

File No: NWB2ULU9700

November 17, 1997

Mr. Hugh Ducasse  
Manager of Environment, Lupin  
Lupin Operation  
Bag No. 1  
Nisku, Alberta  
T0C 2G0

RE: Licence NWB2ULU9700 - Ulu Mine, Northwest Territories

Dear Mr. Ducasse,

I am pleased to sent you licence NWB2ULU 9700 duly approved by the Nunavut Water Board pursuant to its authority under Article 13 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada*.

Any communication or correspondence with respect to this licence shall be made in writing to the attention of Mr. Philippe di Pizzo, Executive Director of the Nunavut Water Board, at the address indicated above.

We trust everything will be to your satisfaction.

Sincerely,

Thomas Kudloo  
Chairperson

Enclosure: Licence NWB2ULU 9700

Cc: Ms. Shannon Pagotto, Indian and Northern Affairs Canada, Yellowknife  
Mr. Dan Elliott, Indian and Northern Affairs Canada, District Office  
Mr. Joe Ahmad, Nunavut Impact Review Board  
Ms. Wynet Smith, Kitikmeot Inuit Association



## **DECISION**

### **LICENCE NUMBER: NWB2ULU9700**

This is the decision of the Nunavut Water Board (NWB) with respect to an application for a licence dated March 7, 1997, made by:

### **Echo Bay Mines Limited**

to allow for mining and associated uses at the Ulu Mine, Northwest Territories.

With respect to this application, the NWB gave notice to the public that Echo Bay Mines Limited had filed an application. The NWB decided to waive the requirement for a public hearing in accordance with section 13.7.2 of the Nunavut Land Claims Agreement, and delegated its authority to approve the application to its Chairperson and Chief Administrative Officer pursuant to section 13.7.5 of the NLCA, as no concerns were expressed with regards to this application.

### **DECISION**

After having been satisfied that the Nunavut Impact Review Board decided not to screen this application pursuant to Part 4, Article 12 of the Nunavut Land Claims Agreement, the NWB decided that the application could proceed through the regulatory process. The NWB, having given due regard to the facts and circumstances, and to the purpose, scope and intent of the Nunavut Land Claims Agreement, determined that:

**Licence Number NWB2ULU9700 be issued subject to the terms and conditions contained therein.**

SIGNED this \_\_\_\_\_ day of November 1997 at Gjoa Haven, NT.

Thomas Kudloo  
Chair

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# LICENCE NWB2ULU9700

Pursuant to the Nunavut Land Claims Agreement (Article 13) the Nunavut Water Board, hereinafter referred to as the Board, hereby grants to

**ECHO BAY MINES LIMITED**

(Licensee)

of **LUPIN OPERATIONS**

**Bag No. 1, NISKU, ALBERTA T0C 2G0**

(Mailing Address)

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

Licence Number	<b>NWB2ULU9700</b>
Water Management Area	<b>NORTHWEST TERRITORIES</b>
Location	<b>ULU Mine (66° 55' N, 110° 58' W)</b>
Purpose	<b>WATER USE AND WASTE DISPOSAL</b>
Description	<b>ADVANCED EXPLORATION</b>
Quantity of Water Not to be Exceeded	<b>100 CUBIC METRES PER DAY</b>
Effective Date of Licence	<b>DECEMBER 1, 1997</b>
Expiry Date of Licence	<b>MAY 31, 2000</b>

Dated this \_\_\_\_ day of November 1997 at Gjoa Haven, NT.

Thomas Kudloo,  
Chairperson



## **PART A: SCOPE AND DEFINITIONS**

### **1. SCOPE**

- a. This licence entitles Echo Bay Mines Limited to use water and dispose of waste for industrial undertakings in gold mining at the Ulu Mine, Northwest Territories, (66°55 N, 110°58 W) as shown in Figure 1, appended to this licence.
- b. This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing 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 a future Nunavut Waters Act, or other statutes imposing more stringent conditions relating to the quantity or type of waste that may be so deposited or under which any such waste may be so deposited this Licence shall be deemed, upon promulgation of such Regulations, to be automatically amended to conform with such regulations; and
- c. Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with all applicable Federal, Territorial and Municipal legislation and with the requirement of the land use permit issued by the Kitikmeot Inuit Association.
- d. Prior to the storage of ore at the Lupin Mine Site (65°46N, 111°14W), the Licensee shall file an application for an amendment to Licence N7L2-0925 with the Board.

