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October 7, 2025

Mr. Richard Dwyer
Manager of Licensing
Nunavut Water Board
PO Box 119
Gjoa Haven, NU X0B 1J0

**Re: NWB Technical Review of the 2024 Annual Report for the Lupin Mine Project;
Water Licence No: 2AM-LUP2032**

Dear Mr. Dwyer,

Introduction

Lupin Mines Incorporated (LMI), a wholly owned indirect subsidiary of Alkane Resources Ltd (Alkane), operates the Lupin Mine in the Kitikmeot Region of Nunavut.

The 2024 Annual Report for type A Water Licence No: 2AM-LUP2032 was submitted on March 31, 2025. The following memo addresses all outstanding information following review of the report and LMI responses from the Nunavut Water Board (NWB) Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) and Fisheries and Oceans Canada (DFO). Environment and Climate Change Canada (ECCC) informed on July 21, 2025, that they did not review the report and would not be submitting comments.

In response to the additional information requested, LMI has prepared this memo, with Appendices, to address the outstanding information as confirmed on August 13, 2025.

Table 1 below summarizes the Interveners' recommendations, Licensee responses and Additional Information Requested.

Table 1. Response to Interveners Recommendation to 2024 Annual Report.

SN	Intervener Recommendation	Licensee Response with Outstanding Information required by Sept. 30,2025.	Outstanding Information for Sept.30 Response
Crown-Indigenous Relations and Northern Affairs Canada			
R-01	CIRNAC recommended that the Licensee provide an updated action plan with timelines to fully address the non-compliance issues identified in the inspection report with respect to: -hazardous waste containment and landfill management, -culvert reinstallation and drainage improvements, and -final cleanup of hydrocarbon impacted areas.	LMI committed to providing the following information: a. A memo outlining planned remedial actions to be taken in 2025 and 2026 season to be presented to CIRNAC by September 30, 2025. Remedial actions will be aligned to the updated Waste Management Plan.	Attachment A– Memo: Lupin Mine Remedial Actions for 2025/2026 and Updated “Schedule B, Table 14” of Remediation and Closure Plan.
R-02	CIRNAC recommended that the Licensee: a. Ensure that all hazardous and hydrocarbon wastes are stored within designated waste berms, in accordance with the updated Waste Management Plan. b. Submit a timeline for removal of leaking containers and clean-up of the landfill area. c. Confirm that all waste and chemicals will be shipped offsite during the 2025 winter road season, or by other means if the winter road cannot	LMI confirmed that a detailed catalogue of waste and materials will be developed for shipment when the winter road is constructed. When the winter road is active, all known inventoried waste will be removed and other waste will be removed upon final closure. Additionally, LMI committed to the following: a. Updating the management protocols for all categories of waste outlined in the Waste Management Plan which is updated annually.	Items a - d are addressed in: Updated 2025 Waste Management Plan, and Appendix A – Updated Schedule B, Table 14 of Reclamation and Closure Plan”, detailing removal of waste and chemicals in the overall reclamation and closure schedule.

SN	Intervener Recommendation	Licensee Response with Outstanding Information required by Sept. 30,2025.	Outstanding Information for Sept.30 Response
		b. Submitting the 2025 annual update to the Waste Management Plan. c. Recording the storage, handling, and waste removal protocols and backhauling smaller items on scheduled flights. d. Incorporating removal of waste and chemicals within the overall reclamation and closure schedule.	
R-03	CIRNAC recommended that the Licensee submit: a. A detailed erosion control plan addressing Dam 2, Dam 6 and the Esker Haul Road culvert. b. Confirmation that identified areas of concerns will be repaired during the 2025 field season. c. Photographic or geotechnical evidence in the 2025 annual report demonstrating remedial work.	LMI committed to providing the Erosion and Sediment Control (ESC) plan including the TCA by the end of September 2025. LMI will confirm that the DSI items were addressed during the 2025 field season and evidence will be provided in the 2025 annual report.	Appendix B - Erosion and Sediment Control (ESC) plan, including the TCA. 2024 DSI items were addressed during the 2025 field season and will be provided in the 2025 Annual Report.
R-04	CIRNAC recommended that the Licensee: Clarify whether any water from areas where hydrocarbon contaminated soil was removed was sampled in 2024, and if not, whether any discharge occurred from these locations. b. If water was discharged, provide confirmation that analytical results were submitted to CIRNAC	LMI provided the following responses: a. LMI confirmed that no hydrocarbon contaminated soil was removed and no contaminated water escaped the excavations at the site and that no water was discharged from the hydrocarbon	None.

SN	Intervener Recommendation	Licensee Response with Outstanding Information required by Sept. 30,2025.	Outstanding Information for Sept.30 Response
	<p>inspectors at least 10 days prior to release, as per Licence requirements.</p> <p>c. For future reports, include a dedicated section or table cross-referencing ponded water sampling locations, results, and associated findings to demonstrate compliance with Part E, Item 10.</p> <p>d. Affirm in writing that no ponded or potentially contaminated water will be released without advance testing and notification to CIRNAC inspectors.</p>	<p>contaminated excavations or crown pillar in 2024. LMI will continue to ensure that all water discharged from these excavations will be tested in accordance with the Licence.</p> <p>b. Acknowledged. LMI will provide confirmation of water quality testing results prior to actual discharge if a discharge is planned.</p> <p>c. Acknowledged.</p> <p>d. Acknowledged.</p>	
Fisheries and Oceans Canada			
1.	DFO recommended that the Licensee adhere to DFO's protective measures for fish and fish habitat, as well as standard codes of practice, to be in compliance with the Fisheries Act and utilize the provided resources to avoid impacting fish or their habitat.	LMI acknowledged the comment and committed to conducting the activities as per the recommendations.	None
Nunavut Water Board			
1	The Board noted that the NWB's Comment 3 from the 2021-2023 annual reports review was still outstanding and recommended that the Licensee investigate the water quality exceedances at Boot Lake, East Lake and Lower Sewage Lake and provide an explanation concerning these exceedances.	LMI noted that the exceedances were observed in both 2021 and 2024 background water quality data but the lack of sampling between those years makes discerning a trend statistically insignificant. Given that the reference locations also showed	Appendix C – Water Quality Monitoring Assessment, East Lake and Boot Lake.

SN	Intervener Recommendation	Licensee Response with Outstanding Information required by Sept. 30,2025.	Outstanding Information for Sept.30 Response
		some exceedances and were selected to be outside the influence of mine site activities with the objective of representing background conditions, any exceedances may be the result of natural variability or the result of other activities not related to Lupin.	
Further request from Aug.13, 2025 response letter			
1	The Board acknowledges the response to NWB's comments and recommends that LMI 4 continue close monitoring and provide an explanation supporting the conclusion that the exceedances result from natural variability.	n/a	Appendix C – Water Quality Monitoring Assessment, East Lake and Boot Lake

Conclusion

LMI remains committed to proactive environmental management and closure planning at the Lupin Mine. Scheduled activities and management plans continue to reflect our dedication to safety, site stability, and regulatory compliance. We appreciate the ongoing support and partnership of KIA, NWB, CIRNAC and other regulatory agencies in achieving compliant mine closure.

We look forward to continued collaboration and welcome any feedback or questions.



Felix Mensah-Yeboah
Director, Mine Closure and Asset Management,
Alkane Resources Ltd.

Encl.

- Appendix A - Updated Schedule B, Table 14 of Reclamation and Closure Plan”



- Appendix B – Erosion and Sediment Control Plan
- Appendix C – Water Quality Monitoring Assessment, East Lake and Boot Lake
- 2025 Waste Management Plan

cc.

Nidhi Singh, Technical Advisor, Nunavut Water Board

Jon Melnyk, JDS Energy & Mining

Max Brownhill, COO Falkirk Environmental

Kellie Leedham, Falkirk Environmental



Appendix A - Lupin Mine Remedial Actions for 2025/2026 to address non-compliances.

October 7, 2025

As presented in response comments from the 2024 Annual report, CIRNAC recommended that LMI provide an updated action plan with timelines to fully address the non-compliance issues identified in the inspection report with respect to:

- hazardous waste containment and landfill management,
- culvert reinstallation and drainage improvements,
- final cleanup of hydrocarbon impacted areas.

