LUPIN MINE DISCHARGE VARIANCE REQUEST

16 December 2025

To: Richard Dwyer, Manager of Licensing, Nunavut Water Board

From: Felix Mensah-Yeboah, Alkane Resources

Cc: Max Brownhill, Falkirk Environmental Consultants
Kellie Leedham, Falkirk Environmental Consultants
Jon Melnyk, JDS Mining

Subject: **Request for Variance to Discharge Timing; Pond 2, SNP LUP-10**

Project: Lupin Mine Closure Project. Water Licence 2AM-LUP2032

1. INTRODUCTION

Lupin Mines Incorporated (LMI) is a wholly owned, indirect subsidiary of Alkane Resources Ltd. (Alkane) (previously Mandalay Resources Corporation). The Lupin Mine (the Mine), located in the Kitikmeot Region of Nunavut, is currently in a state of Care and Maintenance. Closure activities are guided by the 2018 Final Closure and Reclamation Plan (FCRP) and conditions of Water Licence 2AM-LUP2032. LMI is committed to meeting timelines and objectives to achieve final closure objectives, as outlined in the FCRP and closure plan updates made in the most recent 2024 Annual Report.

LMI has received all necessary permits to construct and operate a portion of the Tibbitt to Contwoyto Winter Road (TCWR) route from the Ekati Mine turnoff on Lac de Gras in the Northwest Territories to the Lupin Mine in Nunavut. The 2026 winter road is essential to mobilize equipment and supplies for the purpose of key mine closure activities, and to remove some hazardous waste from the mine site. Relevant Lupin Mine infrastructure to this request consists of the historic tailings containment area (Pond 2), monitoring location SNP LUP-10 at Dam 1A, and downstream receiving environment monitoring locations LUP 20 – LUP 25. 1. Appendix A shows the site layout and associated infrastructure. monitoring locations.

When operational, Pond 2 was the permitted location for tailings discharge from the Mine. The FCRP requires the water to be discharged from Pond 2 to achieve final closure objectives, further described below.

Water Licence 2AM-LUP2032 allows for a discharge volume of 125,000 m^3/day, commencing on, or after July 15 of the current year (2AM-LUP2032.Part E: 2.,3.). Discharge is permitted provided effluent quality parameters are met (2AM-LUP2032.Part E: 5A). Based on current scheduling for the 2026 season and the total volume of effluent in Pond 2, initiating discharge only after July 15 poses a substantive threat to project timelines, given the short operating season. To ensure project success, LMI is formally requesting to begin discharging this effluent as early as May 01, 2026, depending on site conditions and operational considerations. All discharge quality requirements and limits, as listed in 2AM-LUP2032.Part E: 5A will still apply.

This memo details rationale for this early discharge request, with the goal of completing necessary works to align with closure planning in 2026, while providing assurance of environmental protection to the receiving environment.

2. POND 2 DETAILS

During mining operations, Pond 2 was the designated storage facility for tailings waste, until mining ceased in 2005. An annual geotechnical inspection of the Pond and the Tailings Containment Area (TCA) occurs yearly.

There has been no discharge from Pond 2 since 2020.

Current bathymetry data estimates a maximum elevation of 484.8 masl with a corresponding volume of 7,984,663m^3. As per the most recent bathymetry survey the current effluent level is 482.4 masl, with a corresponding effluent volume of 5,006,207m^3.

3. RATIONALE FOR EARLY DISCHARGE

Pond 2 must be decanted or drawn to meet project timelines for planned closure activities in the TCA as per the FCRP. Given the volume of Pond 2, the maximum permitted daily discharge volume coupled with the short operating season and variability in weather conditions, commencing discharge early is required for project success.

3.1 MEETING CLOSURE OBJECTIVES

Decanting Pond 2 allows for the following closure objectives to be met:

- Expose and dry tailings prior to heavy equipment mobilization to reduce geotechnical risk and support successful cover placement and achieve final reclamation objectives;

- Allow safe access for heavy equipment to place non-acid-generating (NAG) cover on the tailings;
- Facilitate grading, armoring, and other final closure works in accordance with the FCRP.

Early decanting Pond 2 in 2026 also minimizes risk and costs associated with having to operate the Site for another season.

3.2 HYDROLOGIC TIMING

Site experience and photo records indicate that the site is generally snow and ice free in late May.

Starting discharge in May allows for a longer, more controlled decant period, reducing the need for higher peak flow rates later in the season.

Discharge during freshet or peak snow and ice melt onsite allows maximum dilution and reduces the likelihood of measurable effects on downstream receiving environments.

3.3 EFFLUENT QUALITY

During the 2025 field season, LMI added soda ash to Pond 2 with the goal of neutralizing pH to achieve effluent quality objectives. LMI plans to transport soda ash to site, via the 2026 winter road, in the event it is needed to stabilize the pH of Pond 2 prior to discharge.

Sampling of Pond 2, in accordance with the parameters listed in 2AM-LUP2032.Part E: 5A, was last conducted and analysed in September 2025. This sampling event produced compliant results for general parameters, inorganics, and metals. This data, and other sampling from 2025 is included as Appendix B.

Based on recent sampling data and the proposed treatment/monitoring approach, LMI expects that Pond 2 effluent quality will remain within Water Licence limits for all regulated parameters at the time of discharge.

4. PROPOSED DISCHARGE PLAN AND MONITORING PROGRAM

LMI will continue to follow all requirements for discharge from Pond 2, as per 2AM-LUP2032. To ensure environmental protection to the receiving environment, LMI proposes the following discharge plan and monitoring program:

4.1 PRE-DISCHARGE SAMPLING

In early to mid-May, prior to the initial discharge from Pond 2, LMI will conduct sampling to confirm that effluent quality meets permit criteria. This sampling will be done by consultants who have experience at the site, and analysis will be conducted by an accredited laboratory, in accordance with permit requirements. Once compliant effluent quality results are received, LMI will provide formal notification of intent to discharge to the Nunavut Water Board, a minimum of 10 days prior to discharge.

4.2 DISCHARGE PLAN

The total volume of effluent to be discharged will depend on the seasonal inflow occurring over the off season. Based on the targeted final elevation of 480.16 masl and theoretical inflow volumes, LMI is estimating a planned discharge volume of approximately 2,460,000 m^3.

