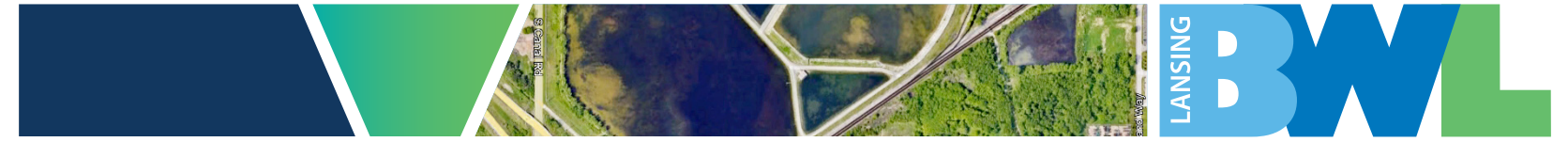




PO Box 13007
Lansing, Michigan 48901-3007



ERICKSON INSIGHTS

SAMPLING INVESTIGATION REPORT NOW AVAILABLE

The Private Well Sampling Report can be found at www.lbwl.com/privatewellreport.

REPORT SUMMARY

The Lansing Board of Water & Light (BWL) has been conducting a groundwater monitoring investigation to evaluate the potential for groundwater to be impacted by the Coal Combustion Residuals (“CCR” or “ash”) impoundments at the retired Erickson Power Station in Delta Township. In February 2022, BWL initiated a sampling program of private wells in a focus area downstream of the Erickson impoundments to address public concern whether the impoundments may have impacted private wells. Private wells were sampled for general water quality parameters, plus boron, lithium and molybdenum – as these can be associated with ash. A private well report was developed to document the sampling results and findings. The full report can be found at www.lbwl.com/privatewellreport.

Sampling data observed at some of the private wells in the defined focus area had concentrations of boron above the Environmental Protection Agency’s (EPA) Health Advisory Levels, therefore we consider these “elevated” concentrations. BWL used the EPA levels provided to us by the Michigan Department of Health and Human Services (MDHHS) since there are currently no regulatory levels in the state or federal Safe Drinking Water Acts for boron.

Multiple approaches were reviewed and provide eight lines of evidence, to consider whether the source of boron was the Erickson impoundments or naturally occurring. The groundwater data review includes aspects such as typical plume migration, water quality variability, aquifer rock type and regional studies, which are highlighted in this document. Results of the study suggest that the levels of boron found are likely naturally occurring. All further communications regarding updates to the Erickson closure and groundwater investigation projects will continue to be posted on our website at www.lbwl.com/Erickson.

ERICKSON COAL ASH IMPOUNDMENT CLOSURE PROCESS

BWL developed an initial closure plan in 2019 for complete removal of coal ash at the Erickson site. Removing the coal ash means there will no longer be a risk to groundwater. This process is scheduled to be completed in October 2023.



1. ERICKSON RETIREMENT

Erickson Power Station was retired from operations in November 2022. Coal Combustion Residuals (CCR) storage to ash impoundments ended in December 2022.



2. REMOVE WATER

Water removal from the ash impoundments was completed in April 2023.



3. EXCAVATE AND REMOVE

Excavating and hauling ash to regulated landfill is underway.



