



NUNAVUT WATER BOARD

WATER LICENCE NO. 2AM-LUP1520

(Reissued August 19, 2015)



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LICENCE NO. 2AM-LUP1520

Pursuant to the Nunavut Waters and Nunavut Surface Rights Tribunal Act and the Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada, the Nunavut Water Board, hereinafter referred to as the Board, hereby grants to

LUPIN MINES INCORPORATED

(Licensee)

1204 – 700 WEST PENDER STREET, VANCOUVER, B.C. V6C 0A3

(Mailing Address)

hereinafter called the Licensee, the right to alter, divert or otherwise use water or deposit waste for a period subject to restrictions and conditions contained within this Licence:

Licence Number/Type:	<u>2AM-LUP1520 / TYPE "A"</u>
Water Management Area:	<u>QUEEN MAUD GULF WATERSHED (30)</u>
Location:	<u>LUPIN MINE KITIKMEOT REGION, NUNAVUT</u>
Purpose:	<u>USE OF WATER AND DEPOSIT OF WASTE</u>
Description:	<u>MINING UNDERTAKING: CARE AND MAINTENANCE PHASE AND TRANSITION PHASE</u>
Quantity of Water not to be Exceeded:	<u>5,000 CUBIC METRES <i>PER</i> YEAR DURING CARE & MAINTENANCE PHASE OR 500,000 CUBIC METRES <i>PER</i> YEAR DURING TRANSITION PHASE</u>
Date Licence Reissuance:	<u>AUGUST 19, 2015</u>
Expiry of Licence:	<u>AUGUST 18, 2020</u>

This Licence reissued, (**Motion Number: 2015-17-P11-06**) and recorded at Gjoa Haven, Nunavut includes and is subject to the annexed conditions.

Thomas Kabloona
Nunavut Water Board
Chair

APPROVED BY: _____
Minister of Aboriginal Affairs
and Northern Development
Canada

DATE: _____



PART A SCOPE, DEFINITIONS AND ENFORCEMENT

1. SCOPE

This Licence authorizes Lupin Mines Incorporated (LMI or the Licensee) to use Water and deposit Waste during activities and undertakings carried out in support of the Care and Maintenance Phase and the Transition Phase at the Lupin Mine (Lupin or the Project), for an undertaking categorized as Mining under *Schedule 1* of the Regulations. The Project is located on the west shore of Contwoyto Lake, approximately 285 kilometres southeast of Kugluktuk, within the Kitikmeot Region, Nunavut, at the following general geographical coordinates: Latitude: 65° 46' N and Longitude: 111° 14' W.

Lupin Mines Incorporated is authorised to undertake the following activities during the Care and Maintenance Phase and Transition Phase of the Project:

- Use Water in accordance with thresholds established for each of the respective phases of the project;
- Deposit of tailings slurry into the Tailings Containment Area (TCA);
- Deposit of tailings paste into underground works;
- Deposit and treatment of Sewage into the Sewage Disposal Facilities;
- Discharge of Effluent from Tailing Containment Area (TCA);
- Discharge of Effluent from Sewage Disposal Facilities;
- Progressive Abandonment and Reclamation of Mine facilities;
- Carryout the required Monitoring Program;
- Care and Maintenance of site facilities and infrastructure, including:
 - Mining and Milling structures
 - Water Supply Facility
 - Mine site camp facilities
 - Tailings Containment Area (TCA)
 - Tailings Line and associated facilities
 - Sewage Disposal Facilities
 - Mine site roads
 - Mine site airstrip
 - Breakwater and Causeway
 - Fuel Storage Facilities
- Construct and Operate an on-site Landfarm Facility to treat petroleum hydrocarbon contaminated soils generated by the Project;
- Changes to the frequency at which inspections of site infrastructure and site facilities are conducted to levels that are commensurate with the Care and Maintenance Phase and Transition Phase of the Project;
- Changes to the Monitoring Program associated with the Project to include minor updates to the description of monitoring stations, minor reductions and increases in the type of parameters being monitored and the frequency at which specific parameters are being monitored



- Changes in the frequency at which updated financial reclamation security assessments for the project must be submitted to the Board for review and/or approval; and
 - Use of an existing or historical, on-site Landfill Facility to dispose of non-hazardous and non-combustible Waste generated by the Project.
- b. This Licence is issued subject to conditions contained herein with respect to the use of Water and the deposit of Waste of any type, in any Waters or in any place under any conditions where such Waste or any other Waste that results from the deposits of such Waste may enter any Waters. Whenever new Regulations are made or existing Regulations are amended by the Governor in Council under the Act, or other statutes imposing more stringent conditions relating to the quantity, type or manner under which any such Waste may be so deposited, this Licence shall be deemed to be subject to such requirements.
- c. Compliance with the terms and conditions of this Licence does not absolve the Licensee from the responsibility for compliance with all applicable legislation, guidelines and directives.
2. **DEFINITIONS**
- a. The Licensee shall refer to [Schedule A](#) for definitions of terms used in this Licence.
3. **ENFORCEMENT**
- a. Failure to comply with this Licence may be a violation of the Act, subjecting the Licensee to the enforcement measures and the penalties provided for in the Act.
- b. All inspection and enforcement services regarding this Licence will be provided by Inspectors appointed under the Act.
- c. For the purpose of enforcing this Licence and with respect to the use of Water and deposit of Waste by the Licensee. Inspectors appointed under the Act hold all powers, privileges and protections that are conferred upon them by the Act or by other applicable laws.

PART B **GENERAL CONDITIONS**

1. The Water use fees, payable to the Receiver General for Canada, shall be sent to the Board annually for the rights to the use of Waters in accordance with section 12 of the *Regulations*. Fees, which must be paid in advance, for the rights to use of Waters during the Care and Maintenance Phase and the Transition Phase of the Project, shall be based on maximum Water volumes authorized under Part D, Item 2, and Part D, Item 3 of the Licence, respectively.



