Appendix F – Type A Water Licence 2AM-DOH0713 (Marked to Show Past Amendments and Suggested Changes)

WATER LICENCE NO: 2AM-DOH0713

NUNAVUT WATER BOARD WATER LICENCE

LICENCE NO: 2AM-DOH0713

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NUNAVUT WATER BOARD WATER LICENCE

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NUNAVUT WATER BOARD WATER LICENCE

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

~~MIRAMAR~~ HOPE BAY MINING LTD.

(Licensee)

~~300 – 889 HARBOURSIDE DRIVE, NORTH VANCOUVER, B.C. V7P 3S1~~[TBD] (Mailing Address)

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

Licence Number/Type:	2AM-DOH0713 Type "A"
Water Management Area:	07
Location:	KITIKMEOT REGION, NUNAVUT
Purpose:	MINING AND MILLING AND ASSOCIATED USES
Description:	MINING AND PROCESSING
Quantity of Water not to be Exceeded:	480,000 CUBIC METRES ANNUALLY
Date Licence Issuance:	September 19, 2007
Expiry of Licence:	September 30, ~~2013~~2023

This Licence issued and recorded at Baker Lake, Nunavut includes and is subject to the annexed conditions.

Thomas Kabloona,
Nunavut Water Board
A/Chair

APPROVED BY:

Minister of ~~Indian~~Aboriginal Affairs and Northern ~~Affairs~~Development Canada

DATE LICENCE APPROVED:

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PART A: SCOPE, DEFINITIONS AND ENFORCEMENT

SCOPE

1. This Licence authorizes ~~Miramar Hope Bay Limited ("MHBL" and~~ the ~~"~~Licensee~~")~~ to use water and dispose of waste associated with the Mining and Milling undertakings at the Doris North Project as outlined in the Water Licence Application, submitted to the Board throughout the regulatory process and as updated from time to time in subsequent applications for amendment and renewal and notices of modification.

   ~~MHBL~~The Licensee may conduct mining, milling and associated activities at the Doris North Project in the Kitikmeot Region of Nunavut, (68° 09' N, 106° 40' W) including, in general, as follows:

   - The use of water from Doris Lake for mining and milling processing, associated activities and domestic purposes;
   - The quarrying of materials from specified locations;
   - The development and operation of site facilities;
   - The construction of access and site roads, airstrip, water crossings, and lay down areas;
   - The construction of a temporary waste rock storage pad;
   - The construction and operation of a Sewage Treatment Plant (STP);
   - The construction and operation of a Landfill and Landfarm;
   - The construction and operation of a sedimentation pond and pollution control pond;
   - The management and disposal of wastes associated with the Sewage Treatment Plant, sedimentation and pollution control ponds, Land fill and Landfarm, and other wastes as described in the application;
   - The handling and storage of petroleum products and hazardous materials;
   - The construction of dams, spillway, and shoreline erosion control needed for the operation of Tail Lake as a Tailings Impoundment Area;
   - The extraction of portal development rock, waste rock and ore from underground via decline;

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- A mining rate of 720 tonnes per day of ore
- A mill with a design milling throughput of 800 tonnes per day ore;
- The deposition of tailings into the Tailings Impoundment Area (Tail Lake);
- The disposal of waste rock, including potentially acid generating rock, and cyanide leach residue within the underground workings;
- The diversion of site runoff water to water management facilities, including the Tailings Impoundment Area;
- The controlled discharge of effluent from the Tailings Impoundment Area to Doris Creek; and
- The progressive reclamation of on-site facilities and infrastructure.

2. This Licence is issued subject to 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 the *Nunavut Waters and Nunavut Surface Rights Tribunal 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~~Licence shall be deemed to be subject to such requirements.

3. Compliance with the terms and conditions of this ~~licence~~Licence does not absolve the Licensee from responsibility for compliance with all applicable legislation, guidelines and directives.

DEFINITIONS

4. The Licensee shall refer to Schedule A for definitions of terms used in this Licence.

ENFORCEMENT

5. Failure to comply with this ~~licence~~Licence will be a violation of the *Act*, subjecting the Licensee to the enforcement measures and the penalties provided for in the Act.

6. All inspection and enforcement services regarding this ~~licence~~Licence will be provided ~~by Inspectors~~by Inspectors appointed under the *Act*.

7. For the purpose of enforcing this Licence and with respect to the use of water and deposit or discharge 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 law.

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PART B: GENERAL CONDITIONS

1. The amount of water use fees shall be determined in accordance with the Section 9(b) of the *Regulations*.

2. Payment of fees shall be made in accordance with Section 9(6)(b) of the *Regulations.*

3. The Licensee shall file an Annual Report with the Board no later than March 31 in the year following the calendar year being reported. The Annual Report shall be developed in accordance with Schedule B Item 1.