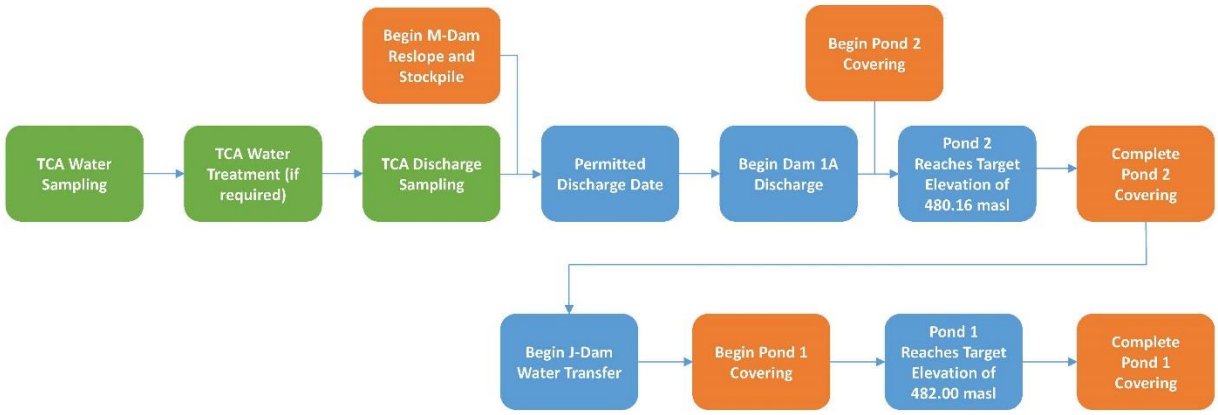
To meet the proposed schedule to achieve closure objectives we will be targeting the maximum allowable

daily discharge rate of 125,000 m^3/day. However, given operational and equipment considerations (primarily the functioning of the siphons), LMI is estimating a daily discharge rate of 110,000m^3/day.

Flow meters will be used on the siphons, which are already installed, and will be used to measure discharge rates to control and modulate flows from Pond 2 in a safe and predictable manner.

LMI is targeting to have Pond 2 fully decanted by Q3, 2026, depending on operational timelines and demands. The diagram below shows proposed project sequencing. It illustrates the need to begin discharge early, to support completion of other closure activities.

Figure 4.2.1 Proposed 2026 Closure Project Sequencing.



4.3 Field Sampling and Equipment

All sampling, sample preservation and analyses will be conducted in accordance with the most recent edition of *Standard Methods for the Examination of Water and Wastewater (2AM-LUP2032, J.4).* Once analysed, results and field data will be compiled into summary tables and time-series plots. Variances, trends, or any exceedances of licence criteria will be flagged and reported promptly to the Nunavut Water Board with proposed remedial actions, if required.

All field sampling equipment will be calibrated according to regulations and equipment specifications.

Monitoring results will be included in the annual licence reporting and may also be summarized in a dedicated technical memo specific to this variance, if requested.

4.4 Sampling Locations and Frequency

Sampling locations and frequency to allow for a pre-July 15 discharge will follow the requirements of the permit. Sampling locations are shown on Figure.2

Sampling location, frequency, and parameter for monitoring is summarized the table below.

Table 4.2.1: Sampling Location, Frequency, and Parameter for Monitoring

Monitoring Program Requirements when discharging from Pond 2 (taken from Schedule J. 2AM-LUP2032)			
Station ID	**Location**	**Frequency**	**Parameter**
LUP-10	Pond 2 discharge at Dam 1A	Daily during periods of Discharge	Quantity of treated effluent discharged, measured, and recorded in cubic metres
		Weekly	Nutrients Radium (226RA)
		Monthly (no less than one-month Intervals) commencing with the first day of decant	Cyanide Bioassay
LUP-10a (LUP-102)	Internal station in TCA Pond 2, approximately 100 m upstream from siphon intake	Once prior to initiation of decant and once prior to termination of decant	Field, Conventional, Nutrients, Total Metals, Cyanide, and Radium (226RA), and Bioassay
LUP-20	West end of Seep Creek before discharge into Unnamed Lake	Weekly during discharge from the Tailings Containment Area, commencing with the first day of decant	Field, Conventional, Nutrients, Total Metals, Cyanide, and Radium (226RA)
LUP-21	North end of Concession Creek before discharge into Unnamed Lake	Weekly during discharge from the Tailings Containment Area, commencing with the first day of decant	Field, Conventional, Nutrients, Total Metals, Cyanide, Radium (226RA)
LUP-22	Inner Sun Bay near center and midway between end of peninsula and west shore	Weekly at mid-depth, commencing one (1) week prior to discharge from the Tailings Containment Area and concluding two (2) weeks after cessation of the discharge	Field, Conventional, Nutrients, Total Metals, Cyanide, Radium (226RA)
LUP-24	Inner Sun Bay at mid-way point in narrows	Weekly at mid-depth, commencing one (1) week prior to discharge from the Tailings Containment Area, and concluding two (2) weeks after cessation of the discharge and when bioassay sample is collected at LUP-10 just prior to termination of decant	Field, Conventional, Nutrients, Total Metals, Cyanide, Radium (226RA)
LUP-25	Outer Sun Bay (Total Rather than specific metals)	Weekly at mid-depth, commencing one (1) week prior to discharge from the Tailings Containment Area, and concluding two (2) weeks after cessation of the discharge	Field, Conventional, Nutrients, Total Metals, Cyanide, Radium (226RA)

4.5 EFFLUENT QUALITY

All Effluent discharged from the Pond 2 at Monitoring Program Station LUP-10, shall not exceed the following Effluent quality limits:

Table 4.5.1 Effluent Quality Parameter Limits at LUP-10. (2AM-LUP2032)

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)
Total Arsenic	0.50	1.00
Total Copper	0.15	0.30
Total Cyanide	0.80	1.60
Total Lead	0.10	0.20
Total Nickel	0.20	0.40
Total Zinc	0.40	0.80
Total Suspended Solids	15	30
Oil and Grease		No visible sheen
The Effluent discharged shall have a pH between 6.0 and 9.5		

4.6 NON-COMPLIANT RESULTS

In the event of non-compliant effluent quality monitoring results, discharge will cease. At this time, treatment options will be investigated to allow for continued discharge. Following compliant effluent quality sampling results, notification of intent to discharge will be provided, as per requirements of 2AM-LUP2032.

