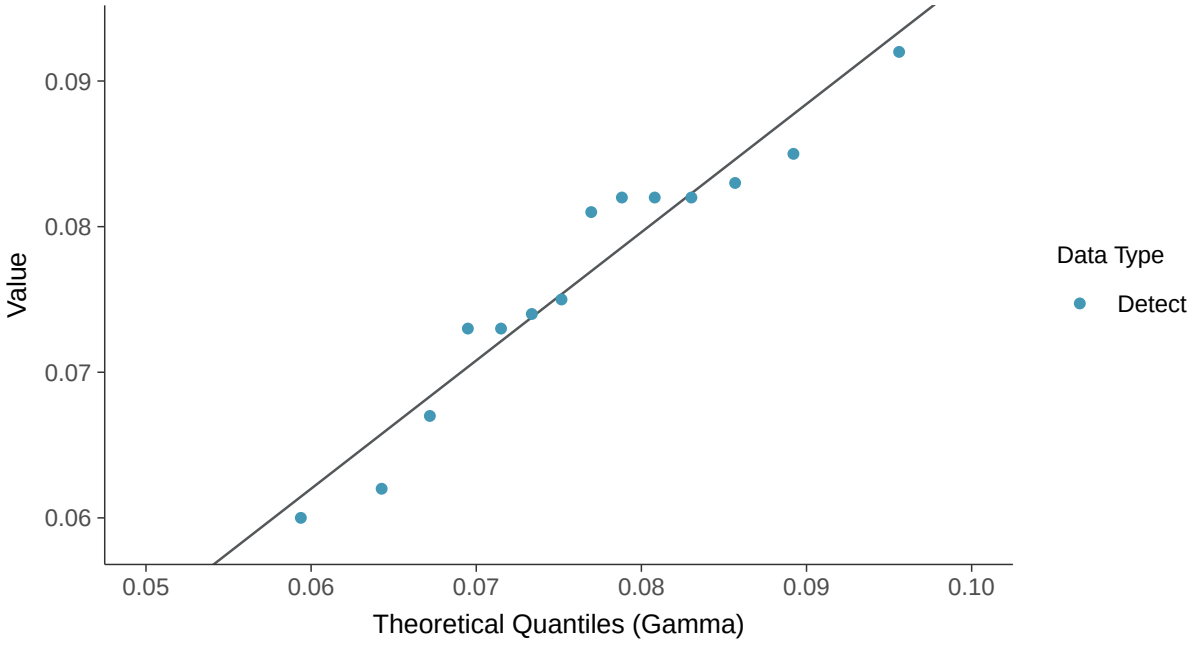
Lognormal Q-Q plot

Barium, MW-100C (mg/L)



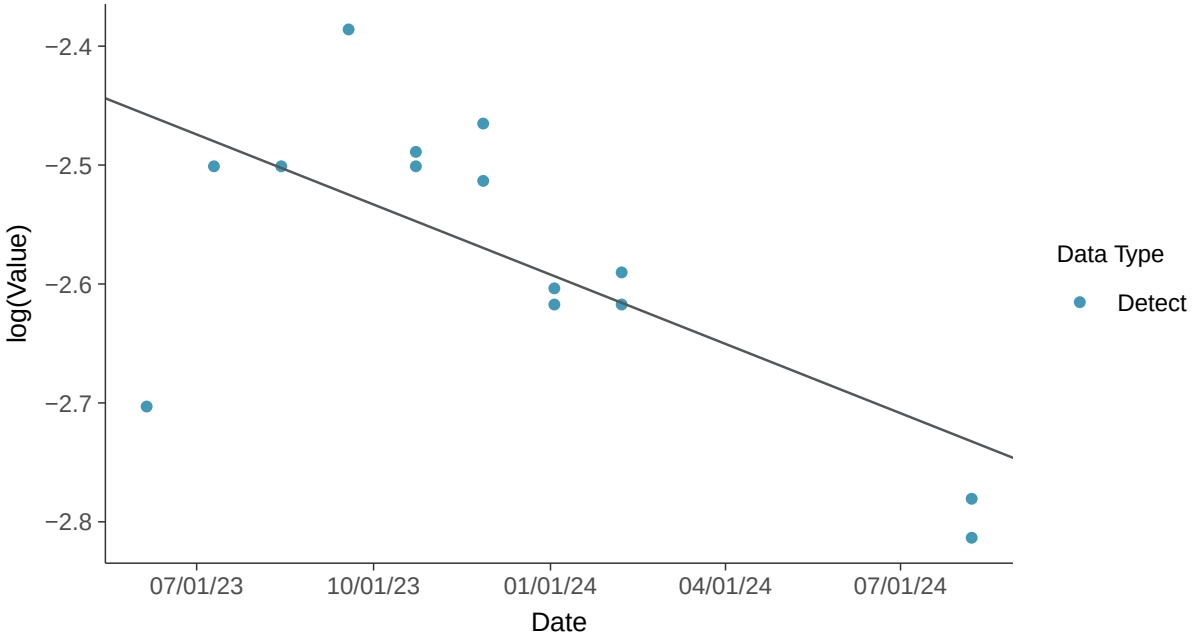
Gamma Q-Q plot

Barium, MW-100C (mg/L)



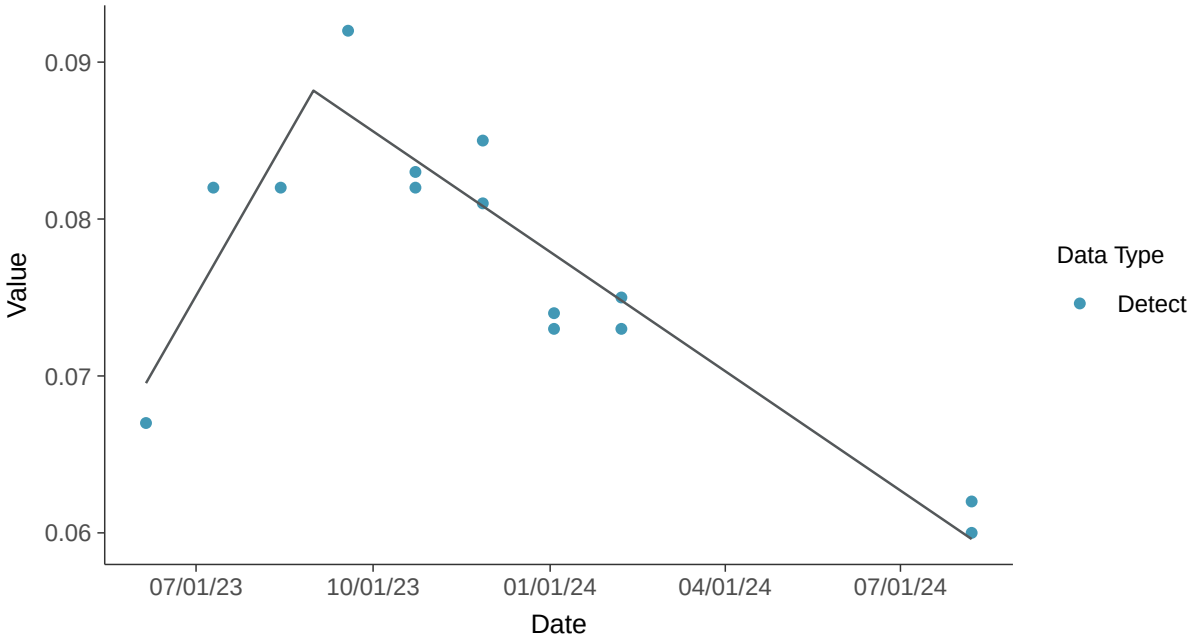
Trend Regression: Lognormal MLE

Barium, MW-100C (mg/L)



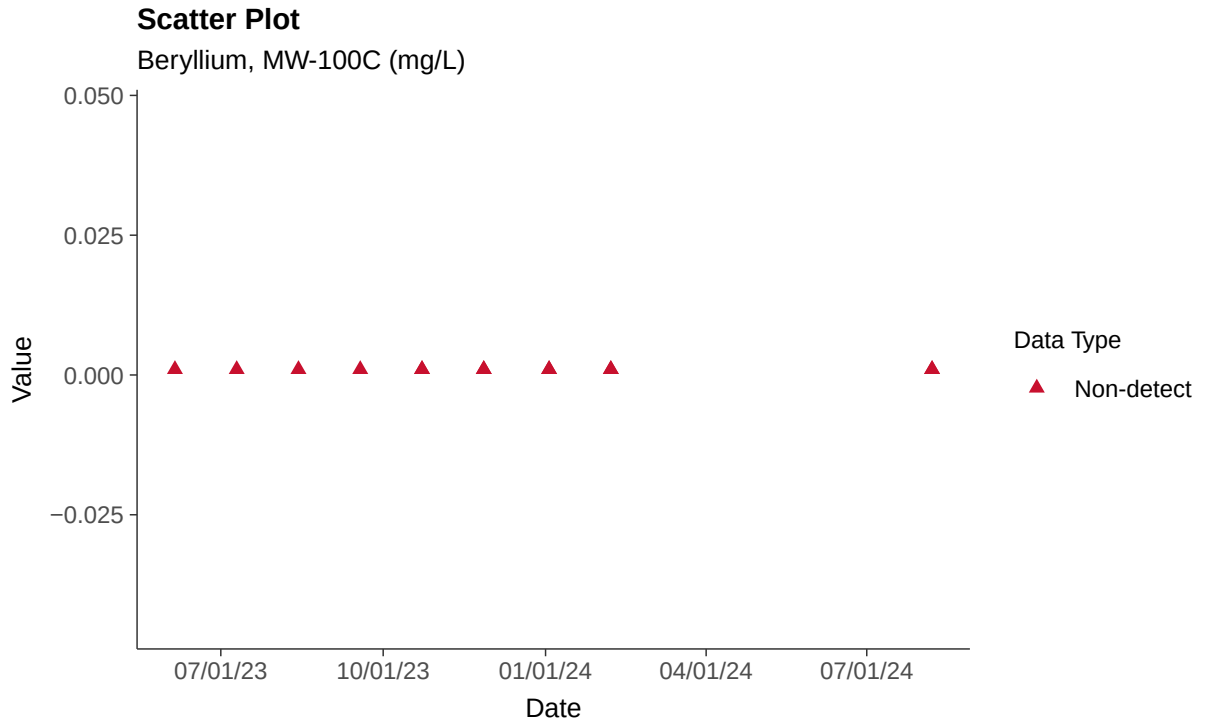
Trend Regression: Piecewise Linear-Linear

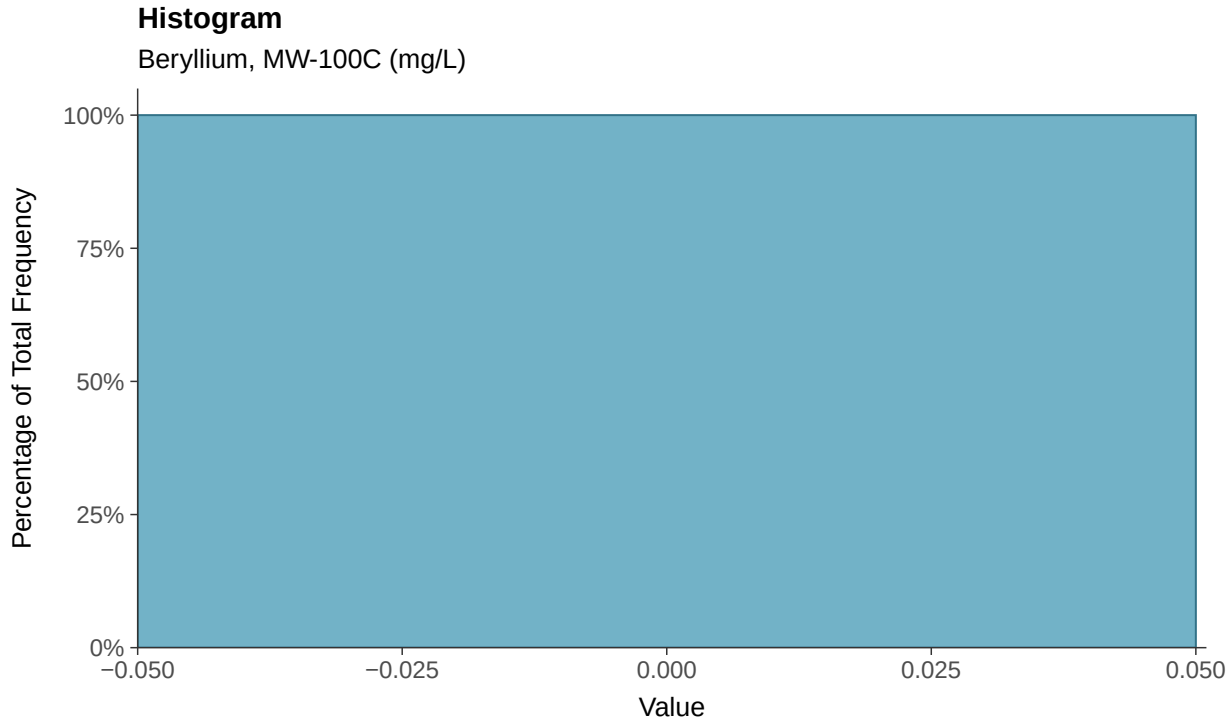
Barium, MW-100C (mg/L)



Appendix IV: Beryllium, MW-100C

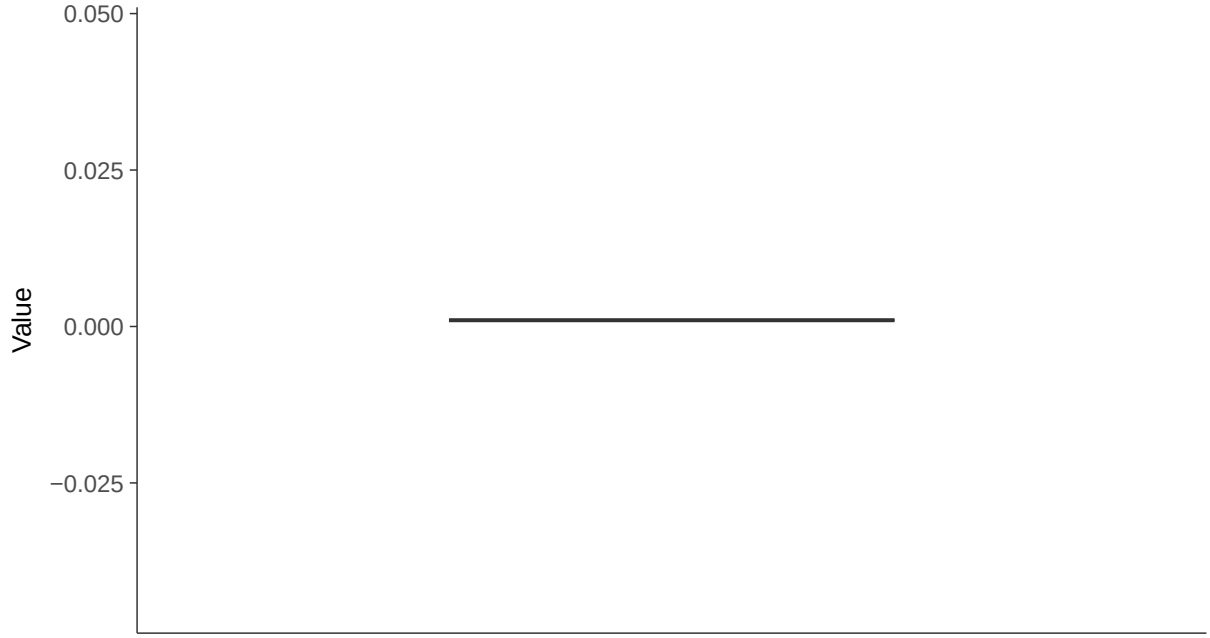
ID: 100C_2_11





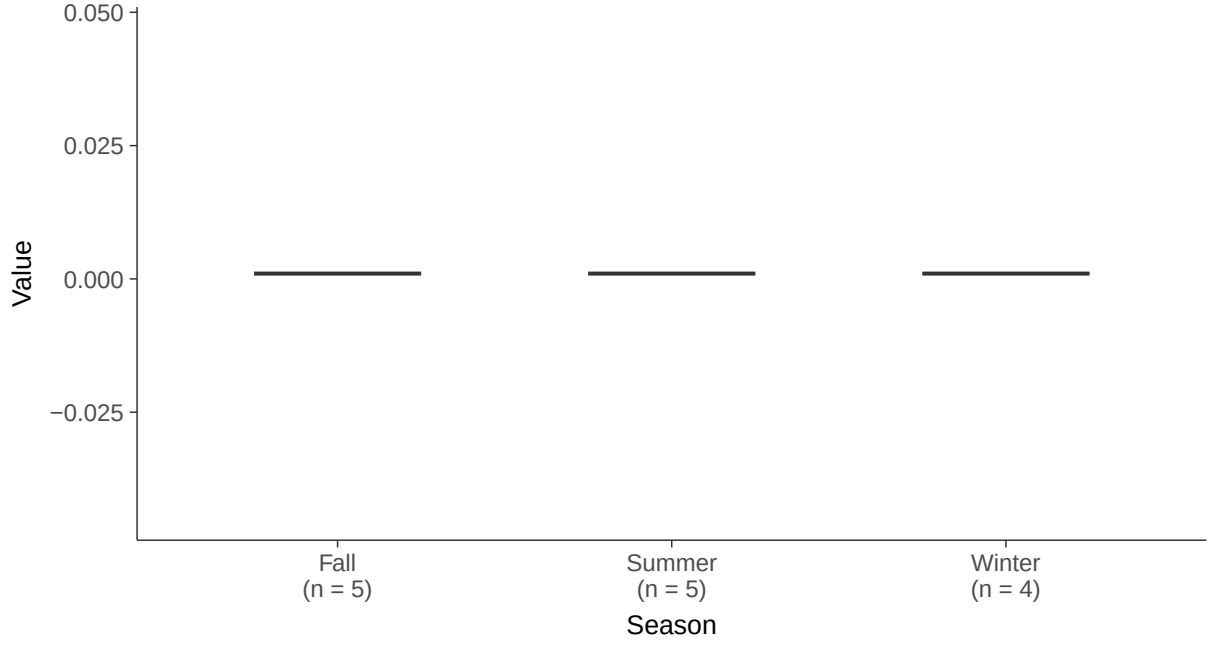
Boxplot

Beryllium, MW-100C (mg/L)



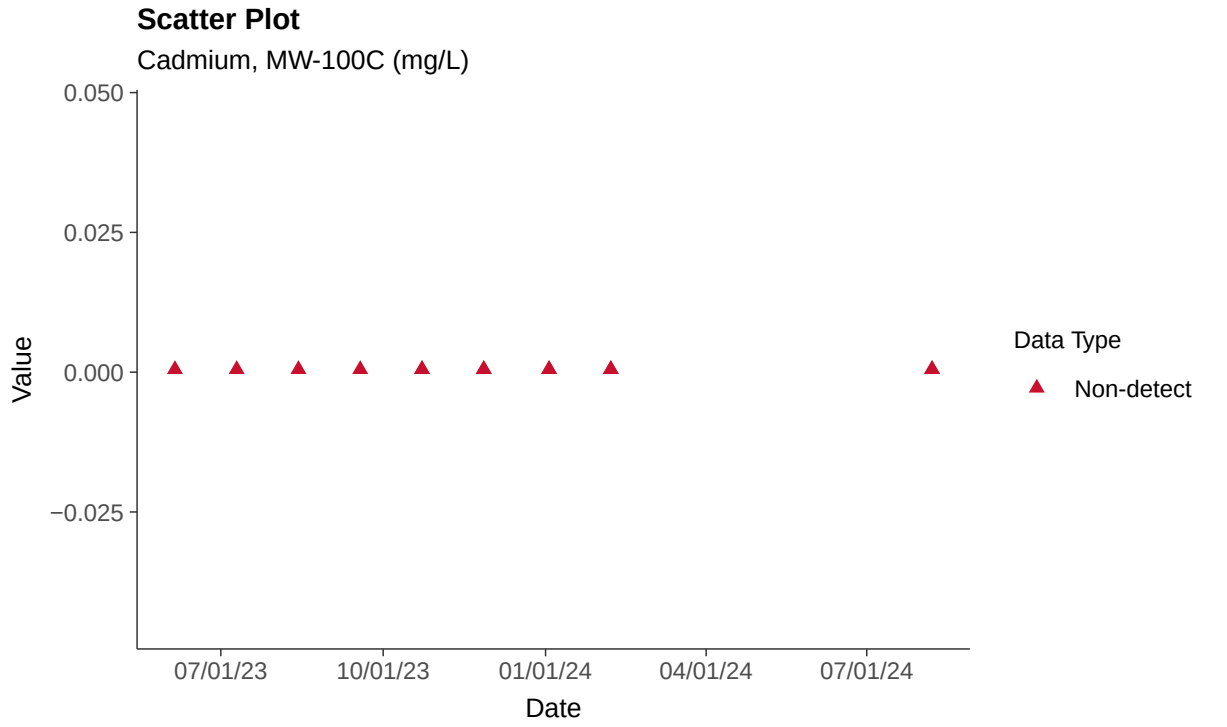
Boxplot by Season

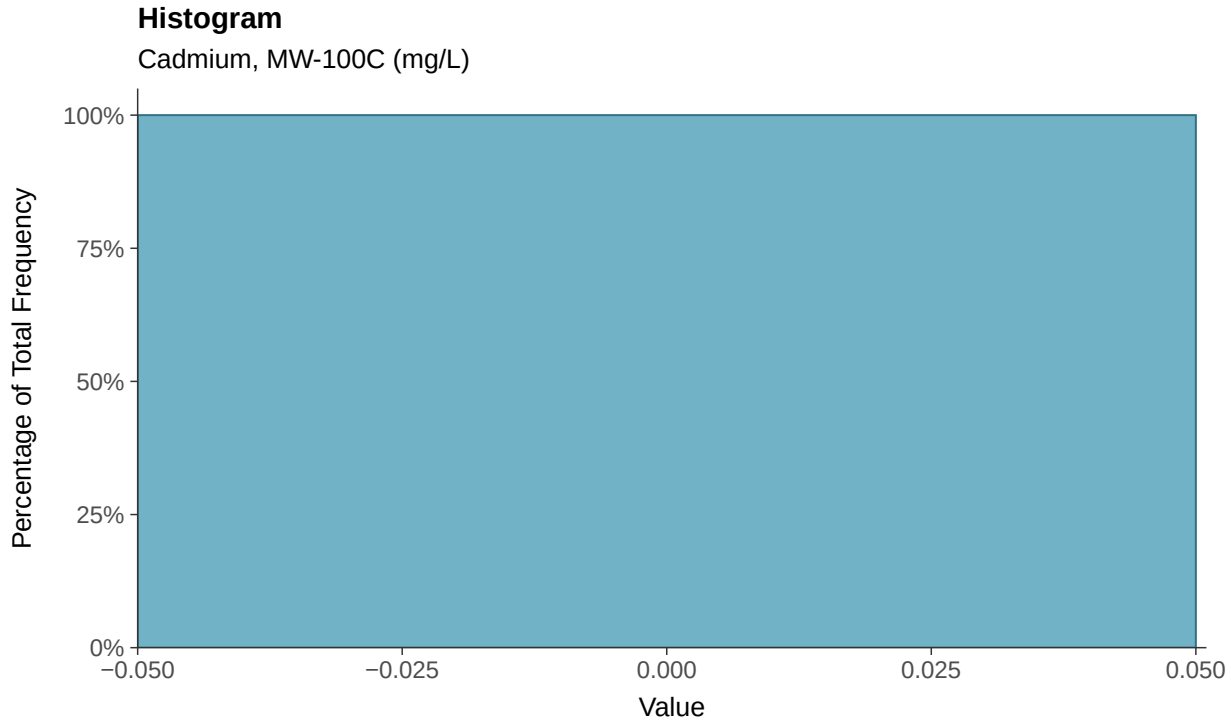
Beryllium, MW-100C (mg/L)



Appendix IV: Cadmium, MW-100C

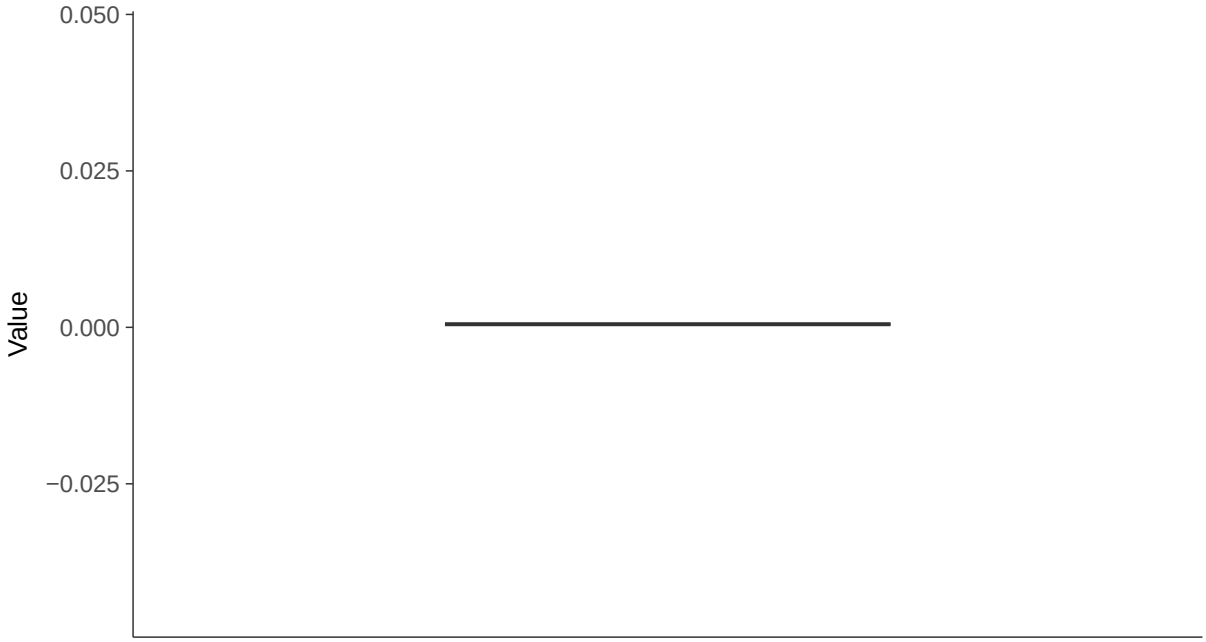
ID: 100C_2_12





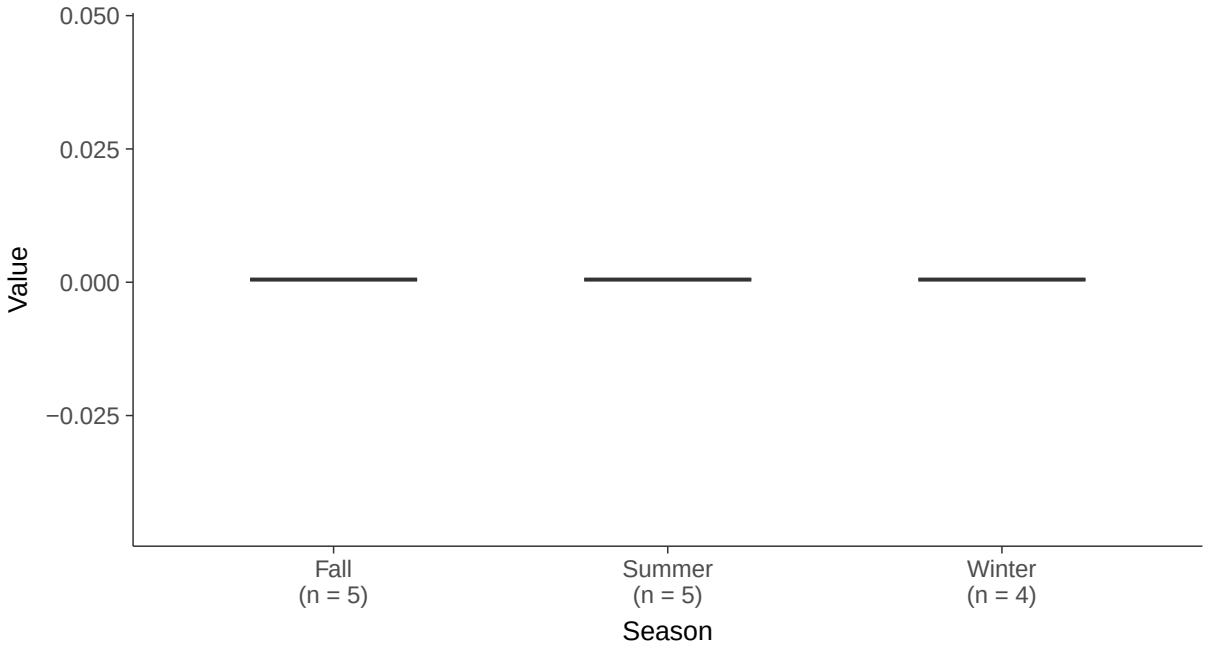
Boxplot

Cadmium, MW-100C (mg/L)



Boxplot by Season

Cadmium, MW-100C (mg/L)

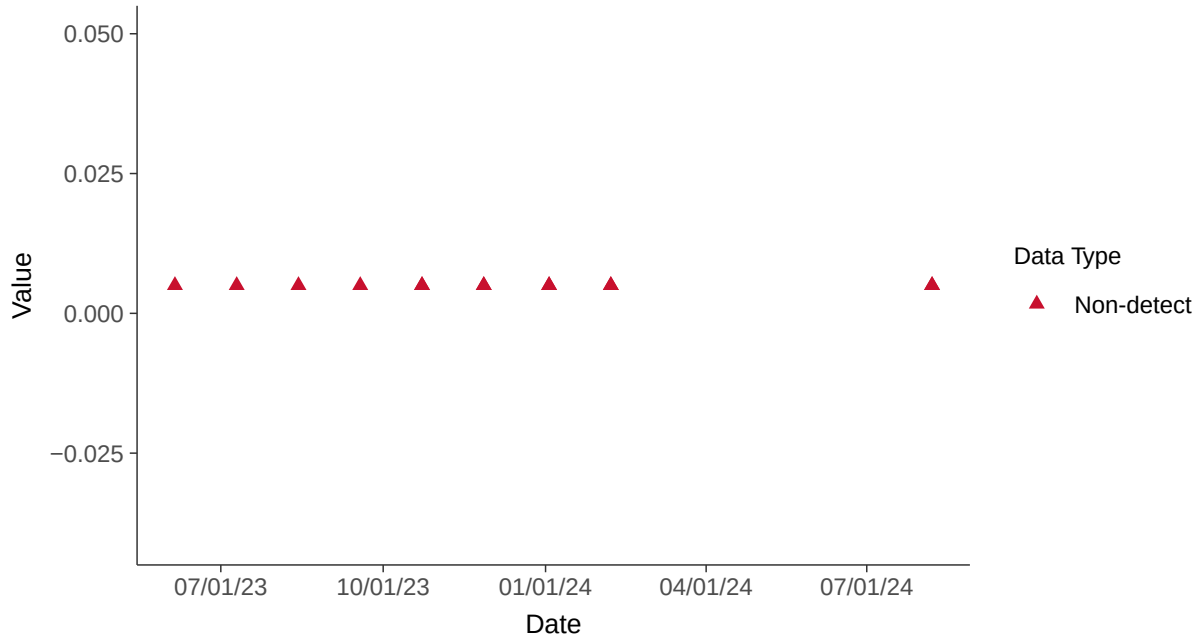


Appendix IV: Chromium, MW-100C

ID: 100C_2_13

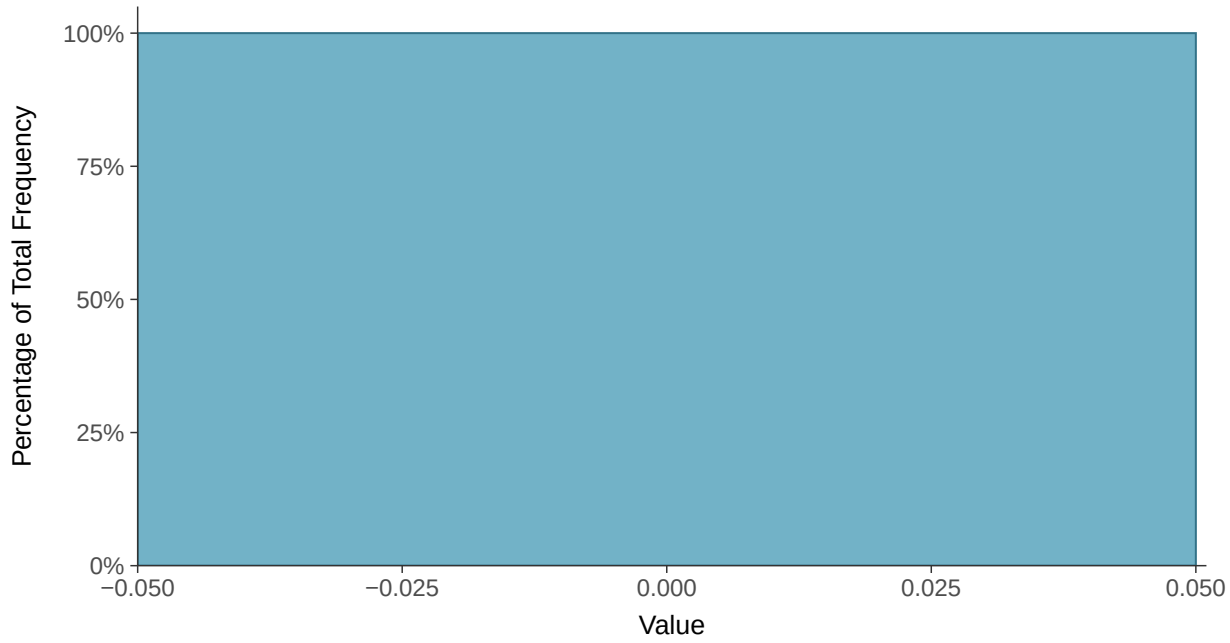
Scatter Plot

Chromium, MW-100C (mg/L)



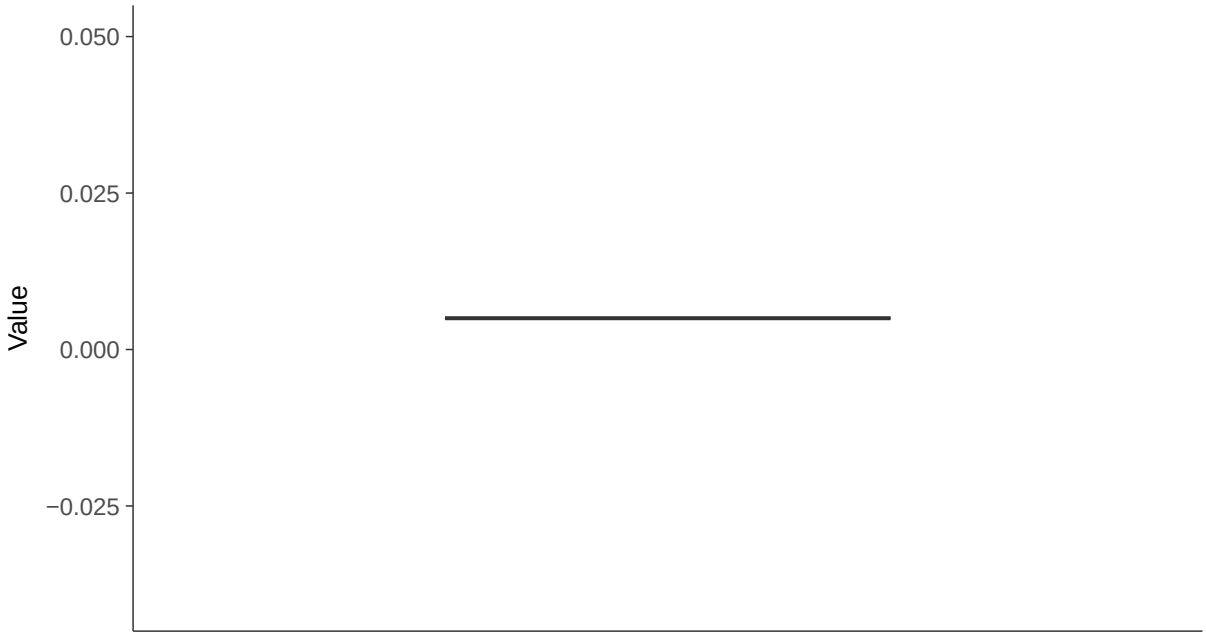
Histogram

Chromium, MW-100C (mg/L)



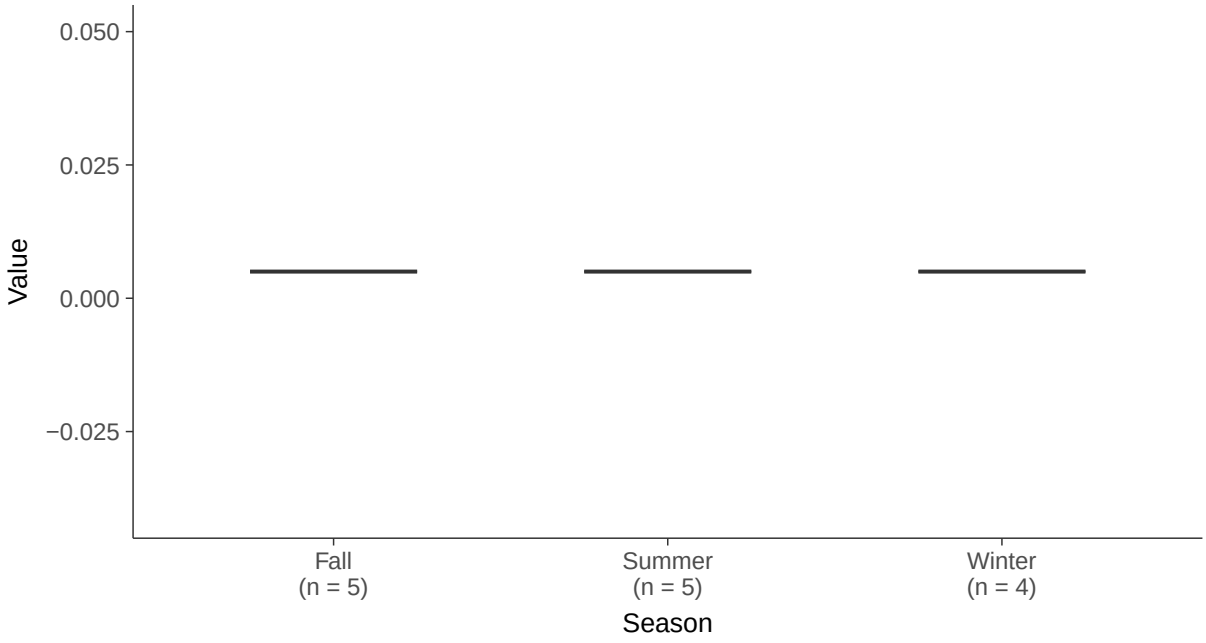
Boxplot

Chromium, MW-100C (mg/L)



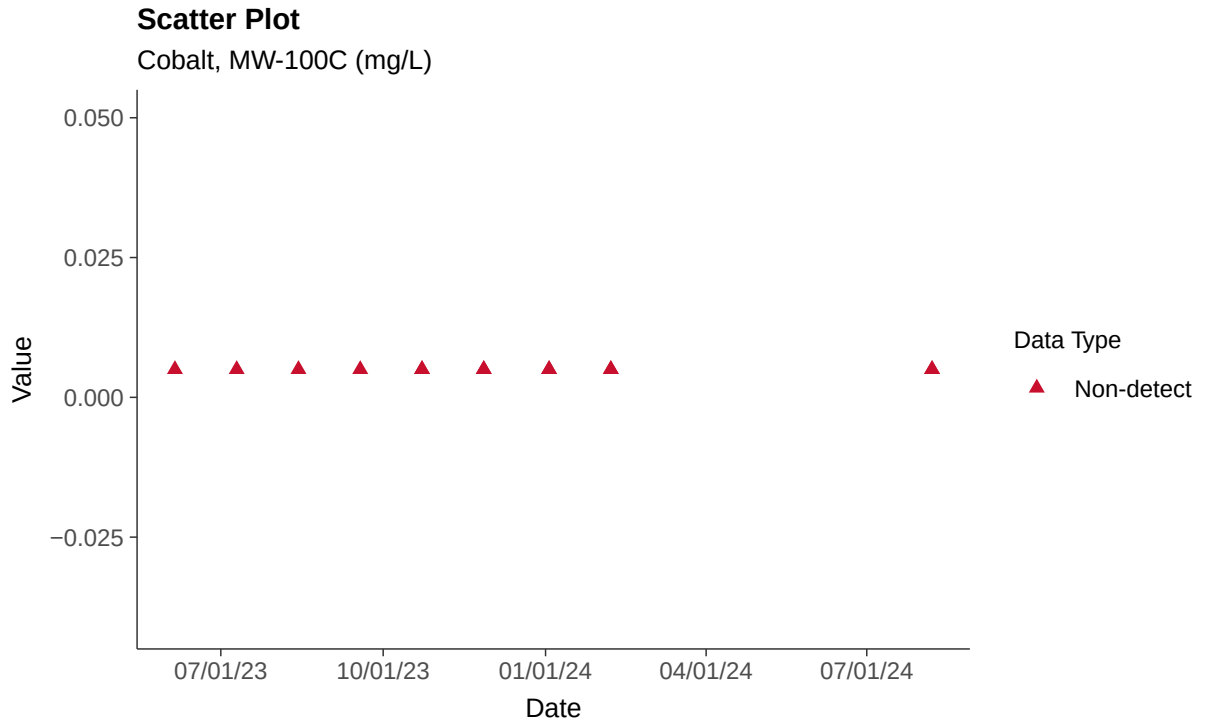
Boxplot by Season

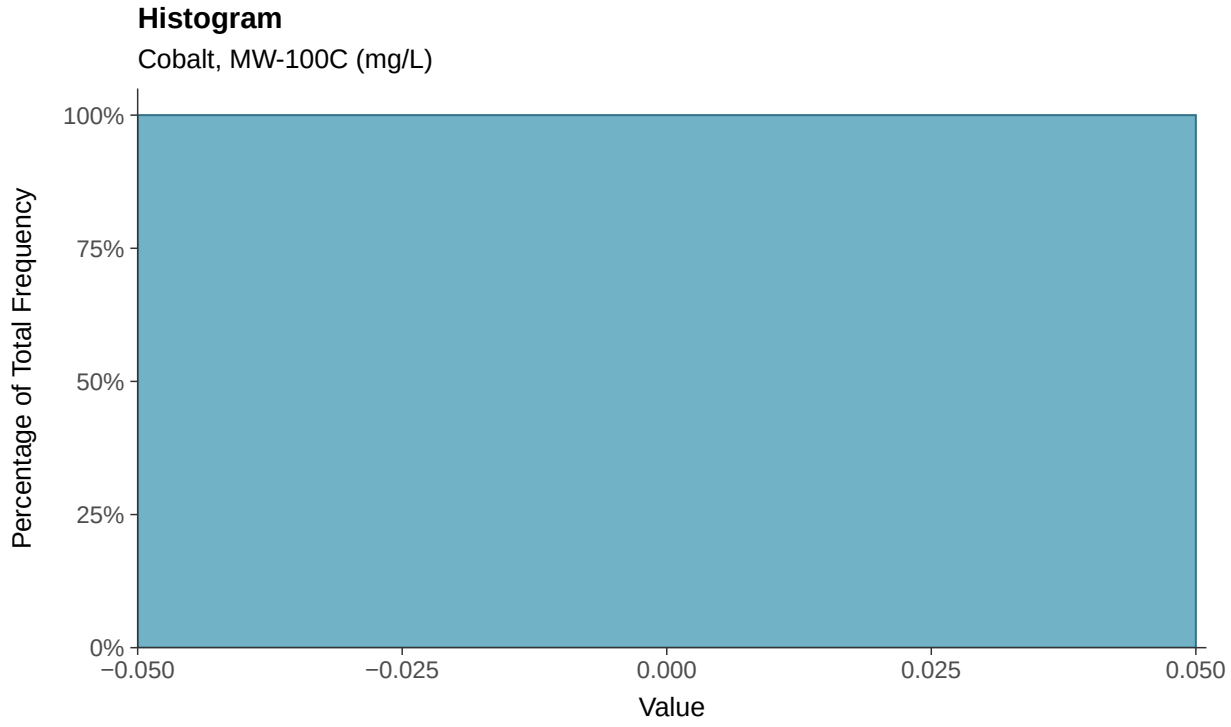
Chromium, MW-100C (mg/L)



Appendix IV: Cobalt, MW-100C

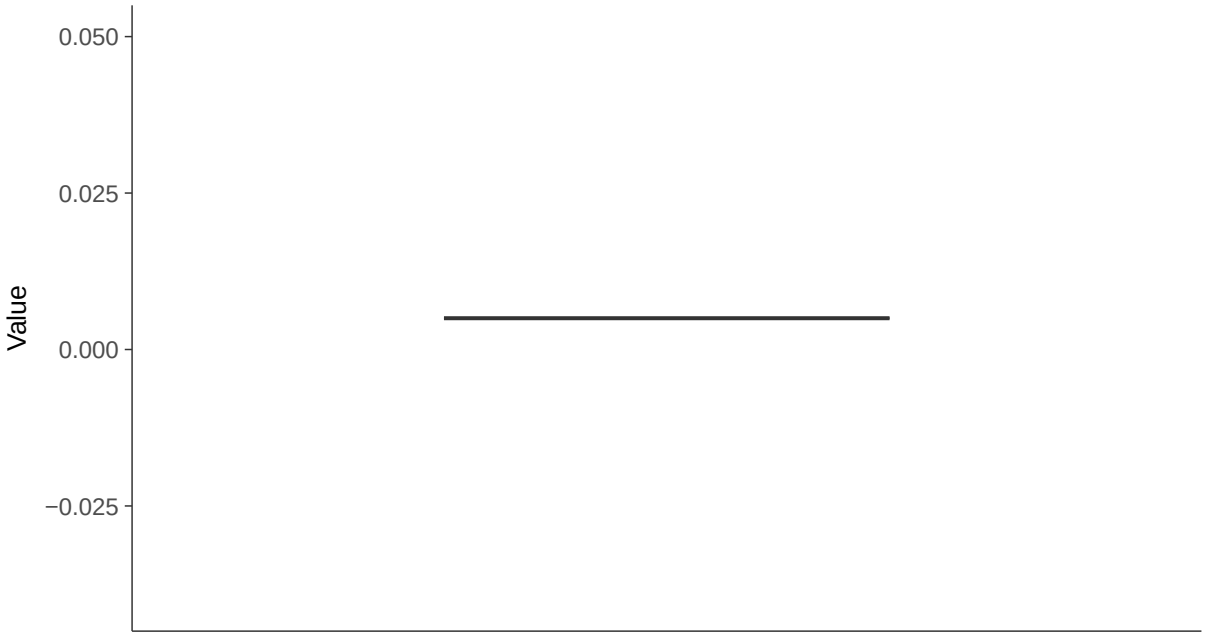
ID: 100C_2_14





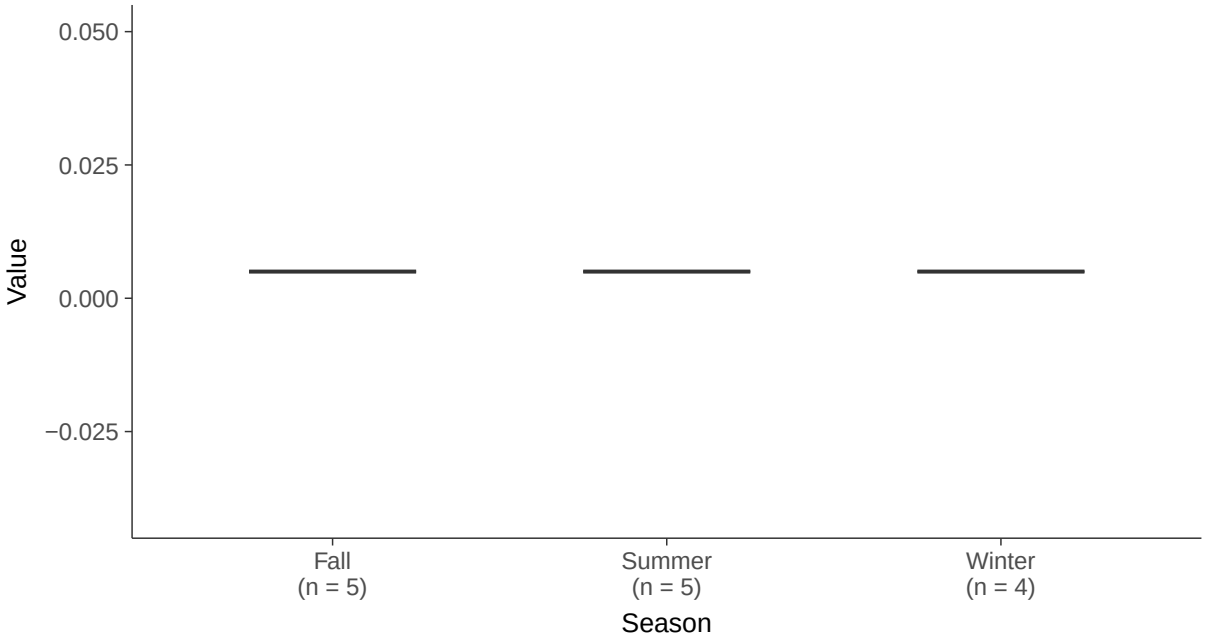
Boxplot

Cobalt, MW-100C (mg/L)



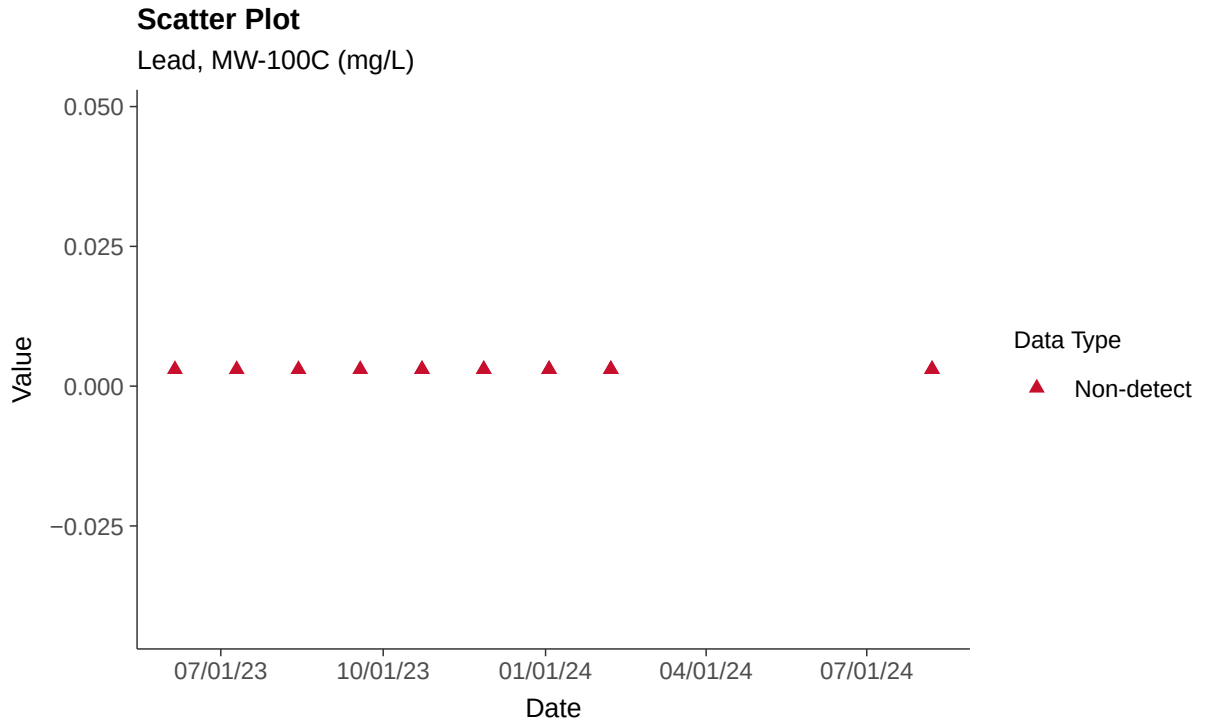
Boxplot by Season

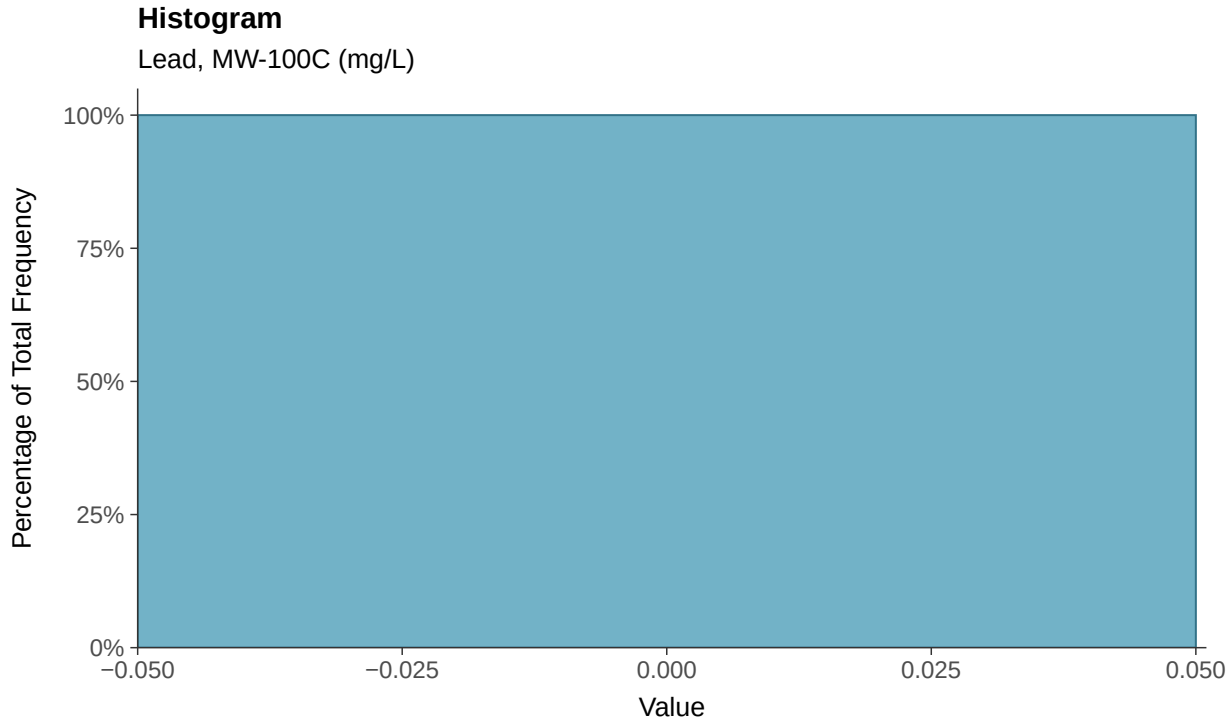
Cobalt, MW-100C (mg/L)



Appendix IV: Lead, MW-100C

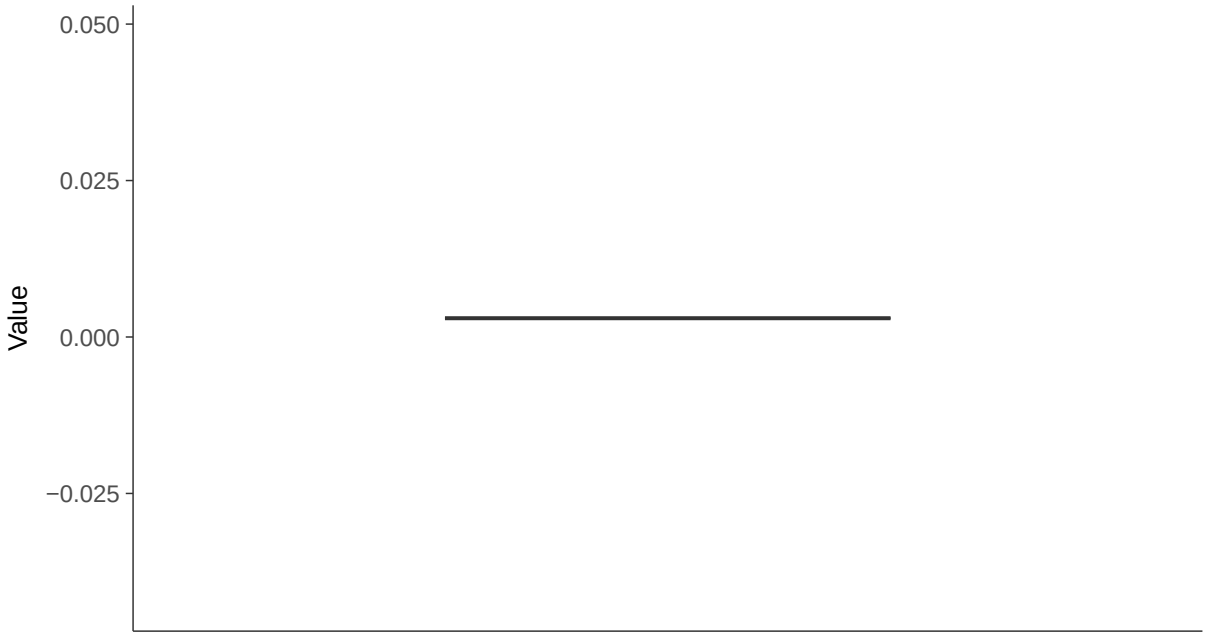
ID: 100C_2_15





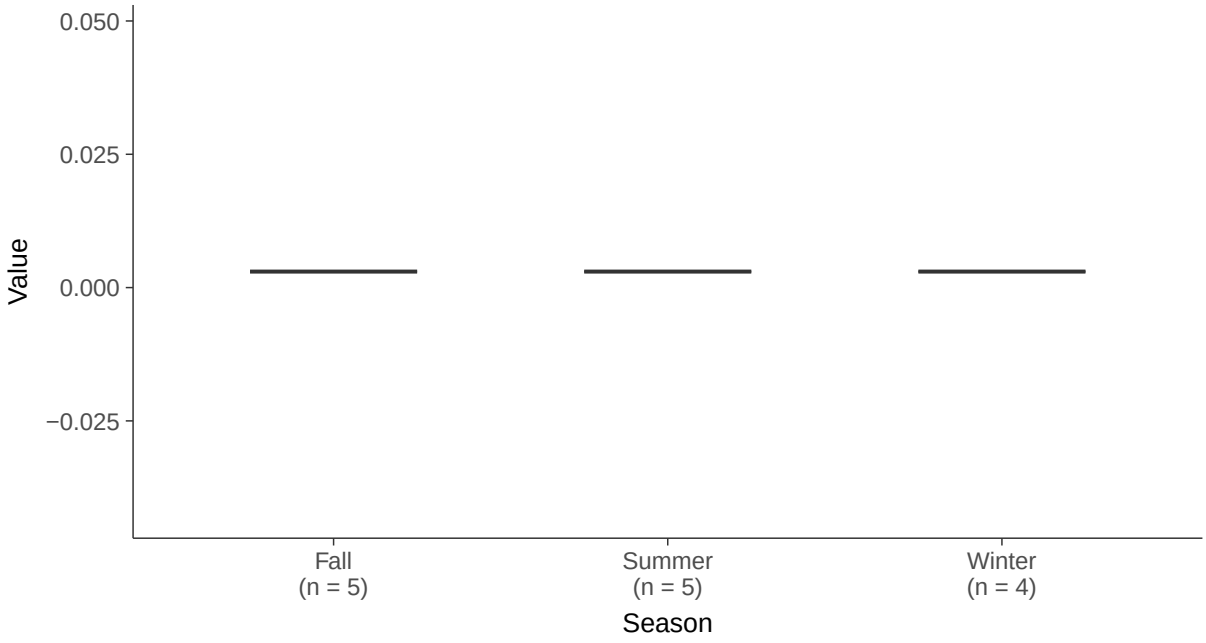
Boxplot

Lead, MW-100C (mg/L)



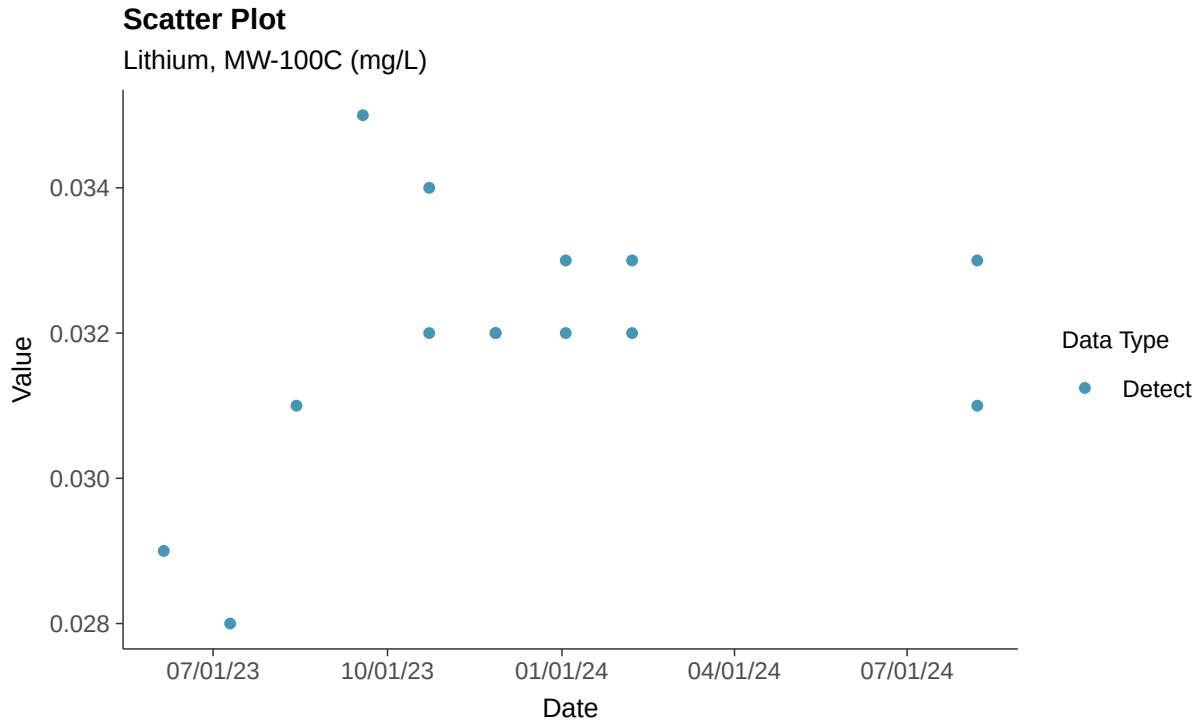
Boxplot by Season

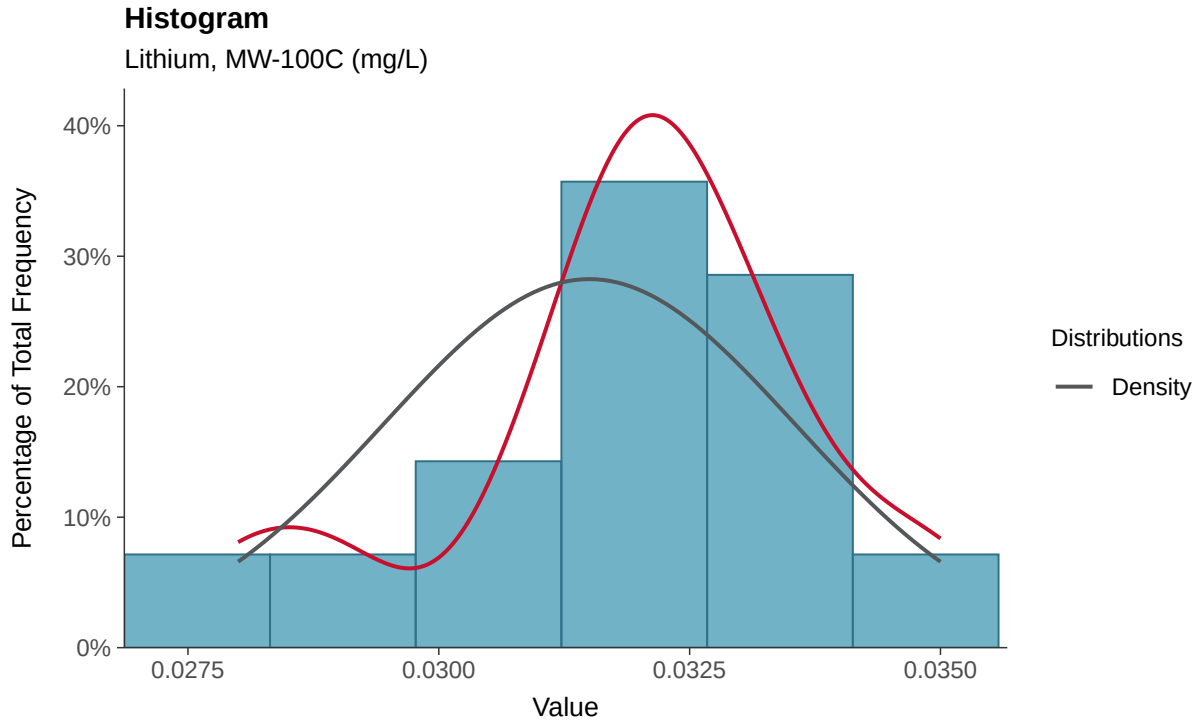
Lead, MW-100C (mg/L)



Appendix IV: Lithium, MW-100C

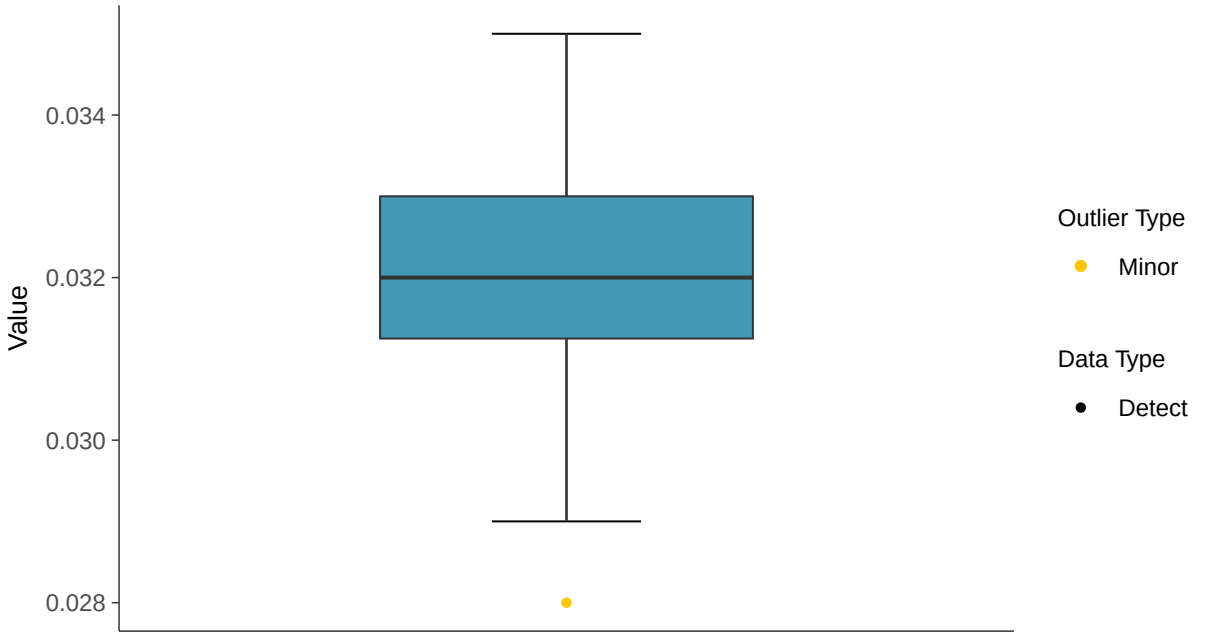
ID: 100C_2_16





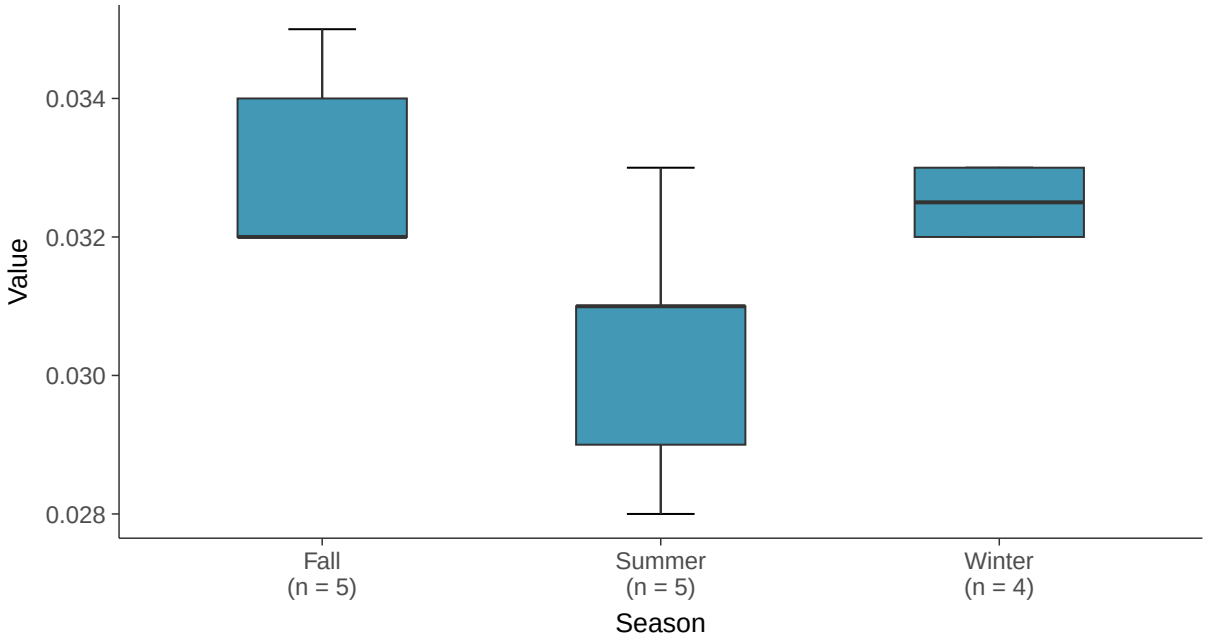
Boxplot

Lithium, MW-100C (mg/L)



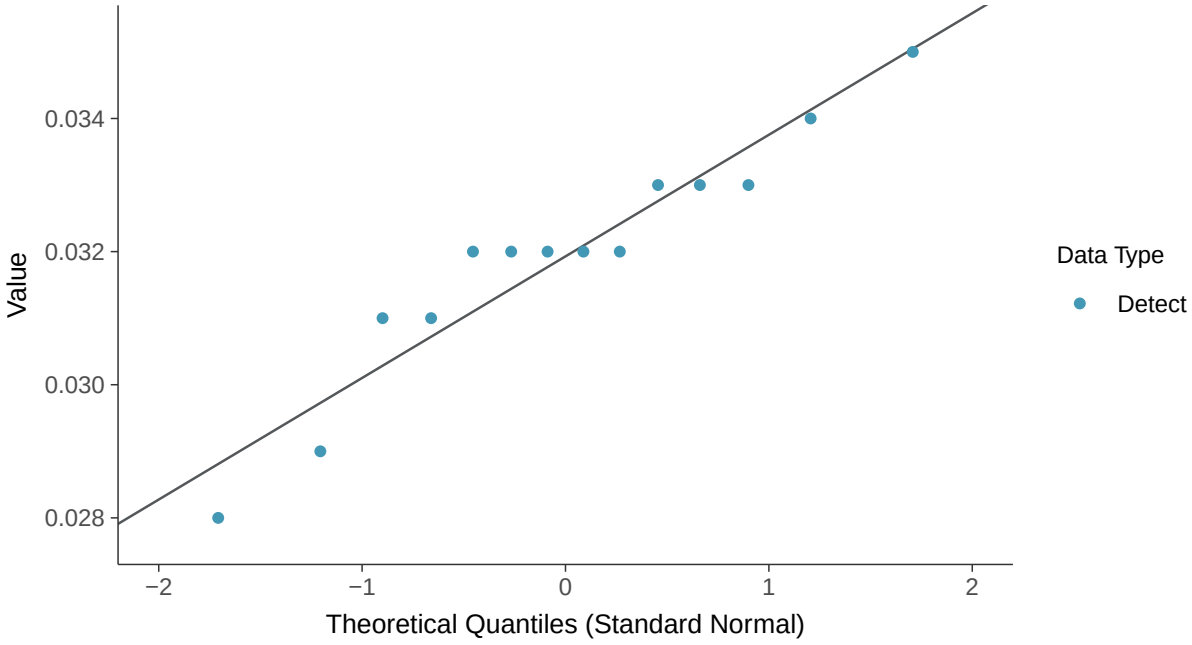
Boxplot by Season

Lithium, MW-100C (mg/L)



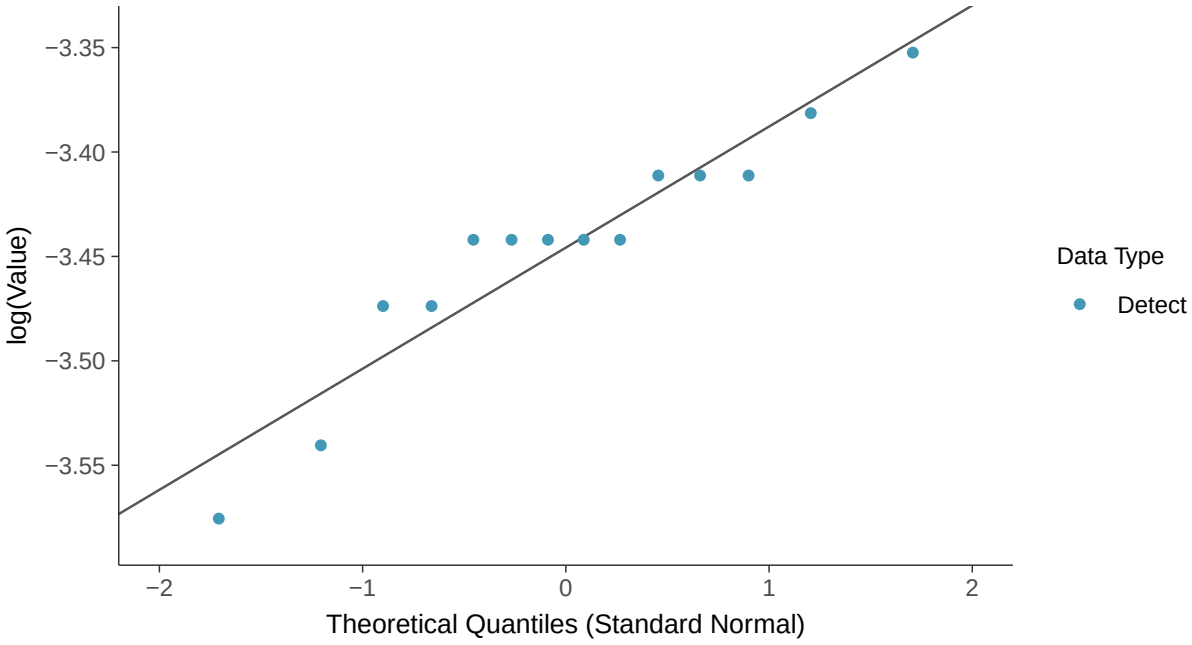
Normal Q-Q plot

Lithium, MW-100C (mg/L)



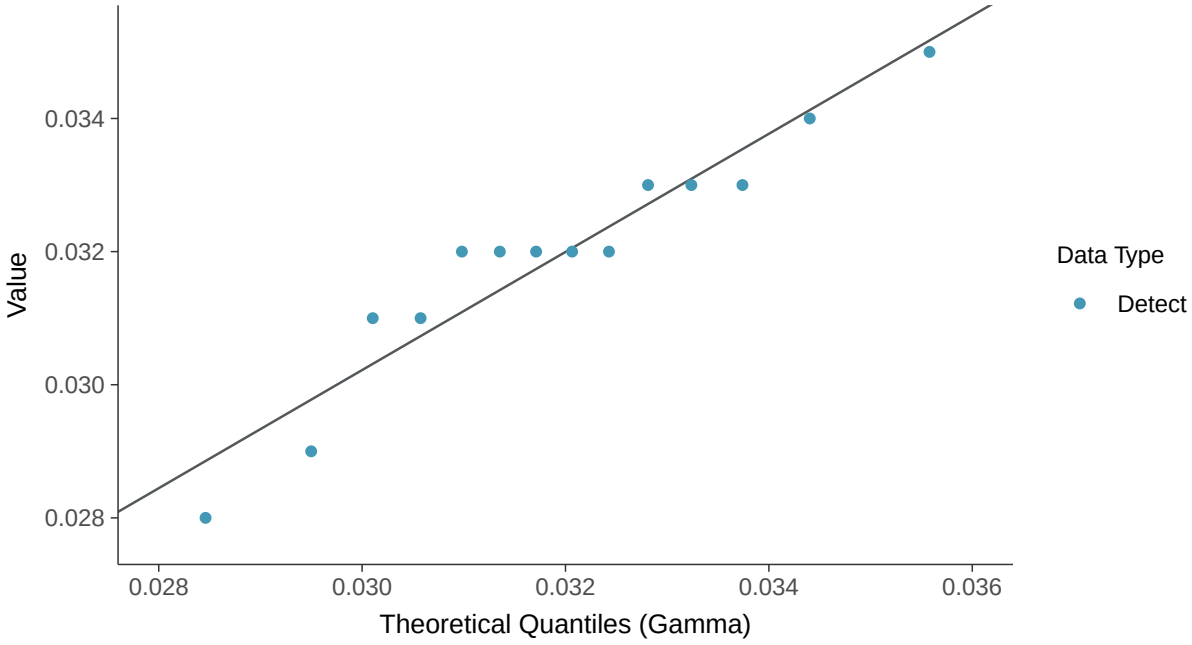
Lognormal Q-Q plot

Lithium, MW-100C (mg/L)



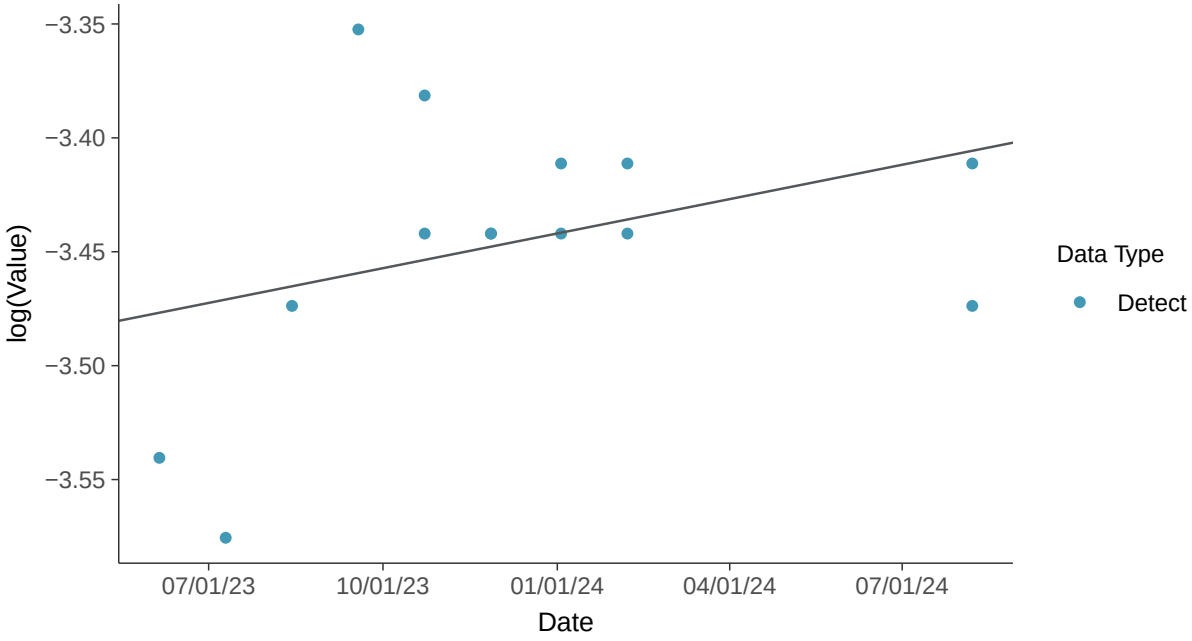
Gamma Q-Q plot

Lithium, MW-100C (mg/L)



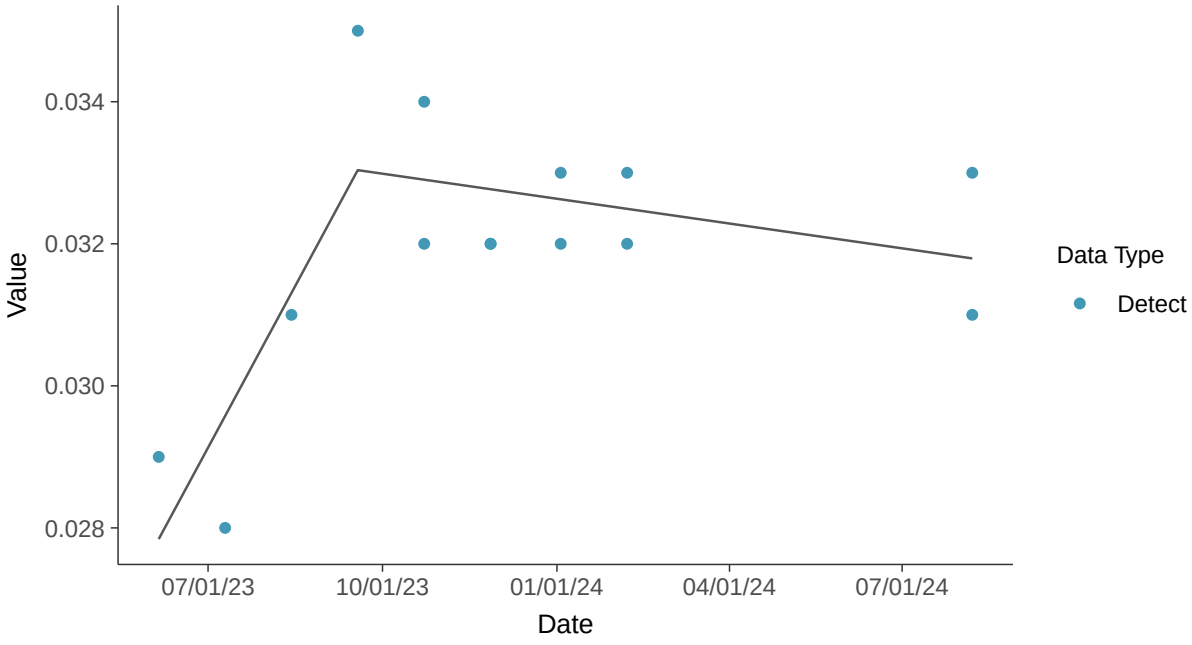
Trend Regression: Lognormal MLE

Lithium, MW-100C (mg/L)



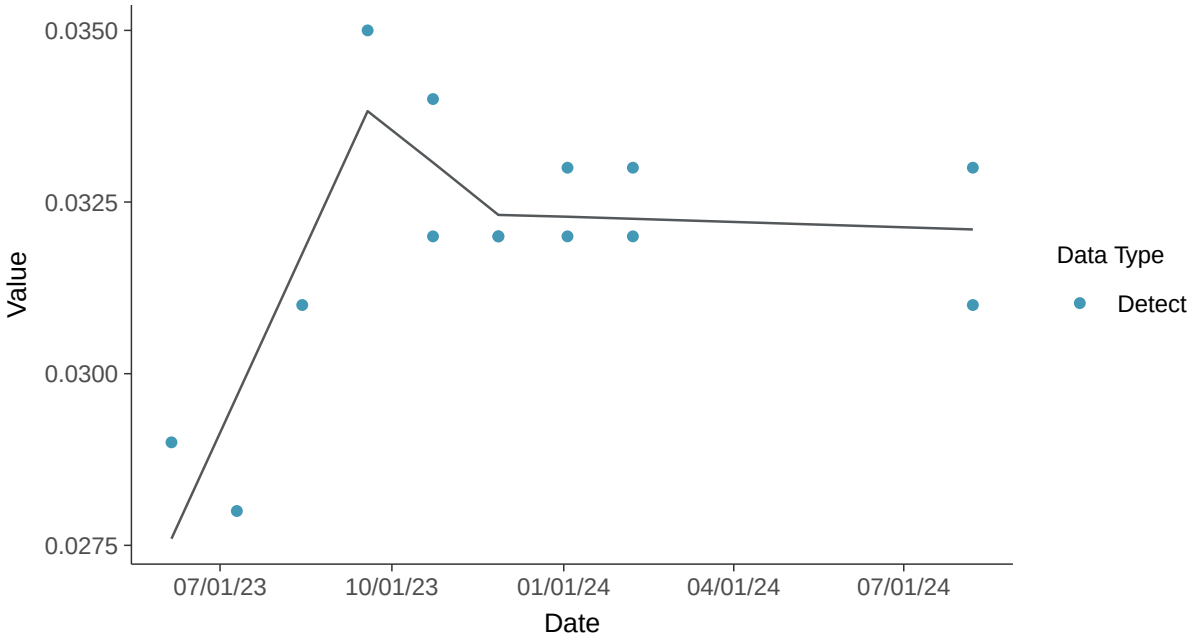
Trend Regression: Piecewise Linear-Linear

Lithium, MW-100C (mg/L)



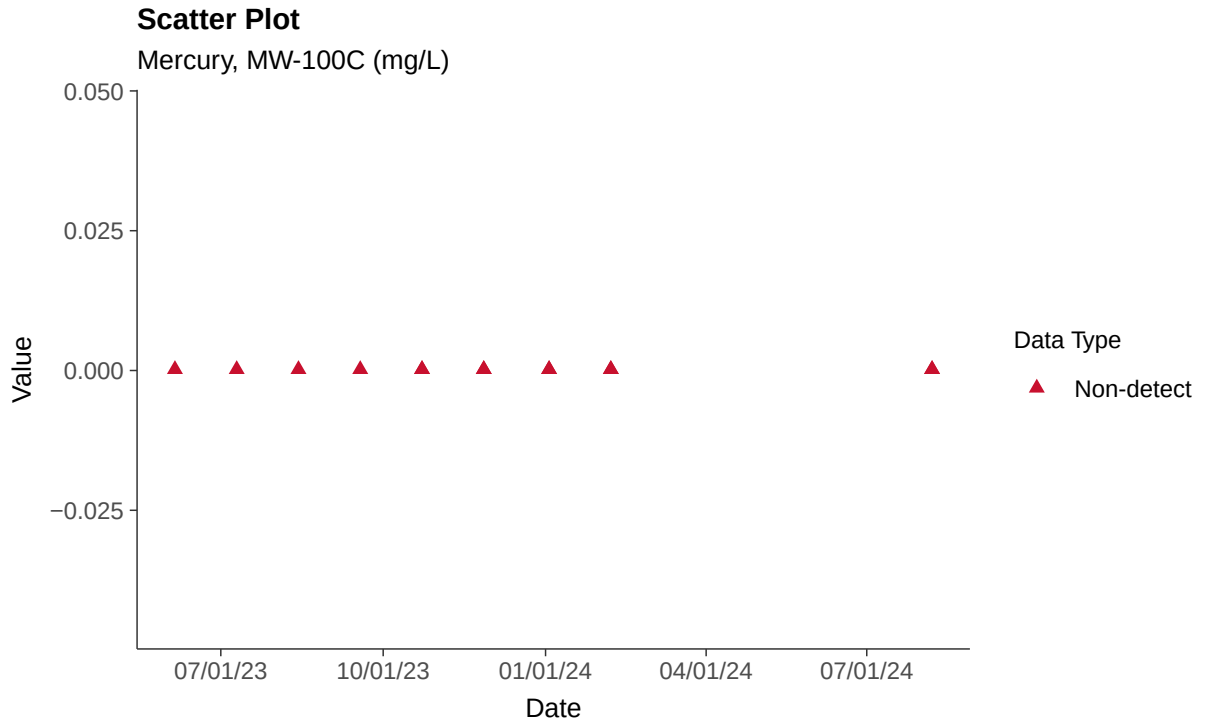
Trend Regression: Piecewise Linear-Linear-Linear

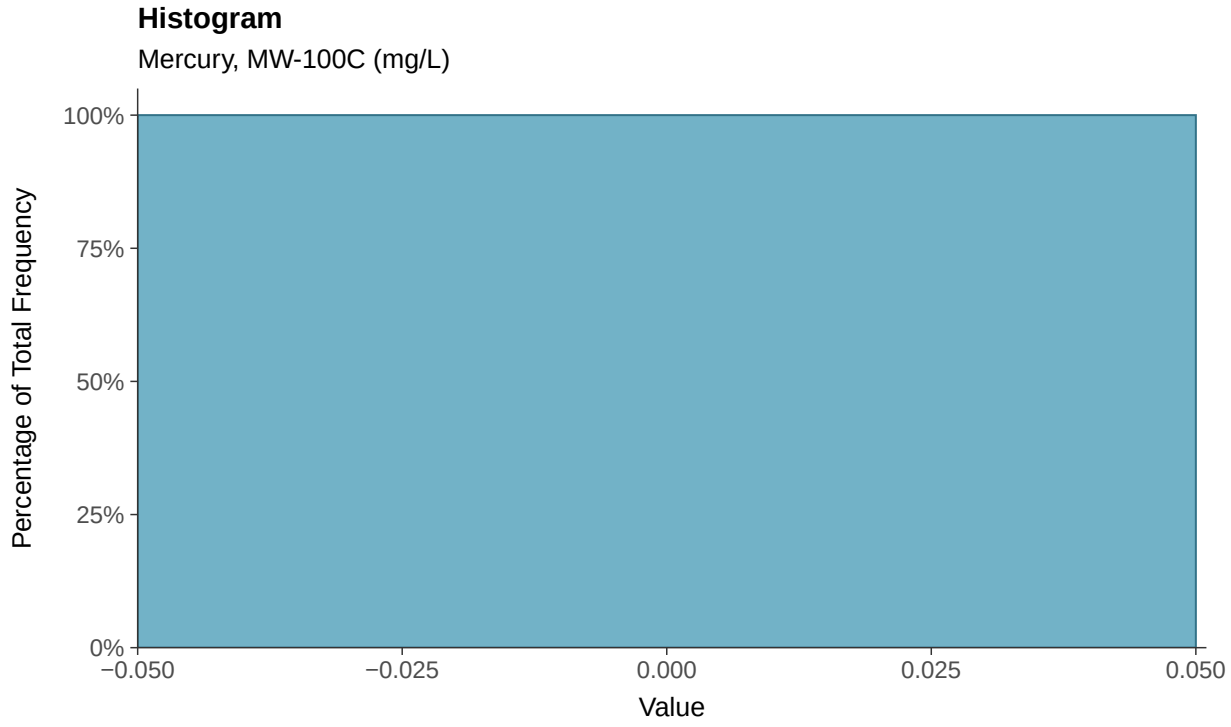
Lithium, MW-100C (mg/L)



Appendix IV: Mercury, MW-100C

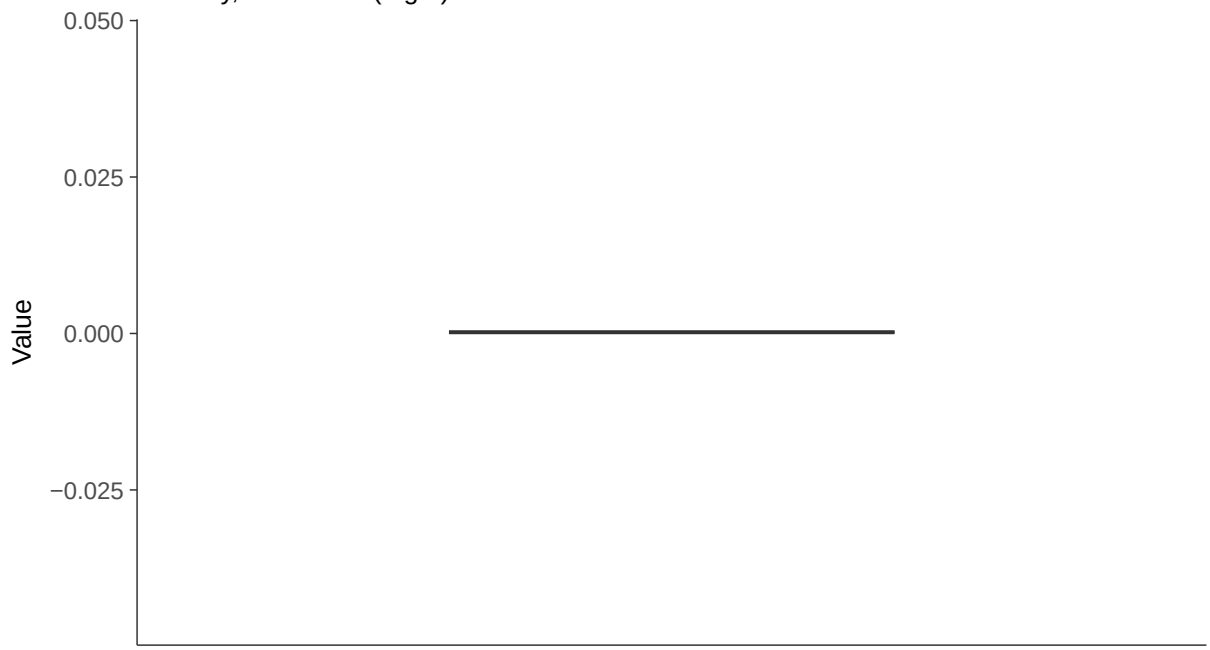
ID: 100C_2_17





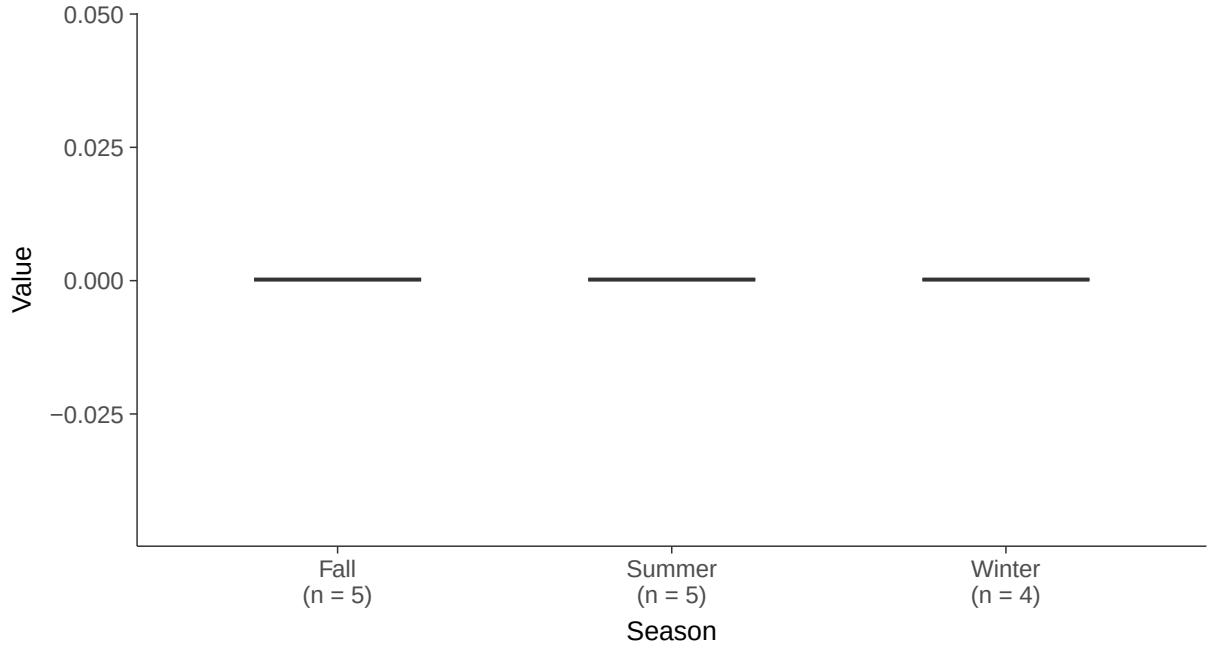
Boxplot

Mercury, MW-100C (mg/L)



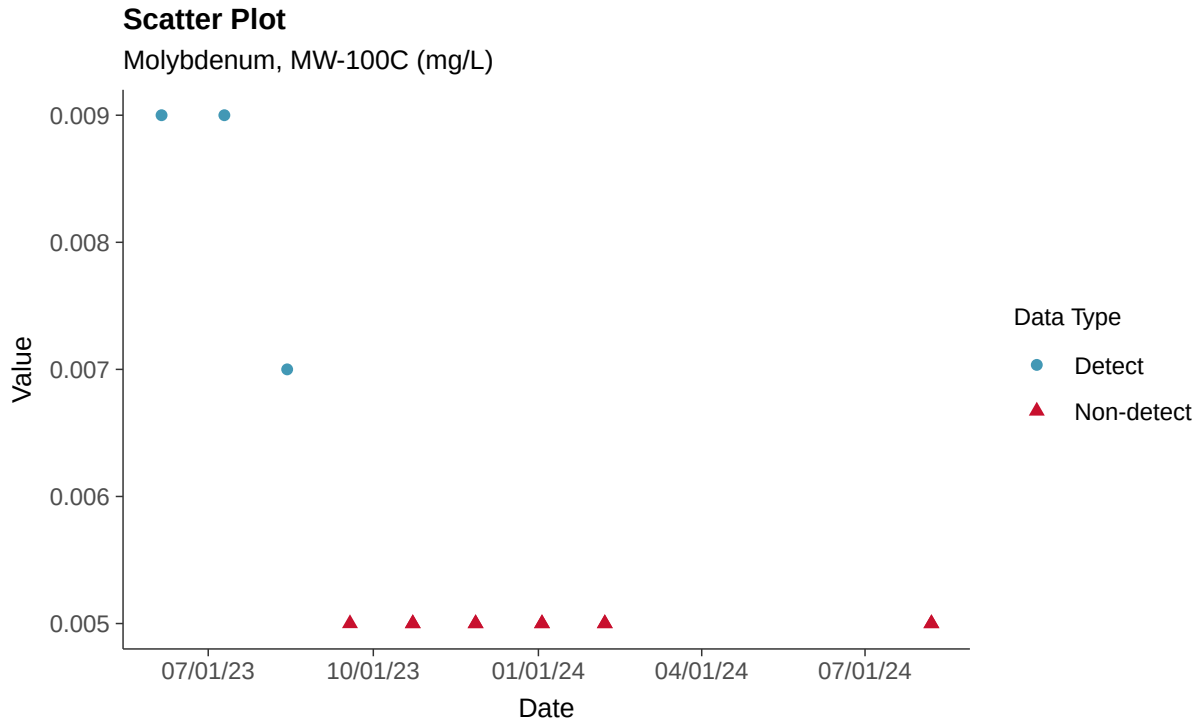
Boxplot by Season

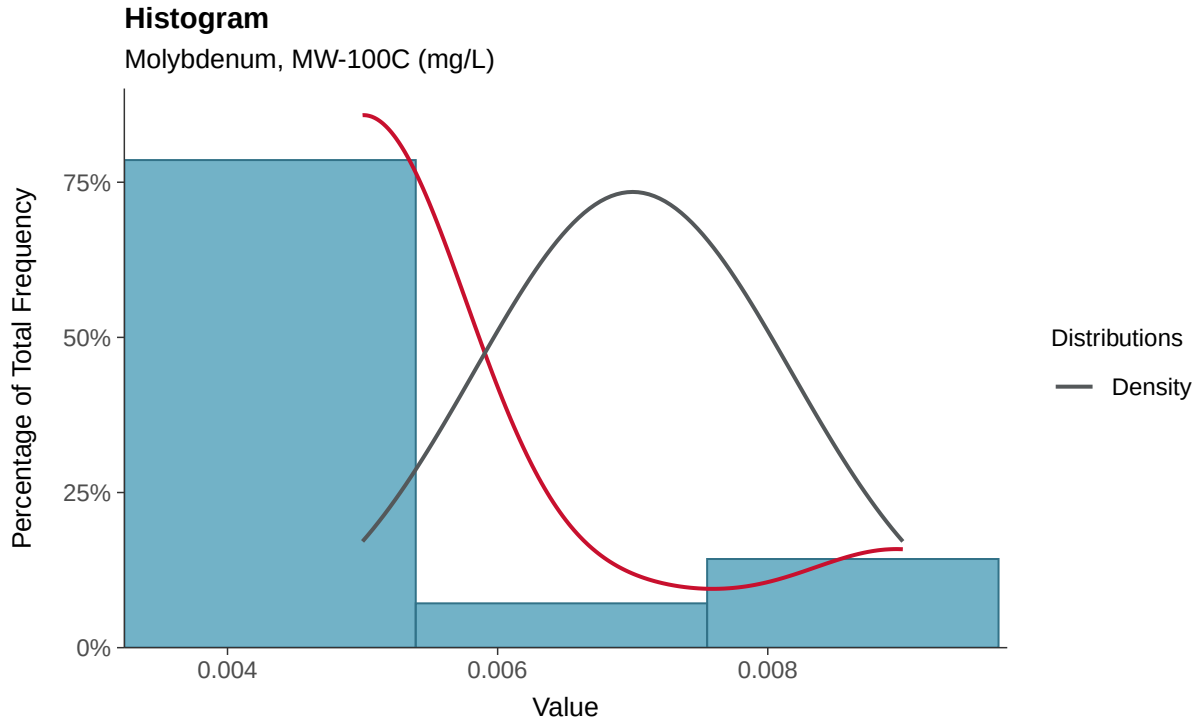
Mercury, MW-100C (mg/L)



Appendix IV: Molybdenum, MW-100C

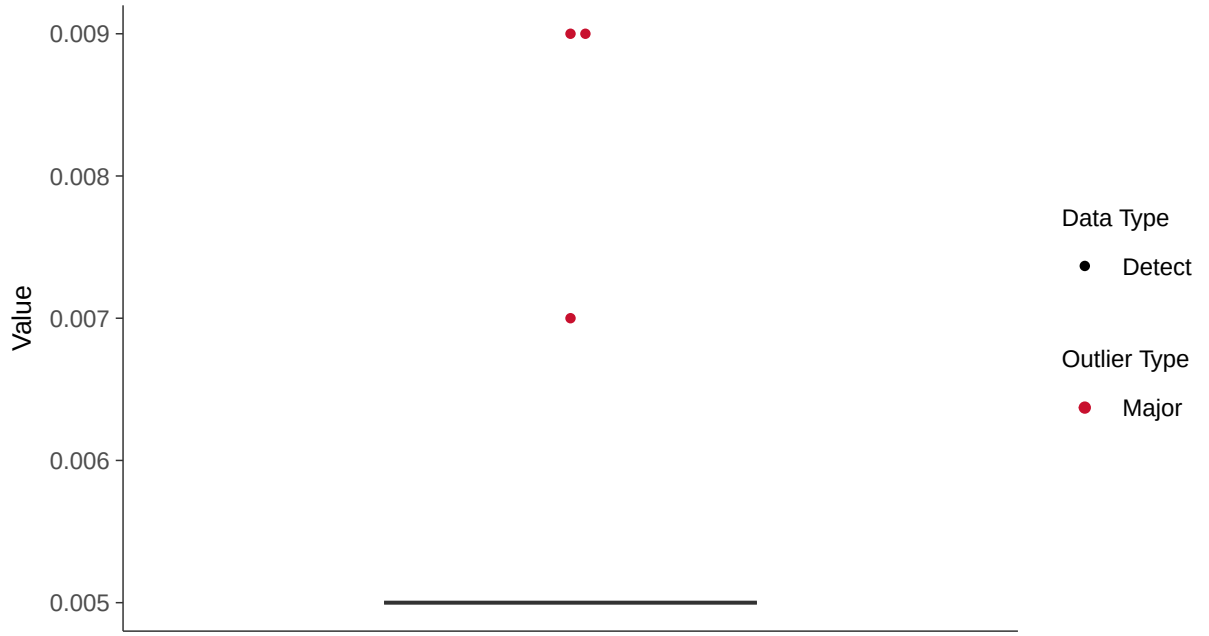
ID: 100C_2_18





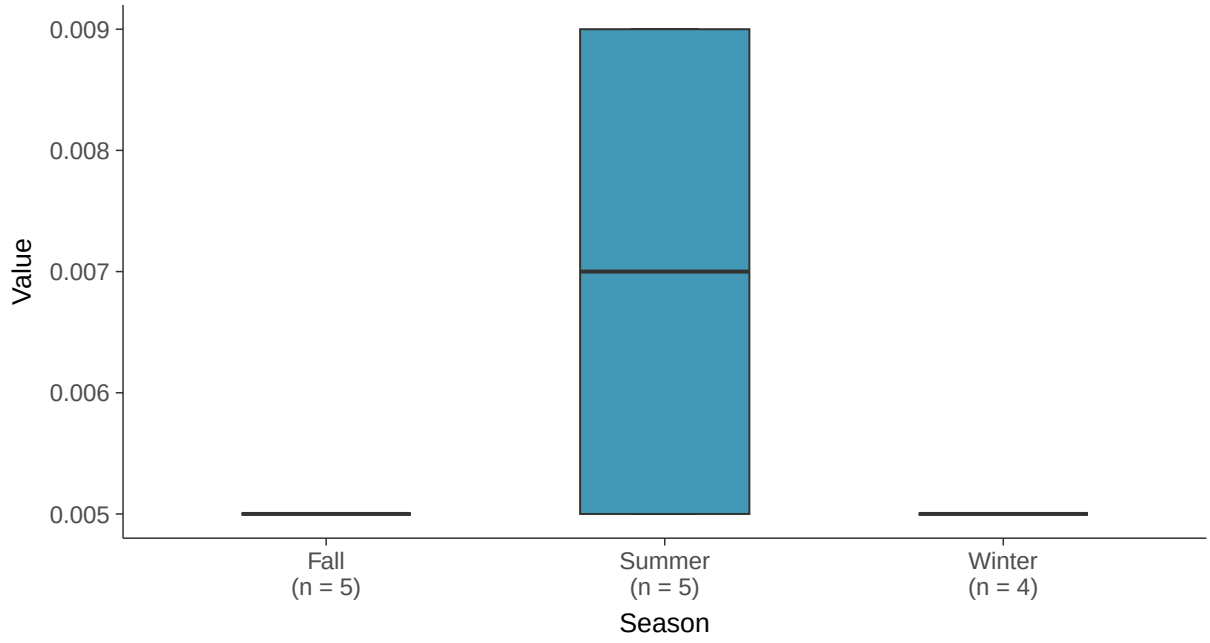
Boxplot

Molybdenum, MW-100C (mg/L)



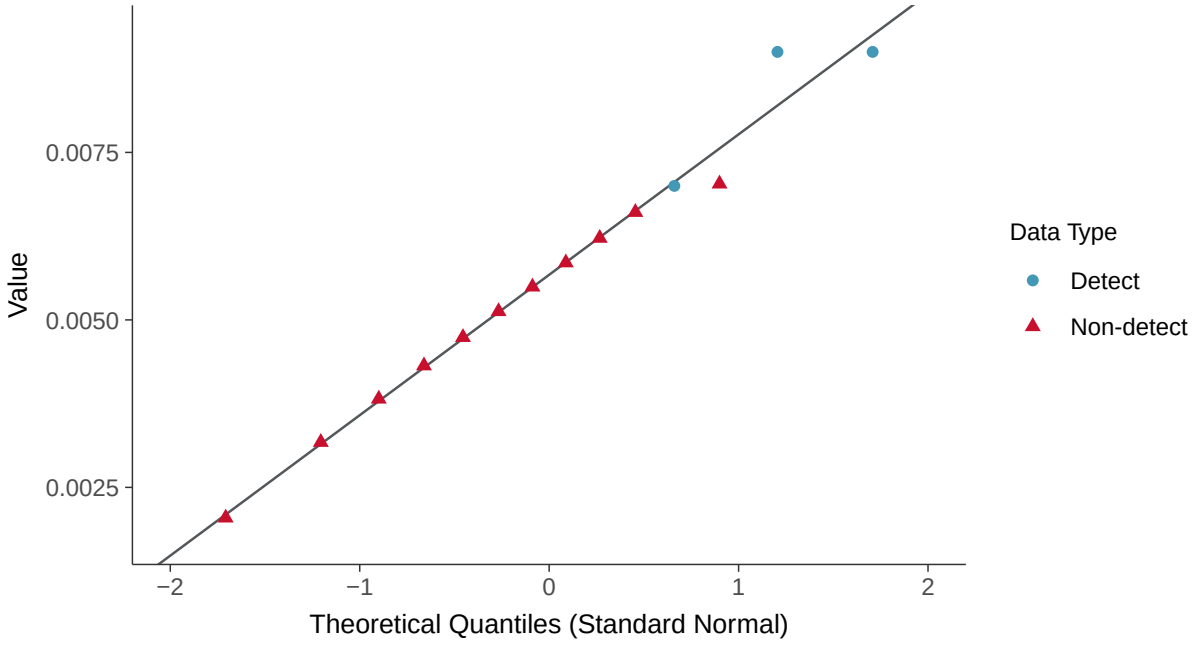
Boxplot by Season

Molybdenum, MW-100C (mg/L)



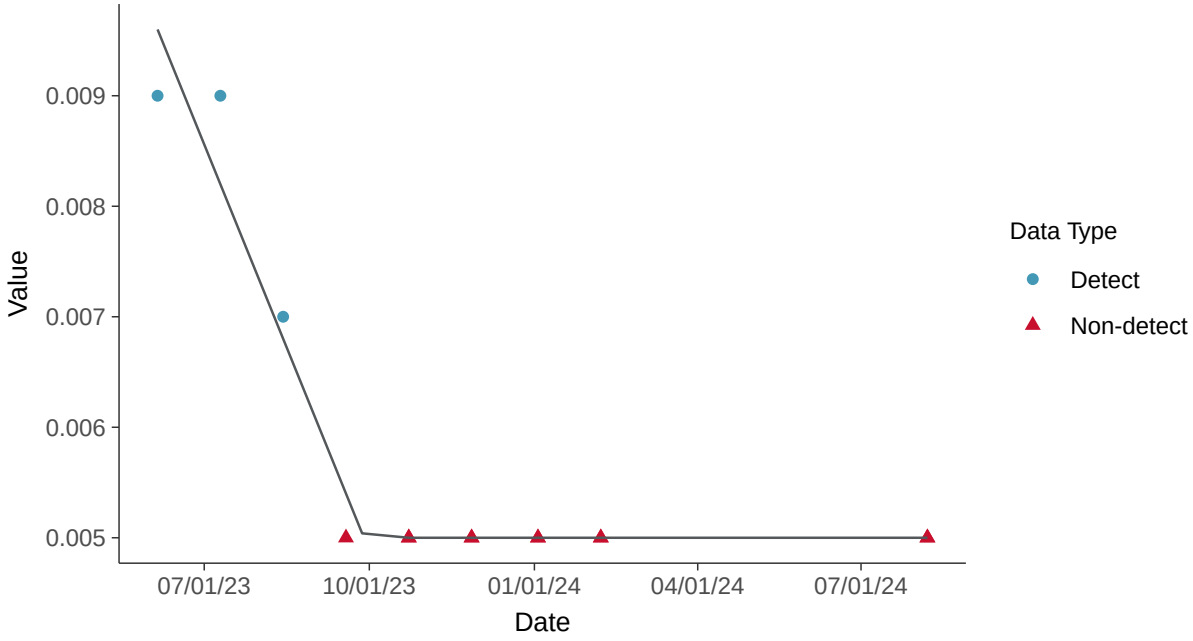
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, MW-100C (mg/L)



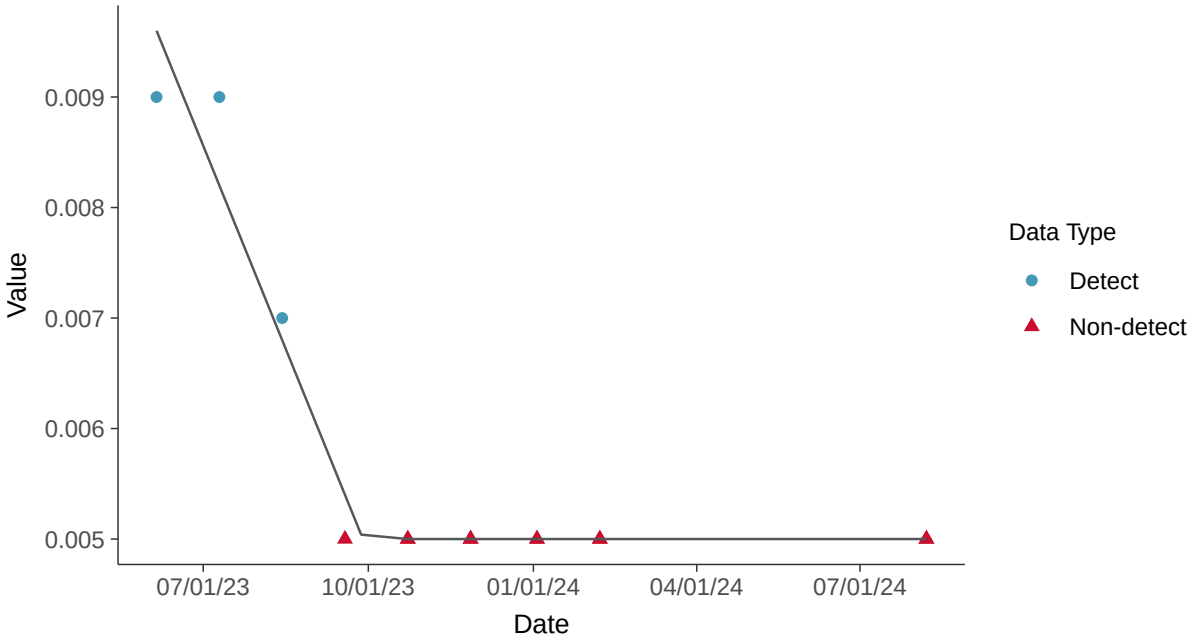
Trend Regression: Piecewise Linear-Linear

Molybdenum, MW-100C (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Molybdenum, MW-100C (mg/L)

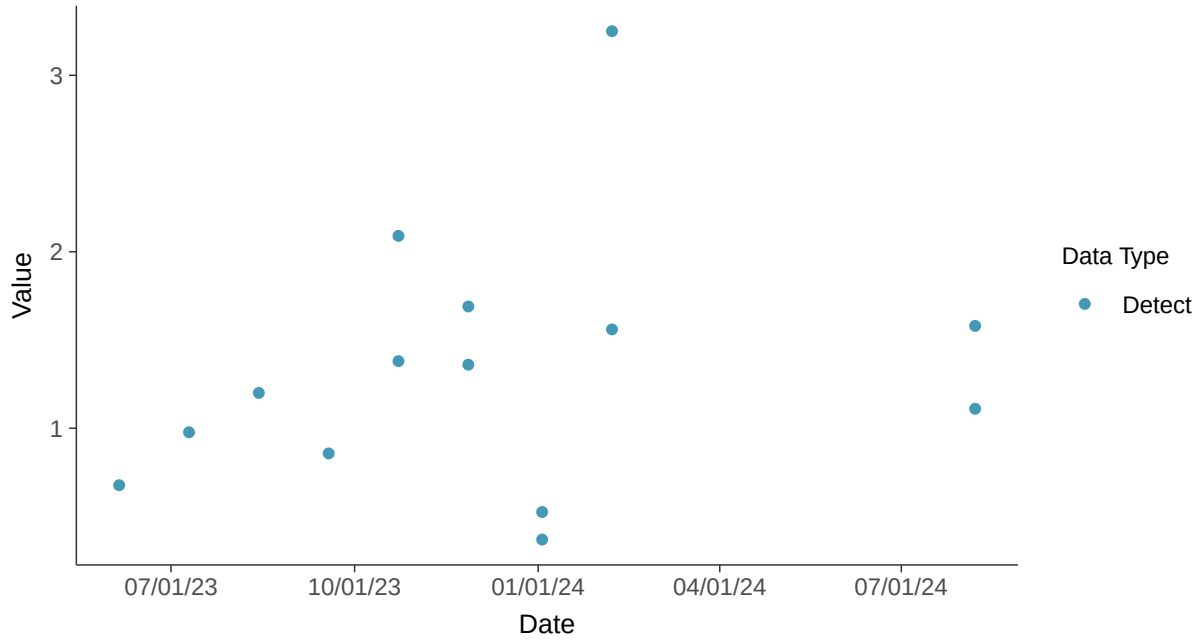


Appendix IV: Radium-226/228, MW-100C

ID: 100C_2_21

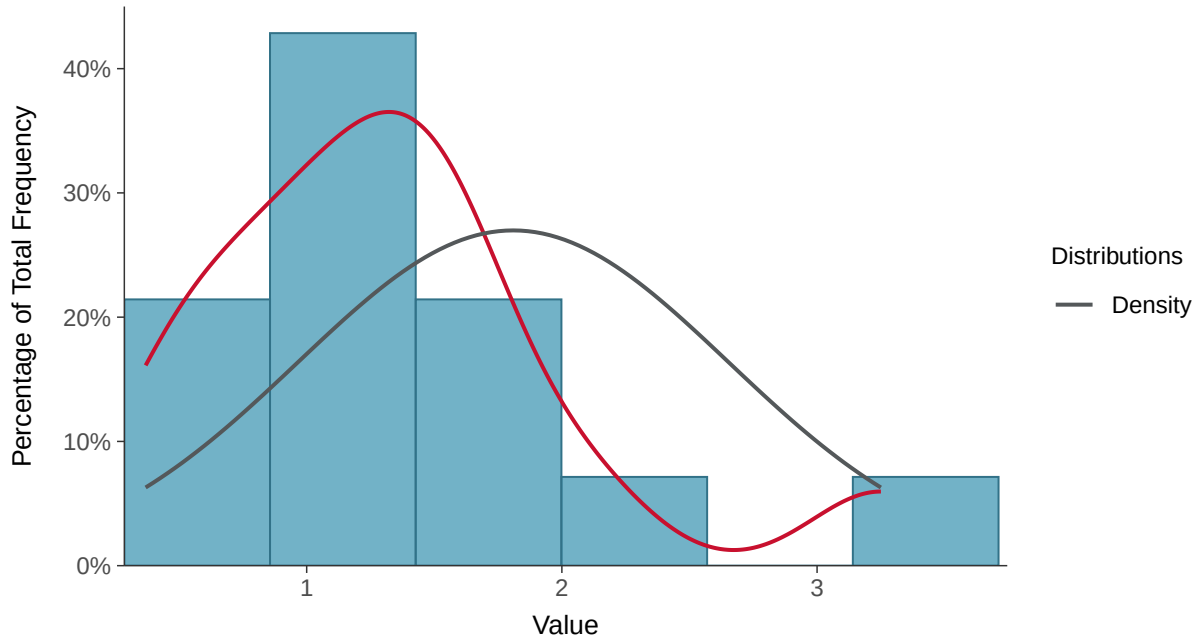
Scatter Plot

Radium-226/228, MW-100C (pCi/L)



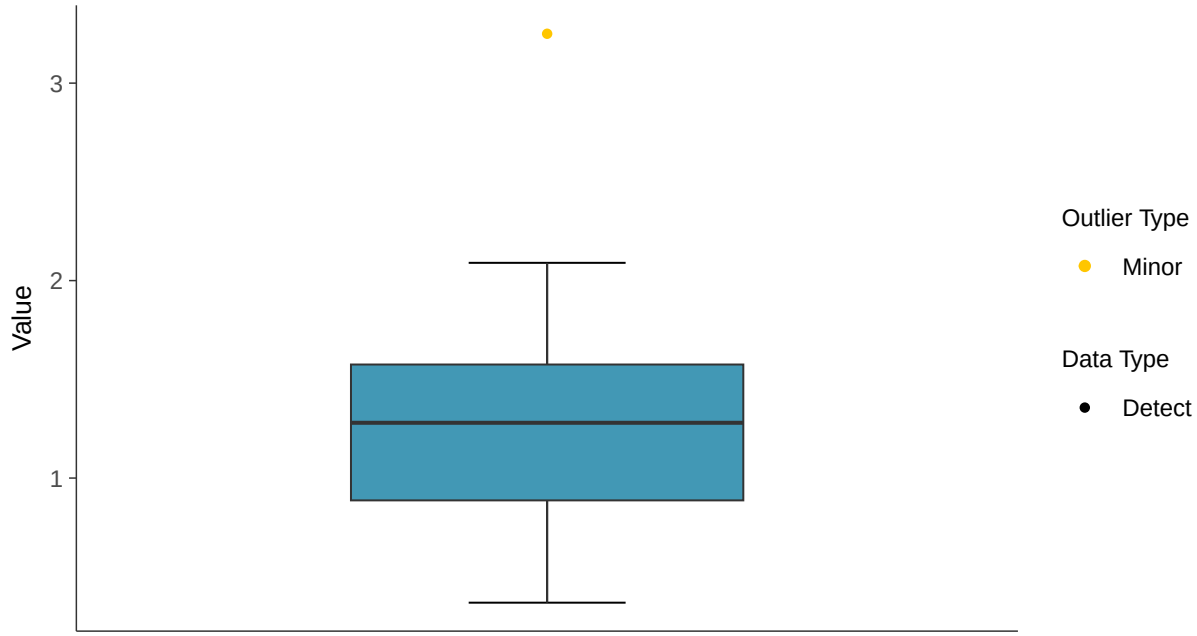
Histogram

Radium-226/228, MW-100C (pCi/L)



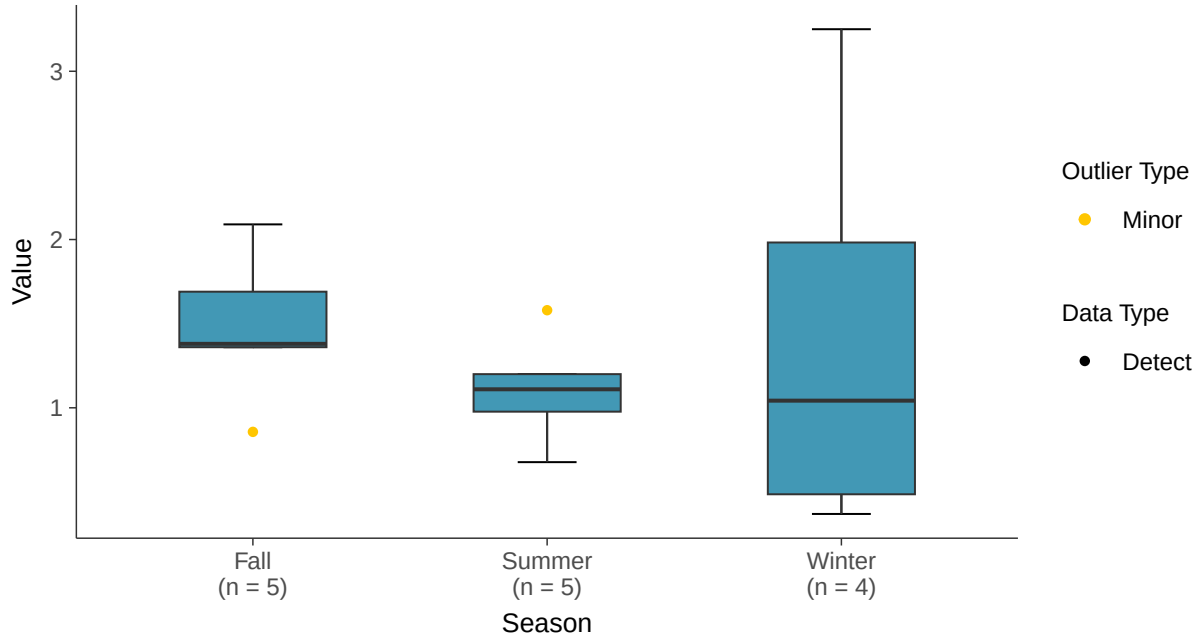
Boxplot

Radium-226/228, MW-100C (pCi/L)



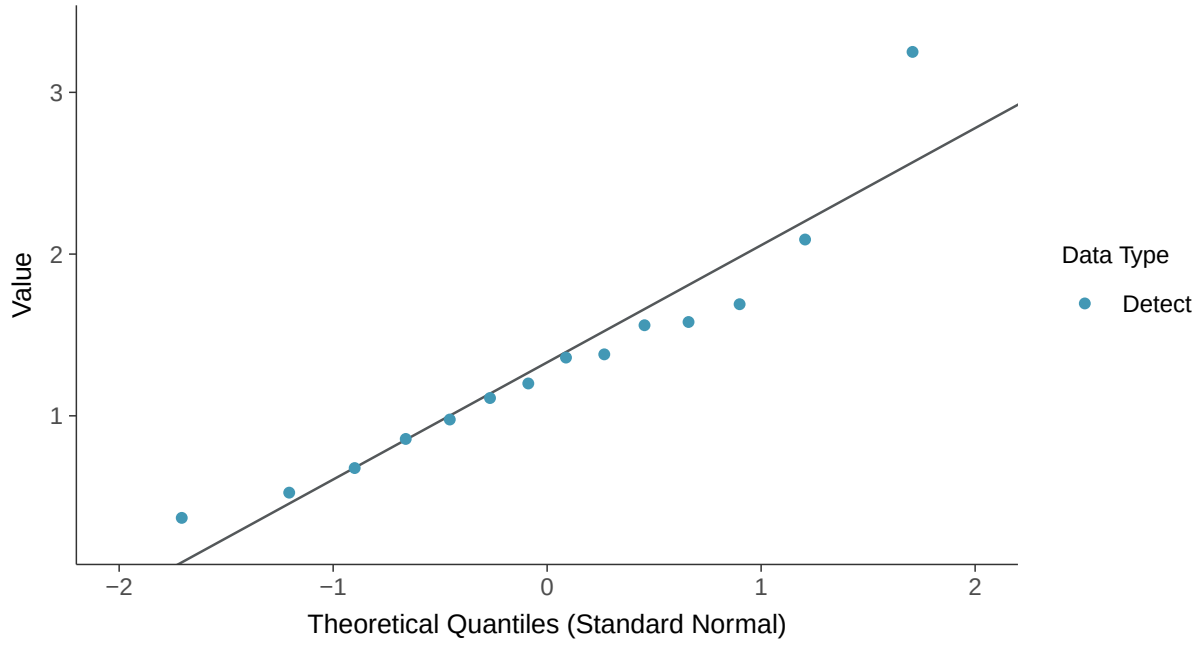
Boxplot by Season

Radium-226/228, MW-100C (pCi/L)



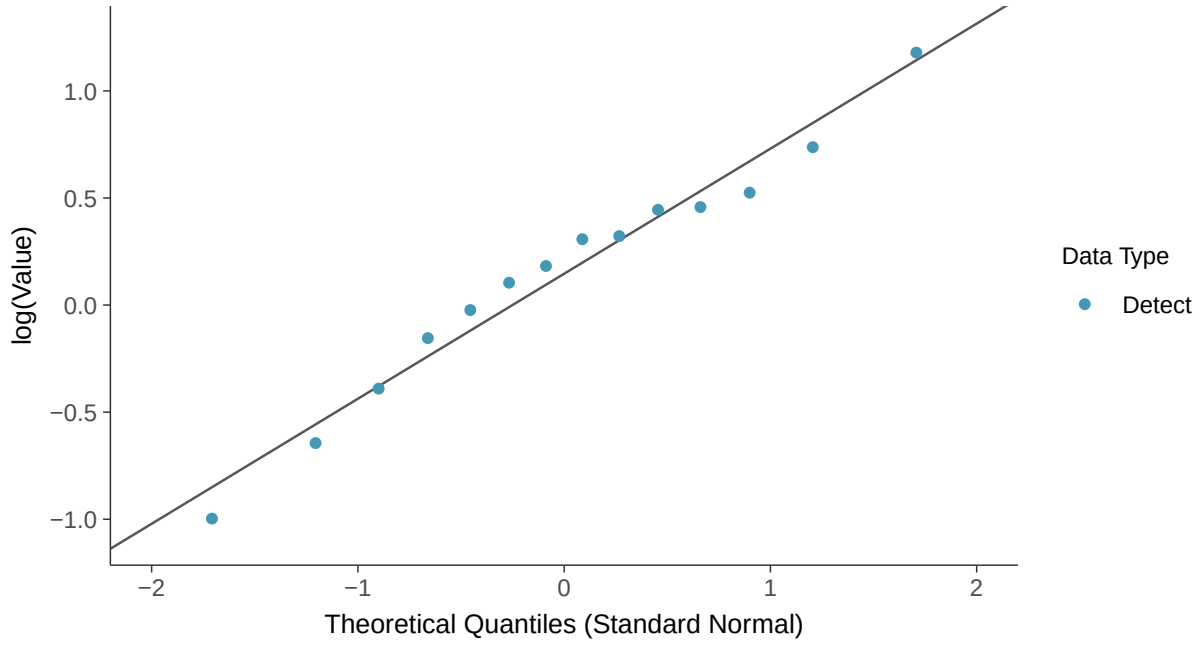
Normal Q-Q plot

Radium-226/228, MW-100C (pCi/L)



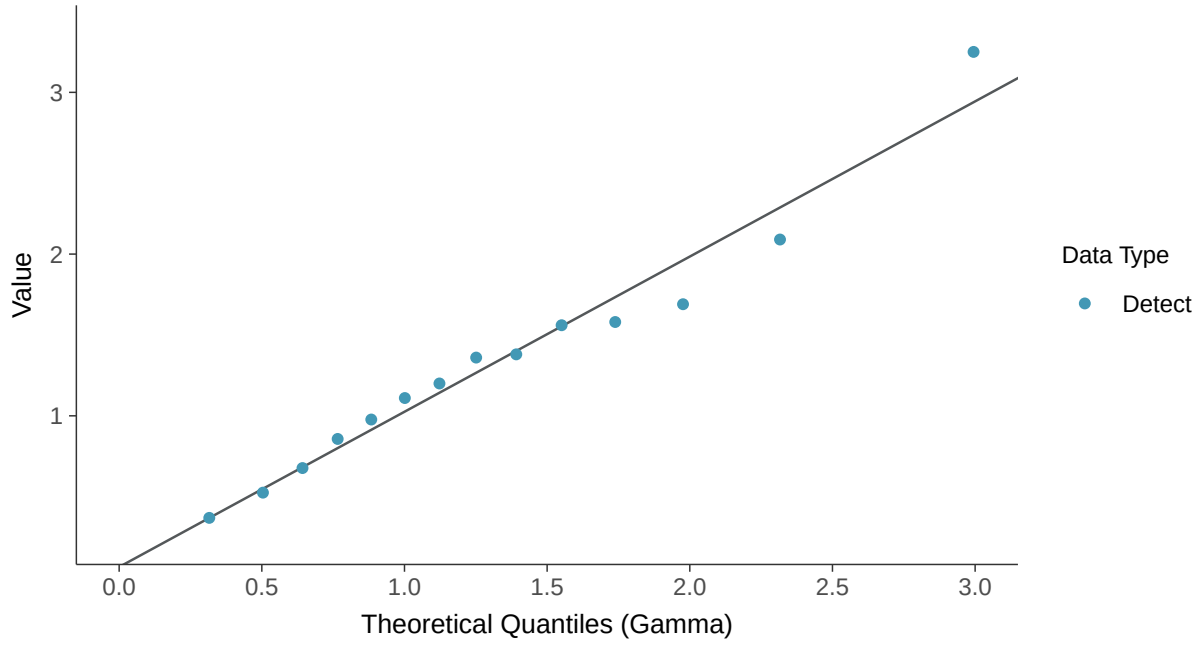
Lognormal Q-Q plot

Radium-226/228, MW-100C (pCi/L)



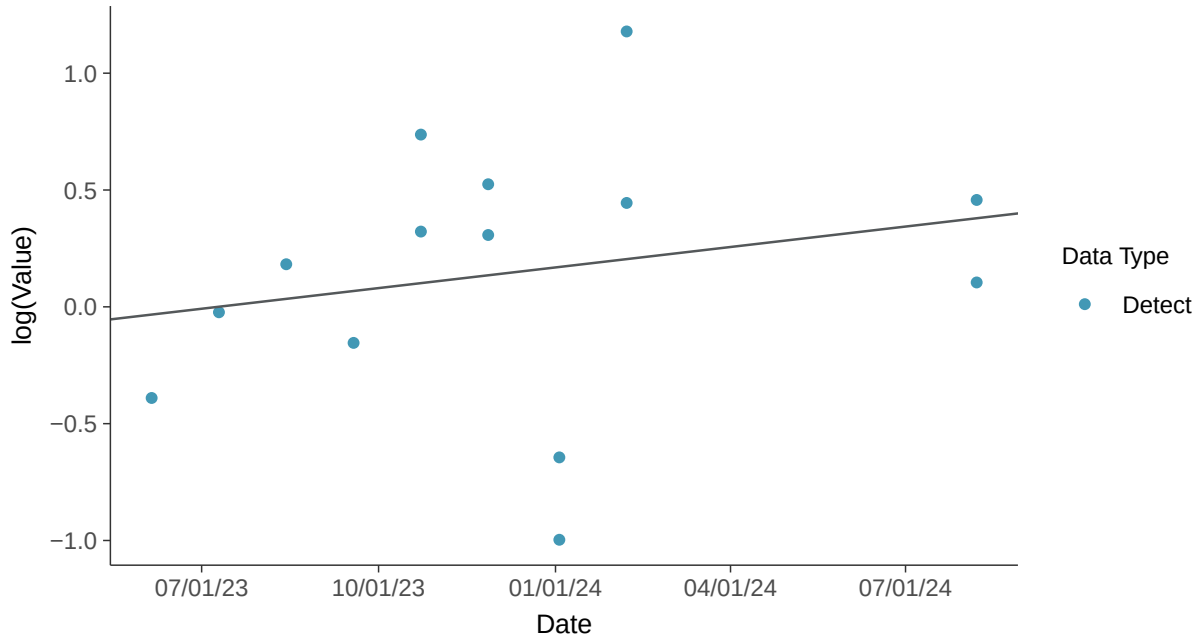
Gamma Q-Q plot

Radium-226/228, MW-100C (pCi/L)



Trend Regression: Lognormal MLE

Radium-226/228, MW-100C (pCi/L)

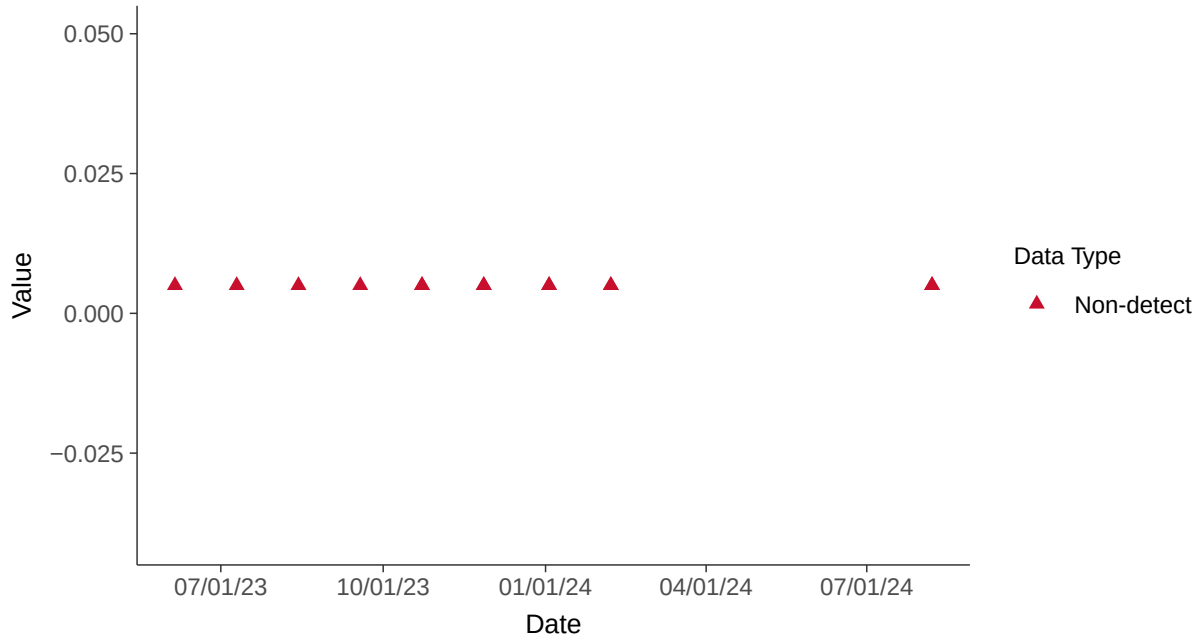


Appendix IV: Selenium, MW-100C

ID: 100C_2_22

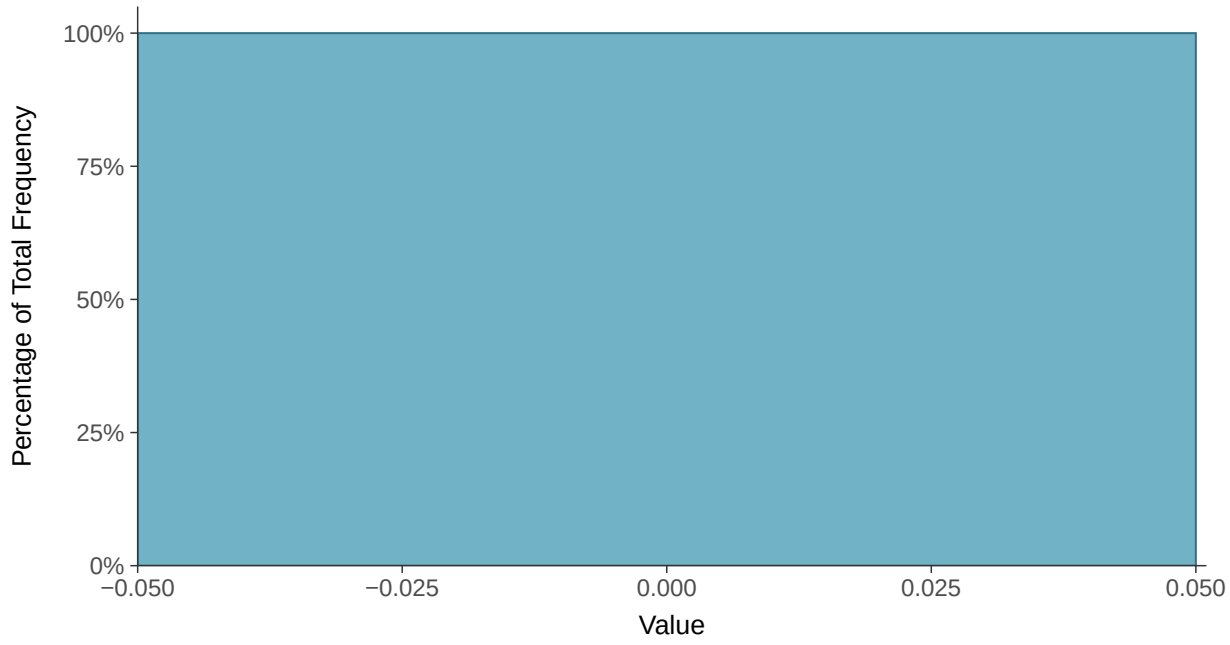
Scatter Plot

Selenium, MW-100C (mg/L)



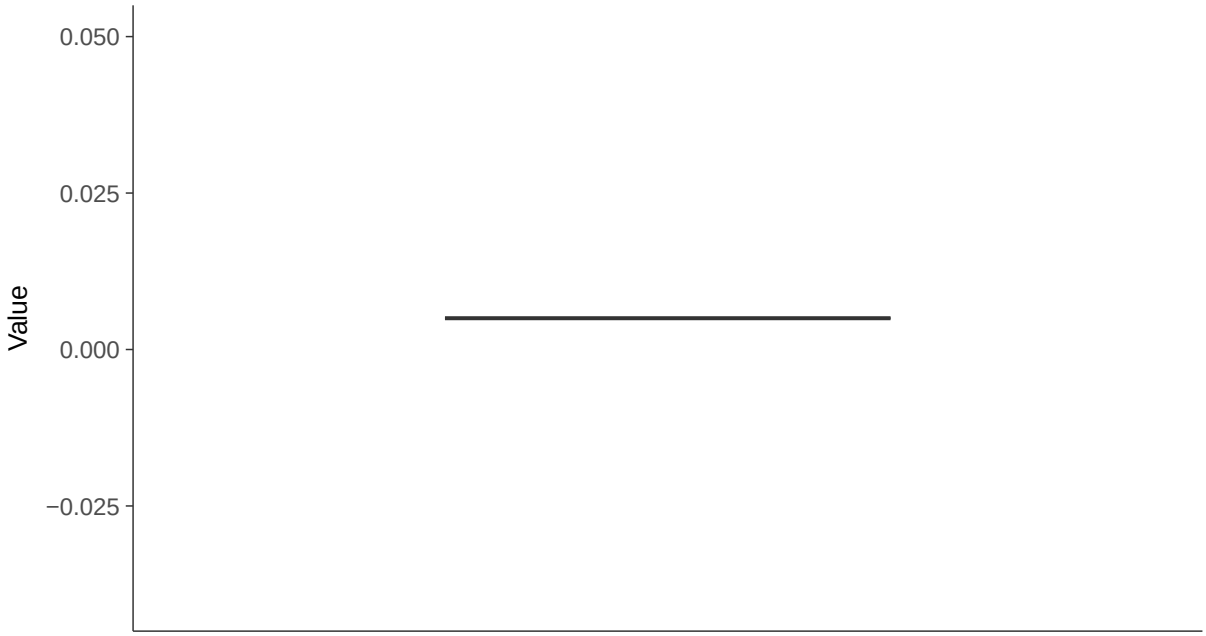
Histogram

Selenium, MW-100C (mg/L)



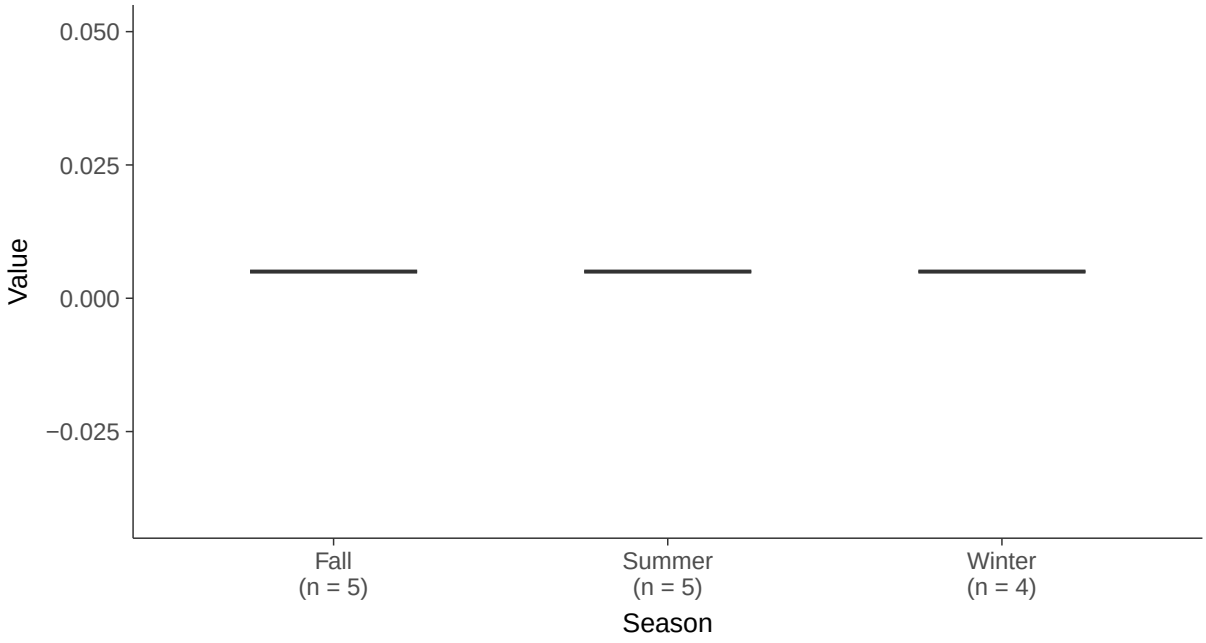
Boxplot

Selenium, MW-100C (mg/L)



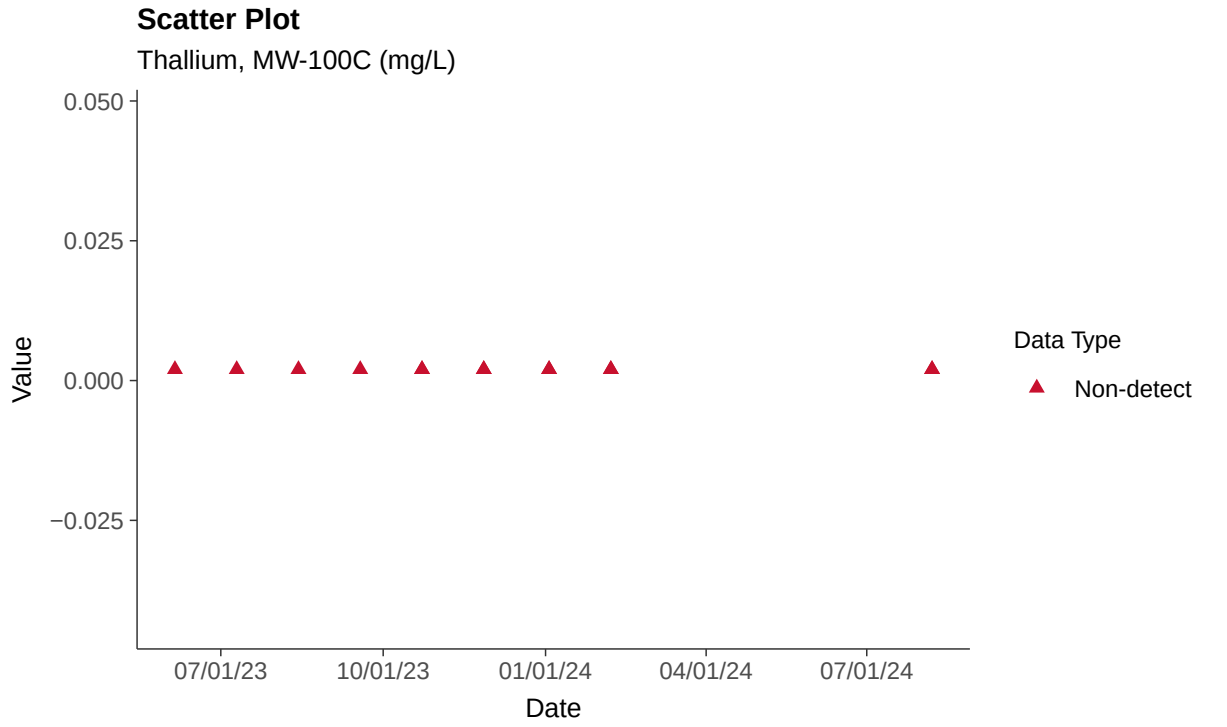
Boxplot by Season

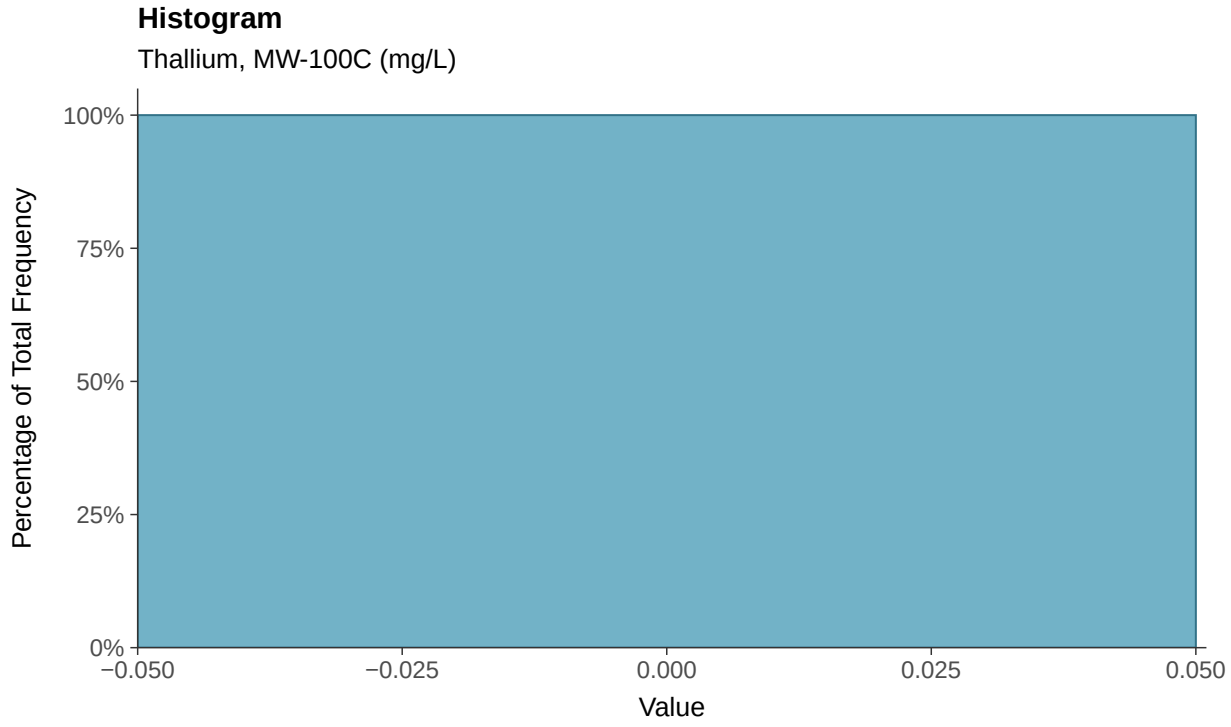
Selenium, MW-100C (mg/L)



Appendix IV: Thallium, MW-100C

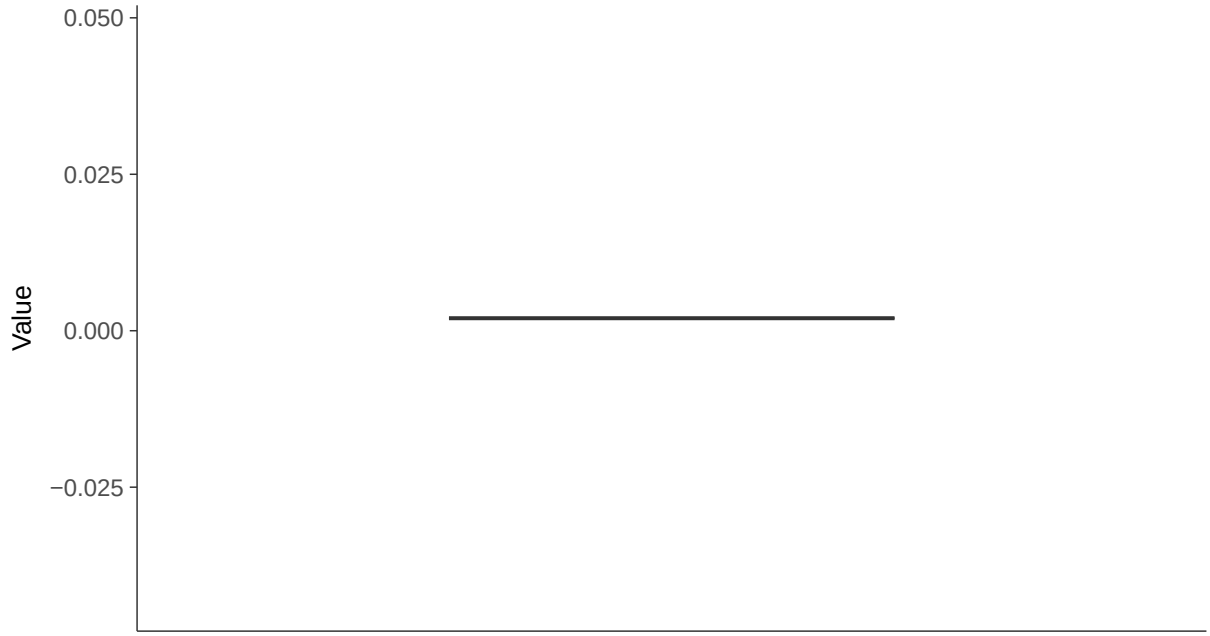
ID: 100C_2_23





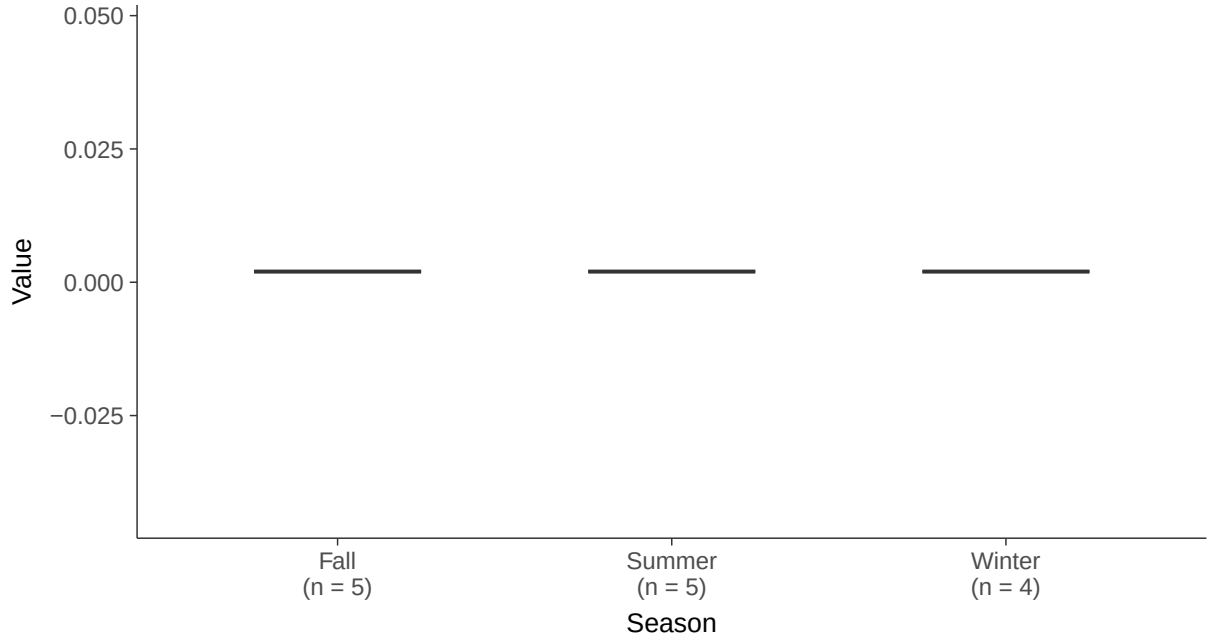
Boxplot

Thallium, MW-100C (mg/L)



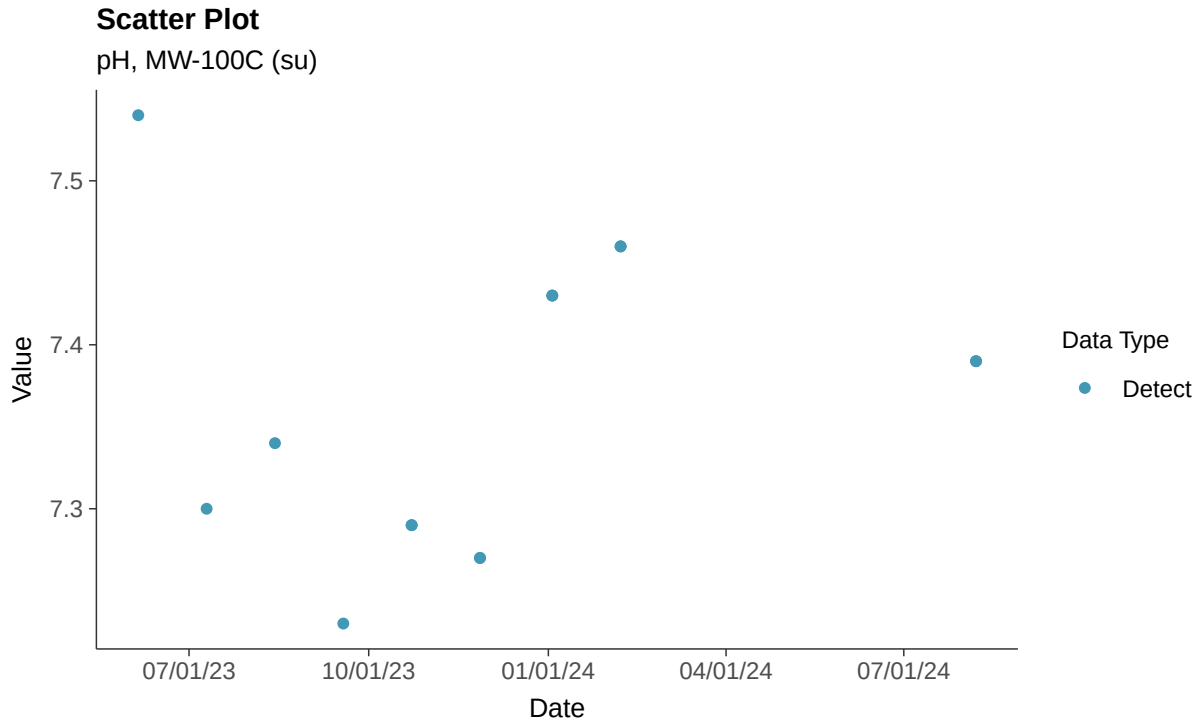
Boxplot by Season

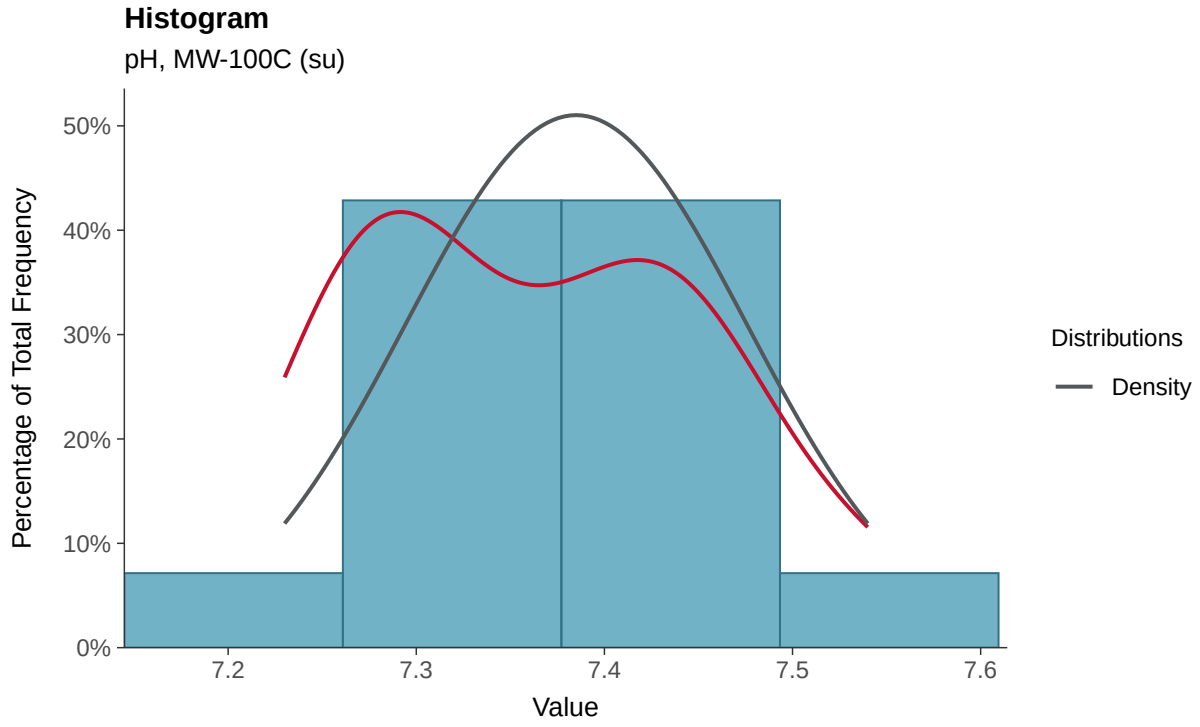
Thallium, MW-100C (mg/L)



Field Parameters: pH, MW-100C

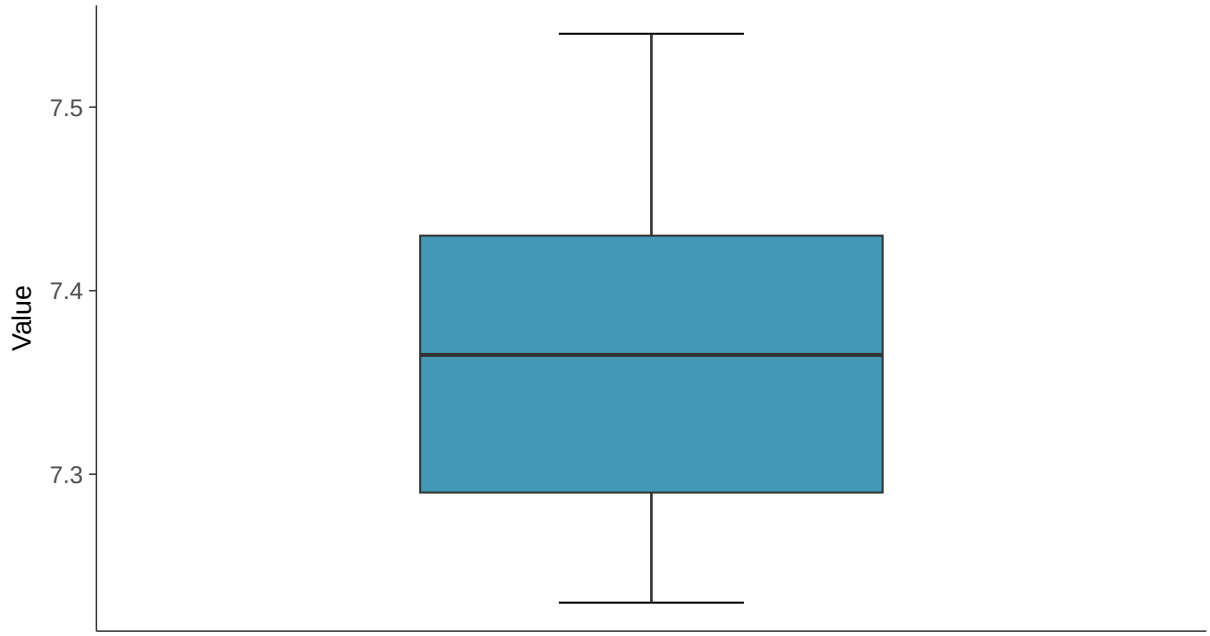
ID: 100C_3_24





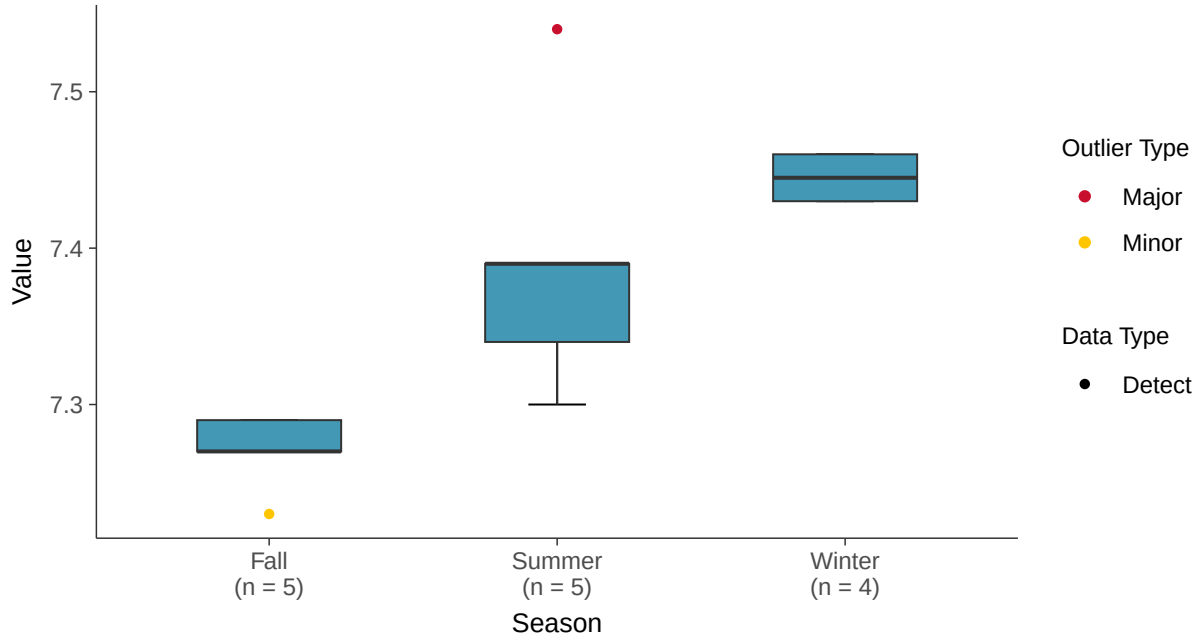
Boxplot

pH, MW-100C (su)



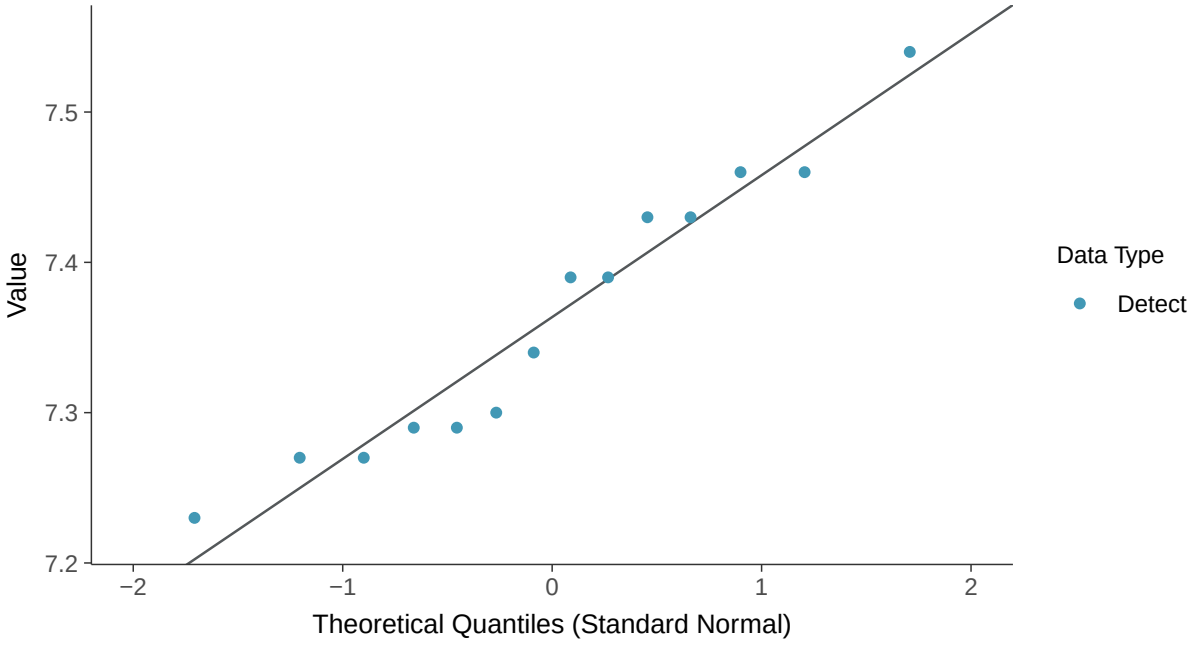
Boxplot by Season

pH, MW-100C (su)



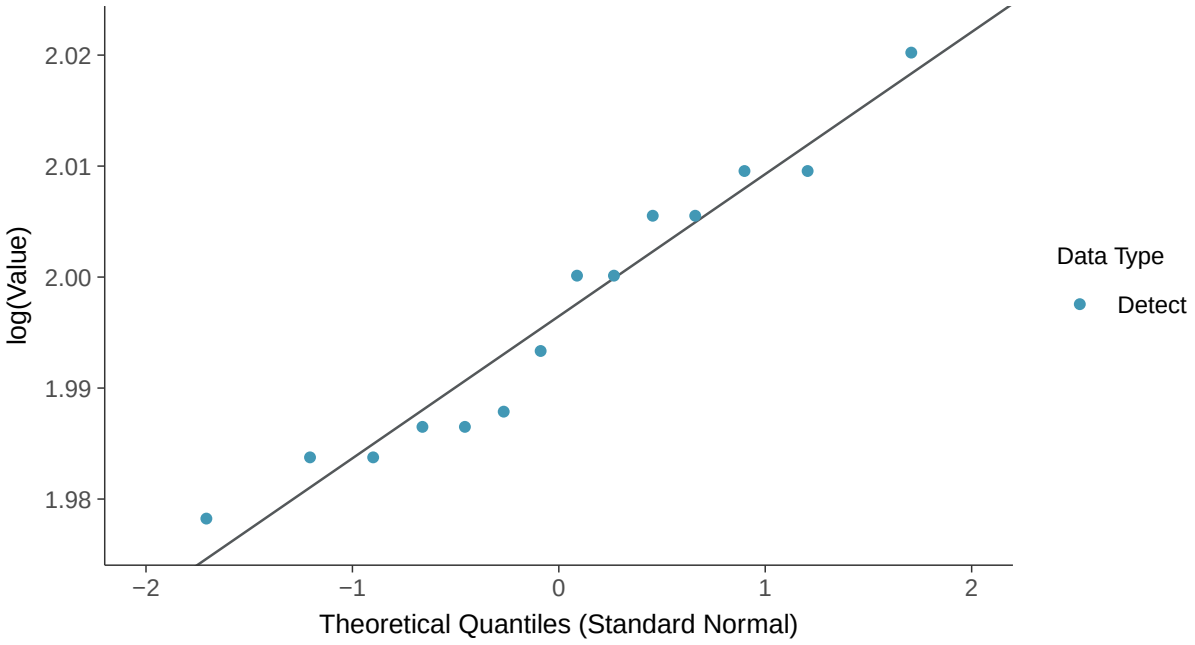
Normal Q-Q plot

pH, MW-100C (su)



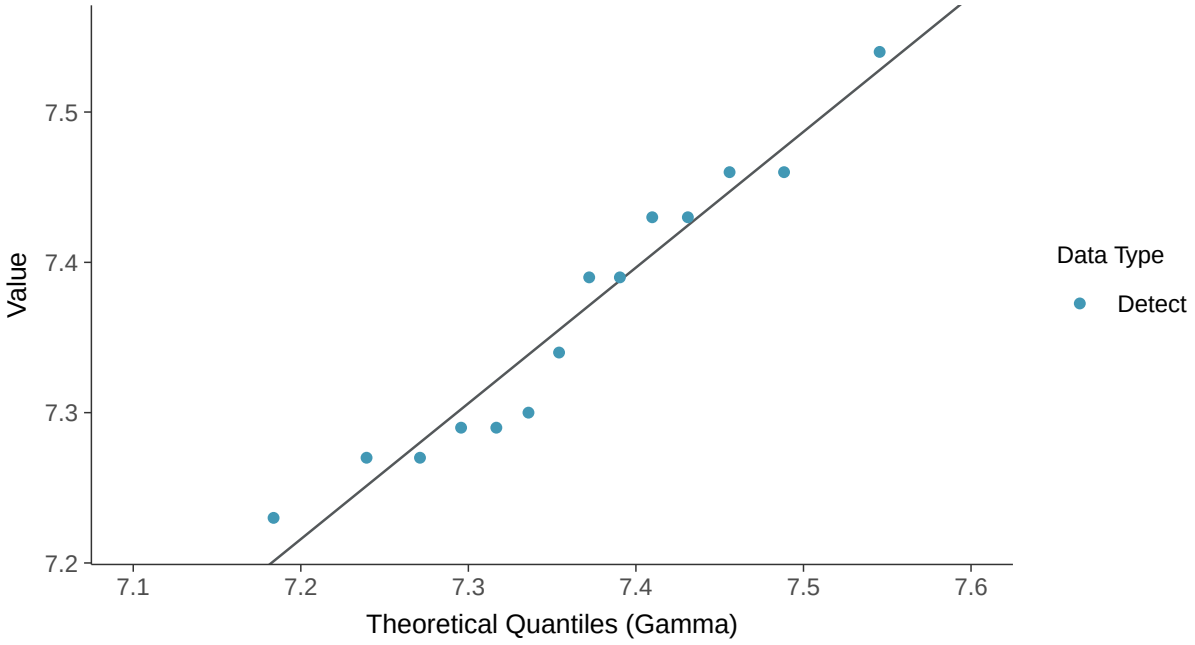
Lognormal Q-Q plot

pH, MW-100C (su)



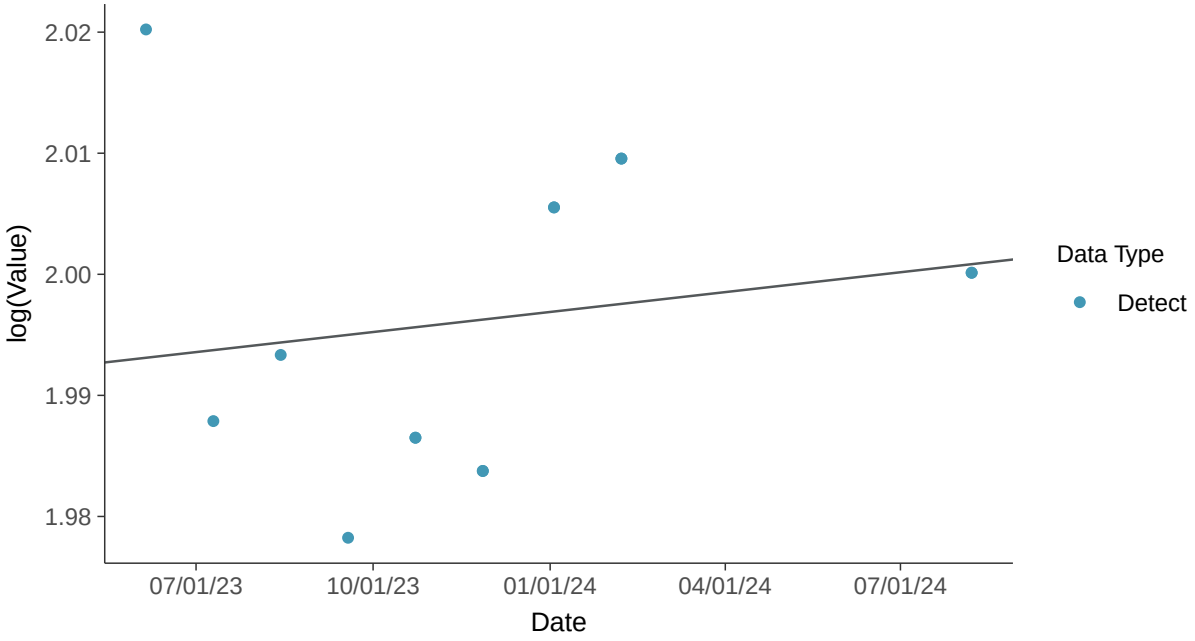
Gamma Q-Q plot

pH, MW-100C (su)



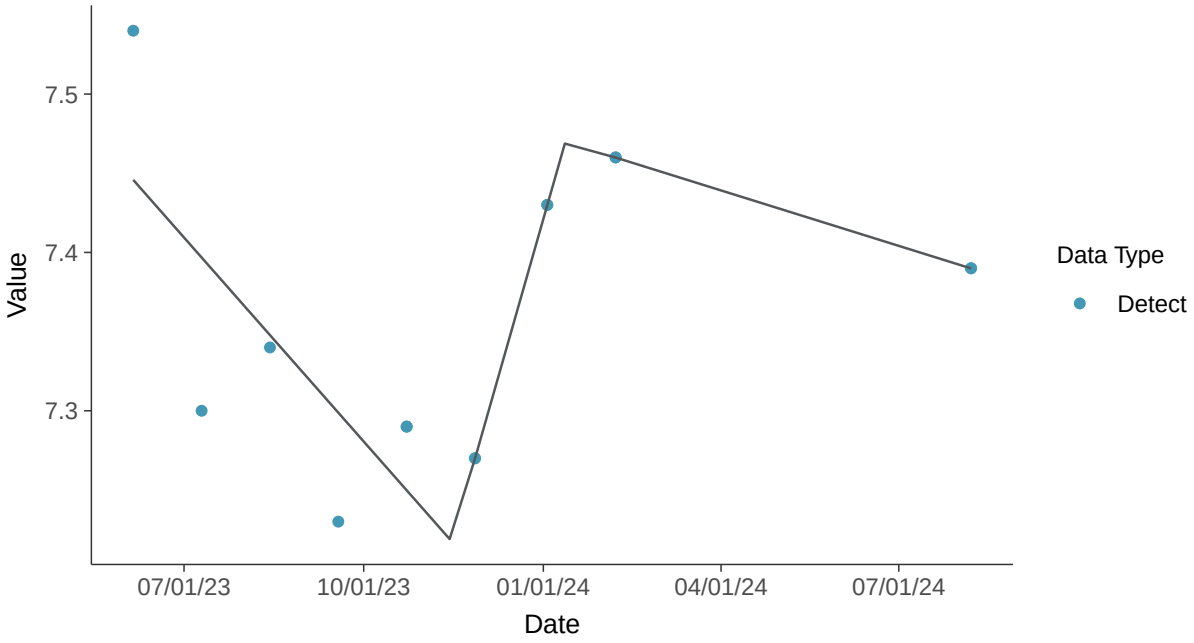
Trend Regression: Lognormal MLE

pH, MW-100C (su)



Trend Regression: Piecewise Linear-Linear-Linear

pH, MW-100C (su)

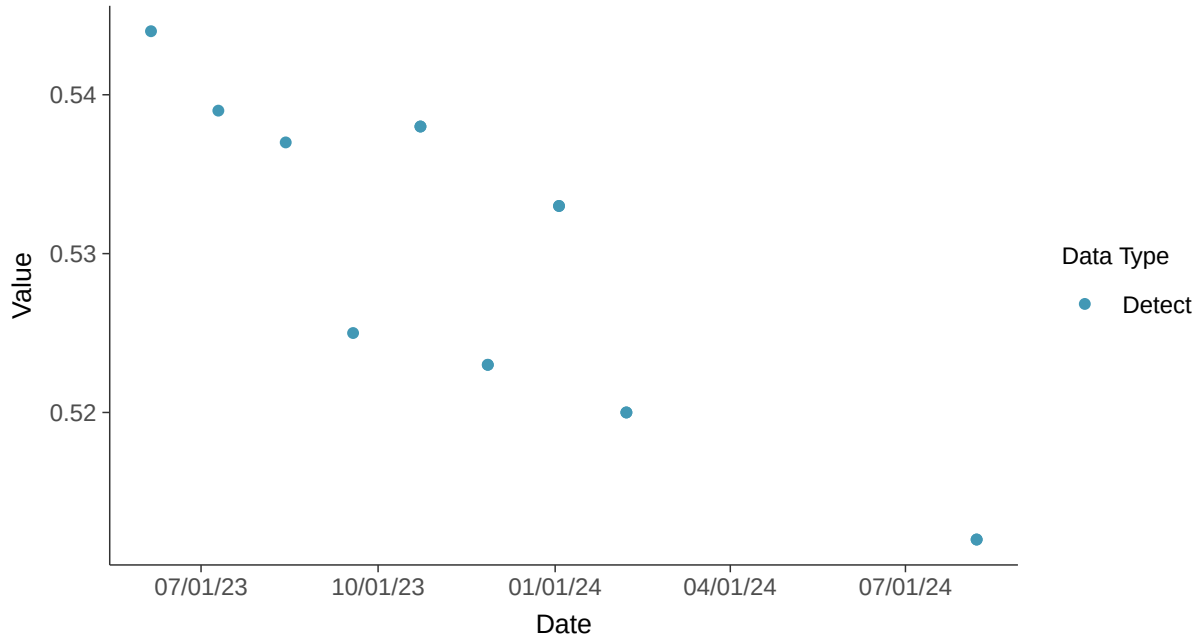


Field Parameters: Conductivity, MW-100C

ID: 100C_3_25

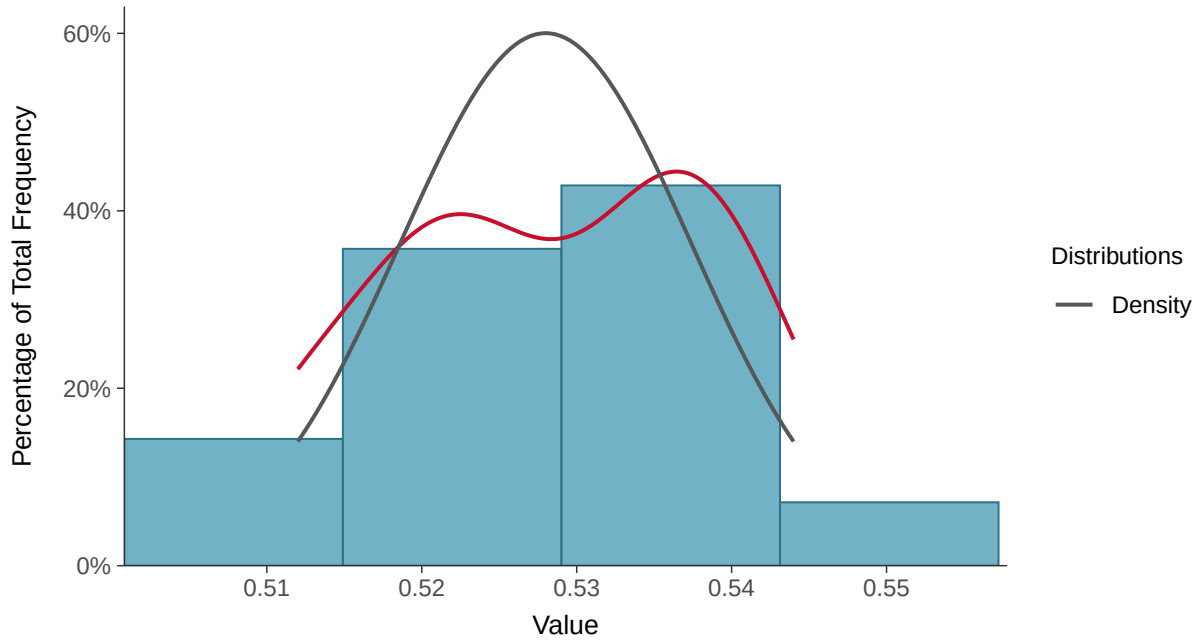
Scatter Plot

Conductivity, MW-100C (mS/cm)



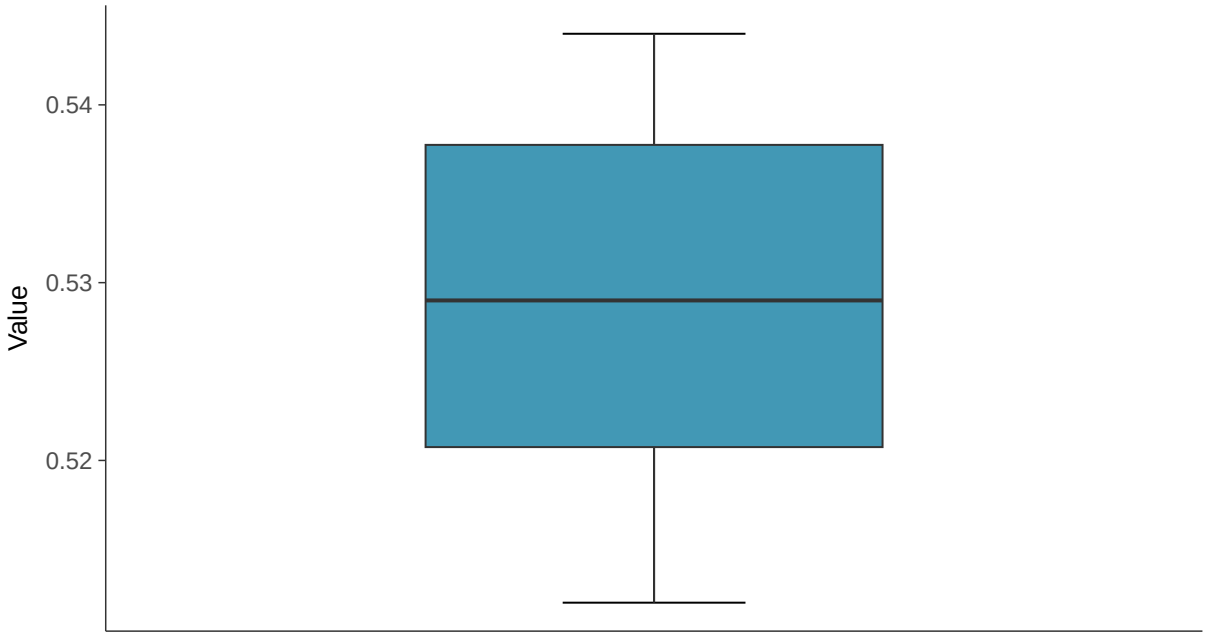
Histogram

Conductivity, MW-100C (mS/cm)



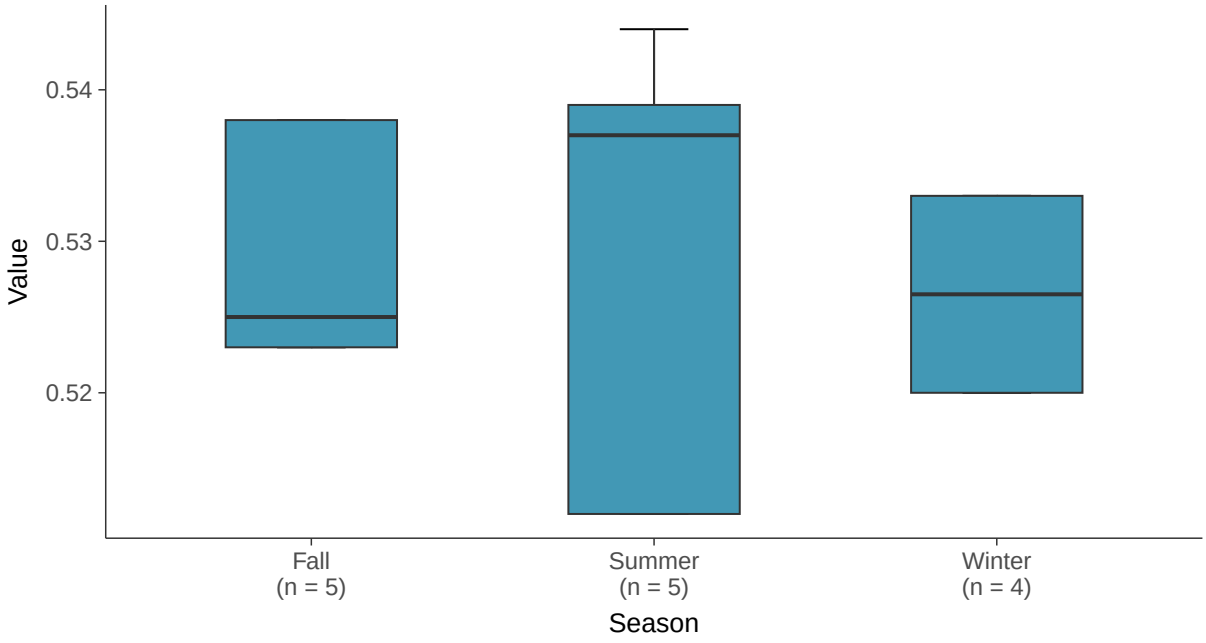
Boxplot

Conductivity, MW-100C (mS/cm)



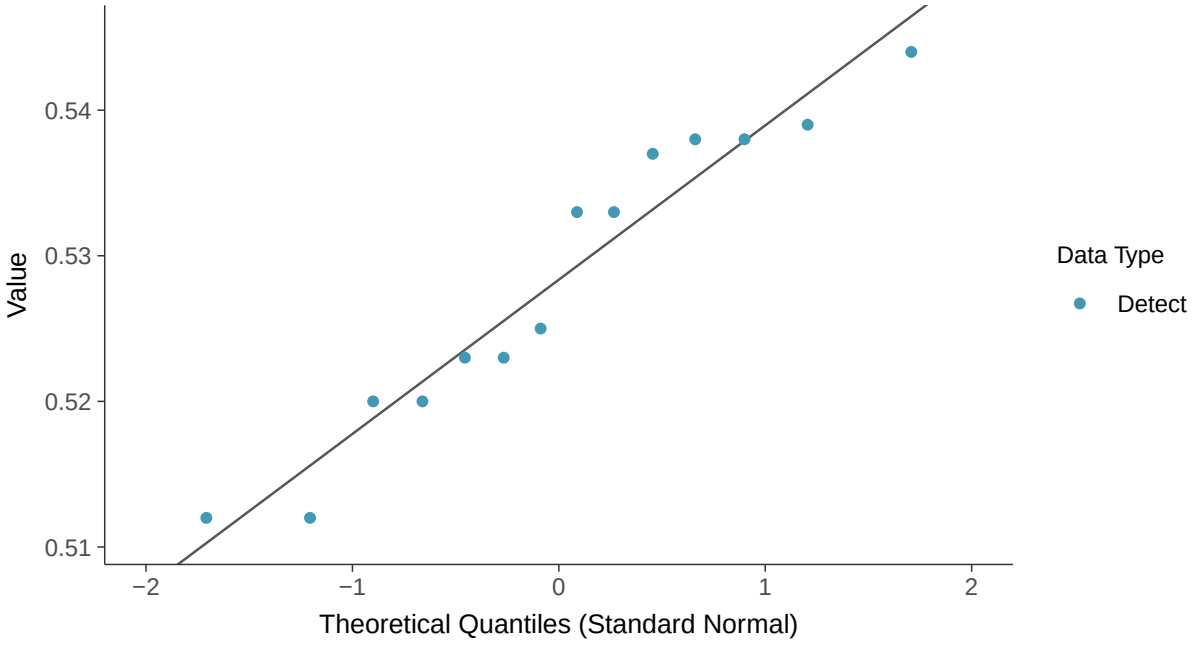
Boxplot by Season

Conductivity, MW-100C (mS/cm)



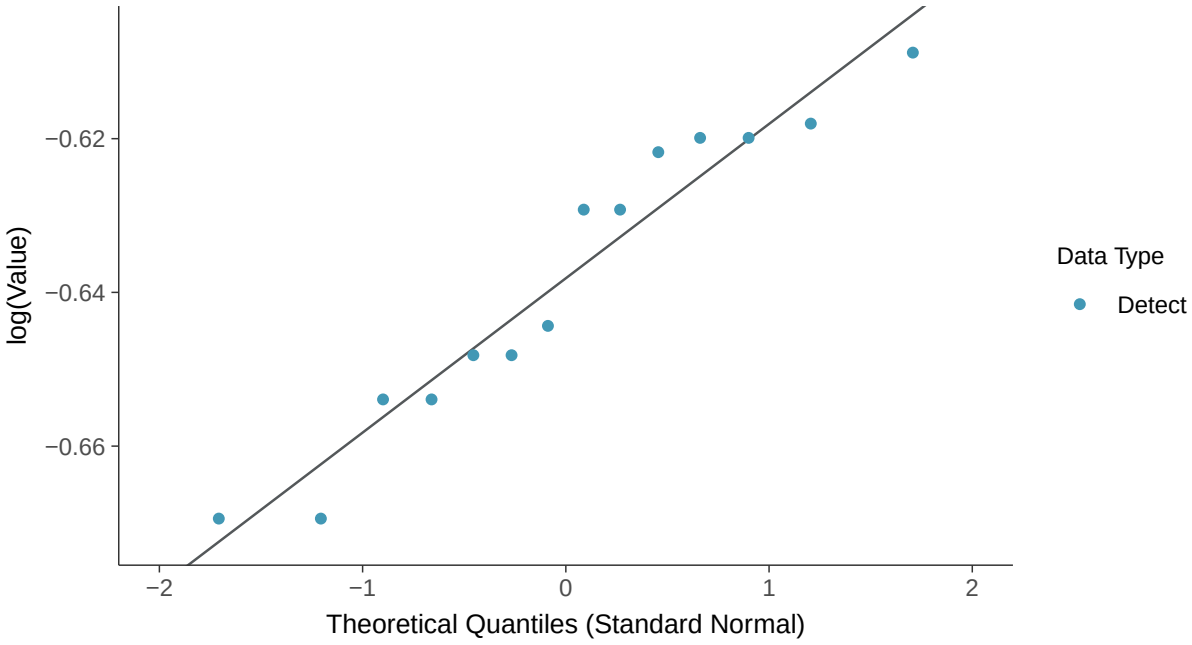
Normal Q-Q plot

Conductivity, MW-100C (mS/cm)



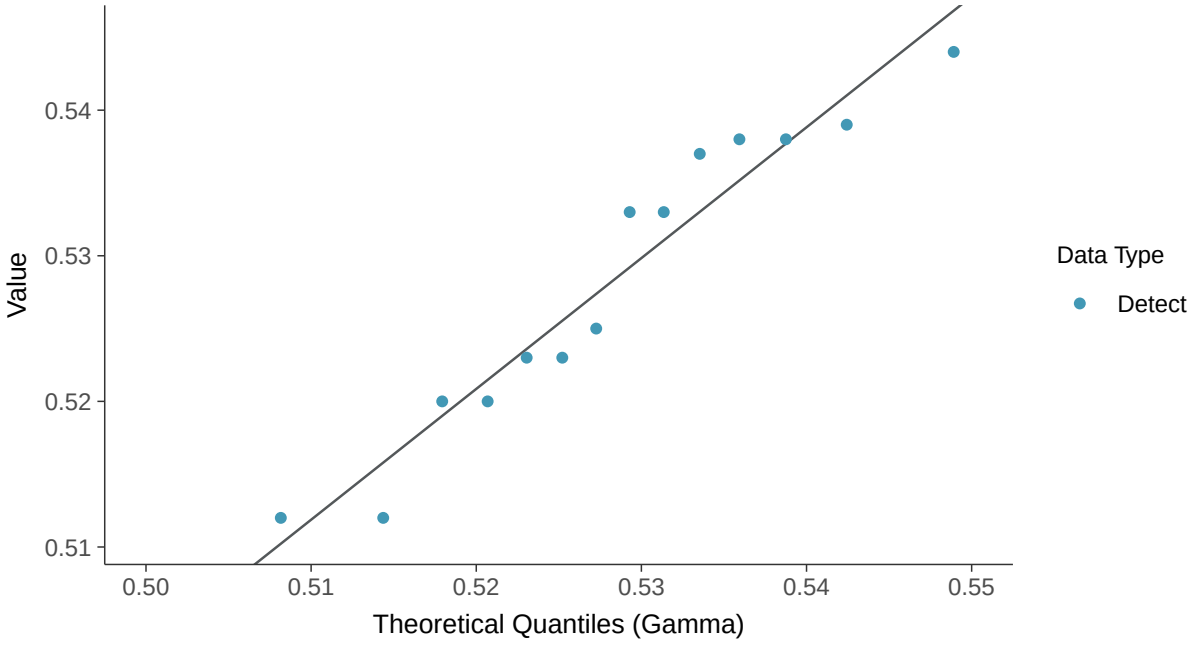
Lognormal Q-Q plot

Conductivity, MW-100C (mS/cm)



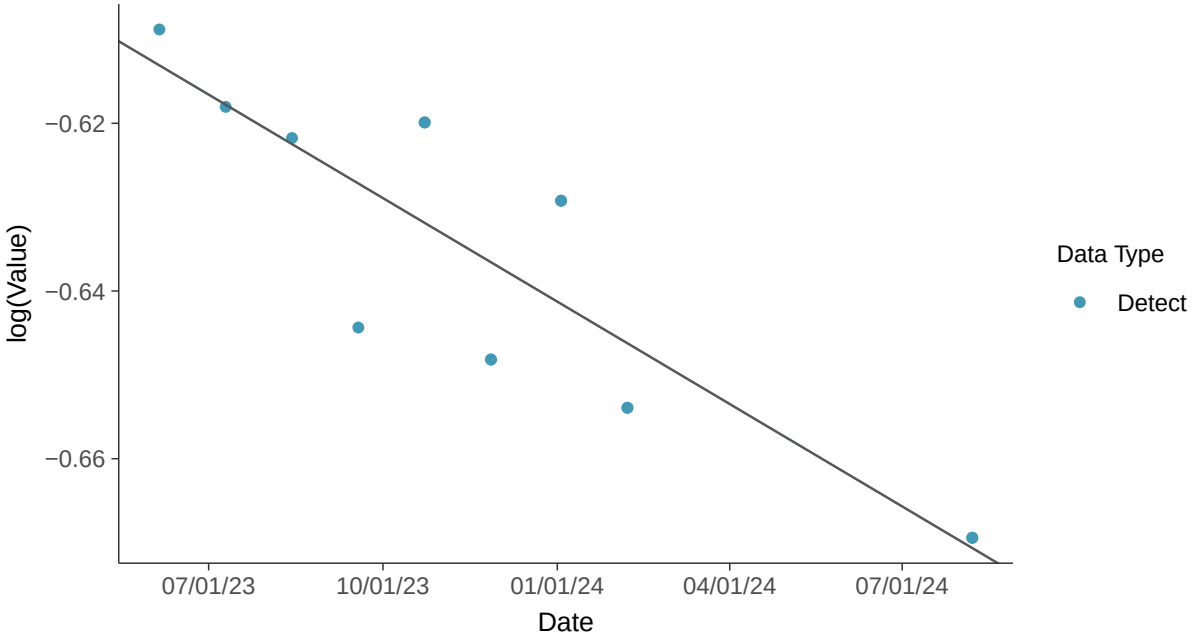
Gamma Q-Q plot

Conductivity, MW-100C (mS/cm)



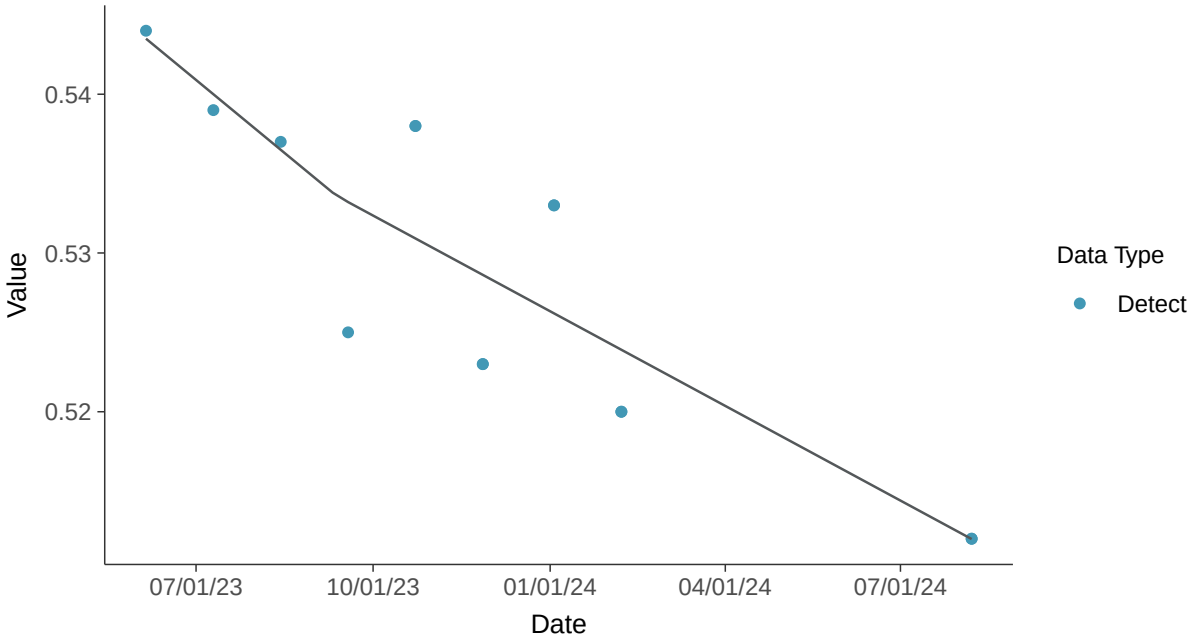
Trend Regression: Lognormal MLE

Conductivity, MW-100C (mS/cm)



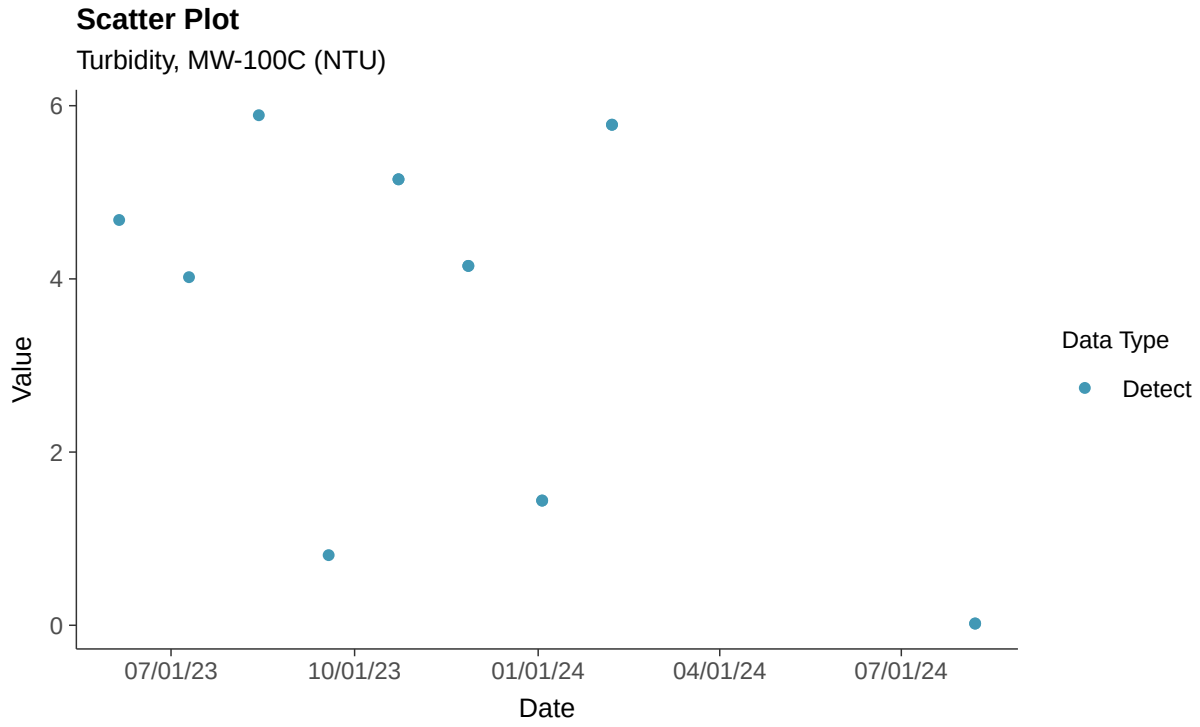
Trend Regression: Piecewise Linear-Linear

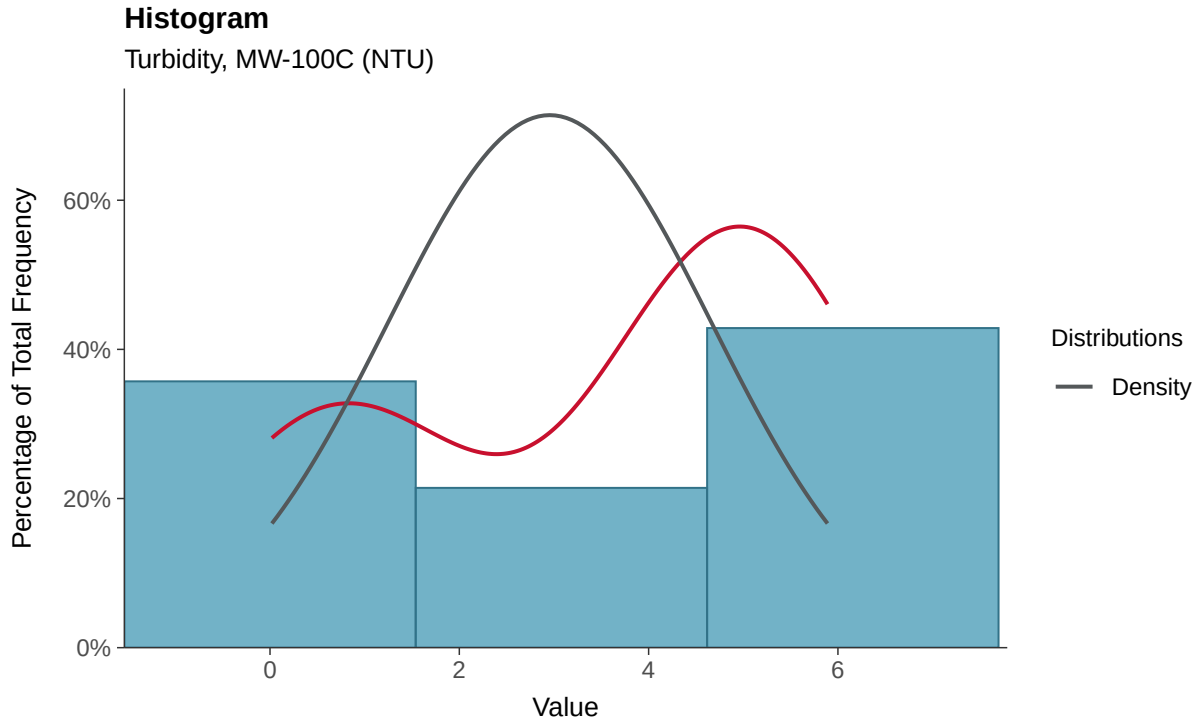
Conductivity, MW-100C (mS/cm)



Field Parameters: Turbidity, MW-100C

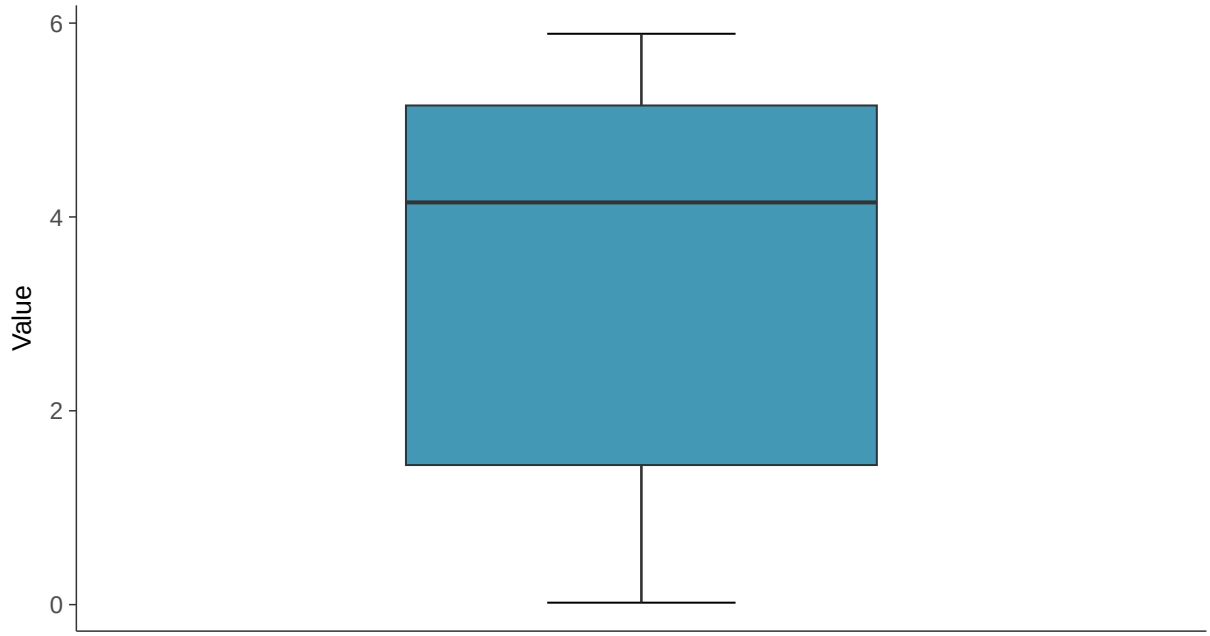
ID: 100C_3_26





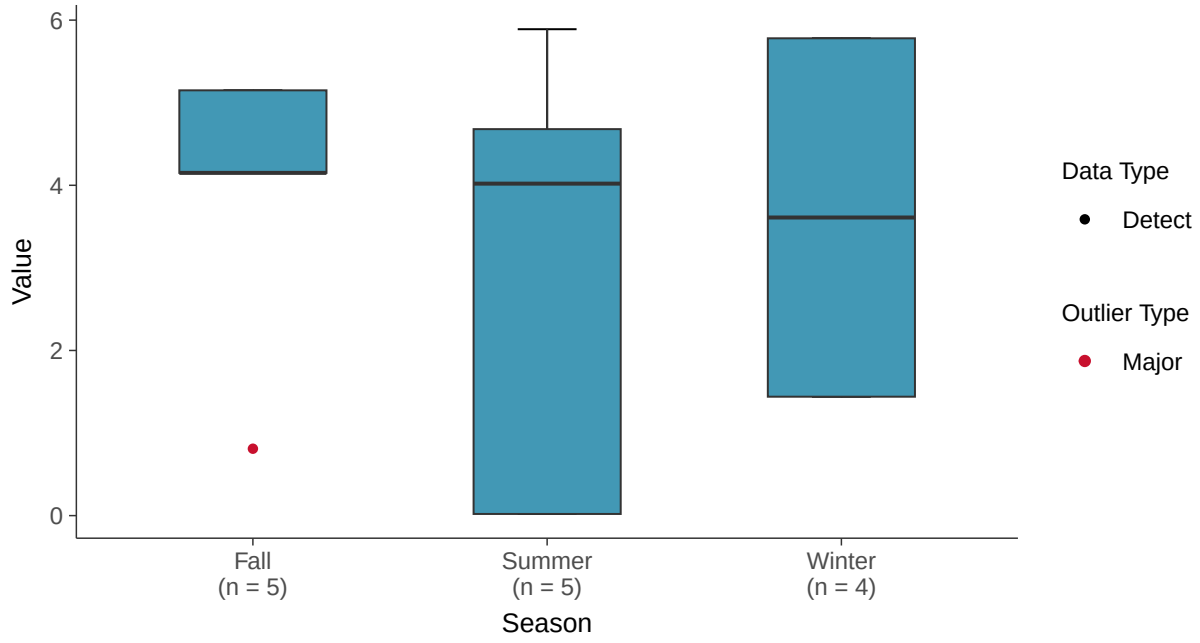
Boxplot

Turbidity, MW-100C (NTU)



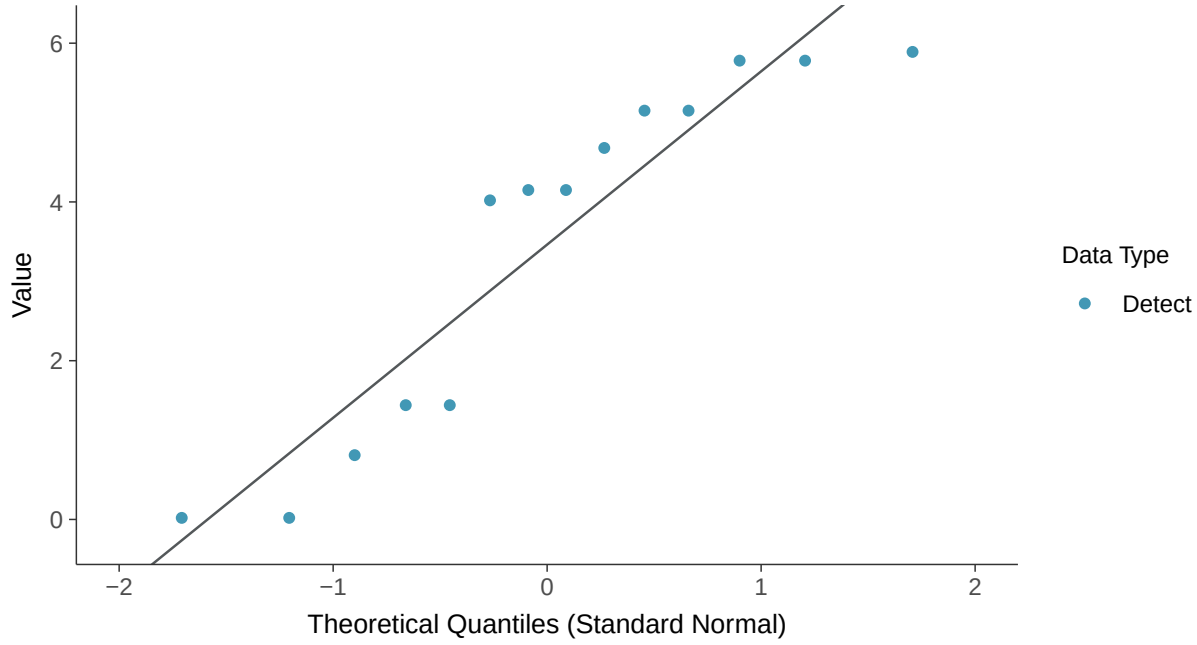
Boxplot by Season

Turbidity, MW-100C (NTU)



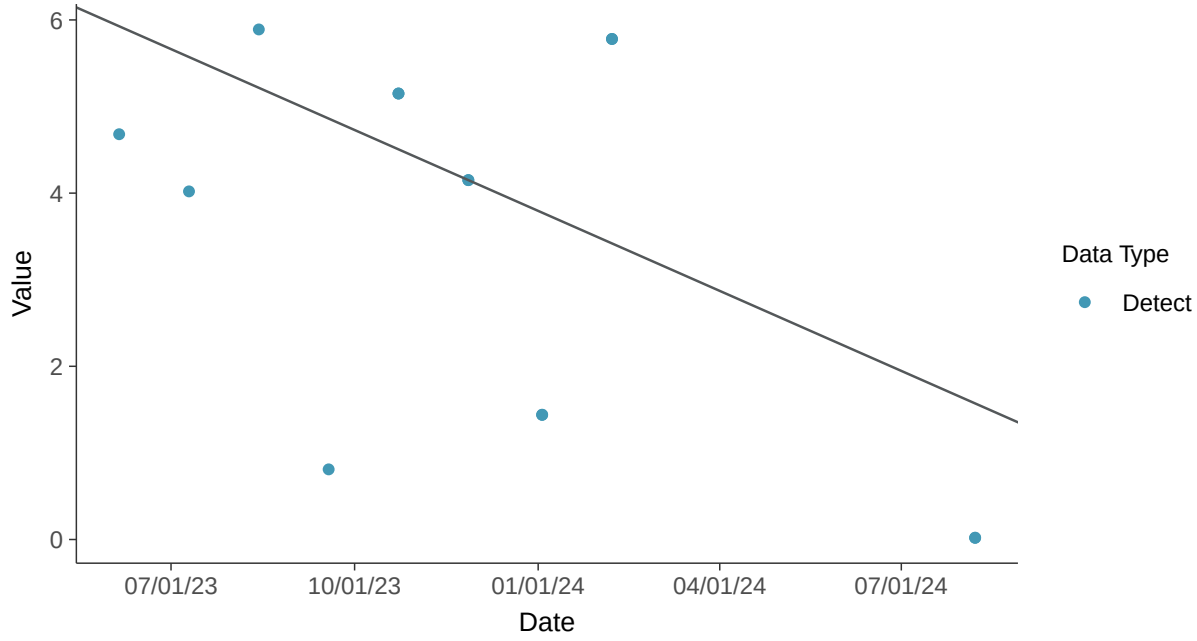
Normal Q-Q plot

Turbidity, MW-100C (NTU)



Trend Regression: Mann-Kendall/Theil-Sen Estimate

Turbidity, MW-100C (NTU)

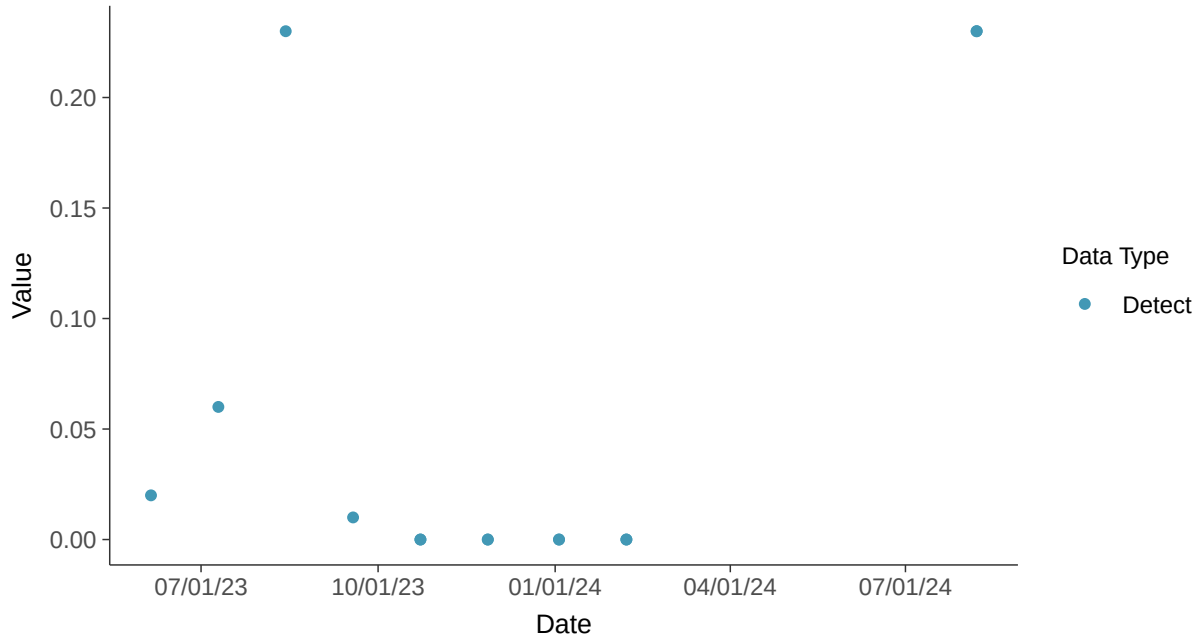


Field Parameters: Dissolved Oxygen, MW-100C

ID: 100C_3_27

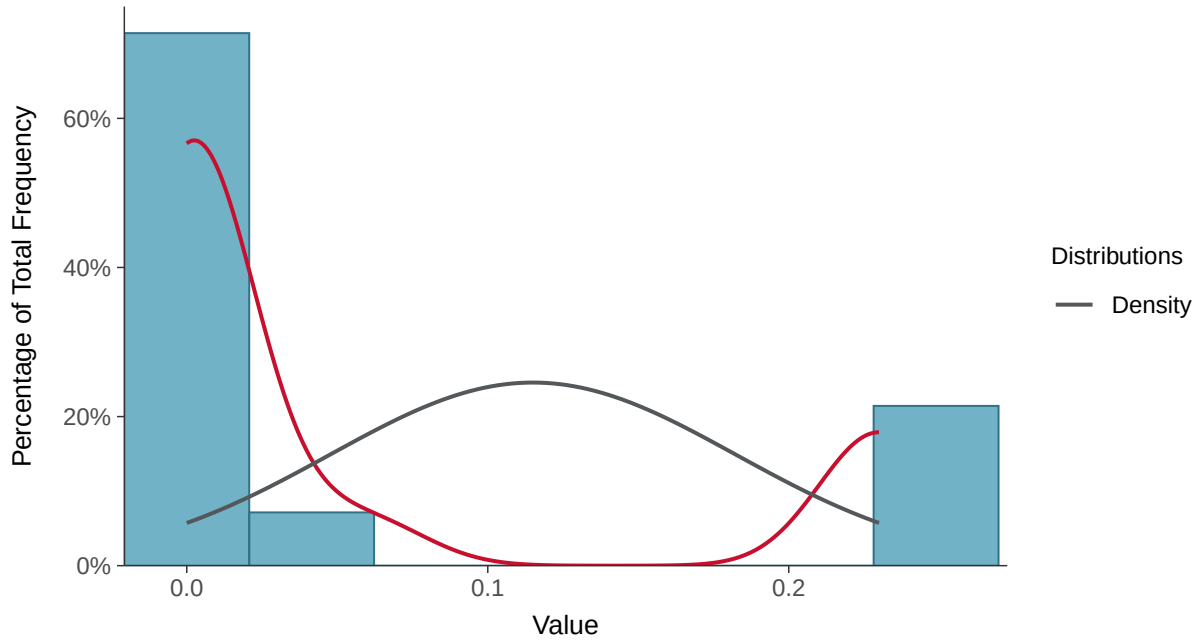
Scatter Plot

Dissolved Oxygen, MW-100C (mg/L)



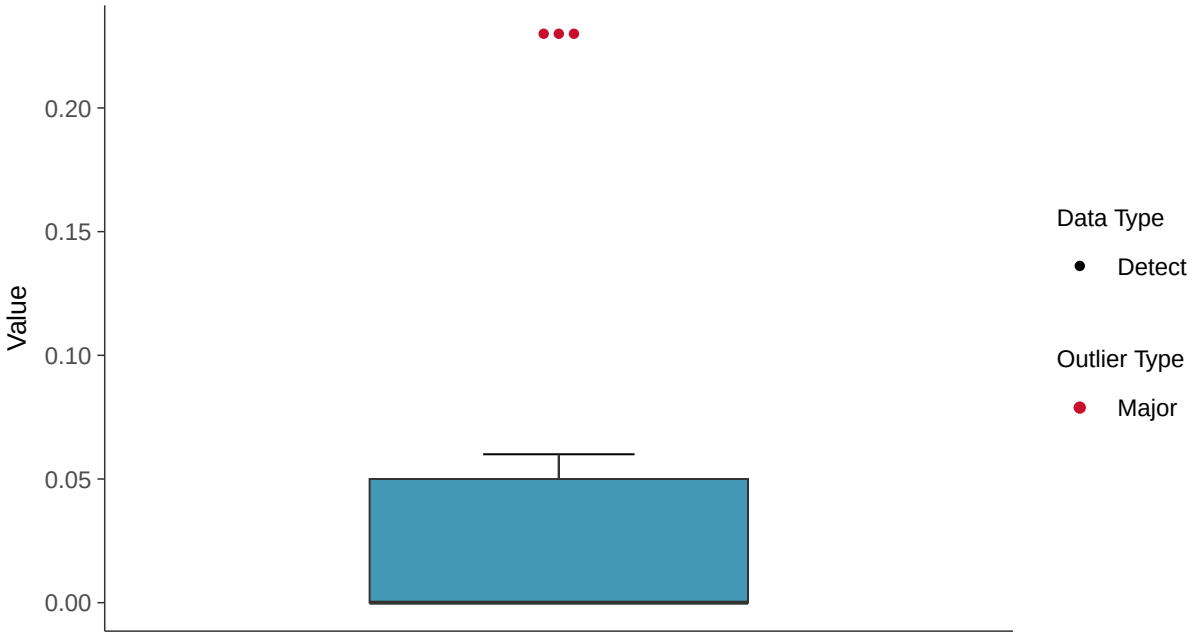
Histogram

Dissolved Oxygen, MW-100C (mg/L)



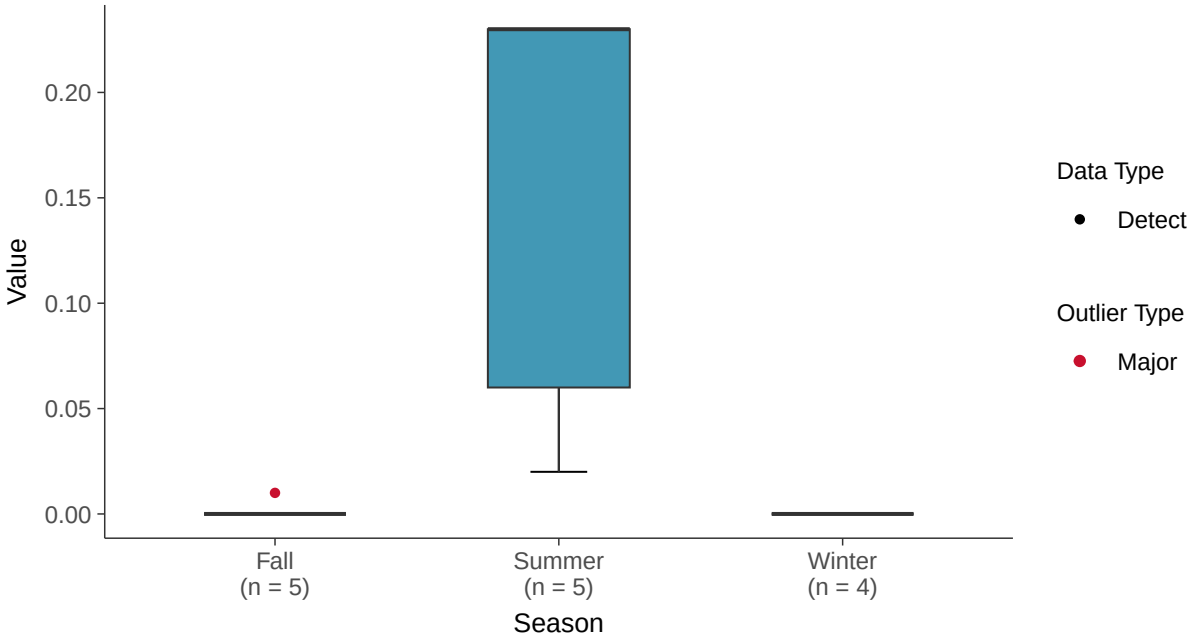
Boxplot

Dissolved Oxygen, MW-100C (mg/L)



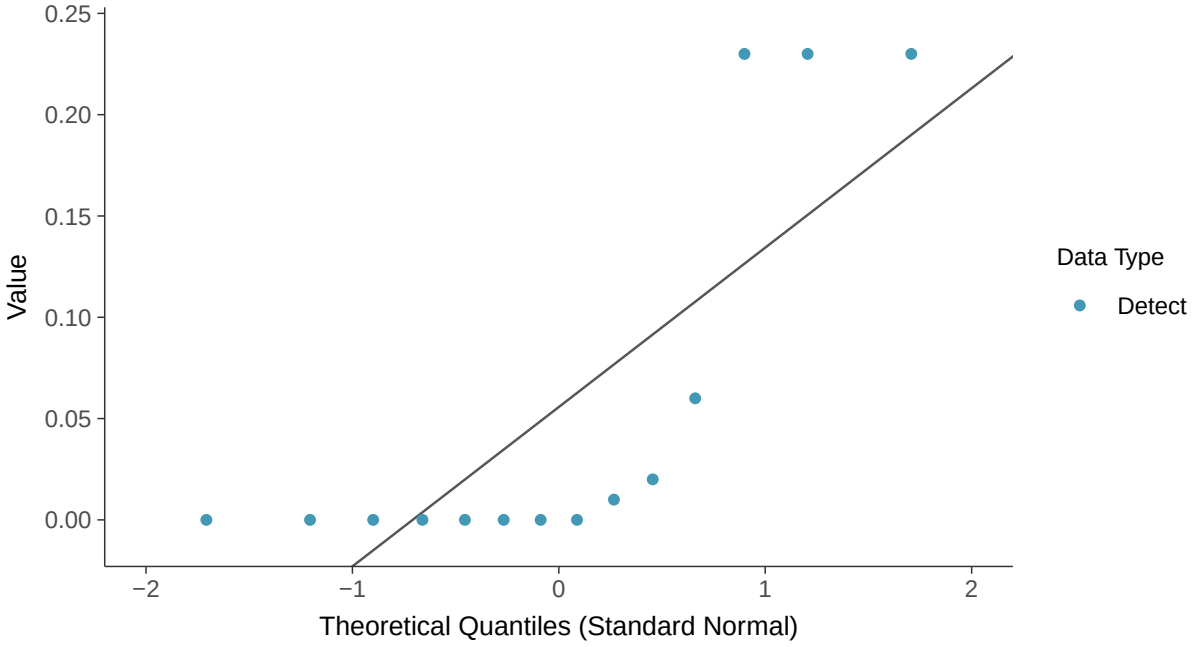
Boxplot by Season

Dissolved Oxygen, MW-100C (mg/L)



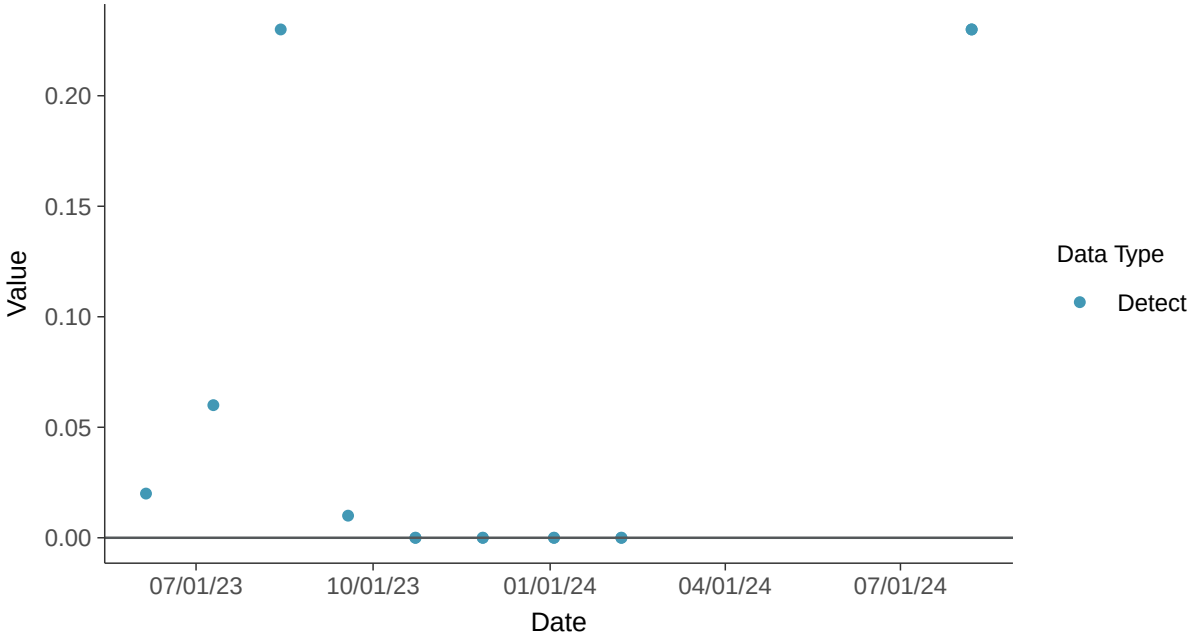
Normal Q-Q plot

Dissolved Oxygen, MW-100C (mg/L)



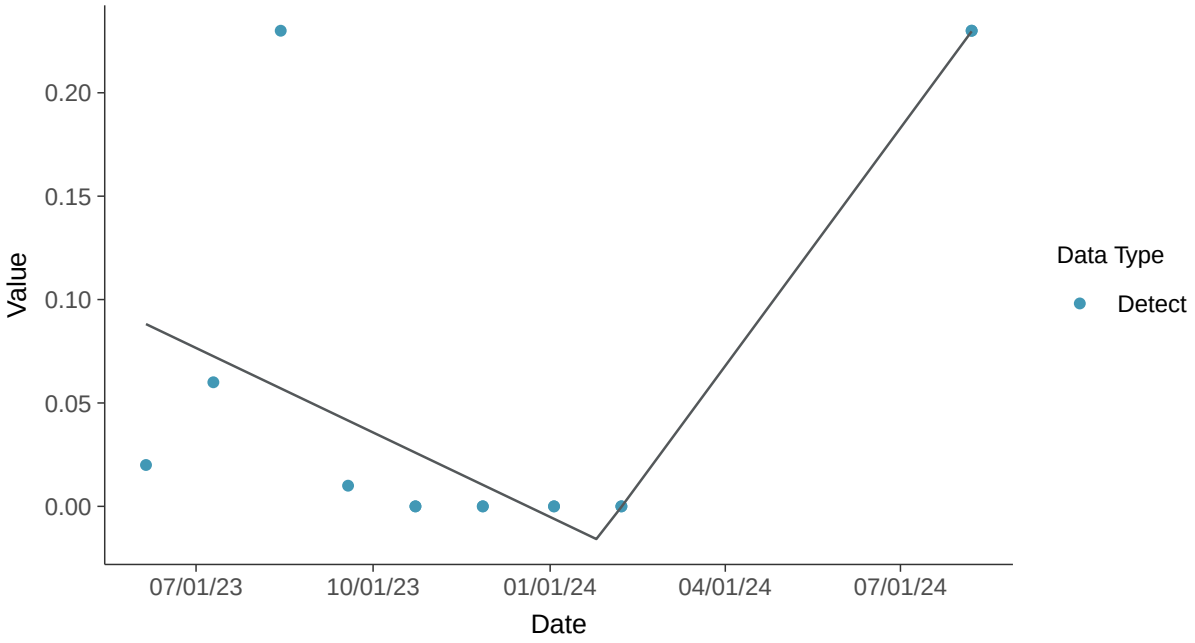
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Dissolved Oxygen, MW-100C (mg/L)



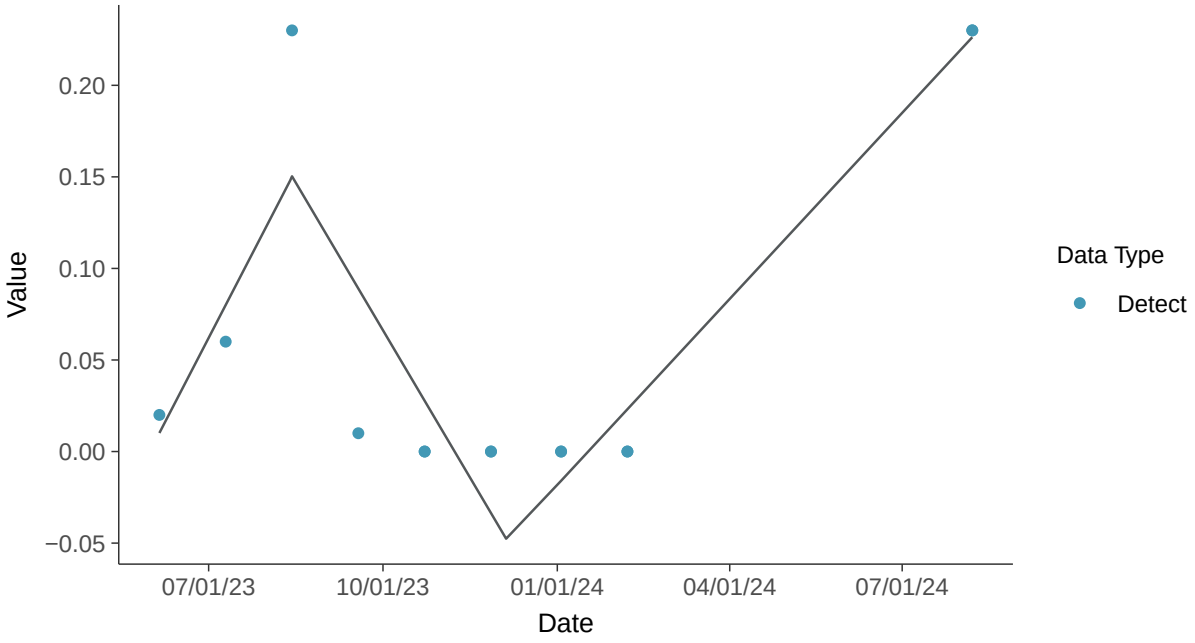
Trend Regression: Piecewise Linear-Linear

Dissolved Oxygen, MW-100C (mg/L)



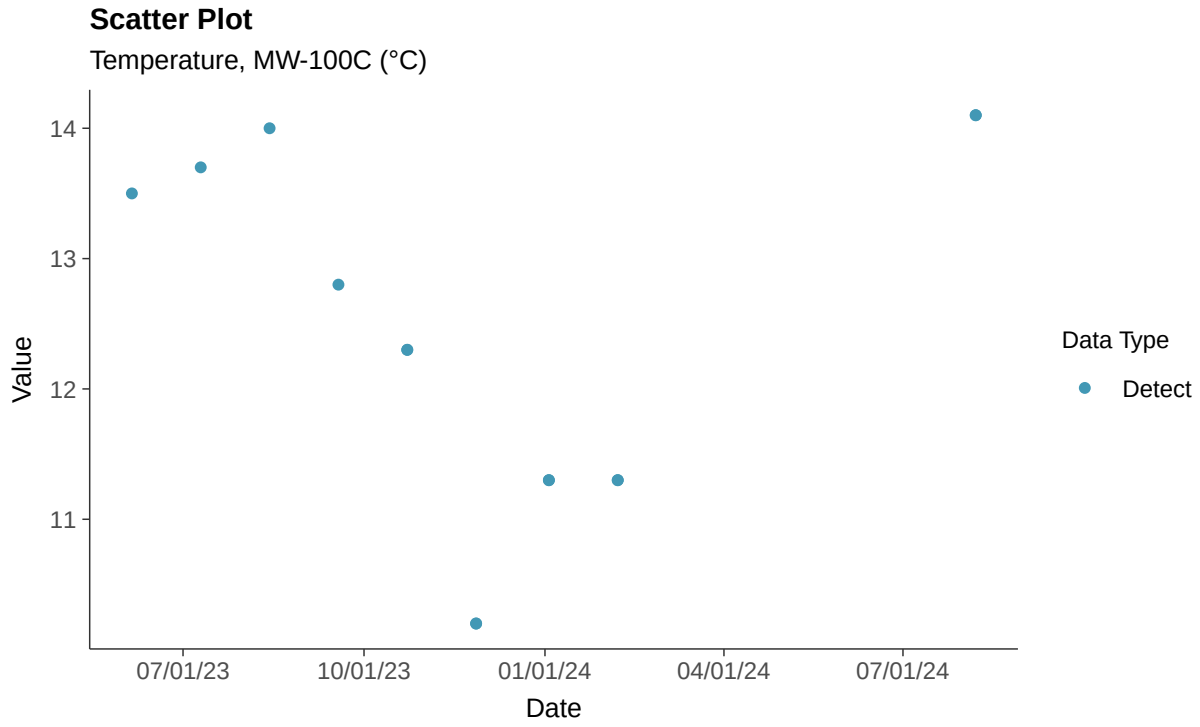
Trend Regression: Piecewise Linear-Linear-Linear

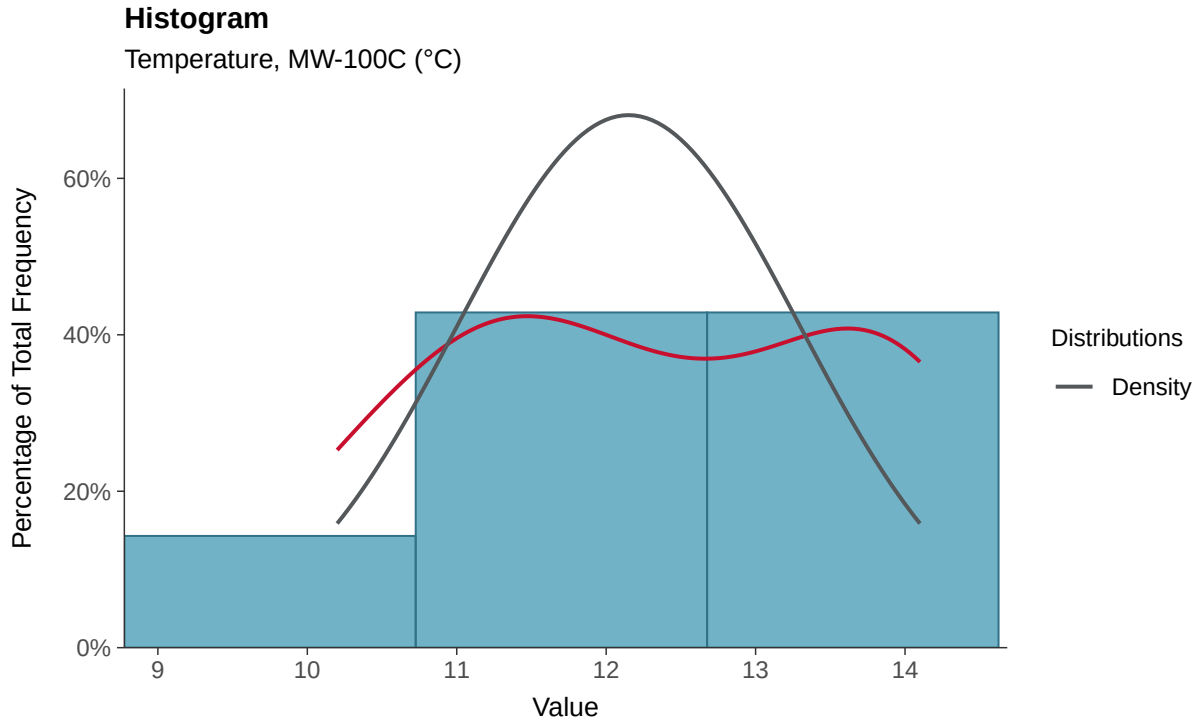
Dissolved Oxygen, MW-100C (mg/L)



Field Parameters: Temperature, MW-100C

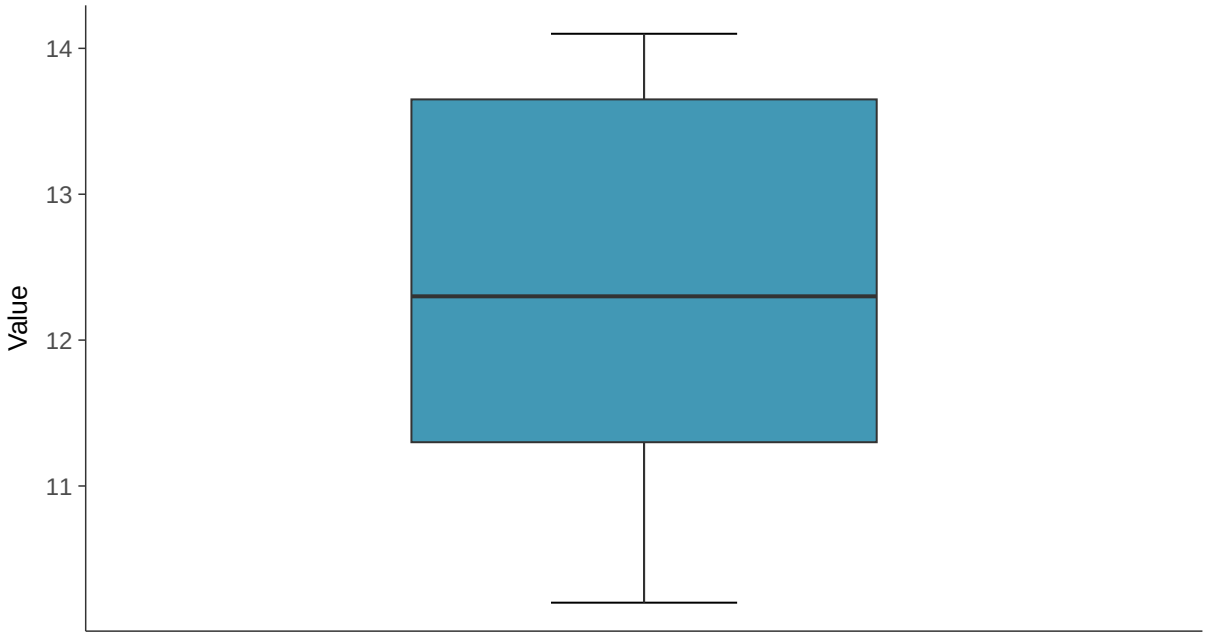
ID: 100C_3_28





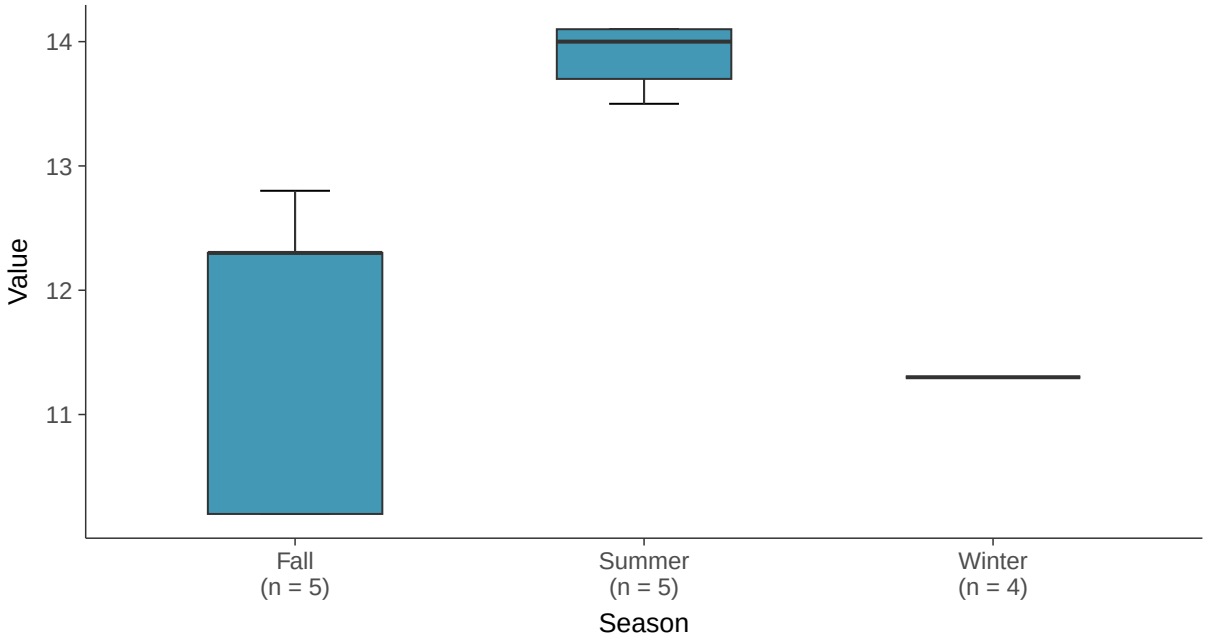
Boxplot

Temperature, MW-100C (°C)



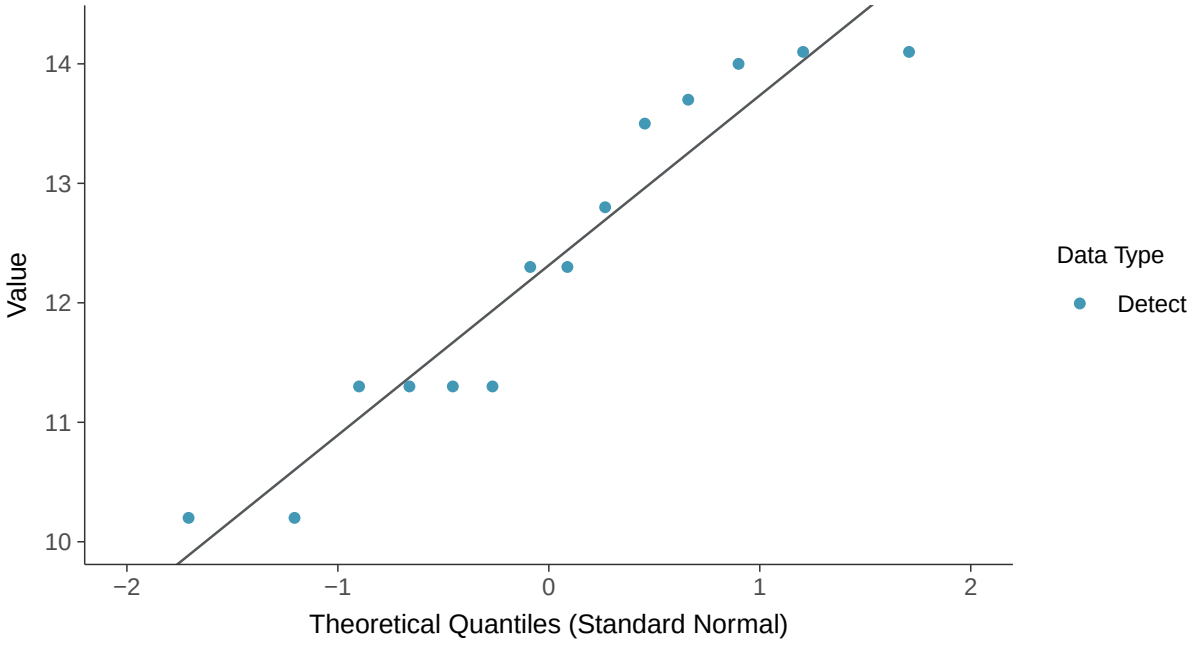
Boxplot by Season

Temperature, MW-100C (°C)



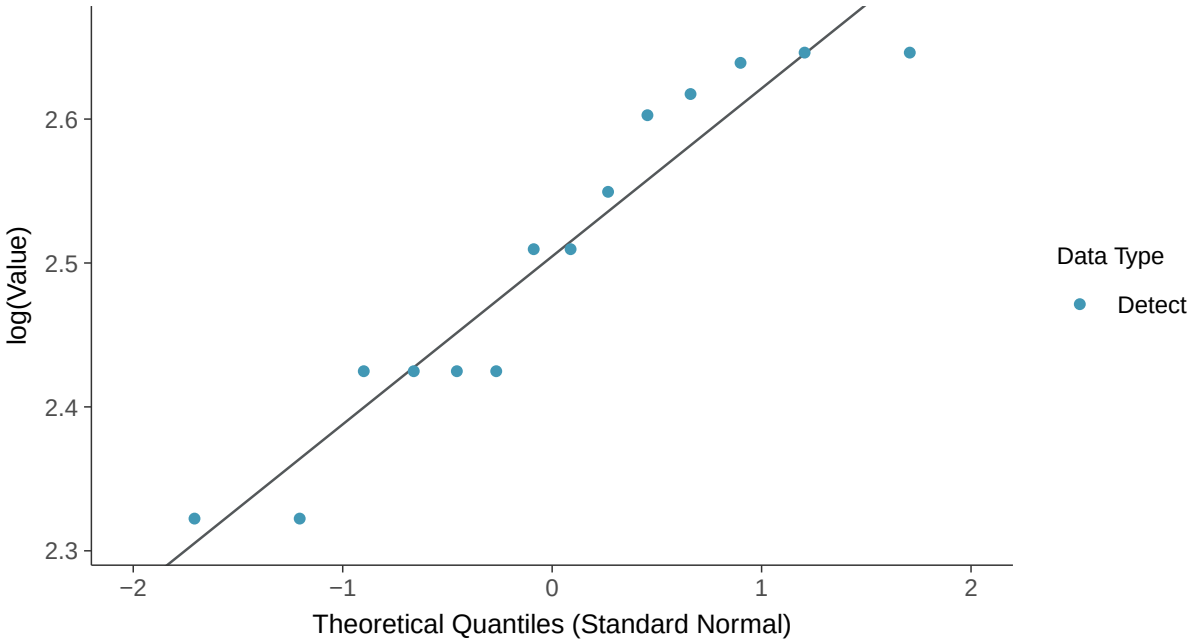
Normal Q-Q plot

Temperature, MW-100C (°C)



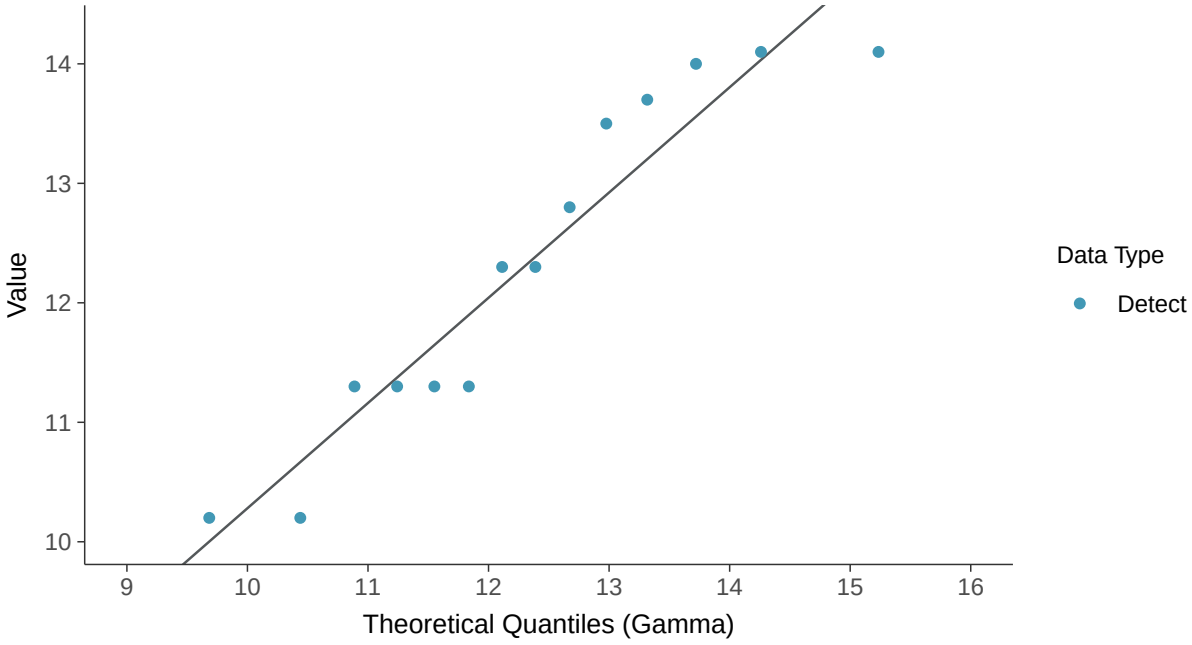
Lognormal Q-Q plot

Temperature, MW-100C (°C)



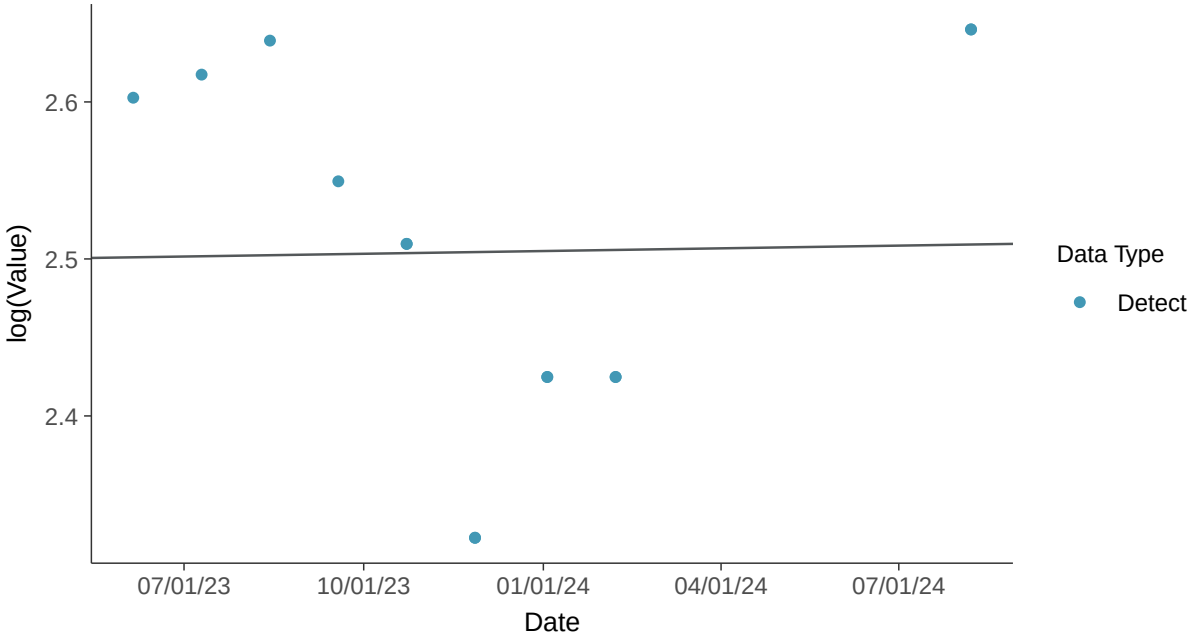
Gamma Q-Q plot

Temperature, MW-100C (°C)



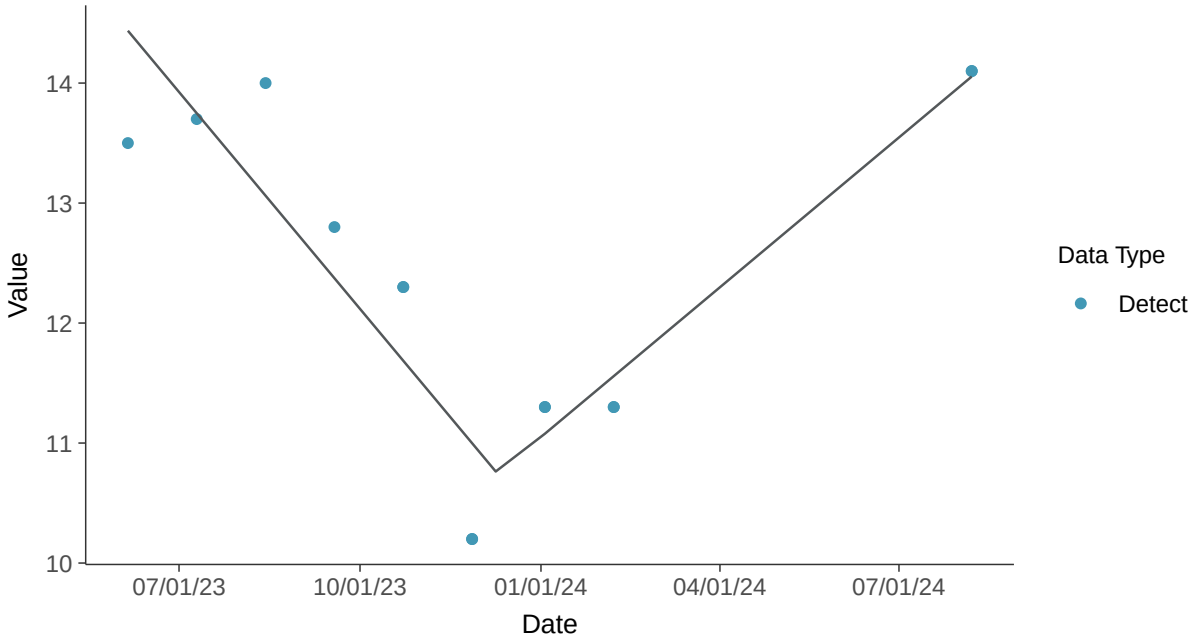
Trend Regression: Lognormal MLE

Temperature, MW-100C (°C)



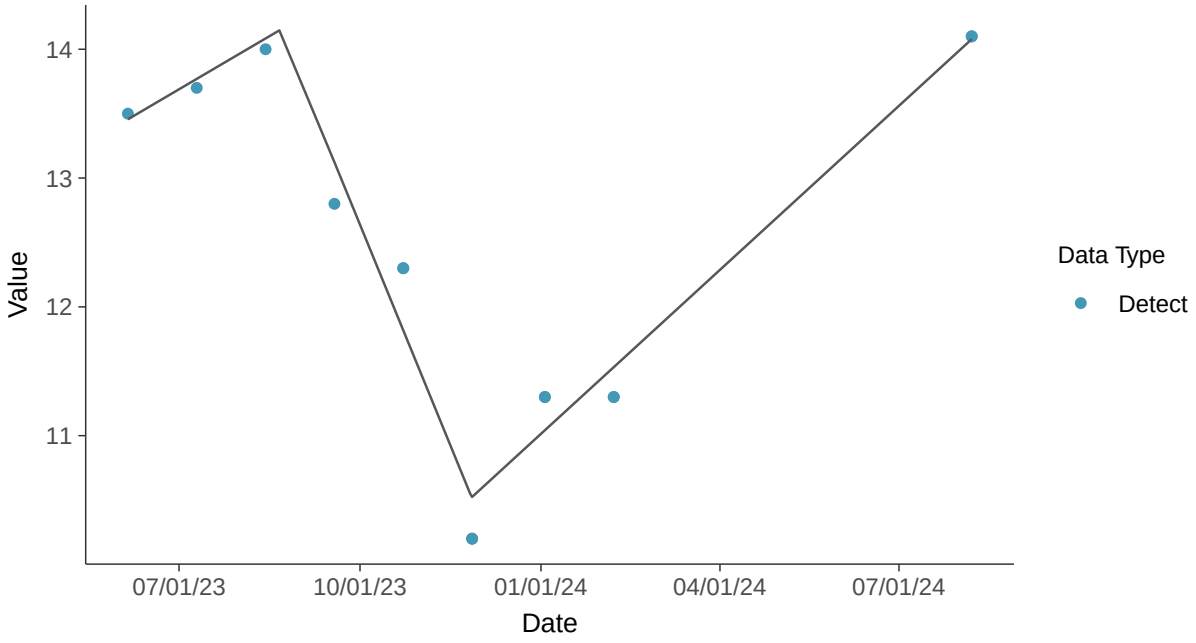
Trend Regression: Piecewise Linear-Linear

Temperature, MW-100C (°C)



Trend Regression: Piecewise Linear-Linear-Linear

Temperature, MW-100C (°C)

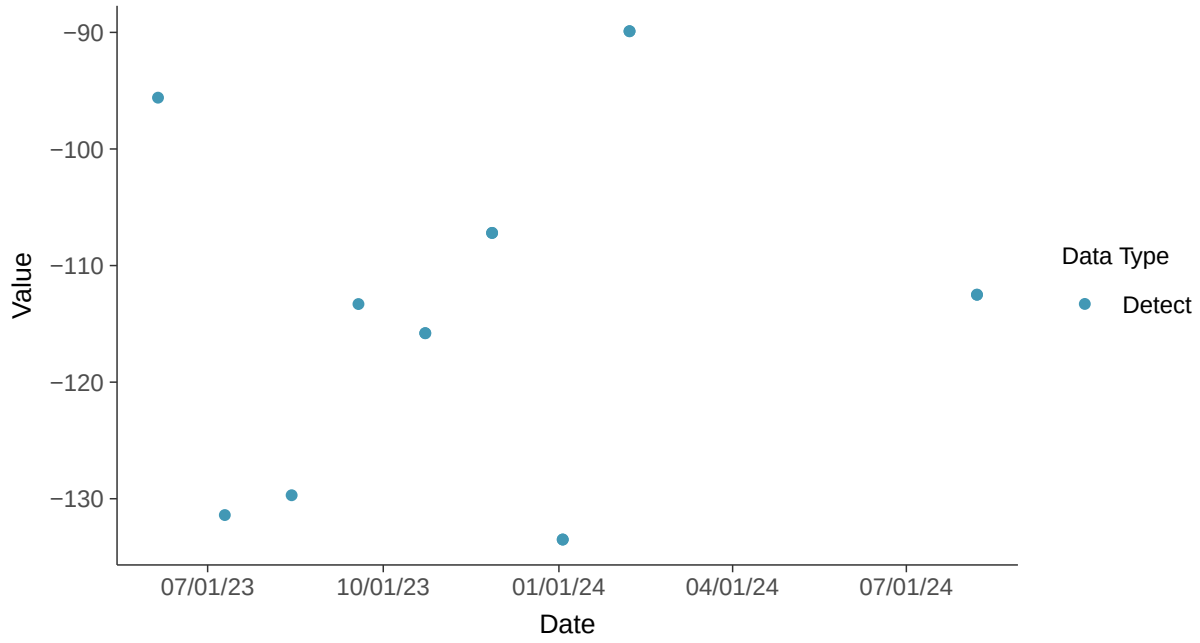


Field Parameters: Oxidation Reduction Potential, MW-100C

ID: 100C_3_29

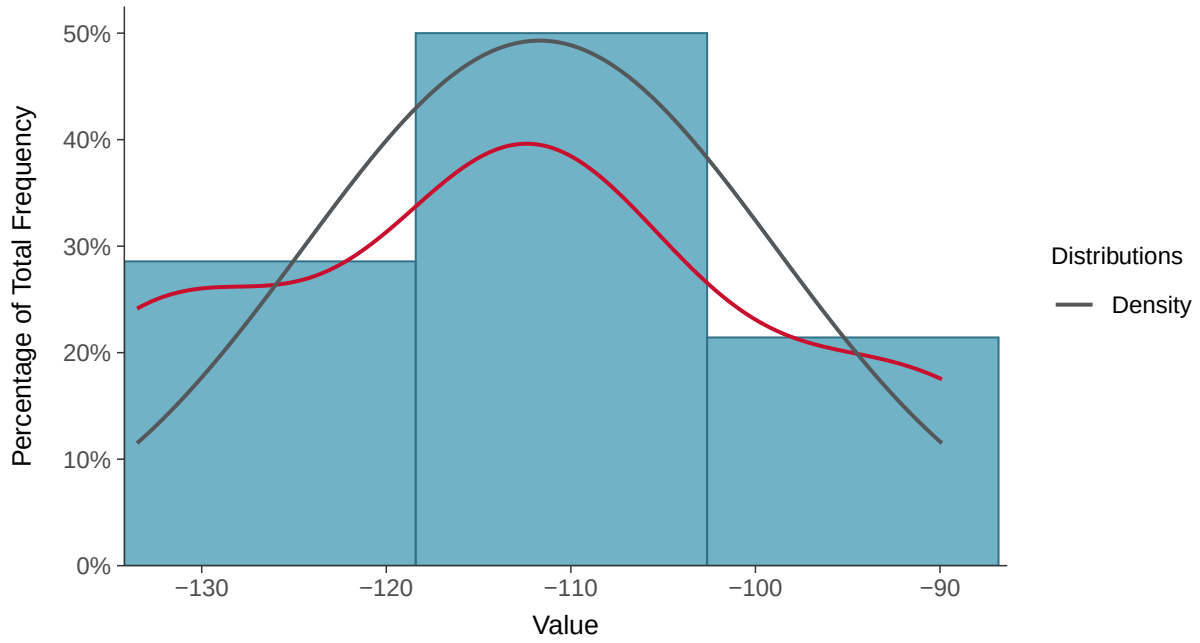
Scatter Plot

Oxidation Reduction Potential, MW-100C (mV)



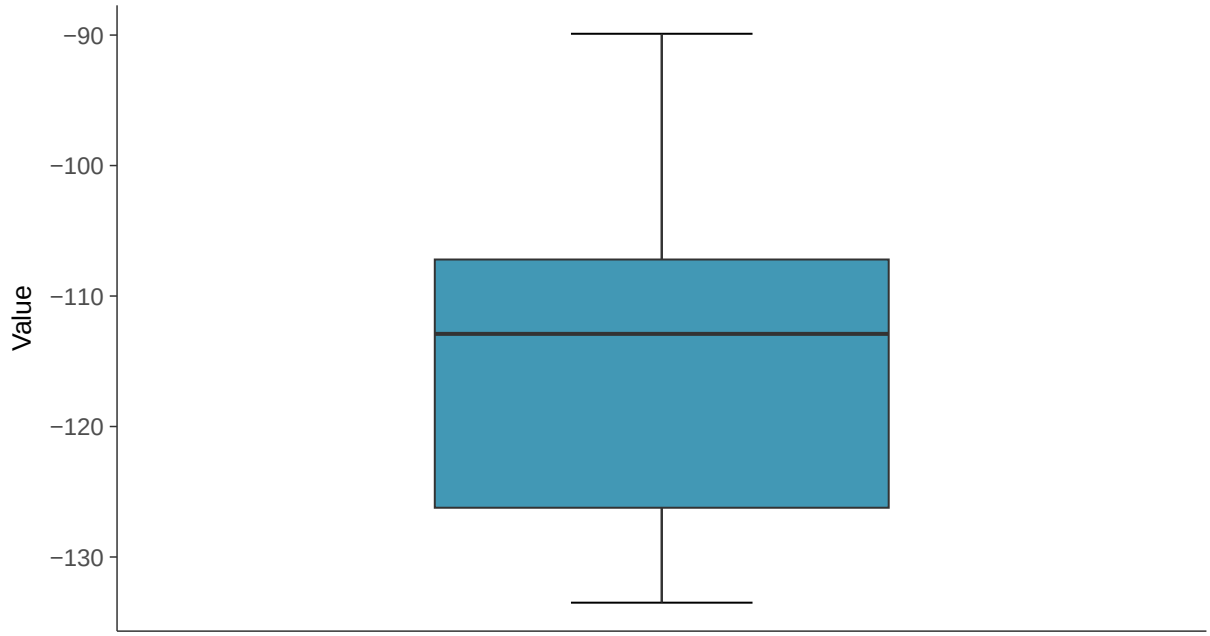
Histogram

Oxidation Reduction Potential, MW-100C (mV)



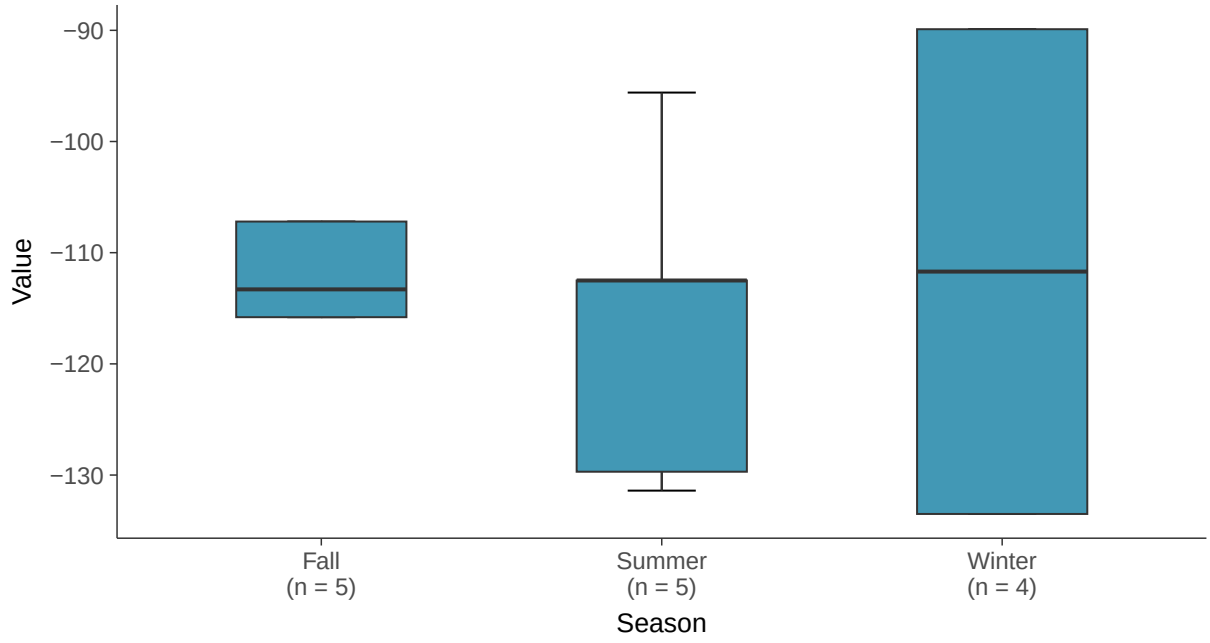
Boxplot

Oxidation Reduction Potential, MW-100C (mV)



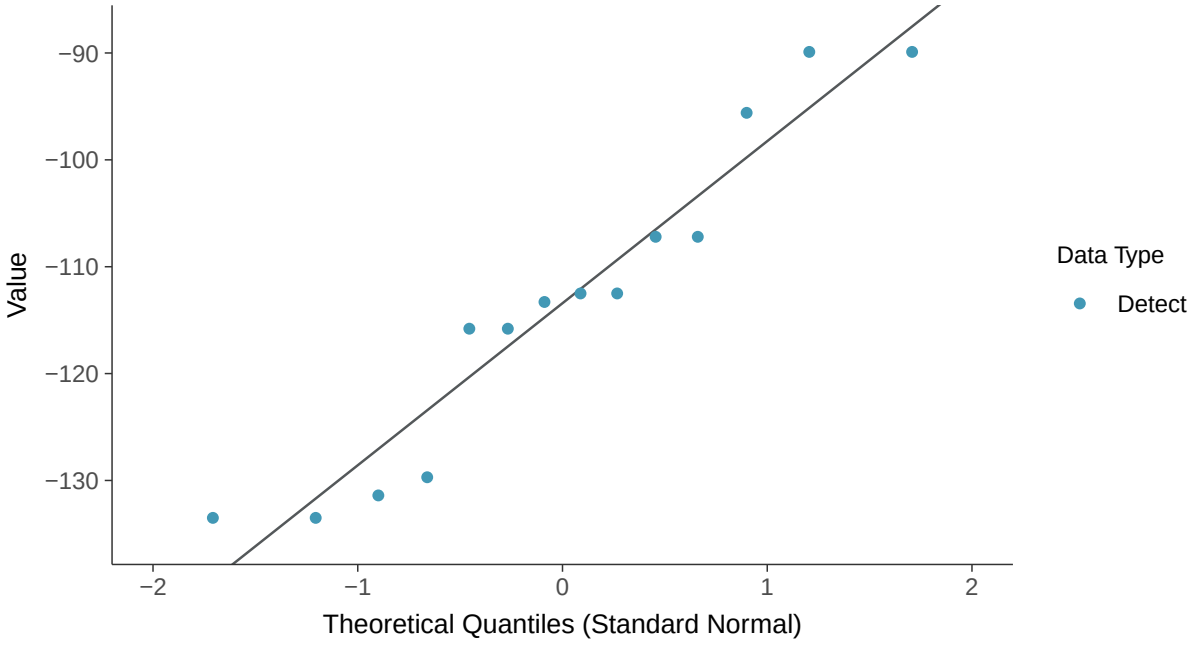
Boxplot by Season

Oxidation Reduction Potential, MW-100C (mV)



Normal Q-Q plot

Oxidation Reduction Potential, MW-100C (mV)

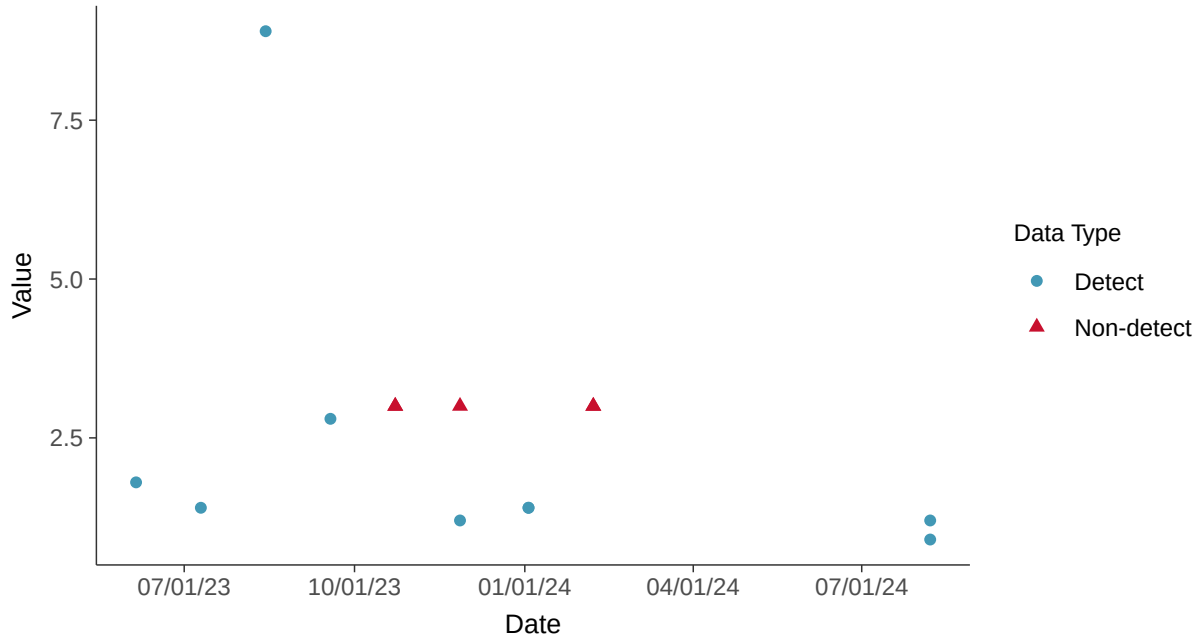


Other: Total Suspended Solids, MW-100C

ID: 100C_4_30

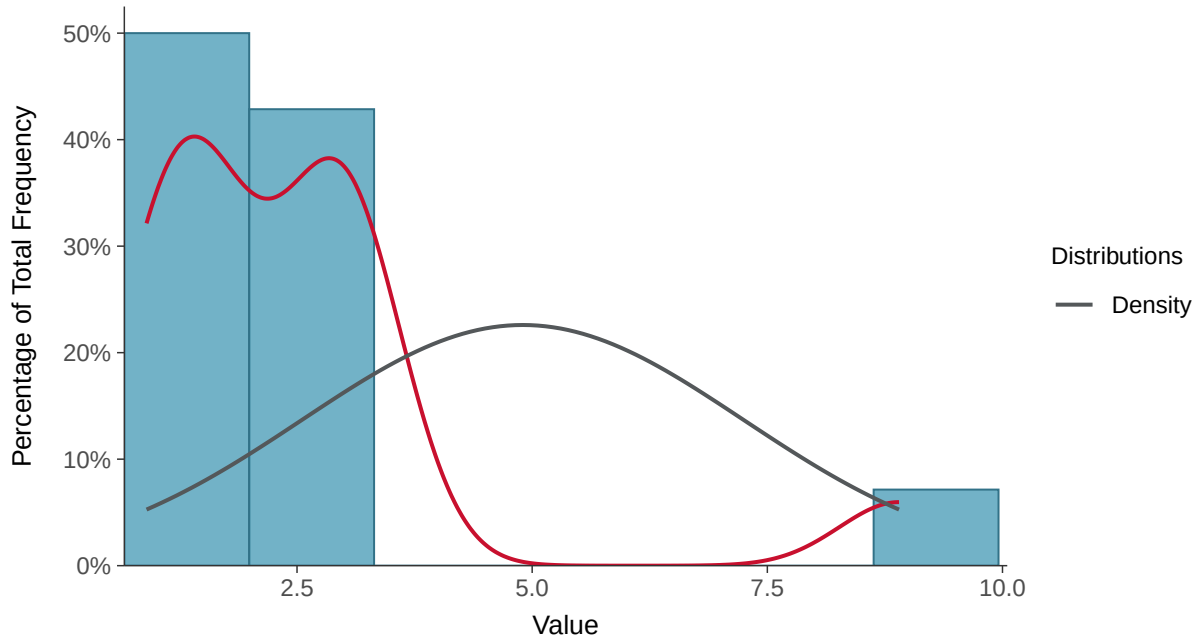
Scatter Plot

Total Suspended Solids, MW-100C (mg/L)



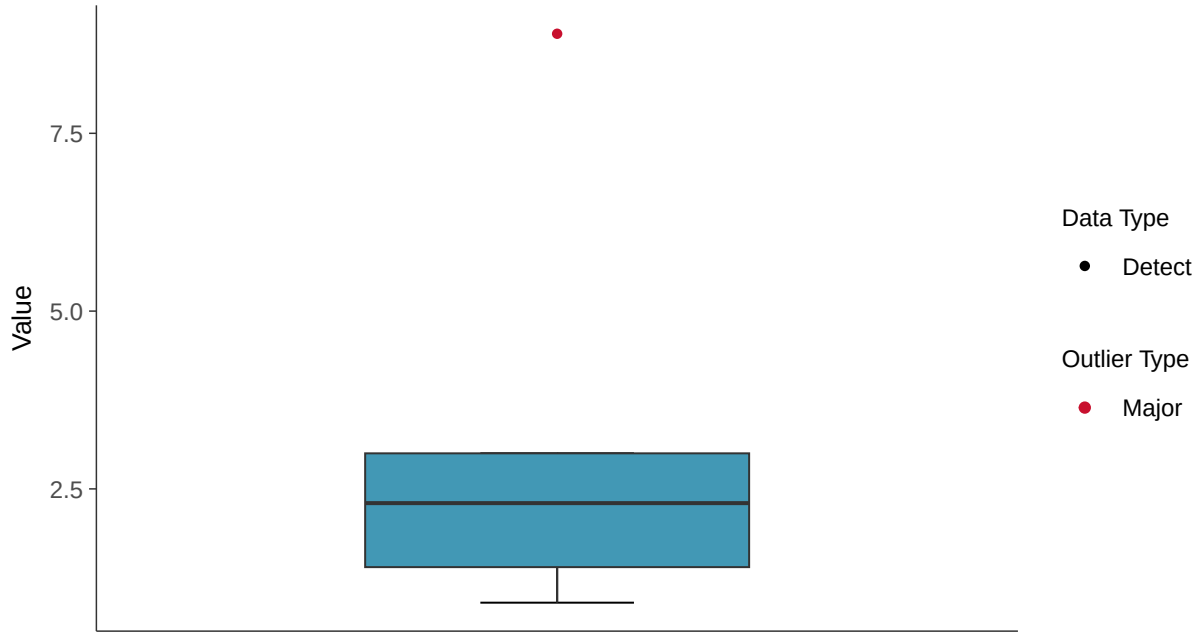
Histogram

Total Suspended Solids, MW-100C (mg/L)



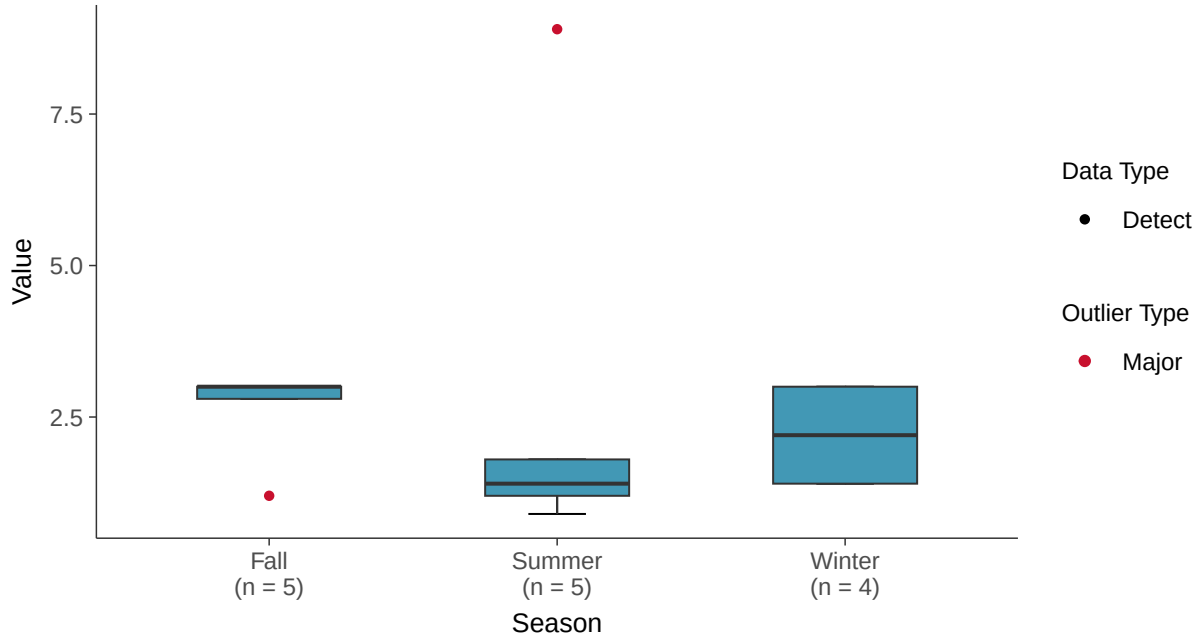
Boxplot

Total Suspended Solids, MW-100C (mg/L)



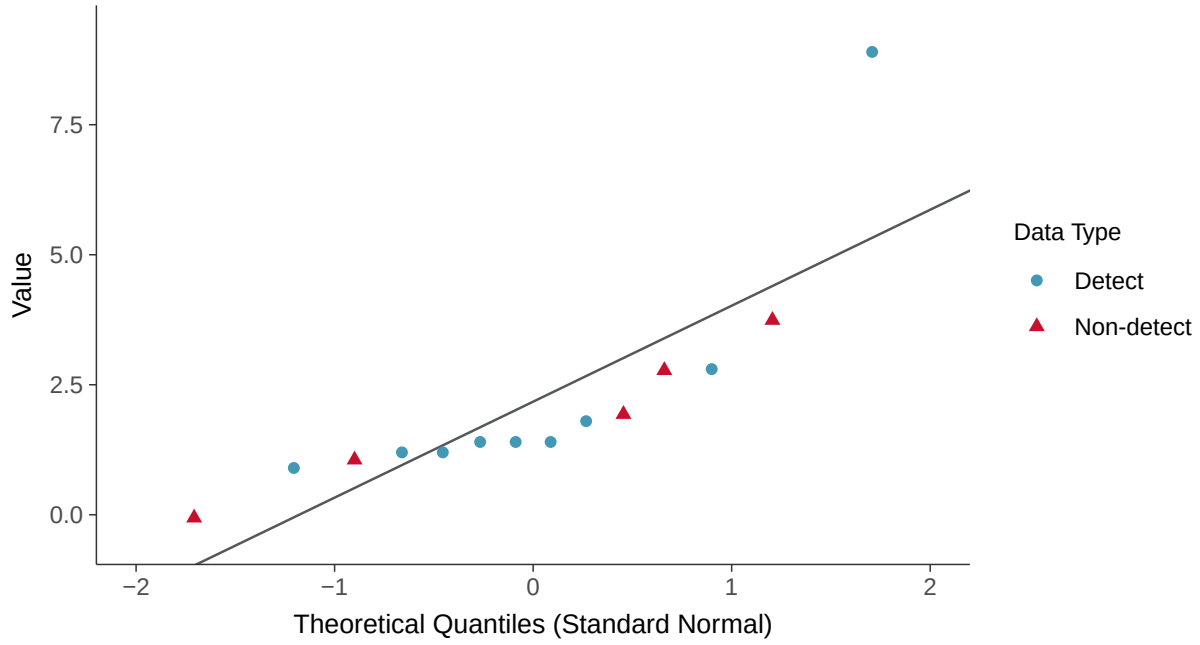
Boxplot by Season

Total Suspended Solids, MW-100C (mg/L)



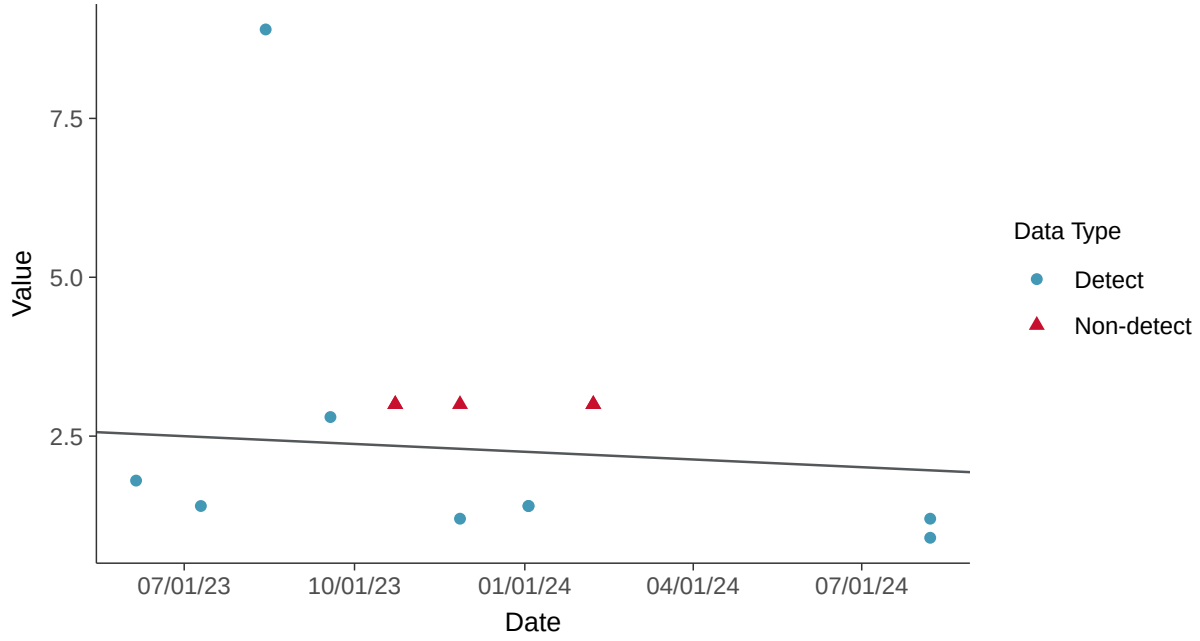
Normal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-100C (mg/L)



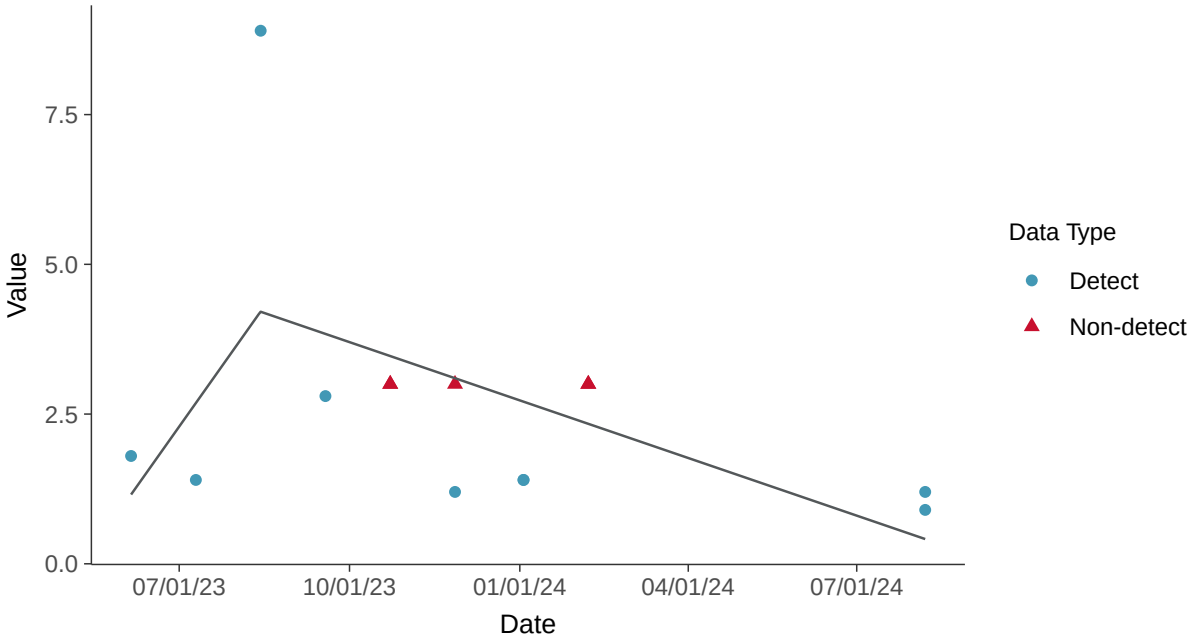
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Total Suspended Solids, MW-100C (mg/L)



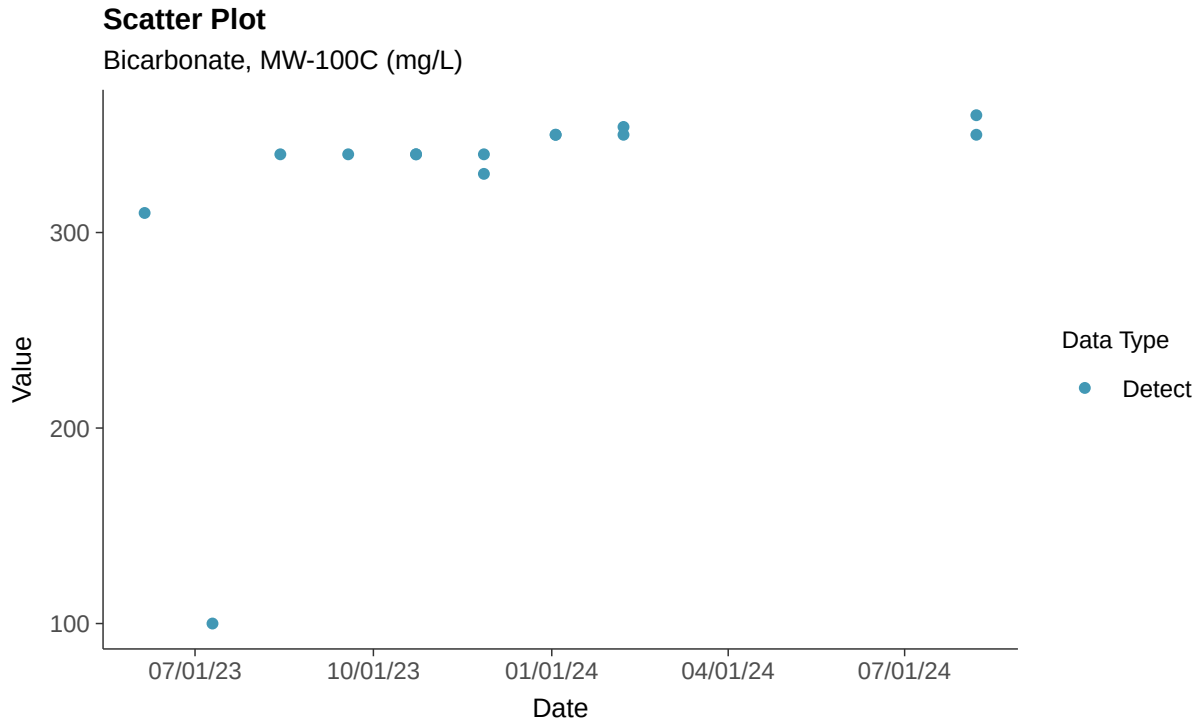
Trend Regression: Piecewise Linear-Linear

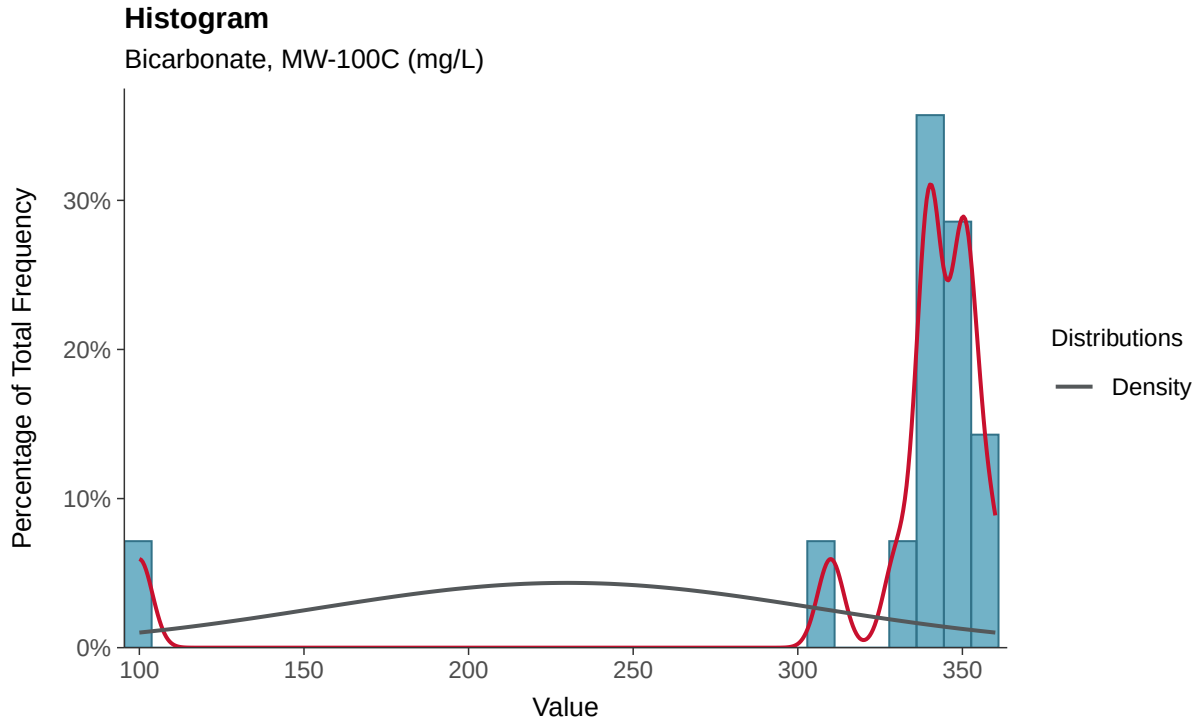
Total Suspended Solids, MW-100C (mg/L)



Other: Bicarbonate, MW-100C

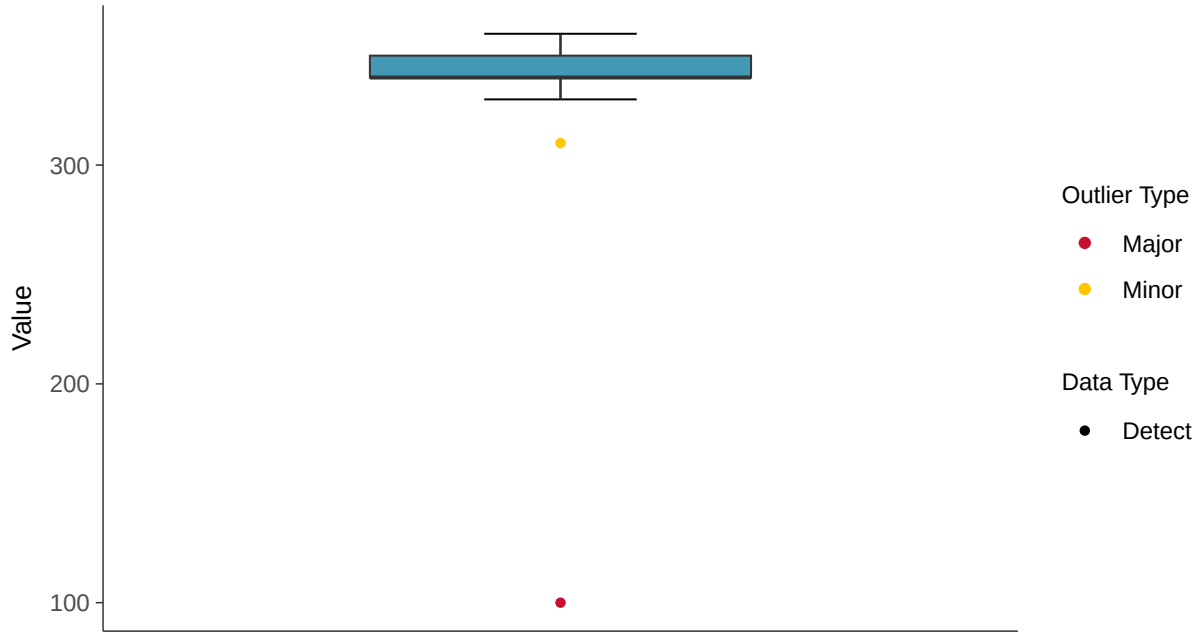
ID: 100C_4_31





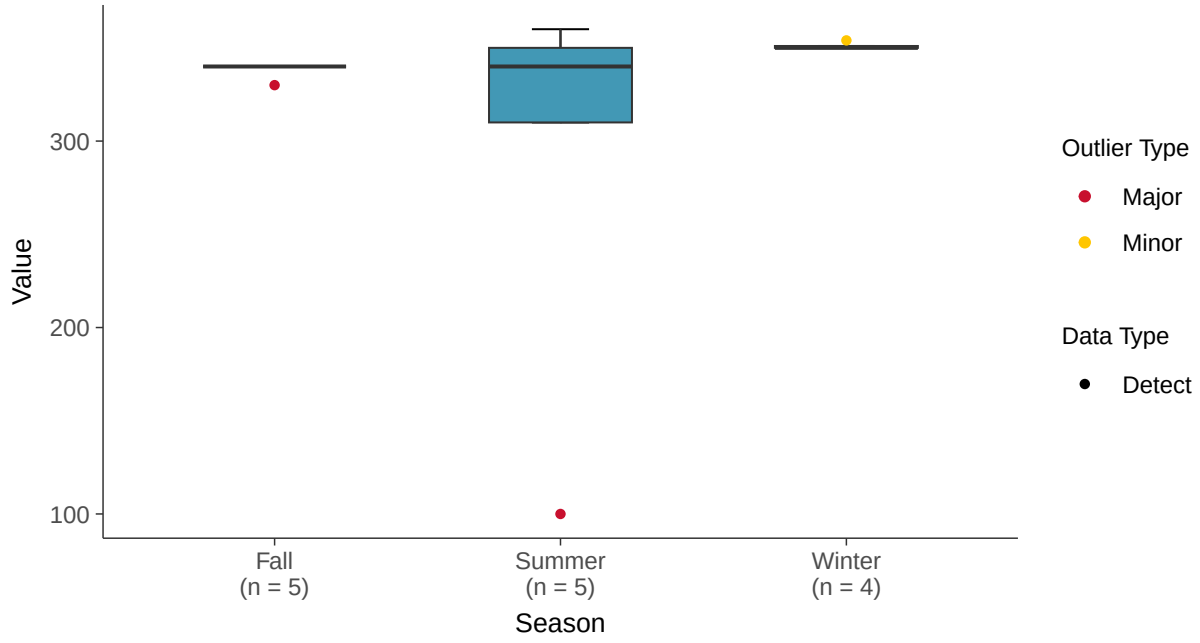
Boxplot

Bicarbonate, MW-100C (mg/L)



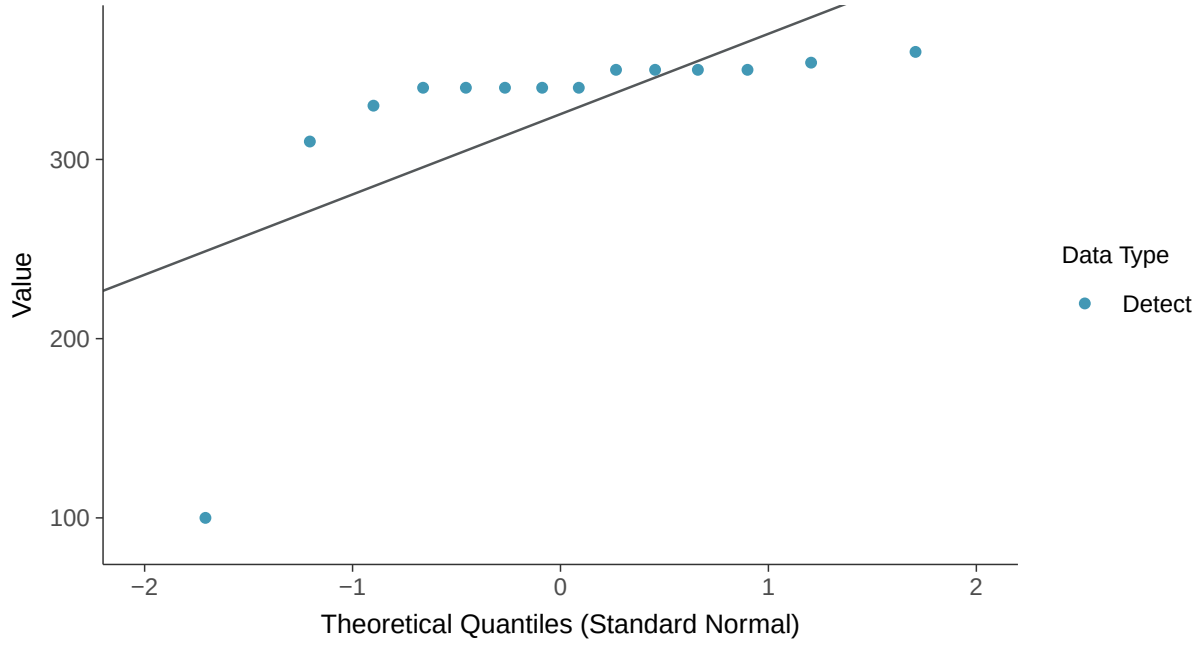
Boxplot by Season

Bicarbonate, MW-100C (mg/L)



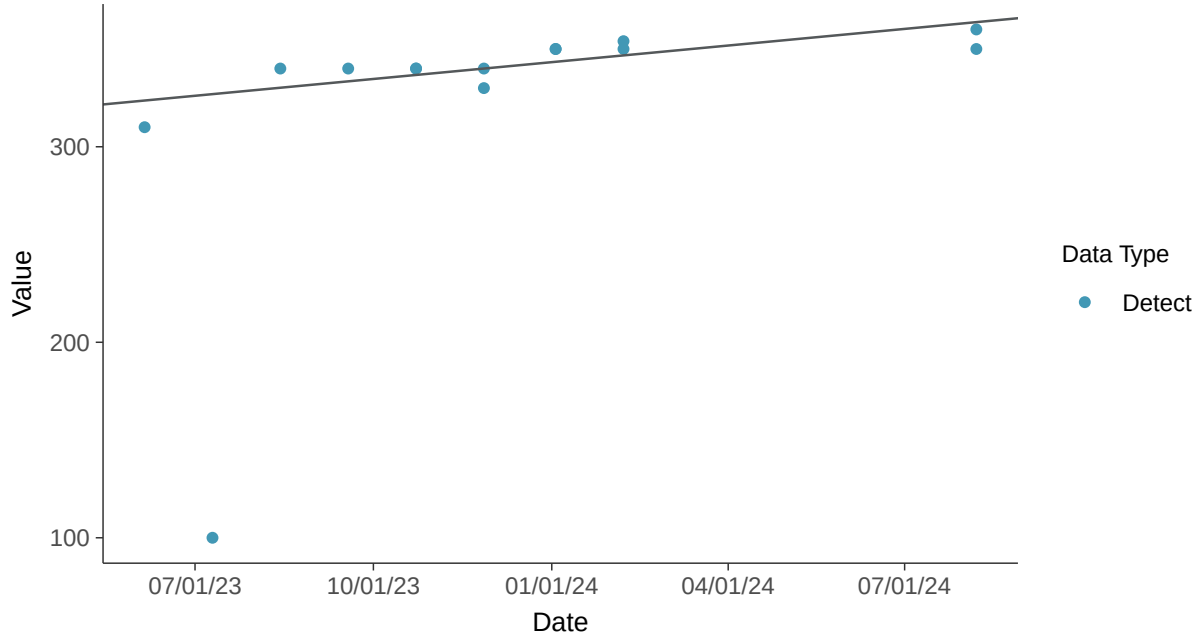
Normal Q-Q plot

Bicarbonate, MW-100C (mg/L)



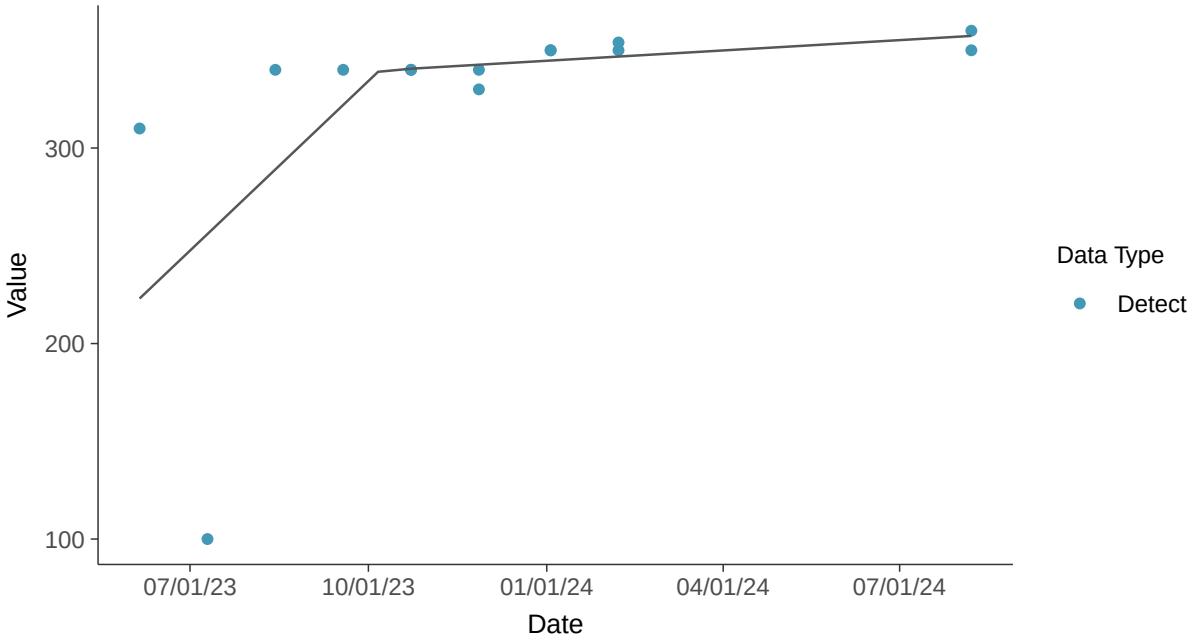
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Bicarbonate, MW-100C (mg/L)



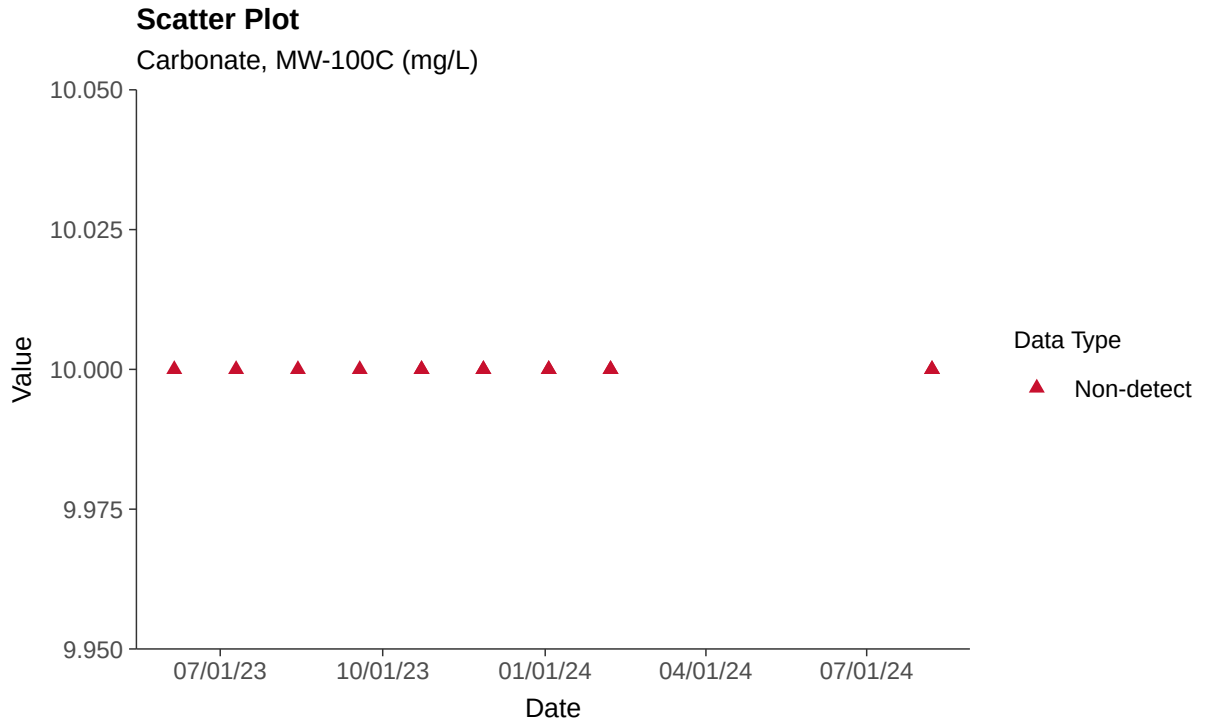
Trend Regression: Piecewise Linear-Linear

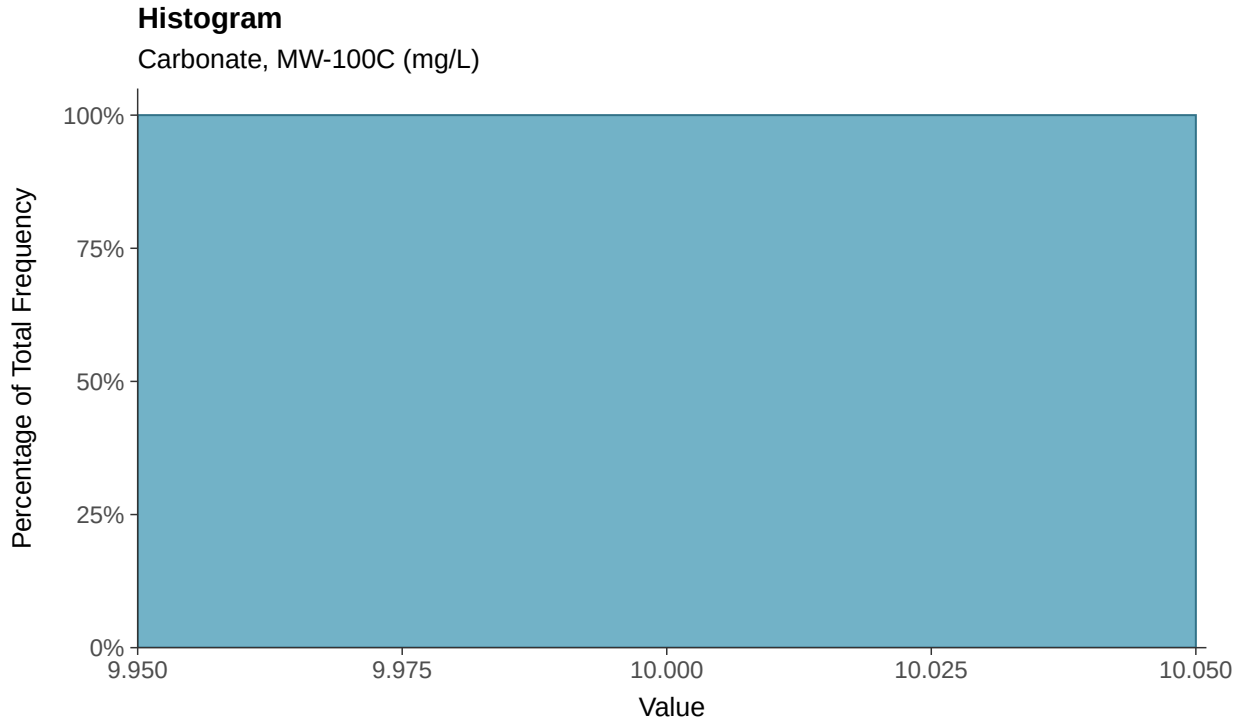
Bicarbonate, MW-100C (mg/L)



Other: Carbonate, MW-100C

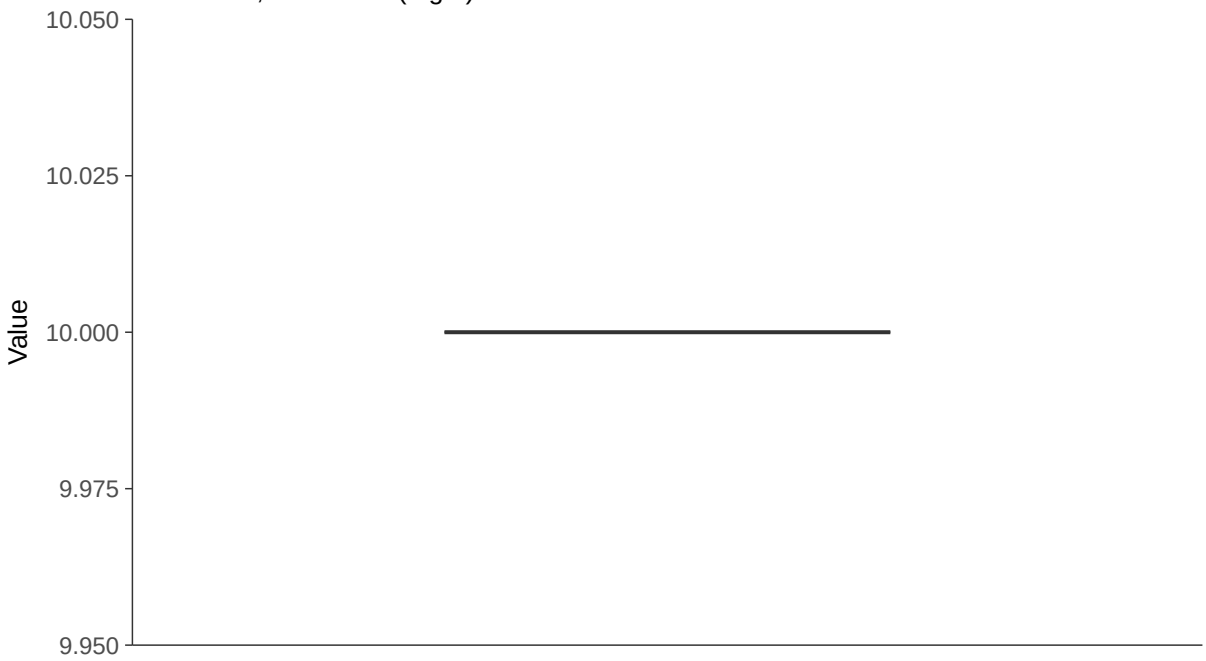
ID: 100C_4_32





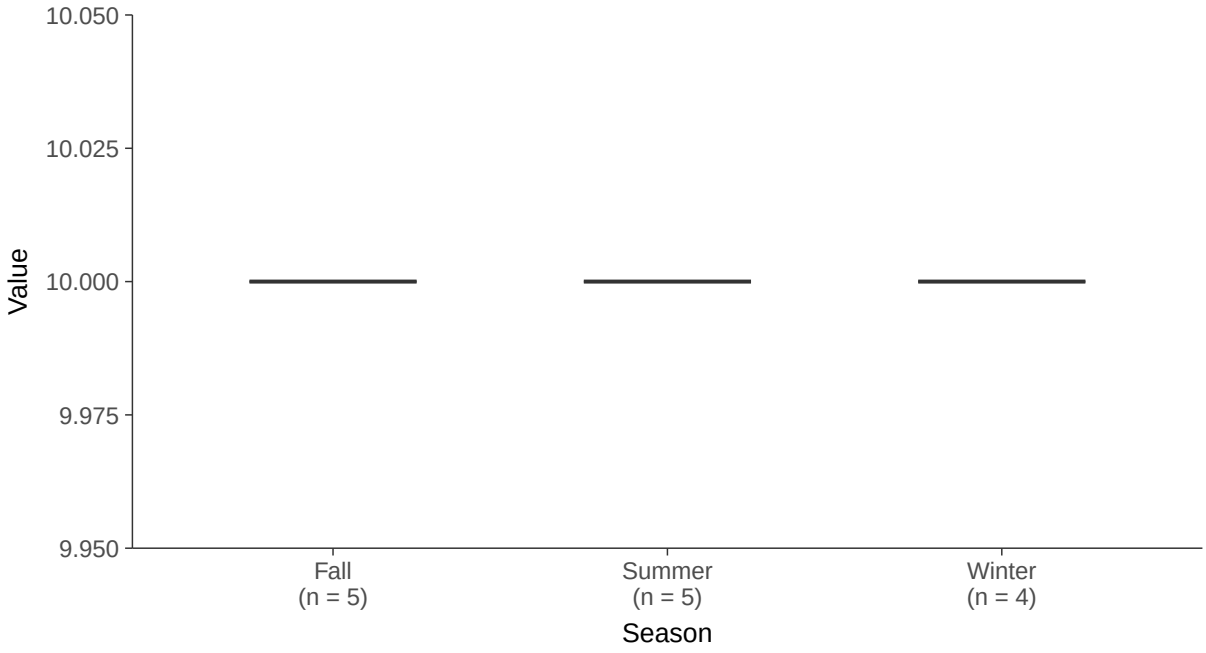
Boxplot

Carbonate, MW-100C (mg/L)



Boxplot by Season

Carbonate, MW-100C (mg/L)

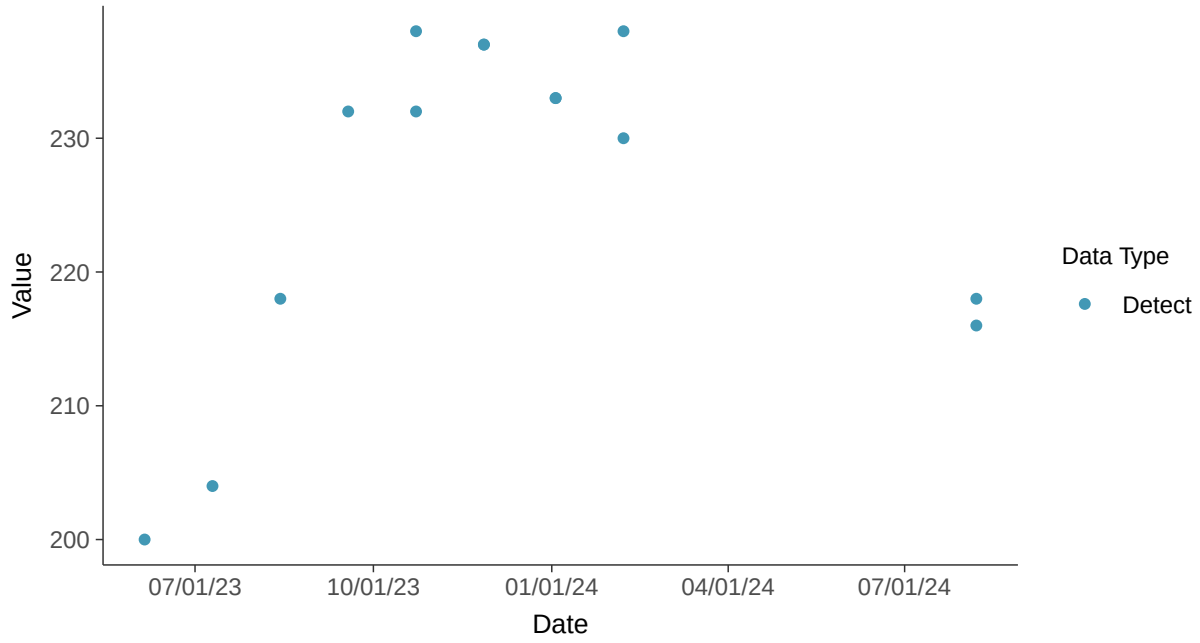


Other: Hardness, MW-100C

ID: 100C_4_33

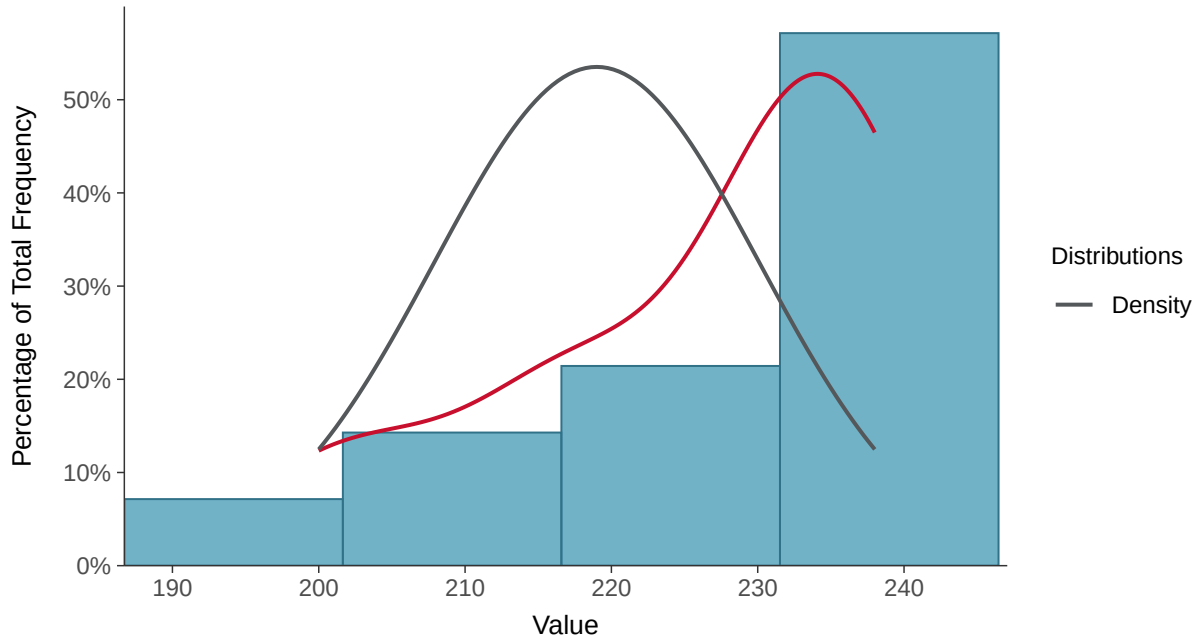
Scatter Plot

Hardness, MW-100C (mg/L)



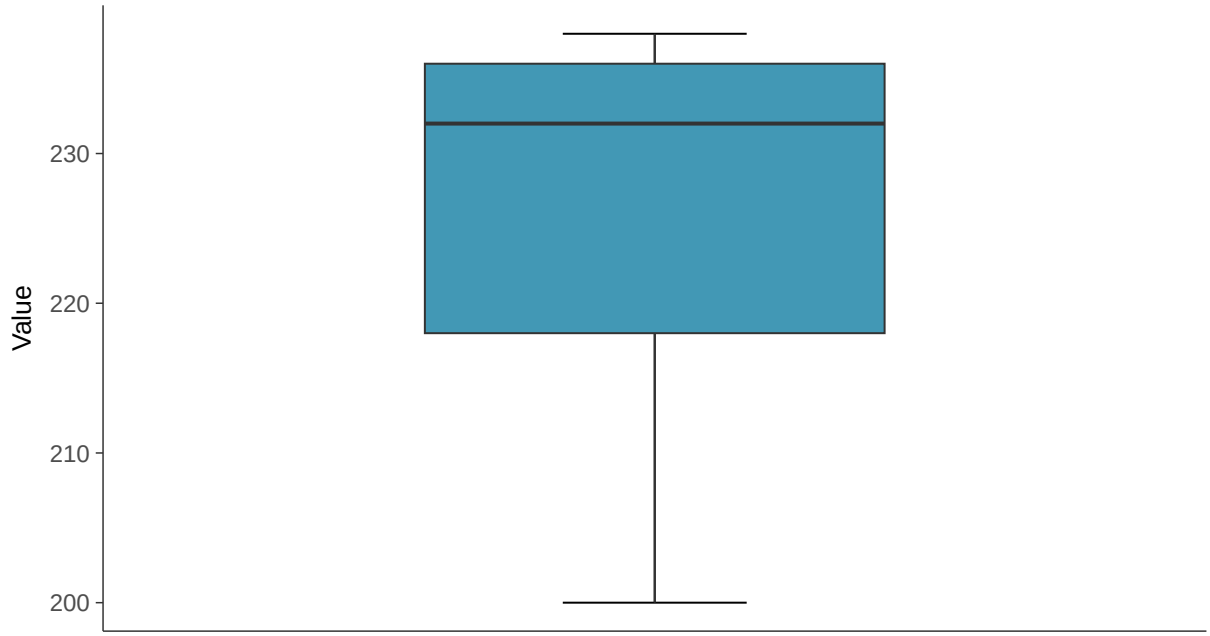
Histogram

Hardness, MW-100C (mg/L)



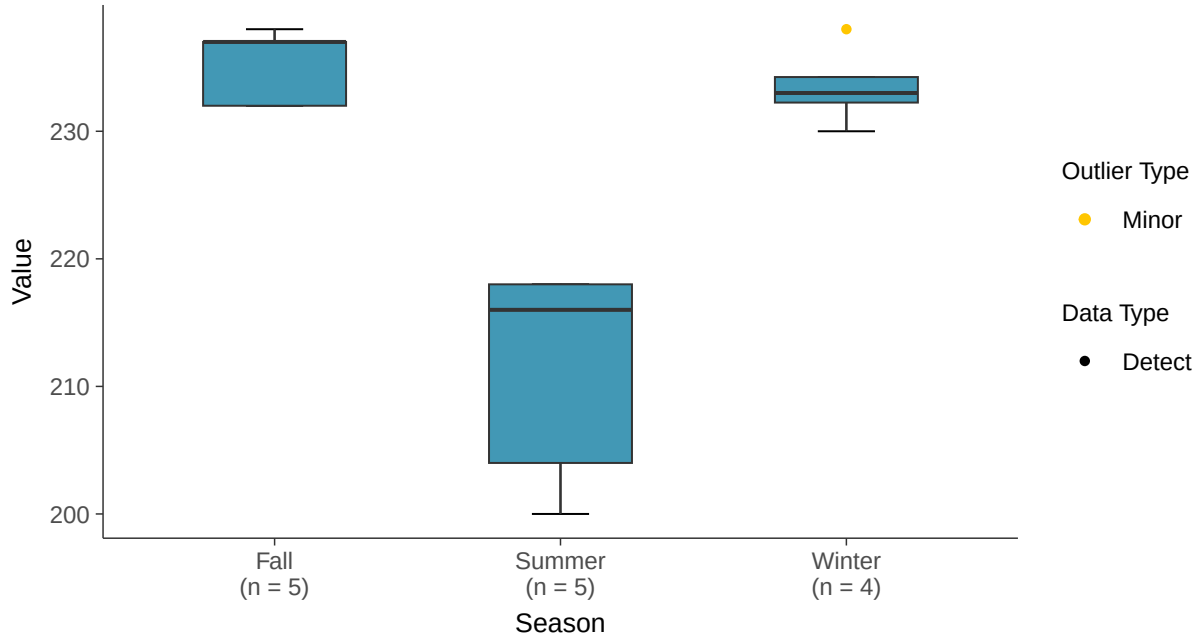
Boxplot

Hardness, MW-100C (mg/L)



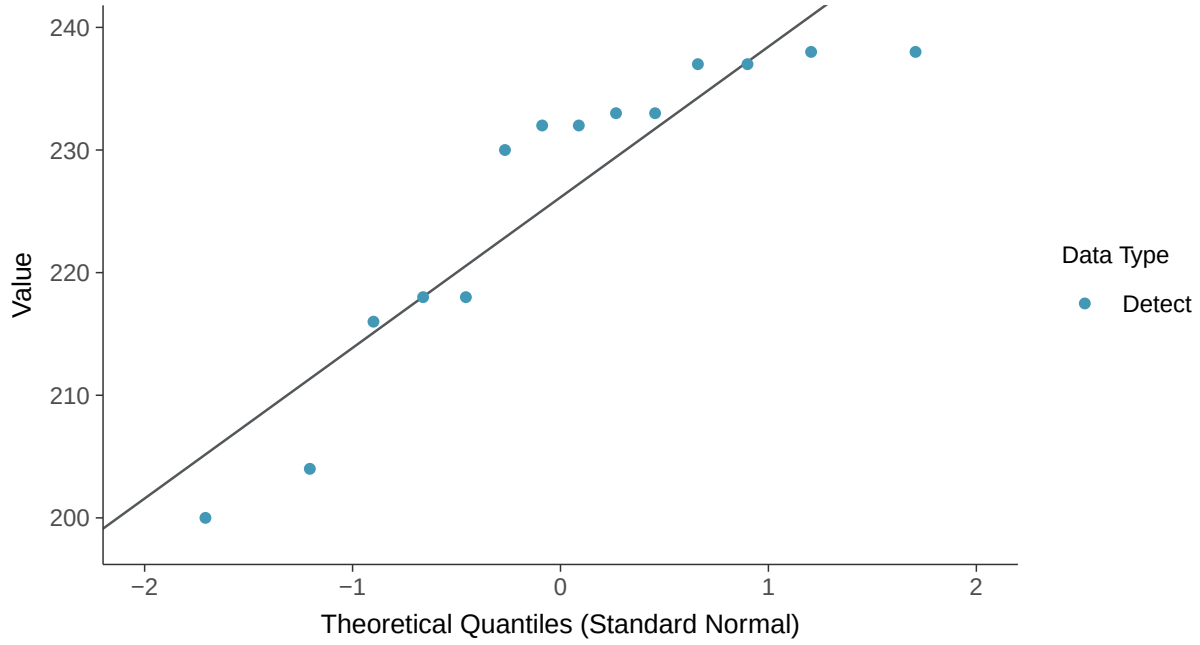
Boxplot by Season

Hardness, MW-100C (mg/L)



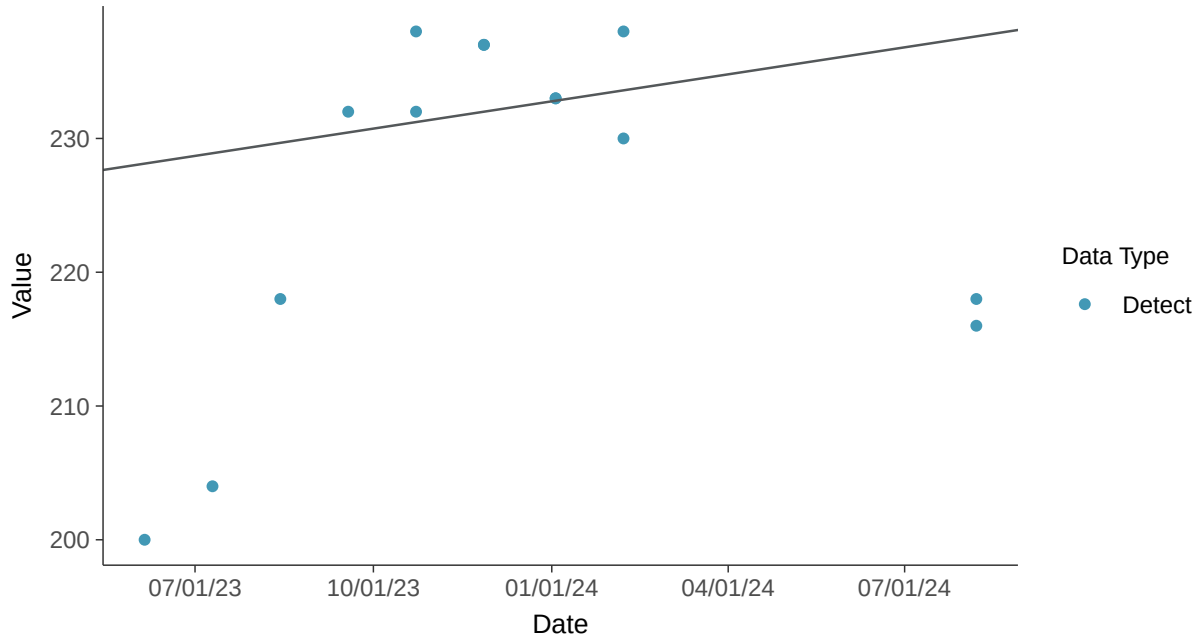
Normal Q-Q plot

Hardness, MW-100C (mg/L)



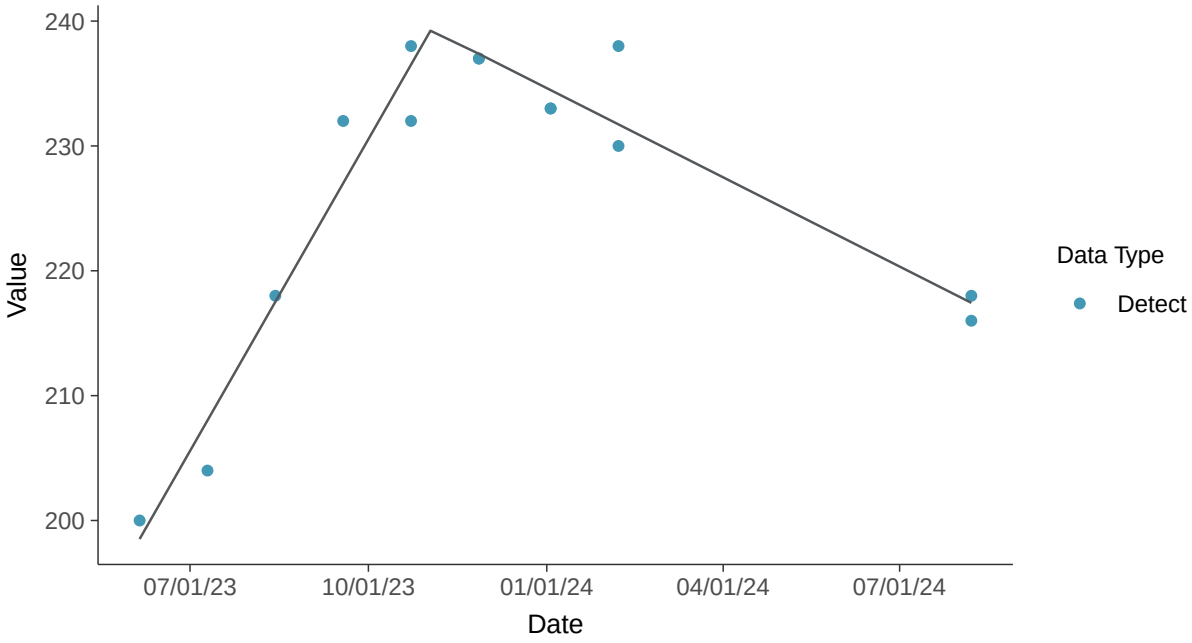
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Hardness, MW-100C (mg/L)



Trend Regression: Piecewise Linear-Linear

Hardness, MW-100C (mg/L)

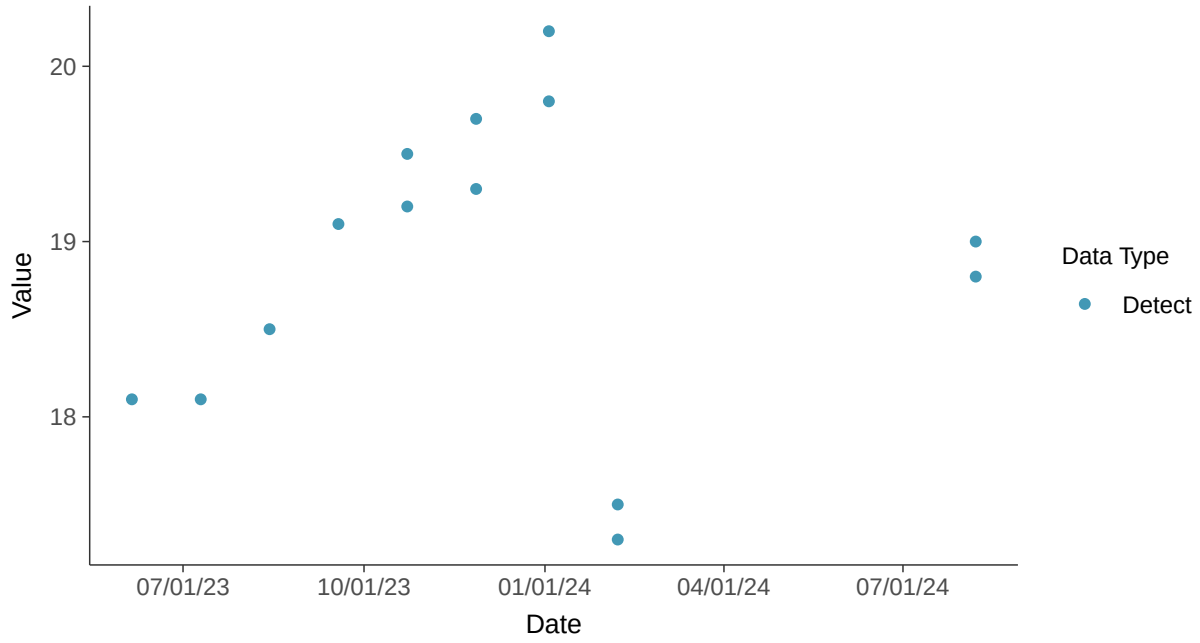


Other: Magnesium, MW-100C

ID: 100C_4_34

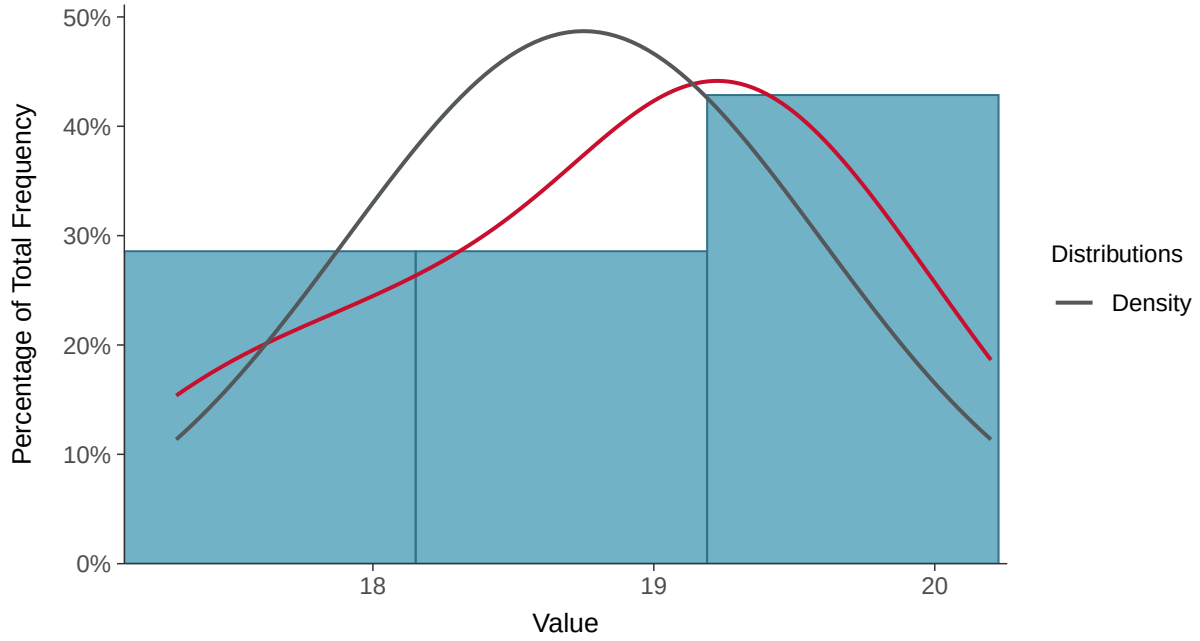
Scatter Plot

Magnesium, MW-100C (mg/L)



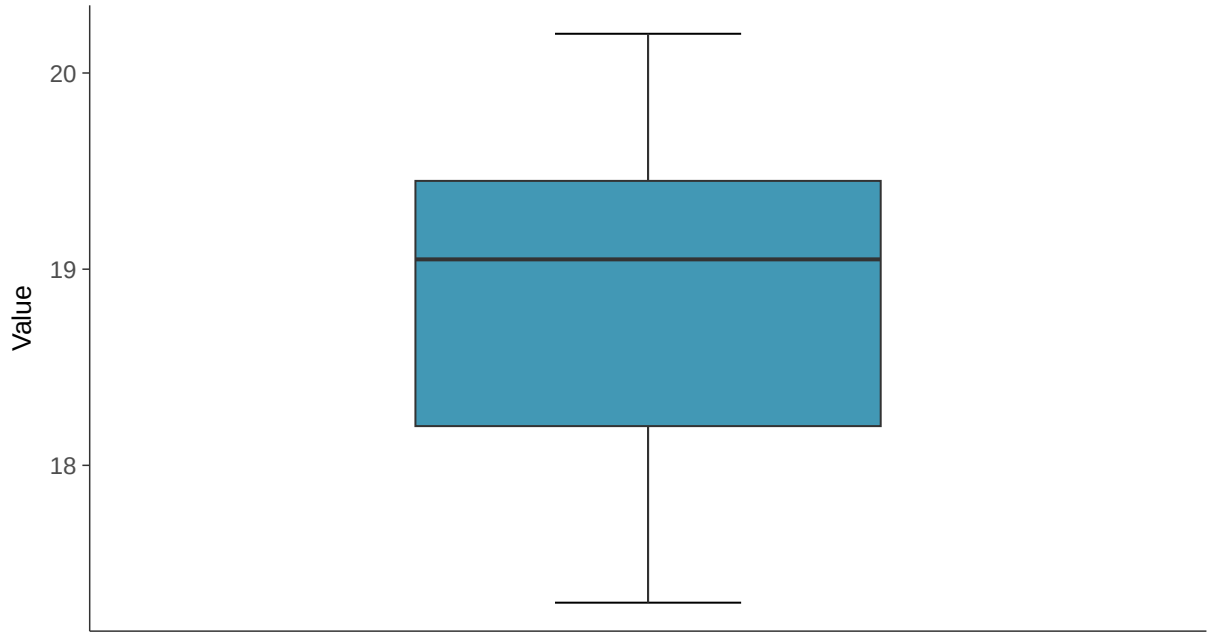
Histogram

Magnesium, MW-100C (mg/L)



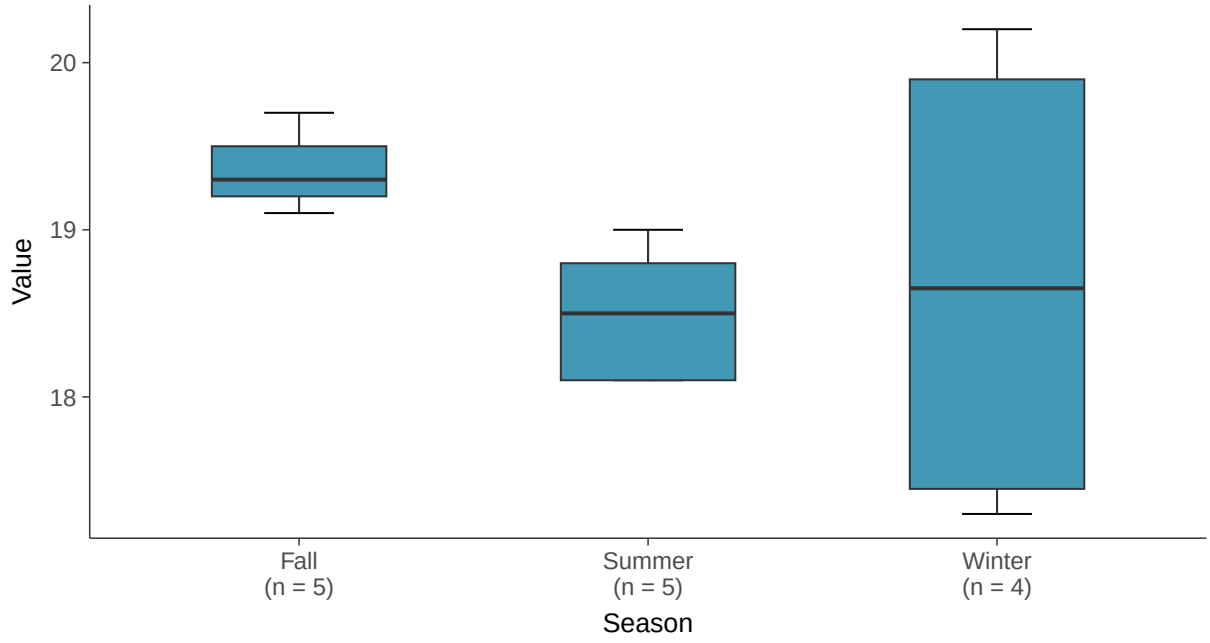
Boxplot

Magnesium, MW-100C (mg/L)



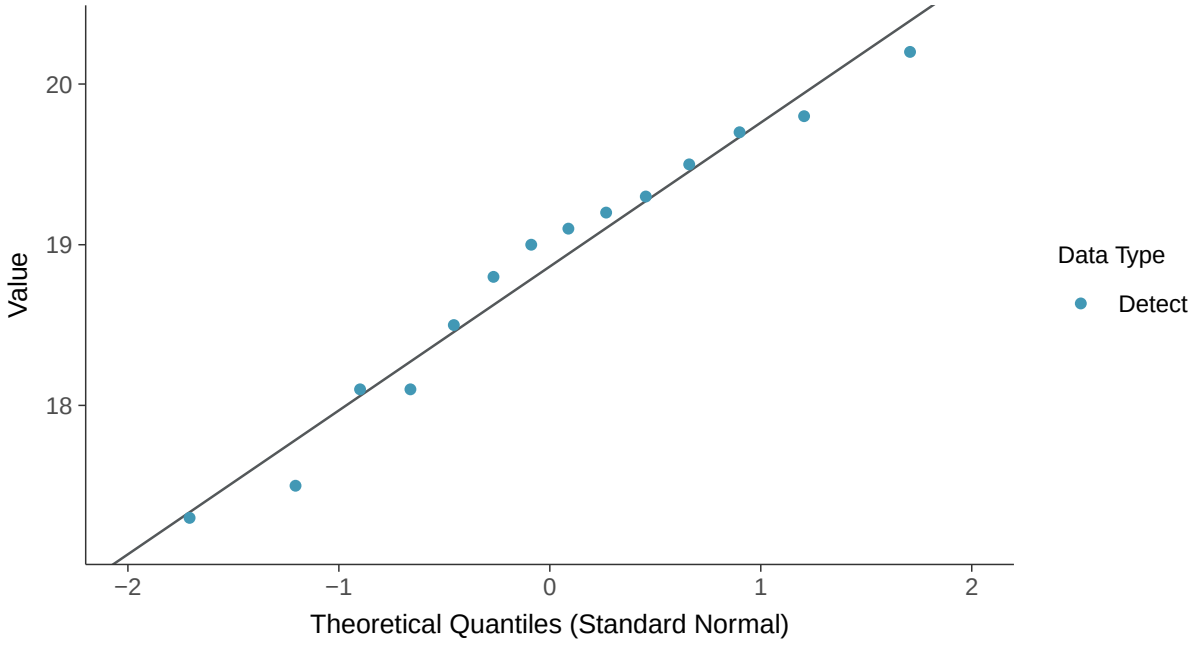
Boxplot by Season

Magnesium, MW-100C (mg/L)



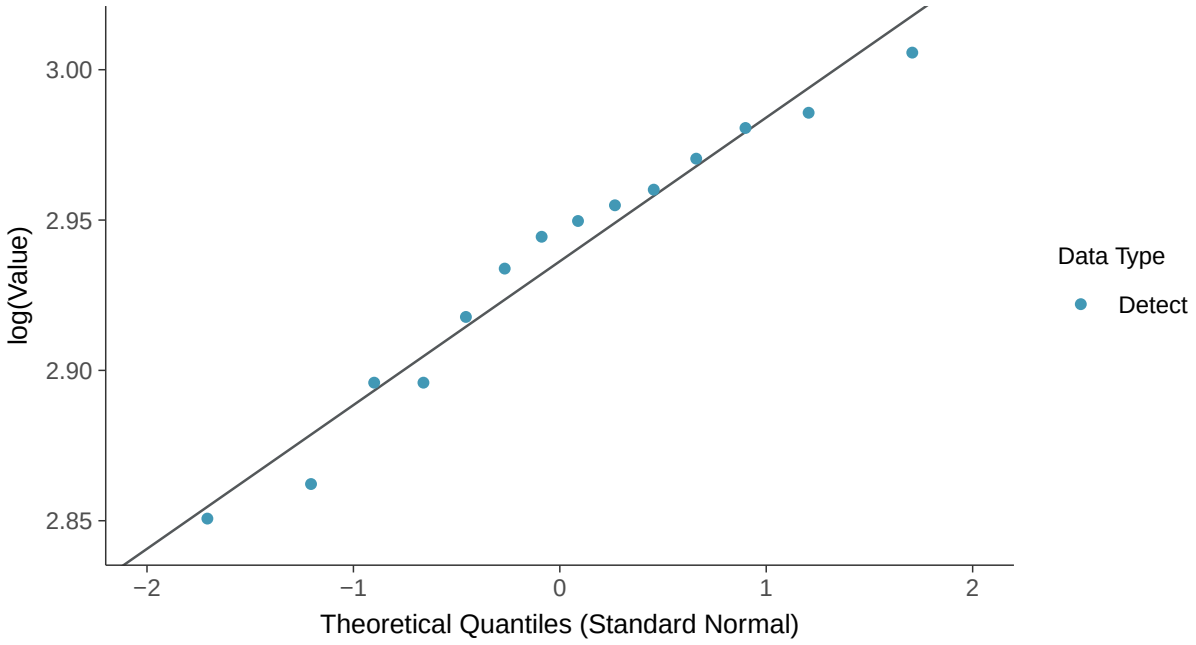
Normal Q-Q plot

Magnesium, MW-100C (mg/L)



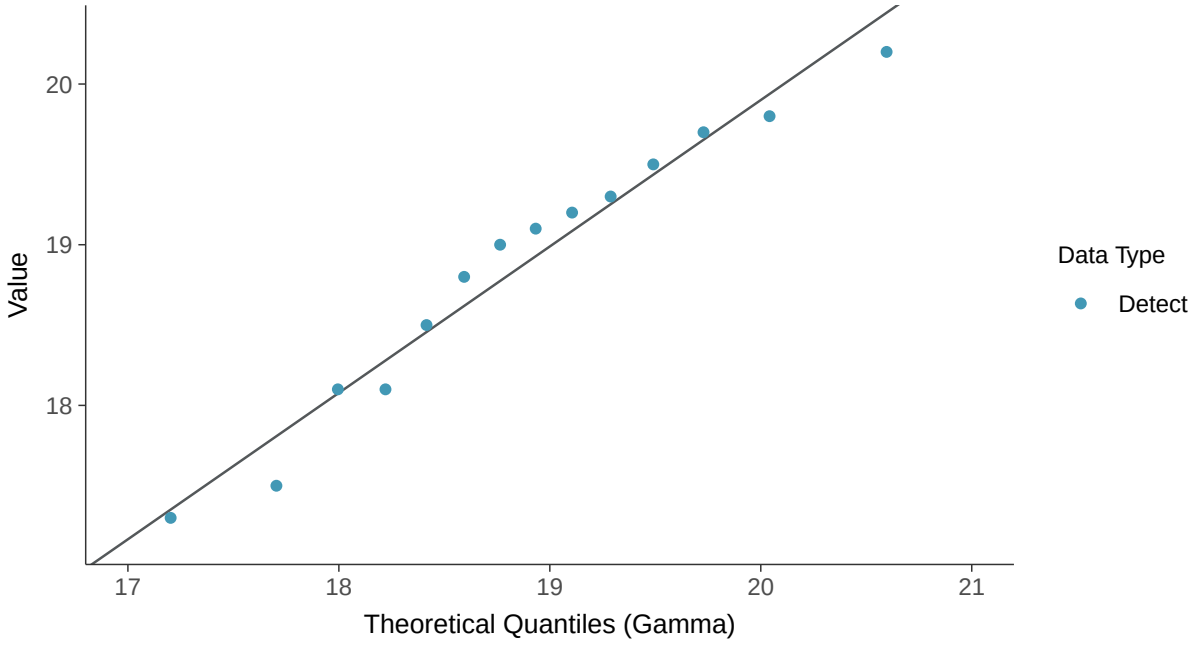
Lognormal Q-Q plot

Magnesium, MW-100C (mg/L)



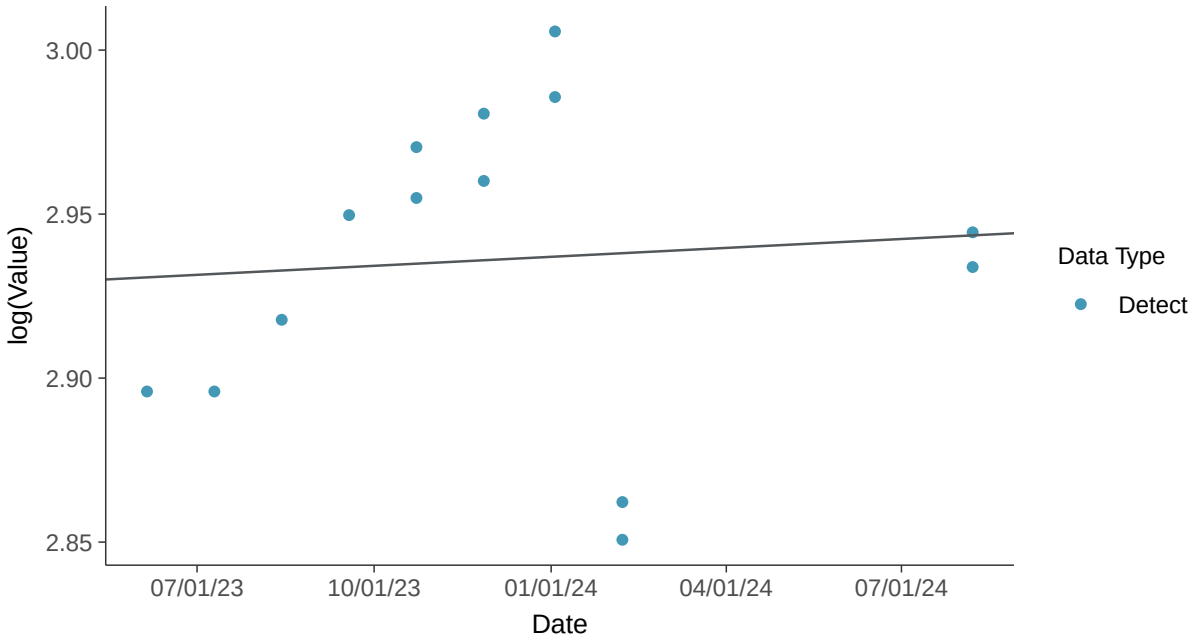
Gamma Q-Q plot

Magnesium, MW-100C (mg/L)



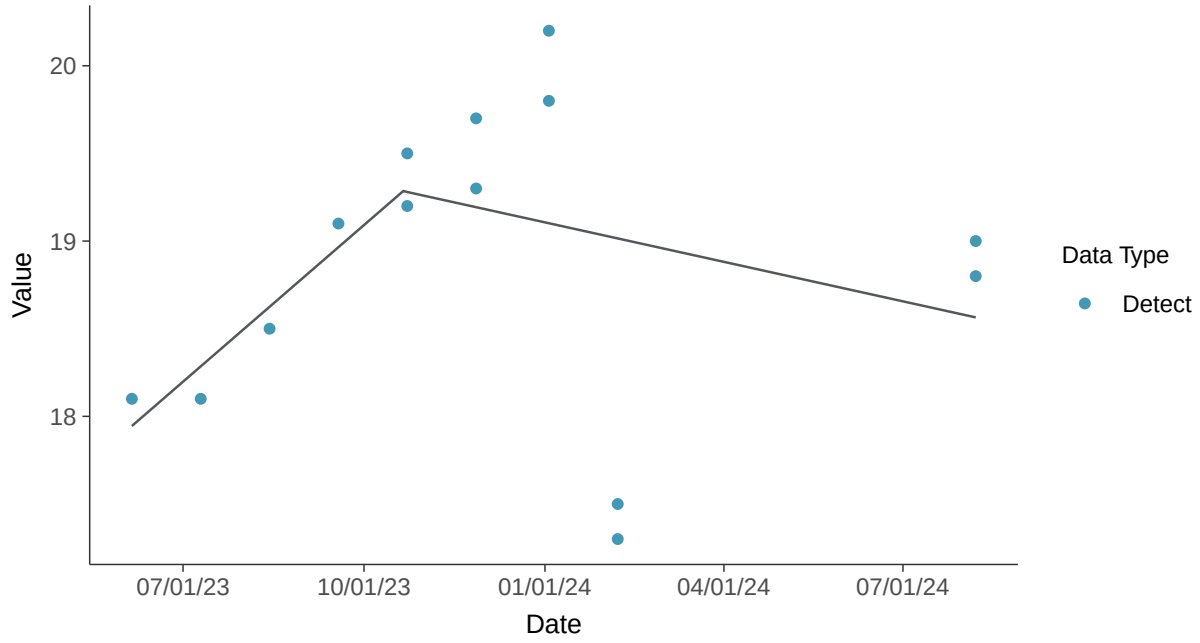
Trend Regression: Lognormal MLE

Magnesium, MW-100C (mg/L)



Trend Regression: Piecewise Linear-Linear

Magnesium, MW-100C (mg/L)

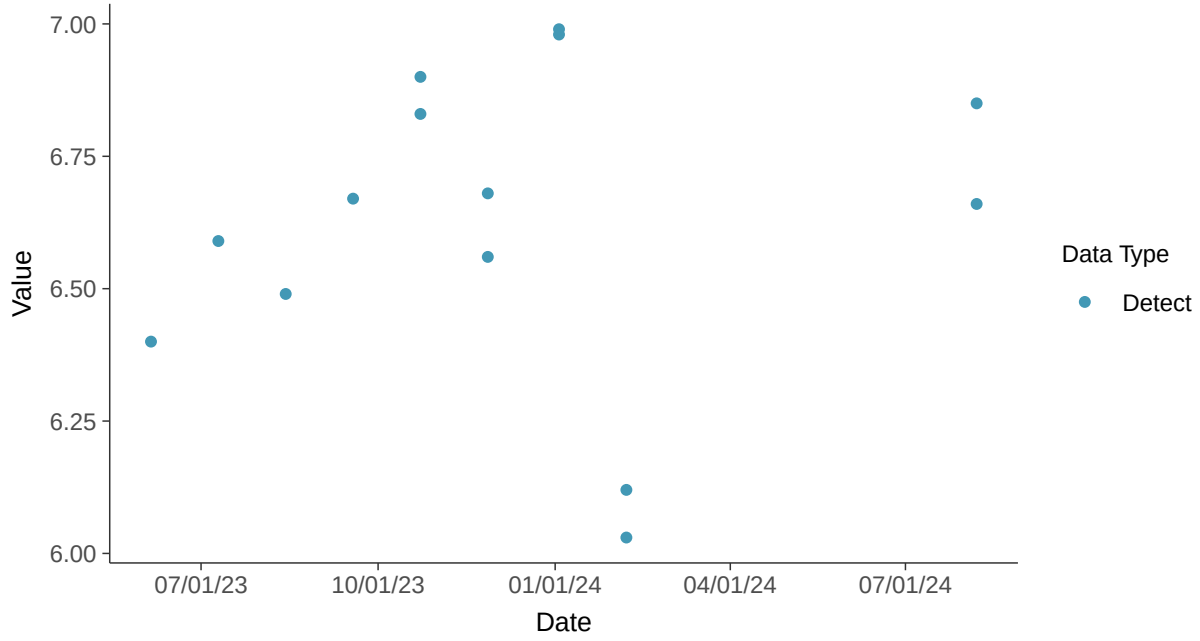


Other: Potassium, MW-100C

ID: 100C_4_35

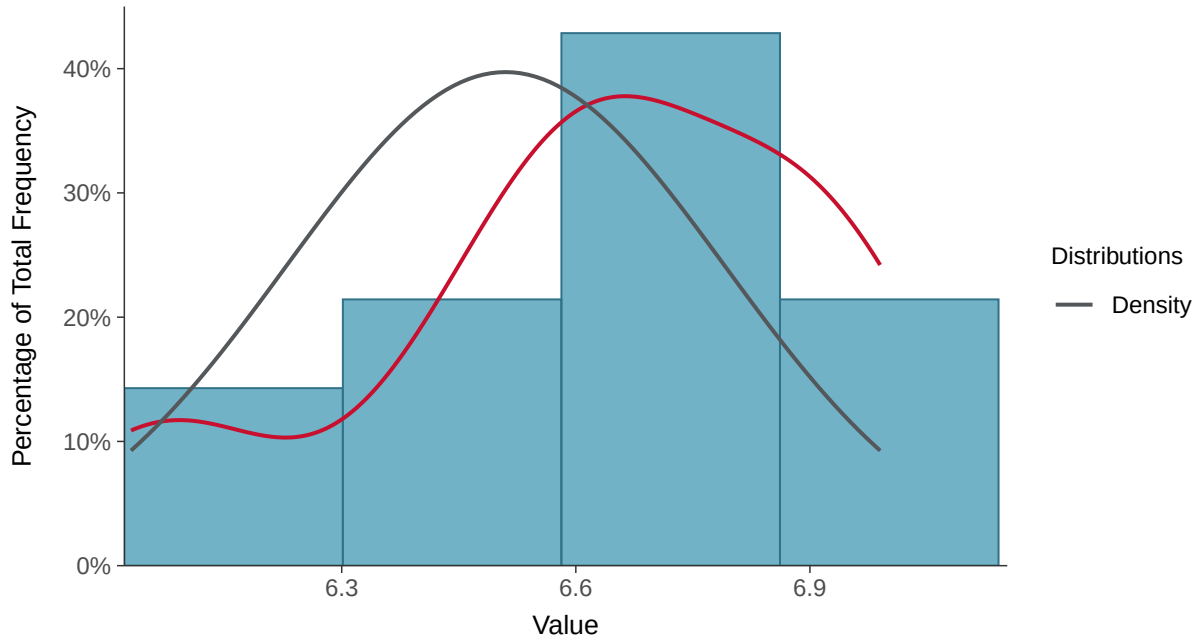
Scatter Plot

Potassium, MW-100C (mg/L)



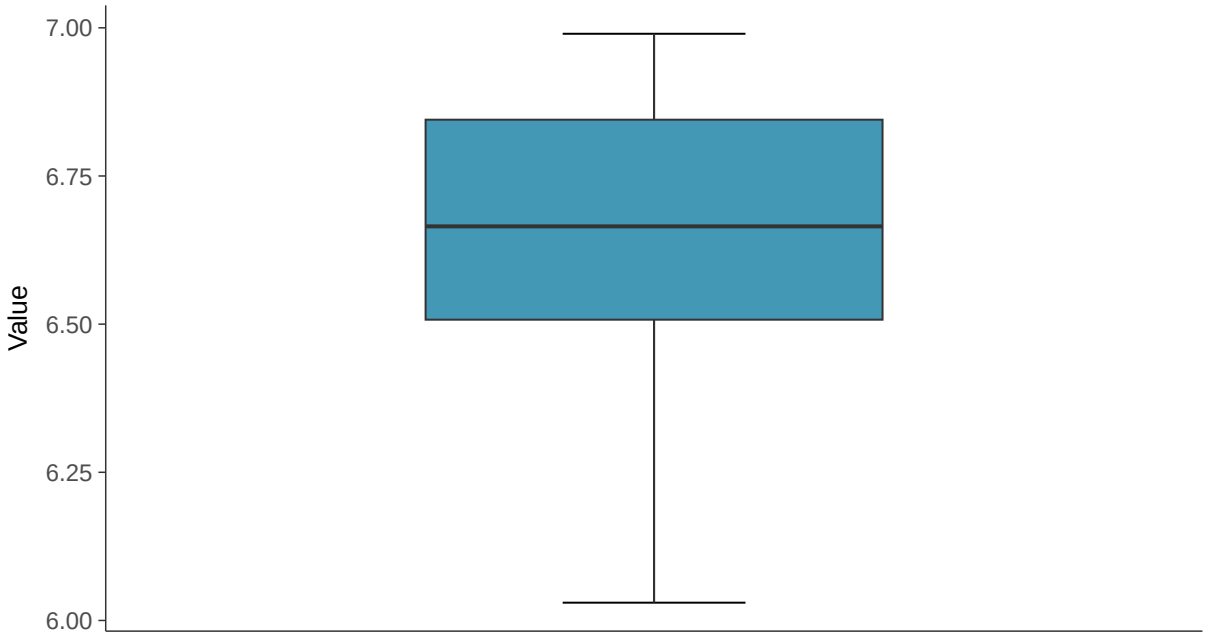
Histogram

Potassium, MW-100C (mg/L)



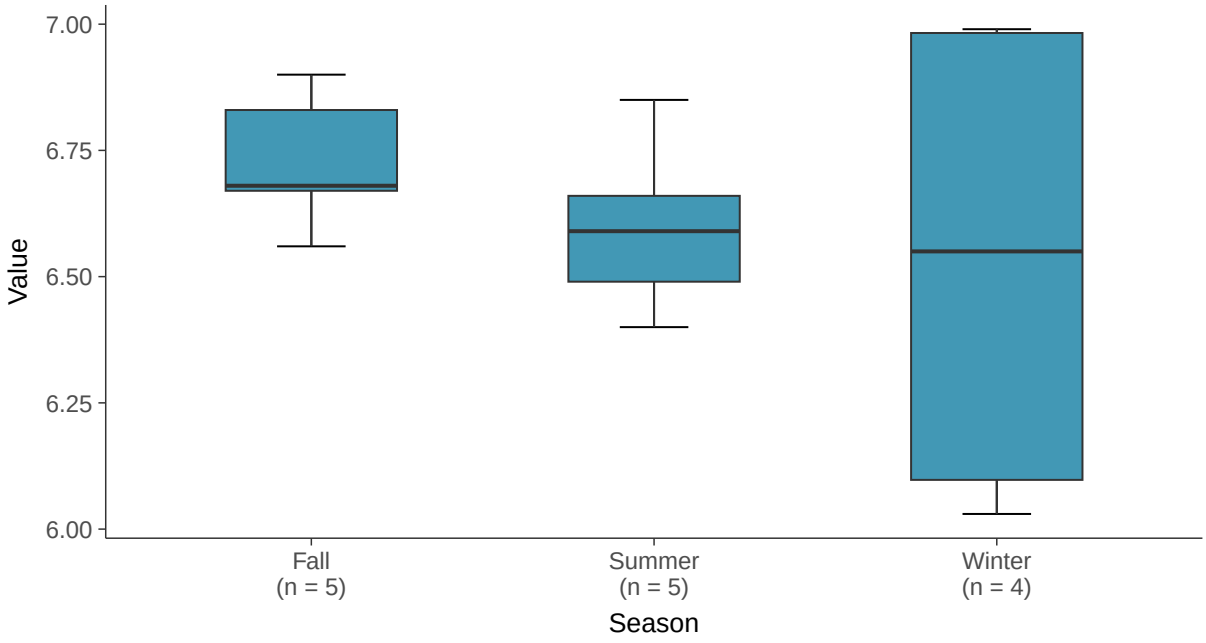
Boxplot

Potassium, MW-100C (mg/L)



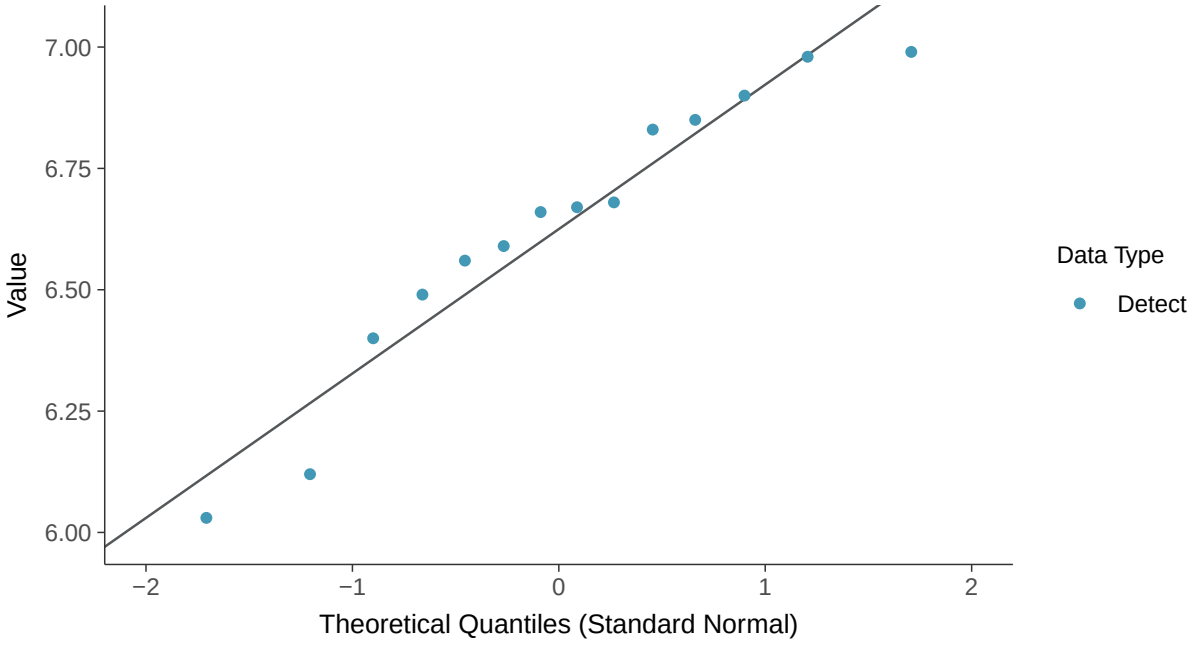
Boxplot by Season

Potassium, MW-100C (mg/L)



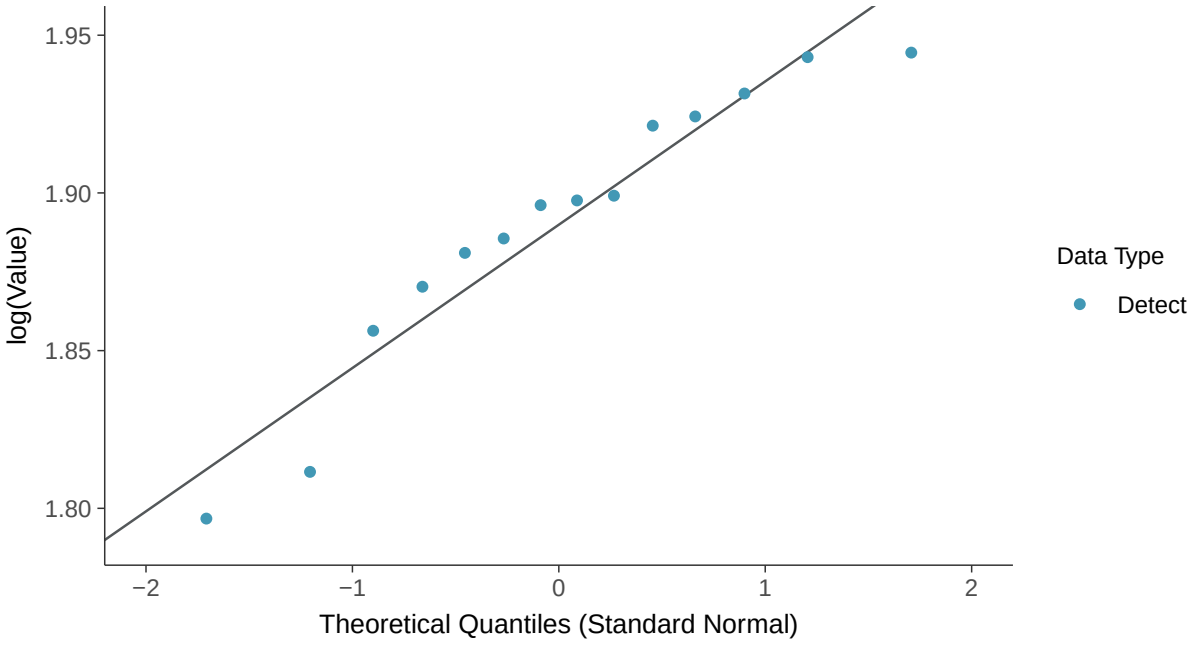
Normal Q-Q plot

Potassium, MW-100C (mg/L)



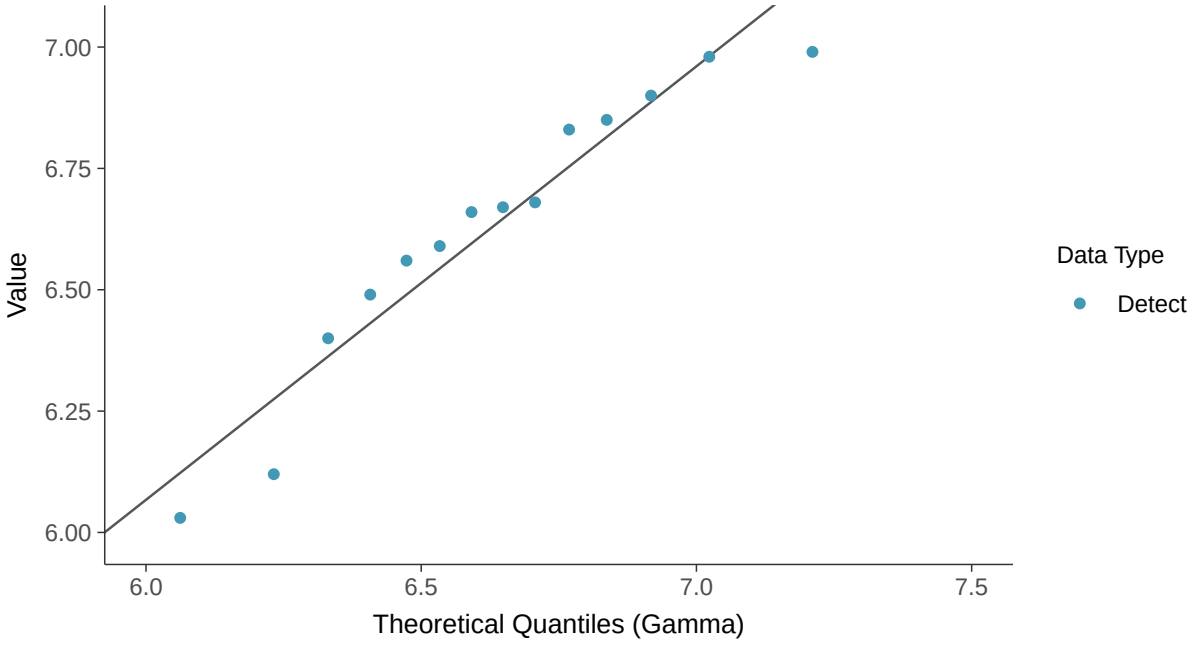
Lognormal Q-Q plot

Potassium, MW-100C (mg/L)



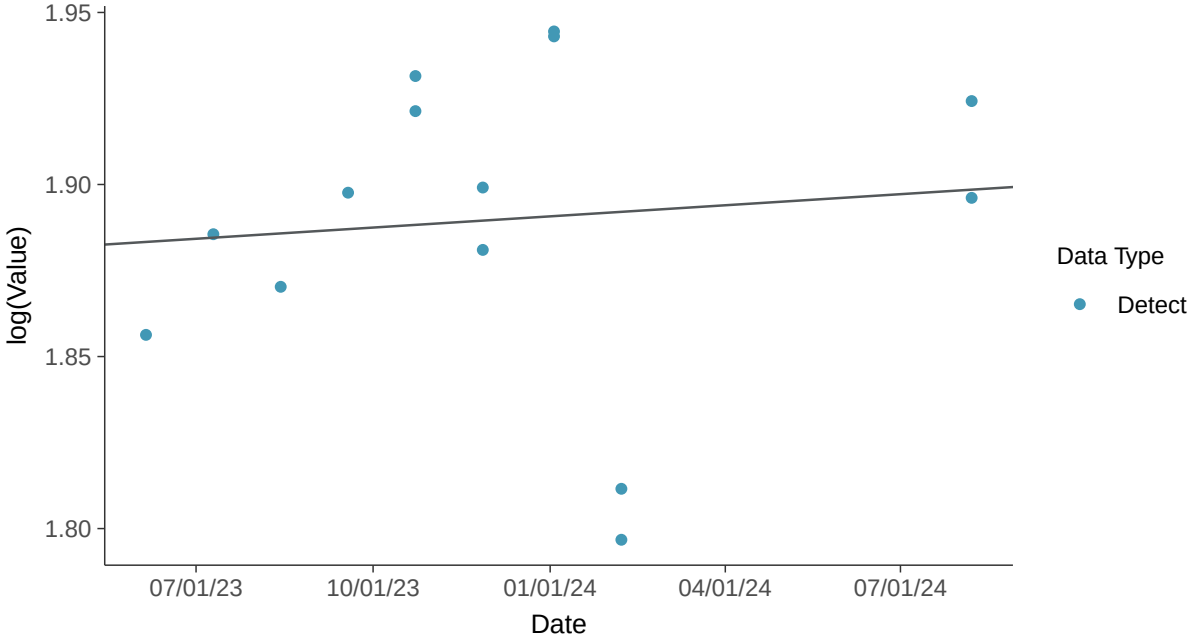
Gamma Q-Q plot

Potassium, MW-100C (mg/L)



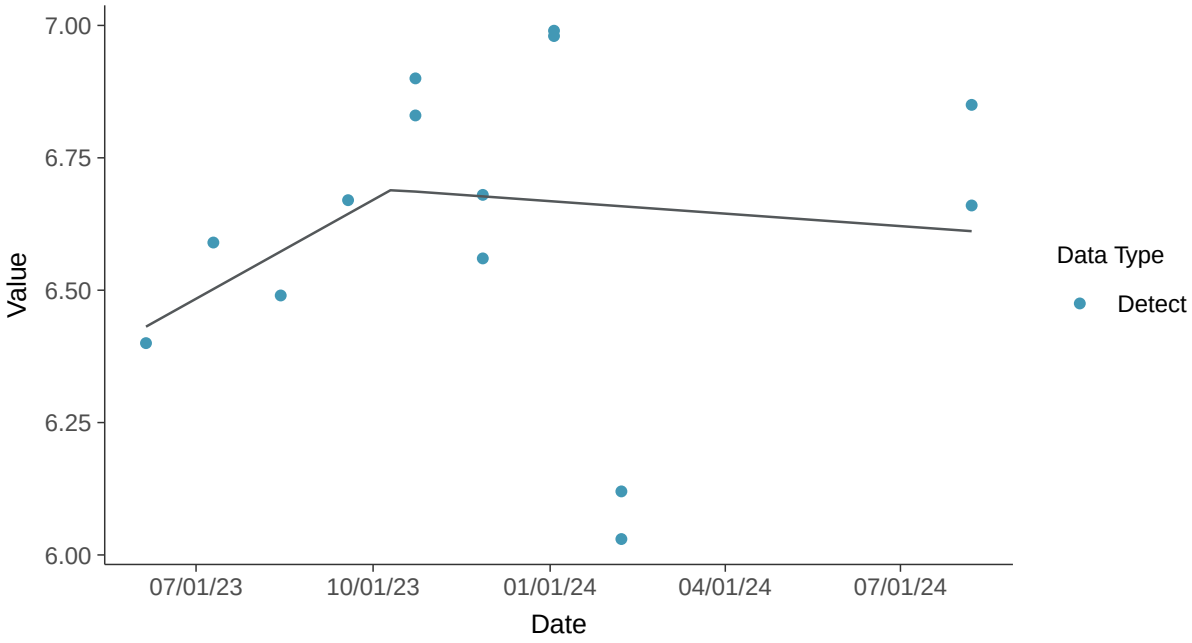
Trend Regression: Lognormal MLE

Potassium, MW-100C (mg/L)



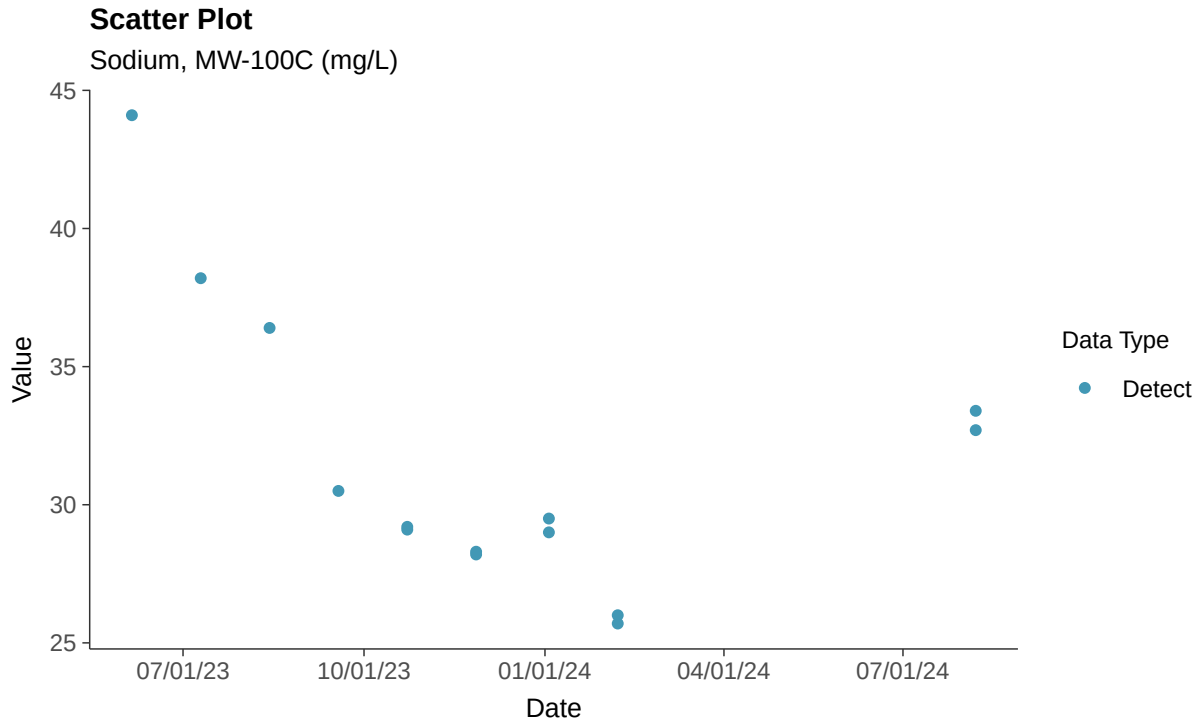
Trend Regression: Piecewise Linear-Linear

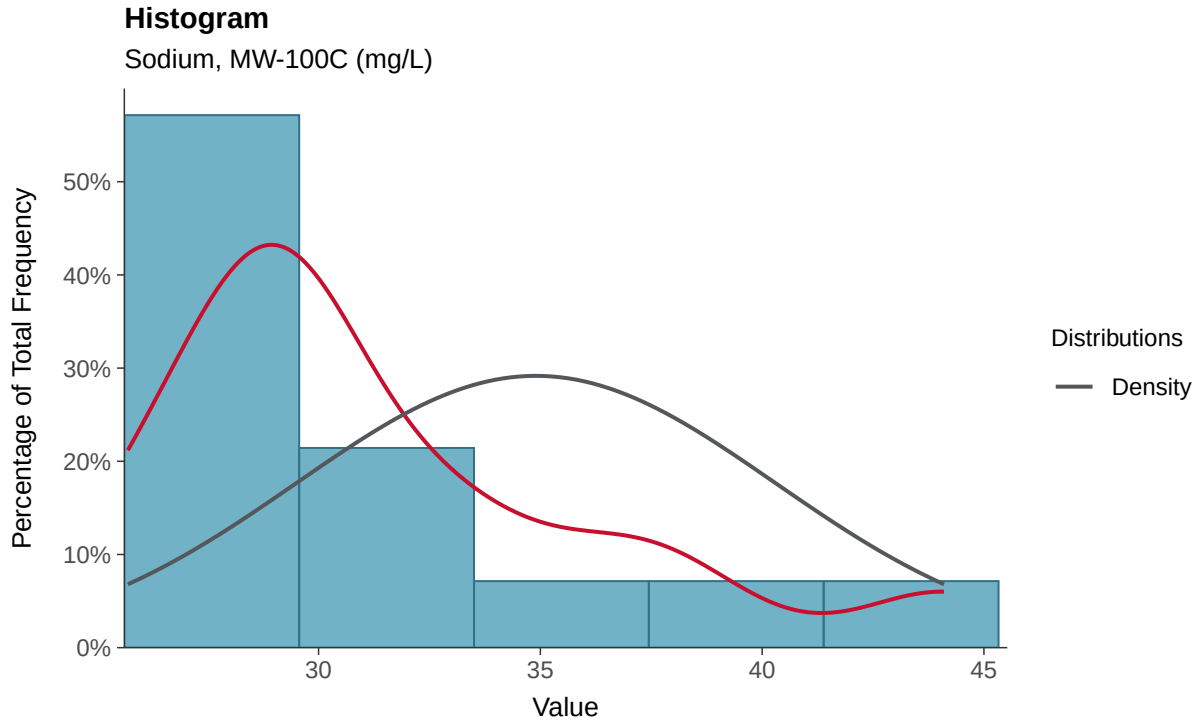
Potassium, MW-100C (mg/L)



Other: Sodium, MW-100C

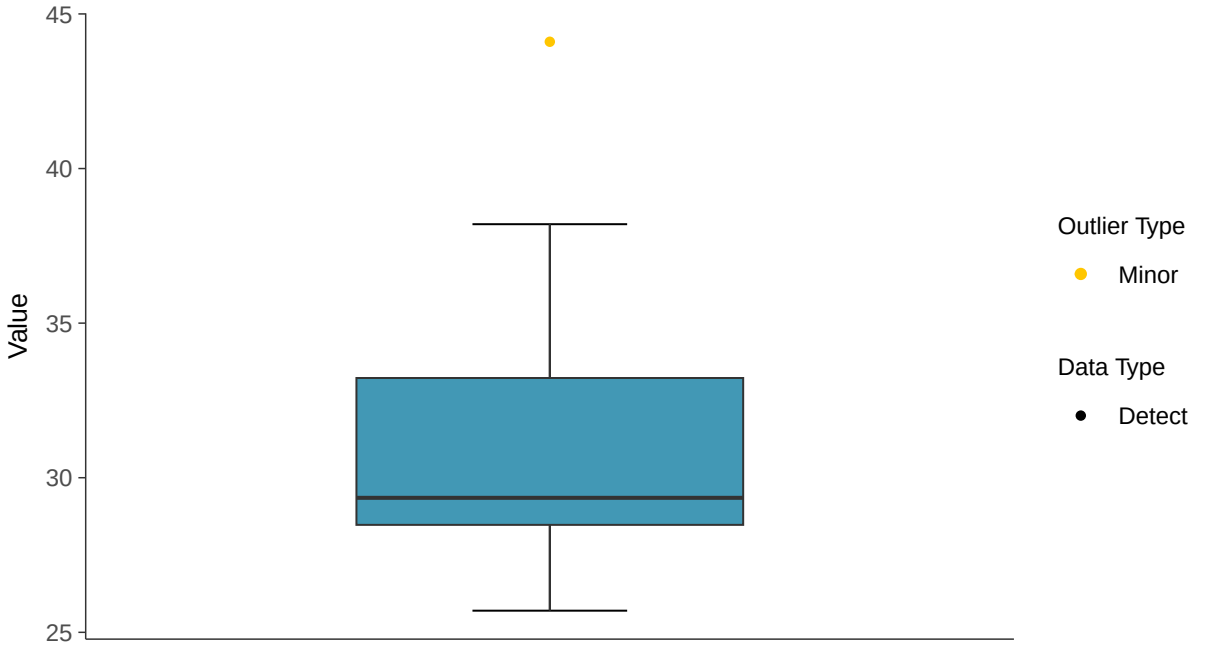
ID: 100C_4_36





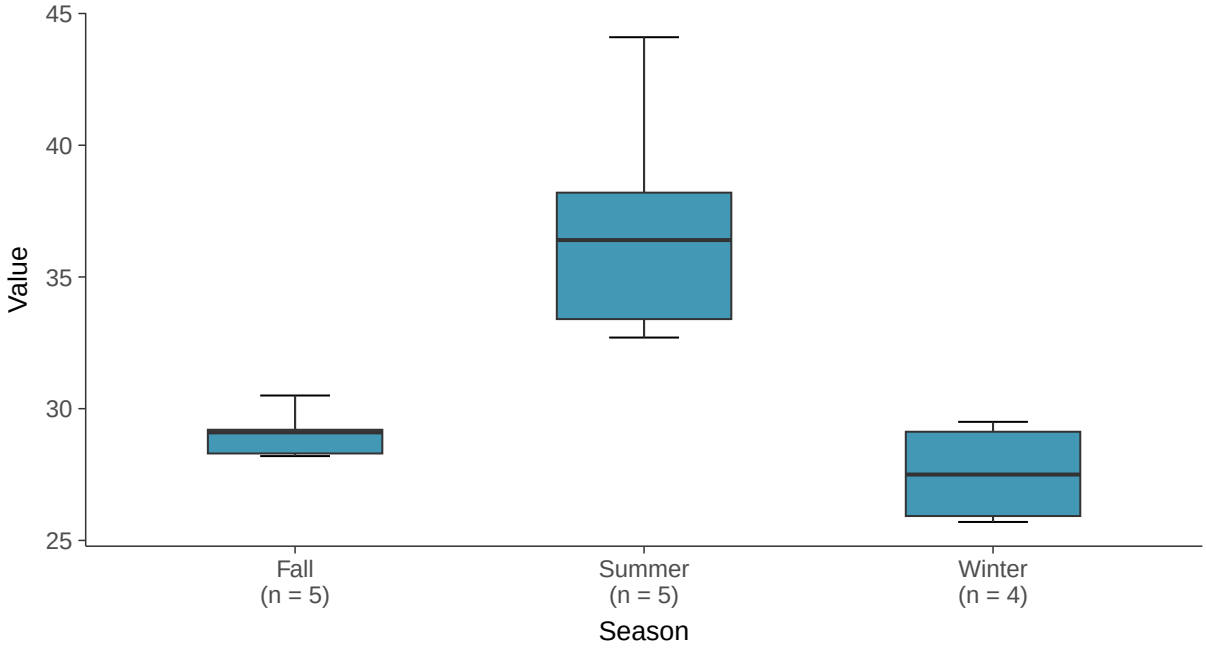
Boxplot

Sodium, MW-100C (mg/L)



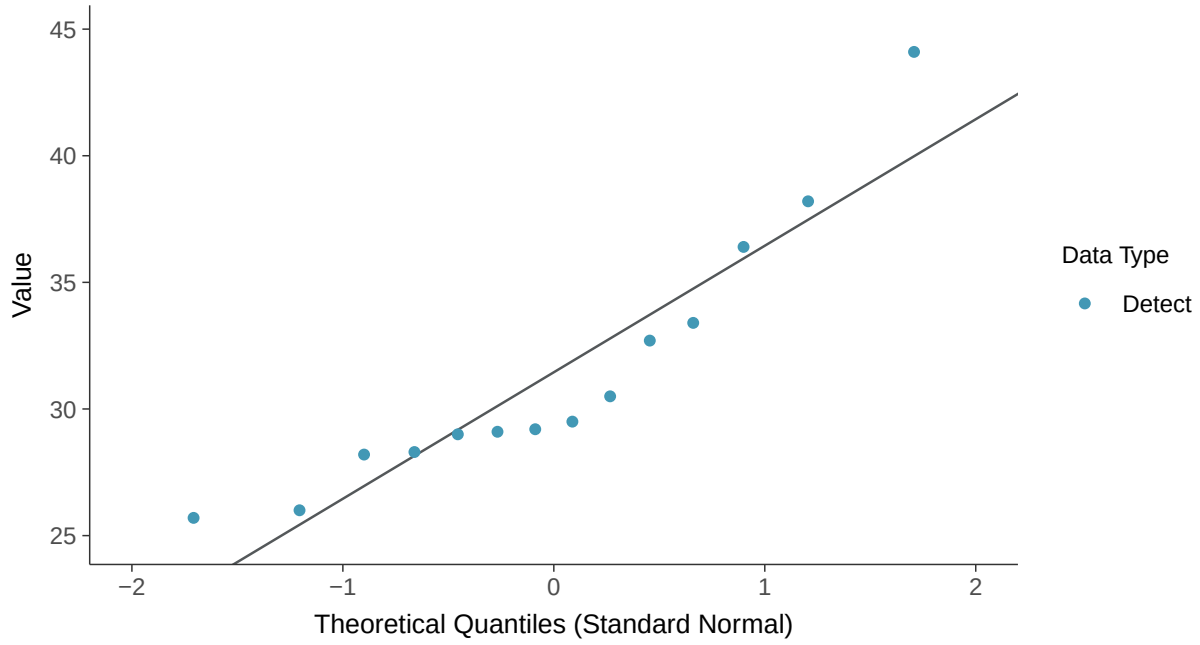
Boxplot by Season

Sodium, MW-100C (mg/L)



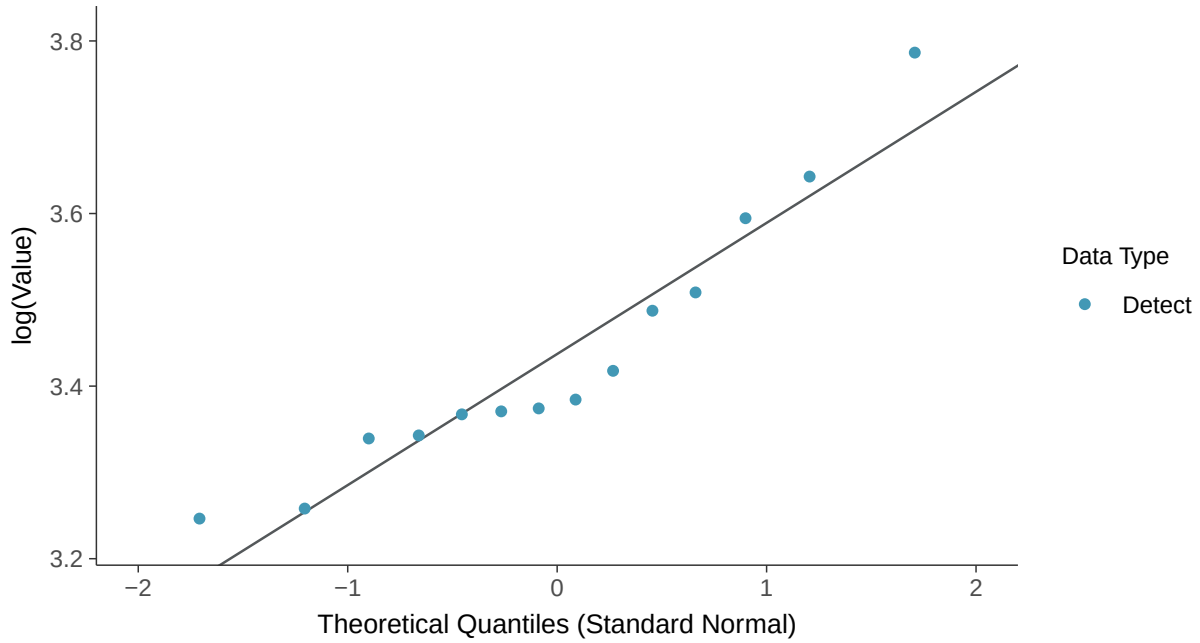
Normal Q-Q plot

Sodium, MW-100C (mg/L)



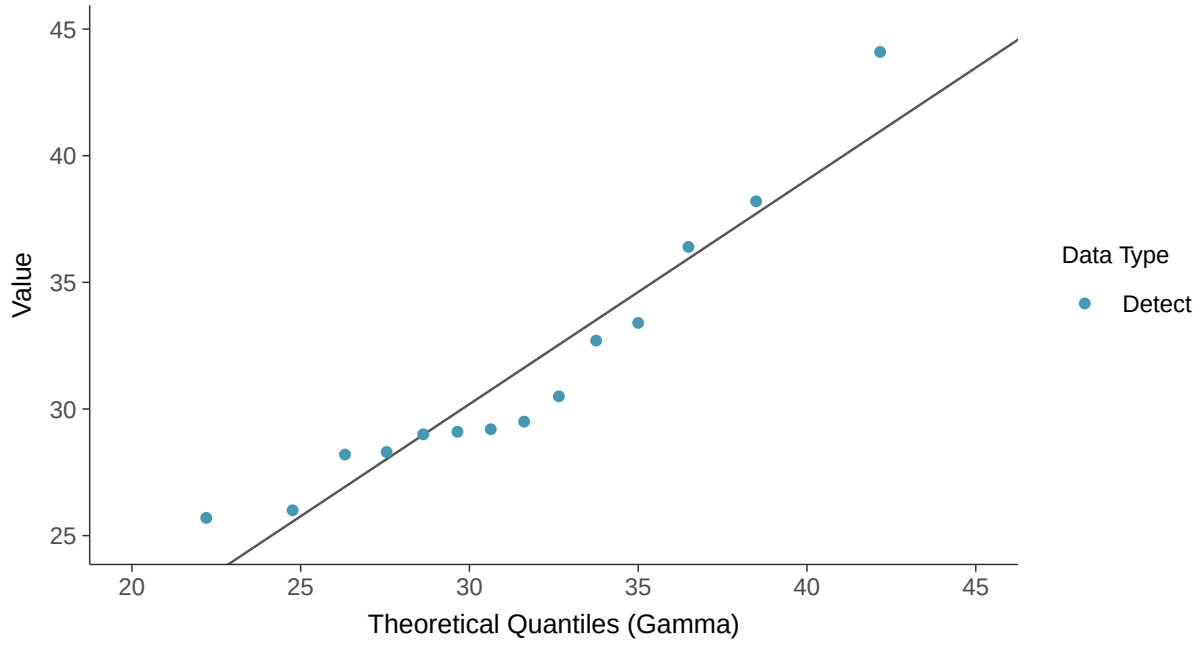
Lognormal Q-Q plot

Sodium, MW-100C (mg/L)



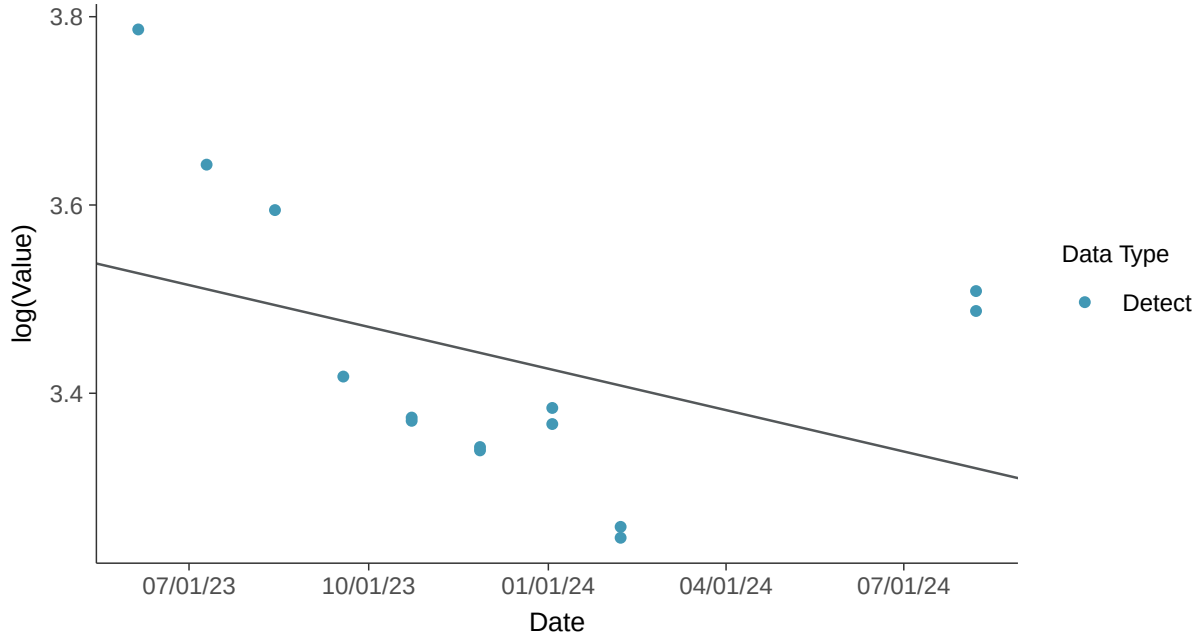
Gamma Q-Q plot

Sodium, MW-100C (mg/L)



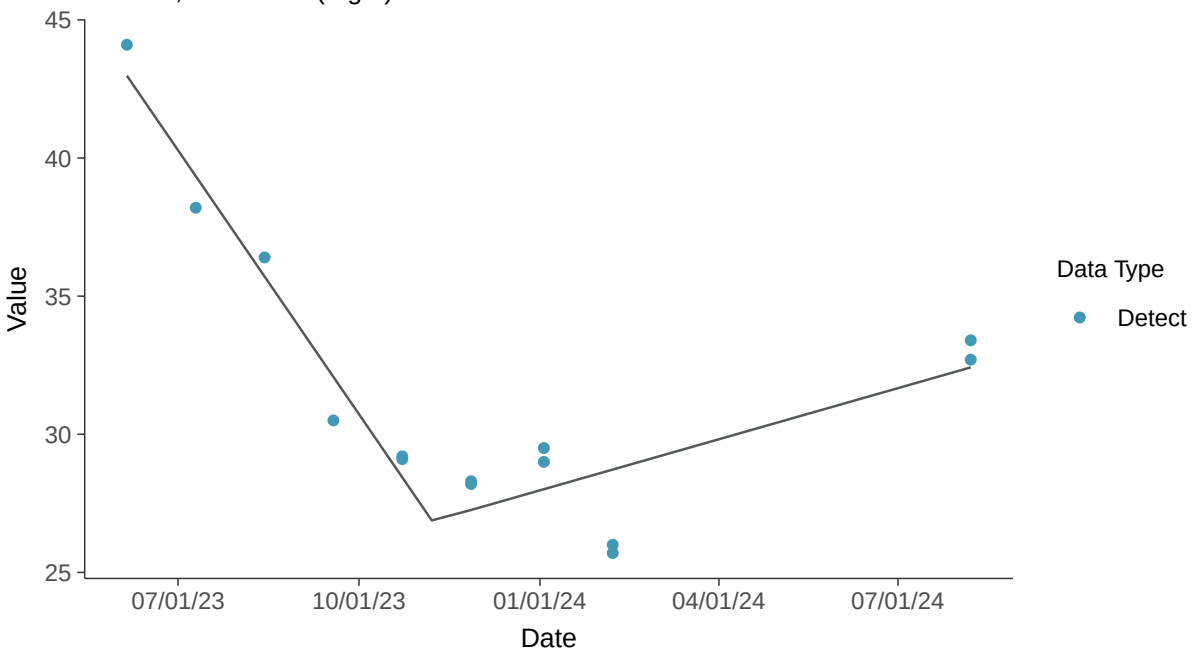
Trend Regression: Lognormal MLE

Sodium, MW-100C (mg/L)



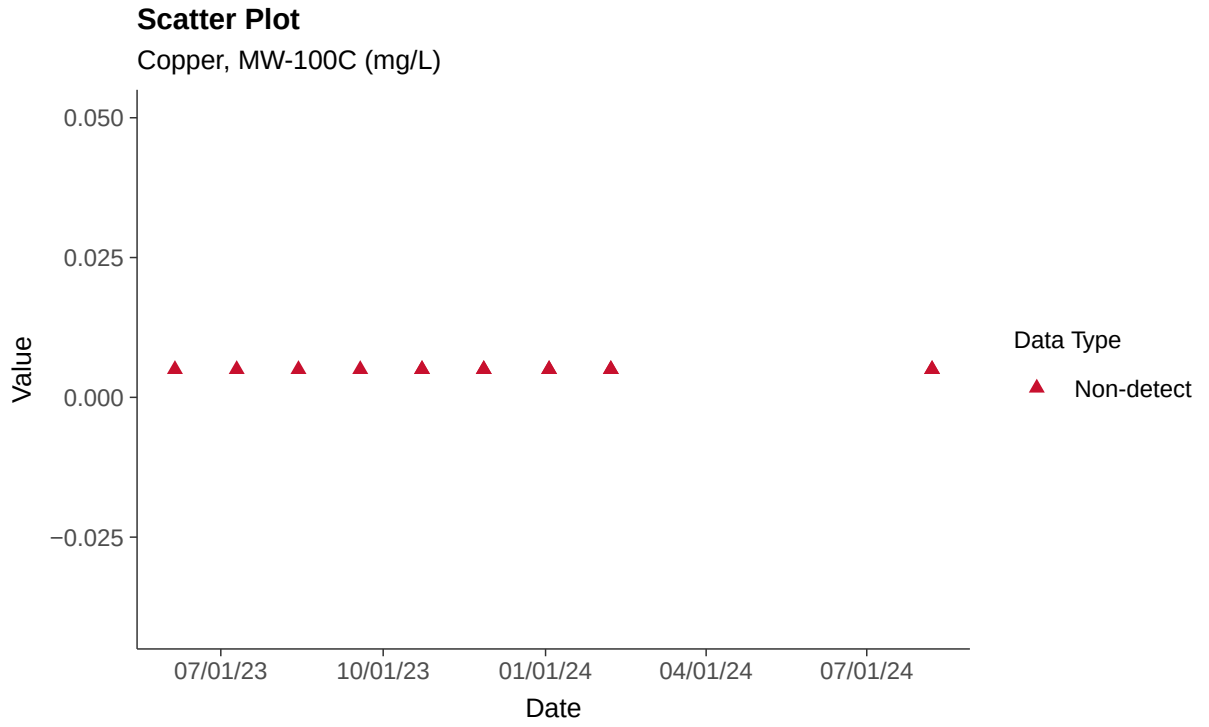
Trend Regression: Piecewise Linear-Linear

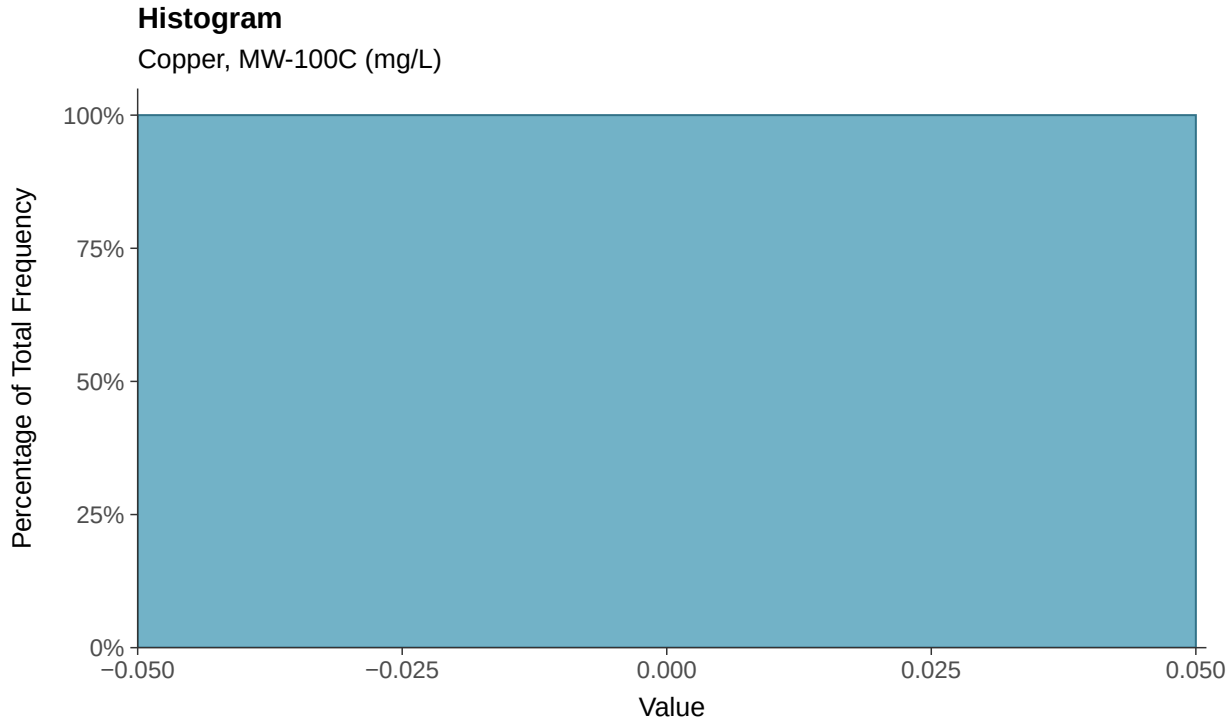
Sodium, MW-100C (mg/L)



Part 115: Copper, MW-100C

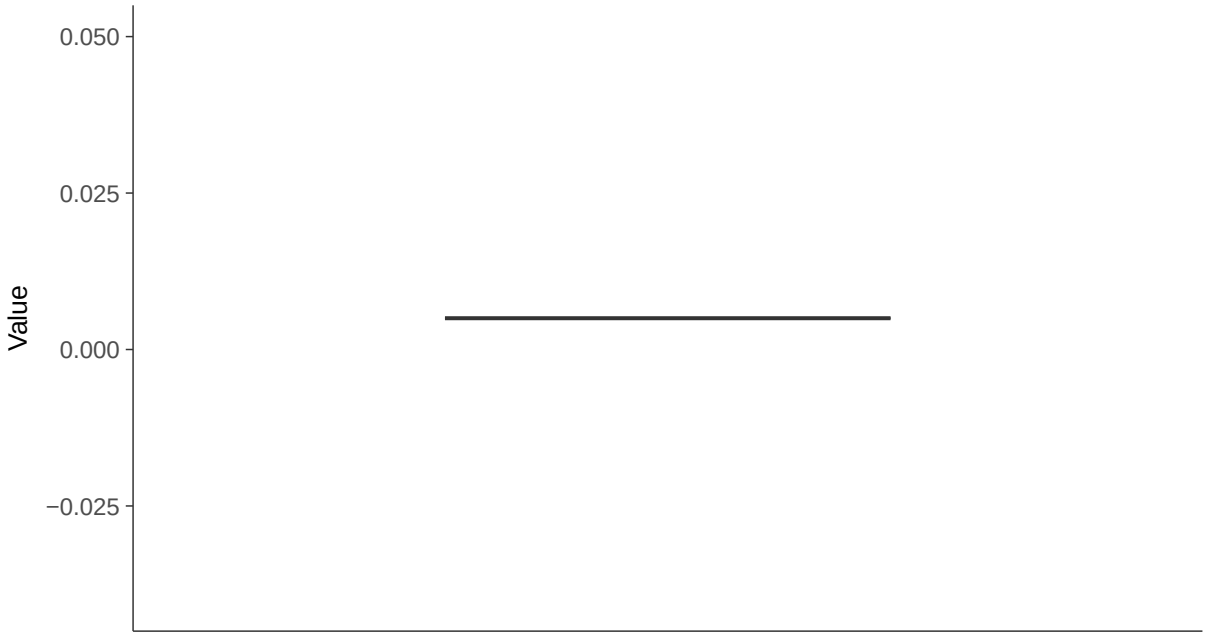
ID: 100C_5_37





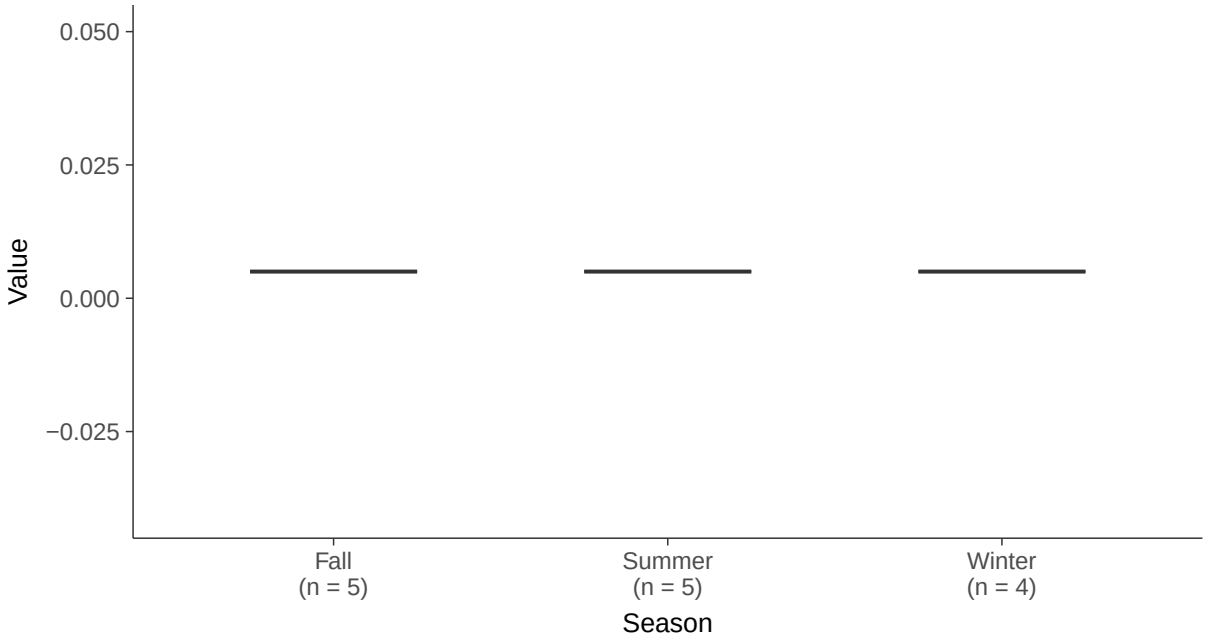
Boxplot

Copper, MW-100C (mg/L)



Boxplot by Season

Copper, MW-100C (mg/L)

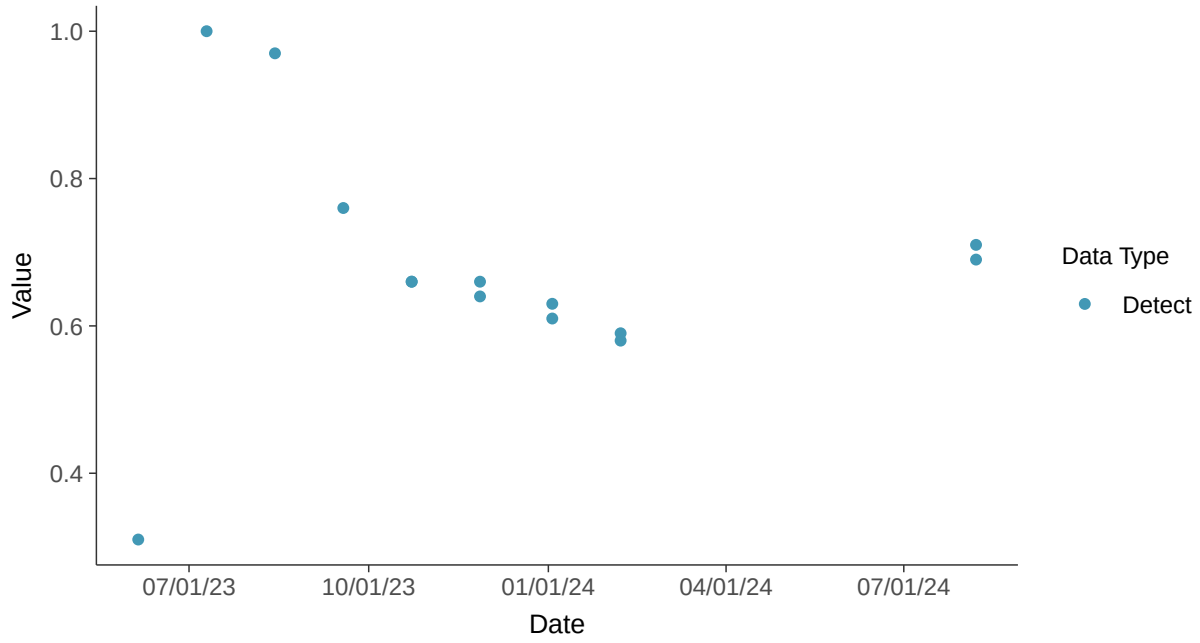


Part 115: Iron, MW-100C

ID: 100C_5_38

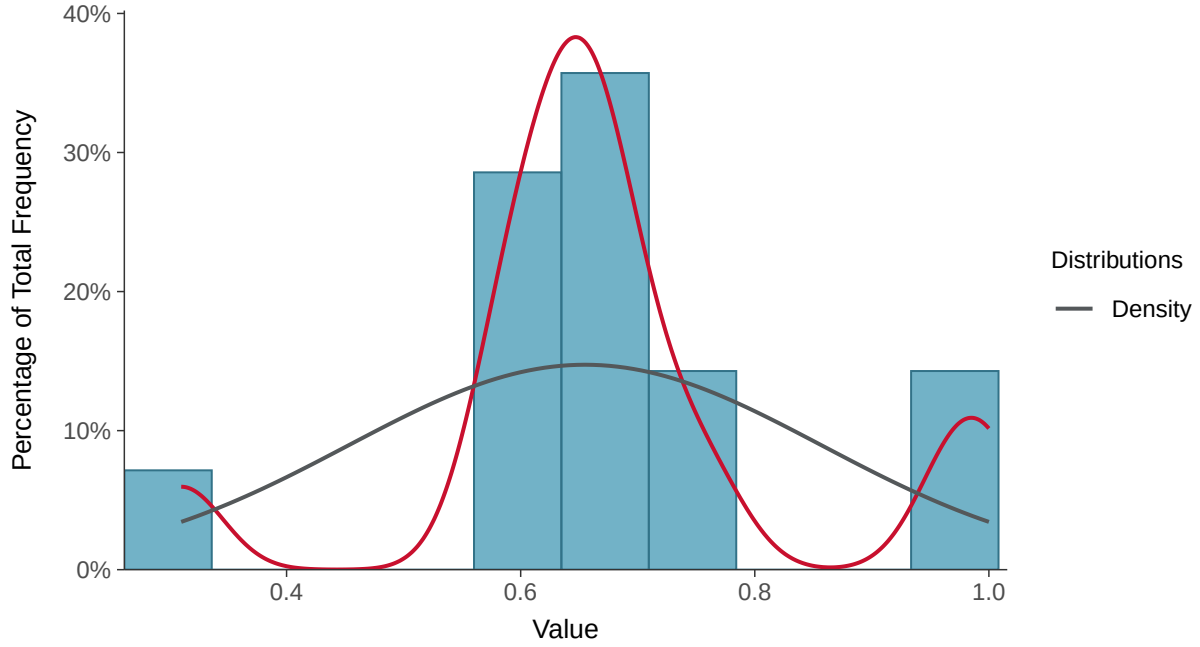
Scatter Plot

Iron, MW-100C (mg/L)



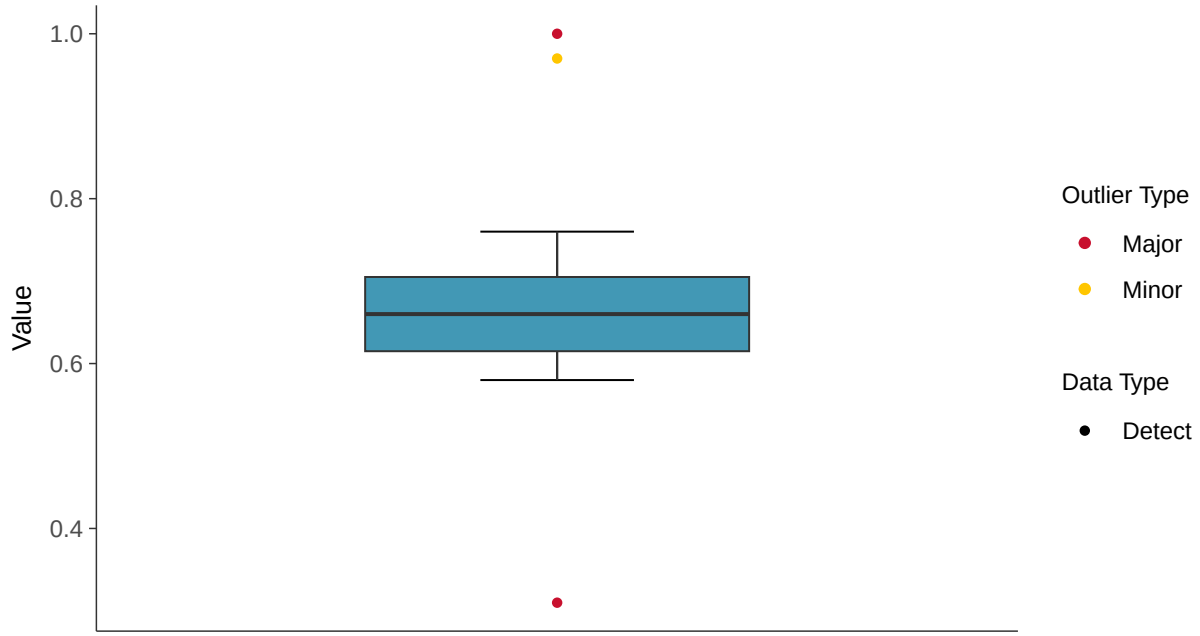
Histogram

Iron, MW-100C (mg/L)



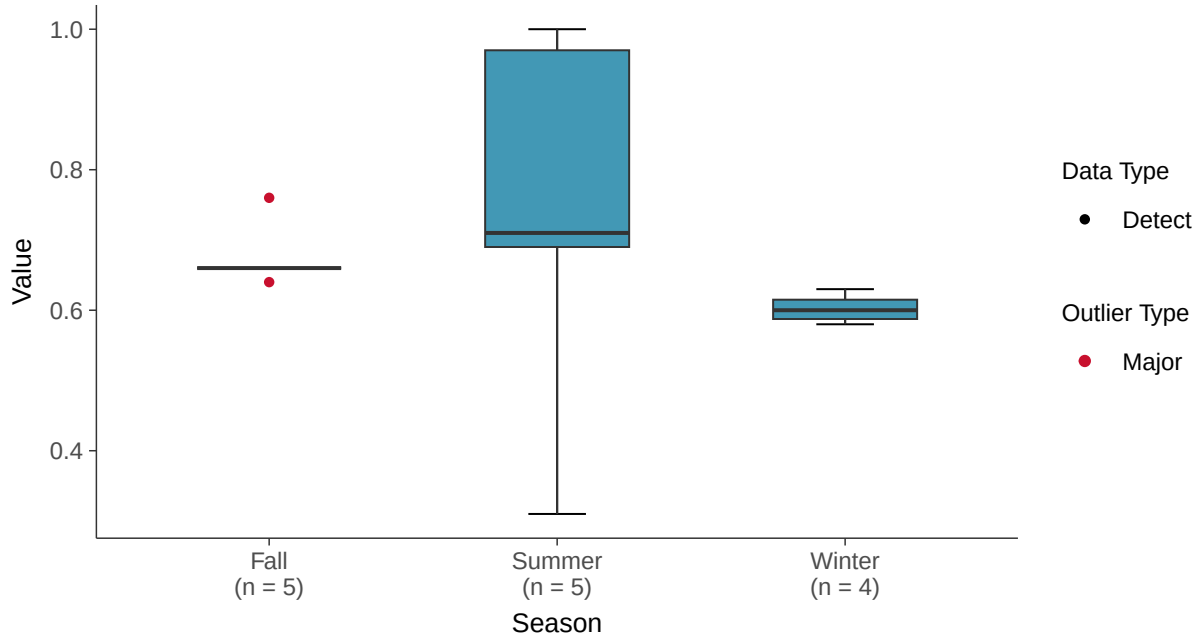
Boxplot

Iron, MW-100C (mg/L)



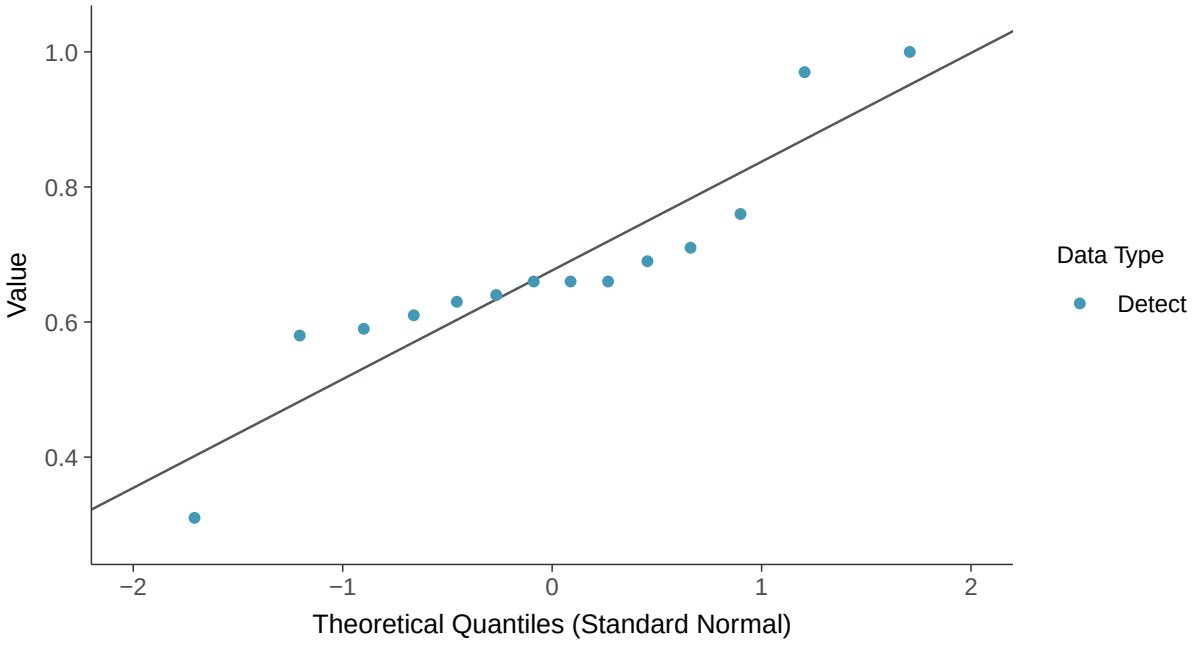
Boxplot by Season

Iron, MW-100C (mg/L)



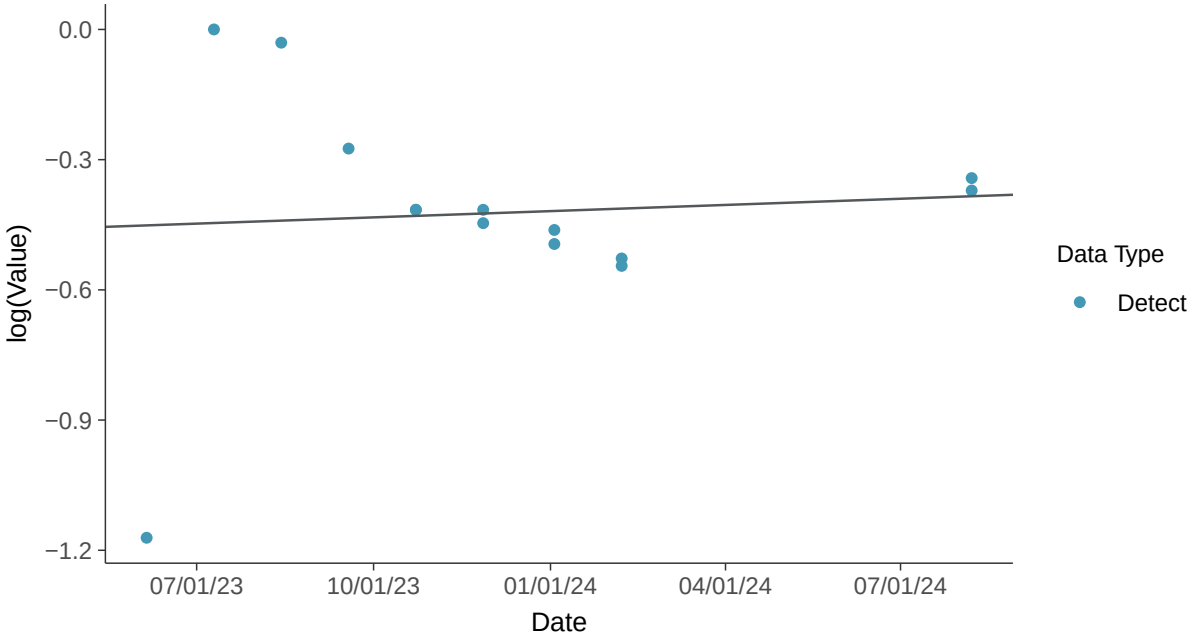
Normal Q-Q plot

Iron, MW-100C (mg/L)



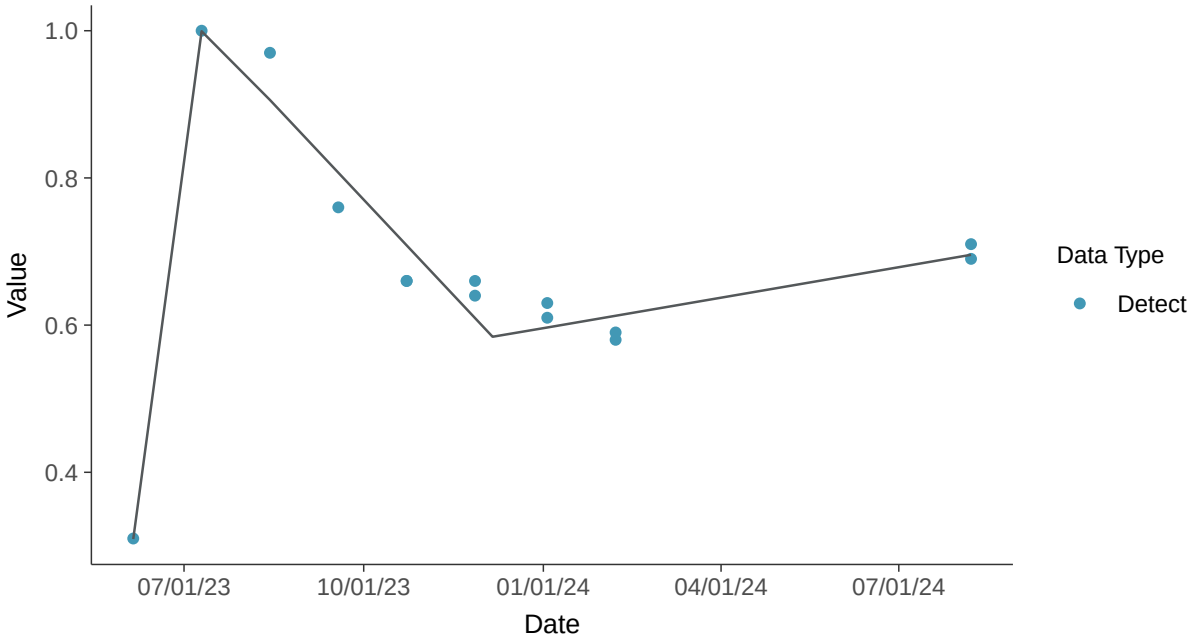
Trend Regression: Lognormal MLE

Iron, MW-100C (mg/L)



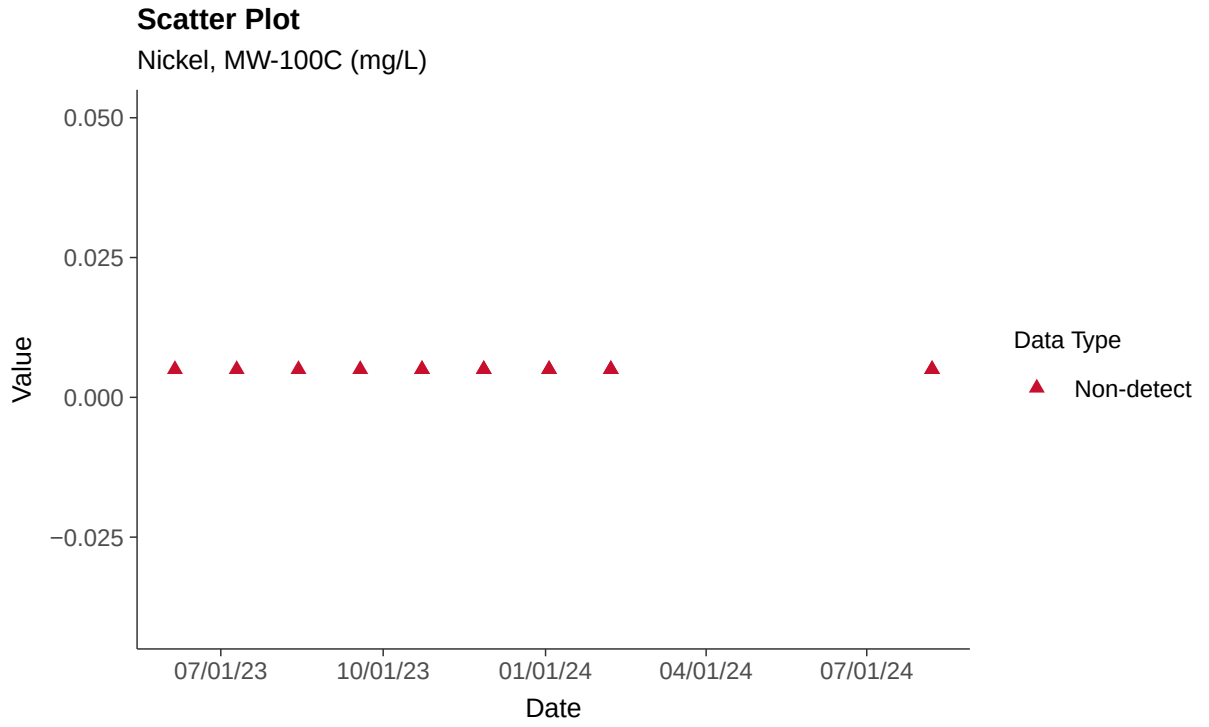
Trend Regression: Piecewise Linear-Linear-Linear

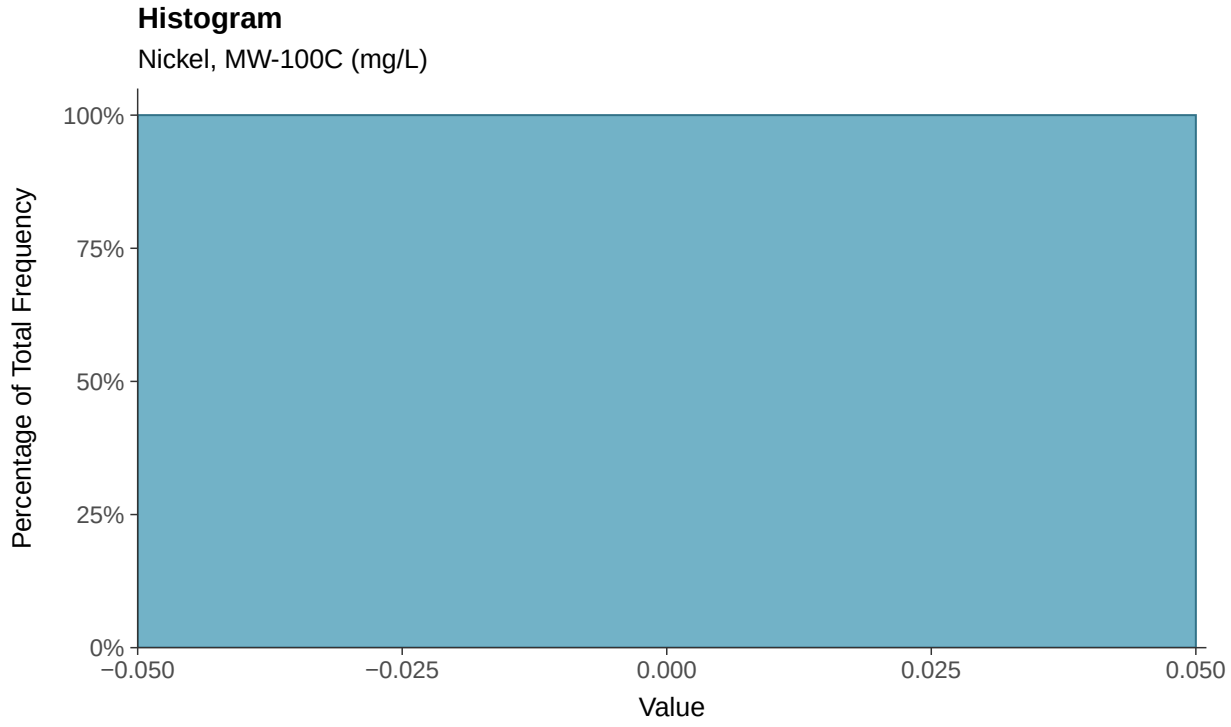
Iron, MW-100C (mg/L)



Part 115: Nickel, MW-100C

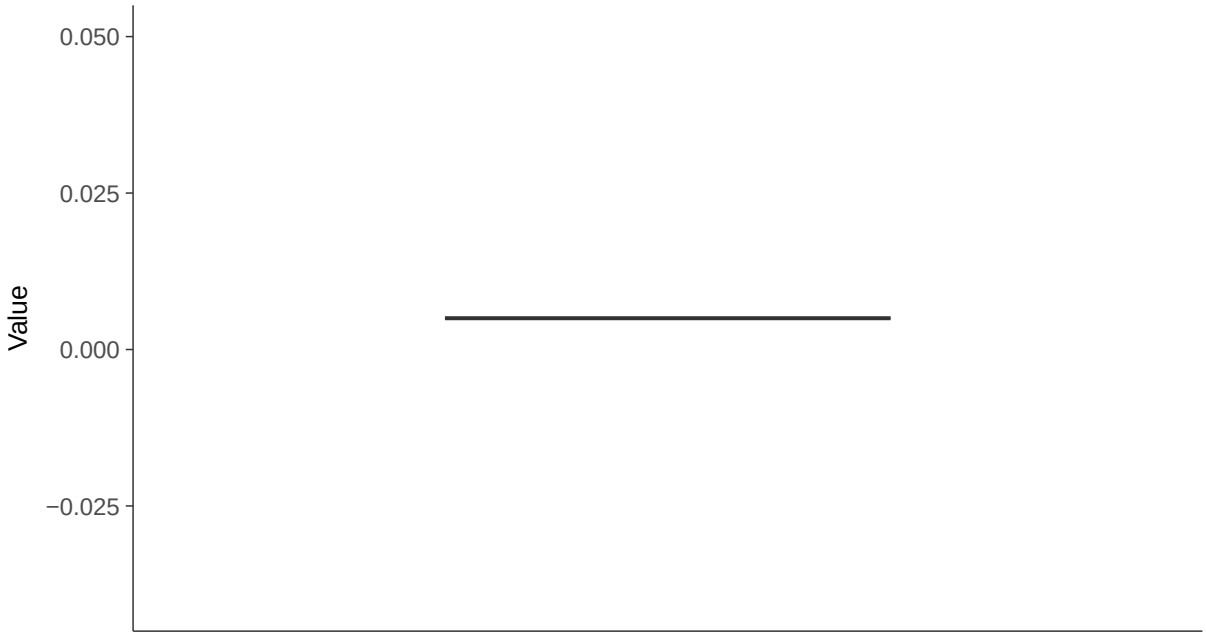
ID: 100C_5_39





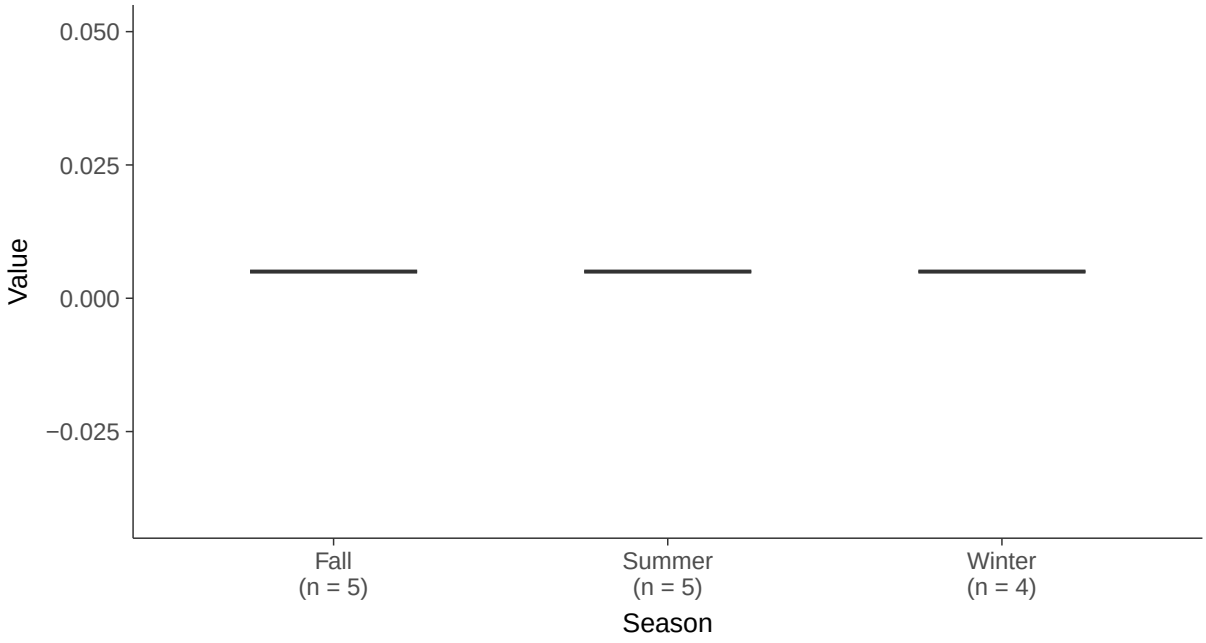
Boxplot

Nickel, MW-100C (mg/L)