4. SOIL VERIFICATION

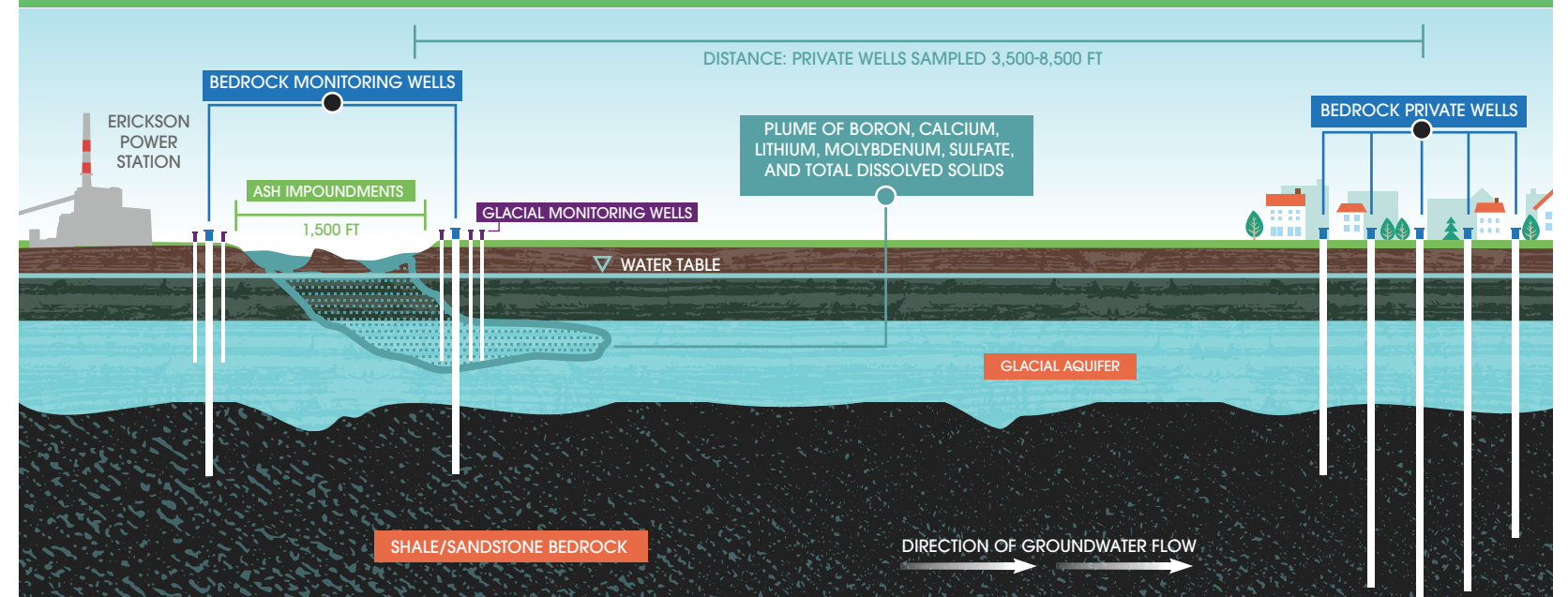
Soil at the bottom of the impoundments will be tested to confirm the ash is removed, with results sent to Michigan Department of Environment, Great Lakes, and Energy (EGLE) for approval.



5. ONGOING MONITORING

Ongoing groundwater monitoring will continue.

GROUNDWATER FLOW UNDER ERICKSON POWER STATION



This figure is an illustration showing the shallow glacial aquifer and deeper bedrock aquifer under Erickson. It shows the approximated glacial (shallow) plume based on monitoring completed to date, and the distance between the impoundments and private wells. The glacial aquifer near the impoundments have exceedances of groundwater protection standards for boron, calcium, lithium, molybdenum, sulfate and total dissolved solids, and therefore are shown as a “plume” in the shallow groundwater. The EPA and the State of Michigan do not have primary drinking water standards for any of these parameters, and sulfate and total dissolved solids have secondary standards for aesthetic effects (i.e. taste and odor).

Learn more about the report on the following pages and reach out to us directly if questions remain.

CONTACT US: (517) 702-6360 | EricksonProject@lbwl.com
For closure & groundwater updates at Erickson visit www.lbwl.com/Erickson.