4. The Licensee shall ensure a copy of this Licence is maintained at the site of operations at all times.

5. 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@nunavutwaterboard.org

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

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

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

Taiga Laboratories
Department of ~~Indian~~Aboriginal Affairs and
Northern ~~Affairs~~Development
4601 – 52 Avenue, P.O. Box 1500
Yellowknife, NT X1A 2R3
Telephone: (867) 669-2781
Fax: (867) 669-2718

8. The Licensee shall submit one (1) paper copy and one (1) electronic copy of all reports, studies, and plans to the Board unless otherwise requested by the Board. Reports or studies submitted to the Board by the Licensee shall include an executive summary in Inuktitut and Inuinnaqtun.

9. This Licence is assignable as provided in Section 44 of the *Act*.

10. The Licensee shall ensure that any document(s) or correspondence submitted by the Licensee to the Board is received and acknowledged by the Manager of Licensing.

11. The Licensee shall notify the NWB of any changes in operating plans or conditions associated with this project at least sixty (60) days prior to any such change.

12. The Licensee shall post signs in the appropriate areas to inform the public of the location of the Water Supply Facility and the Waste Disposal Facilities. All signs, must be in English, Inuktitut and Inuinnaqtun and shall be located and maintained to the satisfaction of an Inspector.

13. The expiry or cancellation of this Licence does not relieve the Licensee from any obligation imposed by the Licence, or any other regulatory requirement.

PART C: CONDITIONS APPLYING TO SECURITY

1. The Licensee shall within thirty (30) days following approval by the Minister, furnish and maintain security with the Minister in the amount of $11.714 million dollars in the form, of the nature, subject to such terms and conditions, in accordance with, the Regulations, or that is satisfactory to the Minister.

2. The Licensee shall submit to the Board for approval, within six (6) months of the start of ore processing and again following eighteen (18) months of ore processing, an updated estimate of the total mine closure restoration liability using the current version of RECLAIM, its equivalent or other similar method approved by the Board, in accordance with principles of ~~INAC~~AANDC's "Mine Site Reclamation Policy for Nunavut" (2000).

3. The Licensee shall furnish and maintain such further or other amounts of security as may be required by the Board, based on the updated estimate of current mine reclamation liability under Part C, Item 2.

4. The Licensee may submit to the Board for approval, a request for a reduction to the amount of security. The submission shall include supporting evidence to justify the request.

5. The security referred to in Part C, Item 1 shall be maintained until such time as it is fully or in part refunded by the Minister pursuant to Section 76(5) of the *Act*. This clause shall survive the expiry of this Licence or renewals thereof and until full and final reclamation has been completed to the satisfaction of the Minister.

PART D: CONDITIONS APPLYING TO CONSTRUCTION

1. The Licensee shall ensure that all fill material used is from an approved source and shall be free of contaminants.

2. The Licensee shall ensure that any chemicals, fuel or wastes associated with the undertaking do not enter any water body.

3. Equipment storage holding areas should be located on gravel, sand or other durable land, a distance of at least thirty (30) metres above the ordinary high water mark of any water body in order to minimize impacts on surface drainage and water quality.

4. Sediment and erosion control measures shall be implemented prior to and maintained during the construction and operation where necessary to prevent entry of sediment into water.

5. The Licensee shall undertake appropriate corrective measures to mitigate impacts on surface drainage resulting from the Licensee's operations.

6. The Licensee shall limit any in-stream activity to low water period. In-stream activity is prohibited during fish migration.

7. The Licensee shall conduct construction monitoring during all phases of the project.

8. The Licensee shall submit an annual Construction Monitoring Report no later than March 31 in the year following the calendar year being reported. The report shall be developed in accordance with Schedule D Item 1.

9. The Licensee shall include, in addition to conducting Quarry Rock Construction Monitoring and Management in accordance with the Water Licence Application, Monitoring and Follow Up Plan, dated July 2007, the following:

    a. A subset of twenty (20) samples shall be subjected to Shake Flask Extraction (SFE) tests with an emphasis on near surface rock samples; and
    b. Submit to the Board for review no later than 6 months after the collection of samples, a report that presents the data collected from the Quarry Rock Construction Monitoring Program. The report shall include a discussion of the interpretation of the geochemical data.

10. The Licensee shall tag any potentially acid generating rock identified through the Quarry Rock Construction Monitoring program for removal to the Temporary Waste Rock Pile, for ultimate disposal underground.