2. The Licensee shall file an Annual Report with the Board no later than the 31st of March, of the year following the calendar year being reported. The Annual Report for the project shall be developed and submitted in accordance with [Schedule B](#) of the Licence, unless otherwise approved by the Board in writing.
3. The Licensee shall, install, operate and maintain meters, devices or other such methods used for measuring the volumes of Water used and Waste discharged to the satisfaction of an Inspector.
4. The Licensee shall maintain to the satisfaction of an Inspector, all the signs necessary to identify the stations of the “Monitoring Program”, detailed in Schedule J.
5. The Licensee shall maintain a copy of this Licence at the site of operation at all times in English, Inuinnaqtun and Inuktitut.
6. Any communication with respect to this Licence shall be made in writing to the attention of:

Manager of Licensing
Nunavut Water Board
P. O. Box 119
Gjoa Haven, NU X0B 1J0
Telephone: (867) 360-6338
Fax: (867) 360-6369
Email: licensing@nwb-oen.ca

7. Any notice made to an Inspector shall be made in writing to the attention of:

Water Resources Officer
Aboriginal Affairs and Northern Development Canada
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0
Telephone: (867) 975-4295
Fax: (867) 979-6445

8. The Licensee shall submit one (1) paper copy and one (1) electronic copy of all reports, studies, and plans required under this Licence. Reports and/or studies and plans submitted to the Board by the Licensee shall include an executive summary in English, Inuinnaqtun and Inuktitut.
9. The Licensee shall ensure that any document or correspondence submitted by the Licensee to the Board is received and acknowledged by the Manager of Licensing.
10. This Licence is assignable as provided in section 44 of the Act.



11. The Licensee shall, for all Plans submitted under this Licence, include a proposed timetable for implementation. Plans submitted that require approval or acceptance, cannot be undertaken without subsequent written Board approval and/or direction. The Board may alter or modify a Plan if necessary to achieve the legislative objectives and will notify the Licensee in writing of acceptance, rejection, or alteration of the Plan. Plans or drawings submitted to the Board for information purposes only, generally do not require the Board's approval prior to implementation; however, the Board reserves the right to accordingly request revisions to those Plans or drawings.
12. In the event that a Plan is found unacceptable to the Board, the Licensee shall provide a revised version of the Plan to the Board for review and/or approval within sixty (60) days following notification by the Board, or within the timeframe specified in Board's notification to the Licensee.
13. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board.
14. Every Plan to be carried out pursuant to the terms and conditions of this Licence shall become a part of this Licence, and any additional terms and condition imposed upon the Licensee through the approval of a Plan by the Board, shall become part of this Licence. All terms and conditions of the Licence should be contemplated in the development of a Plan where appropriate.
15. The Licensee shall review the Plans and/or Manuals referred to in this Licence as required by changes in operation and/or technology and modify the Plans and/or Manuals accordingly. Revisions to the Plans or Manuals are to be submitted in the form of an Addendum to be included with the Annual Report required by Part B, Item 2, complete with a revisions list detailing where significant content changes are made.
16. The expiry or cancellation of this Licence does not relieve the Licensee from any obligations imposed by the Licence, or any other regulatory requirement.
17. The Licensee shall refer to the [Schedules](#) included as appendices in this Licence for instructive details regarding relevant requirements associated with specific terms and conditions in the main body of the Licence as well as for assistance with aspects of clarity and interpretation of respective Licence terms and conditions.
18. The Licensee shall submit to the Board for processing, at least nine (9) months prior to the proposed date for recommencing the Operations Phase of the Project and associated activities, an application to renew and/or or amend the Licence that includes but is not limited to updated management plans, any changes to monitoring and inspection requirements, an updated security assessment, and other requirements stipulated in this Licence.



PART C **CONDITIONS APPLYING TO SECURITY**

1. The Licensee shall, within sixty (60) days following approval of the Licence by the Minister, furnish and maintain reclamation security with the Minister, in the amount of \$25.5 million dollars, in the form that is satisfactory to the Minister.
2. The Licensee shall furnish and maintain such further or other amounts as may be required by the Board based on required periodic estimates of current mine reclamation liability.
3. The Licensee or the Minister may apply to change the amount of security held under Part C, Item 1 and/or Part C, Item 2 of the Licence. Any request to change the amount of security shall be supplemented by submission(s) that include supporting evidence to justify the request and will be processed by the Board as an amendment to the terms and conditions of the Licence.
4. The Licensee shall, in the year 2017, reassess and update the reclamation security for the Project and submit to the Board for review a copy of the updated assessment on or before September 30, 2017.
5. The Licensee shall, with the exception of an amendment application submitted by the Minister under Part C, Item 3, submit an updated security assessment as part of any application to renew and/or amend the Licence, or notification to commence active reclamation of the Project site, if the application is submitted prior to, or subsequent to the assessment required under Part C, Item 5. The updated security assessment shall take into consideration the latest version of RECLAIM and address any changes to the reclamation security previously assigned under Part C, Items 1, 2, 3, 4, and 5 as well as any changes in the Project scope associated with the application.

PART D **CONDITIONS APPLYING TO WATER USE**

1. The Licensee shall obtain all fresh Water for the mining undertaking, from Contwoyto Lake, at monitoring station LUP-01 using the Water Supply Facility.
2. The annual volume of Water withdrawn from Contwoyto Lake for all uses under this Licence, during the current Care and Maintenance Phase of the Project, shall not exceed 5,000 cubic metres.
3. The annual volume of Water withdrawn from Contwoyto Lake for all uses under this licence, during the Transition Phase of the Project, shall not exceed 500,000 cubic metres.
4. The Licensee shall equip the fresh water intake structure with a screen of an appropriate mesh size to ensure that fish are not entrained and shall withdraw water at a rate such that fish do not become impinged on the screen.



5. The Licensee shall, during the Care and Maintenance Phase of the Project, conduct inspections of water and Waste management structures on a bi-weekly basis during freshet (approx. May and June), and on a monthly basis during the remainder of the open water period (approx. July - October). All records of the inspections and findings must be maintained for review, upon the request of the Board or an Inspector
6. The Licensee shall provide at least sixty (60) days' notice to the NWB and an Inspector indicating the date on which the project will shift from the Care and Maintenance Phase to the Transition Phase. The notice shall include, at a minimum, the duration of the Transition Phase, the purposes for which Water will be used during the Transition Phase, and the amount of fees prorated and paid in advance of the maximum volume of water authorized for the Transition Phase (Refer to Schedule D).
7. The Licensee shall, during the Transition Phase of the Project, conduct weekly inspections of all Water and Waste management structures during periods of flow and maintain records of the inspections and findings for review, upon the request of the Board and/or Inspector.
8. The Licensee shall implement measures to prevent the generation and deposition of dust and/or sediment into Water arising from road and airstrip use.

PART E CONDITIONS APPLYING TO WASTE DISPOSAL AND MANAGEMENT

1. The Licensee shall discharge all Tailings into the Tailings Containment Area, underground as Backfill, or to other locations in accordance with document entitled *A Guide to the Management of Tailings Facilities* (Mining Association of Canada, 2011) or as otherwise approved by the Board in writing.
2. The discharge of Effluent from the Tailings Containment Area at Monitoring Station LUP-10 shall commence no sooner than July 15 of any calendar year unless otherwise approved by the Board in writing.
3. The discharge of Effluent from the Tailings Containment Area shall not exceed a rate of 70,000 cubic metres per day, unless otherwise approved by the Board in writing.
4. The Licensee shall provide at least ten (10) days' notice to an Inspector prior to any planned Discharge from any facilities design to contain, withhold, divert or retain Water or Wastes. The notice shall include an estimated volume proposed for Discharge, duration of Discharge and the receiving location.