5. PROPOSED MONITORING AND MITIGATION MEASURES

LMI will implement mitigation measures consistent existing licence requirements to prevent erosion, sedimentation, and the release of non-compliant discharge. These volumes will remain consistent with permit limits, at a maximum rate of 125,000m^3/day.

Erosion and Sediment Control (ESC):

- Armoring of the outfall structure to dissipate energy and reduce scour;
  Documented routine inspections and maintenance of all ESC structures during discharge.

Flow Management:

- Use of existing operational siphons to control discharge rates and avoid sudden flow increases;
- Ability to throttle back or temporarily suspend discharge if monitoring results or field conditions indicate a concern.

  Water Quality Protection:

- Treatment of Pond 2 (if required) prior to discharge to ensure compliance with licence criteria

- Immediately cease discharging and conduct sampling to understand prepare and response protocols if monitoring results approach or exceed any licence limits;
- Use of contingency storage or flow reduction if required to protect the receiving environment.

6. EFFLUENT QUALITY

LMI has most recently sampled Pond 2 / LUP-10 during the 2025 field season. Three sampling events took place: in June, August, and September. Samples were analysed for field parameters, general parameters, inorganics, and metals. Analysis showed compliant results for all parameters, with the exception of pH. Both the June and August samples showed low pH values, of approximately 4. After the addition of soda ash to neutralize the pH, the September 2025 results indicated that pH had neutralized to 7.51 (field) and 6.67 (lab). If required, LMI will employ this same neutralization technique to obtain compliant results for discharge.

Data from the 2025 field season is included as Appendix B.

7. ESTIMATED TOTAL VOLUME TO BE DISCHARGED

The amount of effluent to be discharged is somewhat dependent on the seasonal inflow that occurs. Based off a target elevation of 480.16 masl and relating it to the theoretical inflow determined by Stantec, LMI estimates a planned discharge volume of approximately 2,460,000 m^3.

LMI estimates an average daily discharge rate of 110,000m^3/day with the target of 125,000m^3/day, the maximum allowable volume.

Discharge will be modulated via the installed siphon. If field observations or monitoring suggest any concern with erosive velocities, sediment transport, or downstream effects, the discharge rate will be reduced and additional mitigation applied as needed.

8. FIGURES AND MAPPING

LMI provides the following figures to support this variance request (**Error! Reference source not found.**):

- Figure 1 – Site Overview Map (key infrastructure and drainage).
- Figure 2– Monitoring Site Locations
- Figure 3 - Photograph of Pond 2 Discharge Location

9. CONCLUSION

This request seeks a Nunavut Water Board-approved variance to the timing of discharge from Pond 2 (SNP LUP-10) to allow for discharge in May 2025, while maintaining all existing discharge quality standards and protections under Water Licence 2AM-LUP2032.

The requested timing change is necessary to support the 2026 closure workplan and the safe exposure of tailings for cover placement and other Site activities. LMI feels this request is consistent with freshet hydrology and dilution conditions at Lupin; and is supported by recent compliant effluent samples and a robust monitoring and mitigation framework.

LMI respectfully requests that the Nunavut Water Board consider this variance request, circulate it to interested parties, and issue a decision in accordance with the Board's process.

10. CLOSURE

We trust this Technical Memorandum meets your present requirements. Please do not hesitate to contact the undersigned should you have any questions.