11. The Licensee shall ensure that the construction and operation of the Fuel Storage and Containment Facility(s) meets, at a minimum, all applicable legislation and industry standards that include the following:

a. *Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products, 2003; CCME,* PN 1326*;* and
b. *National Fire Code, 1995*.

12. ~~The~~As the Fuel Storage and Containment Facility has been commissioned, the ~~The Licensee shall not undertake any further discontinue quarry operations in Quarry #1 because the Fuel Storage and Containment Facility has been commissioned upon commissioning of the Fuel Storage and Containment Facility~~.

13. The Licensee shall, for the purposes of bridge construction, ensure that all activities remain outside of the natural channel width by the placement of abutments, footings or armouring above the ordinary high water mark so that there is no restriction to the natural channel processes.

14. The Licensee shall submit to the Board for review thirty (30) days following issuance of the ~~licence~~Licence, updated for construction drawings of the proposed all weather access road. This submission shall also include the following:

    a. The thickness of the various materials used at the coarse rock drain locations and for the general road fill;
    b. Details for the management of surface water adjacent to the access roads, including any contingency plans should coarse rock drains fail to operate and;
    c. Be signed and sealed by the appropriately qualified Engineer.

15. The Licensee shall conduct all activities, including the construction of the all-weather roads, in such a way as to minimize impacts on surface drainage and shall immediately undertake any corrective measures in the event of pooling of water or any impacts on surface drainage.

16. With respect to access road, pad construction or other earthworks where direct or indirect flow into a water body is possible, the deposition of debris or sediment into or onto any water body is prohibited. These materials shall be disposed a distance of at least thirty (30) metres from the ordinary high water mark in such a fashion that they do not enter the water.

17. The Licensee shall monitor all activities for signs of erosion and shall implement and maintain sediment and erosion control measures prior to the undertaking to prevent entry of sediment into any water body.

18. The Licensee shall conduct daily visual inspections for all construction activity during spring freshet and during and after remarkable rainfall events with sampling of runoff/seepage where turbidity is evident.

19. All surface runoff during the construction of any facilities, where flow may directly or indirectly enter a water body, shall meet the following effluent quality limits:

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)
Total Suspended Solids	50.0	100.0

20. The Licensee shall ensure that the Sewage Treatment Plant is operated in accordance with conditions provided in Part G, Item 3 with compliance at monitoring station ST-8 during construction.

21. The Licensee shall conduct a Quarry Rock Seepage Monitoring and Management program in accordance with the Water Licence Application Monitoring and Follow Up Plan, dated July 2007 and in accordance with the following:

    a. The seep survey shall measure pH and Electrical Conductivity (EC) levels in the precipitation runoff and snowmelt that comes into contact with rock along the roadways, building pads and quarry sites;
    b. The seep survey shall measure pH and EC levels at several reference points on the tundra not subject to mine influences;
    c. The quarry rock seepage program shall be conducted on any ephemeral seepage present at the time of the quarry rock seepage monitoring program and not at pre-determined seepage stations;
    d. A minimum of at least 10% of the total sample set shall be submitted for secondary analysis, regardless of the values of measured field pH and EC; and
    e. The Quarry Rock Seepage Monitoring Program shall be expanded beyond the 100 samples to include monitoring of all rock drains.

22. The Licensee shall provide a report that presents the data collected from the Quarry Rock Seepage Monitoring Program conducted under Part D, Item 21. The report shall include a discussion of the interpretation of geochemical data and shall be presented to the Board for review, no later than six (6) months after the collection of samples.

23. The Licensee shall ensure that all rock used in construction is non-acid generating.

24. The Licensee shall not use ~~waste rock~~Waste Rock from underground for any purpose, including the construction of any infrastructure~~.~~, unless otherwise approved by the Board under Part G, Item 17 and in accordance with the plan provided under Part G, Item 15, revised and approved accordingly. [Note: Amendment granted previously as Amendment No. 3]

25. The Licensee shall ensure that all containment and runoff control structures are constructed and maintained to prevent escape of wastes to the surface or

groundwater systems.

26. The Licensee shall submit to the Board for review, within ninety (90) days of completion of all structures designed to contain, withhold, divert or retain waters or wastes during the construction phase, a Construction Summary Report prepared by

a qualified Engineer(s) that shall include as-built drawings, documentation of field decisions that deviate from original plans and any data used to support these decisions.

27. The Licensee shall ensure that all construction of engineered structures is supervised and field checked by an appropriately qualified and experienced Engineer in such a manner that the project specification can be enforced and, where required, the quality control measures can be followed. The Licensee shall also ensure that the construction records of all engineered structures are maintained and made available at the request of the Board and/or an Inspector.

28. The Licensee shall ensure all runoff and seepage from the Temporary Waste Rock Pad is directed to the Pollution Control Pond for collection and transfer to the Tailings Impoundment Area.