### **2. DEFINITIONS**

In this Licence: **NWB2ULU9700**

**“Average Concentration”** means the concentration as determined in Part B, Item 6 of the “Surveillance Network Program” submitted to the Board in accordance with the sampling and analysis requirements specified in the “Surveillance Network Program”;

**“Board”** means the Nunavut Water Board established under the Nunavut Land Claims Agreement;

**“Freeboard”** means the vertical distance between the water surface elevation and the lowest elevation of the effective water containment crest of the dam, dyke or other containment structure;

**“Greywater”** means all waters used for washing and cleaning purposes;

**“HTO”** means the “Hunters and Trappers Organization”;

## **PART A: DEFINITIONS (cont'd)**

**“Inspector”** means an Inspector designated by the Department of Indian and Northern Affairs Canada in a manner consistent with the Memorandum of Understanding between the Department of Indian and Northern Affairs and the Board;

**“Licensee”** means the individual or organization to whom licence NWB2ULU9700 is issued or assigned;

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

**“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.

**“Reclamation Trust Fund”** means a trust recognized by the Canadian Income Tax Act by which the beneficiary establishes, under the terms of a contract entered into with Her Majesty in right of Canada on or after January 1, 1996, funds set aside for the sole purpose of funding the reclamation of a mine;

**“Retention Pond”** means any natural or man-made depression designed to act as a settling facility for the purpose of separating solids from minewater or runoff water;

**“Settling/Neutralization Pond”** means any natural or man-made depression designed to act as a settling facility for the purpose of separating solids from runoff water associated with the ore storage facility;

**“Sewage”** means all toilet wastes;

**“Sewage Disposal Facilities”** means the area and engineered structures designed to contain and treat sewage and greywater;

**“Sump”** means an excavation for the purpose of catching or storing water in an underground working or at the bottom of a shaft;

**“Waste”** means any substance that, by itself or in combination with other substances found in water, would have the effect of altering the quality of any water to which the substance is added to an extent that is detrimental to its use by people or by any animal, fish or plant, or any water that would have that effect because of the quantity or concentration of the substance contained in it or because it has been treated or changed, by heat or other means;

**“Waste Disposal Facilities”** means all facilities designated for the disposal of waste, and includes the Sewage Disposal Facilities, and Solid Waste Disposal Facilities;

## **PART A: DEFINITIONS (cont'd)**

**“Waste Rock”** means all unprocessed rock materials that are produced as a result of mining operations and having no economical value; and

**“Water Supply Facilities”** comprises the area and associated intake infrastructure at West Lake.

## **PART B: GENERAL CONDITIONS**

- e. The water use fee shall be paid annually in advance as set out in Schedule 1 annexed to this licence.
2. The Licensee shall have posted and shall maintain a security deposit according to the following schedule:
  3. within thirty (30) days of issuance of this licence, an amount of \$250,000.00 dollars;
  4. Such further or other amounts as may be required by the Board based on annual estimates of current mine restoration liability in accordance with Part H, Item 3 and Part H, Item 4 of this Licence.
3. The security deposit may be applied to carry out work necessary to fulfil requirements of this licence where there is contravention of a condition of the licence and failure by the licensee to comply with a direction issued by the Board or by any other competent and authorized governmental body or official. This includes operational requirements as well as the provision of the Final Abandonment and Restoration Plan.

The Security Deposit shall be maintained until such time as the Board is satisfied that the Licensee has complied with all provisions of the approved Final Abandonment and Restoration Plan. This clause shall survive the expiry of this Licence or renewals thereof.
4. The Licensee may submit to the Board for approval the terms of reference for the establishment of a Reclamation Trust Fund. The Licensee shall implement the terms of the Trust Agreement only as, and when approved by the Board.
5. The licensee shall file a report with the Board no later than March 31 of the year following the calendar year reported which shall contain the following information:
  6. The monthly and annual quantities (in cubic metres) of water pumped from West Lake for industrial and camp purposes;
  7. The monthly and annual quantities (in cubic metres) of minewater pumped from underground;