Sincerely,

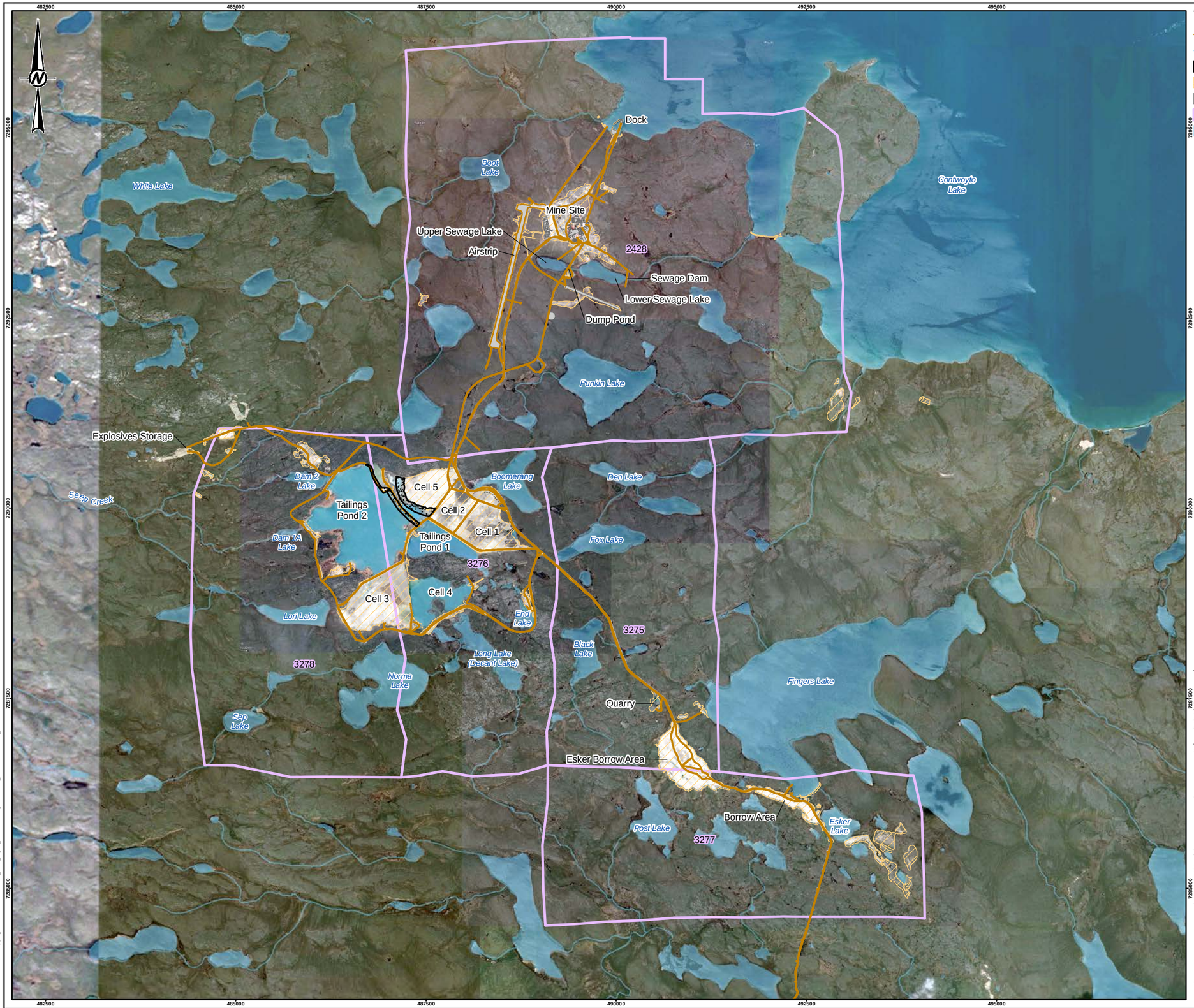
Felix Mensah-Yeboah

Director, Mine Closure & Asset Mgt

Lupin Mine, Canada

APPENDIX A. Project Figures

Figure 1 – Site Overview Map (Key Infrastructure and Drainage)



LEGEND

- ROAD
- WATERCOURSE
- APPROXIMATE 2017 RECLAMATION WORK
- DISTURBANCE FOOTPRINT
- INFRASTUCTURE FOOTPRINT
- MINERAL LEASE BOUNDARY
- WATERBODY

0 2 4

1:50,000 KILOMETRES

REFERENCE(S)

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DATUM: NAD83 PROJECTION: UTM ZONE 12

CLIENT
MANDALAY RESOURCES CORPORATION

PROJECT
LUPIN MINE CLOSURE

TITLE
GENERAL ARRANGEMENT PLAN - CURRENT CONDITIONS

LUPIN MINES INCORPORATED

YYYY-MM-DD	2018-01-25
DESIGNED	NC
PREPARED	AA
REVIEWED	KB
APPROVED	KB

PROJECT NO.	CONTROL	REV.	FIGURE
1789942	3000	0	3

Figure 2 – Monitoring Locations

480000 482500 485000 487500 490000 492500 495000 497500

7297500 7295000 7292500 7290000 7287500 7285000 7282500

Contwoyto Lake
White Lake
Boot Lake
LUP-BL-01
Mine Site
Dock
LUP-01
East Lake
LUP-EL-01
LUP-27
LUP-LSL-01
LUP-14
Airstrip
Upper Sewage Lake
Sewage Dam
Lower Sewage Lake
2428
Dump Pond
Punkin Lake
LUP-25
LUP-24
LUP-22
Contwoyto Lake Inner Sun Bay
Explosives Storage
SCP-5
SCP-1
Unnamed Lake
SCP-3
Seep Creek
LUP-21
LUP-20
Concession Creek
Concession Lake
LUP-10 (LUP-102)
Dam 2 Lake
Tailings Pond 2
Cell 5
Cell 2
Cell 1
Tailings Pond 1
Dam 1 Lake
LUP-10
Boomerang Lake
Den Lake
Fox Lake
Cell 3
Cell 4
Lori Lake
End Lake
3275
3278
Long Lake (Decant Lake)
Black Lake
Norma Lake
3276
Quarry
Fingers Lake
Scp Lake
Concession Lake
R2-5
R2-3
FL-3
FL-1
FL-5
Esker Borrow Area
Post Lake
Borrow and Quarry Area
Esker Lake
3277
R2-1

0 2 4
1:65,000 KILOMETRES

LEGEND

- EEM MONITORING LOCATION
- WATER QUALITY SAMPLING LOCATION
- CONTOUR
- ROAD
- WINTER ROAD
- WATERCOURSE
- APPROXIMATE 2017 RECLAMATION WORK
- DISTURBANCE FOOTPRINT
- INFRASTUCTURE FOOTPRINT
- MINERAL LEASE BOUNDARY
- WATERBODY

SAMPLING AREAS

- EXPOSURE AREA
- REFERENCE AREA 1
- REFERENCE AREA 2

REFERENCE(S)

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DATUM: NAD83 PROJECTION: UTM ZONE 12

CLIENT
MANDALAY RESOURCES CORPORATION

PROJECT
LUPIN MINE CLOSURE

TITLE
WATER QUALITY MONITORING STATIONS FOR ACTIVE AND PASSIVE CLOSURE

LUPIN MINES INCORPORATED

YYYY-MM-DD	2021-04-08
DESIGNED	NC
PREPARED	PT/LS
REVIEWED	KS
APPROVED	KB

PROJECT NO.	CONTROL	REV.	FIGURE
20446521	1030	0	5

Figure 3. Photo of Pond 2 at Discharge Location

APPENDIX B. Pond 2 – 2025 Sampling Data

Pond 2 Water Samples, June 2025

Table 1: Field in Groundwater - Ponds 1 & 2, Cell 4

	Field					
	DO (field %)	ORP (field)	pH (field)	Specific conductivity (field)	Temp (field)	Turbidity (field)
	%	mV	pH Units	mS/cm	deg C	NTU
SS - Lupin Mine Tailings Containment Area Effluent LUP-10	ng	ng	6-9.5	ng	ng	ng

Location Groups	Sample Location	Sample Date	Sample Type	Sample Name						
Cell 4	C4-A	2025-Jun-04	N	C4-A	96.3	297	3.48	0.264	6.49	2
	C4-E	2025-Jun-04	N	C4-E	73.2	347	2.92	0.339	1.89	1.6
Pond 1	P1-B	2025-Jun-04	N	P1-B	87.8	1080	3.21	0.174	3.11	2.1
Pond 2	P2-A	2025-Jun-04	FD	REPLICATE #1	71.7	325	4.54	0.098	1.56	1.1
		2025-Jun-04	N	P2-A	71.7	325	4.54	0.098	1.56	1.1
	P2-B	2025-Jun-04	N	P2-B	74.5	332	4.94	0.093	2.5	1.1
	P2-C	2025-Jun-04	N	P2-C	110.7	212	4.63	0.1	2.43	1.9
	P2-E	2025-Jun-04	N	P2-E	104.6	61	4.52	0.166	2.26	1

Notes:

