

SCHIST LAKE SELENIUM STUDIES

On April 19, 2024 the Manitoba government issued a bulletin advising people to limit their consumption of fish from Schist Lake to no more than four meals per month due to elevated levels of selenium detected in fish tissue. To address these findings and the advice given by Manitoba, Hudbay held a public information session on May 9th, followed by an update on November 27th on the selenium studies.

Overview of Work Plan and Associated Field Program

Work Plan was developed in collaboration with the Governments of Manitoba and Saskatchewan.

Key Work Plan Items Includes:

- Evaluation of selenium in fish tissue
 - Water and sediment quality
- Effluent plume delineation
- Selenium speciation and bioavailability (sediment cores)

Targeted species for fish tissue sampling:

- Northern Pike
- Walleye
- White Sucker
- Lake Trout
- Lake Whitefish
- Yellow Perch*
- Burbot*
- Brook Trout*

*indicates incidentals only

Field Work Execution and Next Steps

Field work was executed for Key Work Plan Items from August to October in various campaigns.

Selenium in Fish Tissue:

- All 10 areas were fished and target species captured
 - One exception: no walleye captured in Goose Lake
- All water quality and sediment samples were collected.
- All water, sediment, and tissue samples were sent for lab analysis
- Next steps: receive data from lab, compile data into usable form for analysis and reporting in 2025.

Plume Delineation:

- Readings were taken at all 10 areas as well as the final discharge.
- Readings were also taken at major confluences.
- Next steps: data to be analyzed and mapped to show plume delineation comparatively to previous years.

Sediment Cores:

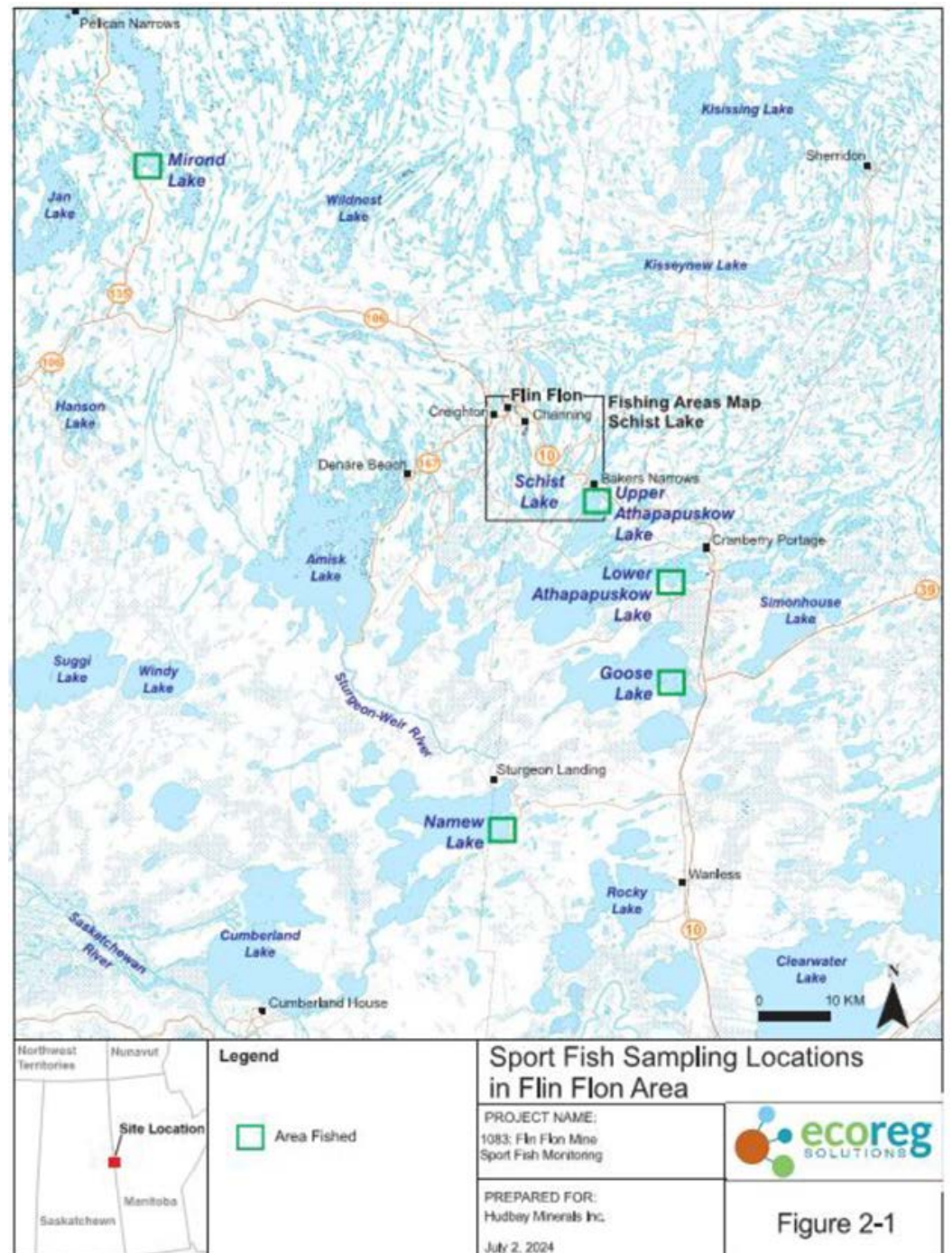
- All 20 sediment cores were collected for specialized analysis.
- Samples are currently frozen and awaiting analysis at Wilfrid Laurier University
- Next steps: receive data from lab, compile data into usable form for analysis and reporting in 2025.