## **PART B: GENERAL CONDITIONS (cont'd)**

- c. The monthly and annual quantities of solid waste removed from the Sewage Facilities for disposal;
  - d. Tabular summaries for all data and information generated under the “Surveillance Network Program”;
  - e. A summary of any construction work, modification and/or major maintenance work carried out on the Water Supply Facilities and Waste Disposal Facilities, including all associated structures;
  - f. Results from acid generating potential samples collected on ore and waste rock as referred to in Part D, Item 10;
  - g. A list of unauthorized discharges and summary of follow-up actions taken;
  - h. A progress report on any studies requested by the Board that relate to waste management, water use, and restoration, as well as a brief description of any future studies planned by the Licensee;
  - i. Any revisions or updates to the approved Contingency Plan, Abandonment and restoration Plan, and Operation/Maintenance Plan;
  - j. An executive summary in terms understandable to the general public translated into Inuinaqtun of all plans, reports, or studies conducted under this licence;
  - k. An updated estimate of the current mine restoration liability based upon the results of the mine restoration research, the mine development monitoring, and any modifications to the mine plan;
  - l. Any approved revisions to the approved Abandonment and Restoration Plan;
  - m. A summary of any abandonment and restoration work undertaken during the year and an outline of any work anticipated for the next year;
  - n. An updated estimate of the current camp restoration liability based upon the results of the camp restoration research, the camp development monitoring, and any modifications to the camp plan;
  - o. Public consultation/participation report describing consultation with local organizations and the residents of the nearby communities;
  - p. Provide brief summary of work done to address concerns or deficiencies listed in the inspection reports and/or compliance reports; and
  - q. Any other details on water use or waste disposal requested by the Board by November 1<sup>st</sup> of the year being reported.
6. All research and studies undertaken by the Licensee shall follow the “Ethical Principles for the Conduct of Research in the North,” Association of Canadian Universities for Northern Studies (1982).
  7. The Licensee shall comply with the “Surveillance Network Program” annexed to this Licence, and any amendment to the said “Surveillance Network Program” as may be made from time to time, pursuant to the conditions of this Licence.
  8. The “Surveillance Network Program” and compliance dates specified in the Licence may be modified at the discretion of the Board.

**PART B: GENERAL CONDITIONS (cont'd)**

9. The Licensee shall install metres or such devices, or use such methods as approved by the Board for measuring the volumes of water used and waste discharged. The metres and measuring devices or methods shall be operated and maintained to the satisfaction of an Inspector.
10. The Licensee shall continue to maintain the necessary signs to identify the stations of the "Surveillance Network Program." All postings shall be located and maintained to the satisfaction of an Inspector.
11. The Licensee shall ensure a copy of this Licence is maintained at the site of operation at all times.

**PART C: CONDITIONS APPLYING TO WATER USE**

12. The Licensee shall obtain all water from West Lake using the Water Supply Facilities or as otherwise approved by the Board.
2. The daily quantity of water withdrawn from West Lake shall not exceed 100 cubic metres.
3. The water intake hose used on the water pumps shall be equipped with a screen with a mesh size sufficient to ensure no entrainment of fish.

**PART D: CONDITIONS APPLYING TO WASTE DISPOSAL**

4. All minewater, should it be encountered, shall be directed to the Retention Pond or as approved by the Board.
2. All runoff and water pumped from the Retention Pond and Settling/Neutralization Ponds shall meet the effluent quality standards specified in Part D, Item 4.
3. The Licensee shall provide at least ten (10) days notice to an Inspector prior to any planned discharges of waste from the Retention Pond and Settling/Neutralization Ponds during each calendar year.
4. All waste discharged by the Licensee from the Retention Pond, Settling/Neutralization Ponds, waste rock storage areas, and ore storage runoff, shall meet the following effluent quality requirements:

**PART D: CONDITIONS APPLYING TO WASTE DISPOSAL (cont'd)**

PARAMETER	MAXIMUM AVERAGE CONCENTRATION	MAXIMUM CONCENTRATION	CONCENTRATION OF ANY GRAB SAMPLE
Total Arsenic	0.50 mg/l		1.00 mg/l
Total Copper	0.30 mg/l		0.60 mg/l
Total Lead	0.20 mg/l		0.40 mg/l
Total Zinc	0.50 mg/l		1.00 mg/l
Total nickel	0.50 mg/l	1.00 mg/l	
Oil and Grease	5.0 mg/l		
Suspended Solids	25 mg/l	50 mg/l	

The waste shall have a pH between 6.0 and 9.5.

5. All minewater discharged shall be conducted in such a manner to minimize surface erosion and directed towards East Lake.
6. The Licensee shall operate and maintain the Retention and Settling/Neutralization Ponds such that:
  7. At least one (1) metre of freeboard is maintained at the retention berm at all times;
  8. Seepage from the pond is minimized at all times;
  9. Any seepage that occurs and does not meet the effluent quality requirements as specified in Part D, Item 4 shall be collected and immediately returned to the pond;
  10. Any constructed facilities that are eroded are repaired immediately; and
  11. Inspections of the retention pond and structures are carried out weekly during periods of open water and records kept of these inspections for review upon request of an Inspector.
7. The Licensee shall submit to the Board for approval, within three (3) months of issuance of this licence, a proposal for the disposal of minewater and excess runoff water from the Retention Pond and Settling/Neutralization Ponds. The proposal shall include, but not be limited to, the following:
  8. Options for discharge of Minewater/Runoff water;
  9. Details on quantity and quality of the Minewater/Runoff water; and
  10. Options for treatment and disposal.
8. The licensee shall submit to the Board for approval, within two (2) months of issuance of this licence, a plan outlining the inspection and follow-up programs. The licensee shall implement the plan as per Part D, Item 9.
9. An inspection of the earthworks, geological regime, and the hydrological regime of the project is to be carried out annually during the summer by a Geotechnical Engineer. The Geotechnical Engineer's report shall be submitted to the Board within sixty (60) days of the inspection, with a