<	less than reported detection limit
Sample Type	FD (Duplicate)
Sample Type	N (Normal)
%	percent
deg C	degree Celsius
mS/cm	milliSiemens per centimetre
mV	millivolts
NTU	nephelometric turbidity unit
pH Units	potential of hydrogen units
ng	no guideline listed
SS - Lupin Mine Tailings Containment Area Effluent LUP-10	Nunavut Water Board, Water Licence No.2AM-LUP2032, Tailings Containment Area Monitoring Program Station LUP-10, Part E, Items 5 and 6

Table 2: General Parameters in Groundwater - Ponds 1 & 2, Cell 4

					General Parameters									
					Acidity (pH 4.5)	Acidity (pH 8.3)	Alkalinity (bicarbonate)	Alkalinity (carbonate)	Alkalinity (PP as CaCO3)	Alkalinity (total as CaCO3)	Electrical conductivity (lab)	pH (lab)	Total dissolved solids	Total suspended solids
				RDL	1.0	1.0	1.0	1.0	1.0	1.0	2.0		10	1.0
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	pH Units	mg/L	mg/L
				SS - Lupin Mine Tailings Containment Area Effluent LUP-10	ng	ng	ng	ng	ng	ng	ng	6-9.5	ng	30
Location Groups	**Sample Location**	**Sample Date**	**Sample Type**	**Sample Name**										
Cell 4	C4-A	2025-Jun-04	N	C4-A	5.0	26.6	< 1.0	< 1.0	< 1.0	< 1.0	360	3.92	190	6.6
	C4-E	2025-Jun-04	N	C4-E	2.0	18.4	< 1.0	< 1.0	< 1.0	< 1.0	260	4.05	120	< 1.0
Pond 1	P1-B	2025-Jun-04	N	P1-B	< 1.0	11.6	< 1.0	< 1.0	< 1.0	< 1.0	200	4.58	100	1.2
Pond 2	P2-A	2025-Jun-04	FD	REPLICATE #1	< 1.0	5.2	< 1.0	< 1.0	< 1.0	< 1.0	130	4.81	56	3.2
		2025-Jun-04	N	P2-A	< 1.0	5.6	< 1.0	< 1.0	< 1.0	< 1.0	130	4.96	60	3.1
	P2-B	2025-Jun-04	N	P2-B	< 1.0	3.8	< 1.0	< 1.0	< 1.0	< 1.0	120	4.94	40	1.2
	P2-C	2025-Jun-04	N	P2-C	< 1.0	6.7	< 1.0	< 1.0	< 1.0	< 1.0	230	4.79	96	< 1.0
	P2-E	2025-Jun-04	N	P2-E	< 1.0	6.2	< 1.0	< 1.0	< 1.0	< 1.0	140	4.56	110	3.4

Notes:

<	less than reported detection limit
Sample Type	FD (Duplicate)
Sample Type	N (Normal)
RDL	reported detection limit
mg/L	milligram per litre
pH Units	potential of hydrogen units
uS/cm	microsiemens per centimetre
ng	no guideline listed
SS - Lupin Mine Tailings Containment Area Effluent LUP-10	Nunavut Water Board, Water Licence No.2AM-LUP2032, Tailings Containment Area Monitoring Program Station LUP-10, Part E, Items 5 and 6

Table 3: Inorganics in Groundwater - Ponds 1 & 2, Cell 4

					Inorganics			
					cyanide (SAD)	Hydroxide	Silicon	Sulphur
				RDL	0.00050	1.0	0.50	0.20
					mg/L	mg/L	mg/L	mg/L
				SS - Lupin Mine Tailings Containment Area Effluent LUP-10	ng	ng	ng	ng
Location Groups	**Sample Location**	**Sample Date**	**Sample Type**	**Sample Name**				
Cell 4	C4-A	2025-Jun-04	N	C4-A	0.00374	< 1.0	3.8	46
	C4-E	2025-Jun-04	N	C4-E	0.00315	< 1.0	2.5	28
Pond 1	P1-B	2025-Jun-04	N	P1-B	0.00084	< 1.0	1.7	26
Pond 2	P2-A	2025-Jun-04	FD	REPLICATE #1	0.00080	< 1.0	0.63	16
		2025-Jun-04	N	P2-A	0.00078	< 1.0	0.59	16
	P2-B	2025-Jun-04	N	P2-B	0.00063	< 1.0	< 0.50	14
	P2-C	2025-Jun-04	N	P2-C	0.00104	< 1.0	0.81	28
	P2-E	2025-Jun-04	N	P2-E	0.00085	< 1.0	0.57	17

Notes:

<	less than reported detection limit
Sample Type	FD (Duplicate)
Sample Type	N (Normal)
RDL	reported detection limit
deg C	degree Celsius
mg/L	milligram per litre
pH Units	potential of hydrogen units
ng	no guideline listed
Cyanide (SAD)	Strong Acid Dissociable Cyanide, also called Total Cyanide
SS - Lupin Mine Tailings Containment Area Effluent LUP-10	Nunavut Water Board, Water Licence No.2AM-LUP2032, Tailings Containment Area Monitoring Program Station LUP-10, Part E, Items 5 and 6