29. The Licensee shall consider the principles of adaptive management in construction and operations.

PART E: CONDITIONS APPLYING TO WATER USE

1. The Licensee shall obtain fresh water for domestic camp use, mining and milling and associated uses, from Doris Lake at SNP Station ST-7 using the Fresh Water Intake. Domestic water may be obtained from Windy Lake at ~~SNP~~ HOP-1. The volume shall not exceed 480,000 cubic meters per year unless otherwise approved by the Board.

2. The Licensee shall maximize to the greatest practical extent, the use of reclaim water from the Tailings Impoundment Area for use in the mill.

3. The Licensee shall not use streams as a water source unless authorized and approved by the Board.

4. The Licensee shall maintain the Fresh Water Intake to the satisfaction of the Inspector.

5. The Licensee shall equip all water intake hoses 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.

6. The Licensee shall not remove any material from below the ordinary high water mark of any water body unless authorized.

7. The use of water shall not cause erosion to the banks of any body of water and the Licensee shall provide necessary controls to prevent such erosion. ~~-~~Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into water.

PART F: CONDITIONS APPLYING TO WATER MANAGEMENT

1. The Licensee shall submit to the Board for review ~~by May 1, 2008,~~at least six (6) months prior to the commencement of processing ore, a revised Water Management Plan. The revised Plan shall include ~~to~~ the following:

   a. A requirement to continuously monitor Doris Lake levels and outflow during the two (2) years of mining and beyond to confirm water balance model predictions;
   b. Requirements for on-going monitoring and calibration of the water quality model;
   c. A strategy to monitor and remove where necessary snow accumulation in the Pollution Control Pond, roads, ditches, and drainage channels; and
   d. The Plan shall consider the monitoring requirements set out in Parts J and K;

2. In the event that the revised Water Management Plan required in Part F, Item 1 is not found acceptable to the Board, the Licensee shall provide a revised version to the Board for review within thirty (30) days of notification by the Board.

3. The Licensee shall implement the Water Management Plan upon as approved by the Board.

4. The Licensee shall carry out regular inspections of all water management structures during periods of flow (rock drains, culverts, sedimentation and pollution control ponds and associated diversion berms, reagent and cyanide storage facility sumps, and sedimentation control berm at the overburden dump) and the records be kept for review upon request of an Inspector. More frequent inspections may be required at the request of an Inspector. [Note change approved as part of Amendment 2].

PART G: CONDITIONS APPLYING TO WASTE MANAGEMENT AND WASTE MANAGEMENT PLANS

1. The Licensee shall provide at least ~~10~~5 days notice to the Inspector prior to any planned discharges of any Facilities. The notice shall include the estimated volume proposed for discharge and location. [Note to draft: this change would permit HBML to manage water in a manner that would be more responsive to current site conditions].

2. The Licensee shall ensure that all land applied discharges are performed in a manner that prevents erosion at the point of discharge and downstream.

3. The Licensee shall operate the Sewage Treatment Plant in accordance with the following:

   a. All Sewage and Greywater shall be collected and treated in the Sewage Treatment Plant;
   b. During the construction ~~phase~~and care and maintenance phases, all

effluent from the Sewage Treatment Plant at monitoring station ST-8 shall not exceed the following effluent quality limits:

Parameter	Maximum Average Concentration (mg/L)	Maximum Allowable Grab Sample Concentration (mg/L)
pH	6-9	9
Total Suspended Solids (TSS)	100	100
BOD_5	80	80
Fecal Coliforms	10,000 CFU/ 100mL	10,000 CFU/ 100mL
Total Oil and Grease	5 and no visible sheen	10 and no visible sheen

c. ~~During site construction, treated~~Treated effluent from the Sewage Treatment Plant shall be discharged approximately ~~400 metres~~1km north of the camp pad;

d. Once the Tailings Impoundment Area is operational, ~~all~~ treated effluent from the Sewage Treatment ~~Plant shall~~Plant may be discharged to the Tailings Impoundment Area; and

e. The Licensee shall notify an Inspector at least ~~ten~~five (~~10~~5) days prior to start-up of the Sewage Treatment Plant and subsequent discharge from the facility.

4. The Licensee shall submit a Sewage Treatment Management Plan, to the Board for review sixty (60) days prior to commissioning the Sewage Treatment Plant that takes into consideration operation, maintenance and sludge management.

5. The Licensee shall dispose of all food waste in an incinerator designed for this purpose.

6. The Licensee shall ensure that any on-site incinerator meets the requirements of the Canada-Wide Standards for Dioxins and Furans and Canada-Wide Standards for Mercury emissions or such other site-specific standard as determined to be acceptable by Environment Canada.