covering letter from the Licensee outlining an implementation plan to respond to the Engineer's  
**PART D: CONDITIONS APPLYING TO WASTE DISPOSAL (cont'd)**

recommendations.

10. The Licensee shall submit to the Board for approval within six (6) months of the issuance of this licence a plan for conducting Acid Rock Drainage (ARD) and Geochemical Characterization. The plan shall be in accordance with the Department of Indian and Northern Affairs (DIAND) "Guidelines for Acid Rock Drainage Prediction in the North, September 1992 " and shall include, but not be limited to, the following:
  11. Static acid base accounting tests on representative waste rock;
  12. Options for collection and treatment of ARD; and
  13. An implementation schedule.
11. The Licensee shall submit to the Board for approval within four (4) months of issuance of this licence, a Waste Rock and Ore Storage Plan to address the management of all drainage from ore and waste rock storage areas, both permanent and temporary, over the term of the Licence. The plan shall include, but not be limited to the following:
  12. A site map to scale, identifying the ore and waste rock storage areas, the settling pond(s) and downstream receiving areas;
  13. A schedule of ore stockpiling, non-hazardous solid waste generation, coarse tailings and waste rock production by rock type, tonnage, and destination over the term of the Licence;
  14. A complete description, including site maps to scale, of each proposed ore and waste rock storage facility or area;
  15. An identification of all potential sources of mine drainage from each storage site and the distance to the downstream receiving environment;
  16. Detailed proposals for management of each flow, including water quality monitoring, collection, treatment, rerouting and final disposal;
  17. Detailed dump construction plans and drainage management on waste rock types that may be identified as problematic through ARD testing, including contingency plans for controlling runoff and seepage water chemistry; and
  18. Temperature analysis of all waste rock storage areas having ARD potential to include the effect of oxidation reactions on predicted ARD generation rates.
12. If the Plans referred to in Part D, Item 7, 8, 9 and 11 are not approved by the Board, the Licensee shall revise the Plans and resubmit them to the Board for approval within three (3) months of receiving notification of the Board's decision.
13. The Licensee shall implement the Plans referred to in Part D, Item 12 as and when approved by the Board.
14. The Licensee shall review the Plans annually and modify as necessary, or as requested by the Board, to reflect changes in operation and technology. Any proposed modification shall be submitted to the Board for approval.

**PART D: CONDITIONS APPLYING TO WASTE DISPOSAL (cont'd)**

- 15. The Licensee shall maintain the Sewage Disposal Facilities to the satisfaction of an Inspector.
- 16. The Licensee shall direct all piped sewage to the Sewage Disposal Facilities or as otherwise approved by the Board.
- 17. All Sewage effluent discharged by the Licensee from the Sewage Disposal Facilities at “Surveillance Network Program” Station Number 200-1, shall meet the following effluent quality requirements:

PARAMETER	MAXIMUM AVERAGE CONCENTRATION
Fecal Coliform	1000 CFU/dl
BOD <sub>5</sub>	30.0 mg/l
Oil and Grease	5.0 mg/l
Suspended Solids	35.0 mg/l

The waste shall have a pH between 6.0 and 9.5.

- 18. The Licensee shall submit to the Board for approval a disposal plan that addresses the disposal of the sludges produced from the rotating biological contractor prior to any deposit of waste. The plan shall be based on characterization of the waste and shall propose a disposal or treatment option that minimizes impacts to the environment.

**PART E: CONDITIONS APPLYING TO SPILL PREVENTION AND CONTINGENCY PLANNING**

- 19. The Licensee shall submit to the Board a Contingency Plan for approval by September 30. The plan shall be accordance with the Northwest Territories Water Board’s, “Guidelines for Contingency Planning (1987)”.