Table 4: Metals in Groundwater - Ponds 1 & 2, Cell 4

					Metals																												
					Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Calcium	Chromium	Cobalt	Copper	Hardness (as CaCO3)	Iron	Lead	Lithium	Magnesium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silver	Sodium	Strontium	Thallium
				RDL	0.0030	0.00060	0.00020	0.010	0.0010	0.020	0.020	0.30	0.30	0.0010	0.00030	0.0010	0.50	0.060	0.00020	0.020	0.20	0.20	0.0040	0.0019	0.00020	0.00050	0.10	0.30	0.00020	0.00010	0.50	0.020	0.00020
					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	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
				SS - Lupin Mine Tailings Containment Area Effluent LUP-10	ng	ng	0.6	ng	ng	ng	ng	ng	ng	ng	ng	0.3	ng	ng	0.2	ng	ng	ng	ng	ng	ng	0.4	ng	ng	ng	ng	ng	ng	ng
Location Groups	Sample Location	Sample Date	Sample Type	Sample Name																													
Cell 4	C4-A	2025-Jun-04	N	C4-A	1.8	< 0.00060	0.043	0.011	< 0.0010	0.024	0.16	27	26	< 0.0010	0.042	0.052	92	2.8	0.017	0.021	6.2	5.5	0.68	< 0.0019	< 0.00020	0.096	< 0.10	2.3	< 0.00020	< 0.00010	14	0.15	< 0.00020
	C4-E	2025-Jun-04	N	C4-E	1.0	< 0.00060	0.043	< 0.010	< 0.0010	< 0.020	0.11	20	16	< 0.0010	0.027	0.033	65	1.7	0.010	< 0.020	3.9	3.4	0.39	< 0.0019	< 0.00020	0.064	< 0.10	1.5	< 0.00020	< 0.00010	7.8	0.092	< 0.00020
Pond 1	P1-B	2025-Jun-04	N	P1-B	0.90	< 0.00060	0.016	< 0.010	< 0.0010	< 0.020	0.15	16	16	< 0.0010	0.032	0.024	60	0.65	0.0016	< 0.020	4.9	4.7	0.40	< 0.0019	< 0.00020	0.067	< 0.10	1.7	< 0.00020	< 0.00010	6.5	0.077	< 0.00020
Pond 2	P2-A	2025-Jun-04	FD	REPLICATE #1	0.25	< 0.00060	0.0093	< 0.010	< 0.0010	< 0.020	0.081	11	10	< 0.0010	0.011	0.0063	38	0.36	0.00024	< 0.020	2.4	2.4	0.23	< 0.0019	< 0.00020	0.031	< 0.10	0.92	< 0.00020	< 0.00010	6.2	0.051	< 0.00020
		2025-Jun-04	N	P2-A	0.21	< 0.00060	0.0078	< 0.010	< 0.0010	< 0.020	0.080	11	10	< 0.0010	0.010	0.0055	39	0.33	0.00021	< 0.020	2.7	2.4	0.22	< 0.0019	< 0.00020	0.027	< 0.10	0.91	< 0.00020	< 0.00010	6.1	0.050	< 0.00020
	P2-B	2025-Jun-04	N	P2-B	0.13	< 0.00060	0.0045	< 0.010	< 0.0010	< 0.020	0.066	10	9.5	< 0.0010	0.0085	0.0044	35	0.11	< 0.00020	< 0.020	2.2	2.1	0.23	< 0.0019	0.00026	0.024	< 0.10	0.82	< 0.00020	< 0.00010	5.9	0.046	< 0.00020
	P2-C	2025-Jun-04	N	P2-C	0.36	< 0.00060	0.010	< 0.010	< 0.0010	< 0.020	0.13	19	18	< 0.0010	0.017	0.0090	66	0.59	0.00033	< 0.020	4.3	4.3	0.40	< 0.0019	< 0.00020	0.049	< 0.10	1.5	< 0.00020	< 0.00010	11	0.088	< 0.00020
	P2-E	2025-Jun-04	N	P2-E	0.34	< 0.00060	0.015	< 0.010	< 0.0010	< 0.020	0.14	12	11	< 0.0010	0.015	0.012	41	0.50	0.00037	< 0.020	2.5	2.5	0.26	< 0.0019	< 0.00020	0.036	< 0.10	0.83	< 0.00020	< 0.00010	5.3	0.054	< 0.00020

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
Sample Type	FD (Duplicate)
Sample Type	N (Normal)
RDL	reported detection limit
deg C	degree Celsius
mg/L	milligram per litre
pH Units	potential of hydrogen units
ng	no guideline listed
SS - Lupin Mine Tailings Containment Area Effluent LUP-10	Nunavut Water Board, Water Licence No.2AM-LUP2032, Tailings Containment Area Monitoring Program Station LUP-10, Part E, Items 5 and 6

Table 4: Metals in Groundwater - Ponds 1 & 2, Cell 4

					Tin	Titanium	Uranium	Vanadium	Zinc
				RDL	0.0010	0.0010	0.00010	0.0010	0.0030
					mg/L	mg/L	mg/L	mg/L	mg/L
				SS - Lupin Mine Tailings Containment Area Effluent LUP-10	ng	ng	ng	ng	0.8
Location Groups	**Sample Location**	**Sample Date**	**Sample Type**	**Sample Name**					
Cell 4	C4-A	2025-Jun-04	N	C4-A	< 0.0010	< 0.0010	0.00044	< 0.0010	0.50
	C4-E	2025-Jun-04	N	C4-E	< 0.0010	0.0012	0.00029	< 0.0010	0.28
Pond 1	P1-B	2025-Jun-04	N	P1-B	< 0.0010	0.0010	0.00021	< 0.0010	0.27
Pond 2	P2-A	2025-Jun-04	FD	REPLICATE #1	< 0.0010	0.0029	< 0.00010	< 0.0010	0.085
		2025-Jun-04	N	P2-A	< 0.0010	0.0012	< 0.00010	< 0.0010	0.077
	P2-B	2025-Jun-04	N	P2-B	< 0.0010	< 0.0010	< 0.00010	< 0.0010	0.080
	P2-C	2025-Jun-04	N	P2-C	< 0.0010	< 0.0010	< 0.00010	< 0.0010	0.14
	P2-E	2025-Jun-04	N	P2-E	< 0.0010	< 0.0010	< 0.00010	< 0.0010	0.14

Notes:

•	samples collected at the same location and date are blind field duplica
'-'	sample not analyzed for parameter indicated
<	less than reported detection limit
Sample Type	FD (Duplicate)
Sample Type	N (Normal)
RDL	reported detection limit
deg C	degree Celsius
mg/L	milligram per litre
pH Units	potential of hydrogen units
ng	no guideline listed
SS - Lupin Mine Tailings Containment Area Effluent LUP-10	Nunavut Water Board, Water Licence No.2AM-LUP2032, Tailings Co

Pond 2 Water Samples August 2025

Table 1: Field

						Field			
						DO (field %)	Electrical conductivity (field)	pH (field)	Temp (field)
						%	mS/cm	pH Units	deg C
					SS - Lupin Mine Tailings Containment Area Effluent LUP-10	ng	ng	6.0-9.5	ng
Location Groups	Sample Location	Location Name	Sample Date	Sample Type	Sample Name				
Pond 2	P2-B	P2-B	2025-Aug-24	N	DAMIA-1	8.97	387.3	4.32	14.6
	P2-1	P2-1	2025-Aug-24	N	P2-1	10.36	387.1	4.33	14.3

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
%	percent
deg C	degree Celsius
mS/cm	milliSiemens per centimetre
pH Units	potential of hydrogen units
ng	no guideline
SS - Lupin Mine Tailings Containment Area Effluent LUP-10	Nunavut Water Board, Water Licence No.2AM-LUP2032, Tailings Containment Area Monitoring Program Station LUP-10, Part E, Items 5 and 6