5. All Effluent discharged from the Tailings Containment Area at Monitoring Program station LUP-10, shall not exceed the following Effluent quality limits:

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		

6. The Tailings Containment Area shall be constructed, operated and maintained to engineering standards such that:
- A minimum Freeboard of 1.0 metre shall be maintained at all times or as recommended by a Geotechnical Engineer and as approved by the Board in writing;
 - Seepage from the Tailings Containment Area is minimized;
 - Any Seepage that occurs is collected and returned immediately to the Tailings Containment Area;
 - Erosion of constructed facilities is addressed immediately;
 - The solids fraction of the mill Tailings shall be permanently contained within the Tailings Containment Area or underground as Backfill;
 - Implement measures to ensure that the Tailings Containment Area is adequately covered or managed, including the use of approved binding agents, so as to prevent windblown tailings from impacting other areas of the project site;
 - During care and maintenance, inspections shall be carried out on a bi-weekly basis during freshet (approx. May and June), and monthly during the remainder of the open water period (approx. July - October) of the following:
 - collection and return of seepage in Dam 2;
 - water levels in ponds 1 and 2, and cells 3 and 5;
 - general surface erosion and anomalies on dams;
 - tension crack in Dam M. If water levels in the ponds rise, then inspections shall be carried out bi-weekly during the open water season (approx. May - October); and



- v. Records of these inspections shall be kept for review upon the request of an Inspector, or as otherwise approved by the Board. More frequent inspections shall be performed at the request of an Inspector.
 - h. More frequent inspections shall be performed at the request of an Inspector; and
 - i. An inspection of the Tailings Containment Area shall be carried out annually during ice free, open-water conditions by a Geotechnical Engineer. The Engineer's report shall be submitted to the Board within sixty (60) days following the inspection, and shall include a cover letter from the Licensee outlining an implementation plan to respond to the Engineer's recommendations.
7. The Licensee shall continue to implement measures to ensure that the Tailings Containment Area is adequately covered or managed, including the use of approved binding agents, so as to prevent windblown from impacting other areas of the project site.
 8. The Licensee shall direct all Sewage to the Sewage Lakes Disposal Facilities or as otherwise approved by the Board in writing.
 9. All Effluent discharged from the Sewage Lakes Disposal Facilities at Monitoring Program monitoring station LUP-14, shall not exceed the following Effluent quality limits:

Parameter	Maximum Concentration of Any Grab Sample (mg/L)
Total Arsenic	0.05
Total Copper	0.20
Total Lead	0.05
Total Nickel	0.30
Total Zinc	0.50
Total Suspended Solids	35
BOD ₅	30
Fecal Coliforms	1000 colony forming units/100 mL
Oil and Grease	No Visible sheen
The Effluent discharged shall have a pH between 6.0 and 9.5	

10. All Effluent discharged from the Bulk Fuel Storage Facility and the Landfarm Facility at Monitoring Program stations LUP-27 and LUP-28, respectfully, shall not exceed the following Effluent quality limits

Parameter	Maximum Concentration of Any Grab Sample (mg/L)
pH	6.0 – 9.0
Total Suspended Solids (TSS)	15.0
Total Oil and Grease	5.0 and no visible sheen
Total Ammonia	2.0



Total Lead	0.01
Benzene	0.37
Toluene	0.002
Ethyl Benzene	0.090

11. The Licensee shall confirm compliance with respective Effluent quality limits in Part E, Items 5, 9 and 10, prior to Discharge.
12. The Licensee shall Discharge all Minewater to the Tailings Containment Area or to the Sewage Lakes Disposal Facilities, unless otherwise approved by the Board in writing.
13. The Licensee shall submit to the Board for approval in writing, a proposal for the disposal of Minewater at a location other than that specified in Part E, Item 12. The proposal shall describe options for the Discharge of Minewater, data on the quantity and quality of the Minewater, and the alternative options for Minewater treatment and disposal.
14. The Licensee shall implement the proposal specified in Part E, Item 13, as approved by the Board in writing.
15. The Licensee shall remove or backhaul Hazardous Wastes generated during all phases of the Project so as to prevent excessive buildup. Hazardous waste shall be stored and transported to an approved Hazardous Waste disposal facility for disposal, in accordance with the Government of Nunavut – Department of Environment, *Environmental Guidelines for the General Management of Hazardous Waste* (revised 2010) and the Transportation of dangerous Goods Regulation (SOR/2014-306)
16. The Licensee shall maintain records of all Waste backhauled and confirmation of proper disposal through the use of Waste manifest tracking systems and registration with the Government of Nunavut, Department of Environment.
17. The Licensee is authorized to dispose of relevant inert, non-hazardous and non-combustible waste generated by the Project at the existing Landfill Facility.
18. The Board has approved the Plan entitled *Lupin Mine, Nunavut, Canada Landfill Management Plan*, dated July 2014 and submitted for the Landfill Facility authorized in Part E, Item 17.
19. All Effluent discharged from the Landfill Facility at Monitoring Station LUP-31, into the Receiving Environment, shall not exceed the following Effluent quality limits:

Parameters	Maximum Concentration of Any Grab Sample (mg/L)
Total Arsenic	0.50
Total Copper	0.30
Total Lead	0.20
Total Nickel	0.50



Total Zinc	0.50
Total Suspended Solids	15
Oil and Grease	No Visible Sheen
pH	Between 6.0 and 9.5