In addition to conforming with the Guidelines, the Plan shall also address the following items:

- 20. General Contingency Plan;
  - 21. Oil Spill Prevention and Contingency Plan; and
  - 22. Hazardous Material Spill Prevention and Contingency Plan.
- 2. The General Contingency Plan shall include, but not be limited to the following:
    - 3. Action to be taken if there is an indication that effluent that exceeds Licence effluent

quality standards will be discharged from the Retention Pond, Settling/Neutralization

**PART E: CONDITIONS APPLYING TO SPILL PREVENTION AND CONTINGENCY PLANNING (cont'd)**

Ponds; and

- b. Action to be taken should the Sewage Treatment Facilities fail;
- 3. The Oil Spill Prevention and Contingency Plan shall describe in detail the following:
  - 4. Action to be taken to prevent, terminate, contain, recover and dispose of any discharge of oil, and contain and dispose of fluids and solids contaminated by petroleum products;
  - 5. An on-site petroleum products inventory; and
  - 6. An on-site emergency equipment inventory and location index.
- 4. The Hazardous Materials Spill Prevention and Contingency Plan shall include the following:
  - 5. Action to be taken to prevent and clean up spilled material;
  - 6. An on-site hazardous materials inventory;
  - 7. Normal and emergency handling procedures for hazardous materials; and
  - 8. An on-site emergency equipment inventory and location index.
- 5. If not approved by the Board, the Contingency Plan referred to in Part E, Item 1 shall be revised and resubmitted within sixty (60) days of receiving notification of the Board's decision.
- 6. The Licensee shall review the Contingency Plan annually and modify the Plan as necessary to reflect changes in operation and technology. Any proposed modification shall be submitted to the Board for approval.
- 7. If, during the period of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:
  - 8. Employ the Contingency Plan;
- b. Report the incident immediately via the 24-Hour Spill Reporting Line (403) 920-8130; and
- c. Submit to an Inspector a detailed report on each occurrence no later than thirty (30) days after initially reporting the event.

**PART F: CONDITIONS APPLYING TO MODIFICATIONS**

- 1. The Licensee may, without written consent from the Board, carry out modifications to the Water Supply Facilities and Waste Disposal Facilities provided that such modifications are consistent with the terms of this Licence and the following requirements are met:
  - d. The Licensee has notified the Board in writing of such proposed modifications at least

## **PART F: CONDITIONS APPLYING TO MODIFICATIONS (cont'd)**

- sixty (60) days prior to beginning the modifications;
  - b. Such modifications do not place the Licensee in contravention of the Licence;
  - c. The Board has not, during the 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
  - d. 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 can be carried out only with written consent from the Board.
3. The Licensee shall provide as-built plans and drawings of the modifications referred to in this Licence within ninety (90) days of completion of the modification. These plans and drawings shall be submitted to the Board on material that will reproduce with a standard printer.

## **PART G: CONDITIONS APPLYING TO CONSTRUCTION**

- e. Prior to construction of any dams, dykes or structures intended to contain withhold, divert or retain water or wastes other than as contemplated in the Contingency Plan, the Licensee shall submit to the Board for approval design drawings stamped by a qualified Engineer registered in the Northwest Territories.
2. Construction of designed structures shall be carried out as approved by the Board.
3. As-built drawings of the dams, dykes or structures shall be stamped by a qualified geotechnical Engineer registered in the Northwest Territories and submitted to the Board within ninety (90) days of completion of the structures.
4. Should fill material be required, it must be obtained from an approved source, be clean and free of contaminants.

## **PART H: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE**

5. The Licensee shall, within six (6) months of the issuance of this Licence, submit to the Board for approval, a plan for the Operation and Maintenance of the Sewage and Solid Waste Disposal Facilities in accordance with the Municipal and Community Affairs, "Guidelines for Preparing an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities," October 1996
2. The Licensee shall implement the Plan specified in Part H, Item 1 as and when approved by the Board.