7. The Licensee shall ~~submit to the Board for review by May 1, 2008 an~~revise the approved Incineration Management Plan in conjunction with Part G, Item ~~9.~~9, as required, and submit revisions to the Board for review.

8. The Licensee is restricted to the open burning of paper products, paperboard packing and untreated wood waste in accordance with the Government of Nunavut ~~policy *Municipal Solid Wastes Suitable*~~Guideline for ~~*Open*~~the b~~B~~urning~~.~~ and ~~Incineration~~ incineration of ~~S~~solid ~~W~~waste

9. The Licensee shall submit to the Board for review ~~by May 1, 2008,~~6 months prior to beginning use of a landfill, a revised ~~———~~Landfill Management Plan. The Plan shall consider the following:

a. Recycling/segregation waste program;
b. Incineration technology selected;
c. Waste audit – amount and types of wastes to be incinerated or otherwise disposed;
d. Consolidation of wastes;
e. Operational and maintenance records;
f. Operator Training; g. Emission measurements;
h. Incinerator Ash disposal;
i. Consideration for disposal of used oil and waste fuel; and
j. Monitoring, characterization, and disposal of incinerator ash.

10. The Licensee is authorized to dispose of and contain all non-hazardous solid wastes at the Landfill or as otherwise approved by the Board.

11. The Licensee shall submit to the Board for review ~~by June 1, 2008, a revised~~any revisions made to the approved Hazardous Waste Management Plan. The handling and disposal of wood crates used in the shipment of sodium cyanide shall be included in the Plan.

12. The Licensee shall back haul and dispose of all hazardous wastes generated through the course of the operation at an approved waste disposal site.

13. The Licensee shall maintain records of all waste backhauled and confirmation of proper disposal. These records shall be made available to an Inspector upon request.

14. The Licensee shall submit to the Board for review ~~by June 1, 2008, a revisedLandfarm~~any revisions to the approved Landfarm Management Plan. The Plan shall include the following:

a. Operation and maintenance considerations including the methods of characterization, segregation and treatment;
b. Confirmation of the Soil Quality Remediation Objectives (SQROs) and distinction between where parkland versus industrial standards will be applied;
c. Contingency measure for contaminated soils that do not meet the SQROs; and
d. Any proposed future uses.

15. The Licensee shall submit to the Board for review ~~by April 1, 2008, a Revised~~any revisions to the approved
Waste Rock Management Plan.

16. The Licensee shall store all potentially acid generating rock at the Temporary Waste Rock Pad prior to ultimate disposal underground as mine backfill, unless otherwise approved by the Board.

17. All Waste Rock brought to the surface from ~~the~~ underground shall be managed in accordance with the approved Plan submitted under Part G, Item 15 and:

a. stored on the Temporary Waste Rock Pad ~~and returned underground as backfill and is not to be used for any purpose unless~~;

b. stored at other locations as identified in the approved Waste Rock and Ore Storage Plan, and

c. managed as otherwise approved by the Board~~.~~ in writing. [Note Amendment Granted Previously as Part of Amendment No. 3.]

18. The Licensee shall segregate mineralized from un-mineralized Waste Rock on the Temporary Waste Rock Pad.

19. The Licensee shall operate the Sewage Treatment Plant, Landfill, Landfarm, Fuel Storage and Containment Facilities, Sedimentation Pond, ~~and~~ Pollution Control Pond, and the Reagent and Cyanide Storage Facility sumps to the satisfaction of the Inspector.~~.~~ [Note Change approved as part of Amendment 2.]

20. All Water from the Pollution Control Pond shall be directed to the Tailings Impoundment Area, unless otherwise authorized by the Board.

21. The Licensee shall operate and maintain the Sedimentation Pond and Reagent and Cyanide Storage Facility sumps in accordance with the following: [Note change approved as part of Amendment 2]:

    a. Water discharged from the Sedimentation Pond and Reagent and Cyanide Storage Facility Sumps at monitoring ~~station~~stations ST-1 and ST-11 respectively shall not exceed the following ~~effluent~~Effluent quality limits: :[Note change approved as part of Amendment 2]

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
pH	6.0-9.0	9.0
Total Suspended Solids	15.0	30.0
Total Ammonia – N	2.0	4.0
Total CN	1.0	2.0
Total Oil and Grease	5 and no visible sheen	10 and no visible sheen on Pond
Total Aluminum – T-Al	1.0	2.0
Total Arsenic – T-As	0.05	0.10
Total Copper – T-Cu	0.02	0.30
Total Iron – T-Fe	0.30	0.60
Total Lead – T-Pb	0.01	0.02
Total Nickel – T-Ni	0.05	0.10
Total Zinc – T-Zn	0.01	0.02

    b. The Licensee shall establish compliance with effluent quality limits prior to discharge;
    c. Water from the Sedimentation Pond that is acceptable for discharge under Part G, Item 22(a) shall be discharged immediately south of the facility approximately 500m upstream of Doris Lake, or as designated by an Inspector; and
    d. Sedimentation Pond Water that does not meet criteria in Part G, Item 21(a) shall be directed to the Tailings Impoundment Area.