20. Effluent exceeding the limits set out in Part E, Item, 19 shall be collected and treated or disposed of at an approved facility, or as otherwise approved by the Board.
21. The Licensee is authorized to treat petroleum hydrocarbon contaminated soil generated by the Project at the proposed on-site Landfarm Facility, included as part of the scope of the Application, or as otherwise approved by the Board in writing. All soil must be treated to meet the appropriate post-treatment, land-use criteria outlined in the Canadian Council of Ministers of the Environment's (CCME) *Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil* (2008) and the Government of Nunavut – Department of Environment's *Guidelines for Contaminated Site Remediation* (Revised 2009).
22. The Board has approved the Plan entitled, Lupin Mine, Nunavut, Canada, Landfarm Management Plan, dated December 2014, submitted for the Landfarm Facility authorized in Part E, Item-21.
23. The Licensee shall, in consultation with an with an Inspector, establish Discharge locations, as required, for the facilities authorized under Part E, Item 17 and 21 in this Licence.
24. The Licensee shall treat, as required, the Effluent generated by the Landfarm Facility such that the Effluent discharged shall not exceed the Effluent quality limits established under Part E, Item 10, prior to Discharge into the Receiving Environment.
25. The Licensee shall, in consultation with an Inspector and an Engineer, at least sixty (60) days prior to the initial use of the facilities, install monitoring wells consisting of at least one (1) up gradient and two (2) down gradient wells, at the Landfill Facility and the Landfarm Facility. Water samples collected from the monitoring wells shall be analyzed for criteria included under Part E, Item 19, and Part E, Item 10, respectively.
26. The Licensee shall, during 2015, conduct a detailed sampling program within the vicinity of the Tailings Containment Area and other areas identified or suspected of being impacted by windblown Tailings associated with the Project. A written report detailing the sampling results along with relevant analyses shall be submitted to the Board for review by December 31, 2015.
27. The Licensee shall determine, prior to disposal at the Landfill Facility, that residue generated from the incineration or combustion of waste is non-hazardous. If the residue is determined unsuitable for disposal at the Landfill facility, the Licensee shall direct the Waste to an appropriate facility for disposal. The records of any analytical results and volume of ash generated and deposited shall be maintained and provided to the Board or an Inspector upon request.



PART F **CONDITIONS APPLYING TO MODIFICATIONS**

1. The Licensee may, without written consent from the Board, carry out Modifications provided that such Modifications are consistent with the terms of this Licence and the following requirements are met:
 - a. The Licensee has notified the Board in writing of such proposed Modifications at least sixty (60) days prior to beginning the Modifications, that includes the requirements of Part F, Item 3;
 - b. Such modifications do not place the Licensee in contravention of the Licence or the Act;
 - c. Such Modifications are consistent with the NIRB Project Certificate;
 - d. The Board has not, within sixty (60) days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require more than sixty (60) days; and
 - e. The Board has not rejected the proposed Modifications.
2. Modifications, for which all of the conditions referred to in Part F, Item 1 have not been met, may be carried out only with approval of the Board in writing.
3. Notifications for modifications shall contain:
 - a. Description of the facilities and/or works to be constructed;
 - b. The proposed location of the structure(s);
 - c. Identification of any potential impacts to the Receiving Environment;
 - d. A description of any monitoring required, including sampling locations, parameters measured and frequencies of sampling;
 - e. Schedule for construction;
 - f. Drawings of engineered structures stamped by a Professional Engineer; and
 - g. Proposed sediment and erosion control measures.
4. The Licensee shall, within ninety (90) days of completion of the Modifications, provide as-built plans and drawings of the Modifications referred to in this Licence. These plans and drawings shall be stamped by an Engineer.

PART G **CONDITIONS APPLYING TO CONSTRUCTION**

1. Prior to construction of any dams, dykes or structures intended to contain, withhold, divert or retain Water or Wastes, the Licensee shall submit to the Board, for review, final design specifications and for construction drawings, signed and stamped by an Engineer.
2. The construction of engineered earthworks shall be supervised and field-checked by an Engineer. Construction records shall be maintained and made available at the request of the Board.



3. The Licensee shall submit a Construction Summary Report to the Board for review, within ninety (90) days following the completion of all new structures designed to contain, withhold, divert or retain Waters or Wastes. The Construction Summary Report shall be prepared by a qualified Engineer(s) in accordance with Schedule G, Item 1.
4. The Licensee shall submit to the Board for review, at least sixty (60) days prior to construction of the Landfarm Facility, for-construction design drawings and specifications, signed and stamped by an Engineer.
5. The Licensee shall only use fill material for construction that is derived from an approved source and that has been demonstrated to be non-potentially acid generating (Acid Rock Drainage) and have non-metal leaching characteristics.
6. The Licensee shall, when carrying out construction activities and other undertakings under this licence, implement sediment and erosion control measures to prevent entry of sediment into Water.
7. The Licensee shall inspect daily, all activities related to construction, for signs of erosion in order to prevent the entry of sediment into Water and maintain the measures required under Part G, Item 6.
8. The Licensee shall minimize disturbance to terrain, permafrost and drainage during on-site movement of the Licensee's and its contractors' equipment and personnel associated with construction activities.
9. The Licensee shall not store material on the surface of frozen streams or lakes except what is for immediate use.
10. The Licensee shall locate new equipment storage areas on gravel, sand or other durable land, at a distance of at least thirty-one (31) metres above the ordinary High Water Mark of any Water body in order to minimize impacts on surface drainage and Water quality.
11. The Licensee shall undertake necessary corrective measures to mitigate impacts on surface drainage resulting from the Licensee's activities.
12. The Licensee shall limit any in-stream activity to low flow Water periods. In-stream activity is prohibited during fish migration.
13. For the purposes of culvert and bridge installations, the Licensee shall not encroach on the natural channel width by the placement of abutments, footings or armoring below the ordinary High Water Mark of any water body.

PART H **CONDITIONS APPLYING TO EMERGENCY RESPONSE AND CONTINGENCY PLANNING**



1. The Board has approved the plan entitled *Lupin Mine Site Nunavut, Canada, Spill Contingency Plan (Care and Maintenance)*, dated March 2013 and submitted on February 28, 2014 as additional information with the Application.
2. The Licensee shall submit to the Board for review, within ninety (90) days of Approval of the Licence by the Minister, an update to the plan referred to in Part H, Item 1, to address relevant interveners' comments and recommendations including changes to Appendix 1 of the Plan to include a complete inventory of fuel and chemicals stored on site.
3. The Licensee shall submit to the Board for review, at least ninety (90) days prior to hauling material and supplies in support of the Project, a current copy of the Tibbit to Contwoyto Winter Road Joint Venture Spill Contingency Plan
4. The Licensee shall keep an up-to-date copy of the spill contingency plans at each site, at all times.
5. The Licensee shall prevent any chemicals, fuel or Wastes associated with the undertaking from entering any Water body.
6. The Licensee shall provide secondary containment for fuel and chemical storage as required by applicable regulations, standards and industry practice.
7. Licensee shall operate the Bulk Fuel Storage Facilities in accordance with all applicable legislation, guidelines, and industry practices, including:
 - a. *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products. (CCME, 2003)*
 - b. *National Fire Code of Canada, 2010, and*
 - c. *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (SOR/2008-197. June 12, 2008).*
8. The Licensee shall conduct emergency maintenance and servicing on equipment in designated areas, and shall implement measures to collect vehicle fluids and other Waste in order to prevent and/or contain spills.
9. If during the term of this licence, an unauthorized Discharge of Waste and or Effluent occurs, or if such a discharge is foreseeable, the Licensee shall:
 - a. Employ, as required, the contingency Plan referred to in Part H, Item 1;
 - b. Report the incident immediately via the 24-Hour Spill Reporting Line at (867) 920-8130 and to the Inspector at (867) 975-4295; and
 - c. For each spill occurrence, submit a detailed report to the Inspector, no later than thirty (30) days after initially reporting the event, which includes the amount and



type of spilled product, the GPS location of the spill, and the measures taken to contain, clean up and restore the spill site.