For more information, please visit Manitoba's 'Contaminant in Fish' website: <https://www.gov.mb.ca/sd/water/lakes-beaches-rivers/index.html>

Schedule and Estimated Next Public Update

Milestone Description	Field Program Completion Date	Compilation of Results and Data Analysis	Presentation of Preliminary Results to Public	Reporting Completion Date
Sport Fish Monitoring	October 2024 (Complete)	November to February / March 2025 (in progress)	April 2025	August - September 2025
Plume Delineation		February to June / July 2025 (in progress)	October 2025*	
Selenium Speciation & Bioavailability				

- * Will do another public information update following the completion of reporting, likely in late fall 2025. This will include results of the selenium speciation & bioavailability as this work will take longer than the other key work plan items.
- Governments of Manitoba and Saskatchewan will also receive these updates.



Hudbay has been subject to, and complies with, many environmental monitoring programs to evaluate the impact of mining effluent on the local and regional environment. These monitoring programs are requirements of federal regulations and provincial environmental approvals.

If you would like more information, to provide feedback or have any other questions, please contact:

General Environment Inquiry
Email: hb.env@hudbay.com

Trout Lake Dam Update

- Trout Lake Dam / Spillway was constructed in the late 1930's to raise water levels on Trout Lake to provide a water supply for the Flin Flon Metallurgical Complex and former Trout Lake Mine.
- Trout Lake Mine, located on the shore of Trout Lake, was an underground copper and zinc mine which operated from 1982 – 2012.
- Trout Lake Dam is not a water control structure. Water levels upstream and downstream of the dam cannot be regulated via the dam.
- Water from Trout Lake can be pumped to Cliff Lake (Flin Flon water source) as required.



- Trout Lake flows via the dam structure into Trout Creek which eventually flows into Big Island Lake approximately 200 m downstream of the dam.
- Big Island Lake flows via a box culvert under Provincial Highway 10 into Big Island Creek and into Schist Lake.
- Dam structure consists of:
 - Timber structure with concrete base
 - Approx. 3.5 m to 5.5 m deep and 0.6 m wide
 - Spans approx. 20 m between rock abutments
 - Timber wall approx. 1.4 m tall



Preparation for the 2024 Dam Inspection

- Removal of debris on downstream and upstream side of dam.
- Removal of steel plates on downstream side of dam to allow proper inspection of concrete.

2024 Dam Safety Inspection

- Visual inspection of concrete, steel, and timbers.
- Dive inspection of upstream underwater portions including anchor bolts on steel supports.
- Concrete coring to support analysis of concrete deterioration.
- Grout gaps between concrete and rock at abutments.