With no specific non-compliances identified by CIRNAC as “outstanding” following the review of the 2024 Annual Report, LMI proposes the following action plan and timeline to address generic non-compliance issues.

Table 1. General Action Plan and Timeline for Generic Site Non-compliances

Issue Description	Action Plan and Timeline
Hazardous waste containment and landfill management	<p>Hazardous waste is contained in accordance with the Updated Waste Management Plan.</p> <p>The Landfill is managed in accordance with the 2AM-LUP2032.</p> <p>These regulations and practices will be followed when personnel are onsite.</p>
Culvert reinstallation and drainage improvements,	<p>Culverts will be inspected at the start of the 2026 season and assessed for repairs and/or replacement in 2026.</p> <p>Culvert inspections will occur throughout the 2026 season to ensure proper drainage.</p> <p>Other drainage improvements will follow general site maintenance schedule and the Erosion and Sediment Control Plan, included in this submission as Appendix B</p>
Final cleanup of hydrocarbon impacted areas	<p>Clean-up of any hydrocarbon contaminated areas will continue in 2026, and as per the water license.</p>

	The 2025 Annual Report will detail the total volumes of contaminated soil disposed of in the Crown Pillar, as per the water license.
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The following table was presented in the 2024 Annual Report, summarizing compliance actions resulting from the 2024 site inspection. The table has been updated to include any relevant works performed during the 2025 field season.

Table 2. 2024 Compliance Action Summary

Compliance Issue Observed	Recommendation from CIRNAC to Achieve Compliance	Actions Taken to Achieve Compliance	Fall 2025 Update	Suggested Status (Completed or, Ongoing)
Part E, Item 10: "The licensee is authorized to treat petroleum hydrocarbon contaminated soil generated by the project at the Landfarm Facility as per the Waste Management Plan (Solid and Hazardous), dated March 2016, or disposed of underground as per the final closure and reclamation plan, sated July 2018 or as otherwise approved by the Board in writing."	Ensure all spills/stains and contaminated water are cleaned up and contaminated soil or water is placed into a Landfarm or underground as per the water license.	A total of 1,660 m ³ of contaminated soil was disposed underground via the Crown Pillar, as per the water license in 2024. This process for disposal of any contaminated soils will continue in the future.	Contaminated soil clean-up in 2025 included the excavation of the third-party berm and was deposited in the Crown Pillar. This will be detailed further in the 2025 Annual Report, as per the Water License.	Ongoing
Part G, Item 5: "The licensee shall implement sediment and erosion control measures prior to and during construction, and reclamation and closure, to prevent entry of sediment into water."	Ensure all erosion is being mitigated.	These erosion control issues were primarily associated with Dam walls. The Tailings Containment Area Geotechnical Inspection includes measures that will be taken in 2025 to mitigate these concerns.	LMI has included an Erosion and Sediment Control (ESC) Plan with this submission. LMI will incorporate procedures and best practices into 2026 Site Works and Final Closure Activities	Completed

<p>Part G, Item 10: “The licensee shall implement preventative and mitigation measures to prevent any chemicals, fuels, or wastes associated with the undertaking, from entering a waterbody, unless otherwise authorized under this license.”</p>	<p>Ensure all culverts are working properly and not causing any ponding or contributing to erosion.</p> <p>Hazardous waste and used hazardous waste containers should be placed into the hazardous waste berm</p>	<p>The culvert on the Esker Haul Road near Fox Lake will be re-installed in 2025 to address potential drainage issues and associated ponding concerns near the roadway.</p> <p>Mine staff will ensure that hazardous wastes and used hazardous waste containers will be placed in the hazardous waste berm and will be managed in accordance with the updated Waste Management Plan.</p>	<p>This culvert was replaced.</p> <p>Drainage issues here have been addressed which help prevent fuels and waste from entering waterbodies if spilled.</p> <p>Proper storage and handling, of chemicals, fuels and wastes will be managed in accordance with the Waste Management Plan and applicable regulations and best management practices.</p> <p>Hazardous wastes and used waste containers from the 2025 season were placed in bermed or protected areas, in accordance with the Waste Management Plan.</p>	<p>Completed</p>
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Closure of the Lupin site is currently planned for the end of 2026. After this time, the site will enter the Post Closure Phase. For this memo and to illustrate an updated action plan, LMI has updated



Section B – Table 14 from the Annual Report. This is presented in Table 3 below and highlights the timelines of key closure components and site management activities.

LMI will include further updates from the 2025 field season and updates on site compliance in the 2025 Annual Report, as per Water Licence No: 2AM-LUP2032.

Table 3. Table 14-Schedule B, Post Closure Monitoring Plan and Final Closure Updated. October 2025.

2AM-LUP2032- Lupin Mine 2024 Annual Report. Section B - Table 14 - Post Closure Monitoring Plan and Final Closure Update

Component	Description	Preparatory Work	Closure Phase					Post-Closure Phase				
		2018	2019-2022	2022-2023	2024	2025	2026	2027	2028	2029	2030	2031
			Active Stage	C&M			Active	Passive Stage				
Underground Mine	Backfilling of shafts to prevent animal or human entrance			X								
	Blasting down crown pillars where required for stability or disposal – to be carried out under approved care and maintenance plan		X									
	Disposing of contaminated soil, waste rock and demolition rubble into open crown pillars – to be carried out under approved care and maintenance plan				X	X	X					
	Backfilling of crown pillars with rock fill (to 1.5 m above surface to allow for settlement) – to be carried out under approved care and maintenance plan						X					
Waste Rock	Capping rock fill in crown pillars with 1.0 m of esker material						X					
	Excavate waste rock from perimeter areas and dispose in the open crown pillars, landfill(s) or central waste rock area ^{a)} – to be carried out under approved care and maintenance plan						X					
	Excavate waste rock containing high levels ^{b)} of As, CN or PbNO ₃ and dispose in shafts or crown pillars to be carried out under approved care and maintenance plan			X		X	X					
Tailings Containment Area	Contouring remaining waste rock and capping with 1.0 m of esker material						X					
	Place a 10 m long plug of rock fill in the adit and portal area			X								
	Removal of tailings pipeline; bury in landfill		X				X					
	Remove any tailings from emergency dump and dispose in crown pillar			X								
	Covering of remaining tailings area with 1.0 m of esker material – to be carried out under approved Final TCA Closure Plan		X		X		X					
	Demolish treatment plant; dispose in landfill(s)						X					
	Installation of permanent monitoring instrumentation – to be carried out under approved Final TCA Closure Plan	X				X						
Buildings and Equipment	Regrading granular slopes on M Dam			X			X					
	Removal of asbestos containing materials; disposal in landfill(s)		X									
	Remove salvageable materials; consolidate for shipment off-site		X				X					
	Removal of above-ground mechanical and electrical equipment		X				X					
	Demolition of ancillary buildings (shops, storage, camp); disposal of rubble in landfill(s)		X				X					
	Demolition of mine and mill buildings; disposal of rubble in landfill(s)		X									
	Hoe ram concrete foundation slabs; leave in place and cover		X				X					
	Removal of freshwater supply system pumphouse; remove pipeline and dispose in the landfill(s)		X									
	Placement of 0.3 m granular fill over slabs (except in central area where they will be covered by waste rock and esker cover)						X					
	Dismantling and removal of sewage pipeline, lagoon shack and pumping facilities		X									
Borrow and Quarry Areas	Disposal of unsalvageable / un-recyclable non-hazardous waste in landfill(s) – to be carried out under existing approved management plan		X				X					
	Burn combustible material – to be carried out under existing approved licence/permit						X					
Chemicals	Contouring esker area and placement of erosion protection in drainage paths						X					
	Decontaminate: oil, fuel and glycol systems		X				X					
	Drum paints, solvents, chemicals, glycols, and hazardous materials for shipment to off-site disposal		X		X	X	X					
	Remove ashes from burn pit and bury in landfill(s) > 2m below final grade – to be carried out under existing approved licence/permit		X									
	Burn waste oil – to be carried out under existing approved licence/permit		X				X					
	Consume most of diesel fuel for closure operations			X	X	X	X					
	Burn excess fuel at end of closure activities – to be carried out under existing approved licence/permit								X			
	Empty and purge fuel tanks and dispose in accordance with the Canadian Environmental Protection Act Regulation	X	X	X	X		X		X			
Machinery and Mobile Equipment	Remove liner from Temporary Fuel Farm and dispose in landfill											X
	Excavation of hydrocarbon contaminated soils, bury in open crown pillars including landfarm soils		X	X	X		X					
	Flatten bunds around TFF and grade to prevent ponding											X
Landfill	Drain fluid from equipment to be left on-site and dispose equipment in landfill(s)			X			X					
	Drain fluid from equipment used for long-term maintenance (e.g., excavators) ^{c)} and dispose equipment in landfill(s) or off-site											X
Site Roads	Place wastes into existing landfill(s) – to be carried out under existing approved management plan		X				X					
	Use waste rock to infill voids and create a stable contoured surface which drains freely		X				X					
	Cover contoured landfill(s) with 1 m of esker material		X				X					
Water Management Facilities	Scarify all-weather roads; remove culverts						X		X			
	Treat water inventory with lime and release to lower water level – to be carried out under existing approved licence/permit		X	X		X	X		X			
	Construction of spillways in Dam 1A and J Dam; place geotextile and rip rap to 2 m depth								X			
Mob/Demob	Excavation of spillways on Upper and Lower Sewage Lakes						X					
	Mobilize Winter Ice Road maintenance equipment						X	X				
	Operate Winter Ice Road for salvage removal						X	X				