10. The Licensee shall, in addition to Part H, Item 9, regardless of the quantity of releases of harmful substances, report to the NWT/NU Spill Line if the release is near or into a Water body.

PART I **CONDITIONS APPLYING TO ABANDONMENT, RECLAMATION, AND CLOSURE PLANNING**

1. The Board has approved the Plan entitled *Lupin Mine Site, Nunavut, Canada, Interim Abandonment and Restoration Plan (Care and Maintenance)*, dated March 2013, submitted as additional information with the Application and consisting of the following:
 - a. Figures;
 - b. Closure Plan for Tailings Containment Area;
 - c. Studies Related to Water Licence Requirements and in Support of Reclamation Planning;
 - d. Ecological Risk Assessment for Lupin Mine Tailings;
 - e. Response to Technical Review Comments on Lupin TCA A&R Plan; and
 - f. Cycle 3 Environmental Effects Monitoring Report, Investigation of Cause Reports and Addendum.
2. The Licensee shall, within ninety (90) days of approval of the Licence by the Minister, submit to the Board for review, an update to the plan referred to in Part I, Item 1, to address relevant comments and recommendations provided by intervening parties and the Board during the review process for the Application. Revisions to all plans should take into consideration the *Mine Site Reclamation Guidelines for the Northwest Territories* (INAC, 2007) and the *Mine Site Reclamation Policy* (INAC, 2002).
3. The Board has approved the Plan entitled *Lupin Mine Site Nunavut, Canada Care and Maintenance Plan (Care and Maintenance)*, dated March 2013, which was submitted as additional information with the Application and consisting of the following:
 - a. Lupin Mine Waste Management Plan (Solid and Hazardous)
 - a. Incinerator Operation and Maintenance Procedure
 - b. Lupin Mine Liquid Waste Management Plan
 - a. Water Quality Monitoring Plan Quality Assurance/ Quality Control Plan
 - c. Lupin Mine Wildlife Management Plan; and
 - d. Lupin Mine Fuel Containment Management Strategy
4. The Licensee shall, within ninety (90) days of approval of the Licence by the Minister, update and submit to the Board for review the plan(s) referred to in Part I, Item 3 to address relevant comments and recommendations provided by intervening parties during the review process for the Application. Revisions to all plans should take into consideration applicable regulations and guidelines.



5. The Licensee shall notify the Board in writing, at least sixty (60) days prior to, or upon initiating the process to achieve Recognized Closed Mine status.
6. The Licensee shall submit to the Board for approval, at least two (2) years prior to the final closure of the mine, a Final Abandonment, Reclamation and Closure Plan. The Plan shall be prepared in accordance with Schedule I, Item 1.
7. The Licensee shall notify the Board in writing, as soon as is practically possible, of any change in the status of the mine or activities associated with the Mine. This notice shall include a summary of Plans and a Schedule for anticipated activities related to the Care and Maintenance, the Transition Phase or the Final Closure of the Mine and associated infrastructure.
8. Notwithstanding the time schedule referred to in the Interim Abandonment, Reclamation and Closure Plan, in Part I, Item 1, the Licensee shall implement Progressive Reclamation, including progressive covering of the tailings and re-vegetation where feasible, as soon as is realistically possible.
9. The Licensee shall submit to the Board for review, as part of any application to amend and/or renew the Licence, or to commence active reclamation of the Project site, an updated or revised version of the Environmental Site Assessment conducted for the Project in 2006.
10. The Licensee shall, as part of the updated Environmental Site Assessment required under Part I, Item 9, conduct a detailed rock characterization study or program to determine the total quantity (inventory) of Potentially Acid Generating (PAG) material associated with the Project site and identify any potential contamination that may be linked to such material. A written report of the results obtained and analyses conducted shall be submitted to the Board for review as part of any application to amend and/or renew the Licence, or notification to commence active reclamation of the Project site.

PART J CONDITIONS APPLYING TO MONITORING

1. The Licensee shall carry out the Monitoring Program as *per* Table I of [Schedule J](#).
2. The Licensee shall provide the GPS co-ordinates, in degrees, minutes and seconds of latitude and longitude, of all locations where sources of Water are utilized for all purposes.
3. The Licensee shall determine the GPS co-ordinates, in degrees, minutes and seconds of latitude and longitude, of all locations where Wastes associated with the Project are deposited.



4. The quantity of ore milled shall be measured in tonnes and recorded monthly. The total volume of solids and the solid-to-solution ratio (%) of Waste discharged to the Tailings Containment Area and underground disposal as paste Backfill shall be recorded monthly.
5. All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of *Standard Methods for the Examination of Water and Wastewater*, or by such other methods approved by the Board in writing.
6. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
7. The Board has accepted the Plan, entitled "*Lupin Mine Site, Nunavut, Canada, Water Quality Monitoring Plan and Quality Assurance/Quality Control Plan*", included as a subset of the Care and Maintenance Plan in Part I, Item 3.
8. The Licensee shall submit to the Board for review, as part of any application to amend and/or renew this Licence or notification to commence active reclamation, a revised version of the Plan referred to in Part J, Item 7 that addresses the appropriate phase of the Project.
9. Additional monitoring requirements may be requested by the Inspector.
10. The Licensee shall include in the Annual Report required under Part B, Item 2, all data, monitoring results and information required by this Part and the associated Schedules.
11. The NWB may modify the Monitoring Program under Schedule J without a public hearing. Requests for changes to the Monitoring Program should be forwarded to the NWB in writing, and should include the justification and appropriate evidence to support the change.
12. The Licensee is responsible for all monitoring required during the Care and Maintenance Phase and the Transition Phase of the Project as set out in this Part. In the event the Licensee fails to carry out the monitoring requirements set out in this Part that are essential to ensuring the integrity of significant site components, including fuel storage, general site maintenance, Tailings Containment Area, Water and Sewage management, Canada shall carry out such monitoring during periods of highest risk to fresh Water.