Timber Removal and Dam Decommissioning

- Planned to remove additional timber in 2024
- Water level has not yet lowered below top timber
- Plan to remove prior to spring 2025
- Completed analysis of lowering water level in Trout Lake
- Current pumphouse supplying water to Cliff Lake will support lowering water level to top of concrete elevation
- Assessing options for closure configuration of dam (including complete dam removal)
- Continue to remove timbers when possible
- Will require multiple years to remove all timbers to top of concrete

Top: Before clean up
Bottom: After clean up



Next Steps

- Continue with the staged removal of exposed, above-water stop logs when conditions allow.
- Continue to evaluate options for decommissioning of dam.
- Continue with annual dam inspections by Engineer of Record.
- Continue with regular maintenance as outlined in the annual dam inspections.
- Ongoing discussions with the government regulators and City of Flin Flon.
- Ongoing public engagement to provide updates



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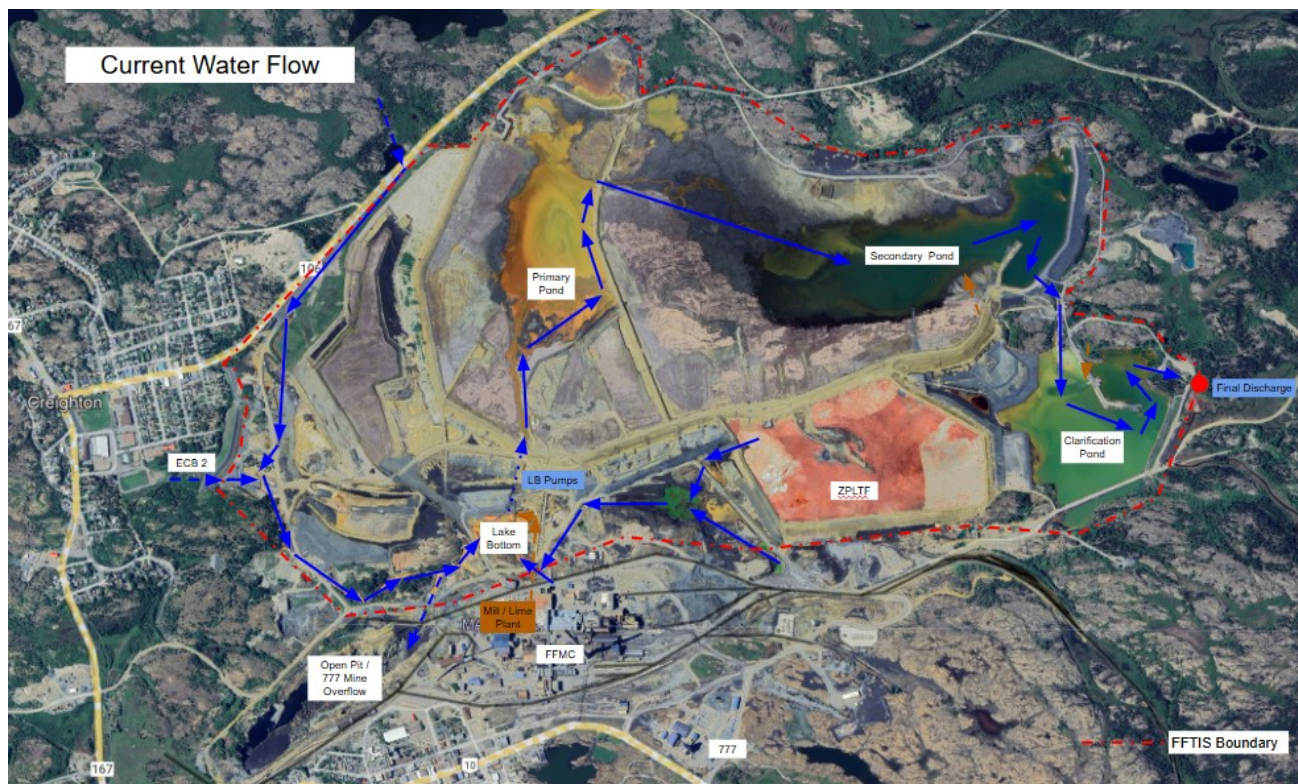
Flin Flon Potential Tailings Reprocessing