a) The waste rock from the perimeter of the Mill Site Area (shown in Figure 10) will be removed and disposed into the open crown pillars, shafts, landfill(s) or the central waste rock area. Waste rock which will stay on place will be contoured to drain freely and then capped with 1.0 m of esker material.

b) Refer to text for levels of As, CN, or PbNO₃ requiring disposal in shafts or crown pillars, rather than covering in place.

c) Assumed 5 years after closure; however Closure schedule depends on monitoring results. Activities will occur until contact water quality satisfies water licence criteria for direct discharge to the environment.

To:	Felix Mensah-Yeboah	From:	Steve Bundrock, P.Eng. Shanjida Khan, E.I.T.
	Alkane Resources Ltd. Level 4, 66 Kings Park Road West Perth WA 6005		Stantec Consulting Ltd. 200-325 25th Street SE Calgary, AB T2A 7H8
File:	Lupin Mine TCA Erosion and Sediment Control	Date:	October 3, 2025

Reference: Lupin Mine TCA Erosion and Sediment Control Memorandum

INTRODUCTION

Lupin Mines Incorporated (LMI), a wholly owned indirect subsidiary of Alkane Resources Ltd (Alkane, or the “Client”), retained Stantec Consulting Ltd. (Stantec) to provide engineering services in support of the ongoing mine closure activities for the Tailings Containment Area (TCA) at the former Lupin Gold Mine.

The Lupin Mine site is located on the western shore of Contwoyto Lake, approximately 400 km northeast of Yellowknife, Northwest Territories, in the Kitikmeot Region of Nunavut. The Lupin Mine operates under the Nunavut Water Licence 2AM-LUP2032 (NWB, 2020), issued to LMI by the Nunavut Water Board (NWB, or the Board).

The Final Closure and Reclamation Plan (FCRP) (Golder, 2020) and closure plan for the TCA (Holubec, 2005) define closure objectives and plans to cover TCA exposed tailings and reclaim the TCA. The approved closure plan includes information on TCA cover, drainage and other design elements but does not describe measures to control erosion and sedimentation. This memorandum includes erosion and sediment design, construction monitoring and mitigation controls.

REGULATORY REQUIREMENTS

The Lupin water license references the Mackenzie Valley Land and Water Board Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVLWB, 2013). These guidelines suggest the following considerations for erosion and sediment control:

- Climate – ensuring that temperature fluctuations over relatively short periods of time and related water runoff do not result in rapid erosion.
- Geotechnical stability – ensuring that no erosion, slumping, or subsidence occur that would cause exposure of potential acid generating material to atmospheric conditions, such as water or oxygen.
- Vegetation – ensuring that enough time has passed for new native or engineered vegetation to develop a cover.
- Hydrology – minimizing sediment transport, protecting surface water quality, and establishing stable landforms capable of supporting long-term ecological functions.
- Permafrost – limiting potential for thawing of permafrost to produce instability due to thaw consolidation or rapid erosion.

To develop erosion and sediment controls, Stantec also used guidance from the Government of the Northwest Territories (GNWT) which outlines good management practices based on site geotechnical, environmental and hydrological conditions. Key conditions at the Lupin Mine TCA include local geology, soil type and properties, infrastructure geometry and related slope stability, surface and groundwater, and vegetation (GNWT, 2013).

Reference: Lupin Mine TCA Erosion and Sediment Control Memorandum

SITE CONDITIONS

The TCA lies within the Archean metaturbrite sequence of the Contwoyto Formation, which is part of the Yellowknife Supergroup of supracrustal metasedimentary and metavolcanic rocks (Golder, 2020). Bedrock is present on the original ground surface in many areas. Where not present, the ground surface, including the majority of the foundation of the TCA, is composed of glacial till, which is silty sand with gravel and boulders, underlain by low-grade clastic metamorphosed bedrock (Golder, 2020).

The TCA consists of dams and tailings storage cells. The TCA includes perimeter dams 1A, 1B, 1C, 2, 3, 4, 5, and 6, and internal dams 3D, J, K, L, M, N, and the Divider Dykes. These dams contain five tailings cells numbered 1 to 5. Cells 1, 2, 3 and 5 have been covered with a minimum of 1 m of esker material. Containment of the cells is provided by the perimeter and internal dams constructed of esker and rockfill, with frozen tailings in internal dam cores. Dams are designed and constructed of competent materials for local and overall stability.

The facility is in the tundra zone of the Canadian Shield, in an area with continuous permafrost resulting from the semi-arid sub-arctic climate, which includes rapid temperature changes, high winds and distinct seasonal variations in temperature and precipitation (Golder, 2020). Vegetation surrounding the TCA is sparse and includes low-lying shrubs and grasses. Some limited portions of the TCA are partially revegetated including portions of Cells 1 and 2 cover and Dam 3.

The hydrology at the site is governed by seasonal precipitation and snowmelt events, with an average annual precipitation of approximately 300 mm (Golder, 2020). The TCA and surrounding area is characterized by limited topographic relief and elevation variation which produces locally small drainages. As a result, the TCA is not subject to significant inflows from upstream areas, with drainage primarily associated with direct precipitation and surface runoff from the immediate catchment area located within the boundaries of the perimeter dams. Surface water typically flows over cover surfaces and/or dams and into the internal ponds. Groundwater occurs at or near the original ground surface including in the tailings cells. Some limited groundwater drainage from covered tailings cells and internal dams is visible in dam faces during summer thawing conditions.

EROSION AND SEDIMENT CONTROLS

The primary erosion risk during active closure is associated with surface runoff across tailings cell covers, on internal and external dam slopes, in drainage channels, spillways and other water management structures and in areas with limited cover, armoring, and/or established vegetation. High-intensity or prolonged precipitation or snowmelt events have the potential to erode materials which in turn may produce downstream sedimentation into the surrounding environment which includes generally unimpacted tundra and lakes. Wind generated wave runup has the potential to erode dam toes which are directly adjacent to ponded water. Windblown sediment has the potential to occur downwind of the limited areas where tailings are not yet covered. The map in Appendix A outlines the potential risk for erosion on TCA tailings cell cover, dam and water management areas.