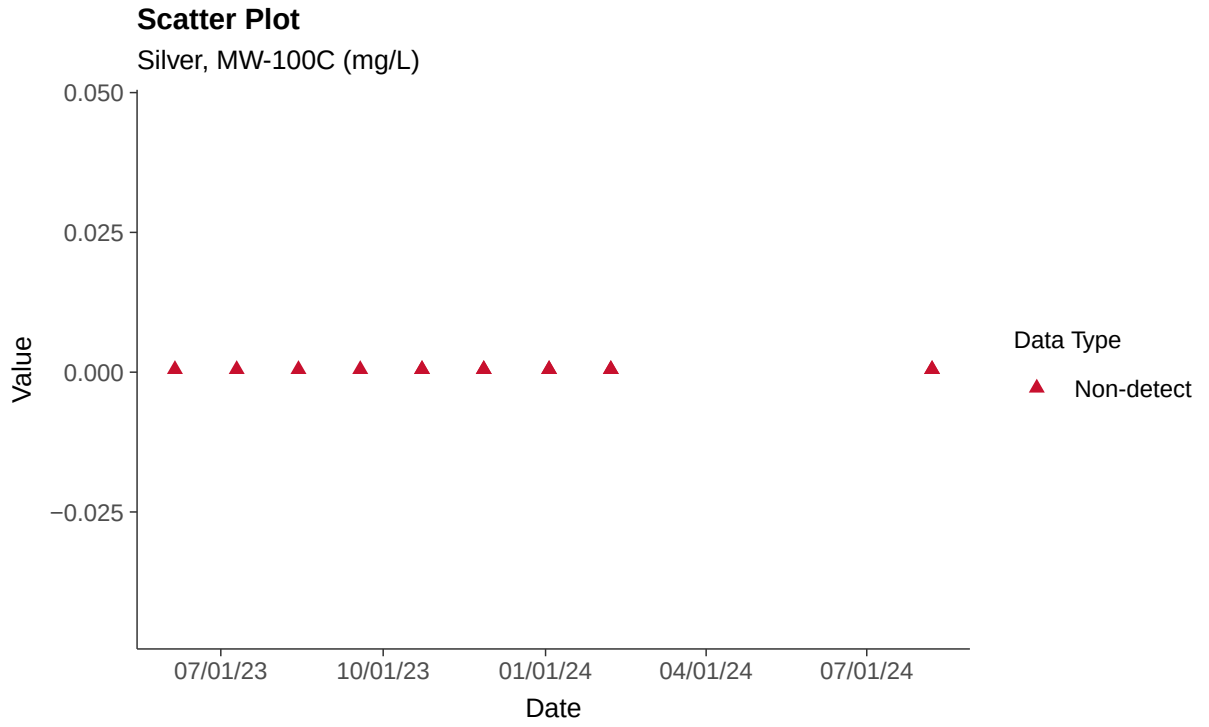
Boxplot by Season

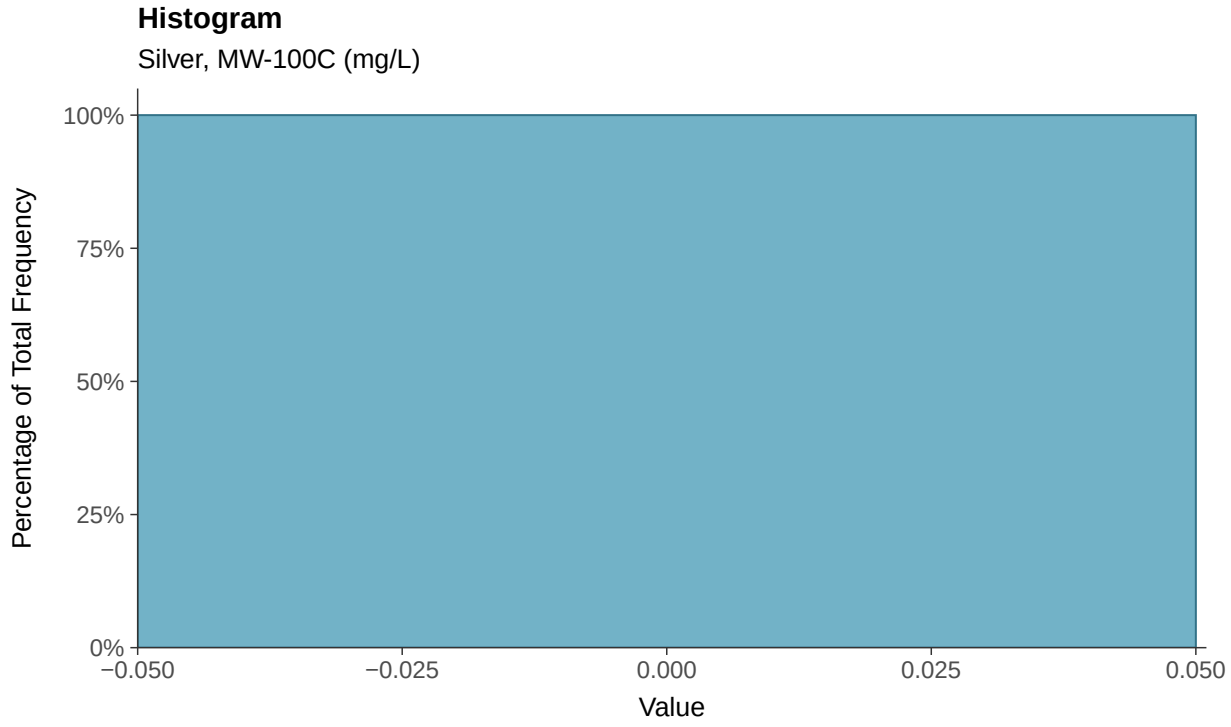
Nickel, MW-100C (mg/L)



Part 115: Silver, MW-100C

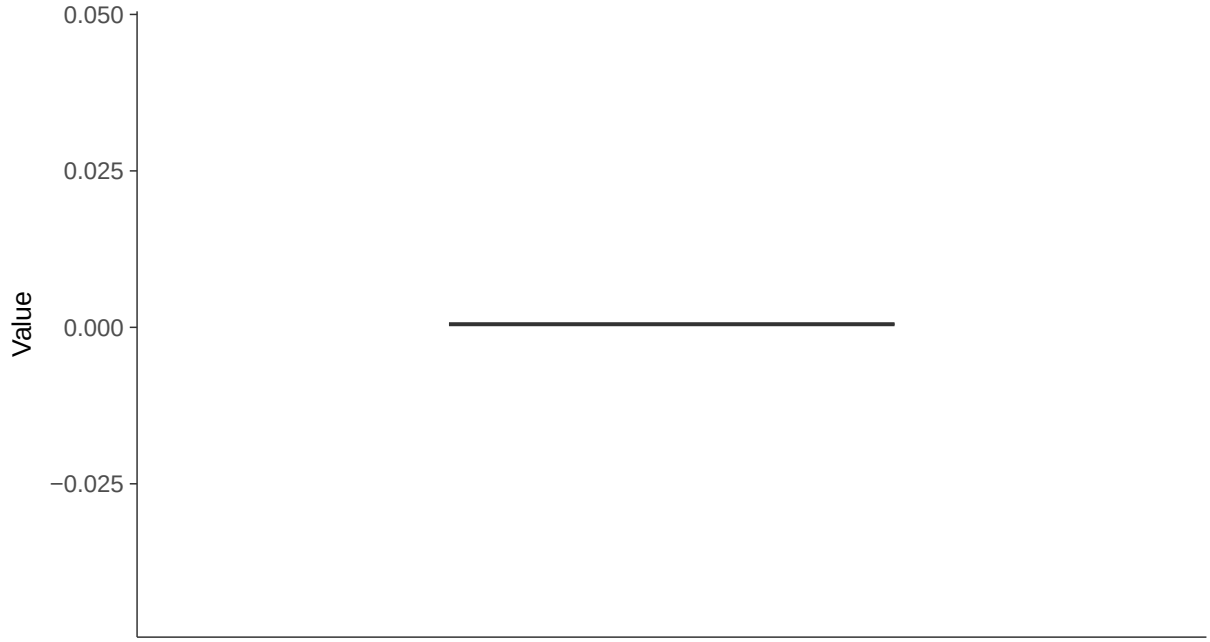
ID: 100C_5_40





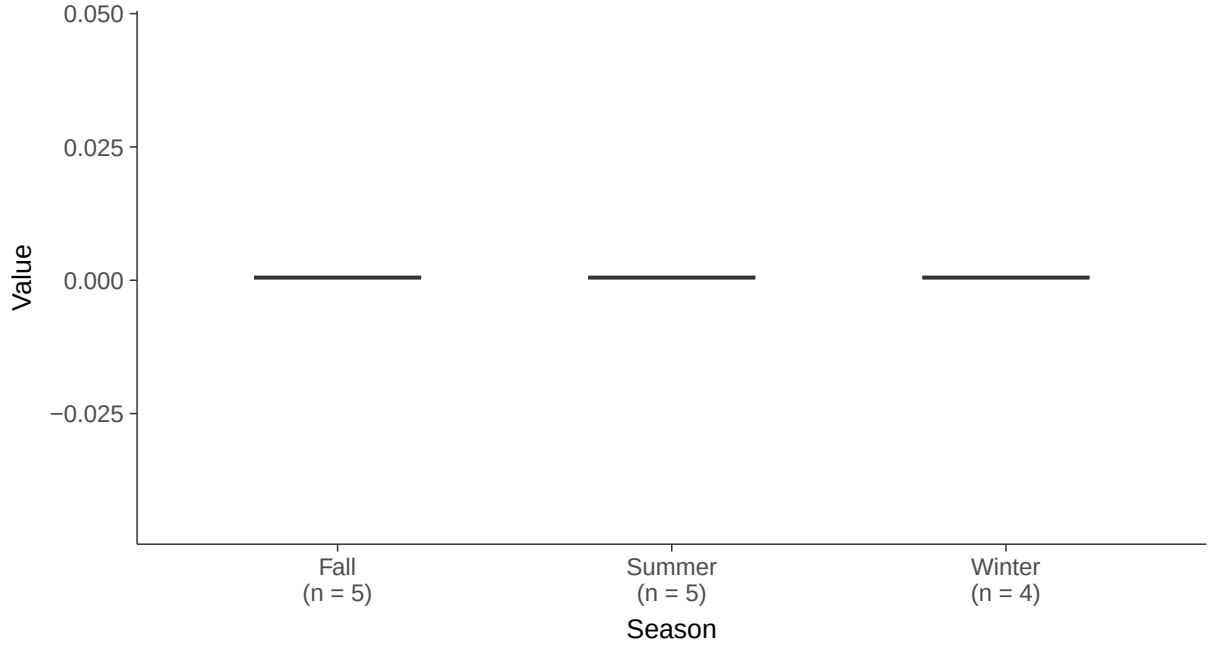
Boxplot

Silver, MW-100C (mg/L)



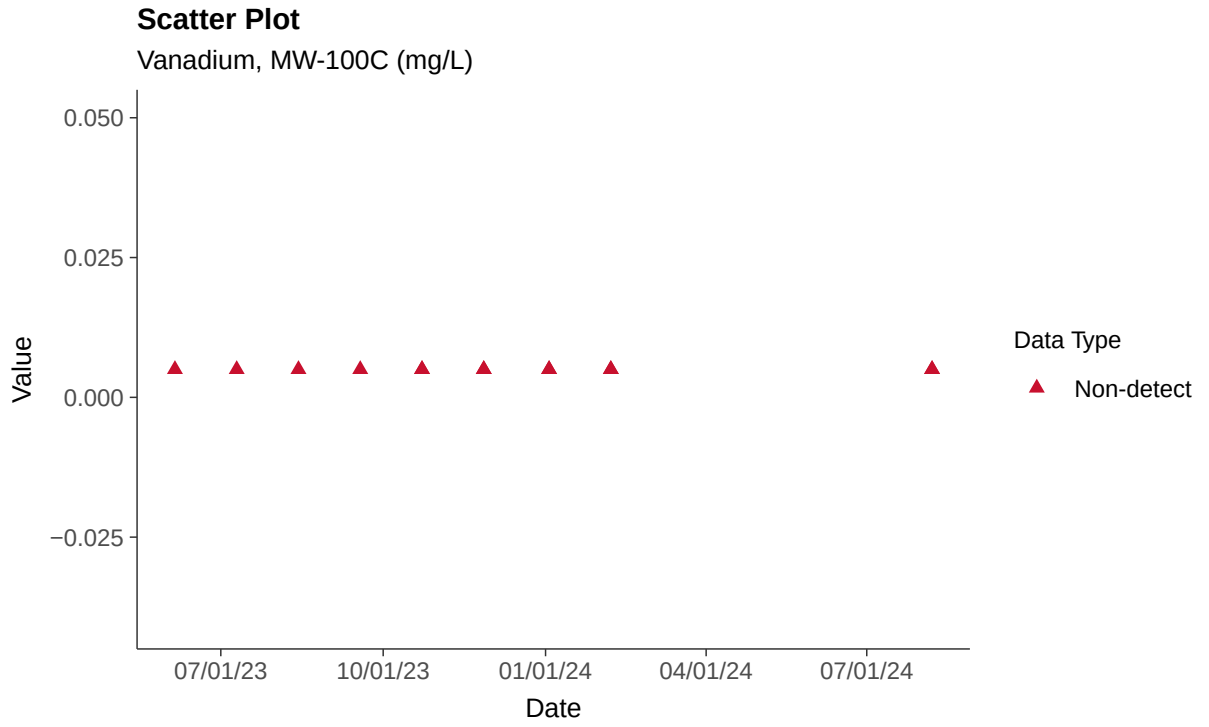
Boxplot by Season

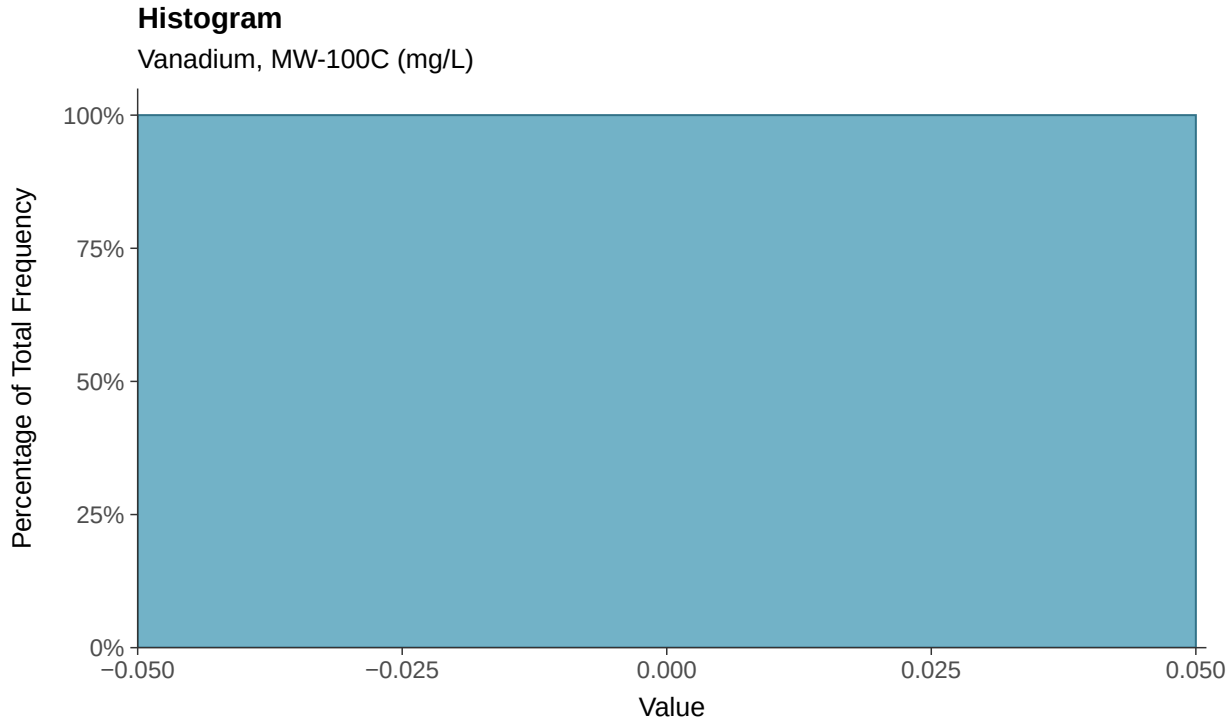
Silver, MW-100C (mg/L)



Part 115: Vanadium, MW-100C

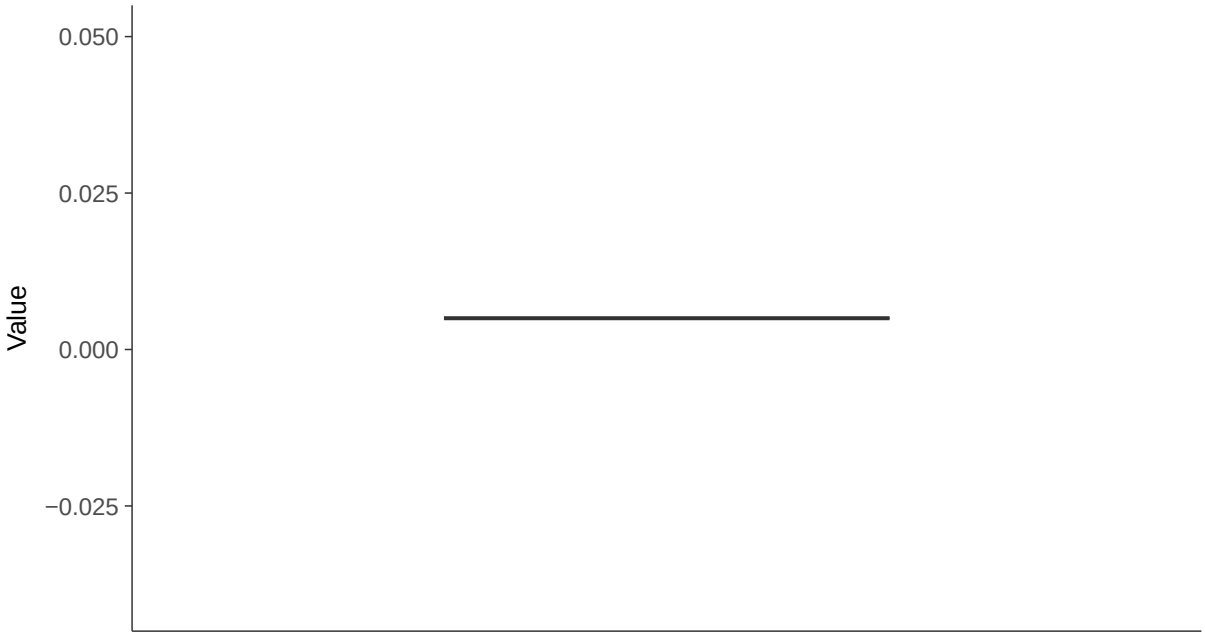
ID: 100C_5_41





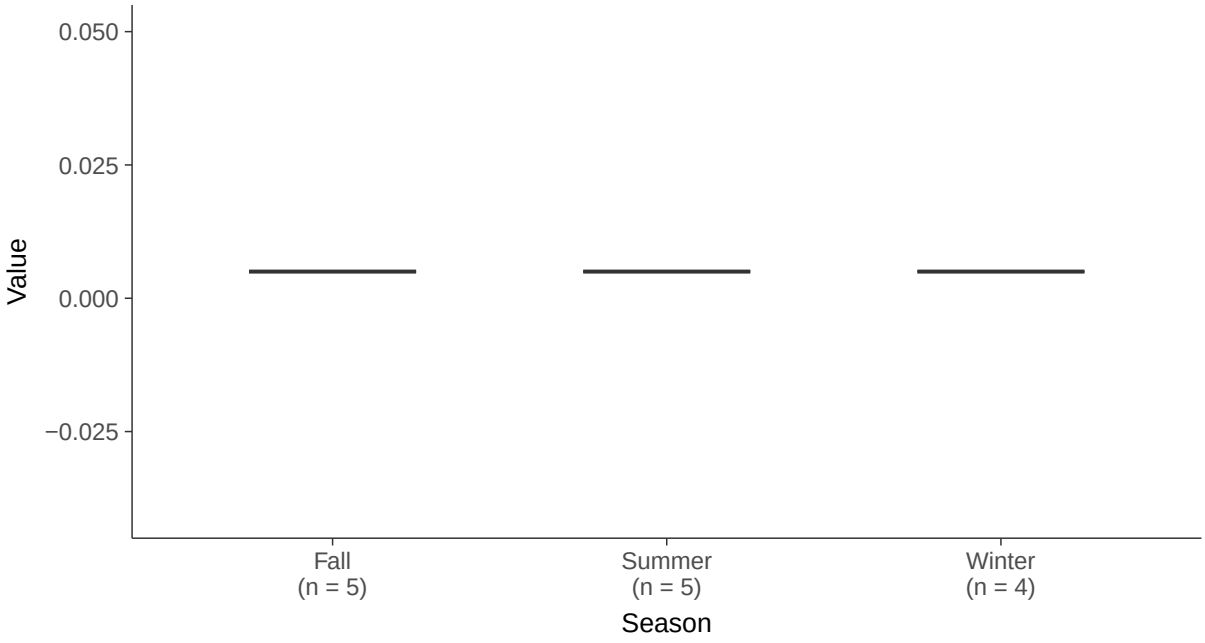
Boxplot

Vanadium, MW-100C (mg/L)



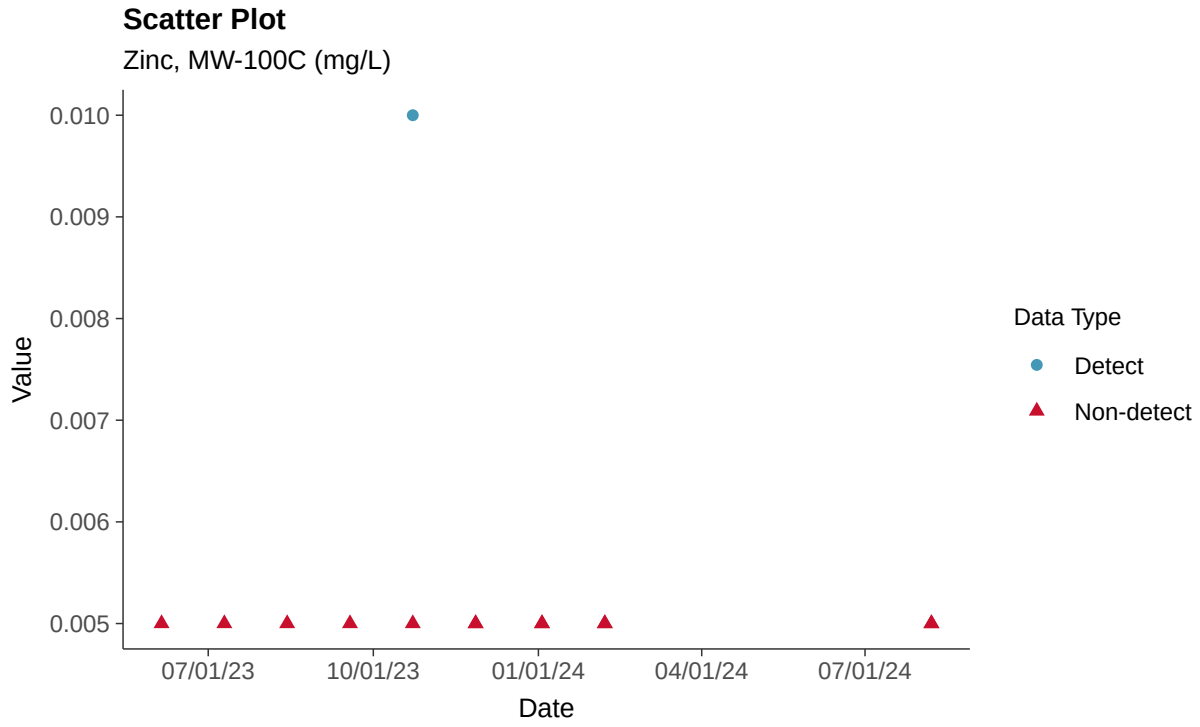
Boxplot by Season

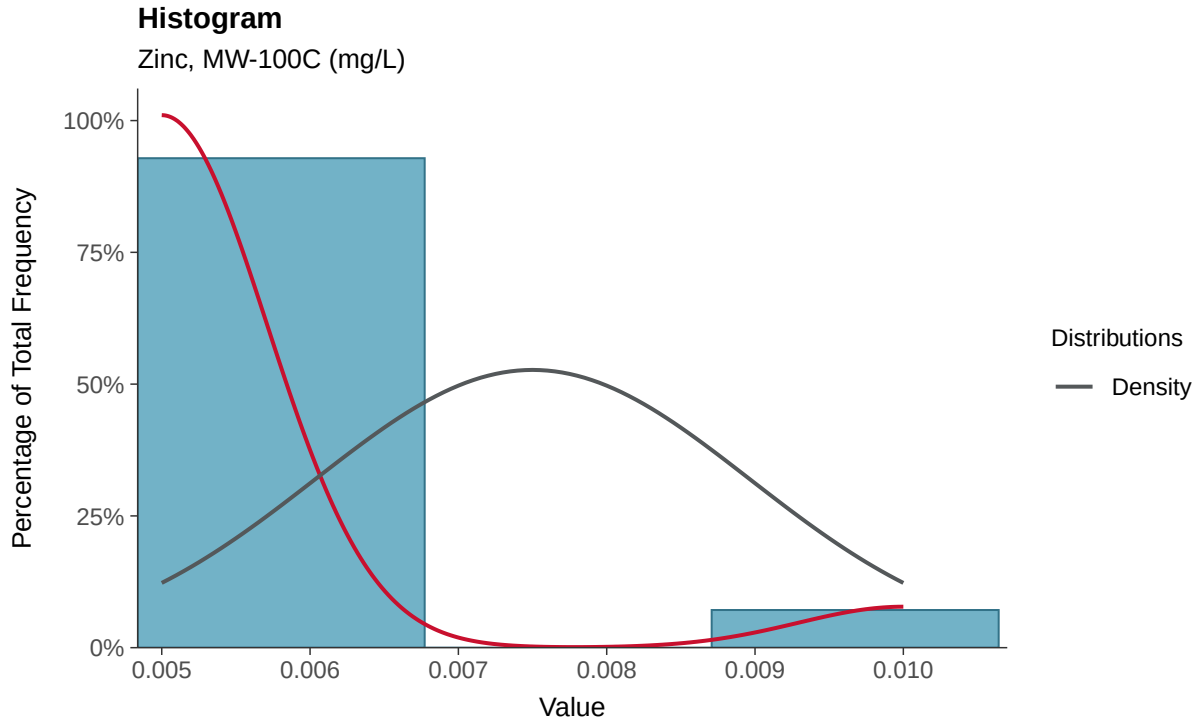
Vanadium, MW-100C (mg/L)



Part 115: Zinc, MW-100C

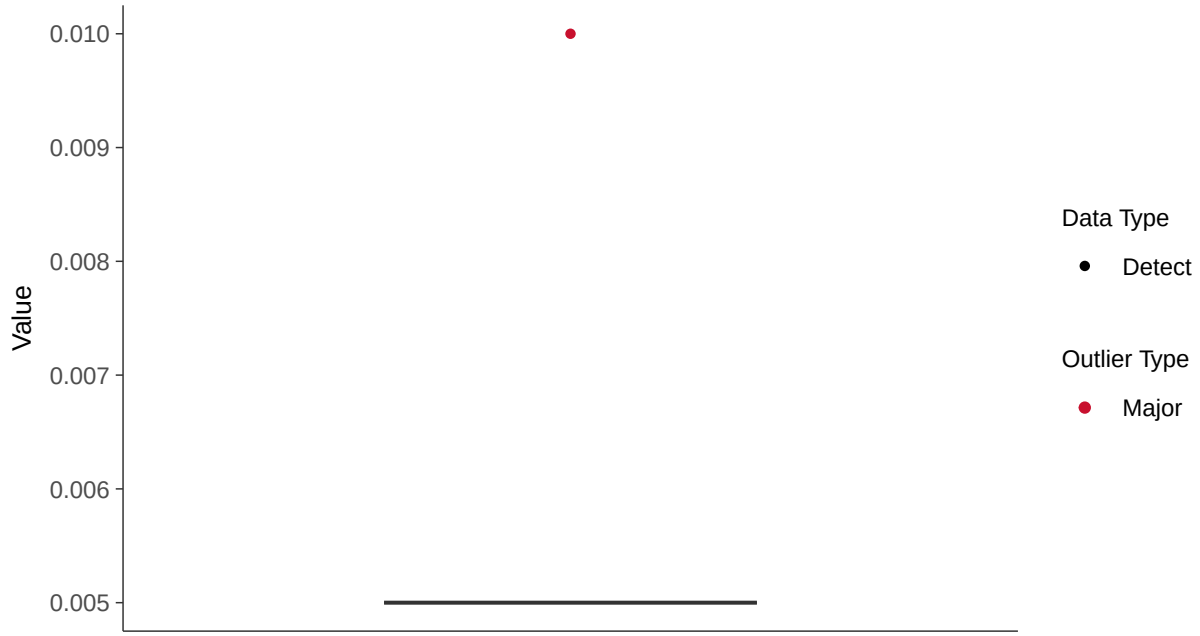
ID: 100C_5_42





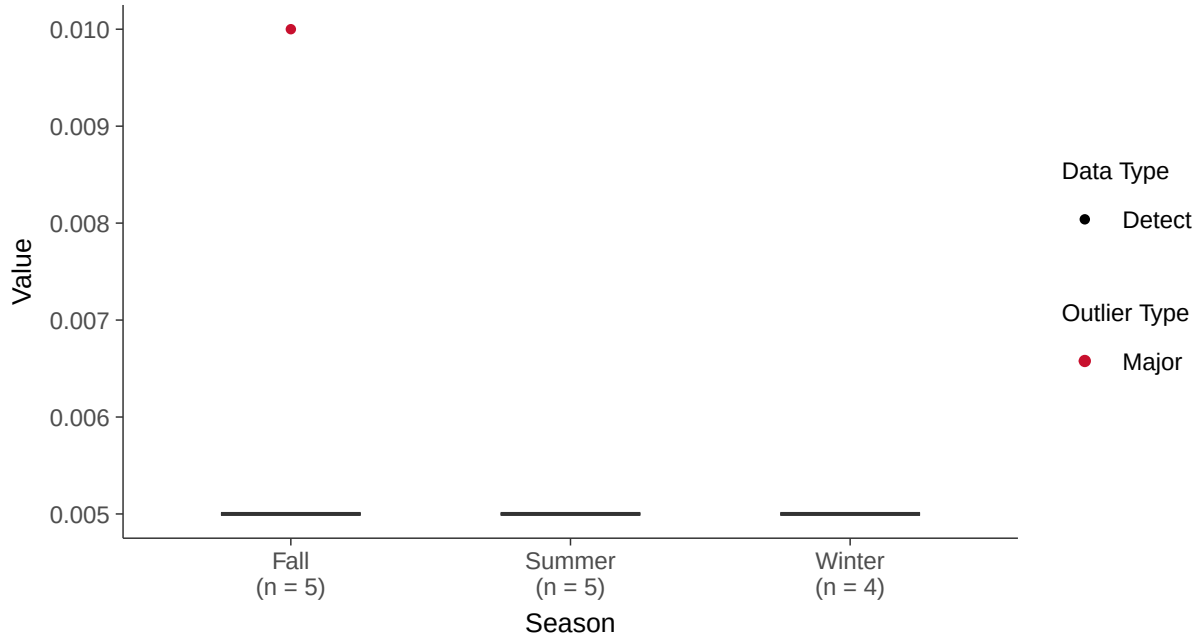
Boxplot

Zinc, MW-100C (mg/L)



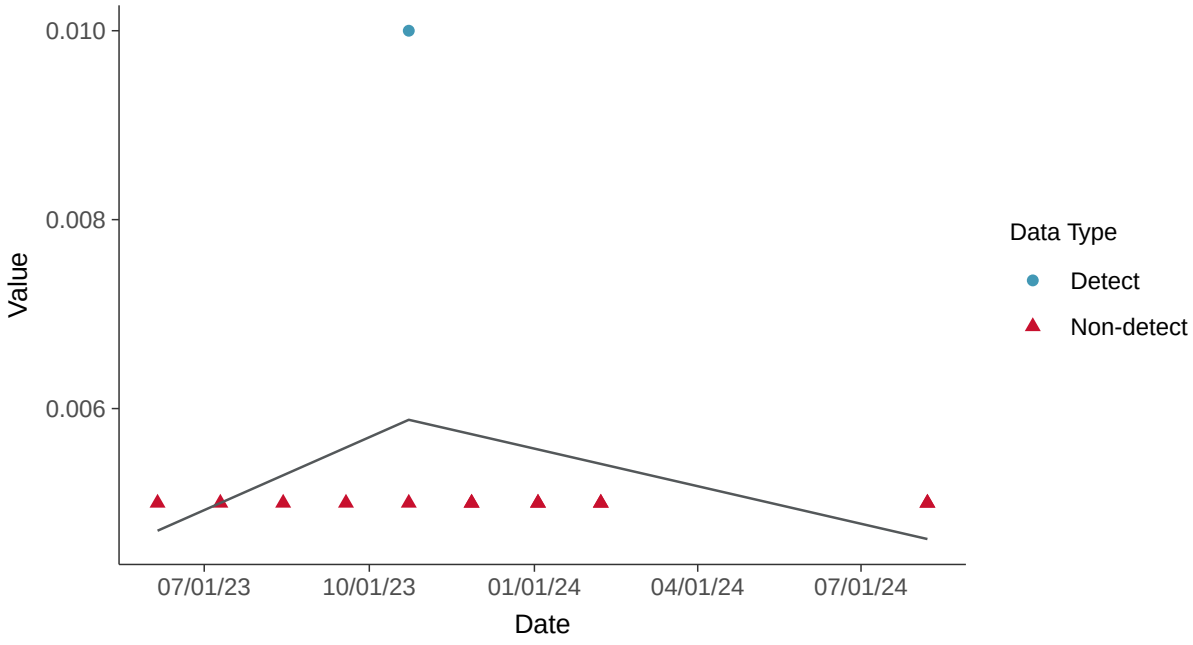
Boxplot by Season

Zinc, MW-100C (mg/L)



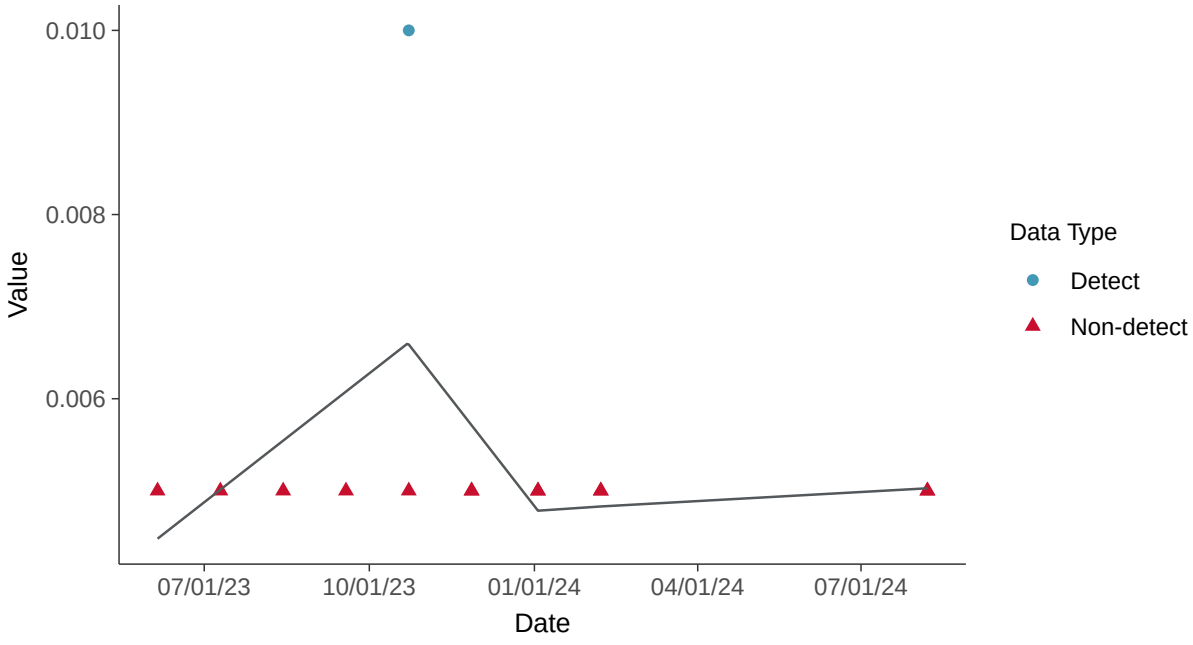
Trend Regression: Piecewise Linear-Linear

Zinc, MW-100C (mg/L)



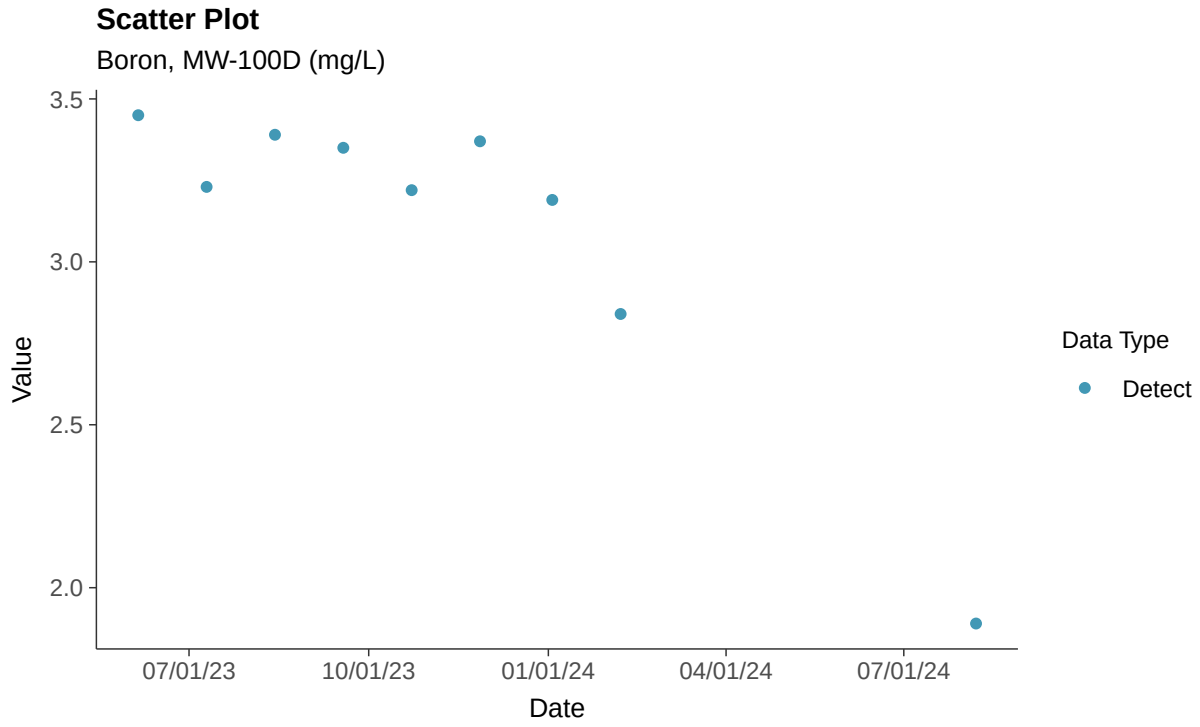
Trend Regression: Piecewise Linear-Linear-Linear

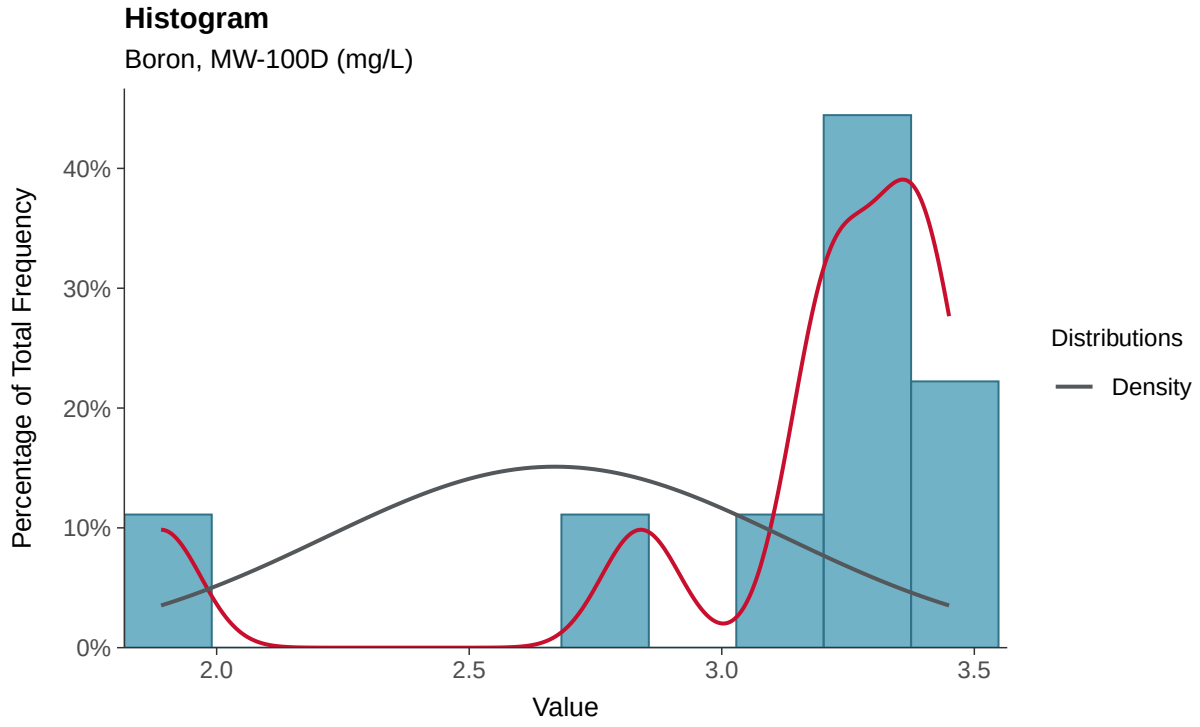
Zinc, MW-100C (mg/L)



Appendix III: Boron, MW-100D

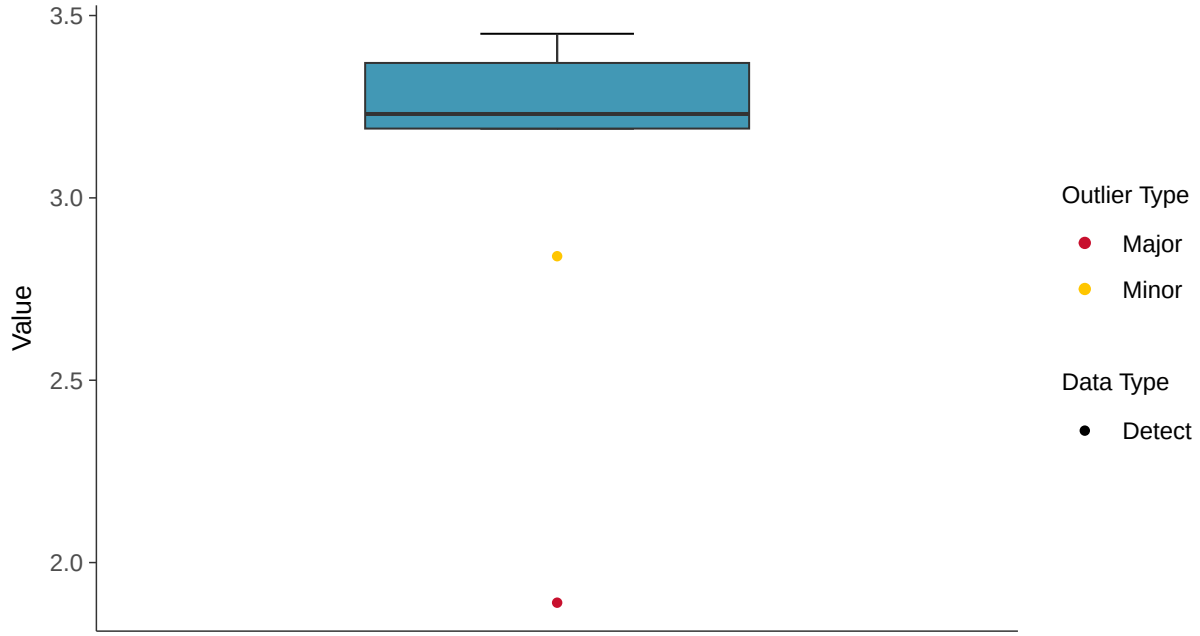
ID: 100D_1_01





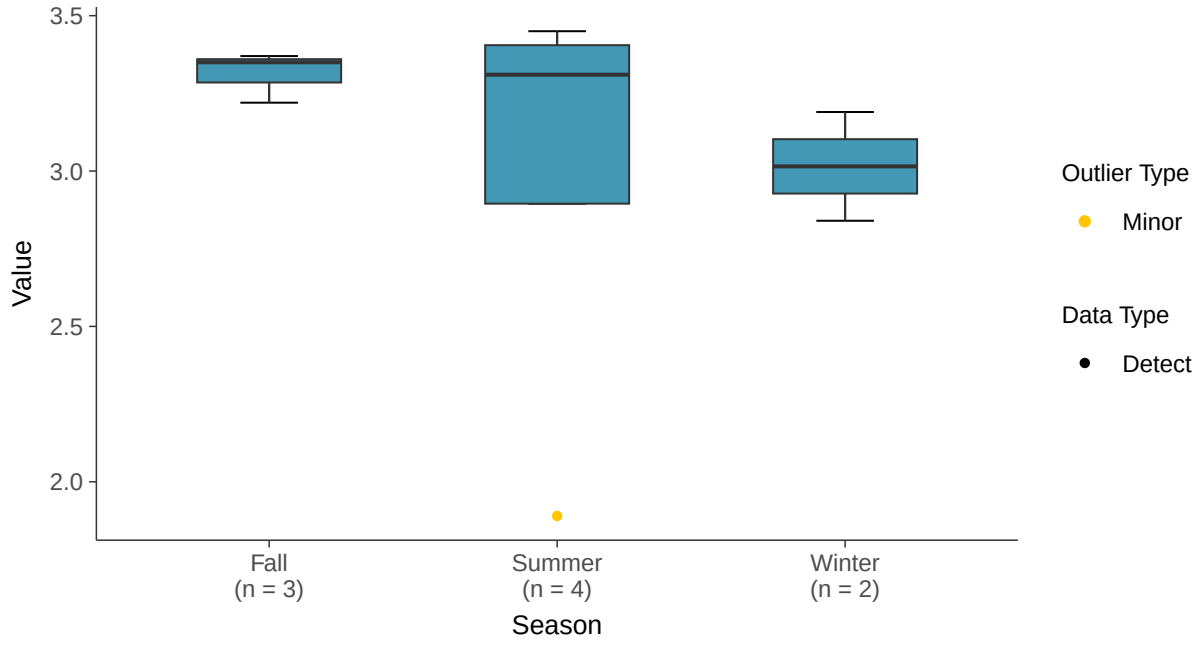
Boxplot

Boron, MW-100D (mg/L)



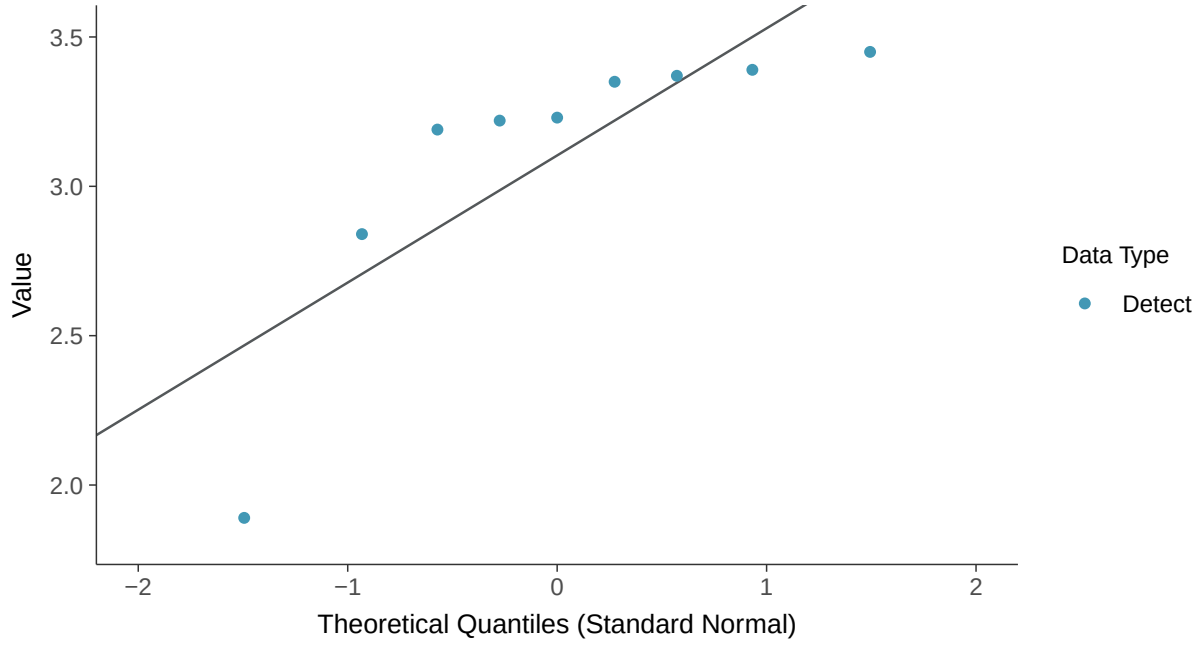
Boxplot by Season

Boron, MW-100D (mg/L)



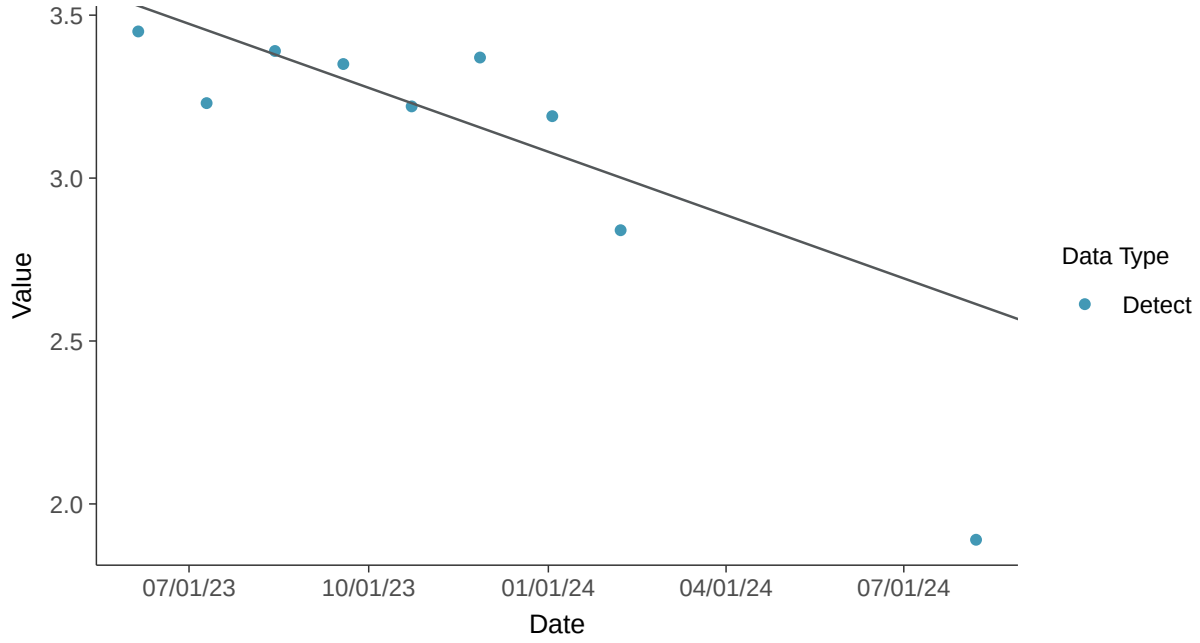
Normal Q-Q plot

Boron, MW-100D (mg/L)



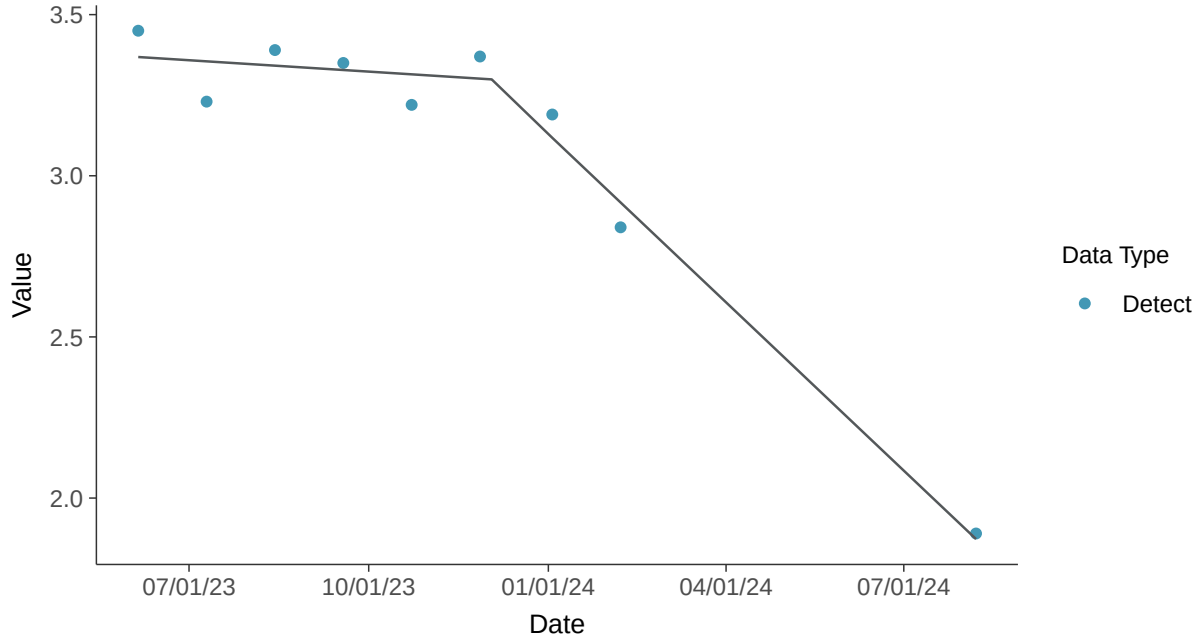
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Boron, MW-100D (mg/L)



Trend Regression: Piecewise Linear-Linear

Boron, MW-100D (mg/L)

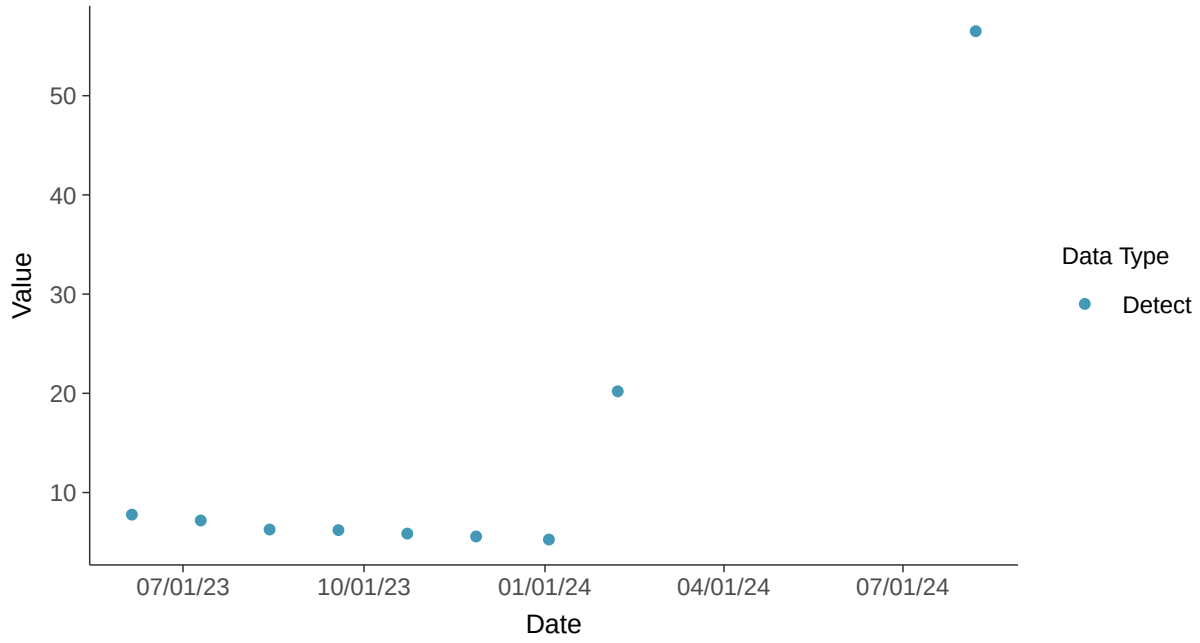


Appendix III: Calcium, MW-100D

ID: 100D_1_02

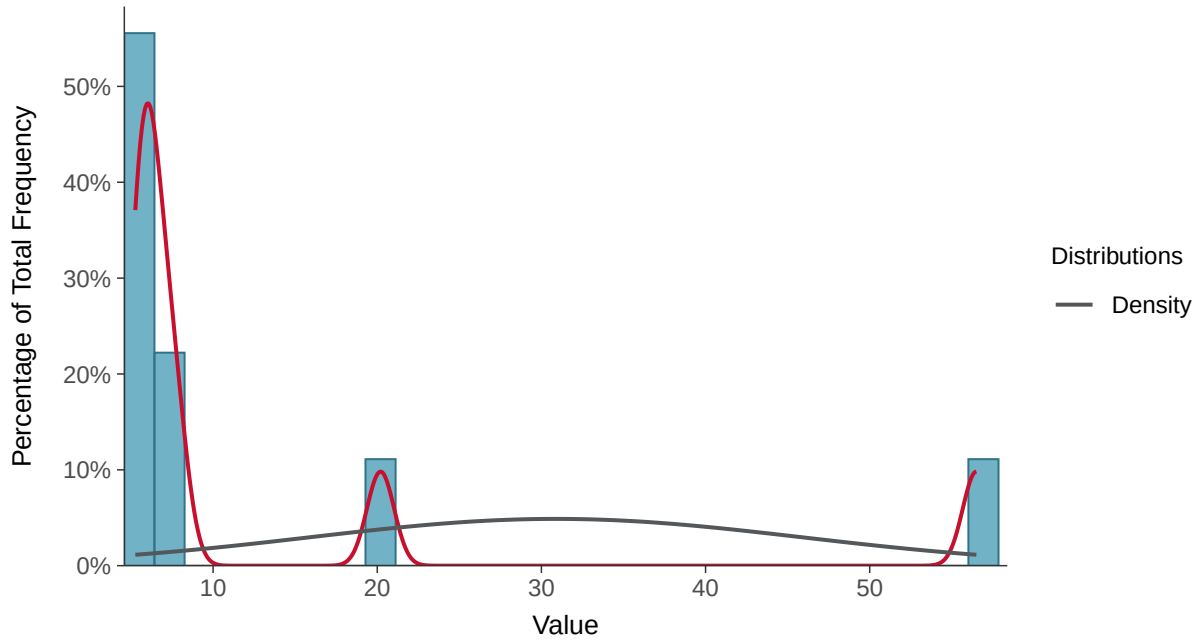
Scatter Plot

Calcium, MW-100D (mg/L)



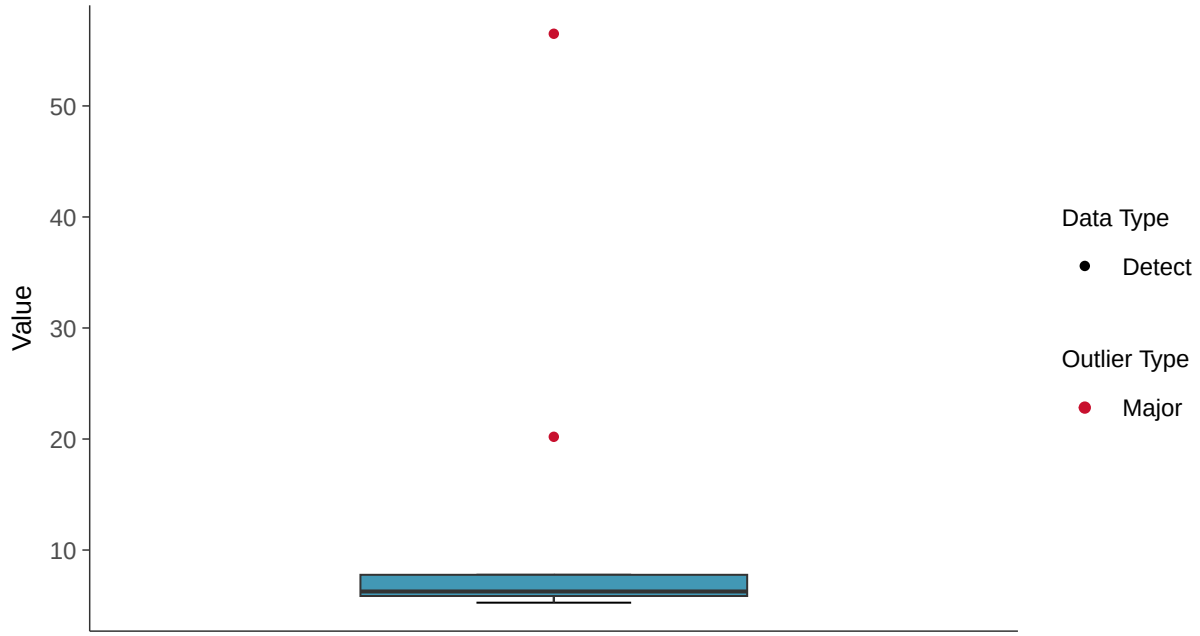
Histogram

Calcium, MW-100D (mg/L)



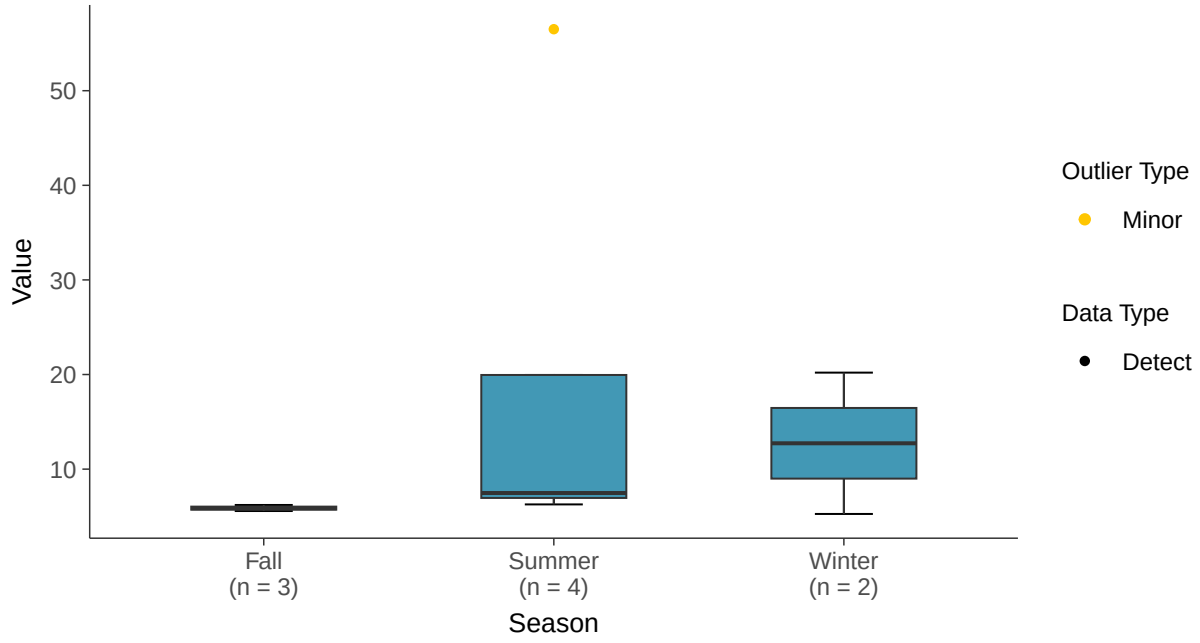
Boxplot

Calcium, MW-100D (mg/L)



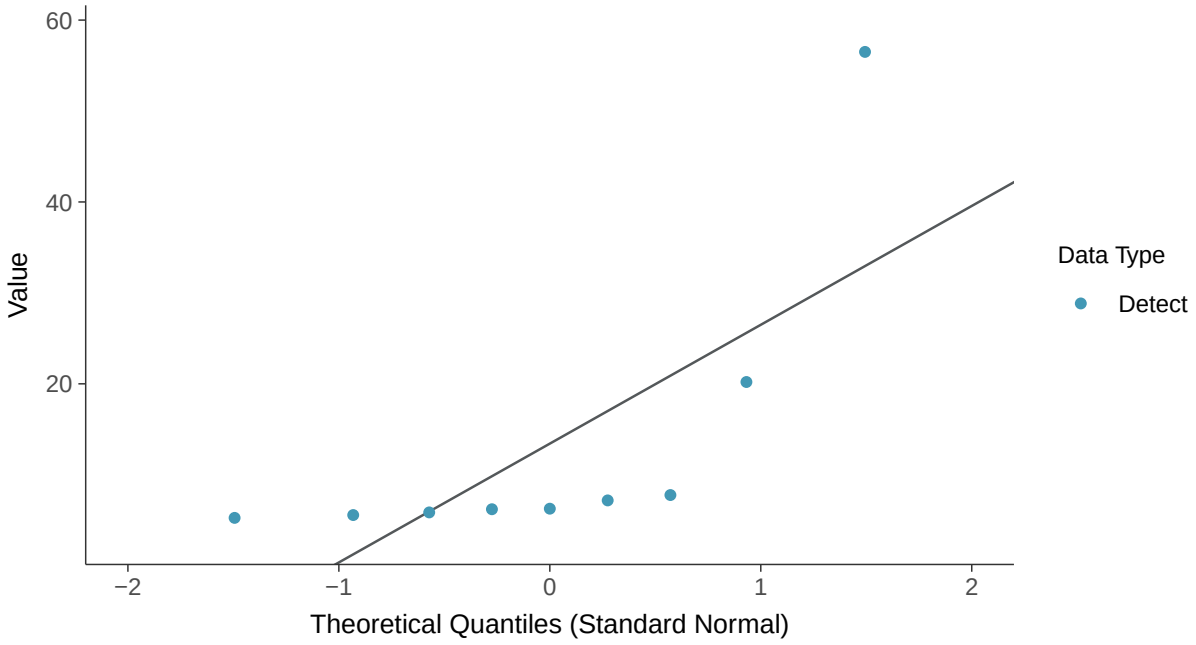
Boxplot by Season

Calcium, MW-100D (mg/L)



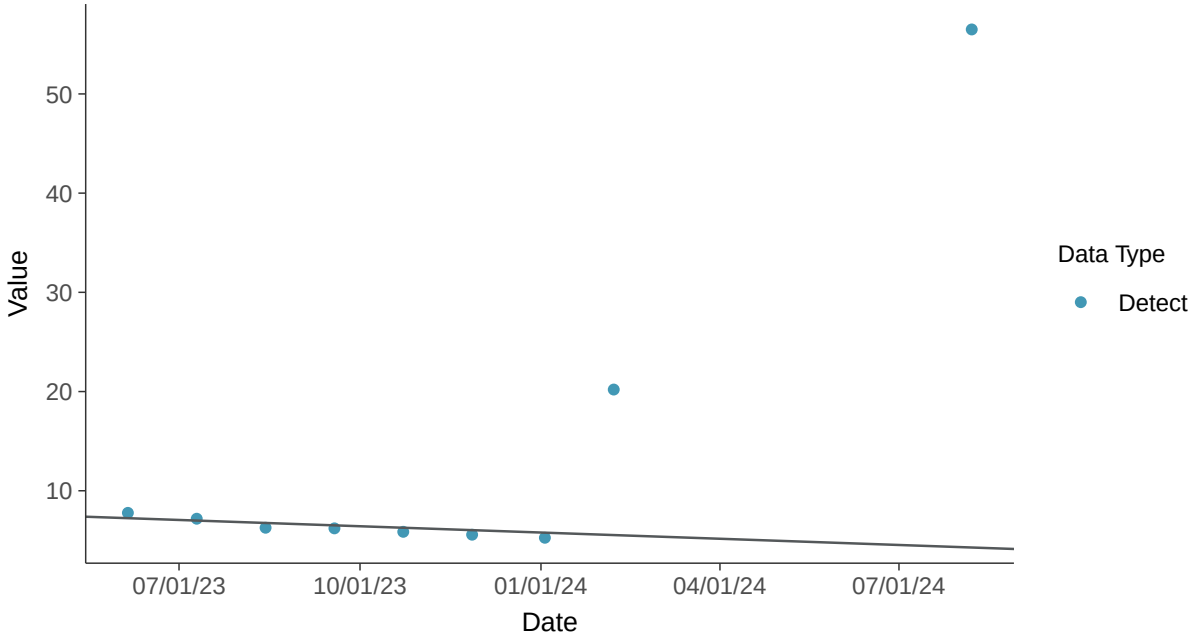
Normal Q-Q plot

Calcium, MW-100D (mg/L)



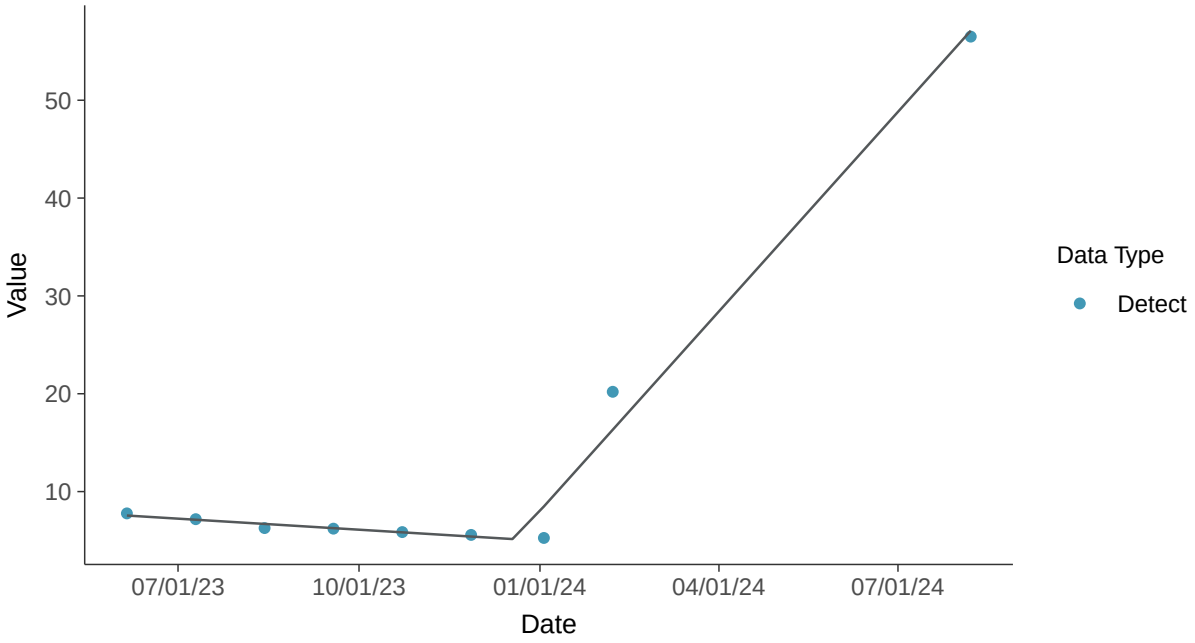
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Calcium, MW-100D (mg/L)



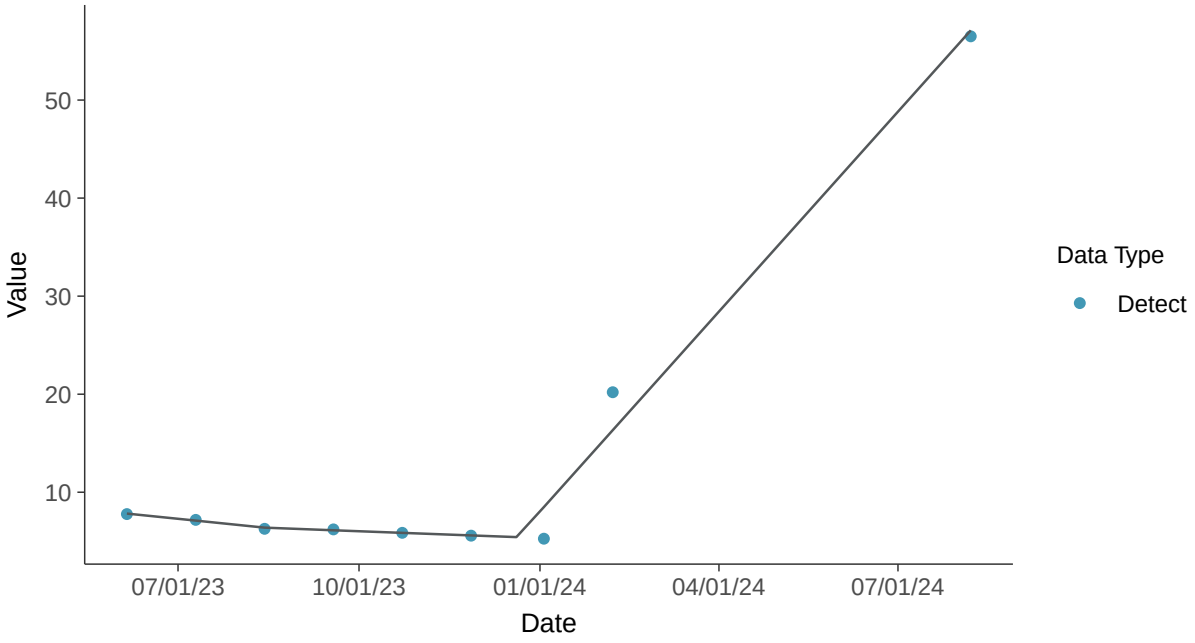
Trend Regression: Piecewise Linear-Linear

Calcium, MW-100D (mg/L)



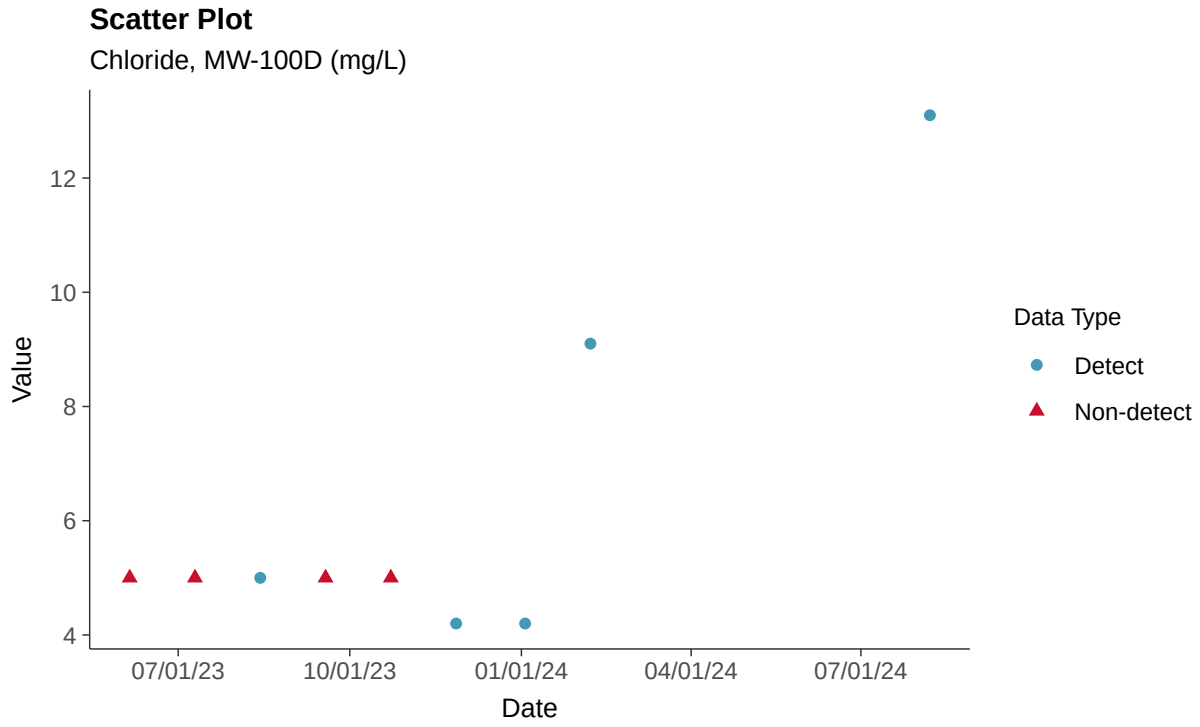
Trend Regression: Piecewise Linear-Linear-Linear

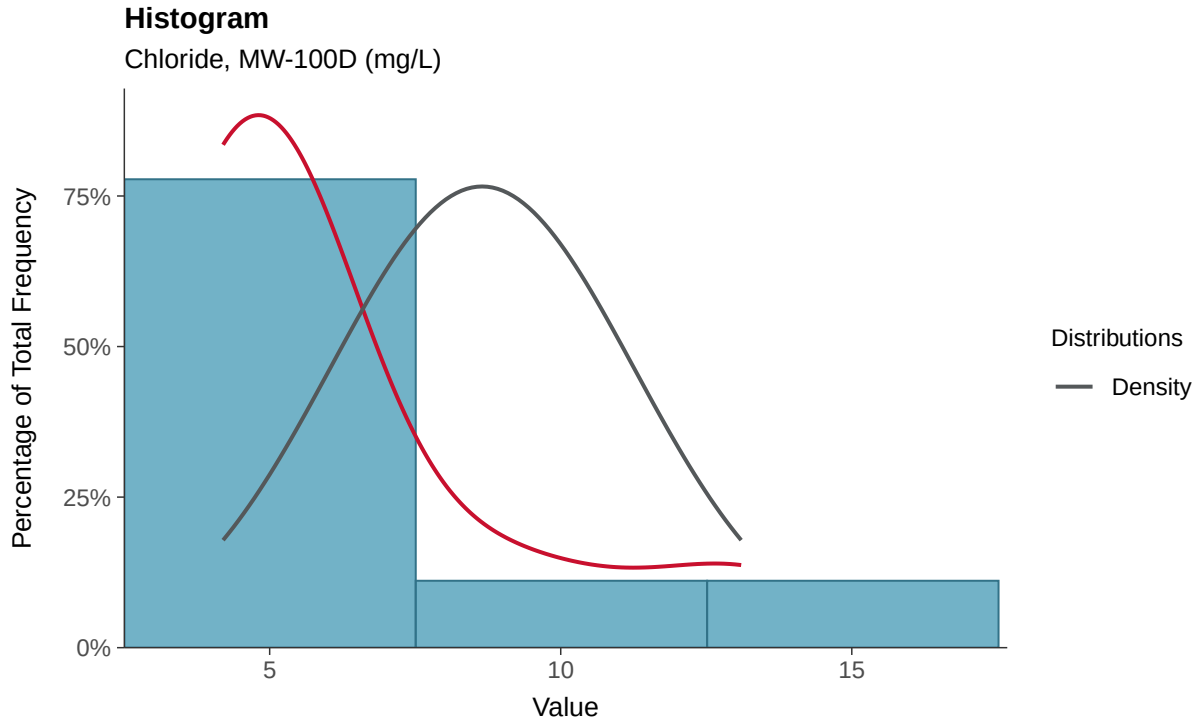
Calcium, MW-100D (mg/L)



Appendix III: Chloride, MW-100D

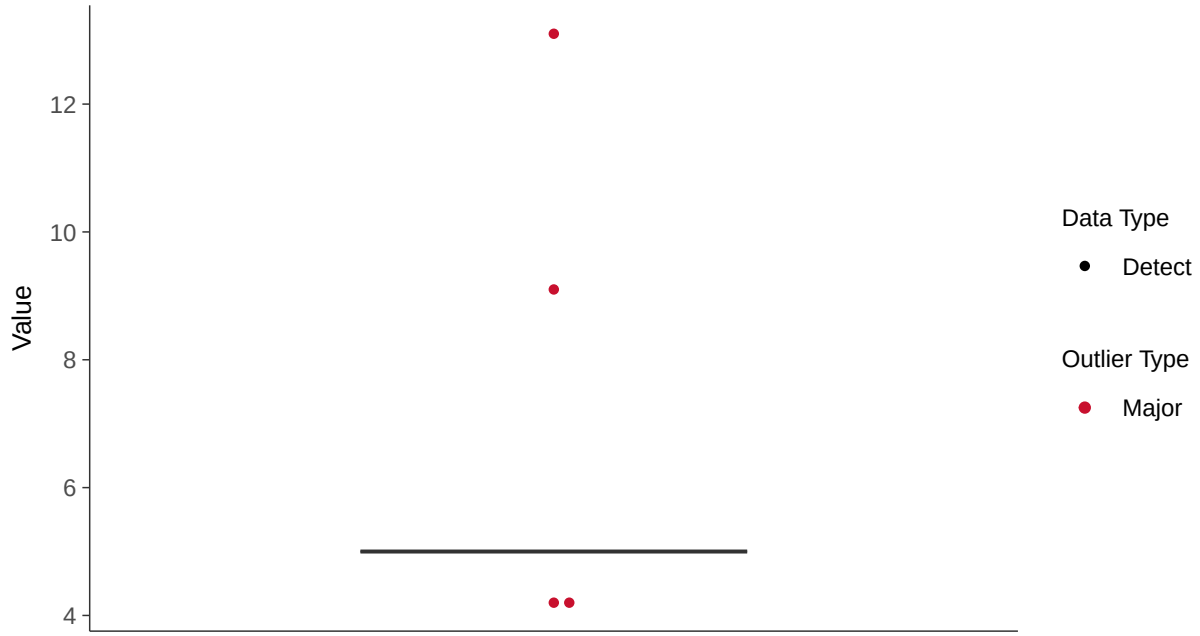
ID: 100D_1_03





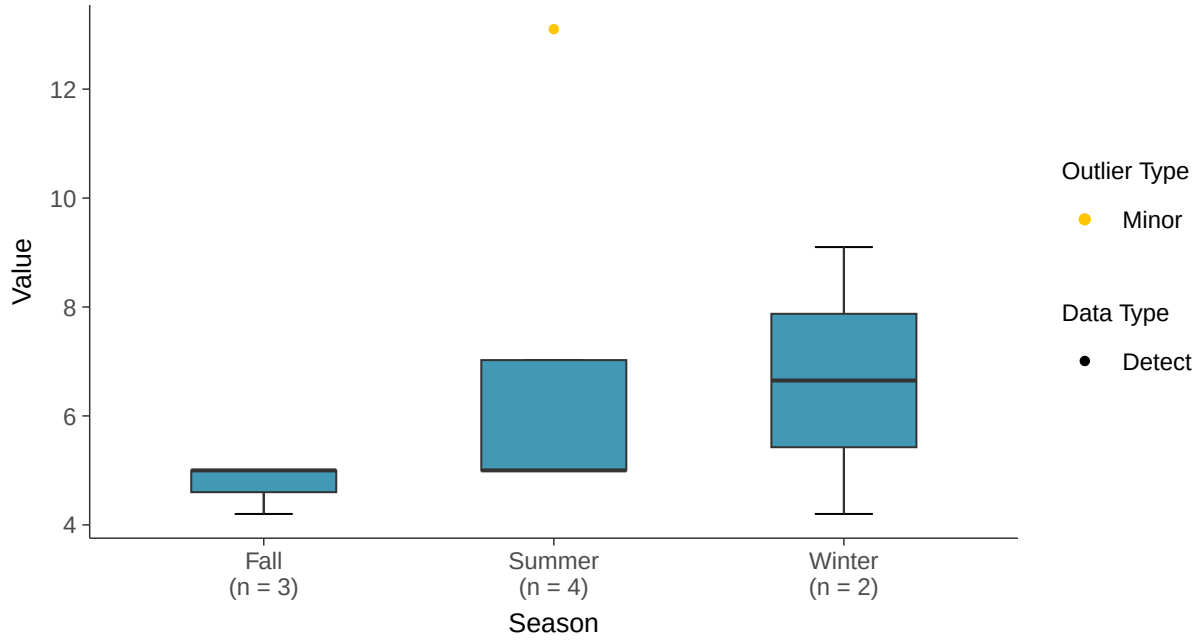
Boxplot

Chloride, MW-100D (mg/L)



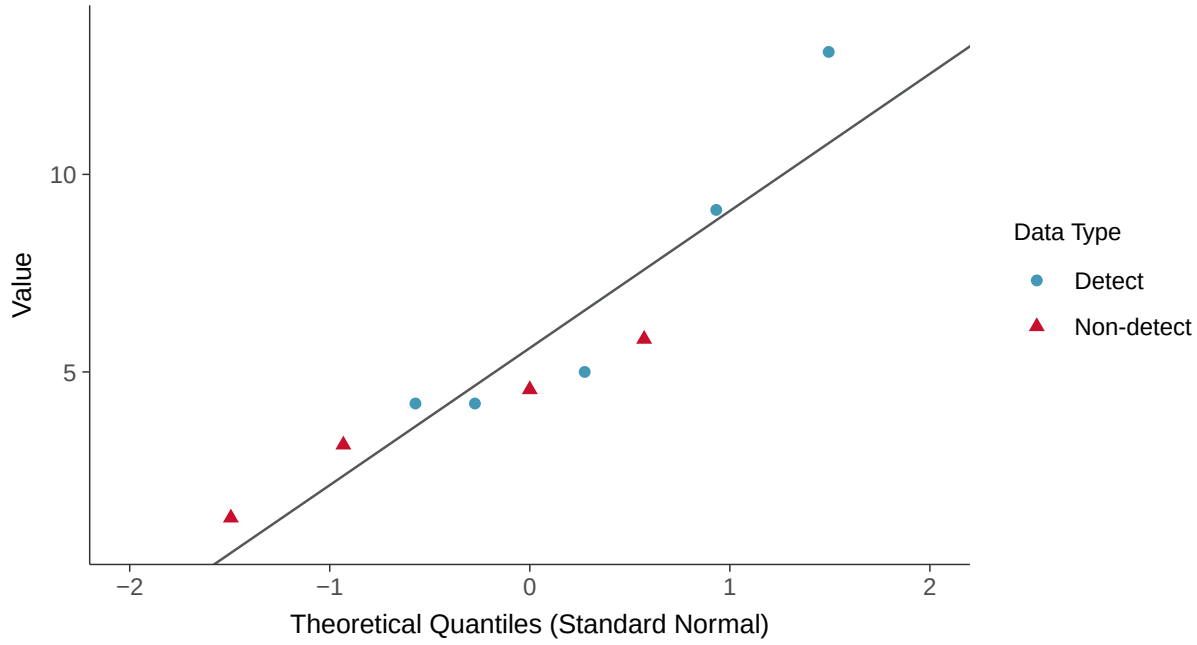
Boxplot by Season

Chloride, MW-100D (mg/L)



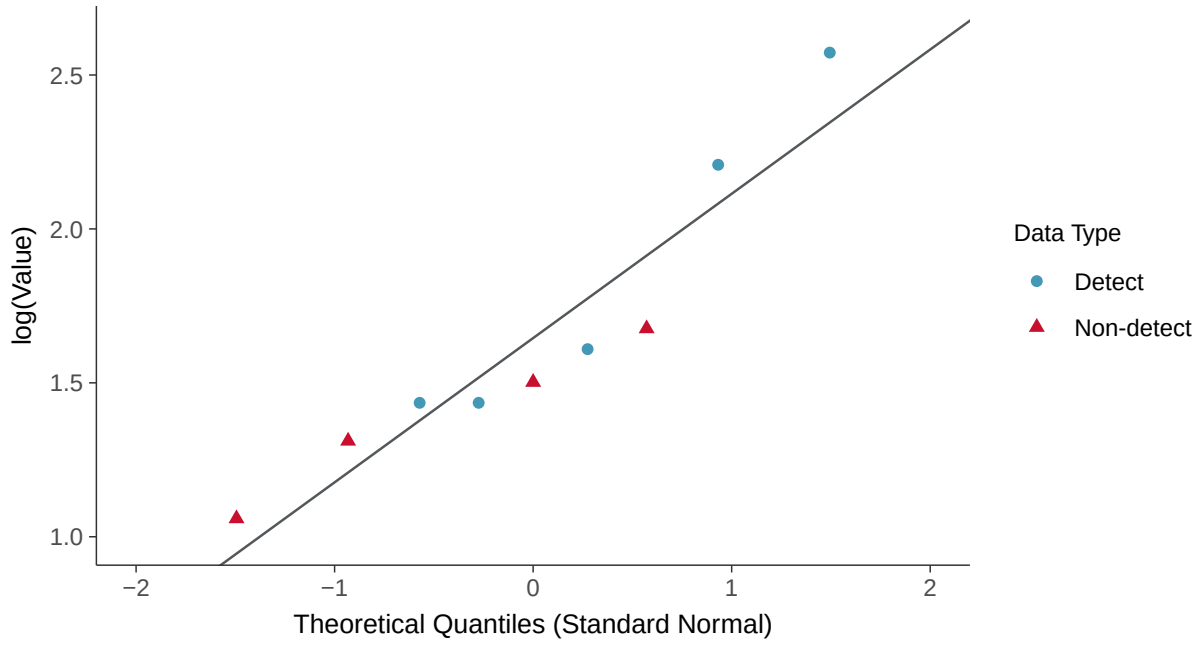
Normal Q-Q plot using ROS Imputed Estimates

Chloride, MW-100D (mg/L)



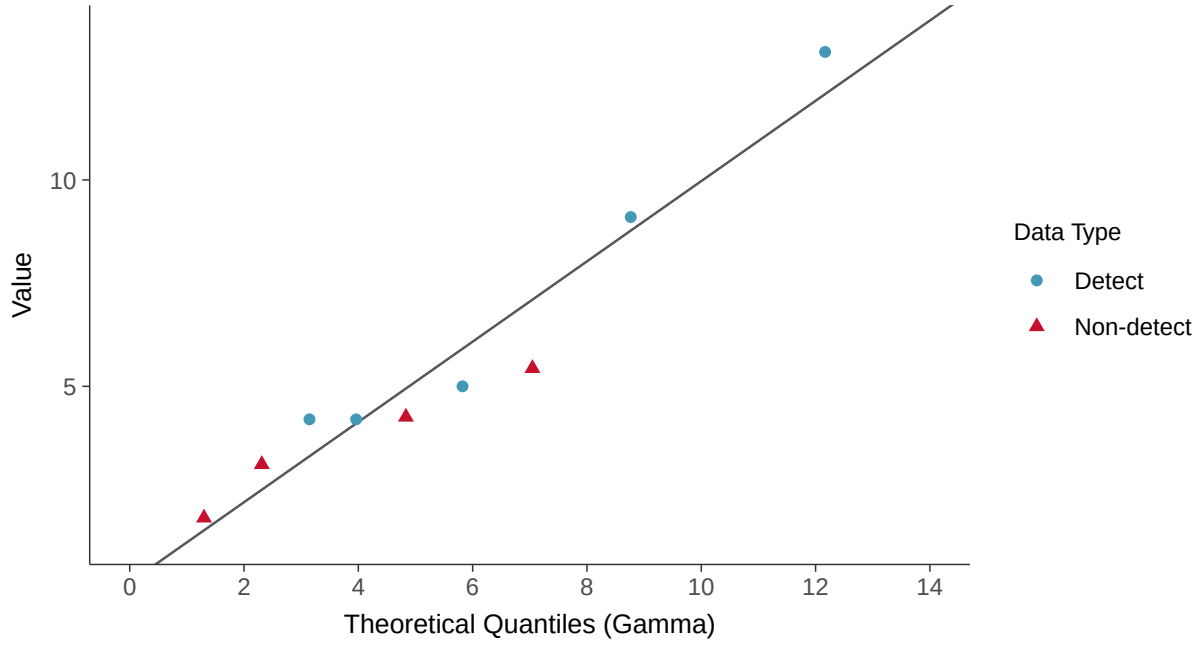
Lognormal Q-Q plot using ROS Imputed Estimates

Chloride, MW-100D (mg/L)



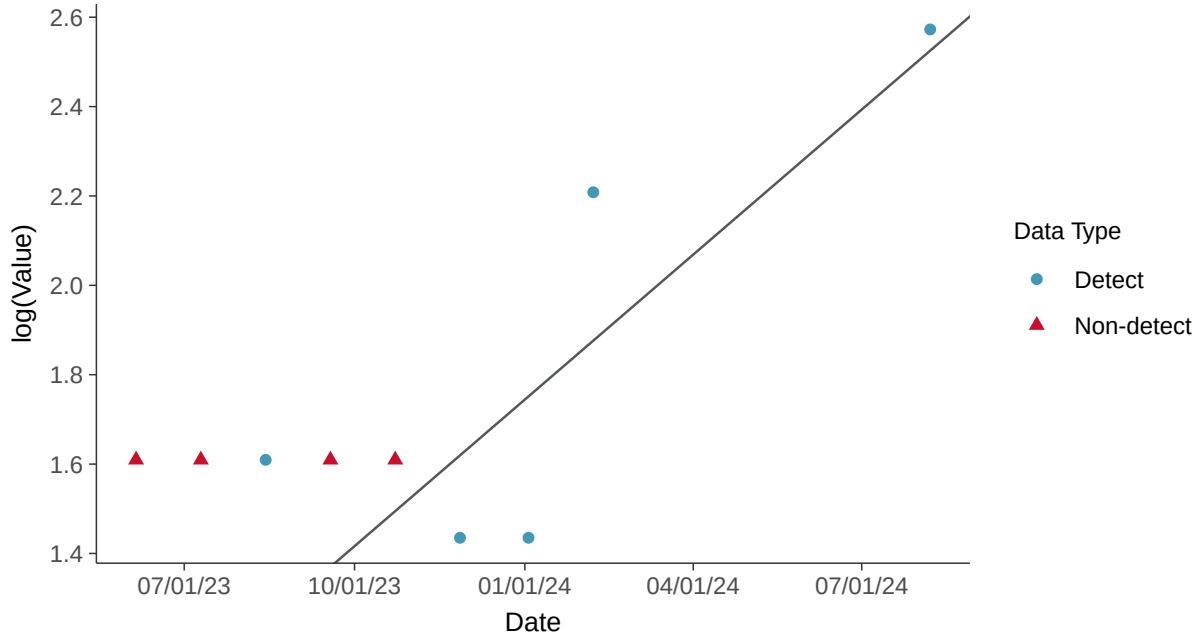
Gamma Q-Q plot using ROS Imputed Estimates

Chloride, MW-100D (mg/L)



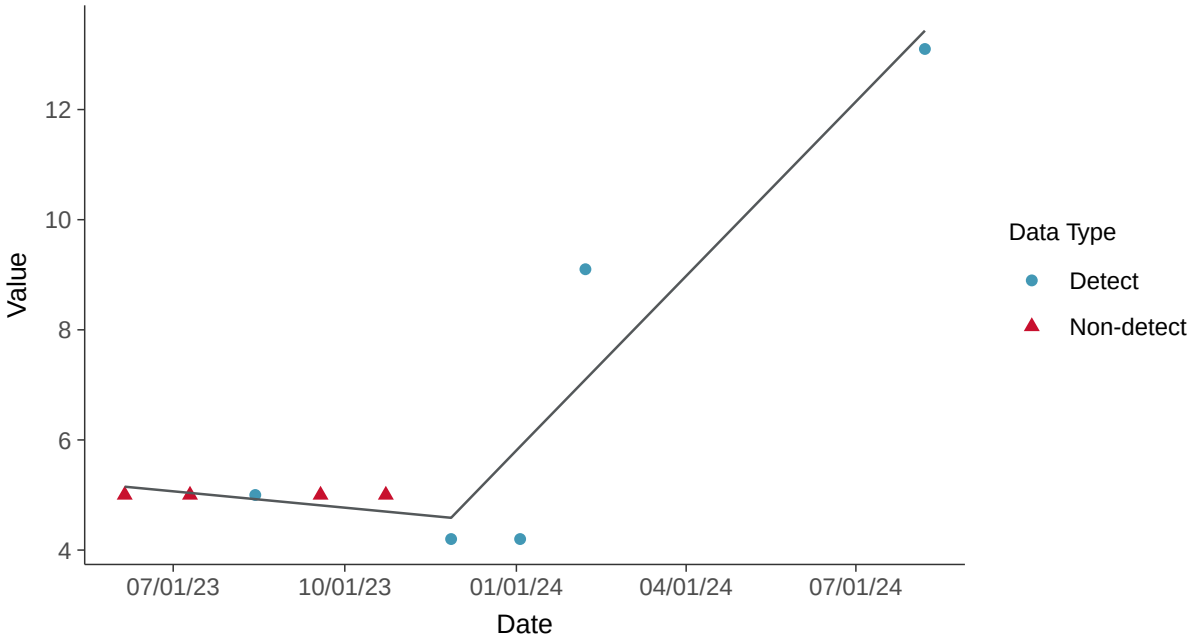
Trend Regression: Lognormal MLE

Chloride, MW-100D (mg/L)



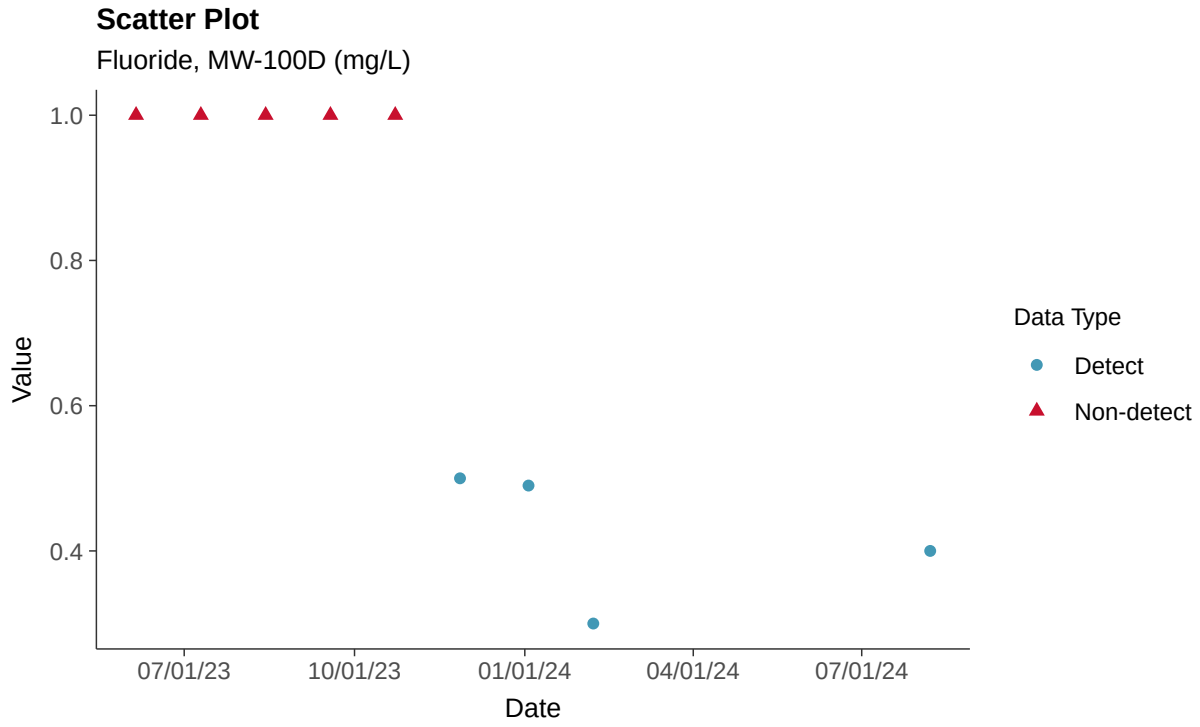
Trend Regression: Piecewise Linear-Linear

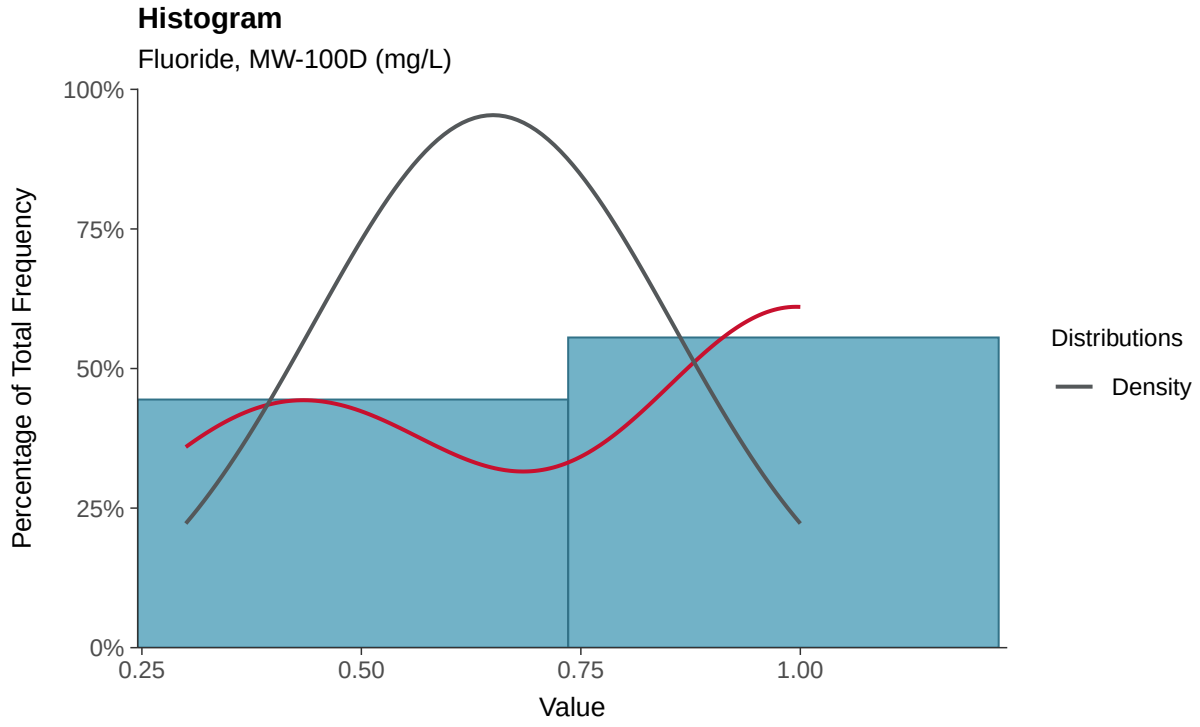
Chloride, MW-100D (mg/L)



Appendix III: Fluoride, MW-100D

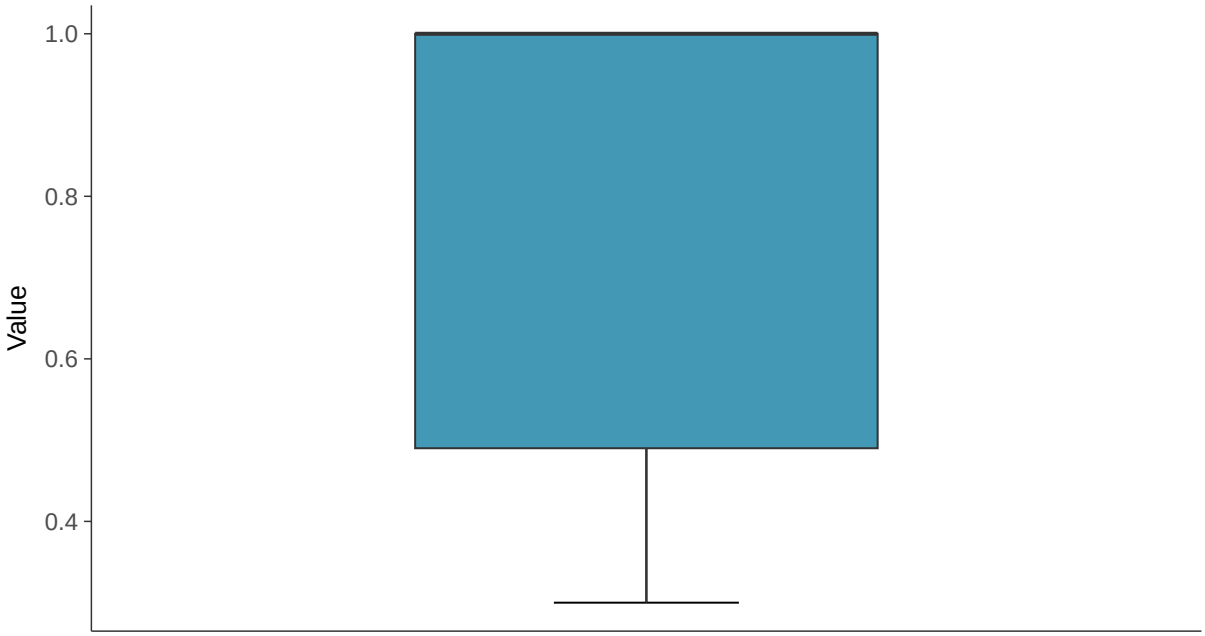
ID: 100D_1_04





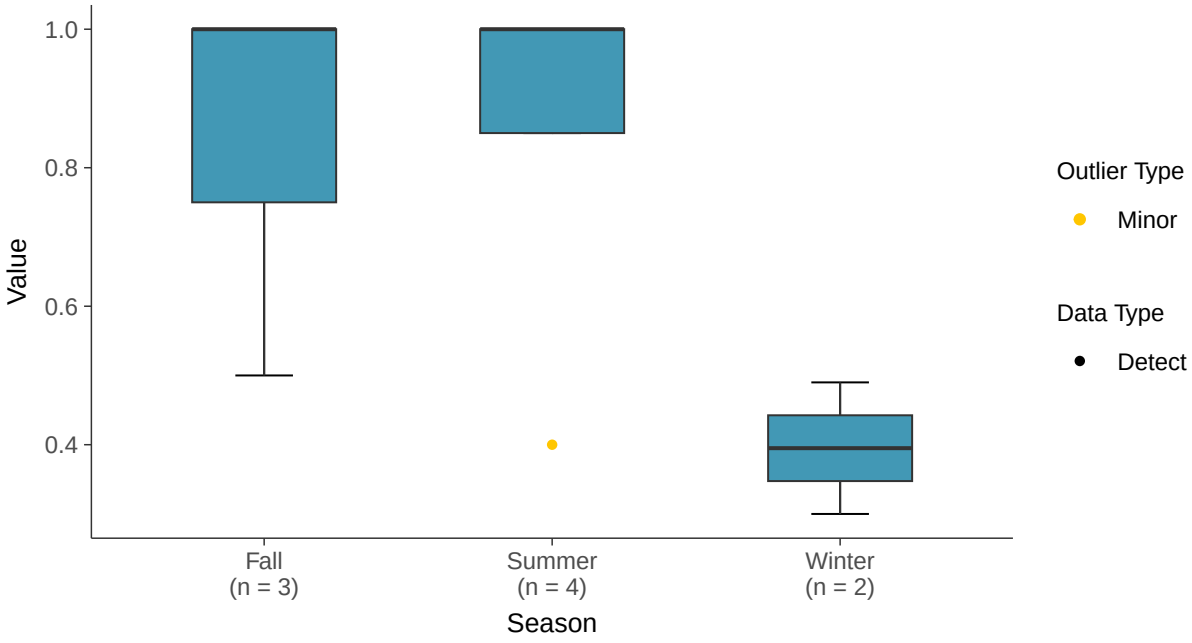
Boxplot

Fluoride, MW-100D (mg/L)



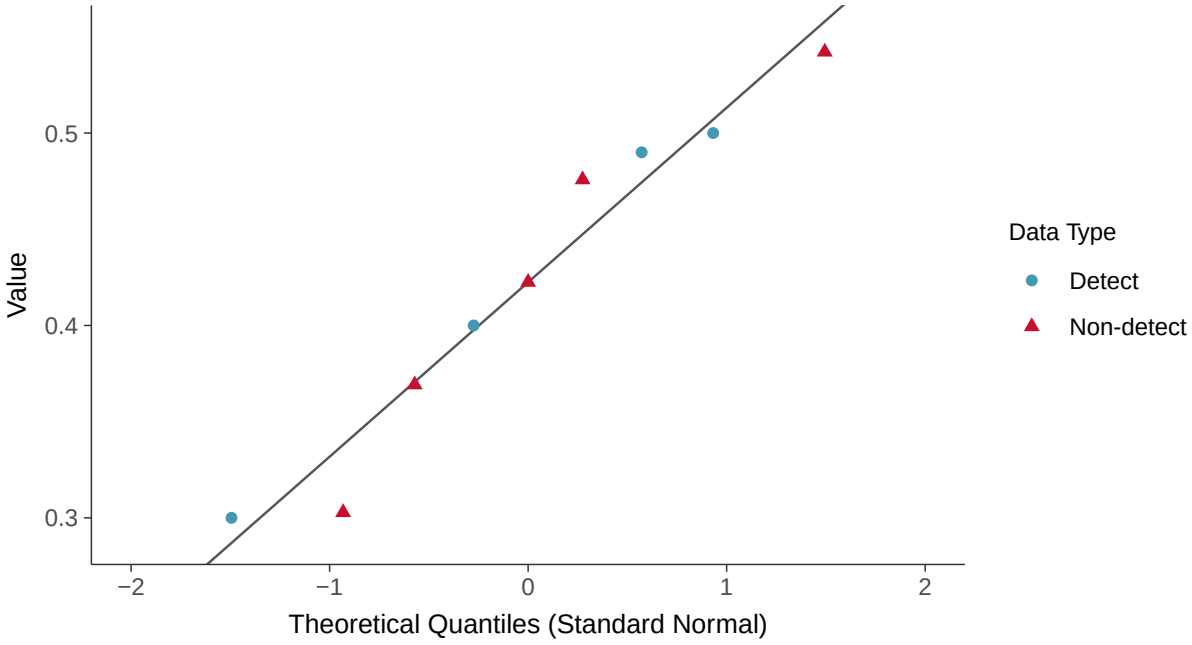
Boxplot by Season

Fluoride, MW-100D (mg/L)



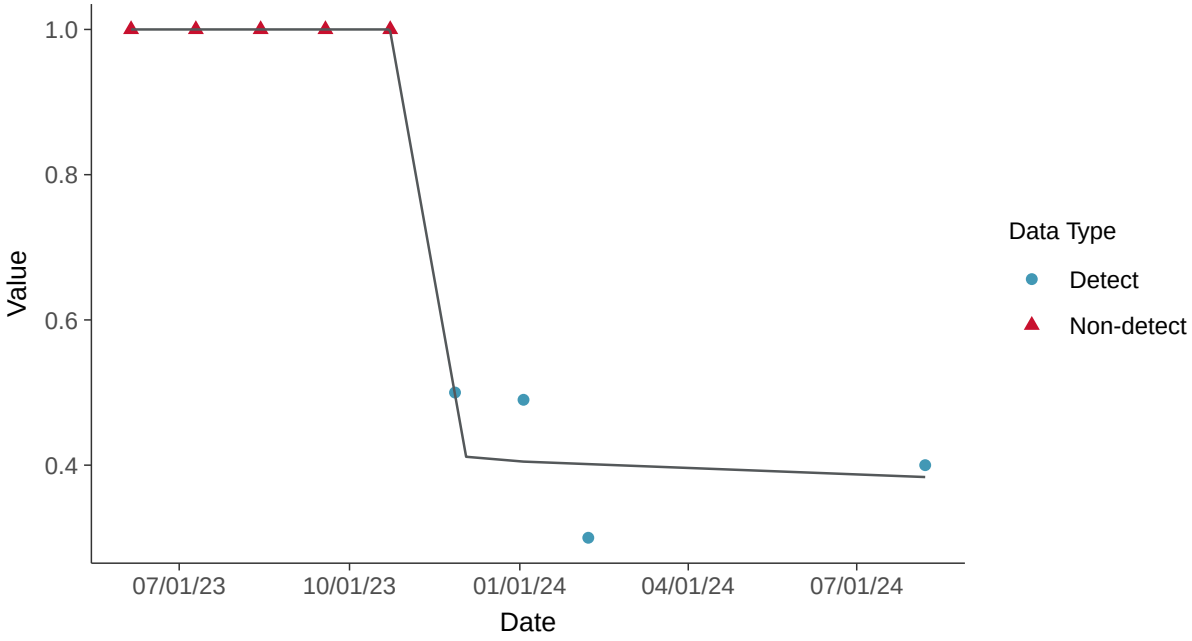
Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-100D (mg/L)



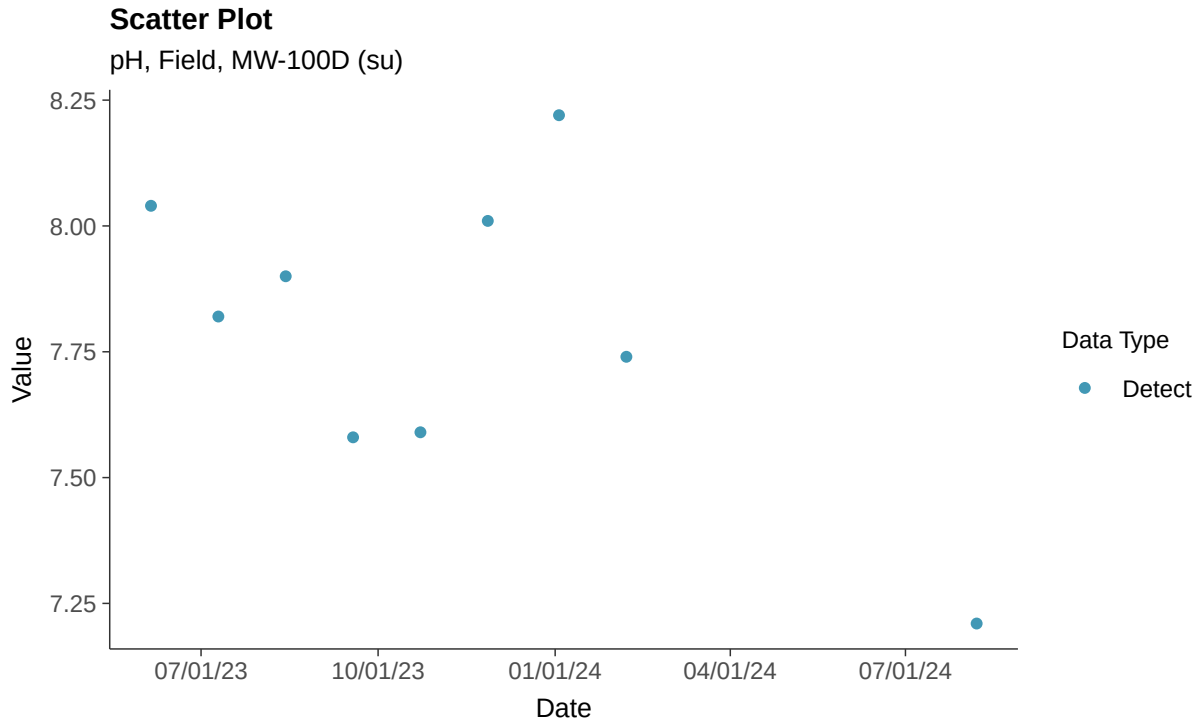
Trend Regression: Piecewise Linear-Linear-Linear

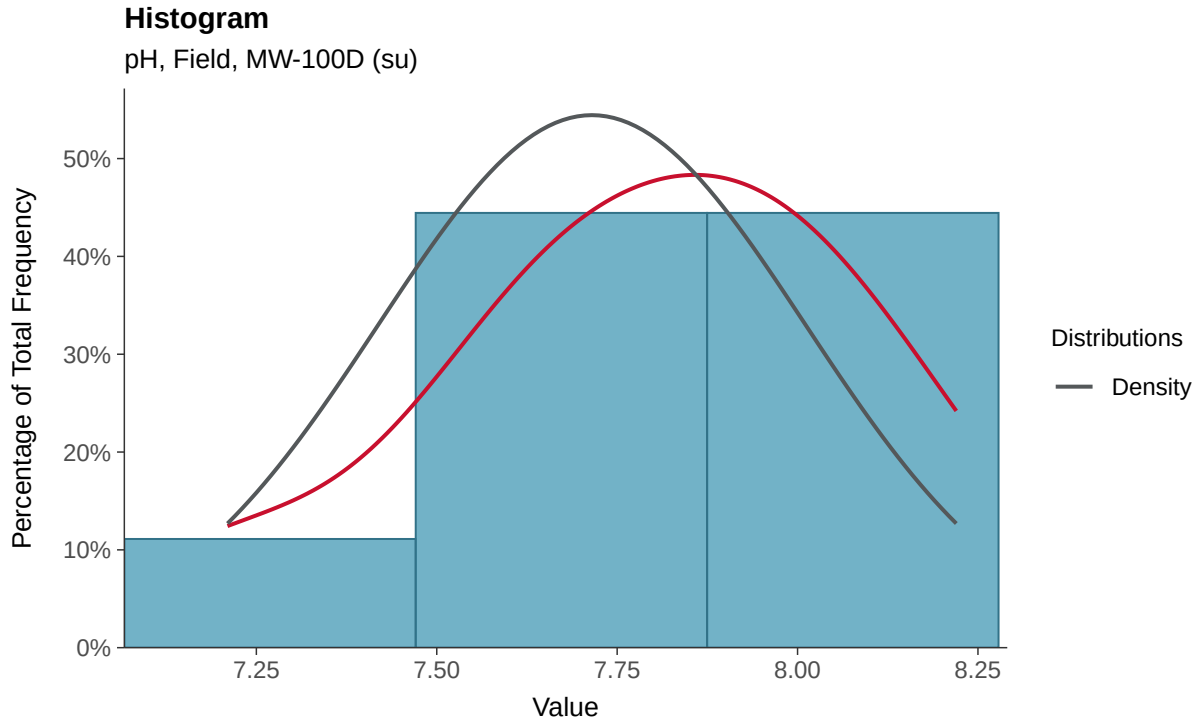
Fluoride, MW-100D (mg/L)



Appendix III: pH, Field, MW-100D

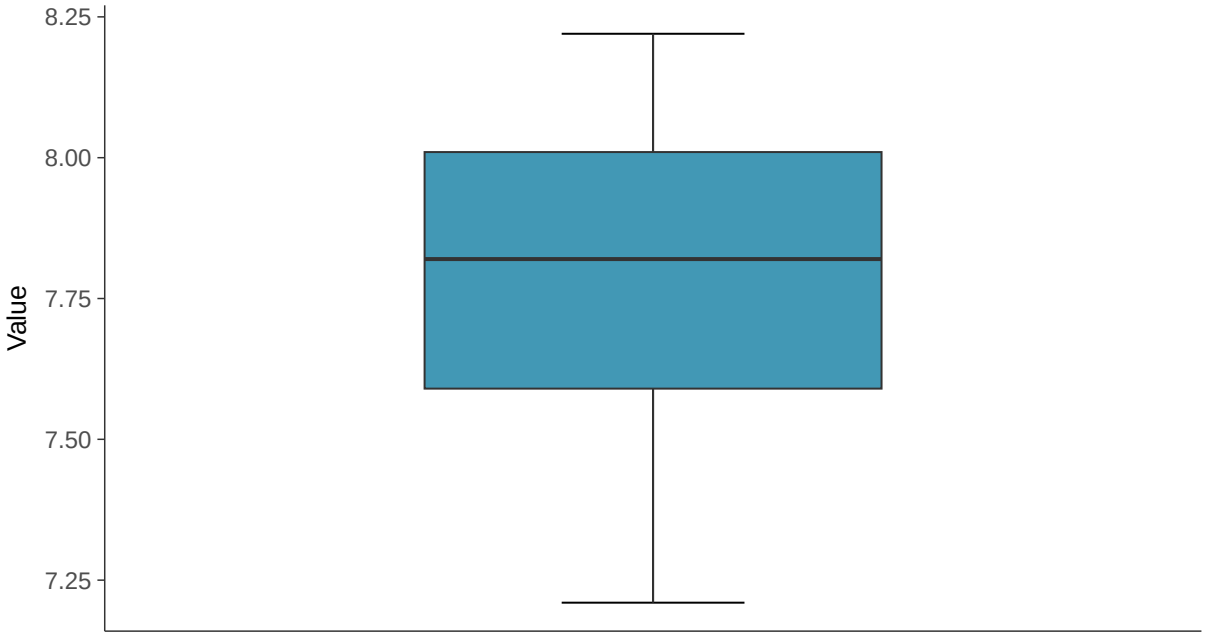
ID: 100D_1_05





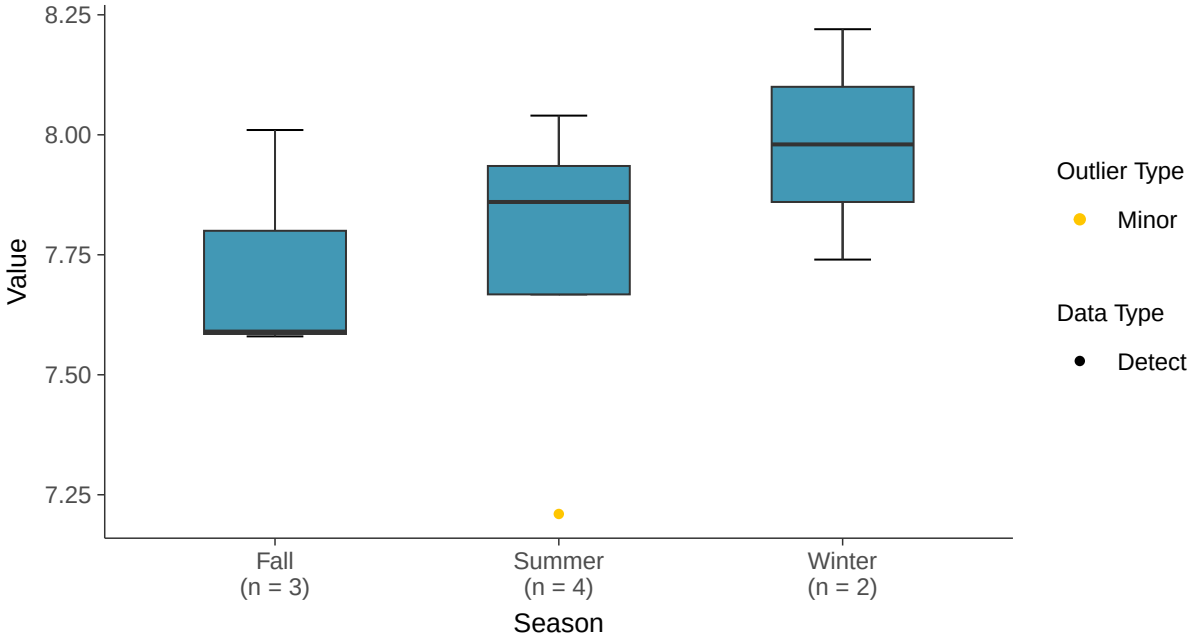
Boxplot

pH, Field, MW-100D (su)



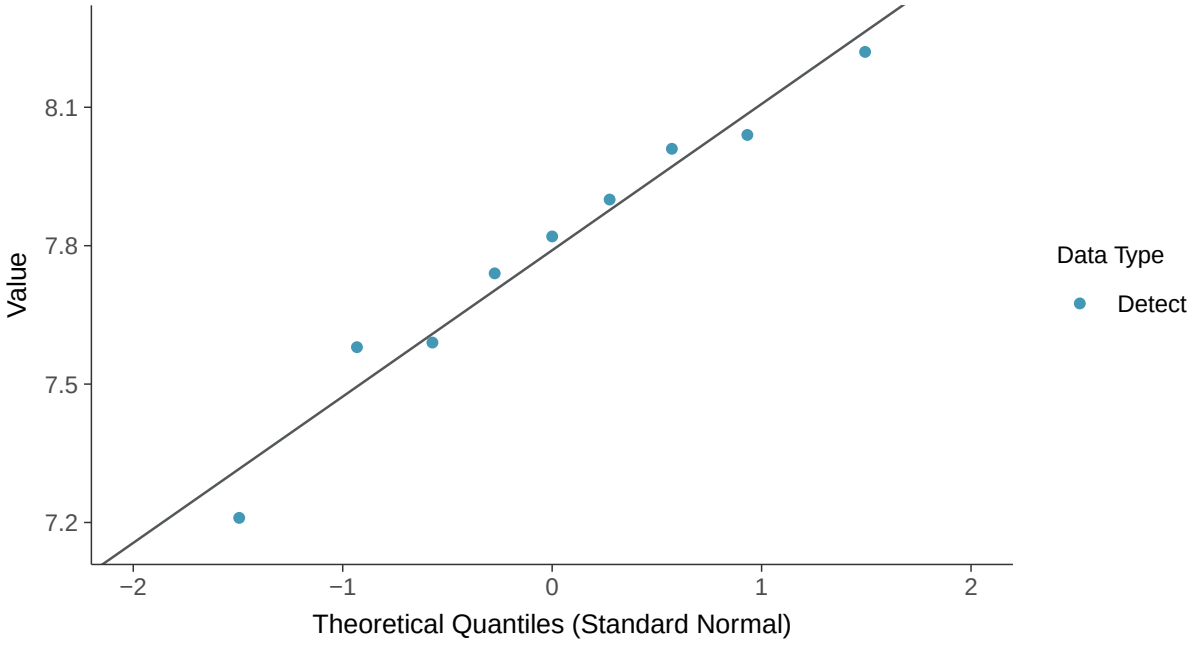
Boxplot by Season

pH, Field, MW-100D (su)



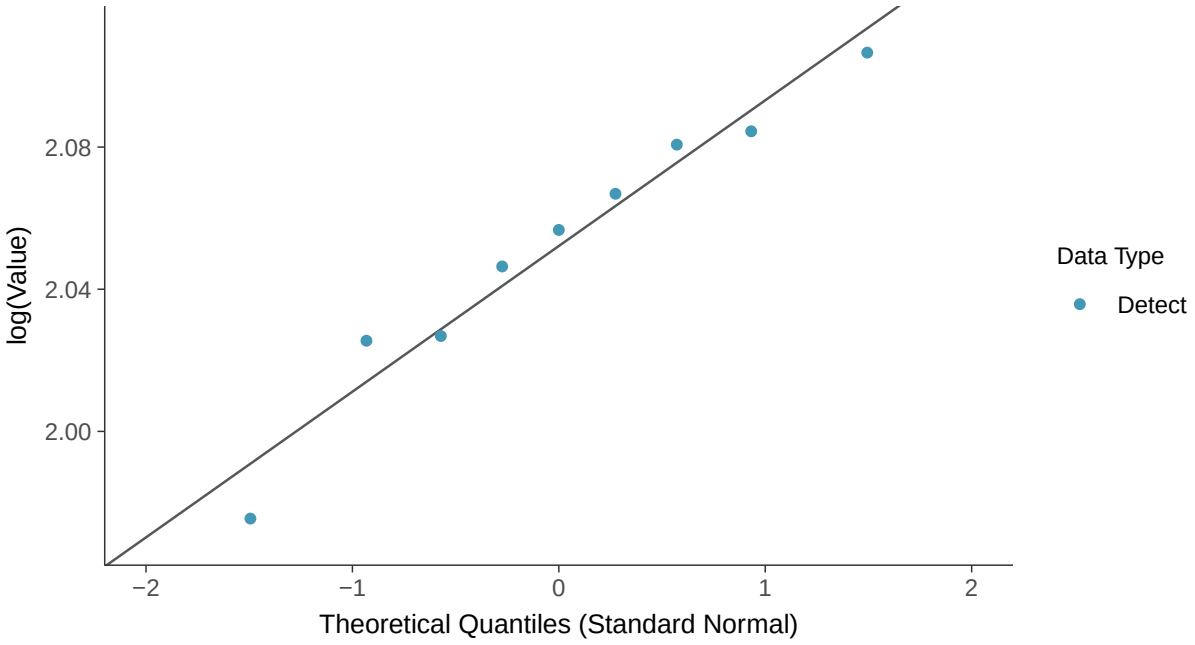
Normal Q-Q plot

pH, Field, MW-100D (su)



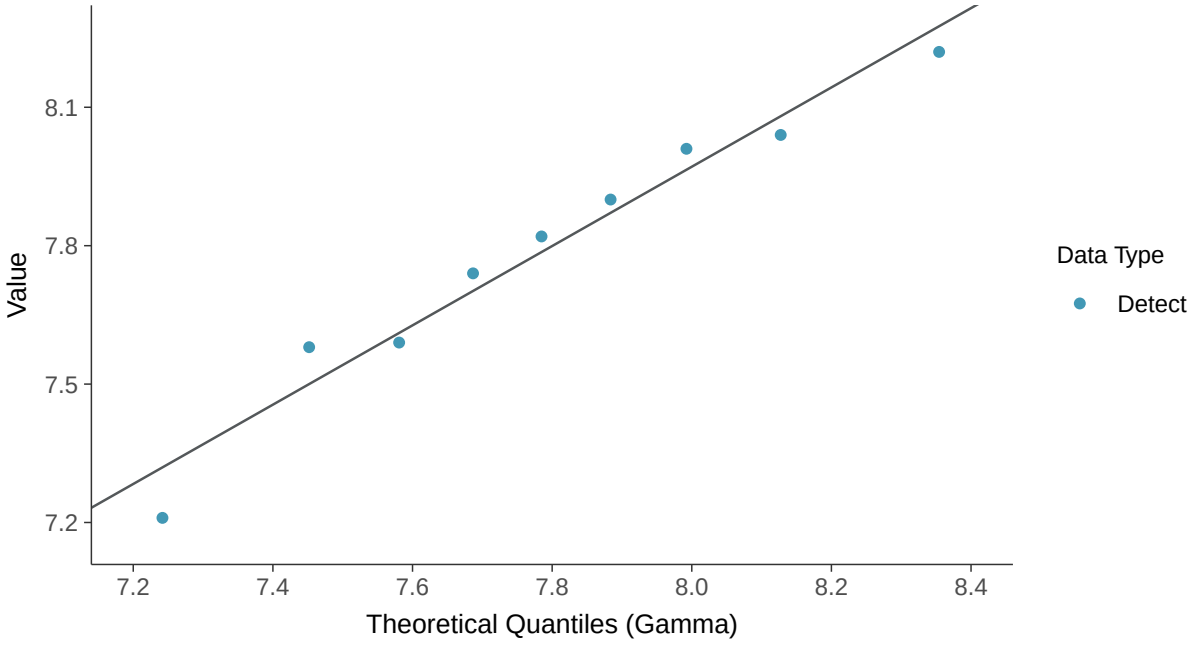
Lognormal Q-Q plot

pH, Field, MW-100D (su)



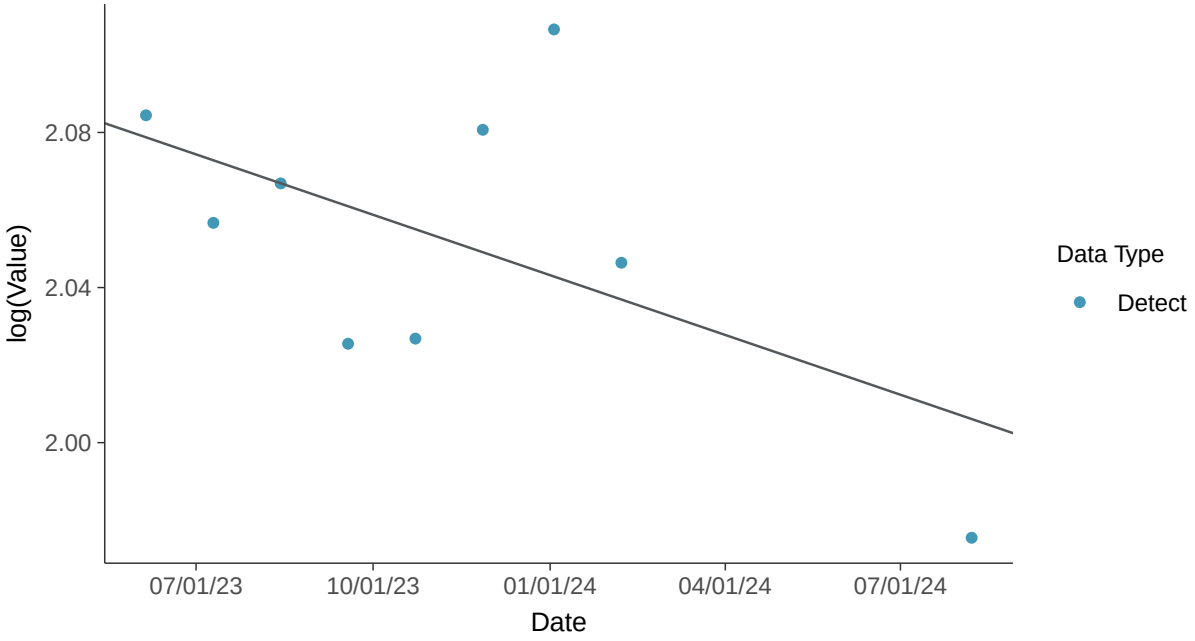
Gamma Q-Q plot

pH, Field, MW-100D (su)



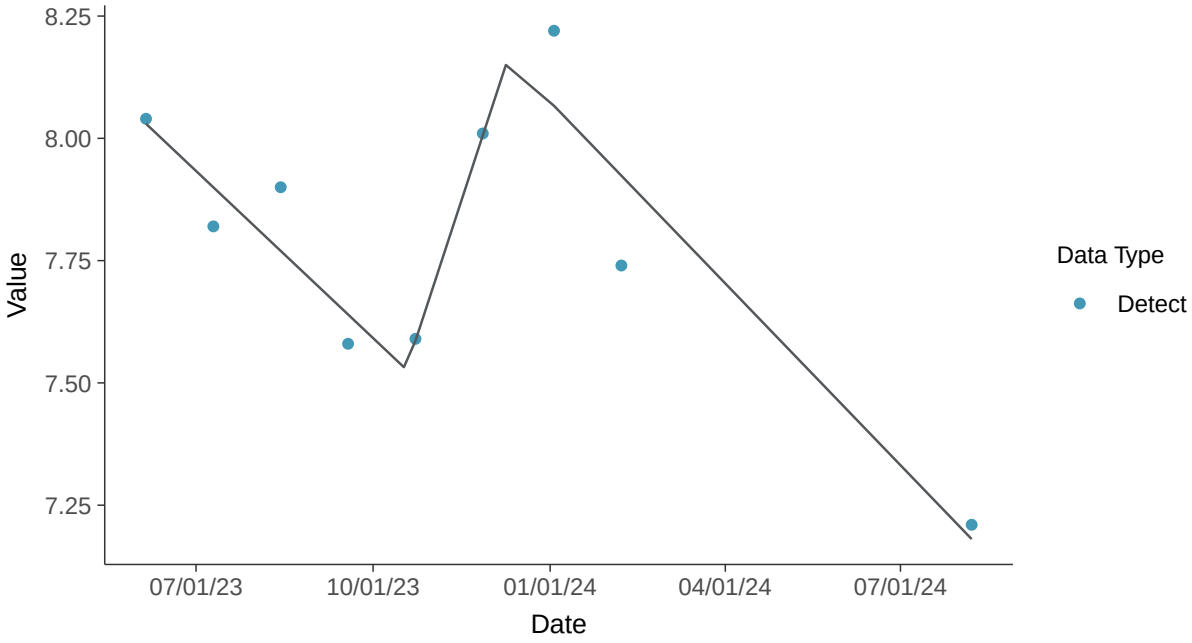
Trend Regression: Lognormal MLE

pH, Field, MW-100D (su)



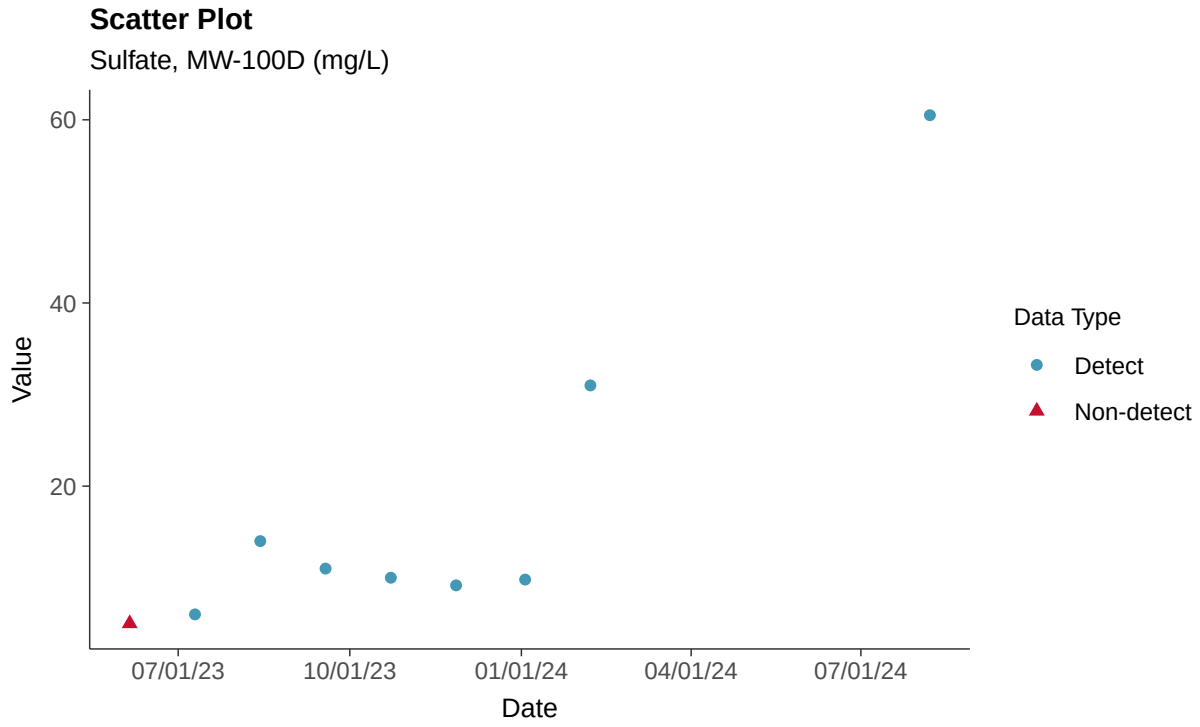
Trend Regression: Piecewise Linear-Linear-Linear

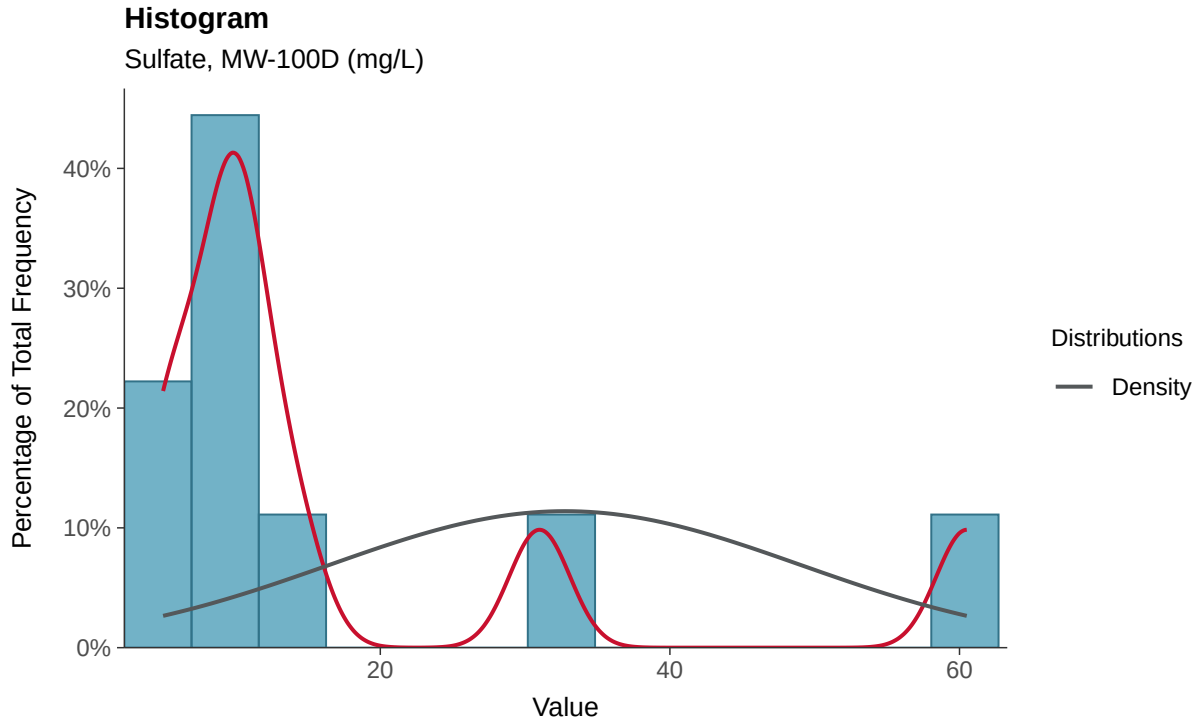
pH, Field, MW-100D (su)



Appendix III: Sulfate, MW-100D

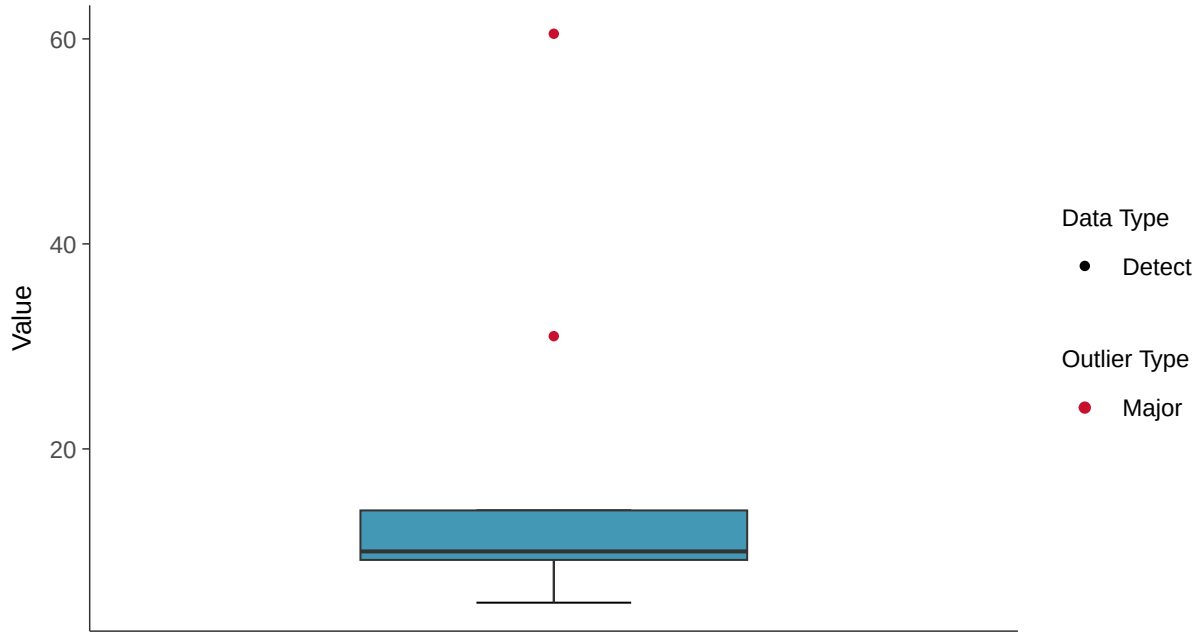
ID: 100D_1_06





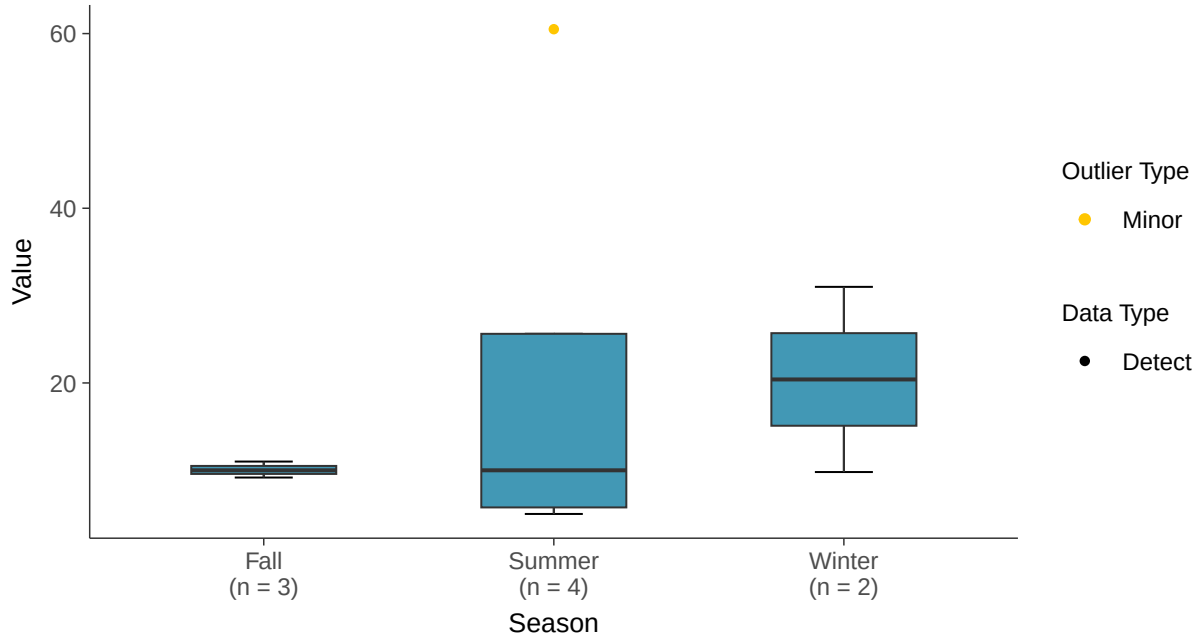
Boxplot

Sulfate, MW-100D (mg/L)



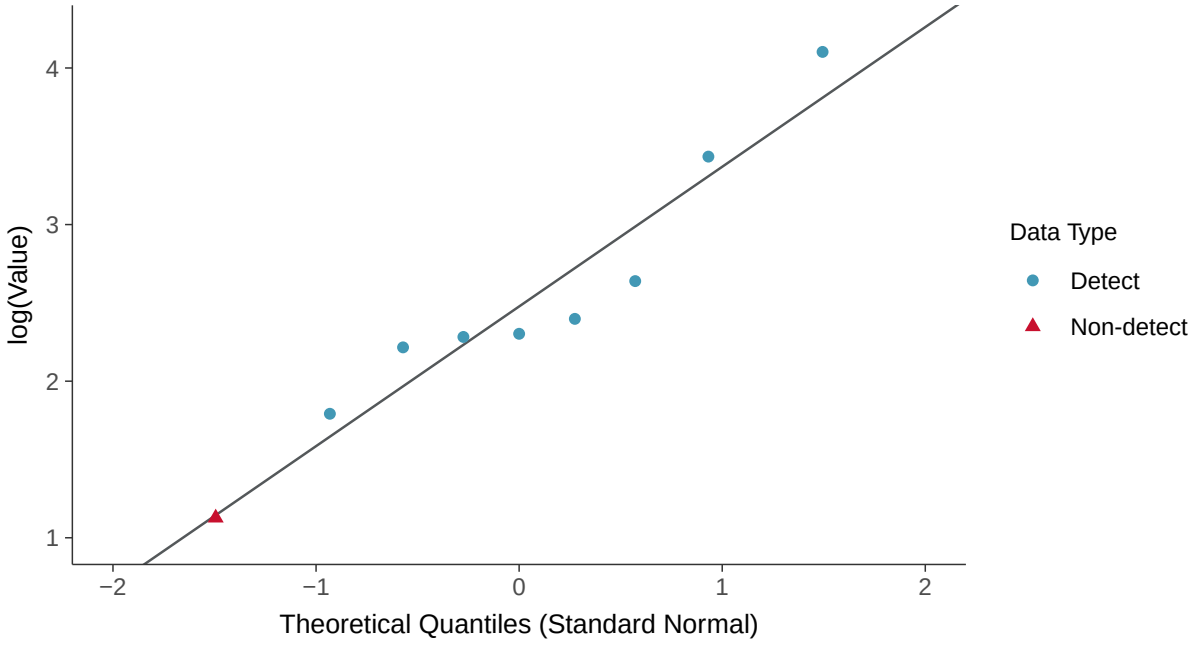
Boxplot by Season

Sulfate, MW-100D (mg/L)



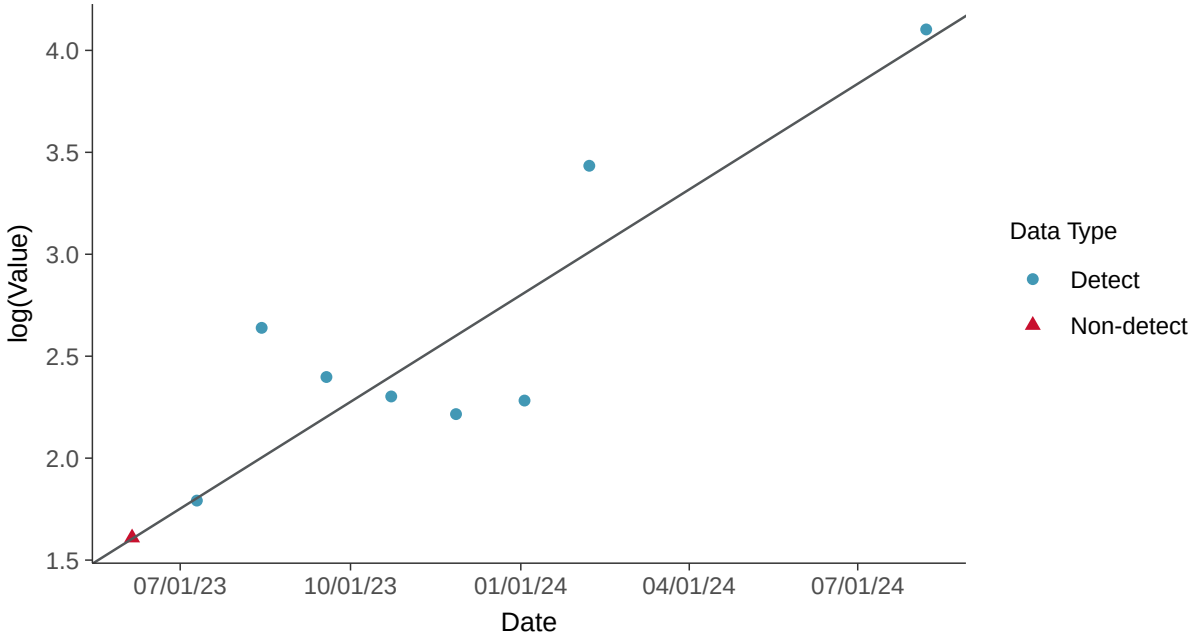
Lognormal Q-Q plot using ROS Imputed Estimates

Sulfate, MW-100D (mg/L)



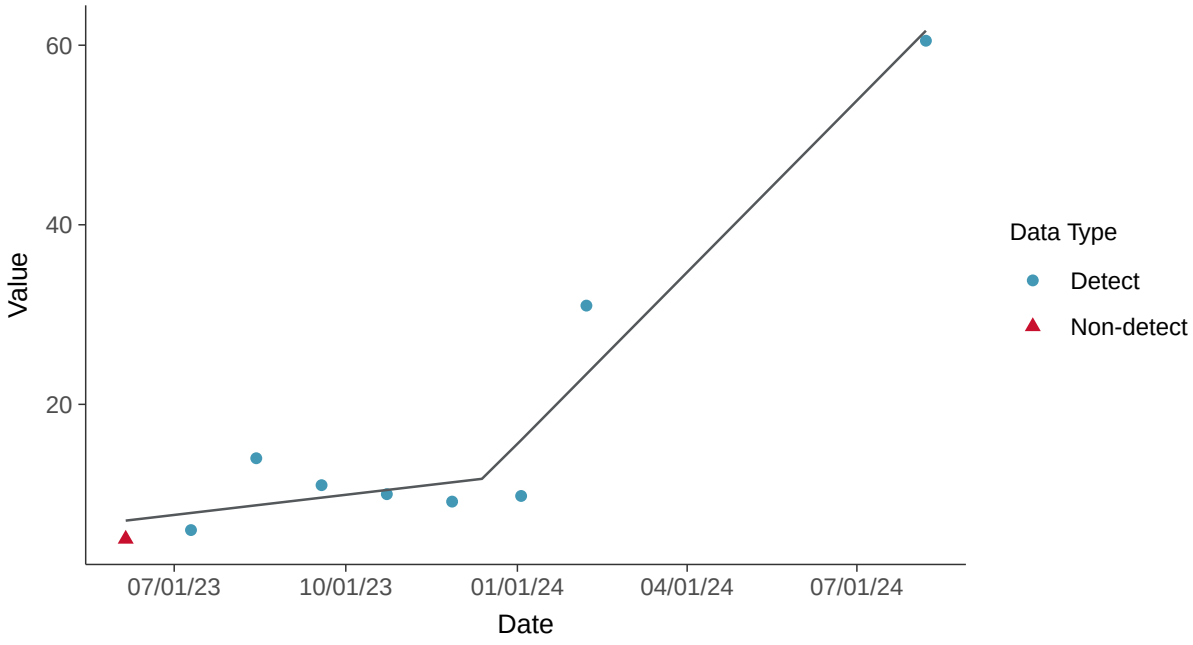
Trend Regression: Lognormal MLE

Sulfate, MW-100D (mg/L)



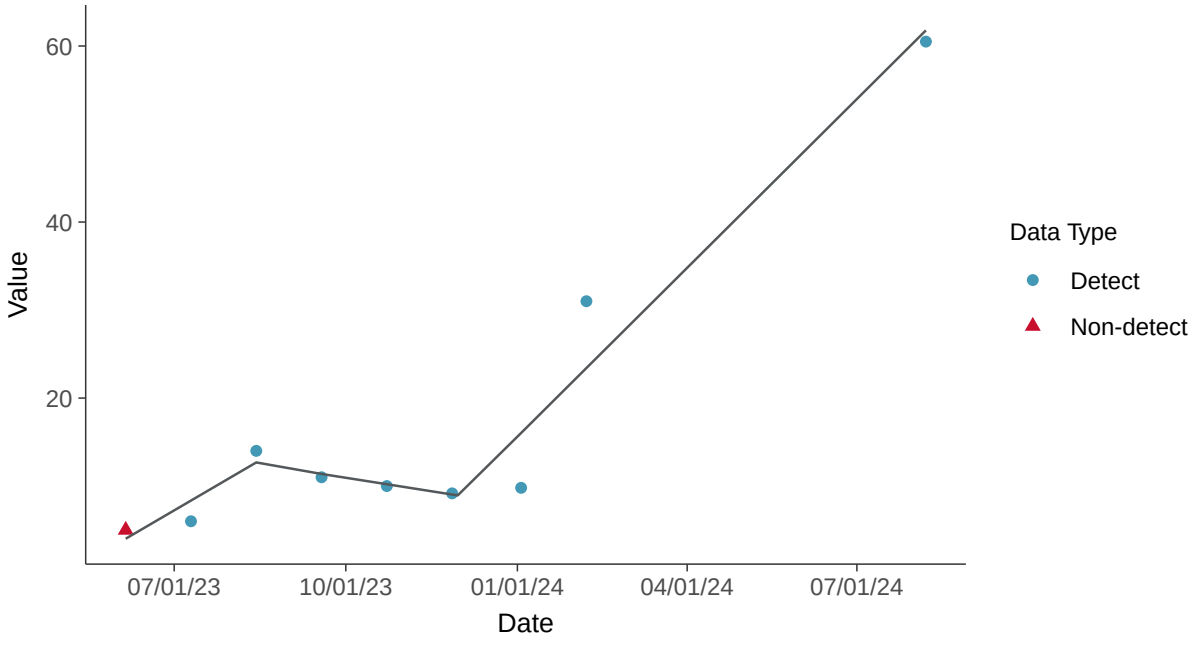
Trend Regression: Piecewise Linear-Linear

Sulfate, MW-100D (mg/L)



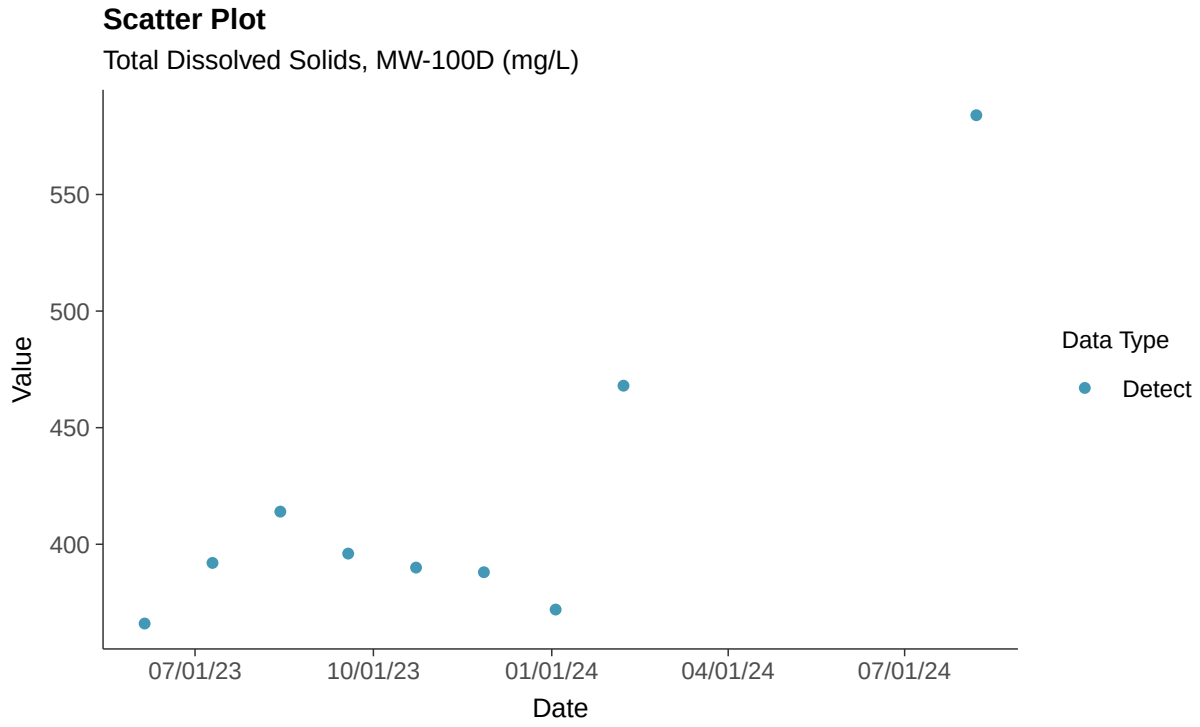
Trend Regression: Piecewise Linear-Linear-Linear

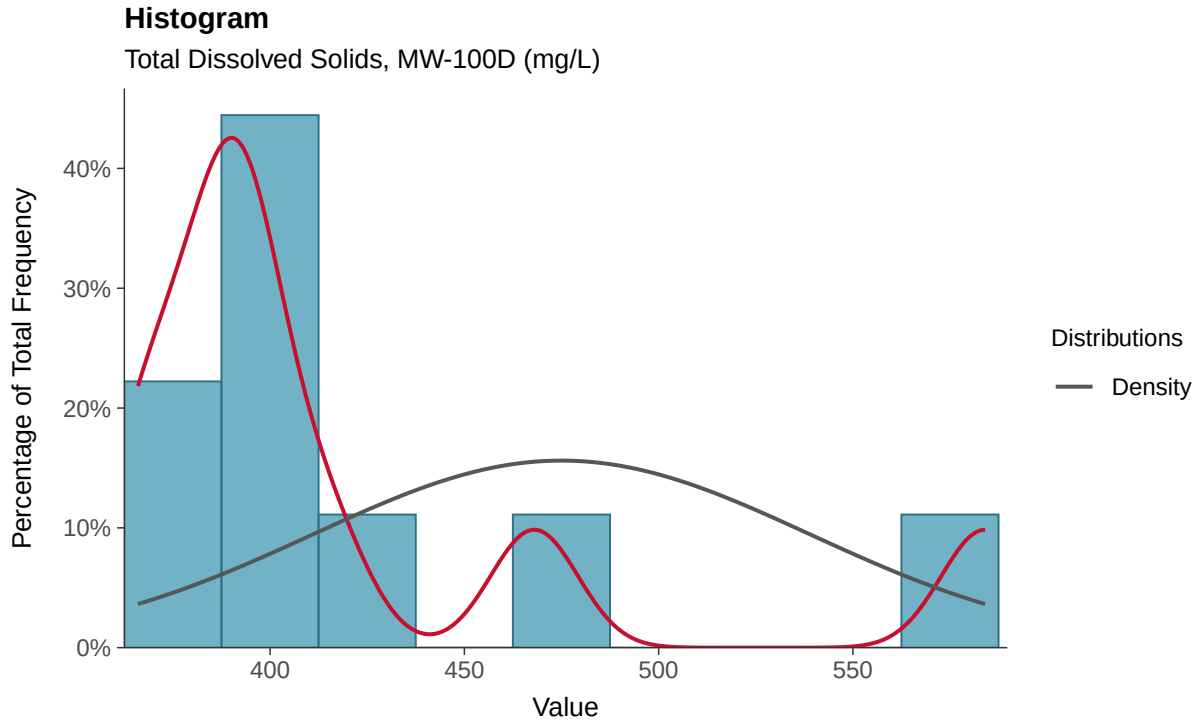
Sulfate, MW-100D (mg/L)



Appendix III: Total Dissolved Solids, MW-100D

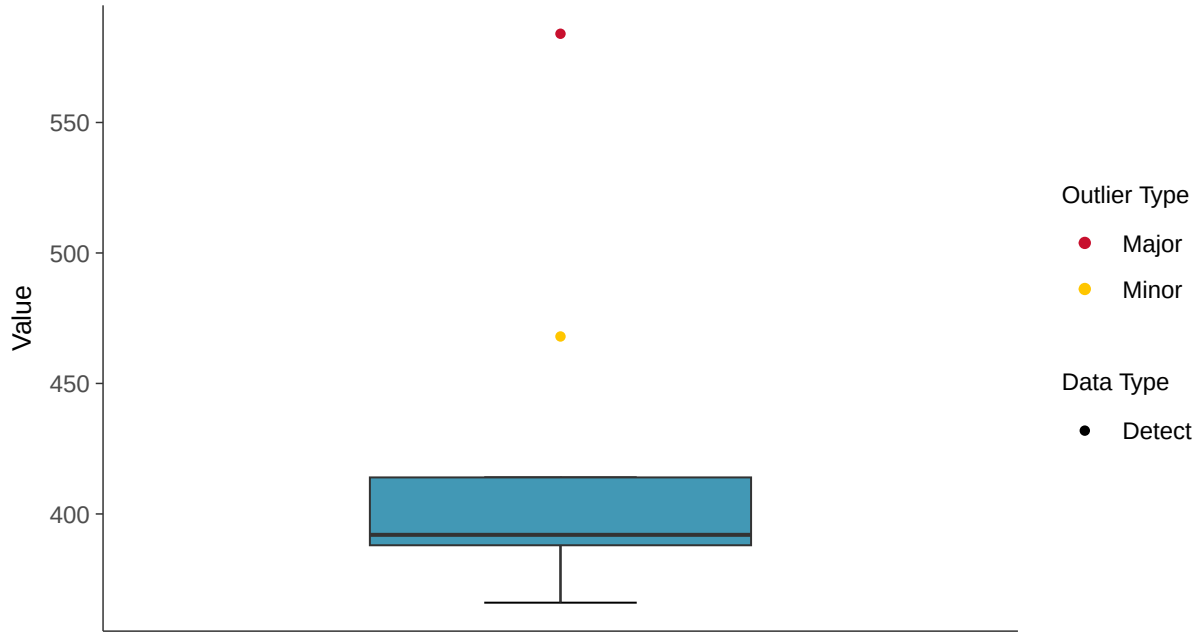
ID: 100D_1_07





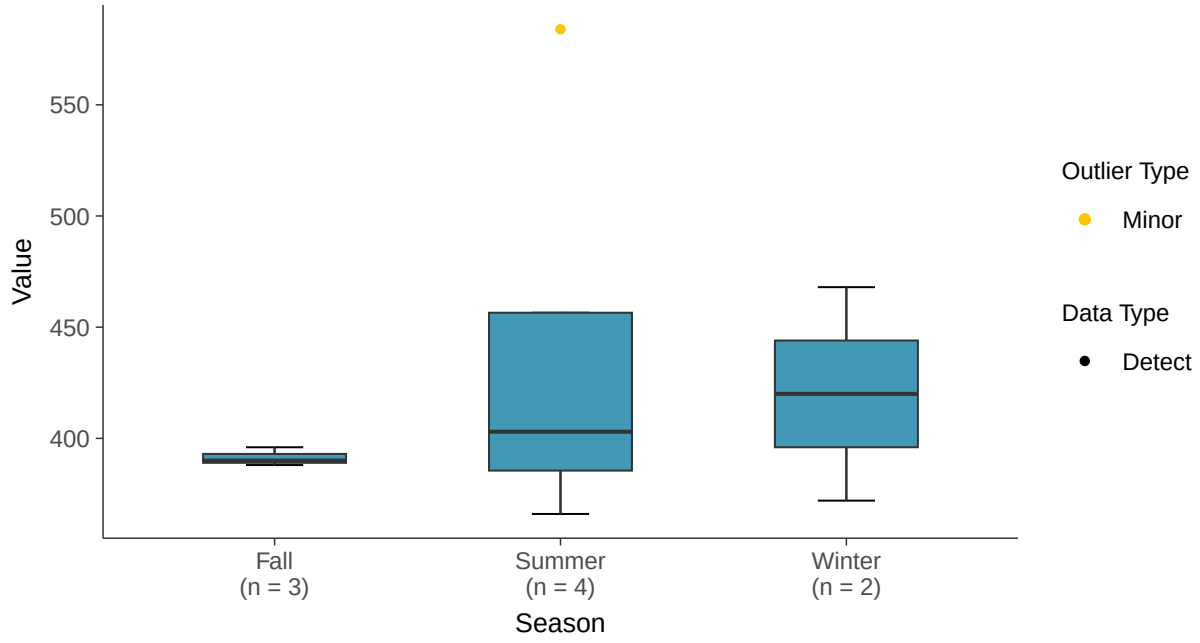
Boxplot

Total Dissolved Solids, MW-100D (mg/L)



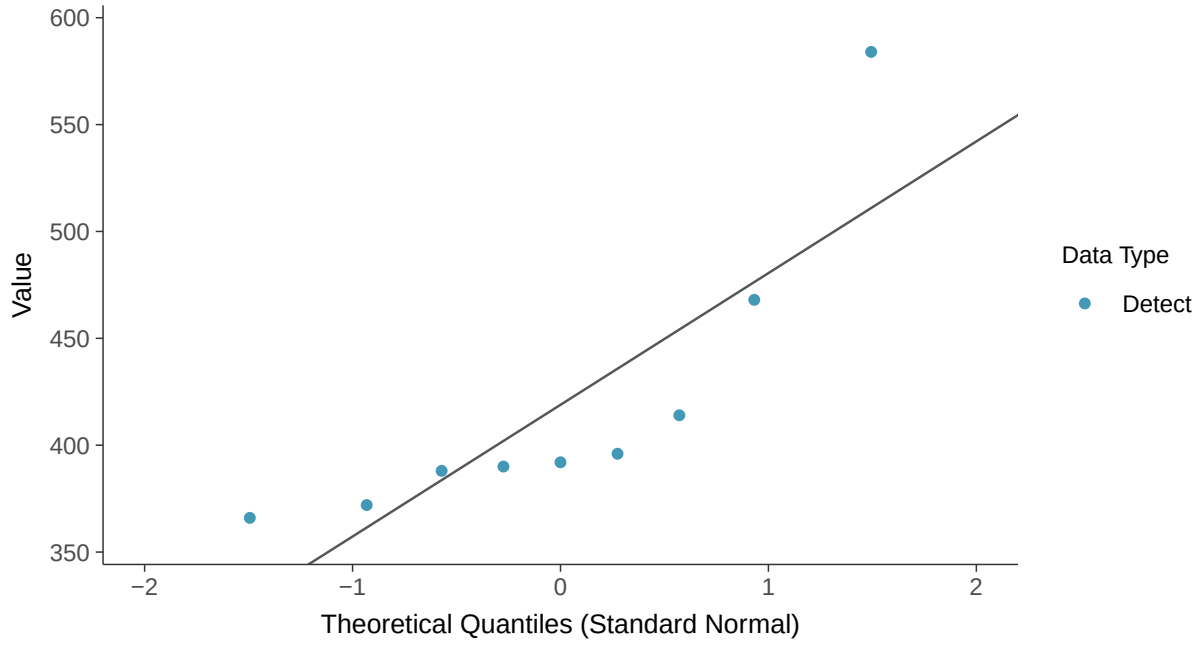
Boxplot by Season

Total Dissolved Solids, MW-100D (mg/L)



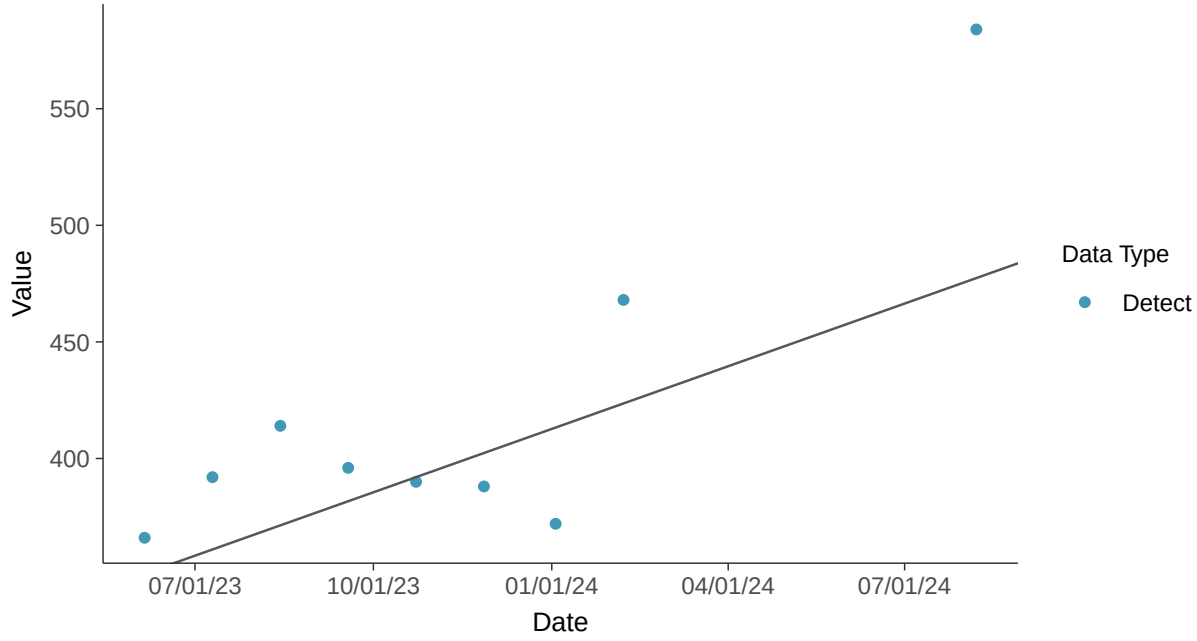
Normal Q-Q plot

Total Dissolved Solids, MW-100D (mg/L)



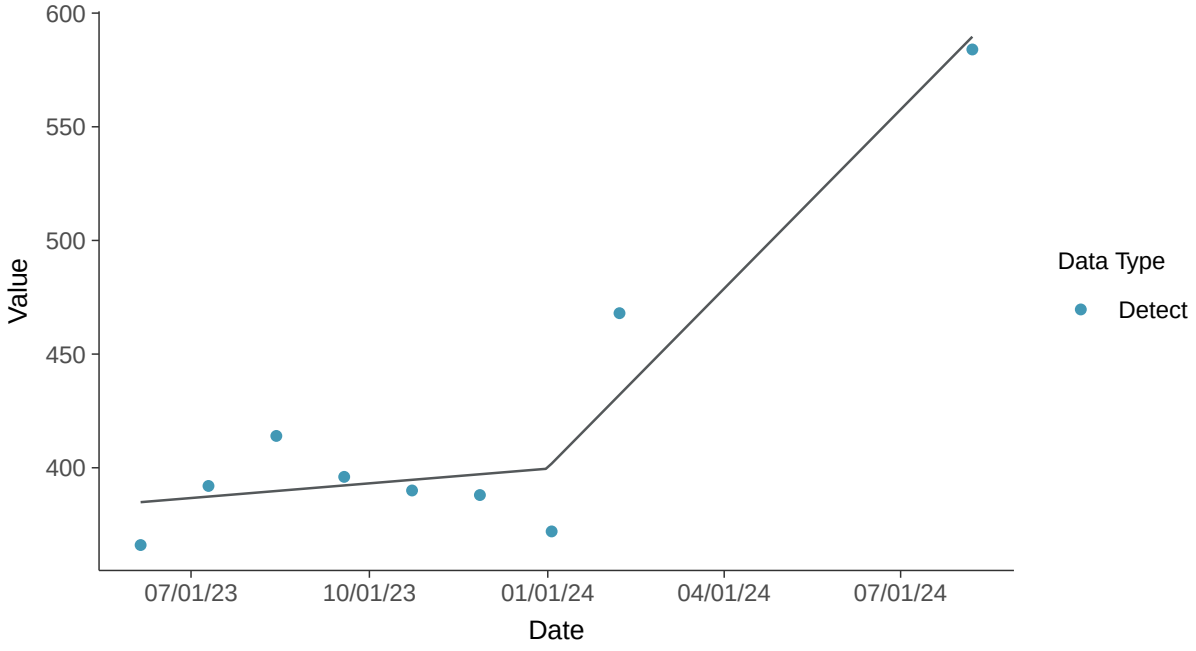
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Total Dissolved Solids, MW-100D (mg/L)



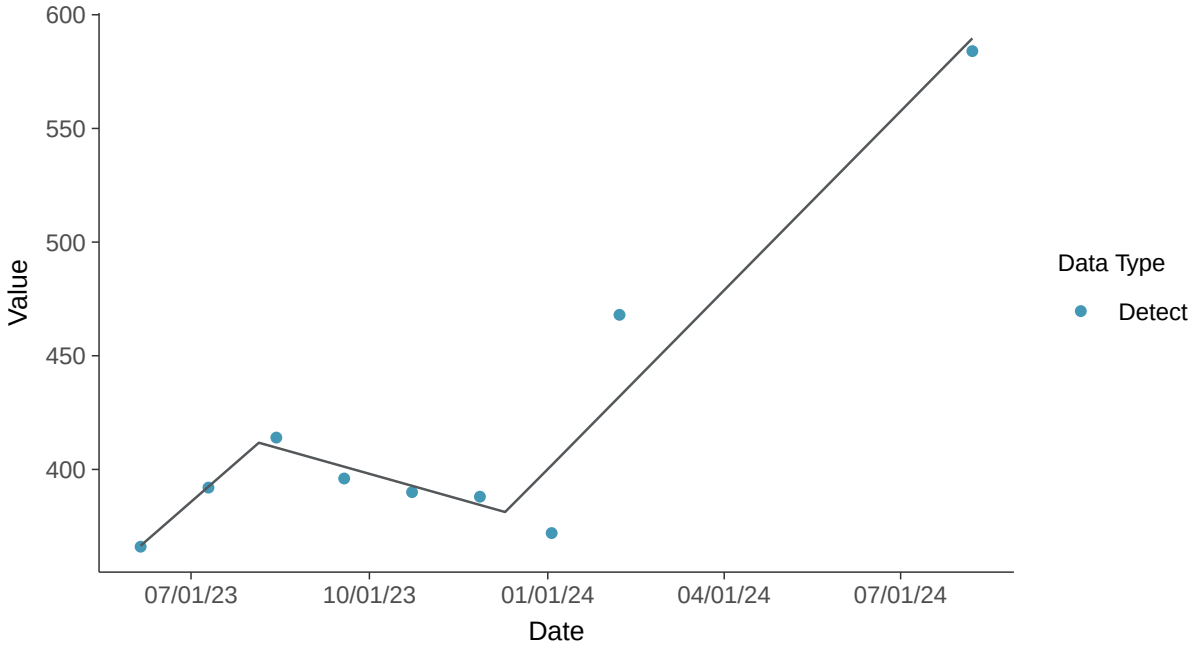
Trend Regression: Piecewise Linear-Linear

Total Dissolved Solids, MW-100D (mg/L)



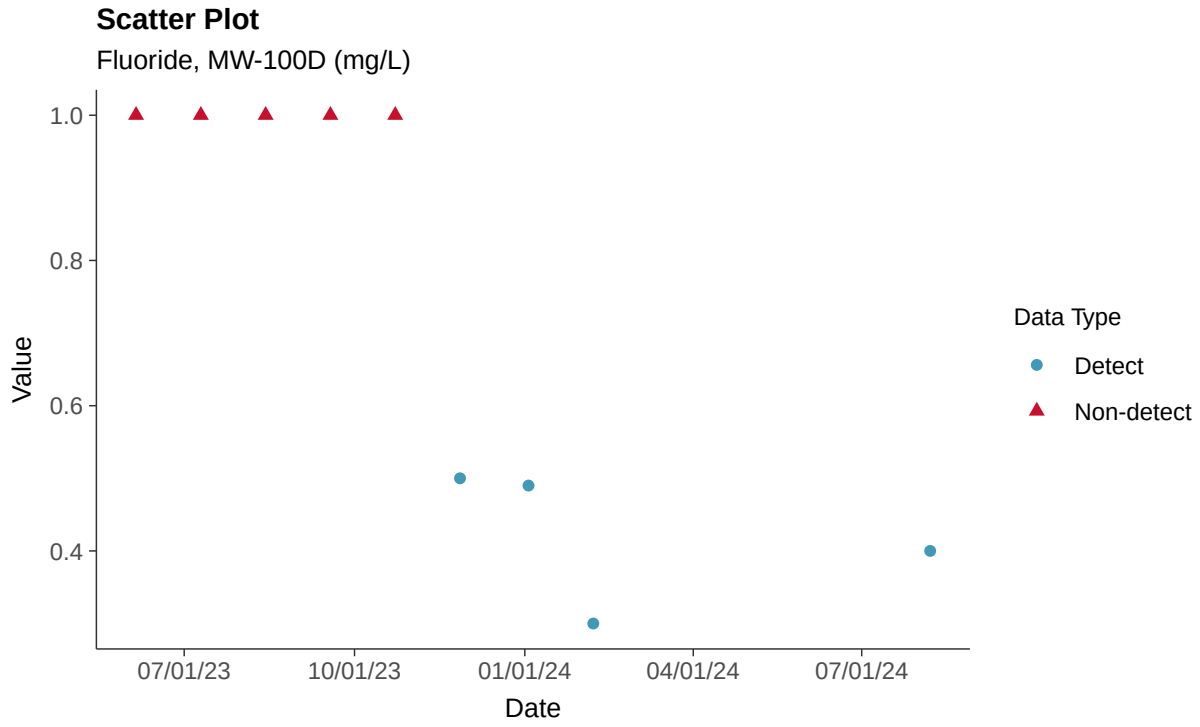
Trend Regression: Piecewise Linear-Linear-Linear

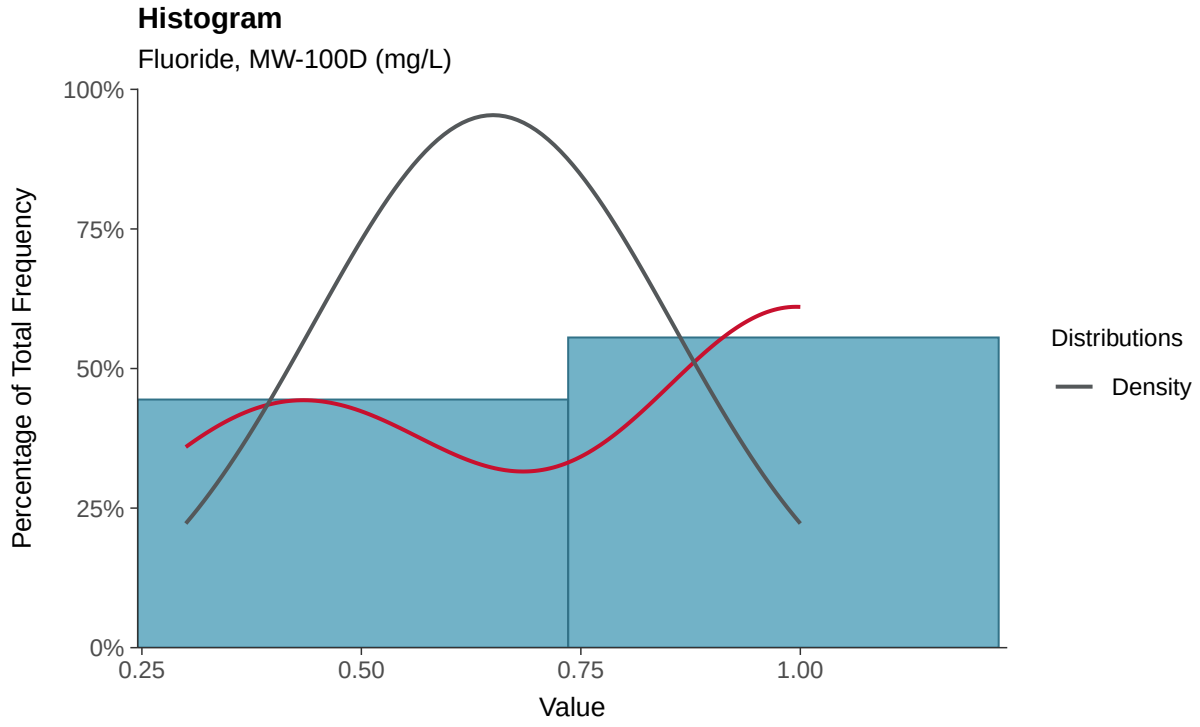
Total Dissolved Solids, MW-100D (mg/L)



Appendix IV: Fluoride, MW-100D

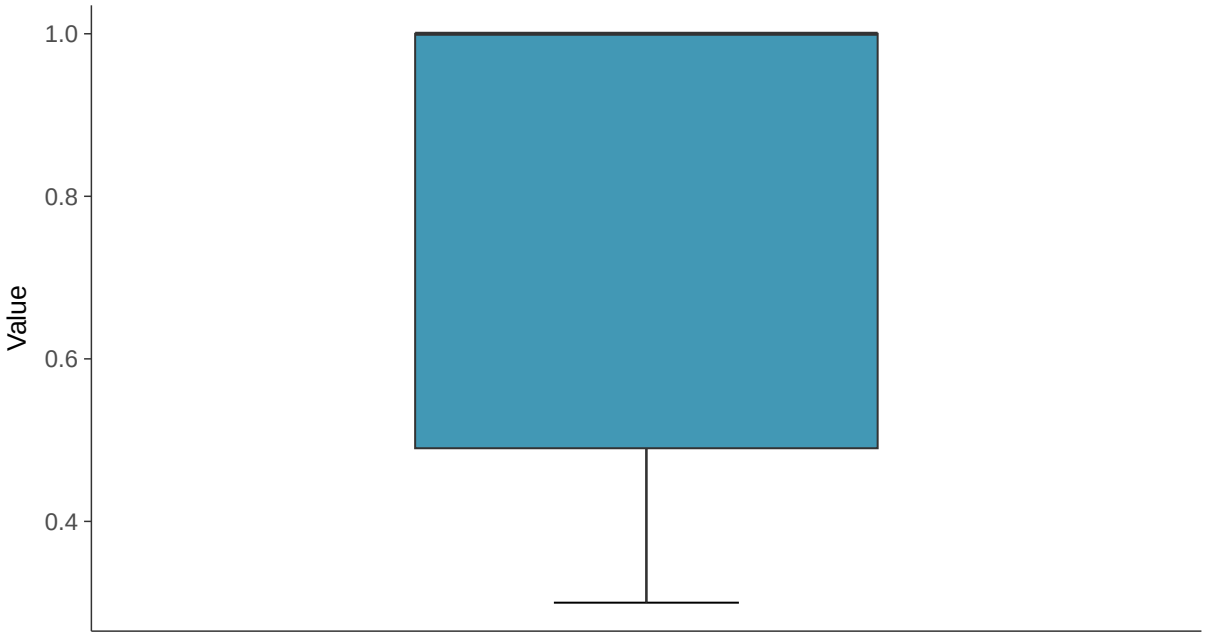
ID: 100D_2_04





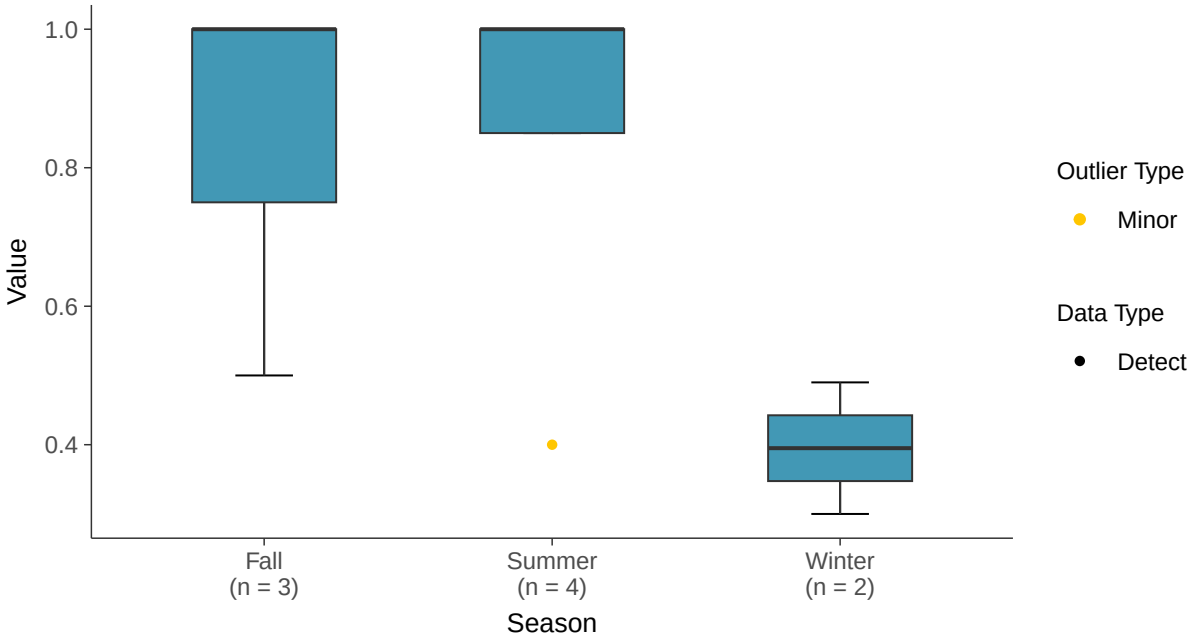
Boxplot

Fluoride, MW-100D (mg/L)



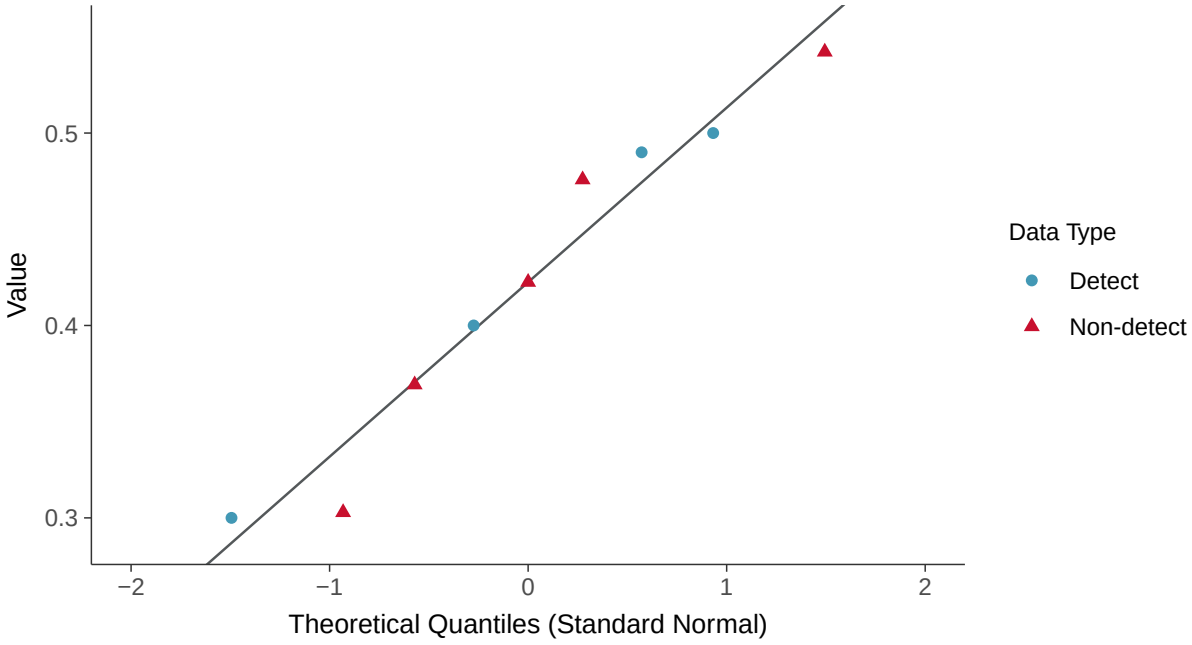
Boxplot by Season

Fluoride, MW-100D (mg/L)



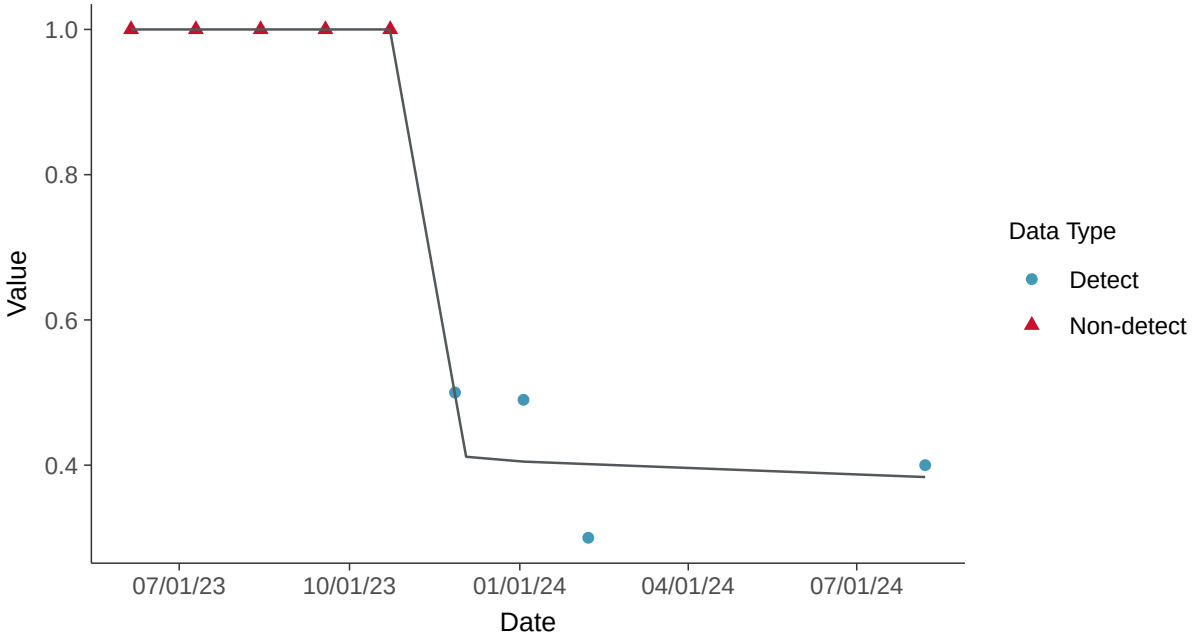
Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-100D (mg/L)



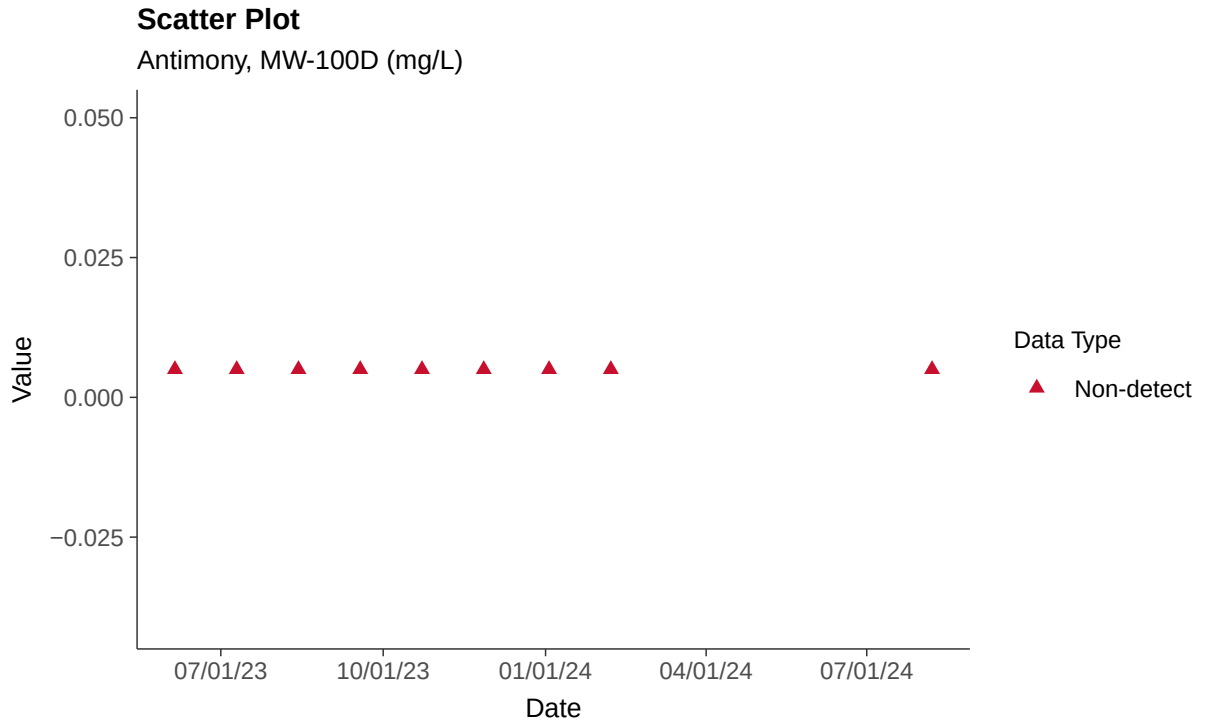
Trend Regression: Piecewise Linear-Linear-Linear

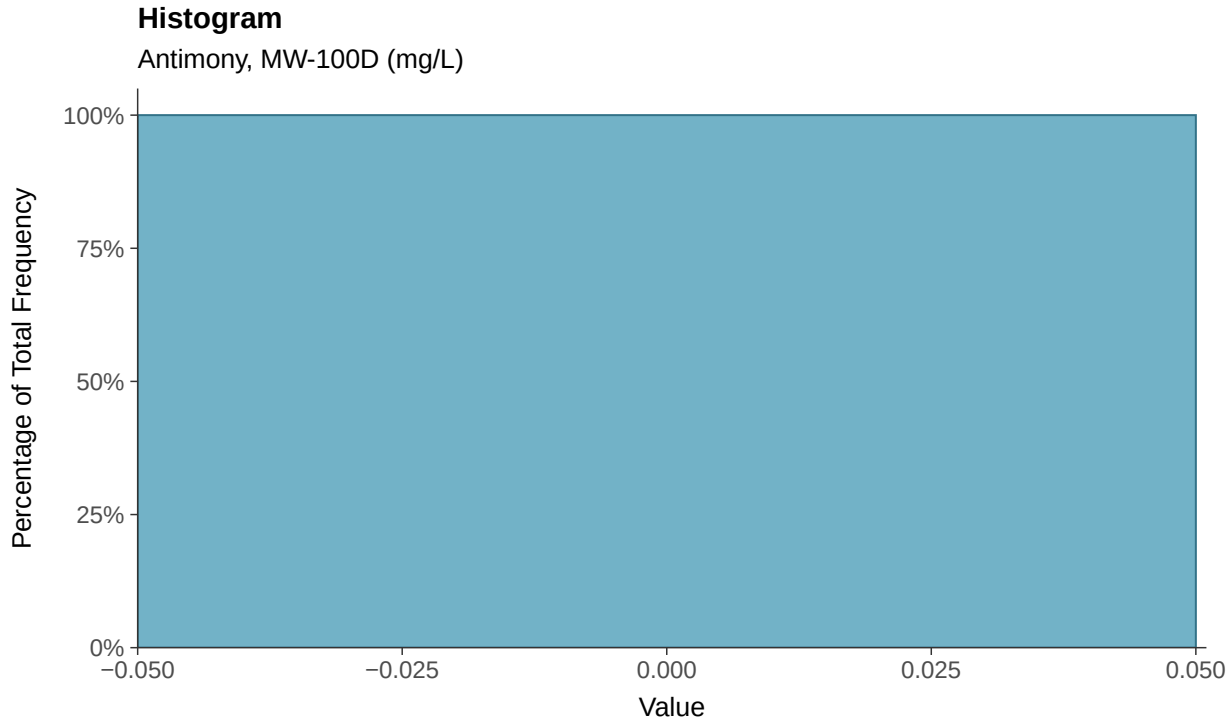
Fluoride, MW-100D (mg/L)



Appendix IV: Antimony, MW-100D

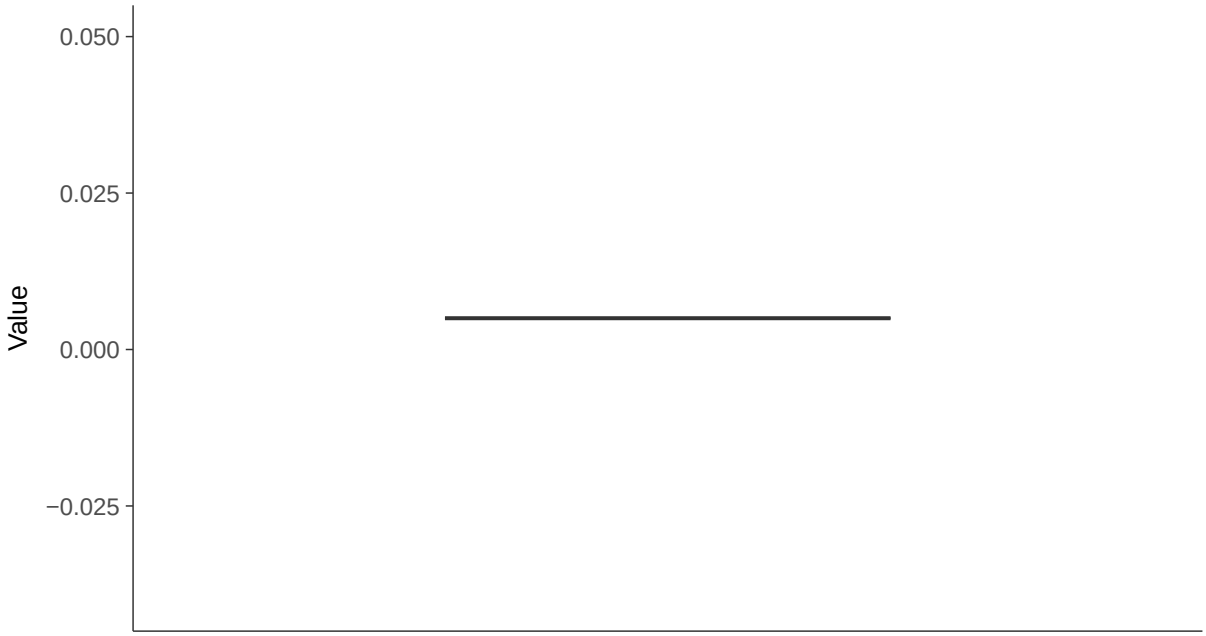
ID: 100D_2_08





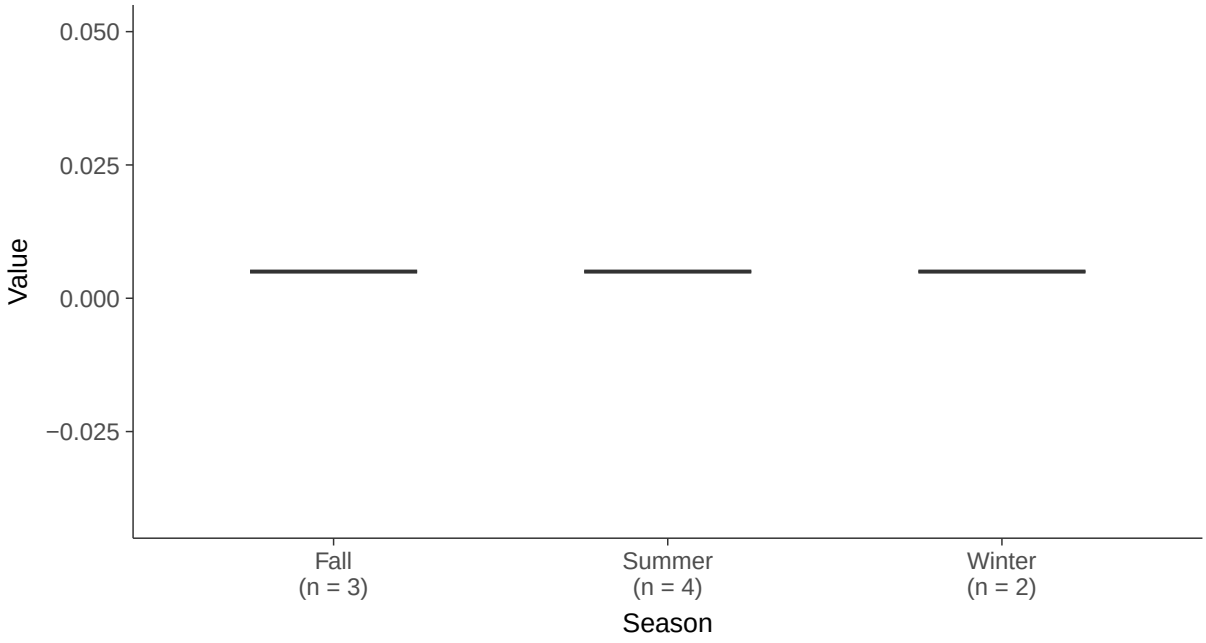
Boxplot

Antimony, MW-100D (mg/L)



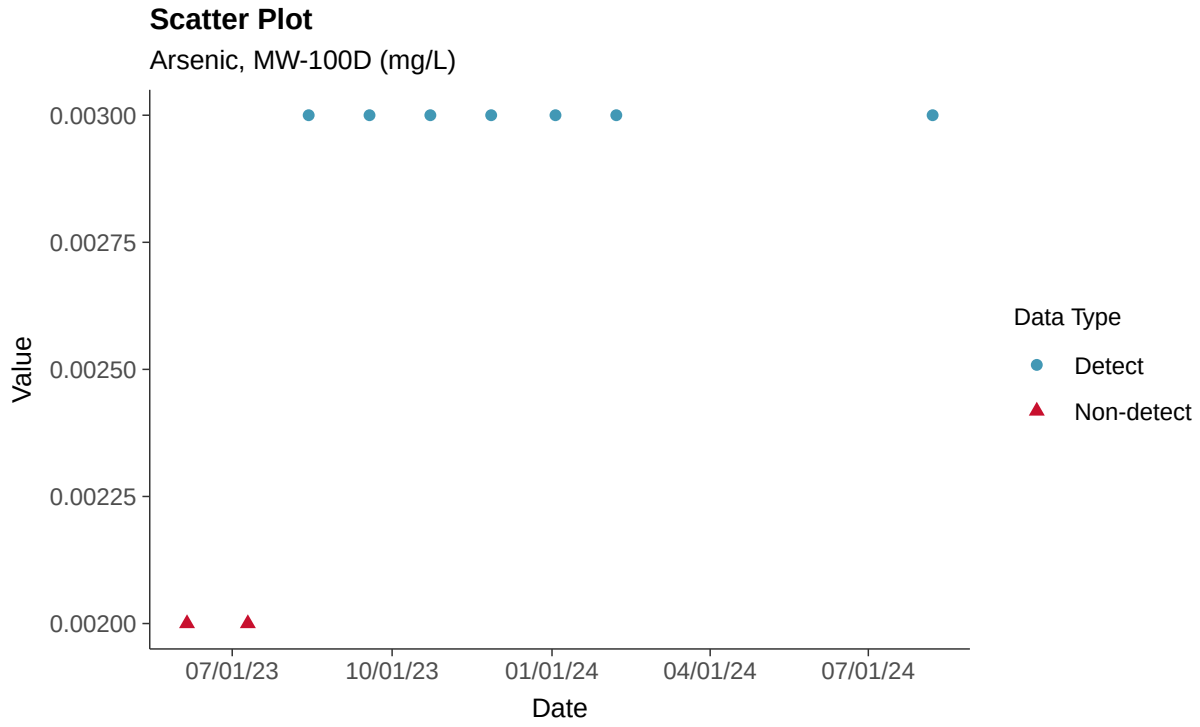
Boxplot by Season

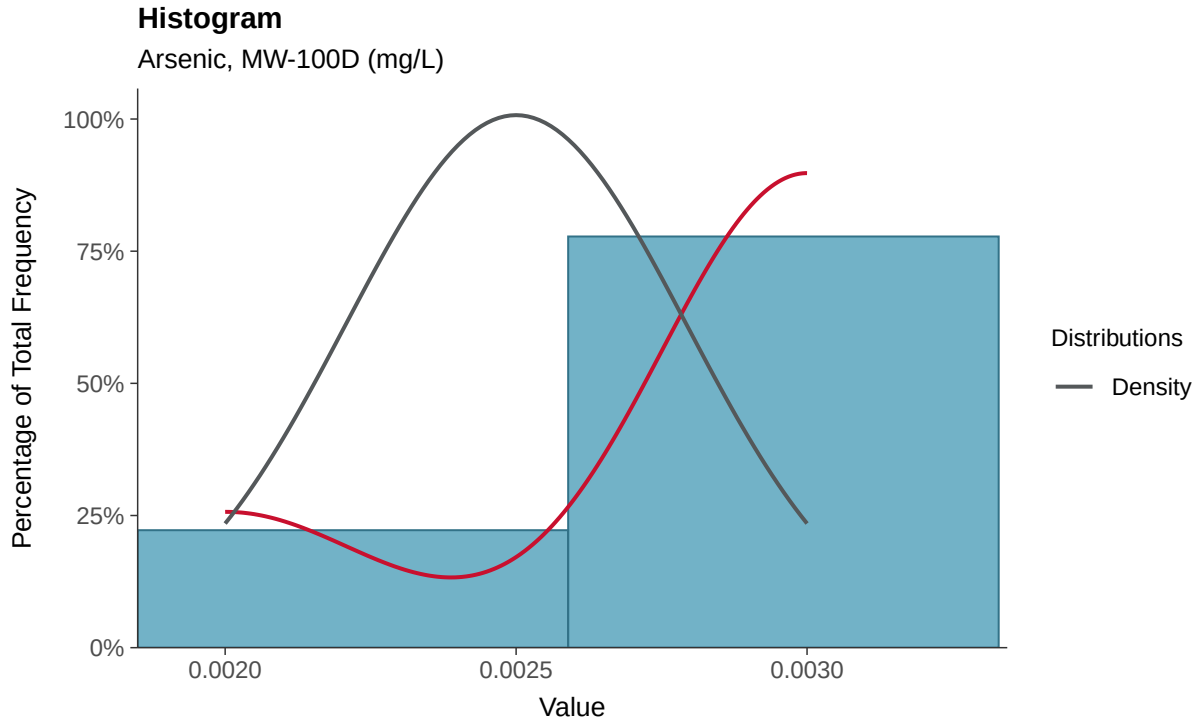
Antimony, MW-100D (mg/L)



Appendix IV: Arsenic, MW-100D

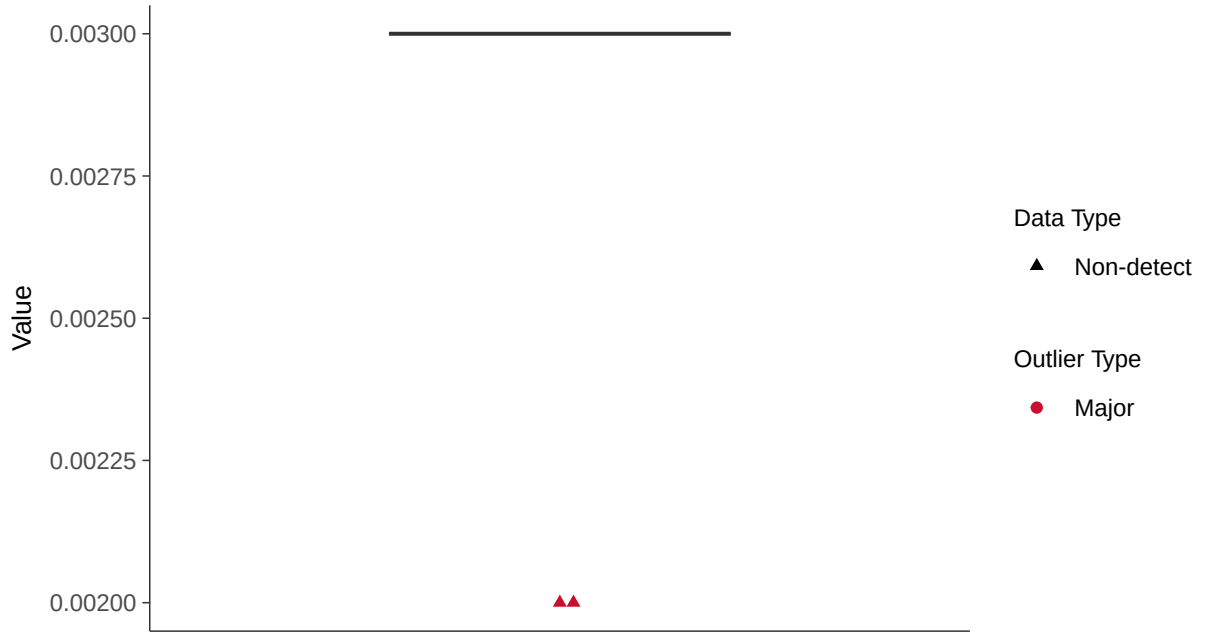
ID: 100D_2_09





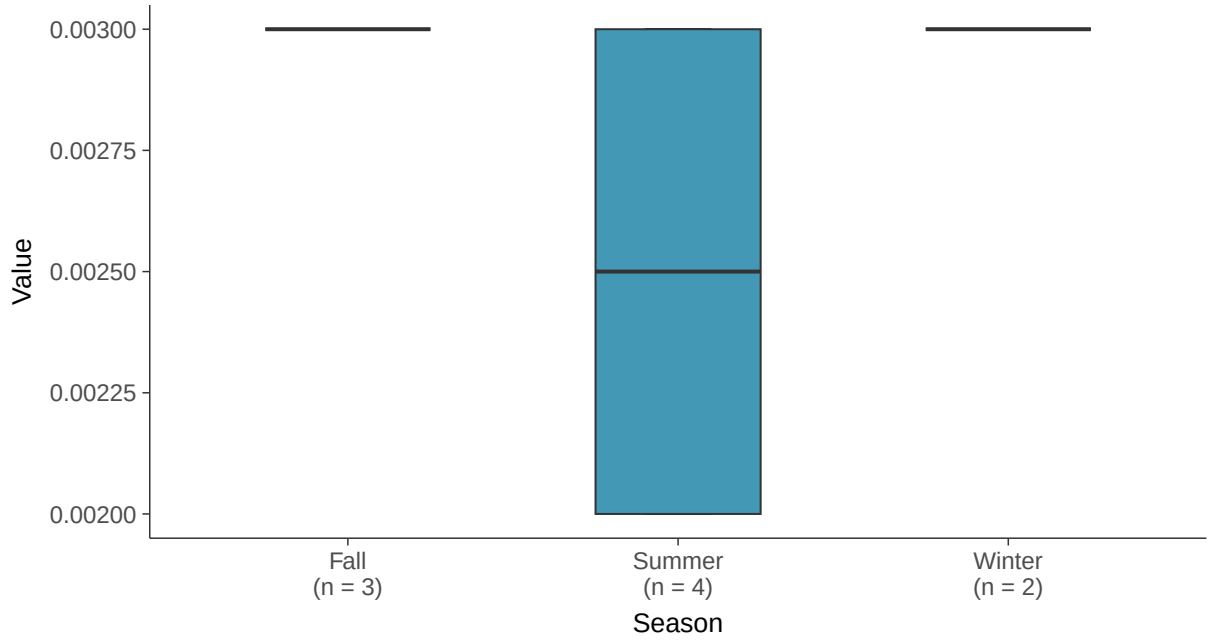
Boxplot

Arsenic, MW-100D (mg/L)



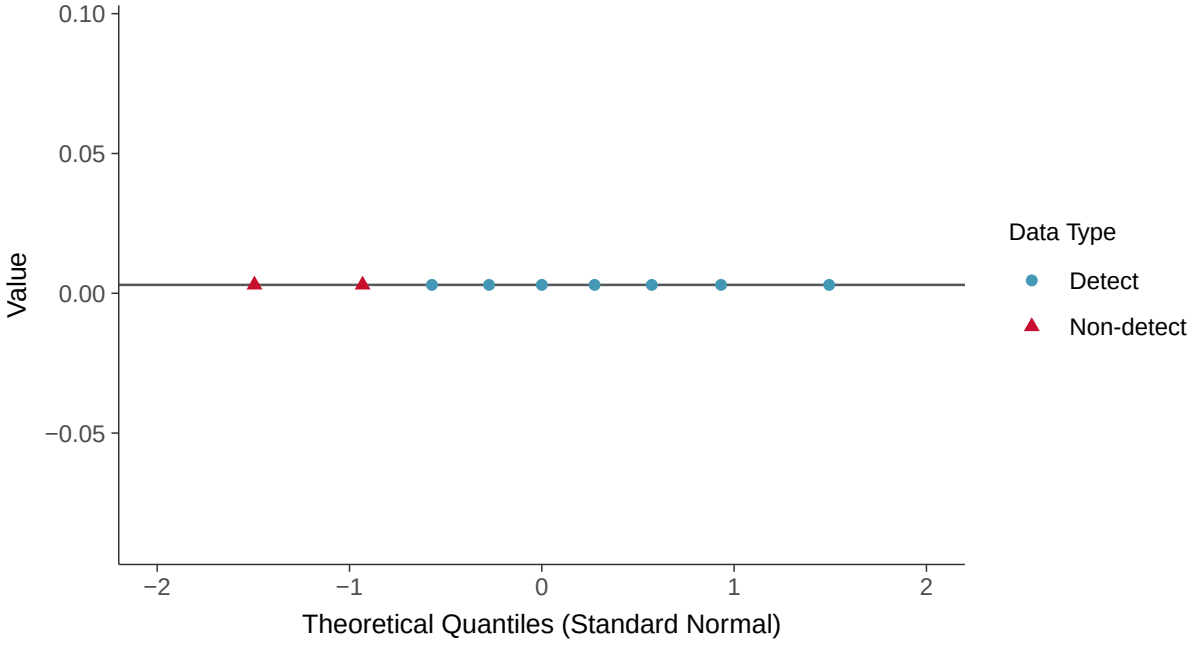
Boxplot by Season

Arsenic, MW-100D (mg/L)



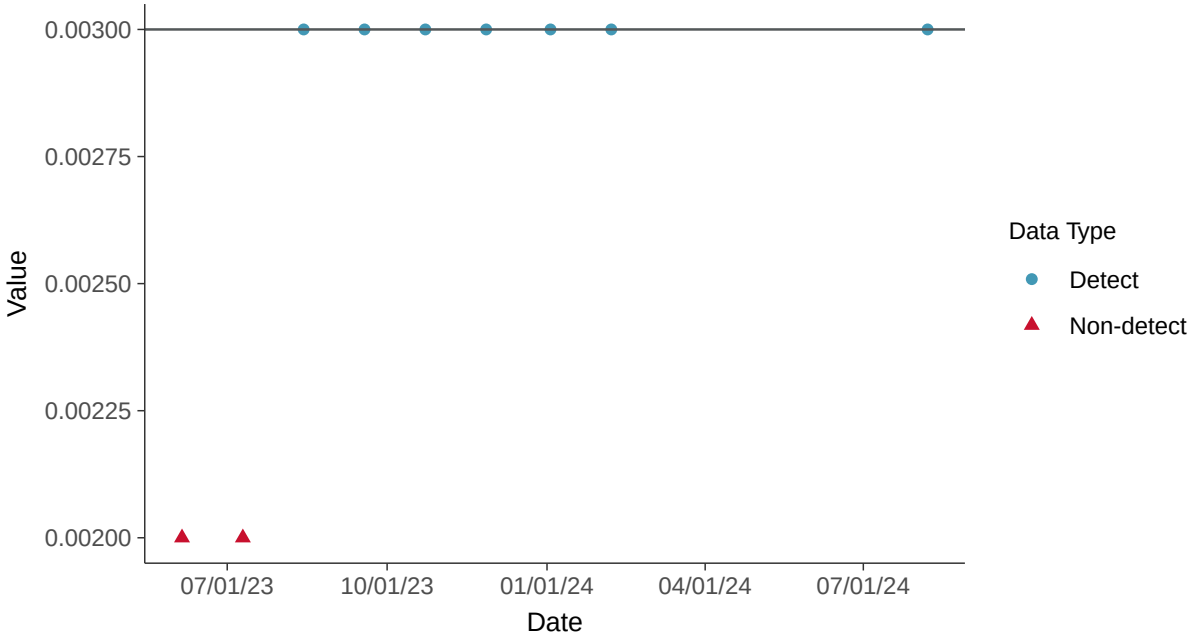
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, MW-100D (mg/L)



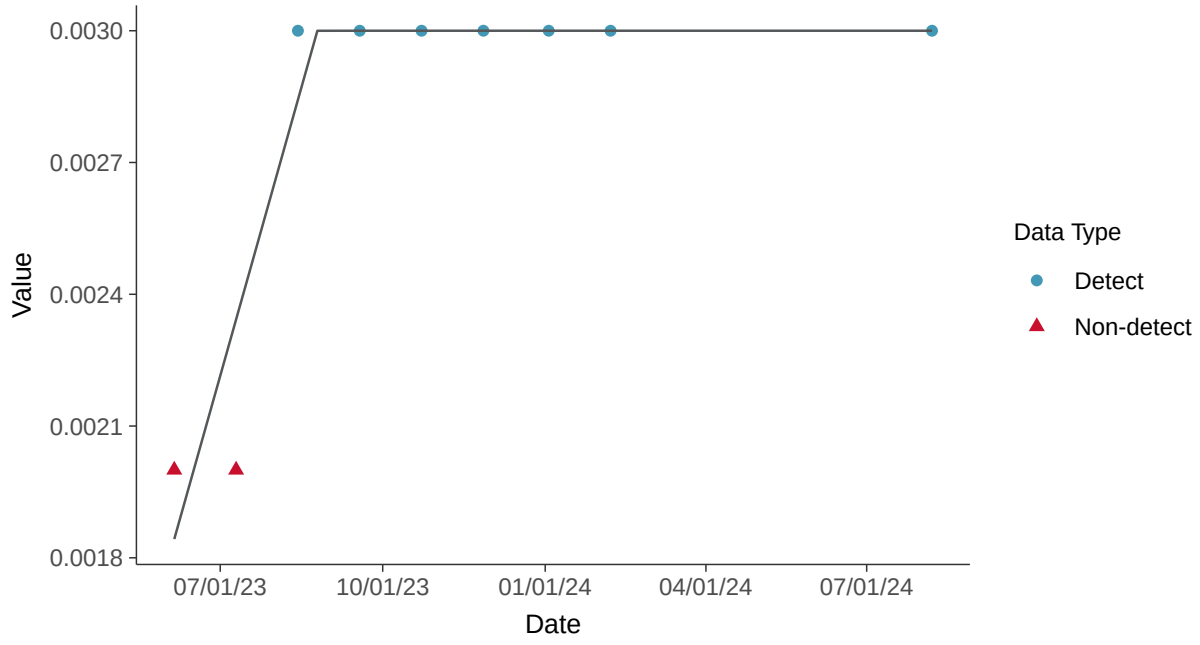
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Arsenic, MW-100D (mg/L)



Trend Regression: Piecewise Linear-Linear

Arsenic, MW-100D (mg/L)

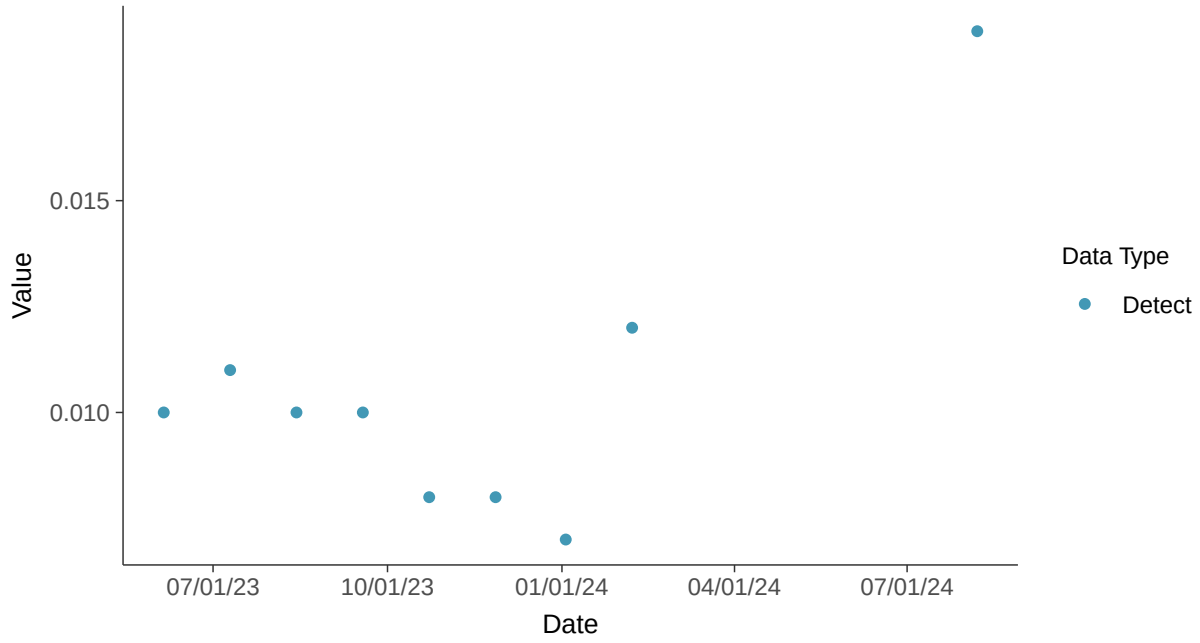


Appendix IV: Barium, MW-100D

ID: 100D_2_10

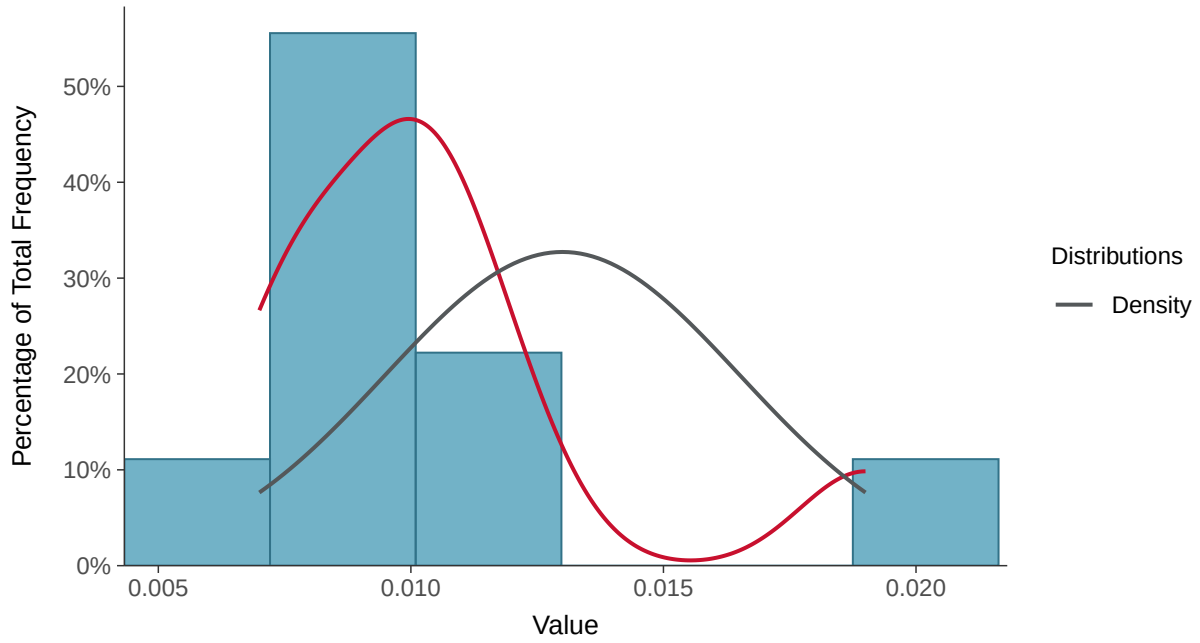
Scatter Plot

Barium, MW-100D (mg/L)



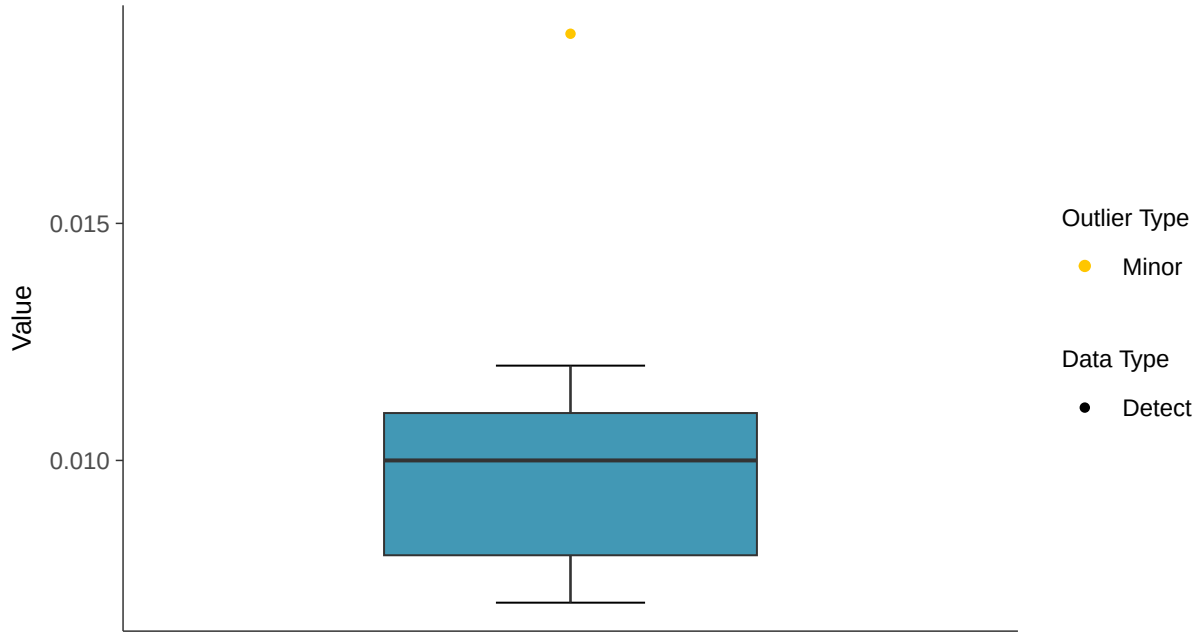
Histogram

Barium, MW-100D (mg/L)



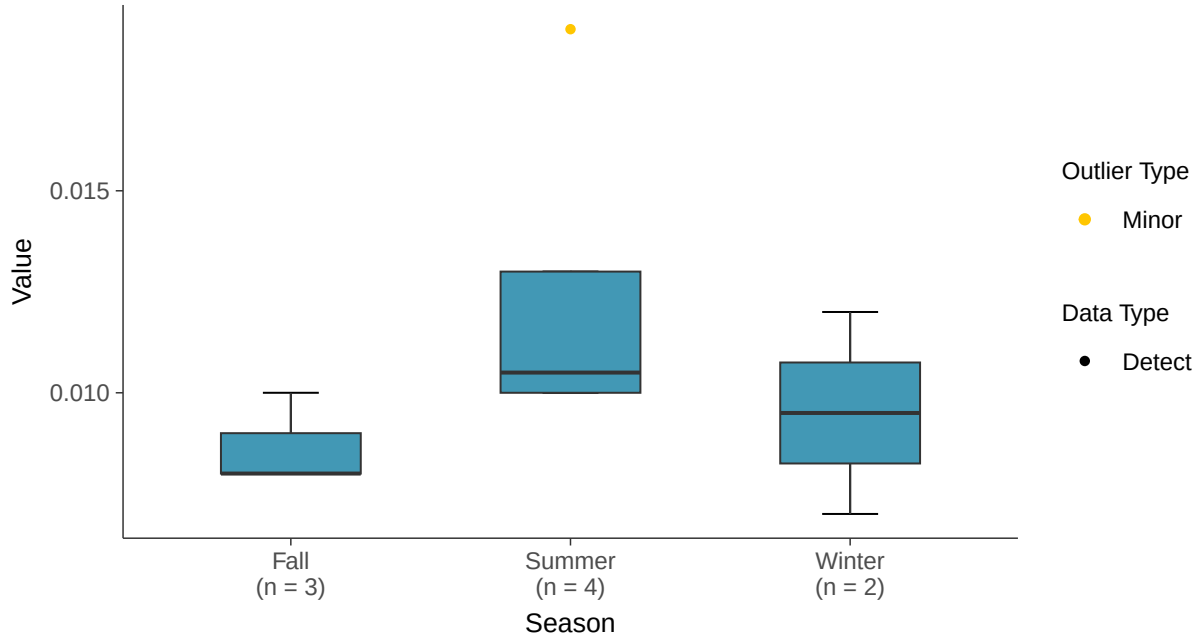
Boxplot

Barium, MW-100D (mg/L)



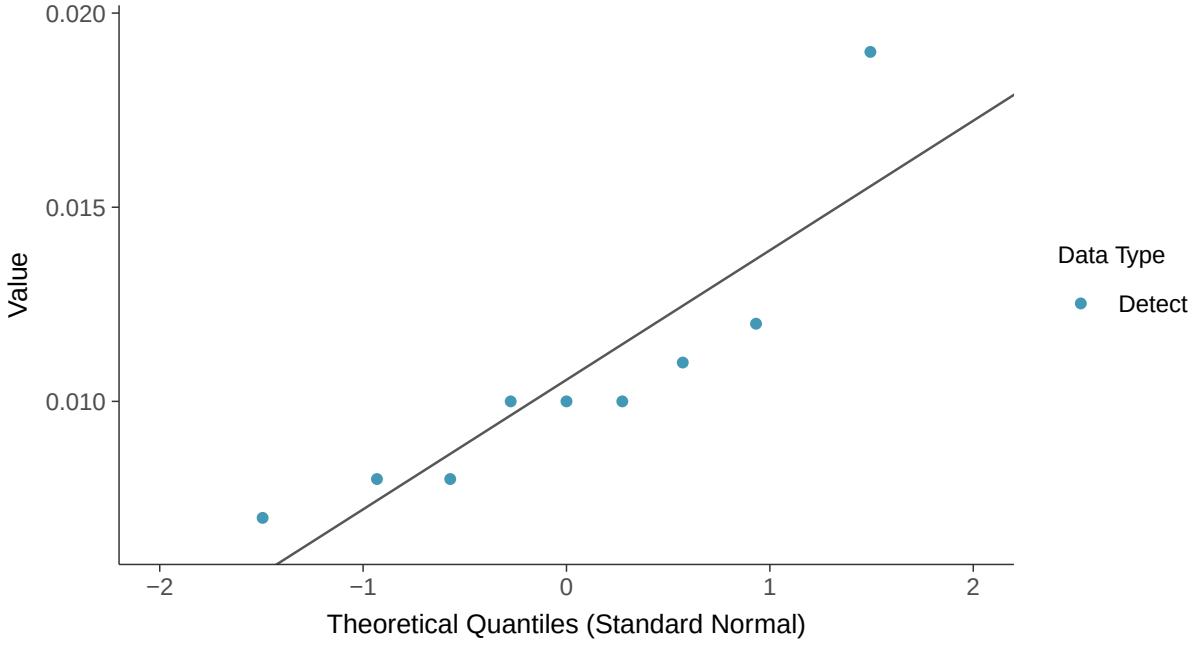
Boxplot by Season

Barium, MW-100D (mg/L)



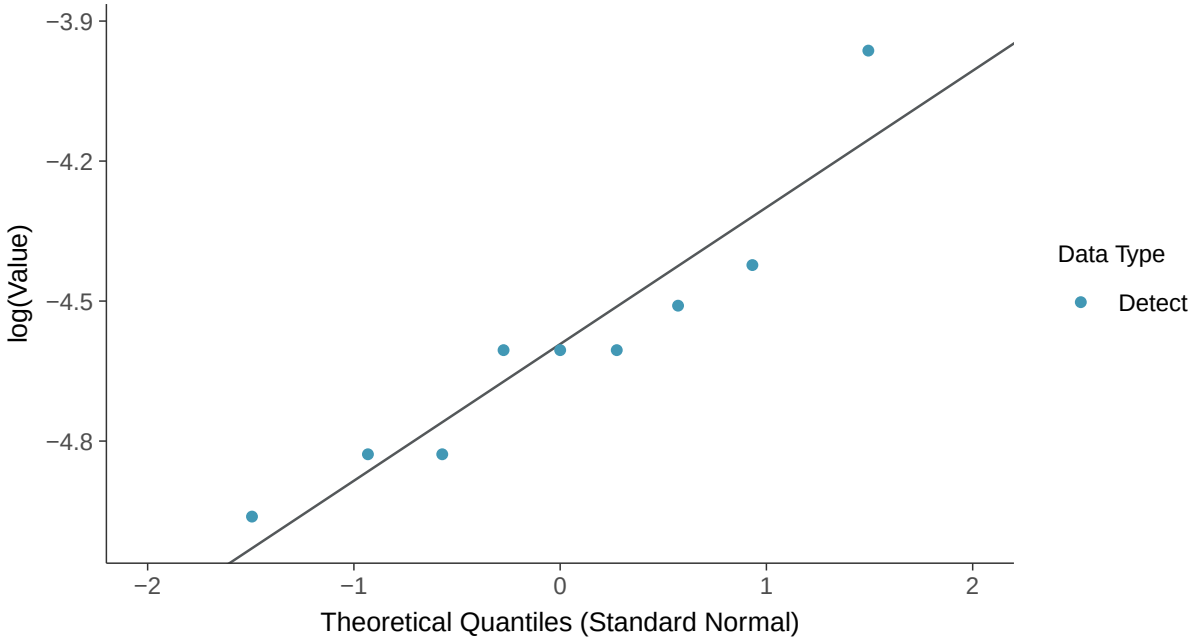
Normal Q-Q plot

Barium, MW-100D (mg/L)



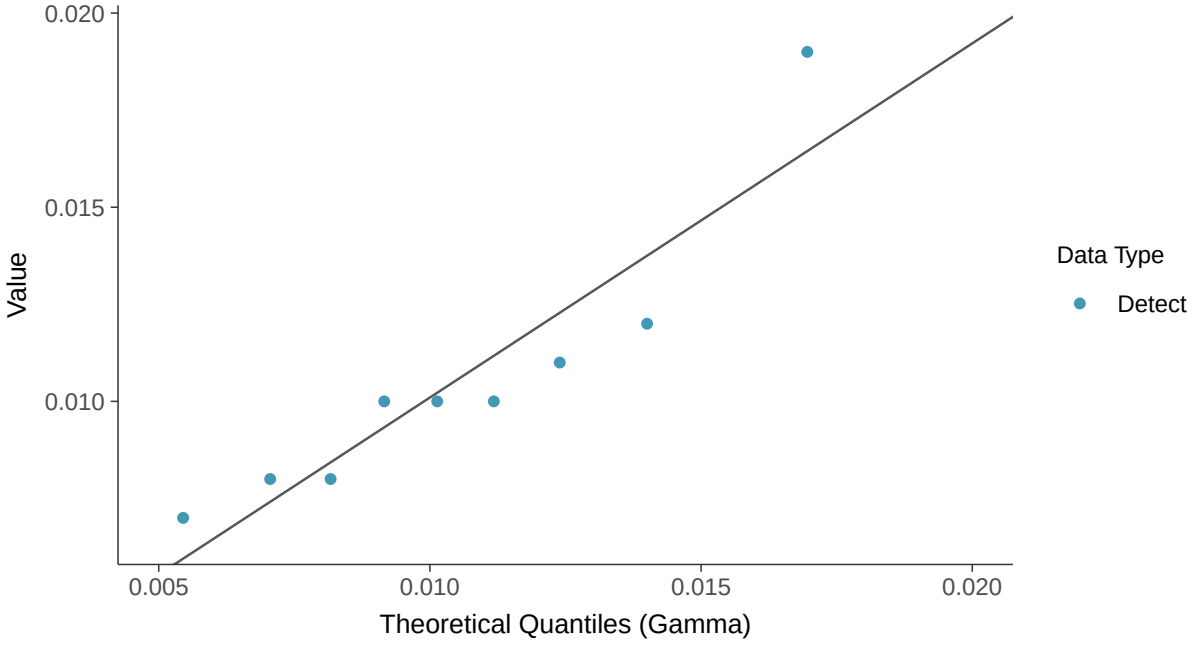
Lognormal Q-Q plot

Barium, MW-100D (mg/L)



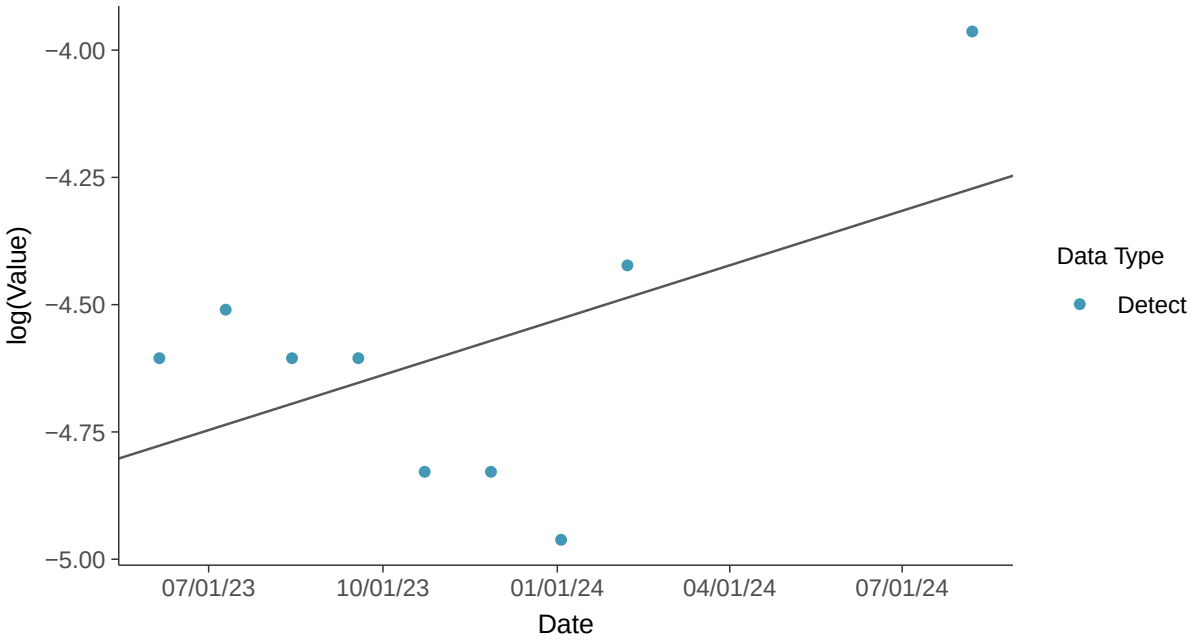
Gamma Q-Q plot

Barium, MW-100D (mg/L)



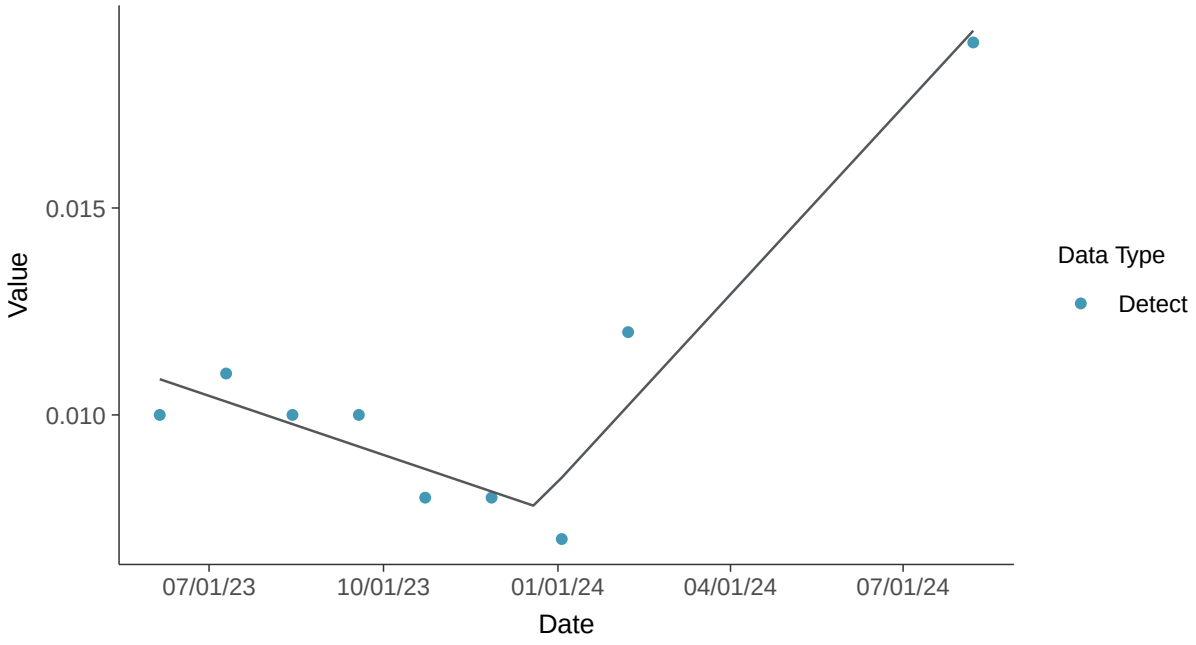
Trend Regression: Lognormal MLE

Barium, MW-100D (mg/L)



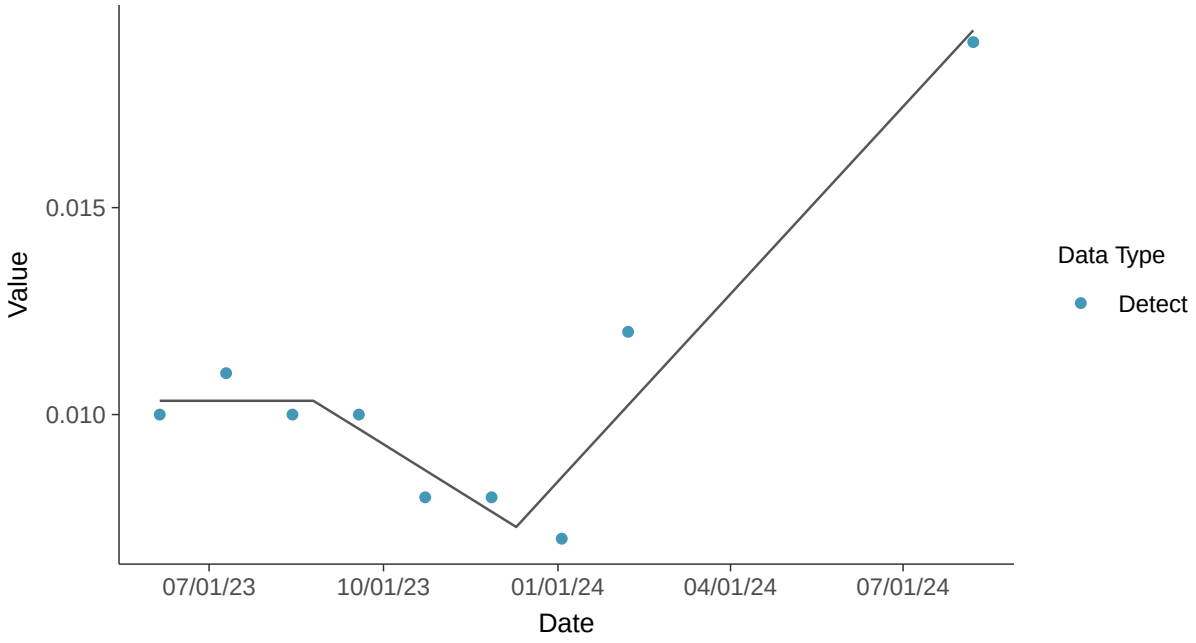
Trend Regression: Piecewise Linear-Linear

Barium, MW-100D (mg/L)



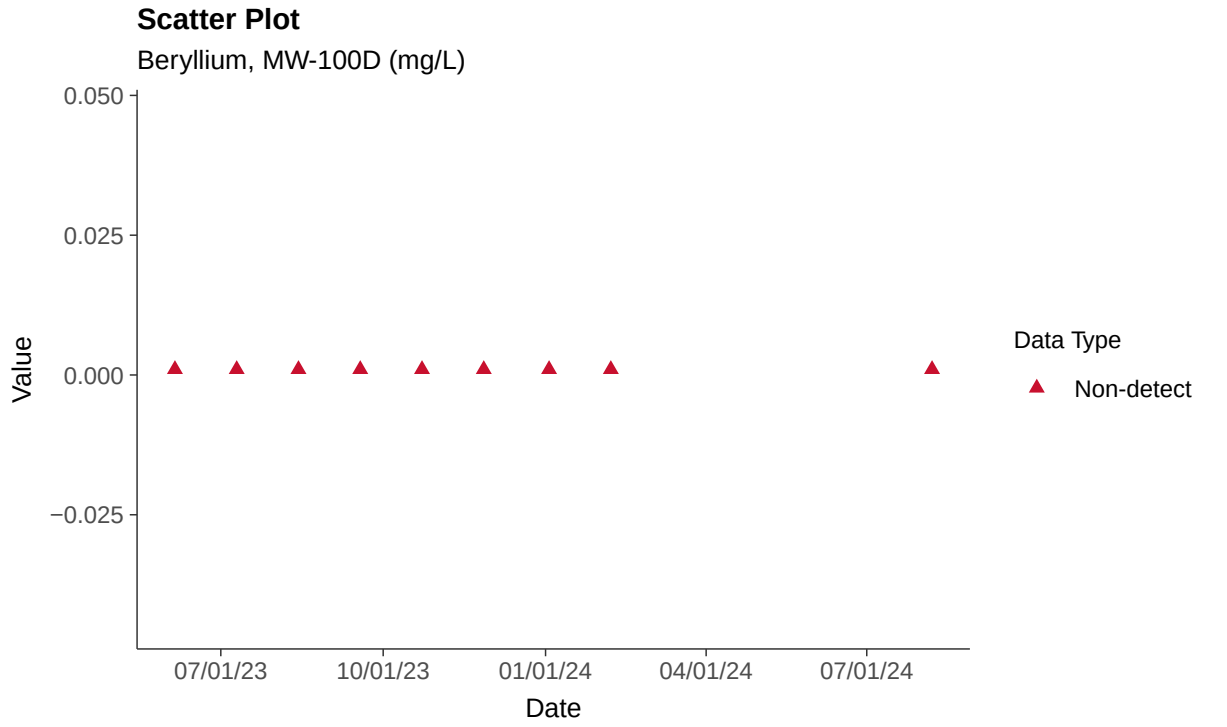
Trend Regression: Piecewise Linear-Linear-Linear

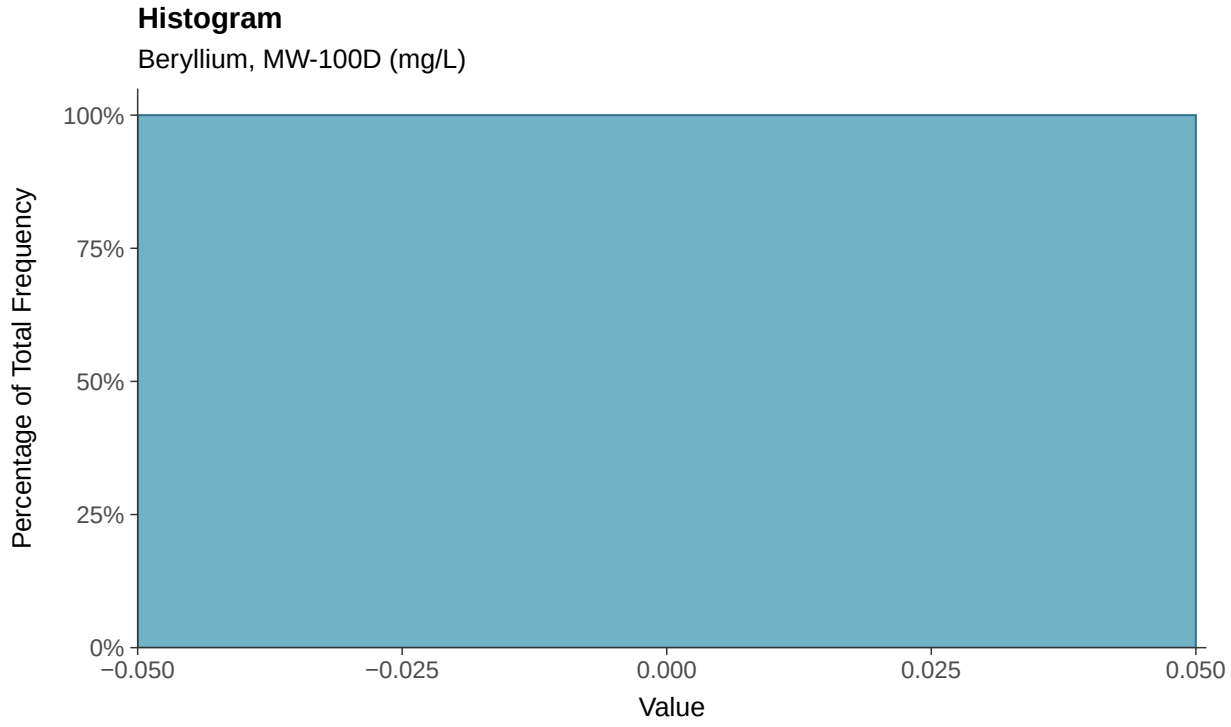
Barium, MW-100D (mg/L)



Appendix IV: Beryllium, MW-100D

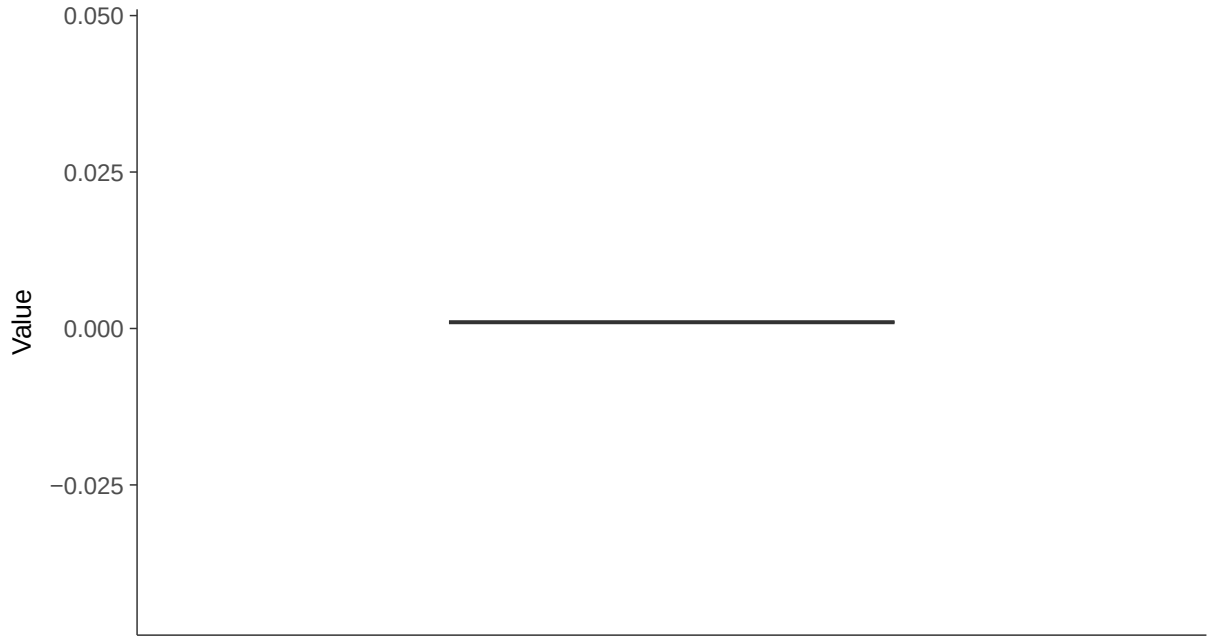
ID: 100D_2_11





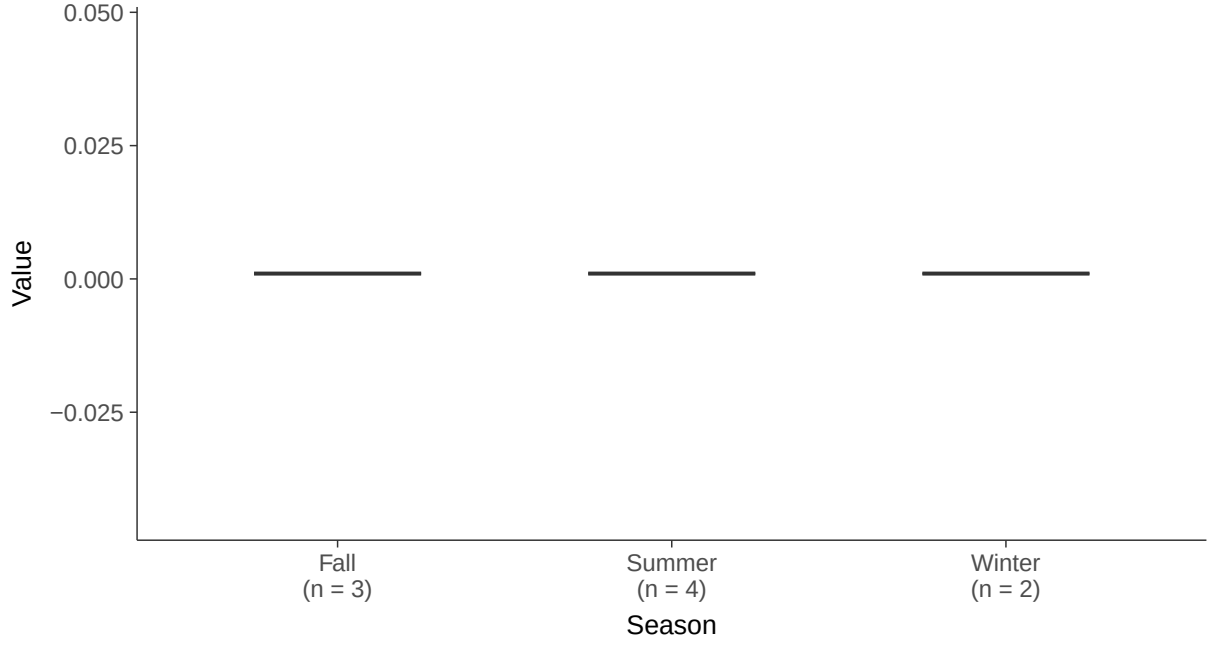
Boxplot

Beryllium, MW-100D (mg/L)



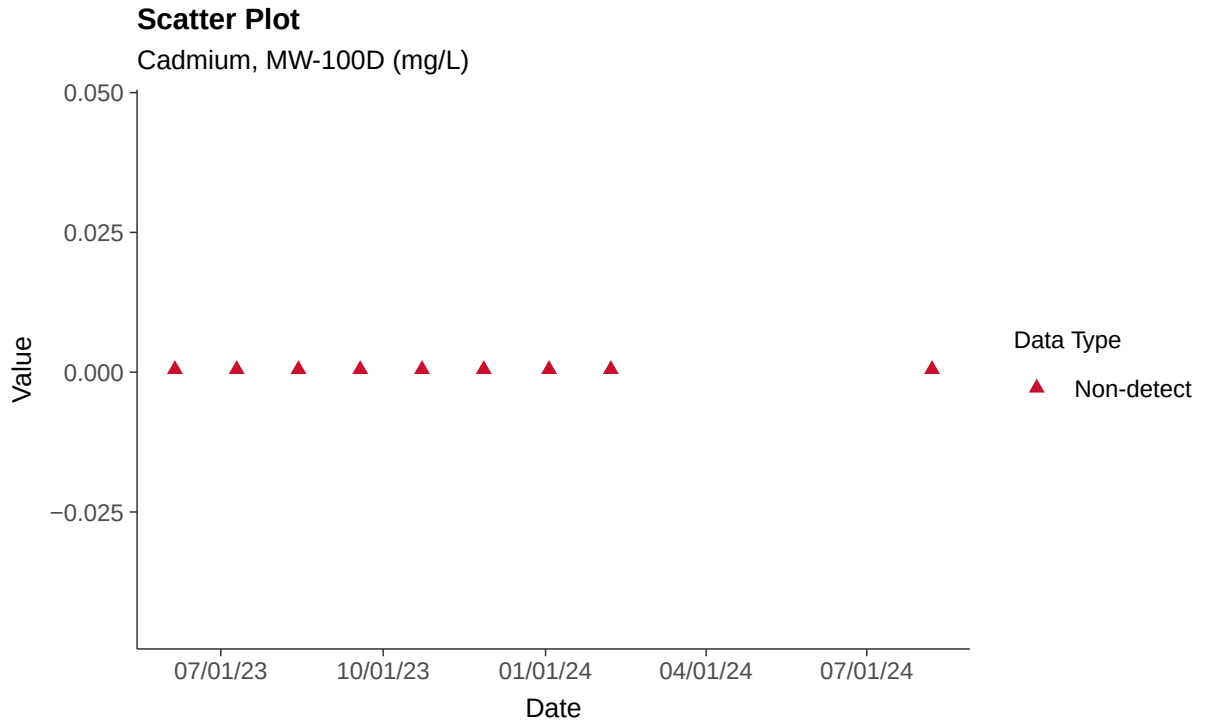
Boxplot by Season

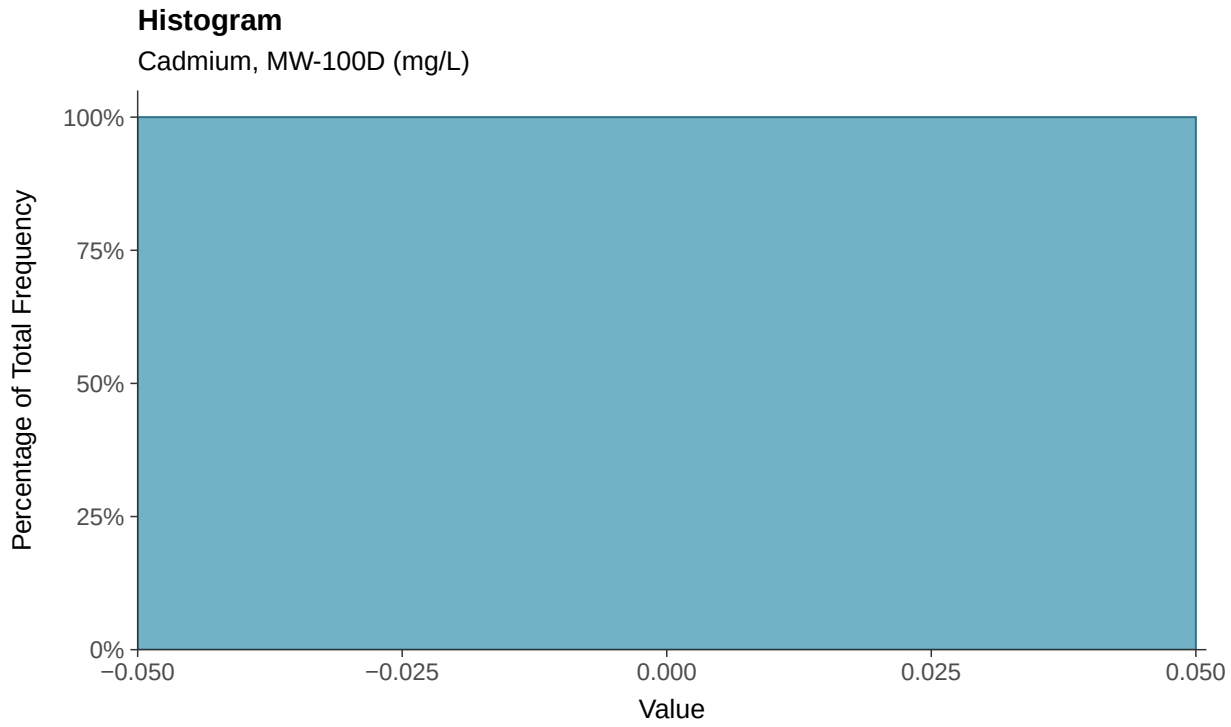
Beryllium, MW-100D (mg/L)



Appendix IV: Cadmium, MW-100D

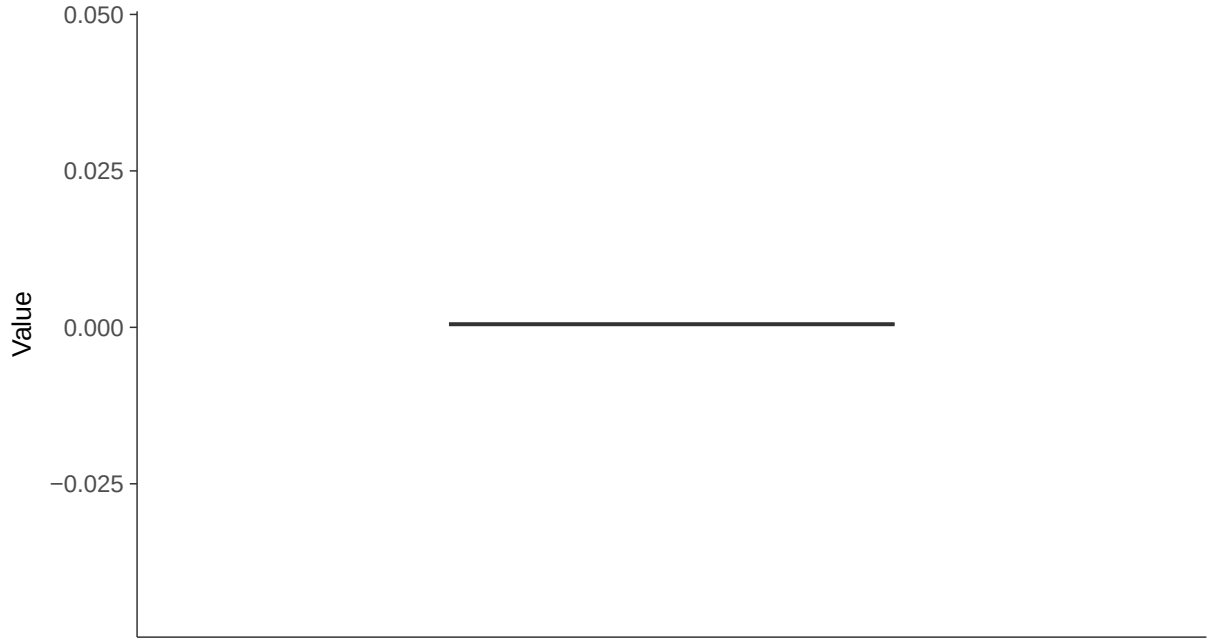
ID: 100D_2_12





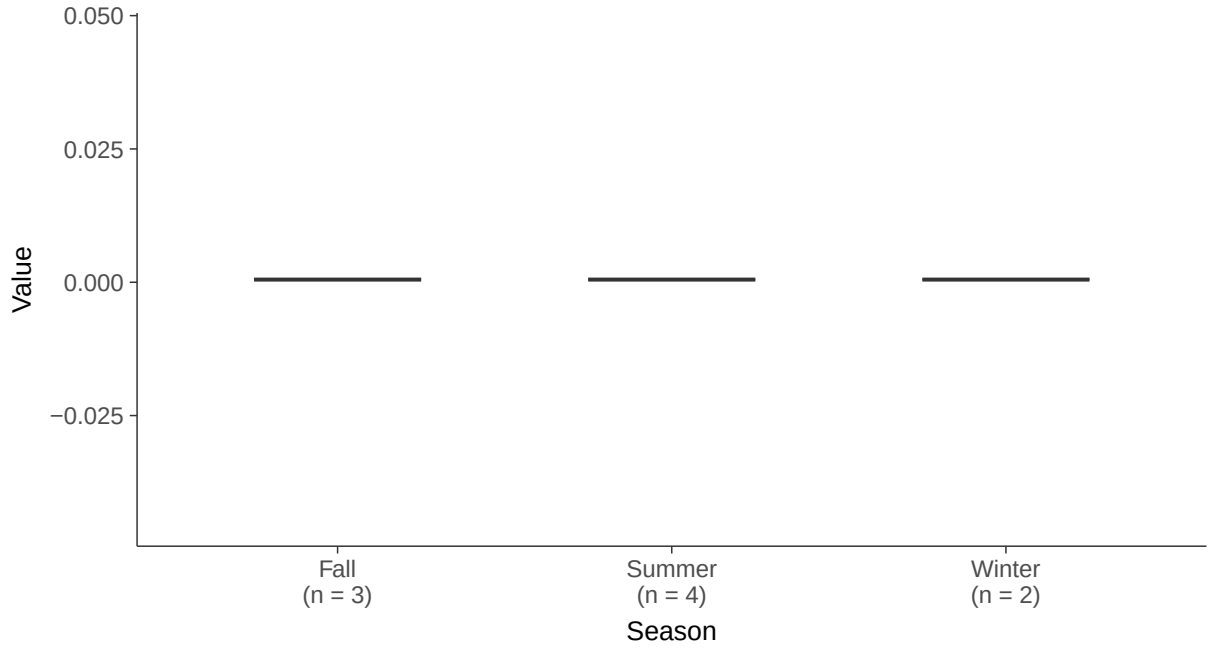
Boxplot

Cadmium, MW-100D (mg/L)



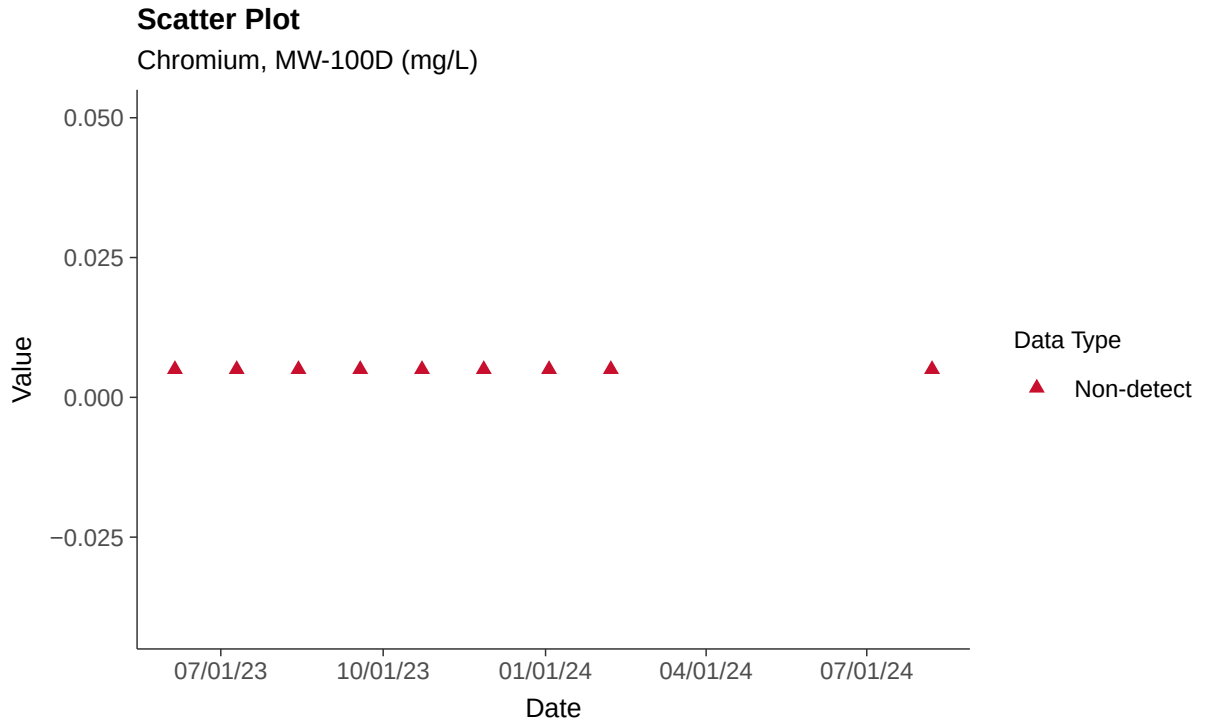
Boxplot by Season

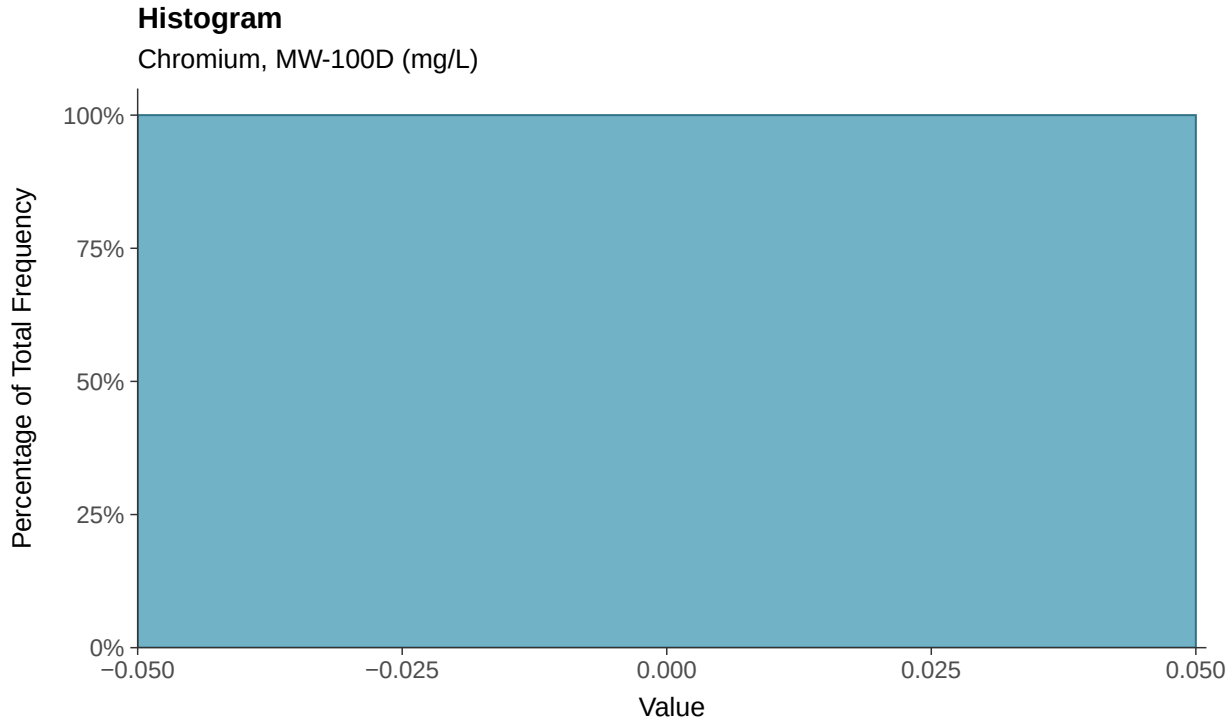
Cadmium, MW-100D (mg/L)



Appendix IV: Chromium, MW-100D

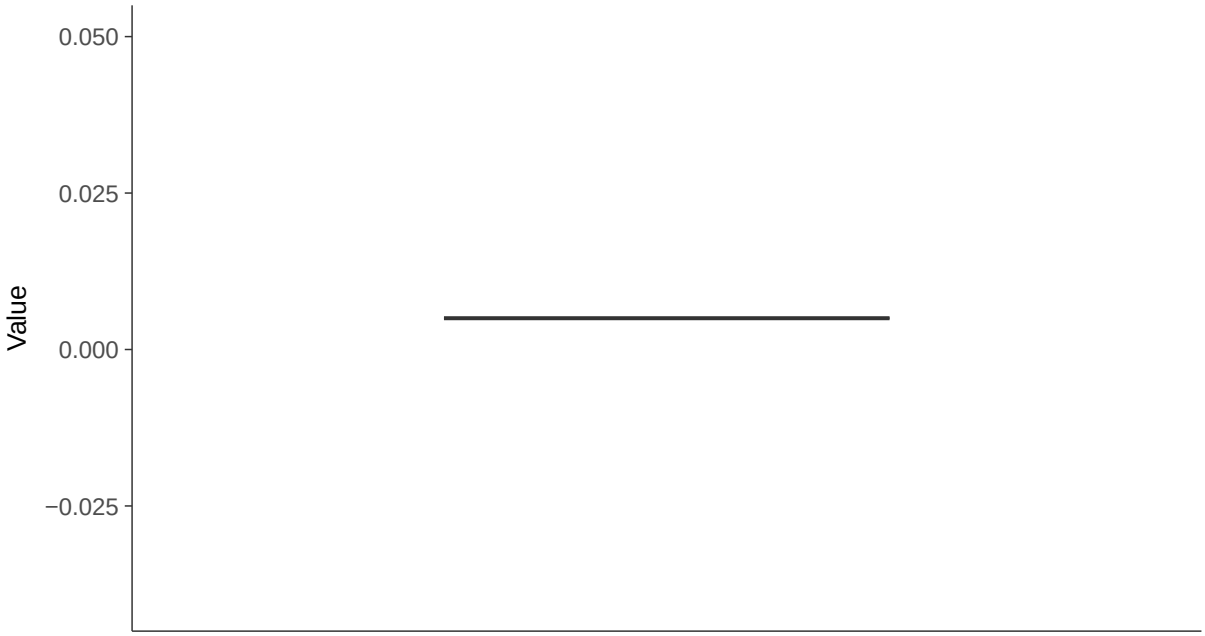
ID: 100D_2_13





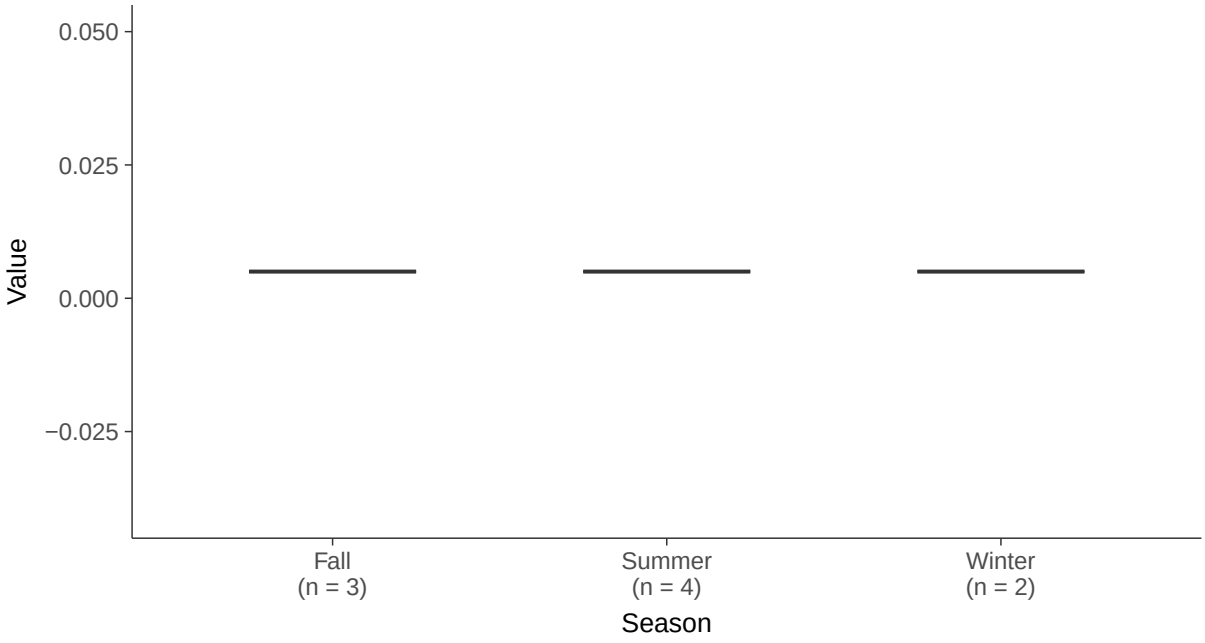
Boxplot

Chromium, MW-100D (mg/L)



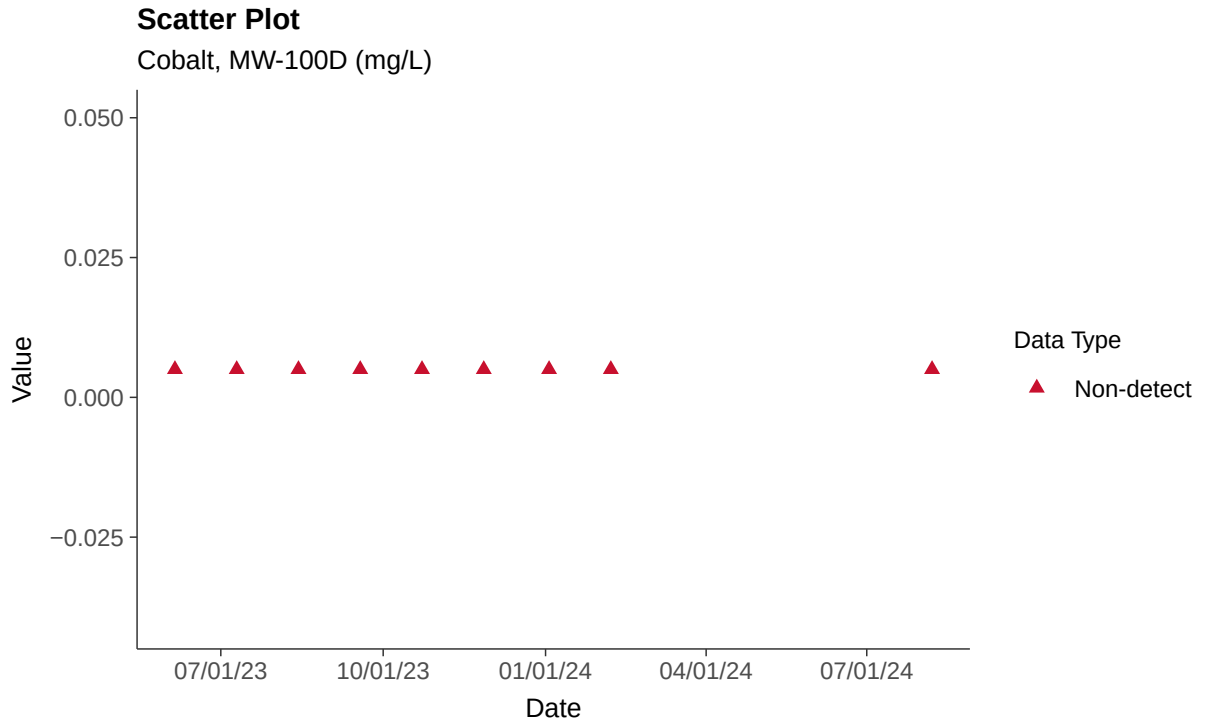
Boxplot by Season

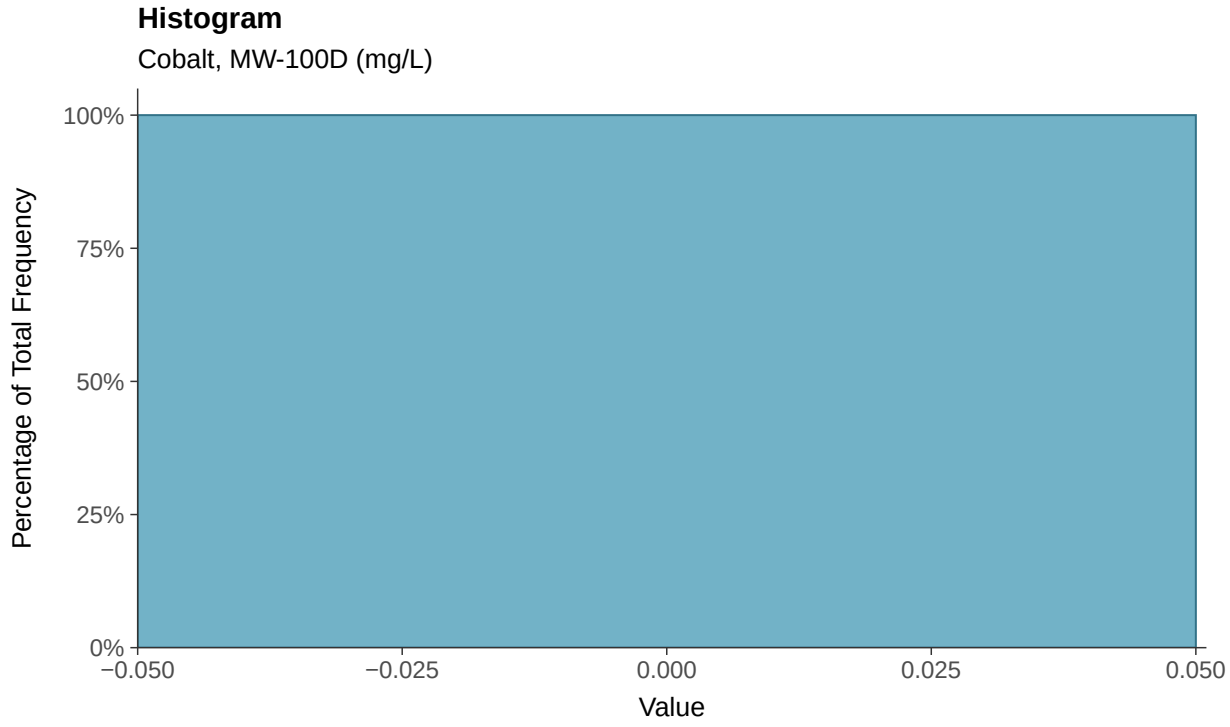
Chromium, MW-100D (mg/L)



Appendix IV: Cobalt, MW-100D

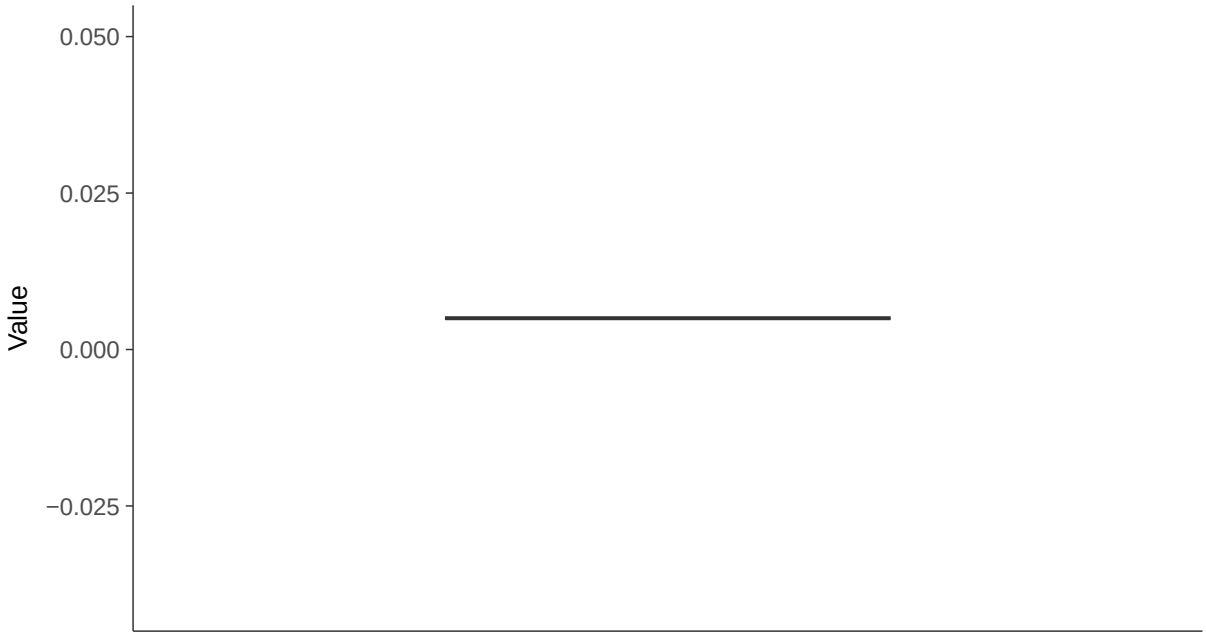
ID: 100D_2_14





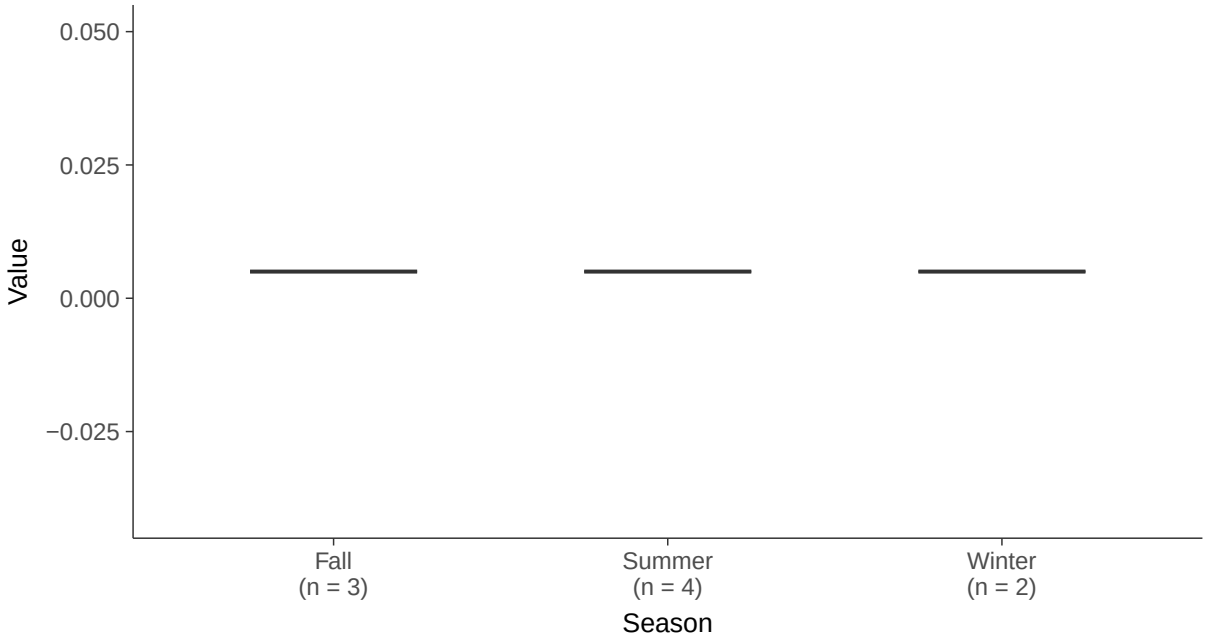
Boxplot

Cobalt, MW-100D (mg/L)



Boxplot by Season

Cobalt, MW-100D (mg/L)

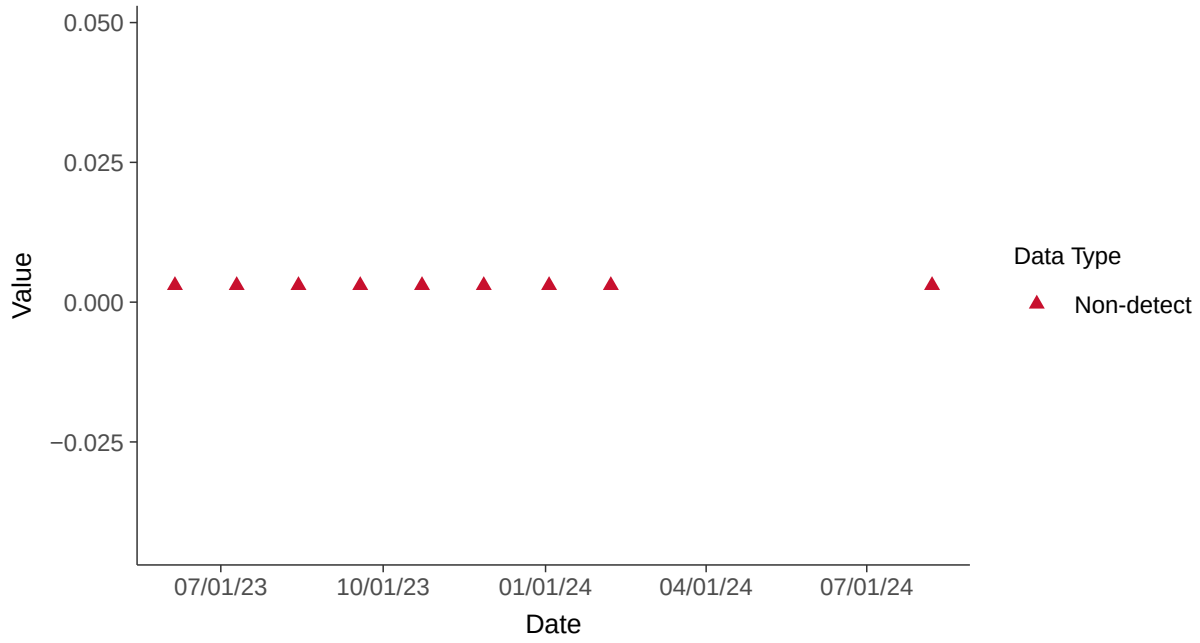


Appendix IV: Lead, MW-100D

ID: 100D_2_15

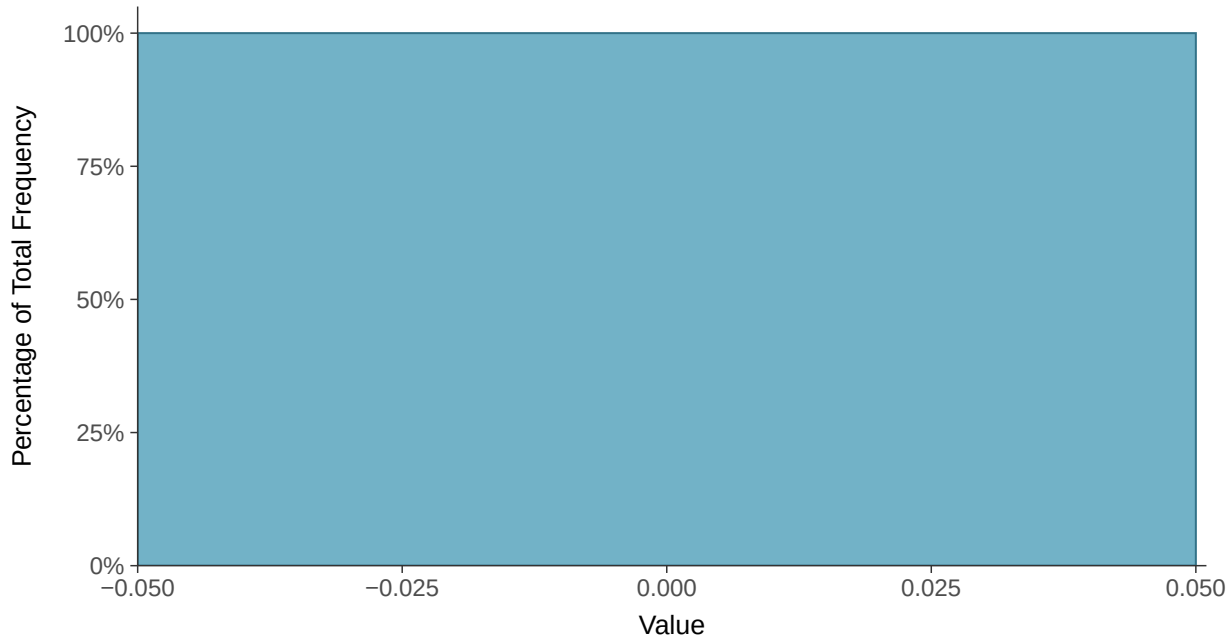
Scatter Plot

Lead, MW-100D (mg/L)



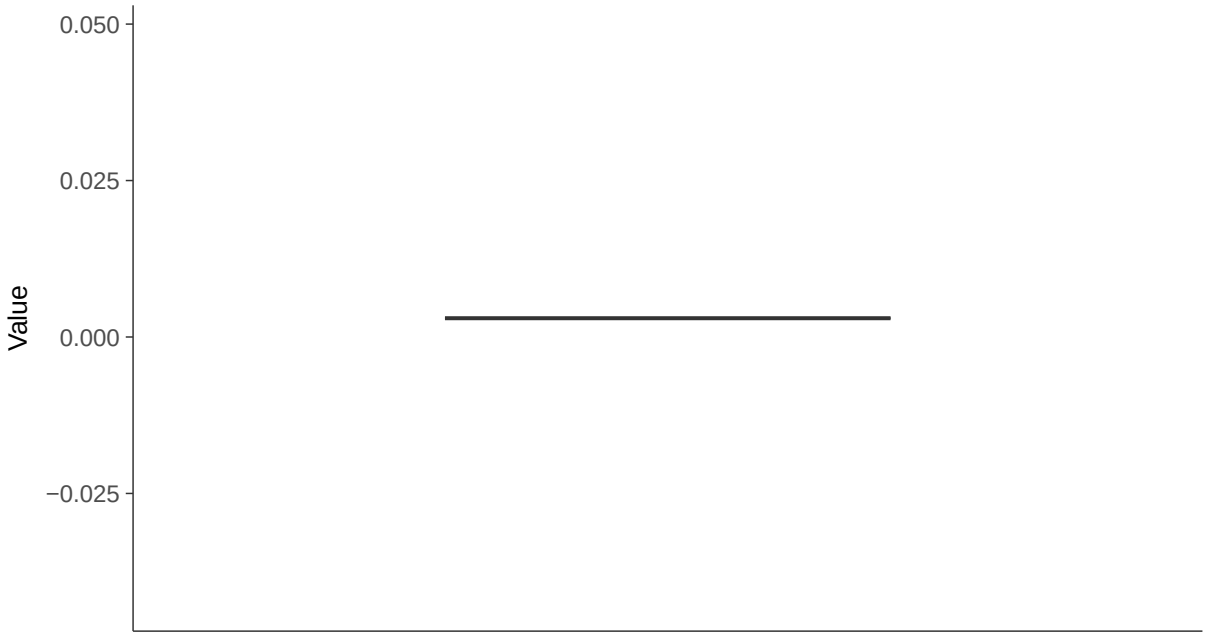
Histogram

Lead, MW-100D (mg/L)



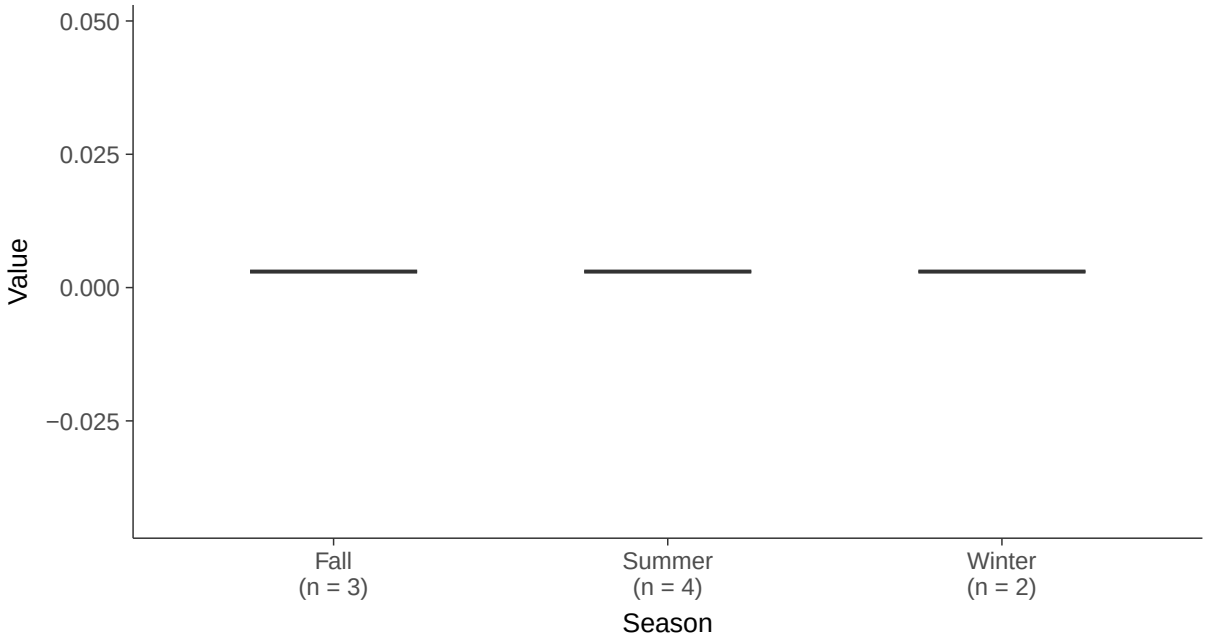
Boxplot

Lead, MW-100D (mg/L)



Boxplot by Season

Lead, MW-100D (mg/L)

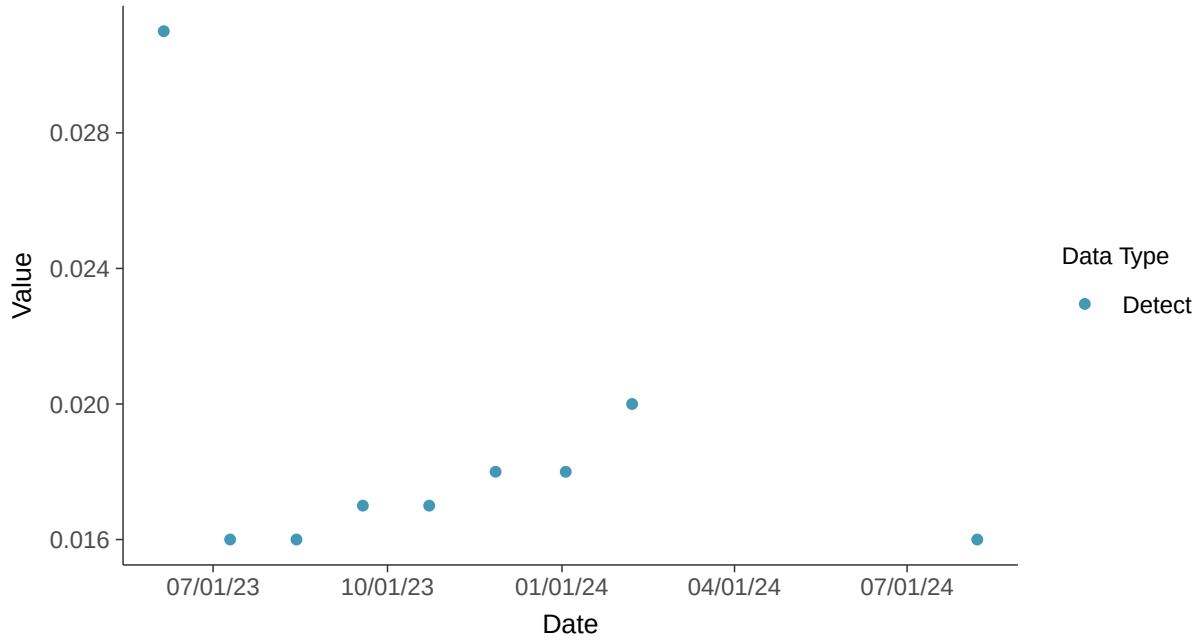


Appendix IV: Lithium, MW-100D

ID: 100D_2_16

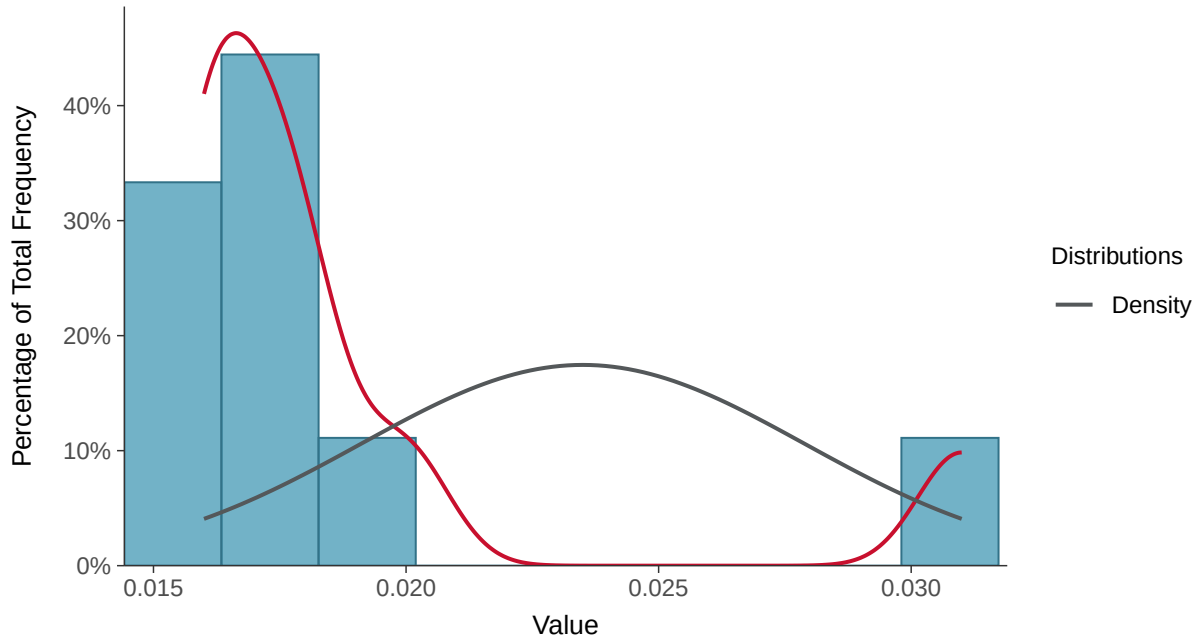
Scatter Plot

Lithium, MW-100D (mg/L)



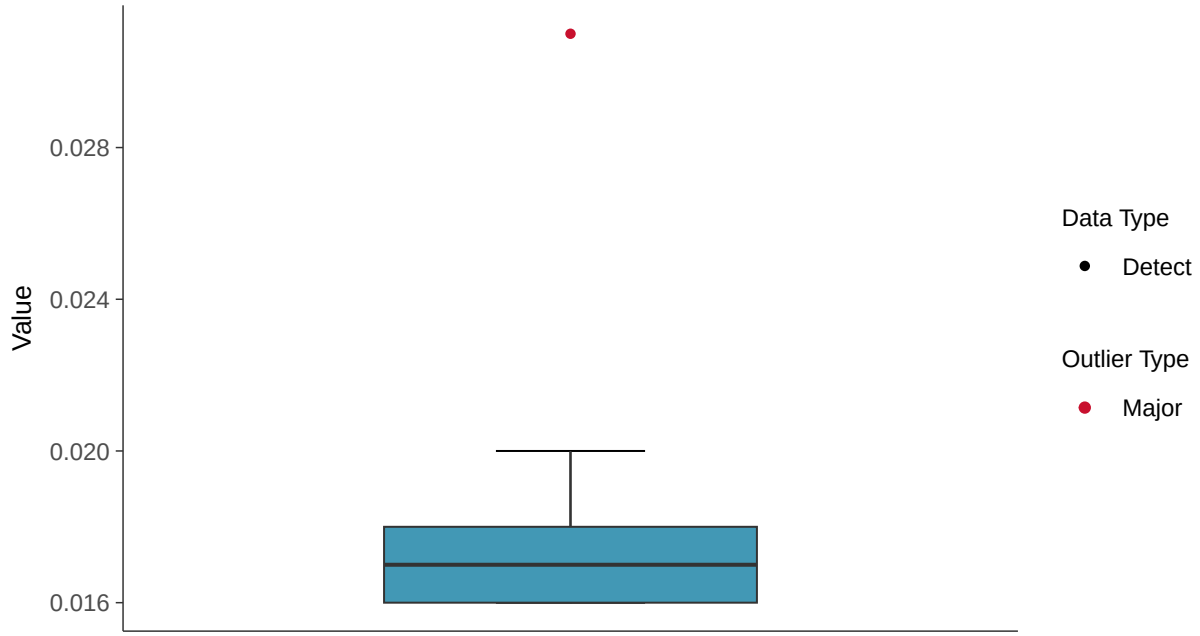
Histogram

Lithium, MW-100D (mg/L)



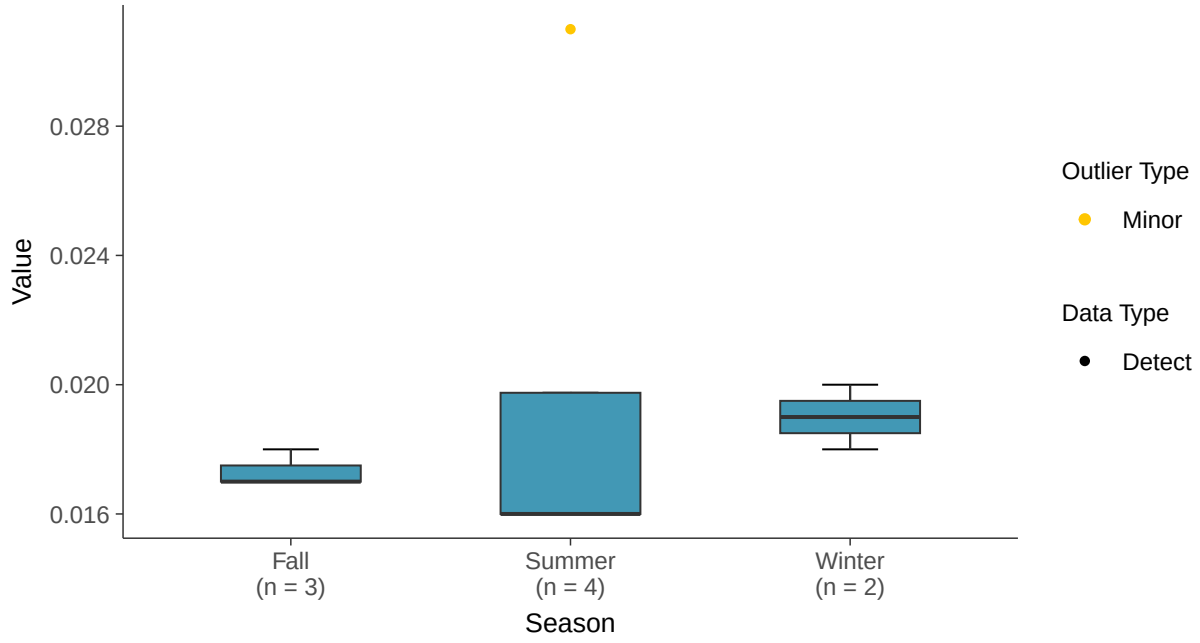
Boxplot

Lithium, MW-100D (mg/L)



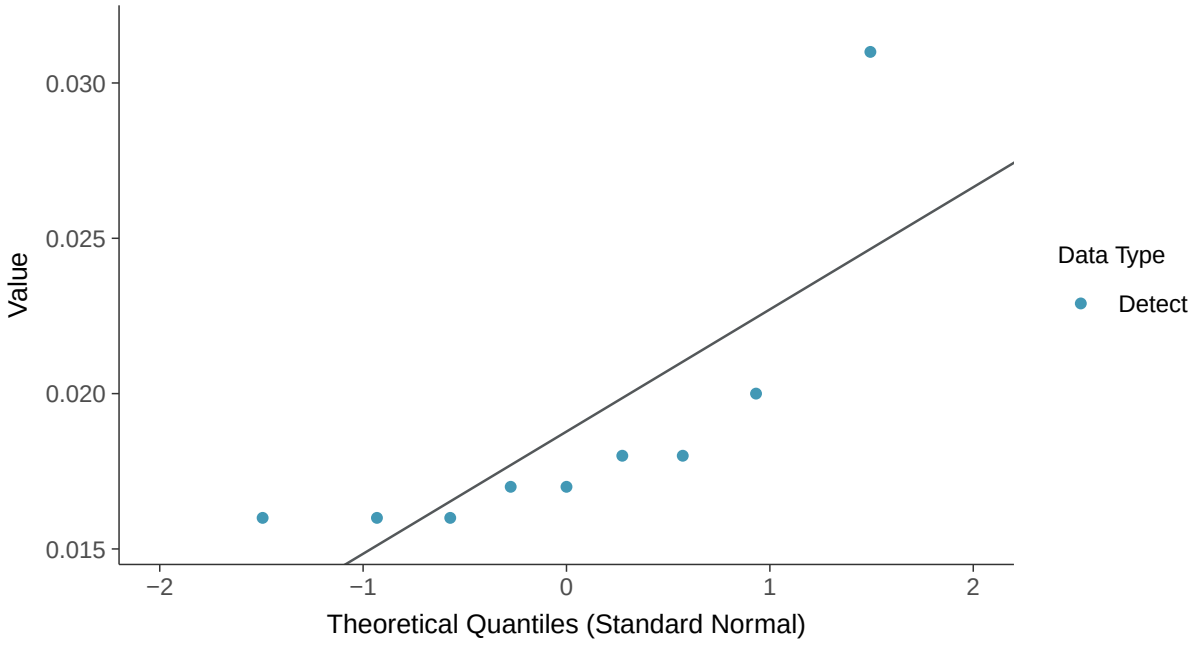
Boxplot by Season

Lithium, MW-100D (mg/L)



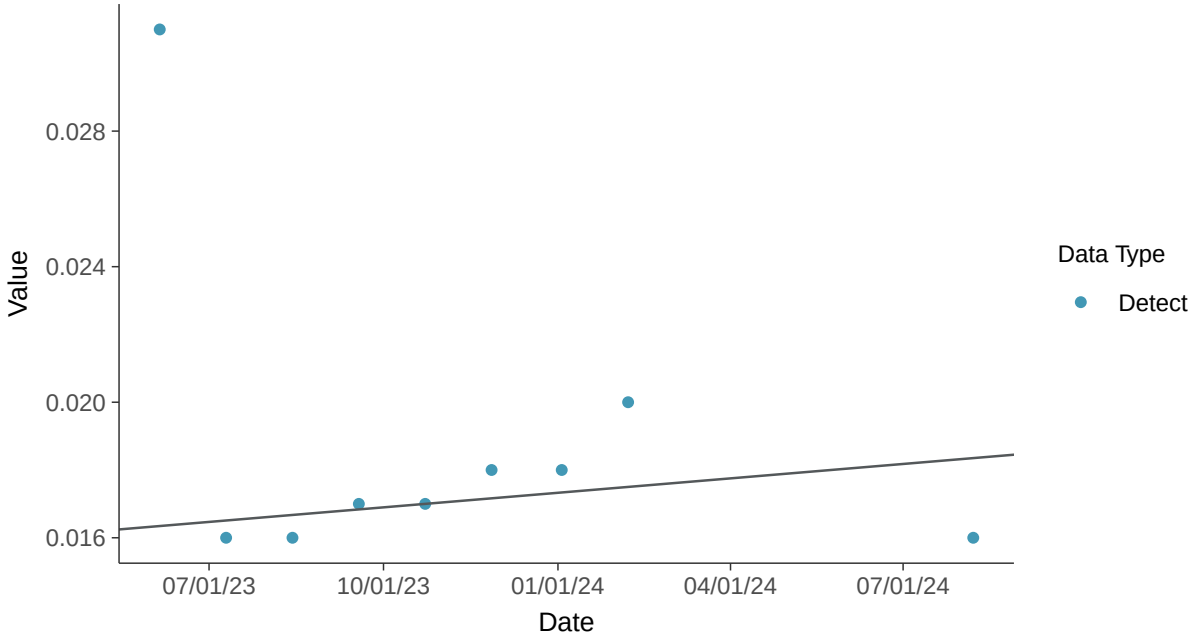
Normal Q-Q plot

Lithium, MW-100D (mg/L)



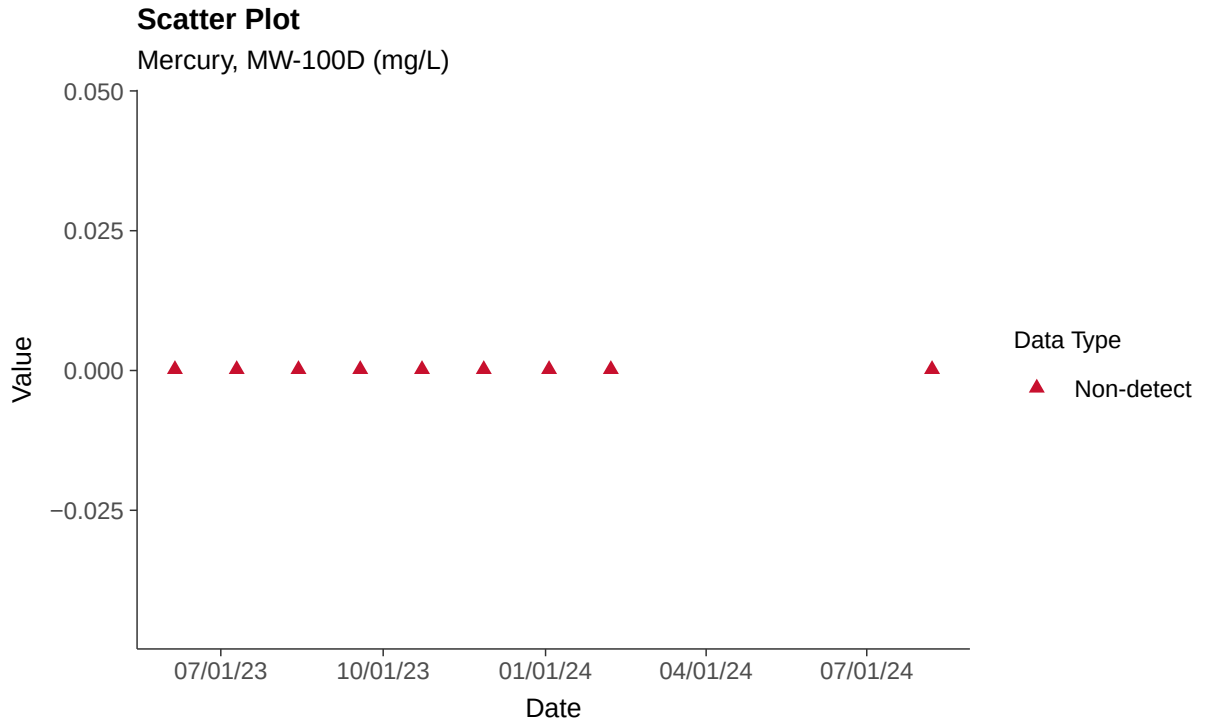
Trend Regression: Mann-Kendall/Theil-Sen Estimate

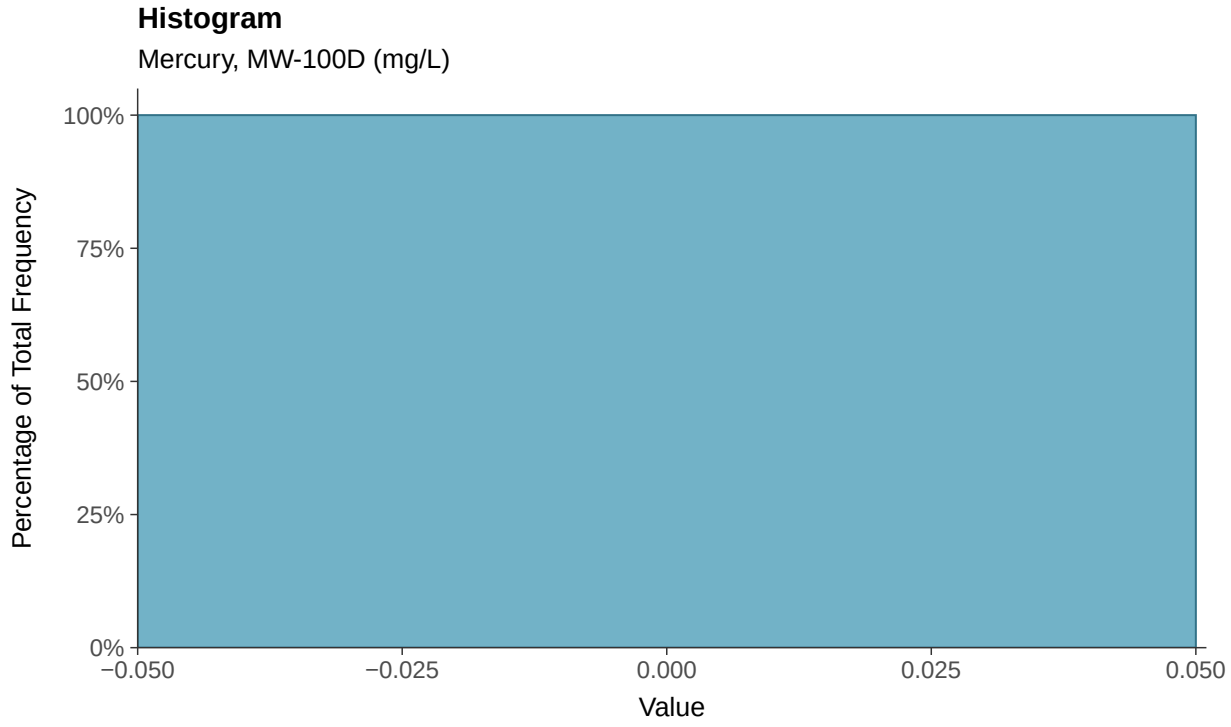
Lithium, MW-100D (mg/L)



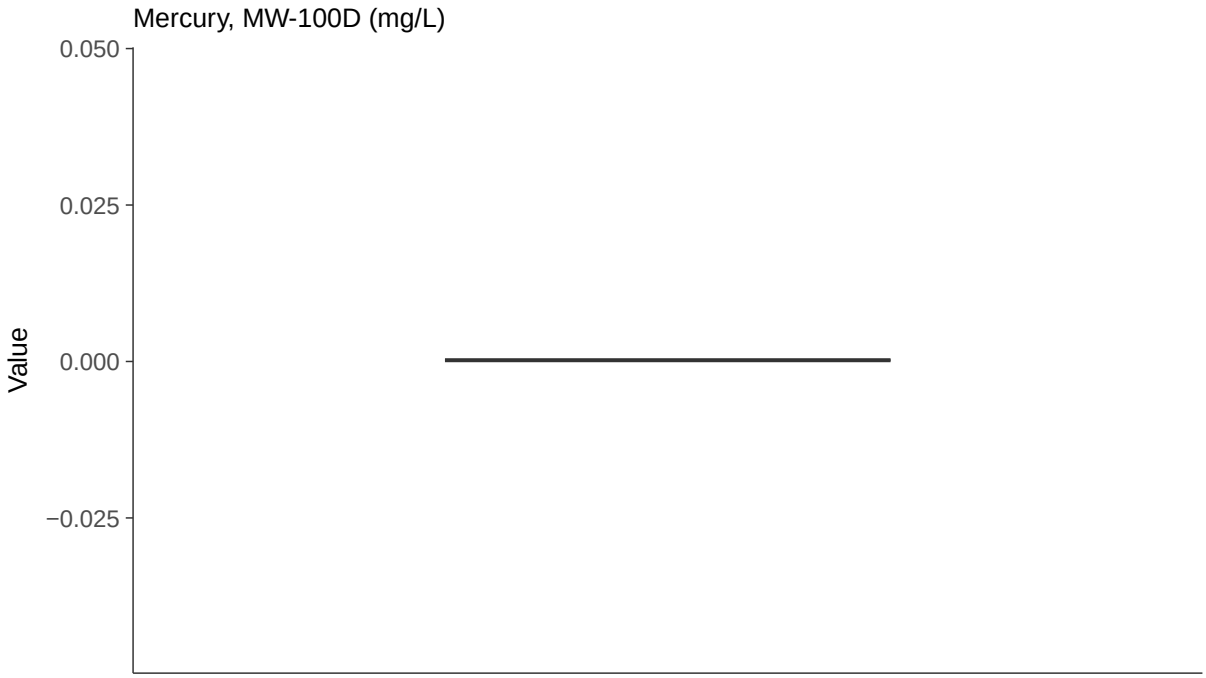
Appendix IV: Mercury, MW-100D

ID: 100D_2_17

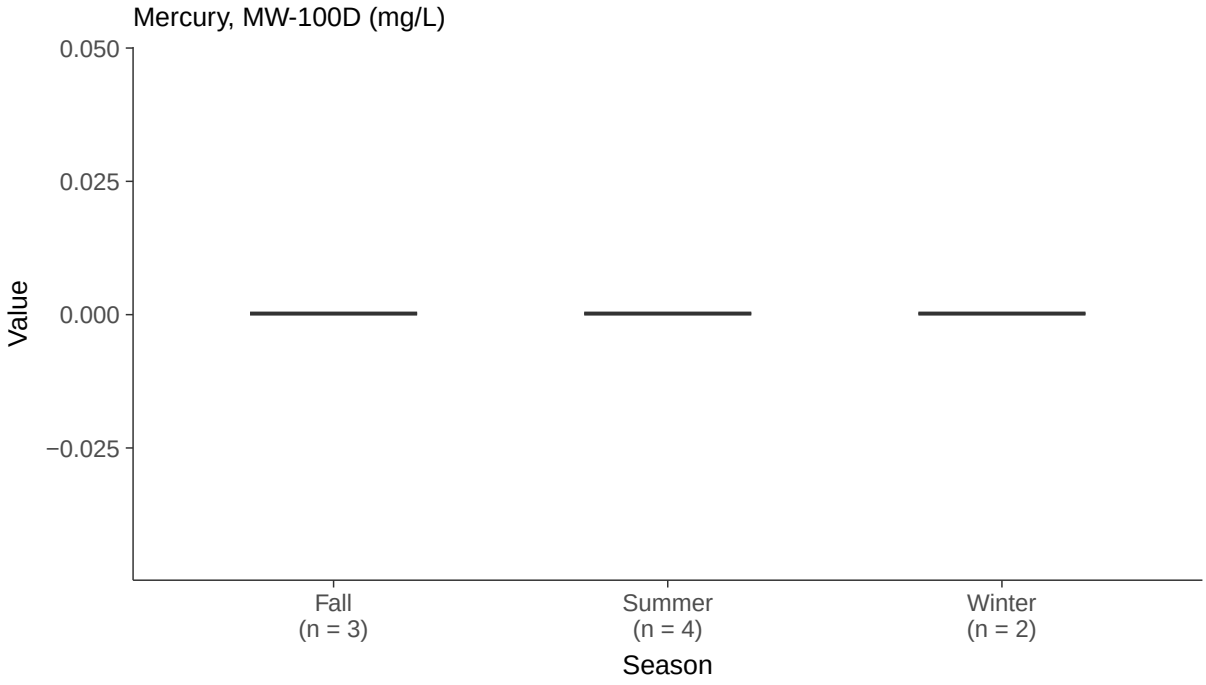




Boxplot

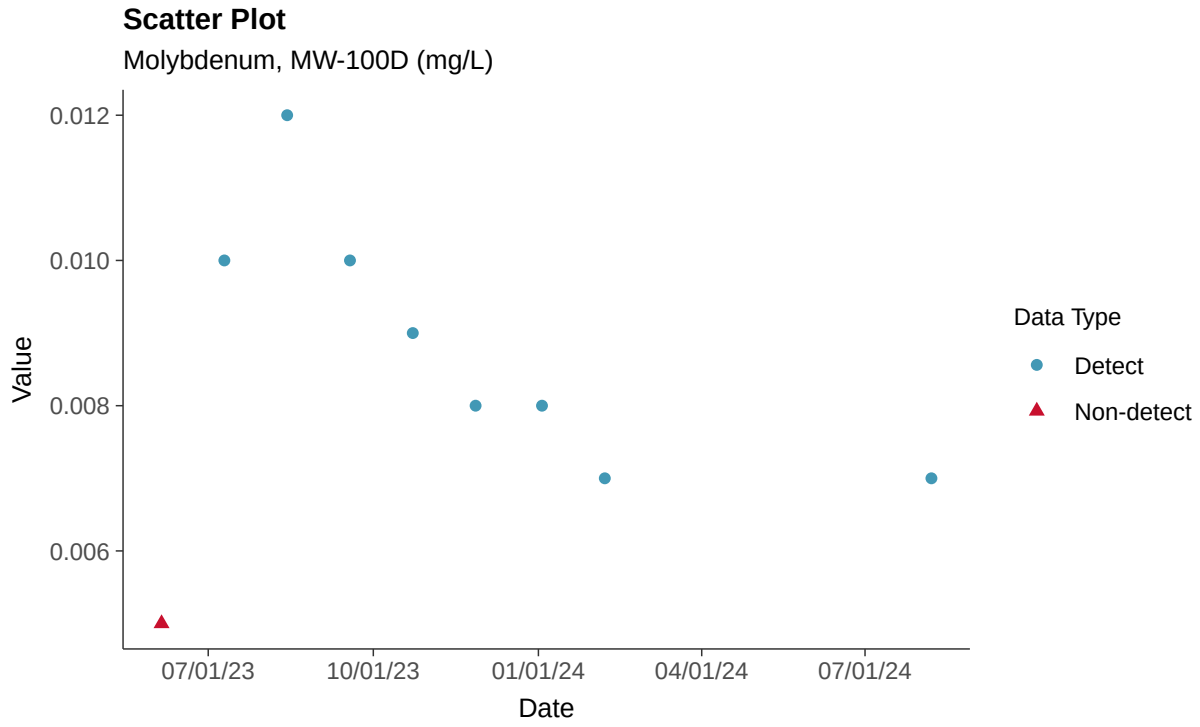


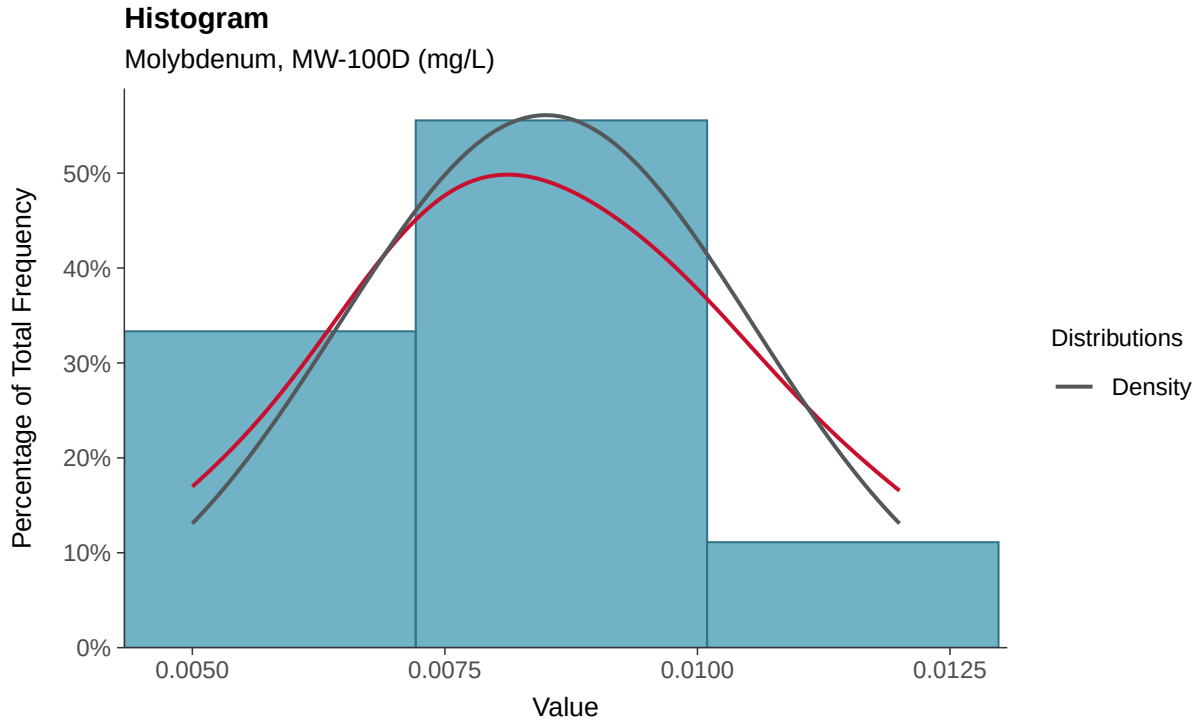
Boxplot by Season



Appendix IV: Molybdenum, MW-100D

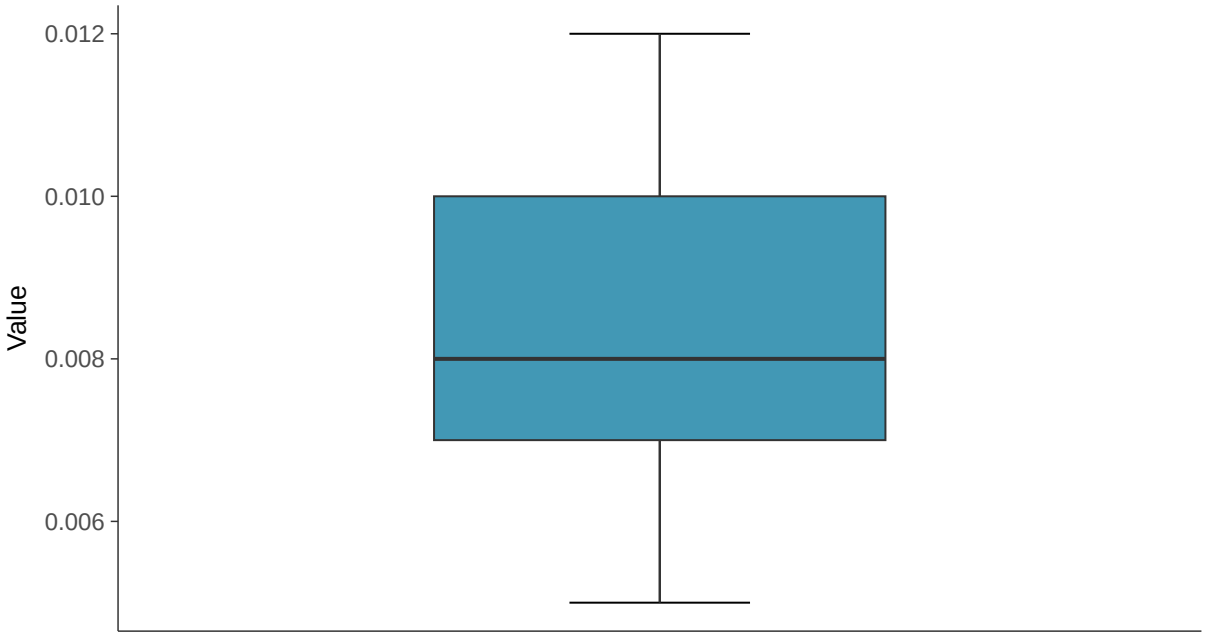
ID: 100D_2_18





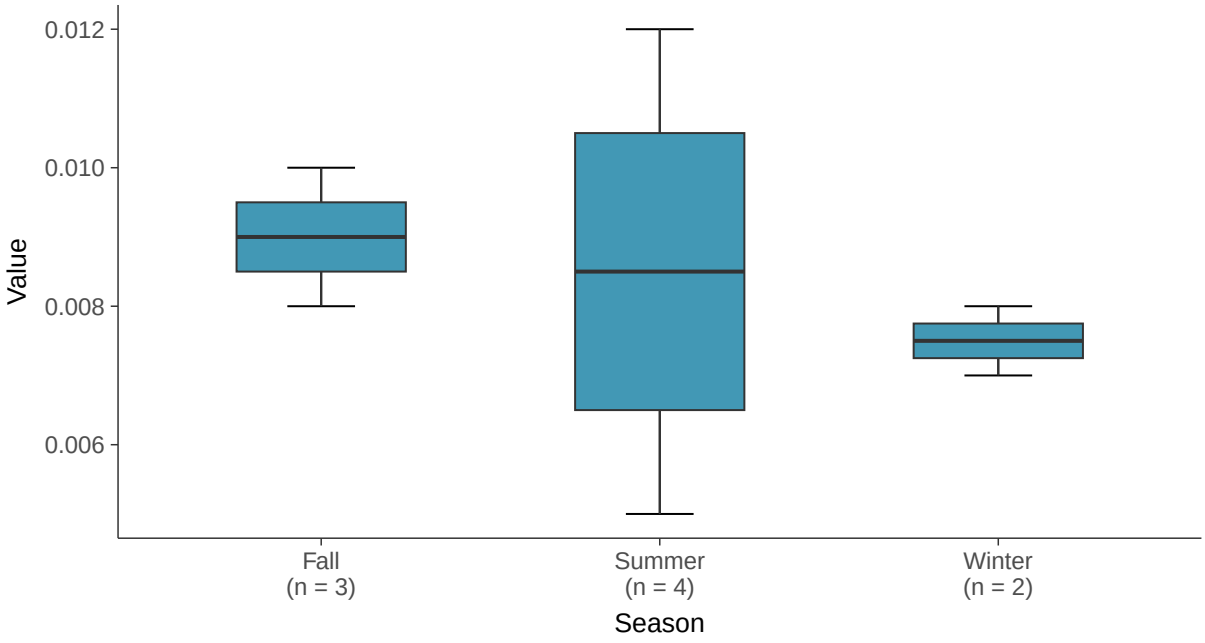
Boxplot

Molybdenum, MW-100D (mg/L)



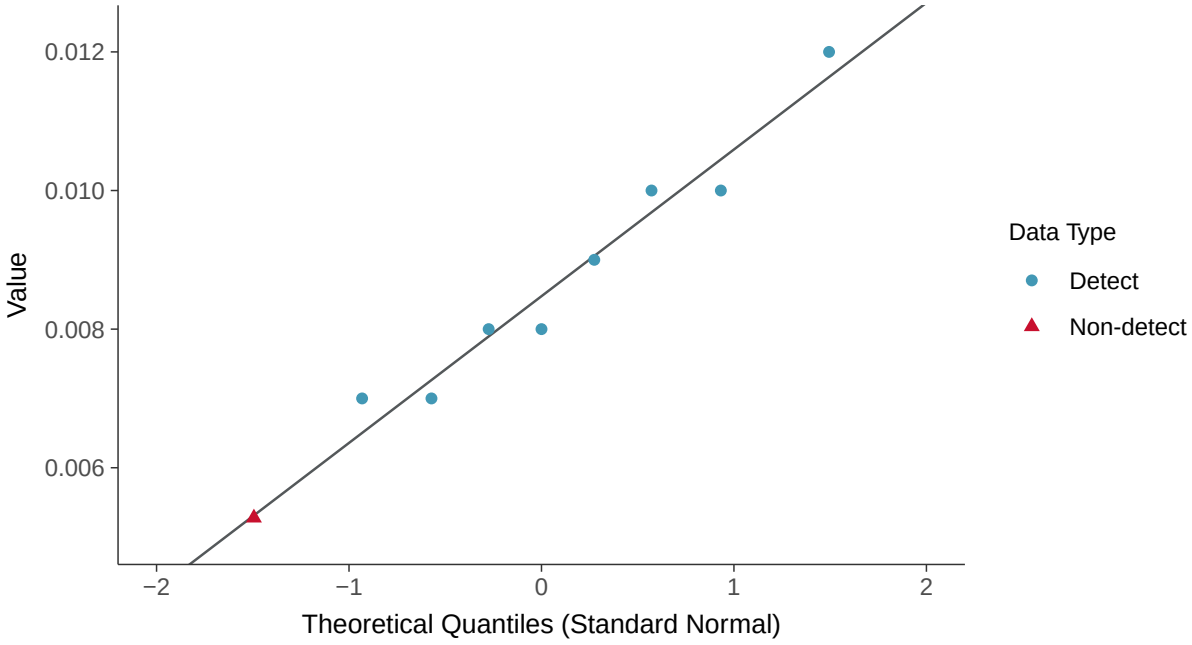
Boxplot by Season

Molybdenum, MW-100D (mg/L)



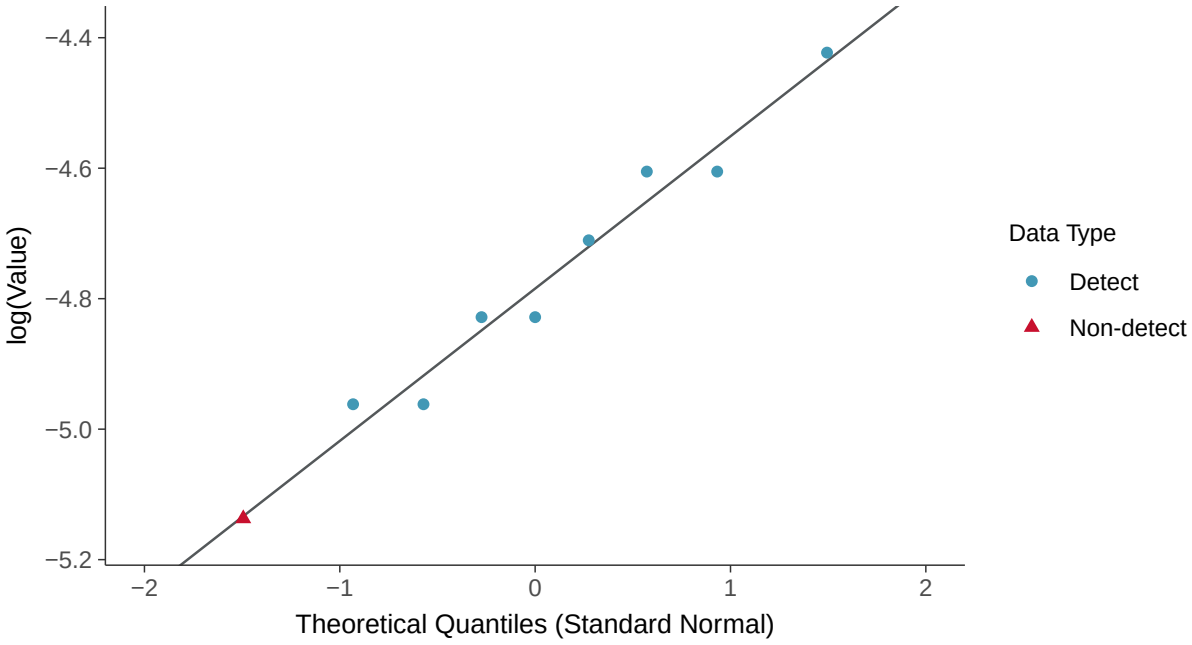
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, MW-100D (mg/L)



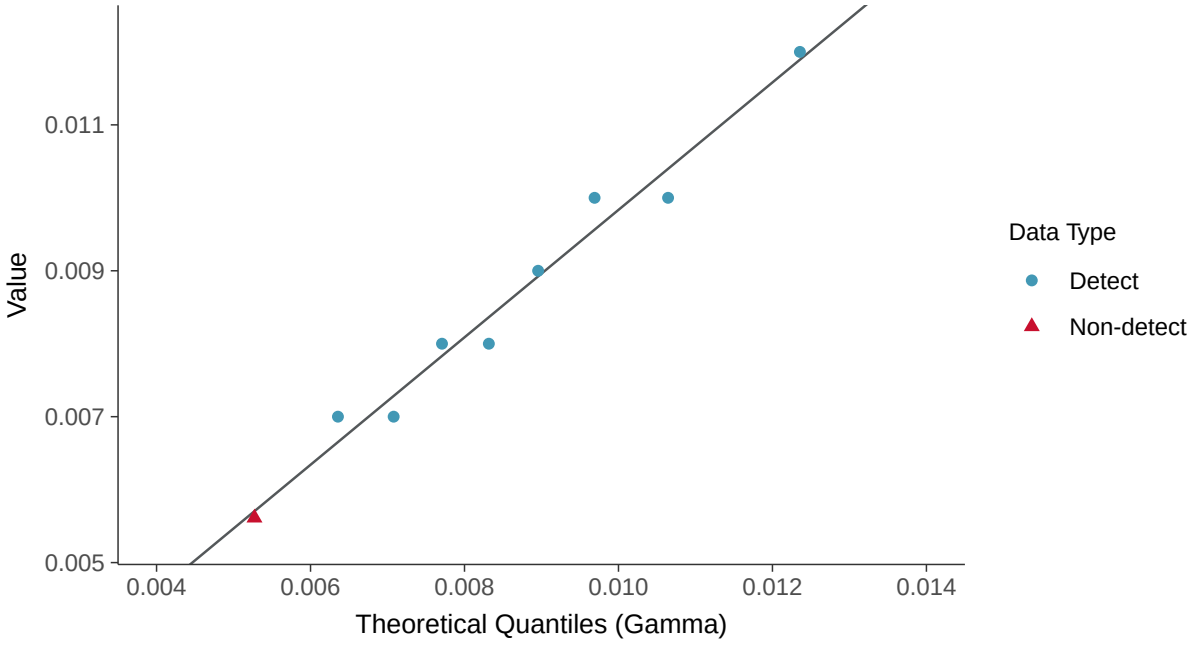
Lognormal Q-Q plot using ROS Imputed Estimates

Molybdenum, MW-100D (mg/L)



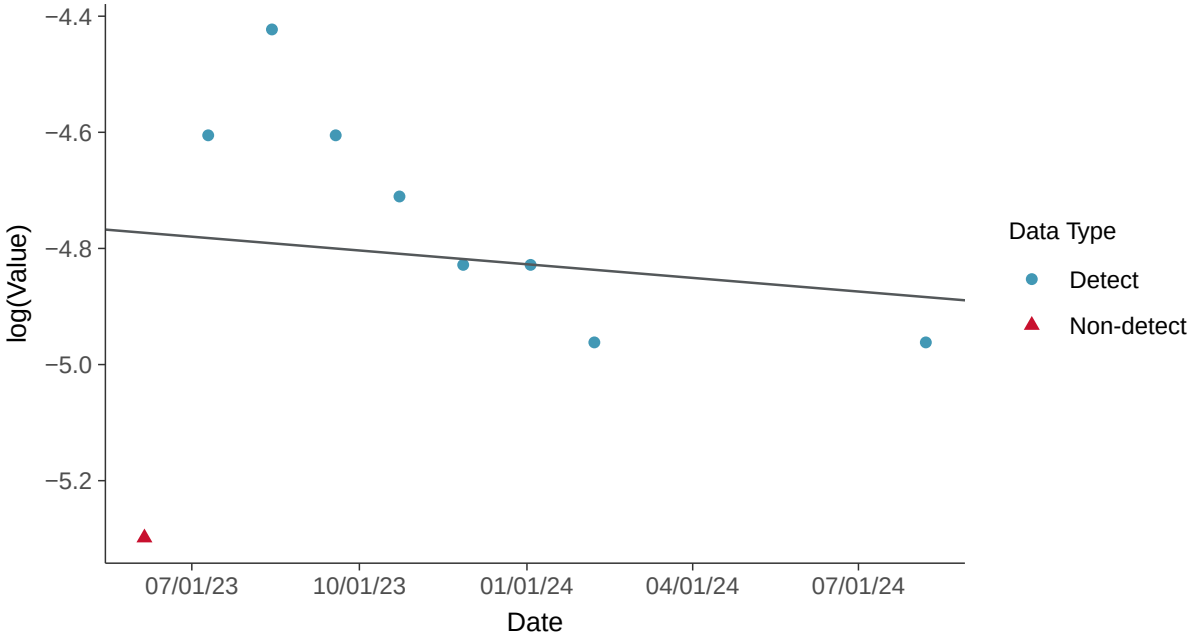
Gamma Q-Q plot using ROS Imputed Estimates

Molybdenum, MW-100D (mg/L)



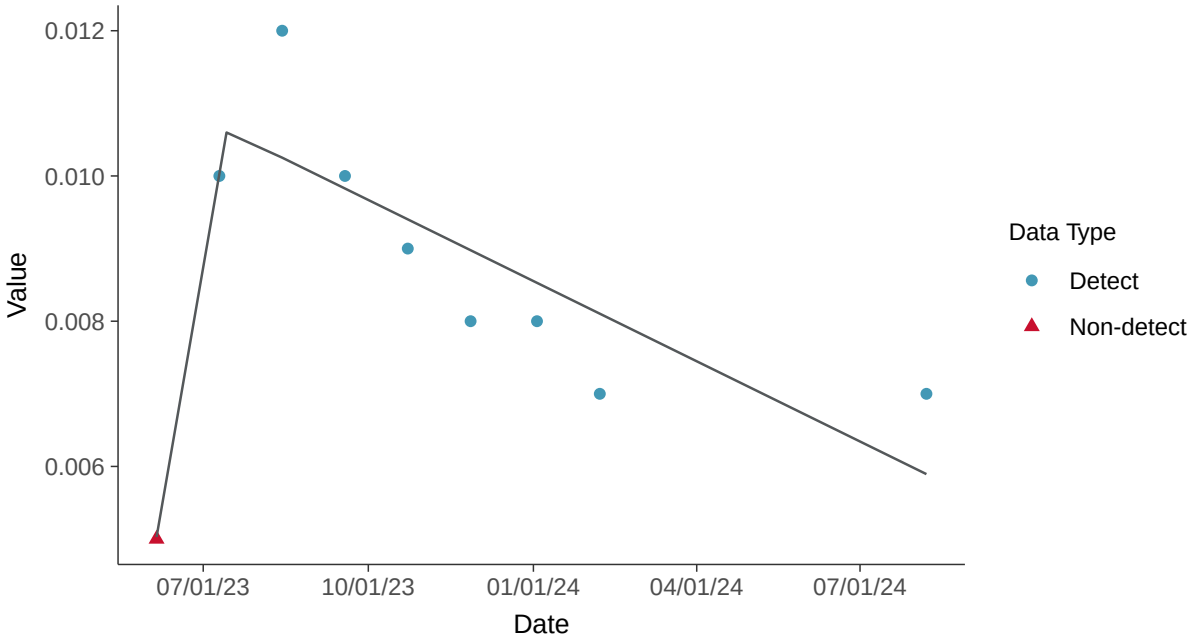
Trend Regression: Lognormal MLE

Molybdenum, MW-100D (mg/L)



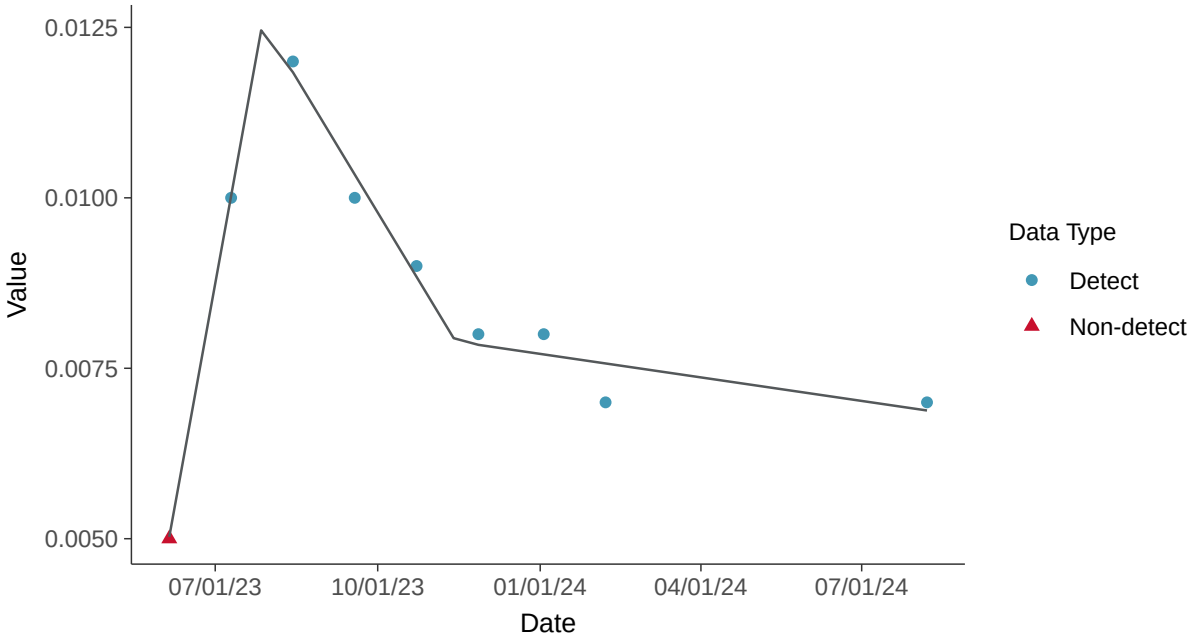
Trend Regression: Piecewise Linear-Linear

Molybdenum, MW-100D (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Molybdenum, MW-100D (mg/L)

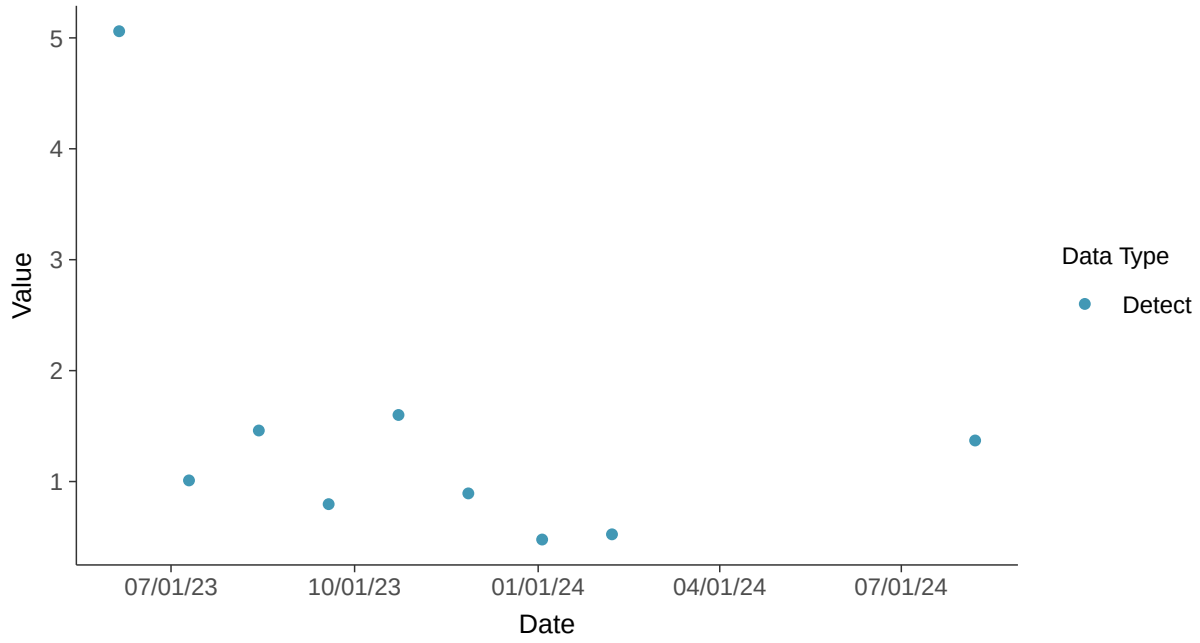


Appendix IV: Radium-226/228, MW-100D

ID: 100D_2_21

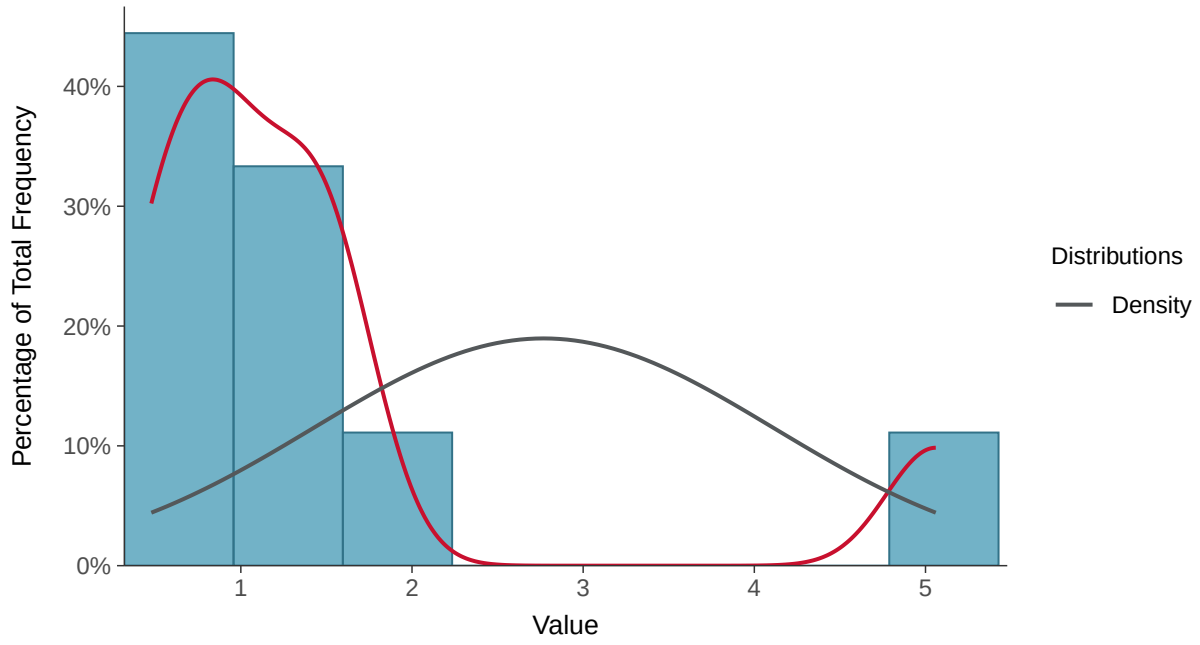
Scatter Plot

Radium-226/228, MW-100D (pCi/L)



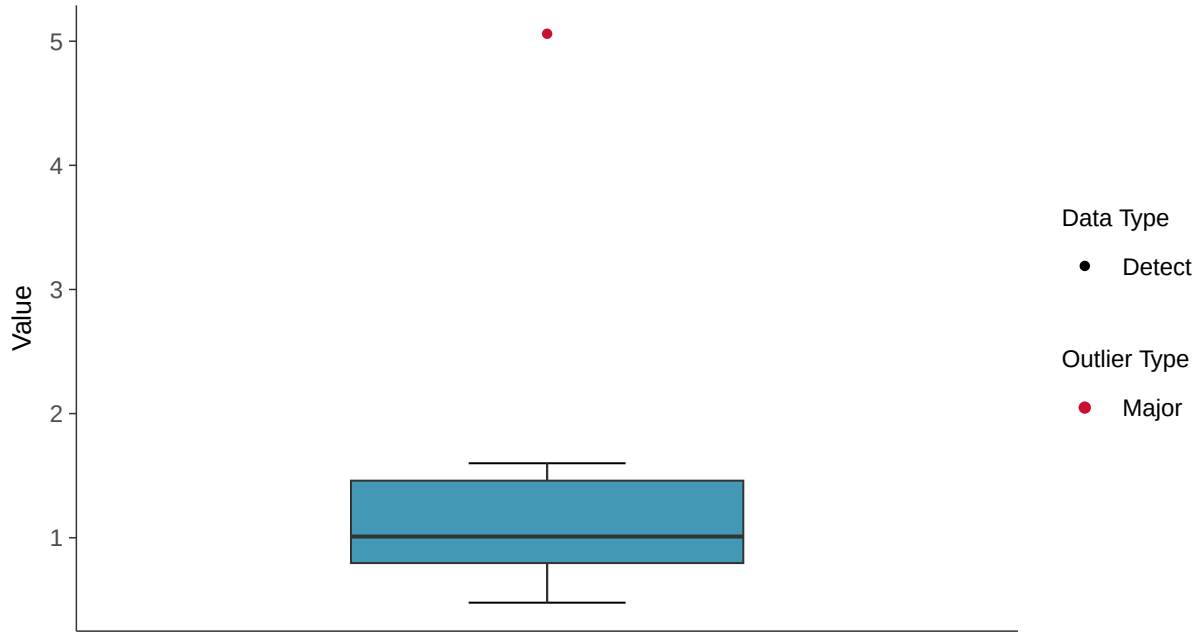
Histogram

Radium-226/228, MW-100D (pCi/L)



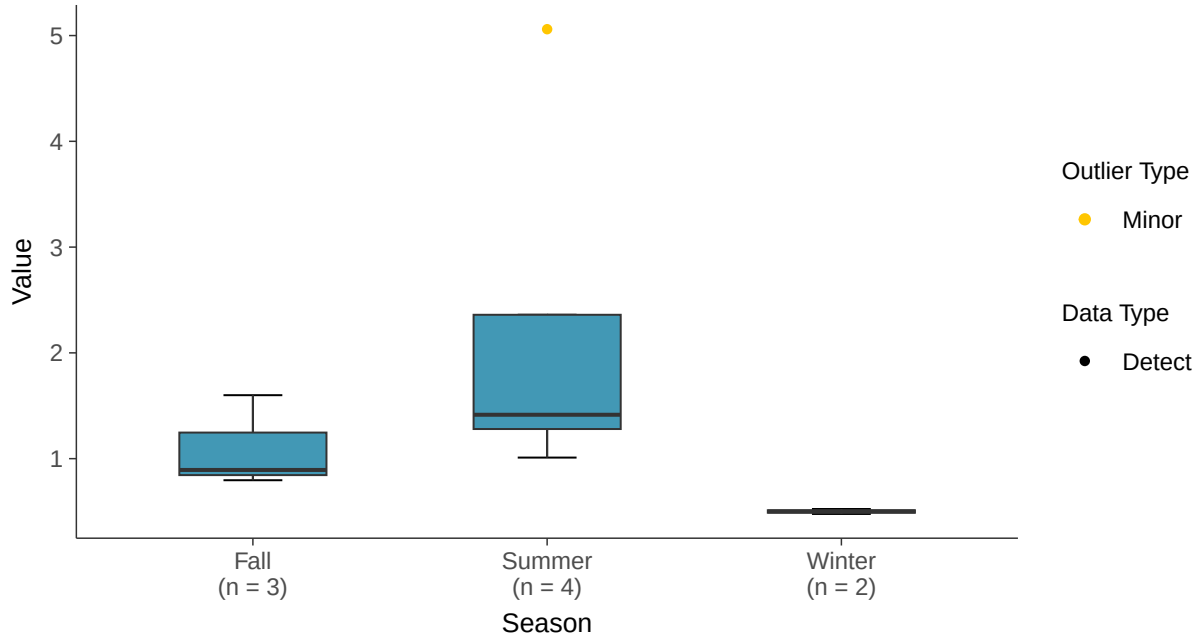
Boxplot

Radium-226/228, MW-100D (pCi/L)



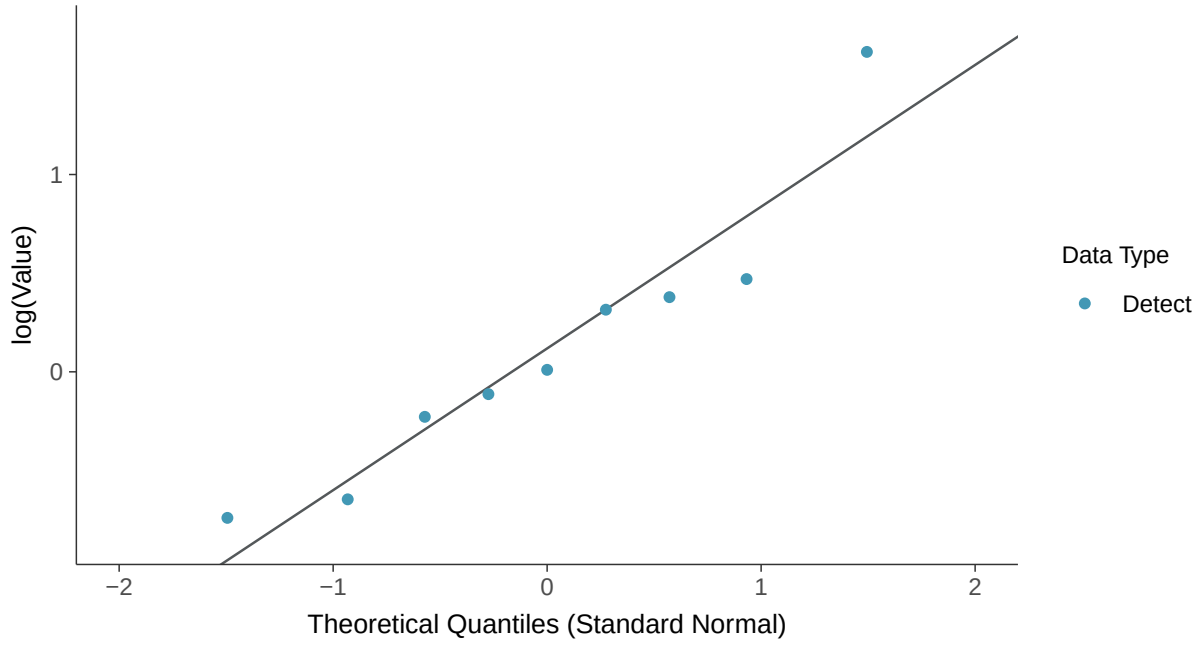
Boxplot by Season

Radium-226/228, MW-100D (pCi/L)



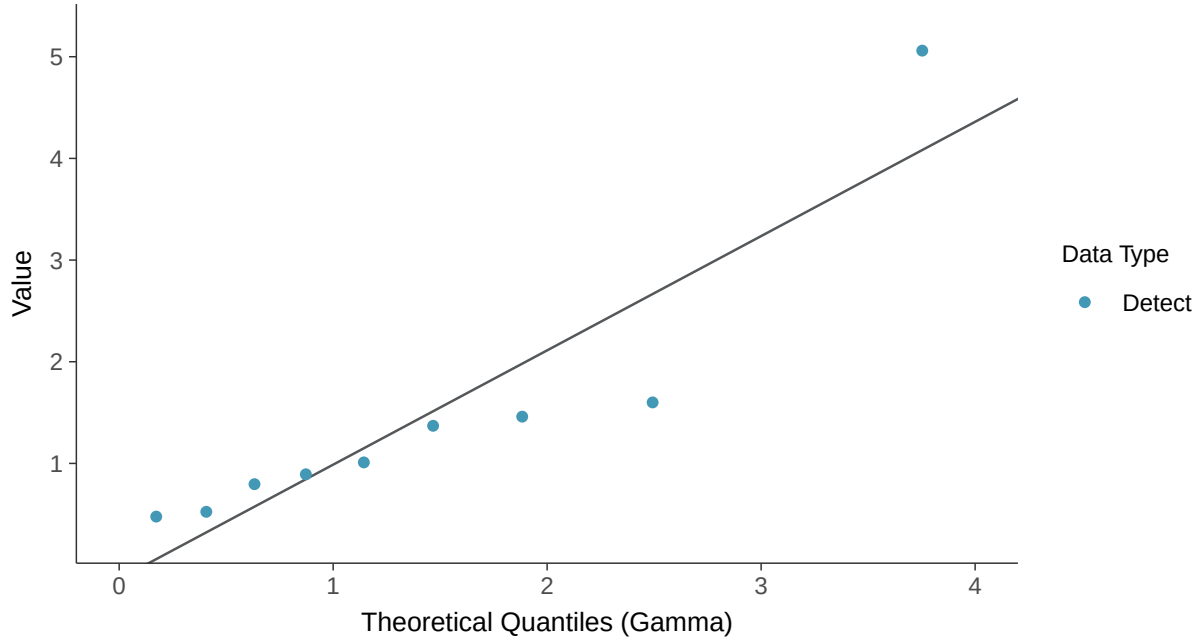
Lognormal Q-Q plot

Radium-226/228, MW-100D (pCi/L)



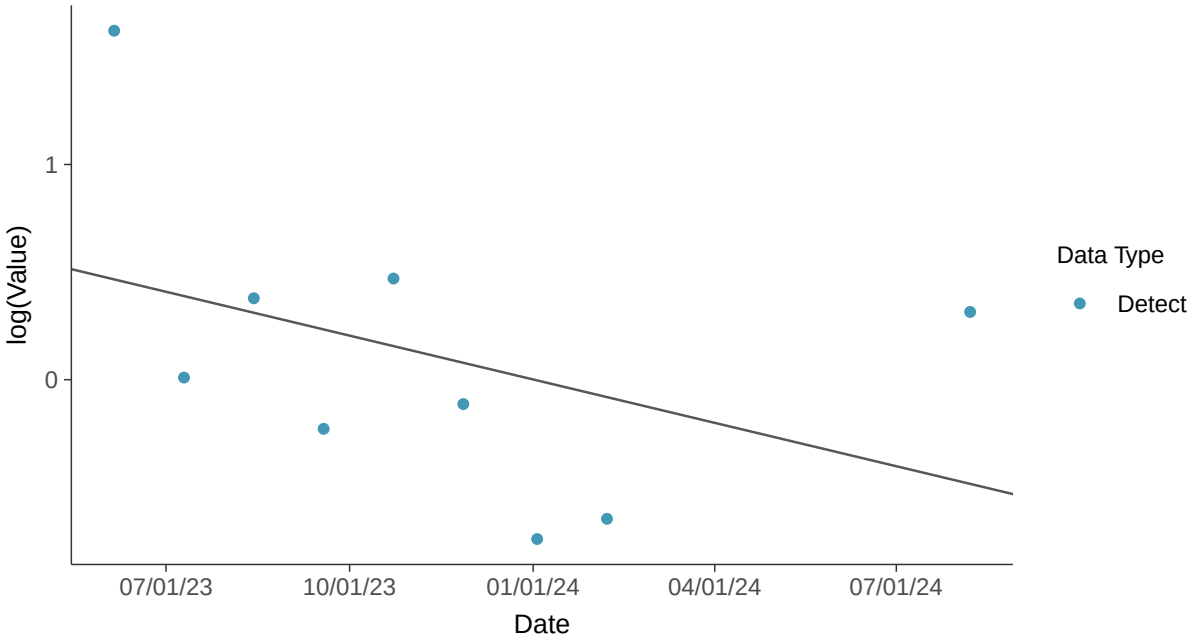
Gamma Q-Q plot

Radium-226/228, MW-100D (pCi/L)



Trend Regression: Lognormal MLE

Radium-226/228, MW-100D (pCi/L)

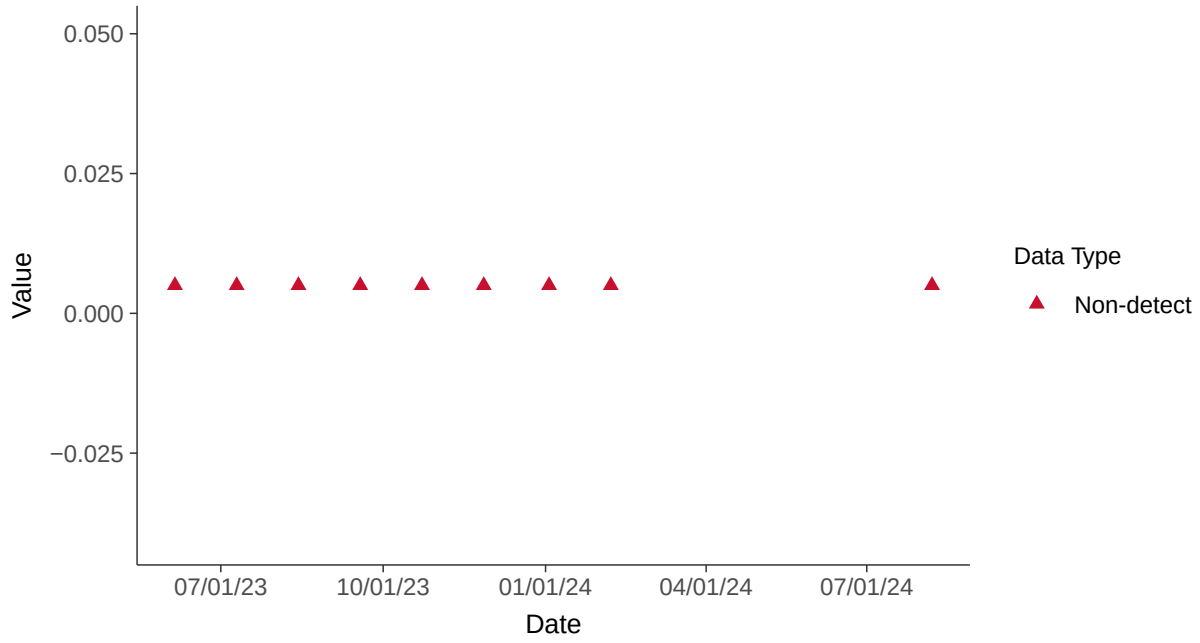


Appendix IV: Selenium, MW-100D

ID: 100D_2_22

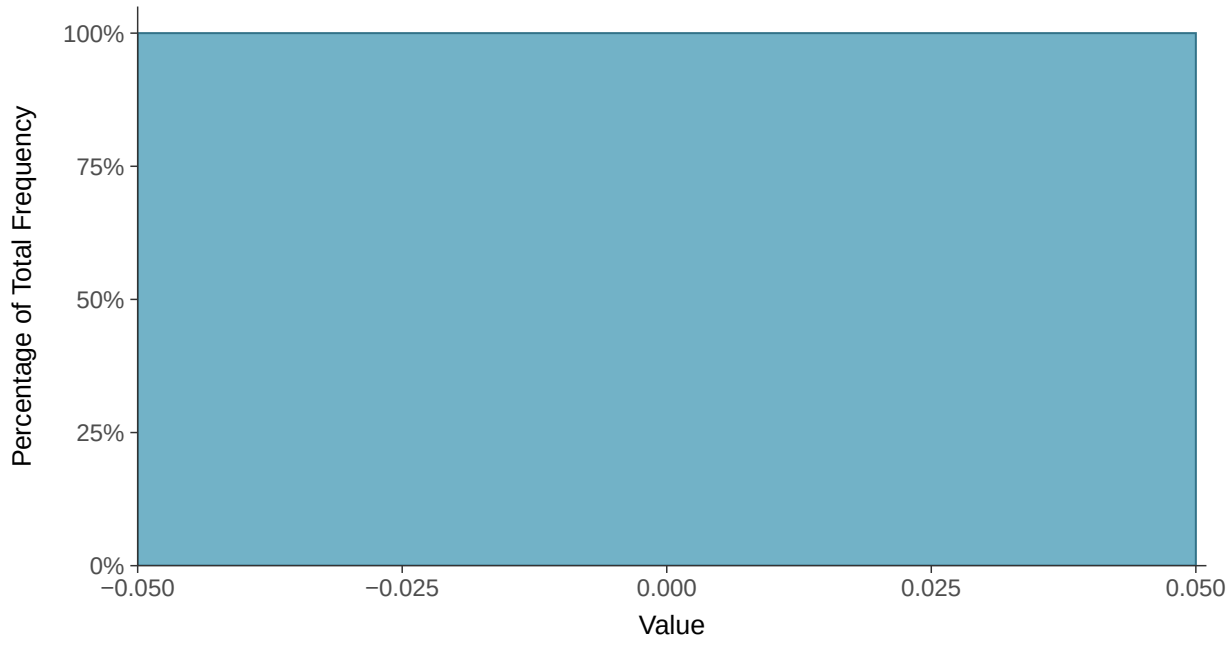
Scatter Plot

Selenium, MW-100D (mg/L)



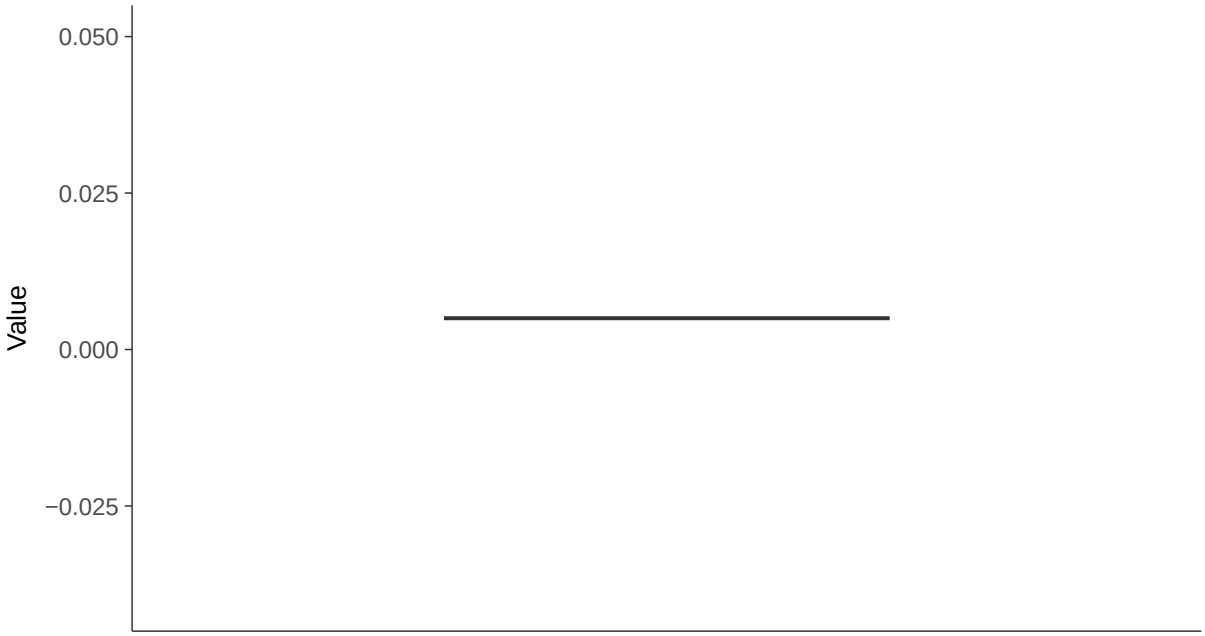
Histogram

Selenium, MW-100D (mg/L)



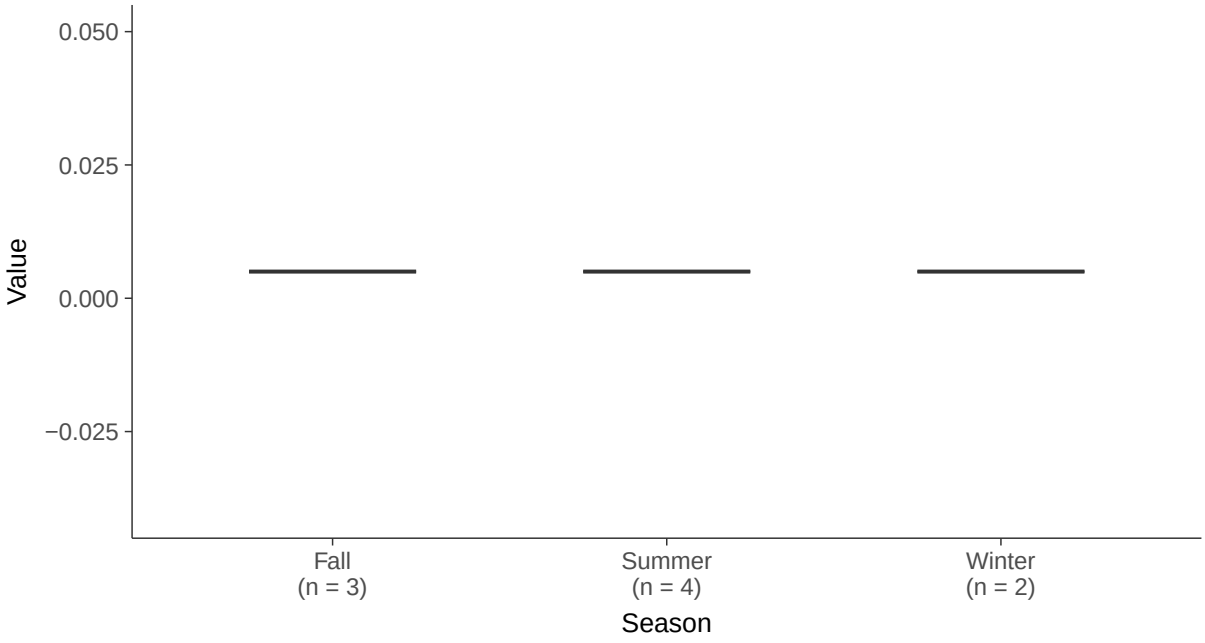
Boxplot

Selenium, MW-100D (mg/L)



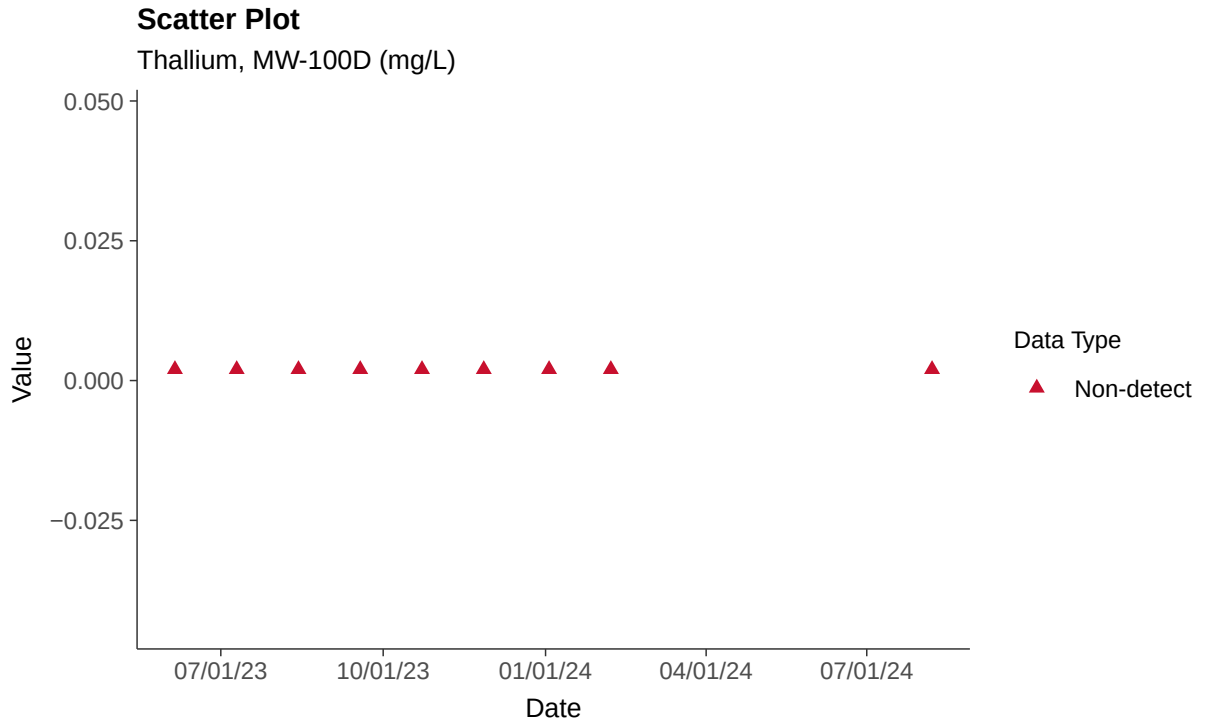
Boxplot by Season

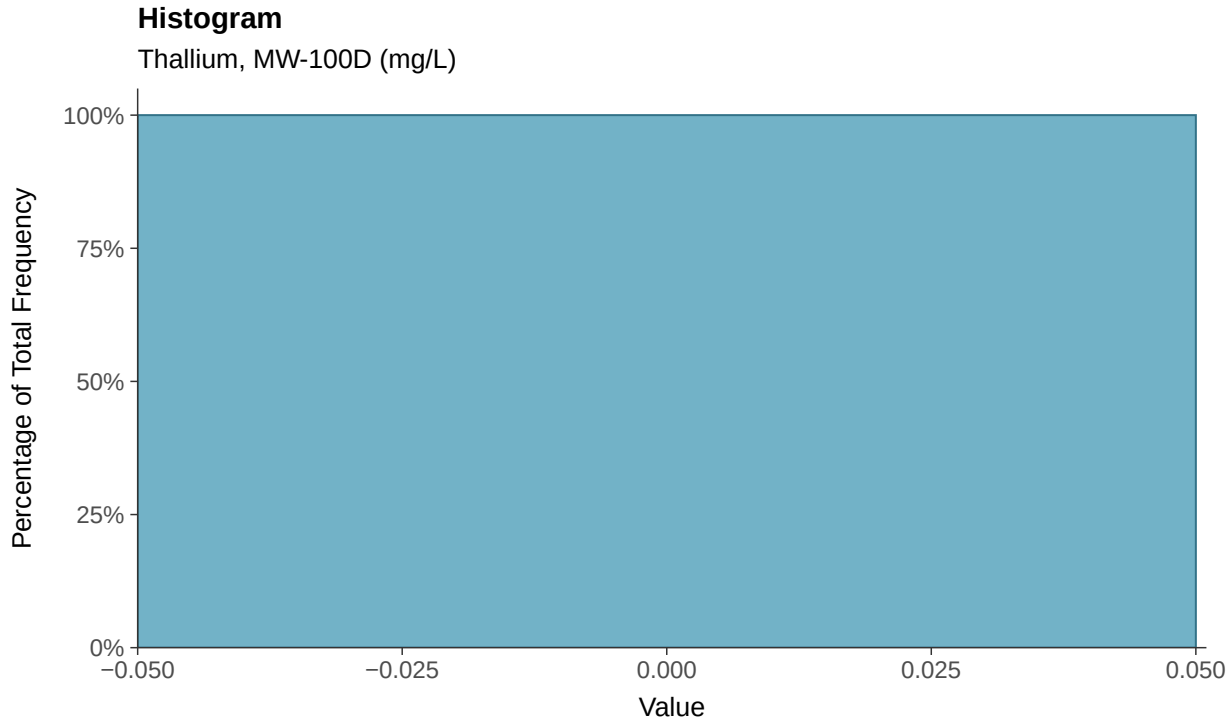
Selenium, MW-100D (mg/L)



Appendix IV: Thallium, MW-100D

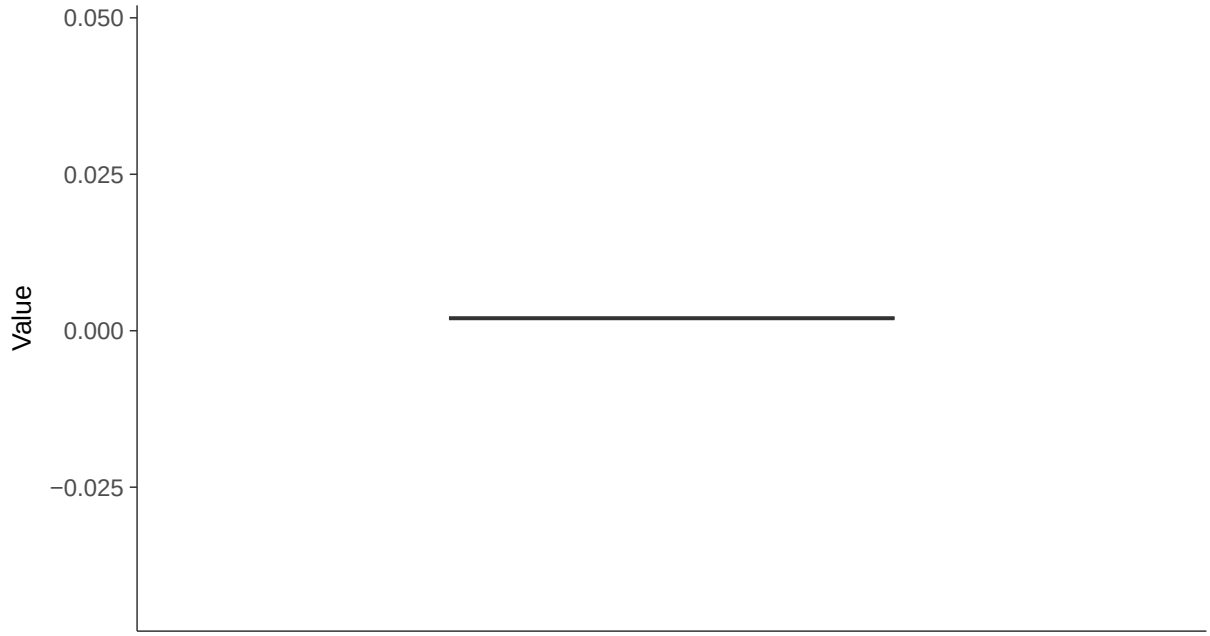
ID: 100D_2_23





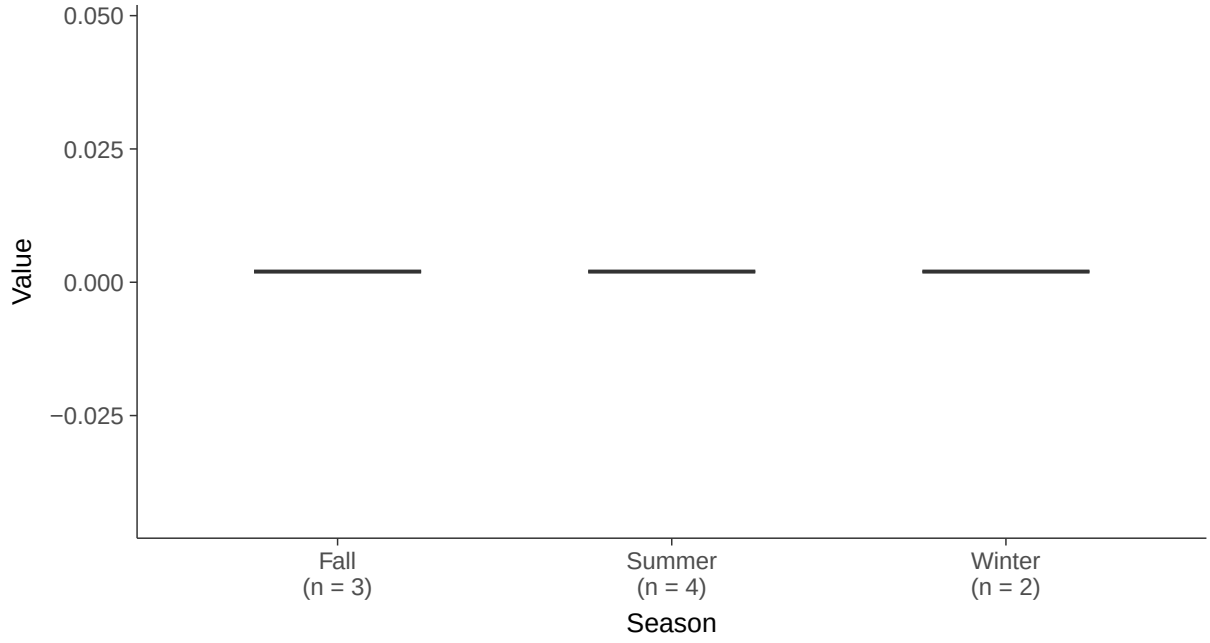
Boxplot

Thallium, MW-100D (mg/L)



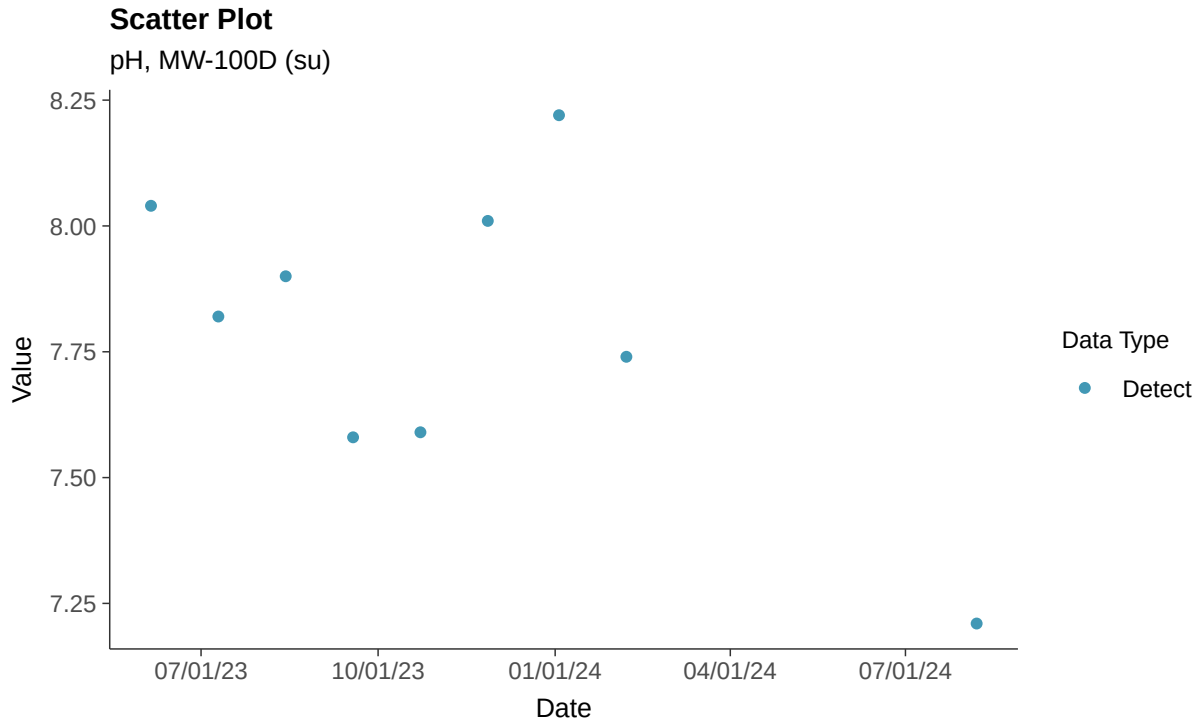
Boxplot by Season

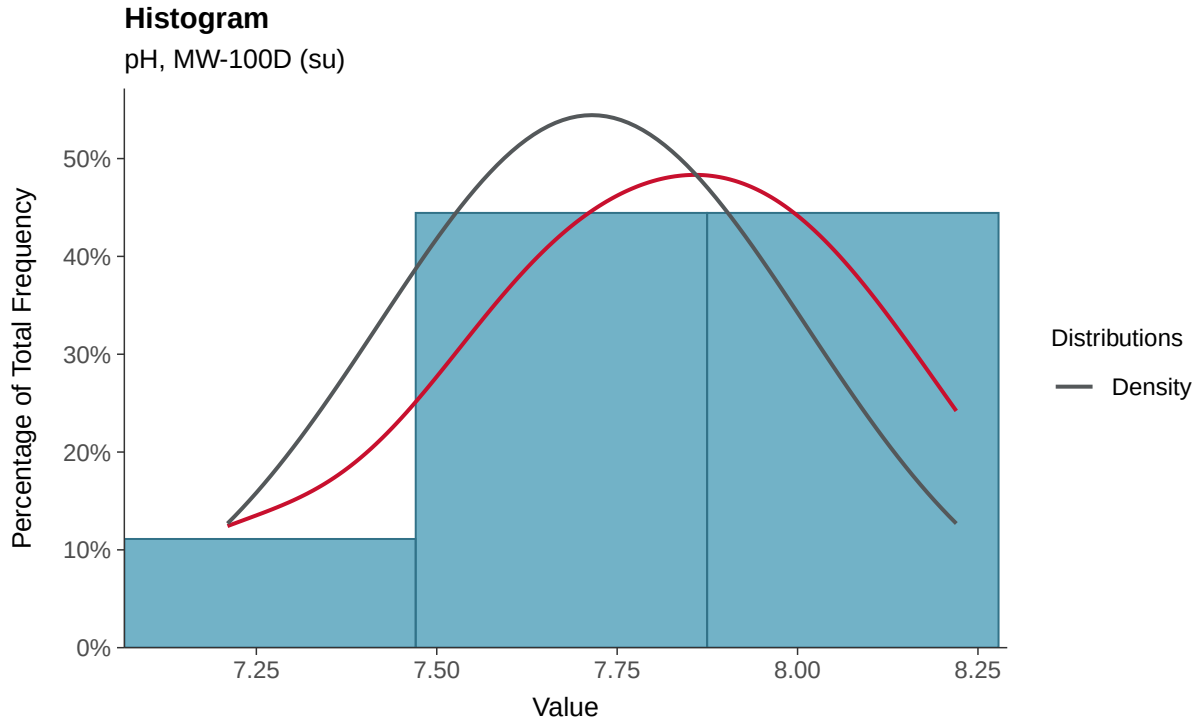
Thallium, MW-100D (mg/L)



Field Parameters: pH, MW-100D

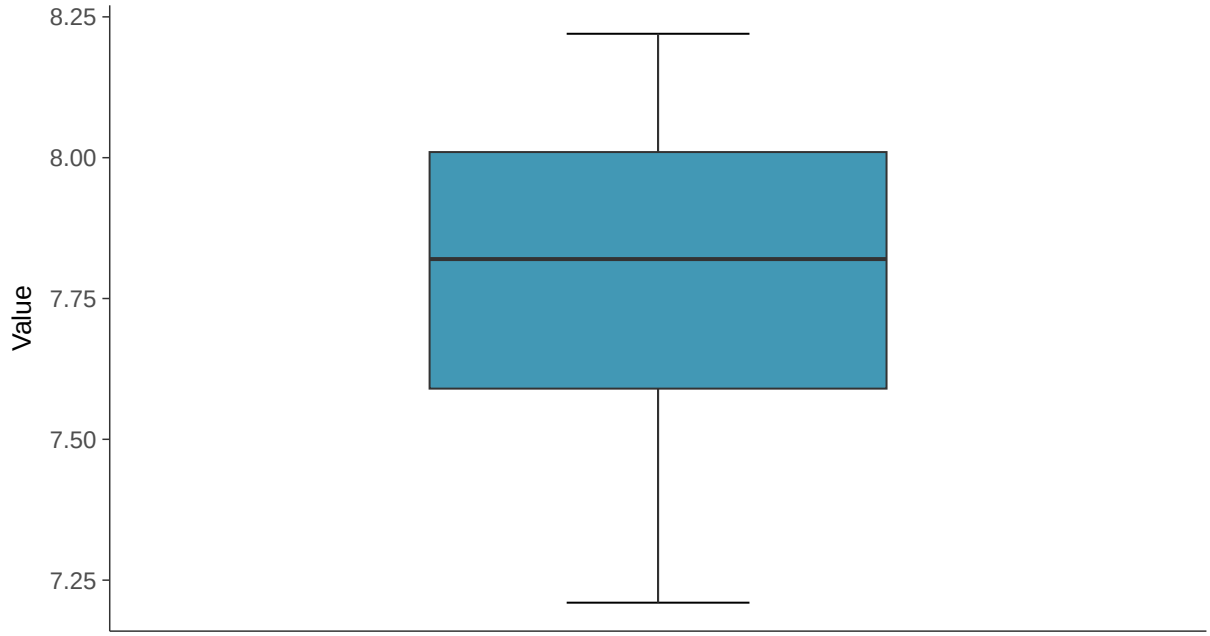
ID: 100D_3_24





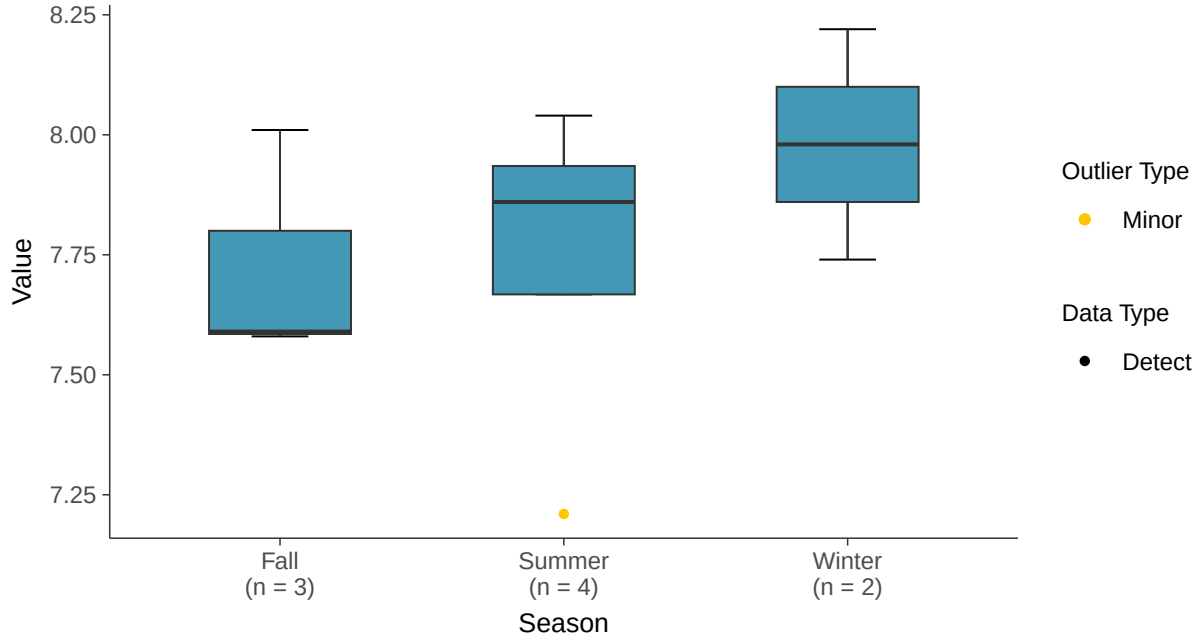
Boxplot

pH, MW-100D (su)



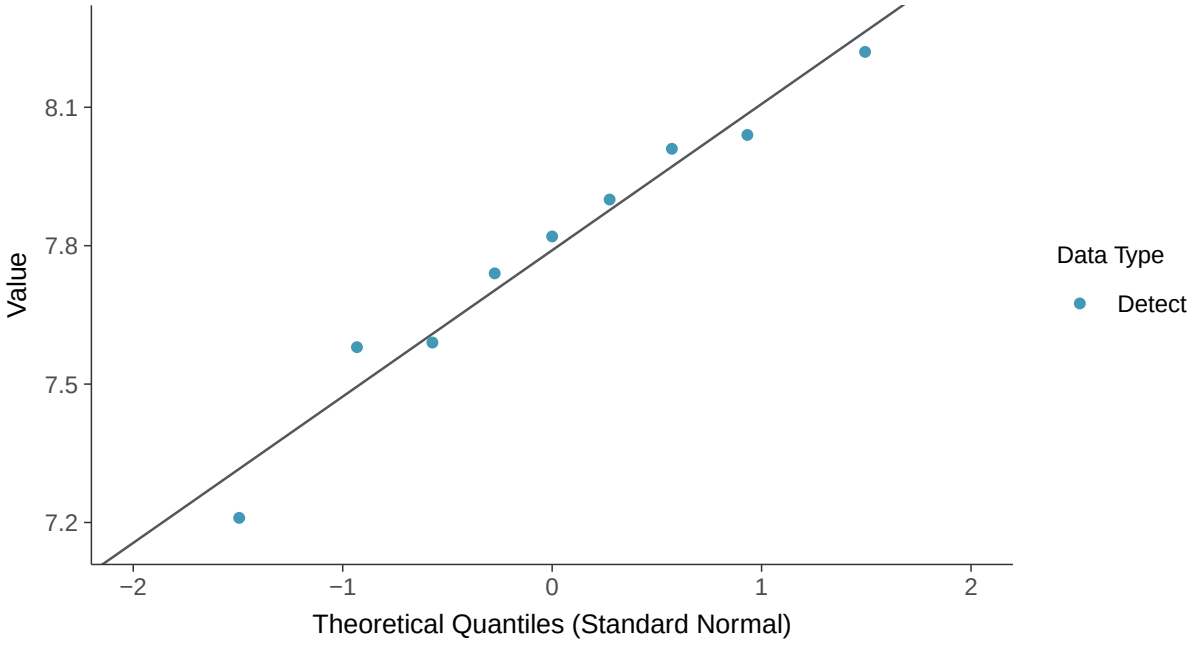
Boxplot by Season

pH, MW-100D (su)



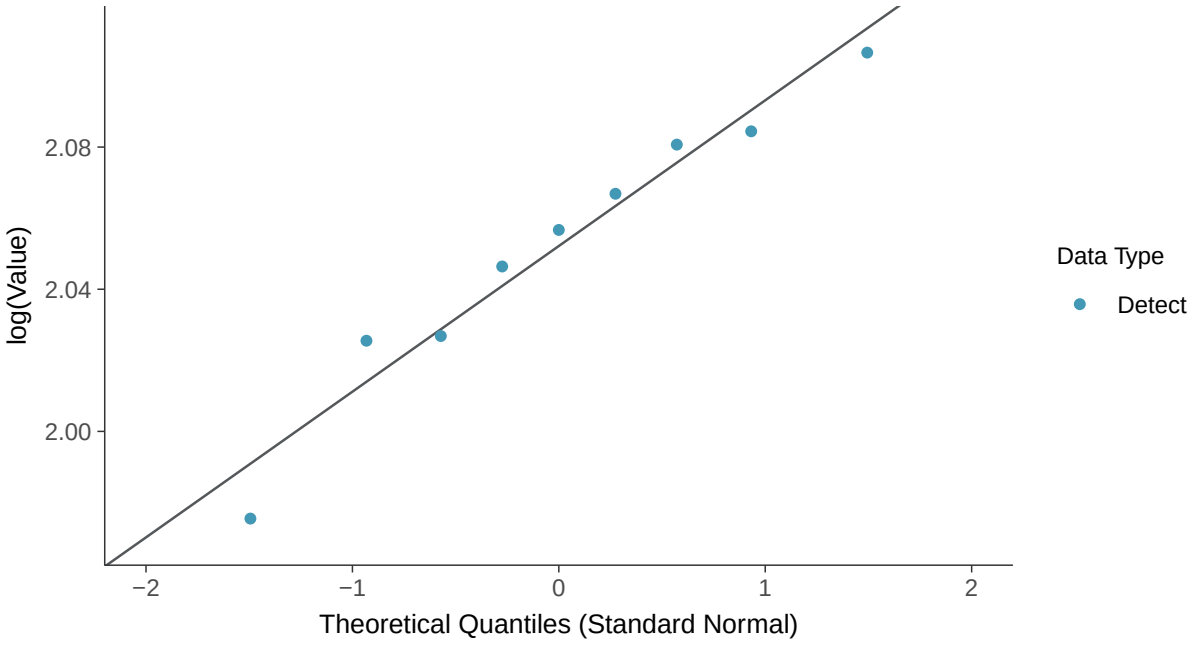
Normal Q-Q plot

pH, MW-100D (su)



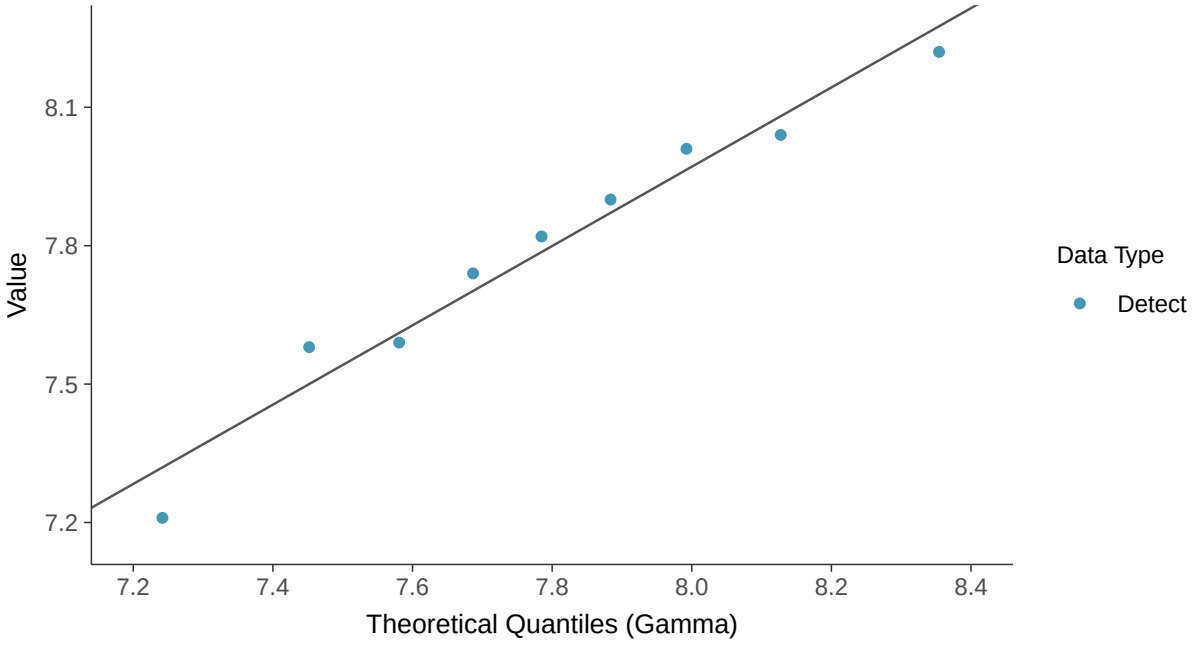
Lognormal Q-Q plot

pH, MW-100D (su)



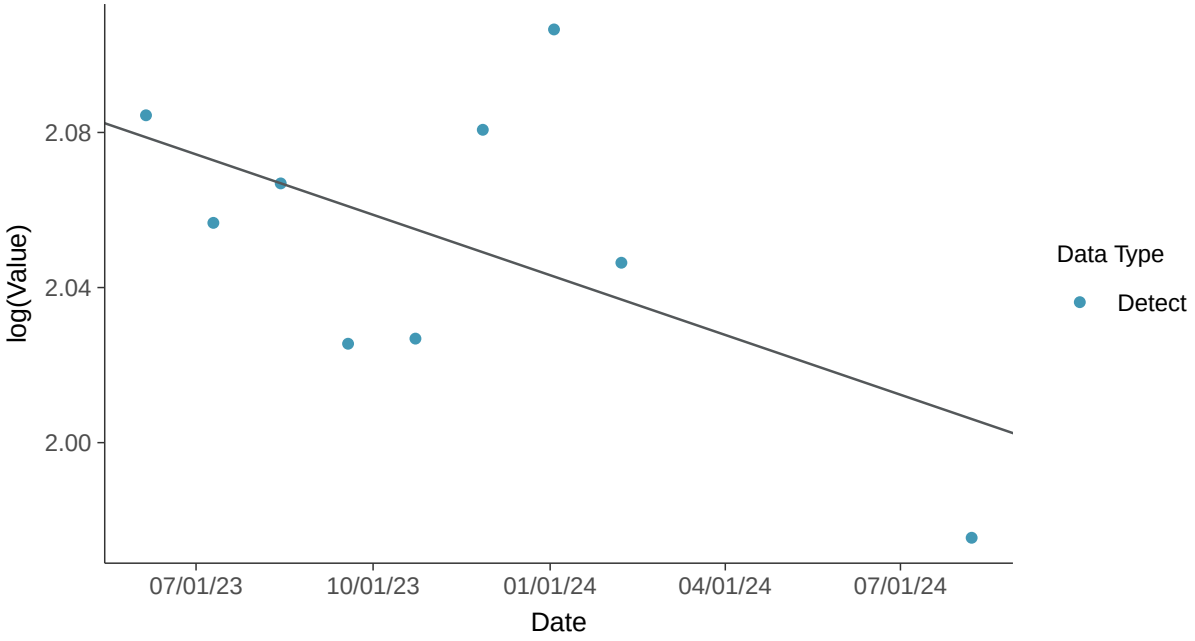
Gamma Q-Q plot

pH, MW-100D (su)



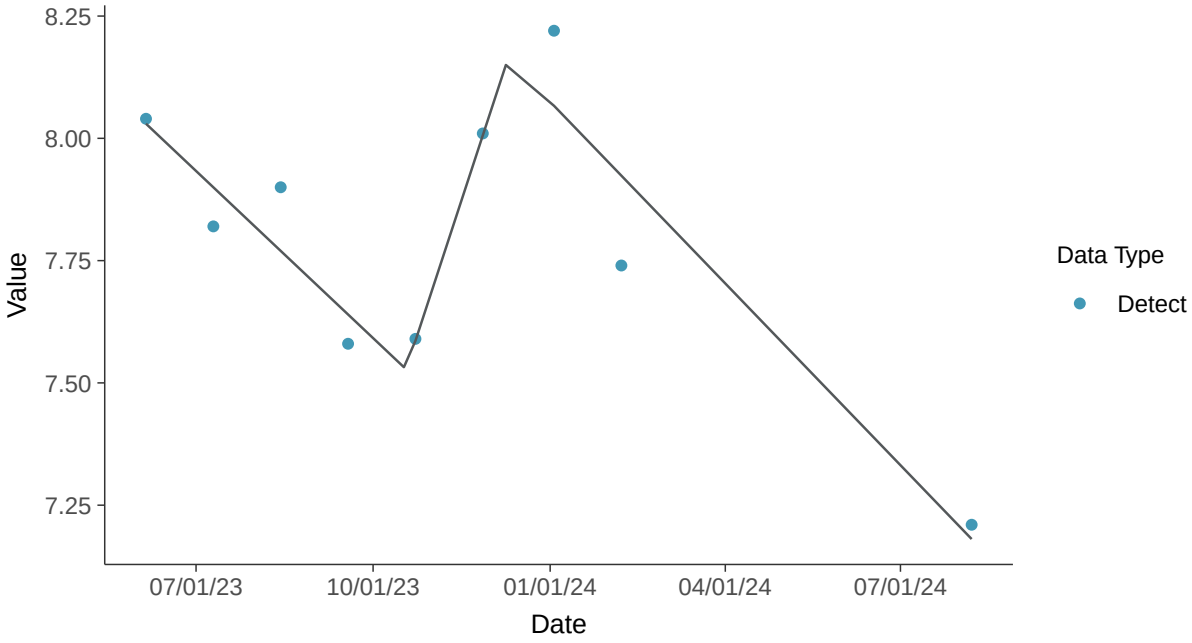
Trend Regression: Lognormal MLE

pH, MW-100D (su)



Trend Regression: Piecewise Linear-Linear-Linear

pH, MW-100D (su)

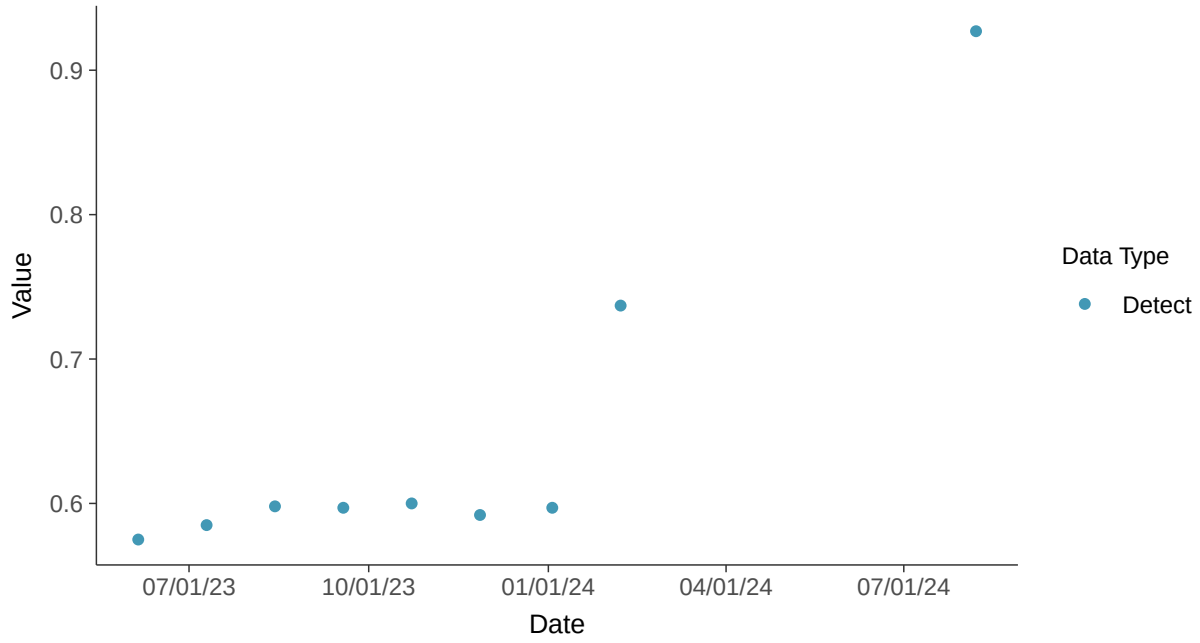


Field Parameters: Conductivity, MW-100D

ID: 100D_3_25

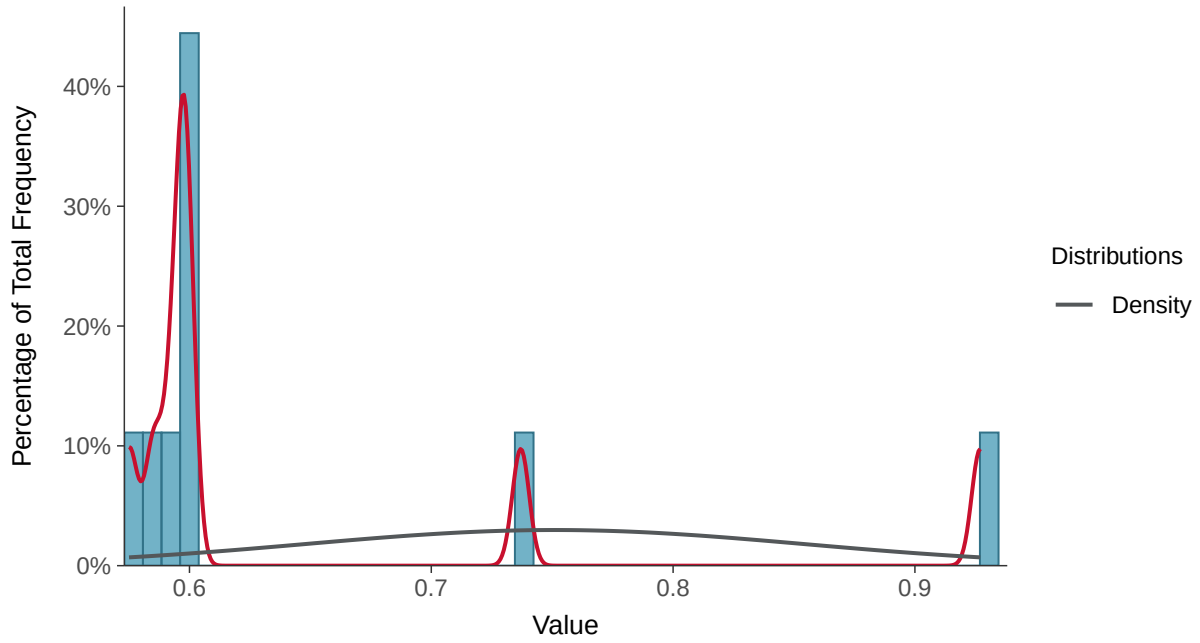
Scatter Plot

Conductivity, MW-100D (mS/cm)



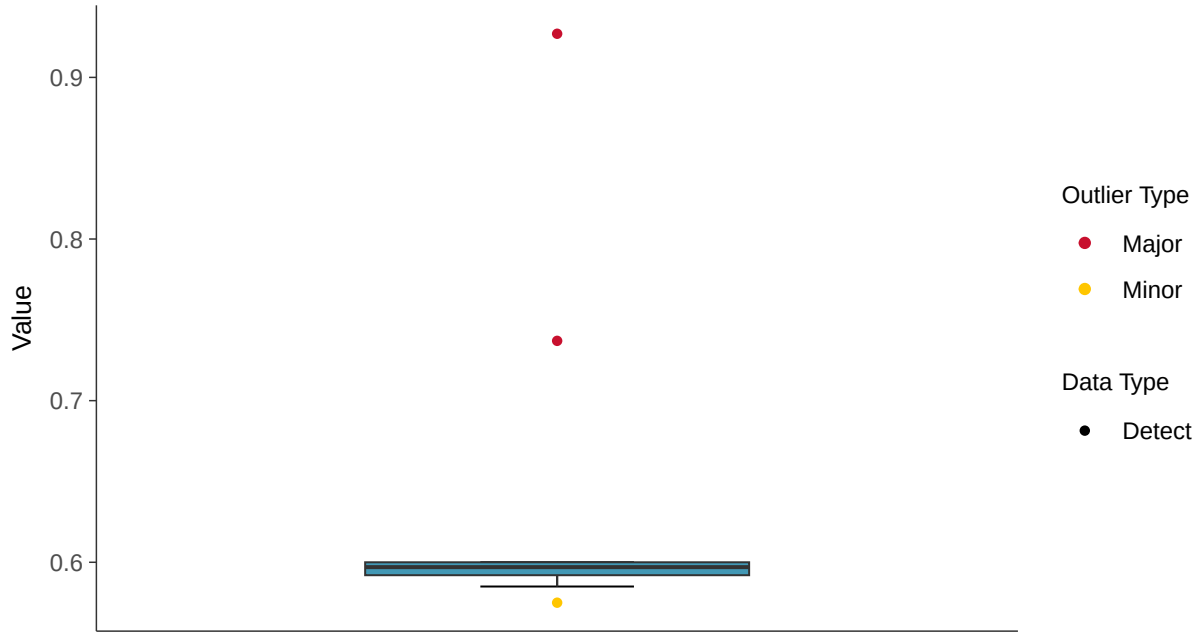
Histogram

Conductivity, MW-100D (mS/cm)



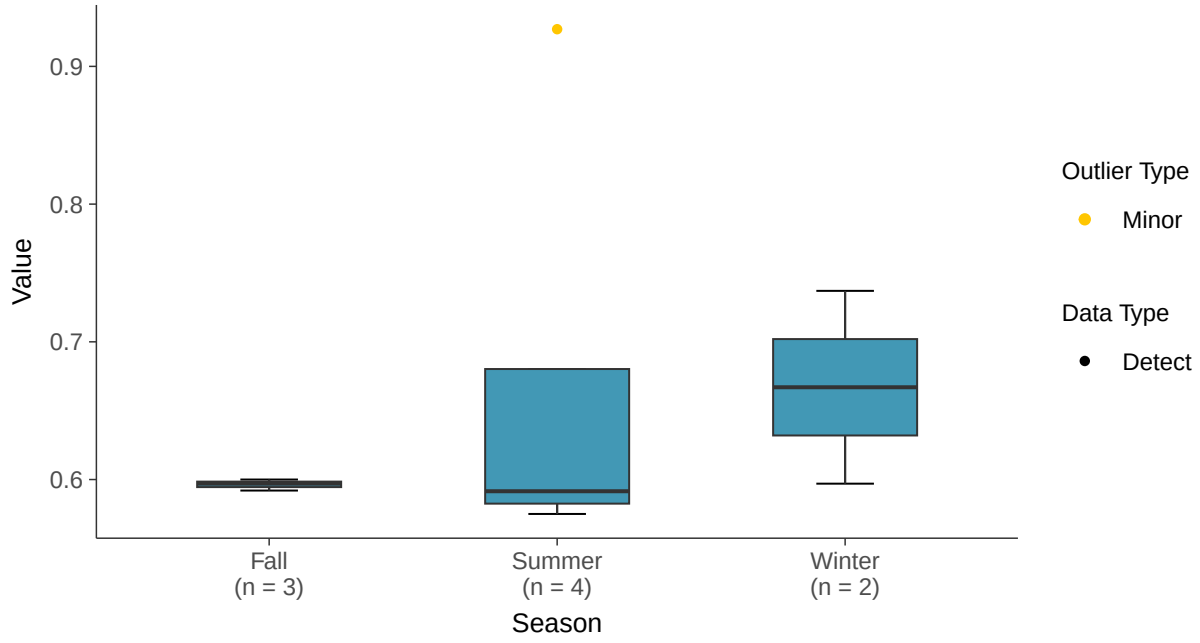
Boxplot

Conductivity, MW-100D (mS/cm)



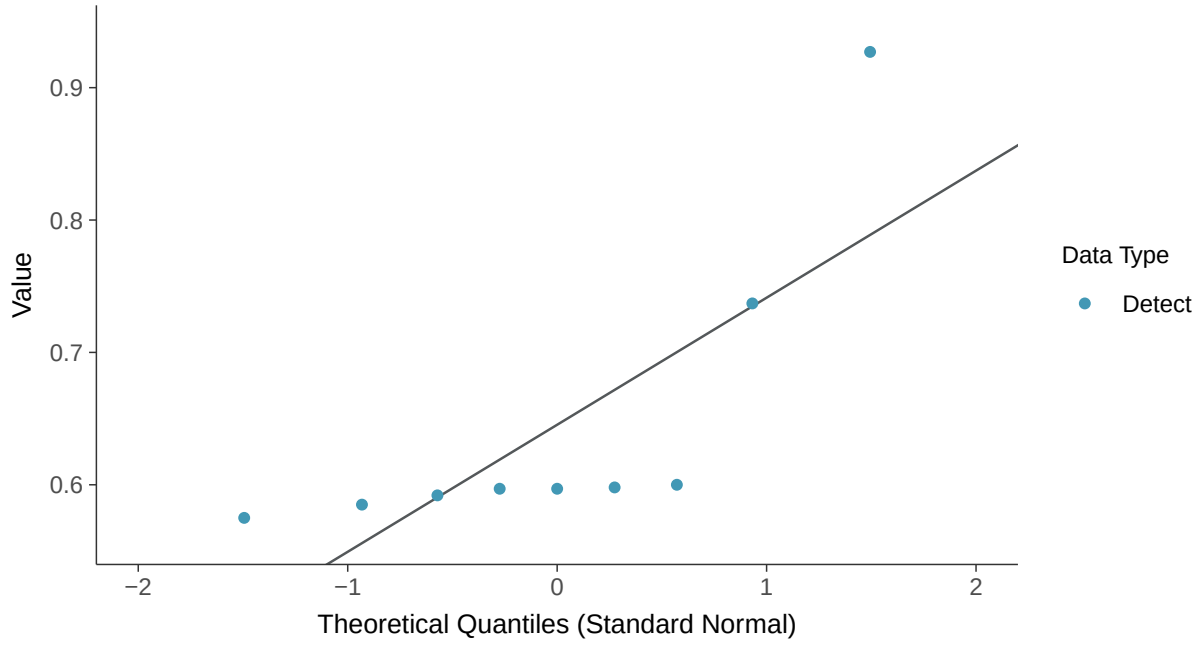
Boxplot by Season

Conductivity, MW-100D (mS/cm)



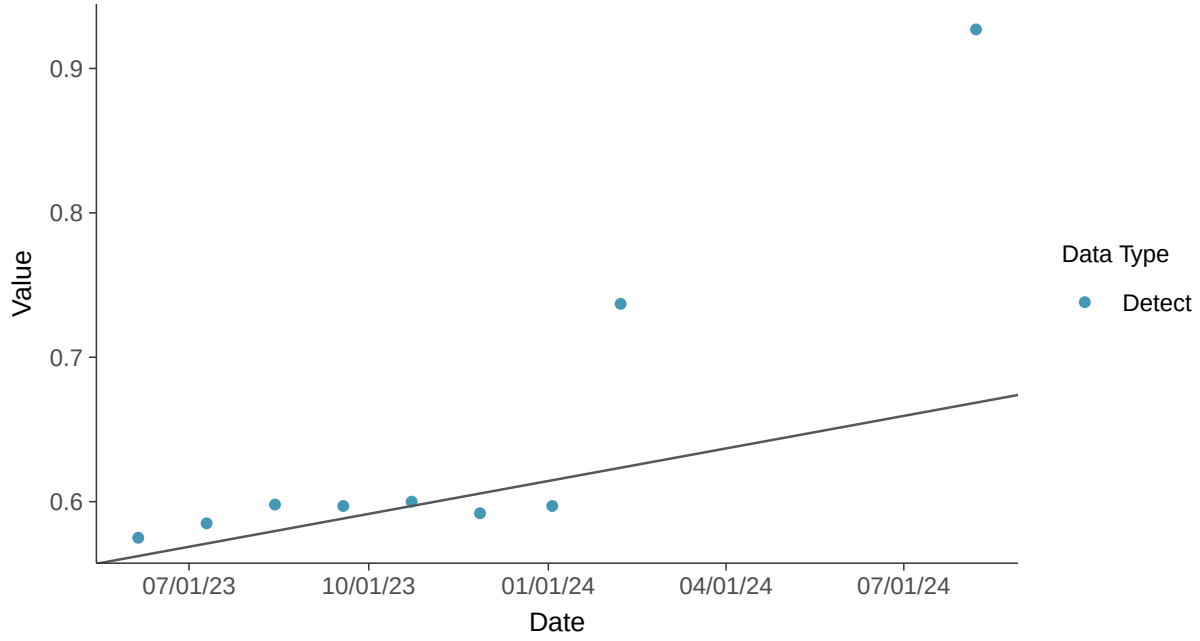
Normal Q-Q plot

Conductivity, MW-100D (mS/cm)



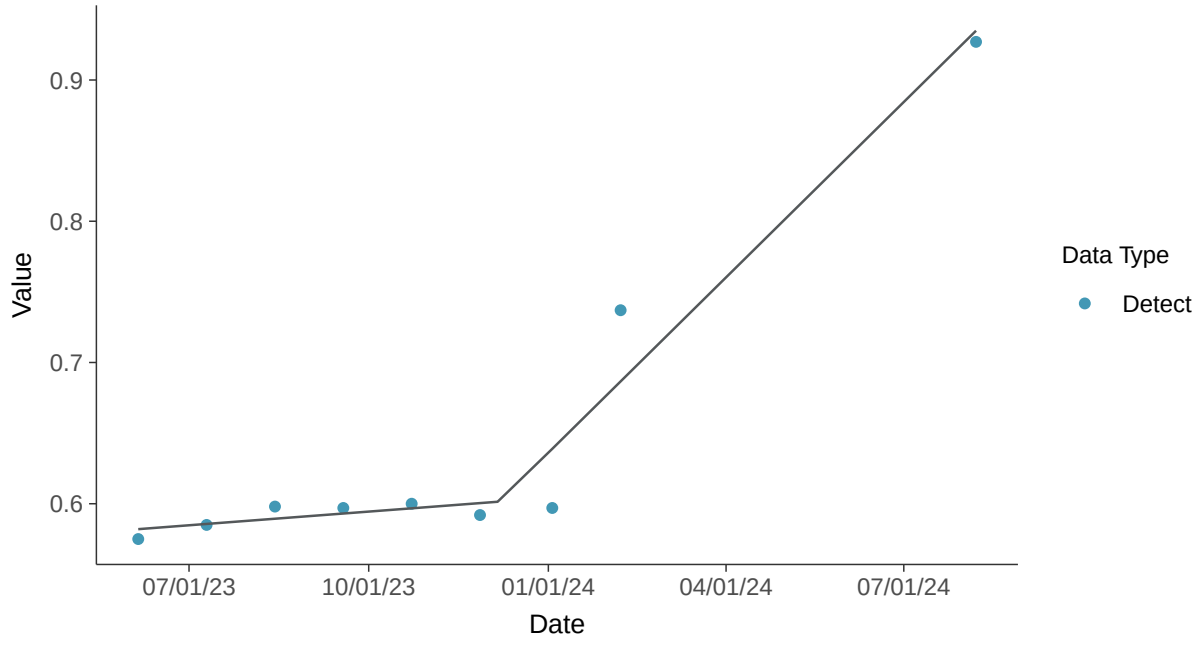
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Conductivity, MW-100D (mS/cm)



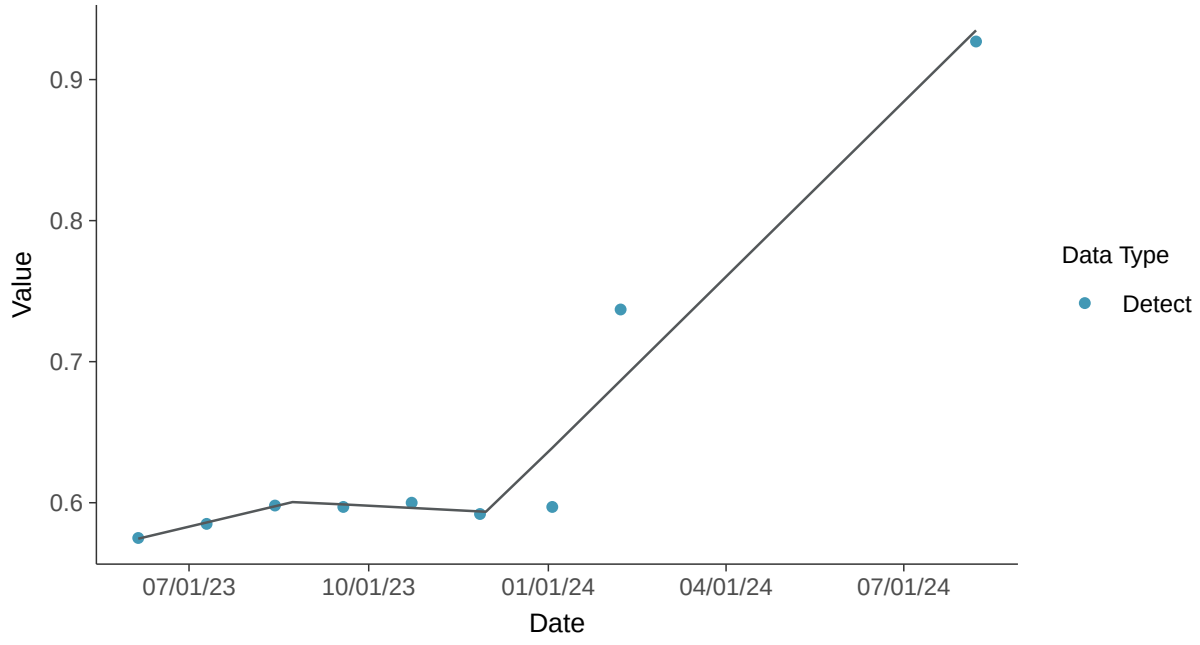
Trend Regression: Piecewise Linear-Linear

Conductivity, MW-100D (mS/cm)



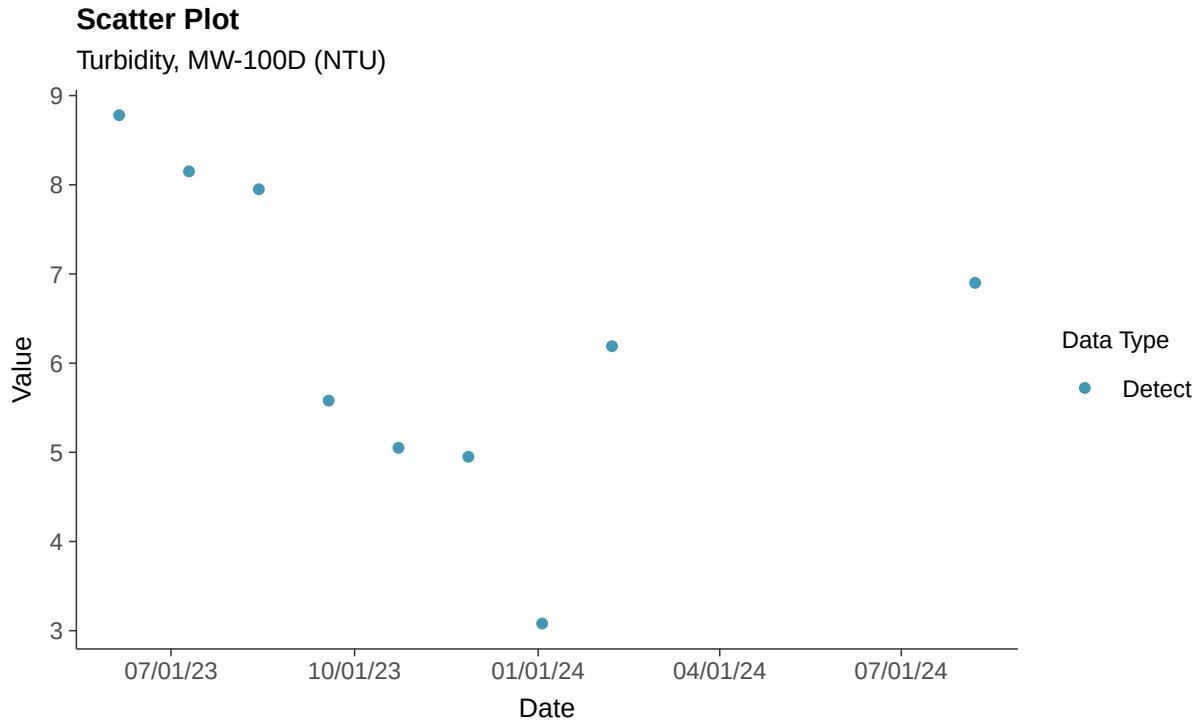
Trend Regression: Piecewise Linear-Linear-Linear

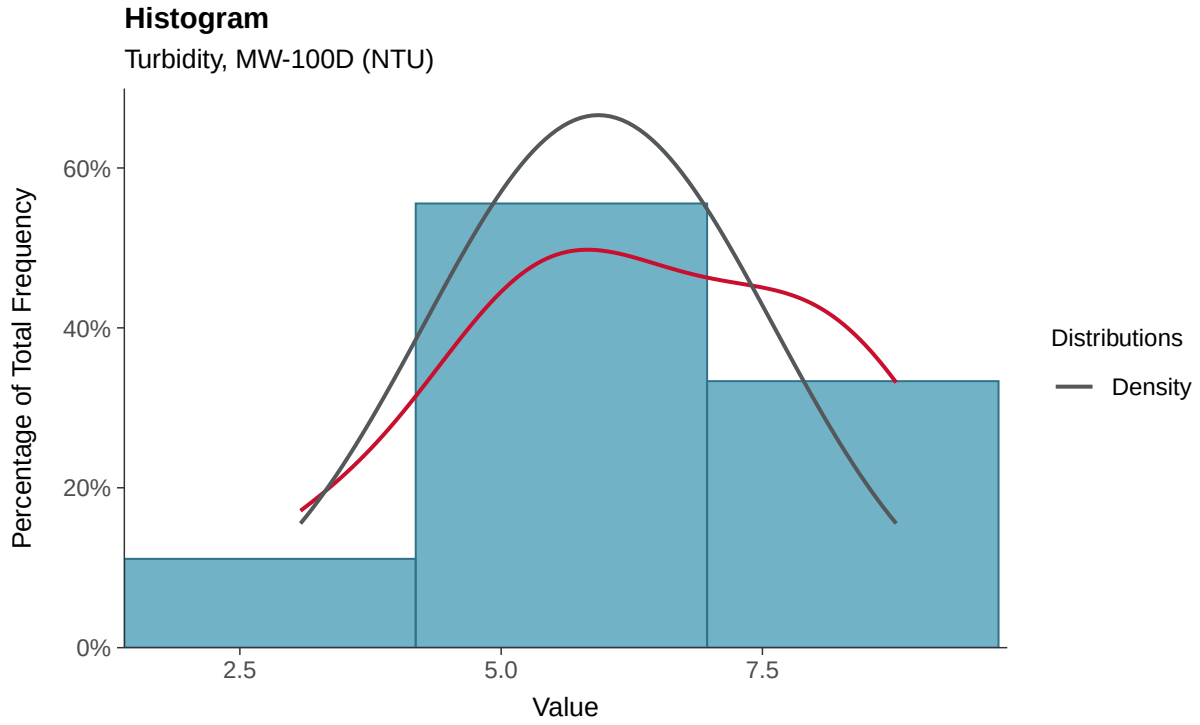
Conductivity, MW-100D (mS/cm)



Field Parameters: Turbidity, MW-100D

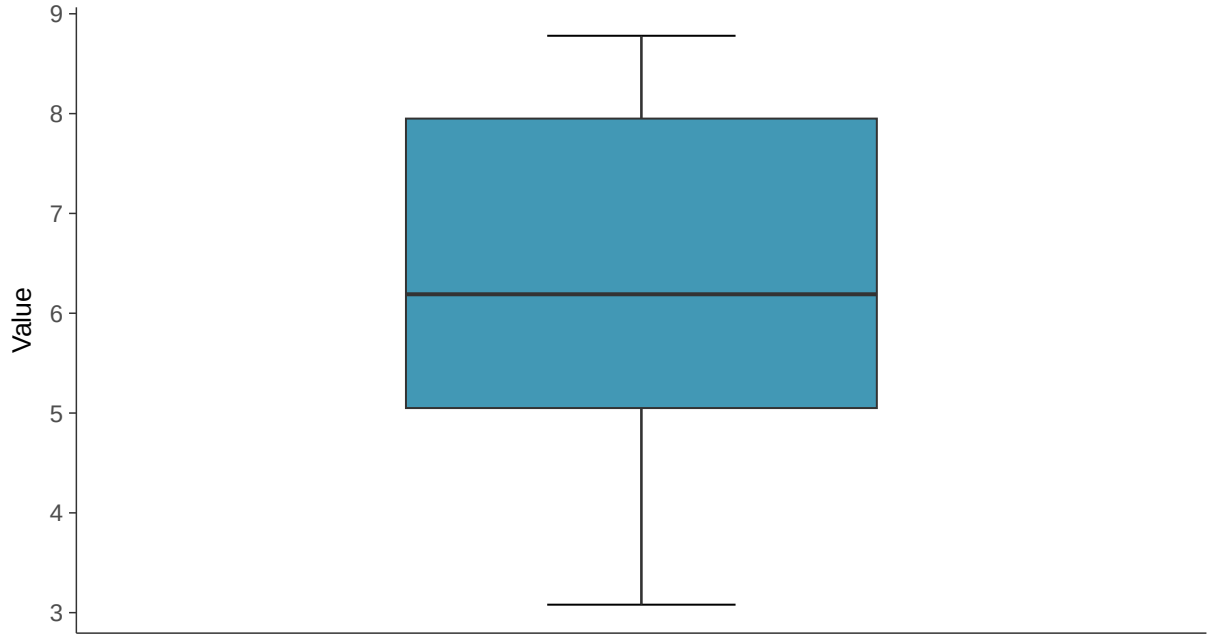
ID: 100D_3_26





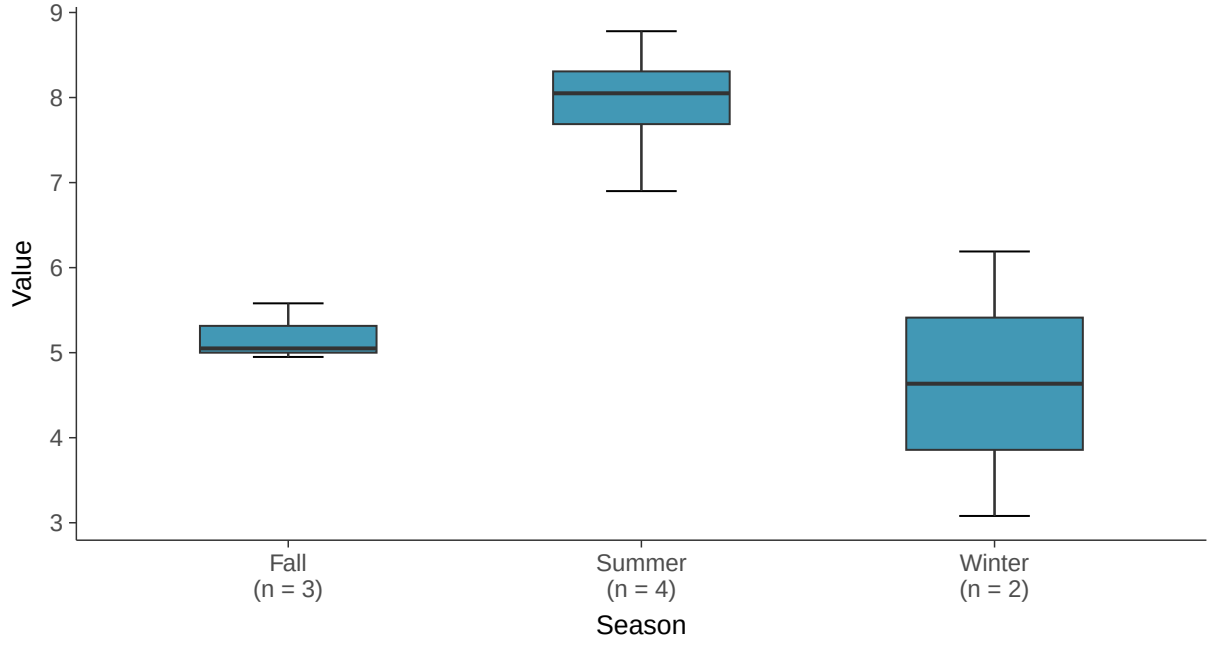
Boxplot

Turbidity, MW-100D (NTU)