SCHEDULES

Schedule A: Definition of Terms

Schedule B: General Conditions

Schedule G: Condition Applying Construction

Schedule H: Conditions Applying to Emergency Response and Contingency Planning

Schedule I: Conditions Applying to Abandonment, Reclamation, and Closure Planning

Schedule J: Condition Applying to the Monitoring Program



Schedule A - Definitions of terms

In this Licence, Licence No. 2AM-LUP1520:

“Abandonment” means the permanent dismantlement of a facility so it is permanently incapable of its intended use. This includes the removal of associated equipment and structures as defined in the Mine Site Reclamation Guidelines for the Northwest Territories (INAC, 2007);

“Act” means the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*;

“Acid Rock Drainage (ARD)” means the production of acidic leachate, seepage or drainage from underground workings, ore piles, waste rock, construction rock, tailings, and overburden that can lead to the release of metals to groundwater and surface water during the life of the mine and after mine closure;

“Addendum” means the supplemental text that is added to a full plan or report, usually included at the end of the document and is not intended to require a full resubmission of the revised report. It may also be considered as an appendix or supplement;

“Amendment” means a change to a term and condition of this Licence, not considered as a modification, which initiated by way of an application from the Licensee or induced by the Board, allowing for additions, deletions, and adjustments to specific terms and conditions of the Licence;

“Analyst” means an Analyst designated by the Minister under section 85 (1) of the *Act*;

“Annually” means, in the context of monitoring frequency, one sampling event occurring every 365 days with a minimum of 200 days between sampling events;

“Application” means the Type “A” Water Licence renewal and amendment application submitted by Lupin Mines Incorporated on February 28, 2014;

“Backfill” means a combination of any or all of a mixture of sand, cement, water or Tailings that is pumped underground and is used to strengthen/support mined out areas;

“Board” means the Nunavut Water Board (NWB) established under Article 13 of the *Nunavut Land Claims Agreement* and under section 14 of the *Act*;

“Bulk Fuel Storage Facility” means the facility, constructed to contain a nominal capacity of approximately 21.6 million litres of petroleum products and all associated infrastructure, as described in the Renewal Application dated January 15, 2008 and in the Application.

“Canadian Council of the Ministers of Environment (CCME)” means the organizations of Canadian Ministers of the Environment that sets guidelines for environmental protection across



Canada such as the Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life;

“**Care and Maintenance Phase**” refers to the current state, at the time of Licence issuance, of the Lupin Mine, a scenario in which the mine ceases Operations with the intent of resuming mining activities at some point in the future, as described in Indian and Northern Affairs Canada’s (INAC) *Mine Site Reclamation Guidelines for the Northwest Territories* (2007);

“**Chief Executive Officer**” means the Chair or Chairperson of the Nunavut Water Board;

“**Closure**” means when an Operator ceases operations at a facility without the intent to resume mining activities in the future;

“**Dam Safety Guidelines**” means the *Canadian Dam Association (CDA) Dam Safety Guidelines (DSG)*, (2007) or subsequent approved editions;

“**Discharge**” means the release of any water or waste to the receiving environment;

“**Effluent**” means the liquid discharge from any site water management facilities;

“**Engineer**” means a professional engineer registered to practice in Nunavut in accordance with the *Consolidation of Engineers and Geoscientists Act S. Nu 2008, c.2* and the *Engineering and Geoscience Professions Act S.N.W.T. 2006, c.16 Amended by S.N.W.T. 2009, c.12*;

“**Freeboard**” means the vertical distance between the water line and the crest on a dam or dyke's upstream slope;

“**Geotechnical Engineer**” means a professional engineer registered with the Association of Professional Engineers, Geologist and Geophysicists of Nunavut and whose principal field of specialization with the engineering properties of earth materials in dealing with man-made structures and earthworks that will be built on a site. These can include shallow and deep foundations, retaining walls, dams, and embankments;

“**Grab Sample**” means an undiluted quantity of material collected at a particular time and place that may be representative of the total substance being sampled at the time and place it was collected;

“**Greywater**” means the component of effluent produced from domestic use (i.e. washing, bathing, food preparation and laundering), excluding sewage;

“**Hazardous Waste**” means materials or contaminant which are categorized as dangerous goods under the *Transportation of Dangerous Good Act* (1992) and/or that is no longer used for their original purpose and is intended for recycling, treatment, disposal or storage;

“**High Water Mark**” means the usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to change the characteristics of the land (ref.



Department of Fisheries and Oceans Canada, Operational Statement: Mineral Exploration Activities);

“ICP Metals Scan” means for the purpose of the Licence elements detected using Inductively Coupled Plasma (ICP) mass spectrometer. Metal parameters should be consistent with baseline data previously collected, in particular Arsenic, Copper, Zinc, Nickel and Lead, and include any other metals of concern or interest;

“Inspector” means an Inspector designated by the Minister under section 85 (1) of the Act;

“Interim Closure and Reclamation Plan” means a conceptual detailed plan on the reclamation of mine components which will not be closed until the end of the mining operations, and operational detail for components which are to be progressively reclaimed throughout the mine life;

“Landfarm Facility” means the proposed facility to be designed and constructed for treating of petroleum hydrocarbon contaminated soil as described in the Application, including the document entitled *Landfarm Management Plan*, dated December 2014;

“Landfill Facility” means the existing or historical Waste disposal facility constructed for the purposed of treating non-hazardous and/or non-combustible Waste generated by the Project as described in the Application;

“Licence” means this Type “A” Water Licence No 2AM-LUP1520, issued by the Nunavut Water Board in accordance with the *Act*, to Lupin Mines Incorporated for the Care and Maintenance Phase and Transition Phase for the Lupin Mine, which involves a Mining undertaking;

“Licensee” means the entity to which Licence 2AM-LUP1520 is issued or assigned;

“Maximum Average Concentration” means the maximum allowable arithmetic mean of any four consecutive analytical results submitted to the Board in accordance with the sampling and analysis requirements specified in the "Monitoring Program";

“Maximum Average Concentration for Fecal Coliform”

“Metal Leaching” means the mobilization of metals into solution under neutral, acidic or alkaline conditions;

“Minewater” means groundwater or any water used in mining, which is pumped or flows out of any underground workings or open pit;

“Minister” means the Minister of Indian and Northern Affairs Canada (AANDC) also referred to as Aboriginal Affairs and Northern Development Canada (AANDC);

“Modification” means an alteration to a physical work that introduces new structure or eliminates an existing structure and does not alter the purpose or function of the work, but does



not include an expansion; changes to the operating system that are consistent with the terms of this Licence and do not require amendment;

“Monitoring Program” means the program to collect data on surface water and Ground Water quality to assess impacts to the environment of an appurtenant undertaking;

“Monthly” means, in the context of monitoring frequency, one sampling event occurring every thirty (30) days with a minimum of twenty one (21) days between sampling events;

“Nunavut Land Claims Agreement” (NLCA) means the *“Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada,”* including its preamble and schedules, and any amendments to that agreement made pursuant to it;