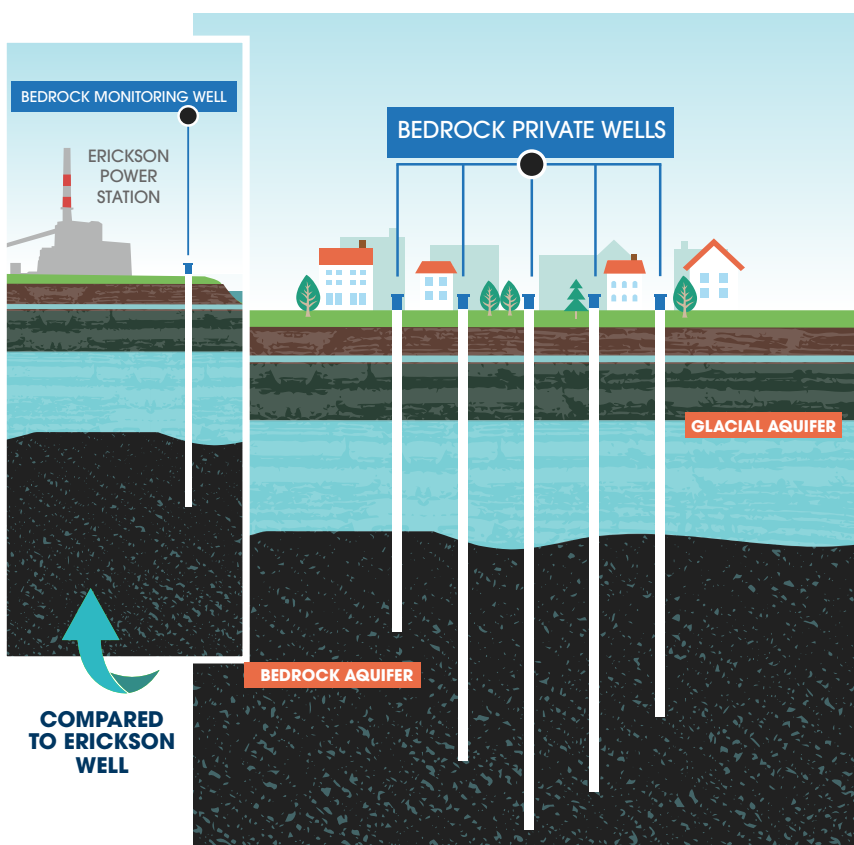
LINES OF EVIDENCE

This page highlights the multiple approaches that were used to evaluate the private well sampling data and comparisons to the Erickson data and regional studies.

Along with the private well sampling, BWL also installed and sampled monitoring wells upstream and downstream of Erickson in the Saginaw Bedrock Aquifer to determine if the higher concentration of boron was a result of the coal ash impoundments. Results to date have shown the bedrock aquifer is not impacted at the Erickson site, further suggesting it's naturally occurring.

COMPARISON TO ERICKSON BEDROCK BACKGROUND GROUNDWATER QUALITY

While exceedances of boron, calcium, lithium, molybdenum, sulfate and total dissolved solids over groundwater protection standards were observed in the glacial aquifer at Erickson, area private wells pull from a deeper groundwater source: the bedrock aquifer. Results from the bedrock monitoring wells at Erickson showed no exceedances above background at the bedrock level, indicating the bedrock aquifer is not impacted by the ash impoundments.



CONCENTRATIONS RELATIVE TO DEPTH

There is no trend between private well depth and the boron levels identified. Typical migration away from a shallow source is significantly less in depth than the horizontal direction. This shows that the majority of the plume is typically expected to remain more shallow, as opposed to migrating to the 400-foot-deep private wells.

CONCENTRATIONS RELATIVE TO DISTANCE FROM ERICKSON

It is estimated that groundwater would travel approximately 4,200 feet from the Erickson impoundments over 50 years, which is the age of the oldest impoundment. Over 80% of the private wells sampled have concentrations of boron over 2.0 mg/L (EPA health advisory level for children), and all of those private wells are 5,650-8,500 feet from the Erickson impoundments. This indicates it is not expected that the plume would have traveled as far as these private wells.