22. The Licensee shall operate and maintain the Sumps in accordance with the following:

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a. Water discharged from the Landfill Sump at monitoring station ST-3 shall not exceed the following effluent quality limits:

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Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
pH	6.0-9.0	9.0
Total Suspended Solids (TSS)	15.0	30.0
Total Ammonia – N	2.0	4.0
Total Cyanide (CN)	1.0	2.0
Total Oil and Grease	5 and no visible sheen on water surface	10 and no visible sheen on water surface
Total Aluminium – T-Al	1.0	2.0
Total Arsenic – T-As	0.05	0.10
Total Copper – T-Cu	0.02	0.04
Total Iron – T-Fe	0.3	0.6
Total Lead – T-Pb	0.01	0.02
Total Nickel – T-Ni	0.05	0.10
Total Zinc – T – Zn	0.01	0.02

b. Water from the Landfill Sump that is acceptable for discharge under Part G, Item 22(a) may be discharged to the tundra ~~immediately east of Quarry #2 or~~ as designated by an Inspector;

c. All Water discharged from the Landfarm Sump at monitoring station ST-4 shall not exceed the following effluent quality limits:

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
pH	6.0-9.0	9.0
Total Suspended Solids (TSS)	15.0	30.0
Total Oil and Grease	5 and no visible sheen	10 and no visible sheen
Total Ammonia – N	2.0	4.0
Total Lead	0.01	0.02
Benzene	0.37	-
Toluene	0.002	-
Ethyl Benzene	0.090	-

d. Water from the Landfarm Sump that is acceptable for discharge under Part G, Item 22(c) may be discharged to the tundra or as designated by an Inspector;

e. Water discharged from the Fuel Storage and Containment Facility Sumps at monitoring stations ST-~~5~~5, ST-6a and ST-6b shall not exceed the following effluent quality limits:

[Note change previously approved as part of Amendment 2]

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
pH	6.0-9.0	9.0
TSS	15	30
Total Oil and Grease	5	10
Total Lead	0.01	0.02
Benzene	0.37	-
Toluene	0.002	-
Ethyl Benzene	0.090	-

f. Water from the Fuel Storage and Containment Facility Sump that is acceptable for discharge under Part G, Item 22(e) may be discharged to the tundra or as designated by an Inspector; and

g. Sump water from the Landfill, Landfarm and Fuel Storage and Containment Facility that does not meet the criteria in Part G, Items 22(a),(c) and (e) respectively shall be directed to the Tailings Impoundment Area.

23. The Licensee shall submit to the Board for review ~~by September 1, 2008,~~6 months prior to beginning ore processing, a revised Tailings Management Plan. The Plan shall include Shoreline Erosion Protection Adaptive Management strategies for monitoring and control.

24. The Licensee shall operate and maintain the Tailings Impoundment Area (TIA) to engineering standards such that:

a. The Licensee shall maintain a minimum freeboard limit of one (1) meter below the top of the frozen core of the North and South Dams or as recommended by a Geotechnical Engineer;

b. Implement contingency measures where necessary to prevent overtopping of the North Dam;

c. Implement the Shoreline Erosion Protection and Adaptive Management strategies as required;

d. The Licensee shall collect and return seepage from the TIA, as determined by monitoring and follow-up water quality analyses;

e. The Licensee shall carry out at a minimum, weekly inspections during any period during which site is occupied to identify and remediate where necessary, areas of concern including issues of seepage, cracking, and ponding for all structures associated with the TIA including the North and South Dams, Emergency Dump Catch Basins, pipeline(s), pumps, mill tailings discharge points and other associated structures. The records shall be kept for review upon request of an Inspector;

f. The Licensee shall consult the Geotechnical Engineer when significant issues associated with the TIA are observed and implement the Engineer's recommendations as necessary;

g. The solids fractions of all mill tailings (except for filtered cyanide leach residue placed underground as mine backfill) shall be deposited and permanently contained within the Tailings Impoundment Area;
h. An annual Geotechnical inspection shall be carried out in accordance with Part J, Item 19;
i. The Licensee shall, ~~during operations~~conduct~~following the commencement of ore processing and deposit of tailings, conduct~~ a bathymetric survey of Tail Lake on an annual basis during summer, to facilitate tailings deposition management;
j. ~~The~~While site is occupied, the Licensee shall, during construction, operations and closure, conduct a daily visual assessment of suspended sediment in the Tailings Impoundment Area;
k. The Licensee shall perform more frequent inspection of the facilities at the request of an Inspector;
l. The Licensee shall place all filtered cyanide leach residue underground as mine backfill to remain frozen within permafrost; and
m. The Licensee shall provide at least ~~ten~~five (~~10~~5) days written notice to an Inspector prior to any planned discharges from the Tailings Impoundment Area to Doris Creek.