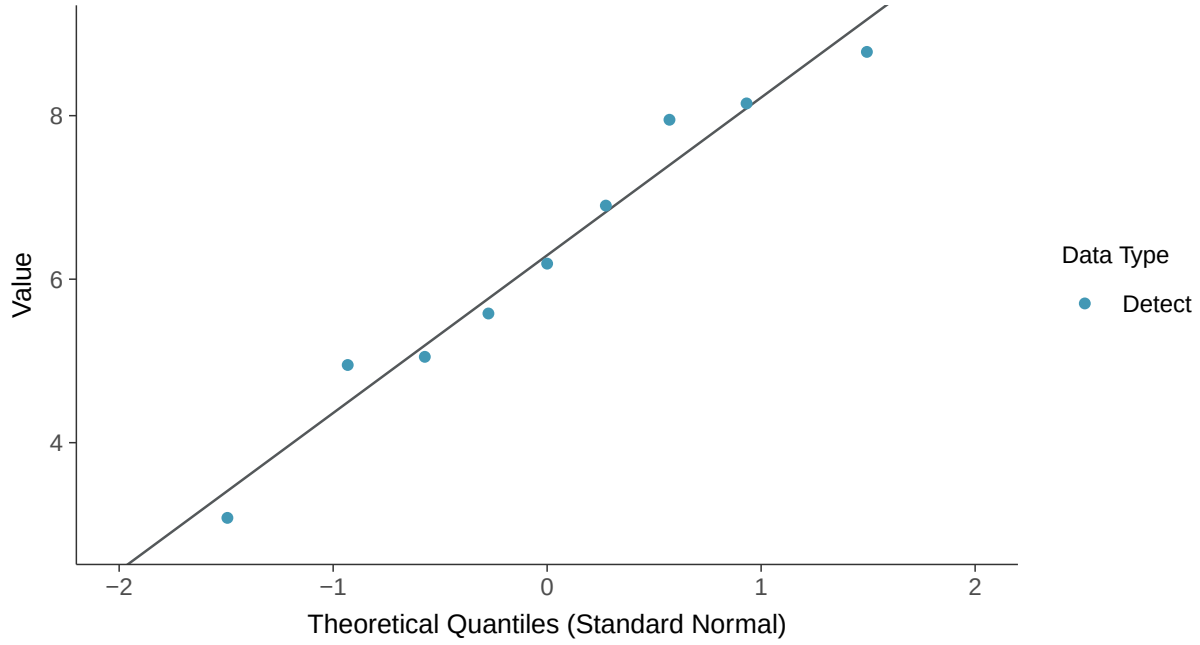
Boxplot by Season

Turbidity, MW-100D (NTU)



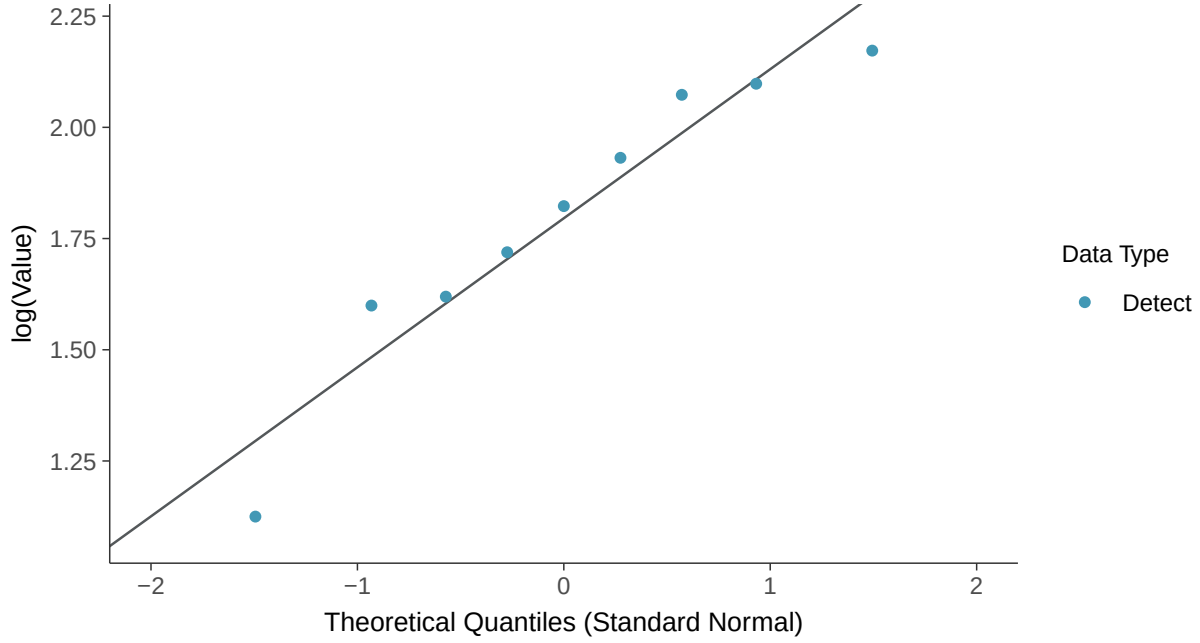
Normal Q-Q plot

Turbidity, MW-100D (NTU)



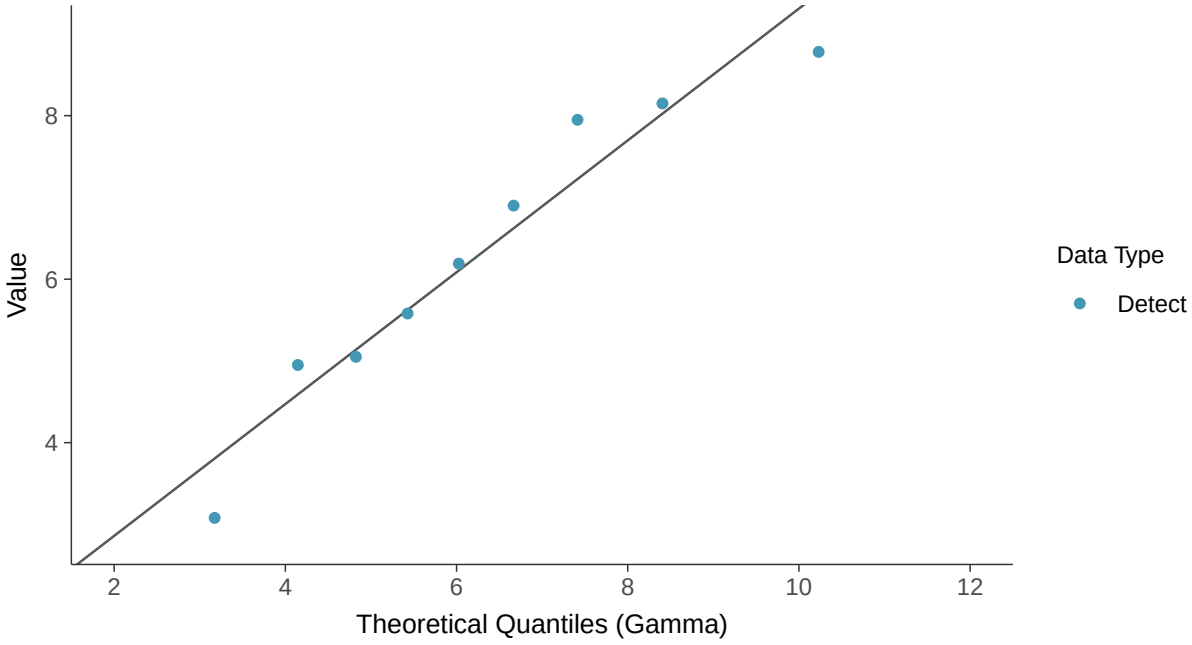
Lognormal Q-Q plot

Turbidity, MW-100D (NTU)



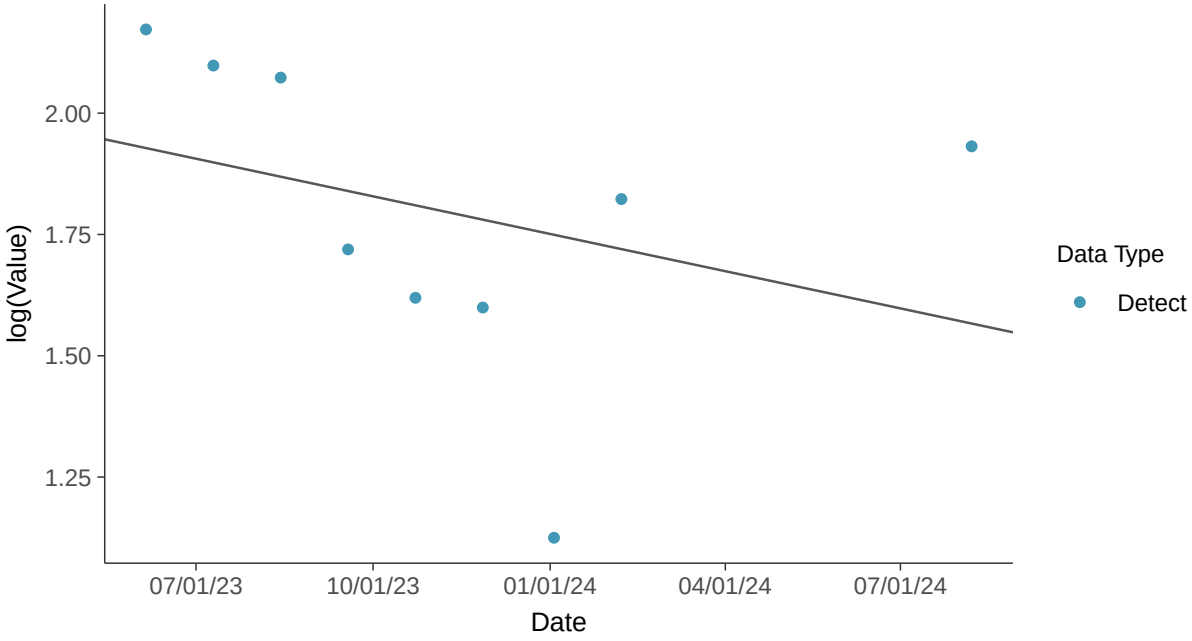
Gamma Q-Q plot

Turbidity, MW-100D (NTU)



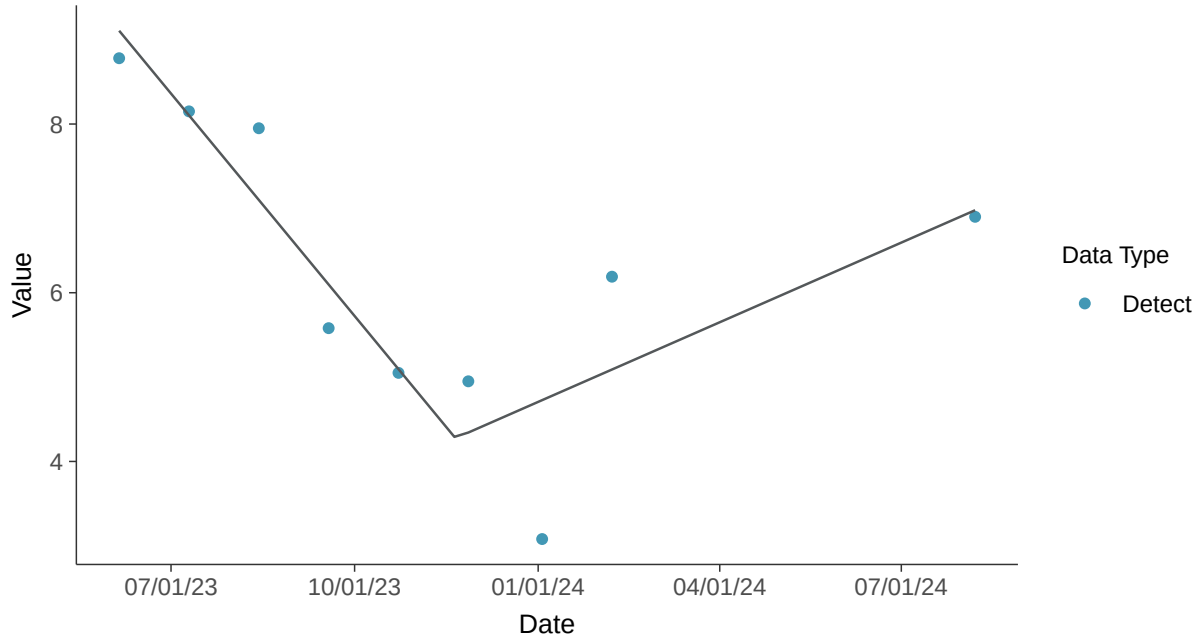
Trend Regression: Lognormal MLE

Turbidity, MW-100D (NTU)



Trend Regression: Piecewise Linear-Linear

Turbidity, MW-100D (NTU)

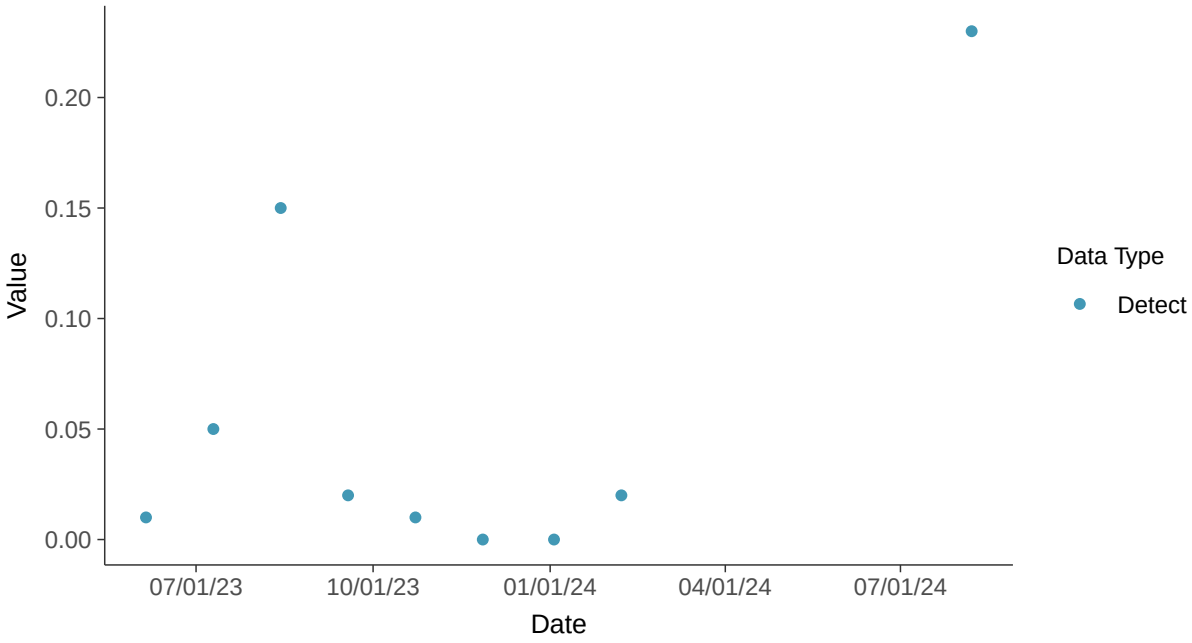


Field Parameters: Dissolved Oxygen, MW-100D

ID: 100D_3_27

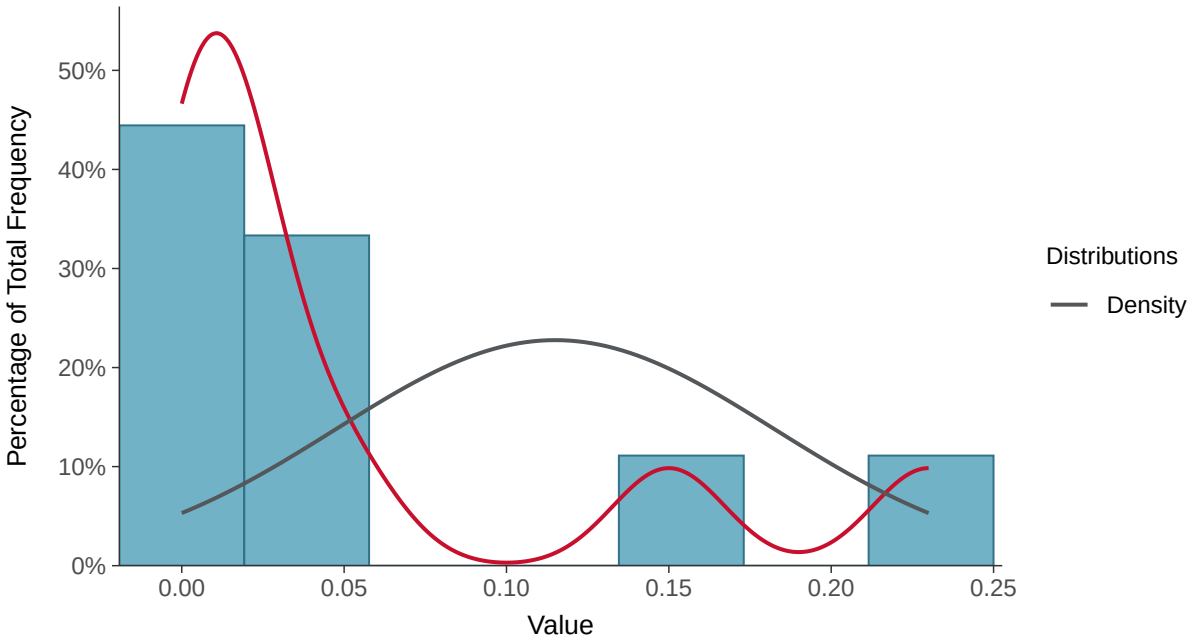
Scatter Plot

Dissolved Oxygen, MW-100D (mg/L)



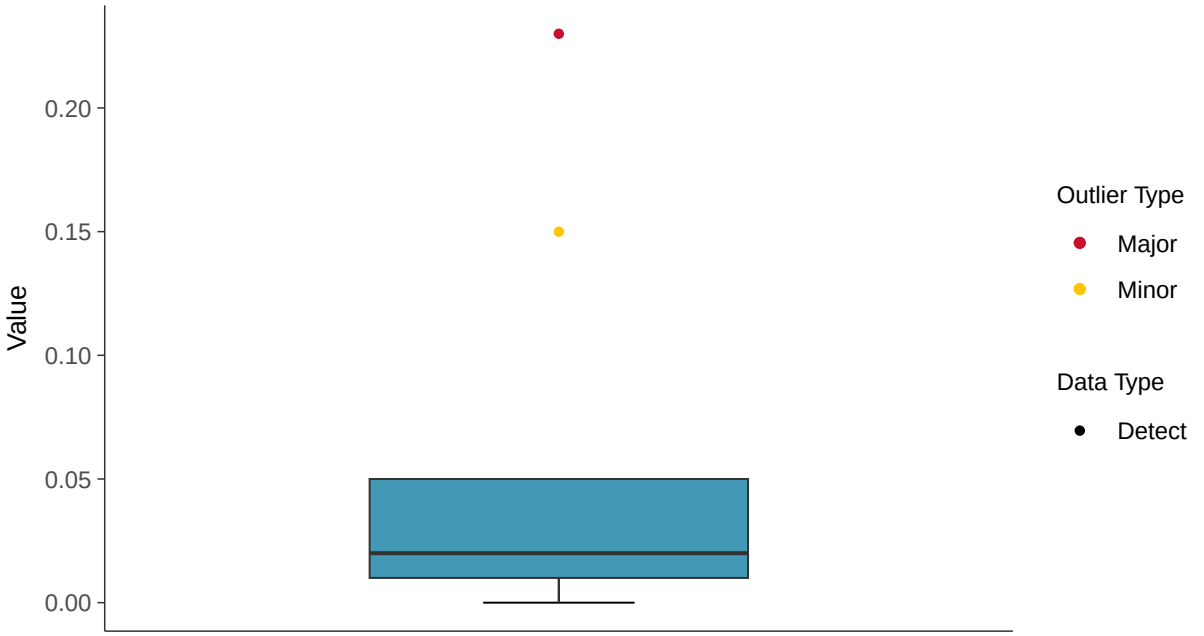
Histogram

Dissolved Oxygen, MW-100D (mg/L)



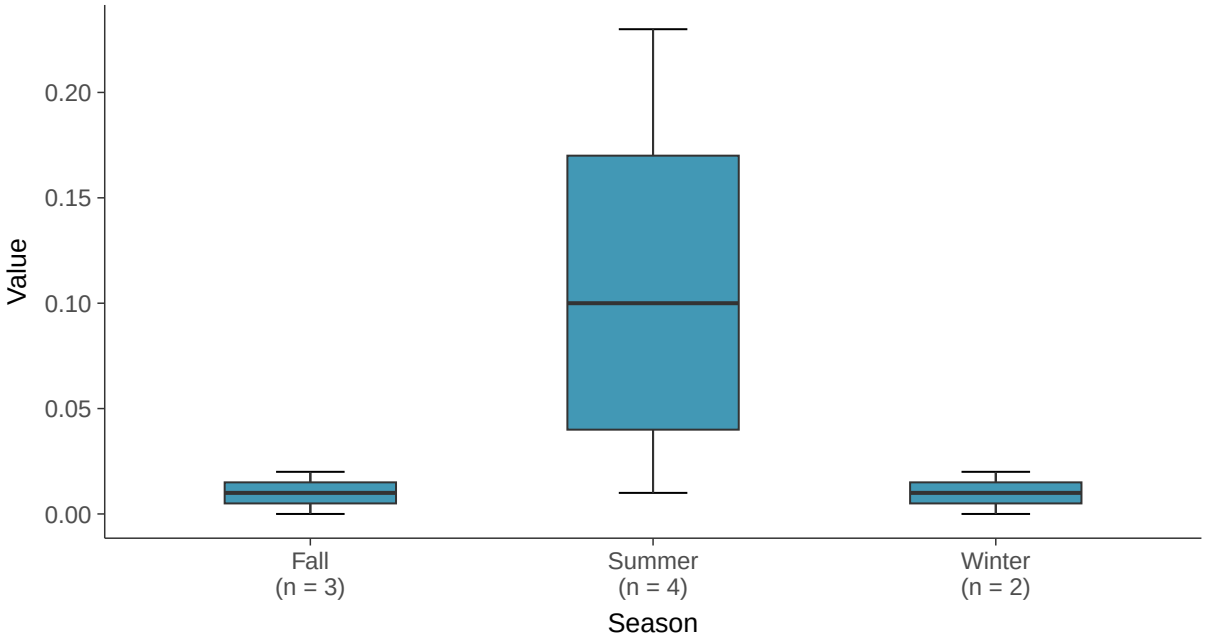
Boxplot

Dissolved Oxygen, MW-100D (mg/L)



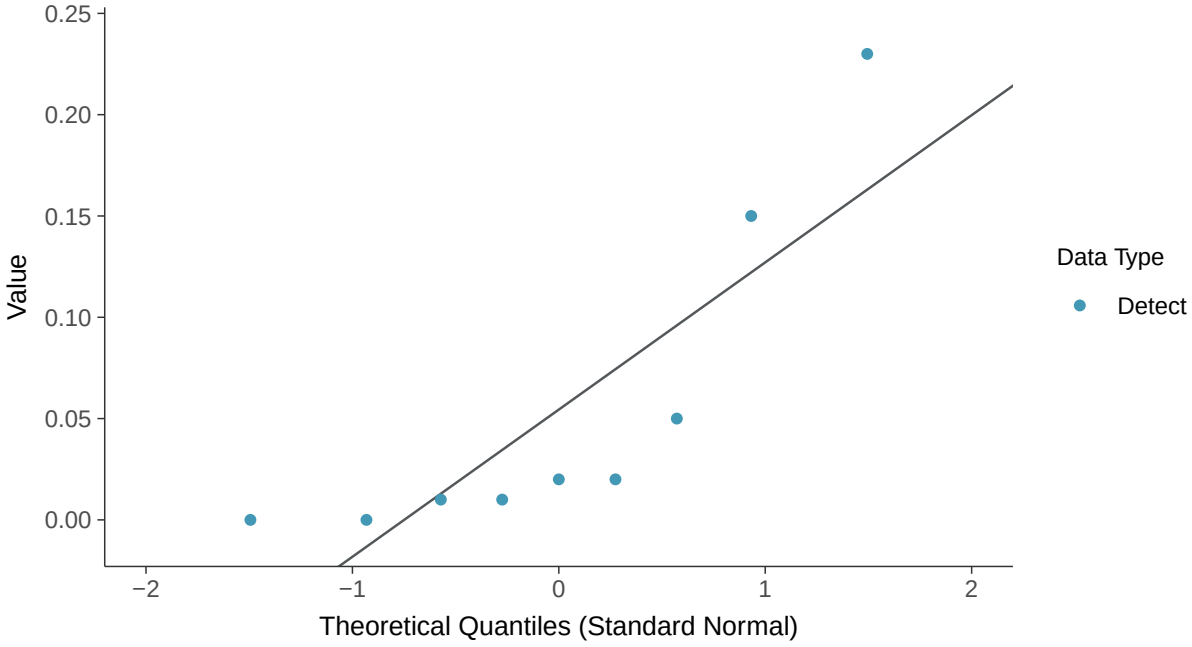
Boxplot by Season

Dissolved Oxygen, MW-100D (mg/L)



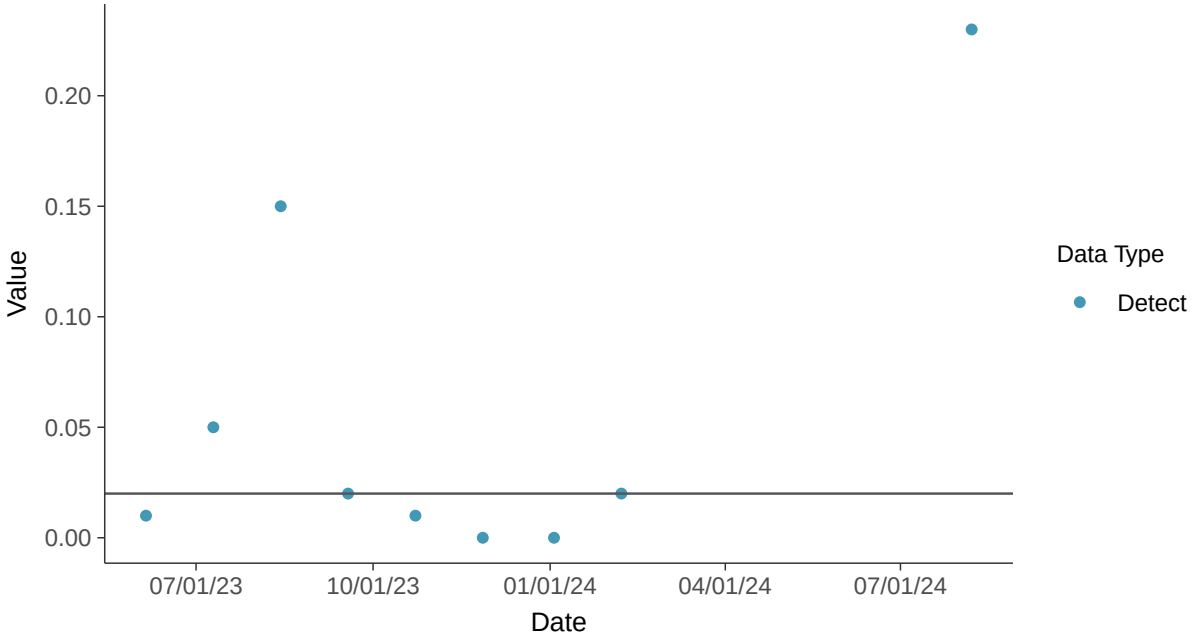
Normal Q-Q plot

Dissolved Oxygen, MW-100D (mg/L)



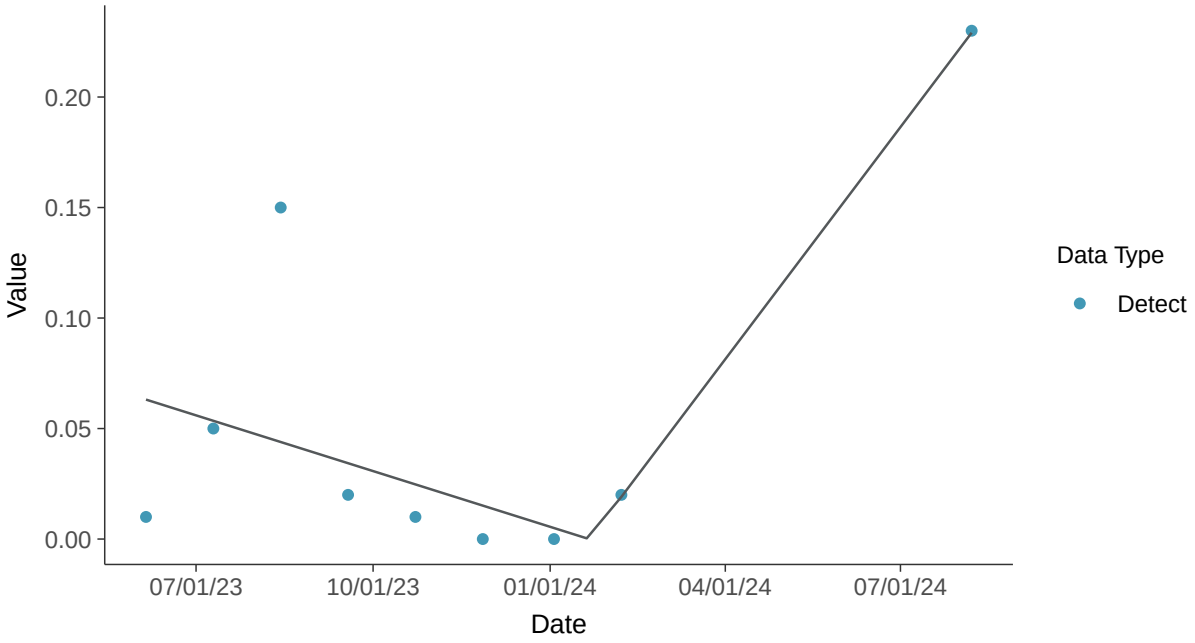
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Dissolved Oxygen, MW-100D (mg/L)



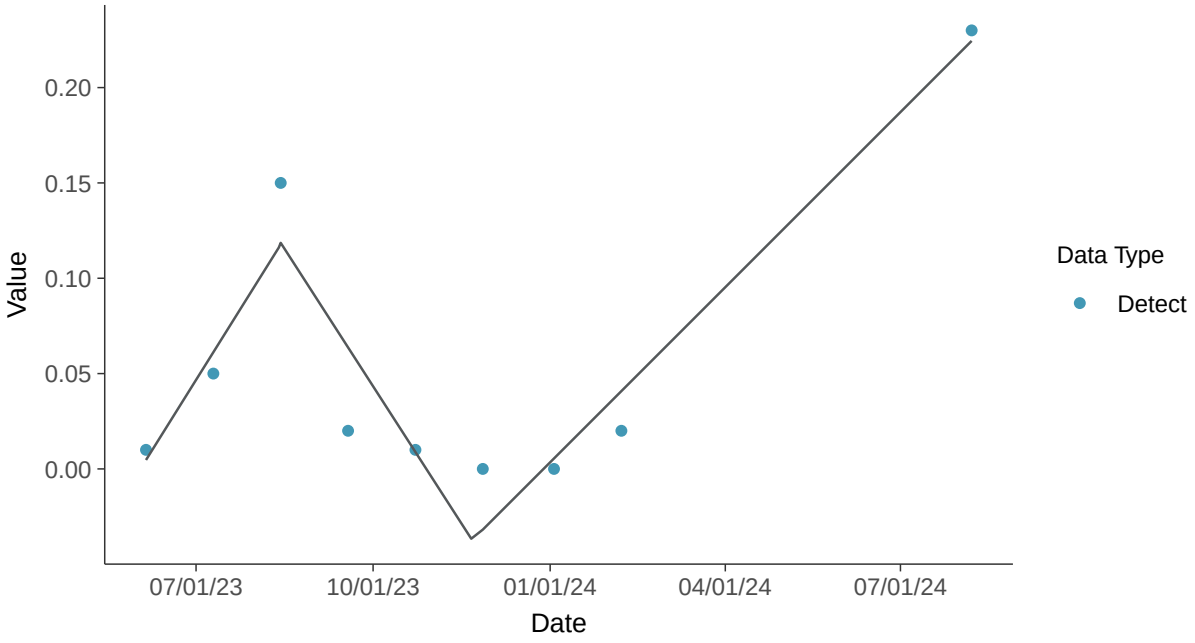
Trend Regression: Piecewise Linear-Linear

Dissolved Oxygen, MW-100D (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Dissolved Oxygen, MW-100D (mg/L)

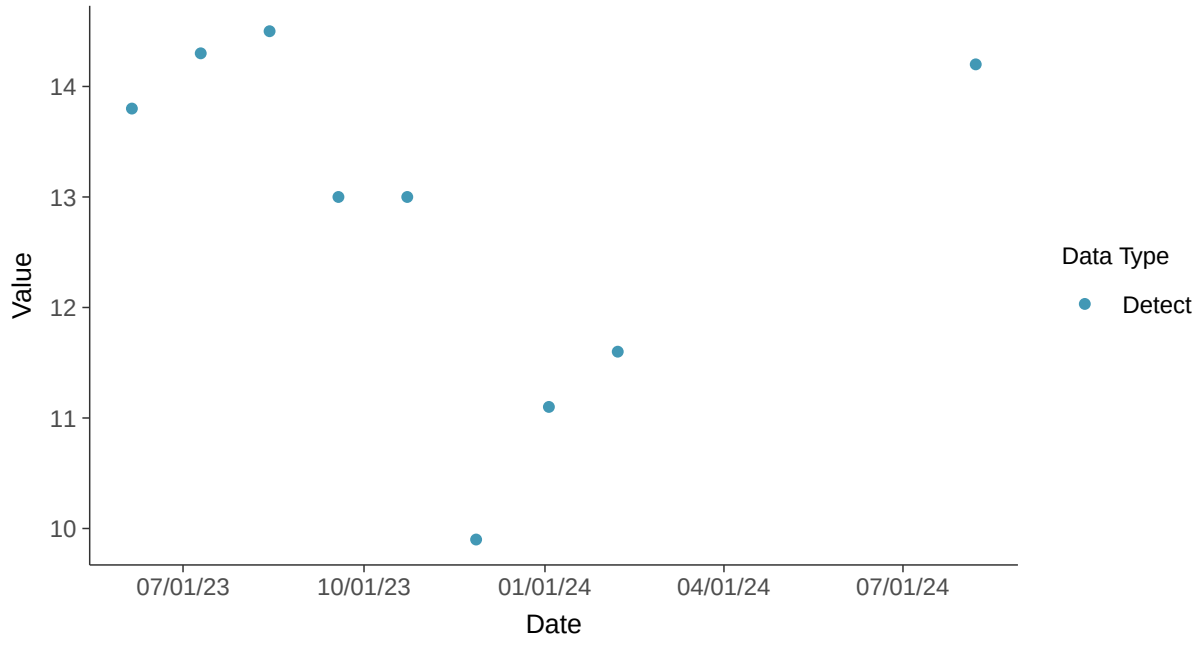


Field Parameters: Temperature, MW-100D

ID: 100D_3_28

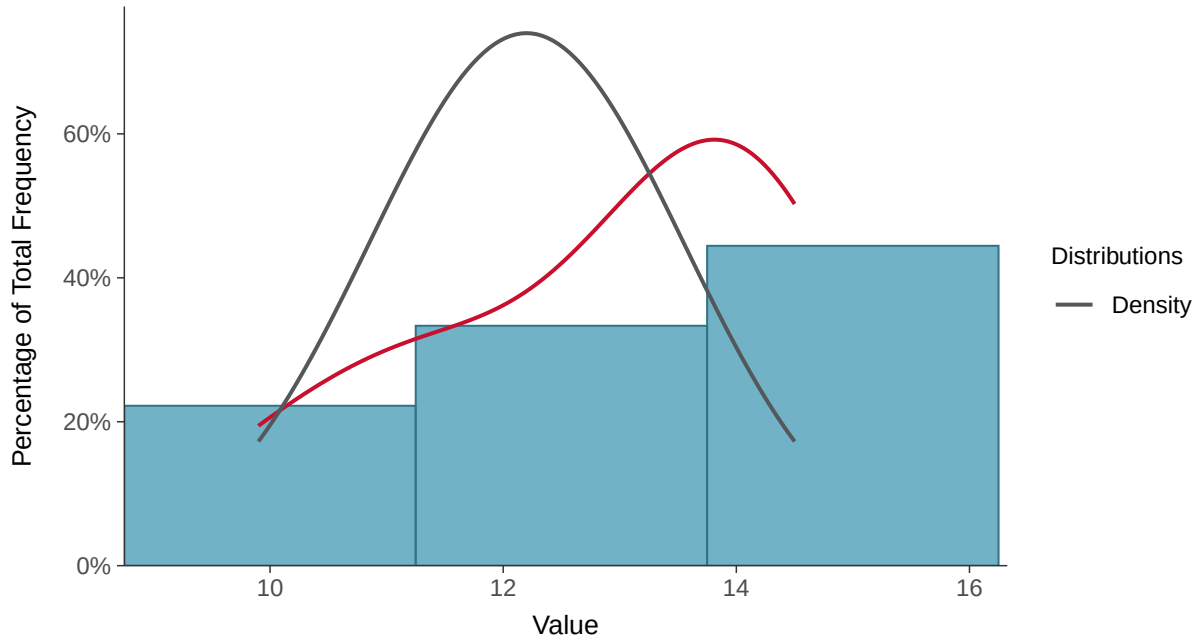
Scatter Plot

Temperature, MW-100D (°C)



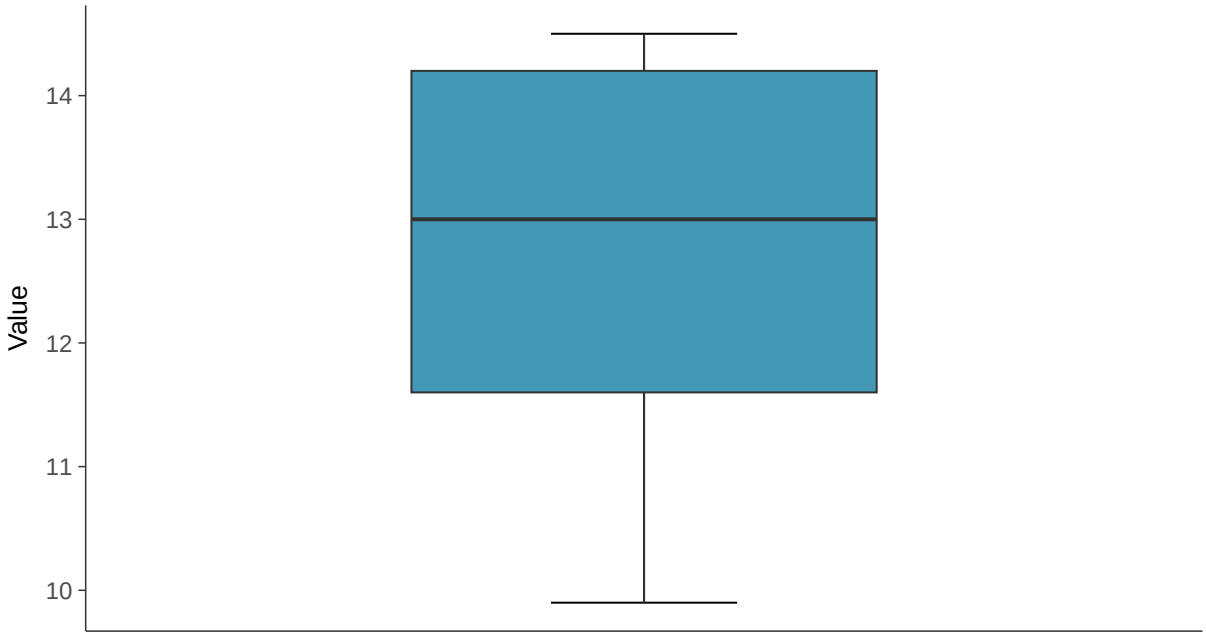
Histogram

Temperature, MW-100D (°C)



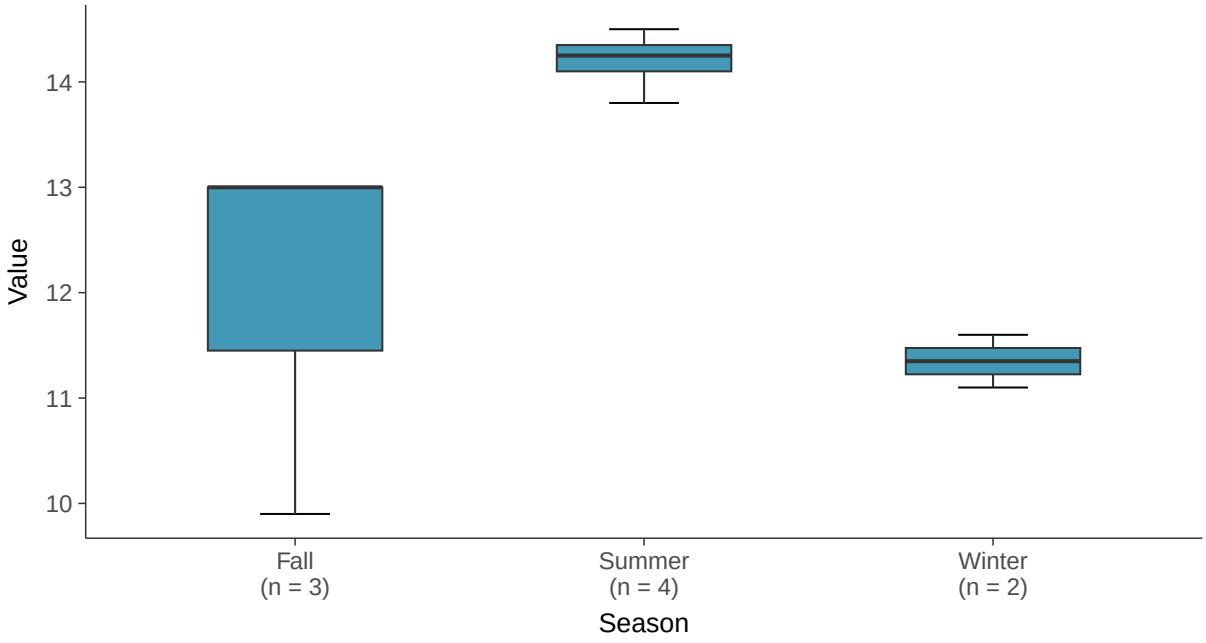
Boxplot

Temperature, MW-100D (°C)



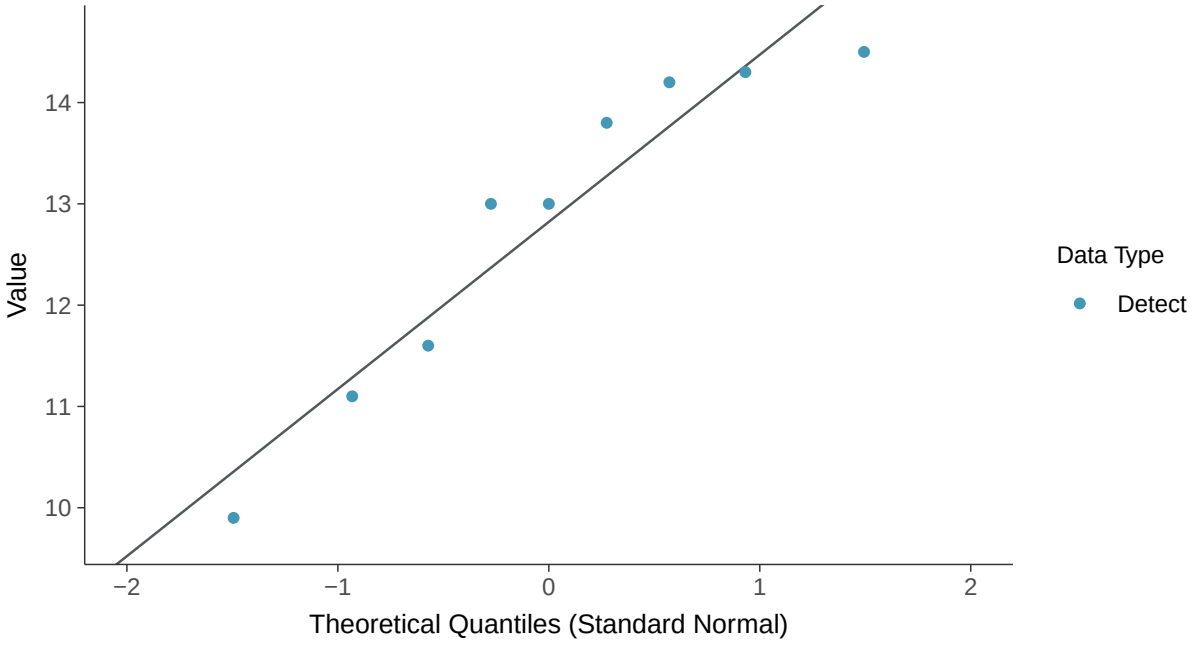
Boxplot by Season

Temperature, MW-100D (°C)



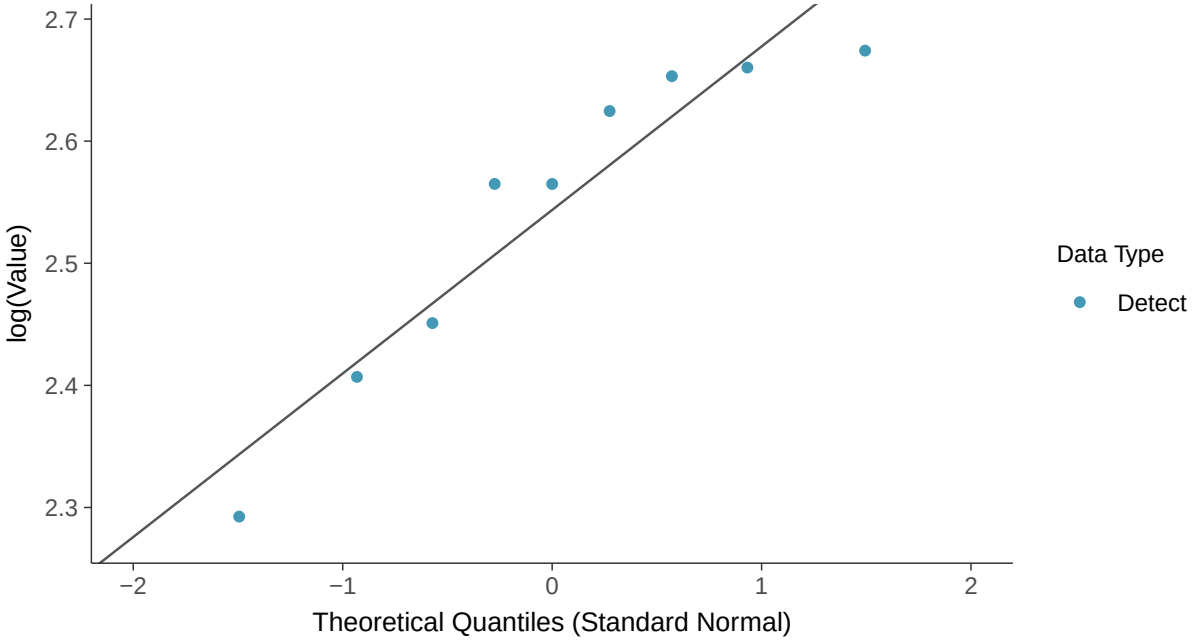
Normal Q-Q plot

Temperature, MW-100D (°C)



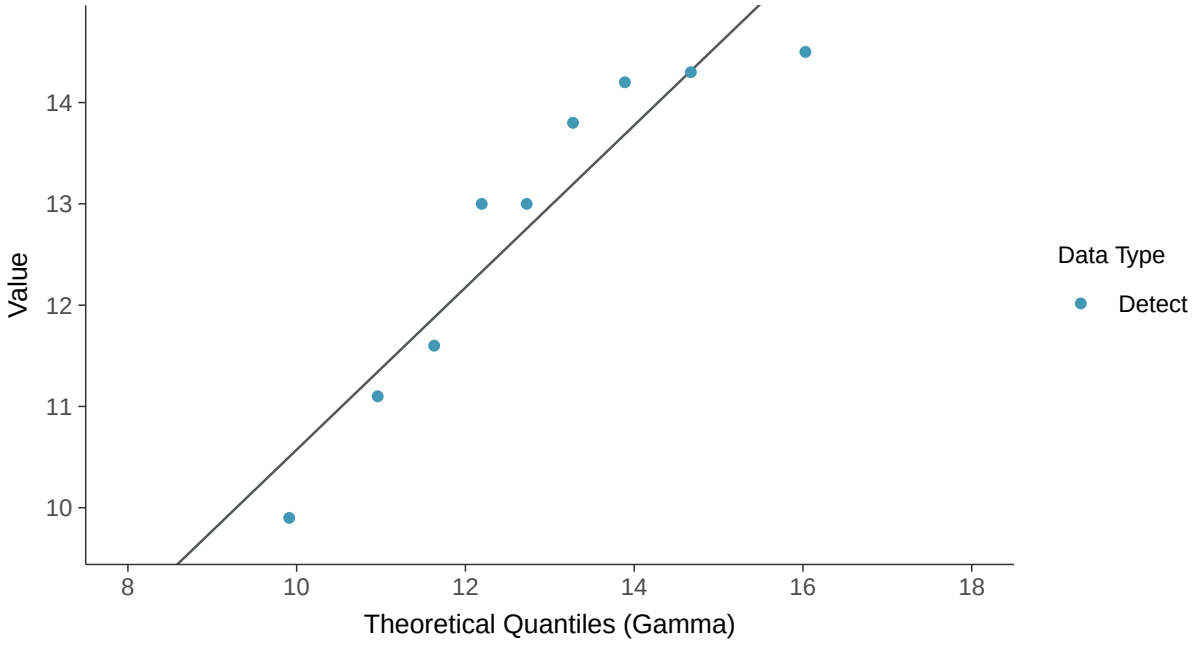
Lognormal Q-Q plot

Temperature, MW-100D (°C)



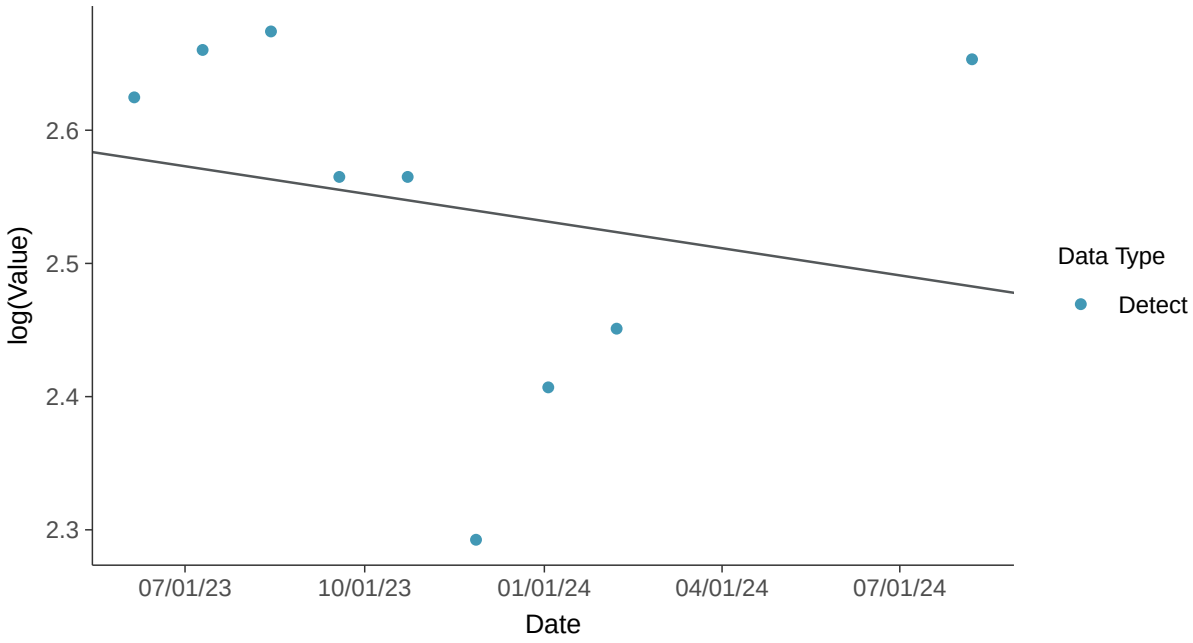
Gamma Q-Q plot

Temperature, MW-100D (°C)



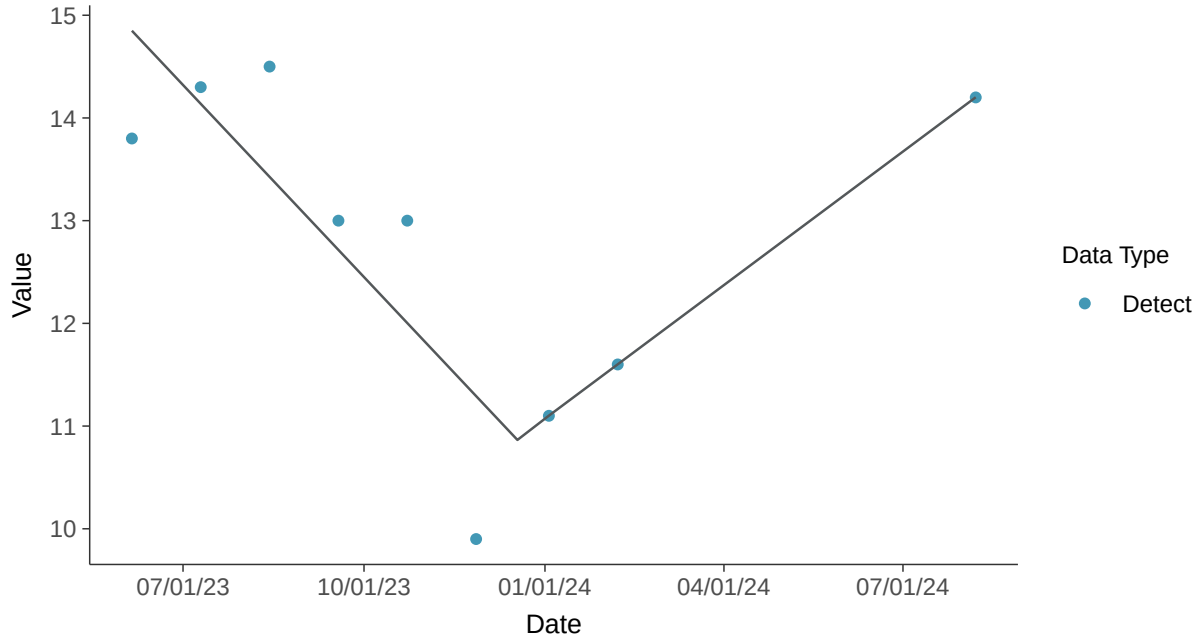
Trend Regression: Lognormal MLE

Temperature, MW-100D (°C)



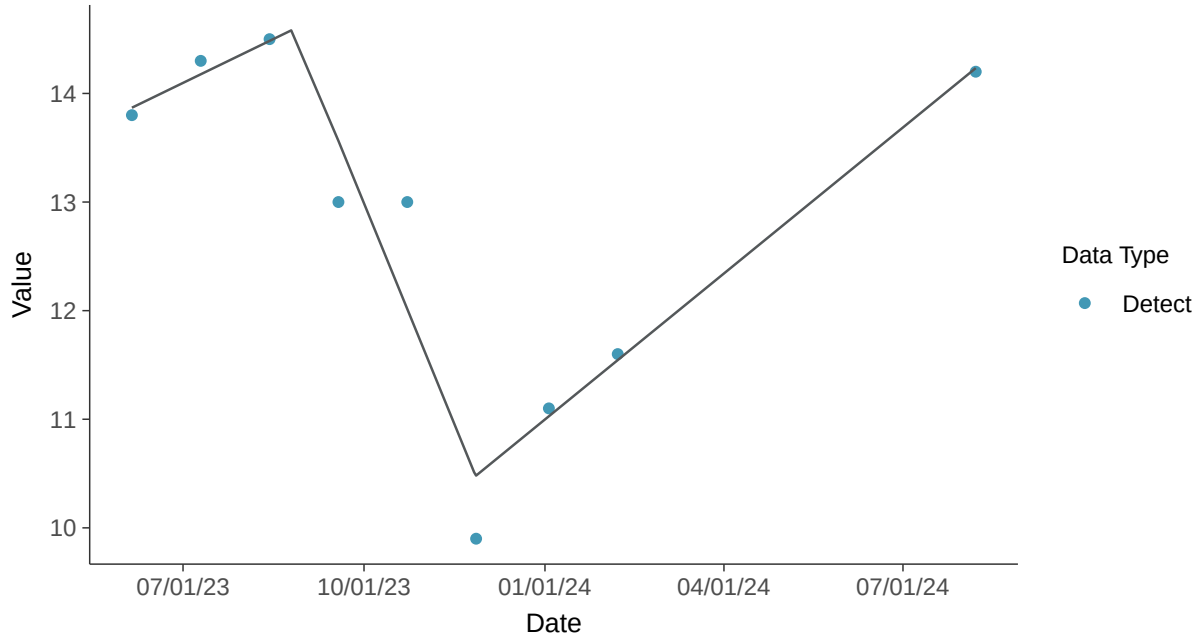
Trend Regression: Piecewise Linear-Linear

Temperature, MW-100D (°C)



Trend Regression: Piecewise Linear-Linear-Linear

Temperature, MW-100D (°C)

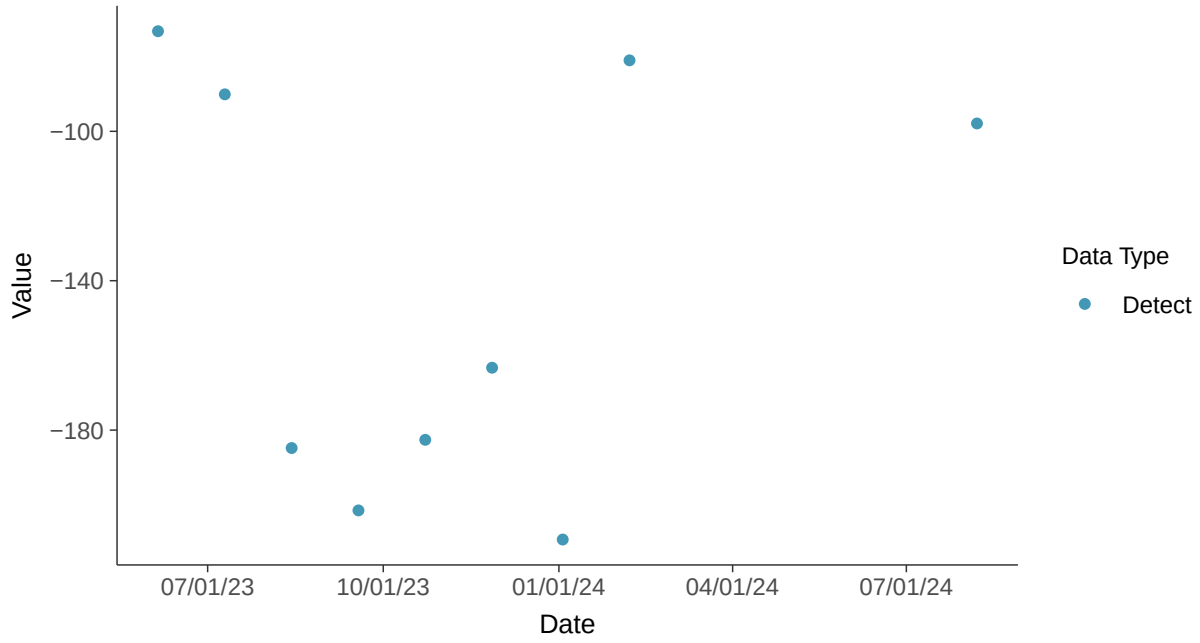


Field Parameters: Oxidation Reduction Potential, MW-100D

ID: 100D_3_29

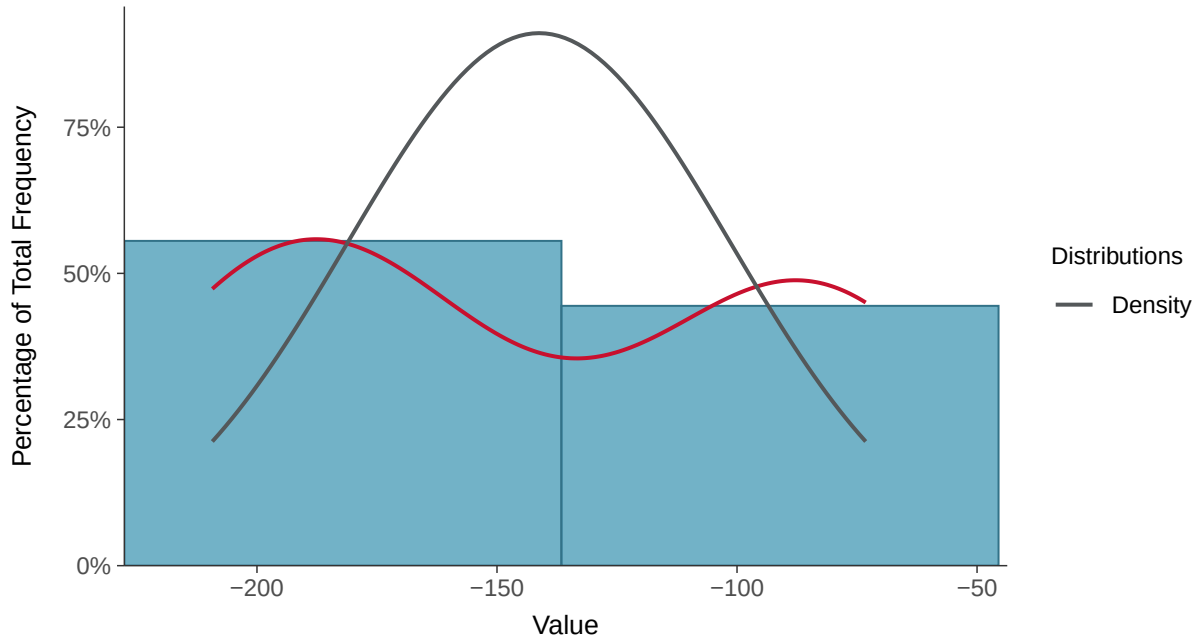
Scatter Plot

Oxidation Reduction Potential, MW-100D (mV)



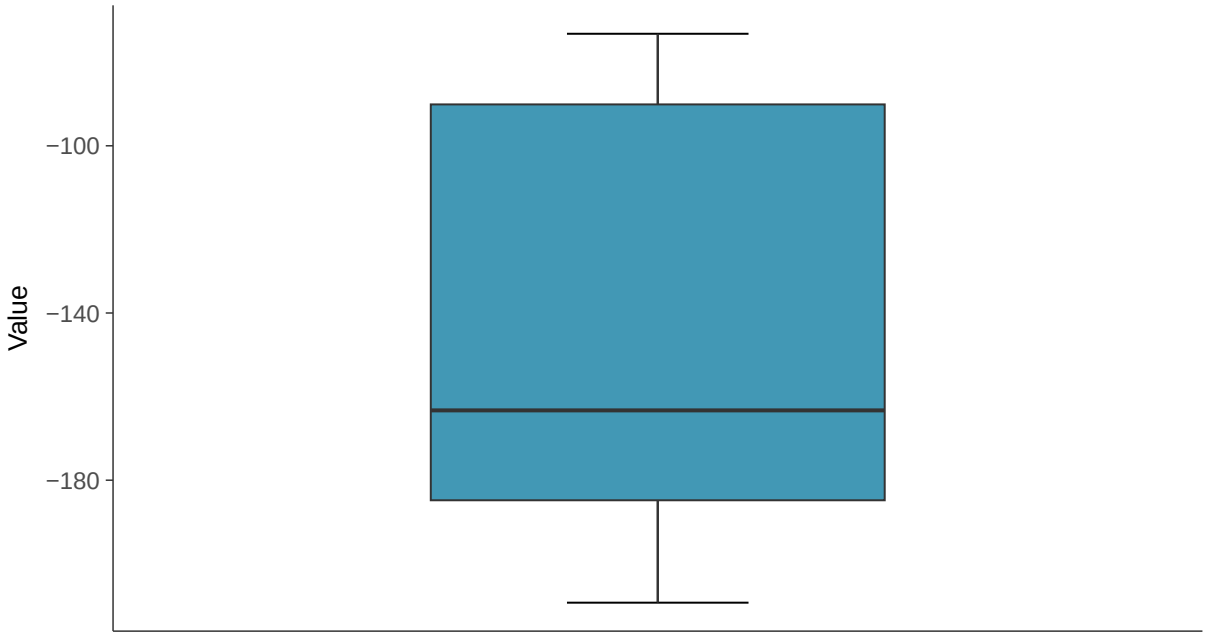
Histogram

Oxidation Reduction Potential, MW-100D (mV)



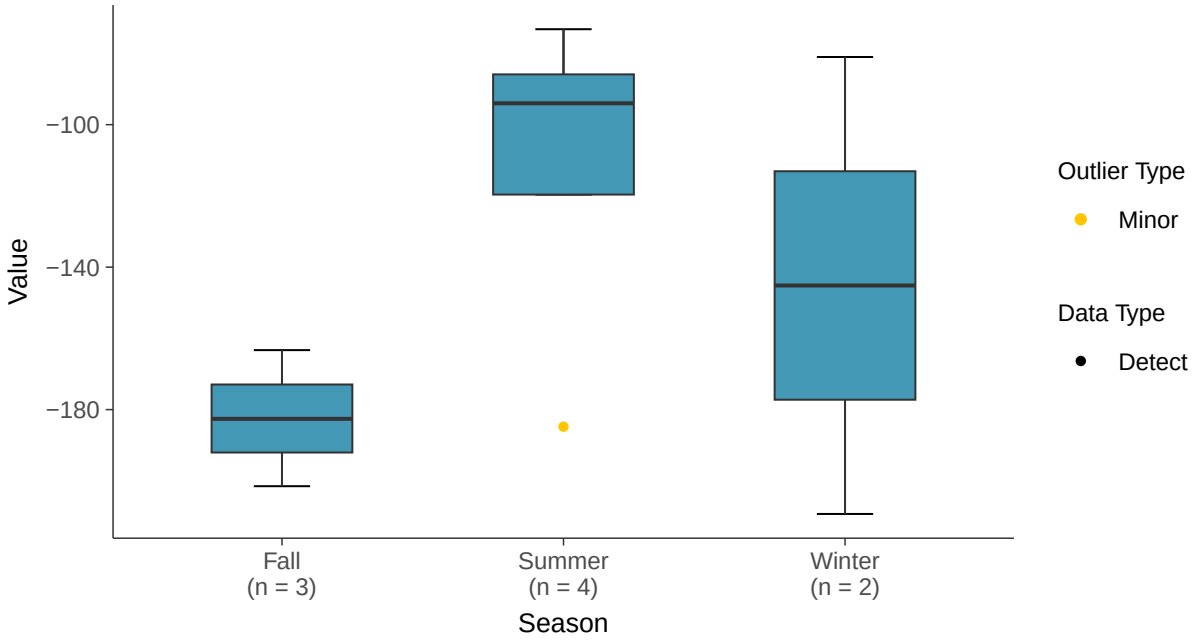
Boxplot

Oxidation Reduction Potential, MW-100D (mV)



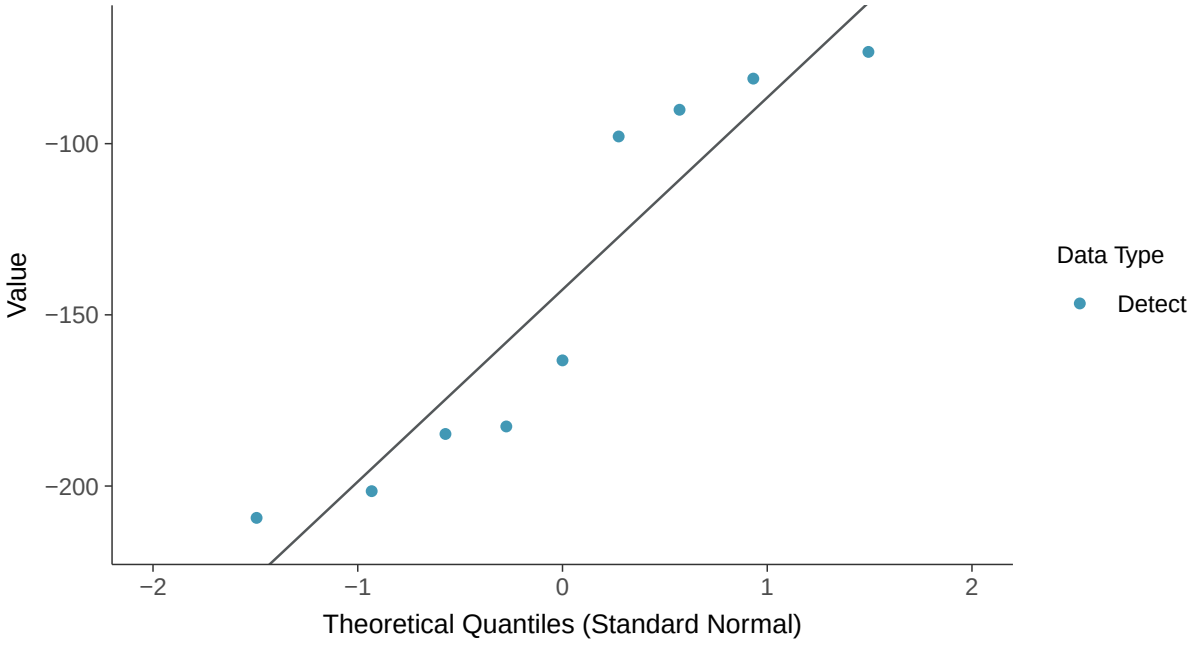
Boxplot by Season

Oxidation Reduction Potential, MW-100D (mV)



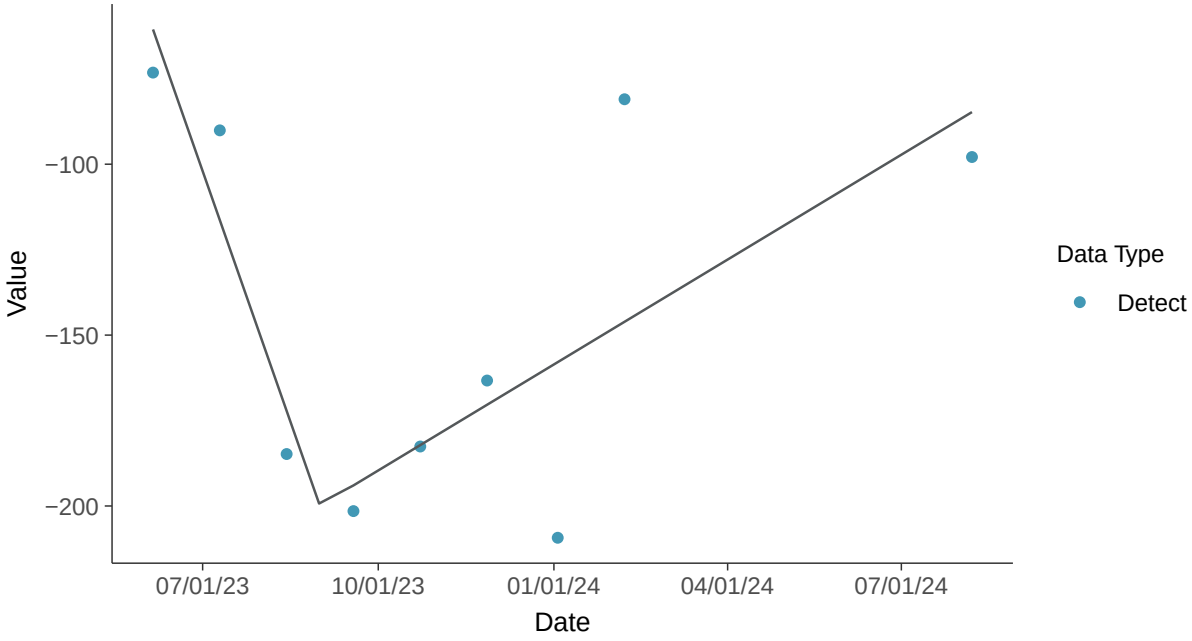
Normal Q-Q plot

Oxidation Reduction Potential, MW-100D (mV)



Trend Regression: Piecewise Linear-Linear

Oxidation Reduction Potential, MW-100D (mV)

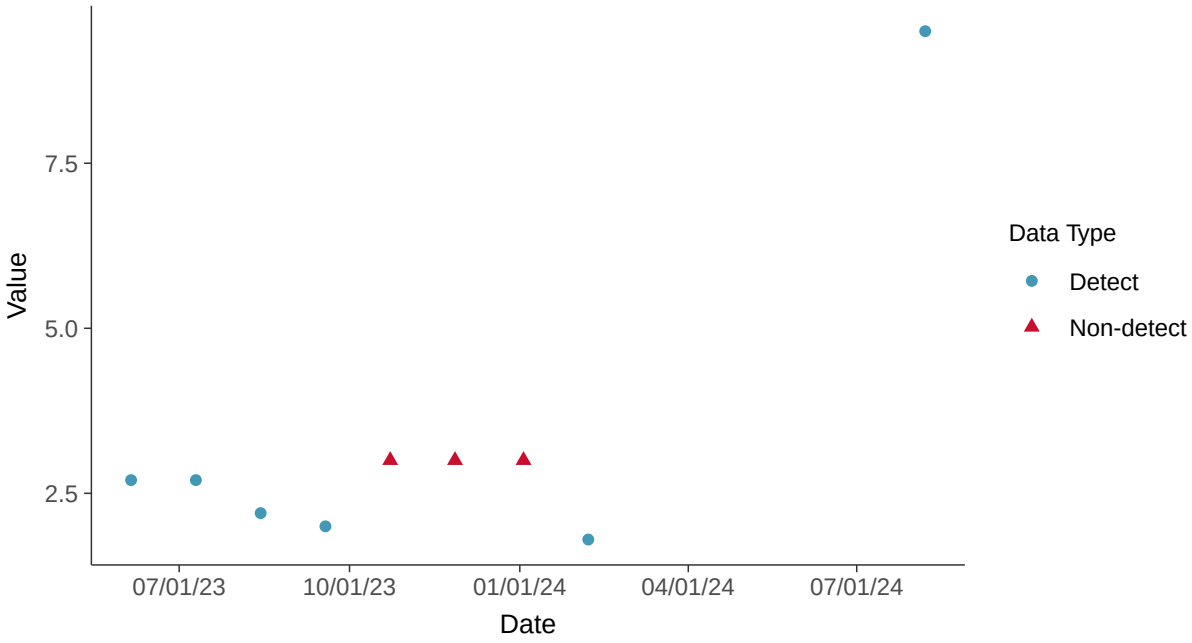


Other: Total Suspended Solids, MW-100D

ID: 100D_4_30

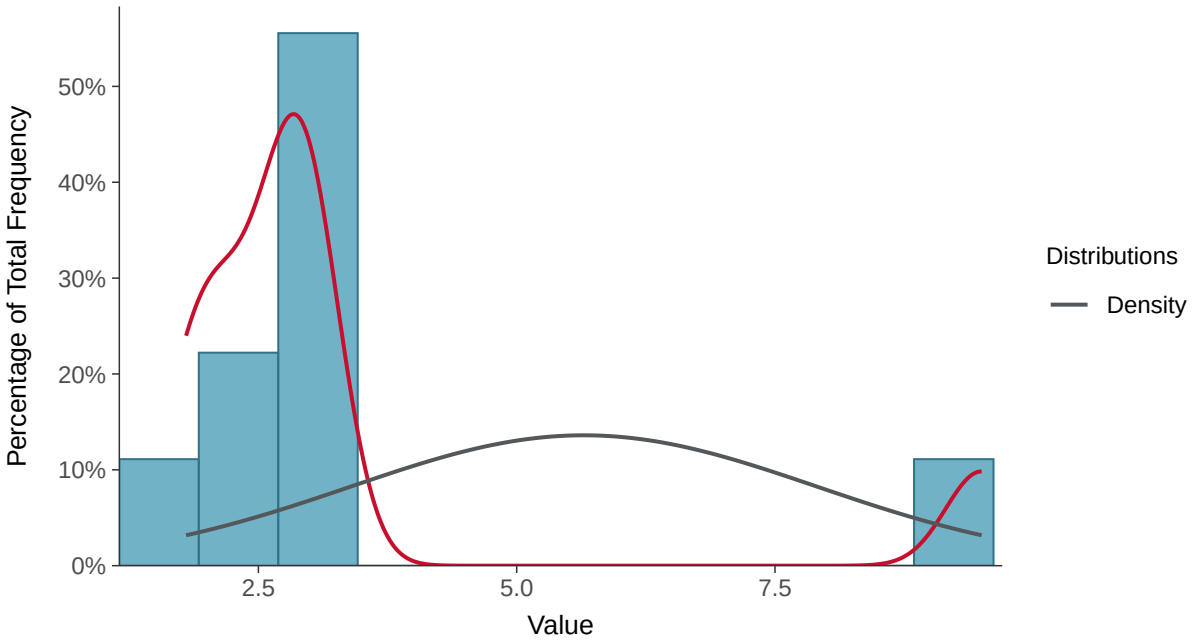
Scatter Plot

Total Suspended Solids, MW-100D (mg/L)



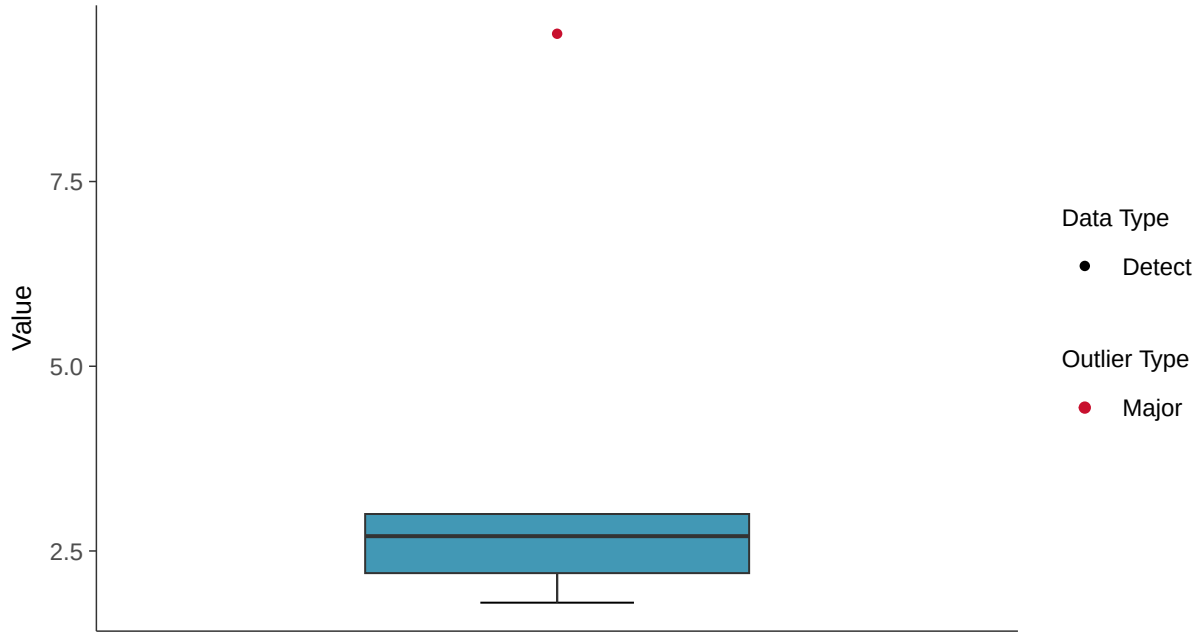
Histogram

Total Suspended Solids, MW-100D (mg/L)



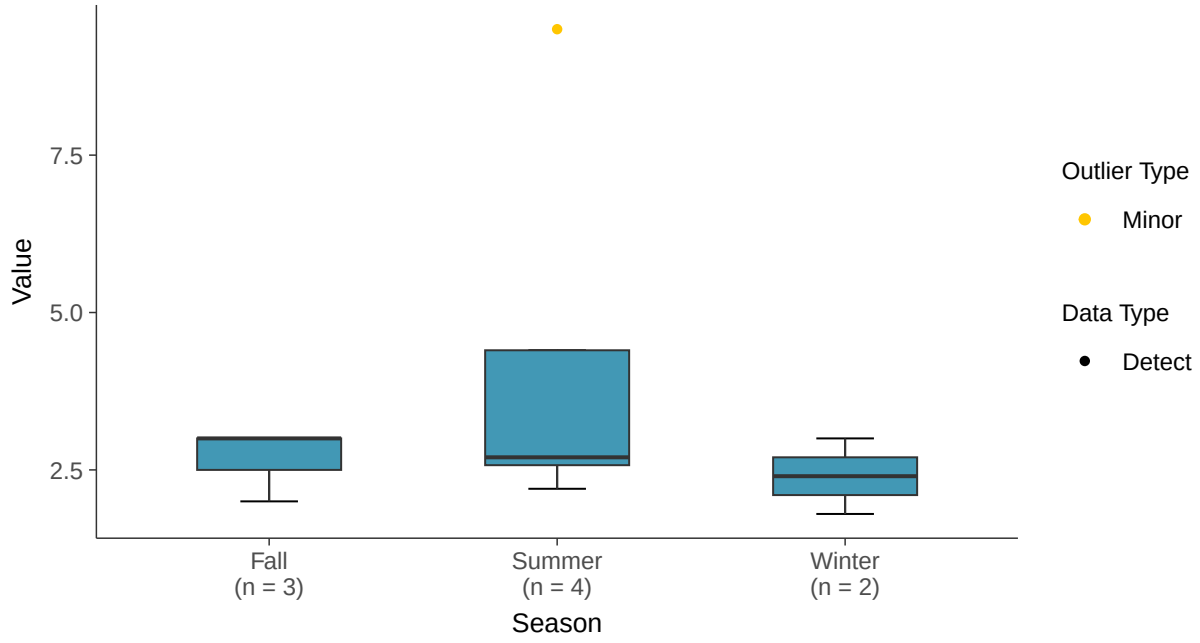
Boxplot

Total Suspended Solids, MW-100D (mg/L)



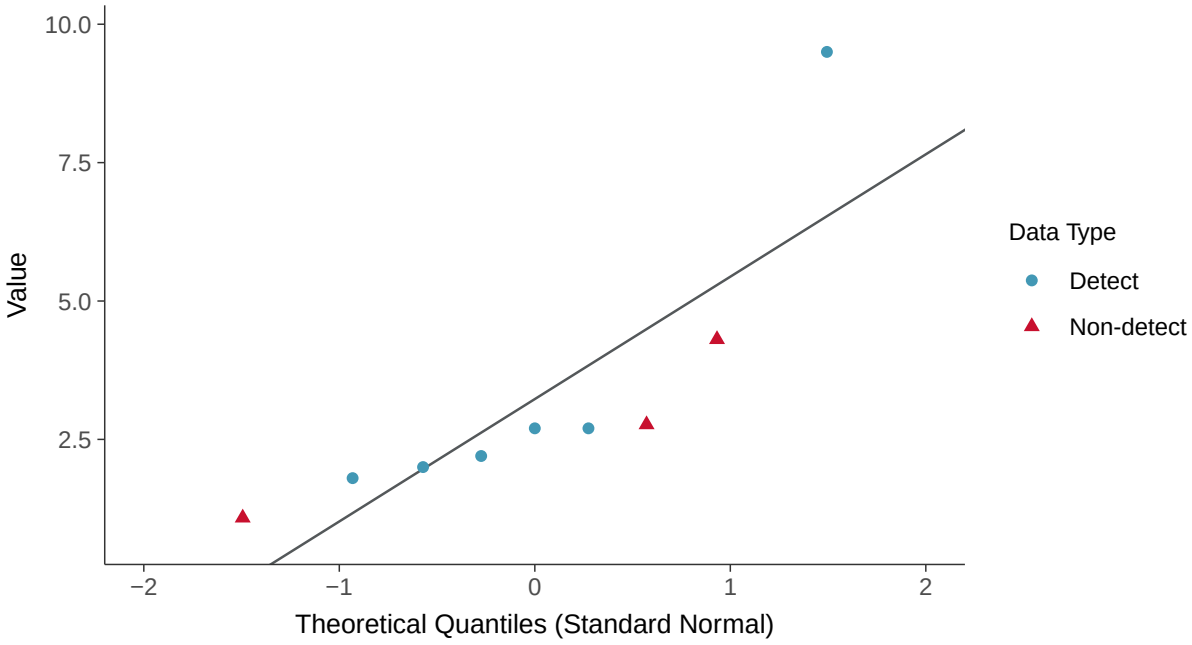
Boxplot by Season

Total Suspended Solids, MW-100D (mg/L)



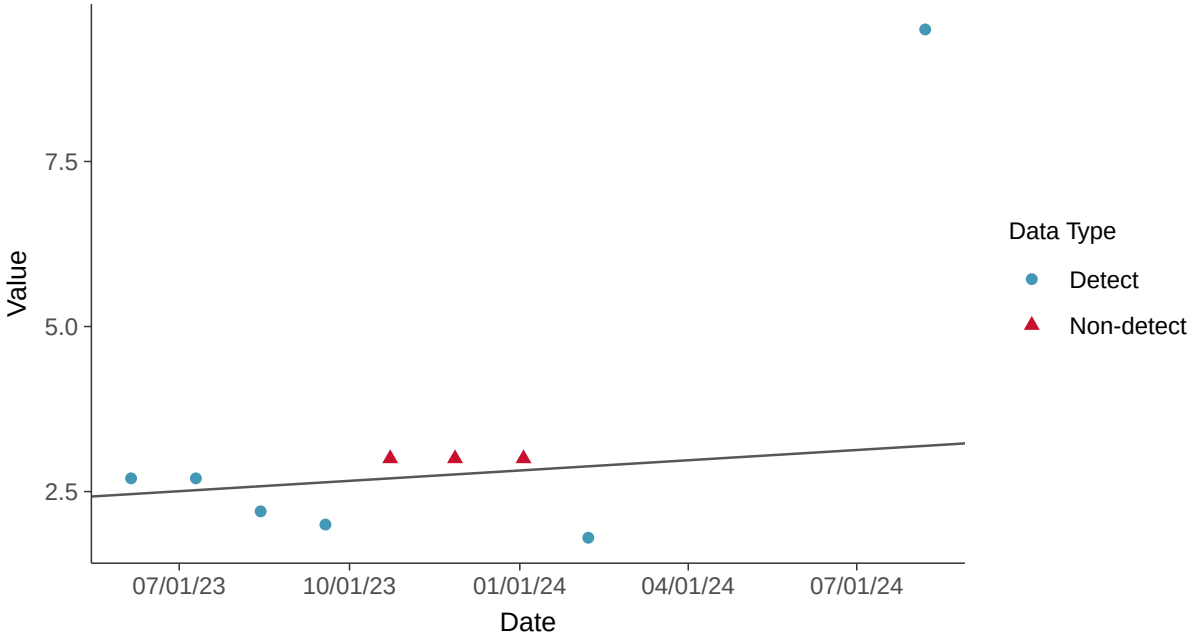
Normal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-100D (mg/L)



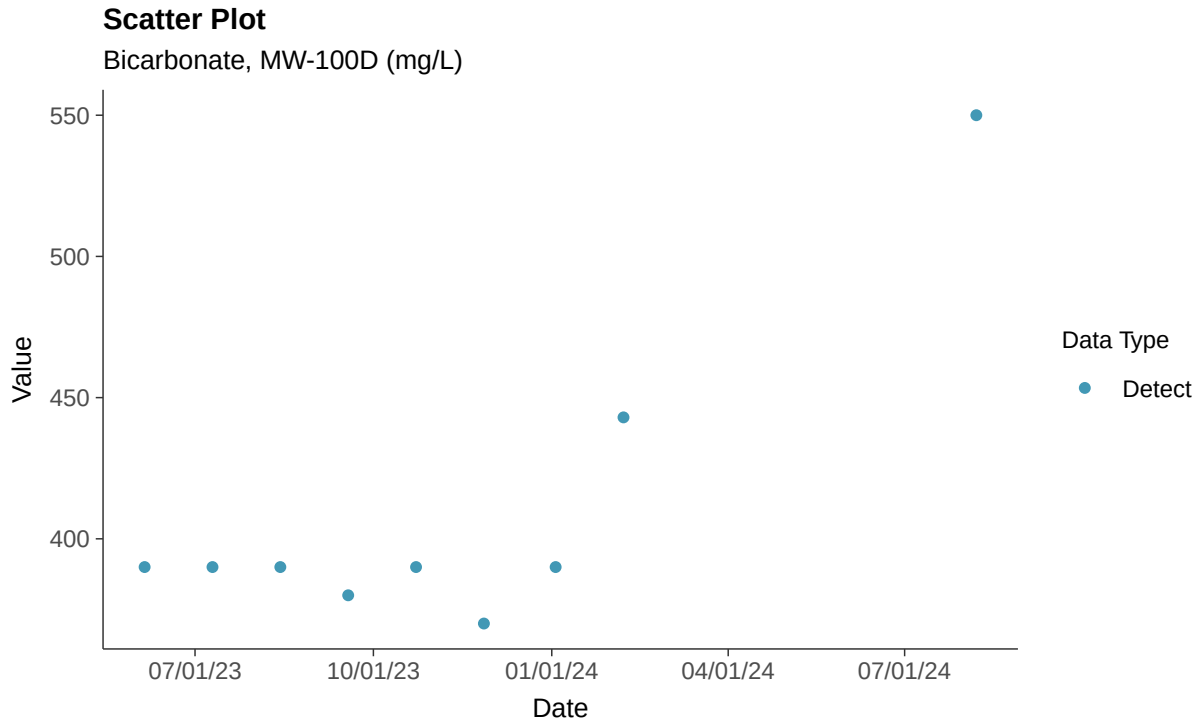
Trend Regression: Mann-Kendall/Theil-Sen Estimate

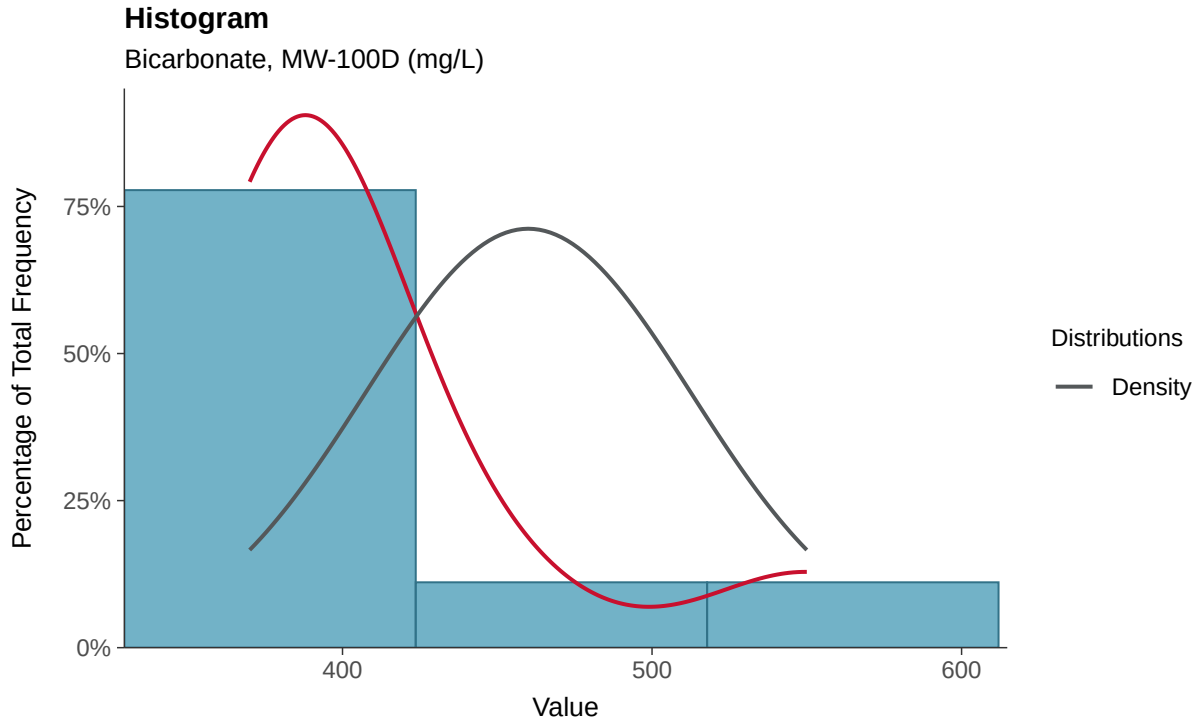
Total Suspended Solids, MW-100D (mg/L)



Other: Bicarbonate, MW-100D

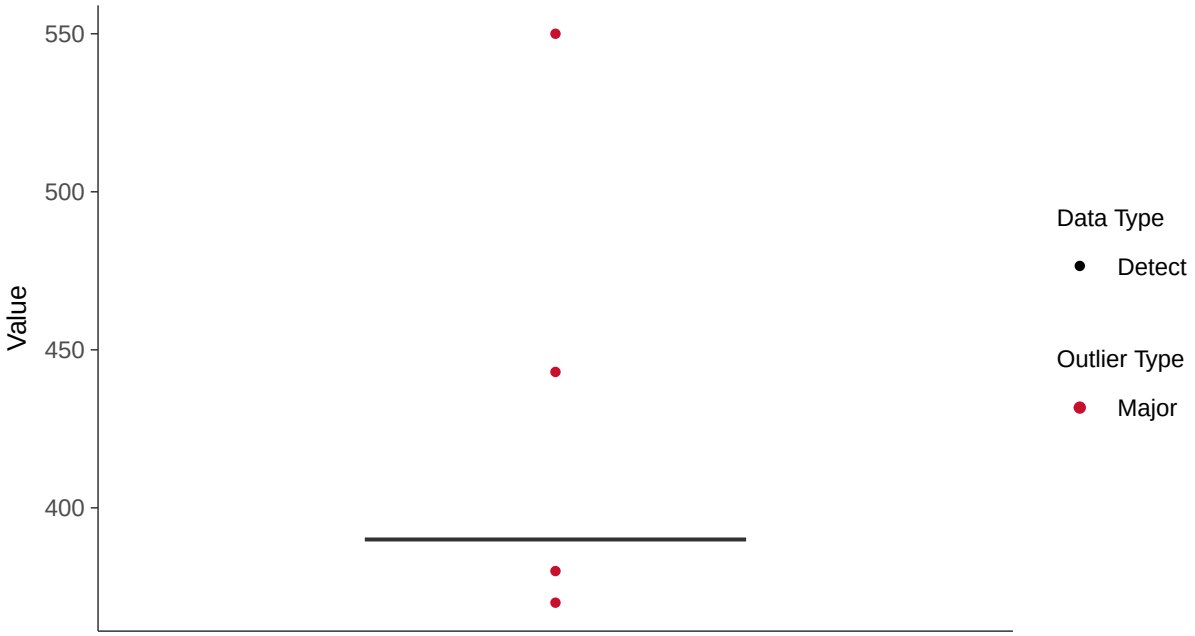
ID: 100D_4_31





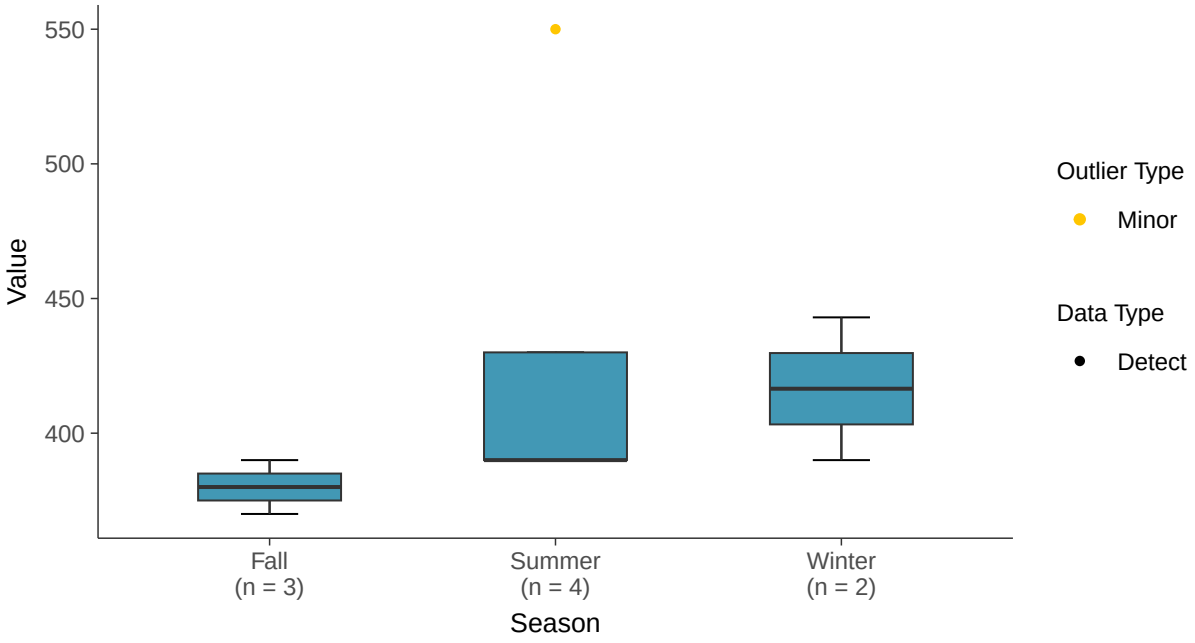
Boxplot

Bicarbonate, MW-100D (mg/L)



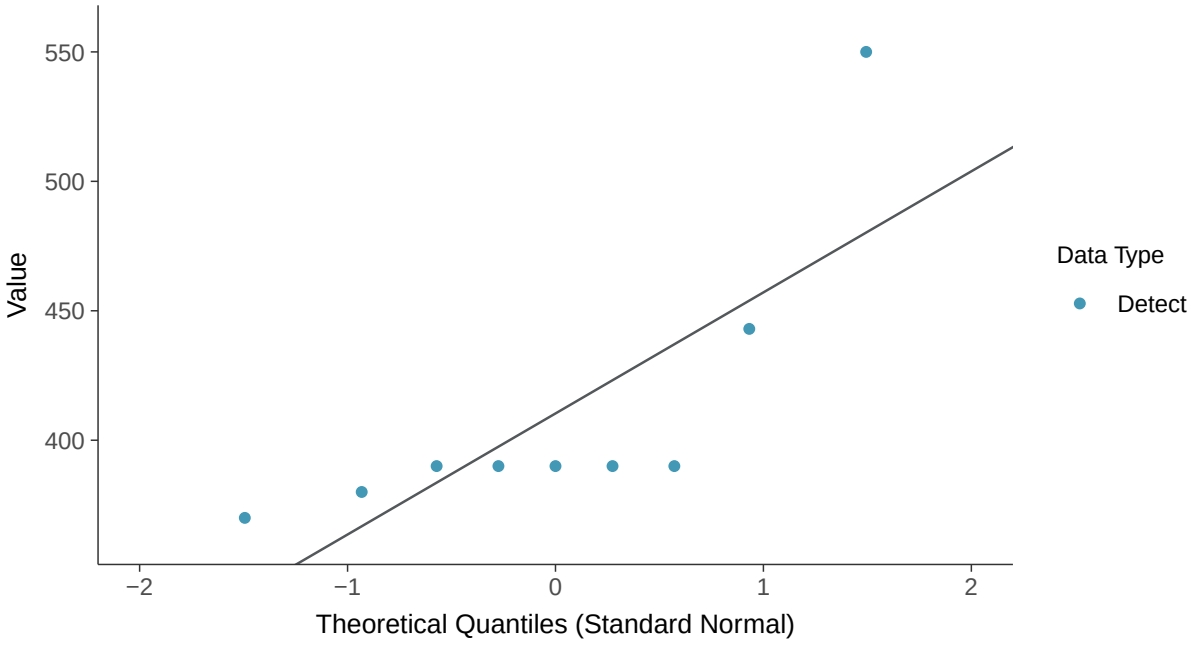
Boxplot by Season

Bicarbonate, MW-100D (mg/L)



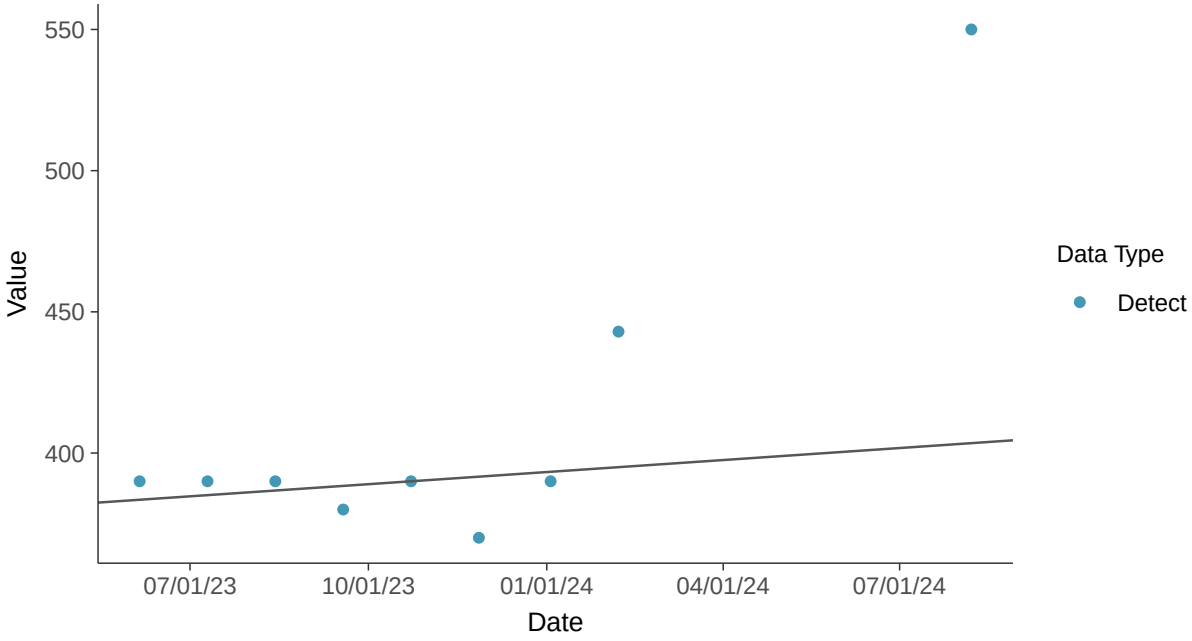
Normal Q-Q plot

Bicarbonate, MW-100D (mg/L)



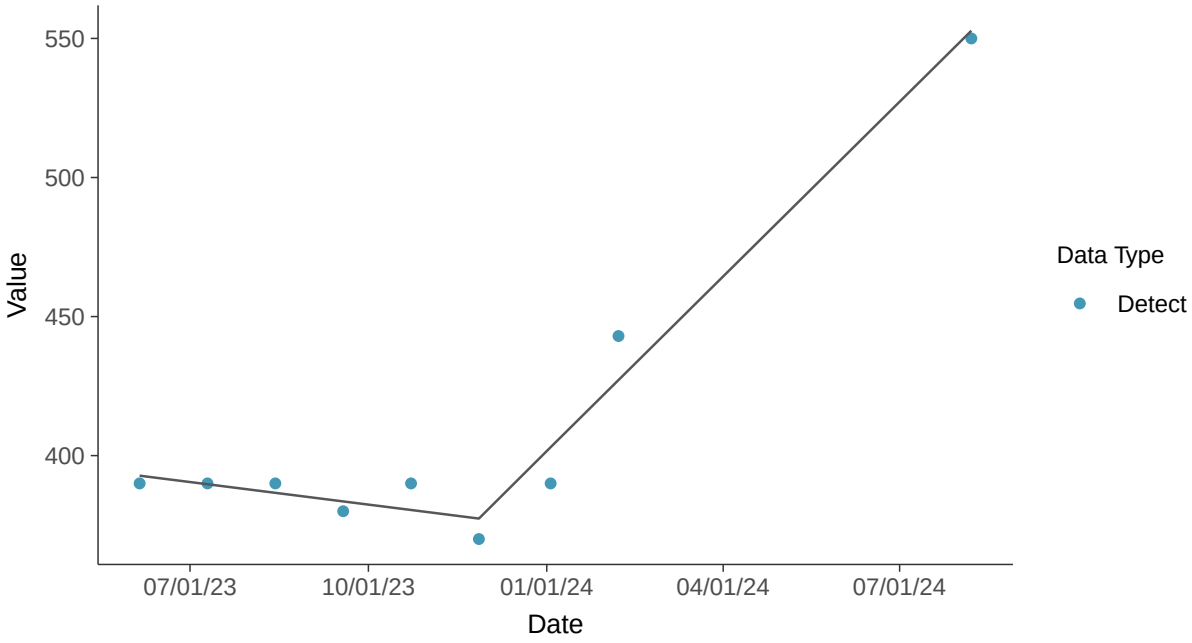
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Bicarbonate, MW-100D (mg/L)



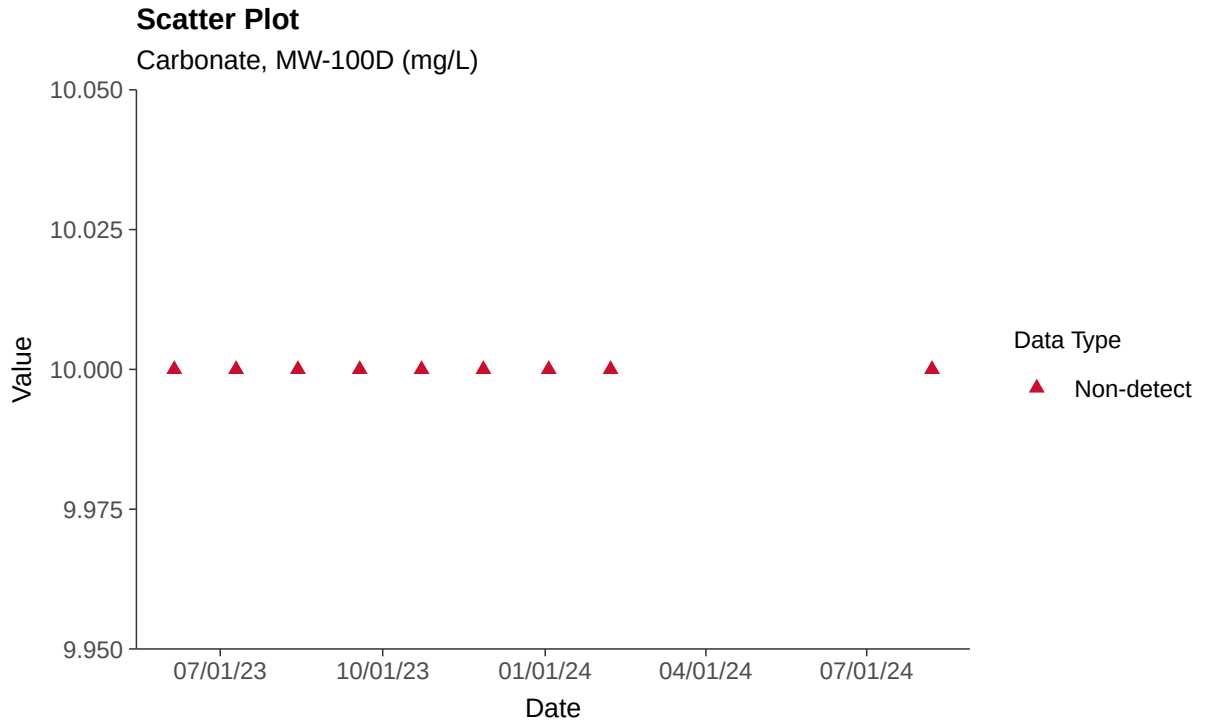
Trend Regression: Piecewise Linear-Linear

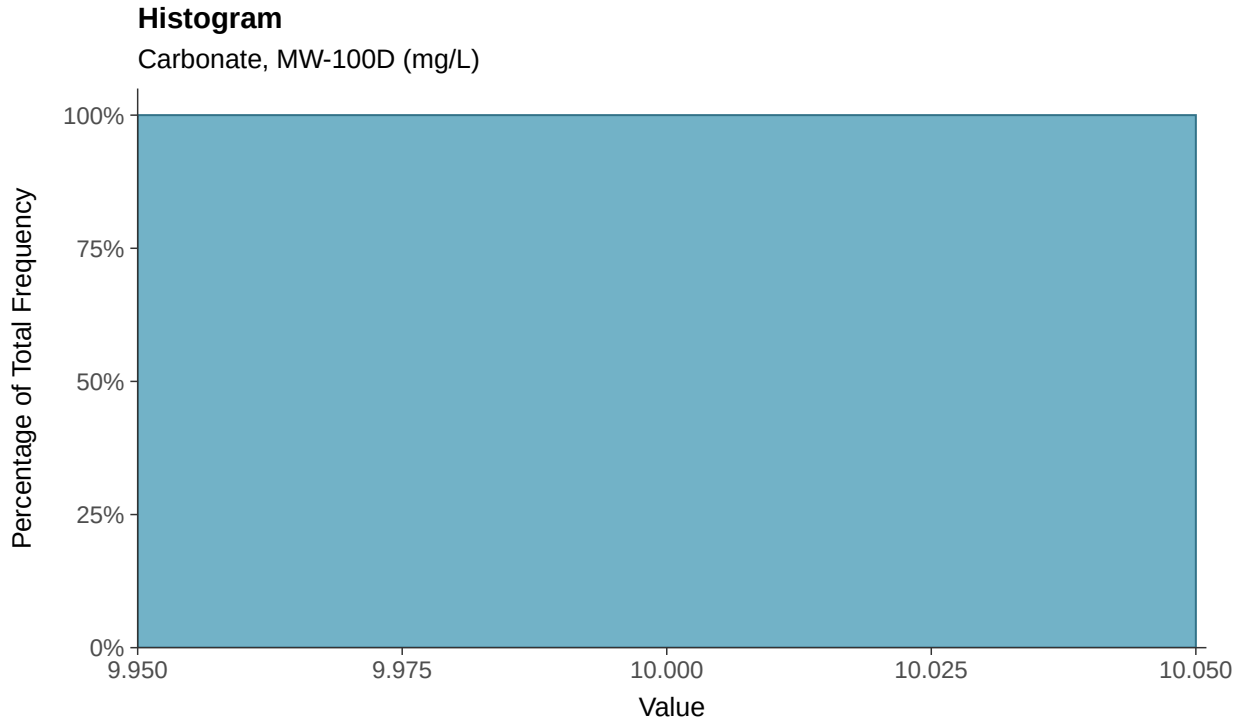
Bicarbonate, MW-100D (mg/L)



Other: Carbonate, MW-100D

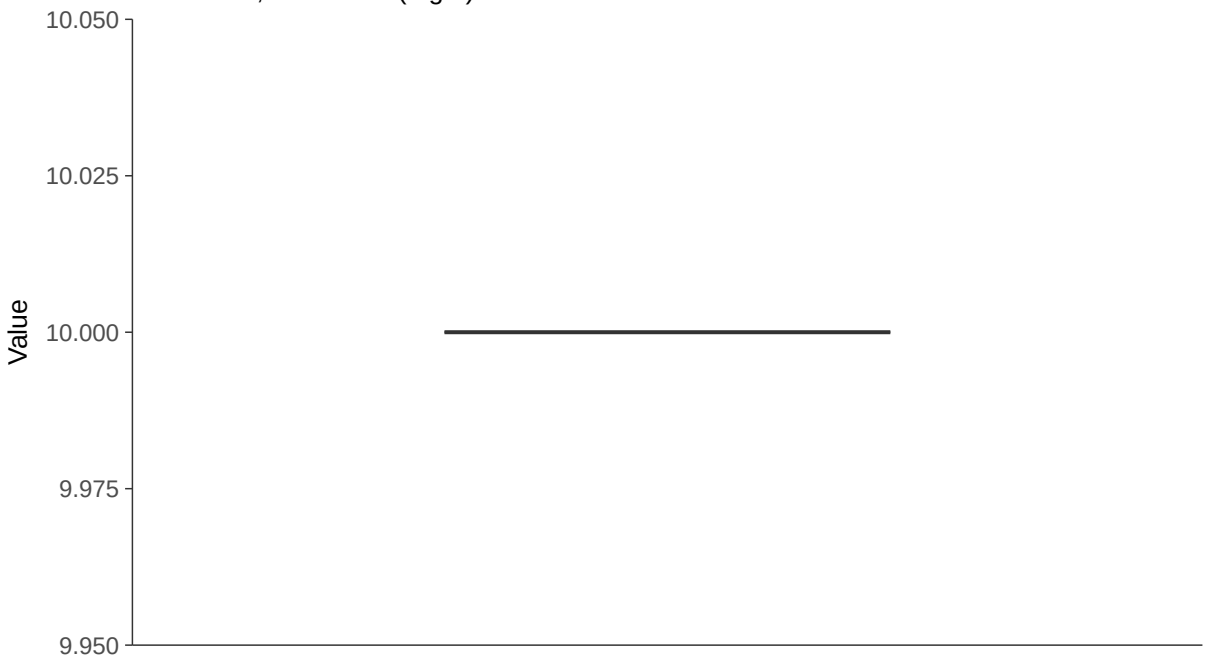
ID: 100D_4_32





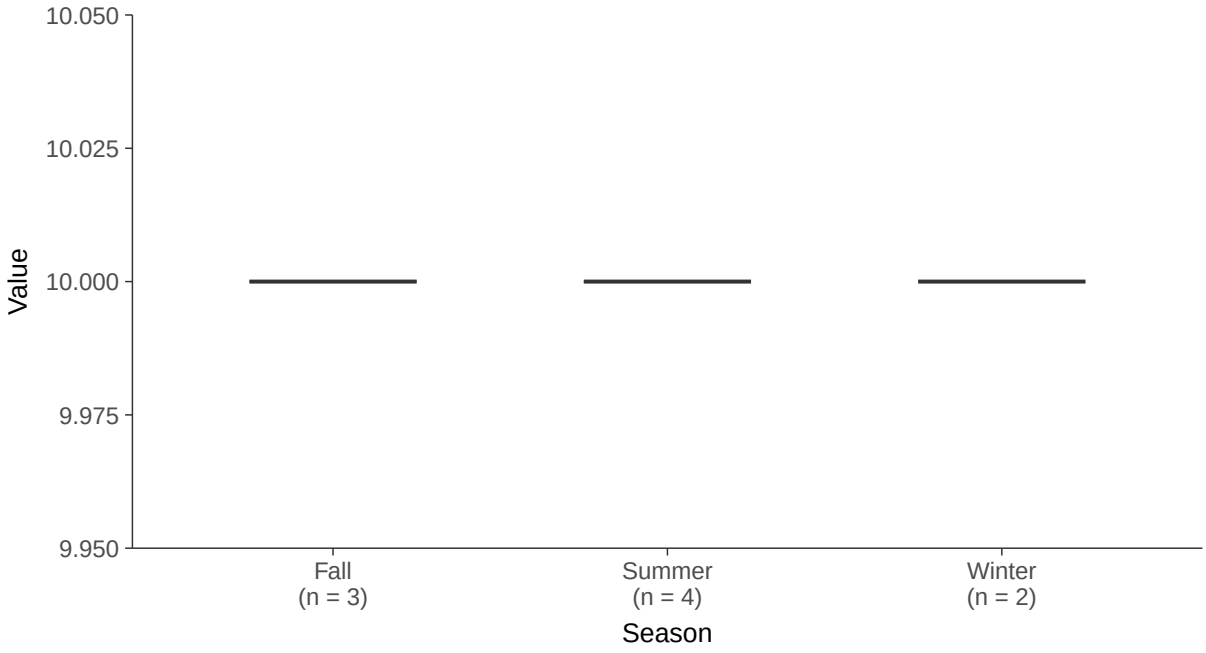
Boxplot

Carbonate, MW-100D (mg/L)



Boxplot by Season

Carbonate, MW-100D (mg/L)

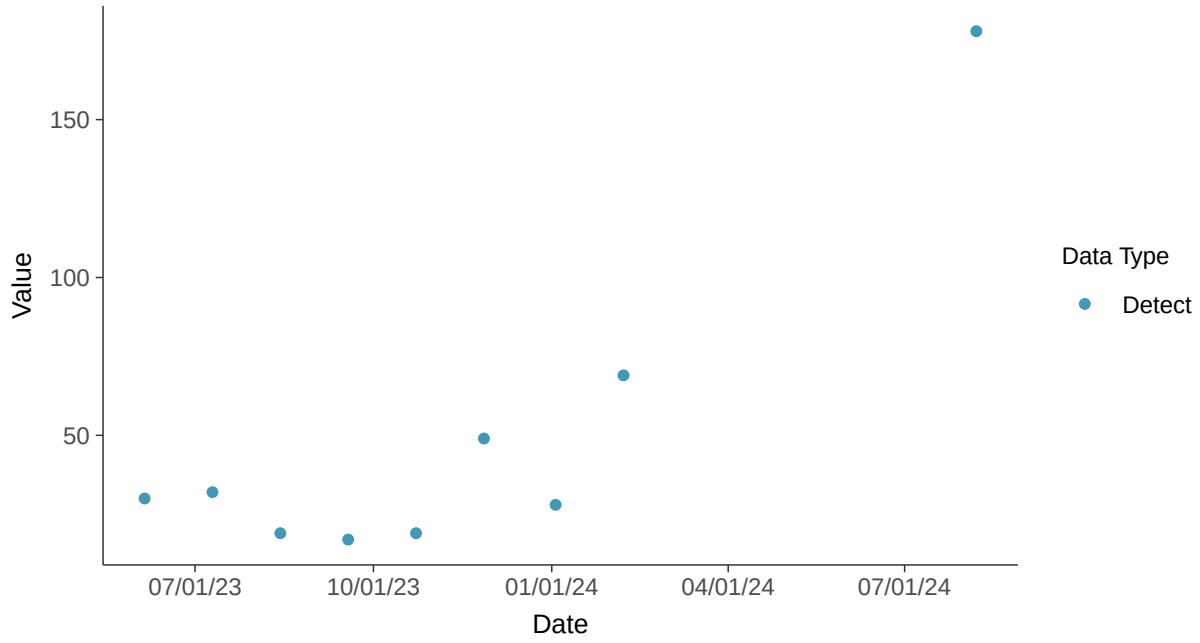


Other: Hardness, MW-100D

ID: 100D_4_33

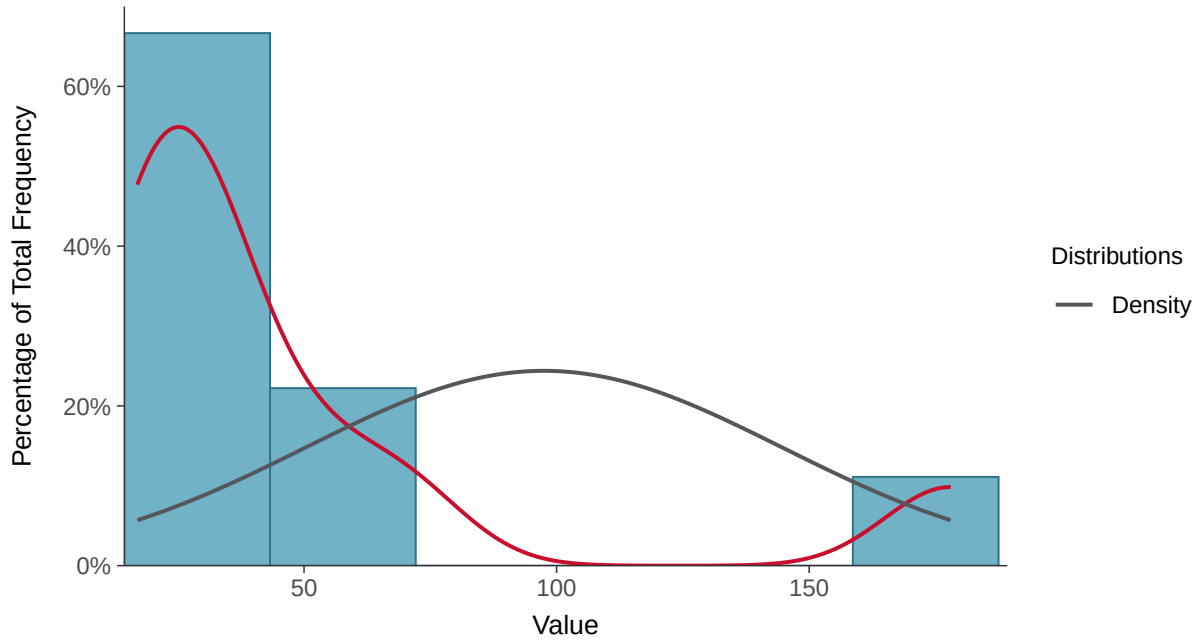
Scatter Plot

Hardness, MW-100D (mg/L)



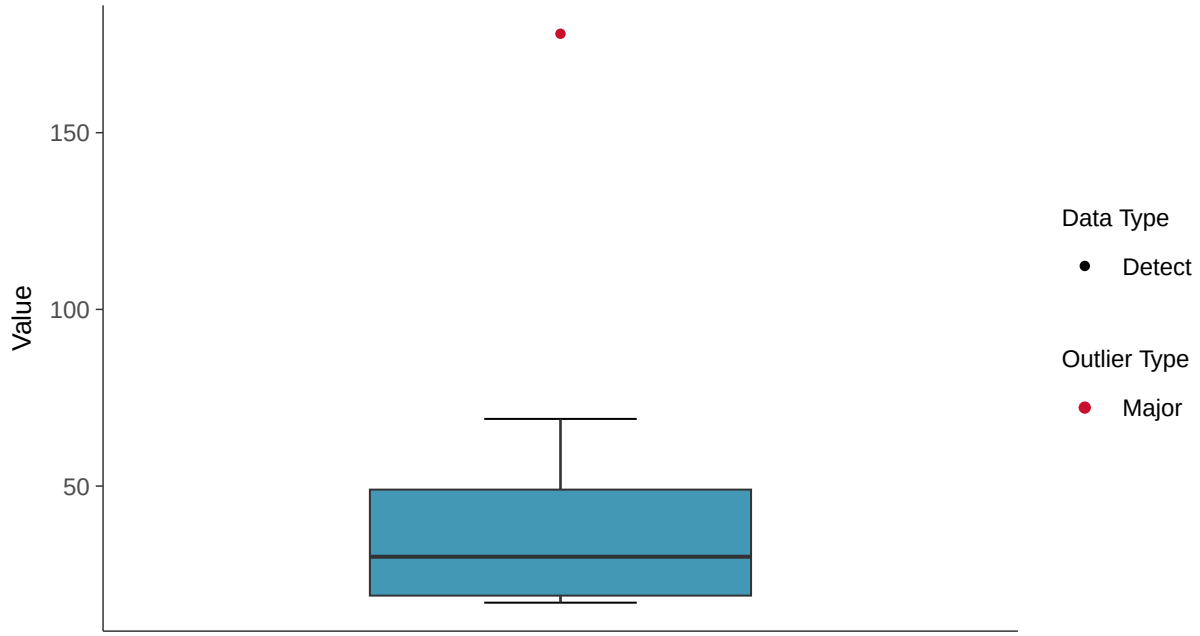
Histogram

Hardness, MW-100D (mg/L)



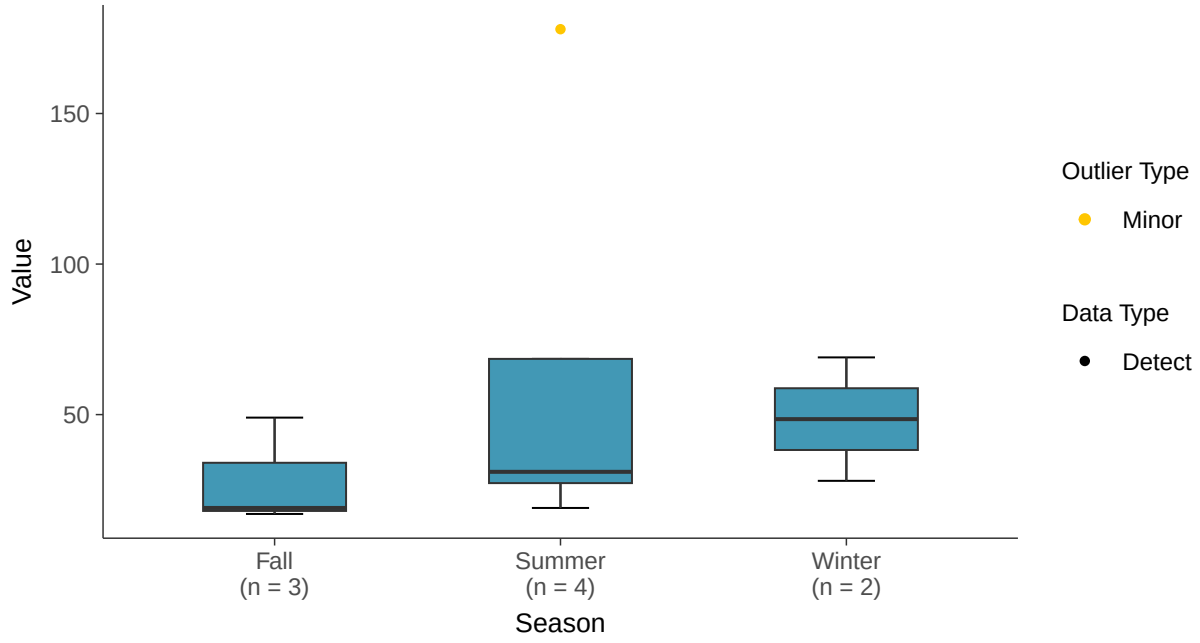
Boxplot

Hardness, MW-100D (mg/L)



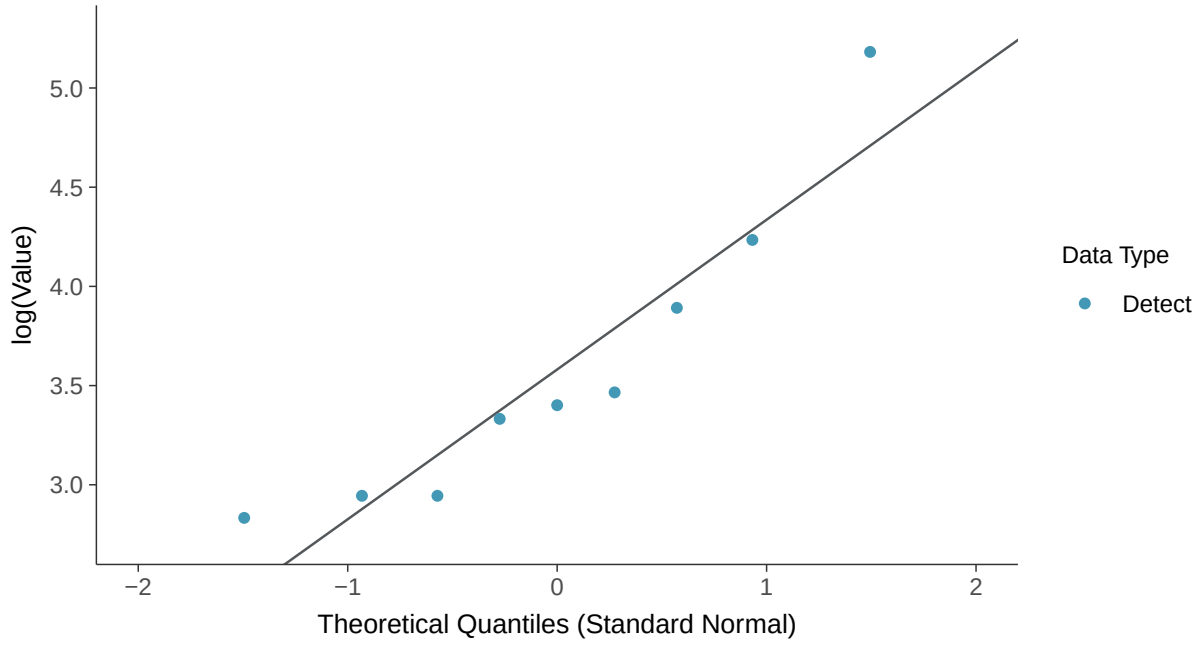
Boxplot by Season

Hardness, MW-100D (mg/L)



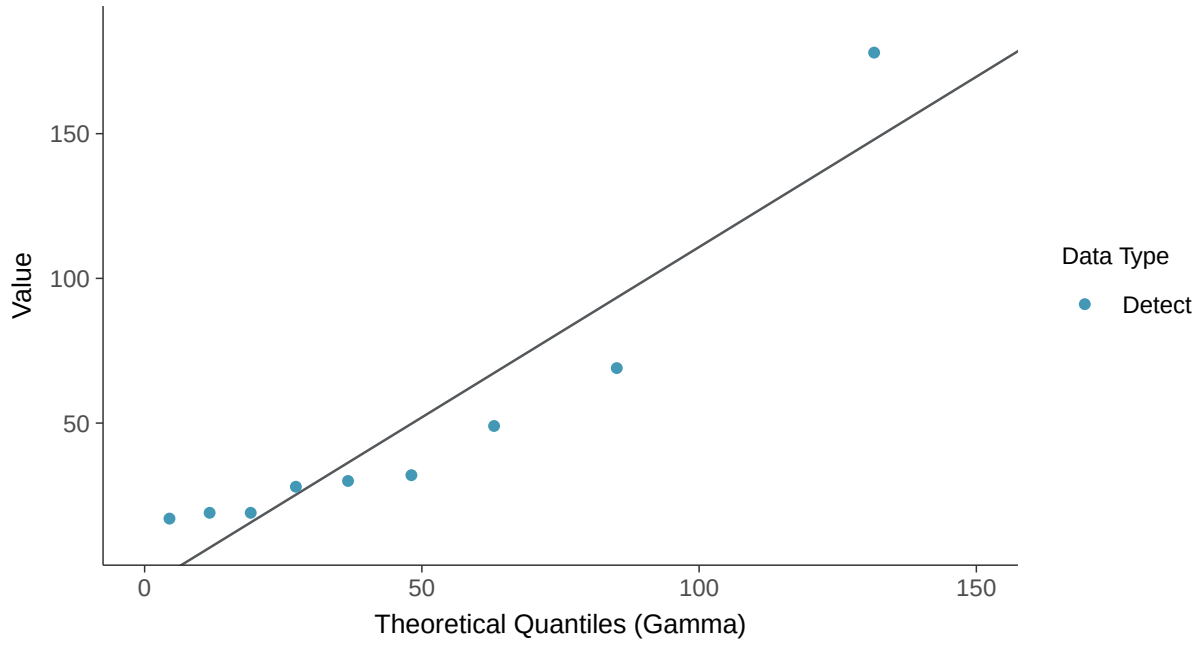
Lognormal Q-Q plot

Hardness, MW-100D (mg/L)



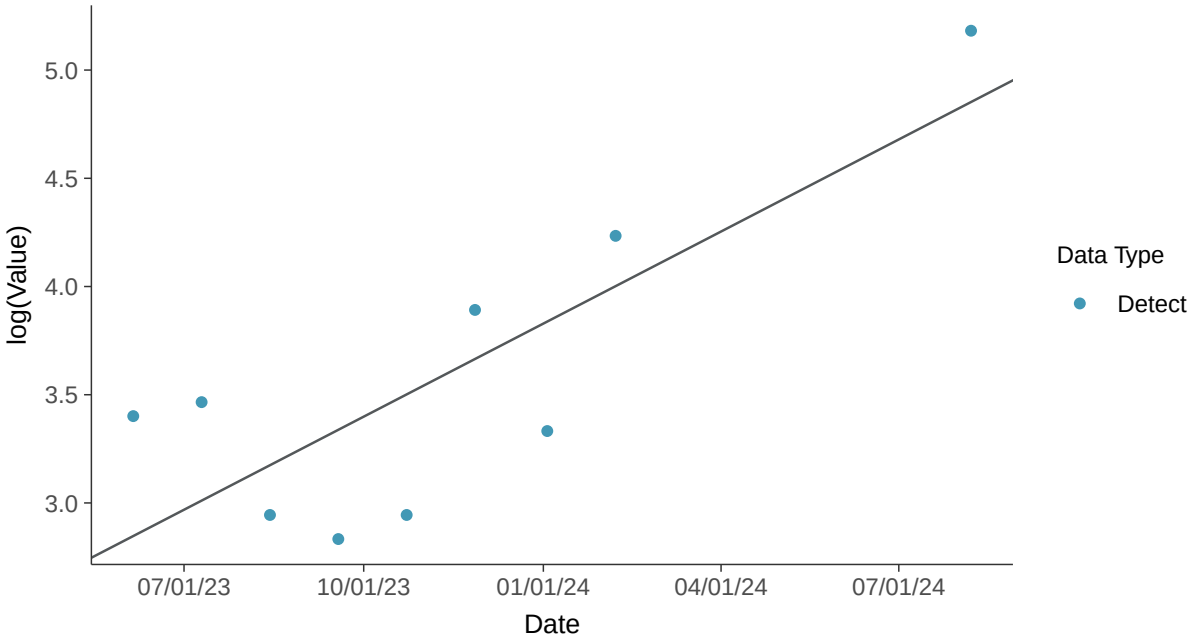
Gamma Q-Q plot

Hardness, MW-100D (mg/L)



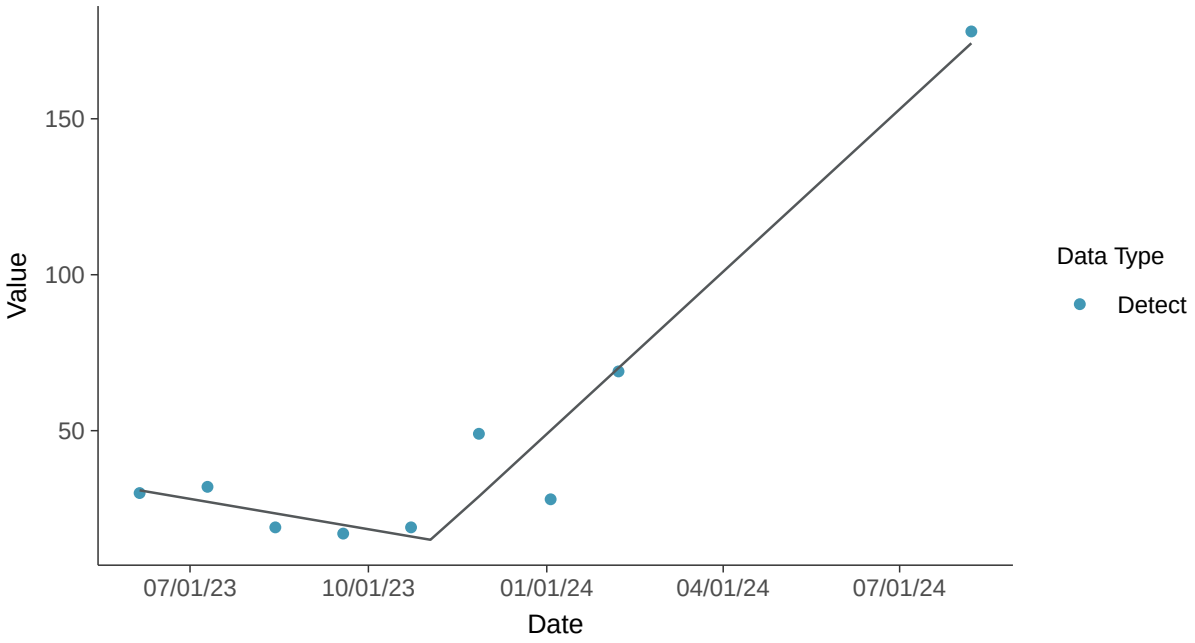
Trend Regression: Lognormal MLE

Hardness, MW-100D (mg/L)



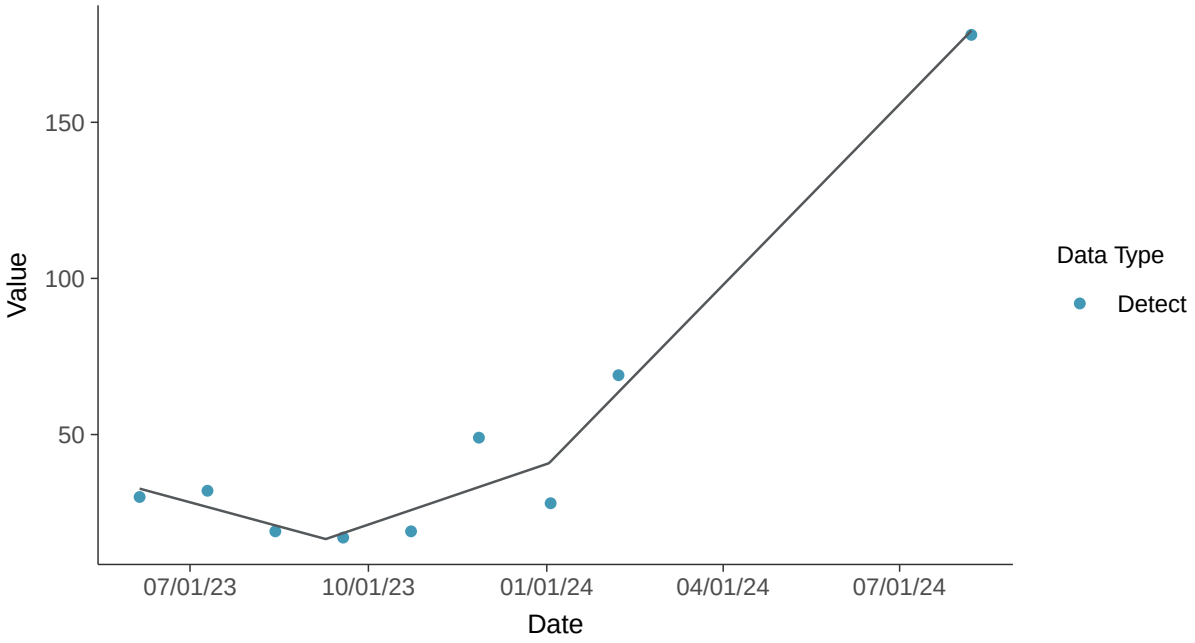
Trend Regression: Piecewise Linear-Linear

Hardness, MW-100D (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Hardness, MW-100D (mg/L)

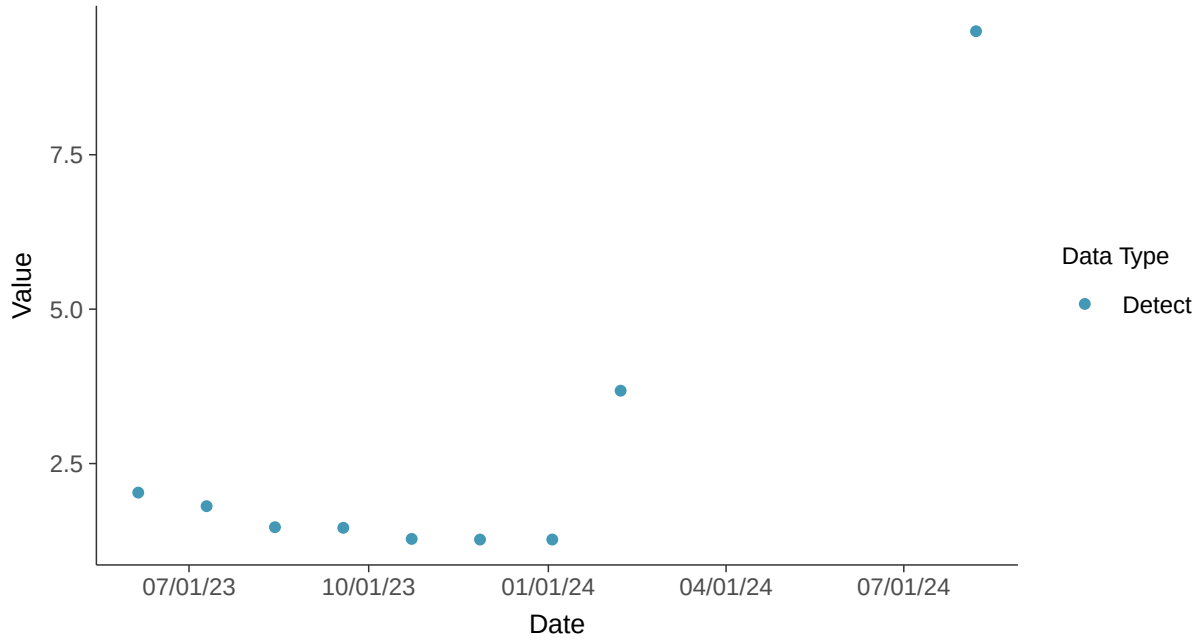


Other: Magnesium, MW-100D

ID: 100D_4_34

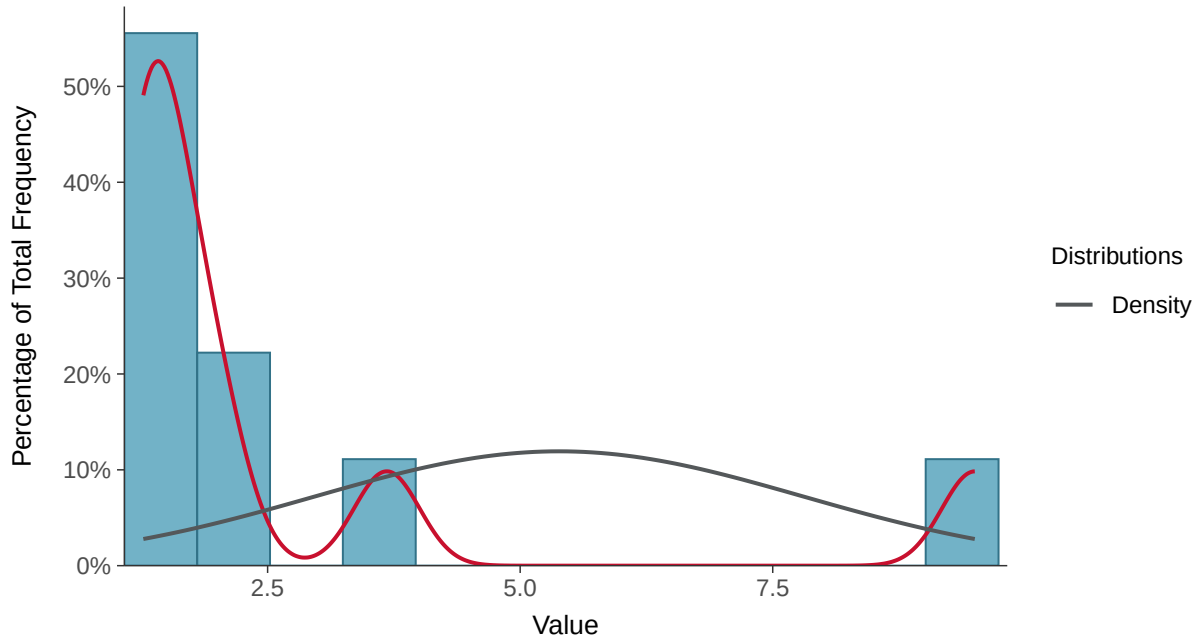
Scatter Plot

Magnesium, MW-100D (mg/L)



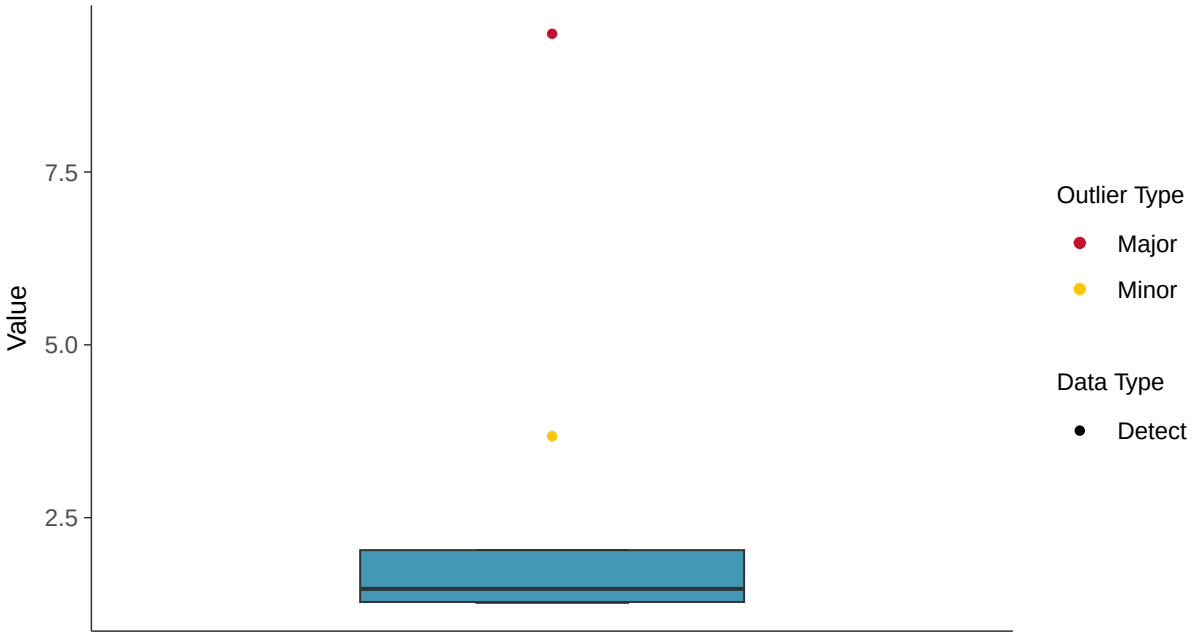
Histogram

Magnesium, MW-100D (mg/L)



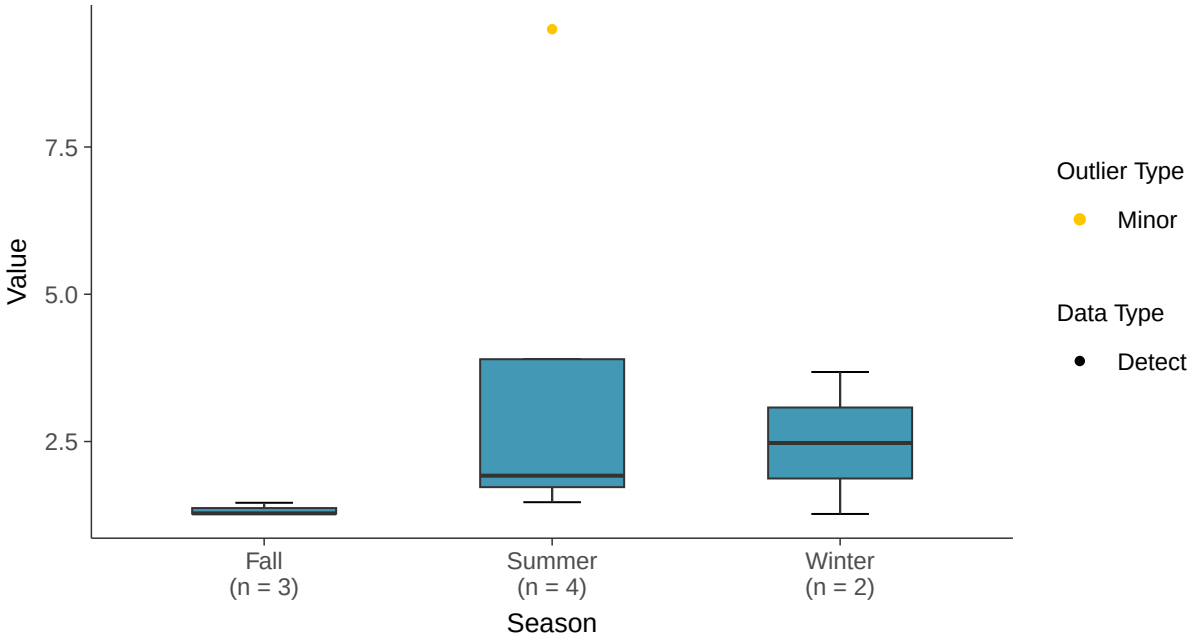
Boxplot

Magnesium, MW-100D (mg/L)



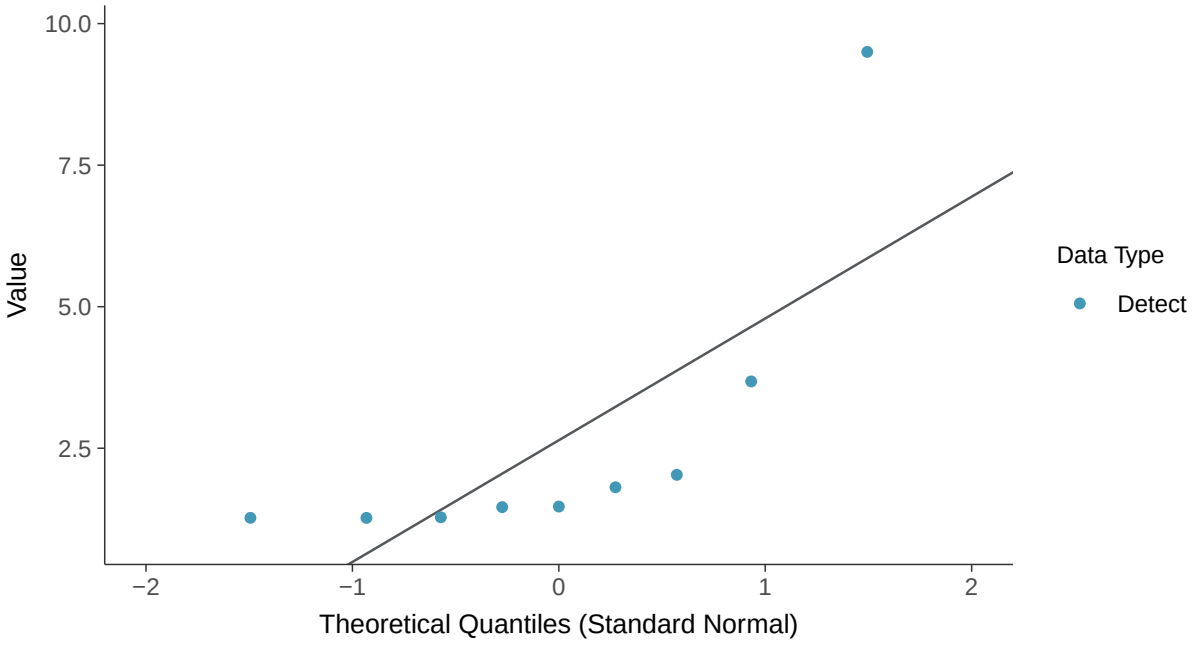
Boxplot by Season

Magnesium, MW-100D (mg/L)



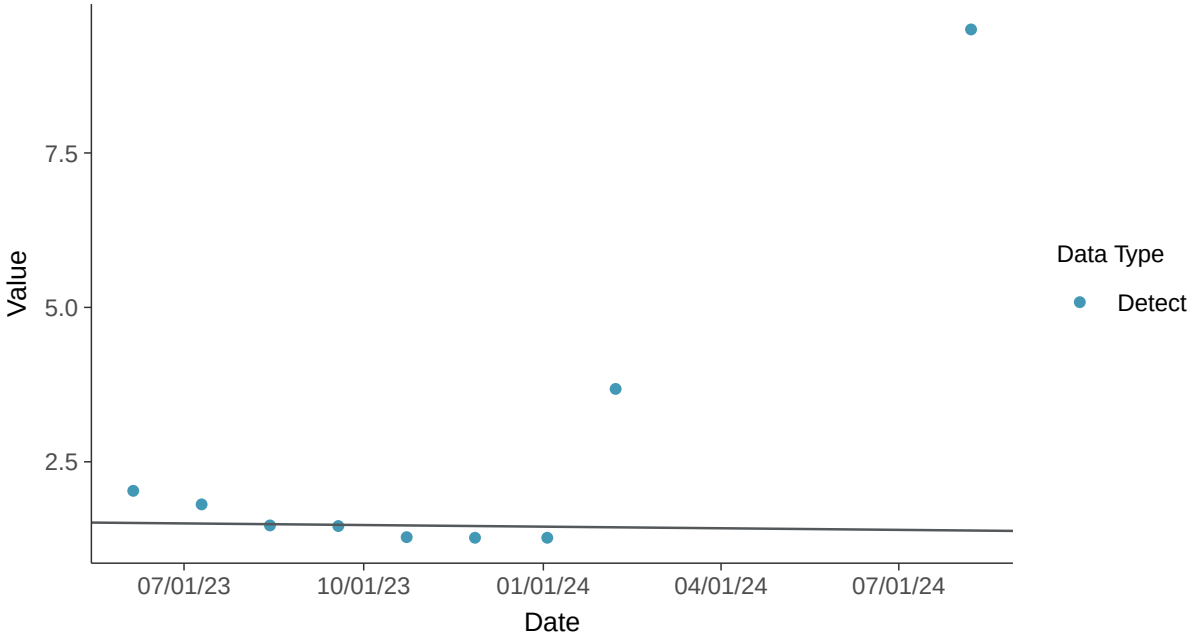
Normal Q-Q plot

Magnesium, MW-100D (mg/L)



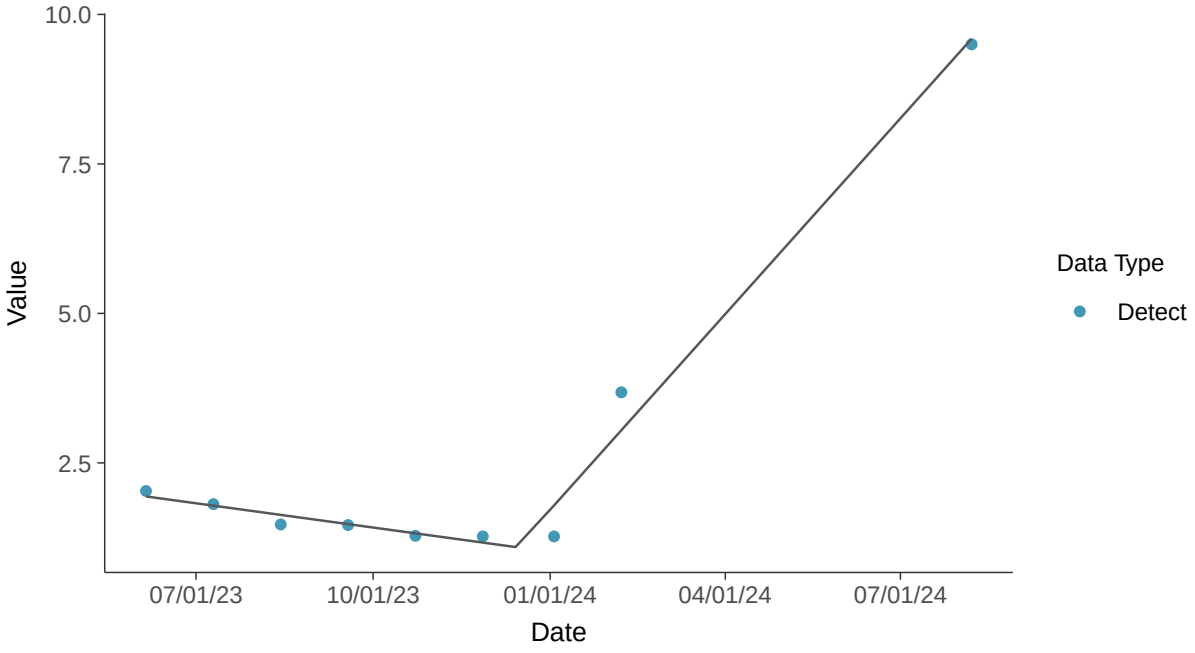
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Magnesium, MW-100D (mg/L)



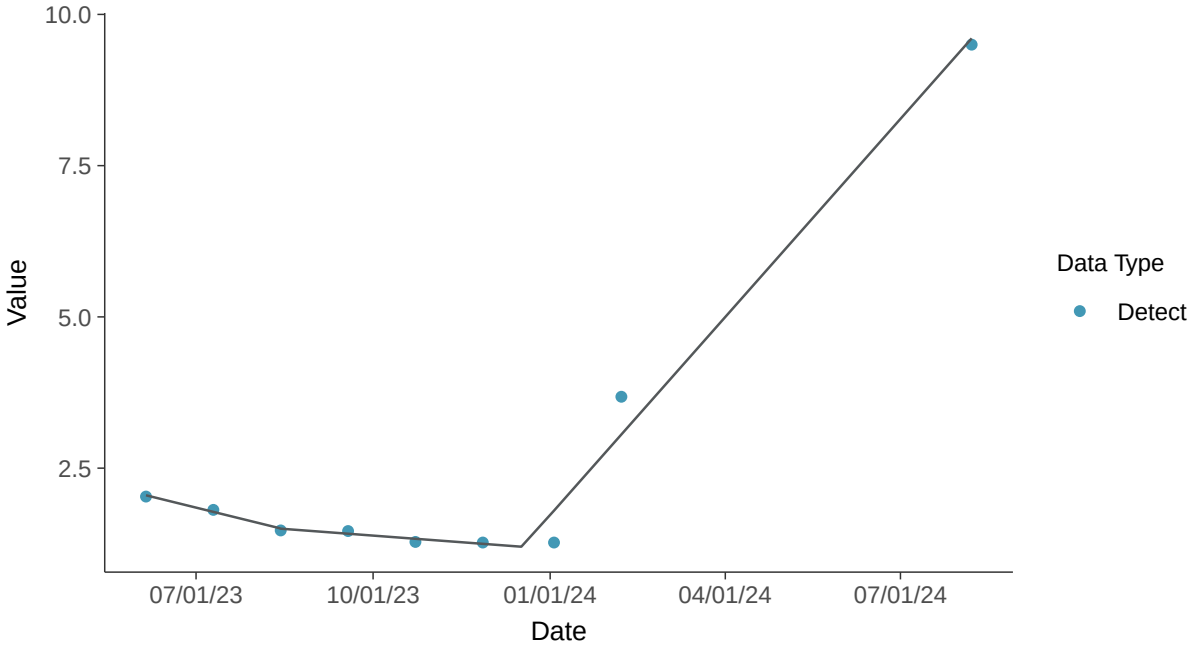
Trend Regression: Piecewise Linear-Linear

Magnesium, MW-100D (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Magnesium, MW-100D (mg/L)

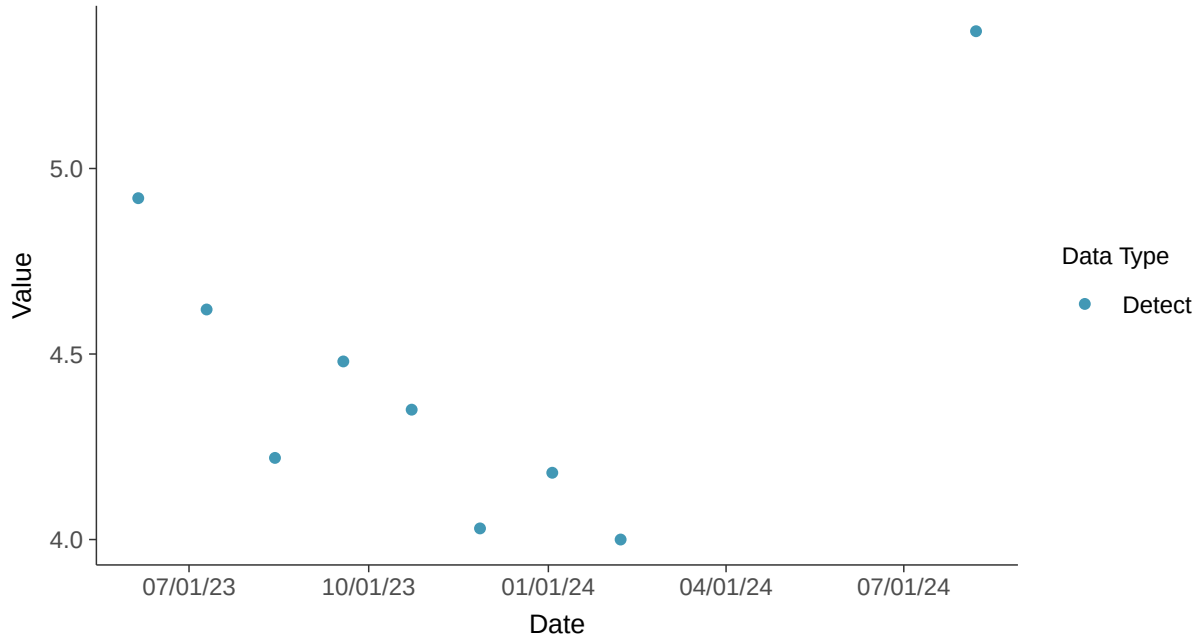


Other: Potassium, MW-100D

ID: 100D_4_35

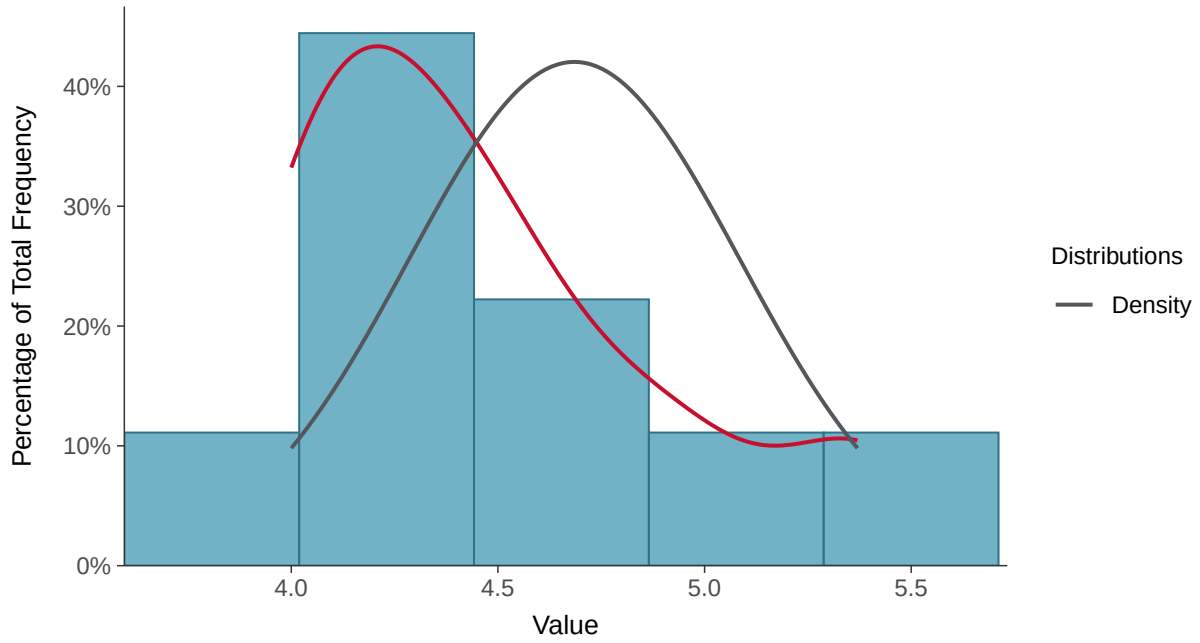
Scatter Plot

Potassium, MW-100D (mg/L)



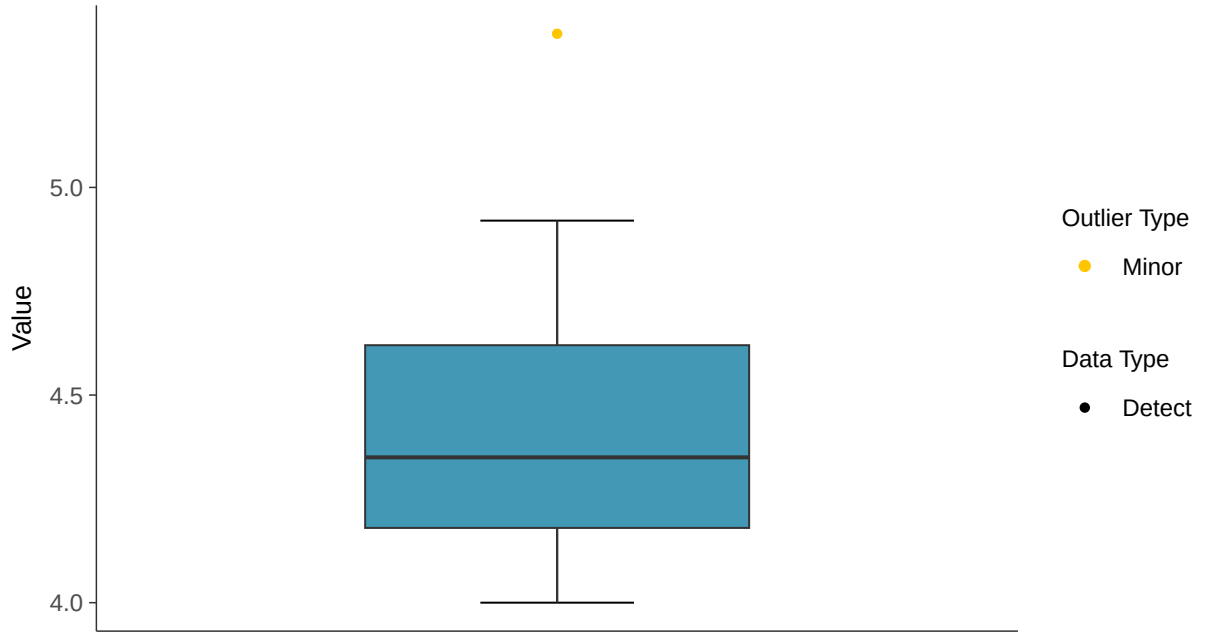
Histogram

Potassium, MW-100D (mg/L)



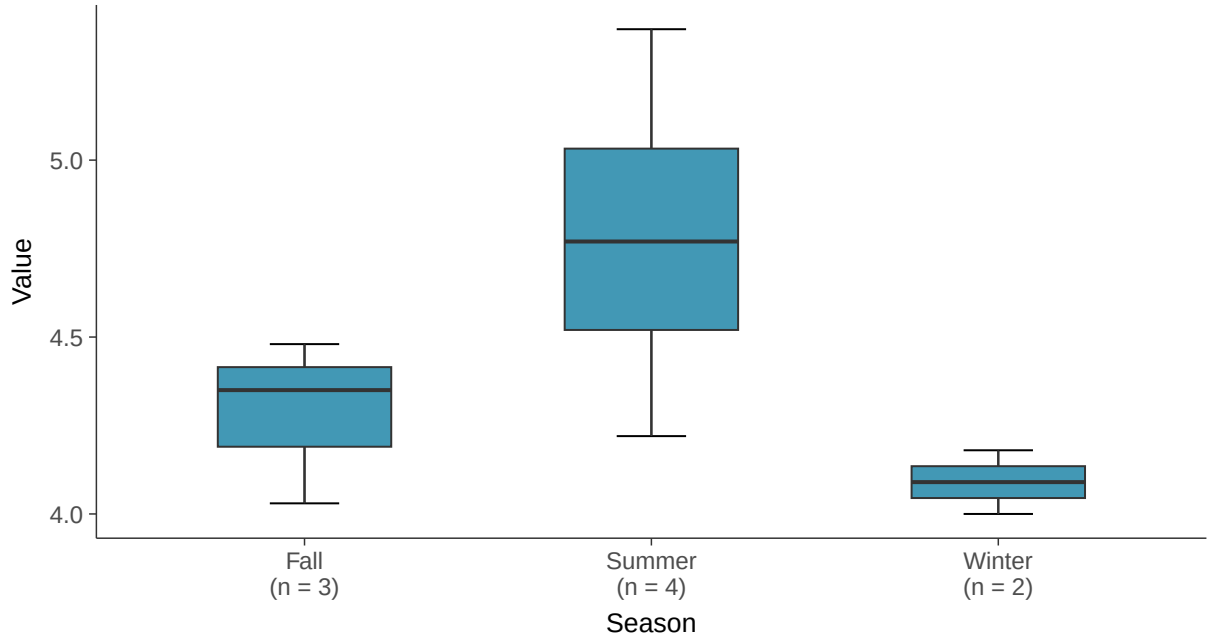
Boxplot

Potassium, MW-100D (mg/L)



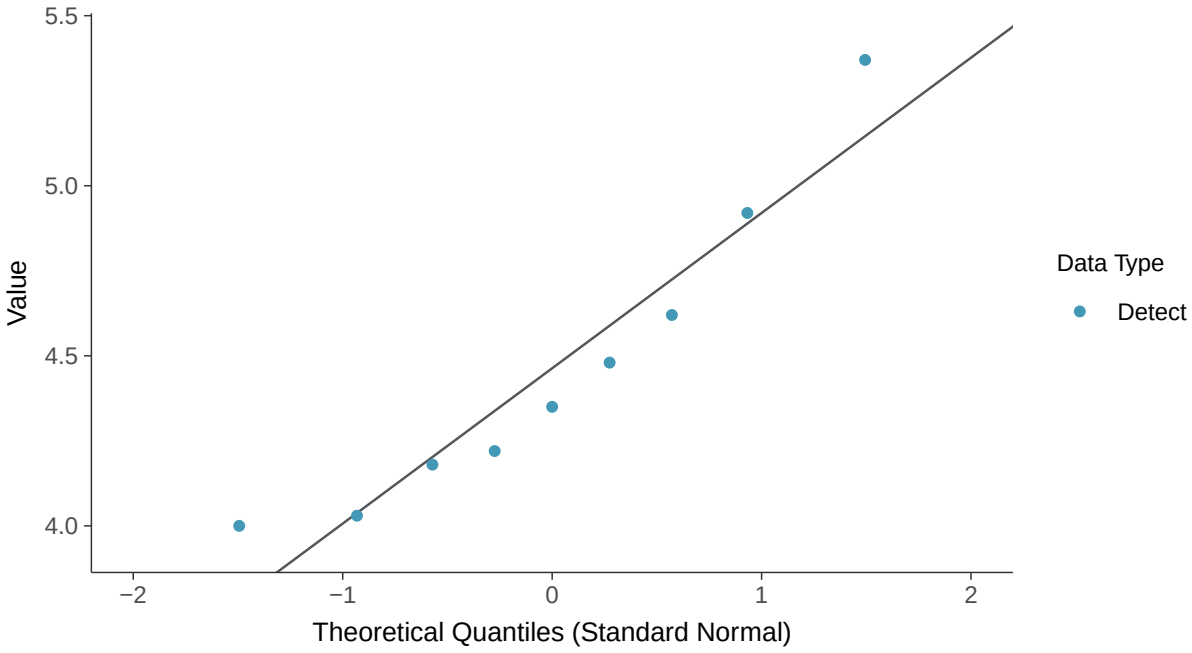
Boxplot by Season

Potassium, MW-100D (mg/L)



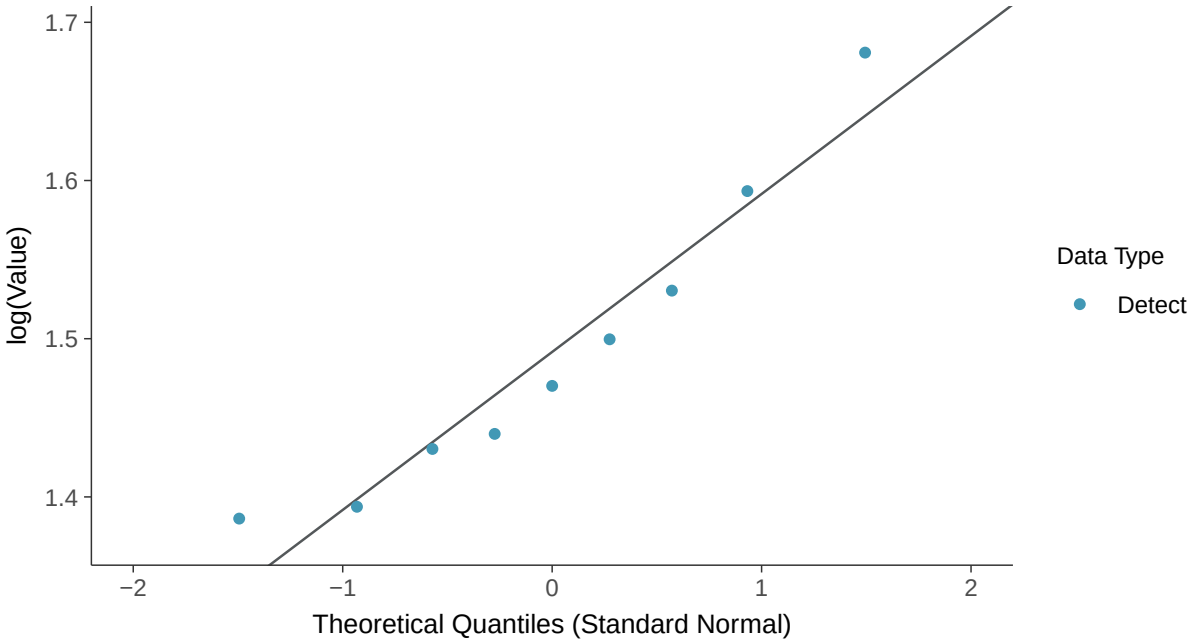
Normal Q-Q plot

Potassium, MW-100D (mg/L)



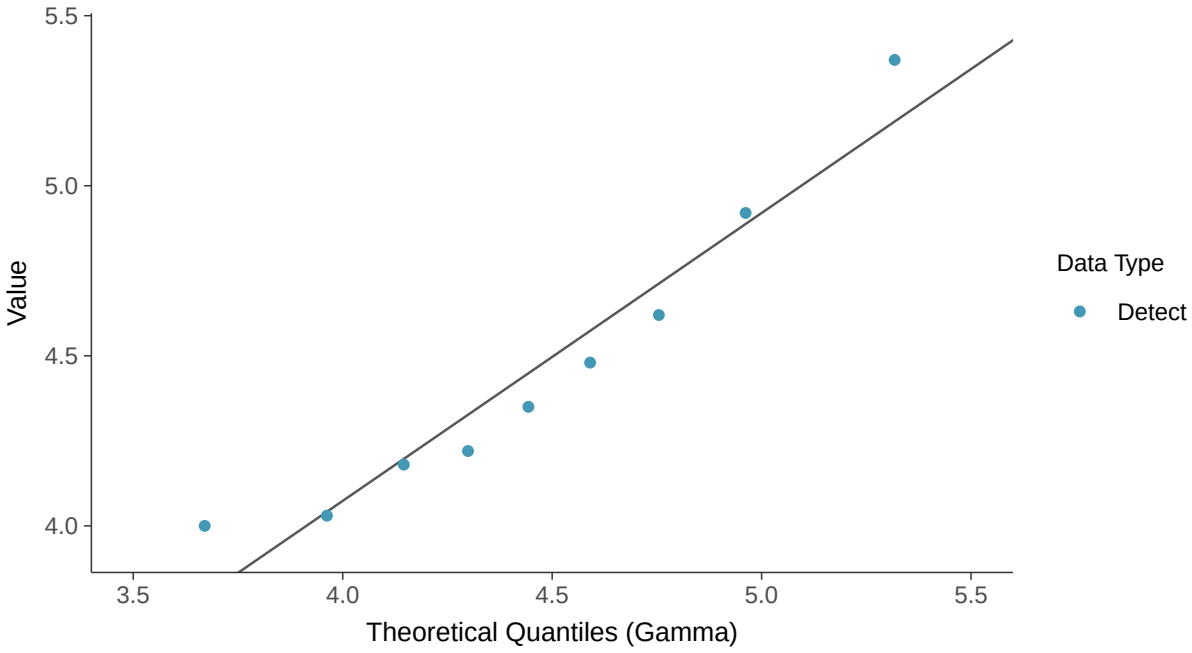
Lognormal Q-Q plot

Potassium, MW-100D (mg/L)



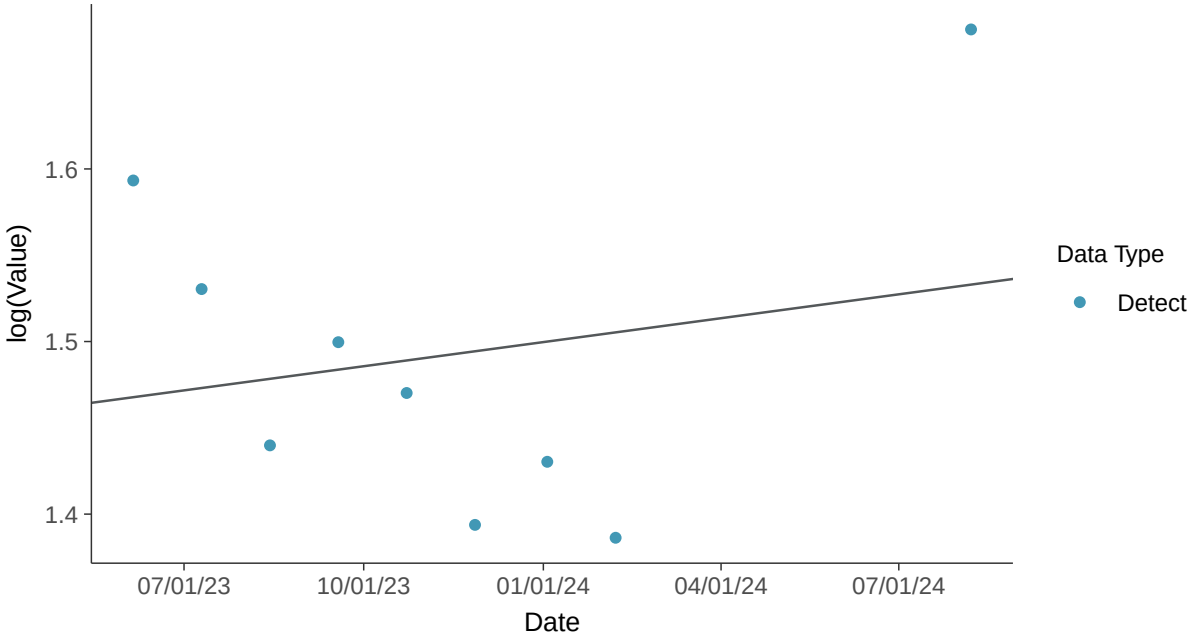
Gamma Q-Q plot

Potassium, MW-100D (mg/L)



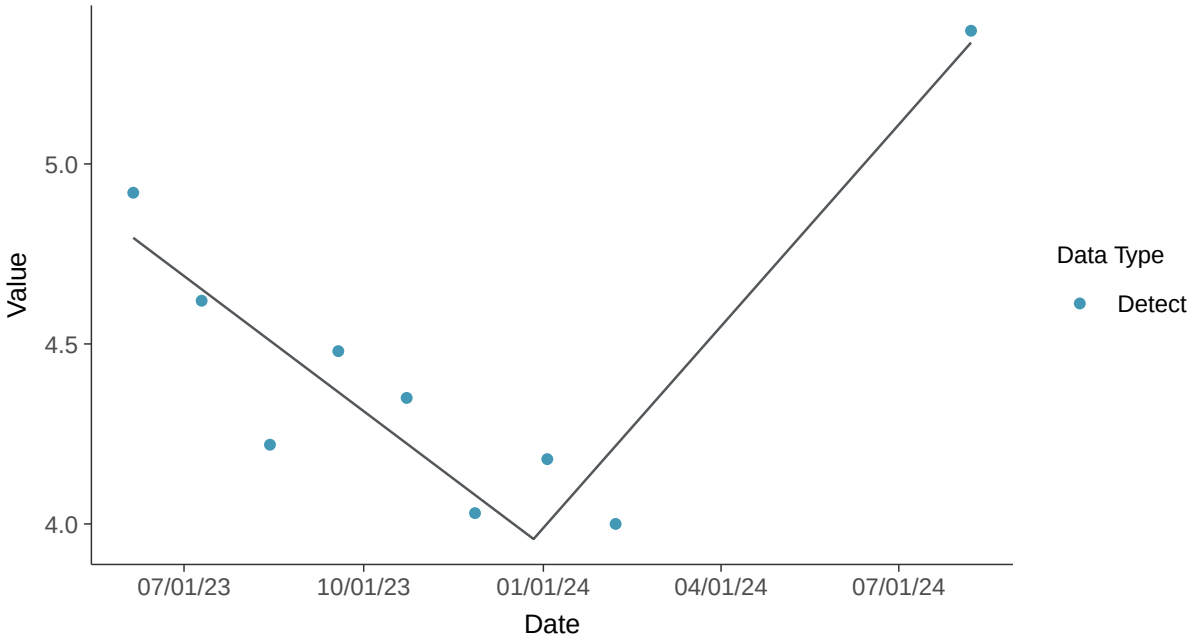
Trend Regression: Lognormal MLE

Potassium, MW-100D (mg/L)



Trend Regression: Piecewise Linear-Linear

Potassium, MW-100D (mg/L)

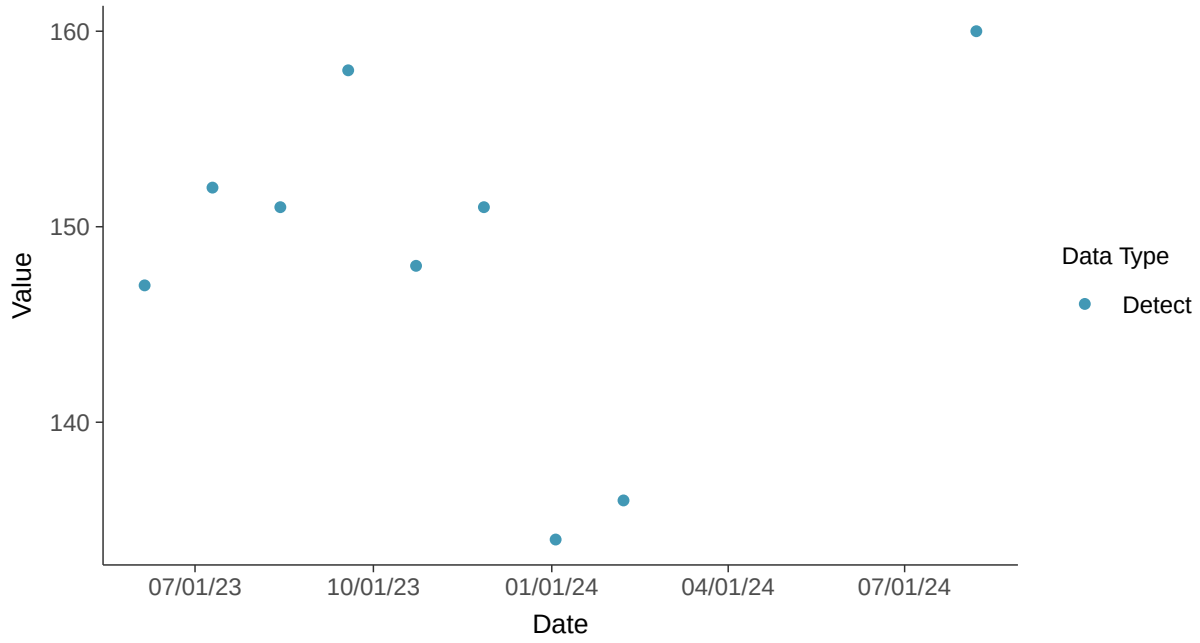


Other: Sodium, MW-100D

ID: 100D_4_36

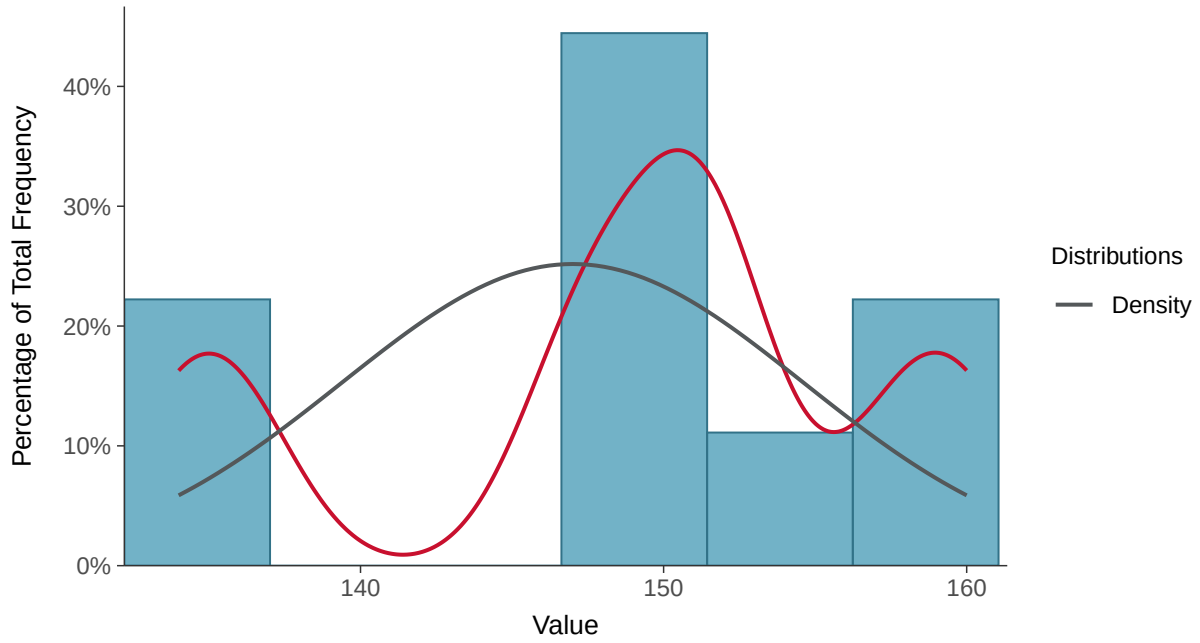
Scatter Plot

Sodium, MW-100D (mg/L)



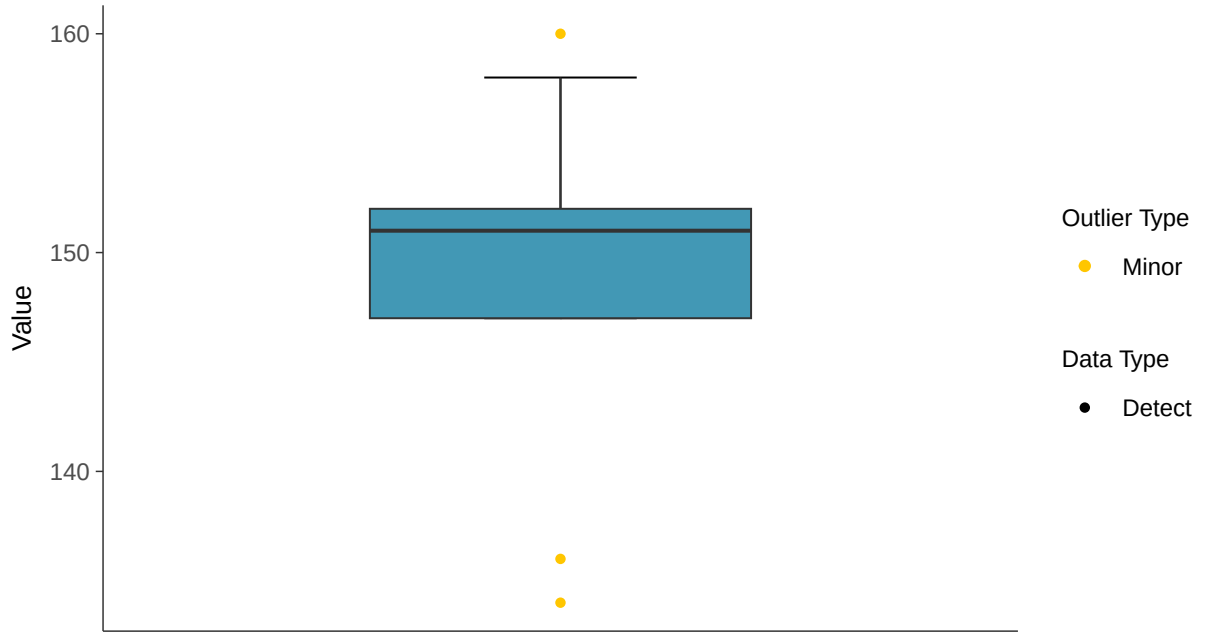
Histogram

Sodium, MW-100D (mg/L)



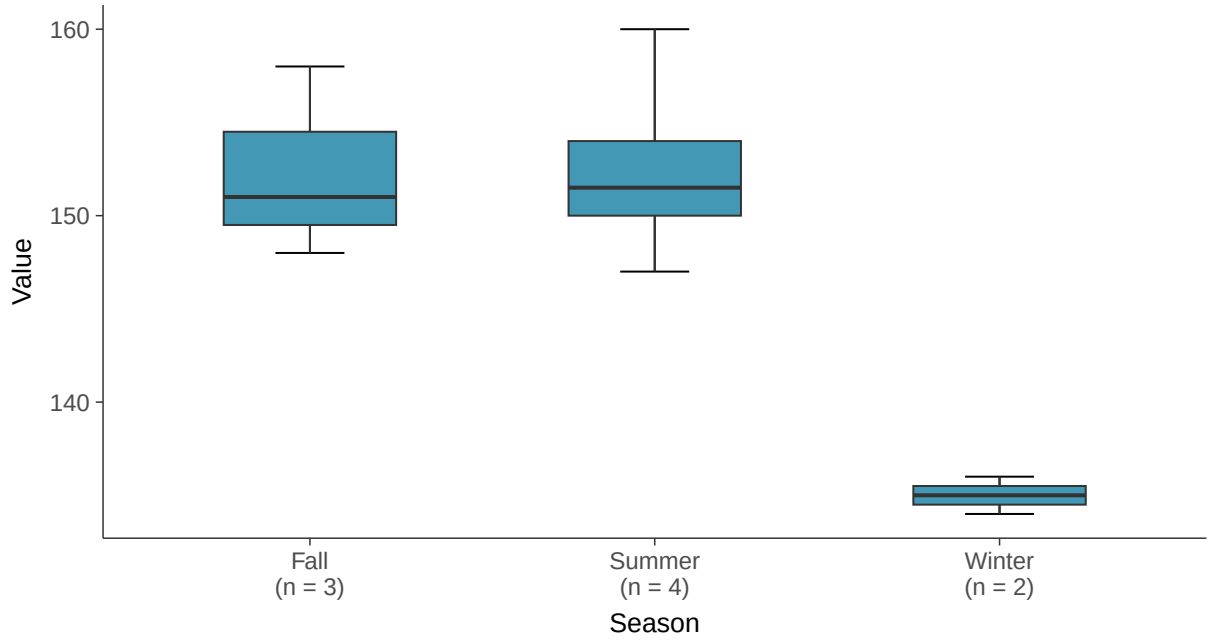
Boxplot

Sodium, MW-100D (mg/L)



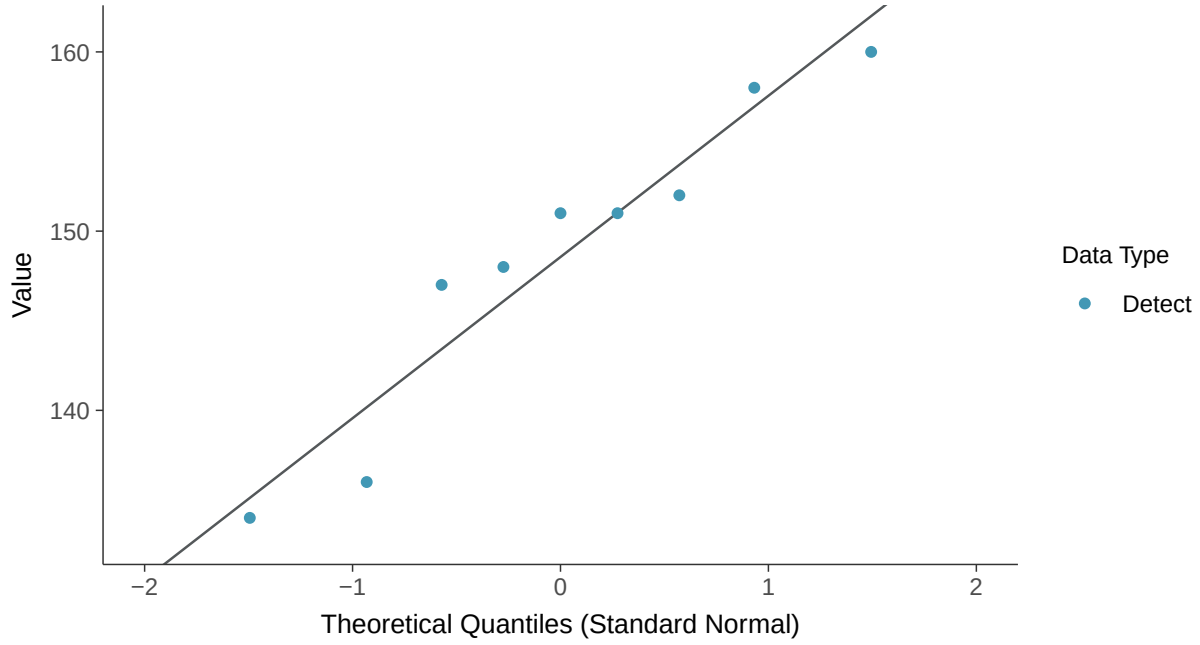
Boxplot by Season

Sodium, MW-100D (mg/L)



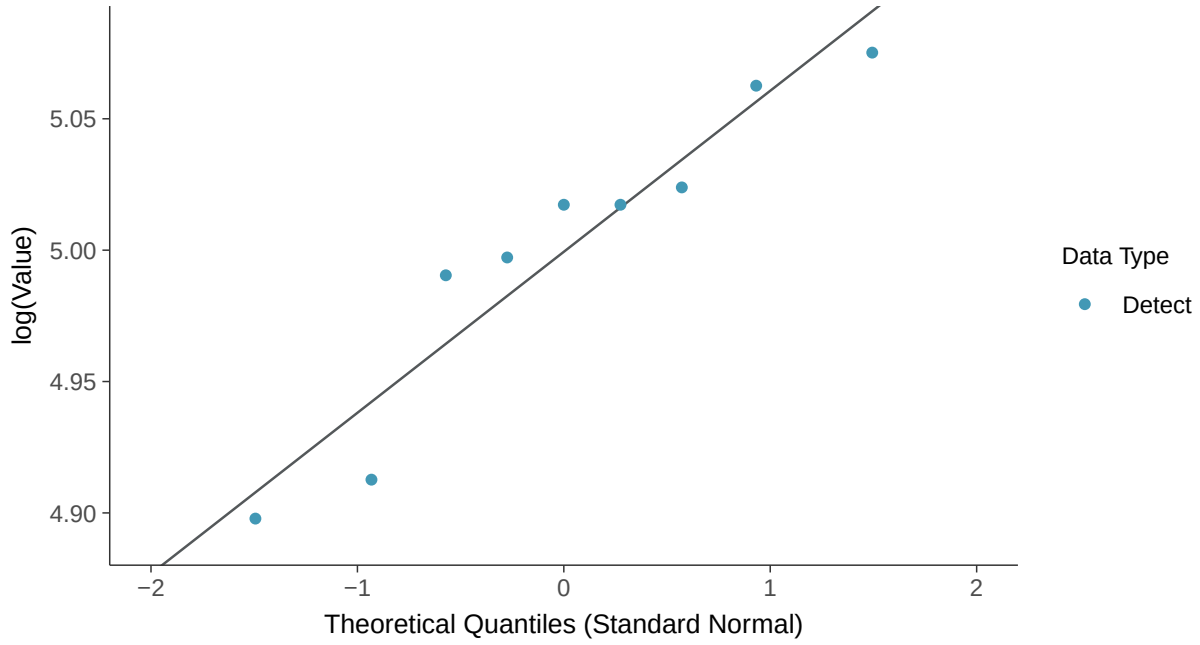
Normal Q-Q plot

Sodium, MW-100D (mg/L)



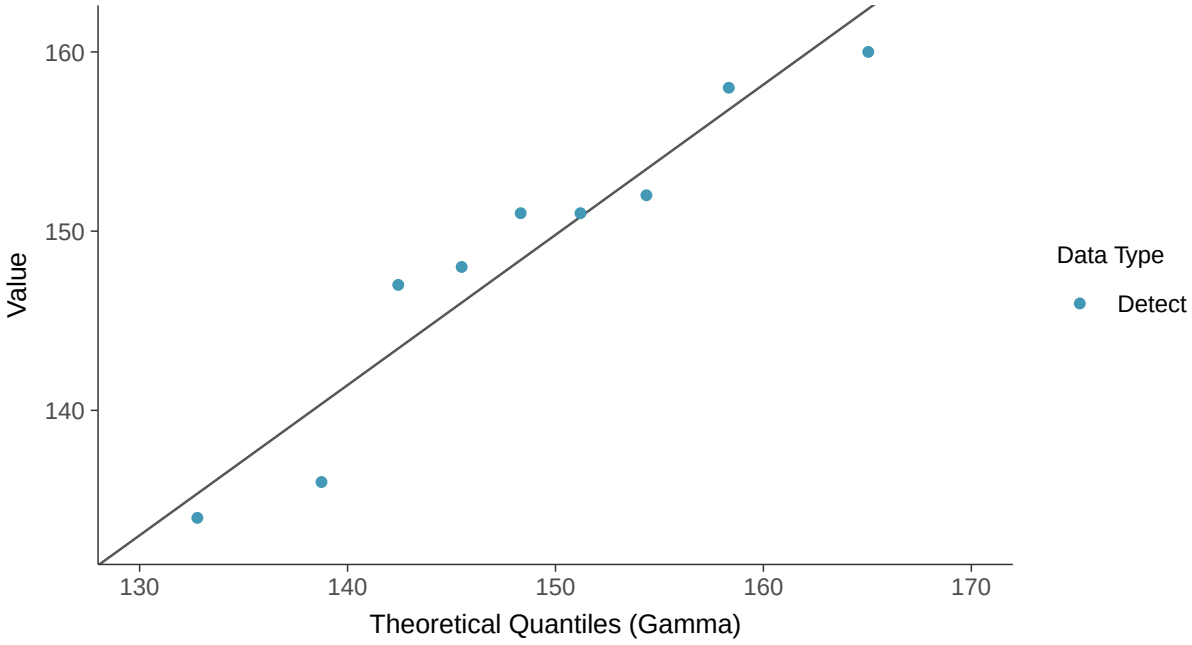
Lognormal Q-Q plot

Sodium, MW-100D (mg/L)



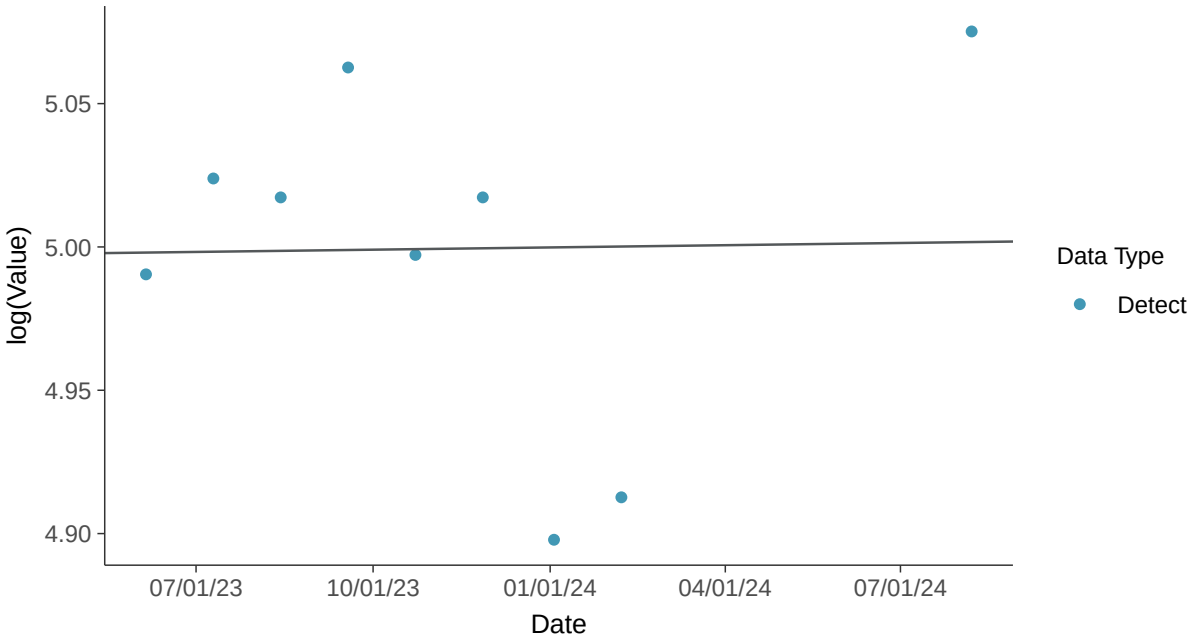
Gamma Q-Q plot

Sodium, MW-100D (mg/L)



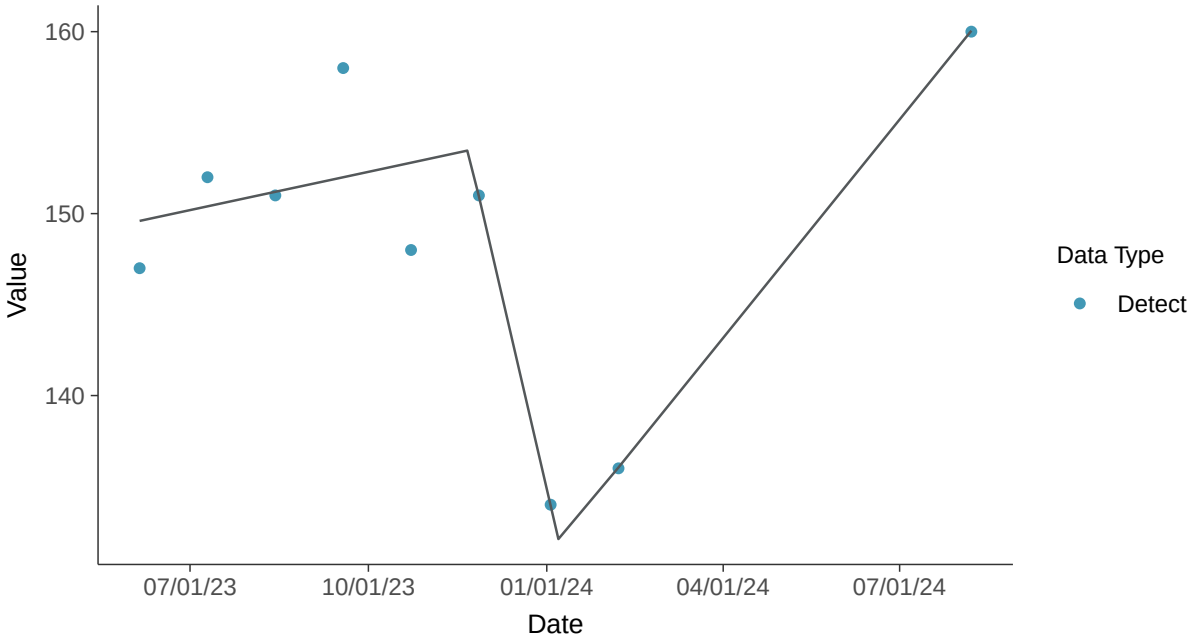
Trend Regression: Lognormal MLE

Sodium, MW-100D (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Sodium, MW-100D (mg/L)

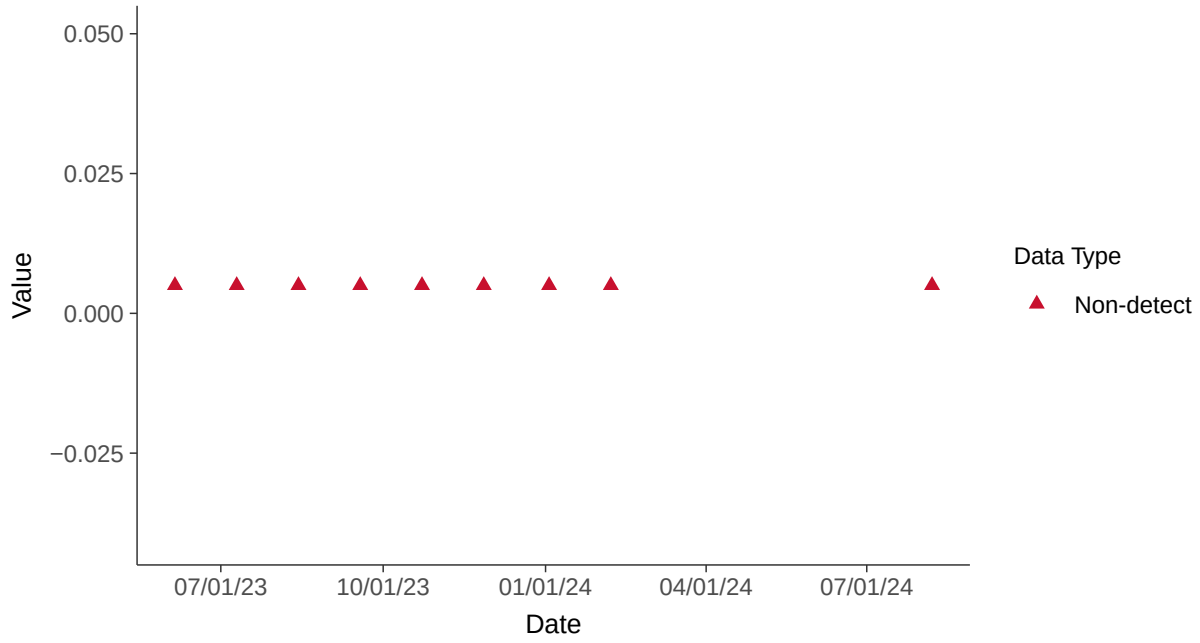


Part 115: Copper, MW-100D

ID: 100D_5_37

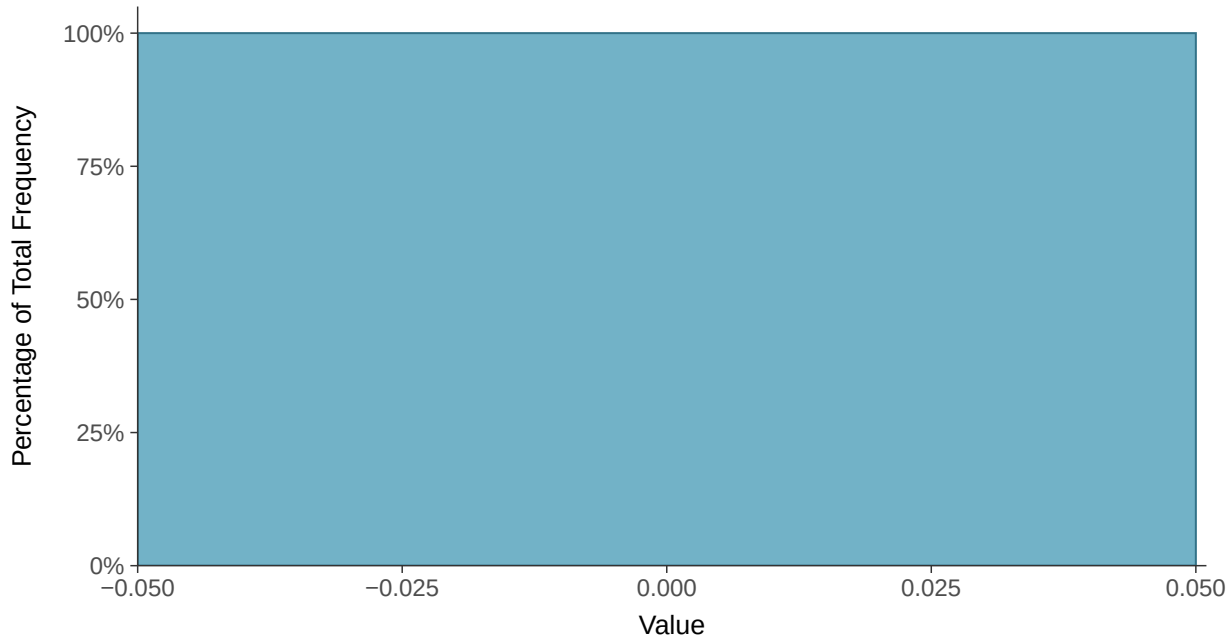
Scatter Plot

Copper, MW-100D (mg/L)



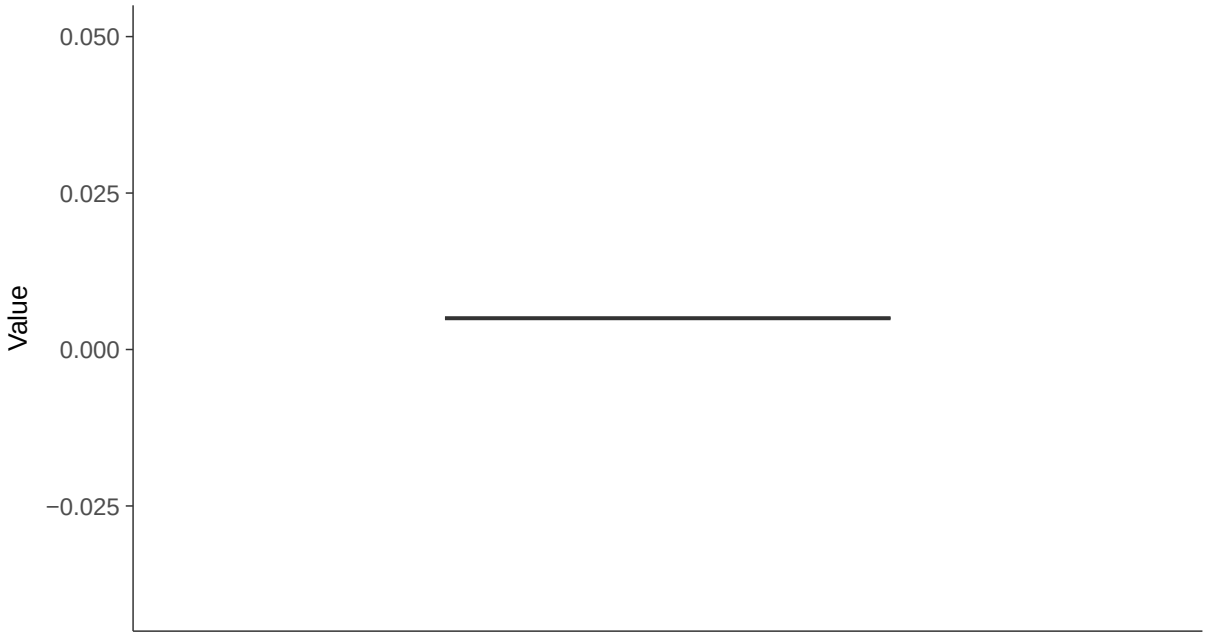
Histogram

Copper, MW-100D (mg/L)



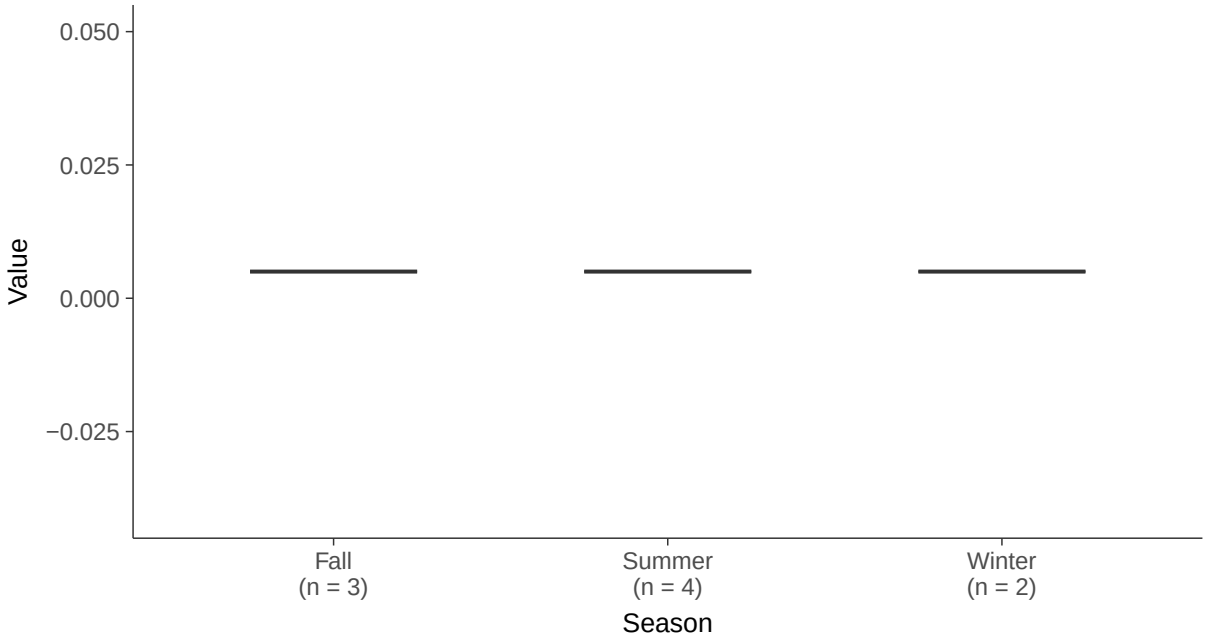
Boxplot

Copper, MW-100D (mg/L)



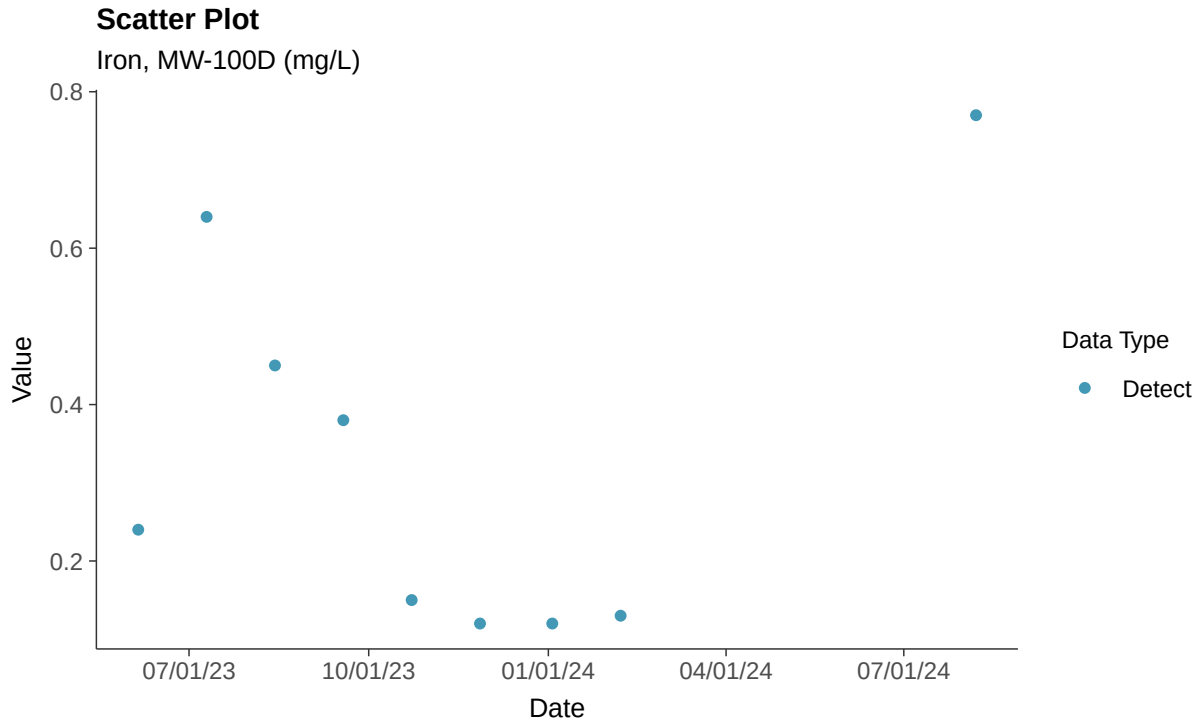
Boxplot by Season

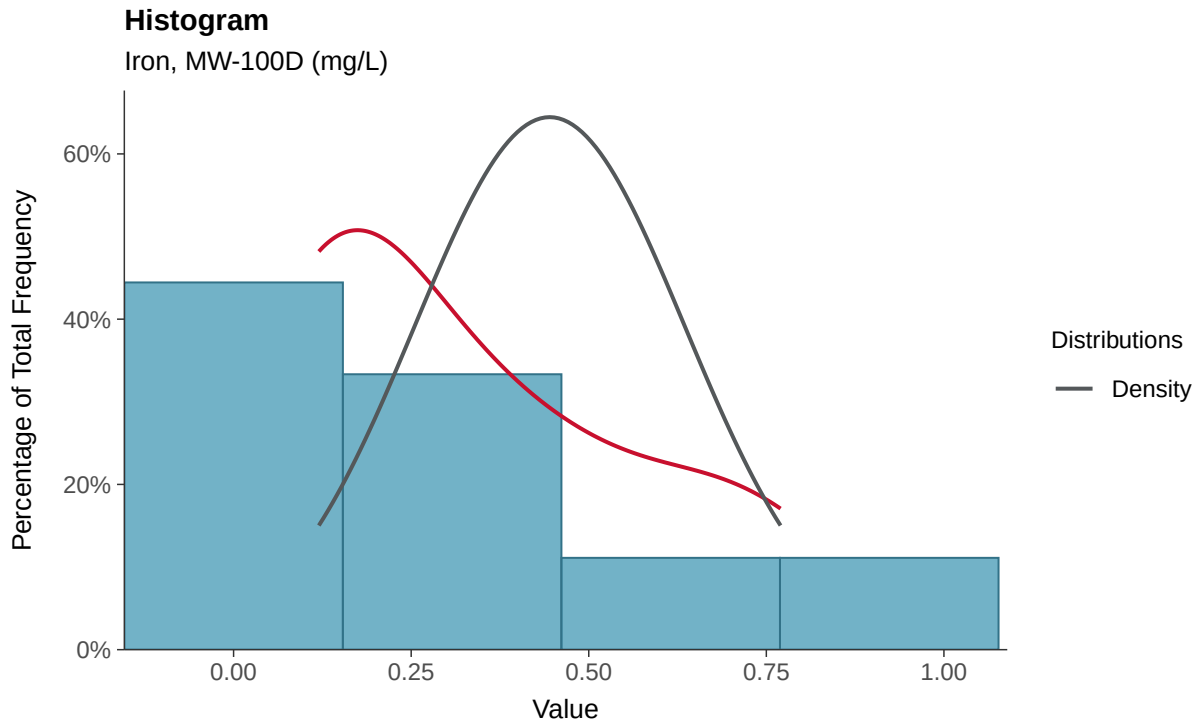
Copper, MW-100D (mg/L)



Part 115: Iron, MW-100D

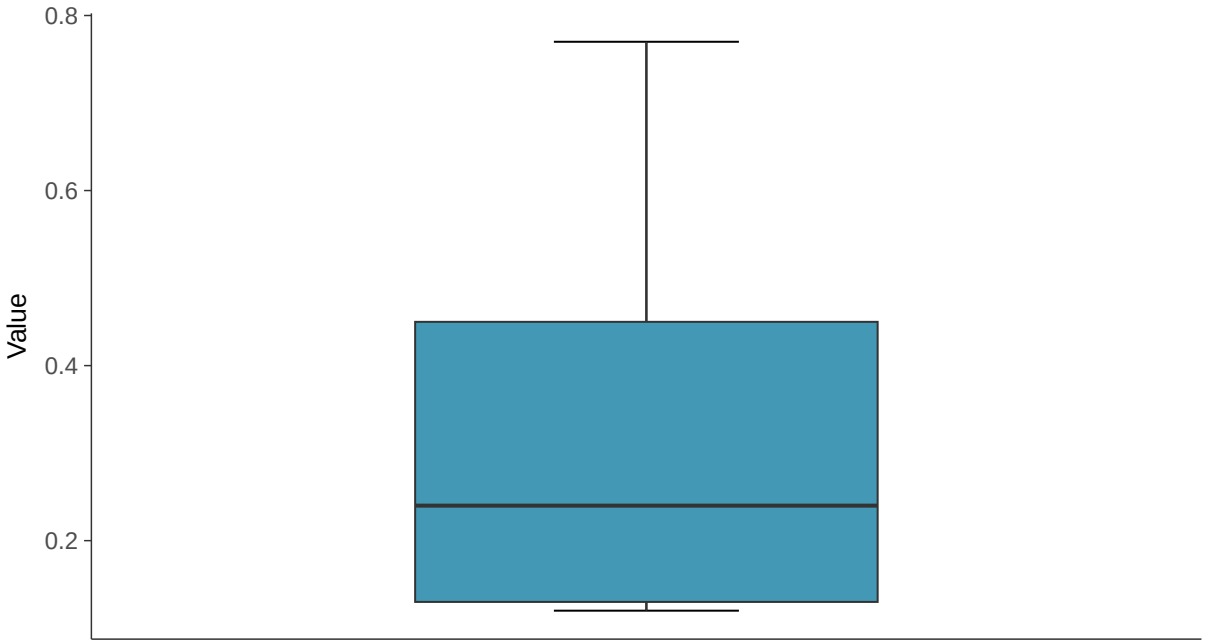
ID: 100D_5_38





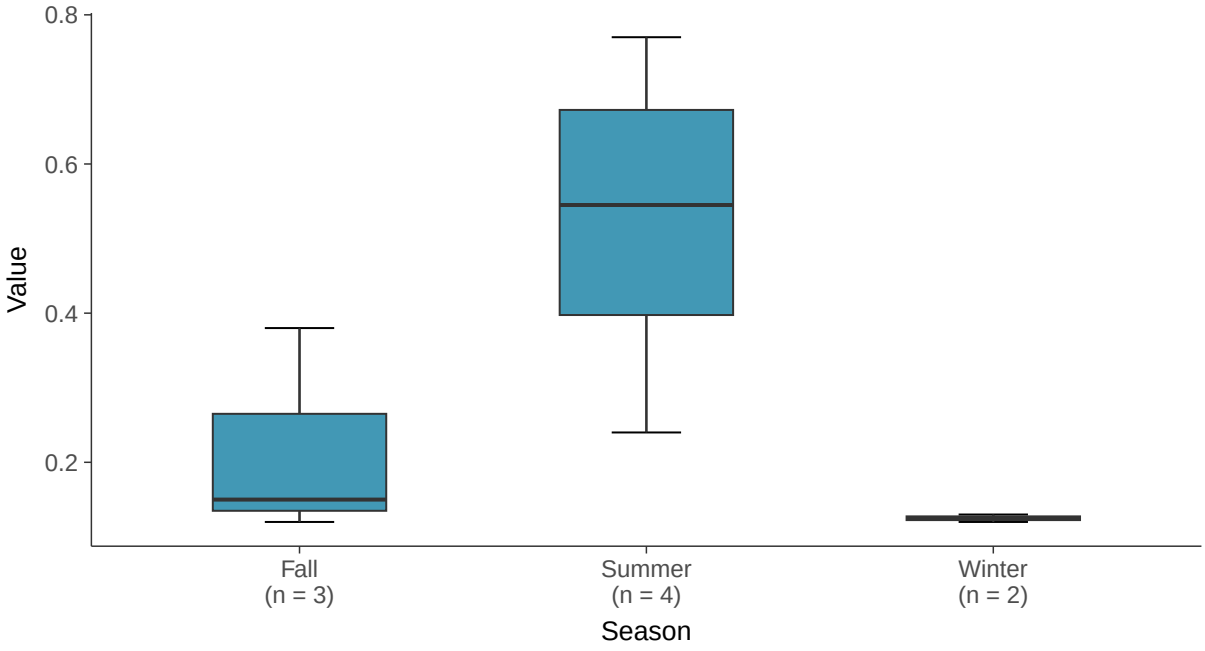
Boxplot

Iron, MW-100D (mg/L)



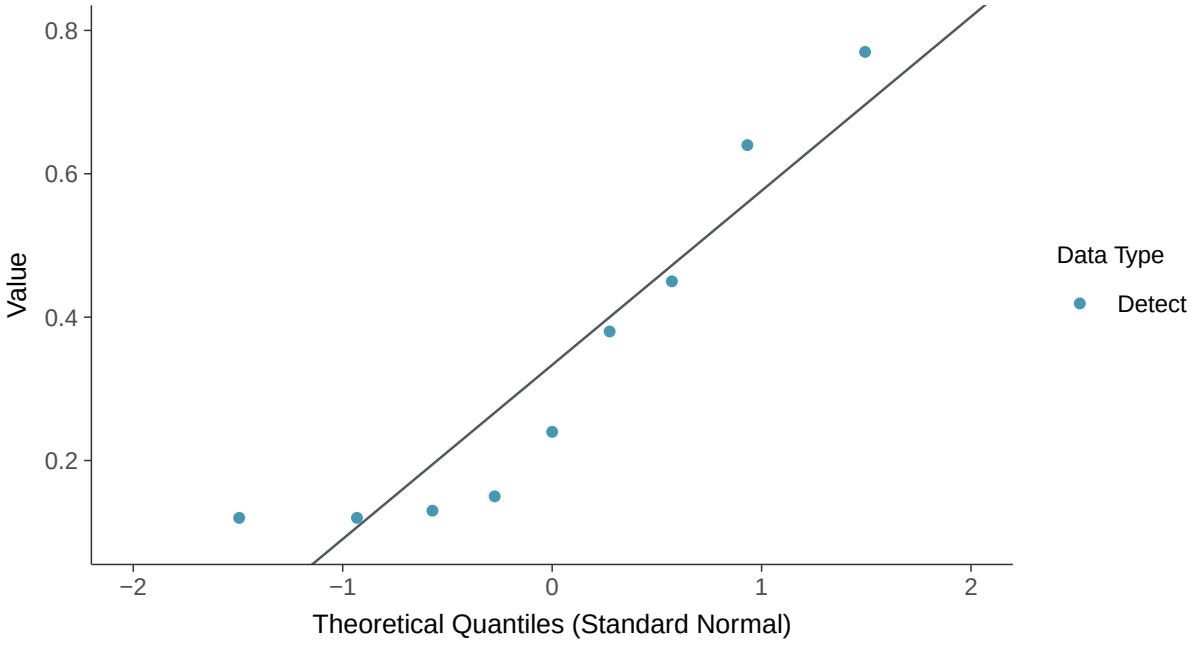
Boxplot by Season

Iron, MW-100D (mg/L)



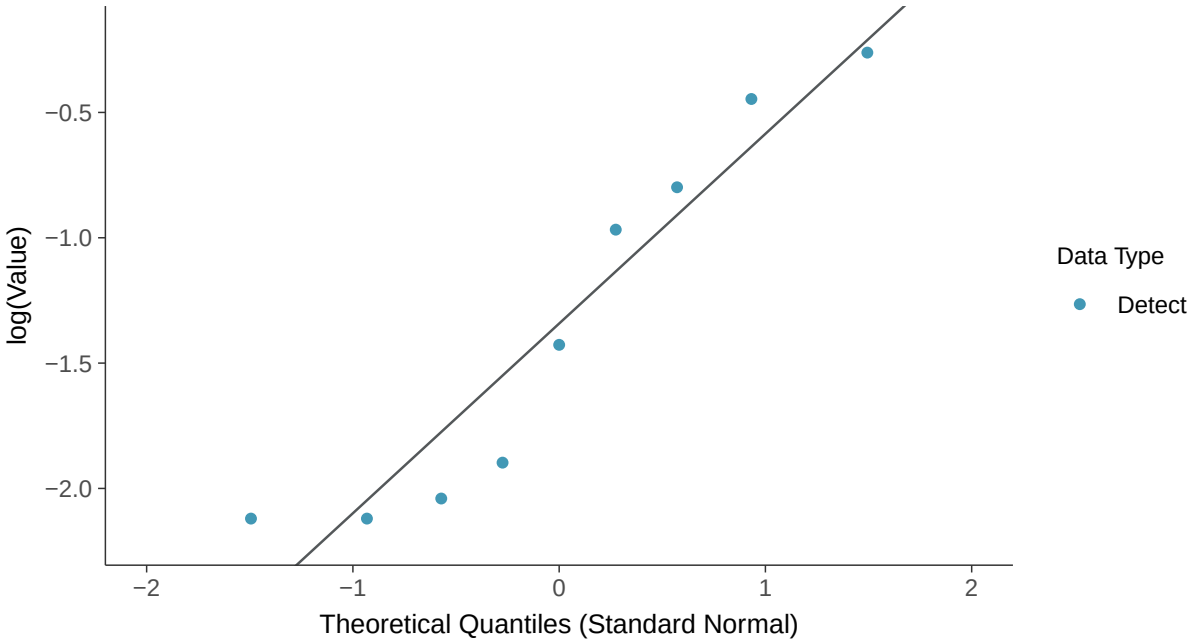
Normal Q-Q plot

Iron, MW-100D (mg/L)



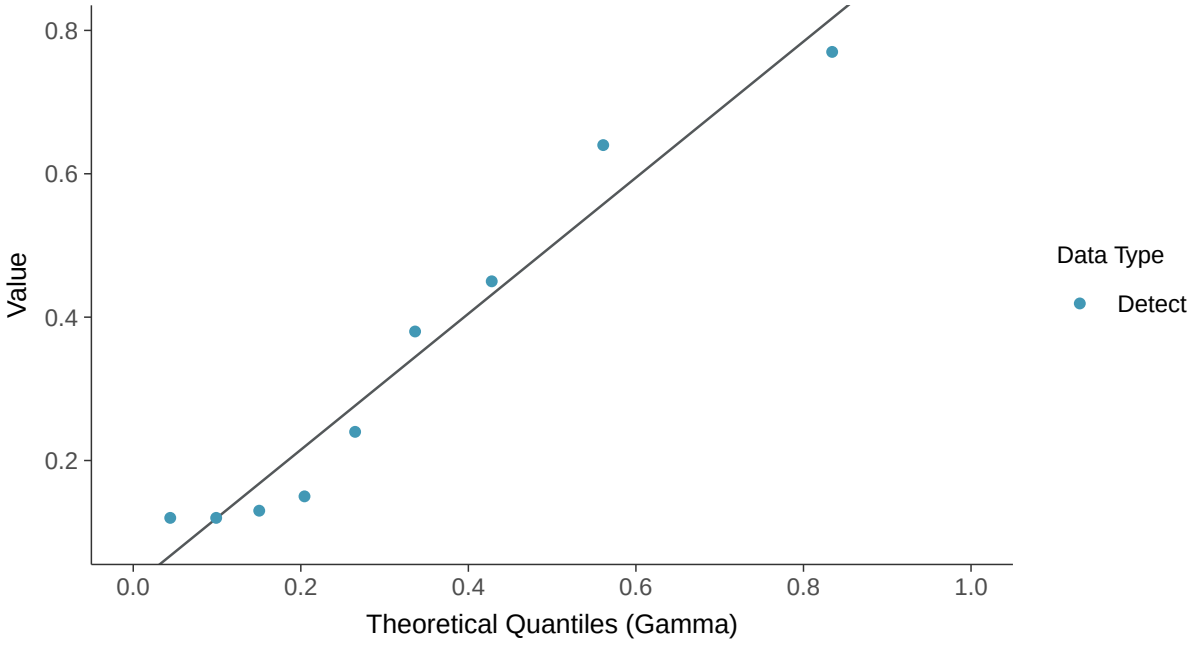
Lognormal Q-Q plot

Iron, MW-100D (mg/L)



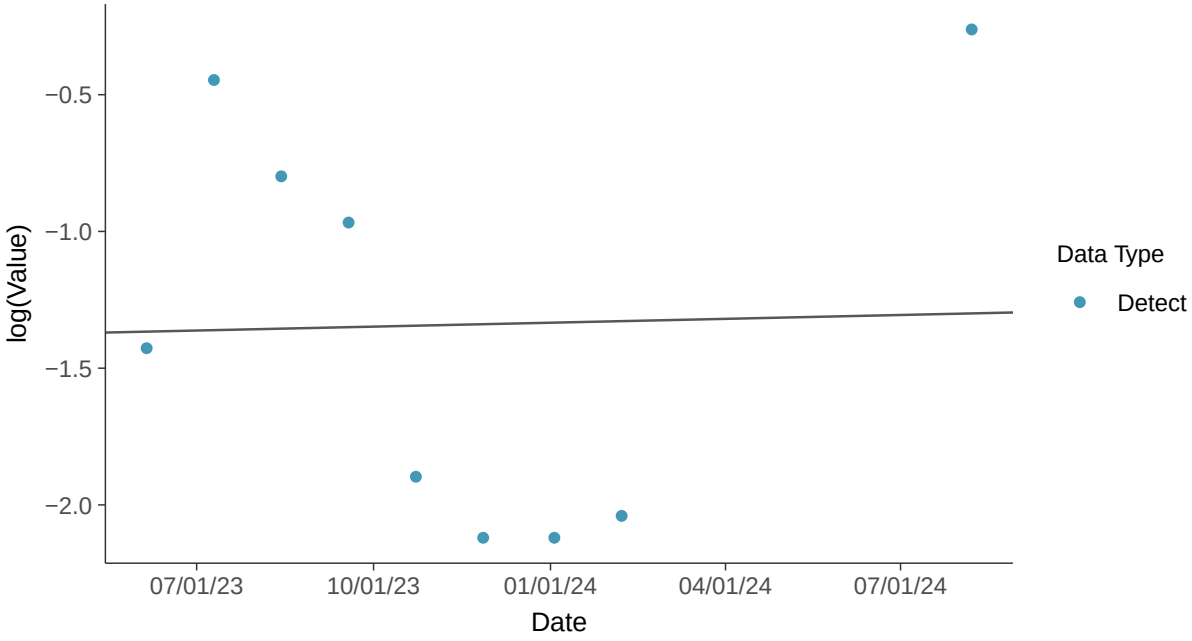
Gamma Q-Q plot

Iron, MW-100D (mg/L)



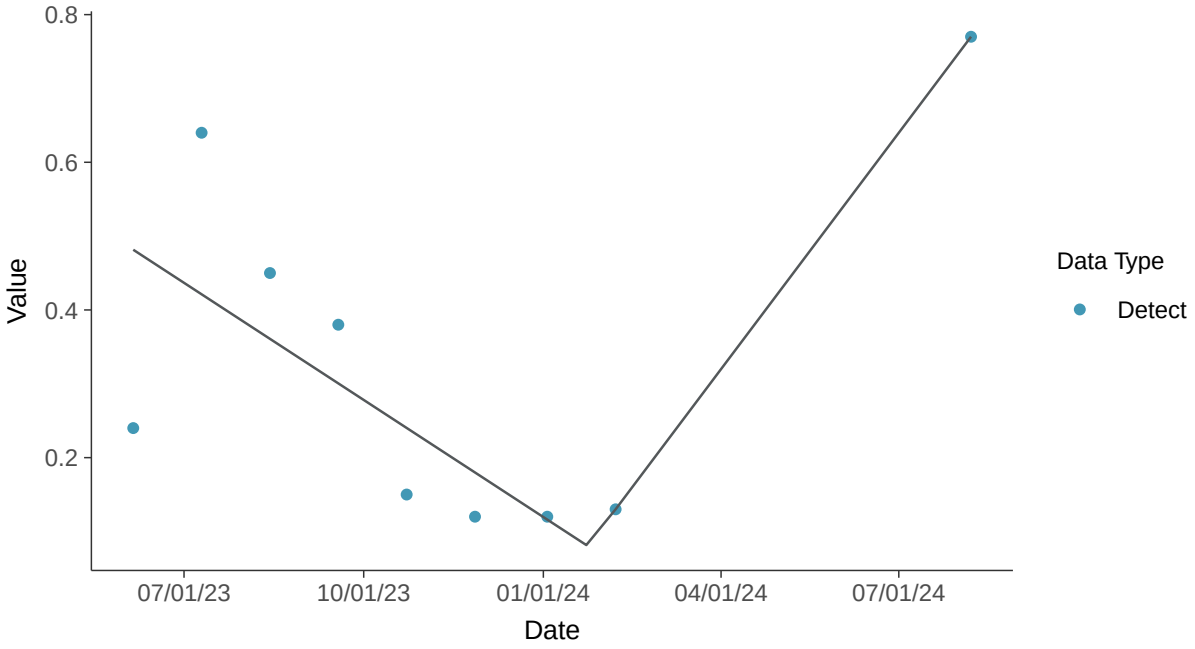
Trend Regression: Lognormal MLE

Iron, MW-100D (mg/L)



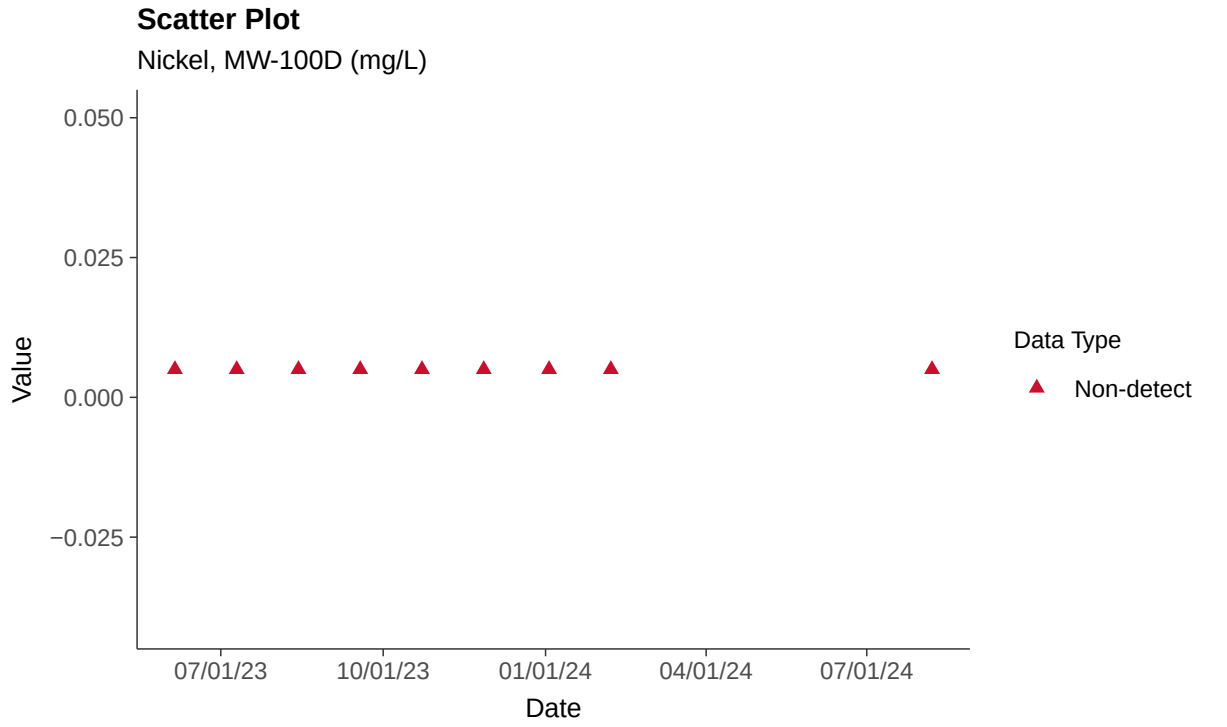
Trend Regression: Piecewise Linear-Linear

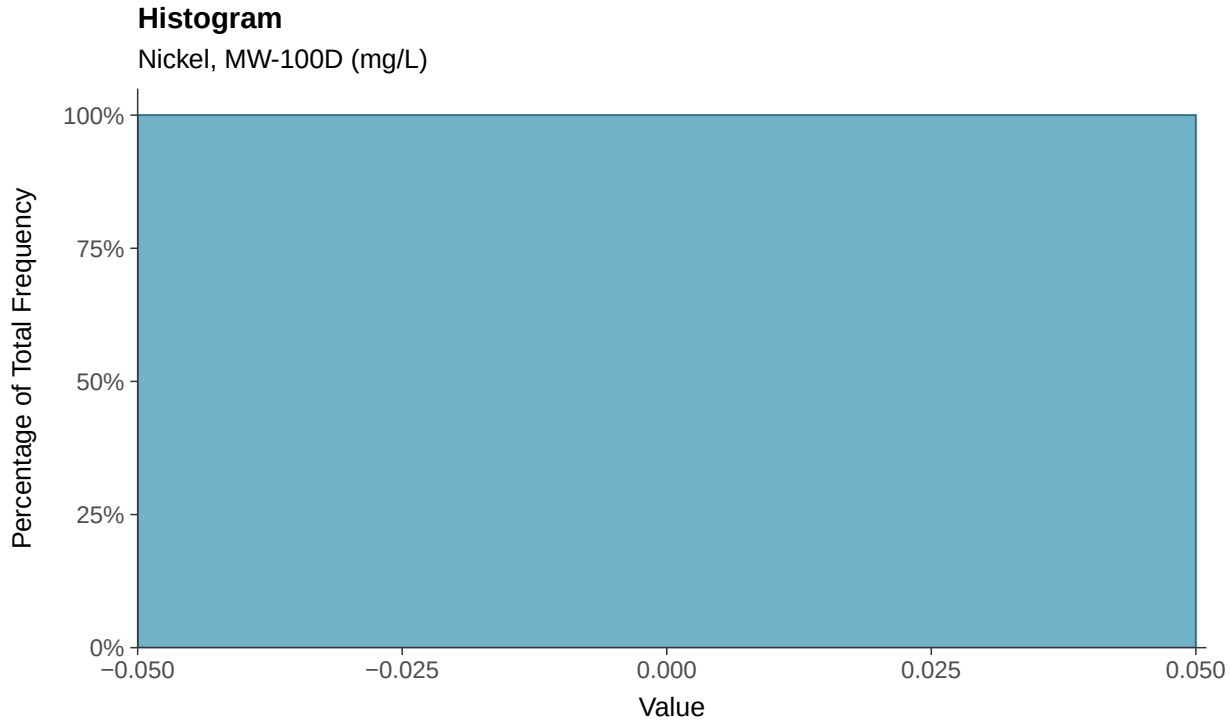
Iron, MW-100D (mg/L)



Part 115: Nickel, MW-100D

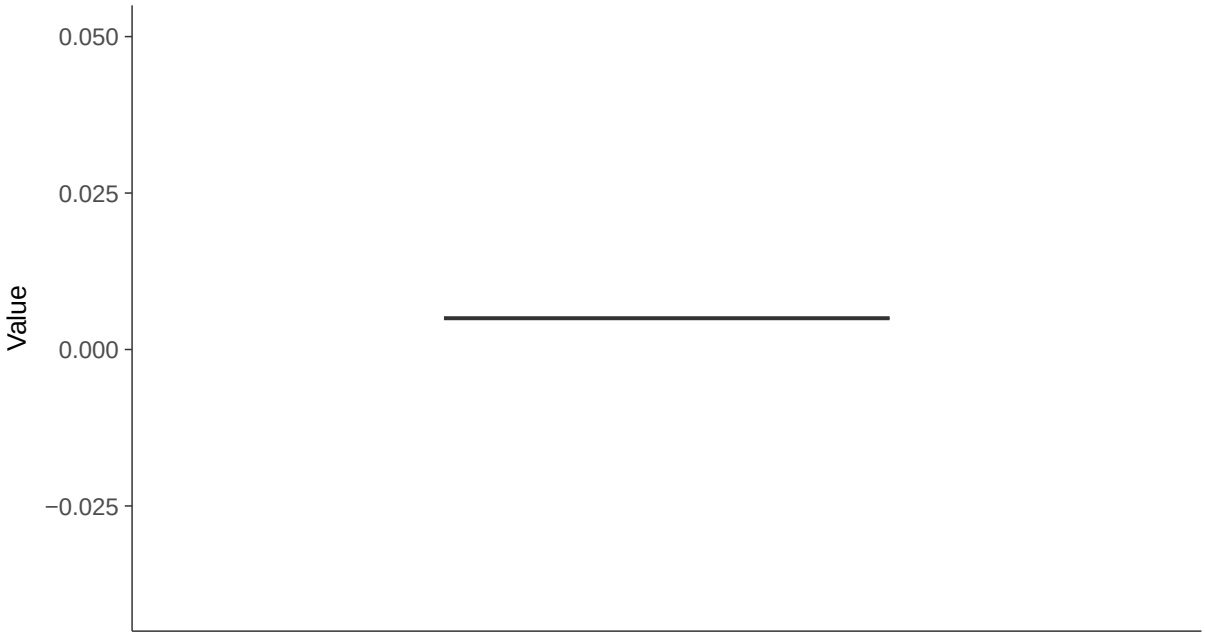
ID: 100D_5_39





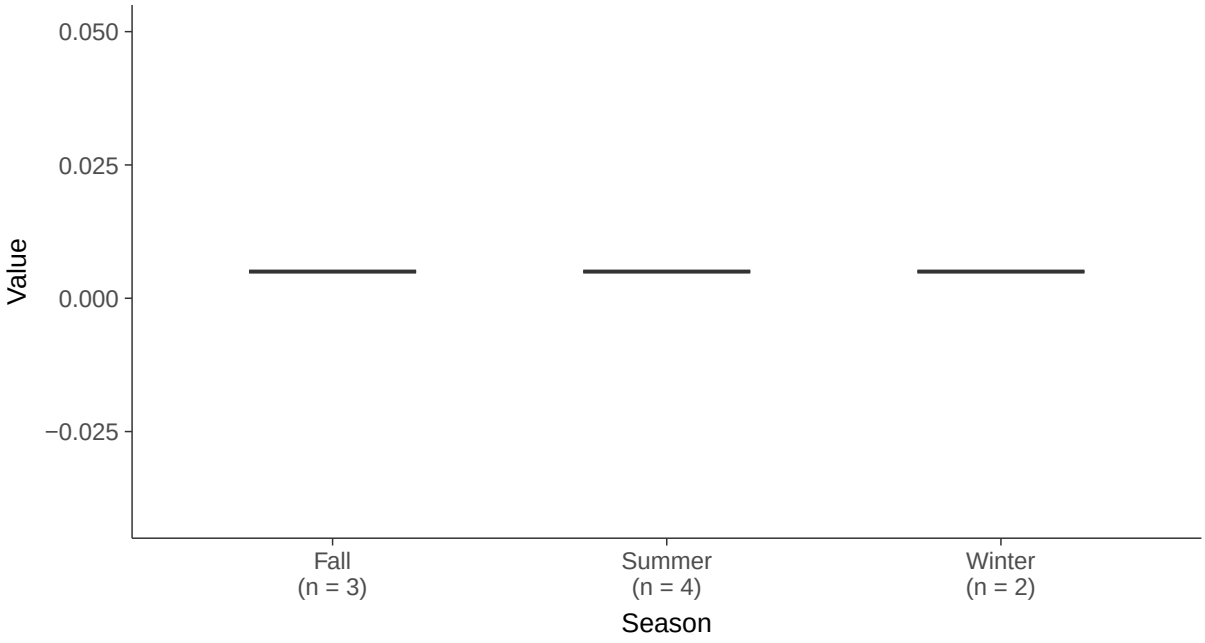
Boxplot

Nickel, MW-100D (mg/L)



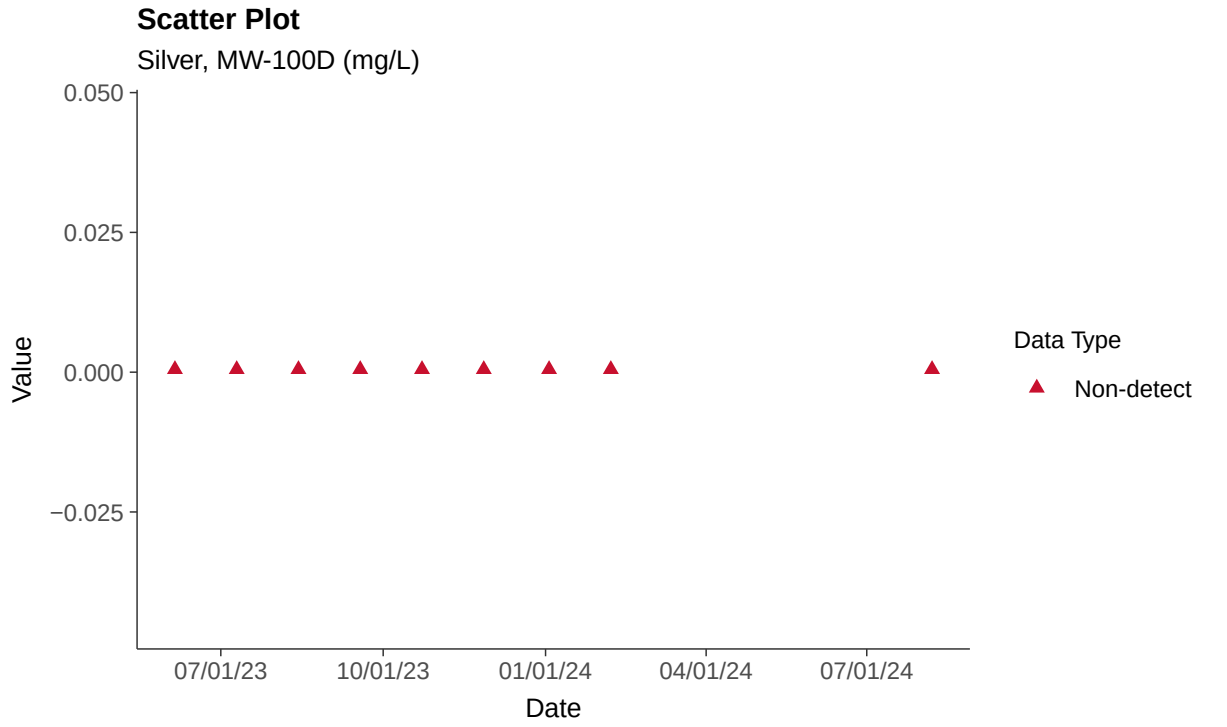
Boxplot by Season

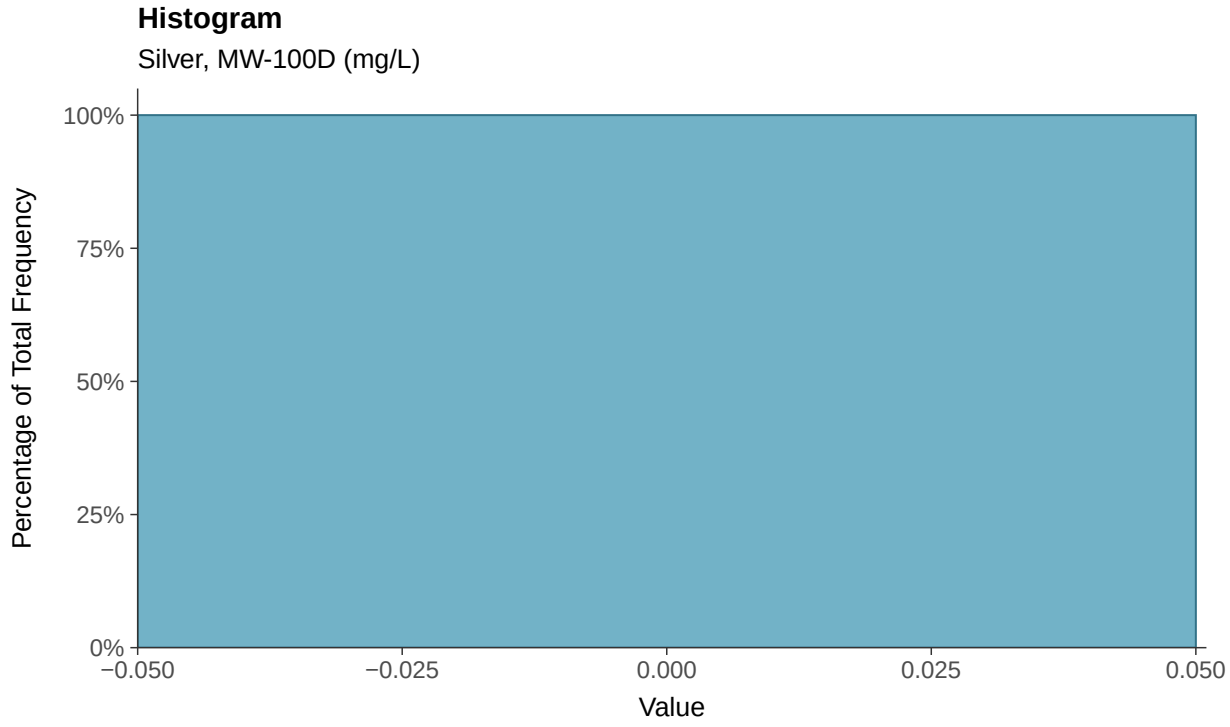
Nickel, MW-100D (mg/L)



Part 115: Silver, MW-100D

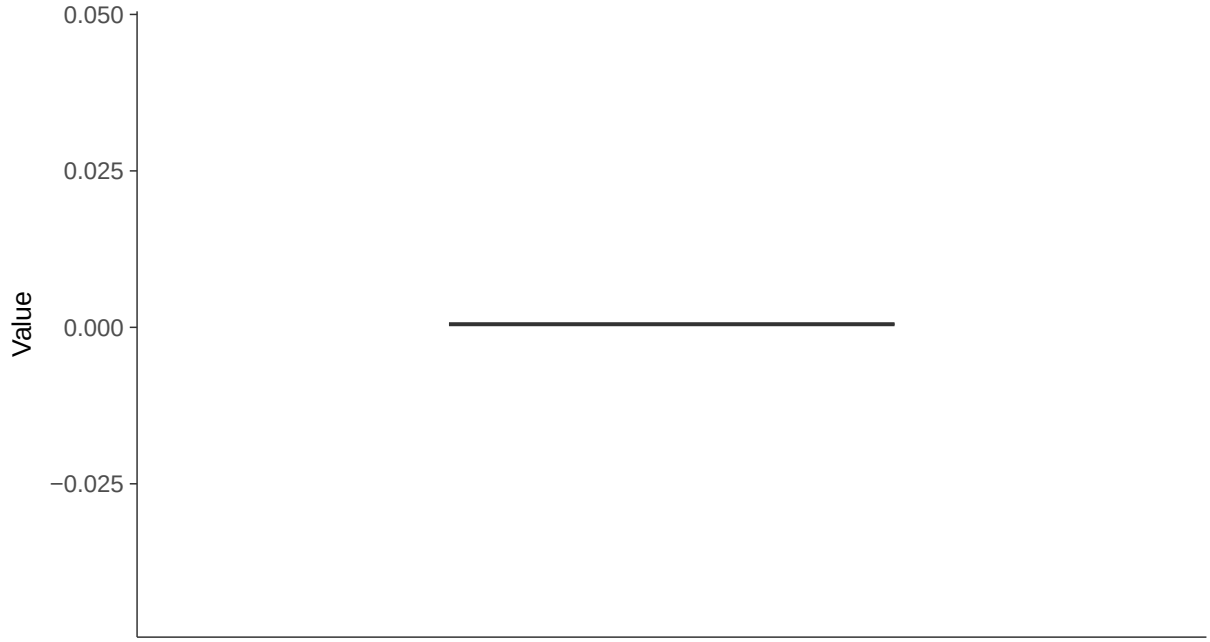
ID: 100D_5_40





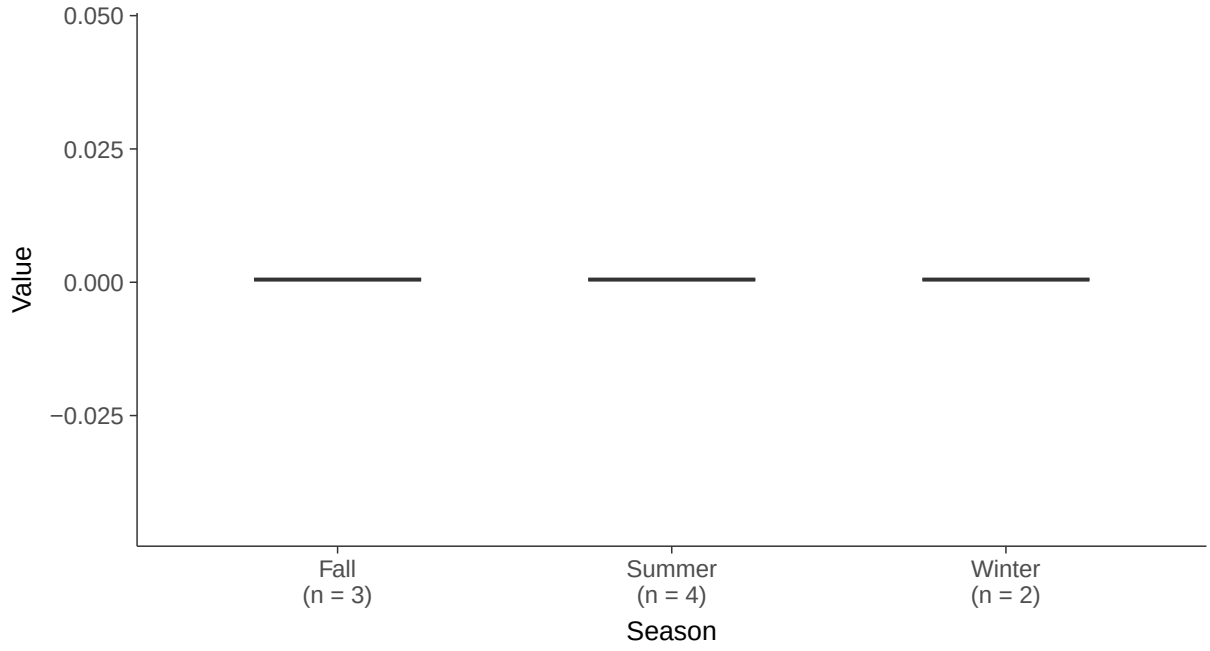
Boxplot

Silver, MW-100D (mg/L)



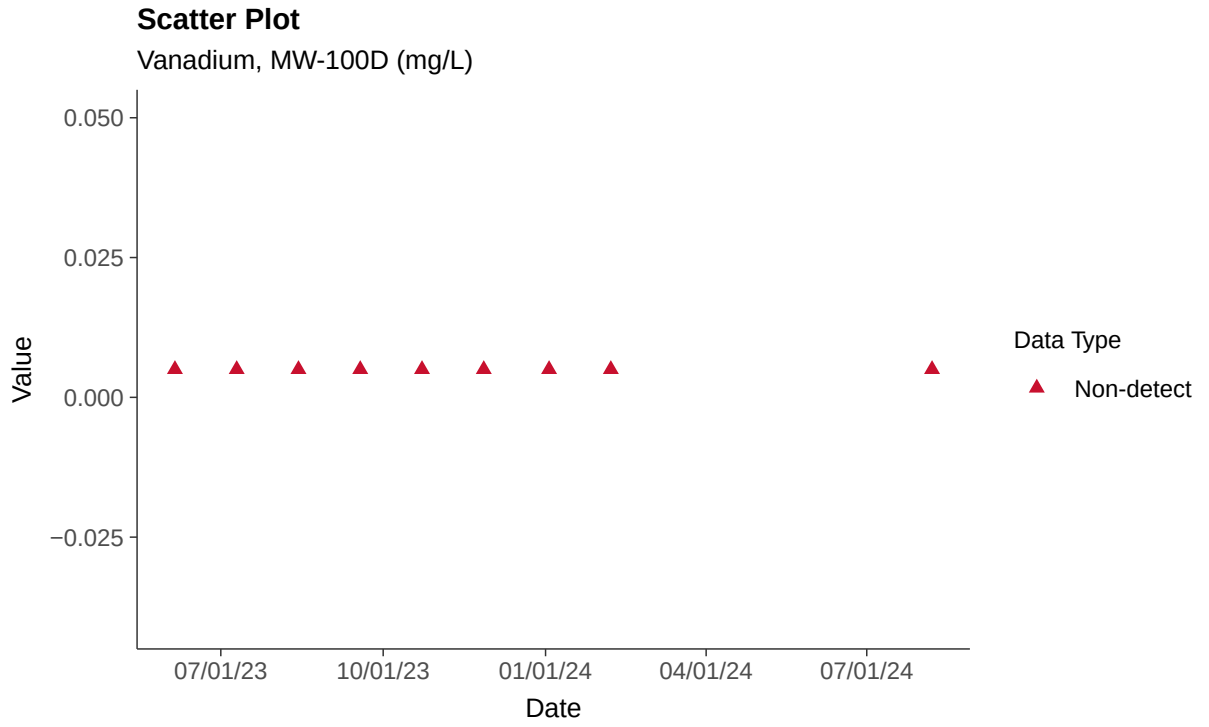
Boxplot by Season

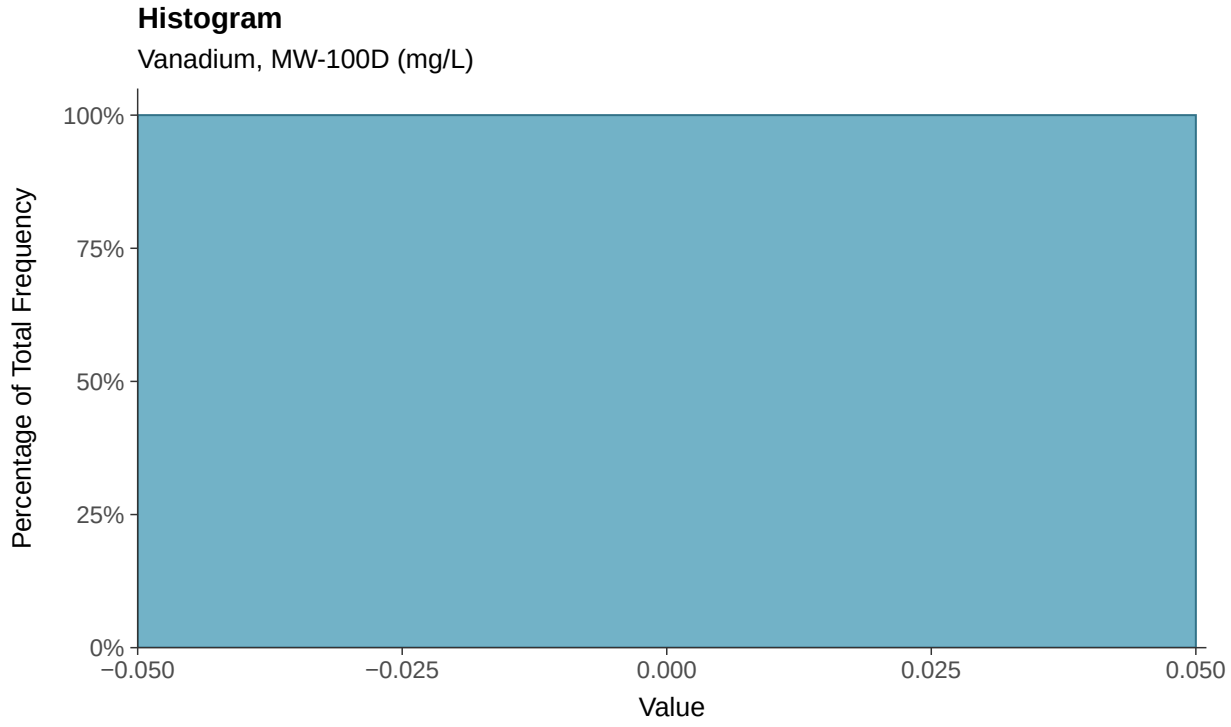
Silver, MW-100D (mg/L)



Part 115: Vanadium, MW-100D

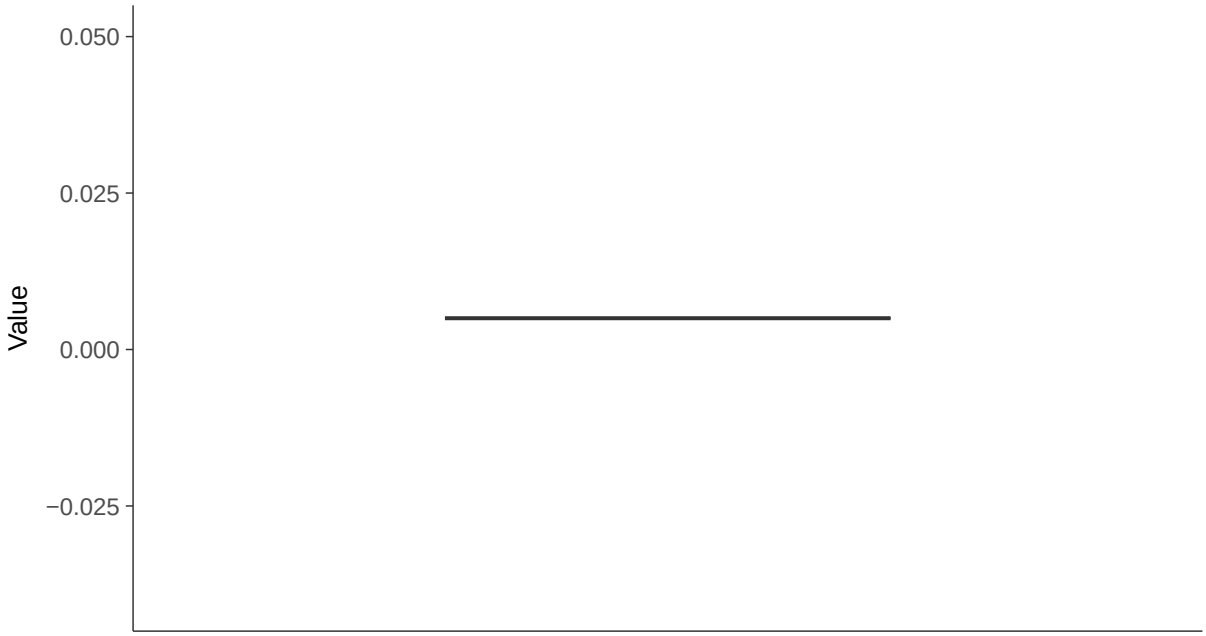
ID: 100D_5_41





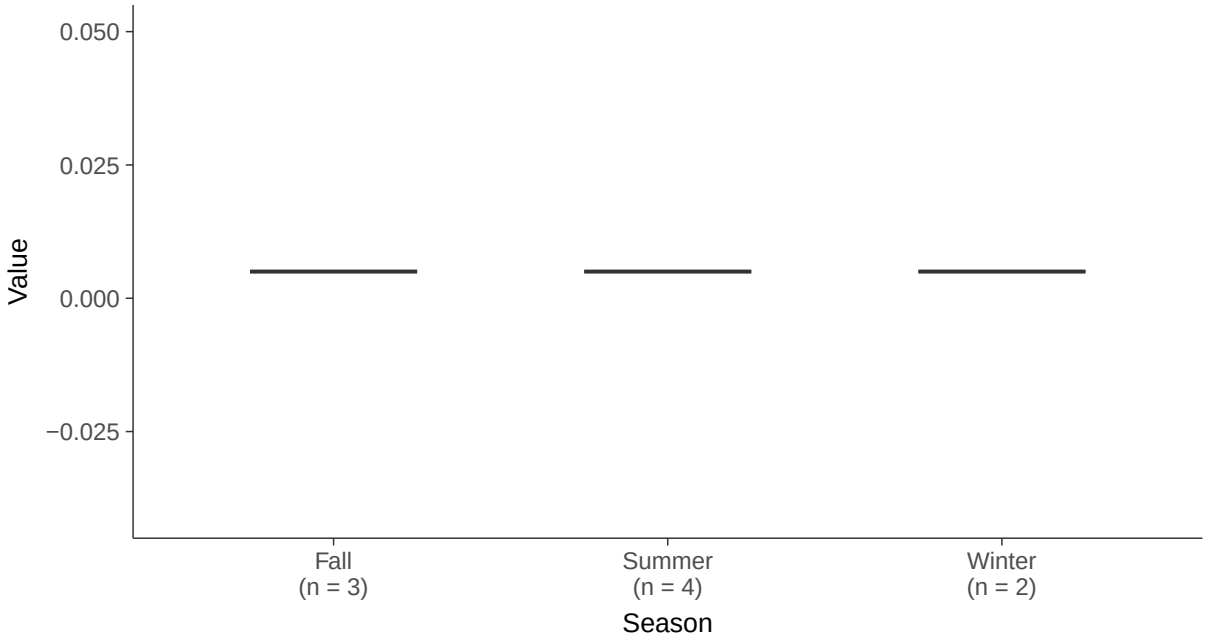
Boxplot

Vanadium, MW-100D (mg/L)



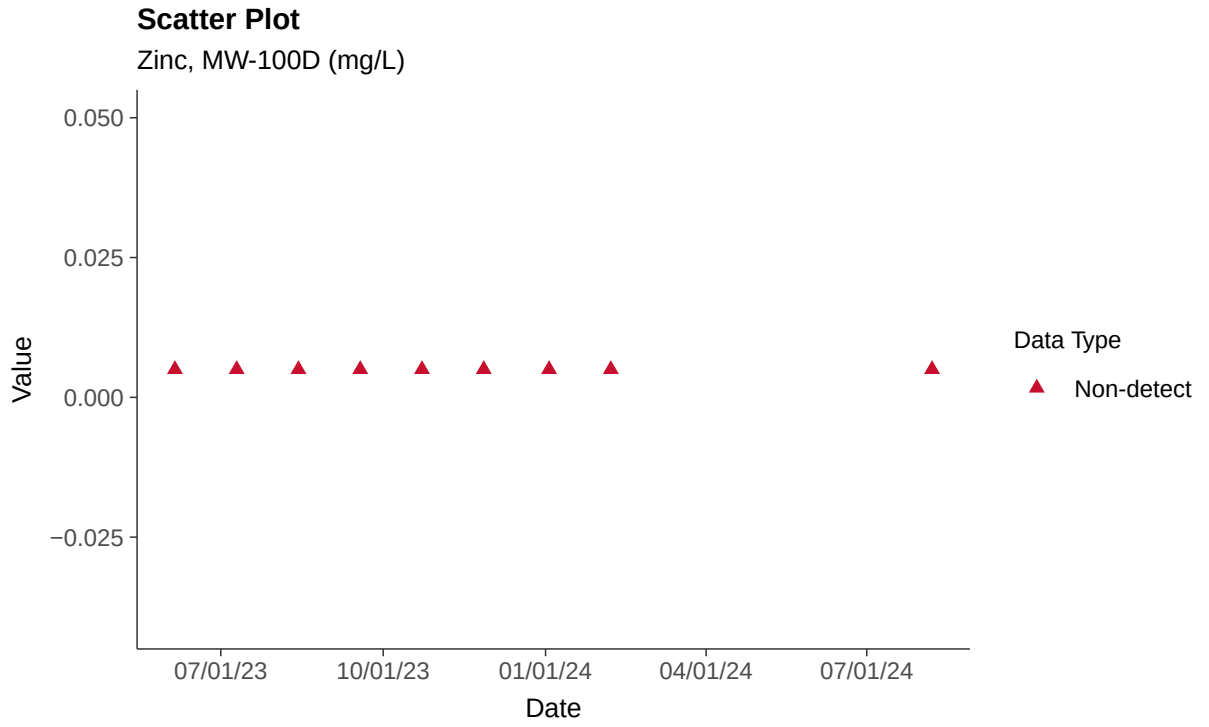
Boxplot by Season

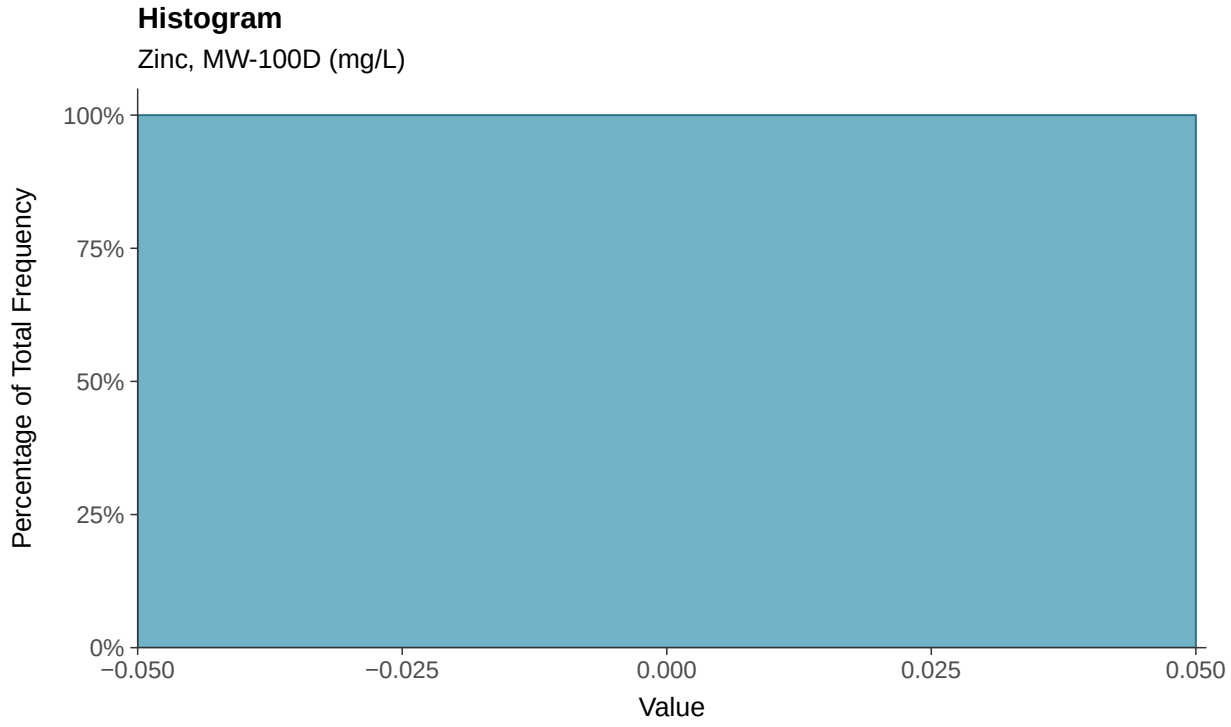
Vanadium, MW-100D (mg/L)



Part 115: Zinc, MW-100D

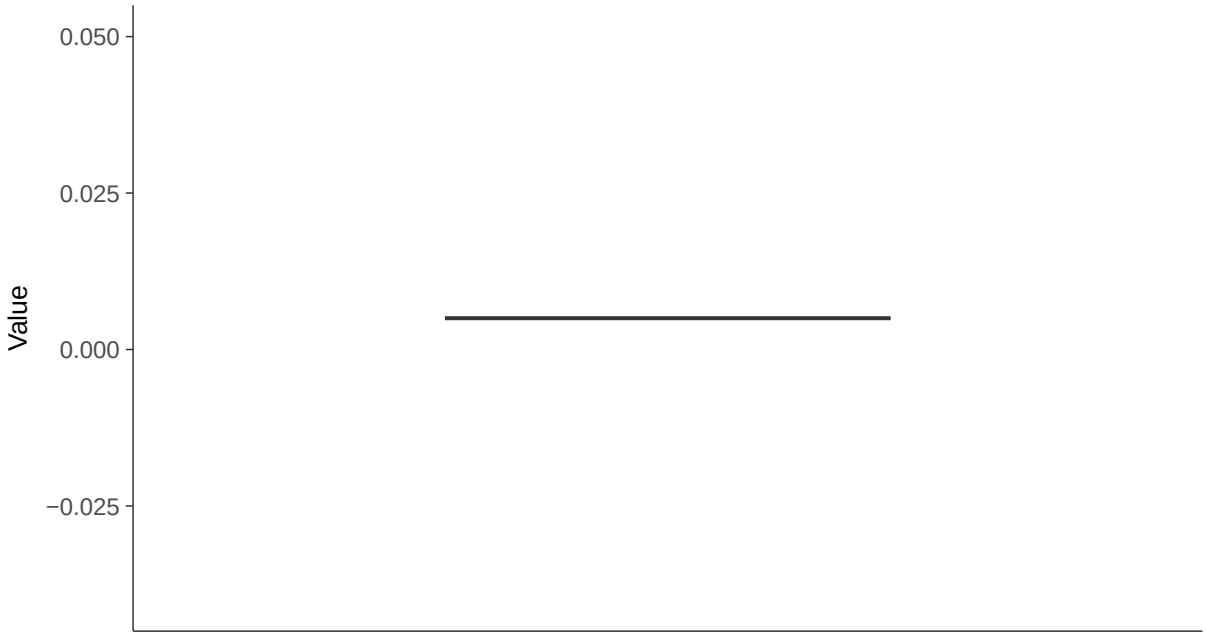
ID: 100D_5_42





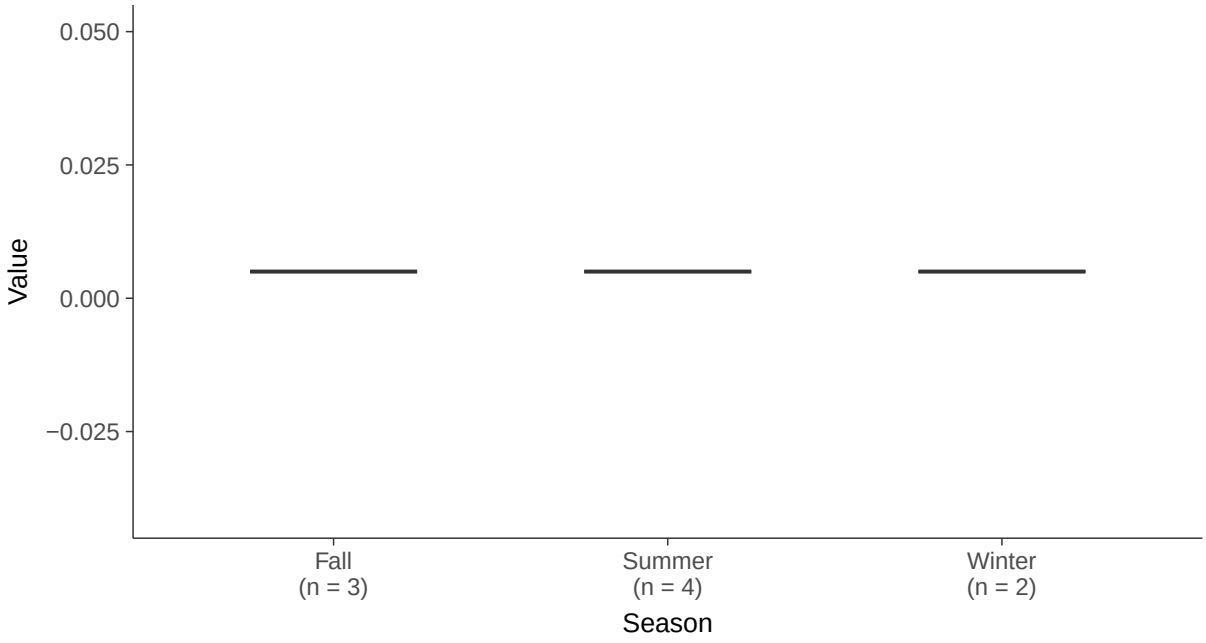
Boxplot

Zinc, MW-100D (mg/L)



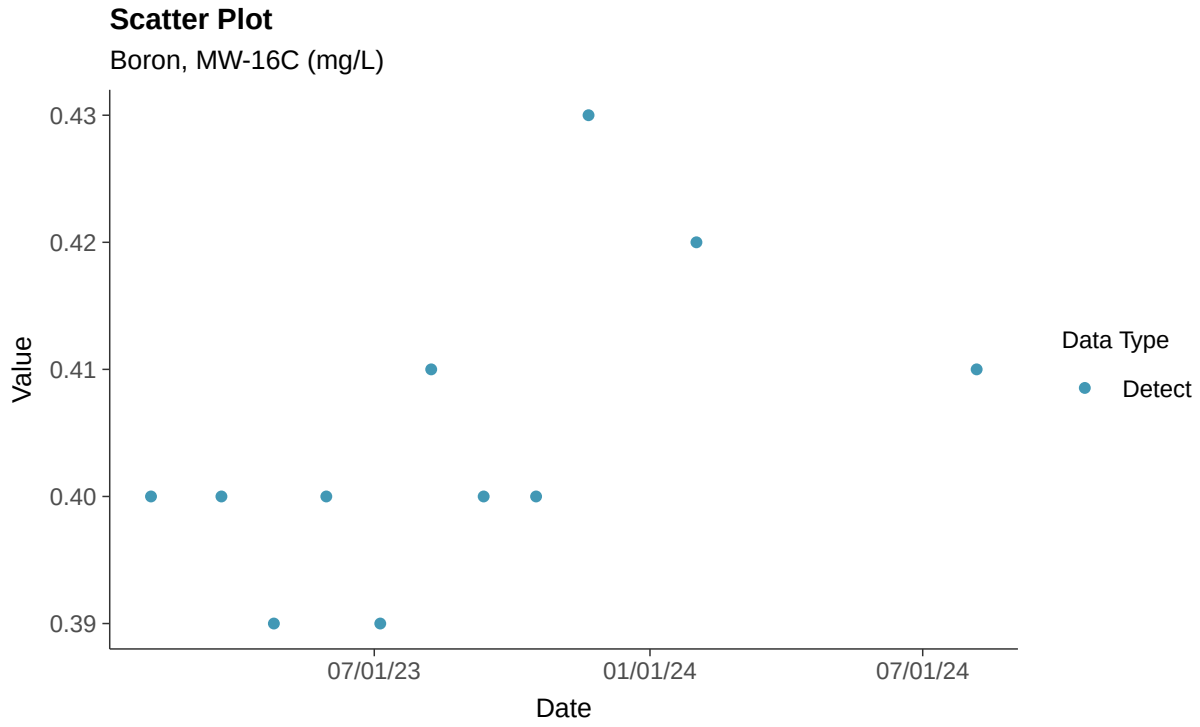
Boxplot by Season

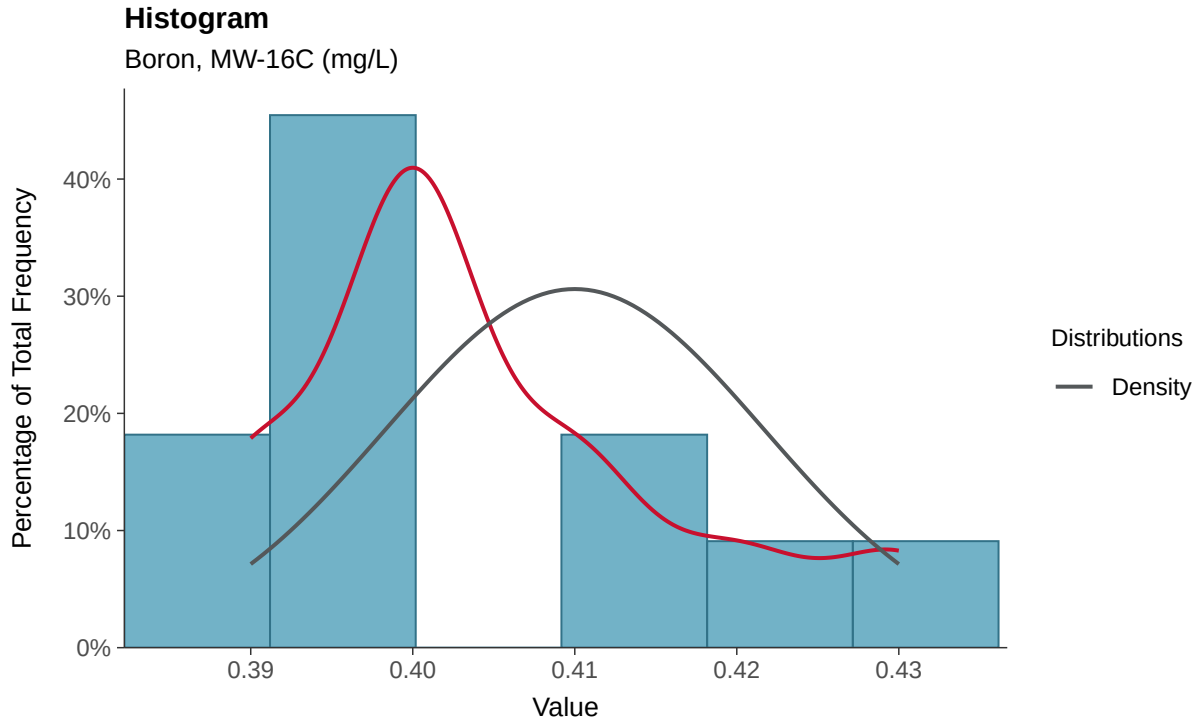
Zinc, MW-100D (mg/L)



Appendix III: Boron, MW-16C

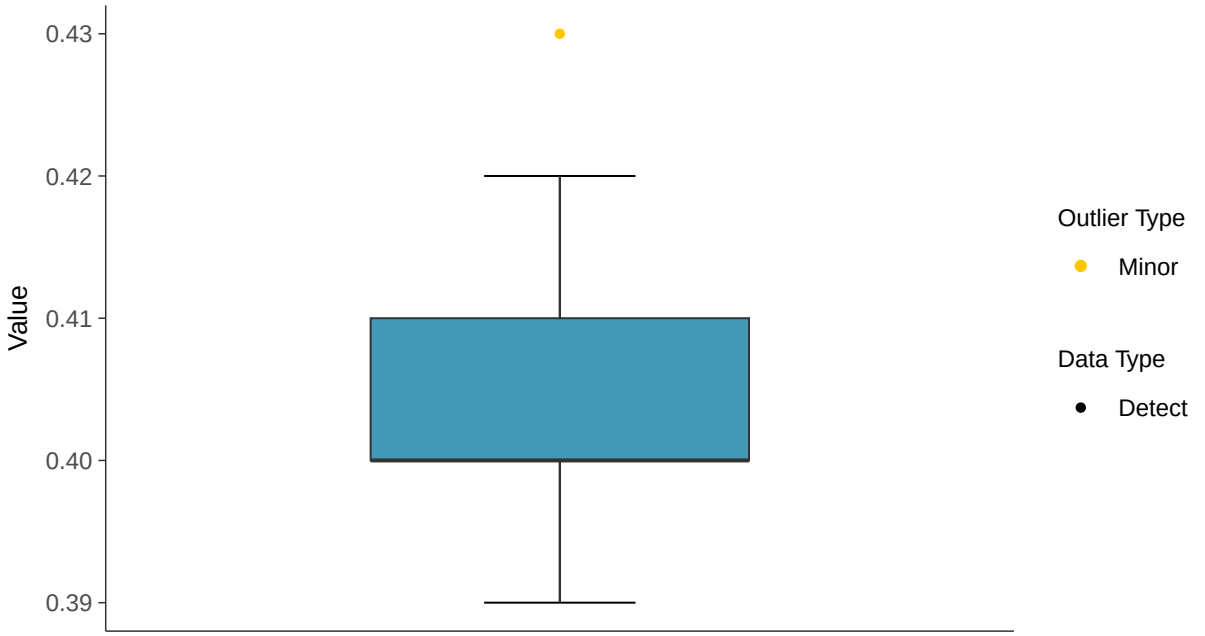
ID: 16C_1_01





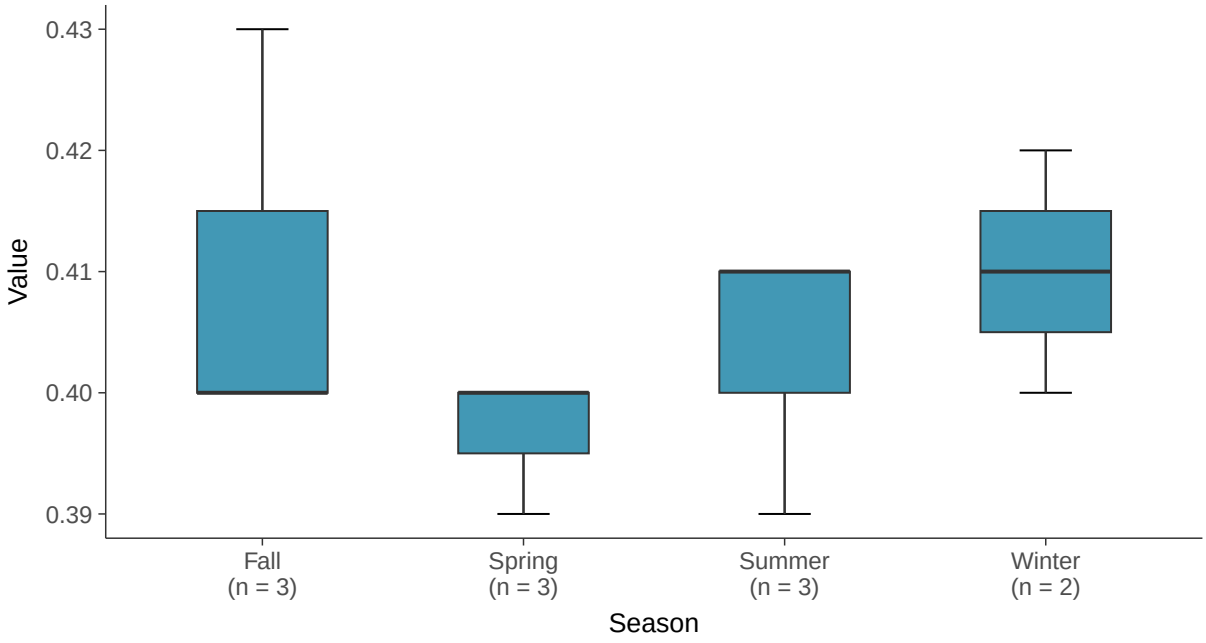
Boxplot

Boron, MW-16C (mg/L)



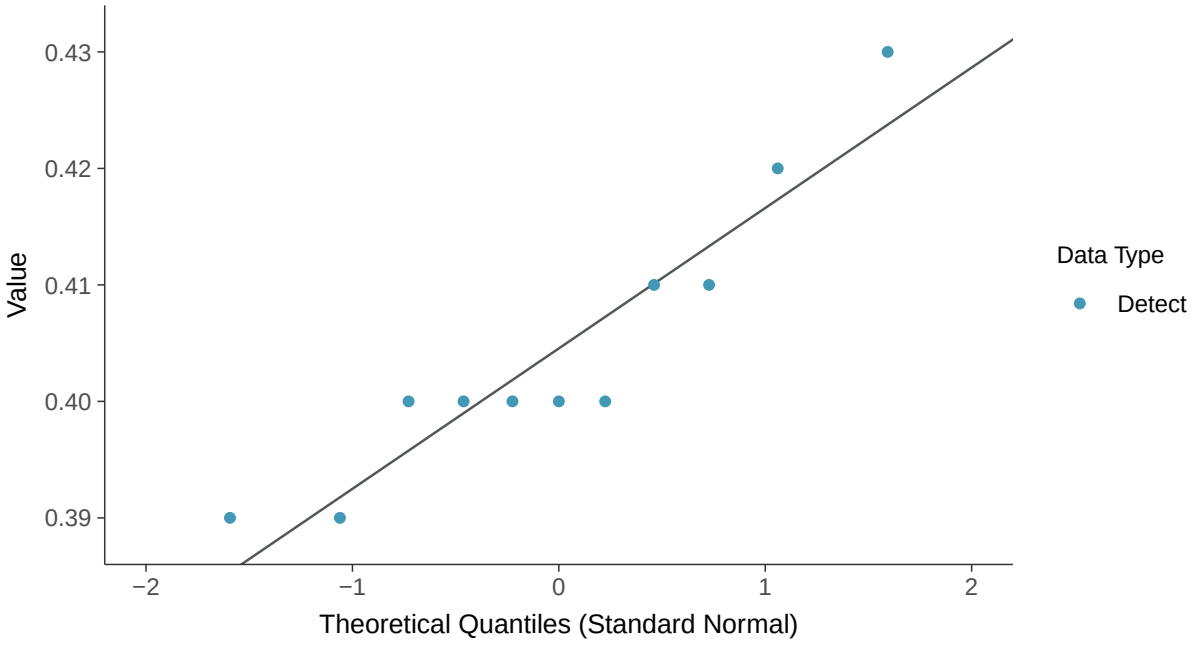
Boxplot by Season

Boron, MW-16C (mg/L)



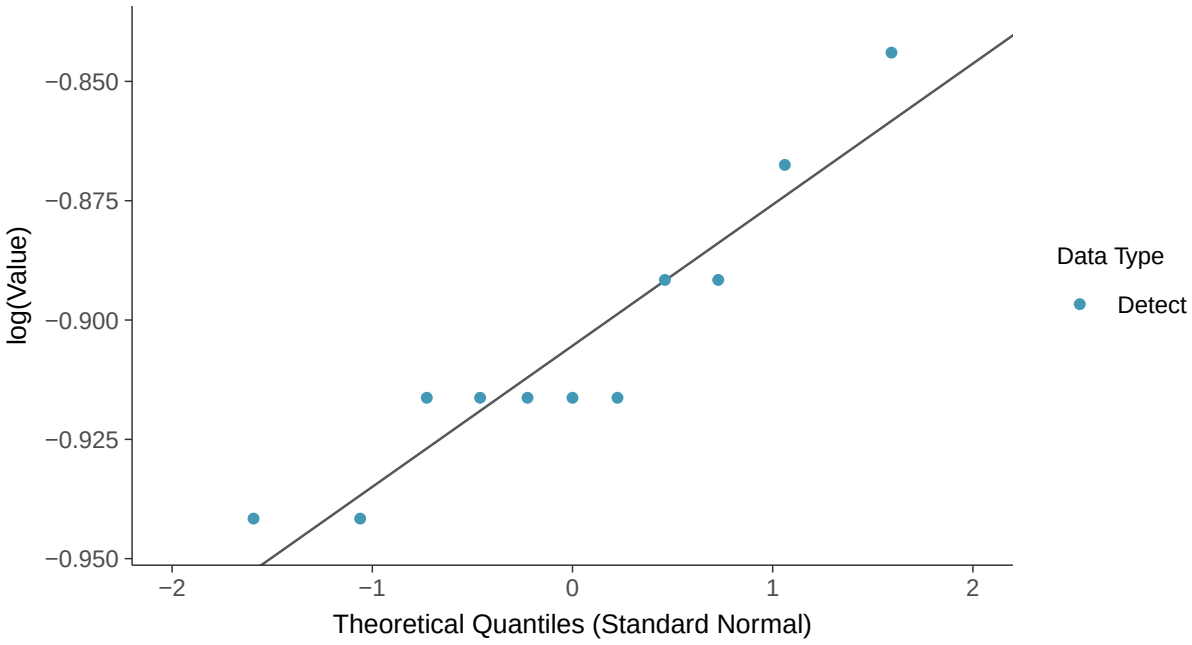
Normal Q-Q plot

Boron, MW-16C (mg/L)



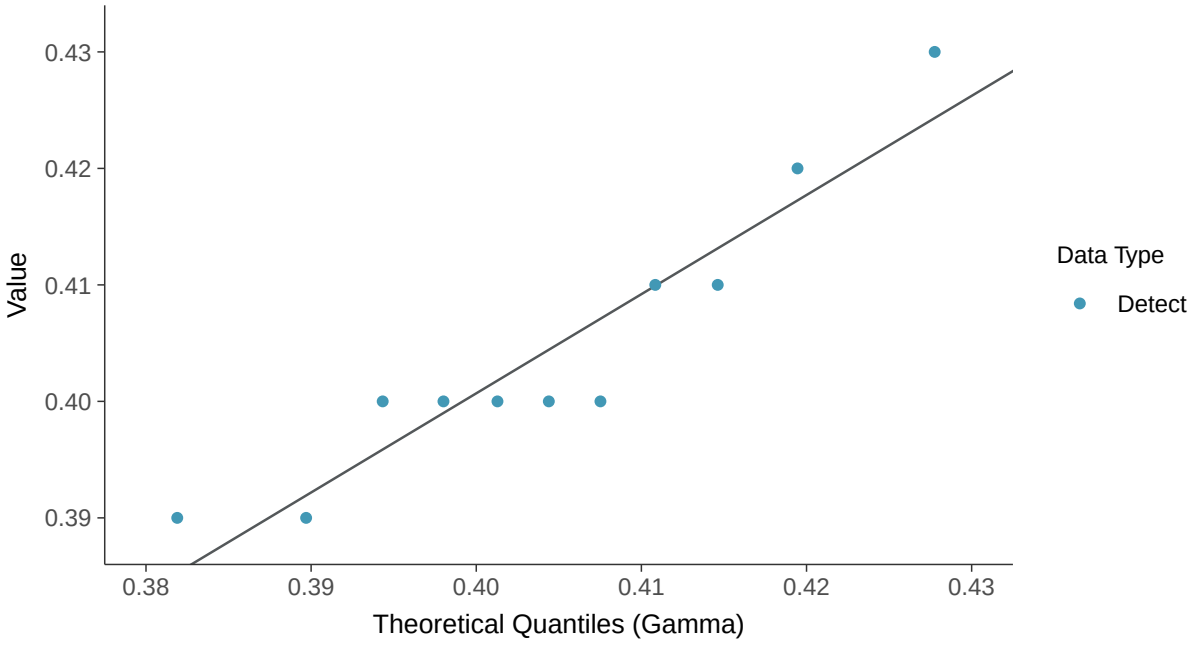
Lognormal Q-Q plot

Boron, MW-16C (mg/L)



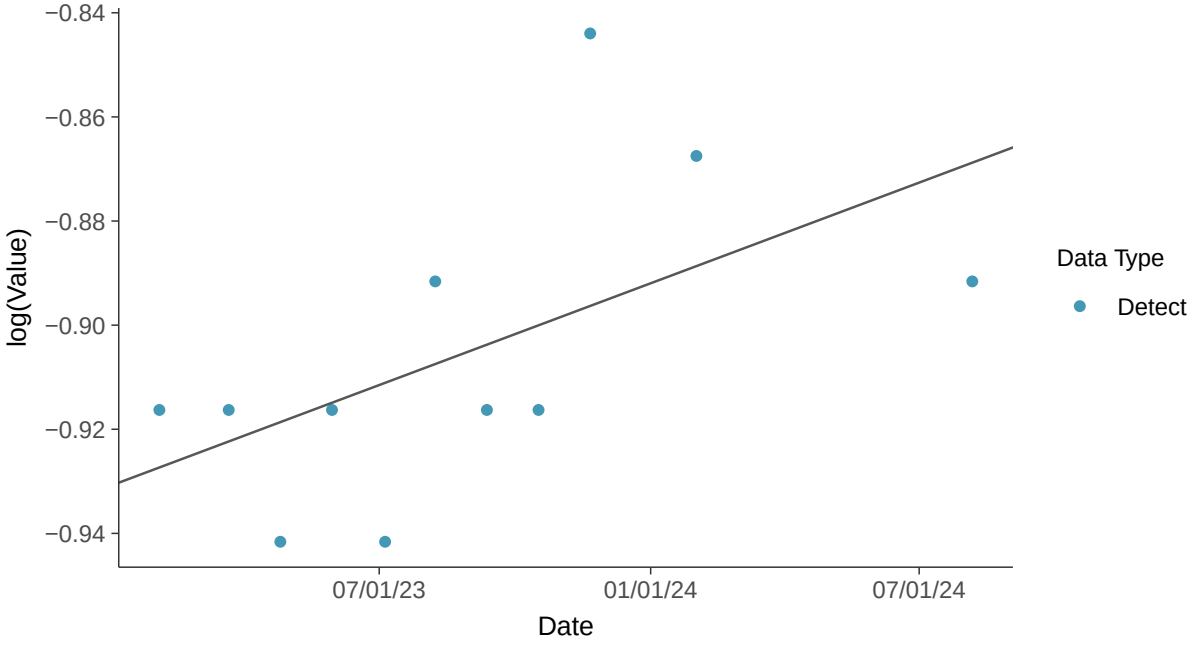
Gamma Q-Q plot

Boron, MW-16C (mg/L)



Trend Regression: Lognormal MLE

Boron, MW-16C (mg/L)

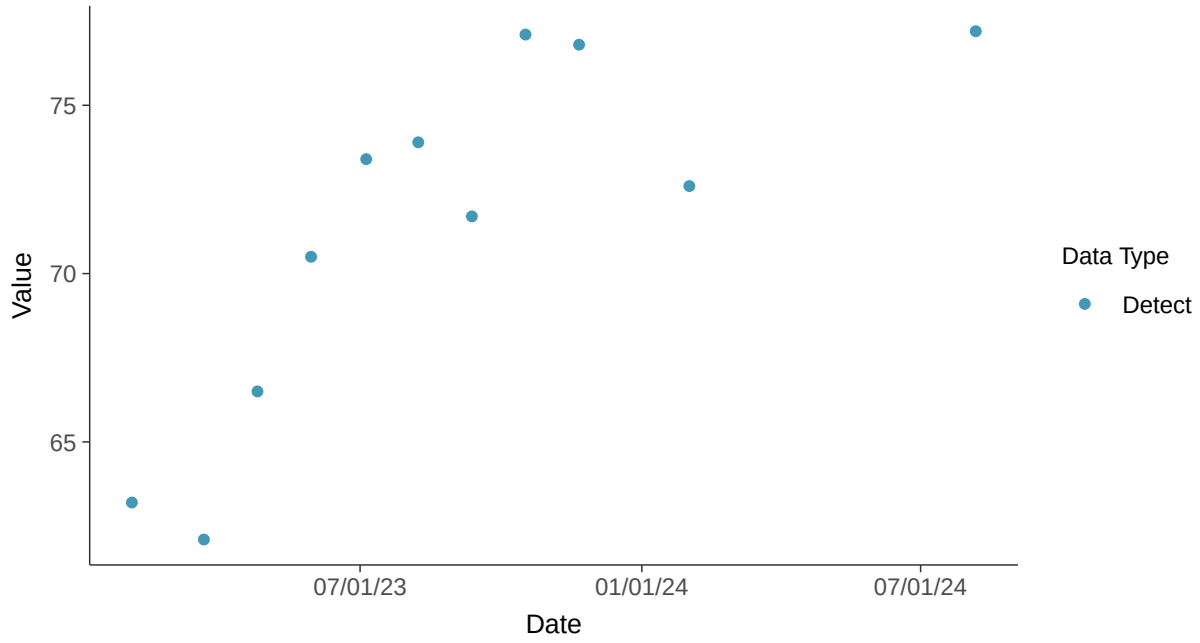


Appendix III: Calcium, MW-16C

ID: 16C_1_02

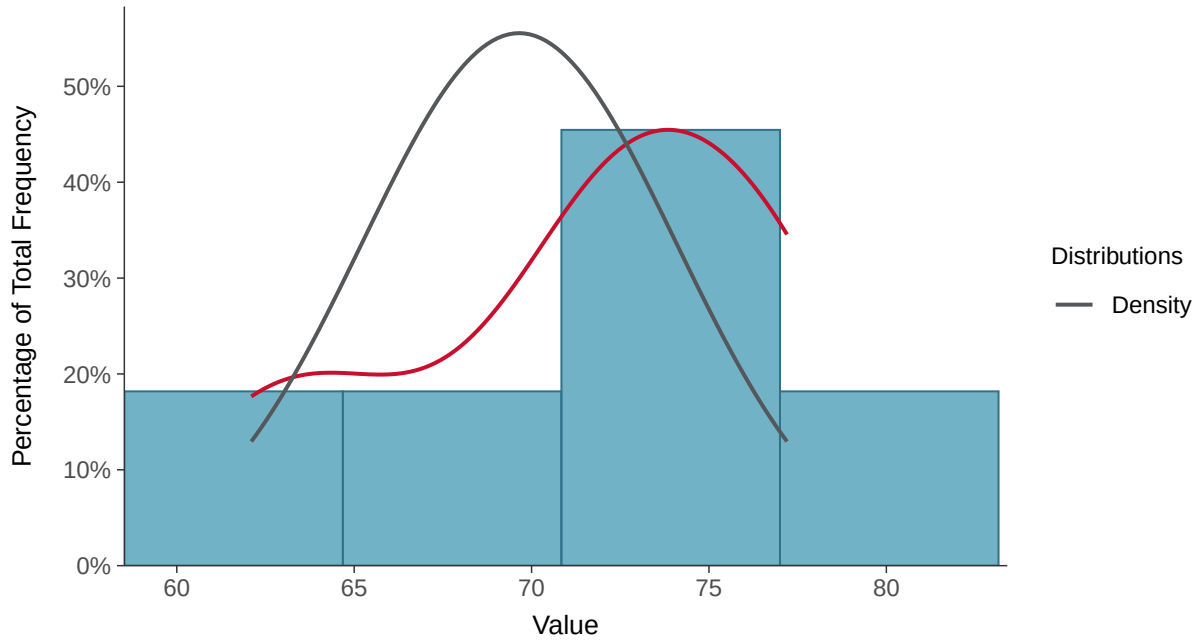
Scatter Plot

Calcium, MW-16C (mg/L)



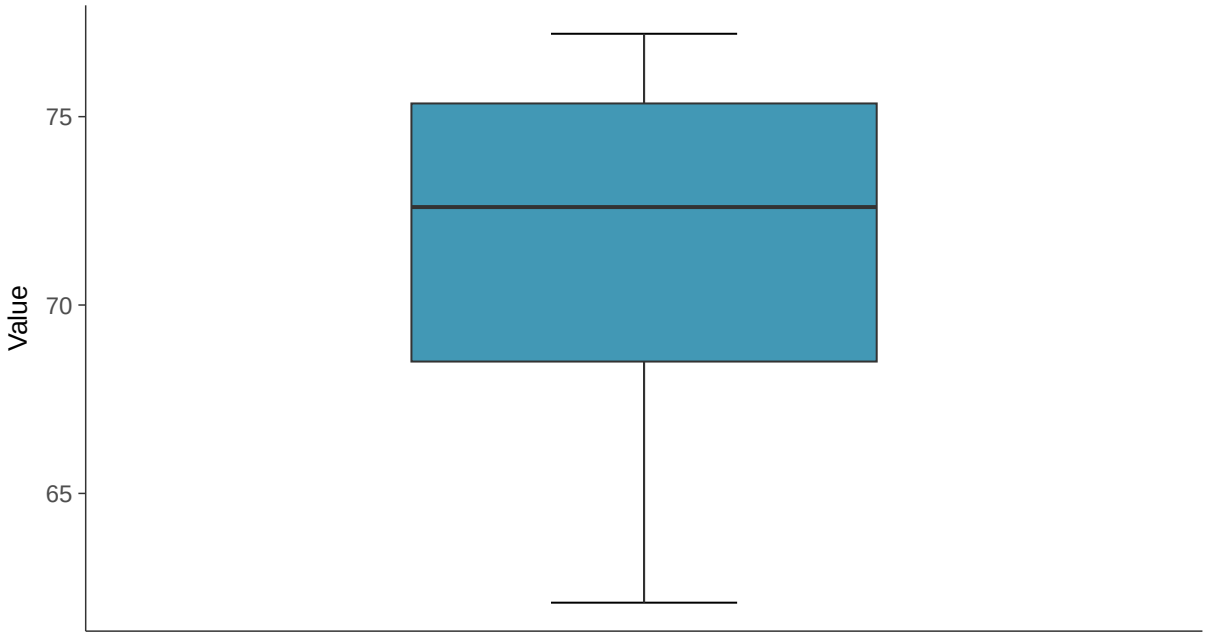
Histogram

Calcium, MW-16C (mg/L)



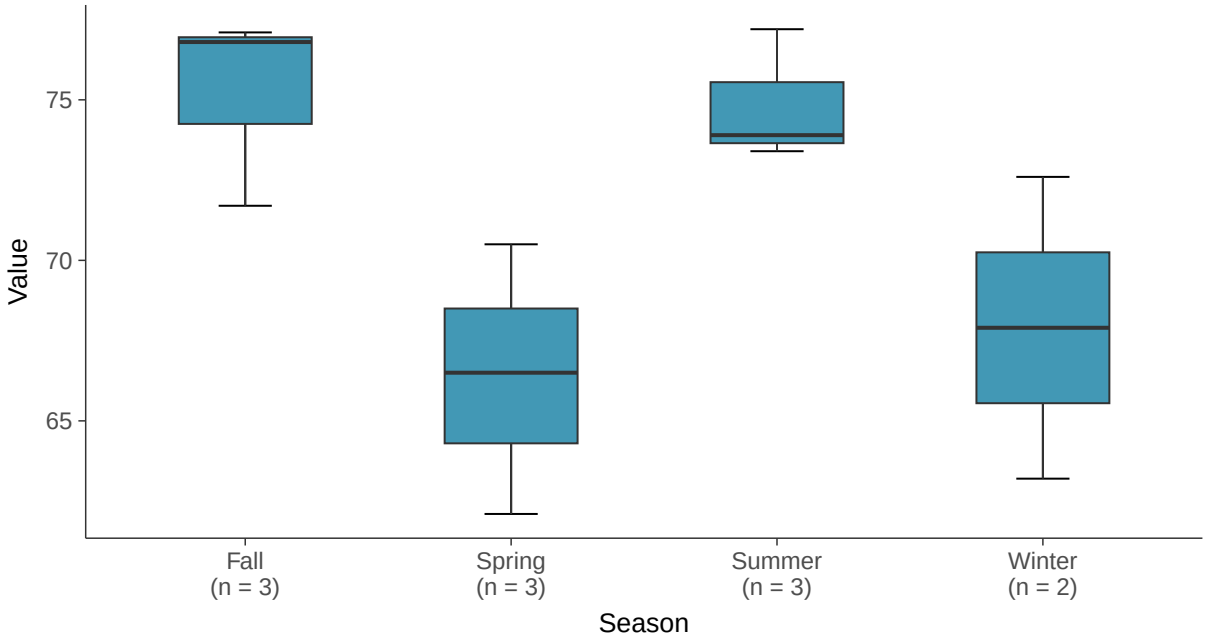
Boxplot

Calcium, MW-16C (mg/L)



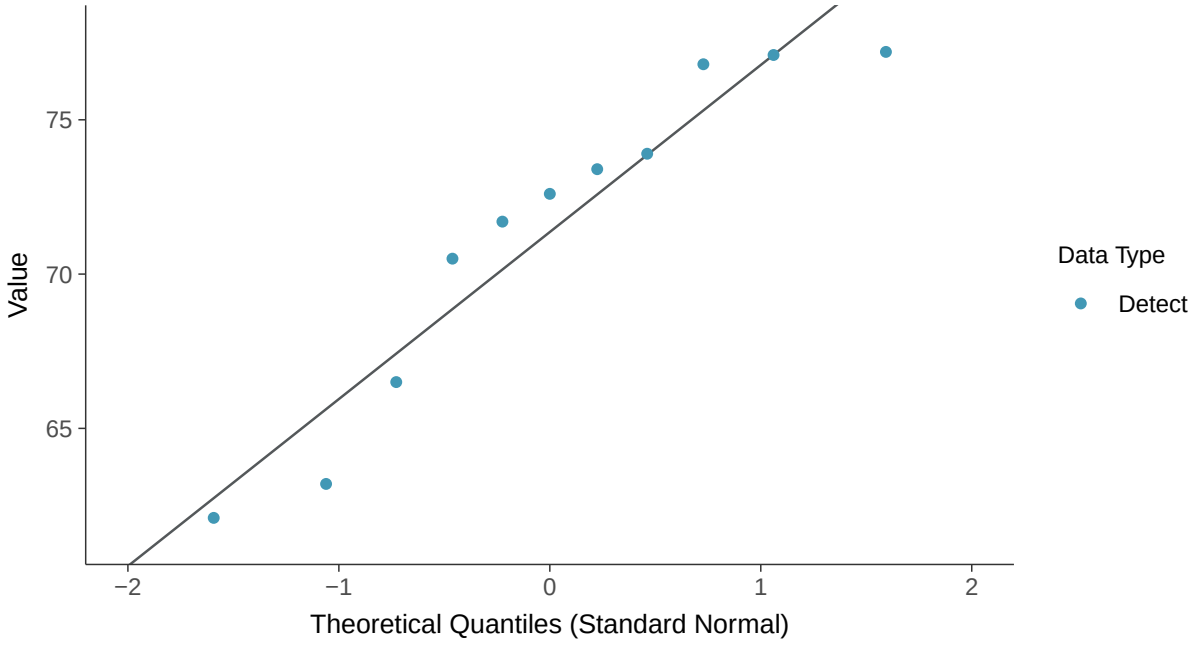
Boxplot by Season

Calcium, MW-16C (mg/L)



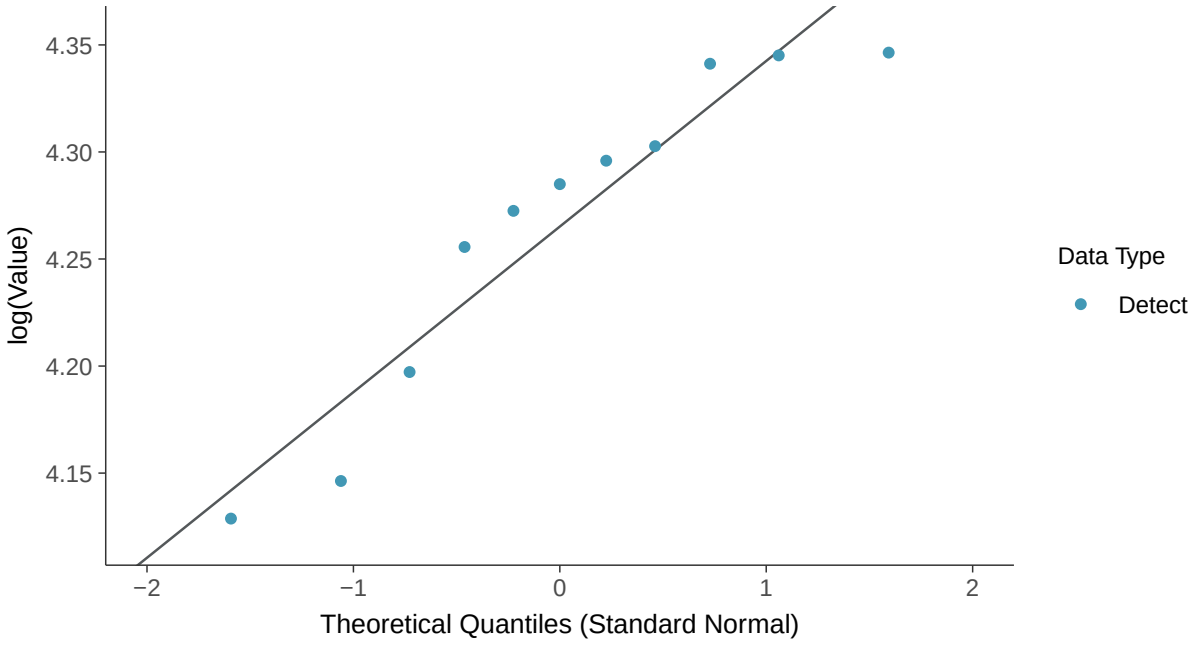
Normal Q-Q plot

Calcium, MW-16C (mg/L)



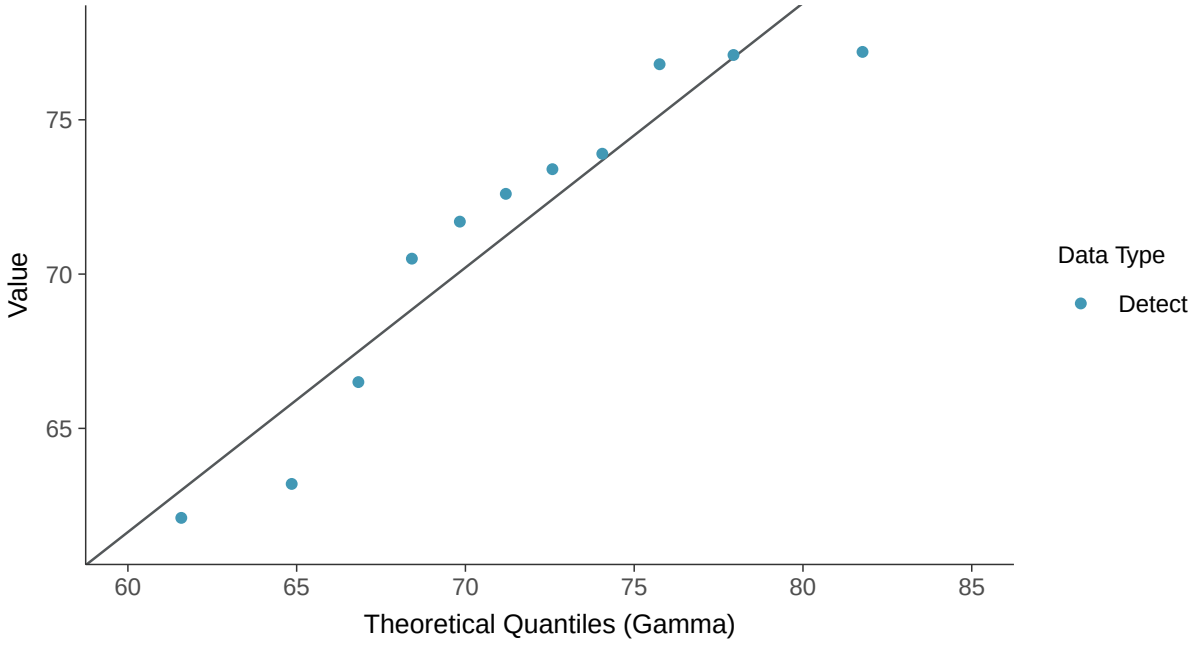
Lognormal Q-Q plot

Calcium, MW-16C (mg/L)



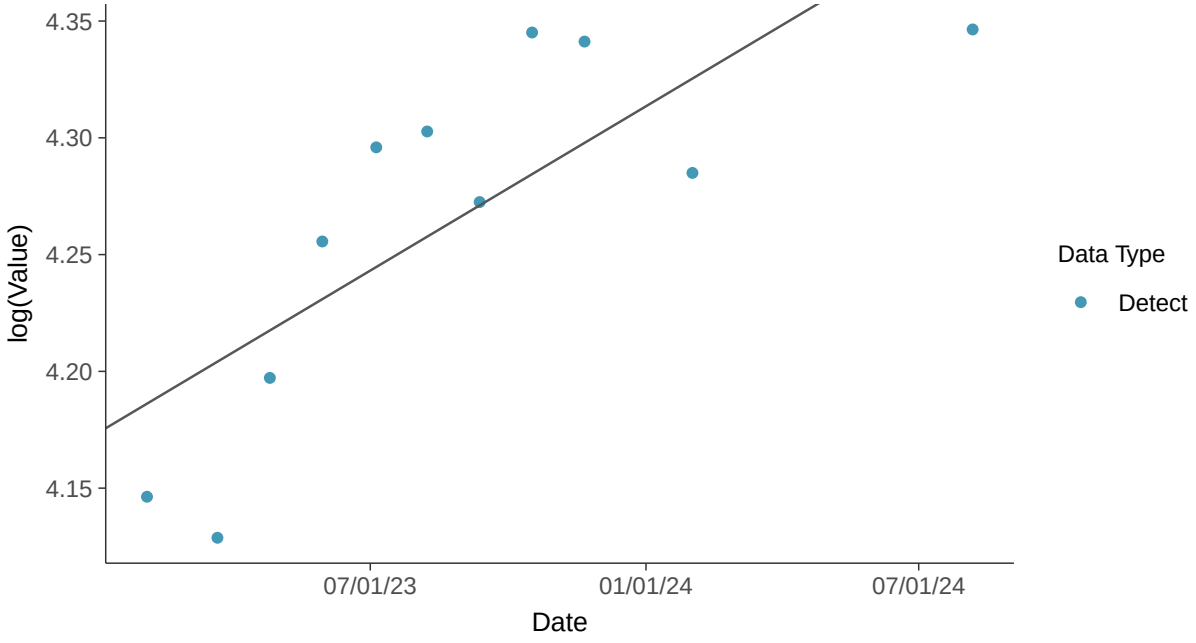
Gamma Q-Q plot

Calcium, MW-16C (mg/L)



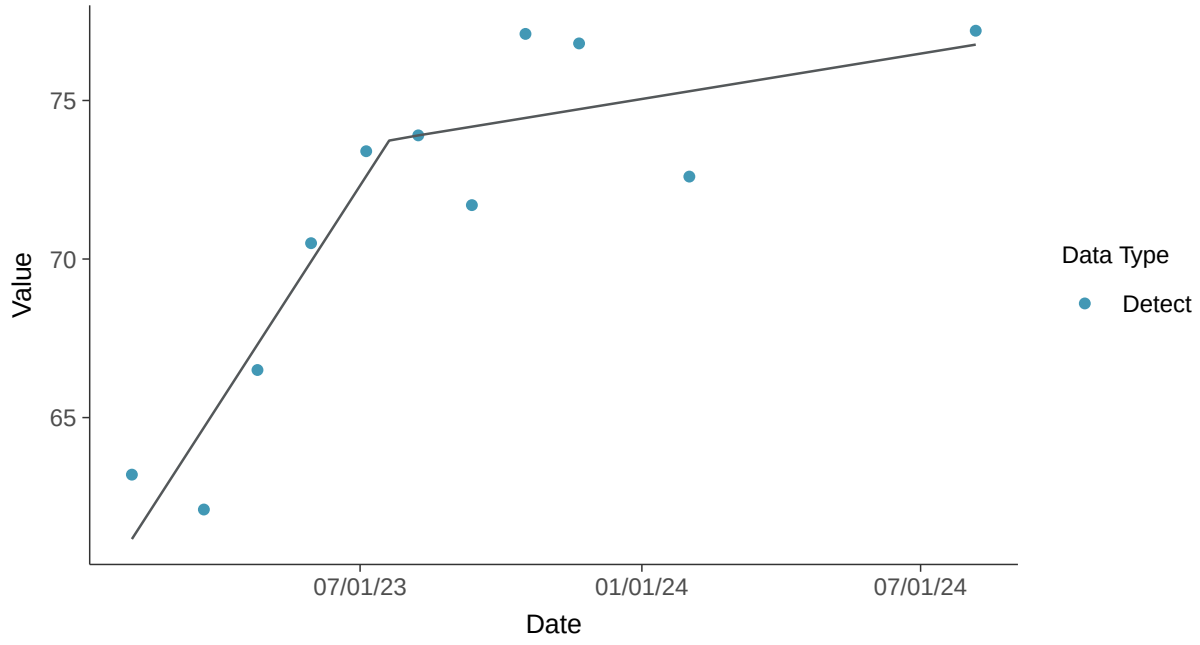
Trend Regression: Lognormal MLE

Calcium, MW-16C (mg/L)



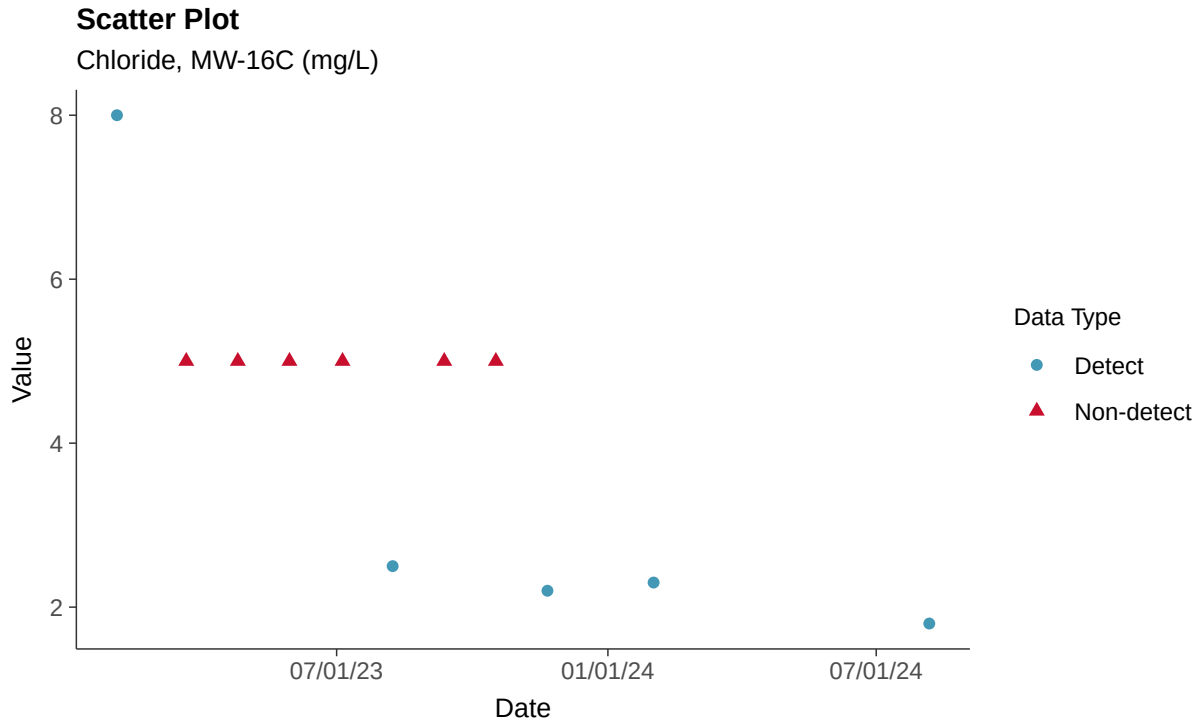
Trend Regression: Piecewise Linear-Linear

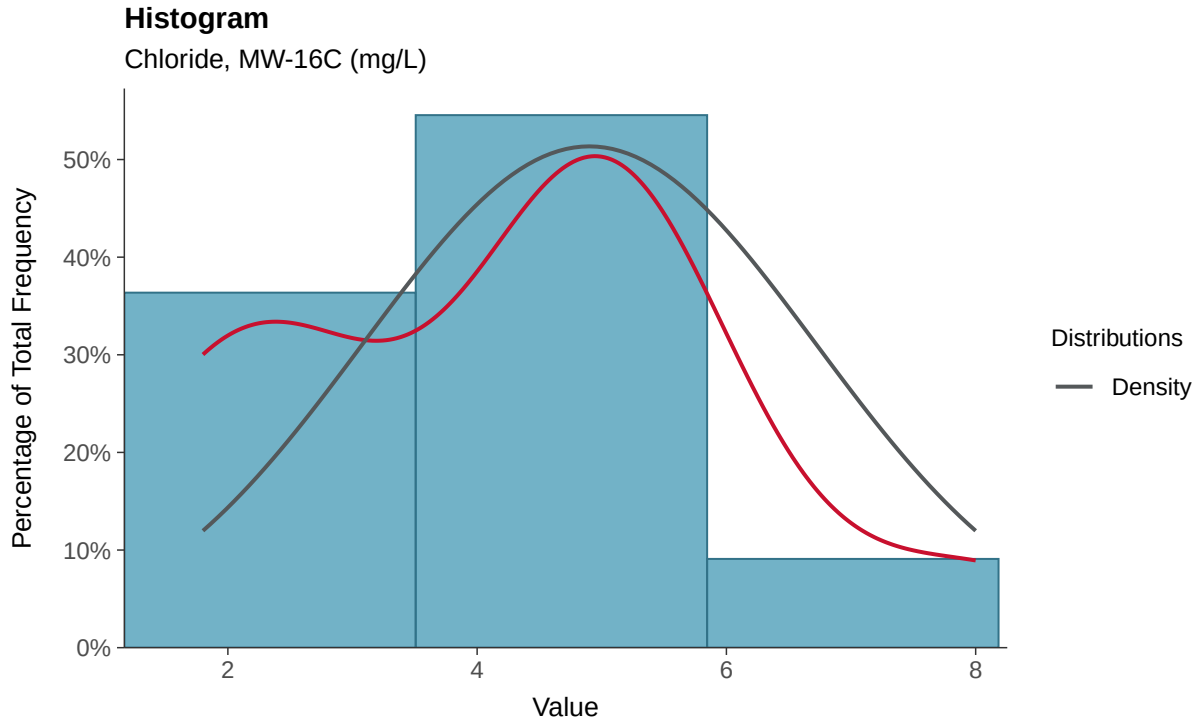
Calcium, MW-16C (mg/L)



Appendix III: Chloride, MW-16C

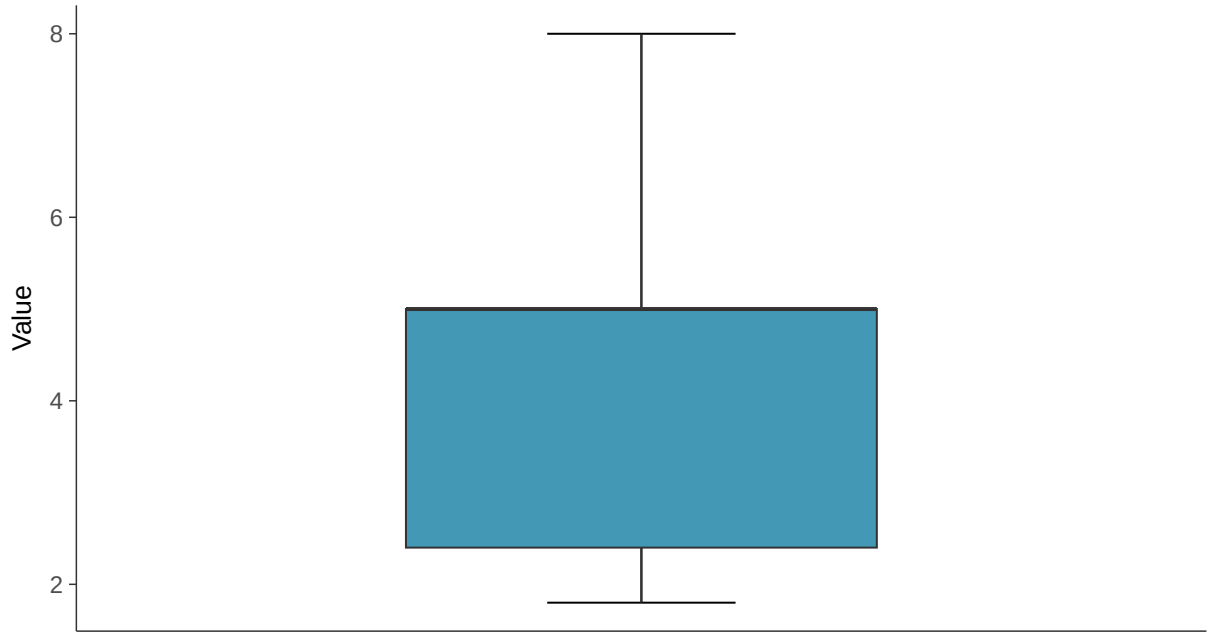
ID: 16C_1_03





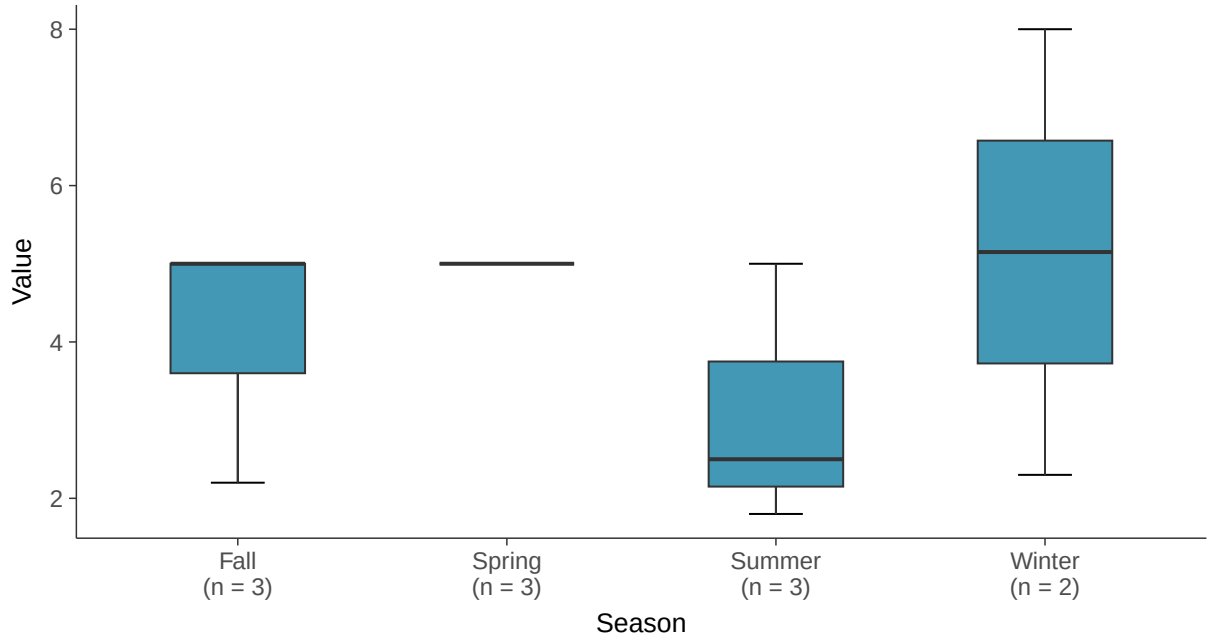
Boxplot

Chloride, MW-16C (mg/L)



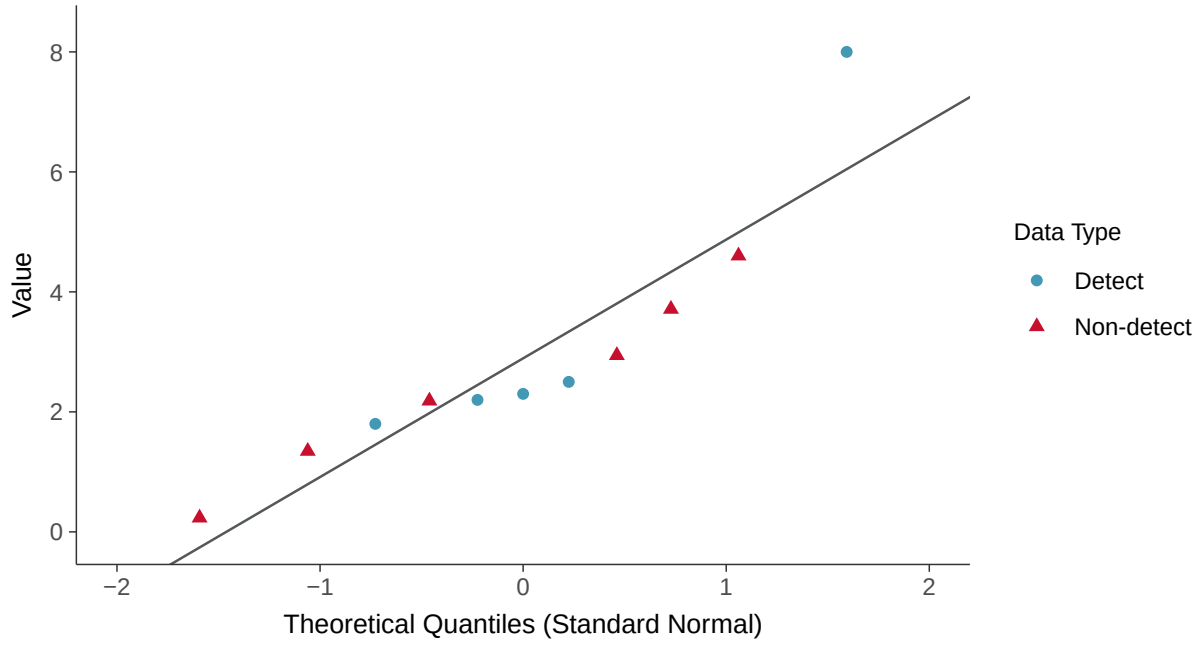
Boxplot by Season

Chloride, MW-16C (mg/L)



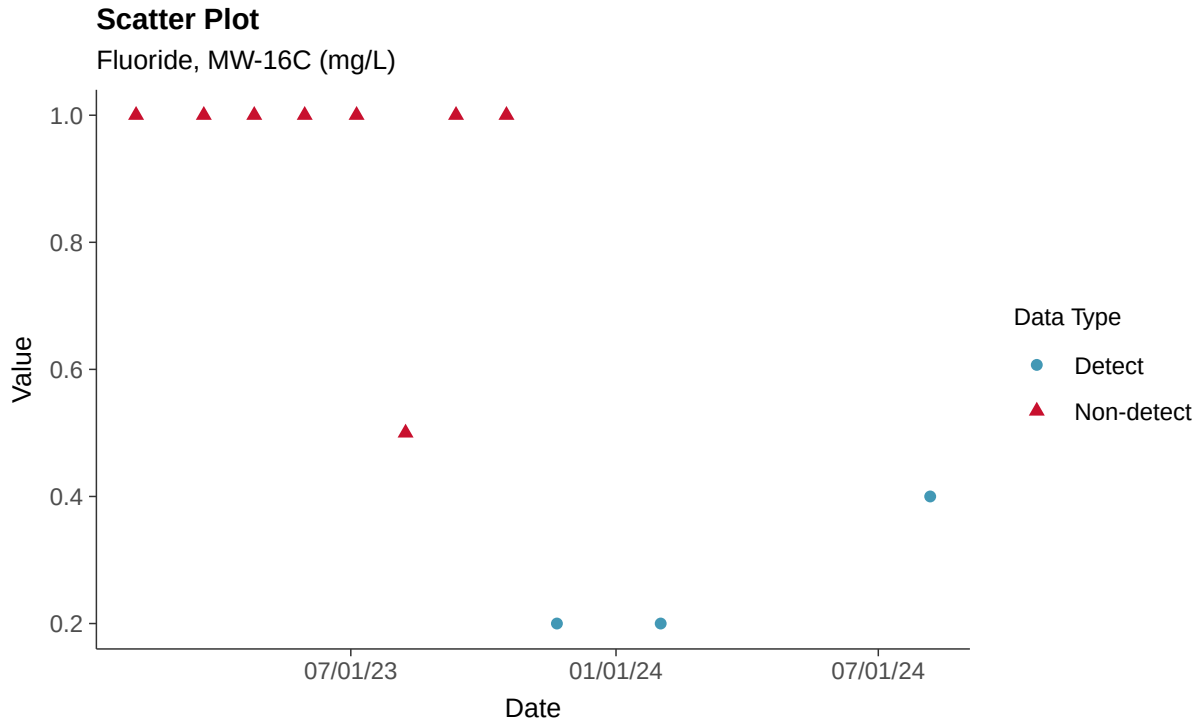
Normal Q-Q plot using ROS Imputed Estimates

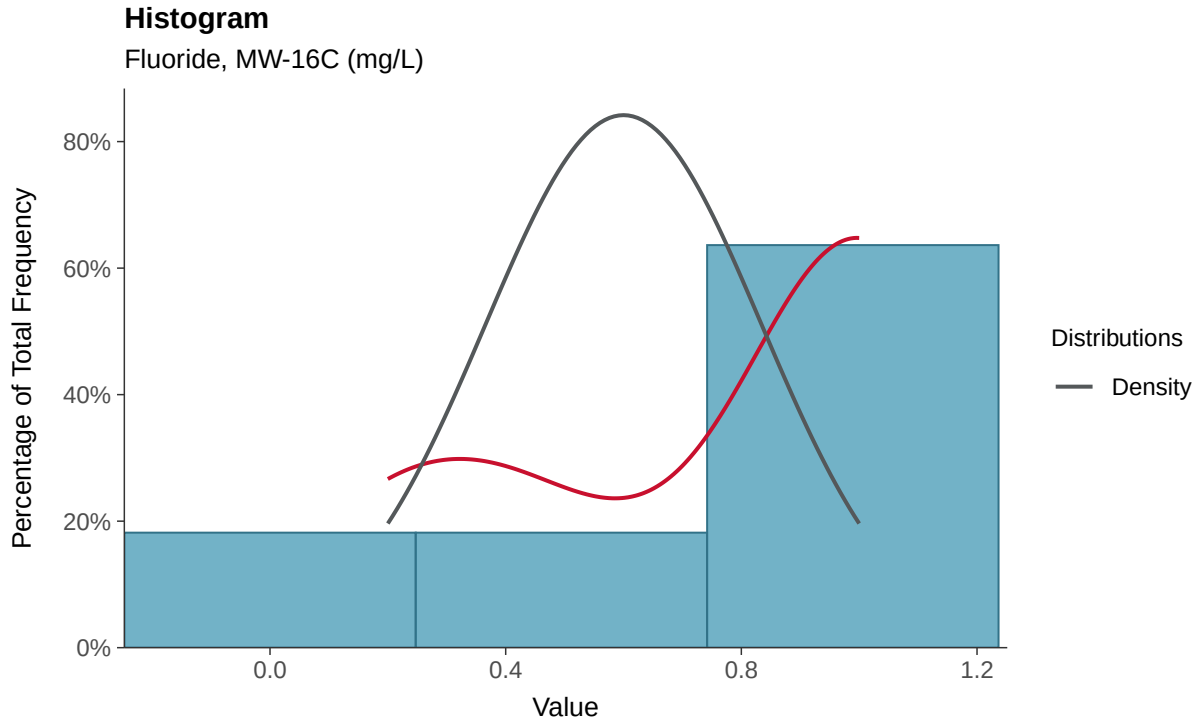
Chloride, MW-16C (mg/L)



Appendix III: Fluoride, MW-16C

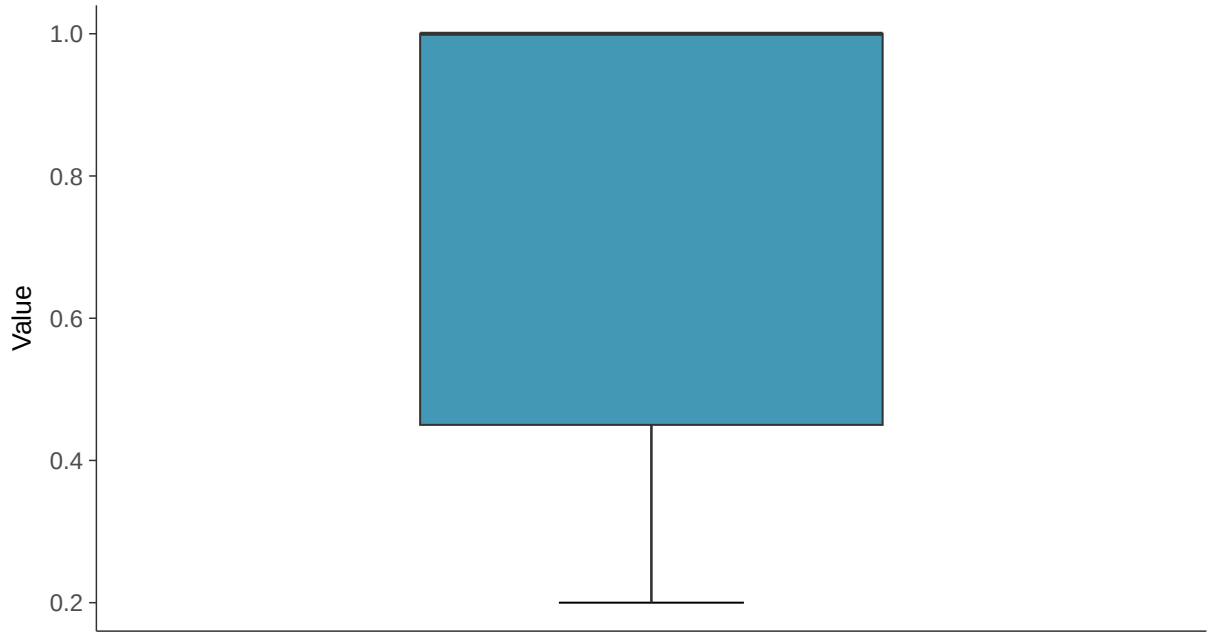
ID: 16C_1_04





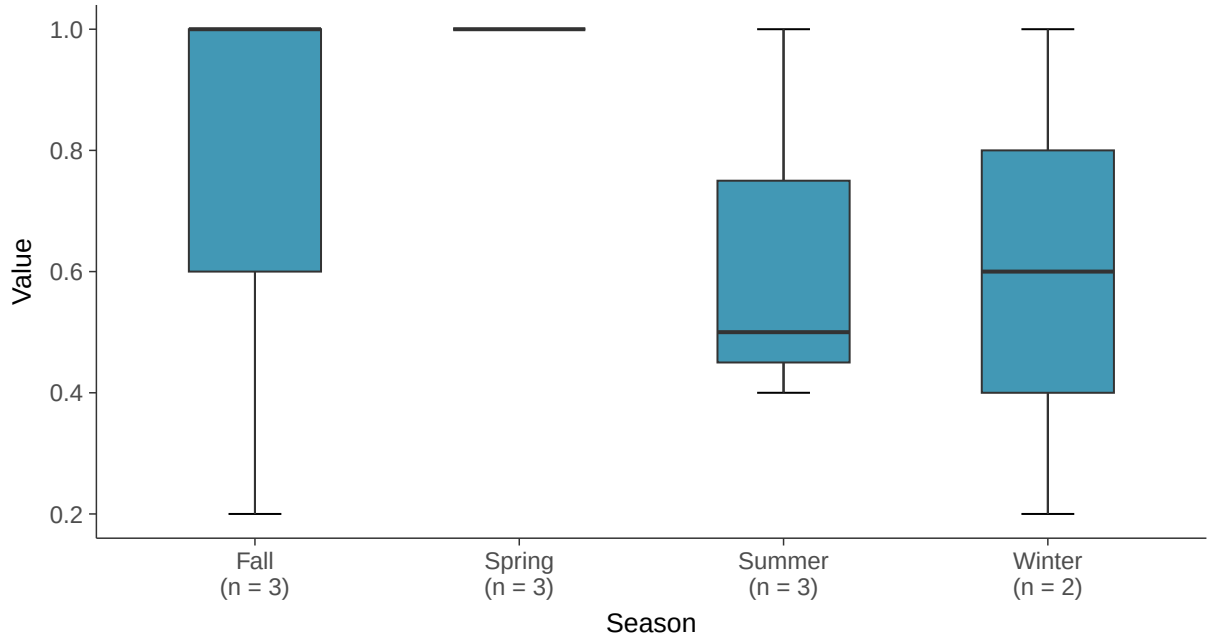
Boxplot

Fluoride, MW-16C (mg/L)



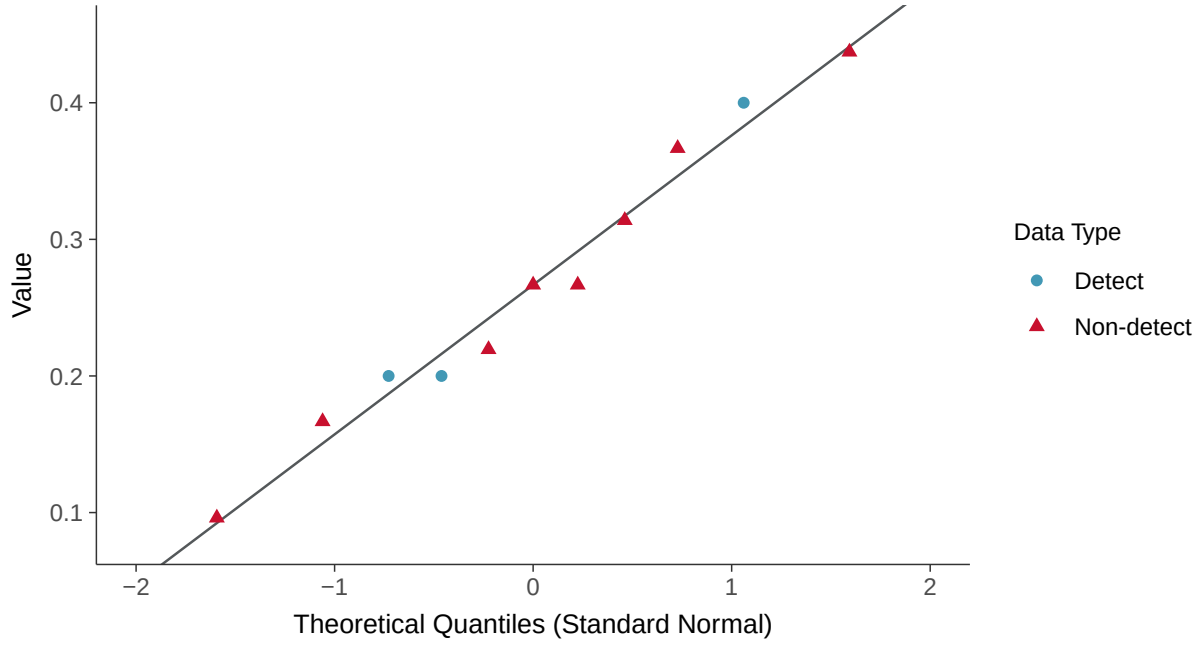
Boxplot by Season

Fluoride, MW-16C (mg/L)



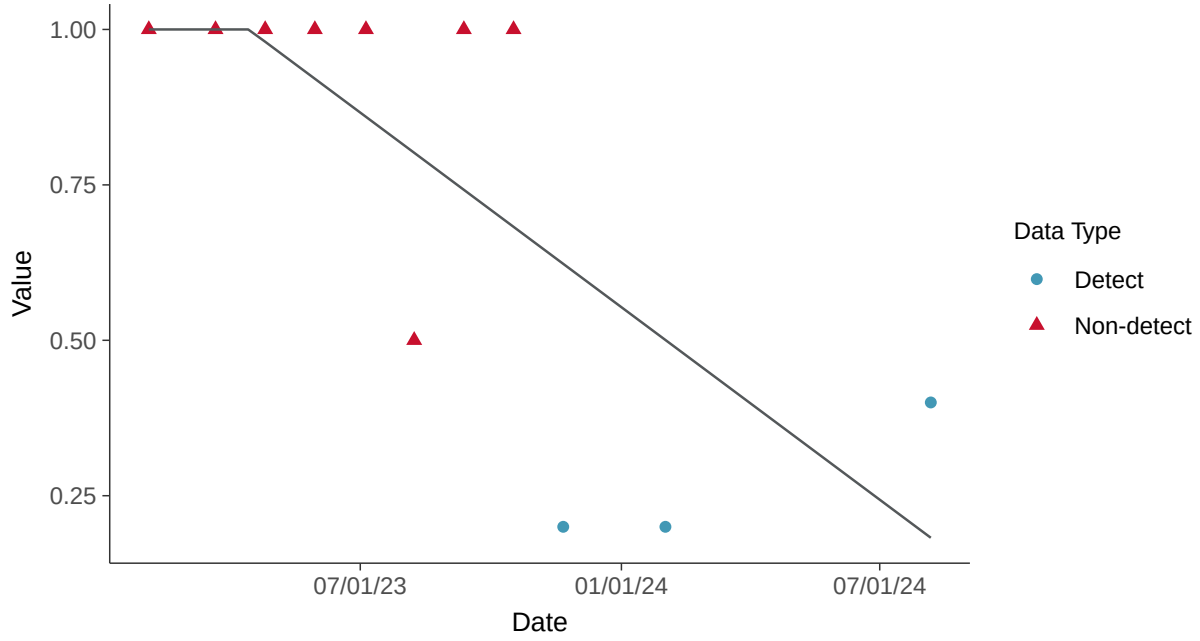
Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-16C (mg/L)



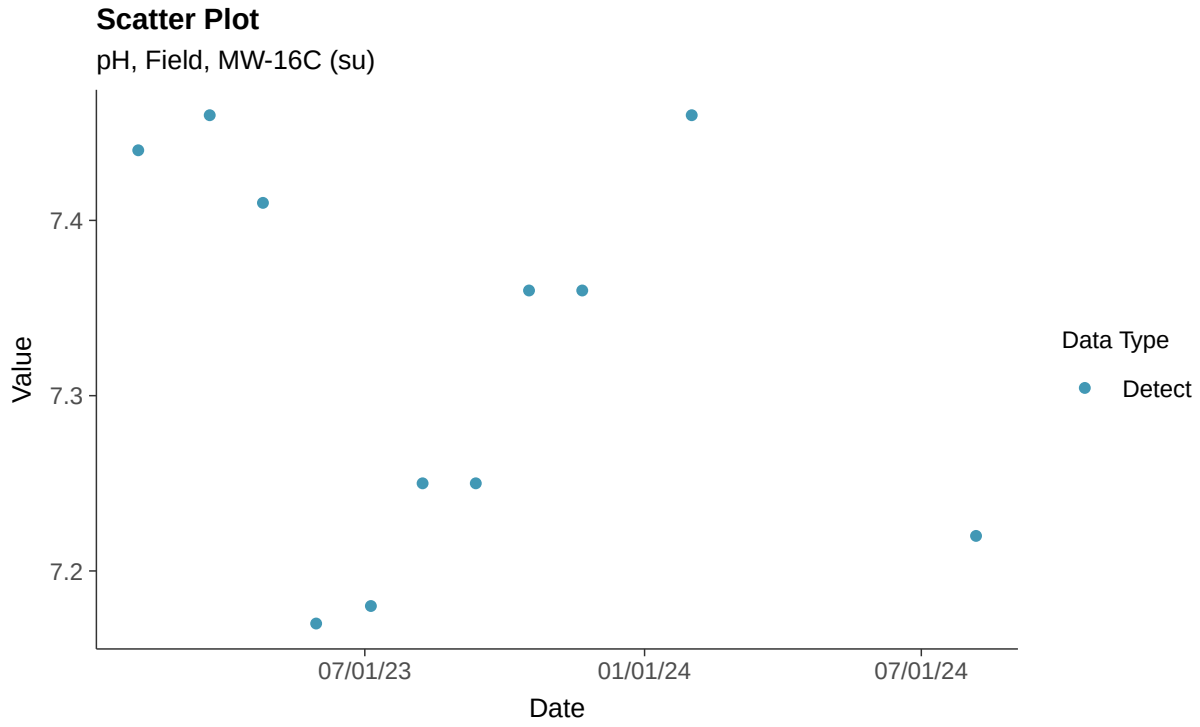
Trend Regression: Piecewise Linear-Linear

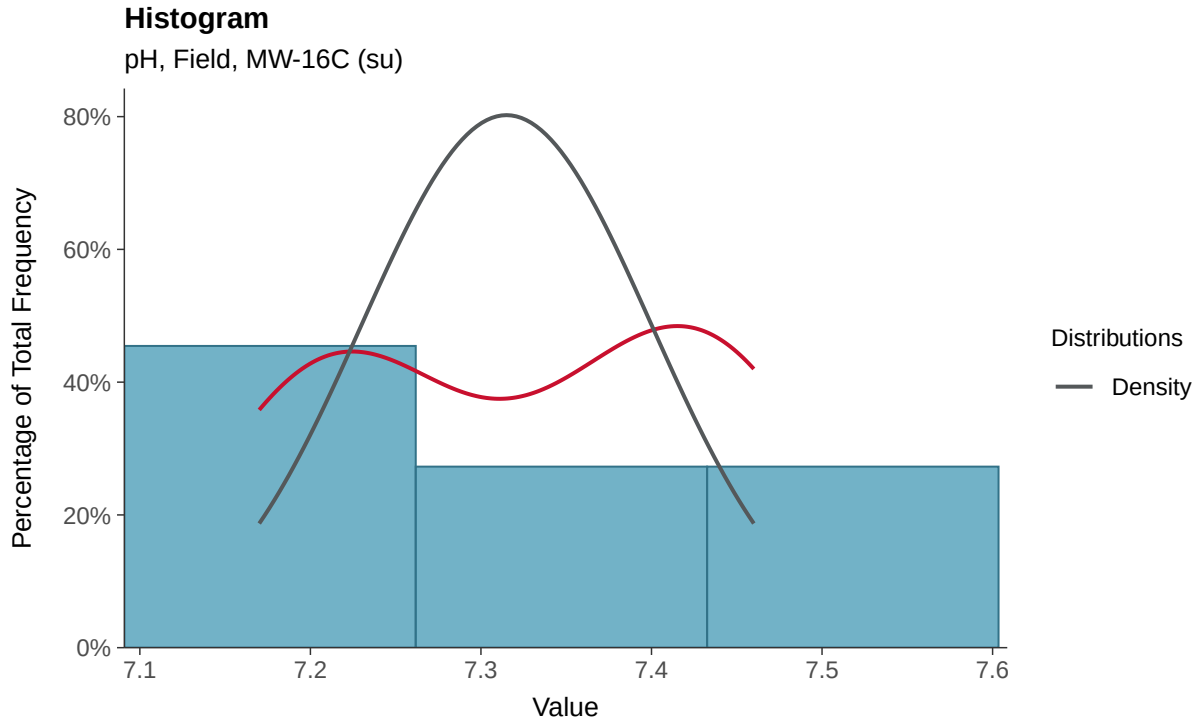
Fluoride, MW-16C (mg/L)



Appendix III: pH, Field, MW-16C

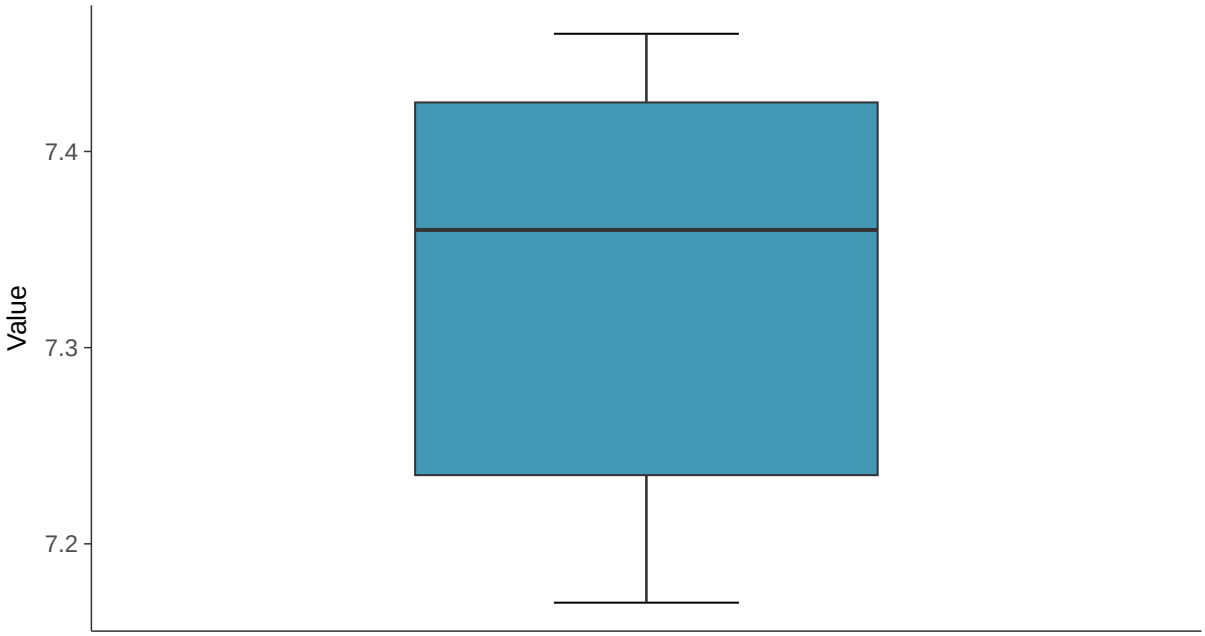
ID: 16C_1_05





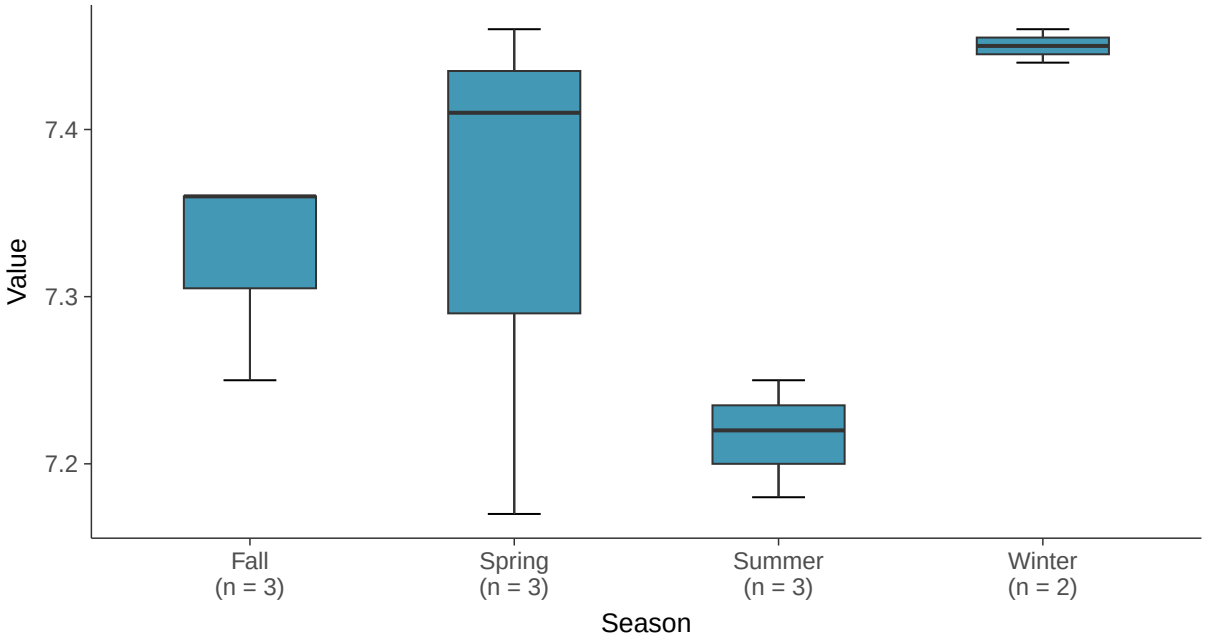
Boxplot

pH, Field, MW-16C (su)



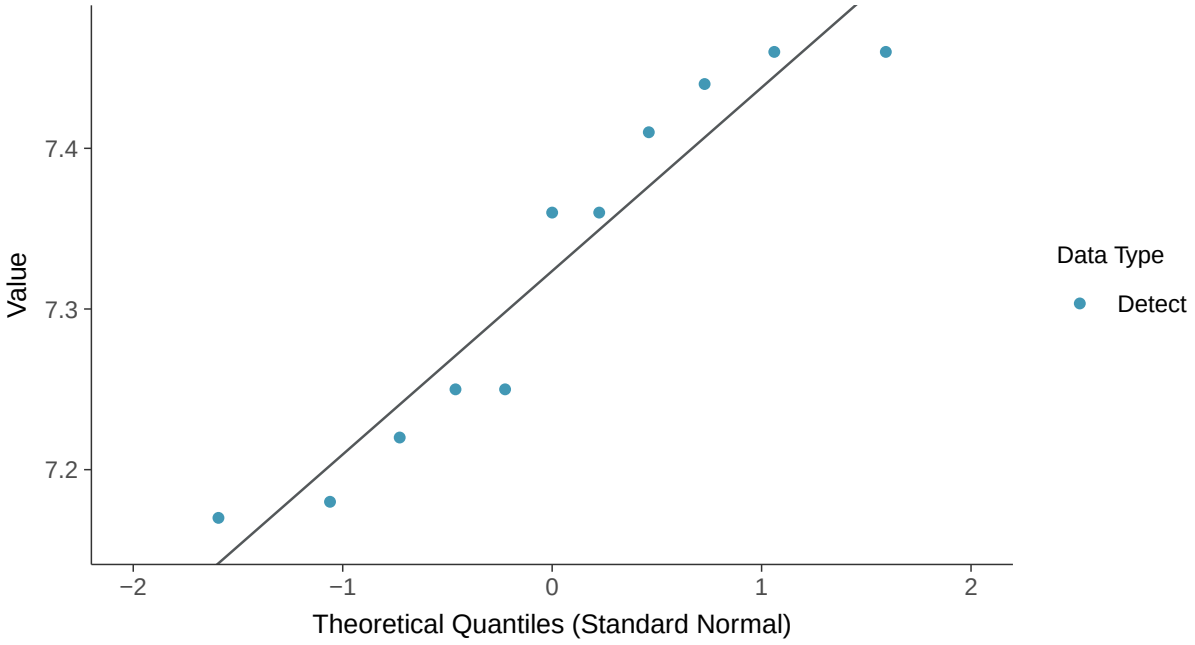
Boxplot by Season

pH, Field, MW-16C (su)



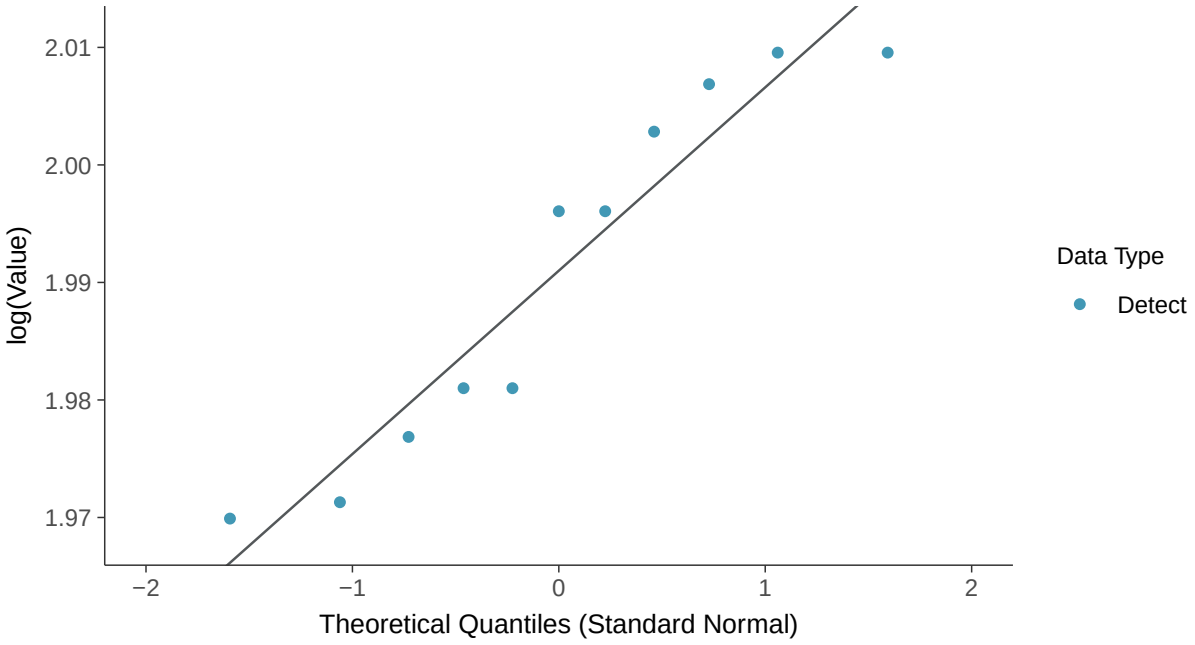
Normal Q-Q plot

pH, Field, MW-16C (su)



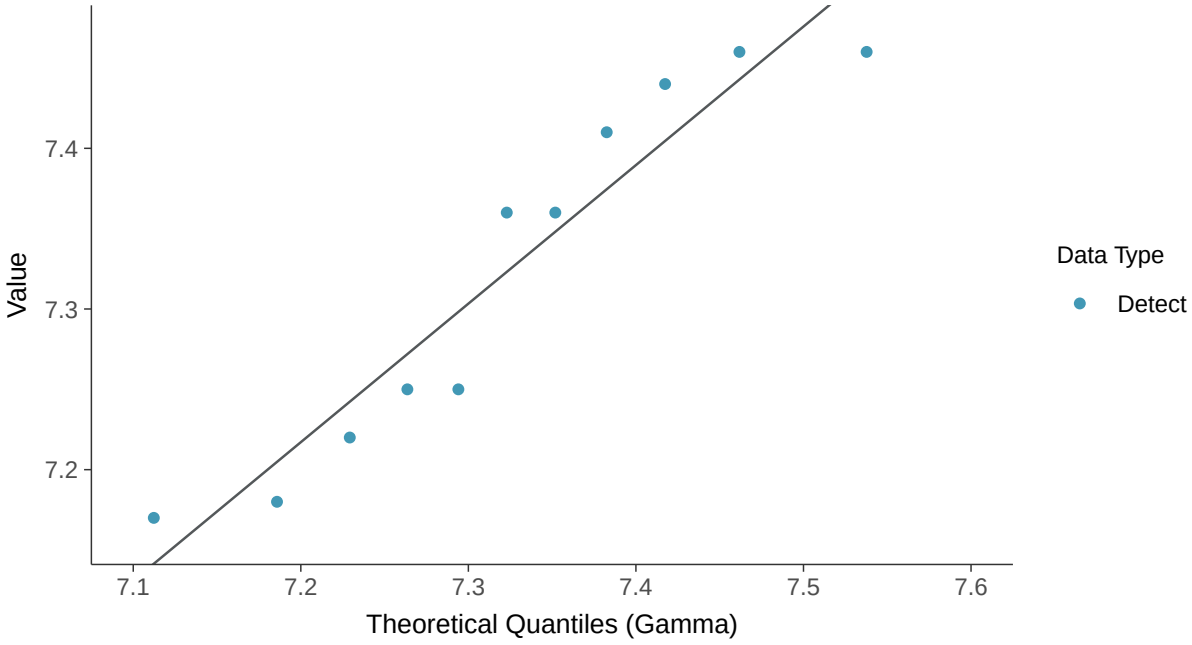
Lognormal Q-Q plot

pH, Field, MW-16C (su)



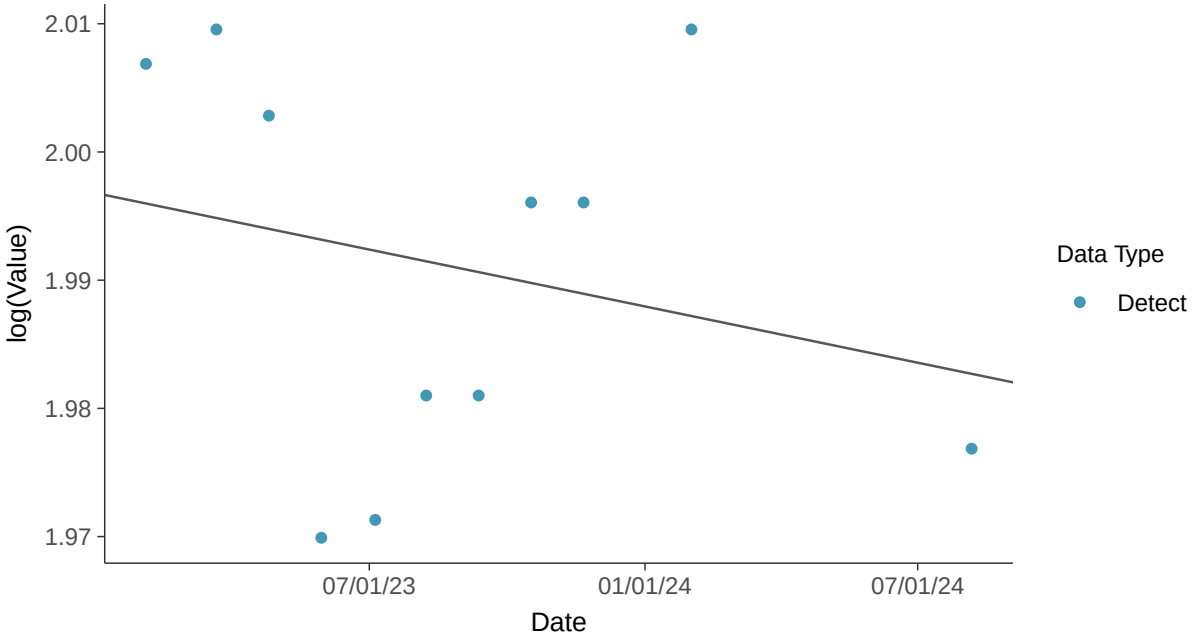
Gamma Q-Q plot

pH, Field, MW-16C (su)



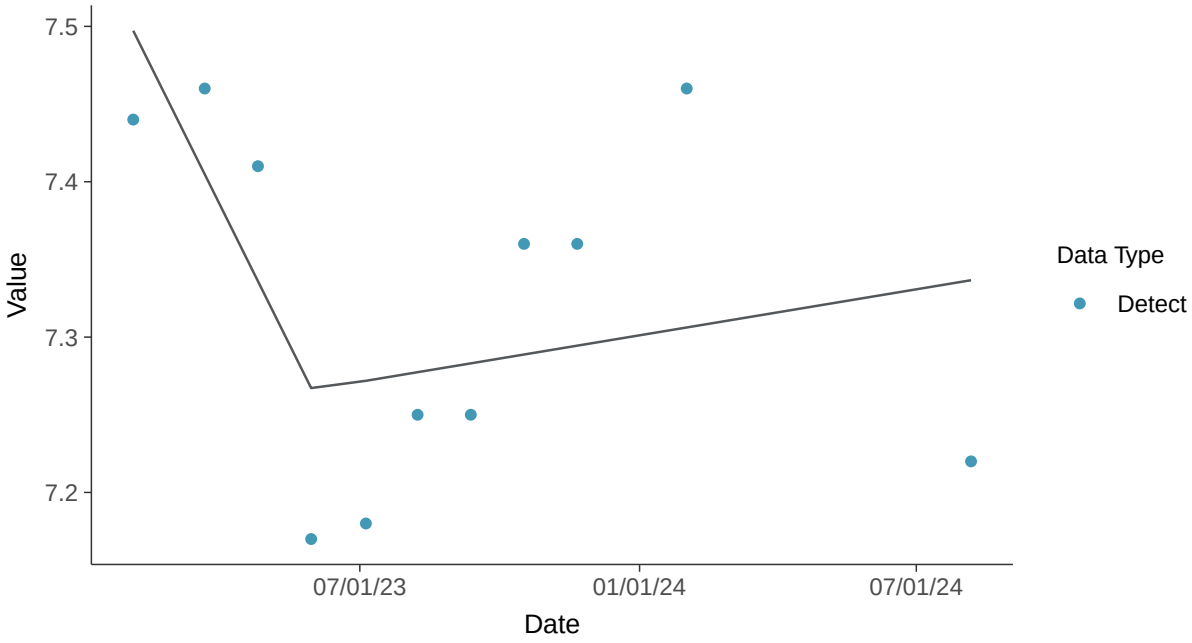
Trend Regression: Lognormal MLE

pH, Field, MW-16C (su)



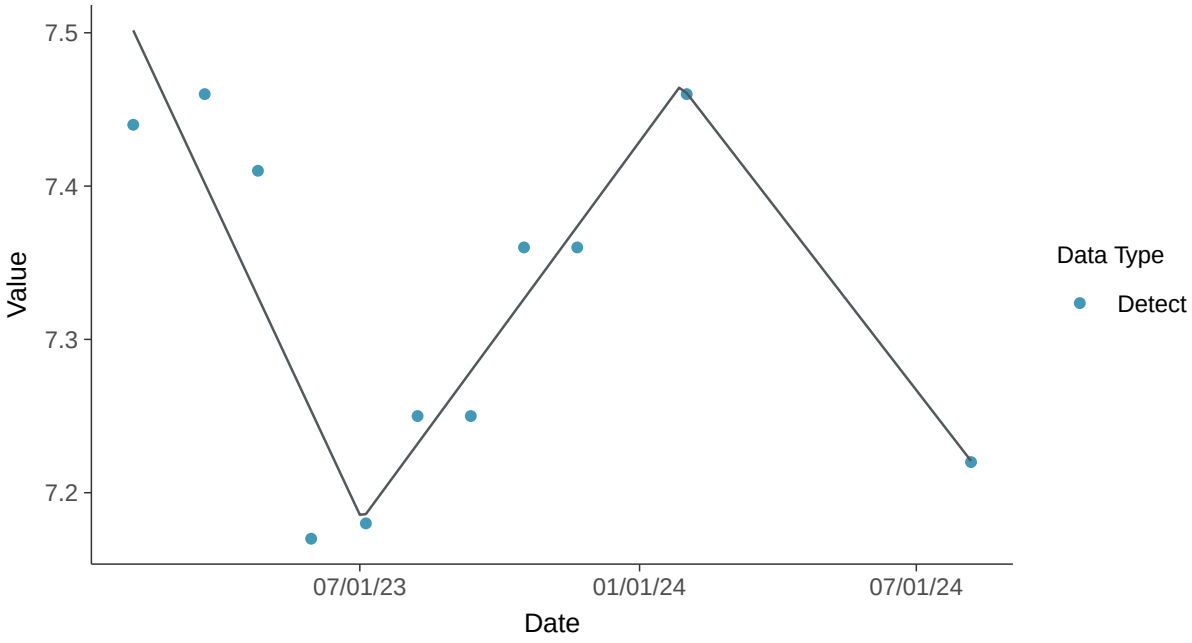
Trend Regression: Piecewise Linear-Linear

pH, Field, MW-16C (su)



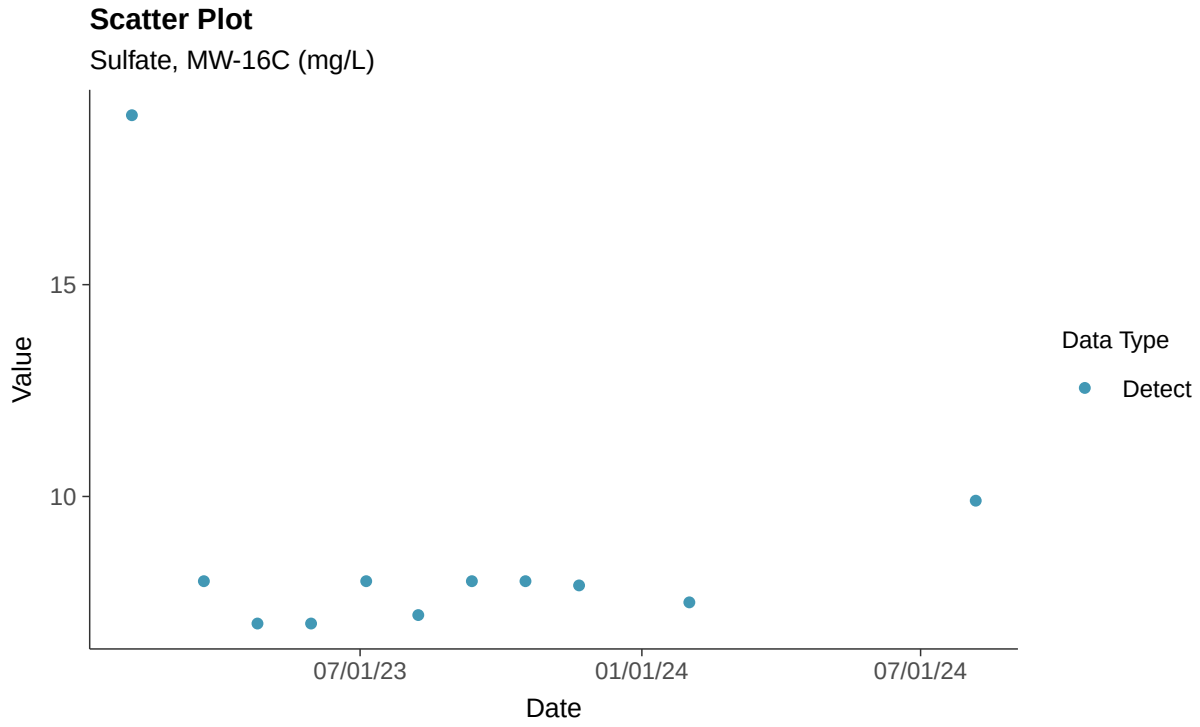
Trend Regression: Piecewise Linear-Linear-Linear

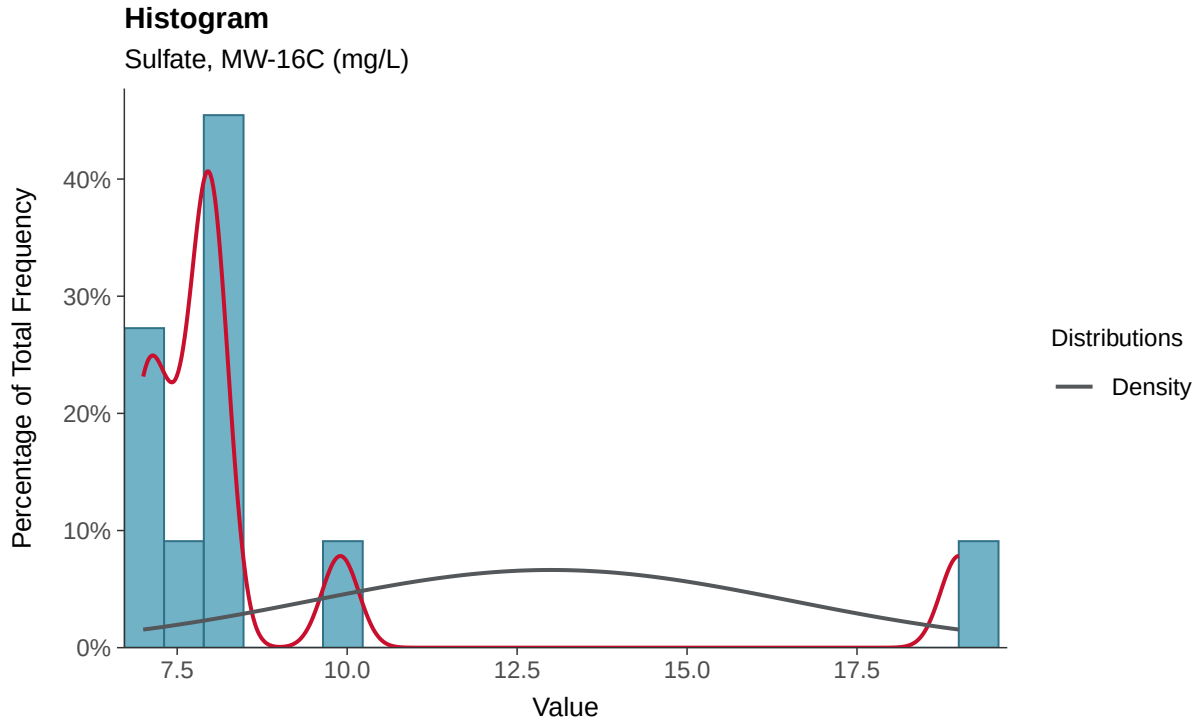
pH, Field, MW-16C (su)



Appendix III: Sulfate, MW-16C

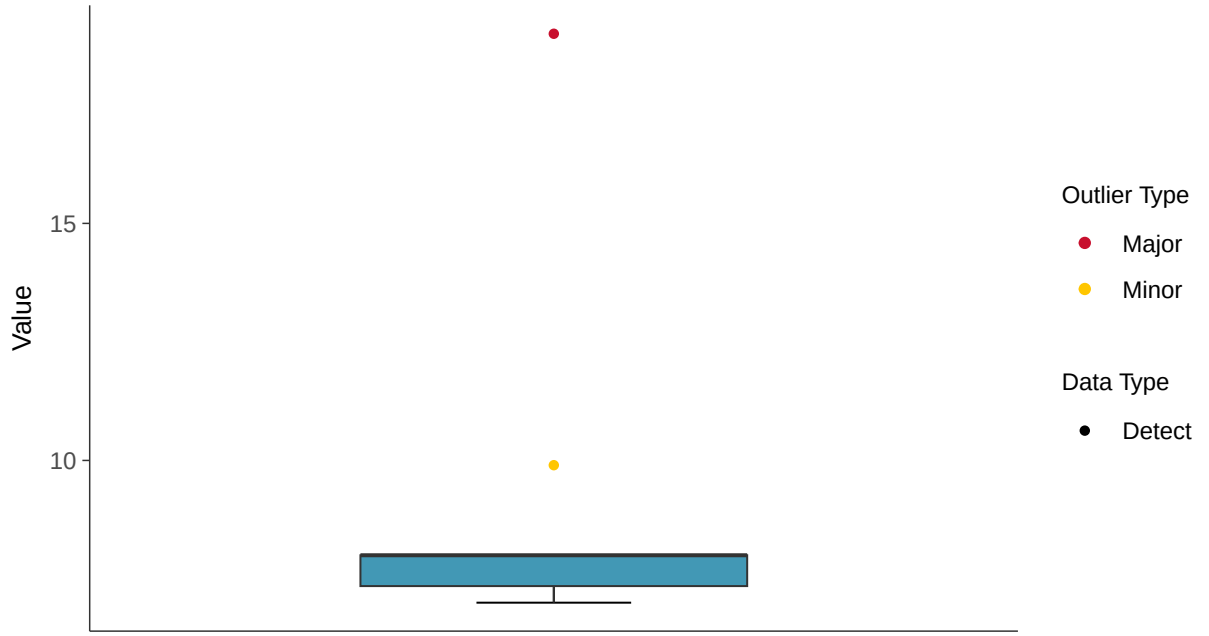
ID: 16C_1_06





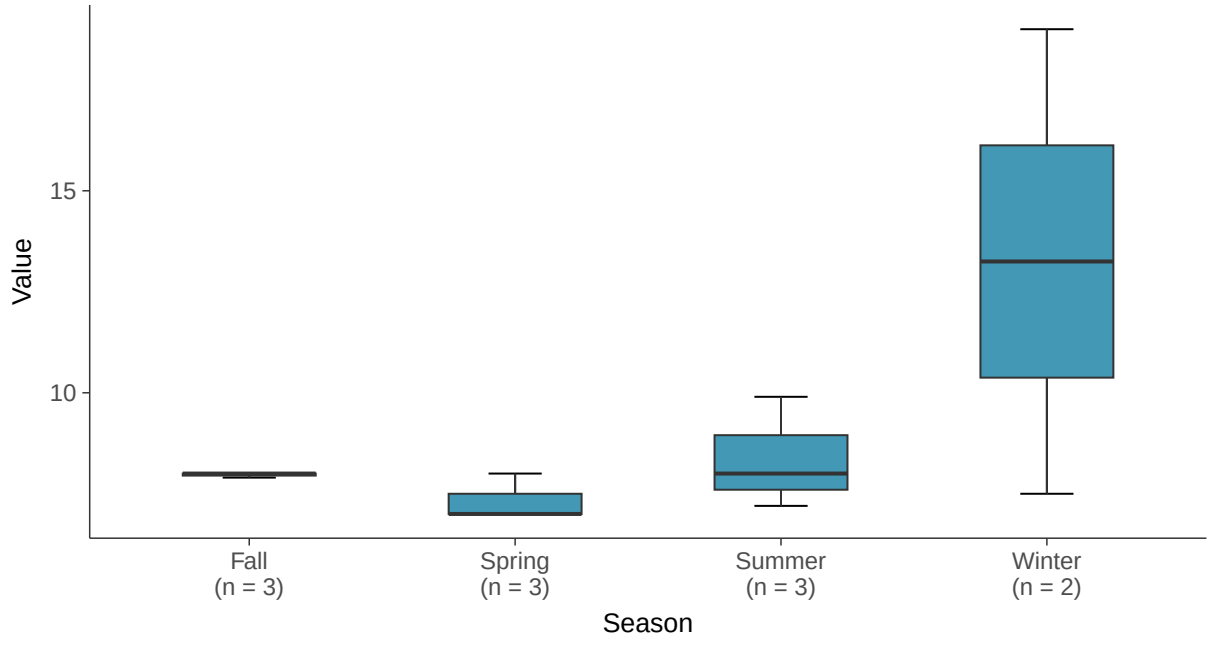
Boxplot

Sulfate, MW-16C (mg/L)



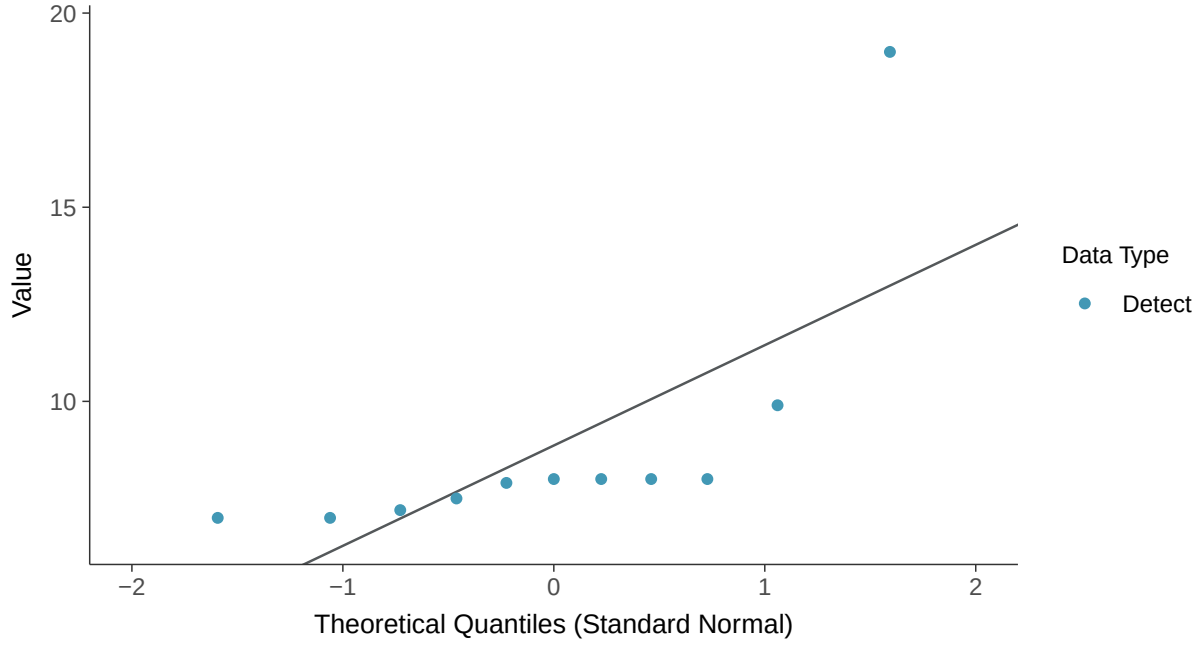
Boxplot by Season

Sulfate, MW-16C (mg/L)



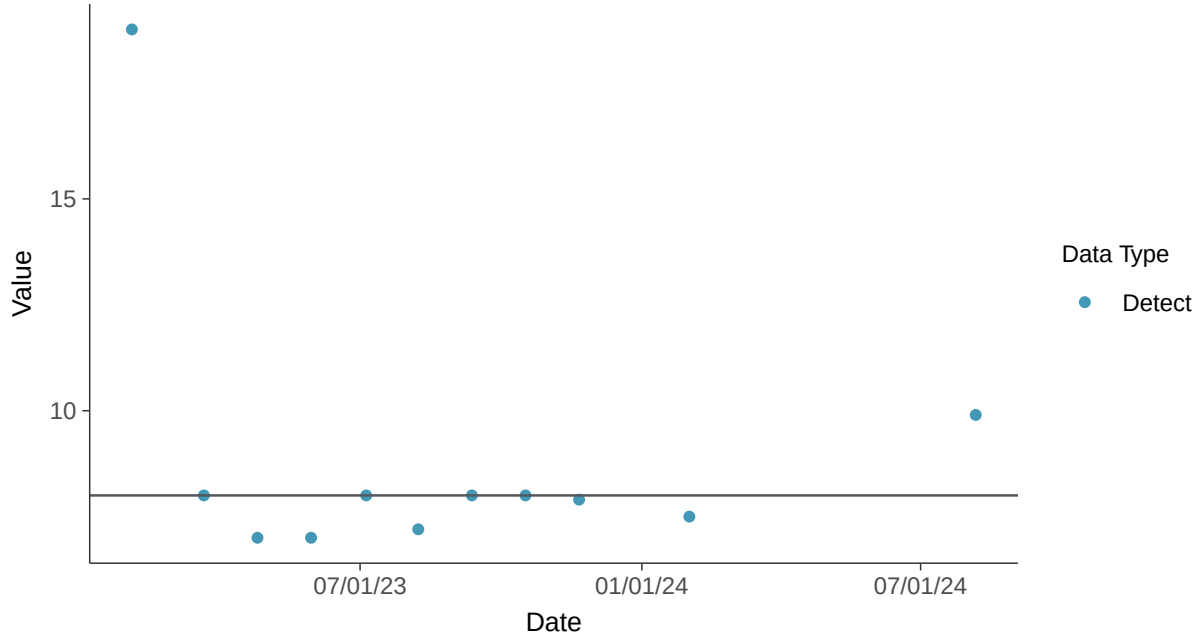
Normal Q-Q plot

Sulfate, MW-16C (mg/L)



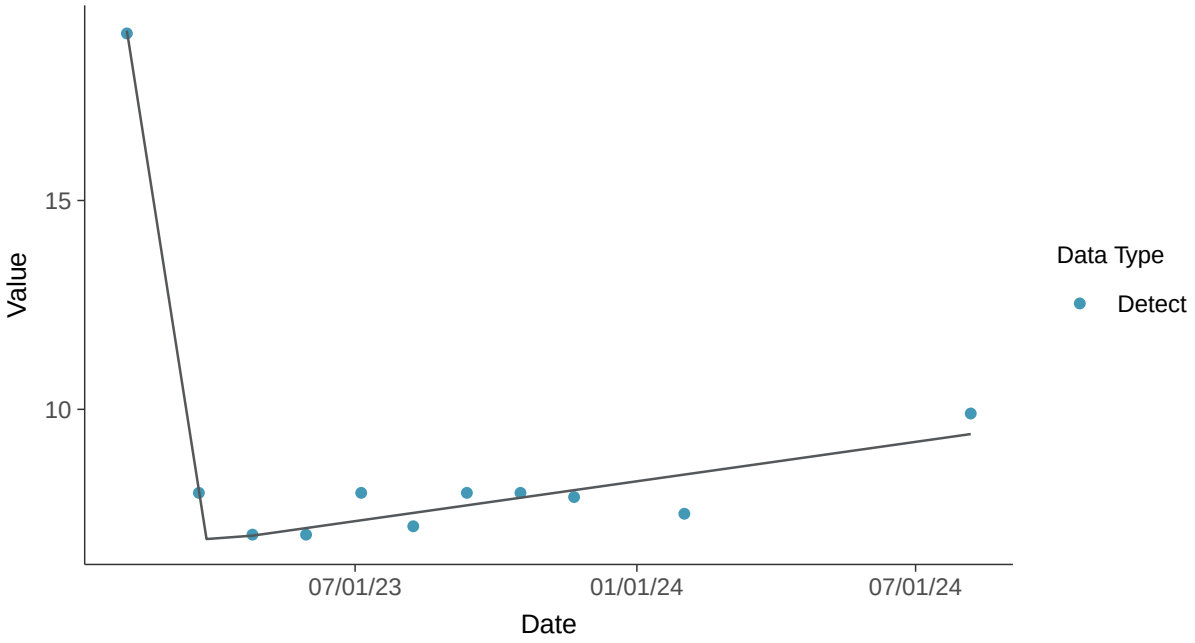
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Sulfate, MW-16C (mg/L)



Trend Regression: Piecewise Linear-Linear

Sulfate, MW-16C (mg/L)

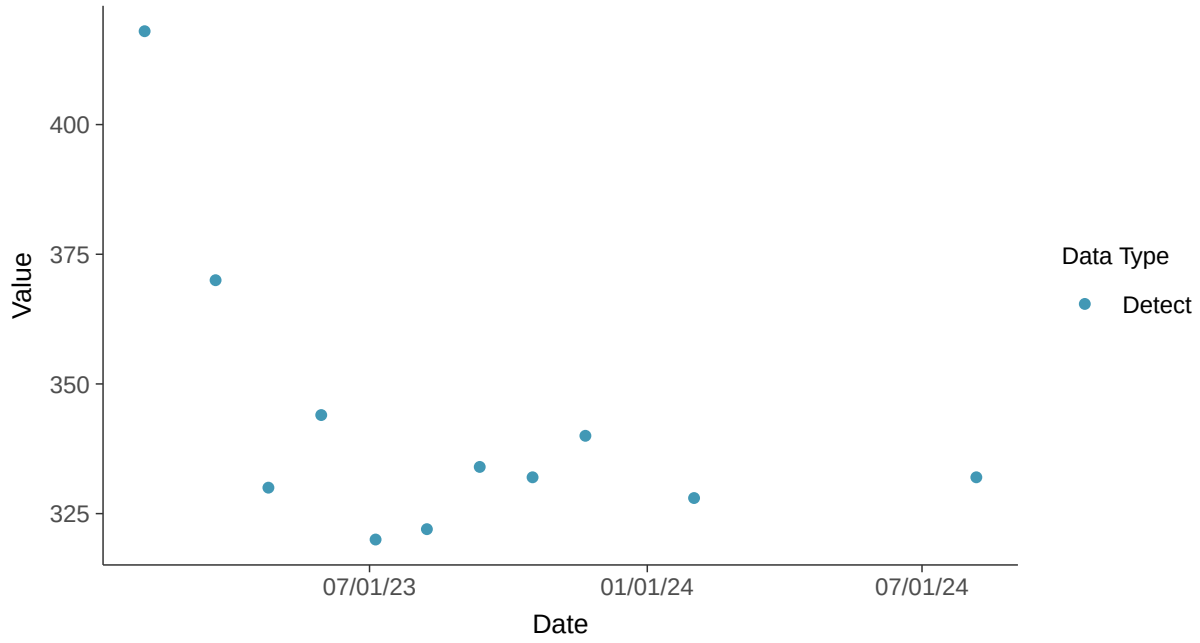


Appendix III: Total Dissolved Solids, MW-16C

ID: 16C_1_07

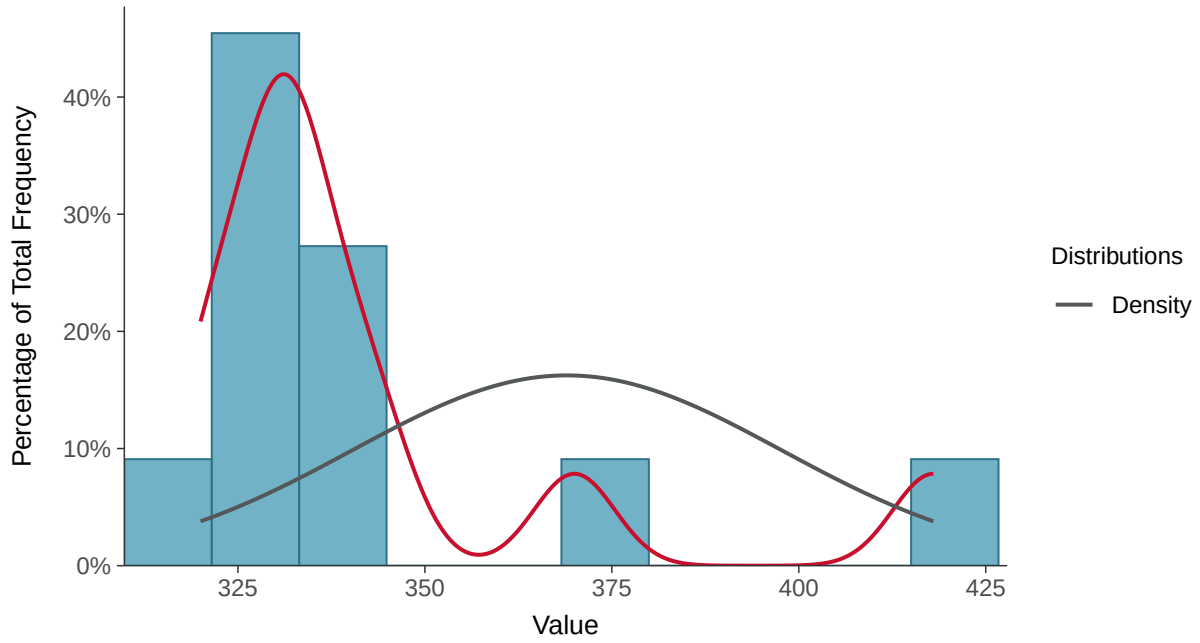
Scatter Plot

Total Dissolved Solids, MW-16C (mg/L)



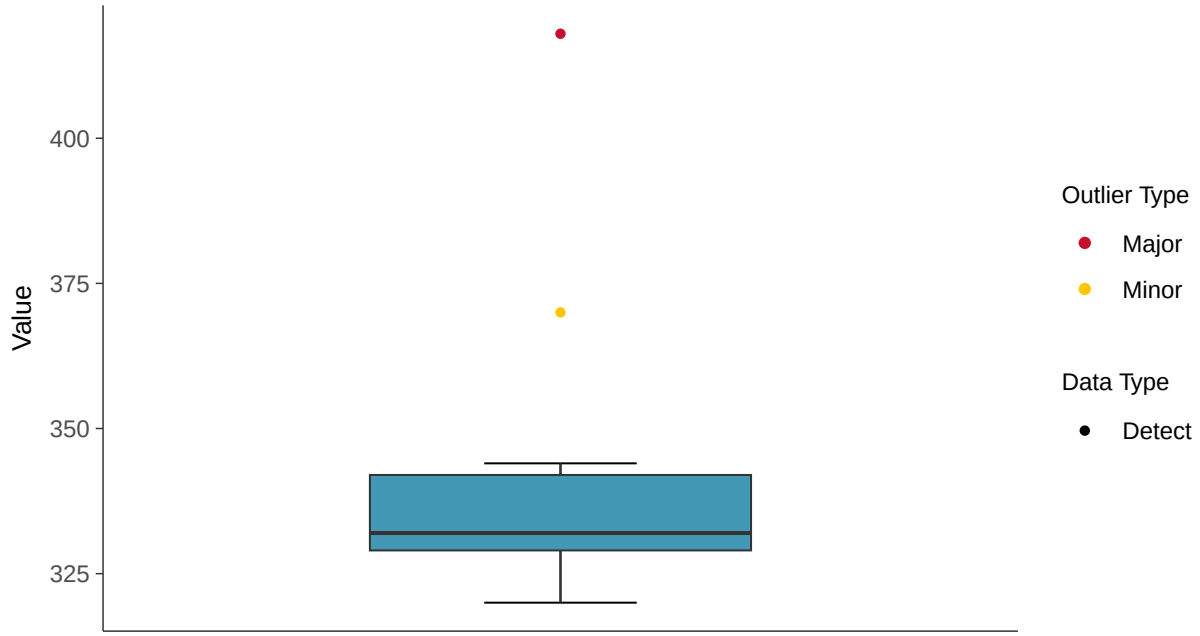
Histogram

Total Dissolved Solids, MW-16C (mg/L)



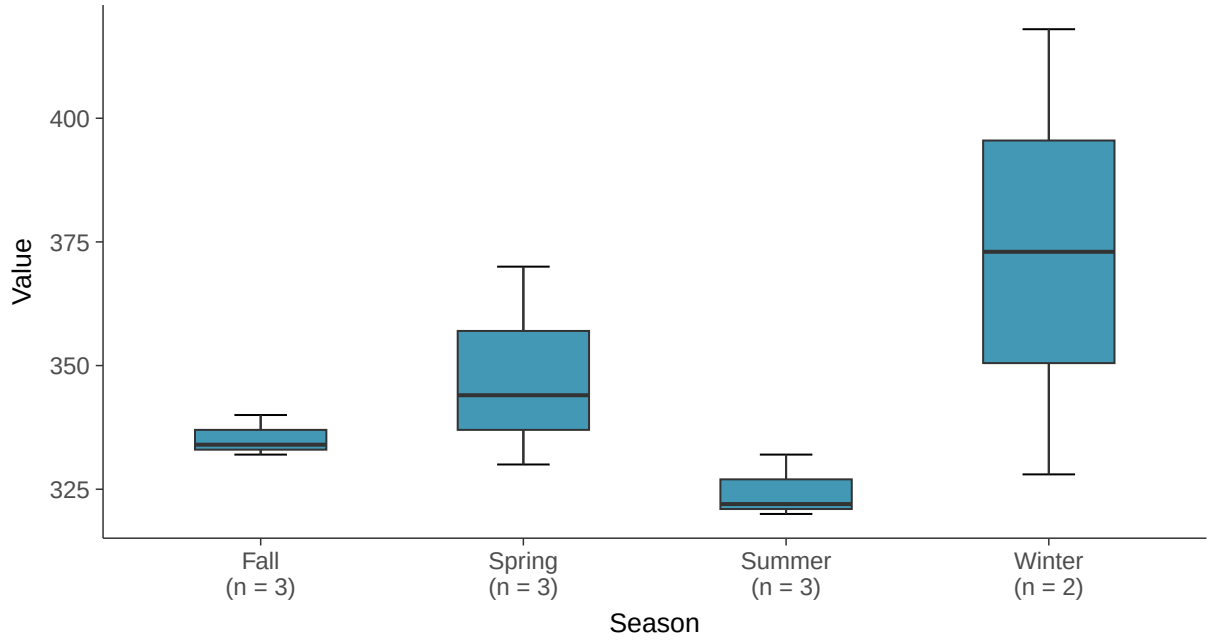
Boxplot

Total Dissolved Solids, MW-16C (mg/L)



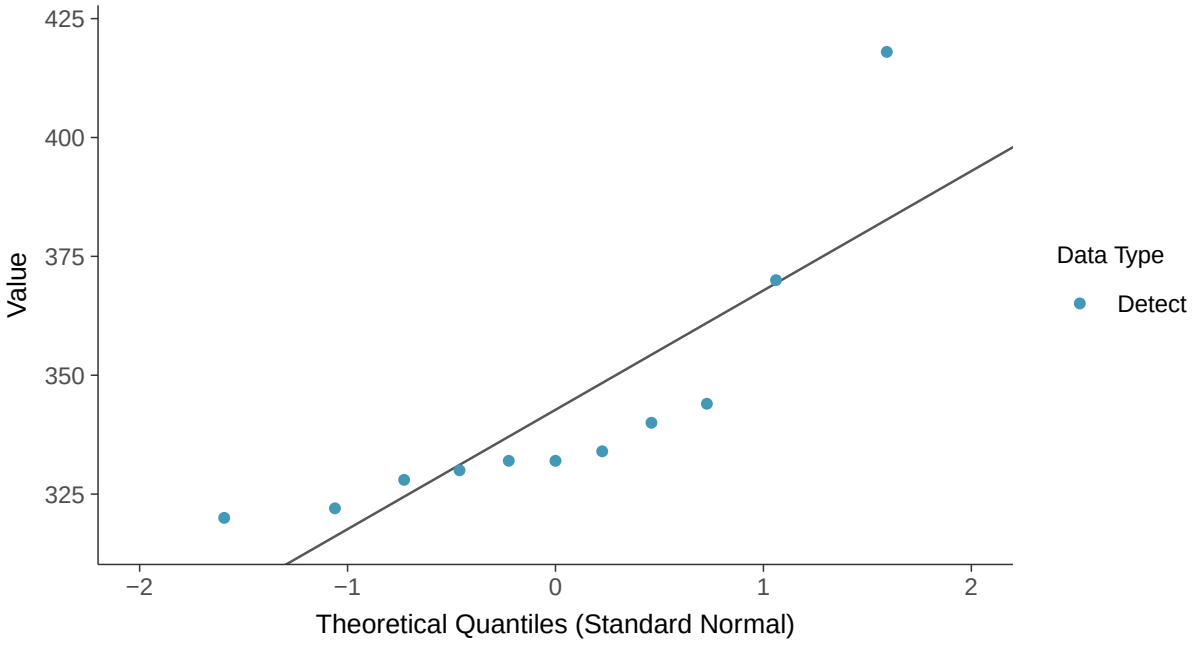
Boxplot by Season

Total Dissolved Solids, MW-16C (mg/L)



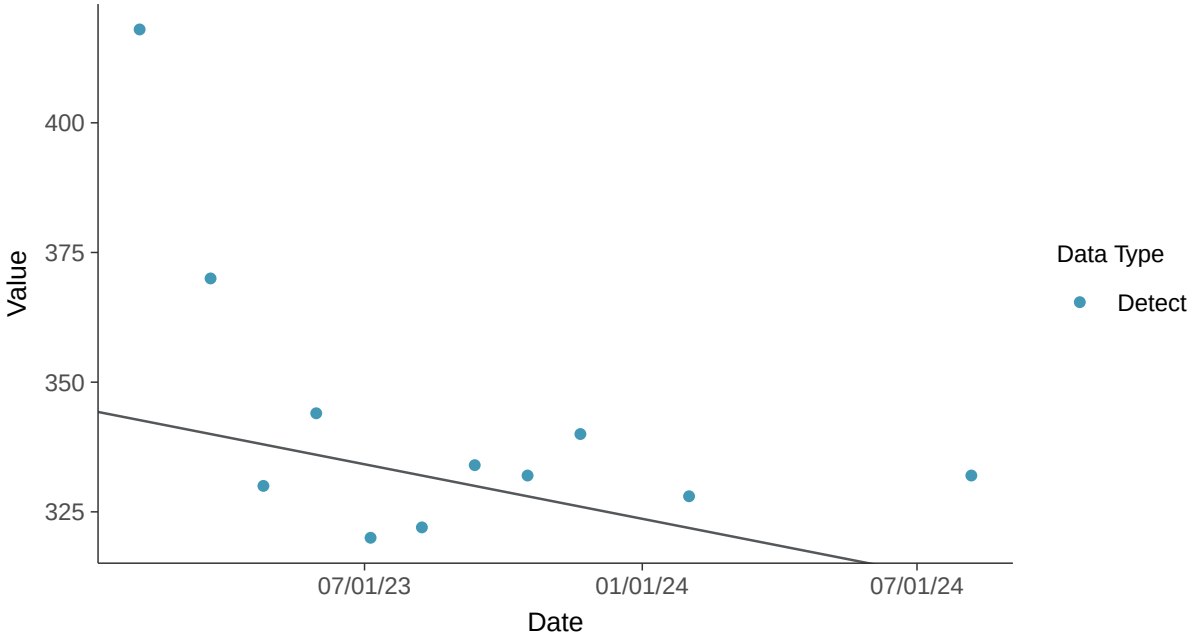
Normal Q-Q plot

Total Dissolved Solids, MW-16C (mg/L)



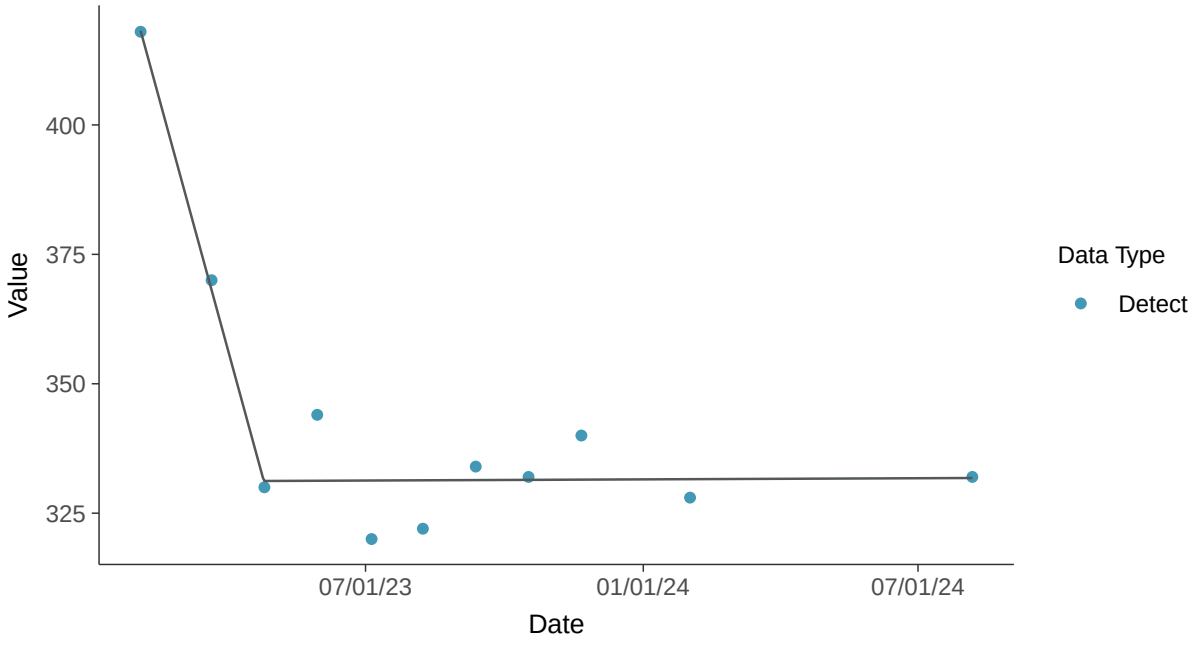
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Total Dissolved Solids, MW-16C (mg/L)



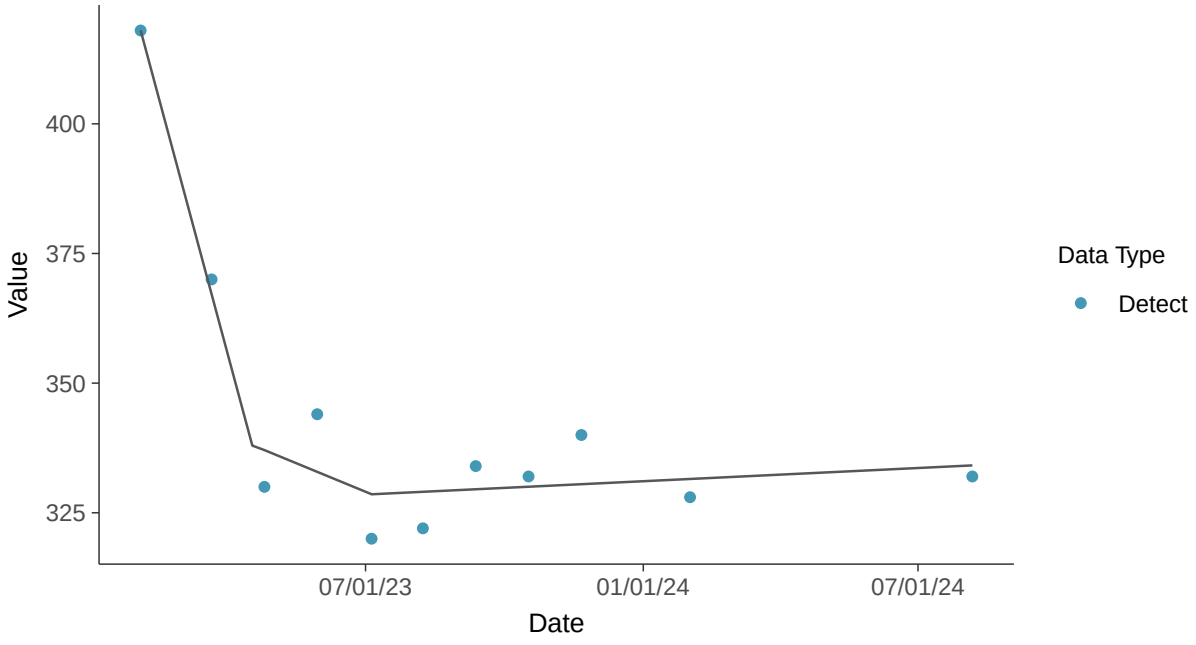
Trend Regression: Piecewise Linear-Linear

Total Dissolved Solids, MW-16C (mg/L)



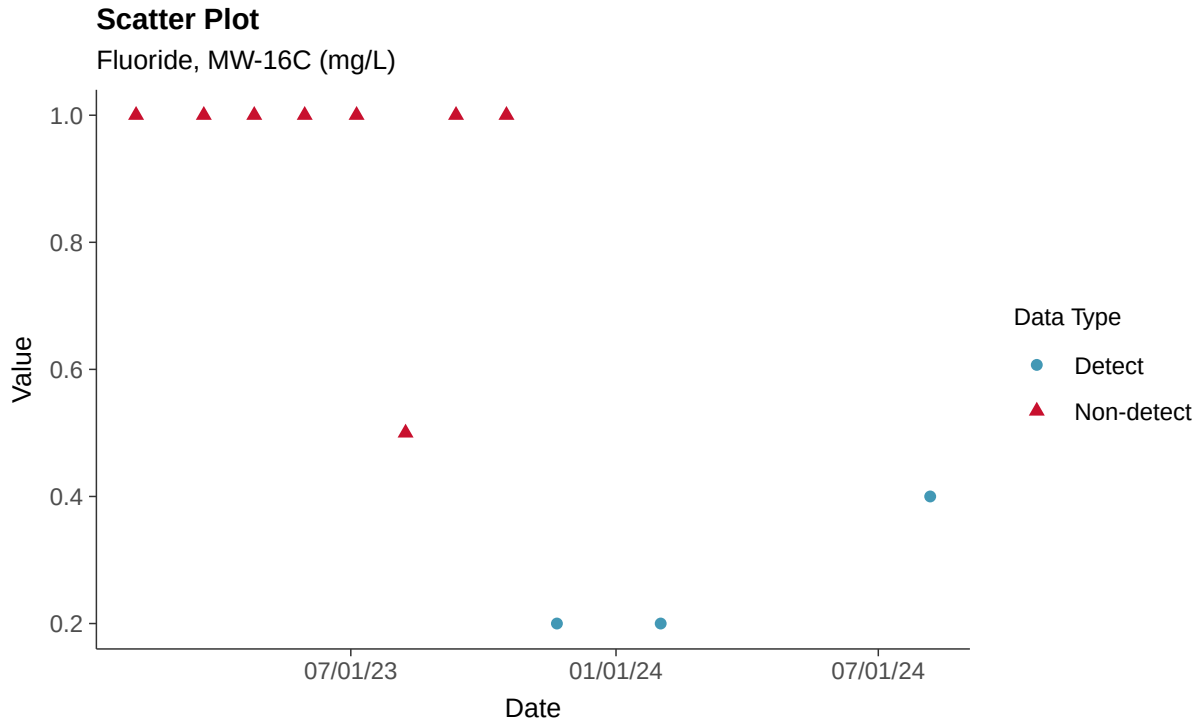
Trend Regression: Piecewise Linear-Linear-Linear

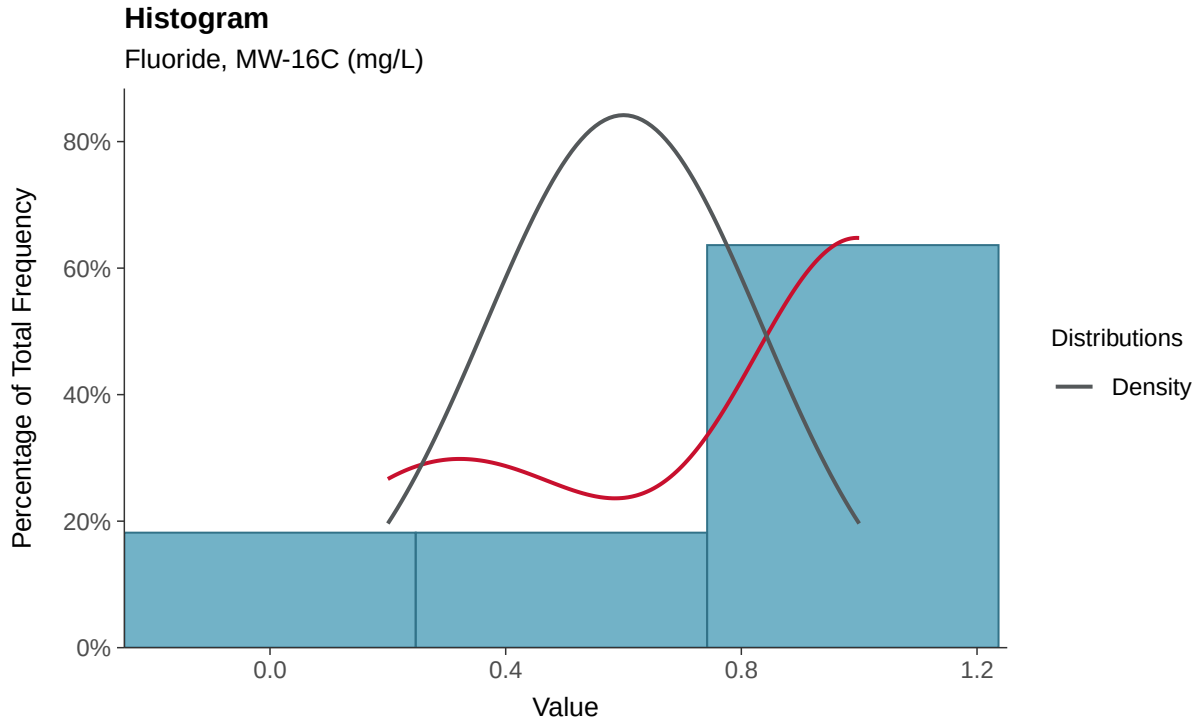
Total Dissolved Solids, MW-16C (mg/L)



Appendix IV: Fluoride, MW-16C

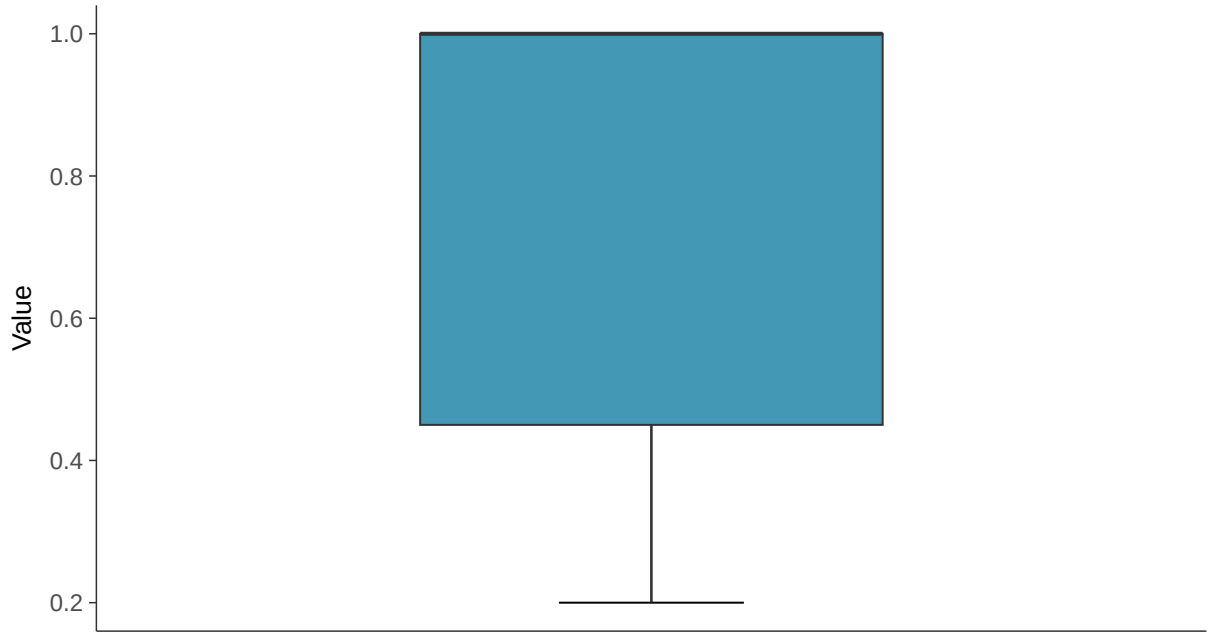
ID: 16C_2_04





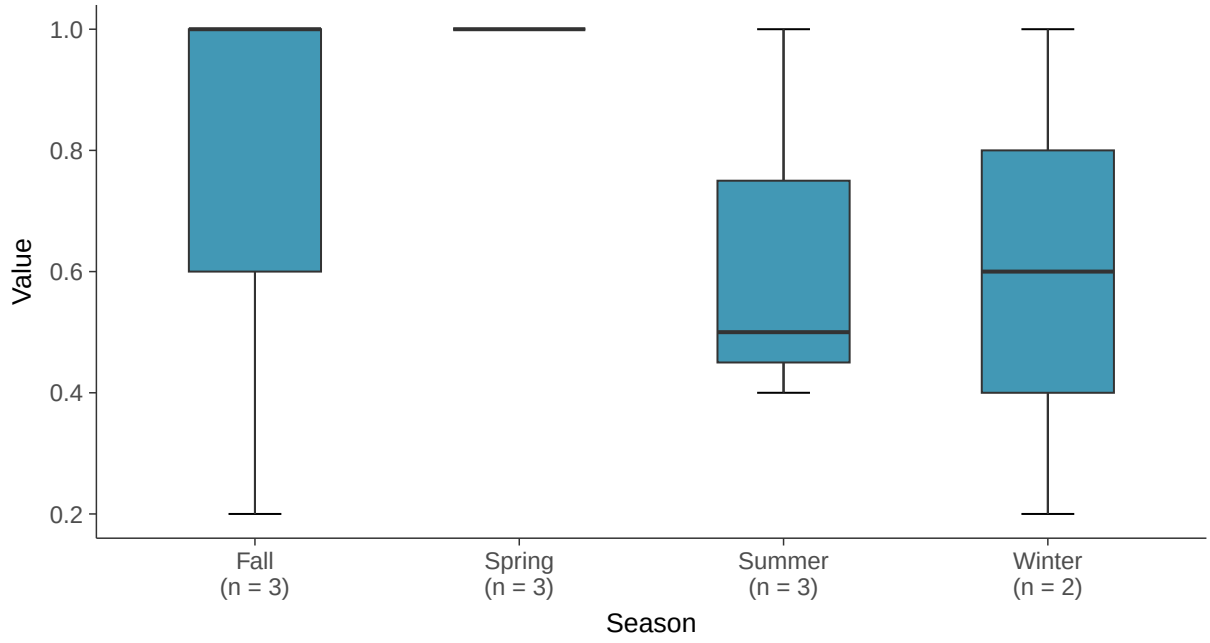
Boxplot

Fluoride, MW-16C (mg/L)



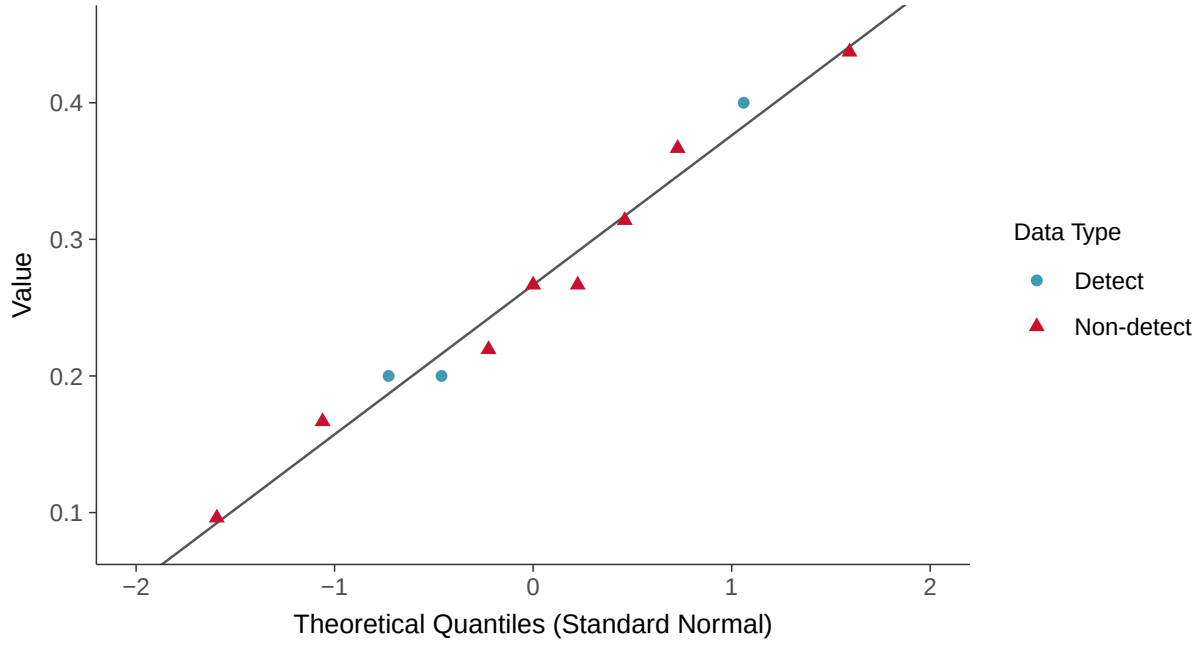
Boxplot by Season

Fluoride, MW-16C (mg/L)



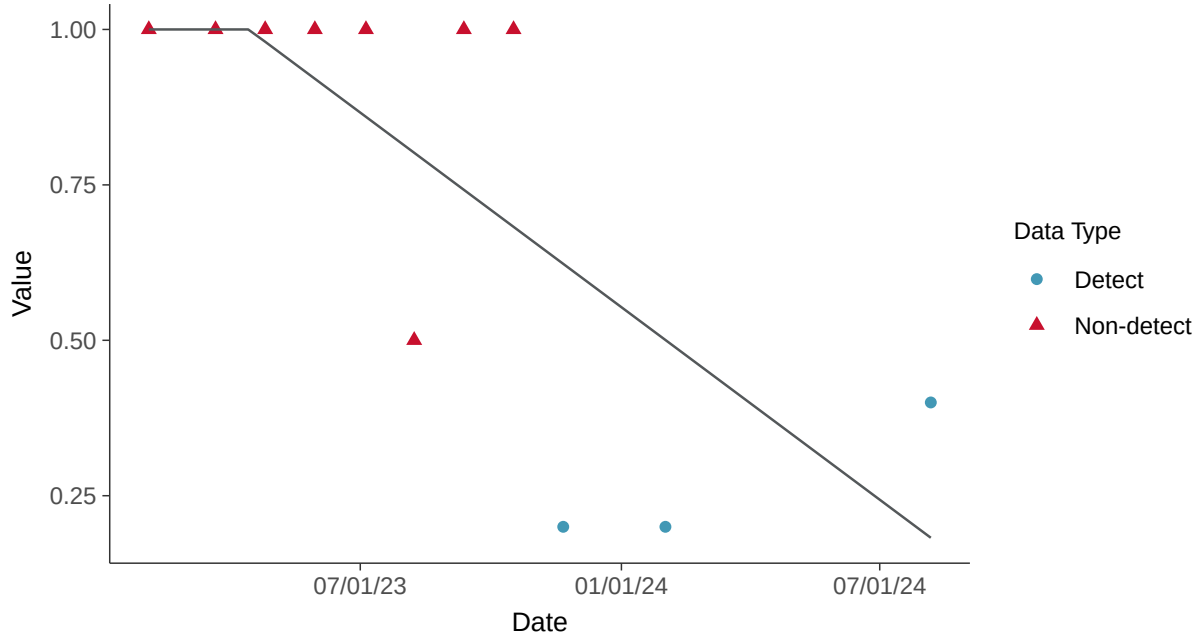
Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-16C (mg/L)



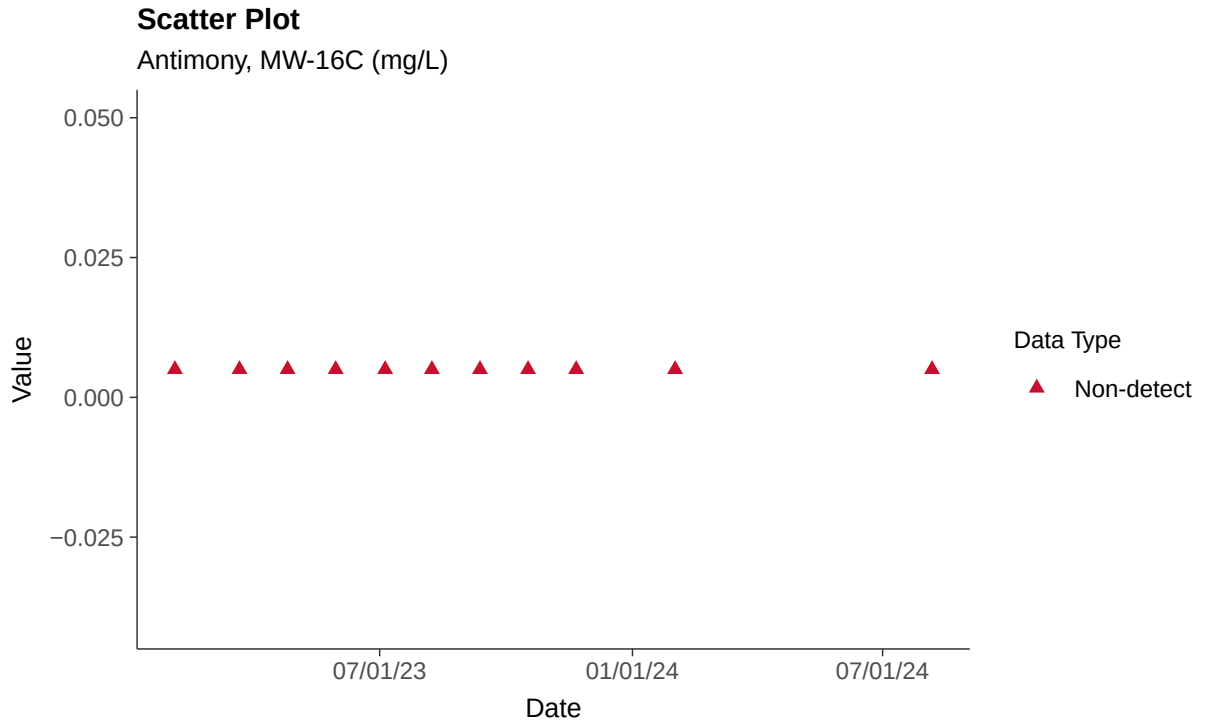
Trend Regression: Piecewise Linear-Linear

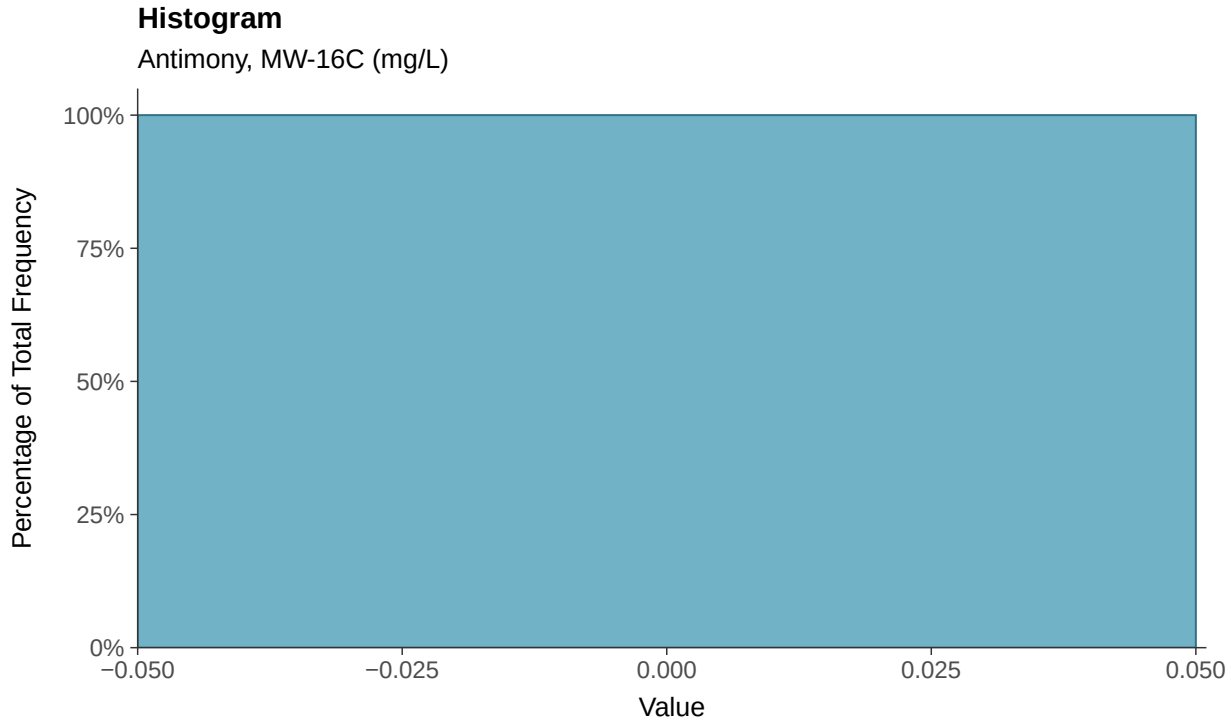
Fluoride, MW-16C (mg/L)



Appendix IV: Antimony, MW-16C

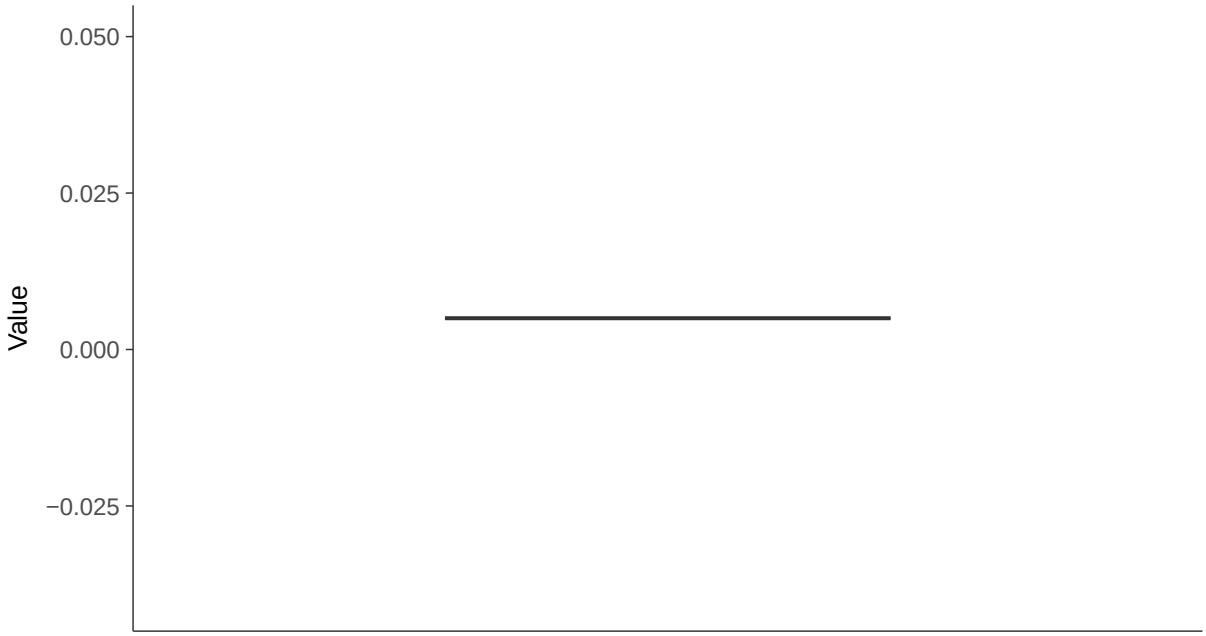
ID: 16C_2_08





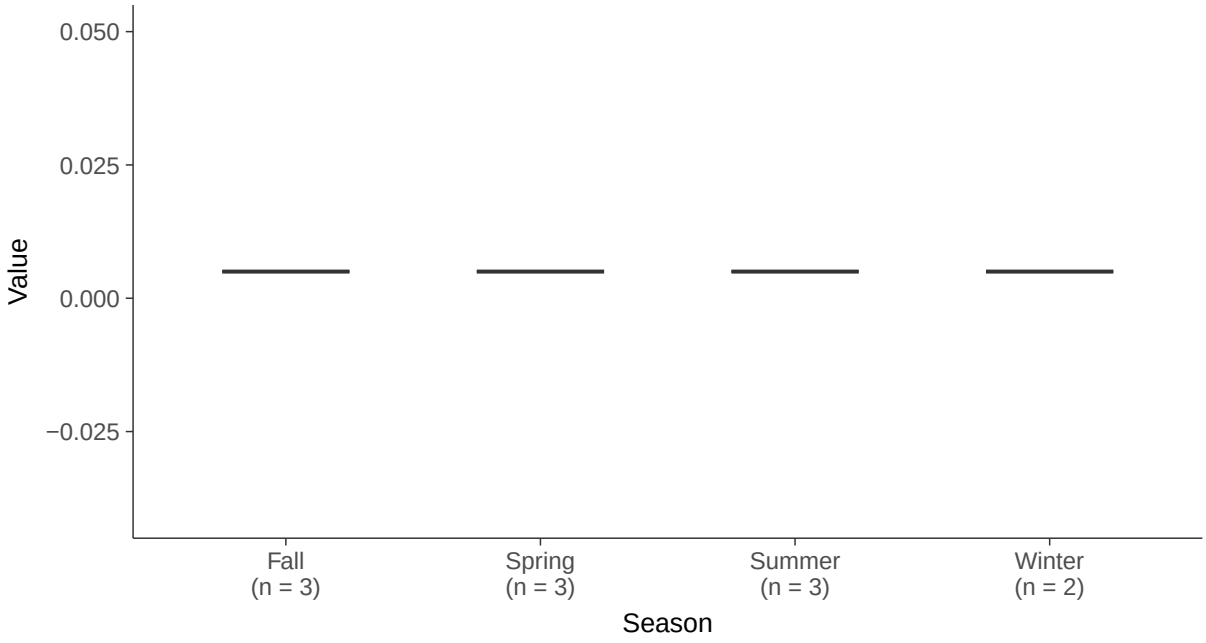
Boxplot

Antimony, MW-16C (mg/L)