## **PART I: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION**

1. The Licensee shall submit to the Board for approval within six (6) months of issuance of this licence an Interim Abandonment and Restoration Plan in accordance with the Northwest Territories Water Board's "Guidelines for Abandonment and Restoration Planning for Mines in the Northwest Territories, September 1990" that shall take into consideration all areas referred to in Part I, Item 2.
2. The Licensee shall provide the following additional elements to address abandonment and restoration concerns:
  3. Specific abandonment and restoration objectives for each mine component that shall include, but not be limited to, the following:
    - i. Open pits;
    - j. All abandoned and active solid waste disposal sites;
    - k. Underground workings;
    - l. Waste rock storage areas;
    - m. Water management structures (dams, diversion channels, intake, and delivery system);
    - n. Dump ponds;
    - o. Borrow pits, ore storage stockpiles, and other disturbed areas;
    - p. Surface structures (process plant, camps, concentrate storage building, and associated structures);
    - q. All petroleum and chemical storage areas;
    - r. Any other areas potentially contaminated with hazardous materials; and
    - s. Any facilities or areas which may have been affected by development such that potential pollution problems exist.
  - b. A description of the measures required, or actions to be taken, to achieve the objectives stated in the Guidelines mentioned in Part I, Item 1, and Part I, Item 2 a) for each mine component;
  - c. A detailed description, including maps and other visual representations, for each site, accompanied by a detailed description of the final desired landscape;
  - d. A comprehensive assessment of materials suitability, including geochemical and physical characterization and availability for restoration needs, with attention to cover materials, including maps where appropriate showing sources and stockpile locations of all borrow materials;
  - e. A description of the process to be employed for progressive restoration, and details of restoration scheduling and procedures for coordinating restoration activities with the overall mining sequence and materials balance;
  - f. A description of how post-closure assessment, monitoring and treatment will be considered; (a description of any post-closure treatment potentially required for drainage water that is not acceptable for discharge as required by Part D, Item 4);
  - g. An identification of the research needs for restoration;

## **PART G: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION**

**(cont'd)**

- h. A description of the monitoring program to be employed in recording the progress of mining activities as they relate to ongoing restoration needs. The relevant components of the restoration monitoring program should be designed to generate data in forms suitable for use in the RECLAIM model or its equivalent. Sampling and testing protocols for determining the success of restoration measures undertaken should be documented. The program shall include, but not be limited to, the following:
    - i. Areas with potentially acid/alkaline drainage and metal leaching;
    - j. Water quality trends in waste rock dump and ore stockpile seepage;
    - k. Volumes of waste materials produced and stored by type and location, with particular attention to materials requiring measures to mitigate impacts from water that is not acceptable for discharge as required by Part D, Item 4;
    - l. Areas, slope angles, and relevant topography of waste rock dumps; and
    - m. Success of applying restoration research results.
  - i. Details of closure measures proposed in the event of a premature or temporary shutdown at any time during the term of the Licence; and
  - j. An explanation of how aesthetic concerns will be taken into account in restoration.
3. Within 6 months of issuance of the Licence, the Licensee shall submit to the Board an initial estimate of the current mine restoration liability using the current version of RECLAIM, its equivalent or some other method acceptable to the Board.
  4. The Licensee shall provide the Board annually, as required in Part B, Item 5(I) an updated estimate of the current mine restoration liability
  5. The Licensee shall revise the plans referred to in this section as required by the Board in its review of the plans. Revisions to the plans shall be submitted to the Board for its approval within six (6) months of receiving notification of the Board's requirement for revision. If the plan is not acceptable to the Board, a revision shall be received in the office of the Board within two (2) months after notification.
  6. The Licensee shall implement the plans referred to in Part I, Item 4 as approved by the Board in accordance with the schedules and procedures specified in the plans, and shall endeavour to carry out progressive restoration of areas as soon as is reasonably practicable.
  7. The Licensee shall review the Abandonment and Restoration Plan annually, and shall modify the Plan as necessary to reflect changes in operations, technology, and results from restoration research and other studies. All proposed modifications to the Plan shall be submitted to the Board for Approval.
  8. The Licensee shall notify the Board of final closure of the mine as soon as reasonably feasible.

**PART G: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION**

**(cont'd)**

9. If during the period of this license, the Licensee notifies the Board in writing of the mine closing indefinitely, a final Abandonment and Restoration Plan shall be submitted to the Board for approval within sixty (60) days of notification.

# SCHEDULE I - SURVEILLANCE NETWORK PROGRAM

**Licence Number: NWB1ULU9700**

**Effective Date of Licence: December 1, 1997**

## SNP SAMPLING LOCATIONS, SAMPLING REQUIREMENTS, AND ANALYSIS REQUIREMENT.

Station Numbers	Description	Sampling Requirements	Analysis Requirements
100-1	Water Intake at West Lake	Annually	Total Arsenic      Total Copper Total Mercury      Total Cadmium Total Zinc      Total Suspended Solid Faecal Coliform      pH
200-1	Sewage Effluent Discharge Point at East Lake	Monthly	Faecal Coliform      Total Suspended Solid pH
200-2	Settling/Neutralization Pond 1	Monthly during open water season. Prior to discharge and weekly during discharge.	Total Arsenic      Total Copper Total Mercury      Total Cadmium Total Zinc      Total Suspended Solid
200-3	Settling/Neutralization Pond 2	Monthly during open water season. Prior to discharge and weekly during discharge.	Total Arsenic      Total Copper Total Mercury      Total Cadmium Total Zinc      Total Suspended Solid
200-4	Outflow East Lake	Monthly during open water season. Weekly during open water season, if receiving discharge from ore runoff collection ponds.	Total Arsenic      Total Copper Total Mercury      Total Cadmium Total Zinc      Total Suspended Solid Faecal Coliform
200-5	Outflow Ulu Lake	Monthly during open water season. Weekly during open water season, if receiving discharge from ore runoff collection ponds.	Total Arsenic      Total Copper Total Mercury      Total Cadmium Total Zinc      Total Suspended Solid Faecal Coliform