25. The Licensee shall implement the Tailings Water Management Strategy in accordance with the following:

26. All Water discharged from the Tailings Impoundment Area at monitoring station TL-4 shall not exceed the following effluent quality limits:

Parameter	**Maximum Average Concentration (mg/L)**	**Maximum Concentration of Any Grab Sample (mg/L)**
pH	6.0 – 9.5 s.u.	6.0 – 9.5 s.u.
Total Suspended Solids (TSS)	15.00	30.00
Total Arsenic – T-As	0.50	1.00
Total Copper – T- Cu	0.30	0.60
Total Cyanide – T-CN	1.00	2.00
Total Lead – T-Pb	0.20	0.40
Total Nickel – T-Ni	0.50	1.00
Total Zinc – T-Zn	0.50	1.00

Radium 226	0.37 Bq/L	1.11 Bq/L
Biological Oxygen Demand	80	160
Fecal Coliforms	10,000 CFU/100 mL	10,000 CFU/100 mL
Total Ammonia-N	6	-

27. The Licensee shall ensure that effluent discharged from monitoring stations TL-1 and TL-4 is demonstrated to be non-acutely toxic in accordance with Part J, Item 8.

28. During periods of discharge, water quality in Doris Creek at monitoring station TL-3 shall not exceed the greater of background water quality at the time of discharge as measured at monitoring station TL-2, or the following water quality limits:

Parameter	Maximum Concentration of Any Grab Sample (mg/L)
pH	6.0-9.0 s.u.
Total Suspended Solids (TSS)	15.0
Total Oil and Grease	5
Chloride	150
Free Cyanide	0.005
Total Cyanide	0.010
Total Ammonia N	1.54 at pH 7.5 and temperature of 20 degrees C[1]
Nitrate N	2.9
Nitrite N	0.060
Total Aluminum – T-Al	0.100
Total Arsenic – T-As	0.0050
Total Cadmium – T-Cd	0.000017
Chromium (VI)	0.0010
Total Copper – T-Cu	0.002
Total Iron – T-Fe	0.300
Total Mercury – T-Hg	0.000026
Total Molybdenum- T-Mo	0.073
Total Nickel – T-Ni	0.025
Total Lead – T-Pb	0.001
Total Selenium – T-Se	0.0010
Total Silver – T-Ag	0.0001
Total Thallium – T-Tl	0.0008
Total Zinc – T-Zn	0.030

1. Total Ammonia concentration discharge varies with pH and temperature as per Schedule G

29. ~~The~~Following the deposition of tailings, the Licensee shall ensure that water within the Tailings Impoundment Area is maintained at an elevation of least 28.3 metres above sea level such that a minimum of four (4) metres of water cover is maintained over the tailings at all times.

30. The Licensee shall ensure that the flow from the Tailings Impoundment Area into Doris Creek at monitoring station TL-4 does not exceed 10% of the background flow in Doris Creek as measured at monitoring station TL-2 at the time of discharge.

31. The Licensee shall on a monthly basis, during active ore processing and tailings deposition input average monthly water quality, hydrology and climate monitoring data in to the water quality model and perform the following assessment:

    a. Compare the predicted water elevation in the Tailings Impoundment Area to the measured elevations. If the difference between predicted and measured elevations is greater than 0.1m, then the Licensee shall re-calibrate the volume

rating curve;

b. Compare the predicted water quality in the Tailings Impoundment Area to the measured water quality. If the difference between predicted and measured values is 20% or greater, then the cause(s) of the difference shall be identified and the water quality model shall be re-calibrated; and

c. Predict the future discharge schedule and compare this prediction to the previously predicted discharge schedule. If necessary identify adaptive management strategies.

32. The Licensee shall submit to the Board for approval, a Plan to manage aircraft de-icing fluid used at the all-weather airstrip. The Plan shall be submitted at least three (3) months prior to the anticipated use of de-icing fluid and shall also cover on-site storage and containment requirements. [Note change previously approved as part of Amendment 2].