To reduce the risk of TCA erosion and sediment migration, a combination of design, construction, maintenance and mitigation controls, are being used which are outlined below. Design, construction, monitoring and maintenance controls are developed with consideration of good management practices (GNWT, 2013)

Reference: Lupin Mine TCA Erosion and Sediment Control Memorandum

Design Controls

The TCA is currently in the active closure phase, with cover, dam and spillway stabilization measures (including erosion and sediment control) nearing their final configurations. The design controls which are in place for erosion and sediment control of dam crests, slopes, and toes are as follows:

- Dam embankments consist of compacted rock and earth fill surrounding frozen cores, to protect areas of permafrost. Riprap armoring and coarser material is placed in areas with a higher risk of erosion including steeper slopes, drainage features, and dam toes into ponded water.
- Dams are designed to minimal heights (generally less than 10 m high) with slope angles and limited continuous slope distances which are resistant to erosion.
- Dam embankment slopes are confirmed by geotechnical assessment to meet or exceed target factors of safety under static and seismic loading for stability.
- Frozen impervious cores within the dams have been verified to effectively inhibit piping and potential for internal erosion, downstream seepage and related erosion and sedimentation.
- Pond water levels are reduced to, at or below the external dam toe elevations in the closure plans which eliminates the dam function and reduces the consequence of dam slopes erosion. Some internal dam toes are offset from ponded water. Lowered water levels limit the potential for wind driven wave erosion.
- Pond water levels are designed with sufficient freeboard and/or with spillways to limit potential for floods to overtop embankments or overwhelm water management systems.
- Water is designed to be retained in the system behind dams (in and on covers) and when released, to pass through armored spillways.

The design controls which are in place for erosion and sediment control of tailings covers are as follows:

- Tailings are encapsulated beneath covers and are retained as frozen.
- Covers include use of erosion resistant esker material over tailings to limit erosion and mobilization of sediment.
- Covers are designed with limited drainage gradients to reduce runoff velocities.
- Internal drainage channels are designed to intercept and manage surface flows into the ponds. Drainage areas and design floods have been assessed to confirm the adequacy of drainage channels to convey flows while limiting erosion.
- Grading is in place to reduce ponding water and to allow for some limited sheet flow along designed cover surfaces.
- Drainage pathways or swales are included in areas subject to accumulation of high water volumes.
- Armored spillways are included in cover drainage channel discharge areas where higher gradients and flow volumes may occur.
- Riprap armoring is included in areas of higher velocity or higher volume flows.

Reference: Lupin Mine TCA Erosion and Sediment Control Memorandum

- Cover materials are selected from local materials to allow for revegetation and erosion protection.

The design controls which are in place for erosion and sediment control of spillways are as follows:

- Spillways and armoring are sized to pass design floods while resisting erosion.
- Gradients are limited to reduce the potential for erosion.
- Spillways are designed with appropriately sized riprap armoring.
- Spillways are constructed in bedrock where feasible.

Construction Controls

During closure construction, the following erosion and sediment control measures are used:

- Construction activities include daily inspections of the construction and surrounding area for erosion and sedimentation. Eroded areas are identified, filled and compacted with competent material. The source is identified and mitigated.
- Esker, riprap and other construction materials are selected and verified to provide suitable cover which is resistant to erosion.
- Construction activities occur during favorable weather conditions and avoid wet weather periods.
- Traffic during construction is limited to durable surfaces which are resistant to erosion. Where construction impacts to areas which are sensitive to erosion are observed, additional mitigation is carried out.
- Construction areas are monitored and maintained to limit areas of ponded water and generation of concentrated flows.
- Dams and spillways are constructed during periods of low water to reduce potential for shoreline erosion and sedimentation into ponds.
- Accumulated sediment is removed and restored to source locations with additional protection.
- Placement areas and access roads are contoured and re-graded. Roadway berms are removed and/or breached at intervals to limit ponding water and concentrated flows.
- Spillways, ditches and other water management systems are visually inspected to confirm that they are free of debris or sediment to avoid damming, allow for water to flow and to reduce potential downstream sedimentation.
- Riprap is placed at abutments, inlets, outlets, and exposed dam toes at closure water elevations, to minimize exposed soils. Temporary riprap is used in construction areas where needed, for example, when constructing temporary construction access roads.
- Riprap is also placed in discharge areas where pond drawdown pumping is occurring.

Reference: Lupin Mine TCA Erosion and Sediment Control Memorandum

- Tailings pipelines and culverts used to transport tailings are removed, and openings are filled, compacted and re-sloped for drainage and to minimize erosion.

Monitoring and Maintenance

Monitoring of erosion and sedimentation is expected to continue during active closure and into the early stages of passive closure. Erosion and sediment control monitoring and maintenance activities include:

- Annual inspections are carried out by the EOR of all dam toes, crests, and slopes, cover areas, spillways and other water management systems for signs of erosion or sediment buildup.
- Regular inspections are carried out of TCA construction areas and dam toes, crests, slopes, covers, spillways and water management systems during the construction season.
- Eroded areas and areas of accumulated sediment are photographed, surveyed, documented and are reported for mitigation.
- Eroded areas are filled and compacted with erosion resistant material. Sources of erosion (ponded water in low lying areas, concentrated flows) are identified and additional mitigation is completed which may include grading, diversion, or armoring, etc.
- Accumulated sediment is removed from inlet and outlet structures and other areas to restore flow.
- As part of annual water quality testing, water samples are collected from TCA ponds and are tested for suspended solids.
- Maintenance activities are documented and reported.

REFERENCES

GNWT. (2013). *Erosion and Sediment Control Manual*. Government of the Northwest Territories (GNWT) - Department of Transportation.

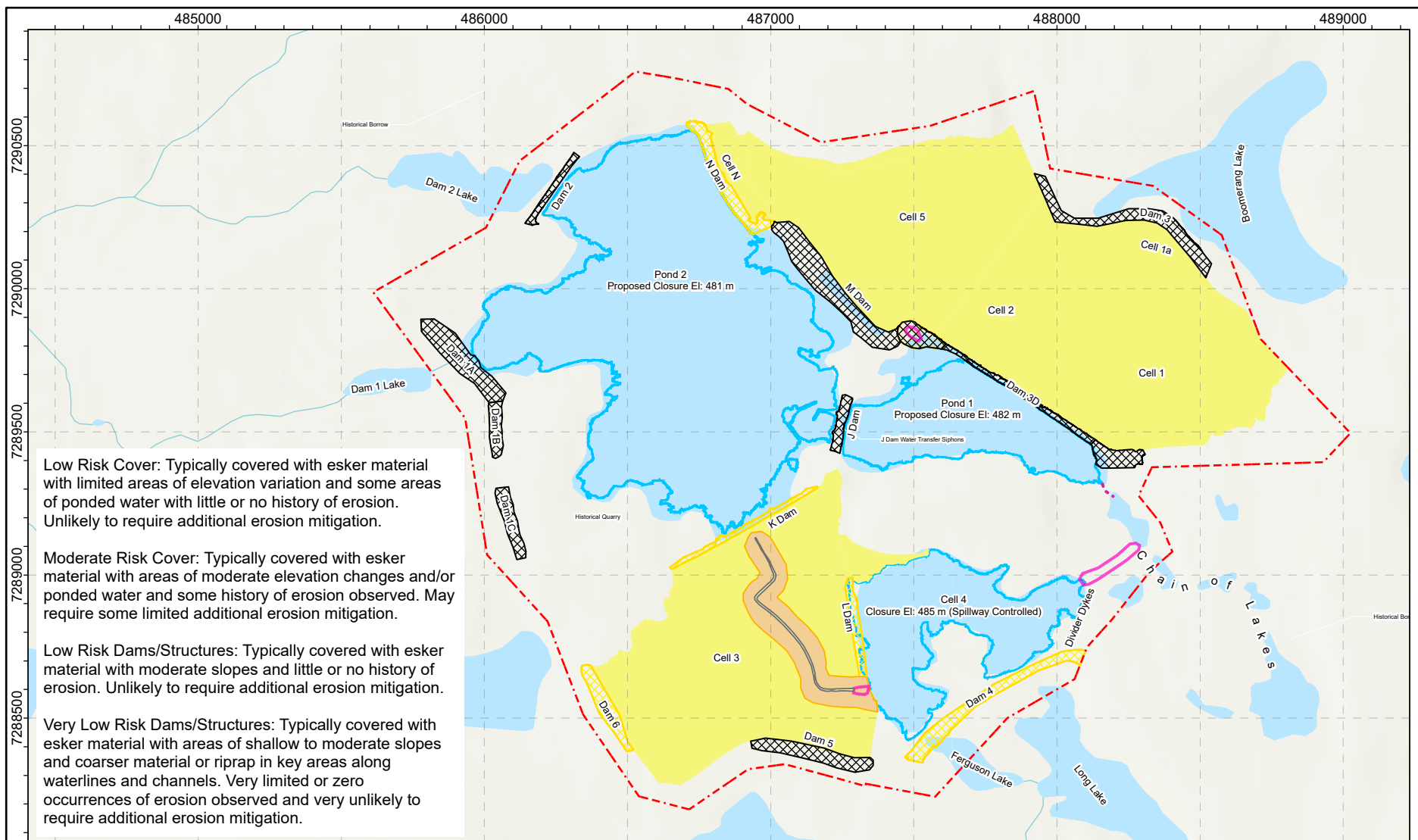
Golder, A. (2020). *Lupin Mine Site, Final Closure and Reclamation Plan*. Report submitted to the Nunavut Water Board. July 2018.