Table 2: General in Surface Water

		General							
		Acidity (pH 4.5)	Acidity (pH 8.3)	Electrical conductivity (lab)	Hardness (as CaCO3)	ORP (field)	pH (lab)	Total dissolved solids	Total suspended solids
	RDL	1	1	2	0.5			10	1
		mg/L	mg/L	uS/cm	mg/L	mV	pH Units	mg/L	mg/L
	SS - Lupin Mine Tailings Containment Area Effluent LUP-10	ng	ng	ng	ng	ng	6.0-9.5	ng	30
Pond 1	P1-1D	P1-1D	2025-Aug-24	N	P1-1D	< 1.0	15.7	340	98	140.5	4.22	210	2.4
	P1-E	P1-E	2025-Aug-24	N	P1-E	< 1.0	14.0	350	99	179.7	4.08	200	1.9
Pond 2	P2-B	P2-B	2025-Aug-24	N	DAMIA-1	< 1.0	7.0	460	140	116.5	4.79	300	1.3
	P2-1	P2-1	2025-Aug-24	N	P2-1	< 1.0	9.1	460	140	132.5	4.55	290	28

Location Groups | **Sample Location** | **Location Name** | **Sample Date** | **Sample Type** | **Sample Name**

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
mg/L	milligram per litre
mV	millivolts
pH Units	potential of hydrogen units
uS/cm	microsiemens per centimetre
ng	no guideline
SS - Lupin Mine Tailings Containment Area Effluent LUP-10	Nunavut Water Board, Water Licence No.2AM-LUP2032, Tailings Containment Area Monitoring Program Station LUP-10, Part E, Items 5 and 6

Table 3: Inorganics in Surface Water

						Inorganics							
						pH (field)	Temp (field)	Hardness (as CaCO3)	pH (lab)	Alkalinity (bicarbonate)	Alkalinity (carbonate)	Alkalinity (P)	Alkalinity (total as CaCO3)	cyanide (SAD)	Hydroxide	Sulphur
					RDL			0.5		1	1	1	1	0.0005	1	0.2
						pH Units	deg C	mg/L	pH Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
					SS - Lupin Mine Tailings Containment Area Effluent LUP-10	6.0-9.5	ng	ng	6.0-9.5	ng	ng	ng	ng	1.0	ng	ng
Location Groups	Sample Location	Location Name	Sample Date	Sample Type	Sample Name											
Pond 1	P1-1D	P1-1D	2025-Aug-24	N	P1-1D	3.91	14	98	4.22	< 1.0	< 1.0	< 1.0	< 1.0	0.00107	< 1.0	43
	P1-E	P1-E	2025-Aug-24	N	P1-E	3.91	14.2	99	4.08	< 1.0	< 1.0	< 1.0	< 1.0	0.00098	< 1.0	43
Pond 2	P2-B	P2-B	2025-Aug-24	N	DAMIA-1	4.32	14.6	140	4.79	< 1.0	< 1.0	< 1.0	< 1.0	0.00120	< 1.0	59
	P2-1	P2-1	2025-Aug-24	N	P2-1	4.33	14.3	140	4.55	< 1.0	< 1.0	< 1.0	< 1.0	0.00118	< 1.0	59

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
deg C	degree Celsius
mg/L	milligram per litre
pH Units	potential of hydrogen units
ng	no guideline
SS - Lupin Mine Tailings Containment Area Effluent LUP-10	Nunavut Water Board, Water Licence No.2AM-LUP2032, Tailings Containment Area Monitoring Program Station LUP-10, Part E, Items 5 and 6

Table 4: Metals in Surface Water

Location Groups	Sample Location	Location Name	Sample Date	Sample Type	Sample Name	pH (field)	Temp (field)	Hardness (as CaCO3)	pH (lab)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Calcium
										Metals								
RDL								0.5		0.003	0.0006	0.0002	0.01	0.001	0.02	0.02	0.3	0.3
						pH Units	deg C	mg/L	pH Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L
SS - Lupin Mine Tailings Containment Area Effluent LUP-10						6.0-9.5	ng	ng	6.0-9.5	ng	ng	0.60	ng	ng	ng	ng	ng	ng
Pond 2	P2-B	P2-B	2025-Aug-24	N	DAMIA-1	4.32	14.6	140	4.79	0.72	< 0.00060	0.0058	0.020	< 0.0010	0.044	0.26	41	40
	P2-1	P2-1	2025-Aug-24	N	P2-1	4.33	14.3	140	4.55	0.81	< 0.00060	0.016	0.023	< 0.0010	0.051	0.27	41	40

Location Groups	Sample Location	Location Name	Sample Date	Sample Type	Sample Name	Chromium (III+VI)	Cobalt	Copper	Iron	Lead	Lithium	Magnesium	Magnesium	Manganese	Mercury	Molybdenum	Nickel
						Metals											
RDL						0.001	0.0003	0.001	0.06	0.0002	0.02	0.2	0.2	0.004	0.0019	0.0002	0.0005
						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L
SS - Lupin Mine Tailings Containment Area Effluent LUP-10						ng	ng	0.30	ng	0.20	ng	ng	ng	ng	ng	ng	0.40
Pond 2	P2-B	P2-B	2025-Aug-24	N	DAMIA-1	< 0.0010	0.035	0.019	0.34	0.00042	0.022	9.0	8.7	0.85	< 0.0019	< 0.00020	0.10
	P2-1	P2-1	2025-Aug-24	N	P2-1	< 0.0010	0.036	0.020	0.67	0.00063	0.022	9.2	8.9	0.85	< 0.0019	< 0.00020	0.10

Location Groups	Sample Location	Location Name	Sample Date	Sample Type	Sample Name	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
						Metals												
RDL						0.1	0.3	0.0002	0.5	0.0001	0.5	0.02	0.0002	0.001	0.001	0.0001	0.001	0.003
						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
SS - Lupin Mine Tailings Containment Area Effluent LUP-10						ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	0.80
Pond 2	P2-B	P2-B	2025-Aug-24	N	DAMIA-1	< 0.10	3.4	< 0.00020	1.3	< 0.00010	25	0.18	< 0.00020	< 0.0010	< 0.0010	0.00011	< 0.0010	0.30
	P2-1	P2-1	2025-Aug-24	N	P2-1	< 0.10	3.5	< 0.00020	1.4	< 0.00010	25	0.18	< 0.00020	< 0.0010	0.0017	0.00014	< 0.0010	0.31