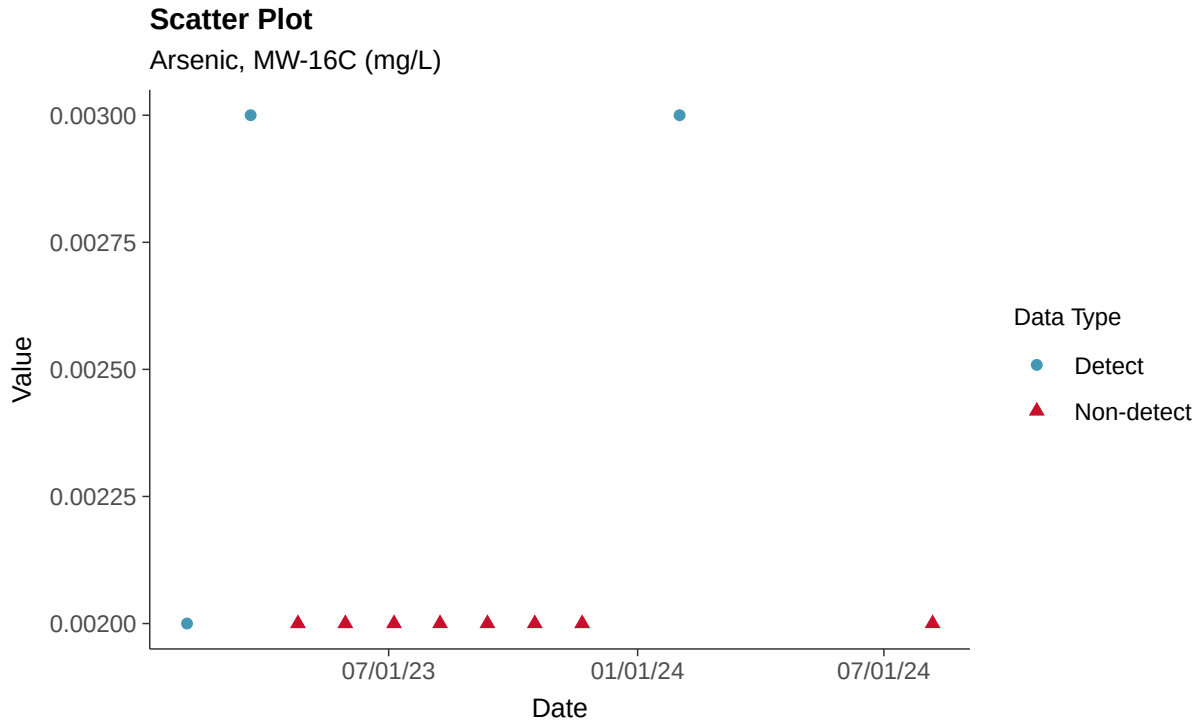
Boxplot by Season

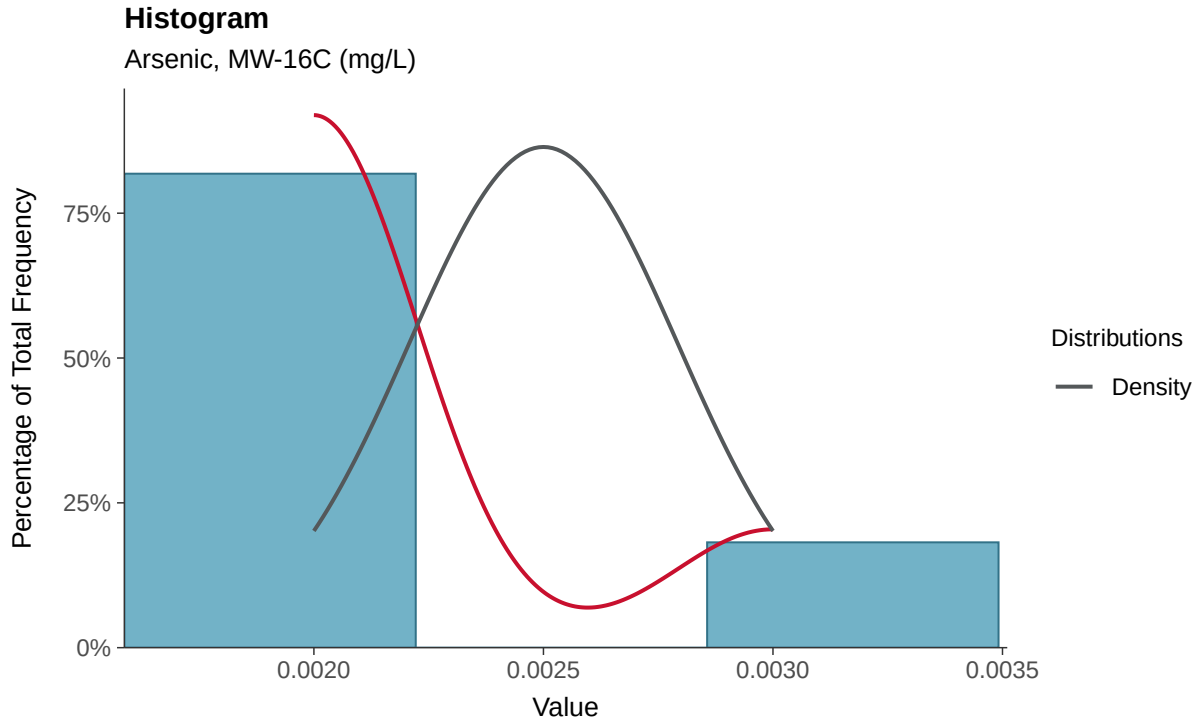
Antimony, MW-16C (mg/L)



Appendix IV: Arsenic, MW-16C

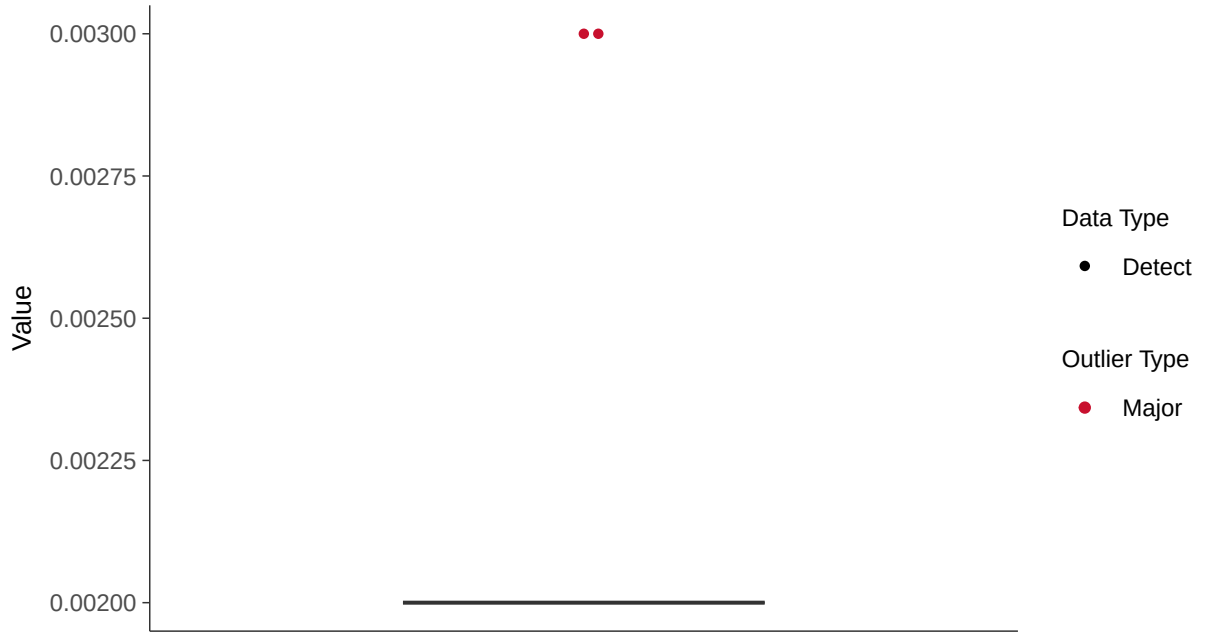
ID: 16C_2_09





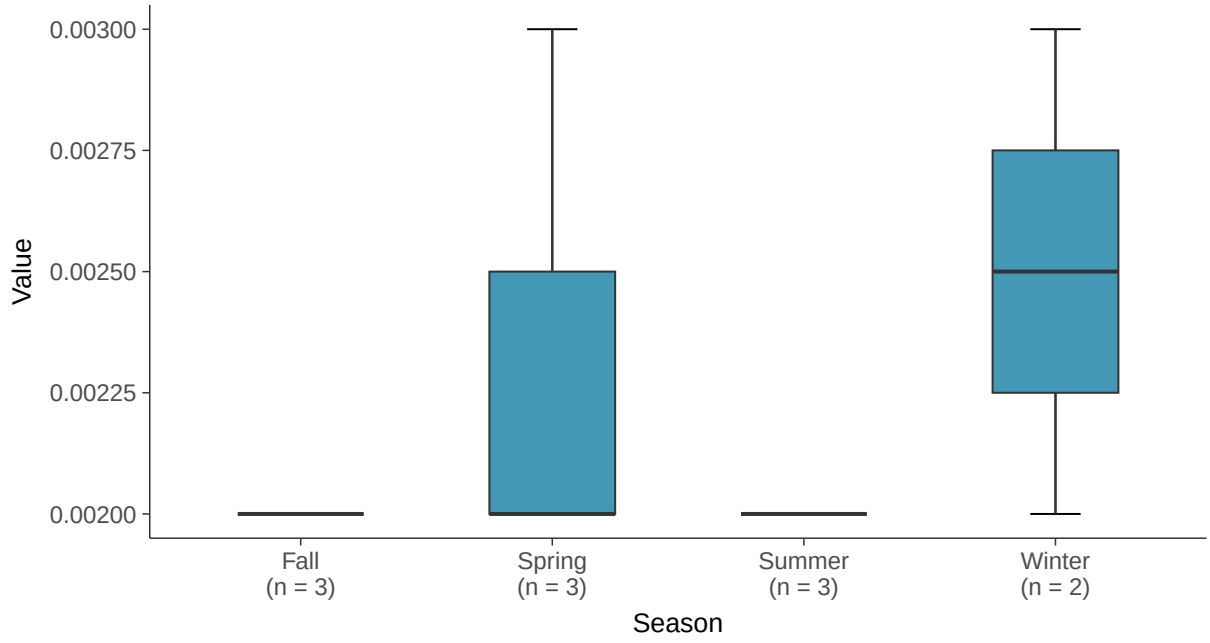
Boxplot

Arsenic, MW-16C (mg/L)



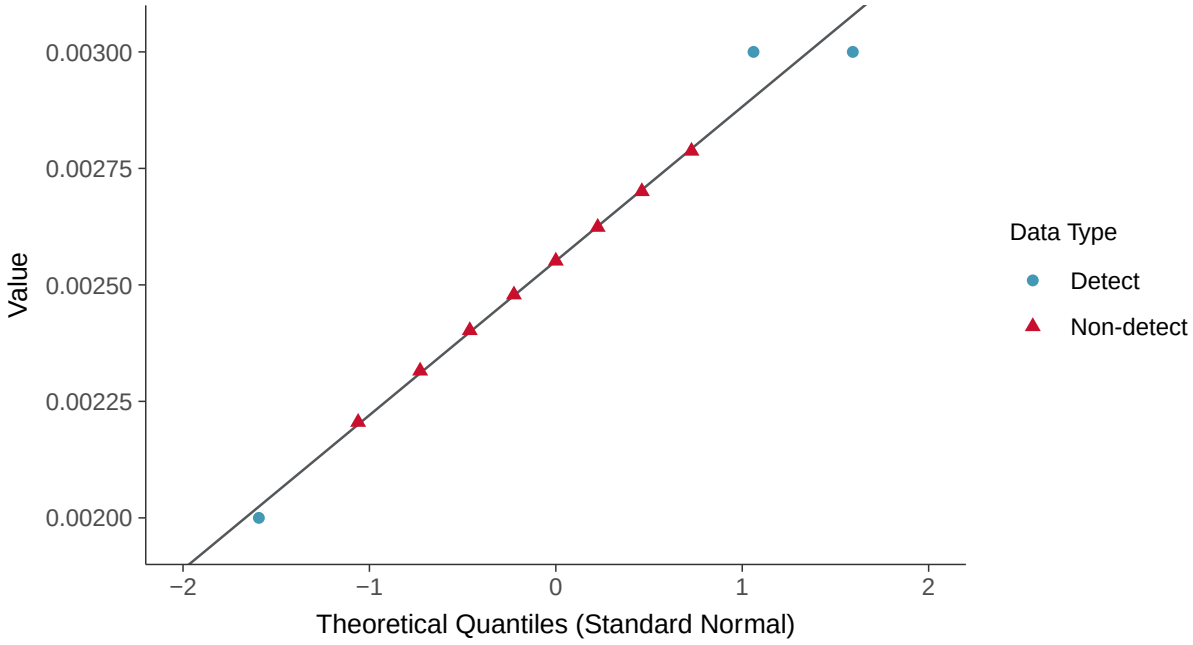
Boxplot by Season

Arsenic, MW-16C (mg/L)



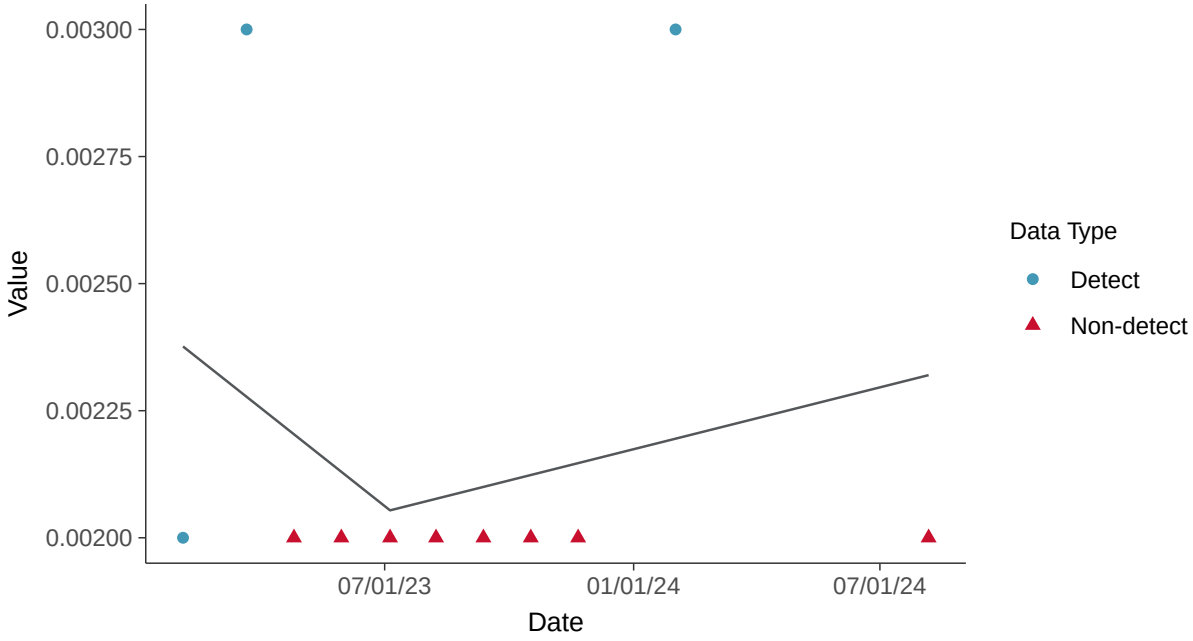
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, MW-16C (mg/L)



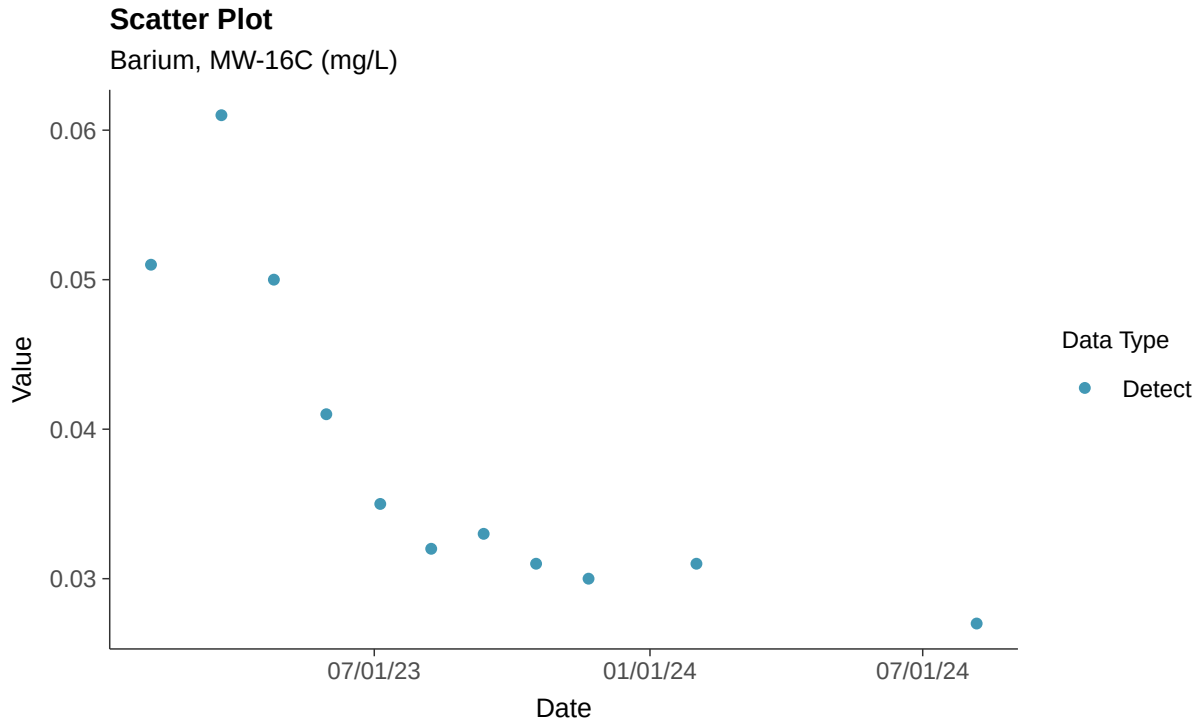
Trend Regression: Piecewise Linear-Linear

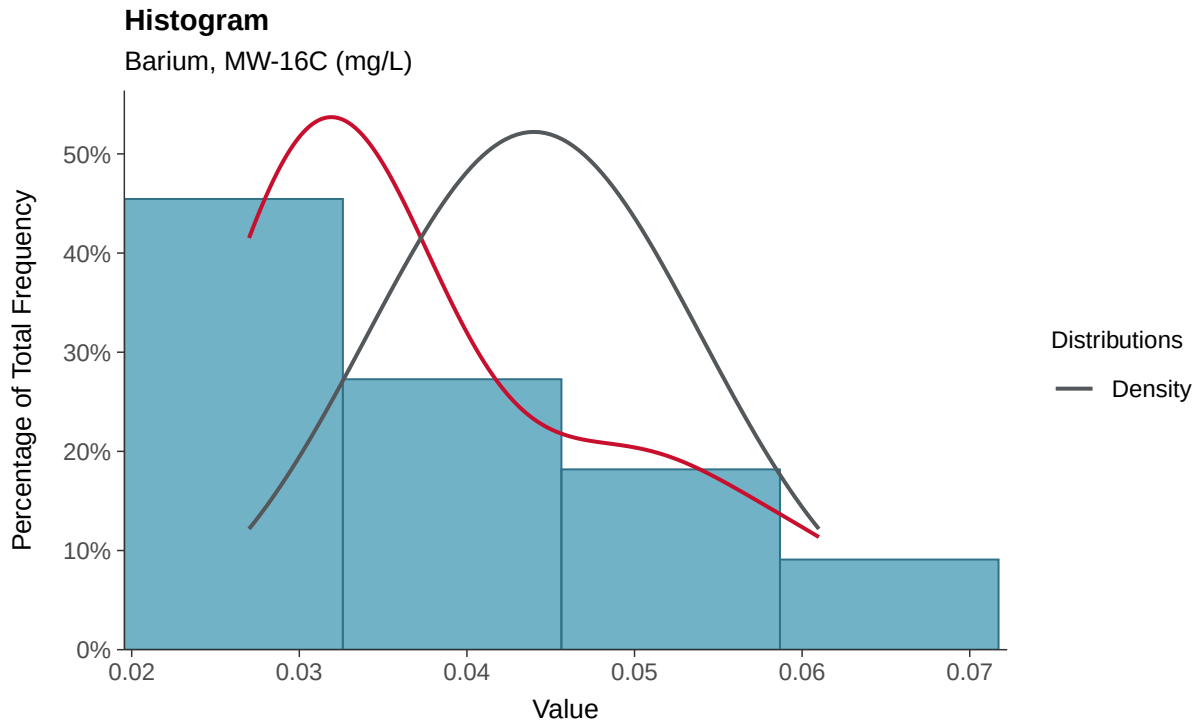
Arsenic, MW-16C (mg/L)



Appendix IV: Barium, MW-16C

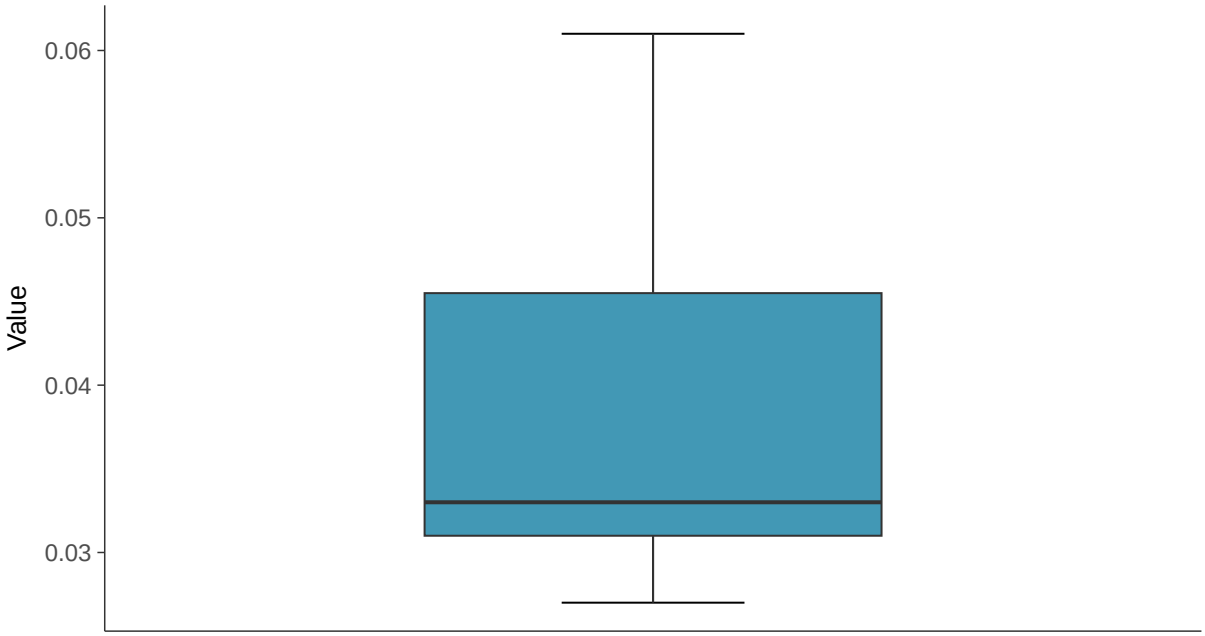
ID: 16C_2_10





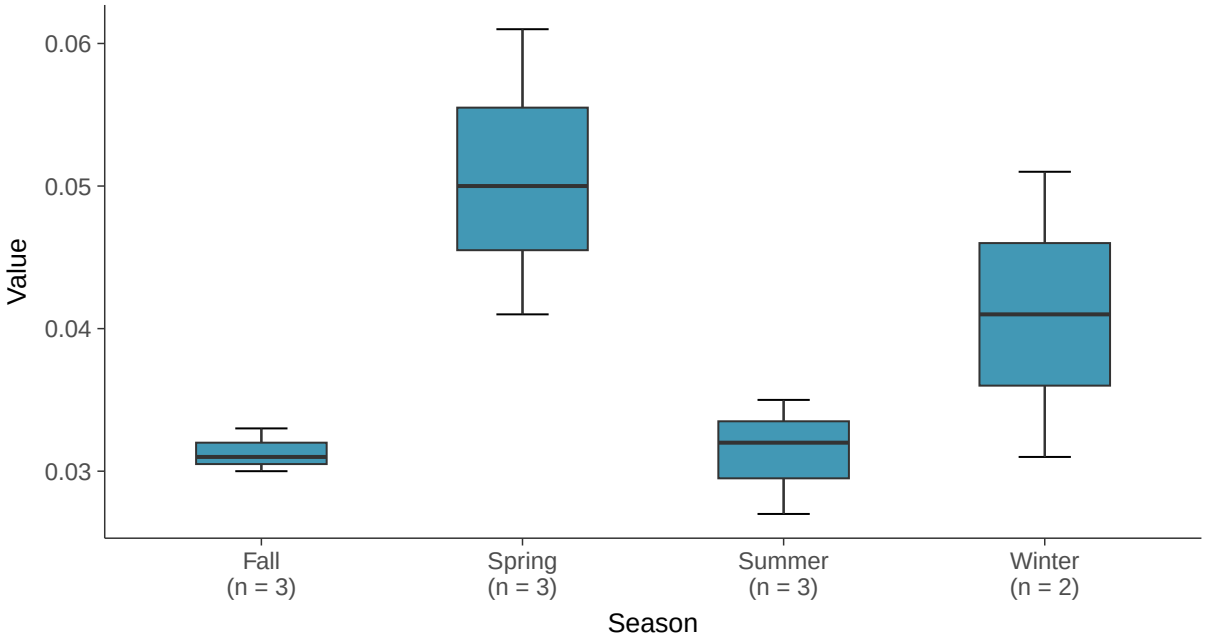
Boxplot

Barium, MW-16C (mg/L)



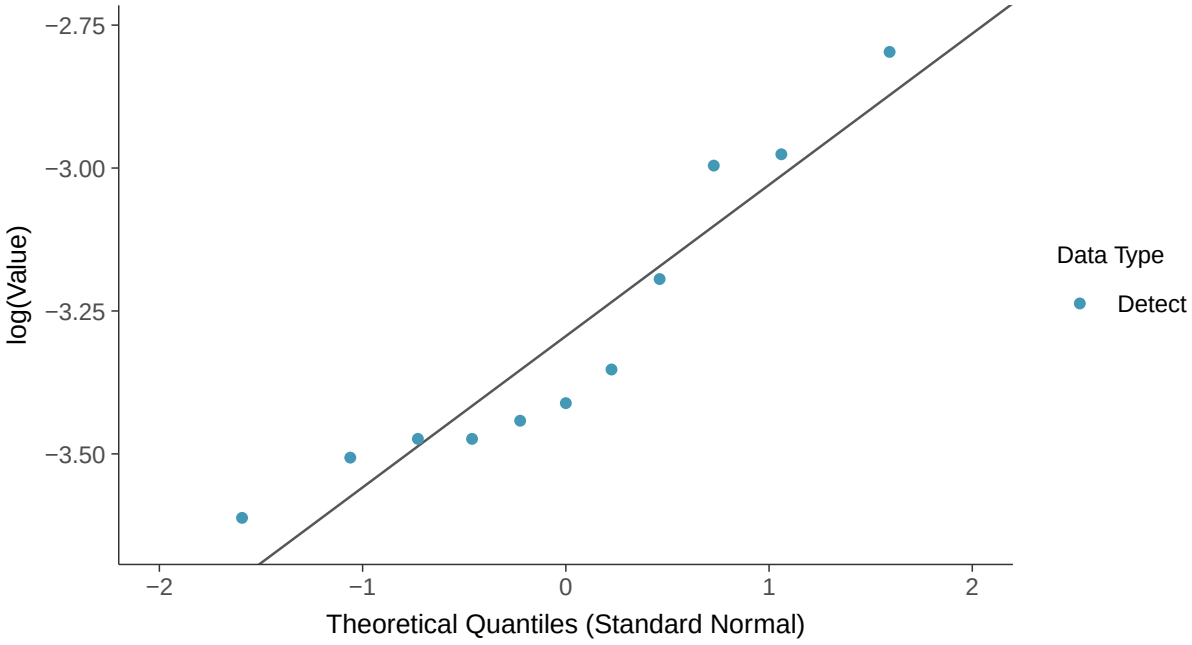
Boxplot by Season

Barium, MW-16C (mg/L)



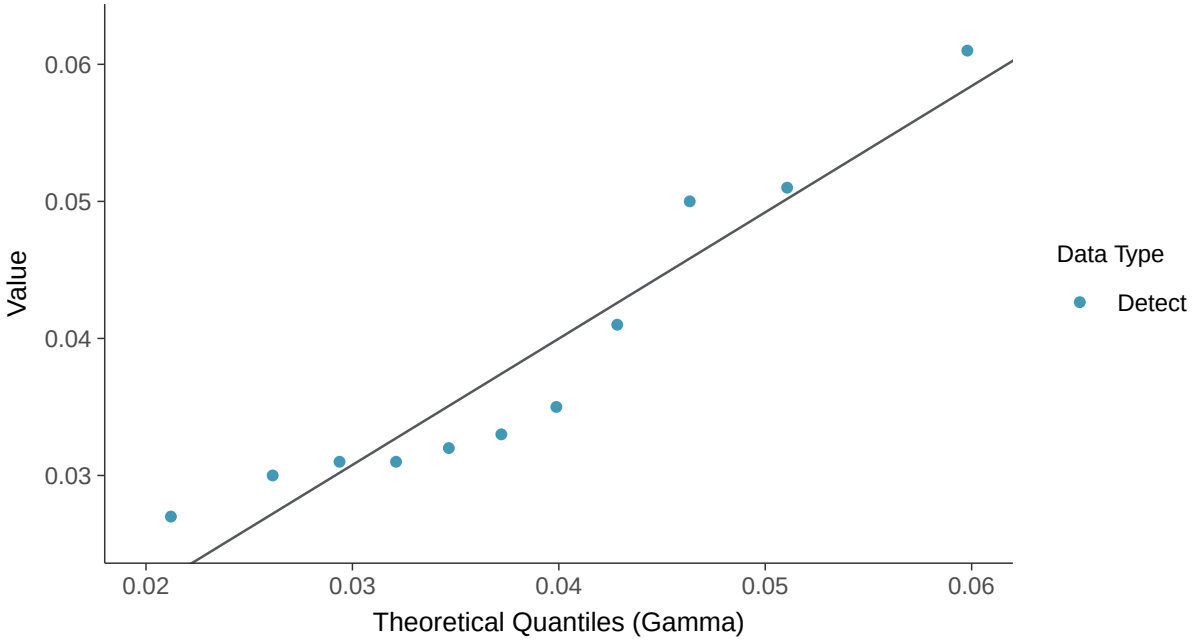
Lognormal Q-Q plot

Barium, MW-16C (mg/L)



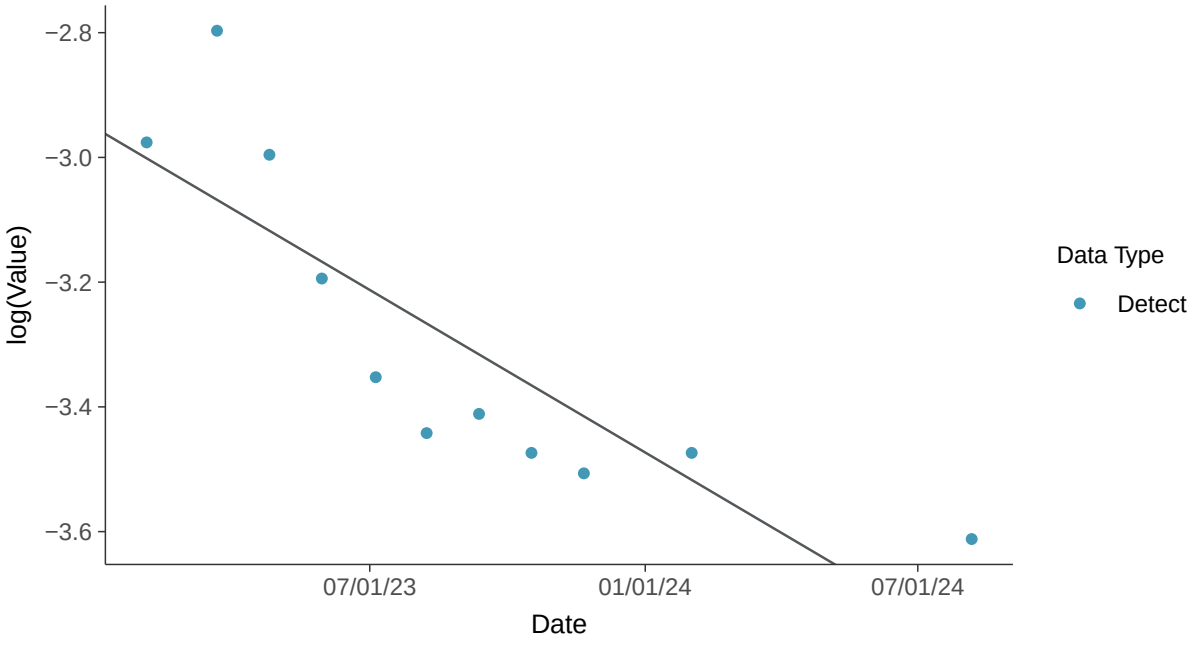
Gamma Q-Q plot

Barium, MW-16C (mg/L)



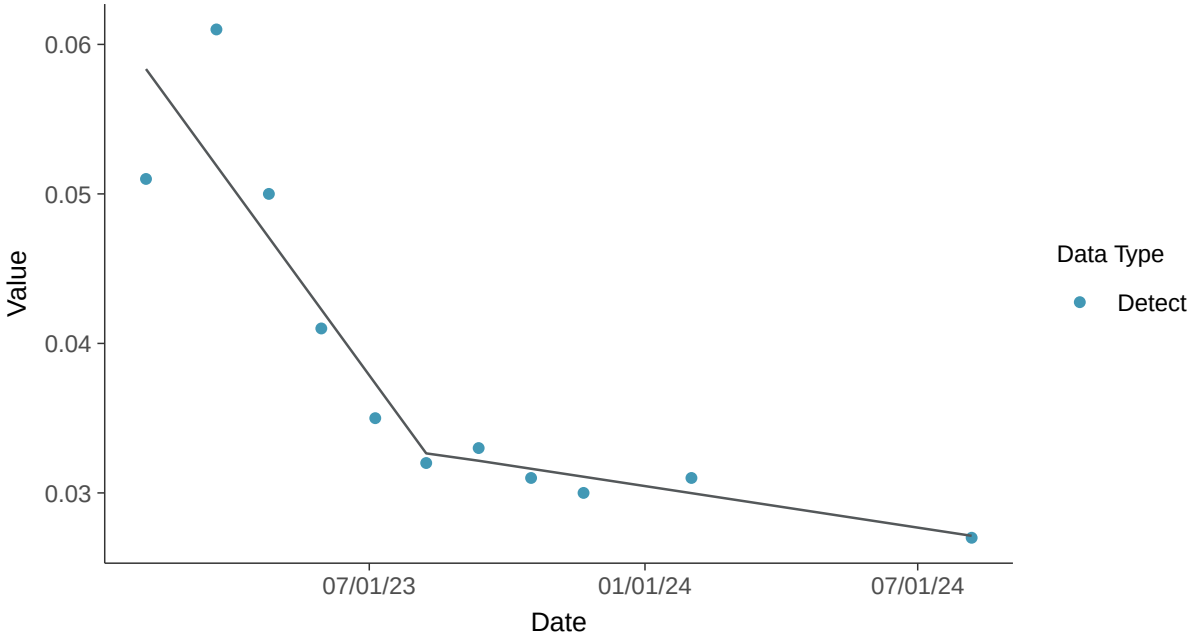
Trend Regression: Lognormal MLE

Barium, MW-16C (mg/L)



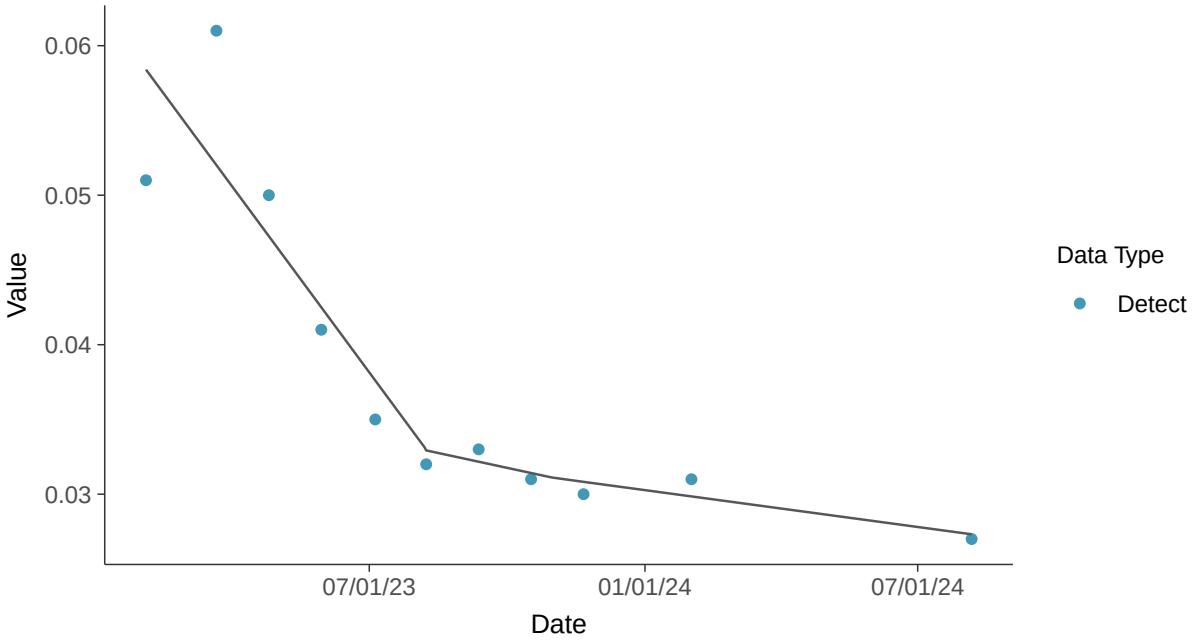
Trend Regression: Piecewise Linear-Linear

Barium, MW-16C (mg/L)



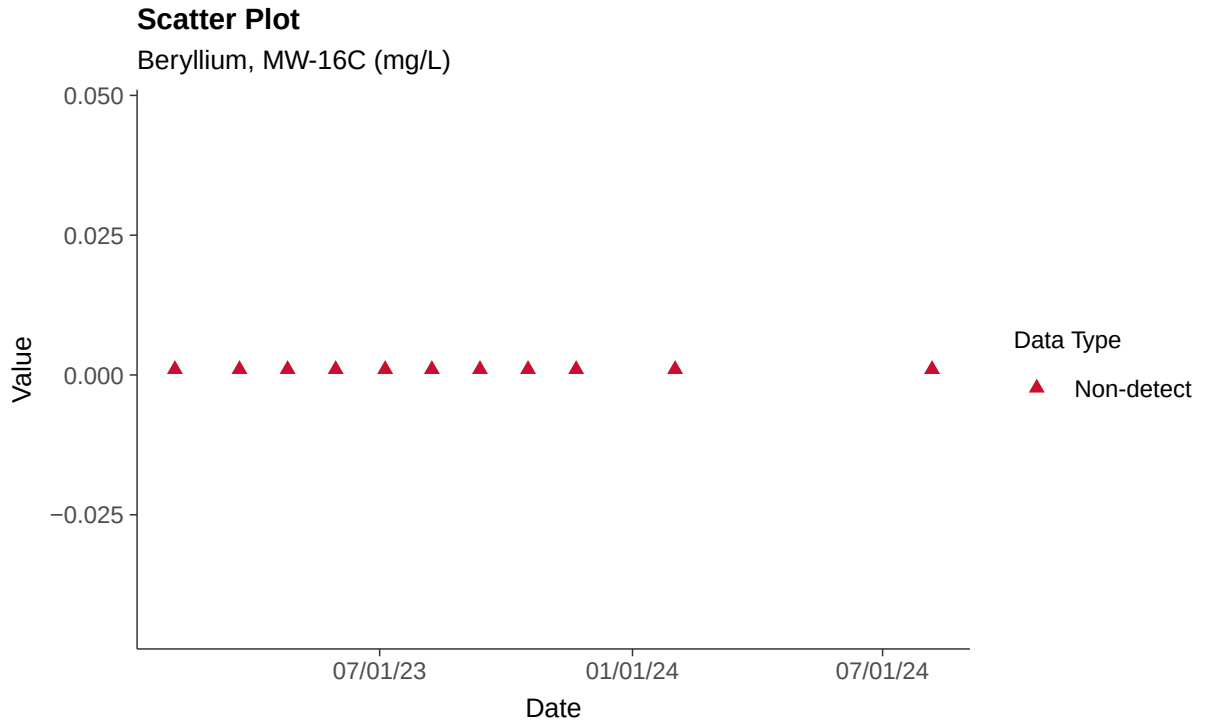
Trend Regression: Piecewise Linear-Linear-Linear

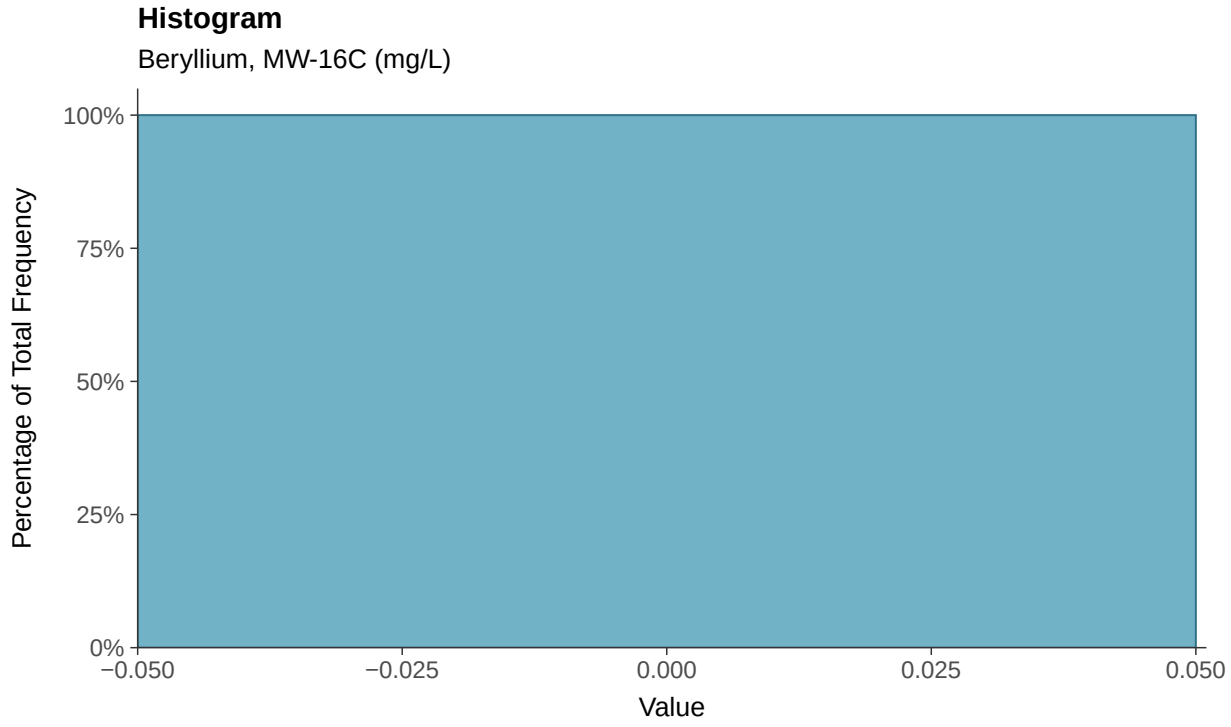
Barium, MW-16C (mg/L)



Appendix IV: Beryllium, MW-16C

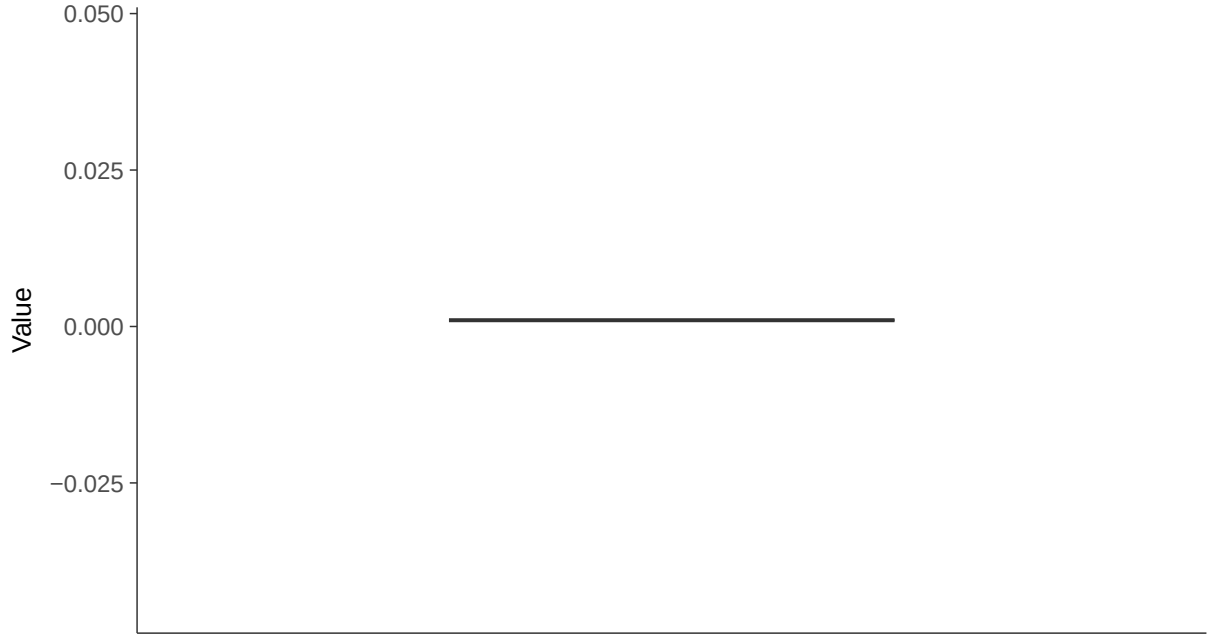
ID: 16C_2_11





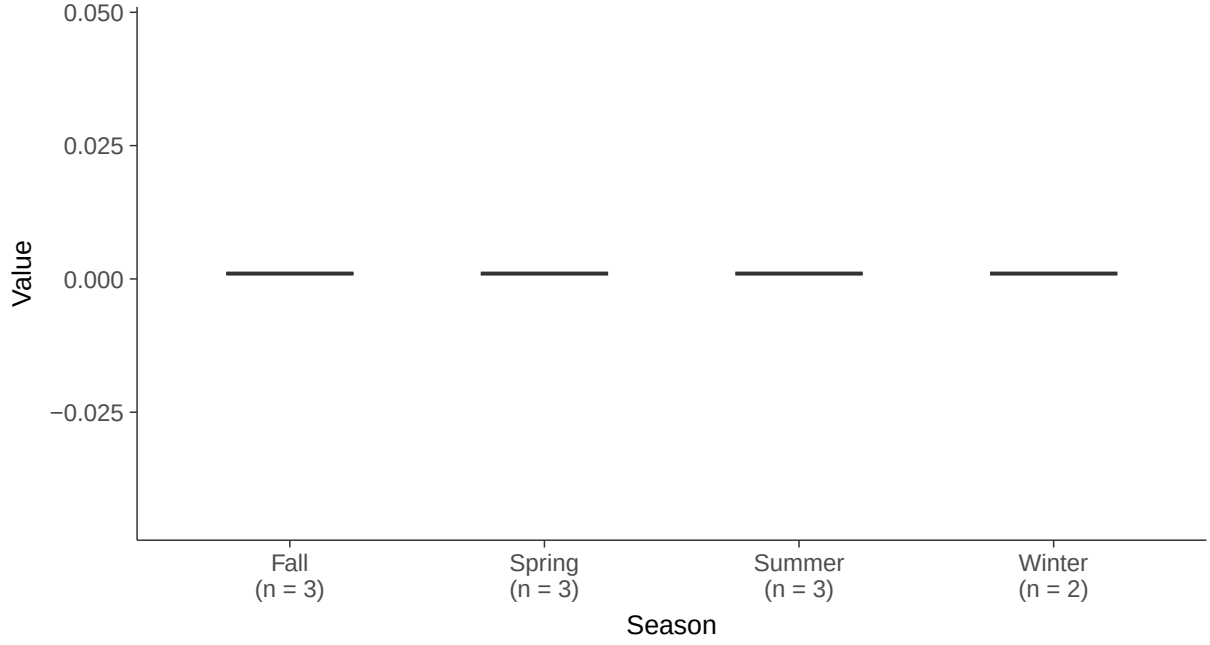
Boxplot

Beryllium, MW-16C (mg/L)



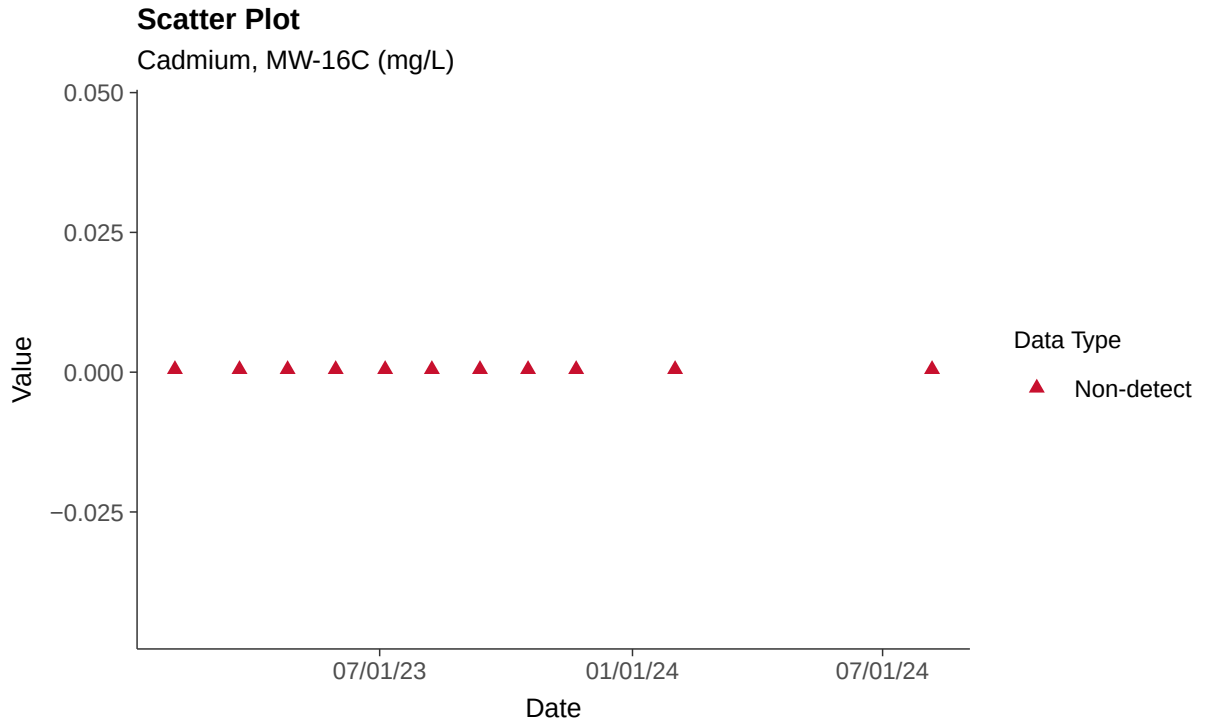
Boxplot by Season

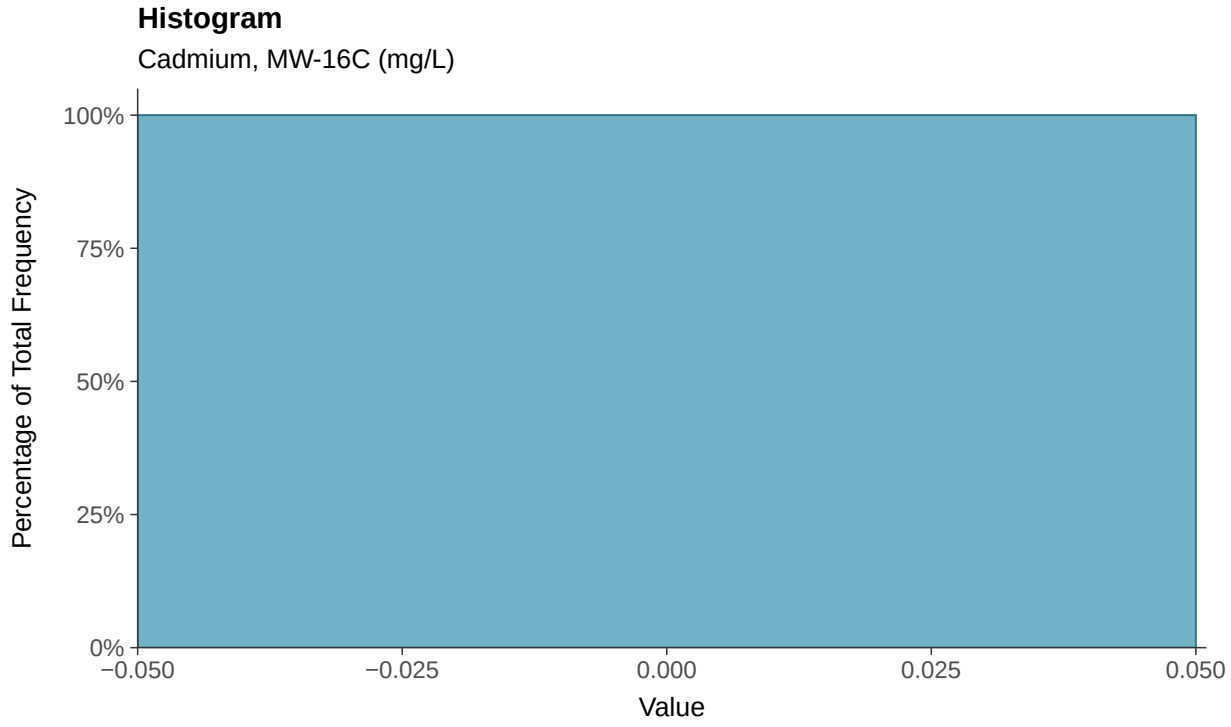
Beryllium, MW-16C (mg/L)



Appendix IV: Cadmium, MW-16C

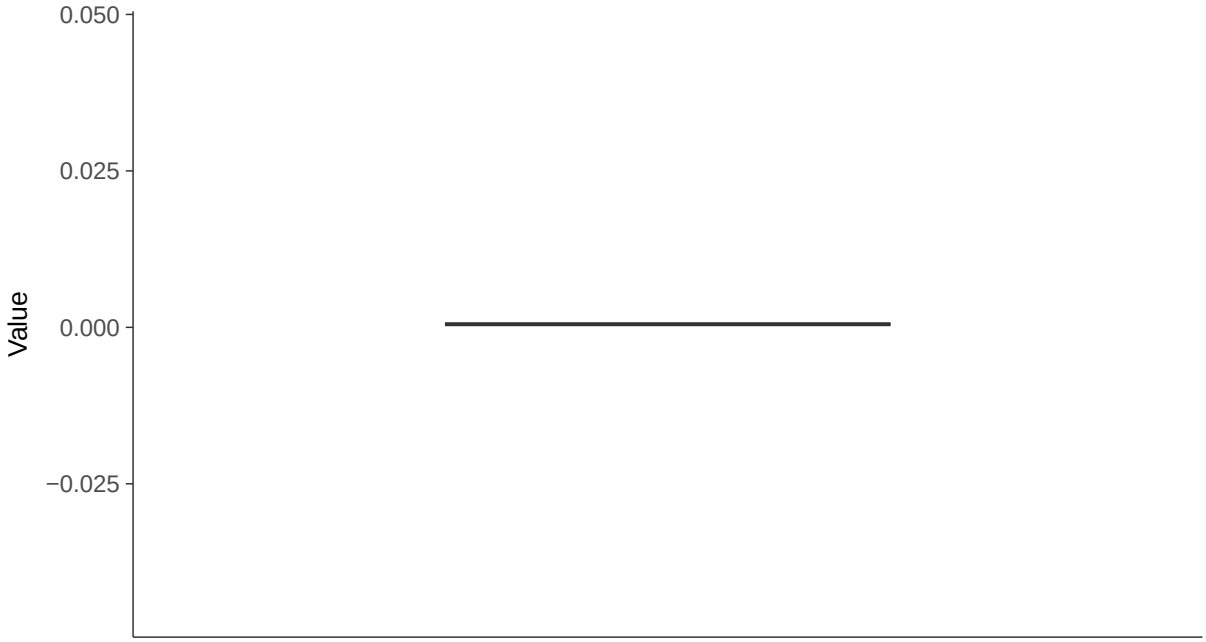
ID: 16C_2_12





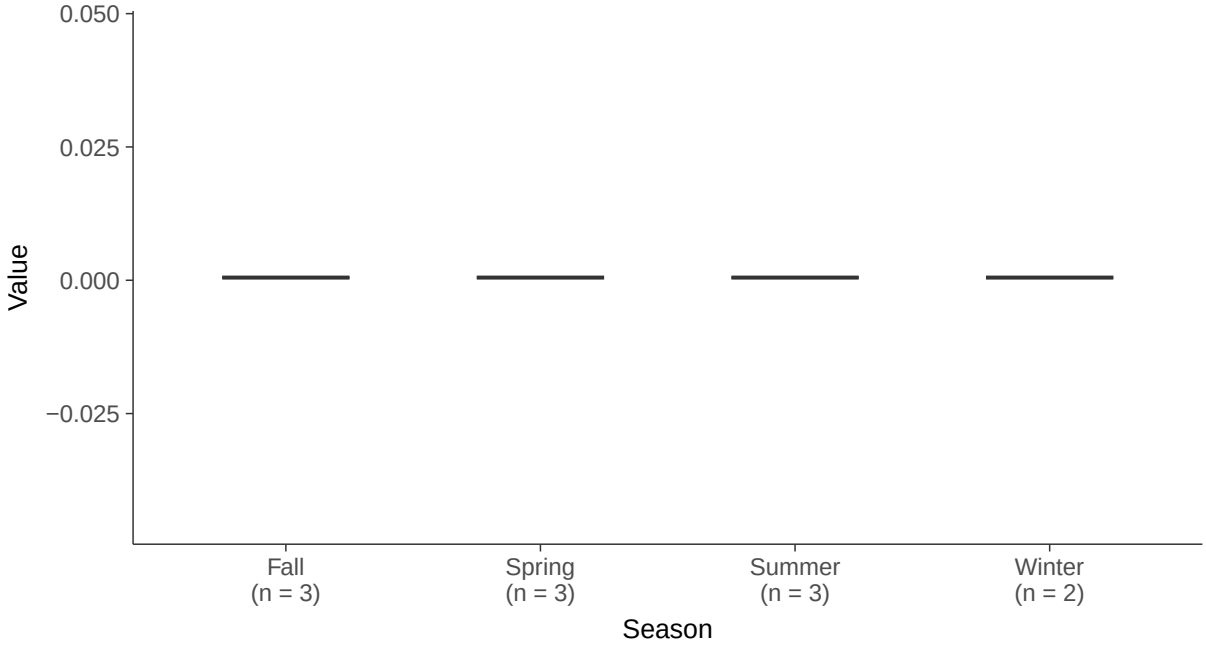
Boxplot

Cadmium, MW-16C (mg/L)



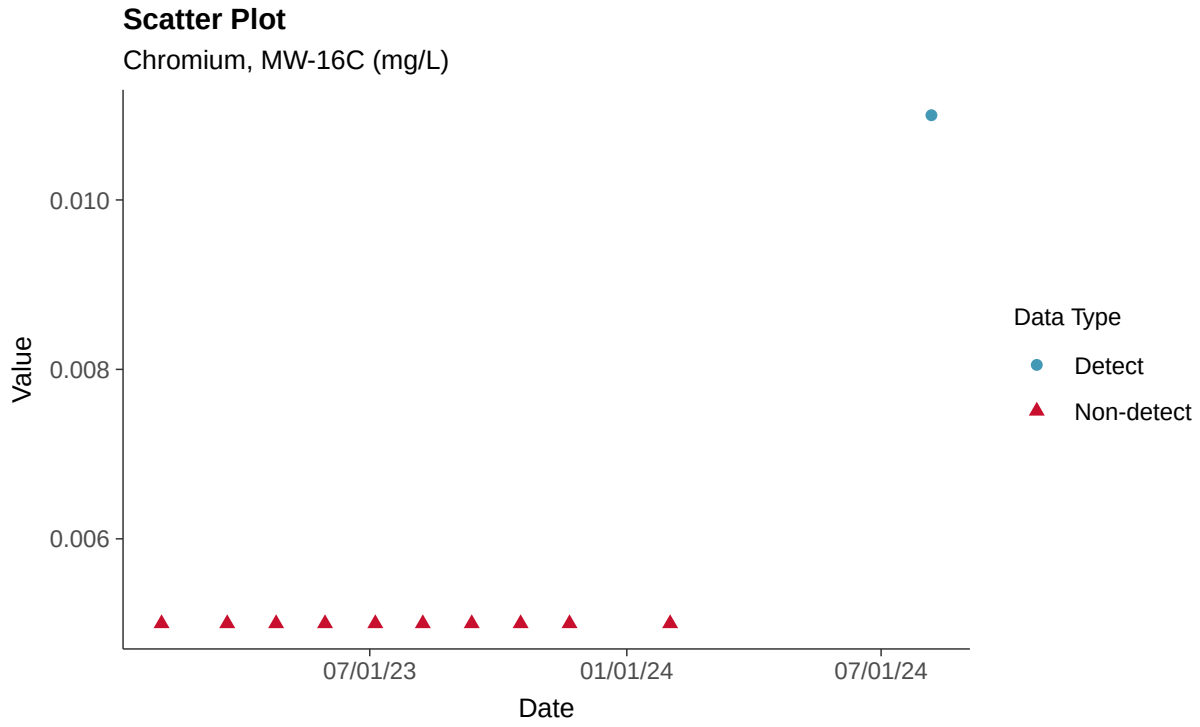
Boxplot by Season

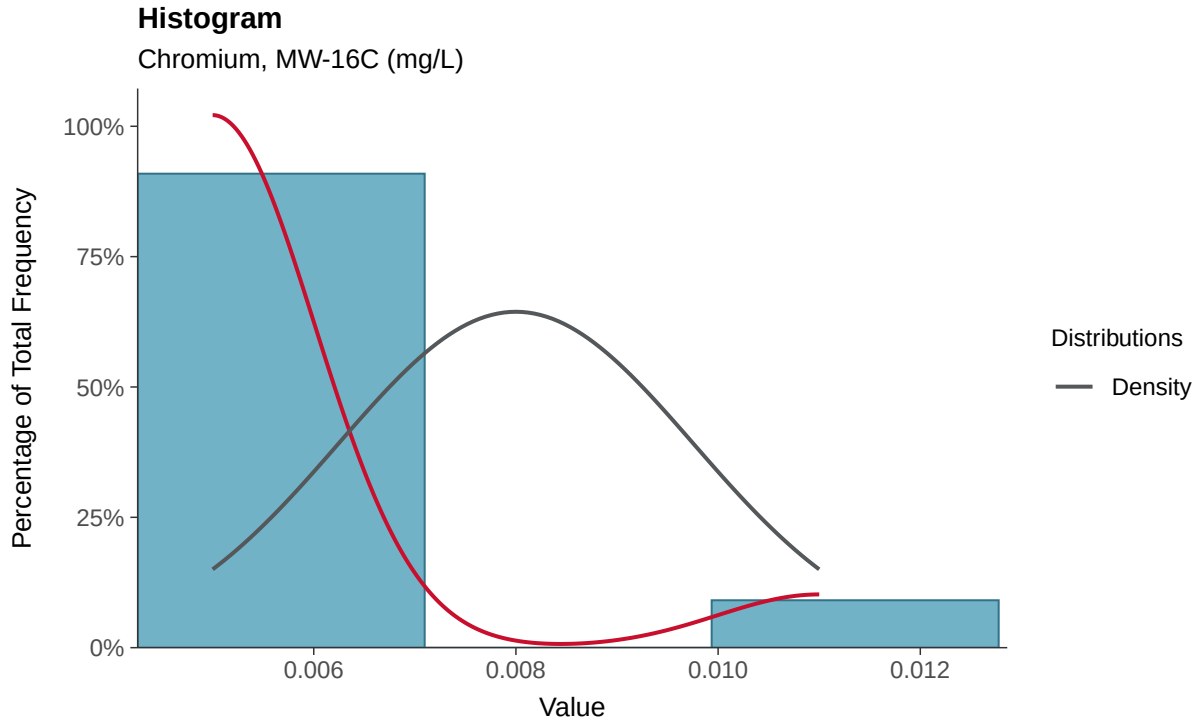
Cadmium, MW-16C (mg/L)



Appendix IV: Chromium, MW-16C

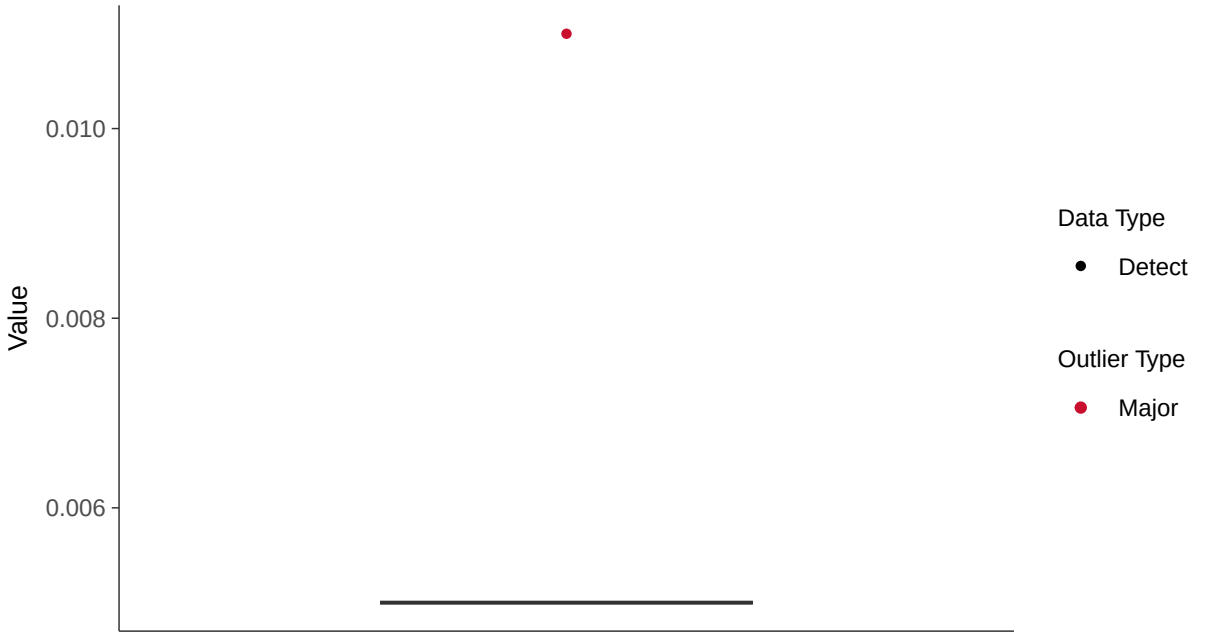
ID: 16C_2_13





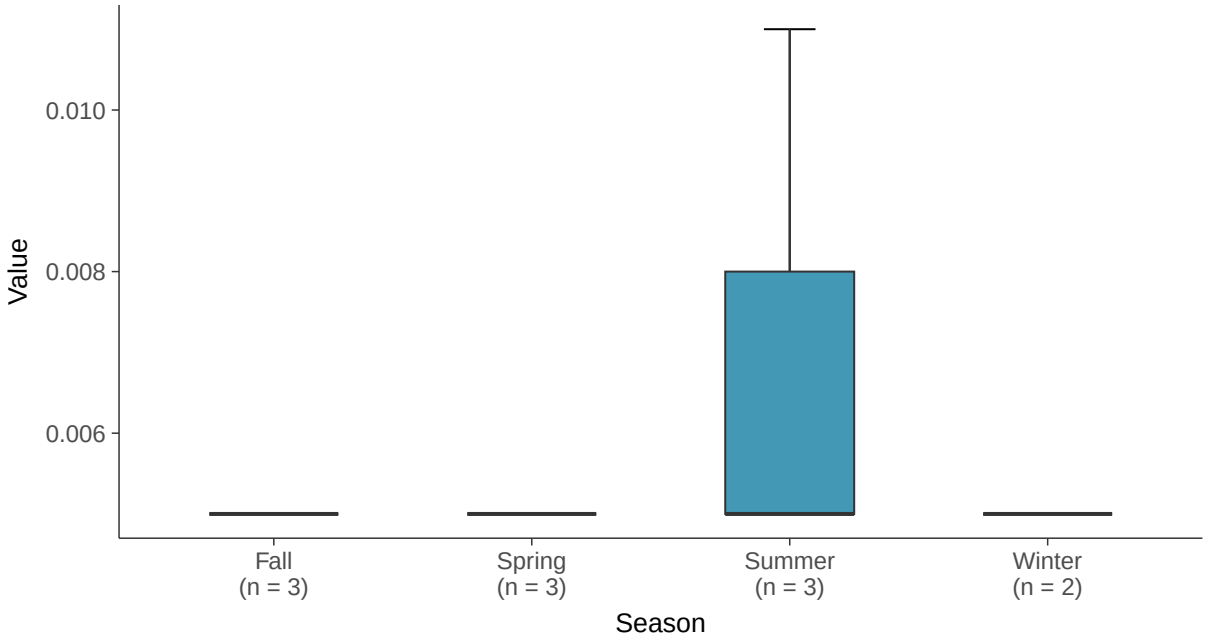
Boxplot

Chromium, MW-16C (mg/L)



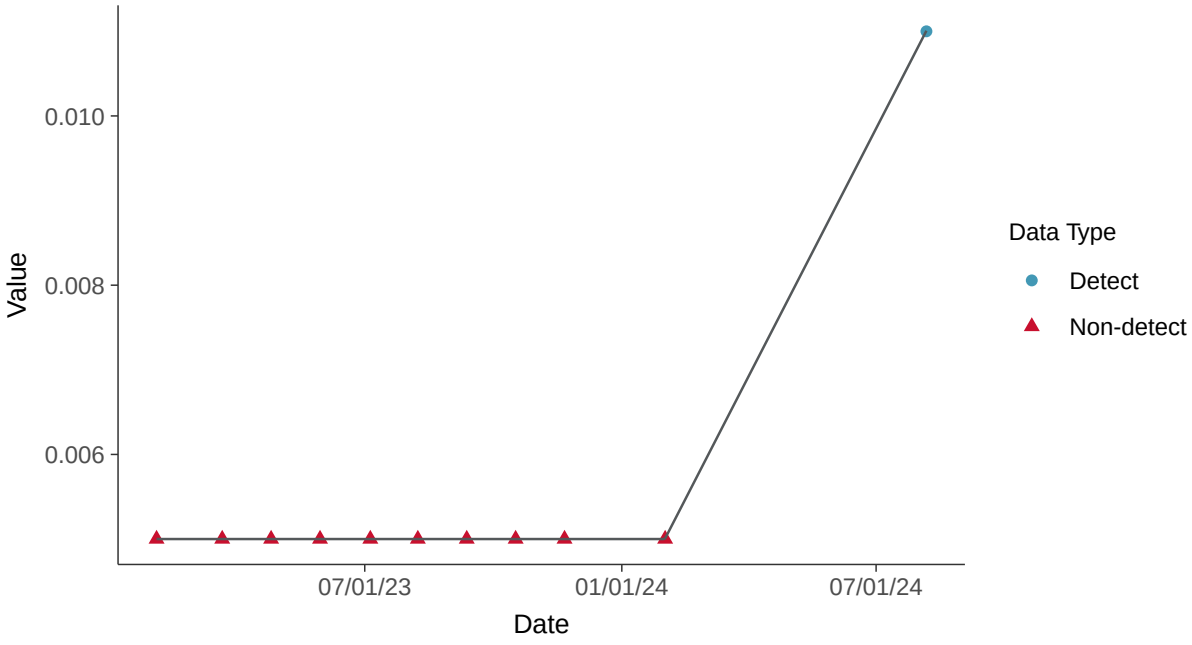
Boxplot by Season

Chromium, MW-16C (mg/L)



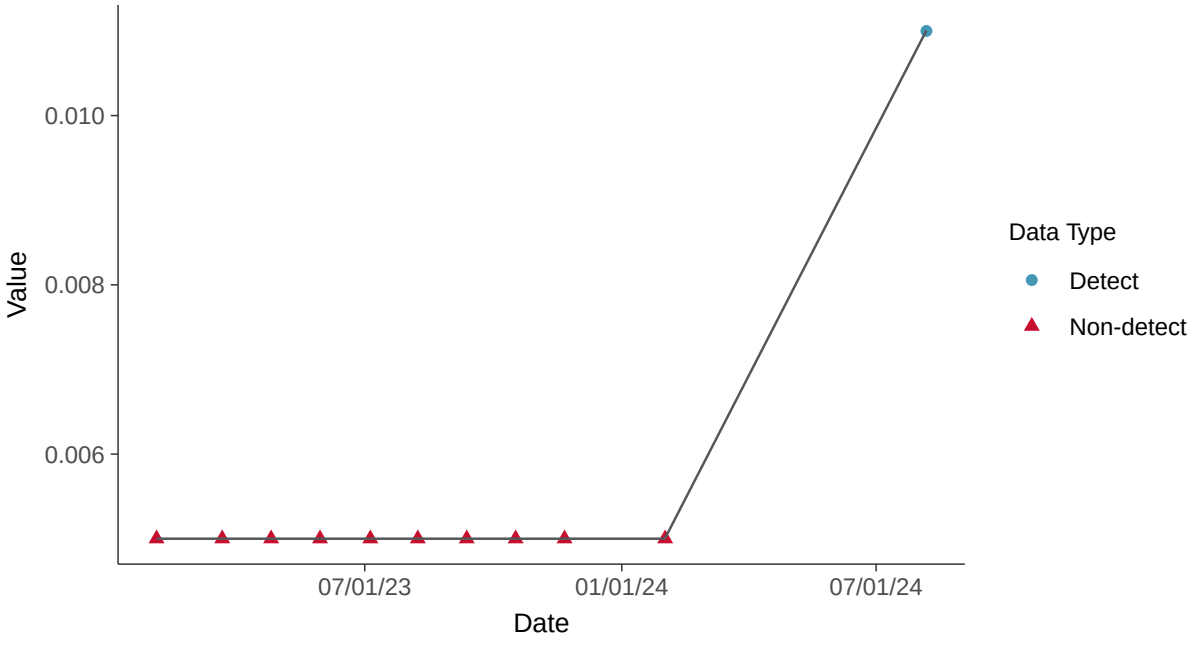
Trend Regression: Piecewise Linear-Linear

Chromium, MW-16C (mg/L)



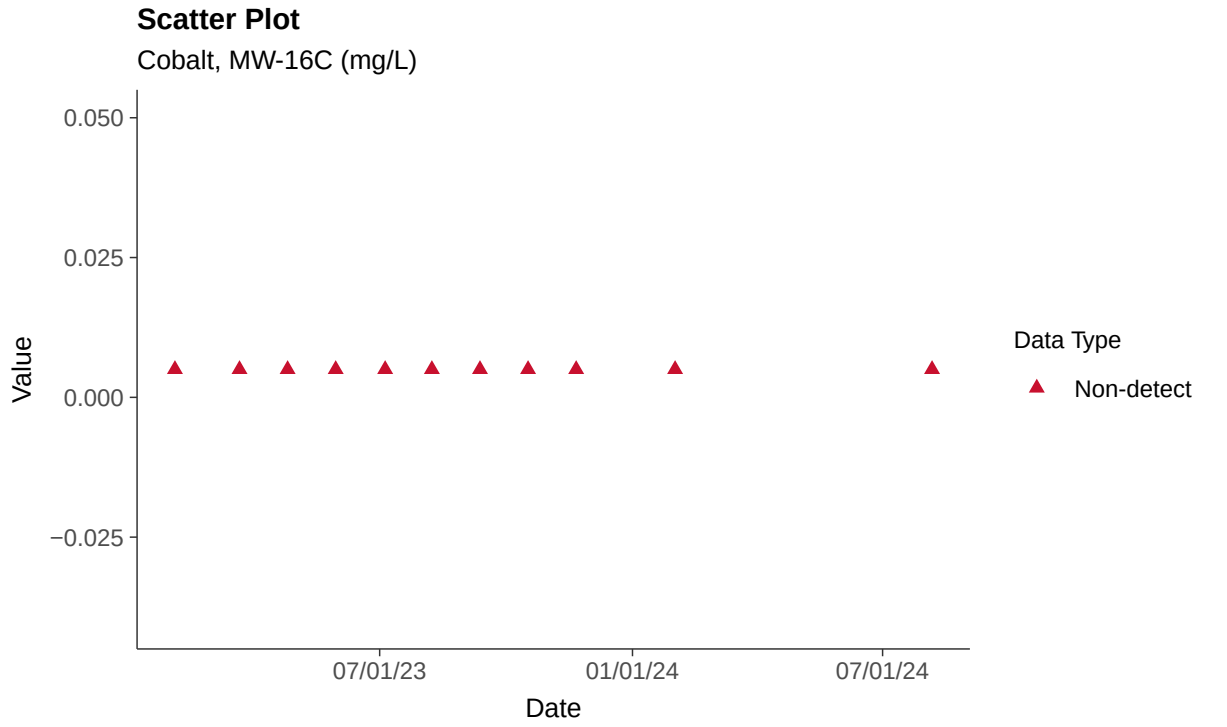
Trend Regression: Piecewise Linear-Linear-Linear

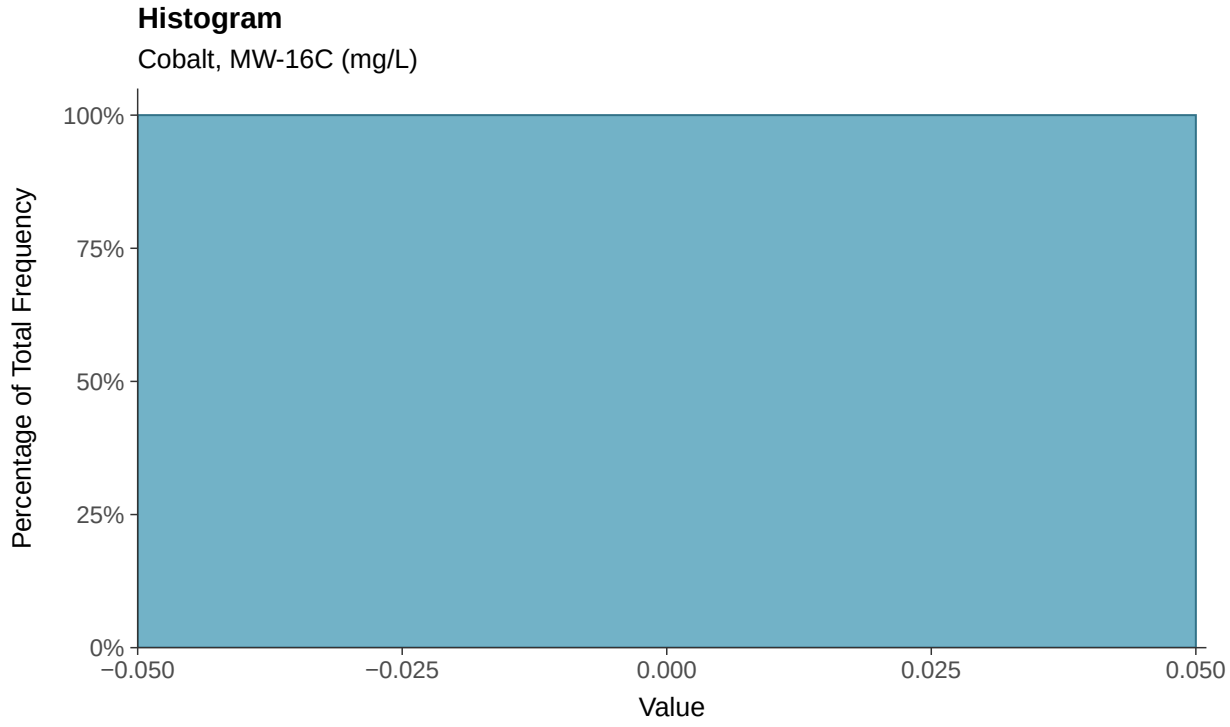
Chromium, MW-16C (mg/L)



Appendix IV: Cobalt, MW-16C

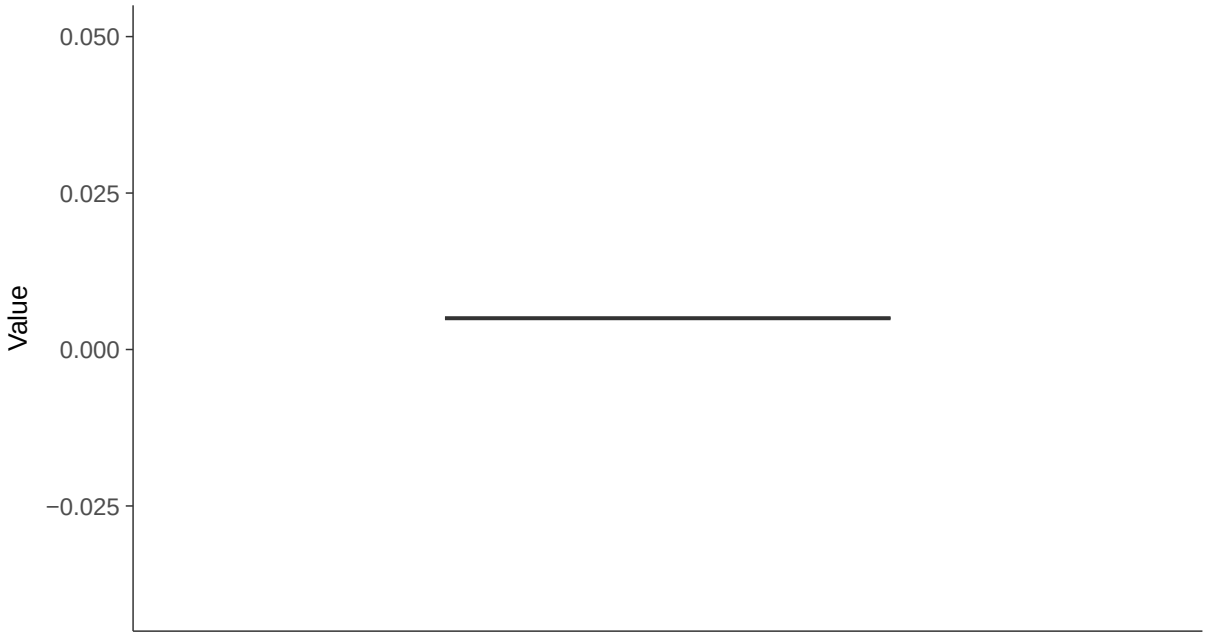
ID: 16C_2_14





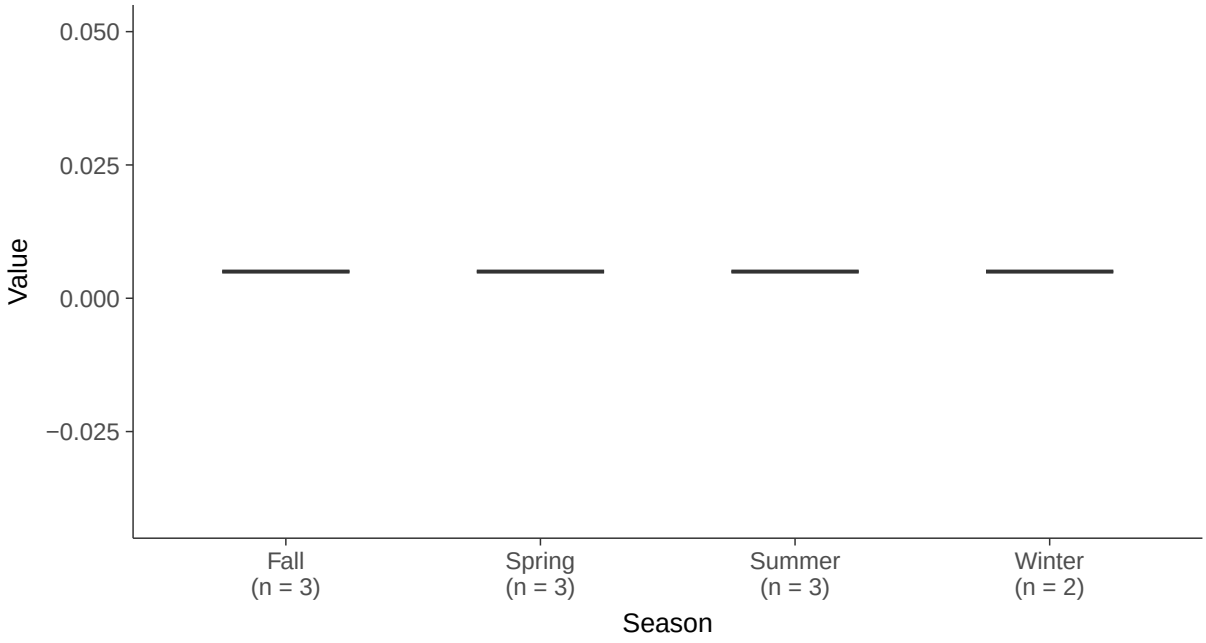
Boxplot

Cobalt, MW-16C (mg/L)



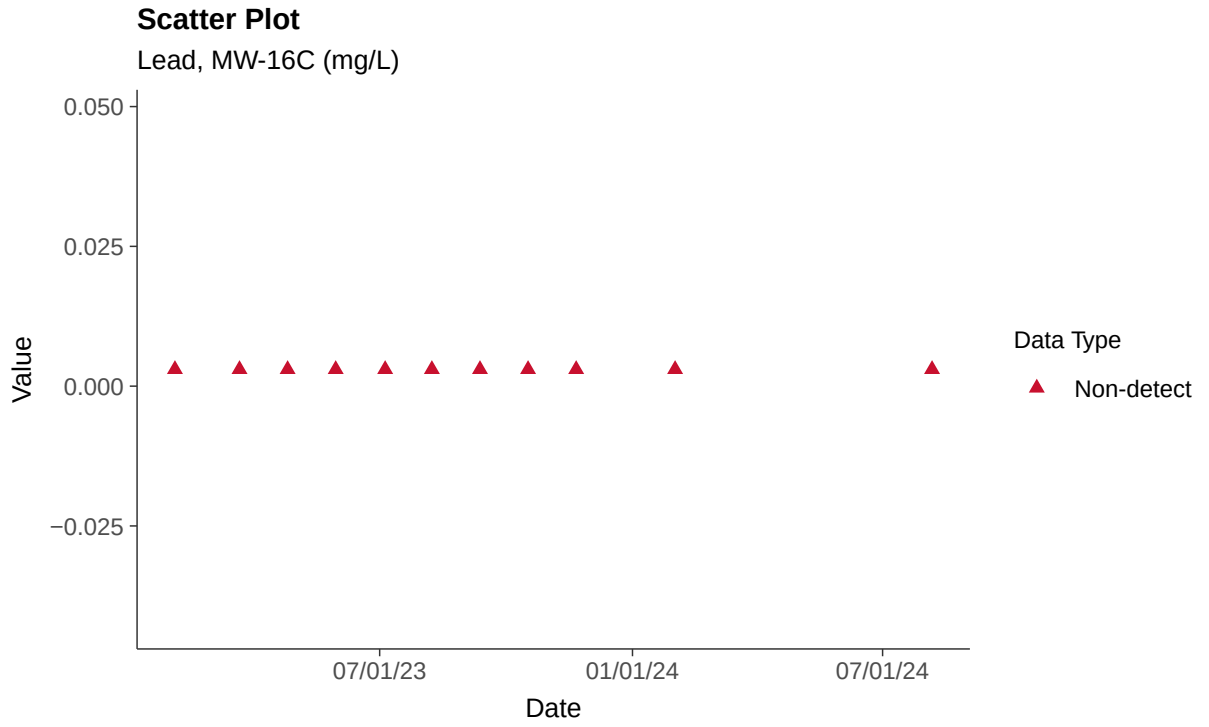
Boxplot by Season

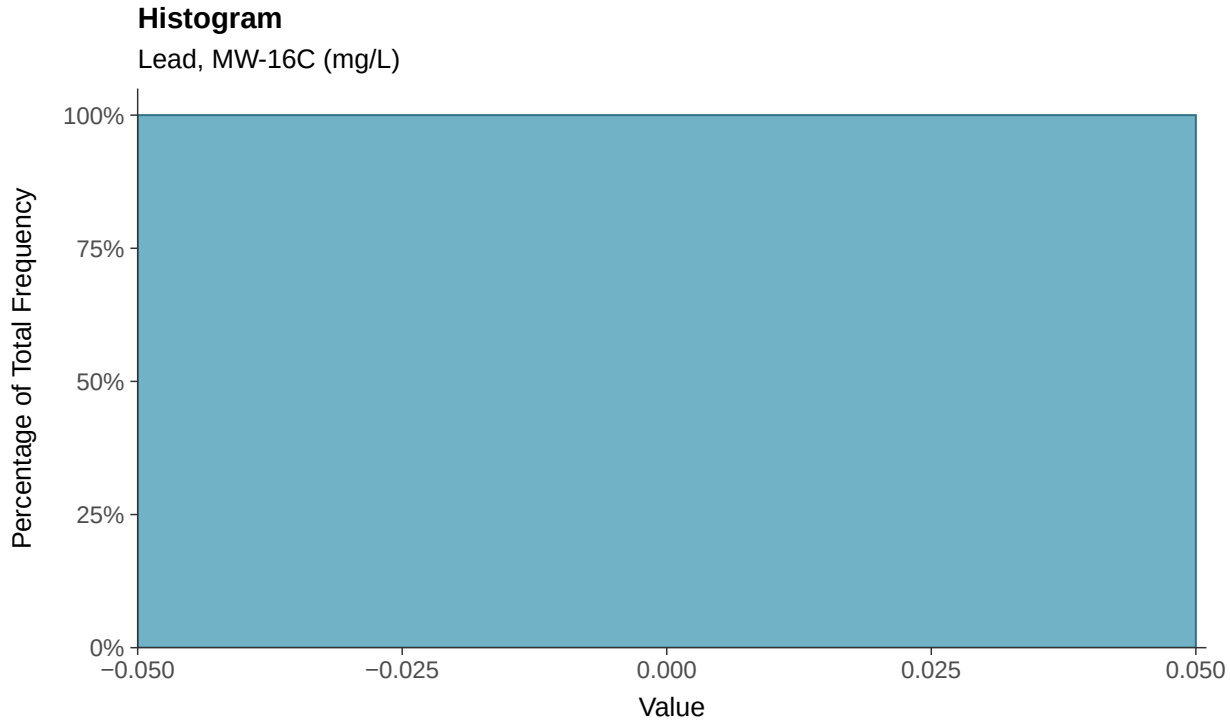
Cobalt, MW-16C (mg/L)



Appendix IV: Lead, MW-16C

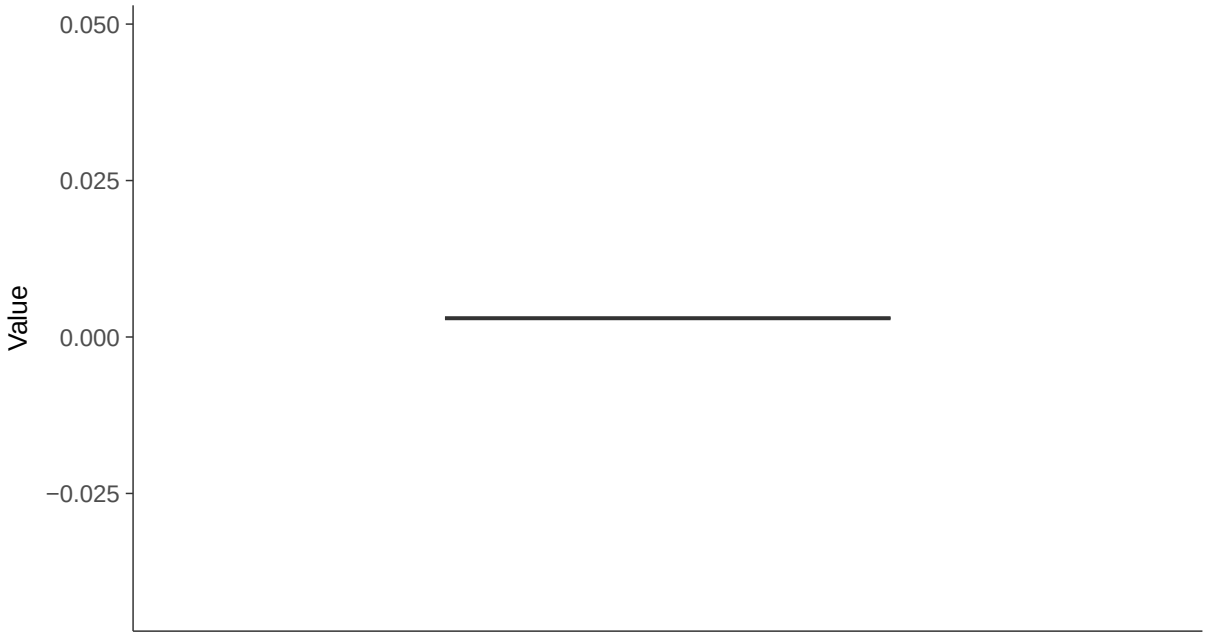
ID: 16C_2_15





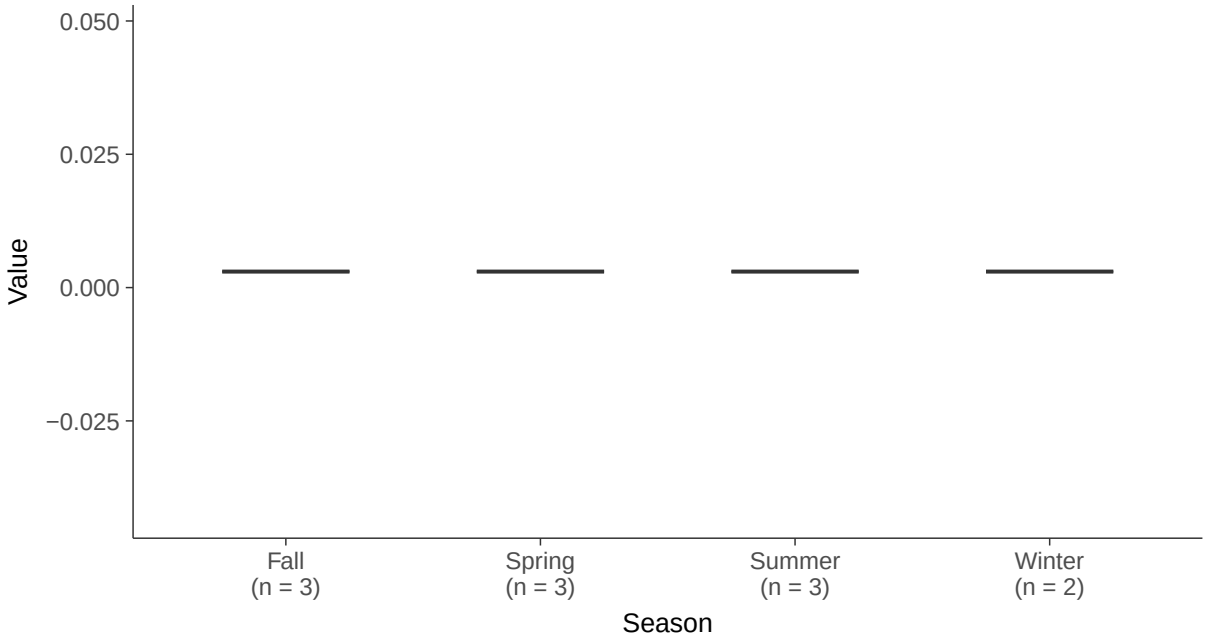
Boxplot

Lead, MW-16C (mg/L)



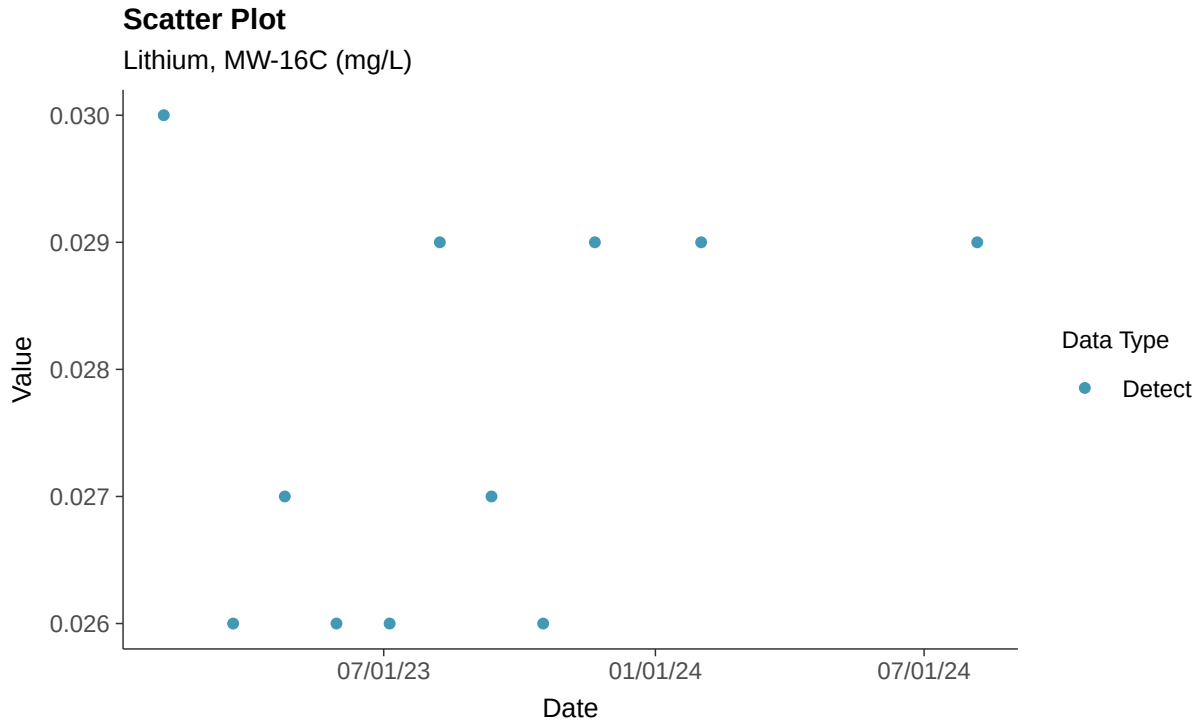
Boxplot by Season

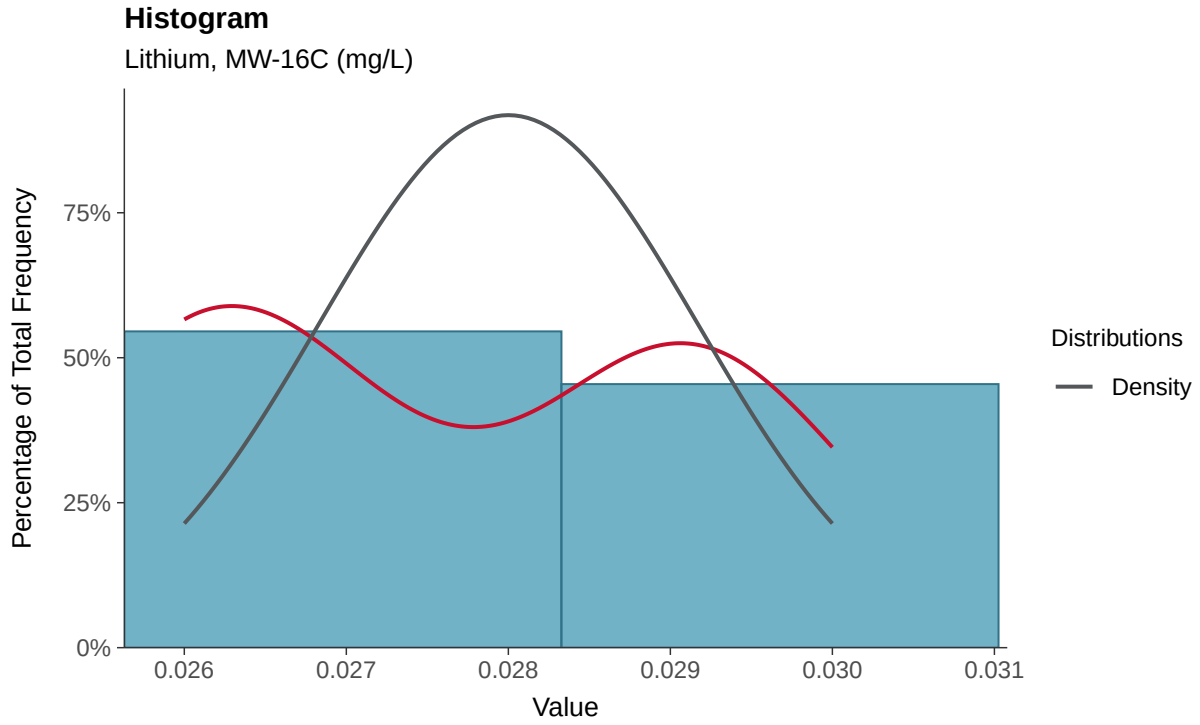
Lead, MW-16C (mg/L)



Appendix IV: Lithium, MW-16C

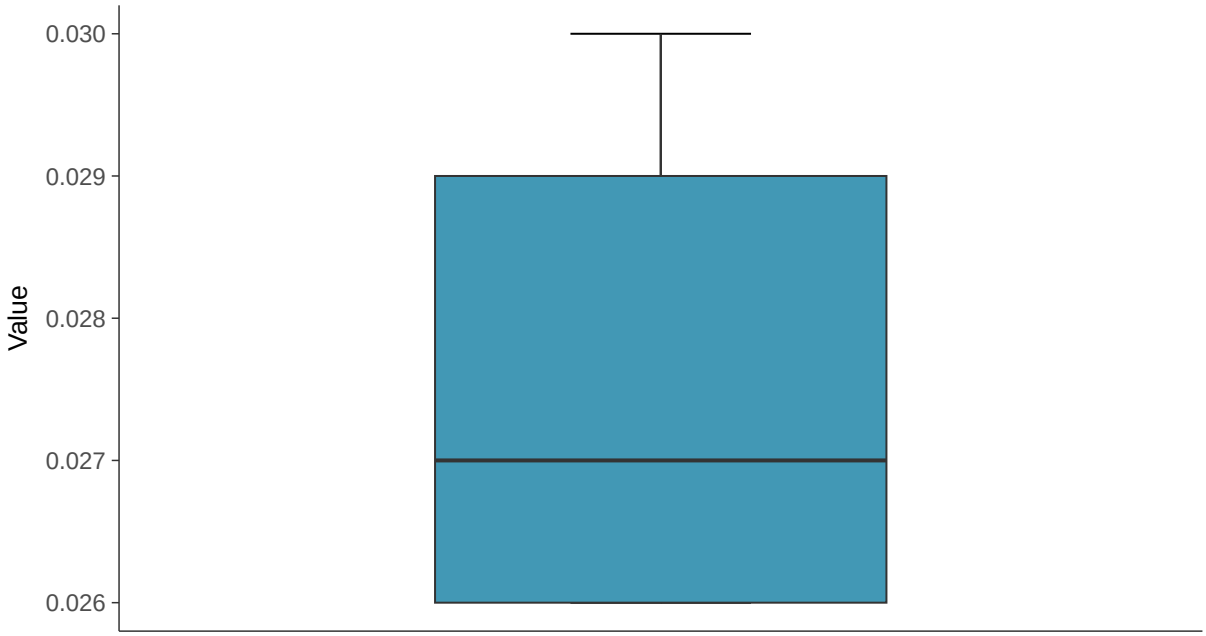
ID: 16C_2_16





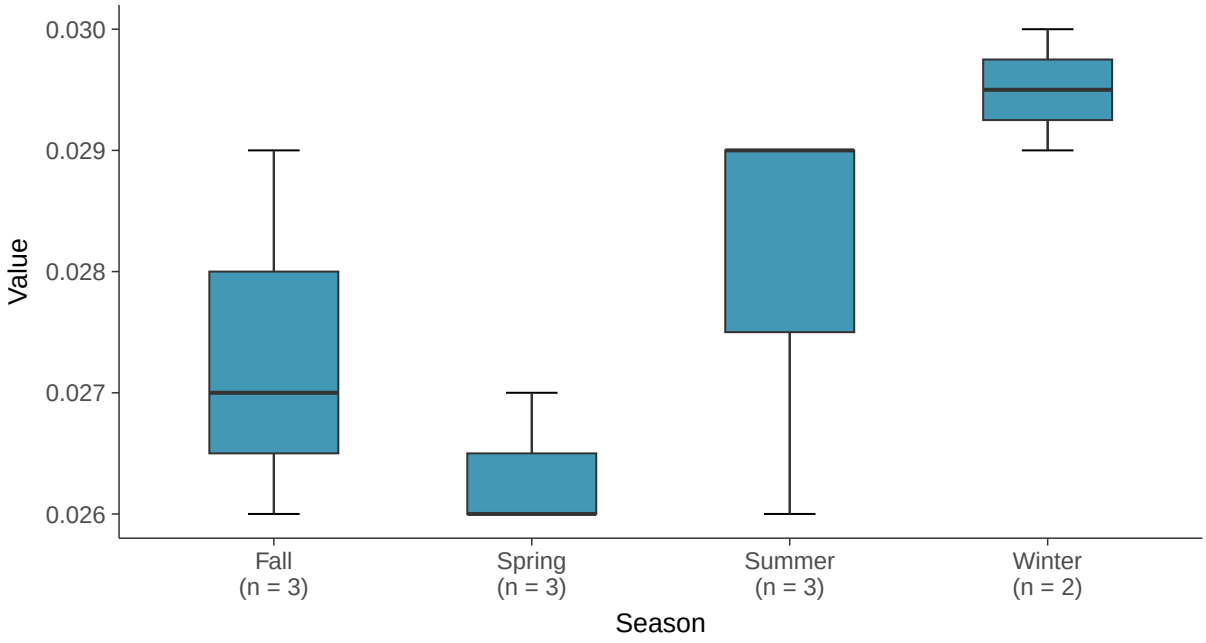
Boxplot

Lithium, MW-16C (mg/L)



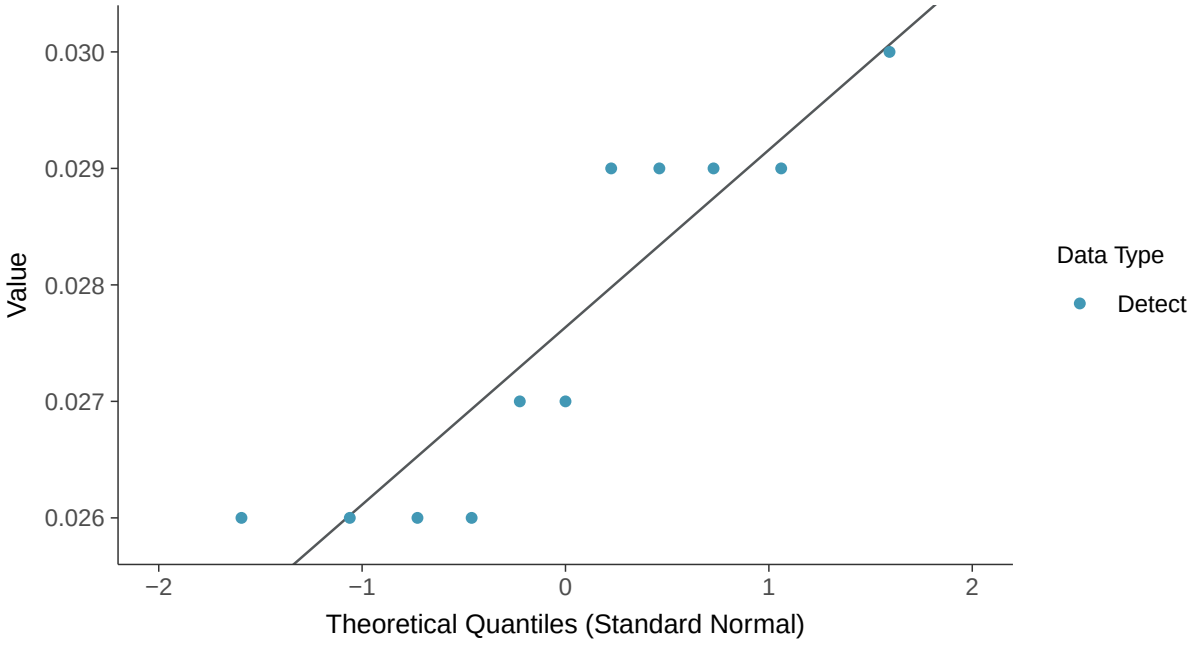
Boxplot by Season

Lithium, MW-16C (mg/L)



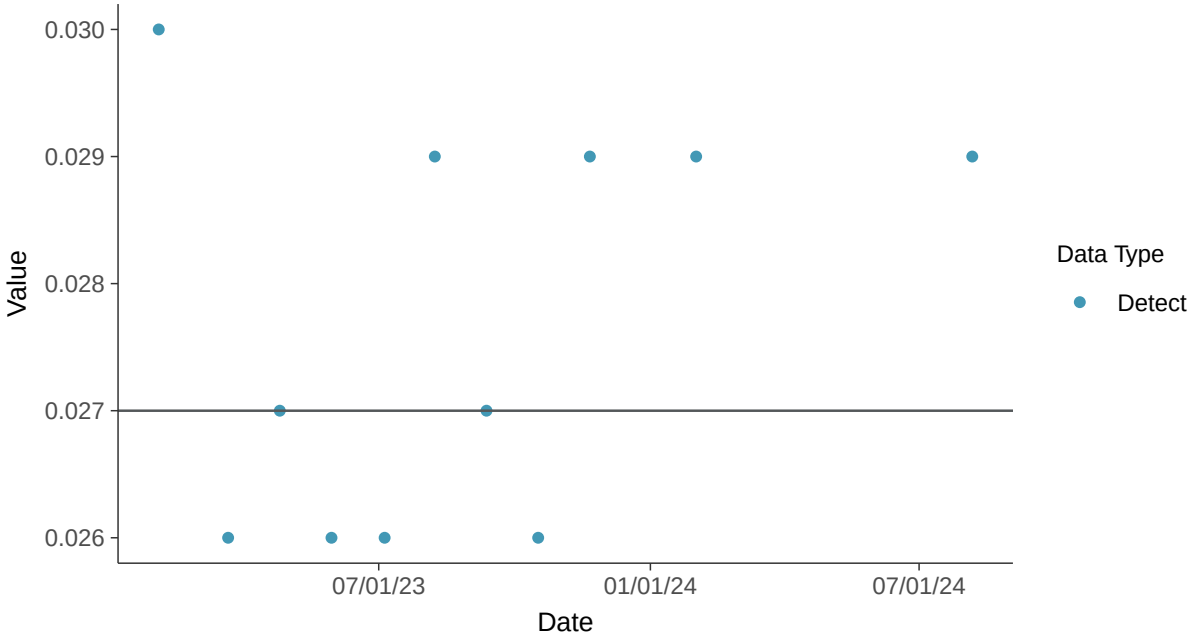
Normal Q-Q plot

Lithium, MW-16C (mg/L)



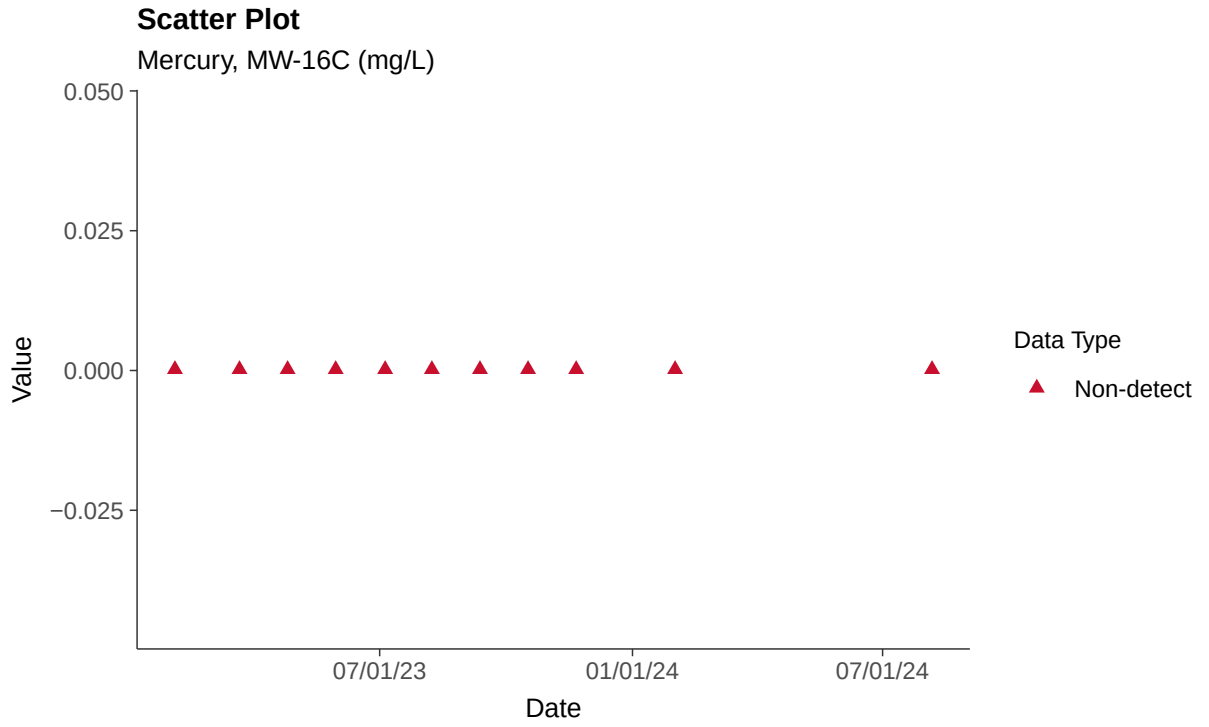
Trend Regression: Mann-Kendall/Theil-Sen Estimate

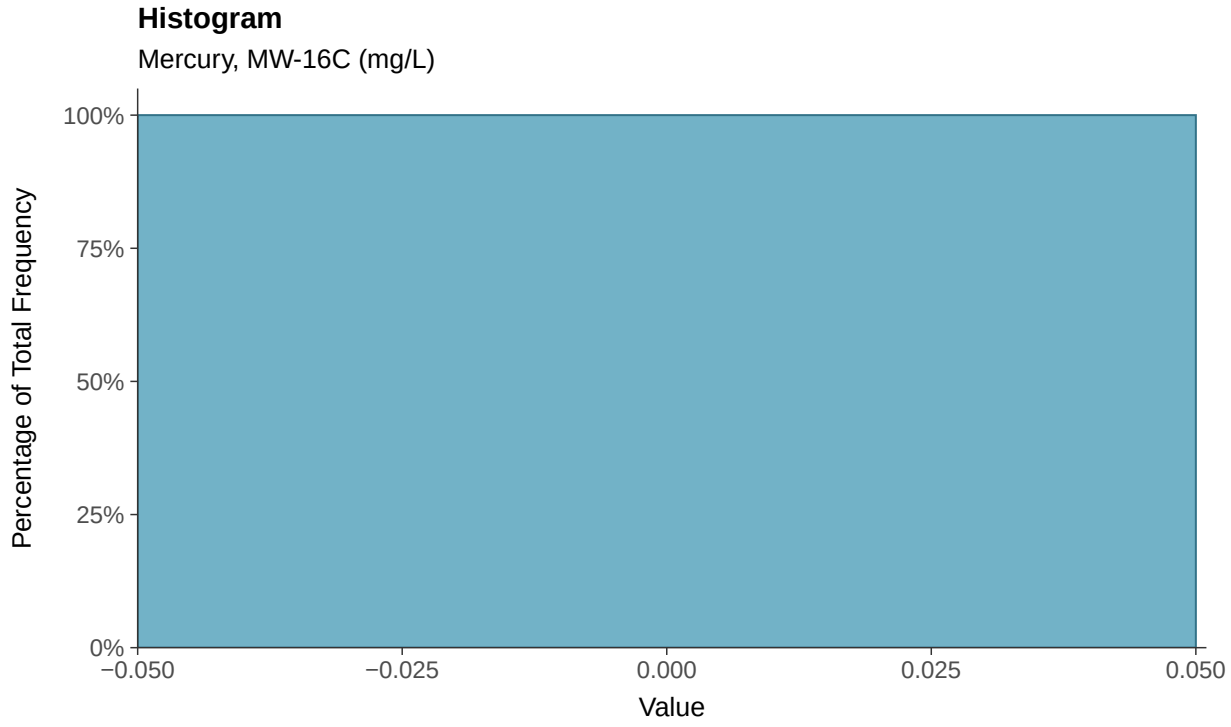
Lithium, MW-16C (mg/L)



Appendix IV: Mercury, MW-16C

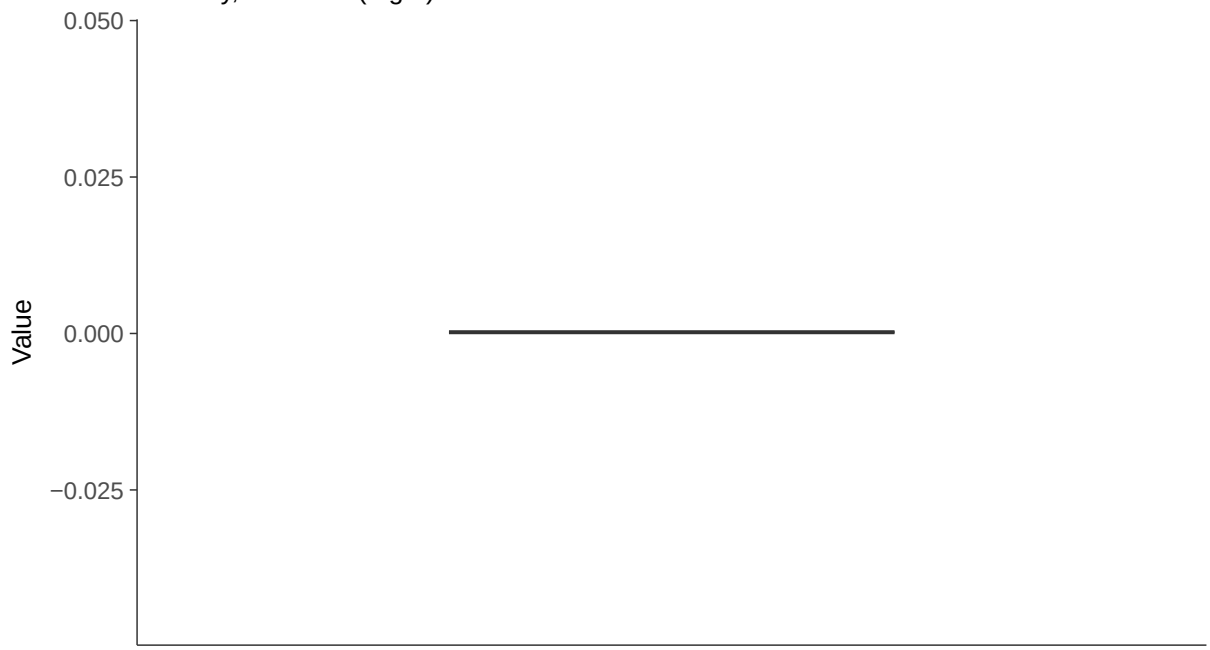
ID: 16C_2_17





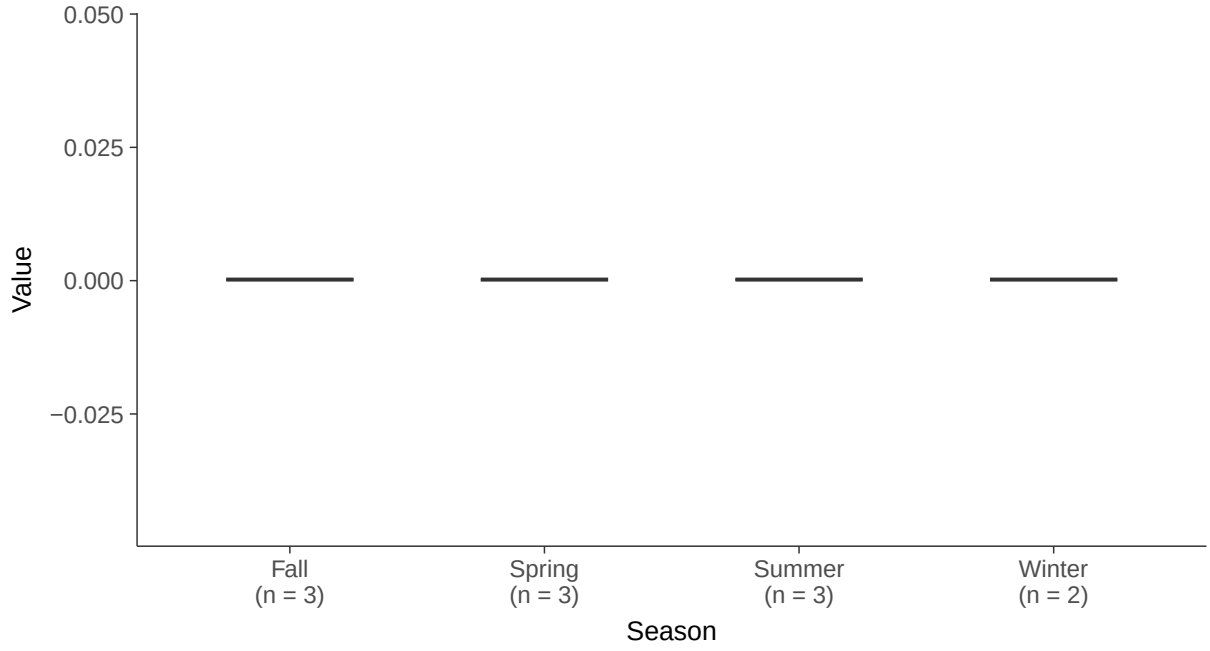
Boxplot

Mercury, MW-16C (mg/L)



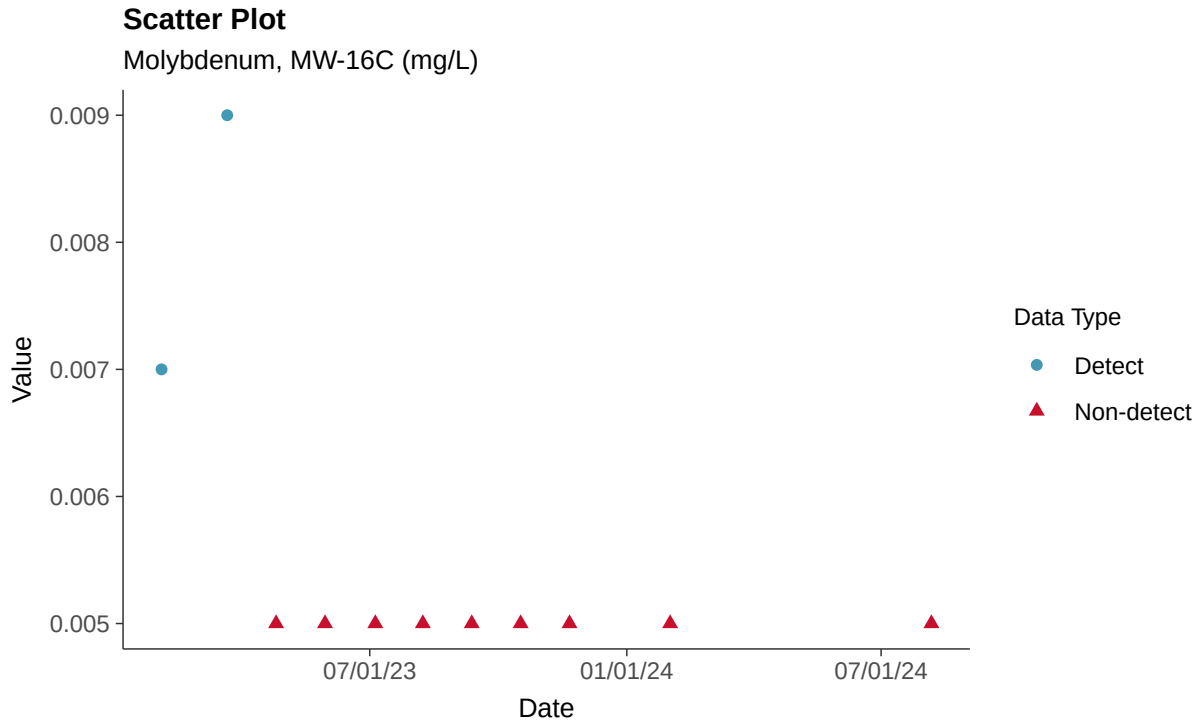
Boxplot by Season

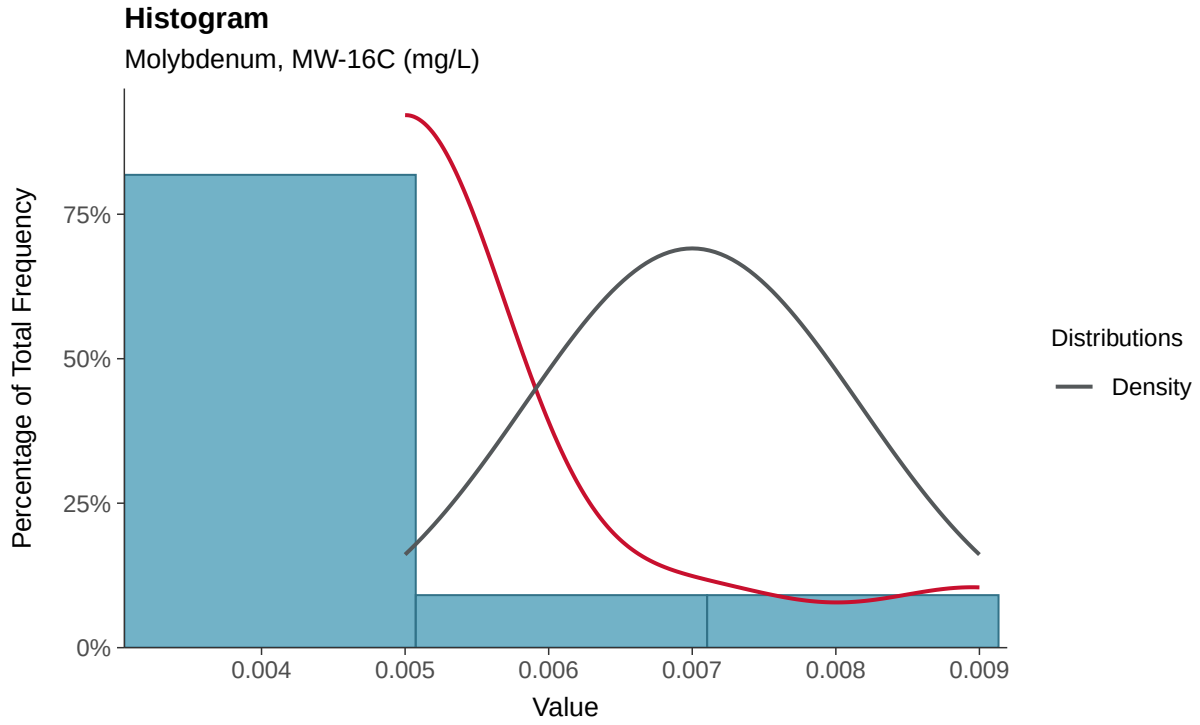
Mercury, MW-16C (mg/L)



Appendix IV: Molybdenum, MW-16C

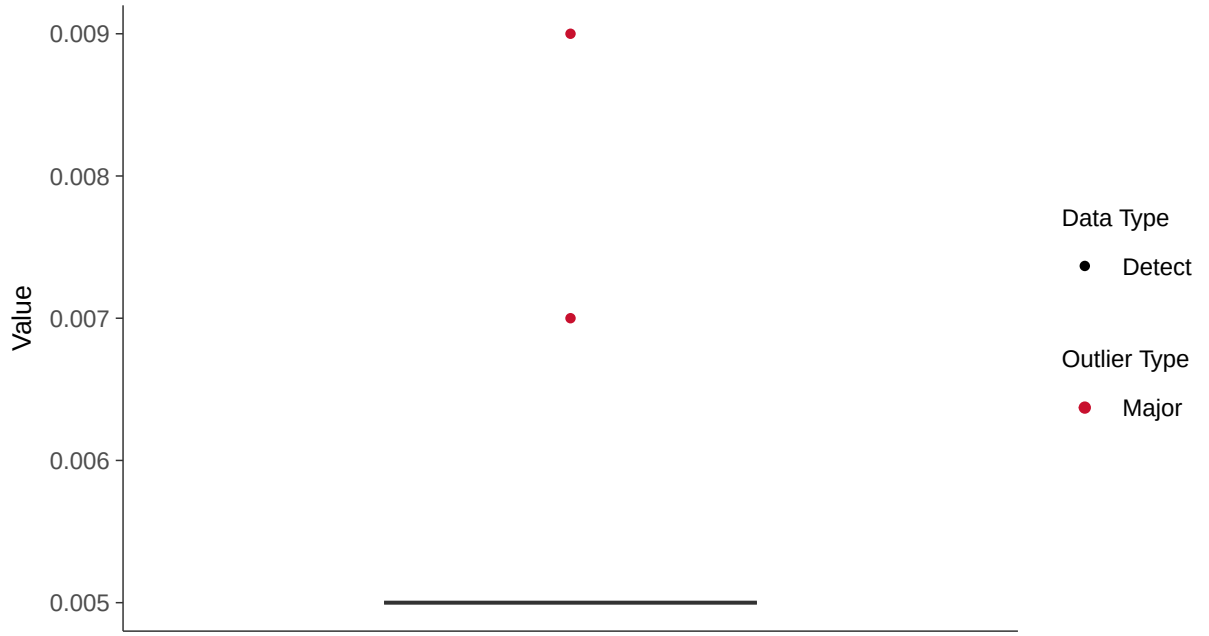
ID: 16C_2_18





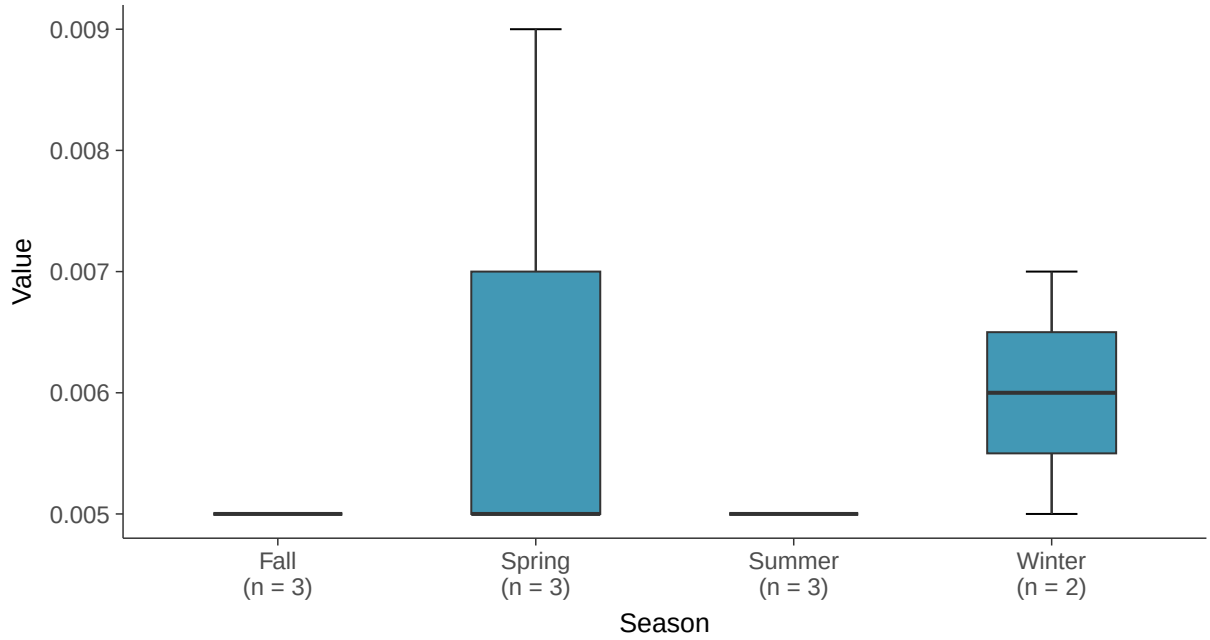
Boxplot

Molybdenum, MW-16C (mg/L)



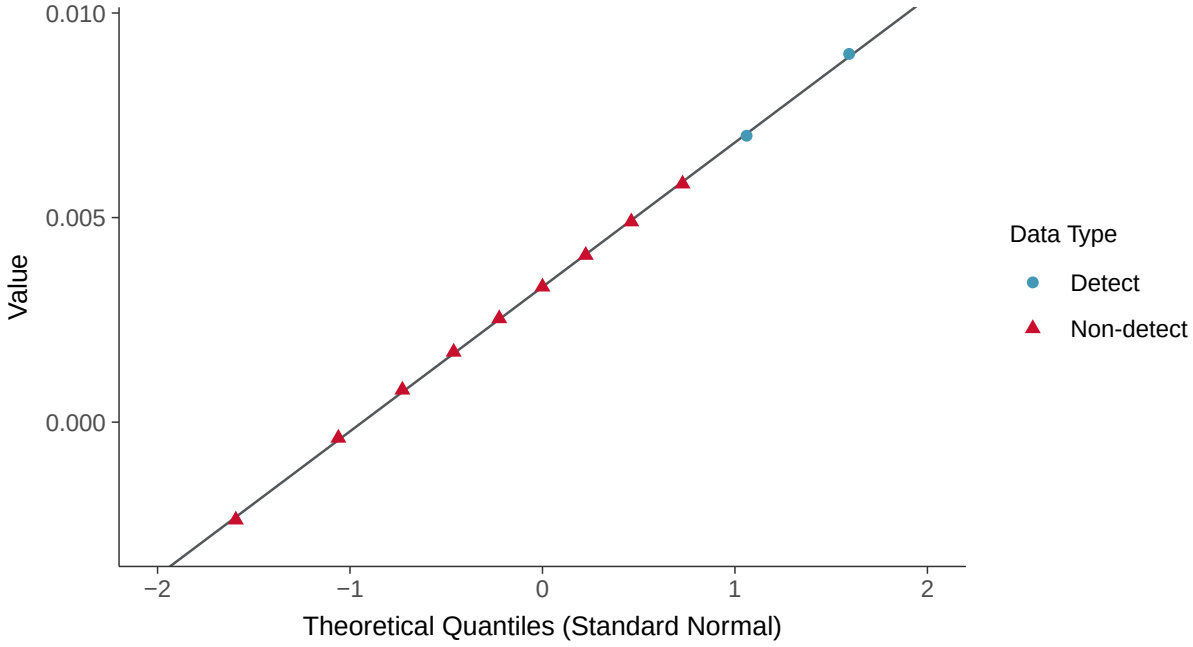
Boxplot by Season

Molybdenum, MW-16C (mg/L)



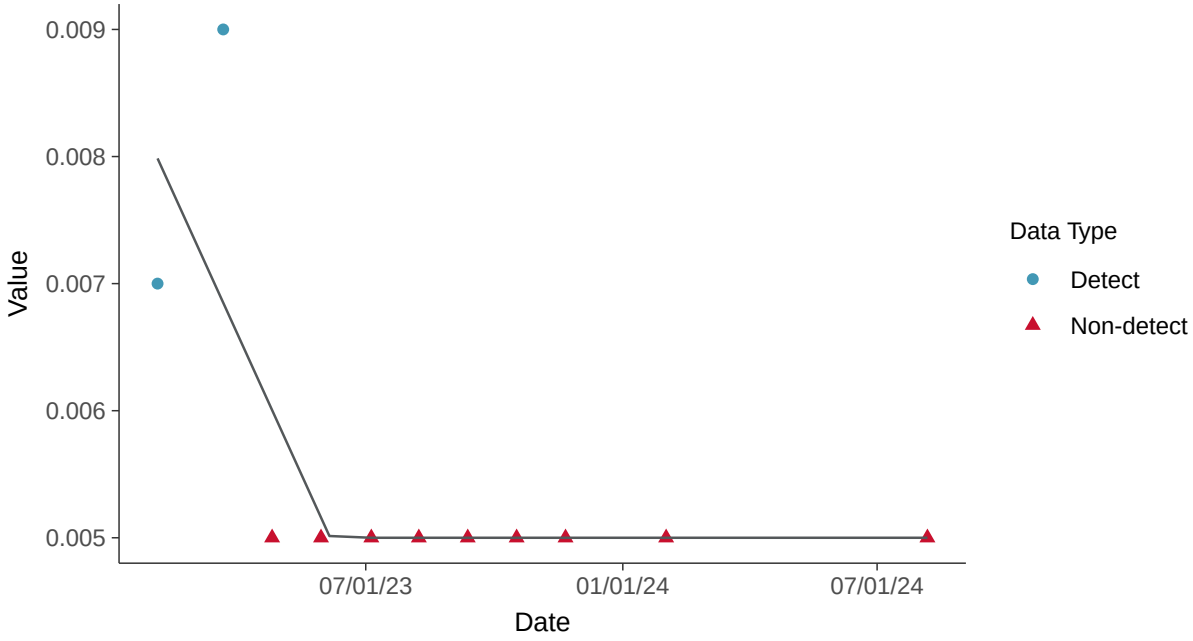
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, MW-16C (mg/L)



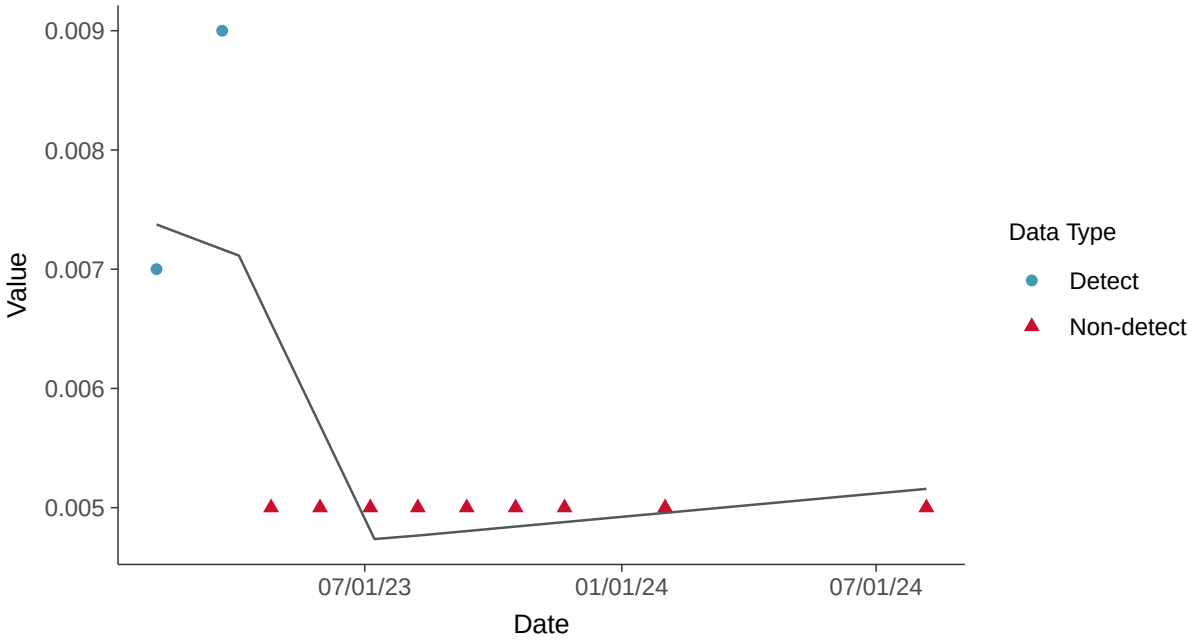
Trend Regression: Piecewise Linear-Linear

Molybdenum, MW-16C (mg/L)



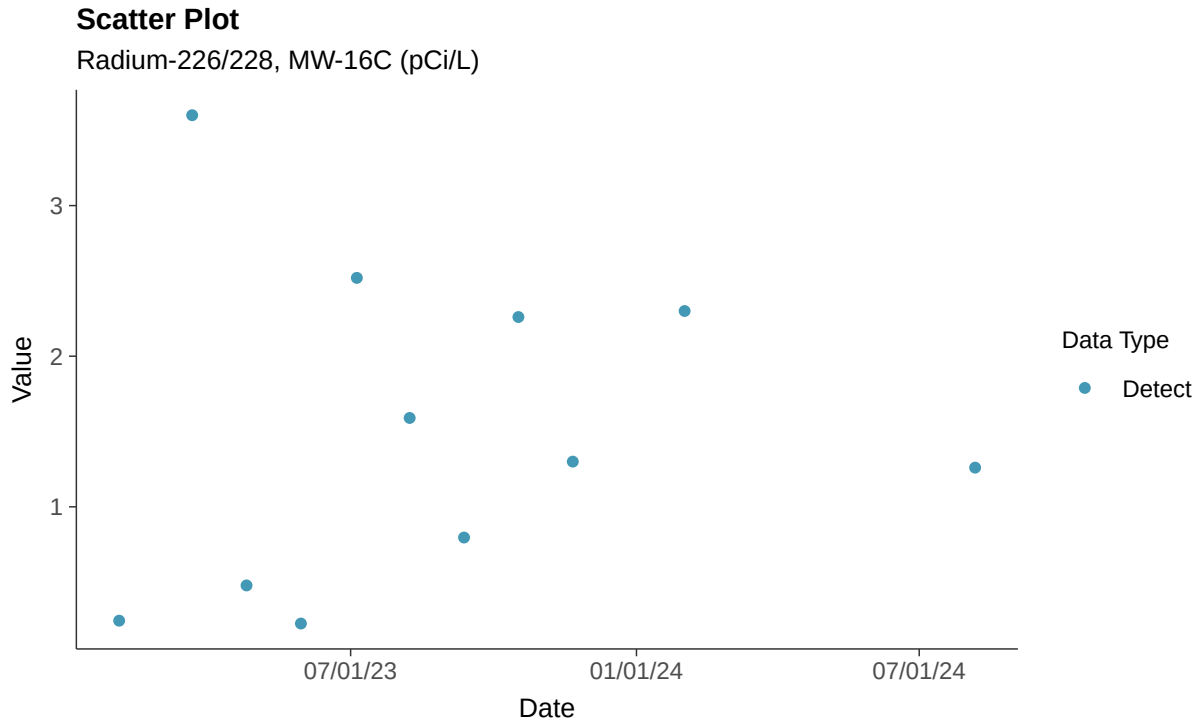
Trend Regression: Piecewise Linear-Linear-Linear

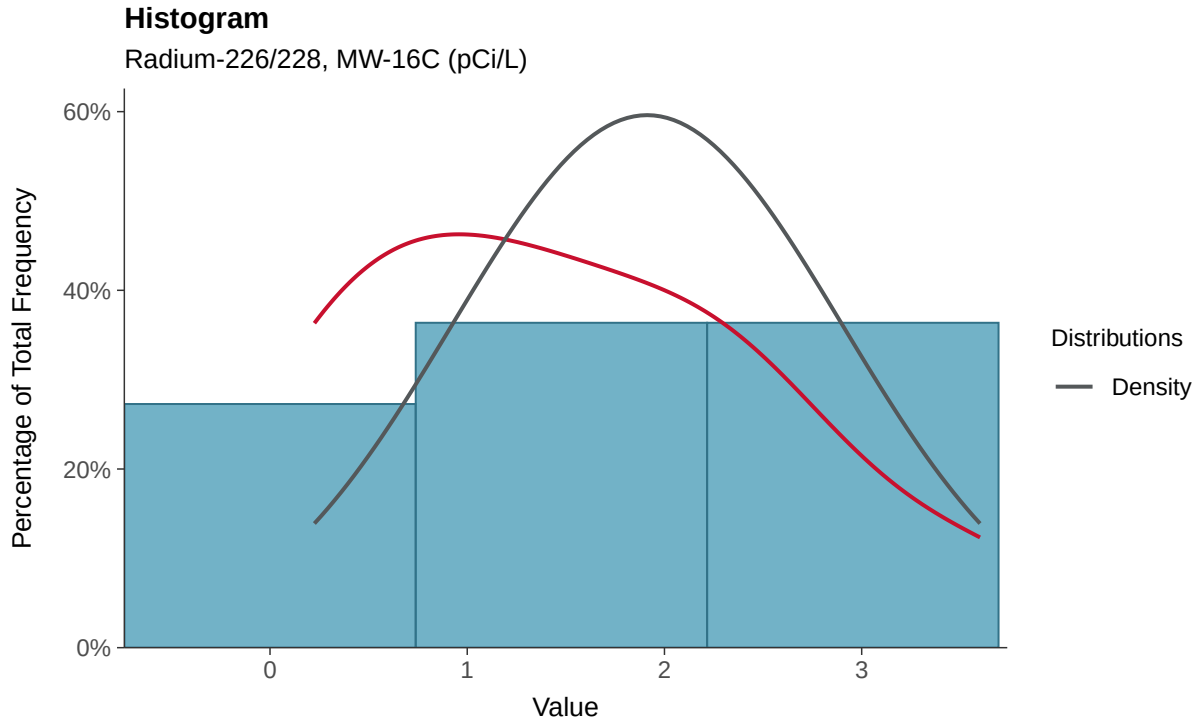
Molybdenum, MW-16C (mg/L)



Appendix IV: Radium-226/228, MW-16C

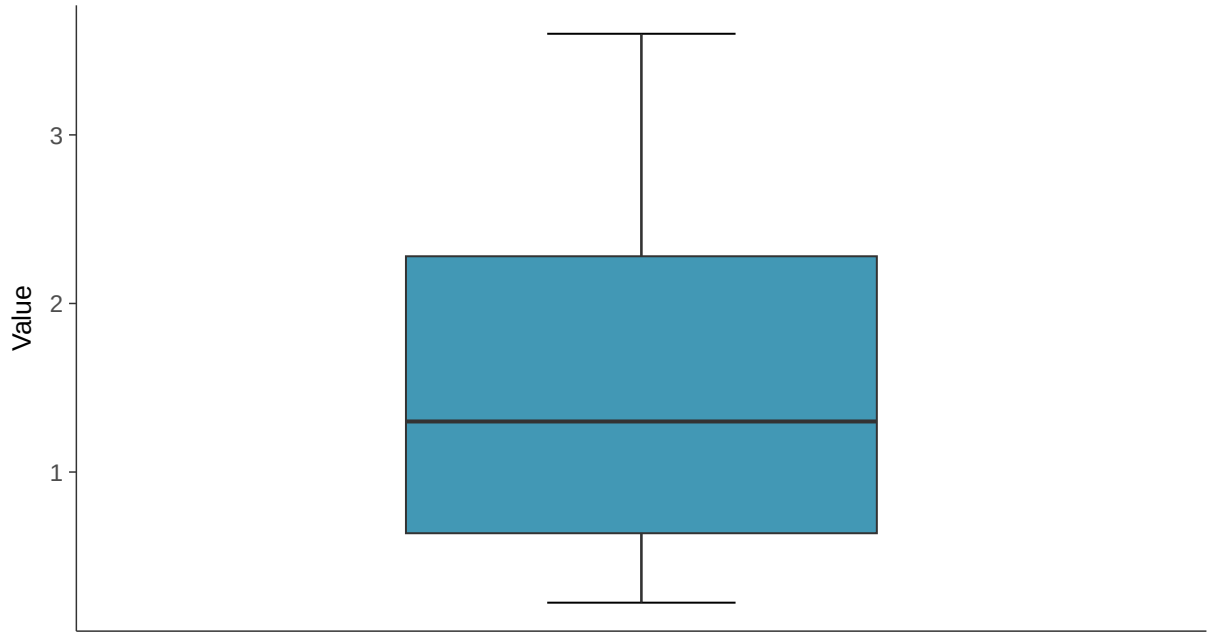
ID: 16C_2_21





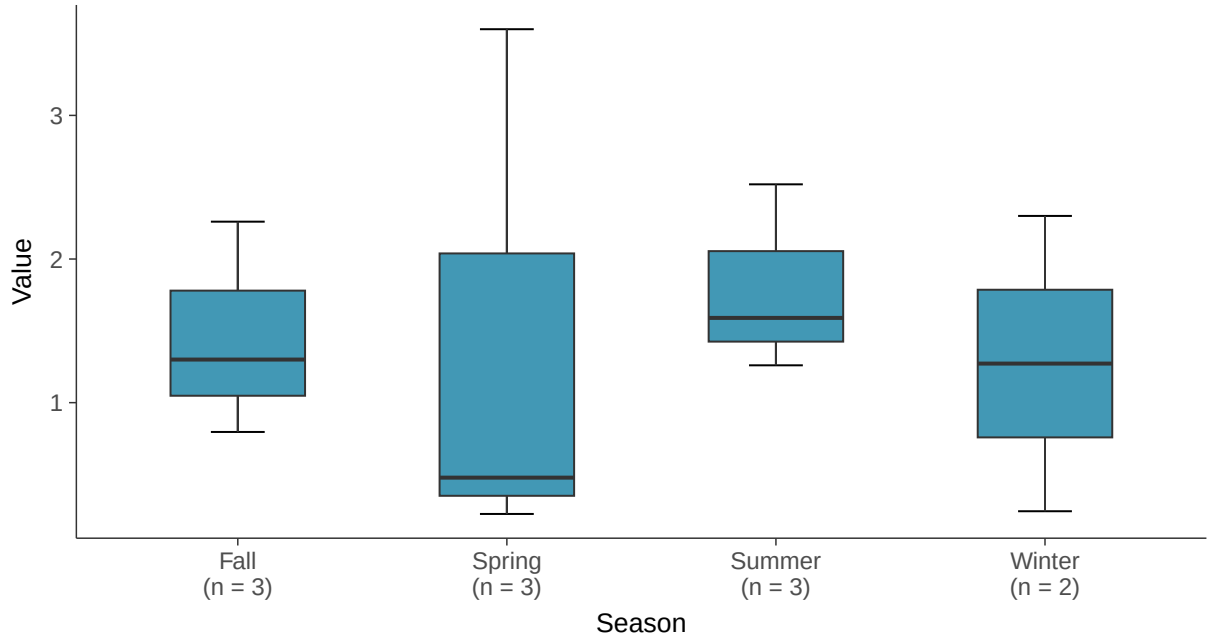
Boxplot

Radium-226/228, MW-16C (pCi/L)



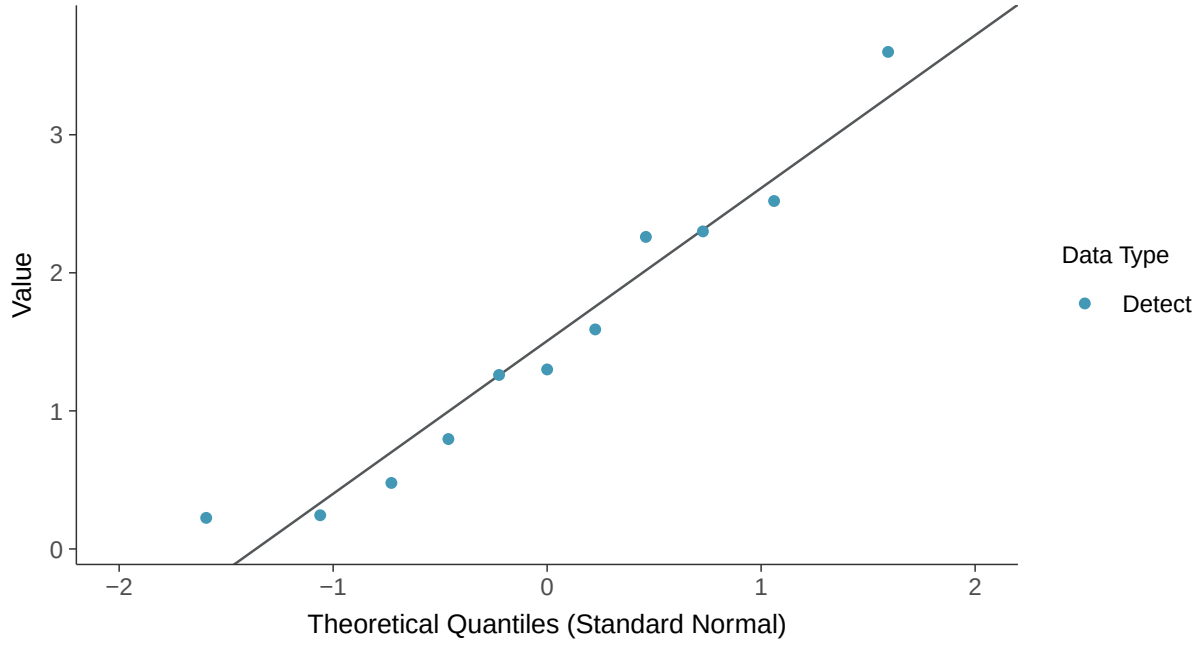
Boxplot by Season

Radium-226/228, MW-16C (pCi/L)



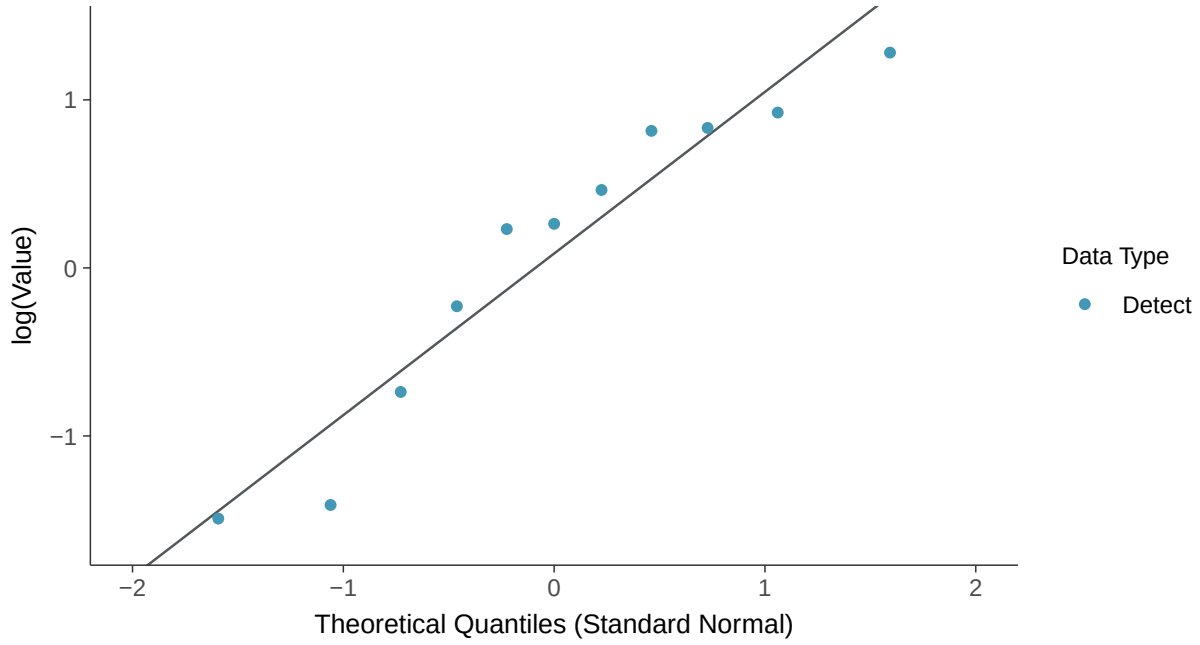
Normal Q-Q plot

Radium-226/228, MW-16C (pCi/L)



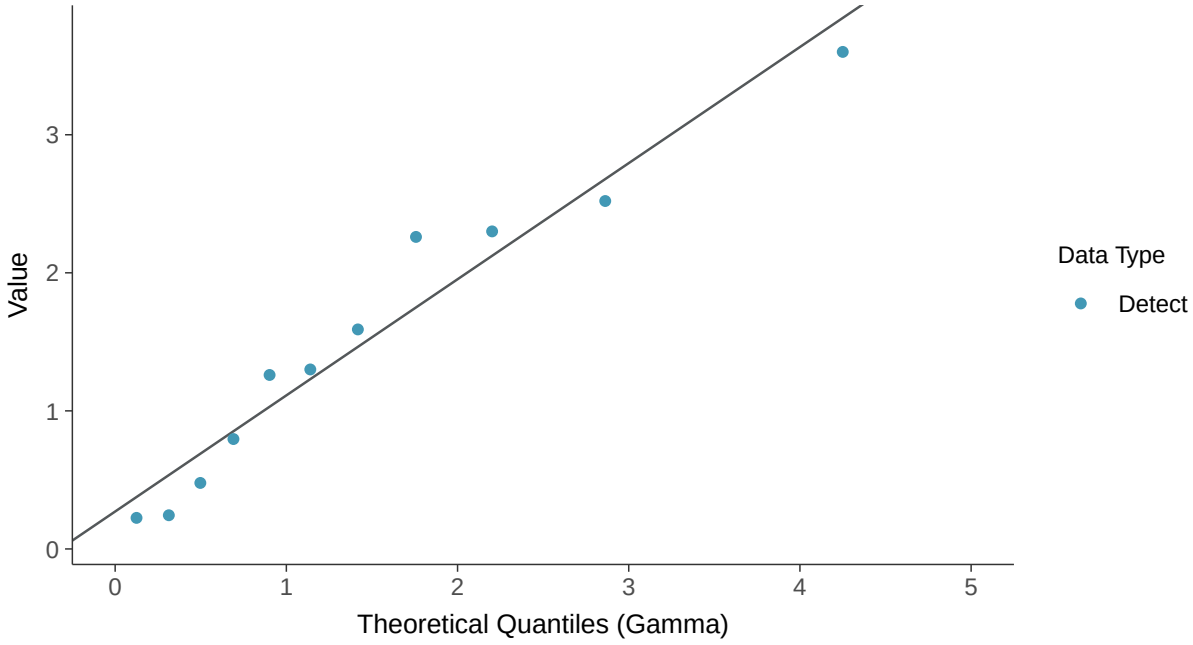
Lognormal Q-Q plot

Radium-226/228, MW-16C (pCi/L)



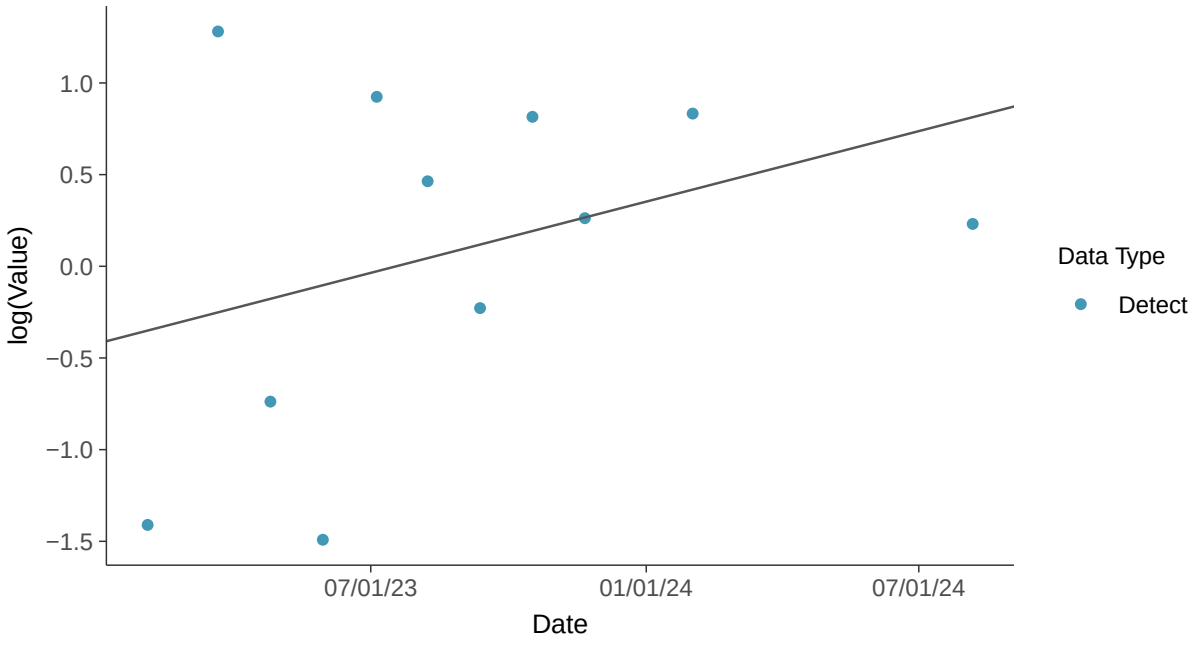
Gamma Q-Q plot

Radium-226/228, MW-16C (pCi/L)



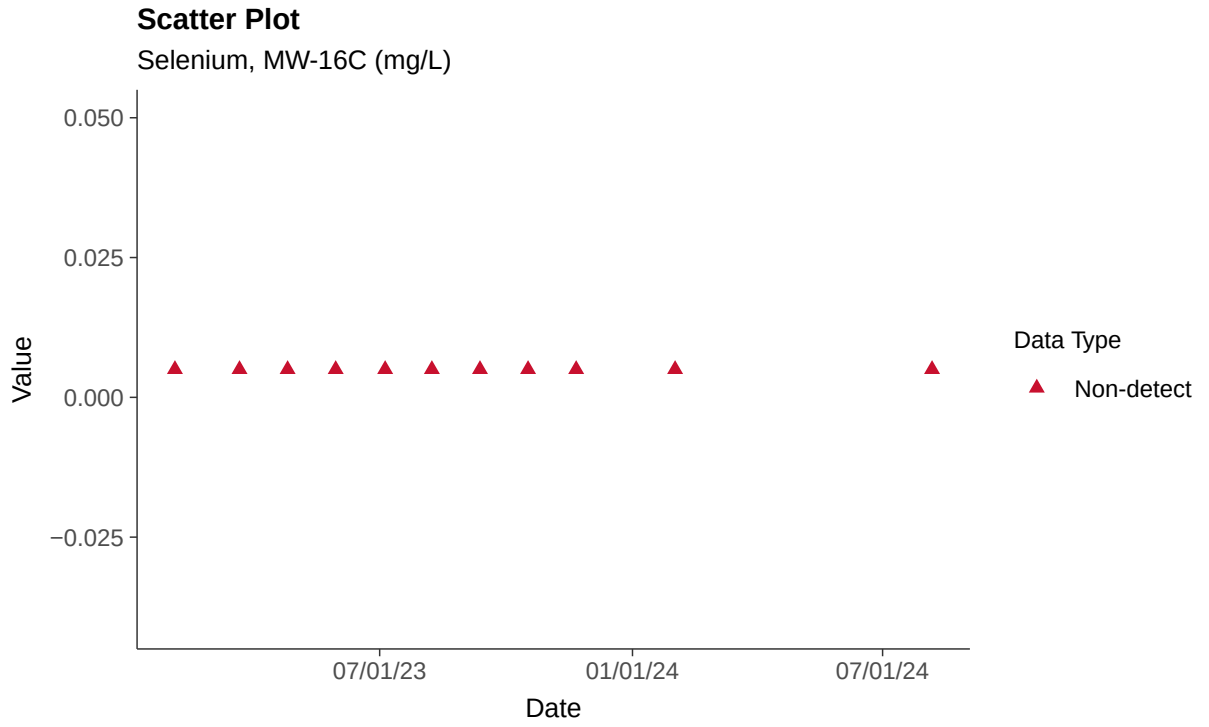
Trend Regression: Lognormal MLE

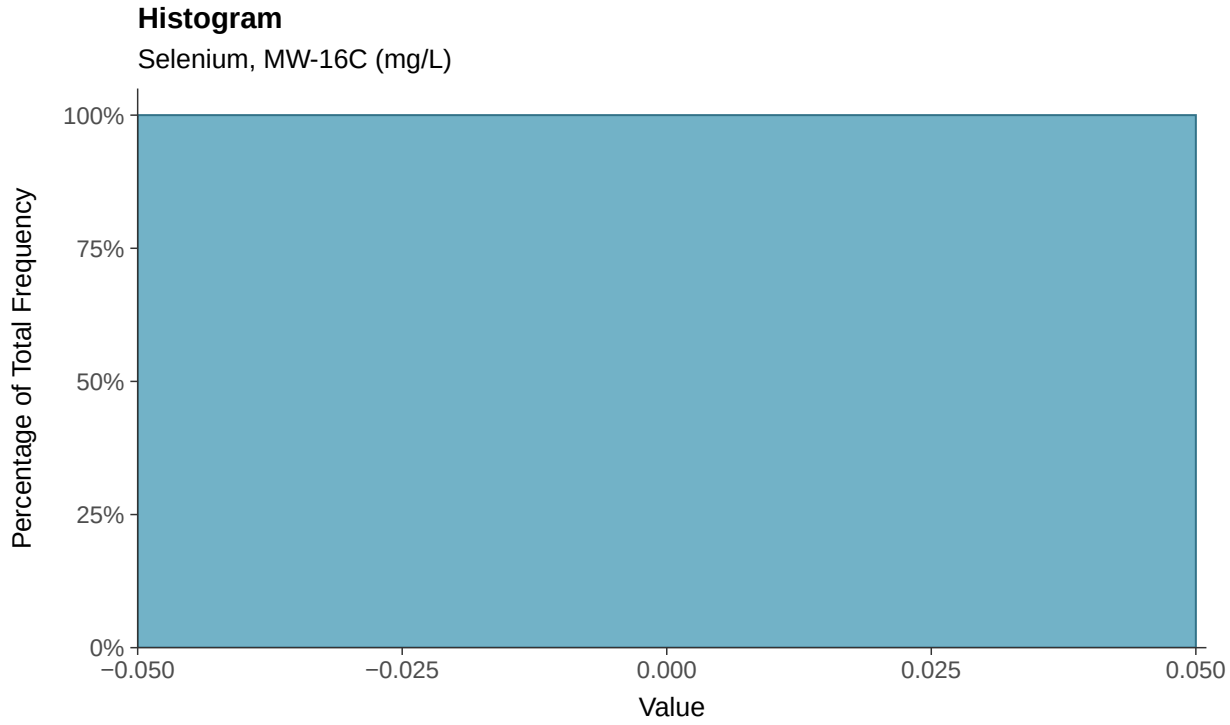
Radium-226/228, MW-16C (pCi/L)



Appendix IV: Selenium, MW-16C

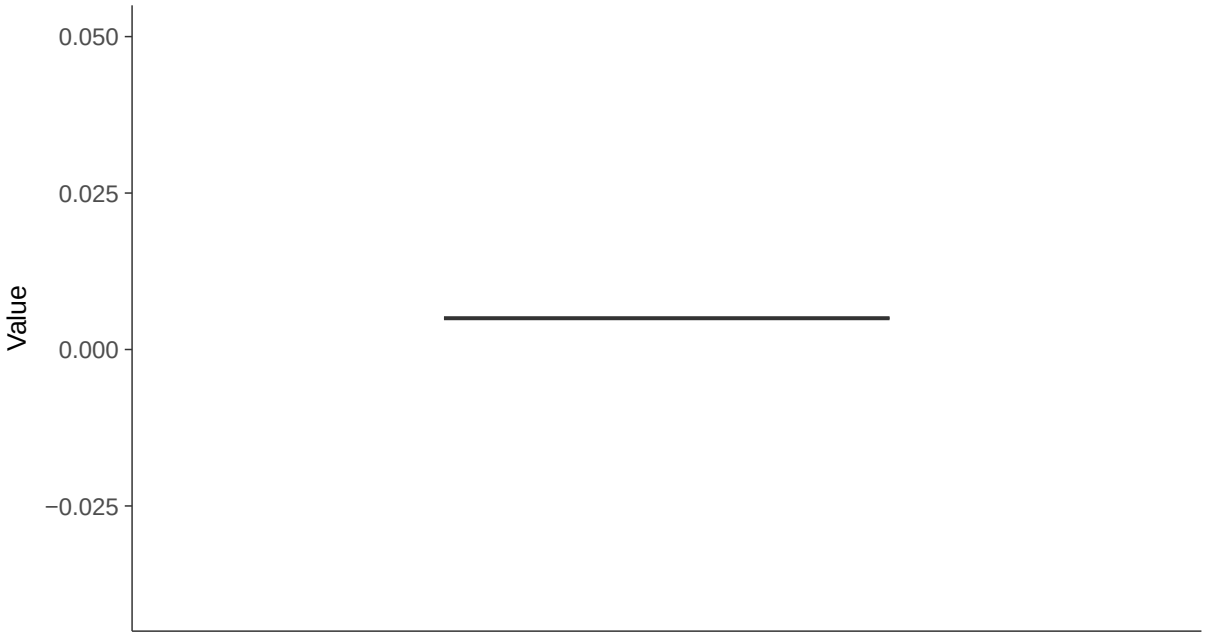
ID: 16C_2_22





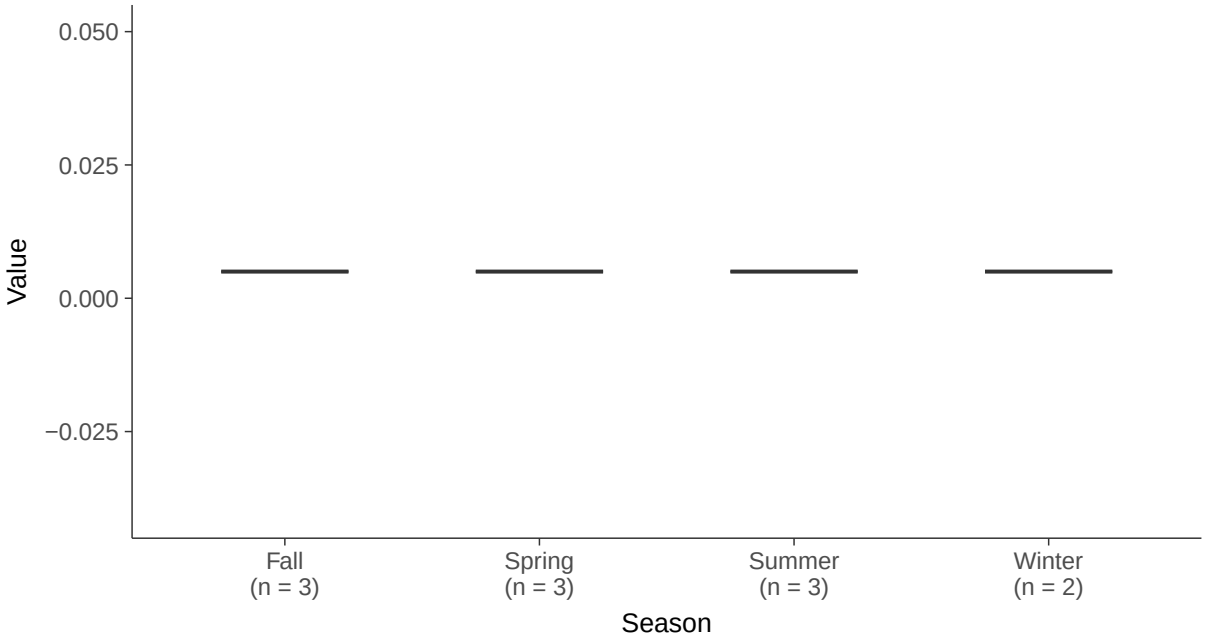
Boxplot

Selenium, MW-16C (mg/L)



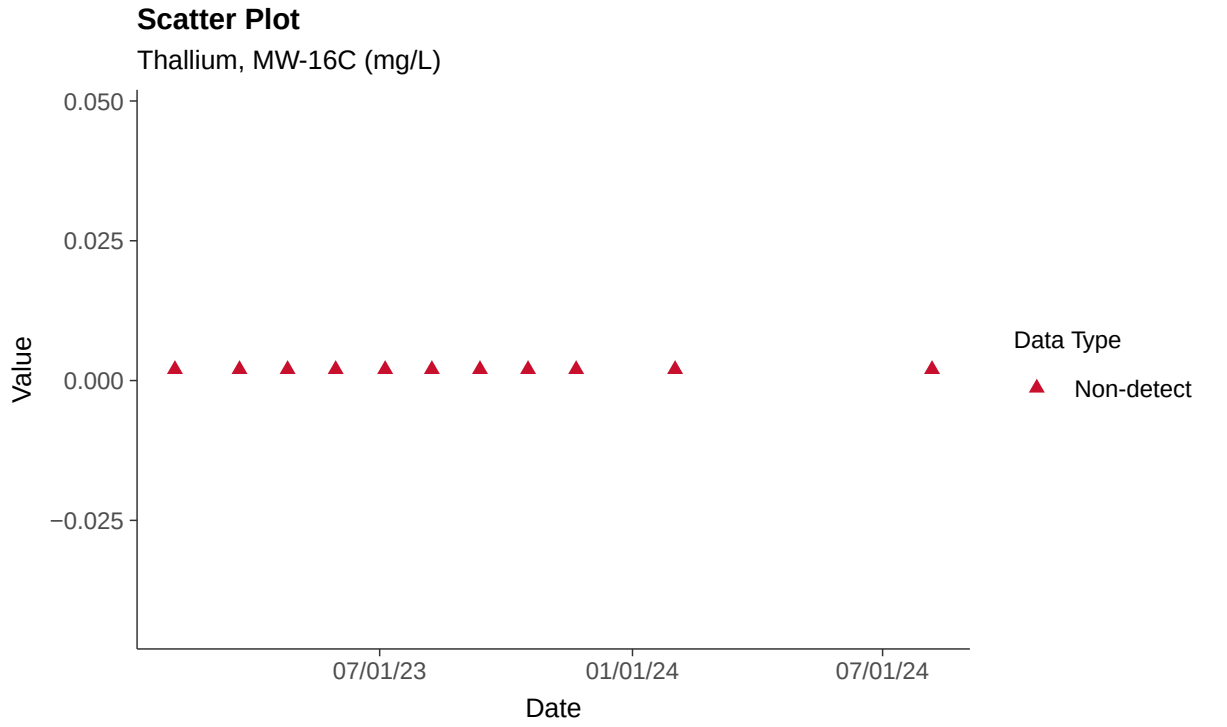
Boxplot by Season

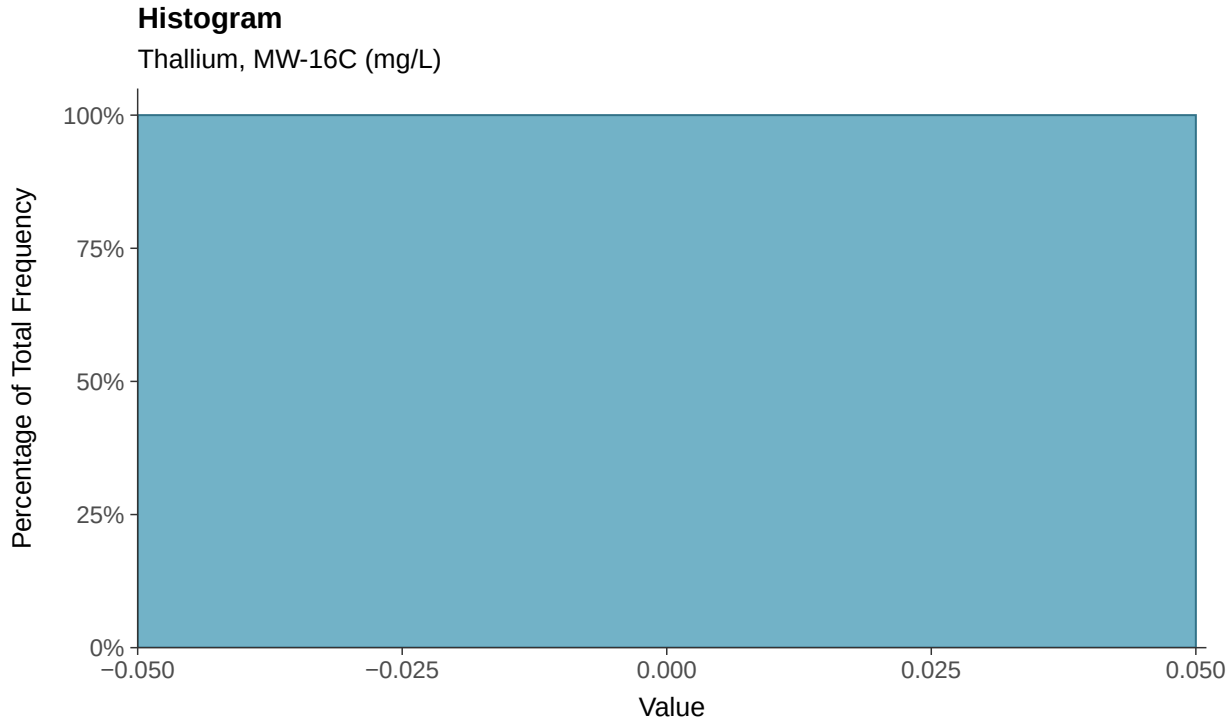
Selenium, MW-16C (mg/L)



Appendix IV: Thallium, MW-16C

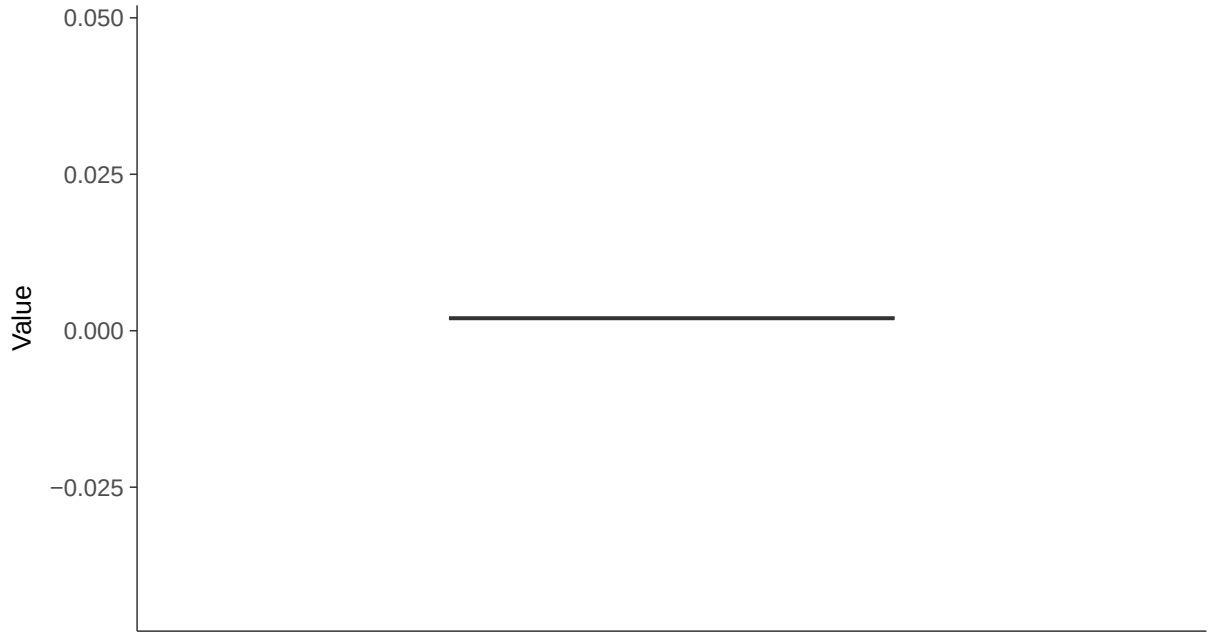
ID: 16C_2_23





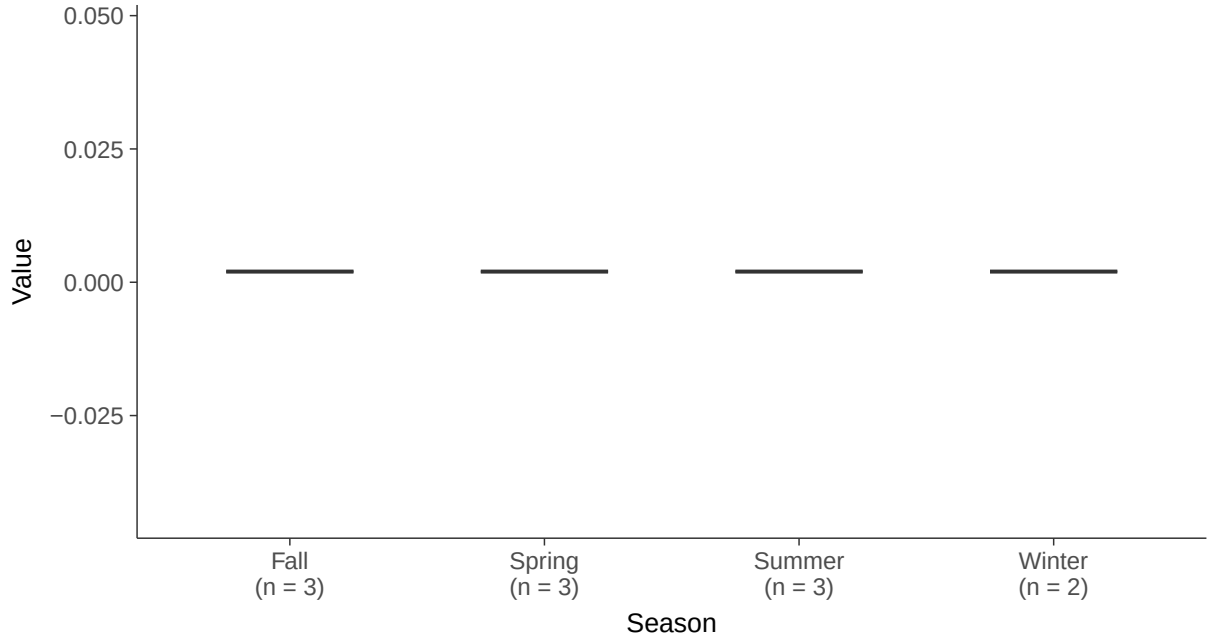
Boxplot

Thallium, MW-16C (mg/L)



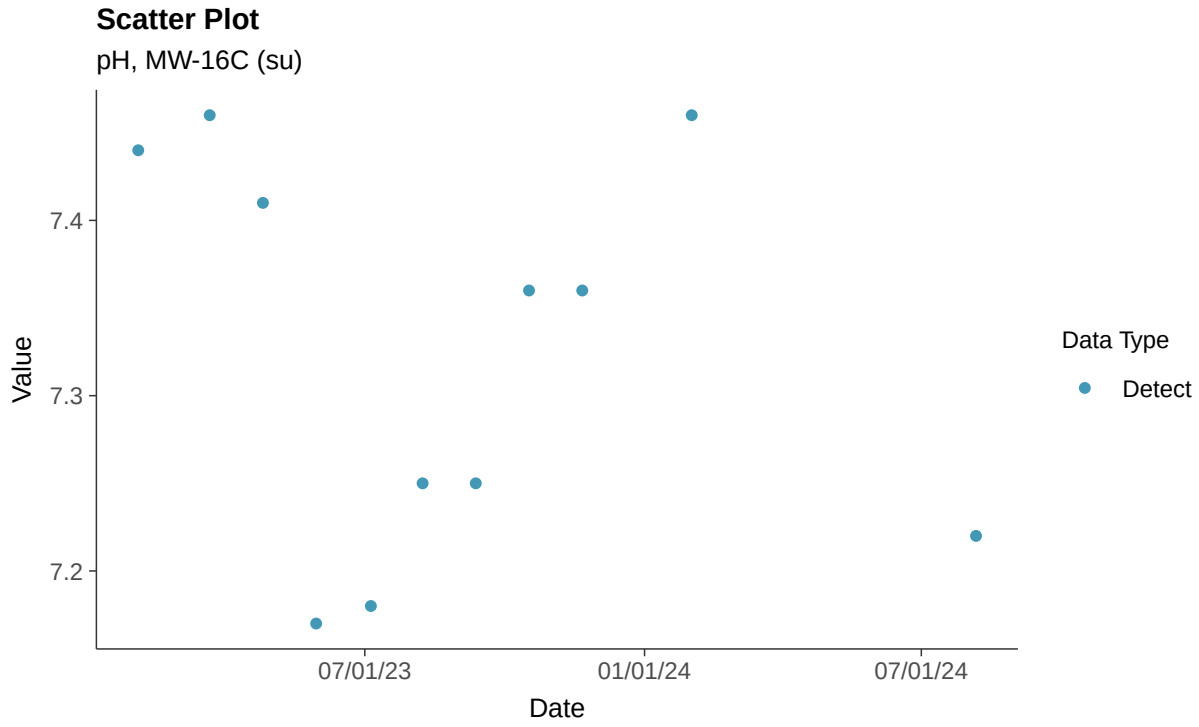
Boxplot by Season

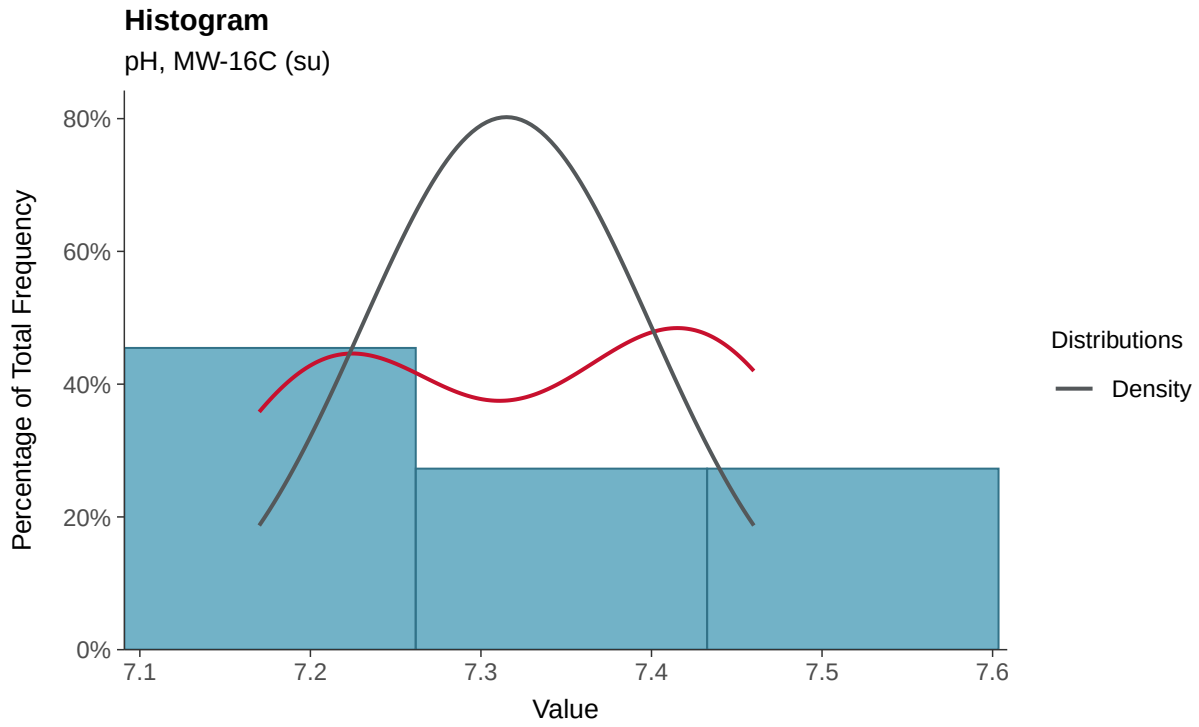
Thallium, MW-16C (mg/L)



Field Parameters: pH, MW-16C

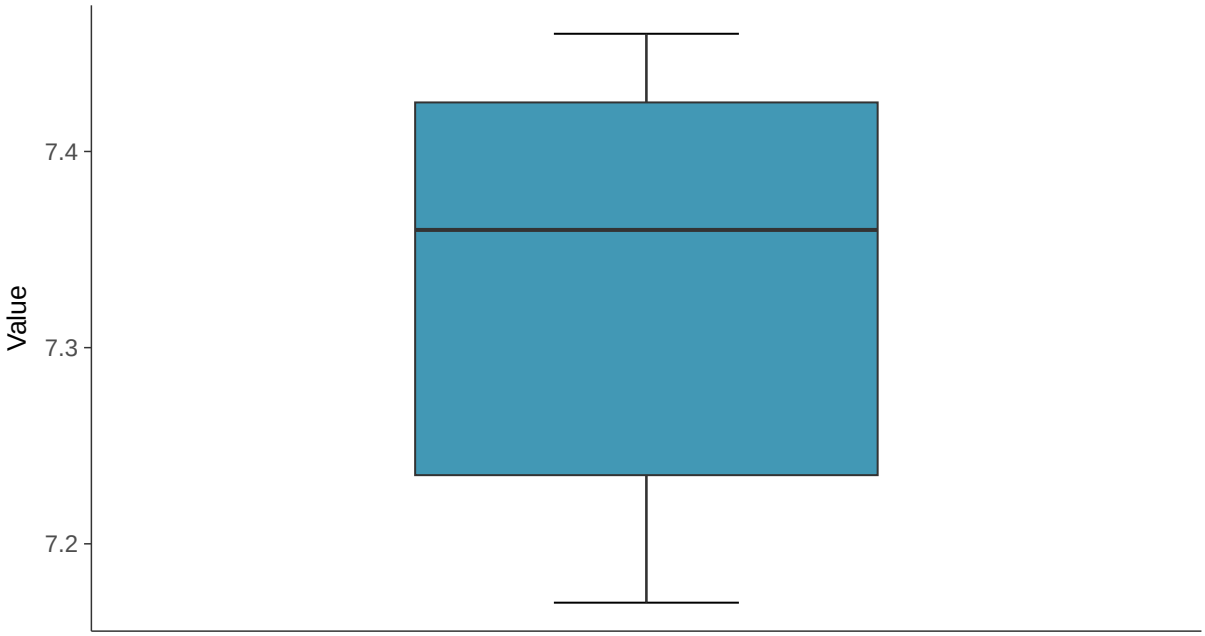
ID: 16C_3_24





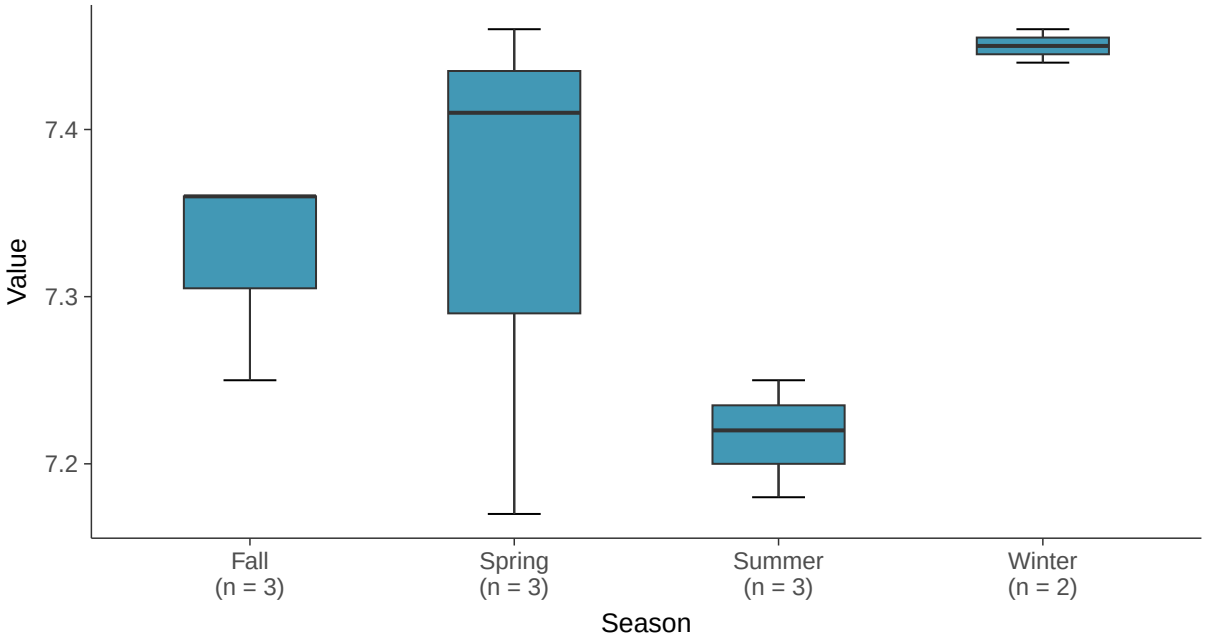
Boxplot

pH, MW-16C (su)



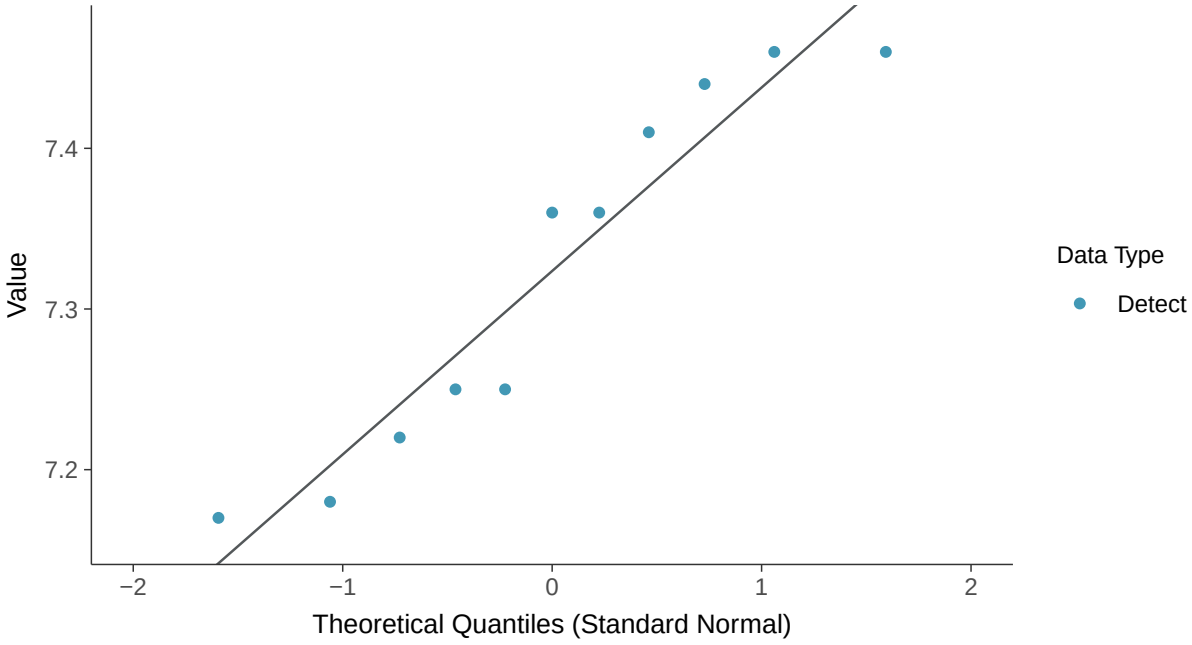
Boxplot by Season

pH, MW-16C (su)



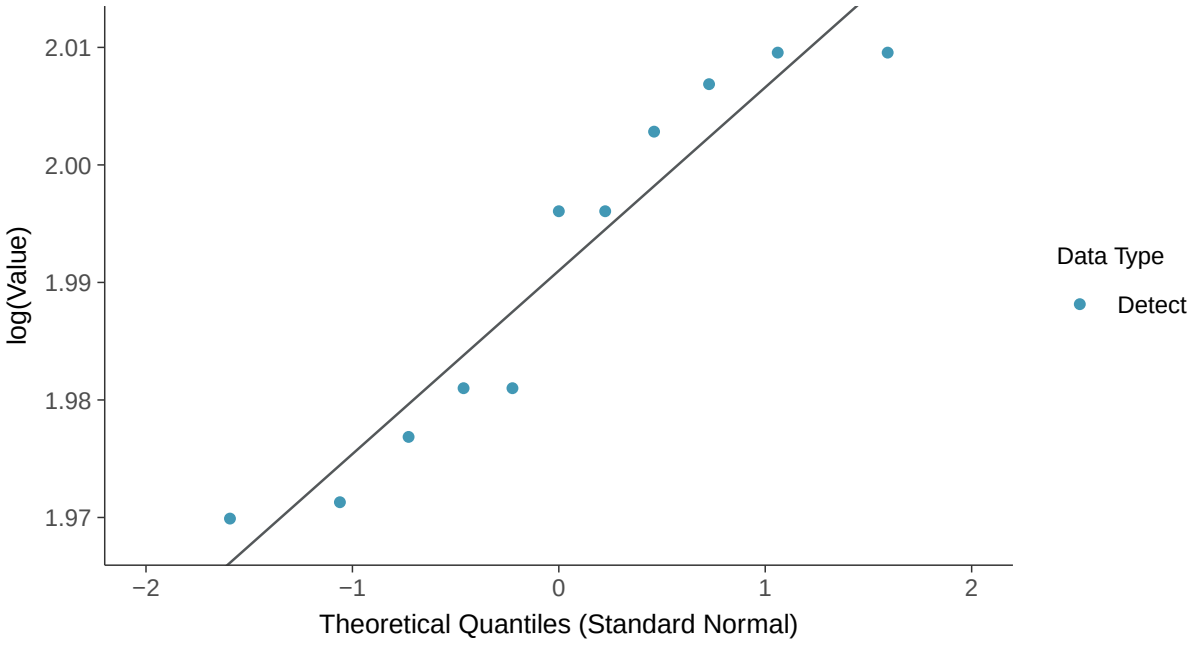
Normal Q-Q plot

pH, MW-16C (su)



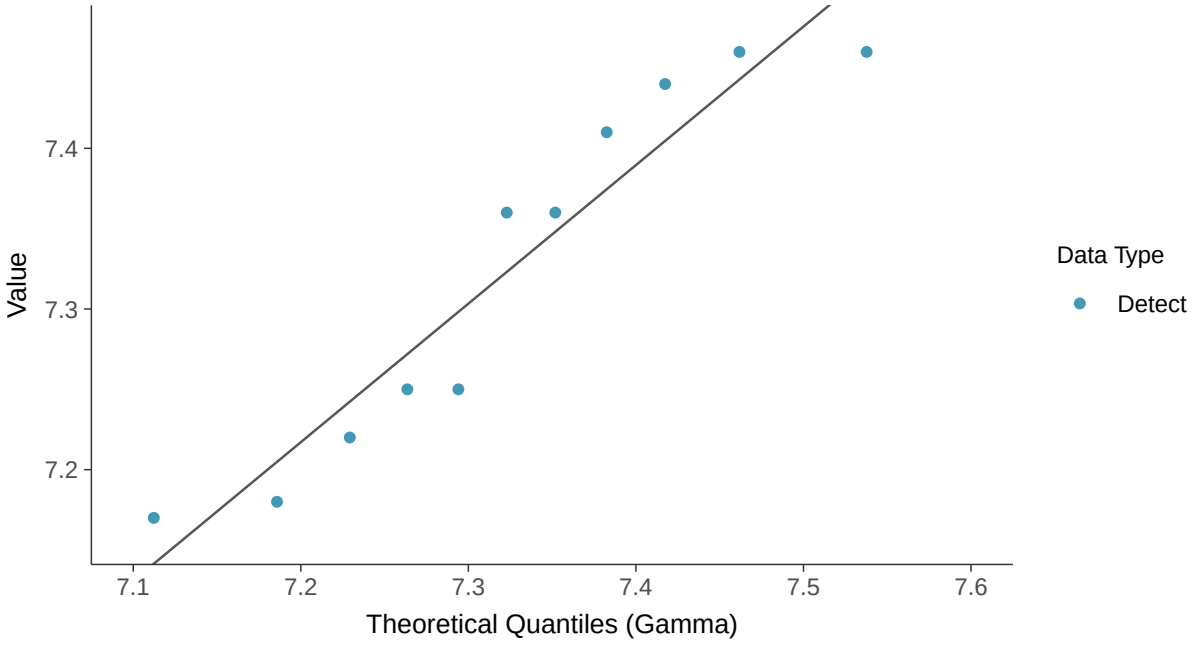
Lognormal Q-Q plot

pH, MW-16C (su)



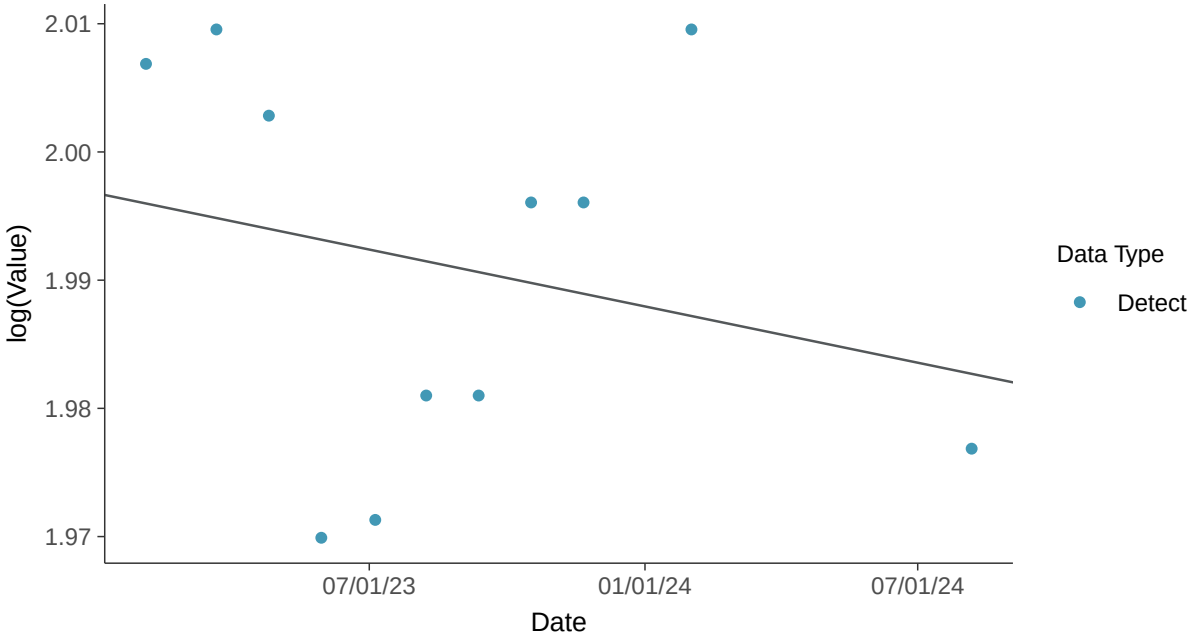
Gamma Q-Q plot

pH, MW-16C (su)



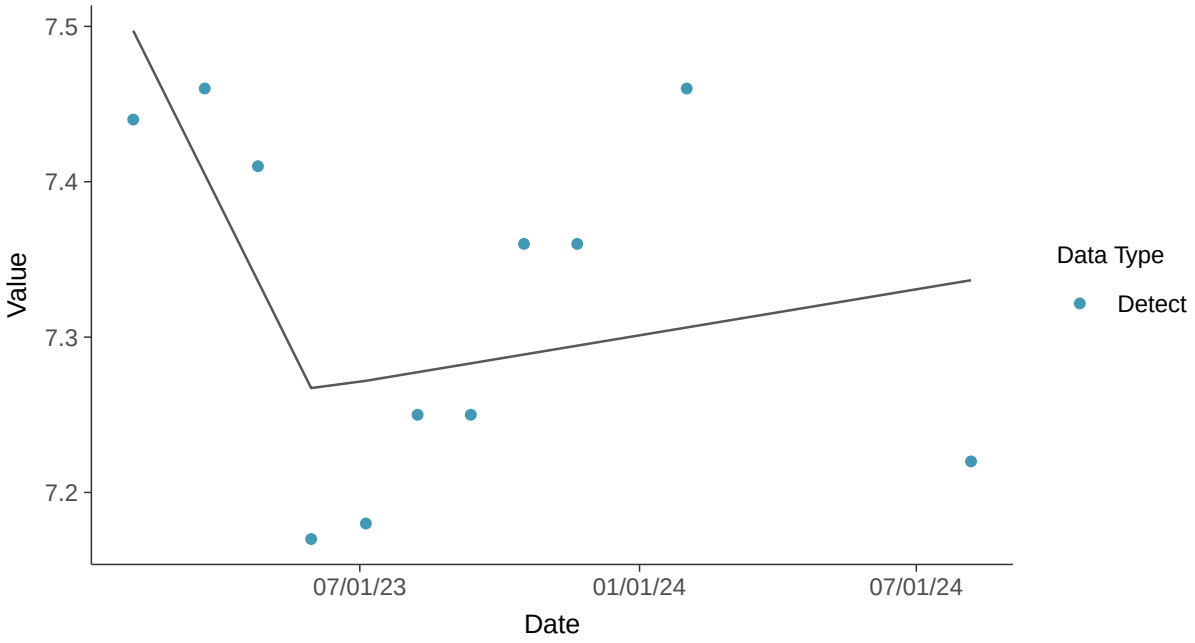
Trend Regression: Lognormal MLE

pH, MW-16C (su)



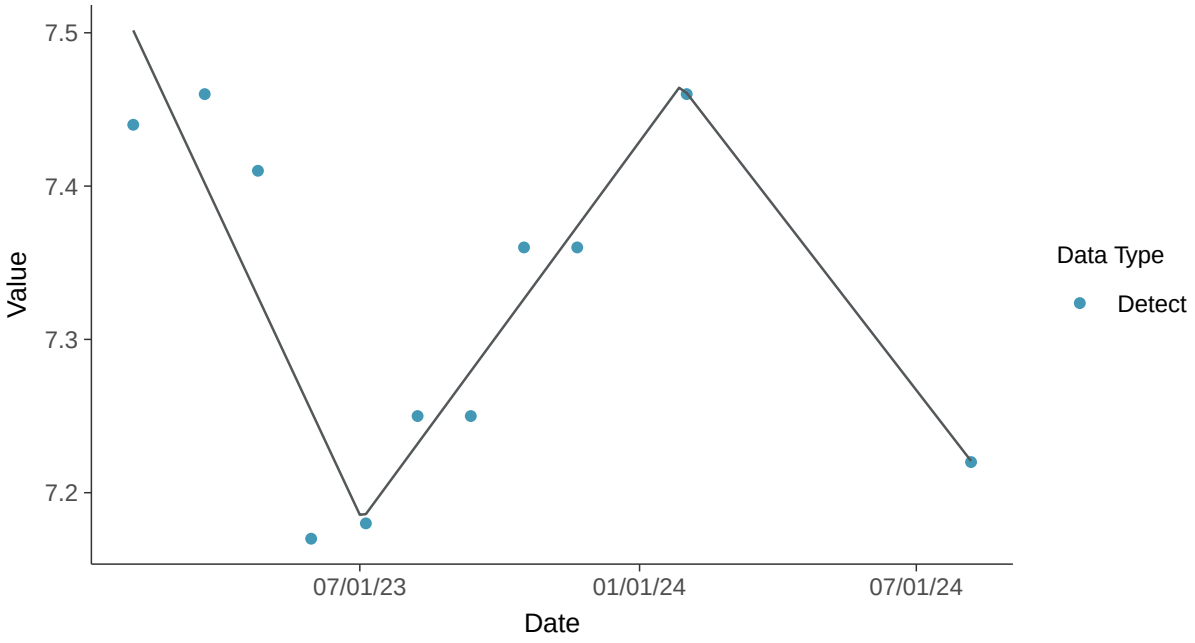
Trend Regression: Piecewise Linear-Linear

pH, MW-16C (su)



Trend Regression: Piecewise Linear-Linear-Linear

pH, MW-16C (su)

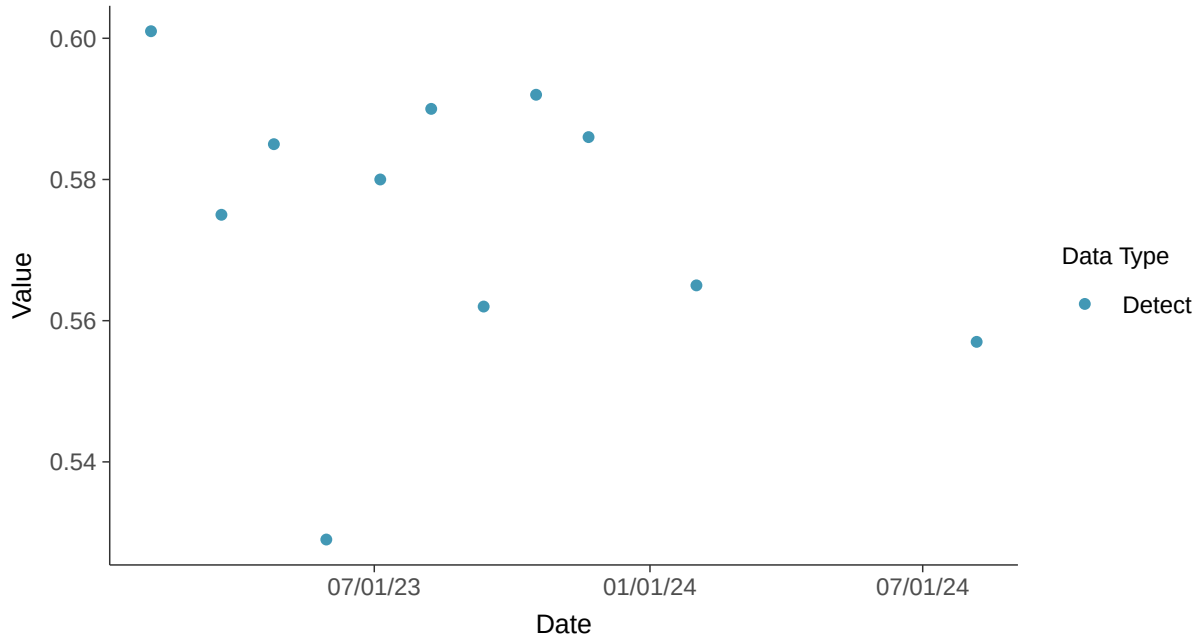


Field Parameters: Conductivity, MW-16C

ID: 16C_3_25

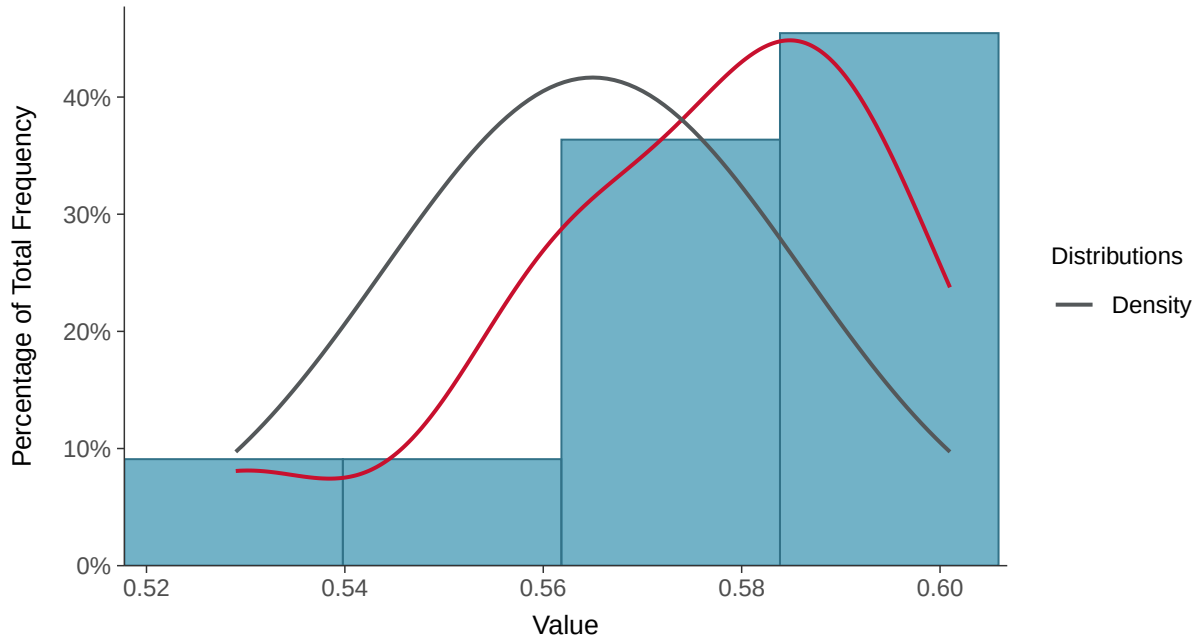
Scatter Plot

Conductivity, MW-16C (mS/cm)



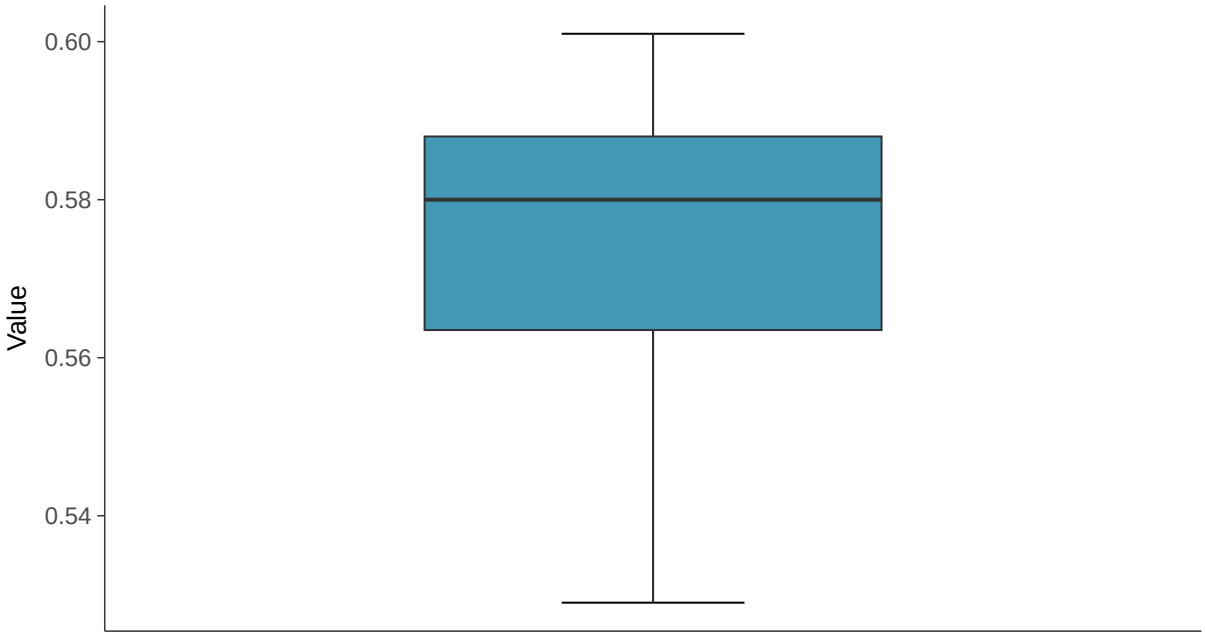
Histogram

Conductivity, MW-16C (mS/cm)



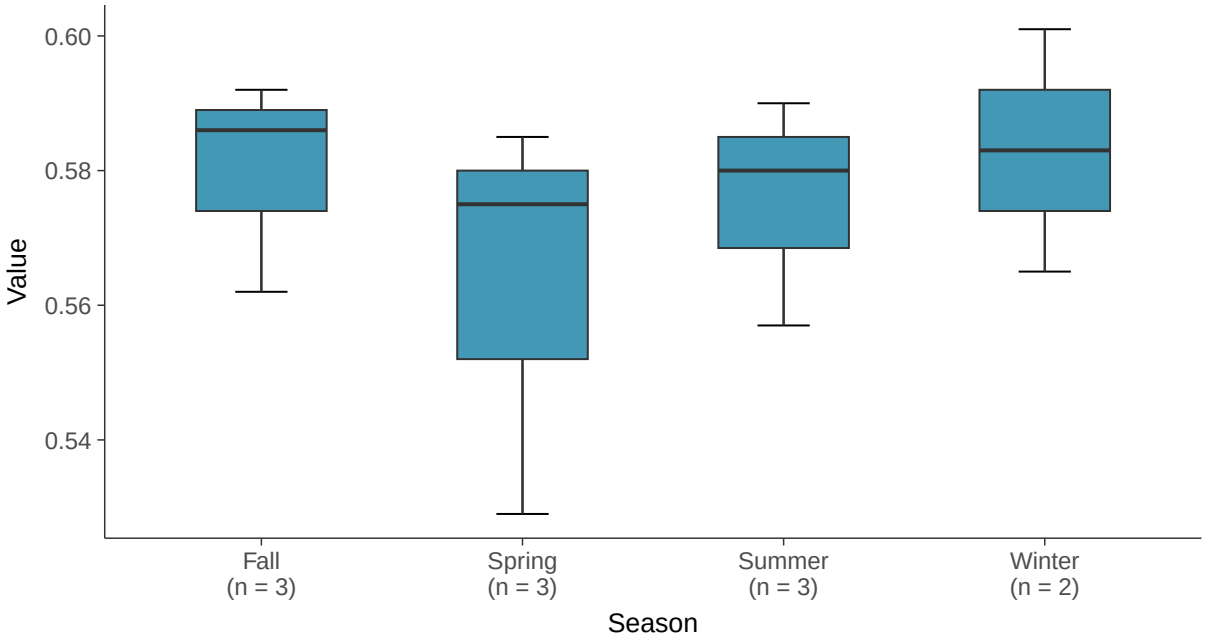
Boxplot

Conductivity, MW-16C (mS/cm)



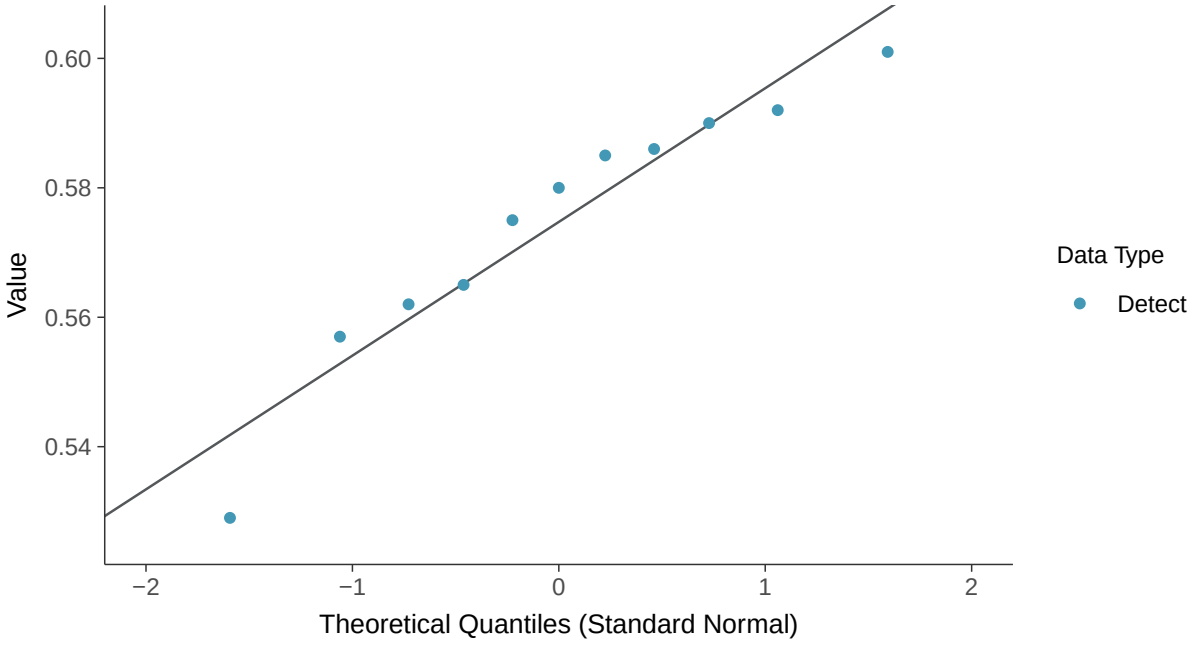
Boxplot by Season

Conductivity, MW-16C (mS/cm)



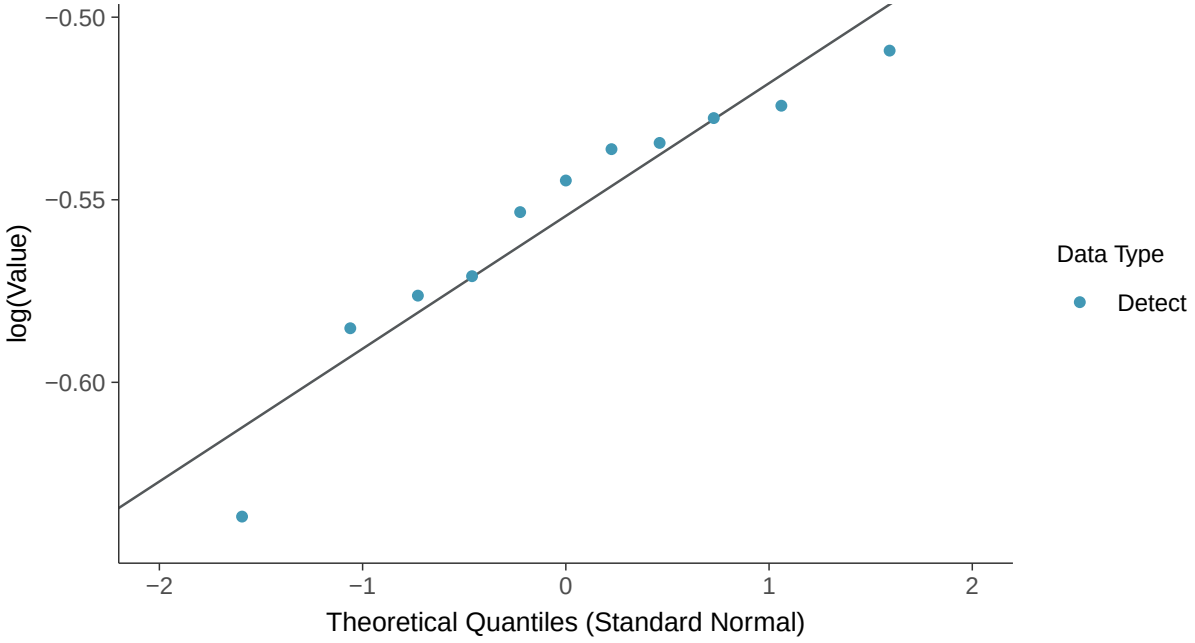
Normal Q-Q plot

Conductivity, MW-16C (mS/cm)



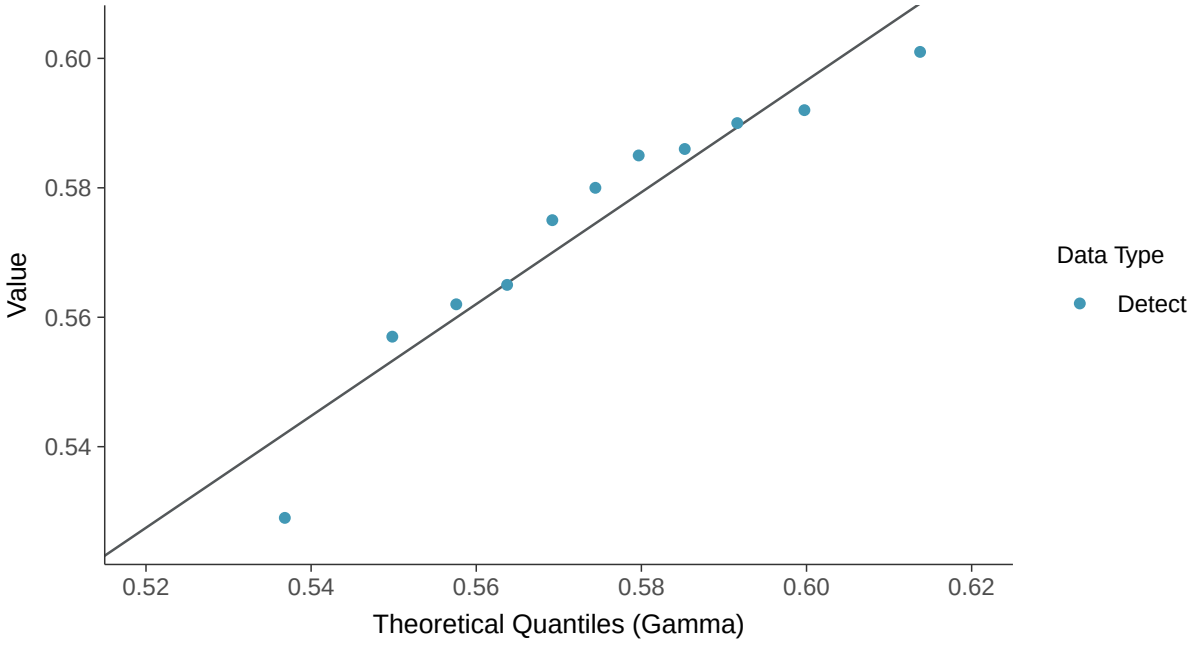
Lognormal Q-Q plot

Conductivity, MW-16C (mS/cm)



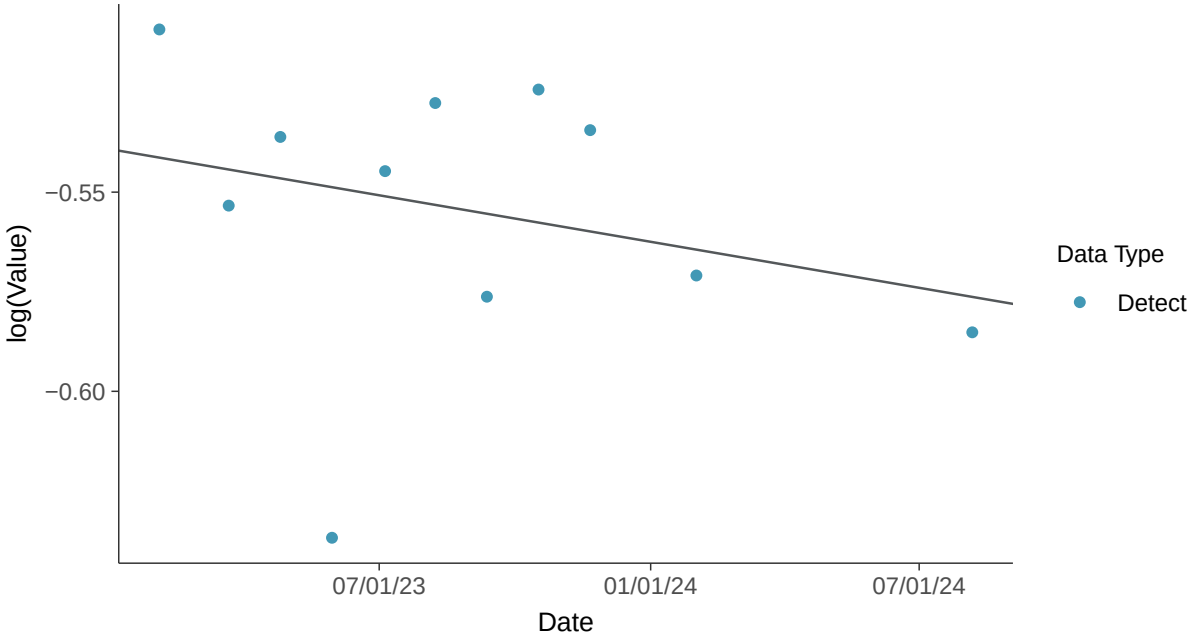
Gamma Q-Q plot

Conductivity, MW-16C (mS/cm)



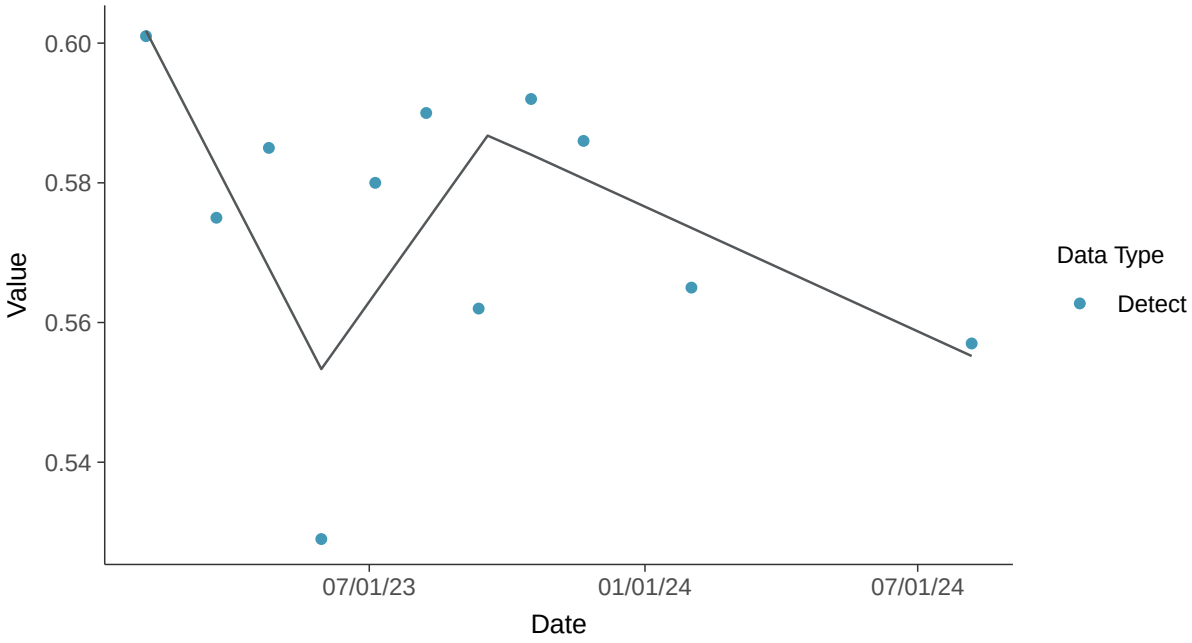
Trend Regression: Lognormal MLE

Conductivity, MW-16C (mS/cm)



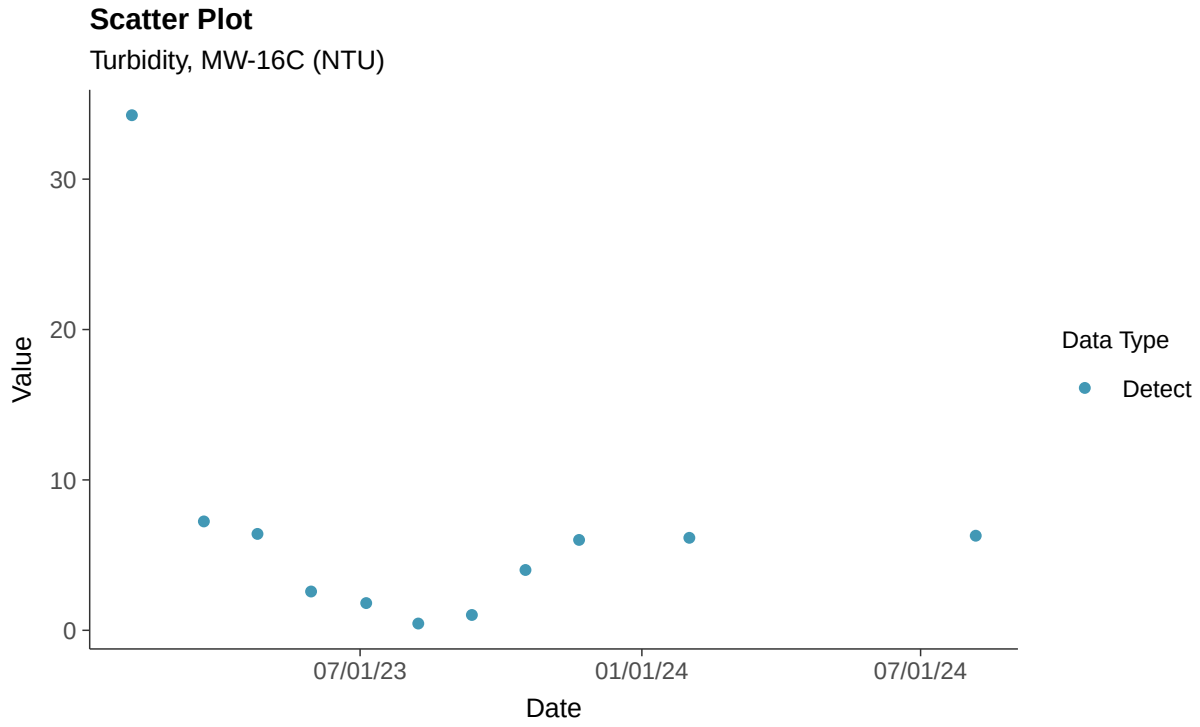
Trend Regression: Piecewise Linear-Linear-Linear

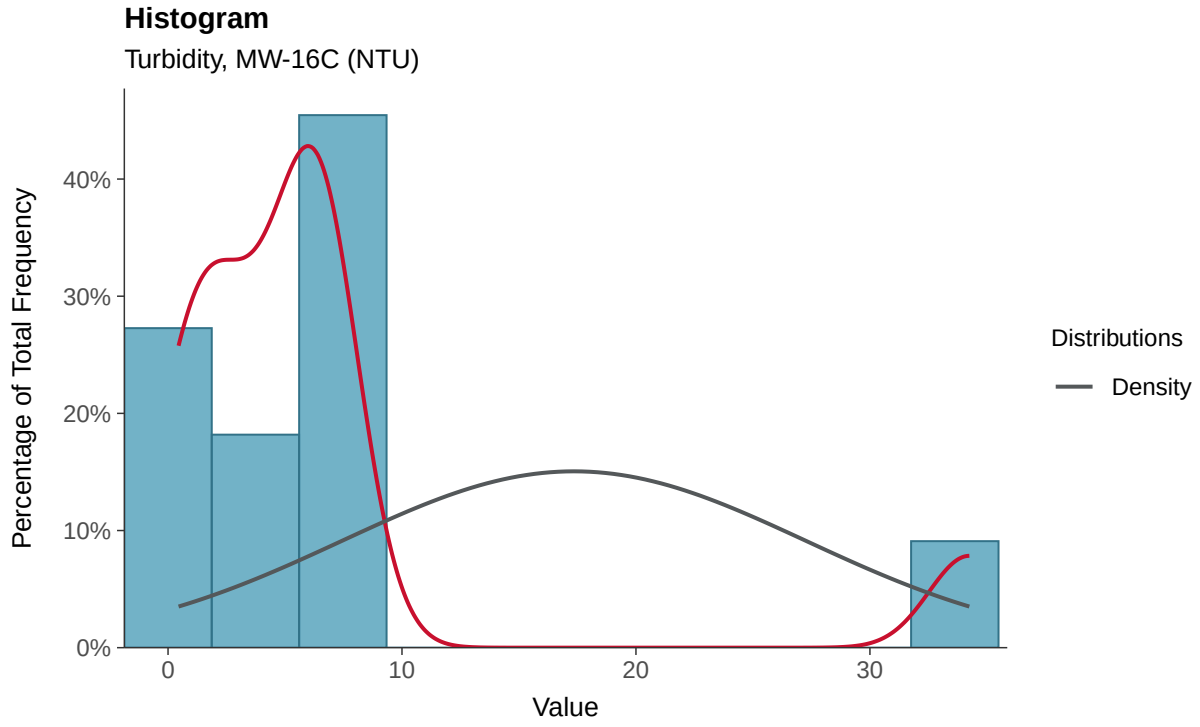
Conductivity, MW-16C (mS/cm)



Field Parameters: Turbidity, MW-16C

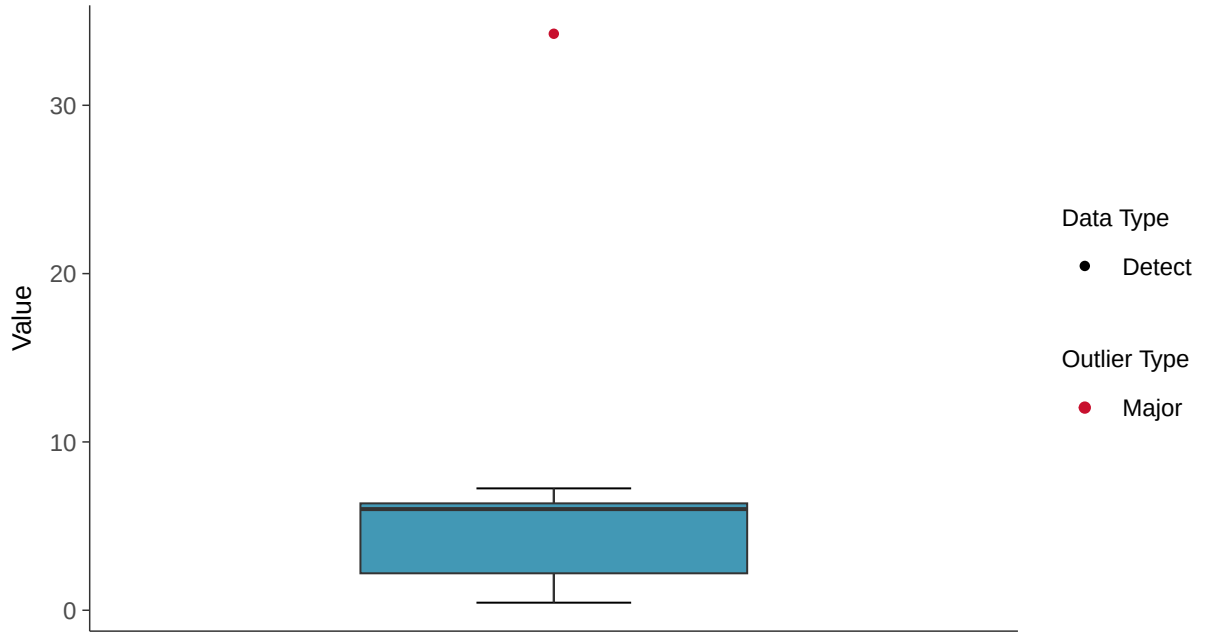
ID: 16C_3_26





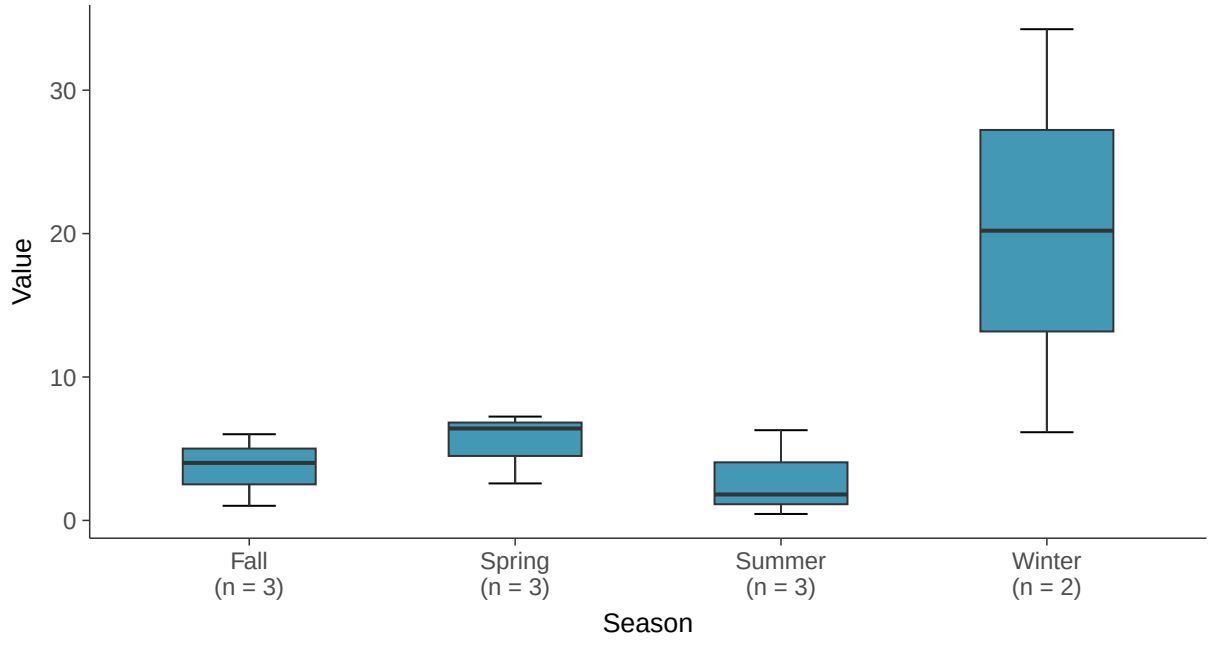
Boxplot

Turbidity, MW-16C (NTU)



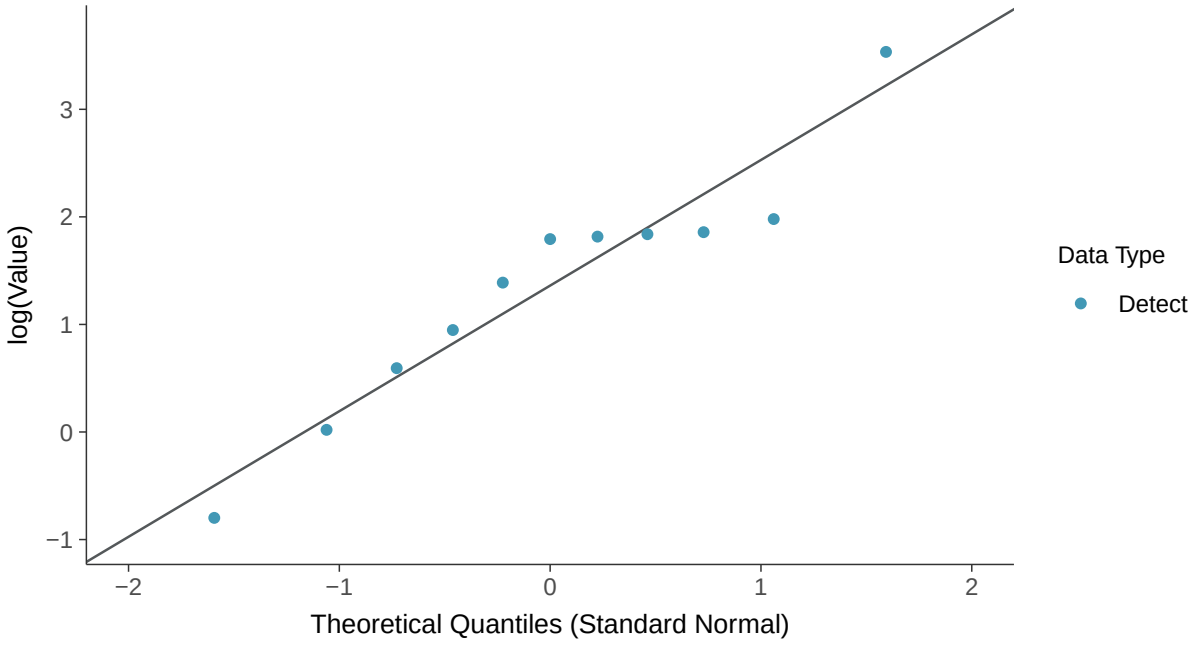
Boxplot by Season

Turbidity, MW-16C (NTU)



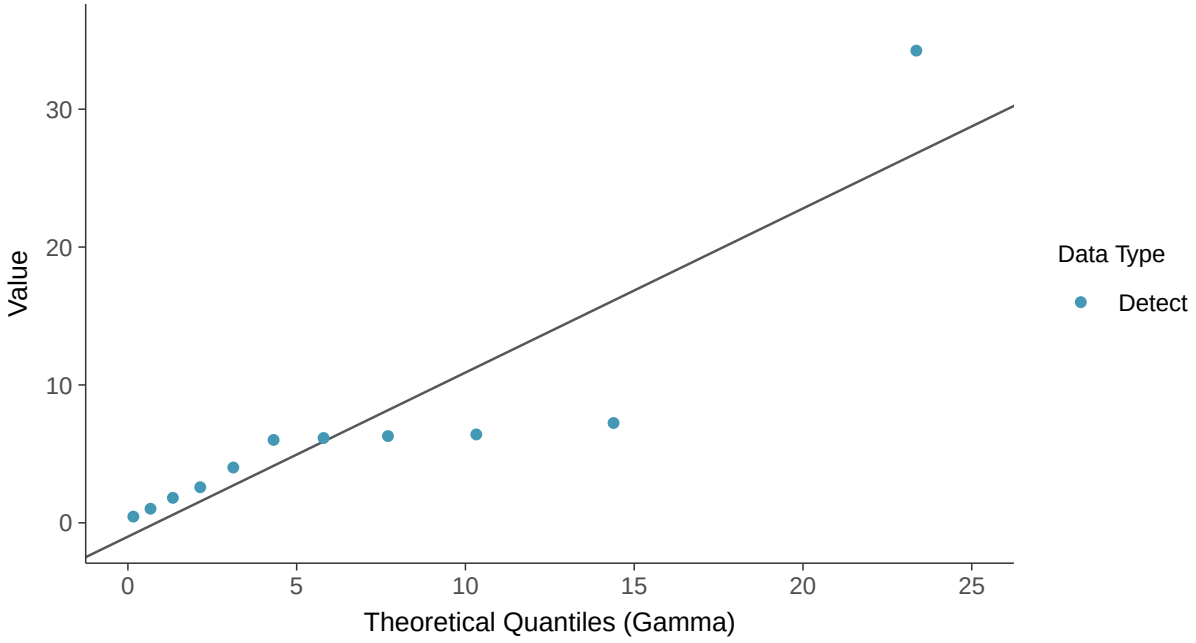
Lognormal Q-Q plot

Turbidity, MW-16C (NTU)



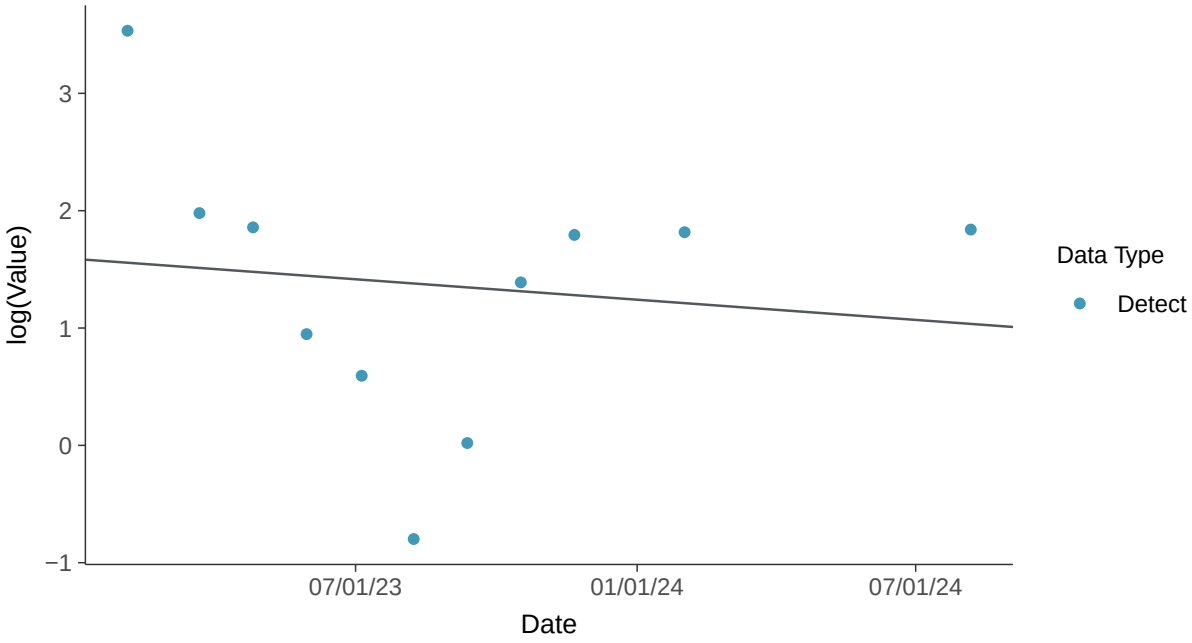
Gamma Q-Q plot

Turbidity, MW-16C (NTU)



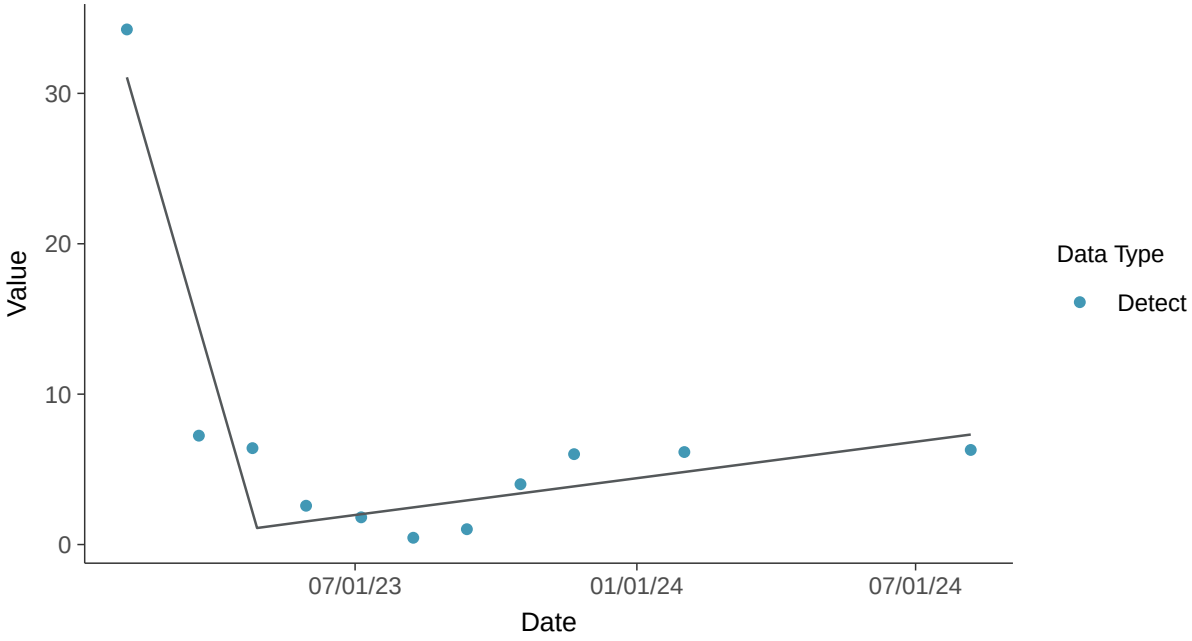
Trend Regression: Lognormal MLE

Turbidity, MW-16C (NTU)



Trend Regression: Piecewise Linear-Linear

Turbidity, MW-16C (NTU)

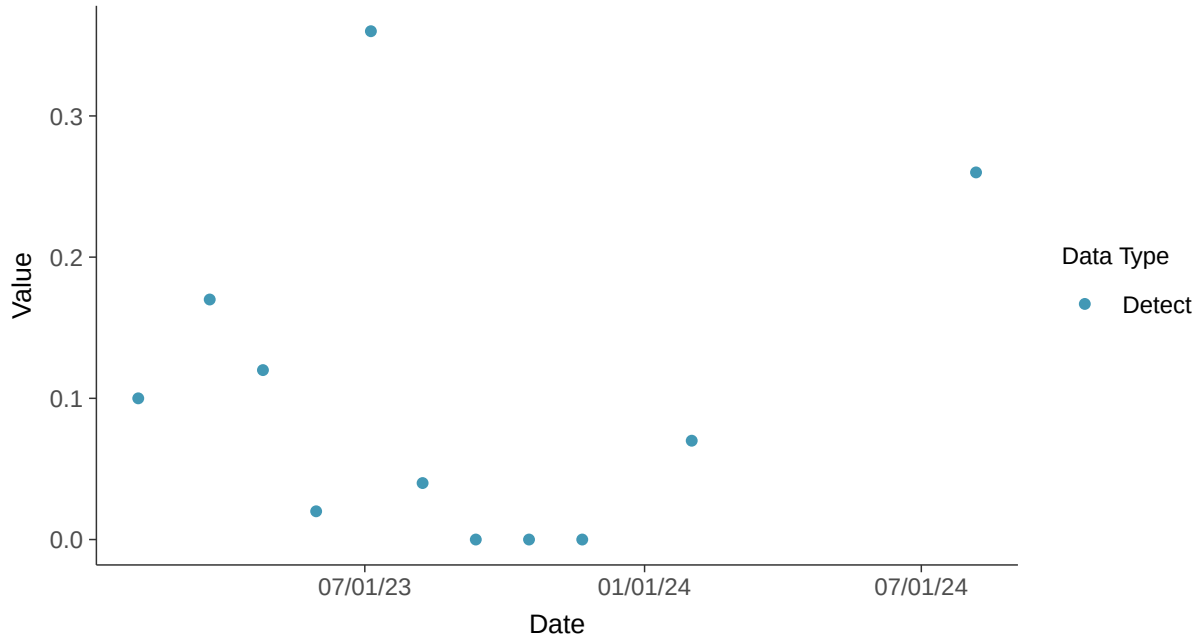


Field Parameters: Dissolved Oxygen, MW-16C

ID: 16C_3_27

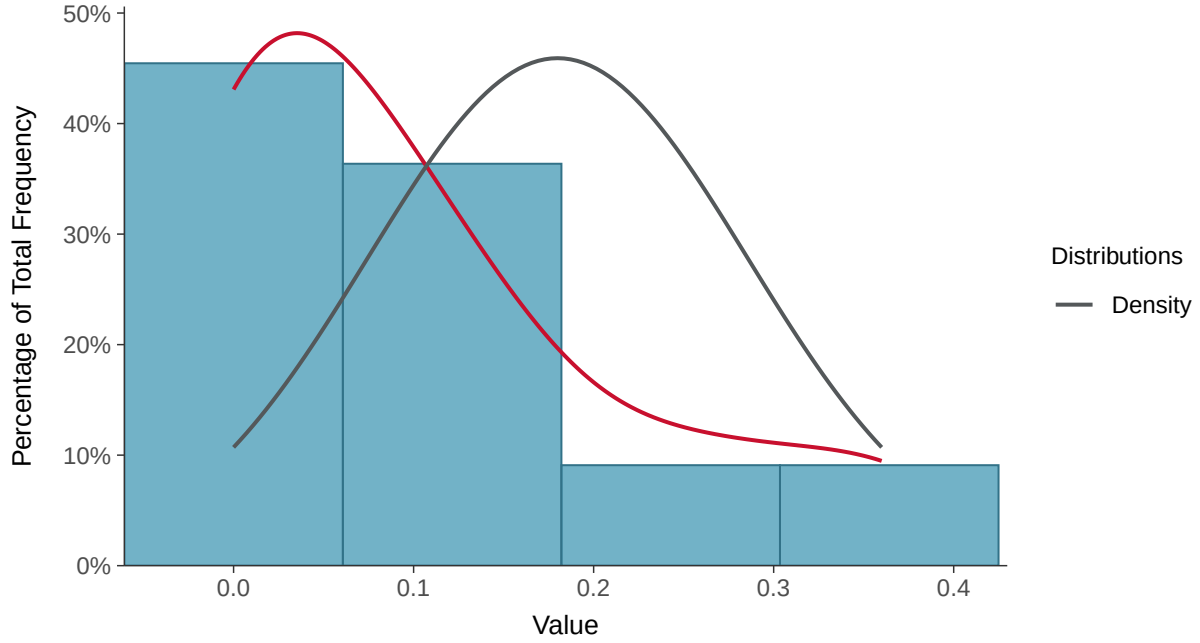
Scatter Plot

Dissolved Oxygen, MW-16C (mg/L)



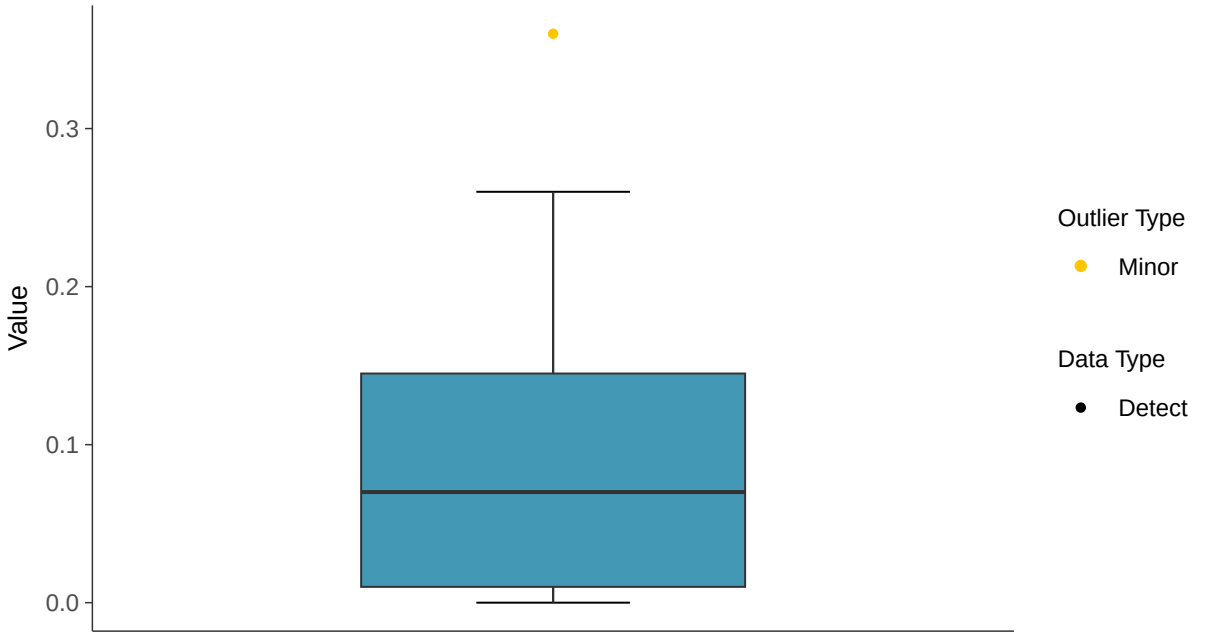
Histogram

Dissolved Oxygen, MW-16C (mg/L)



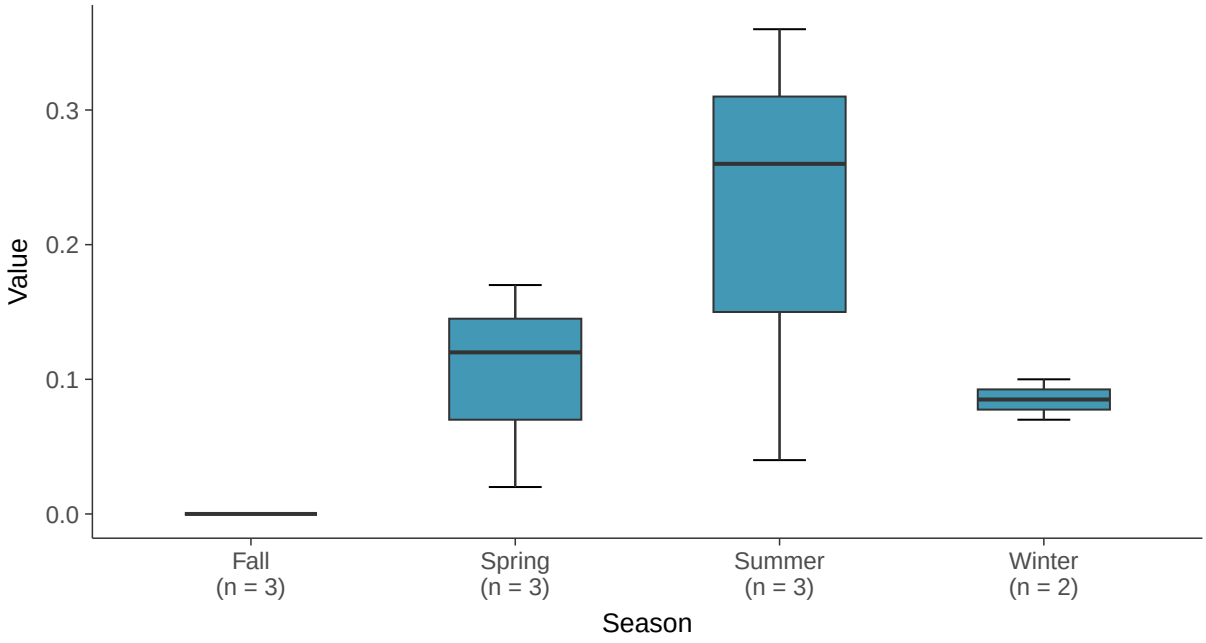
Boxplot

Dissolved Oxygen, MW-16C (mg/L)



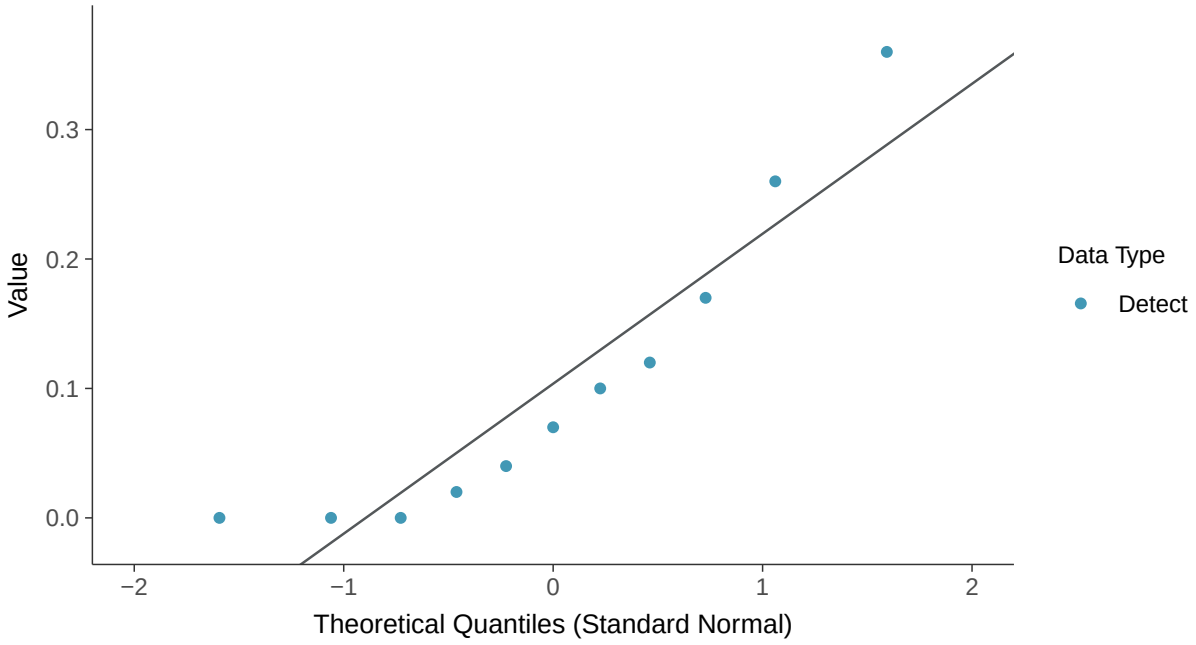
Boxplot by Season

Dissolved Oxygen, MW-16C (mg/L)



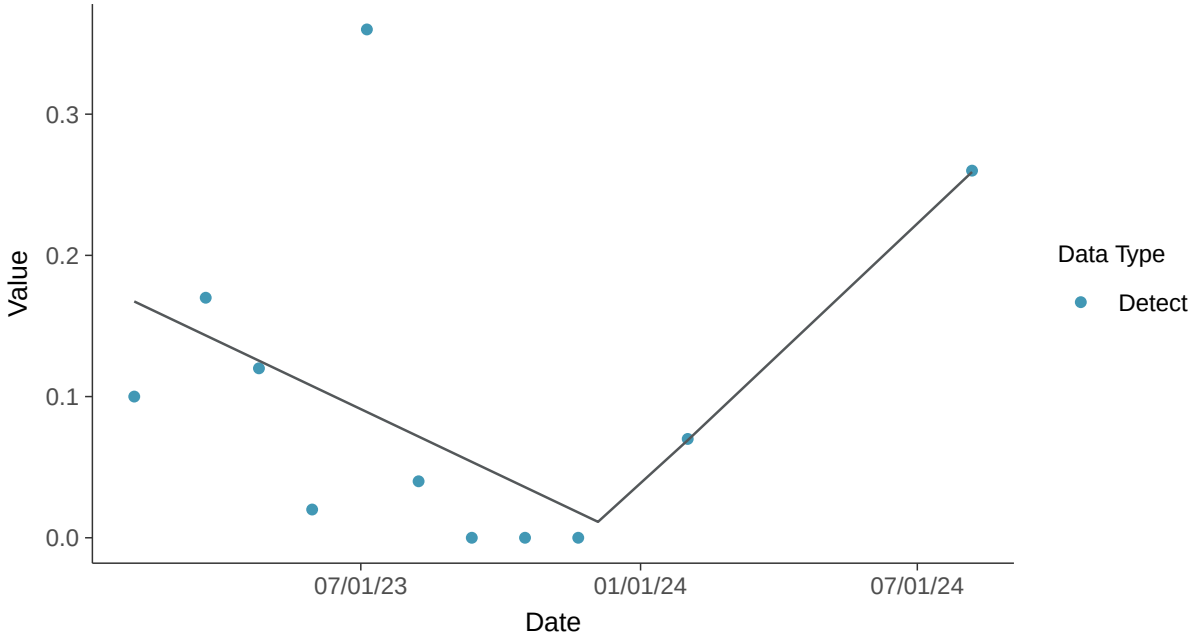
Normal Q-Q plot

Dissolved Oxygen, MW-16C (mg/L)



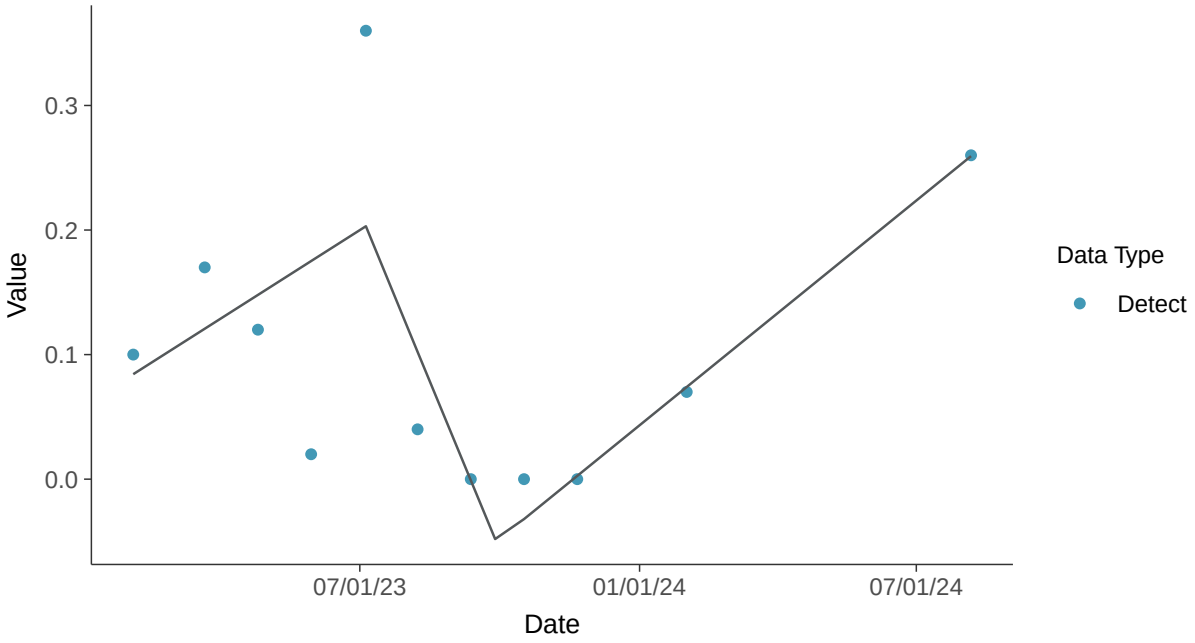
Trend Regression: Piecewise Linear-Linear

Dissolved Oxygen, MW-16C (mg/L)



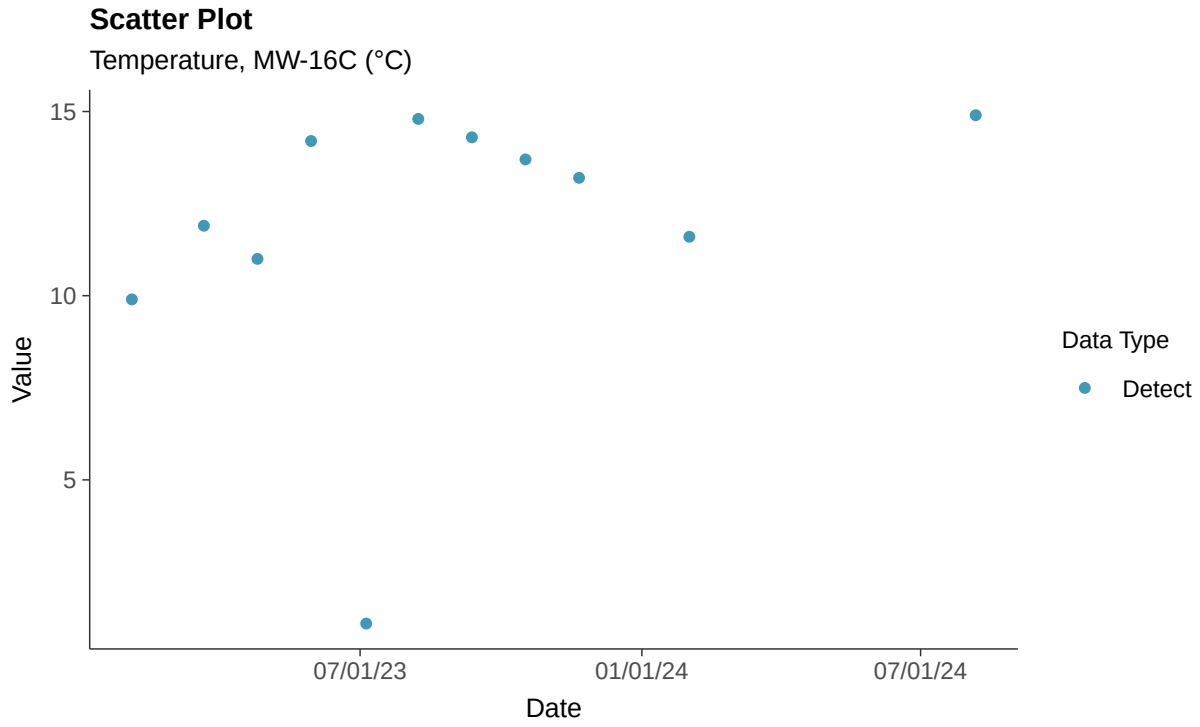
Trend Regression: Piecewise Linear-Linear-Linear

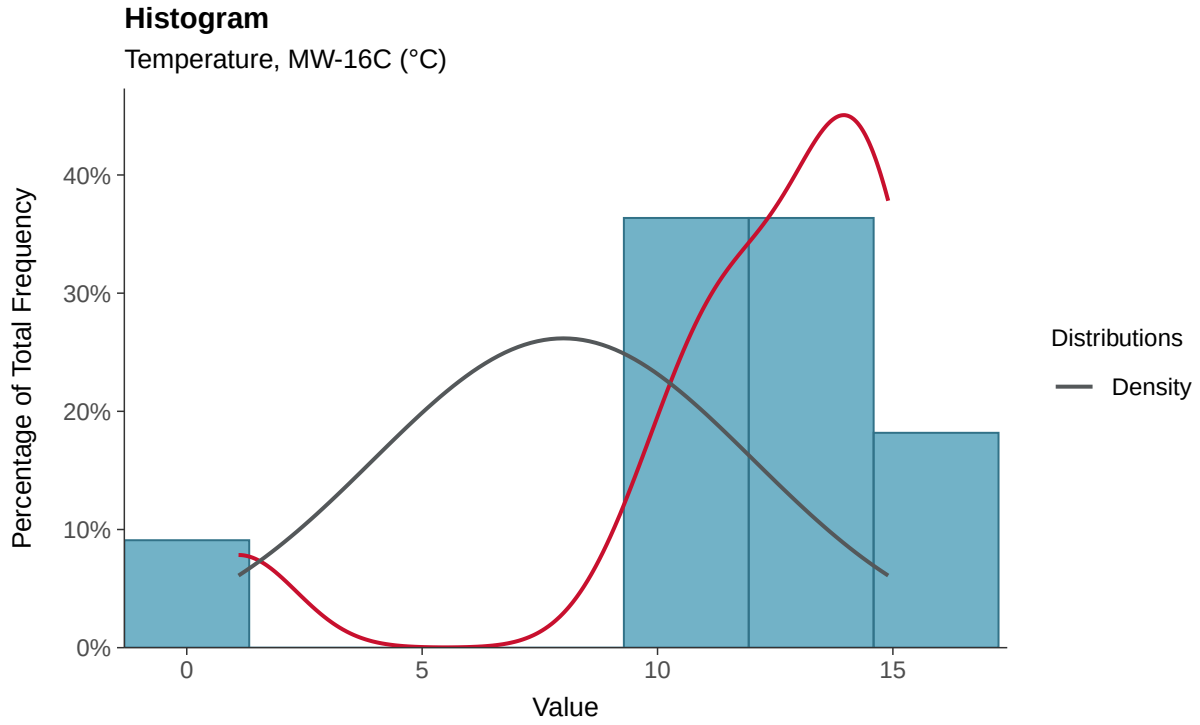
Dissolved Oxygen, MW-16C (mg/L)



Field Parameters: Temperature, MW-16C

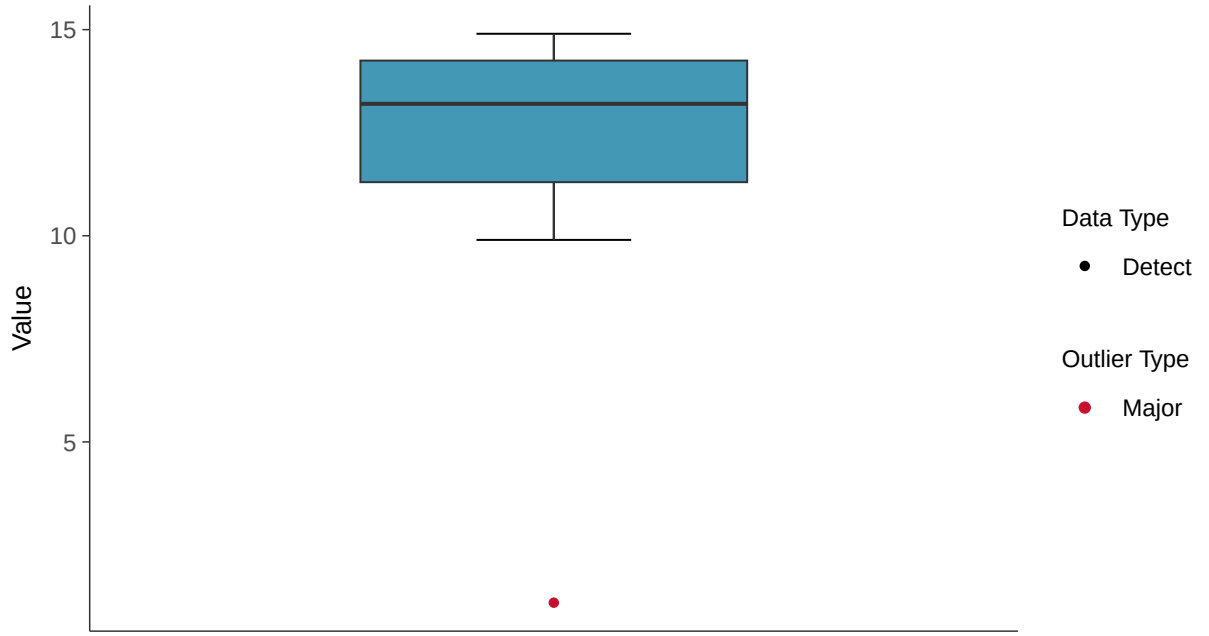
ID: 16C_3_28





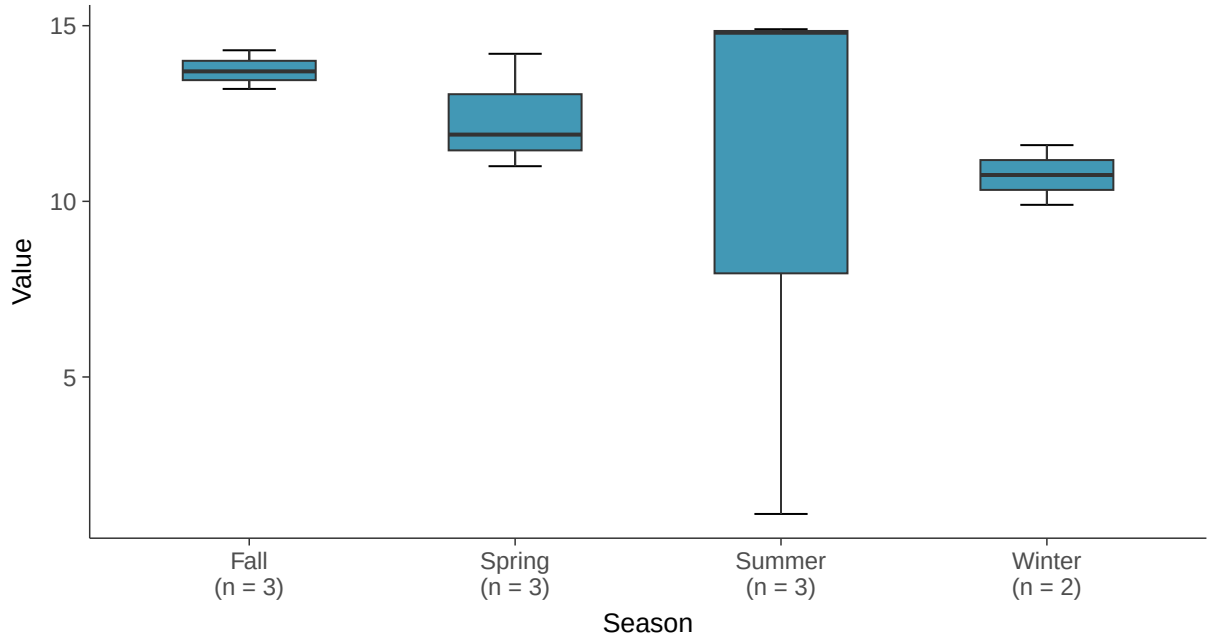
Boxplot

Temperature, MW-16C (°C)



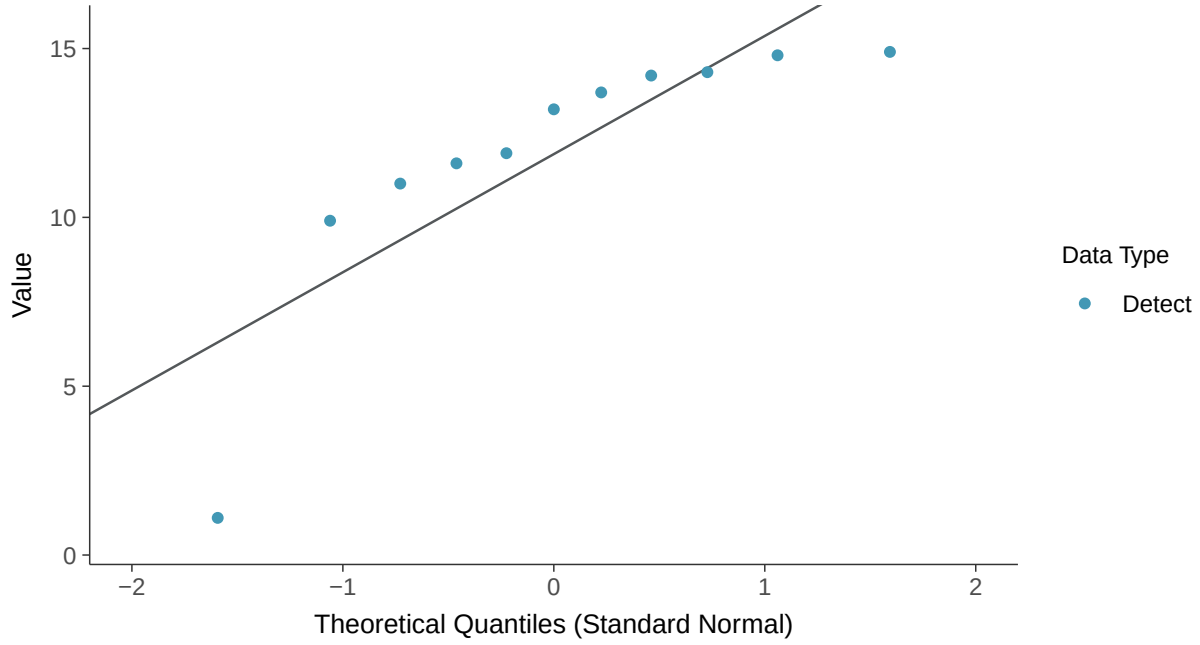
Boxplot by Season

Temperature, MW-16C (°C)



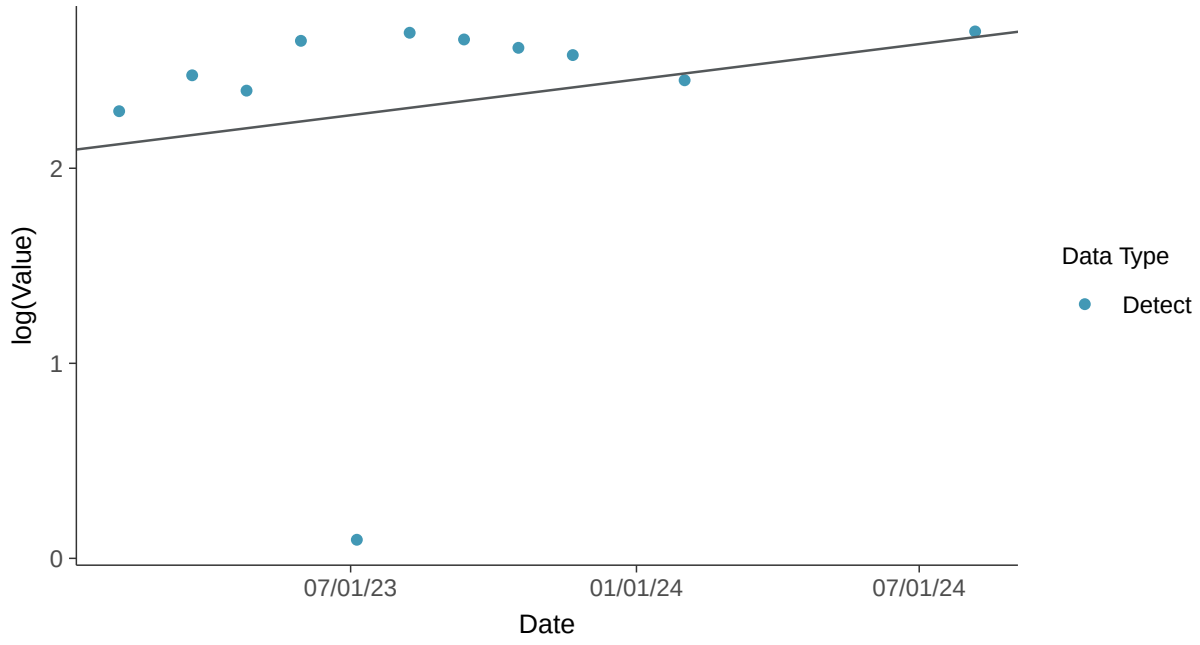
Normal Q-Q plot

Temperature, MW-16C (°C)



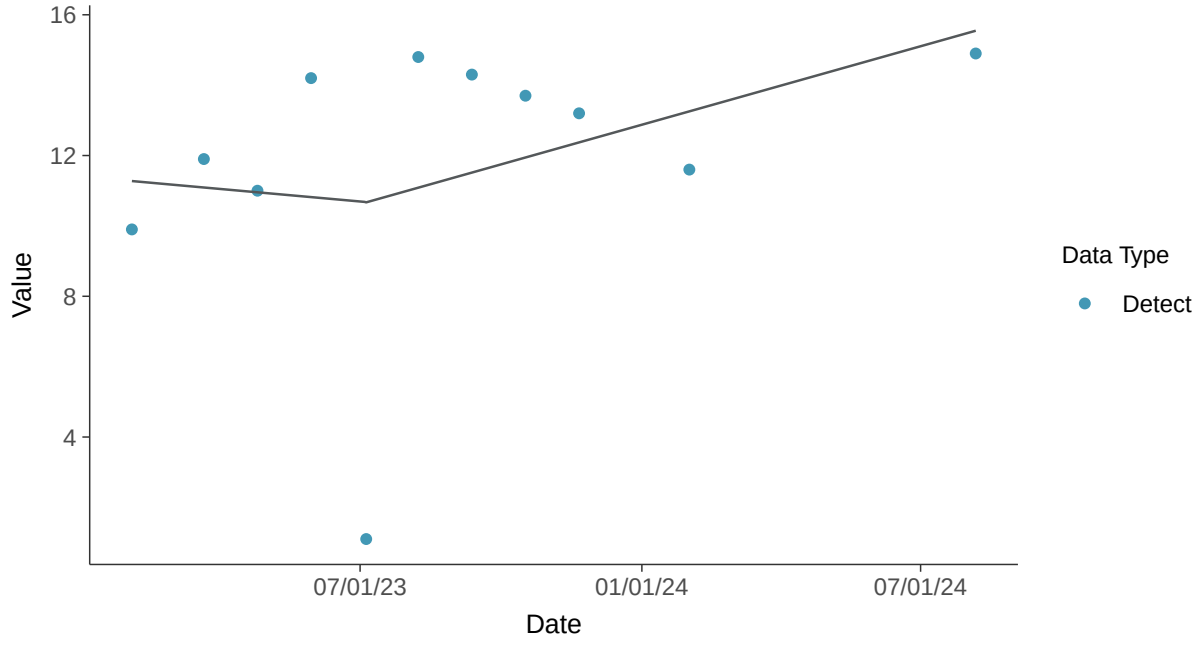
Trend Regression: Lognormal MLE

Temperature, MW-16C (°C)



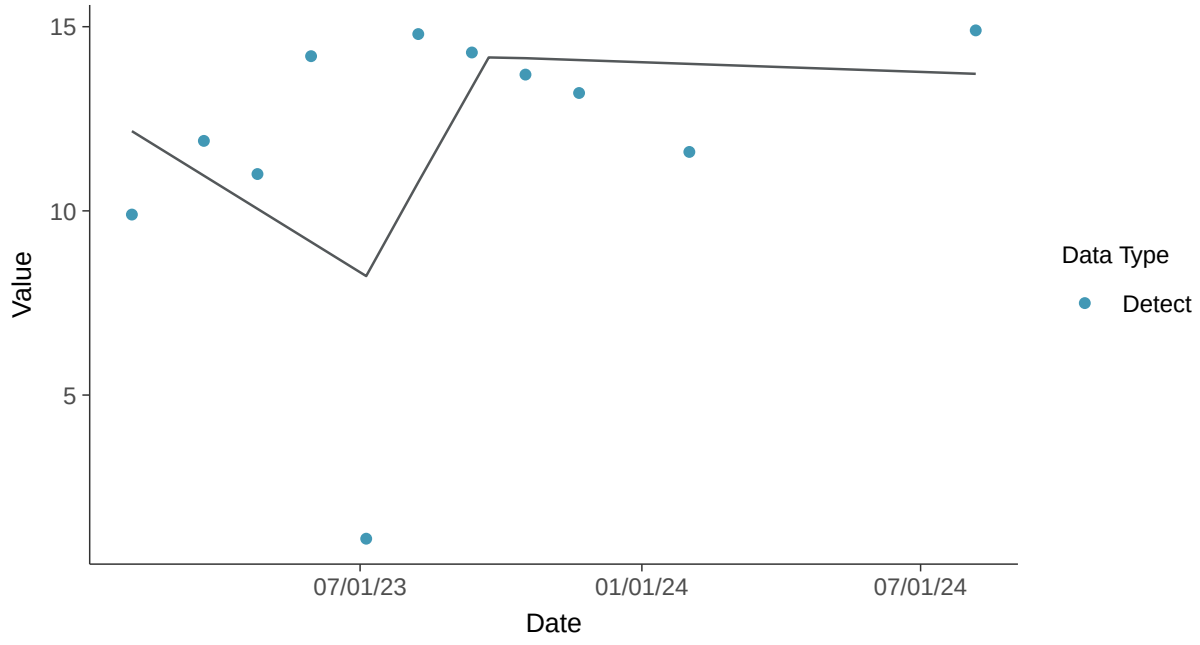
Trend Regression: Piecewise Linear-Linear

Temperature, MW-16C (°C)



Trend Regression: Piecewise Linear-Linear-Linear

Temperature, MW-16C (°C)

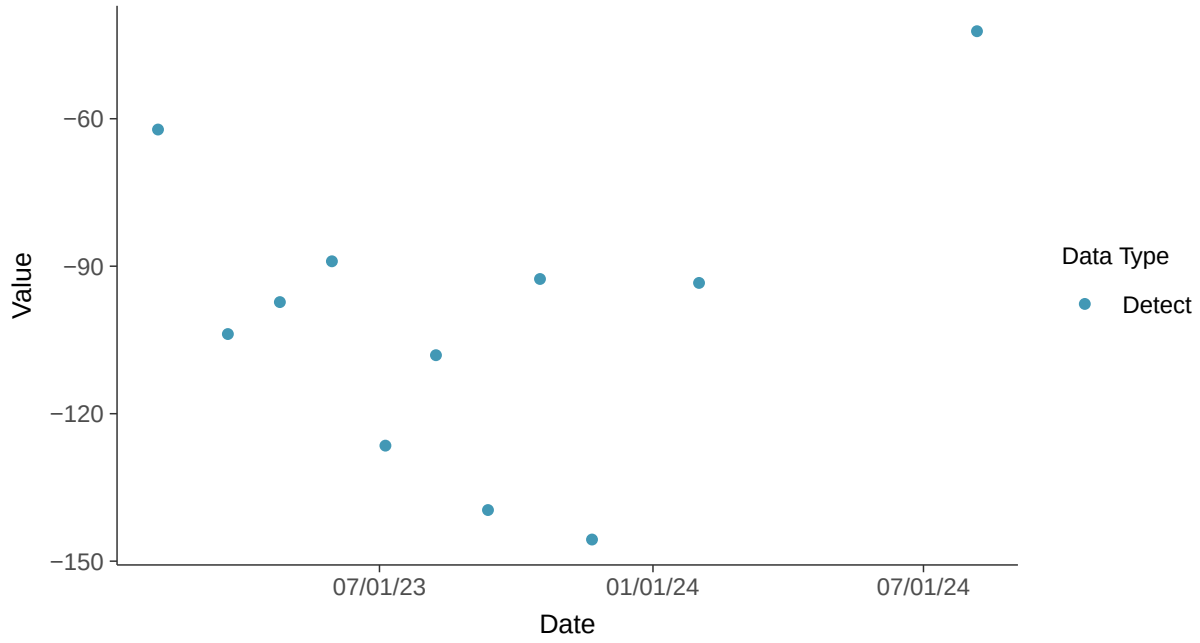


Field Parameters: Oxidation Reduction Potential, MW-16C

ID: 16C_3_29

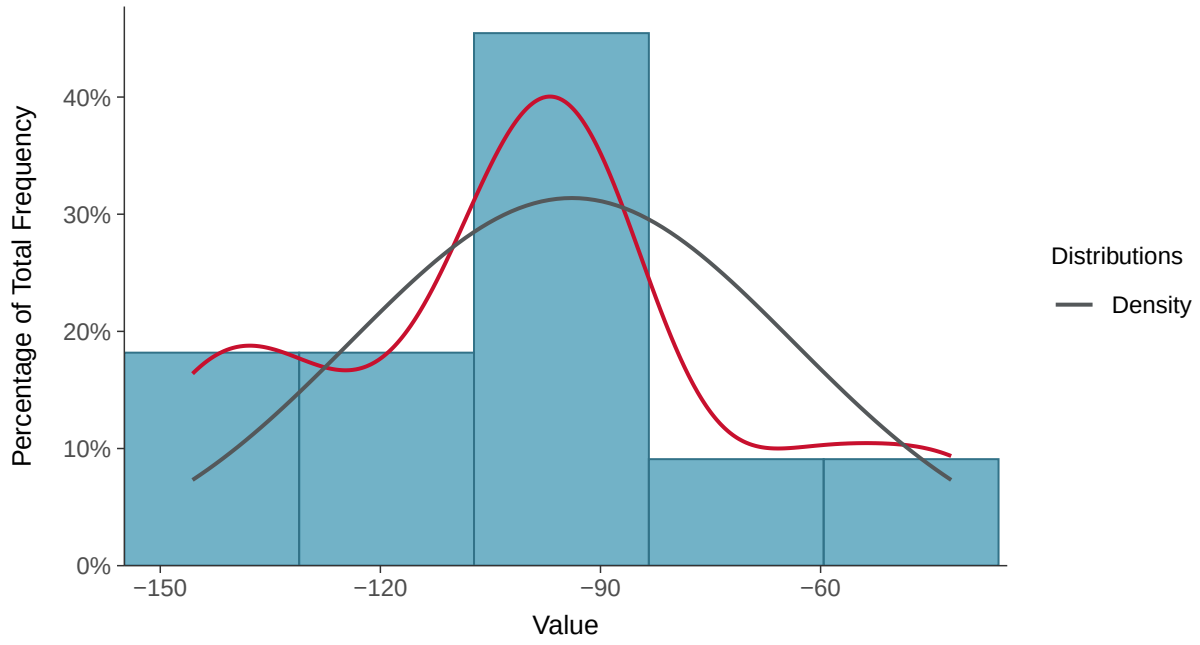
Scatter Plot

Oxidation Reduction Potential, MW-16C (mV)



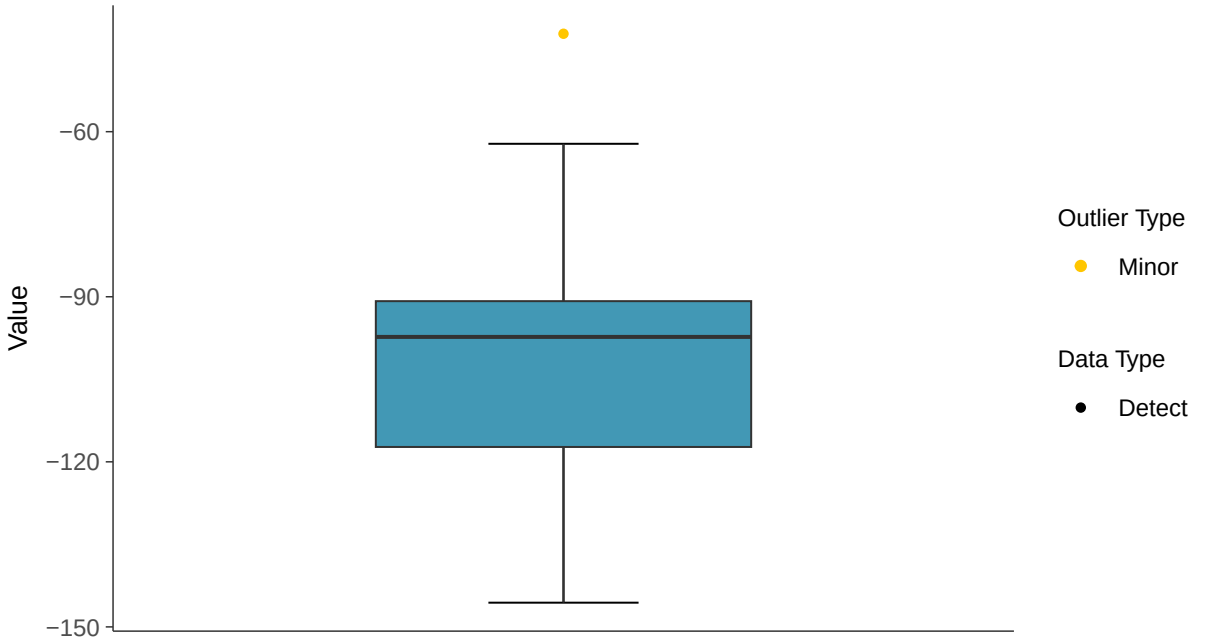
Histogram

Oxidation Reduction Potential, MW-16C (mV)



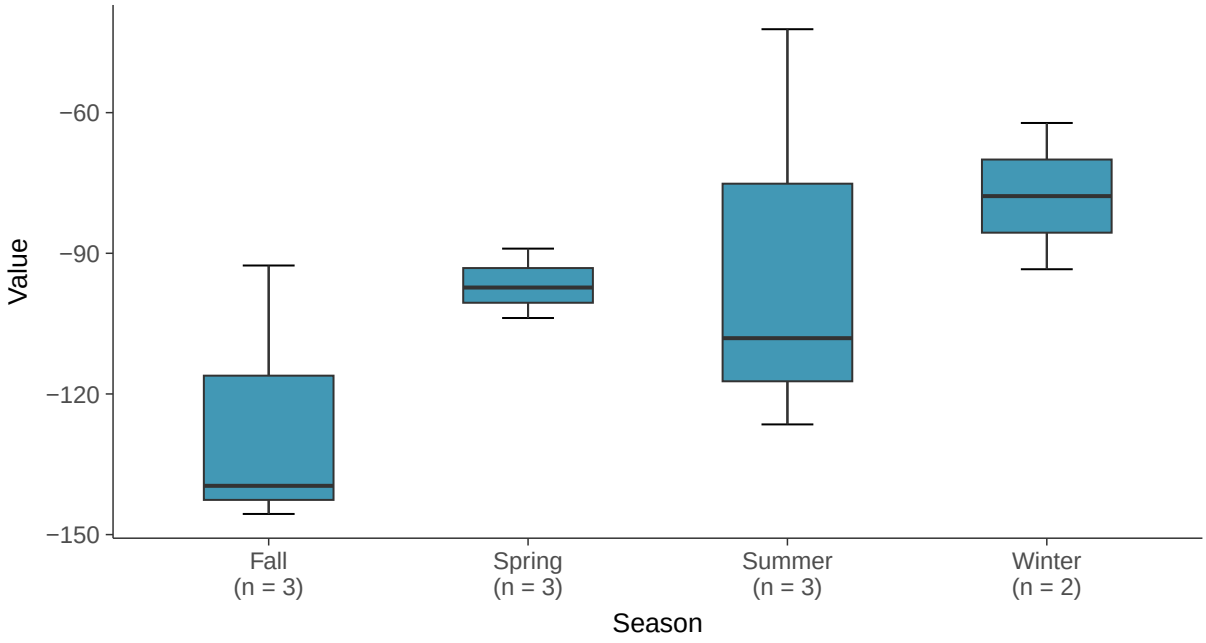
Boxplot

Oxidation Reduction Potential, MW-16C (mV)



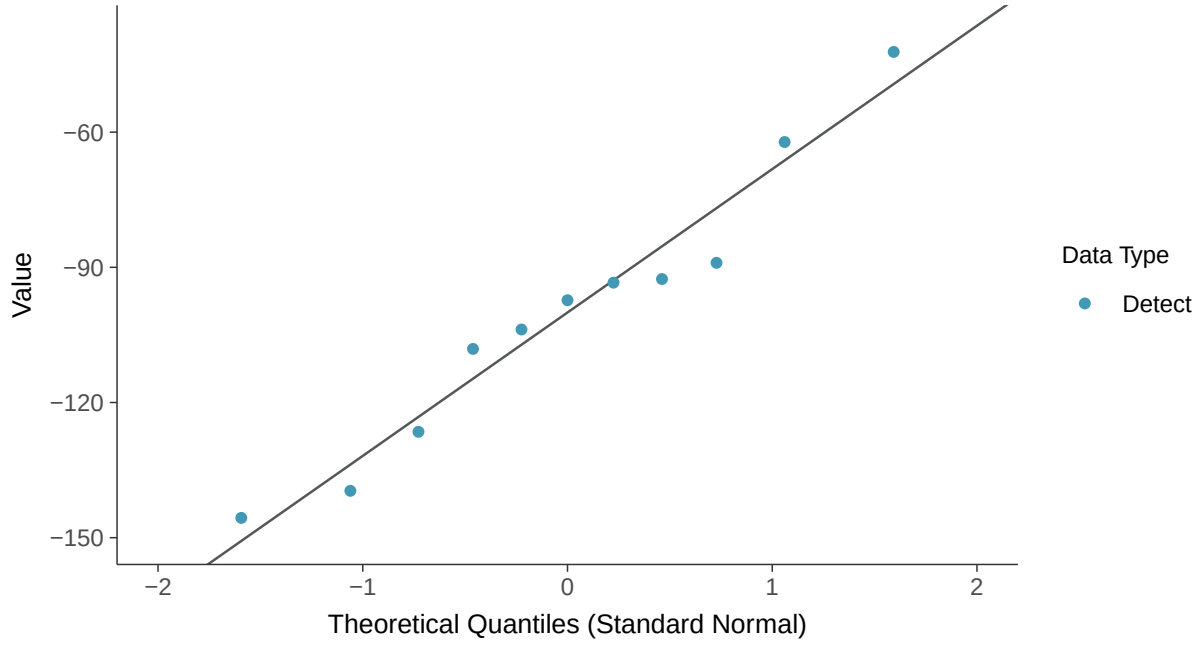
Boxplot by Season

Oxidation Reduction Potential, MW-16C (mV)



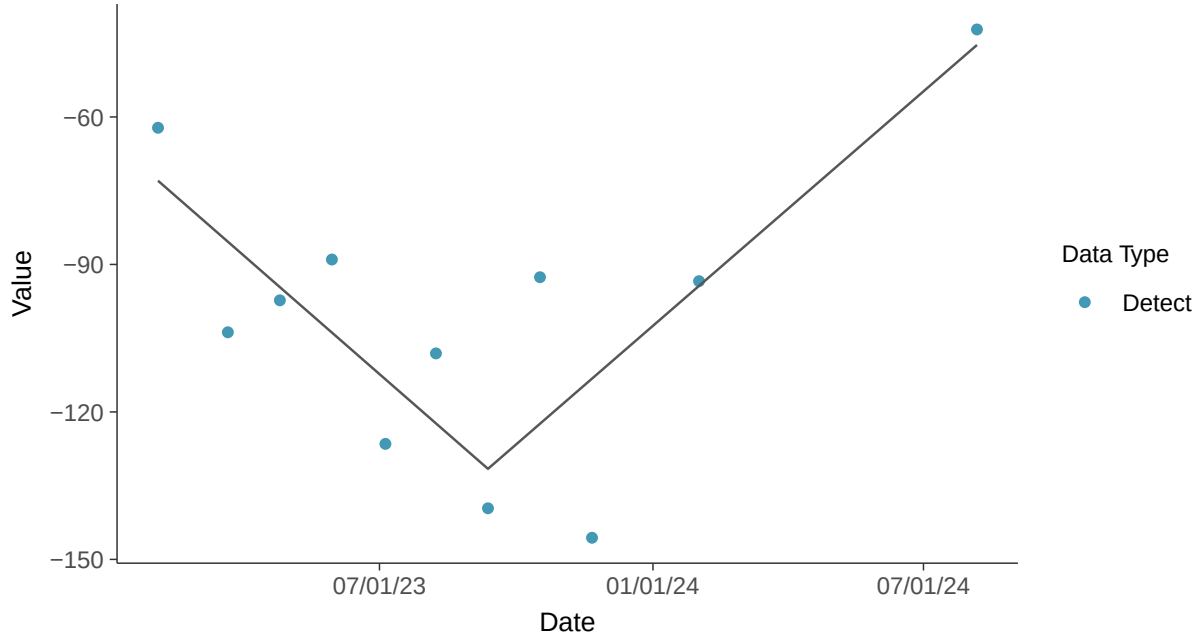
Normal Q-Q plot

Oxidation Reduction Potential, MW-16C (mV)



Trend Regression: Piecewise Linear-Linear

Oxidation Reduction Potential, MW-16C (mV)

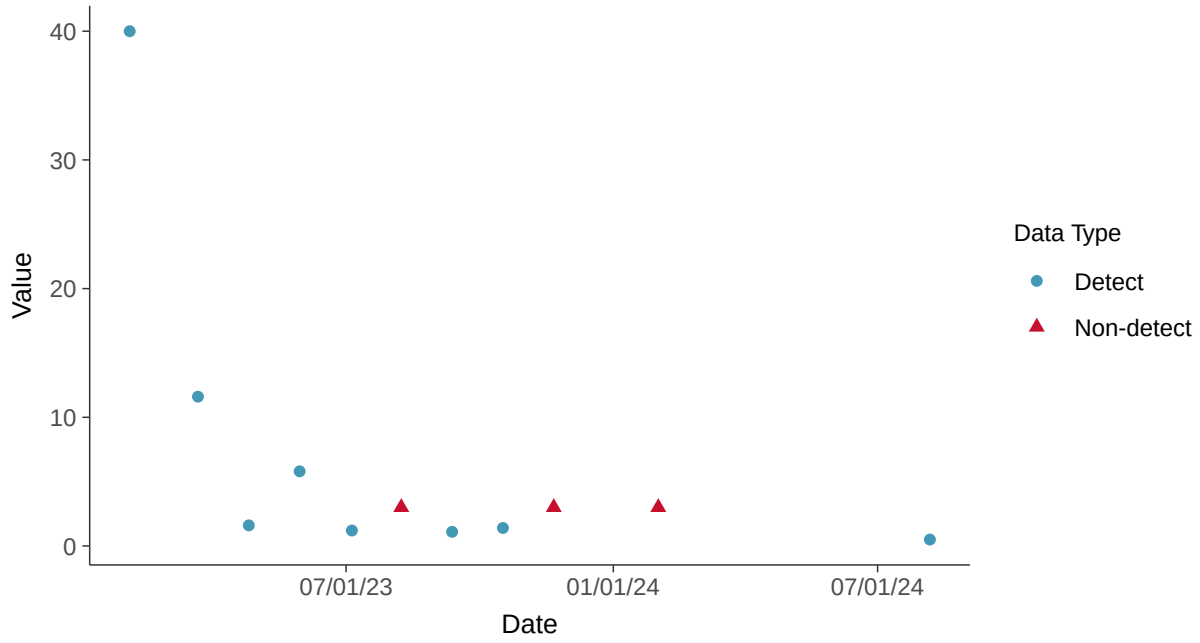


Other: Total Suspended Solids, MW-16C

ID: 16C_4_30

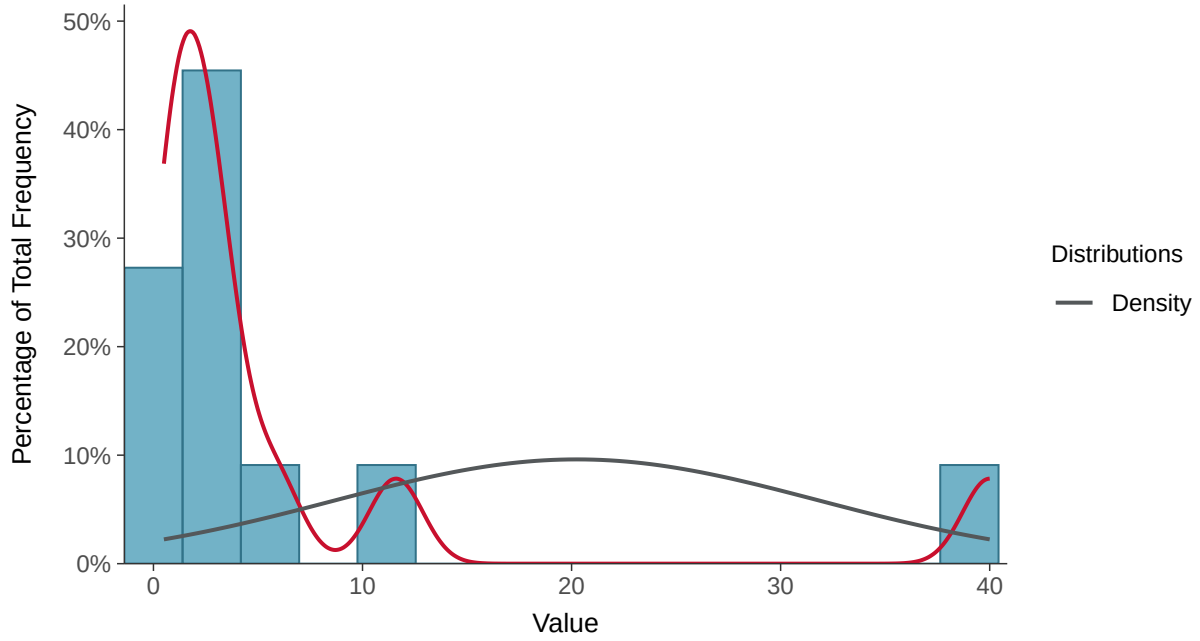
Scatter Plot

Total Suspended Solids, MW-16C (mg/L)



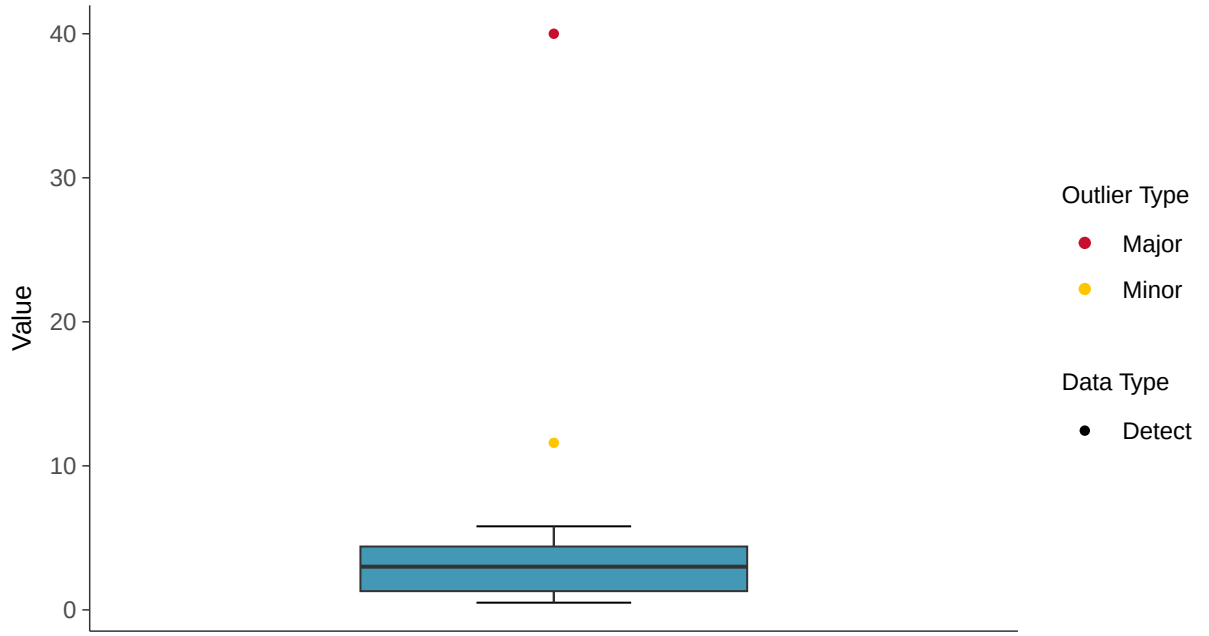
Histogram

Total Suspended Solids, MW-16C (mg/L)



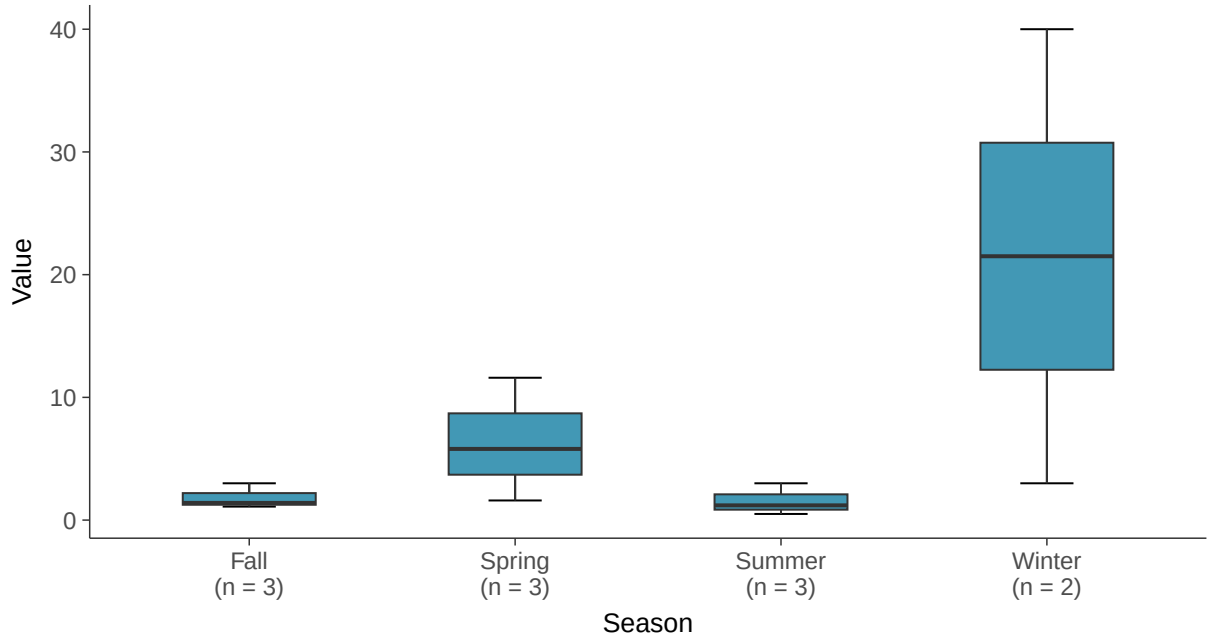
Boxplot

Total Suspended Solids, MW-16C (mg/L)



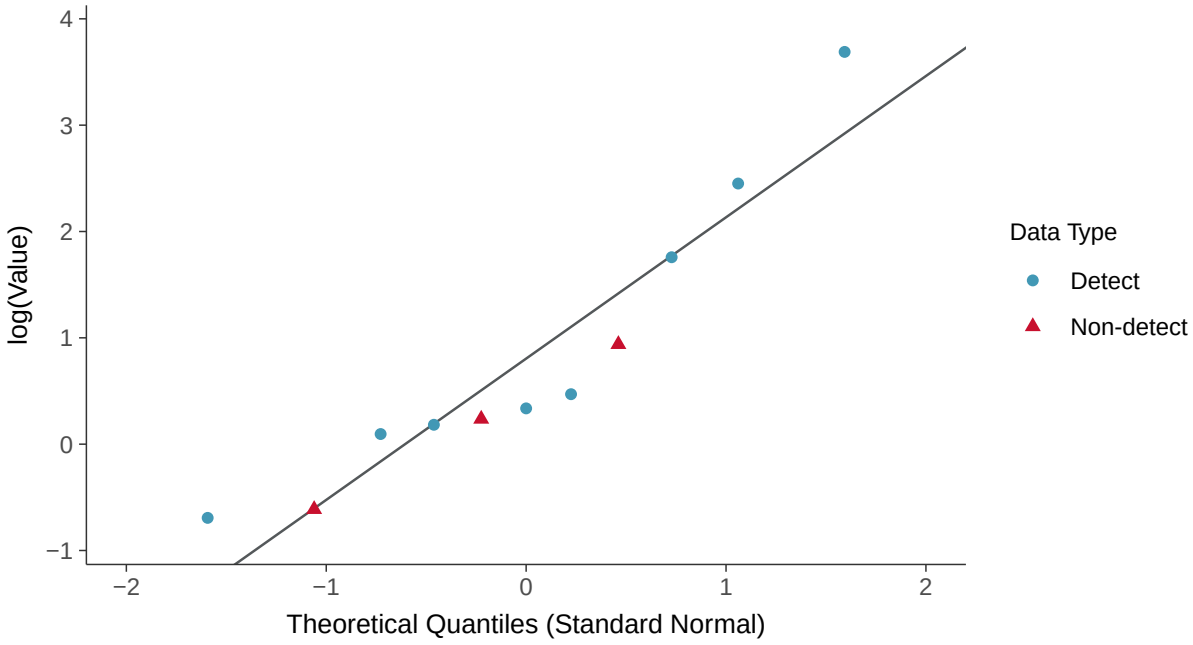
Boxplot by Season

Total Suspended Solids, MW-16C (mg/L)



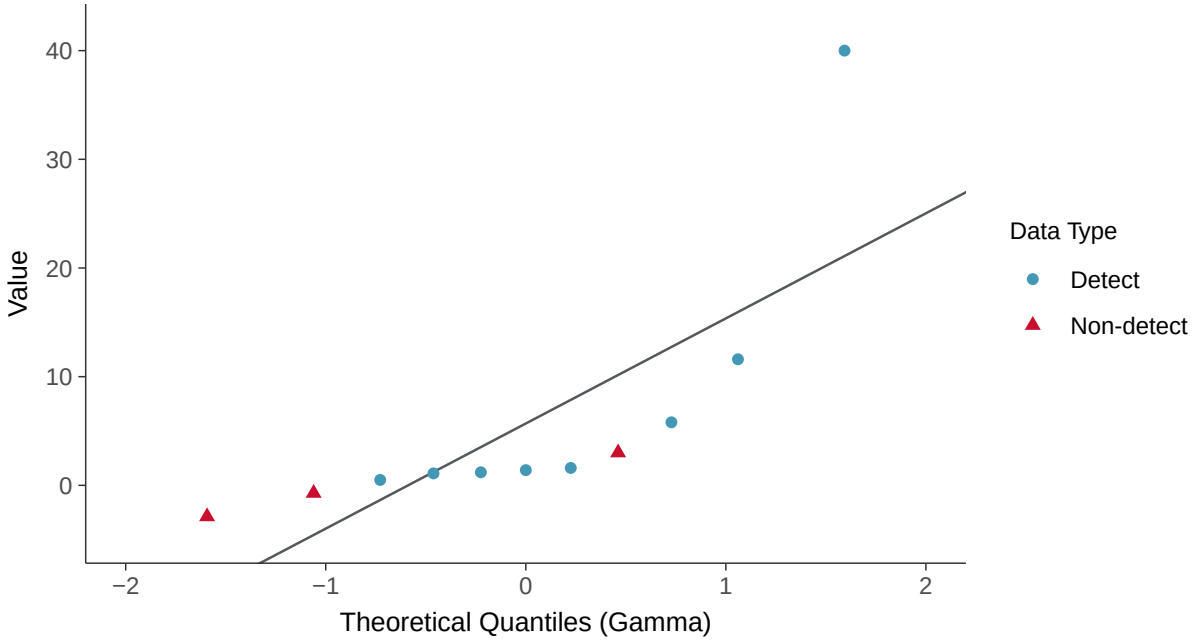
Lognormal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-16C (mg/L)



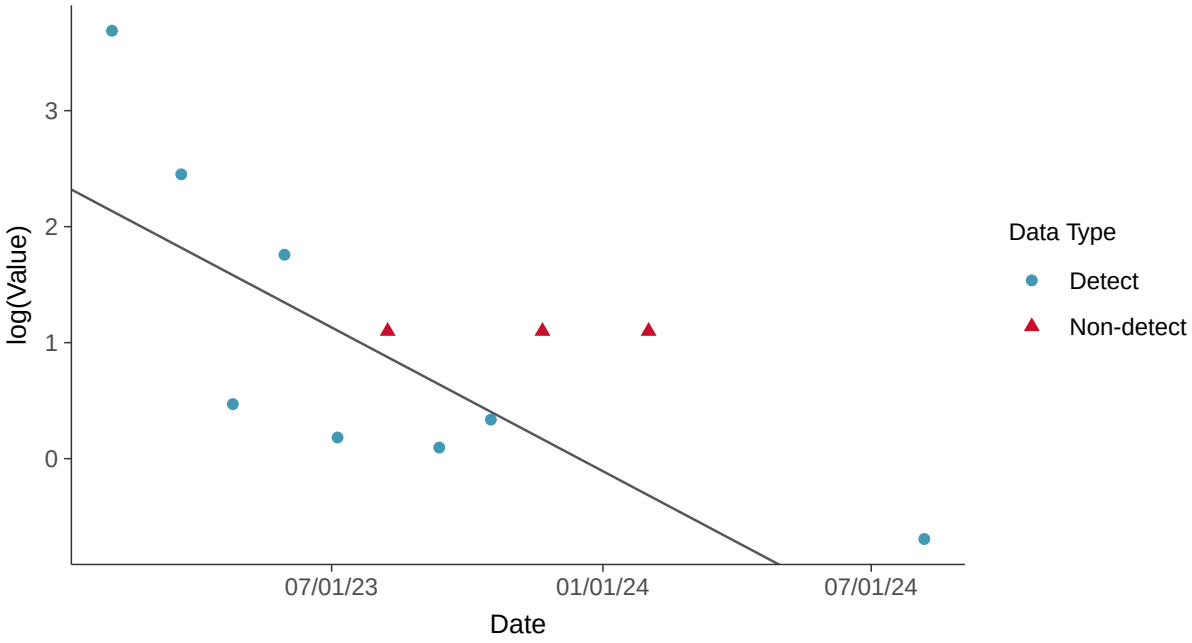
Gamma Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-16C (mg/L)



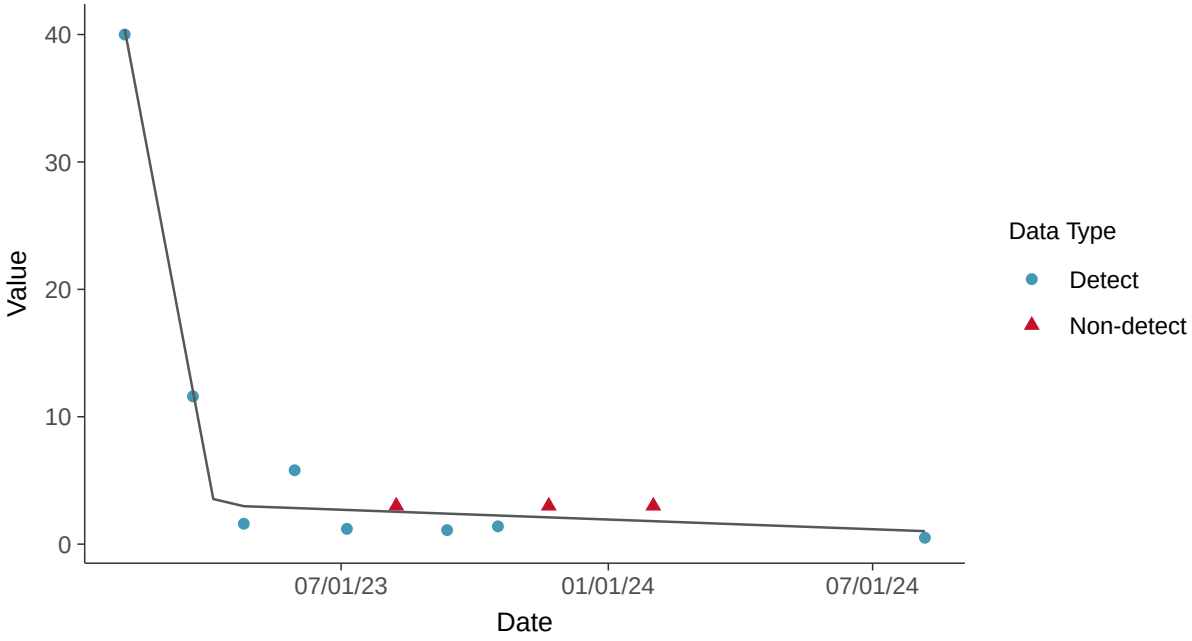
Trend Regression: Lognormal MLE

Total Suspended Solids, MW-16C (mg/L)



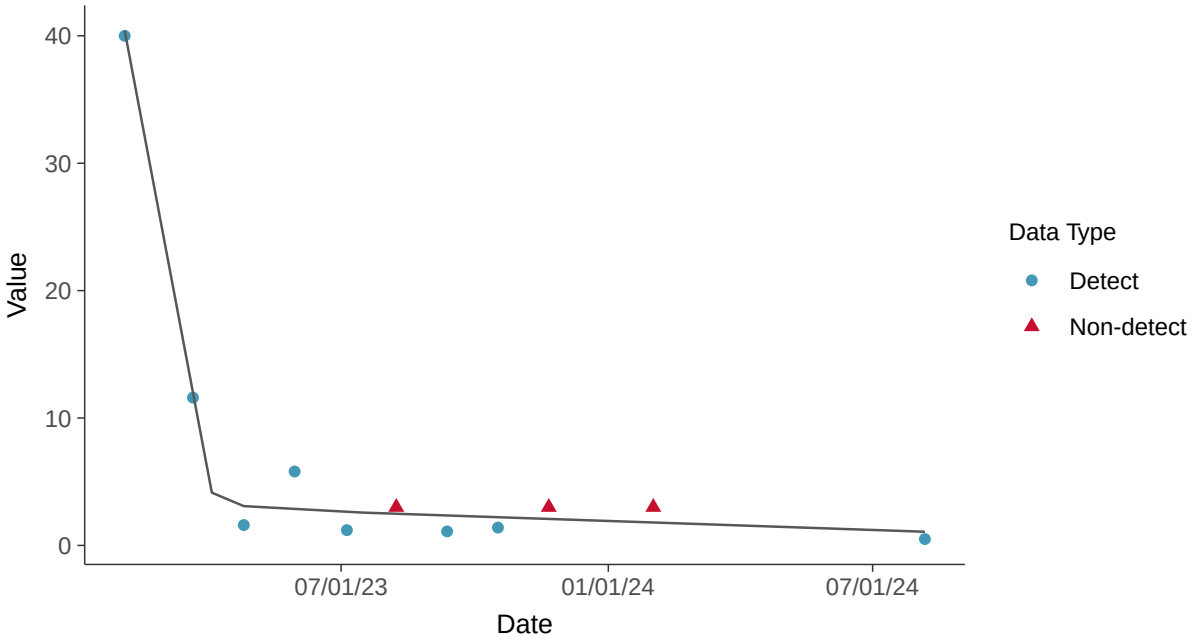
Trend Regression: Piecewise Linear-Linear

Total Suspended Solids, MW-16C (mg/L)



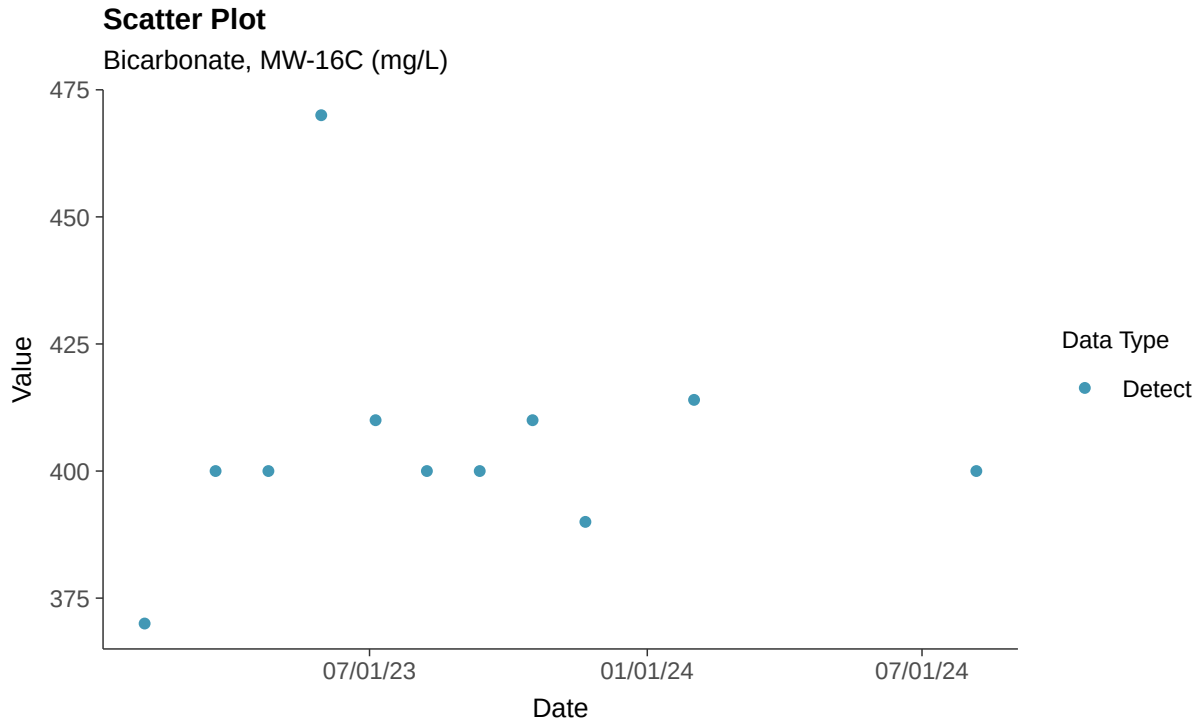
Trend Regression: Piecewise Linear-Linear-Linear

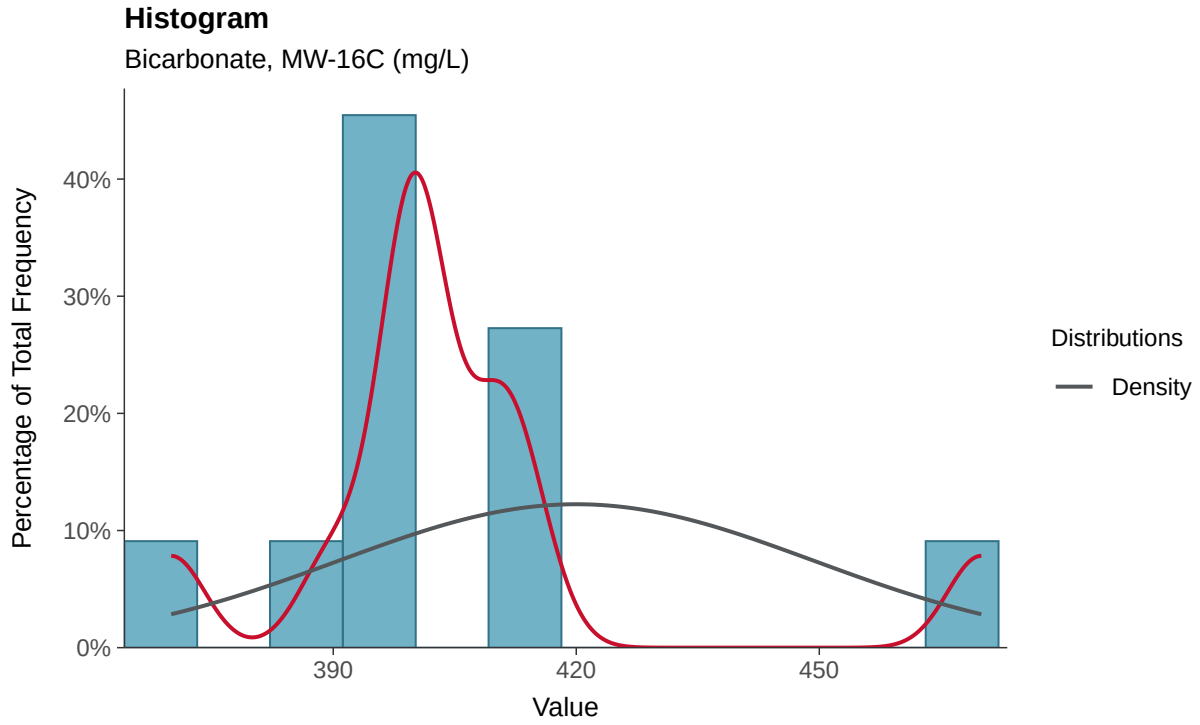
Total Suspended Solids, MW-16C (mg/L)



Other: Bicarbonate, MW-16C

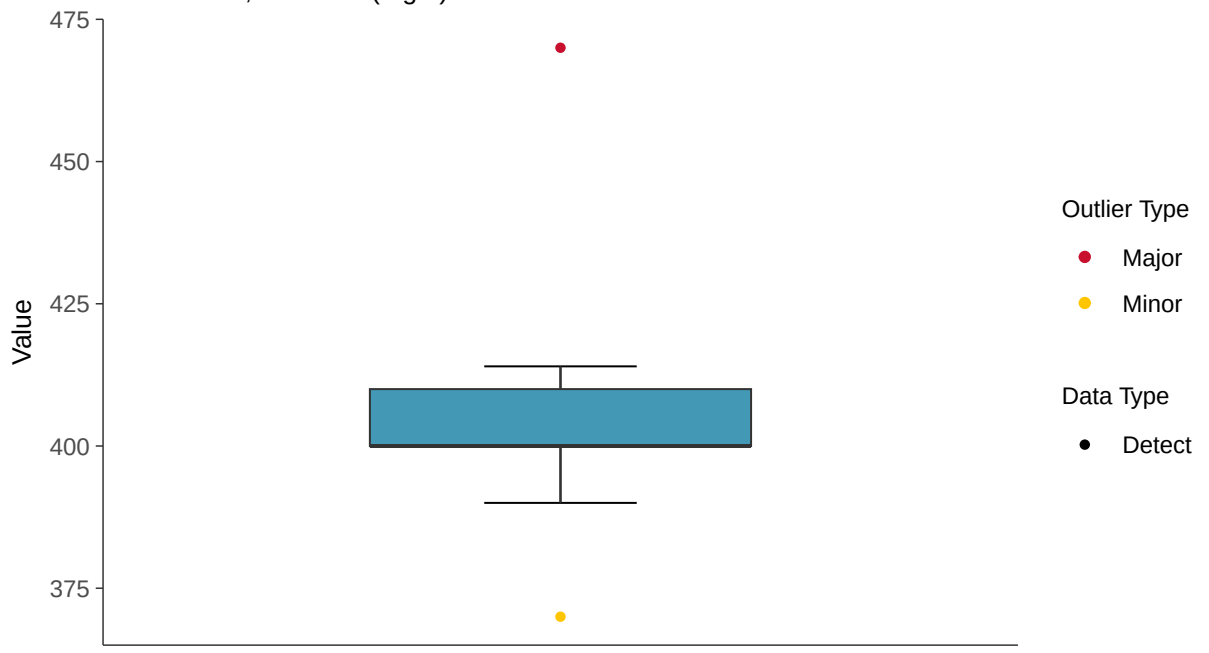
ID: 16C_4_31





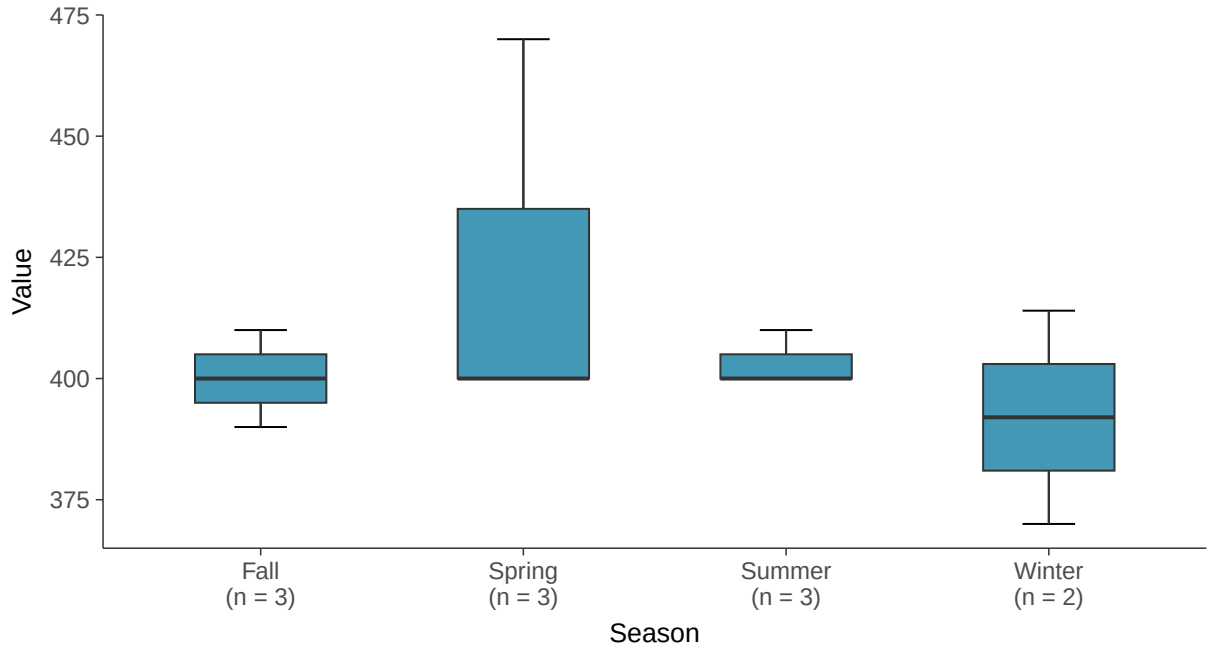
Boxplot

Bicarbonate, MW-16C (mg/L)



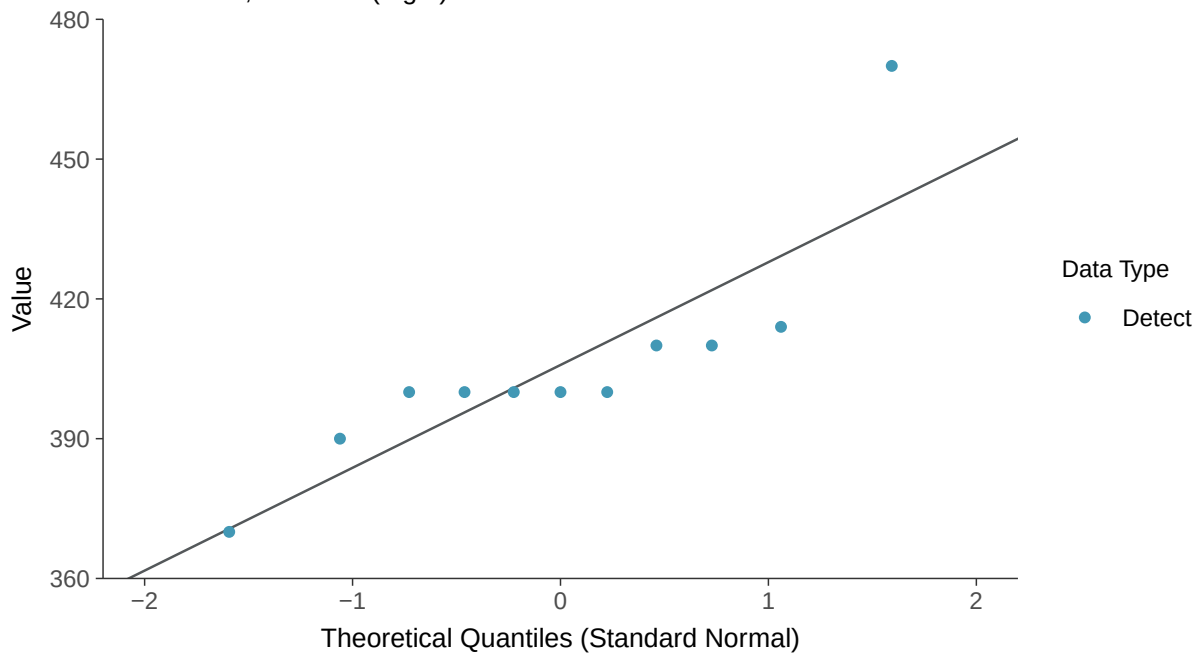
Boxplot by Season

Bicarbonate, MW-16C (mg/L)



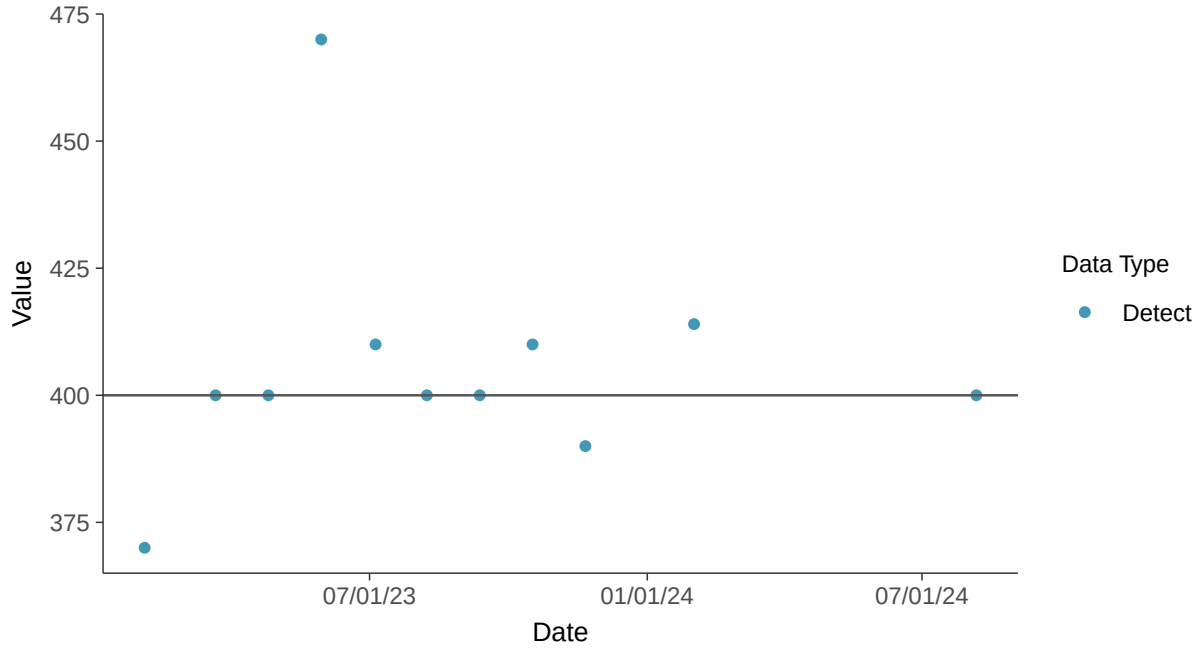
Normal Q-Q plot

Bicarbonate, MW-16C (mg/L)



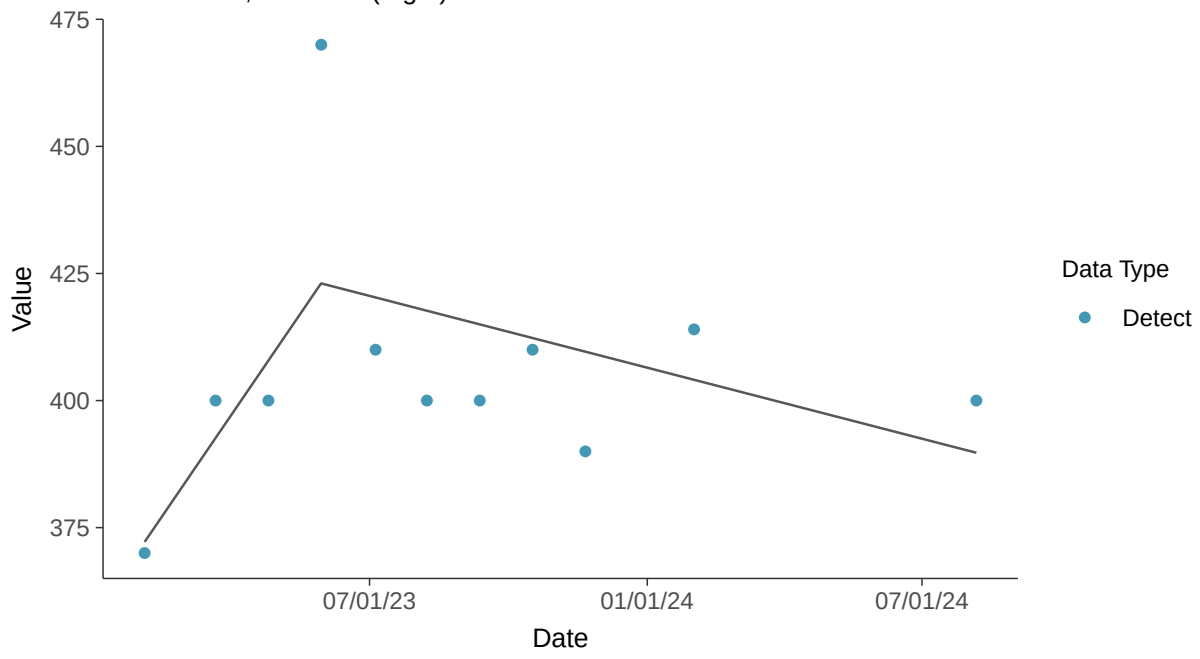
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Bicarbonate, MW-16C (mg/L)



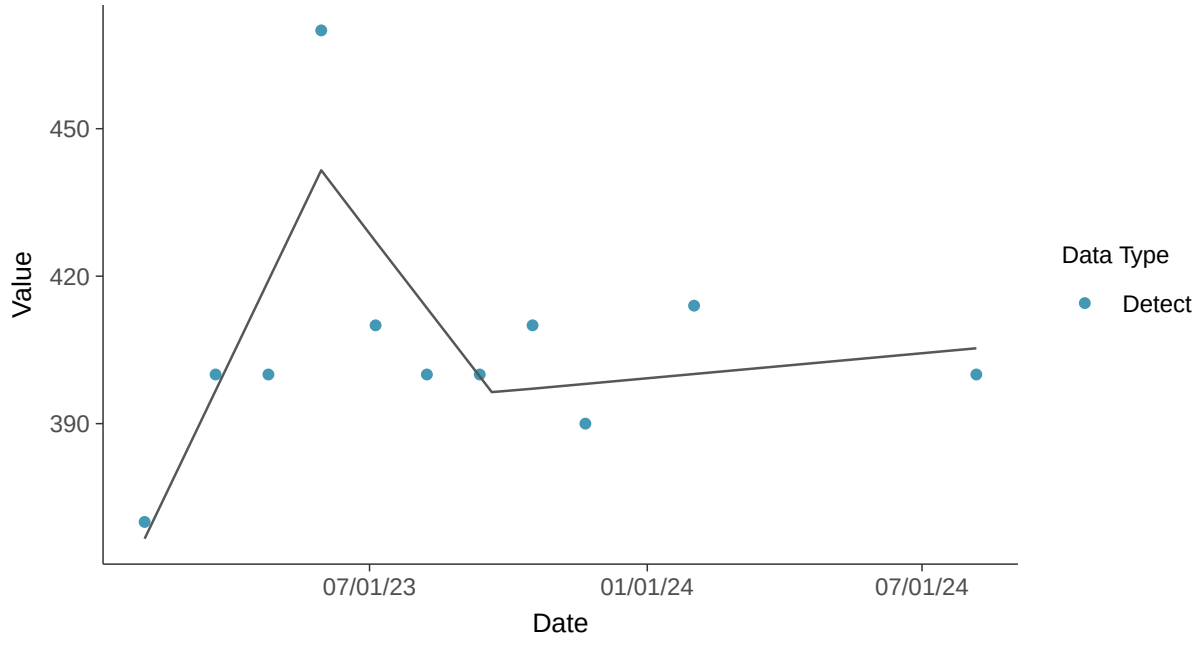
Trend Regression: Piecewise Linear-Linear

Bicarbonate, MW-16C (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Bicarbonate, MW-16C (mg/L)

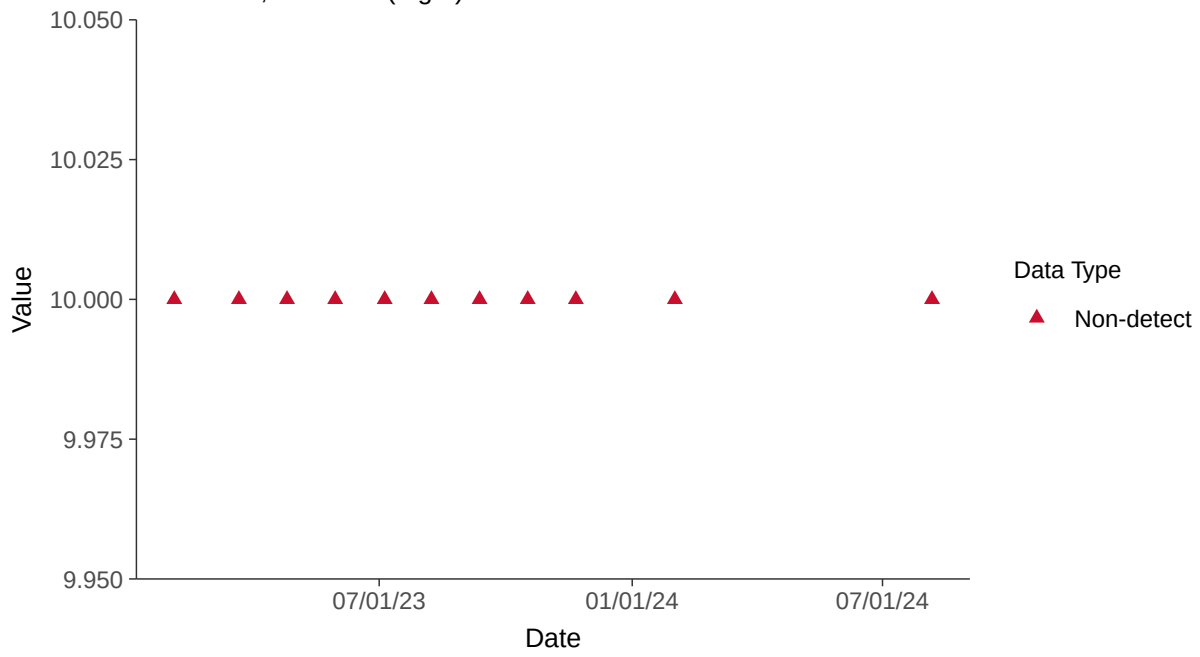


Other: Carbonate, MW-16C

ID: 16C_4_32

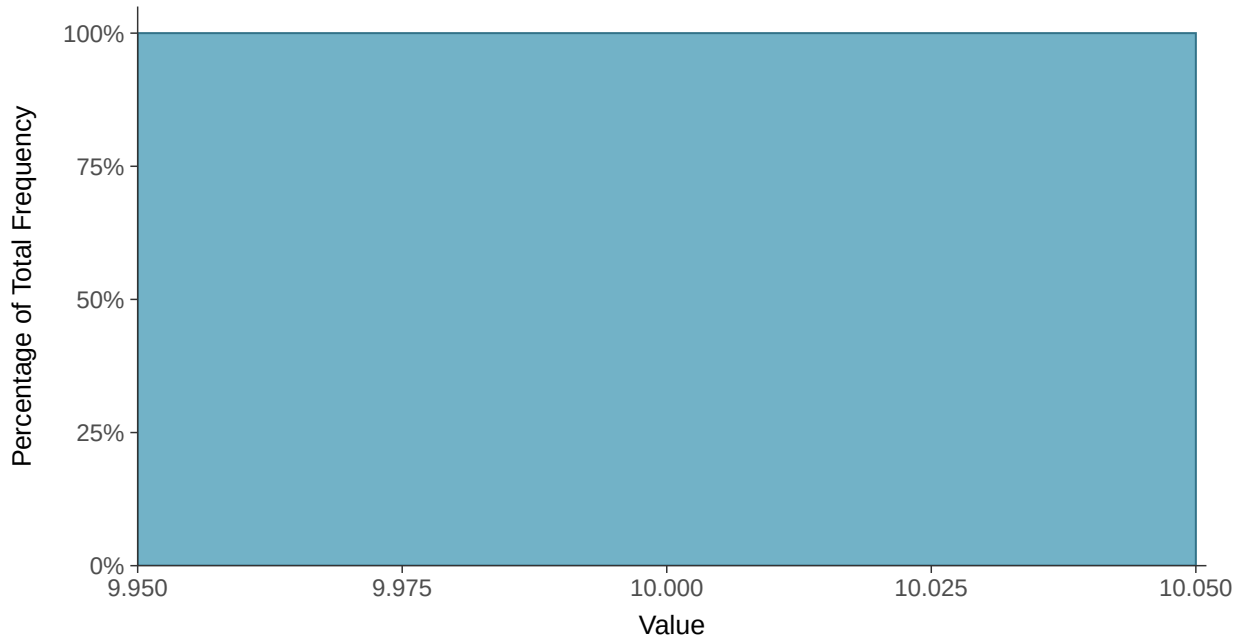
Scatter Plot

Carbonate, MW-16C (mg/L)



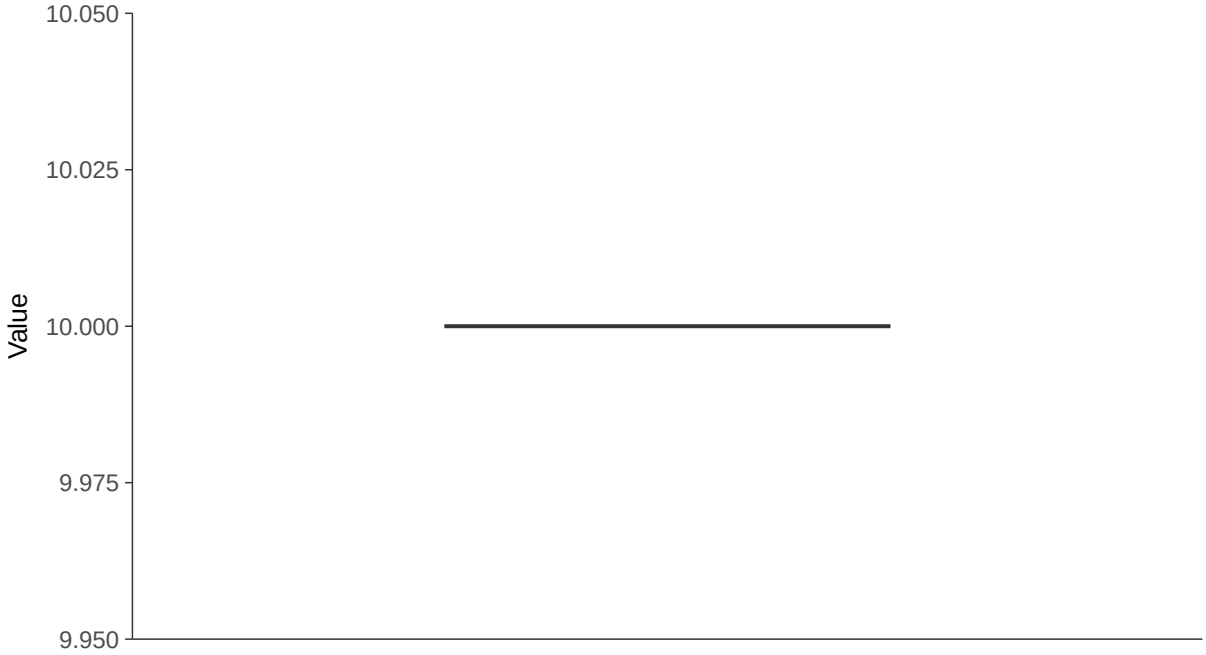
Histogram

Carbonate, MW-16C (mg/L)



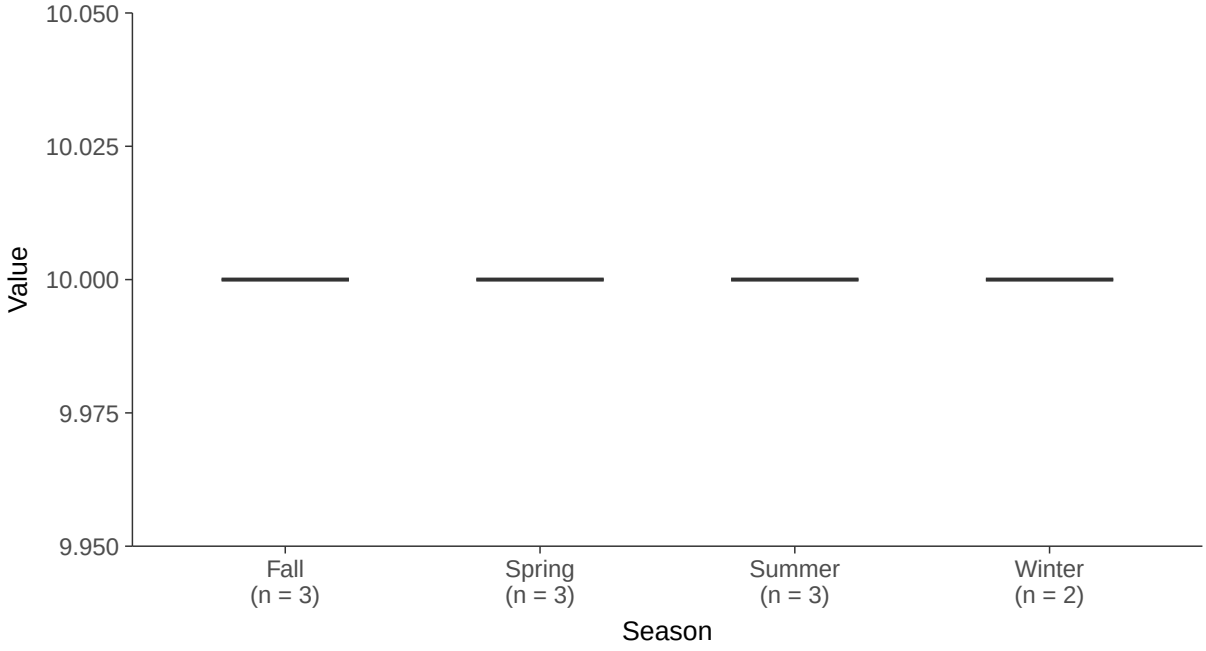
Boxplot

Carbonate, MW-16C (mg/L)



Boxplot by Season

Carbonate, MW-16C (mg/L)

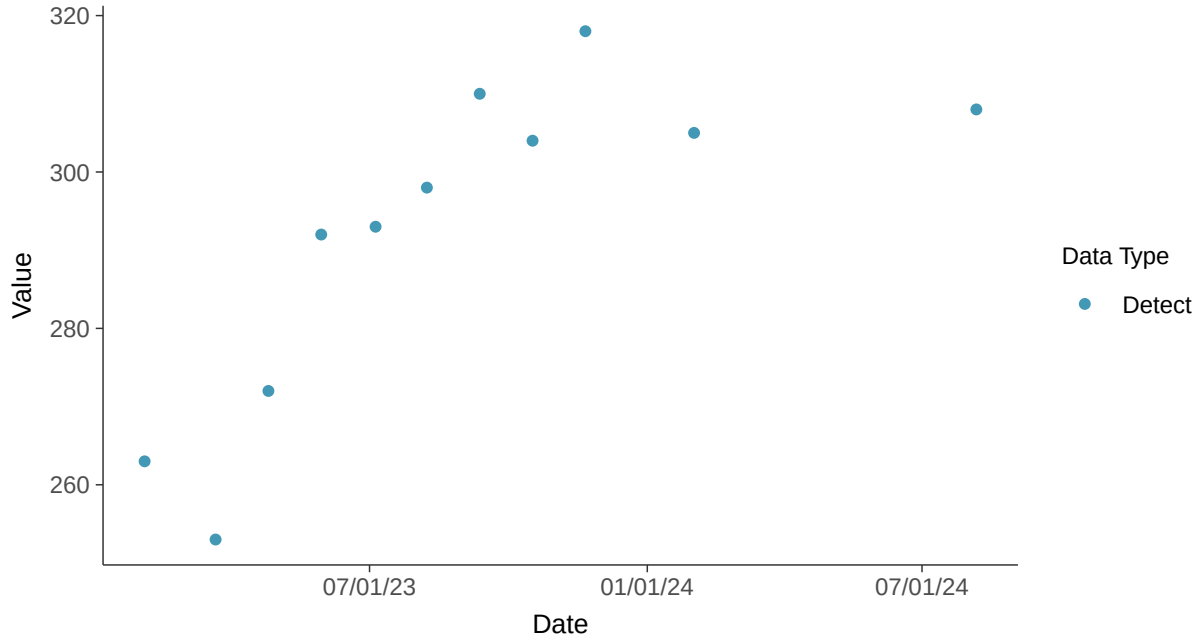


Other: Hardness, MW-16C

ID: 16C_4_33

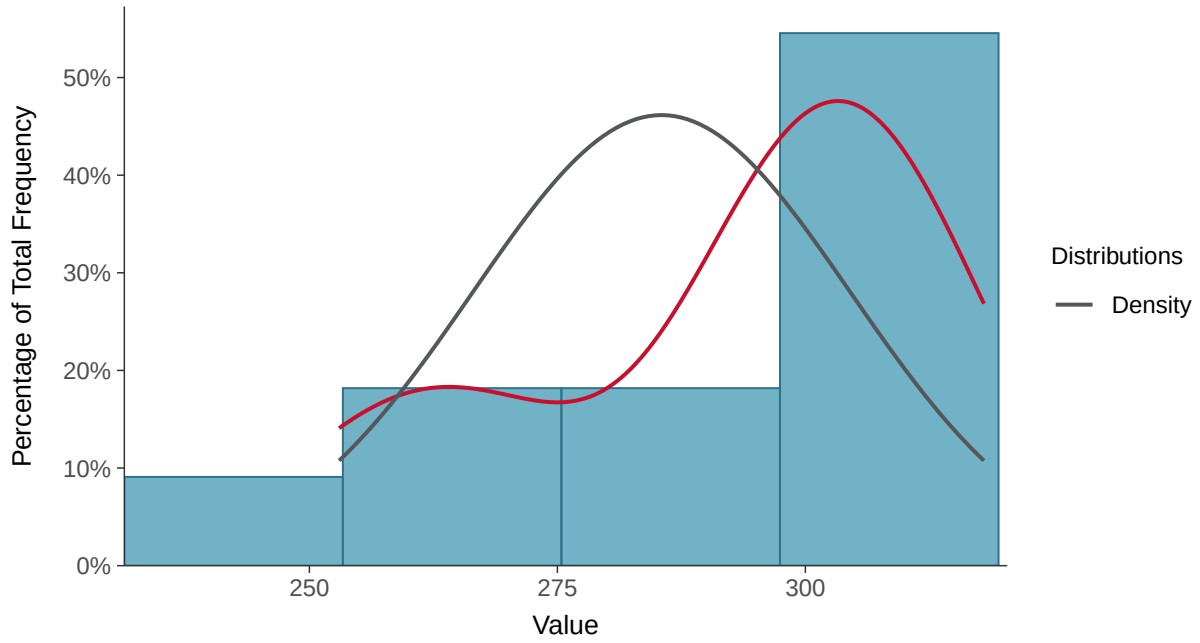
Scatter Plot

Hardness, MW-16C (mg/L)



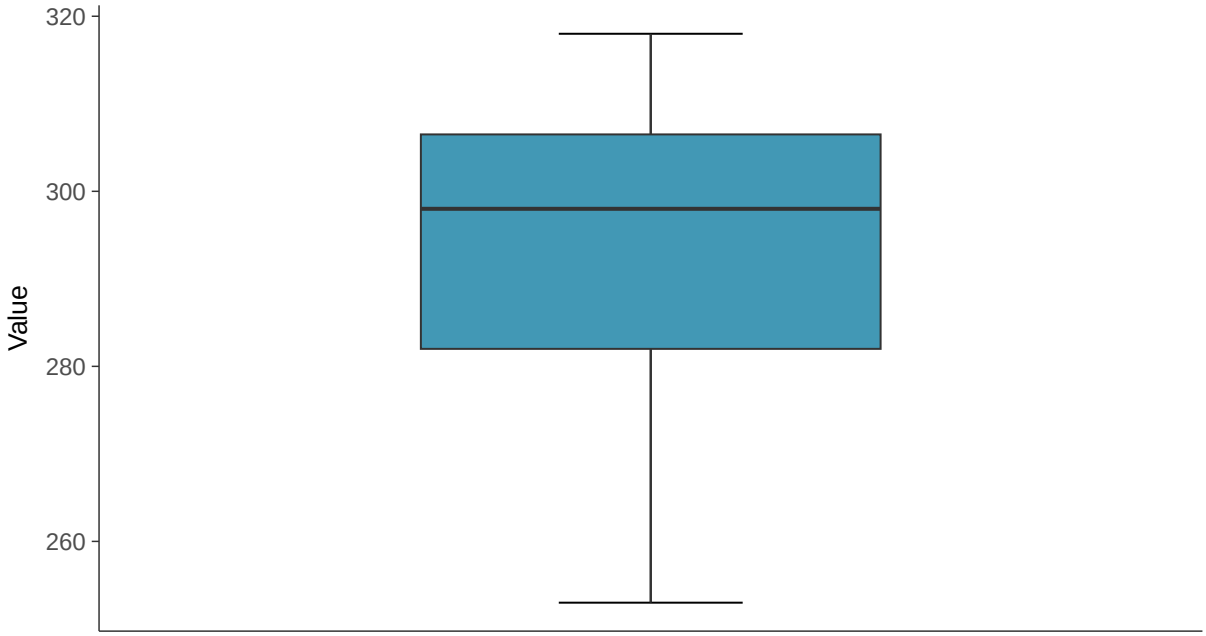
Histogram

Hardness, MW-16C (mg/L)



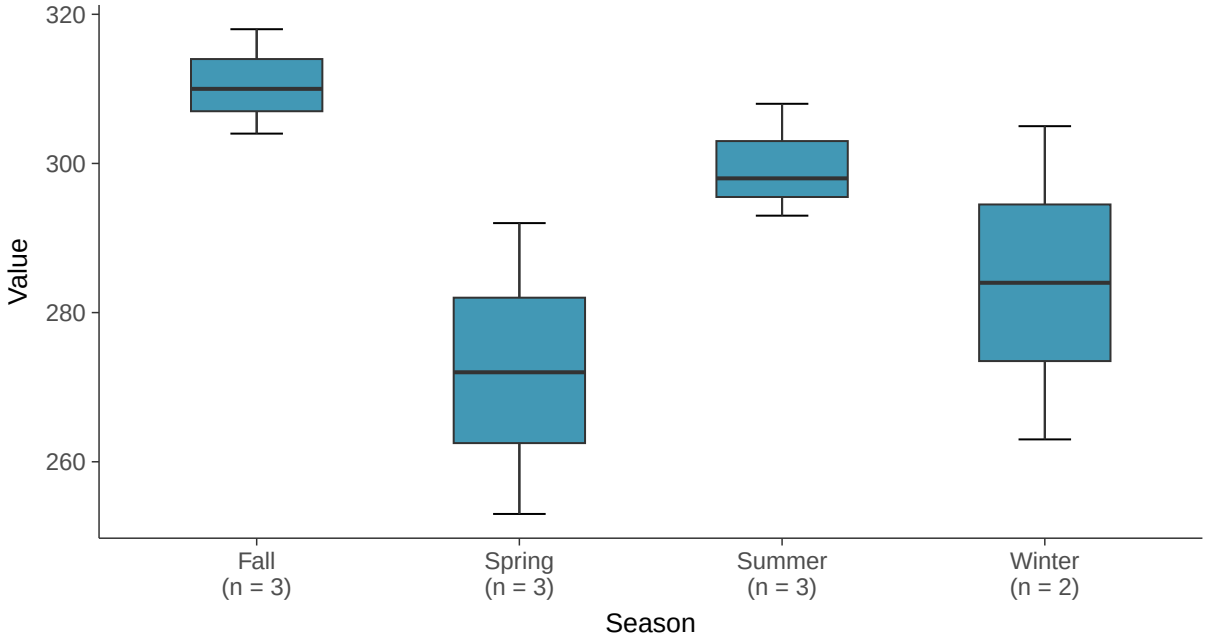
Boxplot

Hardness, MW-16C (mg/L)



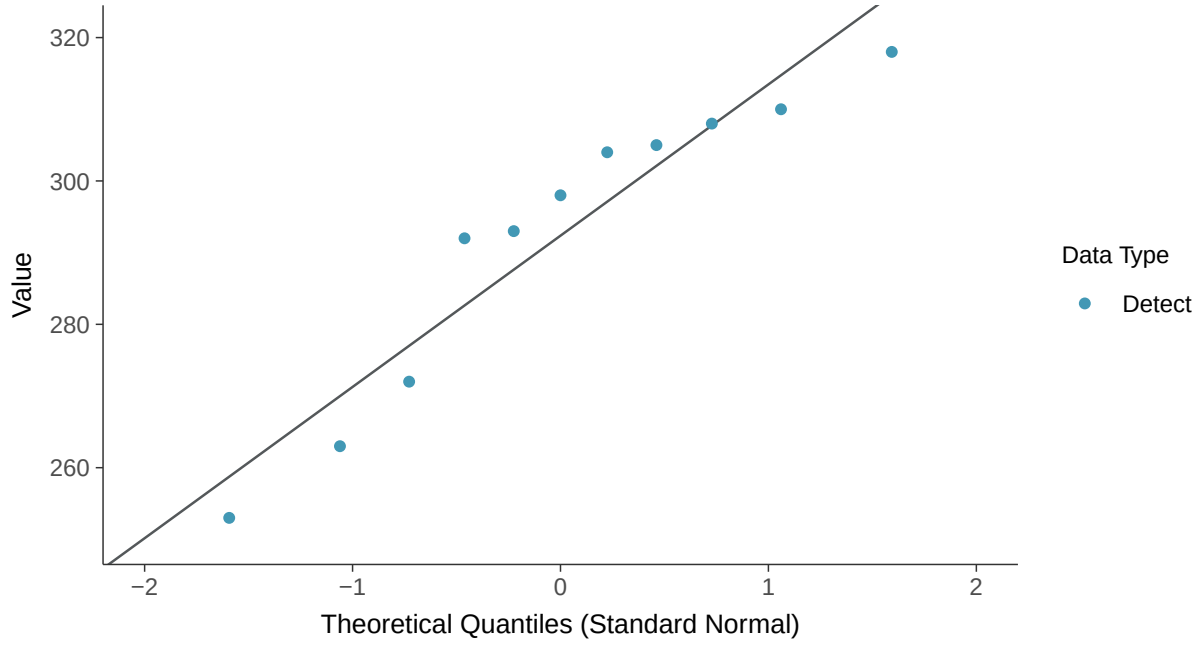
Boxplot by Season

Hardness, MW-16C (mg/L)



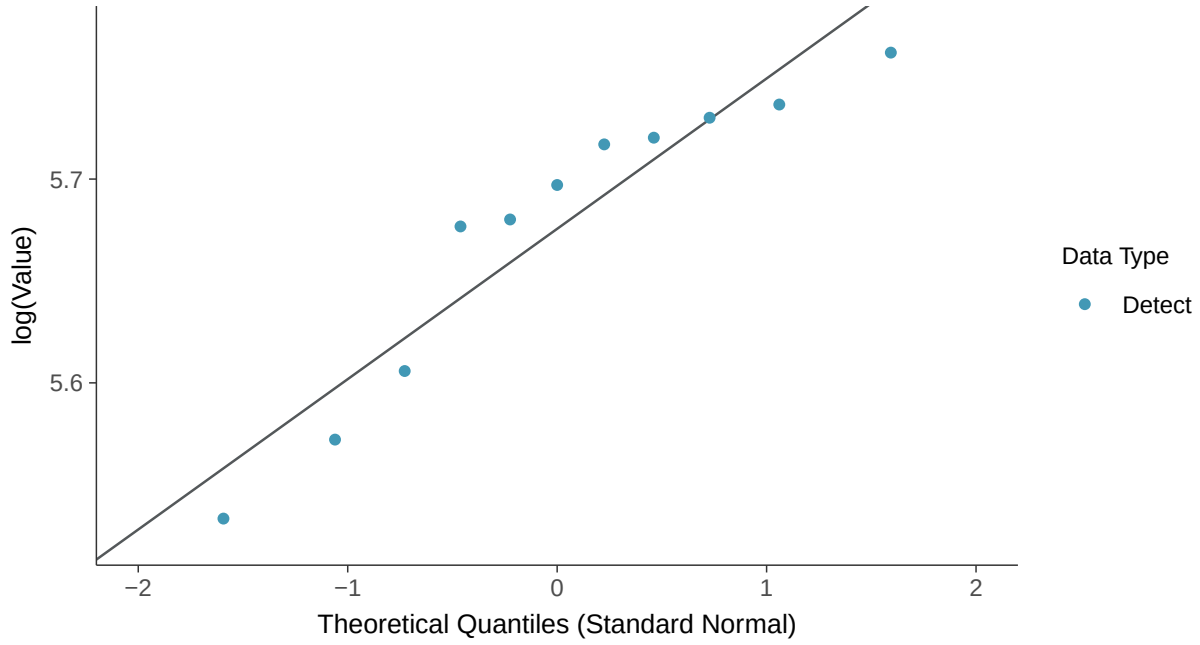
Normal Q-Q plot

Hardness, MW-16C (mg/L)



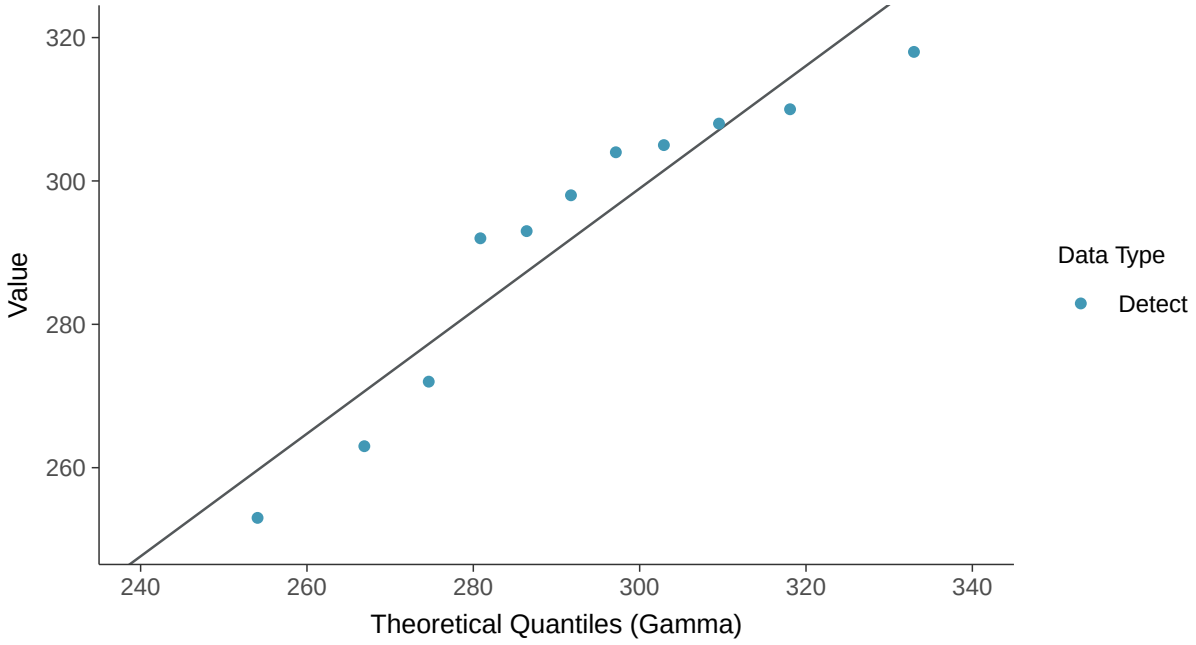
Lognormal Q-Q plot

Hardness, MW-16C (mg/L)



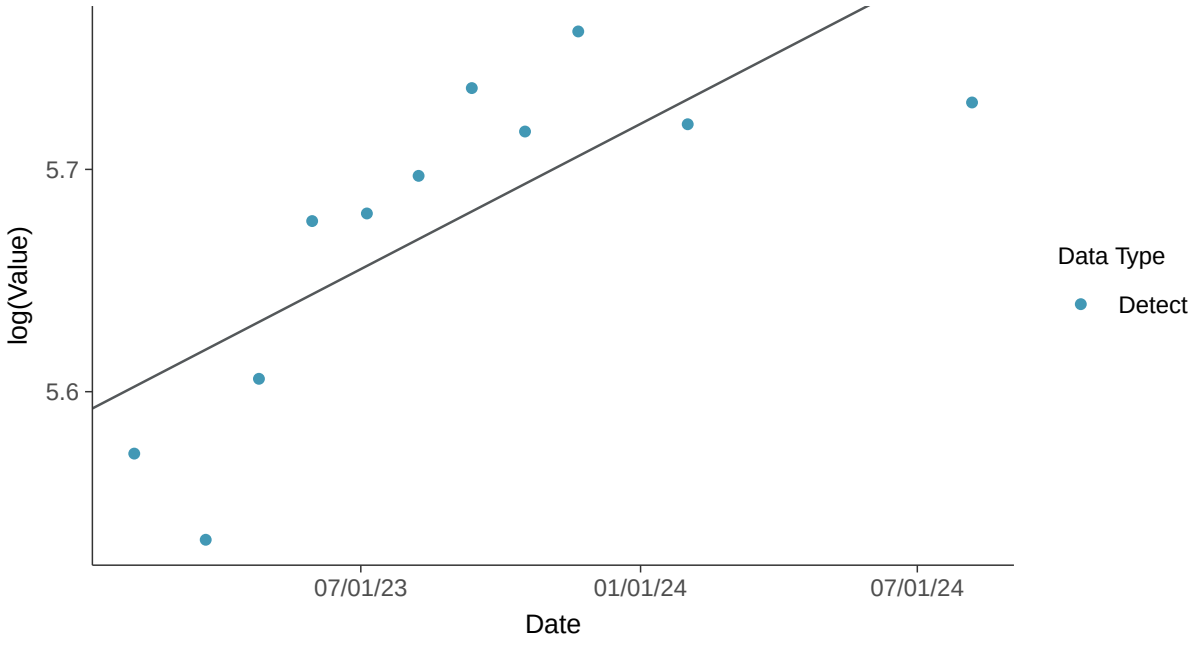
Gamma Q-Q plot

Hardness, MW-16C (mg/L)



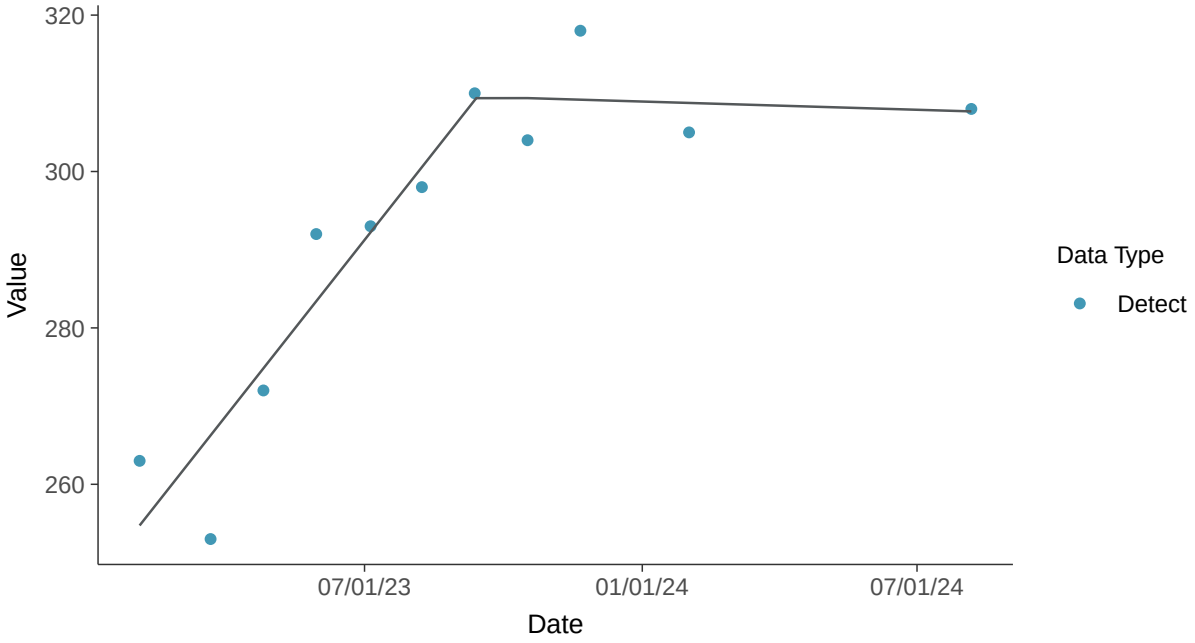
Trend Regression: Lognormal MLE

Hardness, MW-16C (mg/L)



Trend Regression: Piecewise Linear-Linear

Hardness, MW-16C (mg/L)

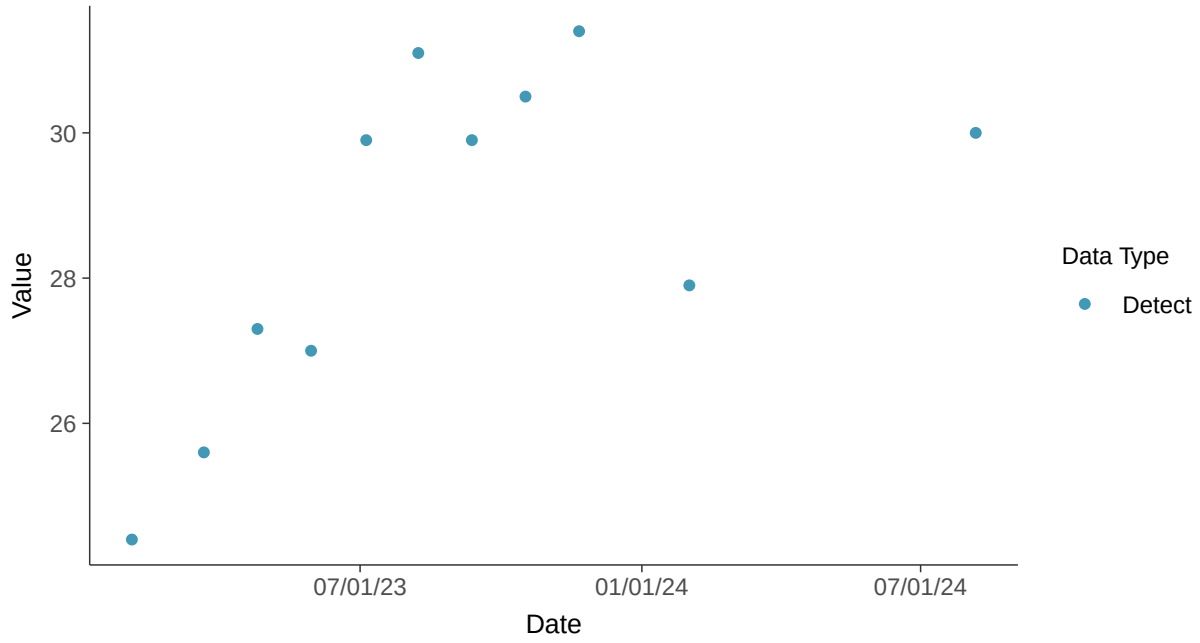


Other: Magnesium, MW-16C

ID: 16C_4_34

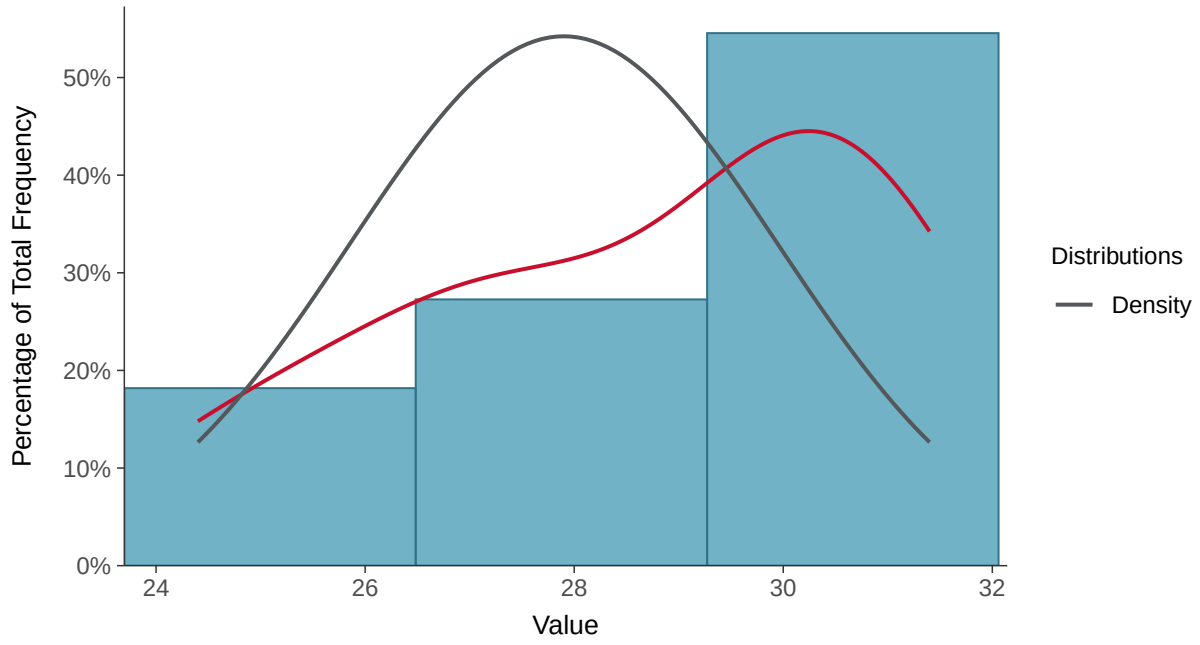
Scatter Plot

Magnesium, MW-16C (mg/L)



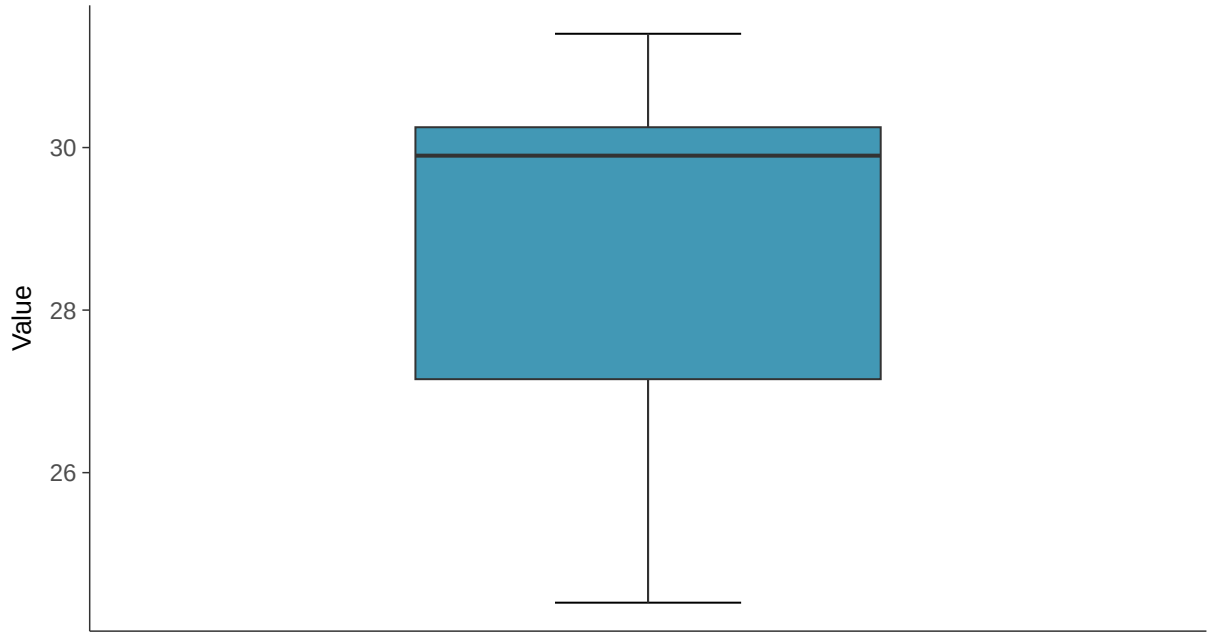
Histogram

Magnesium, MW-16C (mg/L)



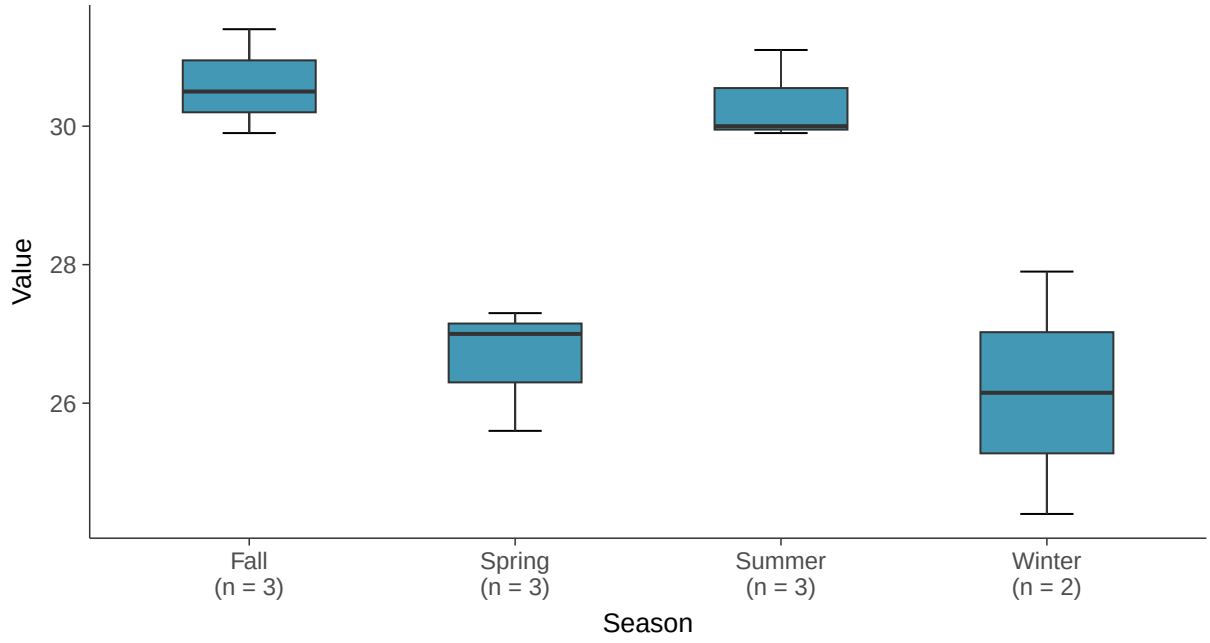
Boxplot

Magnesium, MW-16C (mg/L)



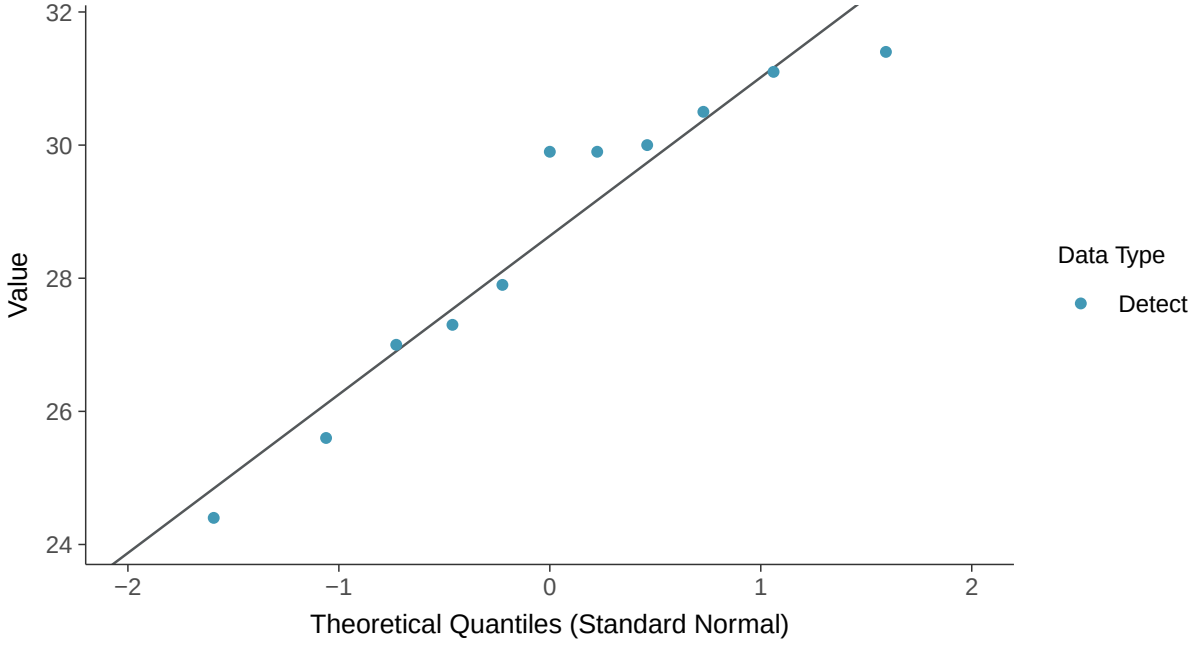
Boxplot by Season

Magnesium, MW-16C (mg/L)



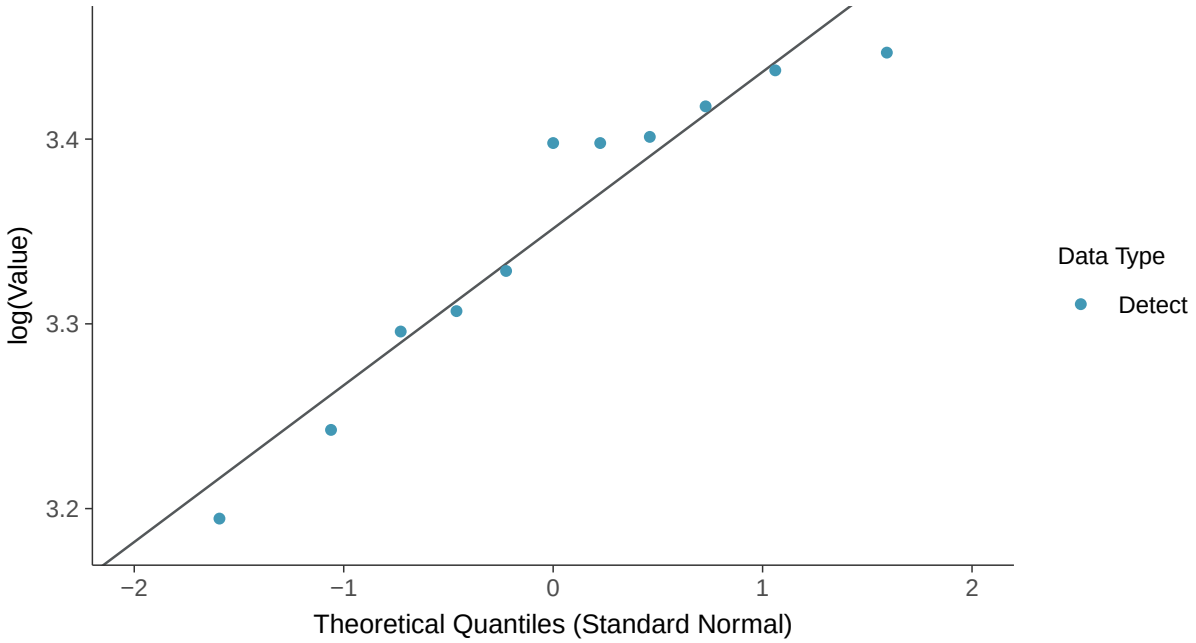
Normal Q-Q plot

Magnesium, MW-16C (mg/L)



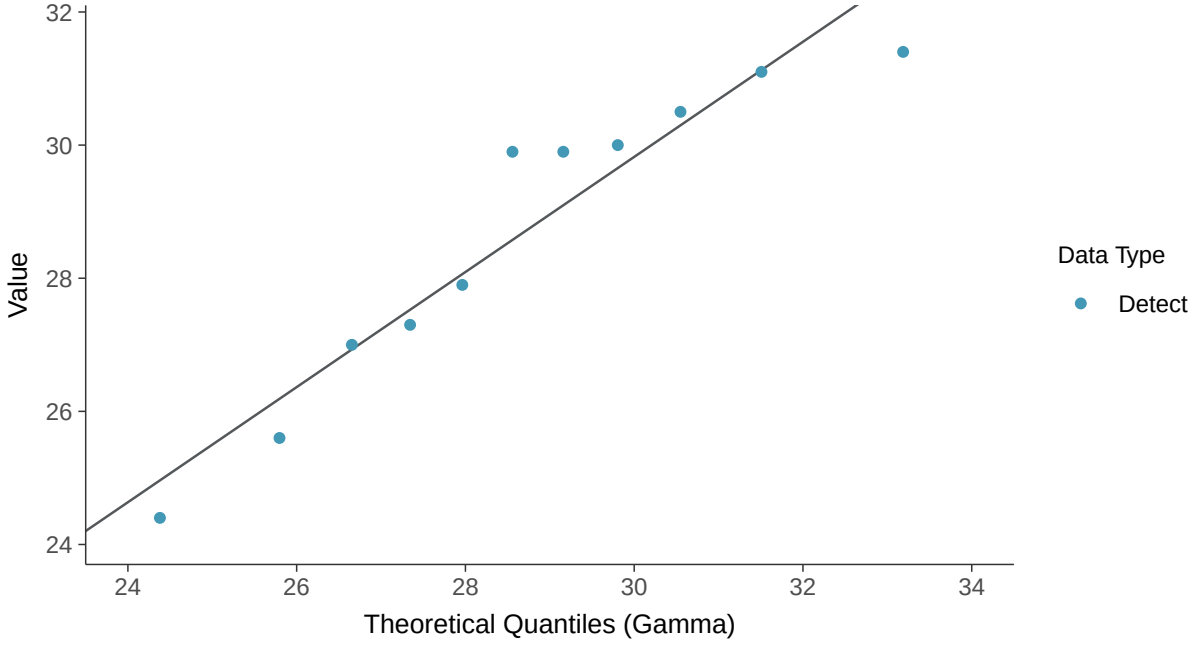
Lognormal Q-Q plot

Magnesium, MW-16C (mg/L)



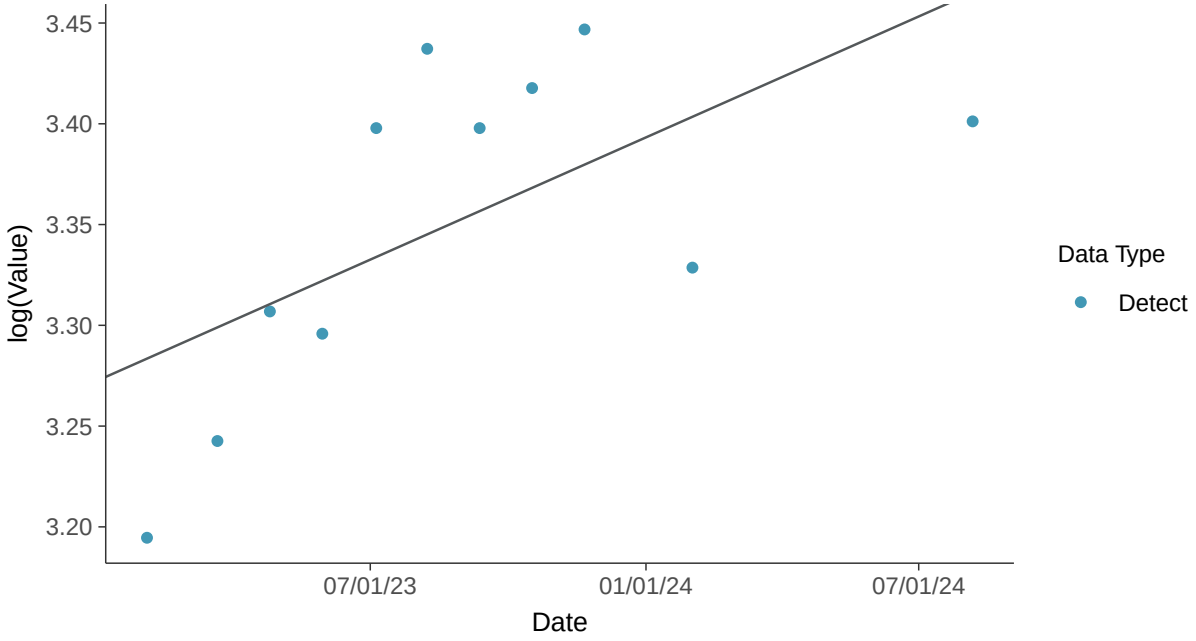
Gamma Q-Q plot

Magnesium, MW-16C (mg/L)



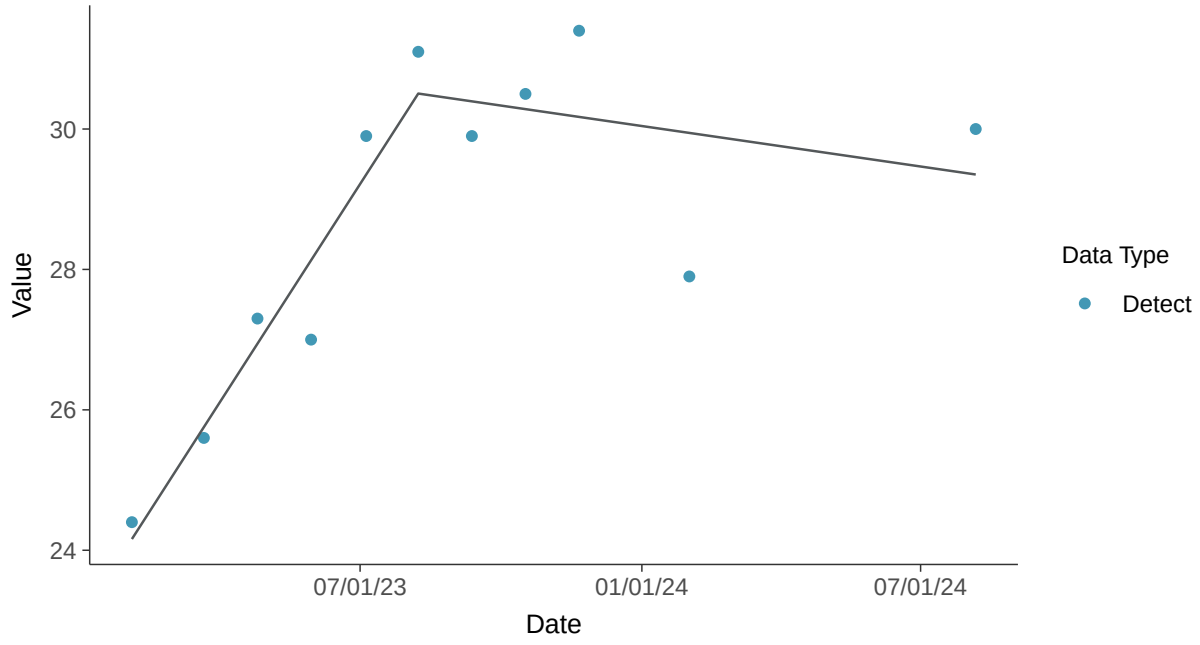
Trend Regression: Lognormal MLE

Magnesium, MW-16C (mg/L)



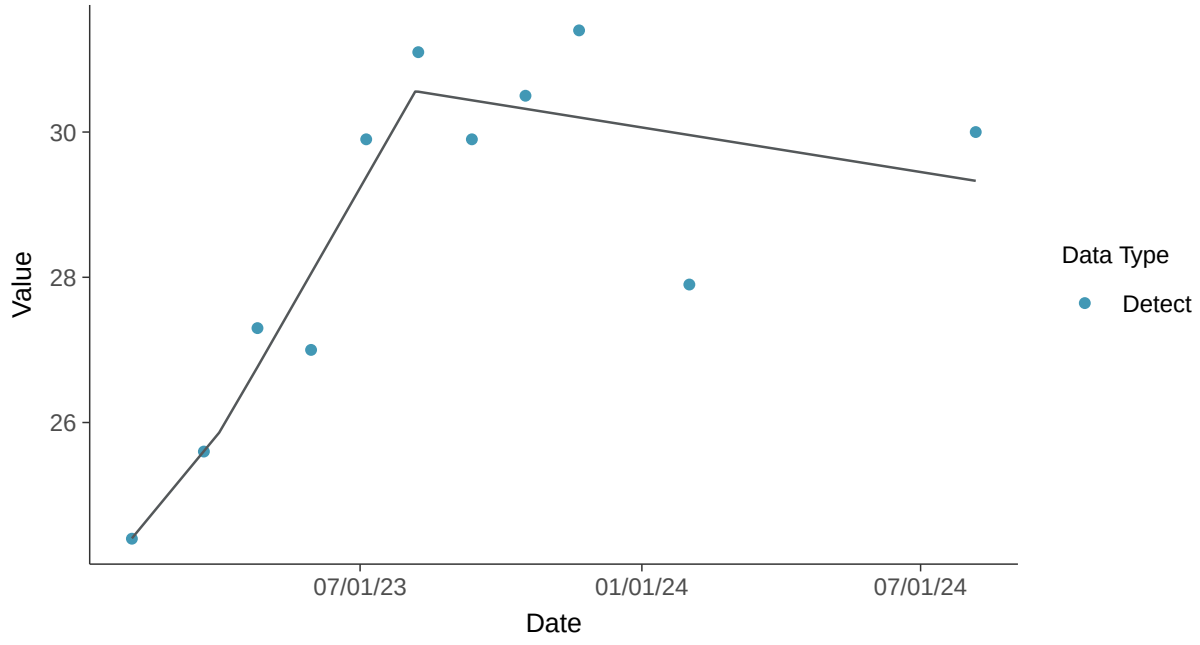
Trend Regression: Piecewise Linear-Linear

Magnesium, MW-16C (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Magnesium, MW-16C (mg/L)

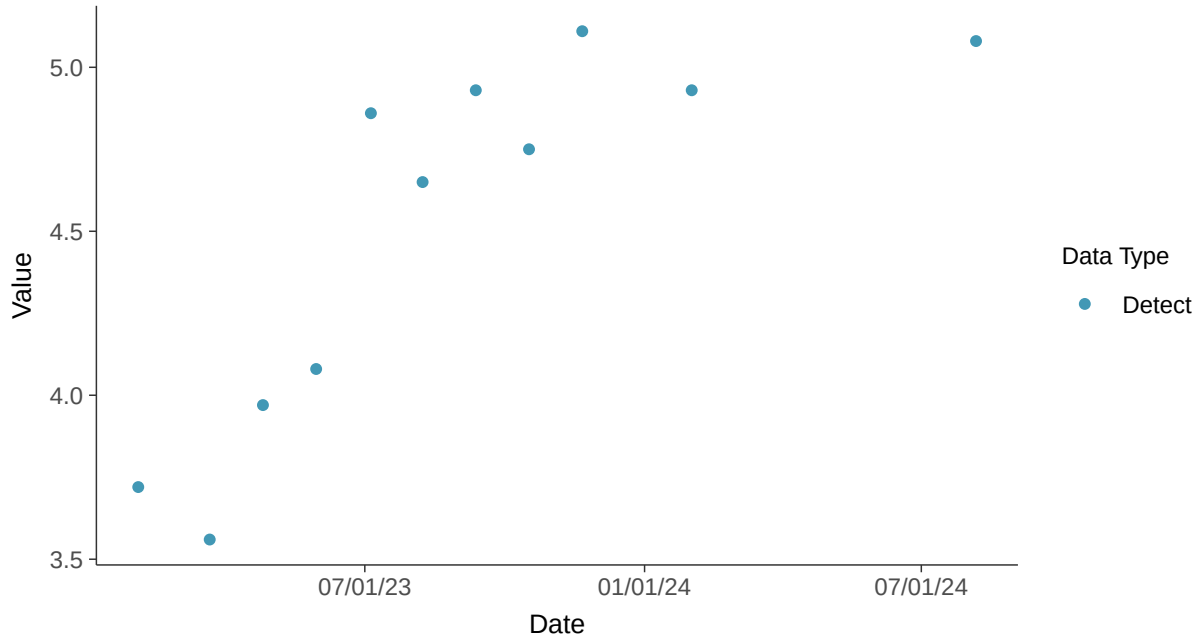


Other: Potassium, MW-16C

ID: 16C_4_35

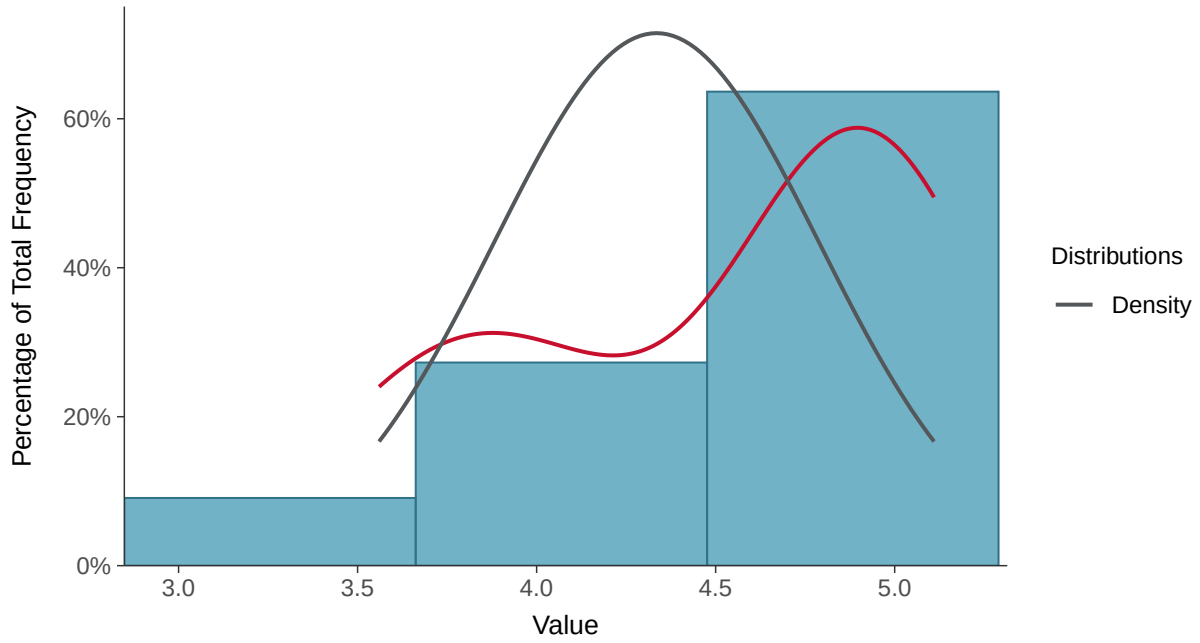
Scatter Plot

Potassium, MW-16C (mg/L)



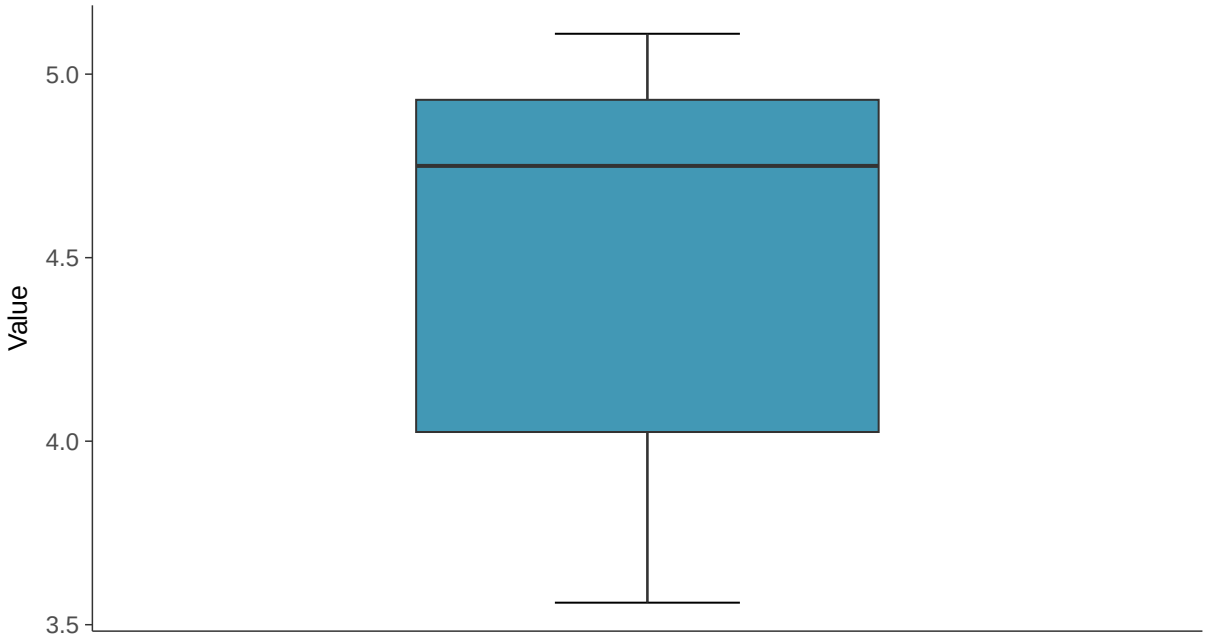
Histogram

Potassium, MW-16C (mg/L)



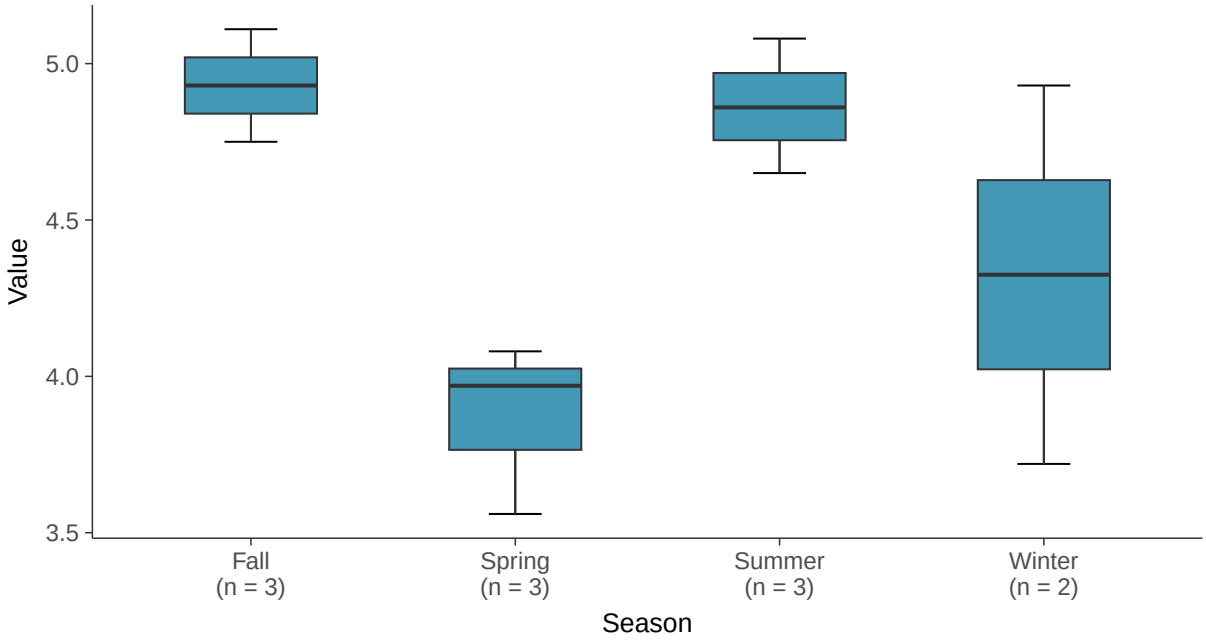
Boxplot

Potassium, MW-16C (mg/L)



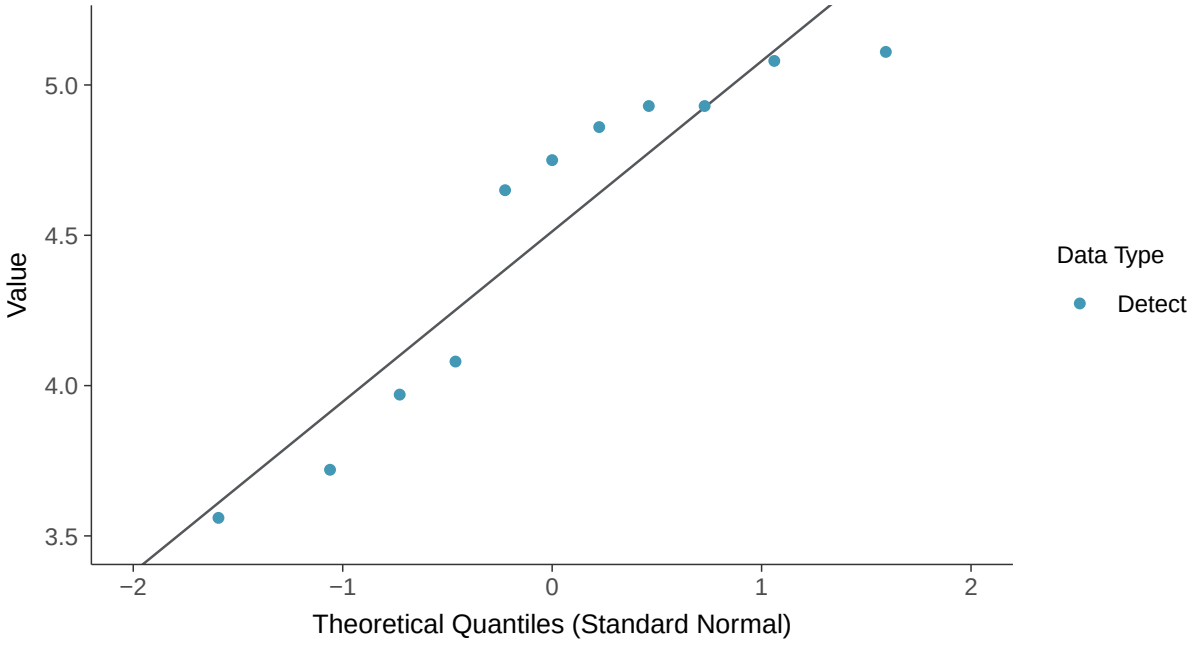
Boxplot by Season

Potassium, MW-16C (mg/L)



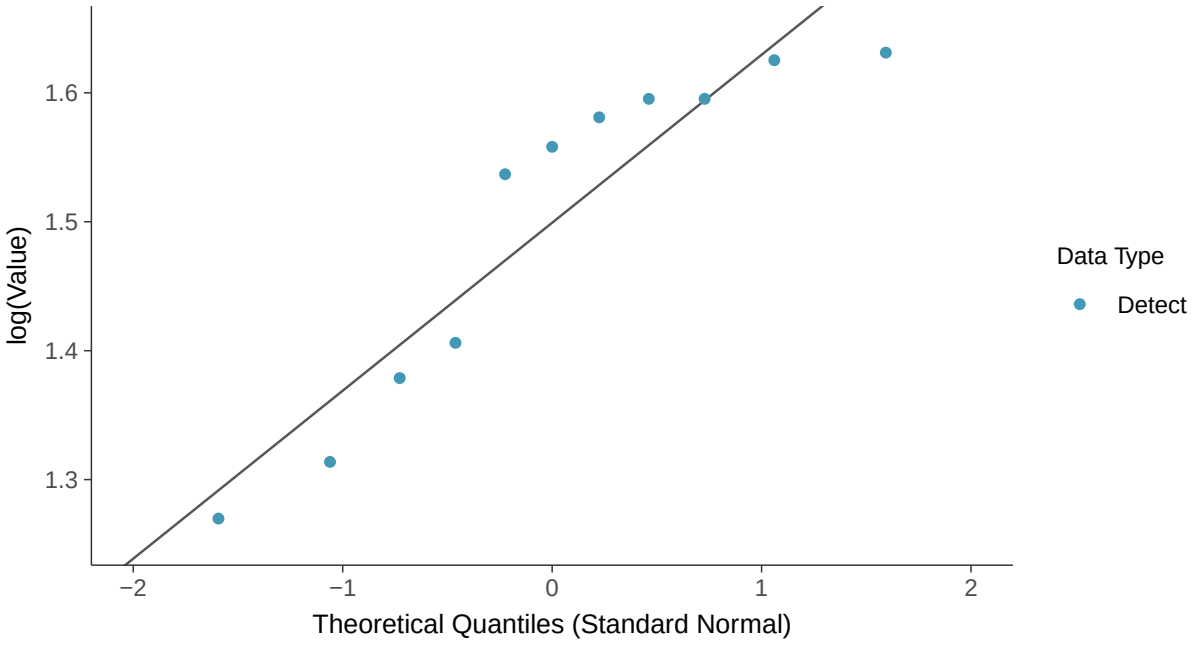
Normal Q-Q plot

Potassium, MW-16C (mg/L)



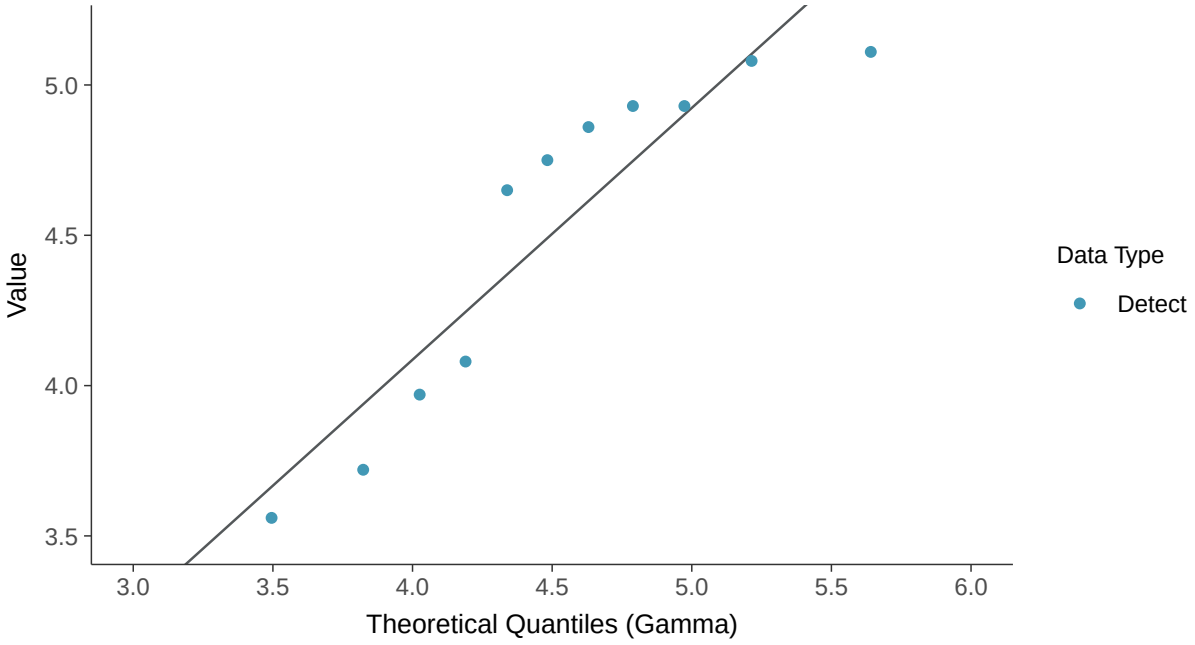
Lognormal Q-Q plot

Potassium, MW-16C (mg/L)



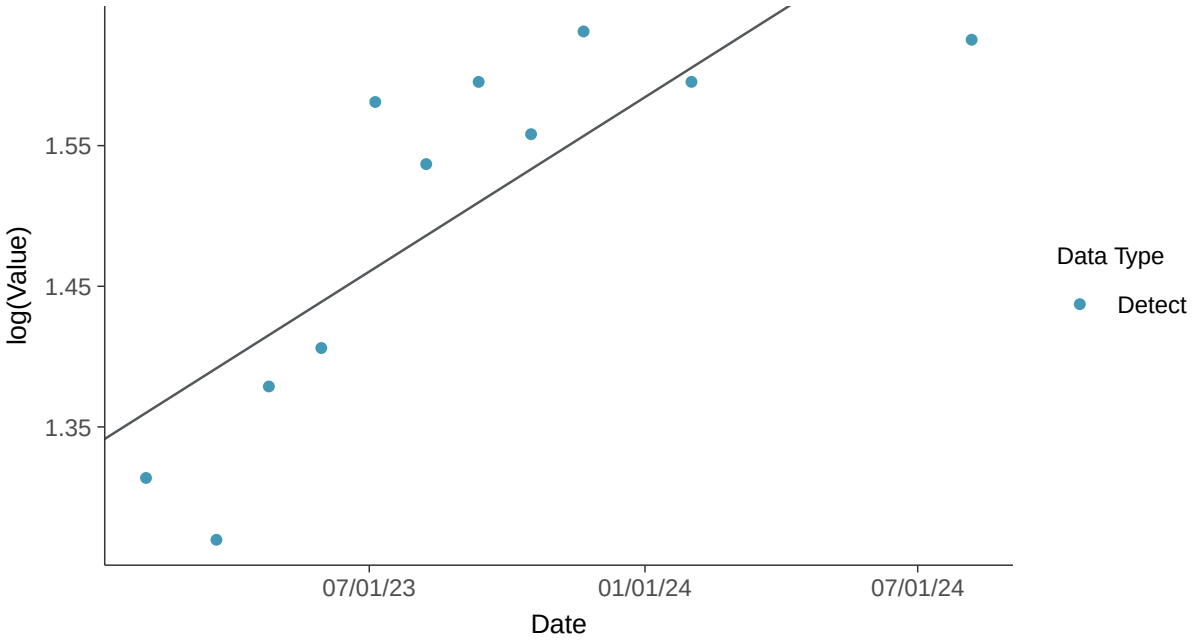
Gamma Q-Q plot

Potassium, MW-16C (mg/L)



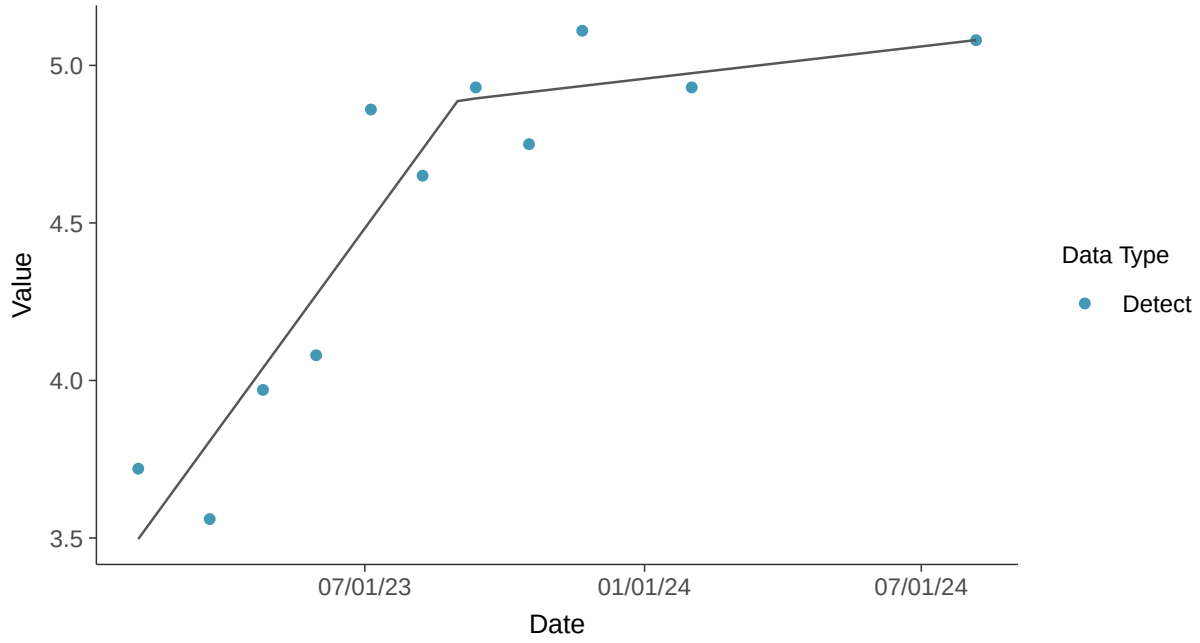
Trend Regression: Lognormal MLE

Potassium, MW-16C (mg/L)



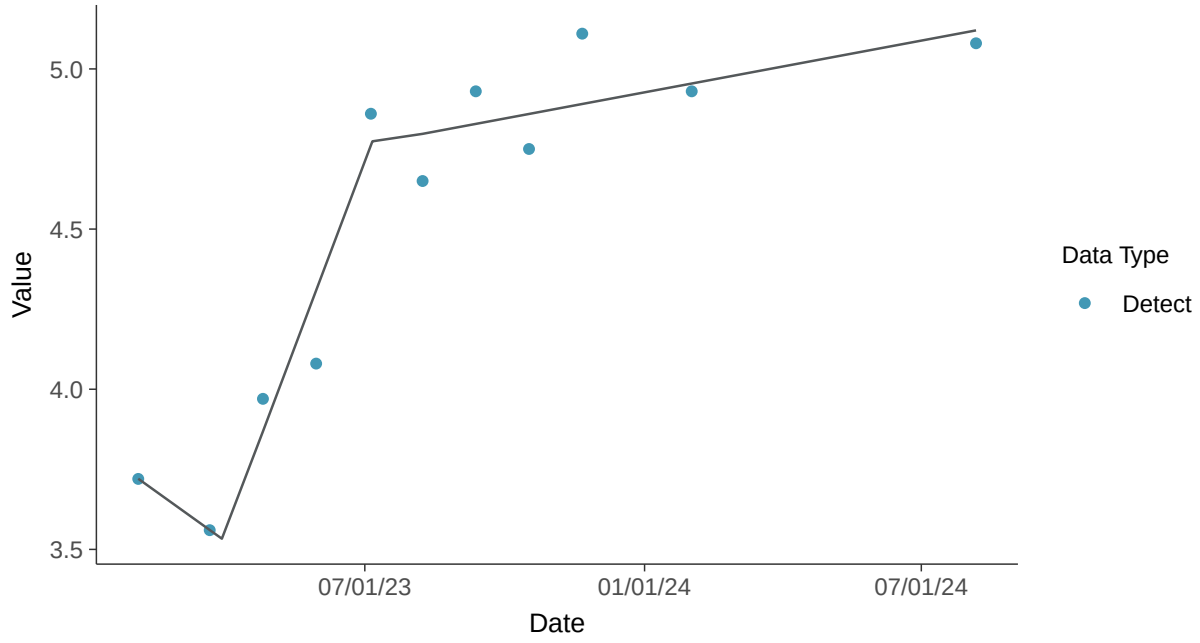
Trend Regression: Piecewise Linear-Linear

Potassium, MW-16C (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Potassium, MW-16C (mg/L)

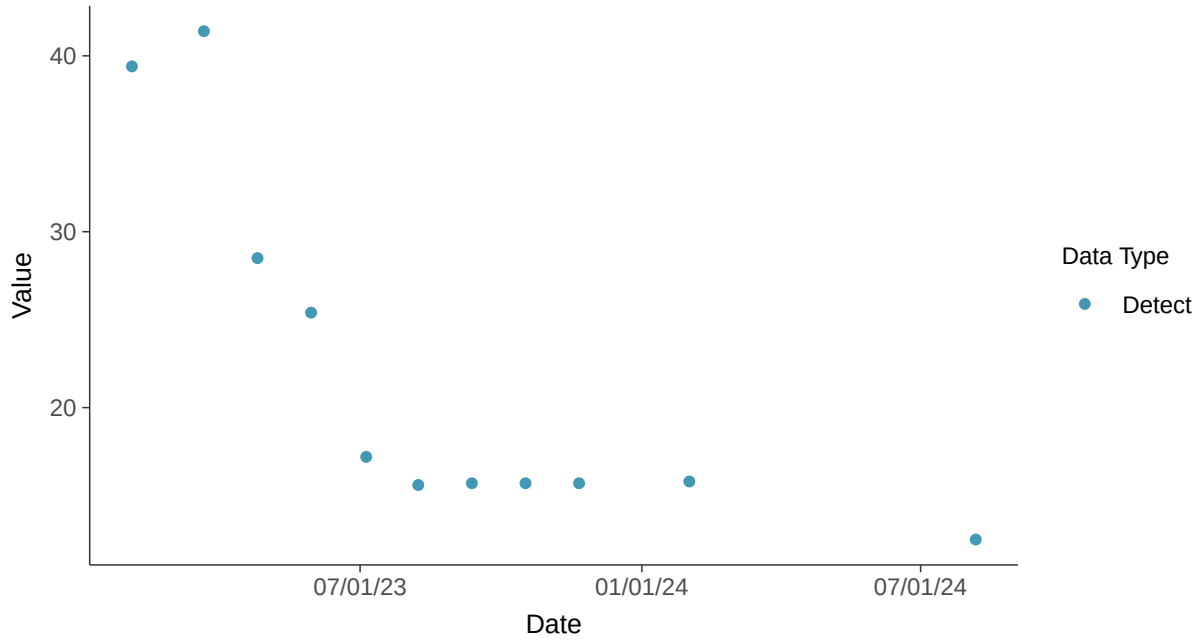


Other: Sodium, MW-16C

ID: 16C_4_36

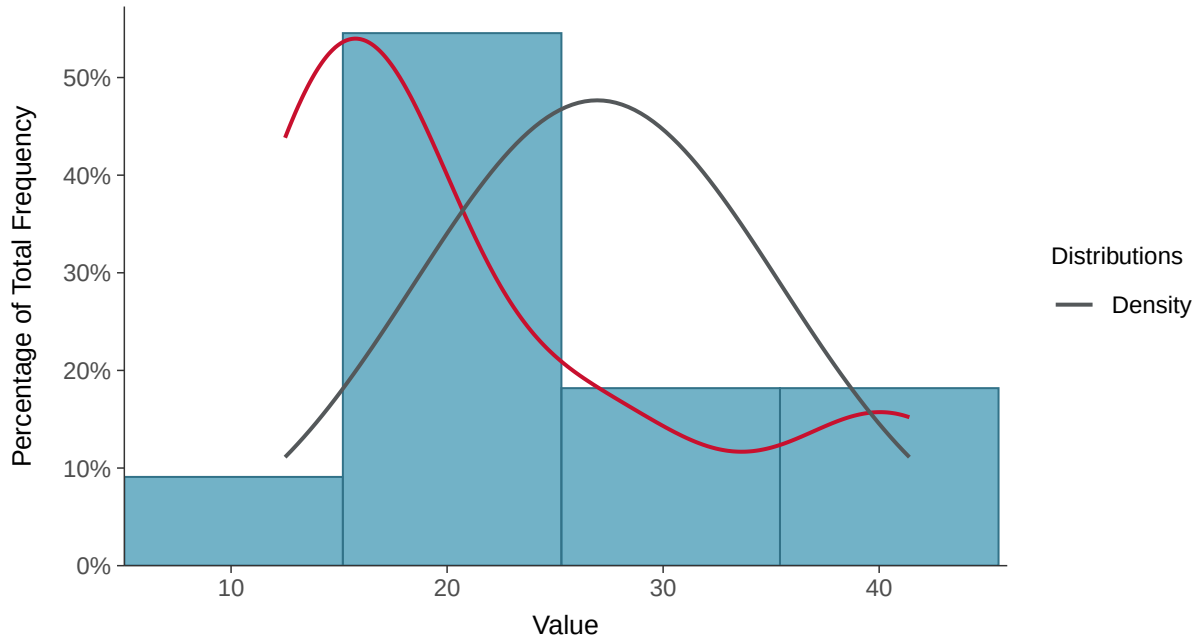
Scatter Plot

Sodium, MW-16C (mg/L)



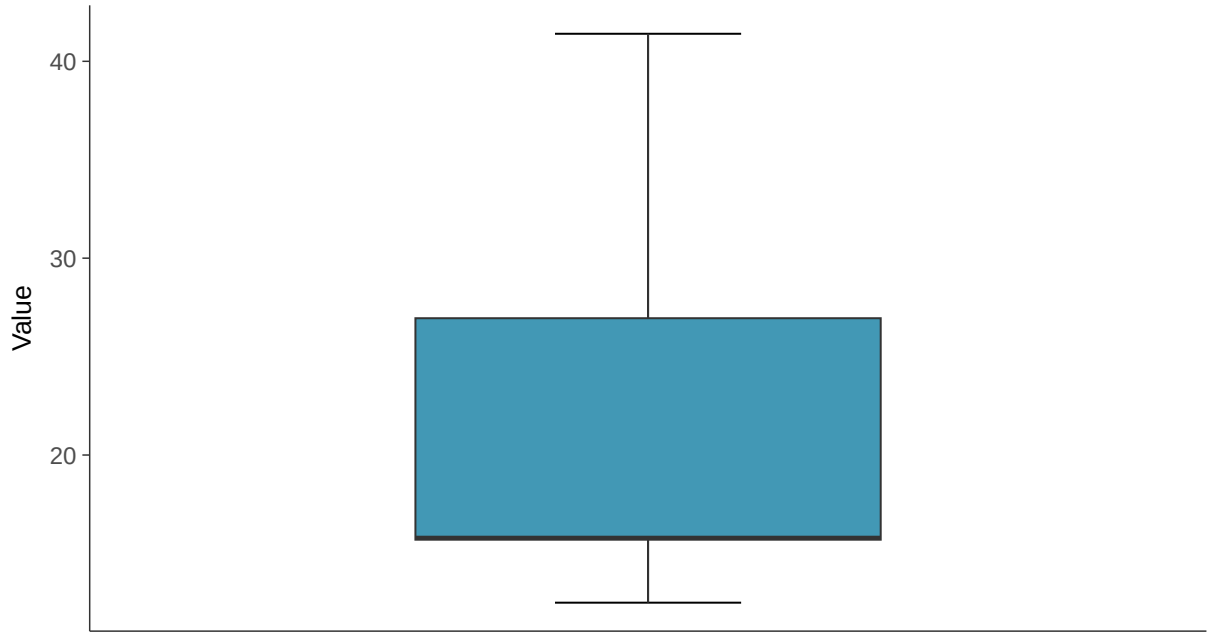
Histogram

Sodium, MW-16C (mg/L)



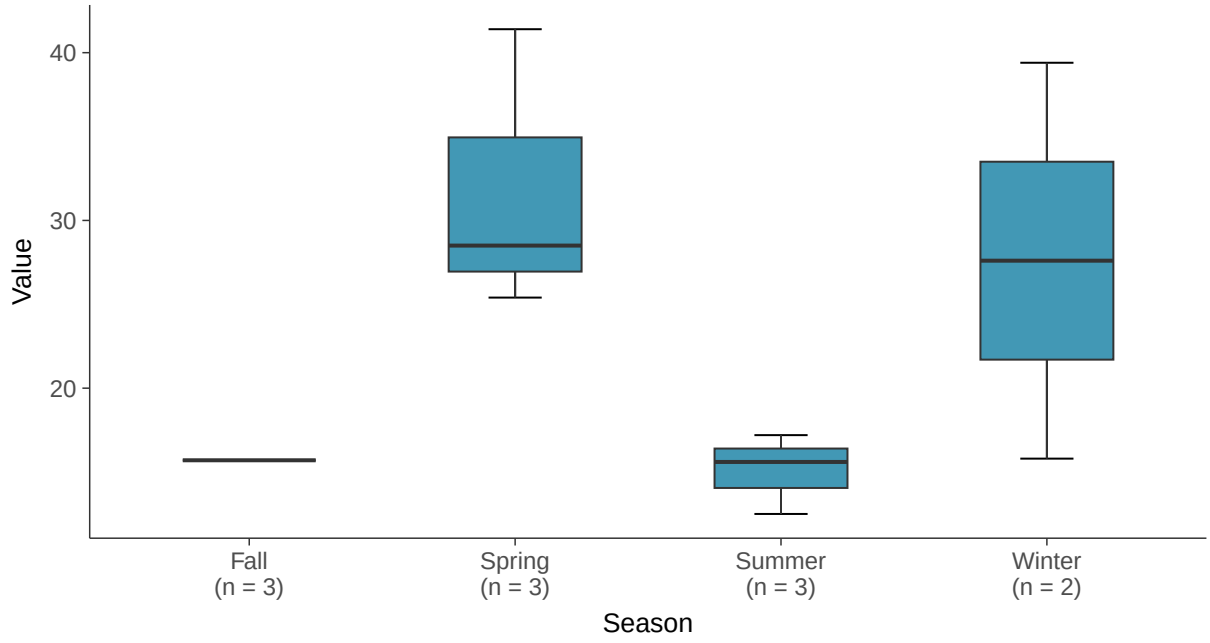
Boxplot

Sodium, MW-16C (mg/L)