“Operations Phase” means the set of activities associated with mining, ore processing, and gold recovery, excluding activities linked to the Care and Maintenance Phase, the Transition Phase, construction and decommissioning, and activities and/or undertakings for which an amendment to Licence No.2AM-LUP1520 will be required;

“Progressive Reclamation” means those reclamation activities conducted during the operation period of the mine prior to modification of final closure, to modify and restore the land and water to standards acceptable to the board;

“Quality Assurance/Quality Control (QA/QC)” Quality Assurance means the system of activities designed to better ensure that quality control is done effectively; Quality Control means the use of established procedures to achieve standards of measurement for the three principle components of quality: precision, accuracy and reliability;

“Receiving Environment” means both the aquatic and terrestrial environments that receive any discharge resulting from the Project;

“Reclamation” means the process of returning the mine site and affected areas to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and with human activities;

“Recognized Closed Mine” means a recognized closed mine as defined by section (1) of the Metal Mining Effluent Regulations SOR/2002-222 dated 6 June 2002;

“Regulations” means the *Nunavut Waters Regulations SOR 2013/669 18th April, 2013*;

“Seepage” means any Water that drains through or escapes from any site structure designed to contain, withhold, divert or retain water or waste. Seepage also includes any flows that have emerged through open pits, runoff from waste rock and ore stockpile areas, quarries, Landfill, Landfarm and other facilities;

“Sewage” means all toilet wastes and greywater;



“Sewage Lakes Disposal Facilities” includes the sewage treatment area and the engineered structures designed to contain and treat Sewage as described in Drawing Number LUSEW95.DWG entitled "Lupin Mine-Sewage Lakes Disposal Plan-General Arrangement" updated March, 1995 and in the Application;

“Soil Quality Remediation Objectives (SQROs)” means the numerical concentration established as target value for soil quality remediation for contaminated sites as determined with guidance provided by the *Canadian Council of Ministers of the Environment (CCME)*;

“Sump or Sumps” A structure or depression that collects, controls, and filters liquid waste before it is released to the environment. This structure should be designed to prevent erosion while allowing percolation of liquid waste.

“Tailings” means material rejected from the mill after the recoverable valuable minerals have been extracted;

“Tailings Containment Area (TCA)” consists of the Tailings containment basin and the engineered structures designed to contain Tailings as described in Drawing Number LUTA195.DWG entitled "Lupin Mine-Tailings Impoundment Plan-General Arrangement" dated January, 1995 and as described in the Application:

“Transition Phase” refers to the phase in which project activities including Water use may “ramp up” within specific or allowable thresholds for a predefined period of time and for the purposes of assess operational requirements but not including active mining and milling operations.

“Use” means use as defined in section 4 of the Act;

“Waste” means waste as defined in section 4 of the Act;

“Waste Management Facilities” means all facilities designated for the storage, treatment, and disposal of all Waste generated by the project;

“Water” means water as defined in section 4 of the Act;

“Water Supply Facility” comprises the Fresh Water Intake and associated infrastructure as identified in Drawing Number LUWAT95.DWG entitled "Lupin Mine-Raw Water Supply Plan General Arrangement" updated March, 1995, and described in the Application;

“Weekly” means, in the context of monitoring frequency, one sampling event occurring every 7 days with a minimum of five (5) days between sampling events.



Schedule B - General Conditions

1. The Annual Report referred to in , shall include:
 - a. The monthly and annual quantities in cubic metres of Water pumped from Contwoyto Lake at Station Number LUP-01;
 - b. The monthly and annual quantities in cubic metres of treated Tailings Effluent discharged at Station Number LUP-10;
 - c. The monthly and annual quantities in cubic metres of Minewater discharged at Station Number LUP-11;
 - d. The monthly and annual quantities in cubic metres of treated Sewage Effluent discharged at Station Number LUP-14;
 - e. Details on the types and quantities of Hazardous Waste and chemicals stored on site
 - f. Tabular summaries of all data generated under the "Monitoring Program";
 - g. A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector;
 - h. A summary of modification and/or major maintenance work carried out on the Water supply and the Waste disposal facilities, including all associated structures;
 - i. A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken;
 - j. Where applicable, revisions as Addendums, with an indication of where changes have been made, for Plans, Reports, and Manuals;
 - k. Updated status of any progressive reclamation as it relates to tailings cover remediation and justification for not proceeding to full reclamation under Part I, Item 7;
 - l. A summary of public consultation and participation with local organizations and the residents of the nearby communities, including a schedule of upcoming community events and information sessions.
 - m. A summary of any abandonment and reclamation work completed during the year and an outline of any work anticipated for the next year;
 - n. Any other details on Water use or Waste disposal requested by the Board by the Board by November 1 of the year being reported.



Schedule D – Conditions Applying Water use

1. If the Licensee decides to amend and/or renew the Licence, the Licensee should include the following information as part of any Application to the Board:
 - a. The quantity of Water required for under the proposed renewed and/or amended licence;
 - b. Proposed sources or Water bodies from which the Water will be withdrawn;
 - c. Hydrology assessment of the Water sources or bodies from which all Water will be withdrawn;

Schedule G – Conditions Applying to Construction

1. The Construction Monitoring Report referred to in Part G, Item 3 shall include:
 - a. A summary of construction activities including photographic records before, during and after construction;
 - b. As-built drawings;
 - c. Documentation of field decisions that deviate from original plans and any data used to support these decisions;
 - d. Discussion of mitigation measures implemented during construction as well as their effectiveness;
 - e. Monitoring undertaken in accordance with Part G;
 - f. Blast vibration monitoring for any quarrying activity carried out in close proximity to fish bearing waters; and
 - g. Monitoring for sediment release from construction areas.



Schedule I – Conditions Applying to Abandonment, Reclamation and Closure Planning

1. The Final Abandonment, Reclamation and Closure Plan referred to in Part I, Item 6 shall, be developed in accordance with the *Mine Site Reclamation Guidelines for the Northwest Territories, 2007* and be consistent with the *INAC Mine Site Reclamation Policy for Nunavut, 2002* as well as address the following:
 - a. Disposal information for unsold accommodation facilities;
 - b. Disposal of contaminated soils;
 - c. Inspections for fuel/oil spills and inspection of fuel containment facilities;
 - d. Information on the geotechnical requirements, slope and the placement of rip rap along the downstream side of Dam 4;
 - e. Detailed drawings, activities, construction schedules and techniques for the breakwater and causeway; and
 - f. Incorporation of recommendation made in the report entitled "Closure Cost Estimate and Scoping of Mine Closure Issues, Lupin Mine NWT," (Golder Associates, 1997);
 - g. An outline of methods to contain potential pore water expulsion from the TCA;
 - h. Identification of contaminated soil sites at the mine site;
 - i. A summary of existing data for background levels of metals in the area, and identification of needs for verification of data or reassessment with modern detection limits;
 - j. Soil Quality Remediation Objectives along with CCME Guidelines and the Government of Nunavut *Environmental Guideline for Site Remediation*;
 - k. Environmental Site Assessment plans in accordance Canadian Standards Association (CSA) criteria;
 - l. An evaluation of the Human Health and Ecological Risk associated with closure options;
 - m. Description of reclamation activities outlined in the Interim Abandonment, Reclamation and Closure Plan.
 - n. An implementation schedule for the completion of reclamation; and
 - o. A detailed monitoring program.