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
µg/L	microgram per litre
deg C	degree Celsius
mg/L	milligram per litre
pH Units	potential of hydrogen units
ng	no guideline
SS - Lupin Mine Tailings Containment Area Effluent LUP-10	Nunavut Water Board, Water Licence No.2AM-LUP2032, Tailings Containment Area Monitoring Program Station LUP-10, Part E, Items 5 and 6

Pond 2 Water Samples, September 2025

Table 1: Field

						Field			
						DO (field)	Electrical conductivity (field)	pH (field)	Temp (field)
						mg/L	µS/cm	pH Units	deg C
SS-Lupin Mine Tailings Containment Area Effluent LUP-10						ng	ng	6.0-9.5	ng
Location Groups	**Sample Location**	**Location Name**	**Sample Date**	**Sample Type**	**Sample Name**				
Pond 2	P2-E	P2-E	2025-Sep-18	N	LUP-POND-02	11.1	304.2	7.51	7.7

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
µS/cm	microsiemens per centimetre
deg C	degree Celsius
mg/L	milligram per litre
pH Units	potential of hydrogen units
ng	no guideline
SS-Lupin Mine Tailings Containment Area Effluent LUP-10	Nunavut Water Board, Water Licence No.2AM-LUP2032, Tailings Containment Area Monitoring Program Station LUP-10, Part E, I

Table 2: General

																		General	
																		Hardness (as CaCO3)	pH (Hdr)
RDL																		0.5	
																		mg/L	pH Units
Location Groups	Location Groups [unmerged]	Facility	Sample Location	Location Name	Well Screen	X Coord	Y Coord	Longitude	Latitude	Coord Type Code	Sample Date	Start Depth	End Depth	Sample Depth Interval	Sample Type	Sample Name	Sample Code	HSVL Value	HSVL Unit		
Pond 2	Pond 2	MainRC_LUPIN_MINE	PZ-E	PZ-E				66.7333312	-111.2850813		2025-Sep-18				N	LUP-POND-02	CS79982_DT2853			140	6.67

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
Sample Type	N (Normal)
RDL	reported detection limit
m	metres
µg/L	microgram per litre
µS/cm	microsiemens per centimetre
deg C	degree Celsius
mg/L	milligram per litre
pH Units	potential of hydrogen units
ng	no guideline
SS-Lupin Mine Tailings Containment Area Effluent LUP-10	Nunavut Water Board, Water Licence No.2AM-LUP2032, Tailings Containment Area Monitoring Program Station LUP-10, Part E, Items 5 and 6

Table 3: Inorganics in Water

									Inorganics						
						pH (field)	Temp (field)	Hardness (as CaCO3)	pH (lab)	Alkalinity (bicarbonate)	Alkalinity (carbonate)	Alkalinity (P)	Alkalinity (total as CaCO3)	Cyanide (SAD)	Hydroxide	Sulphur
					RDL			0.5		1	1	1	1	0.0005	1	0.2
						pH Units	deg C	mg/L	pH Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
				SS-Lupin Mine Tailings Containment Area Effluent LUP-10		6.0-9.5	ng	ng	6.0-9.5	ng	ng	ng	ng	1.00	ng	ng
Location Groups	Sample Location	Location Name	Sample Date	Sample Type	Sample Name											
Pond 2	P2-E	P2-E	2025-Sep-18	N	LUP-POND-02	7.51	7.7	140	6.67	12	< 1.0	< 1.0	10	0.00065	< 1.0	58

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
deg C	degree Celsius
mg/L	milligram per litre
pH Units	potential of hydrogen units
ng	no guideline
SS-Lupin Mine Tailings Containment Area Effluent LUP-10	Nunavut Water Board, Water Licence No.2AM-LUP2032, Tailings Containment Area Monitoring Program Station LUP-10, Part E, Items 5 and 6

Table 4: Metals in Water

										Metals																																	
						pH (field)	Temp (field)	Hardness (as CaCO3)	pH (lab)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Calcium	Chromium (III+VI)	Cobalt	Copper	Iron	Lead	Lithium	Magnesium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
					RDL			**0.5**		**0.003**	**0.0006**	**0.0002**	**0.01**	**0.001**	**0.02**	**0.02**	**0.3**	**0.3**	**0.001**	**0.0003**	**0.001**	**0.06**	**0.0002**	**0.02**	**0.2**	**0.2**	**0.004**	**0.0019**	**0.0002**	**0.0005**	**0.1**	**0.3**	**0.0002**	**0.5**	**0.0001**	**0.5**	**0.02**	**0.0002**	**0.001**	**0.001**	**0.0001**	**0.001**	**0.003**
						pH Units	**deg C**	**mg/L**	**pH Units**	**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**	**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**	**mg/L**
					SS-Lupin Mine Tailings Containment Area Effluent LUP-10	6.0-9.5	ng	ng	6.0-9.5	ng	ng	0.60	ng	ng	ng	ng	ng	ng	ng	ng	0.30	ng	0.20	ng	ng	ng	ng	ng	ng	0.40	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	0.80
Location Groups	**Sample Location**	**Location Name**	**Sample Date**	**Sample Type**	**Sample Name**																																						
Pond 2	P2-E	P2-E	2025-Sep-18	N	LUP-POND-02	7.51	7.7	140	6.67	0.13	< 0.00060	0.0042	0.018	< 0.0010	0.042	0.16	41	38	< 0.0010	0.029	0.0041	0.14	< 0.00020	0.020	9.1	8.7	0.83	< 0.0019	< 0.00020	0.076	< 0.10	3.2	< 0.00020	1.5	< 0.00010	31	0.17	< 0.00020	< 0.0010	0.0011	< 0.00010	< 0.0010	0.20

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
µg/L	microgram per litre
deg C	degree Celsius
mg/L	milligram per litre
pH Units	potential of hydrogen units
ng	no guideline
SS-Lupin Mine Tailings Containment Area Effluent LUP-10	Nunavut Water Board, Water Licence No.2AM-LUP2032, Tailings Containment Area Monitoring Program Station LUP-10, Part E, Items 5 and 6