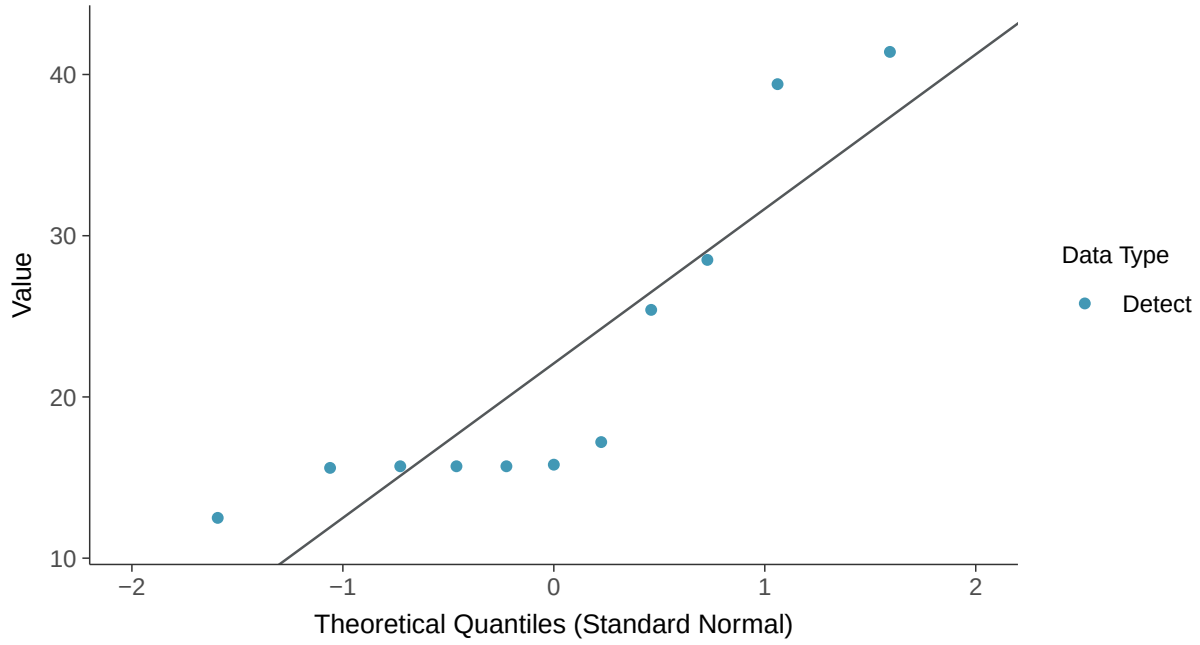
Boxplot by Season

Sodium, MW-16C (mg/L)



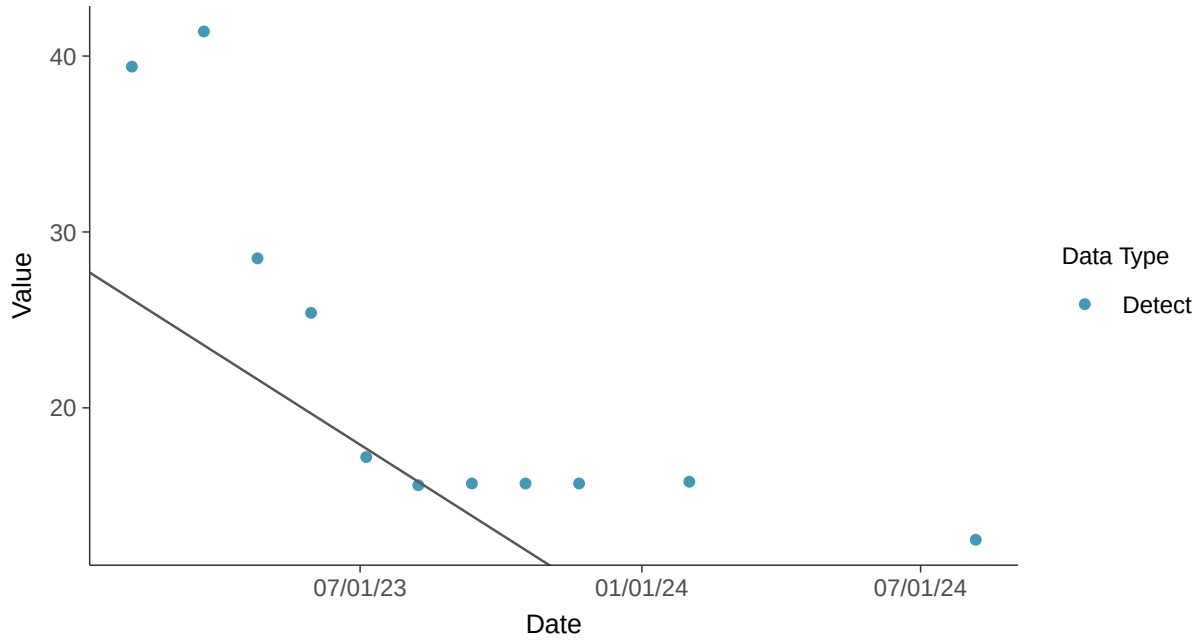
Normal Q-Q plot

Sodium, MW-16C (mg/L)



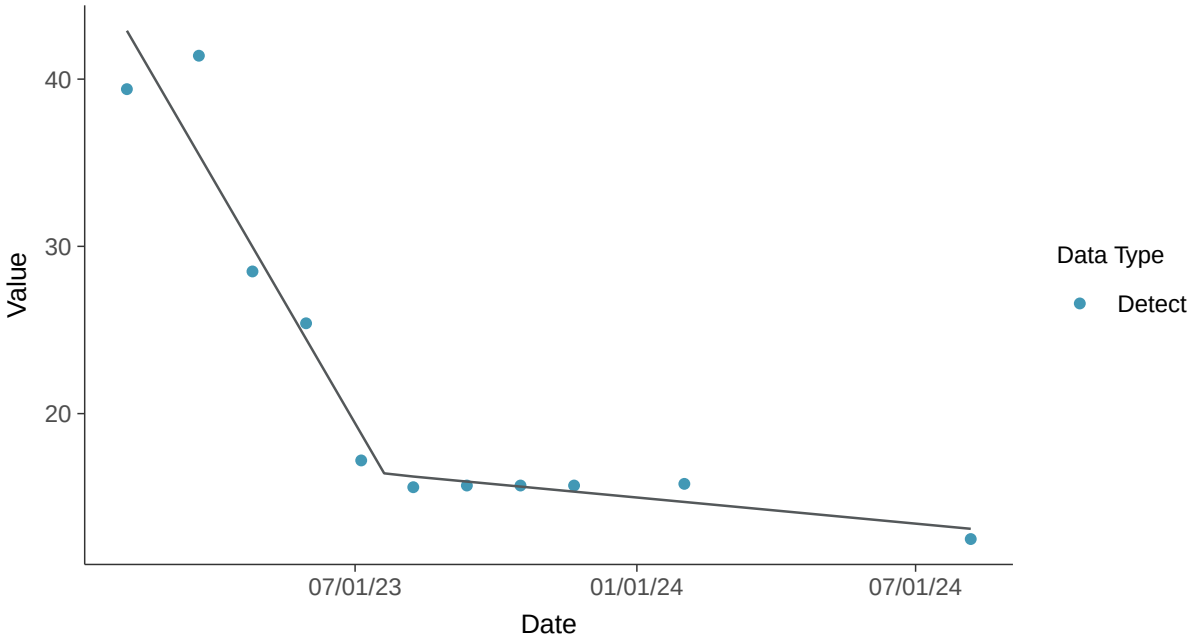
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Sodium, MW-16C (mg/L)



Trend Regression: Piecewise Linear-Linear

Sodium, MW-16C (mg/L)

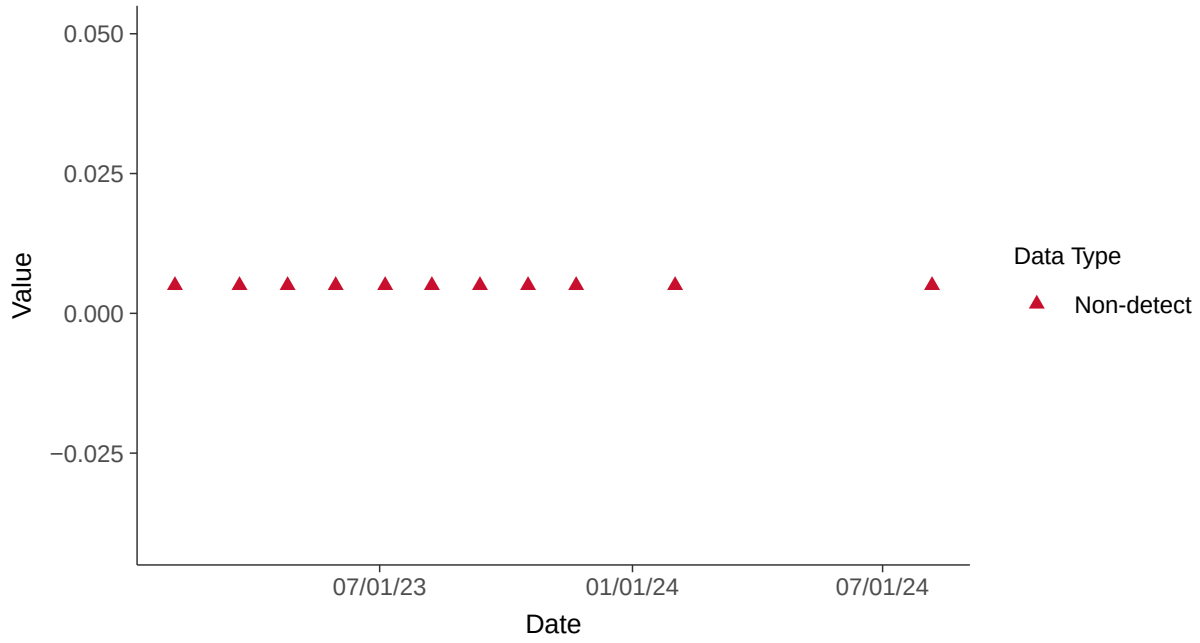


Part 115: Copper, MW-16C

ID: 16C_5_37

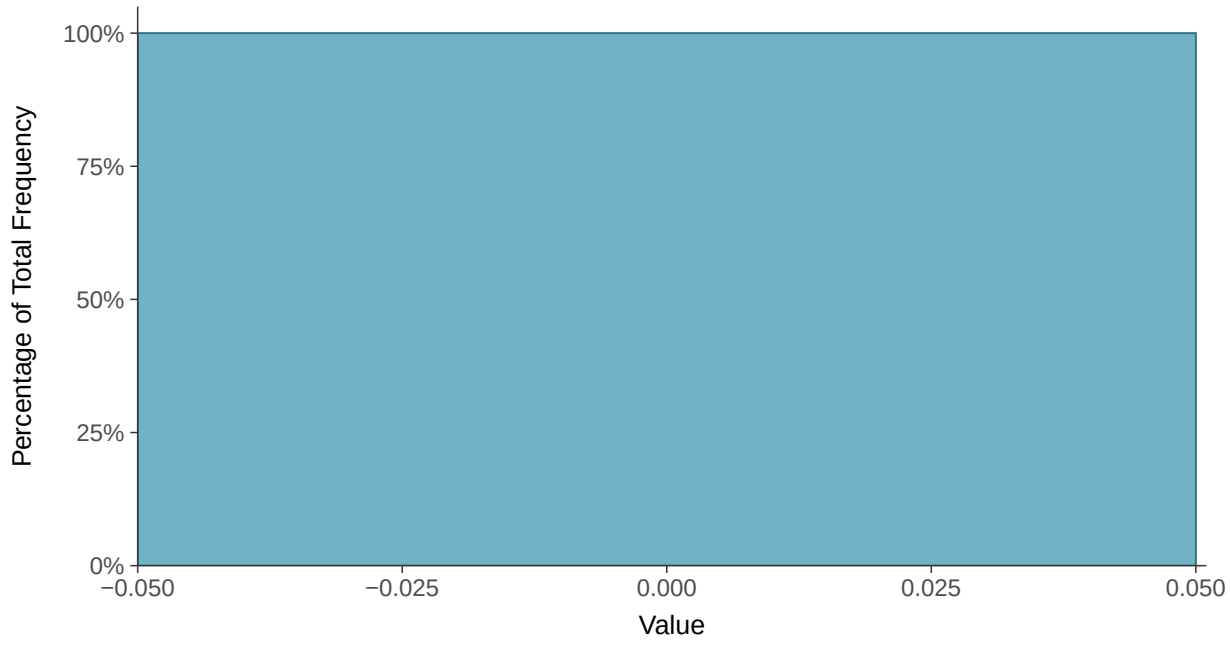
Scatter Plot

Copper, MW-16C (mg/L)



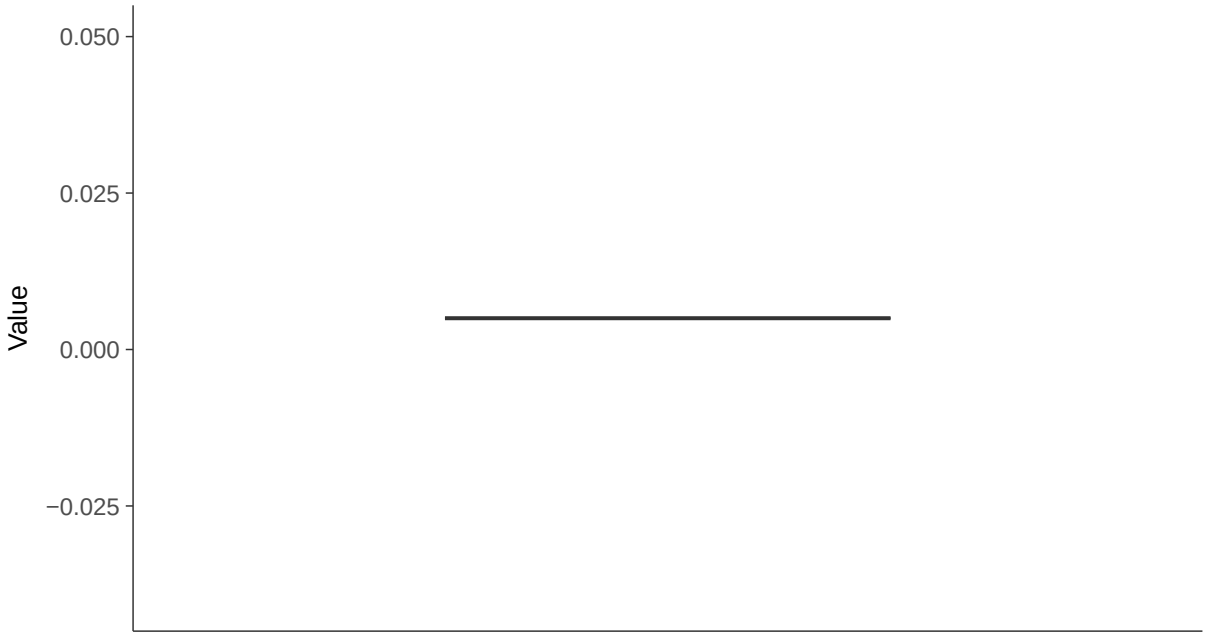
Histogram

Copper, MW-16C (mg/L)



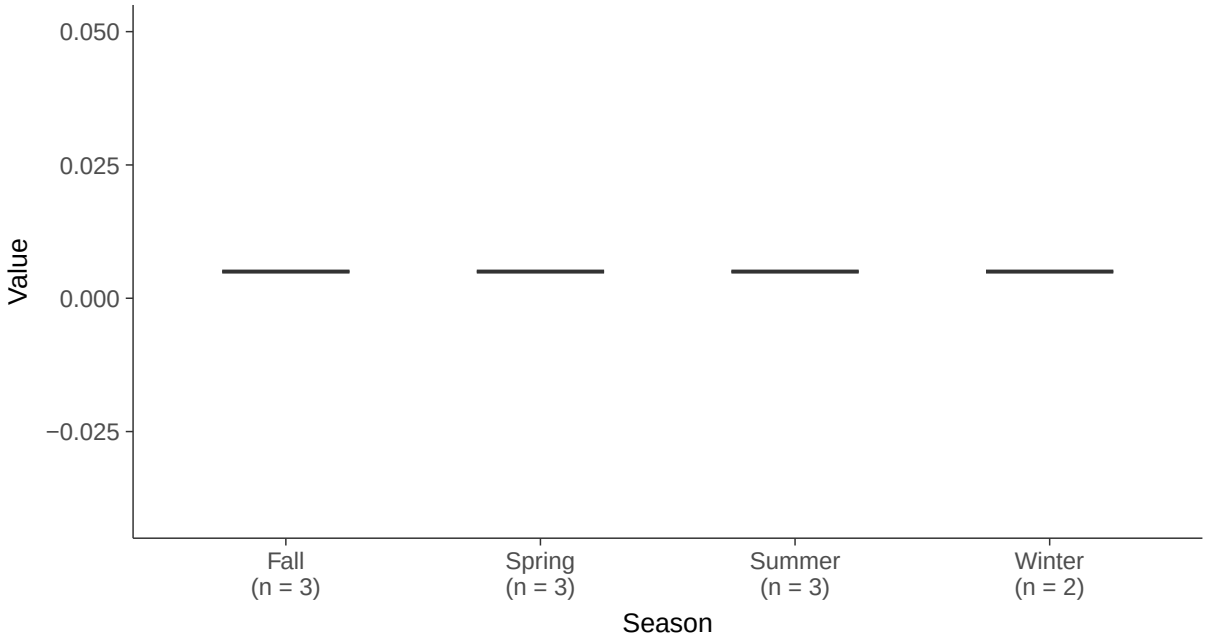
Boxplot

Copper, MW-16C (mg/L)



Boxplot by Season

Copper, MW-16C (mg/L)

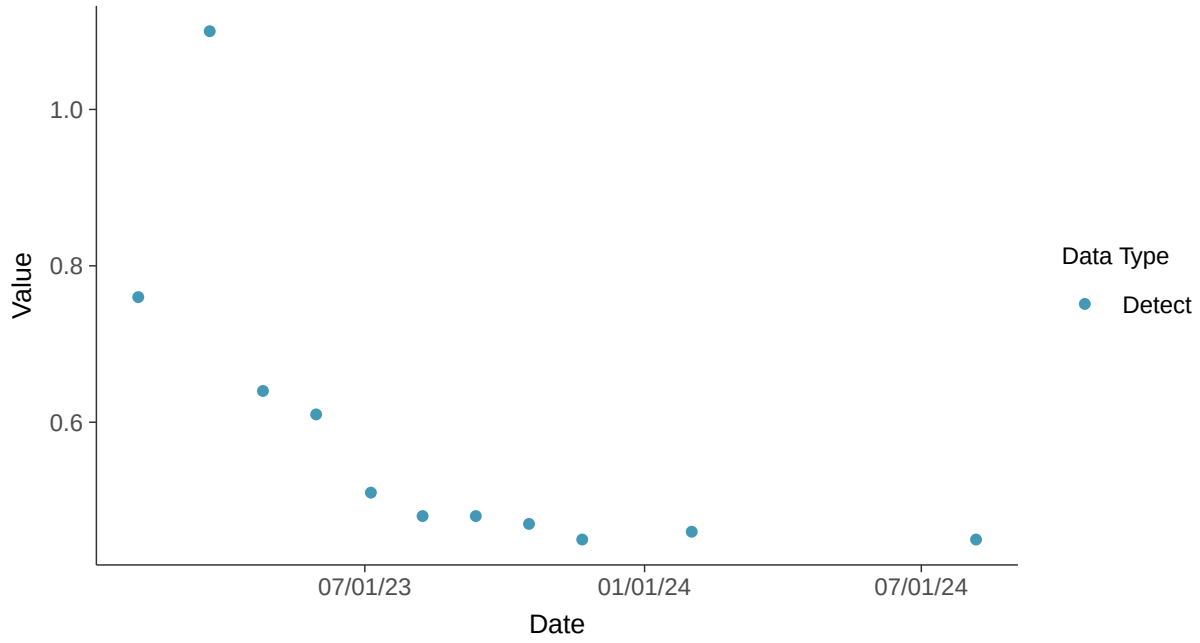


Part 115: Iron, MW-16C

ID: 16C_5_38

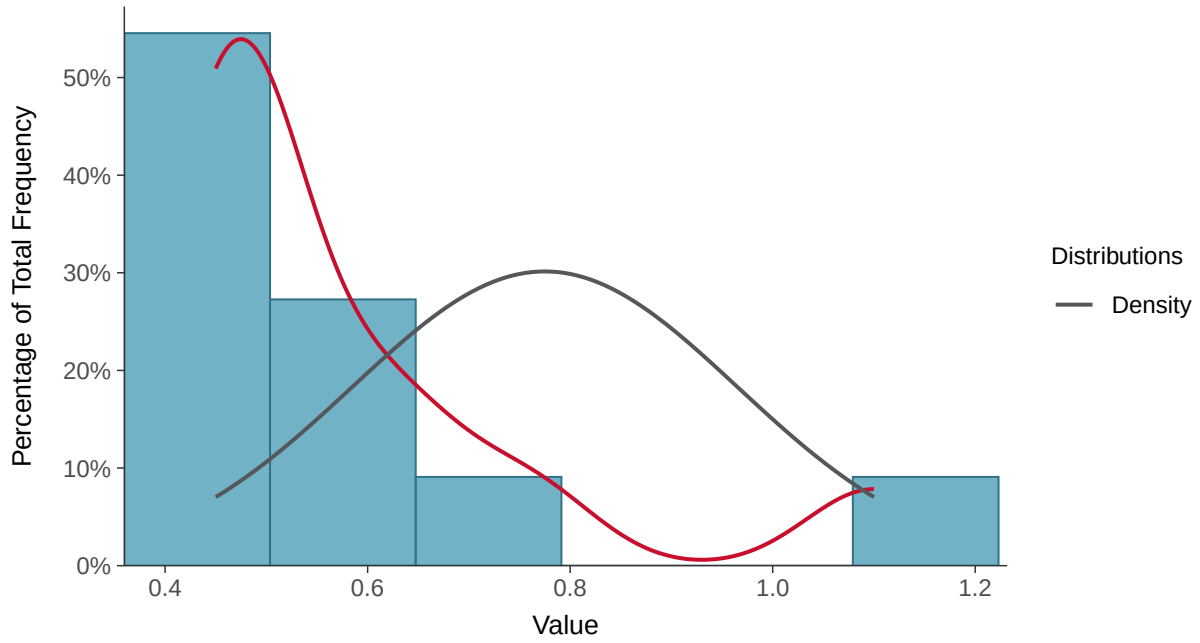
Scatter Plot

Iron, MW-16C (mg/L)



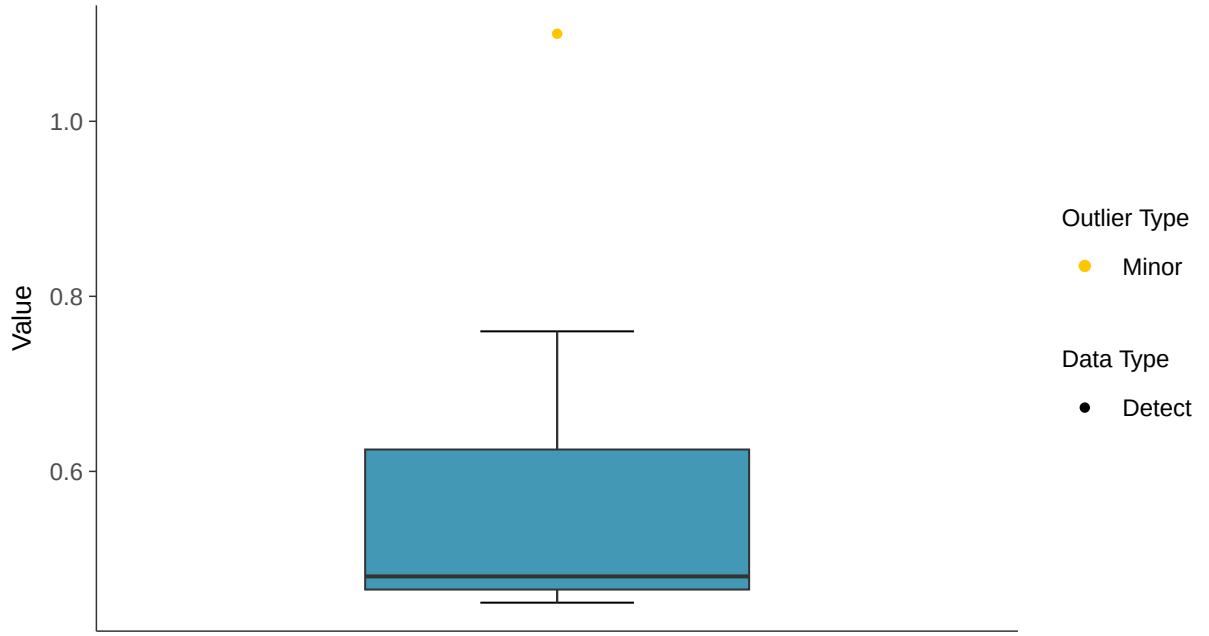
Histogram

Iron, MW-16C (mg/L)



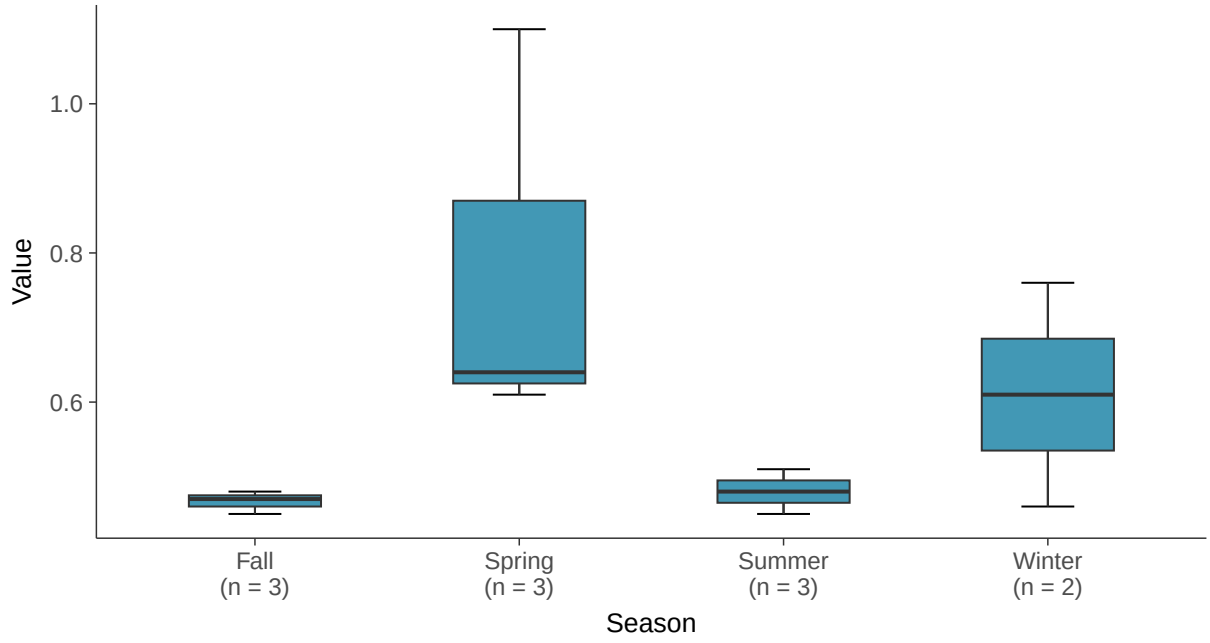
Boxplot

Iron, MW-16C (mg/L)



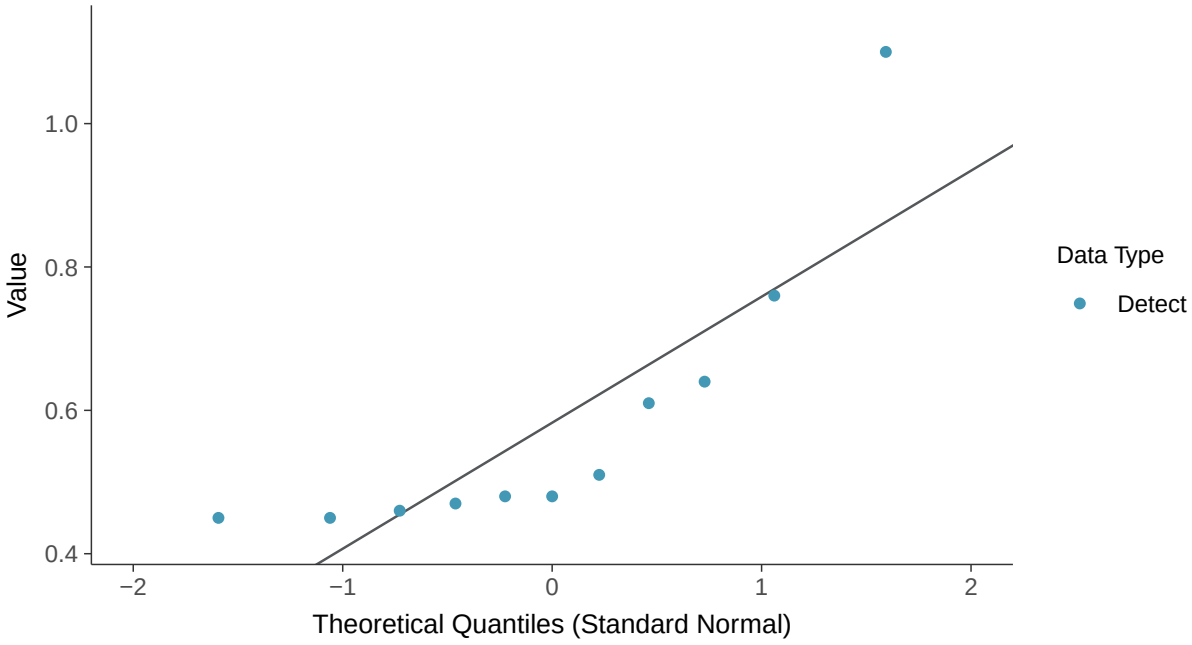
Boxplot by Season

Iron, MW-16C (mg/L)



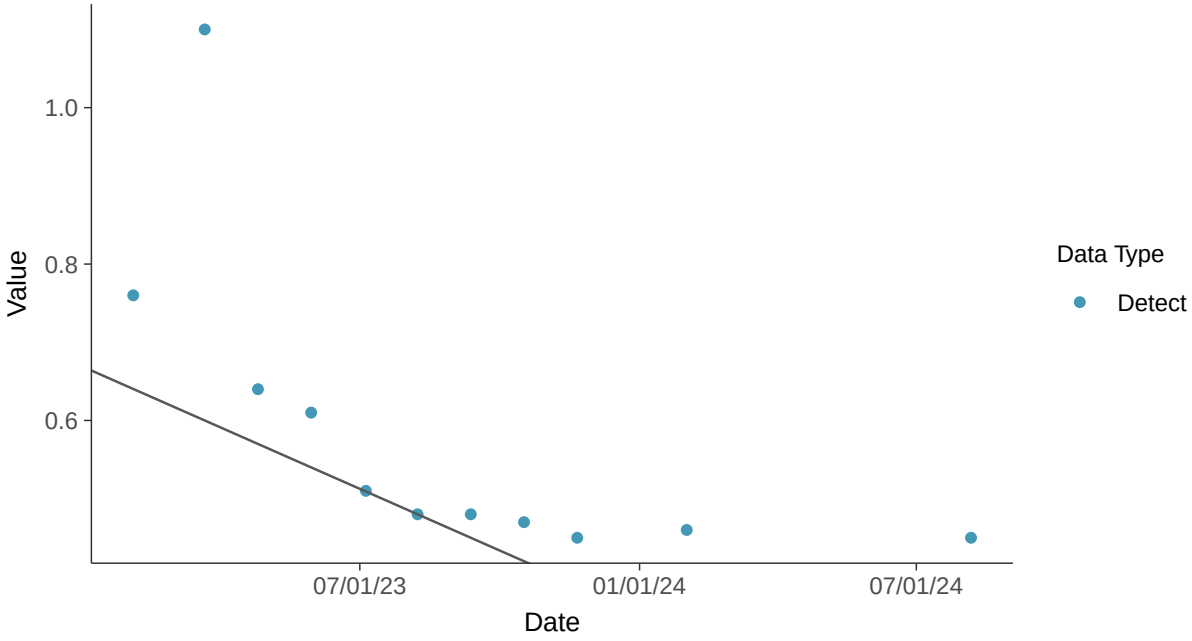
Normal Q-Q plot

Iron, MW-16C (mg/L)



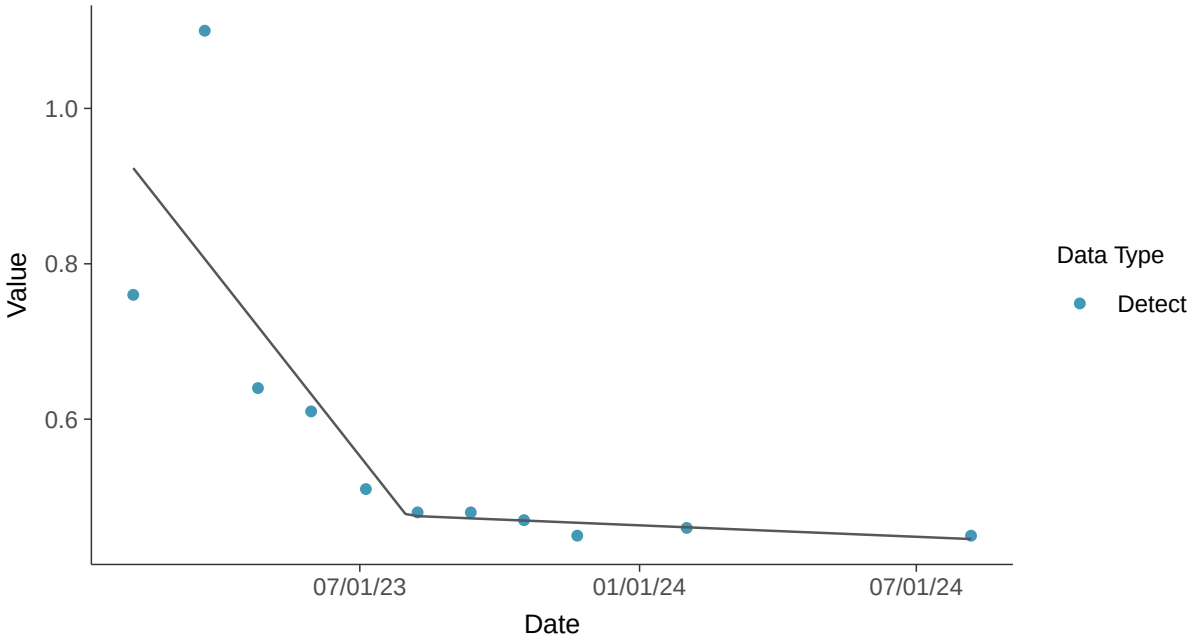
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Iron, MW-16C (mg/L)



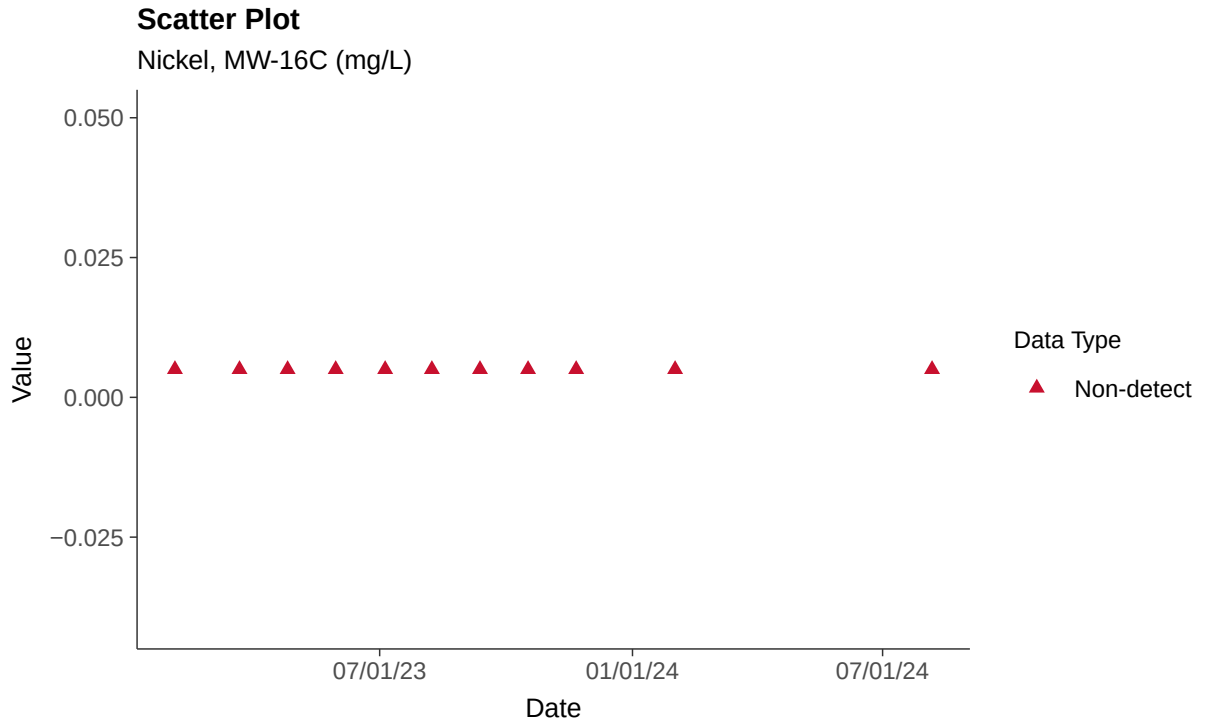
Trend Regression: Piecewise Linear-Linear

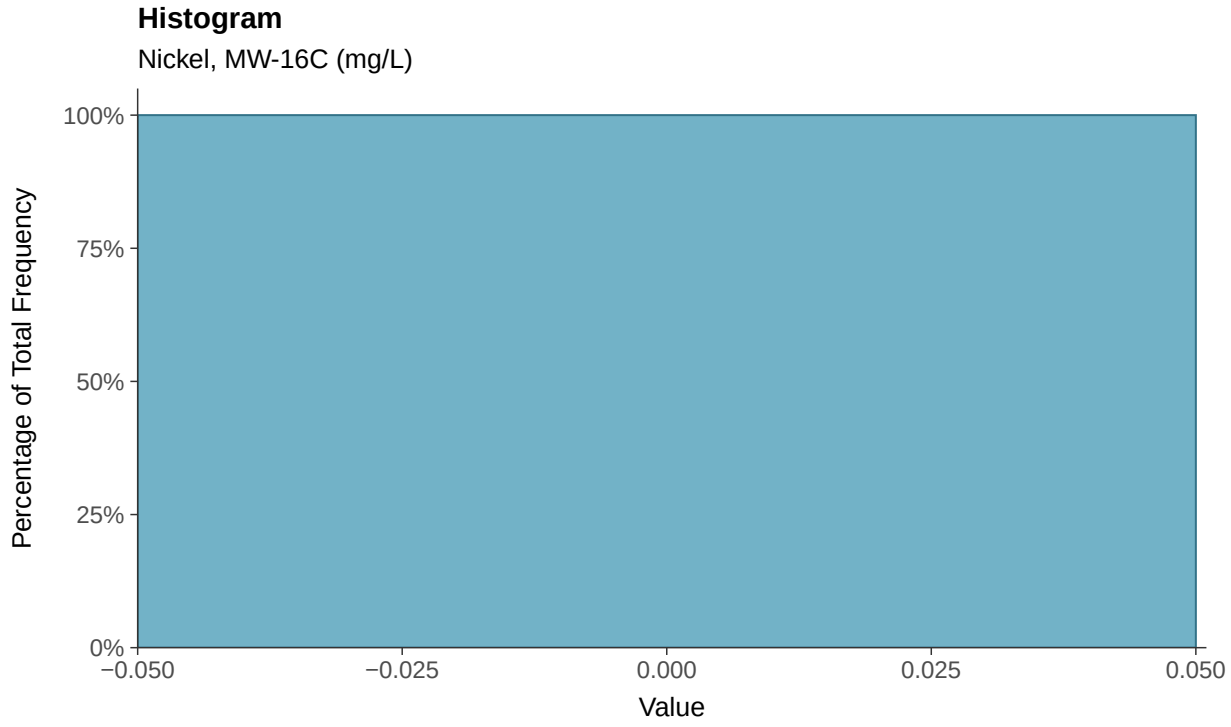
Iron, MW-16C (mg/L)



Part 115: Nickel, MW-16C

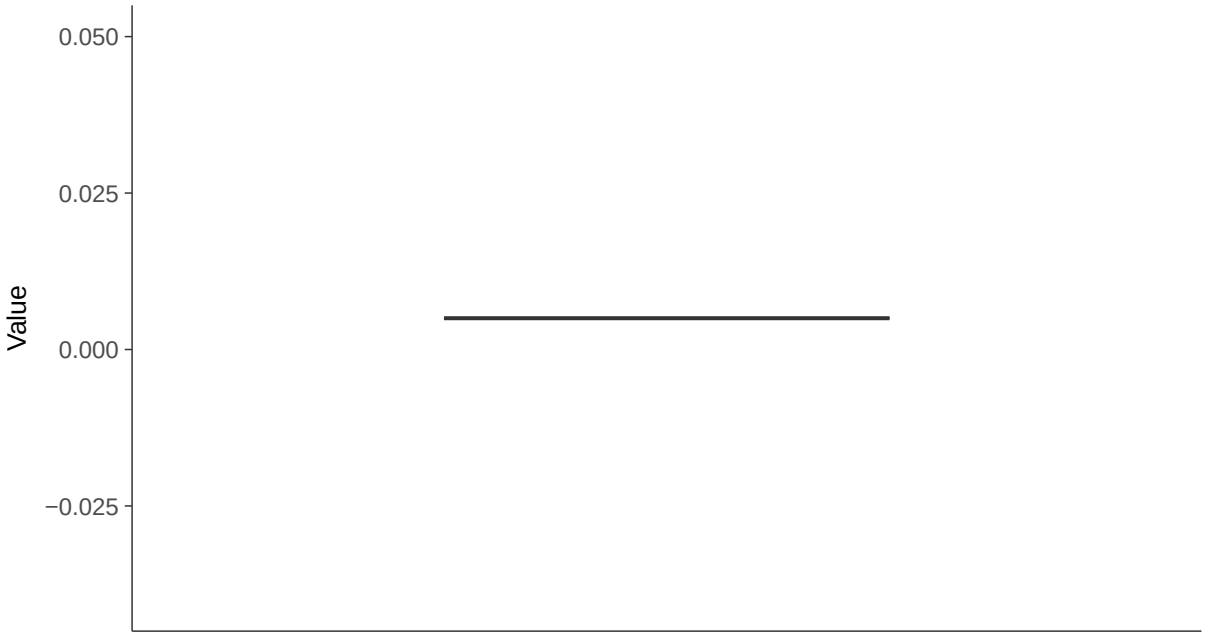
ID: 16C_5_39





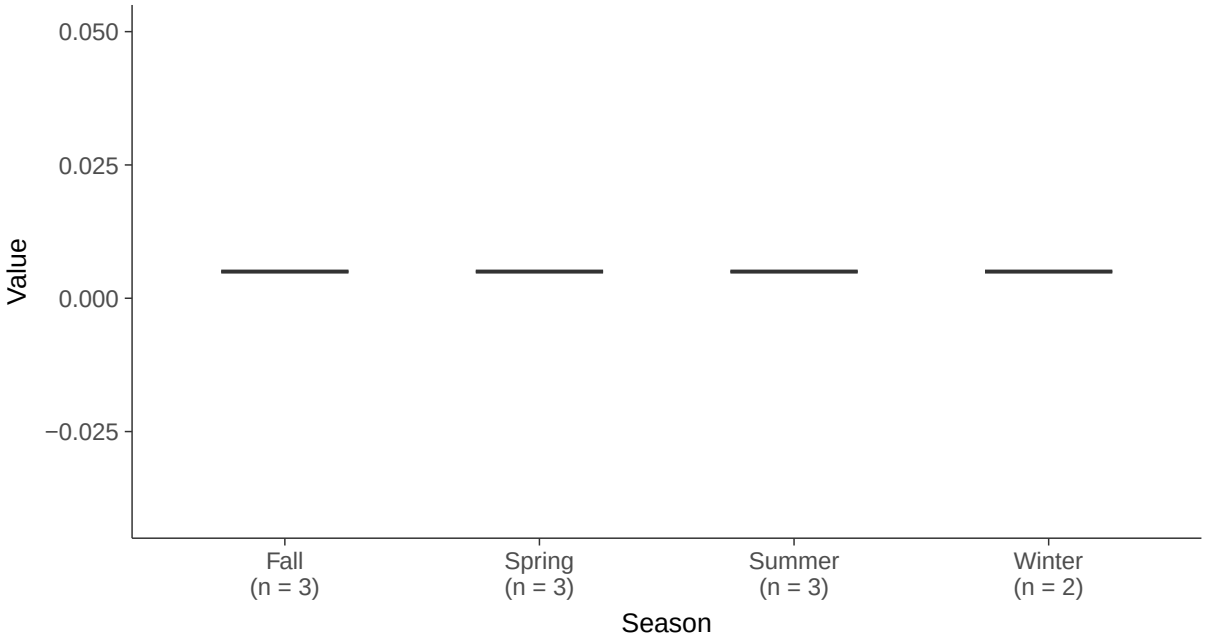
Boxplot

Nickel, MW-16C (mg/L)



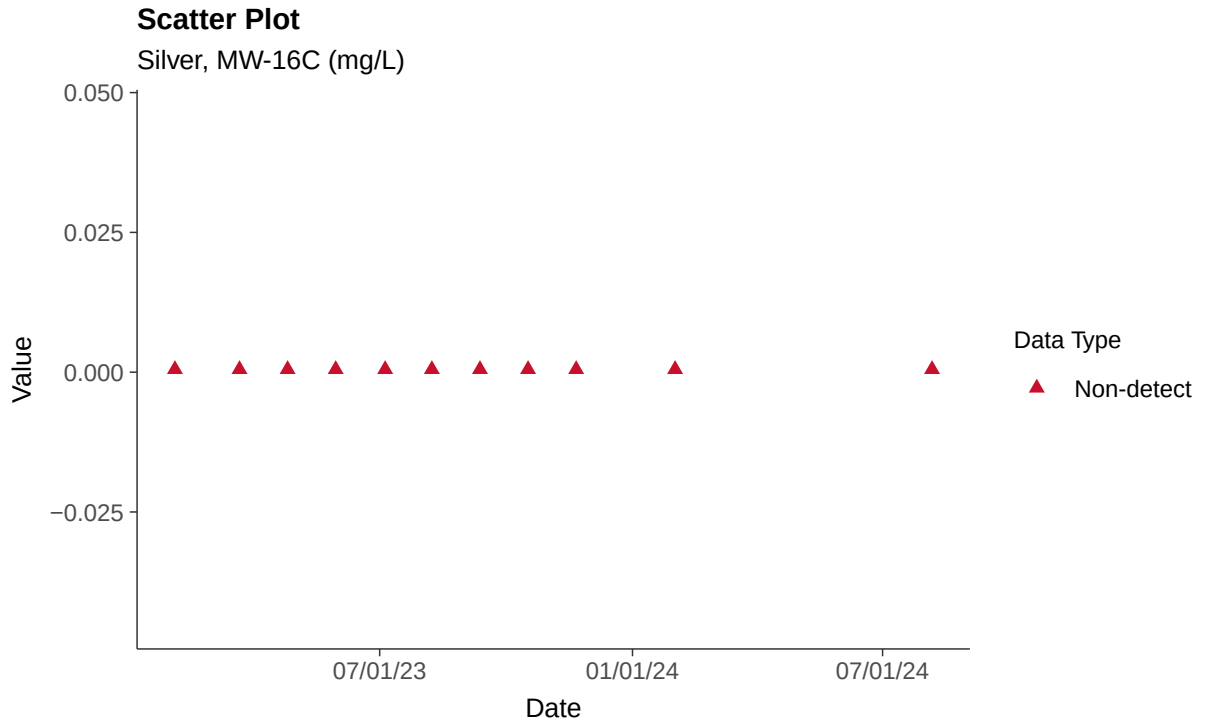
Boxplot by Season

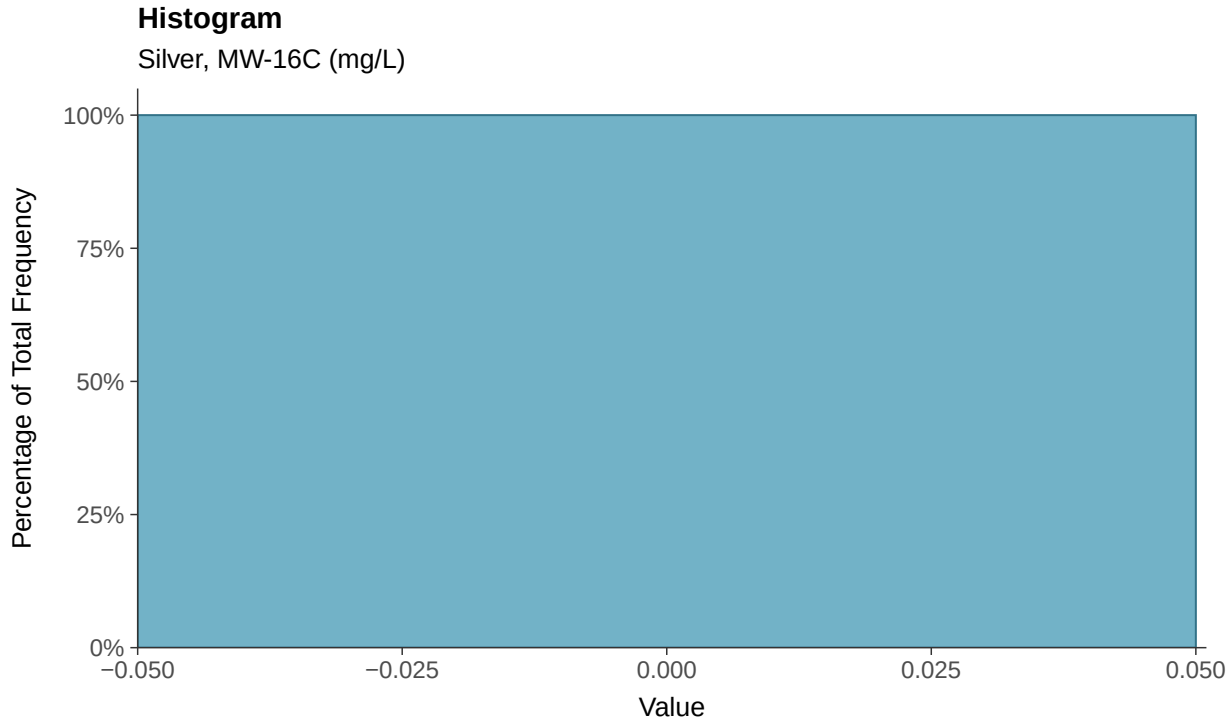
Nickel, MW-16C (mg/L)



Part 115: Silver, MW-16C

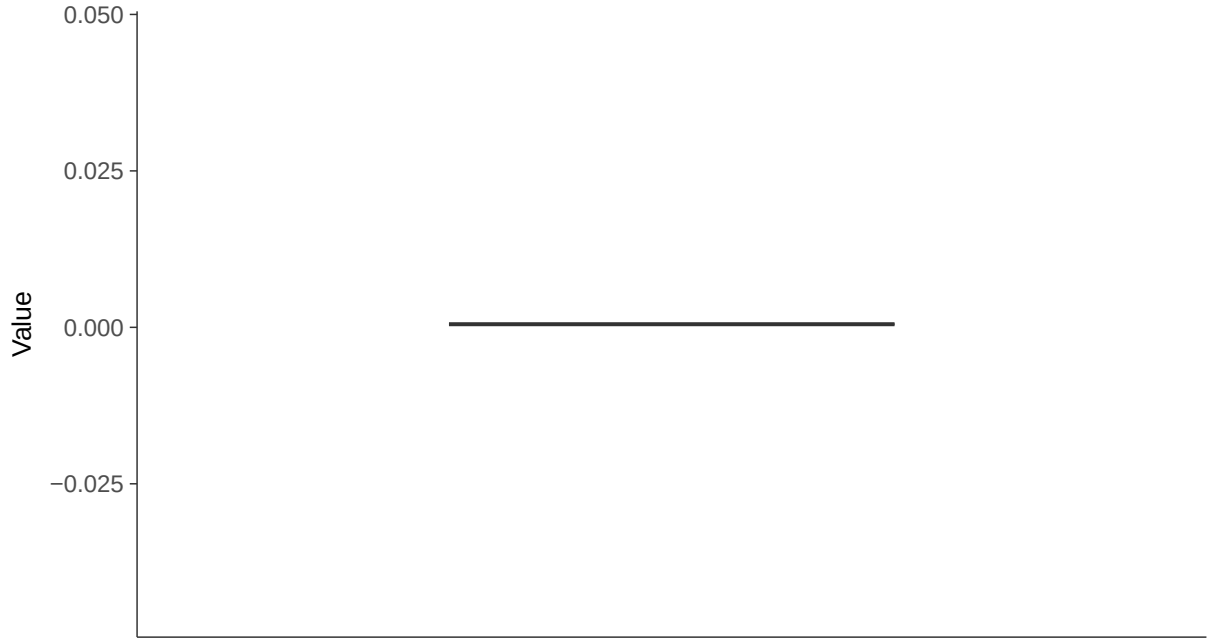
ID: 16C_5_40





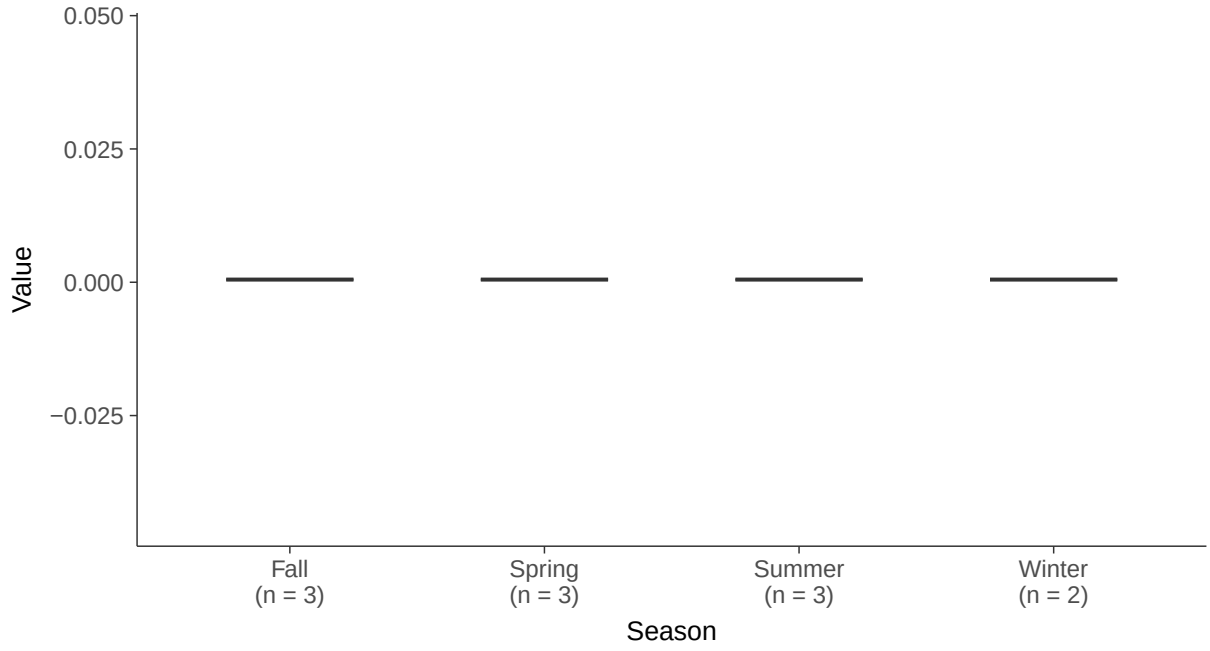
Boxplot

Silver, MW-16C (mg/L)



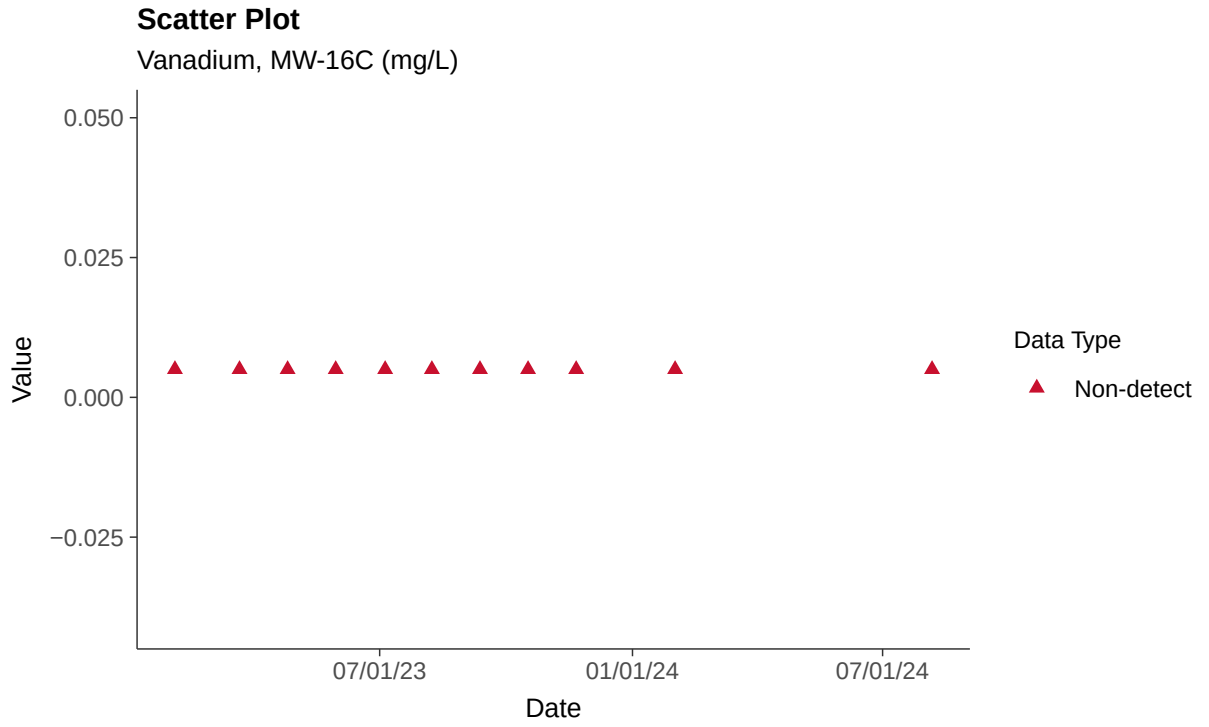
Boxplot by Season

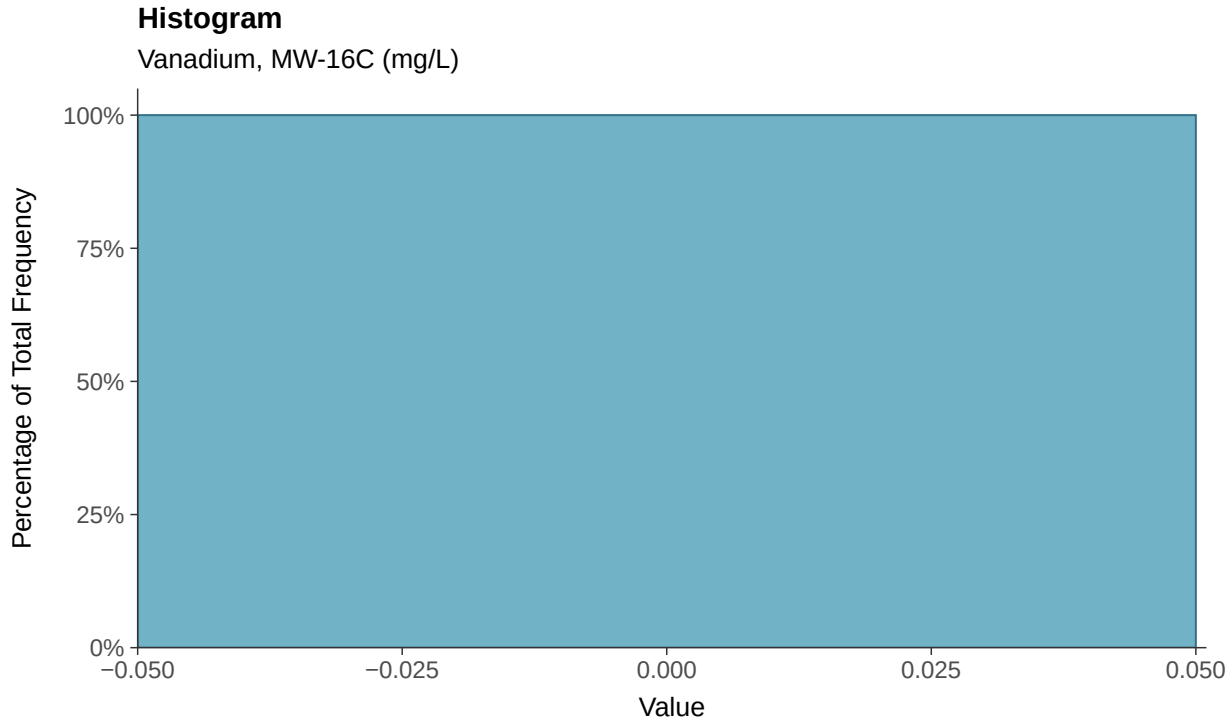
Silver, MW-16C (mg/L)



Part 115: Vanadium, MW-16C

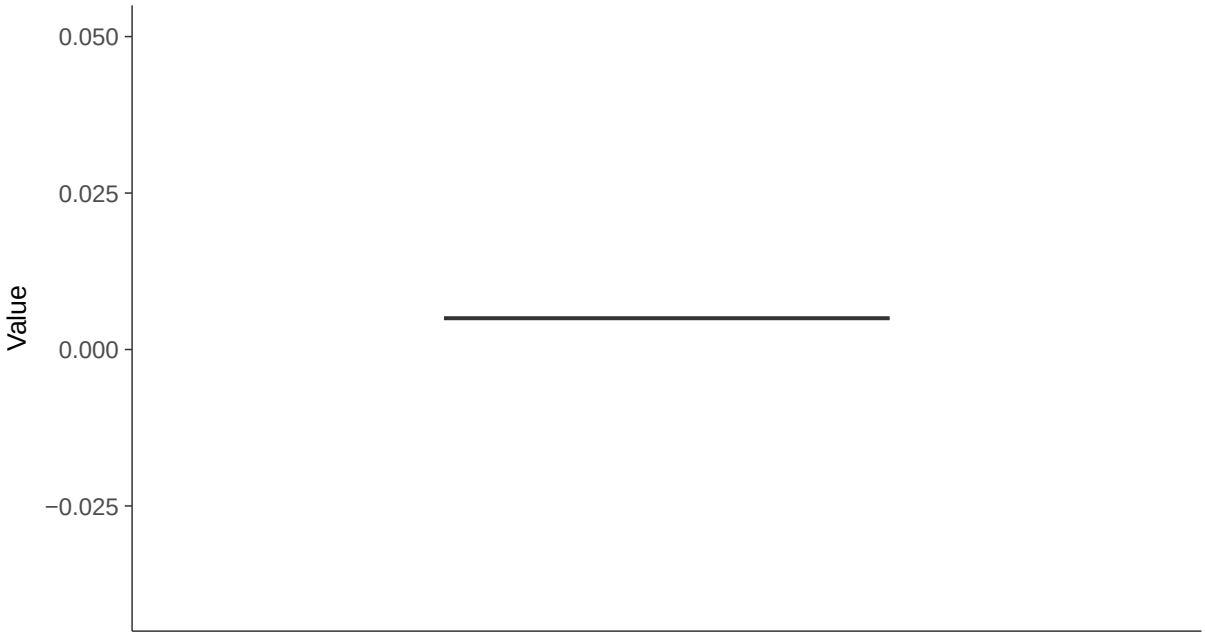
ID: 16C_5_41





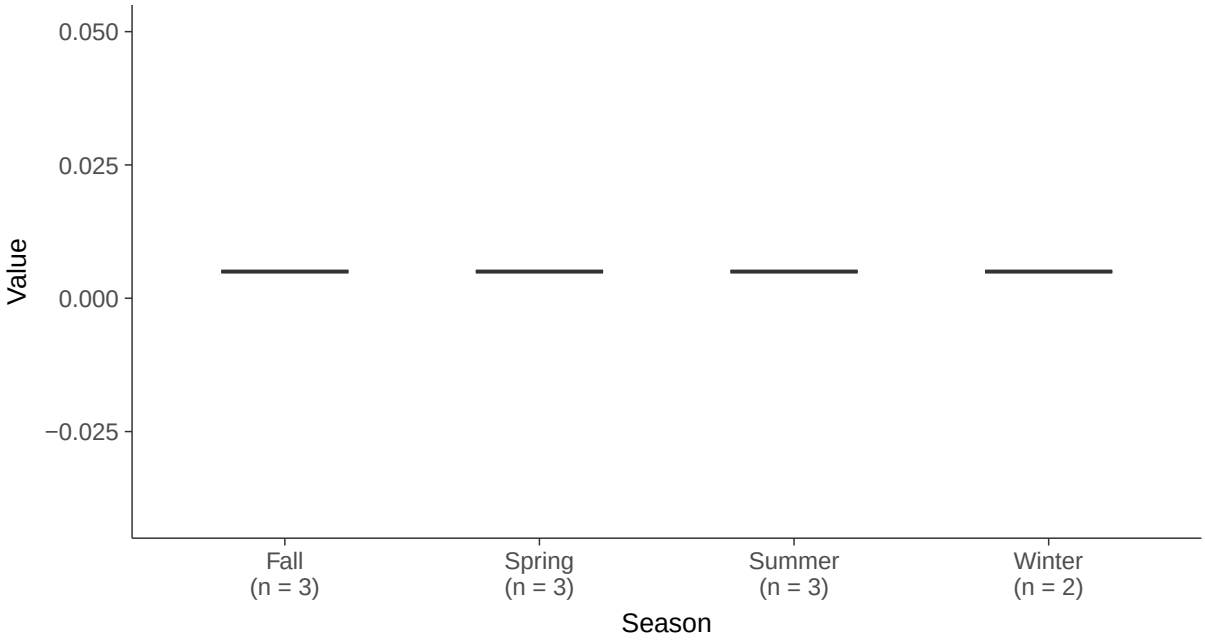
Boxplot

Vanadium, MW-16C (mg/L)



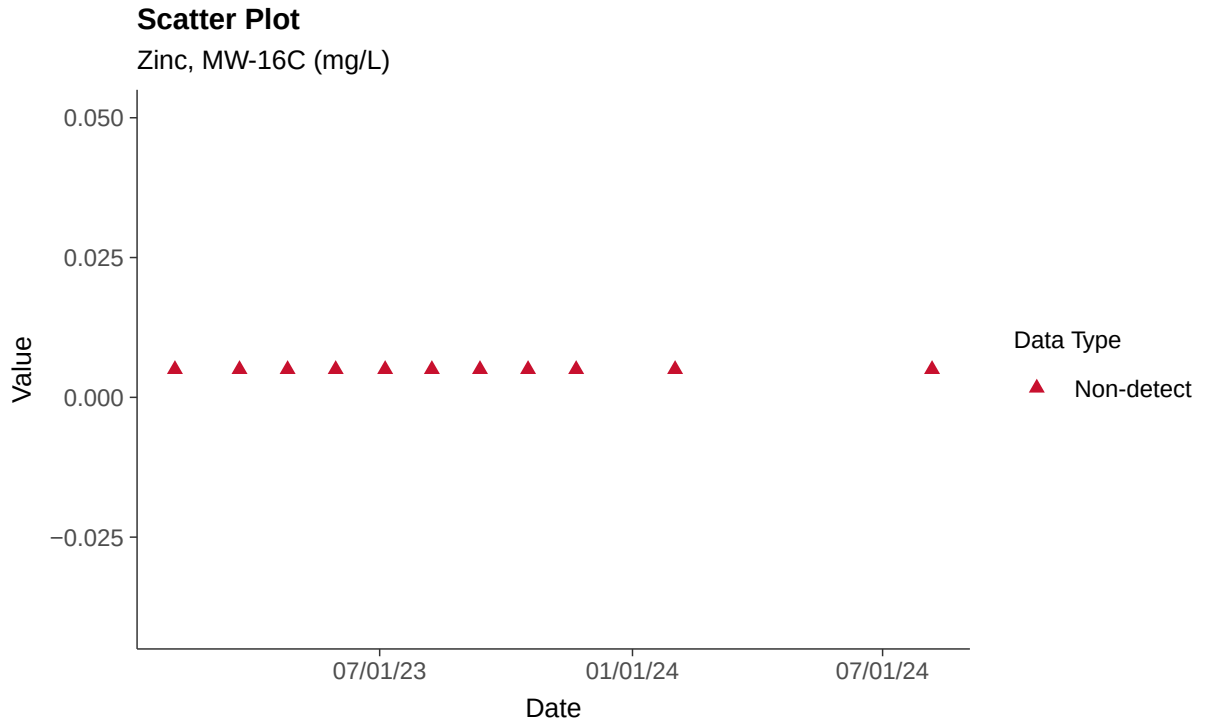
Boxplot by Season

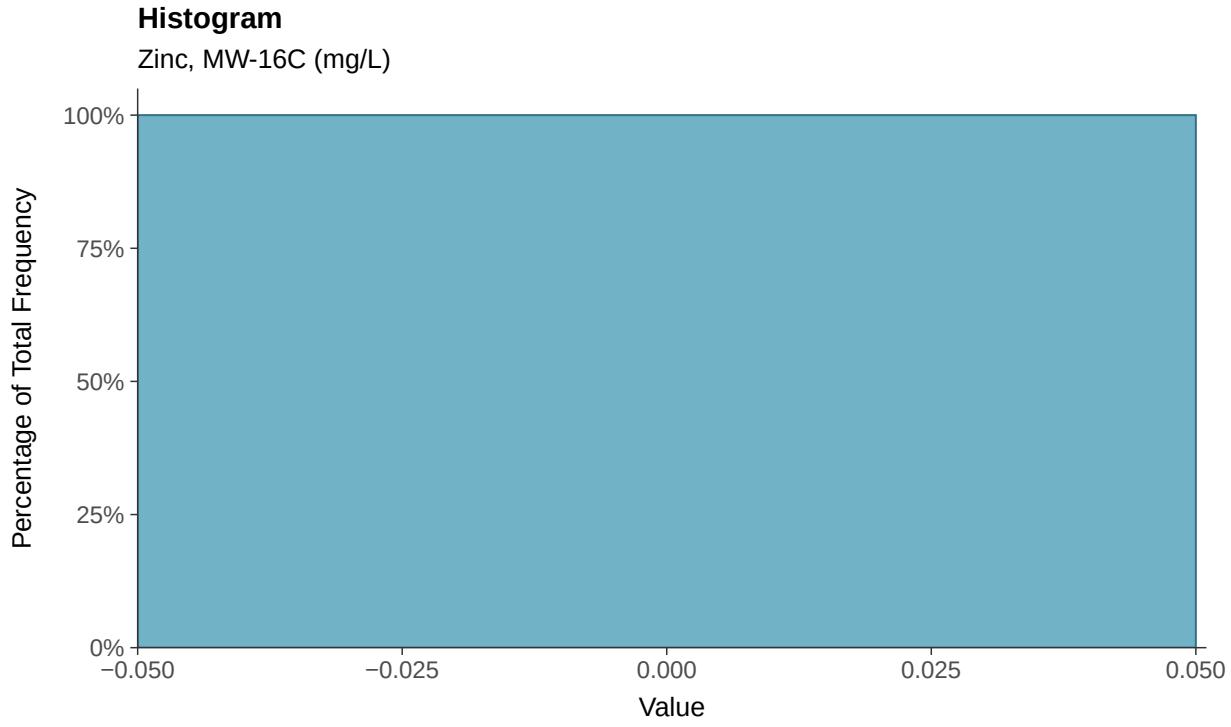
Vanadium, MW-16C (mg/L)



Part 115: Zinc, MW-16C

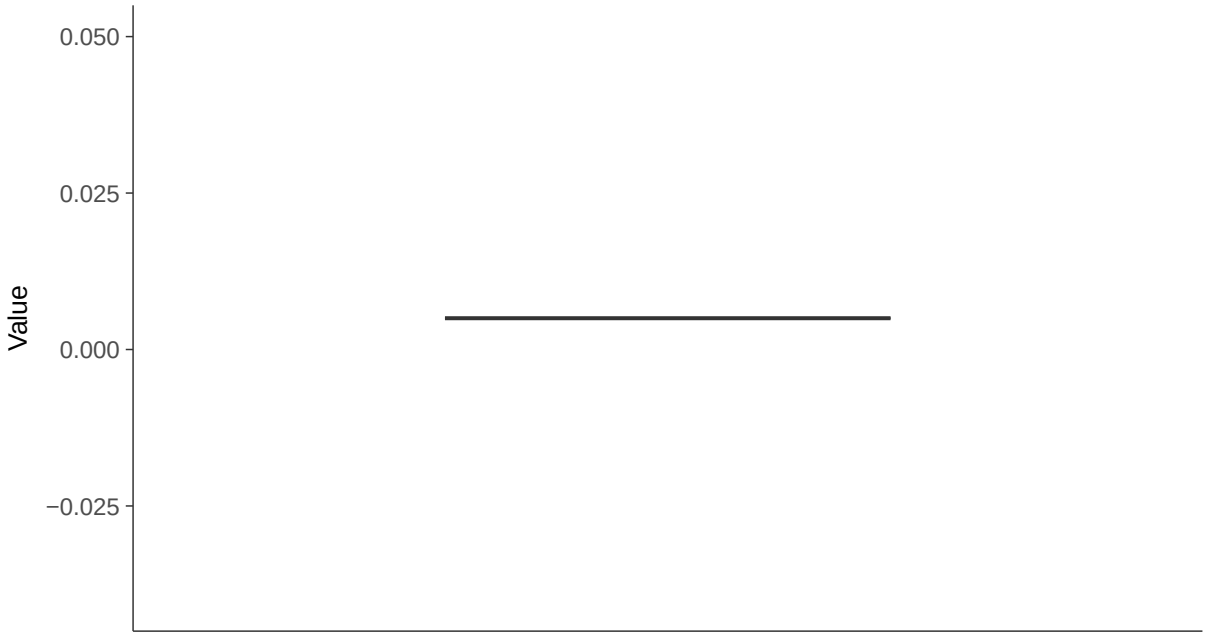
ID: 16C_5_42





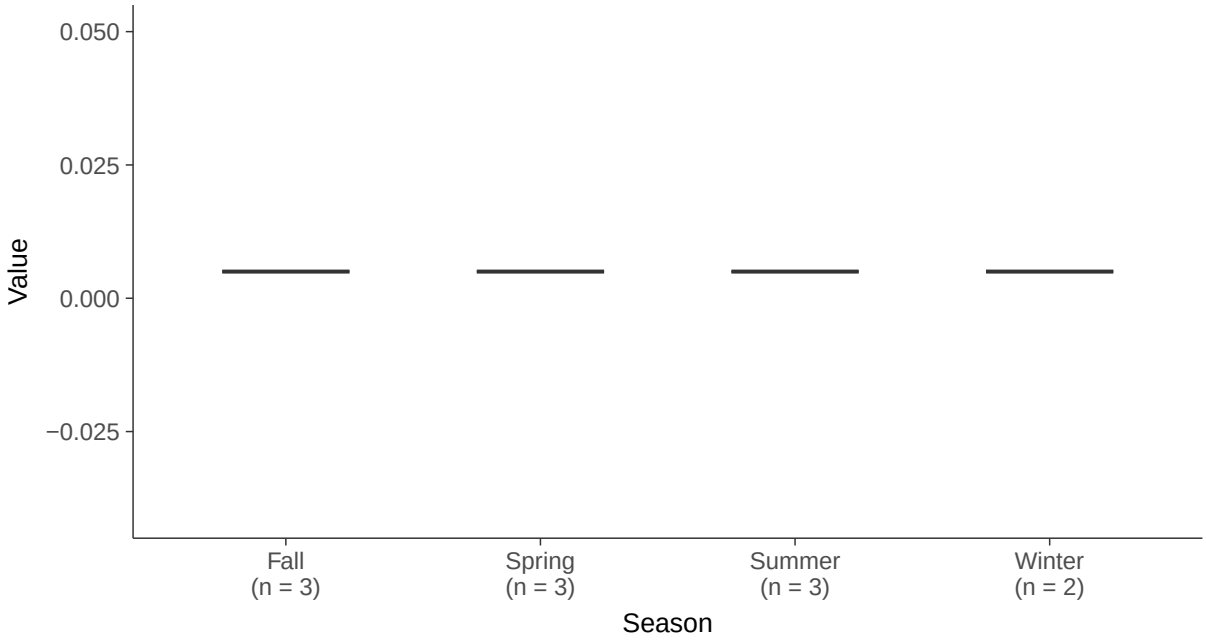
Boxplot

Zinc, MW-16C (mg/L)



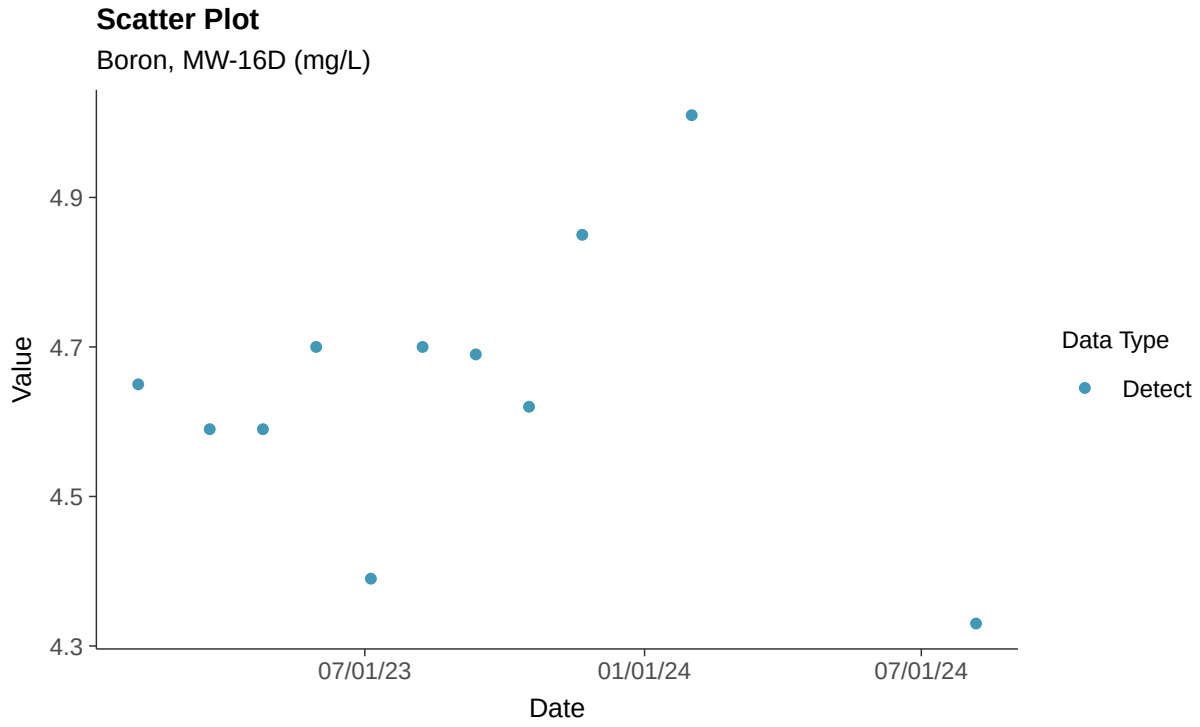
Boxplot by Season

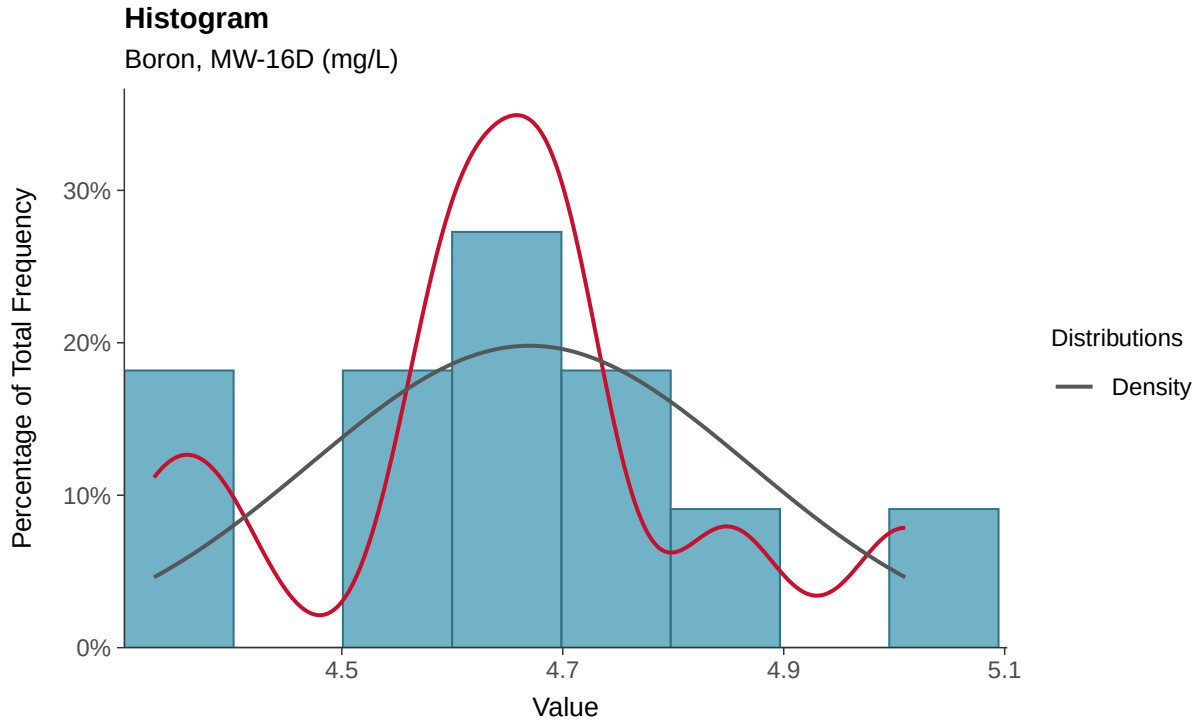
Zinc, MW-16C (mg/L)



Appendix III: Boron, MW-16D

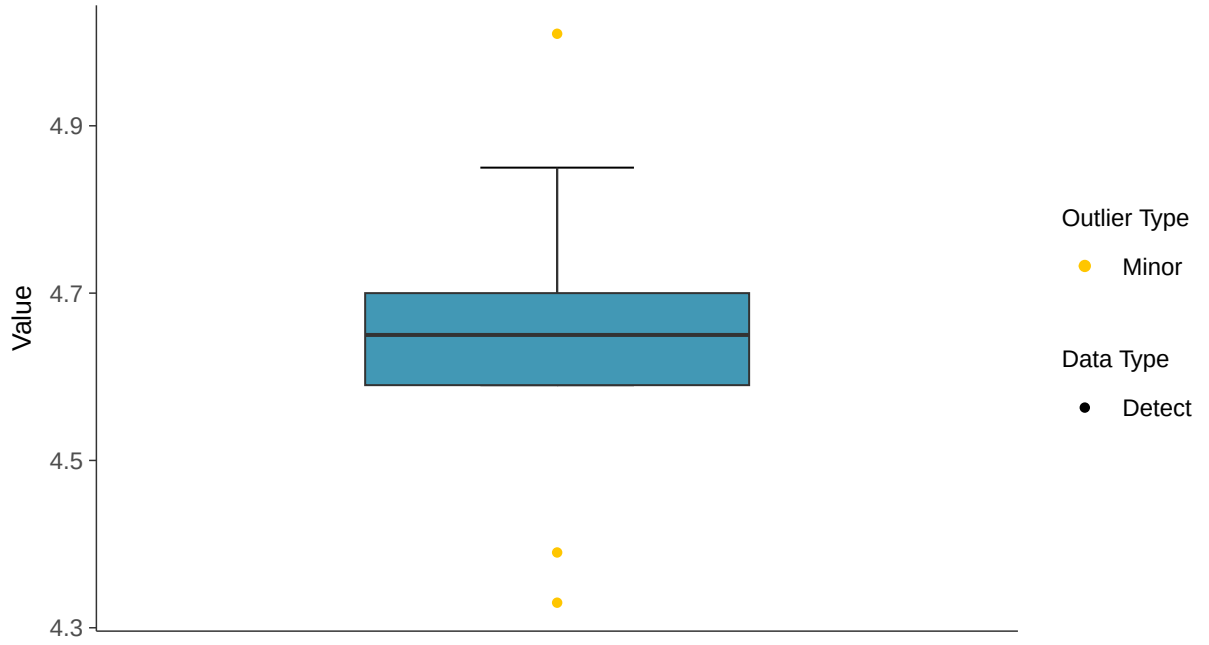
ID: 16D_1_01





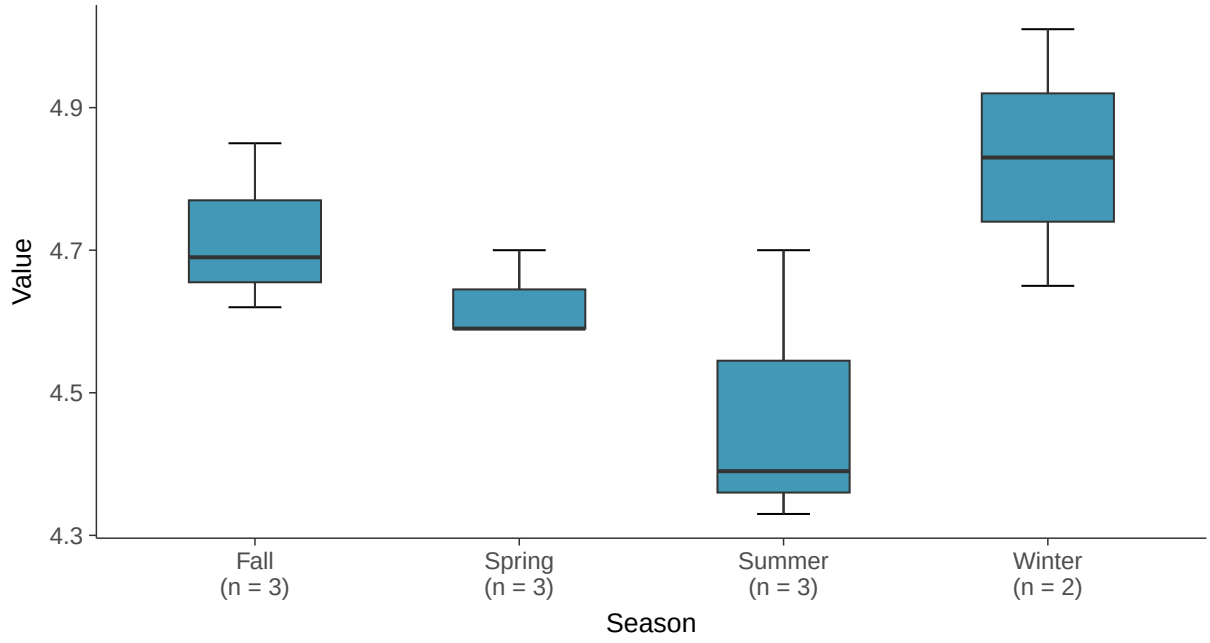
Boxplot

Boron, MW-16D (mg/L)



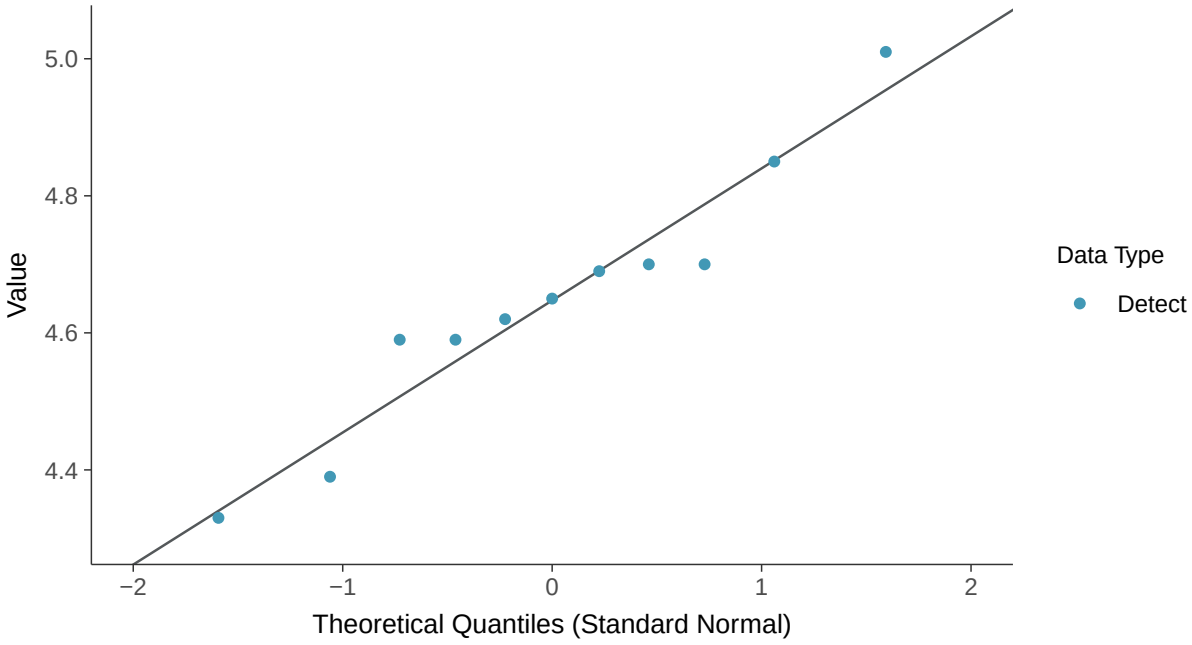
Boxplot by Season

Boron, MW-16D (mg/L)



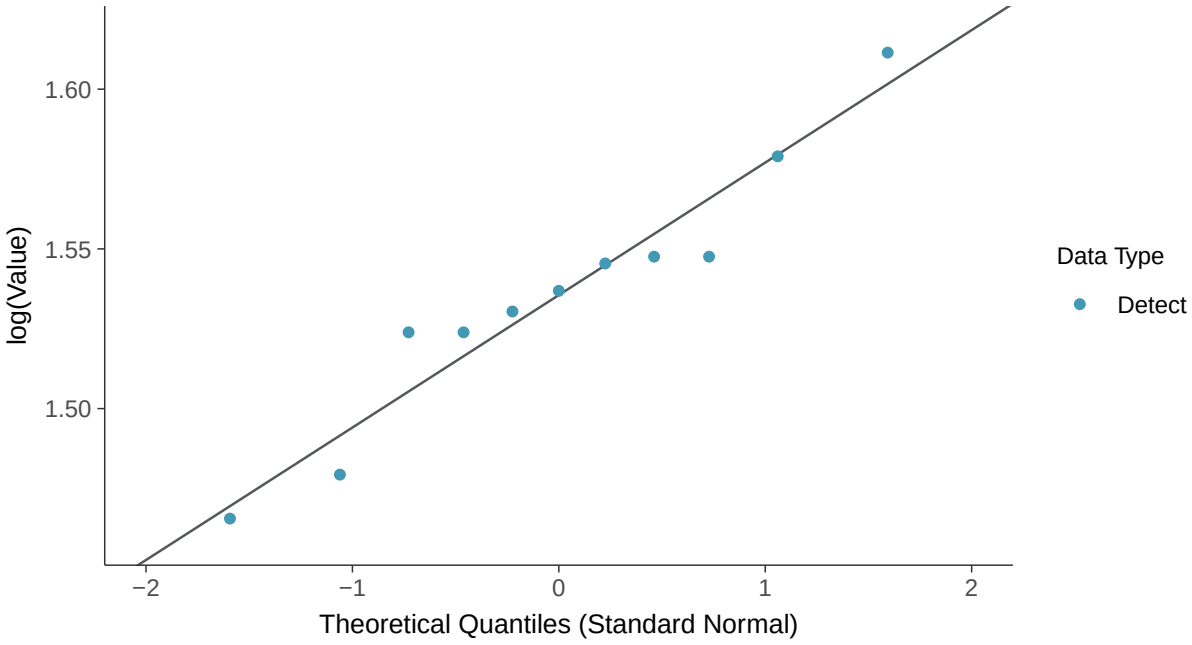
Normal Q-Q plot

Boron, MW-16D (mg/L)



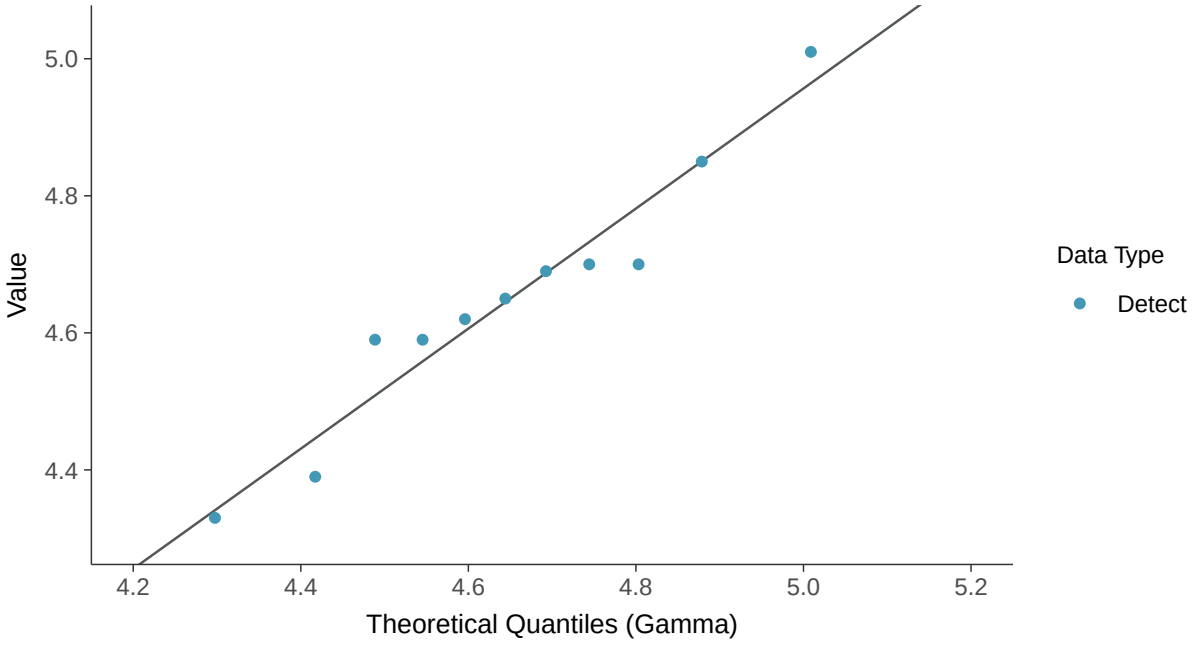
Lognormal Q-Q plot

Boron, MW-16D (mg/L)



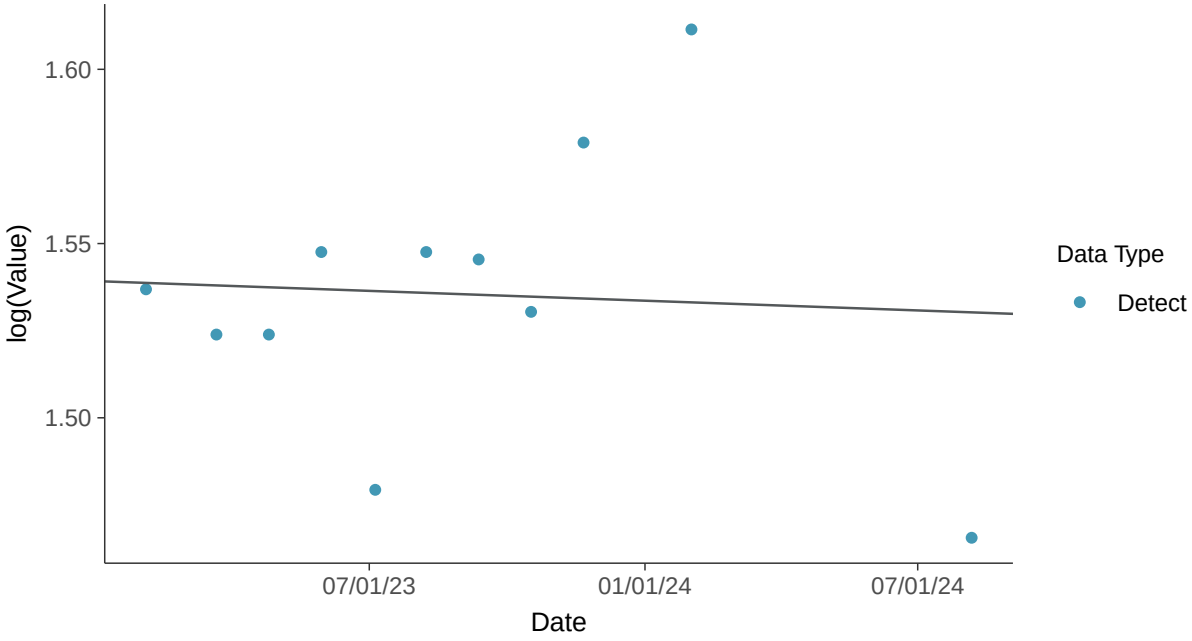
Gamma Q-Q plot

Boron, MW-16D (mg/L)



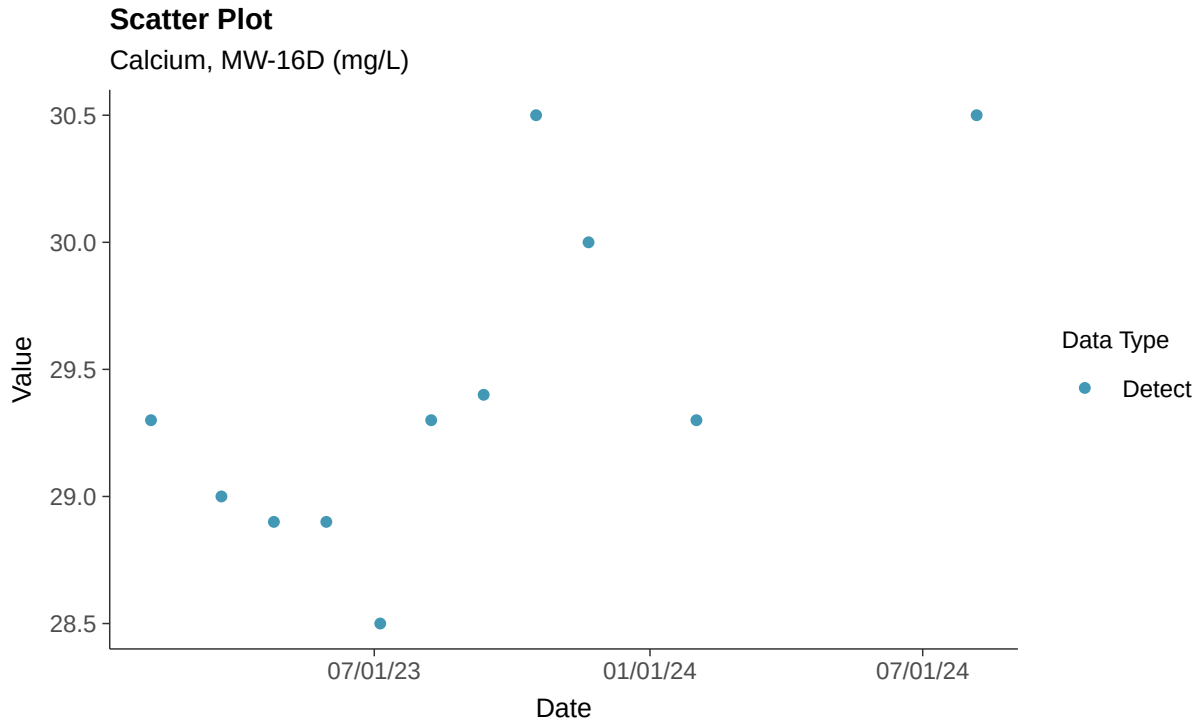
Trend Regression: Lognormal MLE

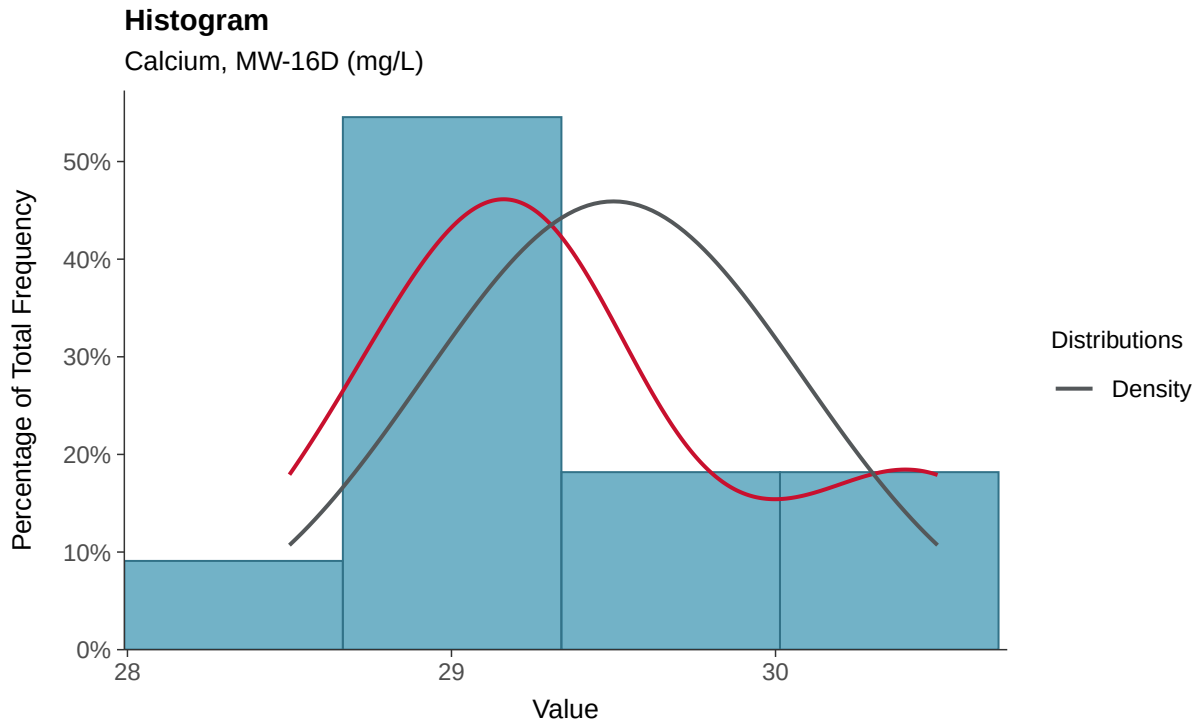
Boron, MW-16D (mg/L)



Appendix III: Calcium, MW-16D

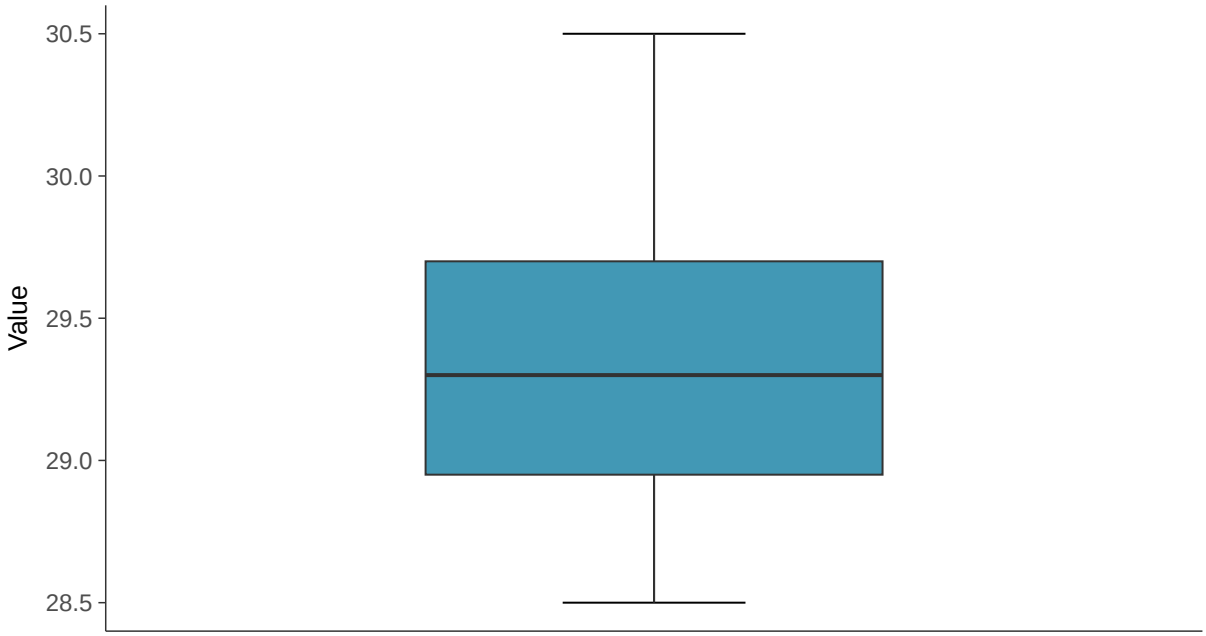
ID: 16D_1_02





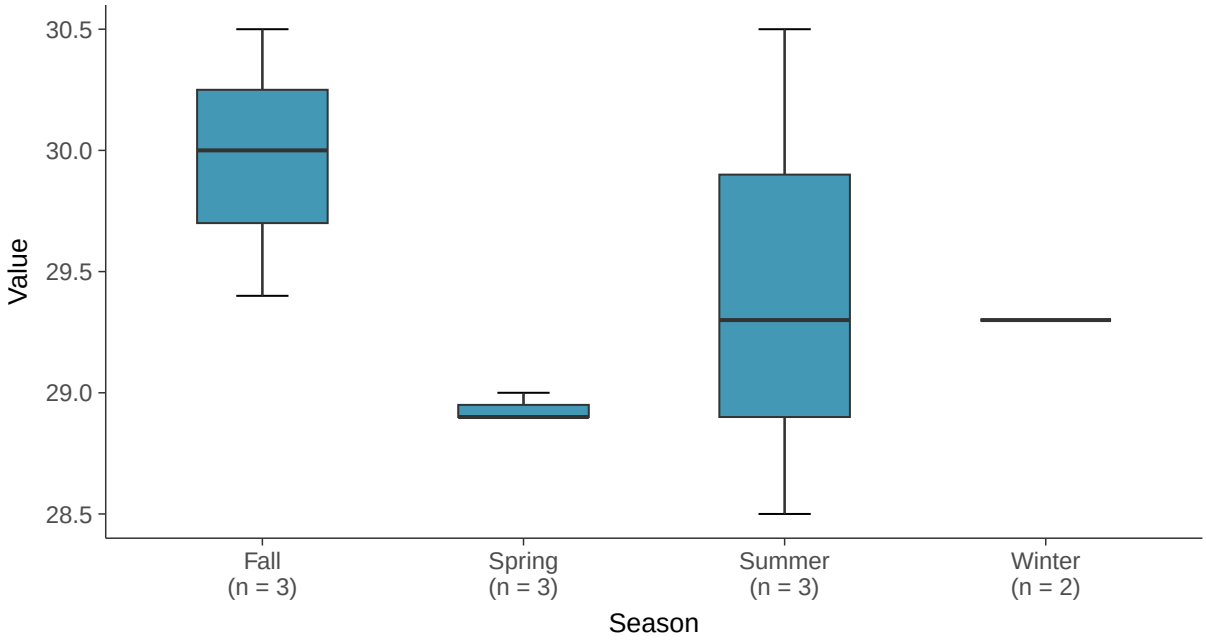
Boxplot

Calcium, MW-16D (mg/L)



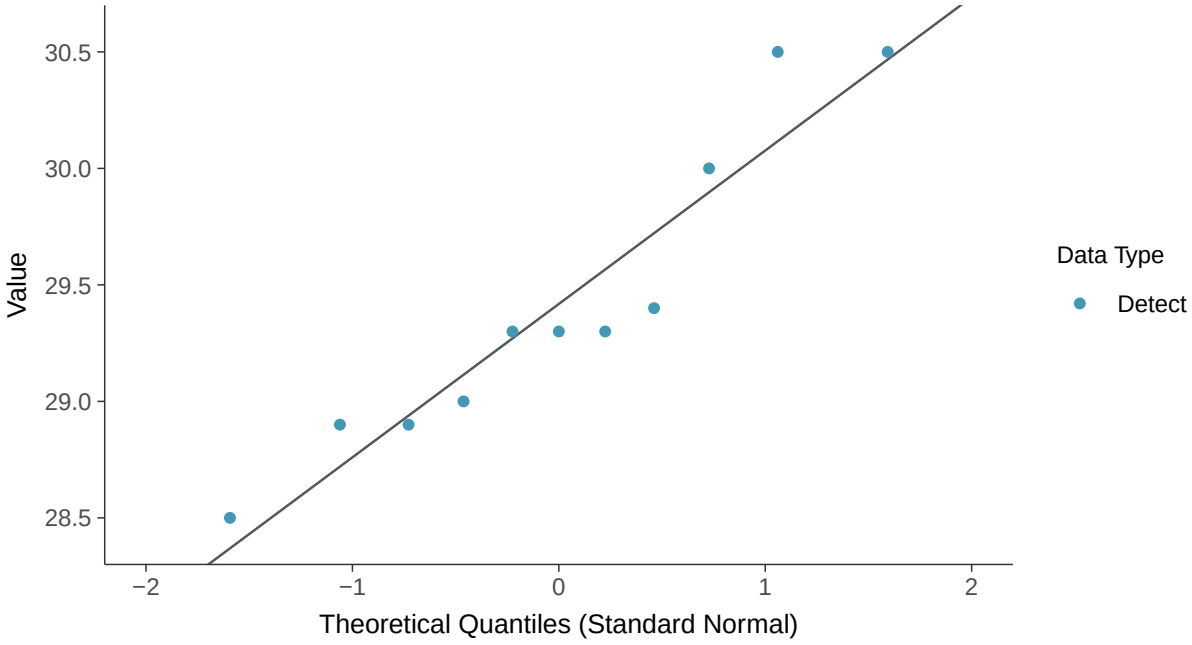
Boxplot by Season

Calcium, MW-16D (mg/L)



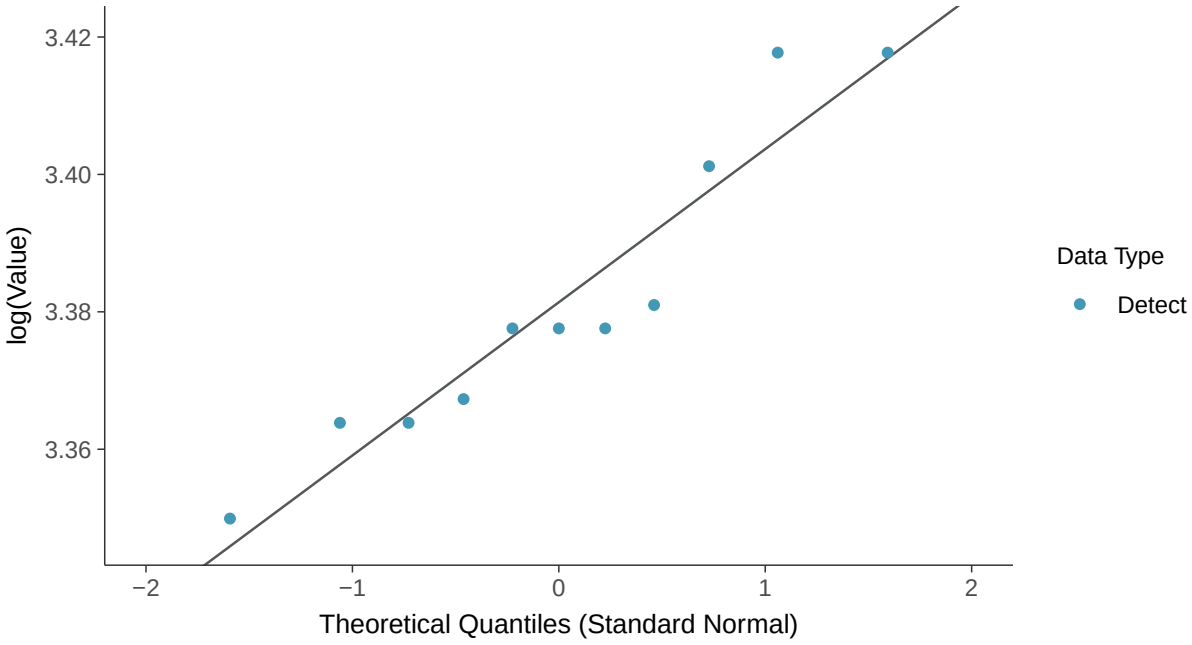
Normal Q-Q plot

Calcium, MW-16D (mg/L)



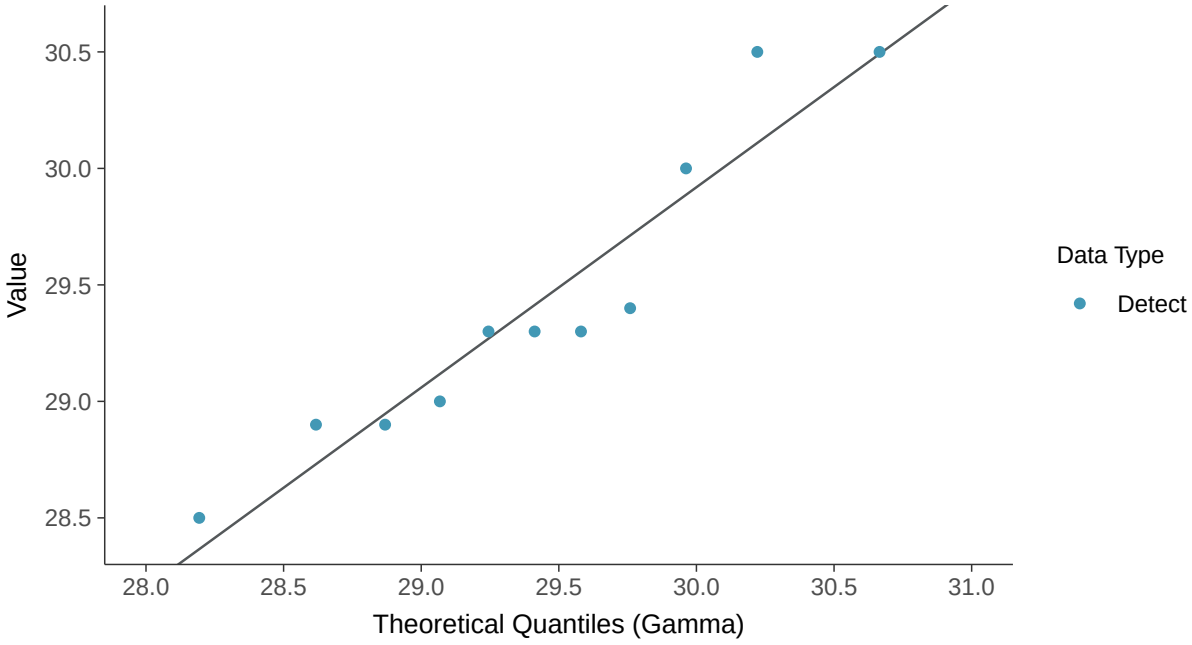
Lognormal Q-Q plot

Calcium, MW-16D (mg/L)



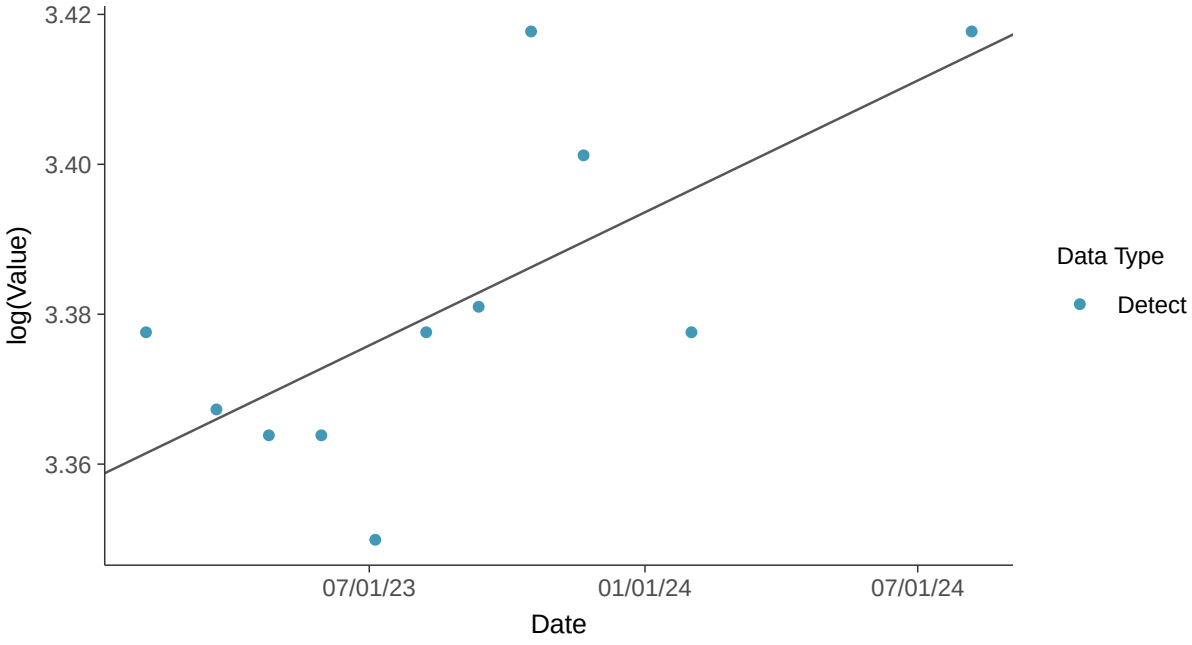
Gamma Q-Q plot

Calcium, MW-16D (mg/L)



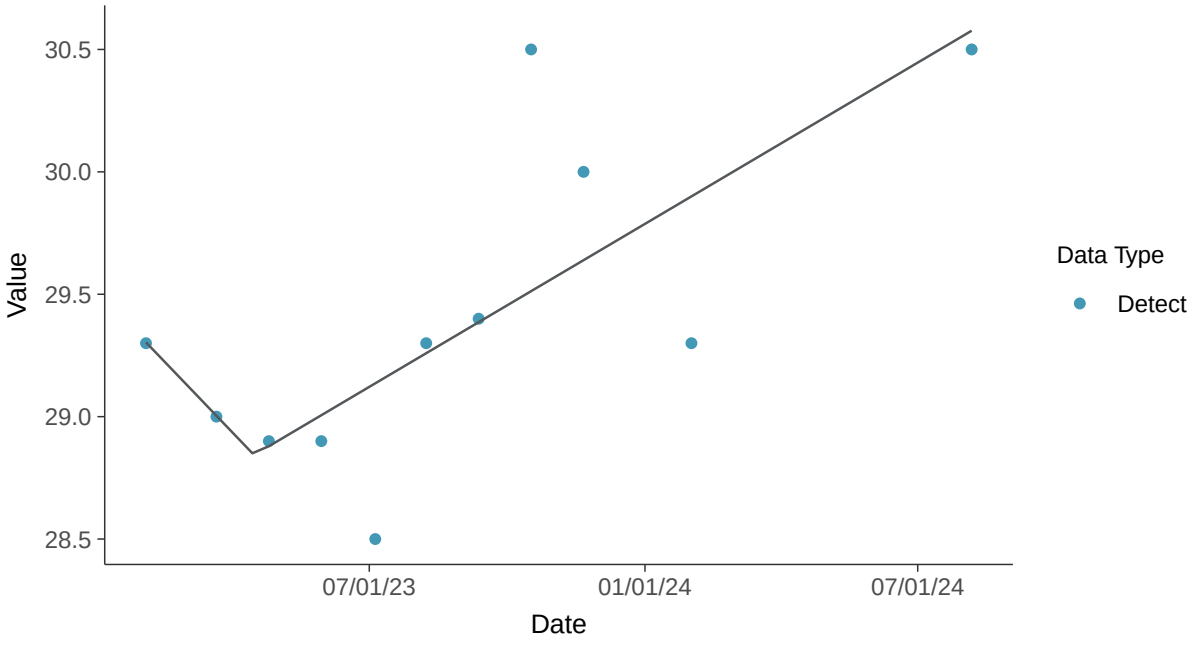
Trend Regression: Lognormal MLE

Calcium, MW-16D (mg/L)



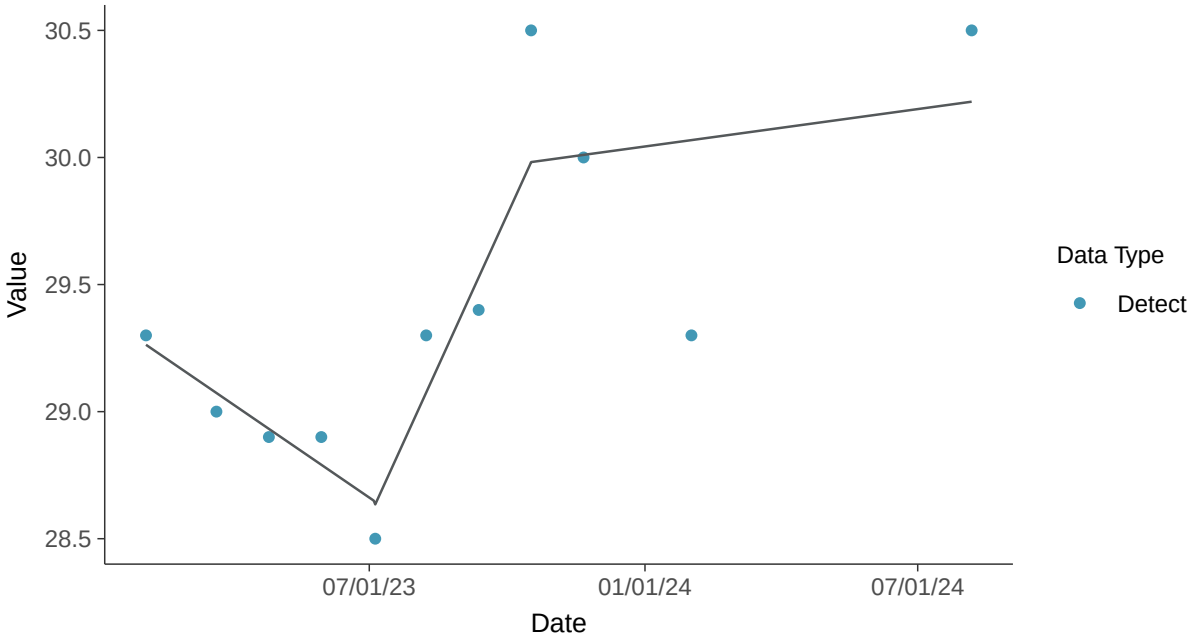
Trend Regression: Piecewise Linear-Linear

Calcium, MW-16D (mg/L)



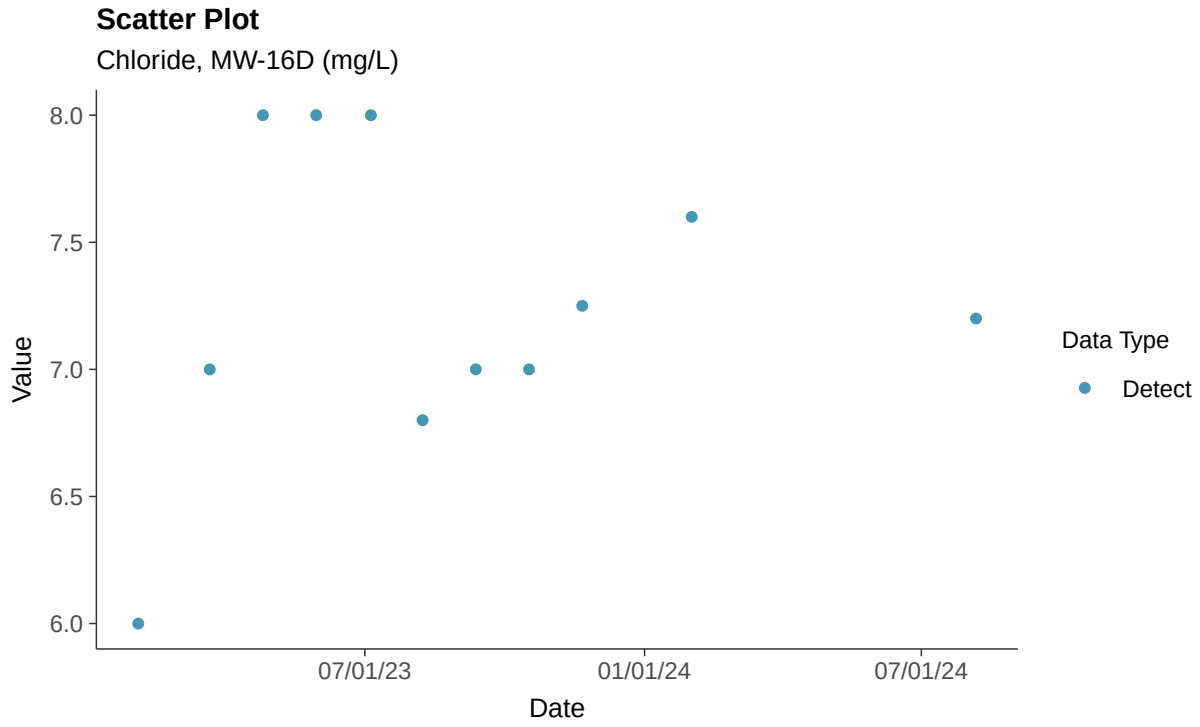
Trend Regression: Piecewise Linear-Linear-Linear

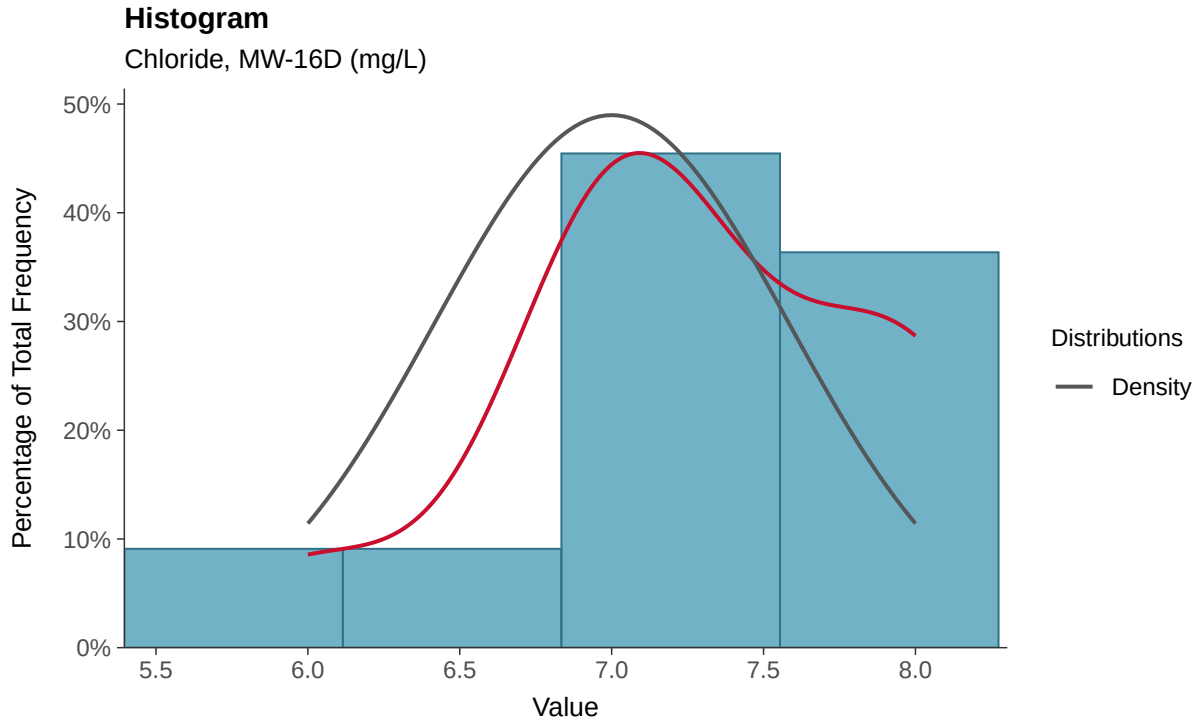
Calcium, MW-16D (mg/L)



Appendix III: Chloride, MW-16D

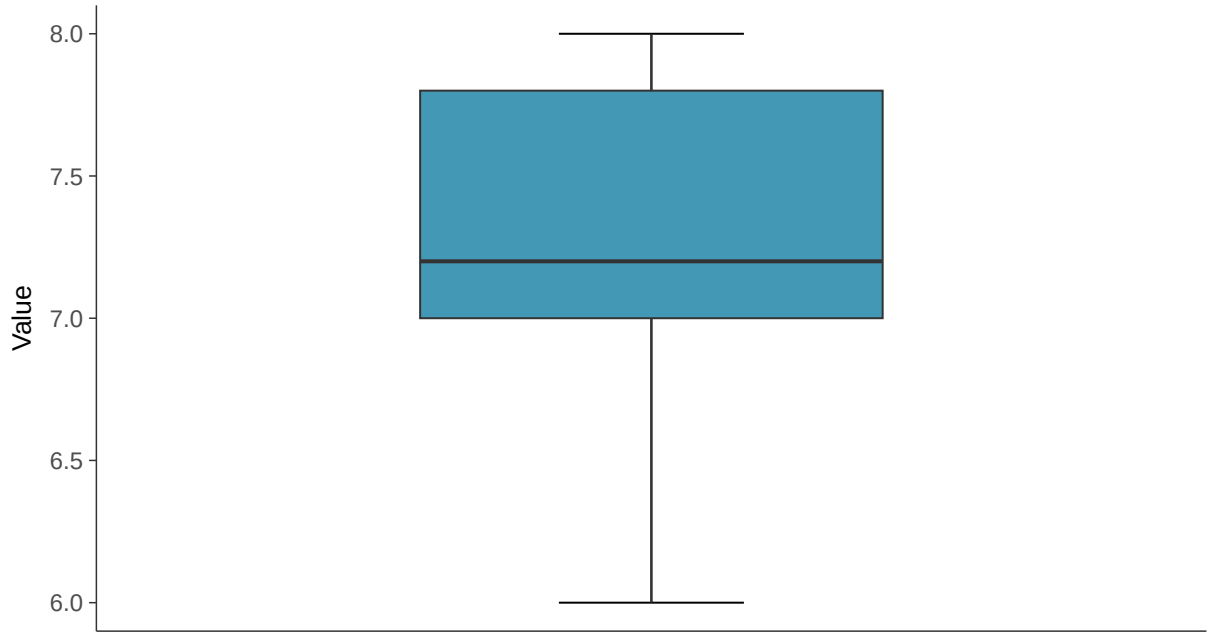
ID: 16D_1_03





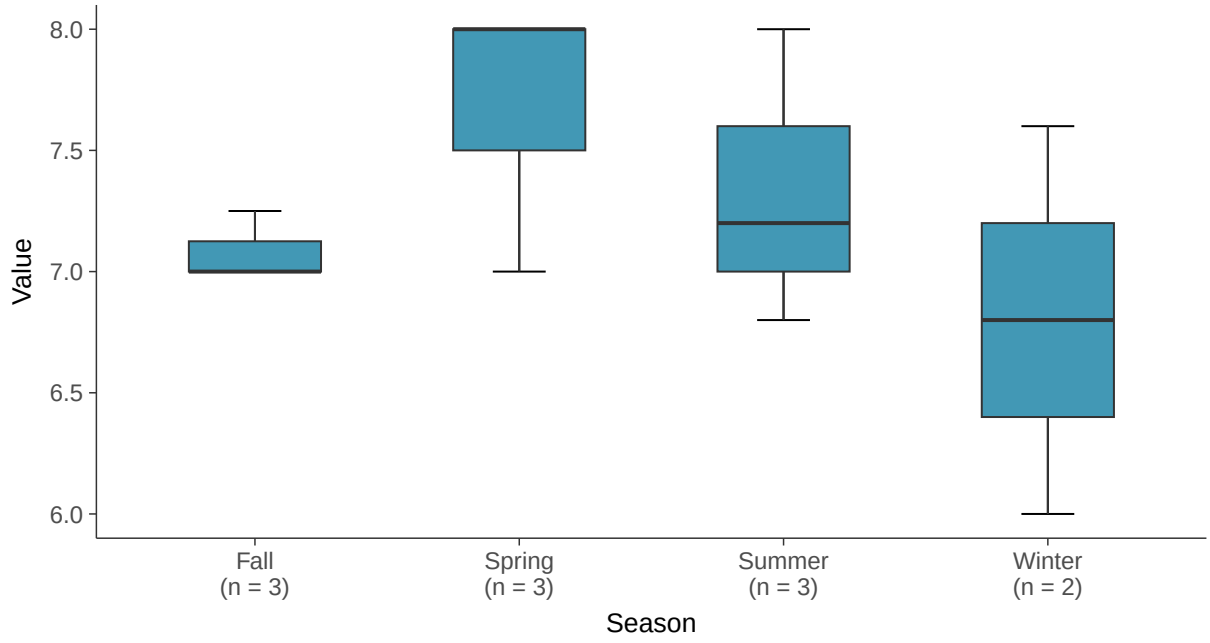
Boxplot

Chloride, MW-16D (mg/L)



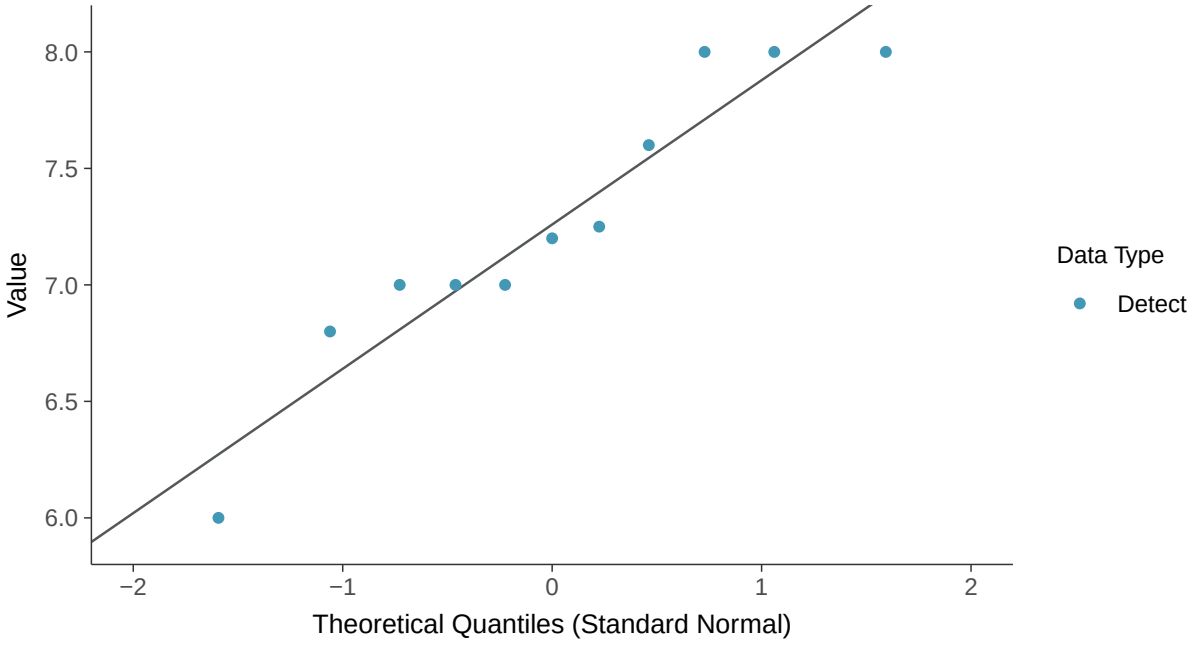
Boxplot by Season

Chloride, MW-16D (mg/L)



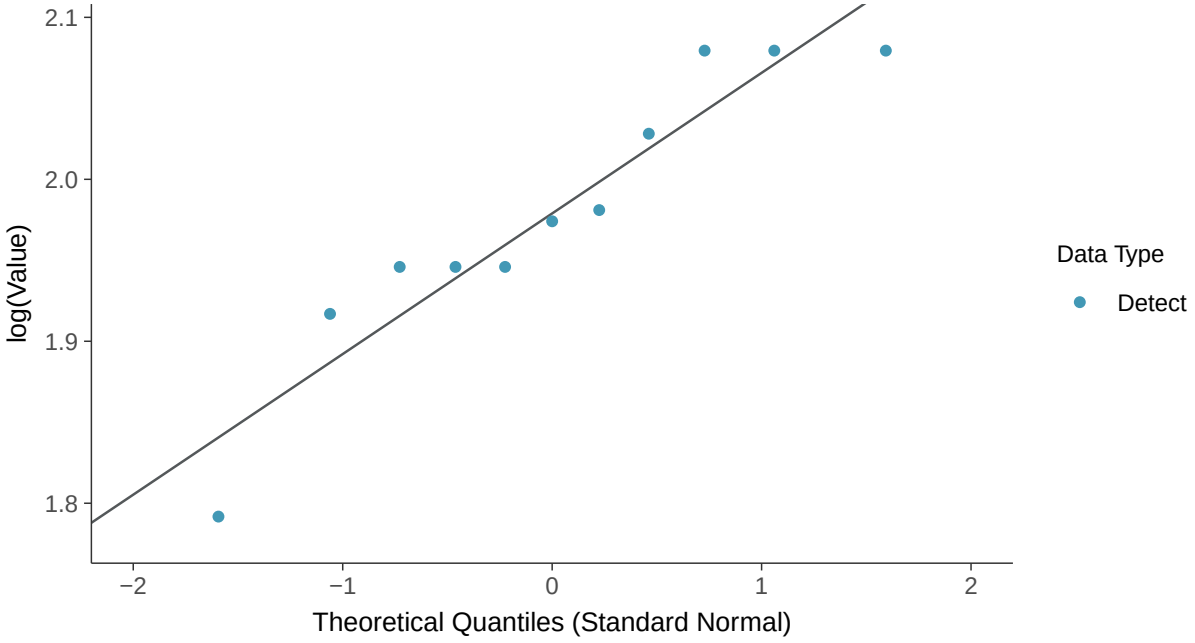
Normal Q-Q plot

Chloride, MW-16D (mg/L)



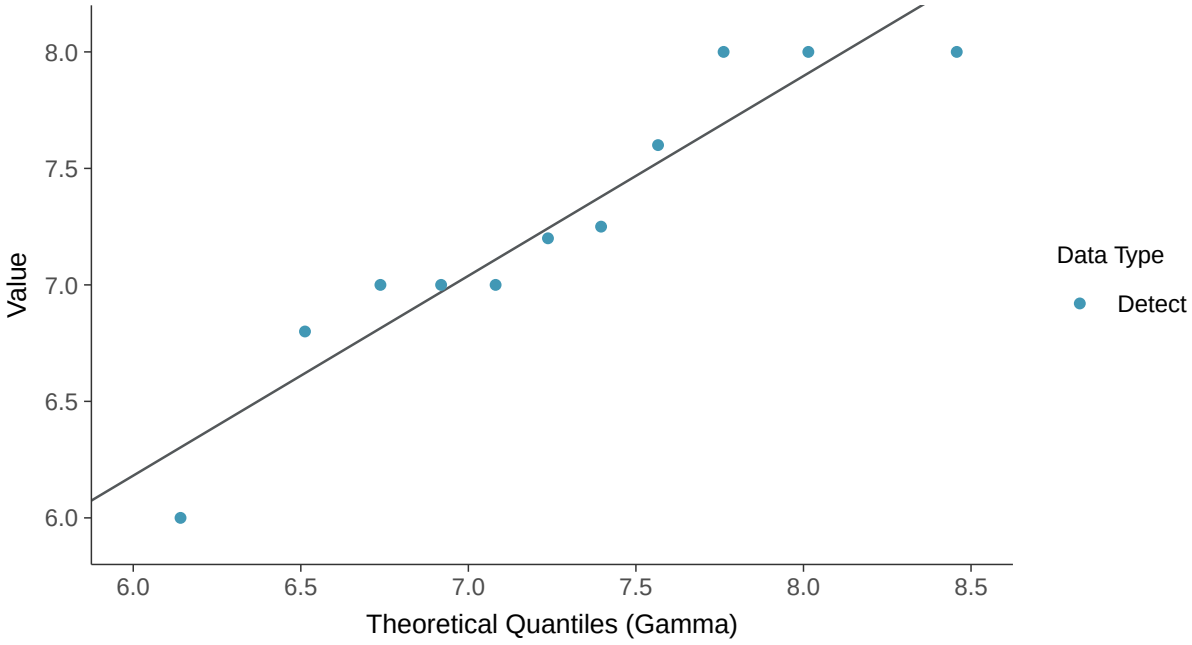
Lognormal Q-Q plot

Chloride, MW-16D (mg/L)



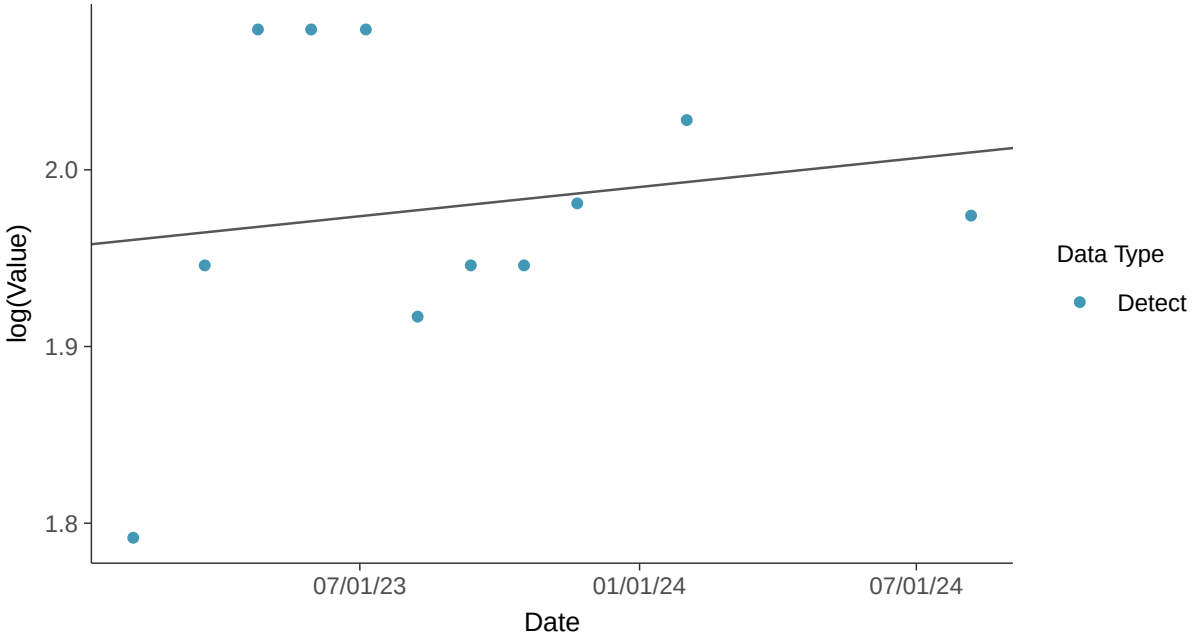
Gamma Q-Q plot

Chloride, MW-16D (mg/L)



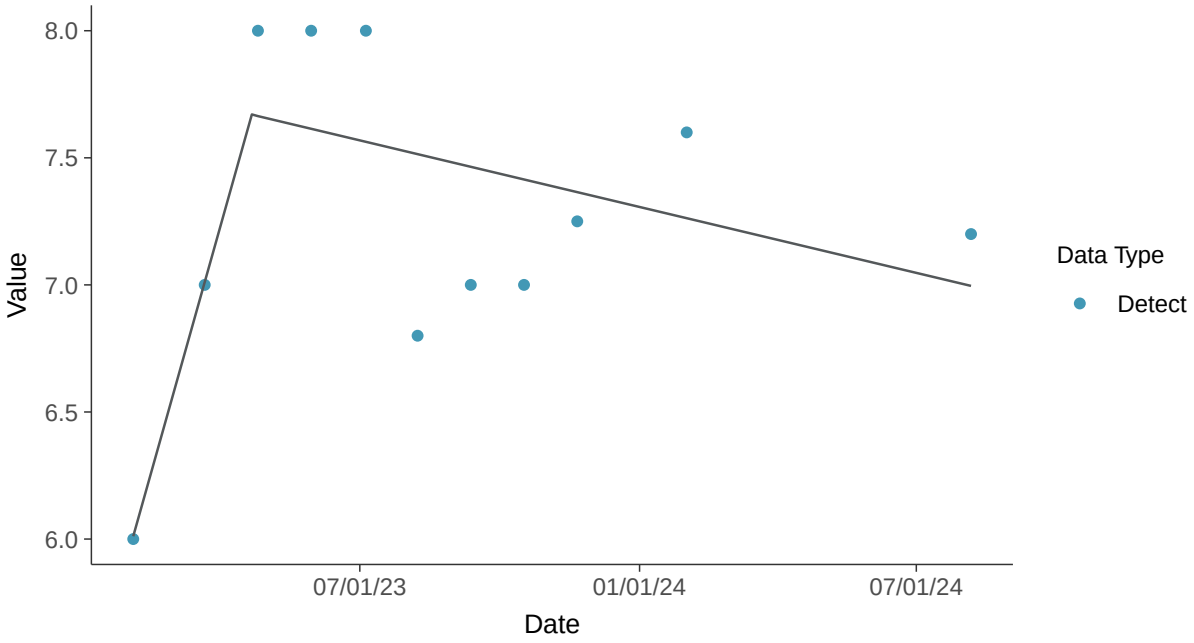
Trend Regression: Lognormal MLE

Chloride, MW-16D (mg/L)



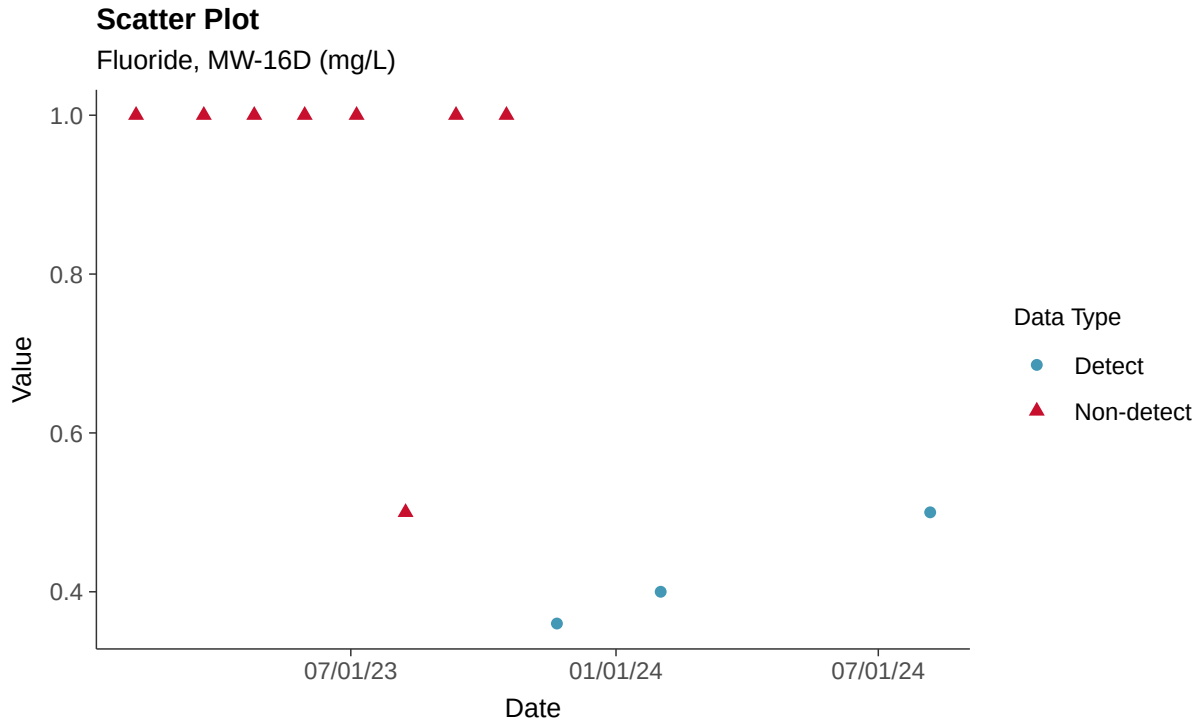
Trend Regression: Piecewise Linear-Linear

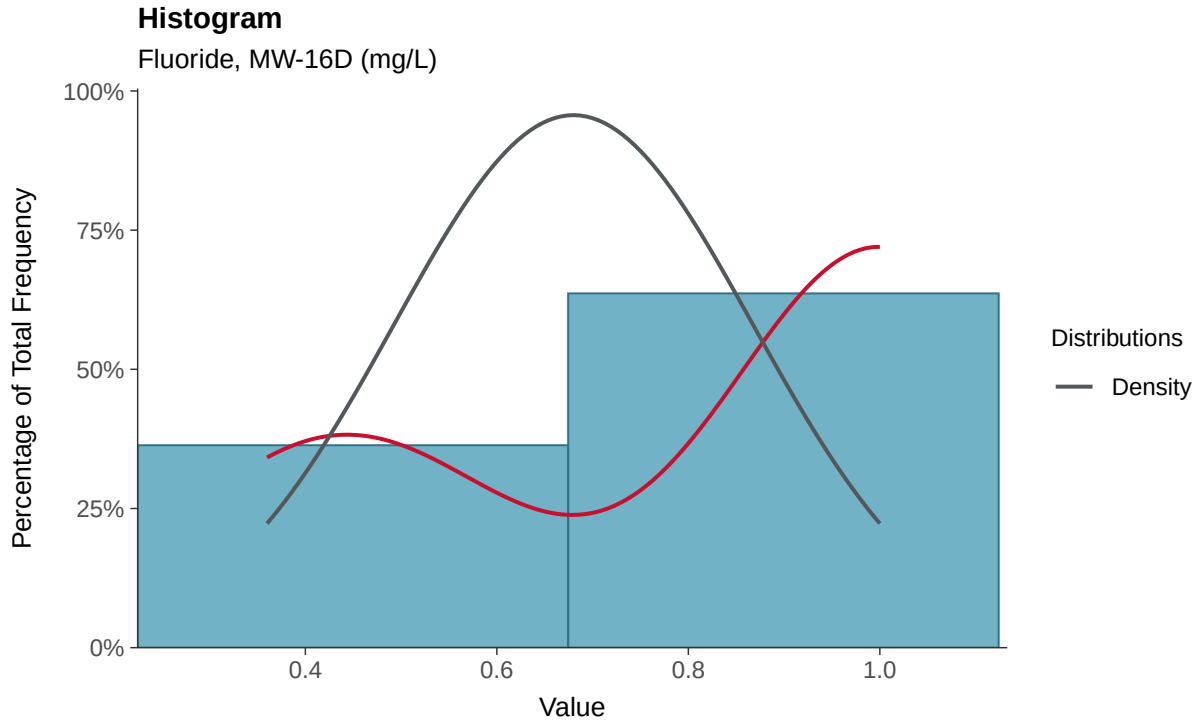
Chloride, MW-16D (mg/L)



Appendix III: Fluoride, MW-16D

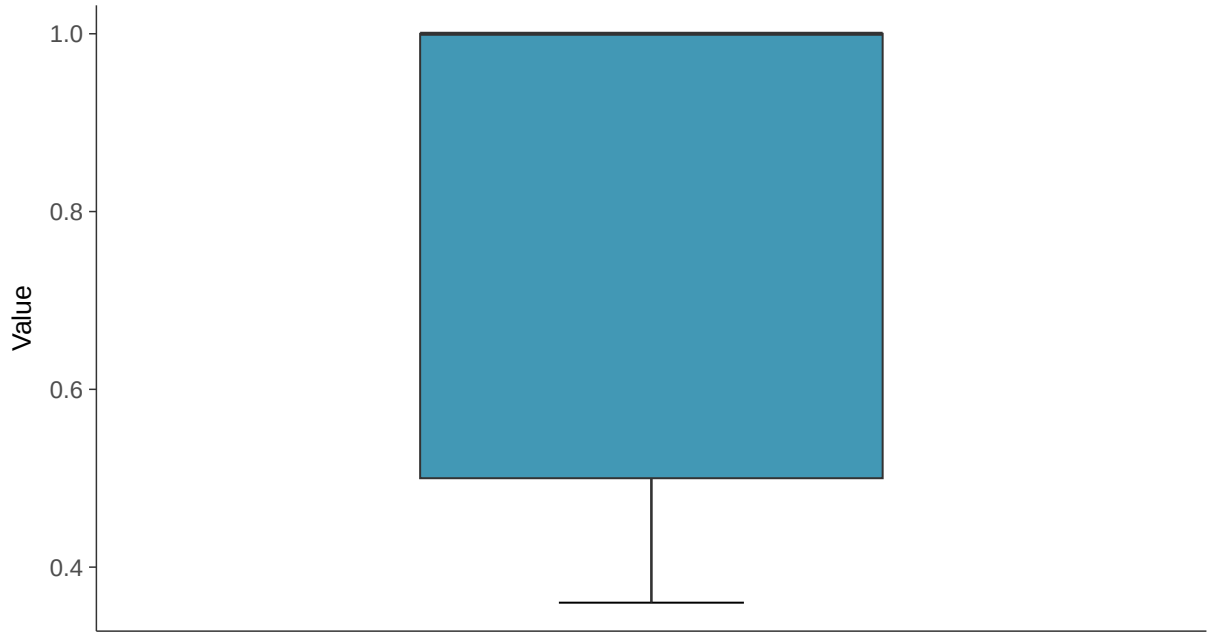
ID: 16D_1_04





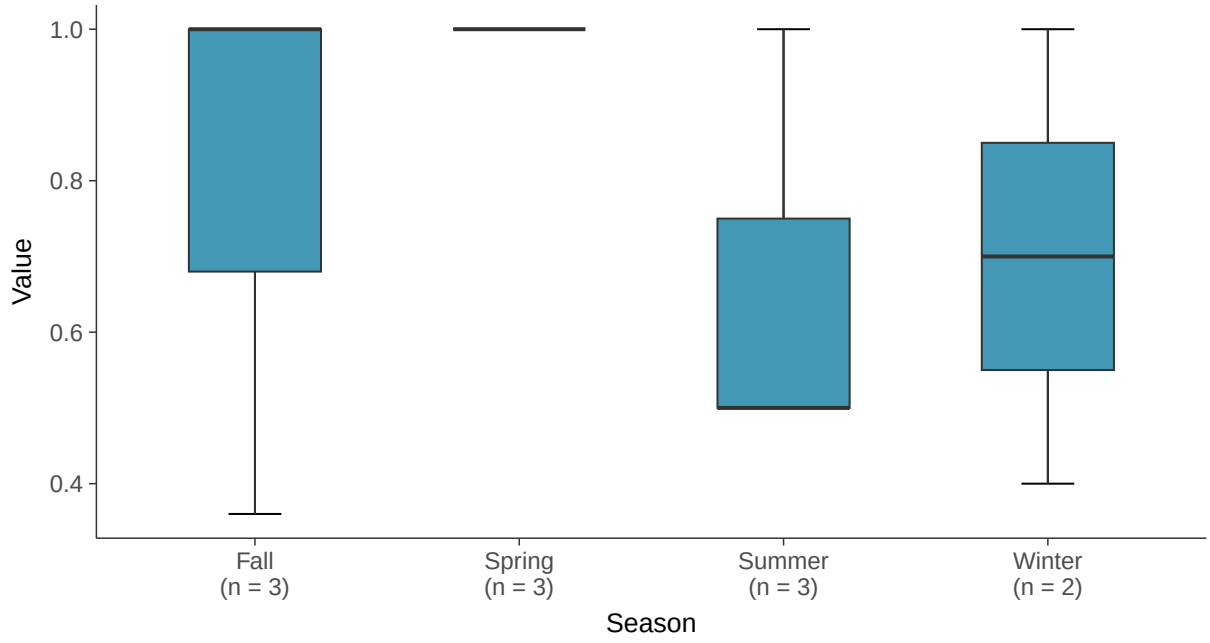
Boxplot

Fluoride, MW-16D (mg/L)



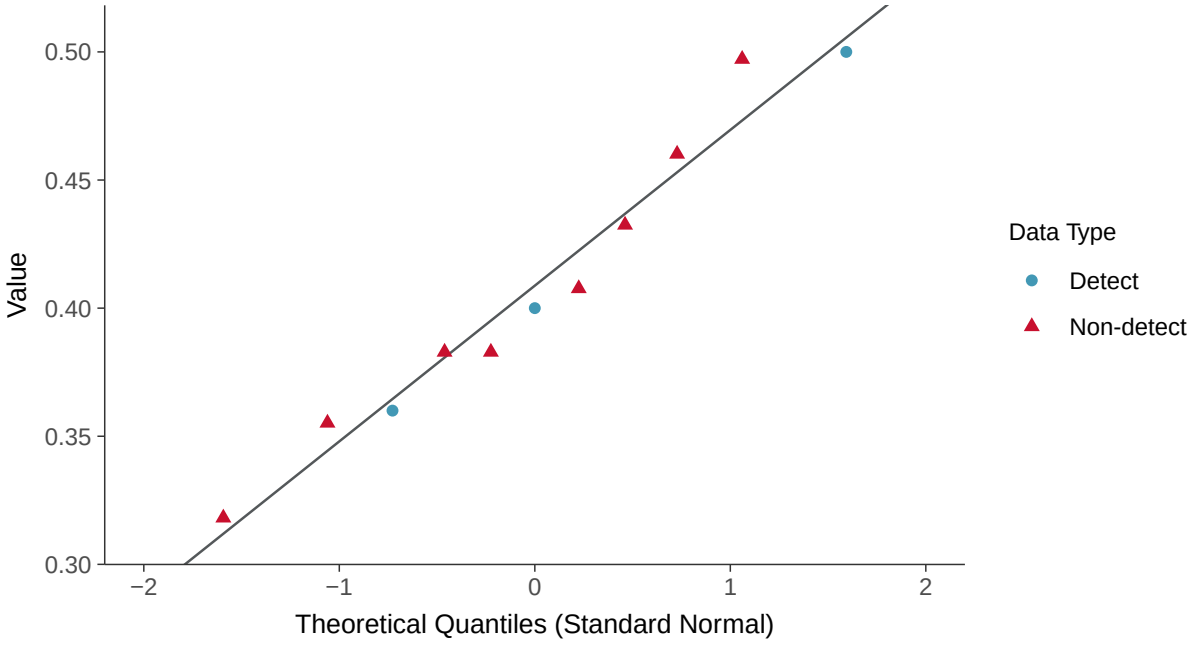
Boxplot by Season

Fluoride, MW-16D (mg/L)



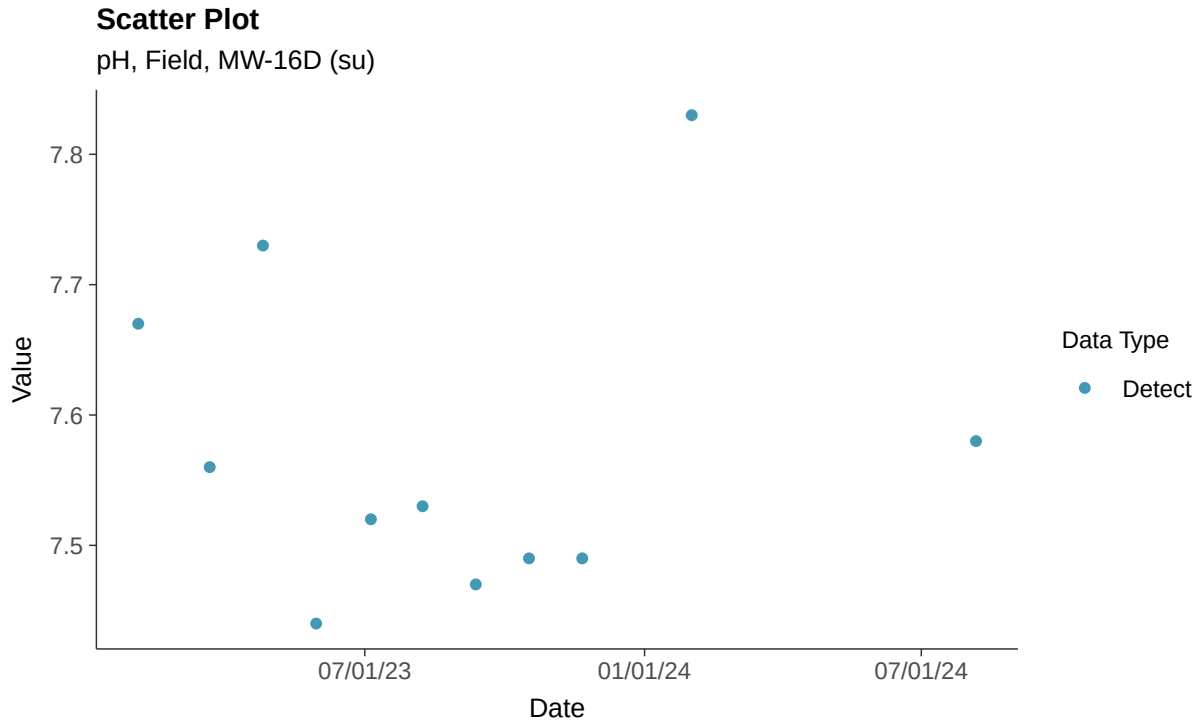
Normal Q-Q plot using ROS Imputed Estimates

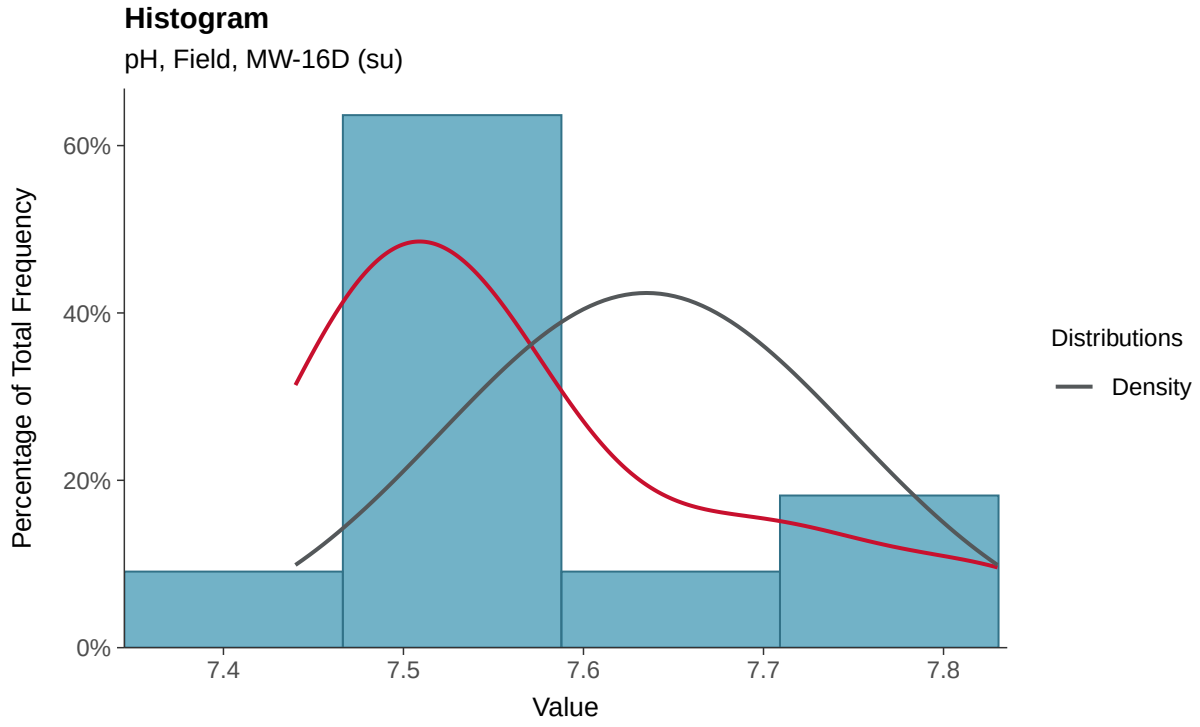
Fluoride, MW-16D (mg/L)



Appendix III: pH, Field, MW-16D

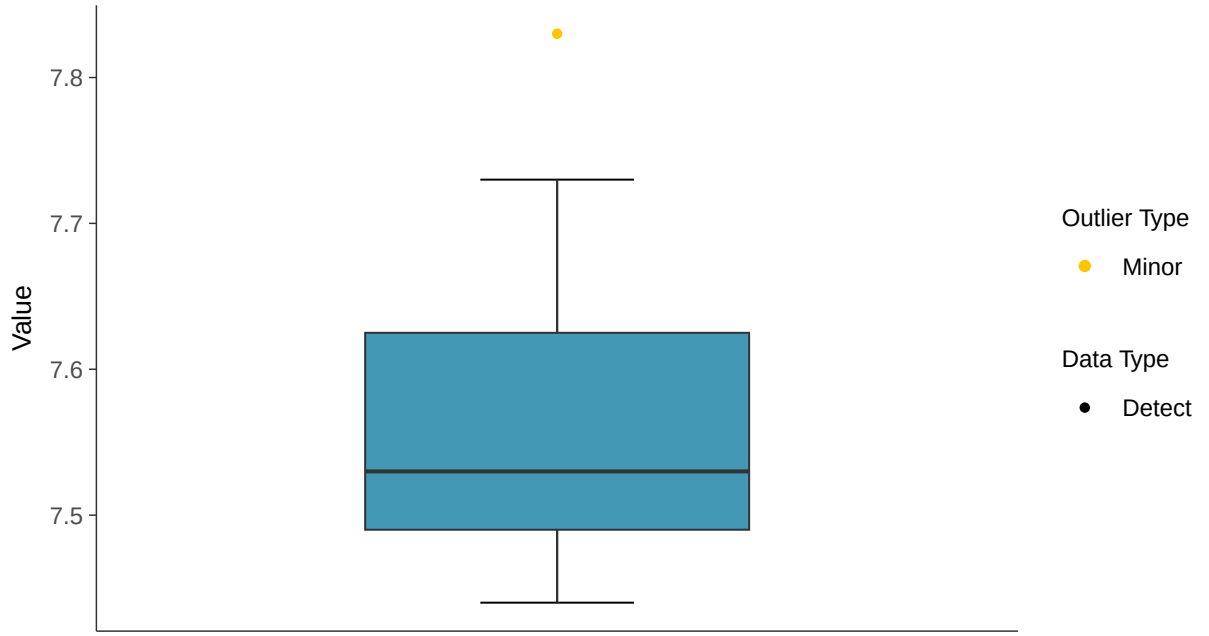
ID: 16D_1_05





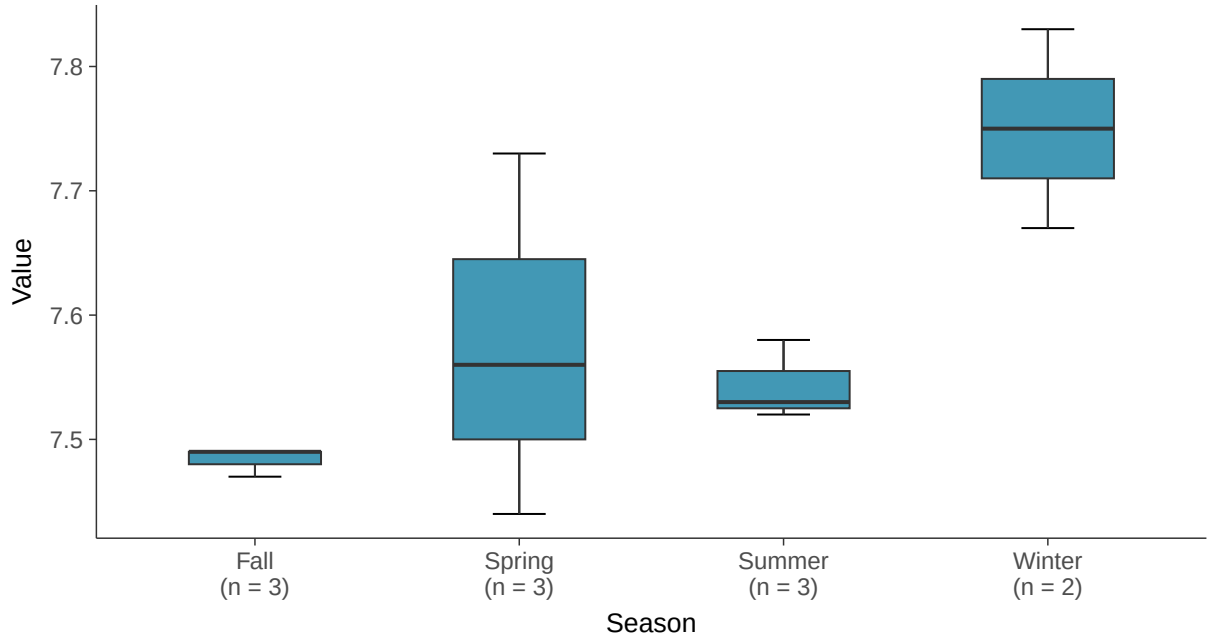
Boxplot

pH, Field, MW-16D (su)



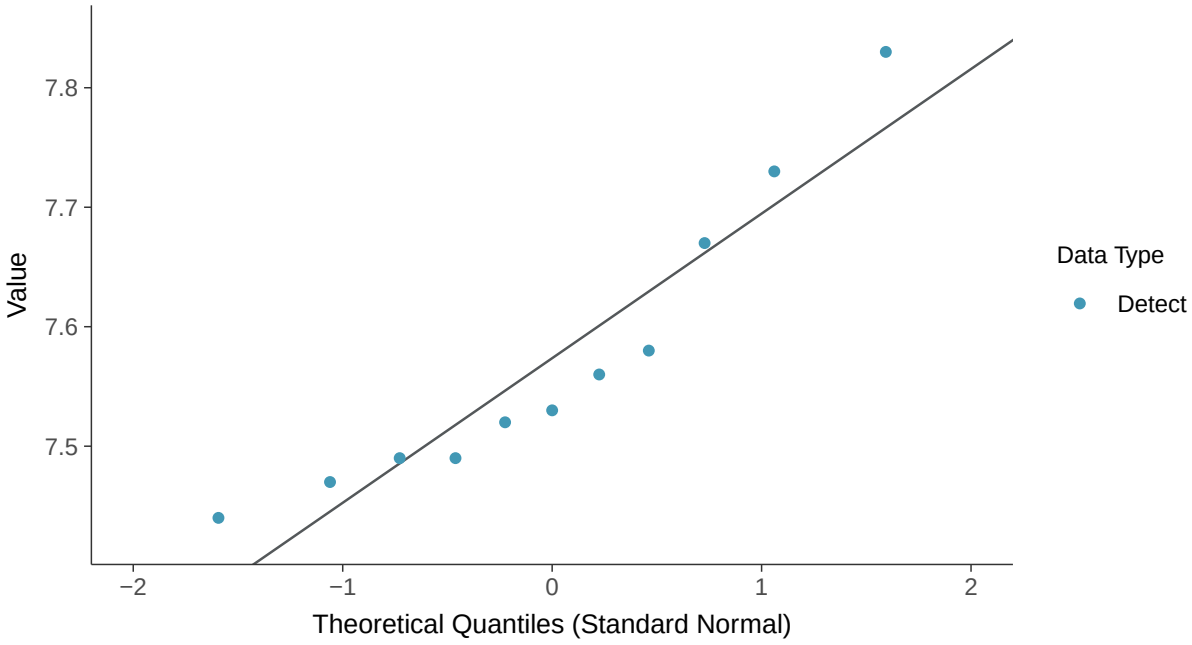
Boxplot by Season

pH, Field, MW-16D (su)



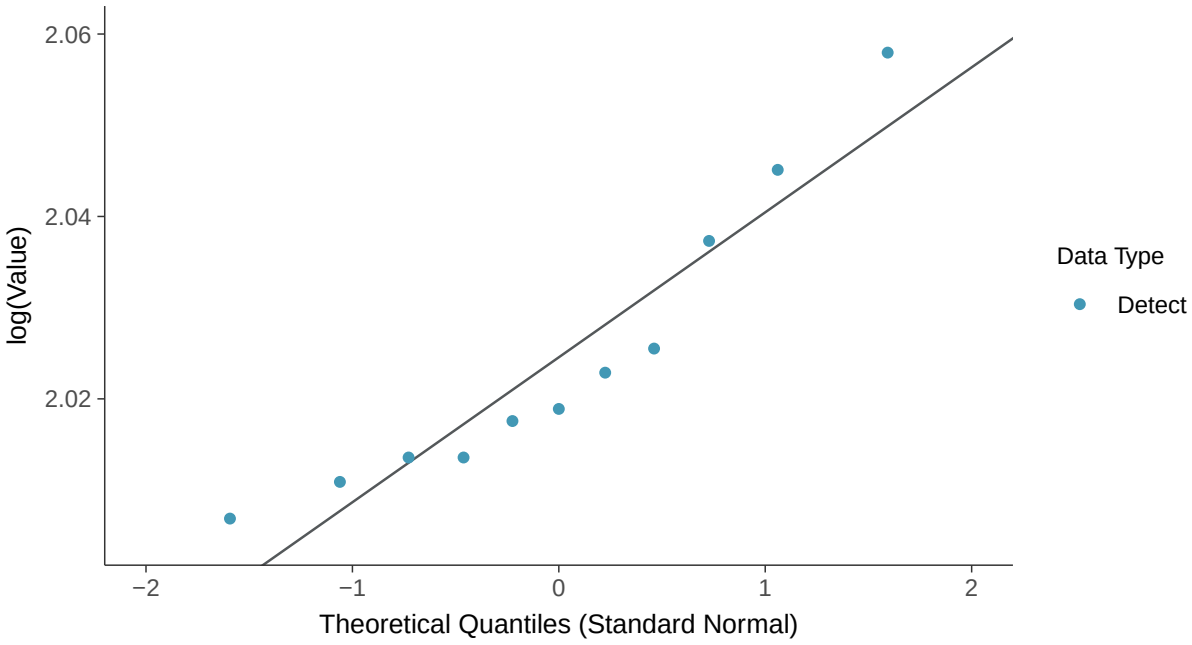
Normal Q-Q plot

pH, Field, MW-16D (su)



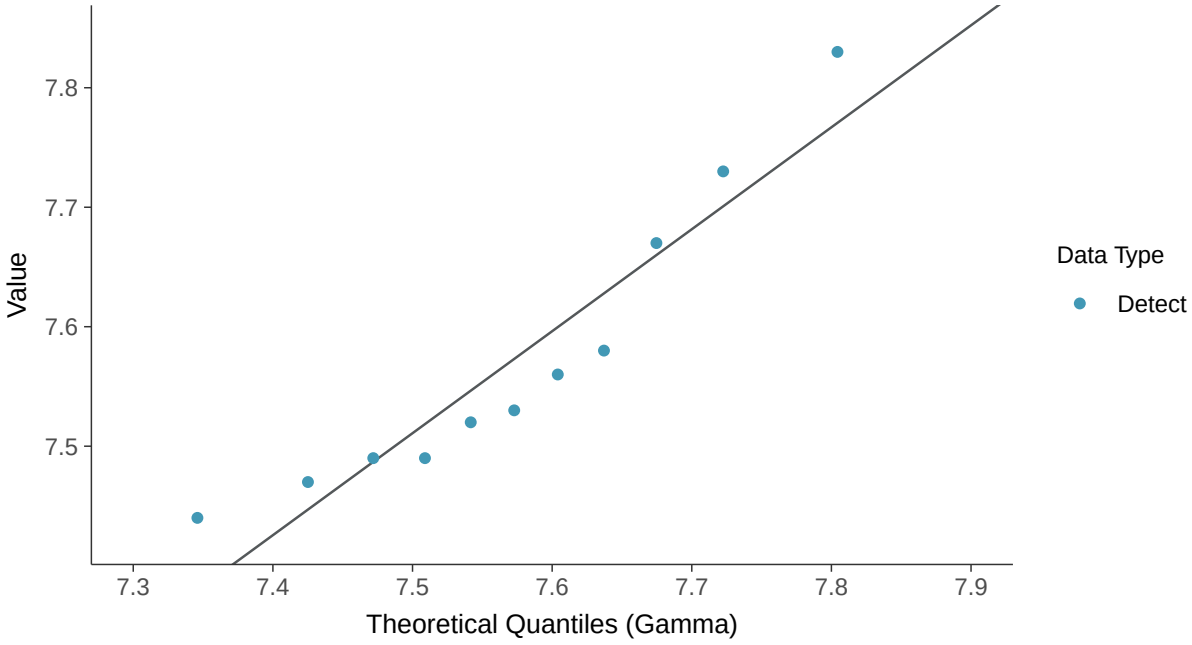
Lognormal Q-Q plot

pH, Field, MW-16D (su)



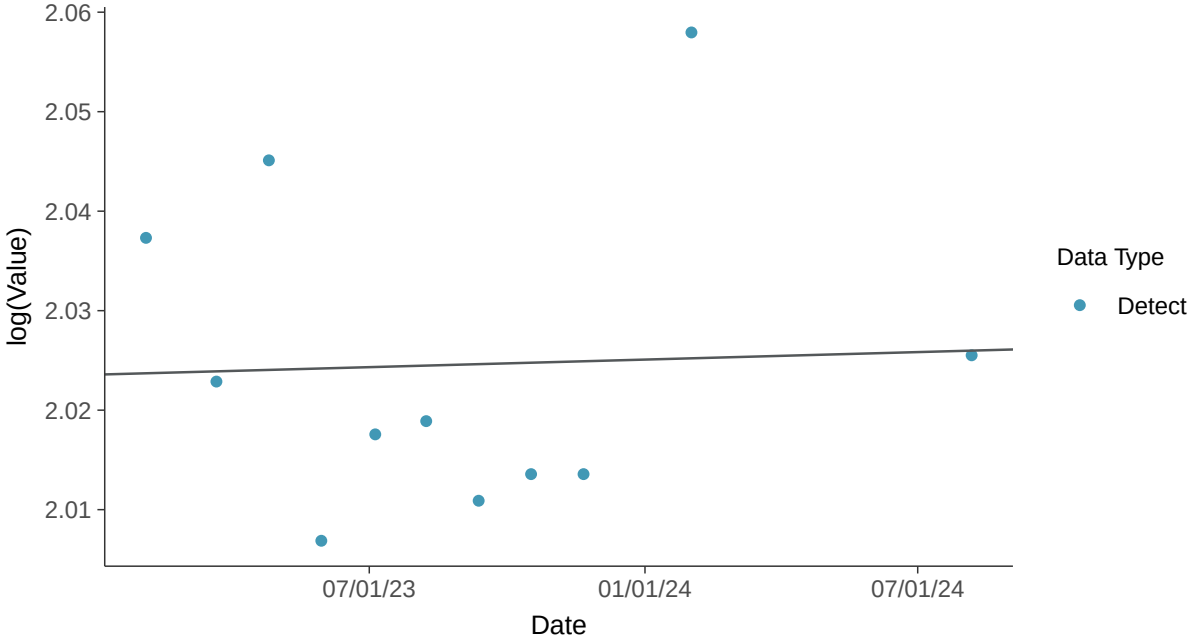
Gamma Q-Q plot

pH, Field, MW-16D (su)



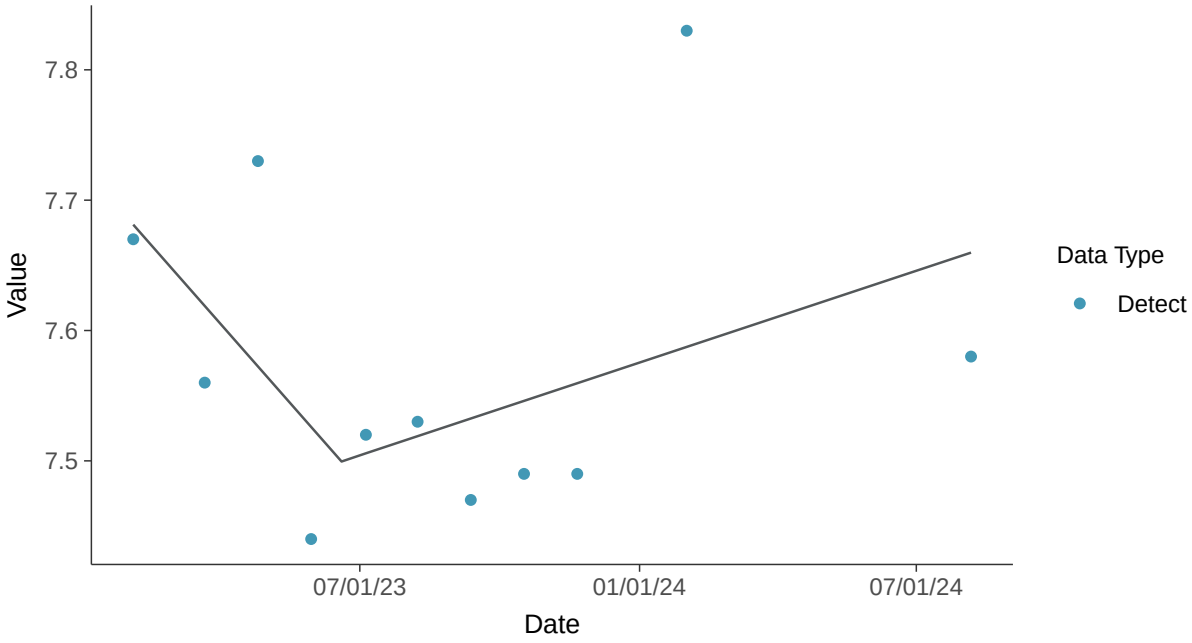
Trend Regression: Lognormal MLE

pH, Field, MW-16D (su)



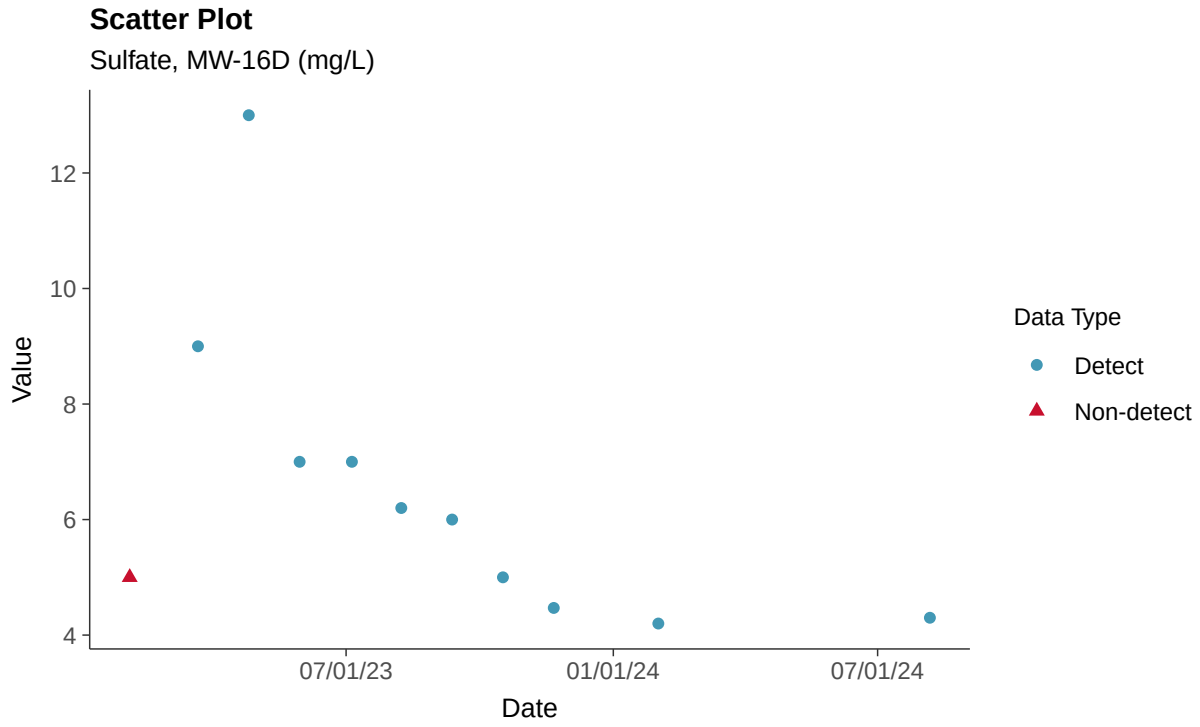
Trend Regression: Piecewise Linear-Linear

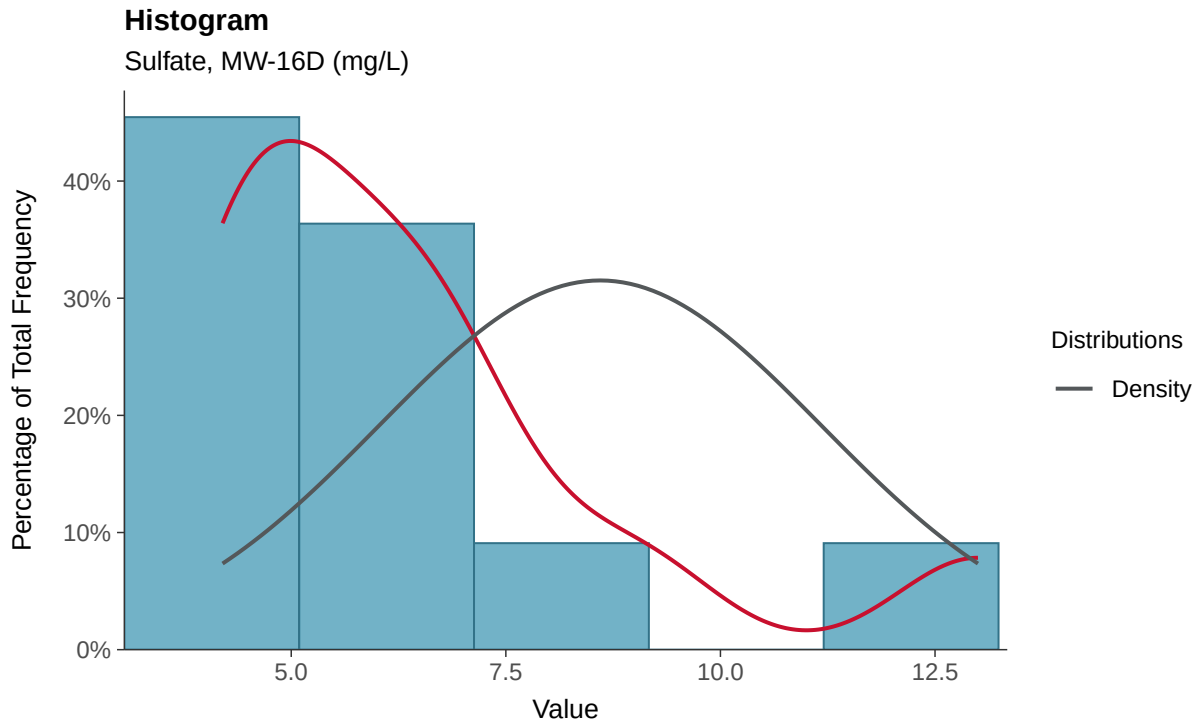
pH, Field, MW-16D (su)



Appendix III: Sulfate, MW-16D

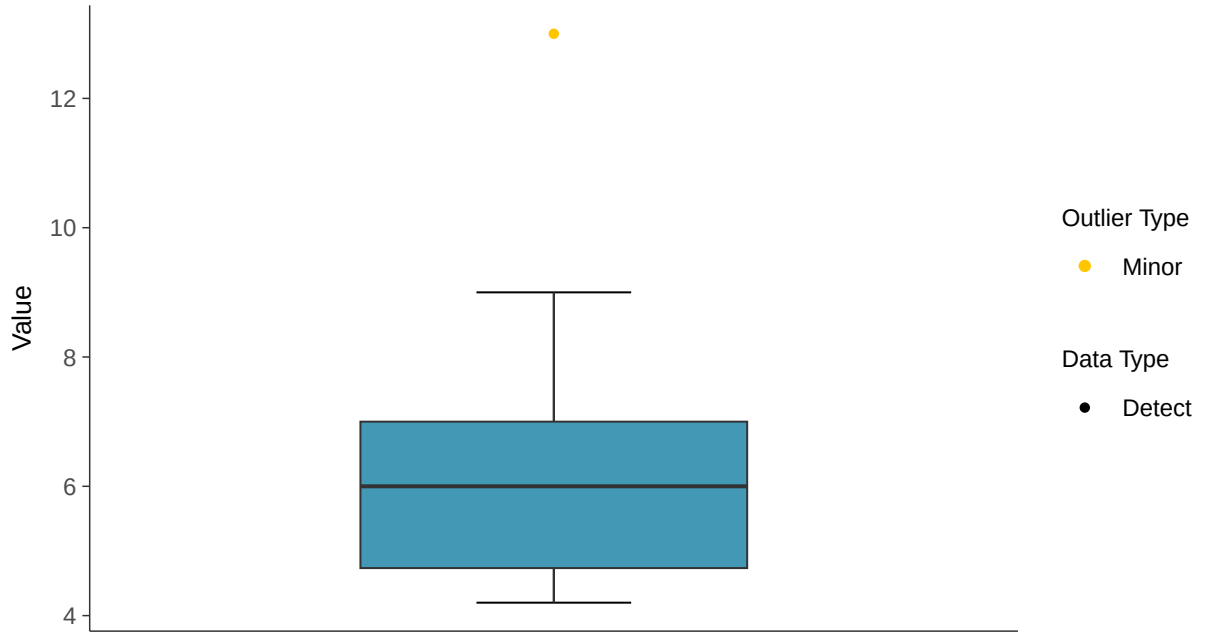
ID: 16D_1_06





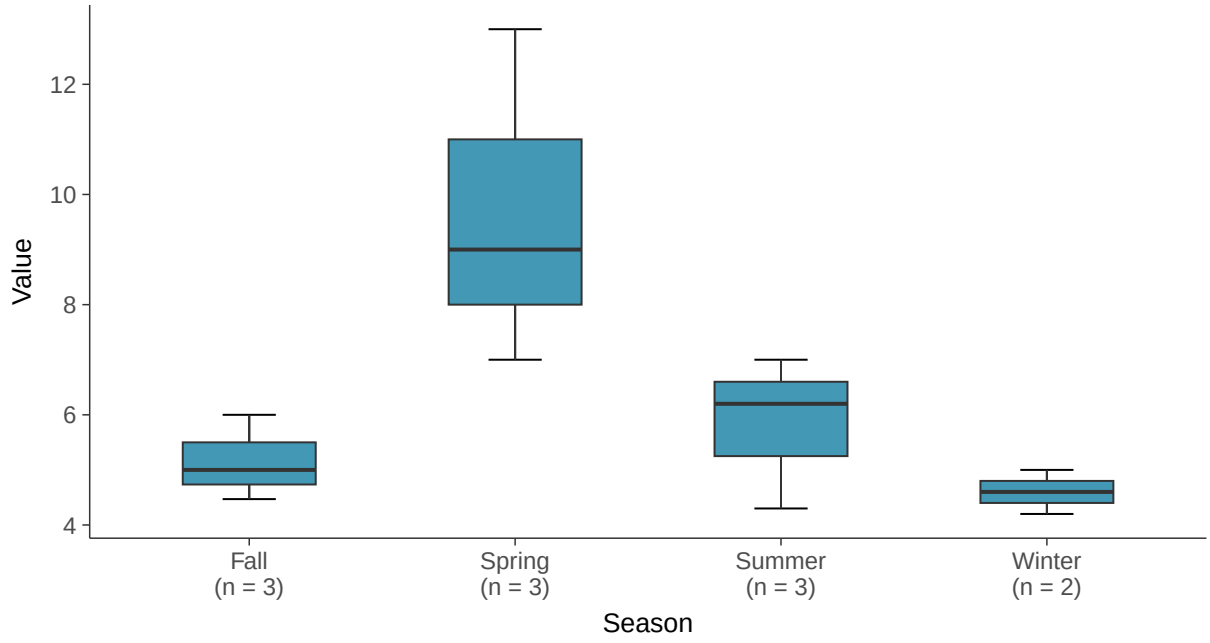
Boxplot

Sulfate, MW-16D (mg/L)



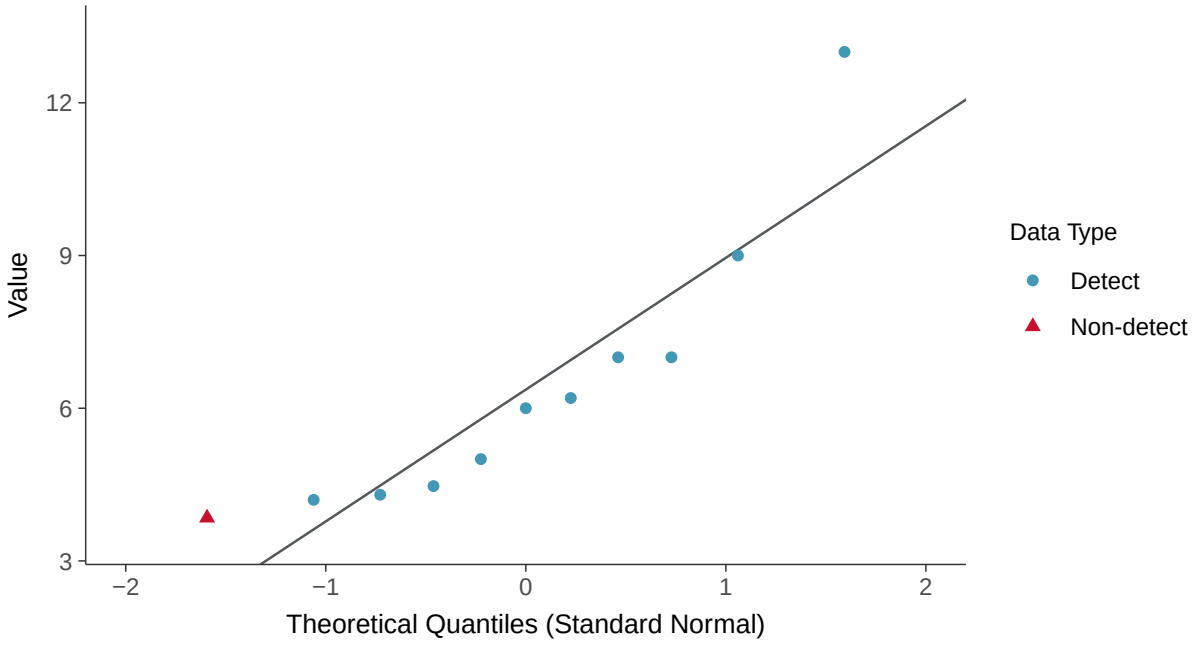
Boxplot by Season

Sulfate, MW-16D (mg/L)



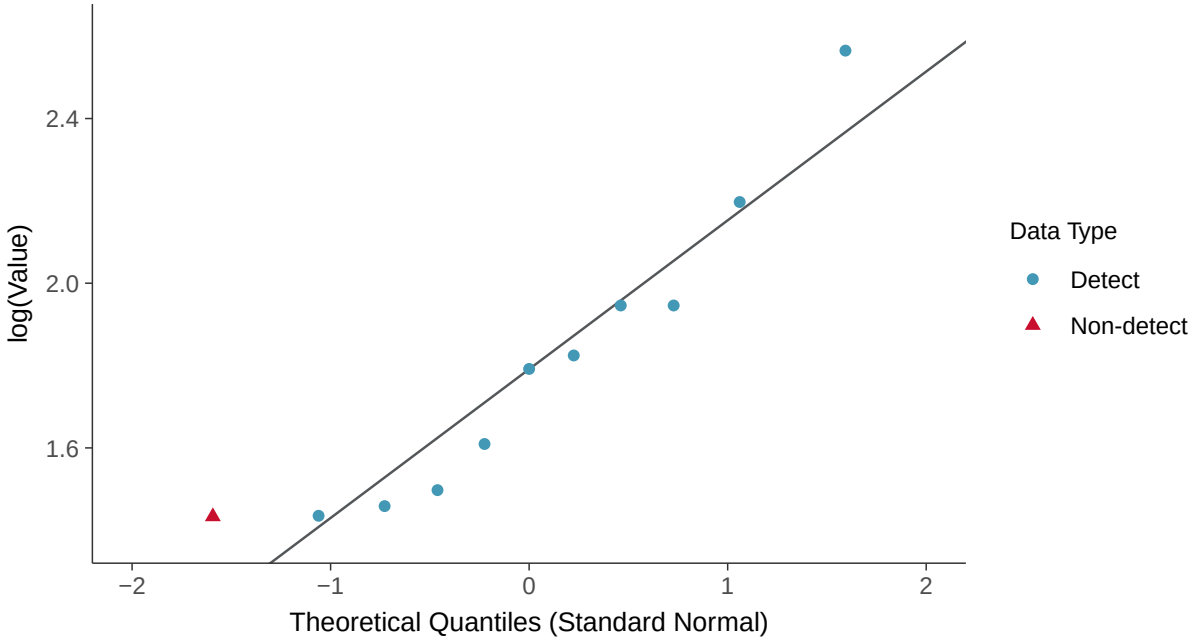
Normal Q-Q plot using ROS Imputed Estimates

Sulfate, MW-16D (mg/L)



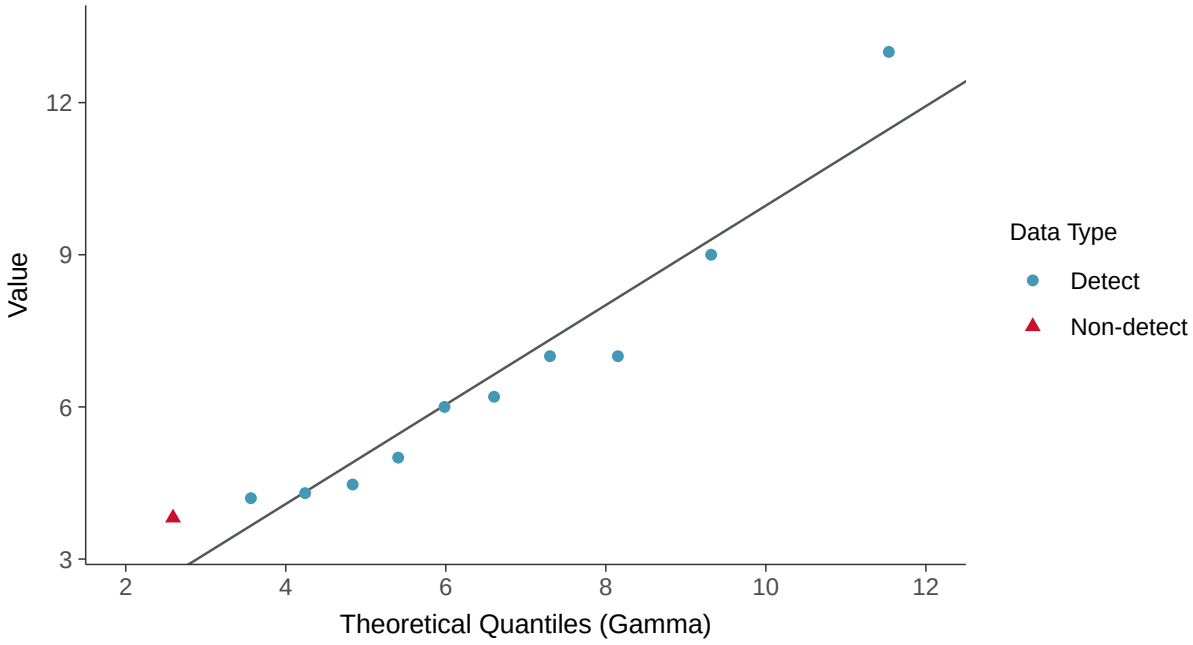
Lognormal Q-Q plot using ROS Imputed Estimates

Sulfate, MW-16D (mg/L)



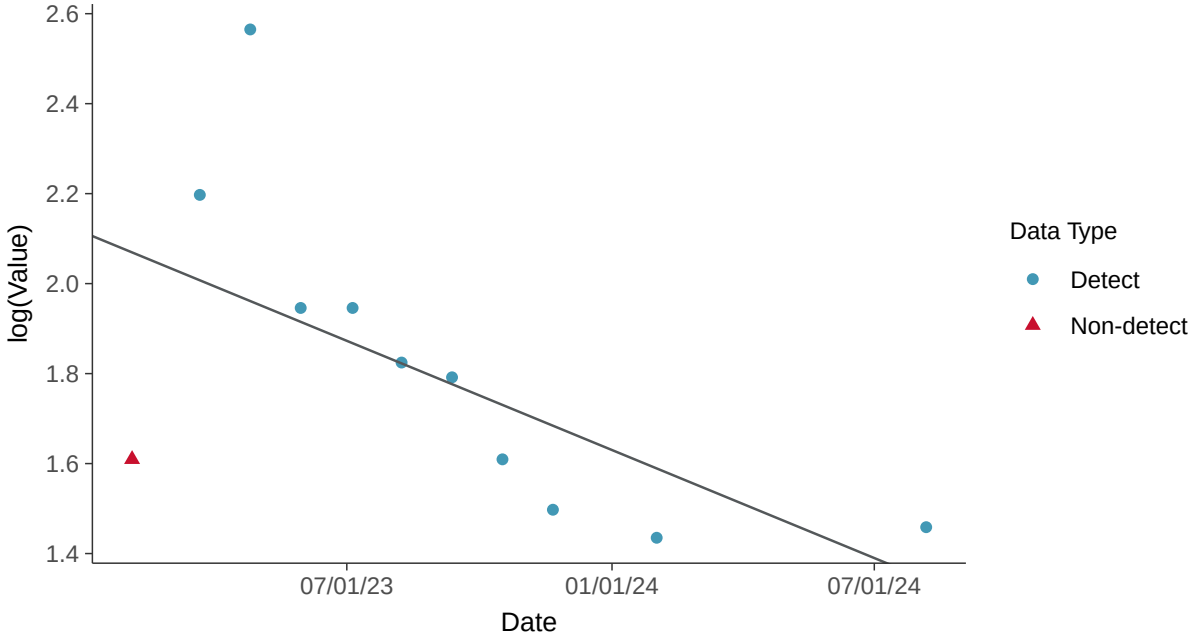
Gamma Q-Q plot using ROS Imputed Estimates

Sulfate, MW-16D (mg/L)



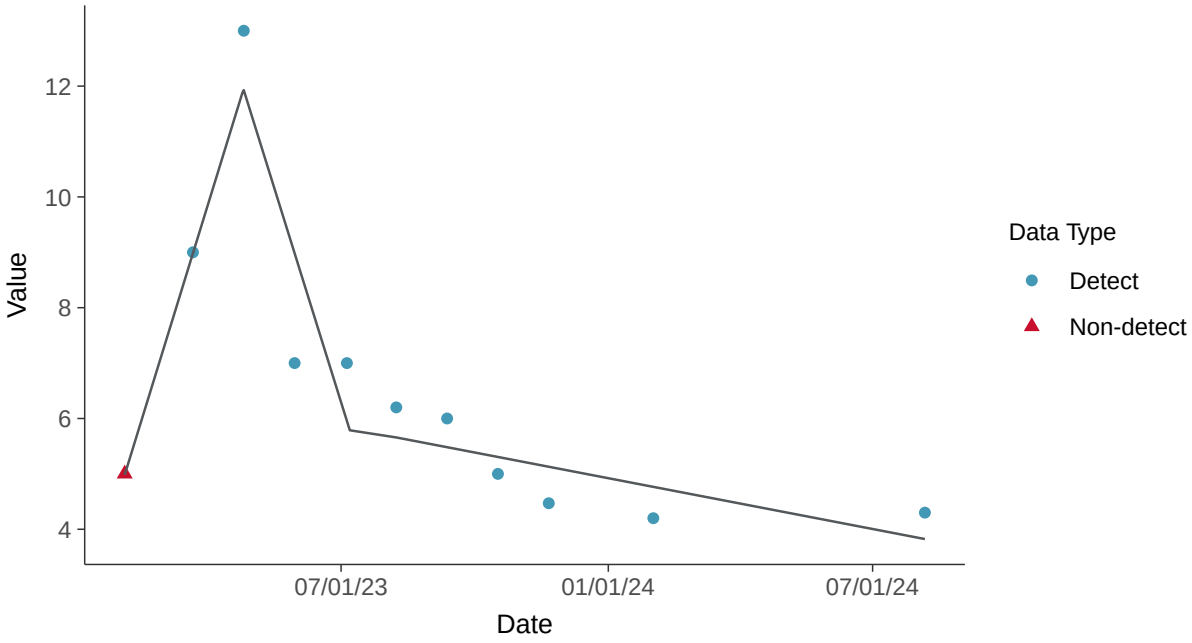
Trend Regression: Lognormal MLE

Sulfate, MW-16D (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Sulfate, MW-16D (mg/L)

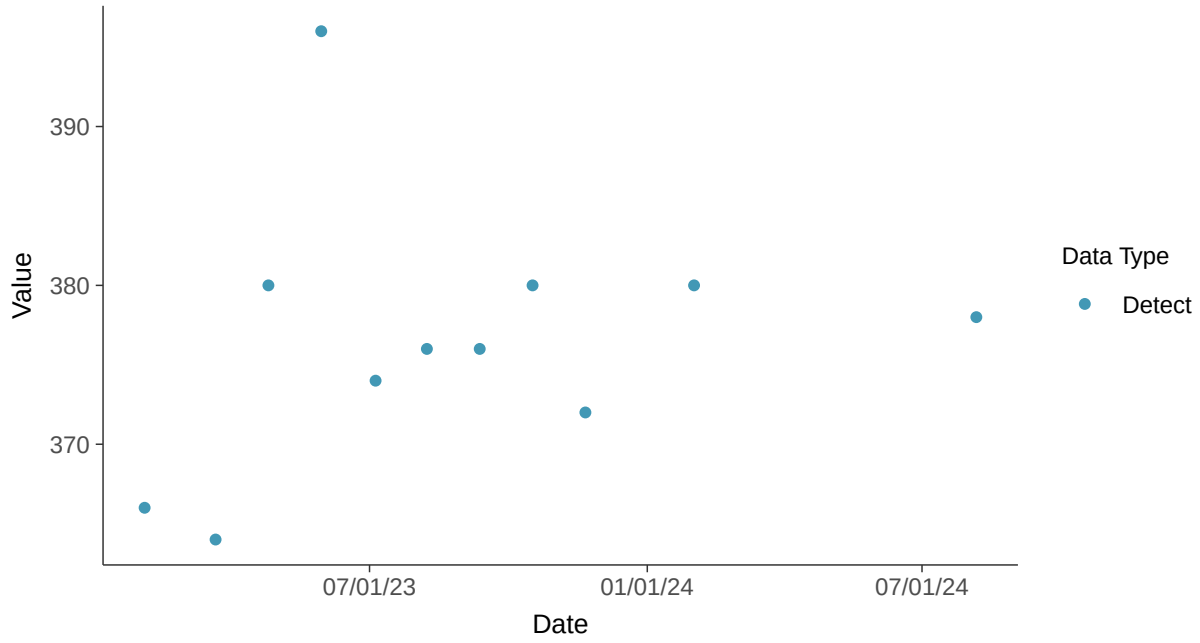


Appendix III: Total Dissolved Solids, MW-16D

ID: 16D_1_07

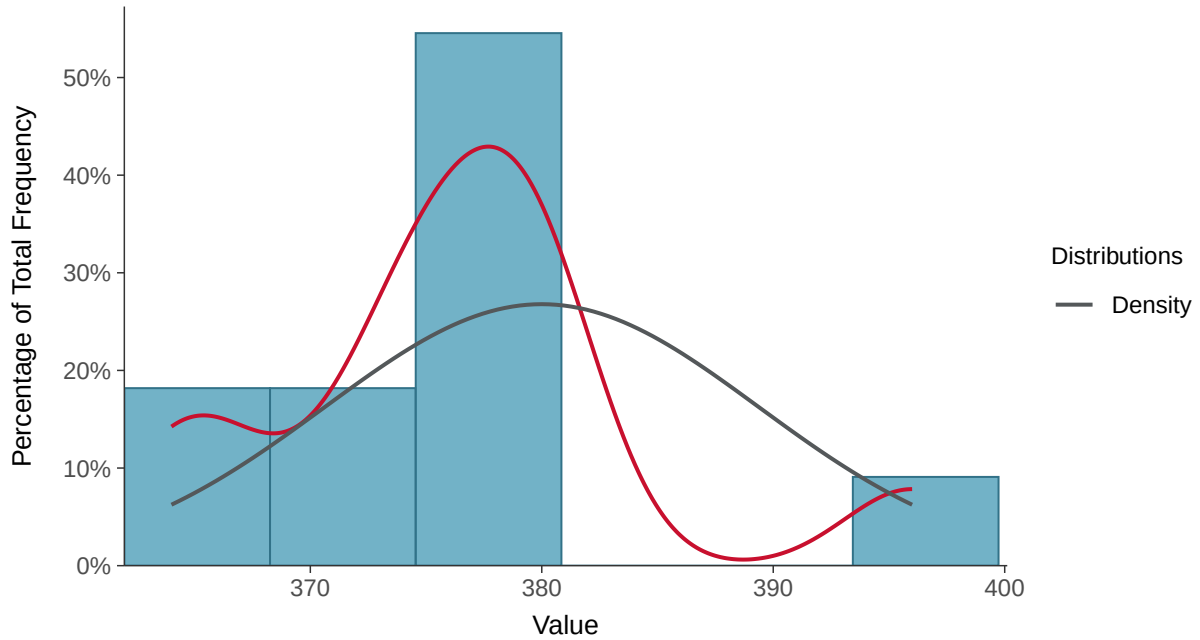
Scatter Plot

Total Dissolved Solids, MW-16D (mg/L)



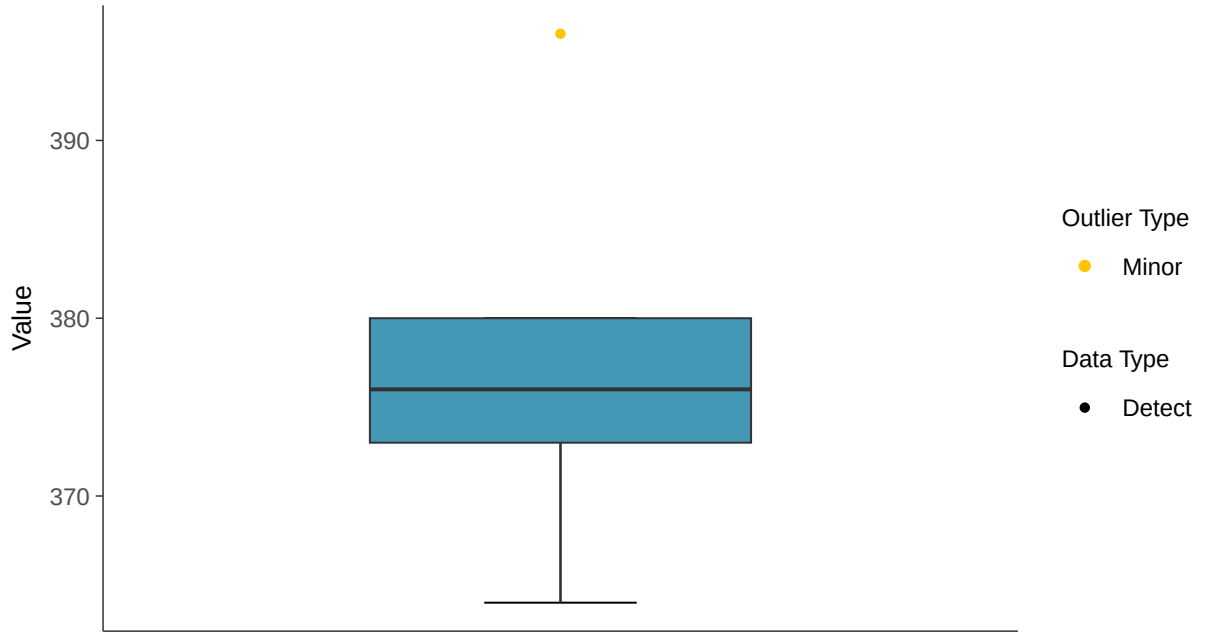
Histogram

Total Dissolved Solids, MW-16D (mg/L)



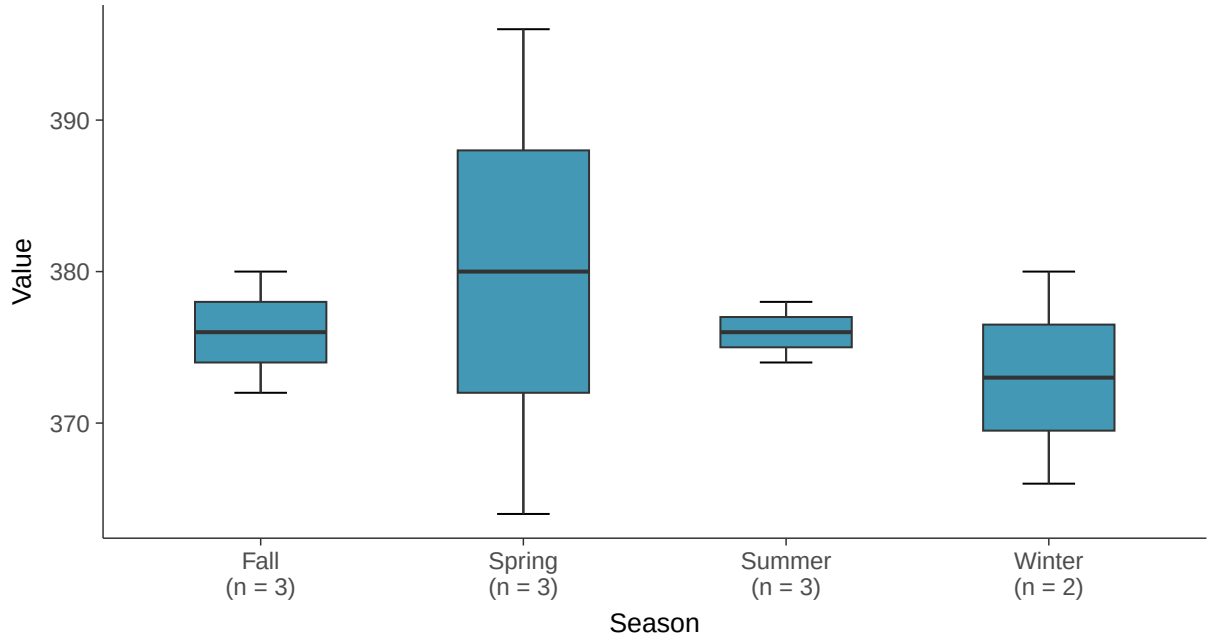
Boxplot

Total Dissolved Solids, MW-16D (mg/L)



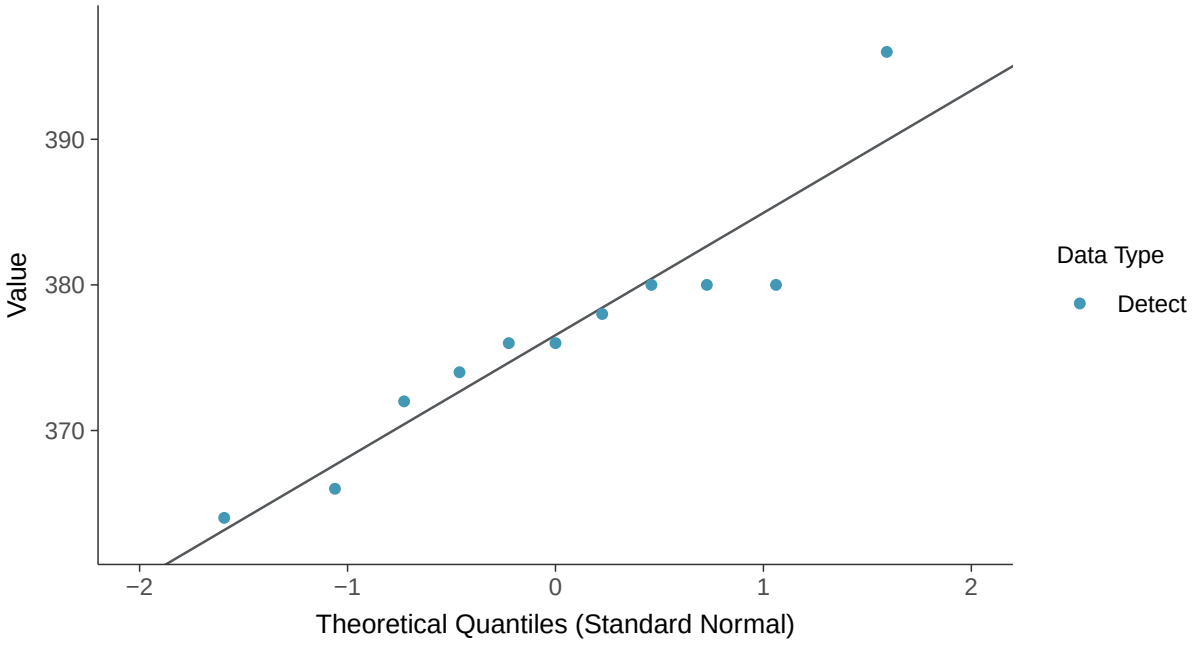
Boxplot by Season

Total Dissolved Solids, MW-16D (mg/L)



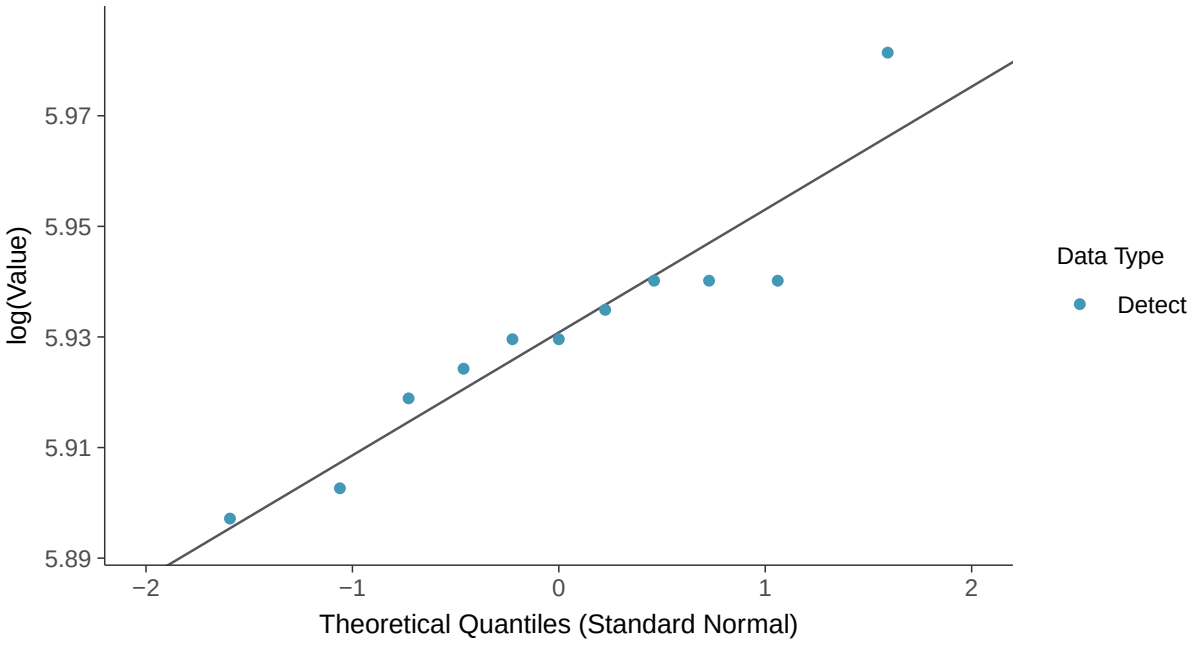
Normal Q-Q plot

Total Dissolved Solids, MW-16D (mg/L)



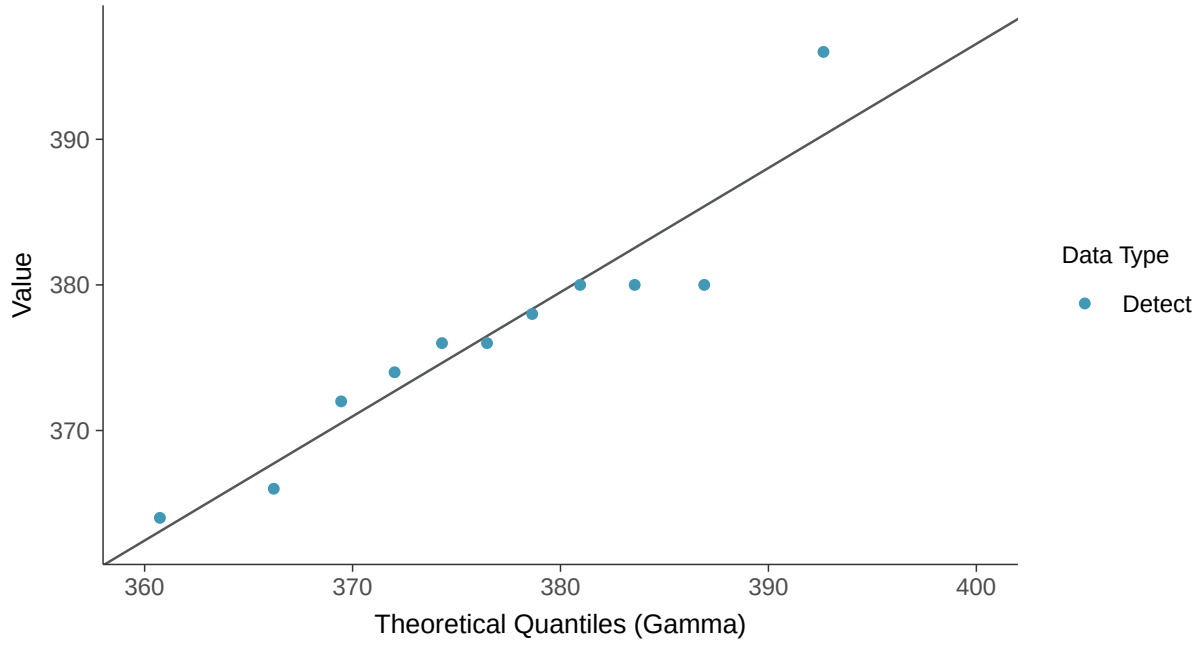
Lognormal Q-Q plot

Total Dissolved Solids, MW-16D (mg/L)



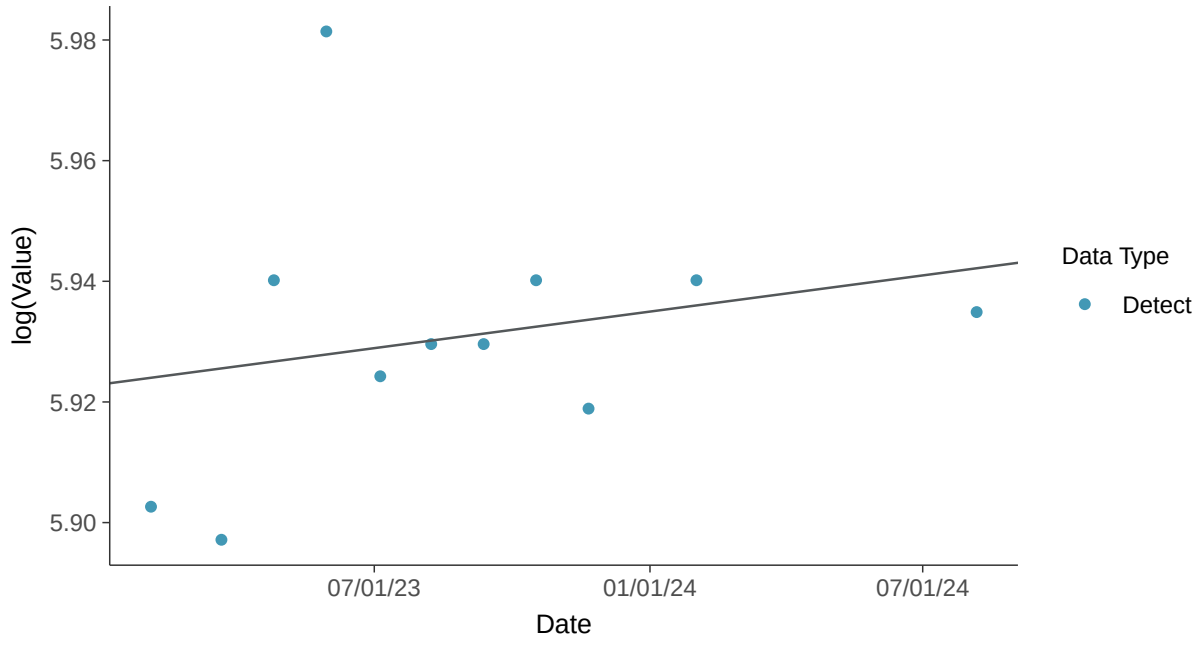
Gamma Q-Q plot

Total Dissolved Solids, MW-16D (mg/L)



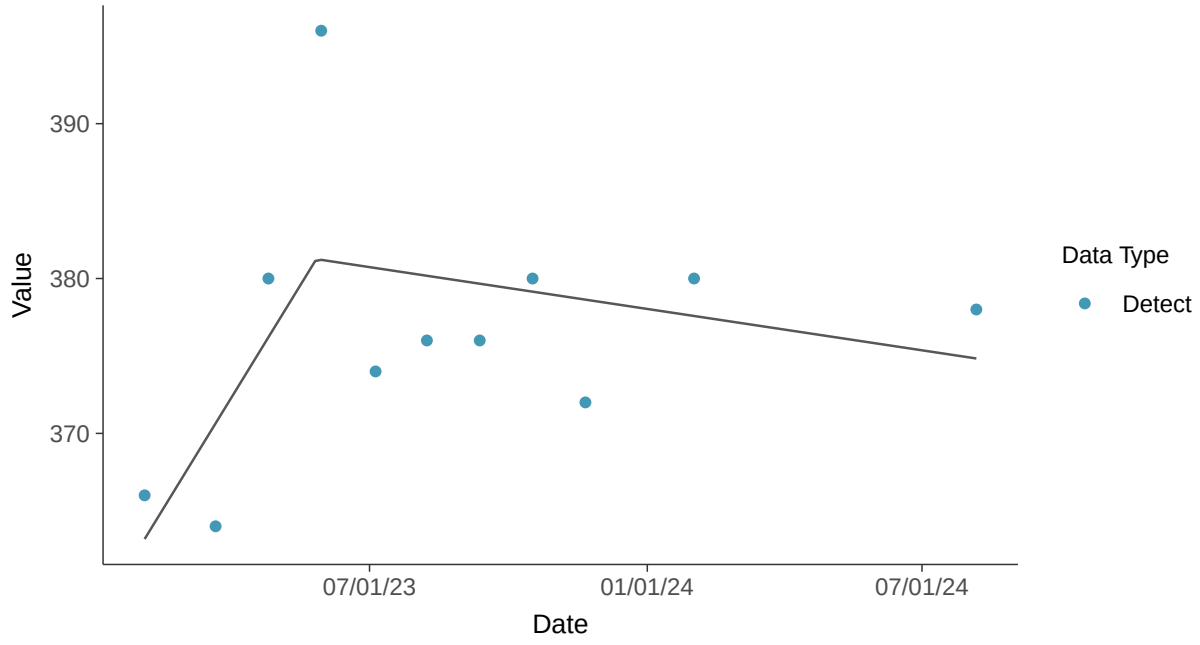
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-16D (mg/L)



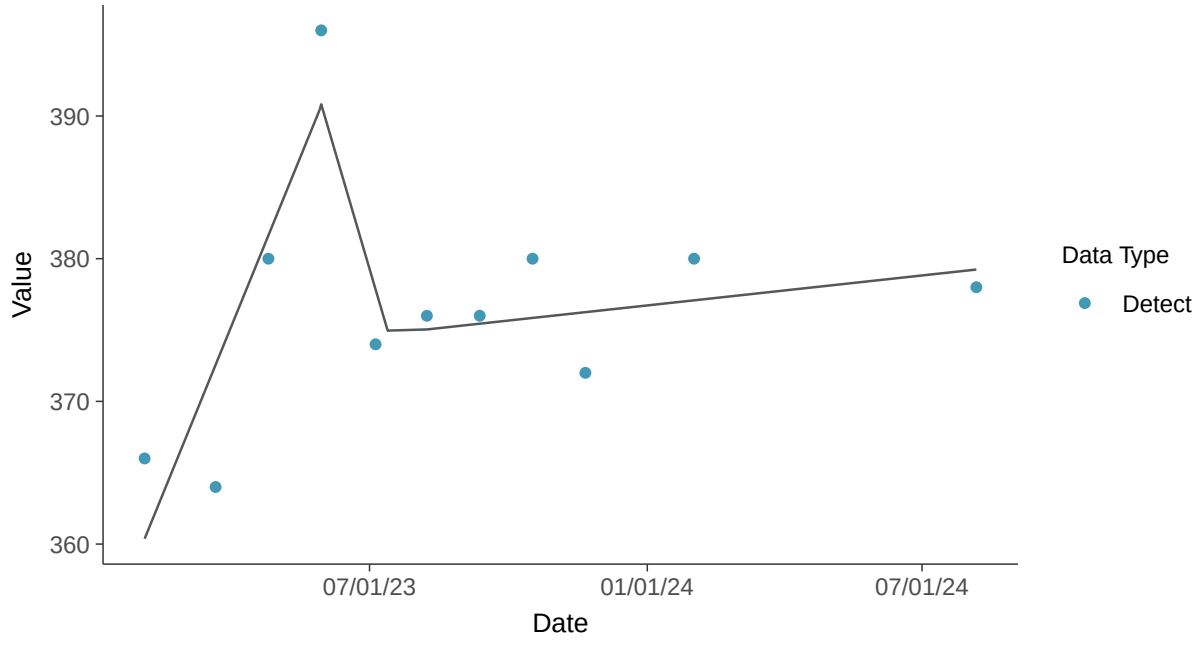
Trend Regression: Piecewise Linear-Linear

Total Dissolved Solids, MW-16D (mg/L)



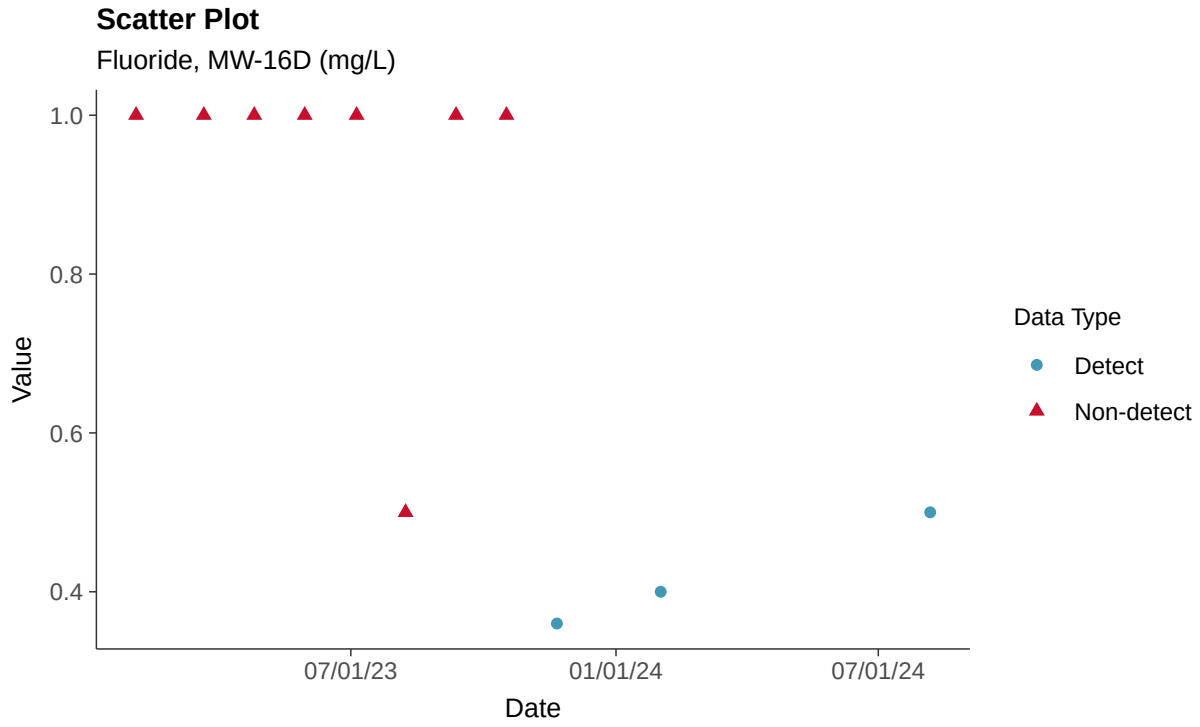
Trend Regression: Piecewise Linear-Linear-Linear

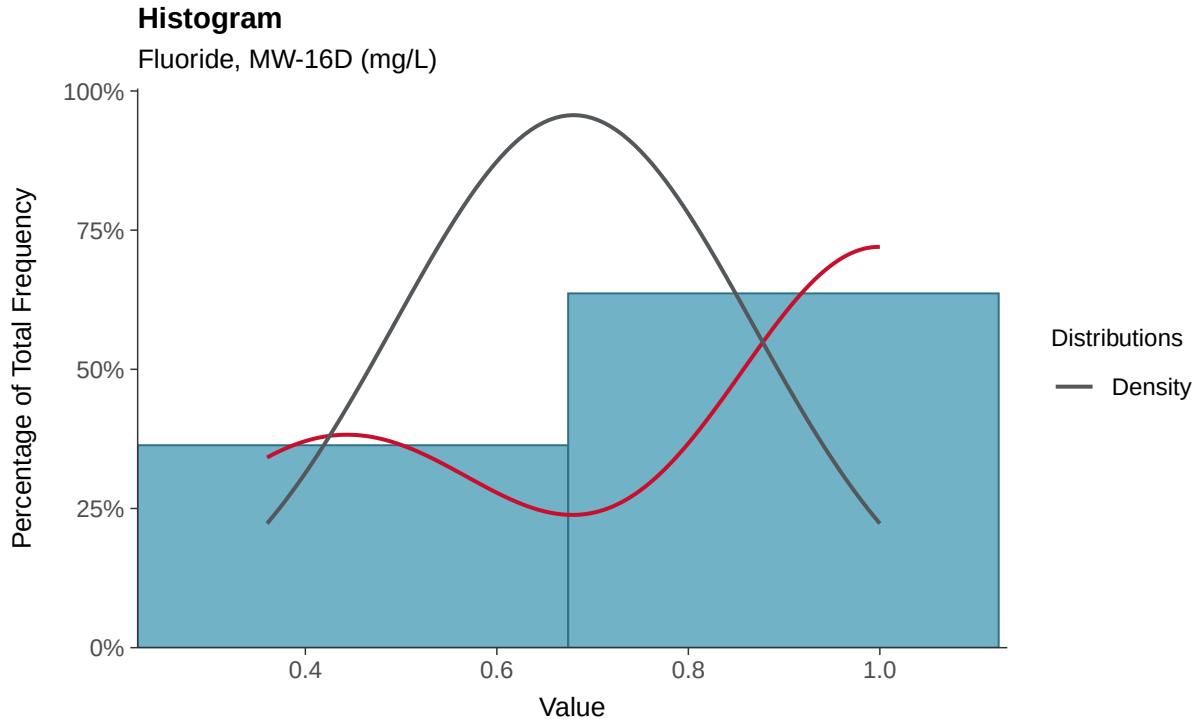
Total Dissolved Solids, MW-16D (mg/L)



Appendix IV: Fluoride, MW-16D

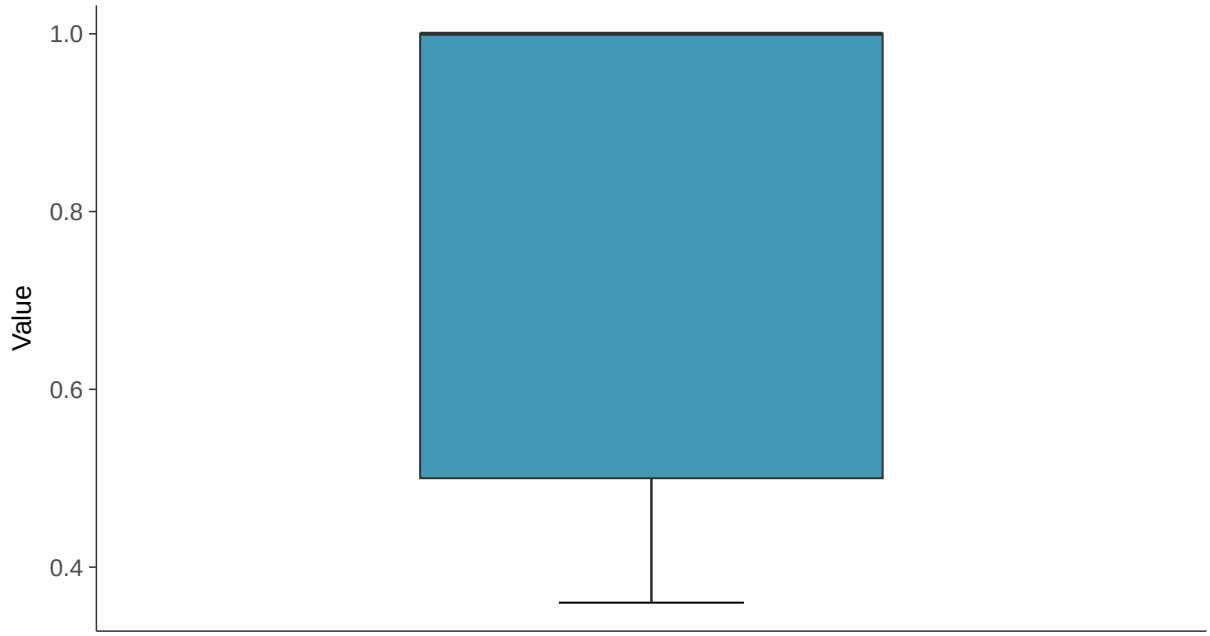
ID: 16D_2_04





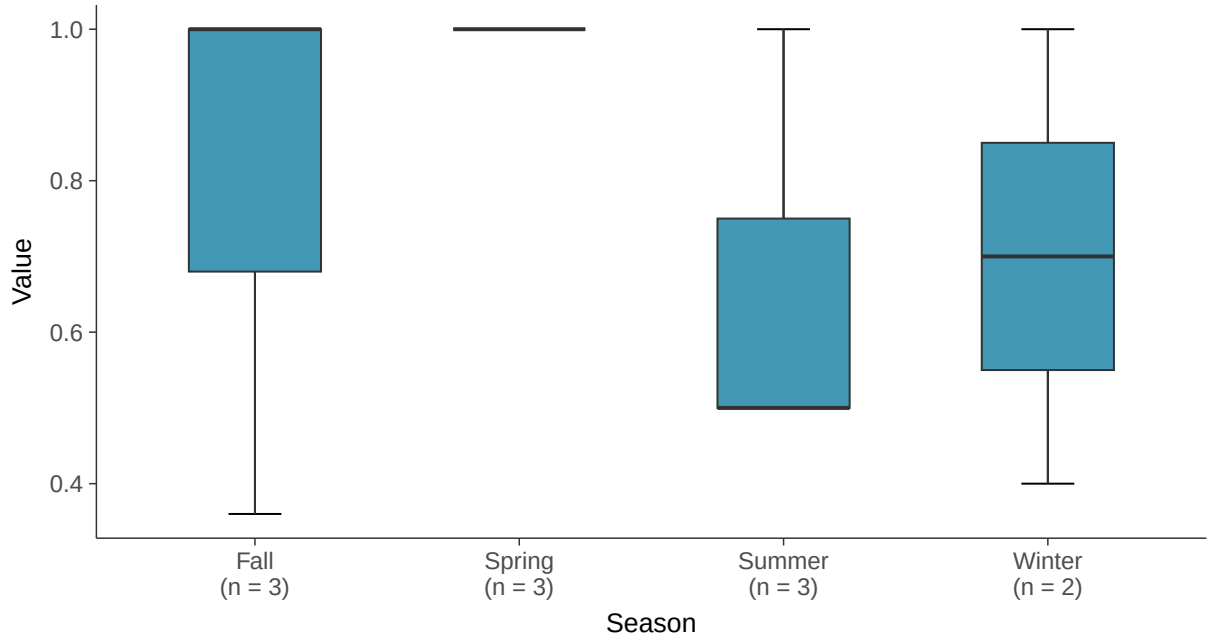
Boxplot

Fluoride, MW-16D (mg/L)



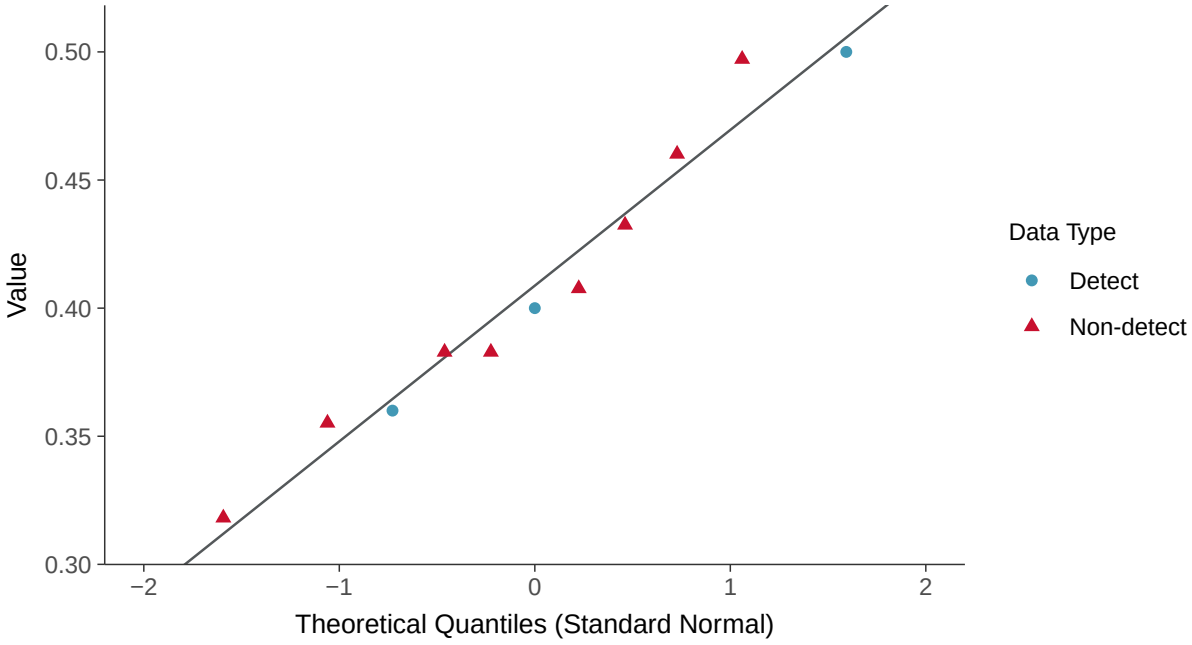
Boxplot by Season

Fluoride, MW-16D (mg/L)



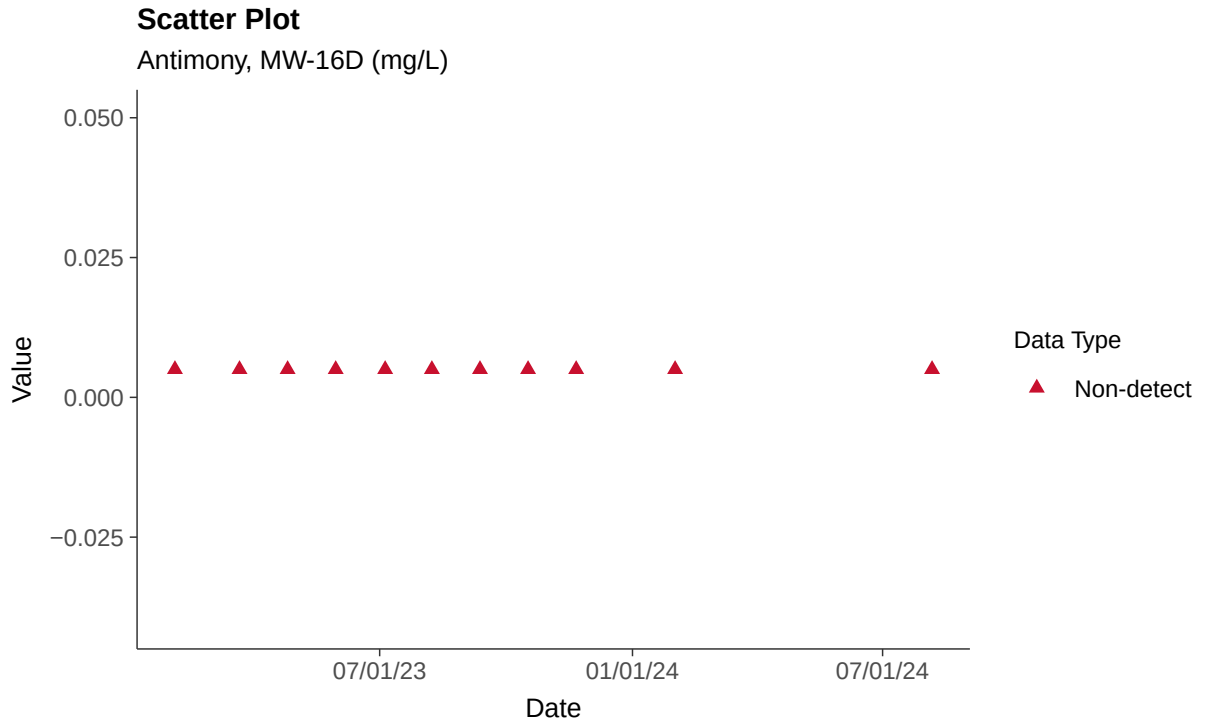
Normal Q-Q plot using ROS Imputed Estimates

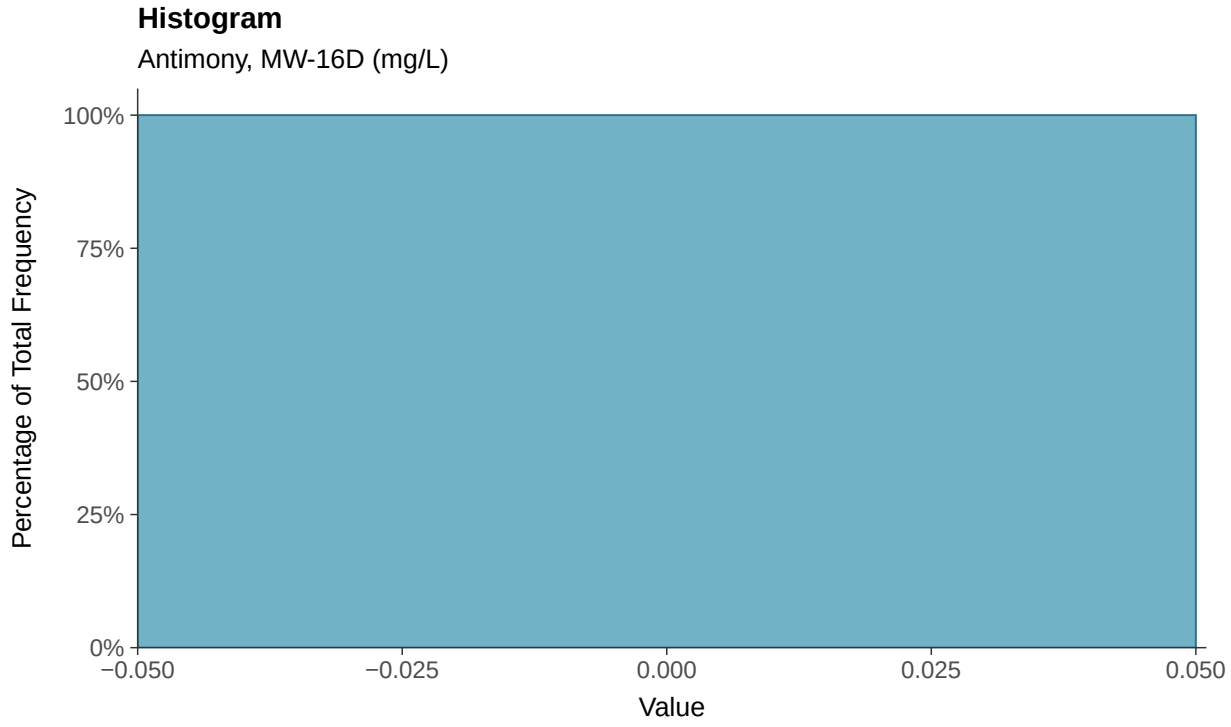
Fluoride, MW-16D (mg/L)



Appendix IV: Antimony, MW-16D

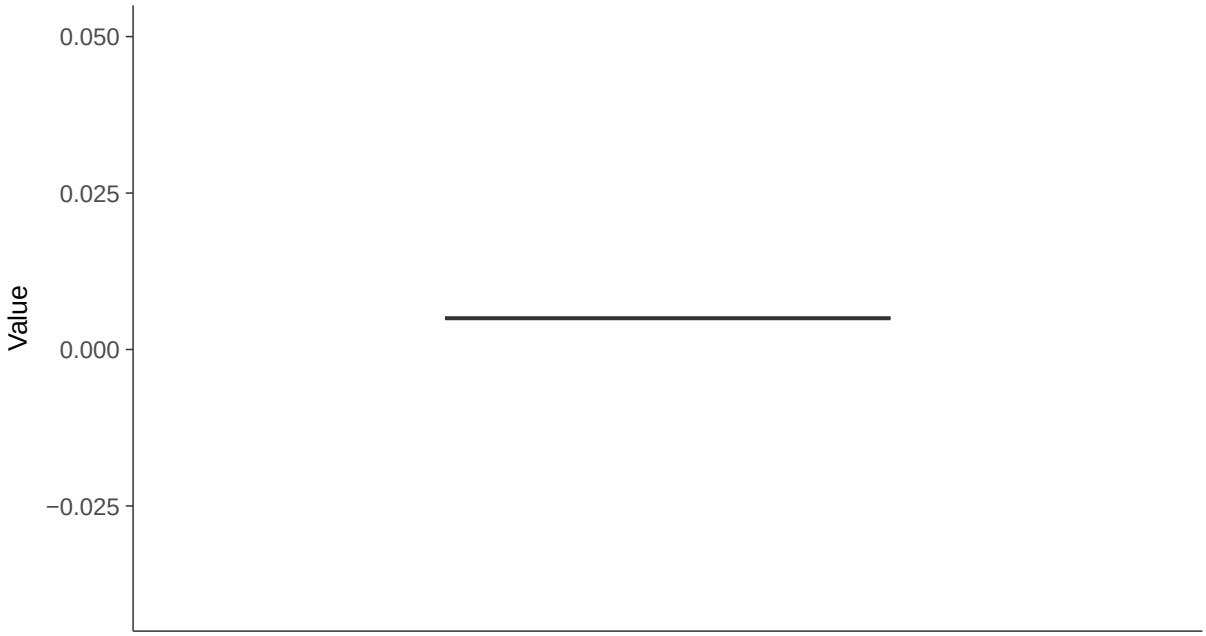
ID: 16D_2_08





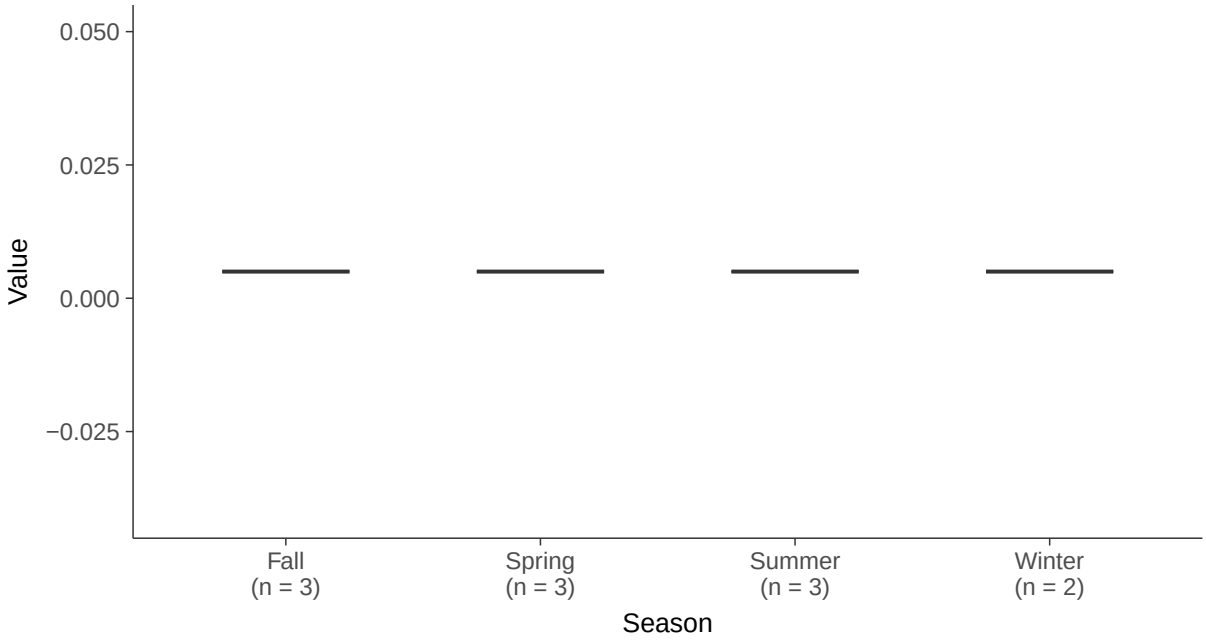
Boxplot

Antimony, MW-16D (mg/L)



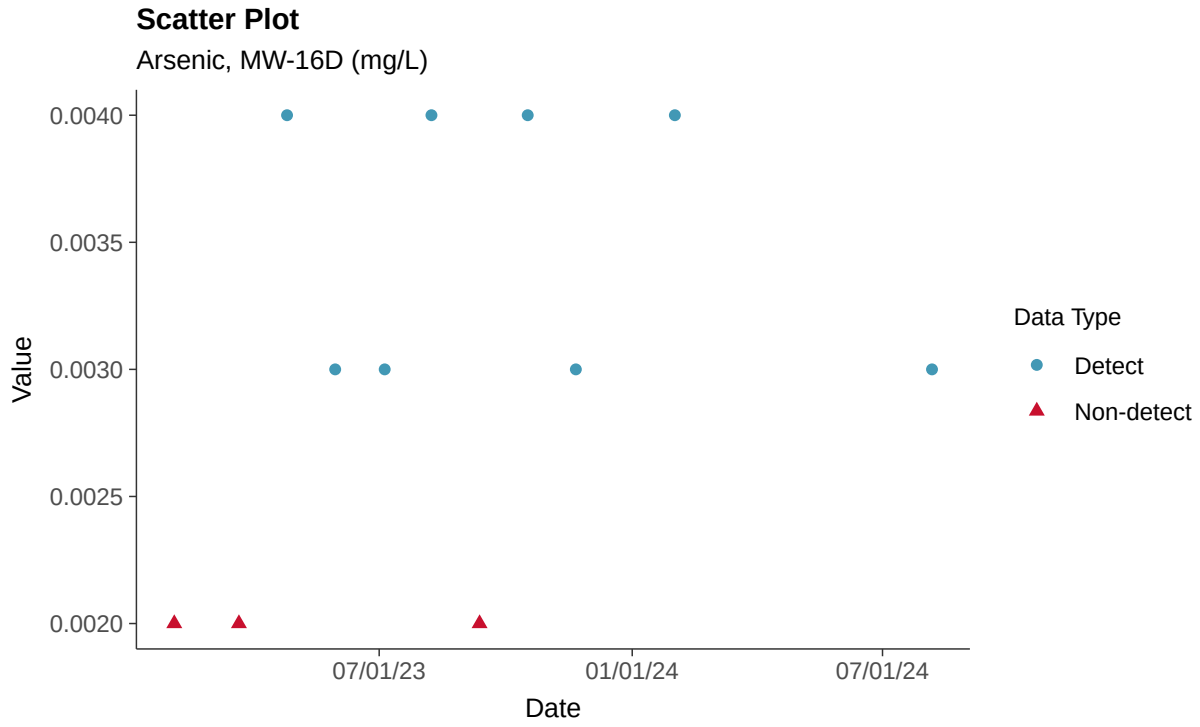
Boxplot by Season

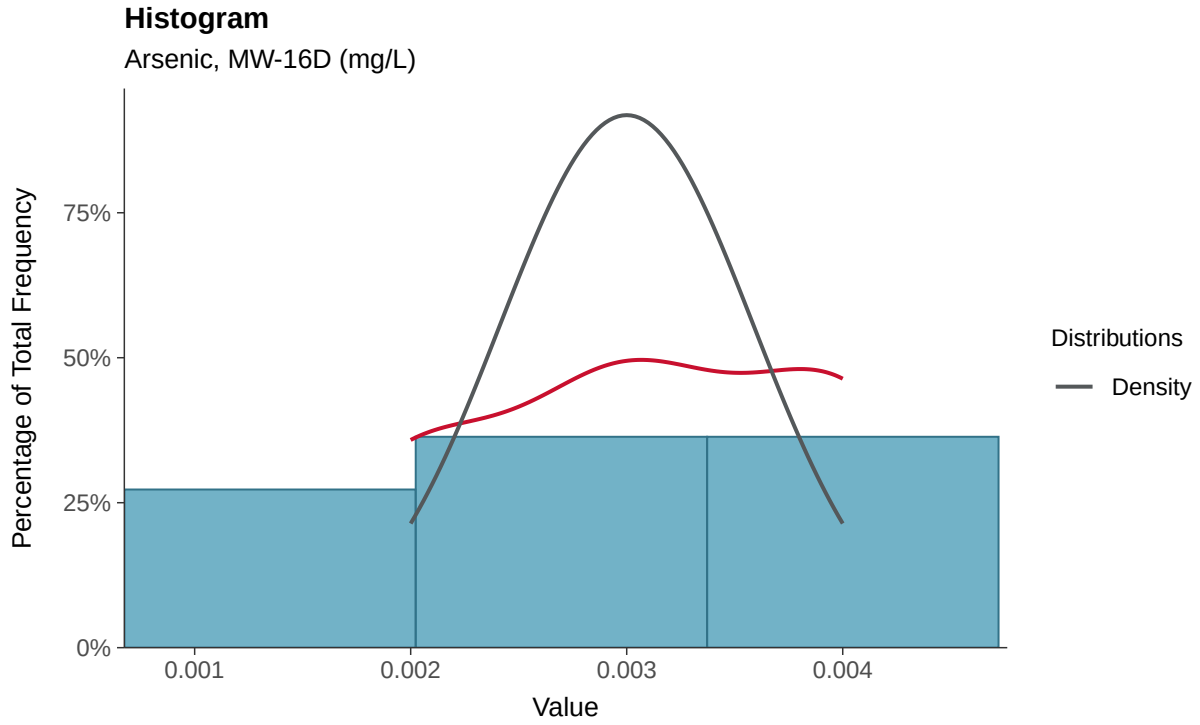
Antimony, MW-16D (mg/L)



Appendix IV: Arsenic, MW-16D

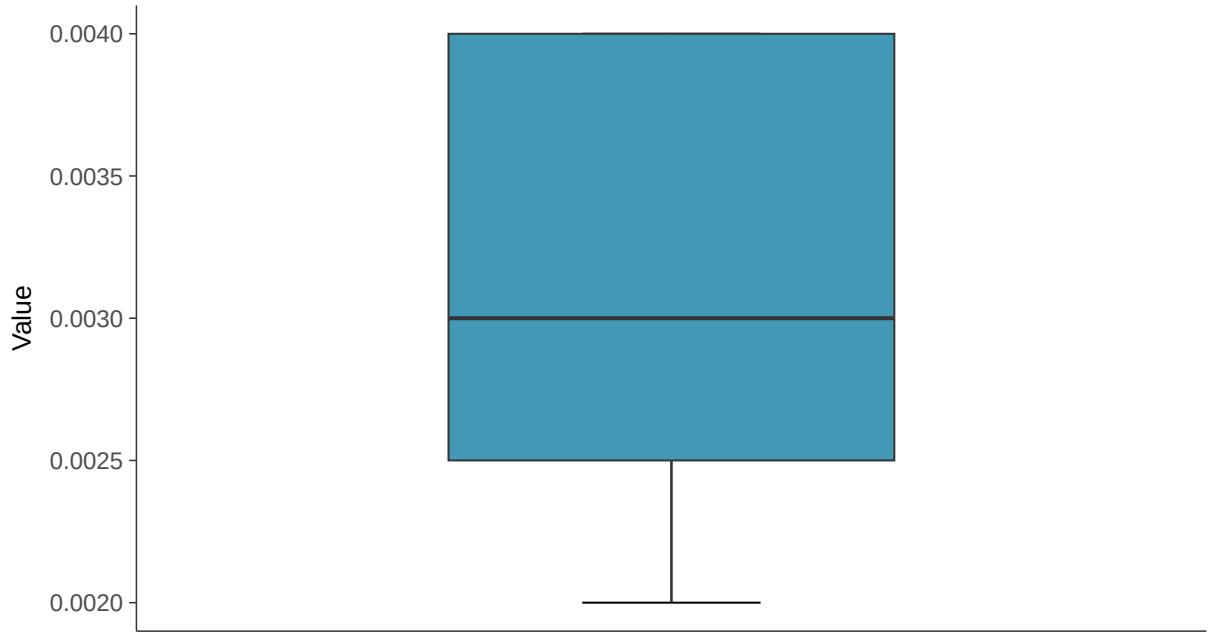
ID: 16D_2_09





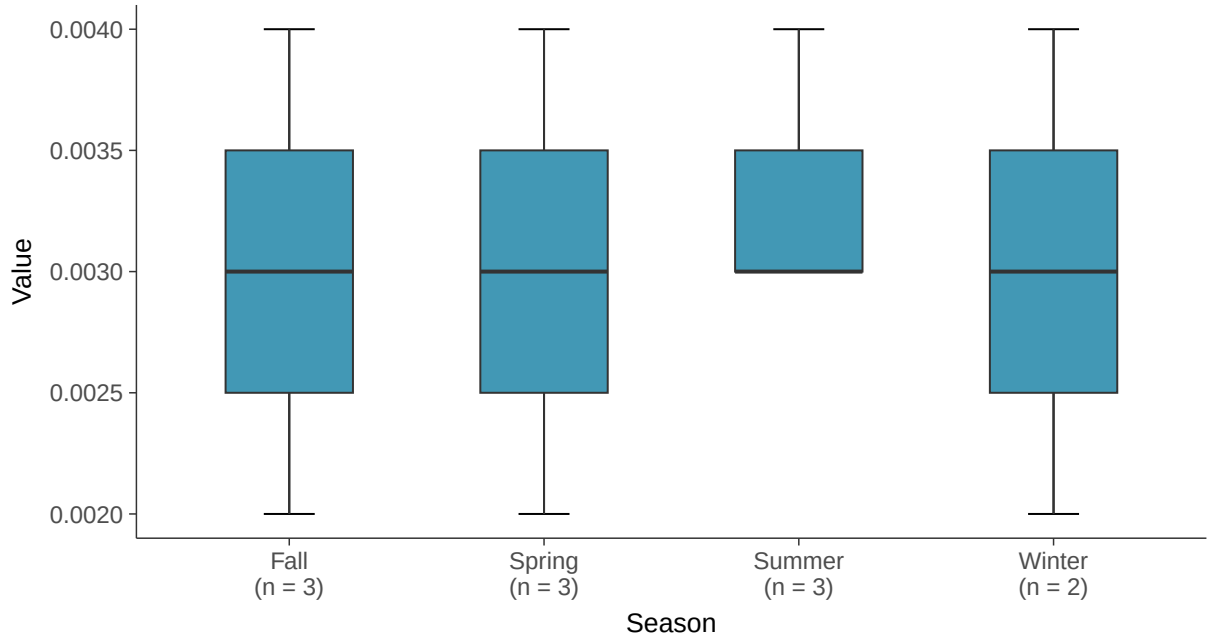
Boxplot

Arsenic, MW-16D (mg/L)



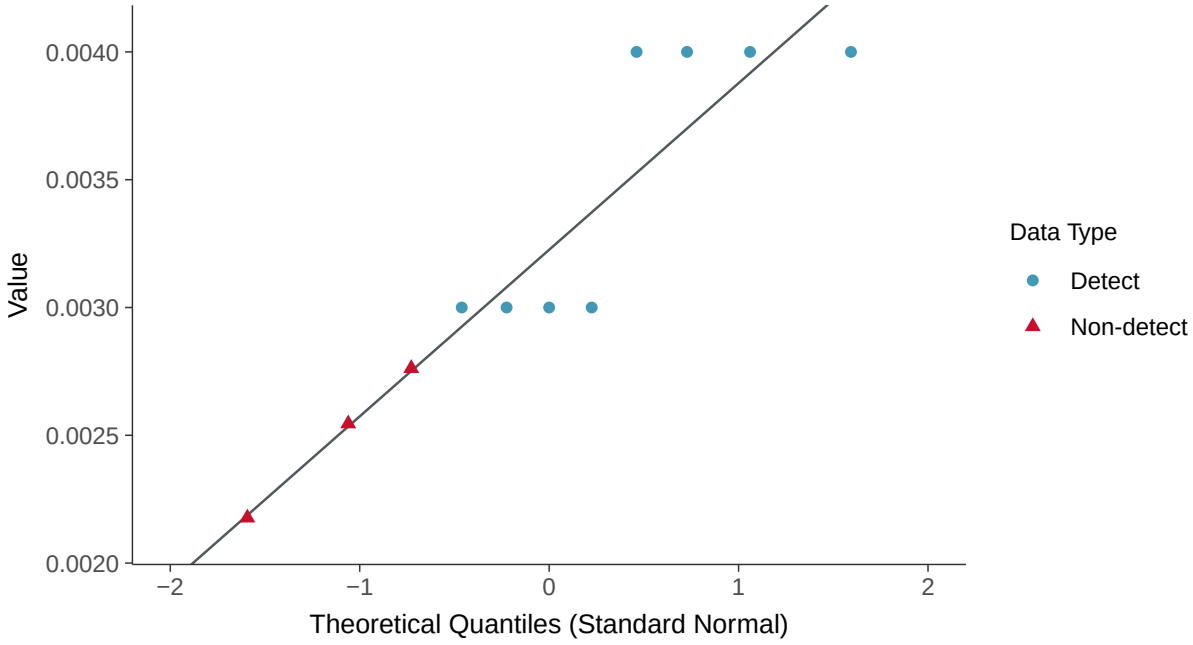
Boxplot by Season

Arsenic, MW-16D (mg/L)



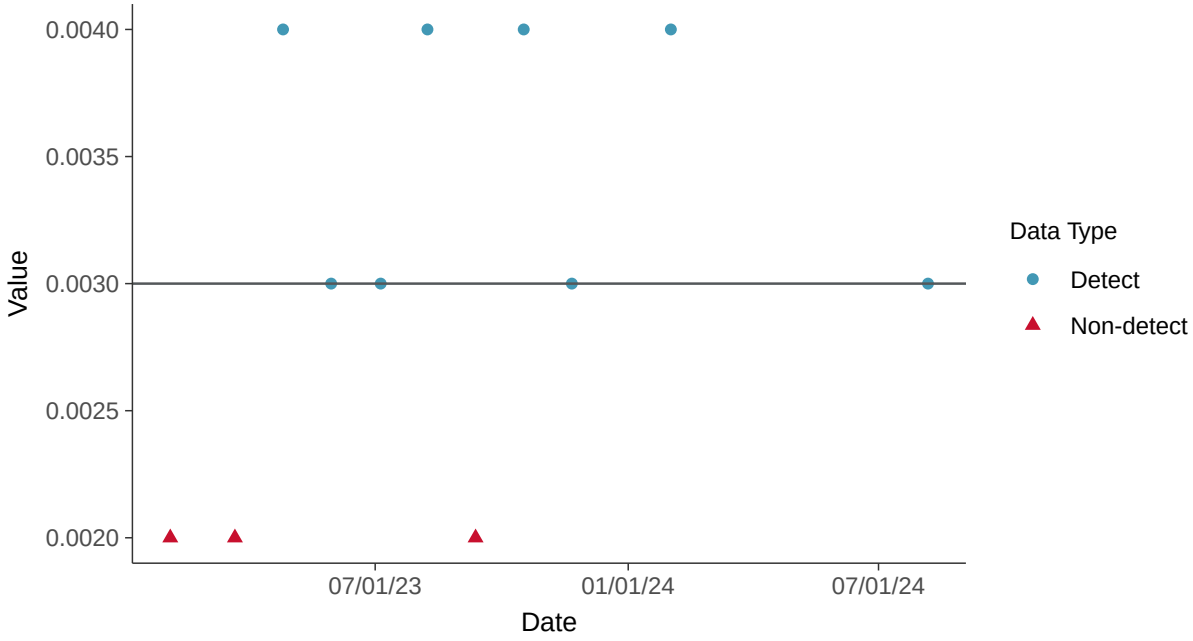
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, MW-16D (mg/L)



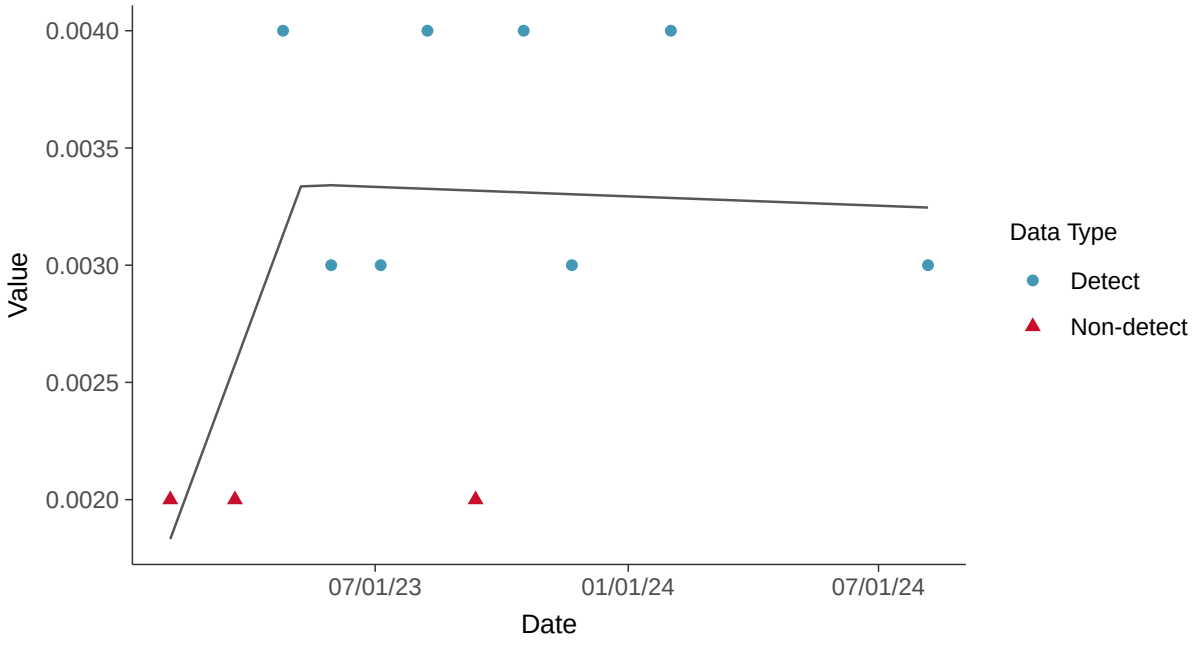
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Arsenic, MW-16D (mg/L)



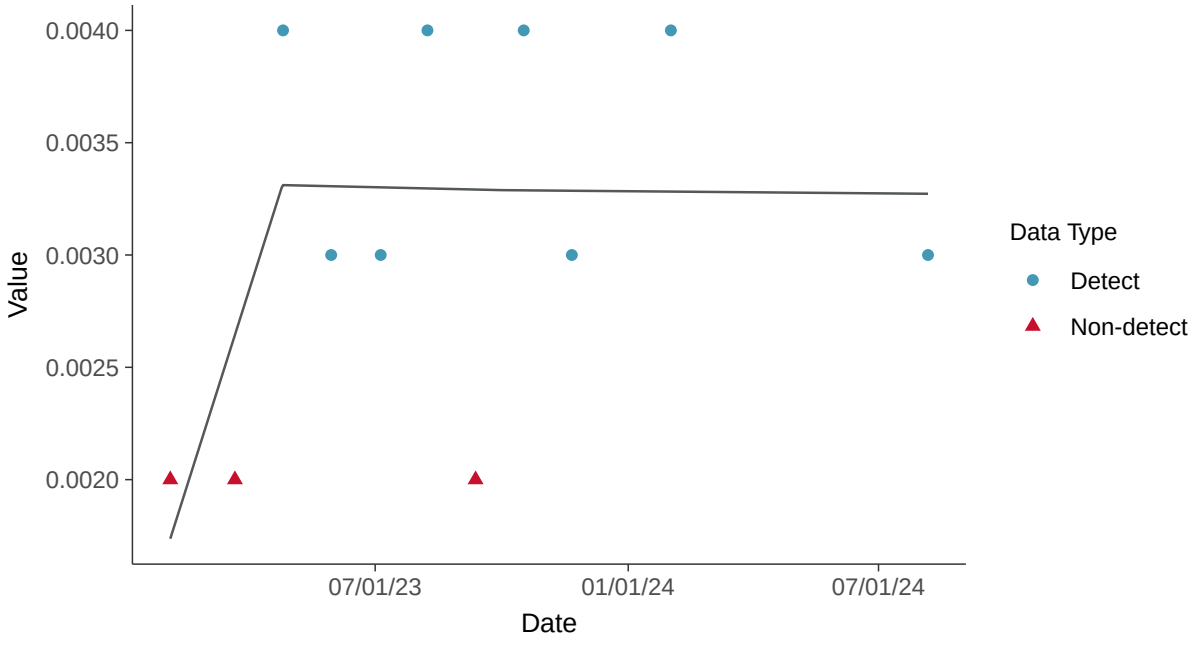
Trend Regression: Piecewise Linear-Linear

Arsenic, MW-16D (mg/L)



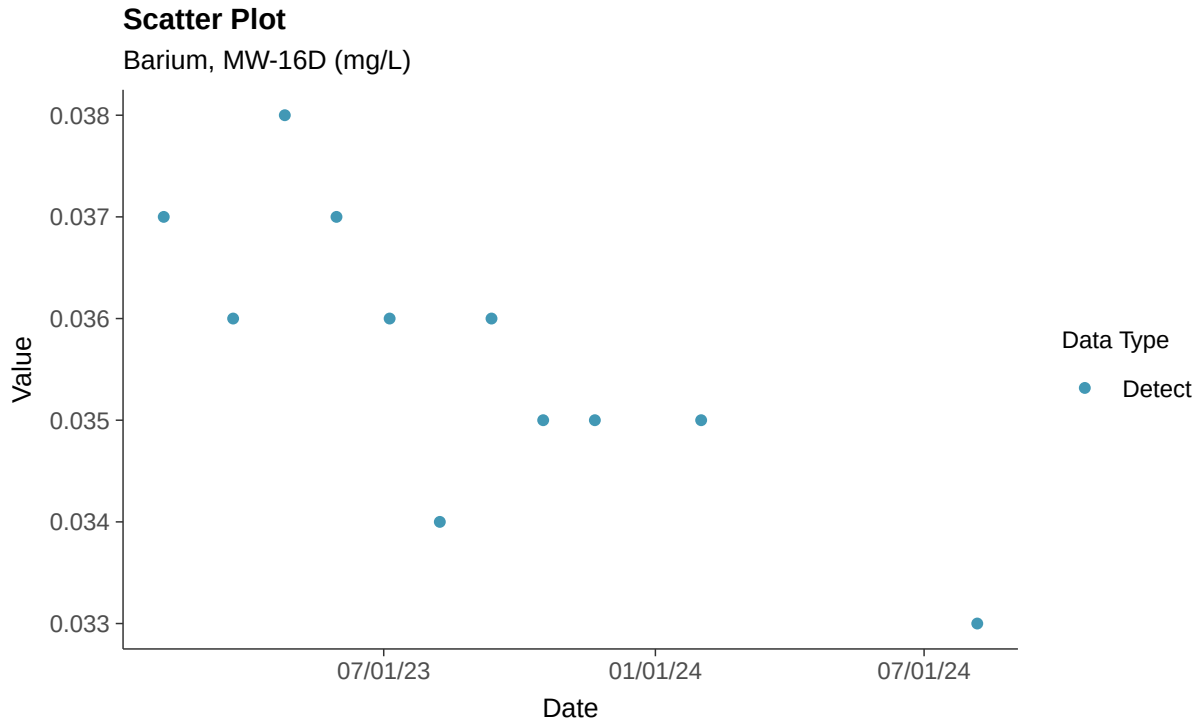
Trend Regression: Piecewise Linear-Linear-Linear

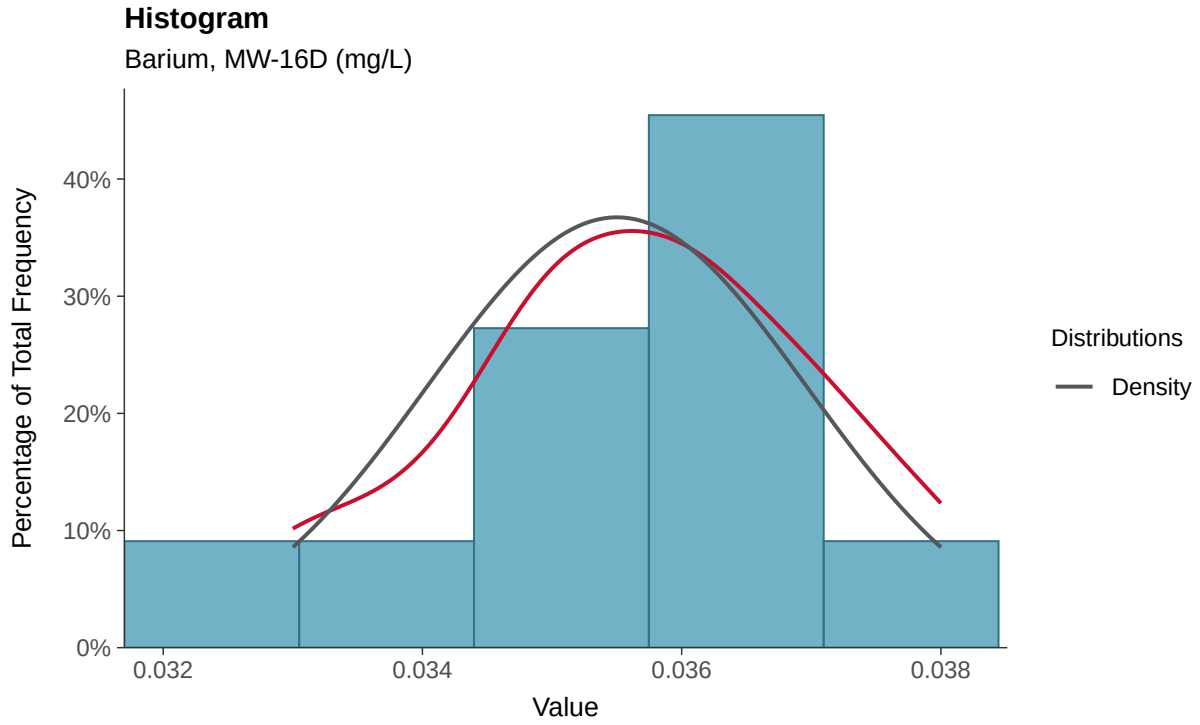
Arsenic, MW-16D (mg/L)



Appendix IV: Barium, MW-16D

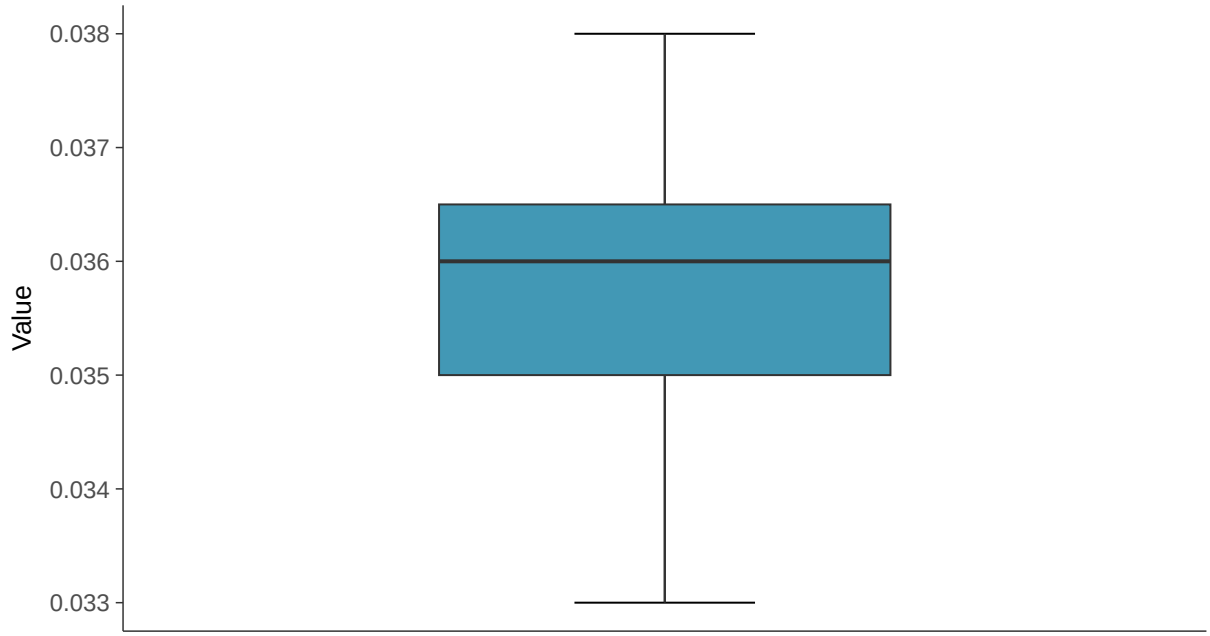
ID: 16D_2_10





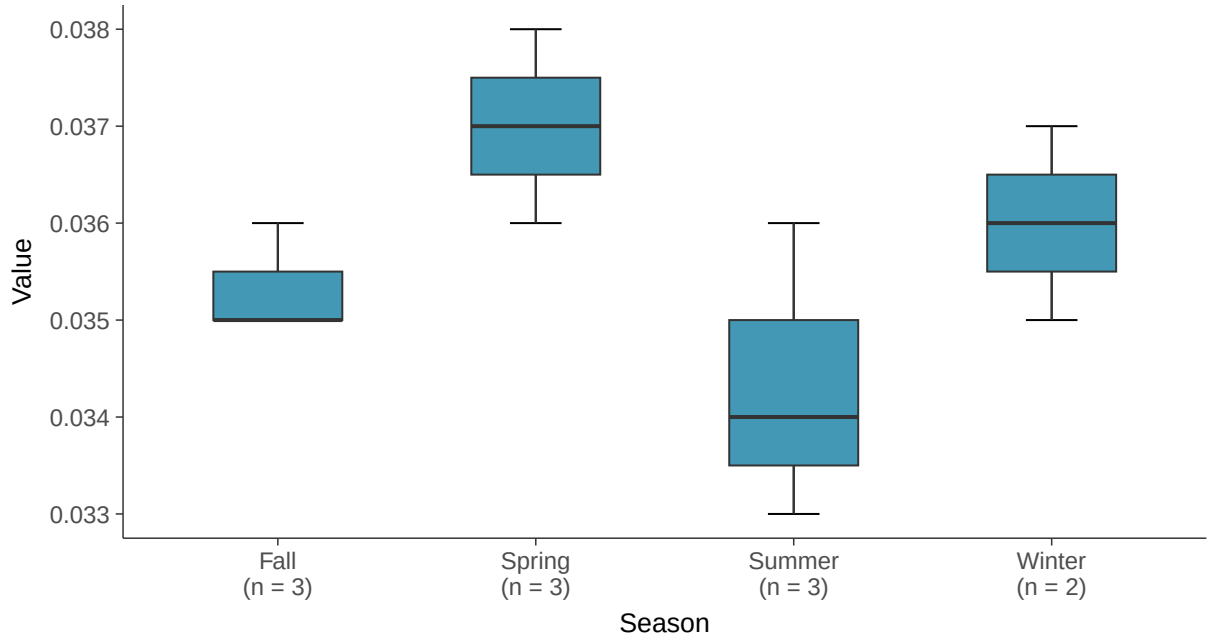
Boxplot

Barium, MW-16D (mg/L)



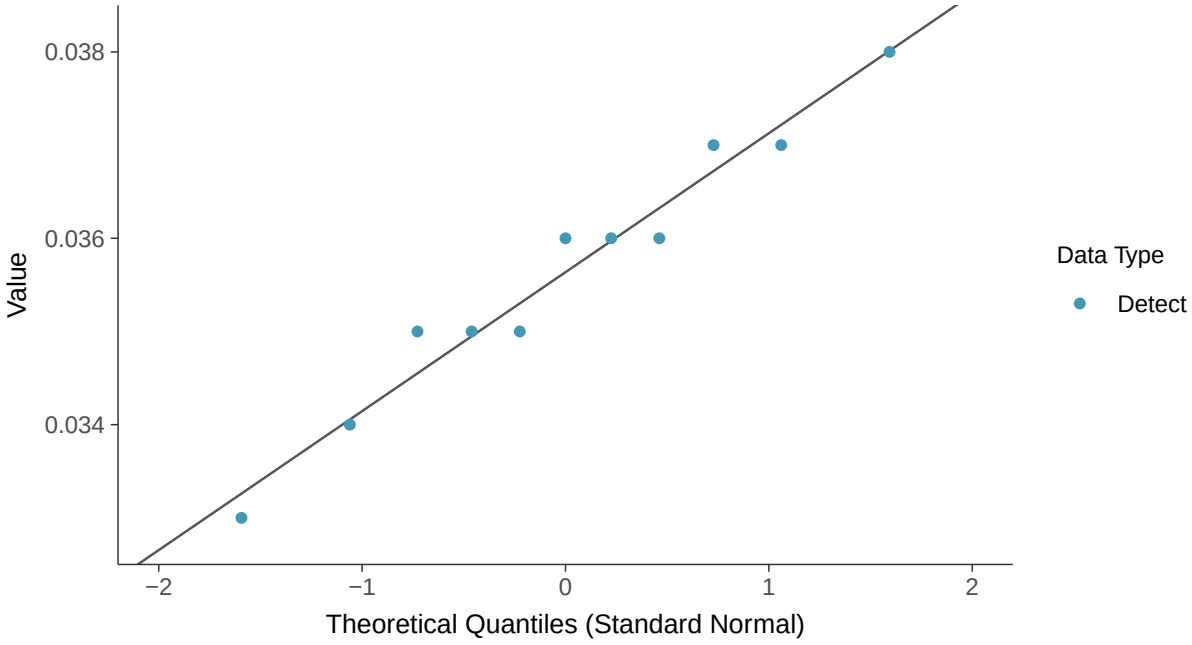
Boxplot by Season

Barium, MW-16D (mg/L)



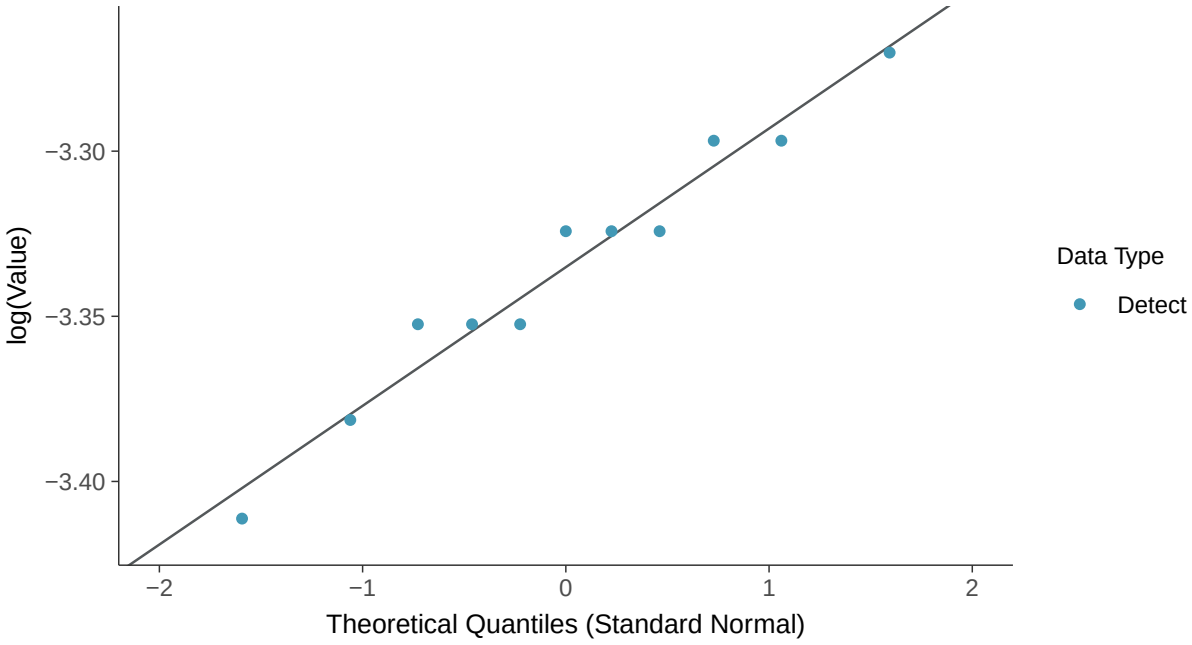
Normal Q-Q plot

Barium, MW-16D (mg/L)



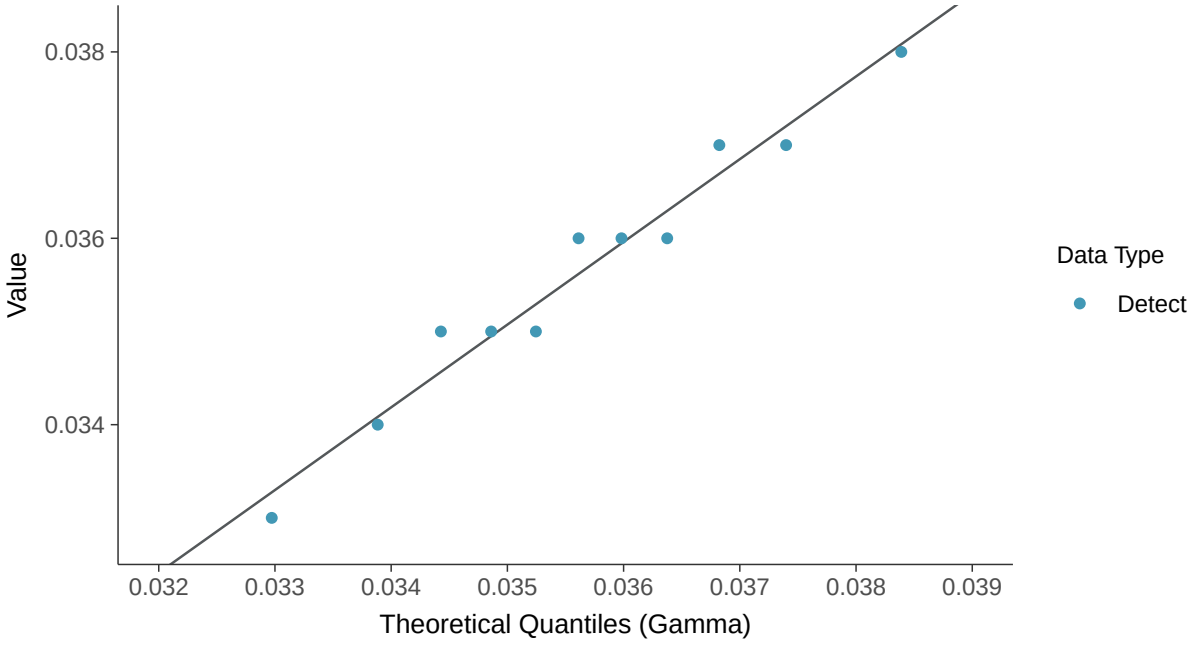
Lognormal Q-Q plot

Barium, MW-16D (mg/L)



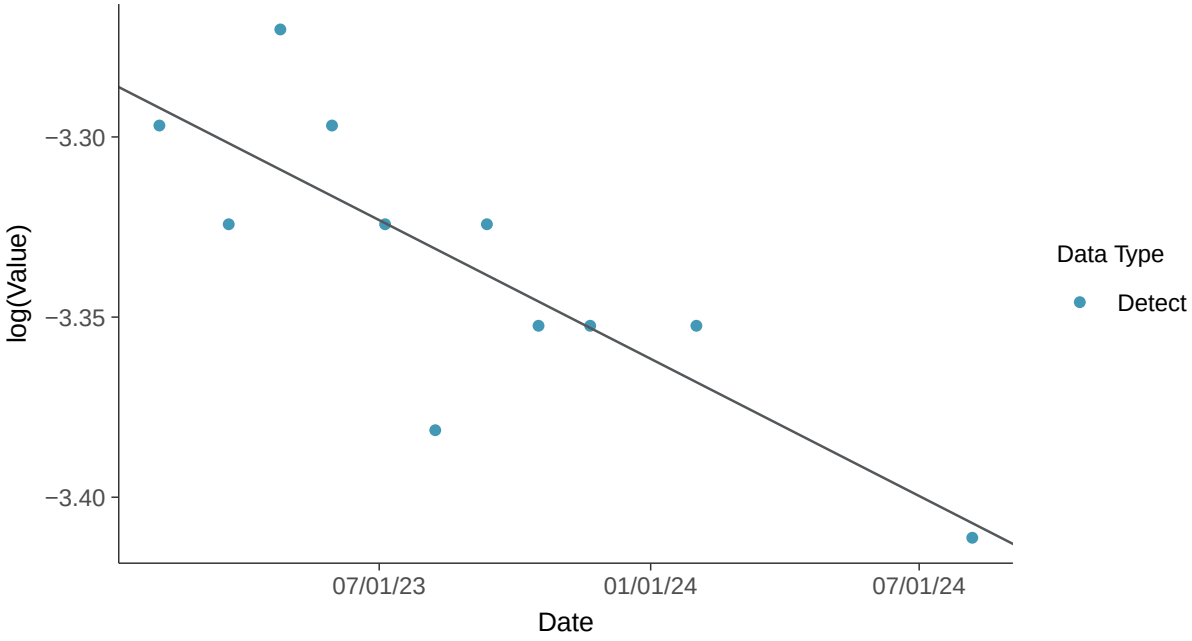
Gamma Q-Q plot

Barium, MW-16D (mg/L)



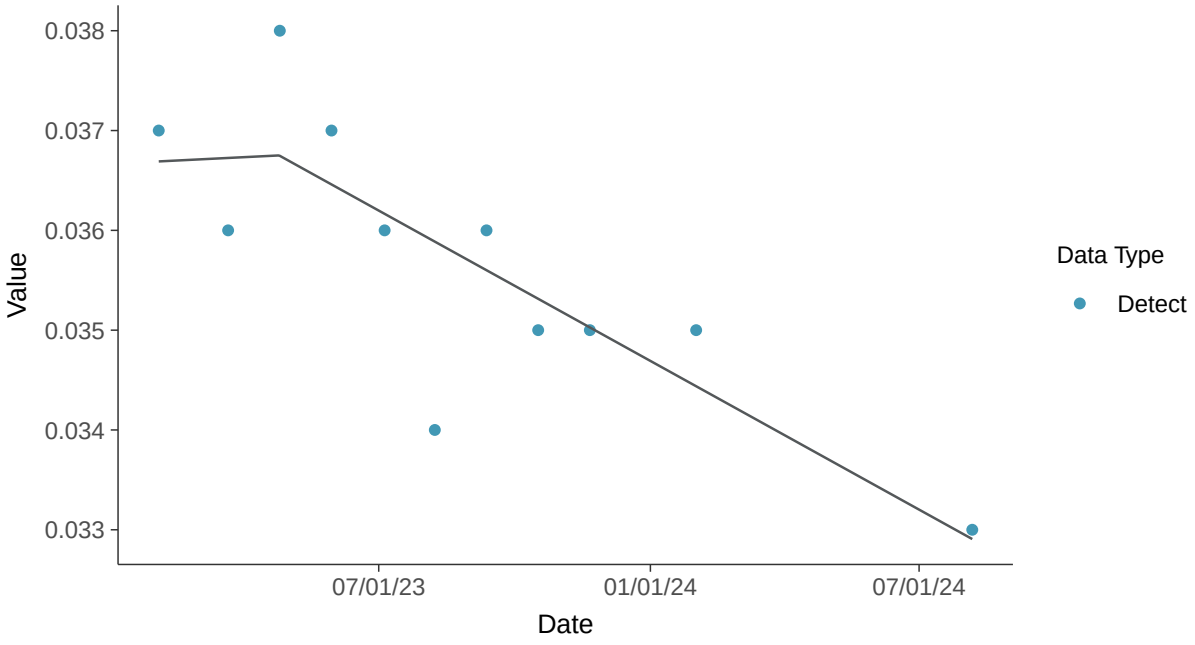
Trend Regression: Lognormal MLE

Barium, MW-16D (mg/L)



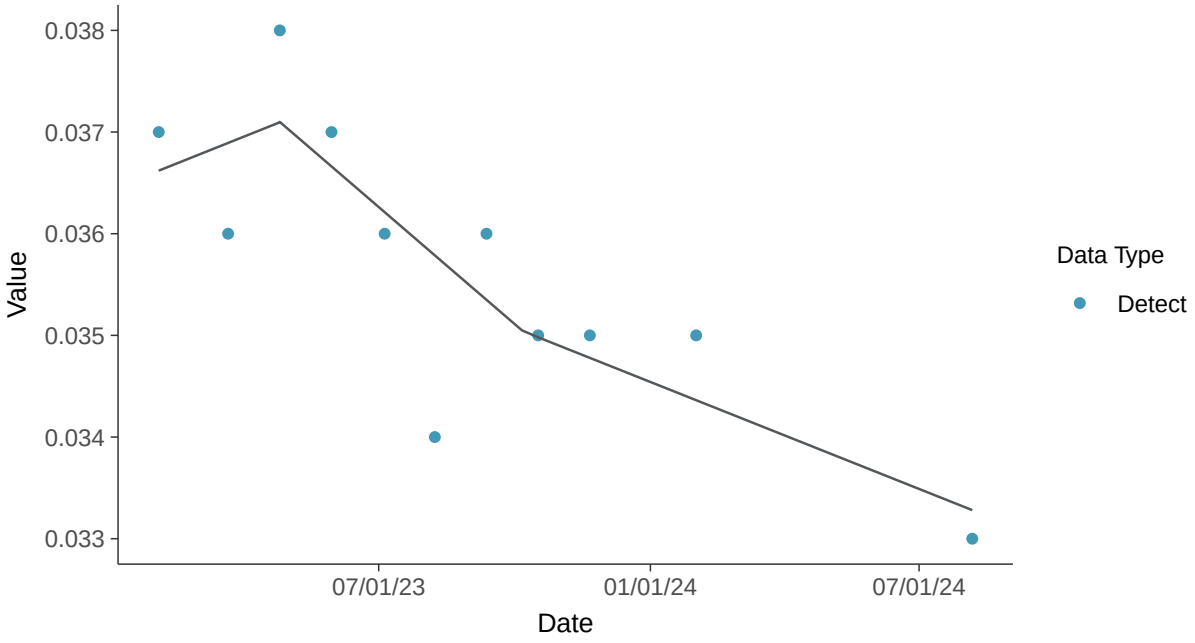
Trend Regression: Piecewise Linear-Linear

Barium, MW-16D (mg/L)



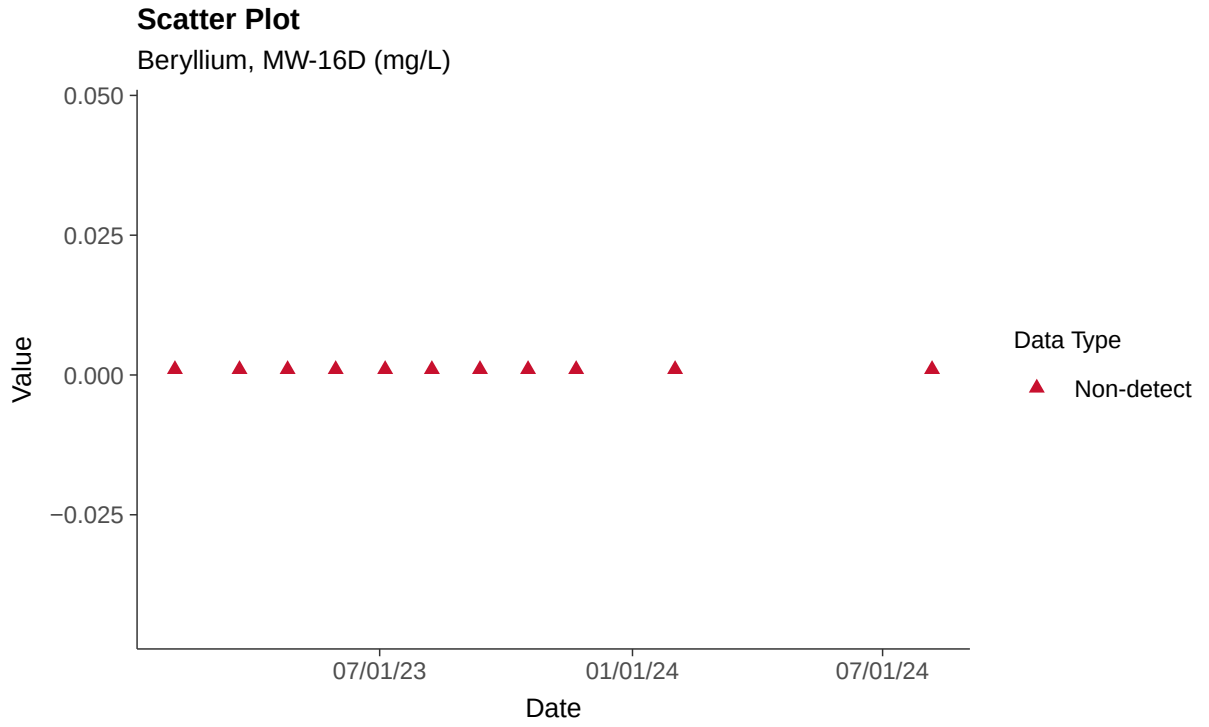
Trend Regression: Piecewise Linear-Linear-Linear

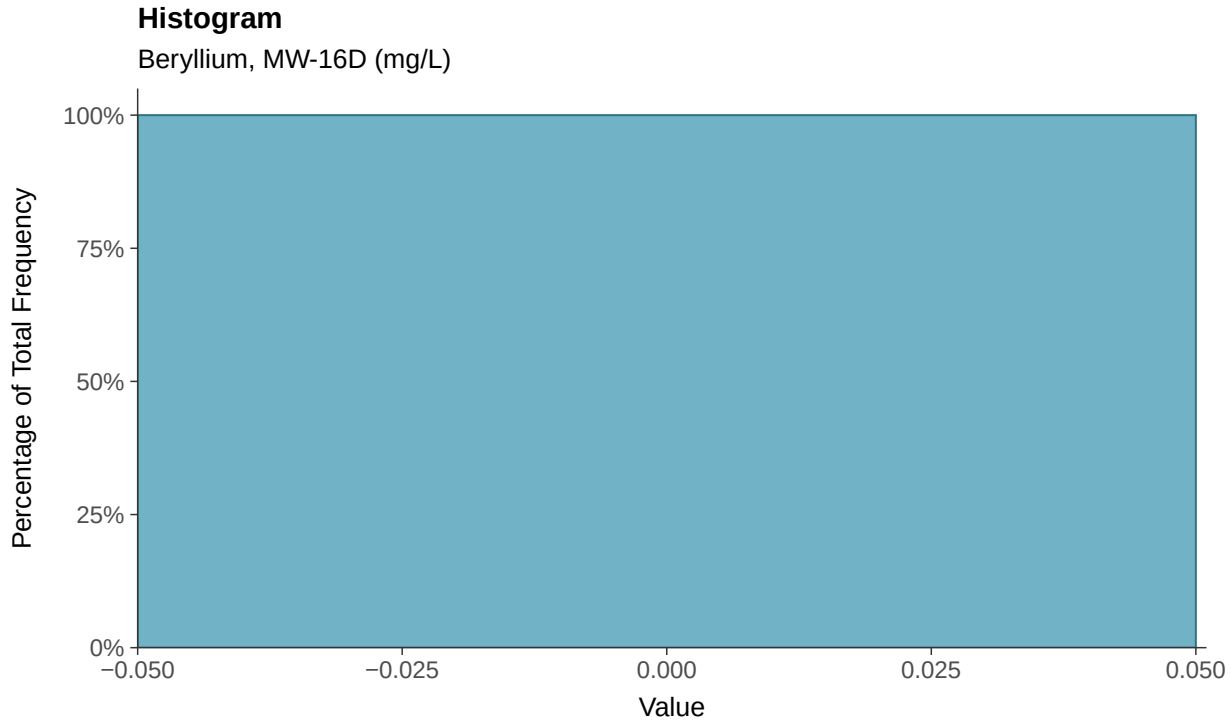
Barium, MW-16D (mg/L)



Appendix IV: Beryllium, MW-16D

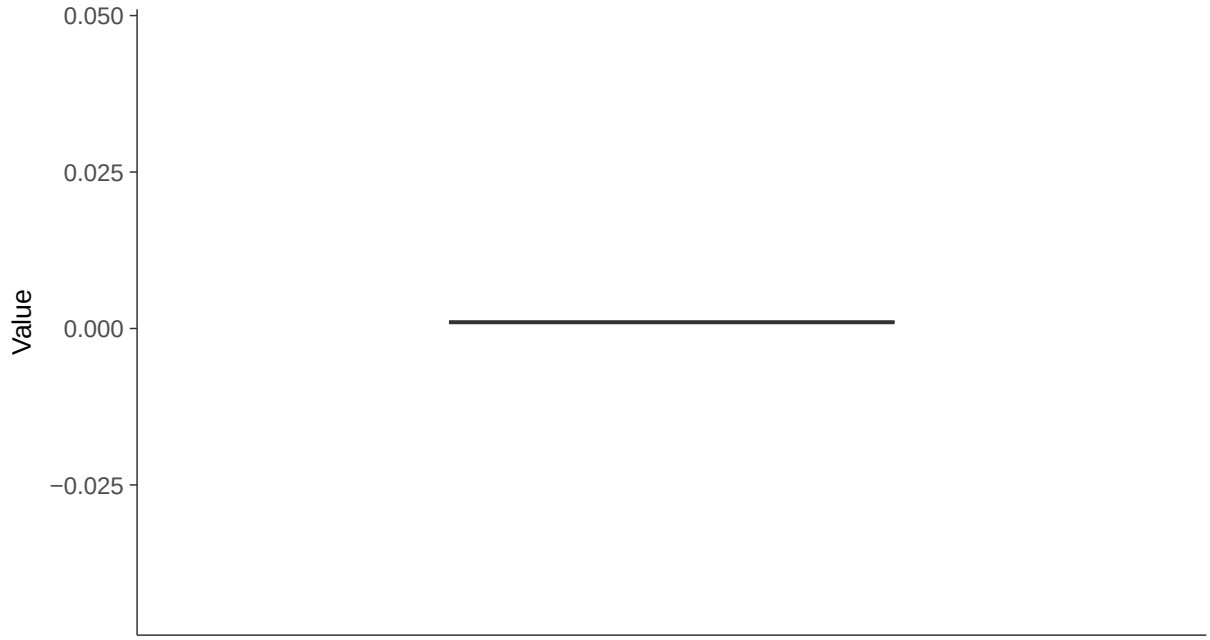
ID: 16D_2_11





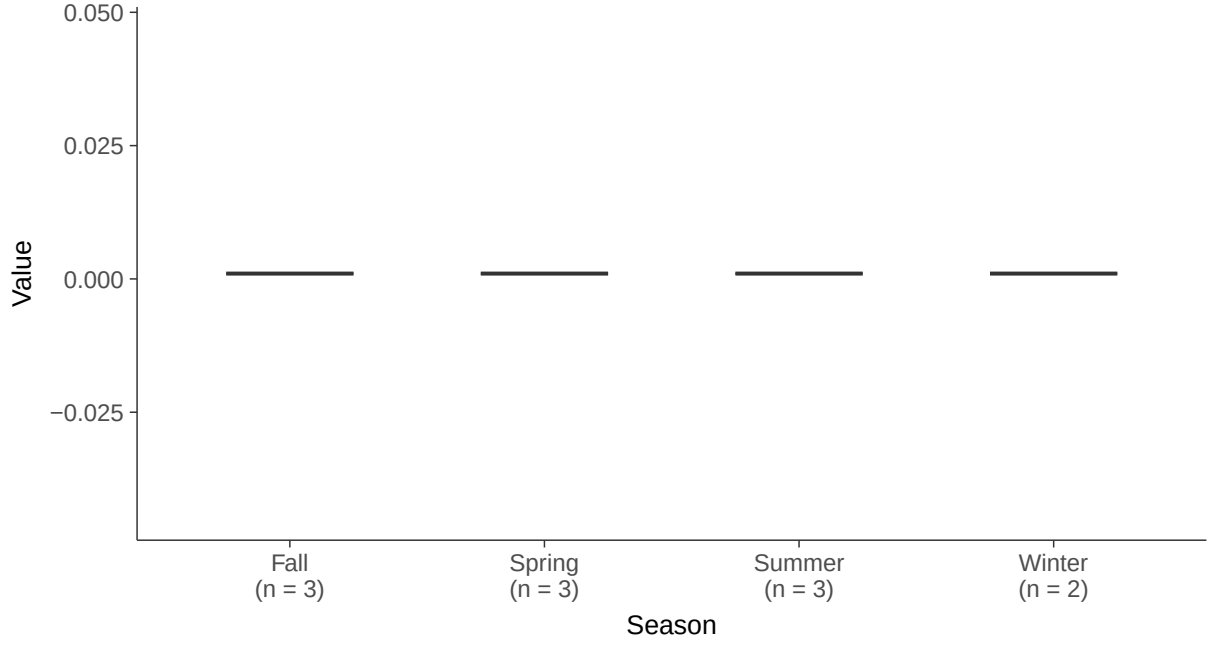
Boxplot

Beryllium, MW-16D (mg/L)



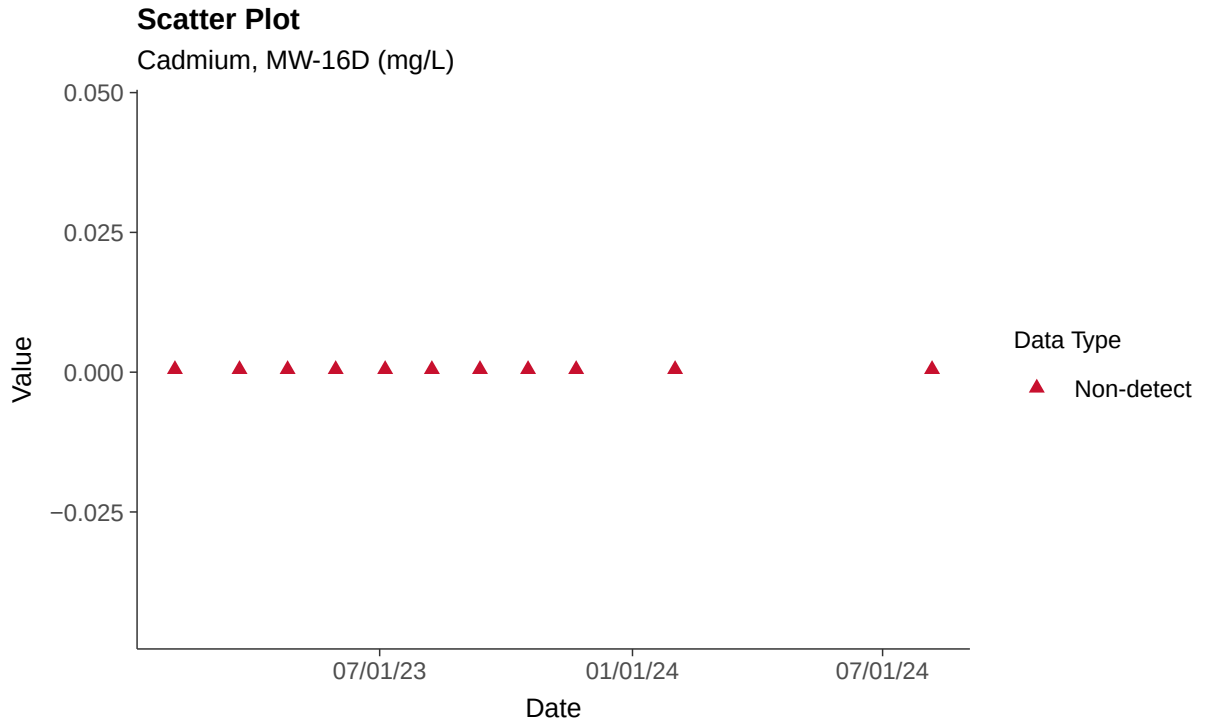
Boxplot by Season

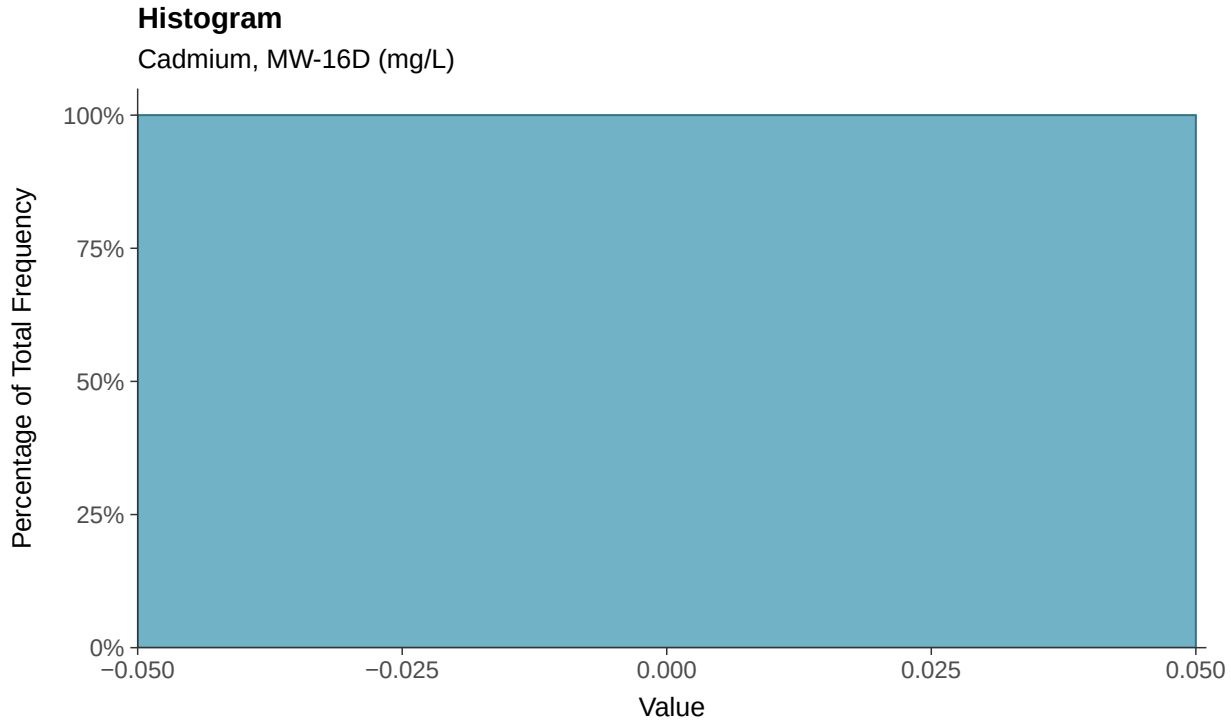
Beryllium, MW-16D (mg/L)



Appendix IV: Cadmium, MW-16D

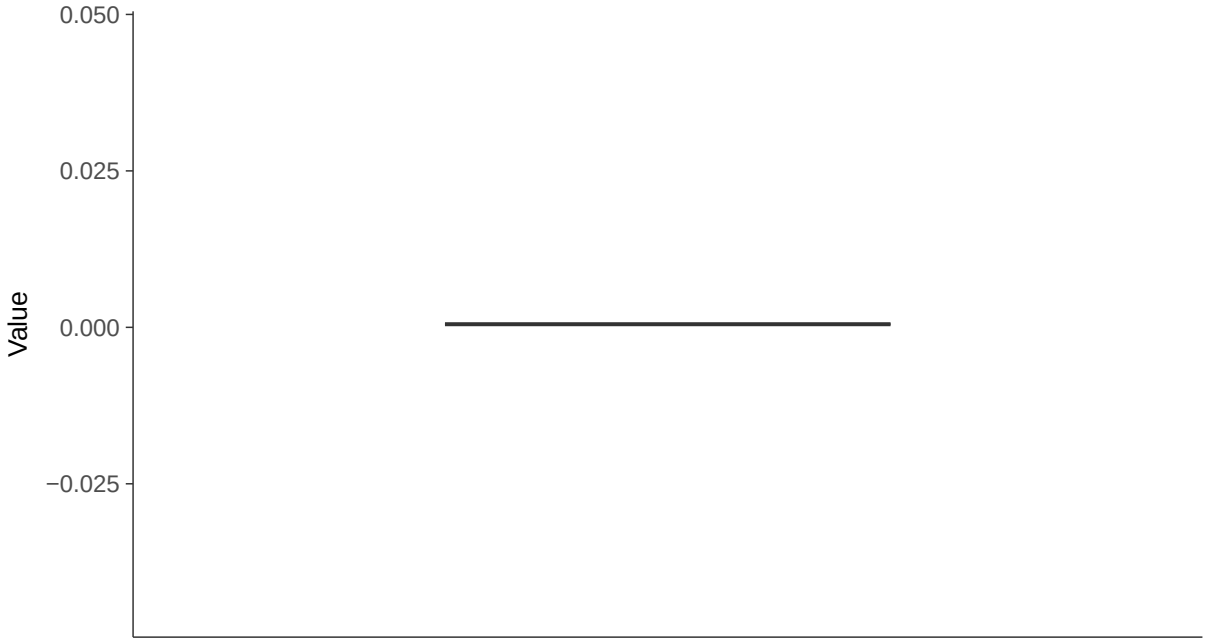
ID: 16D_2_12





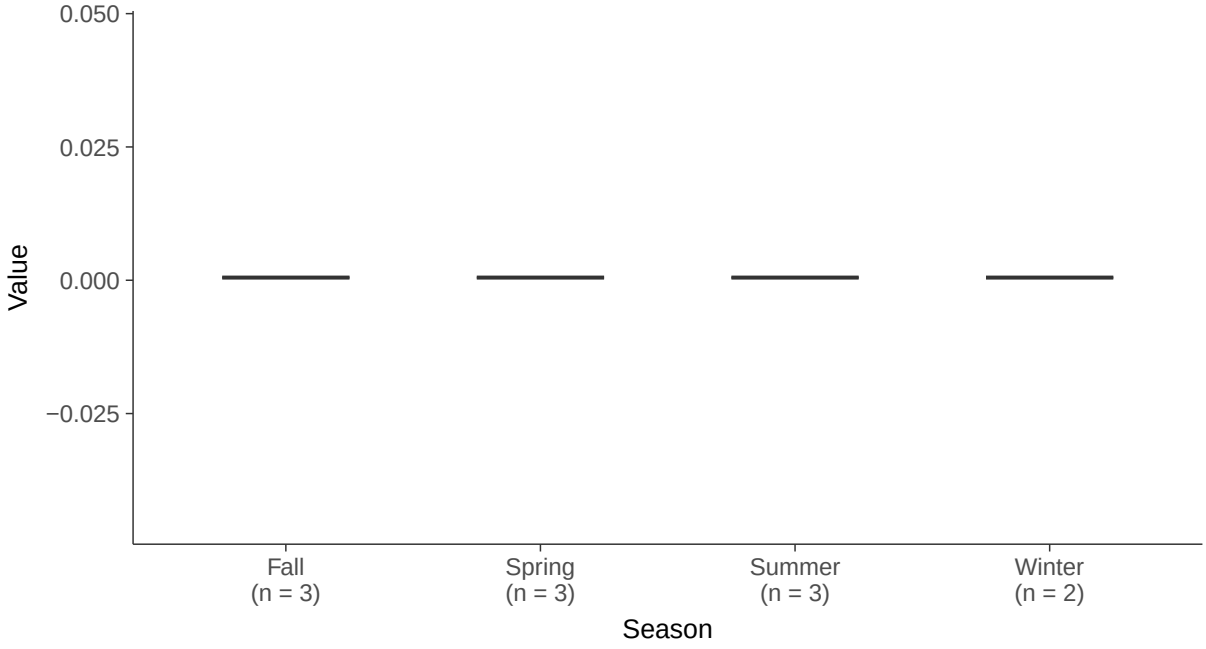
Boxplot

Cadmium, MW-16D (mg/L)



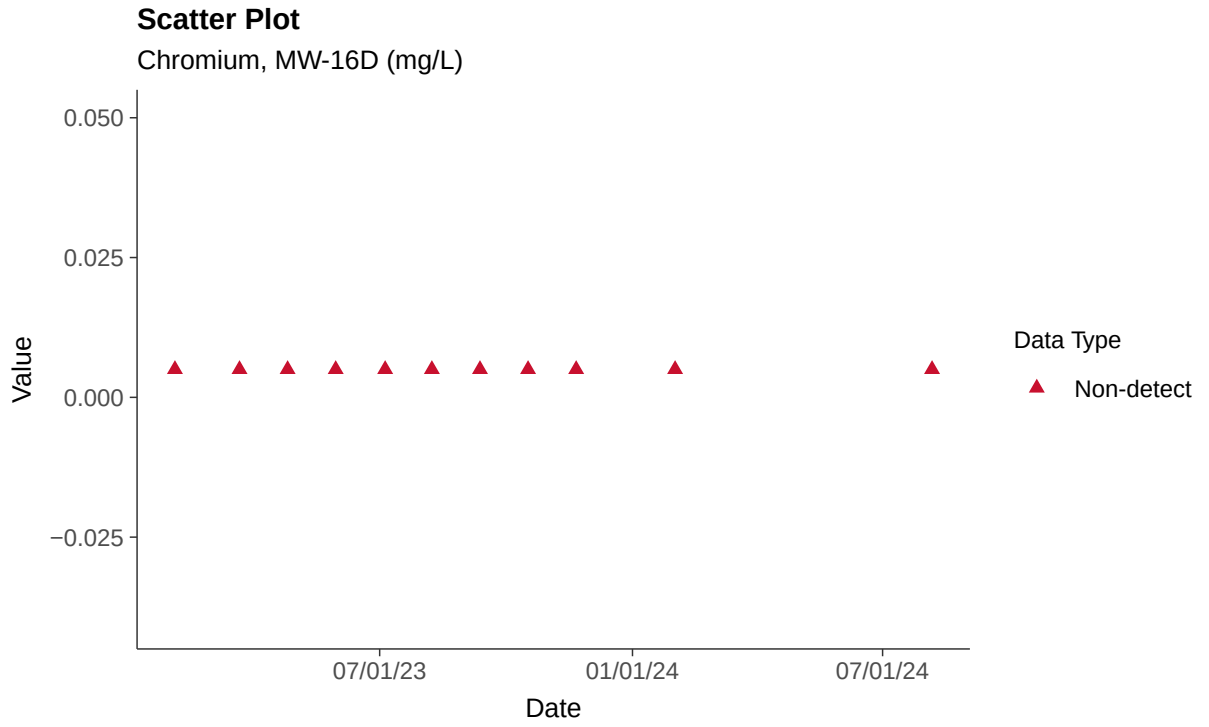
Boxplot by Season

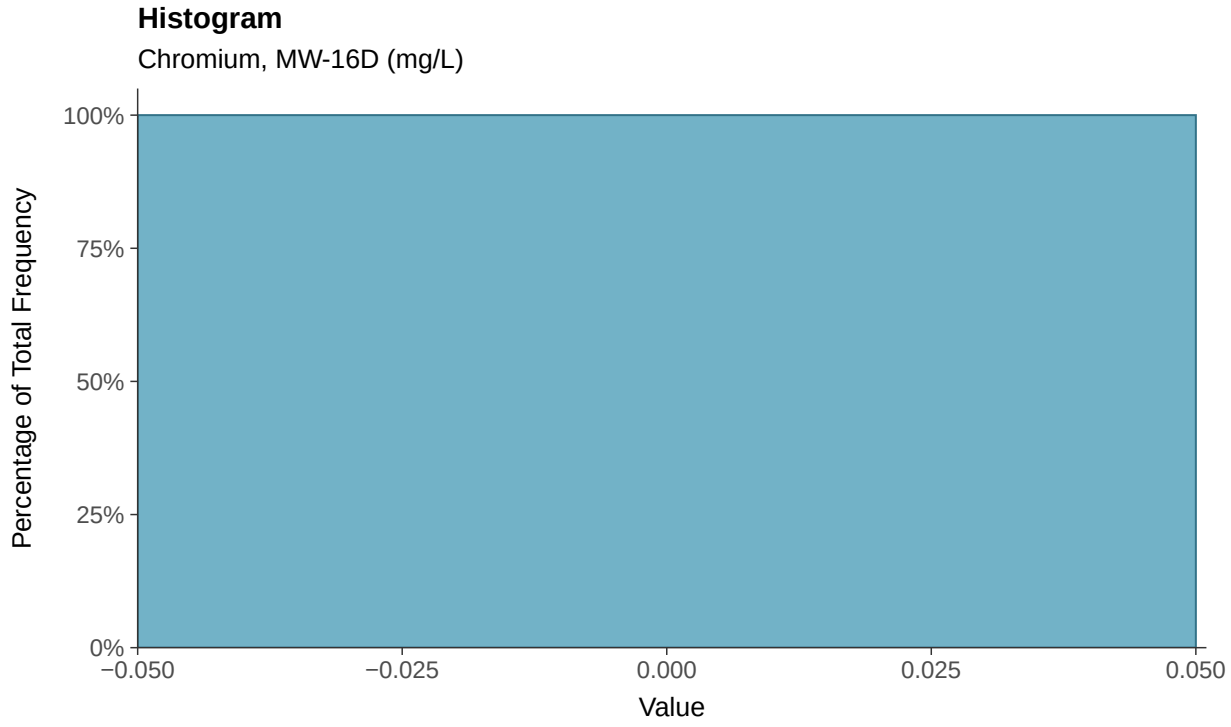
Cadmium, MW-16D (mg/L)



Appendix IV: Chromium, MW-16D

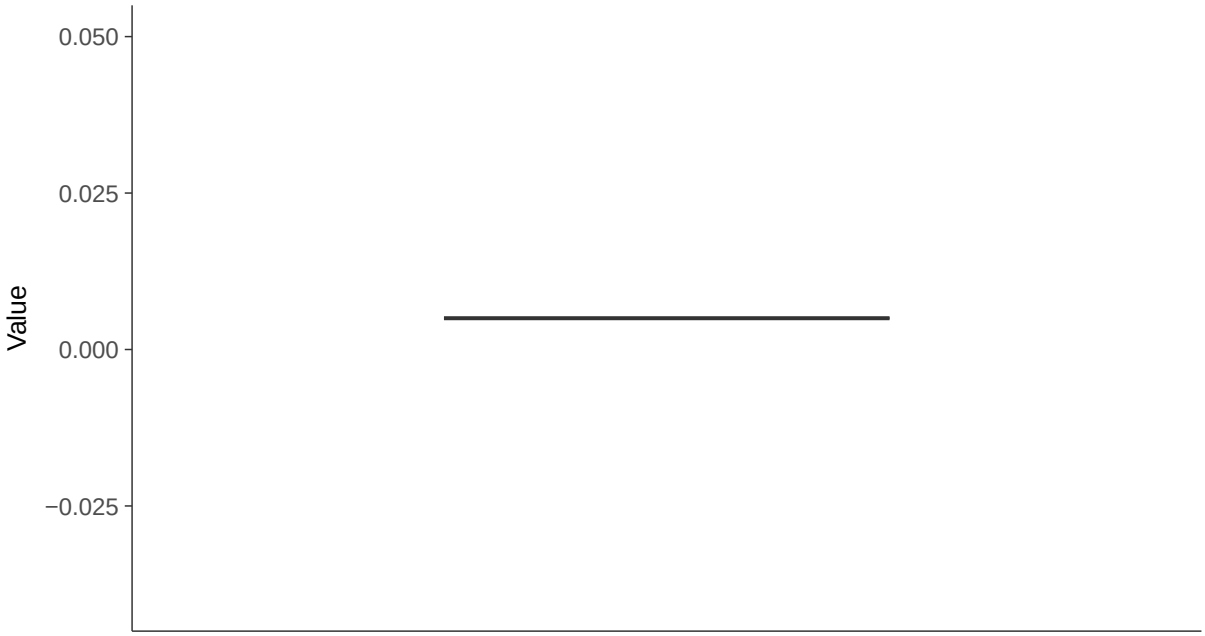
ID: 16D_2_13





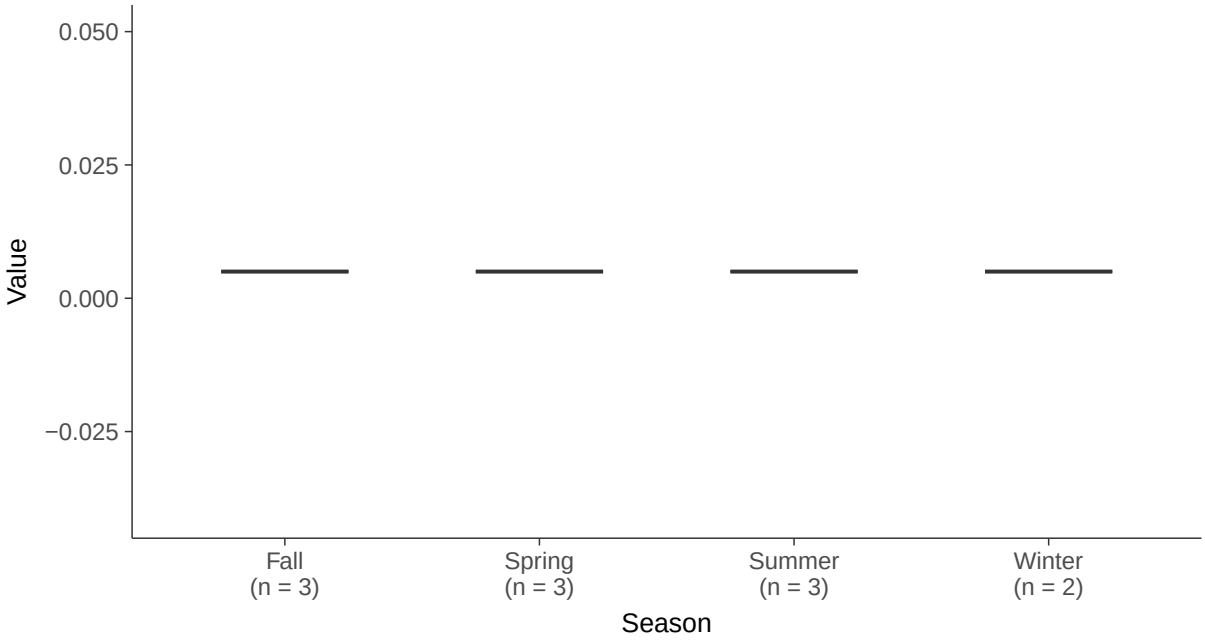
Boxplot

Chromium, MW-16D (mg/L)



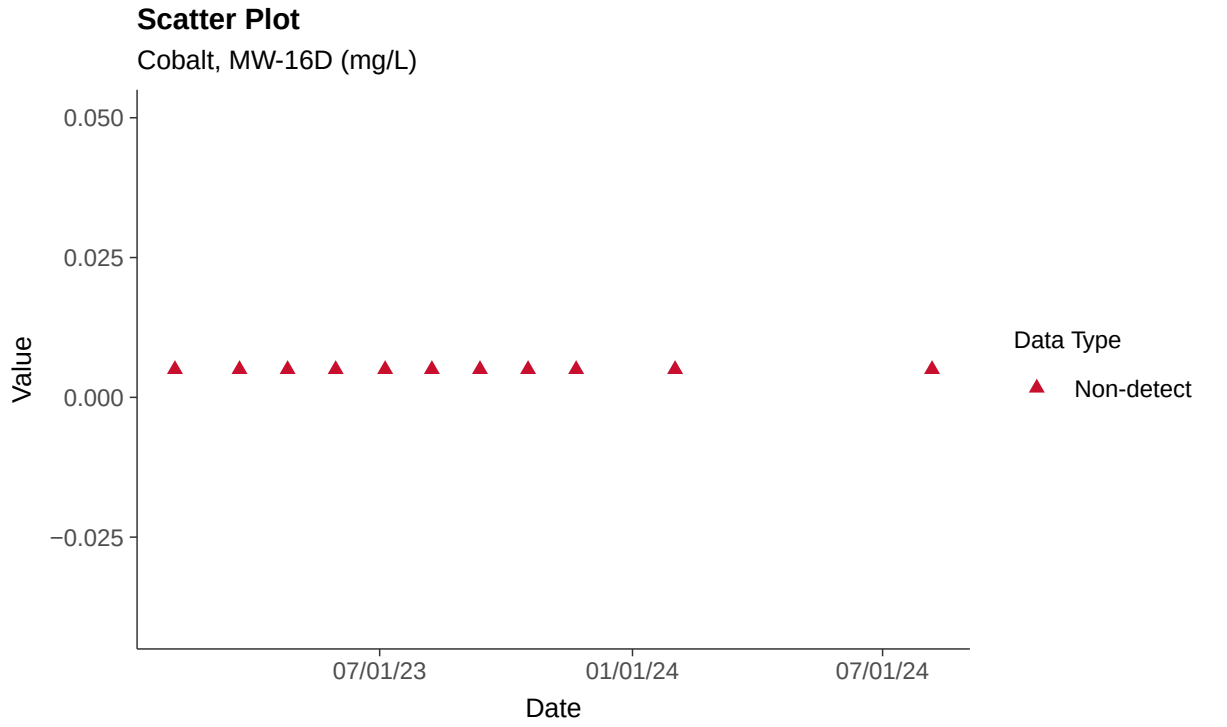
Boxplot by Season

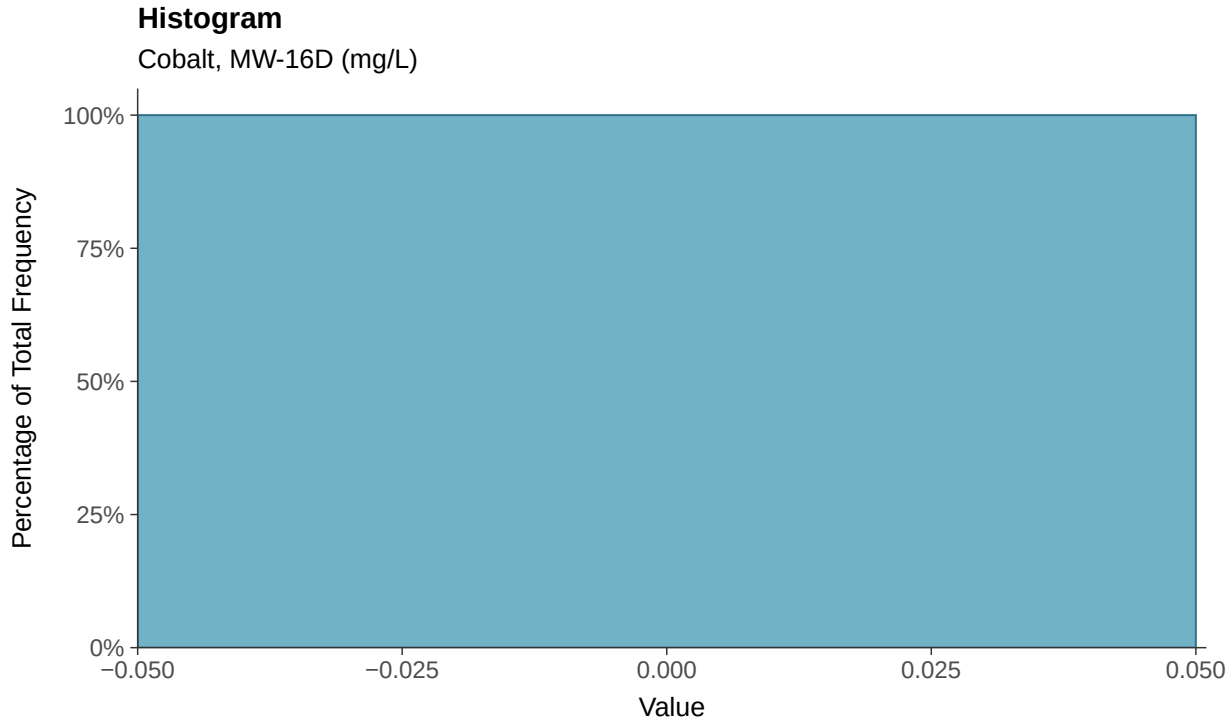
Chromium, MW-16D (mg/L)



Appendix IV: Cobalt, MW-16D

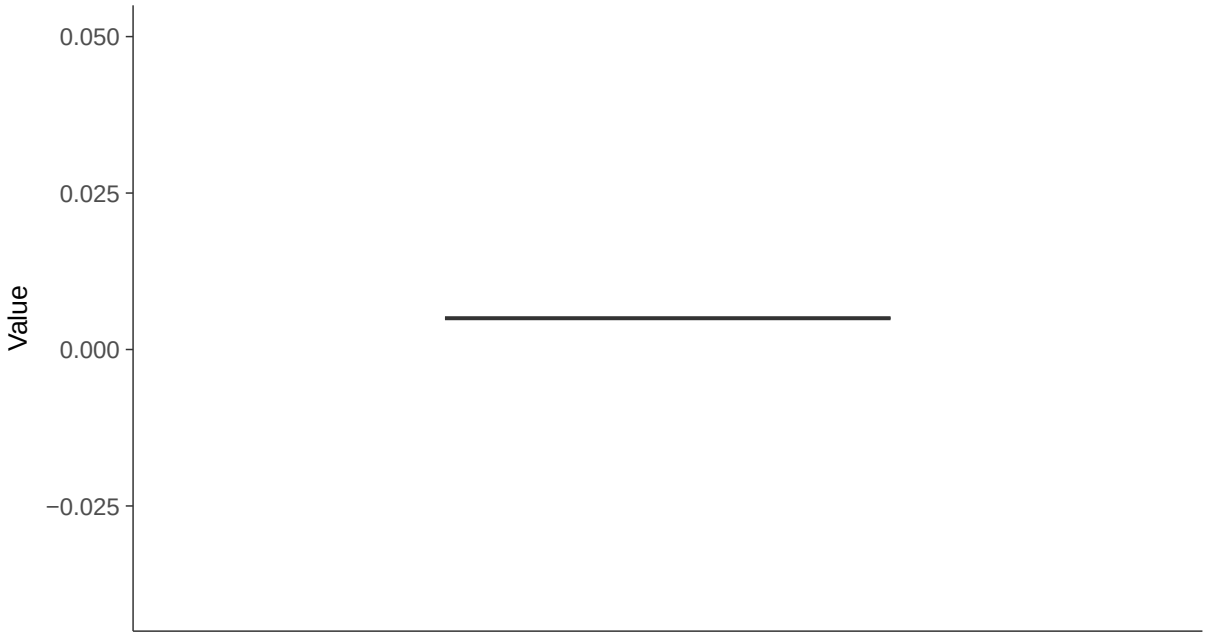
ID: 16D_2_14





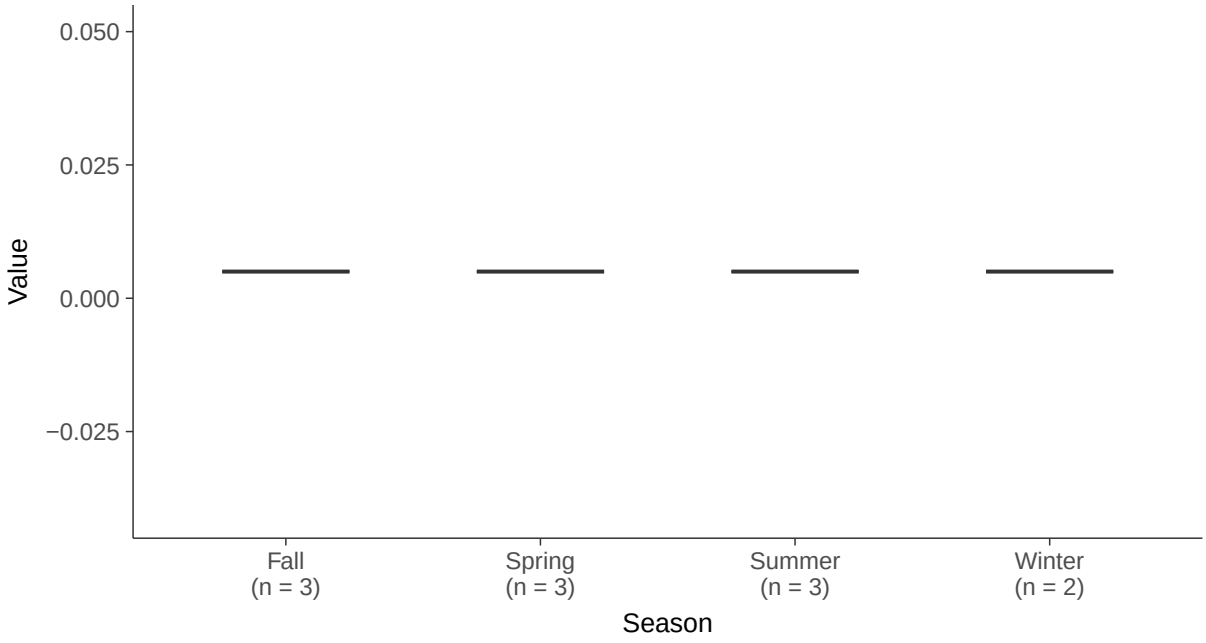
Boxplot

Cobalt, MW-16D (mg/L)



Boxplot by Season

Cobalt, MW-16D (mg/L)

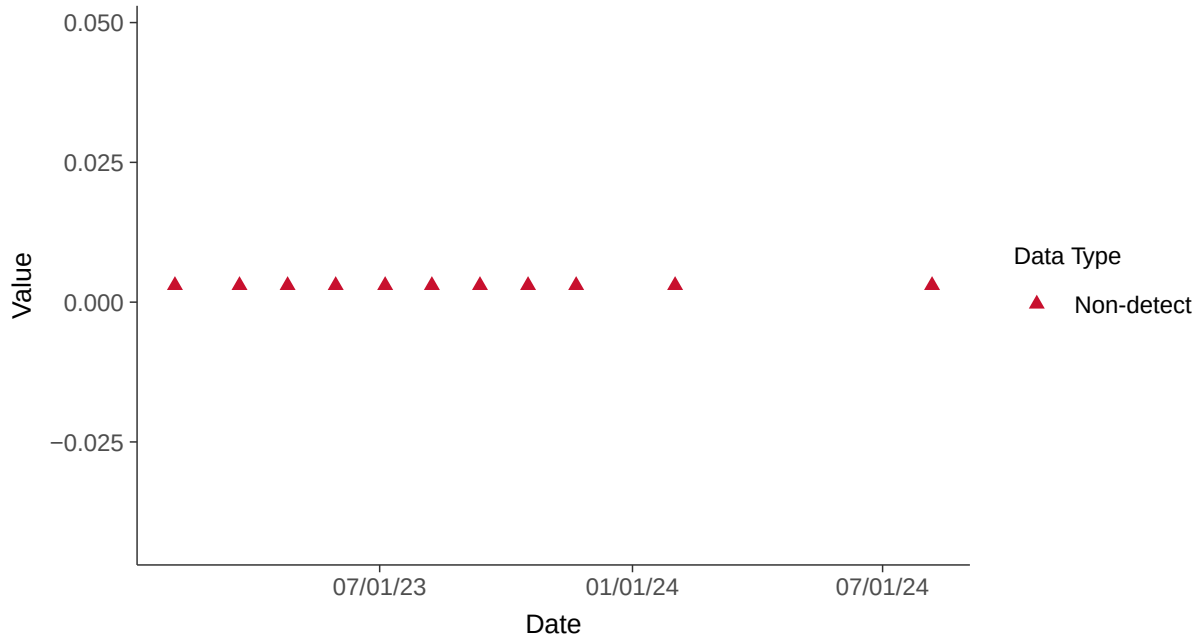


Appendix IV: Lead, MW-16D

ID: 16D_2_15

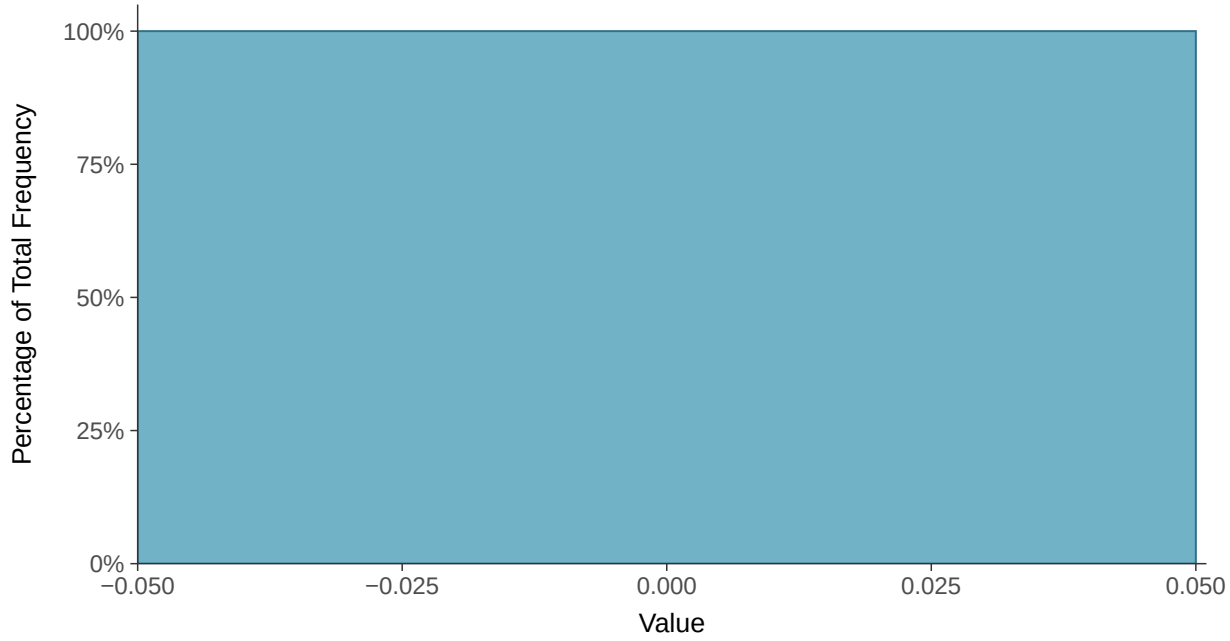
Scatter Plot

Lead, MW-16D (mg/L)



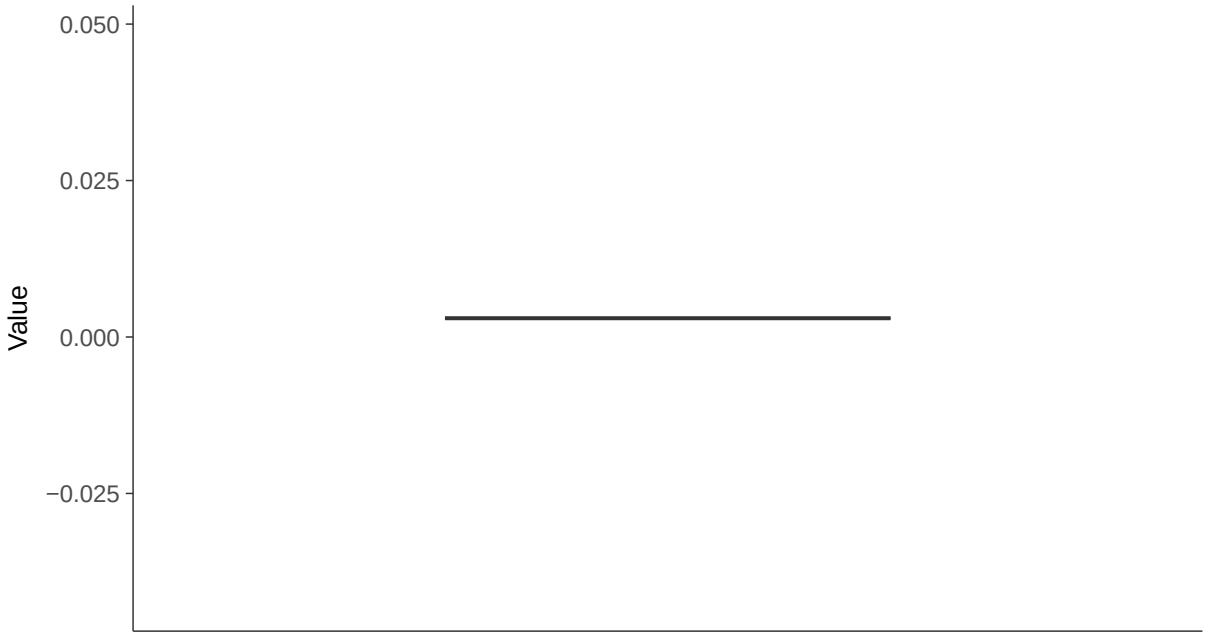
Histogram

Lead, MW-16D (mg/L)



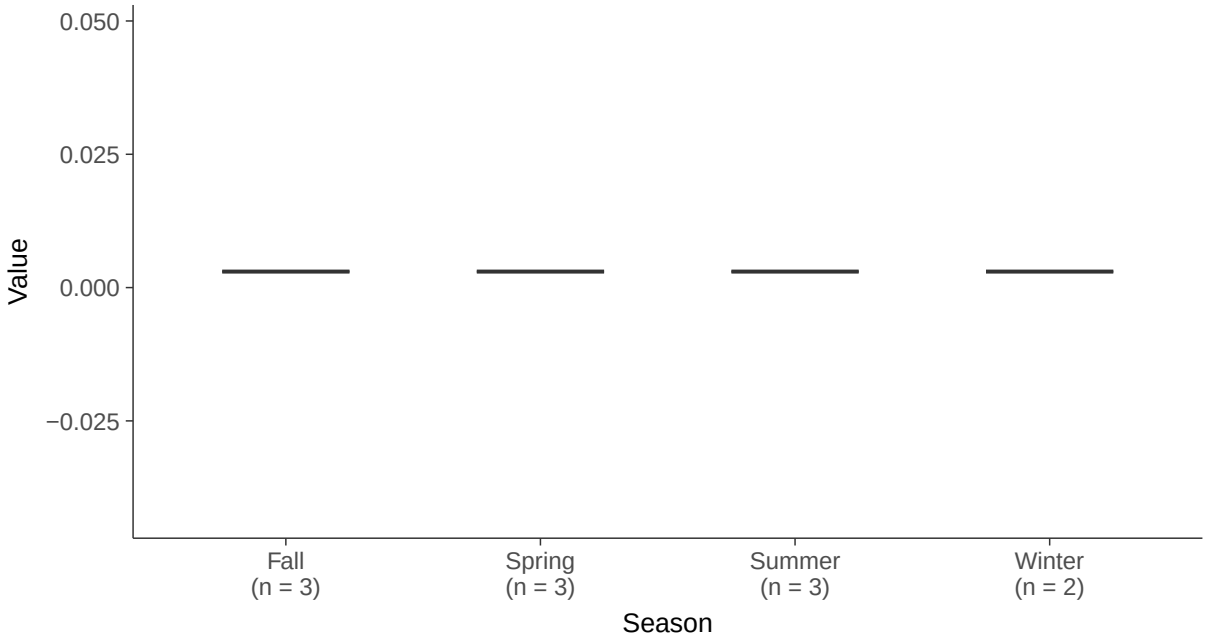
Boxplot

Lead, MW-16D (mg/L)



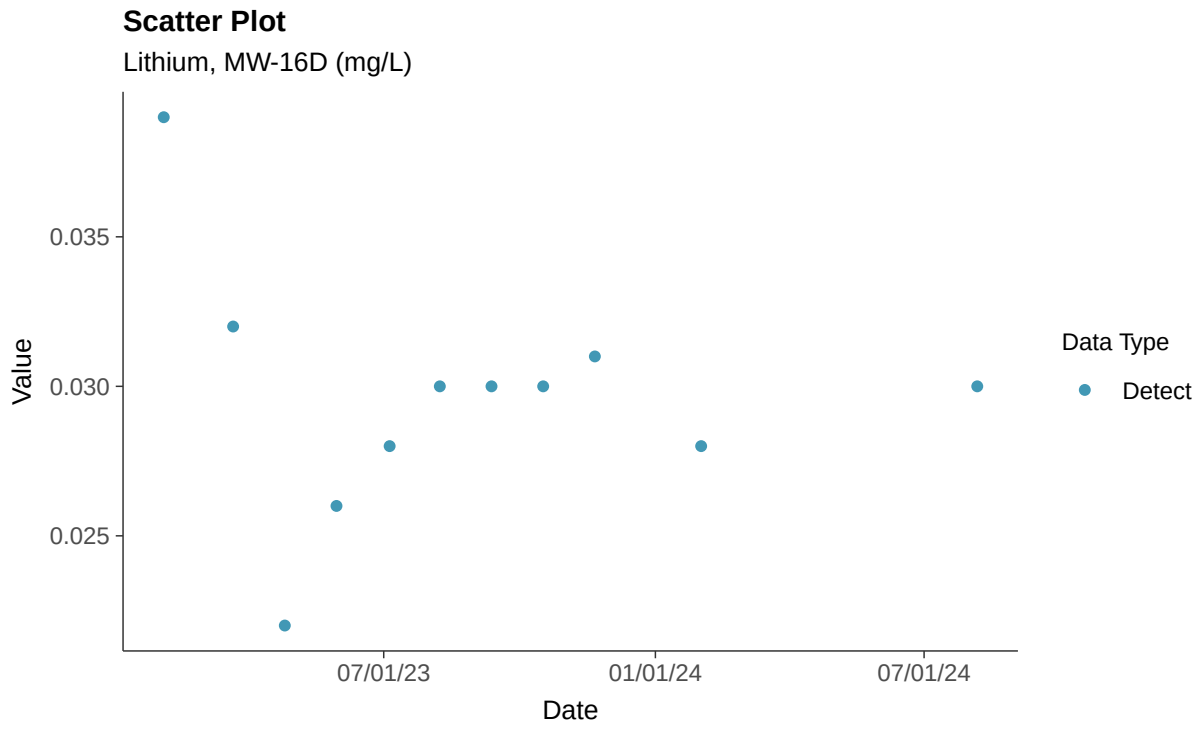
Boxplot by Season

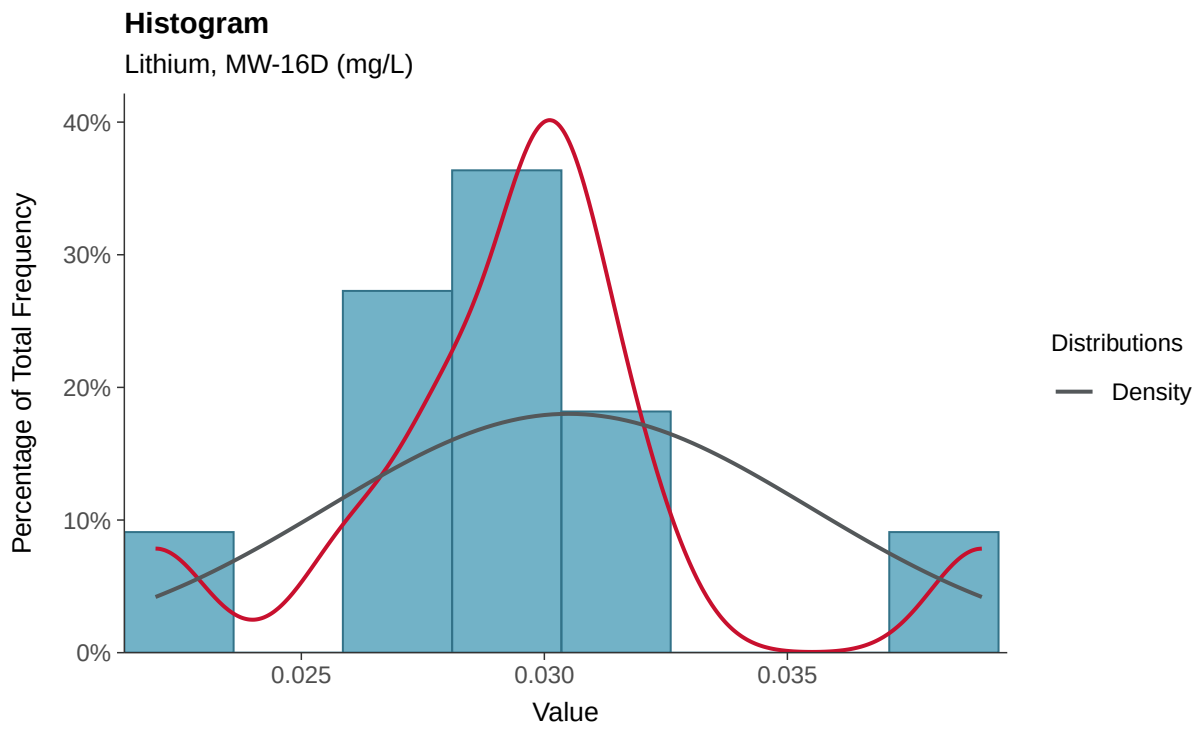
Lead, MW-16D (mg/L)



Appendix IV: Lithium, MW-16D

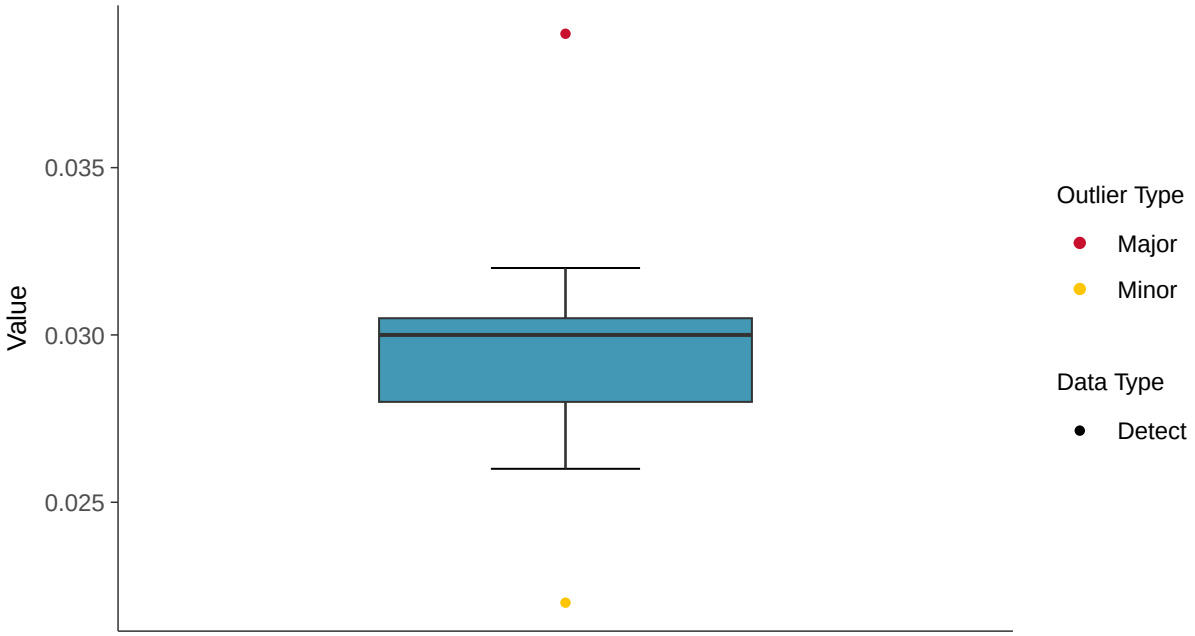
ID: 16D_2_16





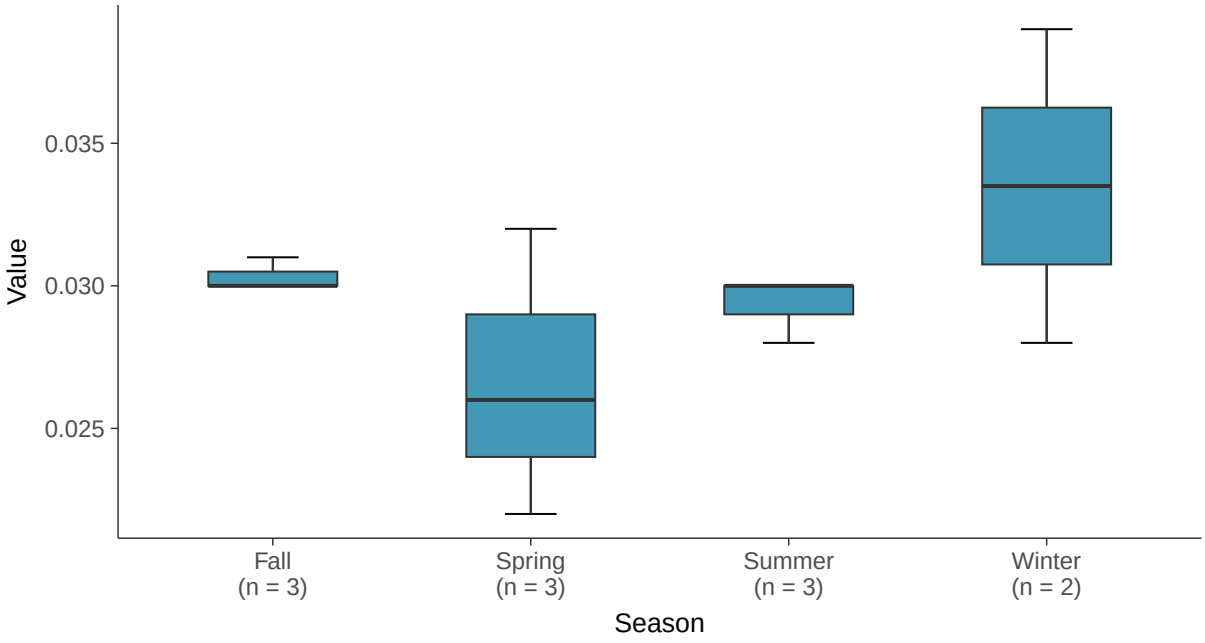
Boxplot

Lithium, MW-16D (mg/L)



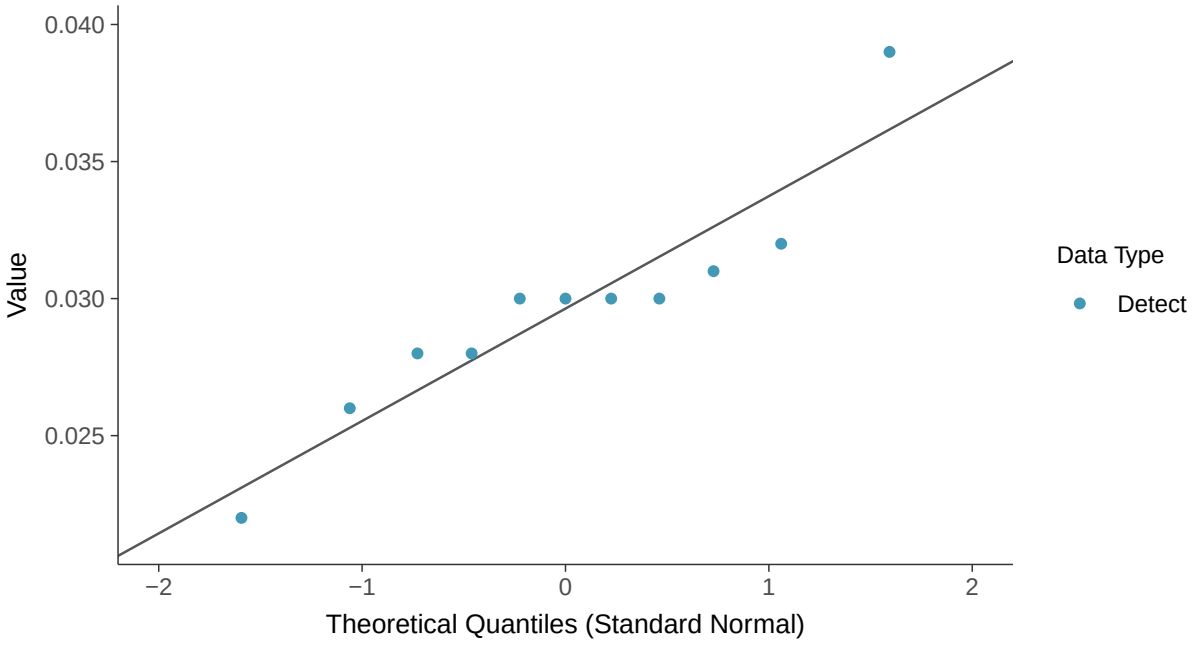
Boxplot by Season

Lithium, MW-16D (mg/L)



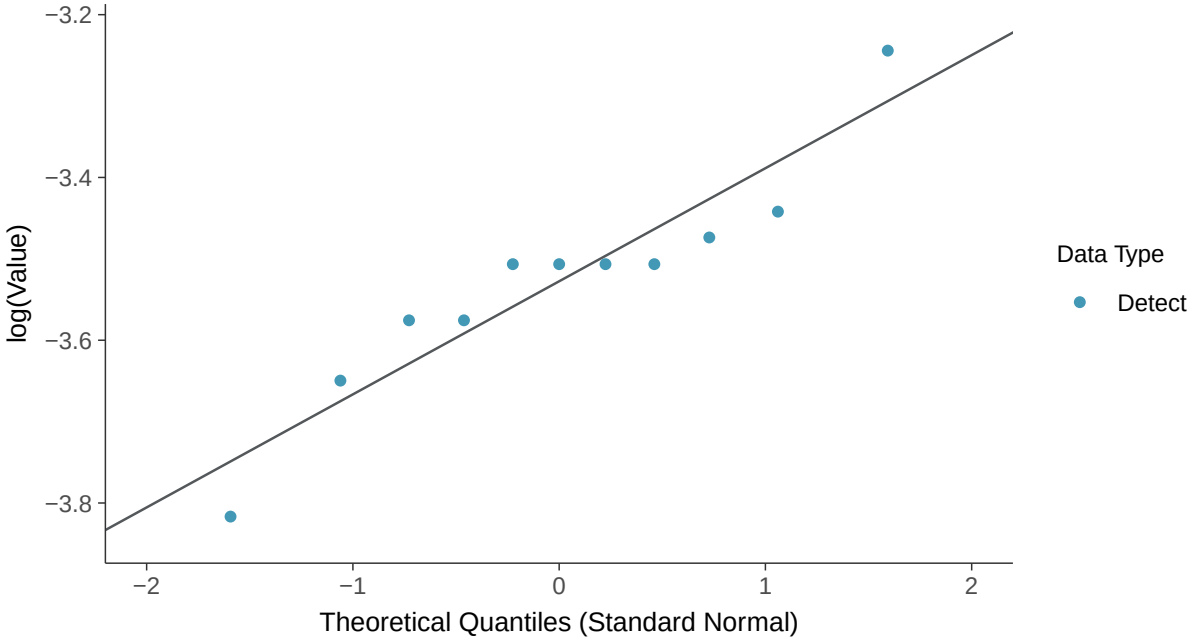
Normal Q-Q plot

Lithium, MW-16D (mg/L)



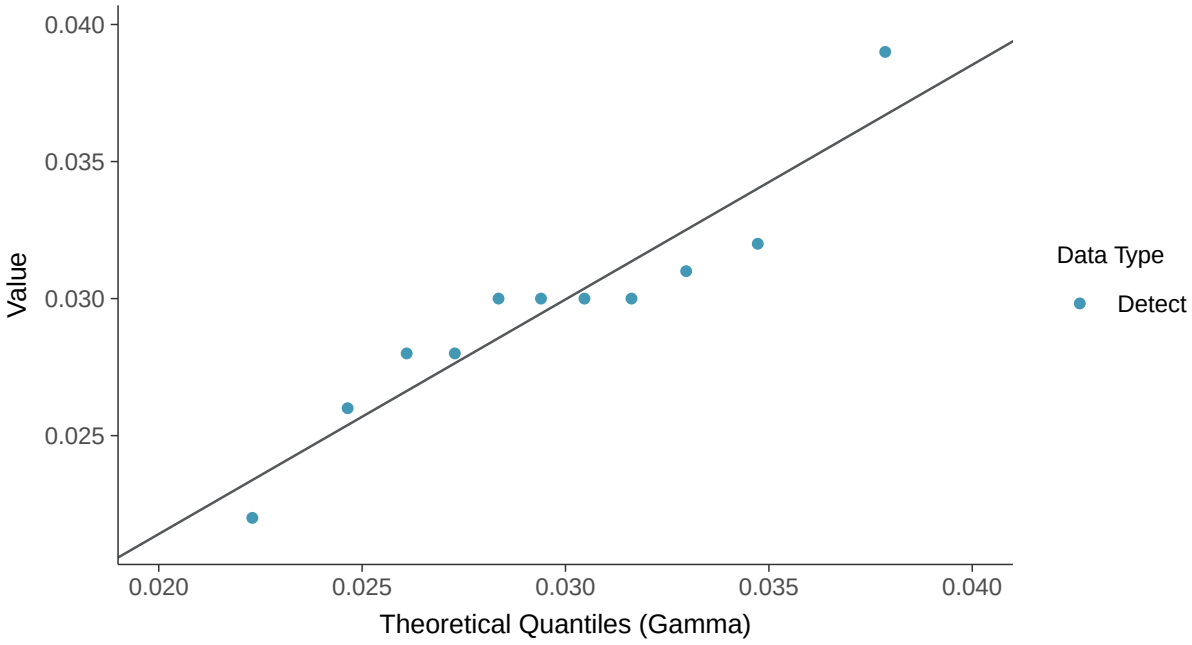
Lognormal Q-Q plot

Lithium, MW-16D (mg/L)



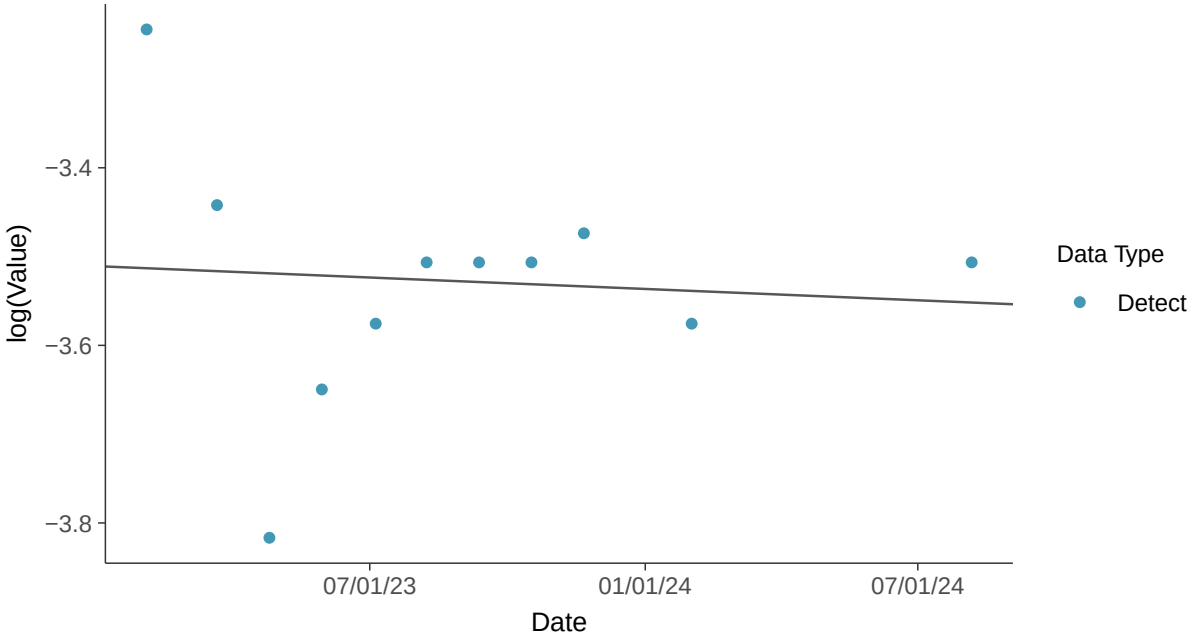
Gamma Q-Q plot

Lithium, MW-16D (mg/L)



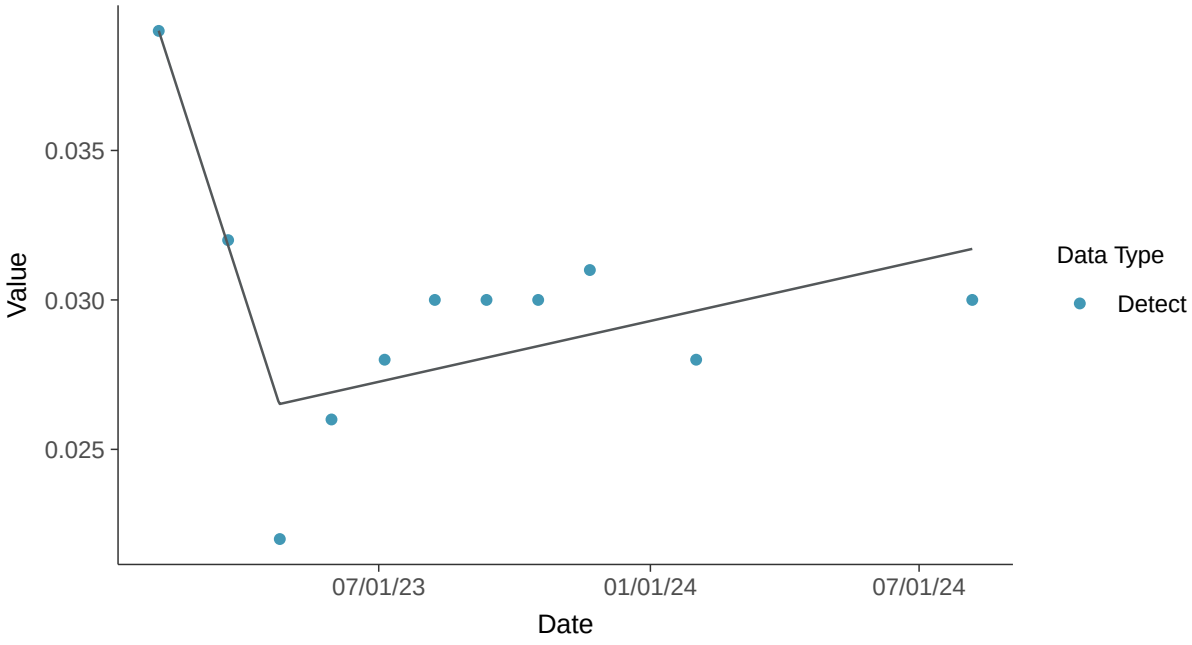
Trend Regression: Lognormal MLE

Lithium, MW-16D (mg/L)



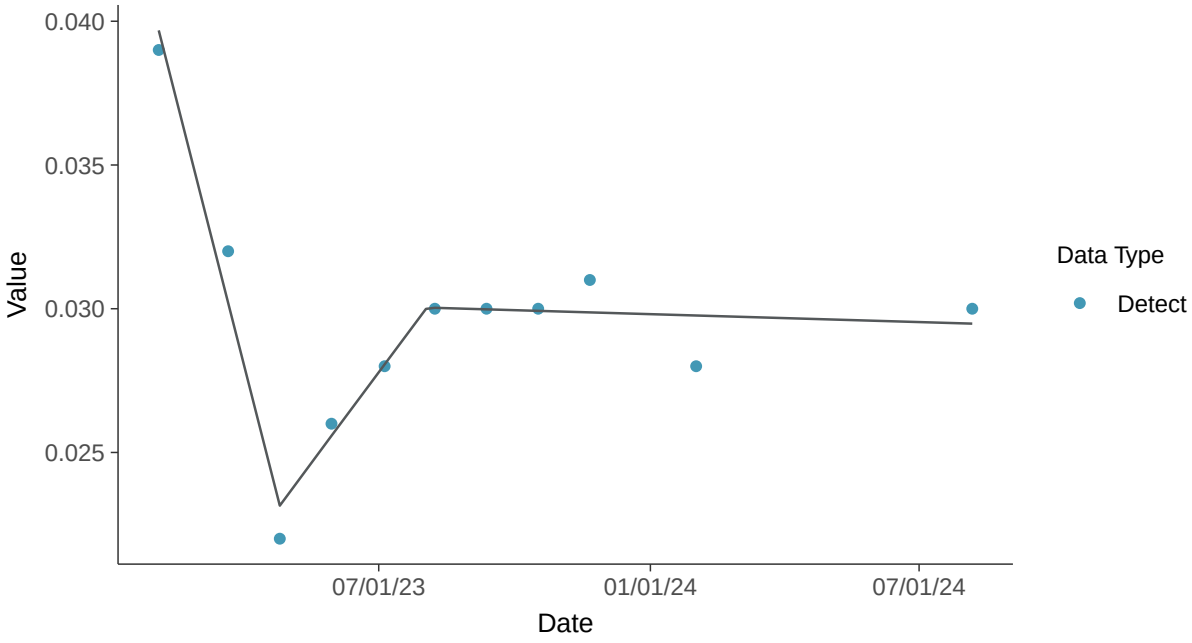
Trend Regression: Piecewise Linear-Linear

Lithium, MW-16D (mg/L)



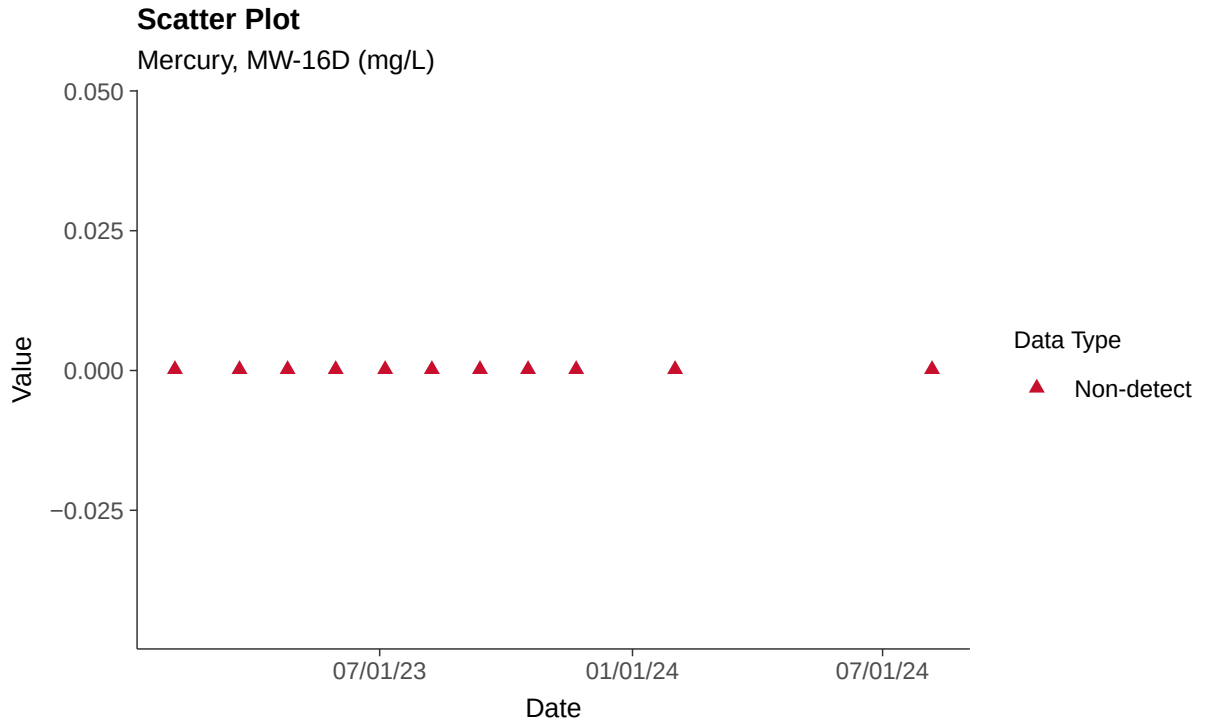
Trend Regression: Piecewise Linear-Linear-Linear

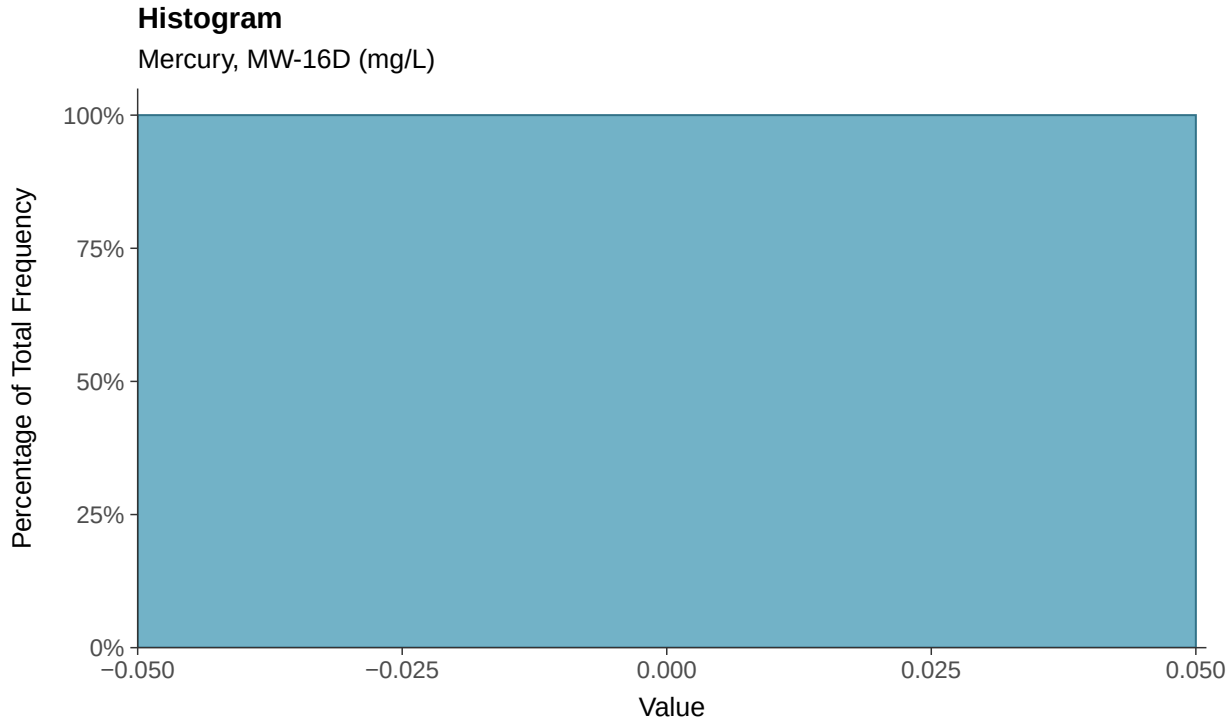
Lithium, MW-16D (mg/L)



Appendix IV: Mercury, MW-16D

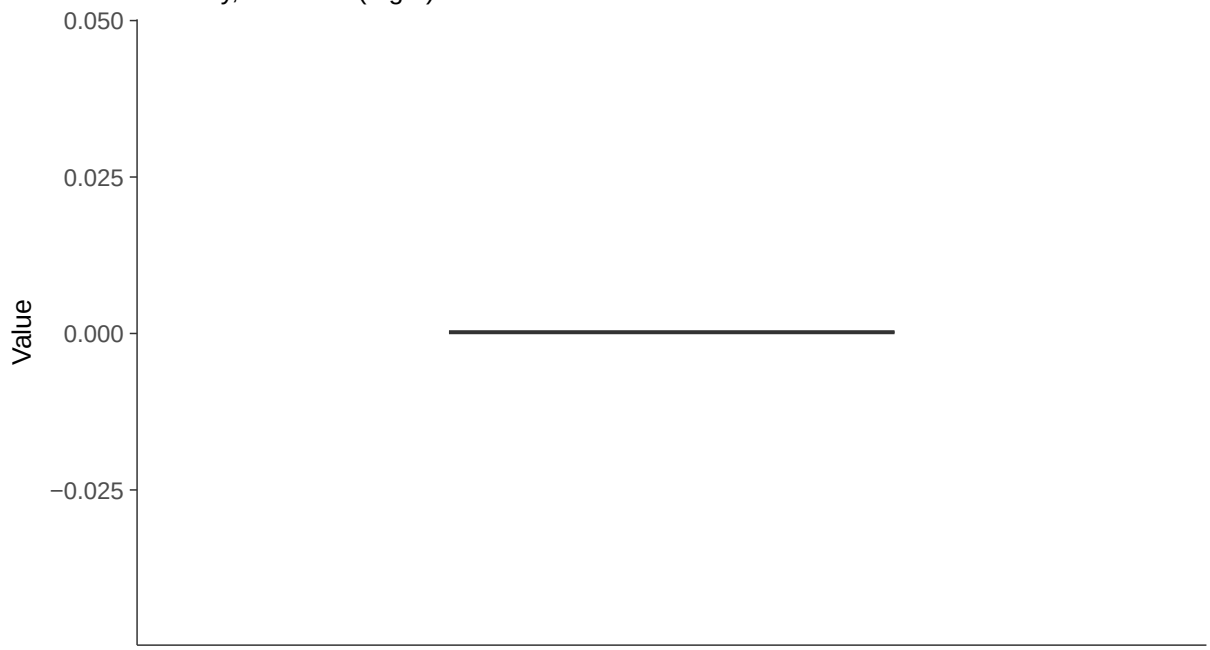
ID: 16D_2_17





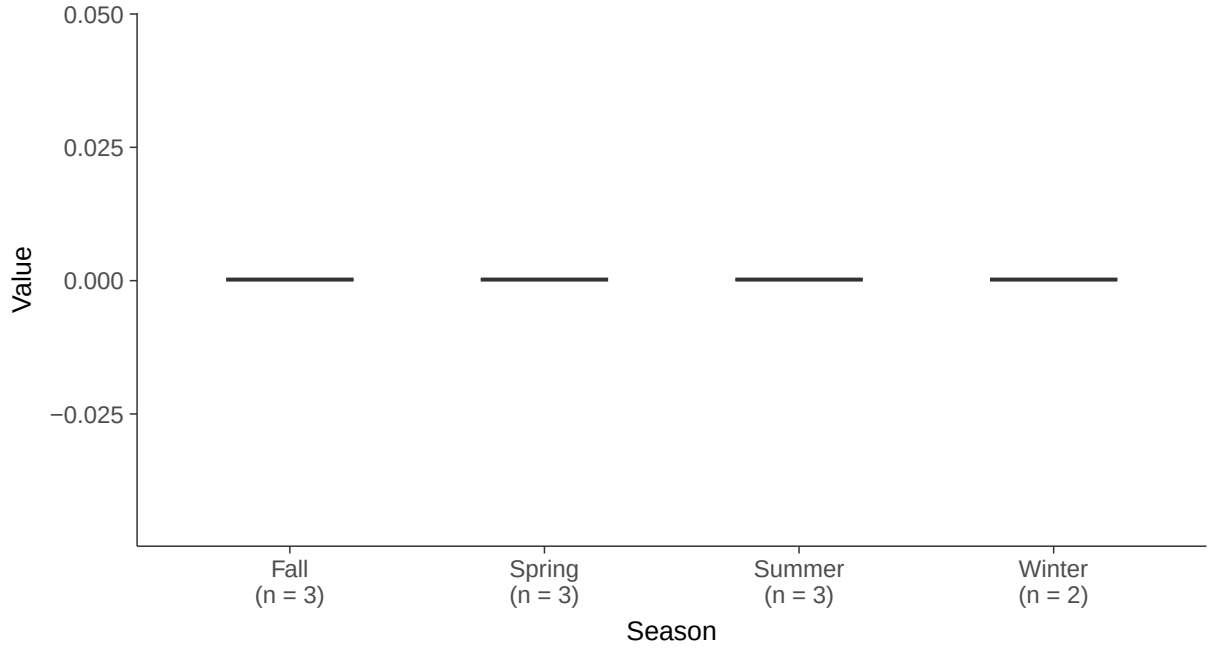
Boxplot

Mercury, MW-16D (mg/L)



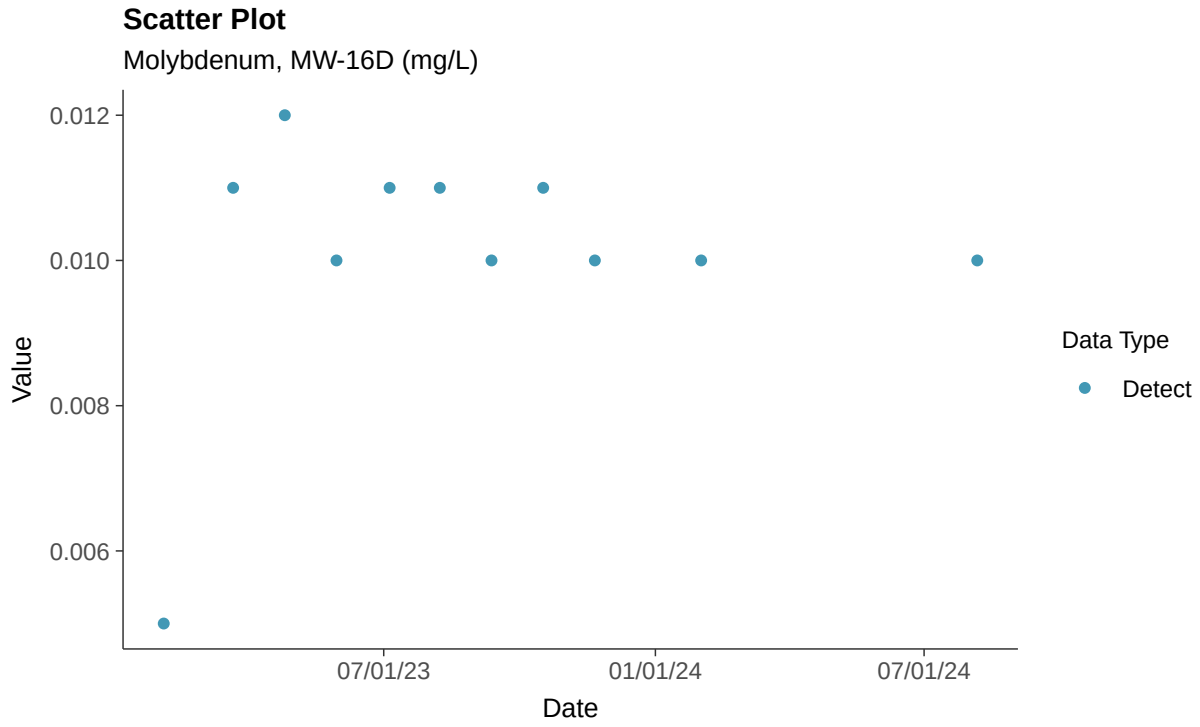
Boxplot by Season

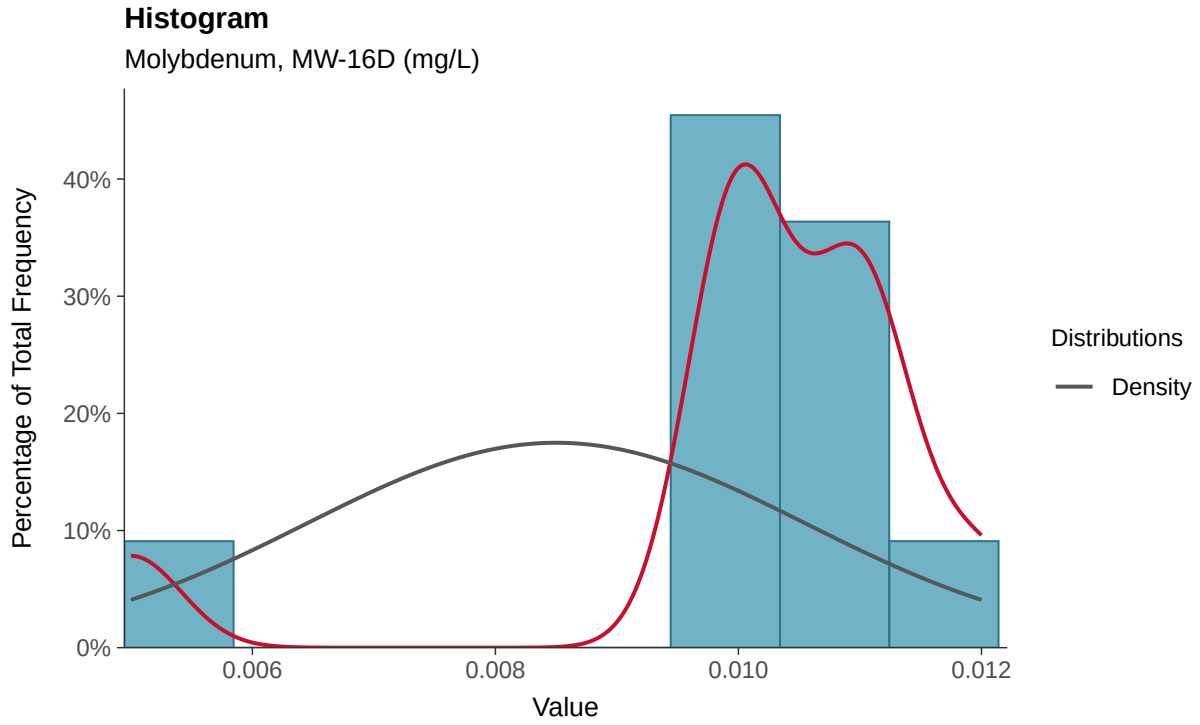
Mercury, MW-16D (mg/L)



Appendix IV: Molybdenum, MW-16D

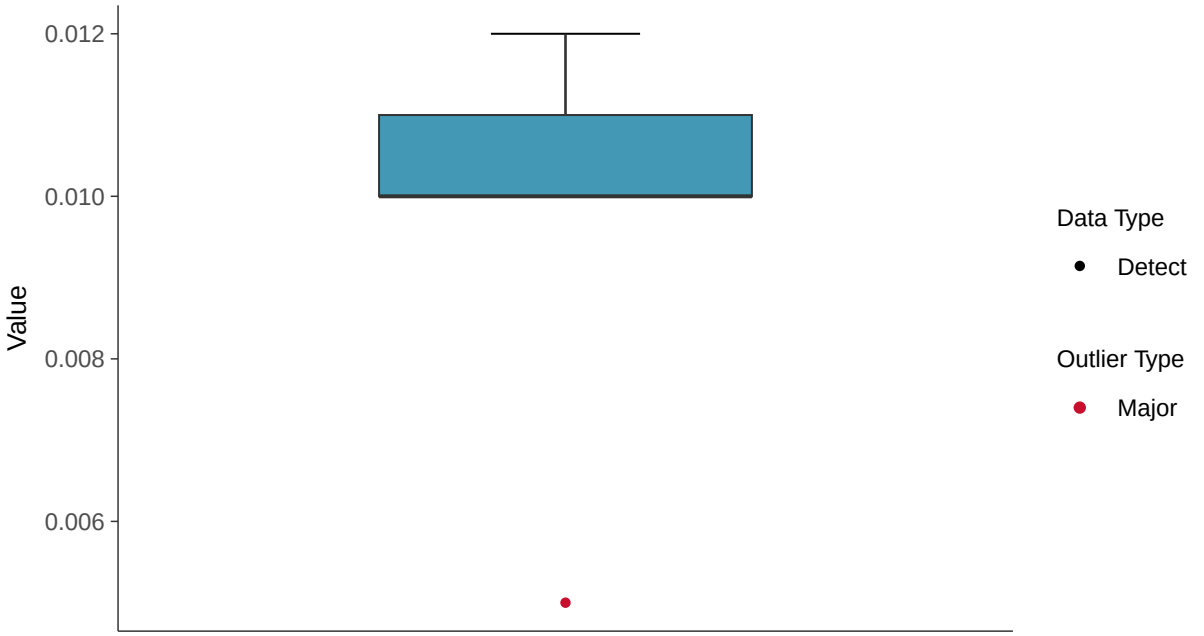
ID: 16D_2_18





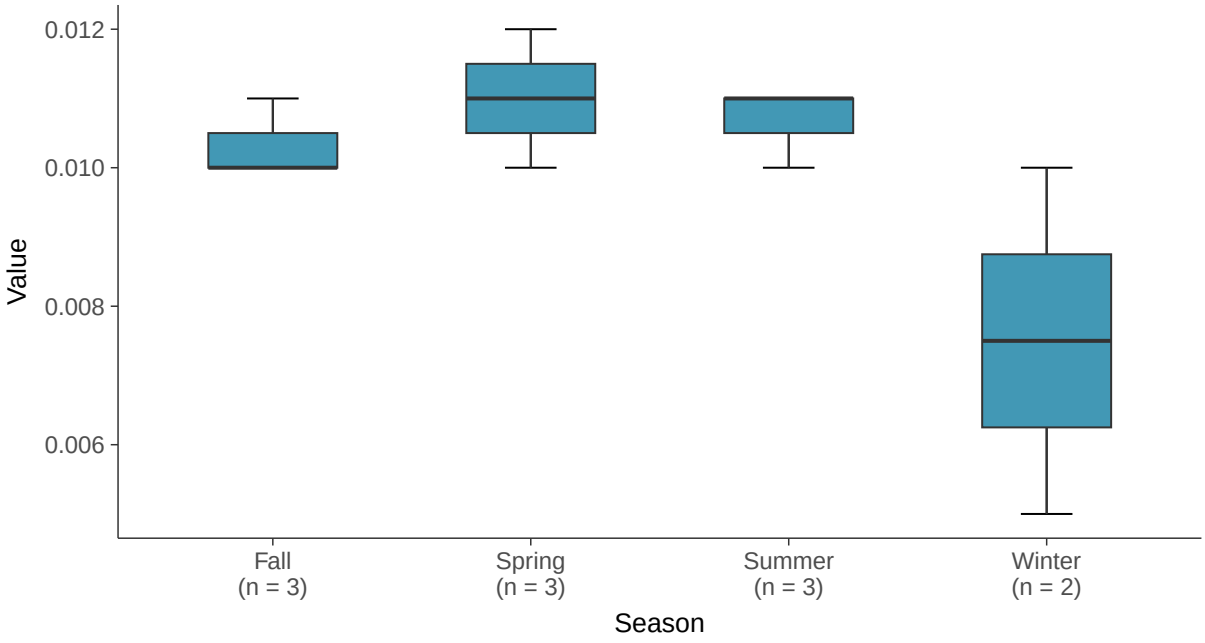
Boxplot

Molybdenum, MW-16D (mg/L)



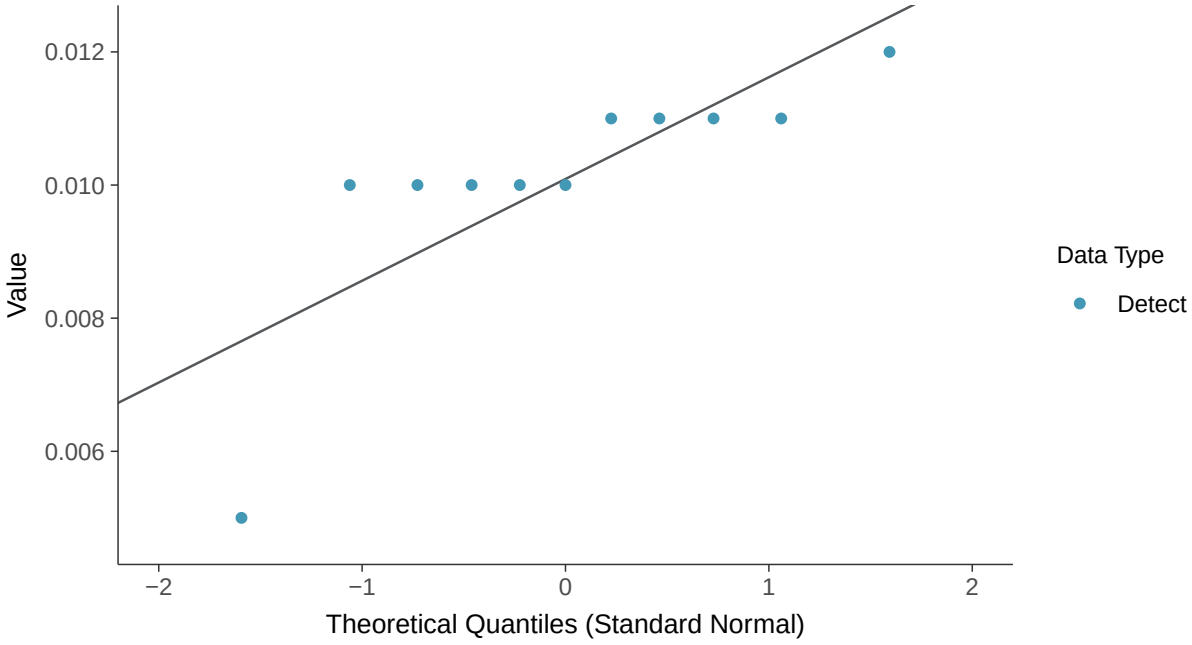
Boxplot by Season

Molybdenum, MW-16D (mg/L)



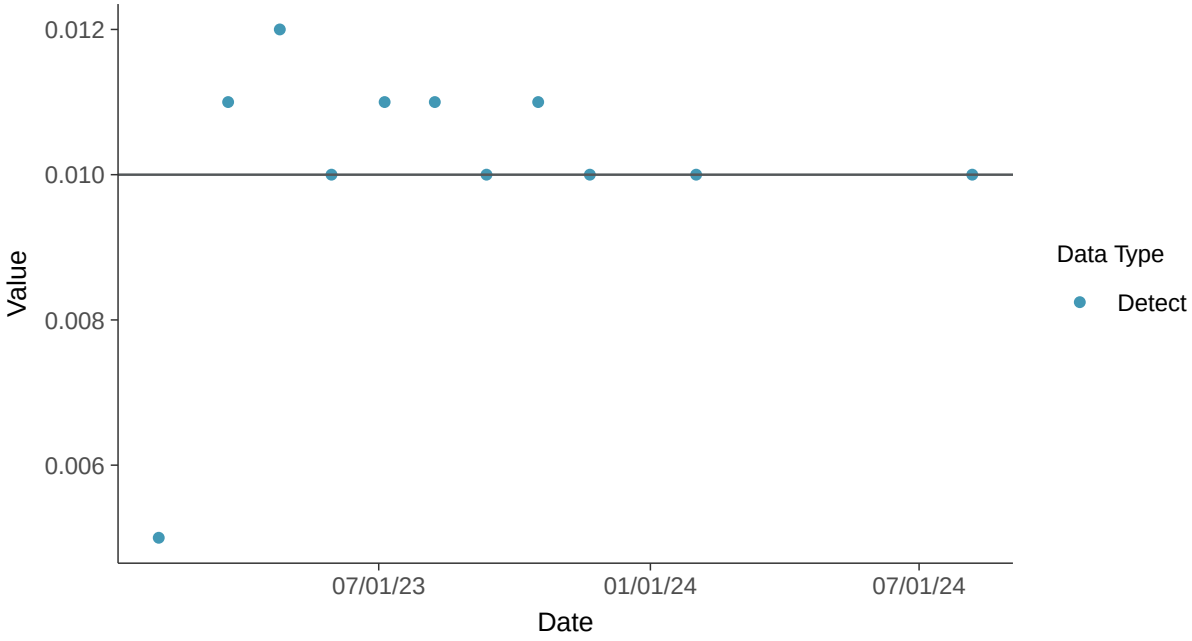
Normal Q-Q plot

Molybdenum, MW-16D (mg/L)



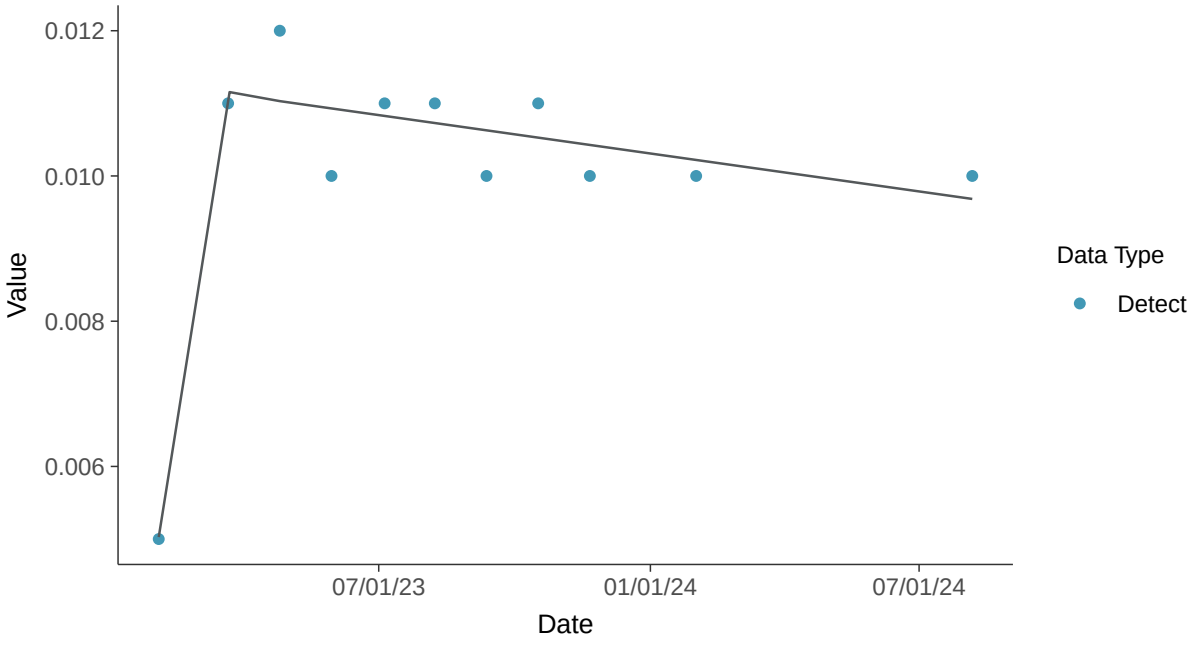
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Molybdenum, MW-16D (mg/L)



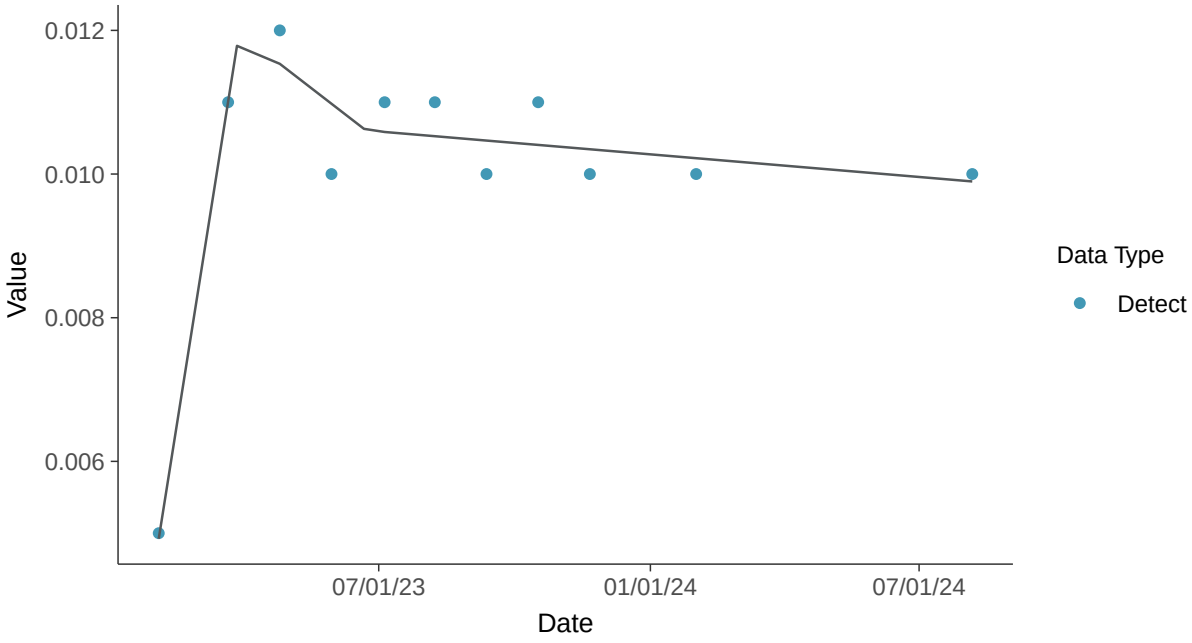
Trend Regression: Piecewise Linear-Linear

Molybdenum, MW-16D (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Molybdenum, MW-16D (mg/L)

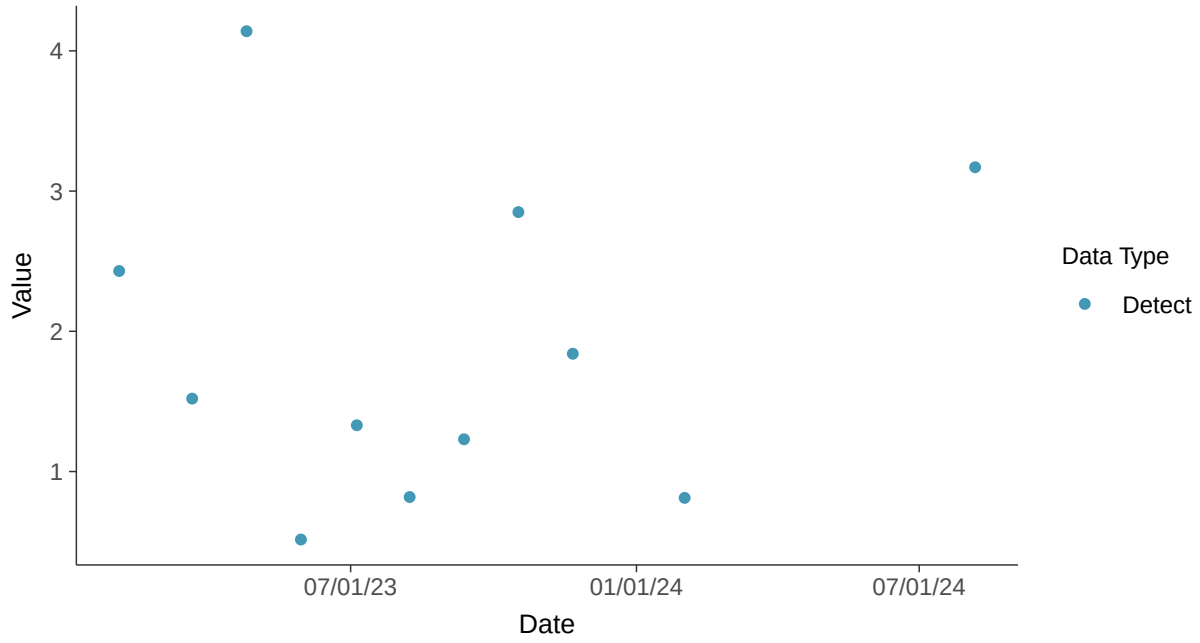


Appendix IV: Radium-226/228, MW-16D

ID: 16D_2_21

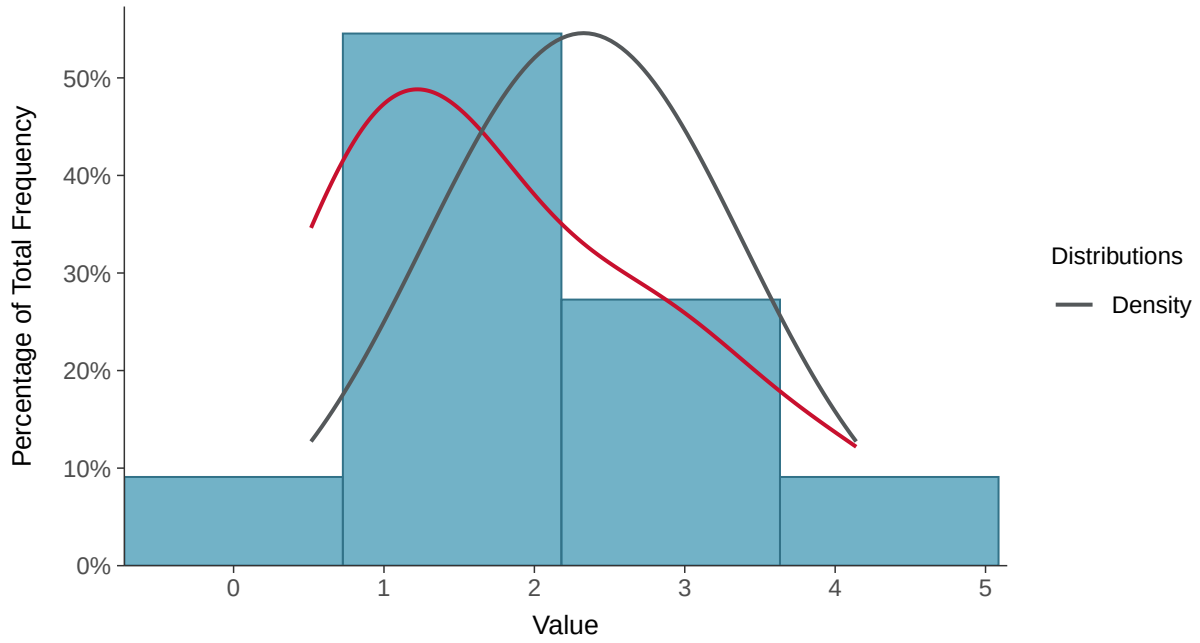
Scatter Plot

Radium-226/228, MW-16D (pCi/L)



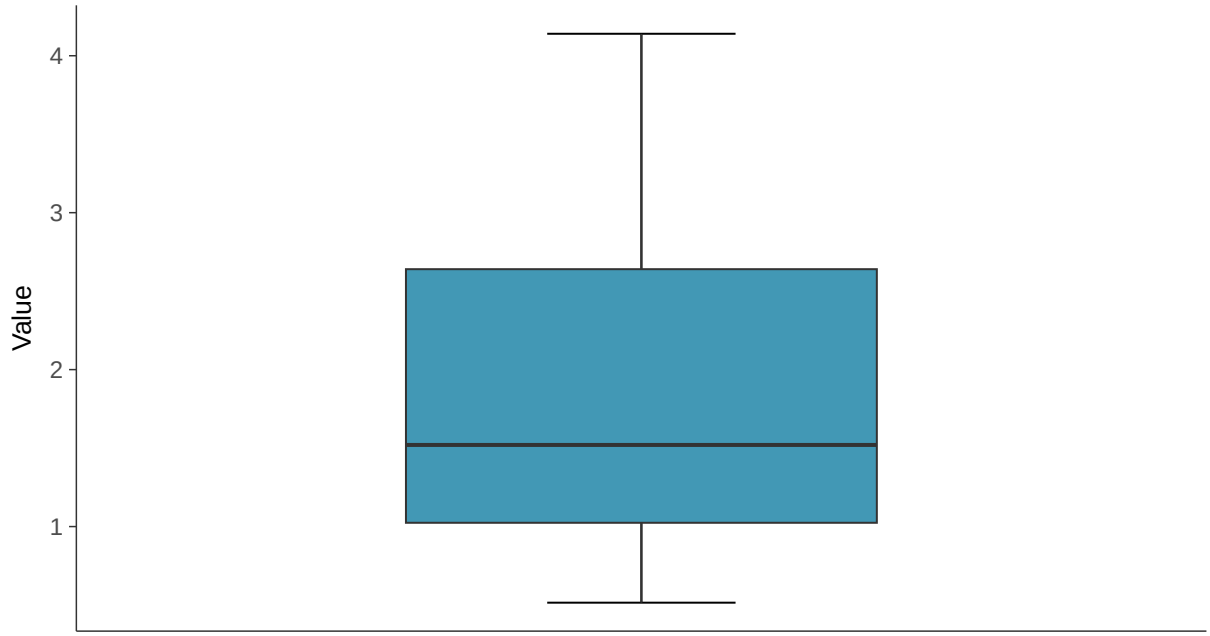
Histogram

Radium-226/228, MW-16D (pCi/L)



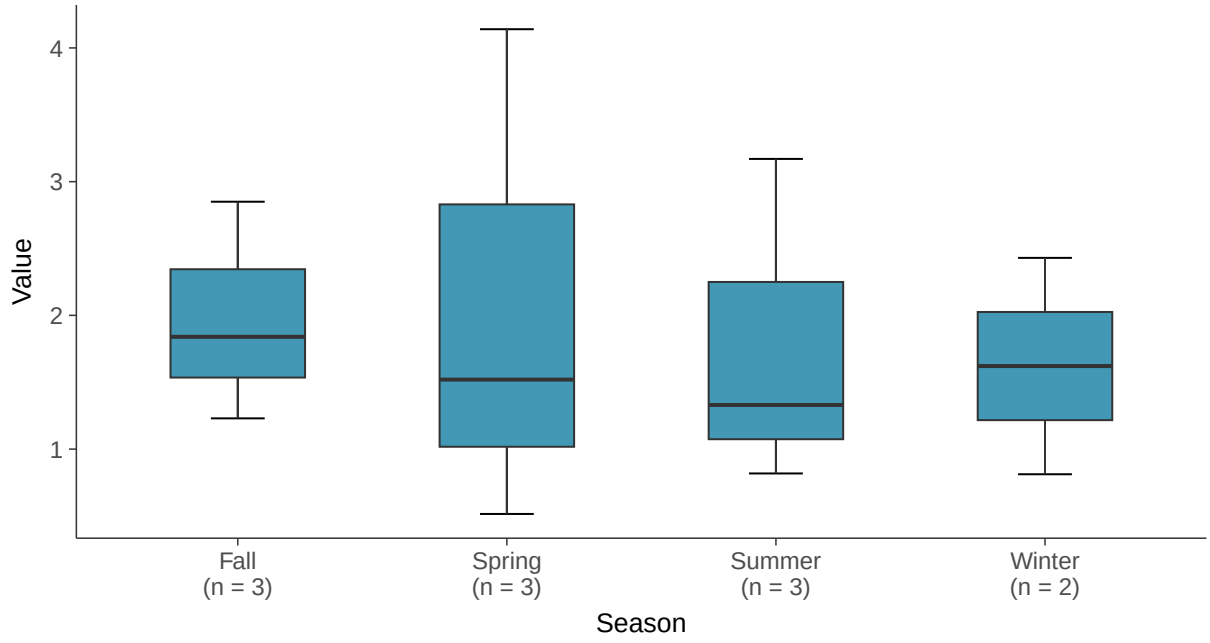
Boxplot

Radium-226/228, MW-16D (pCi/L)



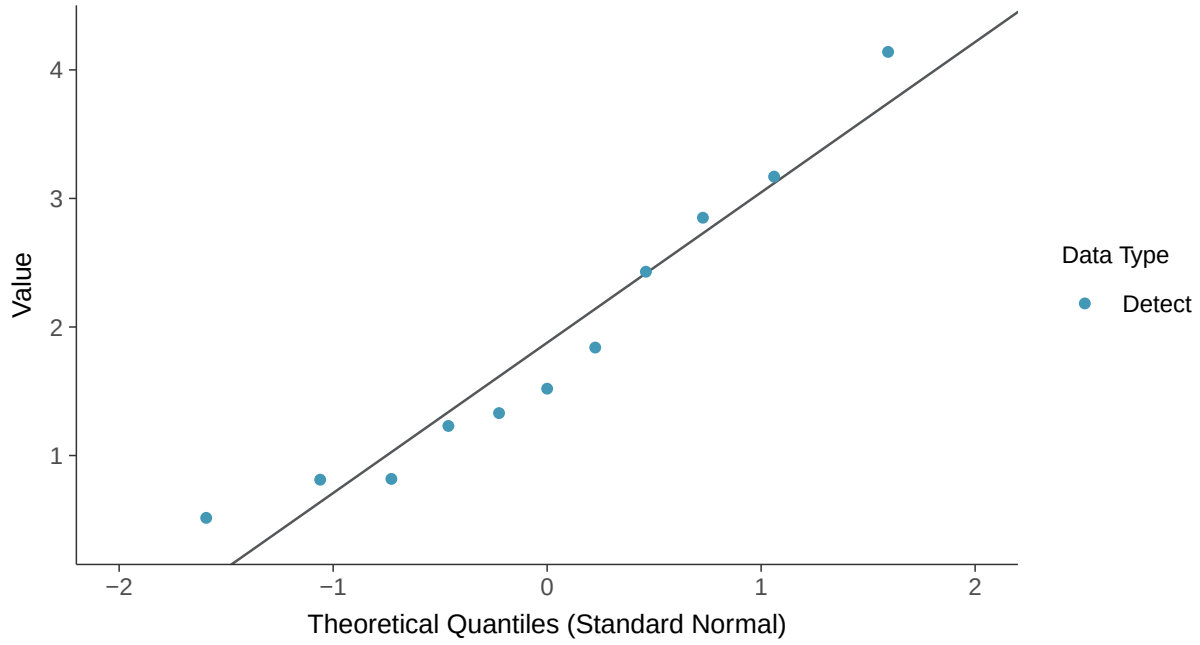
Boxplot by Season

Radium-226/228, MW-16D (pCi/L)



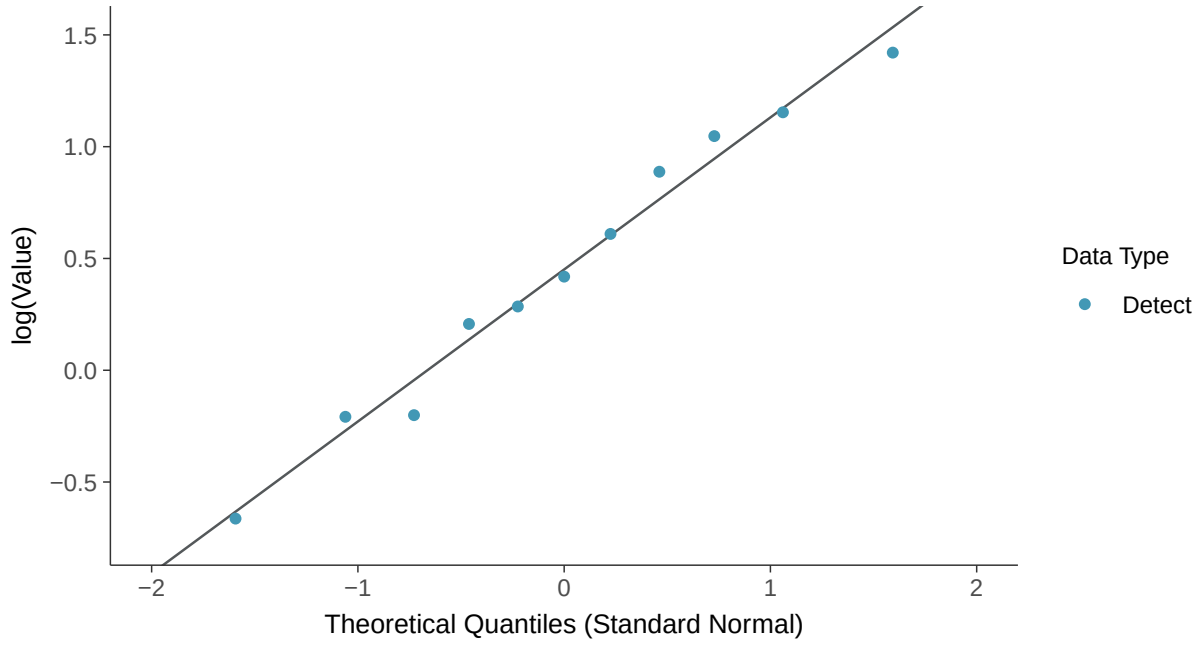
Normal Q-Q plot

Radium-226/228, MW-16D (pCi/L)



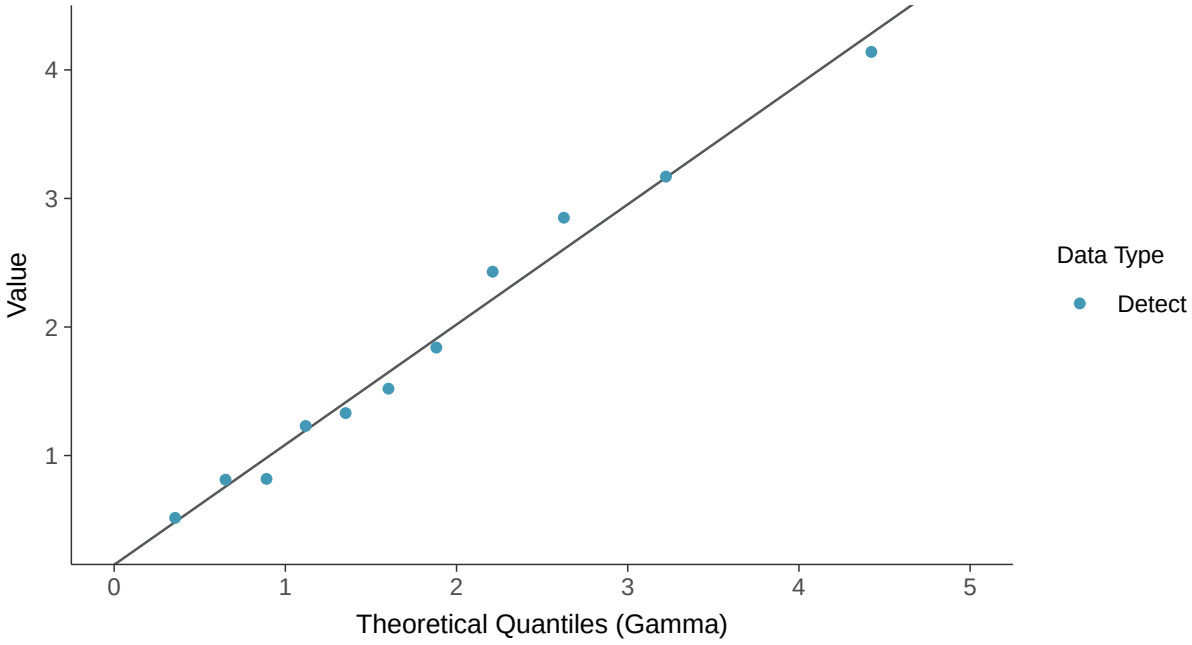
Lognormal Q-Q plot

Radium-226/228, MW-16D (pCi/L)



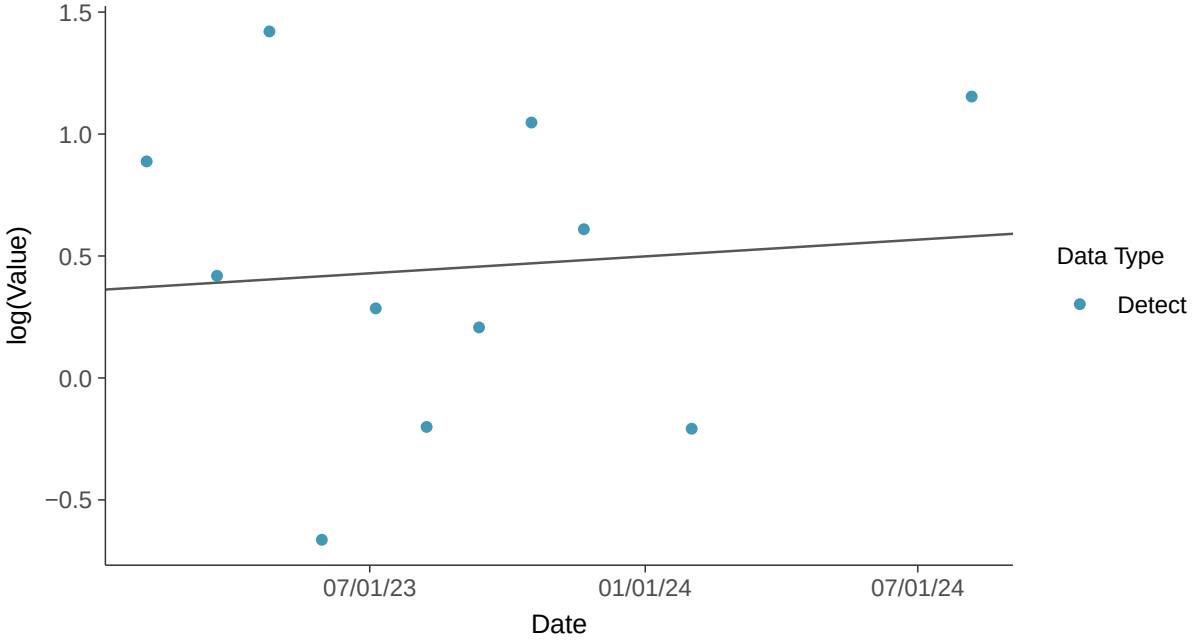
Gamma Q-Q plot

Radium-226/228, MW-16D (pCi/L)



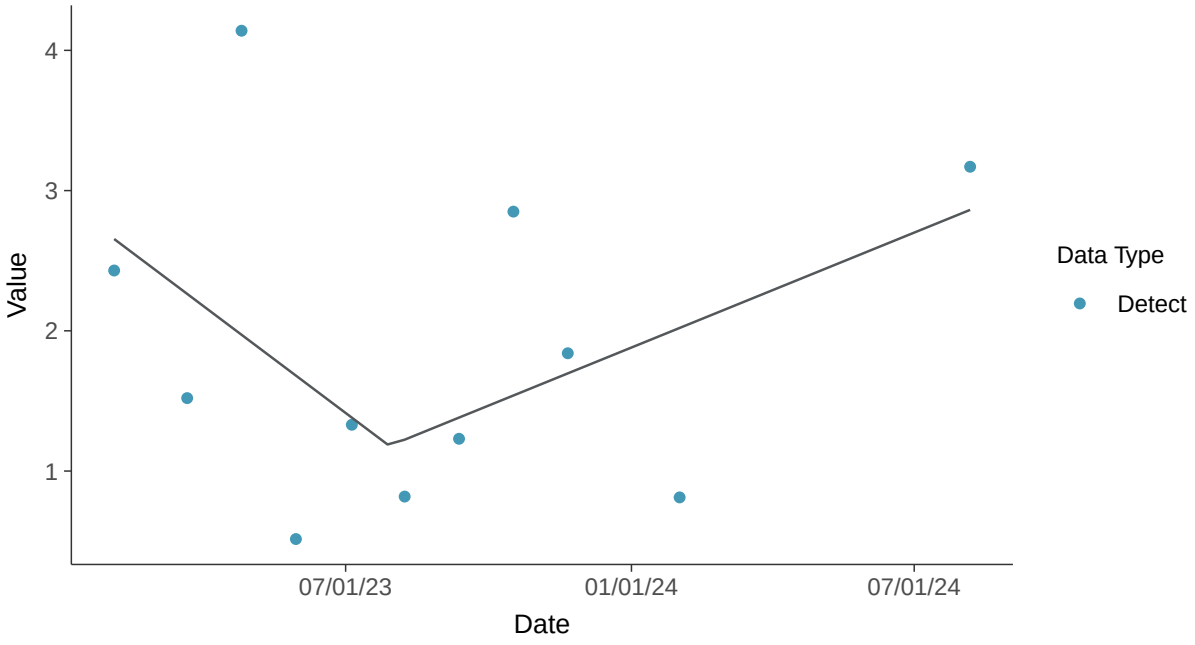
Trend Regression: Lognormal MLE

Radium-226/228, MW-16D (pCi/L)



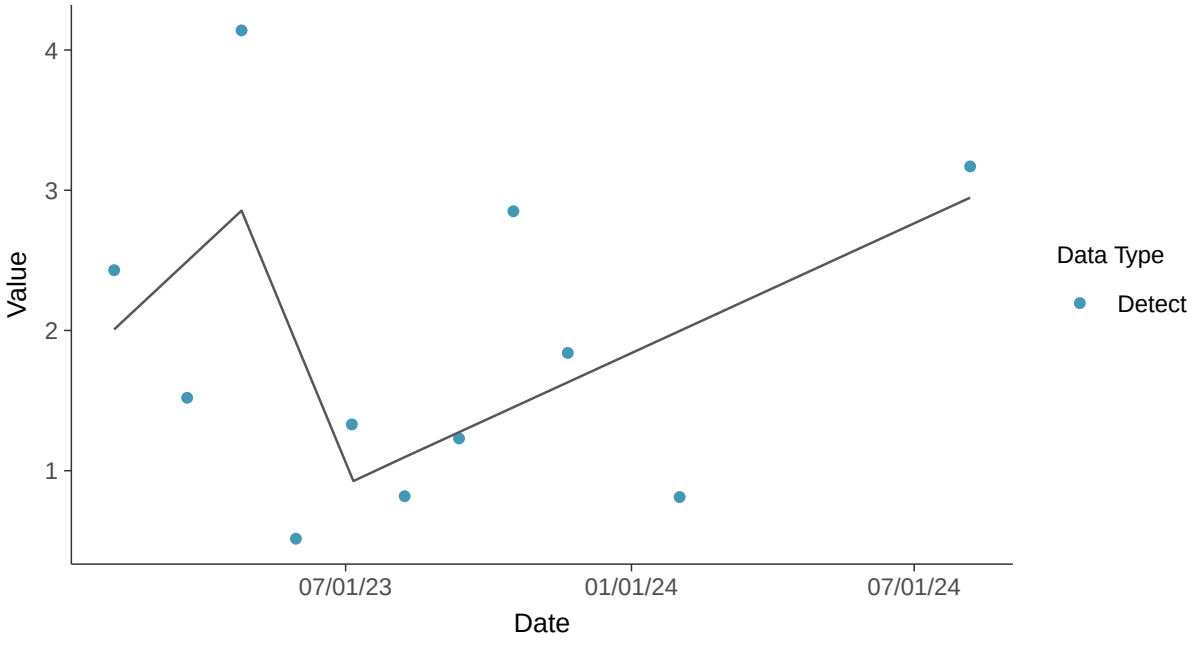
Trend Regression: Piecewise Linear-Linear

Radium-226/228, MW-16D (pCi/L)



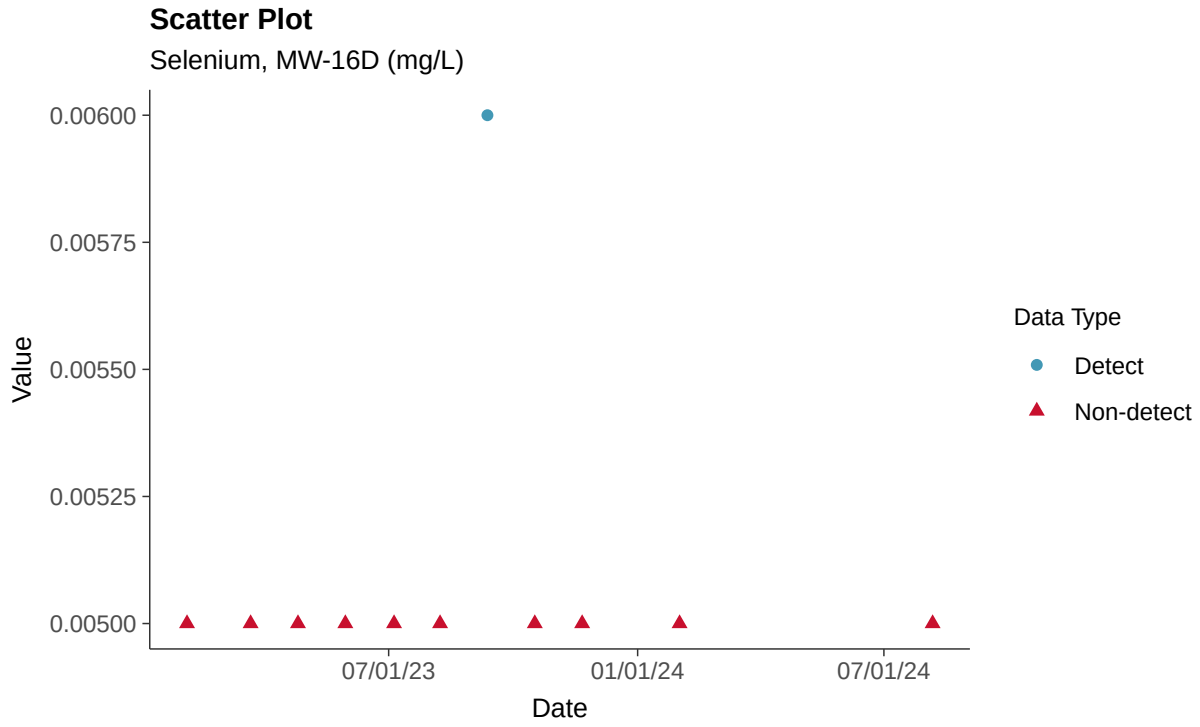
Trend Regression: Piecewise Linear-Linear-Linear

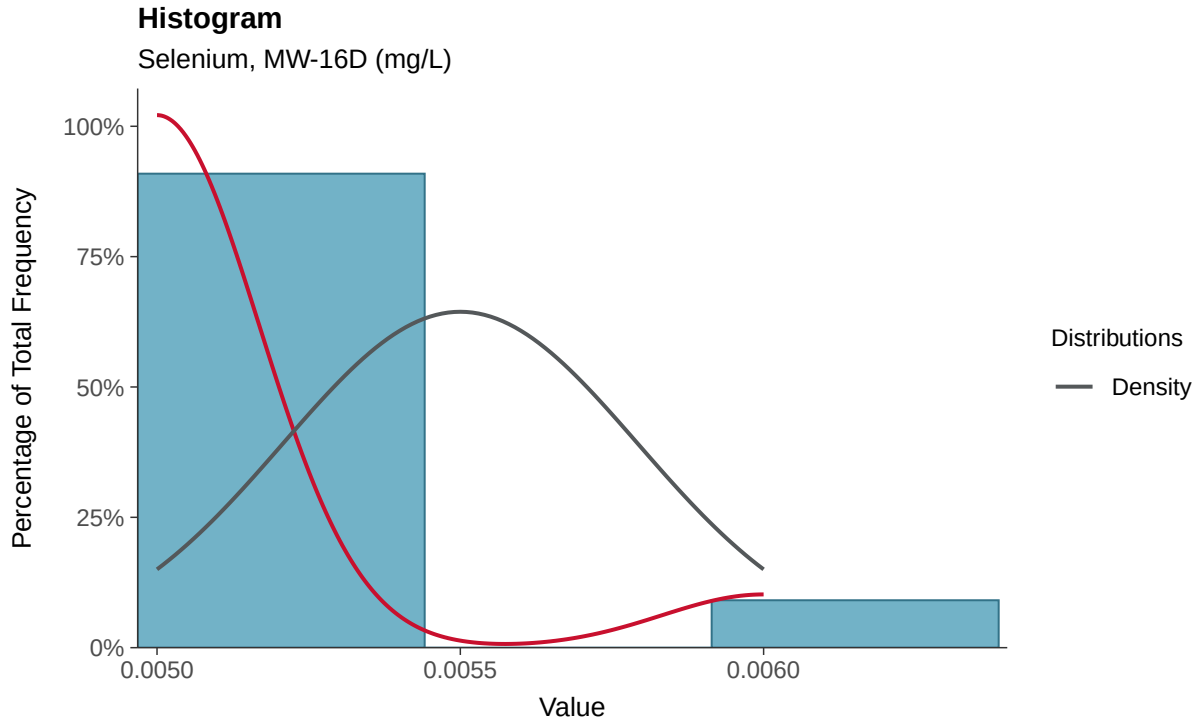
Radium-226/228, MW-16D (pCi/L)