Holubec. (2005). *Closure Plan for Tailings Containment Area - Lupin Operation*. Holubec Consulting Inc.

MVLWB. (2013). *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories*. Mackenzie Valley Land and Water Board.

NWB. (2020). *Nunavut Water License 2AM-LUP2032, Issued to Lupin Mines Incorporated*. Nunavut Water Board (NWB). February 2020.

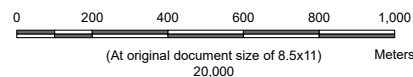
Stantec. (2020). *2 AM-LUP2032 Technical Memorandum on Exposed Tailings Preliminary Cover Design*.



- Legend**
- Pond and Cell Closure Shorelines
 - Low Risk Cover
 - Moderate Risk Cover
 - Very Low Risk Dams/Structures
 - Low Risk Dams/Structures
 - Pond 1 Natural Inflow
 - Spillway and Outfall Footprints - Completed

Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Units: all units are in metres unless otherwise noted.
3. Topography (DEM): 20 cm resolution; collected/processed by Stantec Geomatics Group on August 21, 2021.



Project Location
Lupin Mine
Kitikmeot, Nunavut, Canada

Prepared by F. Sawyer on 9/29/2025
TR by S. Leggett on 9/29/2025
IR by P. Brown on 9/29/2025

Client/Project
Client: Lupin Mines Incorporated
Project: Lupin Mine Site Closure
Report: Lupin Erosion & Sediment Control Plan

Figure No.
1

Title
Erosion Plan Map



Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

October 3, 2025

Attention: Felix Mensah-Yeboah, Director, Mine Closure & Asset Management, Lupin Mine
Alkane Resources Limited
76 Richmond Street East, Suite 330
Toronto, ON M5C 1P1

SLR Project No.: 209.065034.00001

Revision: 0

RE: 2024 Lupin Mine Annual Report Comments

1.0 Introduction

SLR Consulting (Canada) Ltd. (SLR) is pleased to provide Alkane Resources Limited (Alkane) with the following response memorandum to Nunavut Water Board comments NWB-01 and NWB-02 related to background water quality results. The memorandum also provides a brief discussion of possible causes of metal guideline exceedances in the background data.

2.0 Background Water Quality Observations

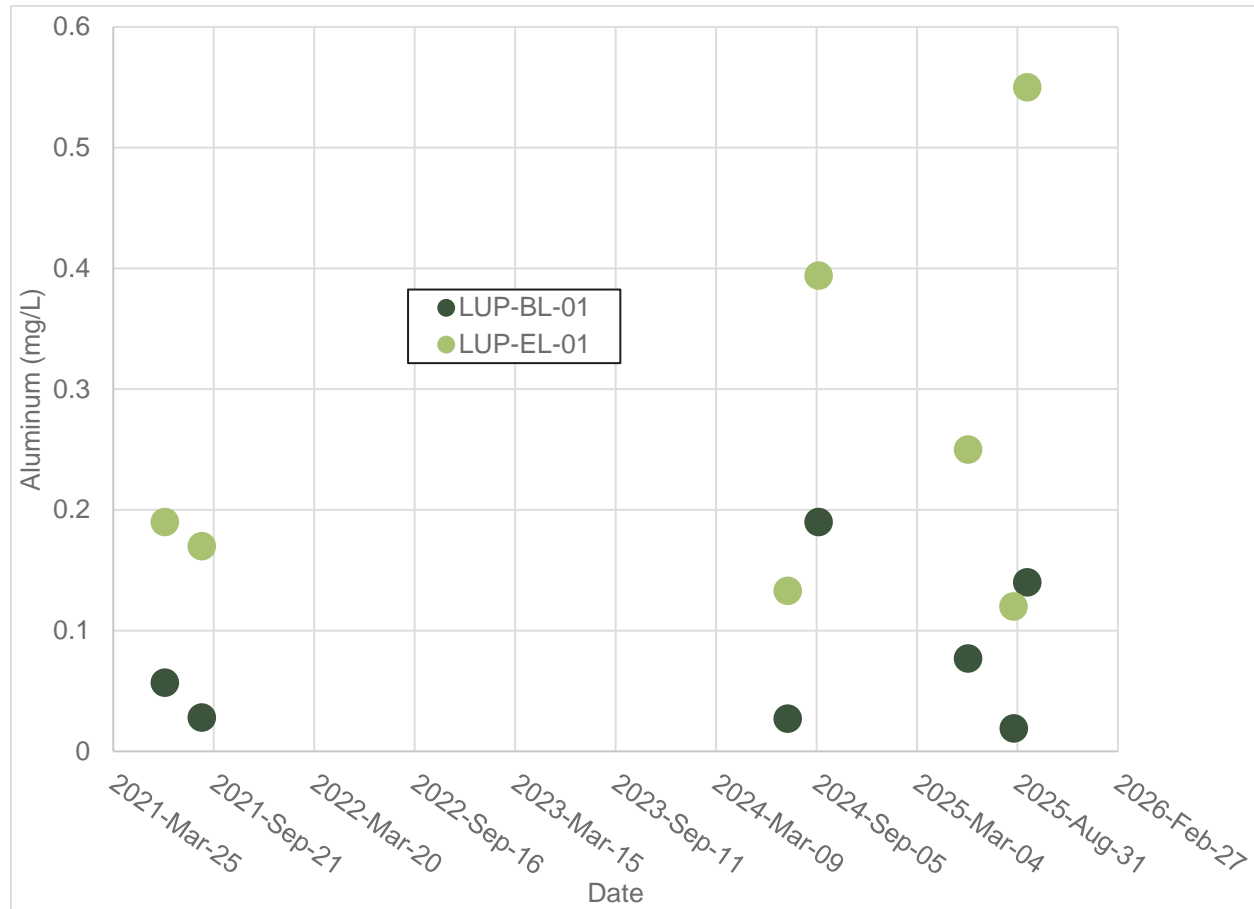
Three additional background sampling events were completed at East Lake and Boot Lake in 2025 (June, August, September) to provide context for the 2021 and 2024 results (Table 1). A graphical example of total aluminum, which is generally representative of metals results (e.g., total copper, total iron, total nickel, dissolved zinc) in the lakes, is provided in Figure 1. From the tabular and graphical results, several observations about the background data were made:

- Over the last two years, metal concentrations in East Lake and Boot Lake have exceeded guidelines, commonly more than once.
- The metals concentrations do not display any increasing or decreasing annual trends, visually or statistically. Exceedances are commonly followed by a non-exceedance, and vice versa.
- The largest exceedances are generally observed in the Fall (September) compared to other ice-free months (June to August).

As noted previously, the lakes were selected to be outside the influence of mine site activities with the objective of representing background conditions. As such, any exceedances may be the result of natural variability or the result of other activities not related to Lupin. Some of the exceedances occurred during periods of lower pH values (relative to other sampling events) which may be relevant as some metals are more soluble at lower pH values. Lakes that freeze annually have been observed to undergo seasonal changes in pH due to a combination of factors (e.g., CO₂ buildup under ice, low buffering capacity, freshet and organic carbon influx; Wang et al., 2024).

Of particular note for Lupin, more than half ($\approx 60\%$) of the background lake samples demonstrated field pH values lower than pH 6 (current water license discharge criteria) and approximately 20% of the samples were lower than pH 5. Water quality will continue to be monitored in East Lake and Boot Lake (as summer field conditions allow) to refine these background water quality observations, if necessary.