Schedule J – Conditions Applying to the Monitoring Program

Table 1 – Monitoring Requirements for Licence No. 2AM-LUP1520			
Station ID	Location	Frequency	Parameter
LUP-01	Freshwater Intake from Contwoyto Lake	Annually	pH Conductivity Total Suspended Solids (TSS) Fecal Coliform Total Metals (ICP Metals Scan) Total Mercury
		Monthly - Quantity of water measured and recorded in cubic metres	
LUP-10	Pond 2 discharge at Dam 1A	Daily during periods of Discharge	pH Hardness Alkalinity Total Suspended Solids (TSS) Total Metals (ICP Metals Scan) Total Cyanide Nitrate Nitrite
		Daily - Quantity of treated effluent discharged, measured and recorded in cubic metres	
		Weekly during periods of discharge from the Tailings Containment Area	Ammonia (NH ₄) Radium (²²⁶ RA)
		Monthly (no less than one month Intervals) commencing with the first day of decant	Total Cyanide Bioassay
LUP-10 (LUP-102)	Internal station in TCA Pond 2, approximately 100 m upstream from siphon intake	Twice annually, prior to initiation of decant and just prior to termination of decant	Bioassay Total Metals (ICP Metals Scan) Ammonia (NH ₄) Radium (²²⁶ RA) Total Cyanide Mercury Ammonia (NH ₄)



			Alkalinity Total Suspended Solids Nitrate Nitrite
LUP-11	Minewater discharge at automatic sampler in the mill	Not Active	
LUP-12	Mill tailings taken at the mill	Not Active	
LUP-14	Decant structure from the Sewage Lakes Disposal Facilities	First day of discharge and then monthly thereafter during periods of flow	Alkalinity Ammonia (NH ₄) BOD ₅ Hardness pH Total Metals (ICP Metals Scan) Total Suspended Solids Nitrite Nitrate Fecal Coliform Total Phosphorus Total Orthophosphorus - (OPO ₄) Total Kjeldahl Nitrogen (TKN)
		Monthly - Quantity of treated effluent discharged, measured and recorded in cubic metres	
LUP-15	Discharge from TCA Pond 1 (east pond) into TCA Pond 2 (west pond)	Not Active	
LUP-16	TCA Pond 2 at center	Not Active	
LUP-17	TCA Pond 2 upstream of Station LUP-10	Not Active	
LUP-19	East end of Seep Creek in Dam 2 Lake	Not Active	
LUP-20	West end of Seep Creek before discharge into Unnamed Lake	Weekly during discharge from the Tailings Containment Area	Alkalinity Ammonia (NH ₄) Hardness pH Total Cyanide



			Total Metals (ICP Metals Scan) Total Suspended Solids
LUP-21	North end of Concession Creek before discharge into Unnamed Lake	Weekly during discharge from the Tailings Containment Area	Alkalinity Ammonia (NH ₄) Hardness pH Total Cyanide Total Metals (ICP Metals Scan) Total Suspended Solids
		Weekly at mid-depth and when bioassay sample is collected at LUP-10 just prior to termination of decant	Nitrate (NO ₃) Ammonia (NH ₄)
		Monthly at mid-depth and when bioassay sample is collected at LUP-10 just prior to termination of decant	Total Metals (ICP Metals Scan) Cyanide Radium (²²⁶ RA)
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	Alkalinity Ammonia (NH ₄) Hardness pH Total Cyanide Total Metals (ICP Metals Scan) Total Suspended Solids
LUP-24	Inner Sun Bay near 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	Alkalinity Ammonia (NH ₄) Hardness pH Total Cyanide Total Metals (ICP Metals Scan) Total Suspended Solids
		Weekly at Mid-depth	Ammonia (NH ₄) Nitrate (NO ₃)
		Monthly at Mid-depth	Total Cyanide Total Metals (ICP Metals Scan) Radium (²²⁶ RA)
LUP-25	Outer Sun Bay (Total Rather than specific	Weekly at mid-depth, commencing one (1) week prior	Alkalinity Ammonia (NH ₄)



	metals)	to discharge from the Tailings Containment Area, and concluding two (2) weeks after cessation of the discharge	Hardness pH Total Cyanide Total Metals (ICP Metals Scan) Total Suspended Solids
LUP-26	Contwoyto Lake in bay east of water intake	Not Active	
LUP-27	Bulk Fuel Storage Facility	Once prior to discharge and weekly during periods of discharge	pH Total Suspended Solids Total Oil and Grease BTEX Total Ammonia Total Metals (ICP Metals Scan) Hardness Alkalinity Nitrite (NO ₂) Nitrate (NO ₃)
LUP-28	Discharge from the Landfarm Facility	Once prior to discharge and weekly during periods of discharge	pH Total Suspended Solids Total Oil and Grease BTEX Total Ammonia Total Metals (ICP Metals Scan) Hardness Alkalinity Nitrite (NO ₂) Nitrate (NO ₃)
LUP-29	Landfarm Facility Monitoring Well – Up gradient	Monthly during periods of observed flow – June through September	Same as LUP-28
LUP-30a	Landfarm Facility Monitoring Well – Down gradient	Monthly during periods of observed flow – June through September	Same as LUP-28
LUP-30b	Landfarm Facility Monitoring Well – Down gradient	Monthly during periods of observed flow – June through September	Same as LUP-28
LUP-31	Seepage from the Landfill Facility	Monthly during periods of observed flow	Alkalinity Ammonia (NH ₄) Hardness pH Total Metals (ICP



			Metals Scan) Total Suspended Solids
LUP-32	Landfill Facility Monitoring Well – Up gradient	Monthly during periods of observed flow – June through September	Same as LUP-31
LUP-33a	Landfill Facility Monitoring Well – Down gradient	Monthly during periods of observed flow – June through September	Same as LUP-31
LUP-34b	Landfill Facility Monitoring Well – Down gradient	Monthly during periods of observed flow – June through September	Same as LUP-31