*\*The pH, temperature and specific conductivity of the sample shall be recorded at the time of sampling.*

**B. SNP GENERAL REQUIREMENTS**

- 10. All sampling, sample preservation and analysis shall be conducted in accordance with methods prescribed in the current edition of “Standard Methods for the Examination of Water and Wastewater” at the time of analysis, or by such other methods as approved by the Board.
- 11. The plan referred to in Part B, Item 1 of the SNP, shall be implemented as approved by the Board.
- 12. All sampling, sample preservation and quality control procedures shall be conducted in accordance with methods approved by the Board.
- 13. A quality assurance plan which includes analyses of field blanks and certified reference material, and replicate sampling in order to assess field contamination, accuracy, and precision, shall be submitted to the Board for approval.
- 14. All analyses shall be performed in a laboratory approved by the Board.
- 15. The following example is provided to illustrate the procedures for calculating the average concentration. If the effluent stream is sampled weekly for each substance, the following lead values may be obtained:

Week 1	Sample #1	.15	
Week 2	Sample #2	.12	
Week 3	Sample #3	.10	
Week 4	Sample #4	.18	
			<i>Running Average= (.15+.12+.10+.18)/4=.137</i>
Week 5	Sample #5	.20	
			<i>Running Average= (.12+.10+.18+.20)/4=.150</i>
Week 6	Sample #6	.16	
			<i>Running Average= (.10+.18+.20+.16)/4=.160</i>

**C. FLOW MEASUREMENT REQUIREMENTS**

- 1. The daily quantity of water pumped from West Lake for industrial purposes shall be recorded in cubic metres.
- 2. The monthly and annual quantities of Sewage solids removed from the Sewage disposal facility shall be measured and recorded.
- 3. The flow at Station Number 200-4 shall be measured and recorded as approved by the Board.

**D. REPORTS**

- 1. The Licensee shall submit to the Board within thirty (30) days following the month being reported, all data and information required by the “Surveillance Network Program”, including the results of the approved quality assurance plan.

## **SCHEDULE II - LICENSING CONSIDERATIONS**

### **I. APPLICATIONS FOR LICENCE AMENDMENT, RENEWAL, ASSIGNMENT OR CANCELLATION.**

16. An Application for an amendment or renewal shall be in the form set out by the Board and shall contain the information identified therein and be accompanied by a deposit equal to any water use fee that would be payable under subsection II (1) in respect of the first year of the licence that is being applied for.
2. The fee payable on the submission of an application for the amendment, renewal, cancellation or assignment of this licence is thirty (30) dollars.
3. An application for authorization for the assignment of the licence shall be submitted to the Board, accompanied by the fee set out in (2), no less than 45 days before the date on which the applicant proposes to assign the licence, and shall:
  4. Be signed by the assignor and the assignee; and
  5. Include the name and address of the assignee.
4. An application for cancellation of a licence shall be in writing and shall set out the reason for the requested cancellation and a description of the measures taken or proposed to be taken, prior to cancellation, for abandonment of the appurtenant undertaking.

### **II. WATER USE FEES**

5. The fee payable by the licensee for the right to the use of water, calculated on an annual basis, in respect of an industrial, mining and milling undertaking, is the greater of thirty (30) dollars and the aggregate of:
  6. For the first 2,000 m<sup>3</sup> per day that is authorized by the licence, \$1 for each 100 m<sup>3</sup> per day,
  7. For any quantity greater than 2,000 m<sup>3</sup> per day but less than or equal to 4,000 m<sup>3</sup> per day that is authorized by the licence, \$1.50 for each 100 m<sup>3</sup> per day, and
  8. For any quantity greater than 4,000 m<sup>3</sup> per day that is authorized by the licence, \$2 for each 100 m<sup>3</sup> per day.
2. For the purposes of paragraph (1), where a licence authorizes the use of water on a basis other than a daily basis, the licence fee payable shall be calculated by converting the rate of authorized use to an equivalent daily rate.
3. Where the volume of water is specified in a licence to be total watercourse flow, the licence fee will be calculated using the mean daily flow of the watercourse, calculated on an annual basis.