Figure 1: Aluminum Concentrations



3.0 Statement of Limitations

This report has been prepared by SLR Consulting (Canada) Ltd. (SLR) for Alkane Resources Limited (Client) in accordance with the scope of work and all other terms and conditions of the agreement between such parties. SLR acknowledges and agrees that the Client may provide this report to government agencies, interest holders, and/or Indigenous communities as part of project planning or regulatory approval processes. Copying or distribution of this report, in whole or in part, for any other purpose other than as aforementioned is not permitted without the prior written consent of SLR.

Any findings, conclusions, recommendations, or designs provided in this report are based on conditions and criteria that existed at the time work was completed and the assumptions and qualifications set forth herein.

This report may contain data or information provided by third party sources on which SLR is entitled to rely without verification and SLR does not warranty the accuracy of any such data or information.



Nothing in this report constitutes a legal opinion nor does SLR make any representation as to compliance with any laws, rules, regulations, or policies established by federal, provincial territorial, or local government bodies, other than as specifically set forth in this report. Revisions to legislative or regulatory standards referred to in this report may be expected over time and, as a result, modifications to the findings, conclusions, or recommendations may be necessary.

4.0 Closure

Regards,

SLR Consulting (Canada) Ltd.



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Attachments Table 1: Background Water Quality



Table 1: Background Water Quality

Filtered or Total RDL																				
	pH (field)	Temp (field)	Temp (field)	Hardness (as CaCO3)	Hardness (as CaCO3)	pH (lab)	Aluminum	Aluminum	Antimony	Antimony	Arsenic	Arsenic	Barium	Barium	Beryllium	Beryllium	Bismuth	Bismuth	Boron	
	T	T	T	F	T	T	F	T	F	T	F	T	F	T	F	T	F	T	F	
					0.5			0.003	0.0001	0.0001 - 0.0006		0.0002		0.01	0.0001	0.0001 - 0.001	0.00005	0.00005	0.01	
	pH Units	°C	deg C	mg/L	mg/L	pH Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CCME WQG Freshwater Aquatic Life (long term)	6.5-9.0	ng	ng	ng	ng	6.5-9.0	ng	0.0050-0.10	ng	ng	ng	0.0050	ng	ng	ng	ng	ng	ng	ng	
CCME WQG Freshwater Aquatic Life (short term)	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	

Location Groups	Sample Location	Location Name	Sample Date	Sample Type	Sample Name																				
Locations	LUP-BL-01	LUP-BL-01	2021-Jun-25	N	LUP-BL-01	4.5	4.9	-	-	6.76	6	-	0.057	-	< 0.0001	-	0.00078	-	0.00348	-	< 0.0001	-	< 0.00005	-	
			2021-Aug-30	N	LUP-BL-01	6.4	12.2	-	-	9.16	6.8	-	0.028	-	< 0.0001	-	0.001	-	0.00314	-	< 0.0001	-	< 0.00005	-	
			2024-Jul-15	N	LUP-BL-01	6.22	-	10.6	-	13	6.77	-	0.0271	-	< 0.00010	-	0.00104	-	0.00416	-	< 0.000100	-	< 0.000050	-	
			2024-Sep-08	N	LUP-BL-01	5.91	-	9.3	37.2	37.5	6.29	0.134	0.19	< 0.00010	< 0.00010	0.00094	0.00088	0.0118	0.0117	< 0.000100	< 0.000100	< 0.000050	< 0.000050	< 0.010	
			2025-Jun-03	N	LUP-BL-01	8.55	-	0.82	-	14	5.94	-	0.077	-	< 0.00060	-	0.00091	-	< 0.010	-	< 0.0010	-	-	-	
			2025-Aug-24	N	LUP-BL-01	6.86	-	13	-	19	6.32	-	0.019	-	< 0.00060	-	0.0010	-	< 0.010	-	< 0.0010	-	-	-	
			2025-Sep-17	FD	DUP-08-2025	-	-	-	-	19	6.31	-	0.02	-	< 0.00060	-	0.00098	-	< 0.010	-	< 0.0010	-	-	-	
	LUP-EL-01	LUP-EL-01	2021-Jun-25	N	LUP-EL-01	6.1	5.9	-	-	11.8	5.5	-	0.19	-	< 0.0001	-	0.00172	-	0.00835	-	< 0.0001	-	< 0.00005	-	
			2021-Aug-30	N	LUP-EL-01	4.8	9.6	-	-	22.8	5.9	-	0.17	-	< 0.0001	-	0.00163	-	0.0119	-	< 0.0001	-	< 0.00005	-	
			2024-Jul-15	N	LUP-EL-01	5.21	-	8.8	-	49.7	5.8	-	0.133	-	< 0.00010	-	0.00204	-	0.0207	-	< 0.000100	-	< 0.000050	-	
			2024-Sep-08	N	LUP-EL-01	4.75	-	7.5	50.1	50.9	4.81	0.352	0.394	< 0.00010	< 0.00010	0.00196	0.0023	0.0296	0.0307	0.000206	0.000201	< 0.000050	< 0.000050	< 0.010	
			2025-Jun-03	N	LUP-EL-01	9.87	-	6.25	-	21	4.94	-	0.25	-	< 0.00060	-	0.0014	-	0.014	-	< 0.0010	-	-	-	
			2025-Aug-23	N	LUP-EL-01	5.64	-	15	-	70	6.10	-	0.12	-	< 0.00060	-	0.0015	-	0.023	-	< 0.0010	-	-	-	
			2025-Sep-17	N	LUP-EL-01	5.71	-	6.7	-	72	4.60	-	0.55	-	< 0.00060	-	0.0010	-	0.025	-	< 0.0010	-	-	-	

Notes:

•	samples collected at the same location and date are blind field duplicate/parent pairs
'-'	sample not analyzed for parameter indicated
<	less than reported detection limit
RDL	reported detection limit
°C	degrees Celsius
µg/L	microgram per litre
deg C	degree Celsius
mg/L	milligram per litre
pH Units	potential of hydrogen units
ng	no guideline
CCME WQG Freshwater Aquatic Life (long term)	CCME Water Quality Guidelines for the Protection of Aquatic Life, Freshwater (Long-term)
CCME WQG Freshwater Aquatic Life (short term)	CCME Water Quality Guidelines for the Protection of Aquatic Life, Freshwater (Short-term)