Appendix IV: Selenium, MW-16D

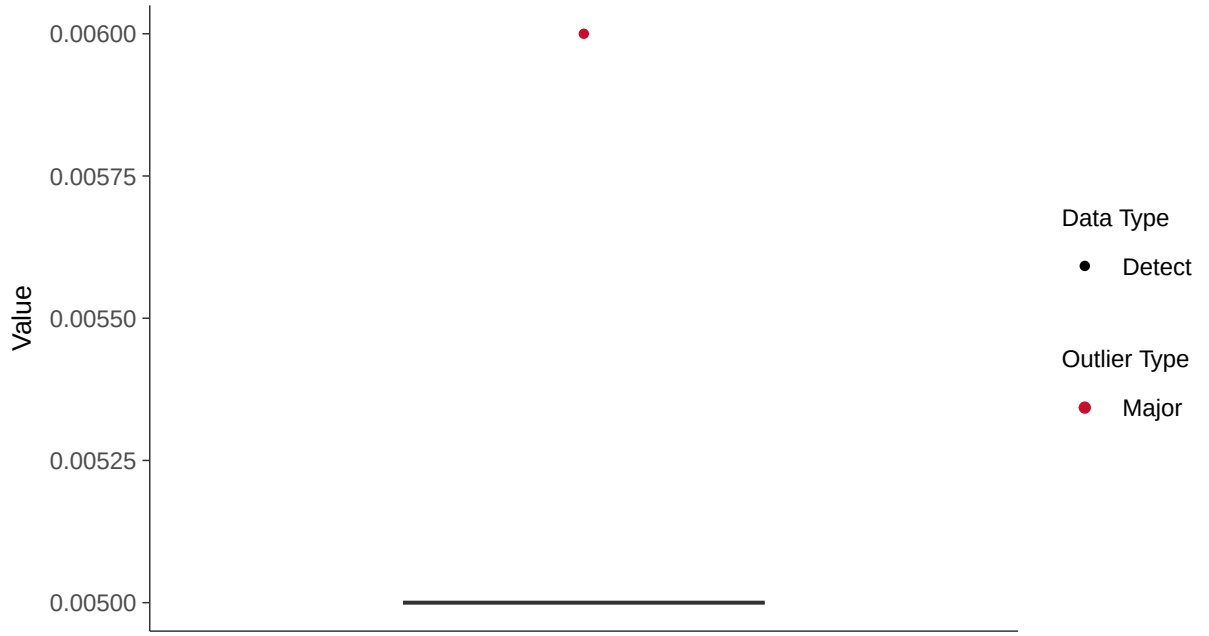
ID: 16D_2_22





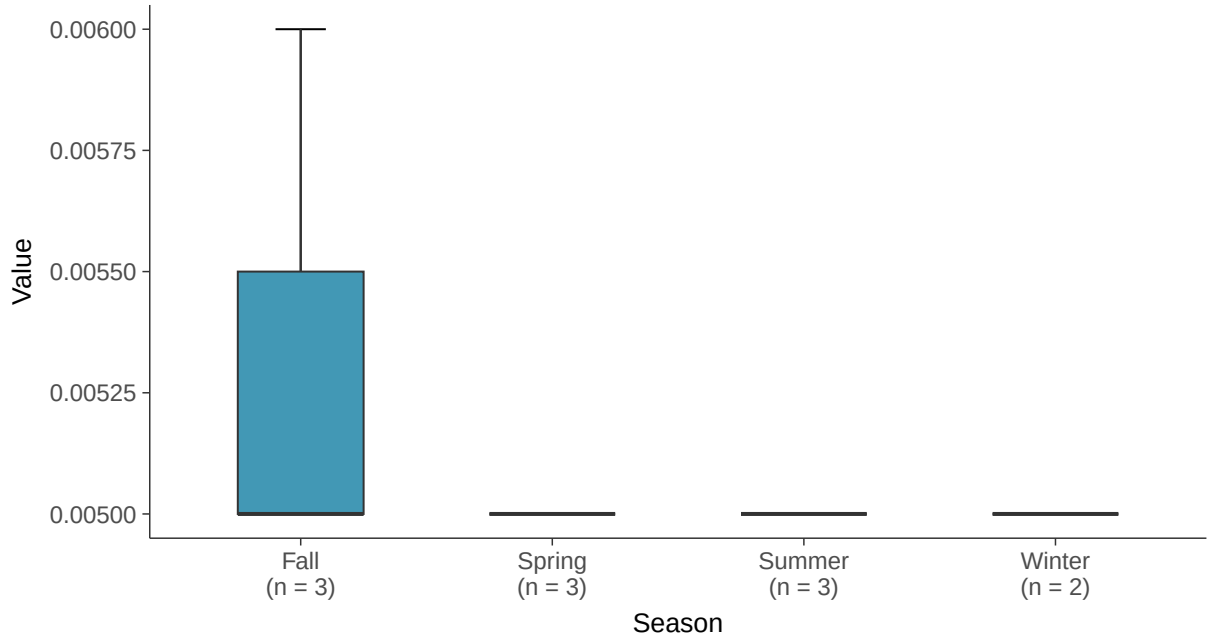
Boxplot

Selenium, MW-16D (mg/L)



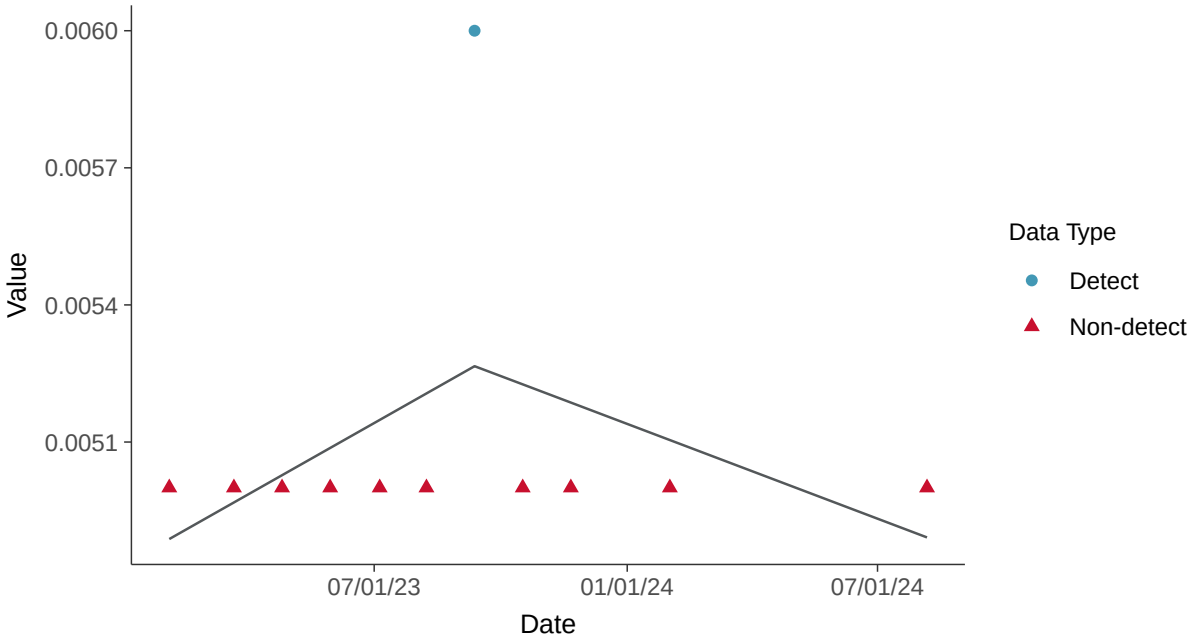
Boxplot by Season

Selenium, MW-16D (mg/L)



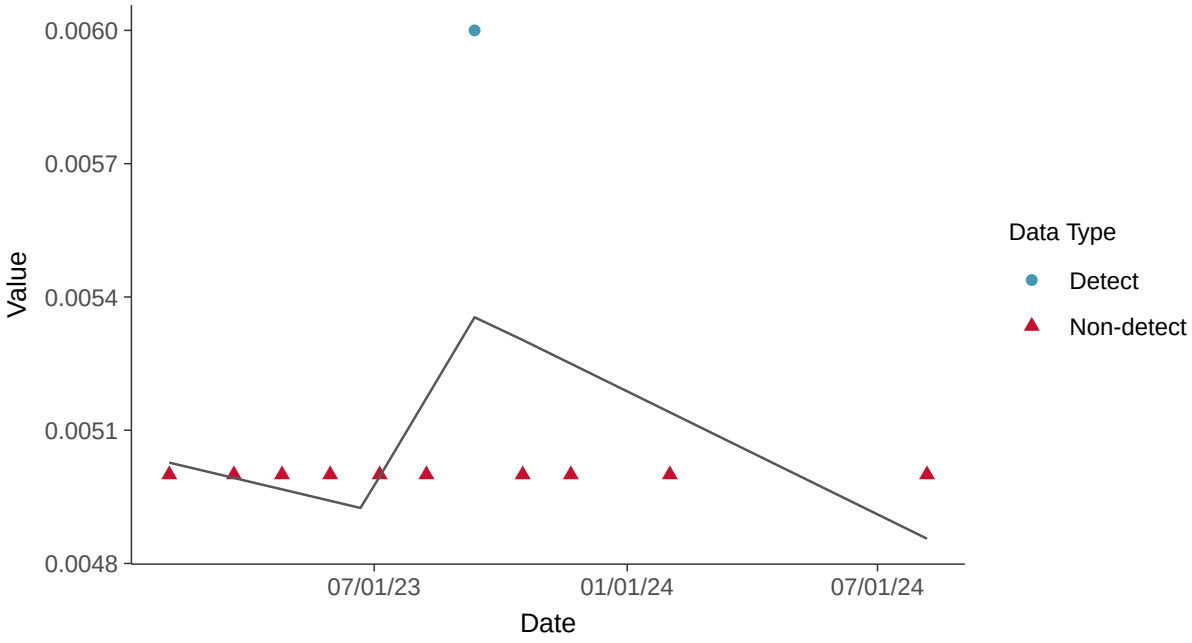
Trend Regression: Piecewise Linear-Linear

Selenium, MW-16D (mg/L)



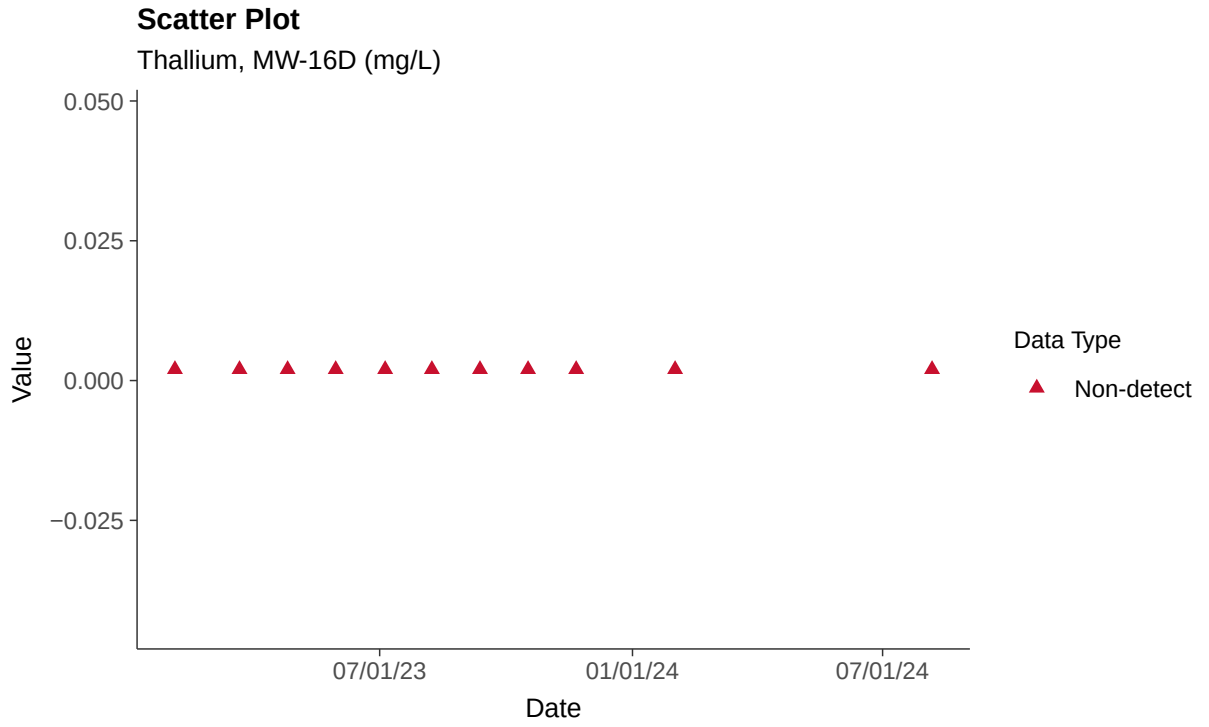
Trend Regression: Piecewise Linear-Linear-Linear

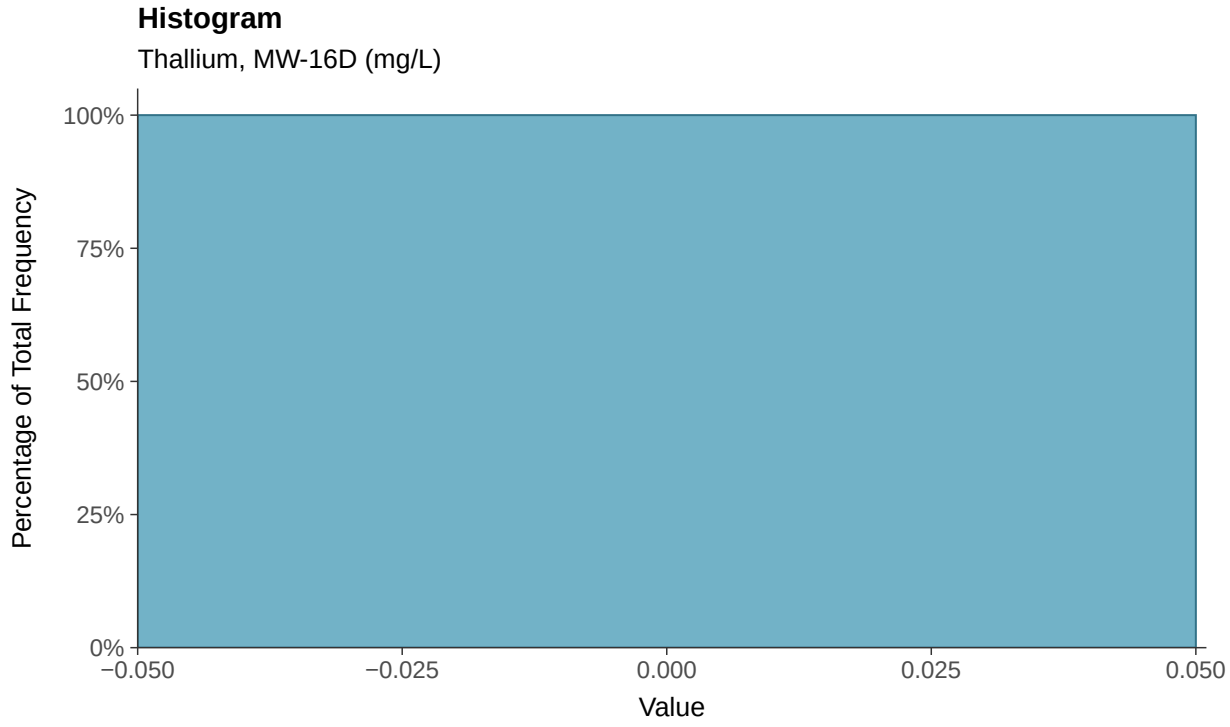
Selenium, MW-16D (mg/L)



Appendix IV: Thallium, MW-16D

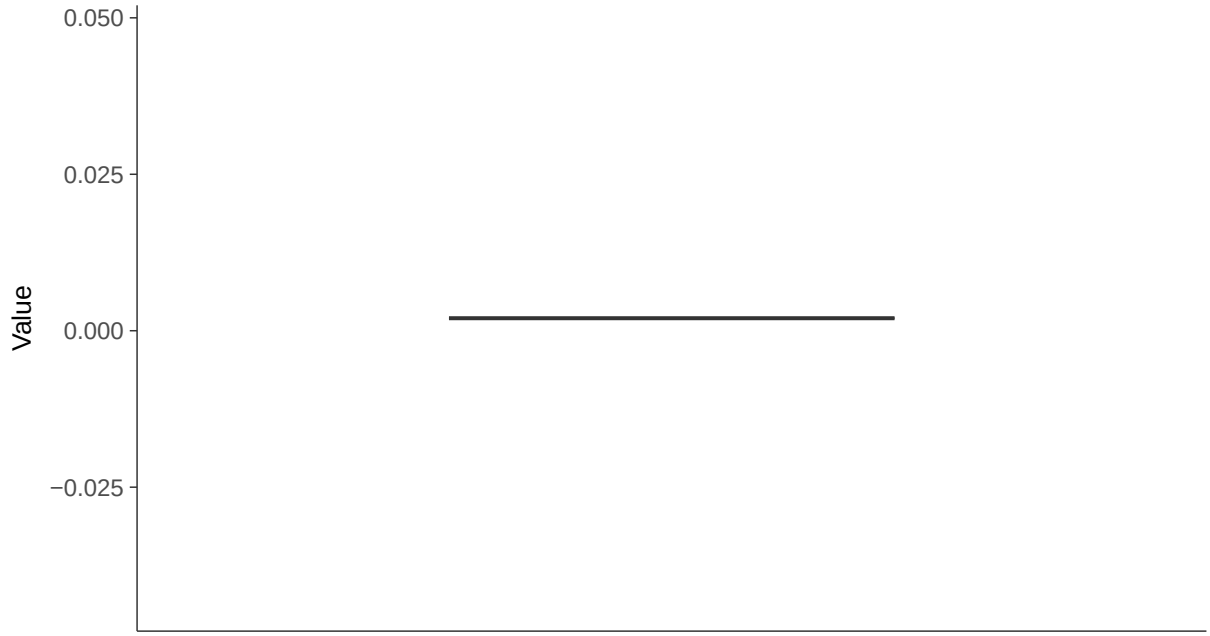
ID: 16D_2_23





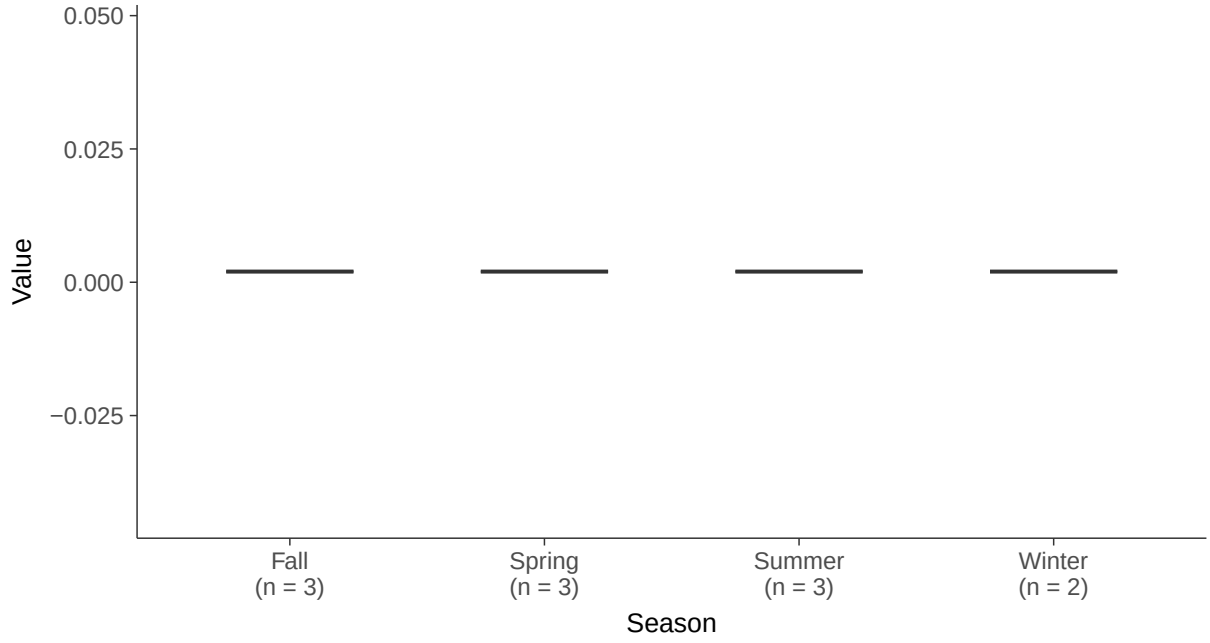
Boxplot

Thallium, MW-16D (mg/L)



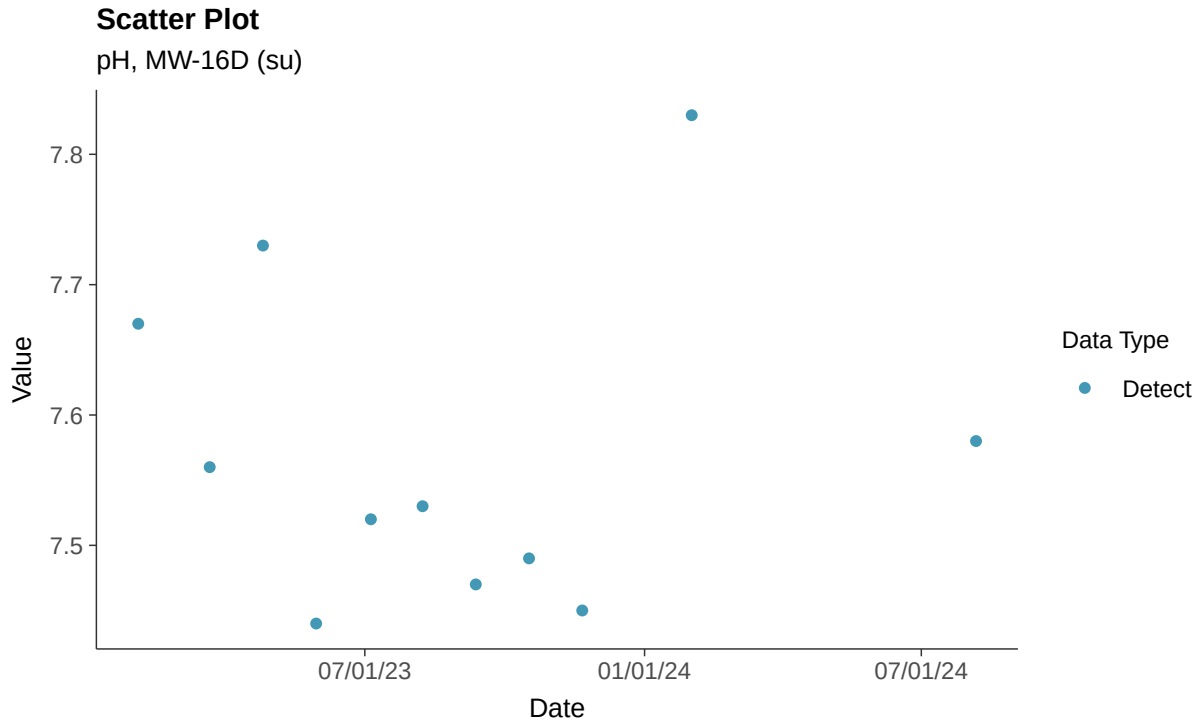
Boxplot by Season

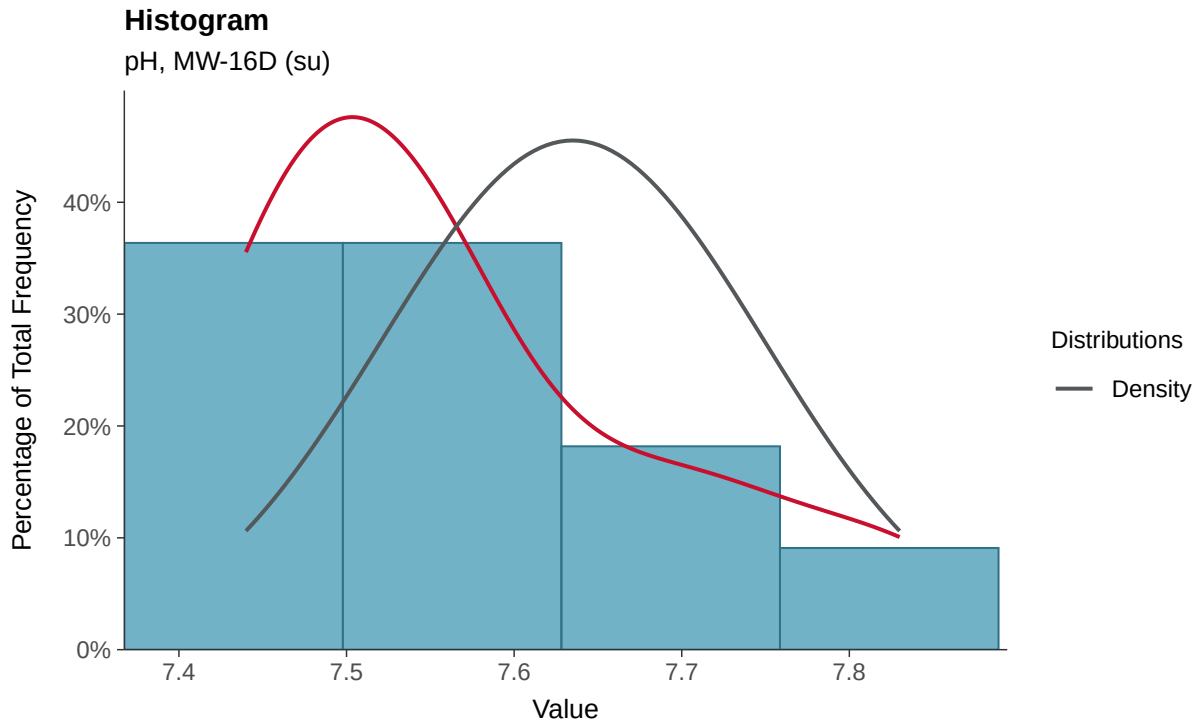
Thallium, MW-16D (mg/L)



Field Parameters: pH, MW-16D

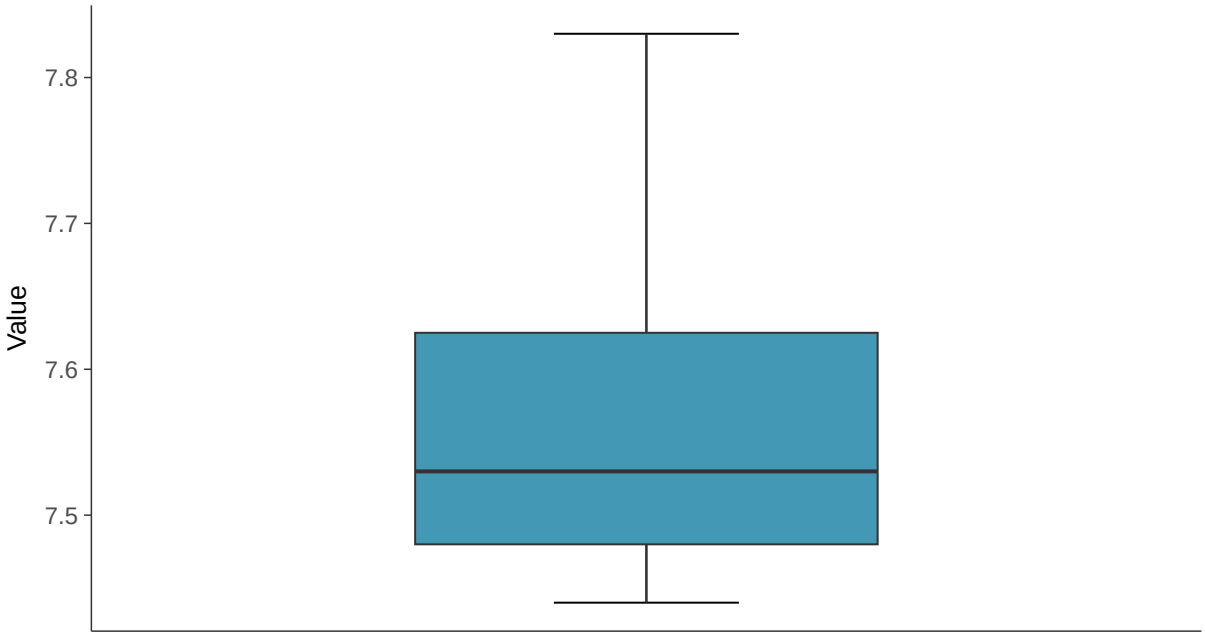
ID: 16D_3_24





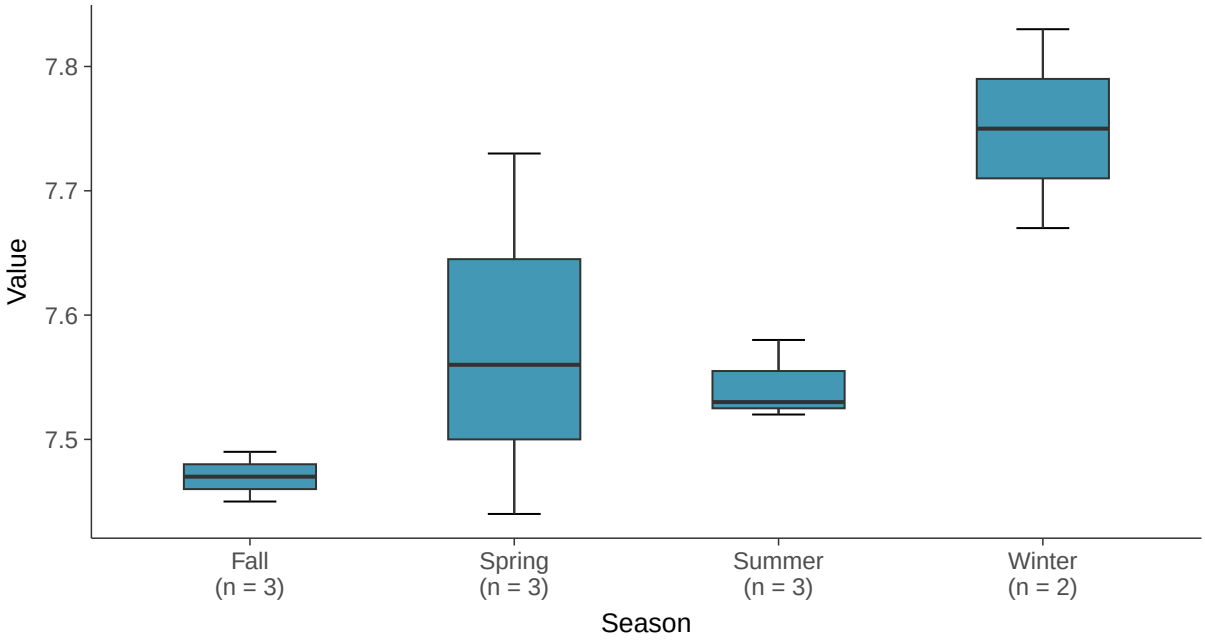
Boxplot

pH, MW-16D (su)



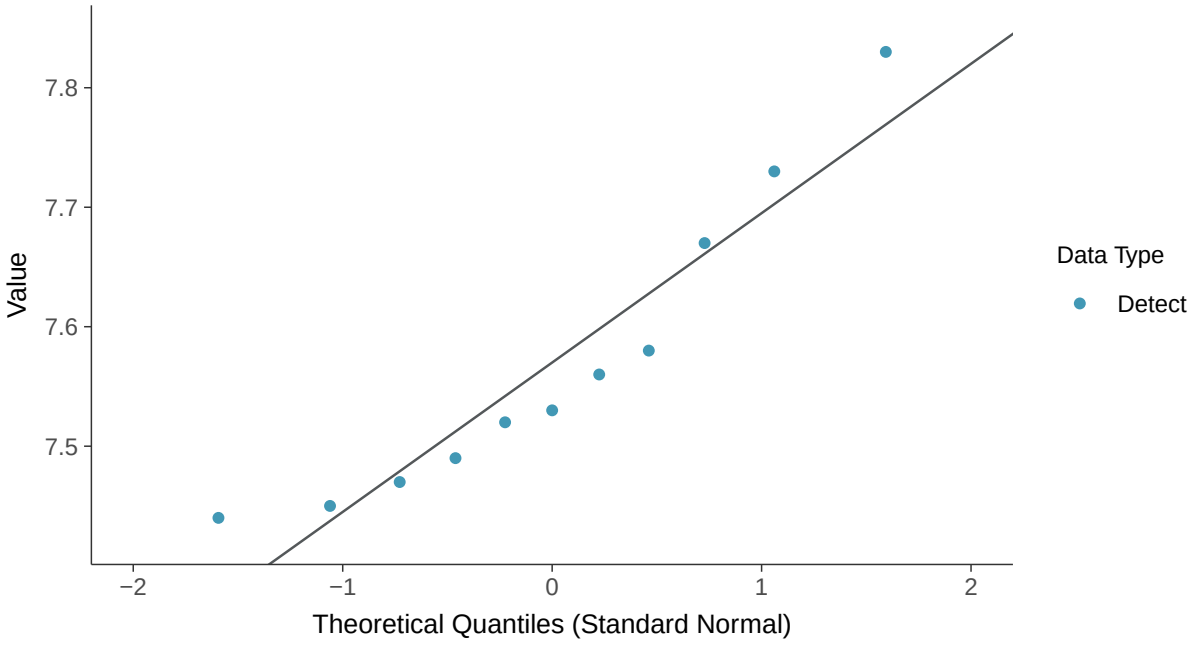
Boxplot by Season

pH, MW-16D (su)



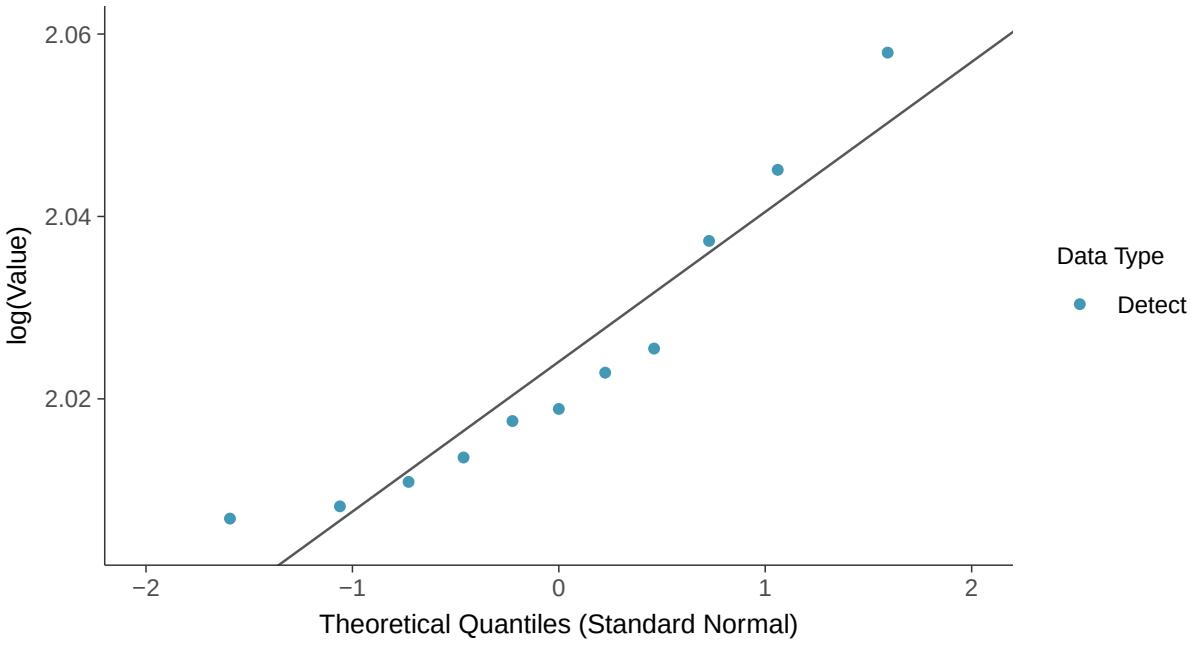
Normal Q-Q plot

pH, MW-16D (su)



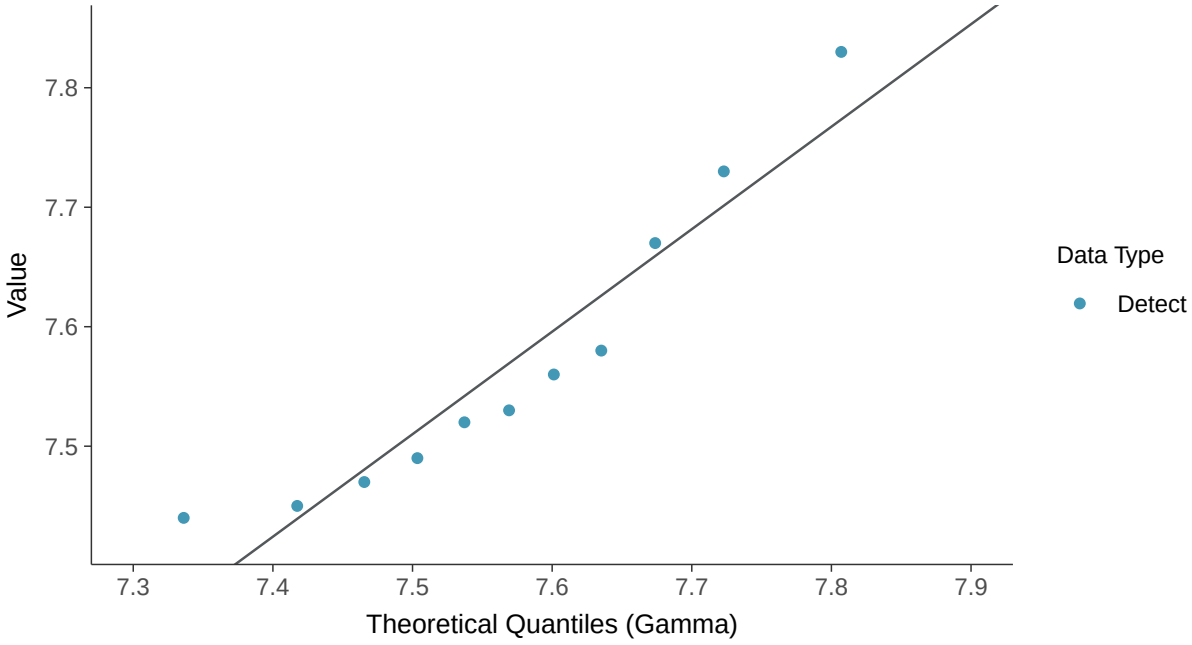
Lognormal Q-Q plot

pH, MW-16D (su)



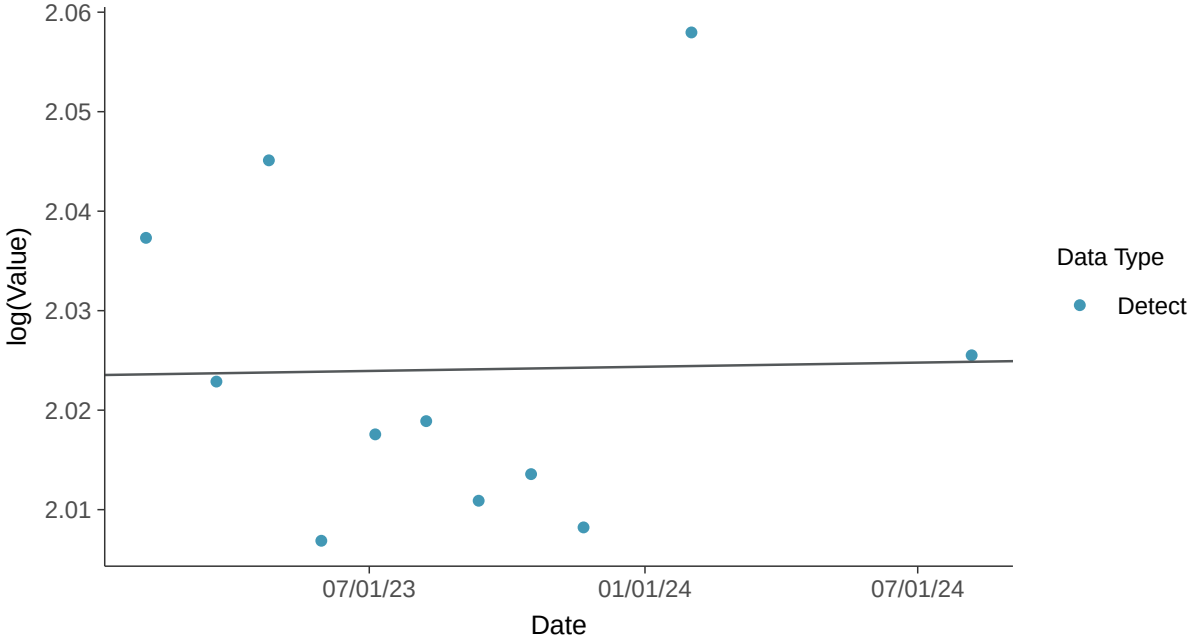
Gamma Q-Q plot

pH, MW-16D (su)



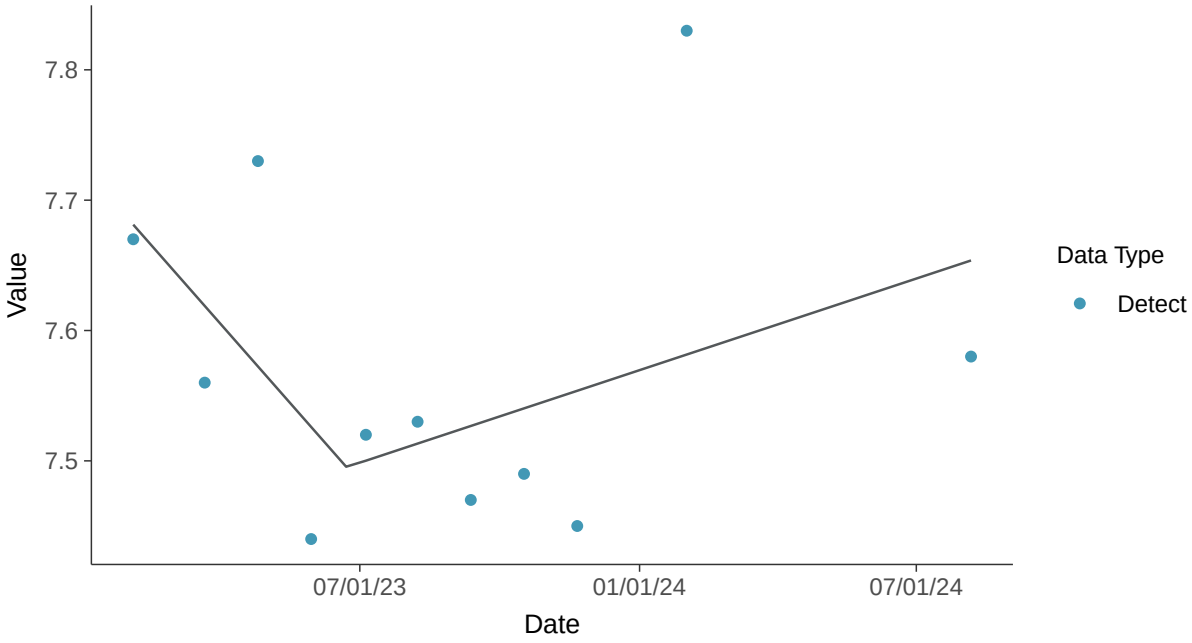
Trend Regression: Lognormal MLE

pH, MW-16D (su)



Trend Regression: Piecewise Linear-Linear

pH, MW-16D (su)

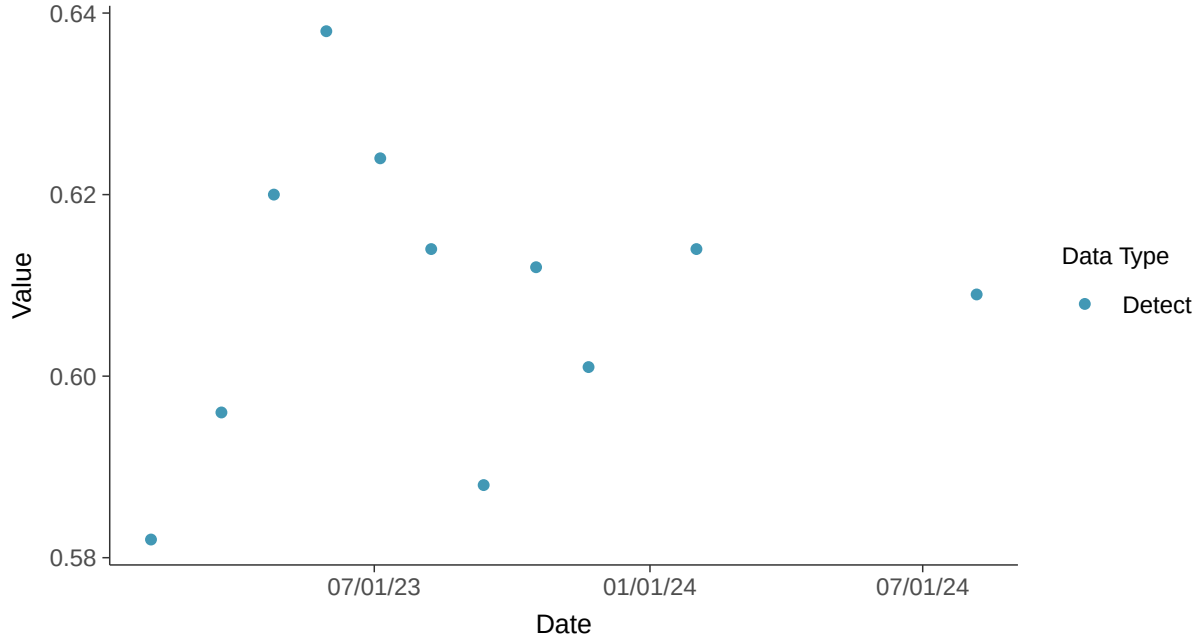


Field Parameters: Conductivity, MW-16D

ID: 16D_3_25

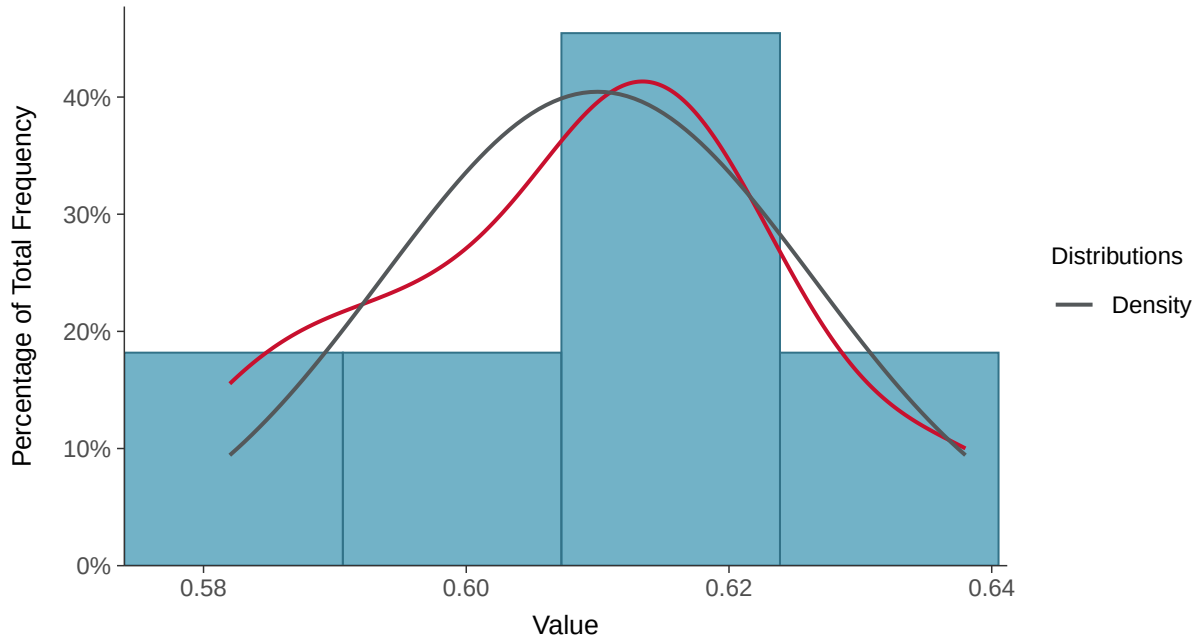
Scatter Plot

Conductivity, MW-16D (mS/cm)



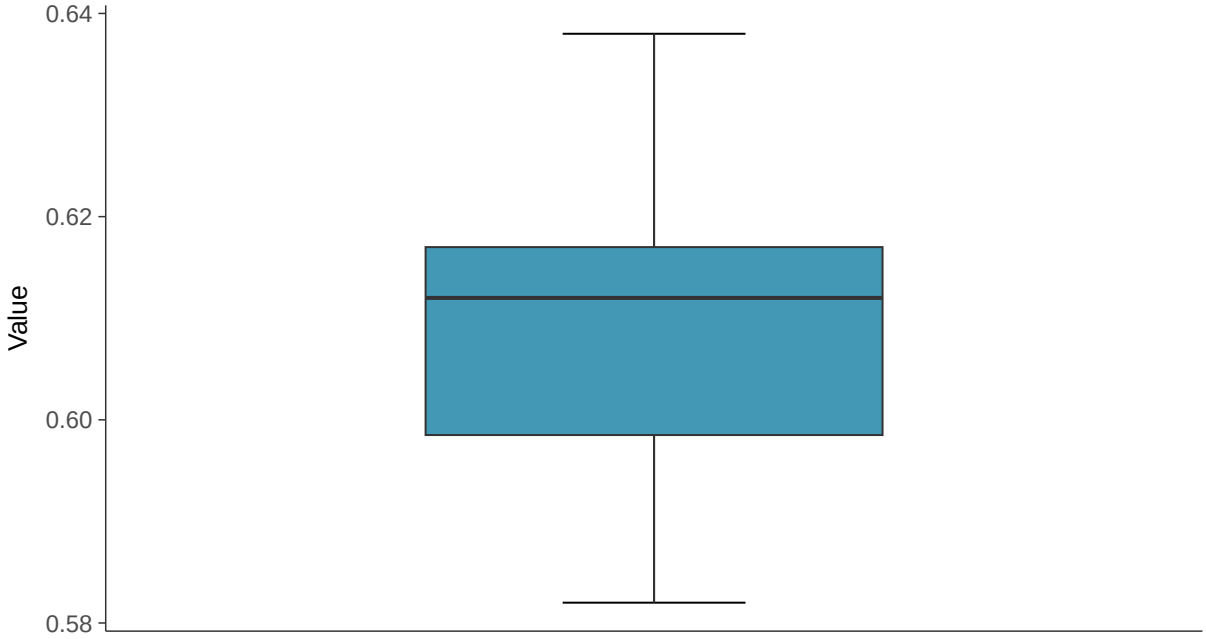
Histogram

Conductivity, MW-16D (mS/cm)



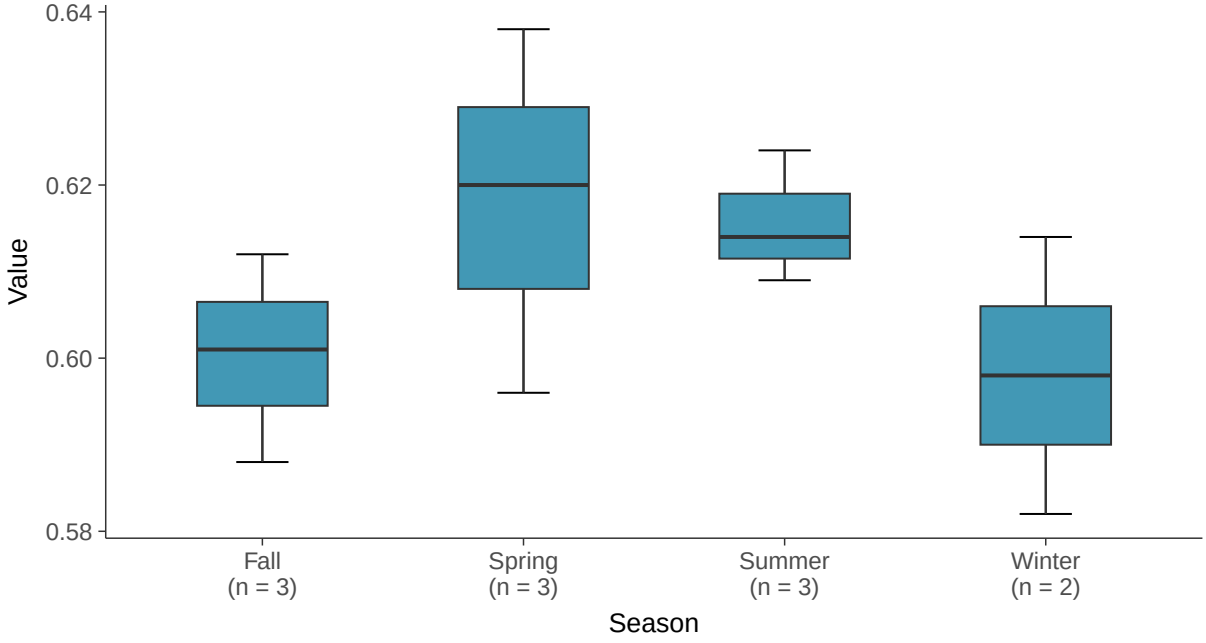
Boxplot

Conductivity, MW-16D (mS/cm)



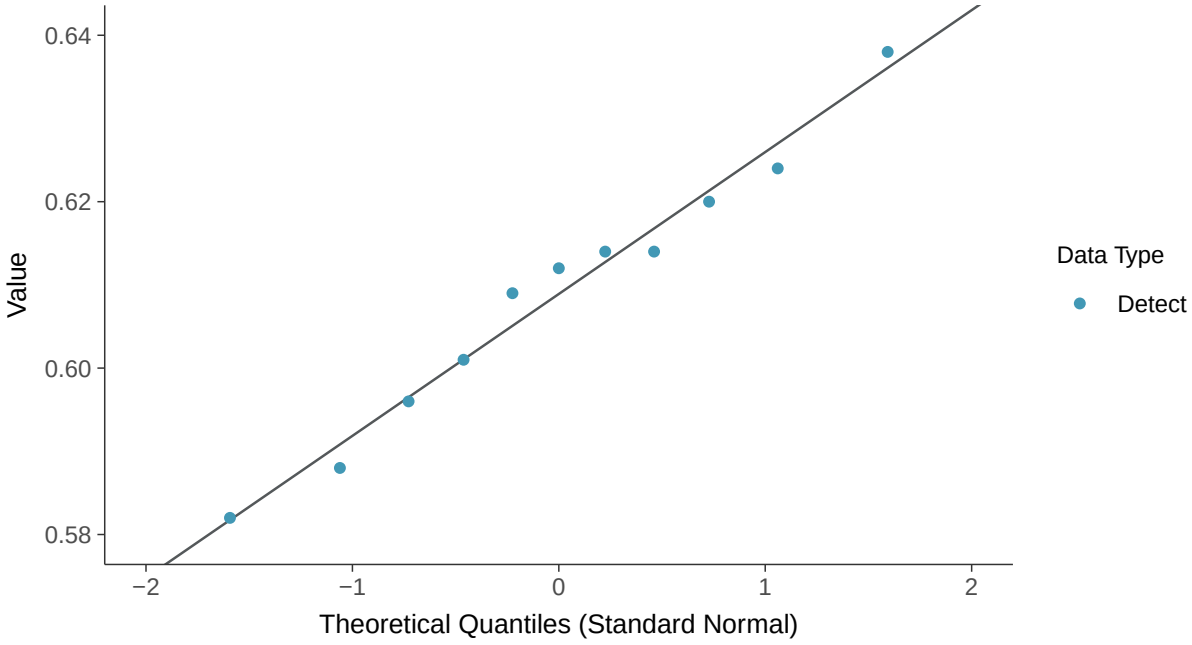
Boxplot by Season

Conductivity, MW-16D (mS/cm)



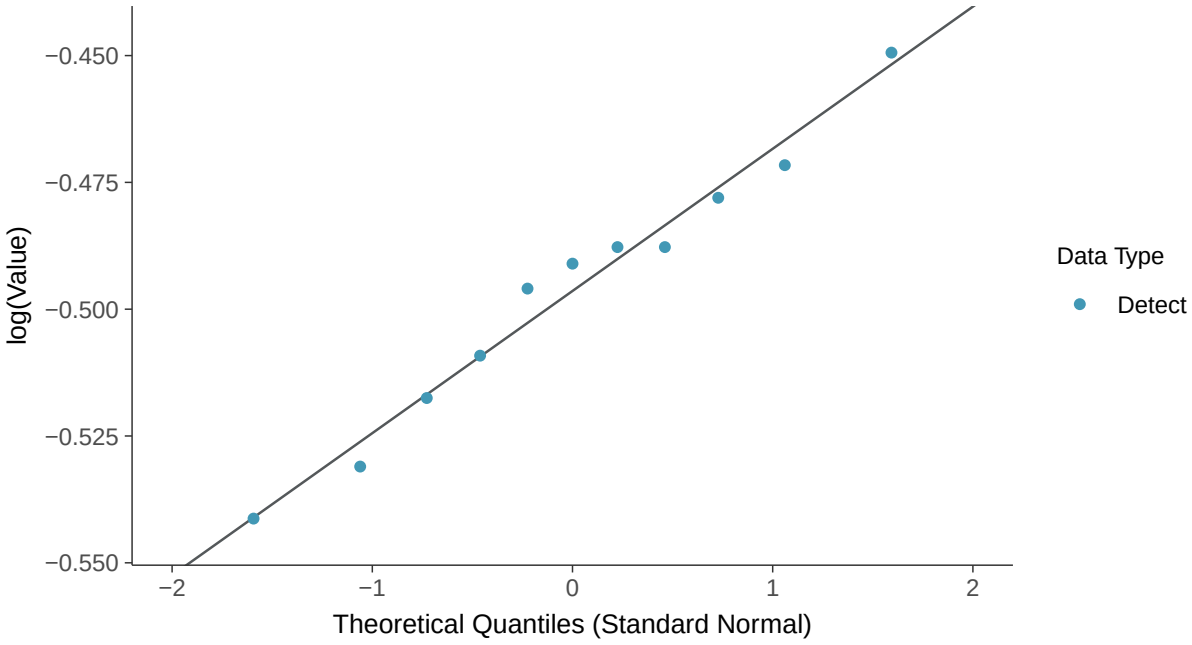
Normal Q-Q plot

Conductivity, MW-16D (mS/cm)



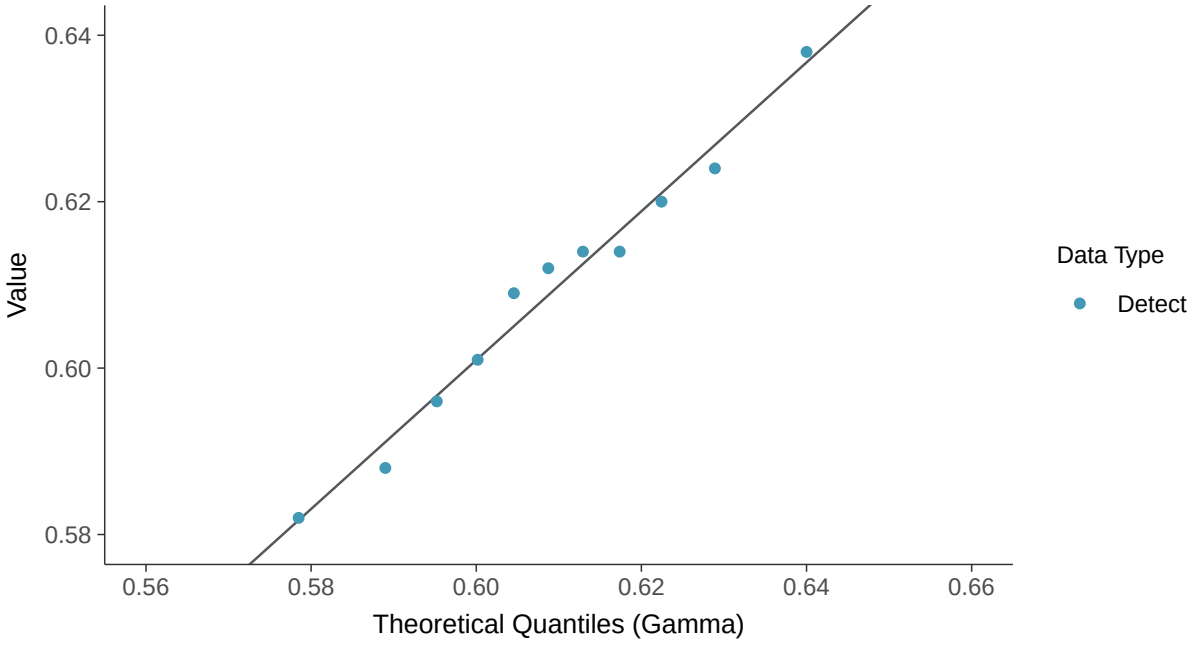
Lognormal Q-Q plot

Conductivity, MW-16D (mS/cm)



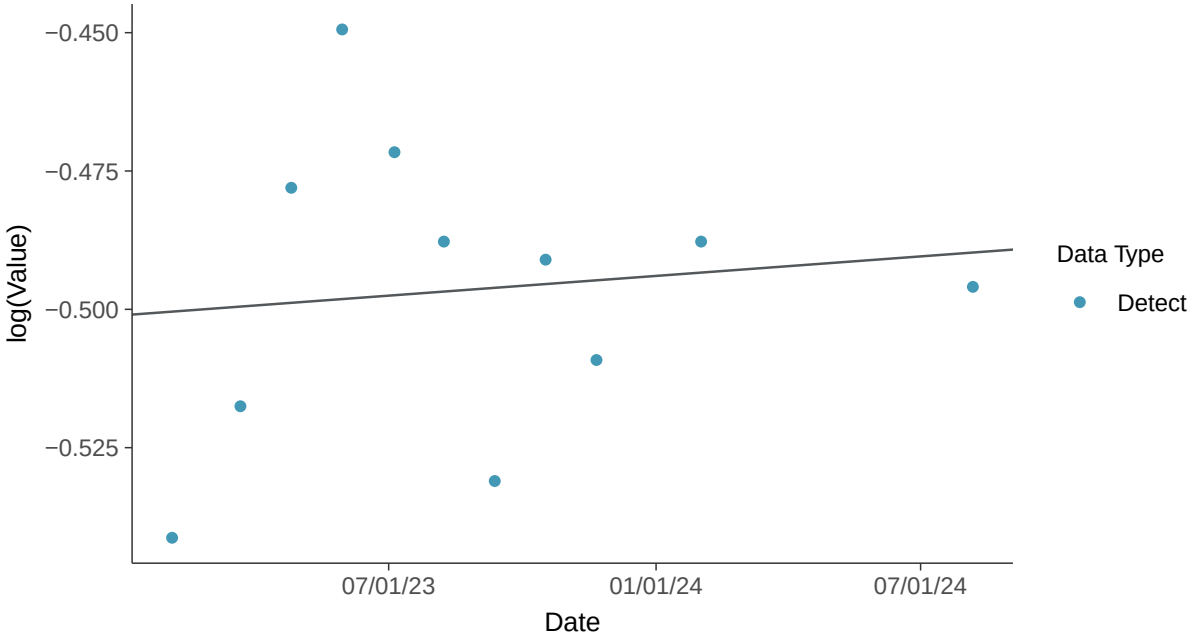
Gamma Q-Q plot

Conductivity, MW-16D (mS/cm)



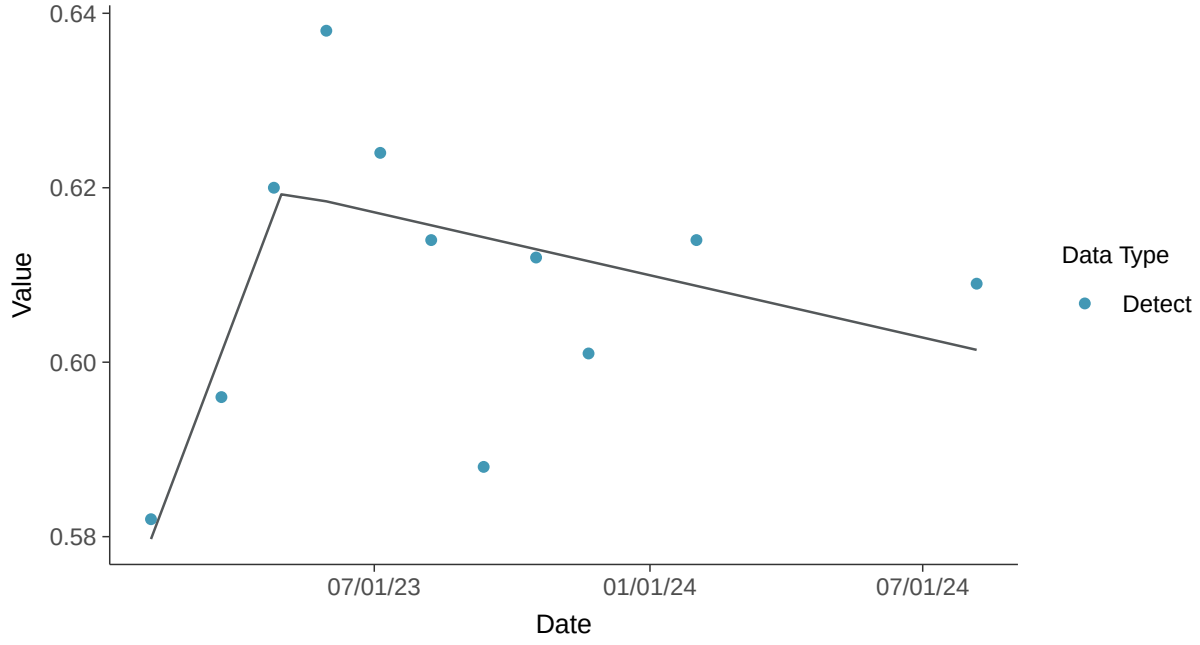
Trend Regression: Lognormal MLE

Conductivity, MW-16D (mS/cm)



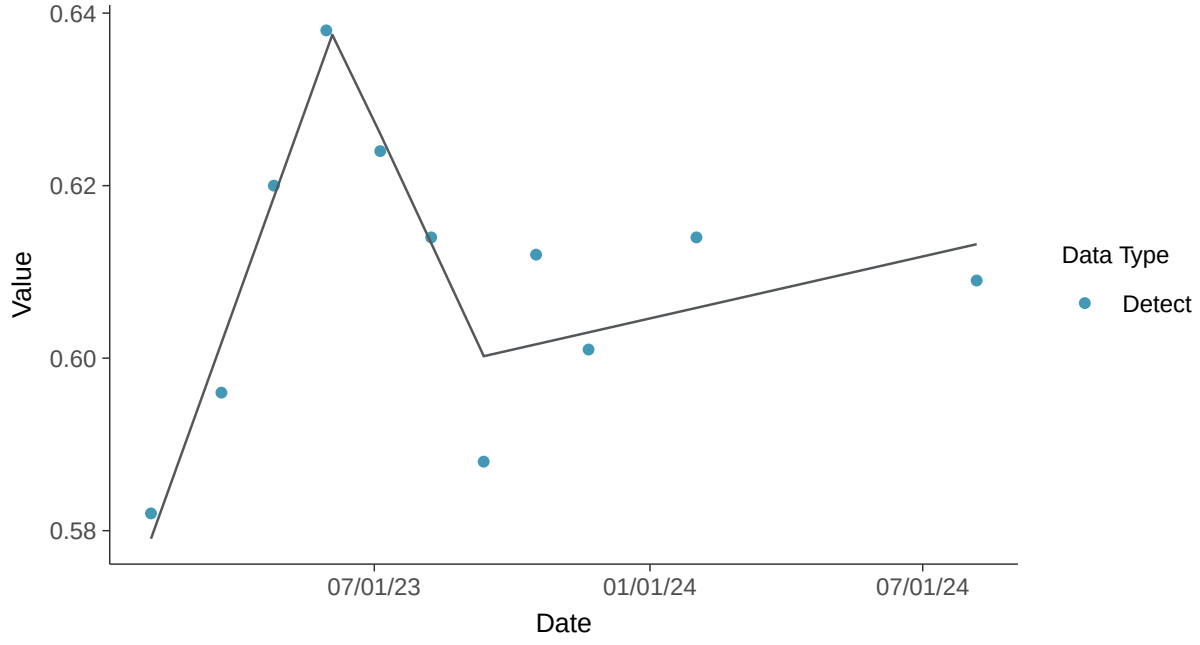
Trend Regression: Piecewise Linear-Linear

Conductivity, MW-16D (mS/cm)



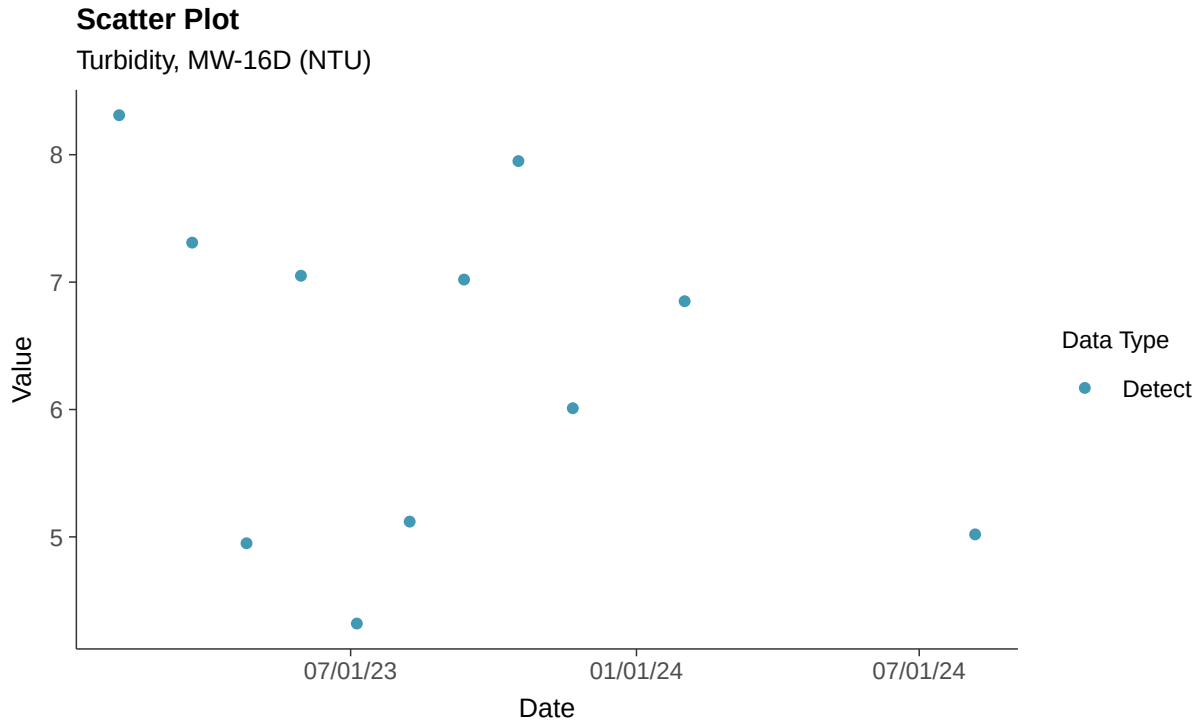
Trend Regression: Piecewise Linear-Linear-Linear

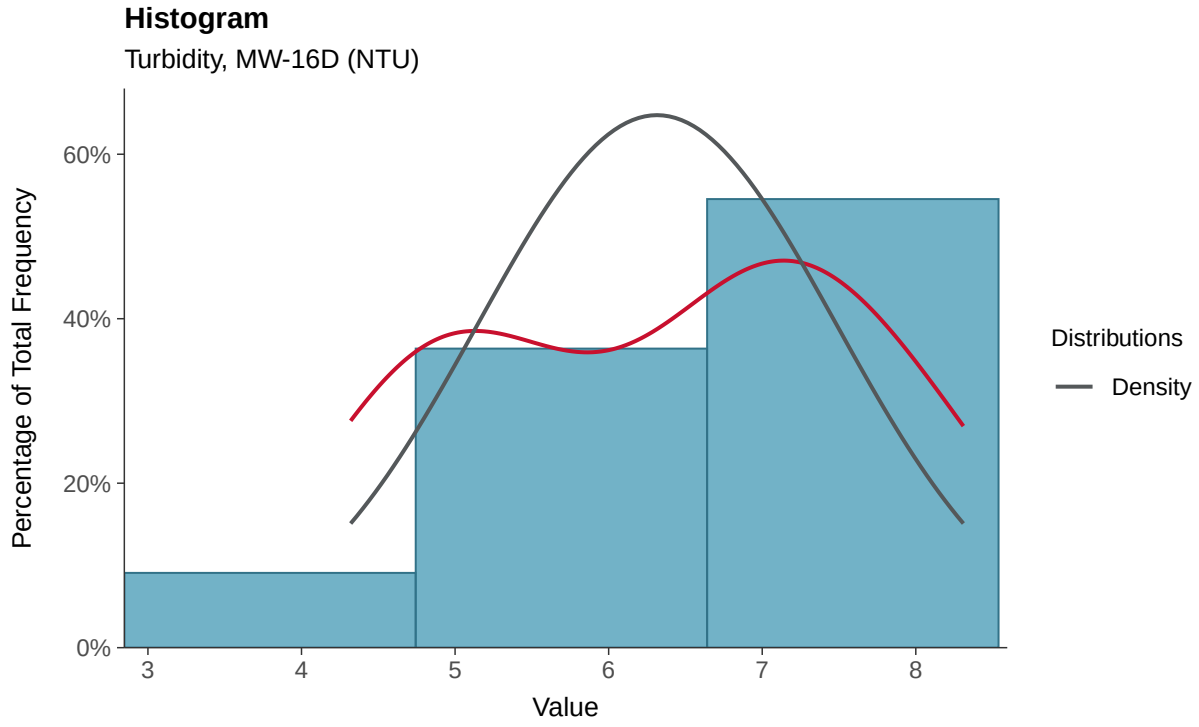
Conductivity, MW-16D (mS/cm)



Field Parameters: Turbidity, MW-16D

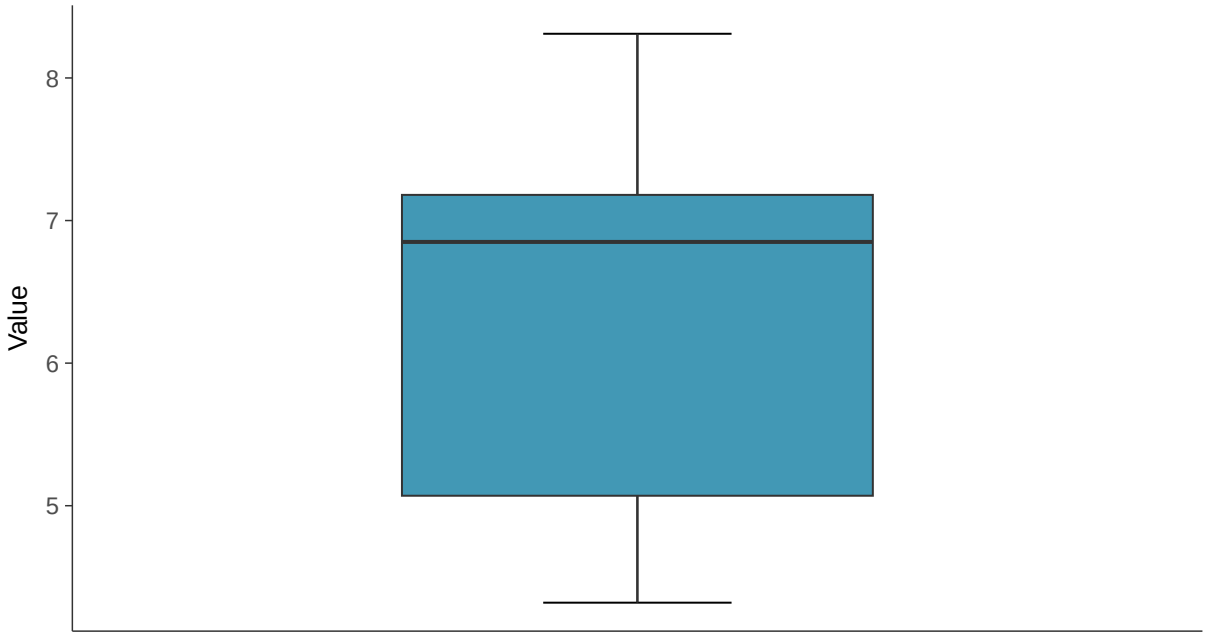
ID: 16D_3_26





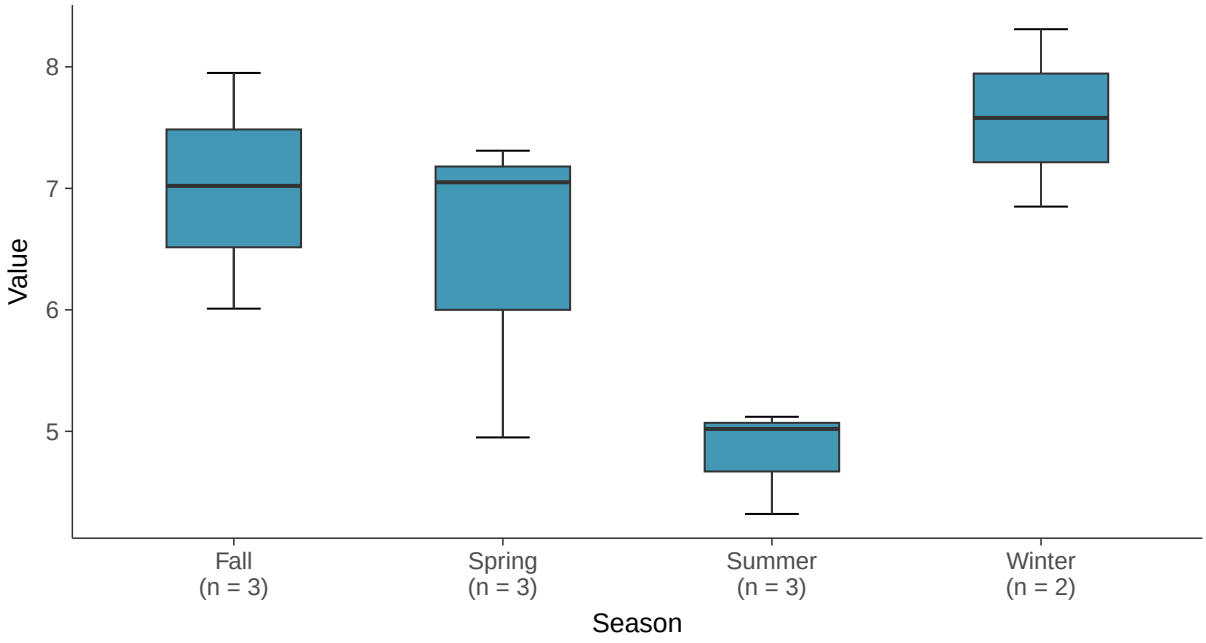
Boxplot

Turbidity, MW-16D (NTU)



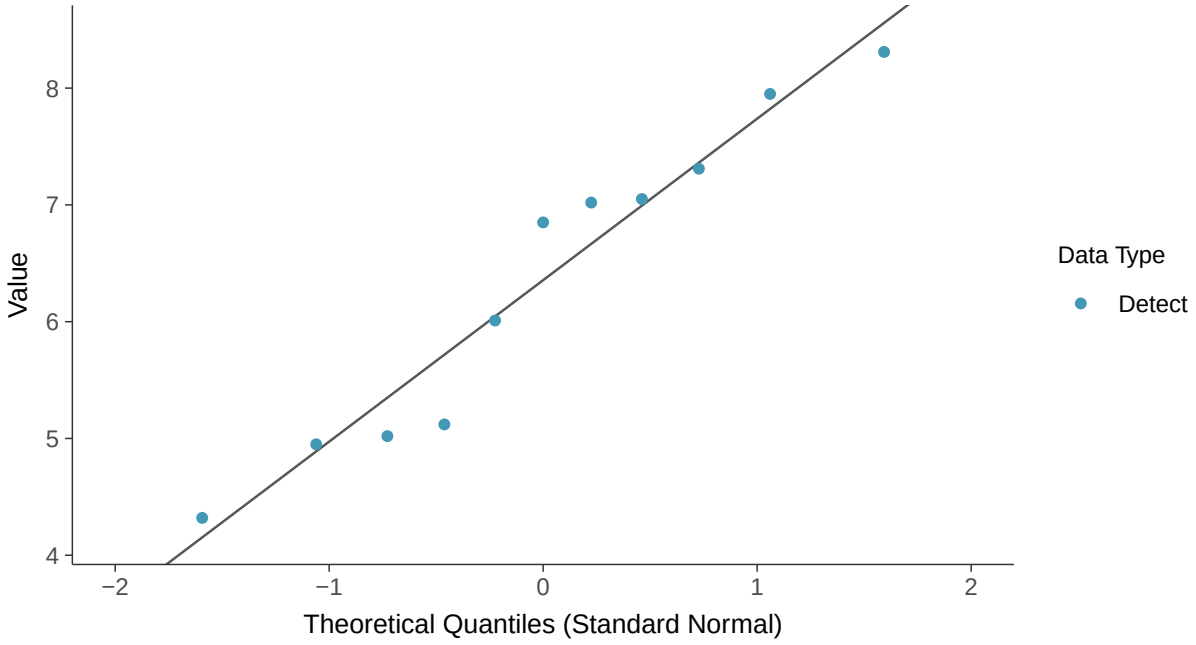
Boxplot by Season

Turbidity, MW-16D (NTU)



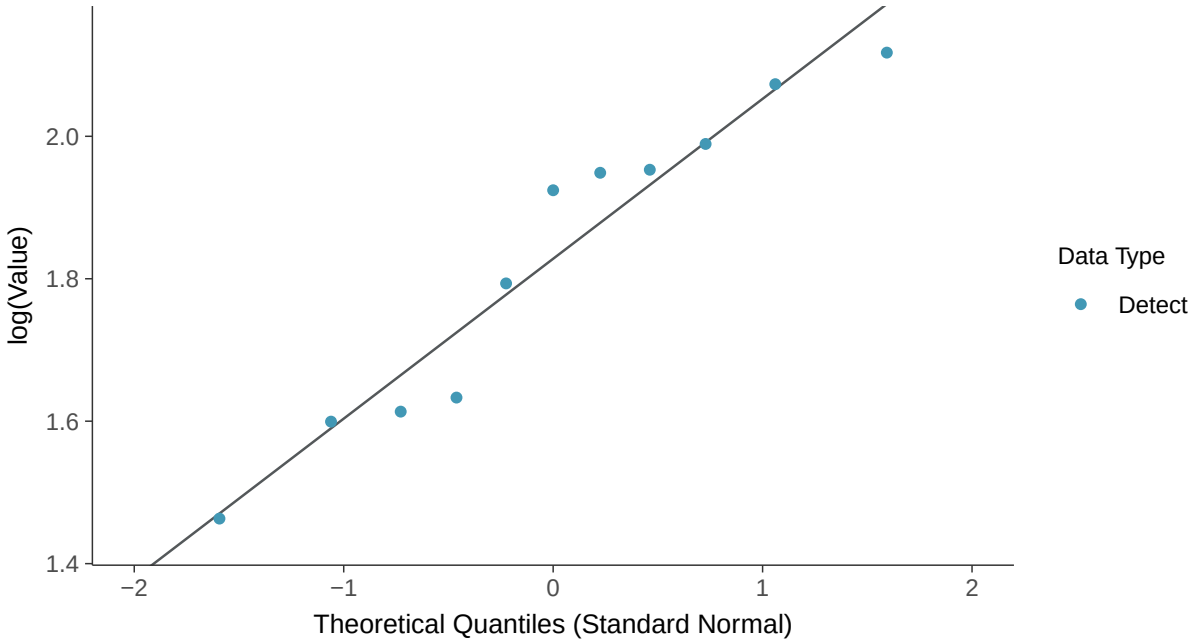
Normal Q-Q plot

Turbidity, MW-16D (NTU)



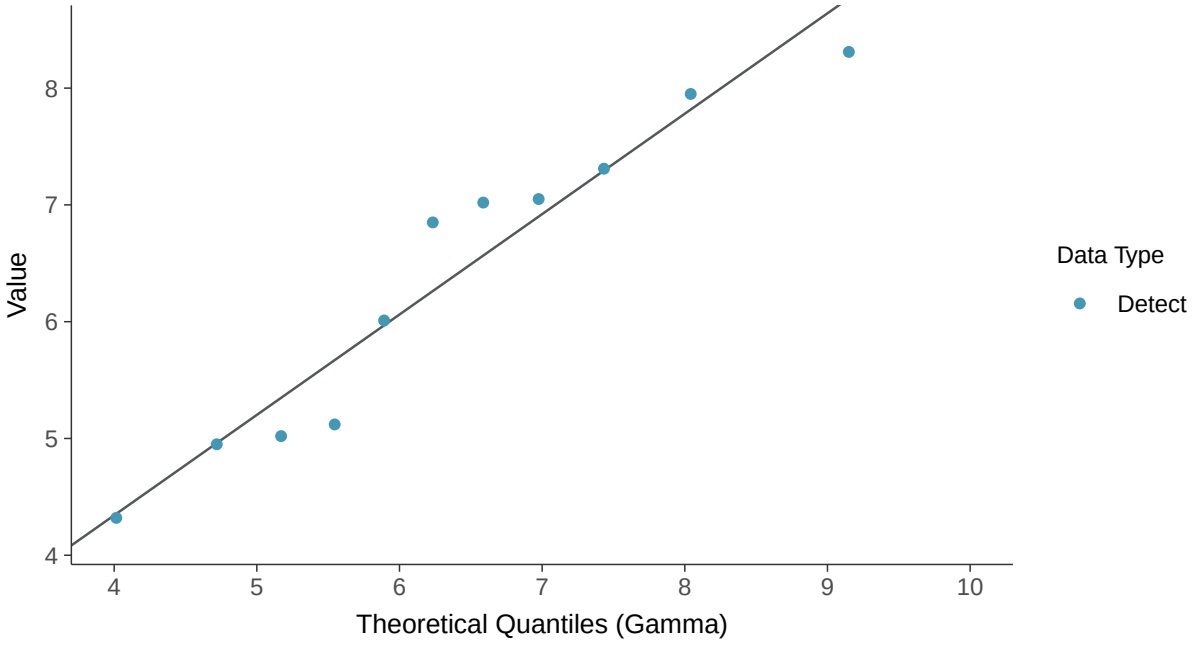
Lognormal Q-Q plot

Turbidity, MW-16D (NTU)



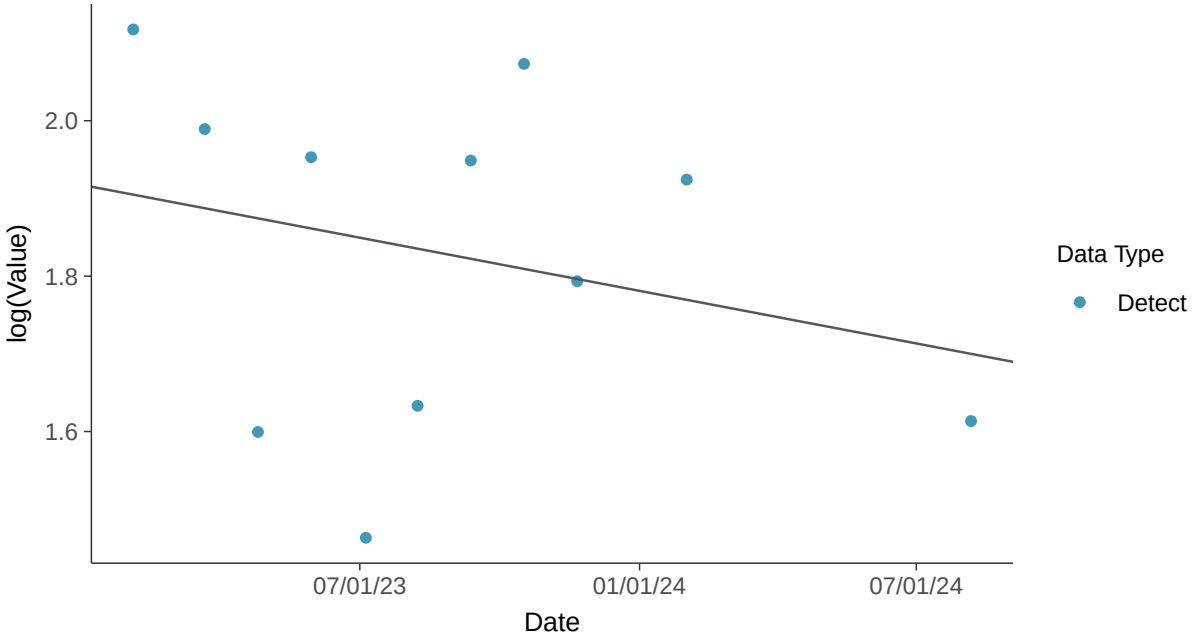
Gamma Q-Q plot

Turbidity, MW-16D (NTU)



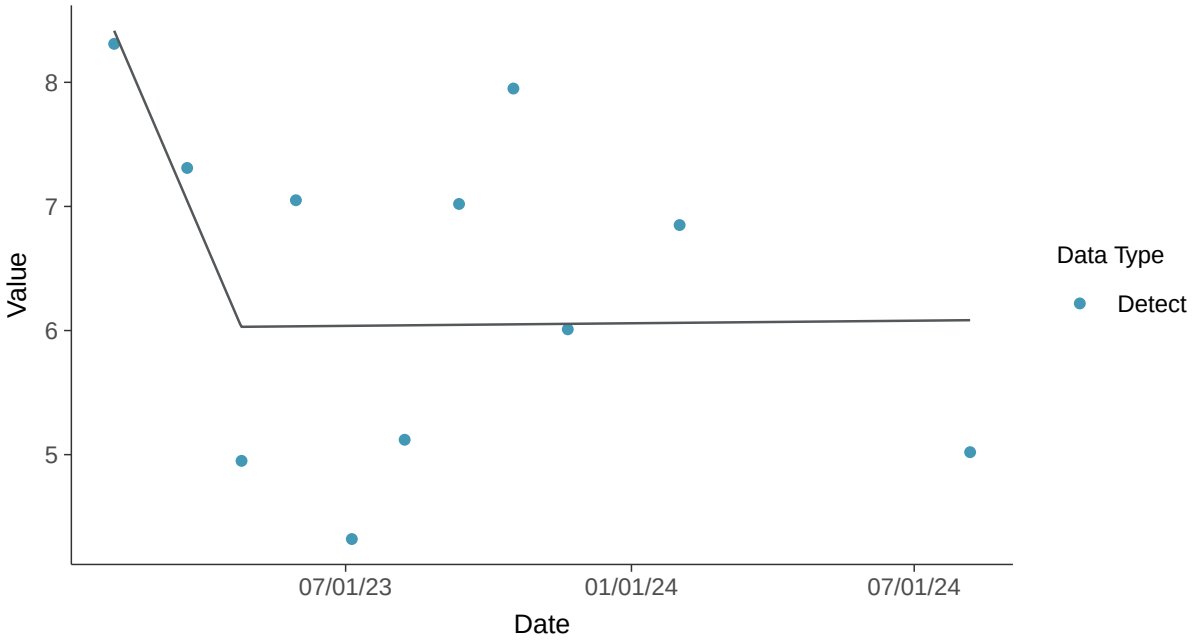
Trend Regression: Lognormal MLE

Turbidity, MW-16D (NTU)



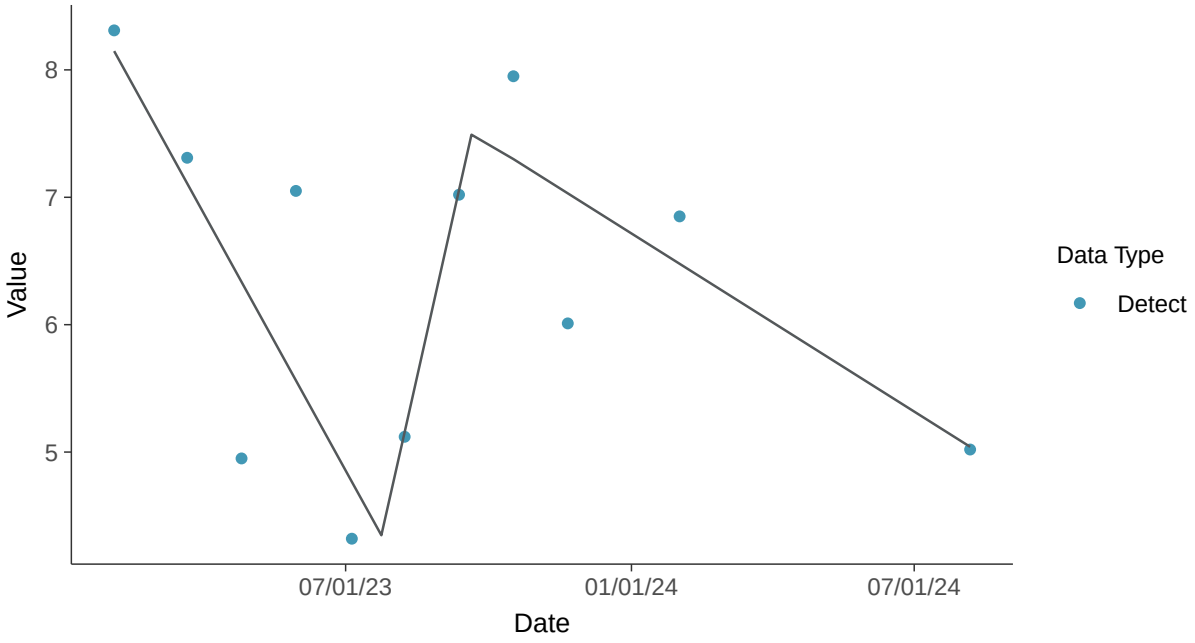
Trend Regression: Piecewise Linear-Linear

Turbidity, MW-16D (NTU)



Trend Regression: Piecewise Linear-Linear-Linear

Turbidity, MW-16D (NTU)

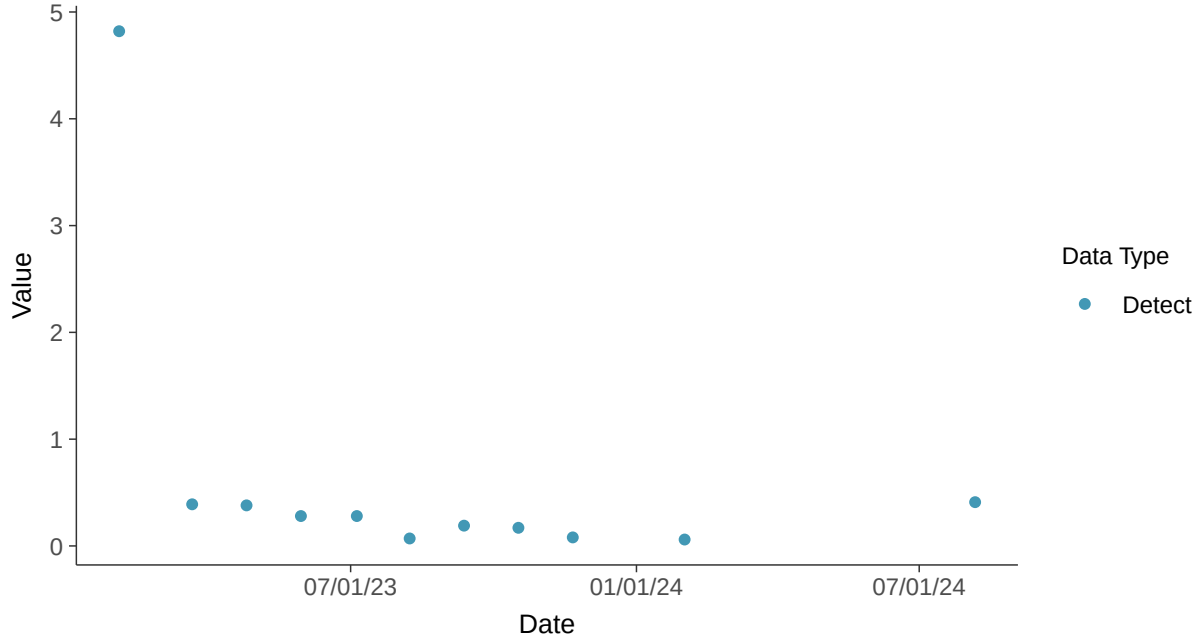


Field Parameters: Dissolved Oxygen, MW-16D

ID: 16D_3_27

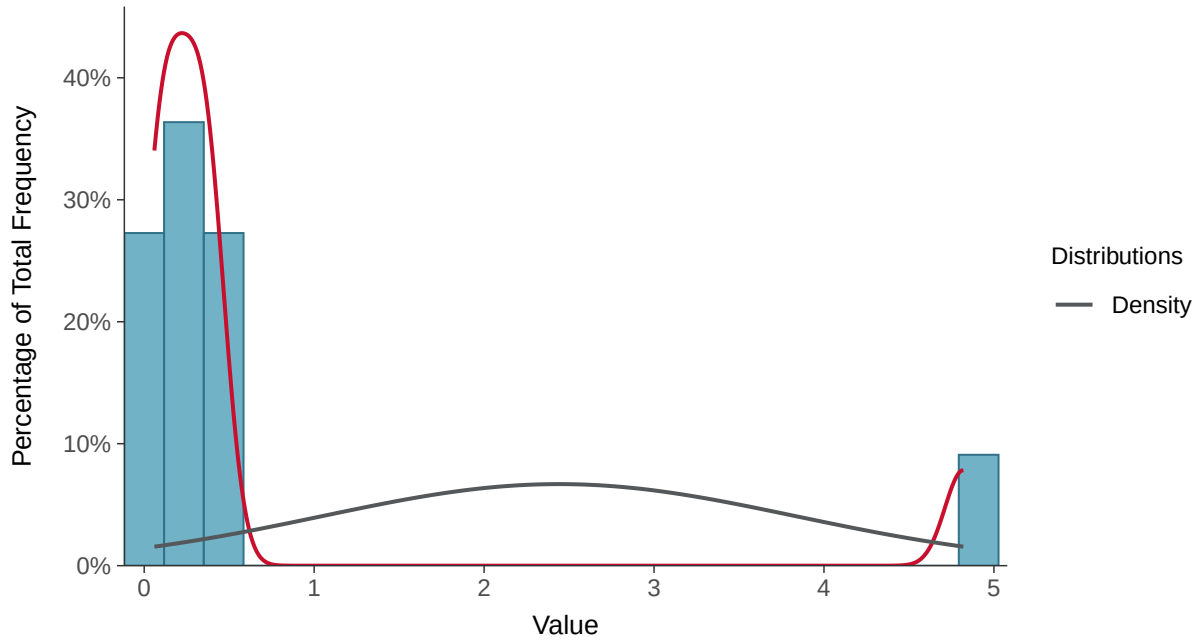
Scatter Plot

Dissolved Oxygen, MW-16D (mg/L)



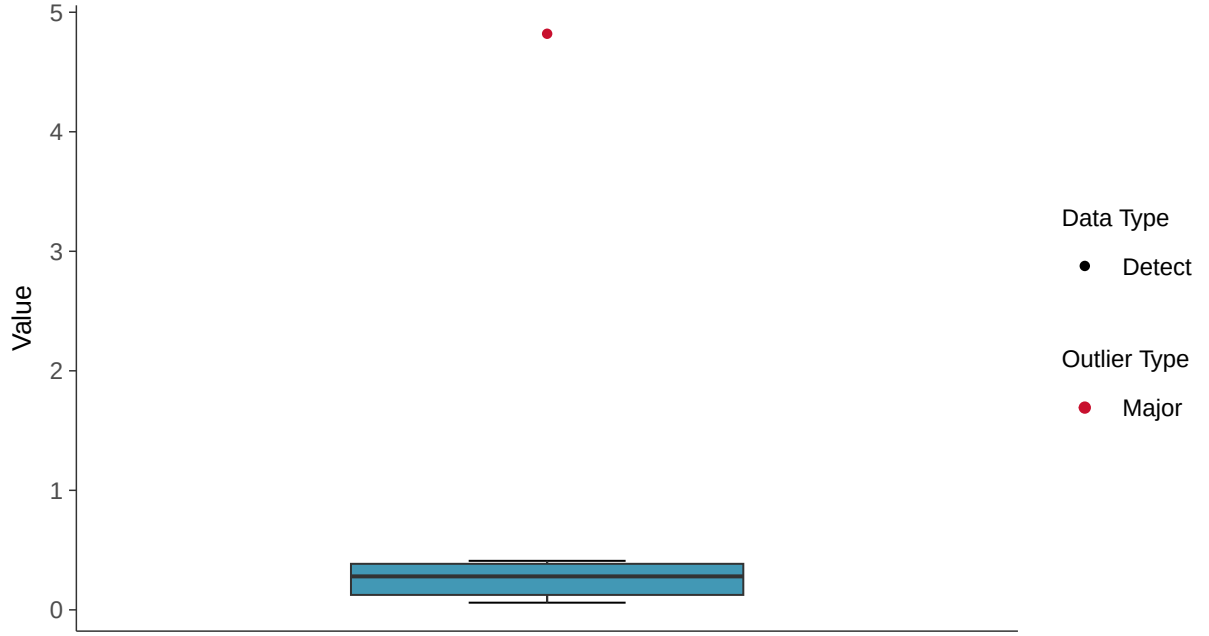
Histogram

Dissolved Oxygen, MW-16D (mg/L)



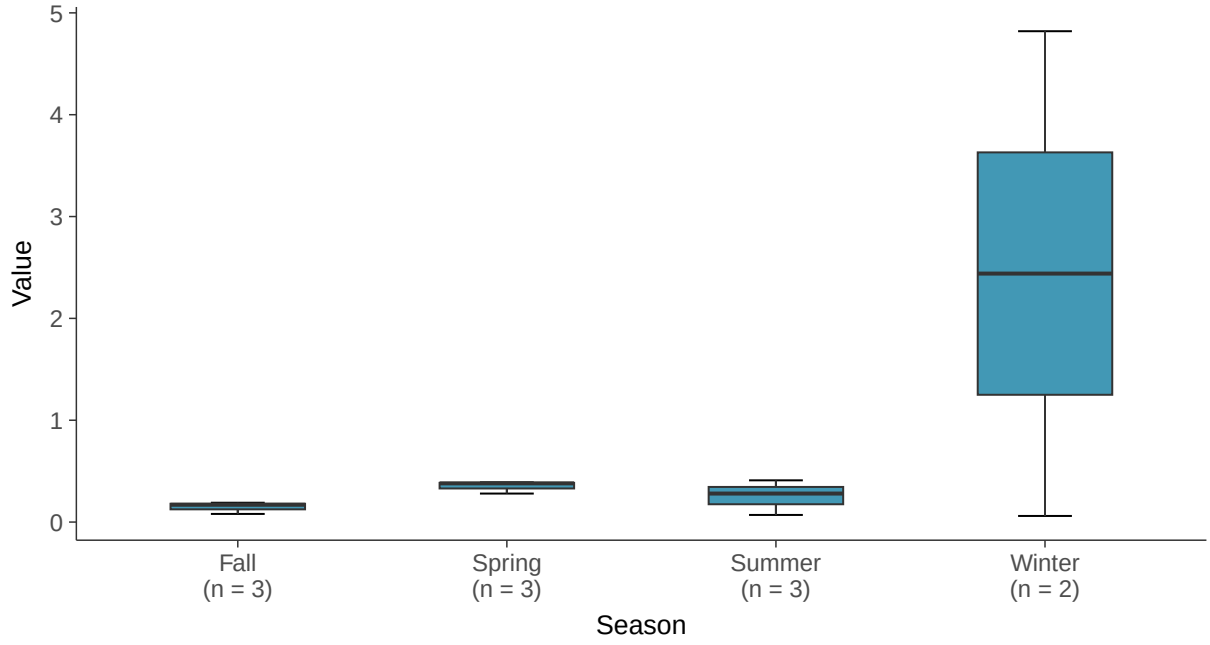
Boxplot

Dissolved Oxygen, MW-16D (mg/L)



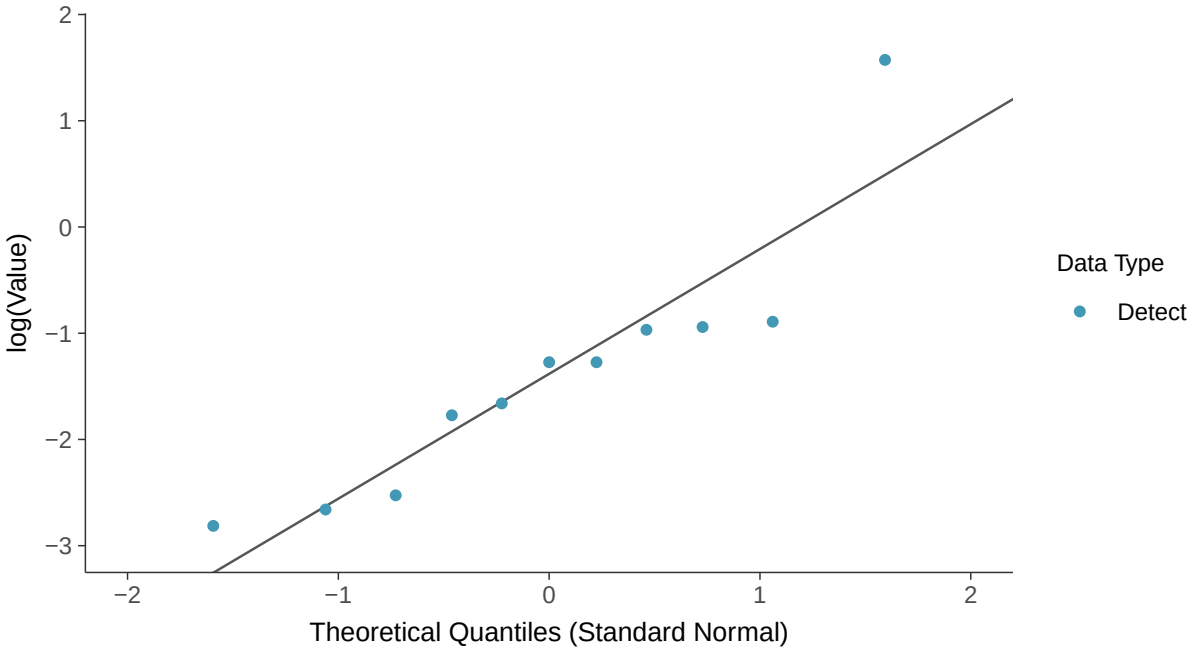
Boxplot by Season

Dissolved Oxygen, MW-16D (mg/L)



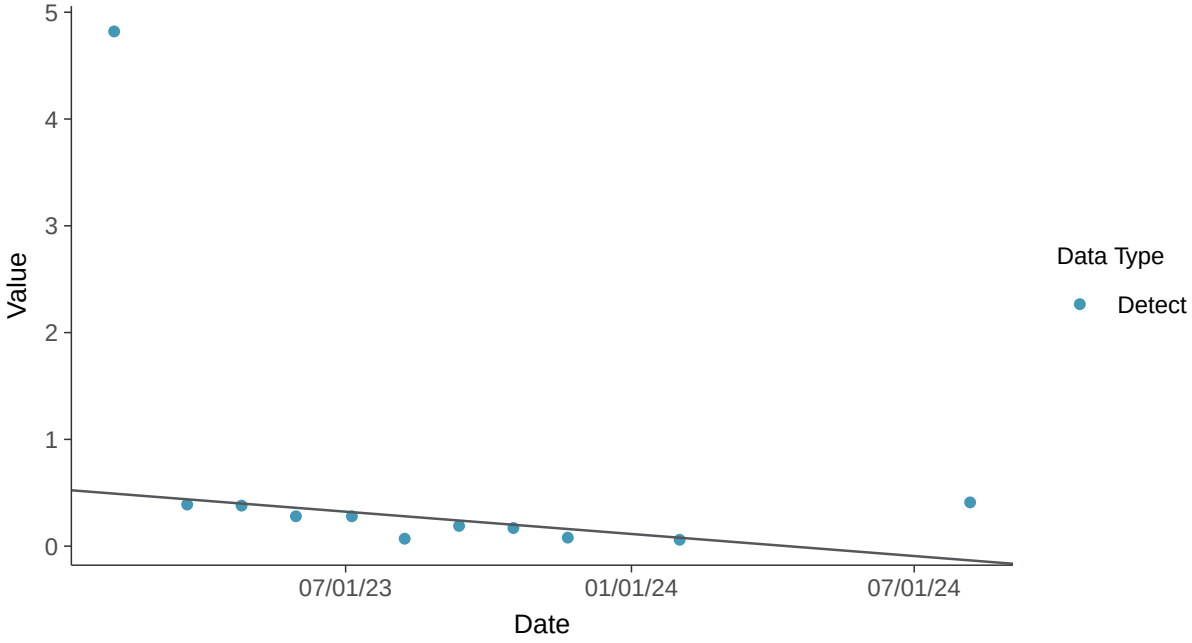
Lognormal Q-Q plot

Dissolved Oxygen, MW-16D (mg/L)



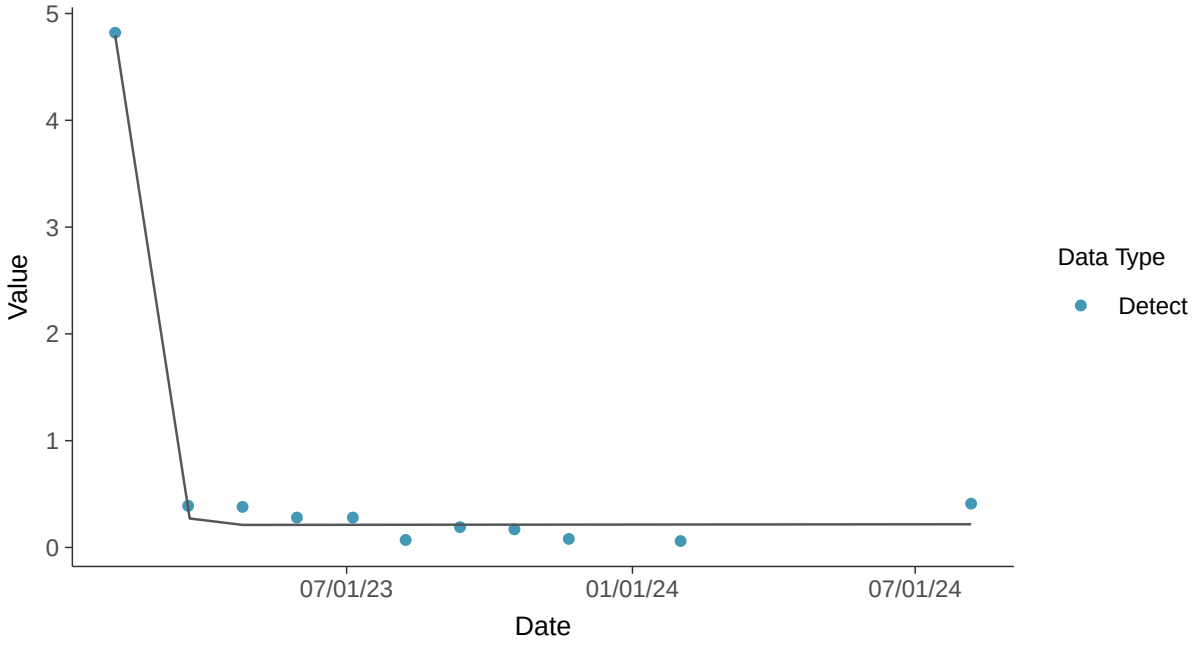
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Dissolved Oxygen, MW-16D (mg/L)



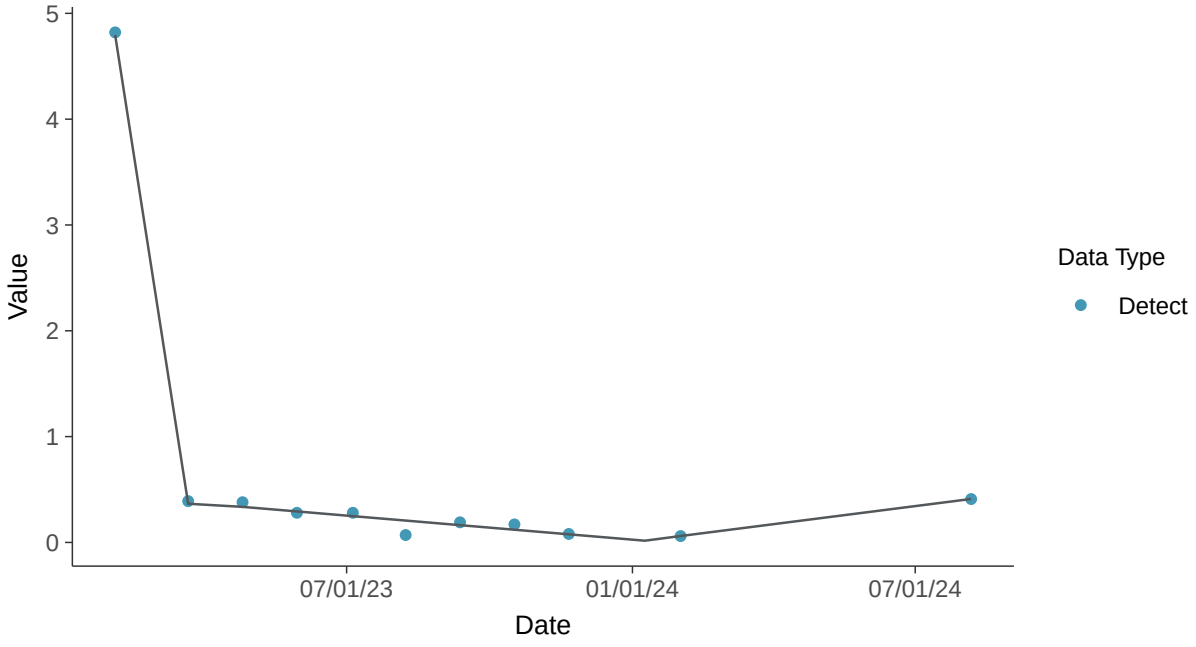
Trend Regression: Piecewise Linear-Linear

Dissolved Oxygen, MW-16D (mg/L)



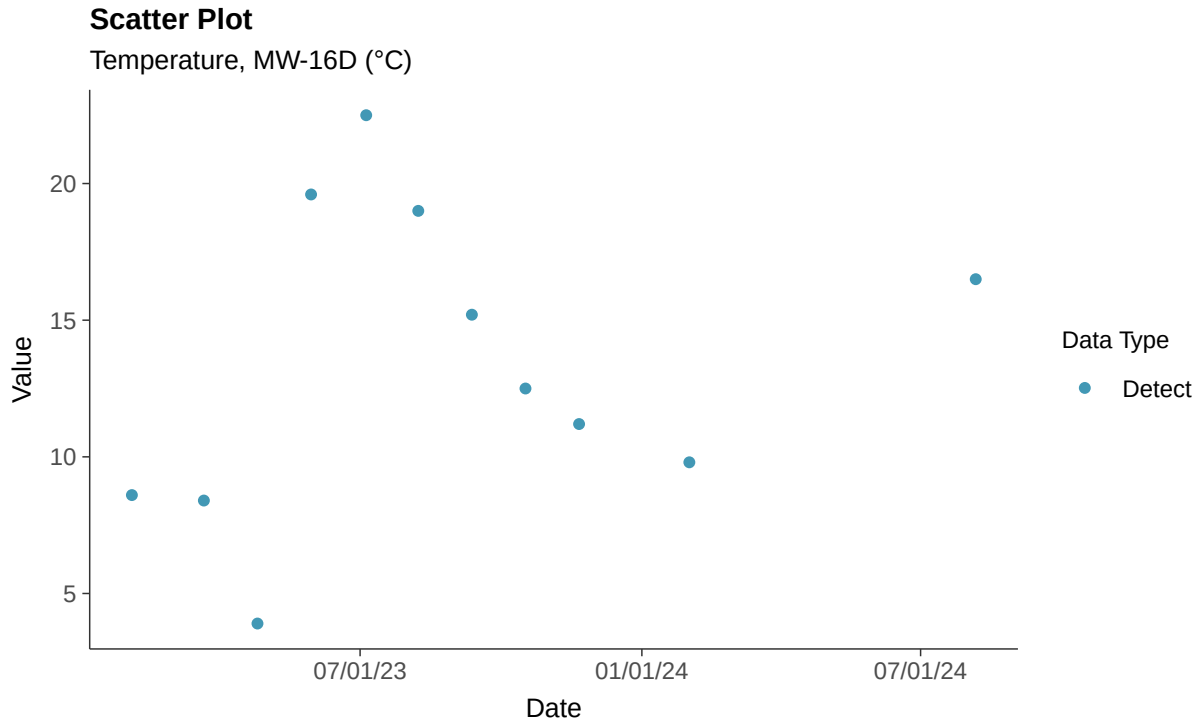
Trend Regression: Piecewise Linear-Linear-Linear

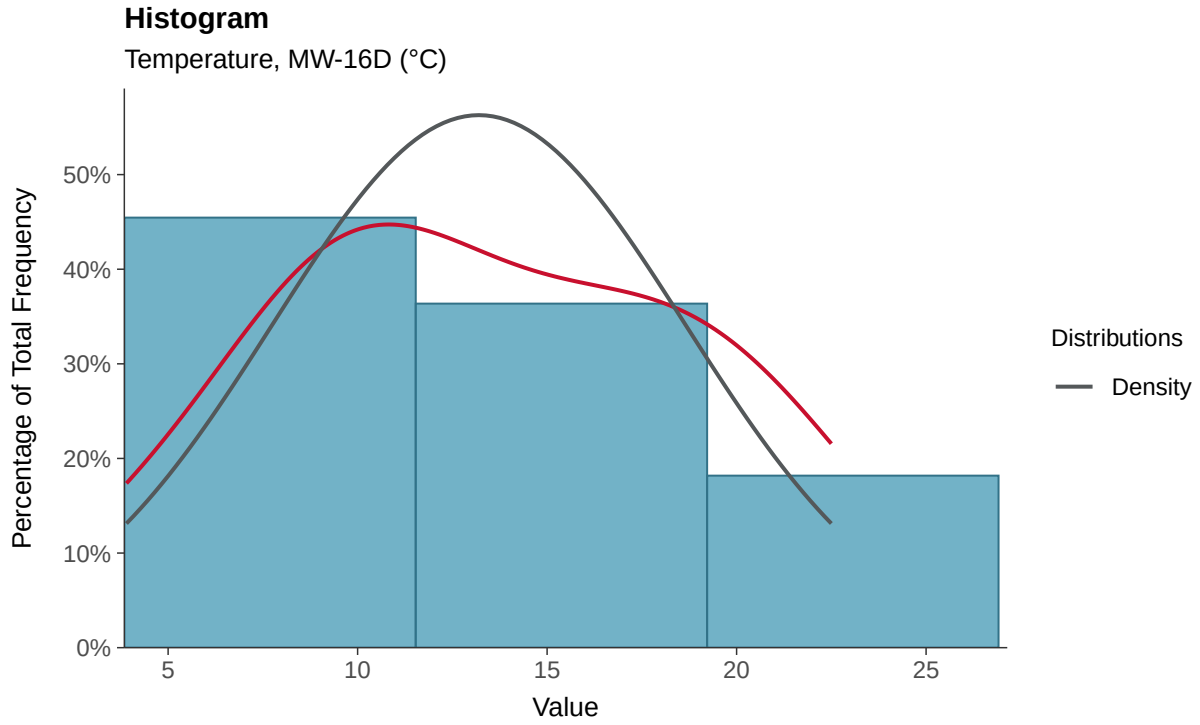
Dissolved Oxygen, MW-16D (mg/L)



Field Parameters: Temperature, MW-16D

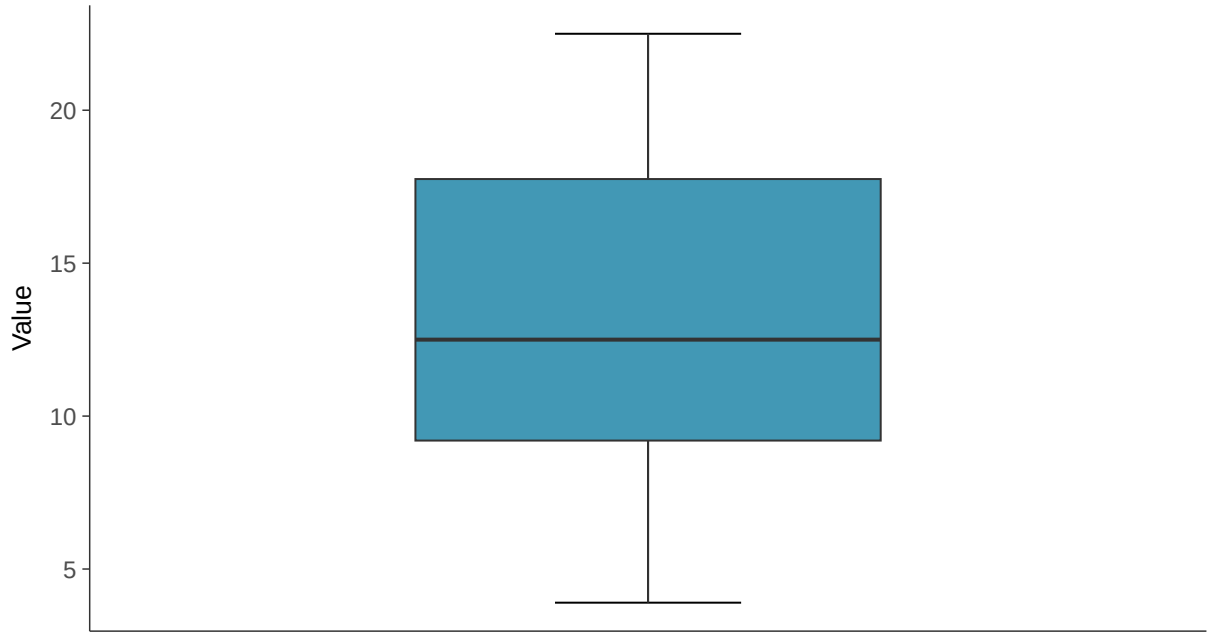
ID: 16D_3_28





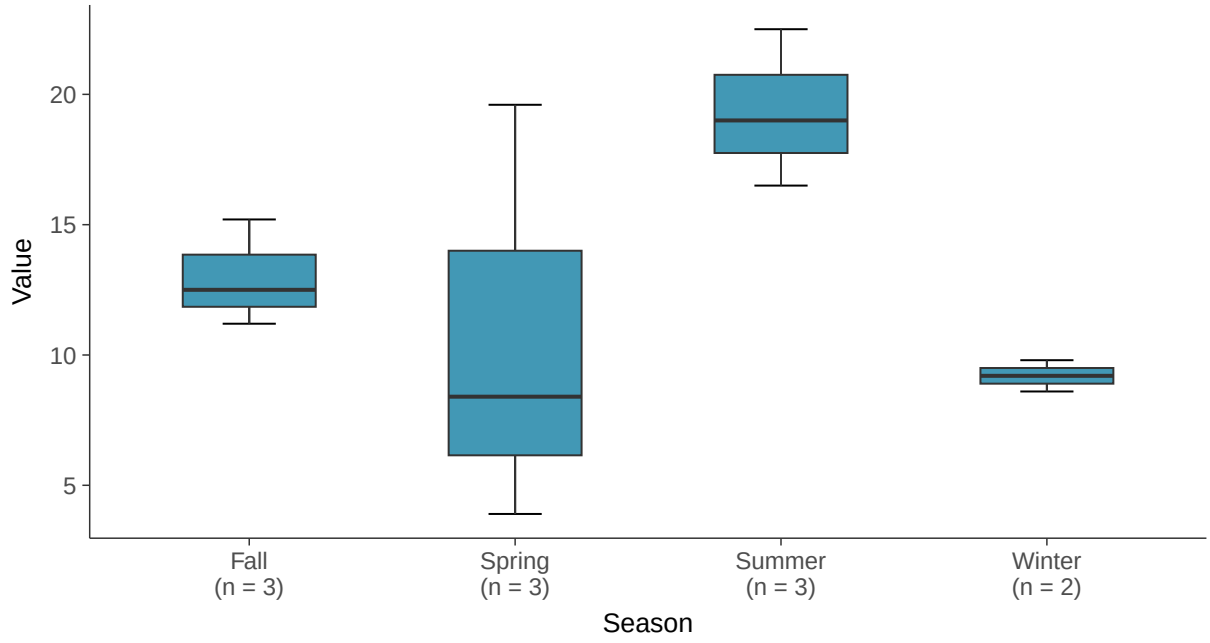
Boxplot

Temperature, MW-16D (°C)



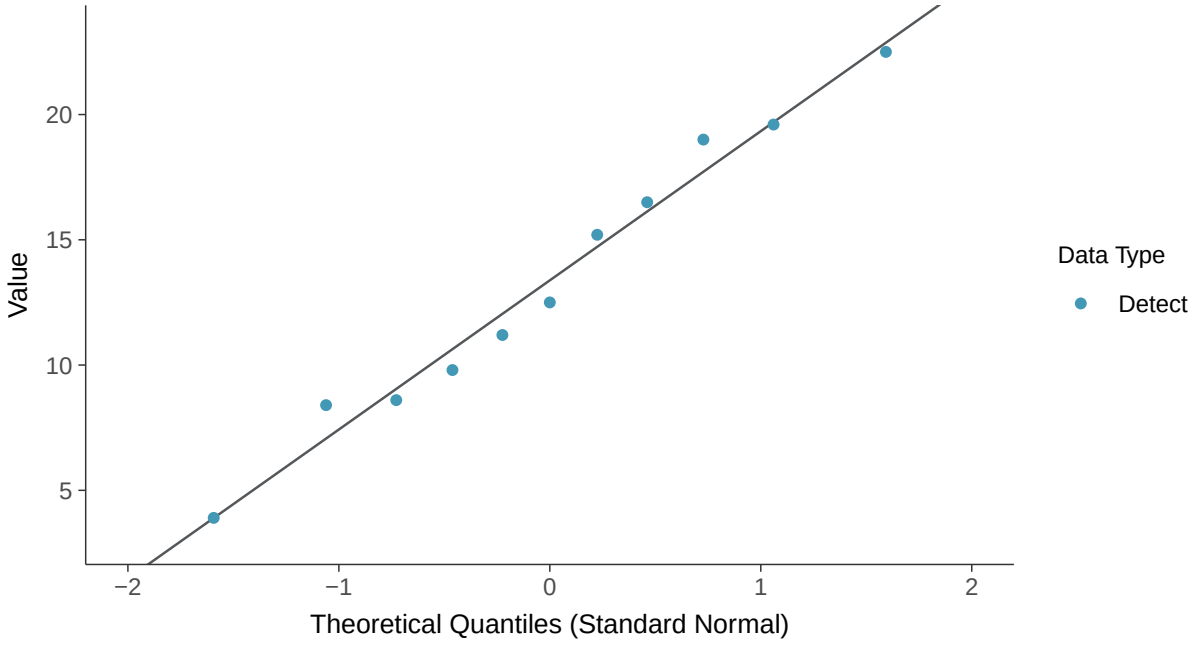
Boxplot by Season

Temperature, MW-16D (°C)



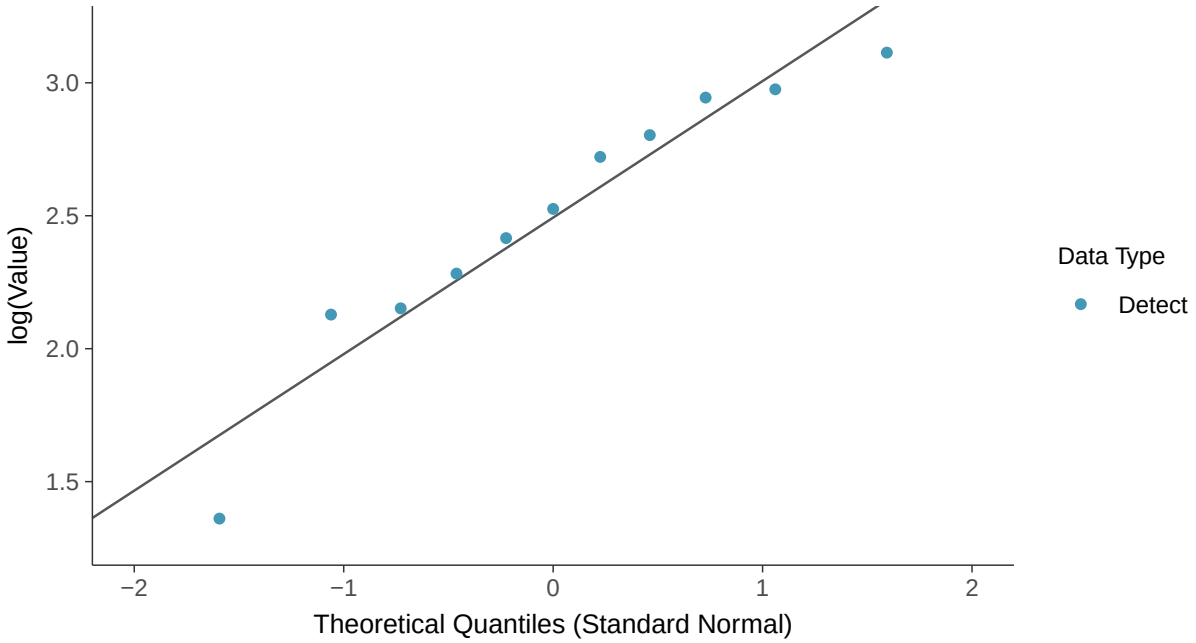
Normal Q-Q plot

Temperature, MW-16D (°C)



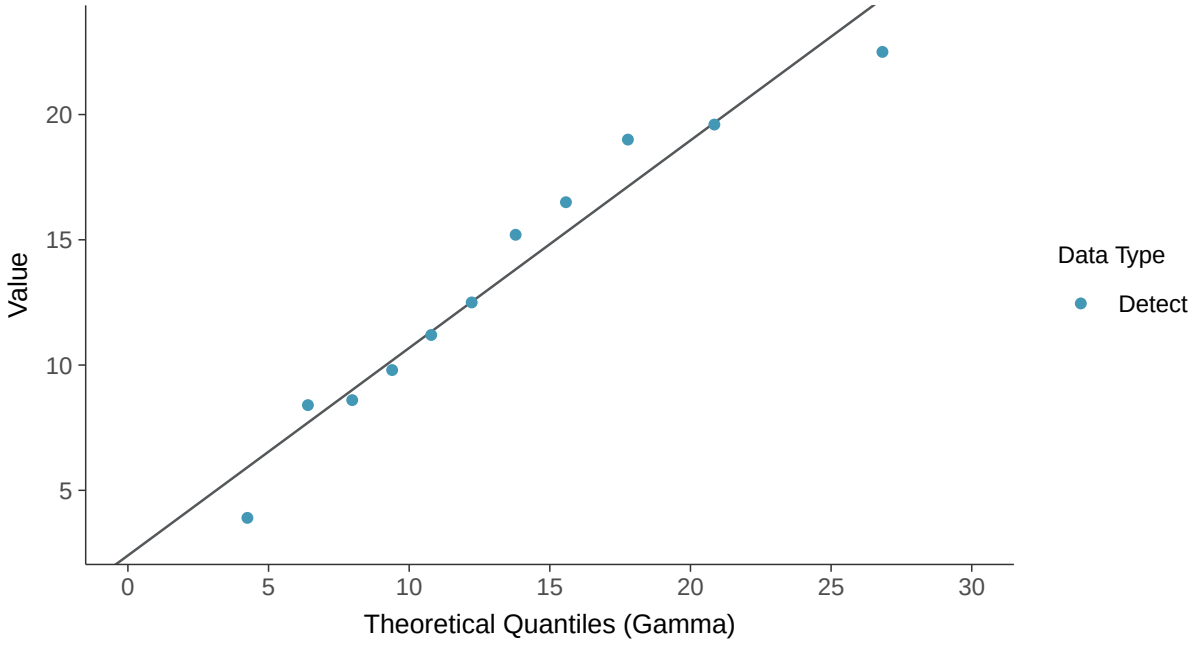
Lognormal Q-Q plot

Temperature, MW-16D (°C)



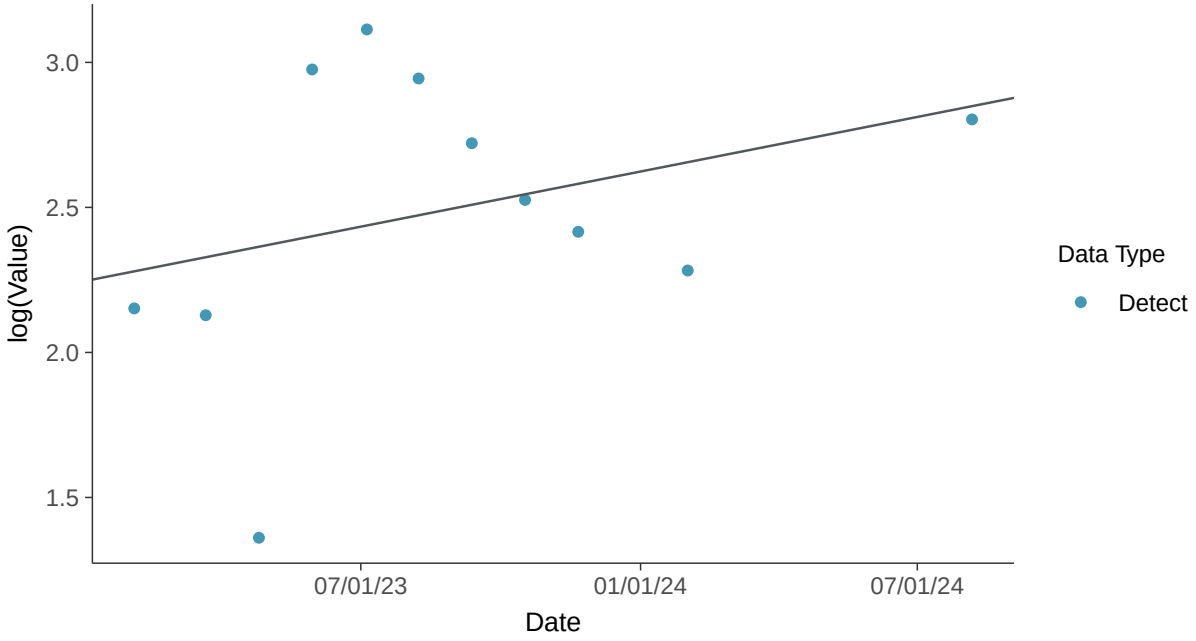
Gamma Q-Q plot

Temperature, MW-16D (°C)



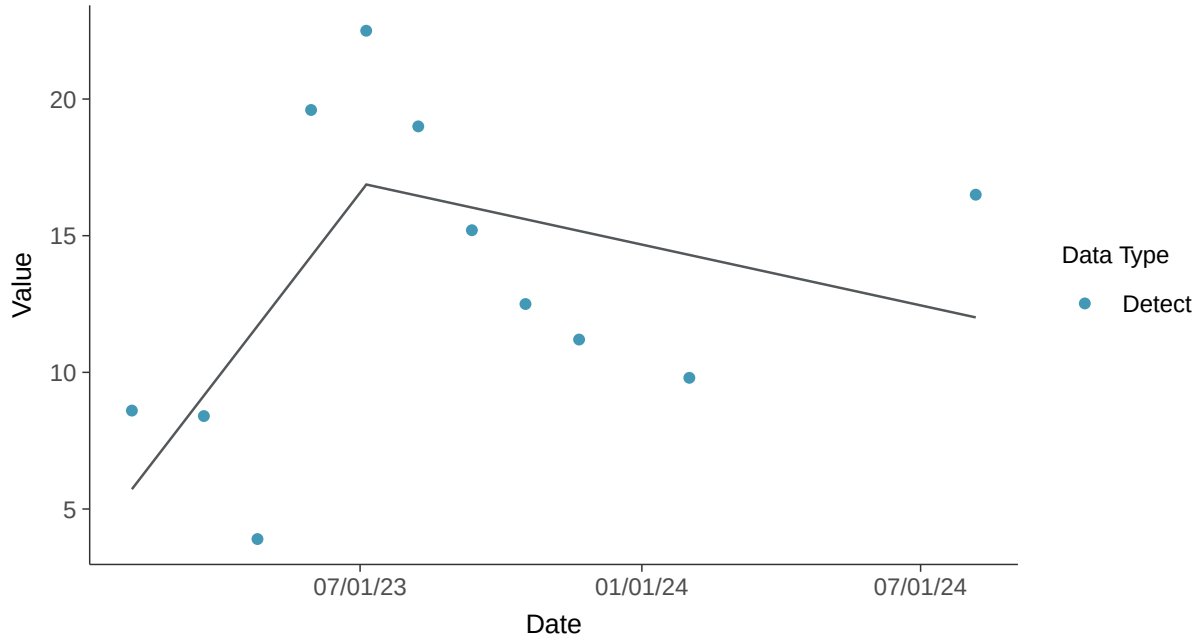
Trend Regression: Lognormal MLE

Temperature, MW-16D (°C)



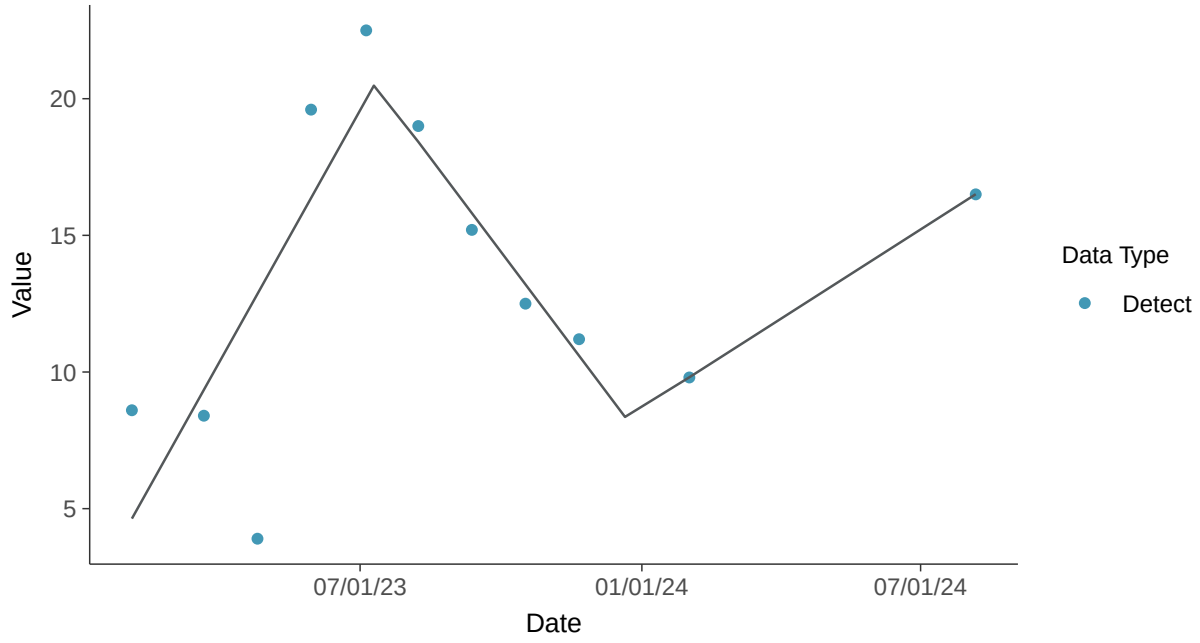
Trend Regression: Piecewise Linear-Linear

Temperature, MW-16D (°C)



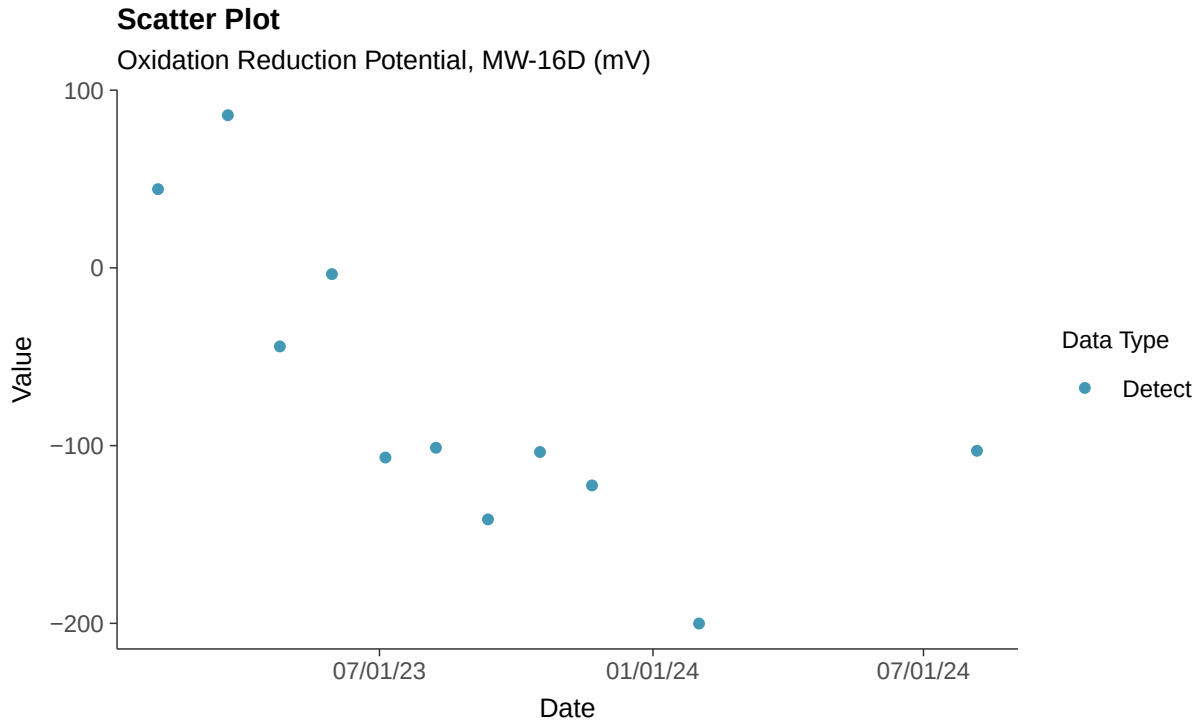
Trend Regression: Piecewise Linear-Linear-Linear

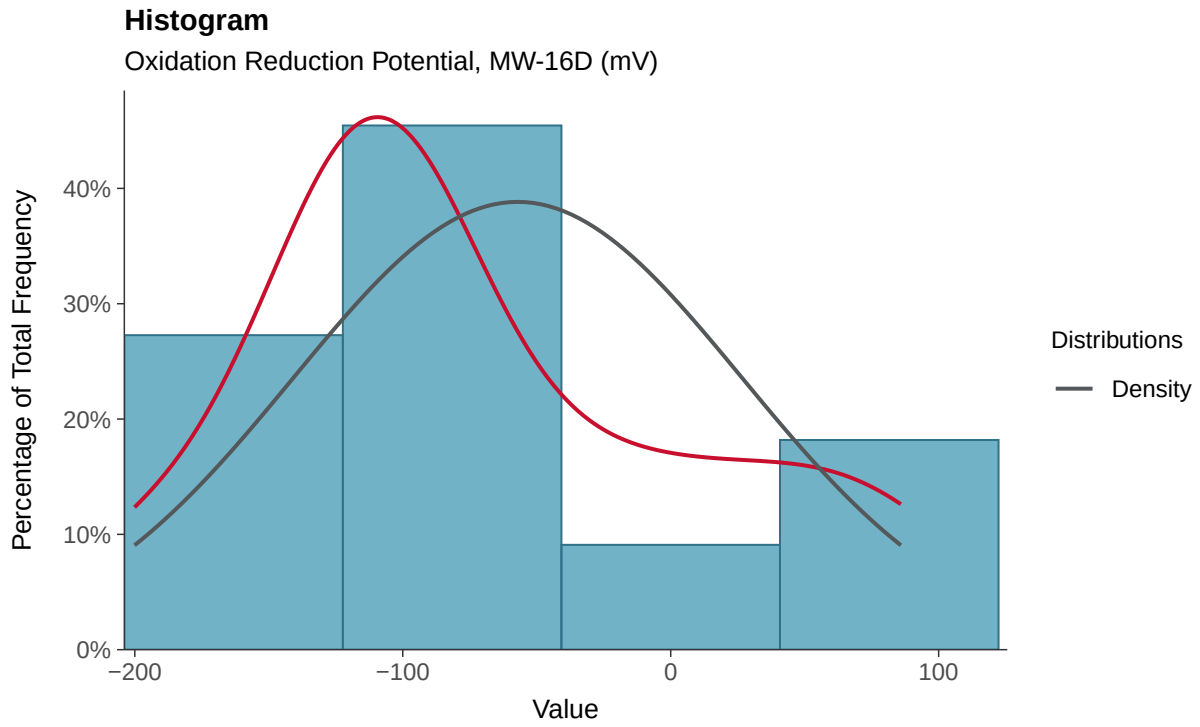
Temperature, MW-16D (°C)



Field Parameters: Oxidation Reduction Potential, MW-16D

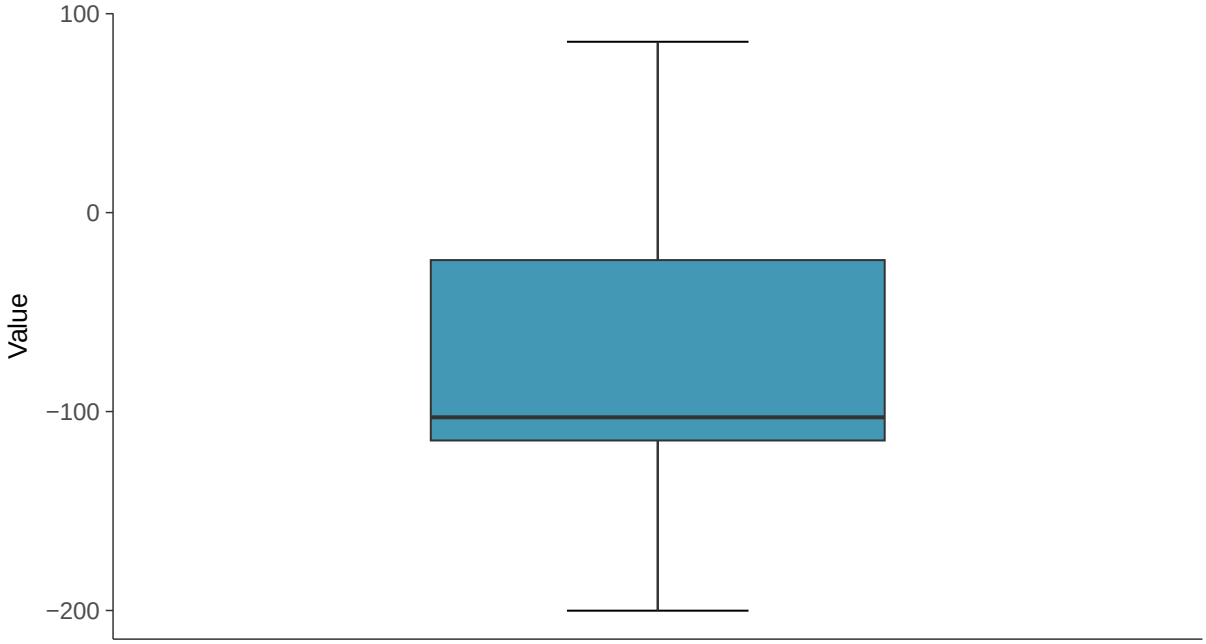
ID: 16D_3_29





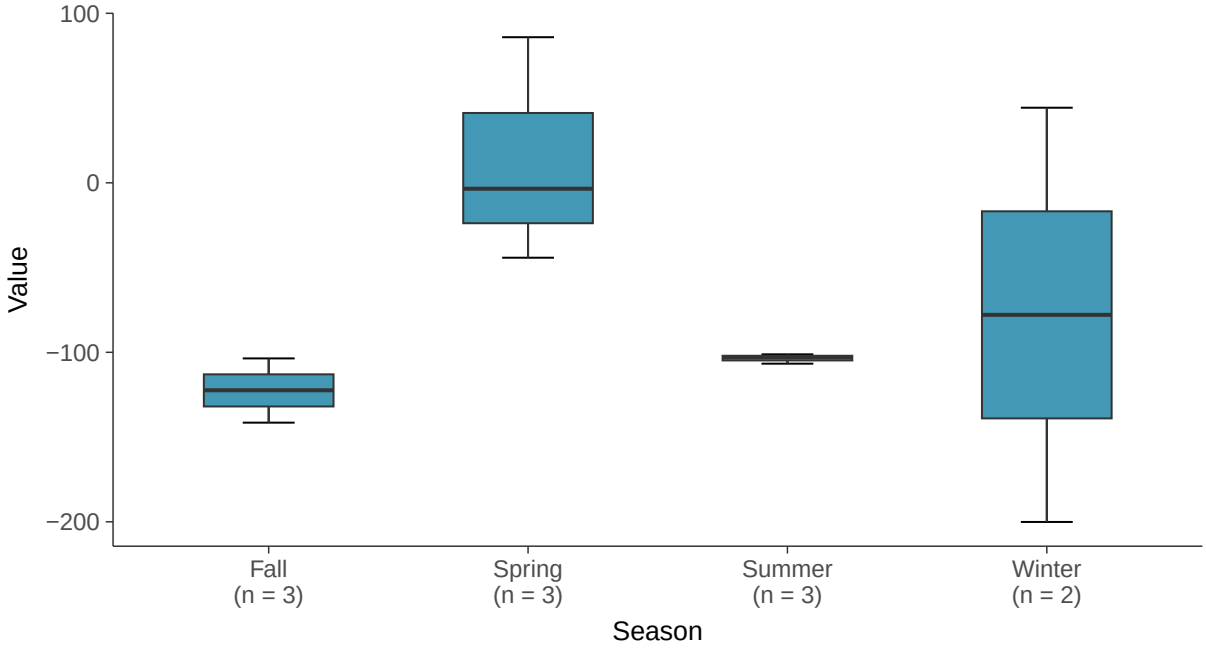
Boxplot

Oxidation Reduction Potential, MW-16D (mV)



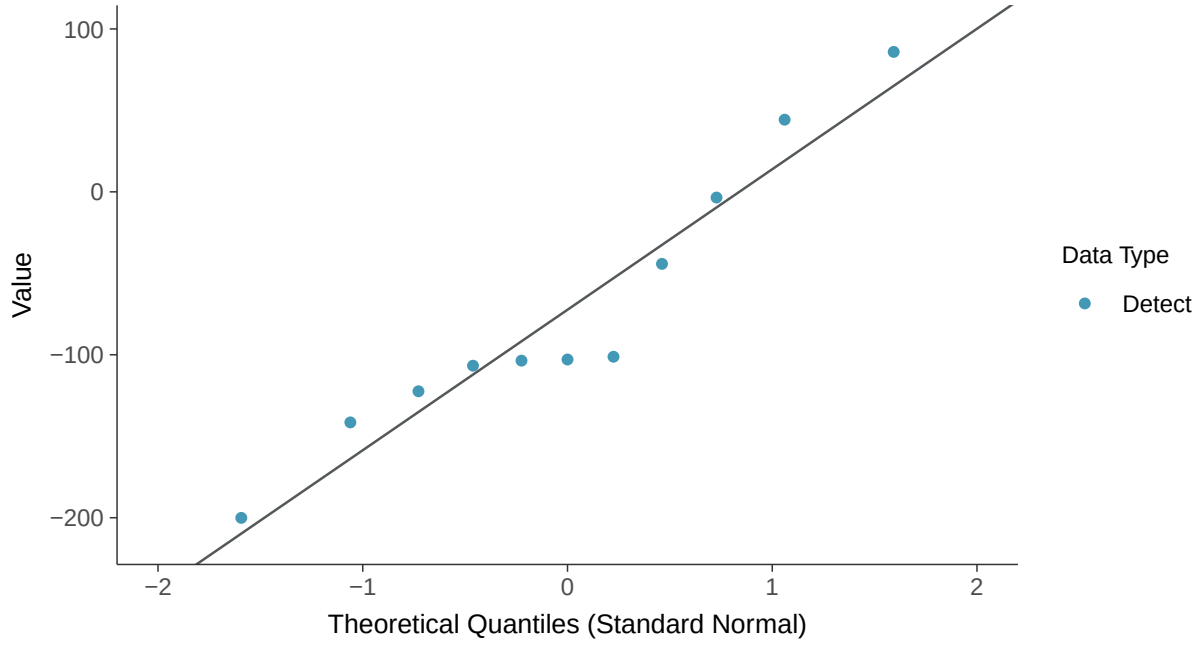
Boxplot by Season

Oxidation Reduction Potential, MW-16D (mV)



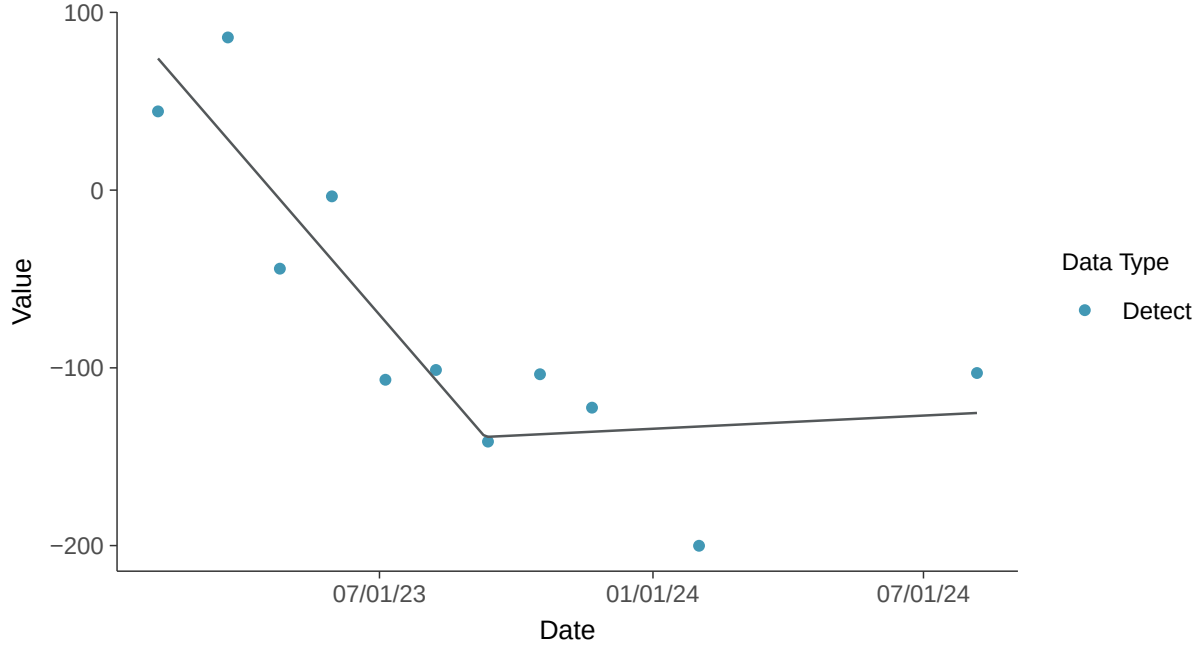
Normal Q-Q plot

Oxidation Reduction Potential, MW-16D (mV)



Trend Regression: Piecewise Linear-Linear

Oxidation Reduction Potential, MW-16D (mV)

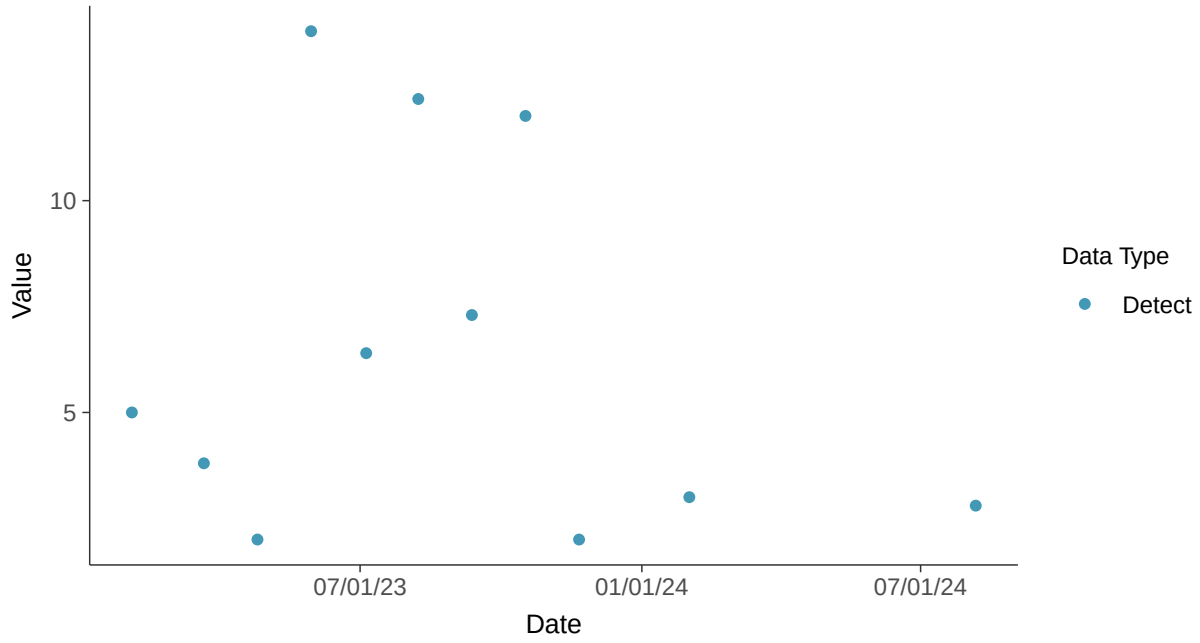


Other: Total Suspended Solids, MW-16D

ID: 16D_4_30

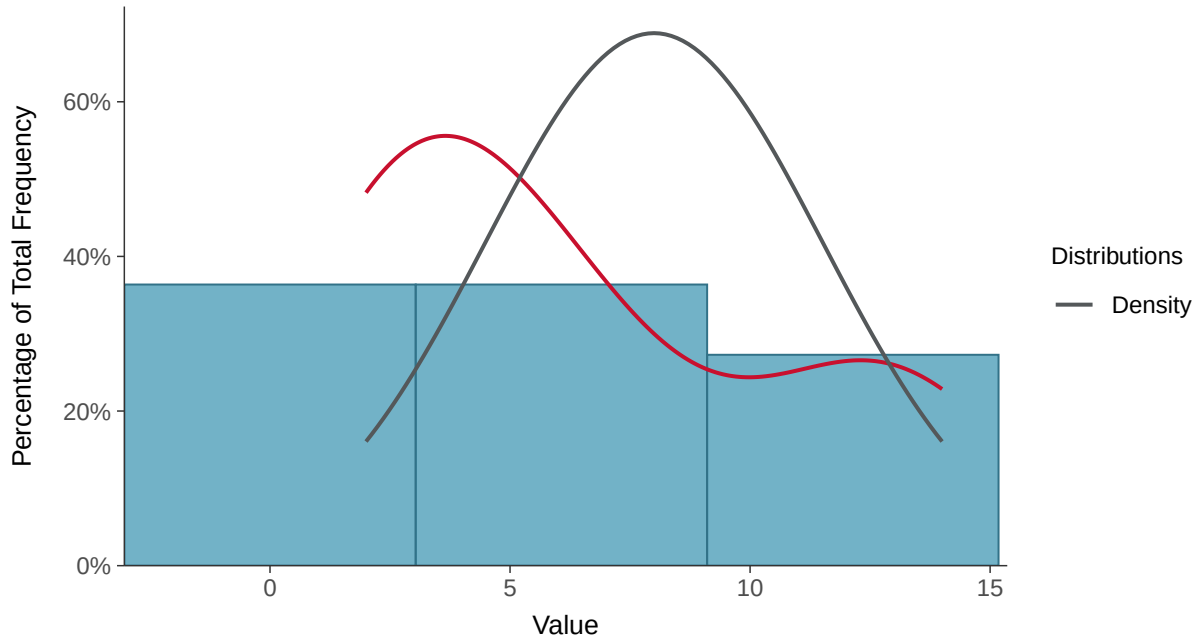
Scatter Plot

Total Suspended Solids, MW-16D (mg/L)



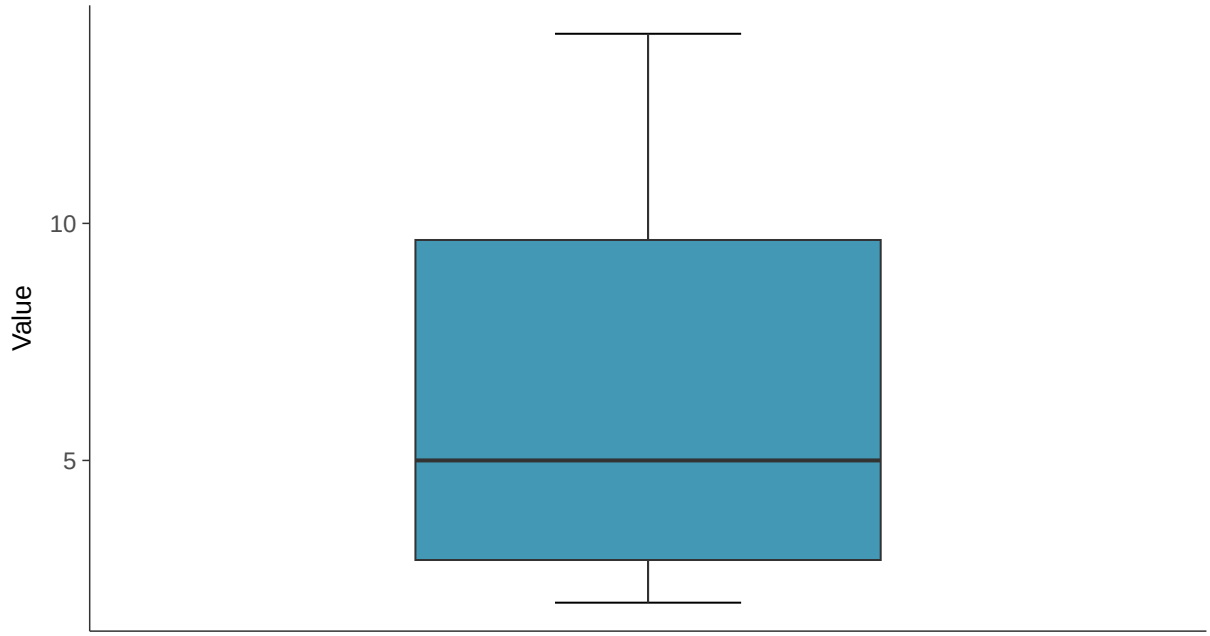
Histogram

Total Suspended Solids, MW-16D (mg/L)



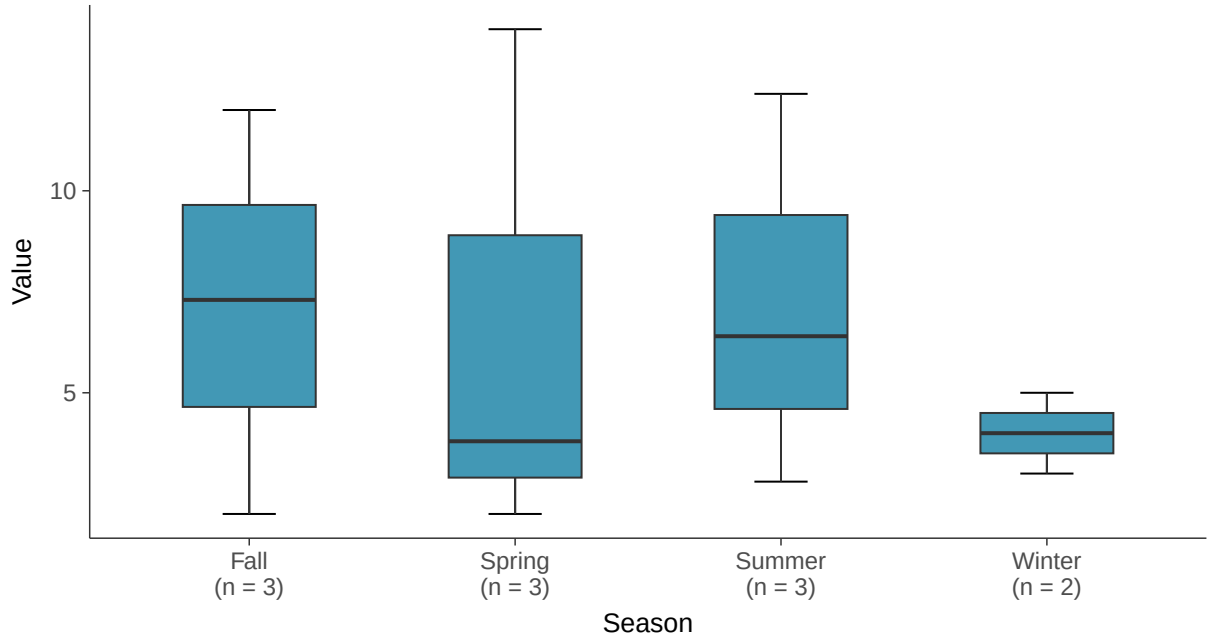
Boxplot

Total Suspended Solids, MW-16D (mg/L)



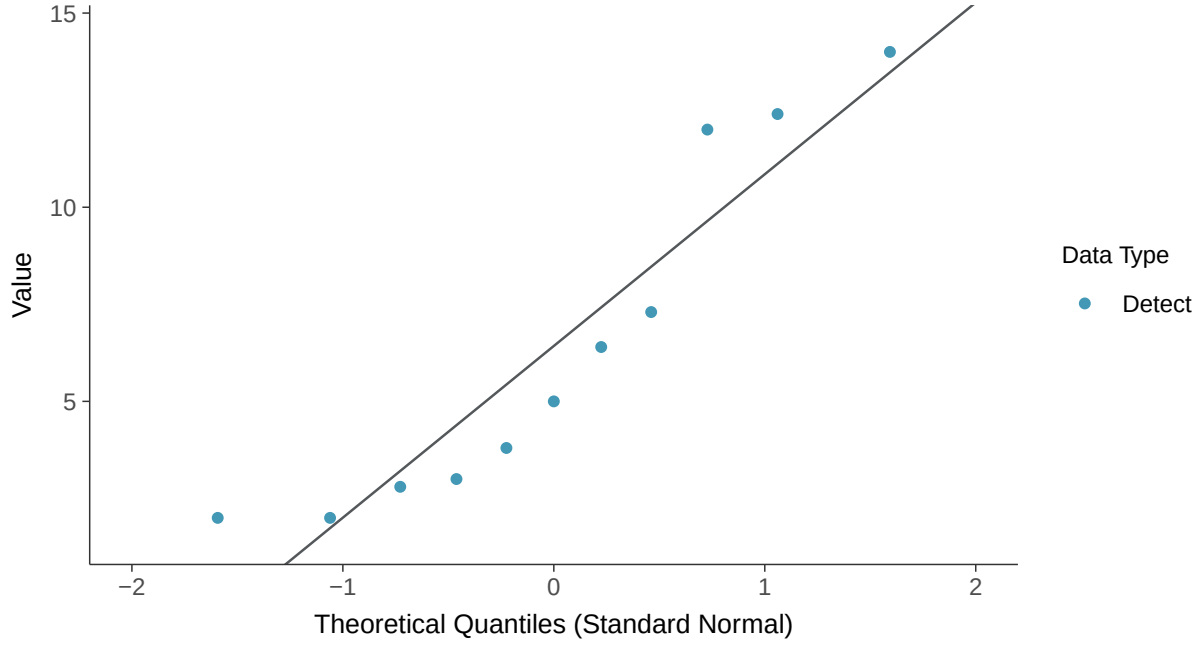
Boxplot by Season

Total Suspended Solids, MW-16D (mg/L)



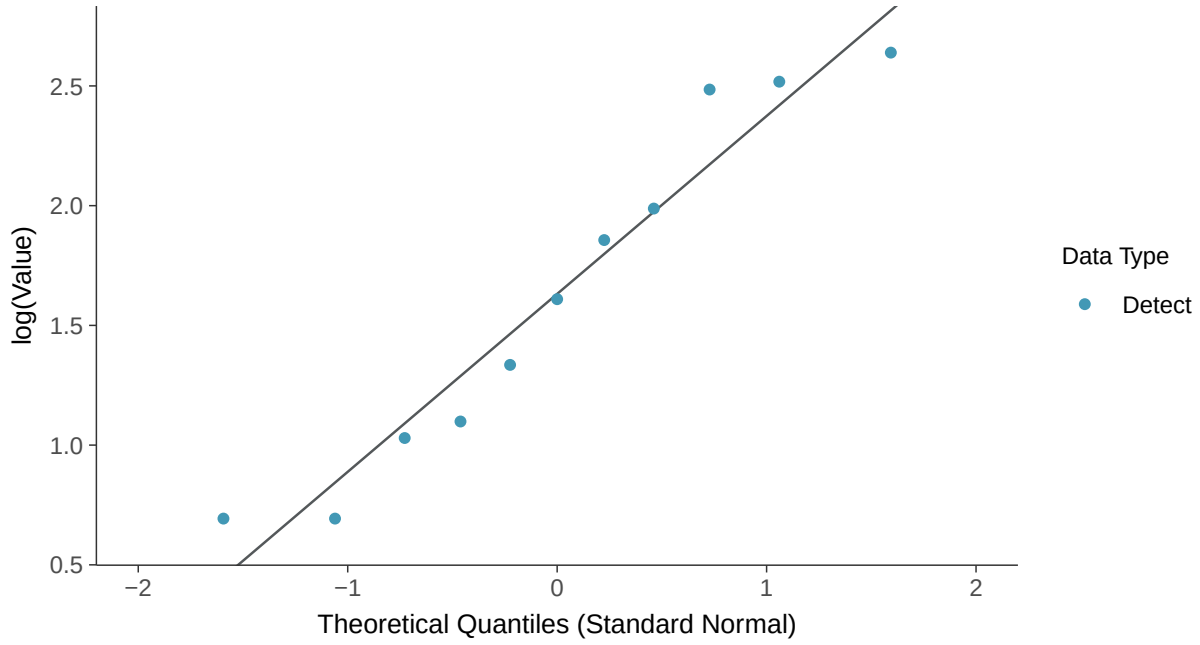
Normal Q-Q plot

Total Suspended Solids, MW-16D (mg/L)



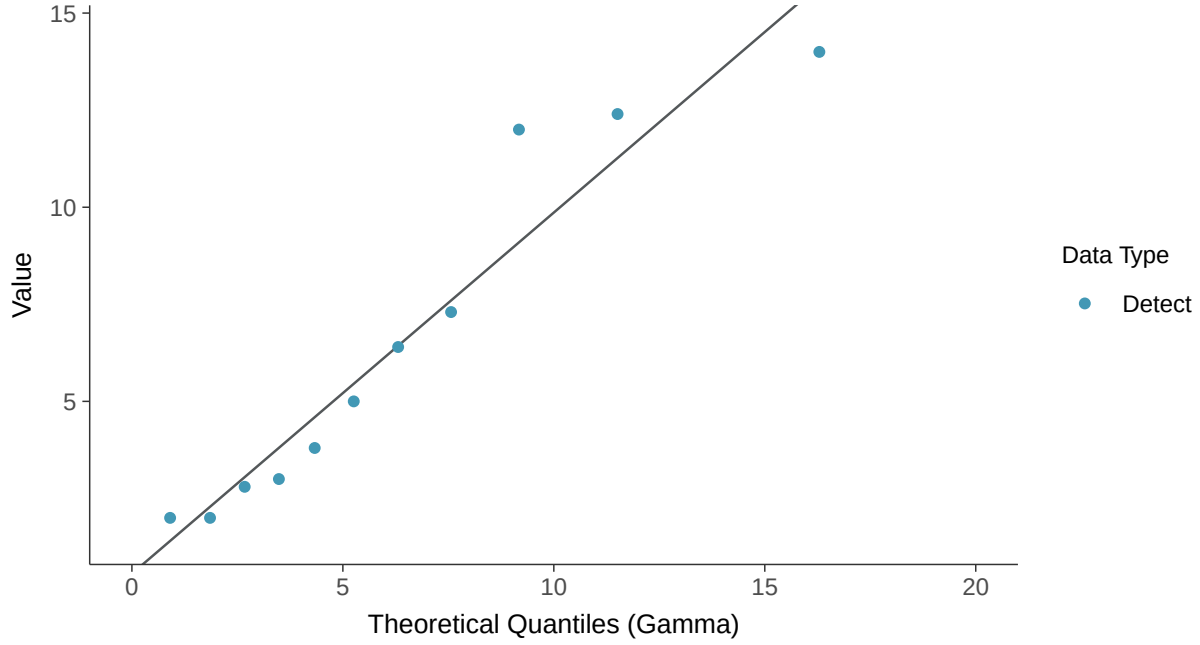
Lognormal Q-Q plot

Total Suspended Solids, MW-16D (mg/L)



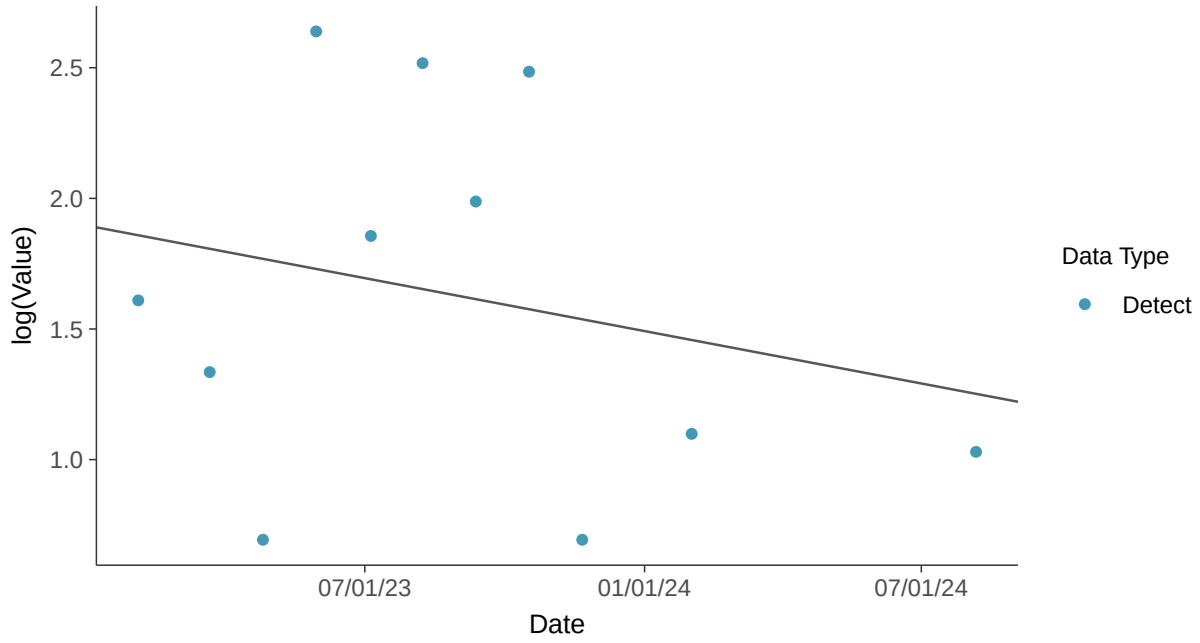
Gamma Q-Q plot

Total Suspended Solids, MW-16D (mg/L)



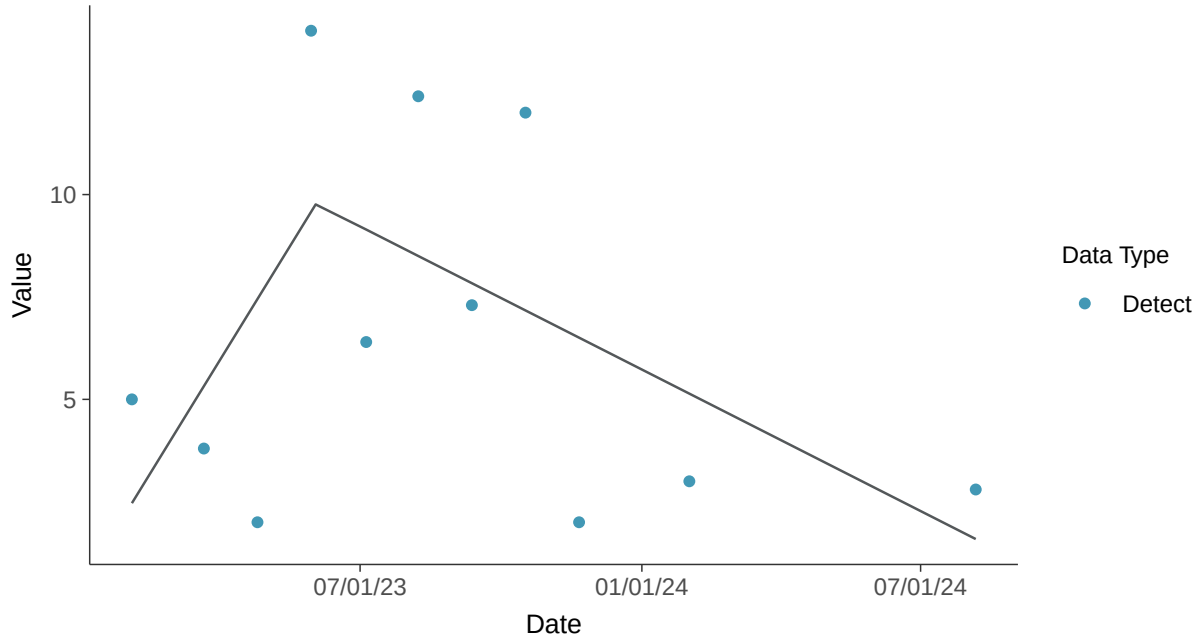
Trend Regression: Lognormal MLE

Total Suspended Solids, MW-16D (mg/L)



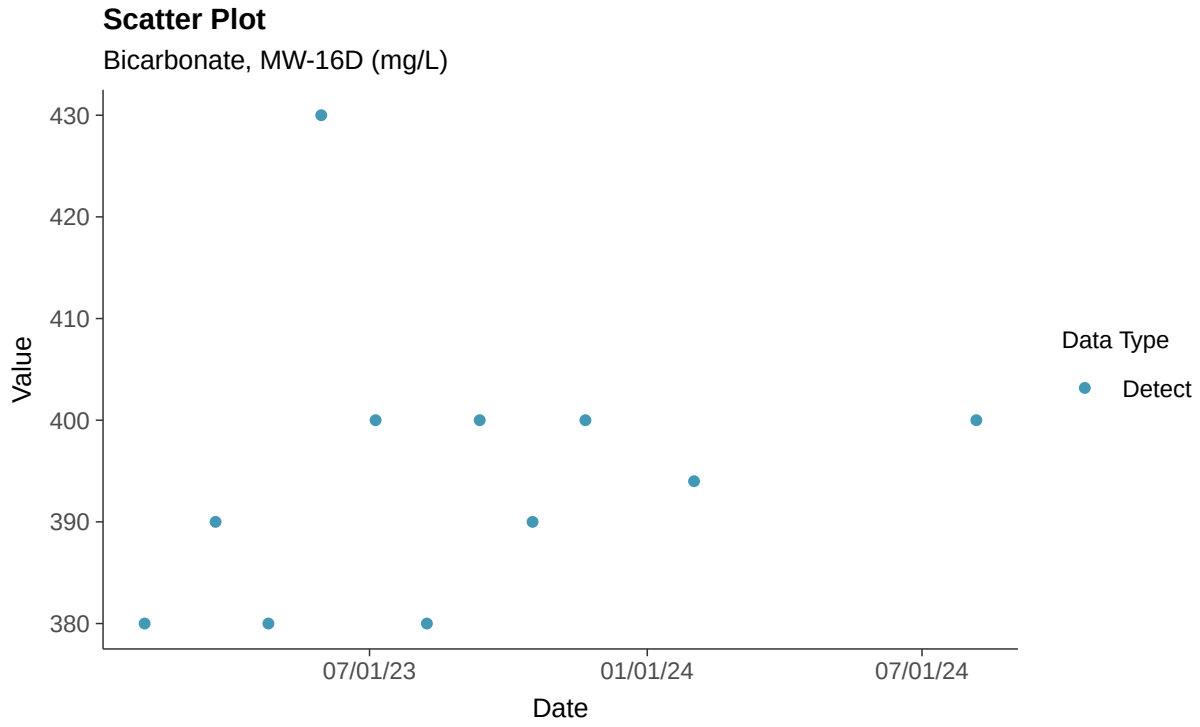
Trend Regression: Piecewise Linear-Linear

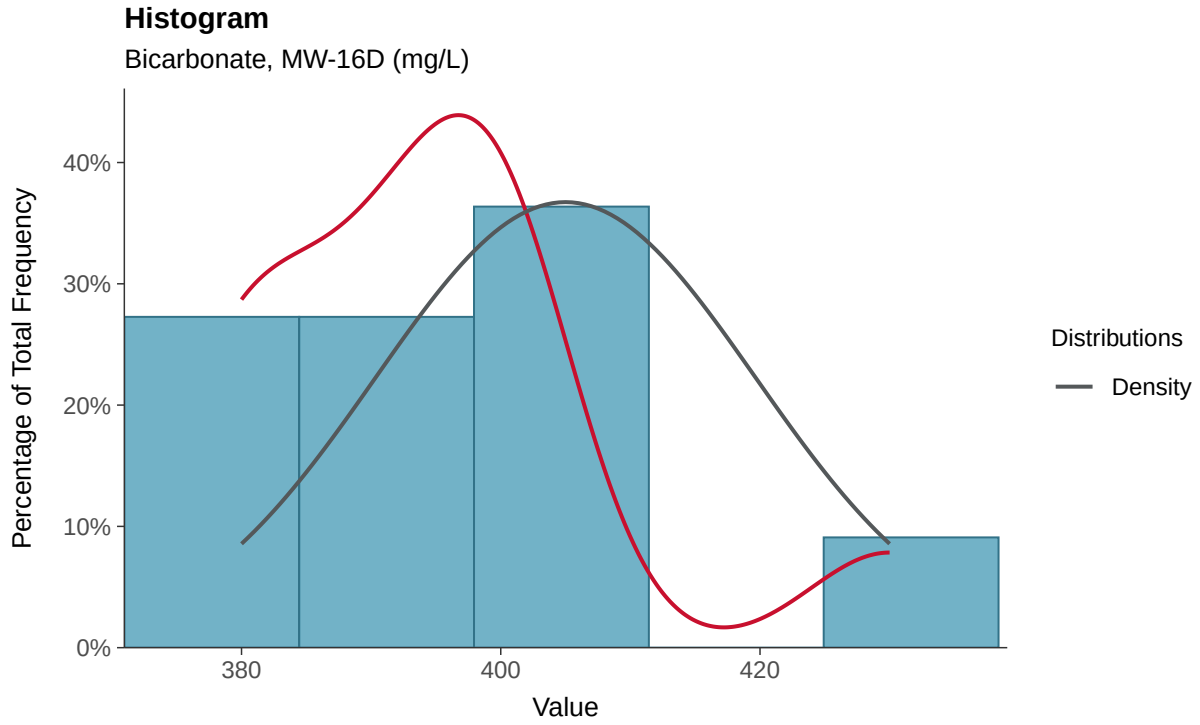
Total Suspended Solids, MW-16D (mg/L)



Other: Bicarbonate, MW-16D

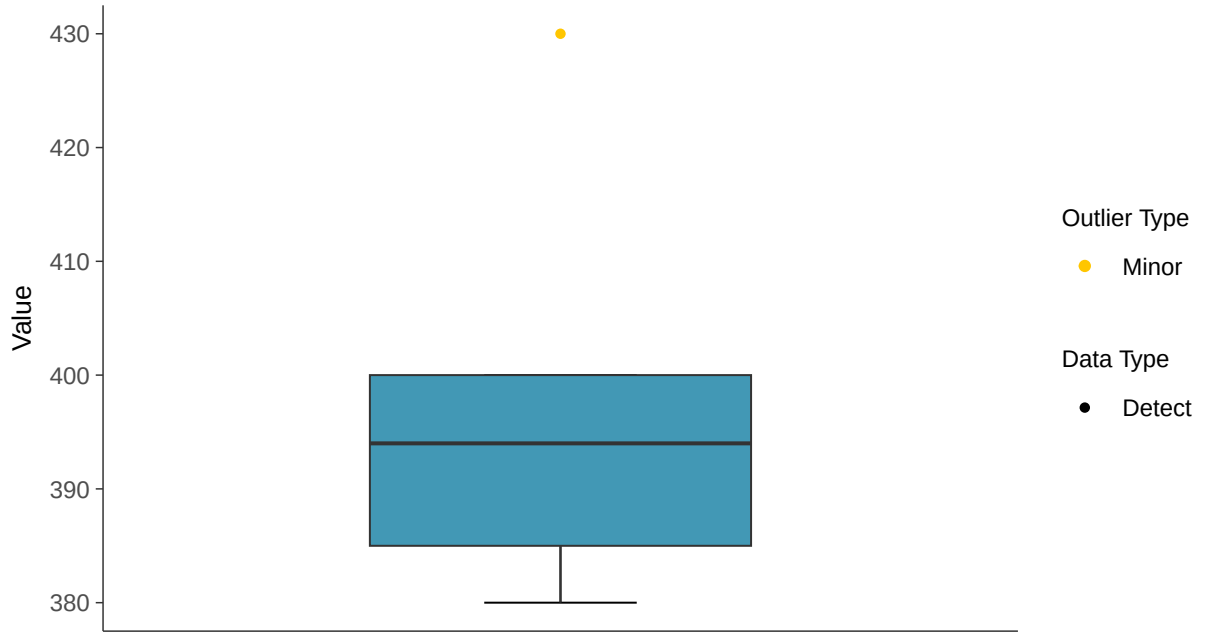
ID: 16D_4_31





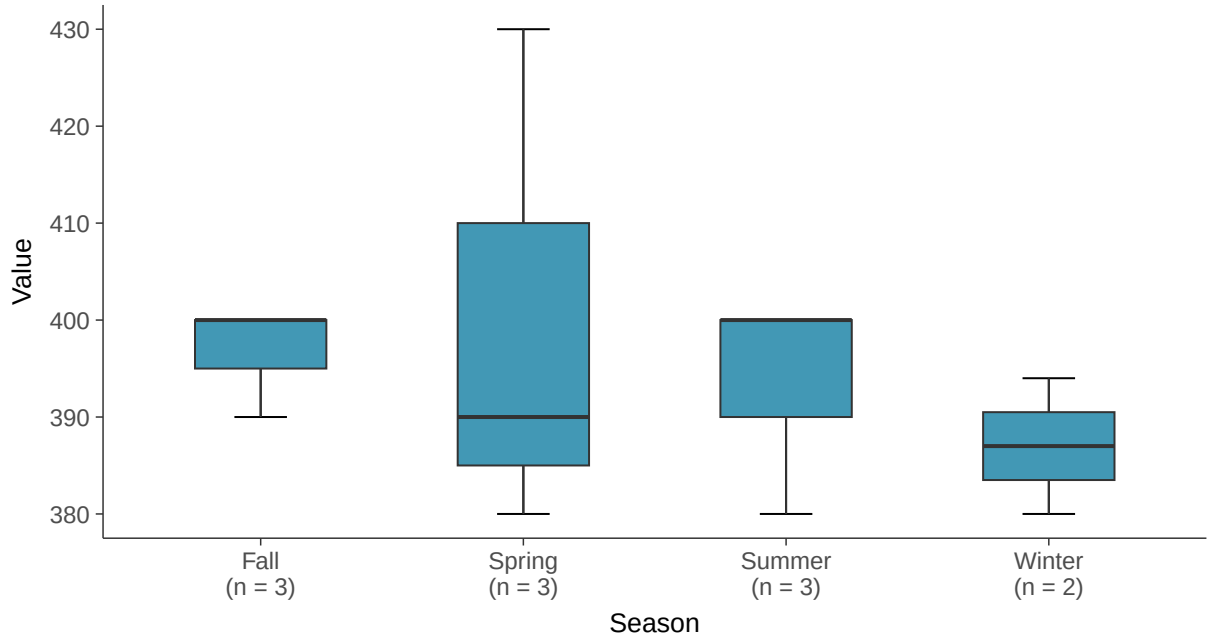
Boxplot

Bicarbonate, MW-16D (mg/L)



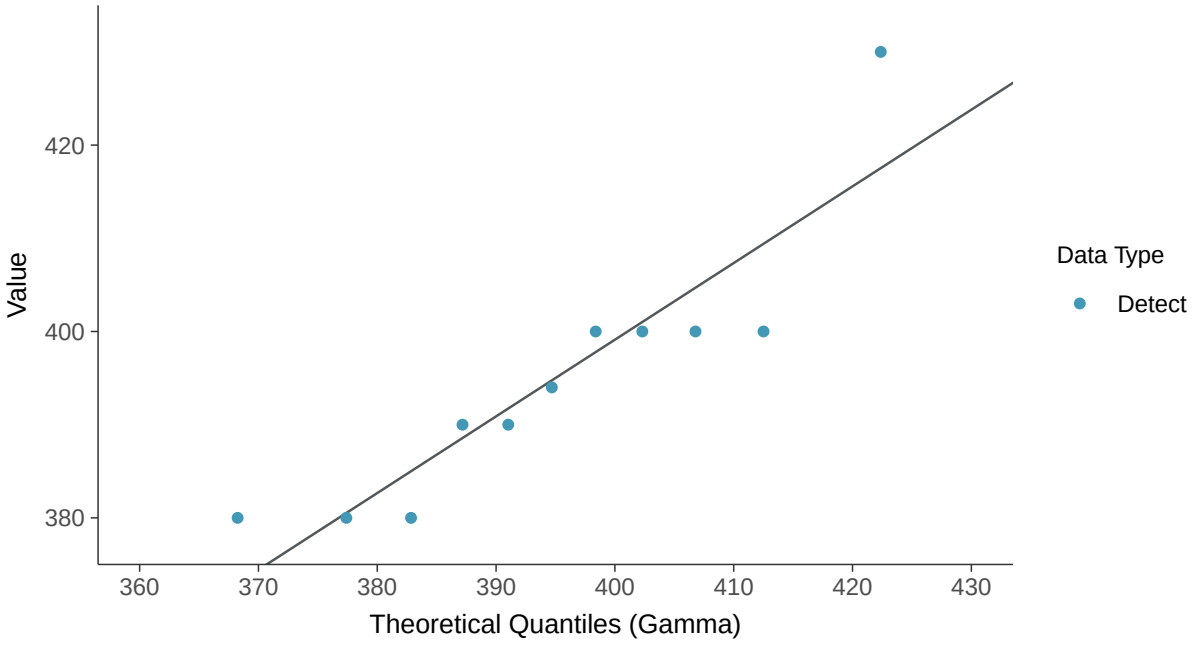
Boxplot by Season

Bicarbonate, MW-16D (mg/L)



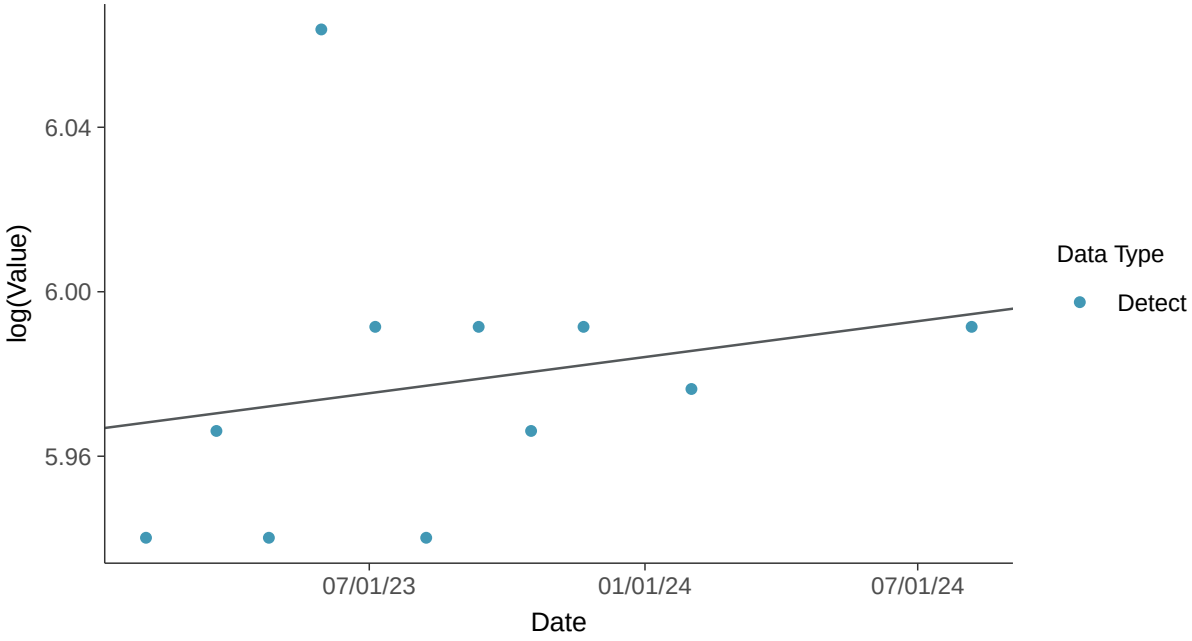
Gamma Q-Q plot

Bicarbonate, MW-16D (mg/L)



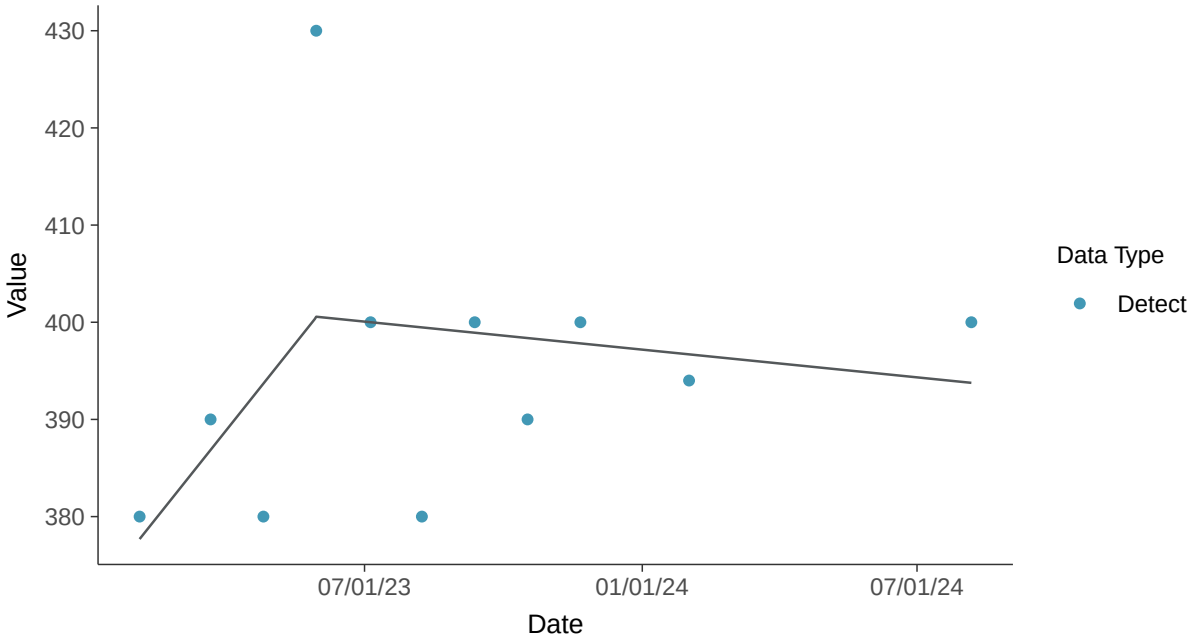
Trend Regression: Lognormal MLE

Bicarbonate, MW-16D (mg/L)



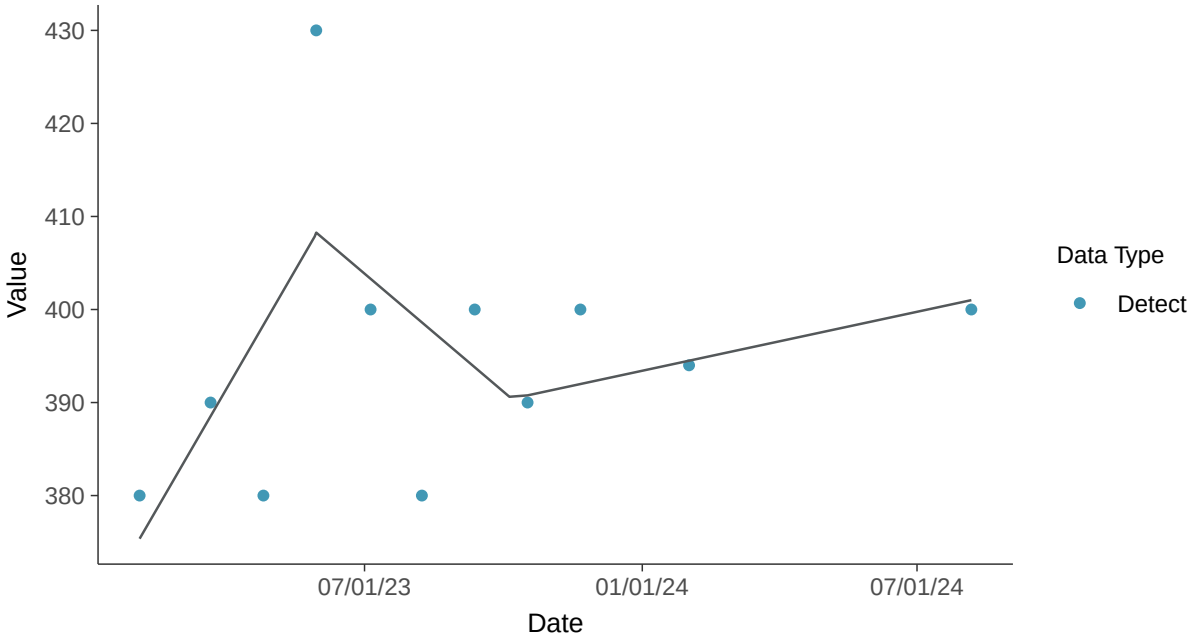
Trend Regression: Piecewise Linear-Linear

Bicarbonate, MW-16D (mg/L)



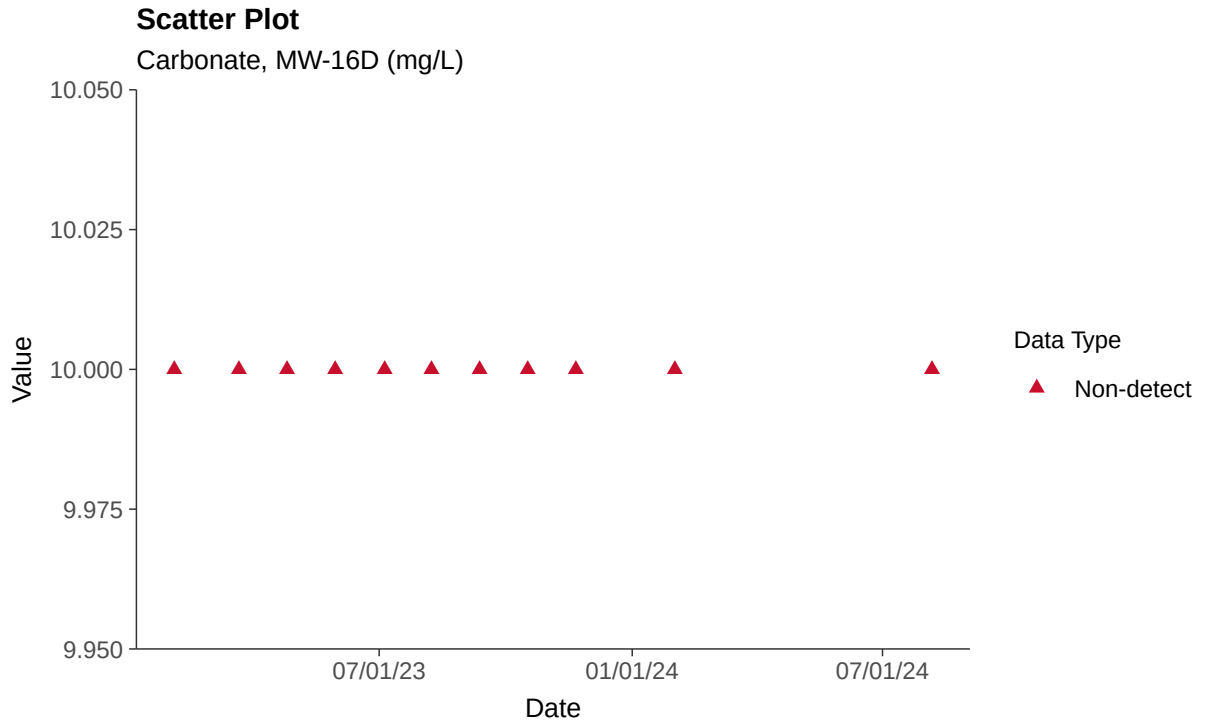
Trend Regression: Piecewise Linear-Linear-Linear

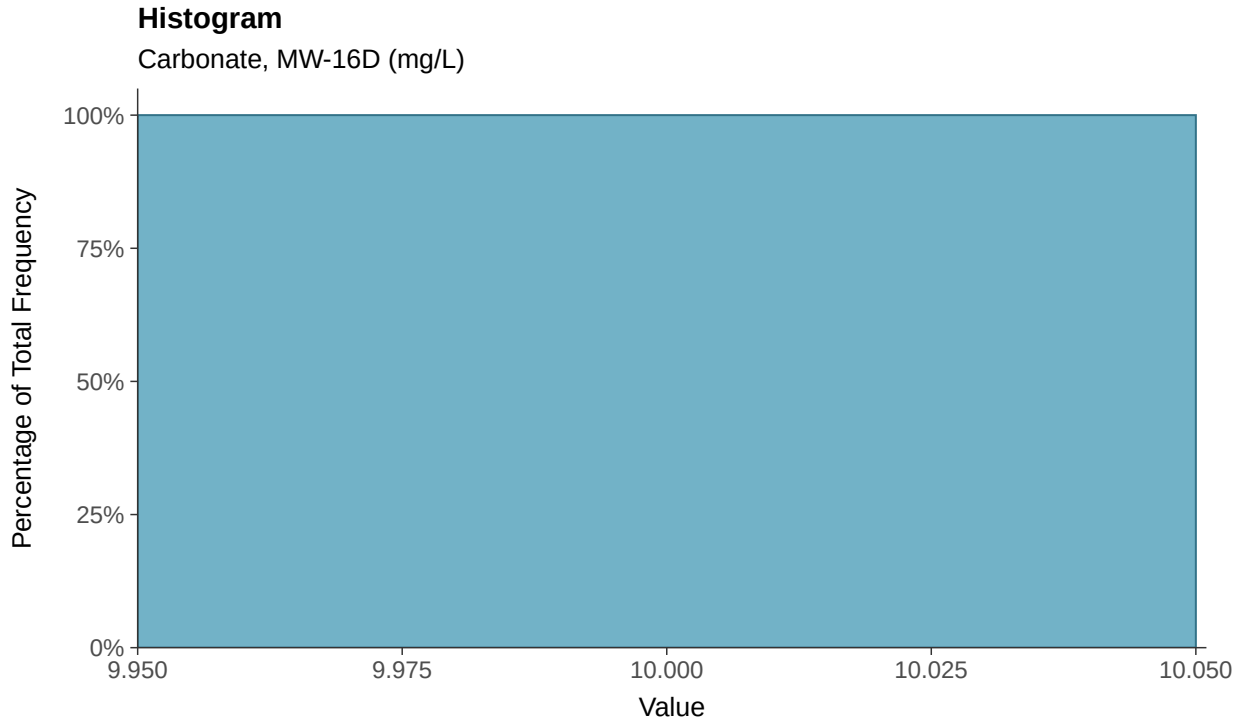
Bicarbonate, MW-16D (mg/L)



Other: Carbonate, MW-16D

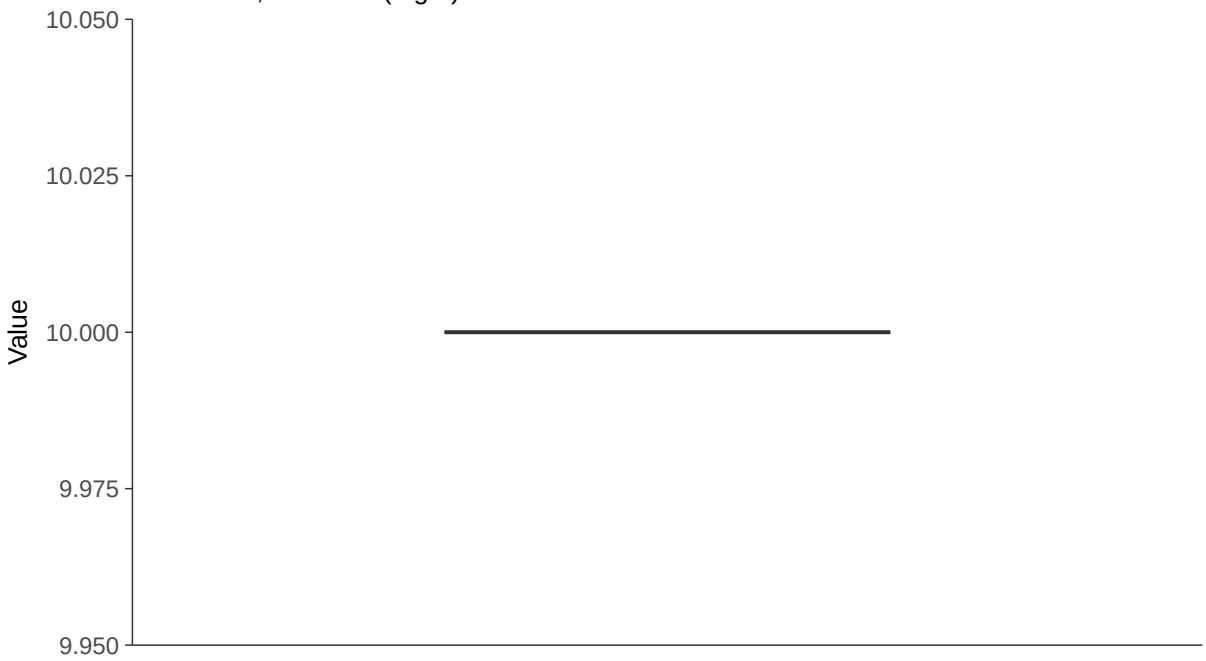
ID: 16D_4_32





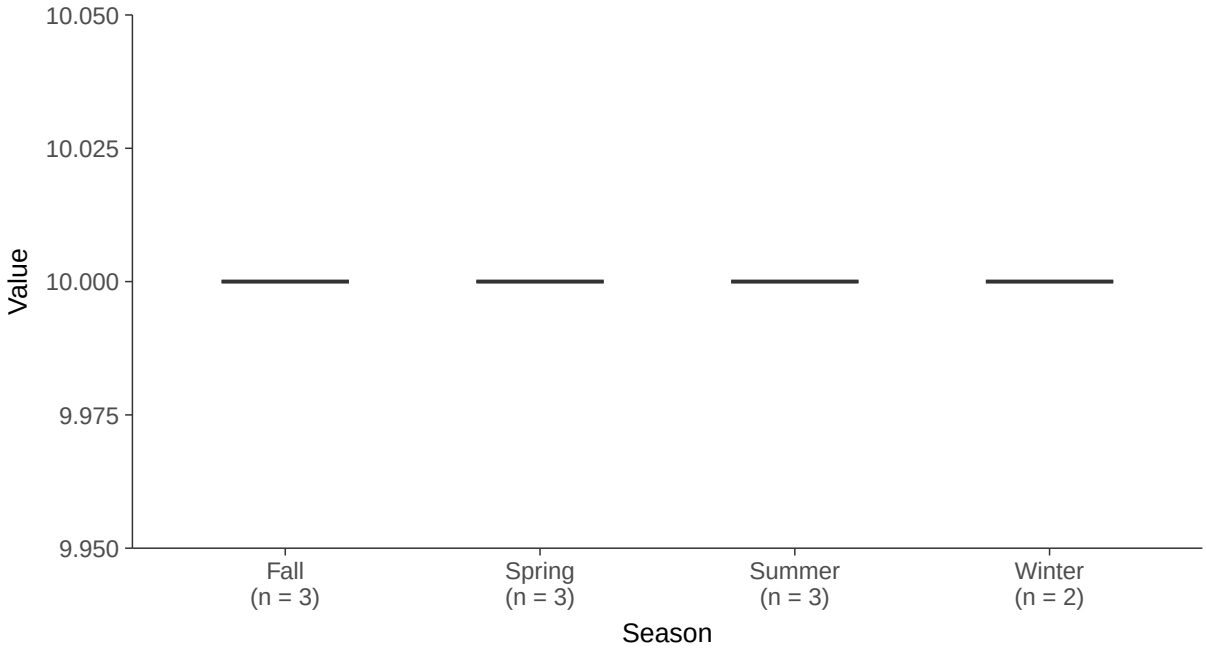
Boxplot

Carbonate, MW-16D (mg/L)



Boxplot by Season

Carbonate, MW-16D (mg/L)

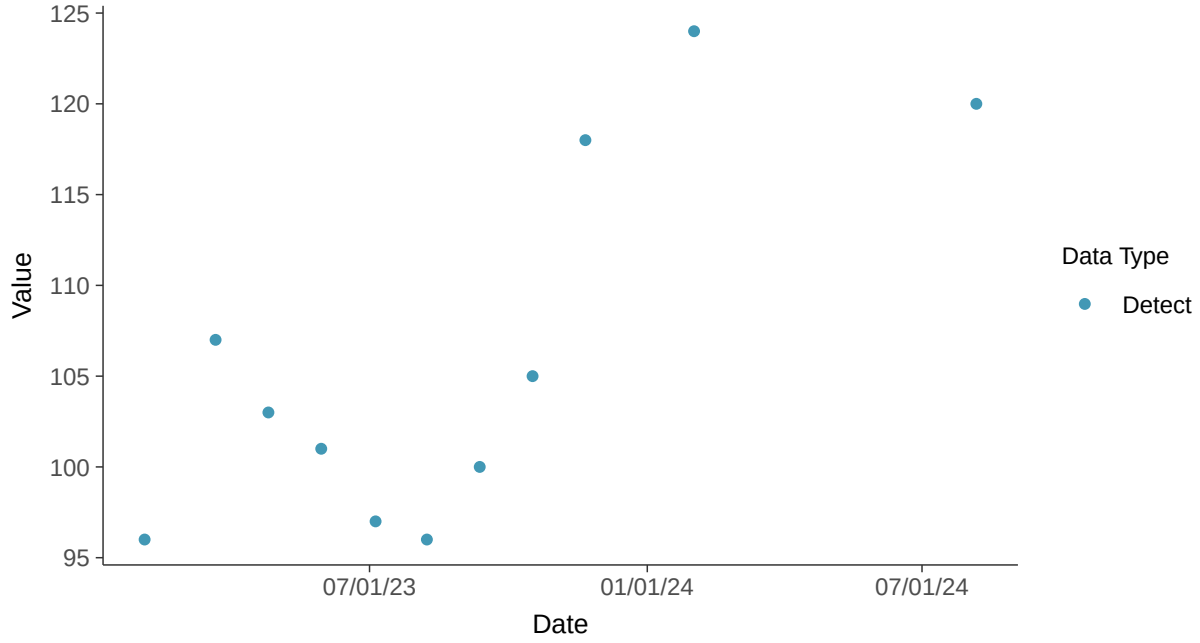


Other: Hardness, MW-16D

ID: 16D_4_33

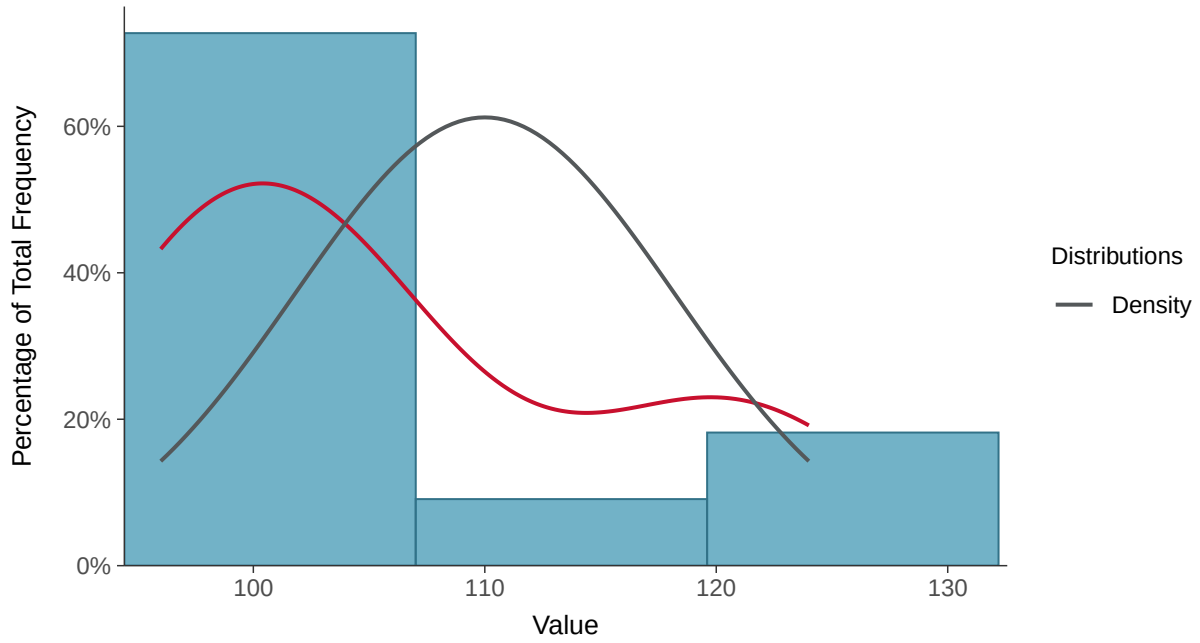
Scatter Plot

Hardness, MW-16D (mg/L)



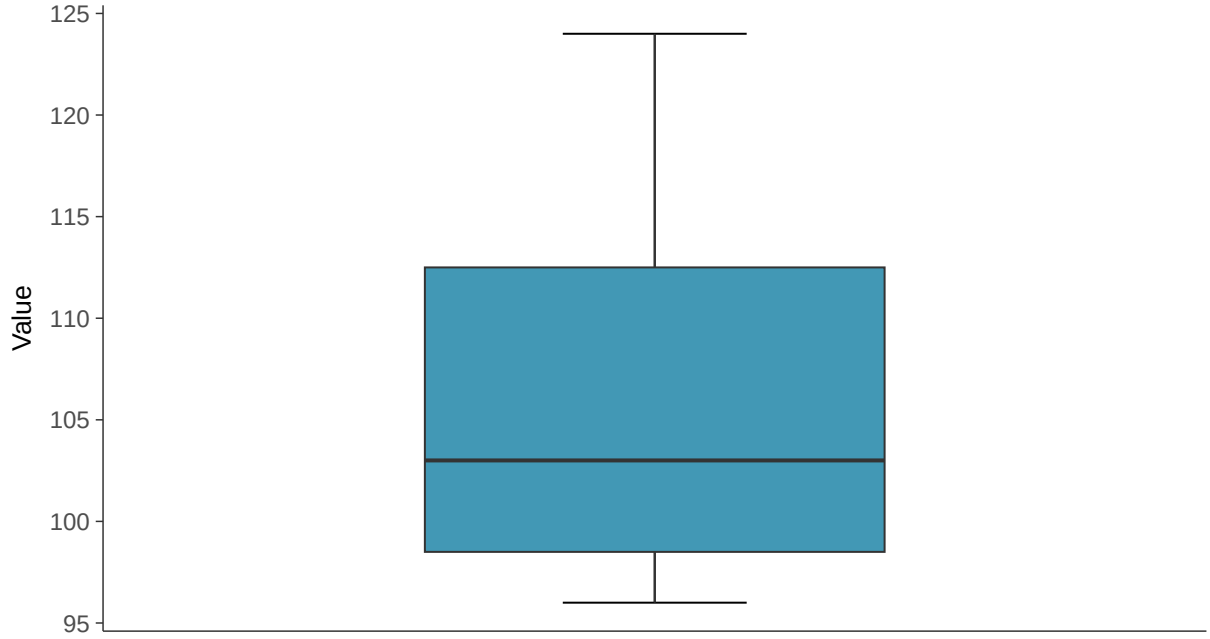
Histogram

Hardness, MW-16D (mg/L)



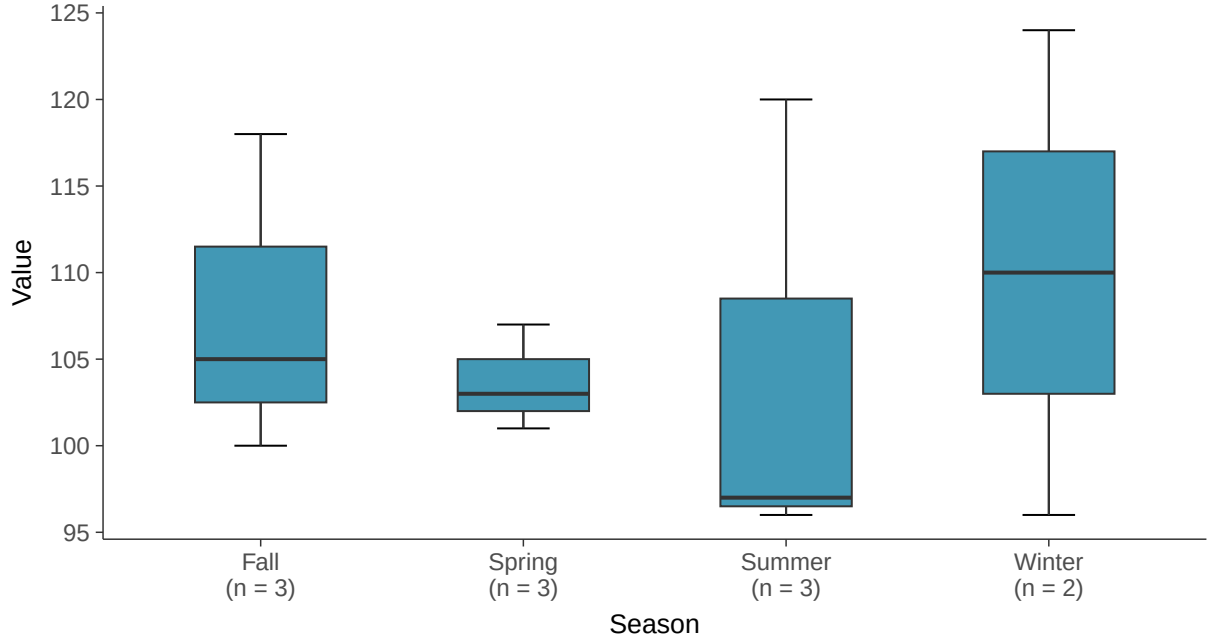
Boxplot

Hardness, MW-16D (mg/L)



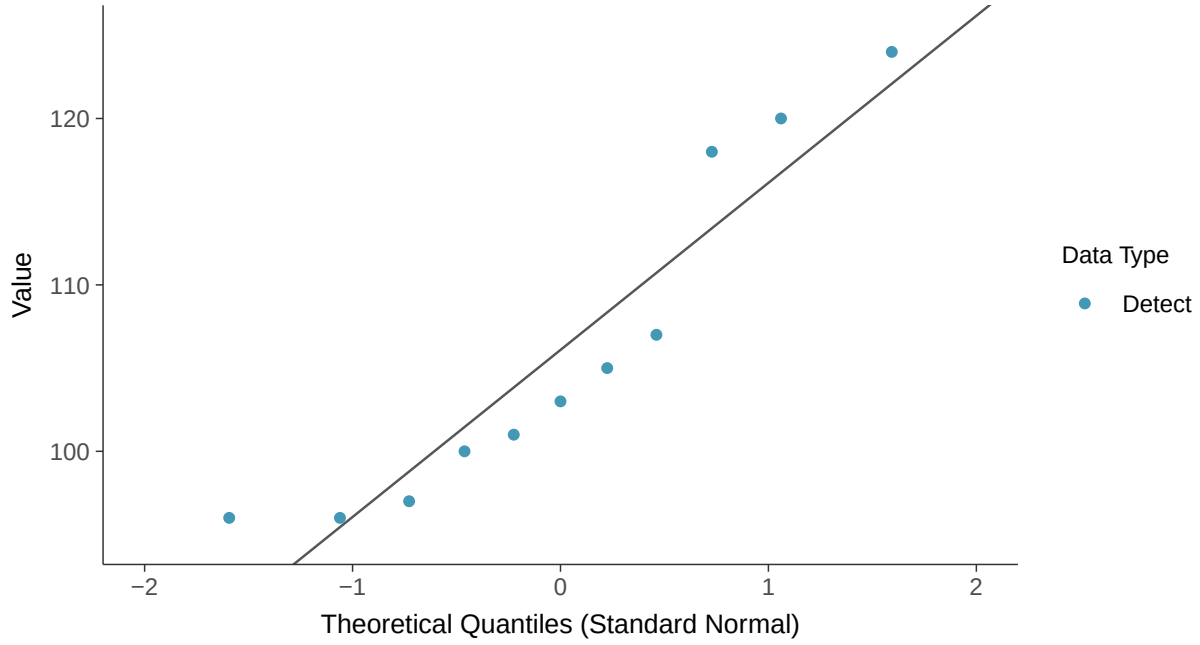
Boxplot by Season

Hardness, MW-16D (mg/L)



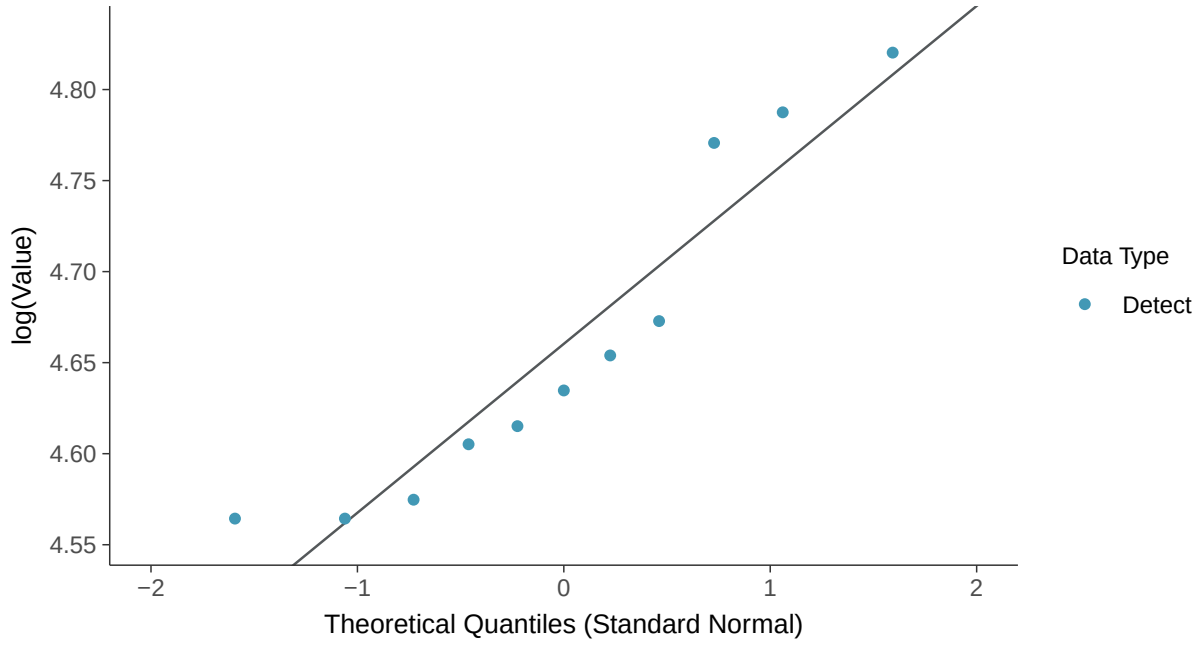
Normal Q-Q plot

Hardness, MW-16D (mg/L)



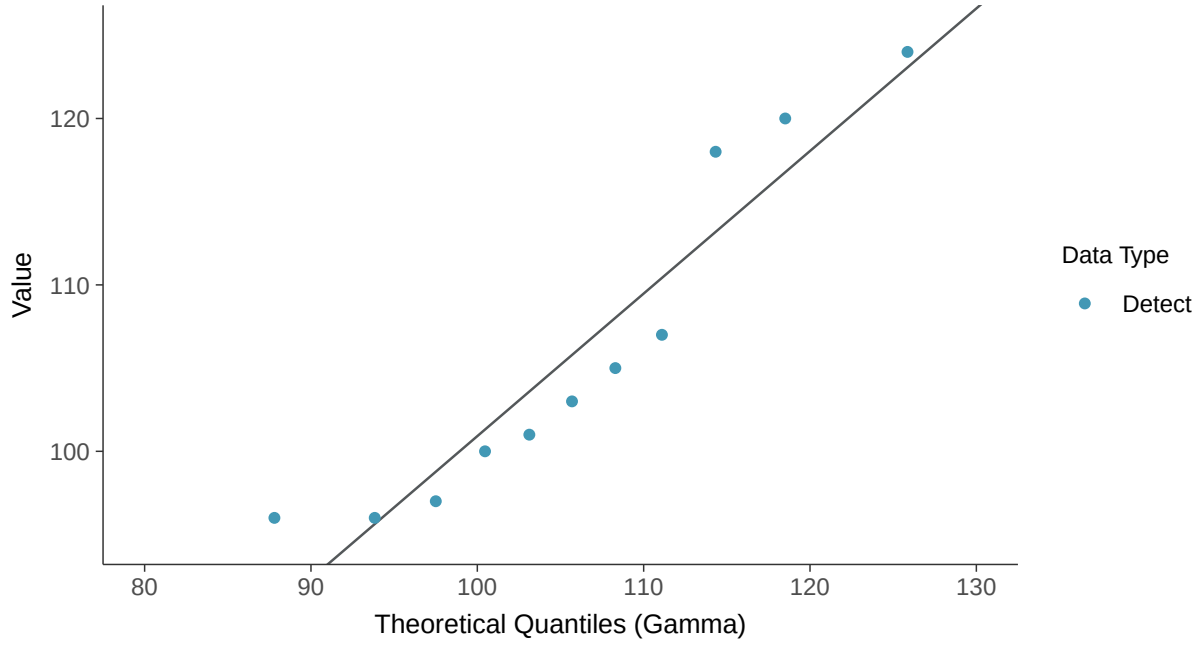
Lognormal Q-Q plot

Hardness, MW-16D (mg/L)



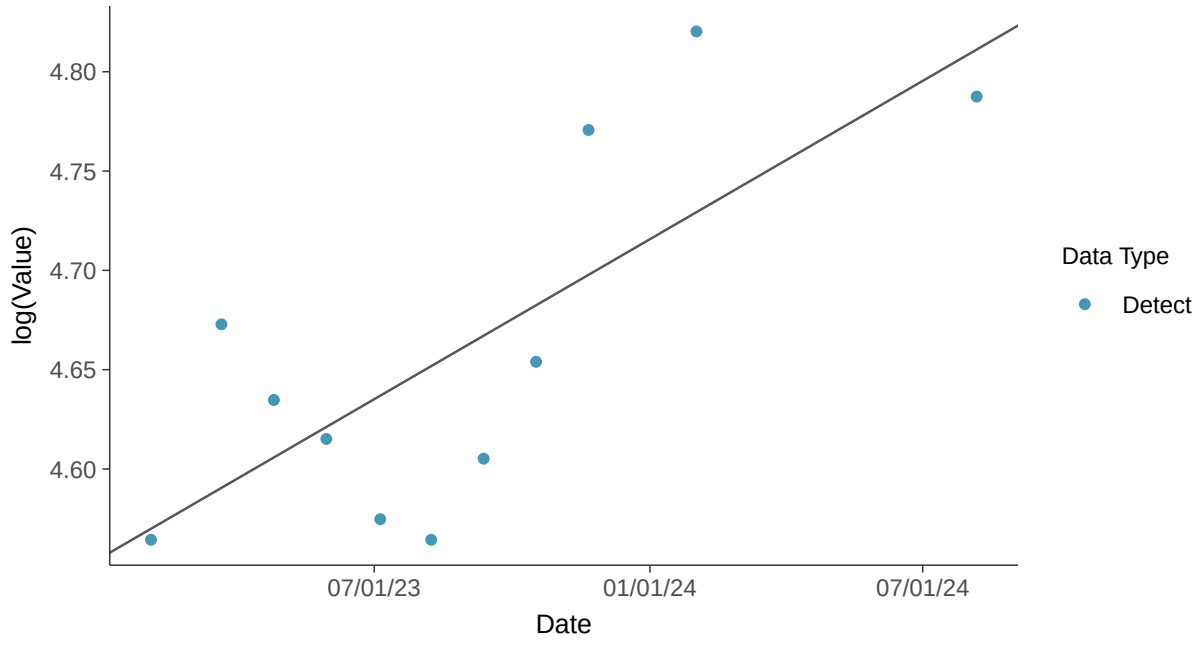
Gamma Q-Q plot

Hardness, MW-16D (mg/L)



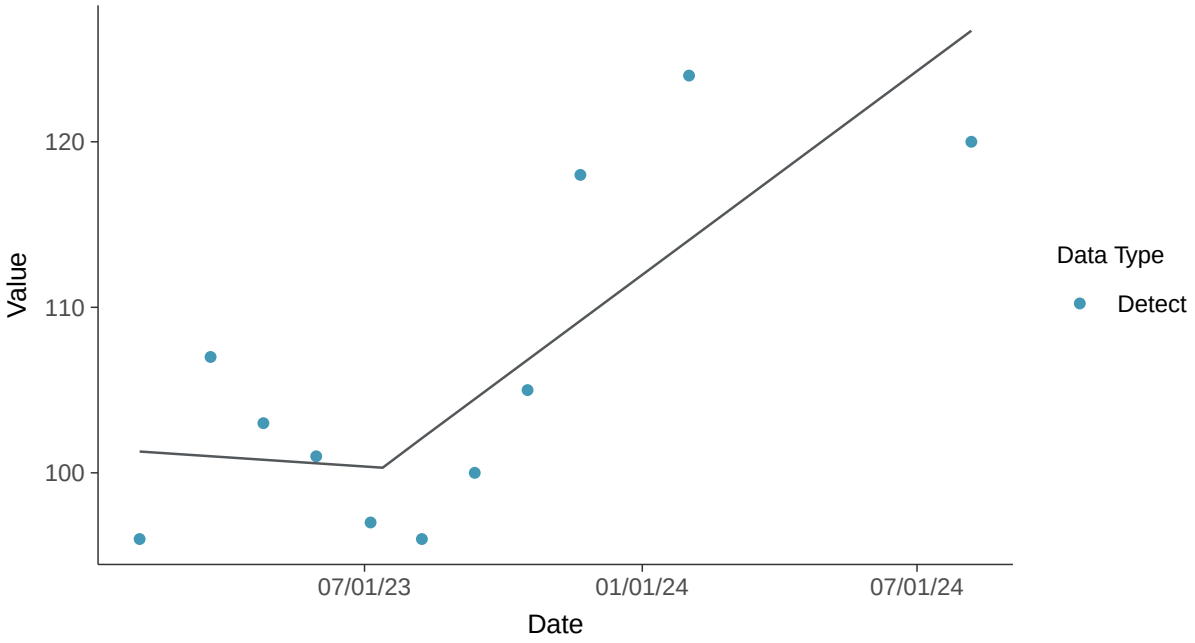
Trend Regression: Lognormal MLE

Hardness, MW-16D (mg/L)



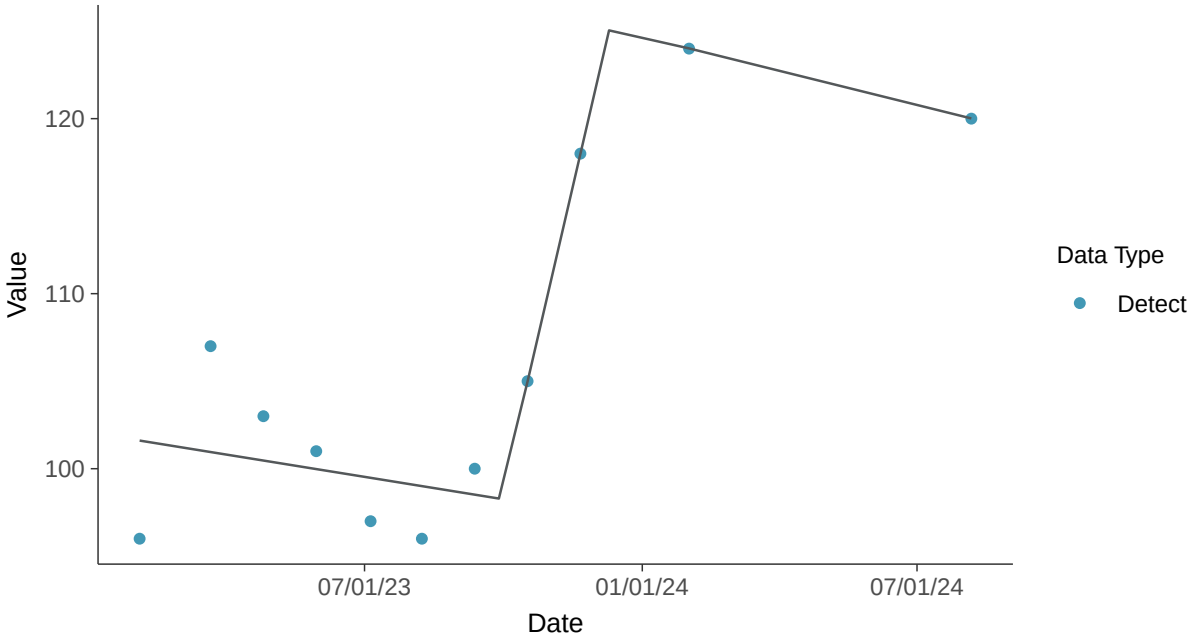
Trend Regression: Piecewise Linear-Linear

Hardness, MW-16D (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Hardness, MW-16D (mg/L)

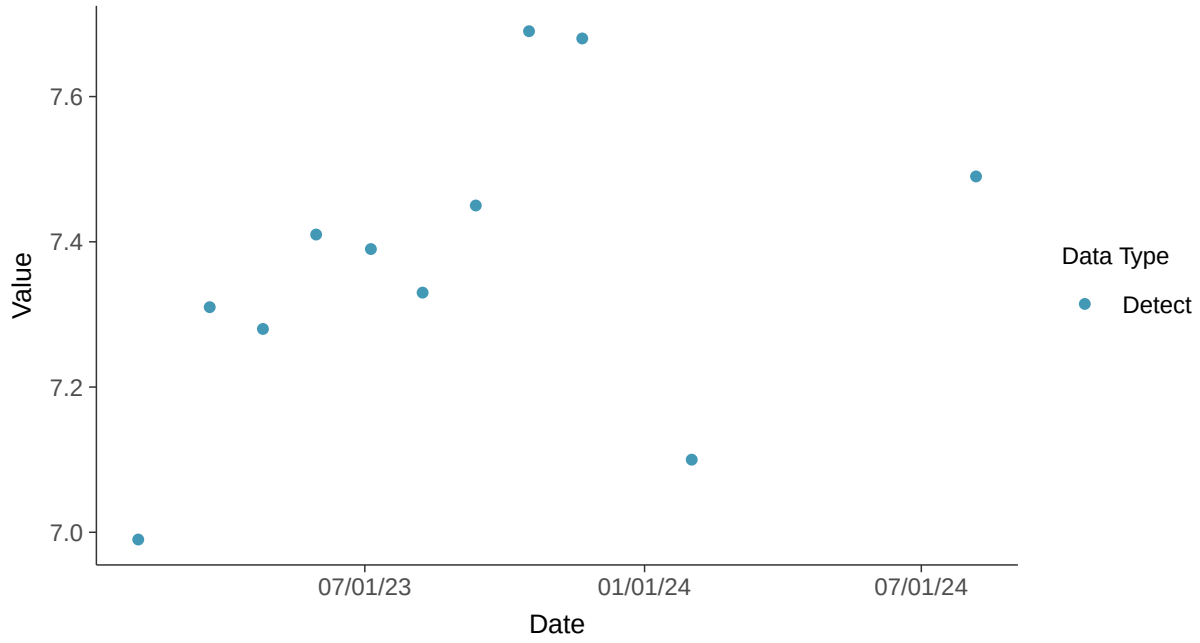


Other: Magnesium, MW-16D

ID: 16D_4_34

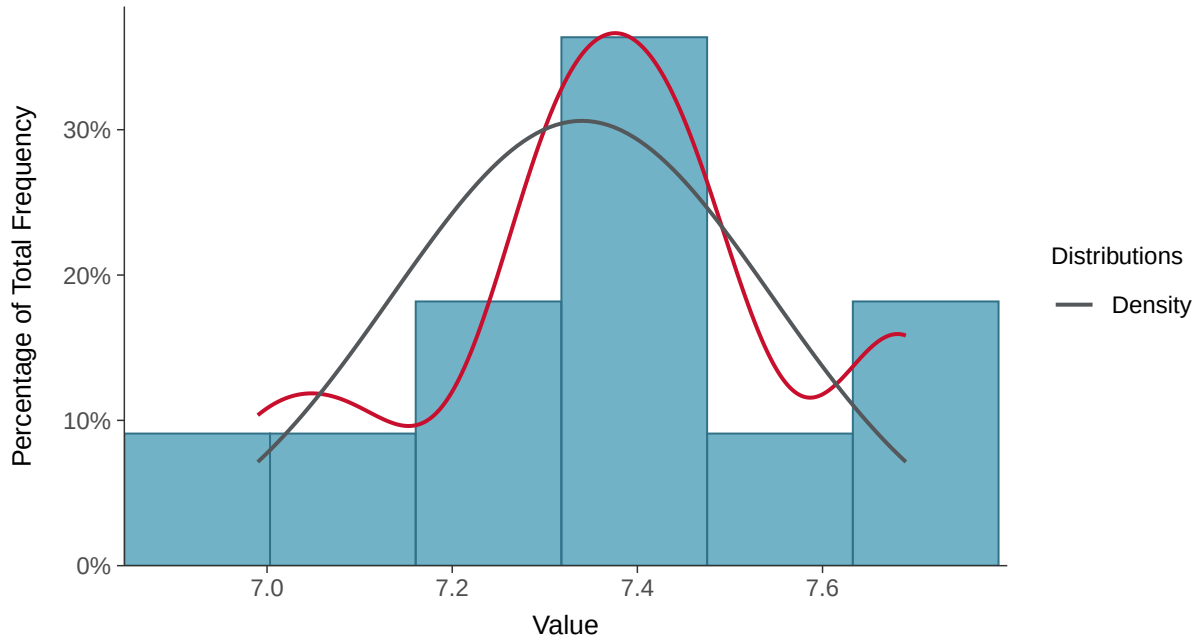
Scatter Plot

Magnesium, MW-16D (mg/L)



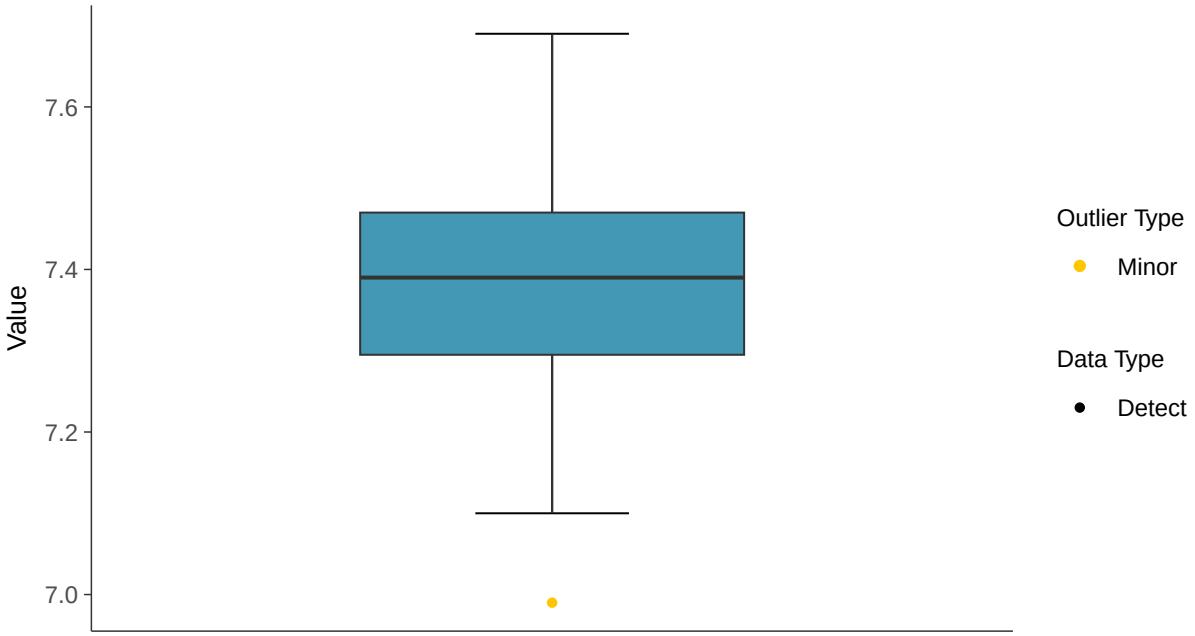
Histogram

Magnesium, MW-16D (mg/L)



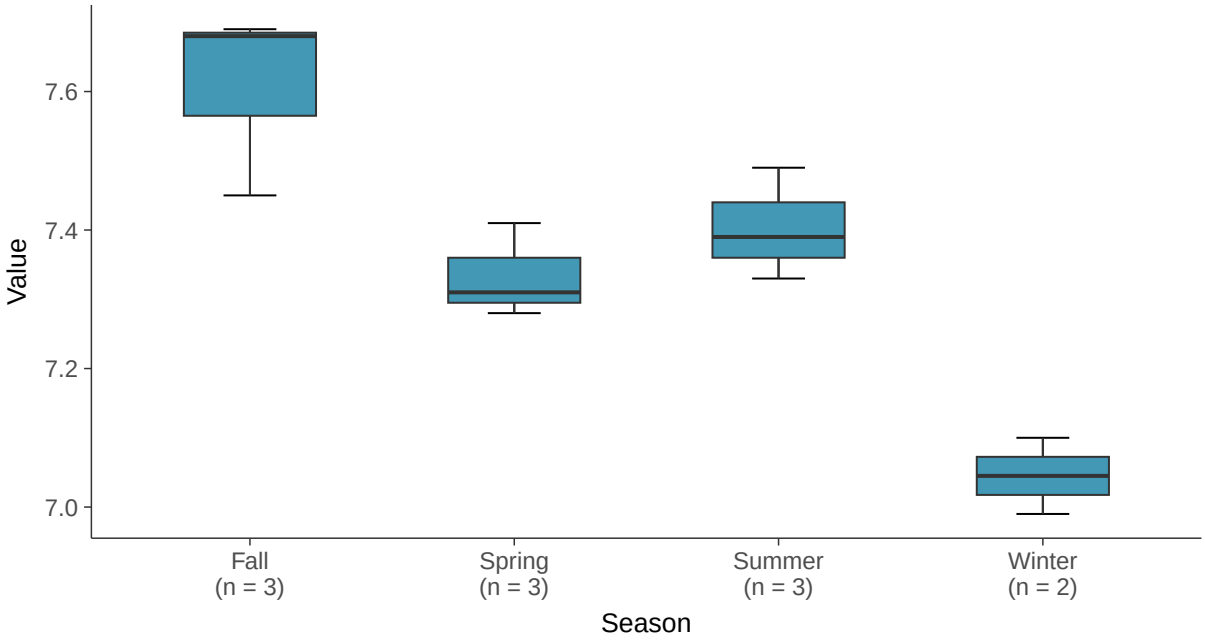
Boxplot

Magnesium, MW-16D (mg/L)



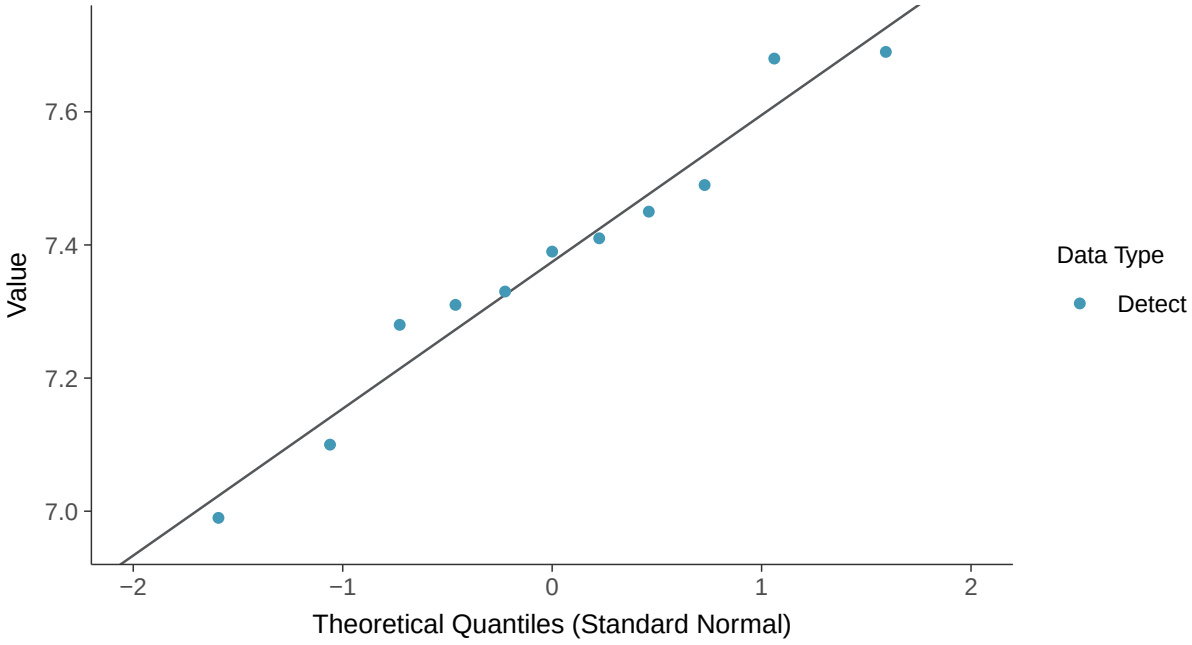
Boxplot by Season

Magnesium, MW-16D (mg/L)



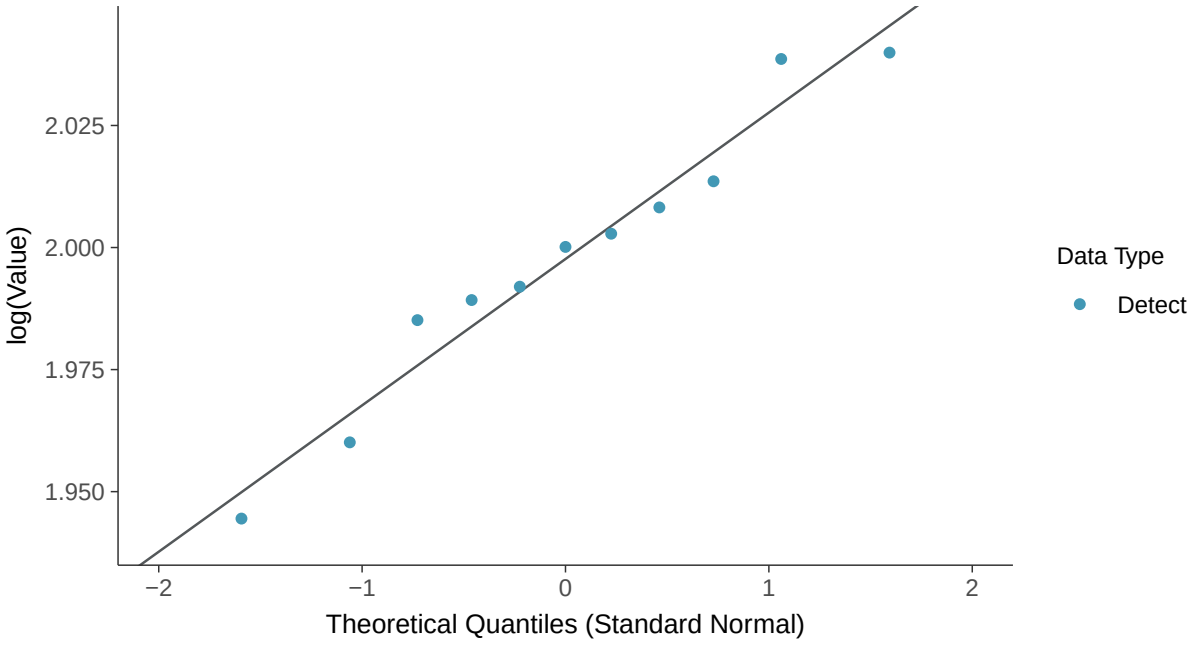
Normal Q-Q plot

Magnesium, MW-16D (mg/L)



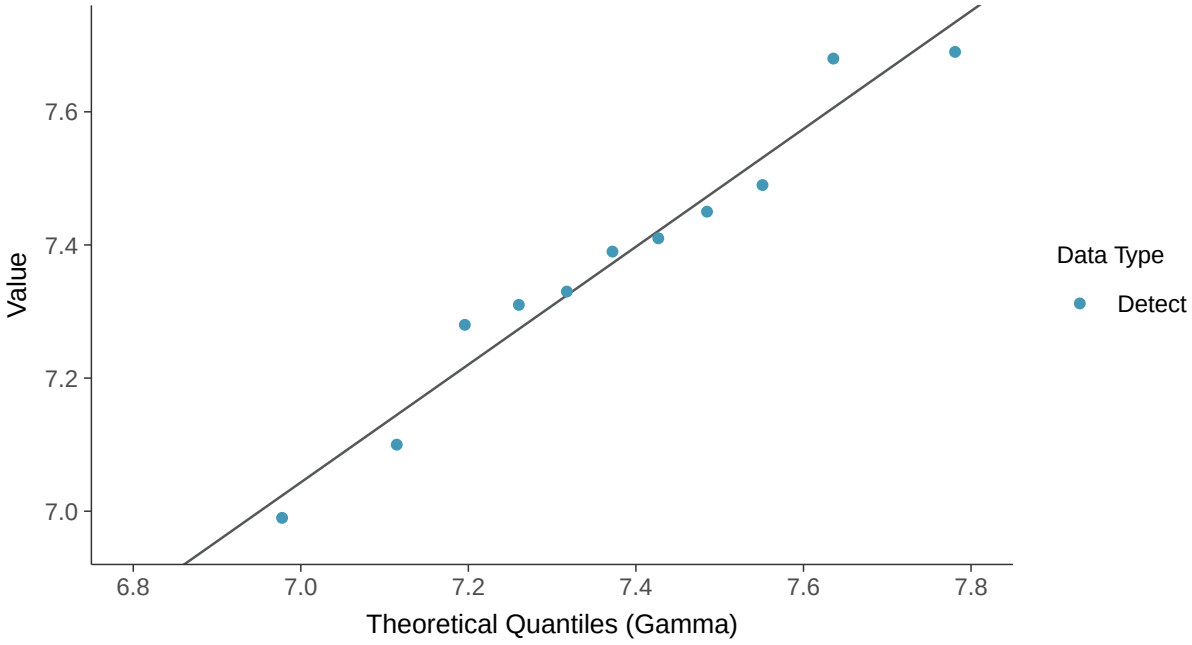
Lognormal Q-Q plot

Magnesium, MW-16D (mg/L)



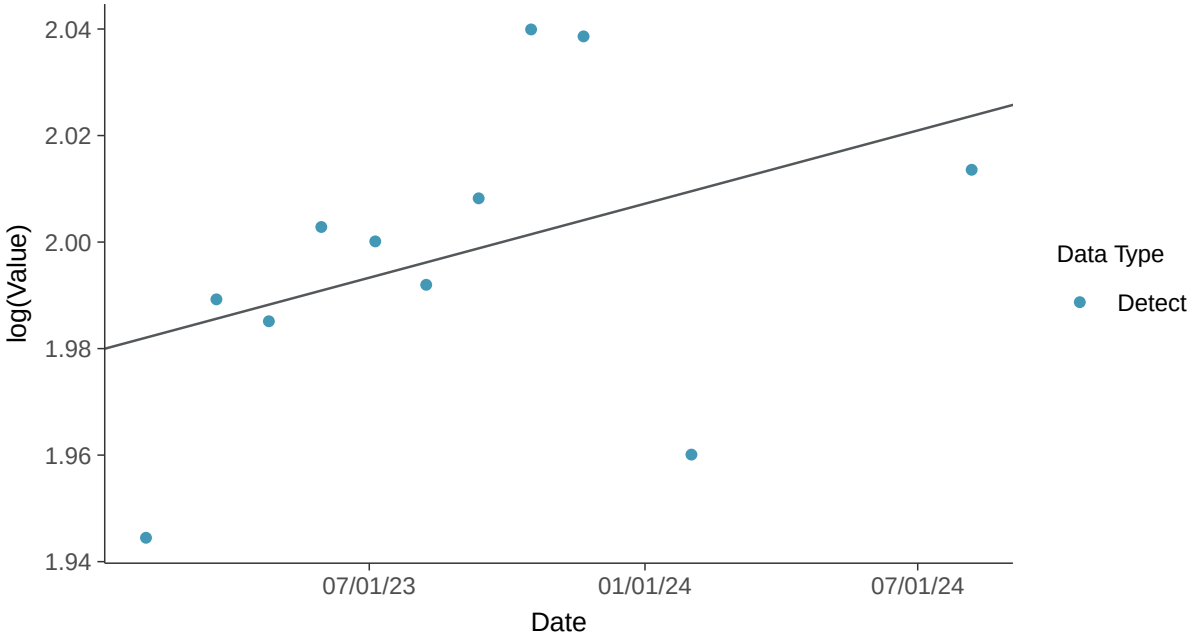
Gamma Q-Q plot

Magnesium, MW-16D (mg/L)



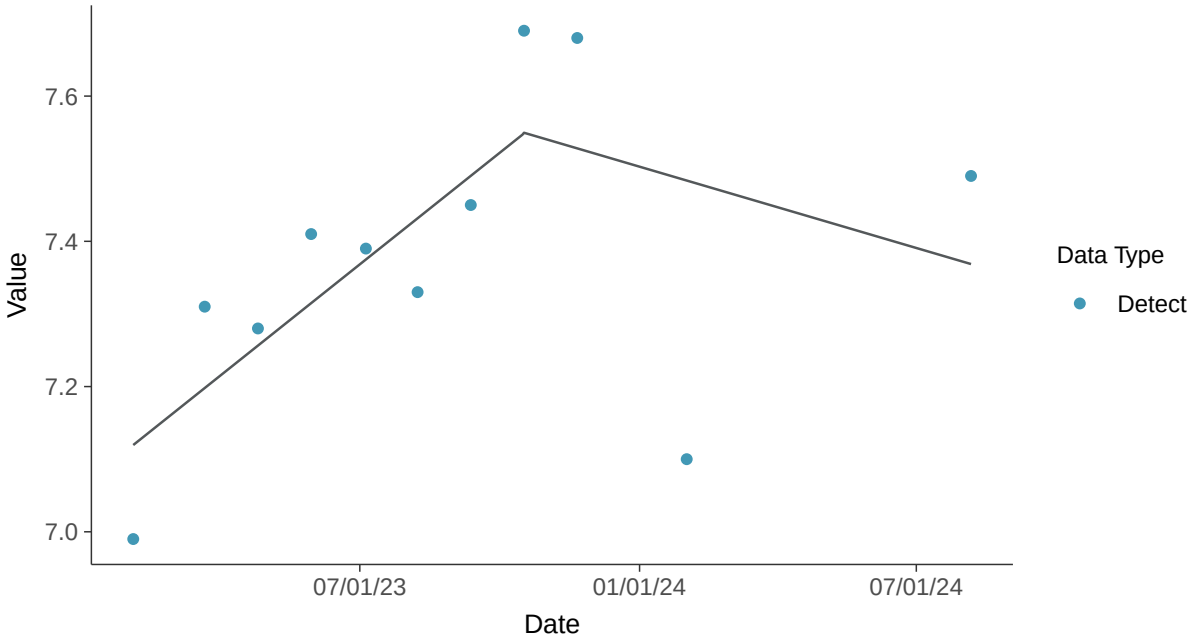
Trend Regression: Lognormal MLE

Magnesium, MW-16D (mg/L)



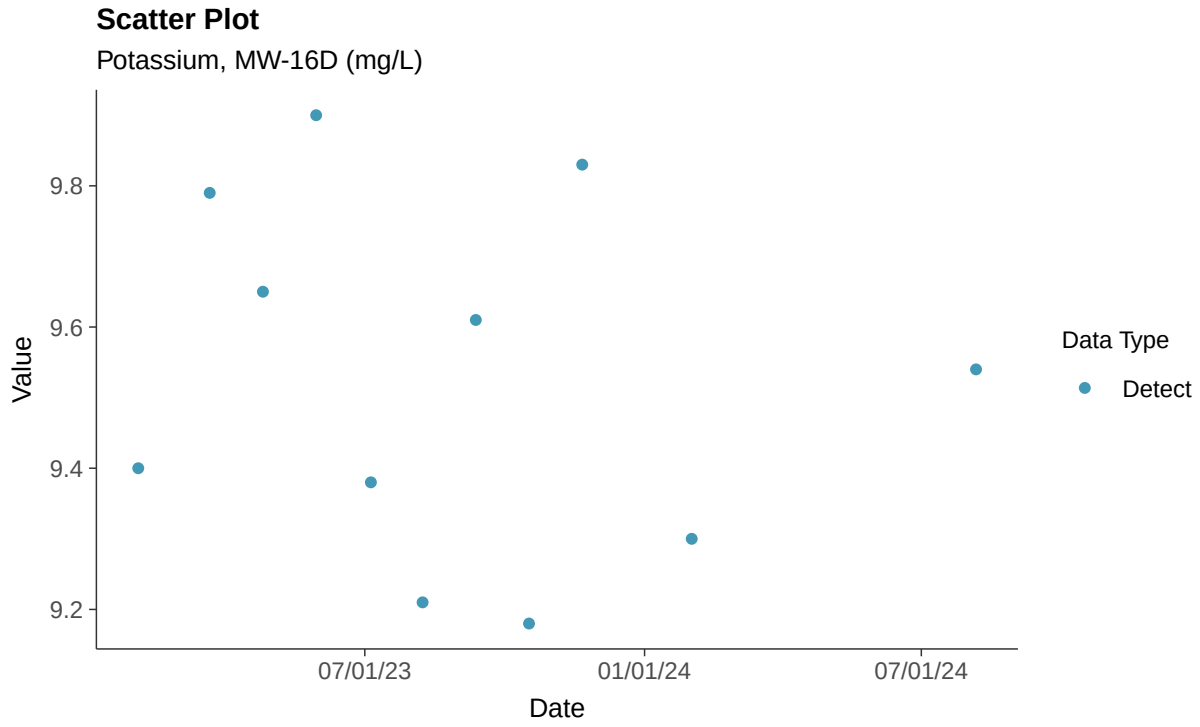
Trend Regression: Piecewise Linear-Linear

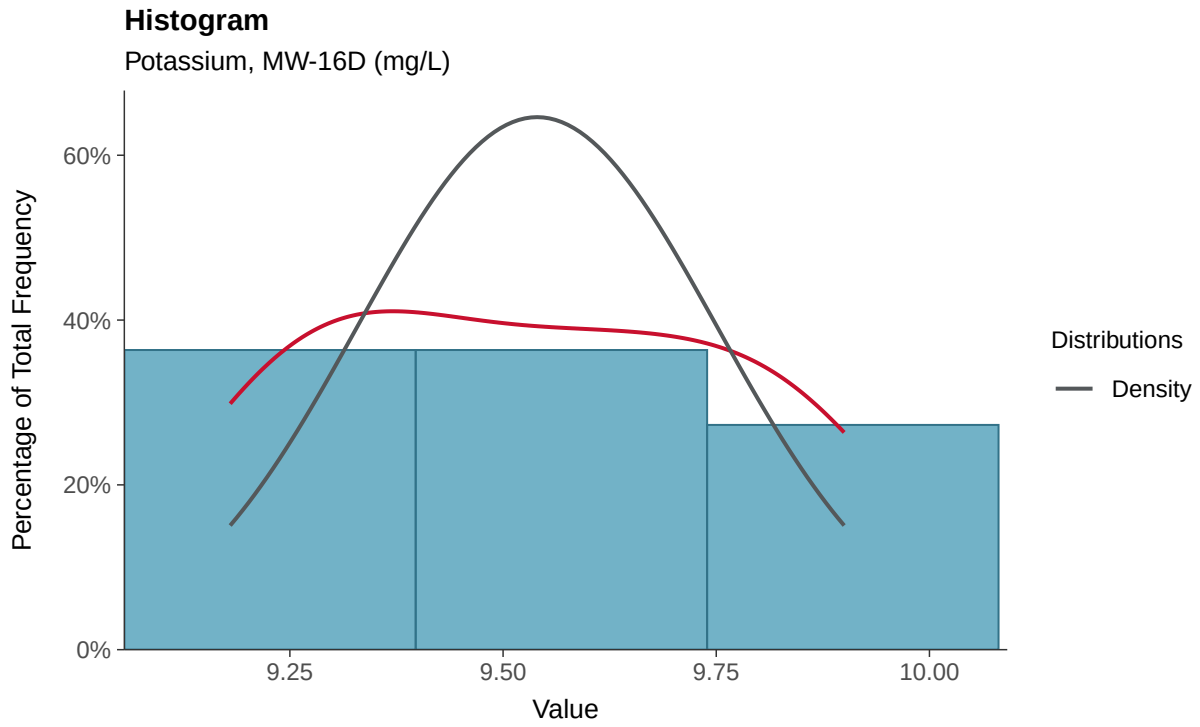
Magnesium, MW-16D (mg/L)



Other: Potassium, MW-16D

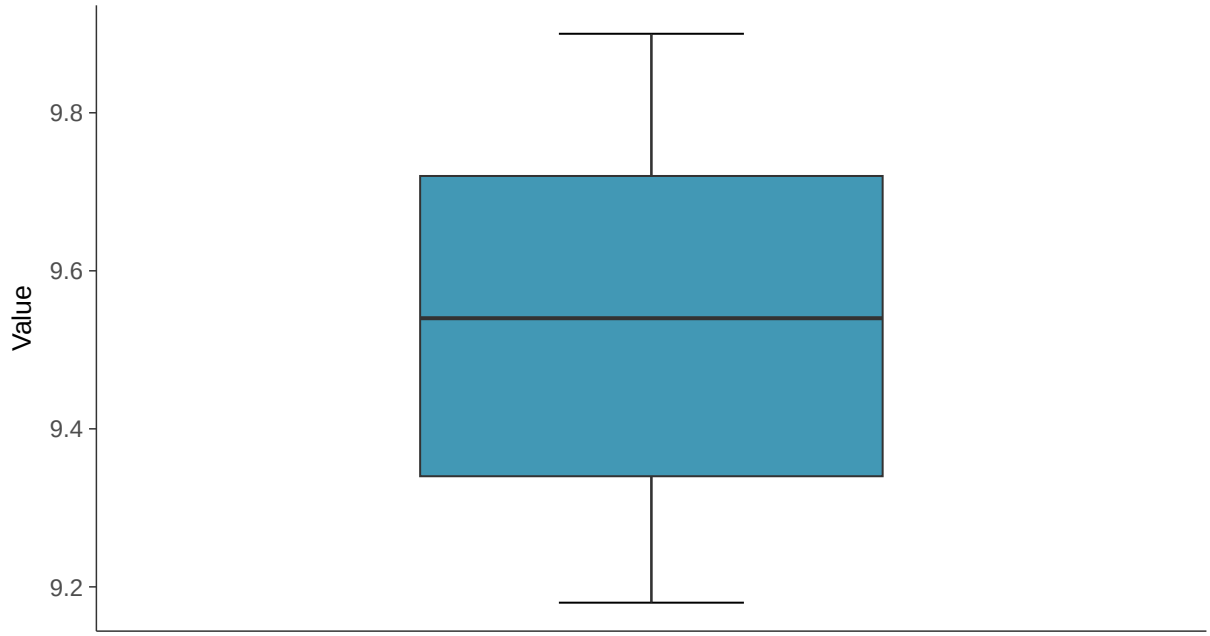
ID: 16D_4_35





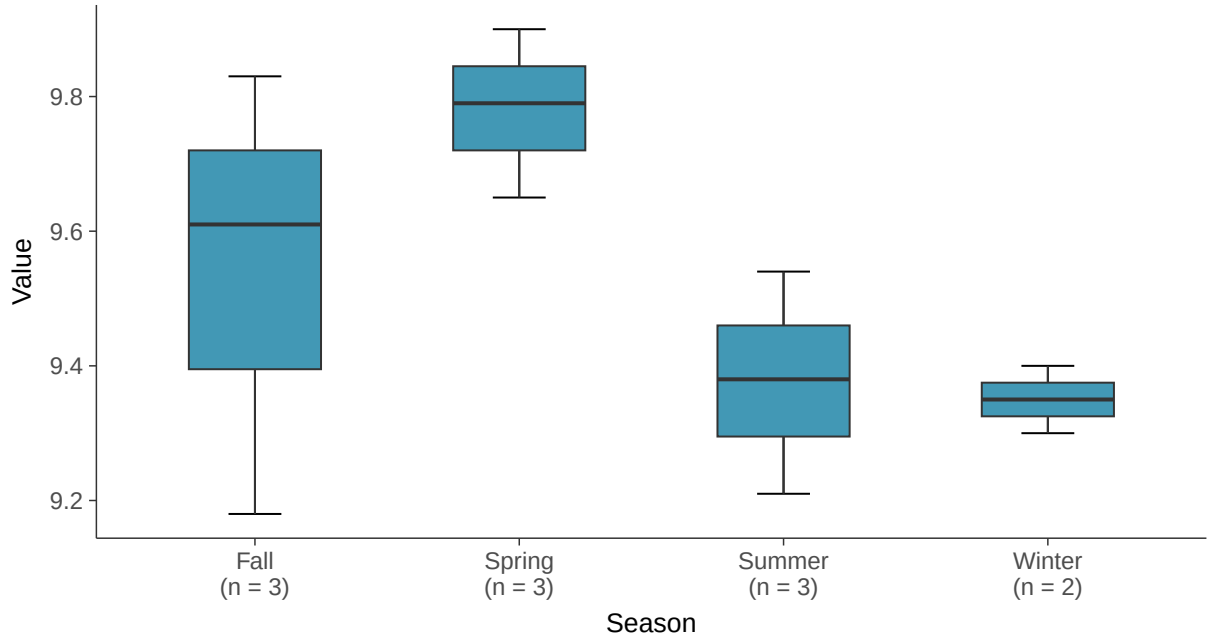
Boxplot

Potassium, MW-16D (mg/L)



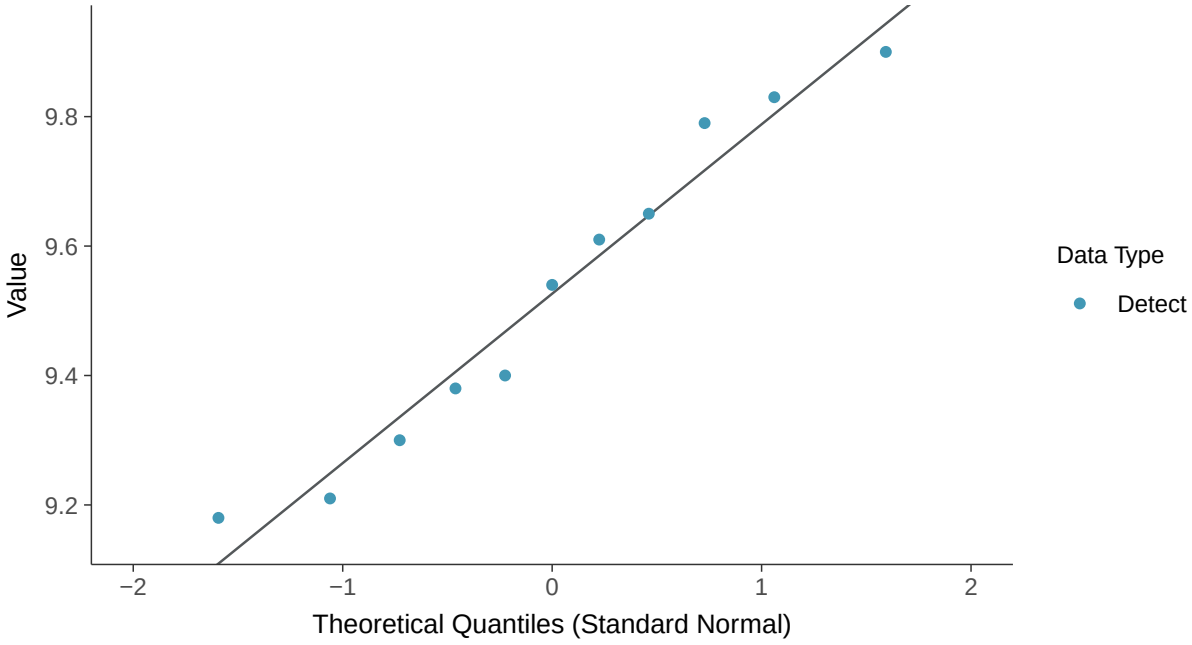
Boxplot by Season

Potassium, MW-16D (mg/L)



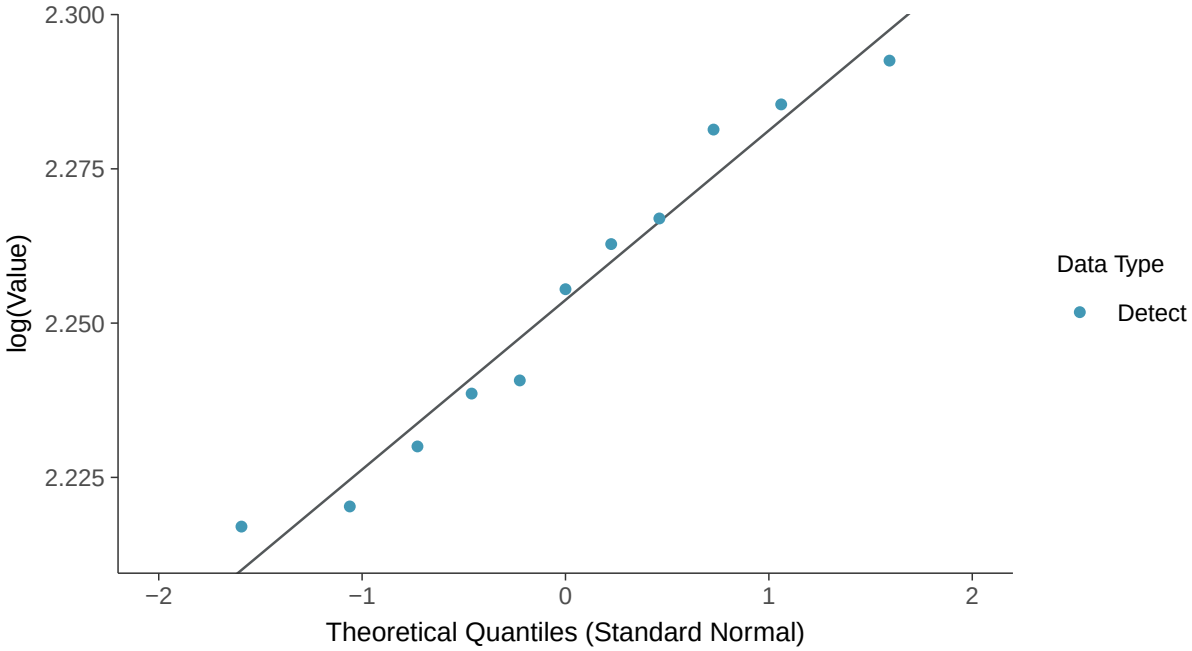
Normal Q-Q plot

Potassium, MW-16D (mg/L)



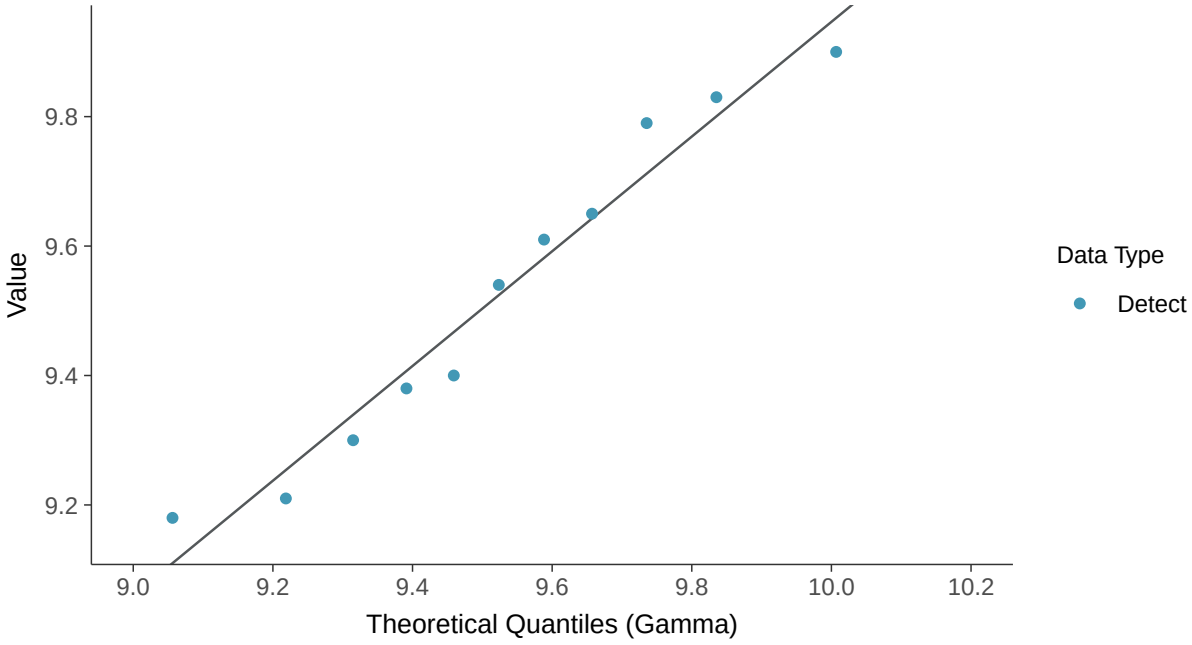
Lognormal Q-Q plot

Potassium, MW-16D (mg/L)



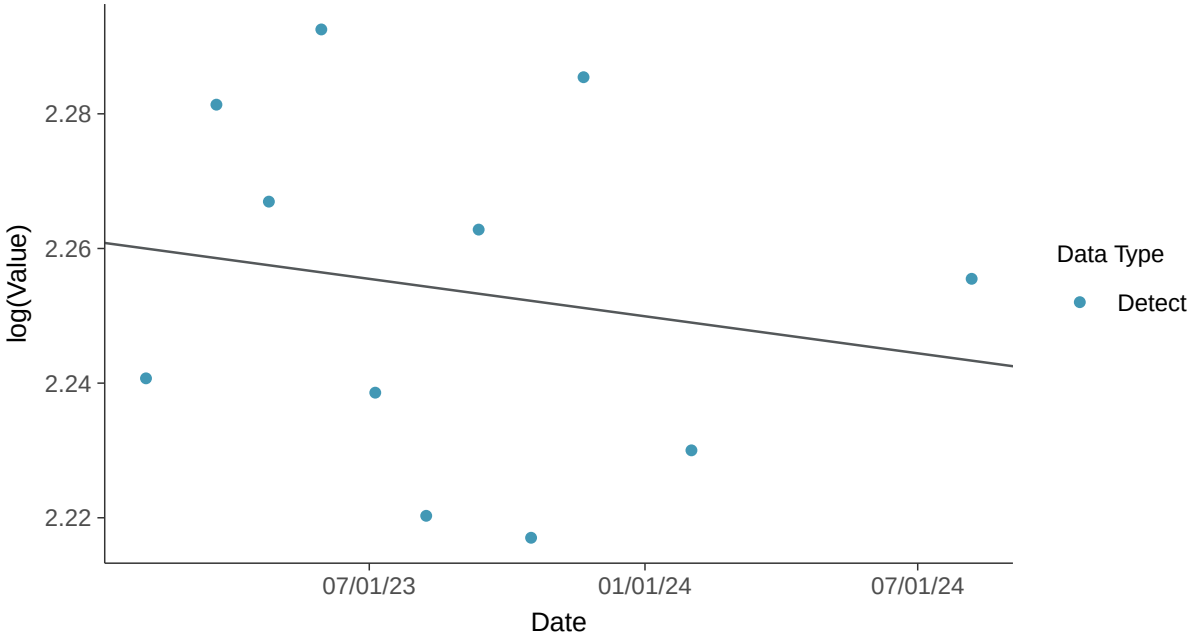
Gamma Q-Q plot

Potassium, MW-16D (mg/L)



Trend Regression: Lognormal MLE

Potassium, MW-16D (mg/L)

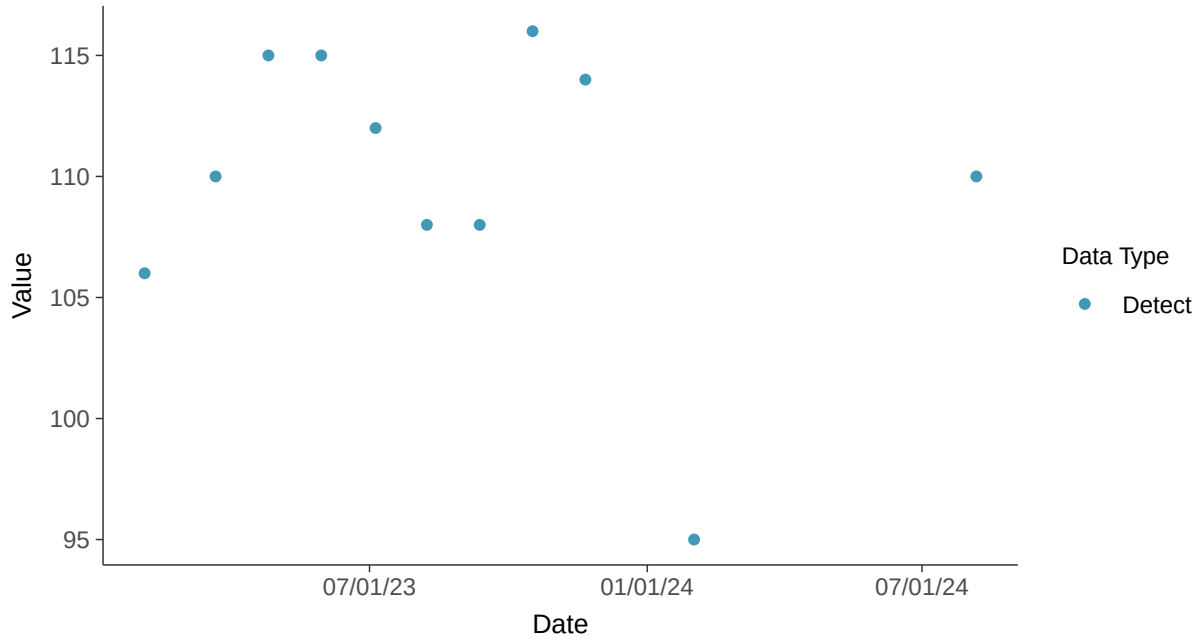


Other: Sodium, MW-16D

ID: 16D_4_36

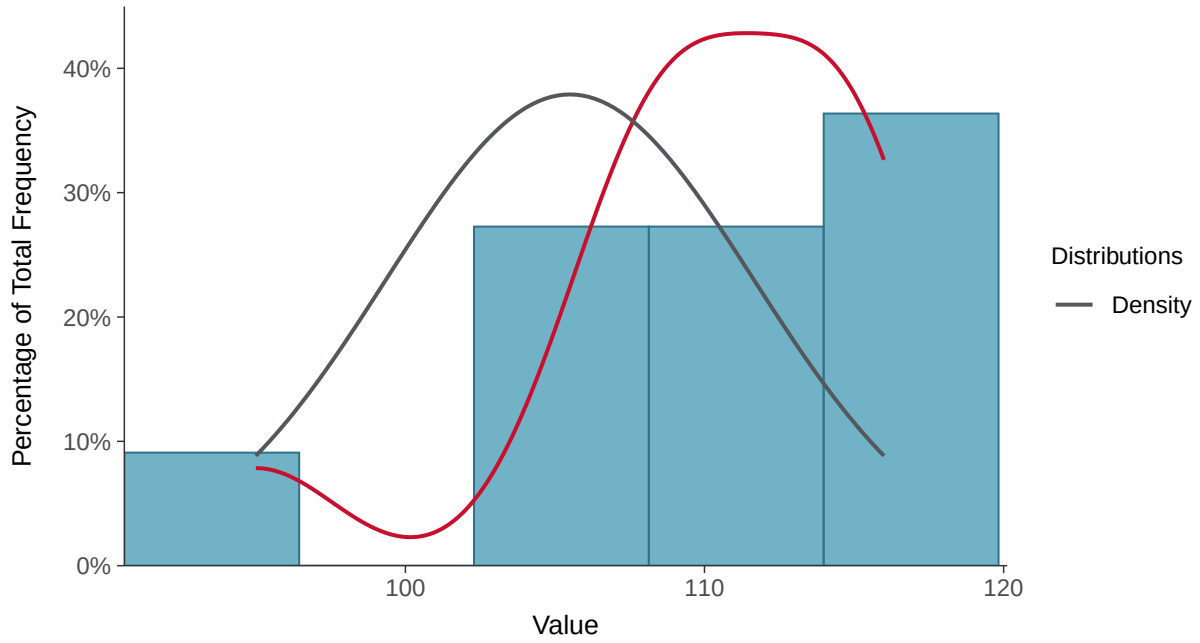
Scatter Plot

Sodium, MW-16D (mg/L)



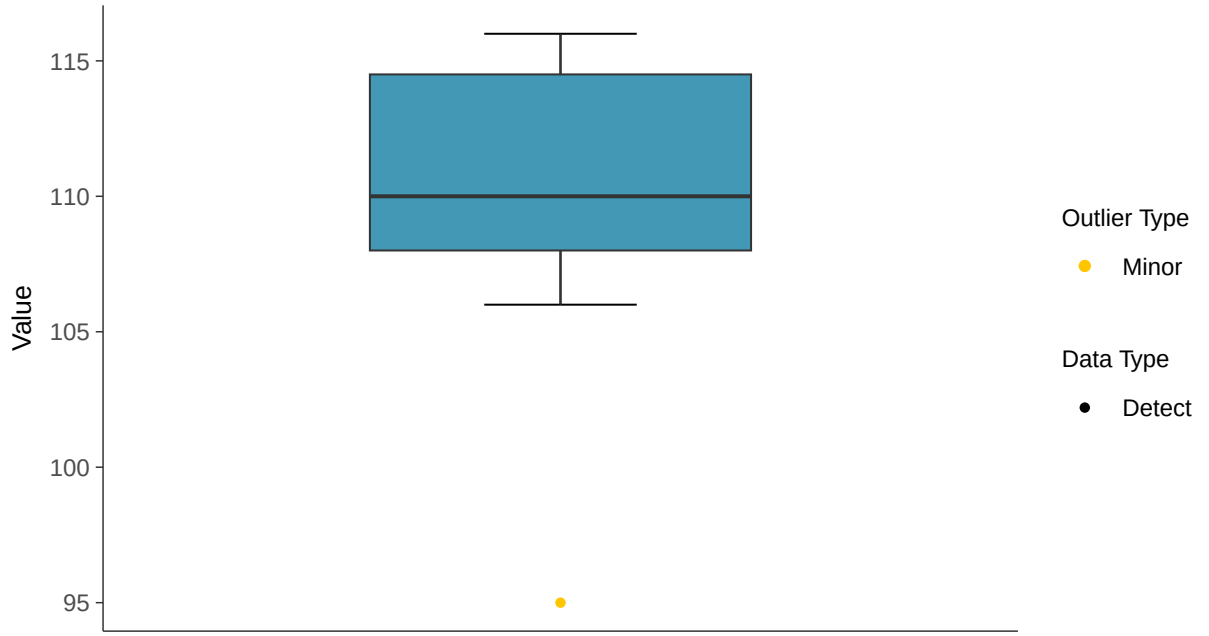
Histogram

Sodium, MW-16D (mg/L)



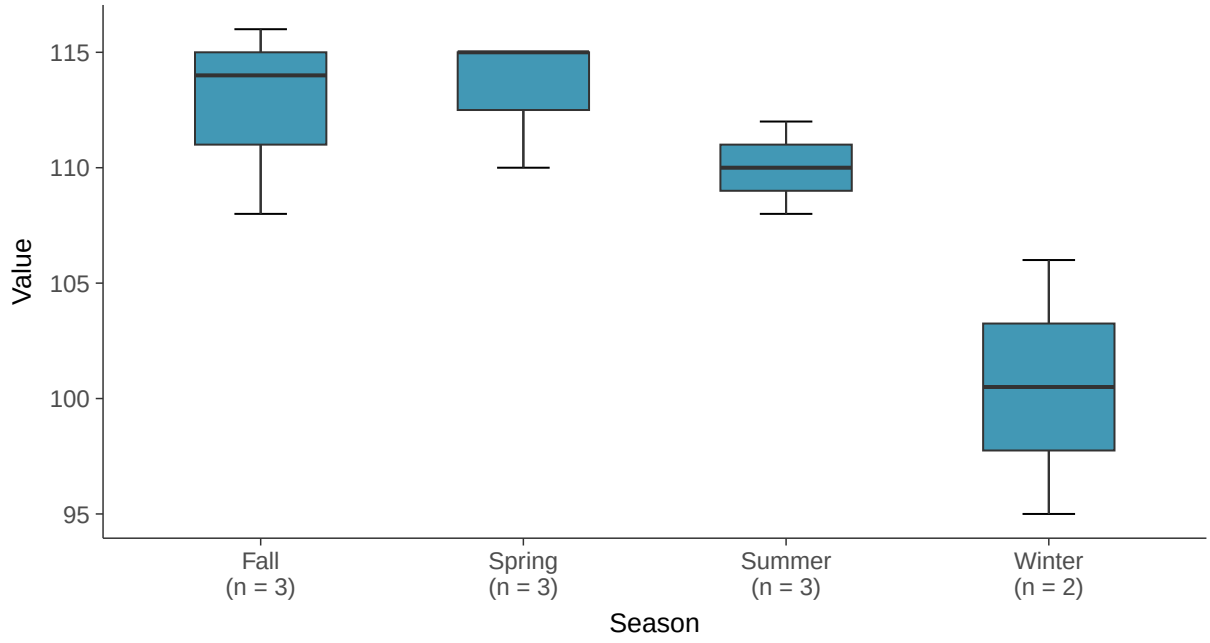
Boxplot

Sodium, MW-16D (mg/L)



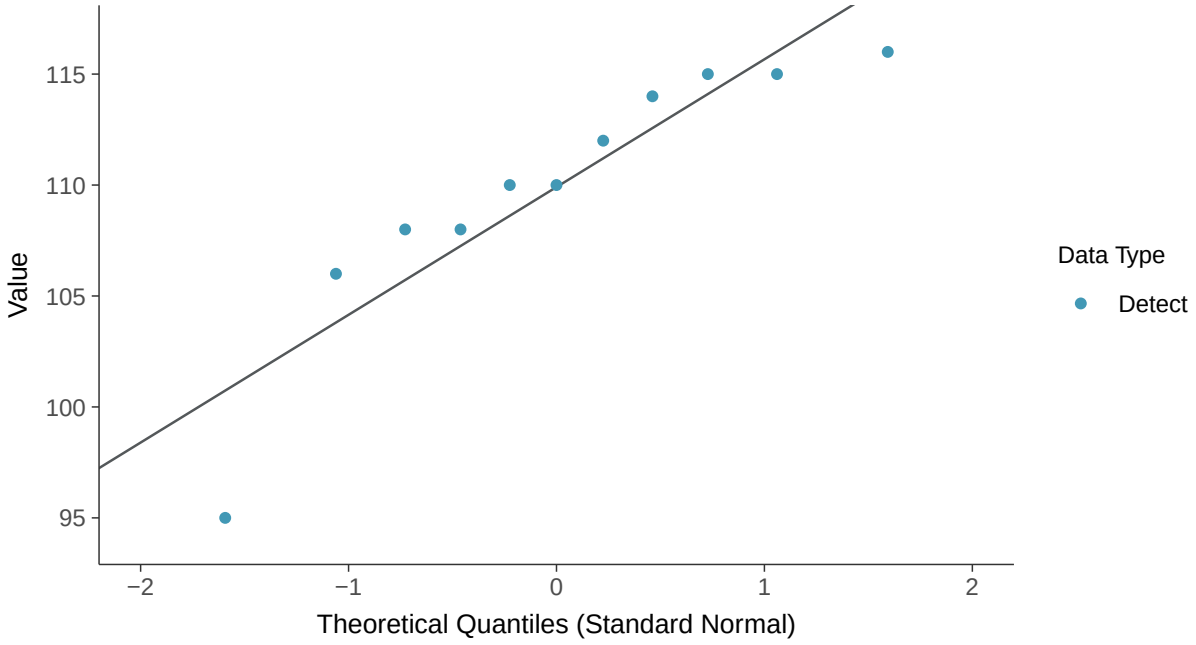
Boxplot by Season

Sodium, MW-16D (mg/L)



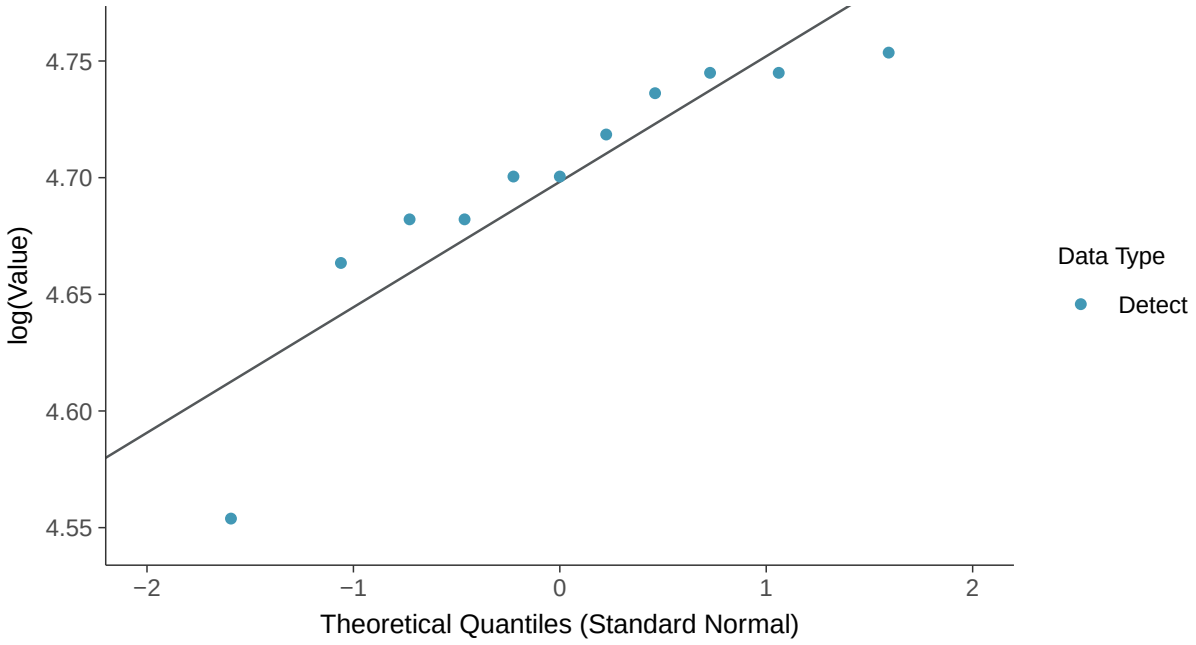
Normal Q-Q plot

Sodium, MW-16D (mg/L)



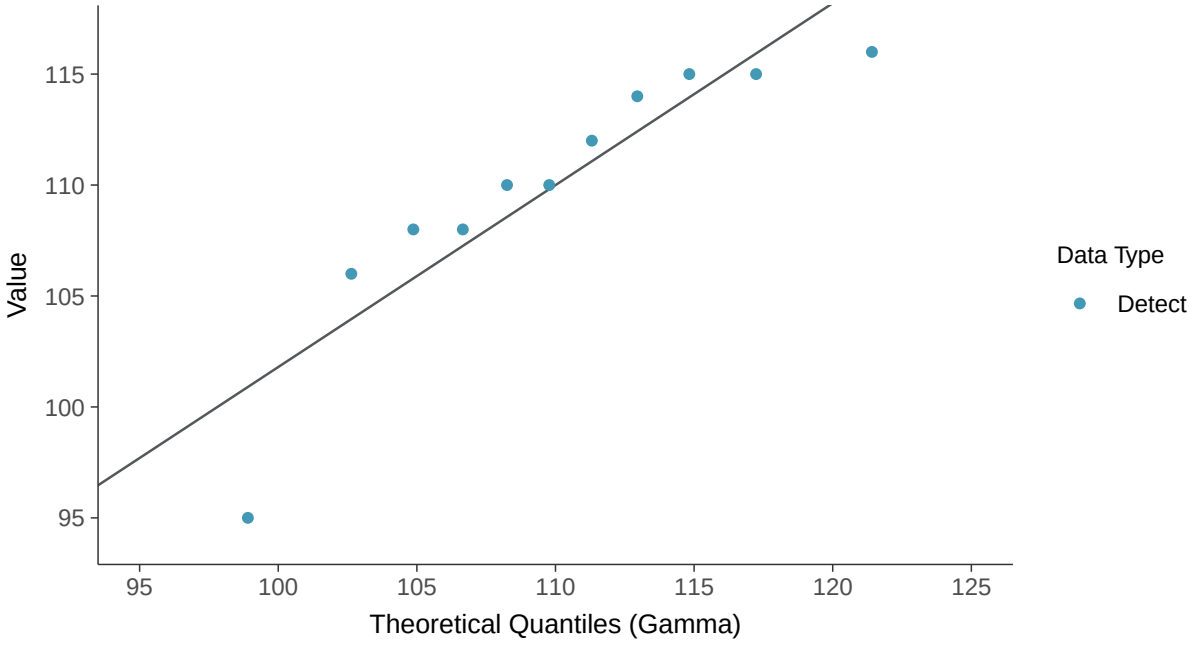
Lognormal Q-Q plot

Sodium, MW-16D (mg/L)



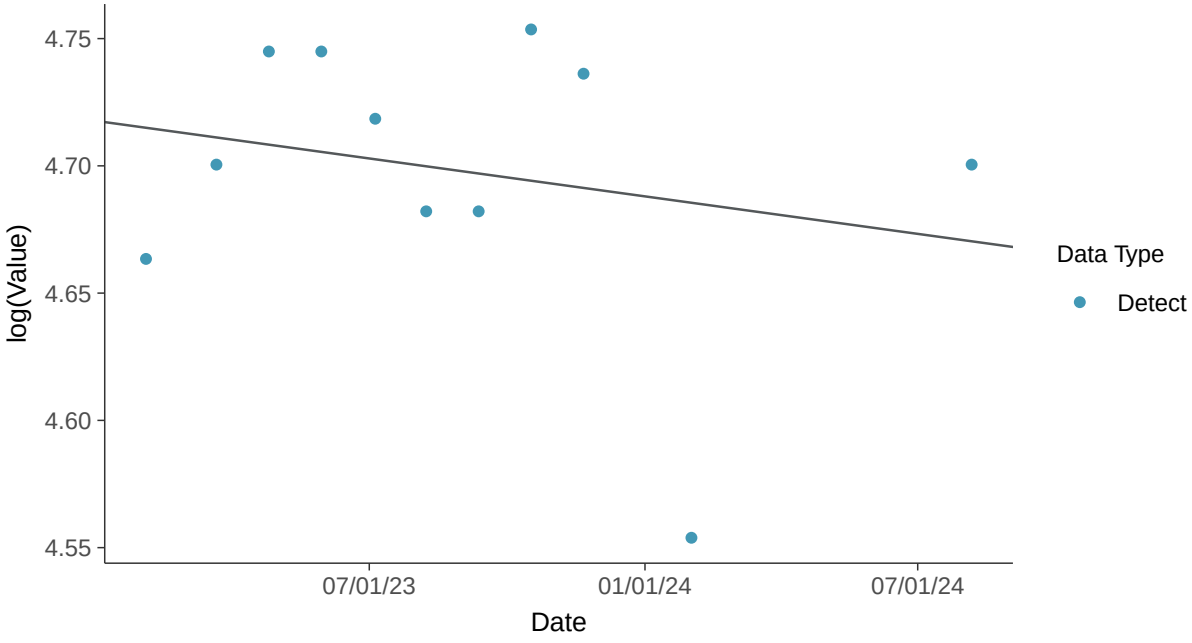
Gamma Q-Q plot

Sodium, MW-16D (mg/L)



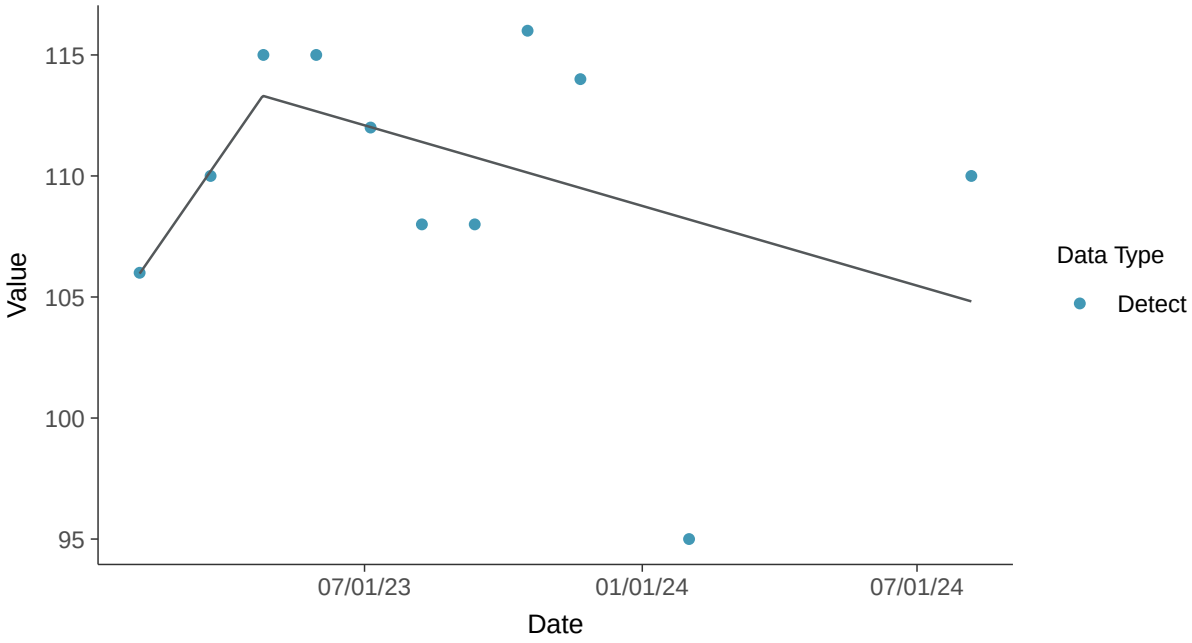
Trend Regression: Lognormal MLE

Sodium, MW-16D (mg/L)



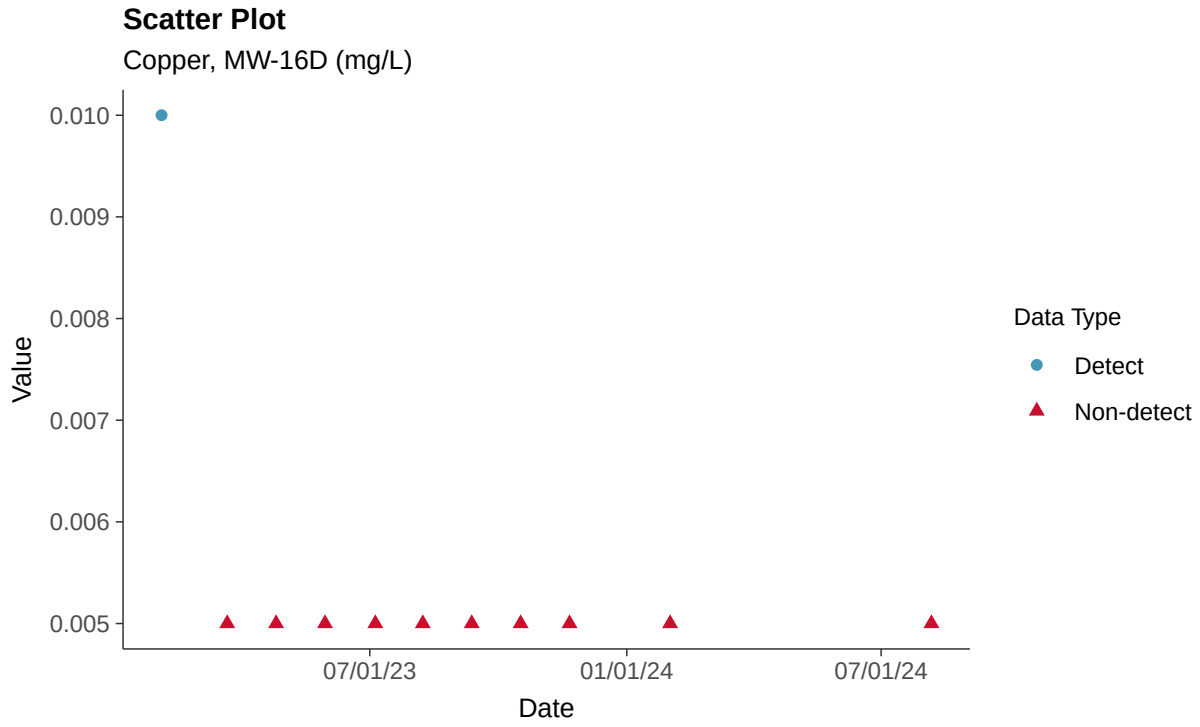
Trend Regression: Piecewise Linear-Linear

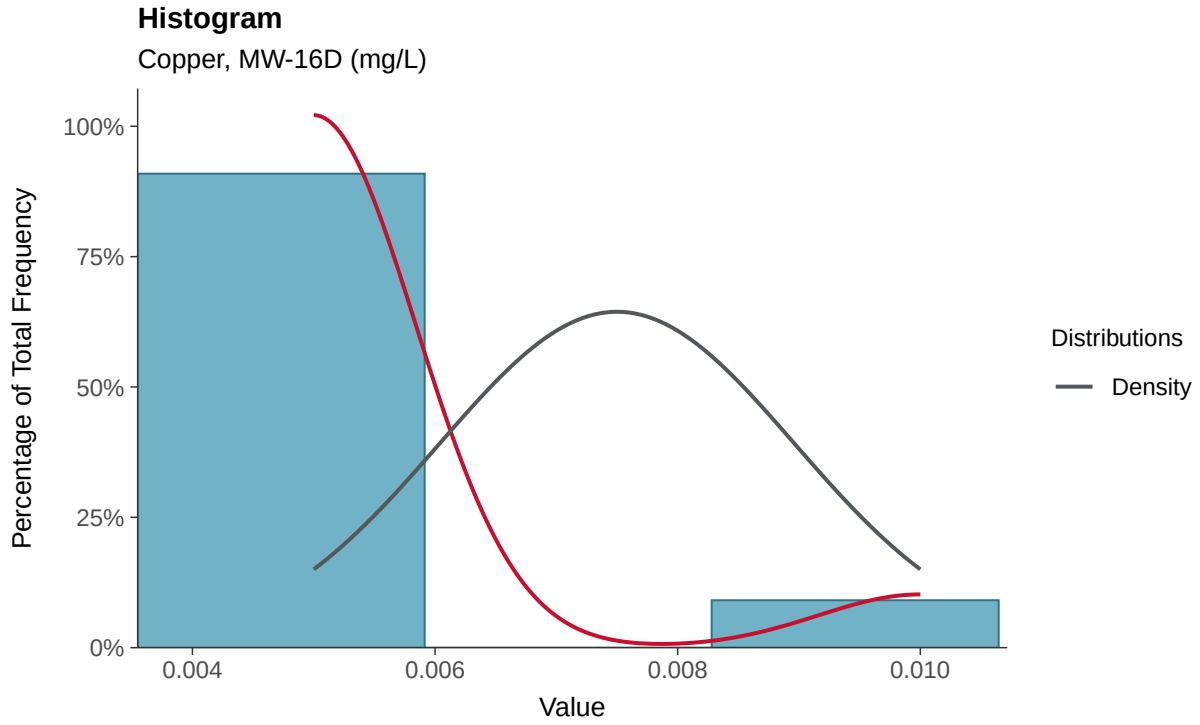
Sodium, MW-16D (mg/L)



Part 115: Copper, MW-16D

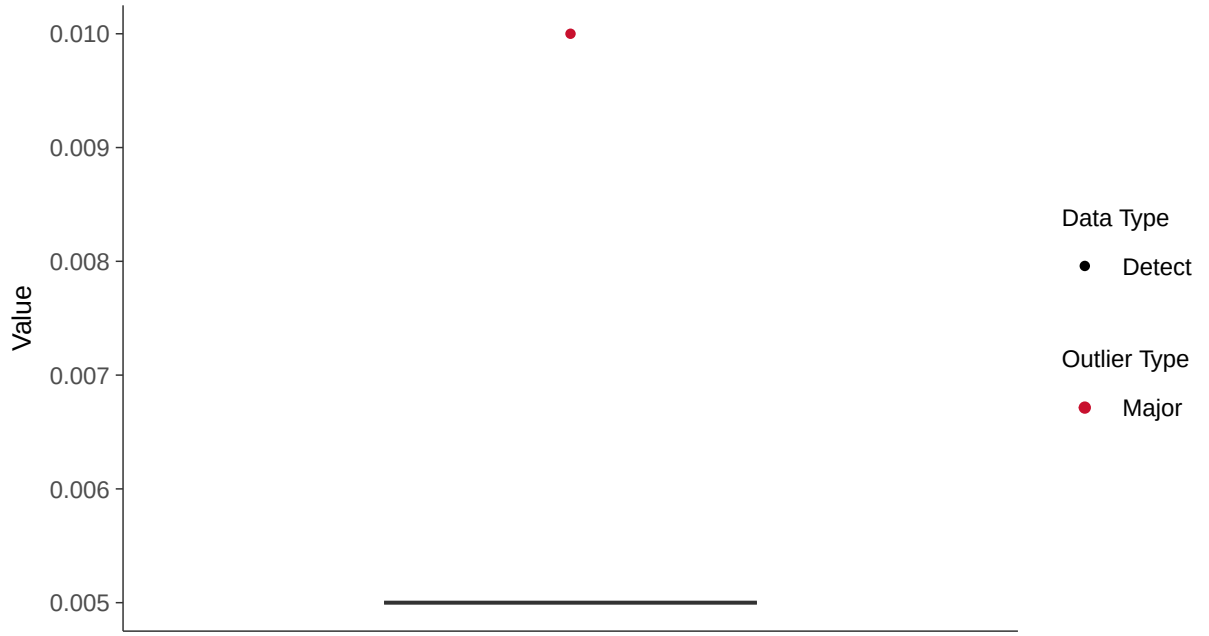
ID: 16D_5_37





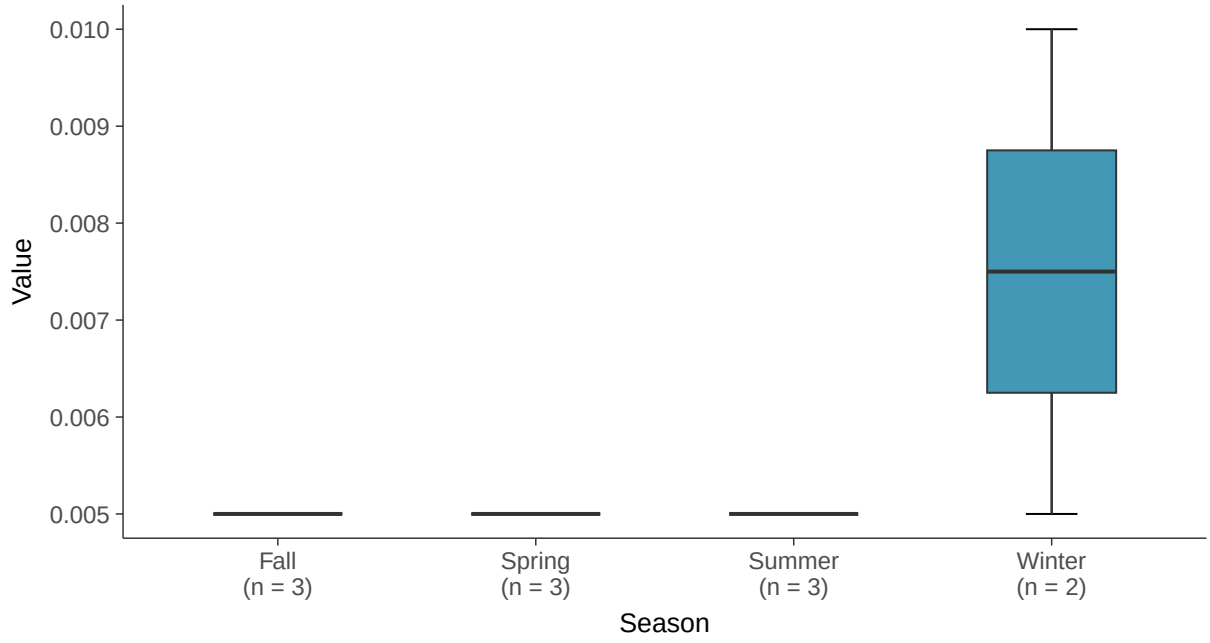
Boxplot

Copper, MW-16D (mg/L)



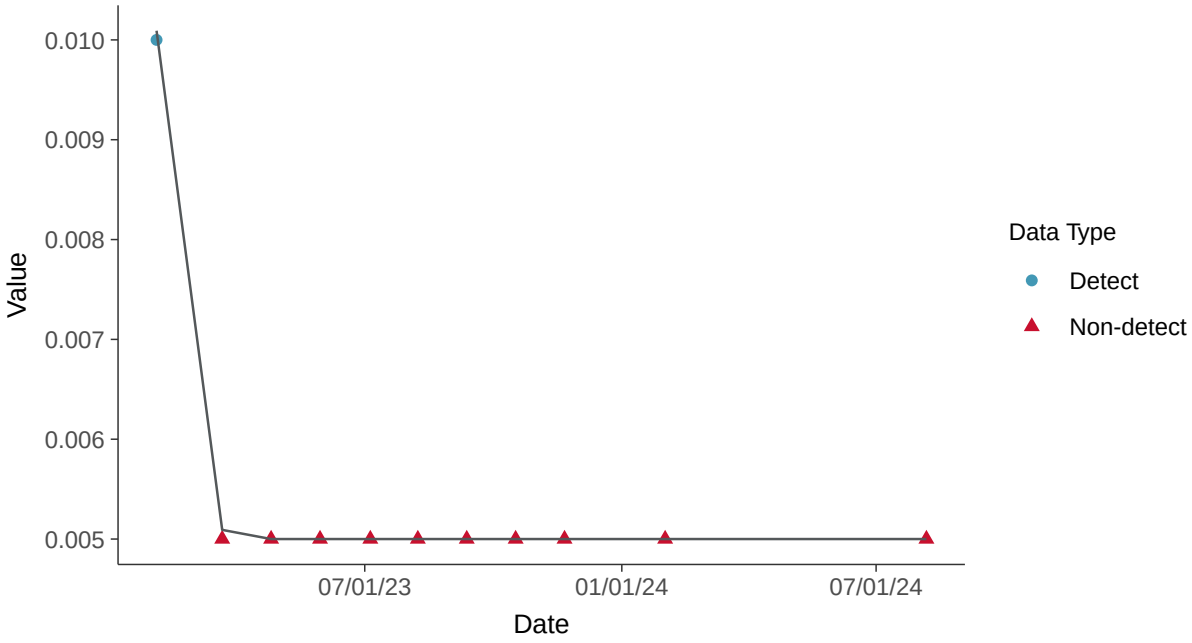
Boxplot by Season

Copper, MW-16D (mg/L)



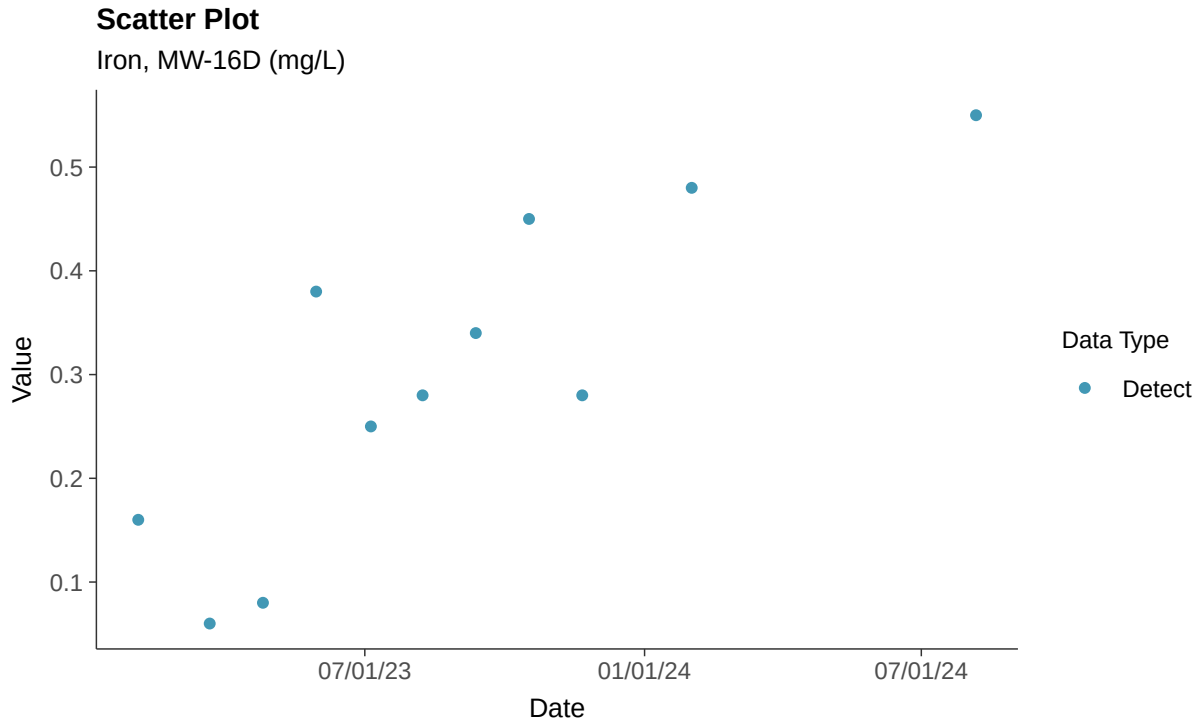
Trend Regression: Piecewise Linear-Linear

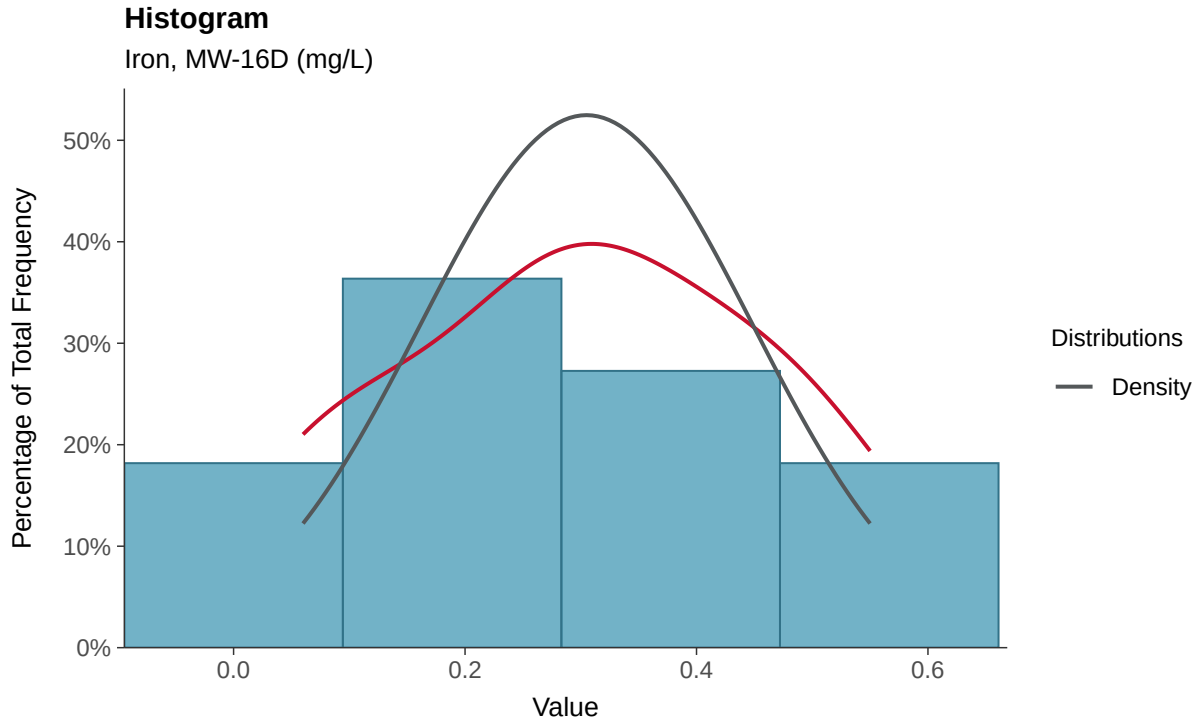
Copper, MW-16D (mg/L)



Part 115: Iron, MW-16D

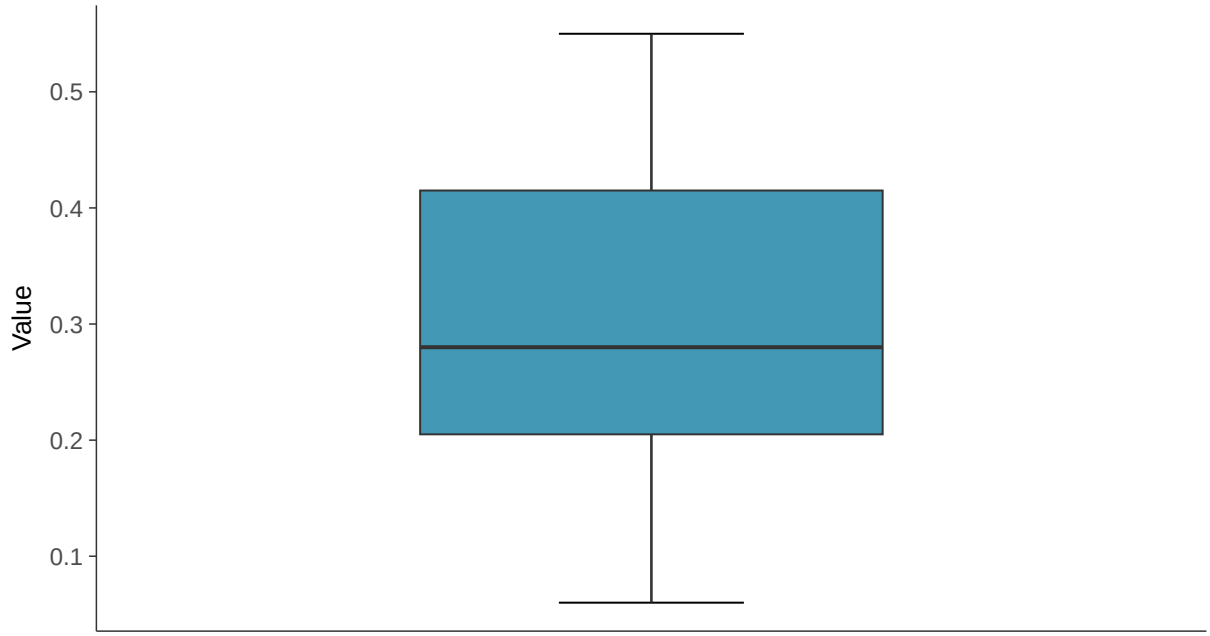
ID: 16D_5_38





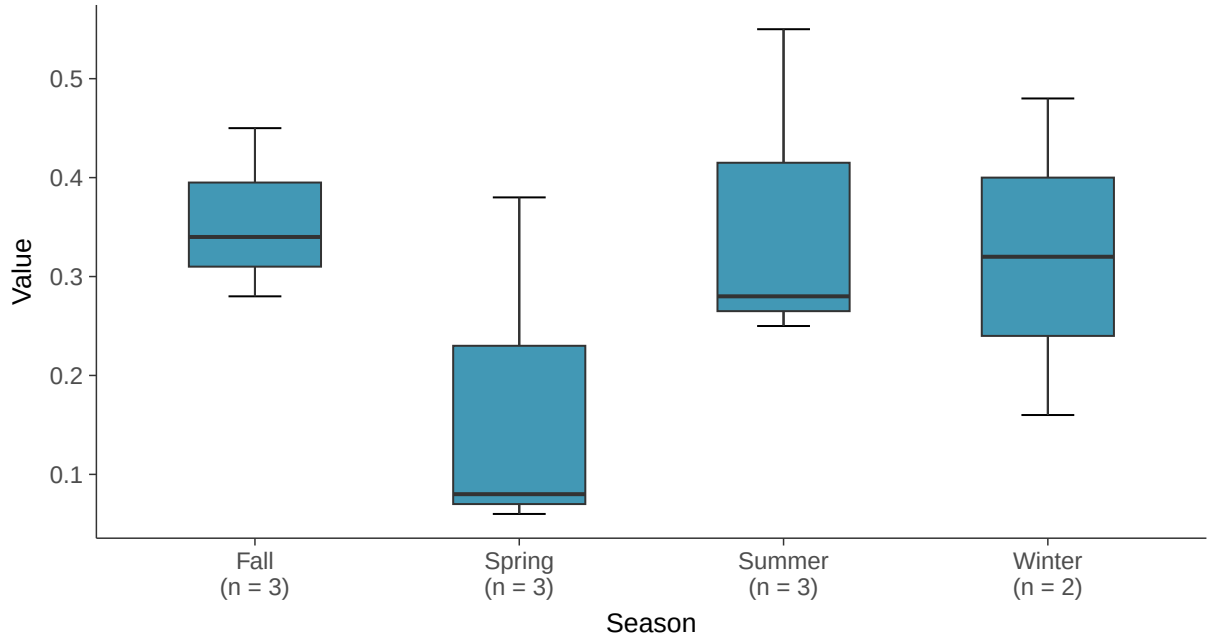
Boxplot

Iron, MW-16D (mg/L)



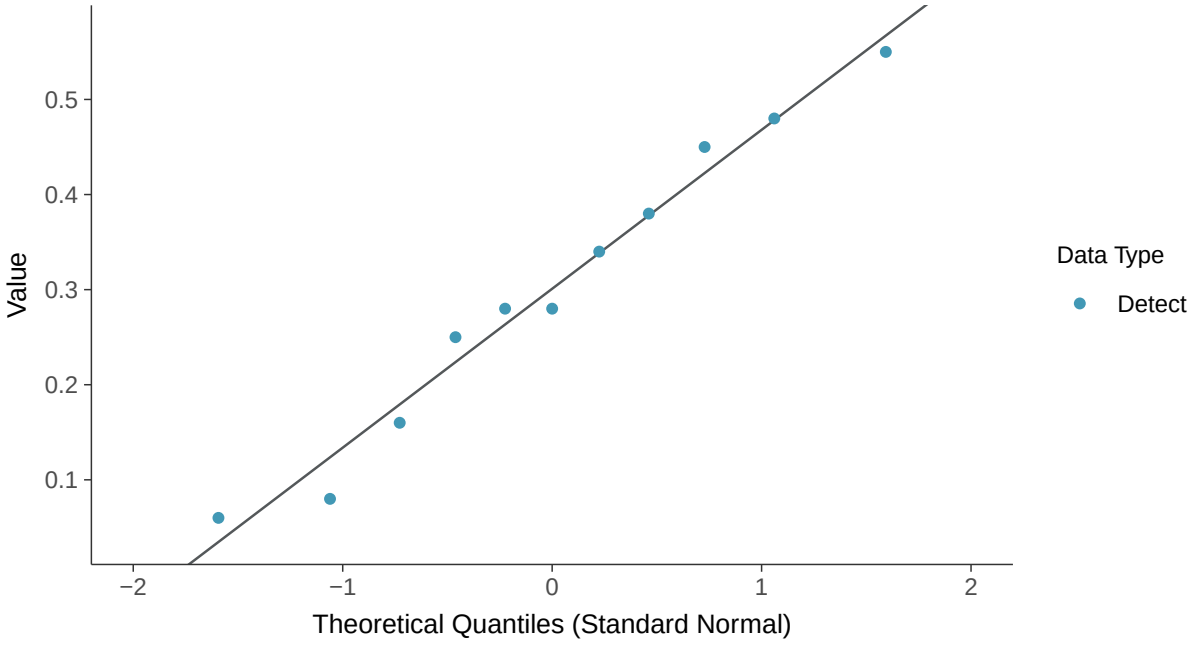
Boxplot by Season

Iron, MW-16D (mg/L)



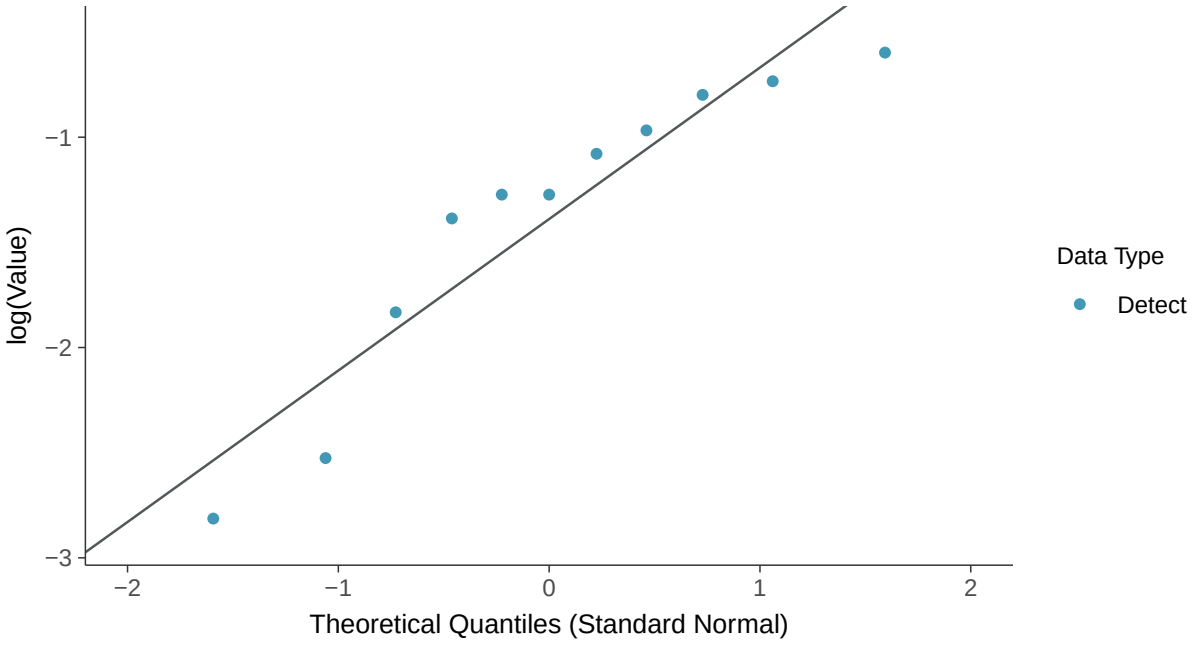
Normal Q-Q plot

Iron, MW-16D (mg/L)



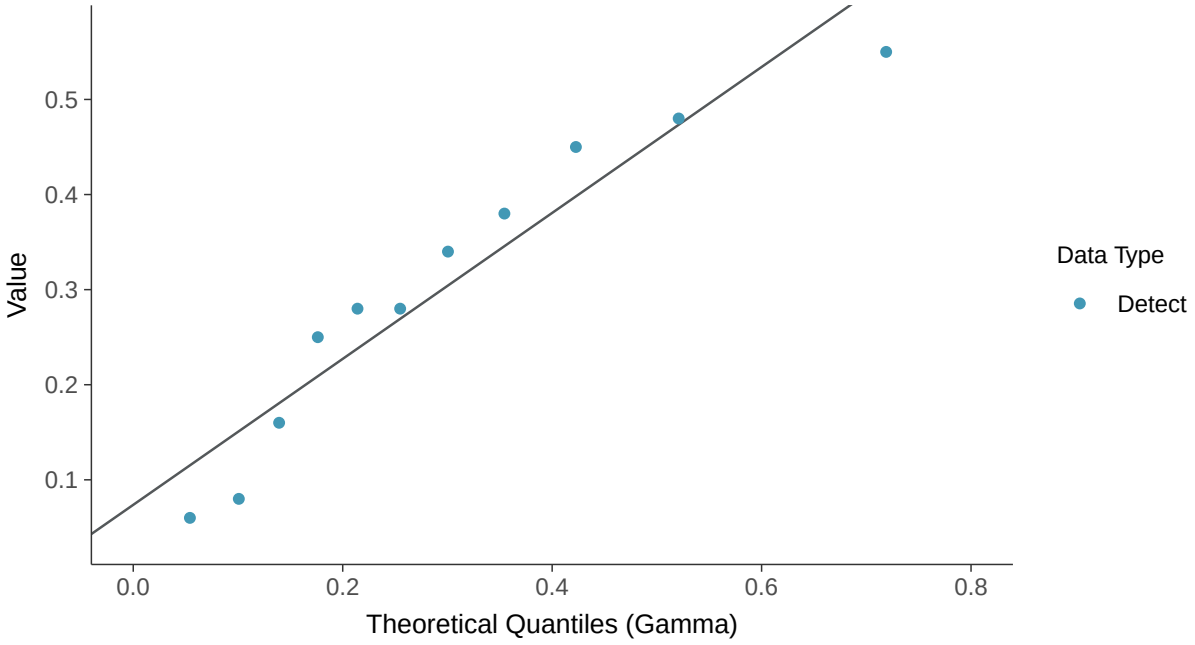
Lognormal Q-Q plot

Iron, MW-16D (mg/L)



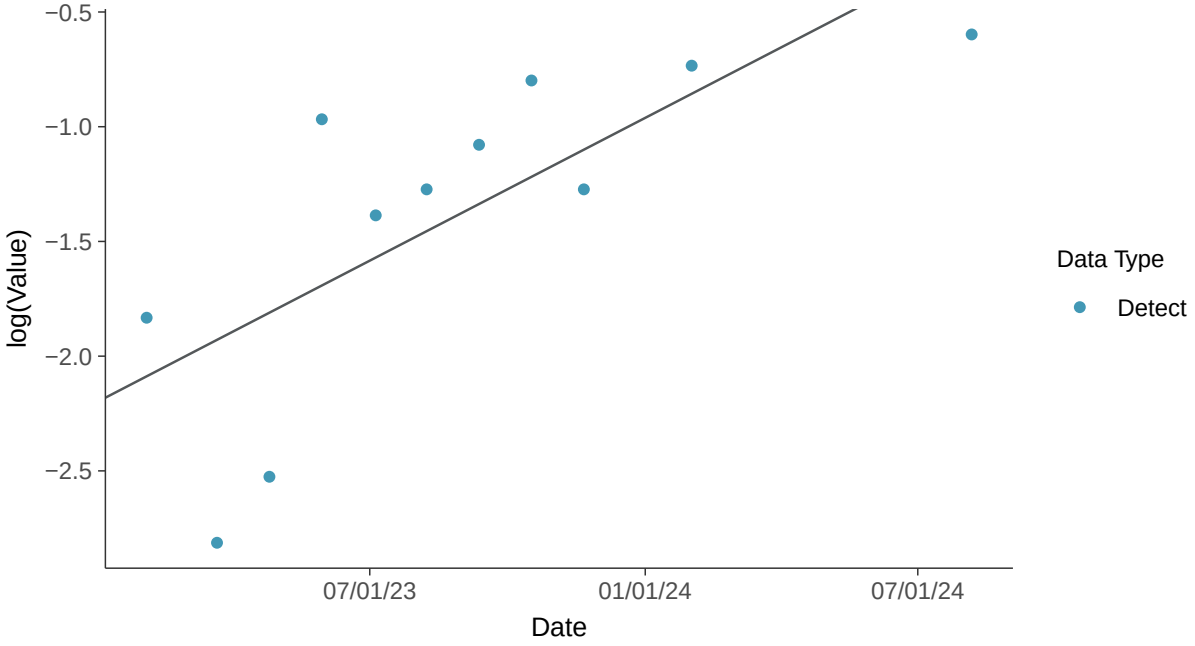
Gamma Q-Q plot

Iron, MW-16D (mg/L)



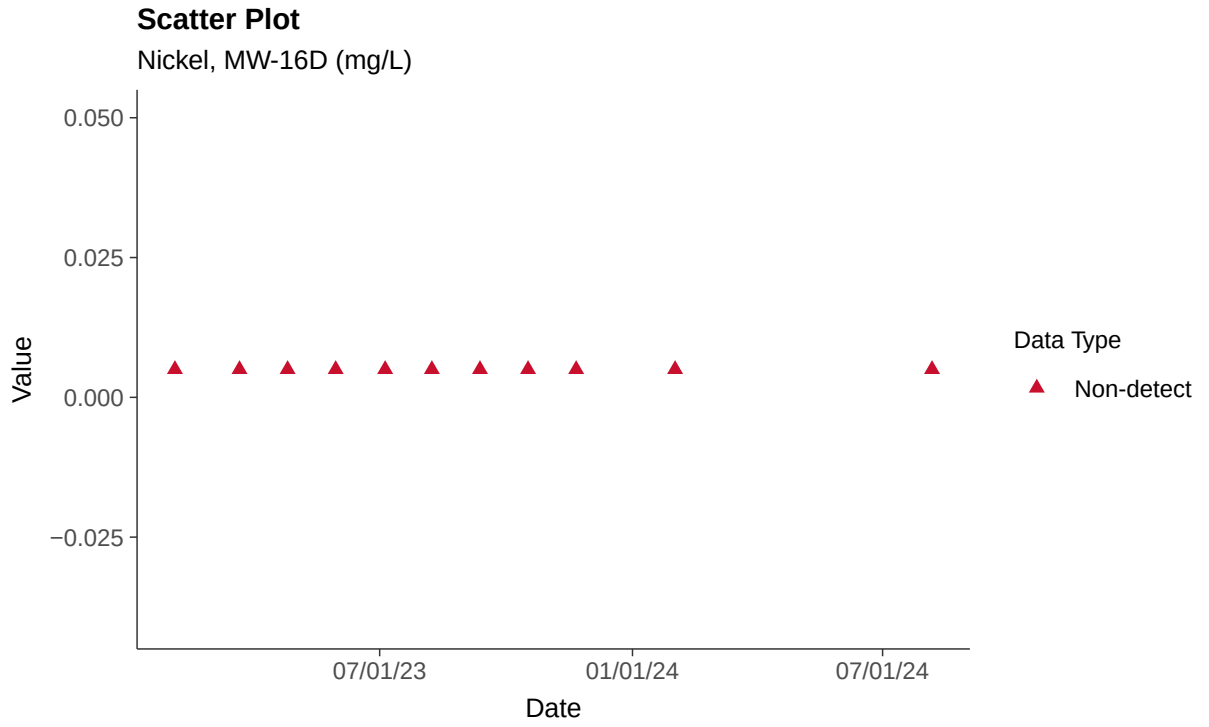
Trend Regression: Lognormal MLE

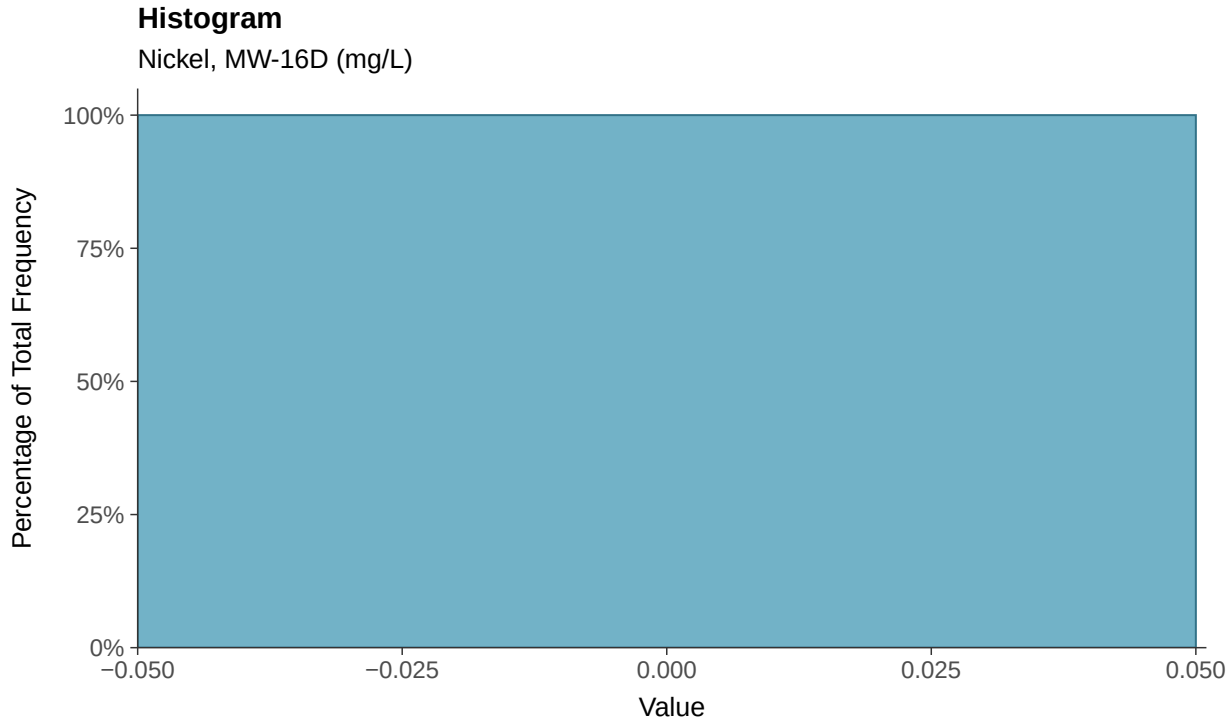
Iron, MW-16D (mg/L)



Part 115: Nickel, MW-16D

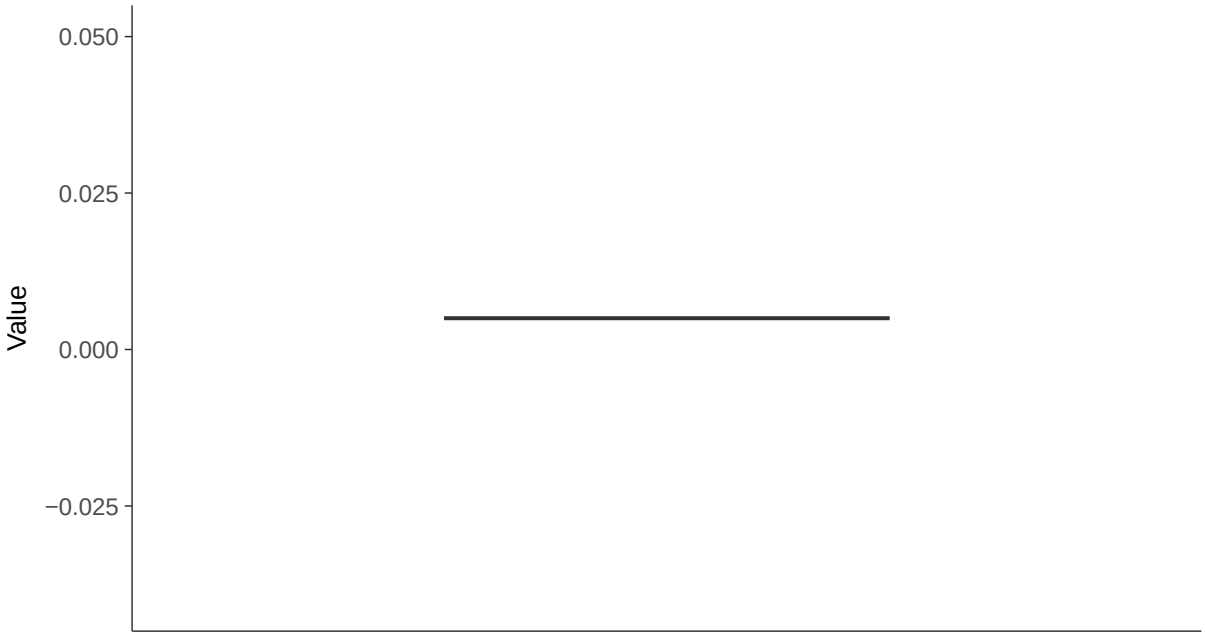
ID: 16D_5_39





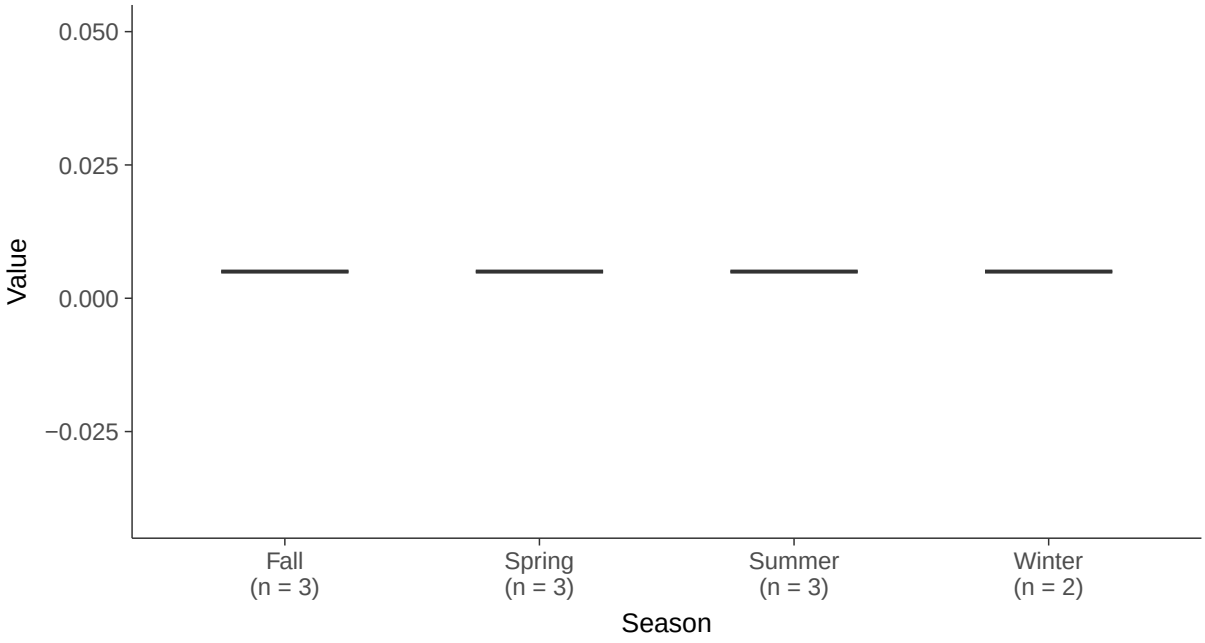
Boxplot

Nickel, MW-16D (mg/L)



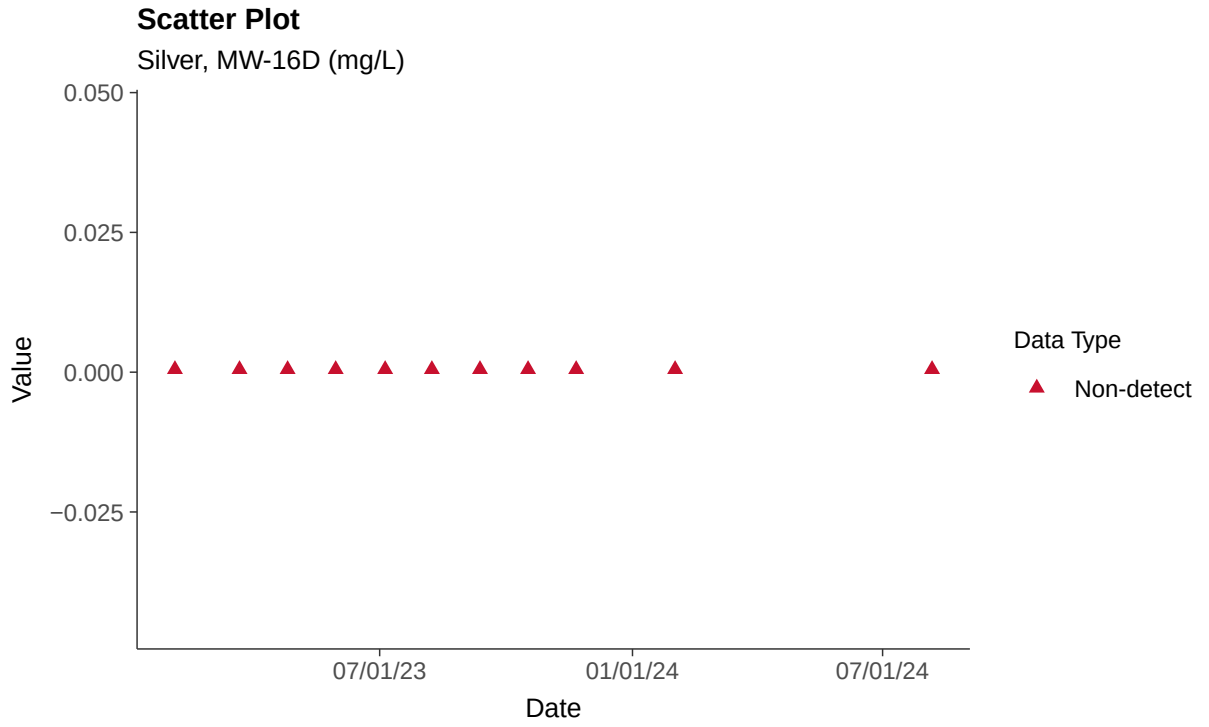
Boxplot by Season

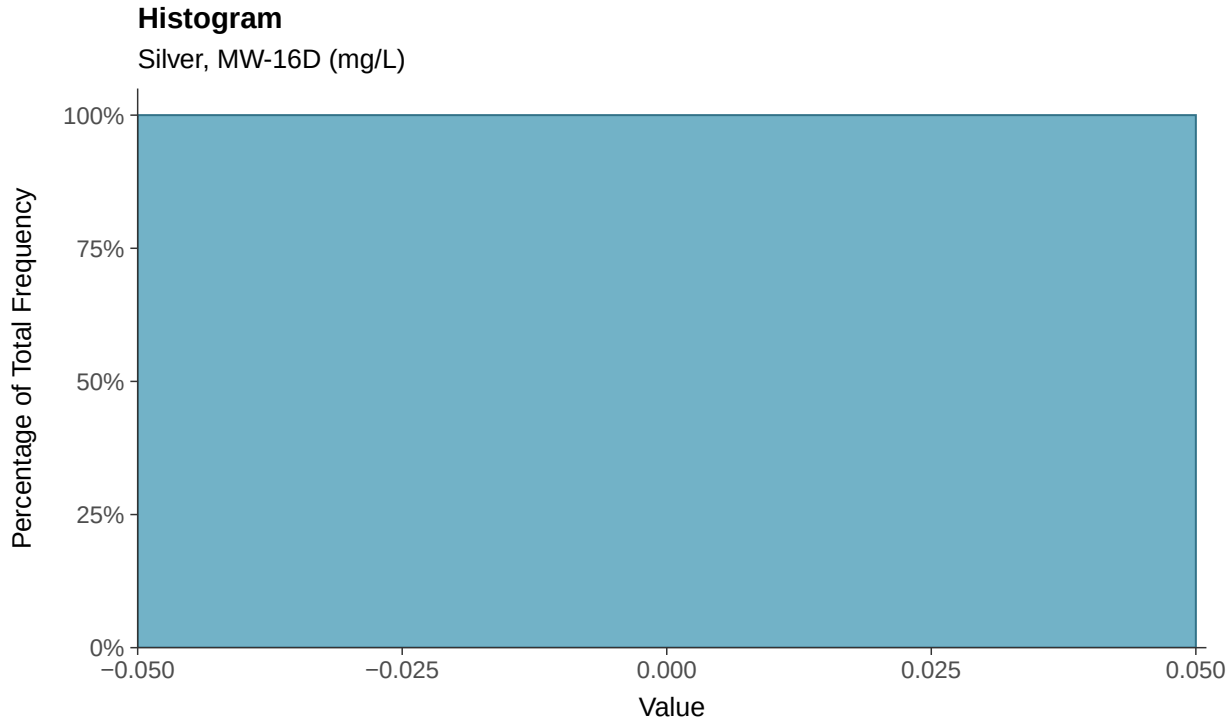
Nickel, MW-16D (mg/L)



Part 115: Silver, MW-16D

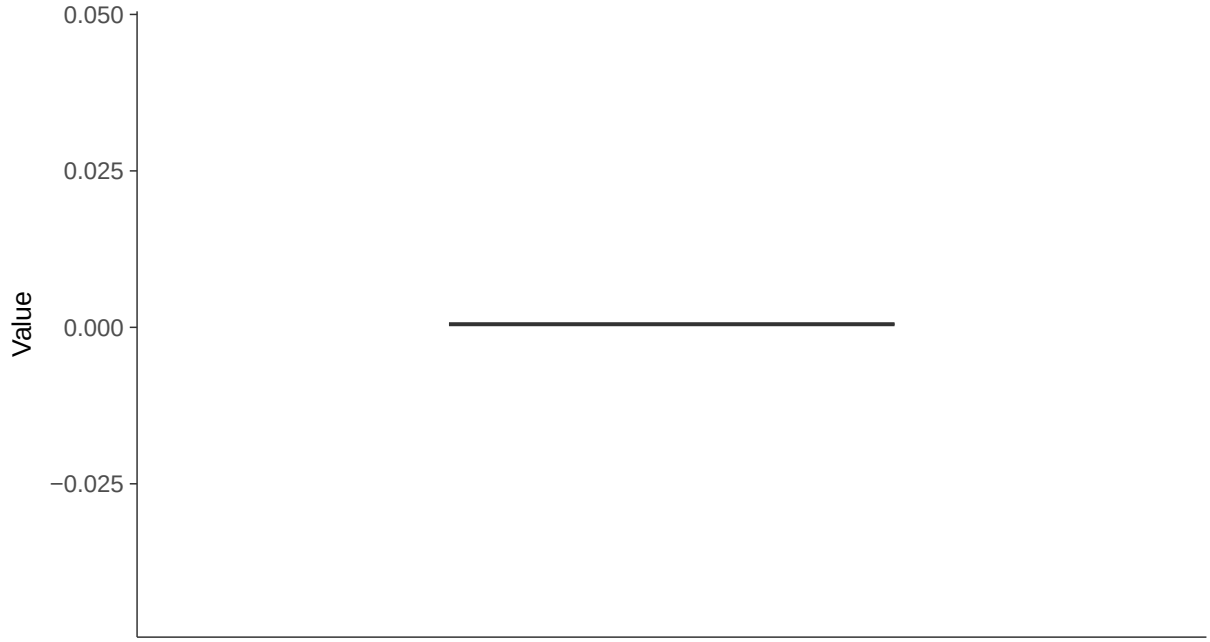
ID: 16D_5_40





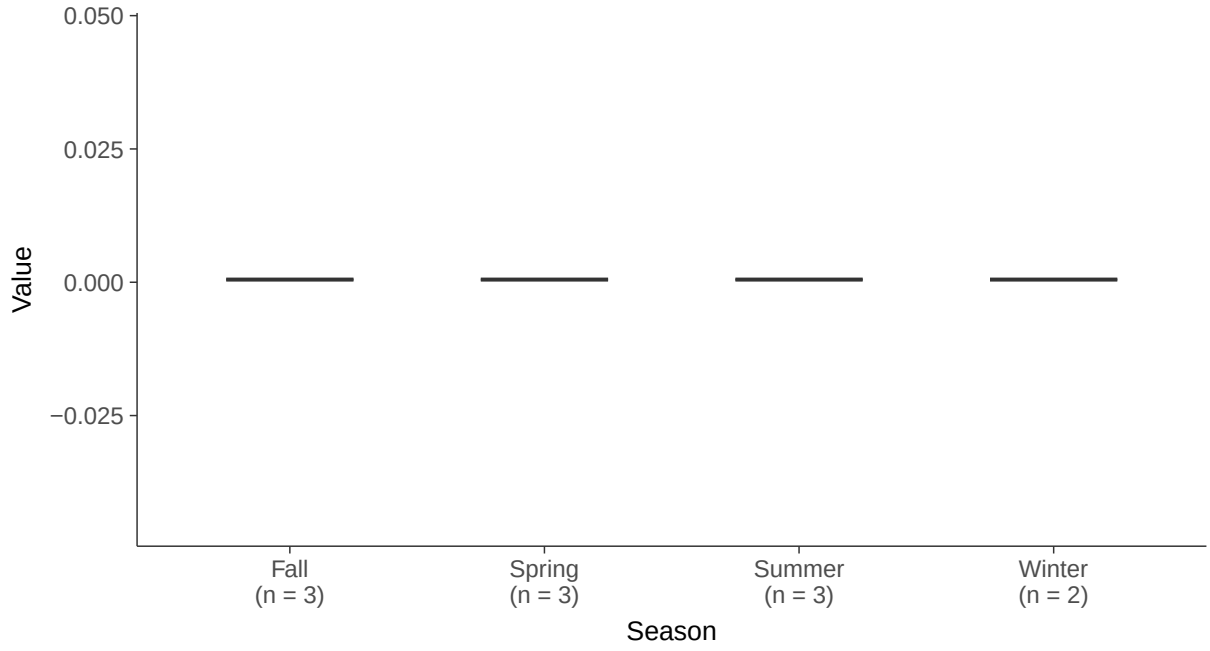
Boxplot

Silver, MW-16D (mg/L)



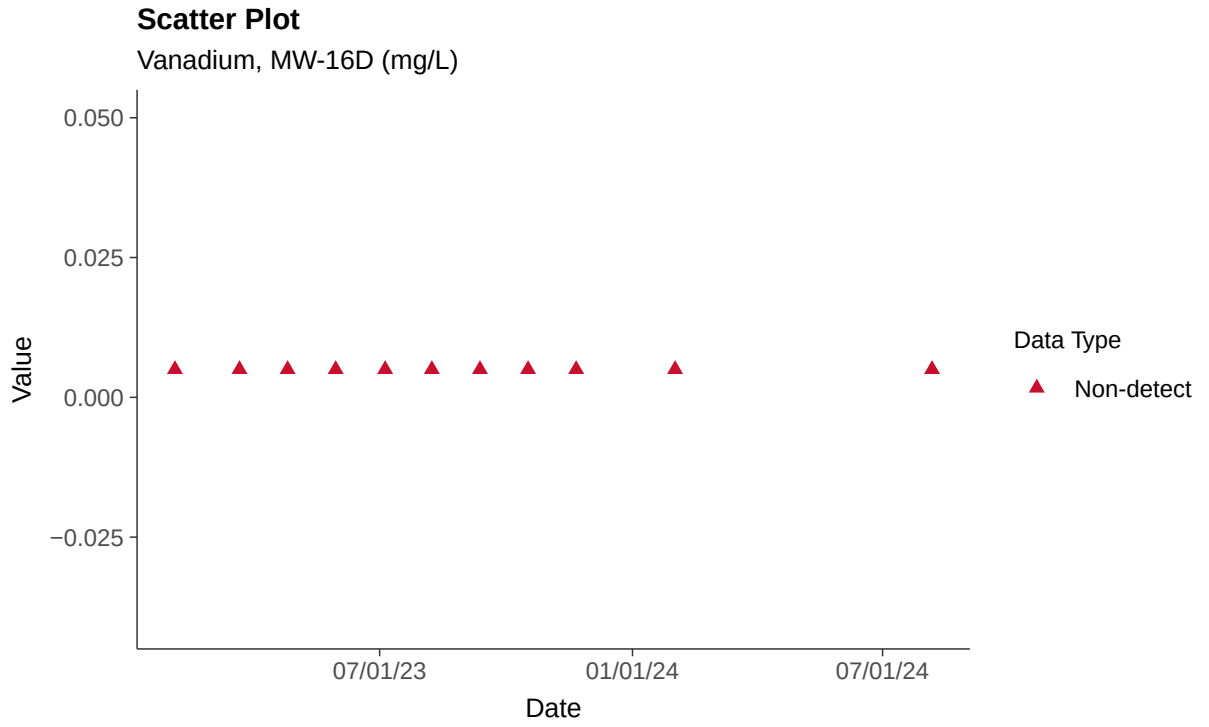
Boxplot by Season

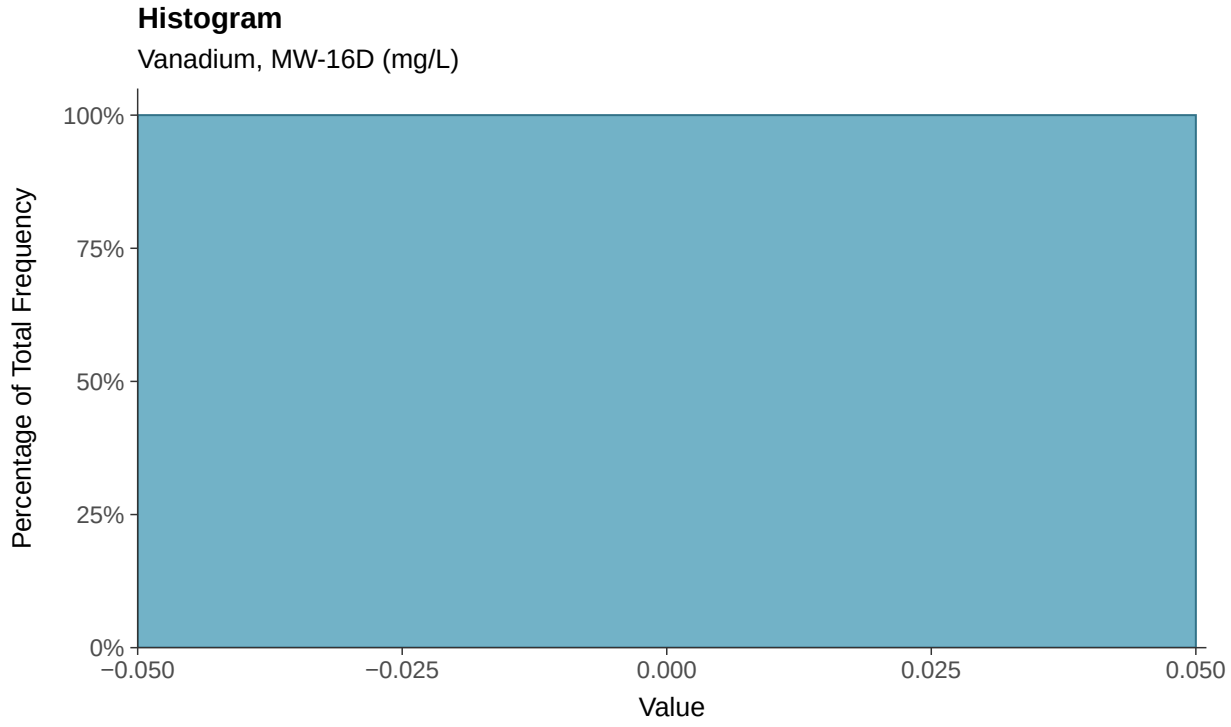
Silver, MW-16D (mg/L)



Part 115: Vanadium, MW-16D

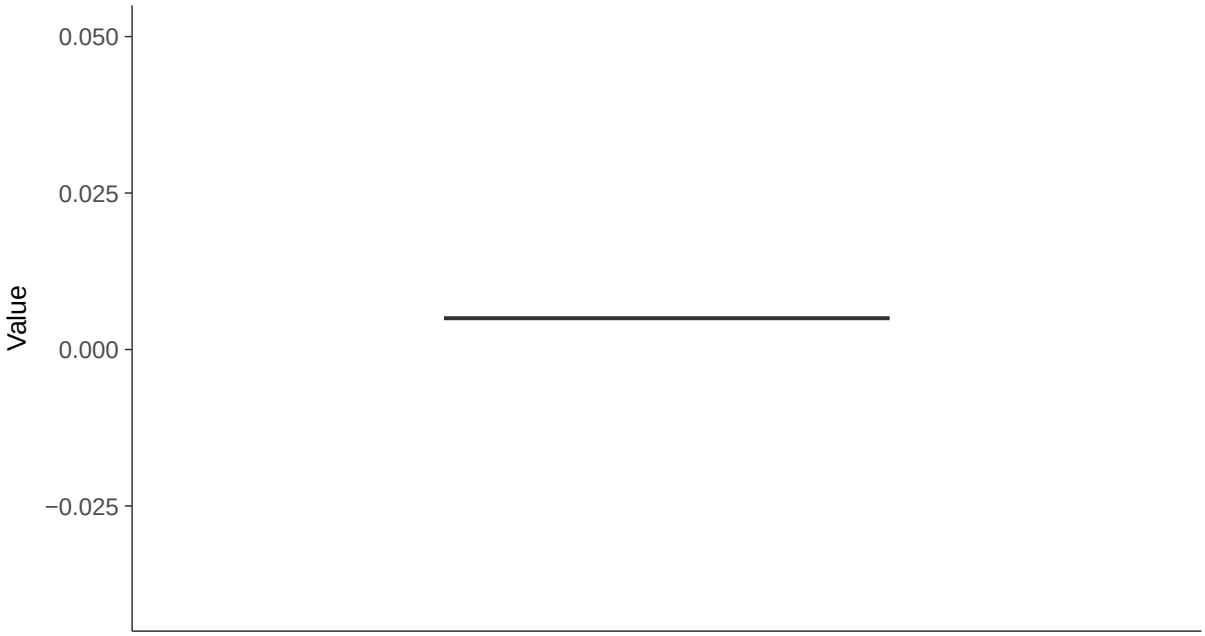
ID: 16D_5_41





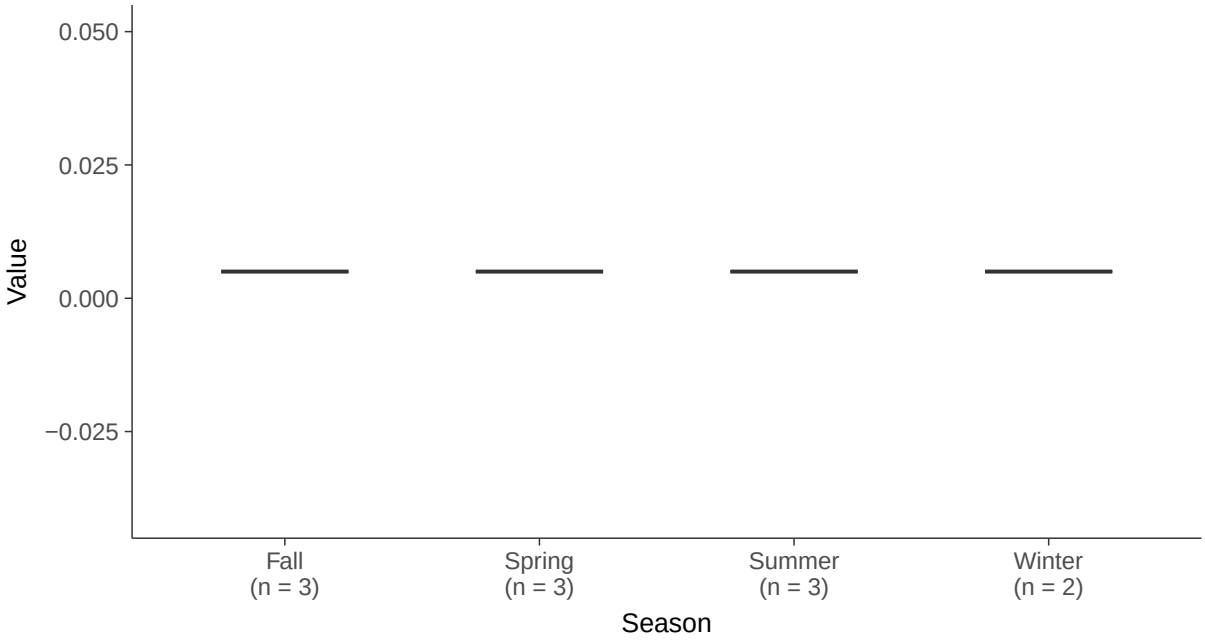
Boxplot

Vanadium, MW-16D (mg/L)



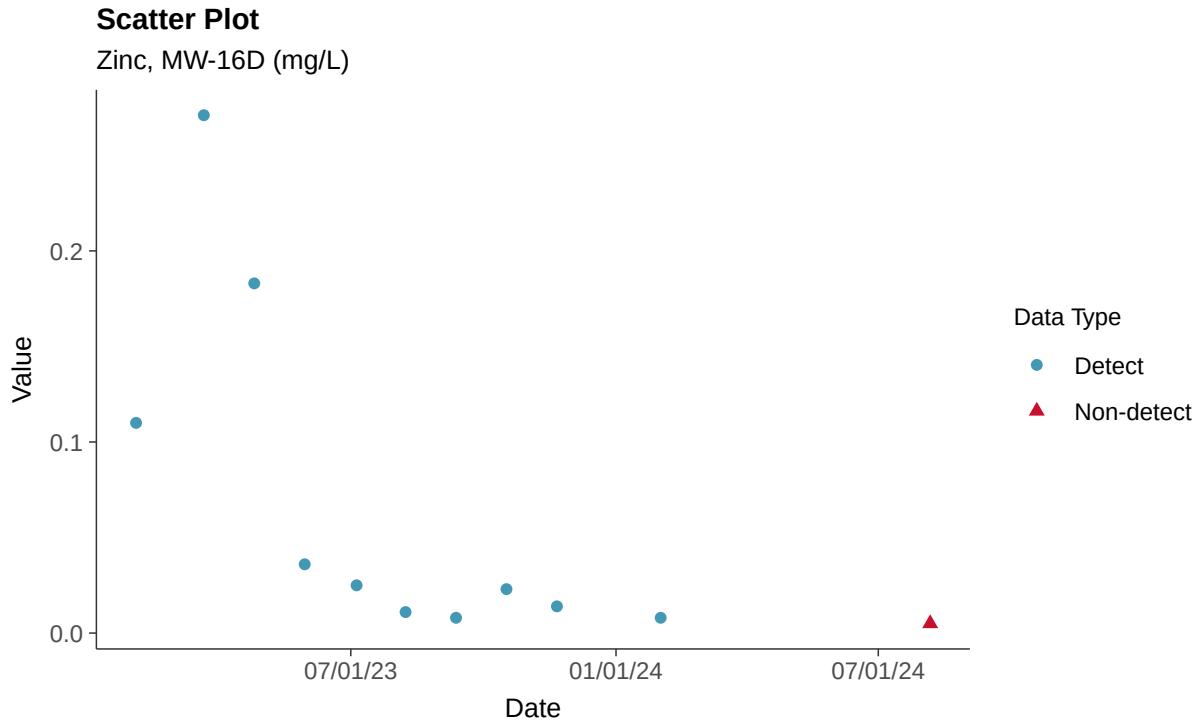
Boxplot by Season

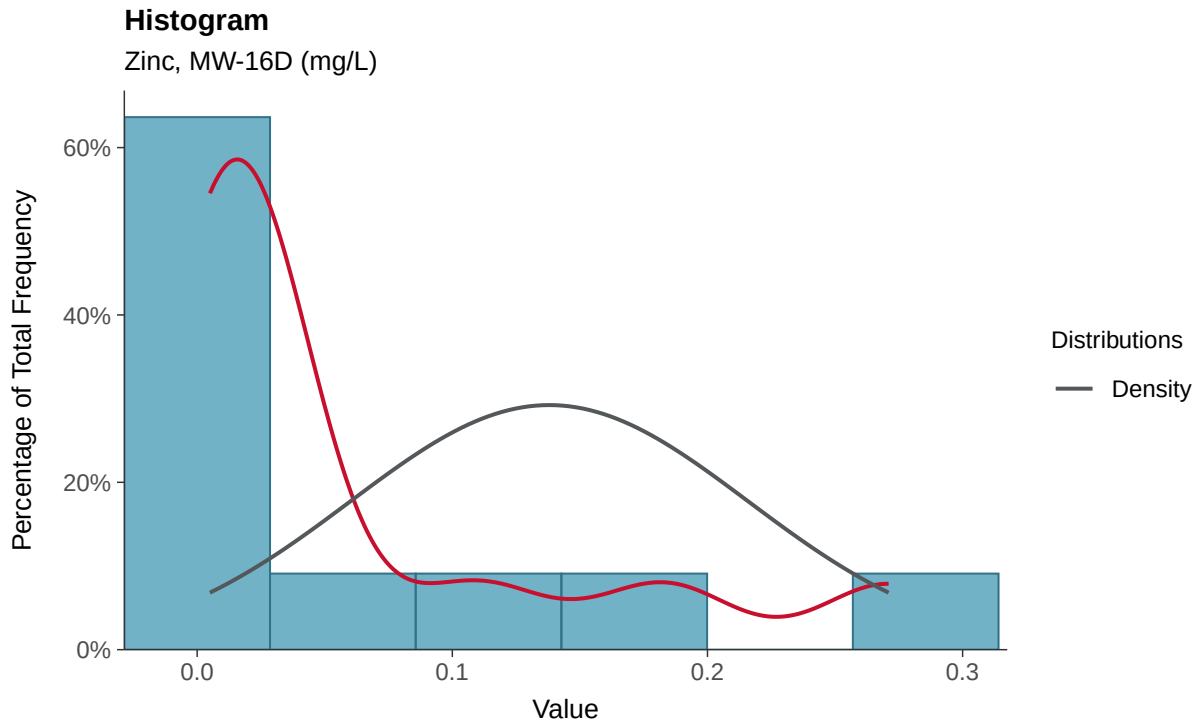
Vanadium, MW-16D (mg/L)



Part 115: Zinc, MW-16D

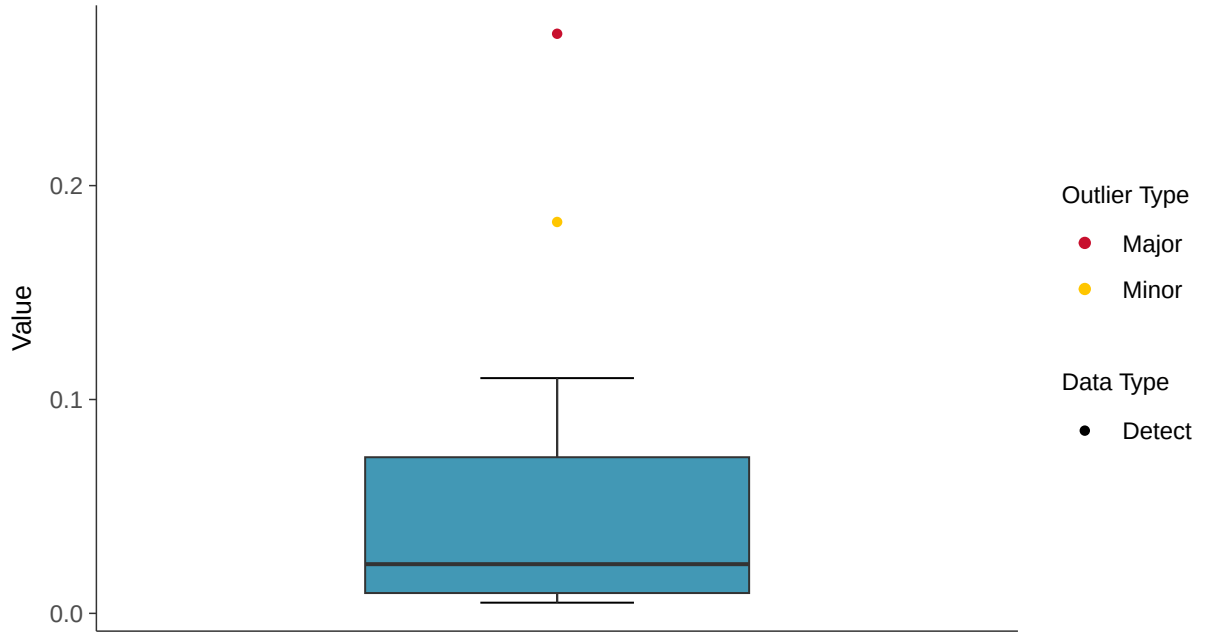
ID: 16D_5_42





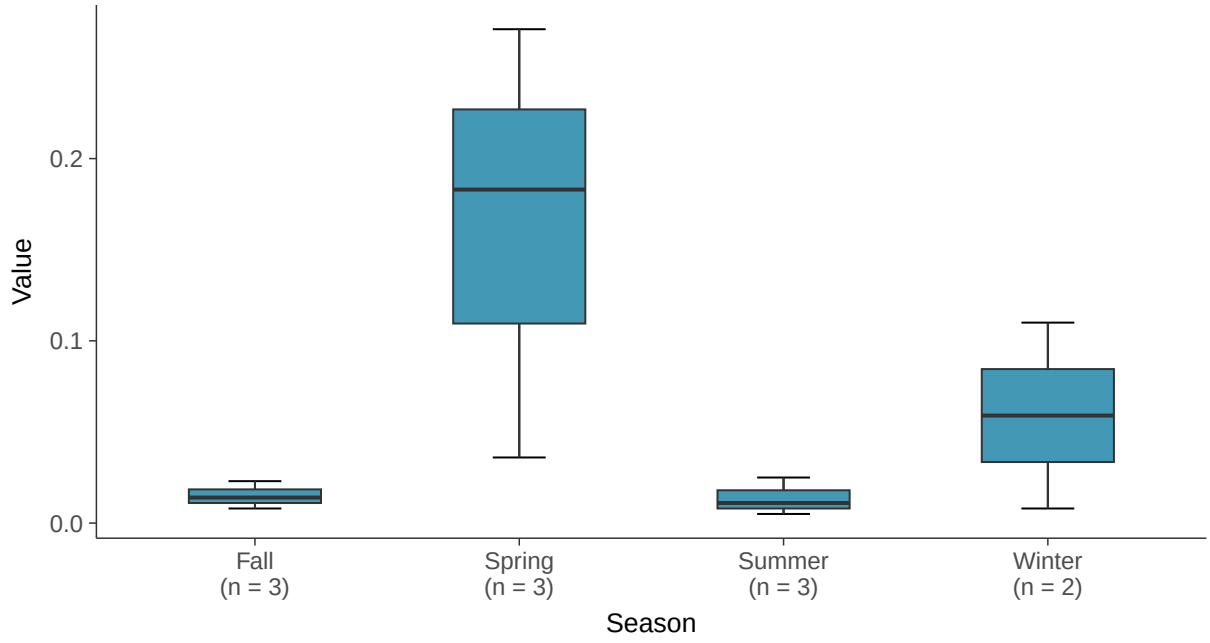
Boxplot

Zinc, MW-16D (mg/L)



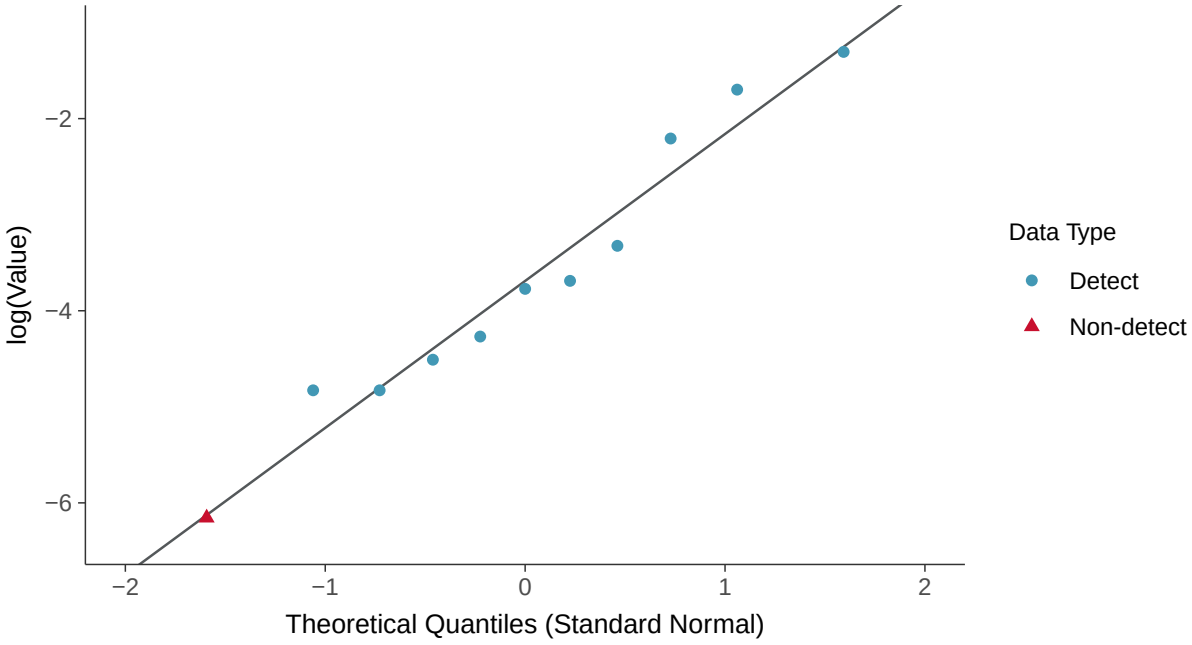
Boxplot by Season

Zinc, MW-16D (mg/L)



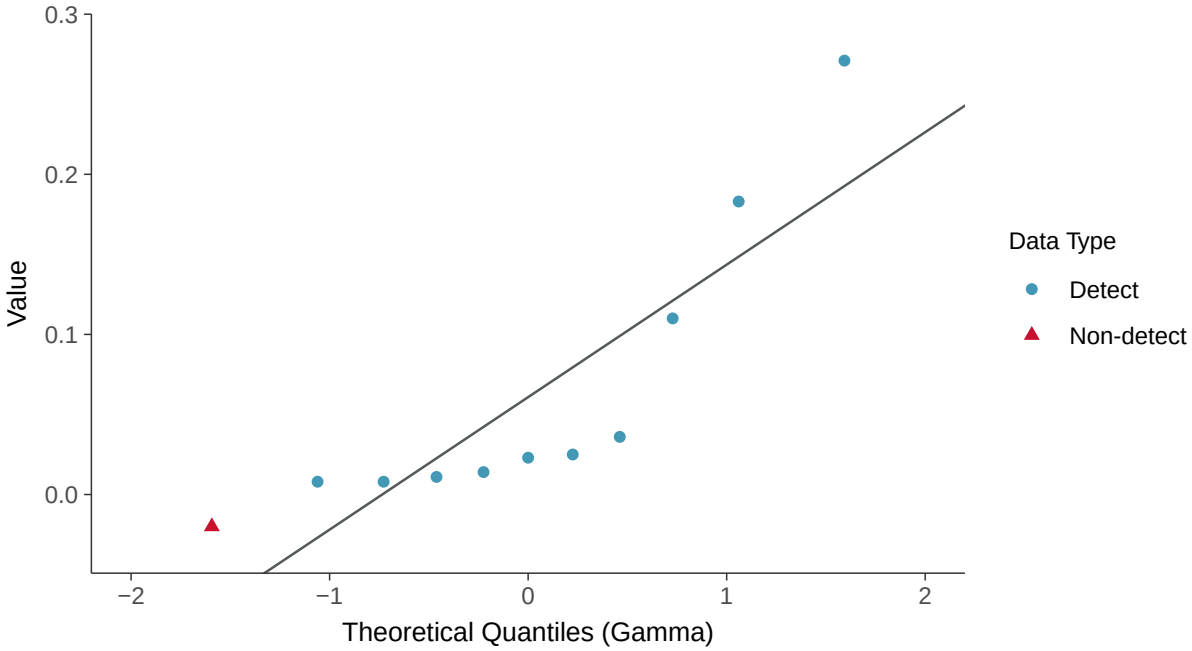
Lognormal Q-Q plot using ROS Imputed Estimates

Zinc, MW-16D (mg/L)



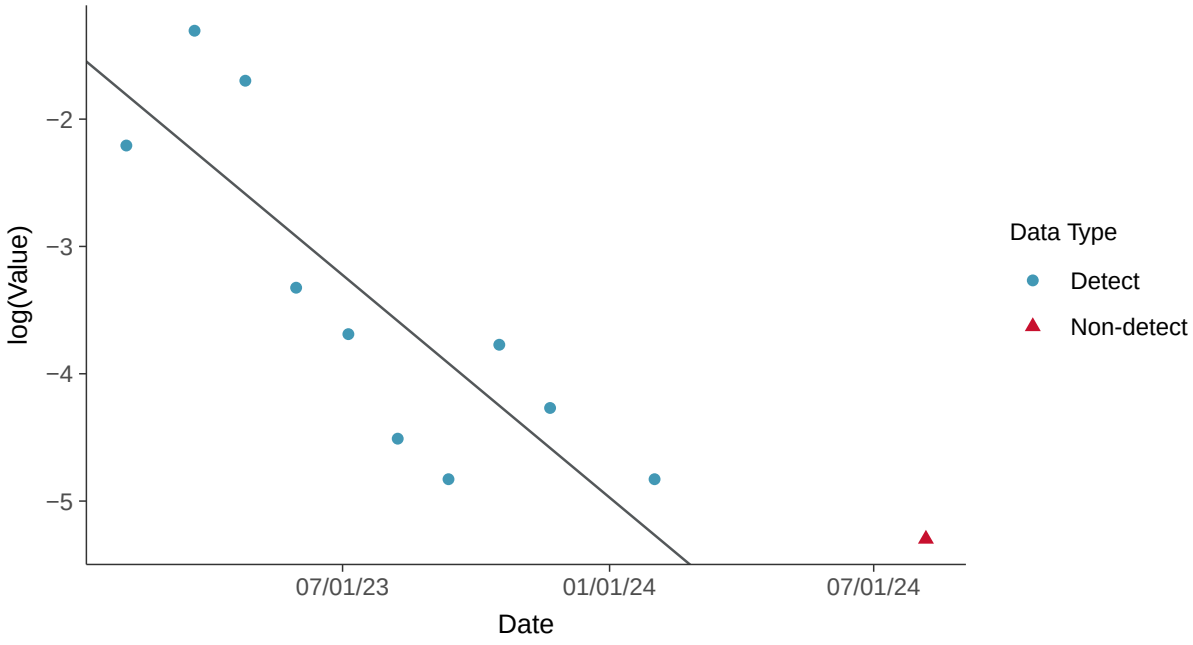
Gamma Q-Q plot using ROS Imputed Estimates

Zinc, MW-16D (mg/L)



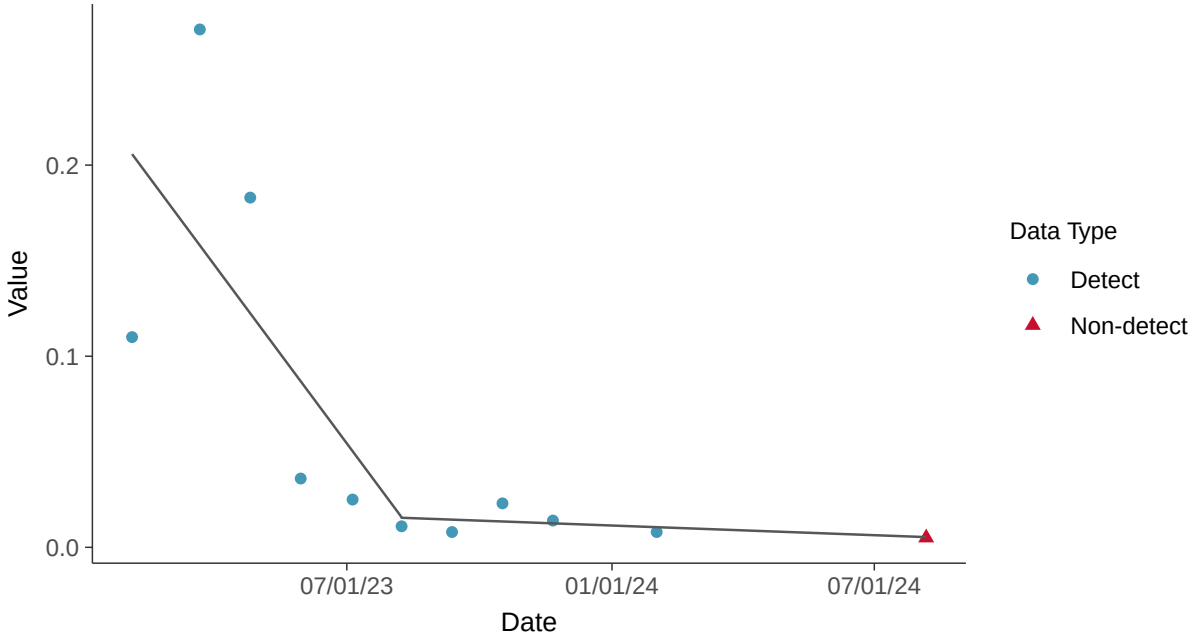
Trend Regression: Lognormal MLE

Zinc, MW-16D (mg/L)



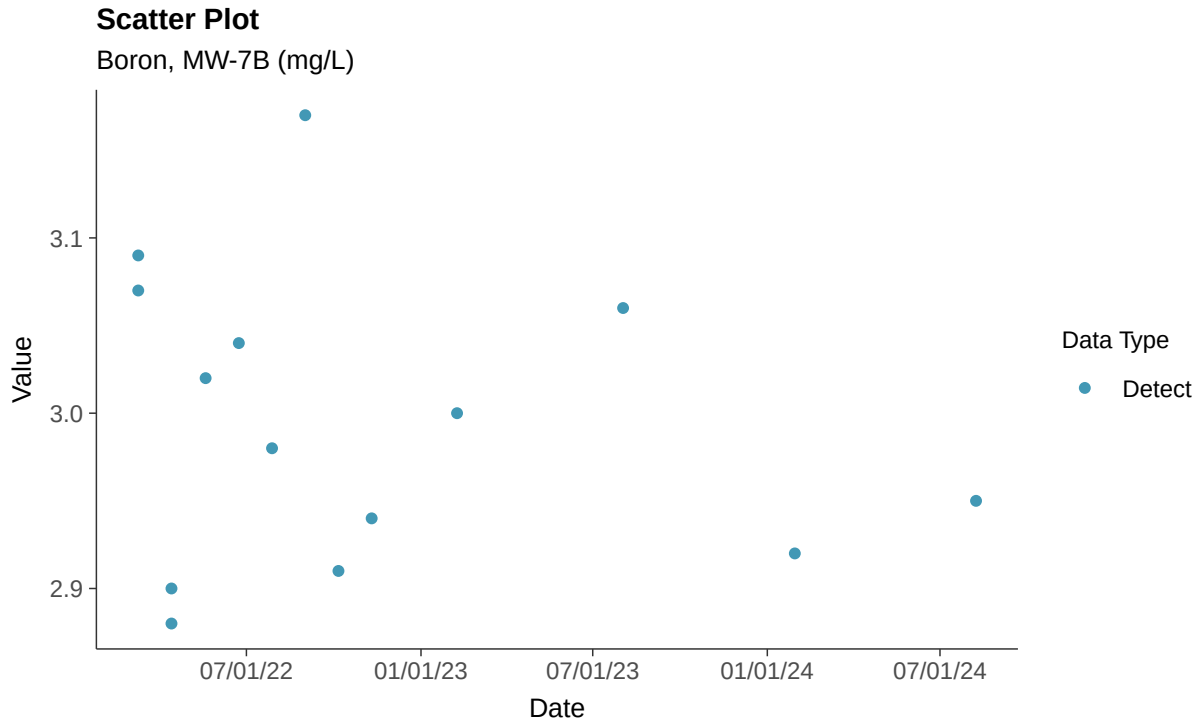
Trend Regression: Piecewise Linear-Linear

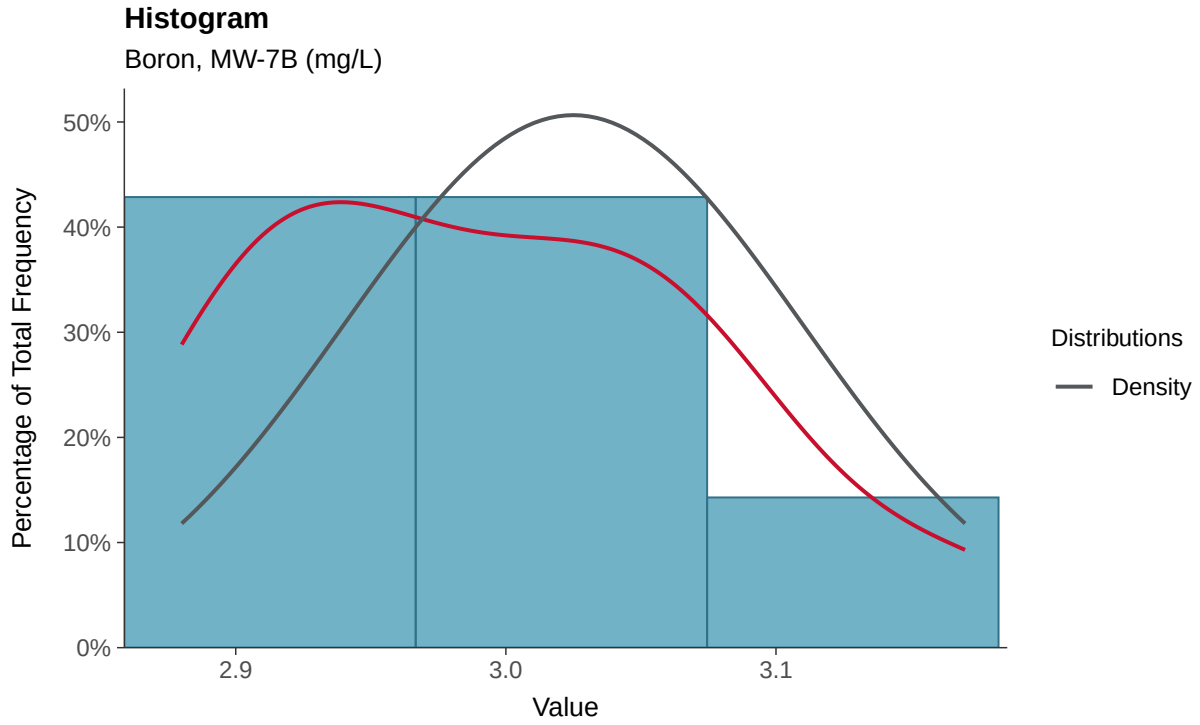
Zinc, MW-16D (mg/L)



Appendix III: Boron, MW-7B

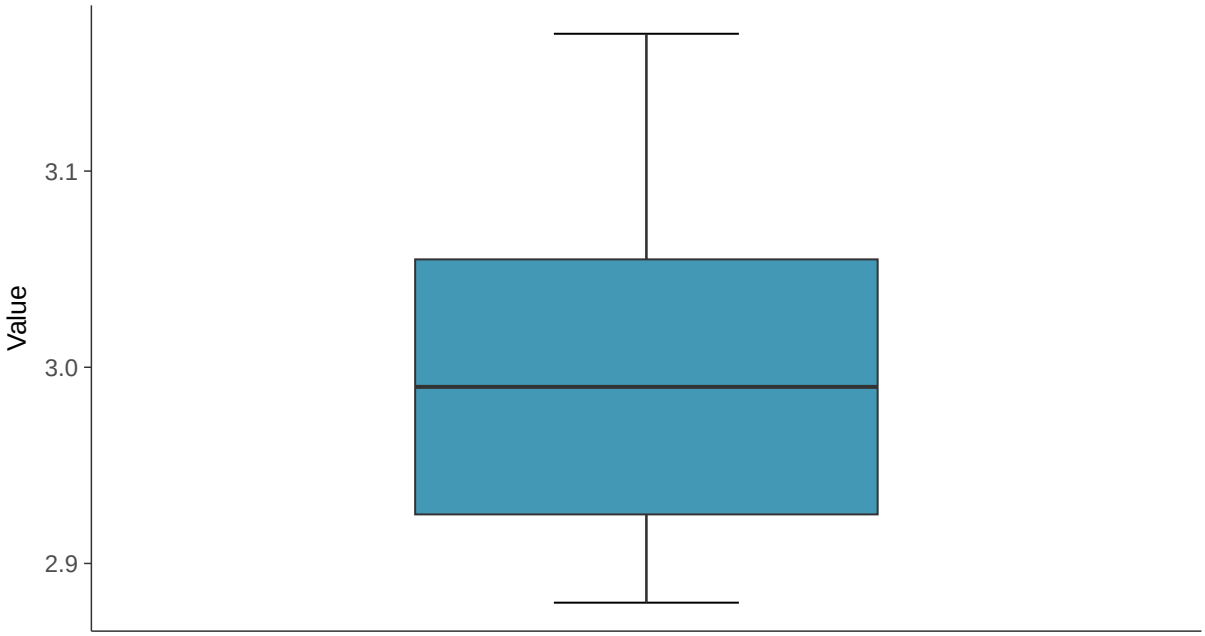
ID: 7B_1_01





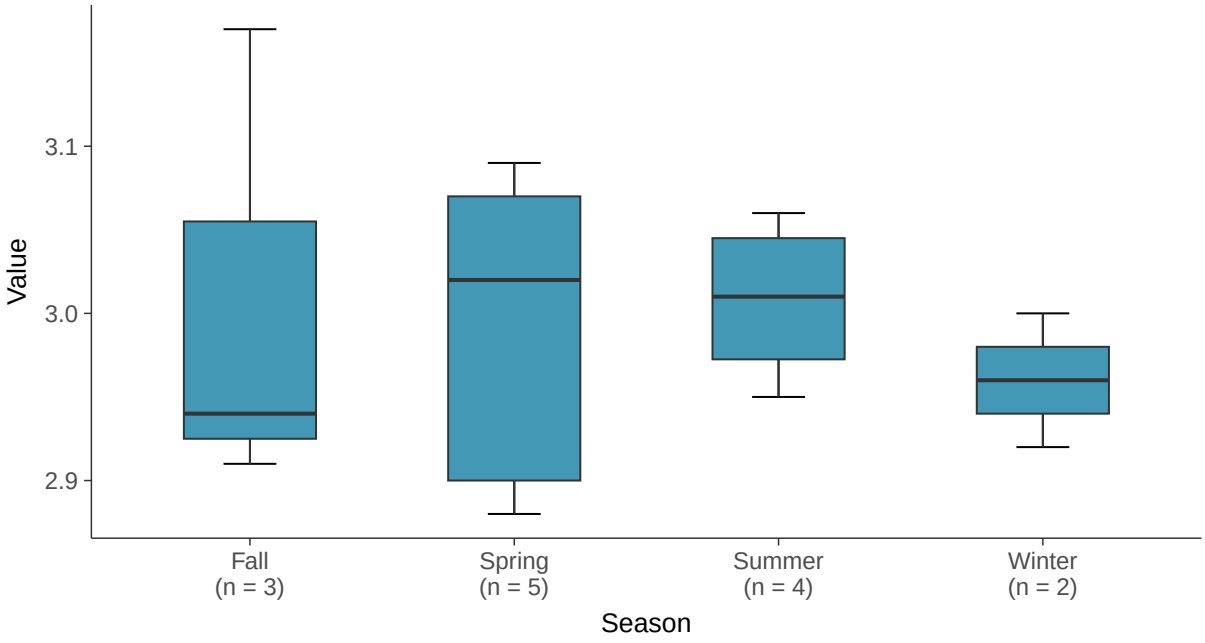
Boxplot

Boron, MW-7B (mg/L)



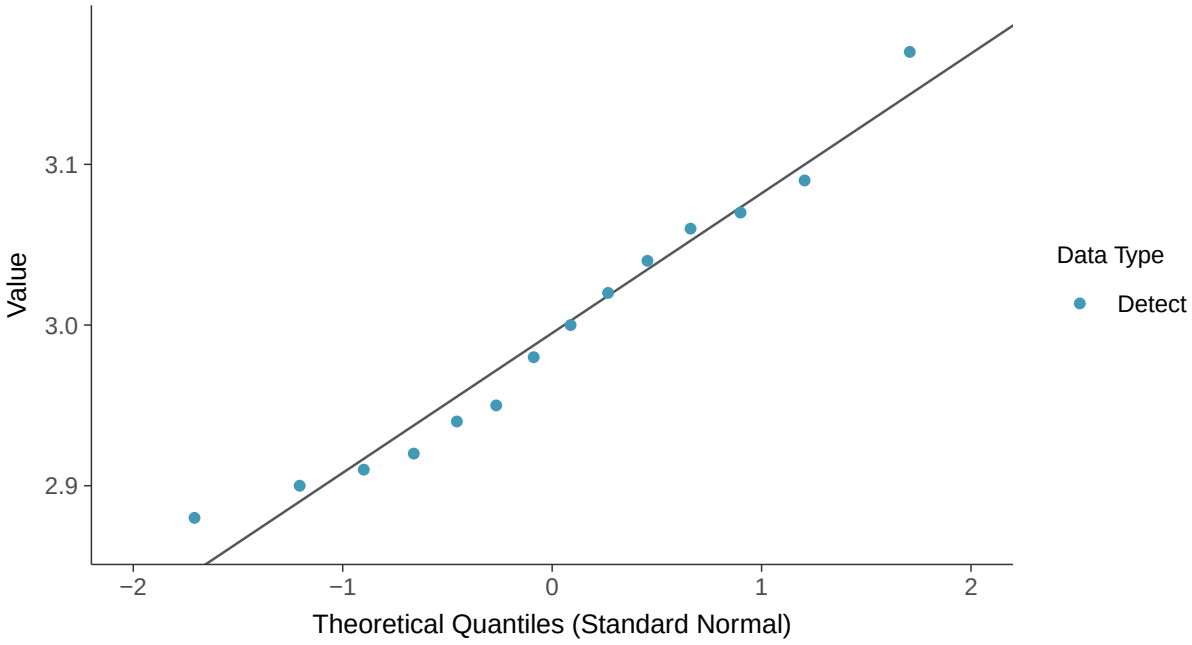
Boxplot by Season

Boron, MW-7B (mg/L)



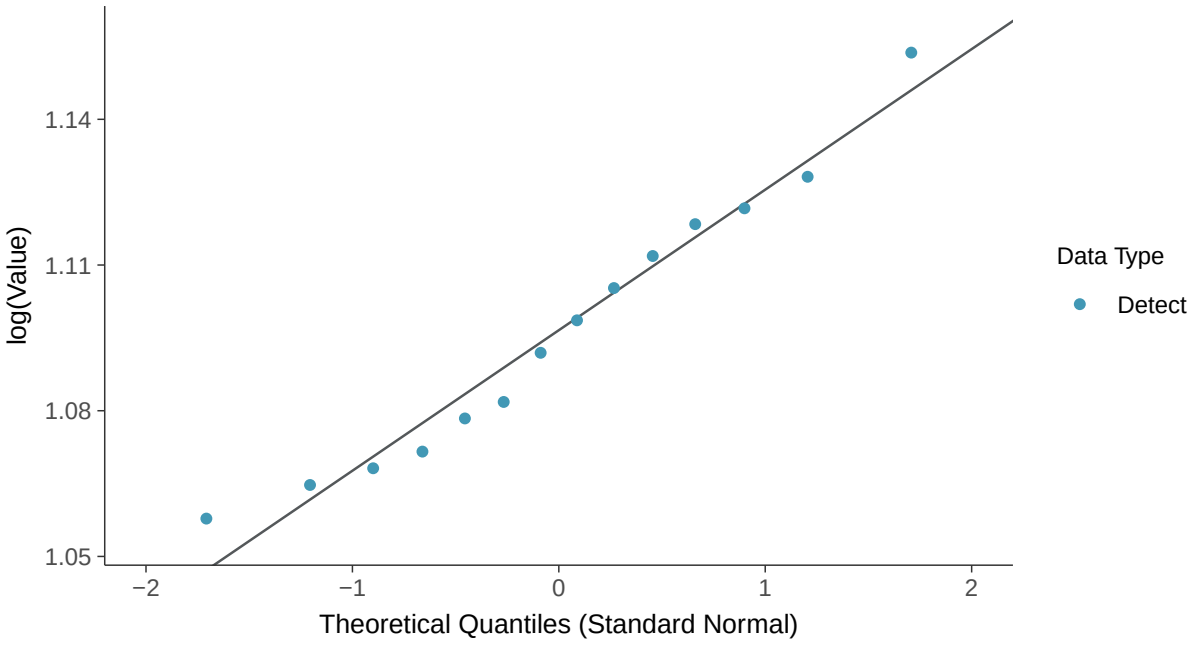
Normal Q-Q plot

Boron, MW-7B (mg/L)



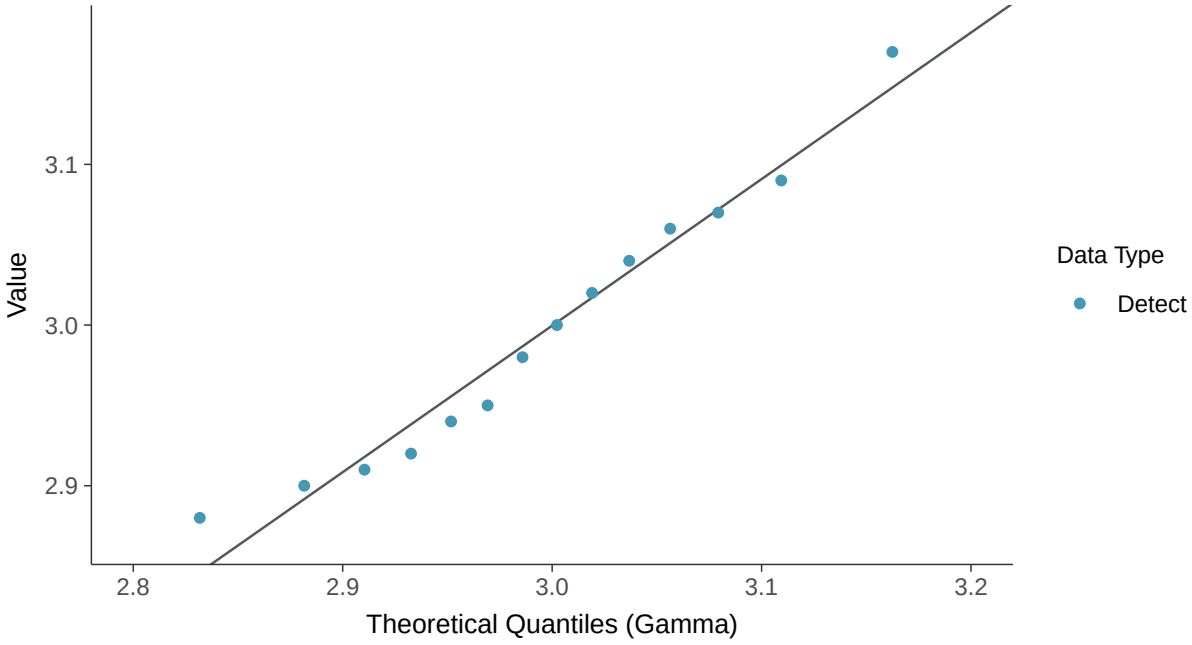
Lognormal Q-Q plot

Boron, MW-7B (mg/L)



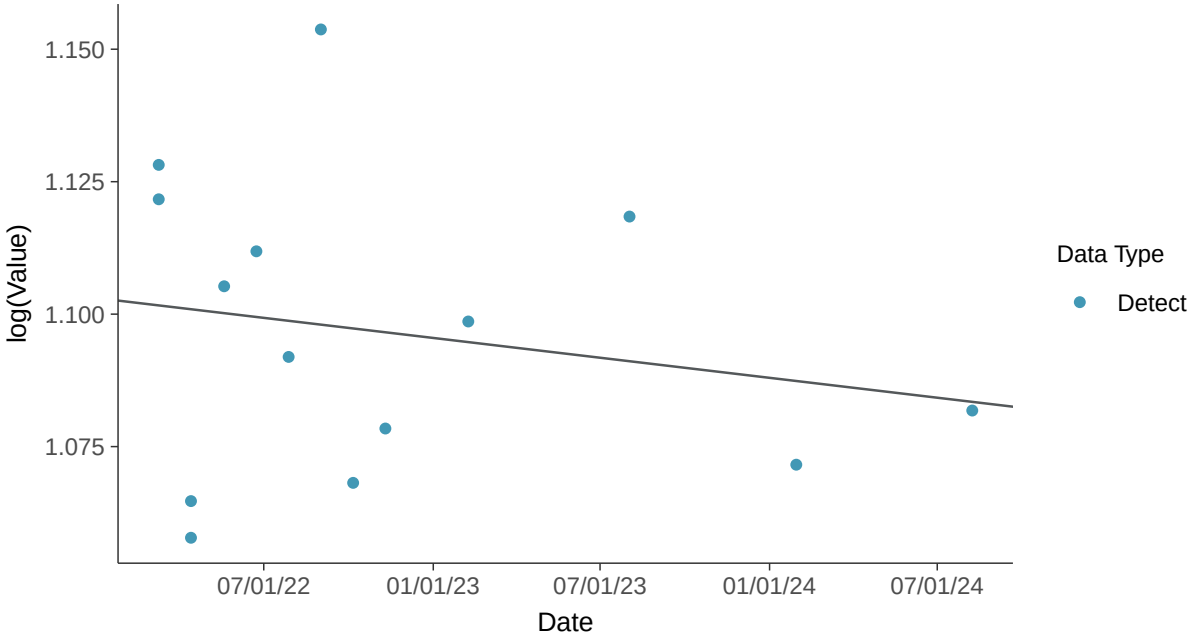
Gamma Q-Q plot

Boron, MW-7B (mg/L)



Trend Regression: Lognormal MLE

Boron, MW-7B (mg/L)

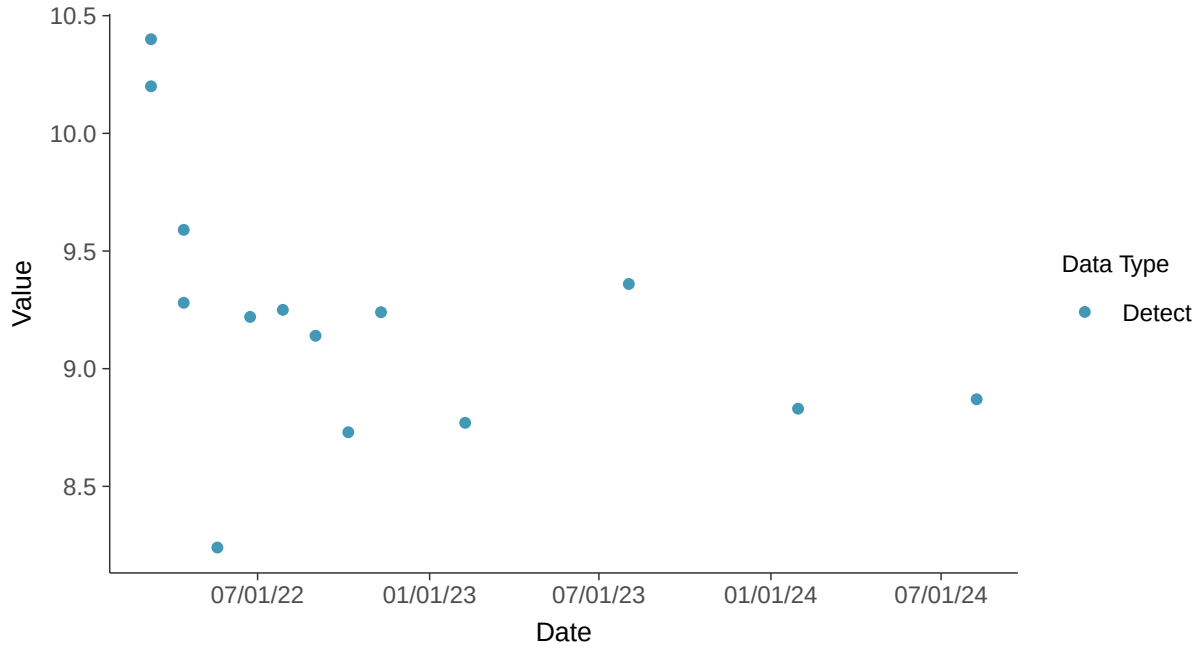


Appendix III: Calcium, MW-7B

ID: 7B_1_02

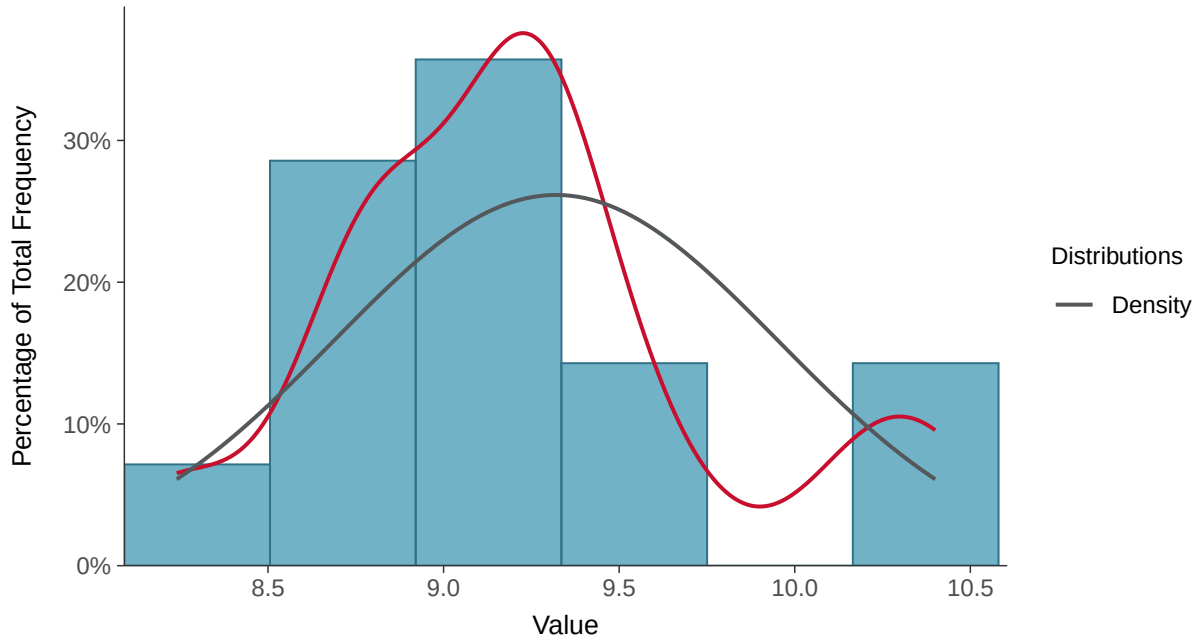
Scatter Plot

Calcium, MW-7B (mg/L)



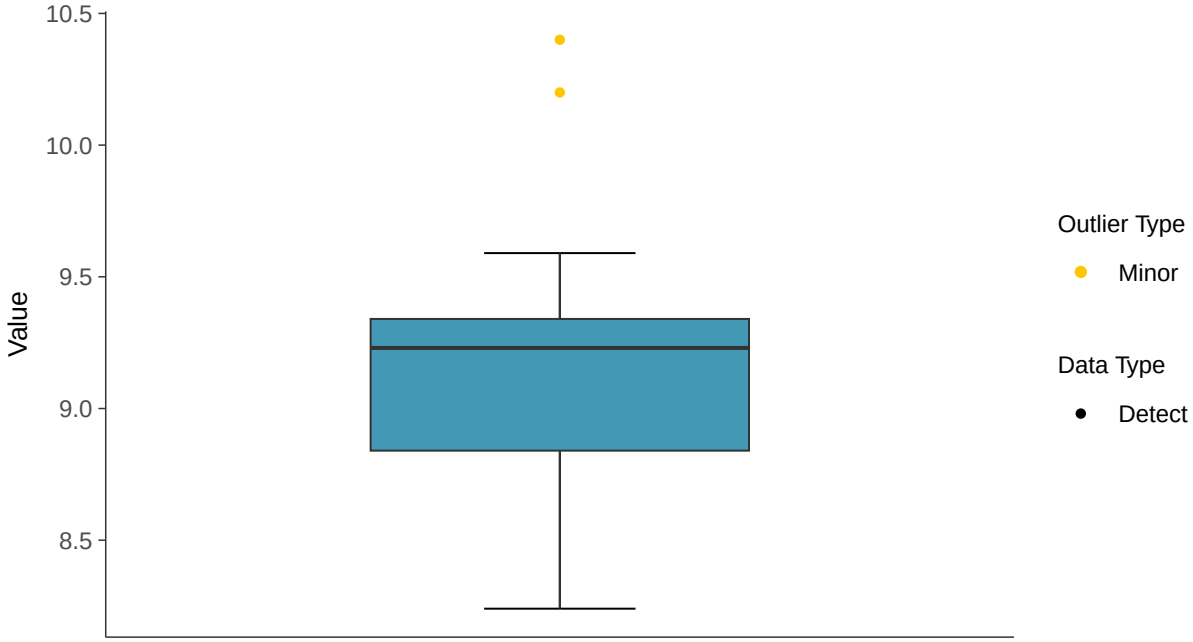
Histogram

Calcium, MW-7B (mg/L)



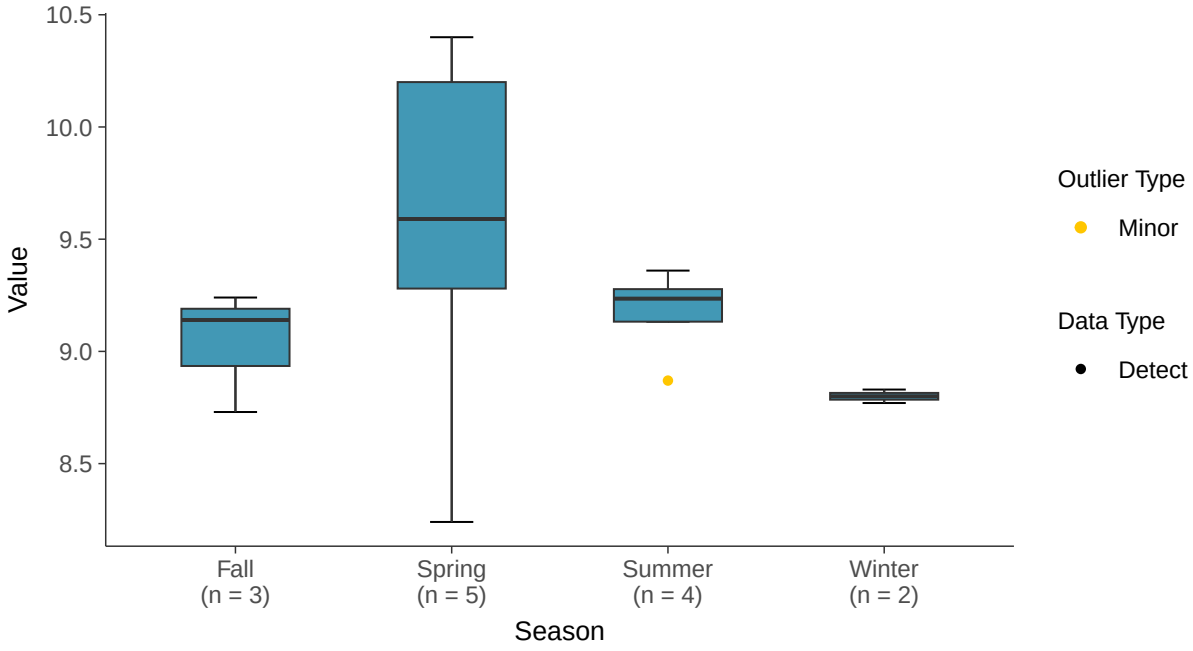
Boxplot

Calcium, MW-7B (mg/L)



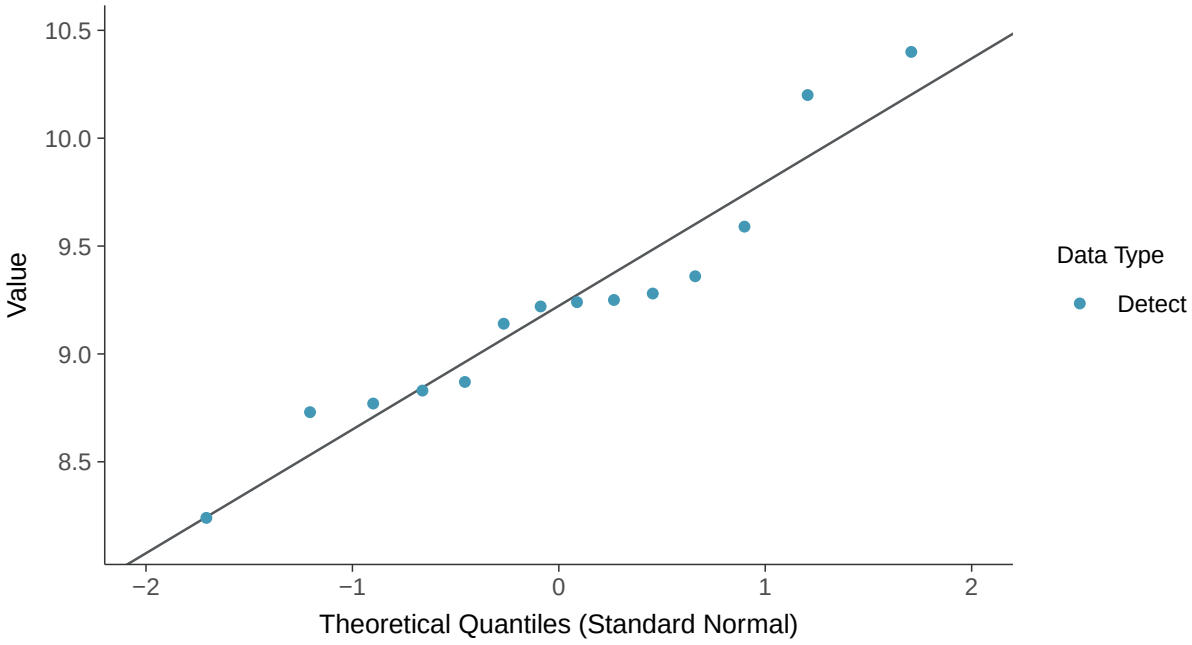
Boxplot by Season

Calcium, MW-7B (mg/L)



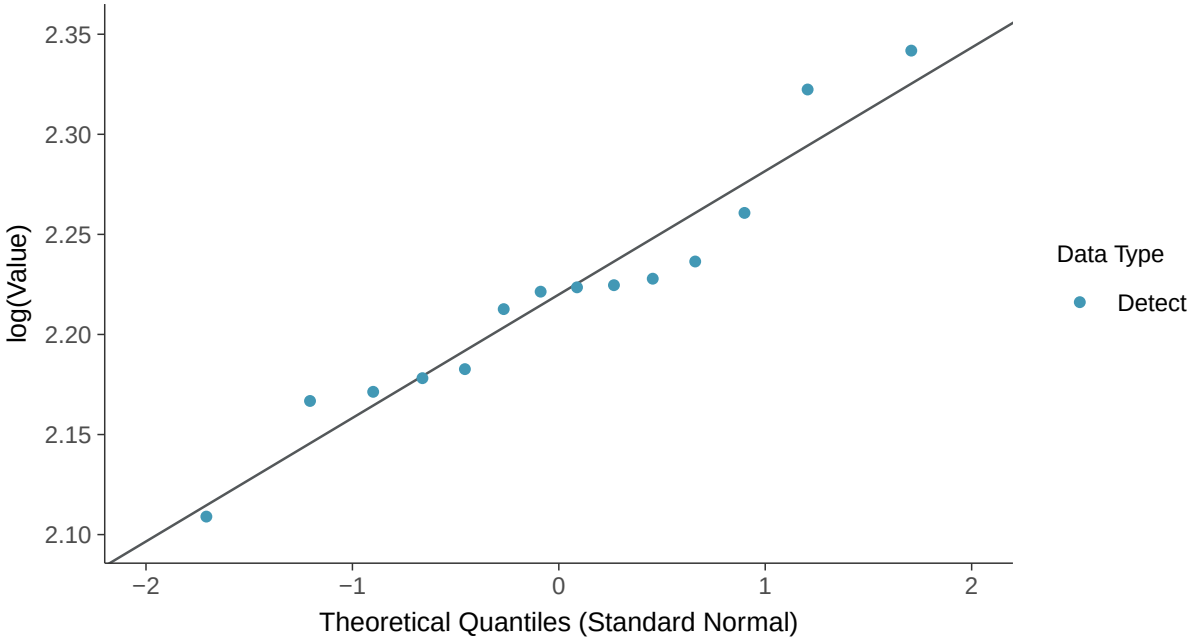
Normal Q-Q plot

Calcium, MW-7B (mg/L)



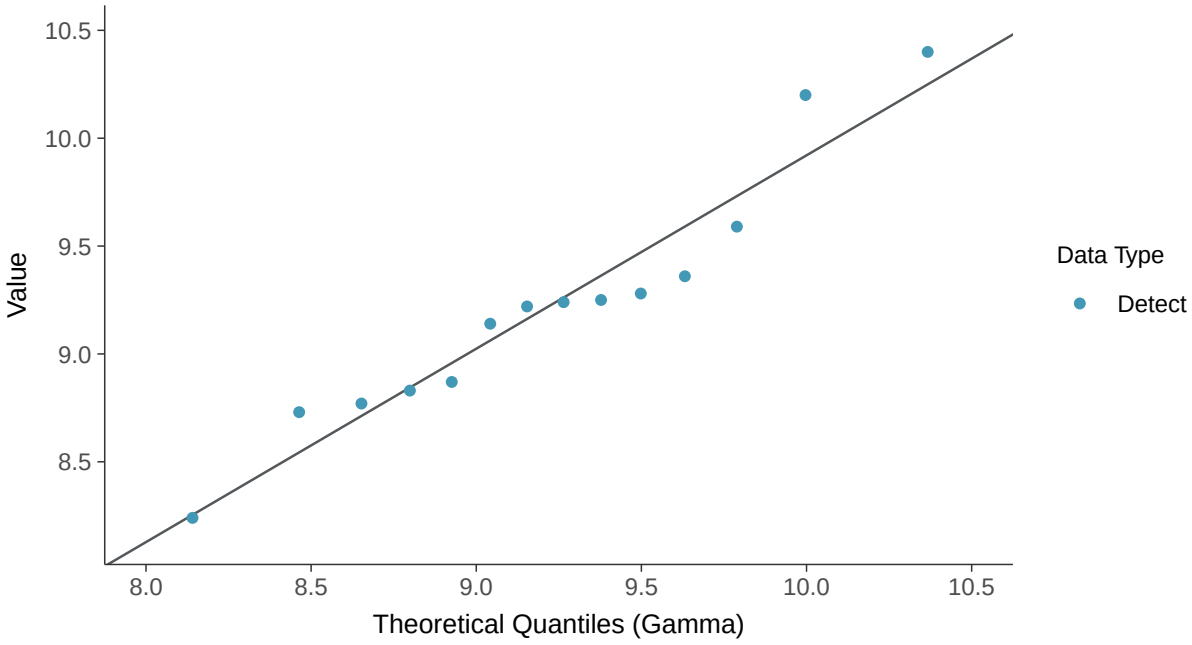
Lognormal Q-Q plot

Calcium, MW-7B (mg/L)



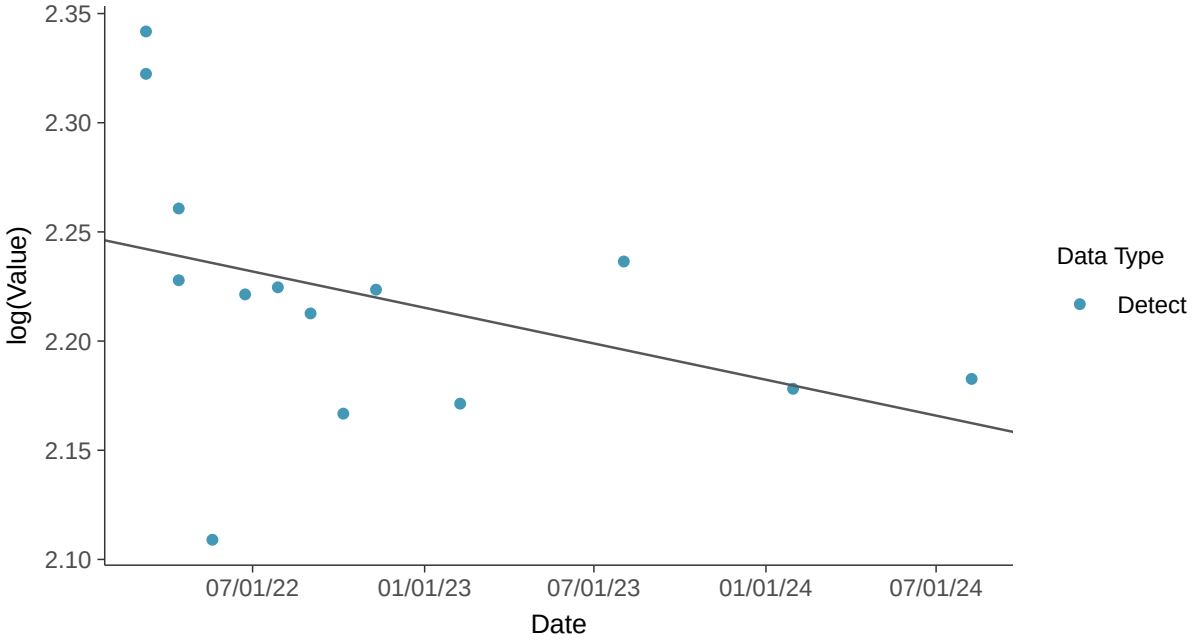
Gamma Q-Q plot

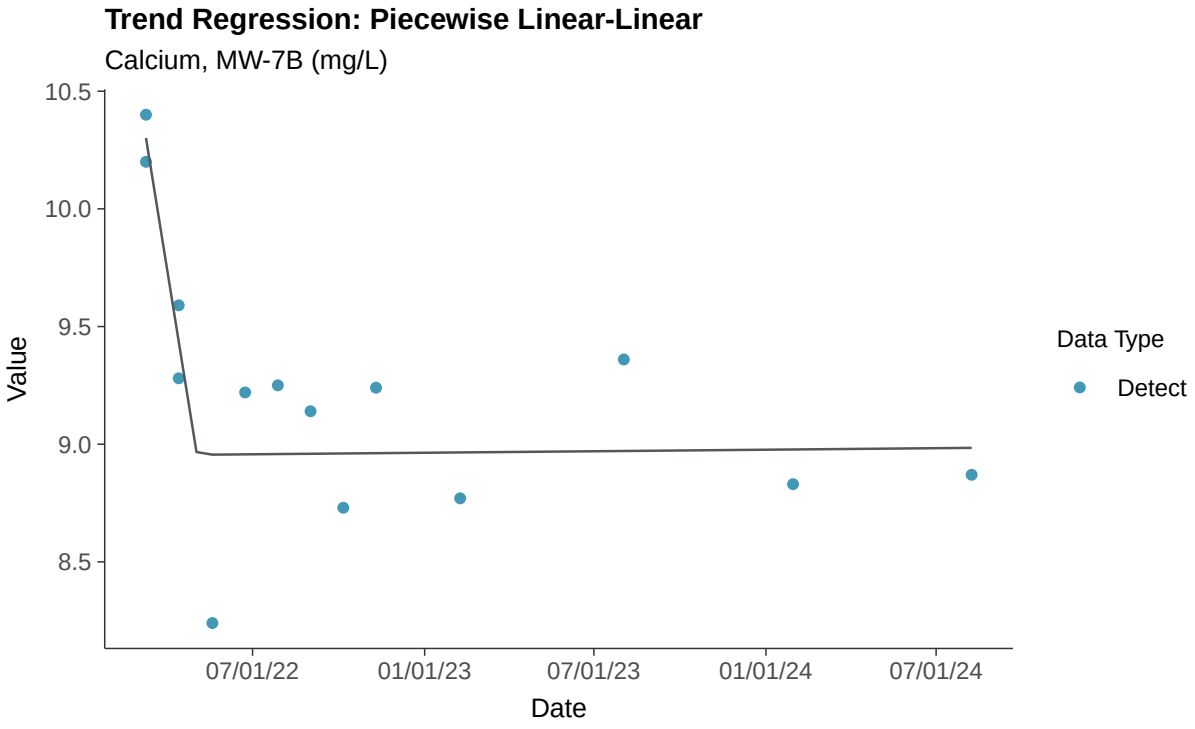
Calcium, MW-7B (mg/L)



Trend Regression: Lognormal MLE

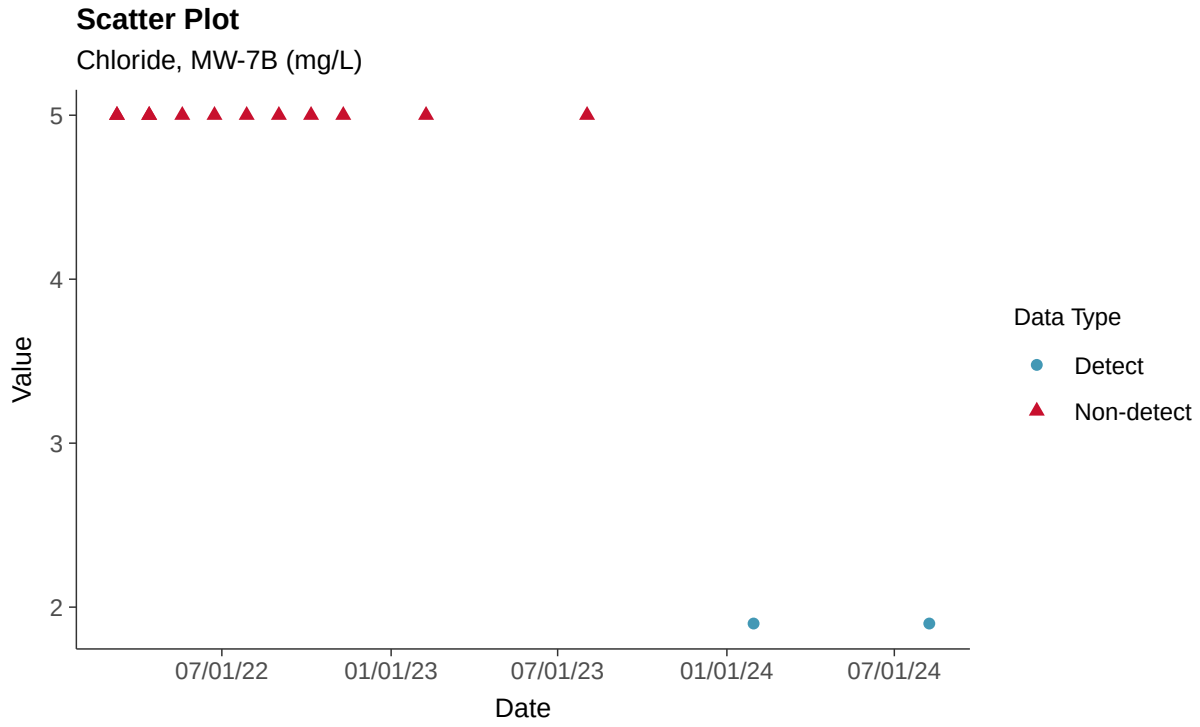
Calcium, MW-7B (mg/L)

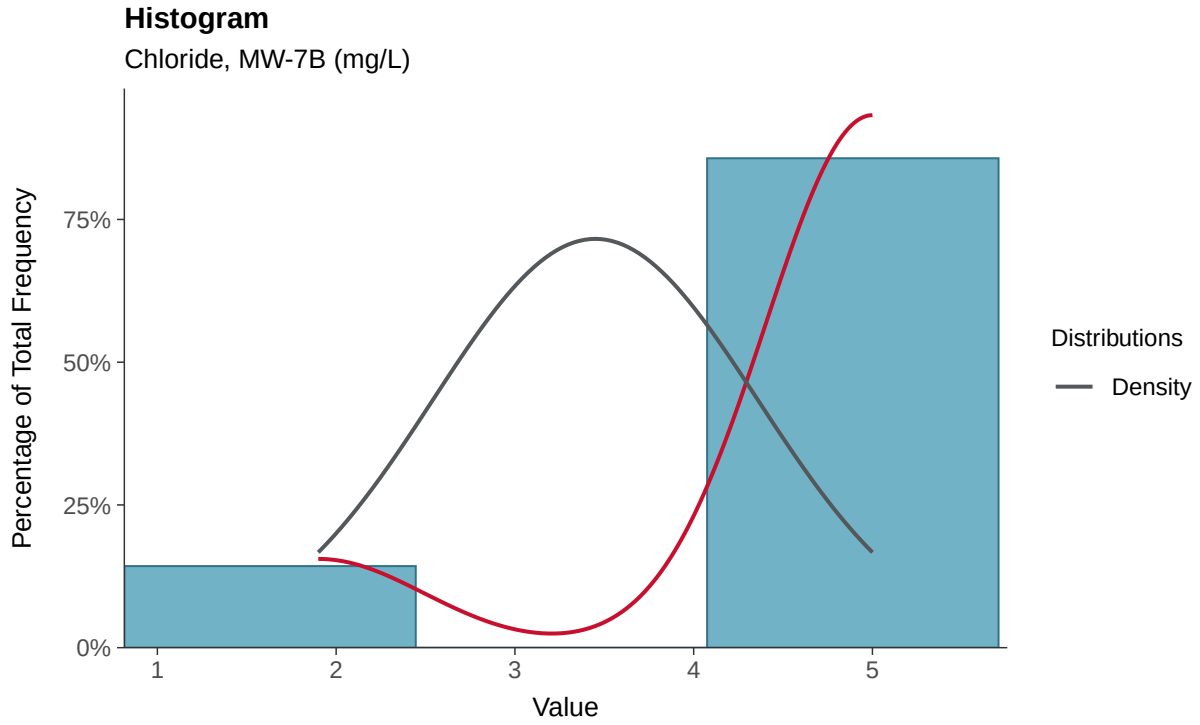



Trend Regression: Piecewise Linear-Linear
Calcium, MW-7B (mg/L)
Value
10.5
10.0
9.5
9.0
8.5
07/01/22
01/01/23
07/01/23
01/01/24
07/01/24
Date
Data Type
Detect

Appendix III: Chloride, MW-7B

ID: 7B_1_03



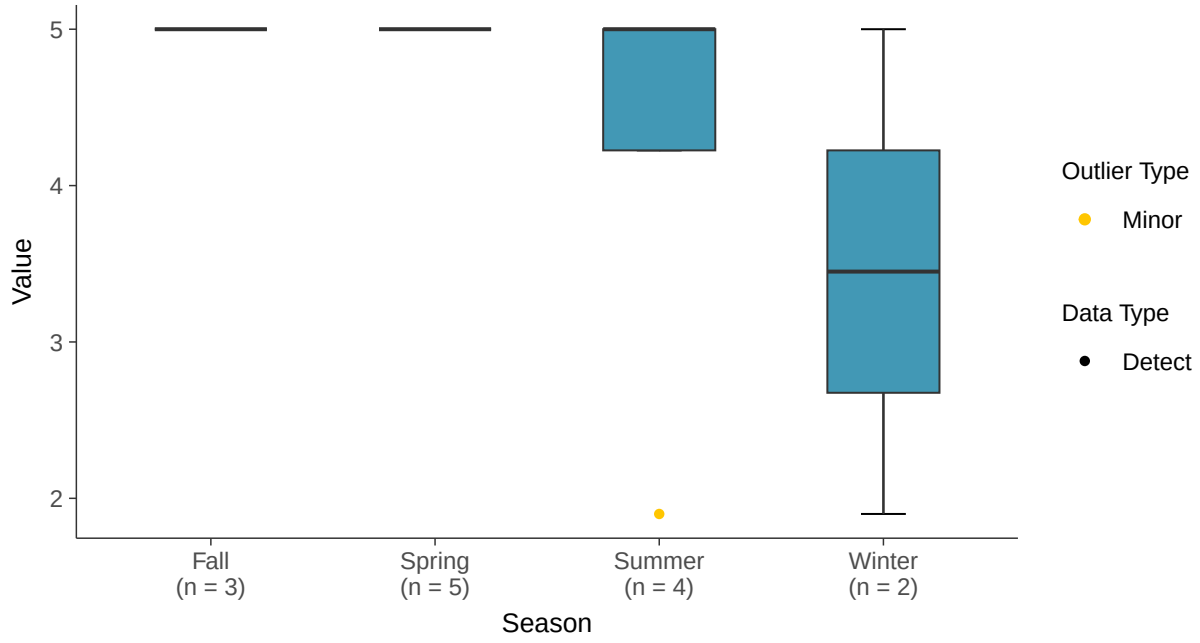


Boxplot

Chloride, MW-7B (mg/L)

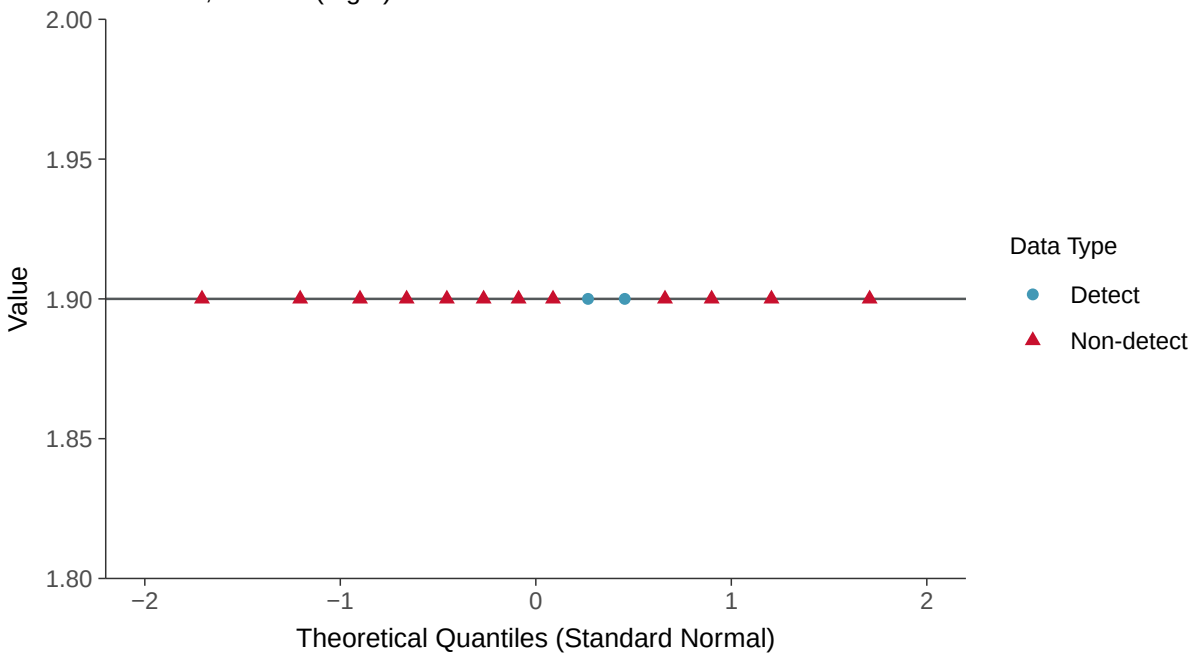
Boxplot by Season

Chloride, MW-7B (mg/L)



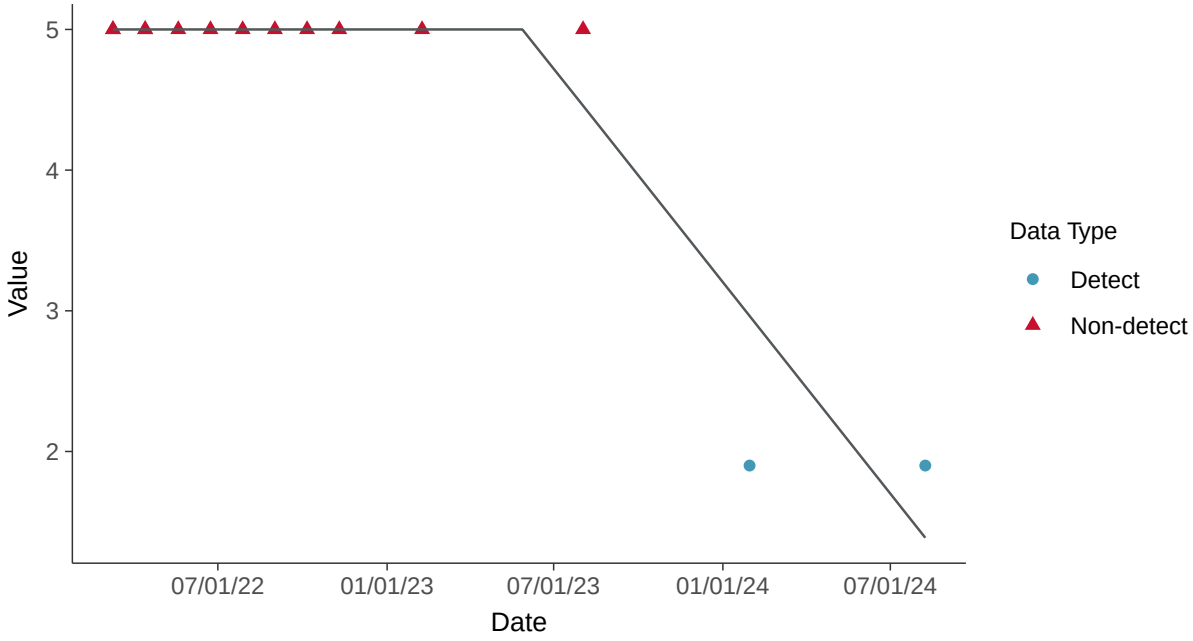
Normal Q-Q plot using ROS Imputed Estimates