History and Context of the Flin Flon Metallurgical Complex:

- Development of the Flin Flon Tailings Impoundment System (FFTIS) started in 1928
- Tailings deposition ended in 2022 with the closure of the 777 Mine, Flin Flon Mill, and Zinc Plant within the Flin Flon Metallurgical Complex (FFMC)
- Tailings Storage Facility is currently in Care and Maintenance status
 - Ongoing water management and treatment
 - Routine maintenance and surveillance
 - Instrumentation monitoring
 - Dust mitigation and control
 - Regular inspections
- Precipitation falling on the FFTIS migrates through the tailings material and generates seepage requiring collection and treatment.

Potential Tailings Reprocessing Projects:

- 94 Million tonnes of tailings have been deposited within the FFTIS to date.
- Tailings material contains metals that were not fully extracted by historic processing methods.
- Tailings material has a high sulphur content.
- Reprocessing the tailings material has the potential to extract residual metals and sulphur.
- Currently assessing two potential reprocessing opportunities:
 - ZPL Tailings (6M tonnes)
 - Mill Tailings (88M tonnes)
- Tailings reprocessing is considering the following components:
 - Mining the existing tailings (maintaining geotechnical stability of the existing facility)
 - New processing plant (repurposing existing assets within the FFMC where possible)
 - Residual tailings disposal (within existing impacted footprint as much as possible)



Current Progress

- Internal Preliminary Economic Assessment for ZPL Tailings completed
- Internal Preliminary Economic Assessment for Mill Tailings in progress
- Baseline environmental assessment in progress
- Metallurgical testing ongoing to develop processing method and technology to extract minerals from the tailings and validate technical feasibility of the proposed process
- Pending outcome of the metallurgical testing, anticipate being ready to move to pre-feasibility assessment in 2025.
- Potential benefits of reprocessing tailings:
 - Extract remaining metals and resources from the tailings facility
 - Multi-year mining and processing operation in Flin Flon
 - Transform current tailings material into non-acid generating residual product
 - Would result in less water requiring treatment prior to discharge to the environment
 - Removal of legacy tailings dam structures
 - Allow residual tailings to be disposed using modern design and construction methods in accordance with industry best practice
 - Reduce / offset closure cost liabilities
 - Improved future closure configuration for the Flin Flon Metallurgical Complex

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Smelter Demolition

- Smelter Demolition Objectives:
 - Eliminate safety hazards from derelict buildings
 - Progressive decommissioning of the FFMC
 - Reduce / offset closure cost liabilities
- Progress:
 - Demolition started in October 2024
 - Anode Building completed
 - Converter Aisle in progress
 - Ongoing demolition until spring 2026



What We Heard

- Participants are interested in the selenium study results when we have received them from the lab. We will be planning another engagement session to discuss these results when they are available, likely in April 2025.
- Concerns about air and water pollution with the potential of tailings reprocessing.
 - The smelter stack will not be used. The process may include leaching and refining, but the overall project is required to be permitted under the Manitoba and Saskatchewan governments. The permitting process will include detailed environmental baseline monitoring, including air emissions and water quality and Hudbay's proposed mitigations (e.g. air pollutant control equipment, water treatment processes). If these mitigations are adequate, Hudbay will receive licenses to begin construction and operate. The licenses will include air emission and water quality limits that Hudbay is legally required to meet as well as many other monitoring and reporting requirements. Hudbay's current licenses are publically available online on government websites. Please email hb.env@hudbay.com if you would like direct links to some examples.
 - Regardless of the tailings reprocessing project outcome, Hudbay is required to treat any contaminated water that is generated from the Flin Flon site in perpetuity (i.e. forever) as part of Hudbay's closure plan for the site. The closure plan, including water quality limits and requirements, is regulated by the Manitoba and Saskatchewan governments.

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