4. Licence fees are payable only for the portion of the year during which the licence is in effect.
5. The licence fees shall be paid:
  6. In respect of a licence for a term of one year or less, at the time the licence is issued; and
  7. In respect of a licence for a term of more than one year:
    - v. For the first year of the licence, at the time the licence is issued, and
    - w. For each subsequent year of the licence, or for any portion of the final year of the licence, in advance, on the anniversary of the date of issuance of the licence.

### **III. SECURITY DEPOSITS**

- x. Security deposits shall be in the form of:
  - y. A promissory note guaranteed by a bank in Canada and payable to the Receiver General;
  - z. A certified cheque drawn on a bank in Canada and payable to the Receiver General;
  - aa. A performance bond approved by the Treasury Board for the purposes of paragraph (c) of the definition "security deposit" in section 2 of the *Government Contract Regulations*;
  - bb. An irrevocable letter of credit from a bank in Canada; or
  - cc. Cash
2. Security deposits shall be furnished by the licensee:
  3. In respect of a licence for a term of one year or less, no later than 30 days after the licence is issued; and
  4. In respect of a licence for a term of more than one year:
    - i. For the first year of the licence, no later than 30 days after the licence is issued, and
    - j. For each subsequent year of the licence, or for any portion of the final year of the licence, in advance, on the anniversary of the date of issuance of the licence.

### **SCHEDULE III - GENERAL CONDITIONS FOR THE ADMINISTRATION OF LICENCES ISSUED BY THE NUNAVUT WATER BOARD (NWB)**

- k. At the time of issuance, a copy of the Licence is placed on the Water Register in the NWB Head Office in Gjoa Haven, and is available to the public.
2. To enforce the terms and conditions of the Licence, the Department of Indian Affairs and Northern Development designates Inspectors in a manner consistent with the Memorandum of Understanding between the Department of Indian and Northern Affairs and the NWB. The Inspectors coordinate their activities with the NWB staff and officials of the Water Resources Division of DIAND. The Inspector responsible for Licence No. NWB2ULU9700 is located in the Nunavut District office.
3. To keep the NWB and members of the public informed of the Licensee's conformity to Licence conditions, the Inspectors prepare inspection and compliance reports which detail observations on how the Licensee has met each condition in the Licence. These reports are forwarded to the Licensee with a covering letter requesting what action, if any, should be taken. The inspection reports and covering letters are placed on the public Water Register, as are any responses received from the Licensee pertaining to the inspection reports. It is therefore of importance that the Licensee react in all areas of concern regarding inspection reports so that these concerns may be clarified.
4. If the Licensee contemplates the renewal of Licence No. NWB2ULU9700, it is the responsibility of the licensee to apply to the NWB for renewal of the licence. The past performance of the licensee, new documentation and information, and issues raised during a public hearing, if the NWB is required to hold one, will be used to determine the terms and conditions of the Licence renewal. If the licence expires before the NWB issues a new one, then water use and waste disposal must cease, or the Licensee will be in contravention of the Nunavut Land Claims Agreement. The NWB recommends that an application for the renewal of Licence No. NWB2ULU9700 be filed at least one year before the Licence's expiry date.
5. If Licence No. NWB2ULU9700 requires amendment, then a public hearing may be required. The Licensee should submit applications for amendment as soon as possible to give the NWB sufficient time to go through the amendment process. The duration of the process may vary depending on the scope of the amendment requested.
6. The NWB can modify the Surveillance Network Program annexed to the licence without a public hearing. Requests for changes to the Surveillance Network Program should be forwarded to the NWB in writing, and should include the justification for the change.

7. Any communication with respect to this licence shall be made in writing to the attention of:

Philippe di Pizzo  
Executive Director  
Nunavut Water Board  
P. O. Box 119  
Gjoa Haven, NT. X0E 1J0  
Telephone No: (867) 360-6338  
Fax No: (867) 360-6369

8. Inspection and enforcement of the terms and conditions of this licence are performed by:

Nunavut District Office  
Northern Affairs Program  
Department of Indian Affairs  
and Northern Development  
P. O. Box 100  
Iqaluit, NT. X0A 0H0  
Telephone No: (867)979-4405  
Fax No: (867)979-6445

9. The Licence requires that you submit a security deposit to the attention of:

Paul Lecomte  
Office Manager  
Nunavut Water Board  
P. O. Box 119  
Gjoa Haven, NT. X0E 1J0  
Telephone No: (867) 360-6338  
Fax No: (867) 360-6369

9. The licensee shall submit all report, plans and studies to the Board in triplicate.