Chloride, MW-7B (mg/L)



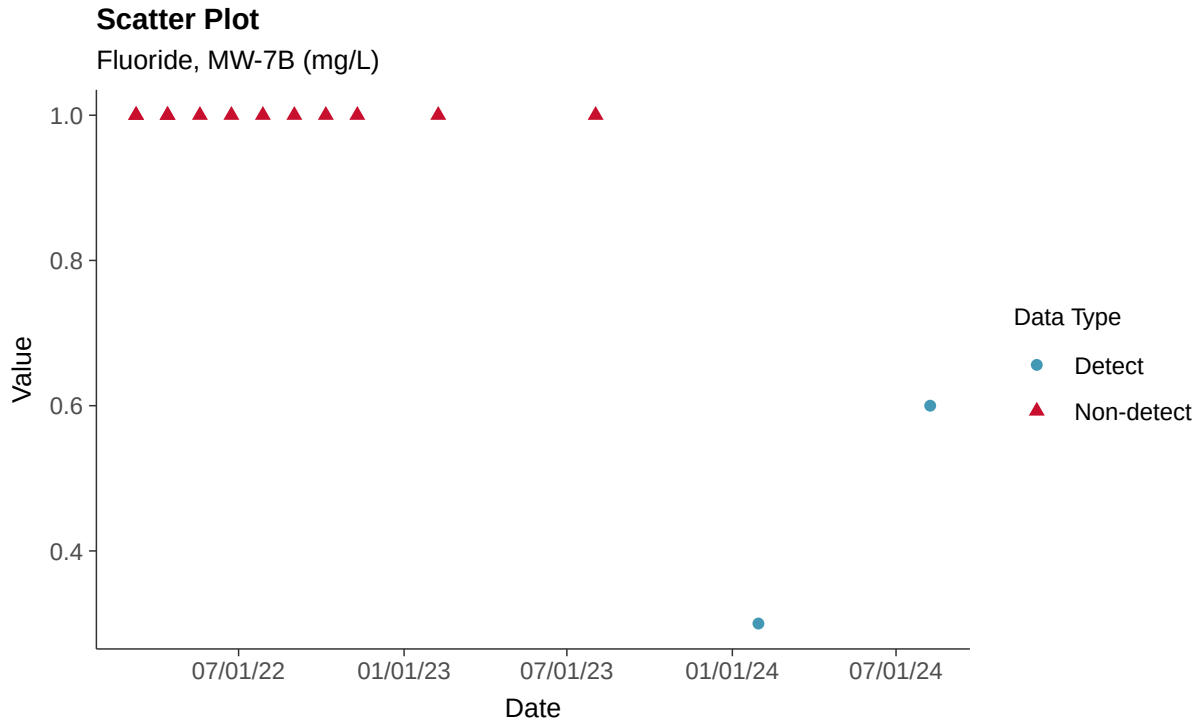
Trend Regression: Piecewise Linear-Linear

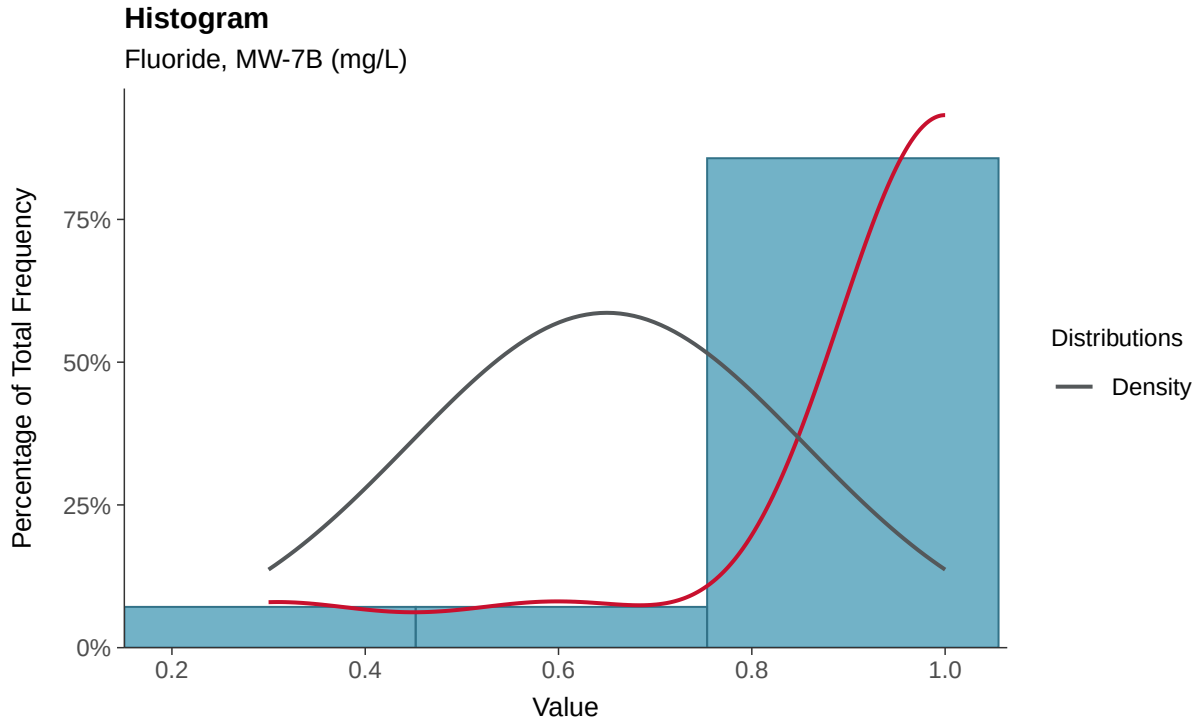
Chloride, MW-7B (mg/L)



Appendix III: Fluoride, MW-7B

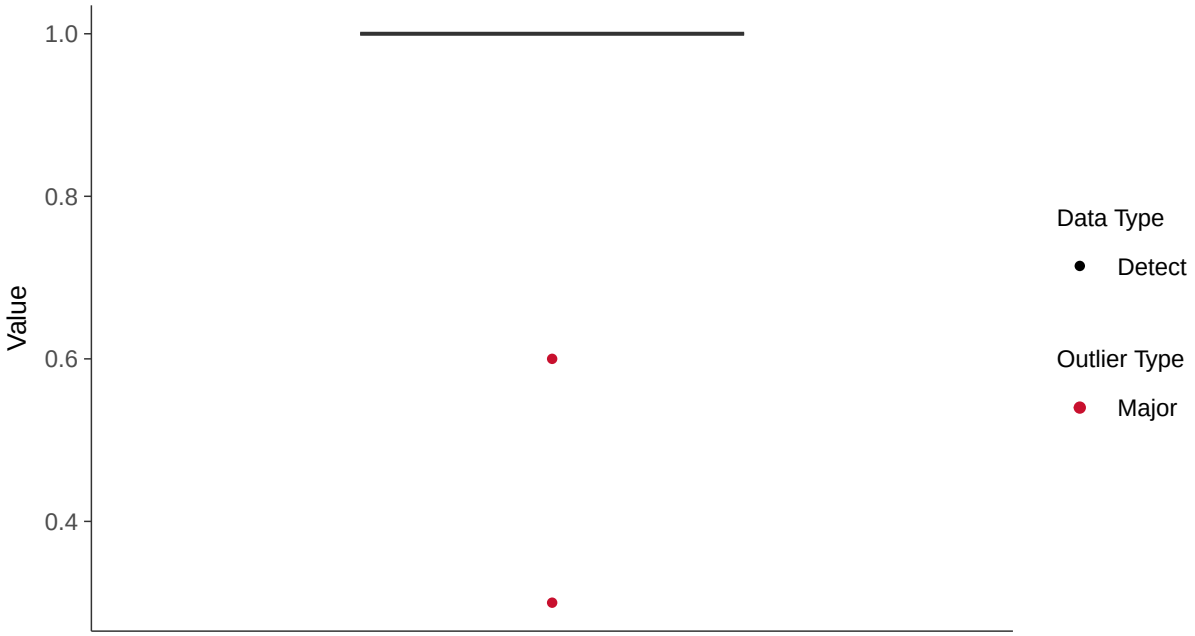
ID: 7B_1_04





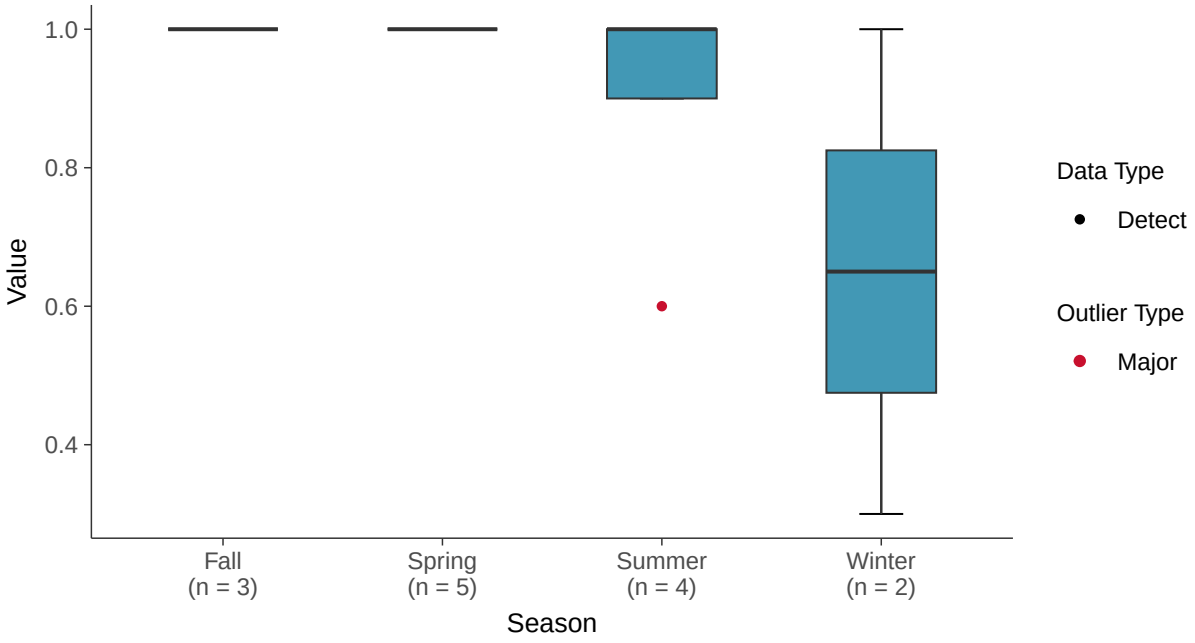
Boxplot

Fluoride, MW-7B (mg/L)



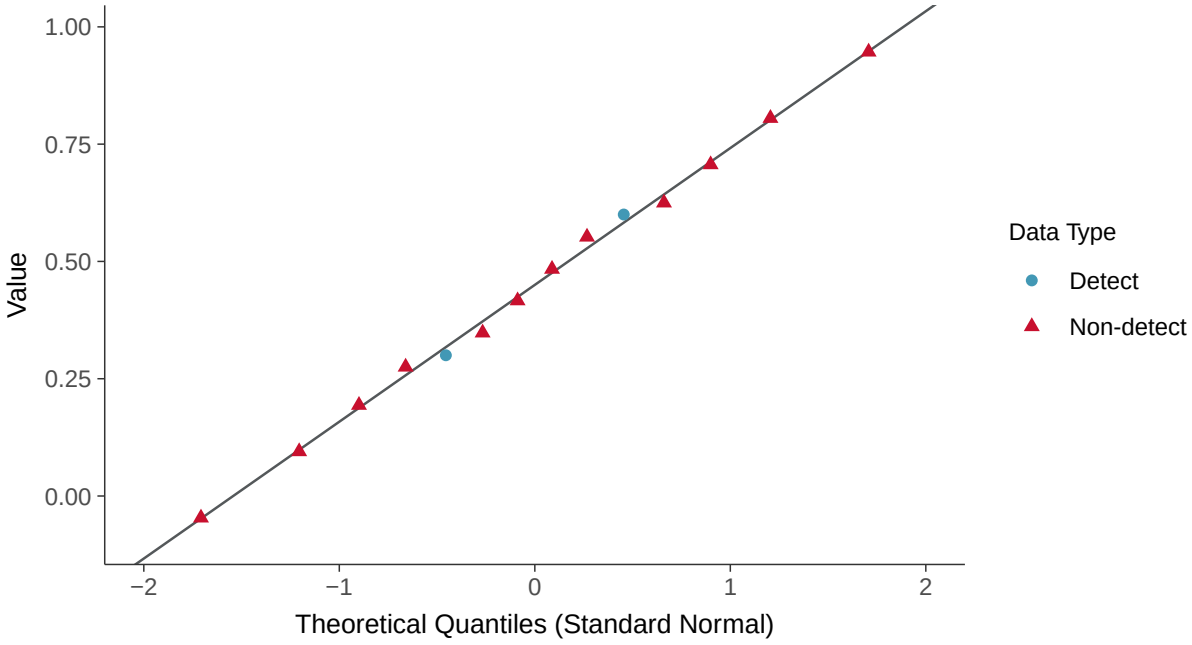
Boxplot by Season

Fluoride, MW-7B (mg/L)



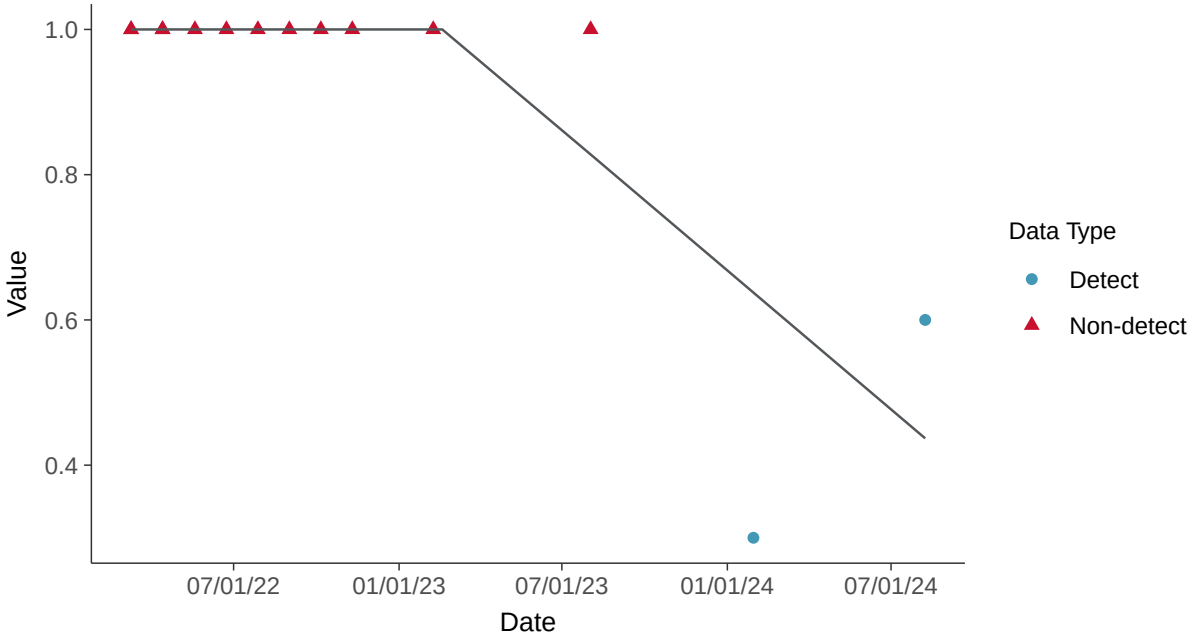
Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-7B (mg/L)



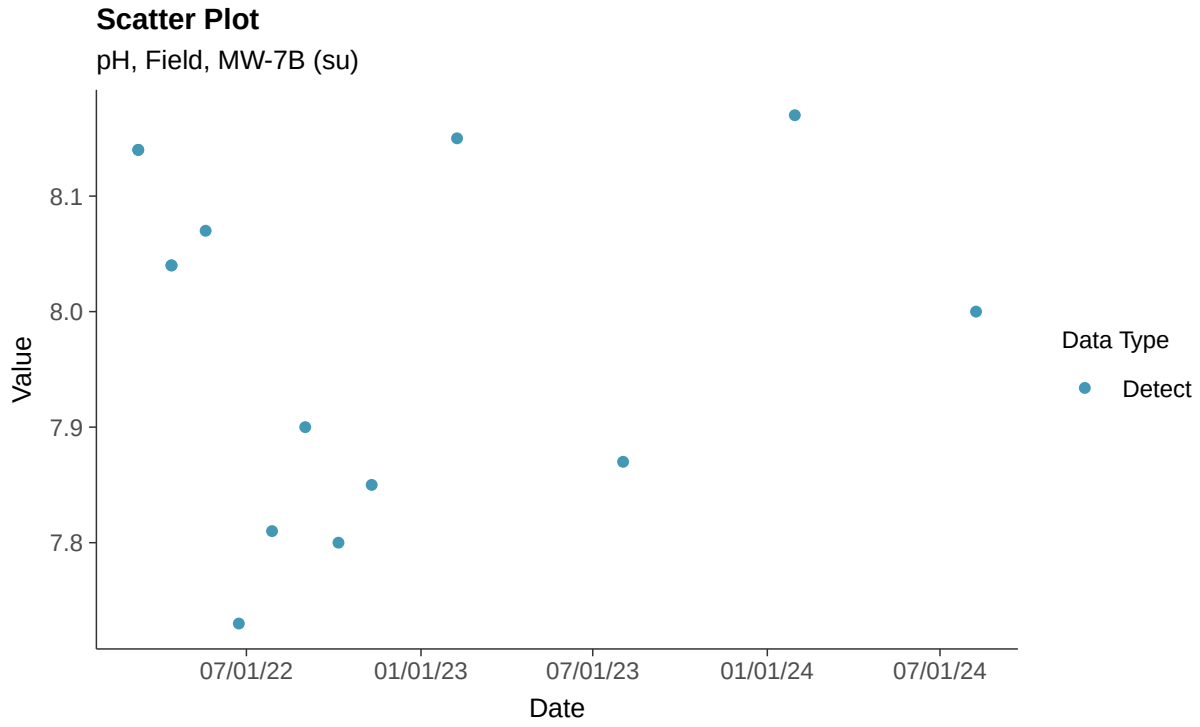
Trend Regression: Piecewise Linear-Linear

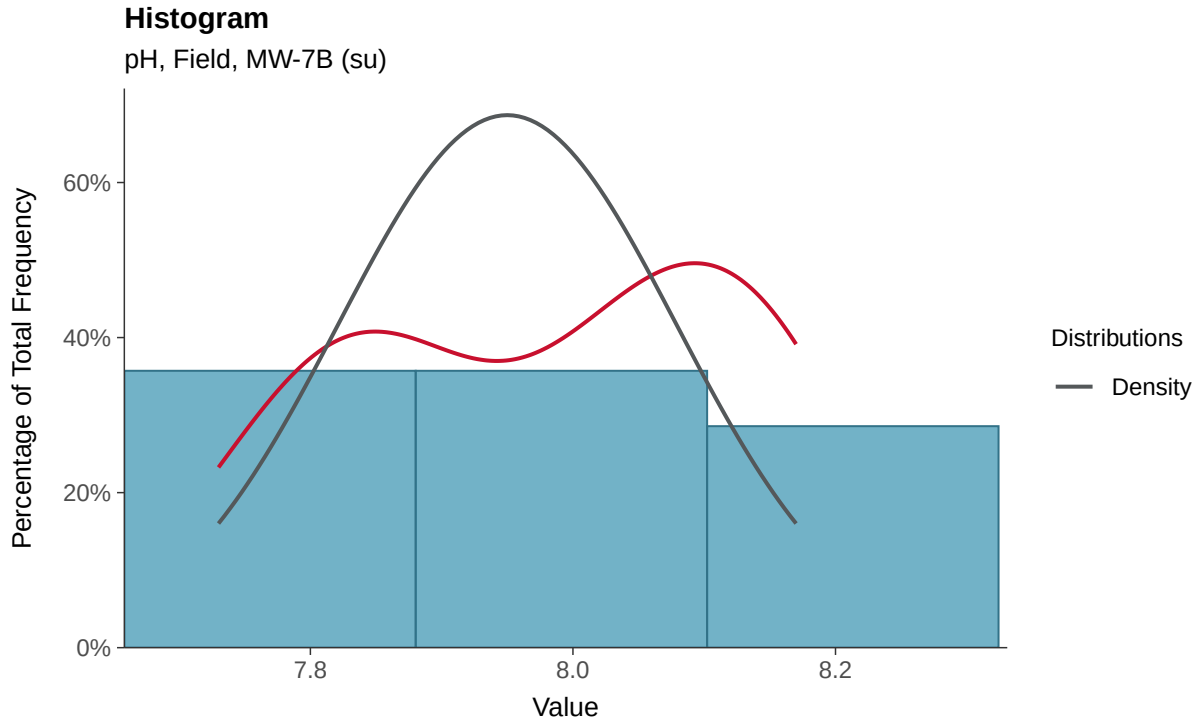
Fluoride, MW-7B (mg/L)



Appendix III: pH, Field, MW-7B

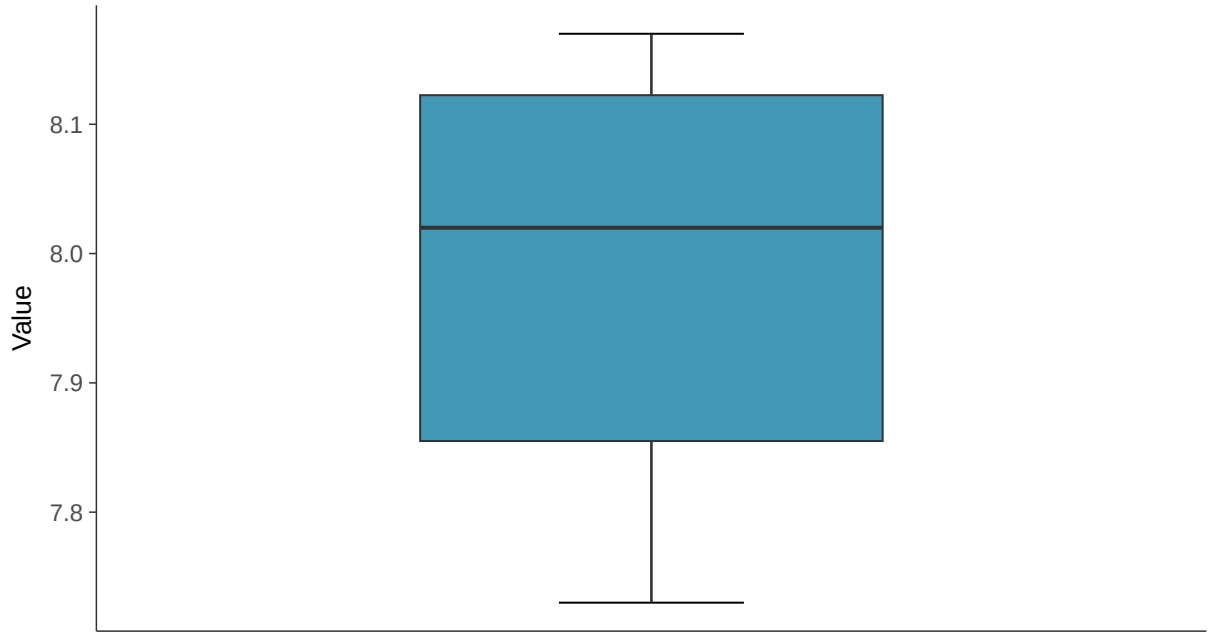
ID: 7B_1_05





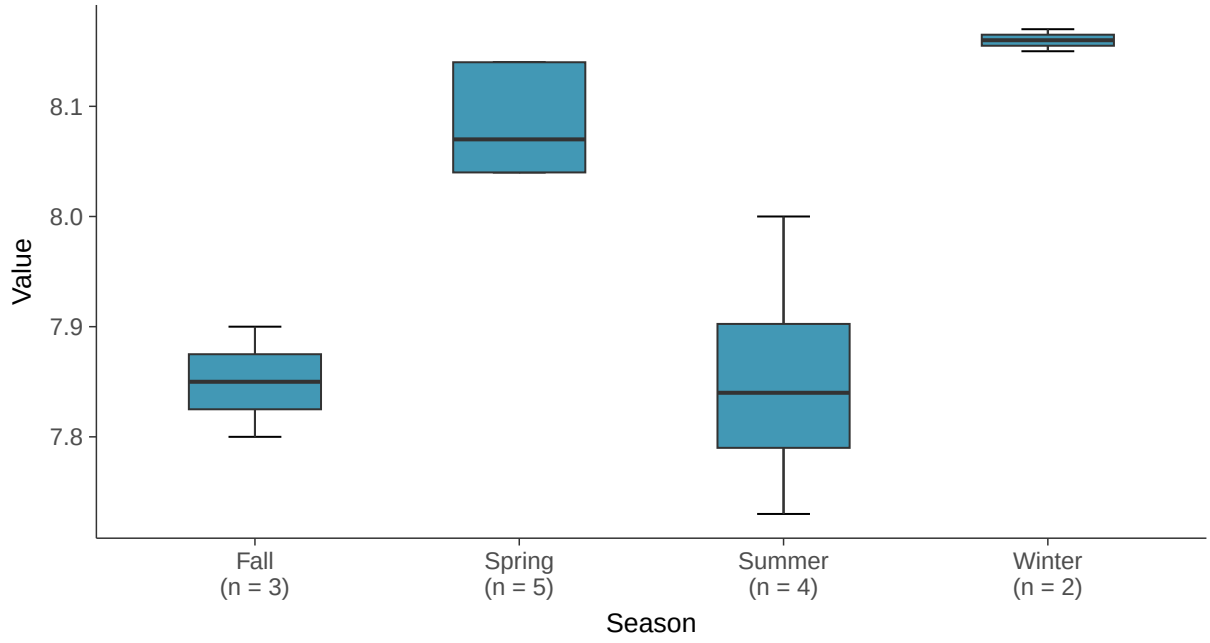
Boxplot

pH, Field, MW-7B (su)



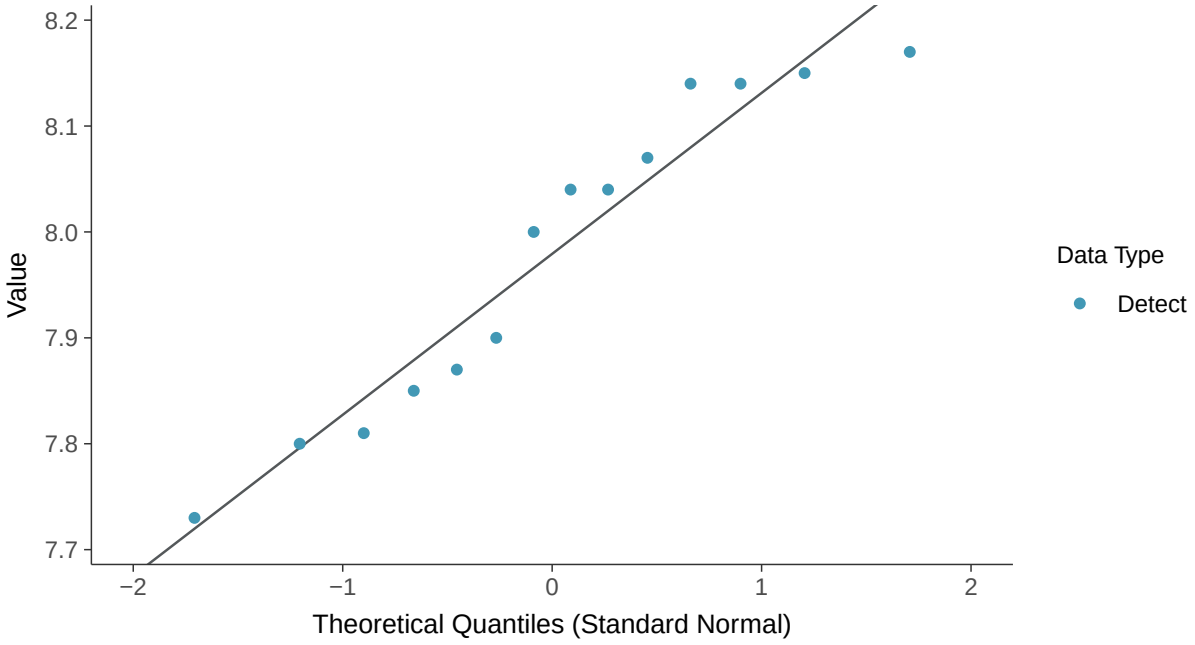
Boxplot by Season

pH, Field, MW-7B (su)



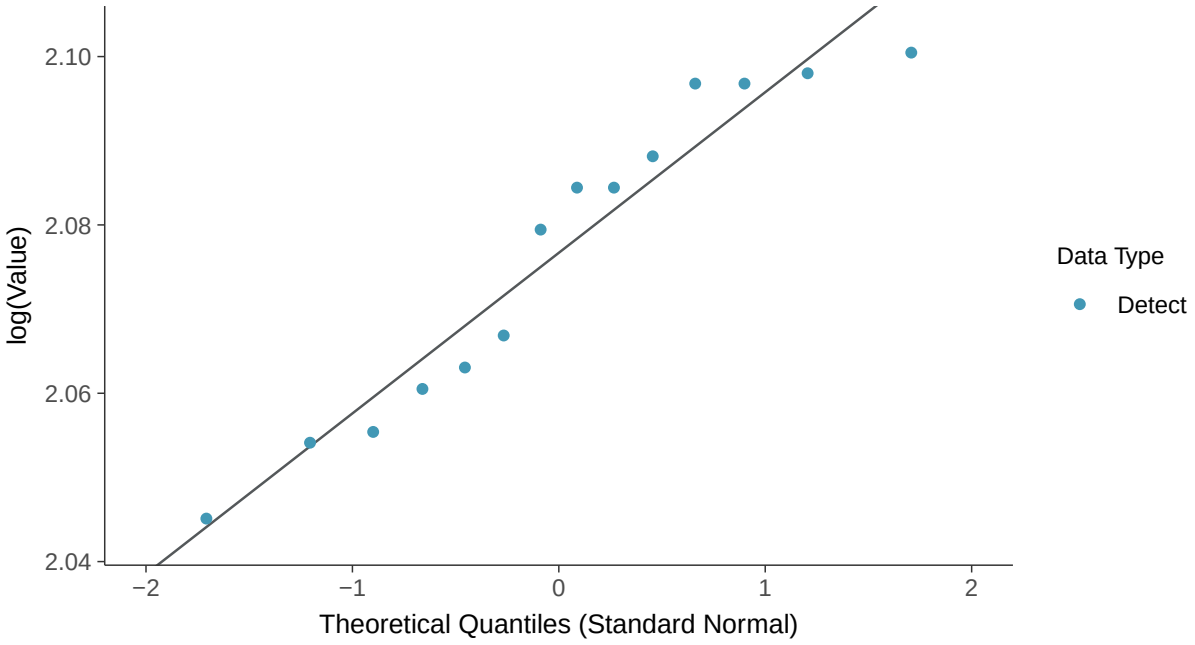
Normal Q-Q plot

pH, Field, MW-7B (su)



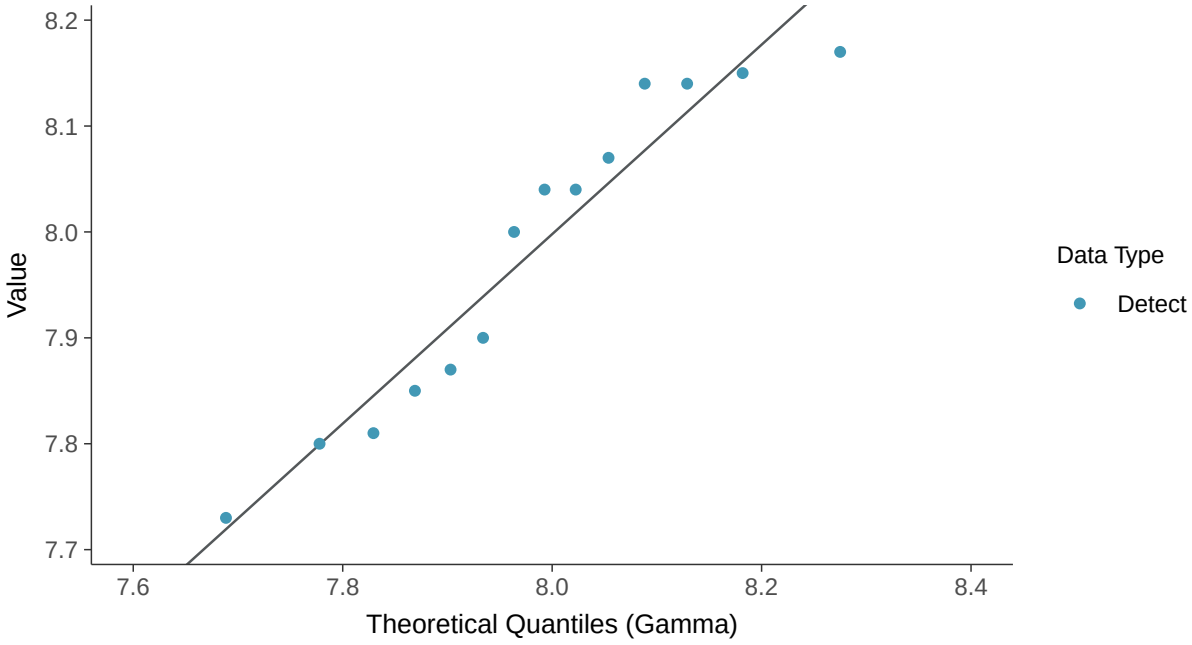
Lognormal Q-Q plot

pH, Field, MW-7B (su)



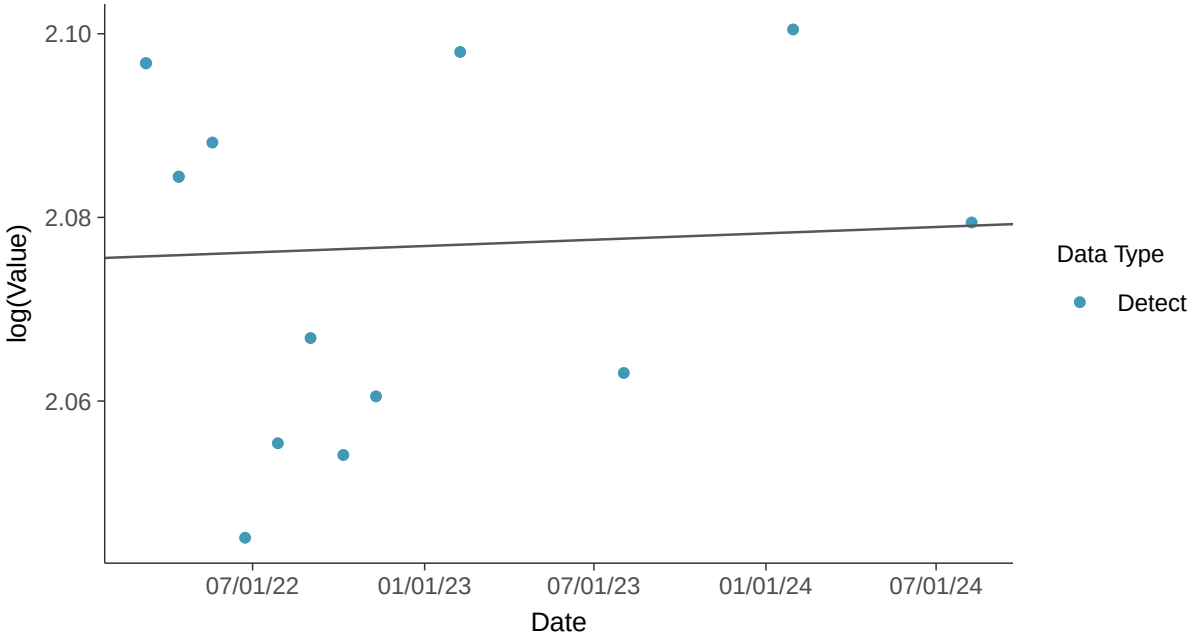
Gamma Q-Q plot

pH, Field, MW-7B (su)



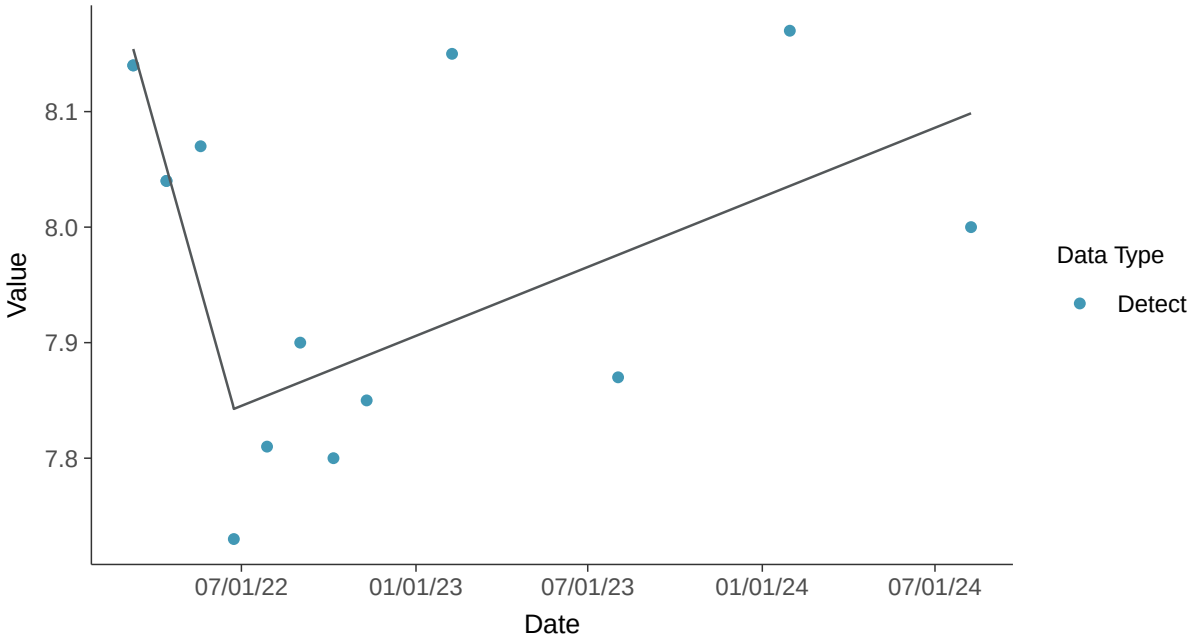
Trend Regression: Lognormal MLE

pH, Field, MW-7B (su)



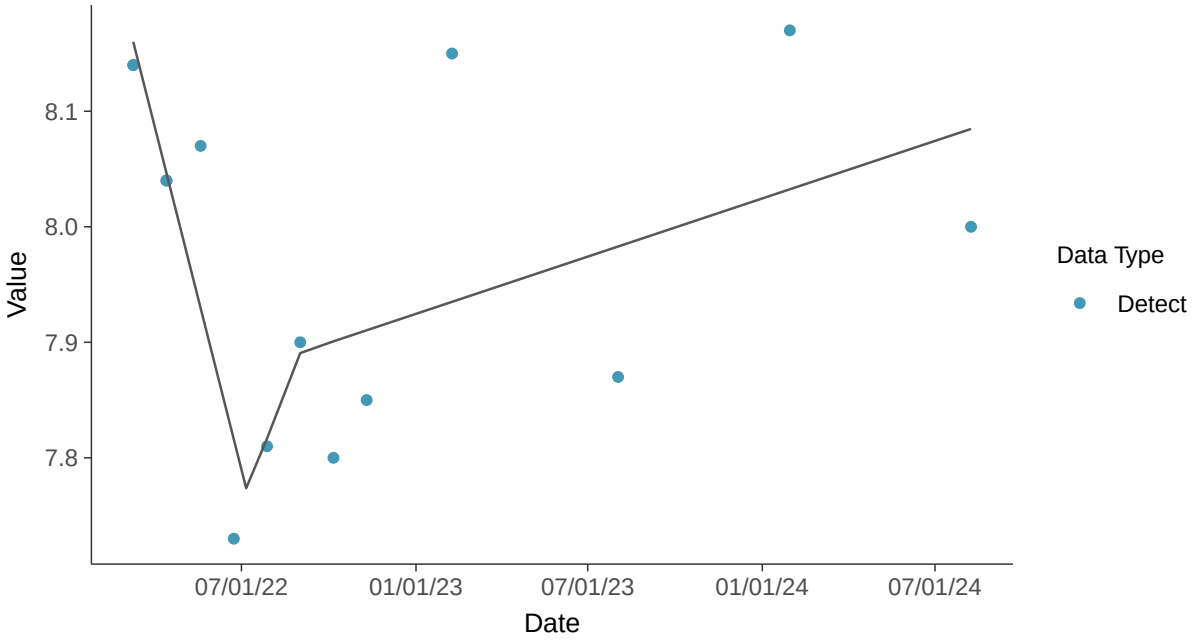
Trend Regression: Piecewise Linear-Linear

pH, Field, MW-7B (su)



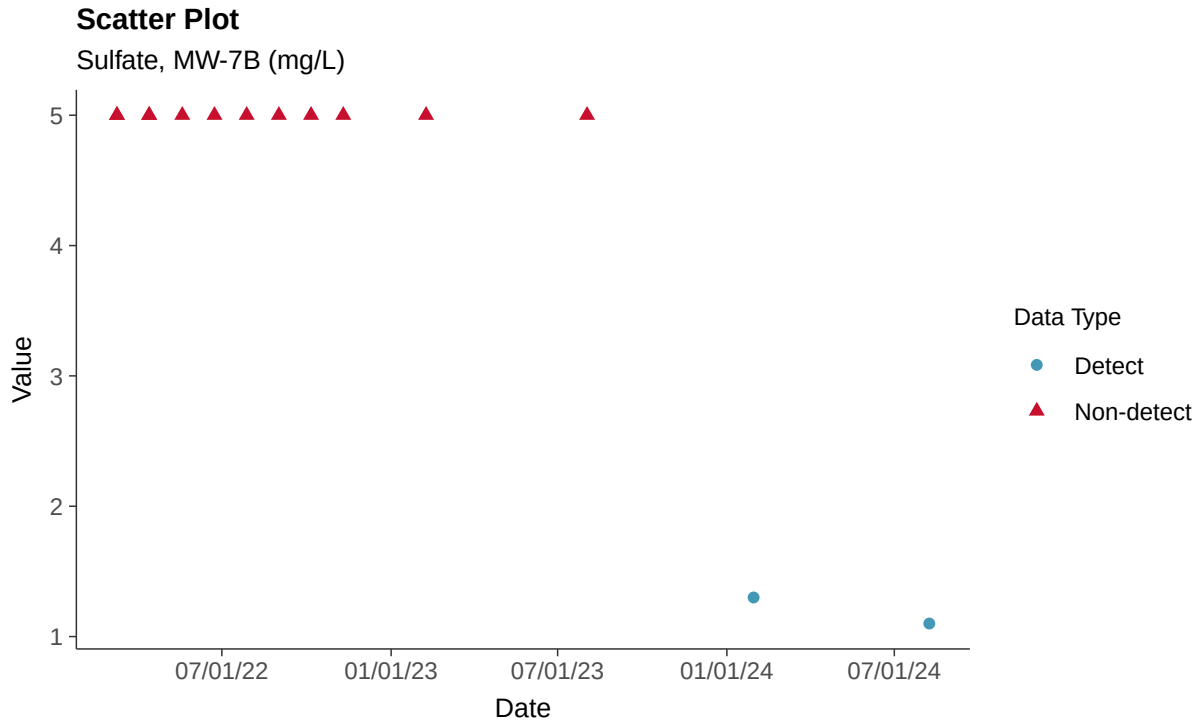
Trend Regression: Piecewise Linear-Linear-Linear

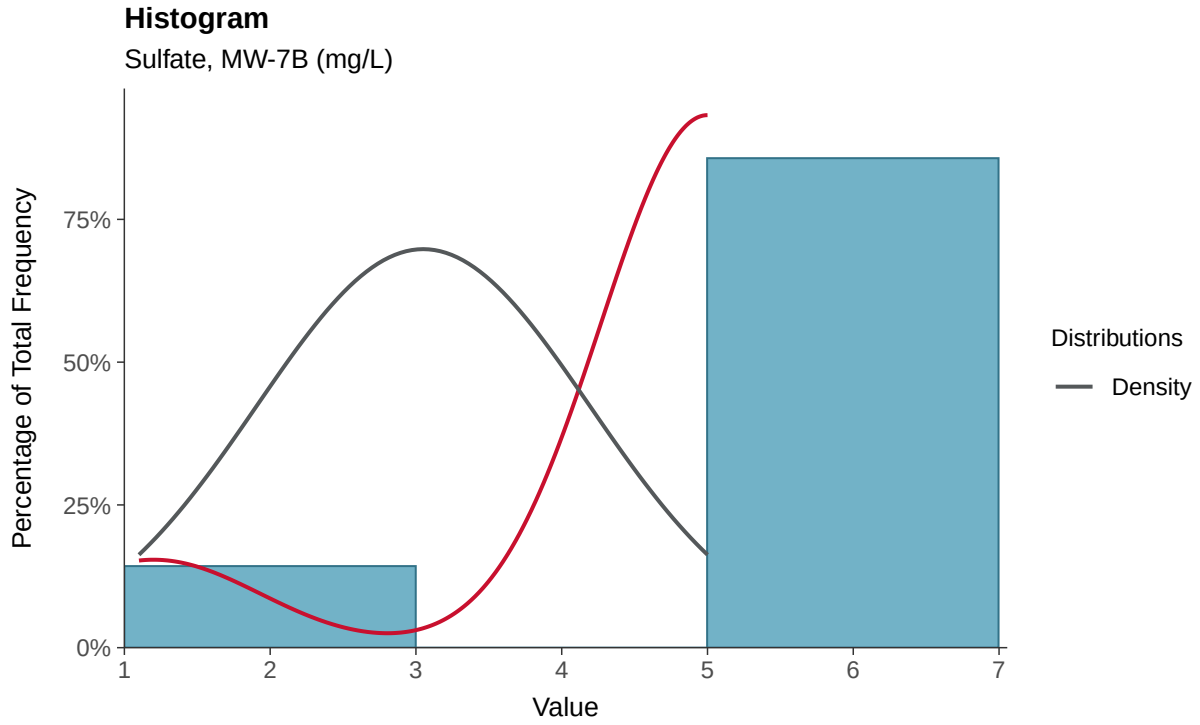
pH, Field, MW-7B (su)



Appendix III: Sulfate, MW-7B

ID: 7B_1_06



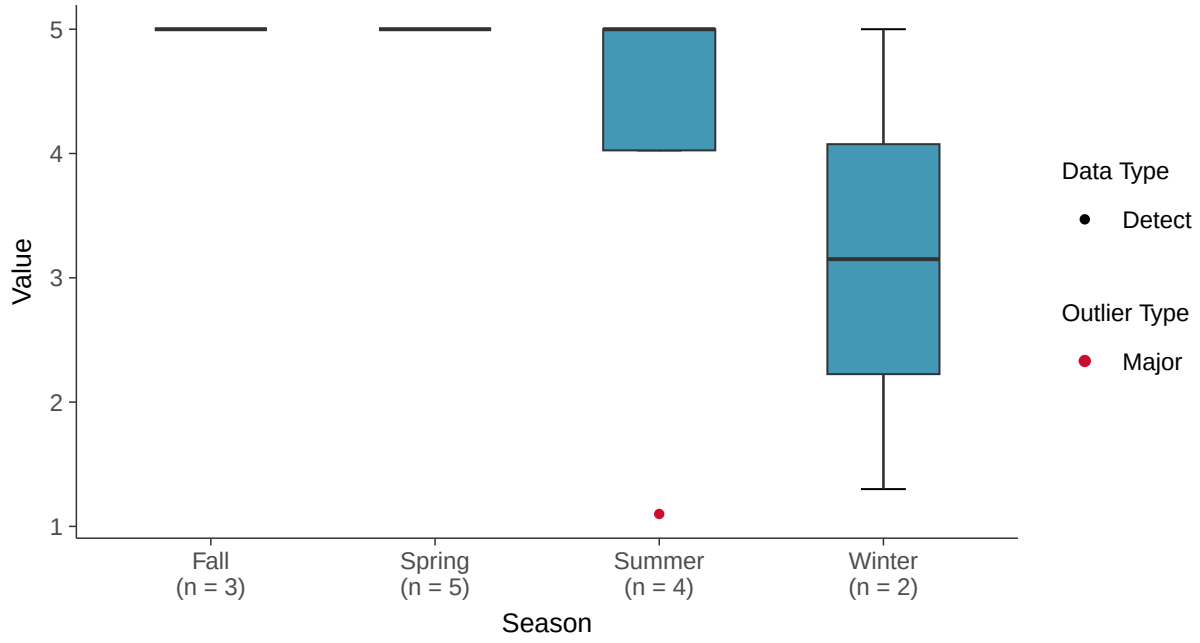


Boxplot

Sulfate, MW-7B (mg/L)

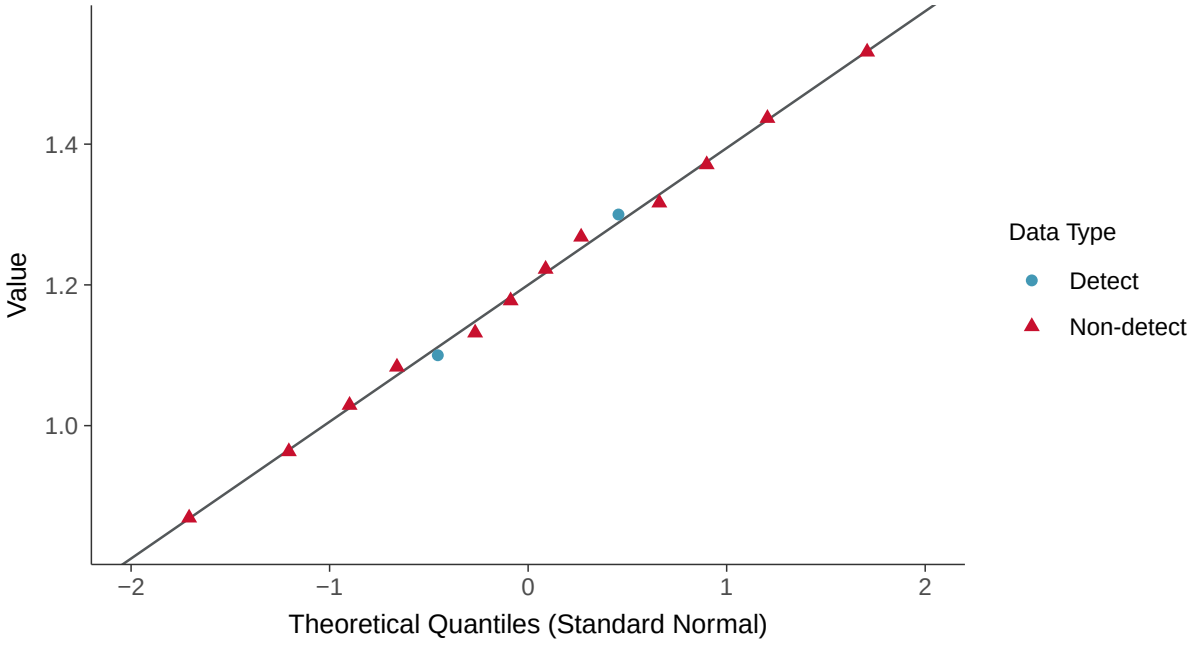
Boxplot by Season

Sulfate, MW-7B (mg/L)



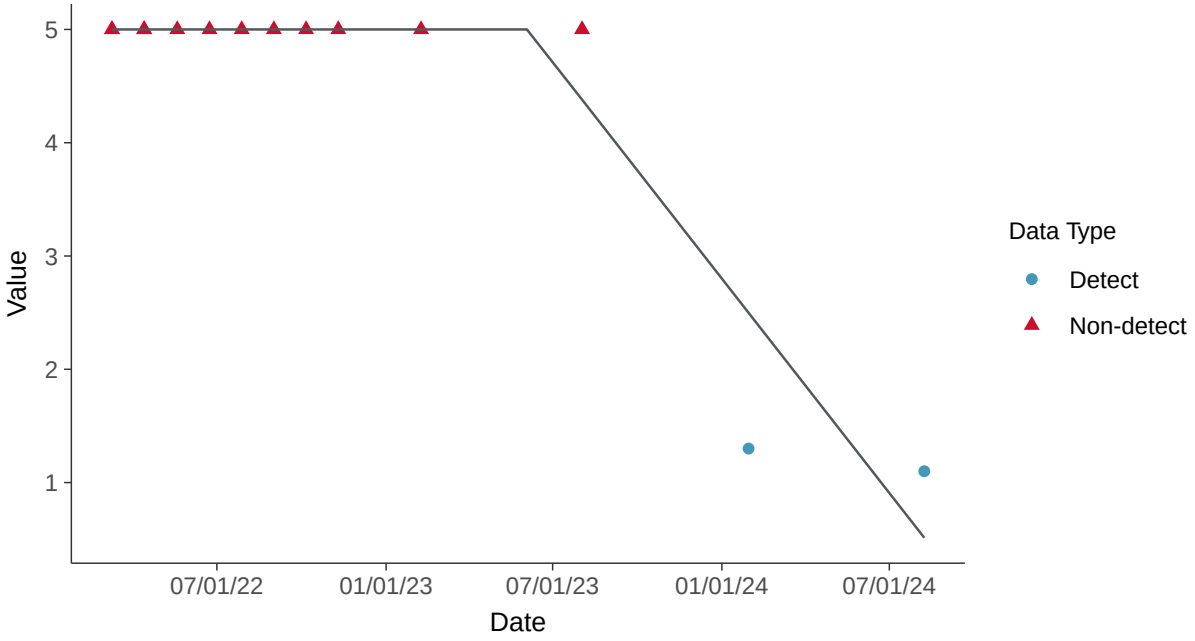
Normal Q-Q plot using ROS Imputed Estimates

Sulfate, MW-7B (mg/L)



Trend Regression: Piecewise Linear-Linear

Sulfate, MW-7B (mg/L)

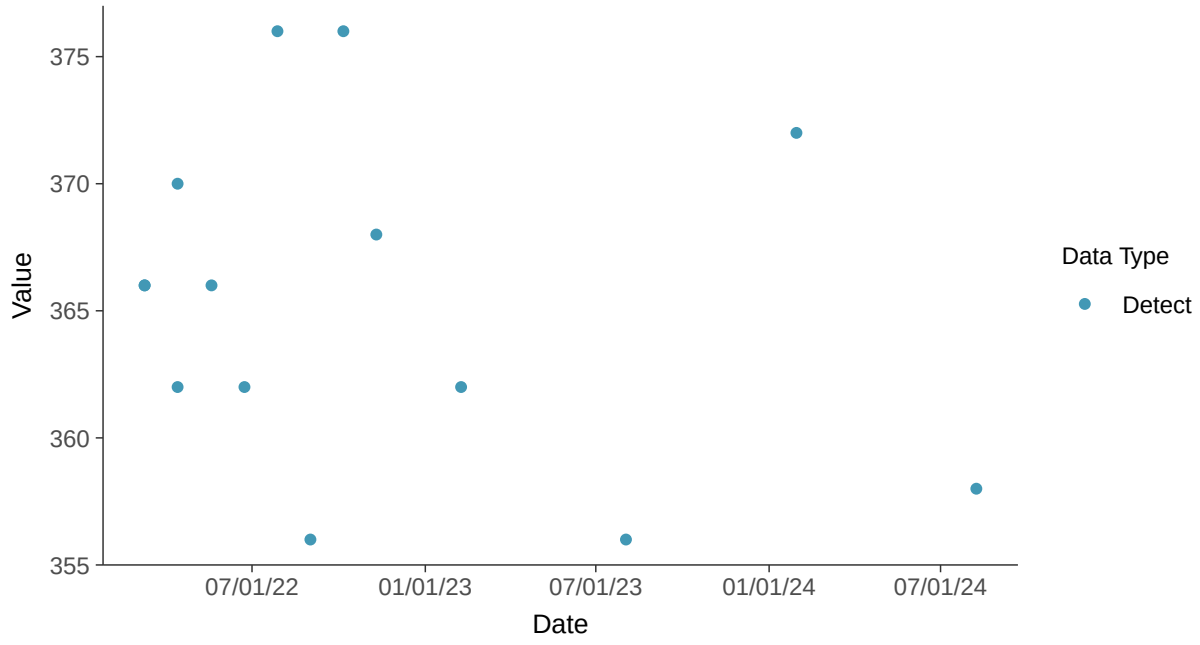


Appendix III: Total Dissolved Solids, MW-7B

ID: 7B_1_07

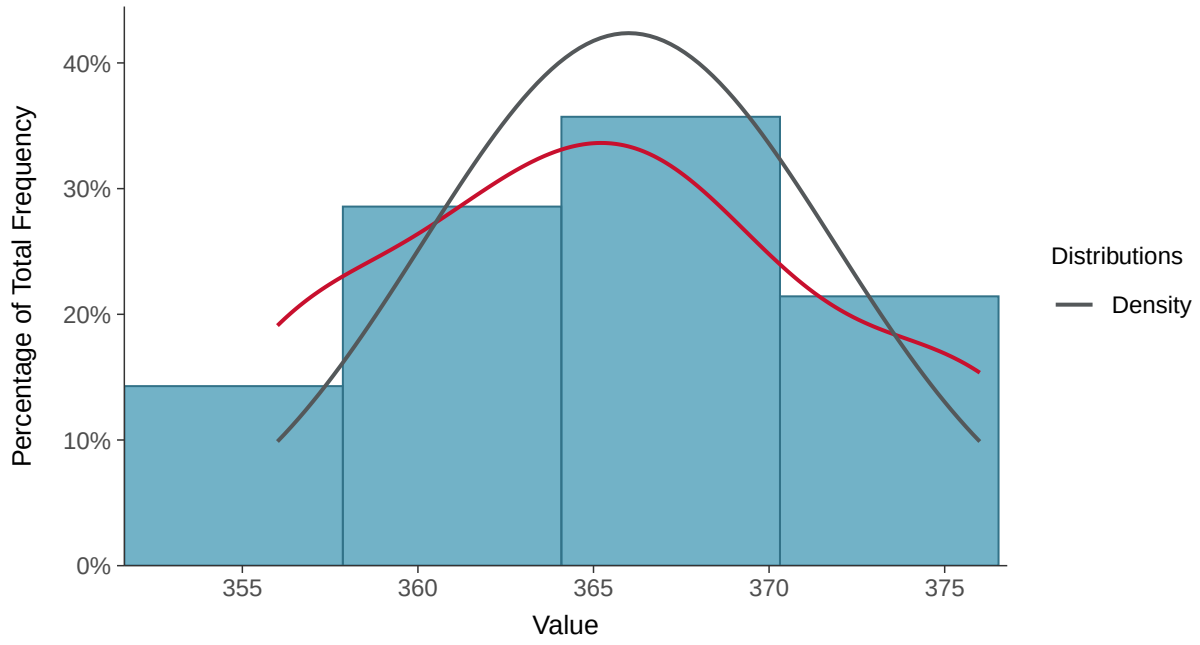
Scatter Plot

Total Dissolved Solids, MW-7B (mg/L)



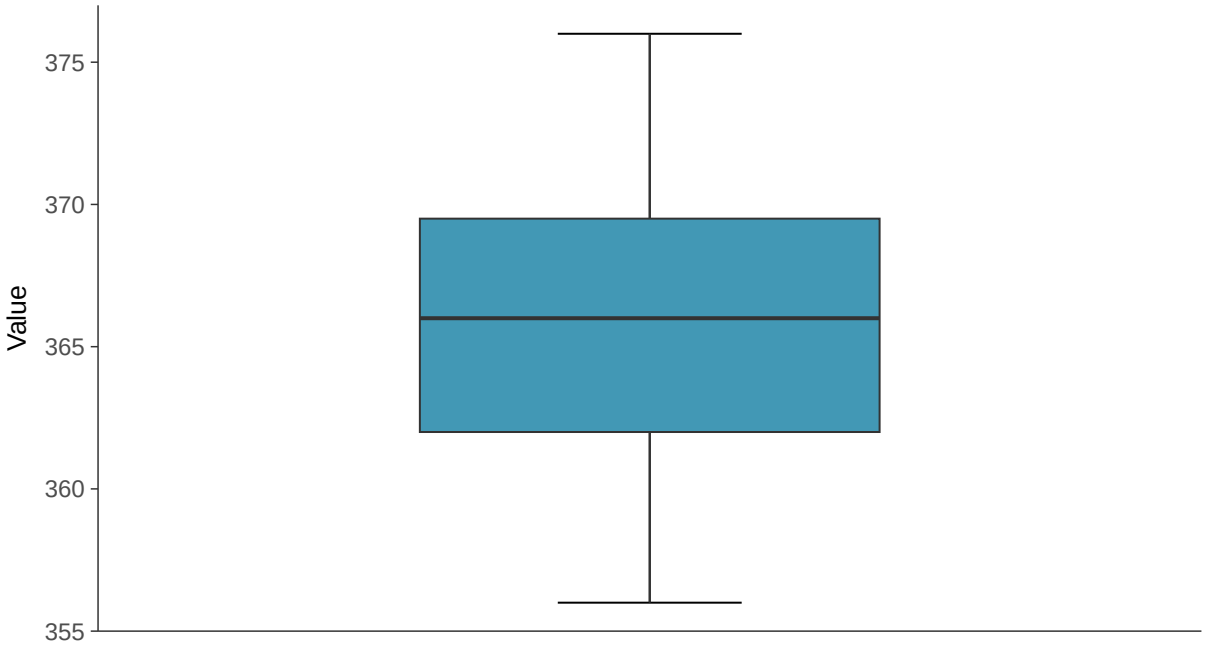
Histogram

Total Dissolved Solids, MW-7B (mg/L)



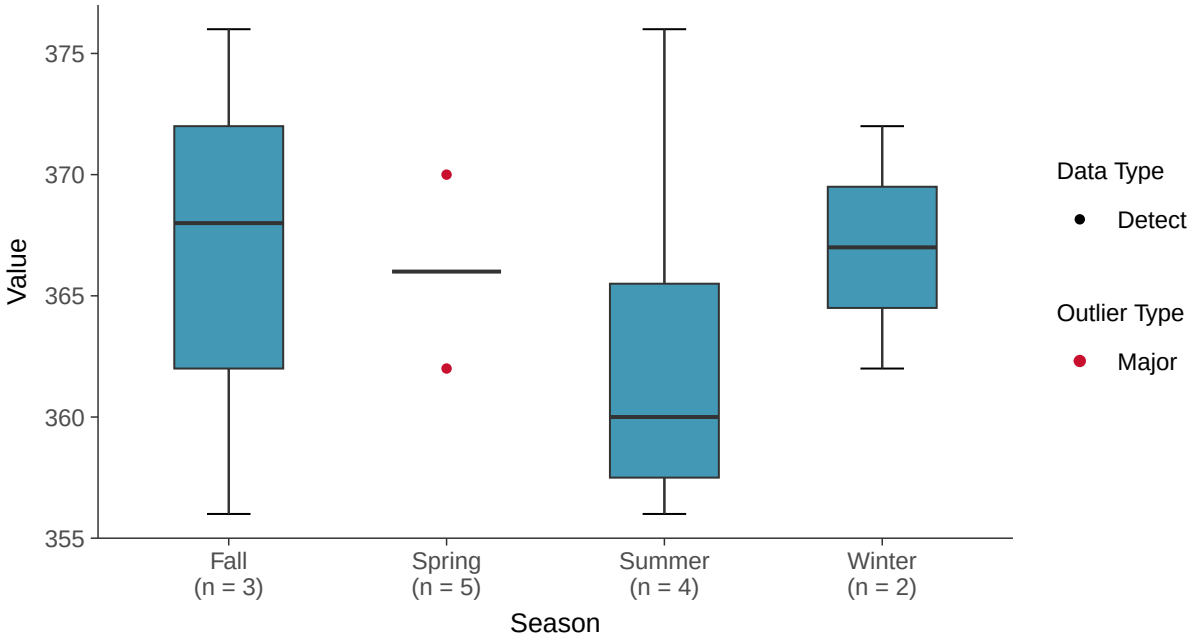
Boxplot

Total Dissolved Solids, MW-7B (mg/L)



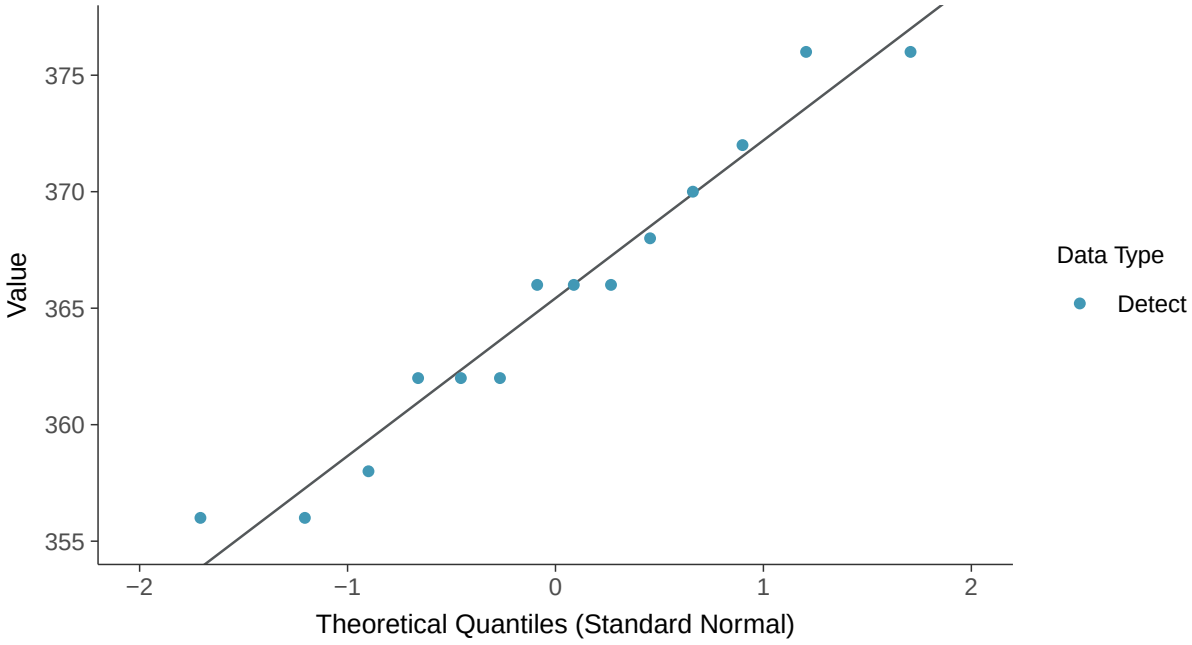
Boxplot by Season

Total Dissolved Solids, MW-7B (mg/L)



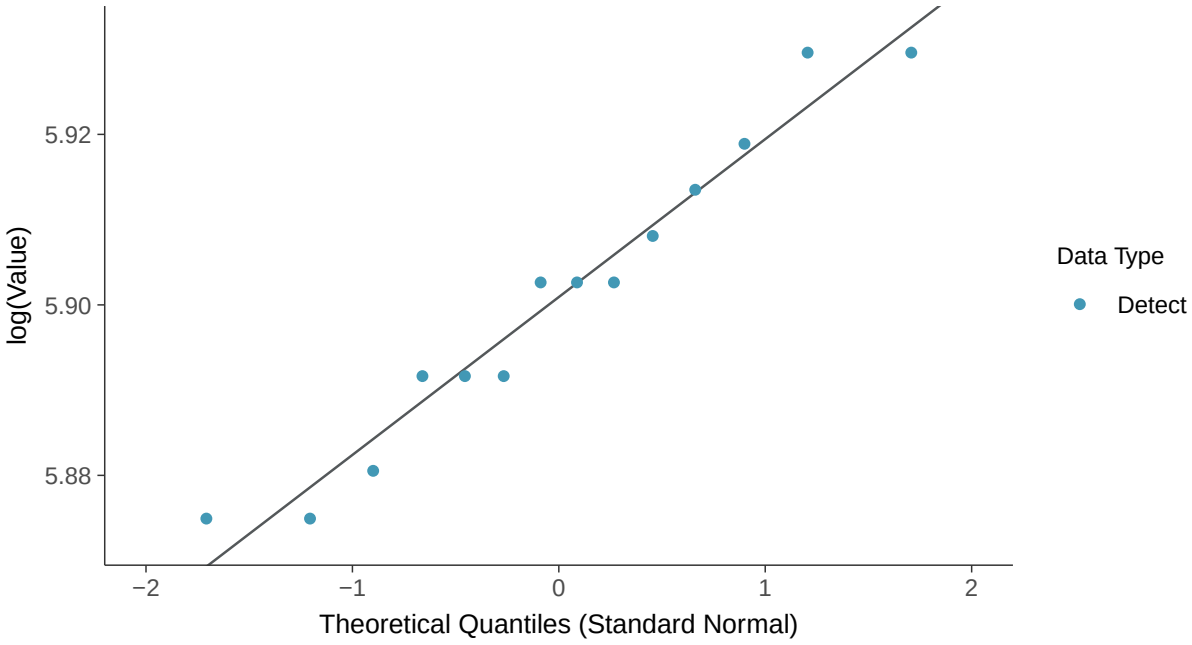
Normal Q-Q plot

Total Dissolved Solids, MW-7B (mg/L)



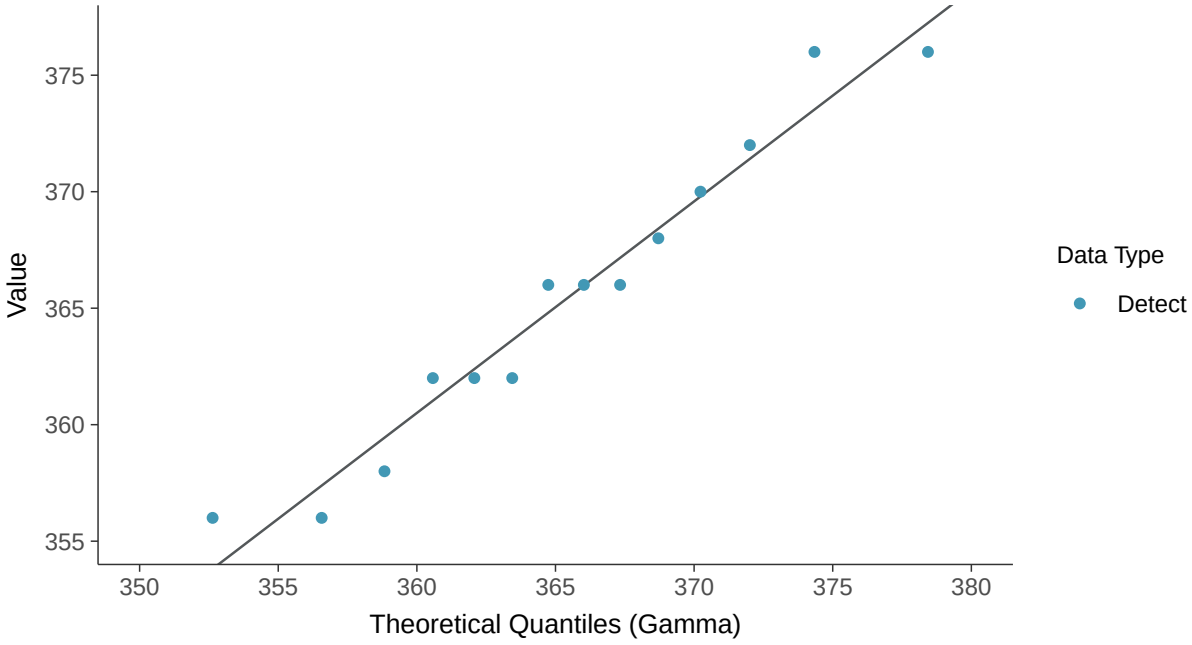
Lognormal Q-Q plot

Total Dissolved Solids, MW-7B (mg/L)



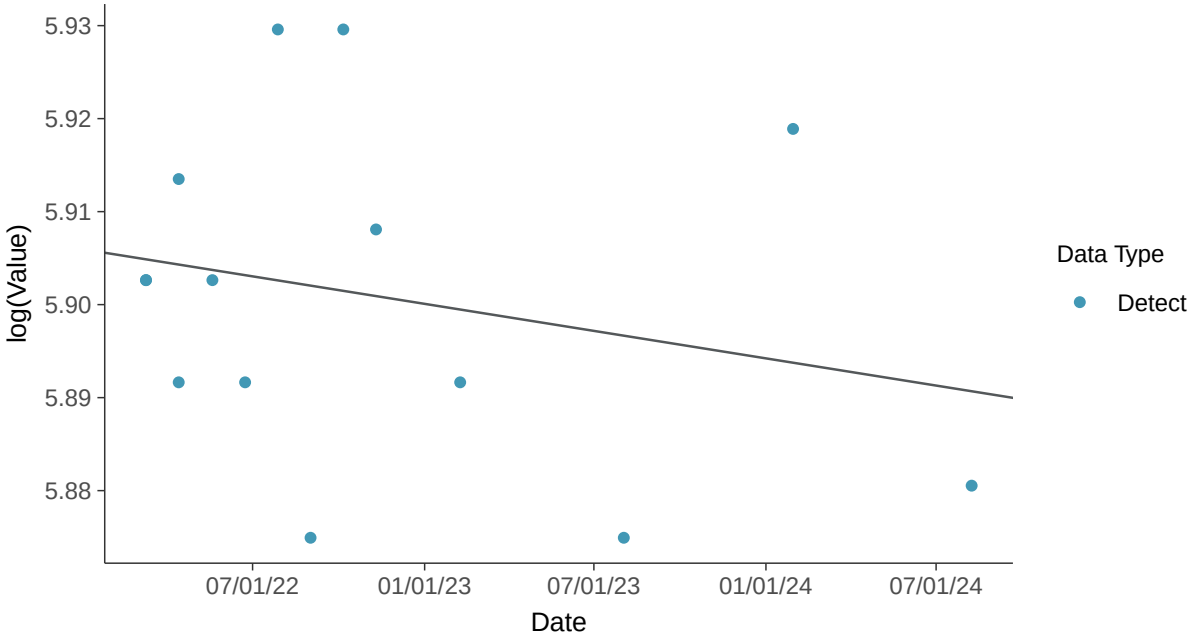
Gamma Q-Q plot

Total Dissolved Solids, MW-7B (mg/L)



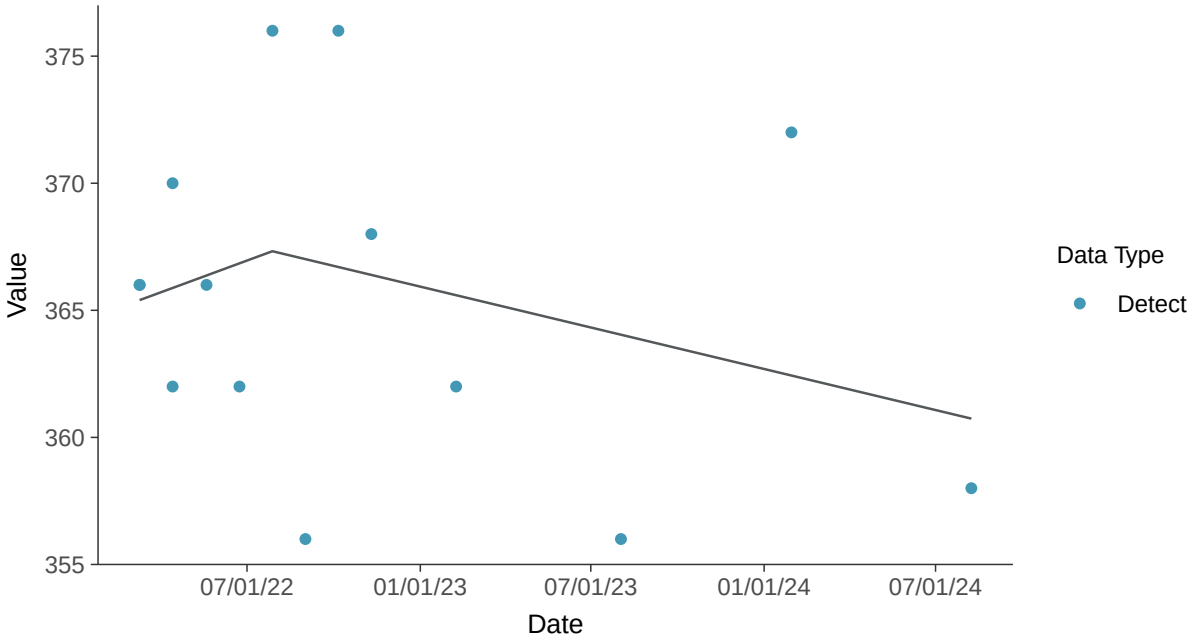
Trend Regression: Lognormal MLE

Total Dissolved Solids, MW-7B (mg/L)



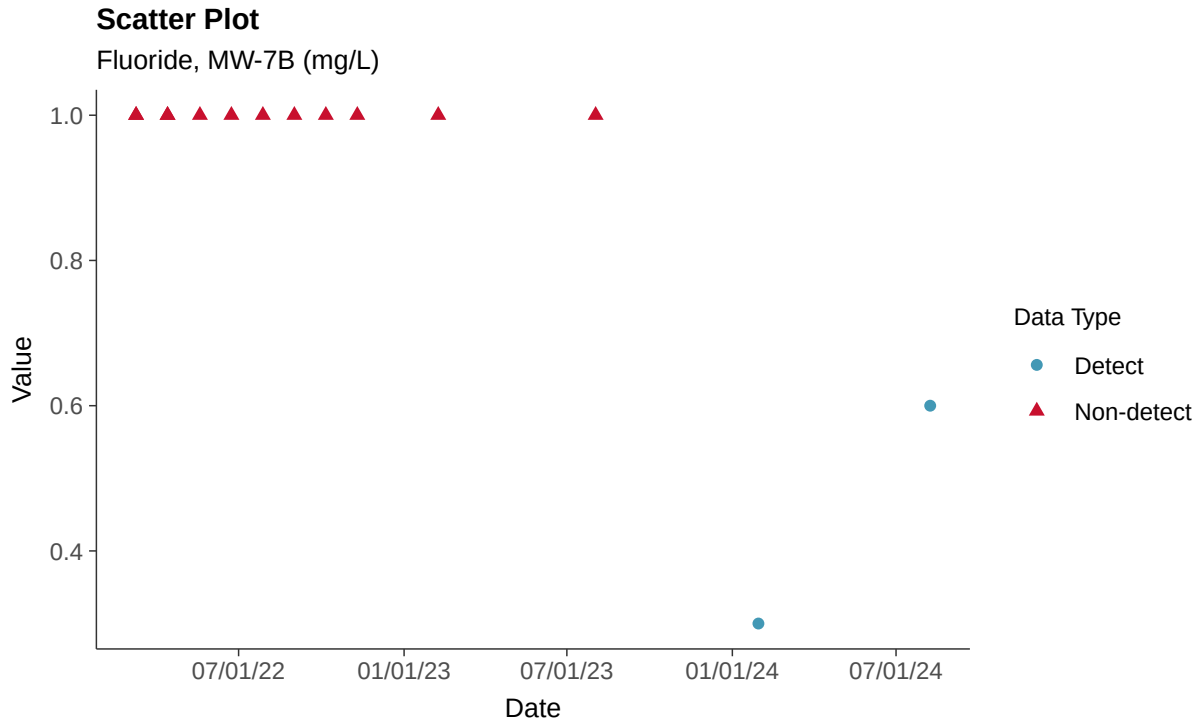
Trend Regression: Piecewise Linear-Linear

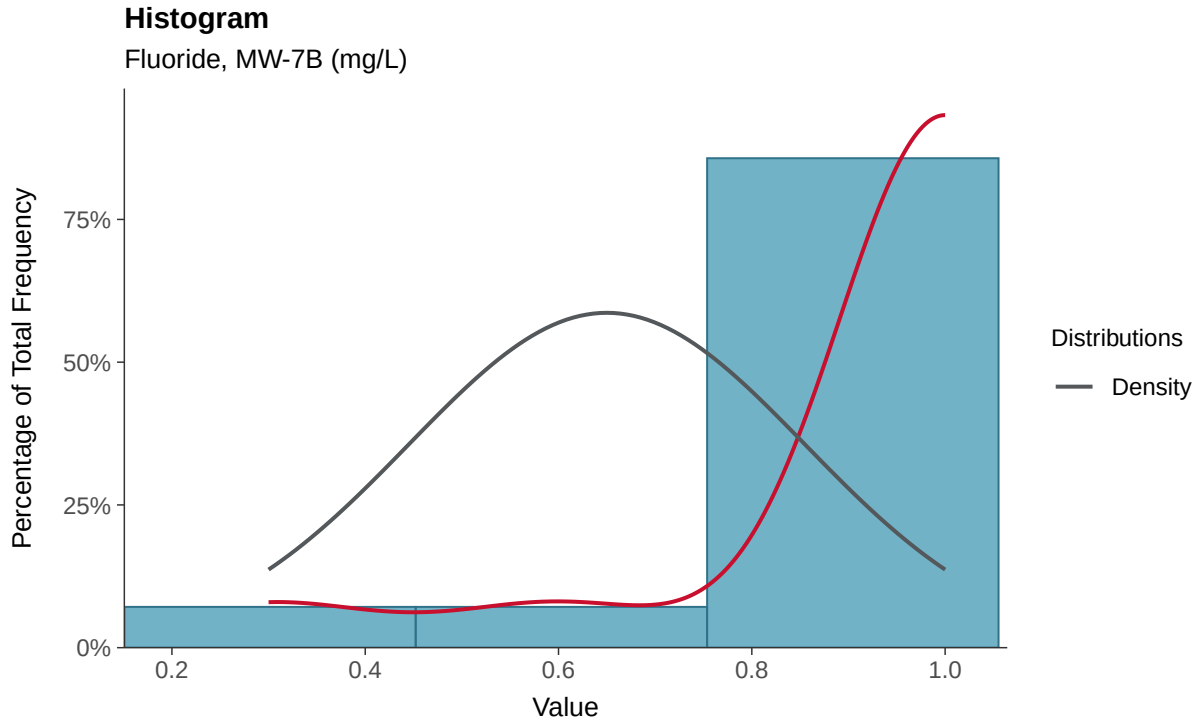
Total Dissolved Solids, MW-7B (mg/L)



Appendix IV: Fluoride, MW-7B

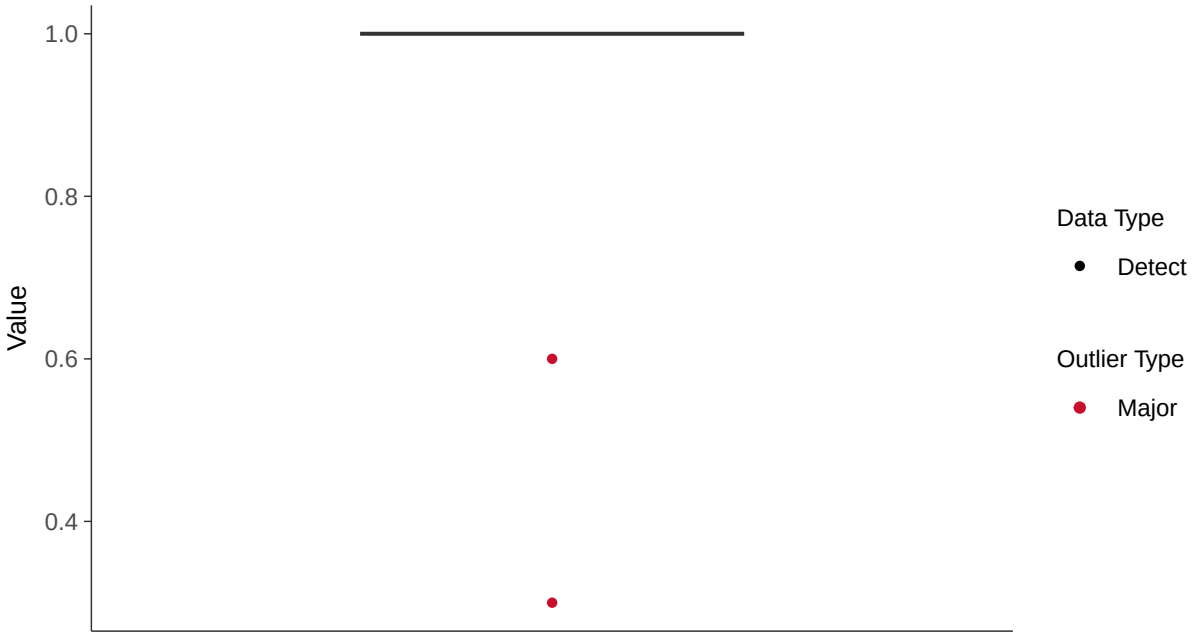
ID: 7B_2_04





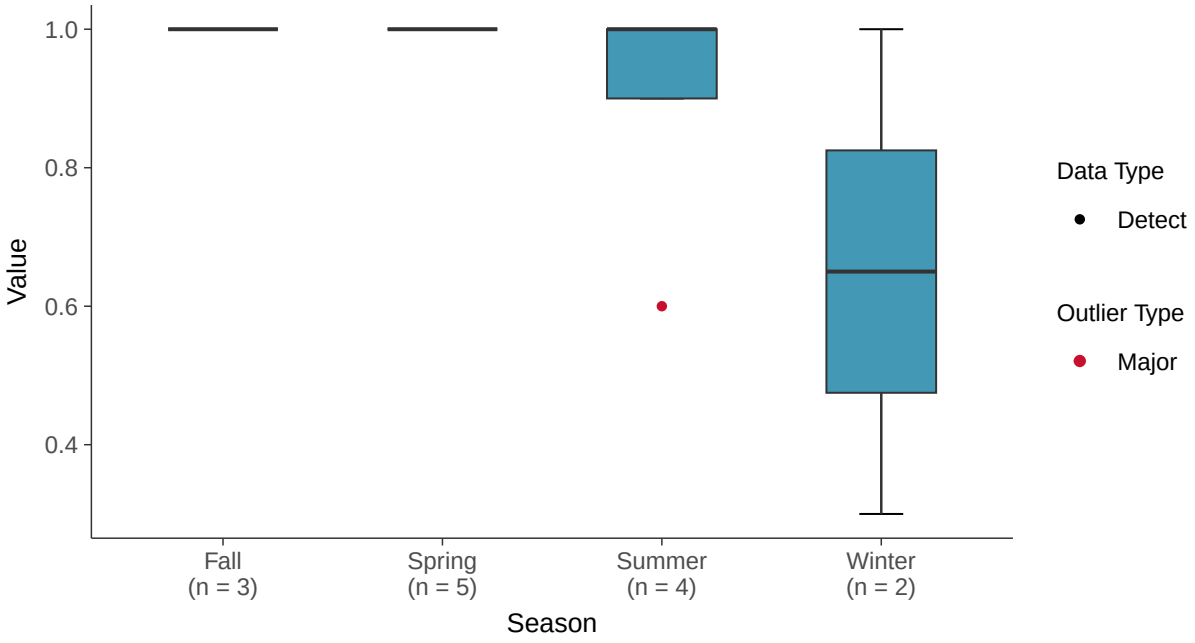
Boxplot

Fluoride, MW-7B (mg/L)



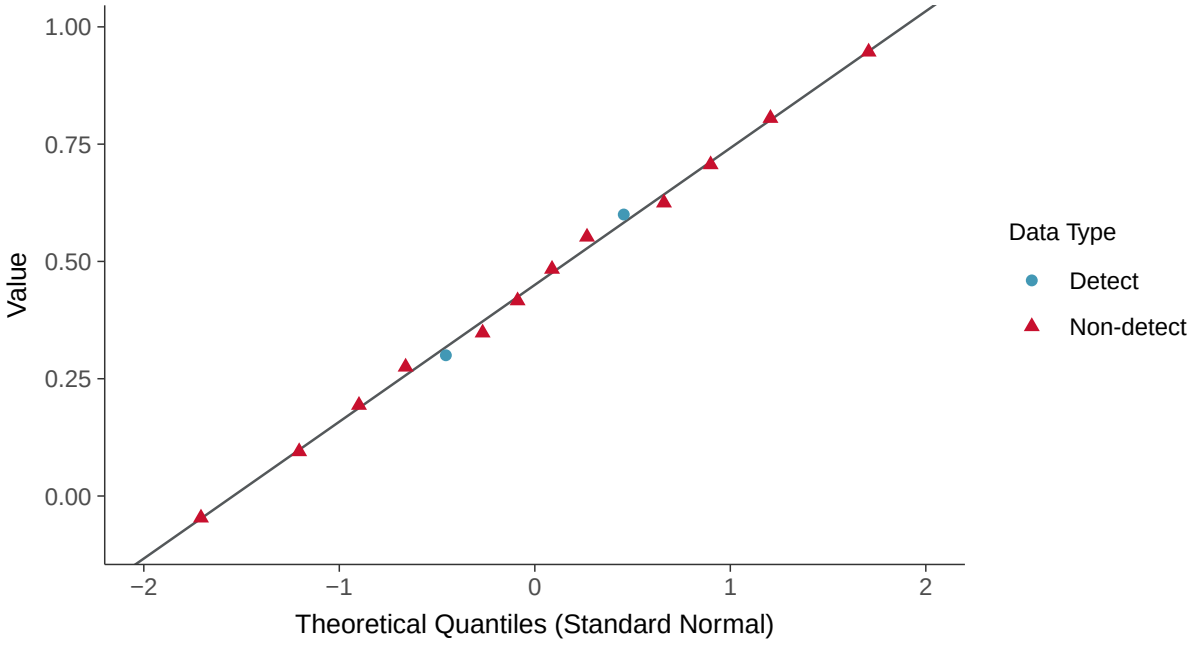
Boxplot by Season

Fluoride, MW-7B (mg/L)



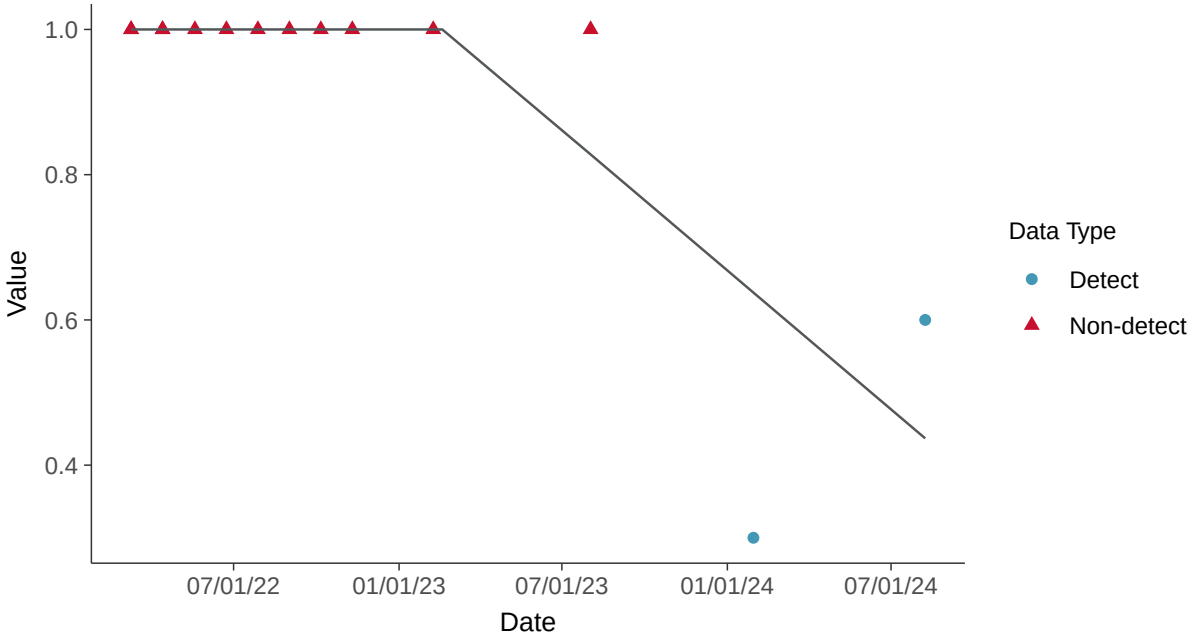
Normal Q-Q plot using ROS Imputed Estimates

Fluoride, MW-7B (mg/L)



Trend Regression: Piecewise Linear-Linear

Fluoride, MW-7B (mg/L)

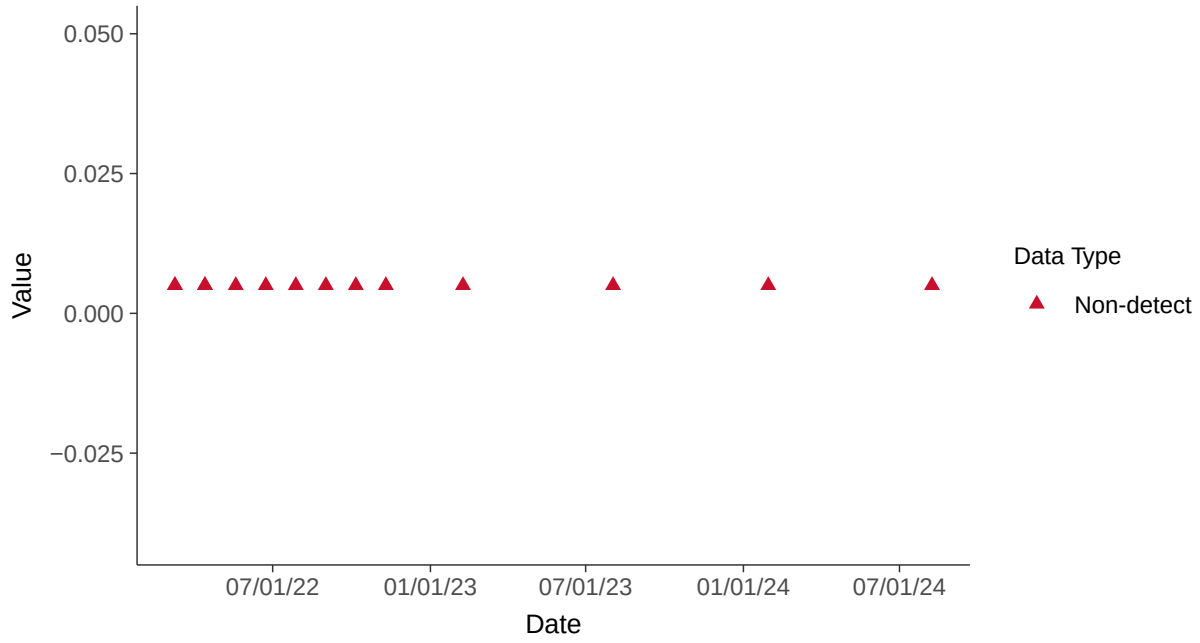


Appendix IV: Antimony, MW-7B

ID: 7B_2_08

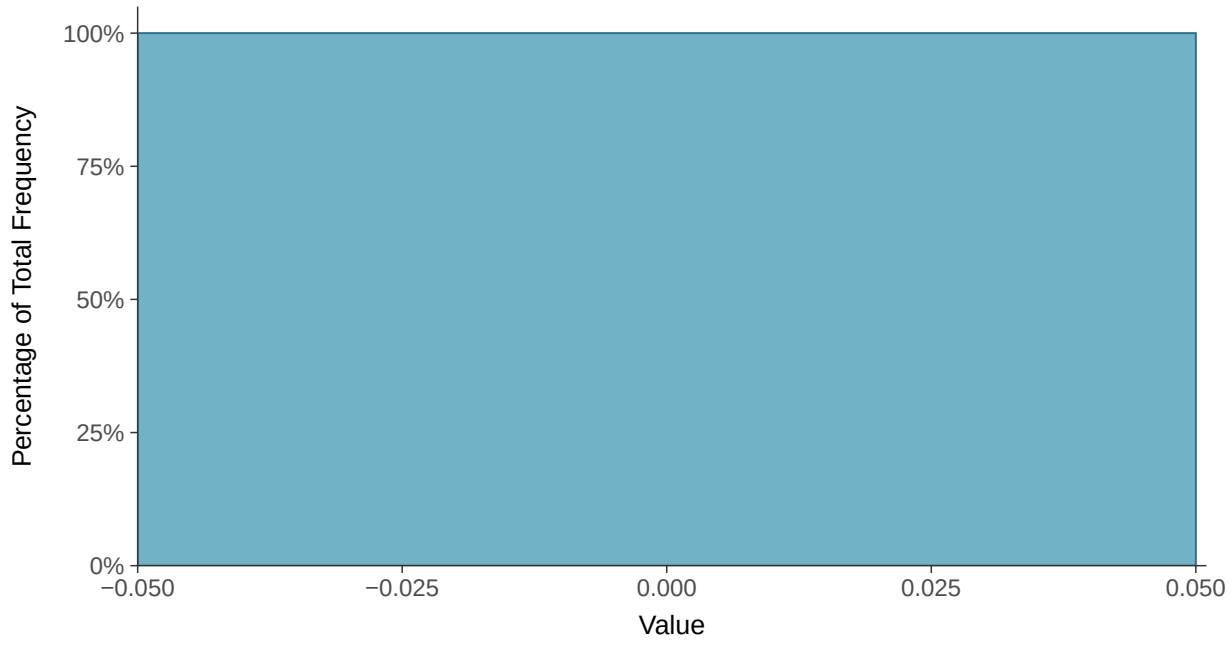
Scatter Plot

Antimony, MW-7B (mg/L)



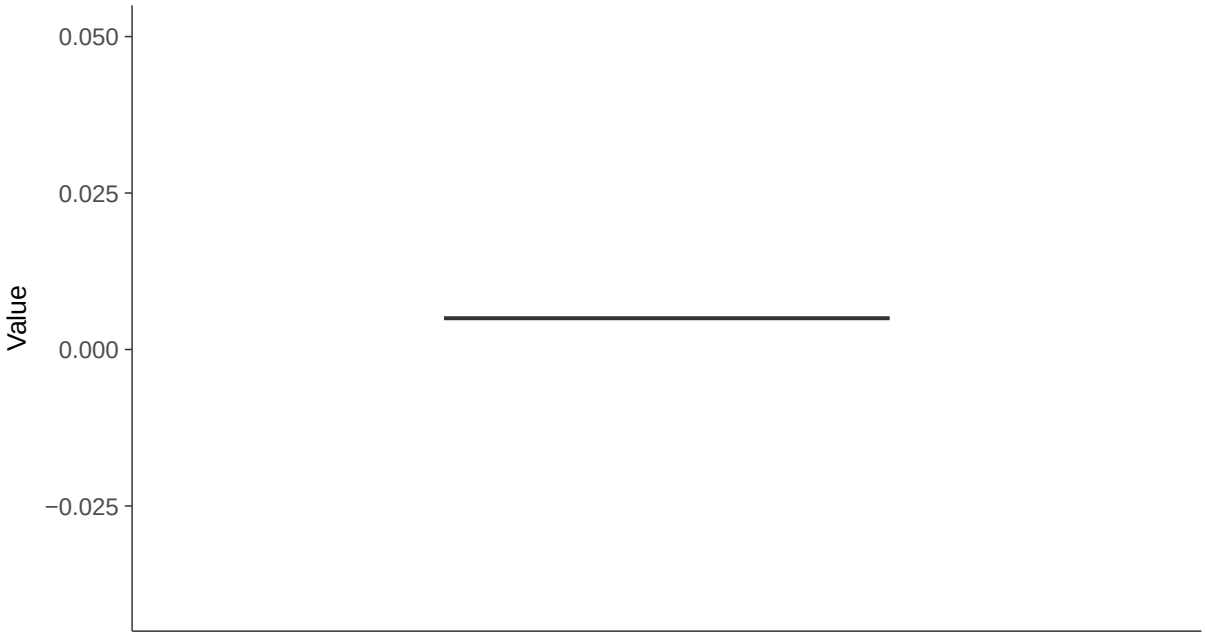
Histogram

Antimony, MW-7B (mg/L)



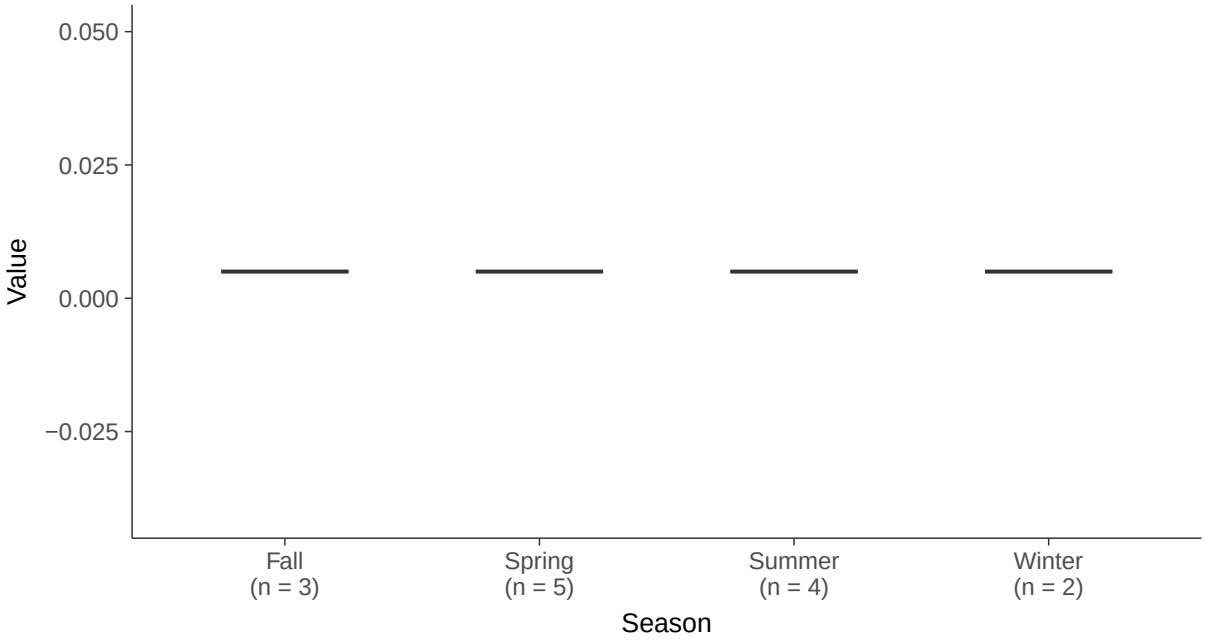
Boxplot

Antimony, MW-7B (mg/L)



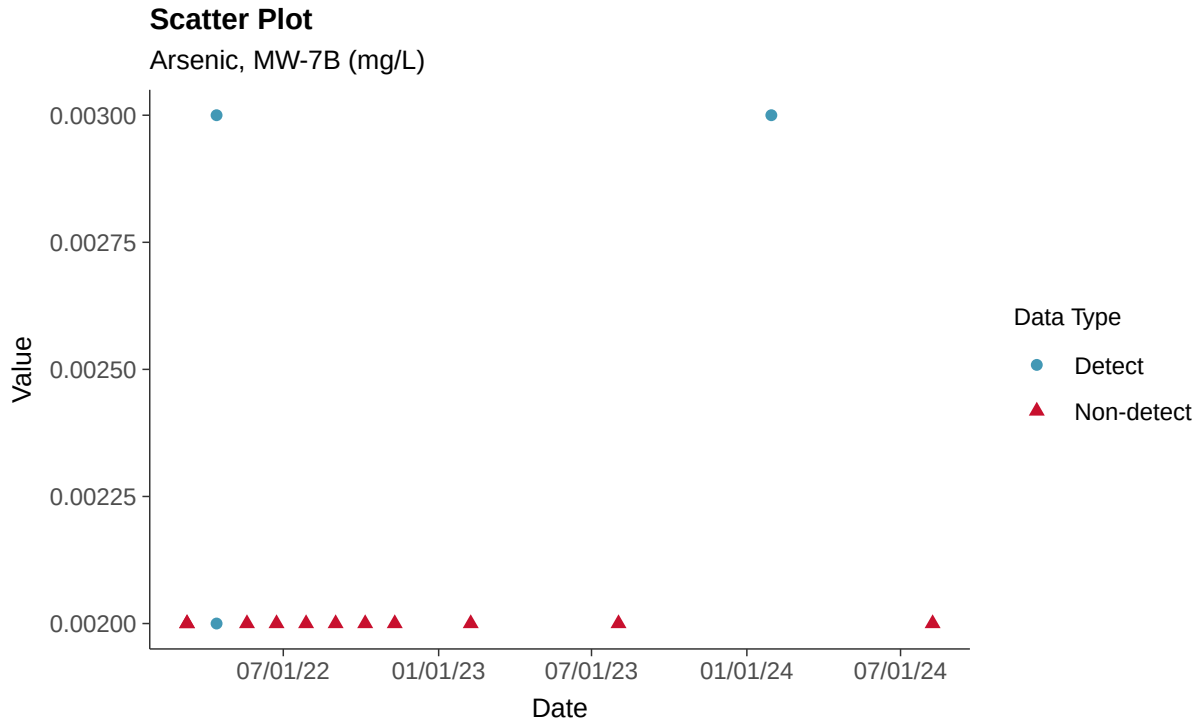
Boxplot by Season

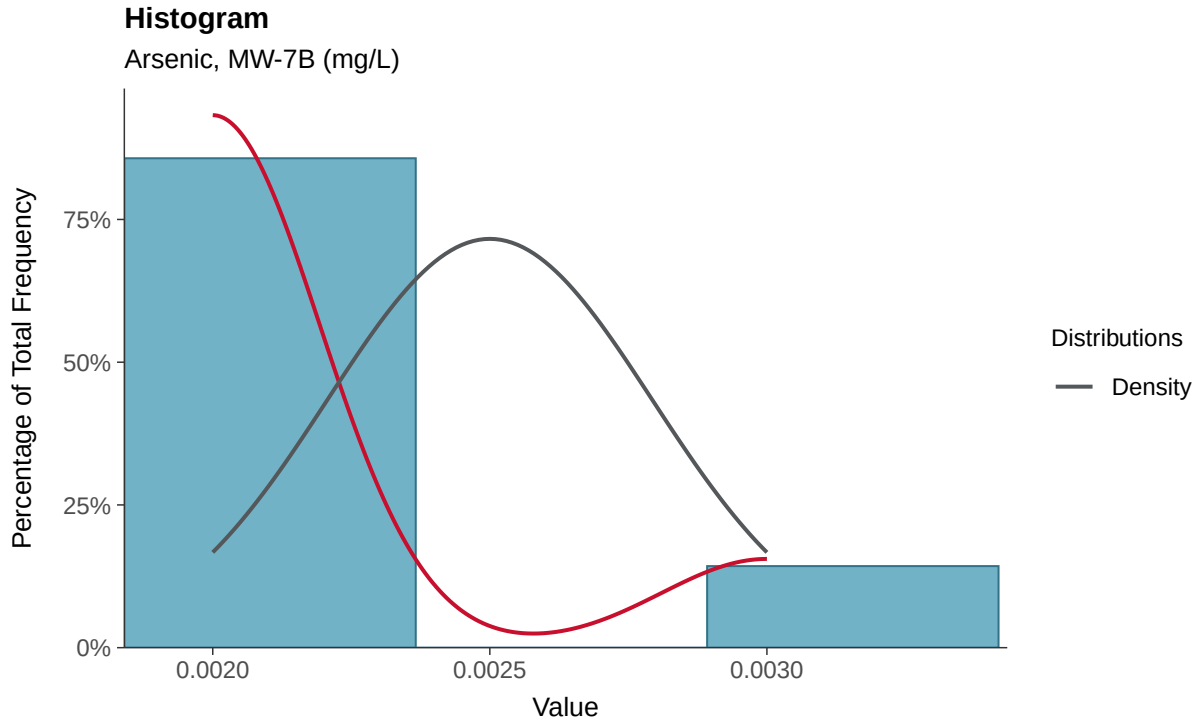
Antimony, MW-7B (mg/L)



Appendix IV: Arsenic, MW-7B

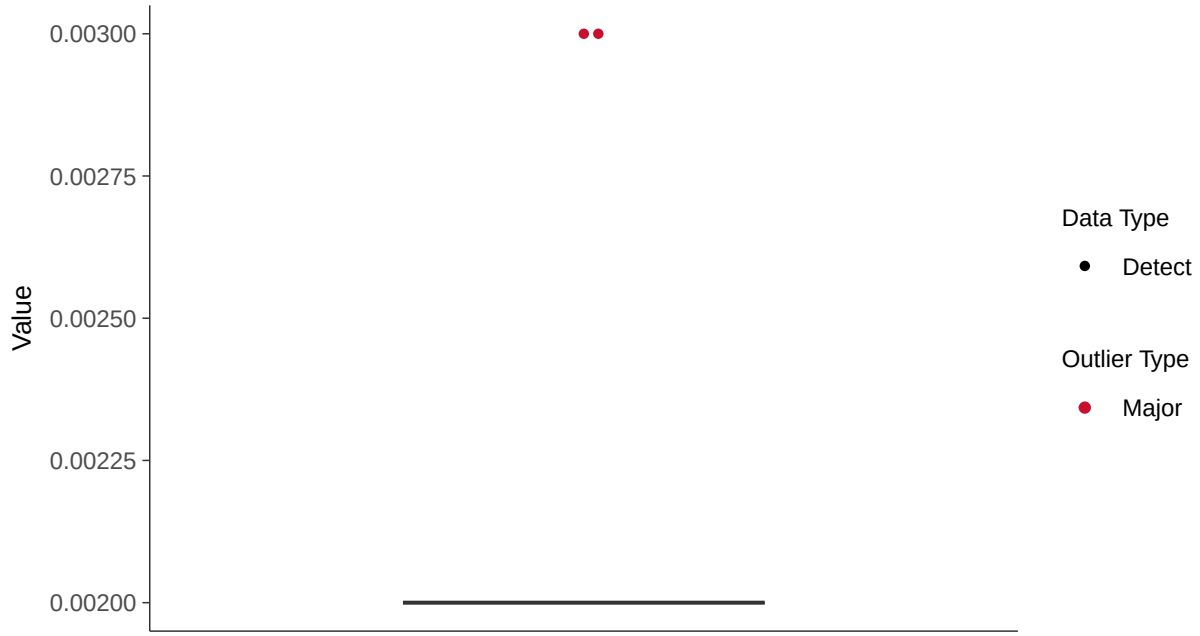
ID: 7B_2_09





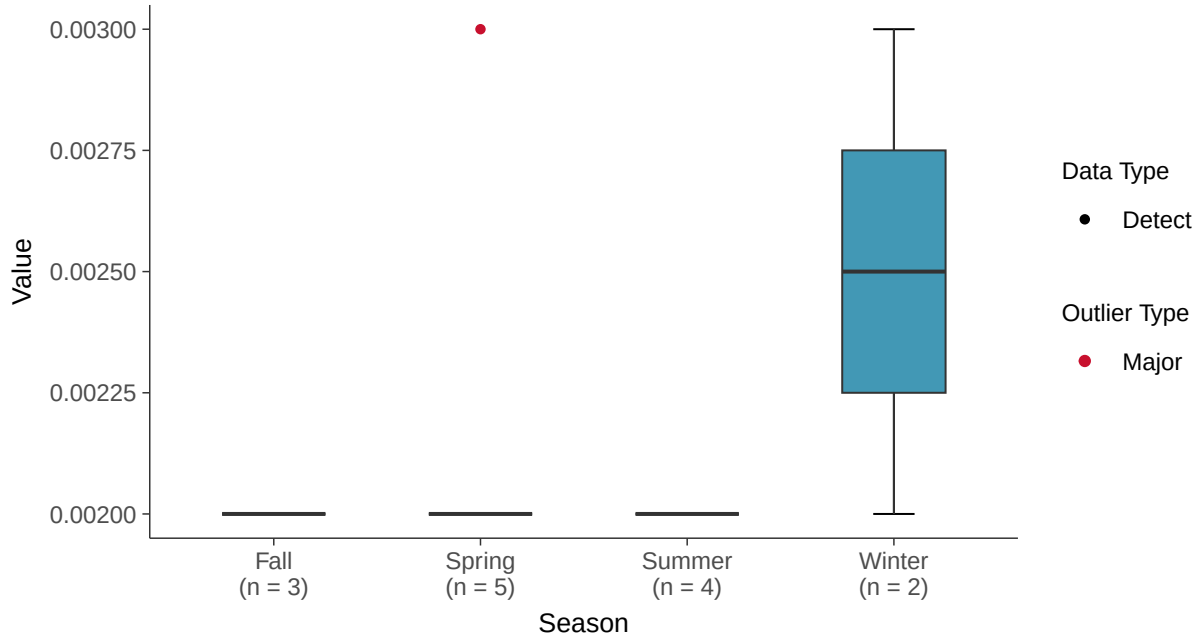
Boxplot

Arsenic, MW-7B (mg/L)



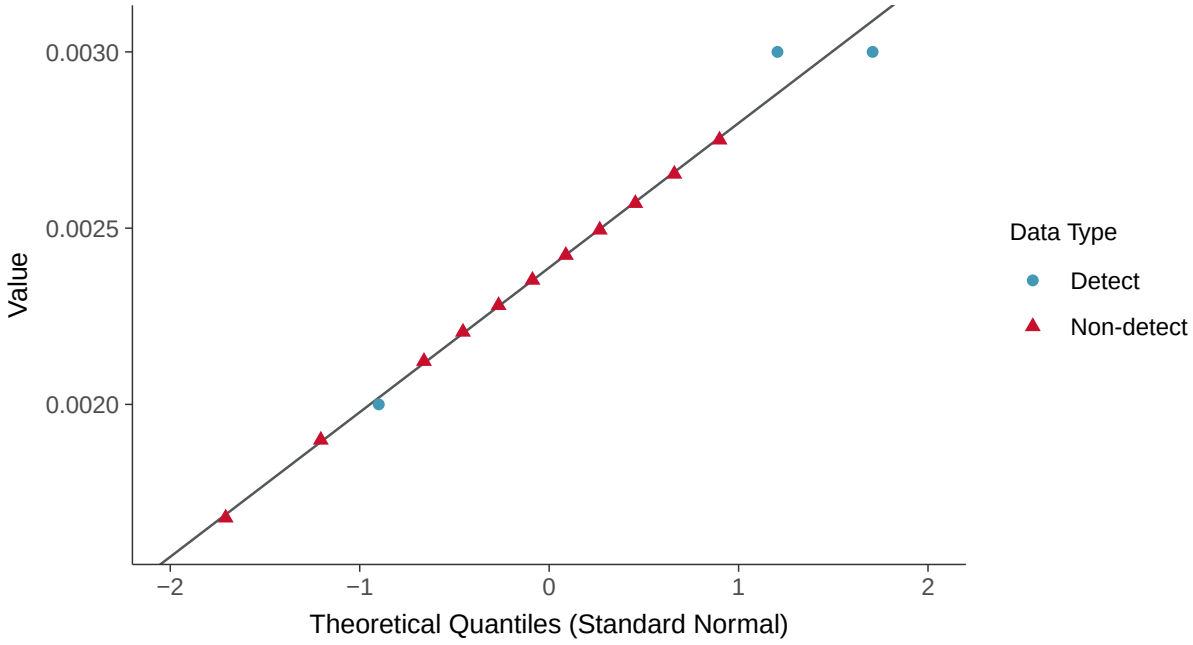
Boxplot by Season

Arsenic, MW-7B (mg/L)



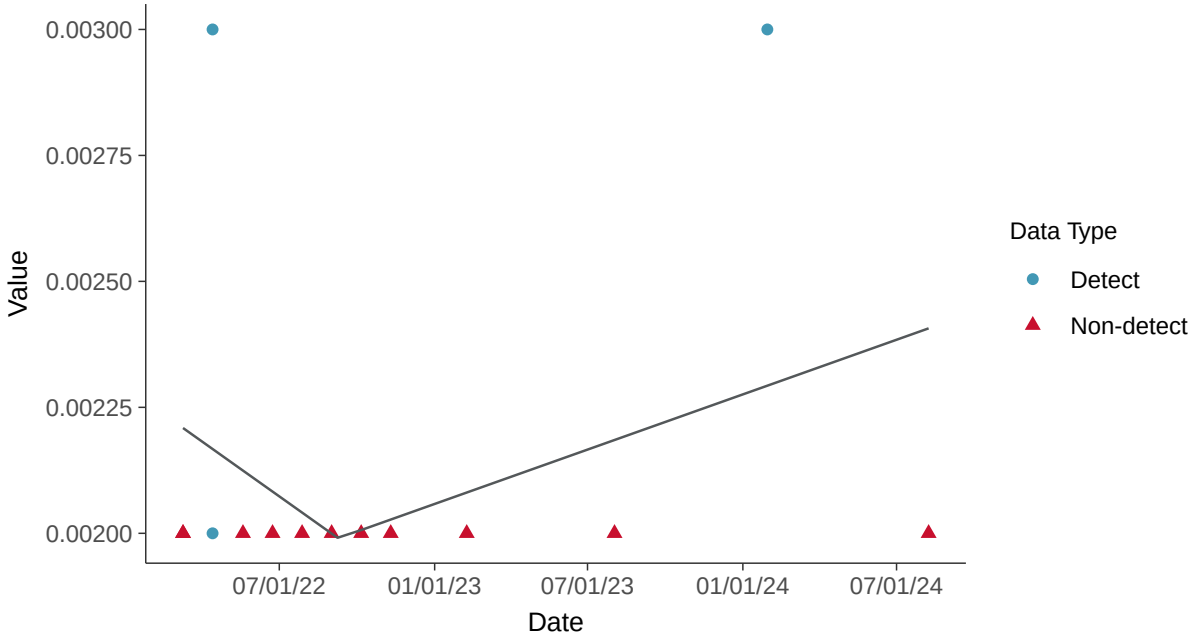
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, MW-7B (mg/L)



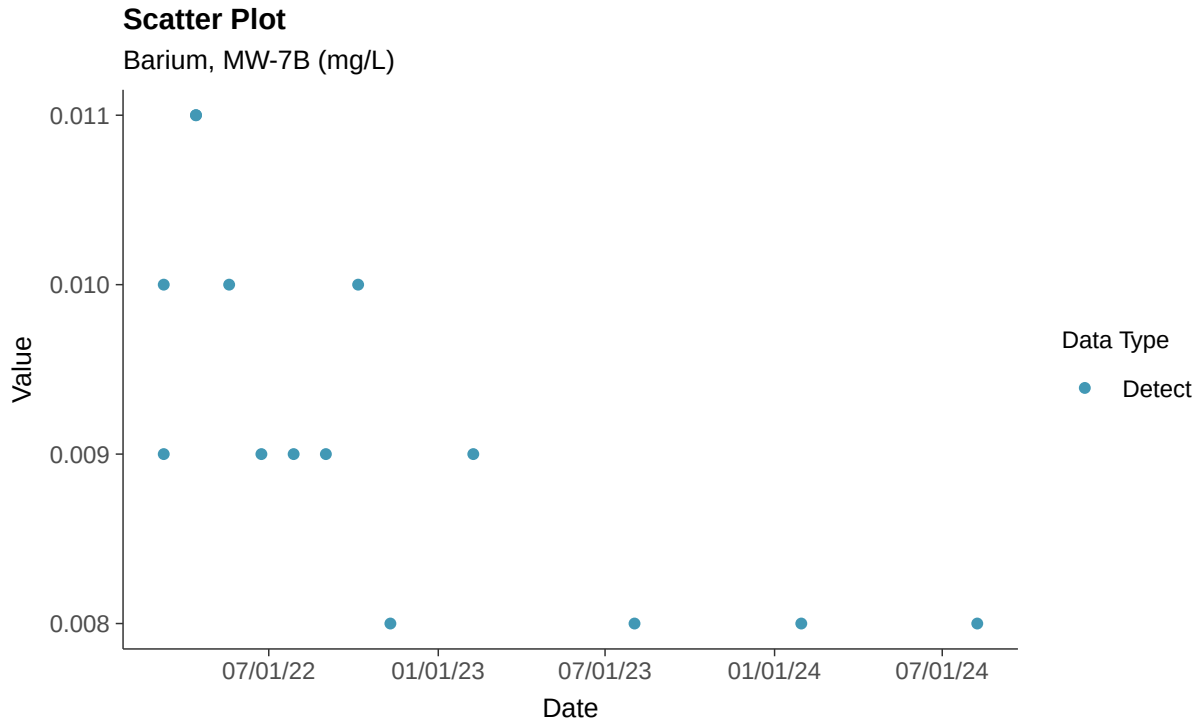
Trend Regression: Piecewise Linear-Linear

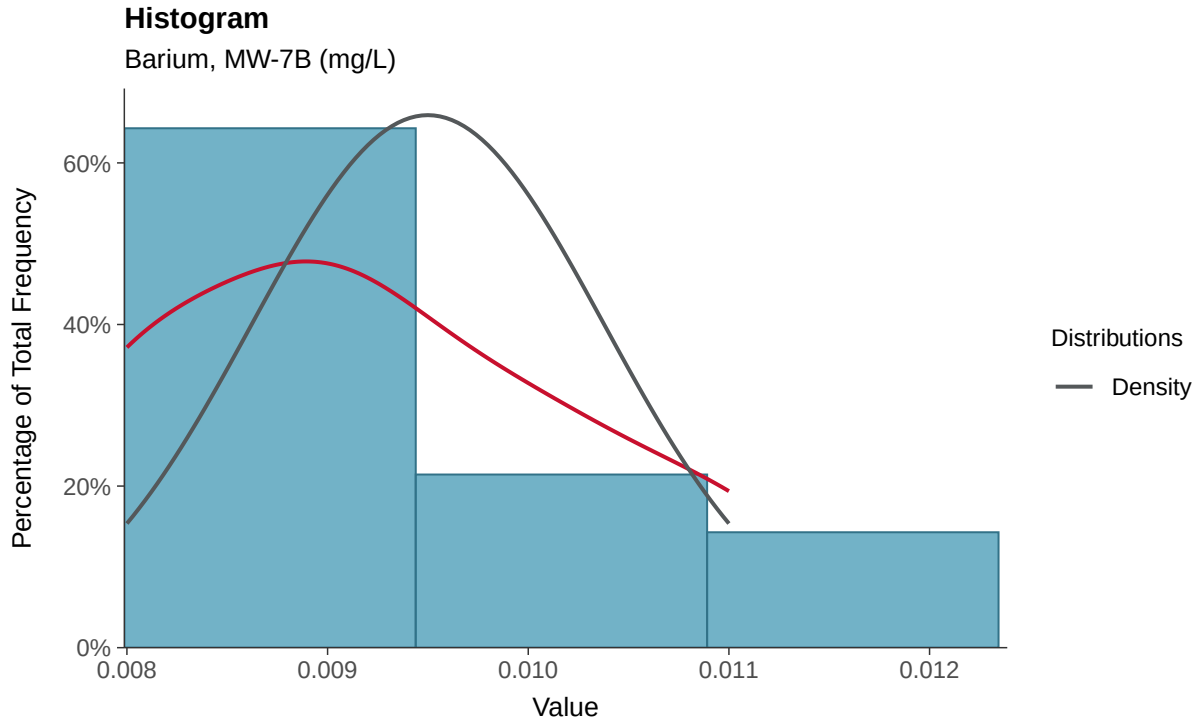
Arsenic, MW-7B (mg/L)



Appendix IV: Barium, MW-7B

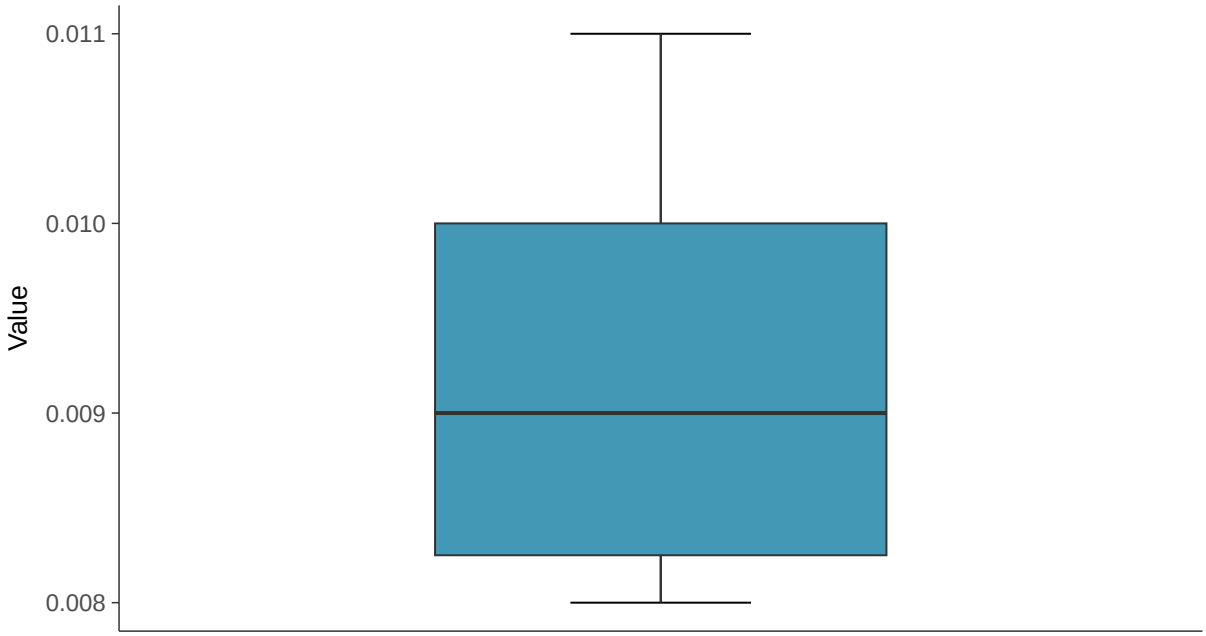
ID: 7B_2_10





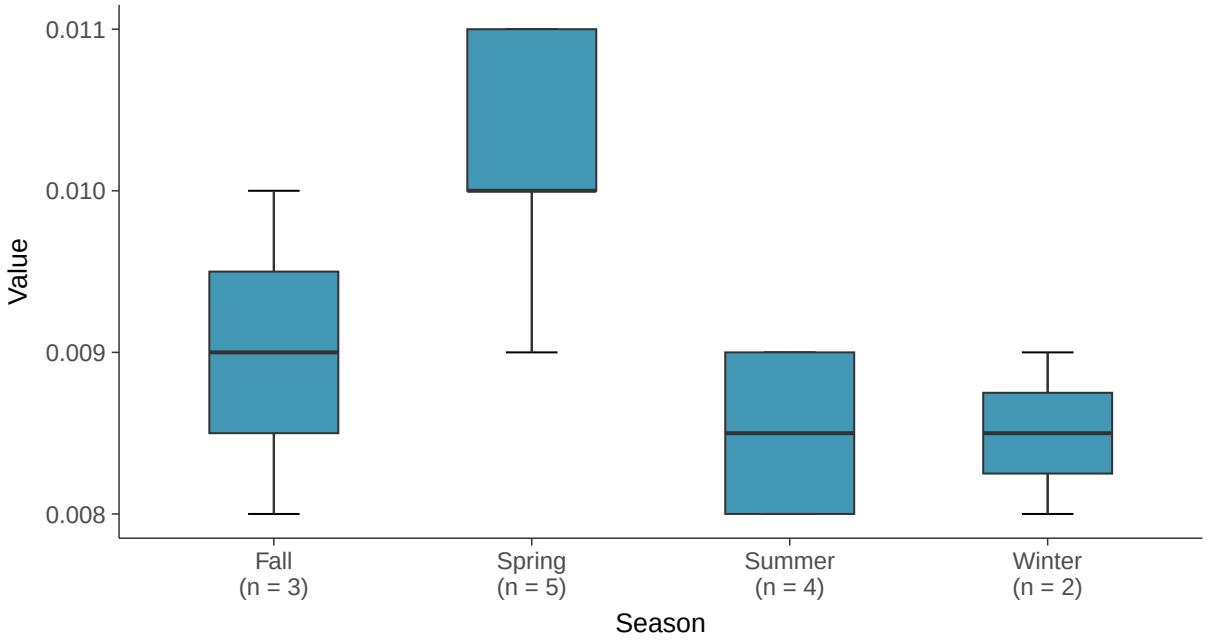
Boxplot

Barium, MW-7B (mg/L)



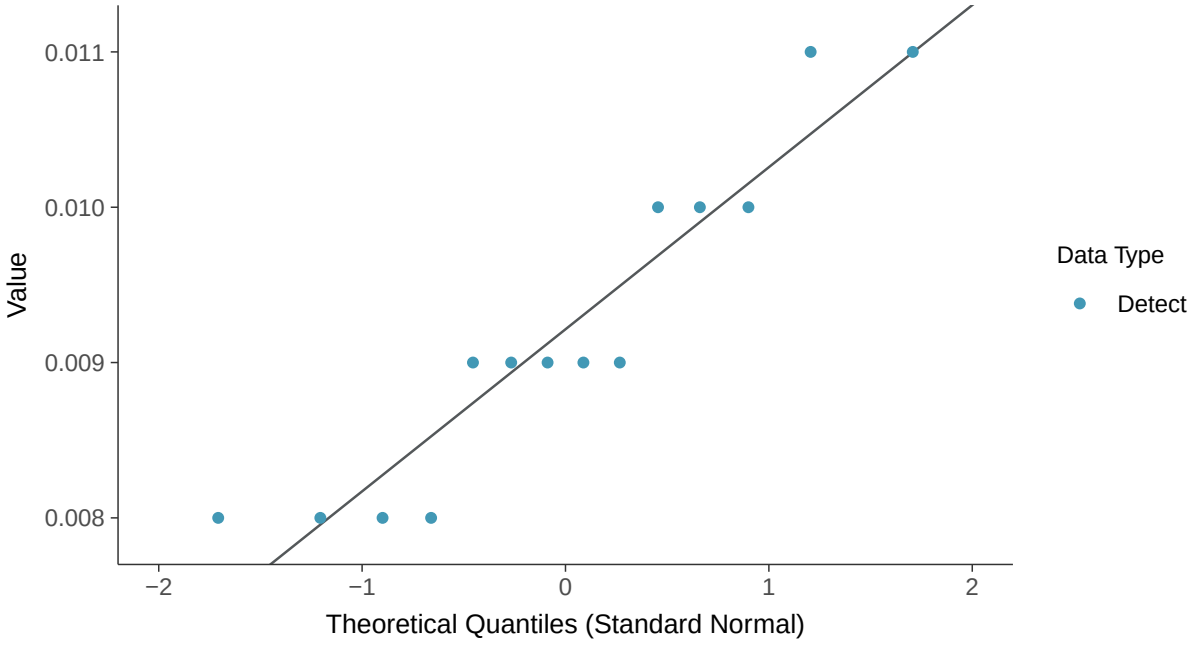
Boxplot by Season

Barium, MW-7B (mg/L)



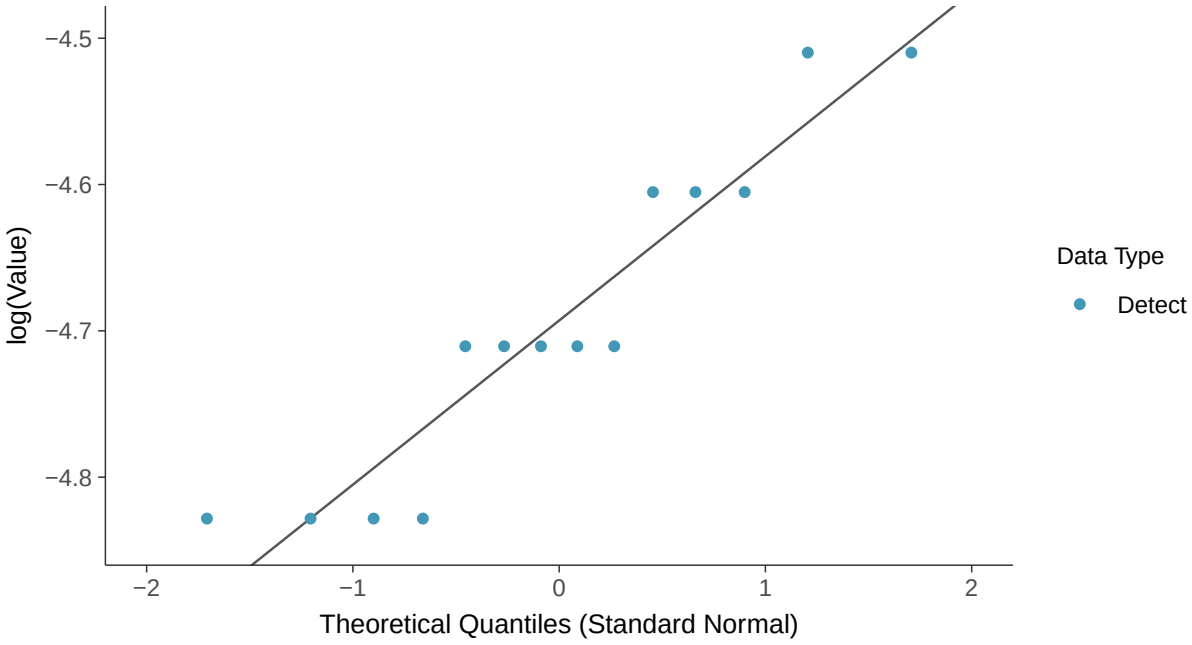
Normal Q-Q plot

Barium, MW-7B (mg/L)



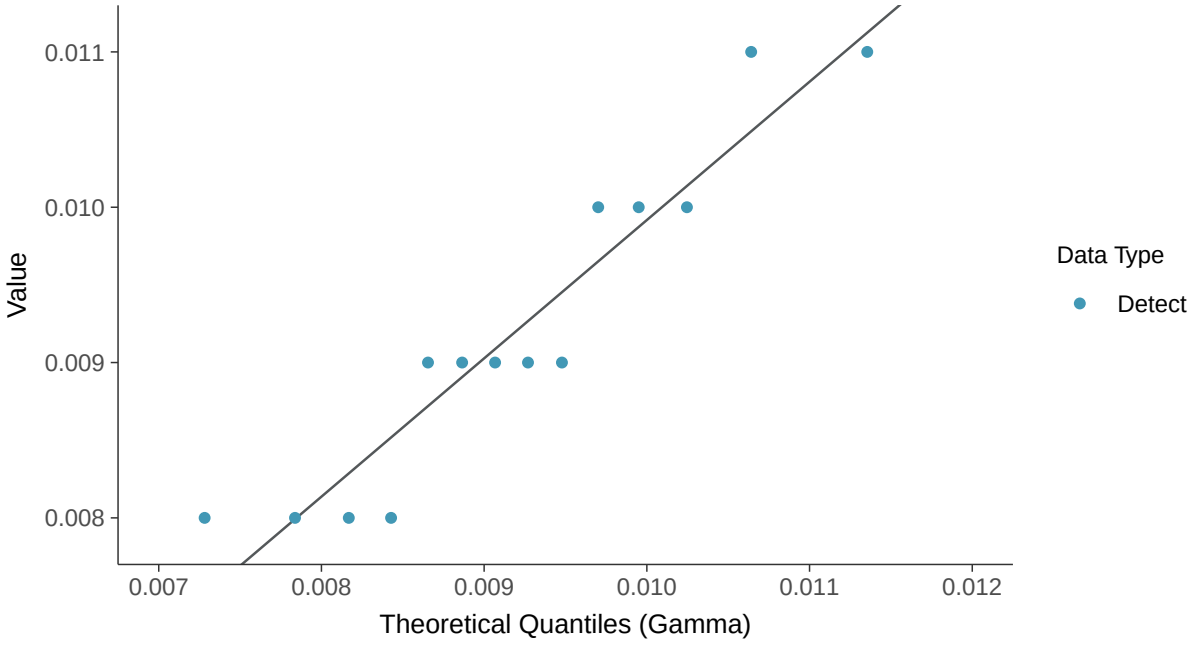
Lognormal Q-Q plot

Barium, MW-7B (mg/L)



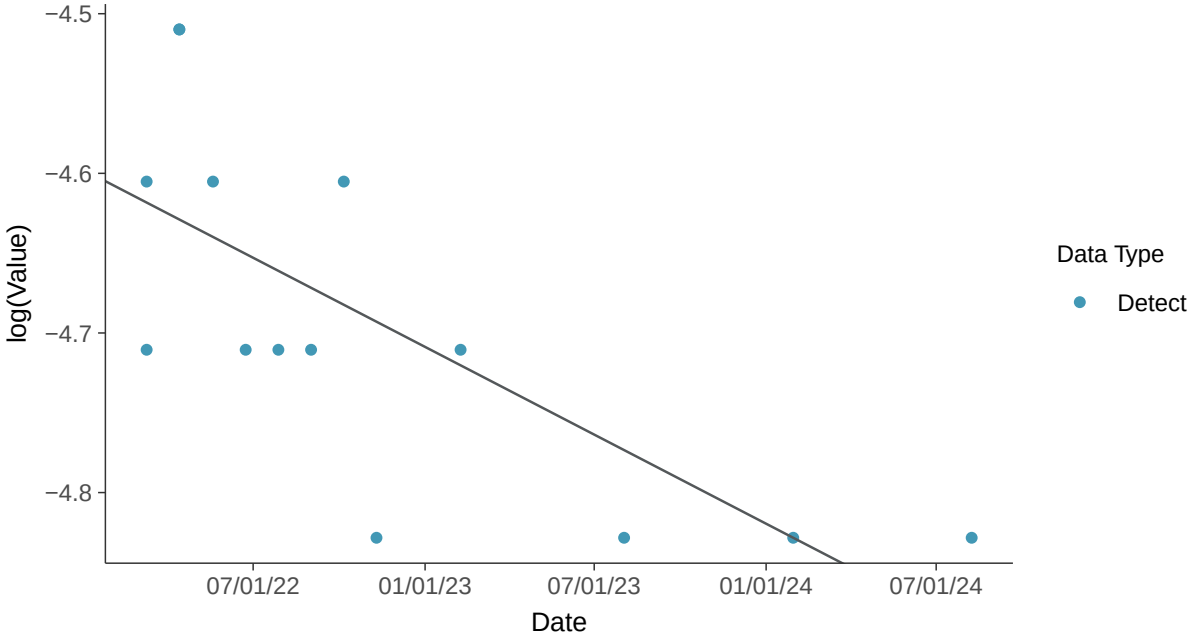
Gamma Q-Q plot

Barium, MW-7B (mg/L)



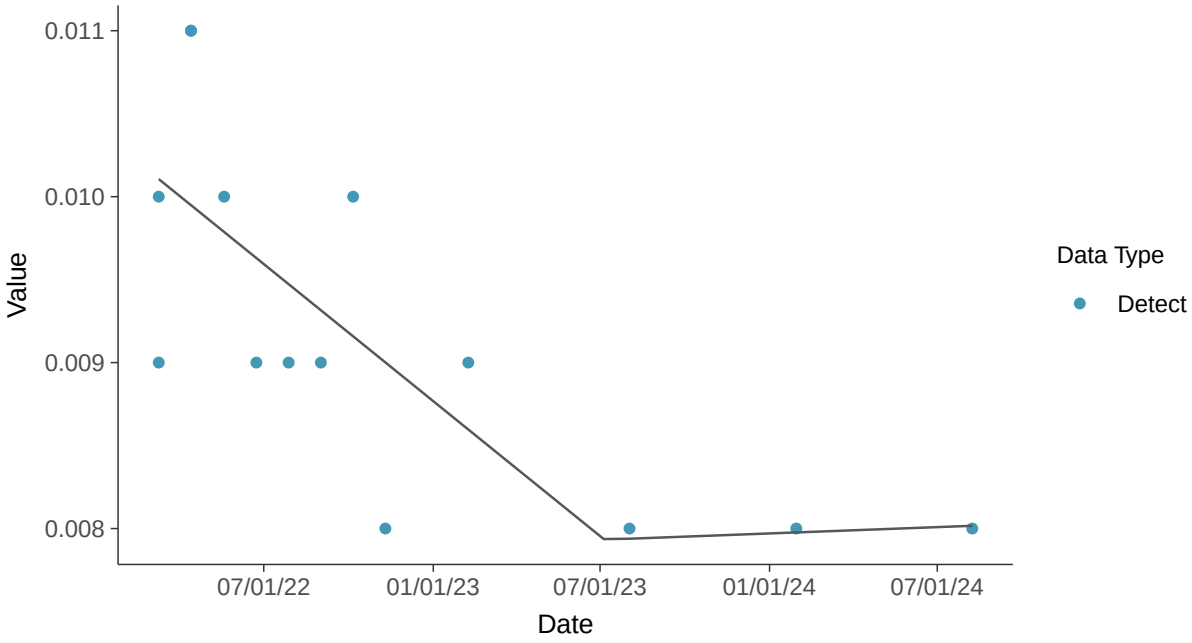
Trend Regression: Lognormal MLE

Barium, MW-7B (mg/L)



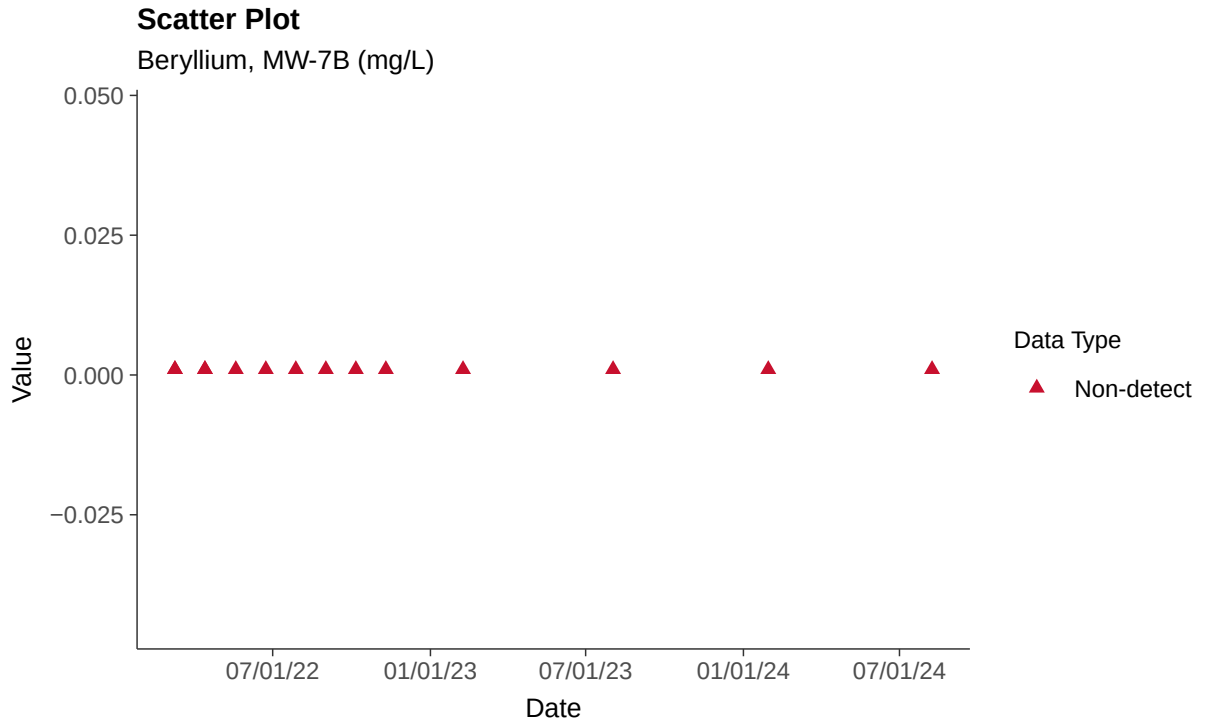
Trend Regression: Piecewise Linear-Linear

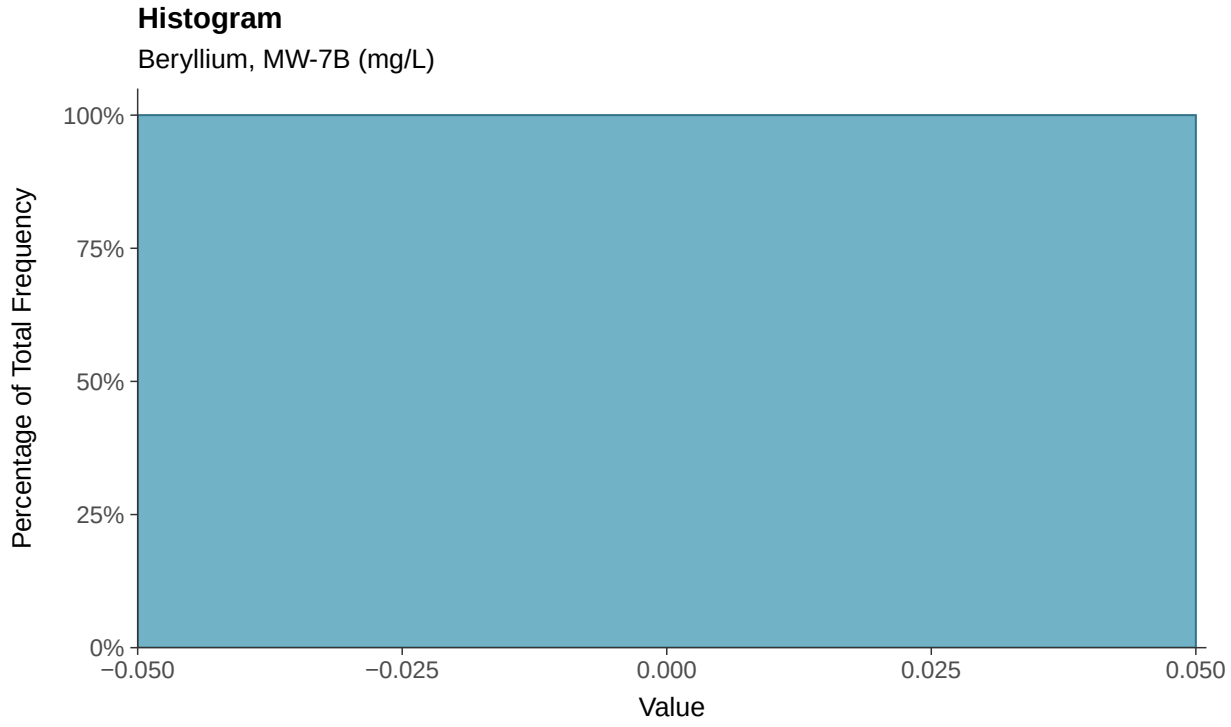
Barium, MW-7B (mg/L)



Appendix IV: Beryllium, MW-7B

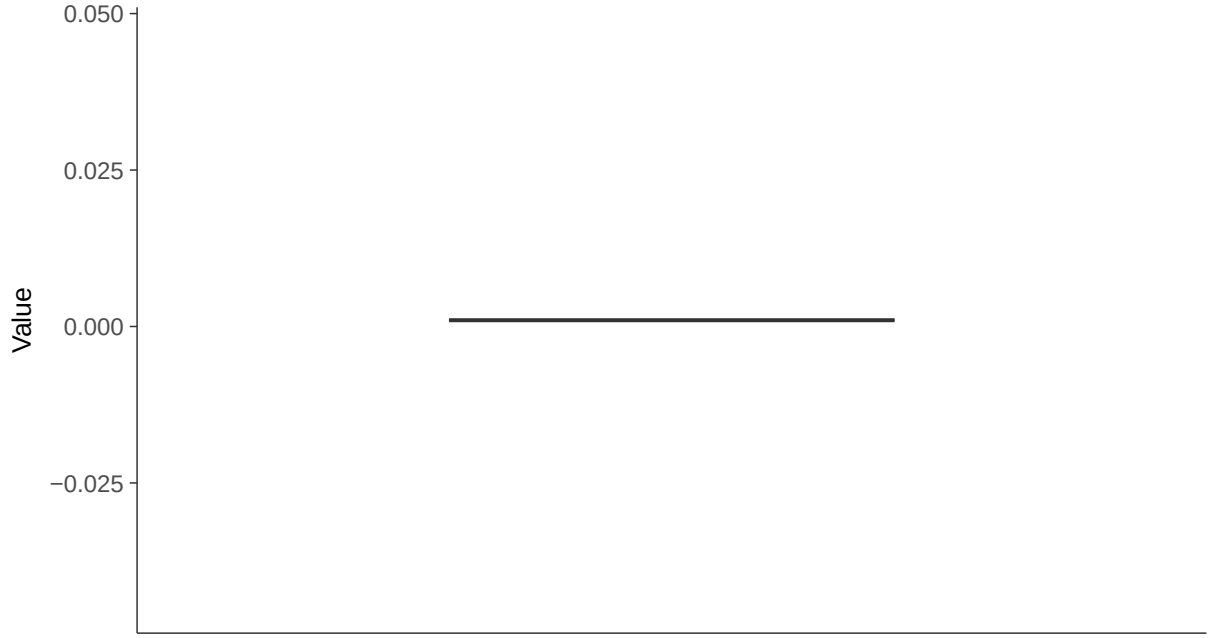
ID: 7B_2_11





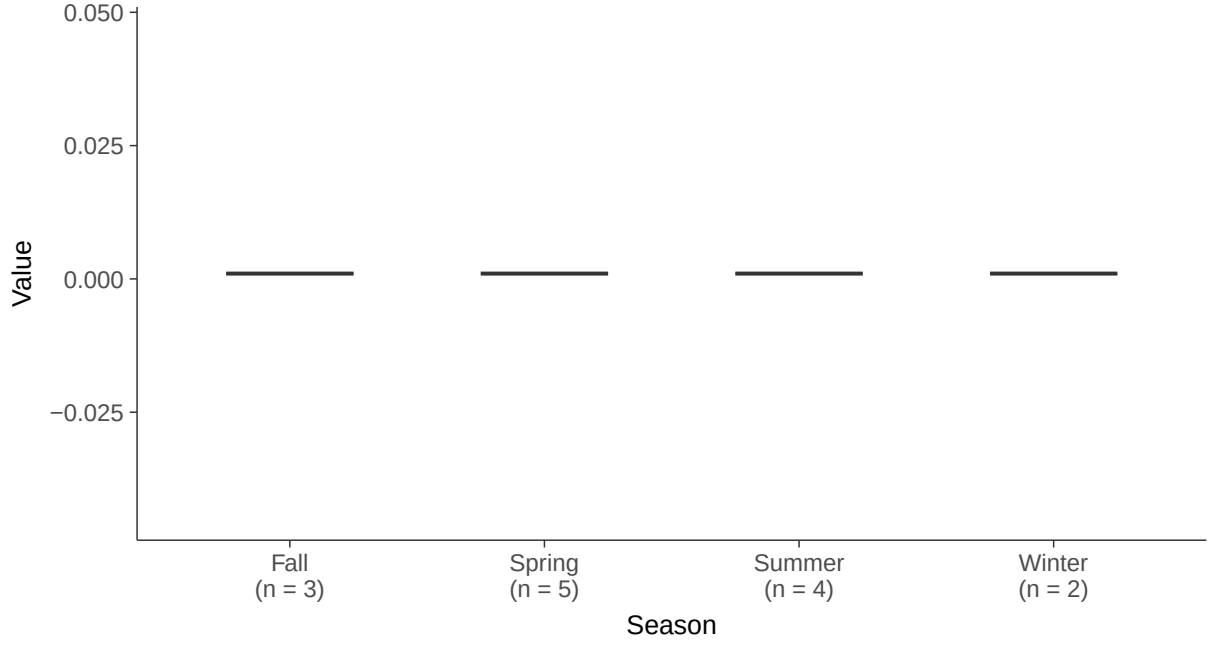
Boxplot

Beryllium, MW-7B (mg/L)



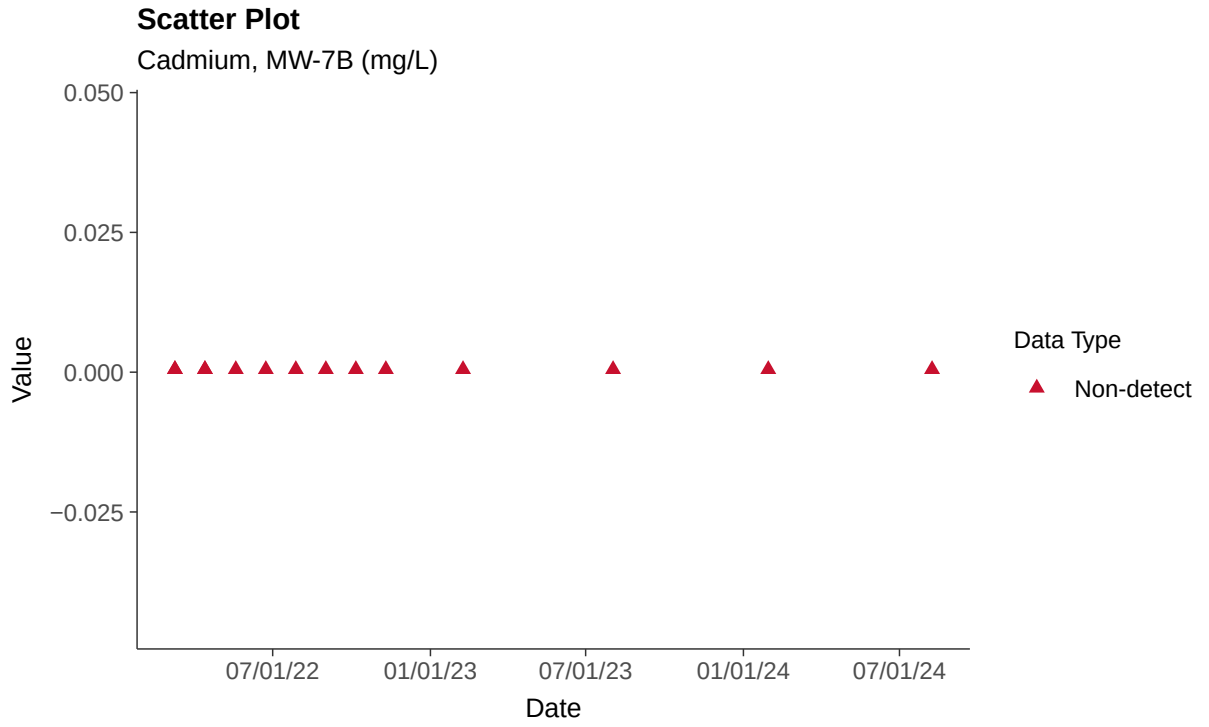
Boxplot by Season

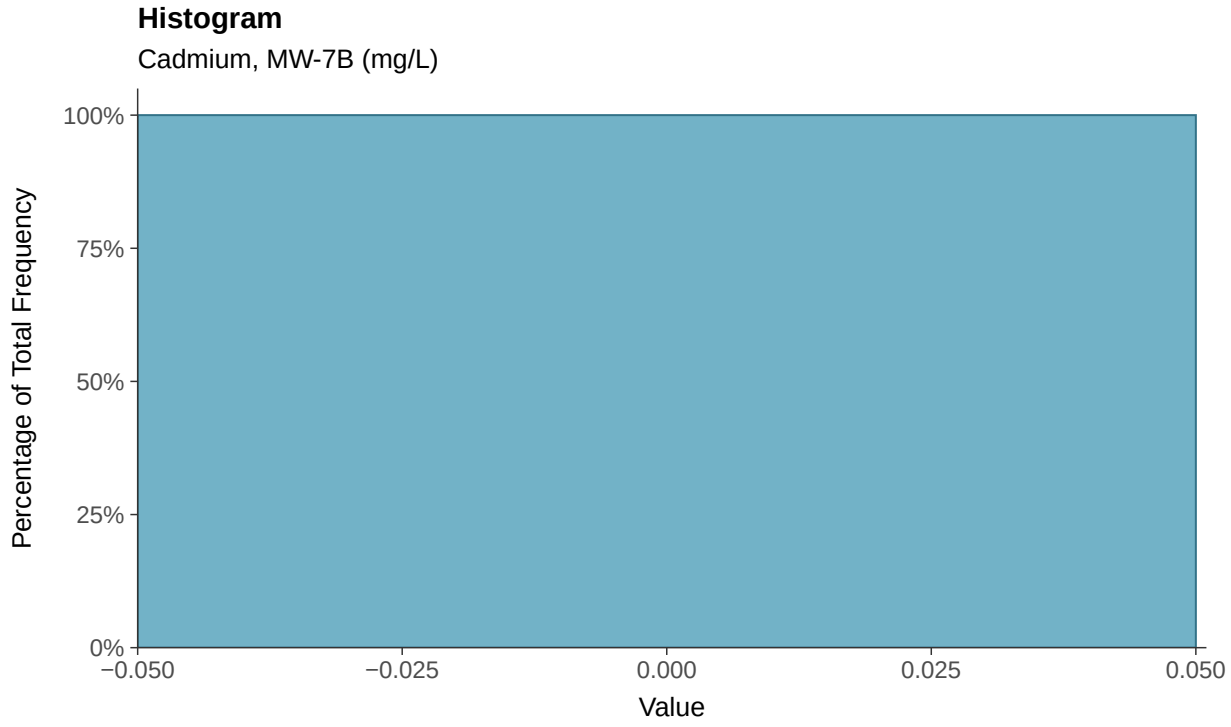
Beryllium, MW-7B (mg/L)



Appendix IV: Cadmium, MW-7B

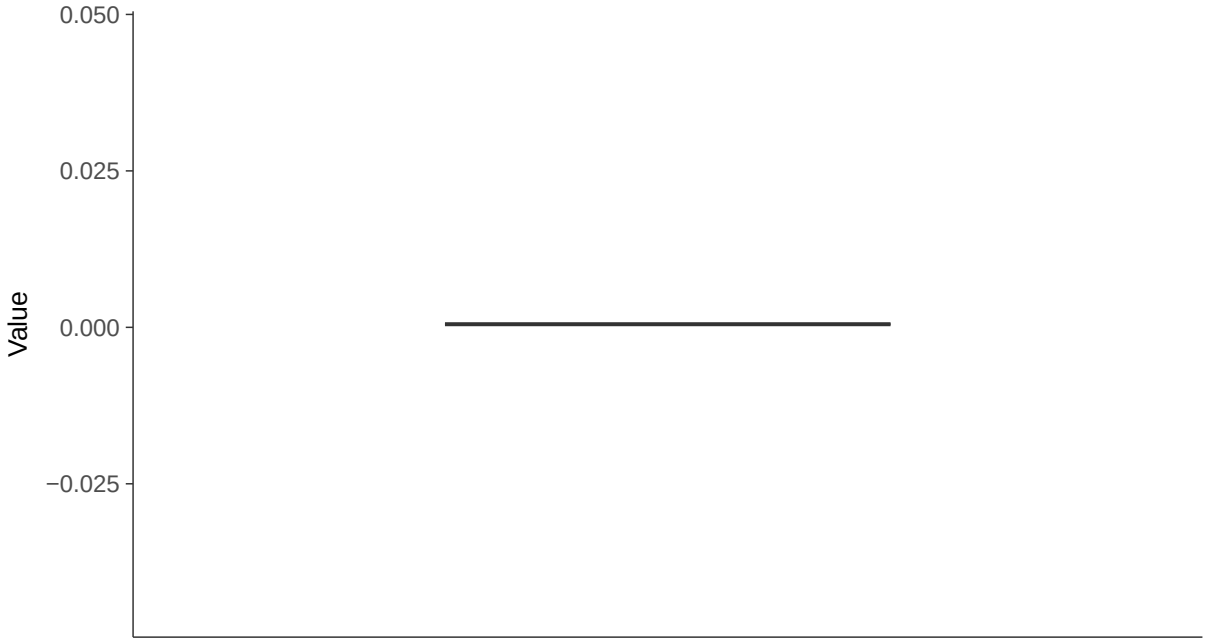
ID: 7B_2_12





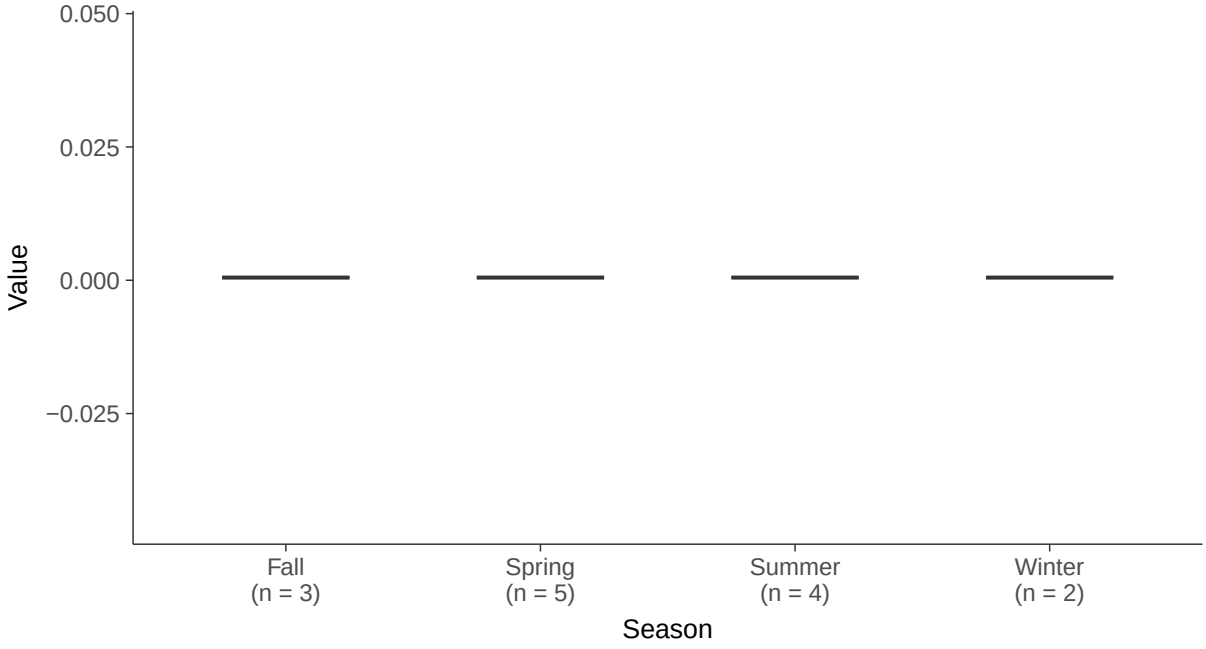
Boxplot

Cadmium, MW-7B (mg/L)



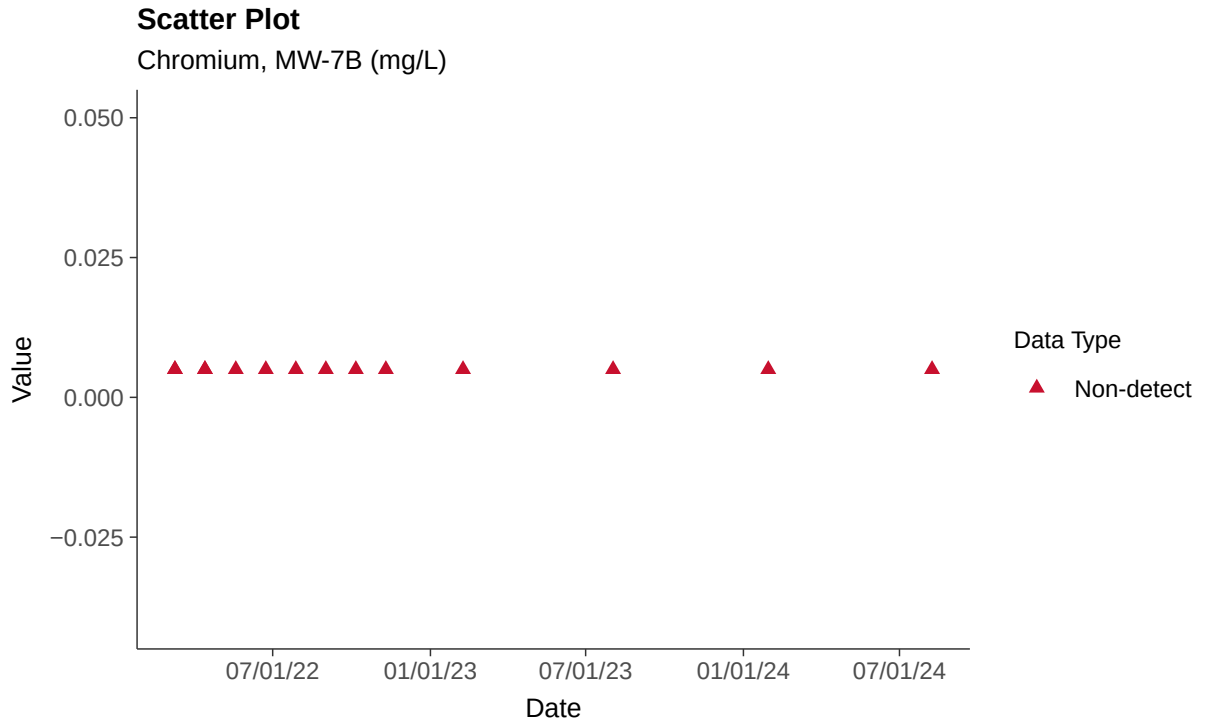
Boxplot by Season

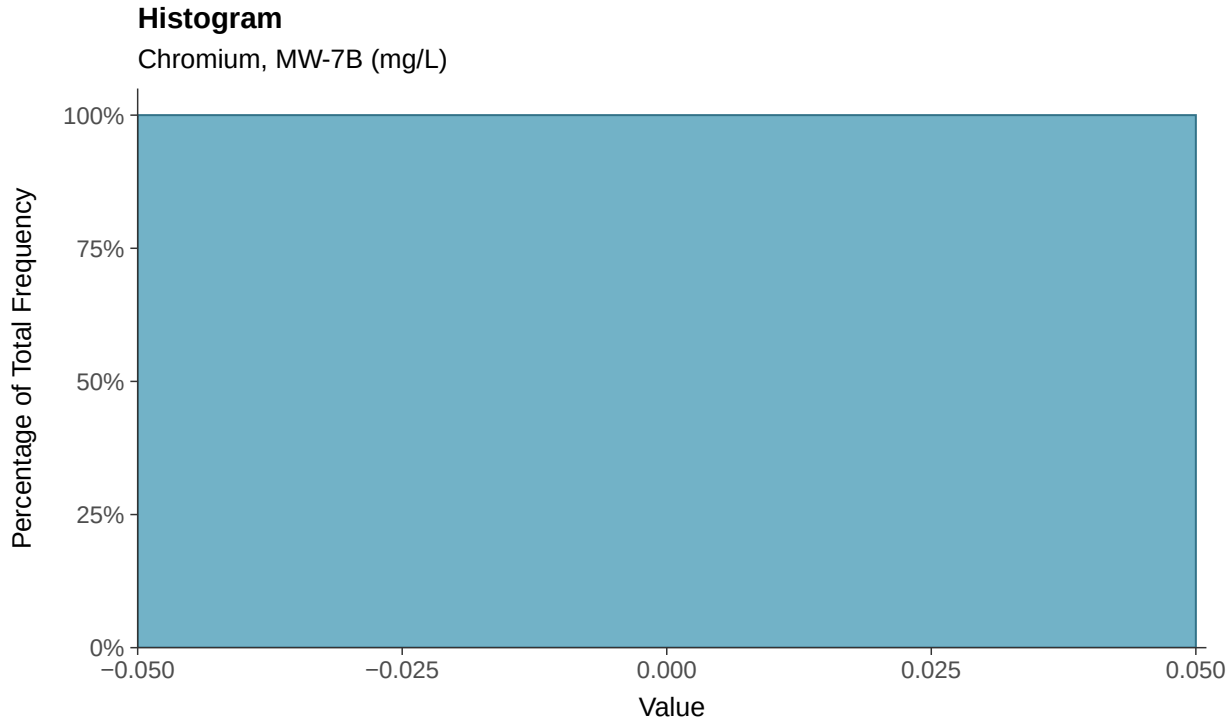
Cadmium, MW-7B (mg/L)



Appendix IV: Chromium, MW-7B

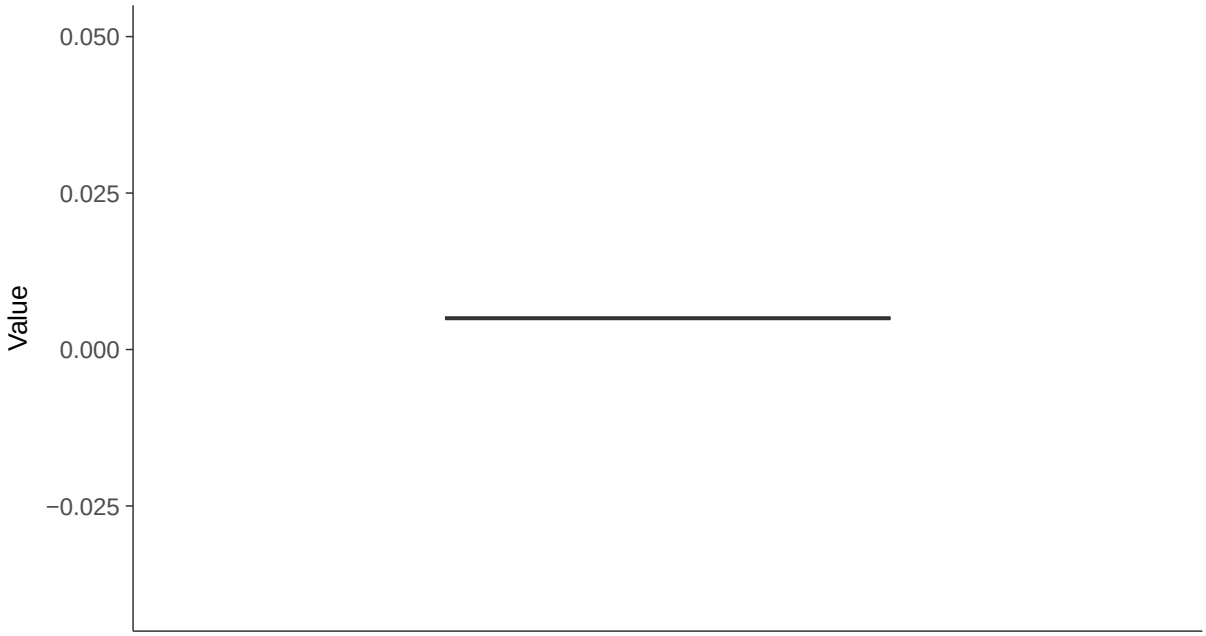
ID: 7B_2_13





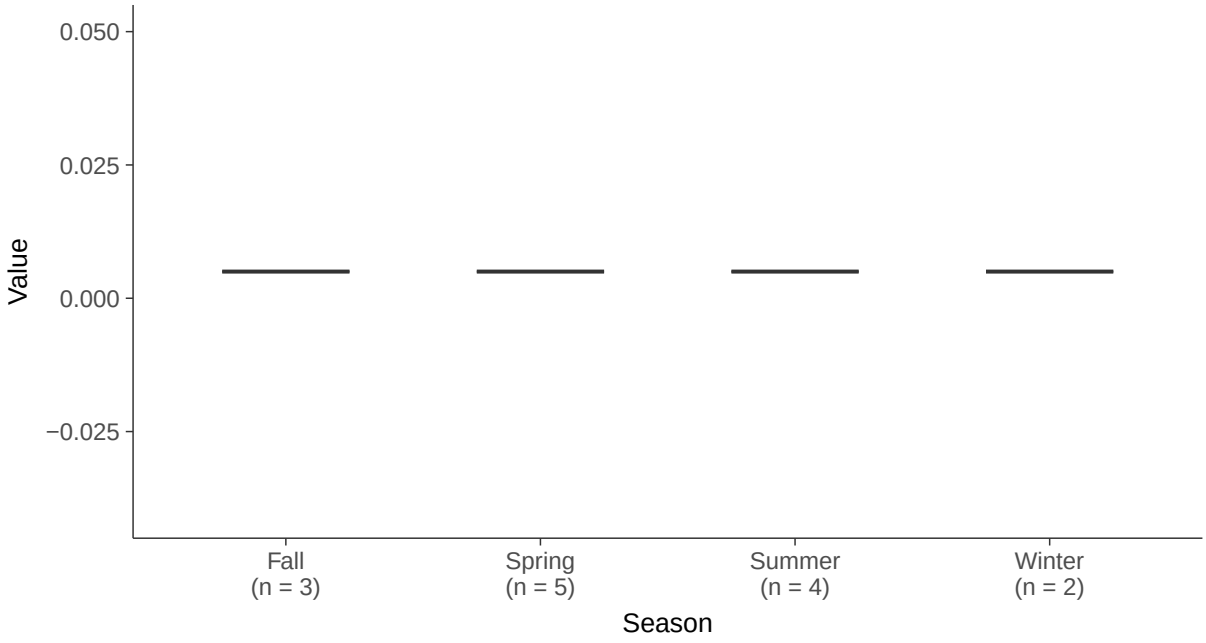
Boxplot

Chromium, MW-7B (mg/L)



Boxplot by Season

Chromium, MW-7B (mg/L)

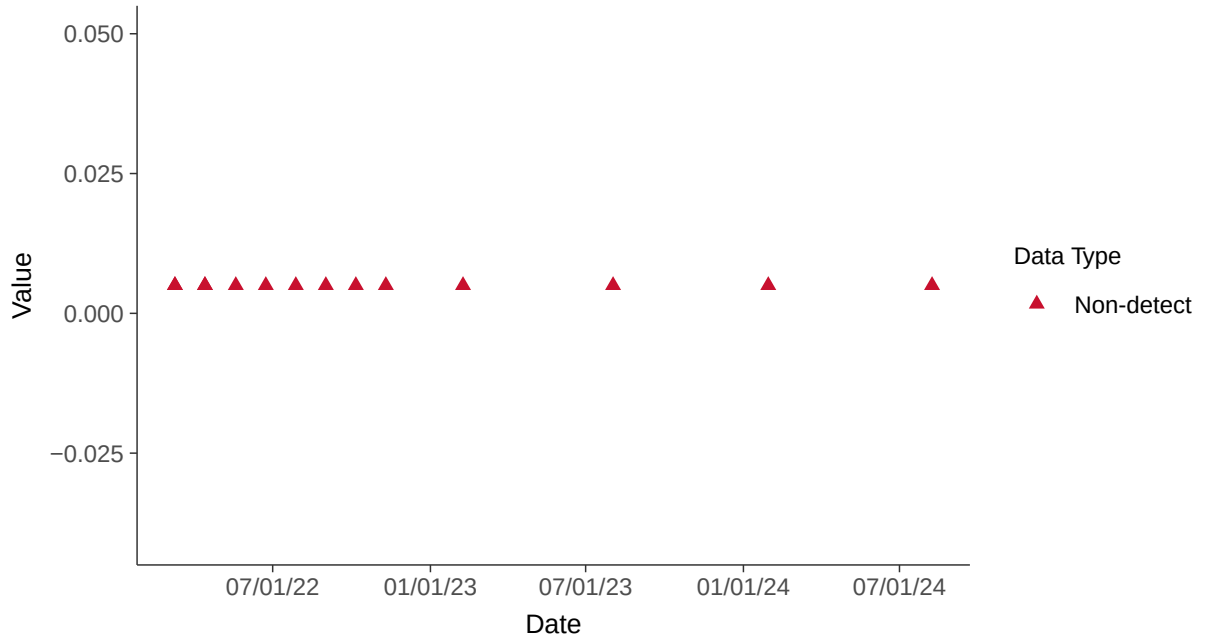


Appendix IV: Cobalt, MW-7B

ID: 7B_2_14

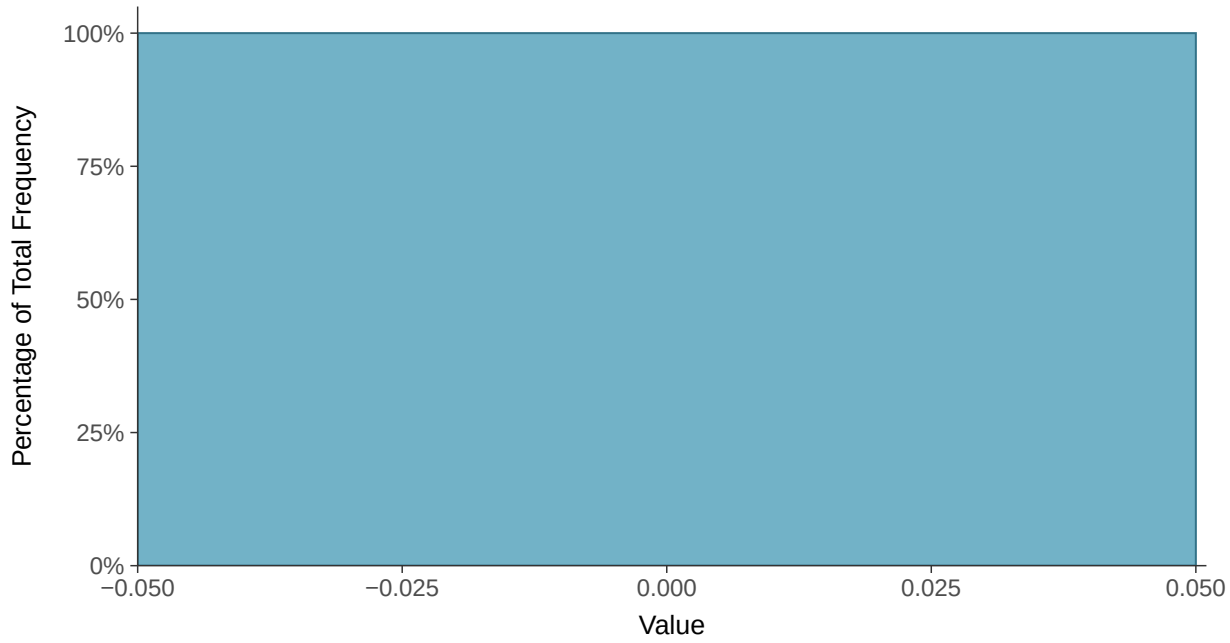
Scatter Plot

Cobalt, MW-7B (mg/L)



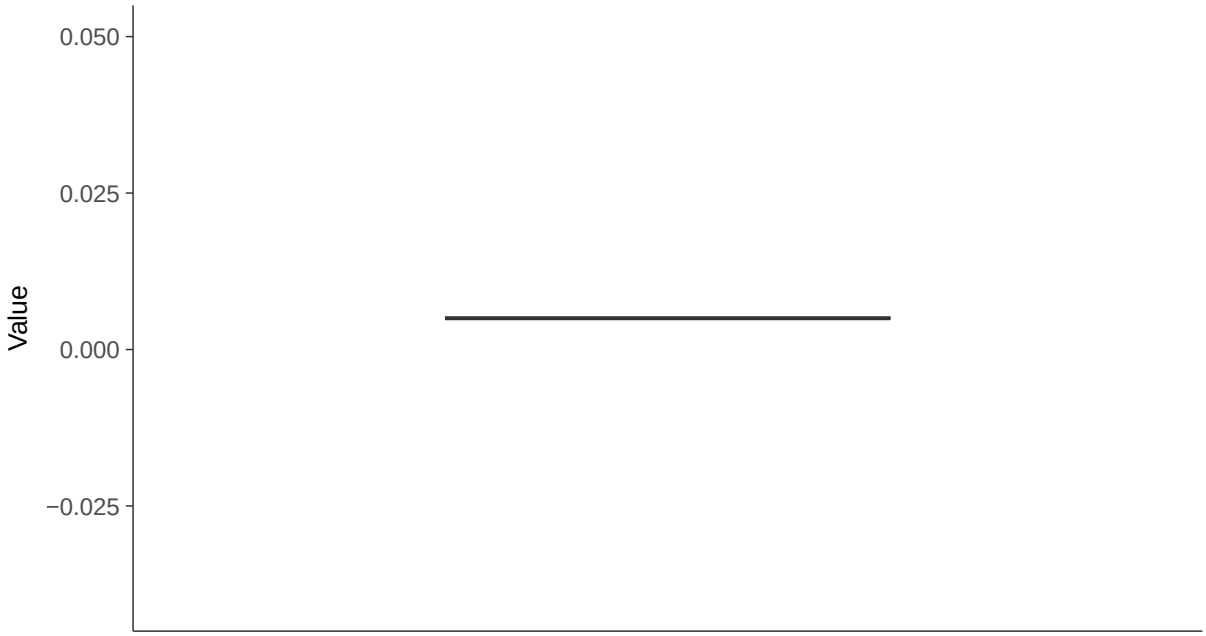
Histogram

Cobalt, MW-7B (mg/L)



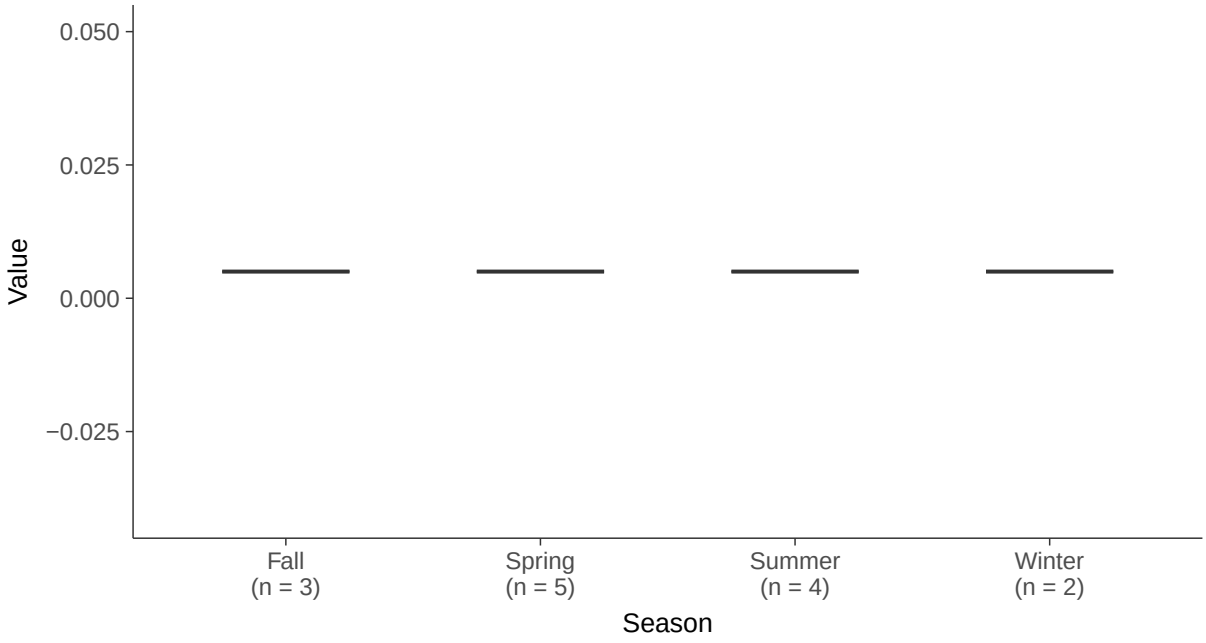
Boxplot

Cobalt, MW-7B (mg/L)



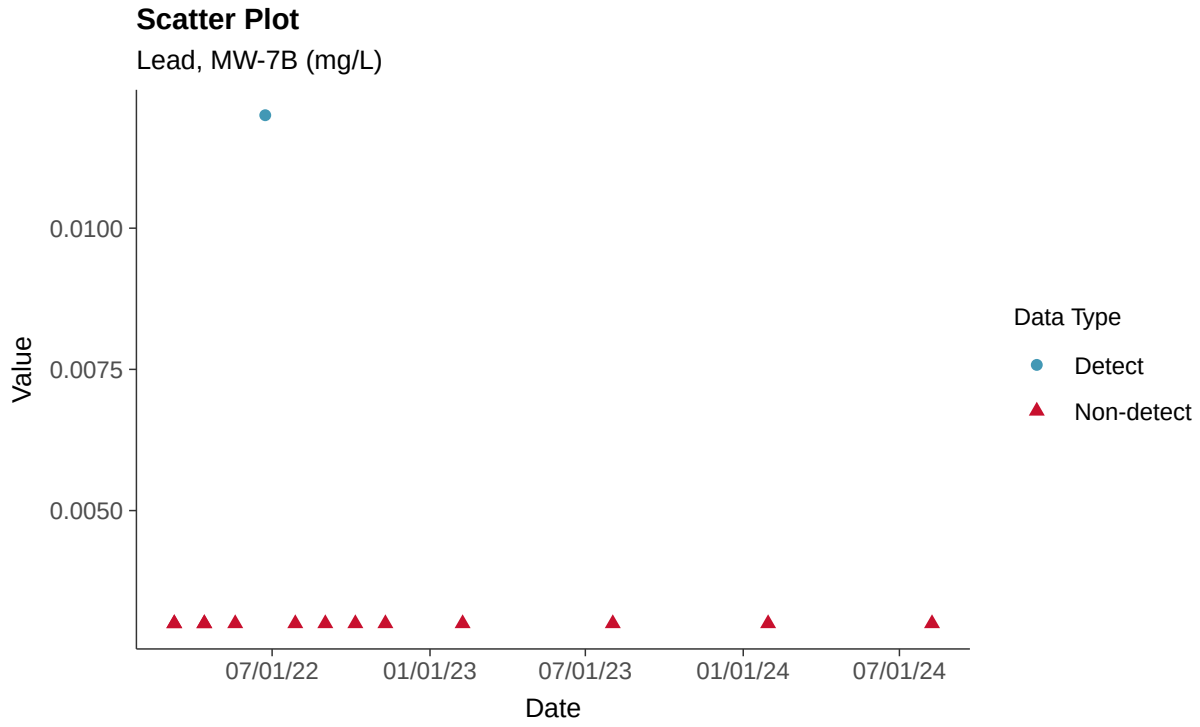
Boxplot by Season

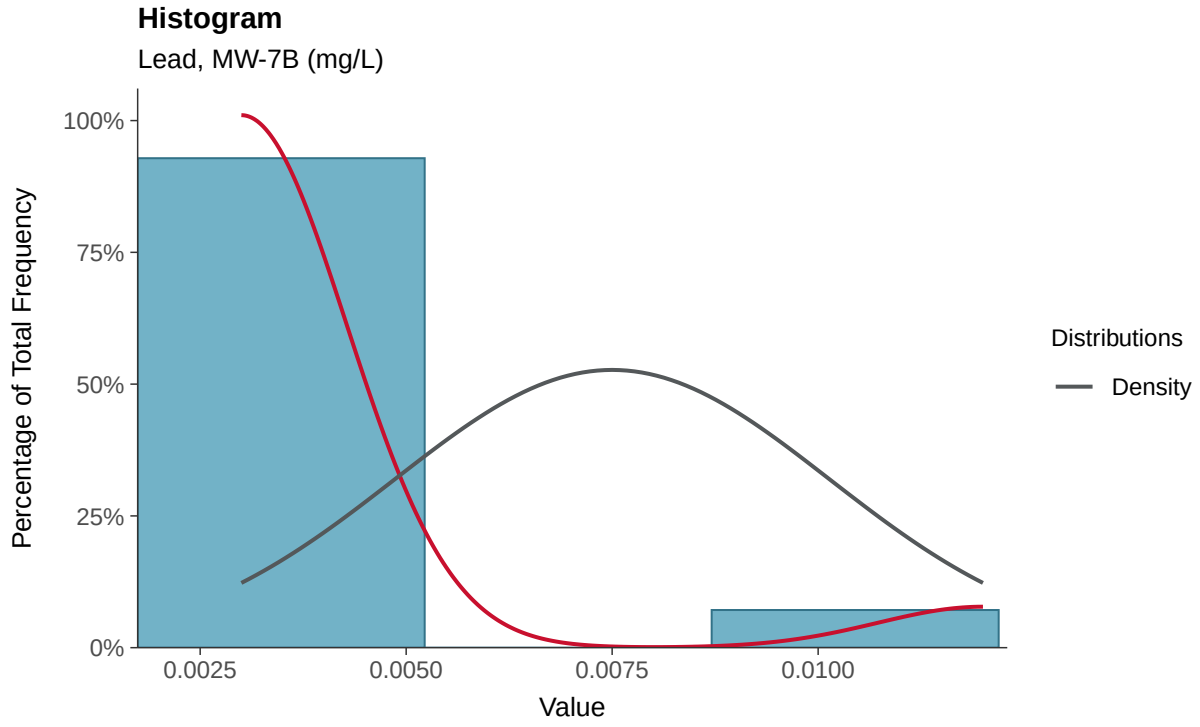
Cobalt, MW-7B (mg/L)



Appendix IV: Lead, MW-7B

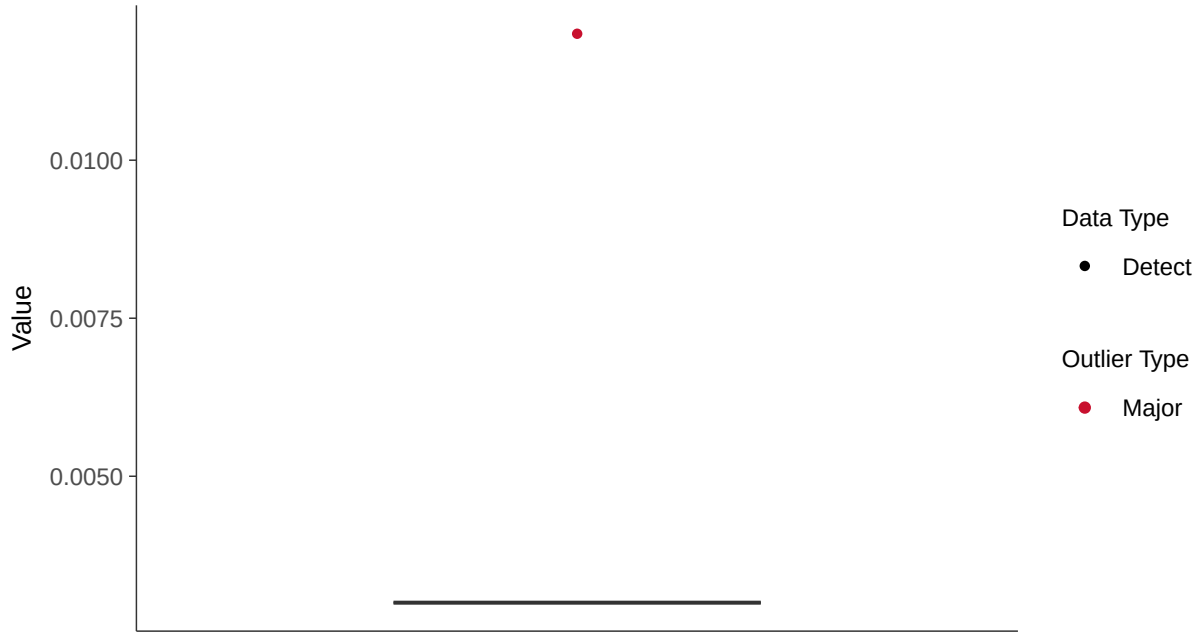
ID: 7B_2_15





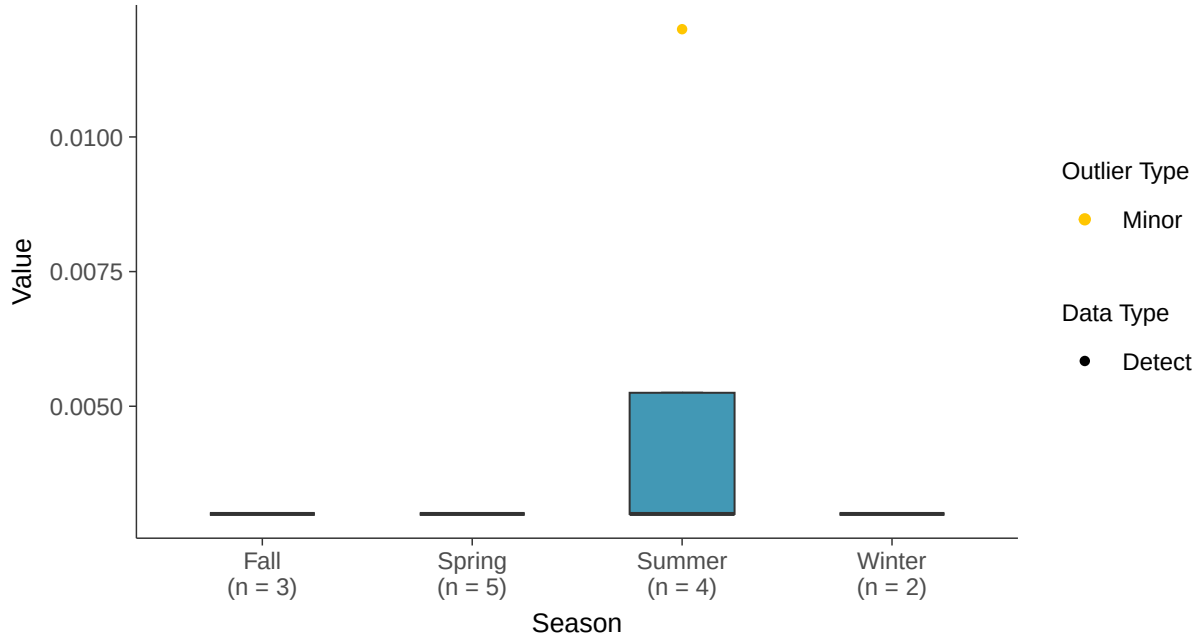
Boxplot

Lead, MW-7B (mg/L)



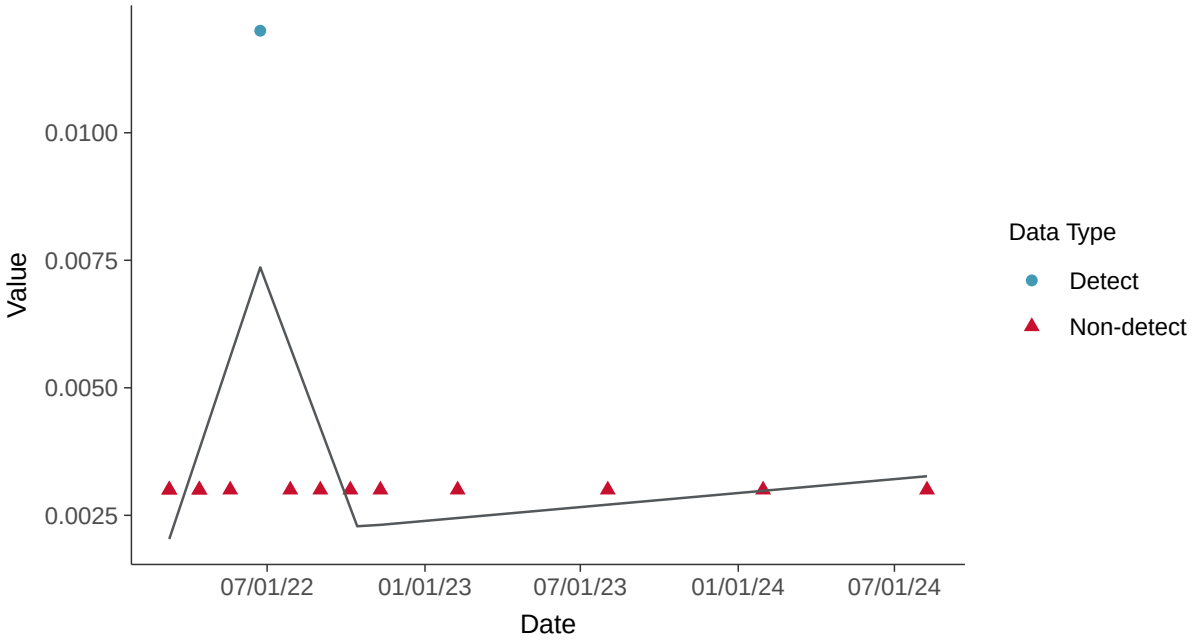
Boxplot by Season

Lead, MW-7B (mg/L)



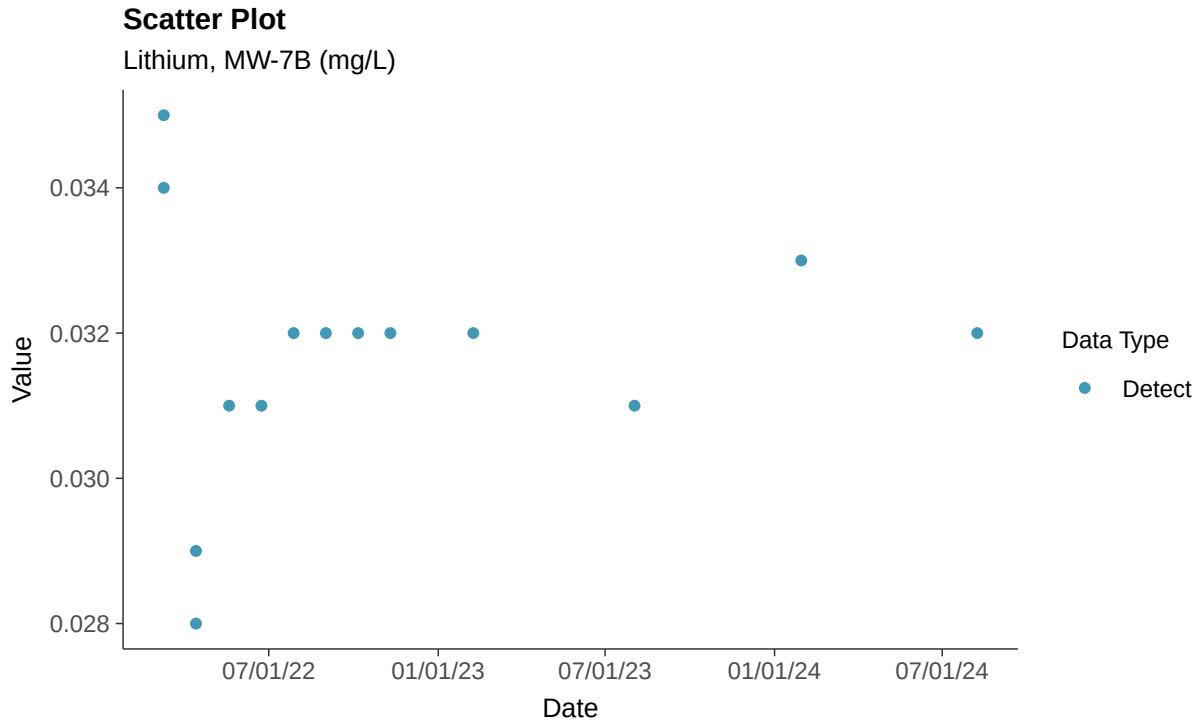
Trend Regression: Piecewise Linear-Linear-Linear

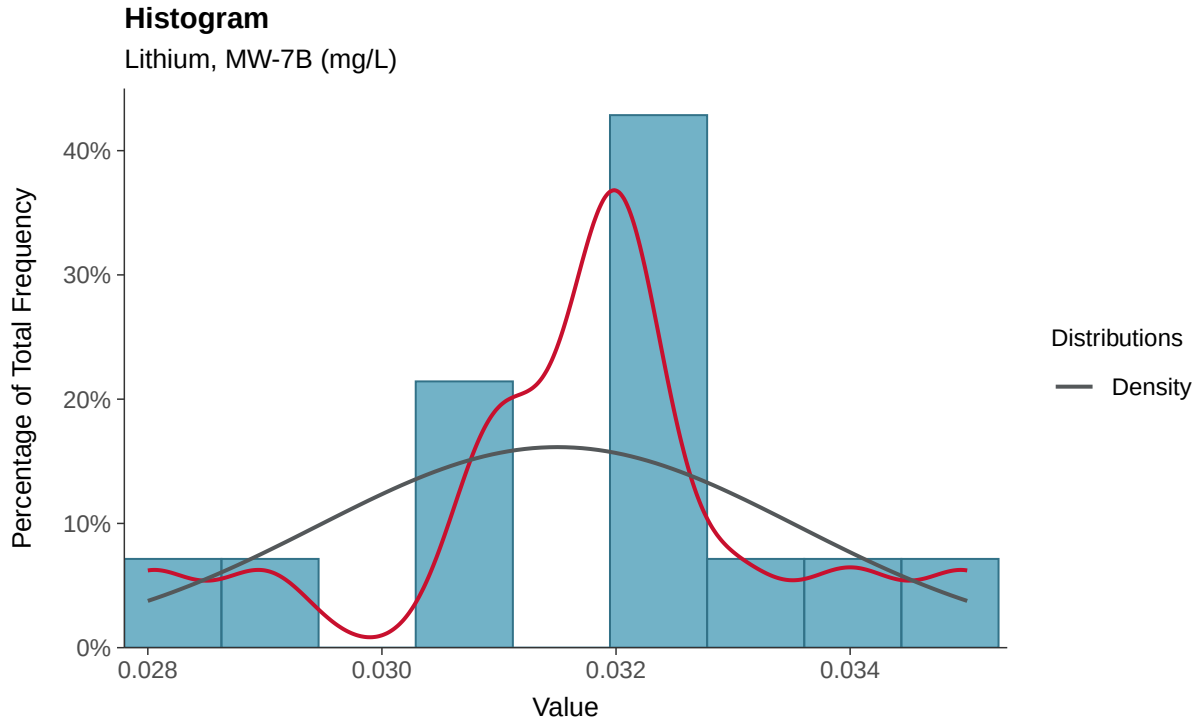
Lead, MW-7B (mg/L)



Appendix IV: Lithium, MW-7B

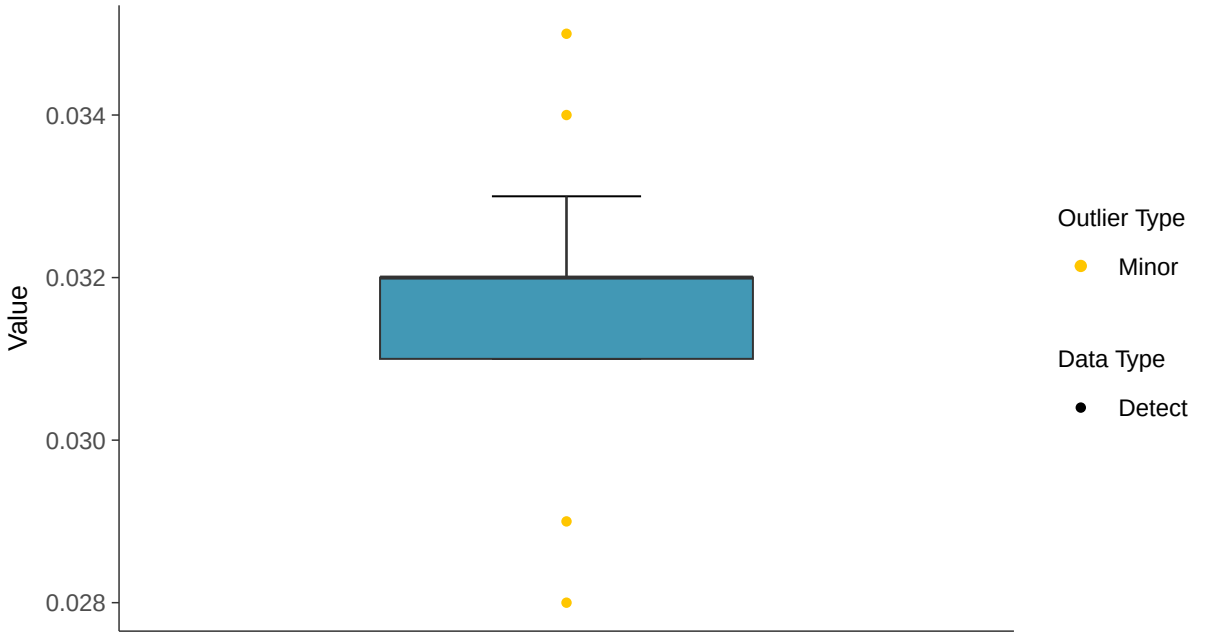
ID: 7B_2_16





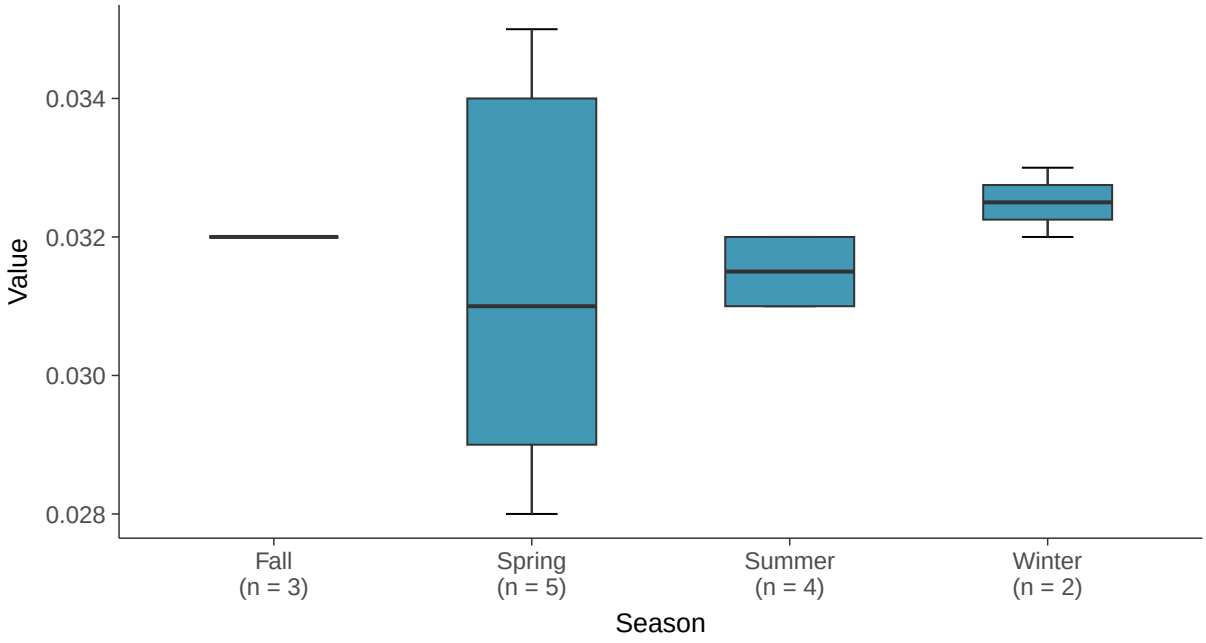
Boxplot

Lithium, MW-7B (mg/L)



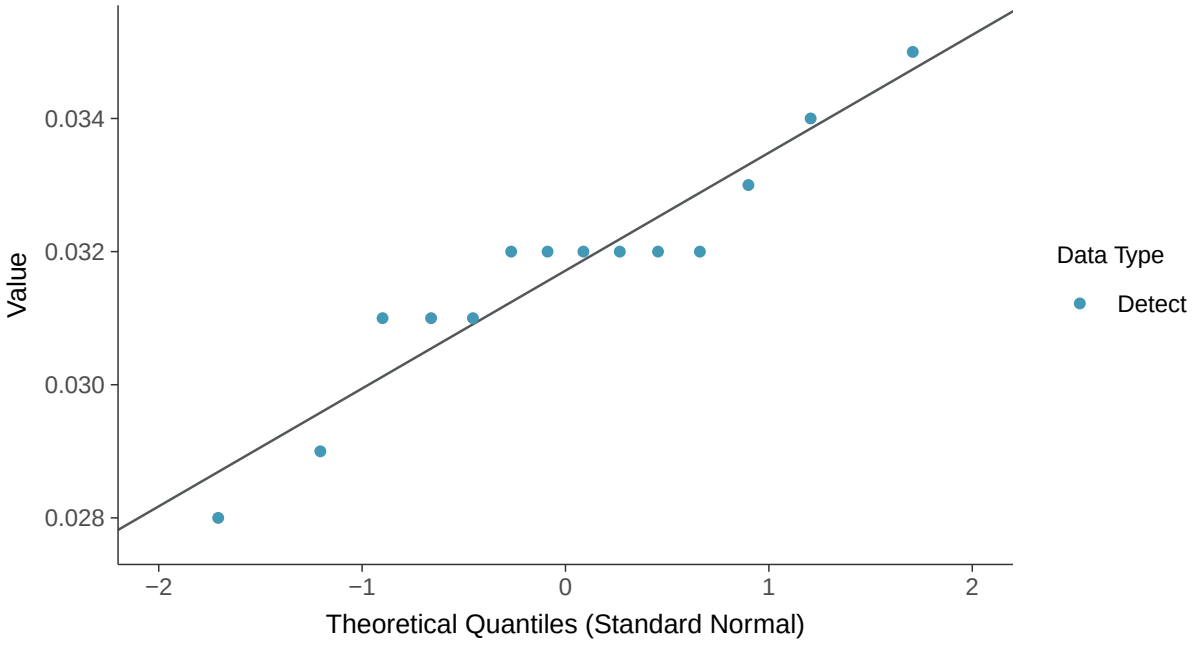
Boxplot by Season

Lithium, MW-7B (mg/L)



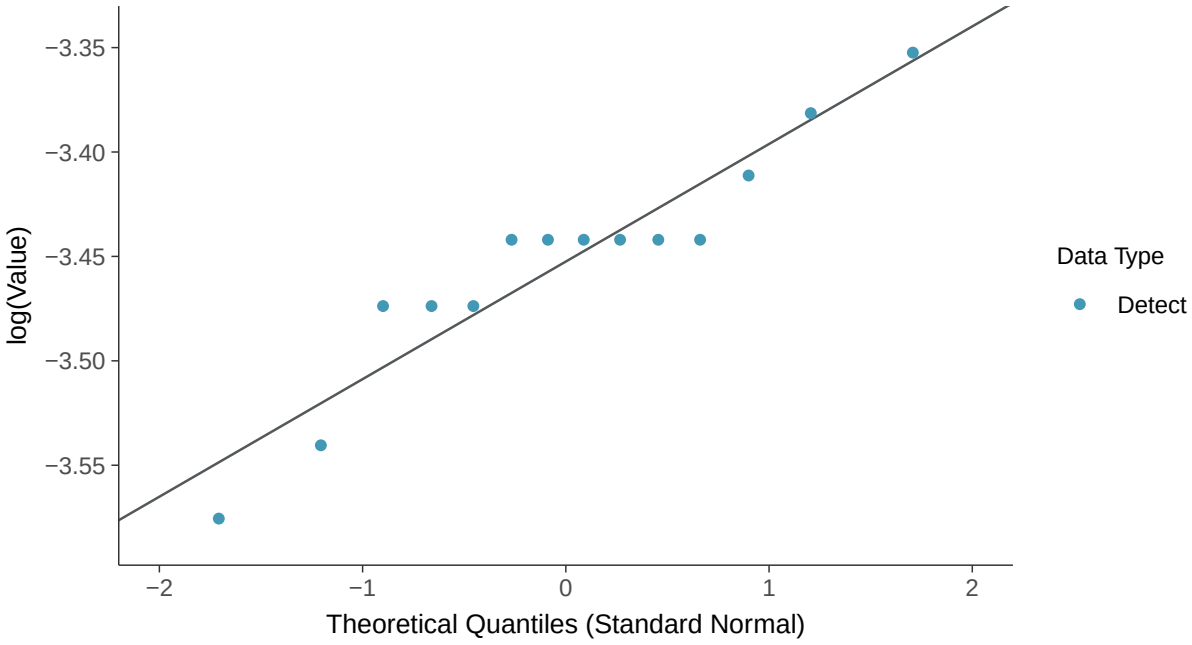
Normal Q-Q plot

Lithium, MW-7B (mg/L)



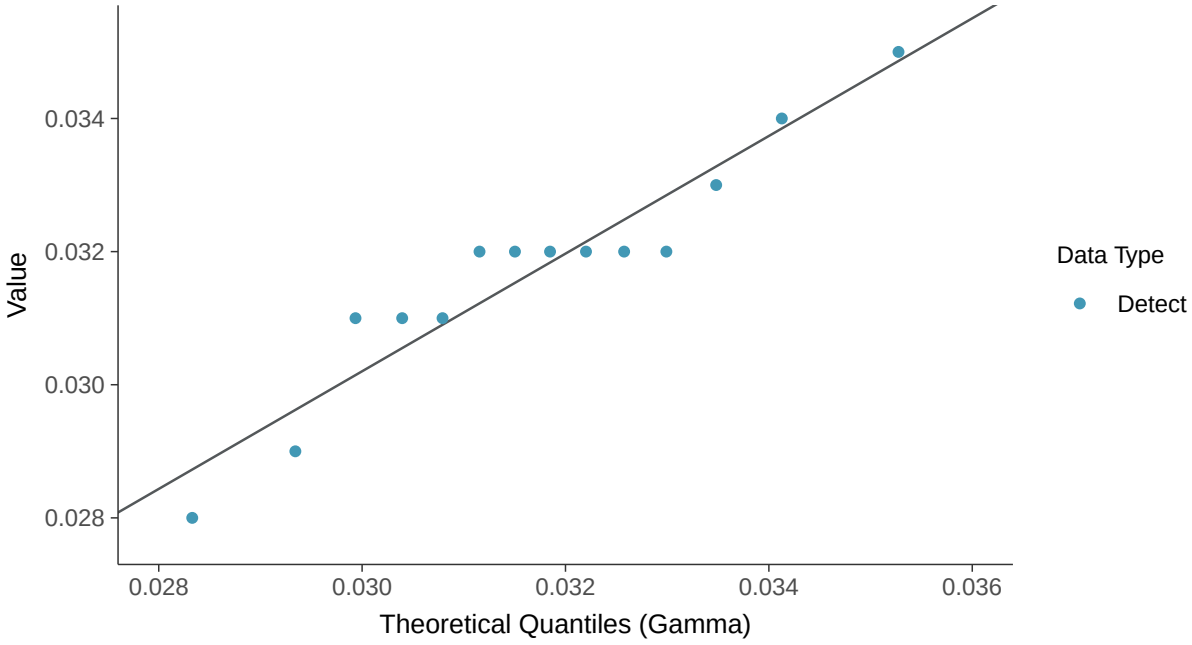
Lognormal Q-Q plot

Lithium, MW-7B (mg/L)



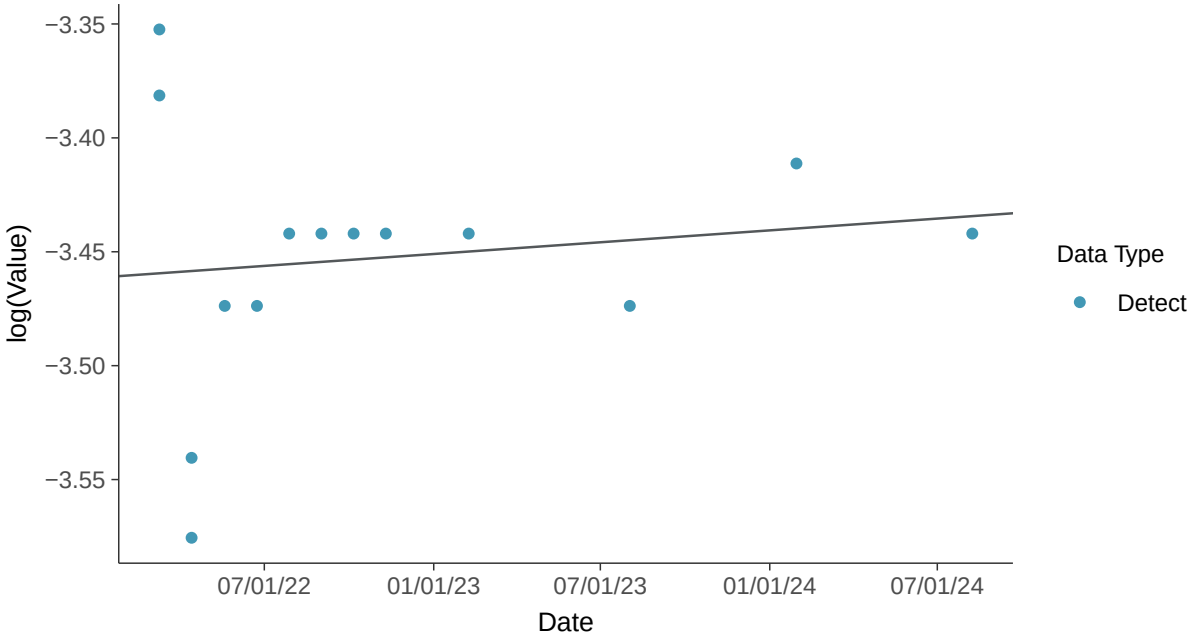
Gamma Q-Q plot

Lithium, MW-7B (mg/L)



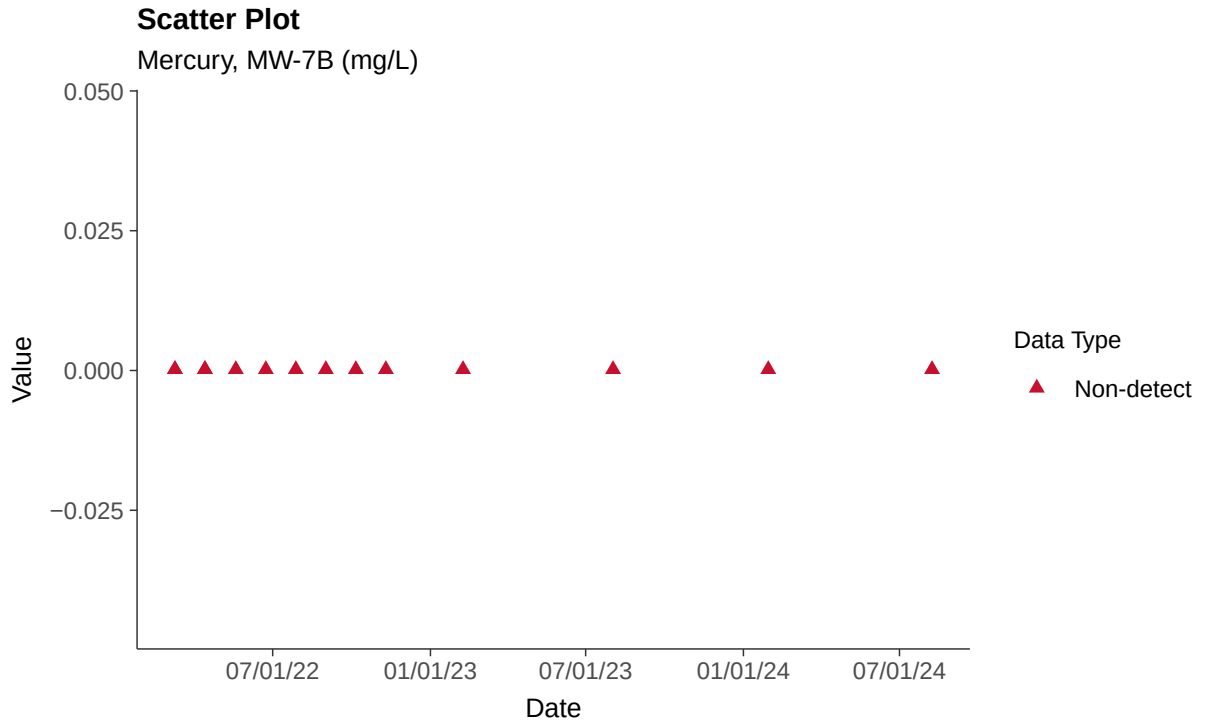
Trend Regression: Lognormal MLE

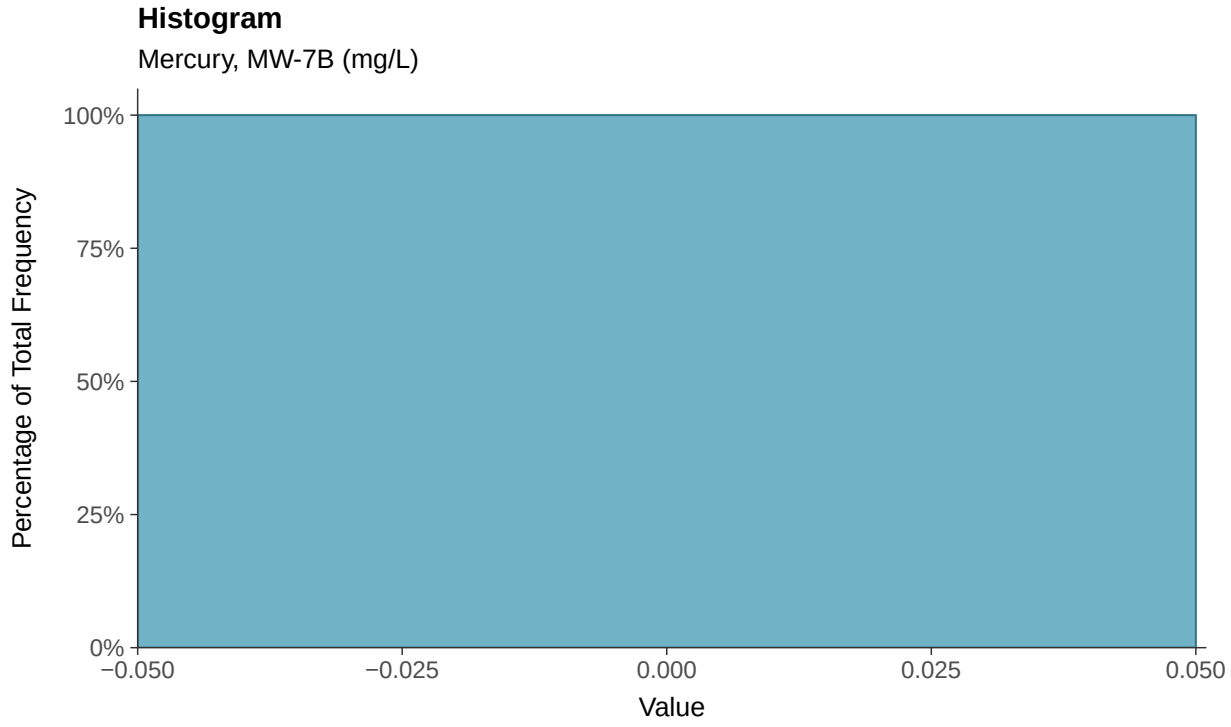
Lithium, MW-7B (mg/L)



Appendix IV: Mercury, MW-7B

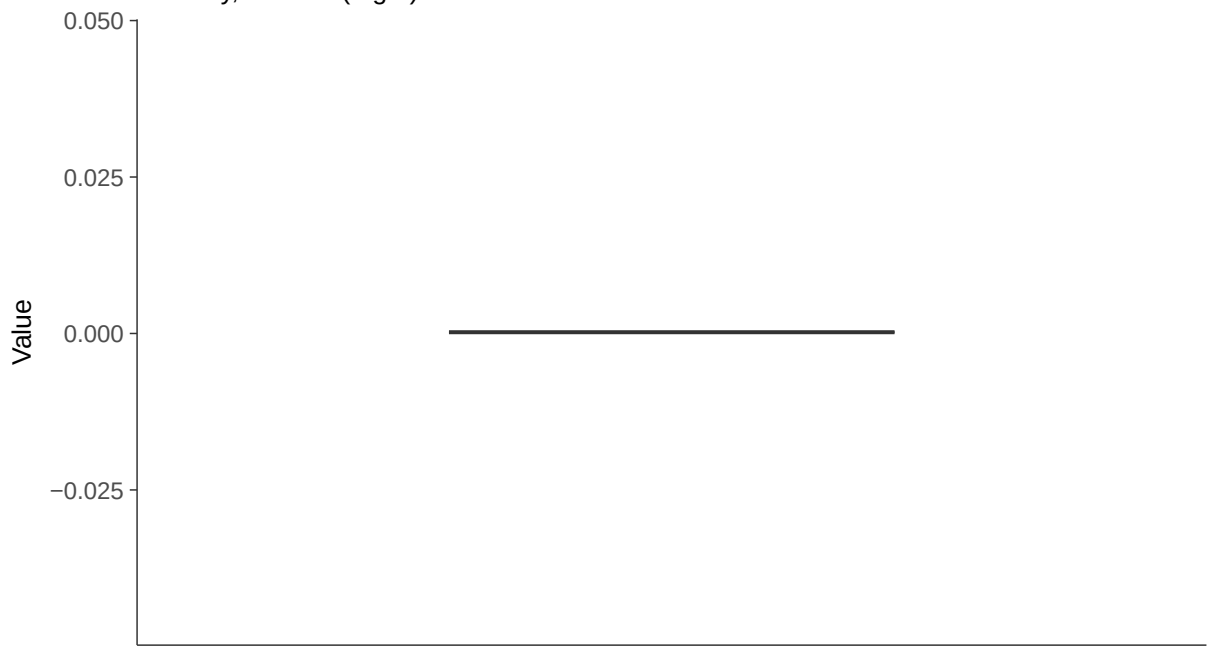
ID: 7B_2_17





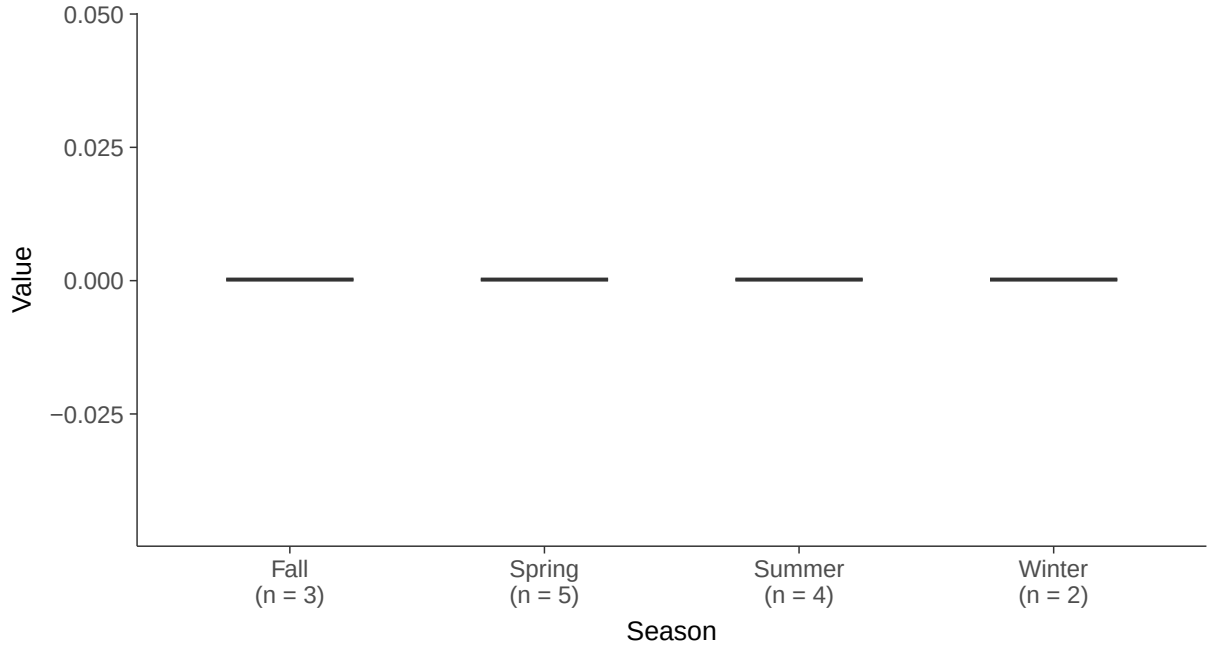
Boxplot

Mercury, MW-7B (mg/L)



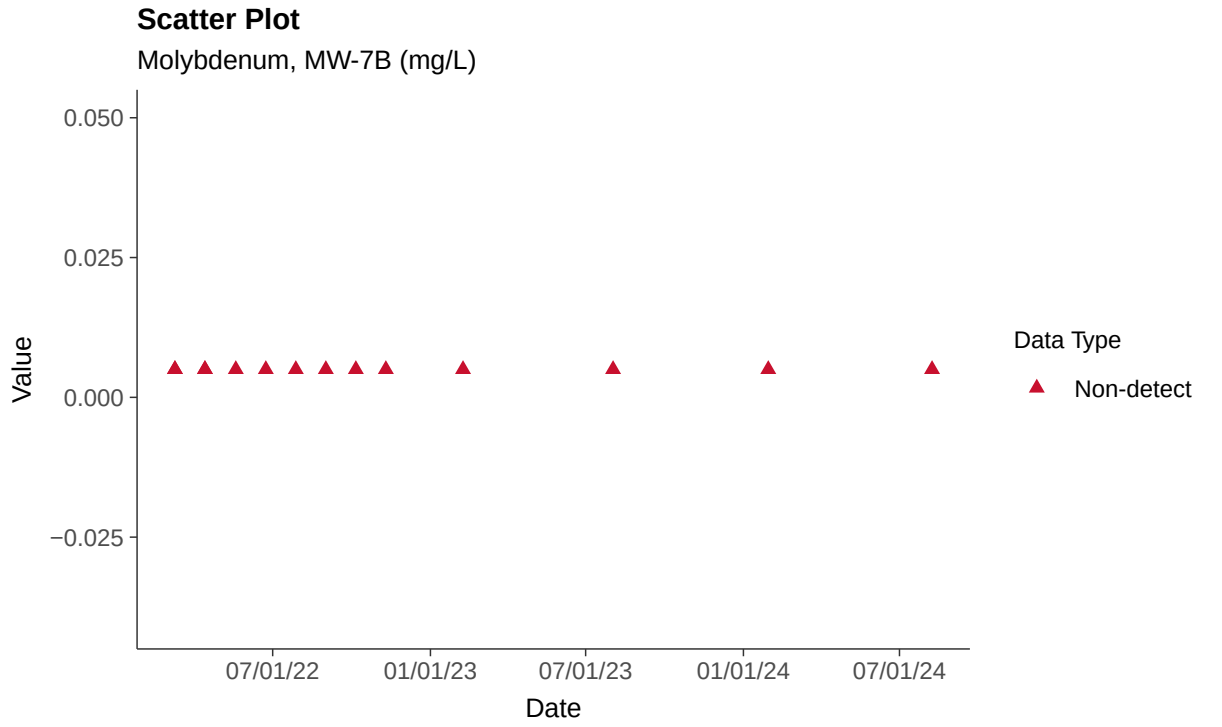
Boxplot by Season

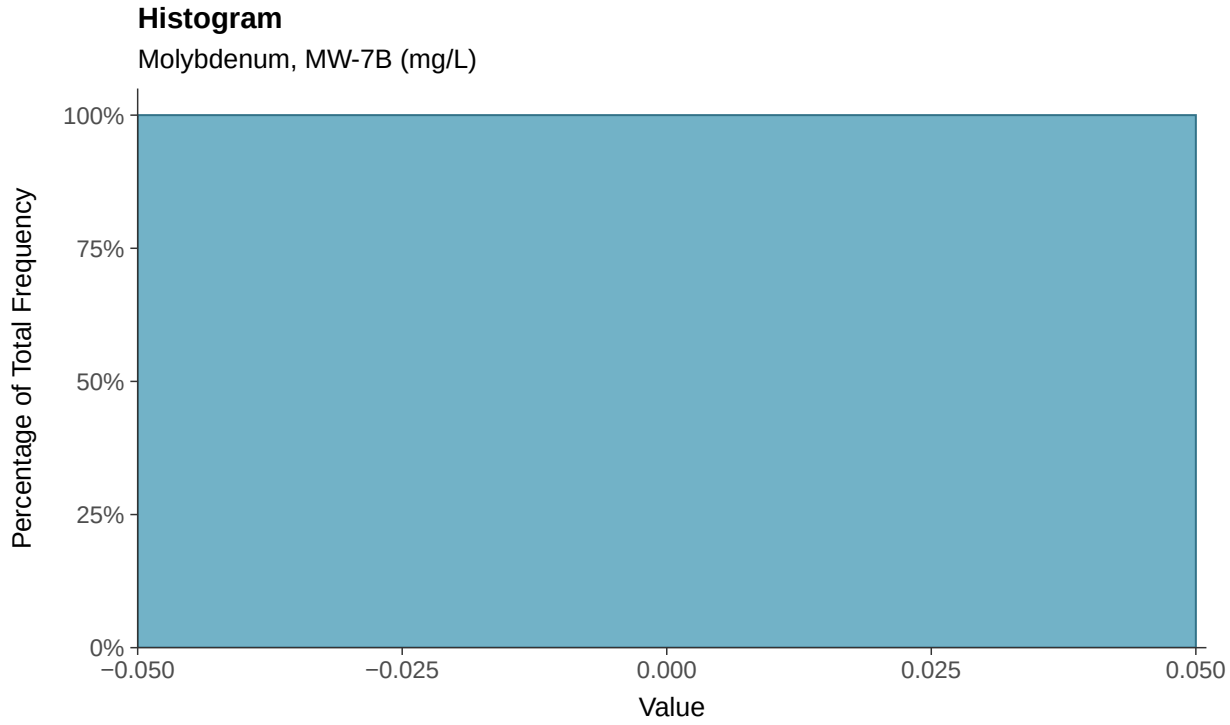
Mercury, MW-7B (mg/L)



Appendix IV: Molybdenum, MW-7B

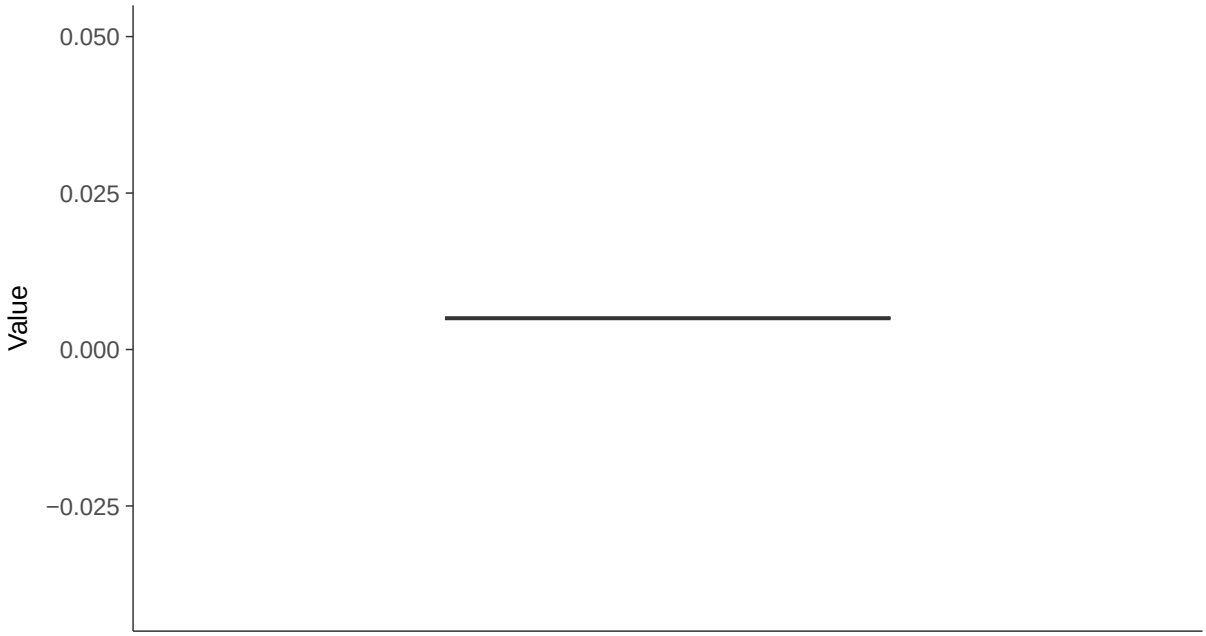
ID: 7B_2_18





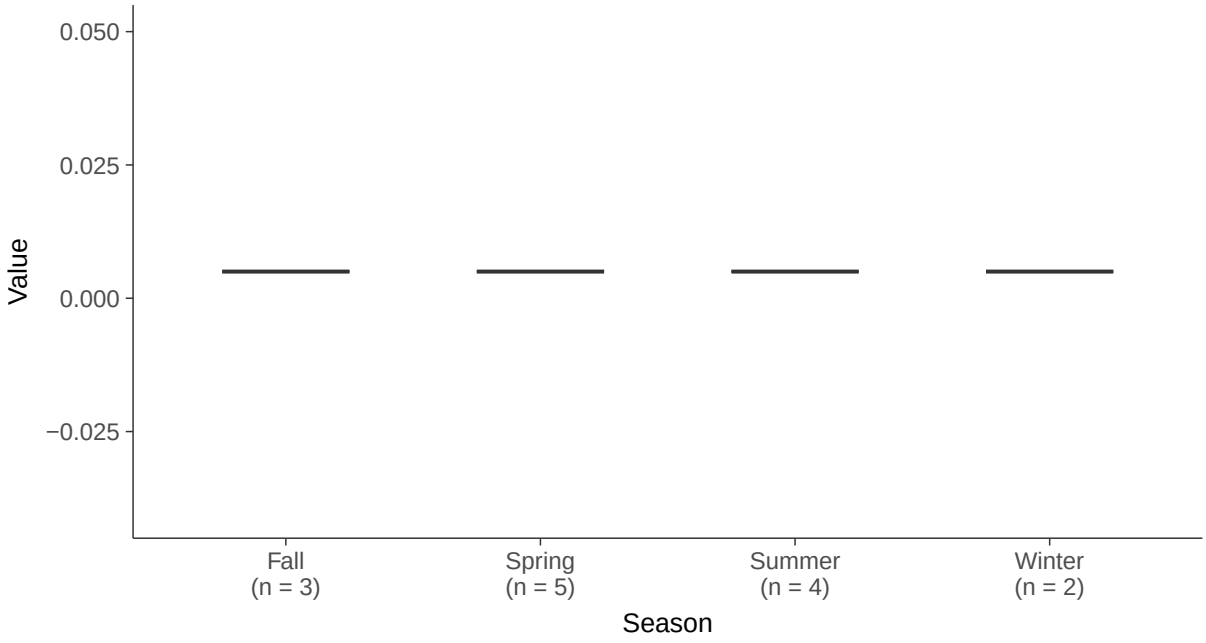
Boxplot

Molybdenum, MW-7B (mg/L)



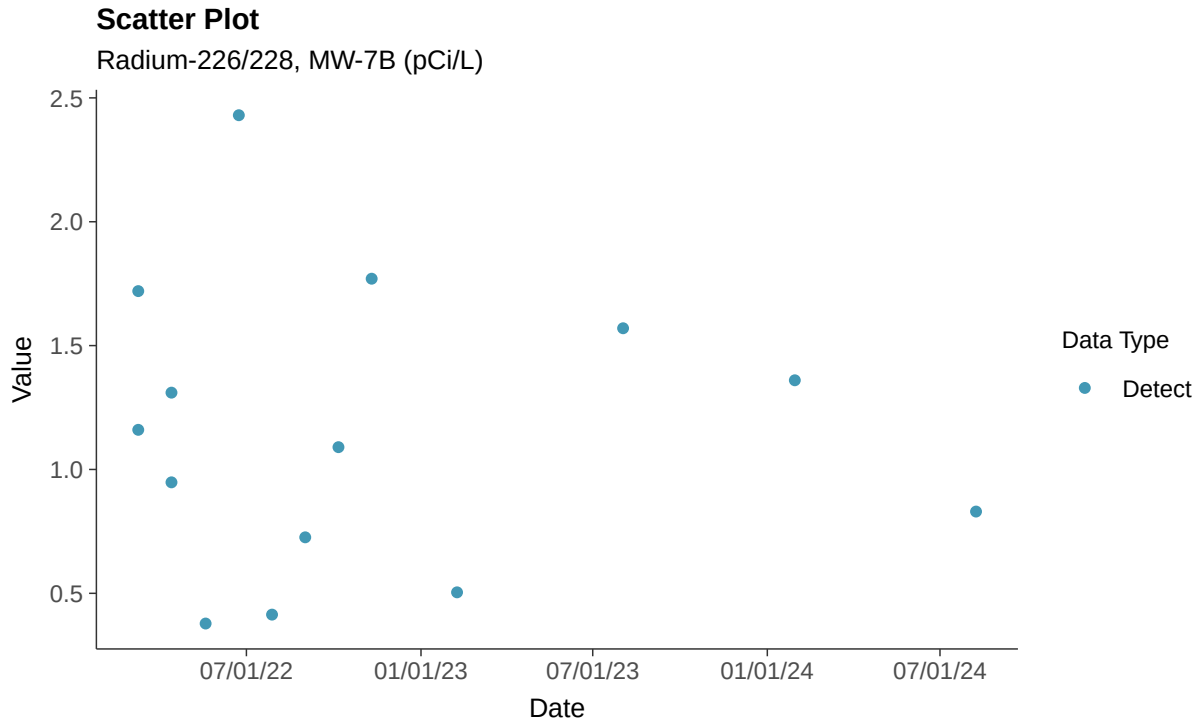
Boxplot by Season

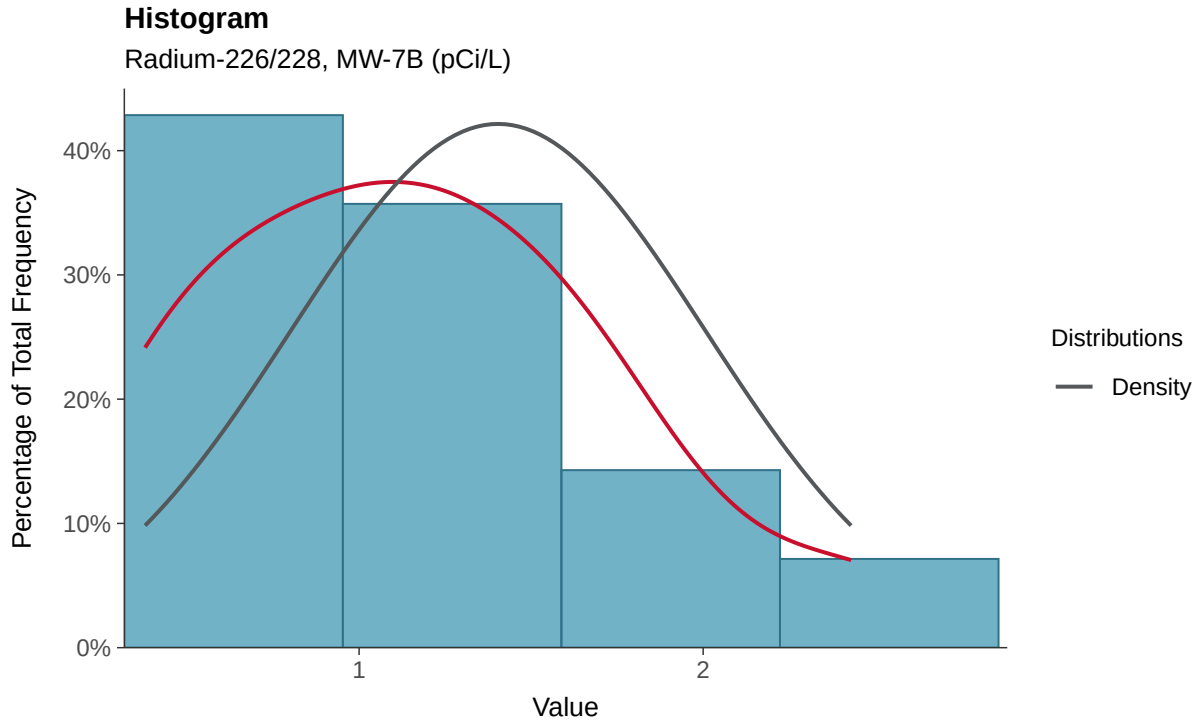
Molybdenum, MW-7B (mg/L)



Appendix IV: Radium-226/228, MW-7B

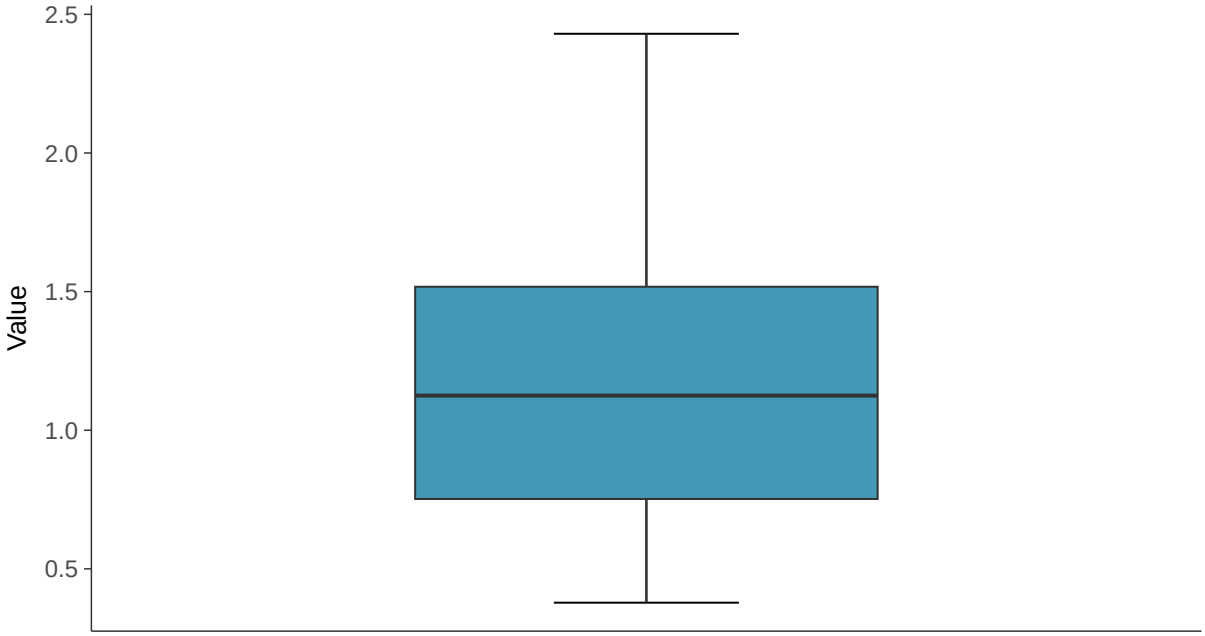
ID: 7B_2_21





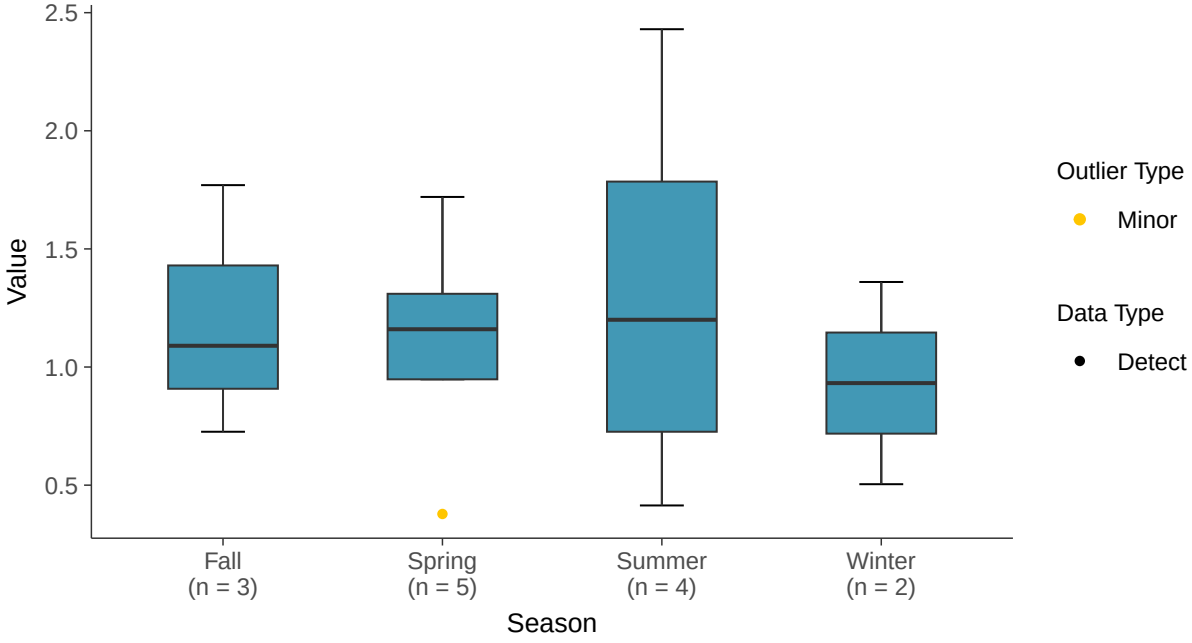
Boxplot

Radium-226/228, MW-7B (pCi/L)



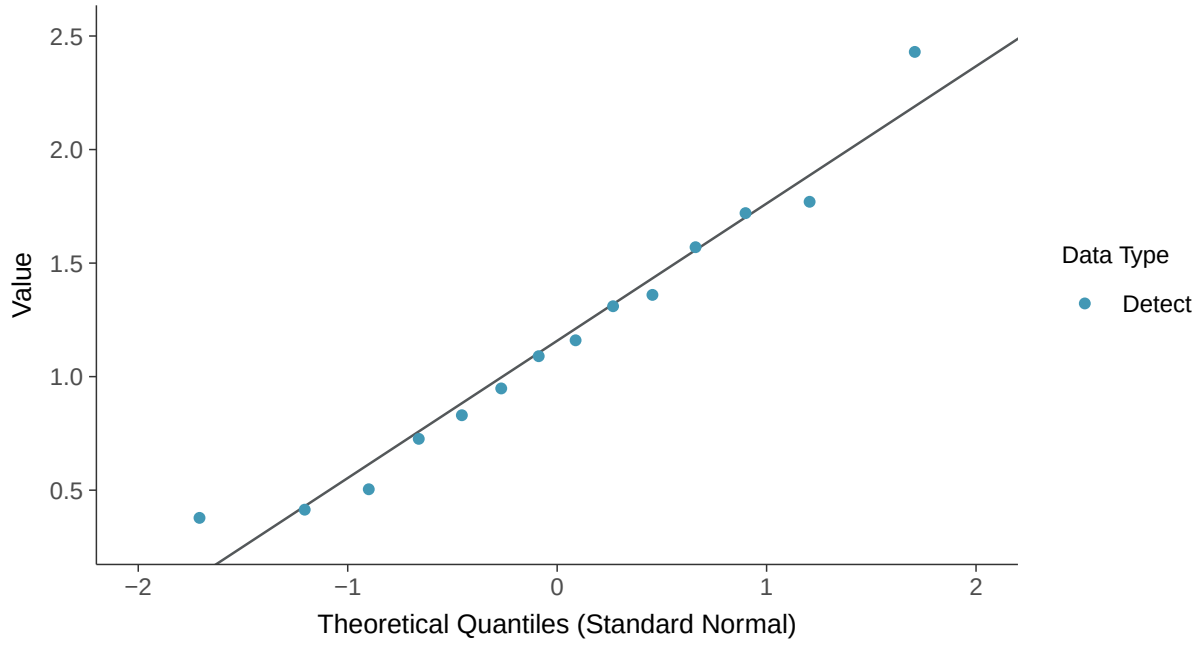
Boxplot by Season

Radium-226/228, MW-7B (pCi/L)



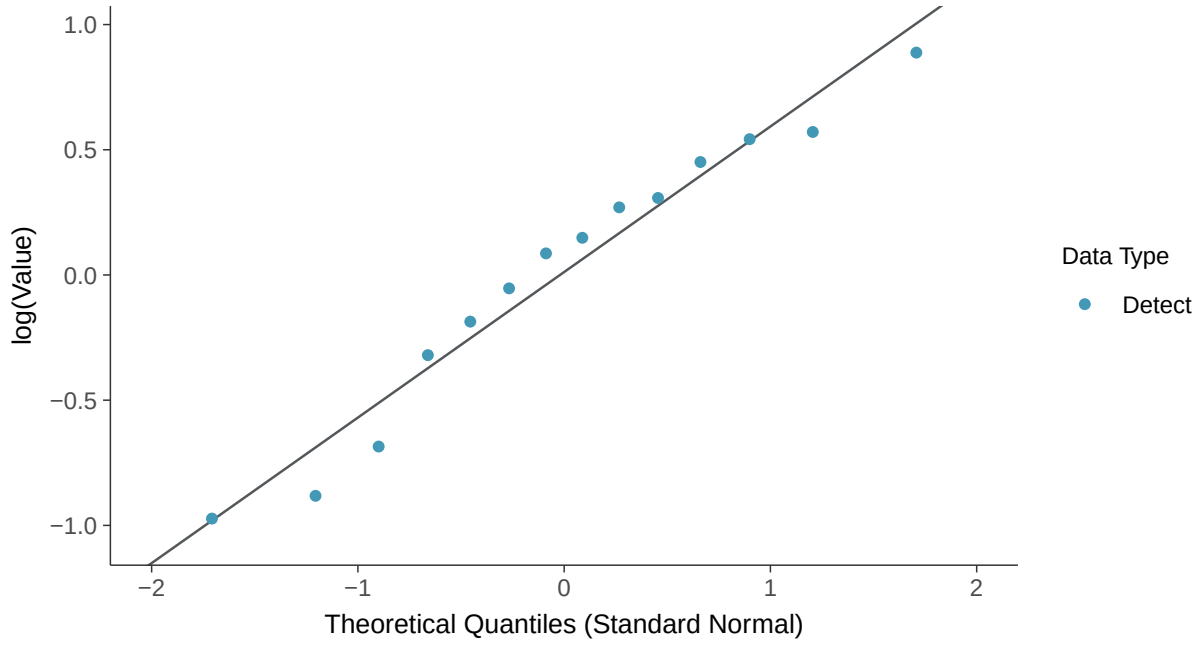
Normal Q-Q plot

Radium-226/228, MW-7B (pCi/L)



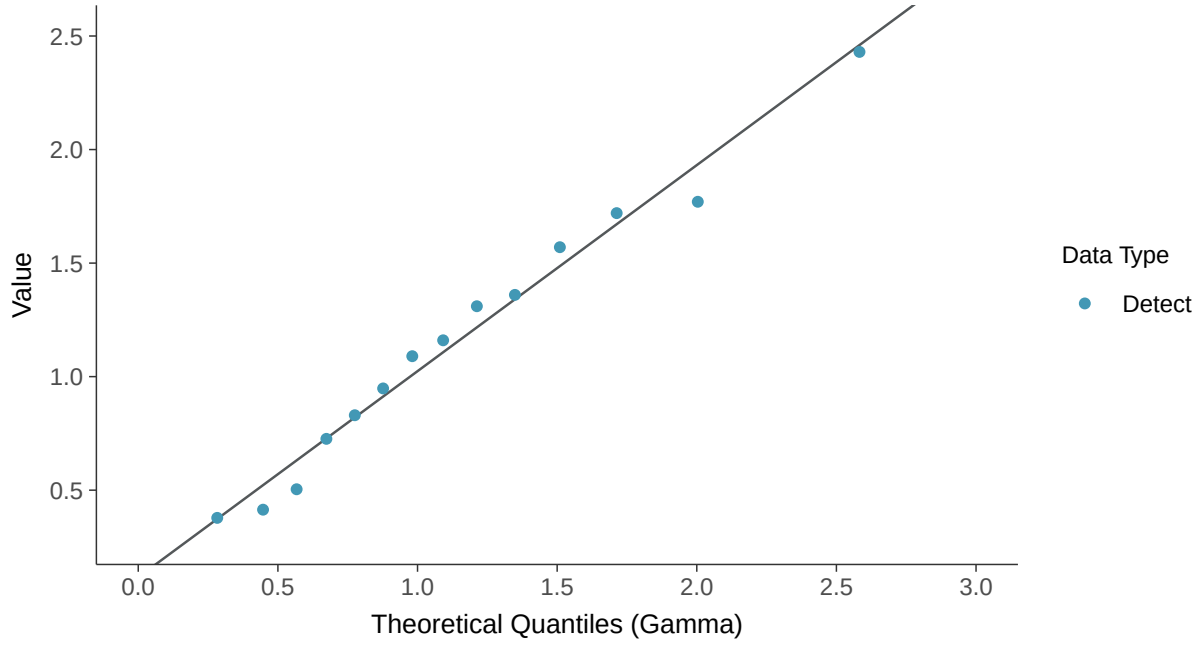
Lognormal Q-Q plot

Radium-226/228, MW-7B (pCi/L)



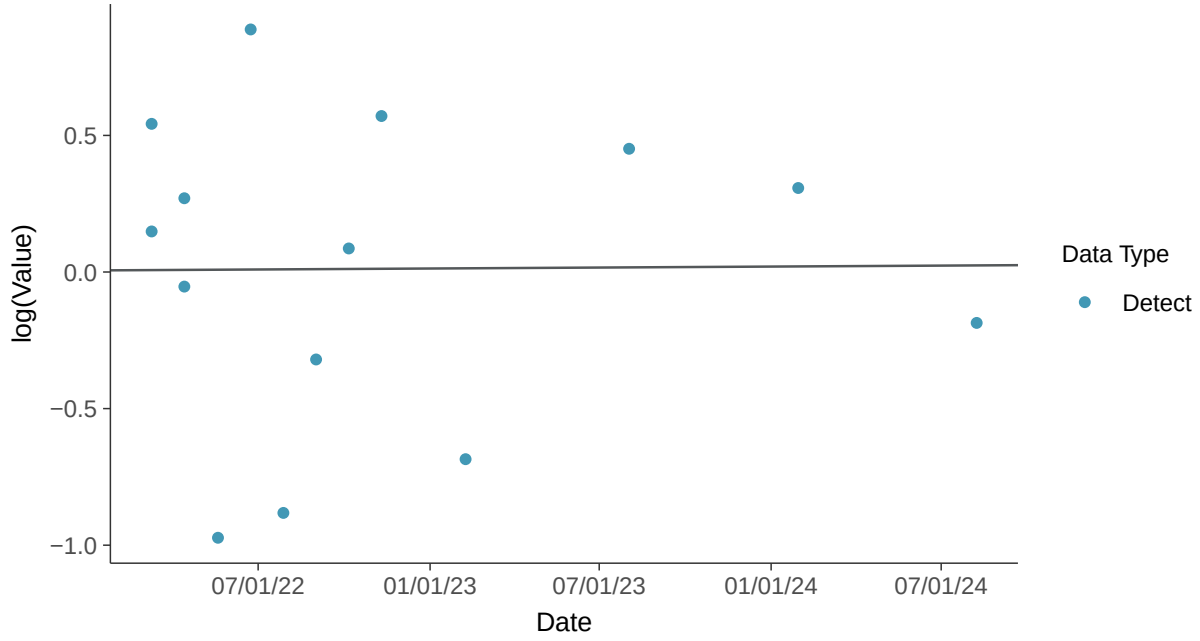
Gamma Q-Q plot

Radium-226/228, MW-7B (pCi/L)



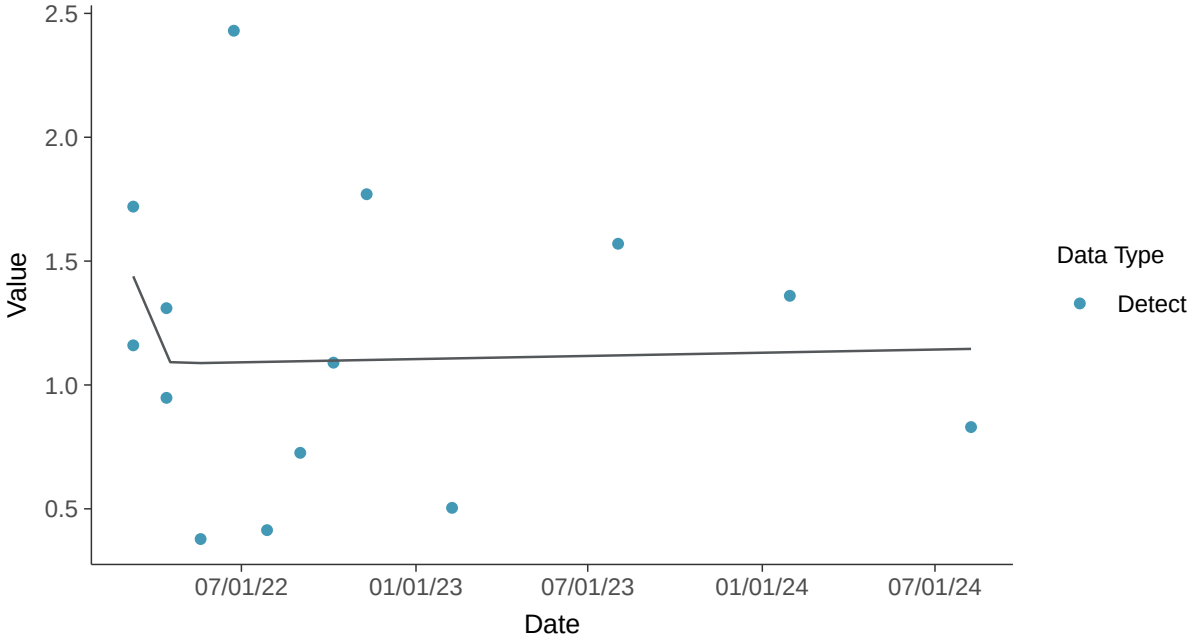
Trend Regression: Lognormal MLE

Radium-226/228, MW-7B (pCi/L)



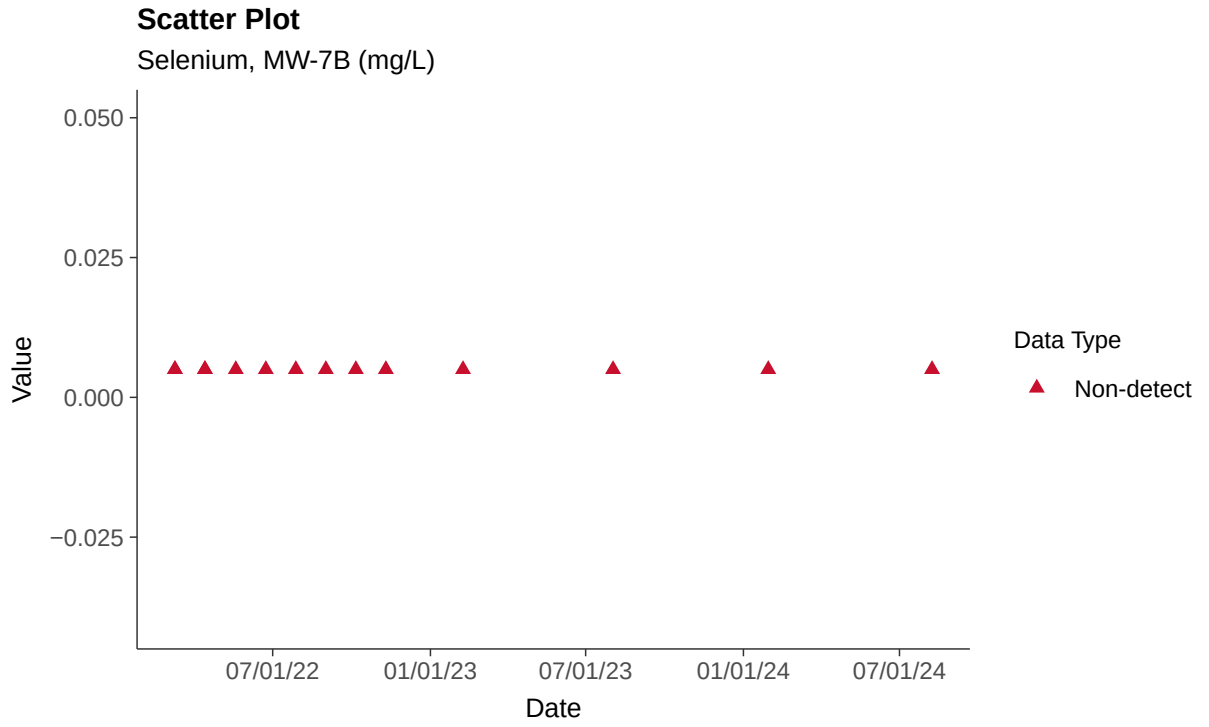
Trend Regression: Piecewise Linear-Linear

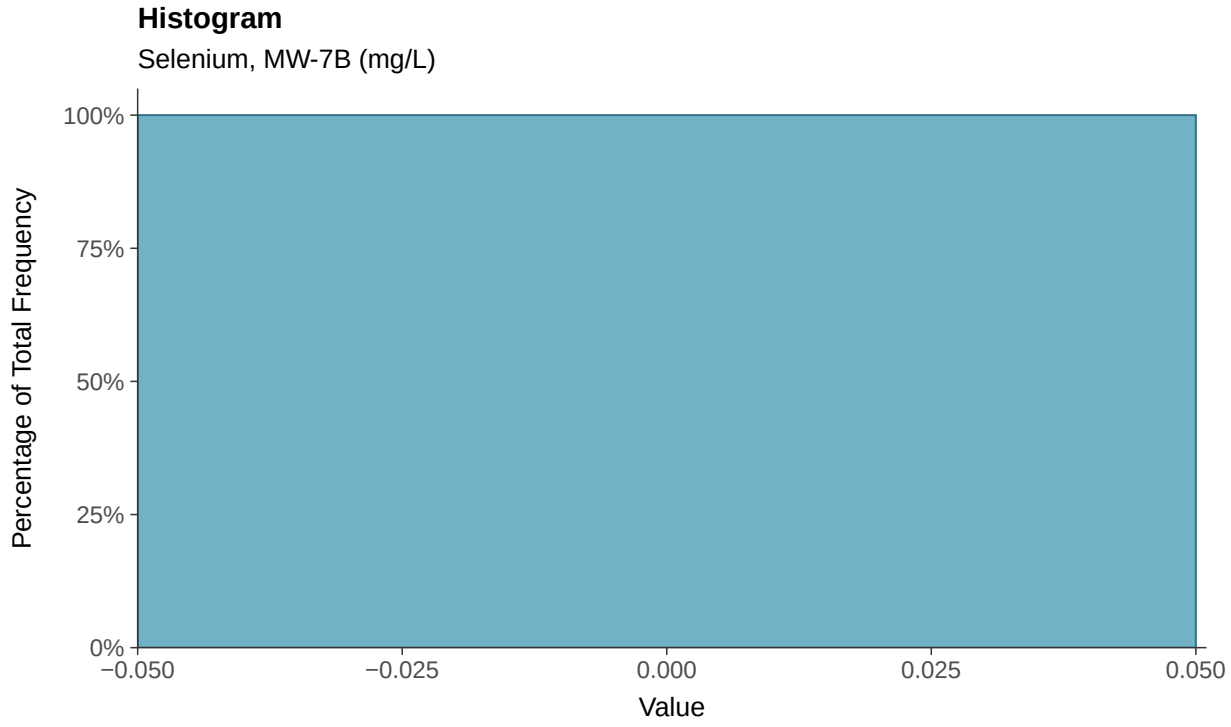
Radium-226/228, MW-7B (pCi/L)



Appendix IV: Selenium, MW-7B

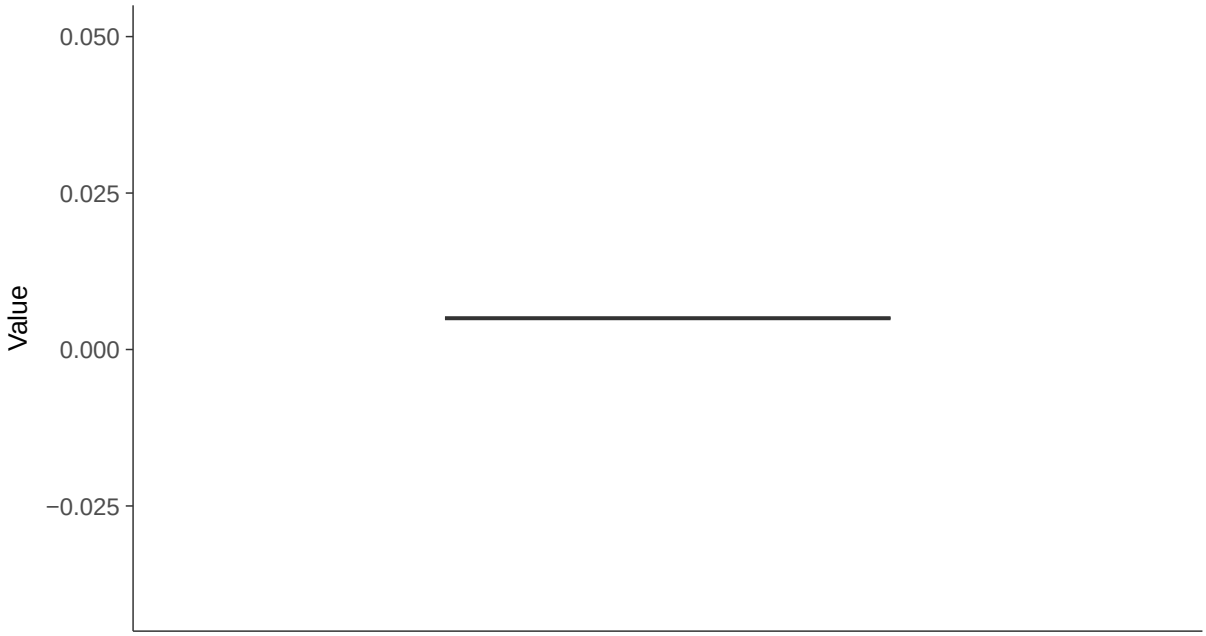
ID: 7B_2_22





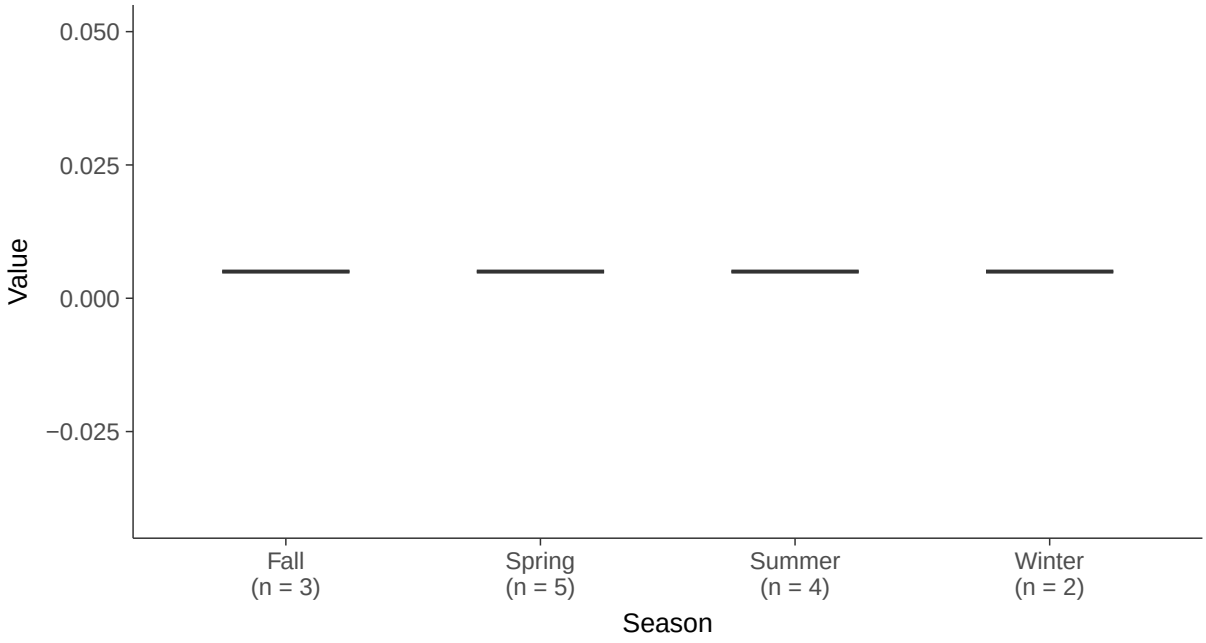
Boxplot

Selenium, MW-7B (mg/L)



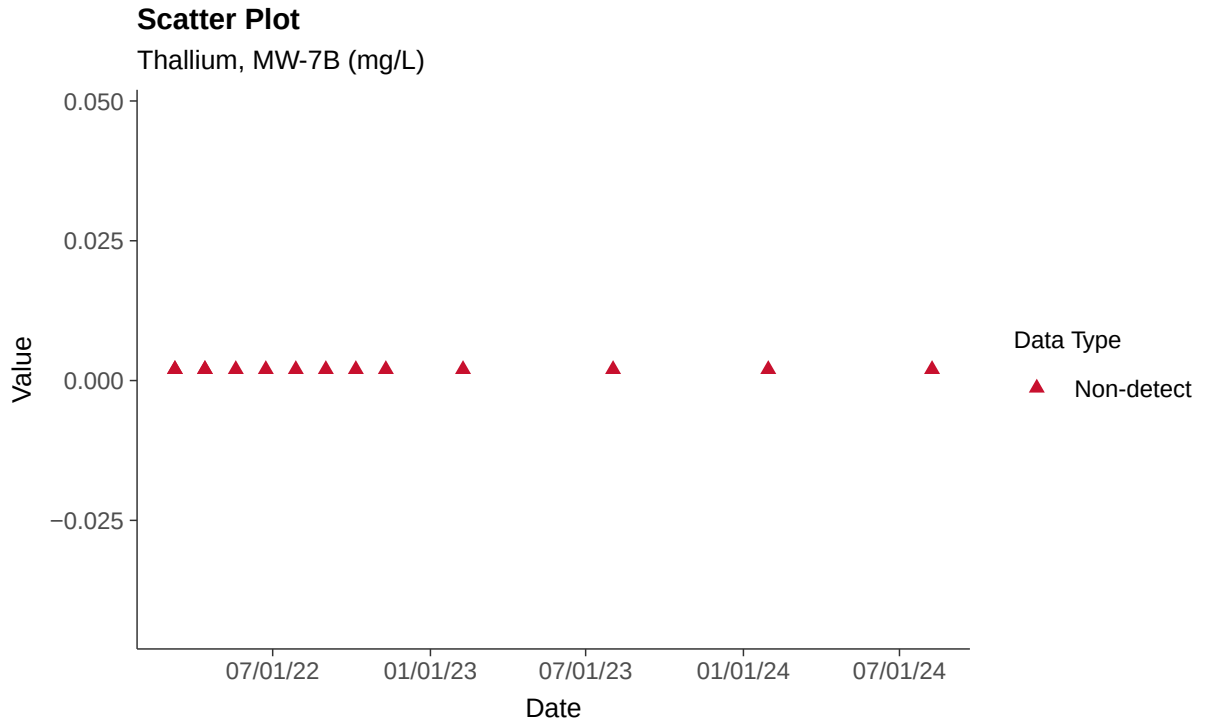
Boxplot by Season

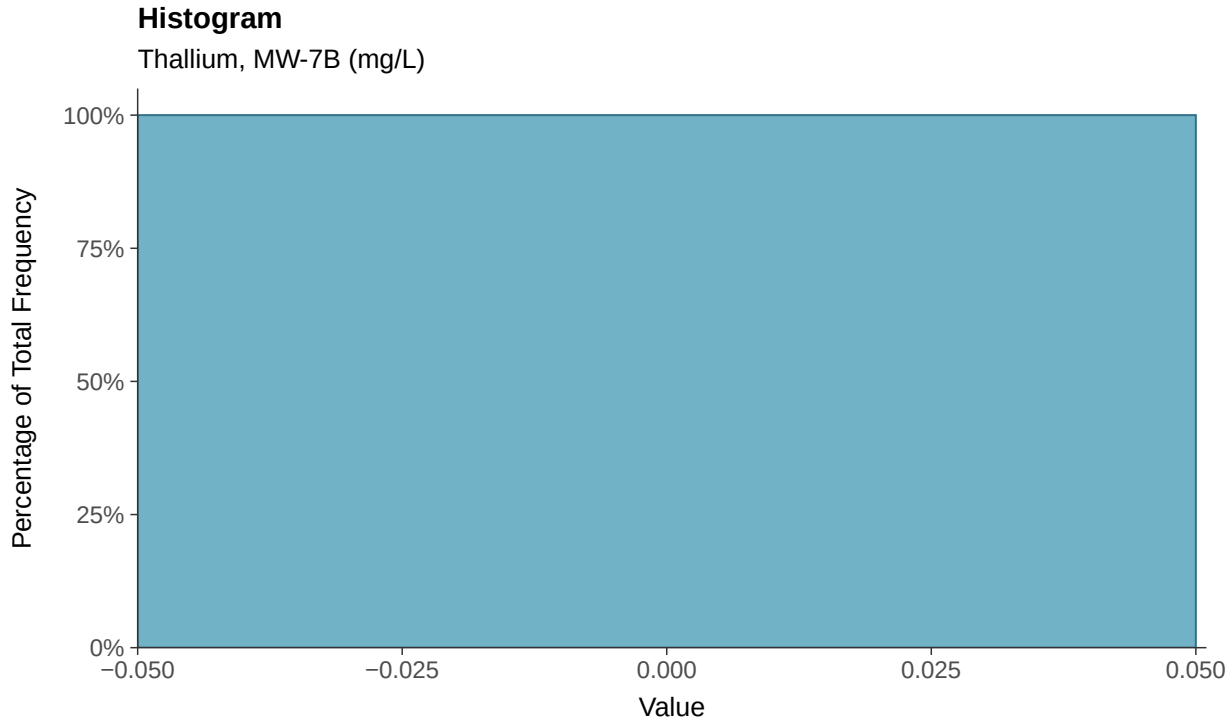
Selenium, MW-7B (mg/L)



Appendix IV: Thallium, MW-7B

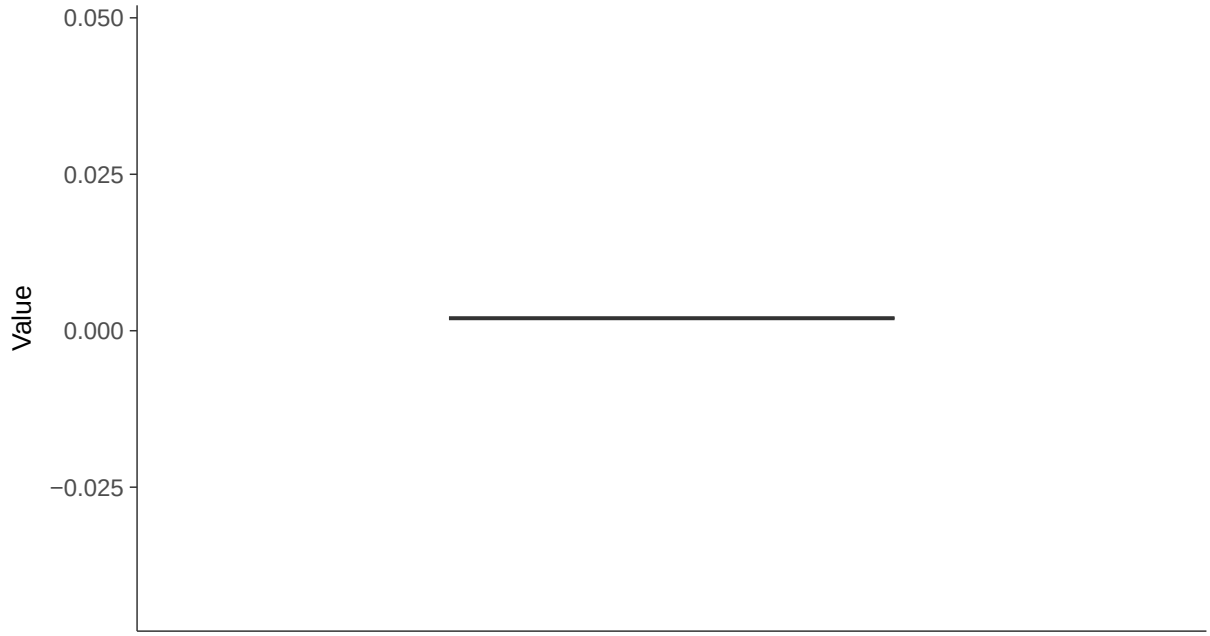
ID: 7B_2_23





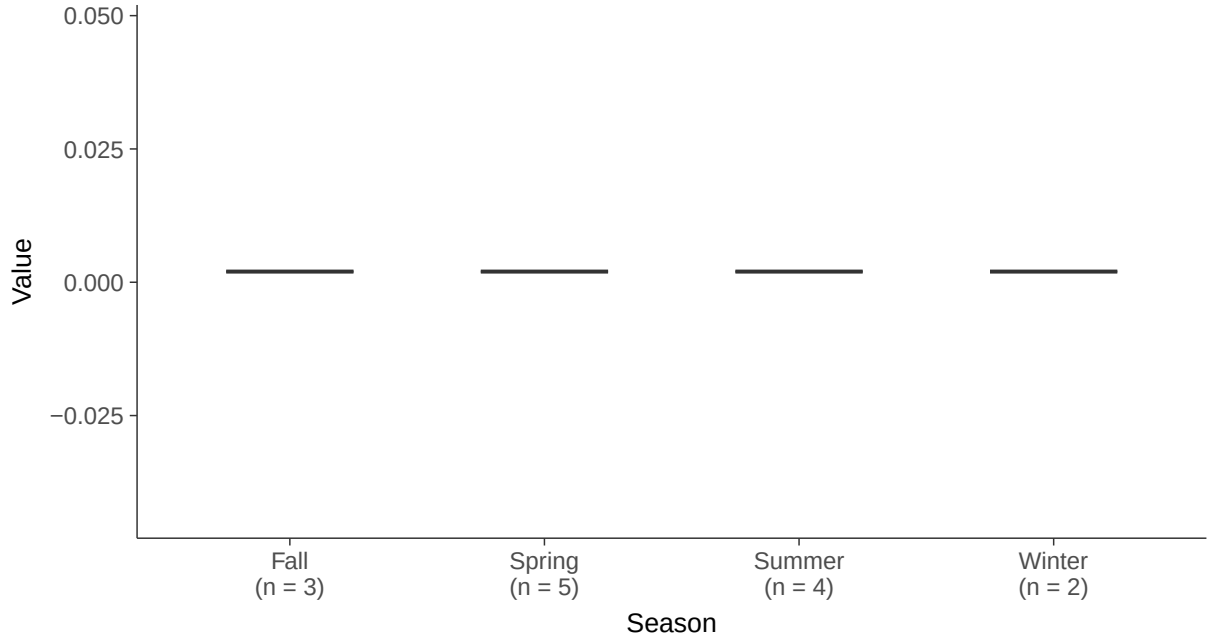
Boxplot

Thallium, MW-7B (mg/L)



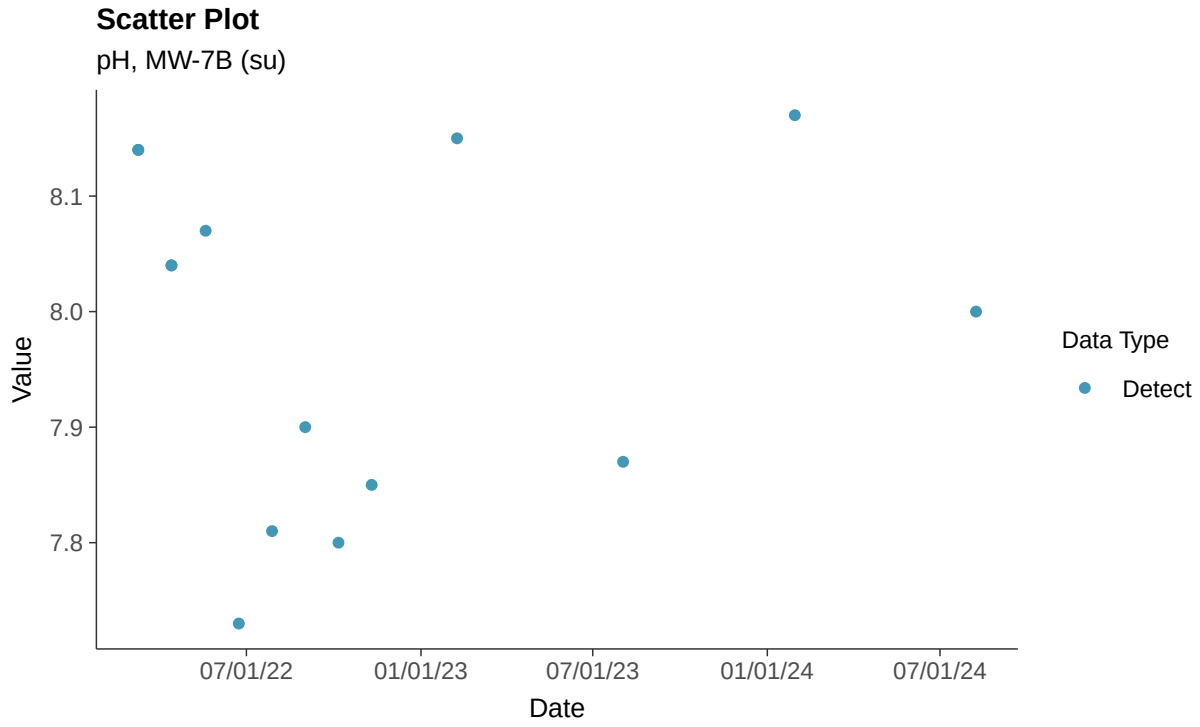
Boxplot by Season

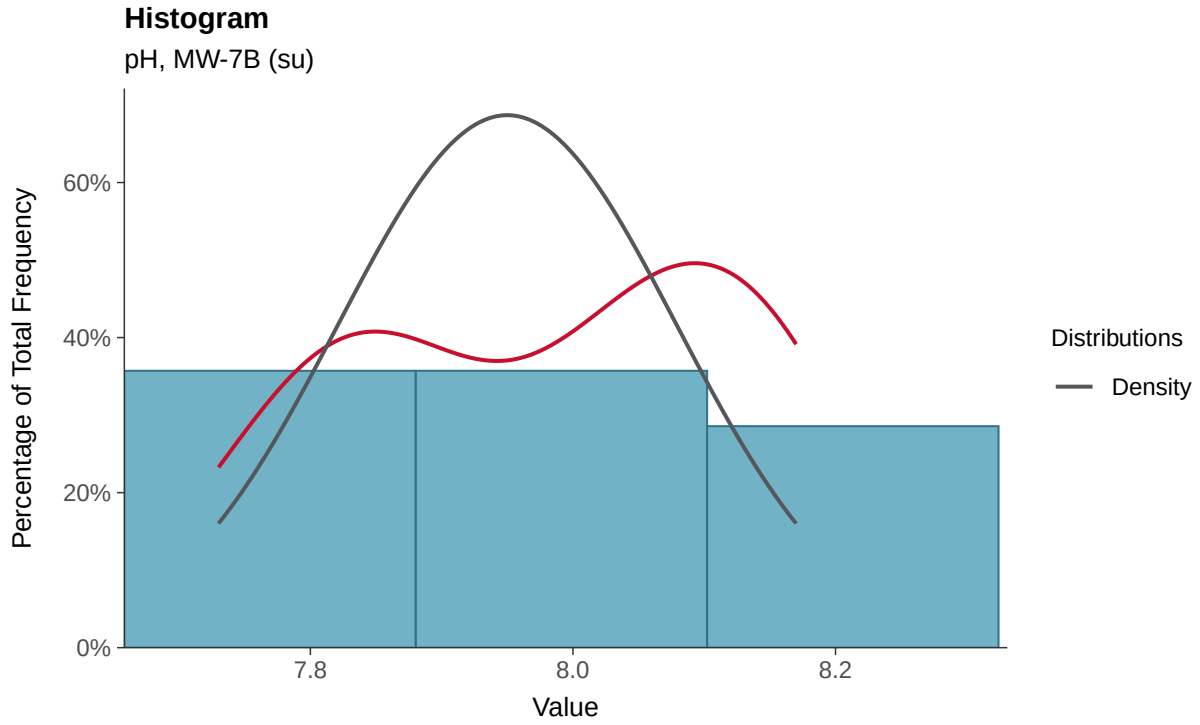
Thallium, MW-7B (mg/L)



Field Parameters: pH, MW-7B

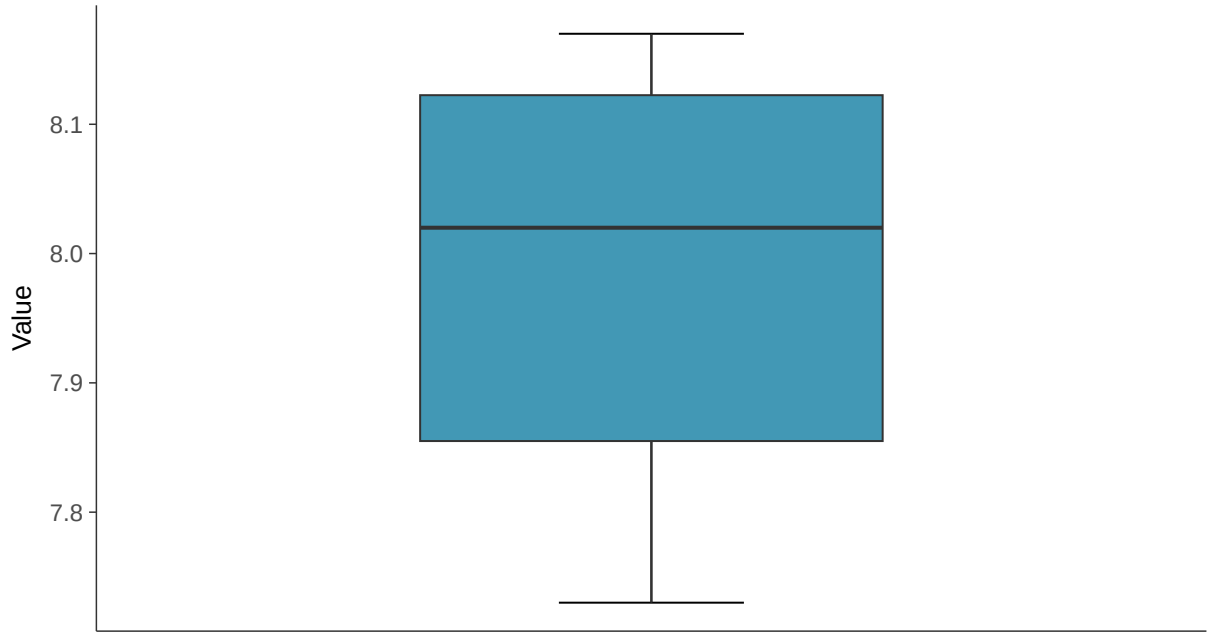
ID: 7B_3_24





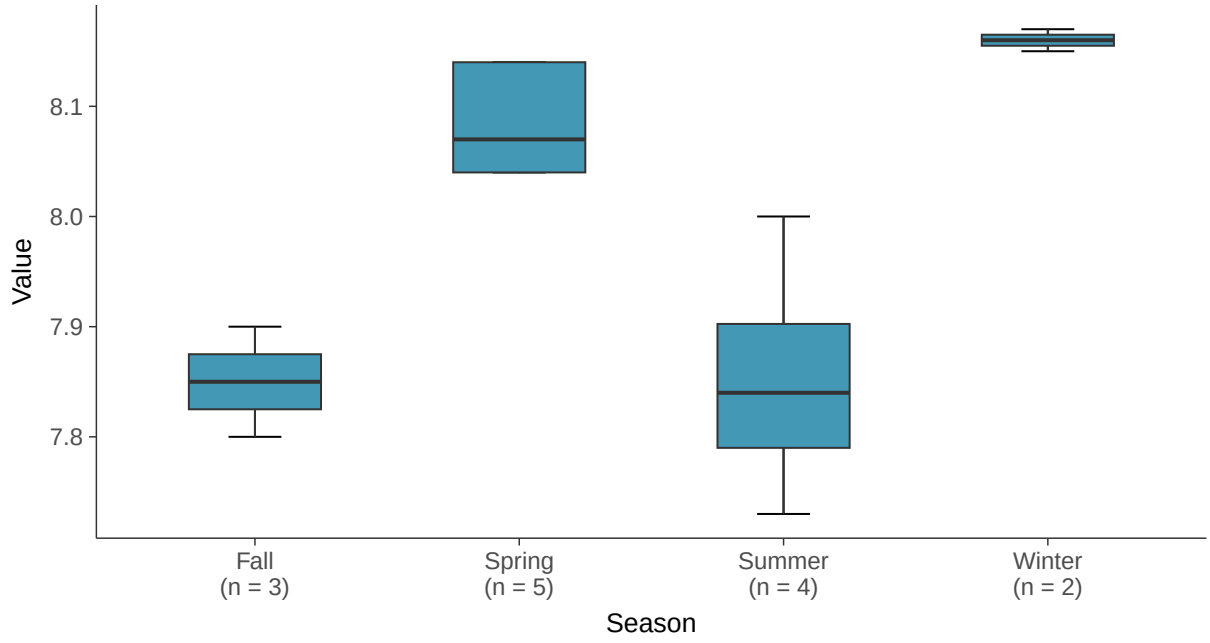
Boxplot

pH, MW-7B (su)



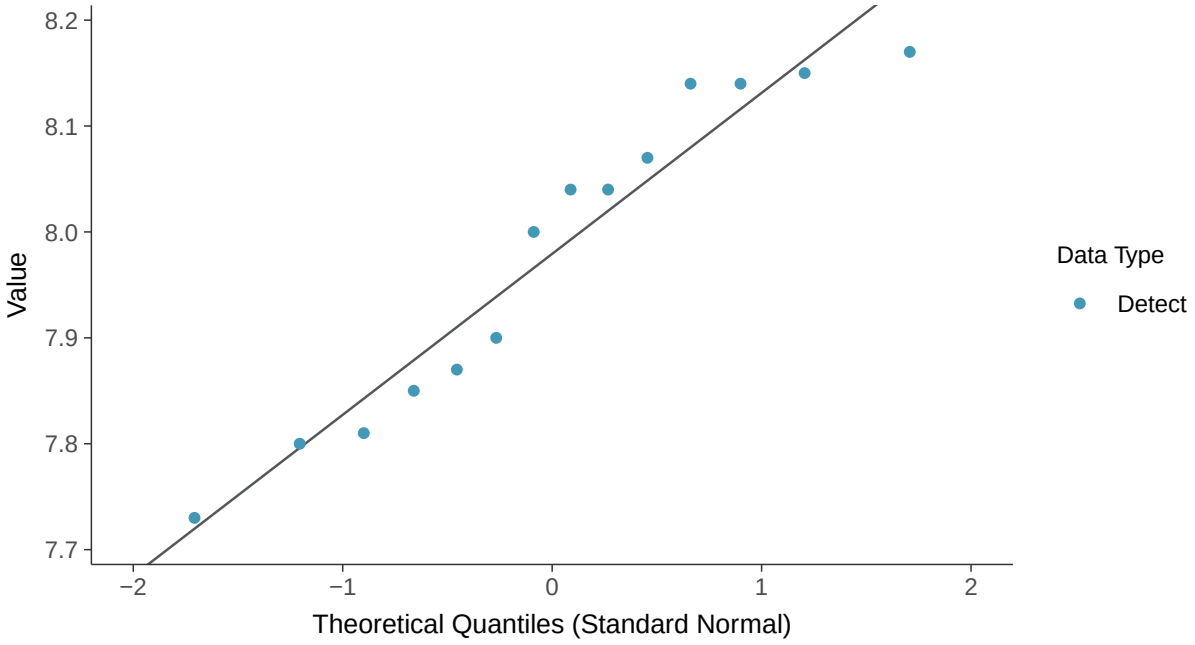
Boxplot by Season

pH, MW-7B (su)



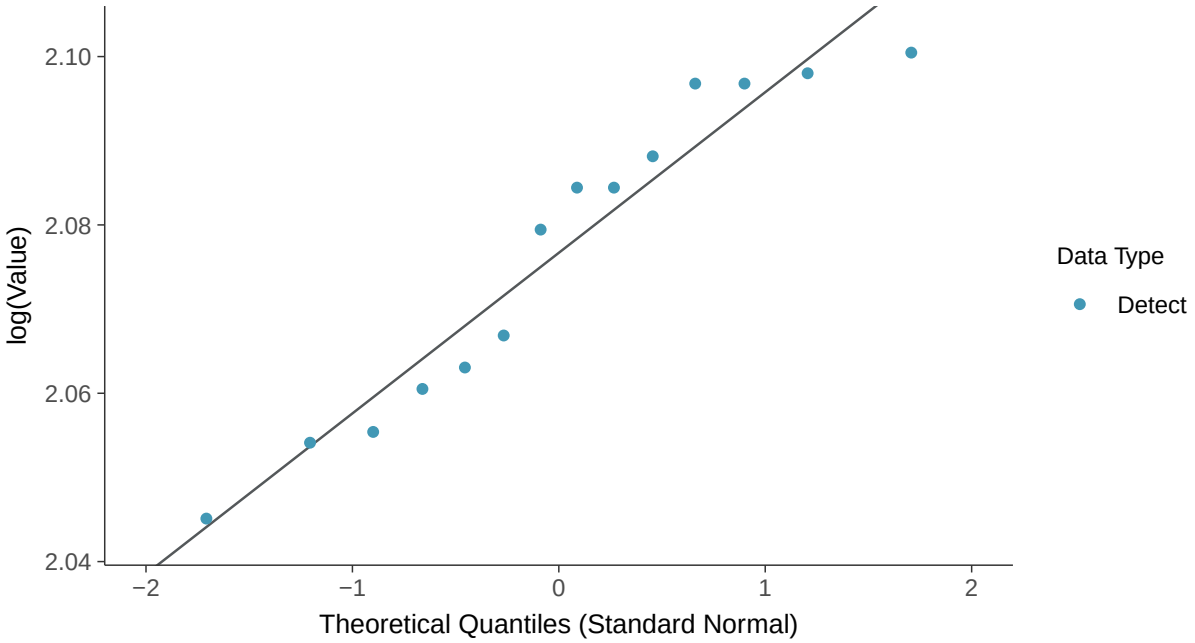
Normal Q-Q plot

pH, MW-7B (su)



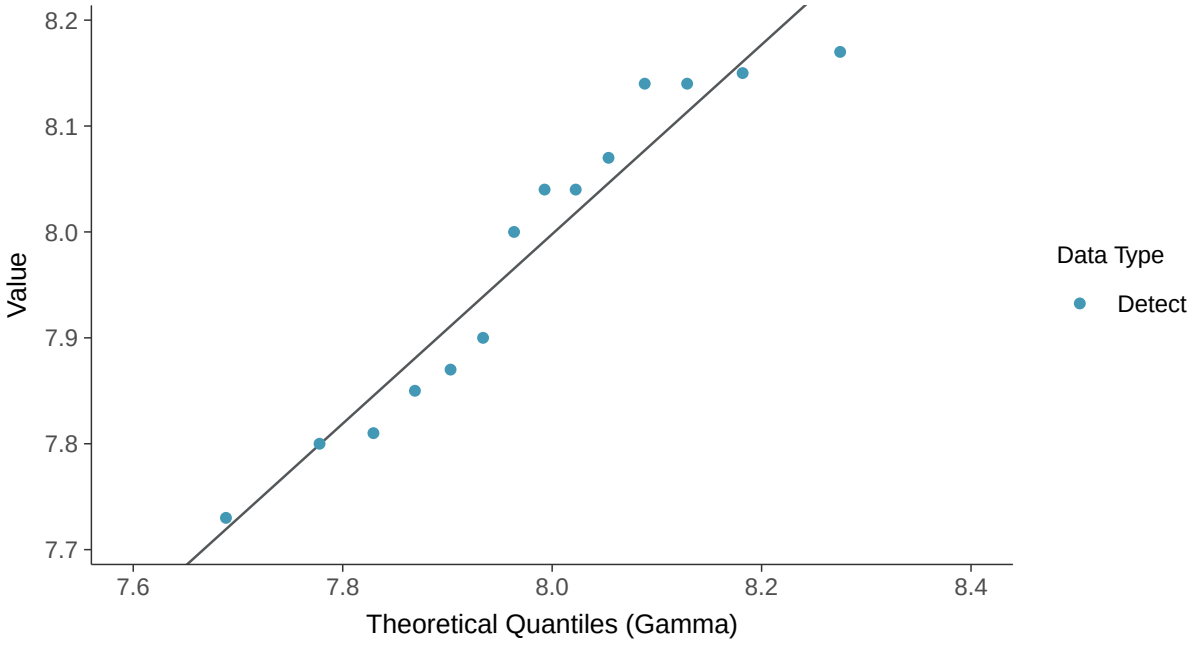
Lognormal Q-Q plot

pH, MW-7B (su)



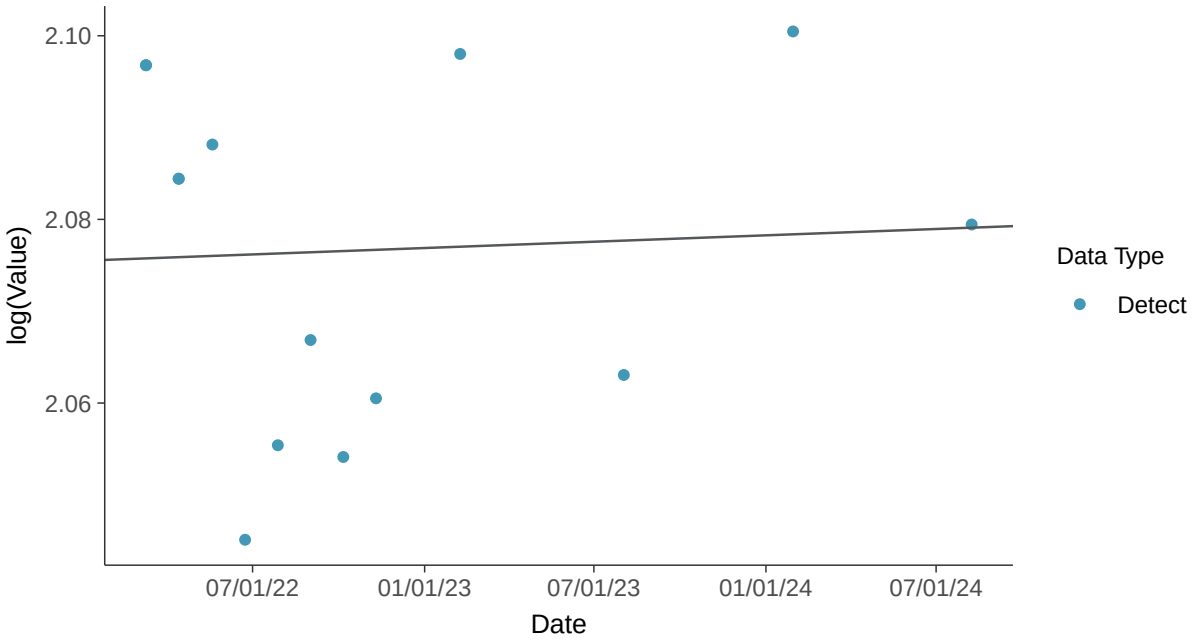
Gamma Q-Q plot

pH, MW-7B (su)



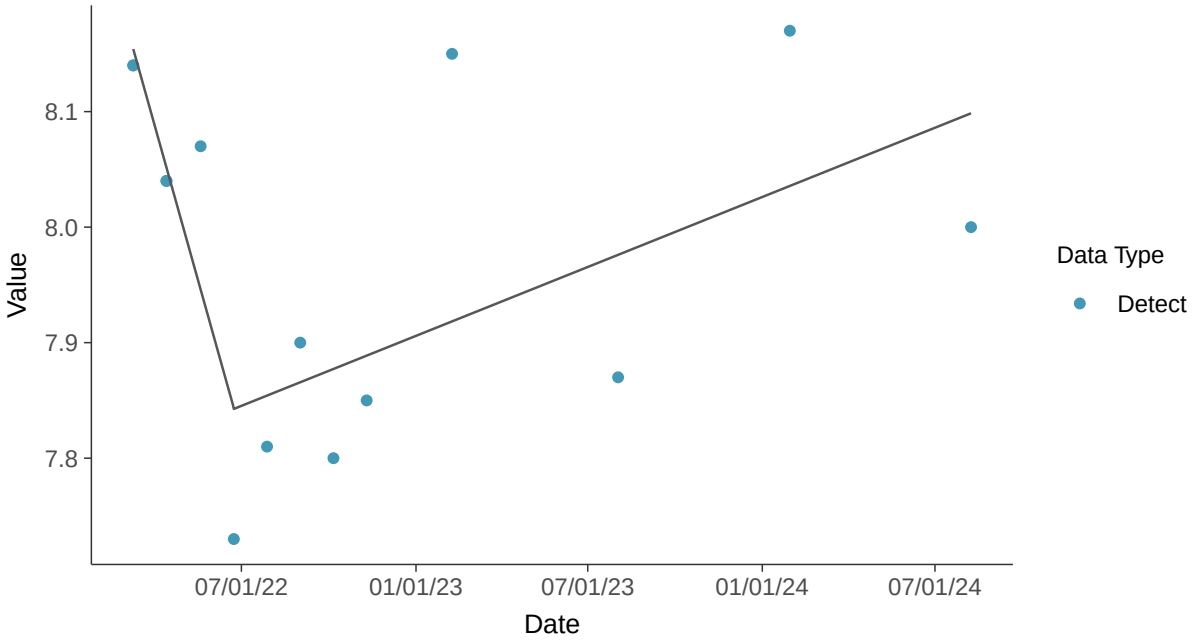
Trend Regression: Lognormal MLE

pH, MW-7B (su)



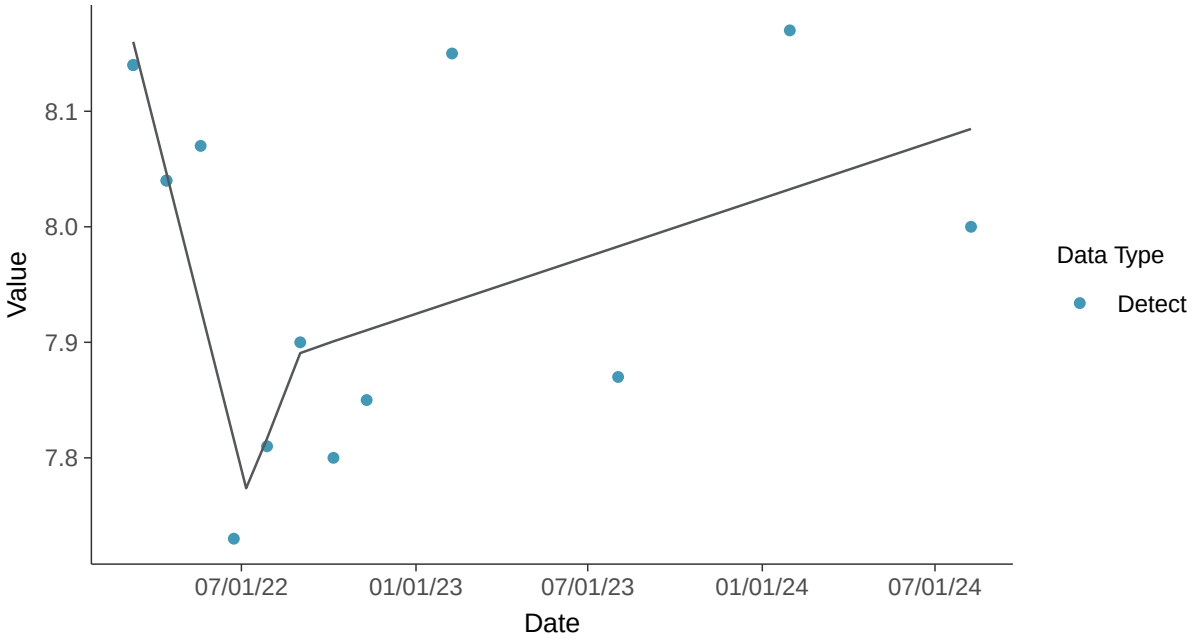
Trend Regression: Piecewise Linear-Linear

pH, MW-7B (su)



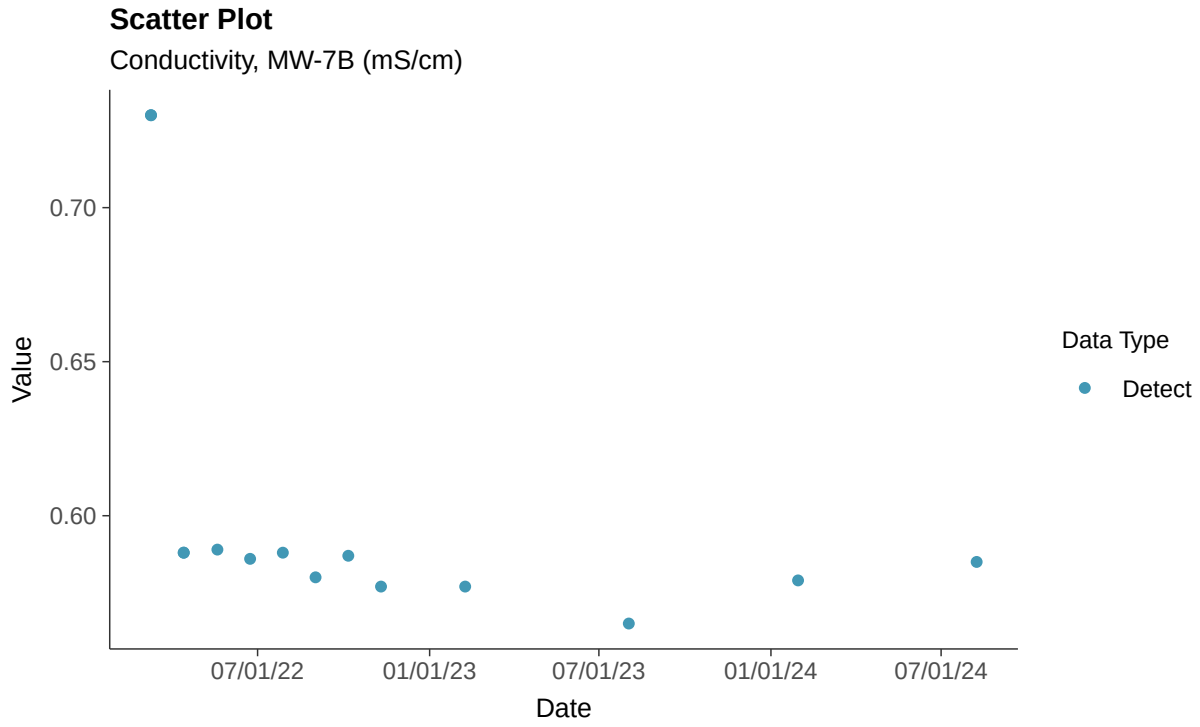
Trend Regression: Piecewise Linear-Linear-Linear

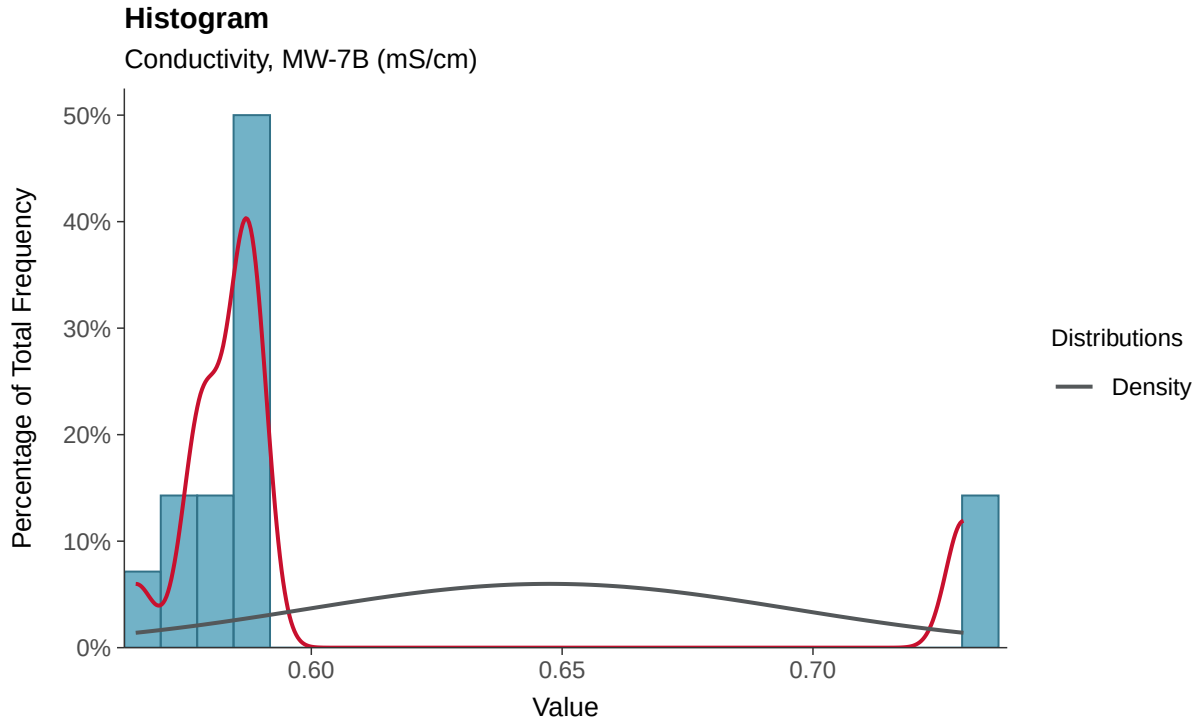
pH, MW-7B (su)



Field Parameters: Conductivity, MW-7B

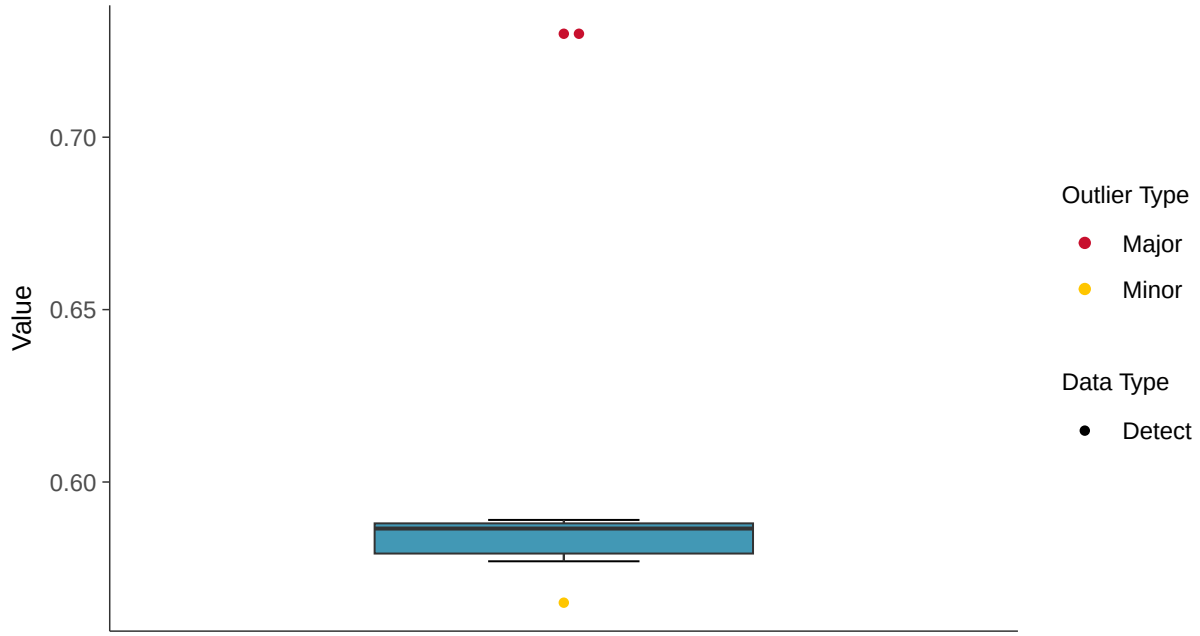
ID: 7B_3_25





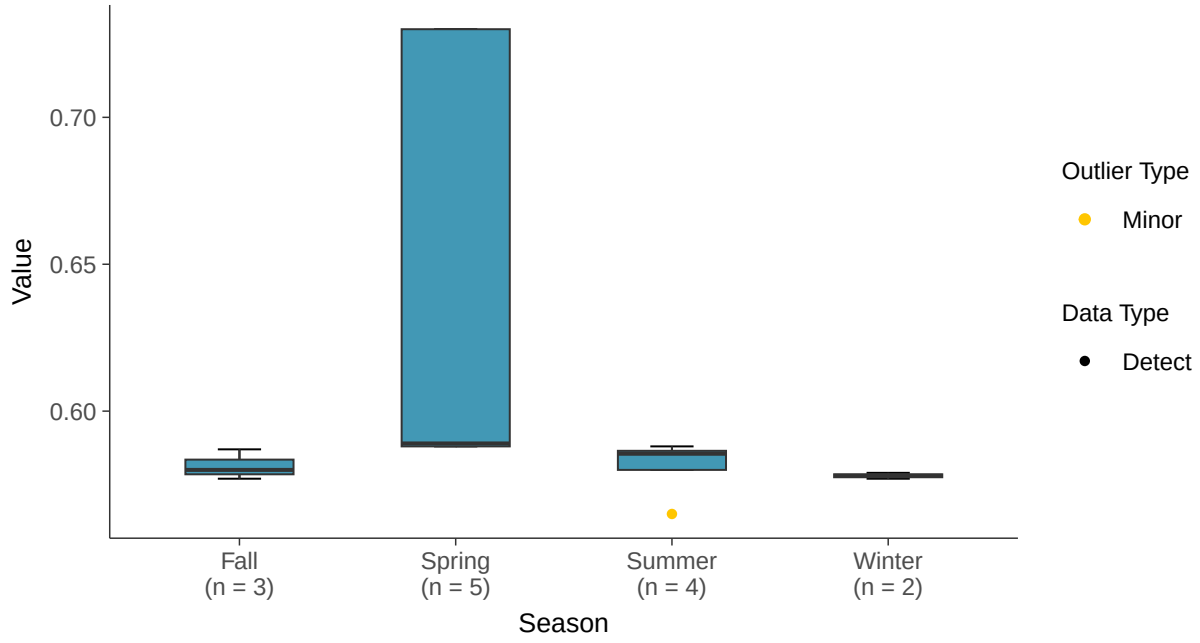
Boxplot

Conductivity, MW-7B (mS/cm)



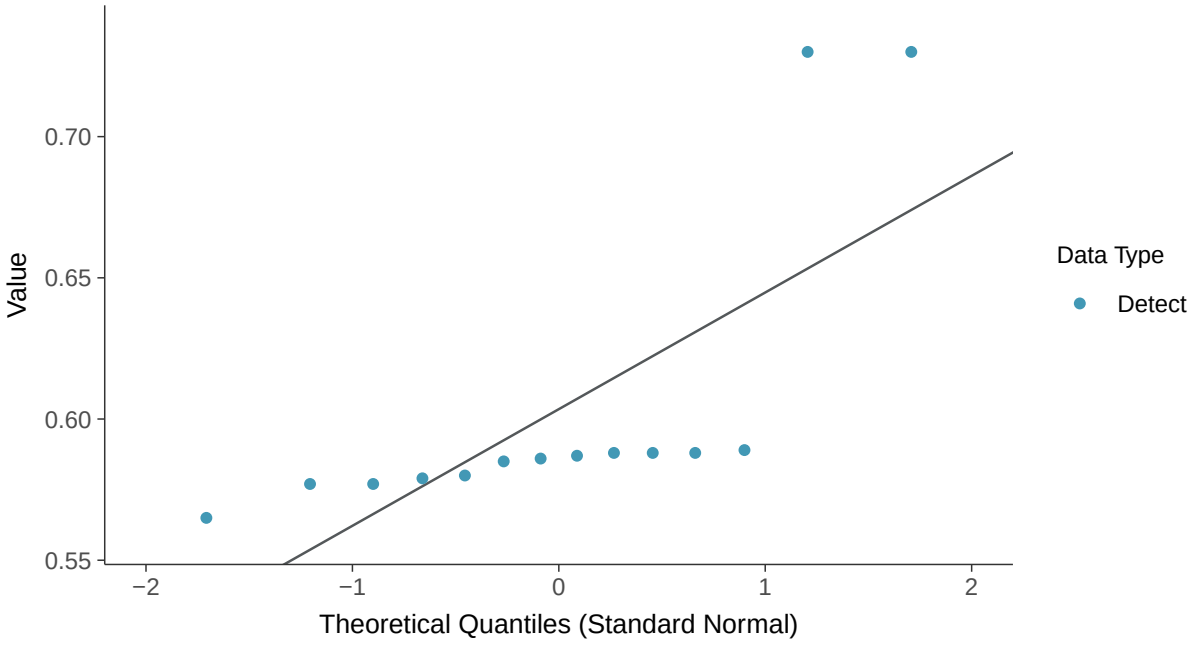
Boxplot by Season

Conductivity, MW-7B (mS/cm)



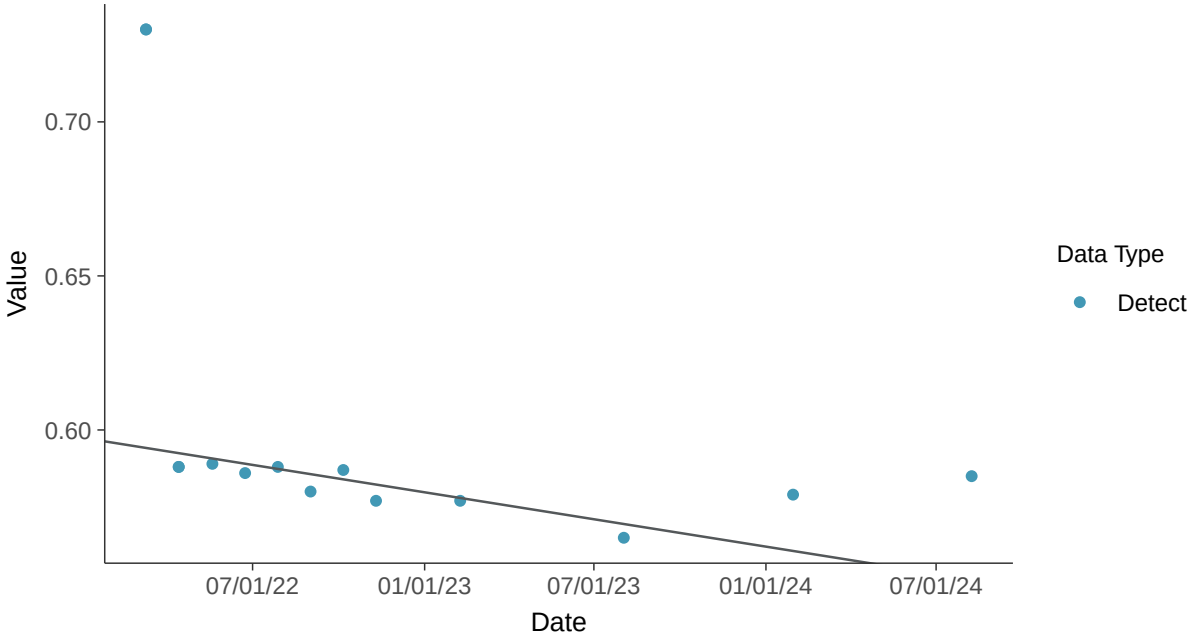
Normal Q-Q plot

Conductivity, MW-7B (mS/cm)



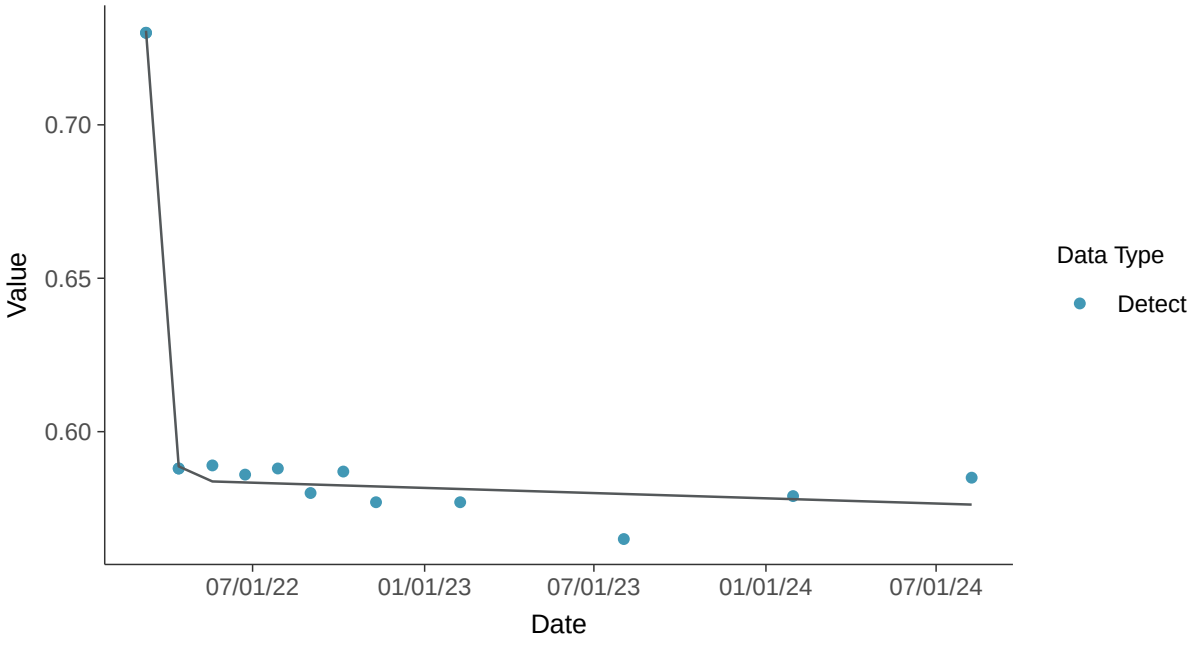
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Conductivity, MW-7B (mS/cm)



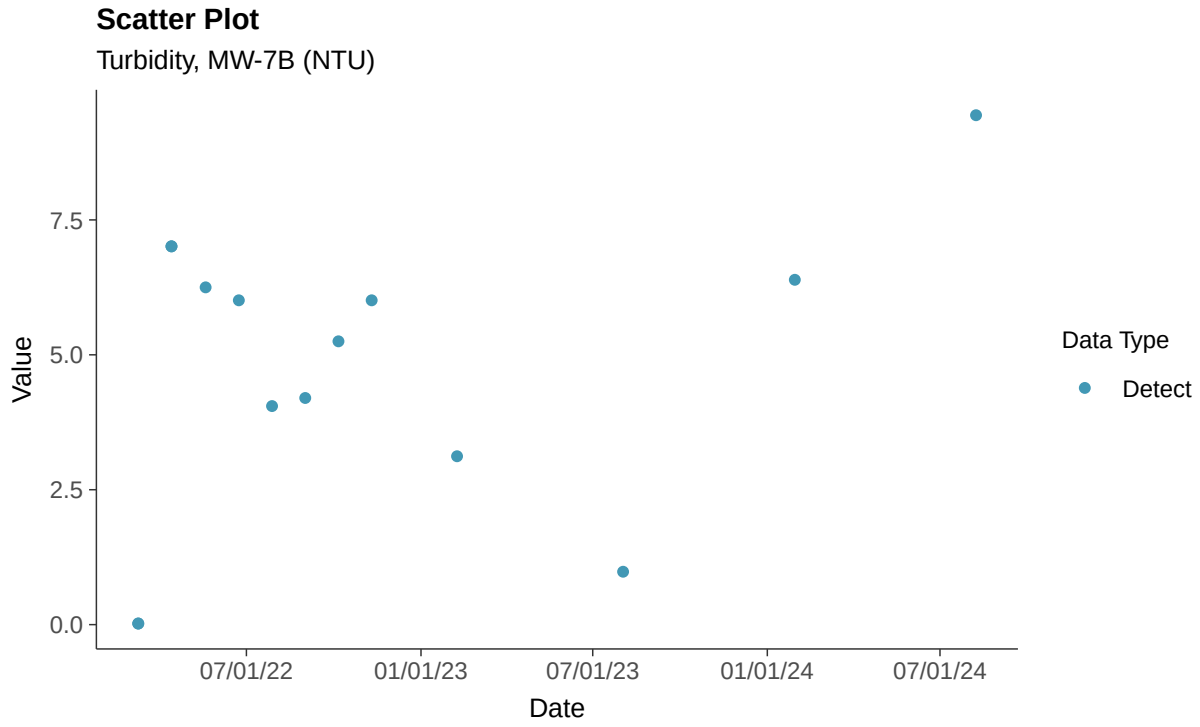
Trend Regression: Piecewise Linear-Linear

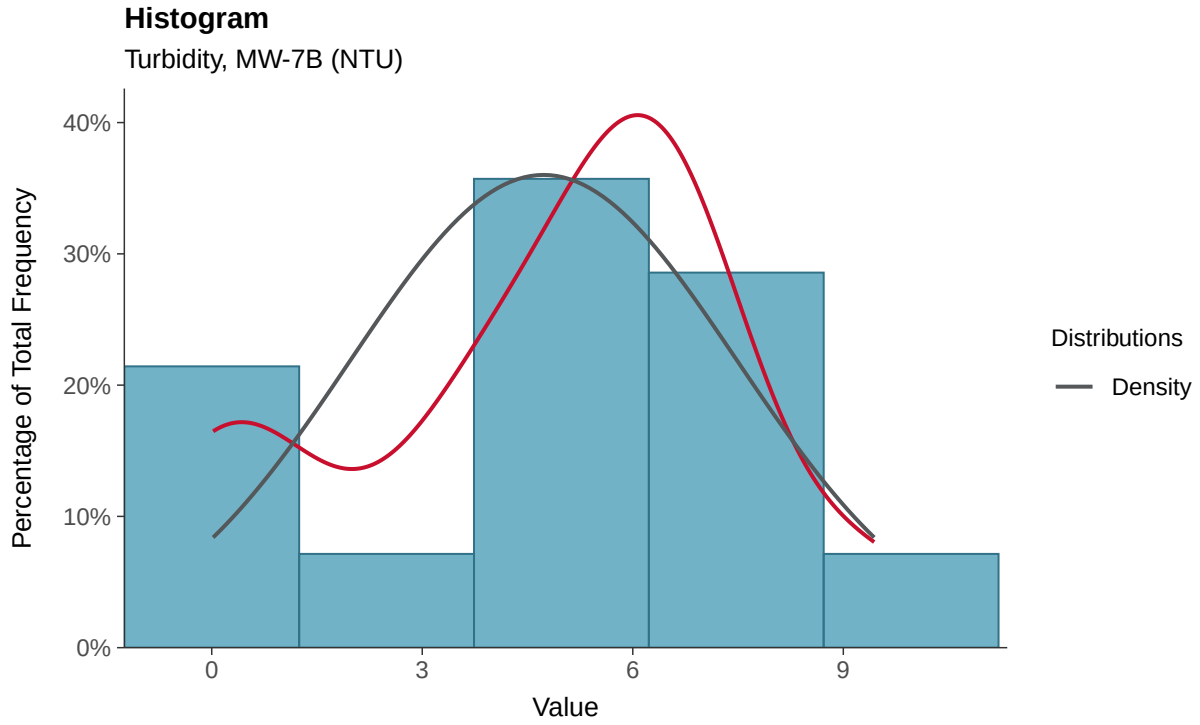
Conductivity, MW-7B (mS/cm)



Field Parameters: Turbidity, MW-7B

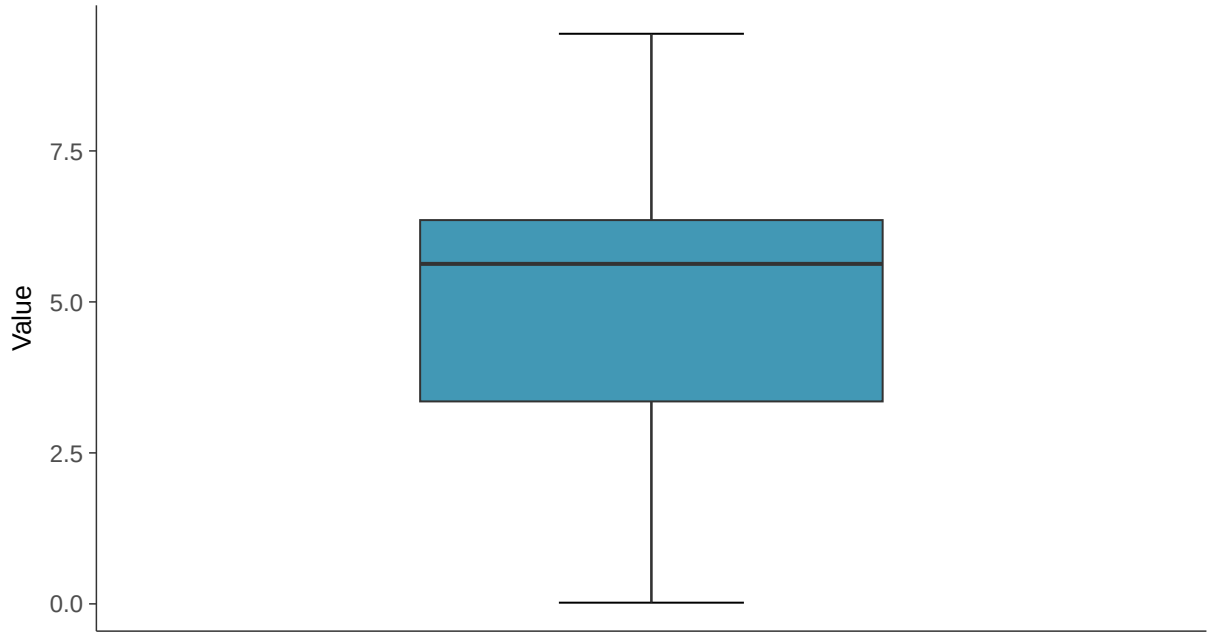
ID: 7B_3_26





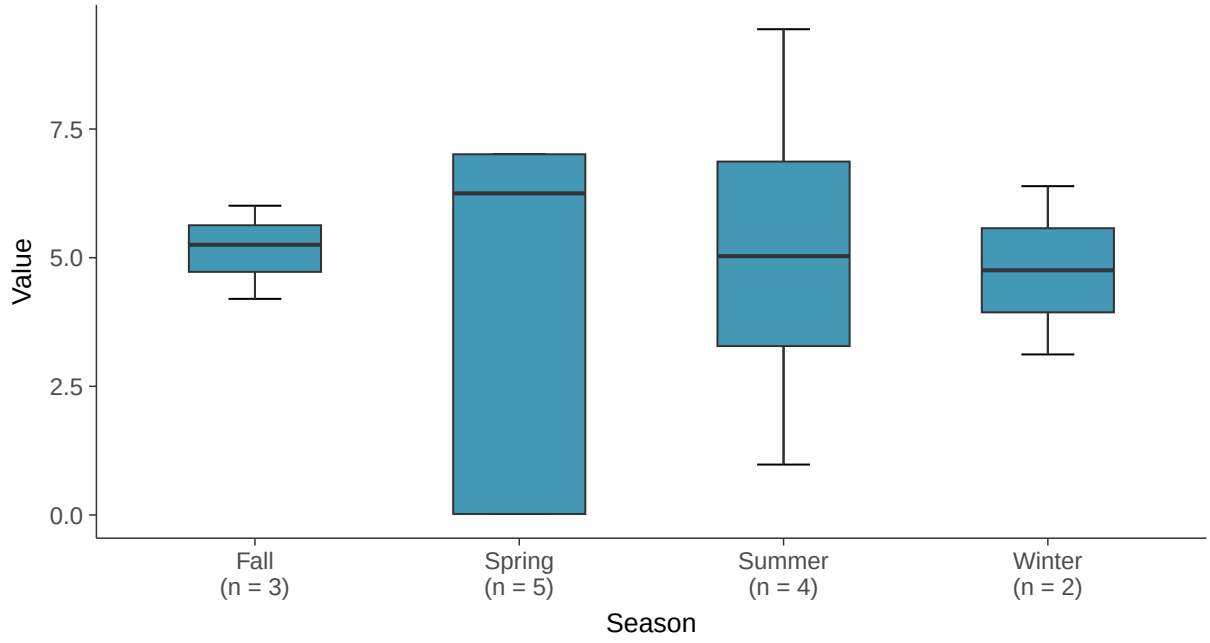
Boxplot

Turbidity, MW-7B (NTU)



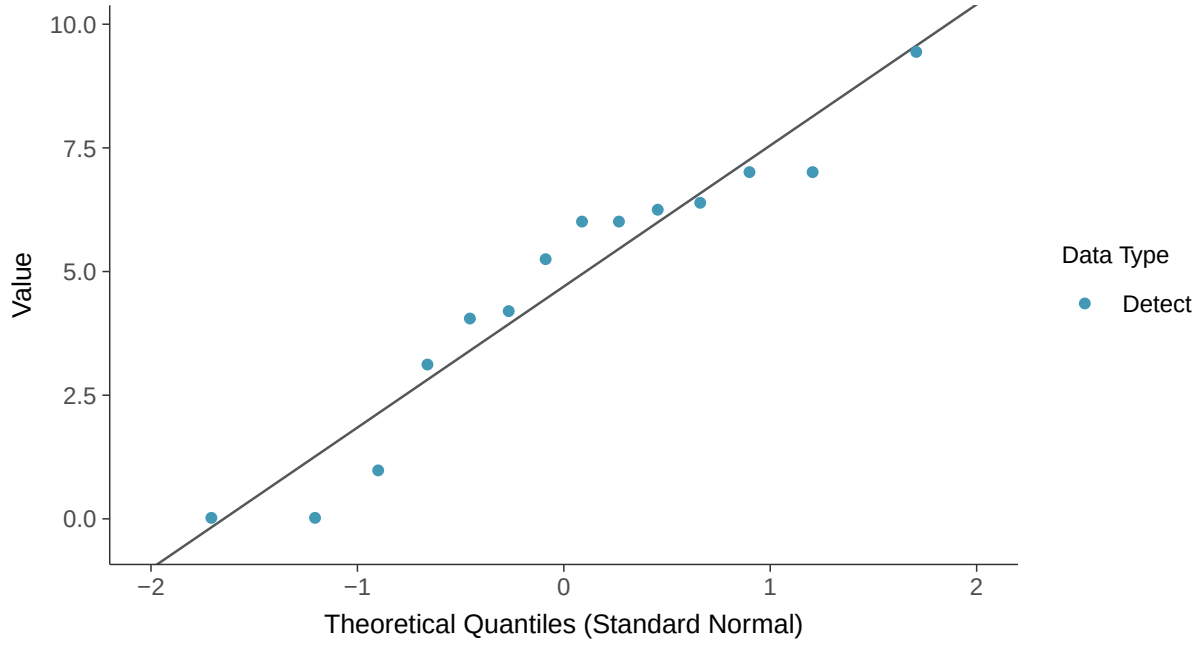
Boxplot by Season

Turbidity, MW-7B (NTU)



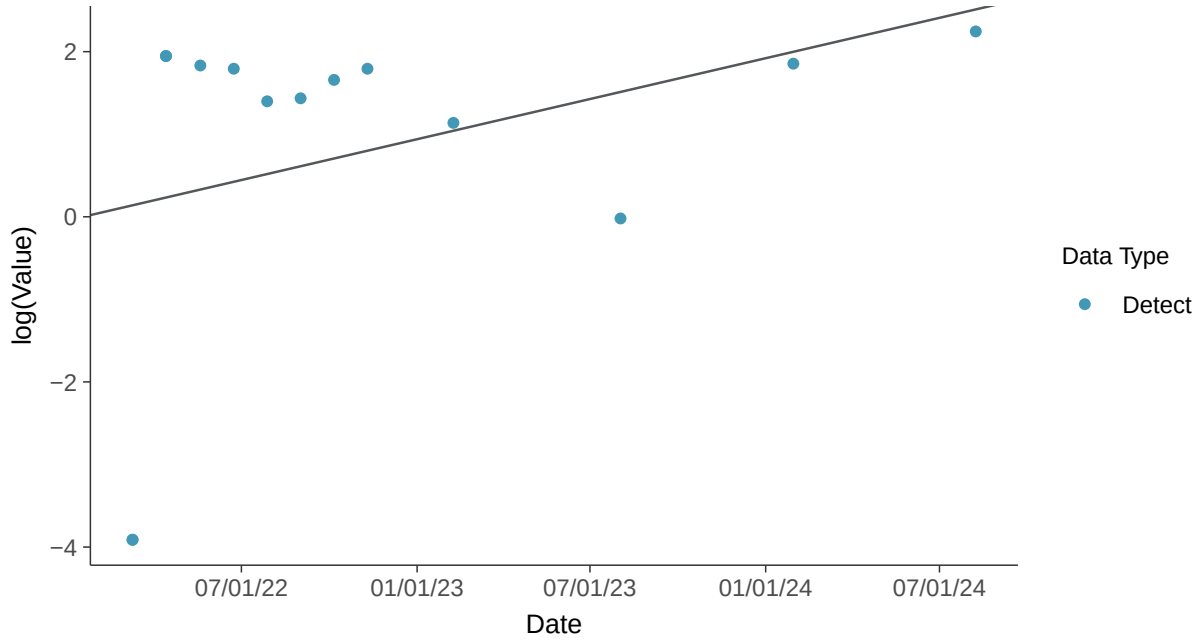
Normal Q-Q plot

Turbidity, MW-7B (NTU)



Trend Regression: Lognormal MLE

Turbidity, MW-7B (NTU)

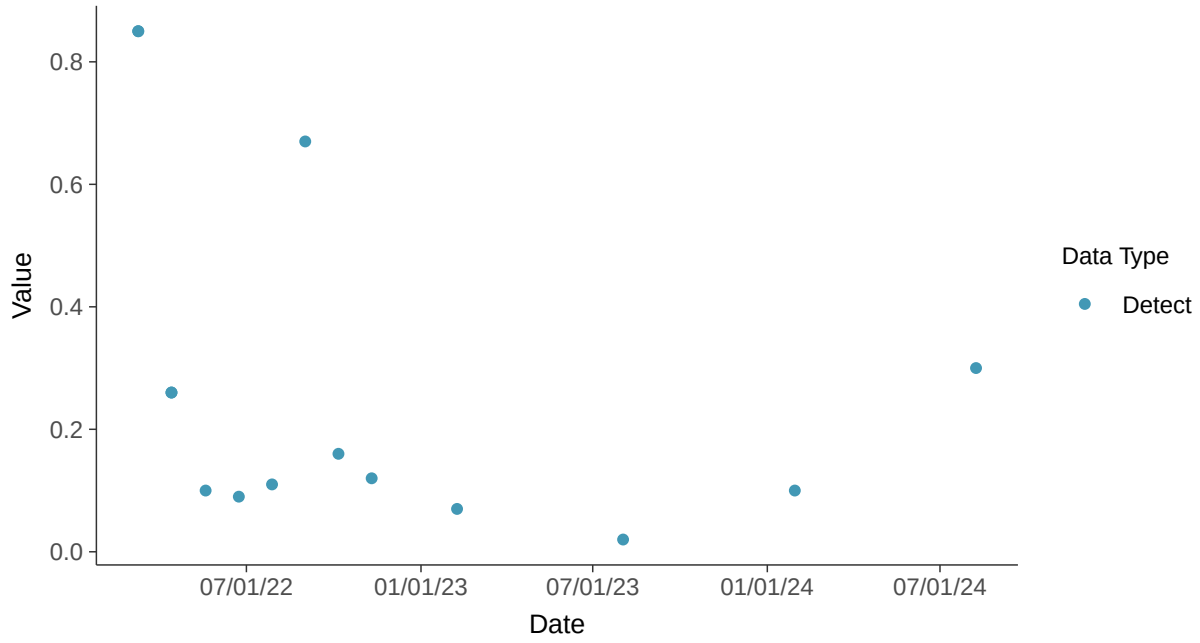


Field Parameters: Dissolved Oxygen, MW-7B

ID: 7B_3_27

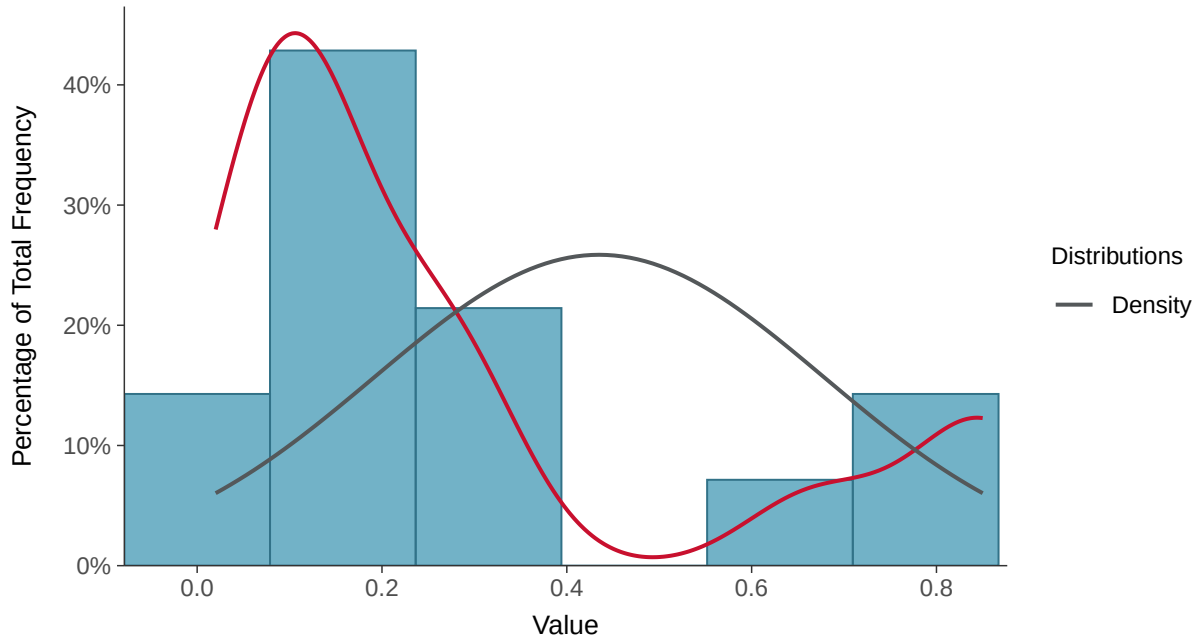
Scatter Plot

Dissolved Oxygen, MW-7B (mg/L)



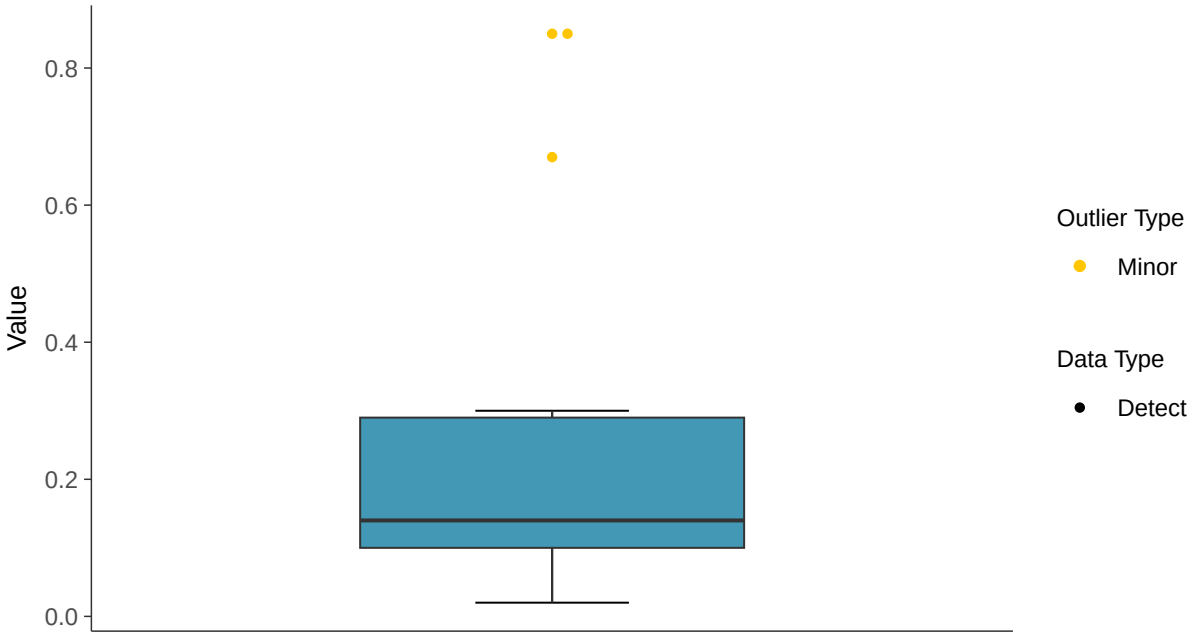
Histogram

Dissolved Oxygen, MW-7B (mg/L)



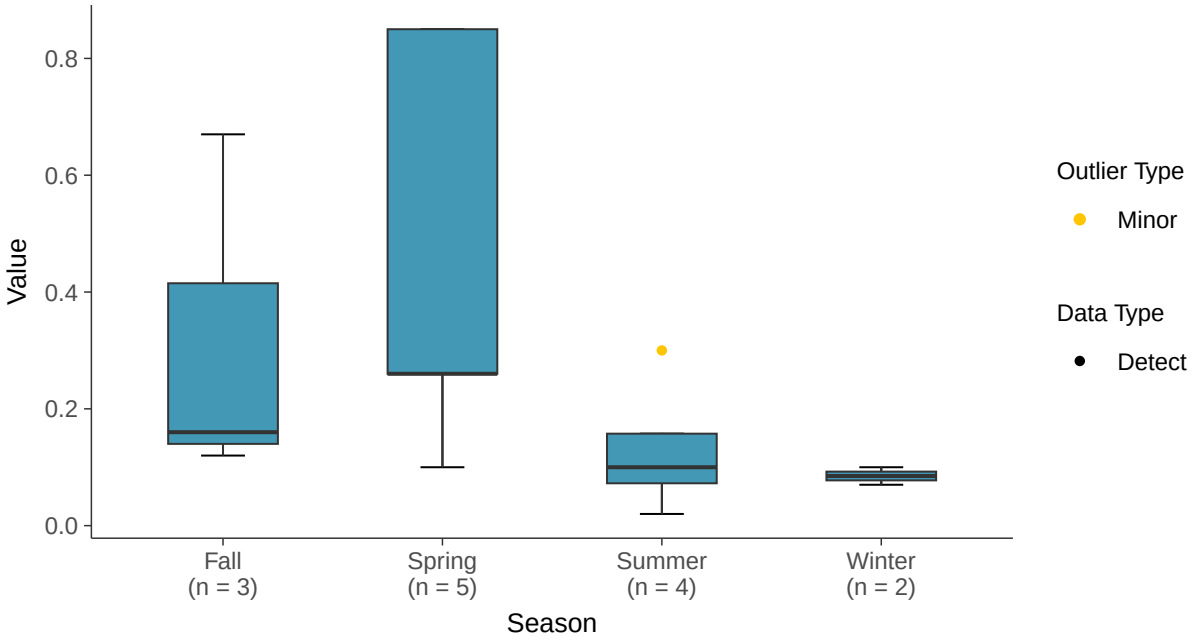
Boxplot

Dissolved Oxygen, MW-7B (mg/L)



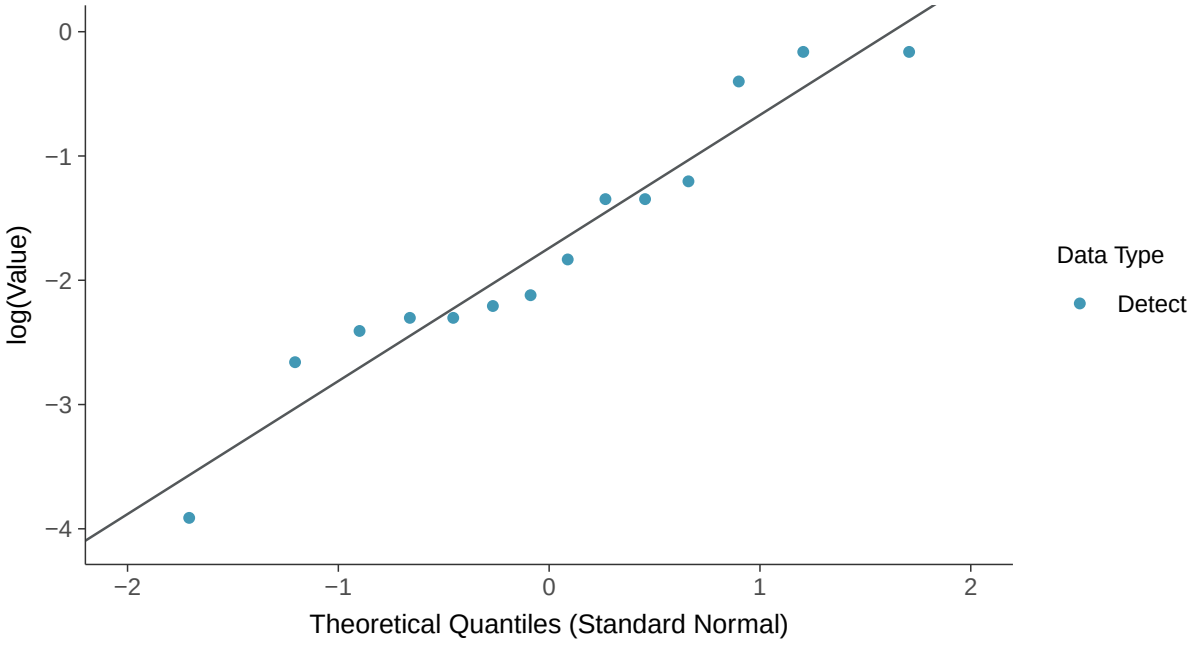
Boxplot by Season

Dissolved Oxygen, MW-7B (mg/L)



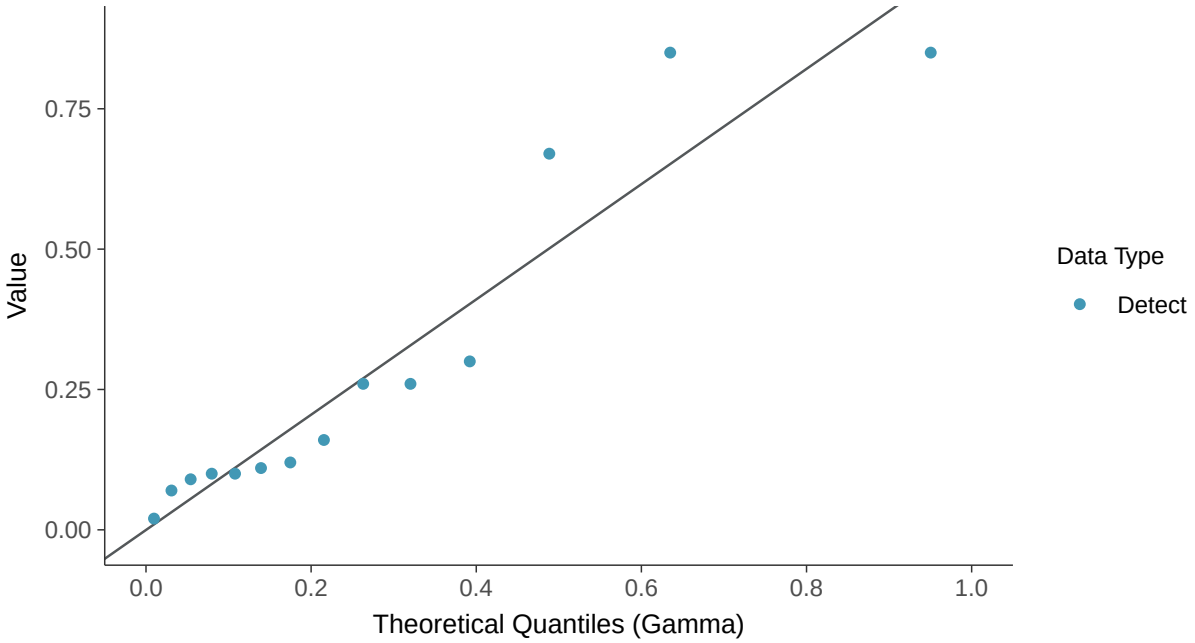
Lognormal Q-Q plot

Dissolved Oxygen, MW-7B (mg/L)



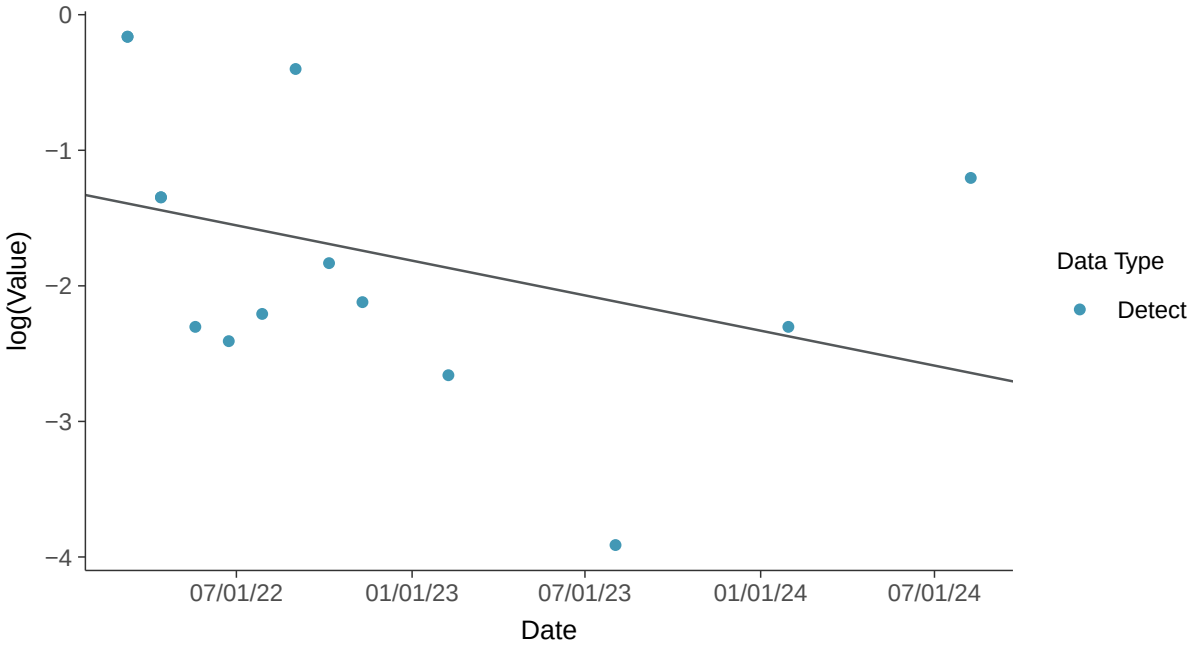
Gamma Q-Q plot

Dissolved Oxygen, MW-7B (mg/L)



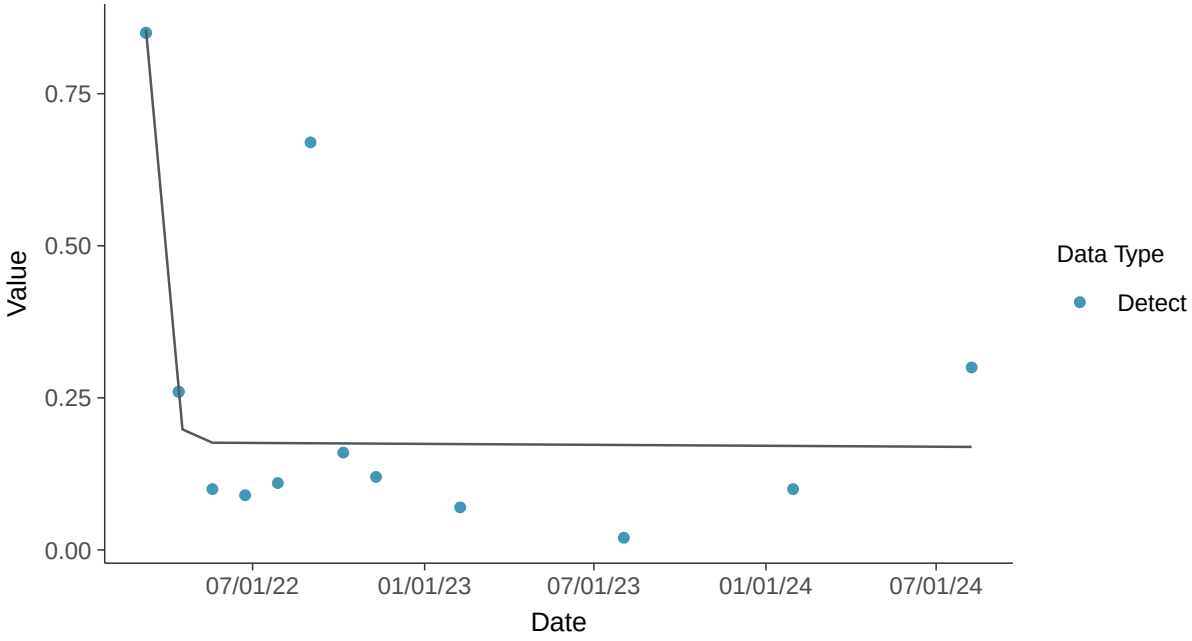
Trend Regression: Lognormal MLE

Dissolved Oxygen, MW-7B (mg/L)



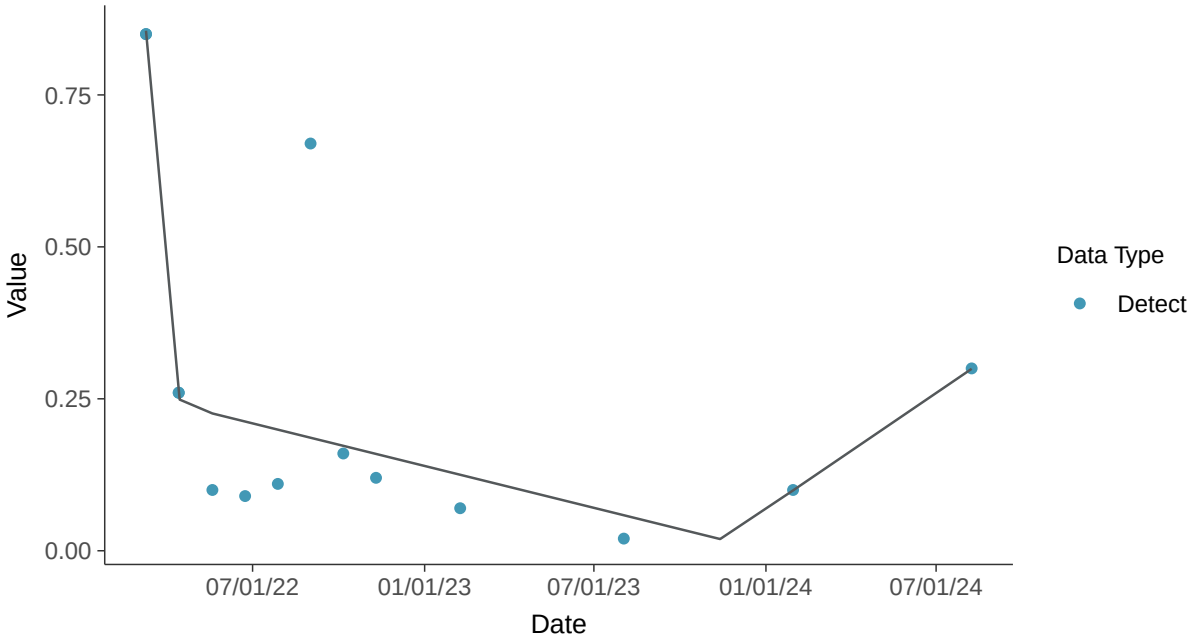
Trend Regression: Piecewise Linear-Linear

Dissolved Oxygen, MW-7B (mg/L)



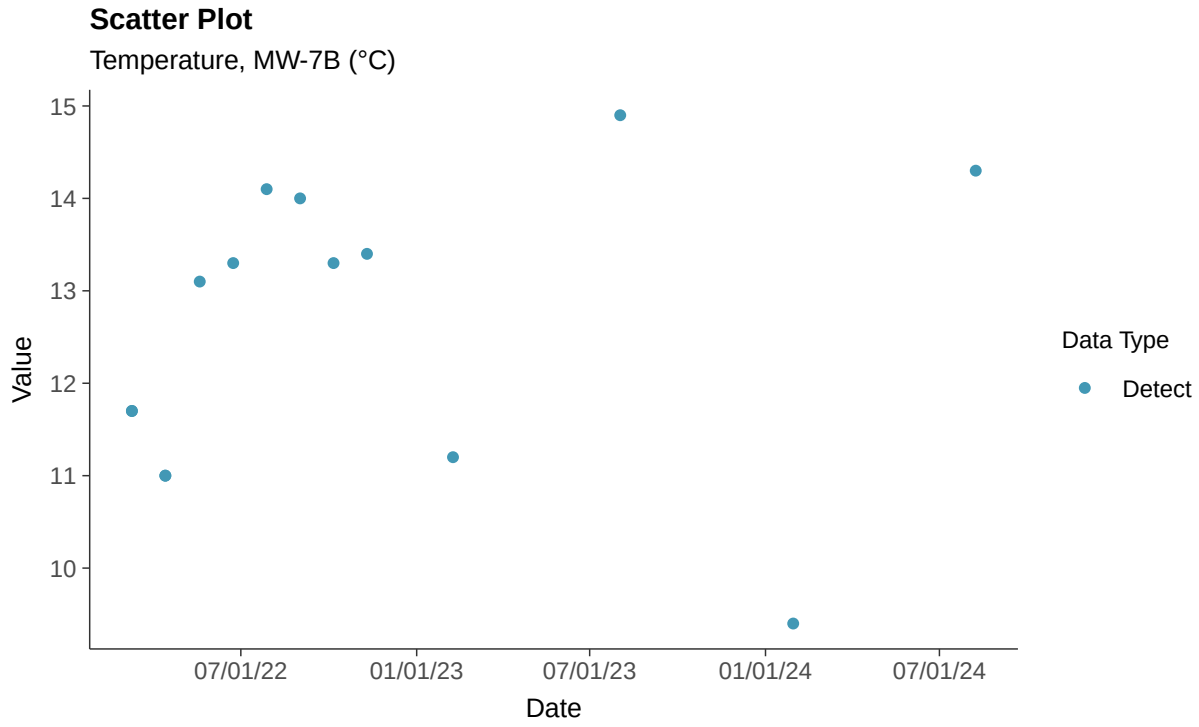
Trend Regression: Piecewise Linear-Linear-Linear

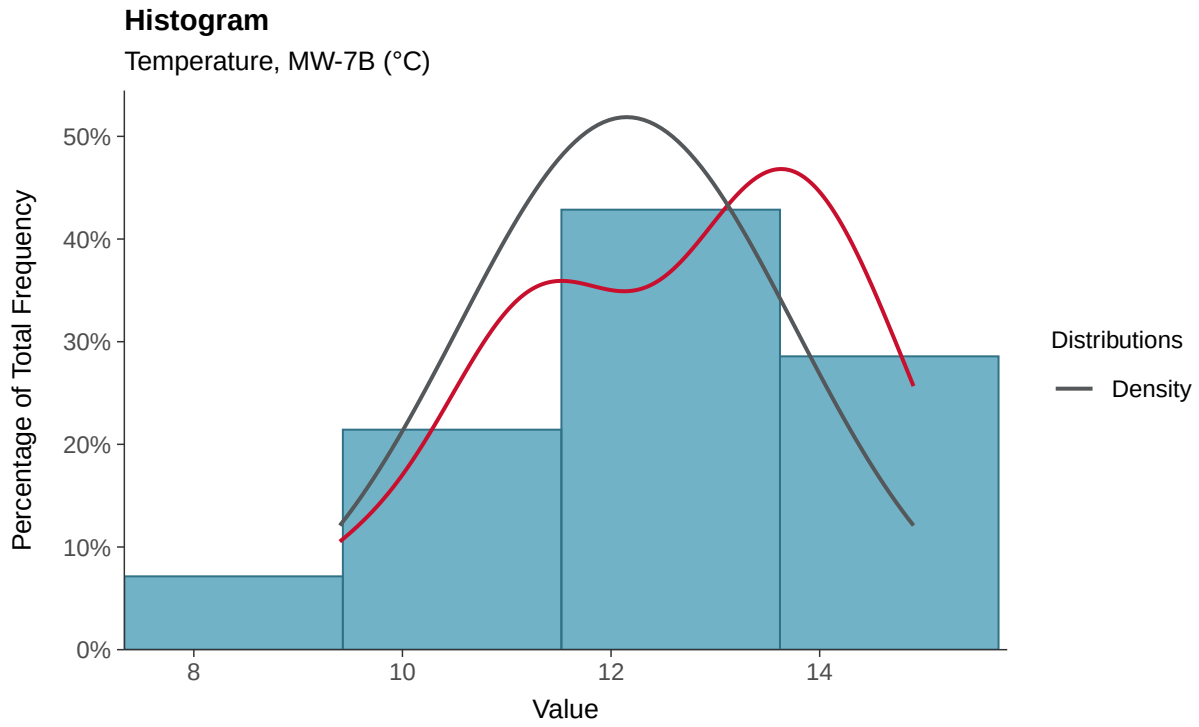
Dissolved Oxygen, MW-7B (mg/L)



Field Parameters: Temperature, MW-7B

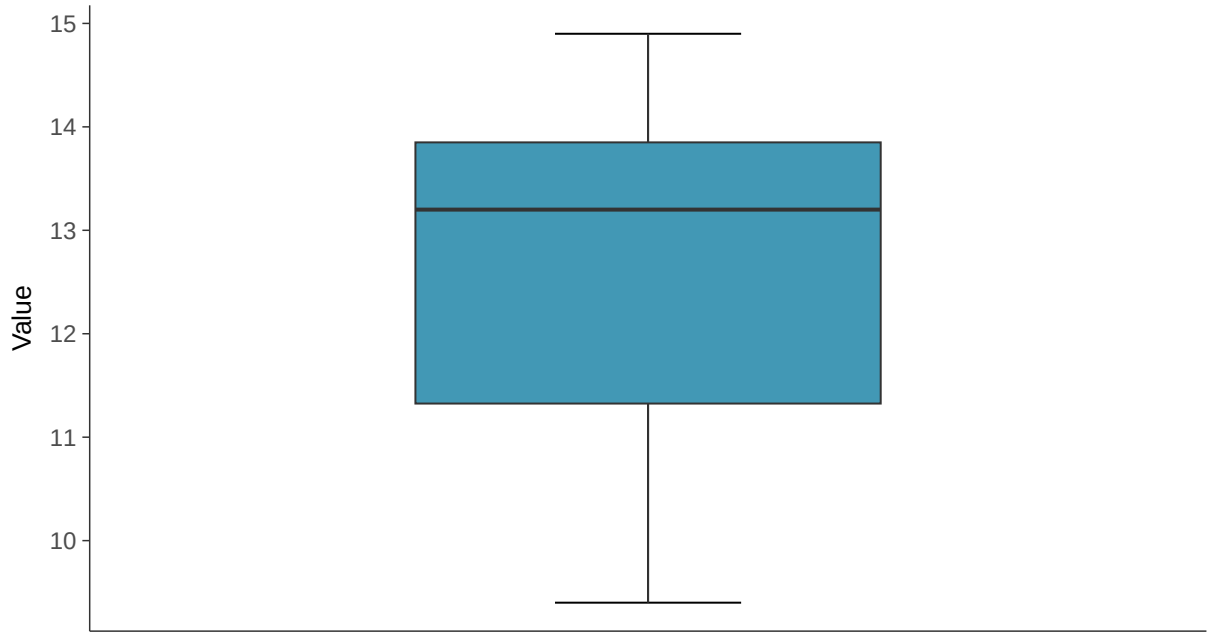
ID: 7B_3_28





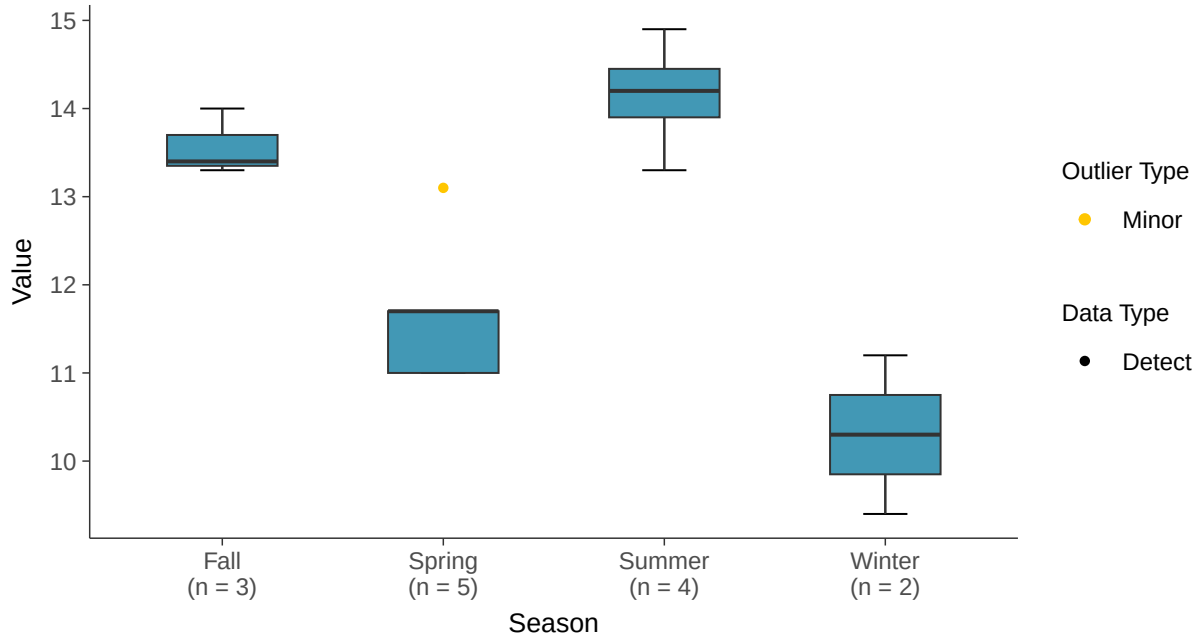
Boxplot

Temperature, MW-7B (°C)



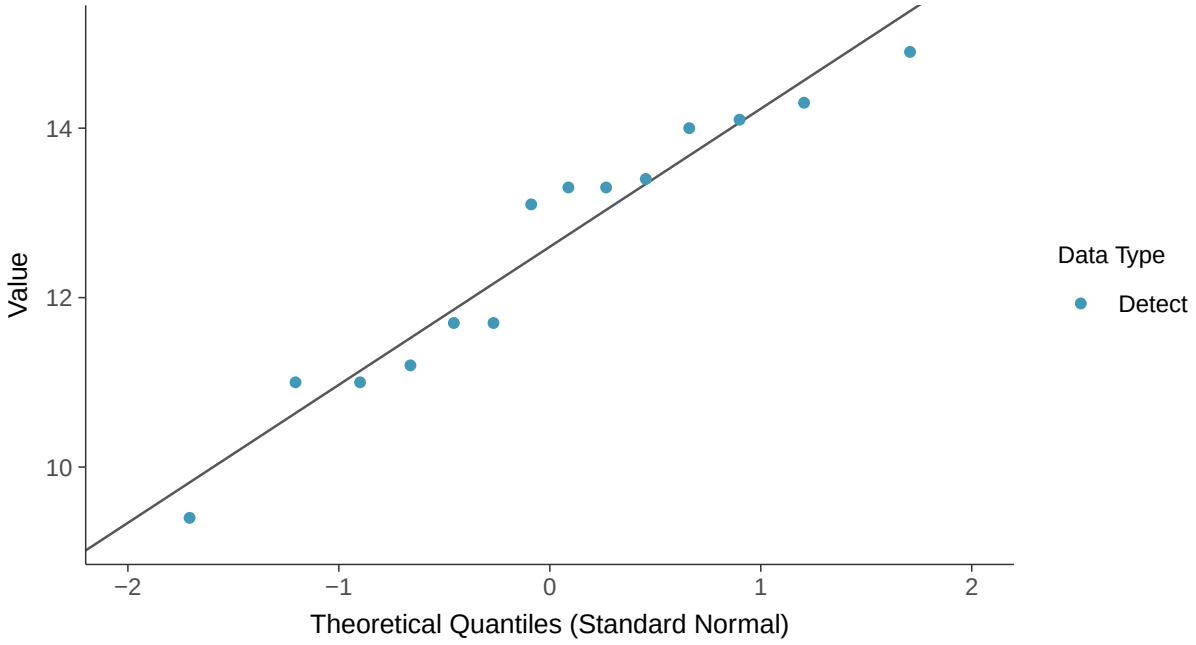
Boxplot by Season

Temperature, MW-7B (°C)



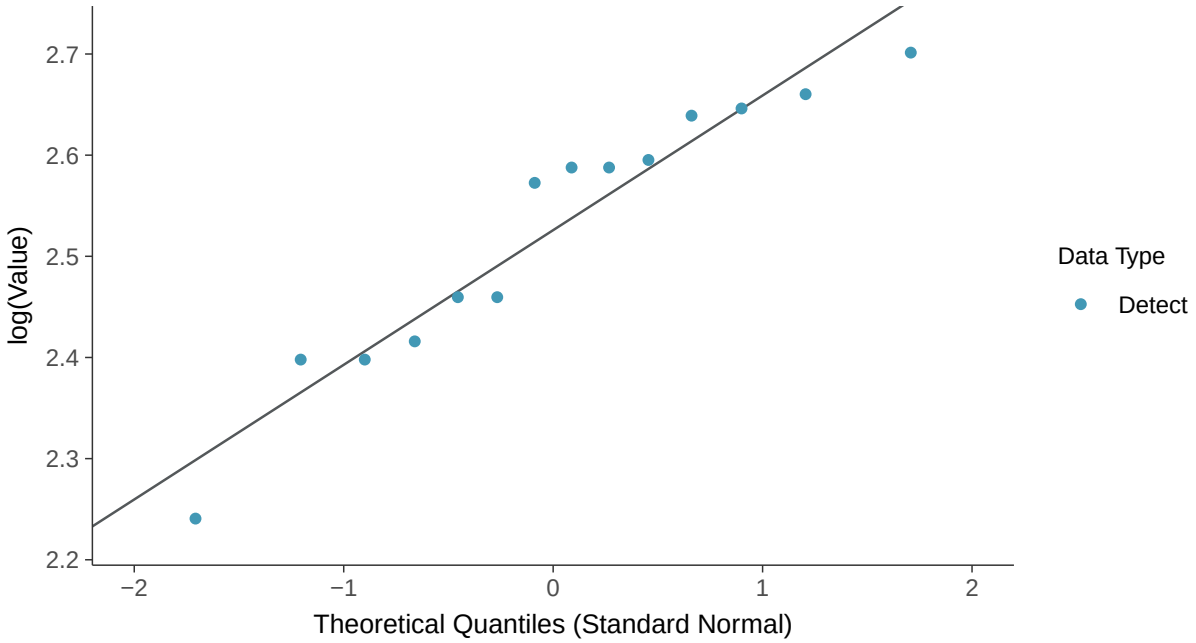
Normal Q-Q plot

Temperature, MW-7B (°C)



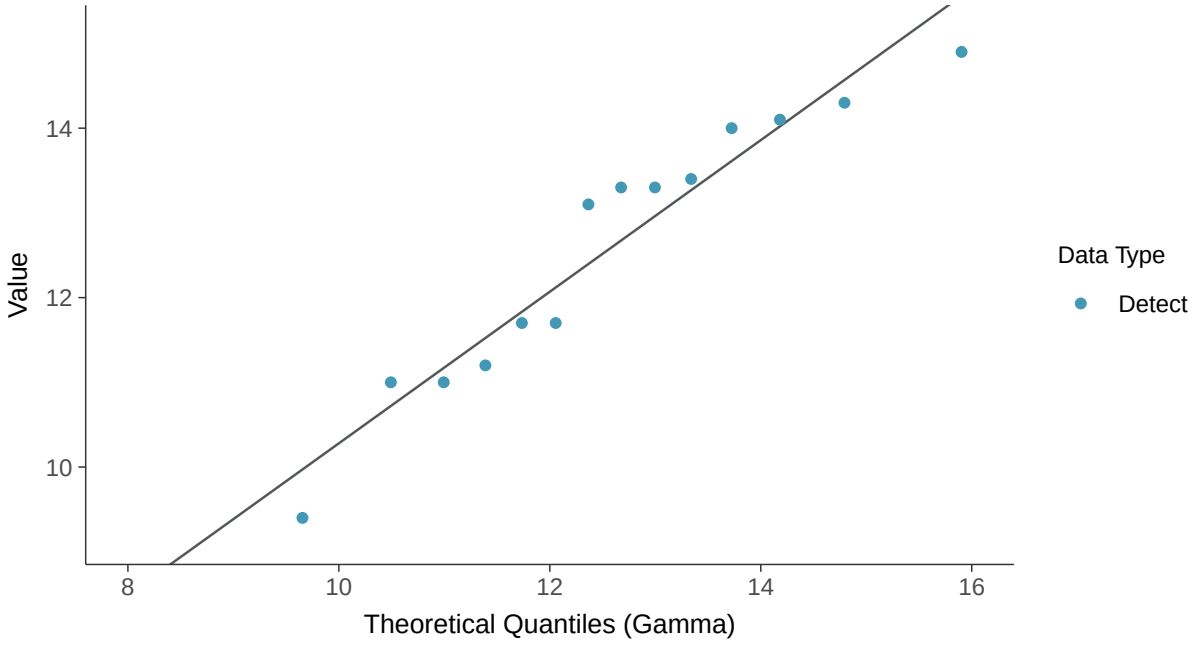
Lognormal Q-Q plot

Temperature, MW-7B (°C)



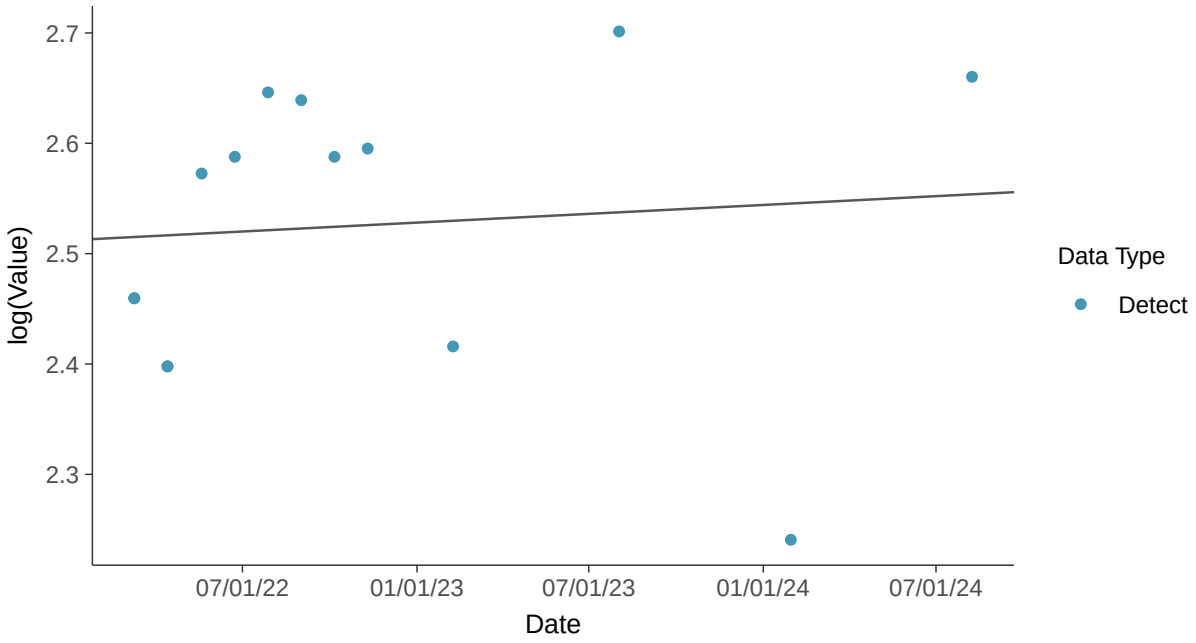
Gamma Q-Q plot

Temperature, MW-7B (°C)



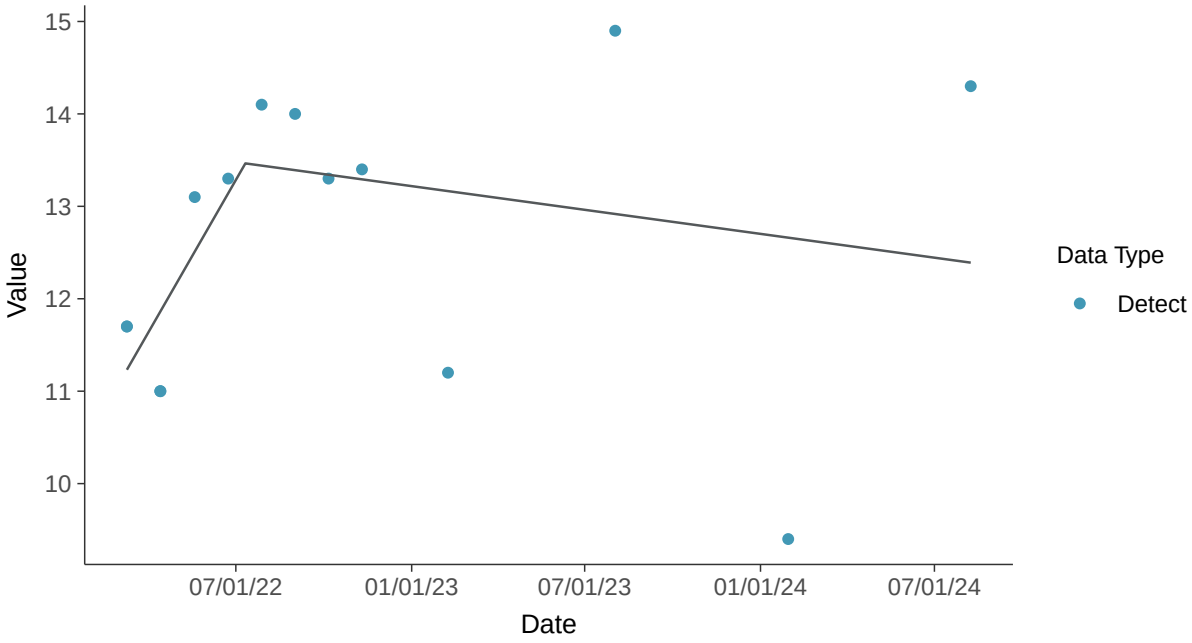
Trend Regression: Lognormal MLE

Temperature, MW-7B (°C)



Trend Regression: Piecewise Linear-Linear

Temperature, MW-7B (°C)

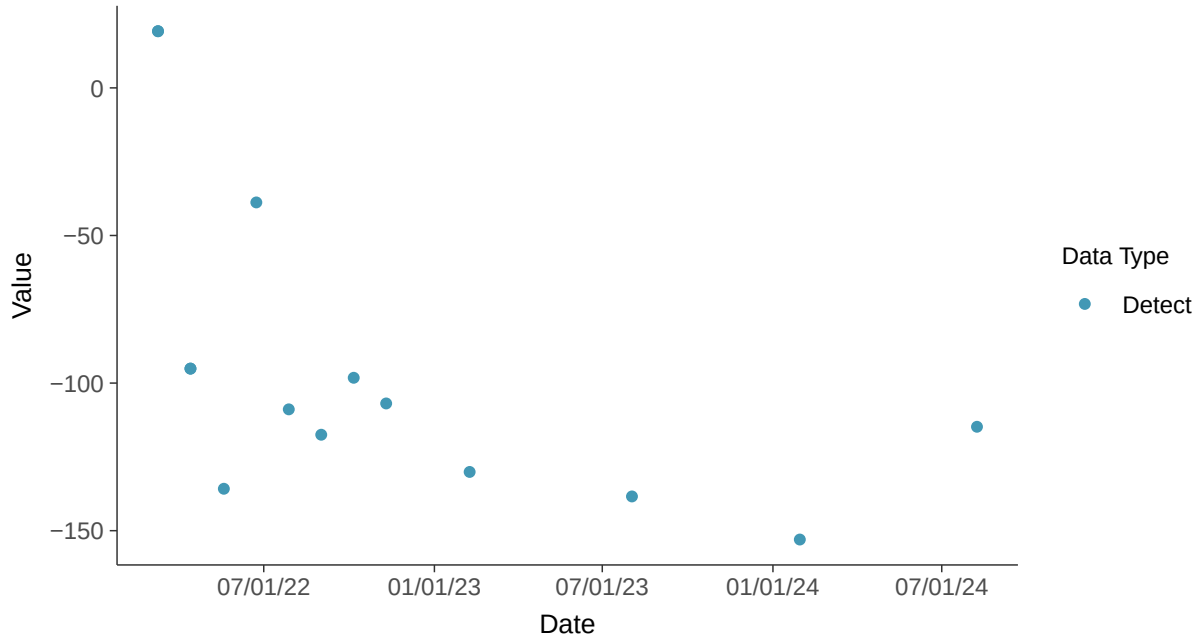


Field Parameters: Oxidation Reduction Potential, MW-7B

ID: 7B_3_29

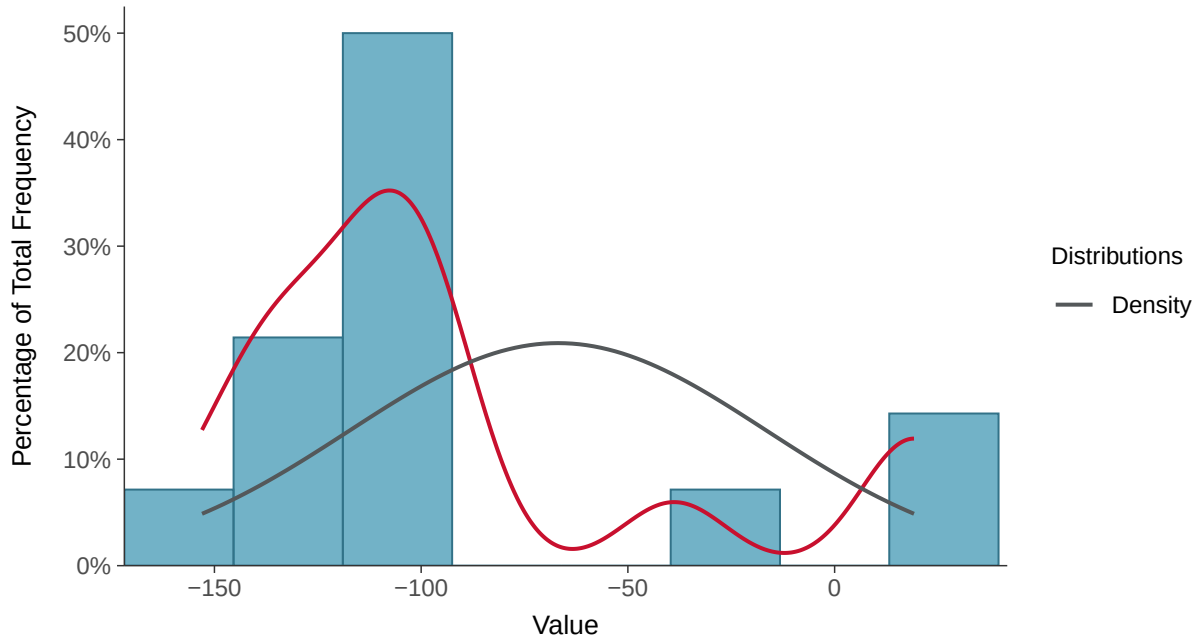
Scatter Plot

Oxidation Reduction Potential, MW-7B (mV)



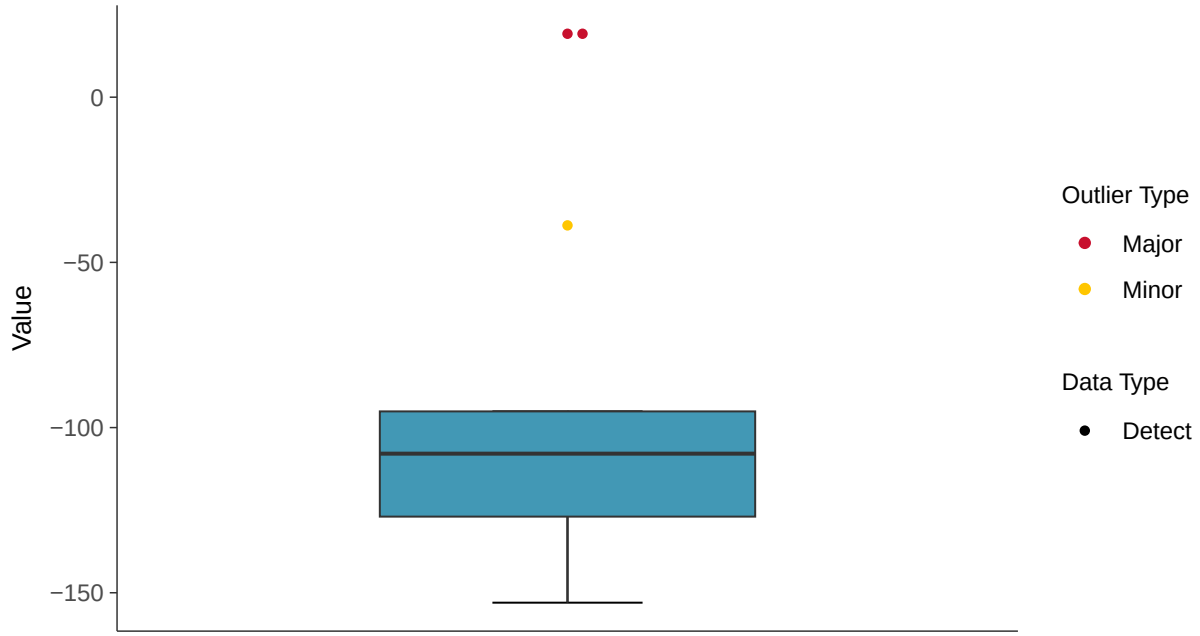
Histogram

Oxidation Reduction Potential, MW-7B (mV)



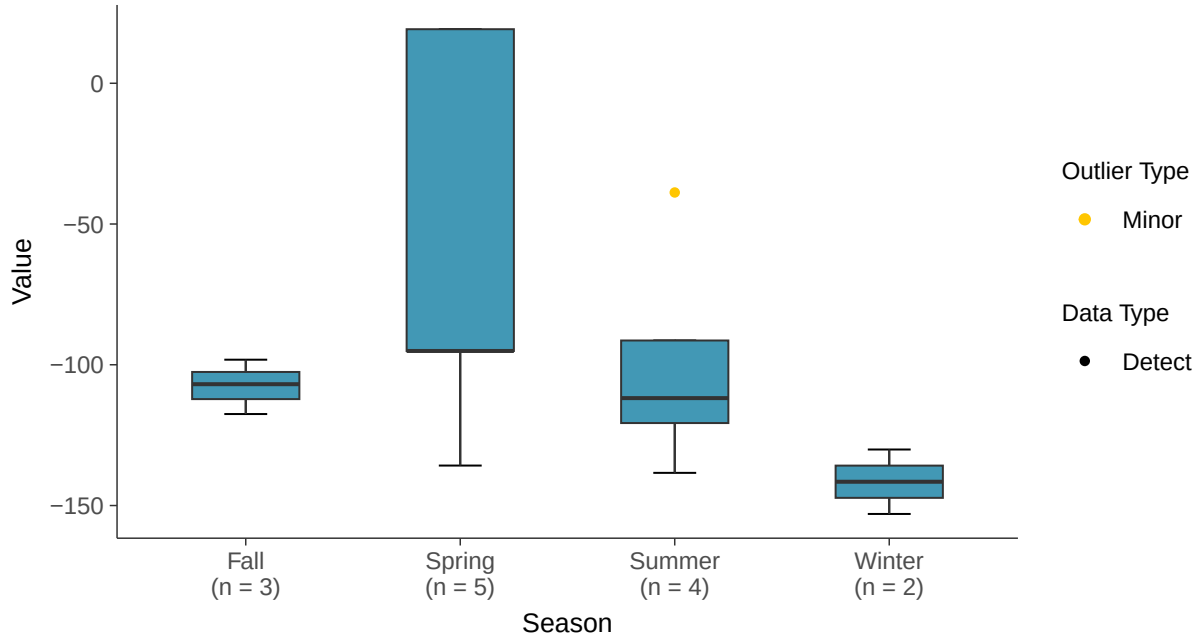
Boxplot

Oxidation Reduction Potential, MW-7B (mV)



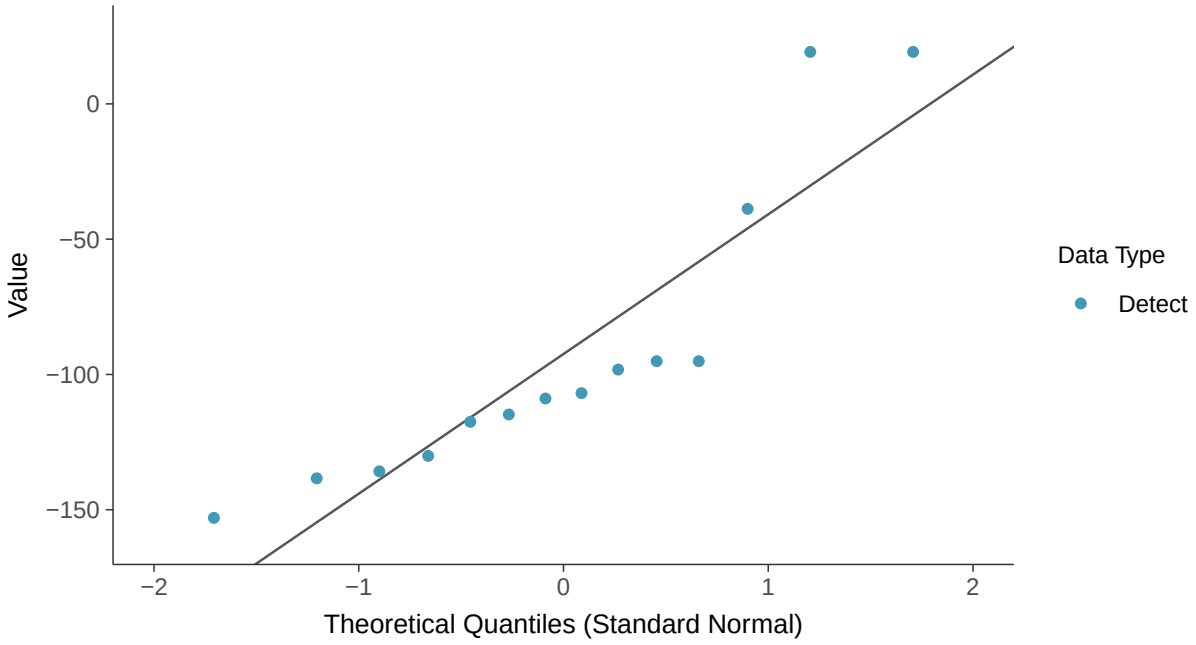
Boxplot by Season

Oxidation Reduction Potential, MW-7B (mV)



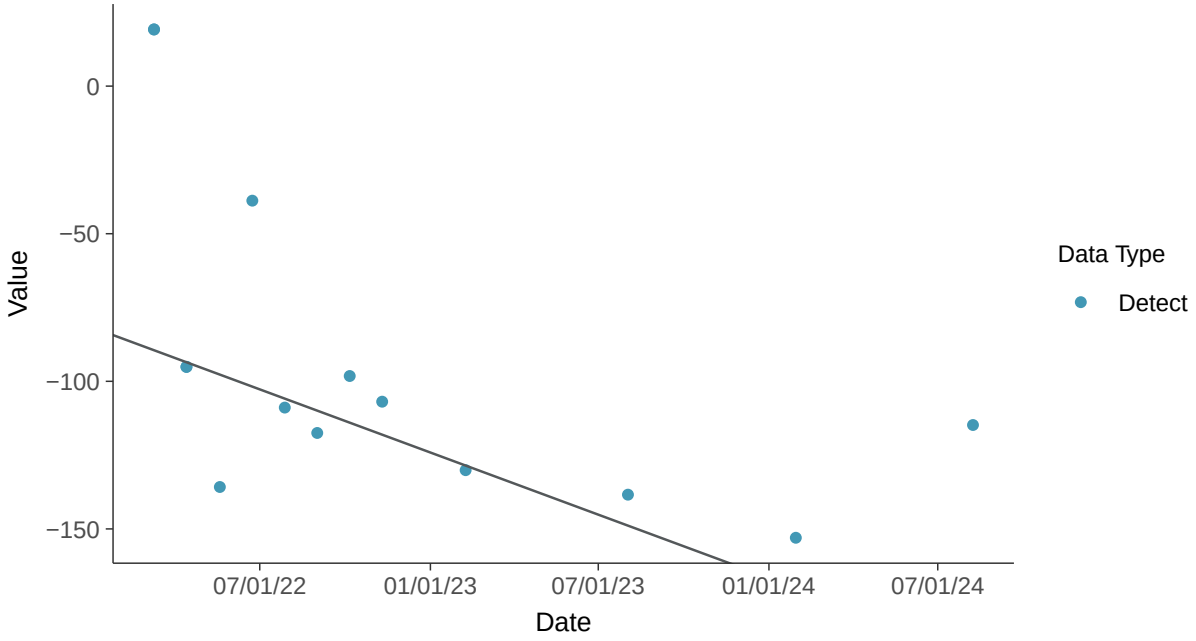
Normal Q-Q plot

Oxidation Reduction Potential, MW-7B (mV)



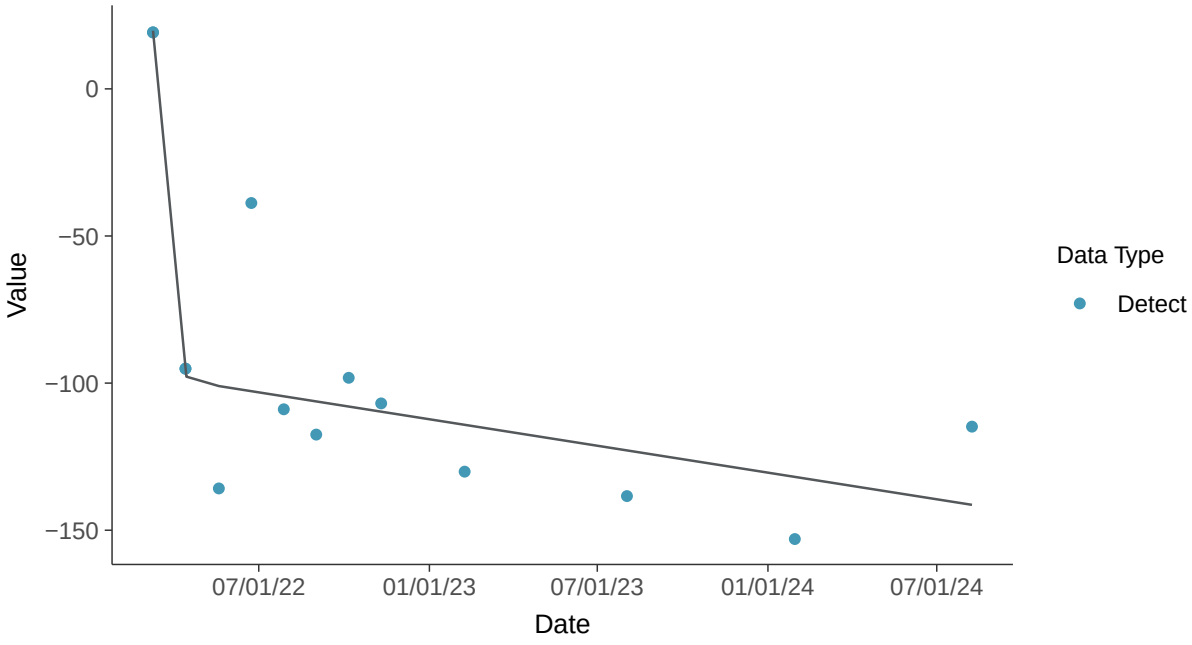
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Oxidation Reduction Potential, MW-7B (mV)



Trend Regression: Piecewise Linear-Linear

Oxidation Reduction Potential, MW-7B (mV)

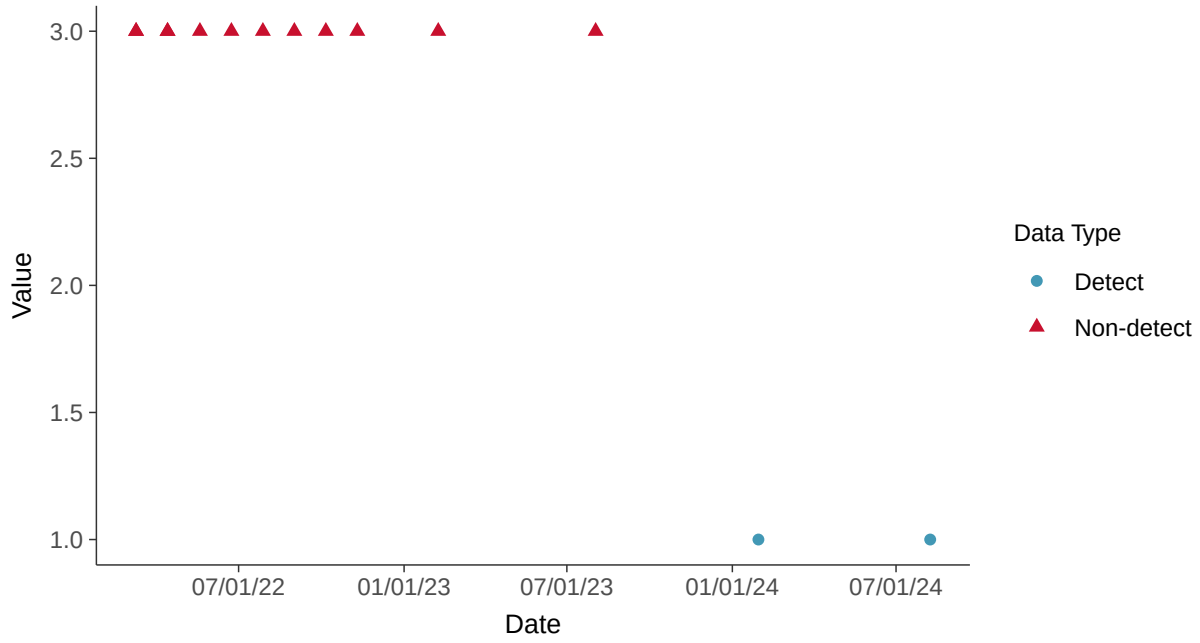


Other: Total Suspended Solids, MW-7B

ID: 7B_4_30

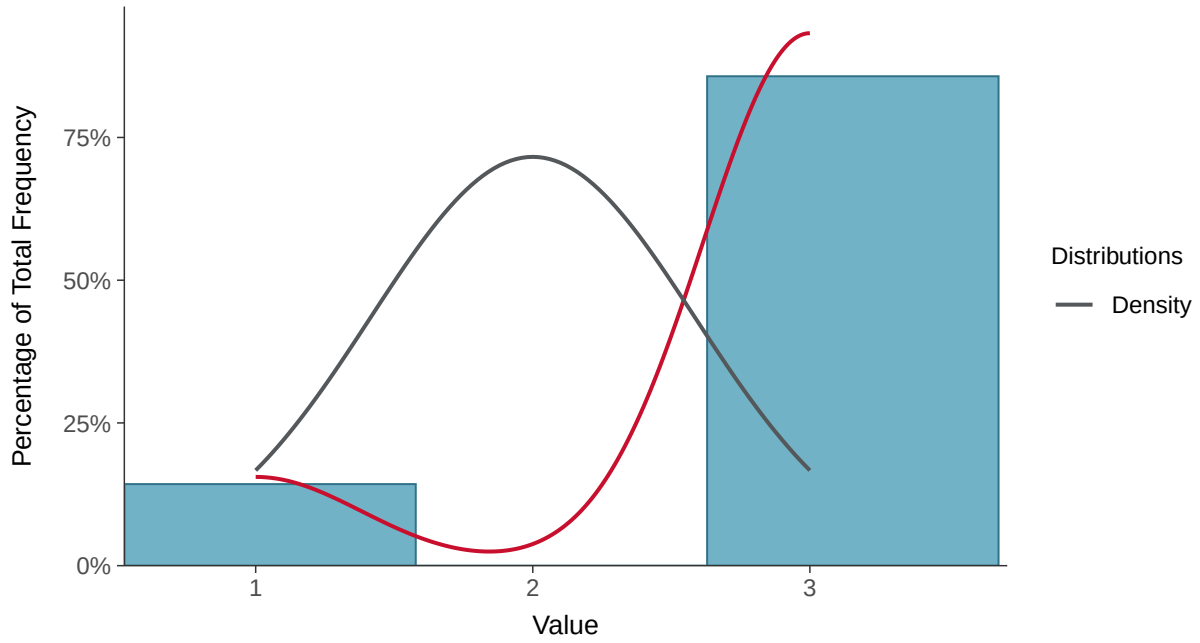
Scatter Plot

Total Suspended Solids, MW-7B (mg/L)



Histogram

Total Suspended Solids, MW-7B (mg/L)

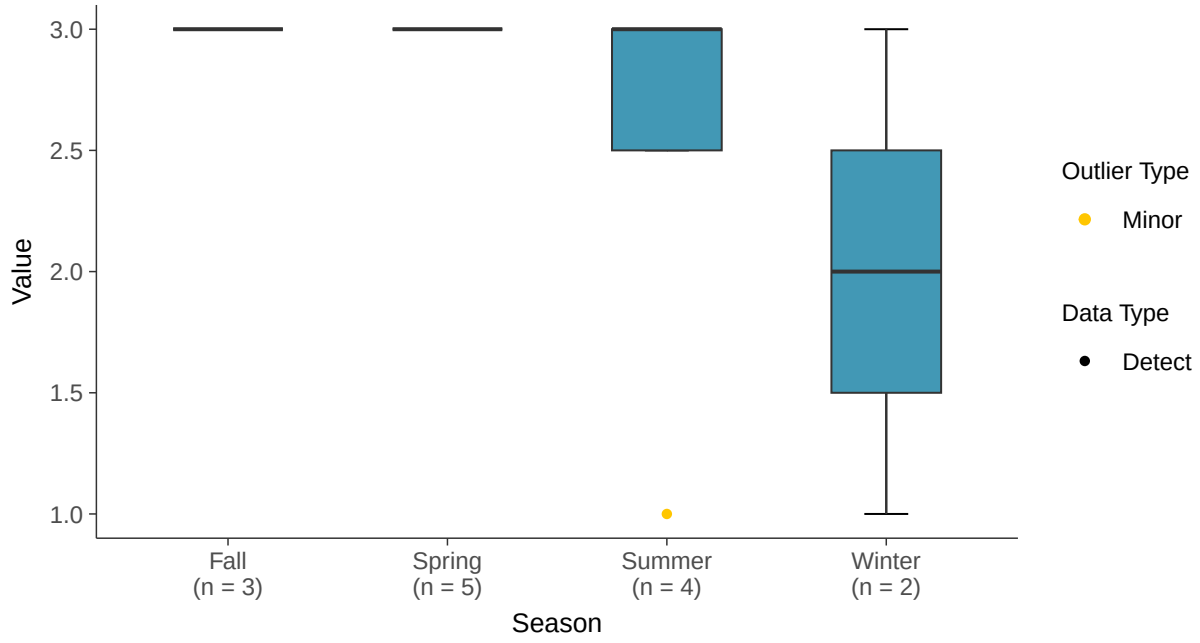


Boxplot

Total Suspended Solids, MW-7B (mg/L)

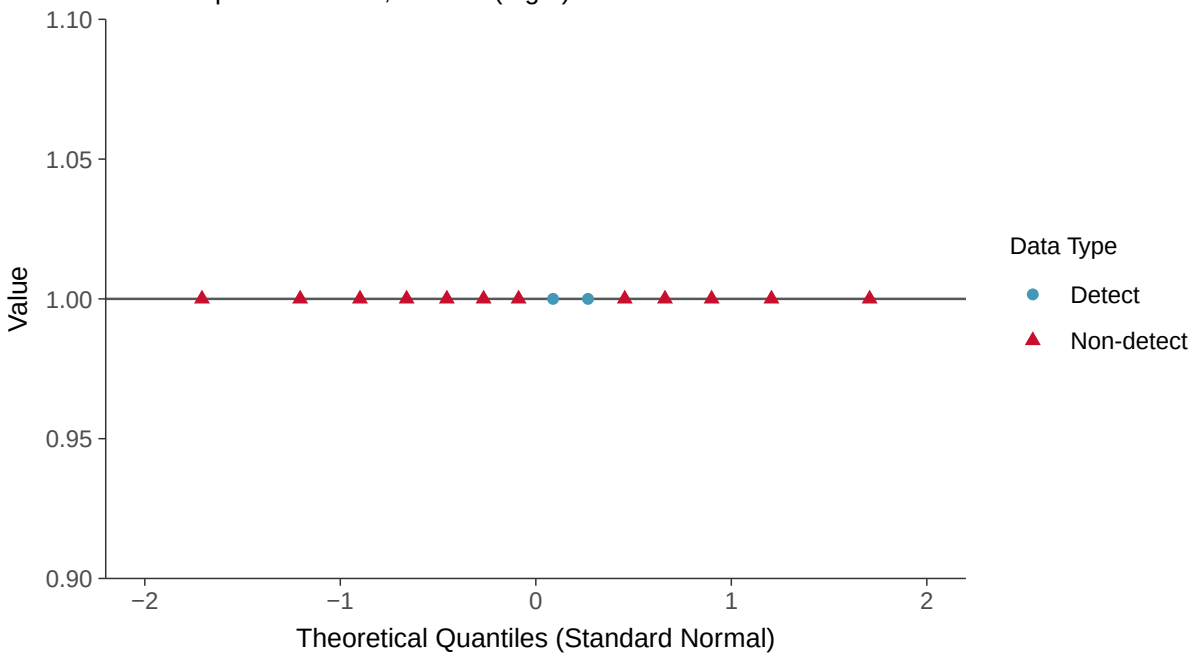
Boxplot by Season

Total Suspended Solids, MW-7B (mg/L)



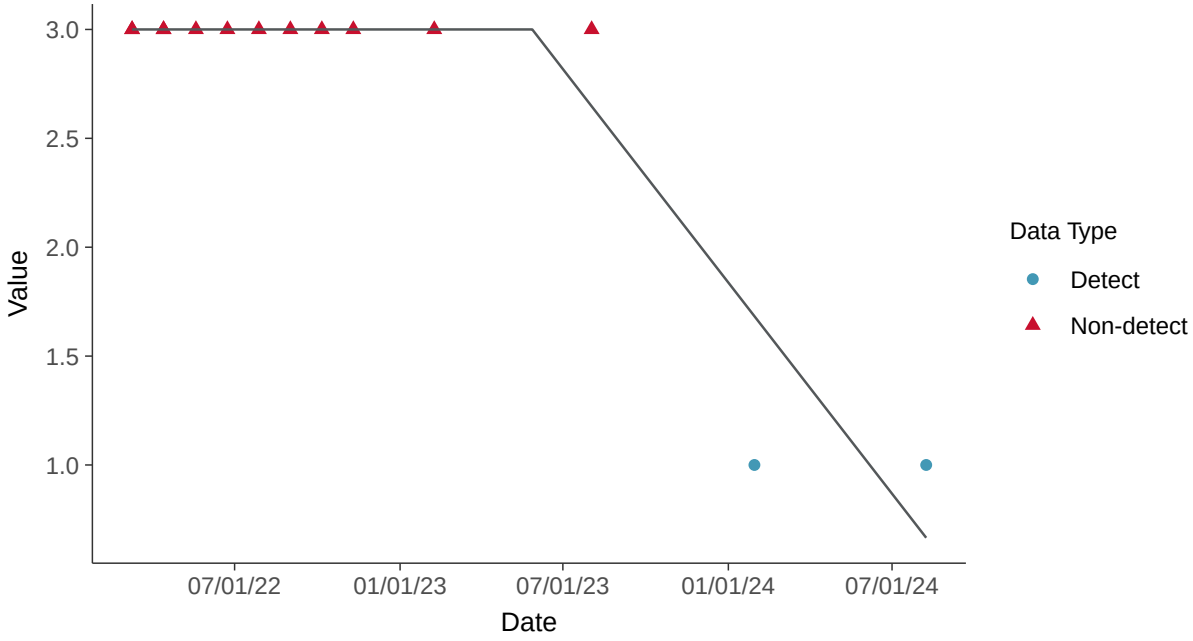
Normal Q-Q plot using ROS Imputed Estimates

Total Suspended Solids, MW-7B (mg/L)



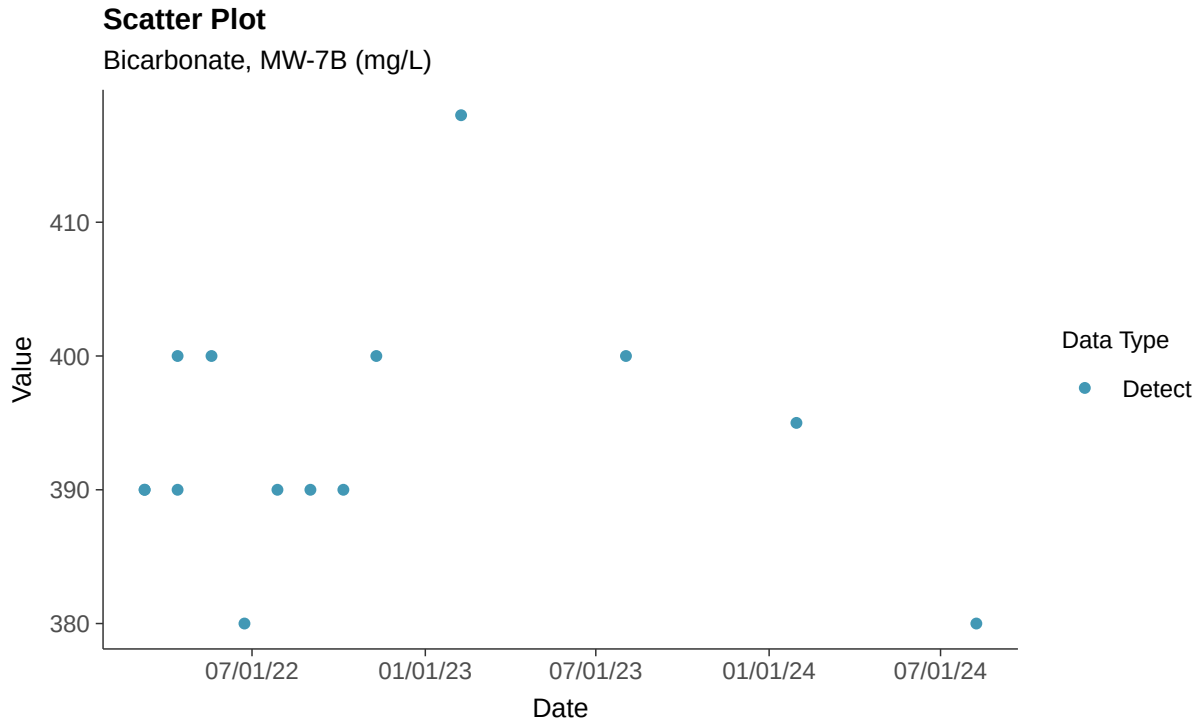
Trend Regression: Piecewise Linear-Linear

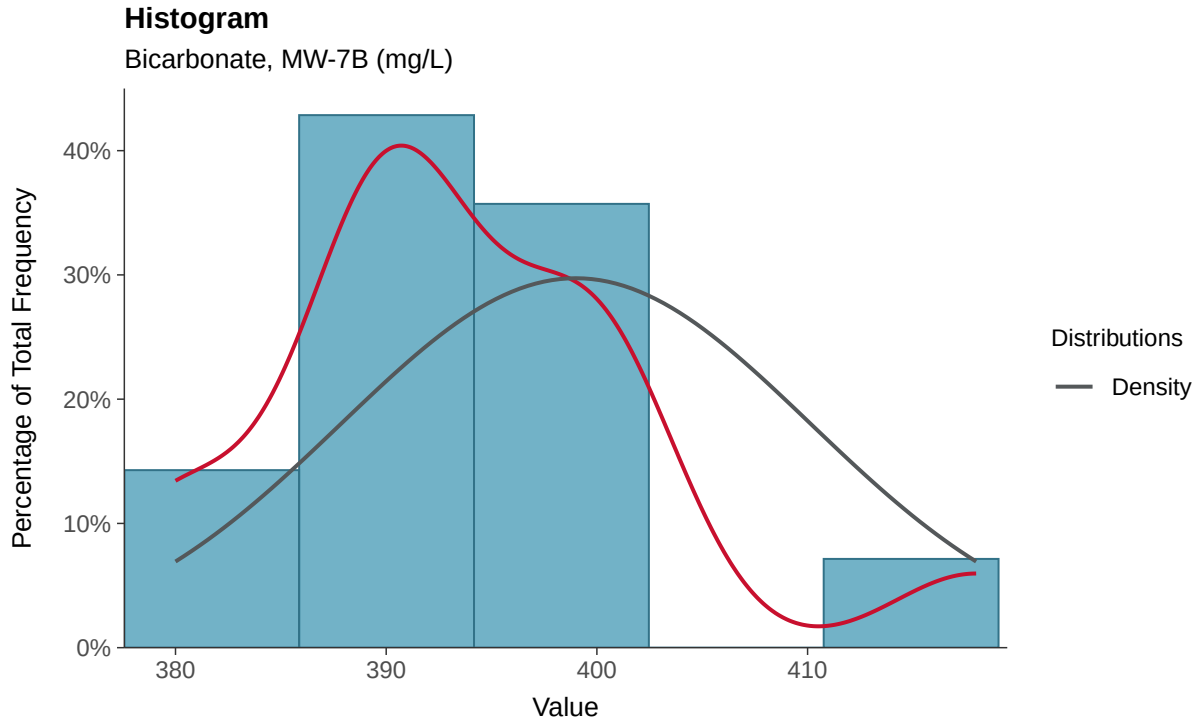
Total Suspended Solids, MW-7B (mg/L)



Other: Bicarbonate, MW-7B

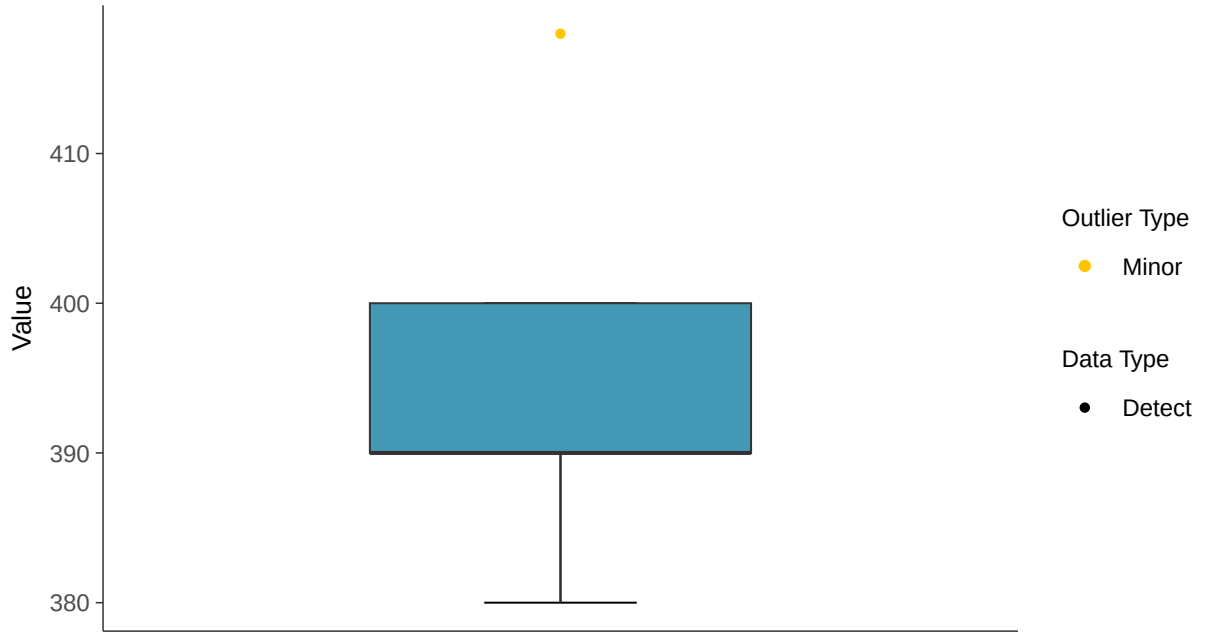
ID: 7B_4_31





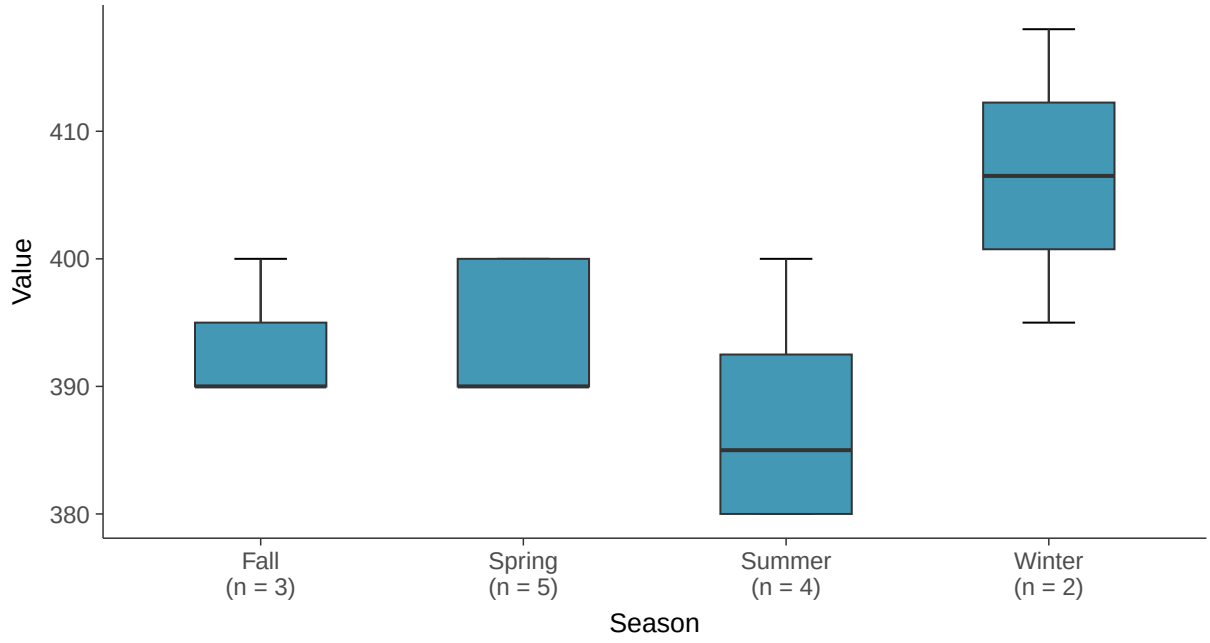
Boxplot

Bicarbonate, MW-7B (mg/L)



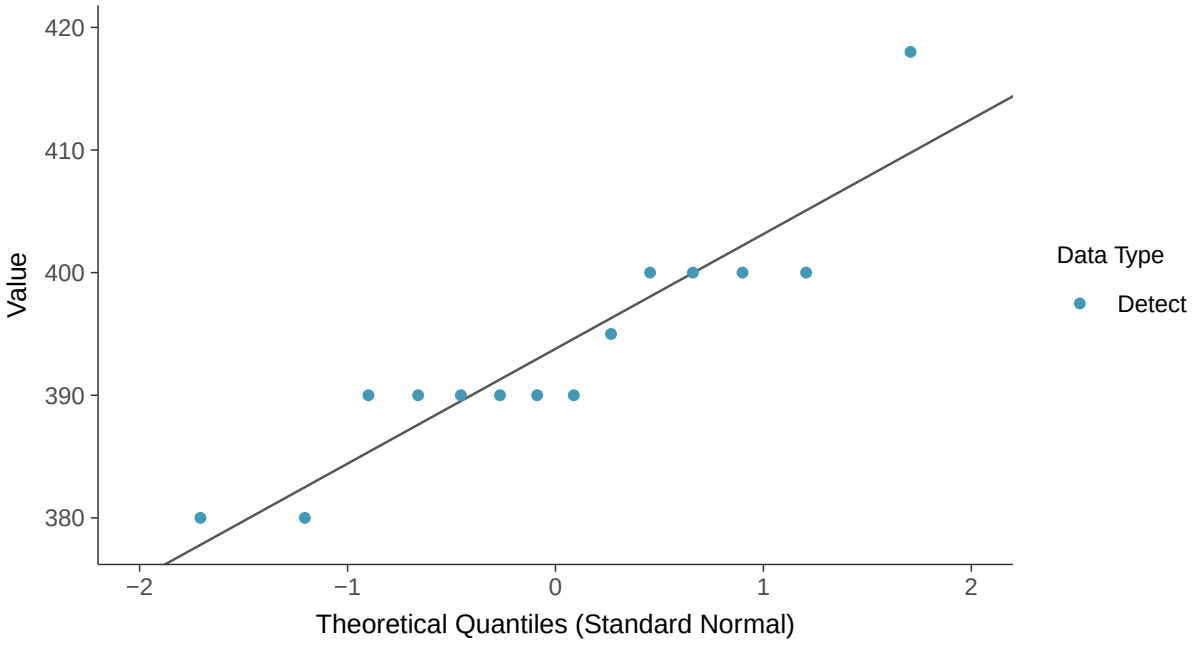
Boxplot by Season

Bicarbonate, MW-7B (mg/L)



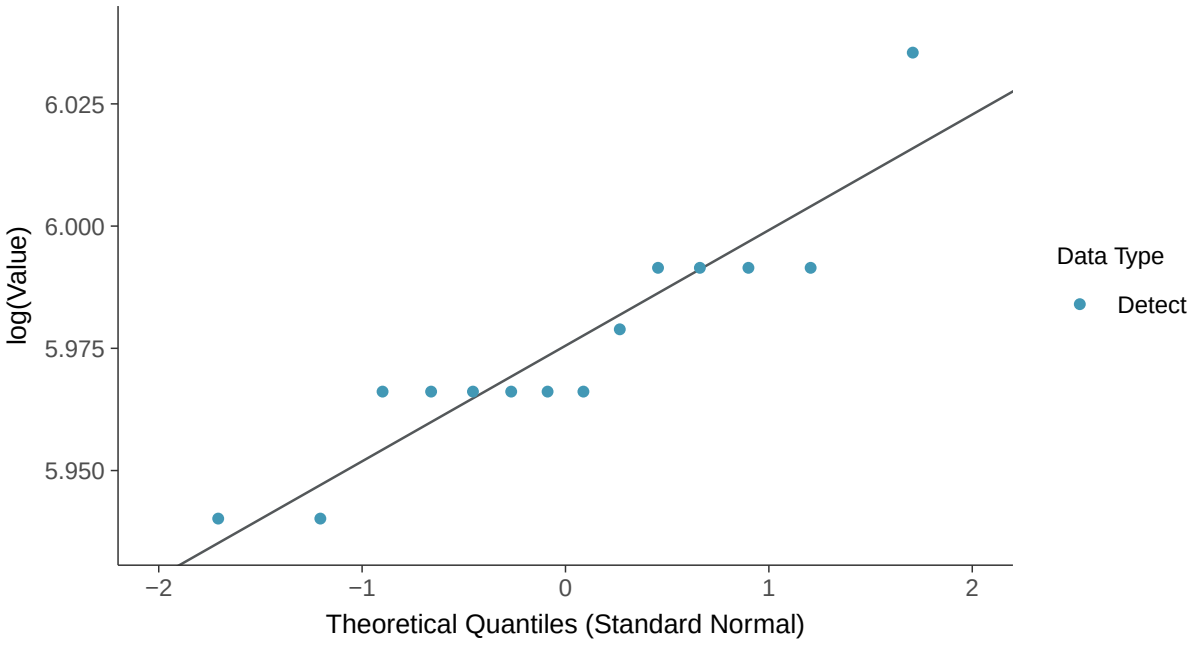
Normal Q-Q plot

Bicarbonate, MW-7B (mg/L)



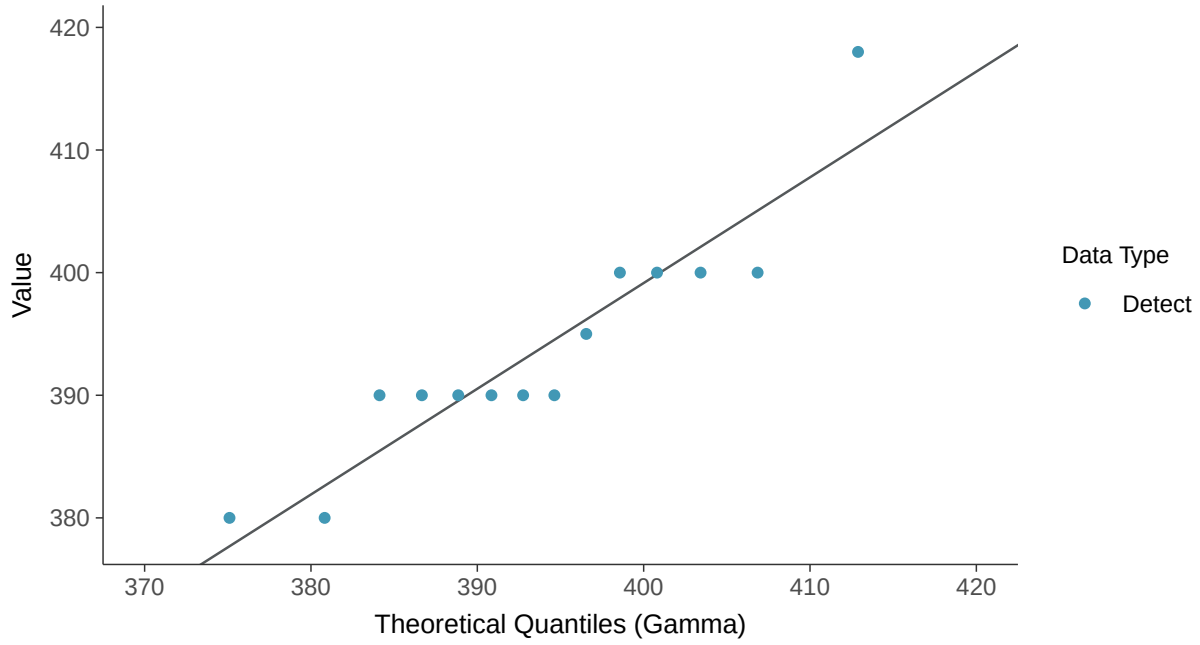
Lognormal Q-Q plot

Bicarbonate, MW-7B (mg/L)



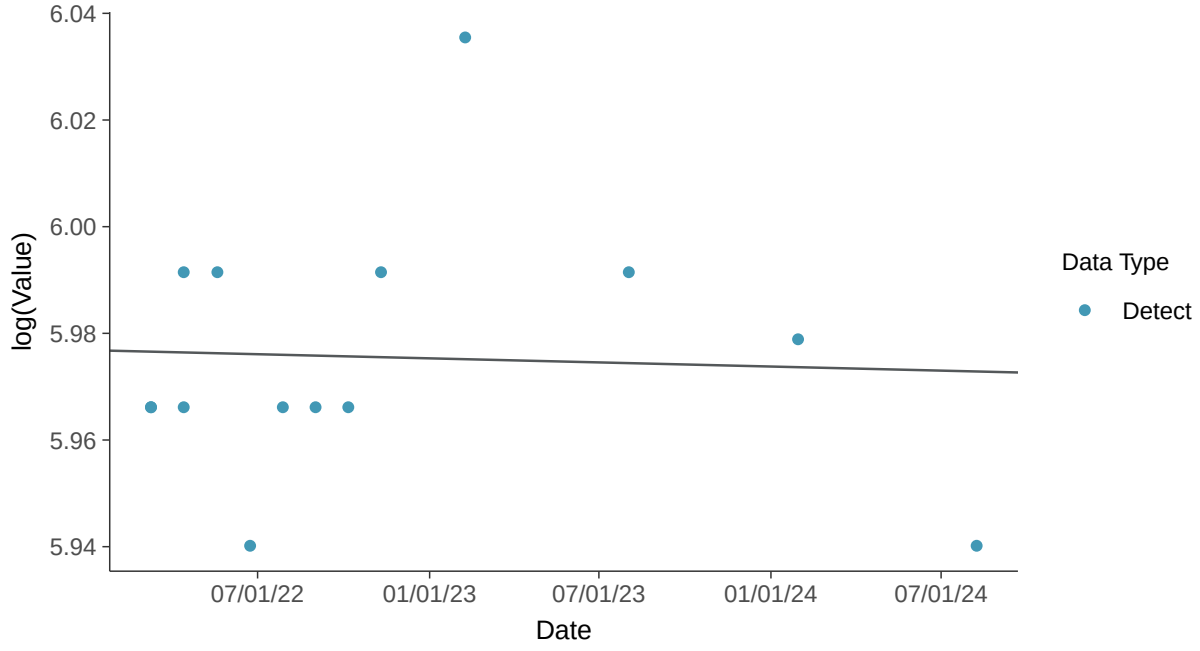
Gamma Q-Q plot

Bicarbonate, MW-7B (mg/L)



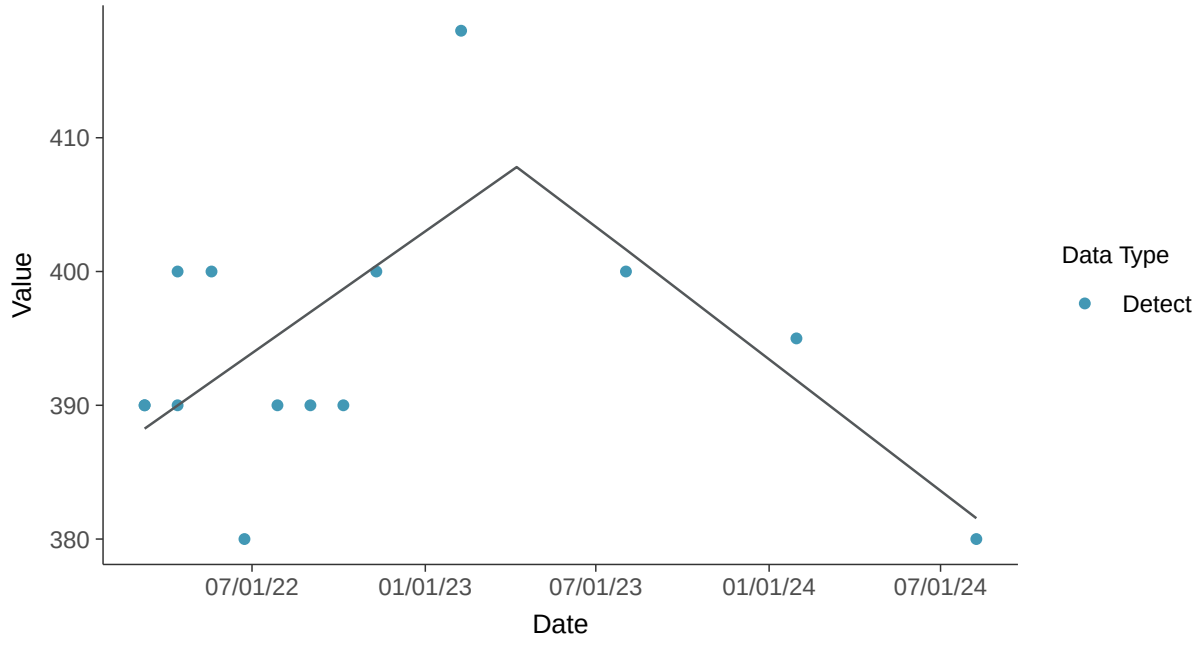
Trend Regression: Lognormal MLE

Bicarbonate, MW-7B (mg/L)



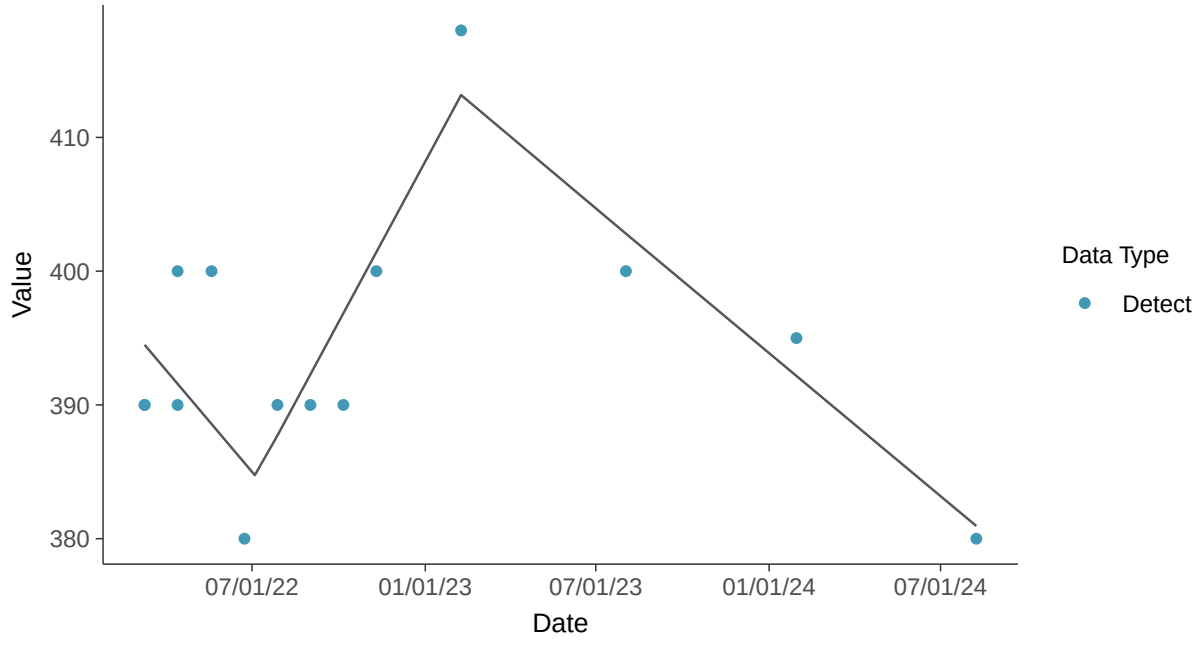
Trend Regression: Piecewise Linear-Linear