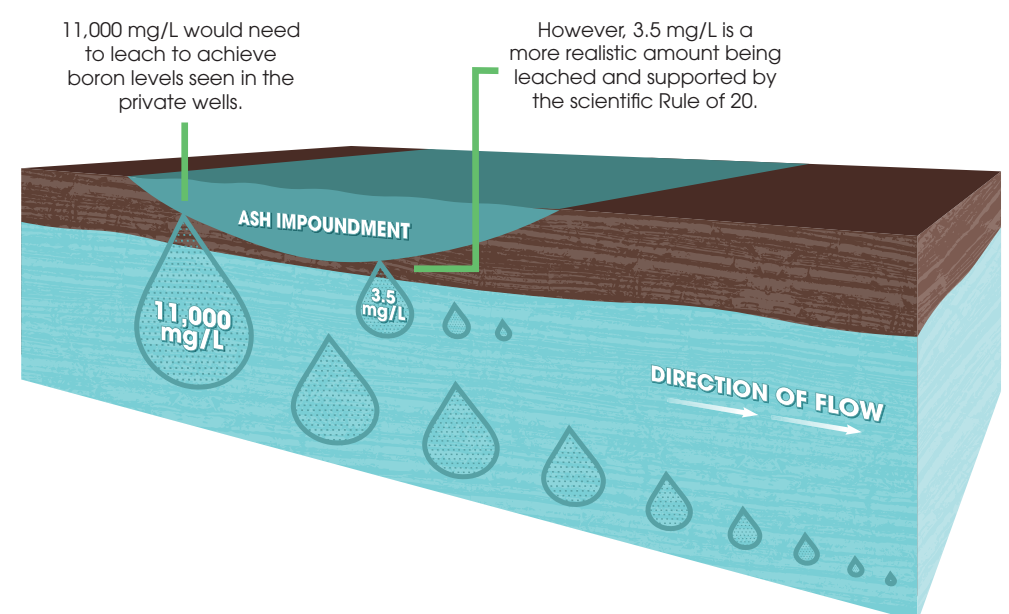
PLUME GEOMETRY

Boron concentration values at the private wells were variable, ranging from 0.15 to 4.49 milligram per liter (mg/L), and one value at 6.3 mg/L. Typically, a plume would show more consistent concentration values between wells at similar depths and distance. The data from the private well sampling results indicate the boron would have had to spread wider and deeper than a typical shape of a plume.

TRANSPORT SOLUTION FOR A CONTINUOUS RELEASE TO GROUNDWATER

Using an equation to represent transport in the site-specific aquifer properties, the impoundments would have to have been a constant source of boron at a concentration of over 11,000 mg/L for 50 years to get the maximum concentration observed in the private wells.

For comparison, using a scientific assumption known as the "Rule of 20" a more likely boron level that could leach from the impoundments to groundwater is closer to 3.5 mg/L. This transport solution indicates that the impoundments would have had to leach an unrealistically high boron concentration to be the source of the maximum boron observed at the private wells.

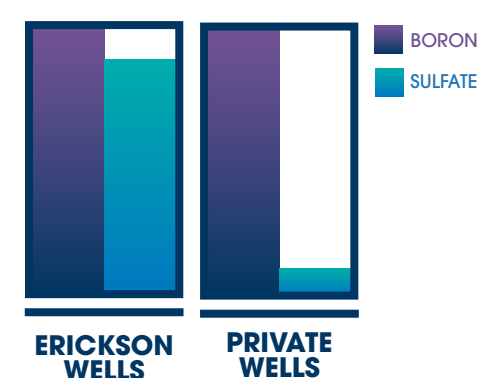


FLOW AND TRANSPORT MODEL

A simulated flow model using overly conservative numbers resulted in a hypothetical bedrock boron plume that went approximately 950 feet away from the impoundments and no closer than 3,000 feet away from the closest private well.

GENERAL WATER QUALITY

A review of the water quality in private wells compared to the impacted groundwater in monitoring wells at Erickson showed there are differences that would not be expected if the impoundments were the source of the boron. For example, in the groundwater near the impoundments, sulfate concentrations were found to correlate with the boron. However, in the majority of private wells, sulfate and boron did not follow this pattern.



SIMILARITIES TO INGHAM COUNTY AND DELTA TOWNSHIP BEDROCK GROUNDWATER QUALITY STUDIES

The water quality at the private wells has the same or similar characteristics that were observed in the Ingham County and Delta Township groundwater studies. These studies characterized the boron levels as "naturally occurring," associating the higher boron with the shale bedrock. The private wells near Erickson are also in shale bedrock.



Scan with your mobile device camera to view the full report online.

Privacy is paramount to BWL. Private well owner data remains private and all addresses have been hidden.