Table 1: Background Water Quality

						Filtered or Total RDL																	
						Boron	Cadmium	Cadmium	Cadmium	Calcium	Calcium	Cesium	Cesium	Chromium (III+VI)	Chromium (III+VI)	Cobalt	Cobalt	Copper	Copper	Iron	Iron	Lead	Lead
						mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
						1.5	ng	0.000040-0.12	0.000040-0.12	ng	ng	ng	ng	ng	ng	ng	ng	ng	0.0020	ng	0.30	ng	0.0010-0.0021
						29	ng	0.00014-1.5	0.00014-1.5	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng
Location Groups	Sample Location	Location Name	Sample Date	Sample Type	Sample Name																		
Locations	LUP-BL-01	LUP-BL-01	2021-Jun-25	N	LUP-BL-01	< 0.01	-	0.0000089	-	-	1.26	-	0.000016	-	< 0.0005	-	0.00081	-	0.00144	-	0.088	-	< 0.00005
			2021-Aug-30	N	LUP-BL-01	< 0.01	-	< 0.000005	-	-	1.64	-	0.000021	-	< 0.0005	-	0.00027	-	0.00163	-	0.115	-	< 0.00005
			2024-Jul-15	N	LUP-BL-01	< 0.010	-	0.0000069	-	-	2.14	-	0.000022	-	< 0.00050	-	0.00040	-	0.00166	-	0.093	-	< 0.000050
			2024-Sep-08	N	LUP-BL-01	< 0.010	0.0000736	0.0000682	-	7.70	7.77	0.000048	0.000049	< 0.00050	< 0.00050	0.0125	0.0128	0.00276	0.00311	0.077	0.153	< 0.000050	< 0.000050
			2025-Jun-03	N	LUP-BL-01	< 0.020	-	-	0.037	2.5	2.5	-	-	-	< 0.0010	-	0.0034	-	0.0024	-	0.079	-	< 0.00020
			2025-Aug-24	N	LUP-BL-01	< 0.020	-	-	0.027	3.1	2.8	-	-	-	< 0.0010	-	0.00059	-	0.0015	-	0.077	-	< 0.00020
			2025-Sep-17	FD	DUP-08-2025	< 0.020	-	-	0.043	3.1	2.8	-	-	-	< 0.0010	-	0.00061	-	0.0016	-	0.085	-	< 0.00020
	LUP-EL-01	LUP-EL-01	2021-Jun-25	N	LUP-EL-01	< 0.01	-	0.0000354	-	-	2.24	-	0.000035	-	< 0.0005	-	0.00928	-	0.0046	-	0.209	-	0.000094
			2021-Aug-30	N	LUP-EL-01	< 0.01	-	0.0000428	-	-	4.14	-	0.000048	-	< 0.0005	-	0.00633	-	0.0063	-	0.34	-	< 0.00005
			2024-Jul-15	N	LUP-EL-01	< 0.010	-	0.0000778	-	-	8.07	-	0.000077	-	< 0.00050	-	0.00679	-	0.00586	-	0.201	-	0.000055
			2024-Sep-08	N	LUP-EL-01	< 0.010	0.000126	0.000126	-	9.22	9.32	0.000074	0.000080	< 0.00050	0.00054	0.0397	0.0410	0.00592	0.00688	0.269	0.489	< 0.000050	0.000076
			2025-Jun-03	N	LUP-EL-01	< 0.020	-	-	0.089	3.8	3.6	-	-	-	< 0.0010	-	0.020	-	0.0065	-	0.29	-	< 0.00020
			2025-Aug-23	N	LUP-EL-01	< 0.020	-	-	0.076	12	11	-	-	-	< 0.0010	-	0.0088	-	0.0045	-	0.28	-	< 0.00020
			2025-Sep-17	N	LUP-EL-01	< 0.020	-	-	0.23	12	12	-	-	-	< 0.0010	-	0.087	-	0.016	-	0.18	-	< 0.00020

Notes:

- samples collected at the same location and date are blind field duplicate.
- '-' sample not analyzed for parameter indicated
- < less than reported detection limit
- RDL reported detection limit
- °C degrees Celsius
- µg/L microgram per litre
- deg C degree Celsius
- mg/L milligram per litre
- pH Units potential of hydrogen units
- ng no guideline
- CCME WQG Freshwater Aquatic Life (long term) CCME Water Quality Guidelines for the Protection of Aquatic Life, Fresh
- CCME WQG Freshwater Aquatic Life (short term) CCME Water Quality Guidelines for the Protection of Aquatic Life, Fresh



Table 1: Background Water Quality

						Metals																		
						Lithium	Lithium	Magnesium	Magnesium	Manganese	Manganese	Mercury	Mercury	Mercury	Molybdenum	Molybdenum	Nickel	Nickel	Phosphorus	Phosphorus	Phosphorus (total)	Potassium	Potassium	Rubidium
						F	T	F	T	F	T	F	T	T	F	T	F	T	F	T	T	F	T	F
						0.02	0.2	0.2	0.2	0.1	0.004	0.000005	0.000005	0.0019	0.00005	0.00005 - 0.0002	0.00005	0.0005	0.05	0.05 - 0.1	0.05	0.005	0.3	0.00005
						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CCME WQG Freshwater Aquatic Life (long term)						ng	ng	ng	ng	0.19	ng	ng	0.000026-0.026	0.000026-0.026	ng	0.073	ng	0.025-0.074	ng	ng	ng	ng	ng	ng
CCME WQG Freshwater Aquatic Life (short term)						ng	ng	ng	ng	2.8-3.6	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng

Location Groups	Sample Location	Location Name	Sample Date	Sample Type	Sample Name																			
Locations	LUP-BL-01	LUP-BL-01	2021-Jun-25	N	LUP-BL-01	-	0.0017	-	0.877	-	0.0075	-	< 0.000005	-	-	< 0.00005	-	0.00411	-	-	< 0.05	-	0.506	-
			2021-Aug-30	N	LUP-BL-01	-	0.0027	-	1.23	-	0.00407	-	< 0.000005	-	-	< 0.00005	-	0.00364	-	-	< 0.05	-	0.527	-
			2024-Jul-15	N	LUP-BL-01	-	0.0035	-	1.87	-	0.0069	-	< 0.0000050	-	-	< 0.000050	-	0.0036	-	< 0.050	-	-	0.651	-
			2024-Sep-08	N	LUP-BL-01	0.0068	0.0071	4.36	4.4	0.110	0.111	< 0.0000050	< 0.0000050	-	< 0.000050	< 0.000050	0.0302	0.0309	< 0.050	< 0.050	-	0.997	1.01	0.00271
			2025-Jun-03	N	LUP-BL-01	-	< 0.020	1.8	1.9	-	0.032	-	-	< 0.0019	-	< 0.00020	-	0.0095	-	< 0.10	-	-	0.62	-
			2025-Aug-24	N	LUP-BL-01	-	< 0.020	2.7	2.7	-	0.0091	-	-	< 0.0019	-	< 0.00020	-	0.0049	-	< 0.10	-	-	0.69	-
			2025-Aug-24	FD	DUP-08-2025	-	< 0.020	2.7	2.8	-	0.0092	-	-	< 0.0019	-	< 0.00020	-	0.0054	-	< 0.10	-	-	0.74	-
			2025-Sep-17	N	LUP-BL-01	-	< 0.020	5.4	6.0	-	0.20	-	-	< 0.0019	-	< 0.00020	-	0.038	-	< 0.10	-	-	1.1	-
	LUP-EL-01	LUP-EL-01	2021-Jun-25	N	LUP-EL-01	-	0.0026	-	1.51	-	0.0976	-	< 0.000005	-	-	< 0.00005	-	0.0163	-	-	< 0.05	-	0.646	-
			2021-Aug-30	N	LUP-EL-01	-	0.0048	-	3.03	-	0.0584	-	< 0.000005	-	-	< 0.00005	-	0.031	-	-	< 0.05	-	0.659	-
			2024-Jul-15	N	LUP-EL-01	-	0.0070	-	7.17	-	0.0735	-	< 0.0000050	-	-	< 0.000050	-	0.0519	-	< 0.050	-	-	1.05	-
			2024-Sep-08	N	LUP-EL-01	0.0099	0.0100	6.57	6.7	0.326	0.337	< 0.0000050	< 0.0000050	-	< 0.000050	< 0.000050	0.0729	0.0753	< 0.050	< 0.050	-	0.724	0.741	0.00218
			2025-Jun-03	N	LUP-EL-01	-	< 0.020	2.8	2.8	-	0.26	-	-	0.0022	-	< 0.00020	-	0.031	-	< 0.10	-	-	0.59	-
			2025-Aug-23	N	LUP-EL-01	-	< 0.020	9.7	9.7	-	0.16	-	-	< 0.0019	-	< 0.00020	-	0.049	-	< 0.10	-	-	1.1	-
			2025-Sep-17	N	LUP-EL-01	-	< 0.020	10	10	-	0.45	-	-	< 0.0019	-	< 0.00020	-	0.18	-	< 0.10	-	-	1.1	-

- Notes:
- - '-'
 - <
 - RDL
 - °C
 - µg/L
 - deg C
 - mg/L
 - pH Units
 - ng
 - CCME WQG Freshwater Aquatic Life (long term)
 - CCME WQG Freshwater Aquatic Life (short term)

samples collected at the same location and date are blind field duplicate,

sample not analyzed for parameter indicated

less than reported detection limit

reported detection limit

degrees Celsius

microgram per litre

degree Celsius

milligram per litre

potential of hydrogen units

no guideline

CCME Water Quality Guidelines for the Protection of Aquatic Life, Fresh

CCME Water Quality Guidelines for the Protection of Aquatic Life, Fresh



Table 1: Background Water Quality

	Rubidium	Selenium	Selenium	Silicon	Silicon	Silver	Silver	Sodium	Sodium	Strontium	Strontium	Tellurium	Tellurium	Thallium	Thallium	Thorium	Thorium	Tin
Filtered or Total	T	F	T	F	T	F	T	F	T	F	T	F	T	F	T	F	T	F
RDL		0.00005	0.00005 - 0.0002		0.1 - 0.5	0.00001	0.00001 - 0.0001		0.5		0.02	0.0002	0.0002	0.00001	0.00001 - 0.0002	0.0001	0.0001	0.0001
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CCME WQG Freshwater Aquatic Life (long term)	ng	ng	0.0010	ng	ng	ng	0.00025	ng	ng	ng	ng	ng	ng	ng	0.00080	ng	ng	ng
CCME WQG Freshwater Aquatic Life (short term)	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng

Location Groups	Sample Location	Location Name	Sample Date	Sample Type	Sample Name																		
Locations	LUP-BL-01	LUP-BL-01	2021-Jun-25	N	LUP-BL-01	0.00134	-	< 0.00005	-	0.48	-	< 0.00001	-	0.731	-	0.00742	-	< 0.0002	-	< 0.00001	-	< 0.0001	-
			2021-Aug-30	N	LUP-BL-01	0.0017	-	< 0.00005	-	0.13	-	< 0.00001	-	1.09	-	0.0103	-	< 0.0002	-	< 0.00001	-	< 0.0001	-
			2024-Jul-15	N	LUP-BL-01	0.00192	-	< 0.000050	-	0.19	-	< 0.000010	-	1.33	-	0.0128	-	< 0.00020	-	< 0.000010	-	< 0.00010	-
			2024-Sep-08	N	LUP-BL-01	0.00257	< 0.000050	< 0.000050	1.65	1.67	< 0.000010	< 0.000010	2.62	2.59	0.0374	0.037	< 0.00020	< 0.00020	< 0.000010	< 0.000010	< 0.00010	< 0.00010	< 0.00010
			2025-Jun-03	N	LUP-BL-01	-	-	< 0.00020	-	0.73	-	< 0.00010	-	1.1	-	< 0.020	-	-	-	< 0.00020	-	-	-
			2025-Aug-24	N	LUP-BL-01	-	-	< 0.00020	-	< 0.50	-	< 0.00010	-	1.7	-	< 0.020	-	-	-	< 0.00020	-	-	-
			2025-Sep-17	FD	DUP-08-2025	-	-	< 0.00020	-	< 0.50	-	< 0.00010	-	1.8	-	< 0.020	-	-	-	< 0.00020	-	-	-
	LUP-EL-01	LUP-EL-01	2021-Jun-25	N	LUP-EL-01	0.00179	-	< 0.00005	-	1.03	-	< 0.00001	-	1.19	-	0.0129	-	< 0.0002	-	< 0.00001	-	< 0.0001	-
			2021-Aug-30	N	LUP-EL-01	0.00223	-	< 0.00005	-	0.58	-	< 0.00001	-	2.12	-	0.0251	-	< 0.0002	-	< 0.00001	-	< 0.0001	-
			2024-Jul-15	N	LUP-EL-01	0.00364	-	< 0.000050	-	< 0.10	-	< 0.000010	-	3.29	-	0.046	-	< 0.00020	-	< 0.000010	-	< 0.00010	-
			2024-Sep-08	N	LUP-EL-01	0.00216	< 0.000050	< 0.000050	4.39	4.44	< 0.000010	< 0.000010	2.61	2.63	0.0504	0.0505	< 0.00020	< 0.00020	< 0.000010	< 0.000010	< 0.00010	< 0.00010	< 0.00010
			2025-Jun-03	N	LUP-EL-01	-	-	< 0.00020	-	1.1	-	< 0.00010	-	1.1	-	< 0.020	-	-	-	< 0.00020	-	-	-
			2025-Aug-23	N	LUP-EL-01	-	-	< 0.00020	-	< 0.50	-	< 0.00010	-	3.9	-	0.060	-	-	-	< 0.00020	-	-	-
			2025-Sep-17	N	LUP-EL-01	-	-	< 0.00020	-	3.3	-	< 0.00010	-	2.9	-	0.053	-	-	-	< 0.00020	-	-	-

- Notes:
- samples collected at the same location and date are blind field duplicate.
 - '-' sample not analyzed for parameter indicated
 - < less than reported detection limit
 - RDL reported detection limit
 - °C degrees Celsius
 - µg/L microgram per litre
 - deg C degree Celsius
 - mg/L milligram per litre
 - pH Units potential of hydrogen units
 - ng no guideline
 - CCME WQG Freshwater Aquatic Life (long term) CCME Water Quality Guidelines for the Protection of Aquatic Life, Fresh
 - CCME WQG Freshwater Aquatic Life (short term) CCME Water Quality Guidelines for the Protection of Aquatic Life, Fresh



Table 1: Background Water Quality

						Filtered or Total											
						RDL											
						0.0001 - 0.001	0.0003	0.0003 - 0.001	0.0001	0.0001		0.0001	0.0005	0.0005 - 0.001		0.003	0.0002
						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
						ng	ng	ng	ng	ng	ng	0.015	ng	ng	0.0060	ng	ng
						ng	ng	ng	ng	ng	ng	0.033	ng	ng	0.037	ng	ng
Location Groups	Sample Location	Location Name	Sample Date	Sample Type	Sample Name												
Locations	LUP-BL-01	LUP-BL-01	2021-Jun-25	N	LUP-BL-01	< 0.0001	-	< 0.0009	-	< 0.0001	-	0.000037	-	< 0.0005	-	< 0.003	-
			2021-Aug-30	N	LUP-BL-01	< 0.0001	-	< 0.0003	-	< 0.0001	-	0.000024	-	< 0.0005	-	< 0.003	-
			2024-Jul-15	N	LUP-BL-01	< 0.00010	-	< 0.00030	-	< 0.00010	-	0.000022	-	< 0.00050	-	< 0.0030	-
			2024-Sep-08	N	LUP-BL-01	< 0.00010	< 0.00030	0.00045	< 0.00010	< 0.00010	0.000026	0.000033	< 0.00050	< 0.00050	0.0196	0.0179	< 0.00020
			2025-Jun-03	N	LUP-BL-01	< 0.0010	-	< 0.0010	-	-	-	< 0.00010	-	< 0.0010	-	0.0068	-
			2025-Aug-24	N	LUP-BL-01	< 0.0010	-	< 0.0010	-	-	-	< 0.00010	-	< 0.0010	-	< 0.0030	-
			2025-Sep-17	FD	DUP-08-2025	< 0.0010	-	< 0.0010	-	-	-	< 0.00010	-	< 0.0010	-	< 0.0030	-
	LUP-EL-01	LUP-EL-01	2021-Jun-25	N	LUP-EL-01	< 0.0001	-	0.00215	-	< 0.0001	-	0.000044	-	< 0.0005	-	0.0096	-
			2021-Aug-30	N	LUP-EL-01	< 0.0001	-	0.00141	-	< 0.0001	-	0.000044	-	< 0.0005	-	0.013	-
			2024-Jul-15	N	LUP-EL-01	0.00031	-	0.00147	-	< 0.00010	-	0.000035	-	< 0.00050	-	0.024	-
			2024-Sep-08	N	LUP-EL-01	< 0.00010	0.00054	0.00133	< 0.00010	< 0.00010	0.000032	0.000042	< 0.00050	< 0.00050	0.0412	0.0387	0.00025
			2025-Jun-03	N	LUP-EL-01	< 0.0010	-	< 0.0010	-	-	-	< 0.00010	-	< 0.0010	-	0.017	-
			2025-Aug-23	N	LUP-EL-01	< 0.0010	-	0.0010	-	-	-	< 0.00010	-	< 0.0010	-	0.017	-
			2025-Sep-17	N	LUP-EL-01	< 0.0010	-	< 0.0010	-	-	-	< 0.00010	-	< 0.0010	-	0.073	-

Notes:

•	samples collected at the same location and date are blind field duplicate.
'-'	sample not analyzed for parameter indicated
<	less than reported detection limit
RDL	reported detection limit
°C	degrees Celsius
µg/L	microgram per litre
deg C	degree Celsius
mg/L	milligram per litre
pH Units	potential of hydrogen units
ng	no guideline
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