Bicarbonate, MW-7B (mg/L)



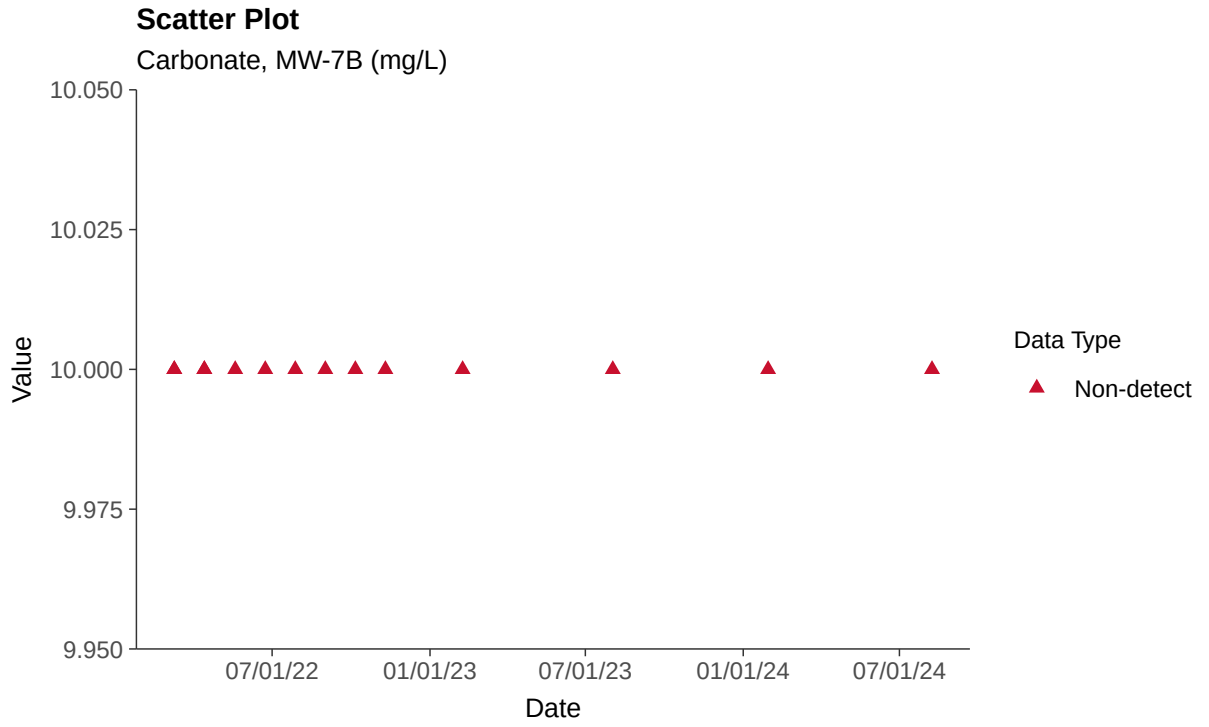
Trend Regression: Piecewise Linear-Linear-Linear

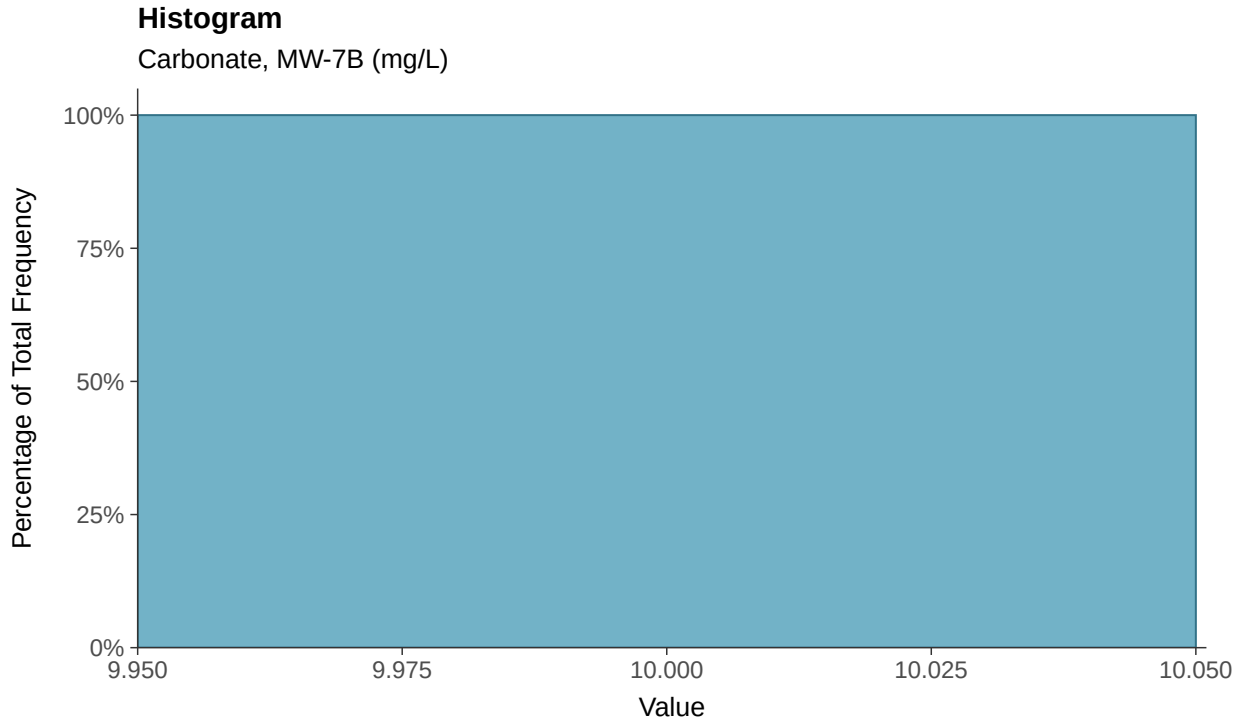
Bicarbonate, MW-7B (mg/L)



Other: Carbonate, MW-7B

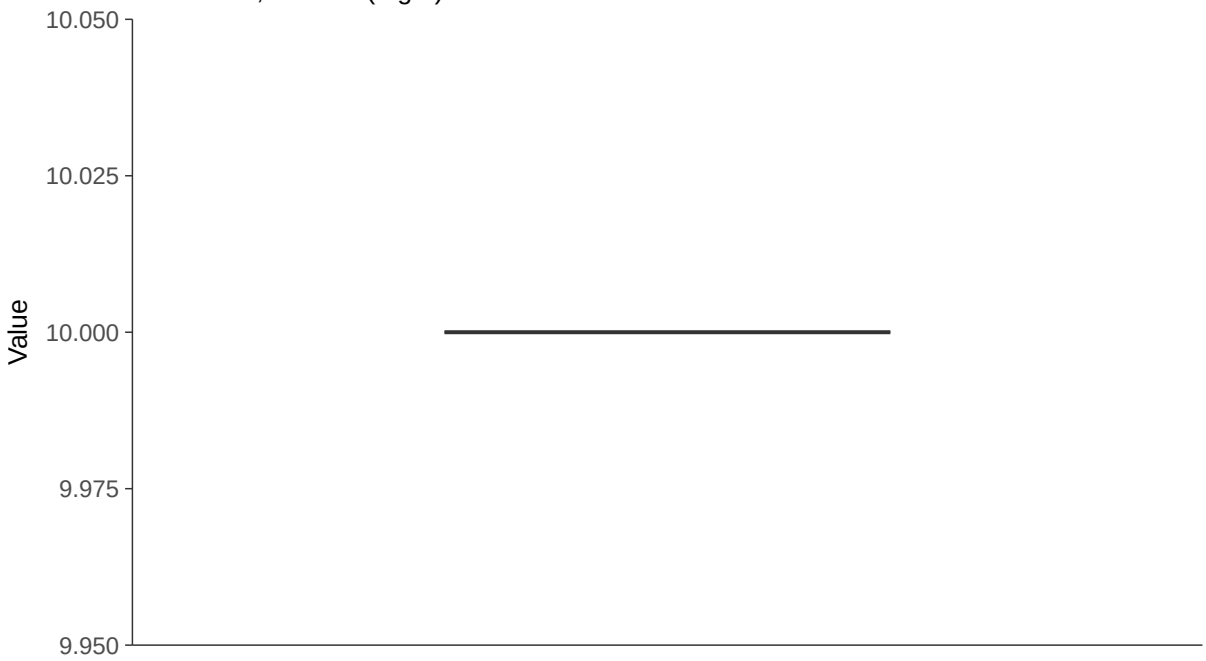
ID: 7B_4_32





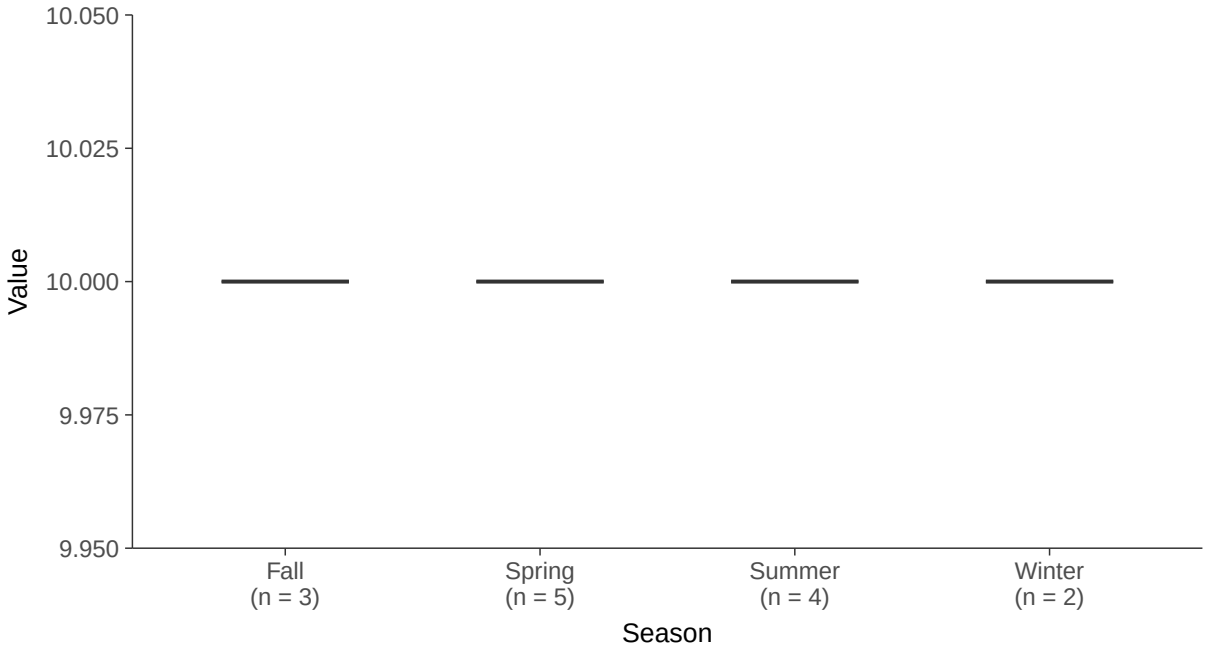
Boxplot

Carbonate, MW-7B (mg/L)



Boxplot by Season

Carbonate, MW-7B (mg/L)

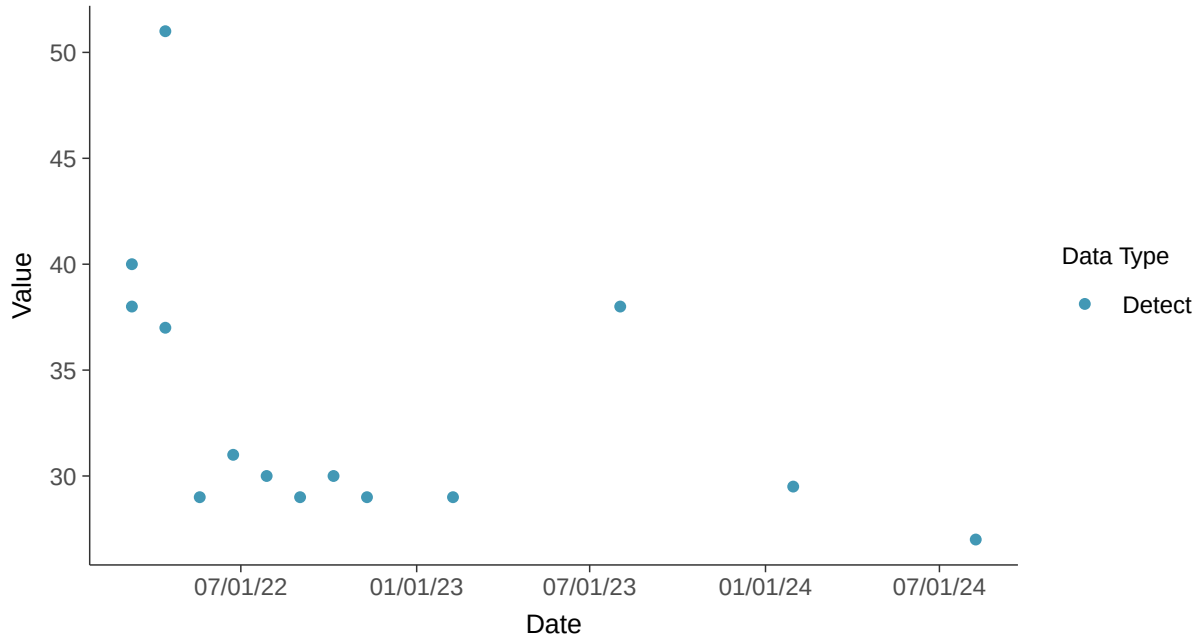


Other: Hardness, MW-7B

ID: 7B_4_33

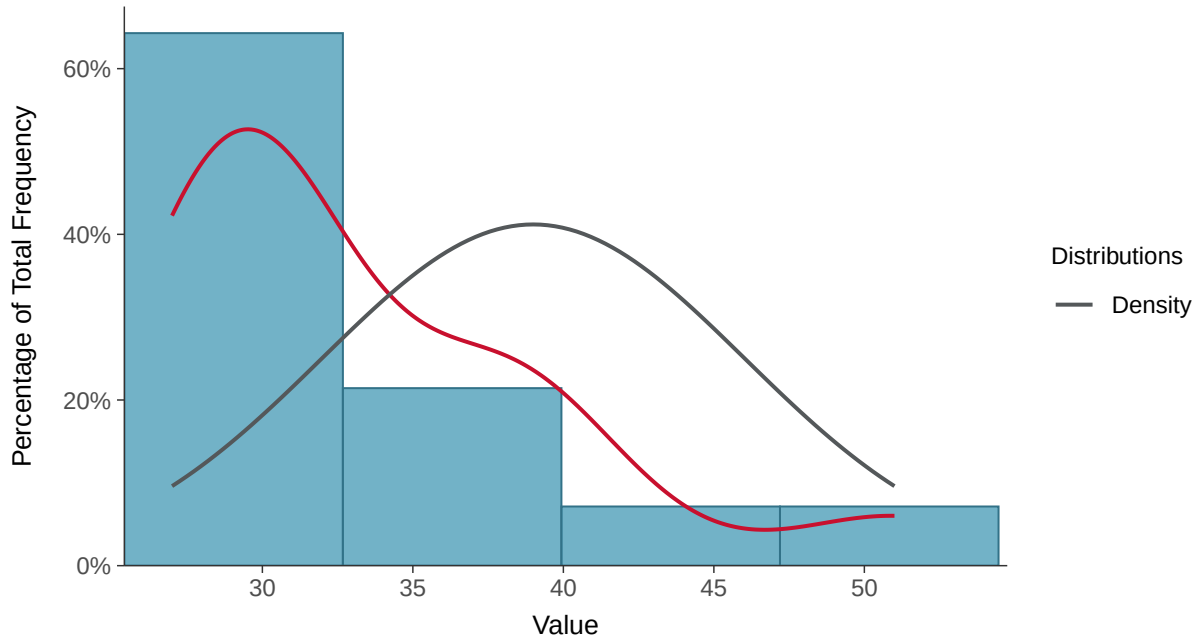
Scatter Plot

Hardness, MW-7B (mg/L)



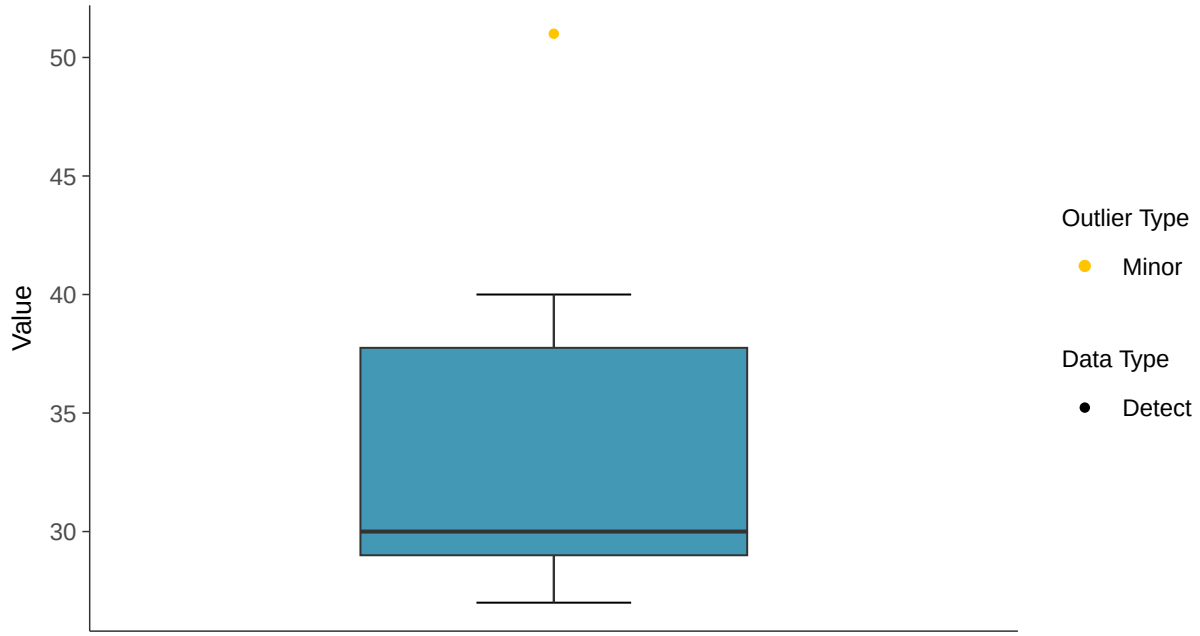
Histogram

Hardness, MW-7B (mg/L)



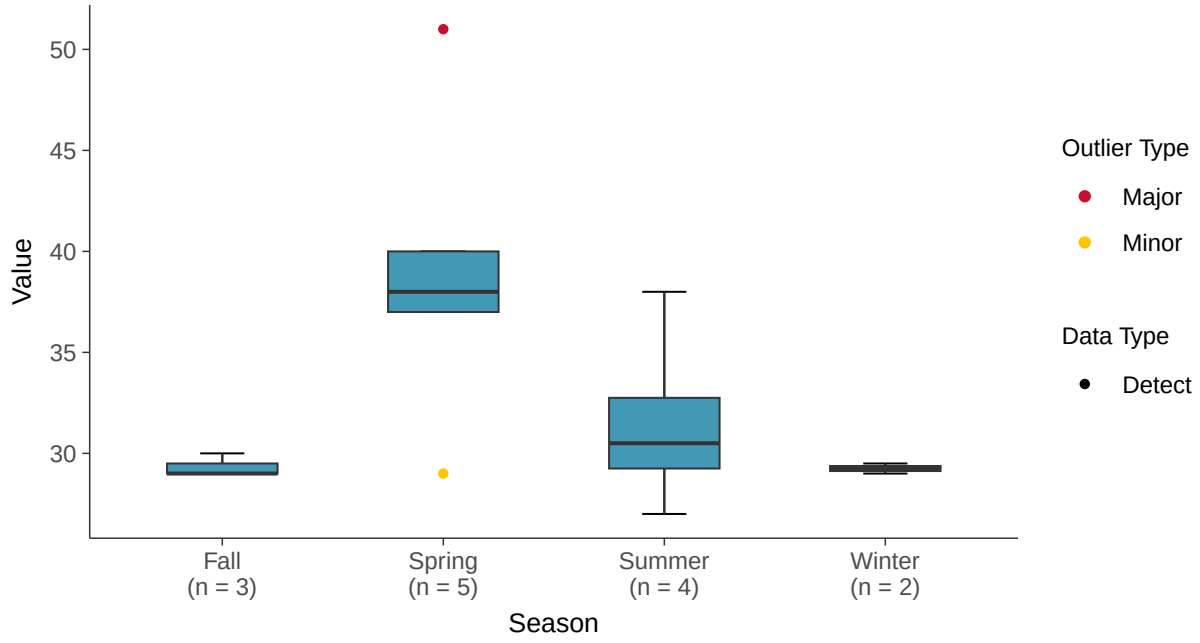
Boxplot

Hardness, MW-7B (mg/L)



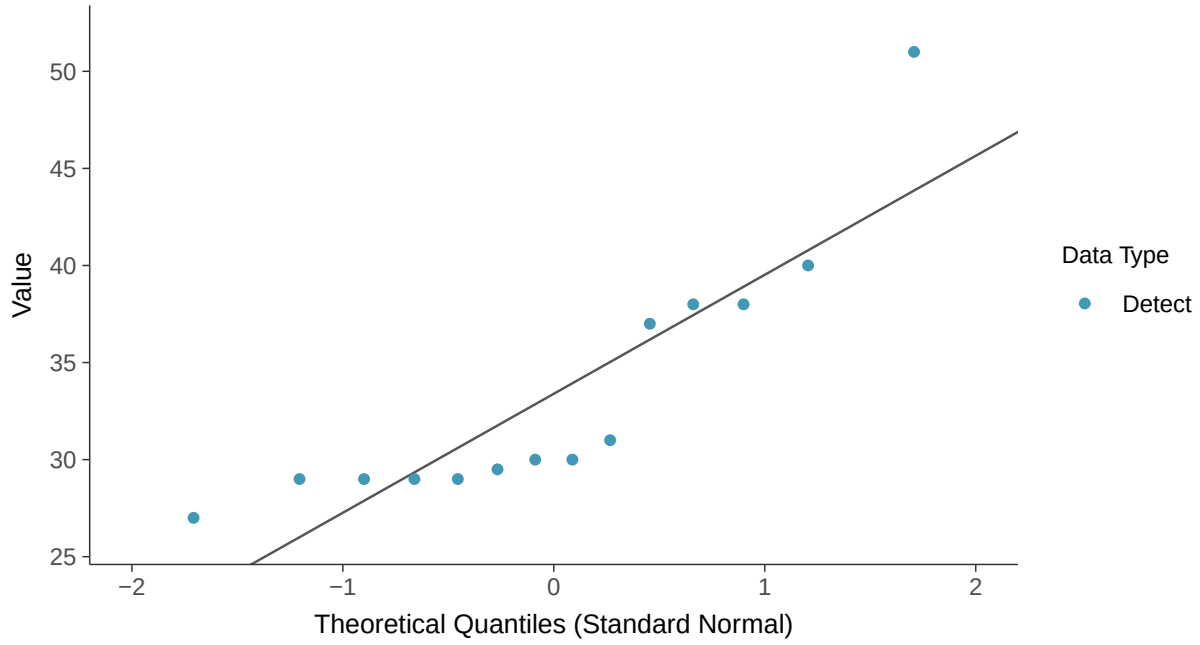
Boxplot by Season

Hardness, MW-7B (mg/L)



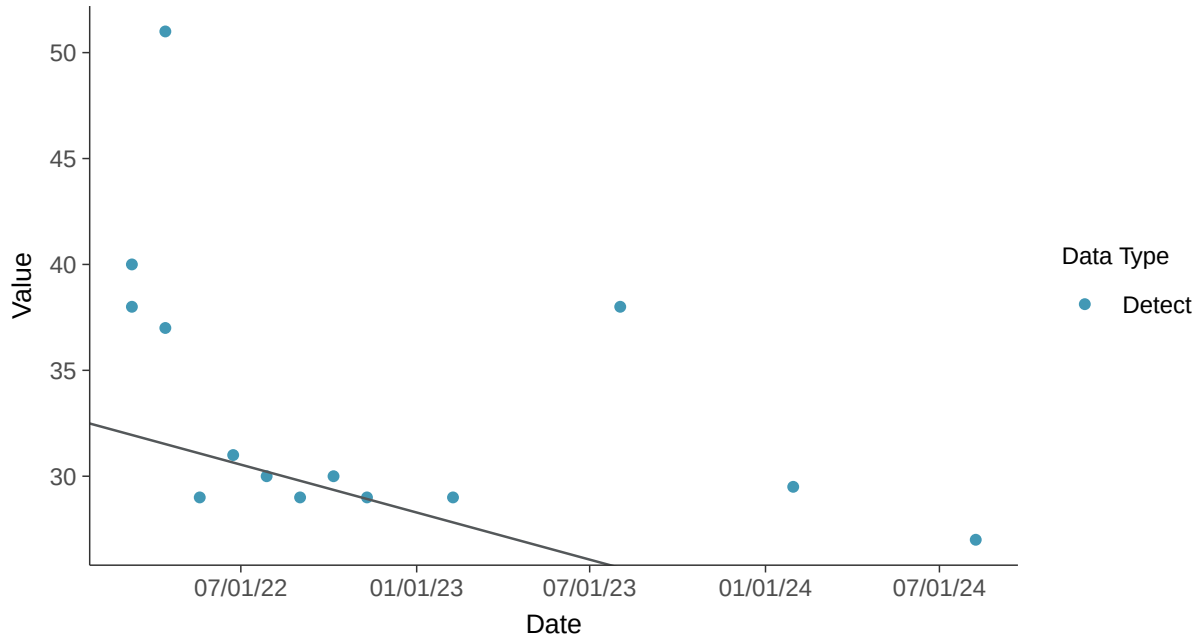
Normal Q-Q plot

Hardness, MW-7B (mg/L)



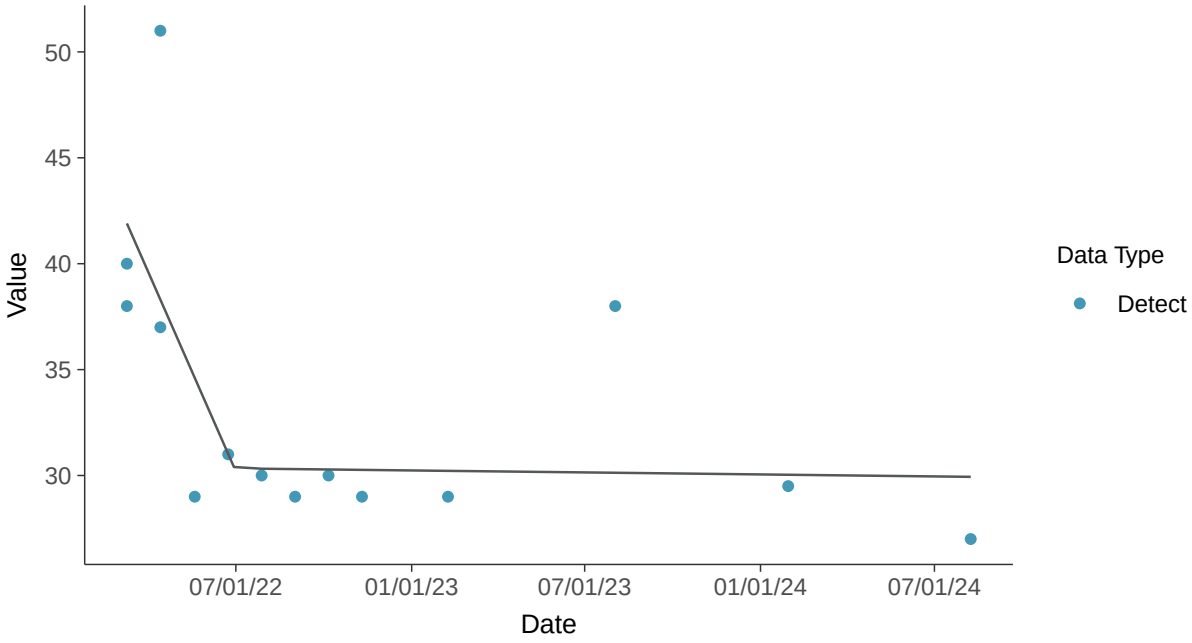
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Hardness, MW-7B (mg/L)



Trend Regression: Piecewise Linear-Linear

Hardness, MW-7B (mg/L)

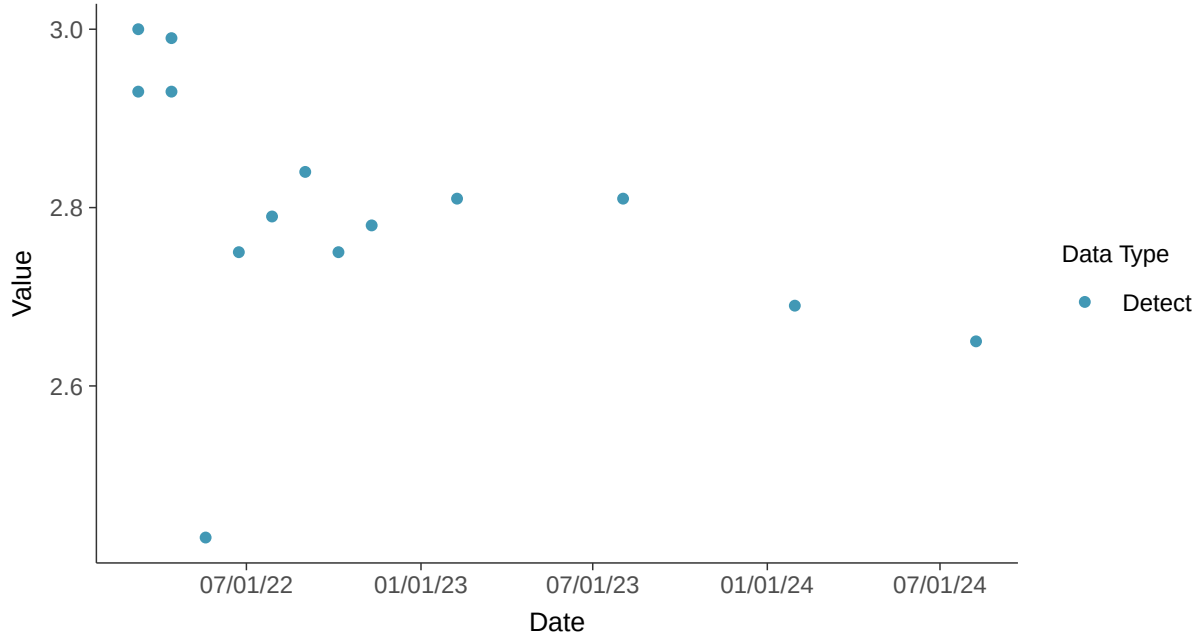


Other: Magnesium, MW-7B

ID: 7B_4_34

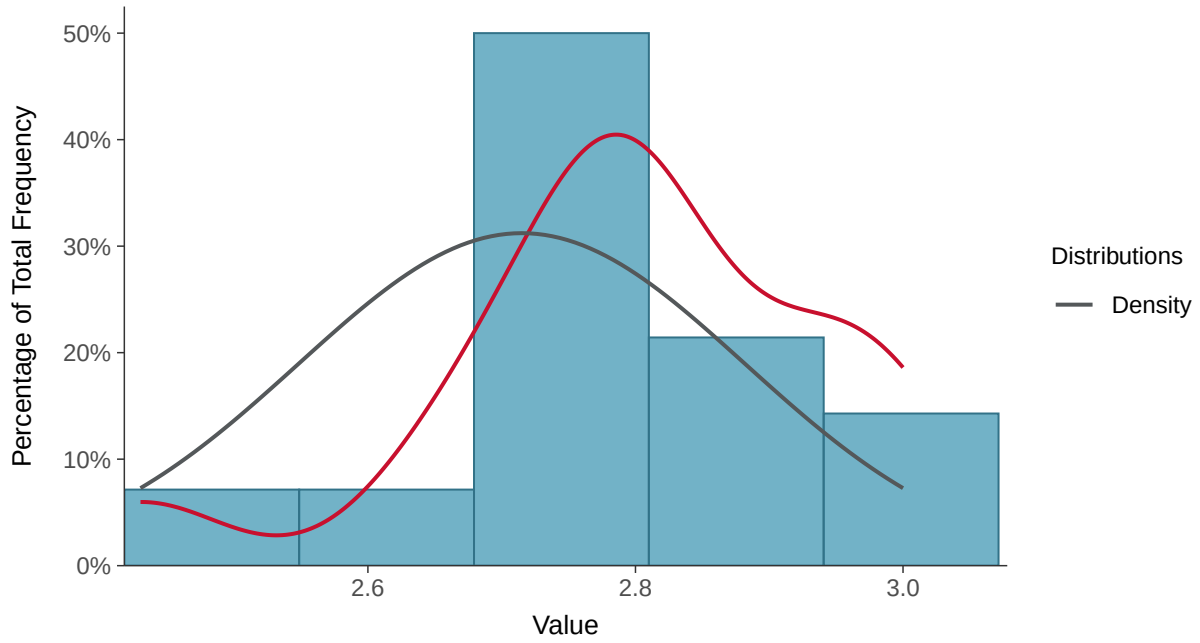
Scatter Plot

Magnesium, MW-7B (mg/L)



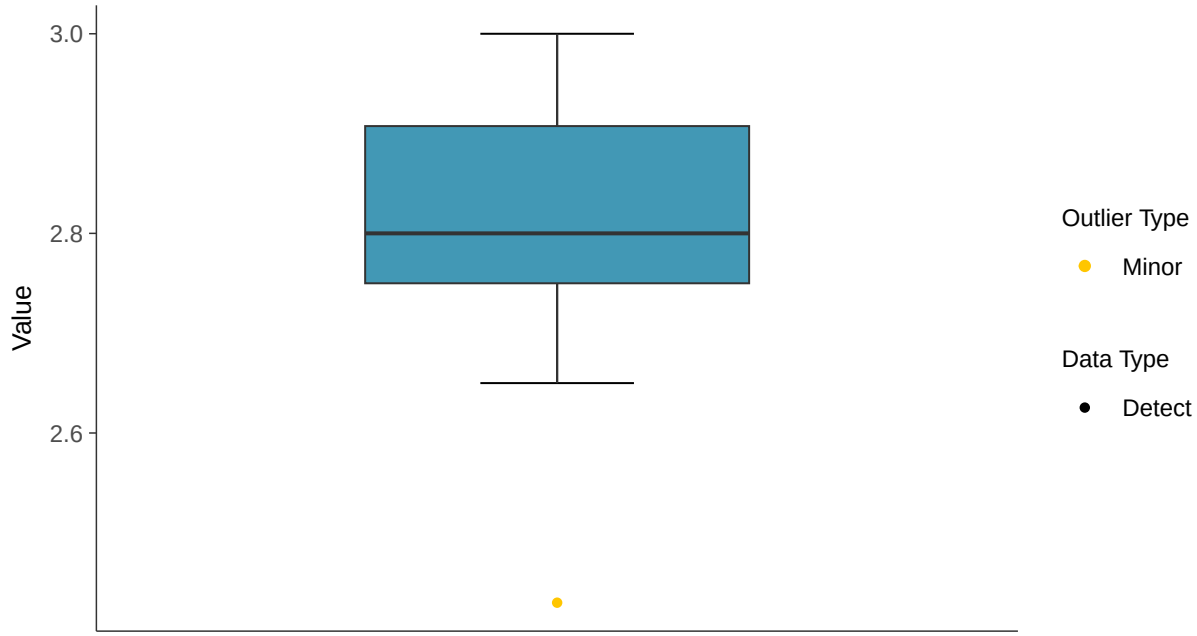
Histogram

Magnesium, MW-7B (mg/L)



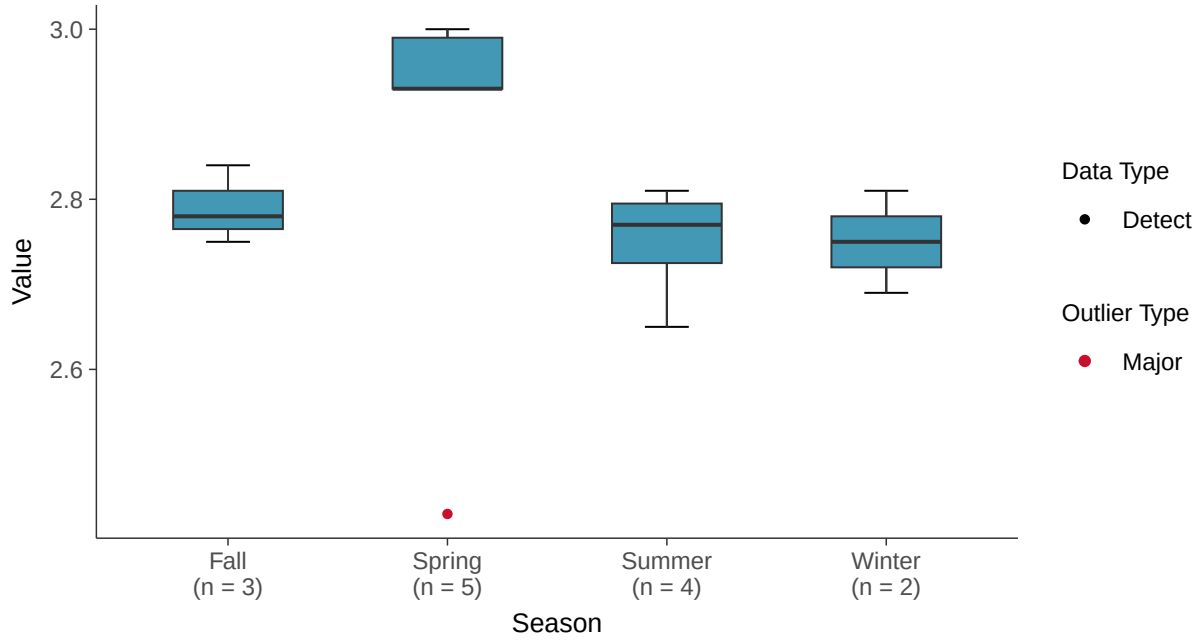
Boxplot

Magnesium, MW-7B (mg/L)



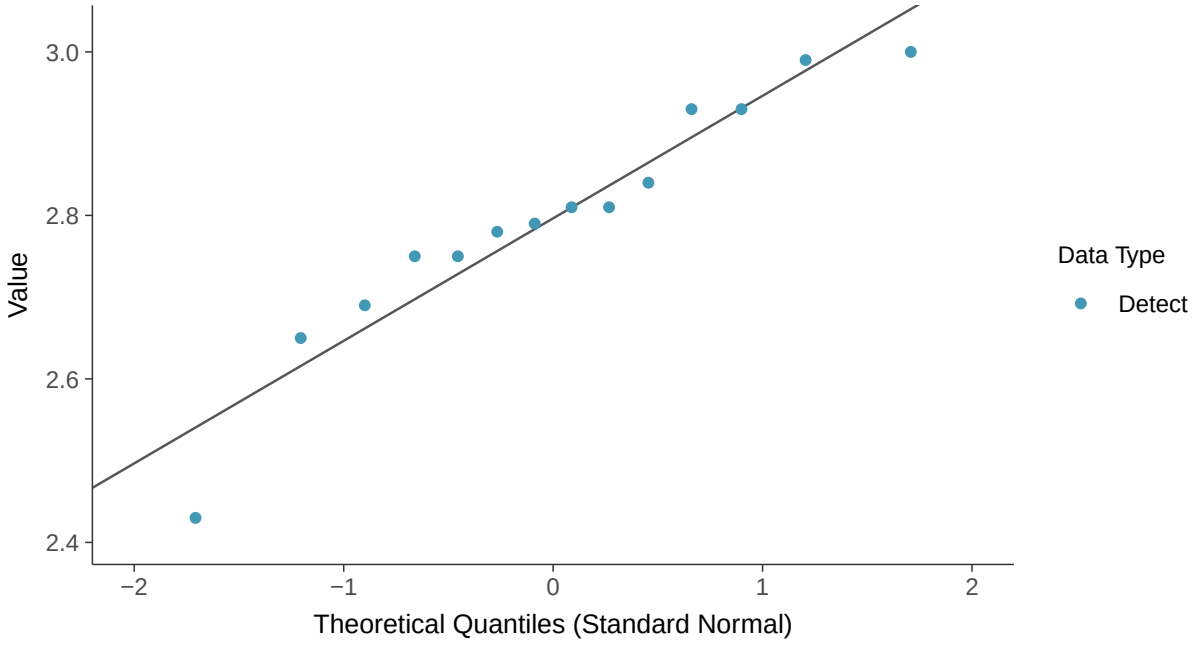
Boxplot by Season

Magnesium, MW-7B (mg/L)



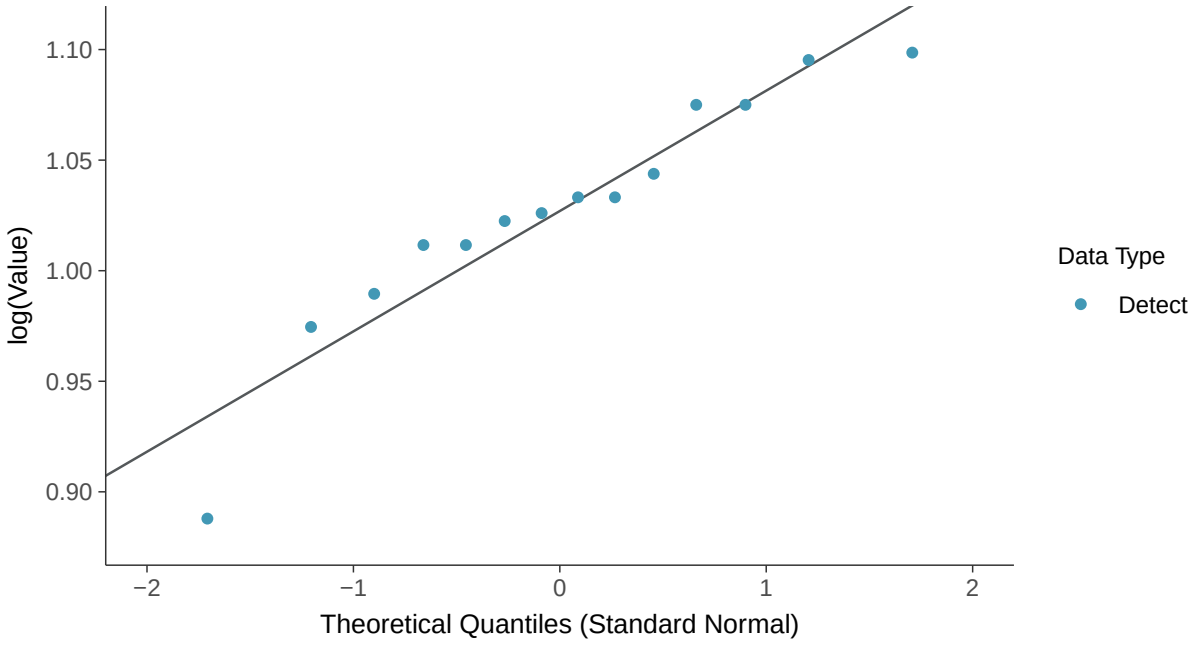
Normal Q-Q plot

Magnesium, MW-7B (mg/L)



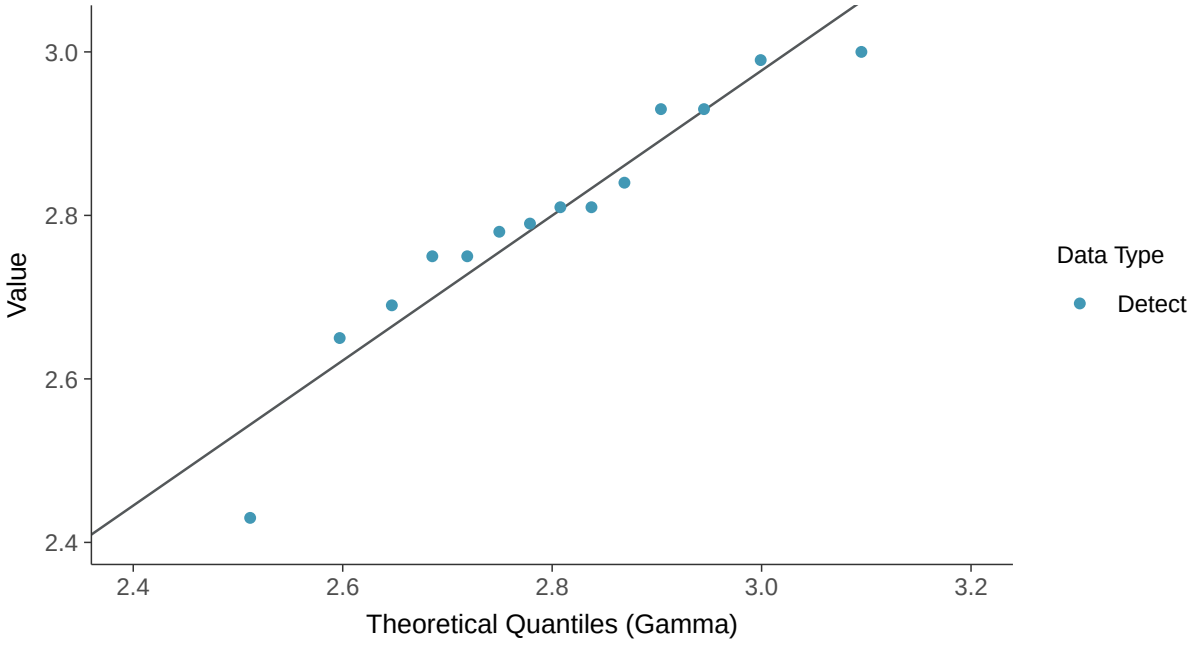
Lognormal Q-Q plot

Magnesium, MW-7B (mg/L)



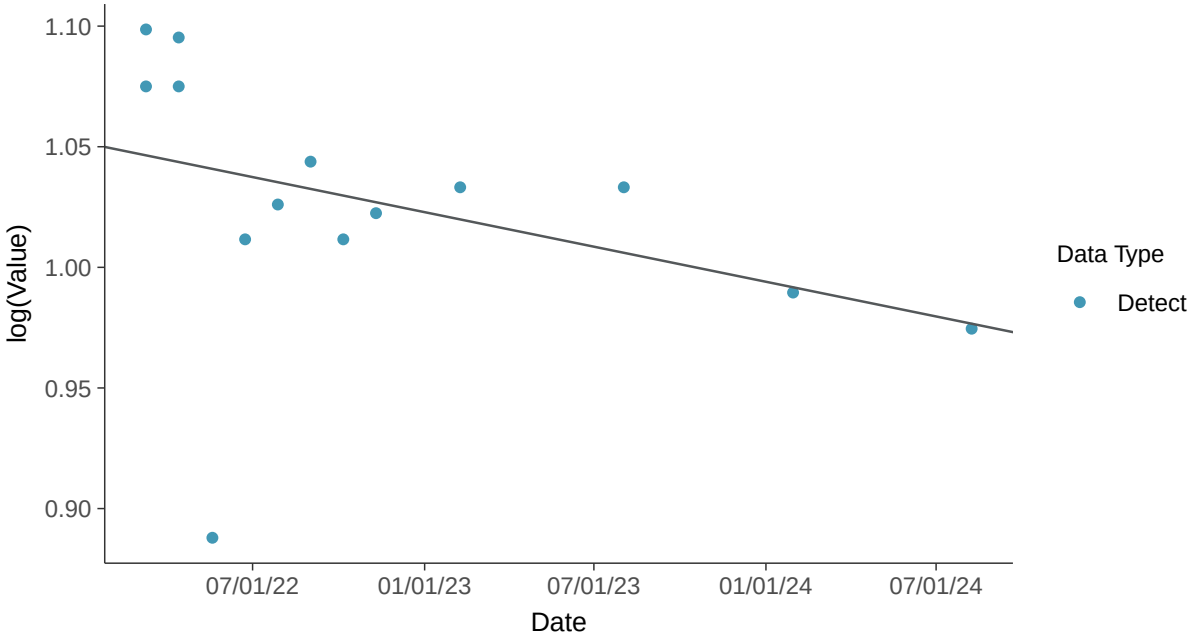
Gamma Q-Q plot

Magnesium, MW-7B (mg/L)



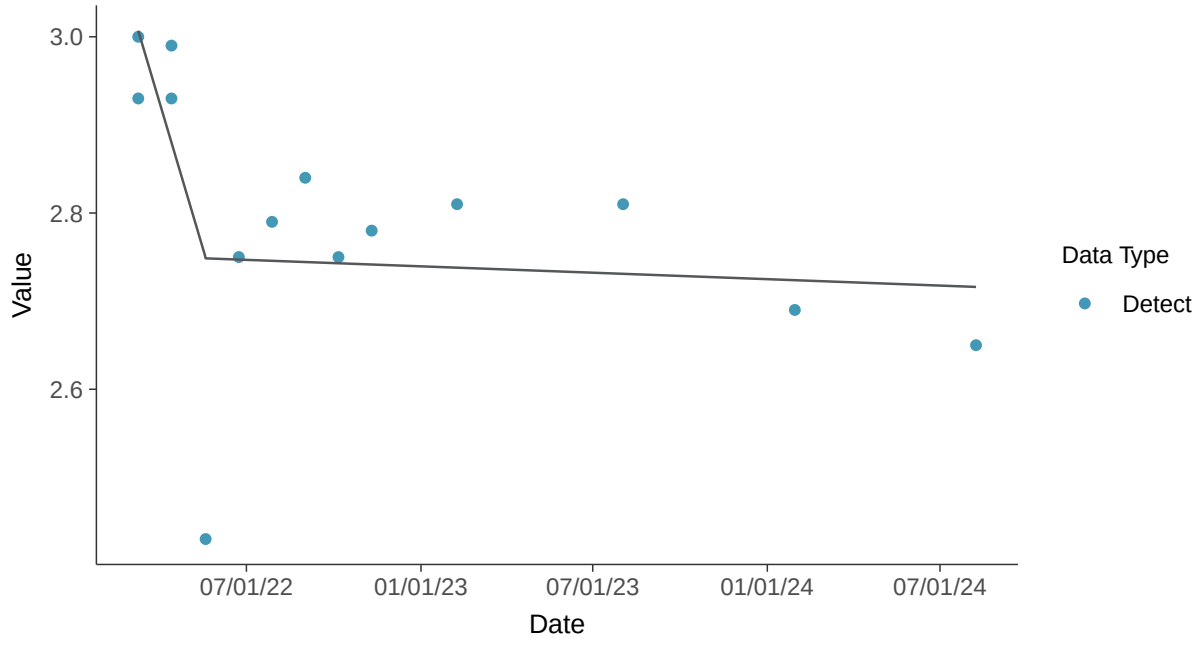
Trend Regression: Lognormal MLE

Magnesium, MW-7B (mg/L)



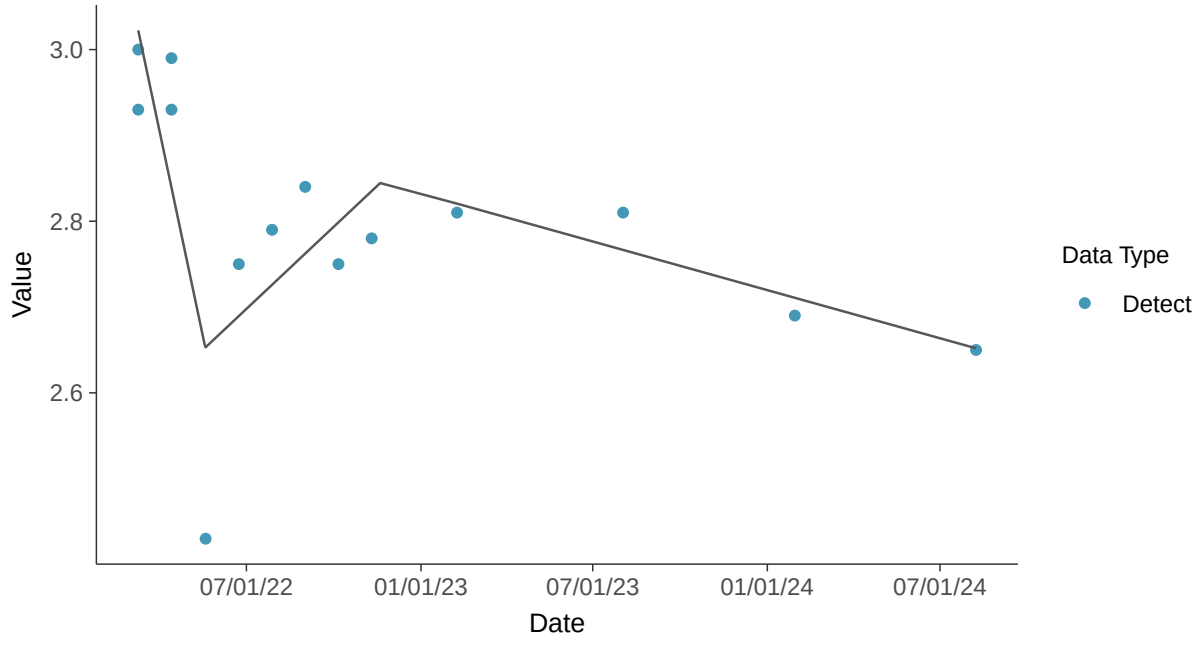
Trend Regression: Piecewise Linear-Linear

Magnesium, MW-7B (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Magnesium, MW-7B (mg/L)

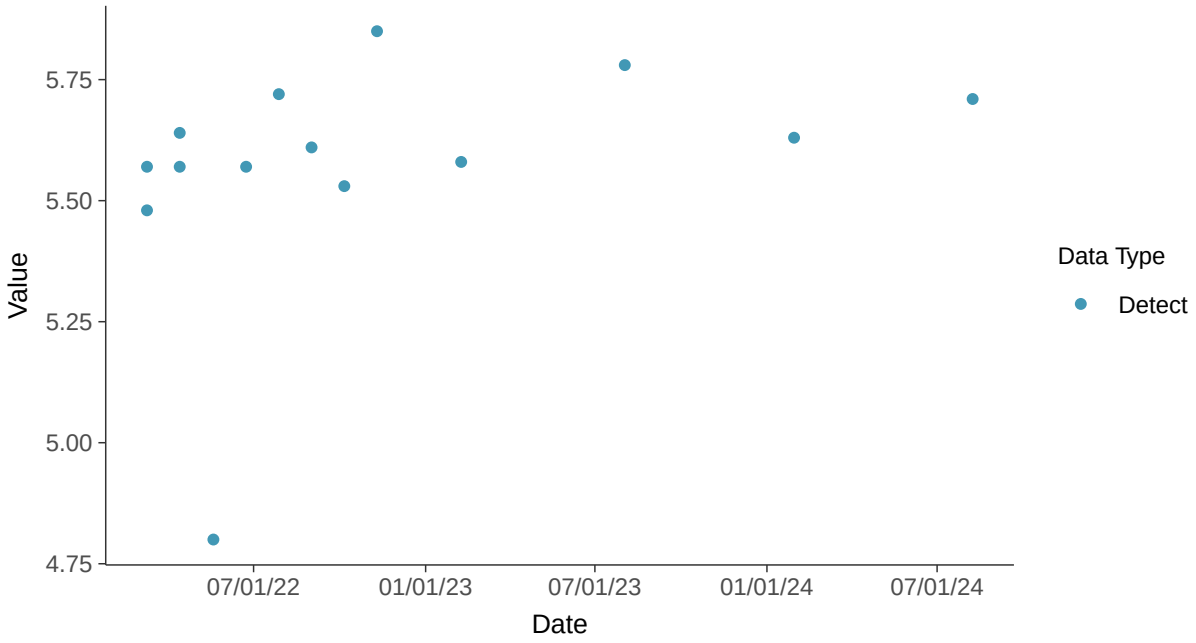


Other: Potassium, MW-7B

ID: 7B_4_35

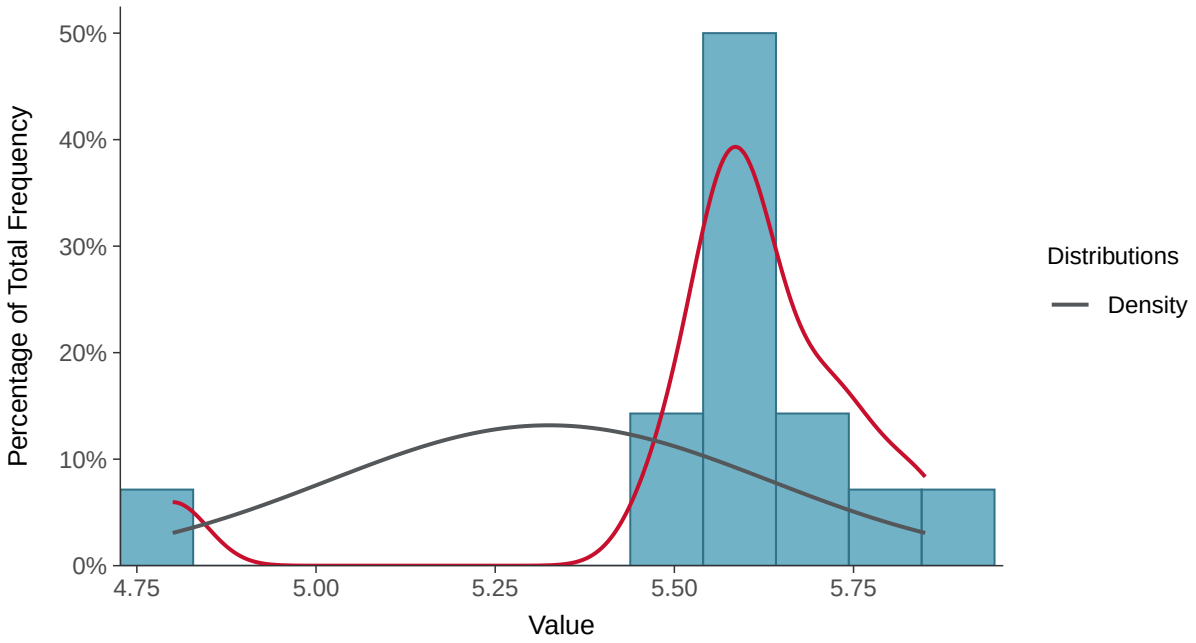
Scatter Plot

Potassium, MW-7B (mg/L)



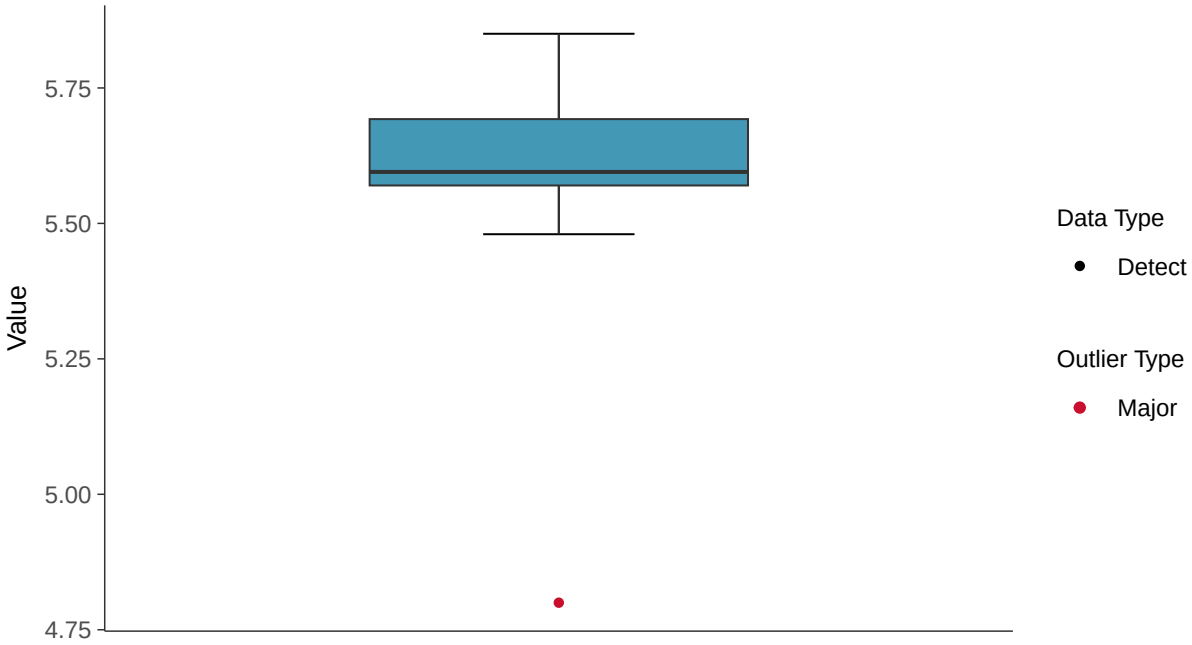
Histogram

Potassium, MW-7B (mg/L)



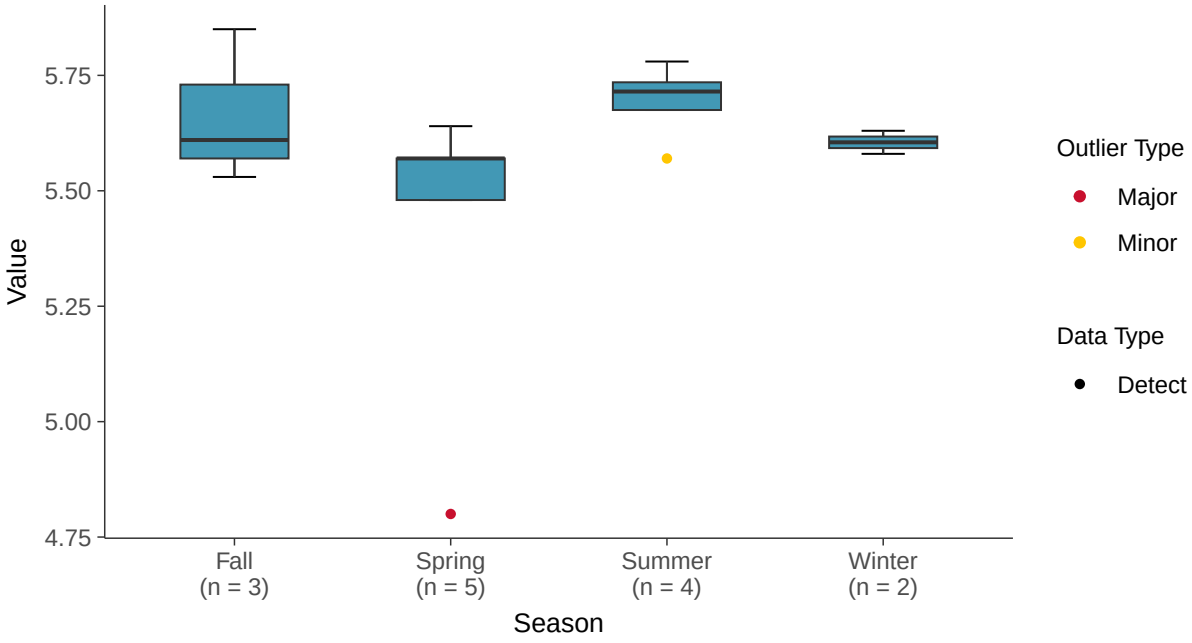
Boxplot

Potassium, MW-7B (mg/L)



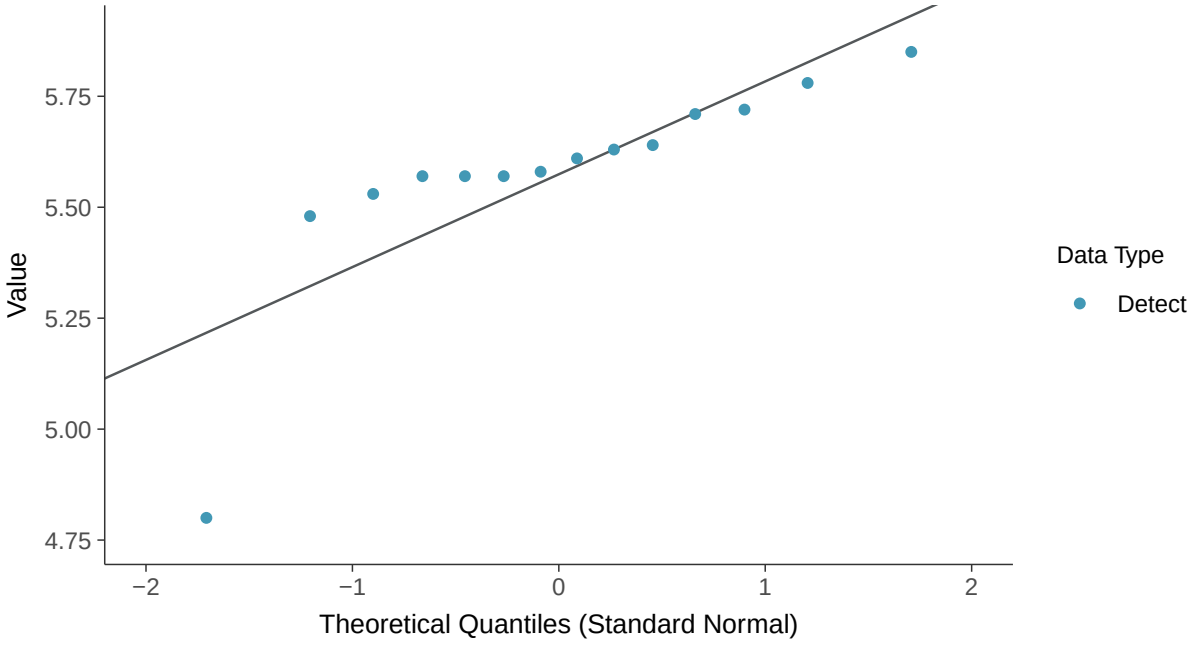
Boxplot by Season

Potassium, MW-7B (mg/L)



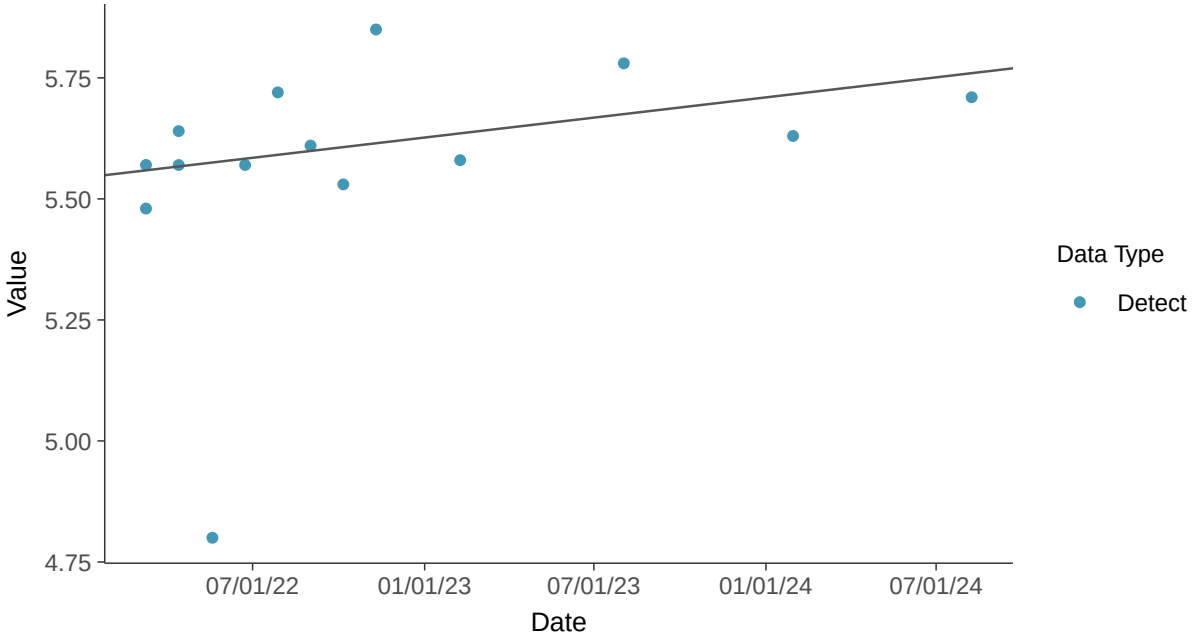
Normal Q-Q plot

Potassium, MW-7B (mg/L)



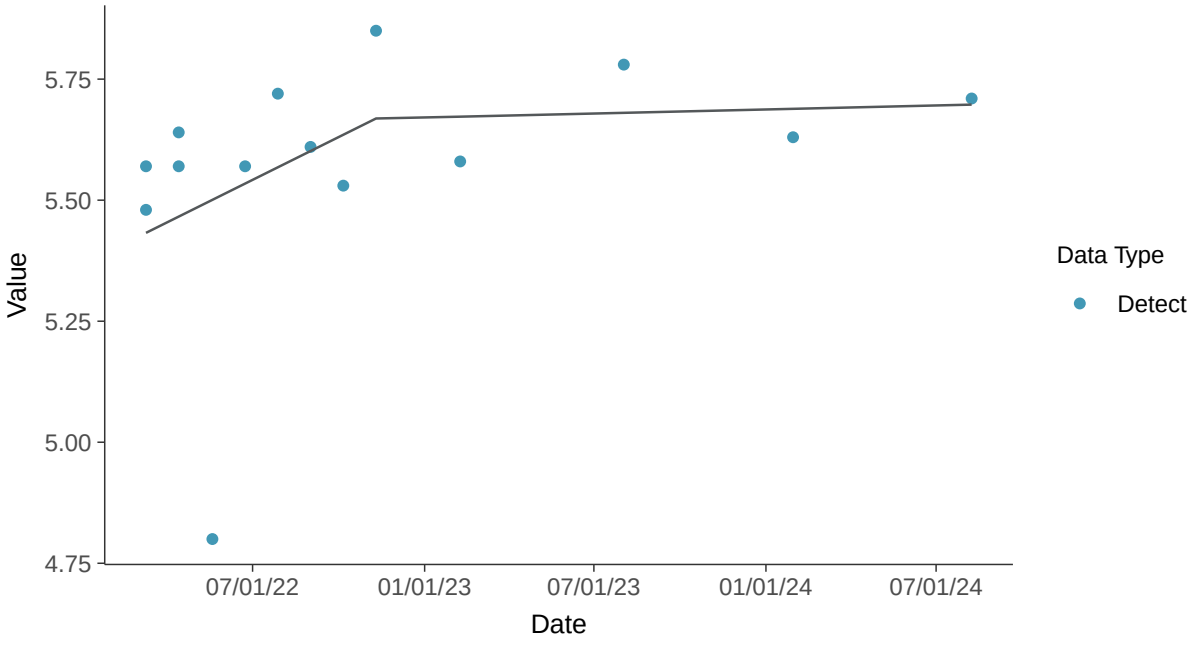
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Potassium, MW-7B (mg/L)



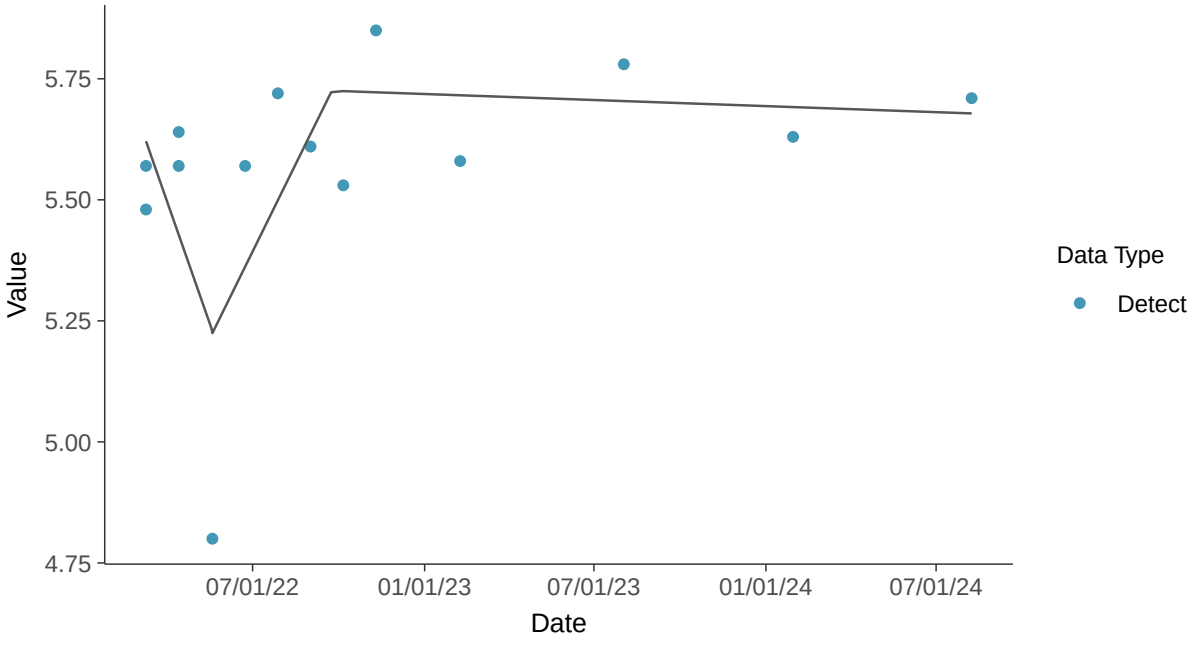
Trend Regression: Piecewise Linear-Linear

Potassium, MW-7B (mg/L)



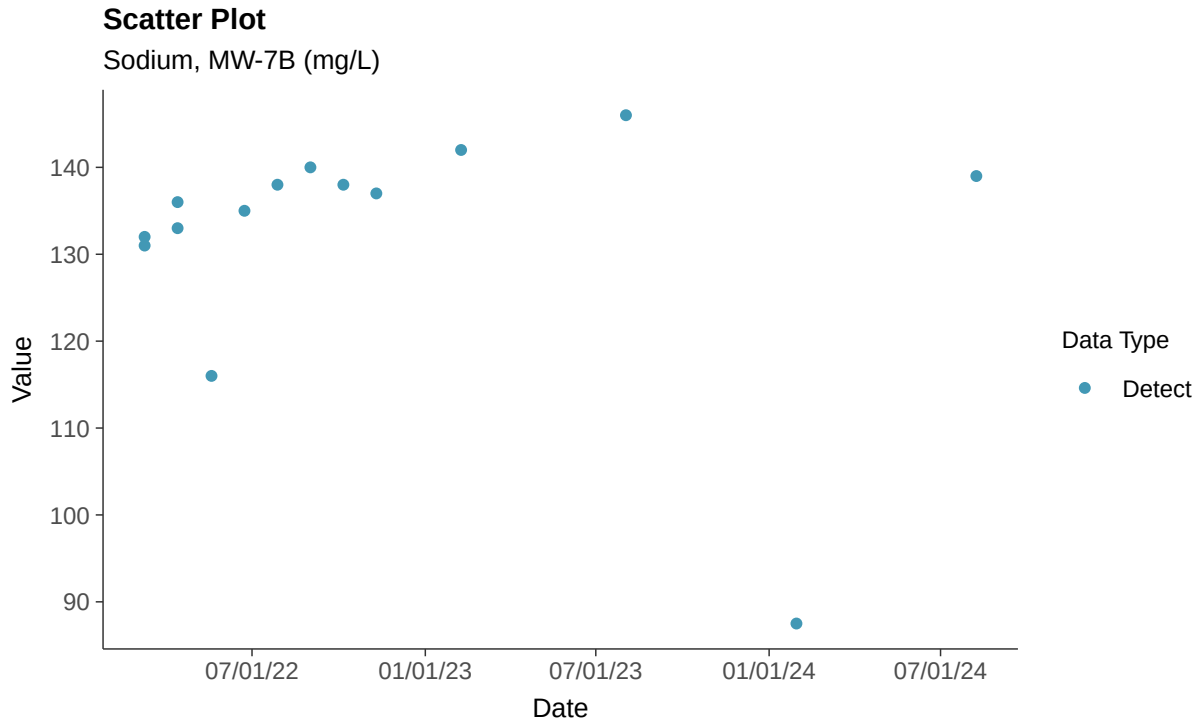
Trend Regression: Piecewise Linear-Linear-Linear

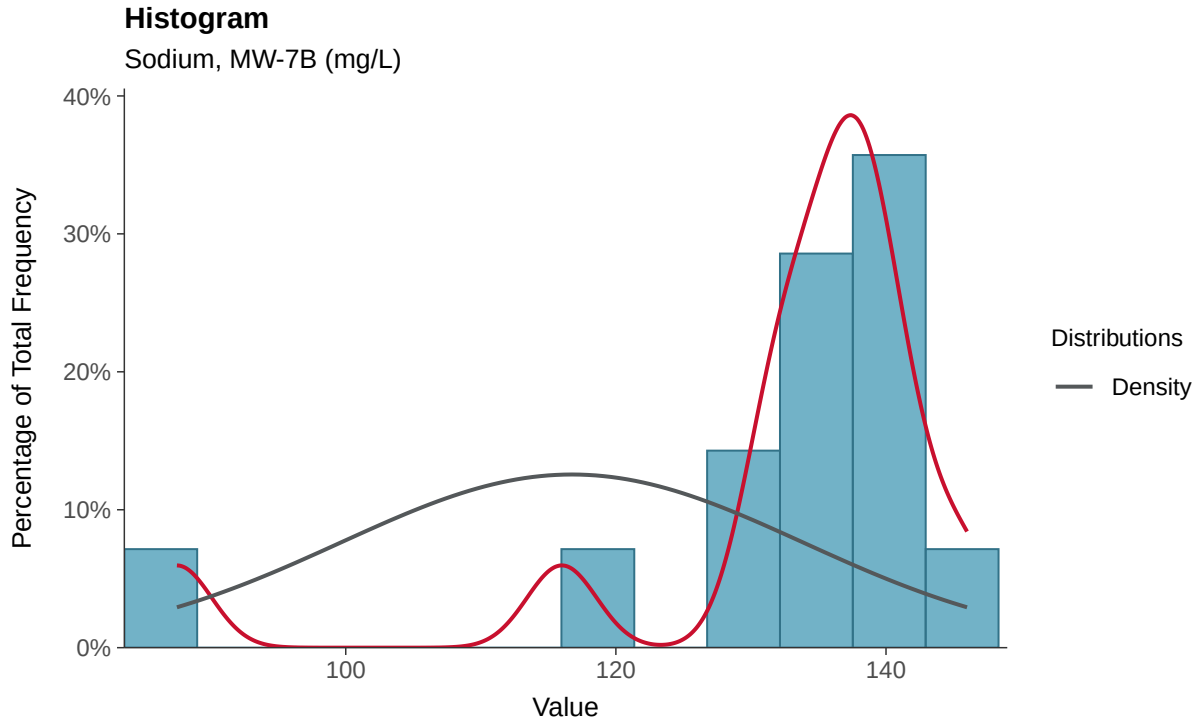
Potassium, MW-7B (mg/L)



Other: Sodium, MW-7B

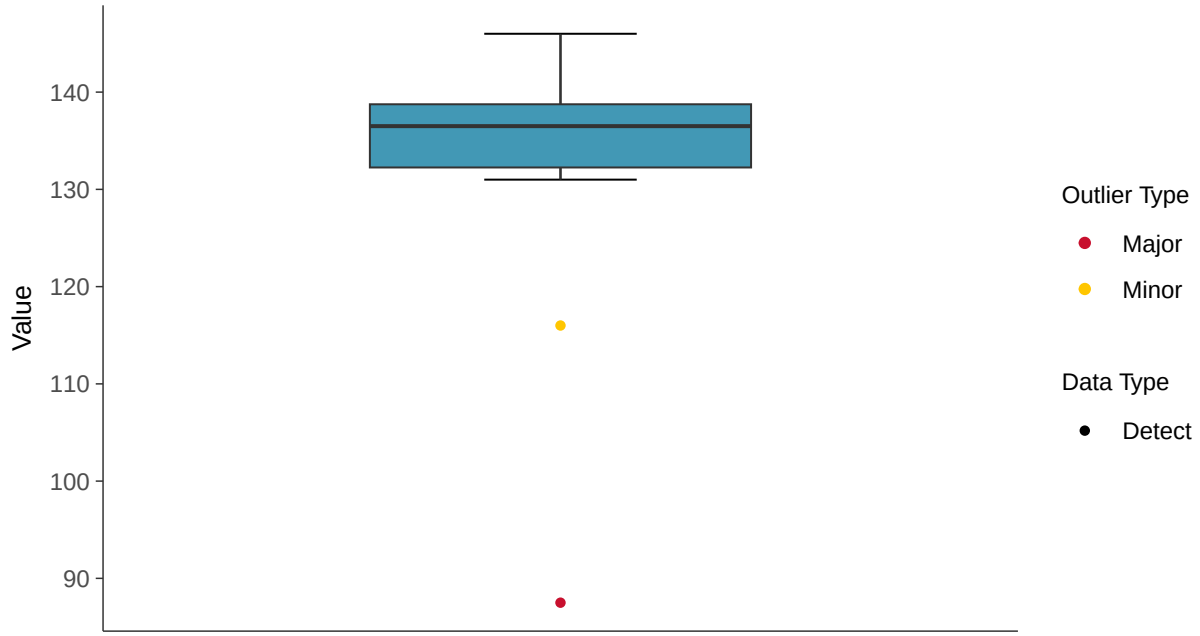
ID: 7B_4_36





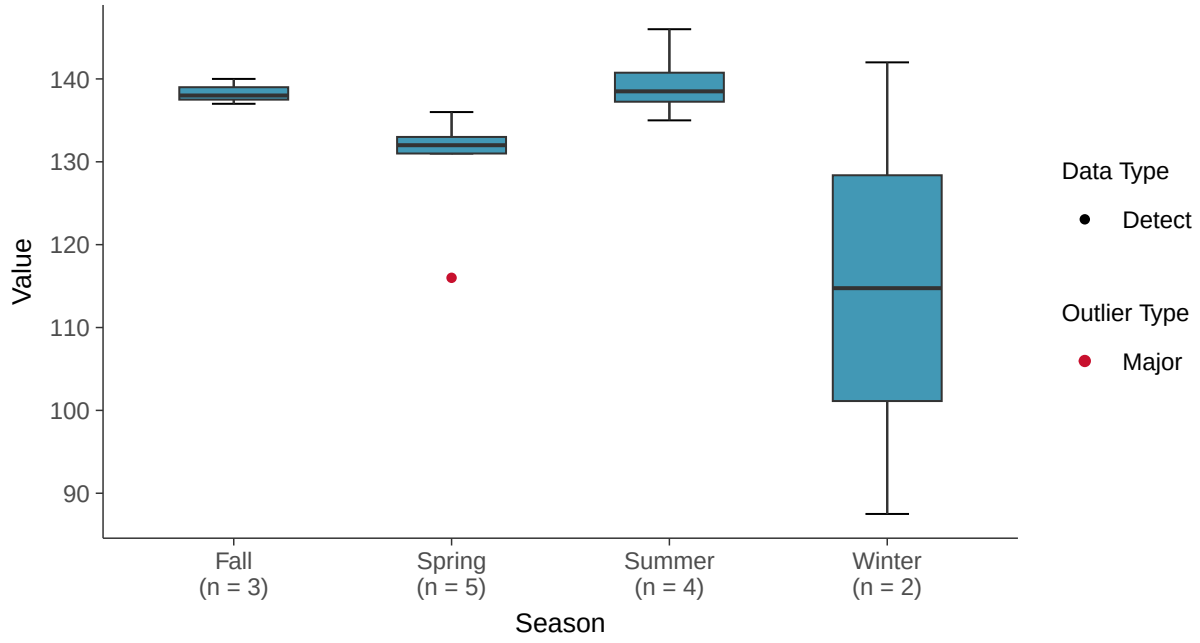
Boxplot

Sodium, MW-7B (mg/L)



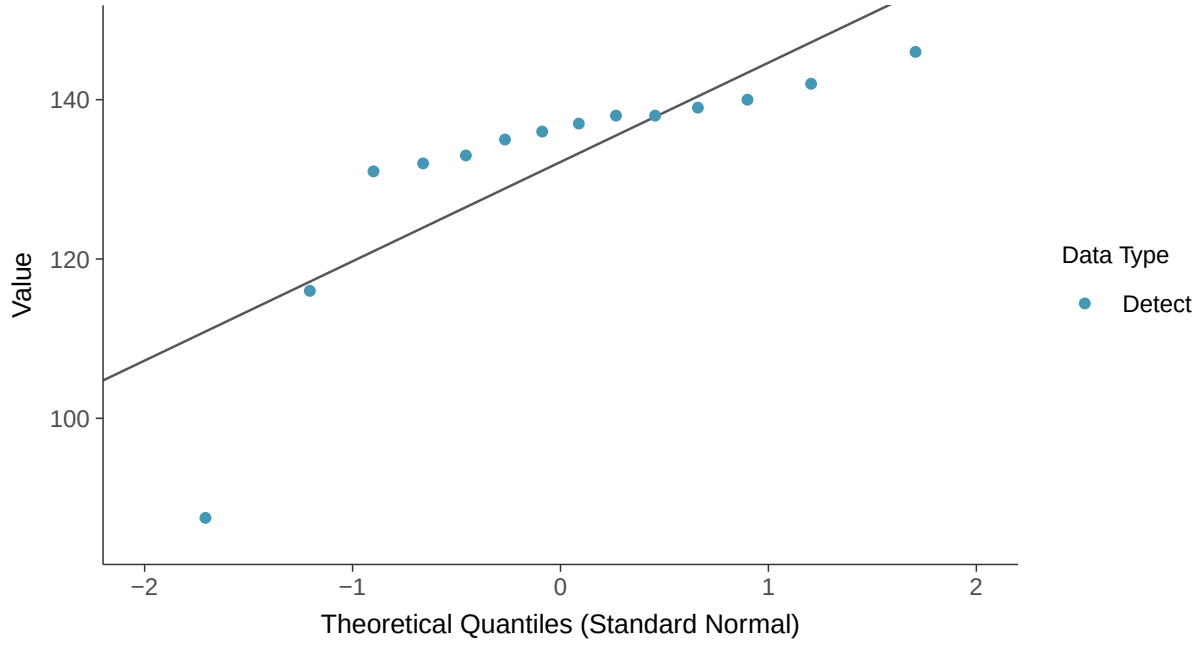
Boxplot by Season

Sodium, MW-7B (mg/L)



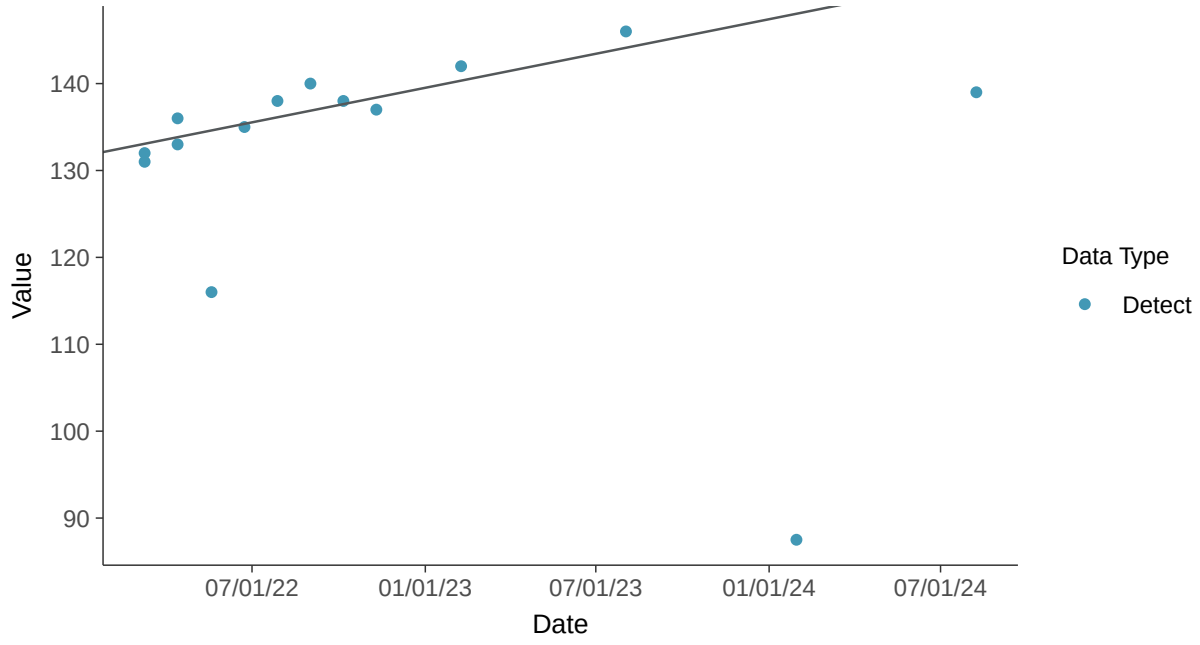
Normal Q-Q plot

Sodium, MW-7B (mg/L)



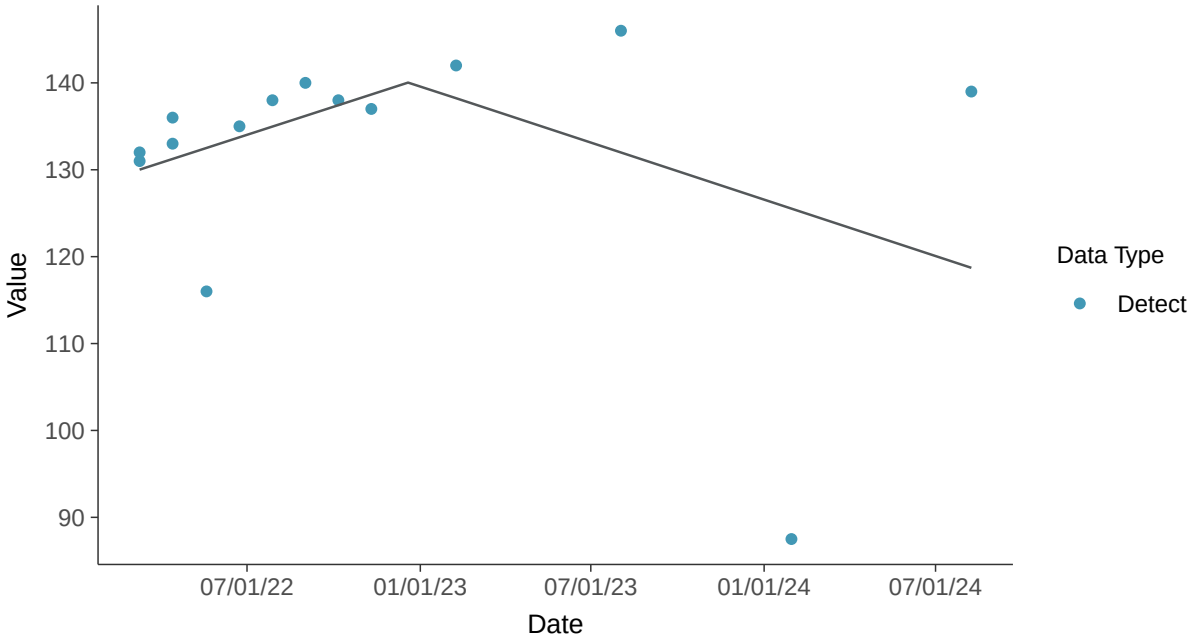
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Sodium, MW-7B (mg/L)



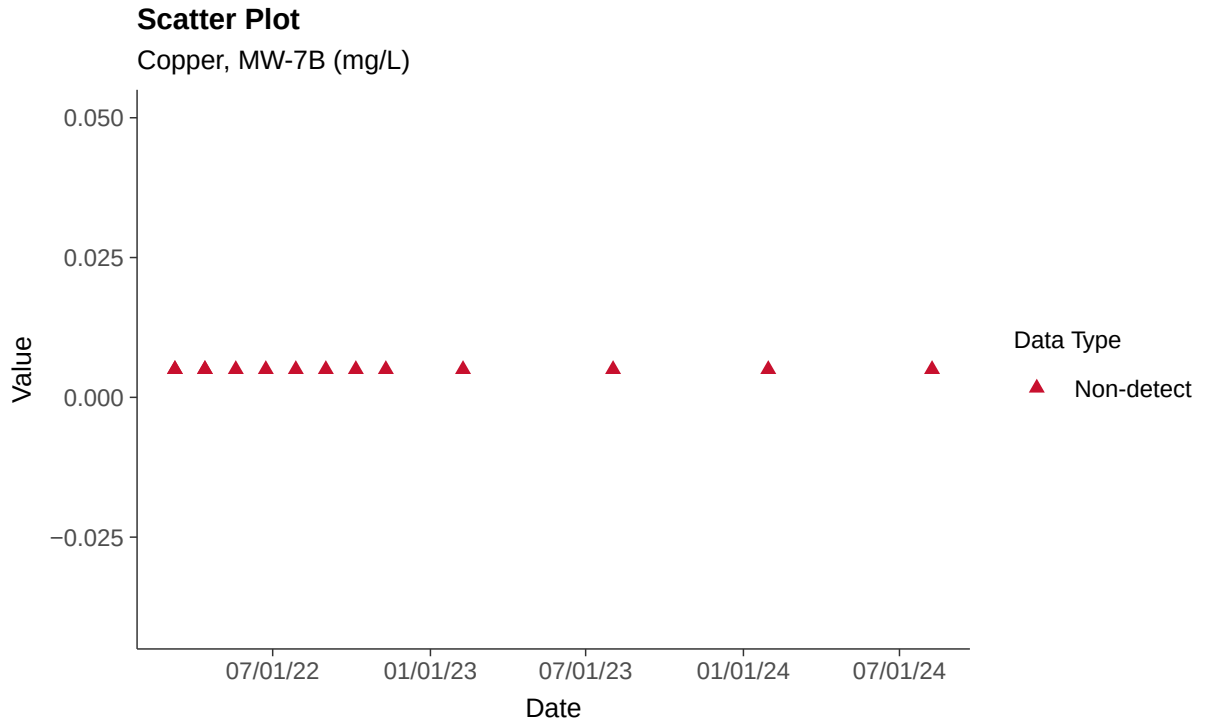
Trend Regression: Piecewise Linear-Linear

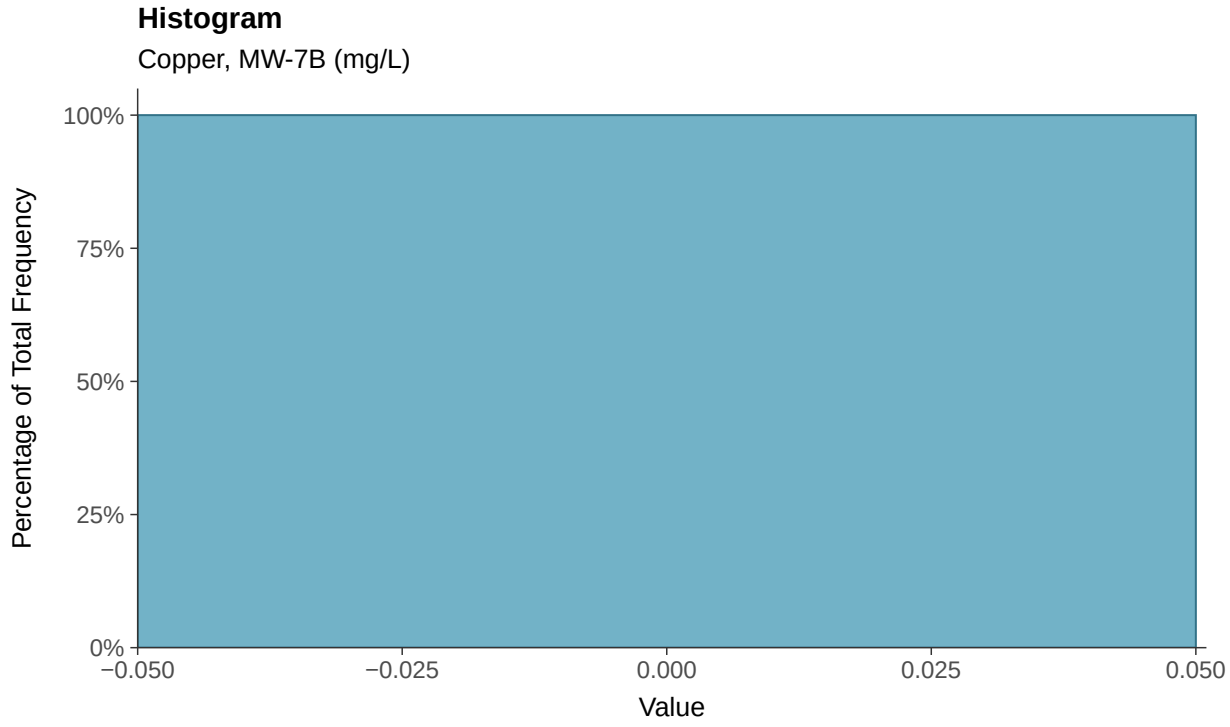
Sodium, MW-7B (mg/L)



Part 115: Copper, MW-7B

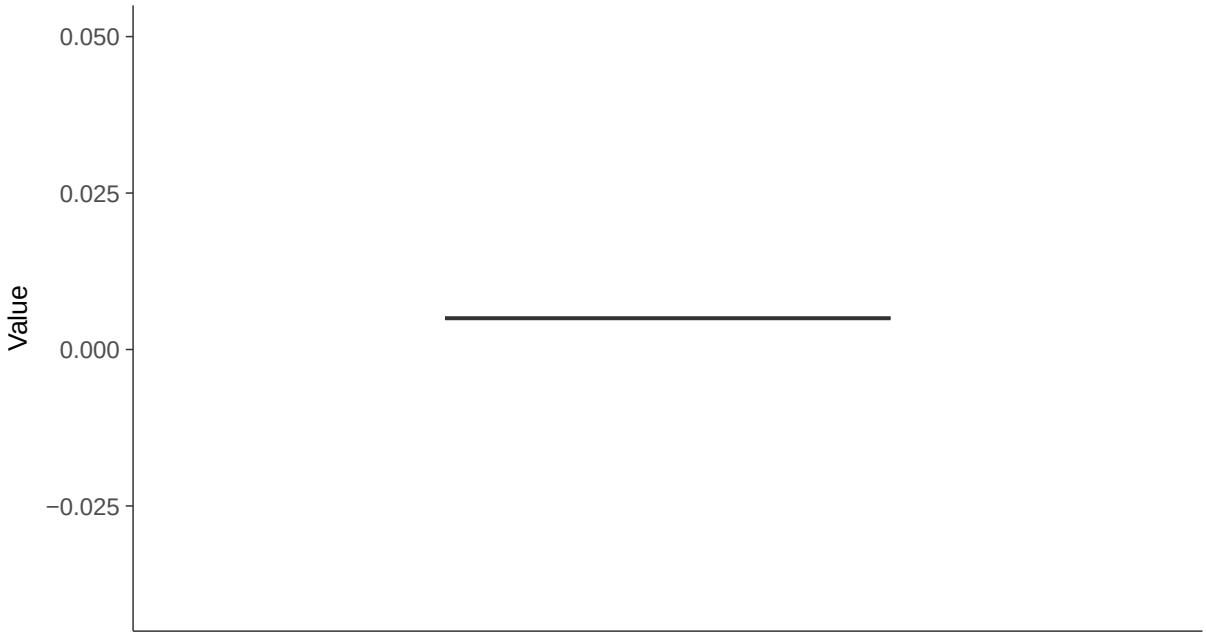
ID: 7B_5_37





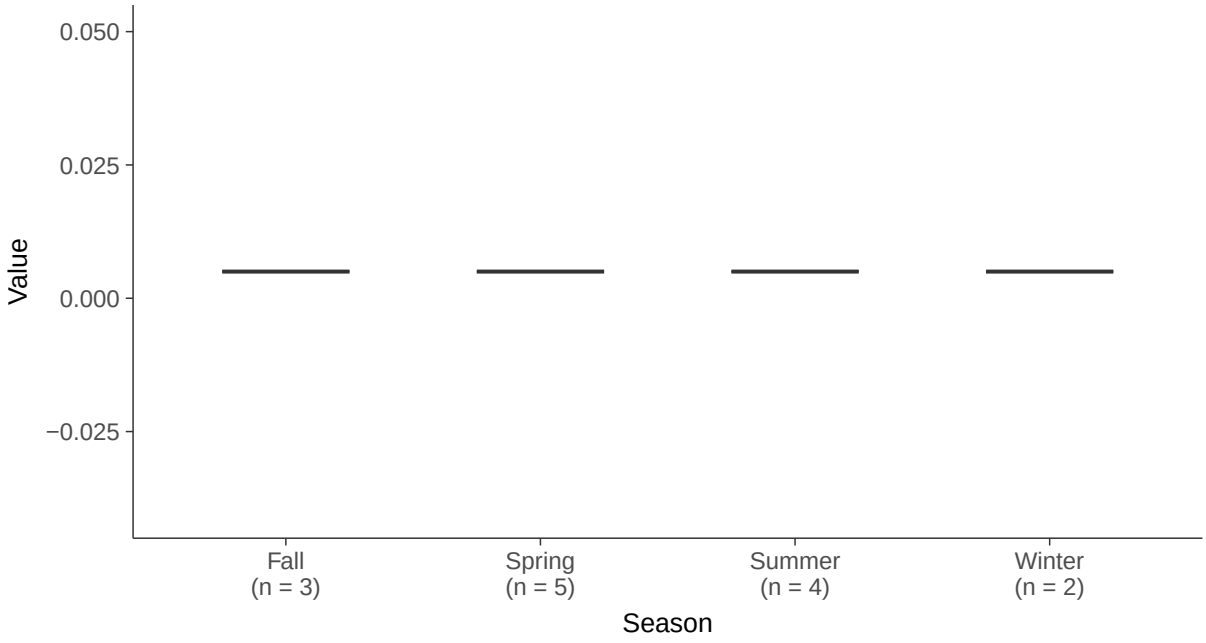
Boxplot

Copper, MW-7B (mg/L)



Boxplot by Season

Copper, MW-7B (mg/L)

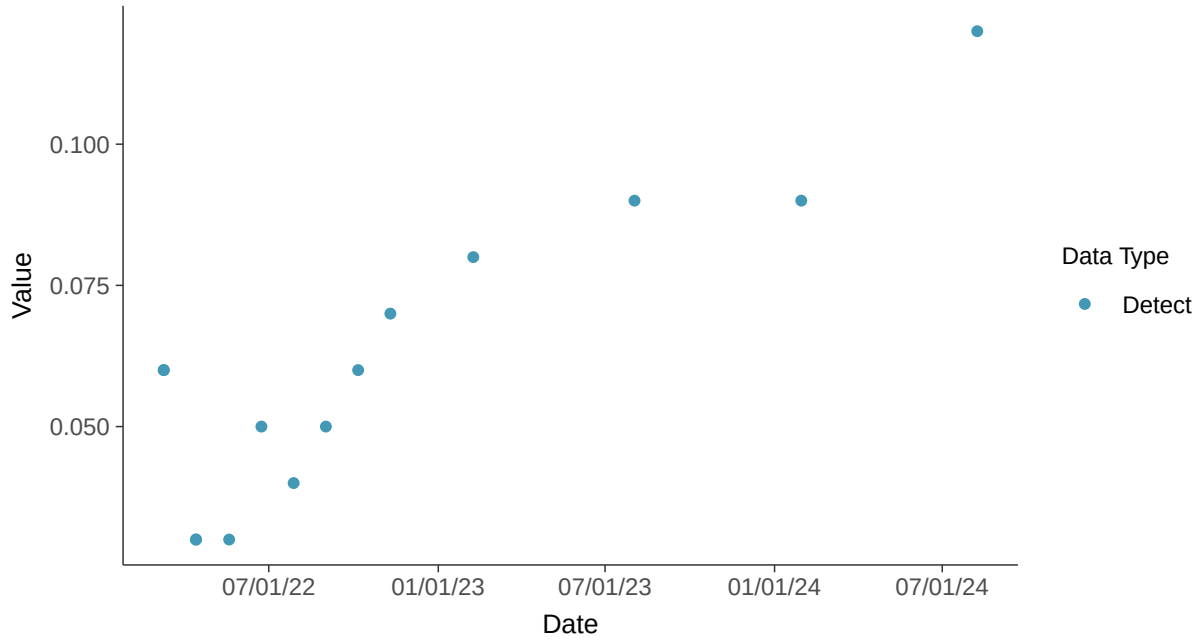


Part 115: Iron, MW-7B

ID: 7B_5_38

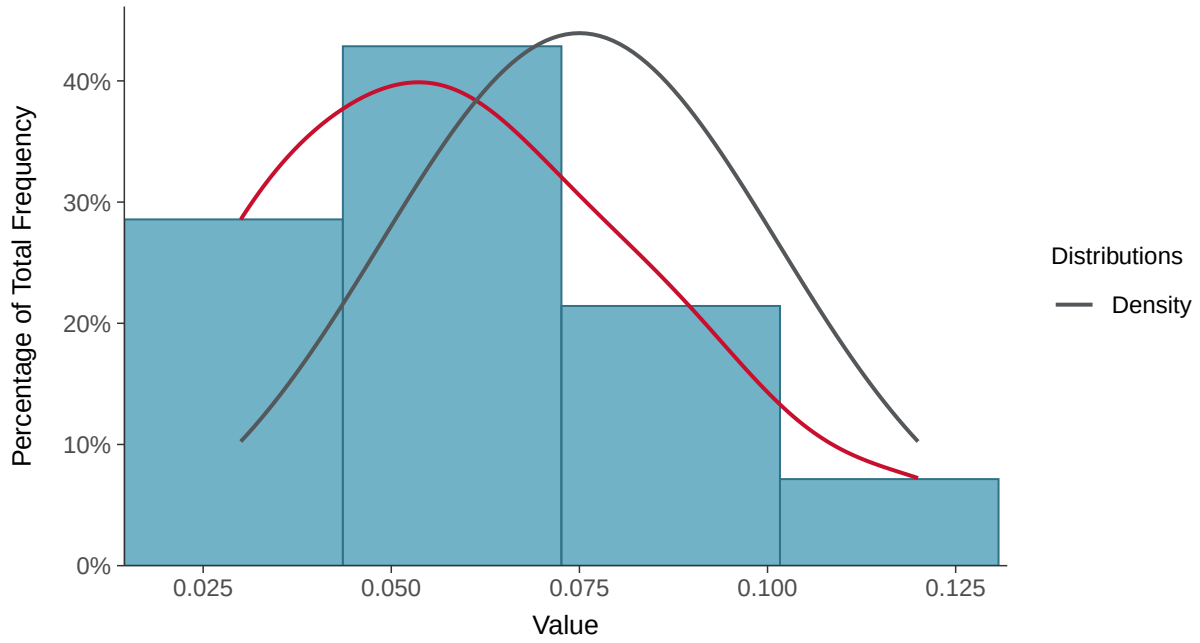
Scatter Plot

Iron, MW-7B (mg/L)



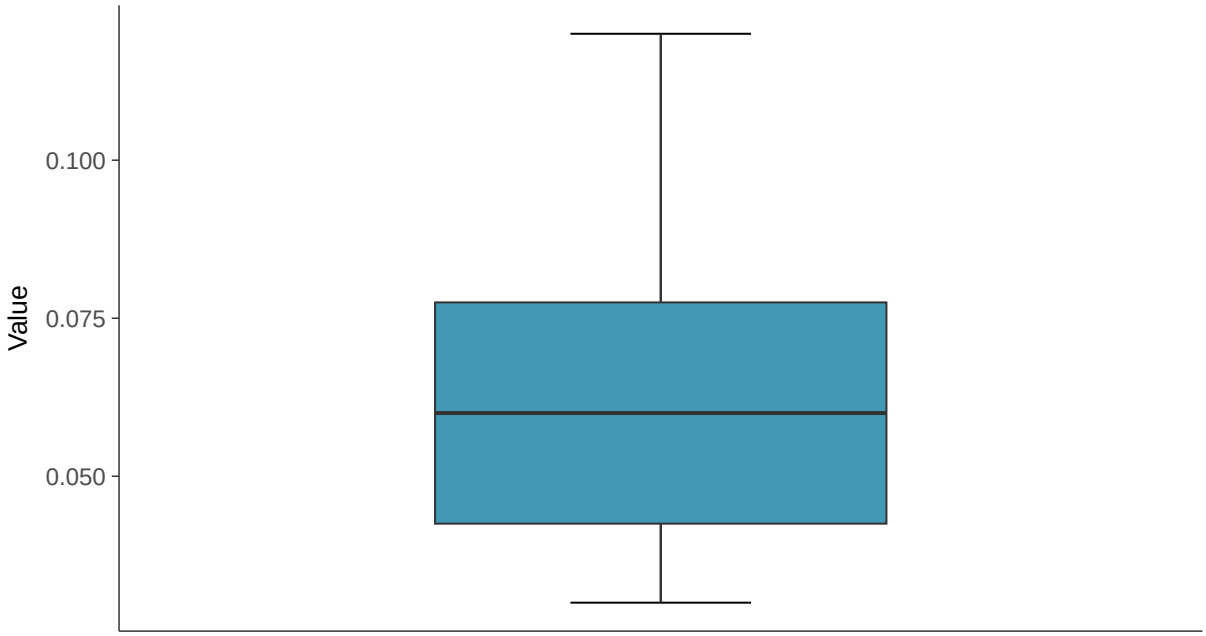
Histogram

Iron, MW-7B (mg/L)



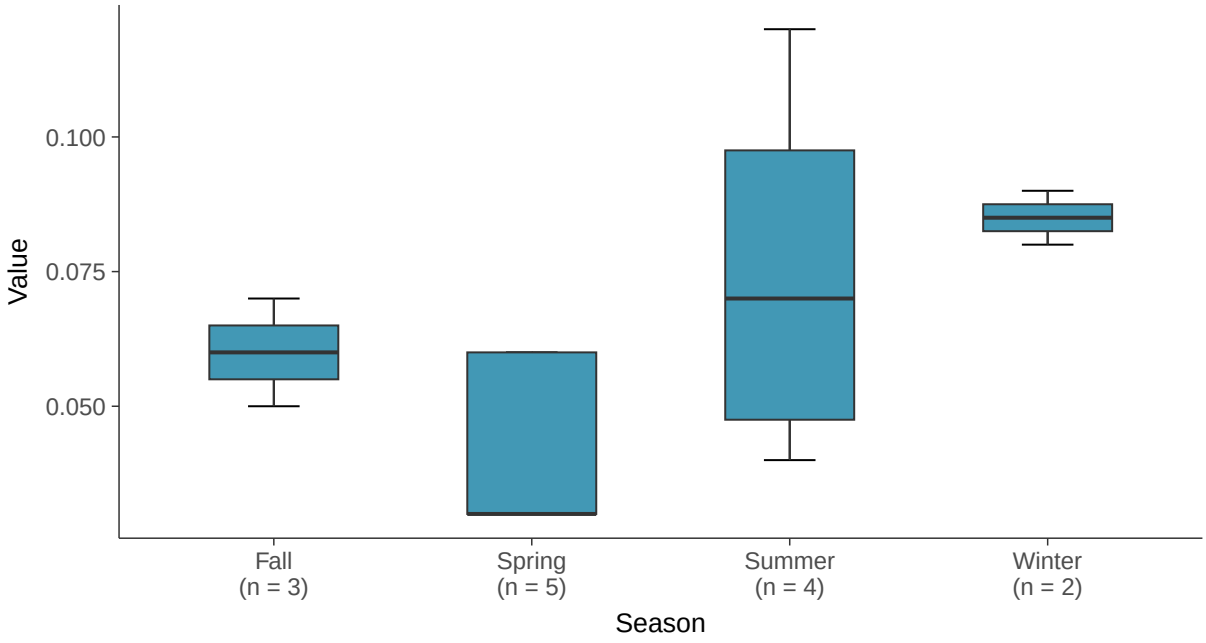
Boxplot

Iron, MW-7B (mg/L)



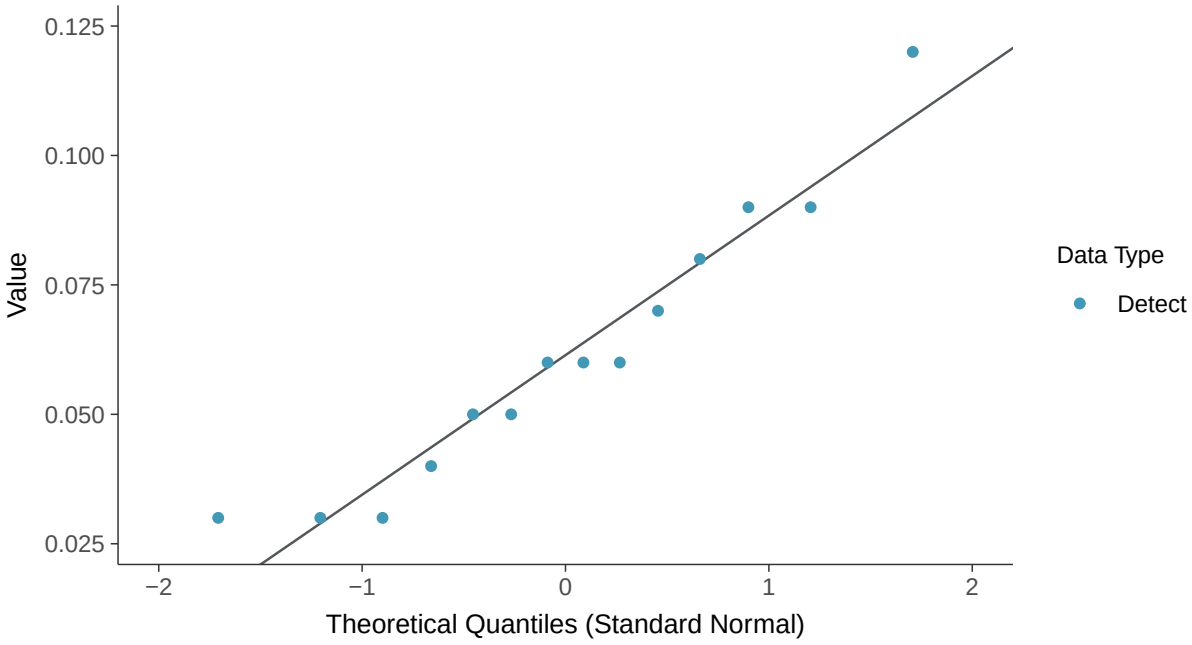
Boxplot by Season

Iron, MW-7B (mg/L)



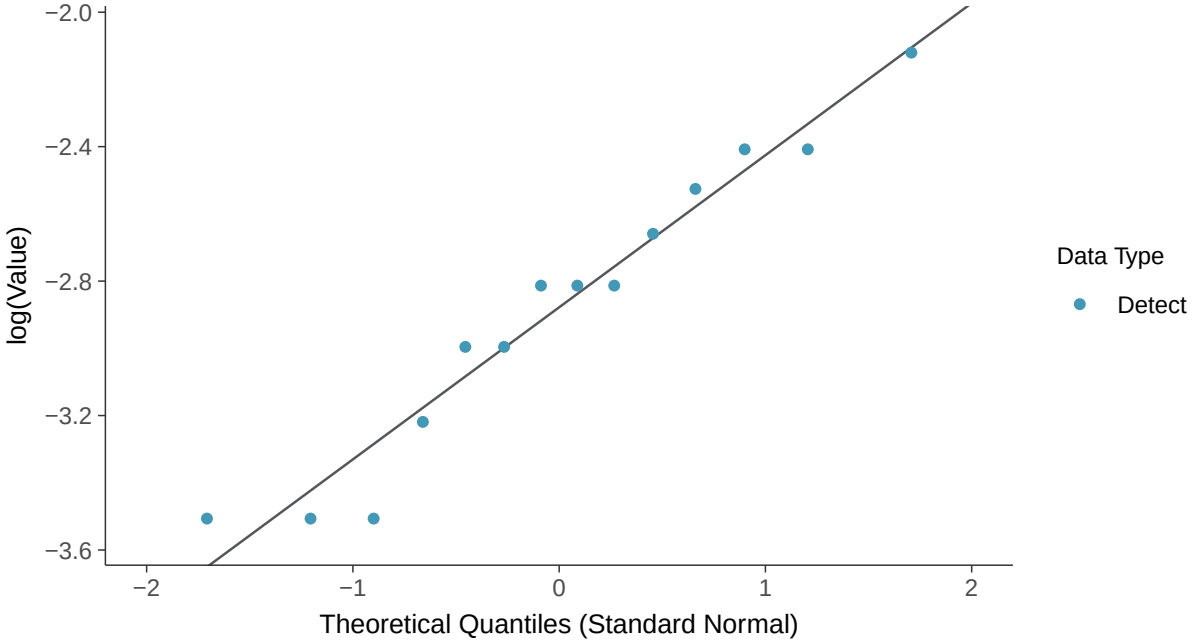
Normal Q-Q plot

Iron, MW-7B (mg/L)



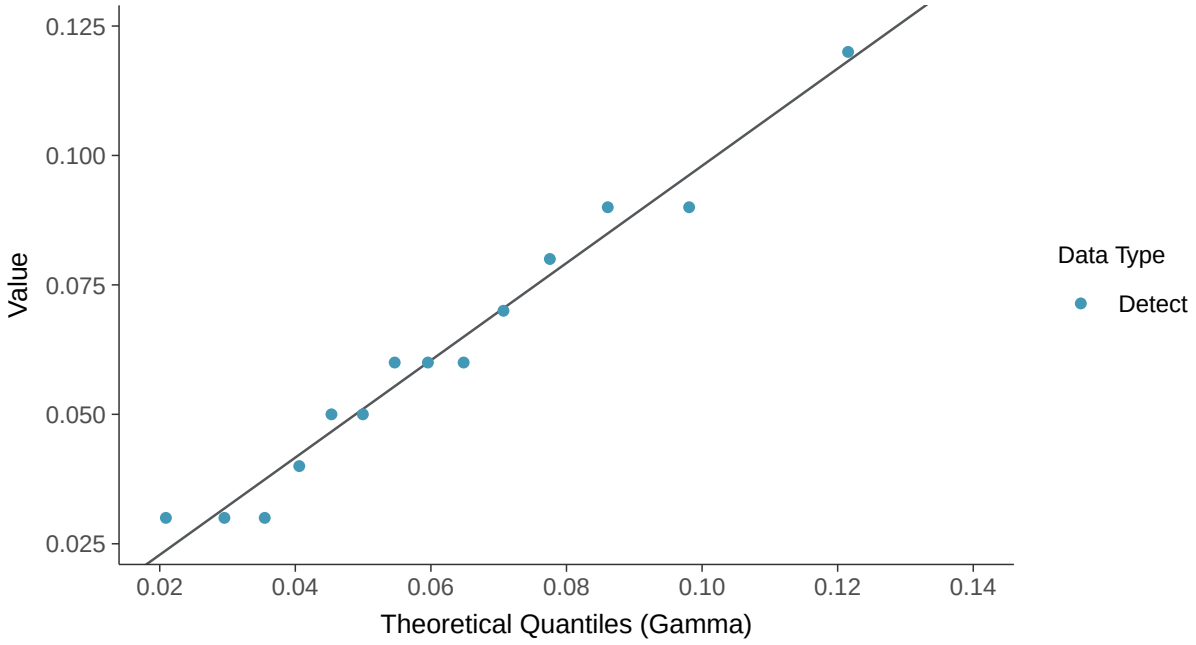
Lognormal Q-Q plot

Iron, MW-7B (mg/L)



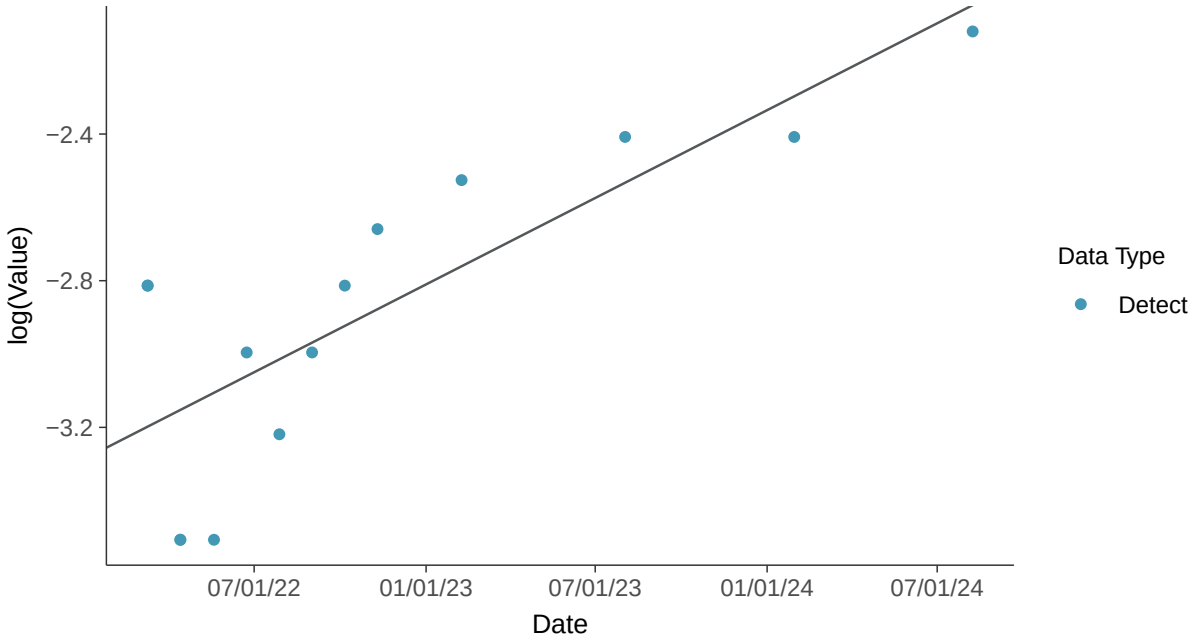
Gamma Q-Q plot

Iron, MW-7B (mg/L)



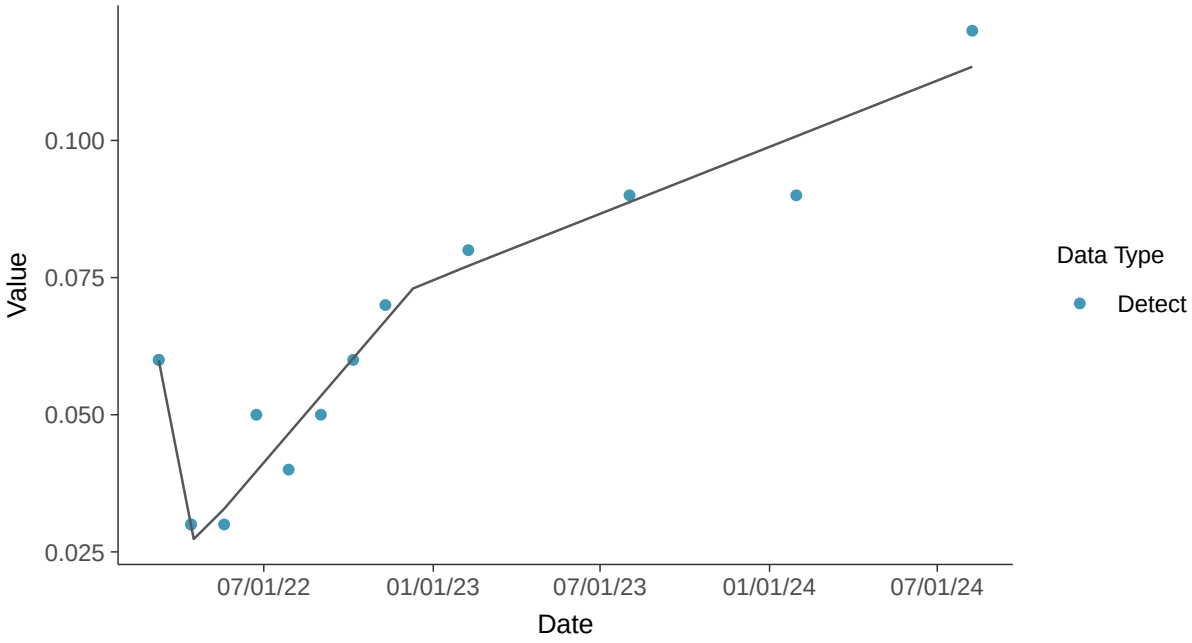
Trend Regression: Lognormal MLE

Iron, MW-7B (mg/L)



Trend Regression: Piecewise Linear-Linear-Linear

Iron, MW-7B (mg/L)

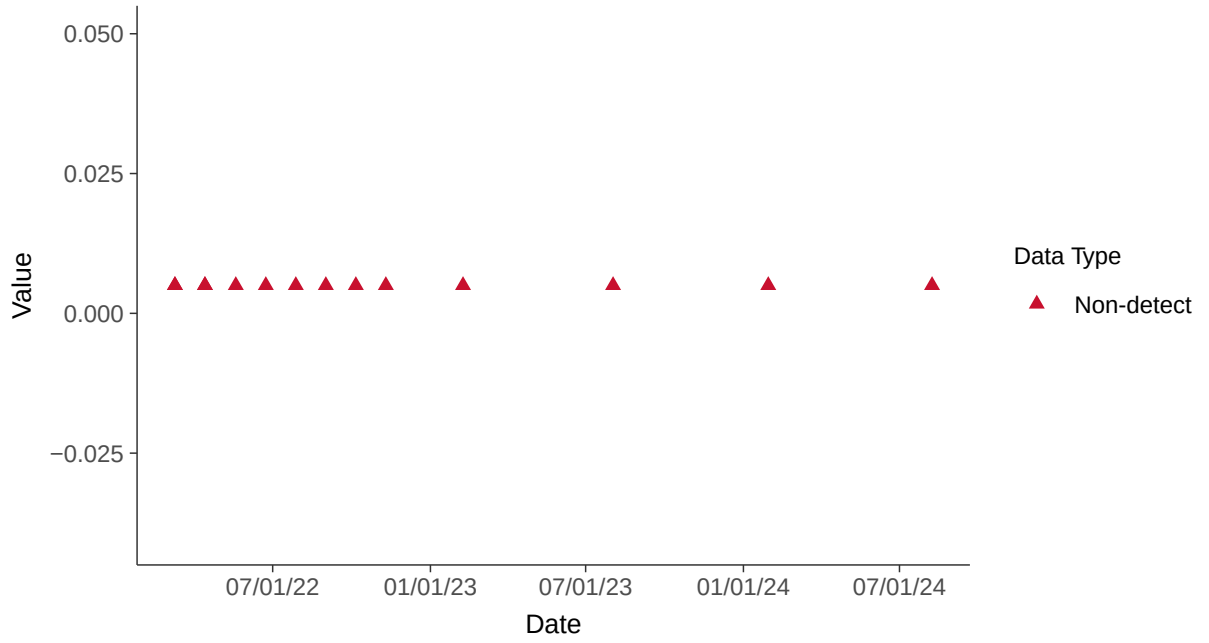


Part 115: Nickel, MW-7B

ID: 7B_5_39

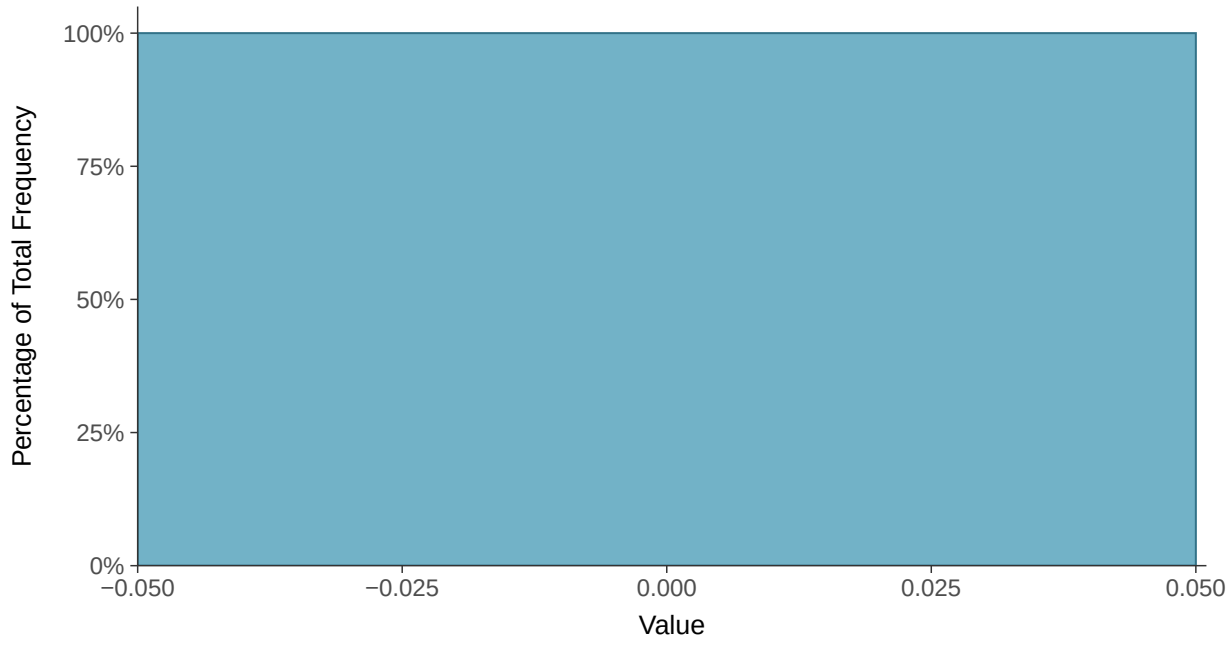
Scatter Plot

Nickel, MW-7B (mg/L)



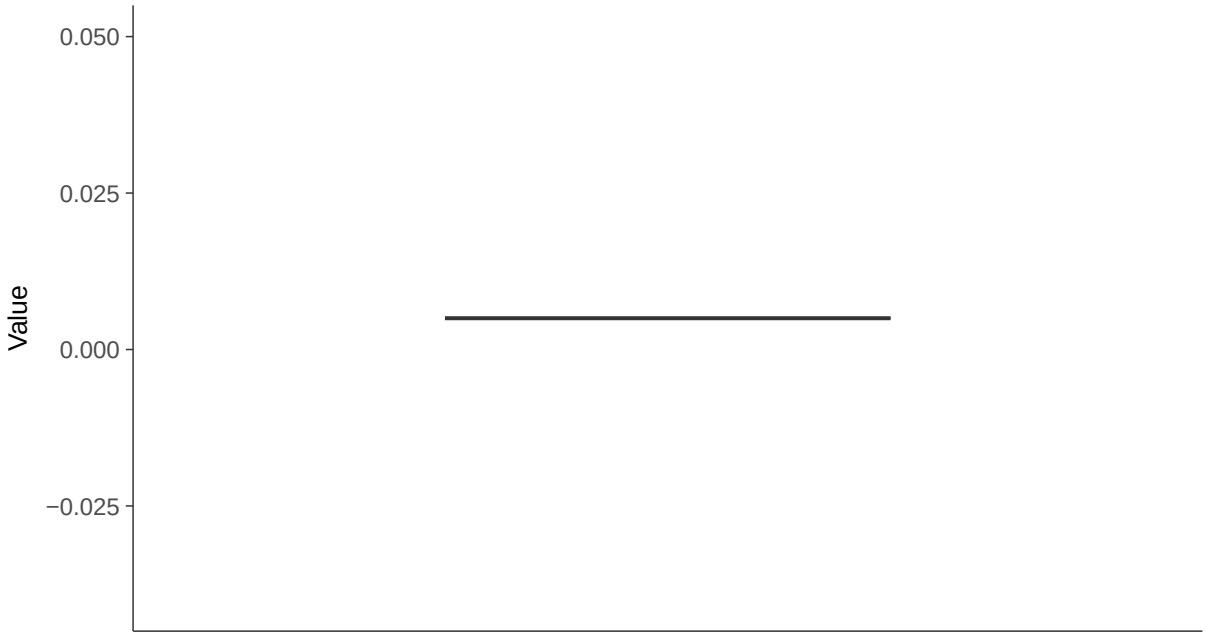
Histogram

Nickel, MW-7B (mg/L)



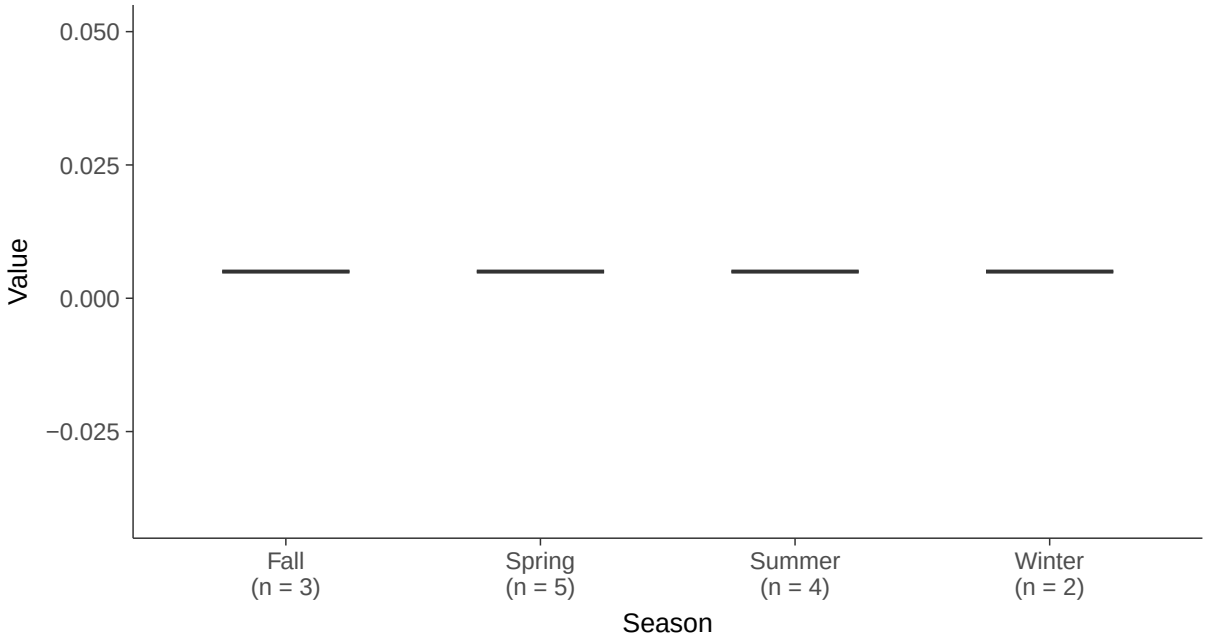
Boxplot

Nickel, MW-7B (mg/L)



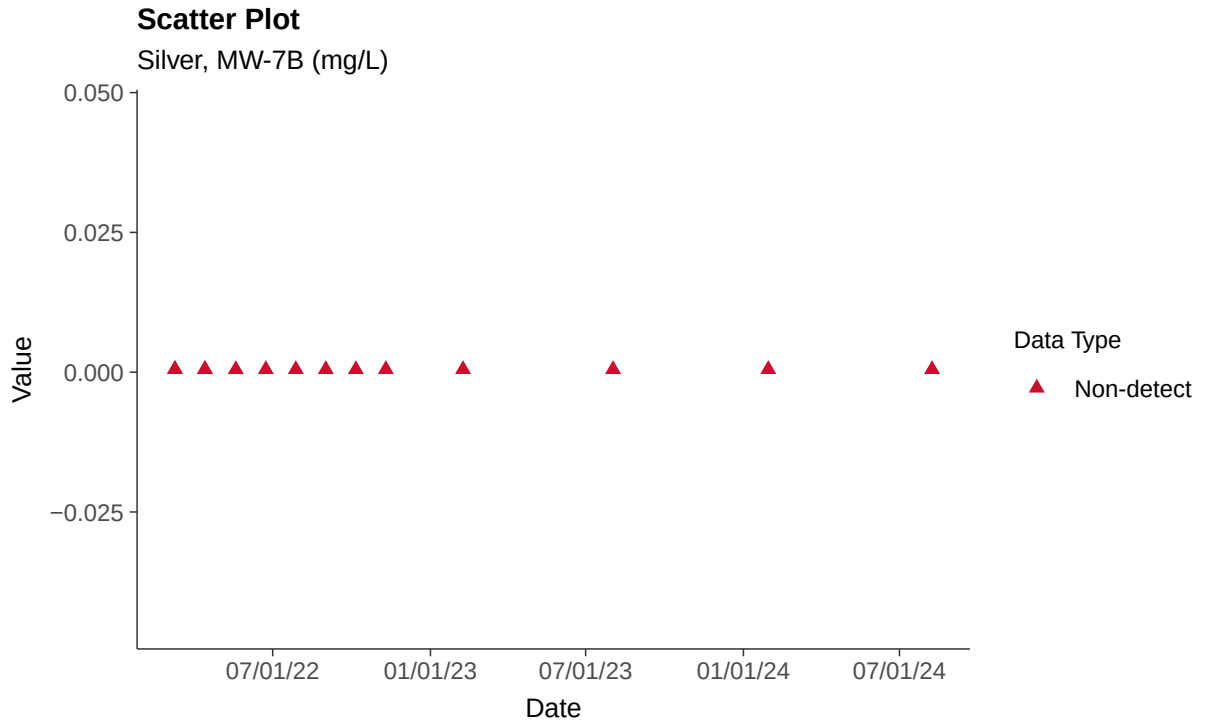
Boxplot by Season

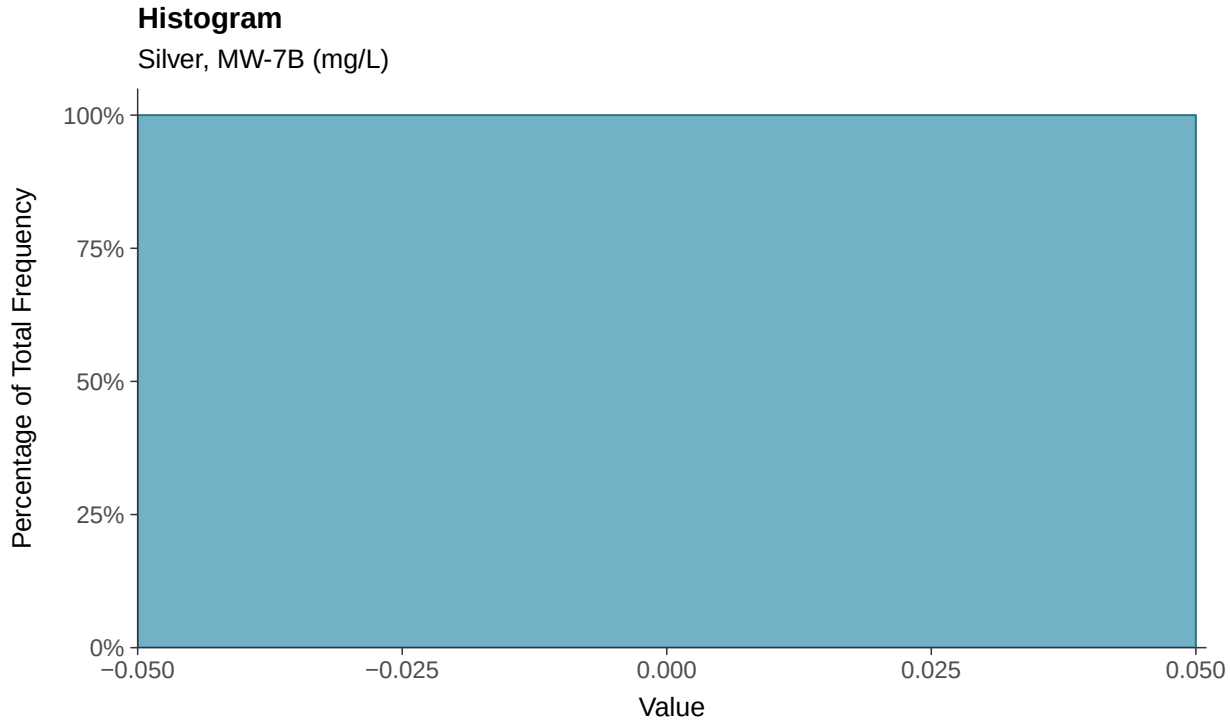
Nickel, MW-7B (mg/L)



Part 115: Silver, MW-7B

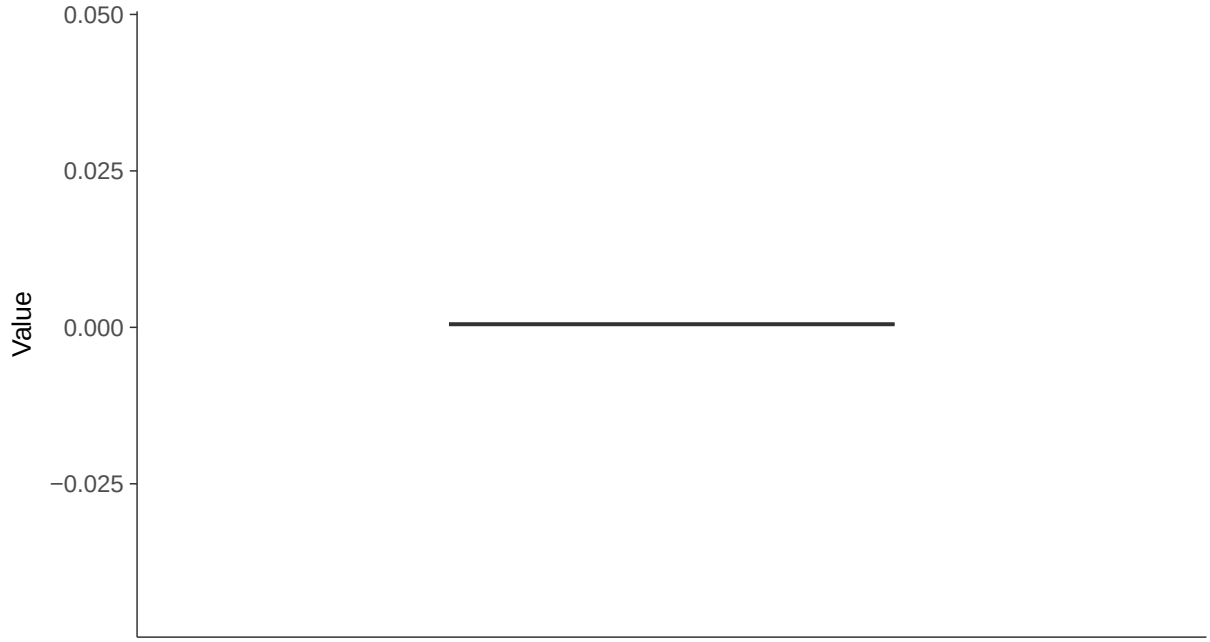
ID: 7B_5_40





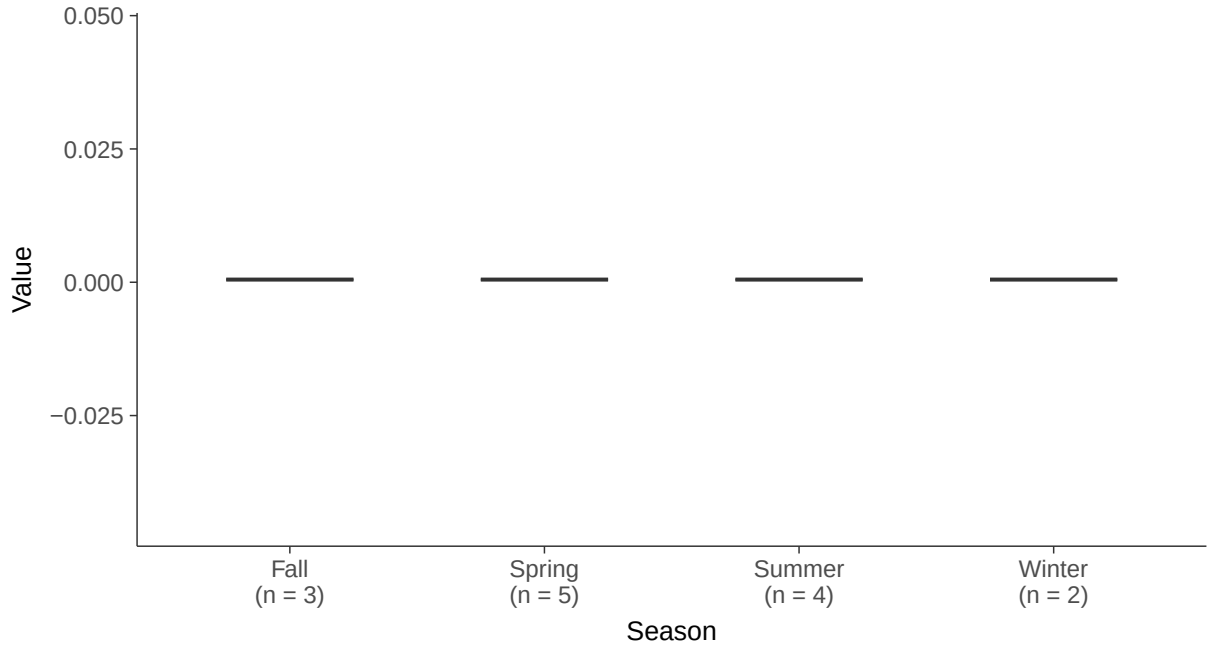
Boxplot

Silver, MW-7B (mg/L)



Boxplot by Season

Silver, MW-7B (mg/L)



Part 115: Vanadium, MW-7B

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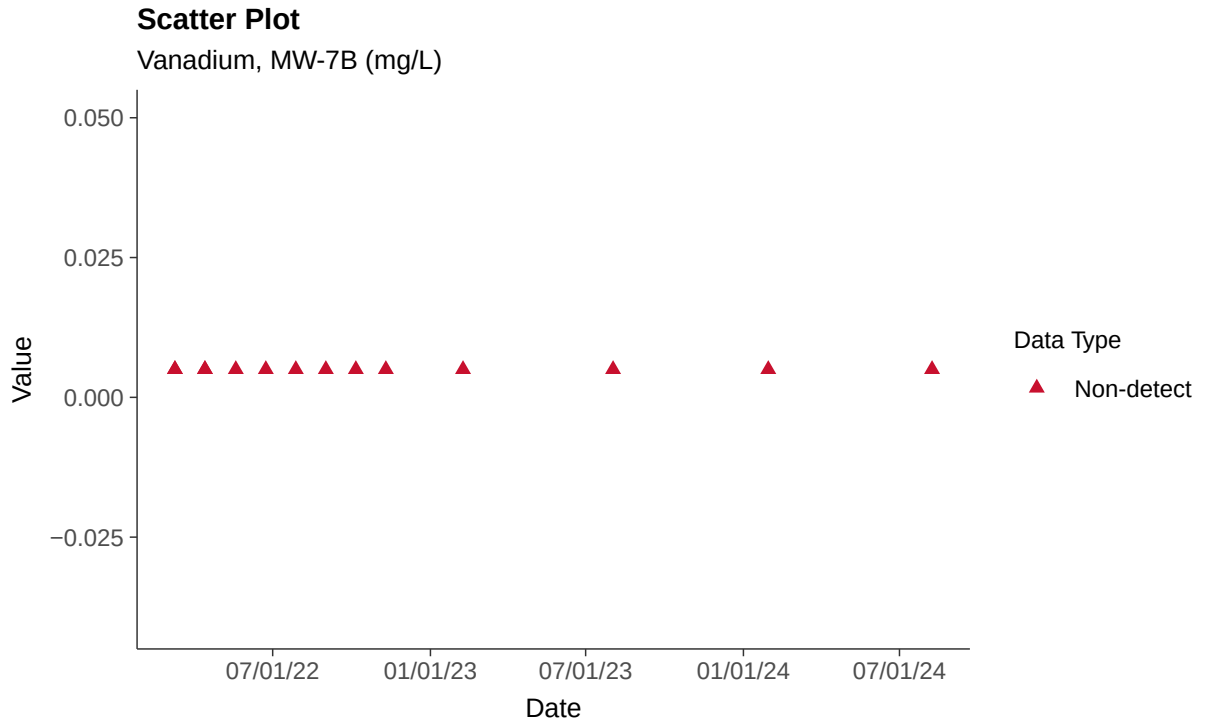
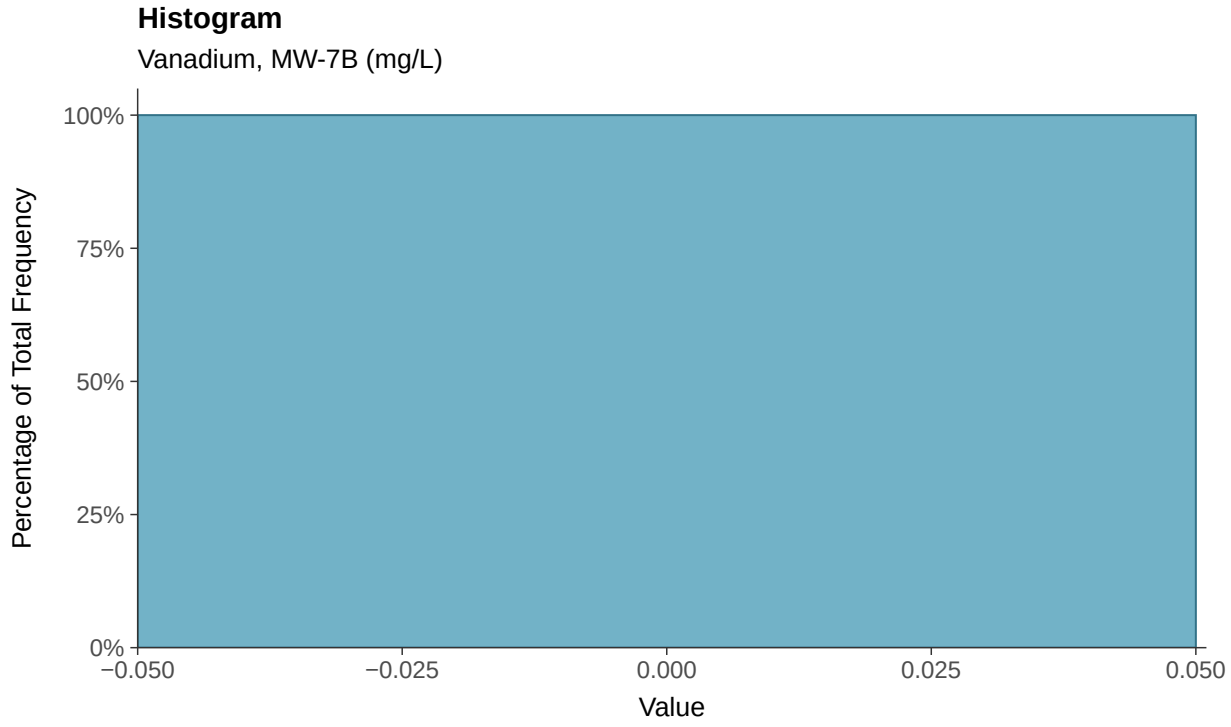
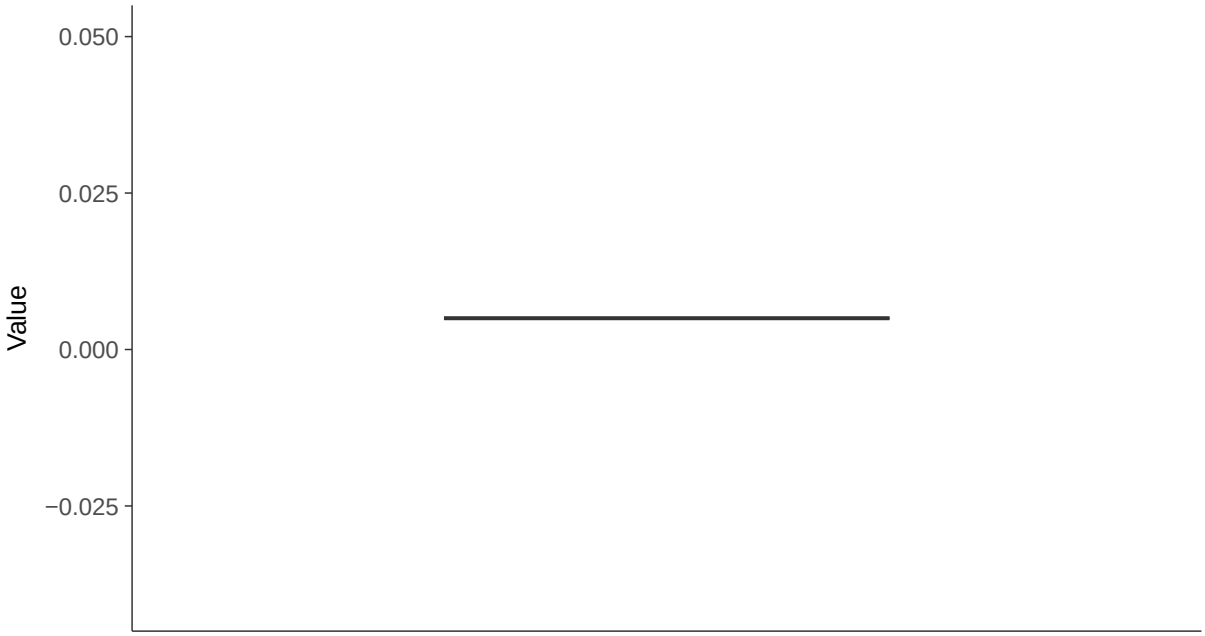




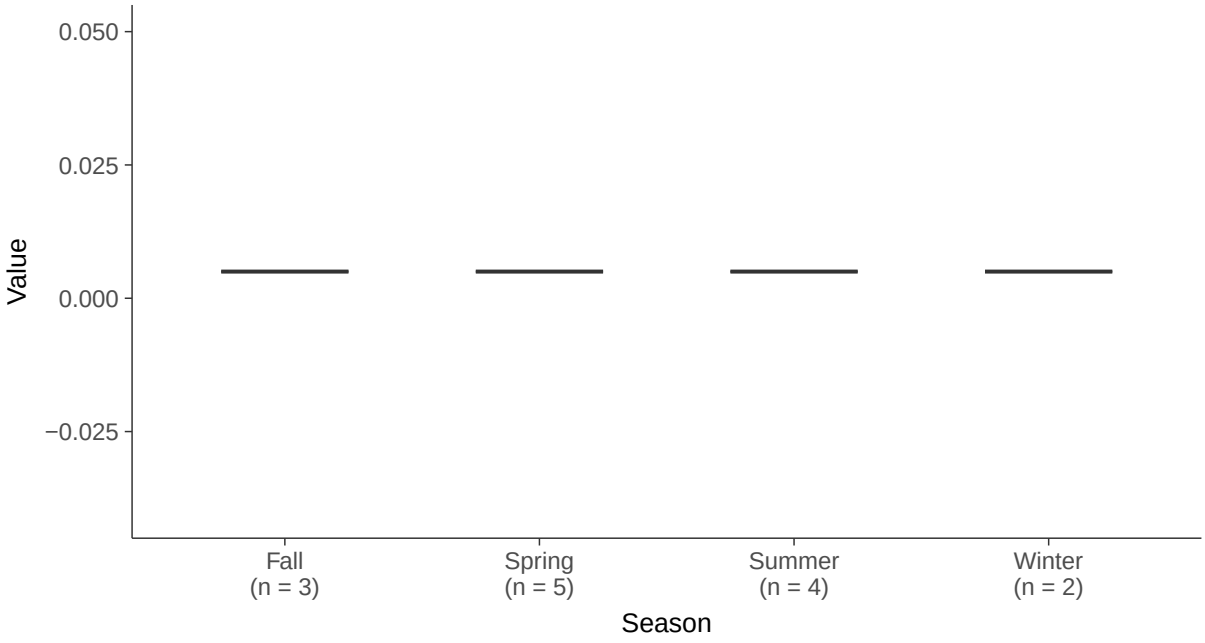
Boxplot

Vanadium, MW-7B (mg/L)



Boxplot by Season

Vanadium, MW-7B (mg/L)



Part 115: Zinc, MW-7B

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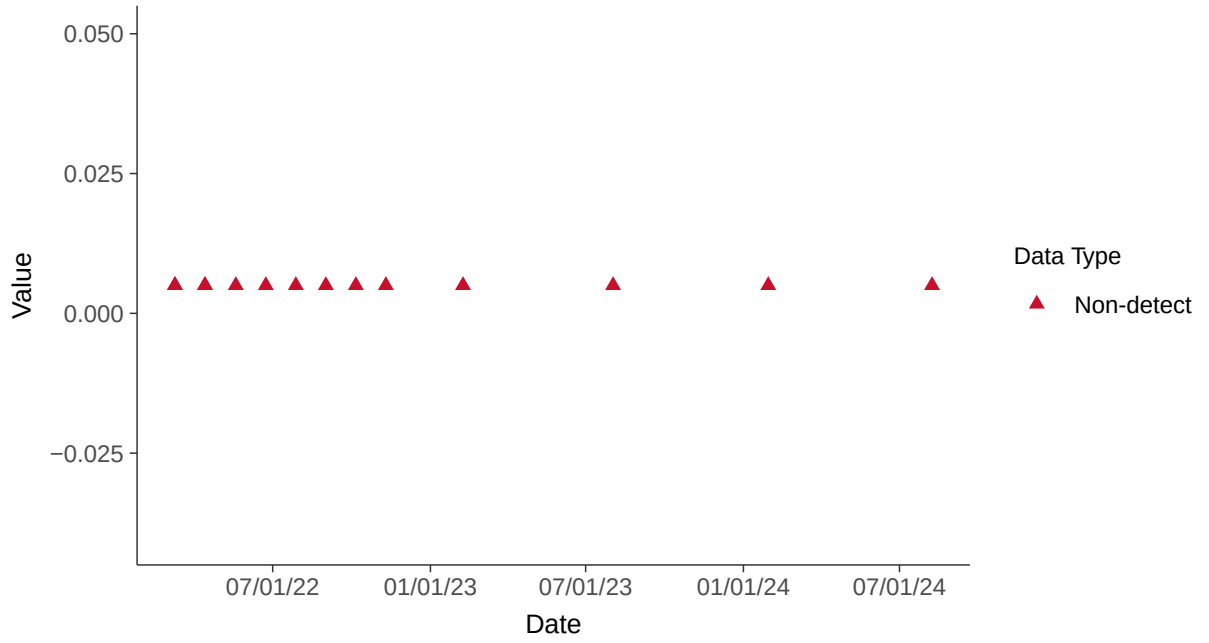
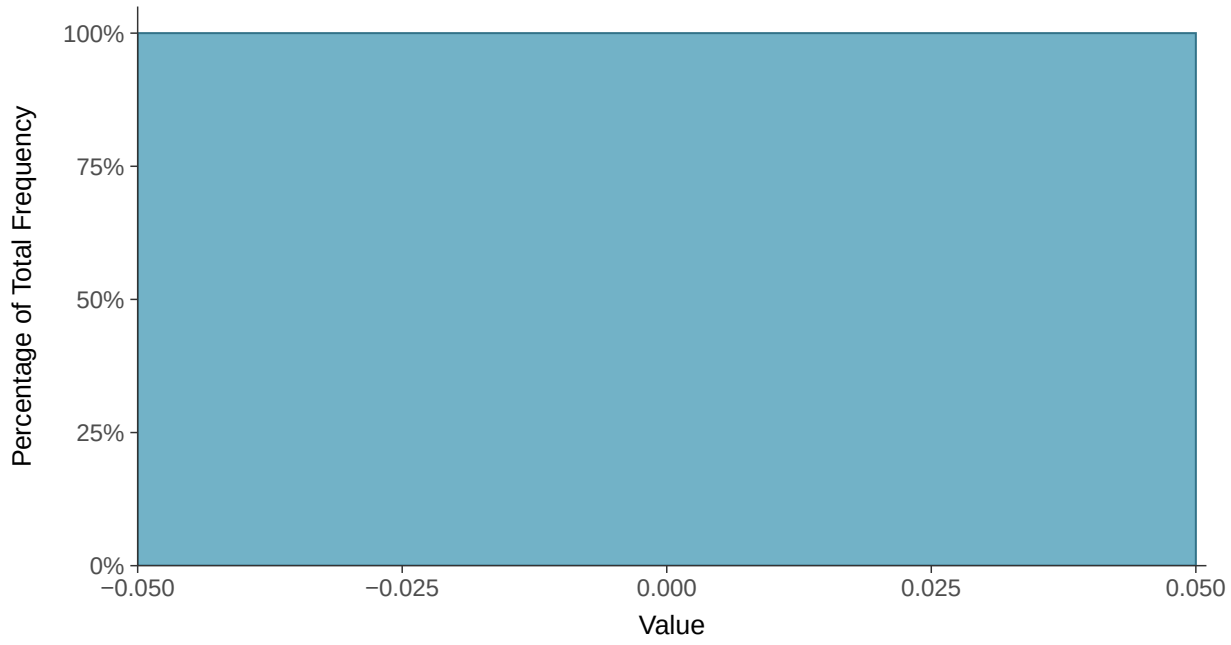
Scatter Plot

Zinc, MW-7B (mg/L)



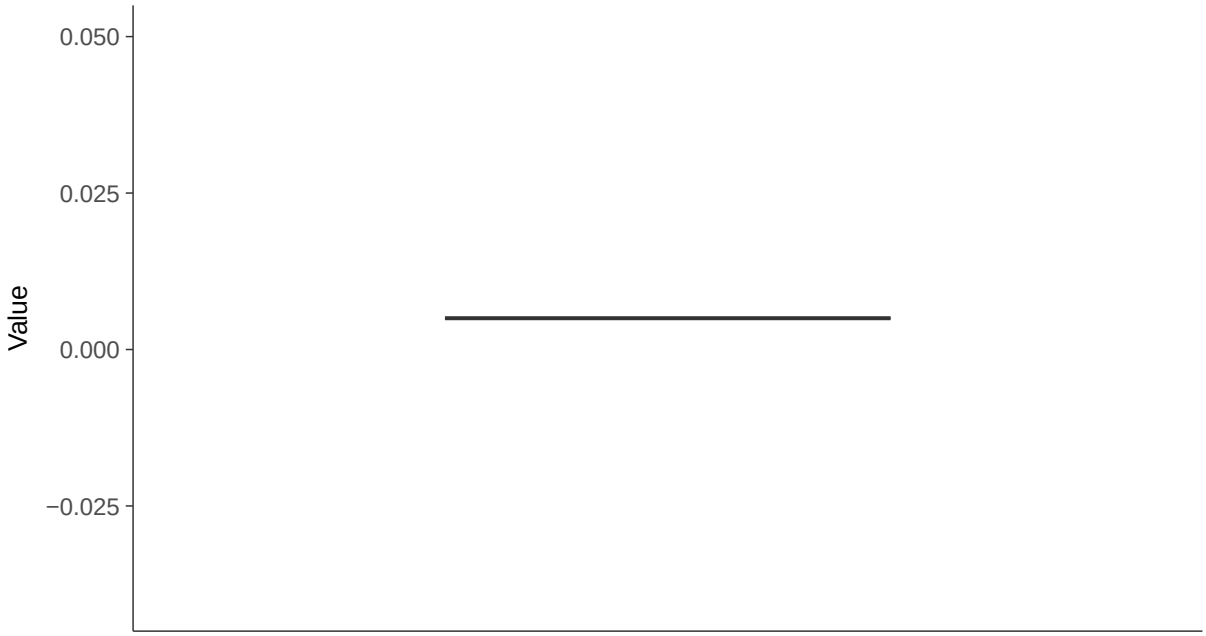
Histogram

Zinc, MW-7B (mg/L)



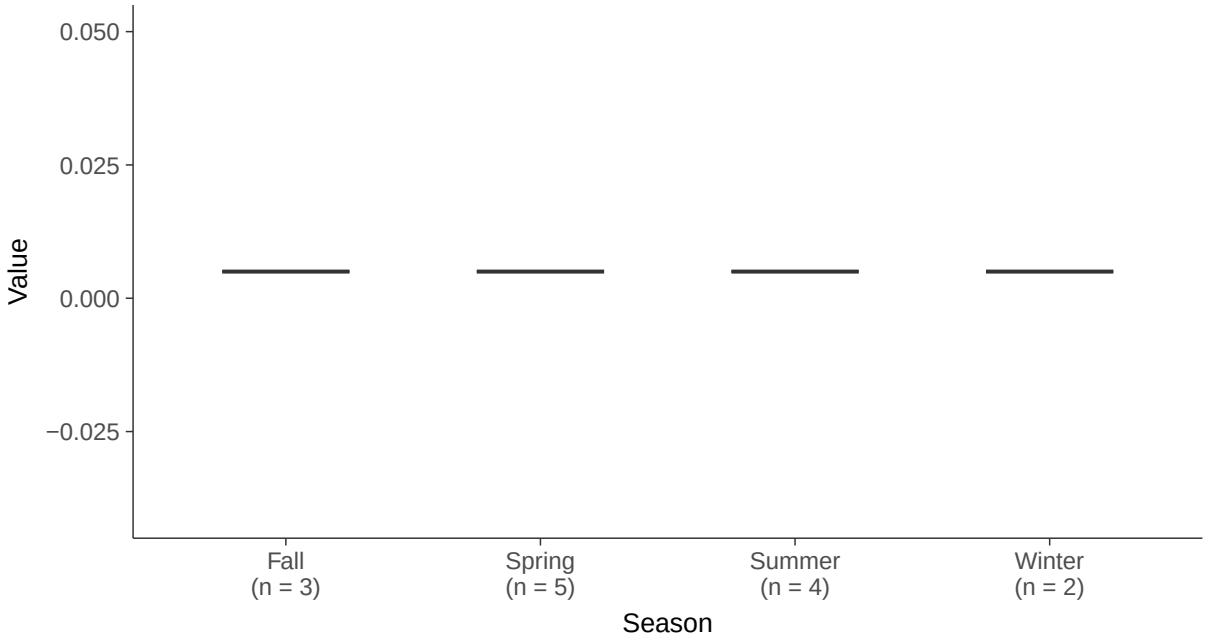
Boxplot

Zinc, MW-7B (mg/L)



Boxplot by Season

Zinc, MW-7B (mg/L)



Appendix E

Pump Test Report

Pump Test Report

Former Erickson Power Station

Lansing Board of Water & Light

January 28, 2025

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Appendix E: PTW Groundwater Sample Lab Report

1.0 Introduction

This report provides a description of activities and findings from an aquifer test performed at the Former Erickson Power Station (Site) located at 3725 South Canal Road Lansing, Michigan in Delta Township, Eaton County, Michigan, shown in **Figure 1**. The Site is owned and operated by the Lansing Board of Water & Light (BWL).

The pump test was performed as part of an evaluation of hydraulic containment and treatment (i.e., pump and treat) as a potential alternative remedy for corrective measures to address coal combustion residual (CCR) related groundwater impacts at the Site. Specifically, concentrations of boron, calcium, lithium, molybdenum, sulfate, and total dissolved solids (TDS) exceed groundwater protection standards (GPS) (HDR, 2020a). Based on flow directions derived from potentiometric contour maps, CCR impacted groundwater is migrating east from the impoundments toward the Site property boundary, shown in **Figure 2**. The location of the pump test was chosen to be within the contaminant plume where the highest concentrations of constituents of concern were observed. The groundwater impacts were observed in wells completed in the glacial aquifer; therefore, the glacial aquifer was the target unit for aquifer testing. The remaining sections of this report provide descriptions of site hydrogeology, the pump test activities, and analysis of the pump test data.

2.0 Site Geology and Hydrogeology

The uppermost aquifer at the Site consists of glacial deposits that are composed of coarse alluvial and outwash deposits (HDR, 2020a). Boring logs indicate the glacial aquifer is primarily a consistent thickness of poorly graded sand with little to no fines with lenses of clay, gravel, and silt, as expected in glacial outwash. The uppermost aquifer at the Site extends from surface to approximately 55 feet below surface at the location of the pump test and consists of sandy lean clay, poorly graded sands and gravels, as well as silt.

Observations from borings onsite indicate bedrock beneath the glacial deposits. The bedrock aquifer onsite consists of sandstone, shale, coal, and limestone, though is predominantly shale with sandstone layers. The bedrock surface is observed between 36 and 55 feet below surface at the Site, shown in **Figure 3**. The bedrock unit ranges in thickness from 0 to over 400 feet (Westjohn and Weaver, 1996a). The bedrock is referred to as the Saginaw Aquifer and is the principal aquifer in northern Eaton County.

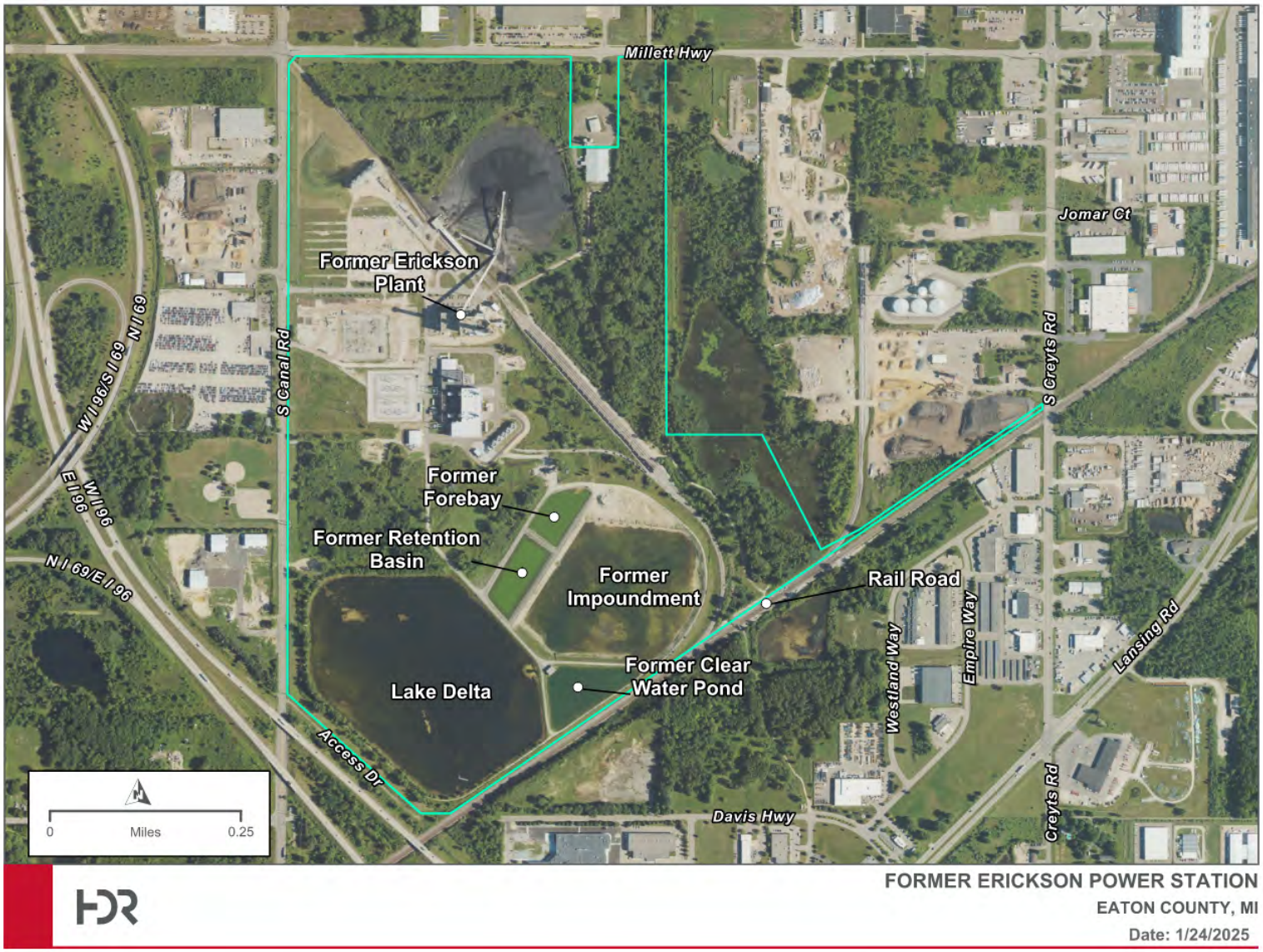

Figure 1. Site Vicinity Map

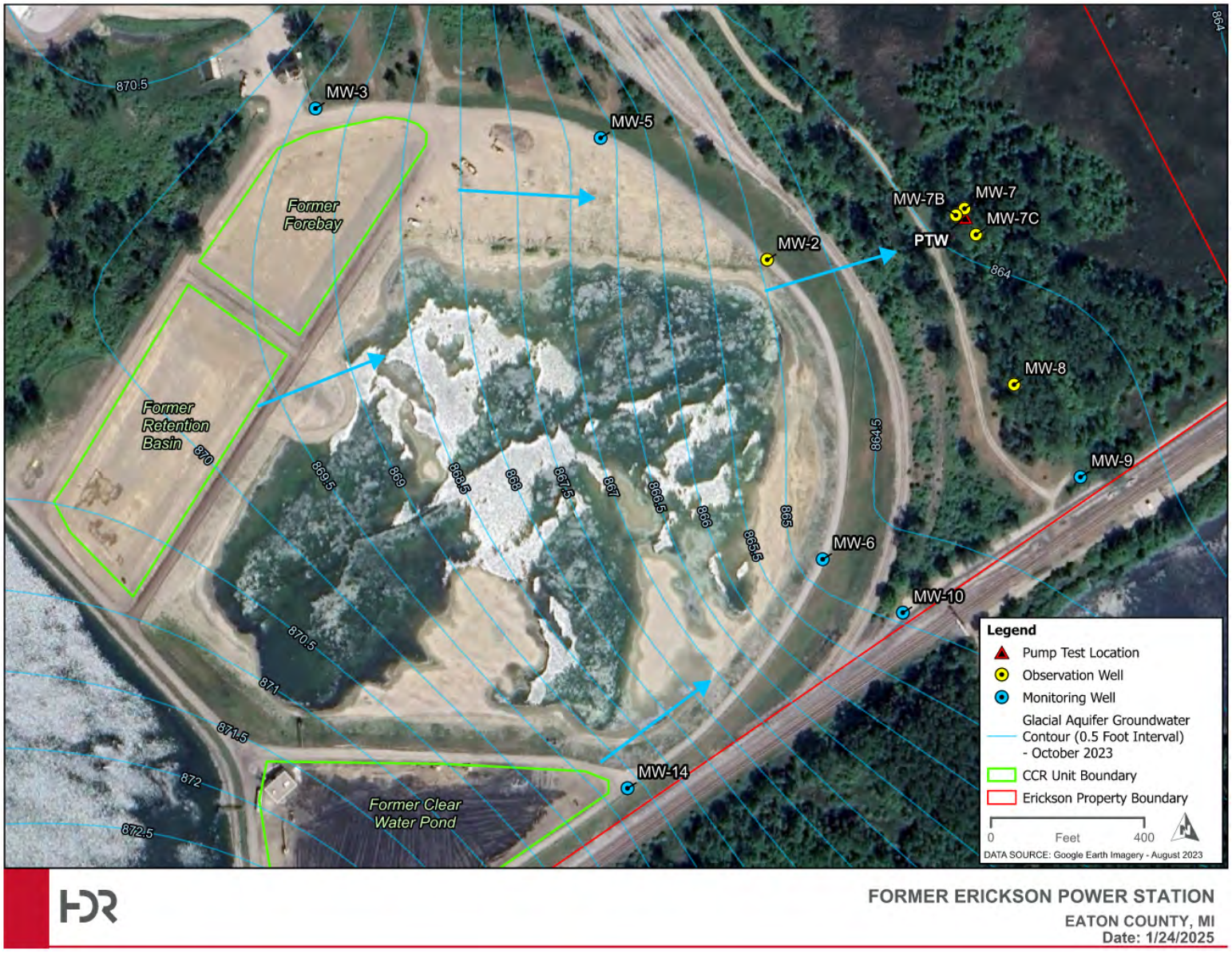

Figure 2. Pump Test Well Location Map

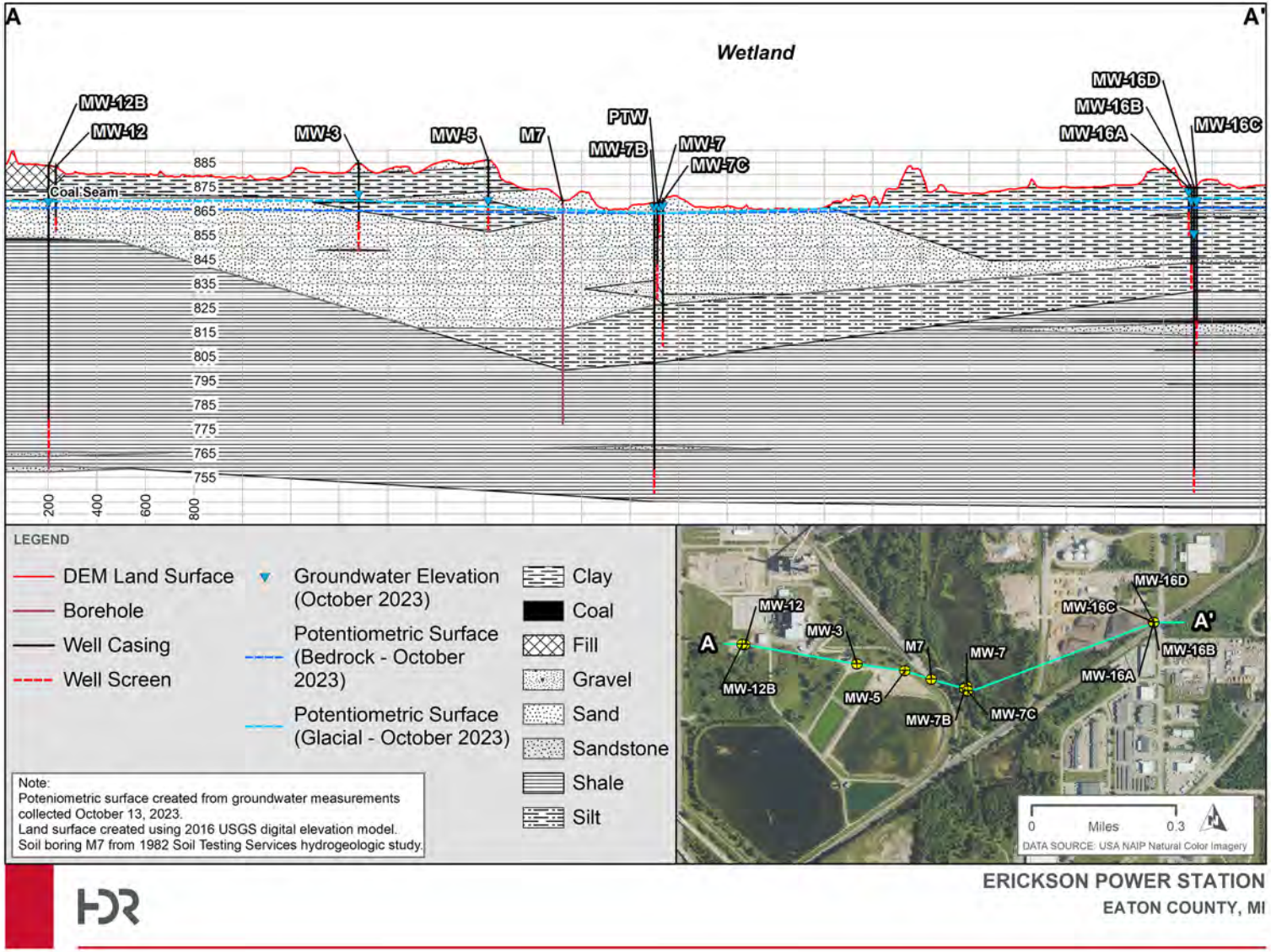

Figure 3. East-West Cross Section

3.0 Pump Test Activities and Results

One new pump test well (PTW) was installed and existing monitoring wells MW-2, MW-7, MW-7B, MW-7C, and MW-8 were utilized as observation wells for the constant rate pump test (**Figure 2)**. The PTW was drilled, installed, and developed between May 8-10, 2024. The step drawdown test was performed on May 13, 2024, and the 24-hour constant rate pump test was conducted from May 14-15, 2024.

3.1 Well Installation and Construction Details

The PTW was drilled, installed, and developed by Cascade Environmental LLC (Cascade). The borehole was drilled utilizing sonic drilling methods. An HDR geologist logged the borehole during drilling.

The PTW was advanced into the glacial aquifer and screened within the poorly graded fine to medium sand and gravel above the silt that the adjacent monitoring well MW-7C is completed within. The pump test well is a 6-inch diameter well with schedule 80 polyvinyl chloride (PVC) casing and a 15-foot, 20-slot stainless steel wire wrap screen. Well construction and screen interval lithology details for the PTW and existing observation wells are summarized in **Table 1**, and boring logs are in **Appendix A**. The glacial aquifer extends to 60 feet below ground surface (bgs) at the location of the PTW (**Figure 3**) and the depth to water is approximately 3.9 feet bgs. Four of the five observation wells are also screened within the glacial aquifer. Observation well MW-7B is screened in the shale bedrock aquifer and was monitored to evaluate if hydraulic connectivity could be observed between the glacial and bedrock aquifers.

Table 1. PTW and Observation Well Construction Details

Monitoring Well I.D.	Well Diameter (in.)	Screen Depth (ft bgs)	Distance from PTW (ft)	Static Depth to Water (ft btoc)	Total Well Depth (ft bgs)	Screened Lithology	Screened Aquifer
PTW	6	27-42	N/A	6.15	42	Poorly Graded Sand and Gravel	Glacial
MW-7	2	5-15	8.5	4.84	15	Poorly Graded Sand	Glacial
MW-7B	2	110-120	9.9	4.96	120	Weathered Shale	Bedrock
MW-7C	2	50-60	8.0	5.91	60	Silt	Glacial
MW-8	2	7-17	445	8.05	17	Poorly Graded Sand and Clay	Glacial
MW-2	2	24-34	528	19.27	34	Lean Sandy Clay and Clayey Sand	Glacial

Development was conducted by Cascade utilizing airlift method after the grout was allowed time to cure. Development was overseen and water quality was monitored by HDR. An approximate total of 3,600 gallons or 68 well volumes were purged. Turbidity measurements decreased from 20.0 to 2.77 nephelometric turbidity units (NTUs) over the course of 7 hours.

3.2 Aquifer Testing Implementation

Following installation and development of the PTW, a submersible pump was installed. The 4-inch Franklin Electric 3-horsepower submersible pump was connected to a 2-inch galvanized steel drop pipe and lowered into PTW. The drop pipe was connected to flexible hoses that discharged into one of two 250-gallon holding tanks. The discharge water from the holding tanks was transferred to frack tanks and disposed of offsite with a liquid waste contractor.

Water levels in the PTW were monitored using In-Situ Level TROLL 700 vented pressure transducers (transducers). A pressure transducer was affixed to the pump housing above the intake at 33.6 feet below the top of casing, the transducer and power cables were taped to the drop pipe on 10-foot interval to maintain stability and avoid movement. Additional vented pressure transducers were installed in the observation wells, including MW-7, MW-7B, MW-7C, MW-8, and MW-2, shown on **Figure 2**. The transducers were placed within the screen interval of the observation wells. The graphed transducer data is in **Appendix B.**

3.2.1 Step Drawdown Test

Following installation of the pump and pressure transducer into PTW, the Step Drawdown (SDD test was commenced. The flow rates for each step shown in **Table 2** were measured directly from the discharge pipe. The lowest achievable flow rate of the submersible pump and throttle valve was 18 gallons per minute (gpm) and was used as the first step in the SDD. The flow rates observed and the duration of each of the six steps are shown in **Table 2**. The pump had a maximum flow rate of 66.2 gpm as the final step of the SDD. At the maximum flow rate of 66.2 gpm a maximum displacement of 1.91 feet of displacement was observed. The weather was clear for most of the test, a light drizzle was observed on May 13, 2024 and resulted in under 0.10 inches of total precipitation and no impact to the test.

Table 2. Step Drawdown Flow Rate Information

Step	Time Start	Time End	Duration (min.)	Flow Rate (gpm)	Drawdown (ft.)
1	10:20	11:20	60	18.0	0.37
2	11:20	12:30	70	30.0	0.75
3	12:30	13:30	60	40.9	1.07
4	13:30	14:30	60	50.5	1.40
5	14:30	15:50	80	60.7	1.73
6	15:50	16:30	40	66.2	1.91

3.2.2 Constant Rate Aquifer Test

Prior to beginning the constant rate test all transducers from **Table 2** were reset and manual water levels were collected. The constant rate pumping test began on May 14, 2024 at 7:34 AM at a pumping rate of 66.2 gallons per minute, the maximum that the available pump from the drilling contractor could pump. The drawdown portion of the test concluded May 15, 2024 at 7:39 AM. Recovery was monitored in PTW, MW-2, and MW-8 until May 17, 2024, due to reaching 90% recovery. The transducers were left over the weekend in MW-7, MW-7B, and MW-7C until May 20, 2024, because they had yet to reach 90% recovery by May 17, 2024.

Prior to the end of the pump test, a water sample was taken from PTW at 7:35 AM on 5/15/2024. The results from the PTW sample are further discussed in **Section 4.3.5** and laboratory reports are provided in **Appendix E**.

4.0 Pump Test Analysis

4.1 Data Correction

Prior to data analysis water level data from manual and transducer measurements were plotted as shown in **Figure 4**. Data showed a decreasing water level trend in the wells before and after the aquifer tests. While minor, to ensure that the natural occurring decline in water level was not associated with the pump test drawdown, the rate of change per minute was calculated for each observation well and pumping well and a slope correction factor was applied to the transducer data. An example of a raw and slope corrected curve is shown in **Figure 5**.

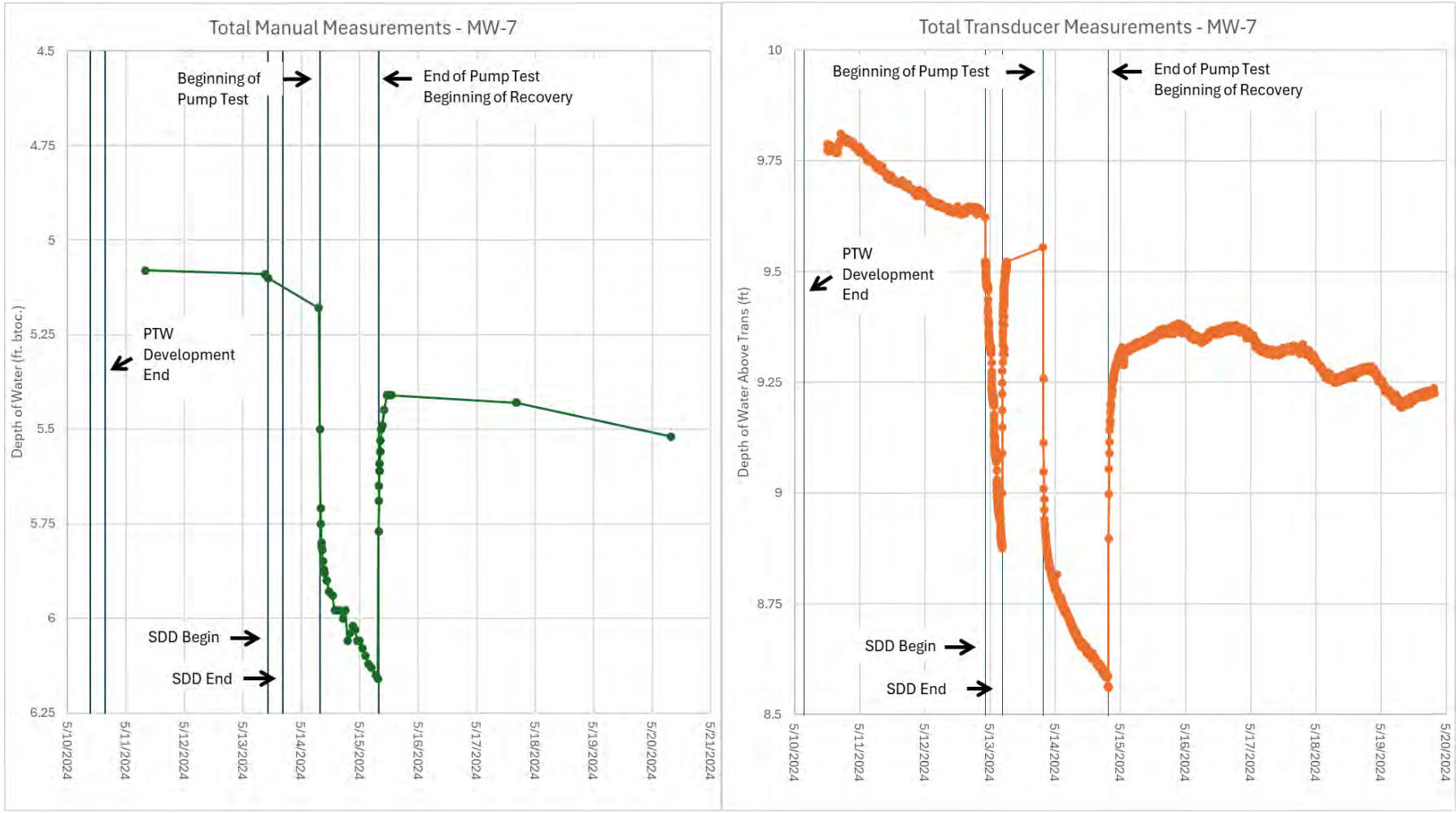

Figure 4. Manual and Transducer Water Level Measurements

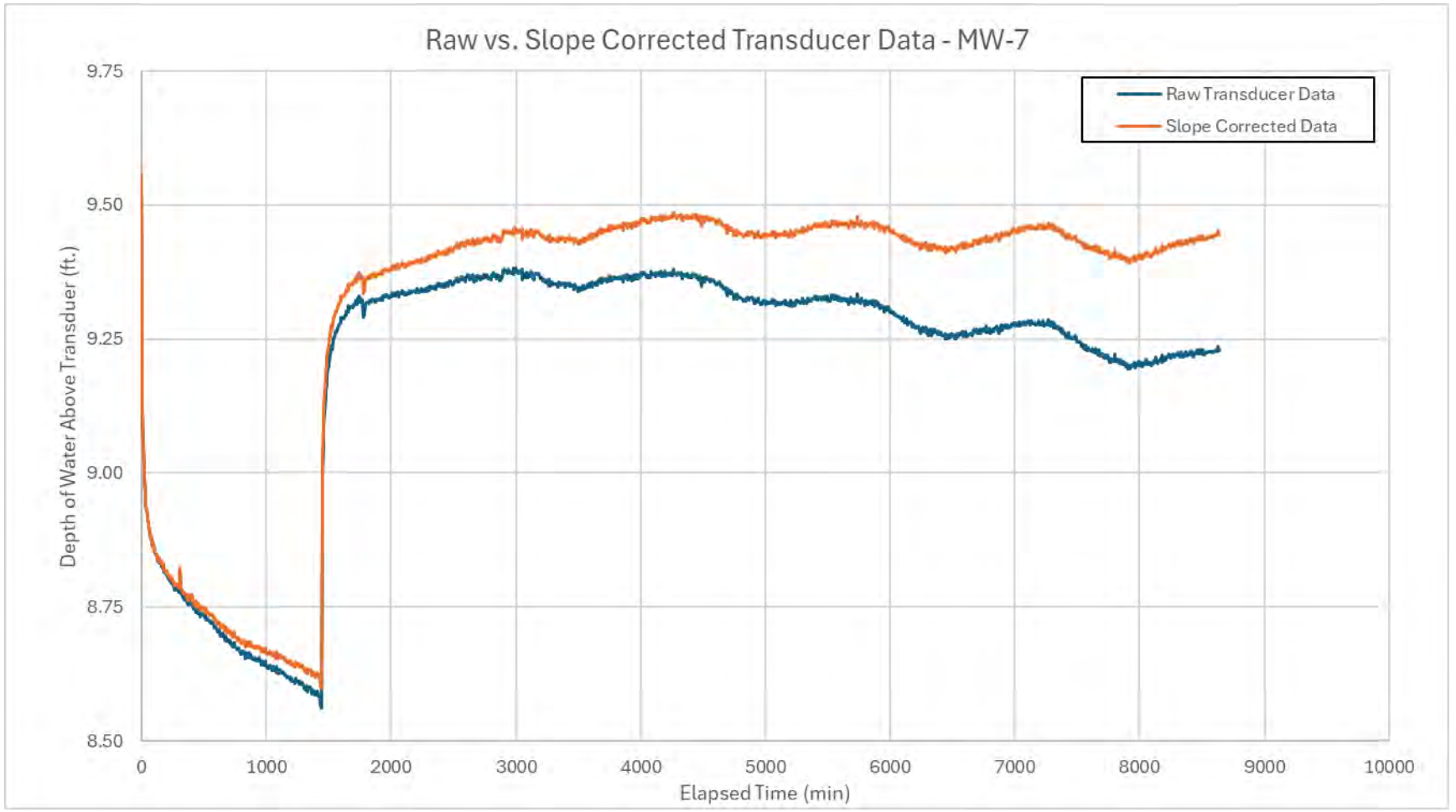

Figure 5. Raw vs. Slope Corrected Transducer Data

4.2 Step Drawdown Test

The transducer was installed at the time the pump was installed at PTW; therefore, no transducer measurements prior to the test were collected as a baseline. Baseline groundwater measurements were collected manually. The transducer was set to collect measurements on at 30 second interval continuously for the duration of the test. The test began at 10:20 on May 13, 2024 and concluded at 18:11 on May 13, 2024. A graph of the observed displacement for the drawdown and recovery of the SDD is provided in **Figure 6**.

Interpretation of Step Drawdown Test Data

The Thies solution is a widely used graphical technique for estimating aquifer properties based on data collected from SDD tests. The method involves plotting displacement during drawdown and recovery measurements vs. time on log-log plot. Then the Theis solution curve is fit to the data by adjustment to the following parameters: transmissivity (T), storativity (S), specific yield (Sy), and hydraulic conductivity anisotropy ratio (B). The program used for plotting data and curve matching was AQTESOLV. The program allows for automatic and manual curve fitting of the solution to the data. Initially the curve is fit using the automatic fit and is then manually adjusted for the final aquifer parameter estimation. The solution curve match to the SDD test data from PTW is provided in **Figure 7**. Solutions utilized for estimation of aquifer properties are subject to the assumptions of the equations. The assumptions for the Neuman (1974) solution are as follows:

- aquifer has infinite areal extent
- aquifer is homogeneous and of uniform thickness
- pumping well is fully or partially penetrating
- aquifer potentiometric surface is initially horizontal
- pumping well is fully or partially penetrating
- aquifer is unconfined with delayed gravity response
- flow is unsteady
- diameter of pumping well is very small so that storage in the well can be neglected

The transmissivity of the aquifer based on the Neuman (1974) curve match to the SDD test is estimated at 7083 ft^2/day. Based on the aquifer thickness of 60 feet, the hydraulic conductivity is estimated at 118 feet per day.

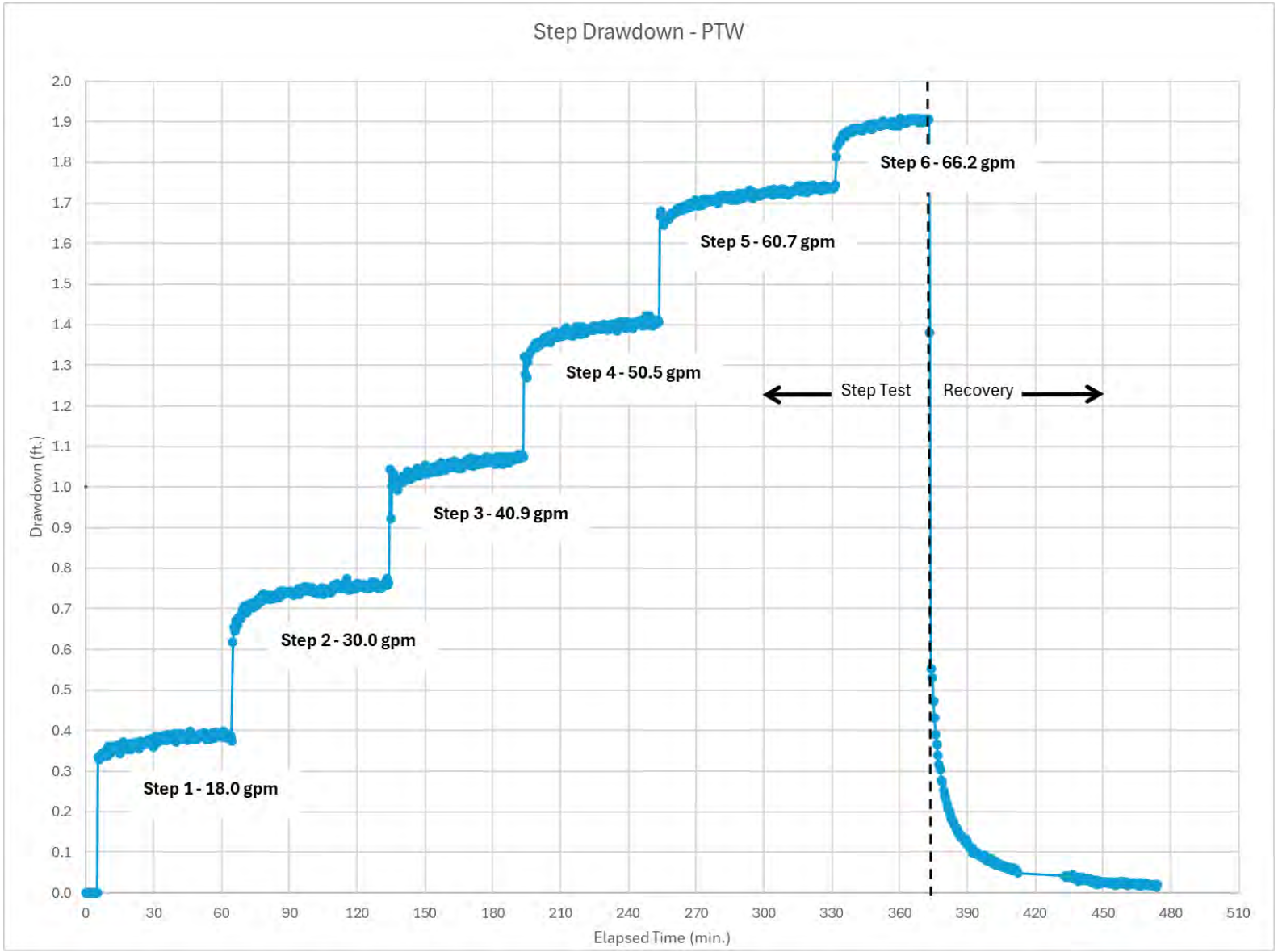

Figure 6. Step Drawdown Test Graph

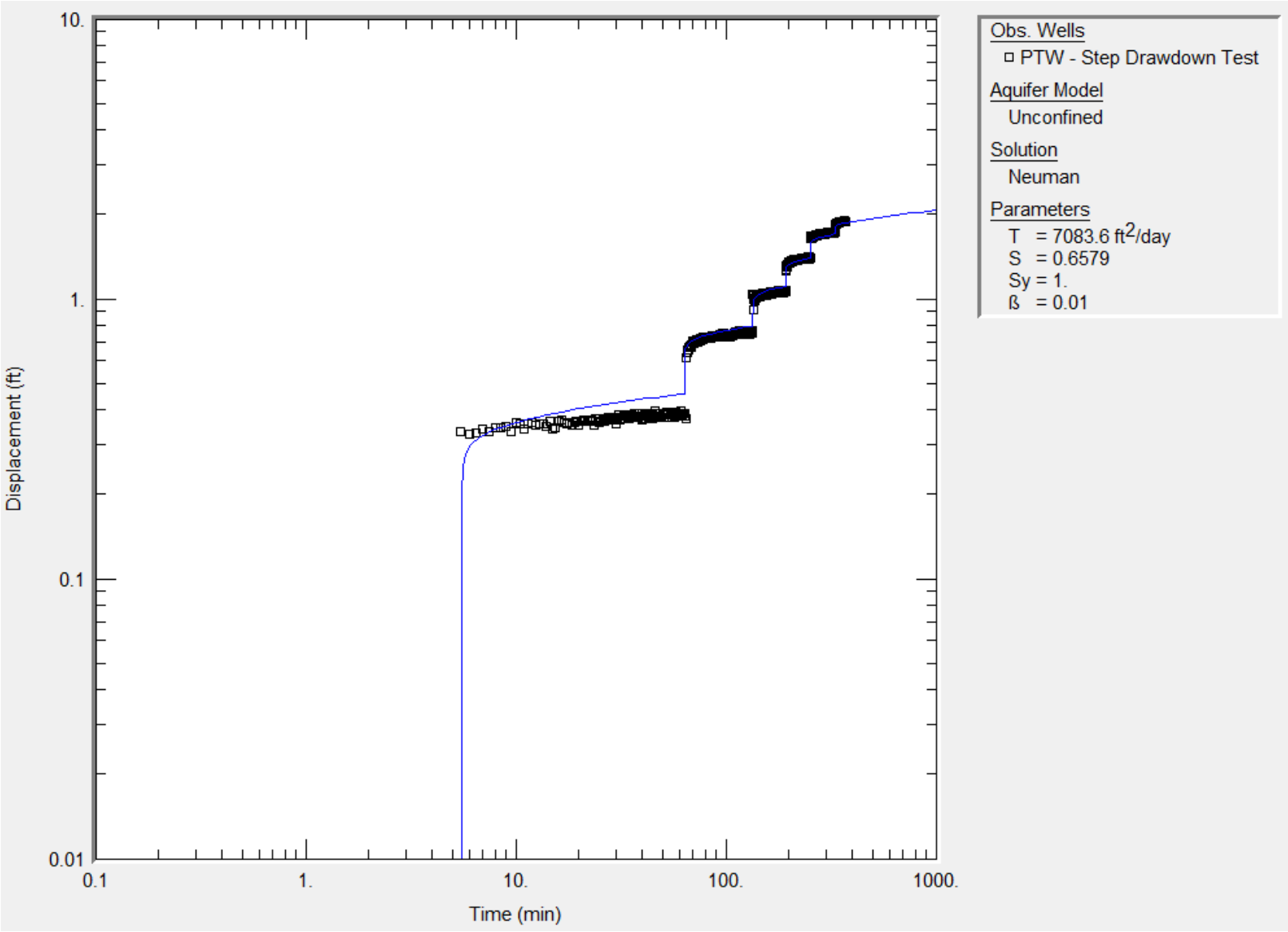

Figure 7. Step Drawdown Test - Neuman Solution

4.3 Constant Rate Pump Test

As the transducer was installed at the time the pump was installed, no transducer measurements prior to the test were collected as a baseline. Baseline groundwater measurements were collected manually, provided in **Appendix C**. During the drawdown and recovery portions of the constant rate pump test transducer measurements were collected on at a logarithmic scale beginning at 4 measurements a second and ending on a maximum interval of 1 measurement an hour.

The drawdown portion of the test began at 7:35 on May 14, 2024 and concluded at 7:39 on May 15, 2024. The recovery portion of the test began at 7:39 on May 15, 2024 and continued to 9:18 on May 16, 2024 at the PTW due to the pump drop pipe being removed the following day. It should be noted that recovery was monitored in observation wells until May 17 at MW-8, and May 20, 2024, for MW-7, MW-7B, and MW-7C. Recovery at PTW and observation wells did achieve at least 90% of the pre-test static level after 9:00 AM on May 16, 2024.

The drawdown of the water level in the pumping wells from the start of pumping at time 0 to the end of pumping at 1444 minutes is shown in **Figure 8**. The maximum drawdown of each well is provided below:

- PTW – 2.14 feet
- MW-2 – 0.36 feet
- MW-7 – 0.96 feet
- MW-7C – 1.22 feet
- MW-8 – 0.32 feet

The maximum drawdown at the bedrock well MW-7B was 0.13 feet, but as shown in graphs and later discussed in **Section 4.3.5**, it does not appear to be associated with the pump test.

4.3.1 Neuman (1974) Solution - PTW

Prior to choosing the analytical solution, drawdown data for the PTW was reviewed on a log-log plot. Three distinct drawdown segments can be observed (**Figure 9**), which is attributed to a delayed yield response that is described in the Neuman (1974) model.

The Neuman (1974) method was applied to the drawdown data from the PTW and observation wells. Calculations were done in AQTESOLV™ the industry standard program for aquifer test analysis. The fitted Neuman curves are provided in **Appendix D** for the PTW and observation wells.

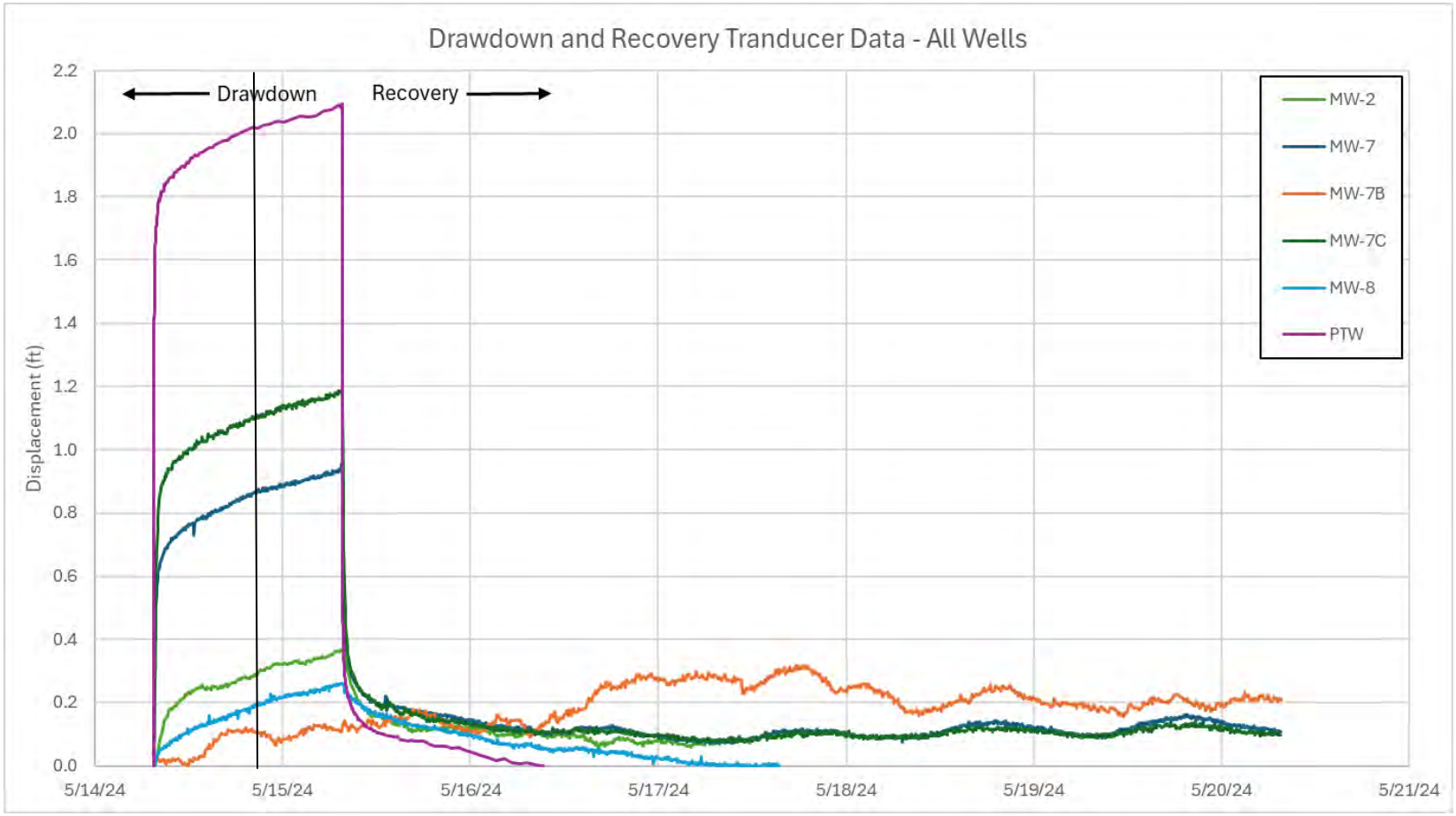

Figure 8. Drawdown and Recovery Curves - All Wells During Constant Rate Pump Test

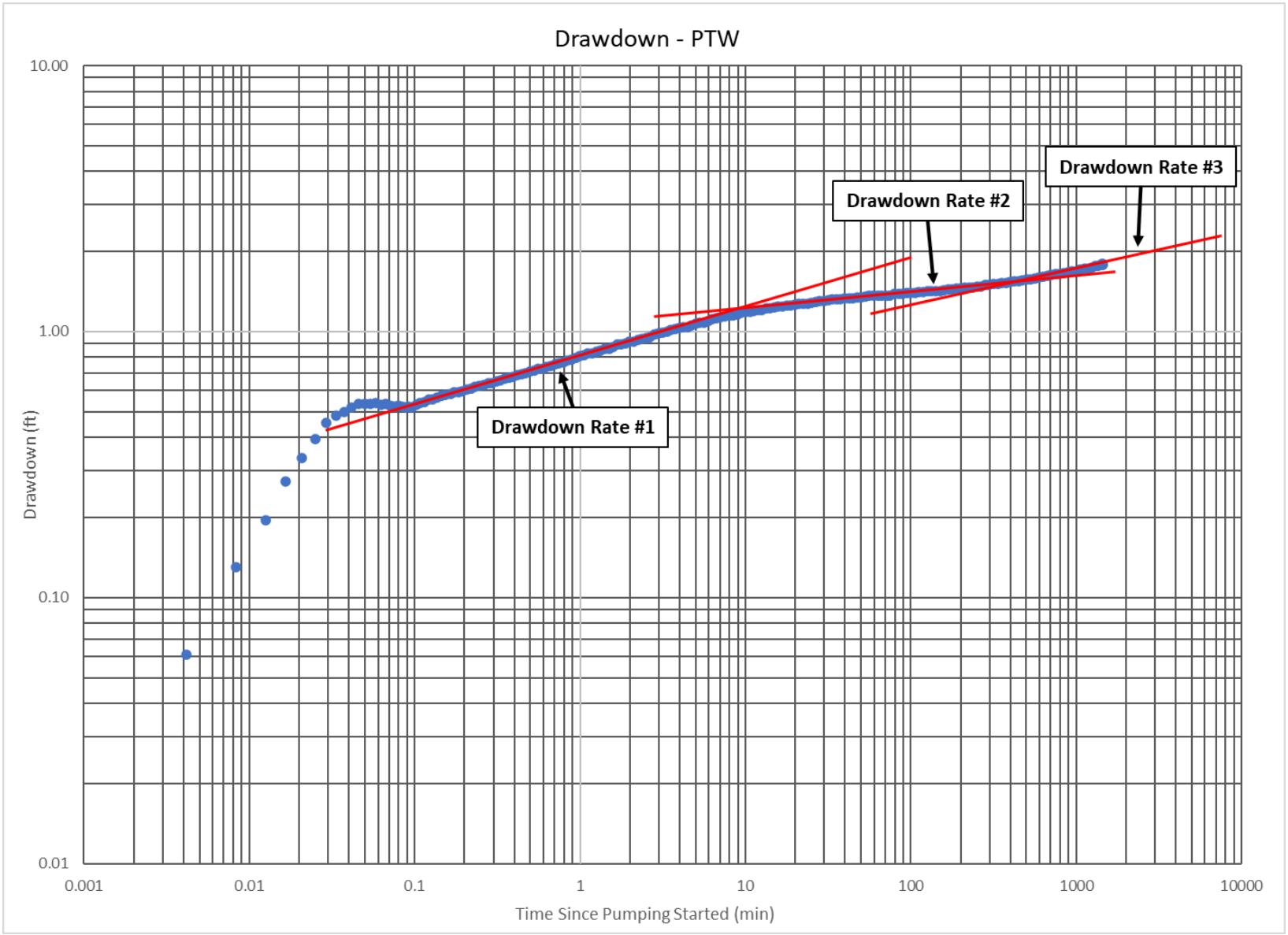
Drawdown - PTW
10.00
1.00
0.10
0.01
Drawdown (ft)
0.001
0.01
0.1
1
10
100
1000
10000
Time Since Pumping Started (min)
Drawdown Rate #1
Drawdown Rate #2
Drawdown Rate #3

Figure 9. PTW Drawdown Plot - Log-Log

The assumptions for applying the Neuman (1974) solution include:

- The aquifer has infinite areal extent
- The aquifer is homogeneous and has uniform thickness
- The aquifer potentiometric surface is initially horizontal
- The pumping well is fully or partially penetrating
- The aquifer is unconfined with delayed gravity response
- Observed flow is unsteady
- The diameter of pumping well is very small so that storage in the well can be neglected

Calculations from the Neuman (1974) analysis yield the estimated parameters of T (transmissivity), S (storativity), S_y (Specific Yield), and β (hydraulic conductivity anisotropy ratio). The curve fit for the PTW is provided in **Appendix D** and yielded the following for the resulting PTW analysis:

- T (ft^2/day) – 8340.4
- S_y – 0.00174
- S – 0.000166
- β - 0.174

The Neuman solution curve fit generated in AQTESOLV™ provides transmissivity but hydraulic conductivity is a function of aquifer thickness and is therefore calculated. Based on an aquifer thickness of 60 feet, the hydraulic conductivity is estimated at 139 ft/day.

4.3.2 Neuman (1974) Solution– Observation Wells

The observation wells were analyzed using the Neuman (1974) solution. The fitted curves for the observation wells are contained in **Appendix D**. The transmissivity of the aquifer is estimated between 2,547 and 11,610 ft^2/day. Based on an aquifer thickness of 60 feet, the hydraulic conductivity is estimated between 42.5 and 193.5 ft/day. Storativity coefficients calculated on the straight-line solution fits range from 0.000143 to 0.00181. This range is expected given the texture of the unconsolidated glacial sediments varies between observation well screens.

Table 3. Aquifer Properties of Observation Wells

Well I.D.	Transmissivity (ft^2/day)	Hydraulic Conductivity (ft/day)	Storativity	Specific Yield	Anisotropy Ratio
MW-7	11,310	188	0.000143	0.00942	0.200
MW-7C	10,090	168	0.00181	0.00100	0.500
MW-8	11,610	193	0.00102	0.00744	0.414
MW-2	2,547	42.5	0.00109	0.0173	0.800
Geometric Mean	7,622	127	0.000732	0.00590	0.427

4.3.3 Cooper-Jacob (1946) Distance Drawdown Method

As an additional check on the curve fit analyses, a distance drawdown analysis was completed using the 4 glacial observation wells (MW-7, MW-7C, MW-8, and MW-2). The maximum

drawdown data is plotted against the distance from the PTW and a straight-line fit is used to calculate transmissivity and storativity. The following calculation was used to estimate transmissivity of the aquifer utilizing the Cooper-Jacob (1946) distance drawdown method:

$$T = \frac{2.303Q}{4\pi\Delta s}$$

Where:

- T is Transmissivity (ft^2/day)
- Q is Pumping rate (ft^3/day)
- Δs is Change in slope of the fitted line over one log cycle

A single transmissivity value, 5370 ft^2/day, is calculated based on the fitted line provided in **Figure 10**. When transmissivity is divided by aquifer thickness (60 ft), the hydraulic conductivity is 139 ft/day. Using the calculated transmissivity value calculated above, the following equation can be used to determine aquifer storativity:

$$S = \frac{2.25Tt_0}{r^2}$$

Where:

- S is Storativity
- T is Transmissivity (ft^2/day)
- t_0 (min) is time at which drawdown is plotted
- r^2 is Radial Distance (ft). The x-intercept of the graphed line.

The Storativity calculation results in a value of 0.00249 based on the Cooper-Jacob (1946) distance drawdown solution.

4.3.4 Drawdown Analysis Summary

The aquifer test analysis properties are provided in **Table 4**. A comparison of aquifer testing results to existing slug test data for observation wells indicates the hydraulic conductivity value is higher; however, this is to be expected when comparing bulk aquifer tests and local aquifer tests (slug test) data (HDR. 2020). Additionally, when compared to reference values for clean sand and gravel from Heath (1983) the values fall within range.

Table 4. Summary of Aquifer Testing Findings			
Analysis	**Storativity**	**Transmissivity (ft^2/day)**	**Hydraulic Conductivity (ft/day)**
Neuman - Step Drawdown	0.658	7083	118
Neuman – Pump Test	0.000143 - 0.00181 Geomean 0.000544	2,547 – 11,610 Geomean 7760	42.5 – 196 Geomean 129
Cooper-Jacob – Distance Drawdown	0.00249	5,370	139
Slug Tests (glacial aquifer)	Not Calculated	24 - 1494	0.399 - 24.9
Clean Sand (Heath, 1983)	N/A	N/A	1 - 1000
Gravel (Heath, 1983)	N/A	N/A	100 - 10000

4.3.5 Bear (1979) Radius of Influence Analysis

Utilizing the results transmissivity and storativity calculations from **Sections 4.3.1** and **4.3.2**, radius of influence calculations were completed using the following equation from Bear (1979):

$$R(t) = 1.5*SQRT(T*t/S)$$

R(t) = Radius of Influence (ft) t = Time (days)

T= Transmissivity (ft^2/day) S = Storativity (unitless)

Using the geomean of the drawdown analyses transmissivity and storativity values a radius of influence was calculated. For one day of pumping the radius would be approximately 5,665 feet.

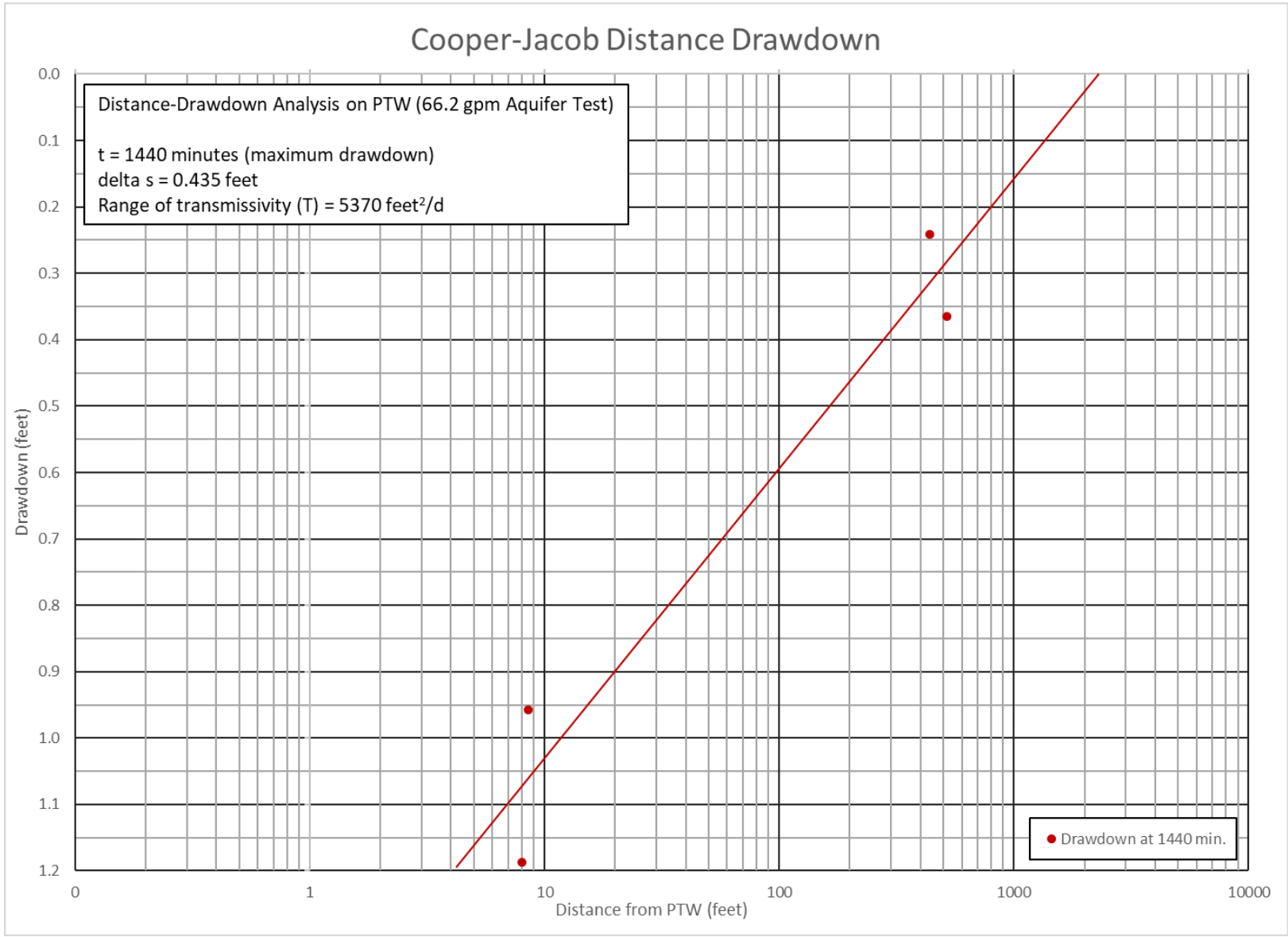

Figure 10. Distance Drawdown Plot

4.3.6 Connectivity of Glacial Aquifer to Bedrock Aquifer

As stated above, a transducer was installed and logged groundwater elevations in the bedrock monitoring well near the PTW (MW-7B). The transducer logged on a 10-minute interval and logged the entire pump test through the recovery period. A graph of raw water level data is provided for the entire monitoring period for both PTW and MW-7B in **Figure 11**.

Before the testing started the transducer showed 0.05 feet of change over a 40-hour period of time. The maximum displacement observed in MW-7B happened approximately 3 days after the test had concluded, which makes it unlikely that that 0.30-foot change in water level was in response to the PTW pumping. Additionally, transducer graphs provided in **Appendix B** shows that the groundwater elevation over the entire monitoring period (May 11 through May 20) shows an overall downward trend.

Based on the observations shown in **Figure 11**, no connectivity between the glacial and bedrock aquifers was observed during testing. This can be attributed to monitoring well MW-7B being screened approximately 60 feet into the shale bedrock and 80 feet below the PTW. The high hydraulic conductivity of the glacial aquifer relative to the bedrock and duration of the test would not have stressed the bedrock aquifer enough to illicit a vertical response. Additionally, lab results indicate water quality of the PTW discharge water do not align with those of MW-7B.

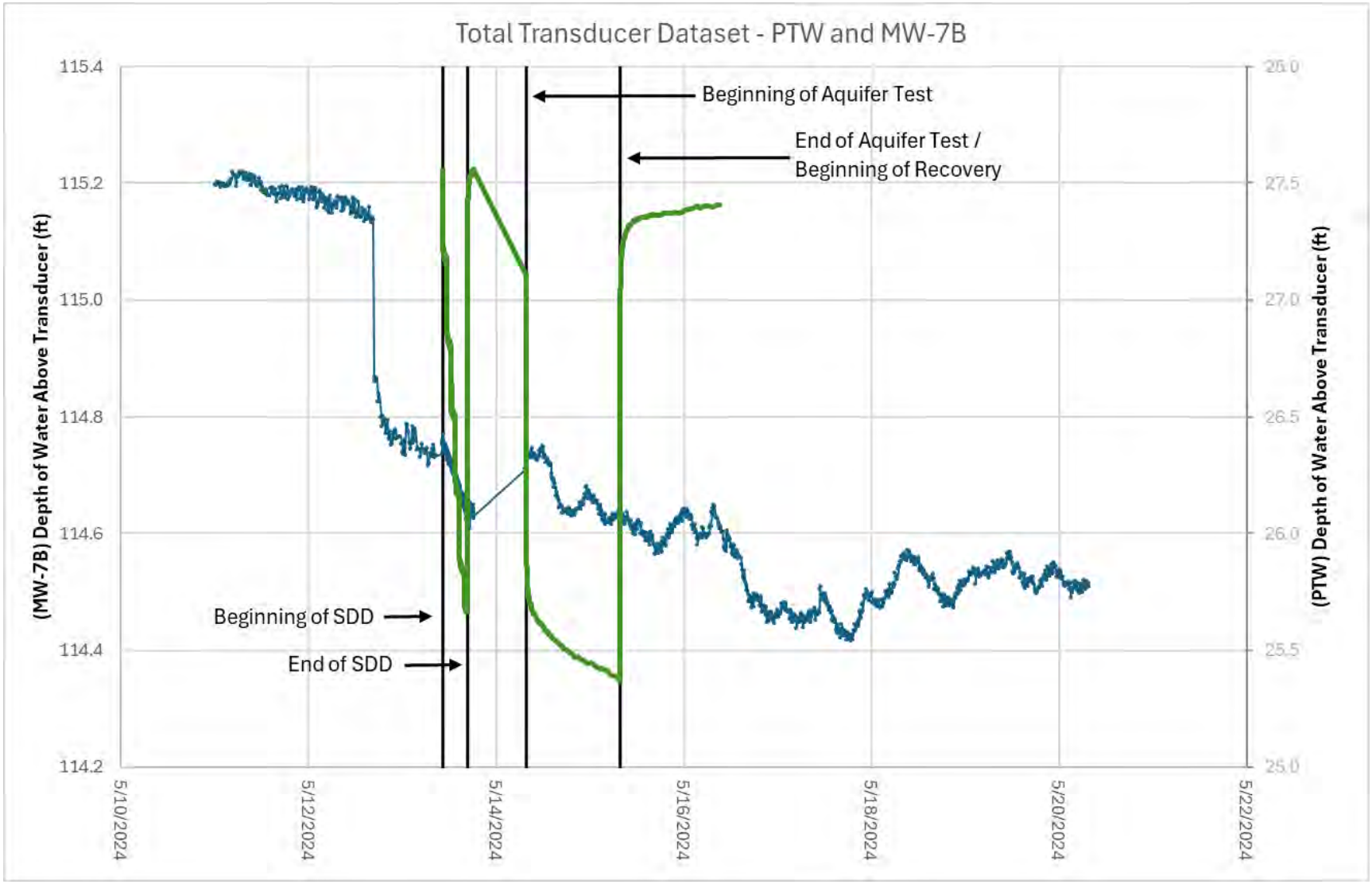

Figure 11. Glacial vs. Bedrock Well Comparison

4.3.7 Groundwater Quality Data

Groundwater sampling data collected from the PTW at the end of the constant rate test shows concentrations of boron, lithium, and molybdenum consistent with glacial aquifer sampling results of monitoring well MW-7C located nearest to the PTW location. Lab results from the PTW sample are contained in **Appendix E**.

5.0 Summary

Analysis of the Step Drawdown Data

- The transmissivity of the glacial aquifer based on the Neuman (1974) curve match to the SDD test is estimated at 7083 ft^2/day and hydraulic conductivity is estimated at 118 feet per day.

Analysis of Constant Rate Pump Test – PTW and Observation Wells

- The Neuman (1974) solution was used for analysis due to delayed yield observed.
- The transmissivity is estimated between 2,547 and 11,610 ft^2/day and the geomean was 7760 ft^2/day.
- Hydraulic conductivity is estimated between 42.5 and 196 ft/day and the geomean was 129 ft/day.
- Storativity ranges from 0.000143 to 0.00181.

Analysis of Distance Drawdown Data

- A distance drawdown analysis was calculated using Cooper-Jacob (1946) straight line method.
- The transmissivity of the aquifer is estimated at 5370 ft^2/day and hydraulic conductivity is estimated at 139 ft/day.
- Storativity was estimated using the calculated transmissivity at 0.00249.

Analysis of Glacial vs. Bedrock Data

- No drawdown was observed in the bedrock observation well during the pumping in the glacial aquifer.

6.0 References

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Westjohn, D. B. and Weaver, T. L., 1996a, Configuration of Fresh water/Saline-Water Interface and Geologic Controls on Distribution of Freshwater in a Regional Aquifer System, Central Lower Peninsula of Michigan: U.S. Geological Survey Water-Resources Investigations Report 94-4242, 44 p.

Appendix A

Boring Logs

PTW-1

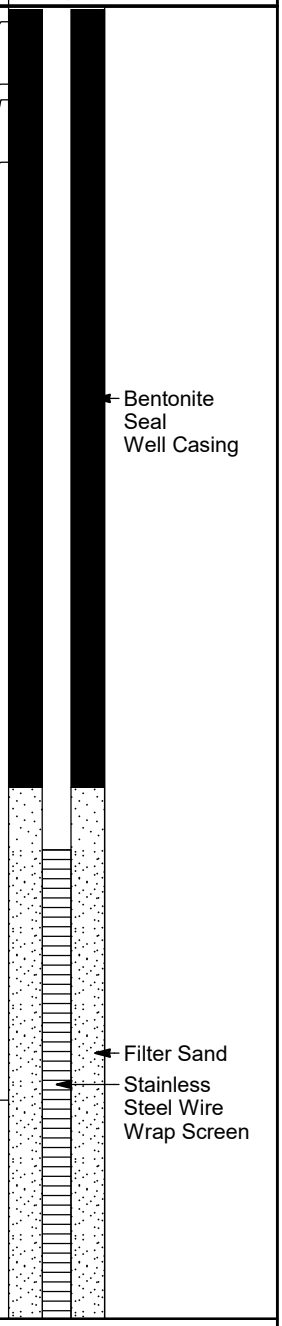
CLIENT Lansing Board of Water & Light
PROJECT NAME Erickson Power Station
PROJECT NUMBER 10173187
PROJECT LOCATION Eaton County, MI
DATE STARTED 5/8/24 **COMPLETED** 5/8/24
GROUND ELEVATION TBD **HOLE SIZE** 8"
DRILLING CONTRACTOR Cascade
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Tanten Buszka **CHECKED BY**
AT END OF DRILLING ---
NOTES
120hrs AFTER DRILLING 4.57 ft Post development

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0		SC		0.5 SANDY ORGANIC SOIL, (SC) dark brown (7.5YR 2.5/2), dry, topsoil fill
		SP		POORLY GRADED SAND WITH CLAY, (SP) brown (7.5YR 4/3), poorly graded, fine grained, moist, trace gravel
				2.5
		CL		3.0 SANDY LEAN CLAY, (CL) brown (7.5YR 4/3), poorly graded, fine to medium grained, moist
		ML		5.0 SANDY SILT, (ML) gray (7.5YR 5/1), poorly graded, fine to medium grained, saturated
5				POORLY GRADED SAND, (SP) gray (7.5YR 5/1), poorly graded, medium to coarse grained, saturated, trace silt seams
10				
15				
20		SP		
25				
30				
35				35.0
		GP		POORLY GRADED GRAVEL WITH SAND, (GP) gray (7.5YR 5/1), poorly graded, coarse grained, saturated
40				42.0

Bottom of borehole at 42.0 feet.

WELL DIAGRAM

Casing Type: 6" Sch 80 PVC



GENERAL BH / TP / WELL - GINT STD US.GDT - 7/1/24 09:53 - C:\USERS\TBUSZKA\ONEDRIVE - HDR, INC\LBWL-ERICKSON\GINT\LBWL1.GPJ

MW-2

CLIENT Lansing Board of Water & Light
PROJECT NAME Erickson Power Station
PROJECT NUMBER 10173187
PROJECT LOCATION Eaton County, MI
DATE STARTED 10/16/19 08:40 **COMPLETED** 10/16/19 10:18
GROUND ELEVATION 886.14 ft MSL **HOLE DIAMETER** 8"
DRILLING CONTRACTOR SME **DRILLER**
GROUND WATER LEVELS:
DRILLING METHOD HSA **EQUIPMENT**
▽ **AT TIME OF DRILLING** 20.00 ft / Elev 866.14 ft
LOGGED BY Emily Munoz **CHECKED BY**
▼ **48 HRS AFTER DRILLING** 20.52 ft / Elev 865.62 ft
NOTES Sample ID prefix LBWL-MW2-. Driller recorded blow counts on SME logs.

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0					Casing Top Elev: 885.97 (ft) Casing Type: 2" Sch 40 PVC
			LEAN CLAY, SILTY, (CL) brown (10YR 5/3), dry, stiff, low plasticity, fine sand		
				884.1	
2.0			LEAN CLAY, SILTY, (CL) brown (10YR 5/3), dry, stiff, low plasticity, fine sand, fine gravel		
4.0				882.1	
4.5			LEAN CLAY, SILTY, (CL) dark gray (10YR 4/1), dry, stiff, low plasticity, fine sand	881.6	
5			LEAN CLAY, SILTY, (CL) brown (10YR 5/3), dry, stiff, low plasticity, fine sand		
7.5				878.6	
8.5			LEAN CLAY, (CL) dark greenish gray (5GY 4/1), moist, stiff, medium plasticity	877.6	Bentonite Chips (Hydrated in Lifts)
10			LEAN CLAY, SILTY, (CL) brown (10YR 5/4), moist, medium stiff, low plasticity, fine sand		
10.5				875.6	
11.0			LEAN CLAY, (CL) dark greenish gray (5GY 4/1), moist, medium stiff, medium plasticity	875.1	
			LEAN CLAY, SILTY, (CL) brown (10YR 5/4), moist, medium stiff, low plasticity, fine sand		
13.5				872.6	
14.0			LEAN CLAY, (CL) dark greenish gray (5GY 4/1), moist, medium stiff, medium plasticity	872.1	
15					
15.0			LEAN CLAY, SILTY, (CL) brown (10YR 5/4), moist, medium stiff, low plasticity, fine sand	871.1	
			LEAN CLAY, SILTY, (CL) dark grayish brown (2.5Y 4/2), moist, soft to medium stiff, low plasticity, fine sand, fine gravel		
19.0				867.1	
20			CLAYEY SAND WITH GRAVEL, (SC) brown (10YR 5/4), poorly graded, fine		
20.0			▽ grained, moist, dense	866.1	
20.5			▼ POORLY GRADED SAND, (SP) brown (10YR 5/4), fine to medium grained, wet, loose	865.6	
			LEAN CLAY, SILTY, (CL) brown to olive (10YR 5/4), wet, medium stiff, low plasticity, lenses of fine sand		
23.5				862.6	
24.0			POORLY GRADED SAND, (SP) brown (10YR 5/4), fine to medium grained, wet, loose	862.1	
25	SS 24-26		POORLY GRADED SAND, (SP) light olive (2.5YR 5/3), fine to medium grained, wet, loose		Silica Sand Filter Pack
27.5				858.6	
28.0			LEAN CLAY, SILTY, (CL) gray (2.5Y 5/1), moist, soft, low plasticity, fine sand	858.1	
	SS 28-30		POORLY GRADED SAND, CLAYEY, (SP) grayish brown (2.5Y 5/2), fine to medium grained, wet, loose		Slot Size 0.010"
30					
30.0				856.1	
			CLAYEY SAND, (SC) grayish brown (2.5Y 5/2), fine grained, wet, loose, grades into sandy clay over depth		
32.0				854.1	
32.5			WELL GRADED SAND WITH GRAVEL, (SW) grayish brown (2.5Y 5/2), fine to	853.6	
	SS 32-34		coarse grained, wet, loose		
			LEAN CLAY, SILTY, (CL) grayish brown (2.5Y 5/2), wet, stiff, low plasticity, fine sand		
34.5				851.6	Endcap

Bottom of borehole at 34.5 feet.

MW-7

CLIENT Lansing Board of Water & Light
PROJECT NAME Erickson Power Station
PROJECT NUMBER 10173187
PROJECT LOCATION Eaton County, MI
DATE STARTED 06/07/21 12:00 **COMPLETED** 06/07/21 16:00
GROUND ELEVATION 868.32 ft MSL **HOLE DIAMETER** 6"
DRILLING CONTRACTOR SME **DRILLER**
GROUND WATER LEVELS:
DRILLING METHOD HSA **EQUIPMENT**
▽ **AT TIME OF DRILLING** 3.00 ft / Elev 865.32 ft
LOGGED BY Tanten Buszka **CHECKED BY**
▼ **92 HRS AFTER DRILLING** 4.24 ft / Elev 864.08 ft
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0.0					Casing Top Elev: 870.74 (ft) Casing Type: 2" Sch 40 PVC
			0.2 ORGANIC SOIL WITH SAND, (CL) dark olive to (2.5Y 4/4), dry, loose	868.2	
			LEAN CLAY WITH SAND, (CL-ML) dark grayish brown (2.5Y 4/2), dry, loose		
			1.0	867.3	
	SS		SILTY SAND, (SP-SM) dark grayish brown (2.5Y 4/2), fine grained, moist, medium dense		Bentonite Chips
2.5					
	SS		▽		
			▼		
5.0					
	SS				
			6.5	861.8	
			6.8 SILT, (ML) dark gray (10YR 4/1), fine grained, wet, medium dense	861.5	
			7.0 SILTY SAND, (SP-SM) dark gray (10YR 4/1), fine grained, wet, medium dense	861.3	
7.5	SS		POORLY GRADED SAND, (SP) dark gray (10YR 4/1), poorly graded, fine to medium grained, wet, medium dense		
			9.0	859.3	Silica Sand Filter Pack
	SS		POORLY GRADED SAND, (SP) dark grayish brown (2.5Y 4/2), poorly graded, fine to medium grained, wet, medium dense		Screen, 0.010" Slot Size
10.0					
	SS				
12.5					
			13.0	855.3	
	SS		POORLY GRADED SAND, (SP) dark gray (2.5Y 5/1), poorly graded, medium to coarse grained, wet, medium dense		
			14.0	854.3	
			14.3 SILT, (ML) dark gray (2.5Y 5/1), wet, medium dense	854.0	
15.0			POORLY GRADED SAND, (SP) dark gray (2.5Y 5/1), poorly graded, fine to medium grained, wet, medium dense		Endcap
			15.0	853.3	

Bottom of borehole at 15.0 feet.

MW-7B

CLIENT Lansing Board of Water & Light
PROJECT NAME Erickson Power Station
PROJECT NUMBER 10173187
PROJECT LOCATION Eaton County, MI
DATE STARTED 03/01/22 09:00 **COMPLETED** 03/03/22 12:00
GROUND ELEVATION 868.16 ft MSL **HOLE DIAMETER** 8"
DRILLING CONTRACTOR Cascade **DRILLER**
GROUND WATER LEVELS:
DRILLING METHOD Sonic **EQUIPMENT**
▽ **AT TIME OF DRILLING** 4.00 ft / Elev 864.16 ft
LOGGED BY Tanten Buszka **CHECKED BY**
▼ **AFTER DRILLING** 4.48 ft / Elev 863.68 ft
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0					Casing Top Elev: 870.28 (ft) Casing Type: 2" Sch 40 PVC
			0.5 SANDY ORGANIC SOIL, CLAYEY SAND, (SC-SM) black (7.5YR 2.5/1), poorly graded, fine to medium grained, moist, topsoil fill	867.7	
			3.0 POORLY GRADED SAND WITH SILT, SILTY SAND, (SM) gray (7.5YR 5/1), poorly graded, fine to medium grained, moist	865.2	
			POORLY GRADED SAND, SAND, (SP) gray (7.5YR 5/1), poorly graded, fine to medium grained, moist		
			6.0 POORLY GRADED SAND WITH SILT, SILTY SAND, (SP-SM) gray (7.5YR 5/1), poorly graded, fine to medium grained, saturated	862.2	Bentonite Chips
10					
20					
30					
			32.0 POORLY GRADED GRAVEL WITH CLAY AND SAND, GRAVEL, (GP-GC) gray (7.5YR 5/1), poorly graded, coarse grained, saturated	836.2	
			35.5	832.7	
			36.0 FAT CLAY WITH GRAVEL, GRAVELLY CLAY, (CH) gray (7.5YR 5/1), coarse grained, saturated	832.2	
			39.0 POORLY GRADED GRAVEL WITH CLAY AND SAND, GRAVEL, (GP-GC) gray (7.5YR 5/1), poorly graded, coarse grained, saturated	829.2	
40			40.0 POORLY GRADED SAND, SAND, (SP) gray (7.5YR 5/1), poorly graded, coarse grained, saturated	828.2	
			42.0 POORLY GRADED SAND WITH SILT, SILTY SAND, (SM) gray (2.5Y 5/1), poorly graded, fine grained, moist	826.2	
			SILT WITH SAND, SANDY SILT, (CL-ML) gray (2.5Y 5/1), poorly graded, fine grained, moist		
50					

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CLIENT Lansing Board of Water & Light **PROJECT NAME** Erickson Power Station

PROJECT NUMBER 10173187 **PROJECT LOCATION** Eaton County, MI

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
50			51.5	816.7	
			52.0 POORLY GRADED SAND, SAND, (SP) gray (2.5Y 5/1), poorly graded, fine to medium grained, moist	816.2	
			SILT WITH SAND, SANDY SILT, (CL-ML) gray (2.5Y 5/1), poorly graded, fine grained, moist		Well Casing
					Bentonite Cement Slurry
60					
			64.0	804.2	
			64.5 FAT CLAY, CLAY, (CH) gray (2.5Y 4/1), dry, Shale fragment artifacts	803.7	
			66.0 SILT WITH SAND, SANDY SILT, (CL-ML) gray (2.5Y 5/1), poorly graded, fine grained, dry	802.2	
			SHALE, highly weathered, very thinly laminated, light gray (10B 8/1), dry, [Saginaw] Trace angular gravel inclusions. No scructure was retained, sample completely broken upon retrival.		
70			70.0	798.2	
			SHALE, moderately weathered, thinly bedded, dark gray (7.5YR 2.5/1), dry, [Saginaw] Alternating beds of consolidated shale and weathered shale.		
			76.0	792.2	
			SHALE, slightly weathered, thinly bedded, dark gray (7.5YR 2.5/1), dry, [Saginaw] Trace angular gravel		
80					
			89.0	779.2	
90			SHALE, slightly weathered, thinly interbedded, dark gray with light gray (7.5YR 2.5/1), dry, [Saginaw] Interbedded black shale and sandstone. Unable to differentiate between drilling enduced fractures and naturally occuring.		
			100.0	768.2	
100			SANDSTONE, unweathered, massive, light gray (7.5YR 5/1), dry, [Saginaw]		
			102.0	766.2	
			SHALE, slightly weathered, thinly bedded, dark gray with light gray (7.5YR 2.5/1), dry, [Saginaw] Interbedded black shale and sandstone		
			105.0	763.2	Bentonite Chips

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CLIENT Lansing Board of Water & Light **PROJECT NAME** Erickson Power Station

PROJECT NUMBER 10173187 **PROJECT LOCATION** Eaton County, MI

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
110			109.0 SHALE, moderately weathered, thinly interbedded, dark gray with light gray (7.5YR 2.5/1), dry, [Saginaw] Majority black shale interbedded with sandstone. Highly weathered 105-106 with loose gravel. *(continued)* 759.2	Filter Pack
120			SHALE, highly weathered, thinly interbedded, dark gray with light gray (7.5YR 2.5/1), dry, [Saginaw] Core extreamly weathered upon retrival, clay content within breaks in core, angular/semi angular inclusions. Unable to identify natural fractures due to drilling method. 120.0 748.2	Well Screen

Bottom of borehole at 120.0 feet.

MW-7C

CLIENT Lansing Board of Water & Light
PROJECT NAME Erickson Power Station
PROJECT NUMBER 10173187
PROJECT LOCATION Eaton County, MI
DATE STARTED 03/08/22 11:30 **COMPLETED** 03/08/22 16:00
GROUND ELEVATION 869 ft MSL **HOLE DIAMETER** 8"
DRILLING CONTRACTOR Cascade **DRILLER**
GROUND WATER LEVELS:
DRILLING METHOD Sonic **EQUIPMENT**
AT TIME OF DRILLING 5.00 ft / Elev 864.00 ft
LOGGED BY Tanten Buszka **CHECKED BY**
AFTER DRILLING 5.20 ft / Elev 863.80 ft
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0					Casing Top Elev: 871.53 (ft) Casing Type: 2" Sch 40 PVC
			0.5 POORLY GRADED SAND WITH CLAY, CLAYEY SAND, (SC) dark brown (7.5YR 2.5/2), fine grained, dry, topsoil fill	868.5	
			2.0 POORLY GRADED SAND WITH CLAY, CLAYEY SAND, (SC-SM) brown (7.5YR 4/3), poorly graded, fine to medium grained, moist	867.0	
5			POORLY GRADED SAND WITH SILT, SILTY SAND, (SP-SM) brown (7.5YR 4/3), poorly graded, fine to medium grained, moist		
			6.0 POORLY GRADED SAND, SAND, (SP) gray (7.5YR 5/1), poorly graded, fine to medium grained, saturated	863.0	
10					
15			15.0	854.0	
			16.0 POORLY GRADED SAND, SAND, (SP) gray (7.5YR 5/1), poorly graded, medium to coarse grained, saturated	853.0	
			POORLY GRADED SAND, SAND, (SP) gray (7.5YR 5/1), poorly graded, fine to medium grained, saturated		
20					
25			25.0	844.0	Bentonite Cement Slurry Well Casing
			POORLY GRADED SAND, SAND, (SP) gray (7.5YR 5/1), poorly graded, fine to medium grained, saturated, Trace clay and gravel within sample		
30					
35					

(Continued Next Page)

CLIENT Lansing Board of Water & Light **PROJECT NAME** Erickson Power Station

PROJECT NUMBER 10173187 **PROJECT LOCATION** Eaton County, MI

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
35			POORLY GRADED SAND, SAND, (SP) gray (7.5YR 5/1), poorly graded, fine to medium grained, saturated, Trace clay and gravel within sample *(continued)*		
40					
				829.0	
			POORLY GRADED GRAVEL WITH SAND, SAND, (GP) gray (7.5YR 5/1), poorly graded, medium to coarse grained, saturated		
				827.0	
45			SILT, SILT, (ML) gray (7.5YR 5/1), dry, dense, non plastic, Trace sand and gravel		
50					
55					Filter Pack Well Screen
60					
				809.0	

40.0

42.0

60.0

Bottom of borehole at 60.0 feet.

MW-8

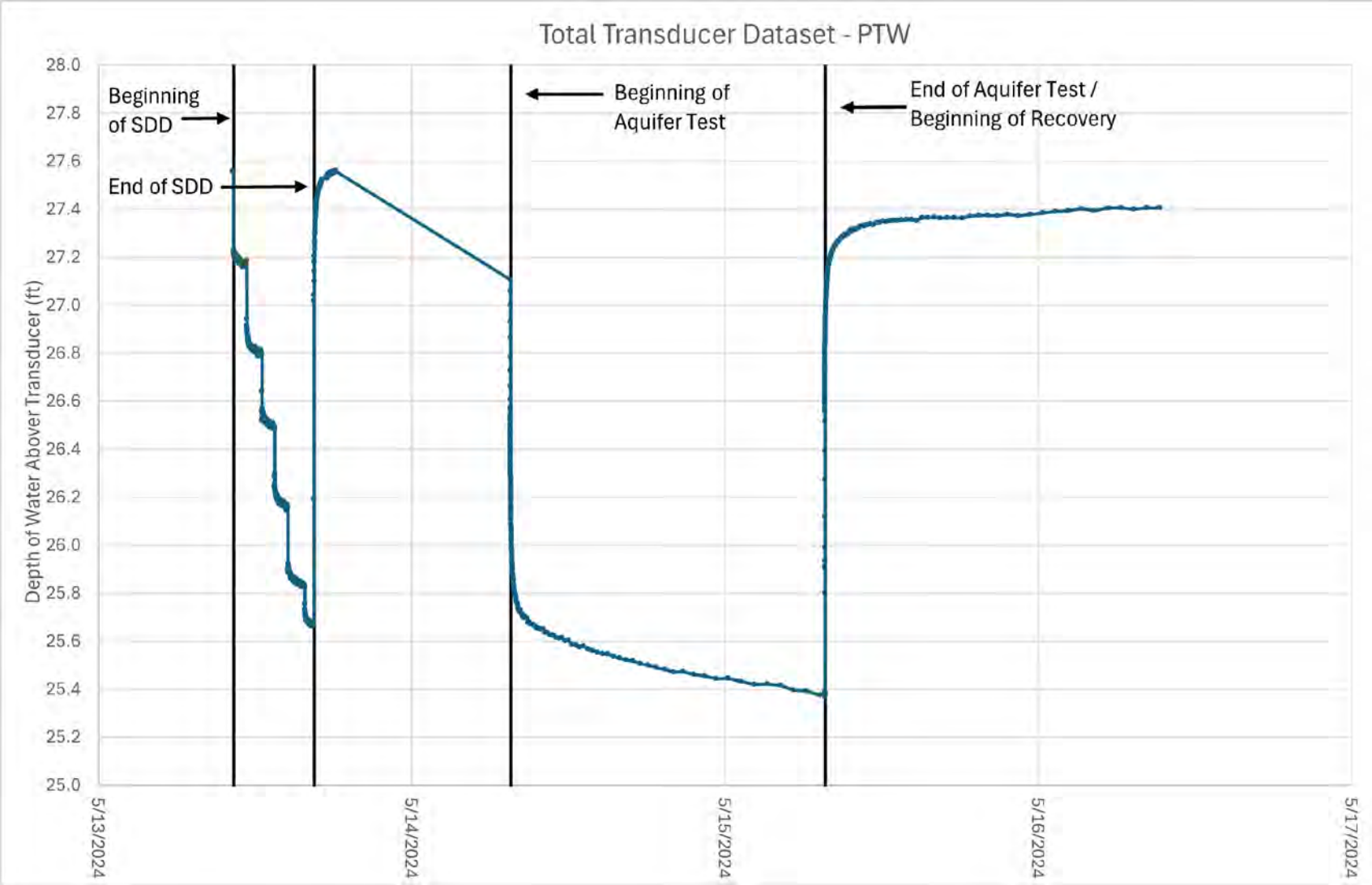
CLIENT Lansing Board of Water & Light
PROJECT NAME Erickson Power Station
PROJECT NUMBER 10173187
PROJECT LOCATION Eaton County, MI
DATE STARTED 06/08/21 08:30 **COMPLETED** 06/08/21 09:45
GROUND ELEVATION 871.14 ft MSL **HOLE DIAMETER** 6"
DRILLING CONTRACTOR SME **DRILLER**
GROUND WATER LEVELS:
DRILLING METHOD HSA **EQUIPMENT**
▽ **AT TIME OF DRILLING** 4.00 ft / Elev 867.14 ft
LOGGED BY Tanten Buszka **CHECKED BY**
▼ **92 HRS AFTER DRILLING** 6.46 ft / Elev 864.68 ft
NOTES

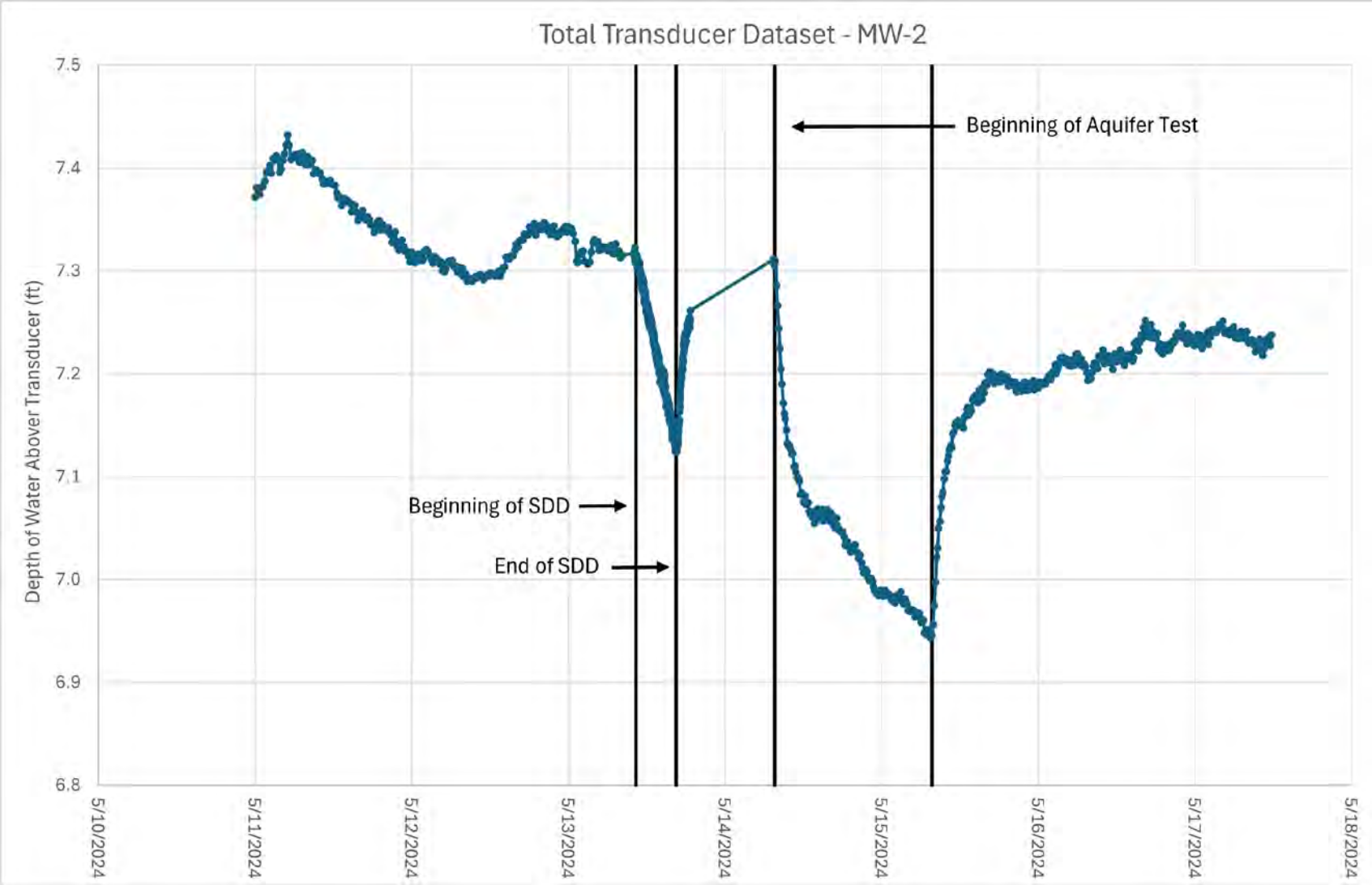
DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0					Casing Top Elev: 873.74 (ft) Casing Type: 2" Sch 40 PVC
	SS		1.0	870.1	
			POORLY GRADED SAND, (SP) dark yellowish brown (10YR 4/4), poorly graded, fine grained, dry, very loose		Bentonite Chips
	SS		4.0 ▽	867.1	
			POORLY GRADED SAND, (SP) brown (10YR 5/3), poorly graded, fine to medium grained, moist, very loose		
5			4.8	866.4	
	SS		POORLY GRADED SAND WITH CLAY, CLAYEY SAND, (CH) yellowish brown (10YR 5/4), poorly graded, fine to medium grained, wet, loose		
			6.0	865.1	
	SS		▼ POORLY GRADED SAND, (SP) yellowish brown (10YR 5/4), poorly graded, fine grained, wet, medium dense		
			7.0	864.1	
	SS		CLAYEY SAND, SAND, (SP-SC) yellowish brown (10YR 5/4), poorly graded, fine grained, wet, loose		
			7.8	863.4	
			8.0 POORLY GRADED SAND, (SP) yellowish brown (10YR 5/4), poorly graded, medium grained, wet, loose	863.1	
			9.0 CLAYEY SAND, CLAYEY SAND, (SP-SC) yellowish brown (10YR 5/4), poorly graded, fine to medium grained, wet, loose	862.1	
			9.5 FAT CLAY WITH SAND, SANDY CLAY, (SW-SC) grayish brown (10YR 5/2), poorly graded, fine grained, wet, loose	861.6	
10	SS		POORLY GRADED SAND, SILTY, (SP-SC) yellowish brown (10YR 5/4), poorly graded, fine to coarse grained, wet, loose		Silica Sand Filter Pack
			11.0	860.1	
	SS		POORLY GRADED SAND, (SP) dark yellowish brown (10YR 5/4), poorly graded, fine grained, wet, medium dense		Screen, 0.010" Slot Size
	SS				
15			15.0	856.1	
	SS		POORLY GRADED SAND WITH GRAVEL, GRAVELLY SAND, (SP) dark yellowish brown (10YR 5/4), poorly graded, fine to coarse grained, wet, loose		Endcap
			17.5	853.6	

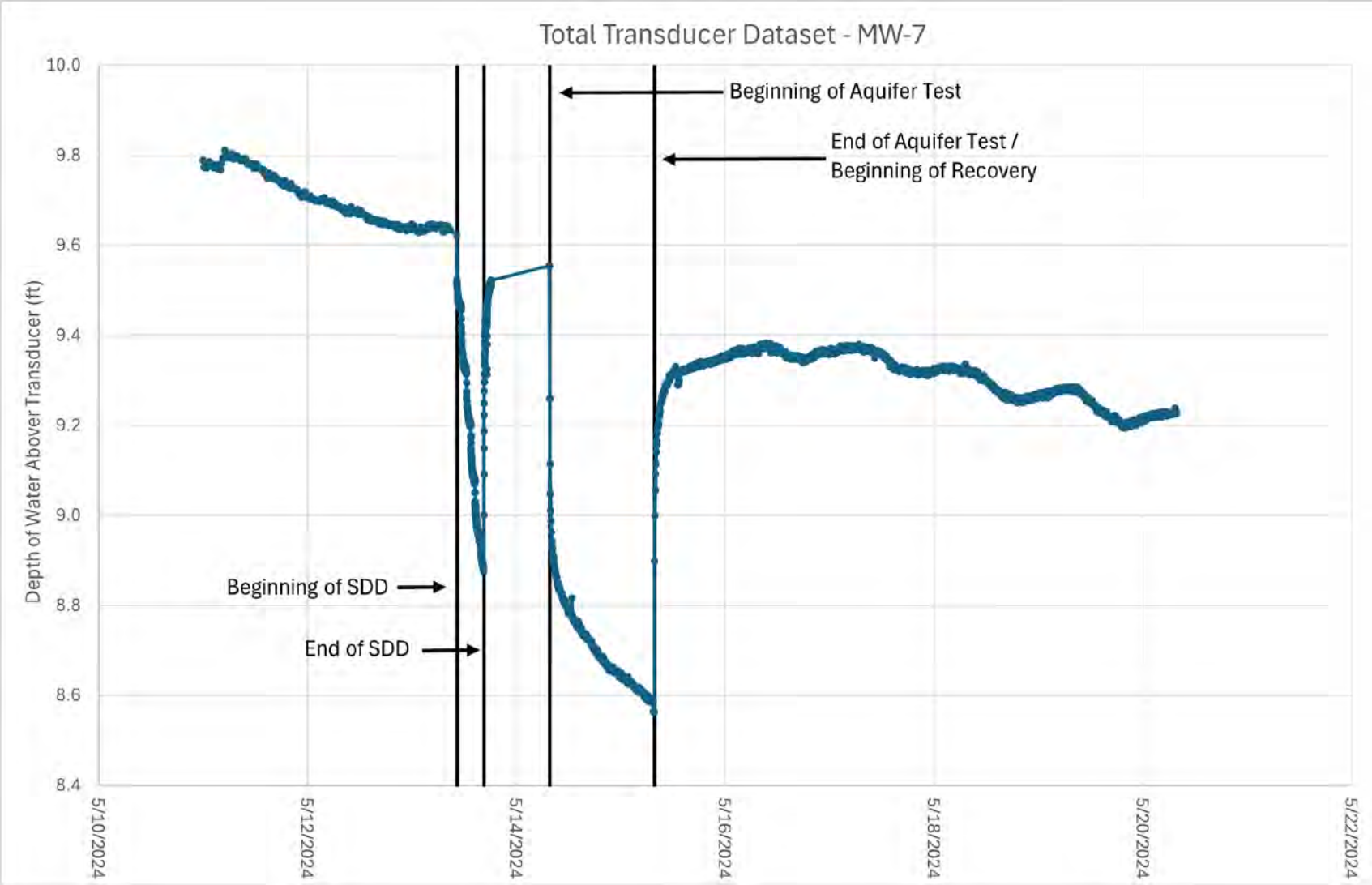
Bottom of borehole at 17.5 feet.

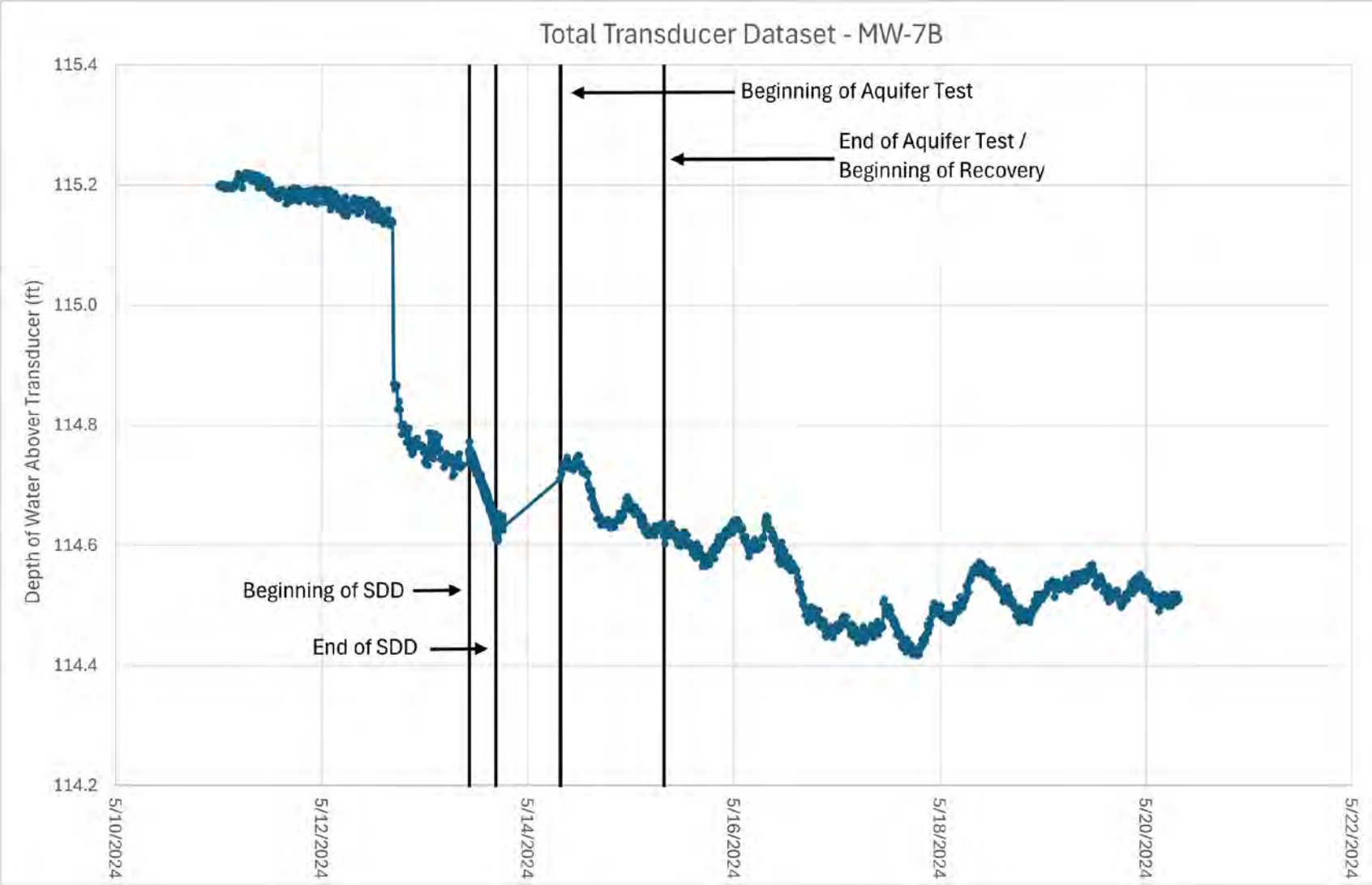
Appendix B

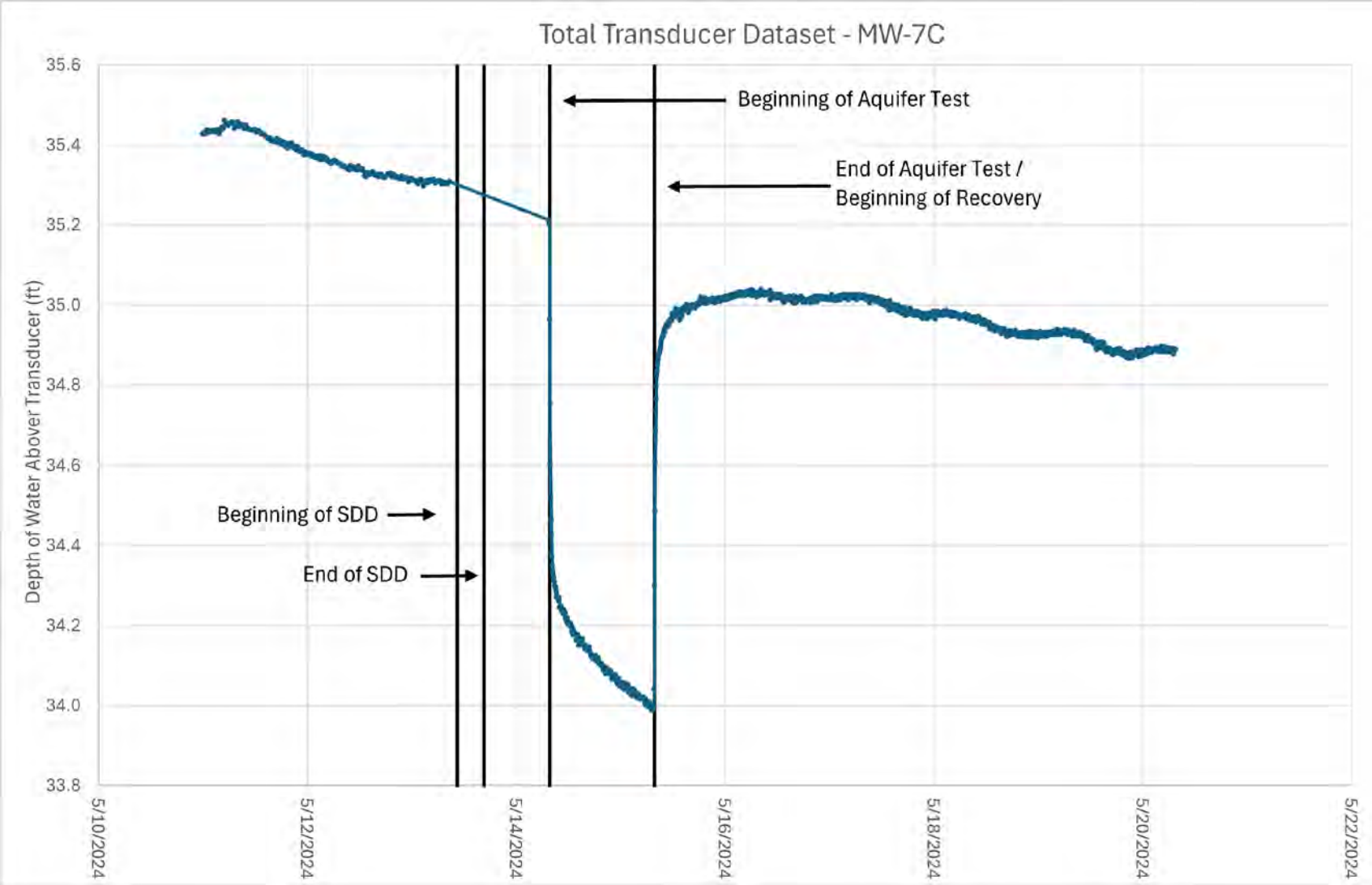
Transducer Data Graphs

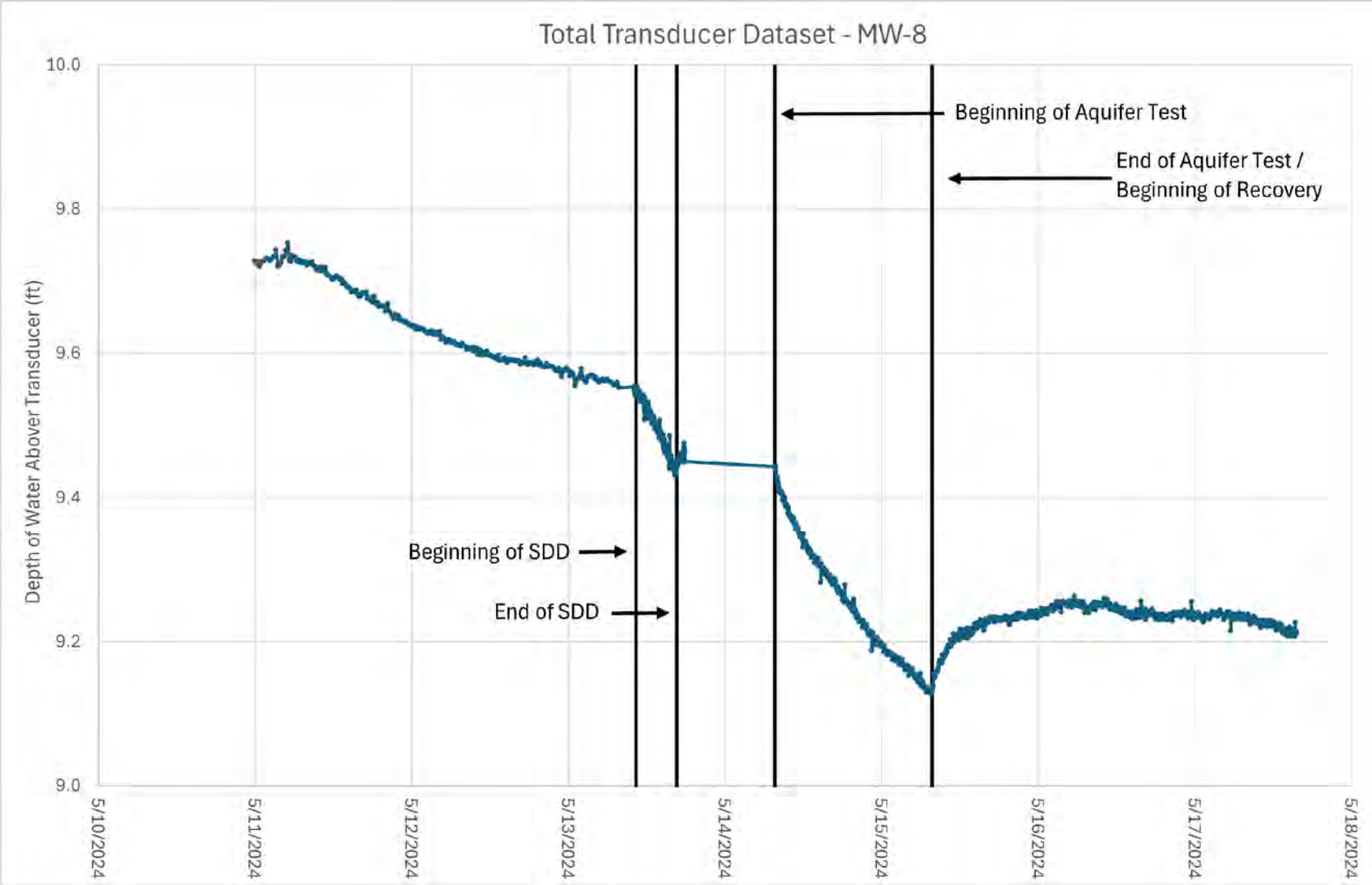

Total Transducer Dataset - PTW
Beginning of SDD
End of SDD
Beginning of Aquifer Test
End of Aquifer Test / Beginning of Recovery
Depth of Water Above Transducer (ft)
28.0
27.8
27.6
27.4
27.2
27.0
26.8
26.6
26.4
26.2
26.0
25.8
25.6
25.4
25.2
25.0
5/13/2024
5/14/2024
5/15/2024
5/16/2024
5/17/2024


Total Transducer Dataset - MW-2
Depth of Water Above Transducer (ft)
7.5
7.4
7.3
7.2
7.1
7.0
6.9
6.8
Beginning of Aquifer Test
Beginning of SDD
End of SDD
5/10/2024
5/11/2024
5/12/2024
5/13/2024
5/14/2024
5/15/2024
5/16/2024
5/17/2024
5/18/2024


Total Transducer Dataset - MW-7
Depth of Water Above Transducer (ft)
10.0
9.8
9.6
9.4
9.2
9.0
8.8
8.6
8.4
Beginning of Aquifer Test
End of Aquifer Test /
Beginning of Recovery
Beginning of SDD
End of SDD
5/10/2024
5/12/2024
5/14/2024
5/16/2024
5/18/2024
5/20/2024
5/22/2024


Total Transducer Dataset - MW-7B
Depth of Water Above Transducer (ft)
115.4
115.2
115.0
114.8
114.6
114.4
114.2
Beginning of Aquifer Test
End of Aquifer Test /
Beginning of Recovery
Beginning of SDD
End of SDD
5/10/2024
5/12/2024
5/14/2024
5/16/2024
5/18/2024
5/20/2024
5/22/2024


Total Transducer Dataset - MW-7C
Depth of Water Above Transducer (ft)
35.6
35.4
35.2
35.0
34.8
34.6
34.4
34.2
34.0
33.8
Beginning of Aquifer Test
End of Aquifer Test /
Beginning of Recovery
Beginning of SDD
End of SDD
5/10/2024
5/12/2024
5/14/2024
5/16/2024
5/18/2024
5/20/2024
5/22/2024


Total Transducer Dataset - MW-8
Depth of Water Above Transducer (ft)
10.0
9.8
9.6
9.4
9.2
9.0
Beginning of Aquifer Test
End of Aquifer Test / Beginning of Recovery
Beginning of SDD
End of SDD
5/10/2024
5/11/2024
5/12/2024
5/13/2024
5/14/2024
5/15/2024
5/16/2024
5/17/2024
5/18/2024

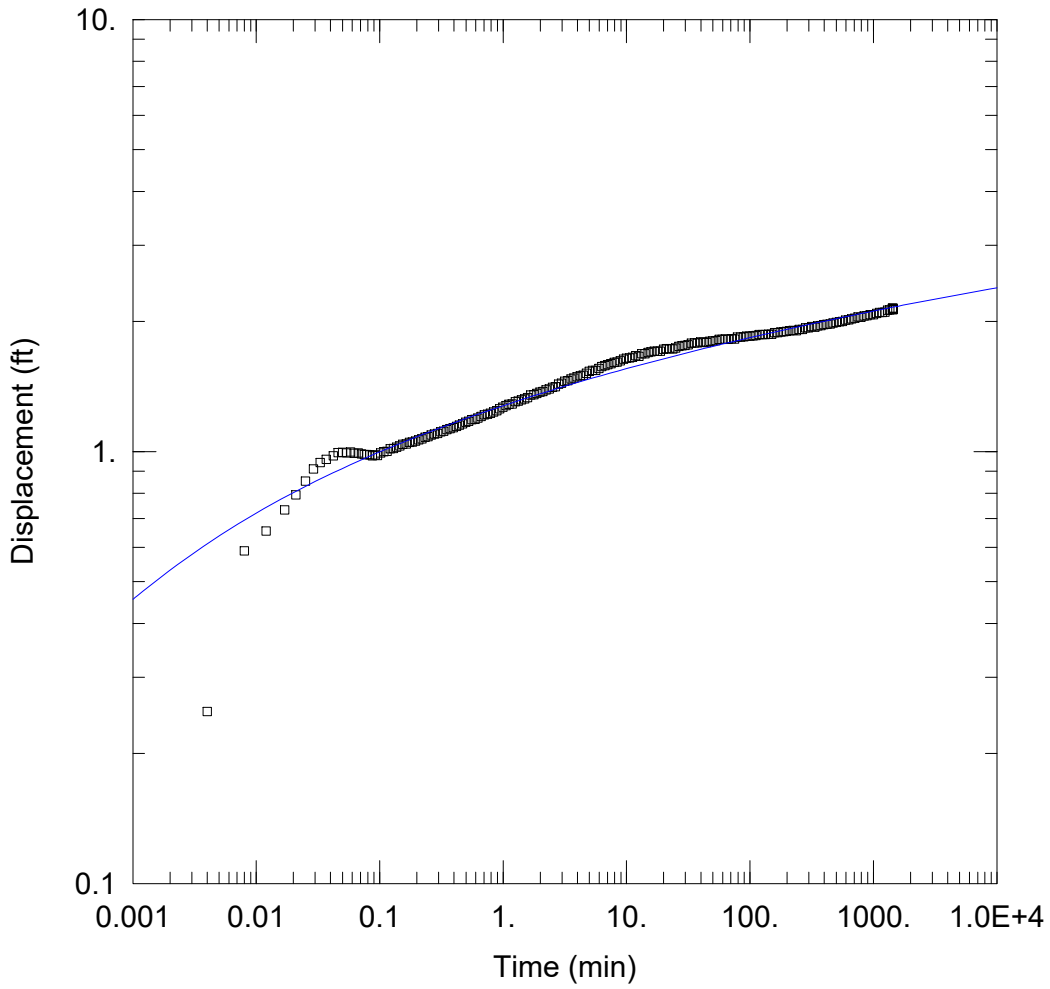
Appendix C

Manual Groundwater Measurements

PTW		MW-7		MW-7B		MW-7C		MW-8		MW-2	
Time	Water Level (ft btoc)	Time	Water Level (ft btoc)	Time	Water Level (ft btoc)	Time	Water Level (ft btoc)	Time	Water Level (ft btoc)	Time	Water Level (ft btoc)
5/9/2024 9:20	6.15	5/9/2024 12:00	4.84	5/9/2024 12:00	4.96	5/9/2024 12:00	5.91	5/9/2024 12:00	8.05	5/9/2024 12:00	19.27
5/10/2024 8:15	6.05	5/10/2024 15:37	4.93	5/10/2024 15:34	5.00	5/10/2024 15:32	6.10	5/10/2024 15:42	8.17	5/10/2024 16:00	19.35
5/11/2024 12:00	6.43	5/11/2024 7:46	5.08	5/11/2024 7:46	5.03	5/11/2024 7:44	6.17	5/11/2024 7:50	8.37	5/13/2024 10:00	19.53
5/13/2024 9:33	5.80	5/13/2024 9:10	5.09	5/13/2024 9:10	5.04	5/13/2024 9:08	6.18	5/13/2024 9:06	8.37	5/14/24 7:22	19.64
5/13/2024 10:13	5.80	5/13/2024 10:14	5.10	5/13/2024 10:18	5.04	5/14/24 7:09	6.25	5/13/2024 10:10	8.37	5/14/24 11:48	19.87
5/14/2024 7:06	5.90	5/14/24 7:07	5.18	5/14/24 7:08	5.09	5/14/24 7:40	6.45	5/14/24 7:12	8.48	5/14/24 15:32	19.87
5/14/2024 7:36	7.02	5/14/24 7:39	5.50	5/14/24 7:52	5.07	5/14/24 7:51	6.85	5/14/24 8:05	8.51	5/14/24 17:00	19.87
5/14/2024 7:38	7.35	5/14/24 7:50	5.71	5/14/24 8:01	5.07	5/14/24 8:01	7.00	5/14/24 8:24	8.52	5/14/24 20:00	19.86
5/14/2024 7:42	7.55	5/14/24 8:00	5.75	5/14/24 8:13	5.07	5/14/24 8:12	7.07	5/14/24 8:55	8.53	5/15/24 2:42	20.00
5/14/2024 7:46	7.62	5/14/24 8:10	5.80	5/14/24 8:53	5.07	5/14/24 8:21	7.10	5/14/24 9:33	8.55	5/15/24 5:08	20.02
5/14/2024 7:50	7.66	5/14/24 8:21	5.81	5/14/24 10:12	5.07	5/14/24 8:32	7.14	5/14/24 10:24	8.56	5/15/24 6:50	20.04
5/14/2024 7:54	7.67	5/14/24 8:31	5.82	5/14/24 11:26	5.08	5/14/24 8:52	7.15	5/14/24 11:28	8.58	5/15/24 10:10	19.87
5/14/2024 7:58	7.69	5/14/24 8:52	5.85	5/14/24 12:44	5.08	5/14/24 9:10	7.19	5/14/24 12:47	8.59	5/15/24 12:21	19.84
5/14/2024 8:02	7.71	5/14/24 9:10	5.87	5/14/24 13:47	5.08	5/14/24 9:32	7.19	5/14/24 13:48	8.62	5/17/24 11:44	19.85
5/14/2024 8:08	7.72	5/14/24 9:31	5.88	5/14/24 14:46	5.08	5/14/24 10:22	7.22	5/14/24 14:50	8.63		
5/14/2024 8:15	7.72	5/14/24 10:21	5.90	5/14/24 15:46	5.09	5/14/24 11:27	7.27	5/14/24 15:51	8.64		
5/14/2024 8:20	7.75	5/14/24 11:26	5.93	5/14/24 17:00	5.09	5/14/24 12:45	7.28	5/14/24 17:10	8.66		
5/14/2024 8:30	7.76	5/14/24 12:44	5.94	5/14/24 18:00	5.12	5/14/24 13:47	7.30	5/14/24 18:10	8.67		
5/14/2024 8:40	7.77	5/14/24 13:46	5.98	5/14/24 19:00	5.13	5/14/24 14:47	7.29	5/14/24 19:07	8.69		
5/14/2024 8:50	7.78	5/14/24 14:45	5.98	5/14/24 20:00	5.10	5/14/24 15:46	7.31	5/14/24 20:05	8.68		
5/14/2024 9:08	7.80	5/14/24 15:45	5.98	5/14/24 21:00	5.10	5/14/24 17:05	7.29	5/14/24 21:05	8.70		
5/14/2024 9:50	7.82	5/14/24 17:00	6.00	5/14/24 22:00	5.10	5/14/24 18:10	7.37	5/14/24 22:05	8.70		
5/14/2024 10:20	7.83	5/14/24 18:03	5.98	5/14/24 23:00	5.14	5/14/24 19:05	7.35	5/14/24 23:05	8.72		
5/14/2024 11:25	7.86	5/14/24 19:00	6.06	5/15/24 0:00	5.14	5/14/24 20:00	7.33	5/15/24 0:00	8.75		
5/14/2024 12:43	7.88	5/14/24 20:00	6.04	5/15/24 1:00	5.12	5/14/24 21:00	7.35	5/15/24 1:00	8.75		
5/14/2024 13:45	7.89	5/14/24 21:00	6.02	5/15/24 2:27	5.13	5/14/24 22:00	7.35	5/15/24 2:24	8.76		
5/14/2024 14:45	7.90	5/14/24 22:00	6.03	5/15/24 3:38	5.13	5/14/24 23:00	7.40	5/15/24 3:40	8.78		
5/14/2024 15:45	7.92	5/14/24 23:00	6.06	5/15/24 4:51	5.13	5/15/24 0:00	7.40	5/15/24 4:48	8.79		
5/14/2024 17:00	7.90	5/15/24 0:00	6.06	5/15/24 6:32	5.14	5/15/24 1:00	7.44	5/15/24 6:53	8.80		
5/14/2024 18:00	7.96	5/15/24 1:00	6.08	5/15/24 7:27	5.14	5/15/24 2:28	7.44	5/15/24 7:23	8.81		
5/14/2024 19:00	7.94	5/15/24 2:26	6.10	5/15/24 7:54	5.16	5/15/24 3:39	7.45	5/15/24 7:57	8.80		
5/14/2024 20:00	7.90	5/15/24 3:38	6.12	5/15/24 8:03	5.16	5/15/24 4:52	7.46	5/15/24 8:11	8.79		
5/14/2024 21:00	7.90	5/15/24 4:50	6.13	5/15/24 8:08	5.16	5/15/24 6:33	7.48	5/15/24 8:30	8.78		
5/14/2024 22:00	7.92	5/15/24 6:32	6.15	5/15/24 9:12	5.15	5/15/24 7:26	7.49	5/15/24 9:19	8.77		
5/14/2024 23:00	8.02	5/15/24 7:28	6.16	5/15/24 10:00	5.16	5/15/24 7:46	7.16	5/15/24 11:01	8.73		
5/15/2024 0:00	8.02	5/15/24 7:45	5.77	5/15/24 11:05	5.16	5/15/24 7:50	7.01	5/15/2024 12:12	8.73		
5/15/2024 1:00	8.00	5/15/24 7:50	5.69	5/15/2024 12:03	5.16	5/15/24 7:55	6.89	5/15/2024 13:10	8.73		
5/15/2024 2:26	8.00	5/15/24 7:53	5.65	5/15/2024 13:06	5.16	5/15/24 8:03	6.77	5/16/2024 7:45	8.68		
5/15/2024 3:37	8.06	5/15/24 8:02	5.61	5/16/2024 7:45	5.22	5/15/24 8:09	6.72	5/17/2024 15:13	8.73		
5/15/2024 4:50	8.07	5/15/24 8:08	5.59	5/17/2024 16:21	5.25	5/15/24 8:19	6.66				
5/15/2024 6:31	8.08	5/15/24 8:18	5.56	5/20/2024 7:46	5.31	5/15/24 8:28	6.63				
5/15/2024 7:29	8.09	5/15/24 8:27	5.53			5/15/24 8:49	6.60				
5/15/2024 7:38	8.10	5/15/24 8:48	5.5			5/15/24 9:13	6.57				
5/15/2024 7:39	7.3	5/15/24 9:12	5.49			5/15/24 10:00	6.53				
5/15/2024 7:40	6.75	5/15/24 9:59	5.45			5/15/24 11:02	6.52				
5/15/2024 7:41	6.58	5/15/24 11:04	5.41			5/15/24 12:04	6.52				
5/15/2024 7:43	6.5	5/15/24 12:03	5.41			5/15/24 13:07	6.50				
5/15/2024 7:45	6.44	5/15/24 13:06	5.41			5/16/24 7:45	6.42				
5/15/2024 7:47	6.38	5/17/24 16:20	5.43			5/17/24 15:45	6.48				
5/15/2024 7:49	6.36	5/20/2024 7:39	5.52			5/20/24 7:32	6.60				
5/15/2024 7:51	6.33					5/20/24 8:10	6.60				
5/15/2024 7:53	6.32										
5/15/2024 8:00	6.29										
5/15/2024 8:07	6.26										
5/15/2024 8:17	6.23										
5/15/2024 8:27	6.22										
5/15/2024 8:37	6.2										
5/15/2024 8:47	6.19										
5/15/2024 8:57	6.18										
5/15/2024 9:07	6.18										
5/15/2024 9:58	6.15										
5/15/2024 11:03	6.13										
5/15/2024 12:02	6.12										
5/15/2024 13:02	6.12										
5/16/2024 7:45	6.07										
5/17/2024 16:19	6.12										
5/20/2024 7:45	6.22										

Appendix D

AQTESOLV Plots



WELL TEST ANALYSIS

Data Set: C:\...\PTW_NeumanTB.aqt
Date: 11/19/24 Time: 10:08:25

PROJECT INFORMATION

Company: HDR
Client: LBWL Erickson
Project: 10173187
Location: Lansing, MI
Test Date: 5/26/2023

AQUIFER DATA

Saturated Thickness: 60. ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
PTW	0	0

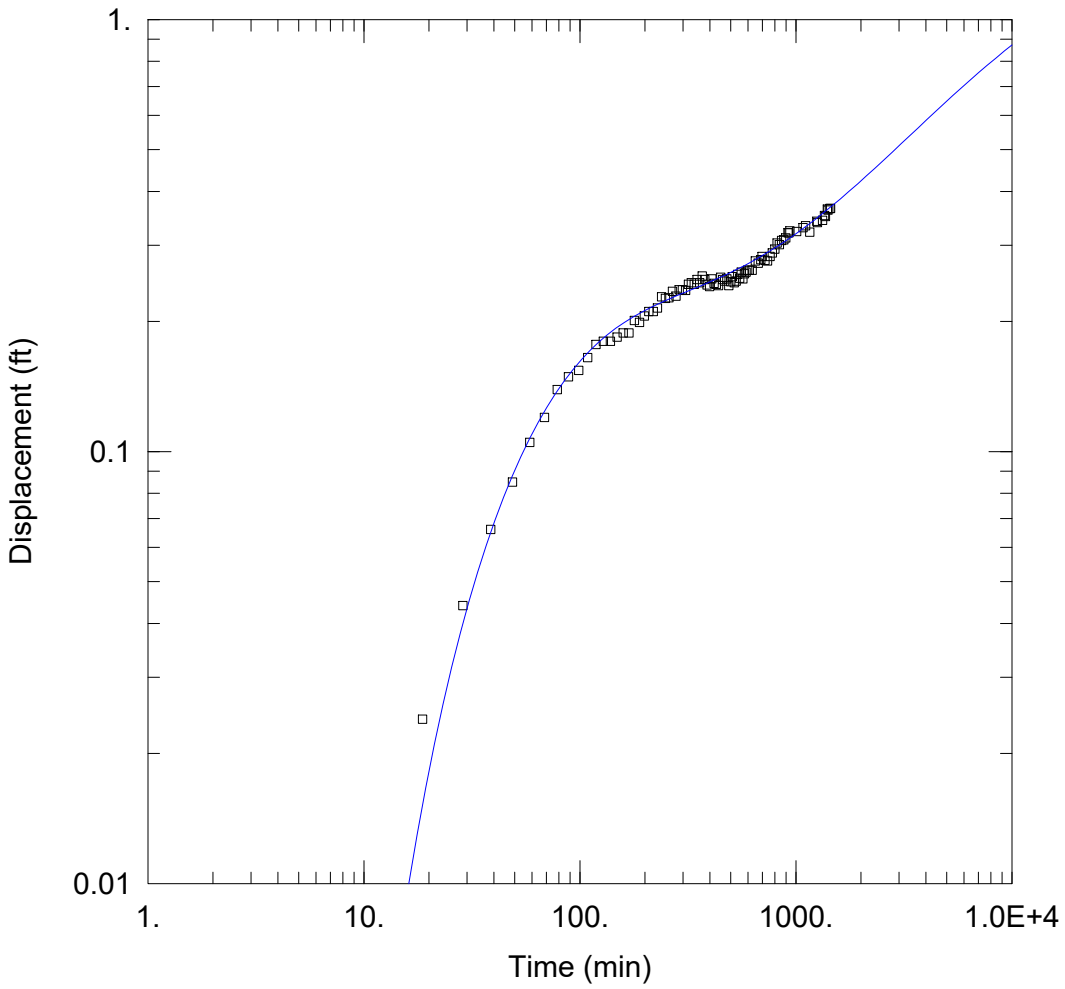
Observation Wells

Well Name	X (ft)	Y (ft)
▫ PTW	0	0

SOLUTION

Aquifer Model: Unconfined
Solution Method: Neuman

T = 8370.4 ft^2/day
S = 0.0001657
Sy = 0.001738
ß = 0.1739



WELL TEST ANALYSIS

Data Set: C:\...\ObsMW2_NeumanMolly.aqt
Date: 11/19/24 Time: 09:48:28

PROJECT INFORMATION

Company: HDR
Client: Erickson
Location: Lansing, MI
Test Well: PTW
Test Date: 5/14/2024

AQUIFER DATA

Saturated Thickness: 60. ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
PTW	0	0

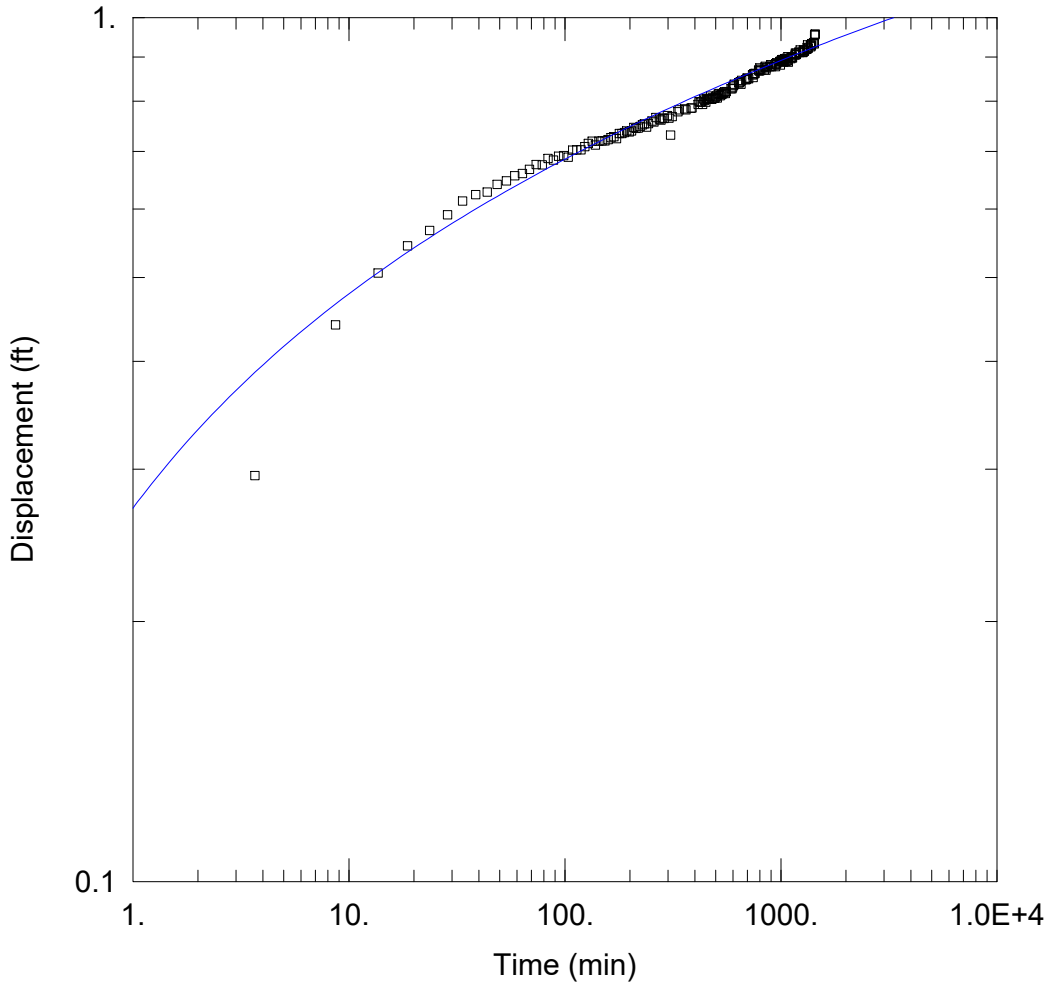
Observation Wells

Well Name	X (ft)	Y (ft)
▫ MW-2	520	0

SOLUTION

Aquifer Model: Unconfined
Solution Method: Neuman

T = 2547.4 ft^2/day
S = 0.001088
Sy = 0.01734
ß = 0.8



WELL TEST ANALYSIS

Data Set: C:\...\ObsMW7_NeumanMolly.aqt
Date: 11/19/24 Time: 09:48:51

PROJECT INFORMATION

Company: HDR
Client: BWL
Location: Erickson
Test Well: PTW
Test Date: 9/10/24

AQUIFER DATA

Saturated Thickness: 63. ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
PTW	0	0

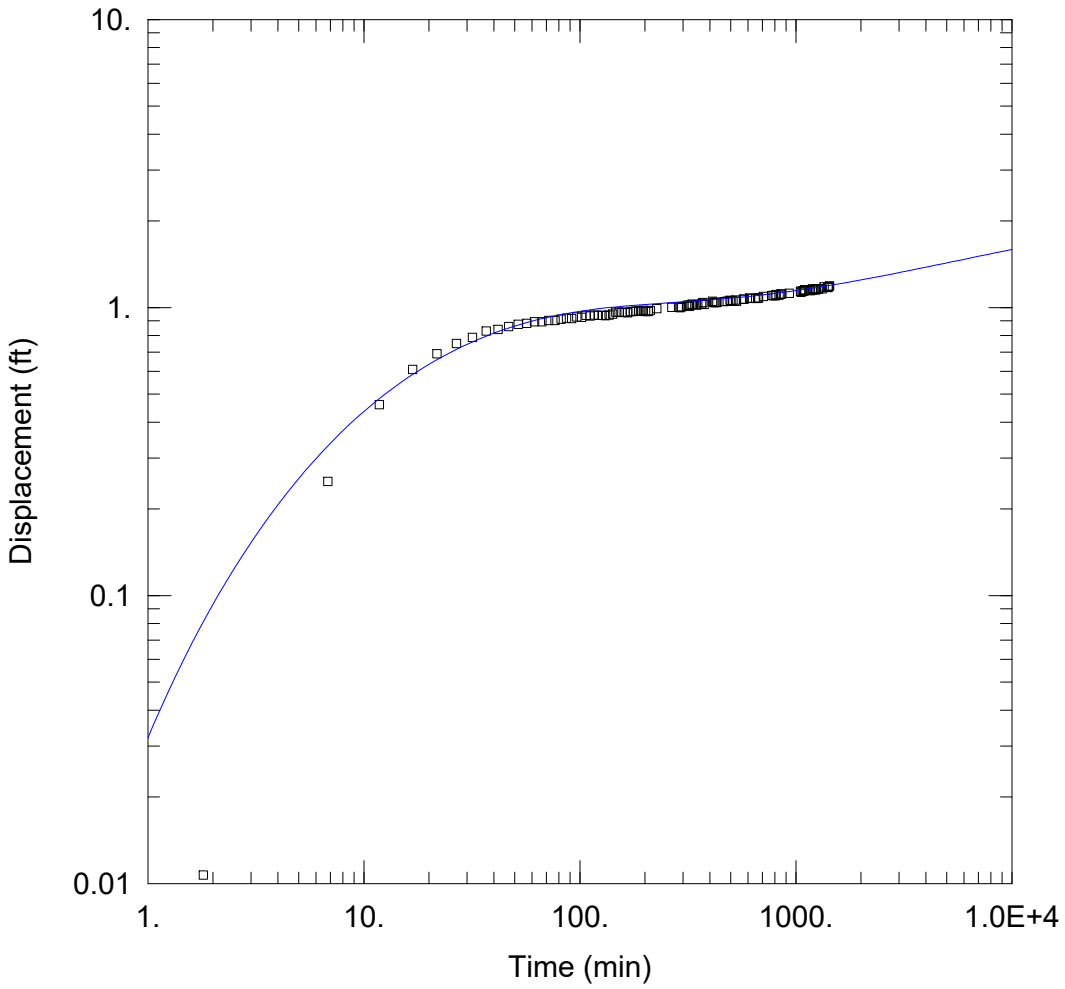
Observation Wells

Well Name	X (ft)	Y (ft)
▫ MW-7	8.5	0

SOLUTION

Aquifer Model: Unconfined
Solution Method: Neuman

T = 1.131E+4 ft^2/day
S = 0.0001427
Sy = 0.009415
ß = 0.2



WELL TEST ANALYSIS

Data Set: C:\...\ObsMW7C_NeumanTB.aqt
Date: 11/19/24 Time: 09:49:14

PROJECT INFORMATION

Company: HDR
Client: BWL
Location: Erickson
Test Well: PTW
Test Date: 9/10/24

AQUIFER DATA

Saturated Thickness: 60. ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
PTW	0	0

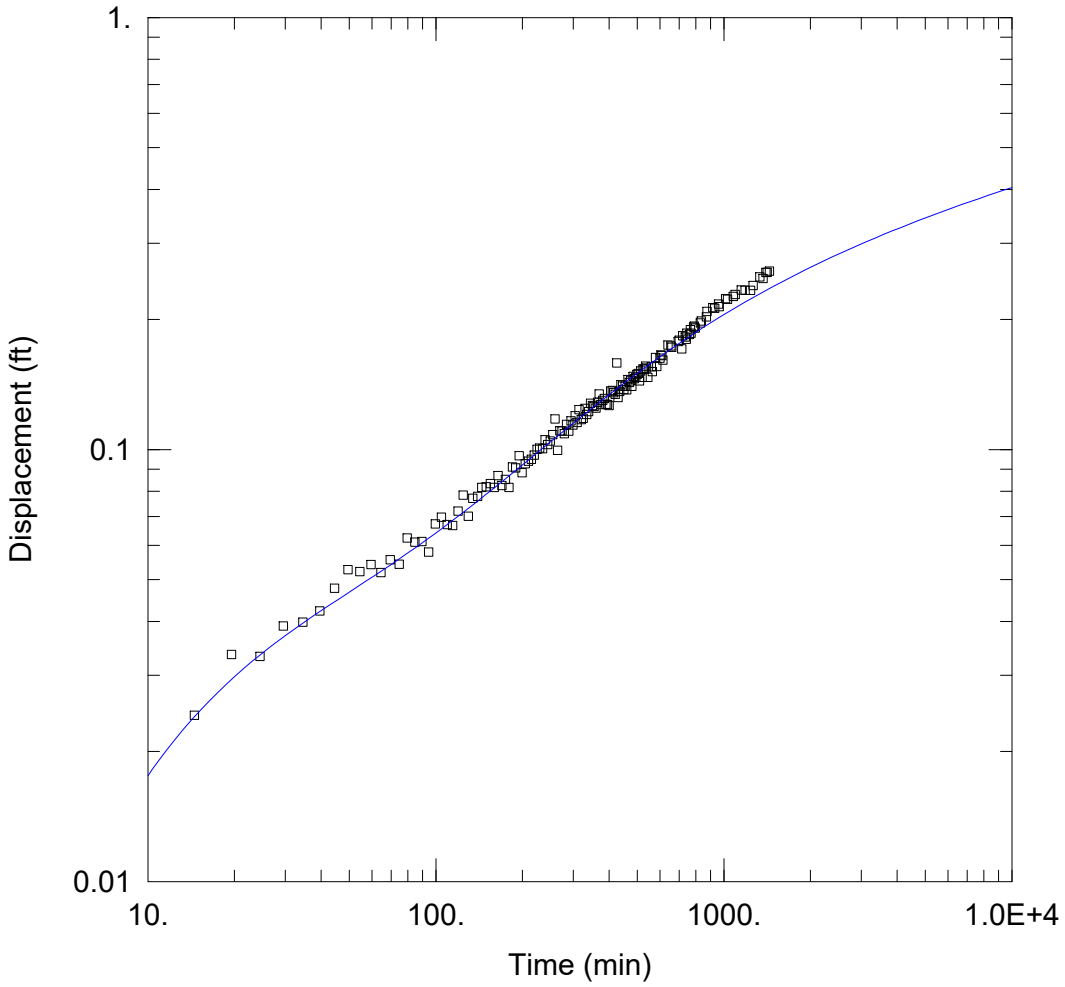
Observation Wells

Well Name	X (ft)	Y (ft)
▫ MW-7C	8	0

SOLUTION

Aquifer Model: Unconfined
Solution Method: Neuman

T = 3969.2 ft^2/day
S = 0.0008181
Sy = 0.01039
ß = 0.0001044



WELL TEST ANALYSIS

Data Set: C:\...\ObsMW8_NeumanMolly.aqt
Date: 11/19/24 Time: 09:50:21

PROJECT INFORMATION

Company: HDR
Client: Erickson
Location: Lansing, MI
Test Well: PTW
Test Date: 5/14/2024

AQUIFER DATA

Saturated Thickness: 60. ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
PTW	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
MW-8	438	0

SOLUTION

Aquifer Model: Unconfined
Solution Method: Neuman

T = 1.161E+4 ft^2/day
S = 0.001023
Sy = 0.007444
ß = 0.414

Appendix E

PTW Groundwater Sample Lab Report

Analytical Laboratory Report

Report ID: S62262.01(01)
Generated on 07/09/2024

Report to

Attention: Bryce Burkett
HDR Inc.
1000 Oakbrook Drive, Suite 200
Ann Arbor, MI 48104

Phone: 255-241-2944 FAX:
Email: Bryce.Burkett@HDRinc.com

Addtional Contacts: Molly Reeves

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S62262.01
Project: HDR - Erickson Pump Test
Collected Date(s): 05/15/2024
Submitted Date/Time: 05/20/2024 14:39
Sampled by: Tanten Buszka
P.O. #:

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Sample Summary (Page 5)

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Analytical Laboratory Report

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2320B	Standard Method 2320 B 2011
SM2340C	Standard Method 2340 C 2011
SM2540C	Standard Method 2540 C 2015
SM2540D	Standard Method 2540 D 2015
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Analytical Laboratory Report

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S62262.01	PTW	Groundwater	05/15/24 07:35

Analytical Laboratory Report

Lab Sample ID: S62262.01
Sample Tag: PTW
Collected Date/Time: 05/15/2024 07:35
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	1L Plastic	None	Yes	18.2	IR
1	500mL Plastic	None	Yes	18.2	IR
1	250mL Plastic	None	Yes	18.2	IR
1	125mL Plastic	None	Yes	18.2	IR
2	1L Plastic	HNO3	Yes	18.2	IR
1	125mL Plastic	HNO3	Yes	18.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	05/23/24 10:22	CTV	
Metal Digestion	Completed	SW3015A	05/28/24 10:15	CCM	

Inorganics

Method: E300.0, Run Date: 05/21/24 15:35, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0		mg/L	5	16984-48-8	

Method: E300.0, Run Date: 05/21/24 16:45, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	86.6	25.0		mg/L	25	16887-00-6	
Sulfate	318	25.0		mg/L	25	14808-79-8	

Method: SM2320B, Run Date: 05/29/24 11:06, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bicarbonate*	220	10		mg/L	1	71-52-3	
Carbonate*	Not detected	100		mg/L	1	3812-32-6	

Method: SM2340C, Run Date: 05/29/24 14:08, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hardness	452	20		mg/L	20		

Method: SM2540C, Run Date: 05/22/24 16:51, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	816	50		mg/L	2		

Method: SM2540D, Run Date: 05/22/24 20:24, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	0.4	3	0.4	mg/L	1		b

Metals

Method: E200.8, Run Date: 05/29/24 11:30, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	141	2.5		mg/L	50	7440-70-2	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S62262.01 (continued)
Sample Tag: PTW

Method: E200.8, Run Date: 05/28/24 12:02, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.005	0.002		mg/L	5	7440-38-2	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	3.32	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	1.72	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.111	0.005		mg/L	5	7439-93-2	
Molybdenum	0.239	0.005		mg/L	5	7439-98-7	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	0.014	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 05/23/24 13:20, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 06/13/24 10:17, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Radiological Analyses*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S62262
Client: HDR (HDR Inc.)
Project: HDR - Erickson Pump Test
Submitted: 05/20/2024 14:39 Login User: MAM

Attention: Bryce Burkett
Address: HDR Inc.
1000 Oakbrook Drive, Suite 200
Ann Arbor, MI 48104

Phone: 255-241-2944 FAX:
Email: Bryce.Burkett@HDRinc.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	18.2 IR
02.	☐ Yes	☐ No	☒ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☐ Yes	☒ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☐ Yes	☐ No	☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☒ Yes	☐ No	☐ N/A	Subcontracting needed? Subcontacted to:	GEL
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☒ Yes	☐ No	☐ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☐ No	☒ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S62262 Submitted: 05/20/2024 14:39

Client: HDR (HDR Inc.)

Project: HDR - Erickson Pump Test

Initial Preservation Check: 05/20/2024 15:58 MAM

Preservation Recheck (E200.8): N/A

Attention: Bryce Burkett
Address: HDR Inc.
1000 Oakbrook Drive, Suite 200
Ann Arbor, MI 48104

Phone: 255-241-2944 FAX:
Email: Bryce.Burkett@HDRinc.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S62262.01	125mL Plastic HNO3	<2			
S62262.01	1L Plastic HNO3	<2			
S62262.01	1L Plastic HNO3	<2			

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

169812

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Molly Reeves
COMPANY: HDR Michigan, Inc
ADDRESS: 1000 Oakbrook Dr
CITY: Ann Arbor | STATE: MI | ZIP CODE: 44104
PHONE NO.: 734-263-7138 | CELL NO.: | P.O. NO.: 10173187
E-MAIL ADDRESS: Molly.Reeves@HDRinc.com | QUOTE NO.: 231213-01

INVOICE TO

CONTACT NAME: ~~Lara Zawaideh~~ Cheryl Louden | ☒ SAME
COMPANY: ~~Same~~ LBWL
ADDRESS: ~~Same~~ Onsite
CITY: ~~Same~~ | STATE: | ZIP CODE:
PHONE NO.: ~~734-223-9094~~ | E-MAIL ADDRESS: ~~Lara.Zawaideh@HDRinc.com~~

PROJECT NO./NAME: HDR - Erickson Pump Test
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Tanten Buszka

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☒ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total Metals	F - undistilled Cl-, SO_4^{2-}	Raw 226	Raw 228	TSS	HCO3, CO3, Hardness
62262.01	5-15-24	7:35	PTW	GW	6	3		3					✓	✓	✓	✓	✓	✓

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☑ Sampler	DATE	TIME
		5-20-24	14:39
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
Johanna Young		5/20/24	1439
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME

SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS

NOTES: ICE | TEMP. ON ARRIVAL: 18.2

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 1.26.22

GEL Laboratories LLC
a member of The GEL Group INC

2040 Savage Road | Charleston, SC 29407
843.556.8171
gel.com

June 17, 2024

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 668763
SDG: S62262

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 23, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Abagail Martin for
Delaney Stonesmith
Project Manager

Purchase Order: GELP20-0018
Enclosures

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Case Narrative

Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S62262
Work Order: 668763

June 17, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The sample arrived at GEL Laboratories LLC, Charleston, South Carolina on May 23, 2024 for analysis. The sample was delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following sample:

Laboratory ID	Client ID
668763001	S62262.01

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.

Abagail Martin for
Delaney Stonesmith
Project Manager

Chain of Custody and Supporting Documentation

668763

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Project Management Team
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing | STATE: MI | ZIP CODE: 48823
PHONE NO.: 517-332-0167 | FAX NO.: | P.O. NO.:
E-MAIL ADDRESS: results@meritlabs.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague ☒ SAME
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing | STATE: MI | ZIP CODE: 48823
PHONE NO.: 517-332-0167 | E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S62262 | SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER

DELIVERABLES REQUIRED ☐STD ☐LEVEL II ☐LEVEL III ☒LEVEL IV ☐EDD ☐OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

MERIT LAB NO. (FOR LAB USE ONLY)	DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Radium 226*	Radium 228**
	5/15/24	0735	S62262.01	GW	2			2					✓	✓

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☐NPDES
Project Locations: ☐Detroit ☐New York ☐Other
Special Instructions:
* E903.1 Mod.
** E904.0/SW 9320 Mod.

Please use calculation product & provide Radium 226/228 combined results on the report

(No Ice needed)

** Subcontracted to GEL Laboratories, Inc. 2040 Savage Road Charleston, SC 29407

RELINQUISHED BY: SIGNATURE/ORGANIZATION (☐Sampler)	Pat UPS	DATE 5/21/24	TIME 1700
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 5/21/24	TIME 1700
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	JTB	DATE 5/23/24	TIME 1000

RELINQUISHED BY: SIGNATURE/ORGANIZATION — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION — DATE — TIME

SEAL NO. | SEAL INTACT YES☐ NO☐ | INITIALS
SEAL NO. | SEAL INTACT YES☐ NO☐ | INITIALS

NOTES: TEMP. ON ARRIVAL

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: MERT

Received By: SLB

SDG/AR/COC/Work Order: 668763

Date Received: 5/23/24

Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other

Carrier and Tracking Number: 1Z 966 477 03 6134 3323

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / uR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 21c
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR3-23 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			✓	
13	COC form is properly signed in relinquished/received sections?			✓	Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials AM Date 5/24/24 Page 1 of 1

Laboratory Certifications

List of current GEL Certifications as of 17 June 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122024-08
New Hampshire NELAP	205424
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235
Utah NELAP	SC000122024-41
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S62262
Work Order #: 668763

Product: **Radium-226+Radium-228 Calculation**
Analytical Method: Calculation
Analytical Procedure: GL-RAD-D-003 REV# 45
Analytical Batch: 2621109

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
668763001	S62262.01

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2617209

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
668763001	S62262.01
1205744329	Method Blank (MB)
1205744330	668763001(S62262.01) Sample Duplicate (DUP)
1205744331	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified

Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2619775

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
668763001	S62262.01
1205749215	Method Blank (MB)
1205749216	668928001(NonSDG) Sample Duplicate (DUP)
1205749217	668928001(NonSDG) Matrix Spike (MS)
1205749218	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1205749217 (Non SDG 668928001MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MERI001 Merit Laboratories, Inc.

Client SDG: S62262 GEL Work Order: 668763

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Theresa Austin**

Date: 21 JUN 2024 **Title: Analyst III - Data Validator**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 21, 2024

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Routine Analysis

Client Sample ID: S62262.01
Sample ID: 668763001
Matrix: Ground Water
Collect Date: 15-MAY-24 07:35
Receive Date: 23-MAY-24
Collector: Client

Project: MERI00120
Client ID: MERI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.851	+/-1.05	1.78	3.00	pCi/L			KP1	06/05/24	1204	2617209	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.44	+/-1.12			pCi/L		1	TON1	06/18/24	1123	2621109	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.594	+/-0.388	0.474	1.00	pCi/L			MJ2	06/13/24	1017	2619775	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			80.9	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Data

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: June 21, 2024

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: **John Laverty**

Workorder: **668763**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gas Flow											
Batch 2617209											
QC1205744330 668763001 DUP											
Radium-228	U	0.851	U	0.387	pCi/L	N/A		N/A	KP1	06/05/24	12:04
	Uncertainty	+/-1.05		+/-0.910							
QC1205744331 LCS											
Radium-228	71.7			67.2	pCi/L		93.8	(75%-125%)		06/05/24	12:04
	Uncertainty			+/-4.33							
QC1205744329 MB											
Radium-228			U	0.667	pCi/L					06/05/24	12:04
	Uncertainty			+/-0.918							
Rad Ra-226											
Batch 2619775											
QC1205749216 668928001 DUP											
Radium-226		31.4		33.5	pCi/L	6.31		(0%-20%)	MJ2	06/13/24	10:49
	Uncertainty	+/-2.31		+/-2.44							
QC1205749218 LCS											
Radium-226	27.2			23.8	pCi/L		87.5	(75%-125%)		06/13/24	10:52
	Uncertainty			+/-1.85							
QC1205749215 MB											
Radium-226			U	0.209	pCi/L					06/13/24	10:49
	Uncertainty			+/-0.296							
QC1205749217 668928001 MS											
Radium-226	134	31.4		177	pCi/L		108	(75%-125%)		06/13/24	10:49
	Uncertainty	+/-2.31		+/-12.7							

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported

QC Summary

Workorder: **668763**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

>	Result is greater than value reported
UI	Gamma Spectroscopy--Uncertain identification
BD	Results are either below the MDC or tracer recovery is low
h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
M	M if above MDC and less than LLD
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
FA	Failed analysis.
UJ	Gamma Spectroscopy--Uncertain identification
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N1	See case narrative
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
**	Analyte is a Tracer compound
M	REMP Result > MDC/CL and < RDL
J	See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Gas Flow Raw Data

Batch 2617209 Check-list

This check-list was completed on 05-JUN-24 by Nat Long

This batch was reviewed by Kenshalla Oston on 05-JUN-24 and Nat Long on 05-JUN-24.

Batch ID: 2617209 **Product:** GFC28RAL **Description:** Gas Flow Radium 228 GL-RAD-A-063

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-228 in Liquid

Batch ID: **2617209**
Analyst: Kaitlyn Painter (KP1)
Method: EPA 904.0/SW846 9320 Modified
Lab SOP: GL-RAD-A-063 REV# 5
Instrument: SP-C018367602

Due Dates for Lab: 18-JUN-2024 **Package: 20-JUN-2024** **SDG: 21-JUN-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205744331	Radium 228	2051-E	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	Ac-228 Ingrow (date)	Ac-228 Separation (date)
1	668763001	29-MAY-2024	3	306	306	05/30/24 13:53	06/05/24 10:13
2	1205744329 MB	29-MAY-2024	3		306	05/30/24 13:53	06/05/24 10:13
3	1205744330 DUP (668763001)	29-MAY-2024	3	303.2	303.2	05/30/24 13:53	06/05/24 10:13
4	1205744331 LCS	29-MAY-2024	3		306	05/30/24 13:53	06/05/24 10:13

Reagent/Solvent Lot ID	Description	Amount
WORK 2097-C	Ba-133 Tracer	.1 mL
REGNT 4349871	RGF-1.5M Ammonium Sulfate	10 mL
REGNT 4338103	Barium Carrier Ra228 REG	1 mL
REGNT 4340795	RGF-1M Citric Acid	5 mL
REGNT 4350527	2M HCl	20 mL
REGNT 4339529	RGF-50% Potassium Carbonate	2 mL
REGNT 4352959	RGF-7M Nitric Acid	25 mL
REGNT 3909073.5	Acetic Acid Glacial ACS Poly Coated Bottle	10 mL
REGNT 4337920.16	RGF-Hydrofluoric Acid	4 mL
REGNT 4337194	500 mg/mL Neodymium Carrier	.2 mL
REGNT 4319438	RGF-Neodymium Subtrate	5 mL
REGNT DGA03192024	R-DGA Spec Resin 2610881	2 g
REGNT 4337425.29	Nitric Acid	5 mL

Comments:
Pipet Id: RAD-GFC-1795419
Data Entry Date2: 29-MAY-2024 00:00

Radium-228 Liquid

Filename : RA228.XLS
File type : Excel
Version # : 1.4.3

Tracer S/N : 2097-C
Tracer Exp Date : 4/9/2025
Tracer Volume Added: 0.10

Batch : 2617209
Analyst : KAI02410
Prep Date : 5/29/2024
Ra-228 Method Uncertainty : 0.1268

Geometry: 25mm Filter

Procedure Code : GFC28RAL
Parmname : Radium-228
Required MDA : 3 pCi/L
Ra-228 Abundance : 1.00
Halflife of Ra-228 : 5.75 years
Halflife of Ac-228 : 6.15 hours

Sample Characteristics					Tracer Calculations					
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Tracer Ref. Activity (CPM)	Tracer Ref. Count Uncertainty (%)	Tracer Samp. Activity (CPM)	Tracer Samp. Count Uncertainty (%)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	668763001.1	0.3060	1.8559E-05	5/15/2024 7:35	948.6	1.87%	767.2	2.08%	0.1	0.000200
2	1205744329.1	0.3060	1.8559E-05	5/29/2024 0:00	948.6	1.87%	784.8	2.06%	0.1	0.000200
3	1205744330.1	0.3032	1.8513E-05	5/15/2024 7:35	948.6	1.87%	731.5	2.13%	0.1	0.000200
4	1205744331.1	0.3060	1.8559E-05	5/29/2024 0:00	948.6	1.87%	747.4	2.11%	0.1	0.000200

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-063
Instrument SOP: GL-RAD-I-016

Count raw Data

Pos.	Detector ID	Counting Time (min.)	Gross Counts Alpha	Gross Counts Beta	Beta cpm	Count Start Date/Time	Ac-228 Ingrowth Date/Time	Ac-228 Decay Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Ingrowth	Ac-228 Count Correction	Calculated Sample Recovery %	Sample Recovery Error %
1	2D	60	15	50	0.833	6/5/2024 12:04	5/30/2024 13:53	6/5/2024 10:13	0.993	0.812	1.000	1.057	80.9%	2.81%
2	3B	60	11	43	0.717	6/5/2024 12:04	5/30/2024 13:53	6/5/2024 10:13	0.998	0.812	1.000	1.057	82.7%	2.80%
3	3C	60	11	37	0.617	6/5/2024 12:04	5/30/2024 13:53	6/5/2024 10:13	0.993	0.812	1.000	1.057	77.1%	2.85%
4	3D	60	14	968	16.133	6/5/2024 12:04	5/30/2024 13:53	6/5/2024 10:13	0.998	0.812	1.000	1.057	78.8%	2.83%

Calibration Data

Pos.	Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Bkg cpm	Weekly Bkg Count Start Date/Time	Bkg Count Time (min.)
1	PIC	6/1/2024	5/31/2025	0.5484	0.00745	0.638	5/31/2024 17:59	500
2	PIC	6/1/2024	5/31/2025	0.5669	0.01614	0.554	6/4/2024 15:35	500
3	PIC	6/1/2024	5/31/2025	0.5795	0.00988	0.528	5/31/2024 17:59	500
4	PIC	6/1/2024	5/31/2025	0.5731	0.02297	0.342	5/31/2024 18:00	500

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to sample & dup activity below MDA

Spike S/N : N/A
Spike Exp Date : N/A
Spike Activity (dpm/ml): N/A
Spike Volume Added: N/A

LCS S/N : 2051-E
LCS Exp Date : 4/29/2025
LCS Activity (dpm/ml): 487.24
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type		RPD	RER	Nominal pCi/L	Recovery
1	1.1075	0.7819	3	1.7817	**0.8508**	63.11%	0.1953	0.1231	1.0513	1.0735		SAMPLE					
2	0.9713	0.6858	3	1.5765	**0.6668**	70.31%	0.1627	0.1142	0.9180	0.9338		MB					
3	1.0090	0.7123	3	1.6428	**0.3867**	120.11%	0.0887	0.1065	0.9101	0.9155	668763001.1	DUP	*	0.0%			
4	0.7928	0.5597	3	1.3324	**67.2473**	4.91%	15.7913	0.5192	4.3336	17.9225		LCS				71.7254	93.8%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine	Batch ID
668763001	2D	60	15	50	6/5/2024 12:04	6/5/2024 13:04	PIC	2617209
1205744329	3B	60	11	43	6/5/2024 12:04	6/5/2024 13:04	PIC	2617209
1205744330	3C	60	11	37	6/5/2024 12:04	6/5/2024 13:04	PIC	2617209
1205744331	3D	60	14	968	6/5/2024 12:04	6/5/2024 13:04	PIC	2617209

ASSAY		5-Jun-24	11:41:36							
Wizard 2480 s/n 46190630										
Protocol	id	8	Ba-133							
Time	limit									
Count	limit									
Isotope	Ba-133									
Protocol	date	6/5/2024								
Run	id.	1898								
Samp_ID		POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
REF		1	98	1	180	2846.5	948.64	1.87		11:41:36
	668763001	2	98	2	180	2302	767.17	2.08	80.87	11:44:50
	1205744329	3	98	3	180	2355	784.84	2.06	82.73	11:48:04
	1205744330	4	98	4	180	2195	731.51	2.13	77.11	11:51:17
	1205744331	5	98	5	180	2242.5	747.42	2.11	78.79	11:54:31
END	OF	ASSAY								

Continuing Calibration Data

Gas Flow Proportional Counter Checks for 05-Jun-2024

Detectors LB4100 E1 through H4 and PIC 1A through 14D and G5400W 1W through 1Z and LB4200 GA1 through OD4

Short Name	Status	Parmname	Run Time	Count Time	CPM or dec	Low Limit	High Limit	Stdev
LB4100F1	Above	Beta bkg	05-Jun 06:57	60	7.233	-2.37E-1	3.338	+9.54
LB4100F4	Above	Beta bkg	05-Jun 06:57	60	4.017	-3.25E-1	2.430	+6.46
LB4100G2	Below	Alpha eff	05-Jun 08:48	5	10333	10810	14340	-3.81
LB4100G2	Above	Alpha XTalk	05-Jun 08:48	5	0.255	0.169	0.234	+4.88
LB4100G2	Above	Beta bkg	05-Jun 06:57	60	215	0.407	1.917	+851.17
LB4100G3	Below	Alpha eff	05-Jun 08:48	5	7743	8123	10070	-4.17
LB4100G3	Above	Beta bkg	05-Jun 06:57	60	19.950	0.716	2.721	+54.56
LB4100H2	Above	Alpha XTalk	05-Jun 08:48	5	0.296	0.220	0.278	+4.78
LB4200GB2	Below	Alpha eff	05-Jun 08:21	5	9359	9443	9898	-4.11
LB4200GB2	Above	Beta bkg	05-Jun 06:53	60	27.350	0.129	1.304	+135.94
LB4200OB1	Above	Beta bkg	05-Jun 06:53	60	3.533	-2.59E-1	2.044	+6.88
LB4200OC2	Above	Beta bkg	05-Jun 06:53	60	3.650	-6.67E-2	2.499	+5.69
LB4200OC3	Below	Alpha eff	05-Jun 08:15	5	8950	9205	10050	-4.81
LB4200OC3	Above	Beta bkg	05-Jun 06:53	60	3.967	-1.27E-1	1.835	+9.52
LB4200OC4	Above	Alpha XTalk	05-Jun 08:15	5	0.265	0.178	0.246	+4.72
LB4200OC4	Above	Beta bkg	05-Jun 06:53	60	462	0.232	1.342	+2,492.50
PIC8D	Above	Alpha bkg	05-Jun 08:25	60	0.383	-4.64E-2	0.372	+3.17
PIC8D	Above	Alpha eff	05-Jun 07:03	5	17780	15540	17360	+4.38
PIC14B	Above	Alpha eff	05-Jun 09:09	5	9203	6952	8045	+9.35
PIC14B	Below	Alpha XTalk	05-Jun 09:09	5	0.273	0.451	0.668	-7.91
PIC14B	Above	Beta eff	05-Jun 07:32	5	22200	17450	19680	+9.78
PIC14B	Above	Beta XTalk	05-Jun 07:32	5	7.57E-4	1.16E-4	5.66E-4	+5.55
PIC14C	Below	Alpha eff	05-Jun 09:09	5	15143	16530	20280	-5.22
PIC14C	Above	Alpha XTalk	05-Jun 09:09	5	0.685	0.288	0.553	+6.00
PIC14C	Below	Beta eff	05-Jun 07:32	5	21948	23090	26270	-5.16

INSTRUMENTS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

The following detectors may not have properly transferred to the LIMS system

PIC8A Alpha bkg, Alpha eff, Alpha XTalk, Beta bkg, Beta eff, Beta XTalk

Reviewed by Jc Poparad

Date 6/5/24

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: GFPC **Batch ID: 2617209**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1205744329	MB	KP1	PIC3B	JUN-05-24 12:04:06	DONE	25mm Filter	01-JUN-24 00:00
1205744330	DUP	KP1	PIC3C	JUN-05-24 12:04:08	DONE	25mm Filter	01-JUN-24 00:00
1205744331	LCS	KP1	PIC3D	JUN-05-24 12:04:09	DONE	25mm Filter	01-JUN-24 00:00
668763001	SAMPLE	KP1	PIC2D	JUN-05-24 12:04:11	DONE	25mm Filter	01-JUN-24 00:00

Lucas Cell Raw Data

Batch 2619775 Check-list

This check-list was completed on 13-JUN-24 by Lyndsey Pace

This batch was reviewed by Lyndsey Pace on 13-JUN-24 and Kate Gellatly on 18-JUN-24.

Batch ID: 2619775

Product: LUC26RAL

Description: Lucas Cell Radium 226 GL-RAD-A-008

#	Criteria	Yes	No	Comments
Preparation Information				
1	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
2	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
3	Are instrument source checks within limits?	Yes		
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Is the blank result less than 1.65 times the CSU?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the matrix spike (MS/MSD) recoveries within the acceptance limits?	Yes		
12	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
13	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
14	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Radium-226 in Liquid

Batch ID: **2619775**
Analyst: Marisa Johnson (MJ2)
Method: EPA 903.1 Modified
Lab SOP: GL-RAD-A-008 REV# 15
Instrument: ASP-33005595

Due Dates for Lab: 17-JUN-2024 **Package: 20-JUN-2024** **SDG: 19-JUN-2024**

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205749218	Ra-226 emanation spike	1715-J	.1	mL
MS	1205749217	Ra-226 emanation spike	1715-J	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/L)	Unadjusted Aliquot (g)	Aliquot (mL)	End Degas (date)	CELL #	End Transfer (date)	Start Count Time (date)	Background Counts	Total Counts
1	668763001	10-JUN-2024	1	501.7	501.7	06/10/24 10:13	305	06/13/24 07:12	06/13/24 10:17	2	14
2	668928001	10-JUN-2024	1	447	447	06/10/24 10:13	407	06/13/24 07:12	06/13/24 10:17	5	727
3	668928002	10-JUN-2024	1	502	502	06/10/24 10:13	503	06/13/24 07:12	06/13/24 10:17	2	98
4	669239001	10-JUN-2024	1	503.4	503.4	06/10/24 10:13	604	06/13/24 07:12	06/13/24 10:17	2	21
5	669562002	10-JUN-2024	1	506.2	506.2	06/10/24 10:13	702	06/13/24 07:12	06/13/24 10:16	5	16
6	669562003	10-JUN-2024	1	500	500	06/10/24 10:13	804	06/13/24 07:12	06/13/24 10:16	4	12
7	1205749215 MB	10-JUN-2024	1		506.2	06/10/24 10:13	107	06/13/24 07:45	06/13/24 10:49	4	9
8	1205749216 DUP (668928001)	10-JUN-2024	1	452.1	452.1	06/10/24 10:13	207	06/13/24 07:45	06/13/24 10:49	1	727
9	1205749217 MS (668928001)	10-JUN-2024	1	102.5	102.5	06/10/24 10:13	309	06/13/24 07:45	06/13/24 10:49	3	758
10	1205749218 LCS	10-JUN-2024	1		506.2	06/10/24 10:13	406	06/13/24 07:45	06/13/24 10:52	6	659

Reagent/Solvent Lot ID	Description	Amount

Comments:
Data Entry Date2: 10-JUN-2024 00:00

Radium-226 Liquid

Filename : RA226.XLS
File type : Excel
Version # : 1.3.2

Batch : 2619775
Analyst : MAR02577
Prep Date : 6/10/2024
Ra-226 Method Uncertainty : 0.073648

Procedure Code : LUC26RAL
Parmname : Radium-226
Required MDA : 1 pCi/L
Halflife of Ra-226 : 1600 years
Ra-226 Abundance : 1.00
Halflife of Rn-222: 3.8235 days

Batch counted on : LUCAS CELL DETECTOR
BKG Count time : 30 min

Sample Characteristics					Count Raw Data							
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Background Count Time (min.)	Cell Efficiency (cpm/dpm)
1	668763001.1	0.5017	2.0263E-05	5/15/2024 7:35	305	30	14	0.467	2	0.067	30	1.5280
2	668928001.1	0.4470	1.9996E-05	5/16/2024 11:30	407	30	727	24.233	5	0.167	30	1.9490
3	668928002.1	0.5020	2.0264E-05	5/16/2024 11:40	503	30	98	3.267	2	0.067	30	1.6250
4	669239001.1	0.5034	2.0270E-05	5/21/2024 9:59	604	30	21	0.700	2	0.067	30	1.7290
5	669562002.1	0.5062	2.0281E-05	5/14/2024 15:08	702	30	16	0.533	5	0.167	30	1.6810
6	669562003.1	0.5000	2.0256E-05	5/14/2024 15:54	804	30	12	0.400	4	0.133	30	1.5337
7	1205749215.1	0.5062	2.0281E-05	6/10/2024 0:00	107	30	9	0.300	4	0.133	30	1.7770
8	1205749216.1	0.4521	2.0025E-05	5/16/2024 11:30	207	30	727	24.233	1	0.033	30	1.8080
9	1205749217.1	0.1025	1.1522E-05	5/16/2024 11:30	309	30	758	25.267	3	0.100	30	1.5690
10	1205749218.1	0.5062	2.0281E-05	6/10/2024 0:00	406	30	659	21.967	6	0.200	30	2.0400

Pipet, 0.1 ml Stdev : +/-	0.000200	ml
Pipet, 0.5 ml Stdev : +/-	0.001000	ml
Pipet, 1 ml Stdev : +/-	0.002000	ml

Analytical SOP: GL-RAD-A-008
Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections			
						De-Gas to Ingrowth	Ingrowth to Count	During Count	Ra-226 Decay
7.000%	11/1/2023	10/31/2024	6/10/2024 10:13	6/13/2024 7:12	6/13/2024 10:17	0.406	0.977	1.002	1.000
7.500%	2/1/2024	1/31/2025	6/10/2024 10:13	6/13/2024 7:12	6/13/2024 10:17	0.406	0.977	1.002	1.000
5.700%	6/12/2024	6/30/2025	6/10/2024 10:13	6/13/2024 7:12	6/13/2024 10:17	0.406	0.977	1.002	1.000
2.300%	7/1/2023	6/30/2024	6/10/2024 10:13	6/13/2024 7:12	6/13/2024 10:17	0.406	0.977	1.002	1.000
2.000%	11/1/2023	10/31/2024	6/10/2024 10:13	6/13/2024 7:12	6/13/2024 10:16	0.406	0.977	1.002	1.000
6.090%	4/1/2024	3/31/2025	6/10/2024 10:13	6/13/2024 7:12	6/13/2024 10:16	0.406	0.977	1.002	1.000
4.000%	5/1/2024	4/30/2025	6/10/2024 10:13	6/13/2024 7:45	6/13/2024 10:49	0.409	0.977	1.002	1.000
4.000%	10/10/2023	7/31/2024	6/10/2024 10:13	6/13/2024 7:45	6/13/2024 10:49	0.409	0.977	1.002	1.000
9.100%	11/1/2023	10/31/2024	6/10/2024 10:13	6/13/2024 7:45	6/13/2024 10:49	0.409	0.977	1.002	1.000
8.700%	2/1/2024	1/31/2025	6/10/2024 10:13	6/13/2024 7:45	6/13/2024 10:52	0.409	0.977	1.002	1.000

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

Spike S/N : 1715-J
Spike Exp Date : 4/1/2025
Spike Activity (dpm/ml): 306.00
Spike Volume Added: 0.10

LCS S/N : 1715-J
LCS Exp Date : 4/1/2025
LCS Activity (dpm/ml): 306.00
LCS Volume Added: 0.10

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error %	Net Count Rate CPM	Net Count Rate Error CPM	**2 SIGMA** Counting Uncertainty pCi/L	**2 SIGMA** Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	0.2305	0.1627	1	0.4738	**0.5935**	34.06%	0.4000	0.1333	0.3878	0.4054		SAMPLE				
2	0.3207	0.2264	1	0.5834	**31.4225**	8.38%	24.0667	0.9018	2.3079	6.8729		SAMPLE				
3	0.2166	0.1529	1	0.4453	**4.4621**	11.87%	3.2000	0.3333	0.9110	1.2220		SAMPLE				
4	0.2030	0.1433	1	0.4173	**0.8277**	25.35%	0.6333	0.1599	0.4095	0.4282		SAMPLE				
5	0.3283	0.2318	1	0.5972	**0.4901**	41.71%	0.3667	0.1528	0.4002	0.4068		SAMPLE				
6	0.3258	0.2300	1	0.6084	**0.3955**	50.37%	0.2667	0.1333	0.3876	0.3946		SAMPLE				
7	0.2761	0.1949	1	0.5155	**0.2095**	72.22%	0.1667	0.1202	0.2960	0.2980		MB				
8	0.1519	0.1072	1	0.3528	**33.4693**	5.46%	24.2000	0.8994	2.4380	6.0142	668928001.1	DUP	6.3%	0.4393		
9	1.3373	0.9441	1	2.5912	**176.9064**	9.81%	25.1667	0.9195	12.6691	42.5231	668928001.1	MS			134.4792	108.2%
10	0.2946	0.2080	1	0.5255	**23.8372**	9.55%	21.7667	0.8596	1.8451	5.6361		LCS			27.2298	87.5%

Continuing Calibration Data

Ludlum Alpha Scintillation Counter Checks for 13-JUN-2024

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	08:05	1	1.12E+05	111681	0.46		
LUCAS2	EFF	08:03	1	1.29E+05	129189	1.13		
LUCAS3	EFF	08:01	1	93232	93232	1.23		
LUCAS4	EFF	08:00	1	1.24E+05	124414	0.59		
LUCAS5	EFF	07:59	1	1.28E+05	128004	0.64		
LUCAS6	EFF	07:58	1	1.28E+05	128448	0.64		
LUCAS7	EFF	07:57	1	1.29E+05	128985	-1.47		
LUCAS8	EFF	07:56	1	1.26E+05	126438	0.94		

Reviewed by: **Date:** 13-JUN-24

Lyndsey Pace

GEL Laboratories LLC

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR **Batch ID: 2619775**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
669562002	SAMPLE	MJ2	LUCAS7	JUN-13-24 10:16:00	DONE	Lucas Cell	01-NOV-23 00:00
669562003	SAMPLE	MJ2	LUCAS8	JUN-13-24 10:16:00	DONE	Lucas Cell	01-APR-24 00:00
668763001	SAMPLE	MJ2	LUCAS3	JUN-13-24 10:17:00	DONE	Lucas Cell	01-NOV-23 00:00
668928001	SAMPLE	MJ2	LUCAS4	JUN-13-24 10:17:00	DONE	Lucas Cell	01-FEB-24 00:00
668928002	SAMPLE	MJ2	LUCAS5	JUN-13-24 10:17:00	DONE	Lucas Cell	12-JUN-24 00:00
669239001	SAMPLE	MJ2	LUCAS6	JUN-13-24 10:17:00	DONE	Lucas Cell	01-JUL-23 00:00
1205749215	MB	MJ2	LUCAS1	JUN-13-24 10:49:00	DONE	Lucas Cell	01-MAY-24 00:00
1205749216	DUP	MJ2	LUCAS2	JUN-13-24 10:49:00	DONE	Lucas Cell	01-AUG-23 00:00
1205749217	MS	MJ2	LUCAS3	JUN-13-24 10:49:00	DONE	Lucas Cell	01-NOV-23 00:00
1205749218	LCS	MJ2	LUCAS4	JUN-13-24 10:52:00	DONE	Lucas Cell	01-FEB-24 00:00

Appendix F

Eaton County Shallow Groundwater Investigation

Eaton County Shallow Groundwater Investigation

Lansing Board of Water & Light – Former Erickson Power Station

Delta Township, Eaton County, Michigan

January 30, 2025

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Introduction

The former Erickson Power Station (Erickson or Site), located at 3725 South Canal Road in Delta Township, Eaton County, Michigan, is a facility owned and operated by the Lansing Board of Water & Light (BWL) from 1970 until its closure in 2022. The site included three Coal Combustion Residuals (CCR) impoundments: the Forebay, Retention Basin, and Clear Water Pond (CWP)**,** of which are subject to the U.S. Environmental Protection Agency's (EPA) CCR Rule and Michigan's Part 115 Solid Waste Regulations (**Figure 1**). These regulations require the management of CCR to prevent contamination of surrounding areas, particularly groundwater.

In 2021, BWL's groundwater monitoring program detected statistically significant exceedances of groundwater protection standards, indicating the migration of CCR constituents from the impoundments into the groundwater. The constituents with exceedances included boron, calcium, lithium, sulfate, and total dissolved solids (TDS). Therefore, BWL initiated an investigation to delineate the potential contamination migration, including review of the adjacent Eaton County-owned property on the east side of Erickson (**Figure 1**).

The groundwater flow direction is east directly under the impoundments and then turns north following the wetland and topography, and BWL has assessed the groundwater quality to the Erickson downgradient boundary. The further downgradient groundwater that requires investigation is on the adjacent Eaton County property. The primary objective of this investigation was to assess the Eaton County property shallow groundwater quality. Notably, the Eaton County property appears to be largely wetland, and in a floodway, therefore this investigation approach was designed to avoid disturbances to the wetlands and floodway while gathering essential data that will inform future management decisions for the Erickson CCR groundwater monitoring program.

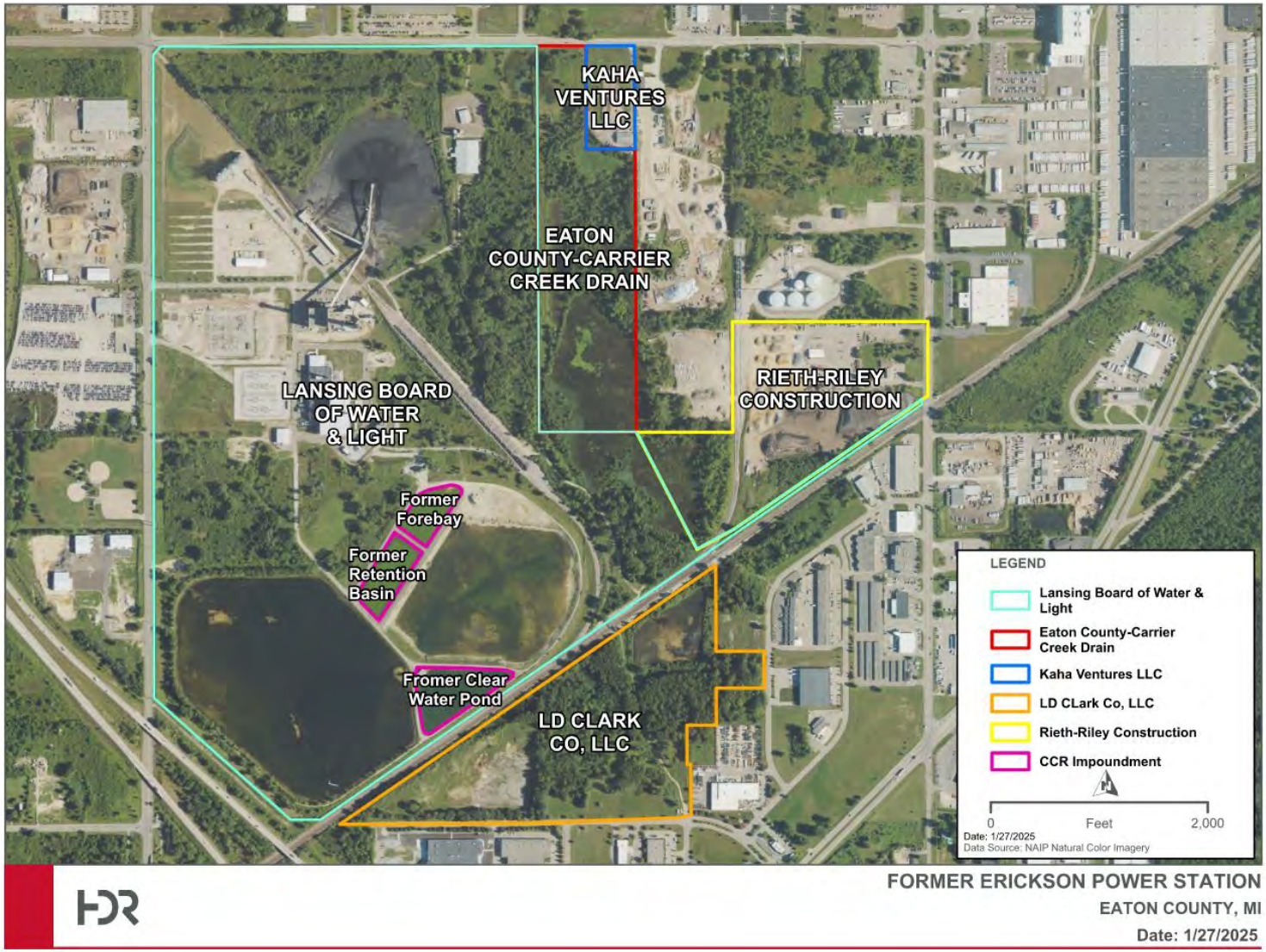


Figure 1. Eaton County Property Study Area

Property Description

The groundwater study area was the property owned by Eaton County, identified by the parcel ID number 04003420002100, located along Millet Highway (**Figure 1**). The site is undeveloped, containing both upland and wetland areas. However, there is no known formal wetland delineation for the property.

The property is bordered to the north by Millett Highway, to the west and south by the former Erickson Power Station and to the east by Reith-Riley Construction, LD Clark Co, LLC, and Kaha Ventures LLC.

Reith-Riley Construction has reported spills to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Pollution Emergency Alerting System (PEAS) in the past at the parcel east of BWL (**Figure 1**). Independent investigations into the Reith-Riley site have shown that metals in the groundwater were not a primary concern. Despite this, it will still be important to consider offsite, upgradient land uses when analyzing the sampling data.

Site Hydrogeology

Shallow subsurface lithology is composed of glacial deposits including sandy clay, silt, clayey sand, sand, and sand with gravel to a depth of 36 to 61 feet below ground surface (HDR, 2019). The glacial deposits lie above the sandstone and shale bedrock of the Saginaw Formation.

Subsurface data including lithology and groundwater elevations have been collected from the installation and monitoring well network (**Figure 2**). Previously, the depth to the uppermost aquifer is approximately 11 to 17 feet below ground surface (HDR, 2024). However, data collected with the installation of the MW-17 and MW-18 multi-level wells and collected as part of this investigation indicate the depth to the uppermost aquifer is approximate 2 to 17 feet below the ground surface. The groundwater flow direction is east directly under the impoundments and then turns north following the wetland and topography, consistent with the Carrier Creek Sub watershed boundary (**Figure 3**). For discussion of the site hydrogeology see the Groundwater Monitoring Network System Certification (HDR, 2024).

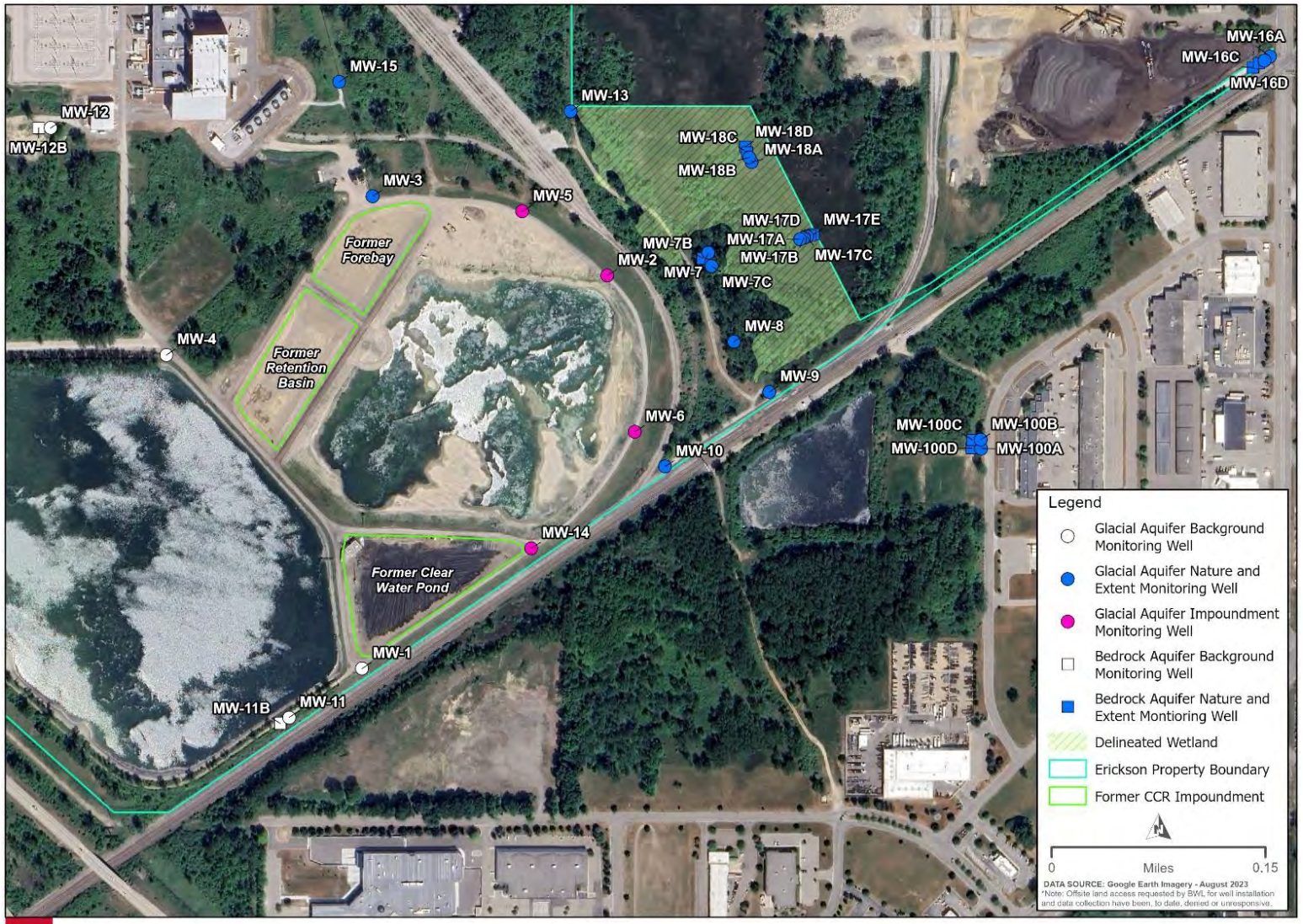


Figure 2. Existing Monitoring Well Locations

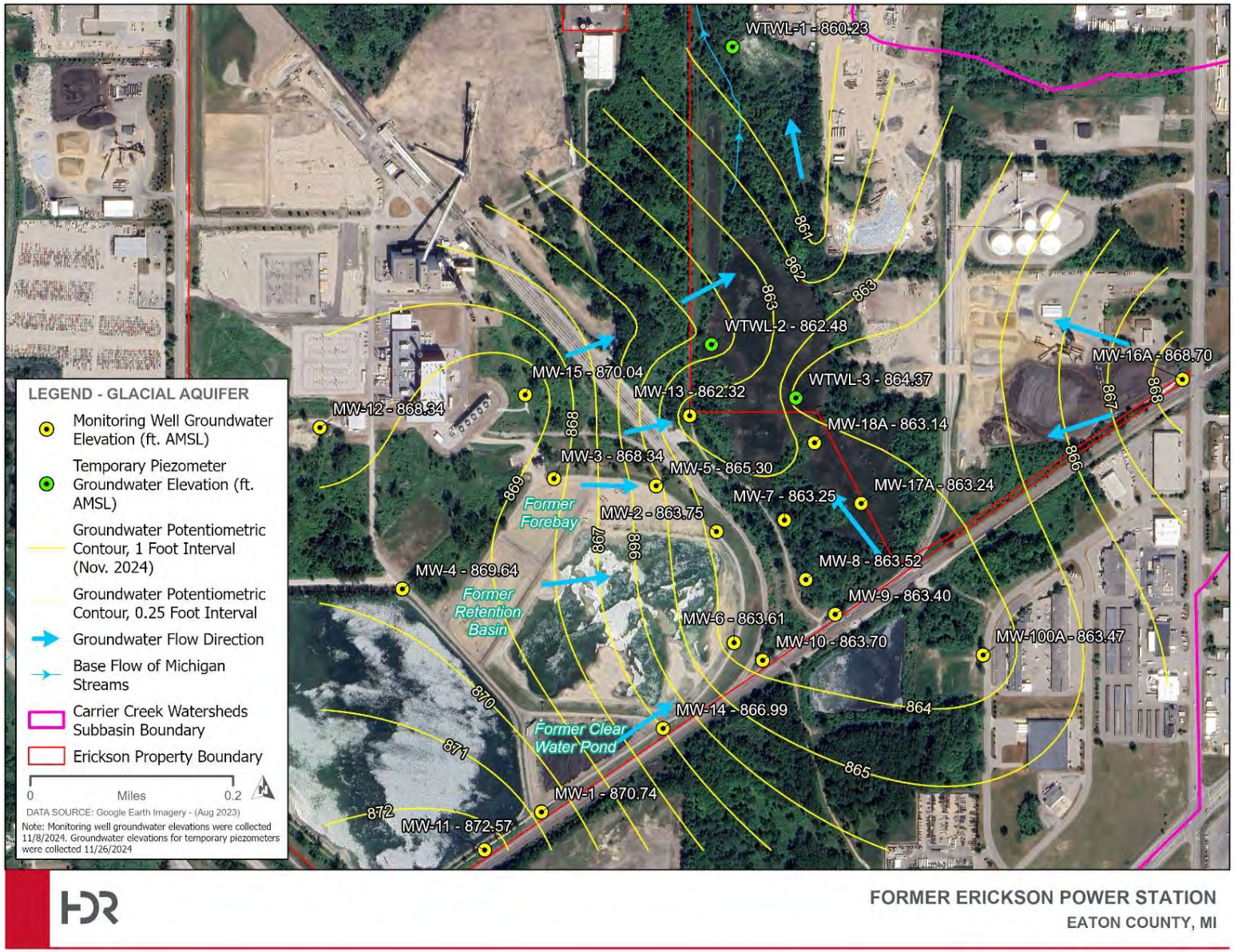


Figure 3. Groundwater Contours Displaying Flow Direction Under the Former Surface Impoundments

Groundwater Sampling

Shallow groundwater sampling was conducted using the Pushpoint sampler (aka Henry Sampler). The Pushpoint sampler allows rapid, efficient in-situ pore water sample collection and may be used to measure the static water level of groundwater. This sampler also allows for a zero-disturbance approach in sensitive areas such as wetlands because it is portable, temporary, and leaves no disturbance (**Figure 4**). The Pushpoint sampler is a pointed, stainless-steel tube with a screened zone at one end and a sampling port at the other. The pointed end with the screened zone consists of a series of fine interlaced machined slots to allow groundwater to enter the sampler. The sampler was pushed into the sediments to the desired depth and the groundwater was collected through the opposite end of the device via flexible tubing and a peristaltic pump (U.S. EPA 2016). The sampling procedure followed the Offsite Shallow Groundwater Sampling Memorandum and EPA's December 2016 Pore Water Sampling Protocol (HDR, 2024; EPA 2016).

Sampling difficulties were encountered at the locations proposed in the Offsite Shallow Groundwater Sampling Memorandum necessitating field adjustments. A description of the difficulties encountered during the 29 sample location attempts are contained in **Appendix A**.

Groundwater sampling was attempted at 29 locations with the following nine locations being successfully sampled: WT-02, WT-08, WT-09, WT-10, WT-13, WT-14, WT-24, WT-28, and WT-29 (**Figures 4 and 5**).

Figure 4. Proposed, Attempted, and Successful Groundwater Sample Locations

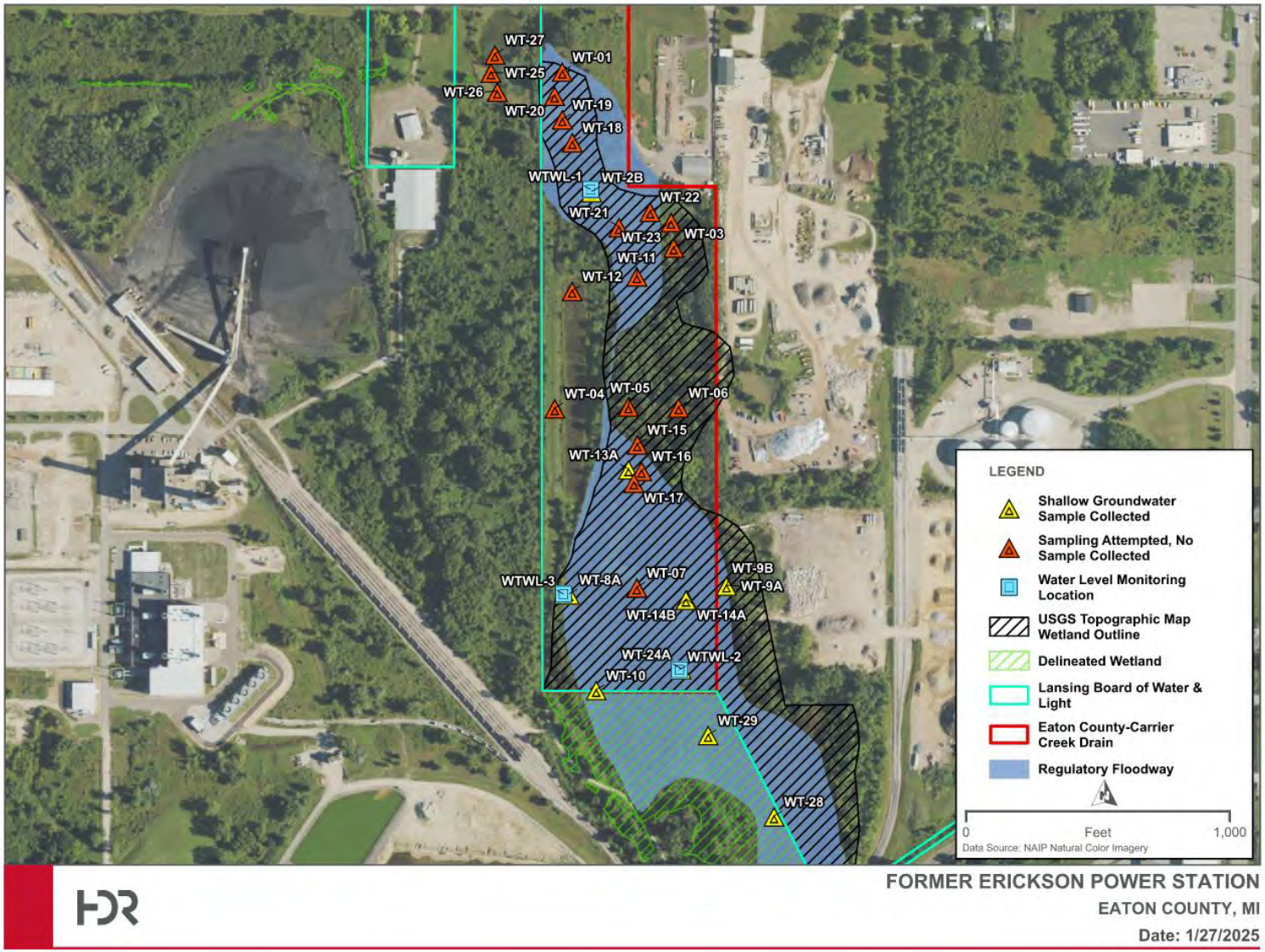
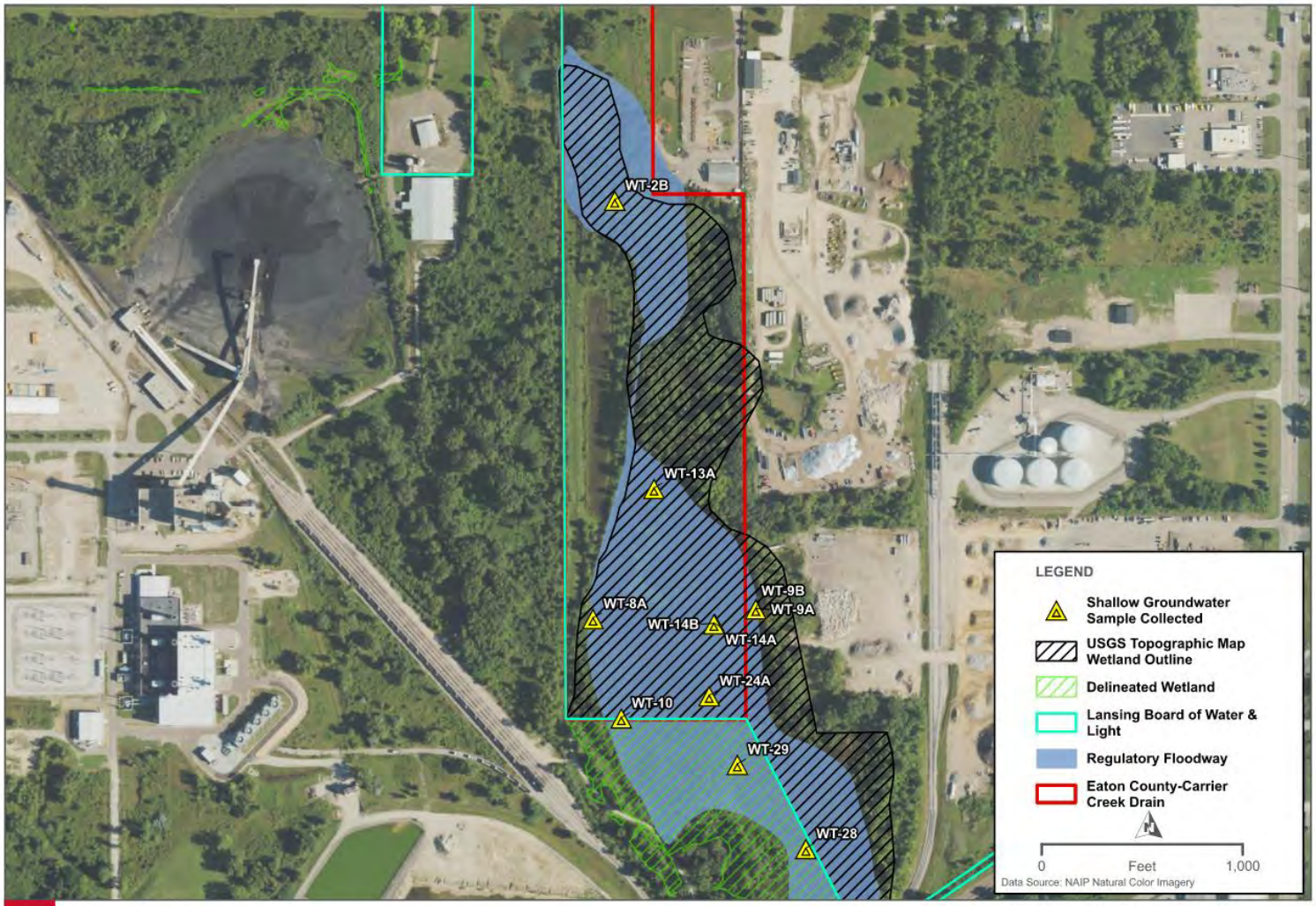


Figure 5. Shallow Groundwater Sample Locations and Mapped Wetlands



The Pushpoint sampler was pushed to the target depth at each sampling location, if possible, to collect a sample from 3-4 feet below ground surface and a deeper sample from 5-6 feet below ground surface when conditions allowed, and groundwater was present. The sample locations are identified by sample location (WT-##). The depths below ground surface (bgs) at which each push point sample was collected are provided in **Table 1**.

Table 1. Pushpoint Sample Collection Depth

Sampling Location	Sample Name	Sample Depth (ft bgs.)
WT-2	WT-2B	4.5
WT-8	WT-8A	3.0
WT-9	WT-9A	2.8
	WT-9B	6.0
WT-10	WT-10A	1.8
WT-13	WT-13A	2.0
WT-14	WT-14A	2.0
	WT-14B	5.5
WT-24	WT-24A	2.0
WT-28	WT-28	1.5
WT-29	WT-29	2.0

Water samples were delivered to Merit Laboratories Inc. for analysis of the parameters contained in **Table 2**.

Table 2. Water Quality Parameters

Parameter		Units to be	Method	Laboratory Reporting
Sb, total & dissolved	Antimony	mg/L	200.8	0.005
As, total & dissolved	Arsenic	mg/L	200.8	0.002
Ba, total & dissolved	Barium	mg/L	200.8	0.150
Be, total & dissolved	Beryllium	mg/L	200.8	0.001
B, total & dissolved	Boron	mg/L	200.8	0.04
Cd, total & dissolved	Cadmium	mg/L	200.8	0.0005
Ca, total & dissolved	Calcium	mg/L	200.8	2.5
Cl	Chloride	mg/L	300.0	10
Cr, total & dissolved	Chromium	mg/L	200.8	0.005
Co, total & dissolved	Cobalt	mg/L	200.8	0.005
Cu, total & dissolved	Copper	mg/L	200.8	0.005
F	Fluoride	mg/L	9056	1.0

Table 2. Water Quality Parameters				
Parameter		Units to be	Method	Laboratory Reporting
Fe, total & dissolved	Iron	mg/L	300.0	0.02
Pb, total & dissolved	Lead	mg/L	200.8	0.003
Li, total & dissolved	Lithium	mg/L	200.8	0.005
Hg, total & dissolved	Mercury	mg/L	245.1	0.0002
Mo, total & dissolved	Molybdenum	mg/L	200.8	0.005
Ni, total & dissolved	Nickel	mg/L	200.8	0.005
RA226/228	Radium 226 and 228 combined	pCi/L	SM	2.0 combined
Se, total & dissolved	Selenium	mg/L	200.8	0.005
Ag, total & dissolved	Silver	mg/L	200.8	0.0005
SO_4	Sulfate	mg/L	300.0	10
Tl, total & dissolved	Thallium	mg/L	200.8	0.002
TDS	Total Dissolved Solids	mg/L	SM	20
TSS	Total Suspended Solids	mg/L	SM	3
V, total & dissolved	Vanadium	mg/L	200.8	0.005
Zn, total & dissolved	Zinc	mg/L	200.8	0.005

Groundwater Results

The shallow groundwater sampling at the Eaton County property identified elevated levels of arsenic, boron, calcium, lithium, molybdenum, sulfate, and total dissolved solids (TDS) above the Erickson CCR groundwater monitoring project State Groundwater Protection Standards (GPS) as shown in **Table 3**. The following observations were made:

- No additional constituents of concern were identified. Meaning, the constituents at Pushpoint sample locations that had concentrations that exceed the Erickson site specific GPS, are the same constituents that were observed to be constituent of concern at the CCR impoundments waste boundary.
- Boron exceedances were observed at the sampling locations and depths. Concentrations of boron range between 1.10 at WT-2B farthest north, to a maximum of 7.42 mg/L at WT-9B.
- Calcium, sulfate, and TDS were observed exceeding GPS at least nine of eleven shallow sampling locations. Generally, concentrations decrease to the

north with distance from WT-9A/B and WT-14A/B. Location WT-28 had the uppermost elevated concentrations of the three constituents.

- Lithium concentrations exceed GPS at the southern and eastern shallow groundwater sampling locations and does not exceed at the central (WT-13A), northern (WT-2B), or western sample locations (WT-8A).
- Arsenic and molybdenum exceedances are observed at WT-29.

Table 3. Pushpoint Groundwater Samples with GPS Exceedances

Constituent (mg/L)	Arsenic	Boron	Calcium	Lithium	Molybdenum	Sulfate	Total Dissolved Solids
State Program GPS	**0.021**	**0.50**	**188**	**0.040**	**0.100**	**344**	**1190**
WT-2B	--	1.10	386	--	--	447	1610
WT-8A	--	1.32	--	--	--	--	--
WT-9A	--	3.85	468	0.205	--	1090	2280
WT-9B	--	7.42	592	0.230	--	1570	2880
WT-10A	--	2.62	318	--	--	490	1410
WT-13A	--	1.90	257	--	--	423	1290
WT-14A	--	4.84	494	0.202	--	1480	2680
WT-14B	--	3.48	518	0.192	--	1480	2810
WT-24A	--	1.67	283	0.070	--	659	1390
WT-28	--	2.55	599	0.064	--	1760	3200
WT-29	0.036	3.21	--	--	0.210	384	--

Pushpoint sampling locations WT-28 and WT-29 were collected immediately adjacent to shallow monitoring wells in the wetland on BWL property (MW-17A and MW-18A) to compare water quality results between the shallow monitoring wells and the Pushpoint samples. Pushpoint samples were collected between 1.5 and 2 feet below surface and the monitoring wells are screened between 5 and 15 feet below ground surface. Data from Pushpoint samples collected on November 26, 2024 and data from the wells sampled on October 8, 2024 were compared.

A comparison of data for constituents of concern at WT-28 to adjacent well MW-17A shows the Pushpoint sampled groundwater has higher concentrations of arsenic, calcium, iron, lithium, sulfate, and TDS (**Figure 6**). Both locations exceed GPS for boron, calcium, lithium, sulfate, and TDS. A comparison of WT-29 to adjacent monitoring well MW-18A shows Pushpoint sampled groundwater exceeding GPS for sampled constituents. The graph in **Figure 7** shows arsenic, boron, calcium, iron, lithium, sulfate, and TDS in the shallow groundwater at concentrations twice that observed in groundwater collected from monitoring well MW-18A. These differences between the Pushpoint sampler and wells are likely the result of the larger screen length over which wells collect a groundwater sample. Pushpoint samplers collect groundwater from a short 2-3 inch screen, and monitoring wells MW-17A and MW-18A have 10 foot screens. Therefore, the Pushpoint data represents a small volume, small area, and the monitoring wells are purged first and pull groundwater from a larger area and longer vertical profile. While the concentrations are not equivalent

between sample depths/approaches, whether or not the groundwater at each location exceeds GPS remains consistent between both the Pushpoint approach and the shallow well. For example, if the location exceeded GPS for boron, both the Pushpoint and shallow well had concentrations that exceeded GPS. Only one parameter at one location, arsenic at WT-29, was the exception.

Additionally, a comparison of the two locations at which a shallow and deep sample was able to be collected was conducted to evaluate potential vertical variation. Generally, analytical results were consistent between shallow and deep samples at the two Pushpoint locations, WT-9 and WT-14 locations.

Analytical data summary tables, laboratory reports, and concentration maps are included in **Appendix B**, **C**, and **D**, respectively. Note, due to arsenic and molybdenum exceeding GPS at one location and being non-detect at others, concentration maps were not created.

Water level measurements collected on November 24, 2024 from temporary wells WTWL-1, WTWL-2, and WTWL-3, were utilized to generate potentiometric contours with water level measurements from monitoring wells on November 8, 2024. The groundwater flow direction was confirmed to be consistent with prior conceptual site model showing glacial aquifer groundwater flowing eastward from the impoundments toward the wetland, then north through the Eaton County property.

Figure 6. Pushpoint Sampler Groundwater vs Monitoring Well Water Quality (Southern)

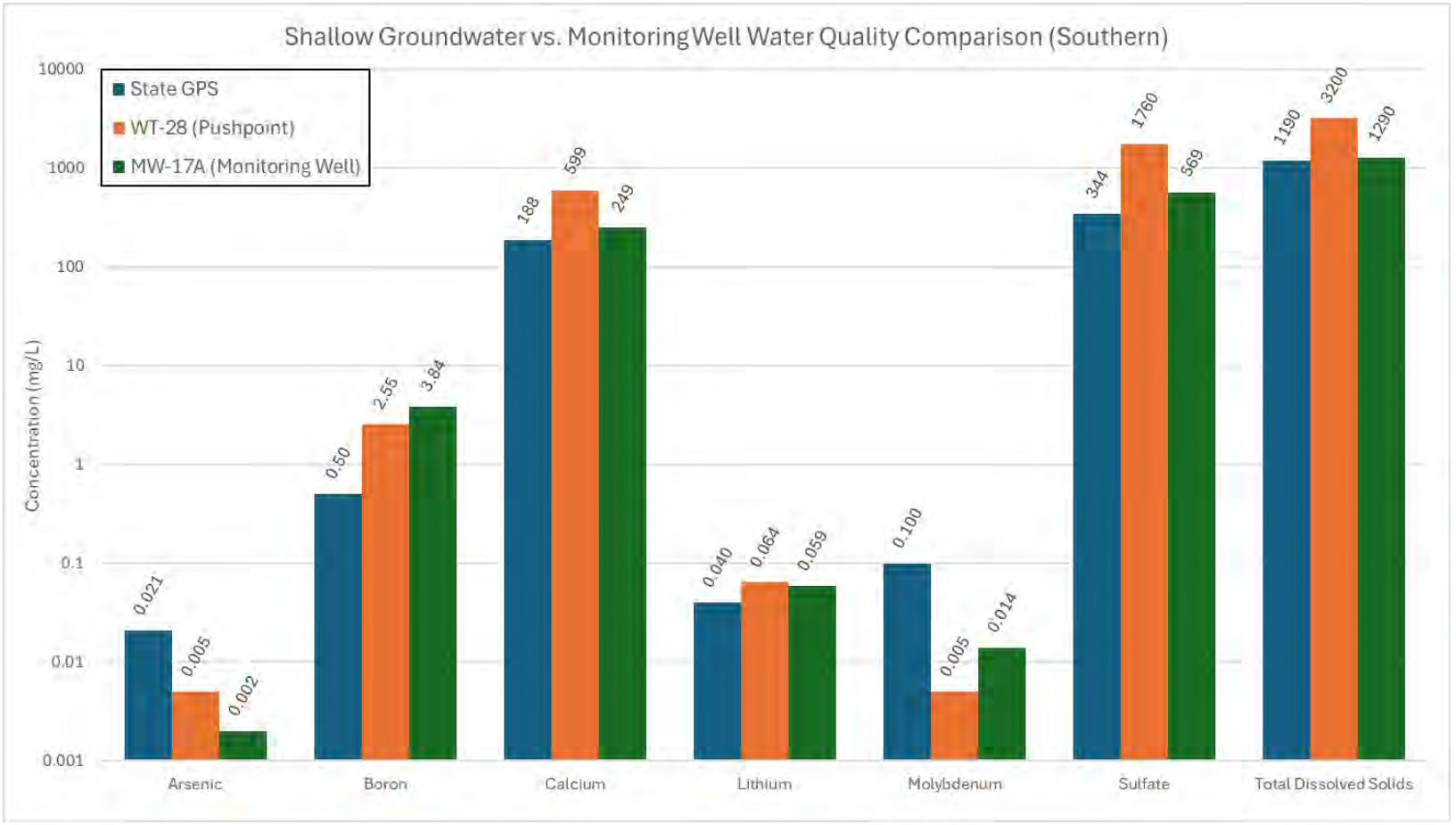
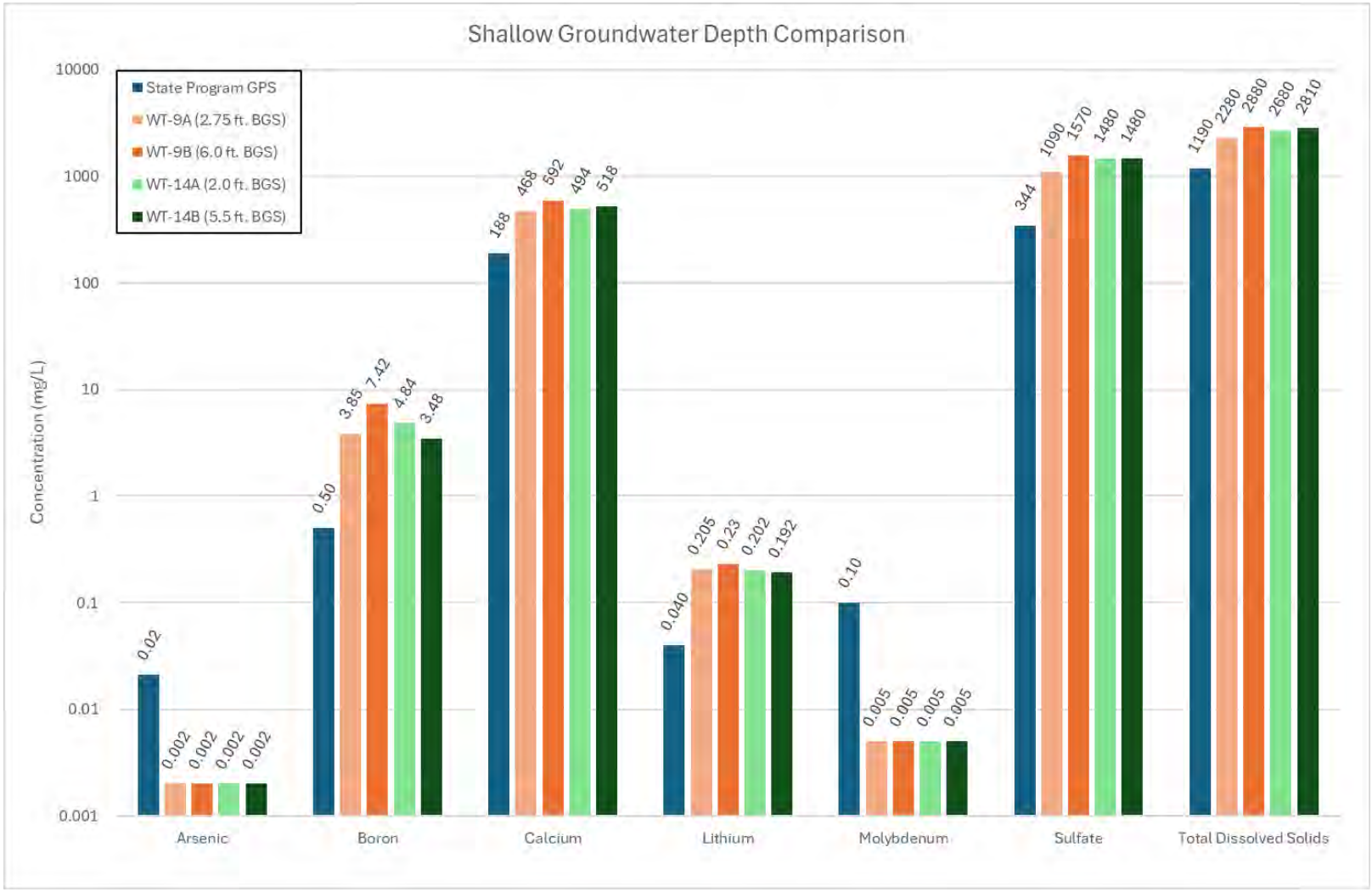


Figure 7. Pushpoint Sampler Groundwater vs. Monitoring Well Water Quality (Northern)

Figure 8. Shallow vs. Deeper Pushpoint Sample Comparison



Summary

This groundwater investigation is intended to evaluate the potential for CCR constituents of concern have migrated downgradient in the groundwater to the adjacent Eaton County owned property. The investigation was also intended to have no site disturbance to collect preliminary data within the regulated floodway and without a wetland permit and significant vegetative disturbance associated with monitoring well installations. The data from this investigation will be used to support the plume delineation for the CCR groundwater compliance program.

The constituents of concern (constituents that exceed GPS) from prior well monitoring downgradient of the CCR impoundments included boron, calcium, lithium, molybdenum, sulfate, and TDS. This investigation found the same constituents at concentrations above the GPS in shallow groundwater sampled via Pushpoint at the adjacent Eaton County owned property, suggesting that additional monitoring well installation for plume delineation appear necessary. Additionally, the distribution of boron concentrations exceeding GPS matches contaminant flow directions derived from potentiometric contours.

References

HDR, 2019. Hydrogeologic Characterization Report. October 31, 2019.

HDR, 2024. Groundwater Monitoring Network System Certification. June 19, 2024.

HDR, 2024. Offsite Shallow Groundwater Sampling Memorandum. July 22, 2024.

U.S Environmental Protection Agency Region 4, Science and Ecosystem Support Division, Athens Georgia, December 2016. Pore Water Sampling, SESDPROC-513-R3

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Appendix A

Sampling Difficulties by Location

Sampling Location	Description of difficulties encountered during sampling
WT-1	Ground appeared semi saturated, but no water was extracted between 0 and 6' bgs. Evidence of high plasticity clay on filter screen upon removal of piezometer. No sample collected.
WT-2	Ground appeared semi saturated, but no water was extracted between 0 and 3' bgs. Sample collected at 4.5' bgs (WT-2B).
WT-3	Ground appeared dry unable to collect water at 2', 3', 4', or 6' bgs. High plasticity clay suspected. No sample collected.
WT-4	Proposed location on top of hill and within a road. The sample location was moved down into a low area adjacent to the proposed location. Trouble pushing the piezometer into soil. Soil was clayey and stiff, no water observed. A second attempt was made at a late time, again no water was observed. No sample was collected.
WT-5	Ground appears to contain upland plants (no frag grass or cat tails). No water was produced between 0-2' bgs. Refusal met below 2' bgs. No sample collected.
WT-6	Ground appeared semi saturated, but no water was extracted between 0 and 6' bgs. Evidence of high plasticity clay on filter screen upon removal of piezometer. No sample collected.
WT-7	Unable to be reached due to dense vegetation.
WT-8	Ground appeared saturated. Shallow sample collected at approximately 3' bgs.
WT-9	Ground is saturated at sampling location. Shallow sample (WT-09A) collected at 2.75' bgs. Deep sample (WT-09B) collected at 6' bgs.
WT-10	Unable to reach proposed location due to thick vegetation. The sample location is approximately 135 feet from original. Unable to extract water from 1, 3, and 5 feet bgs. Water was able to be extracted at 1.5' bgs and a sample was collected.
WT-11	Unable to produce water 0-2.5' bgs and unable to advance piezometer beyond 2.5' bgs. Four additional locations within 15' of location were also tested and no water was produced.
WT-12	The chosen area had saturated soil at surface. Unable to advance the piezometer below 7" bgs and no water was able to be extracted. A second attempt to extract water was made within 12" of original location and was unsuccessful. No sample was collected.
WT-13	The ground at the location is saturated and a shallow sample is collected at 2' bgs. A duplicate sample was also collected at this location due to the relative high flow rate of water.
WT-14	Ground is saturated at location. Shallow sampled collected (WT-14A) at 2' bgs. Deep sample (WT-14B) collected at 5.5' bgs.
WT-15	Ground appears to contain upland plants (no frag grass or cat tails). No water was produced between 0-2' bgs. Refusal met below 2' bgs. No sample collected.
WT-16	Unable to collect water from 0-2', piezometer hit refusal at 2' bgs. No sample collected.
WT-17	Ground appeared saturated unable to collect water at 6", 1', 2', 3', 4', or 6' bgs. High plasticity clay suspected below 18" bgs. No sample collected.
WT-18	Attempted to extract water at 6", 18", 2.5', 3.5', 4.5', and 5.5' bgs. No sample collected.
WT-19	Ground appeared to be soft. Attempted to extract water at 6", 18", 2.5', 3.5', 4.5', and 5.5' bgs. Suspected high plasticity clay below 3' bgs. No sample collected.
WT-20	Attempted to extract water at 6", 18", 2.5', 3.5', 4.5', and 5.5' bgs. No sample collected.

Sampling Location	Description of difficulties encountered during sampling
WT-21	Ground appeared to be soft. Attempted to extract water at 6”, 18”, 2.5’, 3.5’, 4.5’, and 5.5’ bgs. Suspected high plasticity clay below 3’ bgs. No sample collected.
WT-22	Piezometer advanced to 2.2’ bgs and ~50 ml of water was extracted but was not sustained. Second attempt was made but no water was able to be extracted. High plasticity clay suspected below 2.2’ bgs. No sample collected.
WT-23	Ground appeared to be soft. Attempted to extract water at 1”, 3’, and 5.5’ bgs. Suspected high plasticity clay below 2’ bgs. Two additional attempts were made at locations within 10”. No sample collected.
WT-24	Ground was visibly saturated. Shallow sample collected at 2’ bgs. Attempted to advance deeper, but suspected high plasticity clay noted below 2.5’ bgs.
WT-25	Located within apparent drainage channel. Unable to advance piezometer into ground.. No sample collected.
WT-26	Located within apparent drainage channel. Unable to advance piezometer into ground. No sample collected.
WT-27	Located within apparent drainage channel. Unable to advance piezometer into ground. No sample collected.
WT-28	Sample collected at a depth of 1.5’ bgs adjacent to MW-17 series wells.
WT-29	Sample collected at a depth of 2’ bgs adjacent to MW-18 series wells.

Appendix B
Analytical Data Table

		Sample Location:	WT-2B		WT-8A		WT-9A		WT-9B		WT-10A		WT-13A	
		Sample Date:	10/9/2024		10/8/2024		10/10/2024		10/10/2024		10/10/2024		10/10/2024	
Constituent	Unit	State Program GPS												
Field Parameters				Diss. Metals		Diss. Metals		Diss. Metals		Diss. Metals		Diss. Metals		Diss. Metals
pH	su	-	6.84	6.84	6.18	6.18	6.04	6.04	6.78	6.78	6.72	6.72	6.95	6.95
Conductivity	mS/cm	-	2.14	2.140	1.380	1.380	2.840	2.840	2.690	2.690	1.790	1.790	1.510	1.510
Turbidity	NTU	-	91.00	91.00	1.85	1.85	0.23	0.23	0.02	0.02	4.68	4.68	5.29	5.29
Dissolved Oxygen	mg/L	-	7.57	7.57	4.72	4.72	1.91	1.91	2.82	2.82	2.22	2.22	6.39	6.39
Temperature	°C	-	12.3	12.3	14.8	14.8	14.2	14.2	14.1	14.1	14.8	14.8	12.3	12.3
Oxidation Reduction Potential	mV	-	119.5	119.5	121.8	121.8	129.0	129.0	99.0	99.0	86.2	86.2	130.0	130.0
Part 115														
Copper	mg/L	1.00	<0.005	<0.005	0.013	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	10.5	0.02	8.68	0.84	4.32	0.11	16.1	0.45	10.2	0.05	17.9	0.10
Nickel	mg/L	0.1	0.006	<0.005	0.012	0.008	0.006	0.006	0.010	0.009	0.015	0.014	<0.005	<0.005
Silver	mg/L	0.098	<0.0005	<0.0005	0.0032	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.062	0.006	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	5	0.005	<0.005	0.022	0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005
Appendix III														
Boron	mg/L	0.50	**1.10**	1.07	**1.32**	1.29	**3.85**	3.86	**7.42**	7.06	**2.62**	2.62	**1.90**	1.82
Calcium	mg/L	188	**386**	357	173	167	**468**	445	**592**	566	**318**	297	**257**	243
Chloride	mg/L	250	243	-	75.9	-	77.3	-	74.1	-	39.2	-	32.9	-
Fluoride	mg/L	2.0	<5.00	-	<2.00	-	<5.00	-	<5.00	-	<2.00	-	<2.00	-
pH, Field	su	-												
Sulfate	mg/L	344	**447**	-	241	-	**1090**	-	**1570**	-	**490**	-	**423**	-
Total Dissolved Solids	mg/L	1190	**1610**	-	946	-	**2280**	-	**2880**	-	**1410**	-	**1290**	-
Appendix IV														
Antimony	mg/L	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.006	<0.002	0.009	0.002	<0.002	<0.002	<0.002	<0.002	0.009	<0.002	0.017	0.002
Barium	mg/L	2.0	0.077	0.062	0.085	0.046	0.247	0.230	0.061	0.056	0.056	0.049	0.044	0.035
Beryllium	mg/L	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.1	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	2.0	<5.00	-	<2.00	-	<5.00	-	<5.00	-	<2.00	-	<2.00	-
Lead	mg/L	0.004	<0.003	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.040	0.032	0.031	0.024	0.021	**0.205**	0.205	**0.230**	0.221	0.030	0.030	0.034	0.033
Mercury	mg/L	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.100	0.008	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.010	0.009	<0.005	<0.005
Selenium	mg/L	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other														
Total Suspended Solids	mg/L	-	40.8	-	27.8	-	6.44	-	31.6	-	25.4	-	28.0	-

*Bold values indicate GPS exceedance

		Sample Location:	WTT-13A		WT-14A		WT-14B		WT-24A		WT-28		WT-29	
		Sample Date:	10/10/2024		10/10/2024		10/10/2024		10/11/2024		11/26/2024		11/26/2024	
Constituent	Unit	State Program GPS												
Field Parameters				Diss. Metals		Diss. Metals		Diss. Metals		Diss. Metals		Diss. Metals		Diss. Metals
pH	su	-	6.95	6.95	6.05	6.05	6.25	6.25	6.03	6.03	6.62	6.62	7.00	7.00
Conductivity	mS/cm	-	1.510	1.510	2.720	2.720	2.850	2.850	1.630	1.630	3.130	3.130	1.240	1.240
Turbidity	NTU	-	5.29	5.29	0.02	0.02	0.02	0.02	0.02	0.02	6.22	6.22	22.50	22.50
Dissolved Oxygen	mg/L	-	6.39	6.39	1.52	1.52	1.21	1.21	1.34	1.34	3.82	3.82	9.19	9.19
Temperature	°C	-	12.3	12.3	14.5	14.5	12.6	12.6	14.7	14.7	8.9	8.9	10.4	10.4
Oxidation Reduction Potential	mV	-	130.0	130.0	125.0	125.0	109.0	109.0	120.0	120.0	-11.7	-11.7	-19.3	-19.3
Part 115														
Copper	mg/L	1.00	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	23.5	18.0	0.10	9.68	1.41	3.55	0.71	3.65	2.92	21.5	7.50	16.8	2.91
Nickel	mg/L	0.1	<0.005	<0.005	0.013	0.012	0.008	0.008	0.006	0.006	0.016	0.007	<0.005	<0.005
Silver	mg/L	0.098	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	0.062	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Appendix III														
Boron	mg/L	0.50	**1.86**	1.79	**4.84**	4.49	**3.48**	3.39	**1.67**	1.63	**2.55**	2.39	**3.21**	2.89
Calcium	mg/L	188	**281**	268	**494**	469	**518**	488	**283**	277	**599**	596	184	178
Chloride	mg/L	250	32.8	-	96.6	-	106	-	45.0	-	60.5	-	47.3	-
Fluoride	mg/L	2.0	<2.00	-	<5.00	-	<5.00	-	<5.00	-	<1.00	-	<1.00	-
pH, Field	su	-												
Sulfate	mg/L	344	**420**	-	**1480**	-	**1480**	-	**659**	-	**1760**	-	**384**	-
Total Dissolved Solids	mg/L	1190	**1290**	-	**2680**	-	**2810**	-	**1390**	-	**3200**	-	940	-
Appendix IV														
Antimony	mg/L	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.021	0.016	0.002	0.002	<0.002	<0.002	<0.002	0.002	<0.002	0.005	0.003	**0.036**	0.006
Barium	mg/L	2.0	0.044	0.034	0.089	0.084	0.116	0.112	0.106	0.105	0.098	0.081	0.035	0.026
Beryllium	mg/L	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.017	<0.005	<0.005	<0.005
Cobalt	mg/L	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	2.0	<2.00	-	<5.00	-	<5.00	-	<5.00	-	<1.00	-	<1.00	-
Lead	mg/L	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	mg/L	0.040	0.035	0.033	**0.202**	0.193	**0.192**	0.186	**0.070**	0.071	**0.064**	0.061	**0.150**	0.132
Mercury	mg/L	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.210**	0.185
Selenium	mg/L	0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium	mg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Other														
Total Suspended Solids	mg/L	-	20.3	-	16.4	-	5.30	-	<3	-	20.0	-	22.8	-

*Bold values indicate GPS exceedance

Appendix C
Laboratory Reports

January 30, 2025

Analytical Laboratory Report

Report ID: S67337.01(01)
Generated on 10/22/2024

Report to

Attention: Molly Reeves
HDR Inc.
1000 Oakbrook Drive, Suite 200
Ann Arbor, MI 48104

Phone: 517-263-7138 FAX:
Email: Molly.Reeves@HDRinc.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S67337.01-S67337.11
Project: BWL - ECDC
Collected Date(s): 10/08/2024 - 10/11/2024
Submitted Date/Time: 10/11/2024 16:39
Sampled by: Tanten Buszka
P.O. #:

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2540C	Standard Method 2540 C 2015
SM2540D	Standard Method 2540 D 2015
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Analytical Laboratory Report

Sample Summary (11 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S67337.01	WT-24A	Groundwater	10/11/24 12:15
S67337.02	WT-9B	Groundwater	10/10/24 14:15
S67337.03	WT-9A	Groundwater	10/10/24 13:15
S67337.04	WT-14A	Groundwater	10/10/24 15:30
S67337.05	WT-14B	Groundwater	10/10/24 10:00
S67337.06	WT-10A	Groundwater	10/09/24 17:30
S67337.07	WT-2B	Groundwater	10/09/24 10:30
S67337.08	WT-8A	Groundwater	10/08/24 13:00
S67337.09	WT-13A	Groundwater	10/10/24 10:15
S67337.10	WTT-13A	Groundwater	10/10/24 12:00
S67337.11	EB-1	Groundwater	10/11/24 15:40

Lab Sample ID: S67337.01
Sample Tag: WT-24A
Collected Date/Time: 10/11/2024 12:15
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:05	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 20:28, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	659	50.0		mg/L	50	14808-79-8	

Method: E300.0, Run Date: 10/15/24 16:50, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	45.0	25.0		mg/L	25	16887-00-6	
Fluoride (Undistilled)	Not detected	5.00		mg/L	25	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,390	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3		mg/L	1		

Metals

Method: E200.8, Run Date: 10/22/24 15:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	277	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:16, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	283	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 12:26, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.002	0.002		mg/L	5	7440-38-2	
Barium	0.106	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	1.67	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.01 (continued)
Sample Tag: WT-24A

Method: E200.8, Run Date: 10/22/24 12:26, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	3.65	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.070	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	0.006	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 12:30, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.105	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	1.63	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	2.92	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.071	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.006	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:21, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 14:20, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.02
Sample Tag: WT-9B
Collected Date/Time: 10/10/2024 14:15
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:05	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 20:38, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	1,570	100		mg/L	100	14808-79-8	

Method: E300.0, Run Date: 10/15/24 17:00, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	74.1	25.0		mg/L	25	16887-00-6	
Fluoride (Undistilled)	Not detected	5.00		mg/L	25	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	2,880	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	31.6	10		mg/L	4		

Metals

Method: E200.8, Run Date: 10/22/24 15:21, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	566	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:19, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	592	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 12:33, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Barium	0.061	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	7.42	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.02 (continued)
Sample Tag: WT-9B

Method: E200.8, Run Date: 10/22/24 12:33, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	16.1	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.230	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	0.010	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 12:37, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.056	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	7.06	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.45	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.221	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.009	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:24, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 14:24, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.03
Sample Tag: WT-9A
Collected Date/Time: 10/10/2024 13:15
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:05	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 20:48, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	1,090	100		mg/L	100	14808-79-8	

Method: E300.0, Run Date: 10/15/24 17:10, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	77.3	25.0		mg/L	25	16887-00-6	
Fluoride (Undistilled)	Not detected	5.00		mg/L	25	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	2,280	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	6.44	3		mg/L	1		

Metals

Method: E200.8, Run Date: 10/22/24 15:24, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	445	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	468	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 12:41, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Barium	0.247	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	3.85	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.03 (continued)
Sample Tag: WT-9A

Method: E200.8, Run Date: 10/22/24 12:41, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	4.32	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.205	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	0.006	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 12:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.230	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	3.86	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.11	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.205	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.006	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:27, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 14:27, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.04
Sample Tag: WT-14A
Collected Date/Time: 10/10/2024 15:30
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:05	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 20:59, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	1,480	100		mg/L	100	14808-79-8	

Method: E300.0, Run Date: 10/15/24 17:20, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	96.6	25.0		mg/L	25	16887-00-6	
Fluoride (Undistilled)	Not detected	5.00		mg/L	25	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	2,680	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	16.4	5		mg/L	2		

Metals

Method: E200.8, Run Date: 10/22/24 15:27, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	469	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	494	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 12:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.002	0.002		mg/L	5	7440-38-2	
Barium	0.089	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	4.84	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.04 (continued)
Sample Tag: WT-14A

Method: E200.8, Run Date: 10/22/24 12:47, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	9.68	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.202	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	0.013	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 12:51, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.084	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	4.49	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	1.41	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.193	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.012	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:31, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 14:30, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.05
Sample Tag: WT-14B
Collected Date/Time: 10/10/2024 10:00
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 21:09, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	1,480	100		mg/L	100	14808-79-8	

Method: E300.0, Run Date: 10/15/24 17:30, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	106	25.0		mg/L	25	16887-00-6	
Fluoride (Undistilled)	Not detected	5.00		mg/L	25	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	2,810	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	5.30	3		mg/L	1		

Metals

Method: E200.8, Run Date: 10/22/24 15:45, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	488	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	518	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 13:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Barium	0.116	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	3.48	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.05 (continued)
Sample Tag: WT-14B

Method: E200.8, Run Date: 10/22/24 13:18, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	3.55	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.192	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	0.008	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 13:21, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.112	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	3.39	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.71	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.186	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.008	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:34, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 15:44, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.06
Sample Tag: WT-10A
Collected Date/Time: 10/09/2024 17:30
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 17:40, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	490	25.0		mg/L	25	14808-79-8	

Method: E300.0, Run Date: 10/15/24 20:18, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	39.2	10.0		mg/L	10	16887-00-6	
Fluoride (Undistilled)	Not detected	2.00		mg/L	10	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,410	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	25.4	7		mg/L	2.9		

Metals

Method: E200.8, Run Date: 10/22/24 15:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	297	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	318	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 13:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.009	0.002		mg/L	5	7440-38-2	
Barium	0.056	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	2.62	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.06 (continued)
Sample Tag: WT-10A

Method: E200.8, Run Date: 10/22/24 13:25, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	10.2	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.030	0.005		mg/L	5	7439-93-2	
Molybdenum	0.010	0.005		mg/L	5	7439-98-7	
Nickel	0.015	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	0.005	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 13:28, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.049	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	2.62	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.05	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.030	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	0.009	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.014	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:37, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 15:47, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.07
Sample Tag: WT-2B
Collected Date/Time: 10/09/2024 10:30
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 17:50, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	243	25.0		mg/L	25	16887-00-6	
Fluoride (Undistilled)	Not detected	5.00		mg/L	25	16984-48-8	
Sulfate	447	25.0		mg/L	25	14808-79-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,610	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	40.8	6		mg/L	2.5		

Metals

Method: E200.8, Run Date: 10/22/24 15:51, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	357	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:50, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	386	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 13:32, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.006	0.002		mg/L	5	7440-38-2	
Barium	0.077	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	1.10	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	

Lab Sample ID: S67337.07 (continued)
Sample Tag: WT-2B

Method: E200.8, Run Date: 10/22/24 13:32, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	10.5	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.032	0.005		mg/L	5	7439-93-2	
Molybdenum	0.008	0.005		mg/L	5	7439-98-7	
Nickel	0.006	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	0.006	0.005		mg/L	5	7440-62-2	
Zinc	0.005	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 13:36, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.062	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	1.07	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.02	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.031	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	0.008	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:41, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 15:50, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.08
Sample Tag: WT-8A
Collected Date/Time: 10/08/2024 13:00
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 18:00, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	241	25.0		mg/L	25	14808-79-8	

Method: E300.0, Run Date: 10/15/24 21:19, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	75.9	10.0		mg/L	10	16887-00-6	
Fluoride (Undistilled)	Not detected	2.00		mg/L	10	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	946	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	27.8	5		mg/L	2		

Metals

Method: E200.8, Run Date: 10/22/24 15:54, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	167	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:53, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	173	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 13:41, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.009	0.002		mg/L	5	7440-38-2	
Barium	0.085	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	1.32	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.08 (continued)
Sample Tag: WT-8A

Method: E200.8, Run Date: 10/22/24 13:41, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	0.008	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	0.013	0.005		mg/L	5	7440-50-8	
Iron	8.68	0.02		mg/L	5	7439-89-6	
Lead	0.004	0.003		mg/L	5	7439-92-1	
Lithium*	0.024	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	0.012	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	0.0032	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	0.009	0.005		mg/L	5	7440-62-2	
Zinc	0.022	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 13:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	0.002	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.046	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	1.29	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.84	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.021	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	0.008	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	0.005	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:44, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 15:54, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.09
Sample Tag: WT-13A
Collected Date/Time: 10/10/2024 10:15
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 18:10, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	423	25.0		mg/L	25	14808-79-8	

Method: E300.0, Run Date: 10/15/24 21:29, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	32.9	10.0		mg/L	10	16887-00-6	
Fluoride (Undistilled)	Not detected	2.00		mg/L	10	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,290	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	28.0	3		mg/L	1		

Metals

Method: E200.8, Run Date: 10/22/24 15:58, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	243	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:56, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	257	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 13:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.017	0.002		mg/L	5	7440-38-2	
Barium	0.044	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	1.90	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.09 (continued)
Sample Tag: WT-13A

Method: E200.8, Run Date: 10/22/24 13:47, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	17.9	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.034	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 13:50, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	0.002	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.035	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	1.82	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.10	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.033	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 12:47, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 15:57, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Lab Sample ID: S67337.10
Sample Tag: WTT-13A
Collected Date/Time: 10/10/2024 12:00
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 10:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 10:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 18:21, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	420	25.0		mg/L	25	14808-79-8	

Method: E300.0, Run Date: 10/15/24 21:39, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	32.8	10.0		mg/L	10	16887-00-6	
Fluoride (Undistilled)	Not detected	2.00		mg/L	10	16984-48-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,290	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	20.3	3		mg/L	1.3		

Metals

Method: E200.8, Run Date: 10/22/24 15:06, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	268	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 15:01, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	281	0.50		mg/L	5	7440-70-2	

Method: E200.8, Run Date: 10/22/24 11:37, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	0.016	0.002		mg/L	5	7440-38-2	
Barium	0.044	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Boron	1.86	0.04		mg/L	5	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	

Lab Sample ID: S67337.10 (continued)
Sample Tag: WTT-13A

Method: E200.8, Run Date: 10/22/24 11:37, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Iron	18.0	0.02		mg/L	5	7439-89-6	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Lithium*	0.035	0.005		mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	Not detected	0.005		mg/L	5	7440-66-6	

Method: E200.8, Run Date: 10/22/24 11:42, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic, Dissolved	0.002	0.002		mg/L	5	7440-38-2	
Barium, Dissolved	0.034	0.005		mg/L	5	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	
Boron, Dissolved	1.79	0.04		mg/L	5	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Iron, Dissolved	0.10	0.02		mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Lithium, Dissolved*	0.033	0.005		mg/L	5	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 10/22/24 13:10, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 16:00, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Analytical Laboratory Report

Lab Sample ID: S67337.11
Sample Tag: EB-1
Collected Date/Time: 10/11/2024 15:40
Matrix: Groundwater
COC Reference: 175380

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	None	Yes	5.6	IR
1	125mL Plastic	None	Yes	5.6	IR
1	125mL Plastic	HNO3	Yes	5.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	10/18/24 11:53	CTV	
Mercury Digestion	Completed	E245.1	10/22/24 09:30	JRH	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	
Metal Digestion	Completed	SW3015A	10/22/24 11:00	CCM	

Inorganics

Method: E300.0, Run Date: 10/15/24 21:49, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	Not detected	5.0		mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.00		mg/L	5	16984-48-8	
Sulfate	Not detected	5.0		mg/L	5	14808-79-8	

Method: SM2540C, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	50		mg/L	2		

Method: SM2540D, Run Date: 10/15/24 16:41, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3		mg/L	1		

Metals

Method: E200.8, Run Date: 10/22/24 12:20, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	2	7440-36-0	
Arsenic	Not detected	0.002		mg/L	2	7440-38-2	
Barium	Not detected	0.005		mg/L	2	7440-39-3	
Beryllium	Not detected	0.001		mg/L	2	7440-41-7	
Boron	Not detected	0.04		mg/L	2	7440-42-8	
Cadmium	Not detected	0.0005		mg/L	2	7440-43-9	
Chromium	Not detected	0.005		mg/L	2	7440-47-3	
Cobalt	Not detected	0.005		mg/L	2	7440-48-4	
Copper	Not detected	0.005		mg/L	2	7440-50-8	
Iron	Not detected	0.02		mg/L	2	7439-89-6	
Lead	Not detected	0.003		mg/L	2	7439-92-1	
Lithium*	Not detected	0.005		mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005		mg/L	2	7439-98-7	
Nickel	Not detected	0.005		mg/L	2	7440-02-0	
Selenium	Not detected	0.005		mg/L	2	7782-49-2	
Silver	Not detected	0.0005		mg/L	2	7440-22-4	
Thallium	Not detected	0.002		mg/L	2	7440-28-0	

Lab Sample ID: S67337.11 (continued)
Sample Tag: EB-1

Method: E200.8, Run Date: 10/22/24 12:20, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vanadium	Not detected	0.005		mg/L	2	7440-62-2	
Zinc	Not detected	0.005		mg/L	2	7440-66-6	

Method: E200.8, Run Date: 10/22/24 12:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	2	7440-36-0	
Arsenic, Dissolved	Not detected	0.002		mg/L	2	7440-38-2	
Barium, Dissolved	Not detected	0.005		mg/L	2	7440-39-3	
Beryllium, Dissolved	Not detected	0.001		mg/L	2	7440-41-7	
Boron, Dissolved	Not detected	0.04		mg/L	2	7440-42-8	
Cadmium, Dissolved	Not detected	0.0005		mg/L	2	7440-43-9	
Chromium, Dissolved	Not detected	0.005		mg/L	2	7440-47-3	
Cobalt, Dissolved	Not detected	0.005		mg/L	2	7440-48-4	
Copper, Dissolved	Not detected	0.005		mg/L	2	7440-50-8	
Iron, Dissolved	Not detected	0.02		mg/L	2	7439-89-6	
Lead, Dissolved	Not detected	0.003		mg/L	2	7439-92-1	
Lithium, Dissolved*	Not detected	0.005		mg/L	2	7439-93-2	
Molybdenum, Dissolved	Not detected	0.005		mg/L	2	7439-98-7	
Nickel, Dissolved	Not detected	0.005		mg/L	2	7440-02-0	
Selenium, Dissolved	Not detected	0.005		mg/L	2	7782-49-2	
Silver, Dissolved	Not detected	0.0005		mg/L	2	7440-22-4	
Thallium, Dissolved	Not detected	0.002		mg/L	2	7440-28-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	2	7440-62-2	
Zinc, Dissolved	Not detected	0.005		mg/L	2	7440-66-6	

Method: E200.8, Run Date: 10/22/24 15:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	Not detected	0.50		mg/L	2	7440-70-2	
Calcium*	Not detected	0.50		mg/L	2	7440-70-2	

Method: E245.1, Run Date: 10/22/24 13:13, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	

Method: E245.1, Run Date: 10/18/24 16:03, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Merit Laboratories Login Checklist

Lab Set ID: S67337
Client: HDR (HDR Inc.)
Project: BWL - ECDC
Submitted: 10/11/2024 16:39 Login User: MMC

Attention: Molly Reeves
Address: HDR Inc.
1000 Oakbrook Drive, Suite 200
Ann Arbor, MI 48104

Phone: 517-263-7138 FAX:
Email: Molly.Reeves@HDRinc.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.6
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[X] Yes	[ ] No	[ ] N/A	Did any samples need to be preserved in the lab?	Diss metals
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[X] Yes	[ ] No	[ ] N/A	Samples require laboratory filtration	Diss metals
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S67337 Submitted: 10/11/2024 16:39

Client: HDR (HDR Inc.)

Project: BWL - ECDC

Initial Preservation Check: 10/11/2024 17:09 MMC

Preservation Recheck (E200.8): N/A

Attention: Molly Reeves
Address: HDR Inc.
1000 Oakbrook Drive, Suite 200
Ann Arbor, MI 48104

Phone: 517-263-7138 FAX:
Email: Molly.Reeves@HDRinc.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S67337.01	125mL Plastic HNO3	<2			
S67337.02	125mL Plastic HNO3	<2			
S67337.03	125mL Plastic HNO3	<2			
S67337.04	125mL Plastic HNO3	<2			
S67337.05	125mL Plastic HNO3	<2			
S67337.06	125mL Plastic HNO3	<2			
S67337.07	125mL Plastic HNO3	<2			
S67337.08	125mL Plastic HNO3	<2			
S67337.09	125mL Plastic HNO3	<2			
S67337.10	125mL Plastic HNO3	<2			
S67337.11	125mL Plastic HNO3	<2			

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

175380

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Molly Reeves
COMPANY: HDR. Inc Ann Arbor
ADDRESS: 1000 Oakbrook Dr
CITY: Ann Arbor STATE: MI ZIP CODE: 48104
PHONE NO.: 734-263-7188 CELL NO.: P.O. NO.:
E-MAIL ADDRESS: Molly.Reeves@HDRinc.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Cheryl. Louden ☐ SAME
COMPANY: LBWL
ADDRESS: on File
CITY: STATE: ZIP CODE:
PHONE NO.: 517-763-1465 E-MAIL ADDRESS:

PROJECT NO./NAME: BWL - ECDL
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Tanten Beszka

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ LEVEL II ☐ LEVEL III ☒ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OEHS VAP ☐ Drinking Water ☐ Dod ☐ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	LCR App III metals	LCR App IV metals	TDS, TSS, Sulfate	Diss App III + IV metals	Antimony, Arsenic,	Barium, Beryllium	Boron, Cadmium, Calcium	Chloride, Chromium, Cobalt,	Copper, Fluoride, Iron, Lead,	Lithium, Mercury, Molybdenum,	Nickel, Selenium, Silver,	Thallium, Vanadium, Zinc
67337.01	10/11/24	12:15	WT-24A	GW	4	3		1																
.02	10/10/24	14:15	WT-9B																					
.03	10/10/24	13:15	WT-9A																					
.04	10/10/24	15:30	WT-14A																					
.05	10/10/24	16:00	WT-14B																					
.06	10/9/24	17:30	WT-10A																					
.07	10/9/24	10:30	WT-2B																					
.08	10/8/24	13:00	WT-8A																					
.09	10/10/24	10:15	WT-13A																					
.10	10/10/24	12:00	WTF-13A																					
.11	10/11/24	15:40	EB-1																					

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 10-11-24	TIME 16:39
RECEIVED BY: SIGNATURE/ORGANIZATION Johanna Murray		DATE 10/11/24	TIME 1639
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 5.6

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 05/24

Analytical Laboratory Report

Report ID: S69002.01(01)
Generated on 12/09/2024

Report to

Attention: Andrew Byks
HDR Inc.
1000 Oakbrook Drive, Suite 200
Ann Arbor, MI 48104

Phone: NA FAX:
Email: Andrew.Byks@hdrinc.com

Addtional Contacts: Molly Reeves

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S69002.01-S69002.02
Project: BWL - ECDC
Collected Date(s): 11/26/2024
Submitted Date/Time: 11/26/2024 14:00
Sampled by: Tanten Buszka
P.O. #:

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Maya Murshak
Technical Director

Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1 (1993)
SM2540C	Standard Method 2540 C 2020
SM2540D	Standard Method 2540 D 2020
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Analytical Laboratory Report

Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S69002.01	WT-28	Groundwater	11/26/24 11:30
S69002.02	WT-29	Groundwater	11/26/24 13:00

Analytical Laboratory Report

Lab Sample ID: S69002.01
Sample Tag: WT-28
Collected Date/Time: 11/26/2024 11:30
Matrix: Groundwater
COC Reference: 174042

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	1L Plastic	None	No	8.8	IR
1	500mL Plastic	None	No	8.8	IR
1	250mL Plastic	None	No	8.8	IR
1	125mL Plastic	HNO3	No	8.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/27/24 02:18	CTV	
Mercury Digestion	Completed	E245.1	12/02/24 11:32	CTV	
Metal Digestion	Completed	SW3015A	12/03/24 10:45	CCM	
Metal Digestion	Completed	SW3015A	12/03/24 10:45	CCM	

Inorganics

Method: E300.0, Run Date: 12/05/24 00:01, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	1,760	100		mg/L	100	14808-79-8	

Method: E300.0, Run Date: 11/26/24 18:15, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	60.5	5.0		mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.00		mg/L	5	16984-48-8	

Method: SM2540C, Run Date: 12/03/24 16:53, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	3,200	50		mg/L	2		

Method: SM2540D, Run Date: 11/26/24 18:20, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	20.0	5		mg/L	2		

Metals

Method: E200.8, Run Date: 12/04/24 16:26, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	596	50.0		mg/L	500	7440-70-2	f

Method: E200.8, Run Date: 12/04/24 16:23, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	599	50.0		mg/L	500	7440-70-2	x

Method: E200.8, Run Date: 12/03/24 12:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	x
Arsenic	0.005	0.002		mg/L	5	7440-38-2	x
Barium	0.098	0.005		mg/L	5	7440-39-3	x

f-Filtered and preserved in lab
x-Preserved from bulk sample

Lab Sample ID: S69002.01 (continued)
Sample Tag: WT-28

Method: E200.8, Run Date: 12/03/24 12:47, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	x
Boron	2.55	0.04		mg/L	5	7440-42-8	x
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	x
Chromium	0.017	0.005		mg/L	5	7440-47-3	x
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	x
Copper	Not detected	0.005		mg/L	5	7440-50-8	x
Iron	21.5	0.02		mg/L	5	7439-89-6	x
Lead	Not detected	0.003		mg/L	5	7439-92-1	x
Lithium*	0.064	0.005		mg/L	5	7439-93-2	x
Molybdenum	Not detected	0.005		mg/L	5	7439-98-7	x
Nickel	0.016	0.005		mg/L	5	7440-02-0	x
Selenium	Not detected	0.005		mg/L	5	7782-49-2	x
Silver	Not detected	0.0005		mg/L	5	7440-22-4	x
Thallium	Not detected	0.002		mg/L	5	7440-28-0	x
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	x
Zinc	Not detected	0.005		mg/L	5	7440-66-6	x

Method: E200.8, Run Date: 12/03/24 12:52, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	f
Arsenic, Dissolved	0.003	0.002		mg/L	5	7440-38-2	f
Barium, Dissolved	0.081	0.005		mg/L	5	7440-39-3	f
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	f
Boron, Dissolved	2.39	0.04		mg/L	5	7440-42-8	f
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	f
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	f
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	f
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	f
Iron, Dissolved	7.50	0.02		mg/L	5	7439-89-6	f
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	f
Lithium, Dissolved*	0.061	0.005		mg/L	5	7439-93-2	f
Molybdenum, Dissolved	Not detected	0.005		mg/L	5	7439-98-7	f
Nickel, Dissolved	0.007	0.005		mg/L	5	7440-02-0	f
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	f
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	f
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	f
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	f
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	f

Method: E245.1, Run Date: 12/02/24 15:40, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	f

Method: E245.1, Run Date: 11/26/24 04:06, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	x

x-Preserved from bulk sample
f-Filtered and preserved in lab

Analytical Laboratory Report

Lab Sample ID: S69002.02
Sample Tag: WT-29
Collected Date/Time: 11/26/2024 13:00
Matrix: Groundwater
COC Reference: 174042

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	1L Plastic	None	No	8.8	IR
1	500mL Plastic	None	No	8.8	IR
1	250mL Plastic	None	No	8.8	IR
1	125mL Plastic	HNO3	No	8.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/27/24 11:14	CTV	
Mercury Digestion	Completed	E245.1	12/02/24 11:32	CTV	
Metal Digestion	Completed	SW3015A	12/03/24 10:45	CCM	
Metal Digestion	Completed	SW3015A	12/03/24 10:45	CCM	

Inorganics

Method: E300.0, Run Date: 12/06/24 16:55, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfate	384	50.0		mg/L	50	14808-79-8	

Method: E300.0, Run Date: 11/26/24 18:25, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	47.3	5.0		mg/L	5	16887-00-6	
Fluoride (Undistilled)	Not detected	1.00		mg/L	5	16984-48-8	

Method: SM2540C, Run Date: 12/03/24 16:53, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	940	50		mg/L	2		

Method: SM2540D, Run Date: 11/26/24 18:20, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	22.8	5		mg/L	2		

Metals

Method: E200.8, Run Date: 12/04/24 16:21, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium, Dissolved*	178	0.50		mg/L	5	7440-70-2	f

Method: E200.8, Run Date: 12/04/24 16:19, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	184	0.50		mg/L	5	7440-70-2	x

Method: E200.8, Run Date: 12/03/24 12:39, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	x
Arsenic	0.036	0.002		mg/L	5	7440-38-2	x
Barium	0.035	0.005		mg/L	5	7440-39-3	x

f-Filtered and preserved in lab
x-Preserved from bulk sample

Lab Sample ID: S69002.02 (continued)
Sample Tag: WT-29

Method: E200.8, Run Date: 12/03/24 12:39, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	x
Boron	3.21	0.04		mg/L	5	7440-42-8	x
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	x
Chromium	Not detected	0.005		mg/L	5	7440-47-3	x
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	x
Copper	Not detected	0.005		mg/L	5	7440-50-8	x
Iron	16.8	0.02		mg/L	5	7439-89-6	x
Lead	Not detected	0.003		mg/L	5	7439-92-1	x
Lithium*	0.150	0.005		mg/L	5	7439-93-2	x
Molybdenum	0.210	0.005		mg/L	5	7439-98-7	x
Nickel	Not detected	0.005		mg/L	5	7440-02-0	x
Selenium	Not detected	0.005		mg/L	5	7782-49-2	x
Silver	Not detected	0.0005		mg/L	5	7440-22-4	x
Thallium	Not detected	0.002		mg/L	5	7440-28-0	x
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	x
Zinc	Not detected	0.005		mg/L	5	7440-66-6	x

Method: E200.8, Run Date: 12/03/24 12:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony, Dissolved*	Not detected	0.005		mg/L	5	7440-36-0	f
Arsenic, Dissolved	0.006	0.002		mg/L	5	7440-38-2	f
Barium, Dissolved	0.026	0.005		mg/L	5	7440-39-3	f
Beryllium, Dissolved	Not detected	0.001		mg/L	5	7440-41-7	f
Boron, Dissolved	2.89	0.04		mg/L	5	7440-42-8	f
Cadmium, Dissolved	Not detected	0.0005		mg/L	5	7440-43-9	f
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	f
Cobalt, Dissolved	Not detected	0.005		mg/L	5	7440-48-4	f
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	f
Iron, Dissolved	2.91	0.02		mg/L	5	7439-89-6	f
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	f
Lithium, Dissolved*	0.132	0.005		mg/L	5	7439-93-2	f
Molybdenum, Dissolved	0.185	0.005		mg/L	5	7439-98-7	f
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	f
Selenium, Dissolved	Not detected	0.005		mg/L	5	7782-49-2	f
Silver, Dissolved	Not detected	0.0005		mg/L	5	7440-22-4	f
Thallium, Dissolved	Not detected	0.002		mg/L	5	7440-28-0	f
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	f
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	f

Method: E245.1, Run Date: 12/02/24 15:43, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury, Dissolved	Not detected	0.0002		mg/L	1	7439-97-6	f

Method: E245.1, Run Date: 11/27/24 15:49, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	x

x-Preserved from bulk sample
f-Filtered and preserved in lab

Merit Laboratories Login Checklist

Lab Set ID: S69002
Client: HDR (HDR Inc.)
Project: BWL - ECDC
Submitted: 11/26/2024 14:00 Login User: MMC

Attention: Andrew Byks
Address: HDR Inc.
1000 Oakbrook Drive, Suite 200
Ann Arbor, MI 48104

Phone: NA FAX:
Email: Andrew.Byks@hdrinc.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 8.8
02.	☐ Yes	☒ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☐ Yes	☒ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☐ Yes	☐ No	☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☐ Yes	☒ No	☐ N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☒ Yes	☐ No	☐ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☒ Yes	☐ No	☐ N/A	Did any samples need to be preserved in the lab?	Diss metals
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☒ Yes	☐ No	☐ N/A	Samples require laboratory filtration	Diss metals
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☐ No	☒ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S69002 Submitted: 11/26/2024 14:00

Client: HDR (HDR Inc.)

Project: BWL - ECDC

Initial Preservation Check: 11/26/2024 15:43 MMC

Preservation Recheck (E200.8): N/A

Attention: Andrew Byks
Address: HDR Inc.
1000 Oakbrook Drive, Suite 200
Ann Arbor, MI 48104

Phone: NA FAX:
Email: Andrew.Byks@hdrinc.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S69002.01	125mL Plastic HNO3	<2			
S69002.02	125mL Plastic HNO3	<2			

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

174042

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Molly Reeves, Andrew Byks
COMPANY: HDR Michigan
ADDRESS: 1000 Oakbrook DR
CITY: Ann Arbor | STATE: MI | ZIP CODE: 48104
PHONE NO.: 734-730-9265 | CELL NO. | P.O. NO.
E-MAIL ADDRESS: Andrew.Byks@HDRinc.com | QUOTE NO.

INVOICE TO

CONTACT NAME: Cheryl Louden ☐ SAME
COMPANY: LBWL
ADDRESS: On File
CITY | STATE | ZIP CODE
PHONE NO.: 517-763-1465 | E-MAIL ADDRESS

PROJECT NO./NAME: BWL - ECDC
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Tanten Buszka

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ LEVEL II ☐ LEVEL III ☒ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Sb, As, Ba, Be, B,	Cd, Ca, Cl, Cr, Co	Cu, F, Fe, Pb, Li, Hg	Mo, Ni, Se, Ag, Tl	TDS, TSS, V, Zn	Total + Diss Metals
690028.01	11/26/24	11:30	WT-28	GW	4	3		1					1	1	1	1	1	1
.02	11/26/24	13:00	WT-29	GW	4	3		1					1	1	1	1	1	1

RELINQUISHED BY: SIGNATURE/ORGANIZATION — ☒ Sampler — DATE 11/26/24 — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION Johanna Murray — DATE 11/26/24 — TIME 1400
RELINQUISHED BY: SIGNATURE/ORGANIZATION — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION — DATE — TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION — DATE — TIME

SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS
SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS

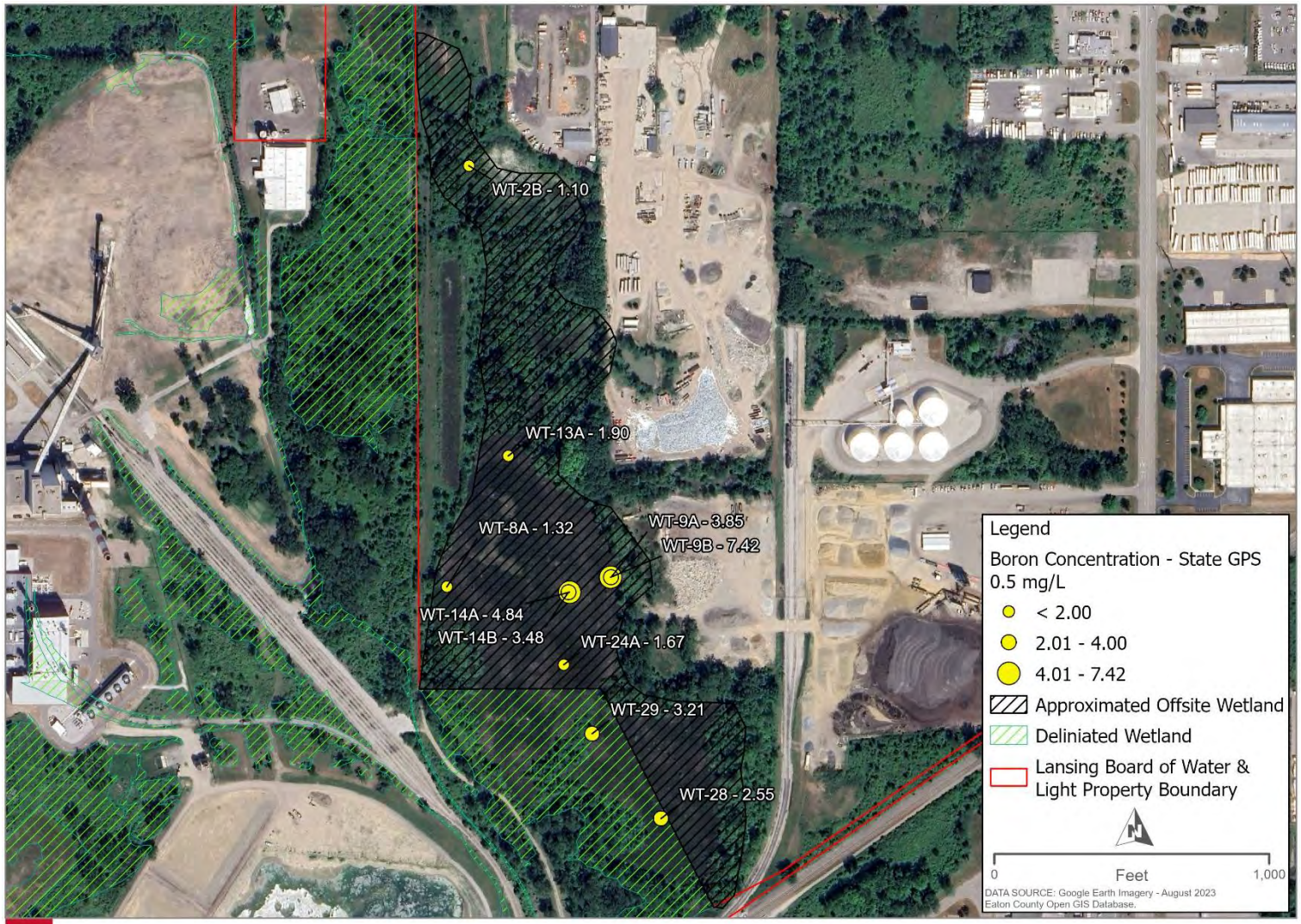
NOTES: TEMP. ON ARRIVAL 8.8 No Ice

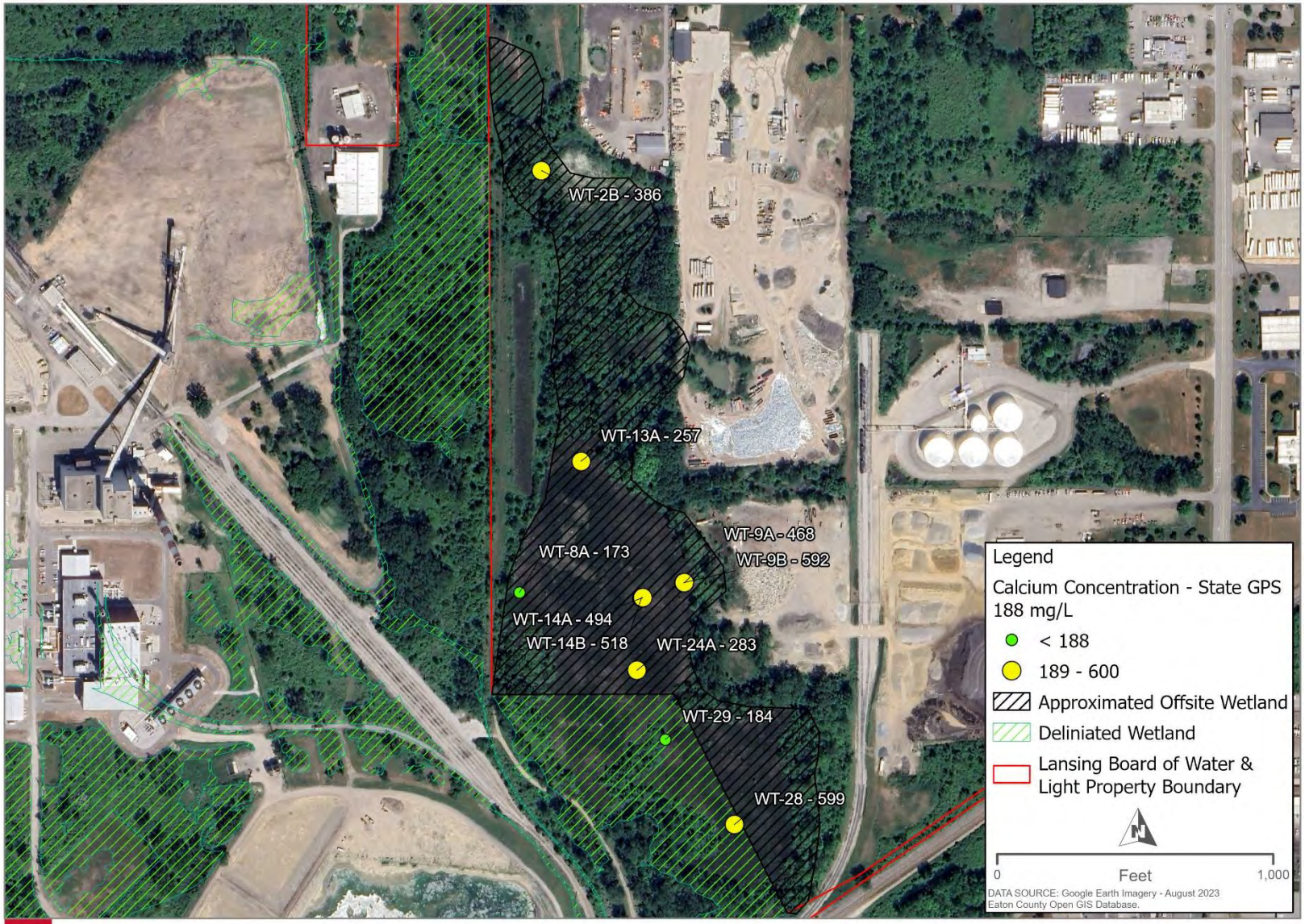
PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 05/24

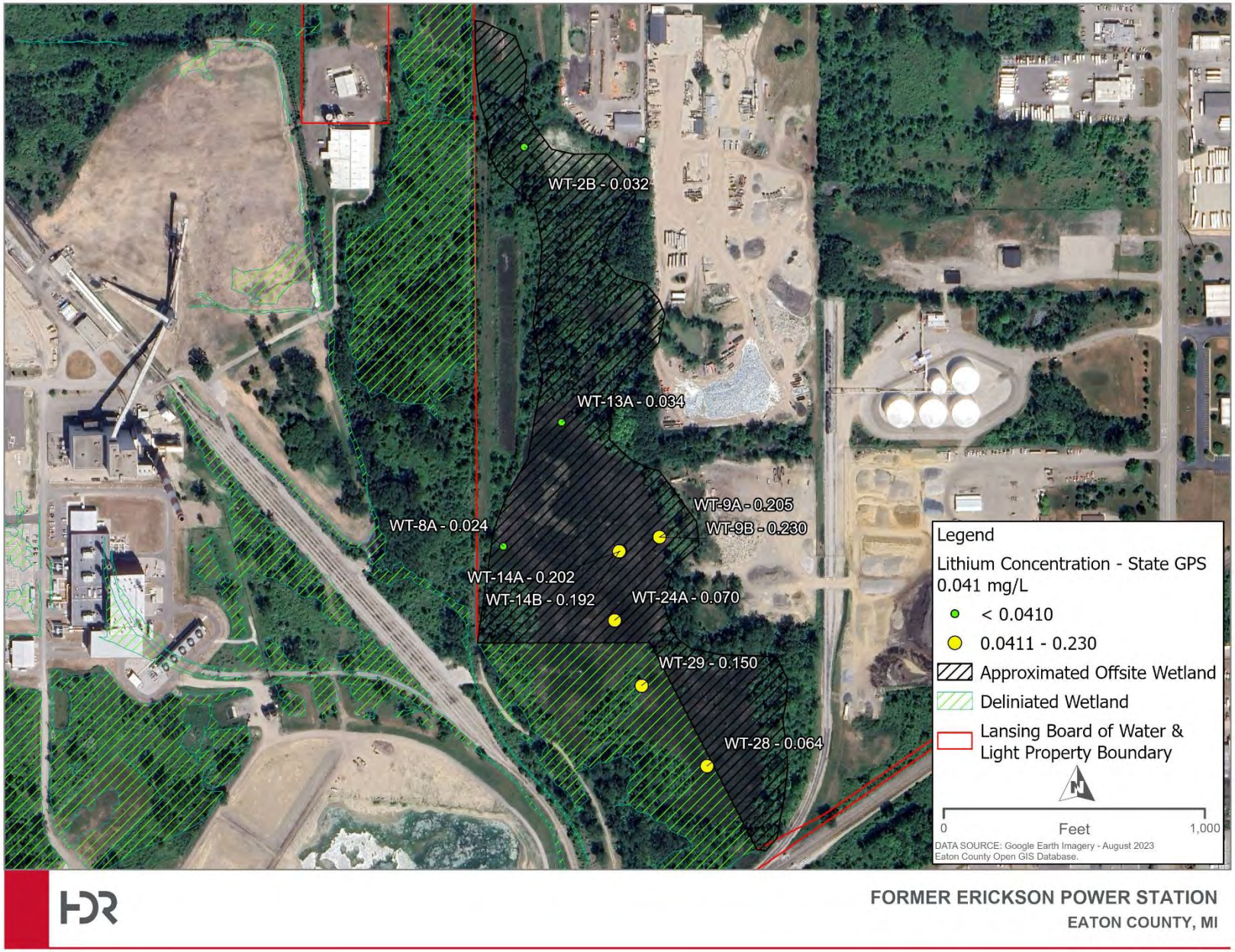
Table 1. Water Quality Parameters to be Analyzed				
Parameter	**Units to be reported**	**Method**	**Holding Time**	**Laboratory Reporting Limits**
Antimony	mg/L	200.8	6 mos	0.005
Arsenic	mg/L	200.8	6 mos	0.002
Barium	mg/L	200.8	6 mos	0.150
Beryllium	mg/L	200.8	6 mos	0.001
Boron	mg/L	200.8	6 mos	0.04
Cadmium	mg/L	200.8	6 mos	0.0005
Calcium	mg/L	200.8	6 mos	2.5
Chloride	mg/L	300.0	28 d	10
Chromium	mg/L	200.8	6 mos	0.005
Cobalt	mg/L	200.8	6 mos	0.005
Copper	mg/L	200.8	6 mos	0.005
Fluoride	mg/L	9056	28 d	1.0
Iron	mg/L	300.0	6 mos	0.02
Lead	mg/L	200.8	6 mos	0.003
Lithium	mg/L	200.8	6 mos	0.005
Mercury	mg/L	245.1	28 d	0.0002
Molybdenum	mg/L	200.8	6 mos	0.005
Nickel	mg/L	200.8	6 mos	0.005
Selenium	mg/L	200.8	6 mos	0.005
Silver	mg/L	200.8	6 mos	0.0005
Sulfate	mg/L	300.0	28 d	10
Thallium	mg/L	200.8	6 mos	0.002
Total Dissolved Solids	mg/L	SM 2540C	NA	20
Total Suspended Solids	mg/L	SM 2540D	NA	3
Vanadium	mg/L	200.8	6 mos	0.005
Zinc	mg/L	200.8	6 mos	0.005

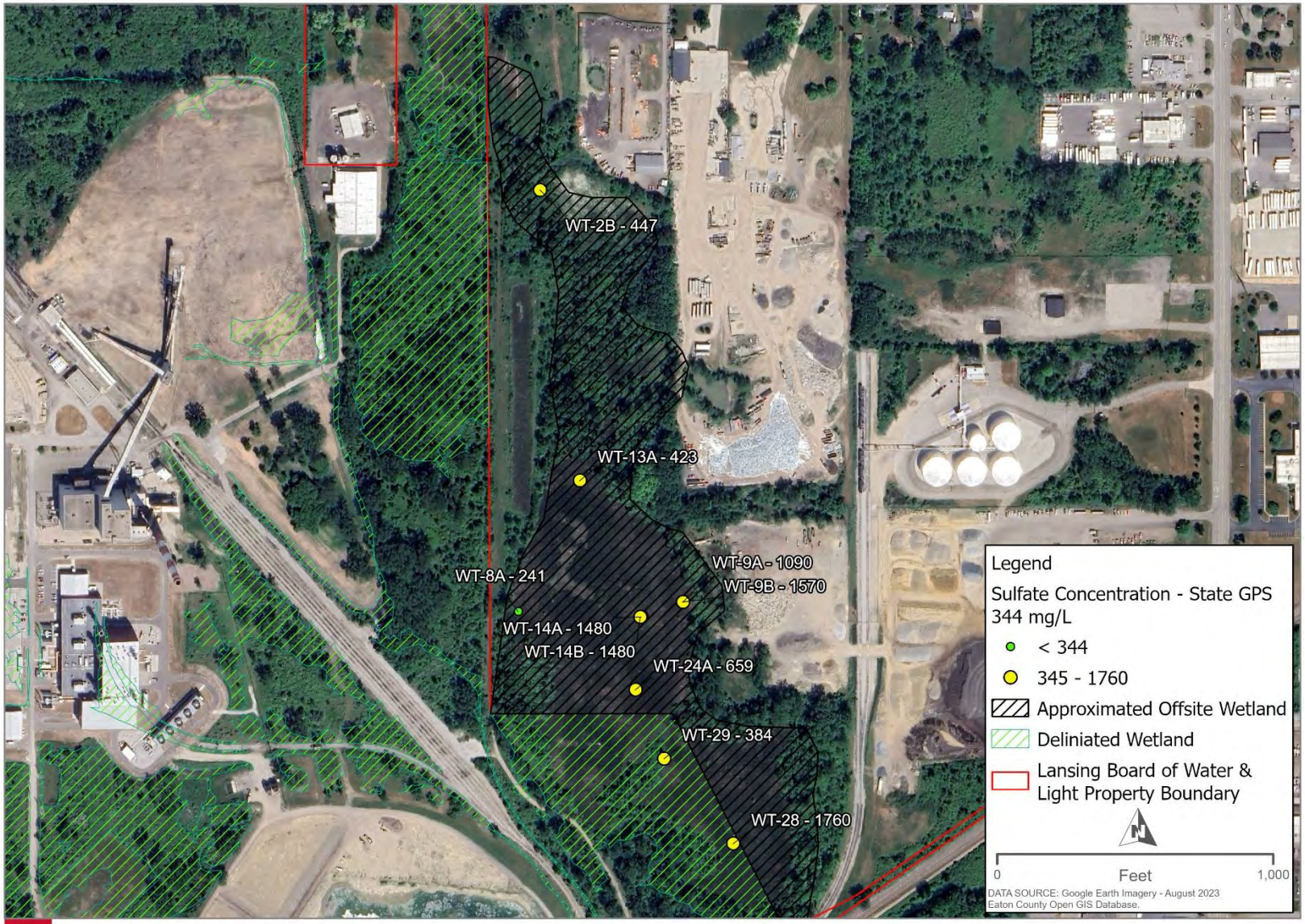
Appendix D
Concentration Maps


WT-2B - 1.10
WT-13A - 1.90
WT-8A - 1.32
WT-9A - 3.85
WT-9B - 7.42
WT-14A - 4.84
WT-14B - 3.48
WT-24A - 1.67
WT-29 - 3.21
WT-28 - 2.55
Legend
Boron Concentration - State GPS
0.5 mg/L
< 2.00
2.01 - 4.00
4.01 - 7.42
Approximated Offsite Wetland
Deliniated Wetland
Lansing Board of Water & Light Property Boundary
N
0
Feet
1,000
DATA SOURCE: Google Earth Imagery - August 2023
Eaton County Open GIS Database.
FORMER ERICKSON POWER STATION
EATON COUNTY, MI

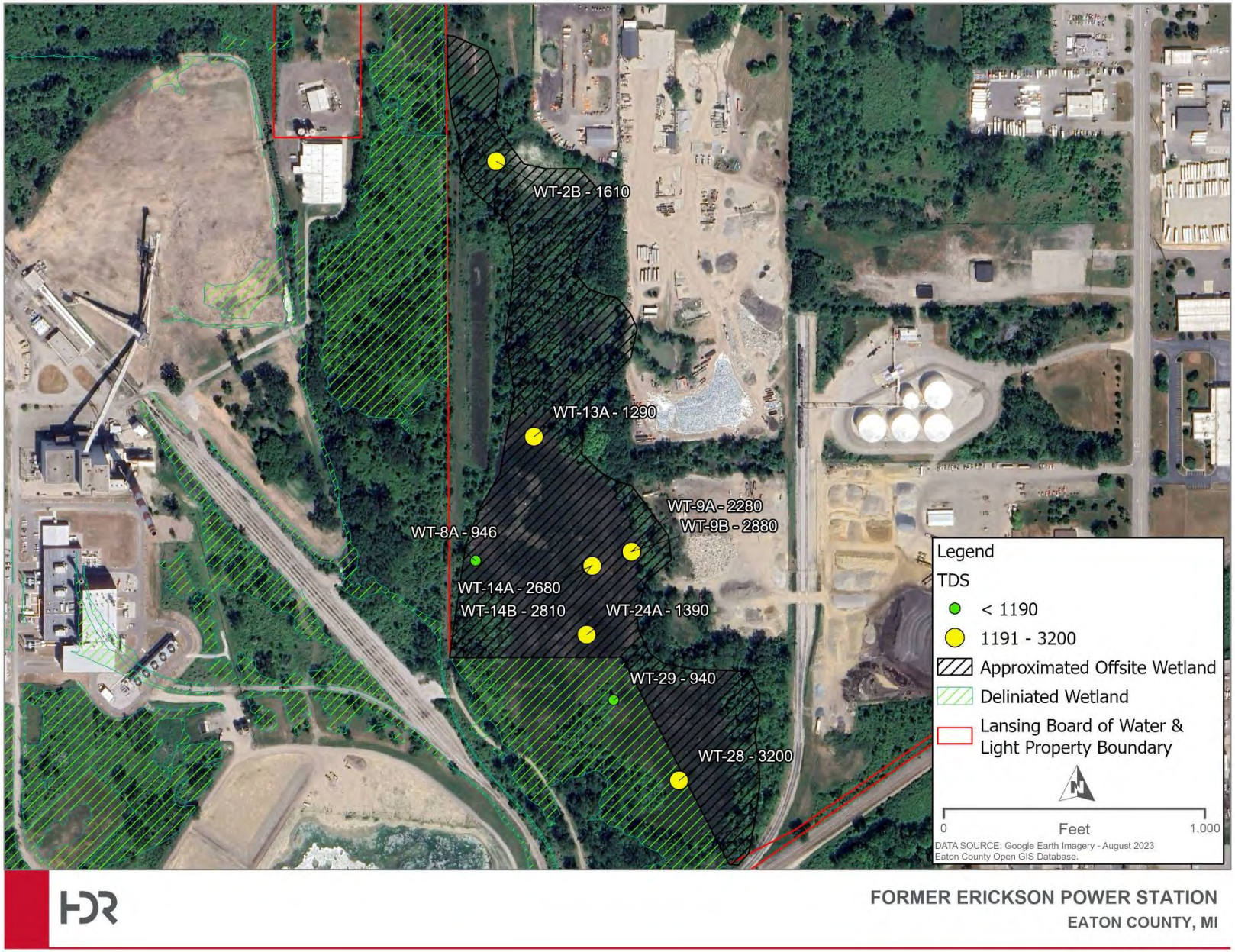


FORMER ERICKSON POWER STATION
EATON COUNTY, MI


WT-2B - 0.032
WT-13A - 0.034
WT-9A - 0.205
WT-9B - 0.230
WT-8A - 0.024
WT-14A - 0.202
WT-14B - 0.192
WT-24A - 0.070
WT-29 - 0.150
WT-28 - 0.064
Legend
Lithium Concentration - State GPS
0.041 mg/L
< 0.0410
0.0411 - 0.230
Approximated Offsite Wetland
Deliniated Wetland
Lansing Board of Water & Light Property Boundary
N
0
Feet
1,000
DATA SOURCE: Google Earth Imagery - August 2023
Eaton County Open GIS Database.
HDR
FORMER ERICKSON POWER STATION
EATON COUNTY, MI



FORMER ERICKSON POWER STATION
EATON COUNTY, MI


WT-2B - 1610
WT-13A - 1290
WT-9A - 2280
WT-9B - 2880
WT-8A - 946
WT-14A - 2680
WT-14B - 2810
WT-24A - 1390
WT-29 - 940
WT-28 - 3200
Legend
TDS
< 1190
1191 - 3200
Approximated Offsite Wetland
Deliniated Wetland
Lansing Board of Water & Light Property Boundary
N
0
Feet
1,000
DATA SOURCE: Google Earth Imagery - August 2023
Eaton County Open GIS Database.
FORMER ERICKSON POWER STATION
EATON COUNTY, MI