33. The Licensee shall submit to the Board for approval in writing, at least sixty (60) days prior to planned implementation, any changes that are contemplated to the geochemical confirmatory sampling and testing program or the criteria for using non-mineralized Waste Rock for construction as outlined in the approved Waste Rock Management Plan, submitted as per Part G, Item 15, including a description of and justification for the change. [Note clause added previously as part of Amendment 3].

34. The Licensee shall clearly identify and segregate all potentially acid generating Waste Rock for storage on the Temporary Waste Rock Pad, awaiting its ultimate disposal underground. [Note clause added previously as part of Amendment 3].

35. The Licensee shall submit to the Board as part of the Construction Monitoring Report referred to in Part D, Item 8, a Waste Rock and Quarry Monitoring Report. The Report shall be developed in accordance with Schedule D, Item 1 (f). [Note clause added previously as part of Amendment 3].

36. The Licensee shall review the Plans referred to in this Part as required by changes in operation and/or technology and modify the Plan accordingly. Revisions to the Plans are to be submitted in the form of an addendum to be included with the Annual Report, unless otherwise directed by the Board or an Inspector. [Note clause added previously as part of Amendment 3].

PART H: 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:

a. the Licensee has notified the Board in writing of such proposed Modifications at least sixty (60) days prior to beginning the Modifications;
b. such Modifications do not place the Licensee in contravention of the Licence or the *Act*;
c. such Modifications are consistent with NIRB Project Certificate;
d. 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
e. The Board has not rejected the proposed Modifications.

2. Modifications for which all of the conditions referred to in Part H, Item 1 has not been met can be carried out only with written approval 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 stamped by an Engineer.

PART I: CONDITIONS APPLYING TO CONTINGENCY PLANNING

1. The Licensee shall submit to the Board for review, within sixty (60) days of the issuance of this Licence, a revised Emergency Response and Contingency Plan in accordance with the *Spill Contingency Planning and Reporting Regulations* developed under the *Environmental Protection Act (Nunavut).* The revised Plan shall include a consideration of the revised scope of the Project and a revisions list detailing where significant content changes are made.

2. In the event that the revised Plan referred to in Part I, Item 1, is not acceptable to the Board, the Licensee shall make the necessary revisions and re-submit to the Board within thirty (30) days of notification by the Board.

3. The Licensee shall, with the exception of pending changes to the Plan, implement the Plan referred to in Part I, Item 1.

4. The Licensee shall review the Emergency Response and Contingency Plan annually and revise the Plan as necessary to reflect changes in operation and/or technology. Proposed changes to the Plan may be submitted to the Board for review, in the form of an addendum as part of the Annual Report under Part B, Item 3, complete with a revisions list detailing where significant content changes are made.

5. The Licensee shall ensure that any chemicals, petroleum products or unauthorized wastes associated with the project do not enter water. All Sumps and fuel caches shall be located at a distance of at least thirty (30) metres from the ordinary high water mark of any adjacent water body.

6. The Licensee shall provide to the satisfaction of an Inspector, secondary containment for fuel storage as required by applicable standards and acceptable industry practice.

7. ~~The~~During periods when site is occupied, the Licensee shall perform regular inspections of Fuel Storage and Containment Areas, Sumps, Emergency Dump Catch Basins, other fuel tanks and connectors for leaks and movement and shall keep a written log of inspections to be made available to an Inspector upon request. More frequent inspections may be required at the request of an Inspector.

8. If, during the period of this Licence an unauthorized discharge of waste and or effluent occurs, or if such discharge is foreseeable, the Licensee shall:

   a. Employ the Emergency Response and Contingency Plan;
   b. Report the incident immediately via the 24-Hour Spill Reporting Line (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 and clean up the spill site.

9. If the Licensee provides notification under Part ~~L~~M, Item ~~2,~~1, the Licensee shall submit to the Board, an addendum to the Emergency Response and Contingency Plan, detailing the changes in operations, personnel, responsibilities, availability of equipment and access to the site for assistance.

PART J: CONDITIONS APPLYING TO GENERAL AND AQUATIC EFFECTS MONITORING

1. The Licensee shall install and maintain flow meters or other such devices, or implement suitable methods required for the measuring of water use and Effluent discharge volumes, to be operated and maintained to the satisfaction of an

Inspector.

2. The Licensee shall install appropriate instrumentation in Doris Creek at Monitoring Station TL-2, to monitor flow when ice conditions allow for such measurements to be taken, on a real time and continuous basis~~.~~ in any year where discharges from the Tailings Impoundment Area are planned.

3. The Licensee shall undertake the Water Monitoring Program detailed in the Tables of Schedule J.

4. The Licensee shall:

   a. ~~a.~~Increase the sampling frequency to once every second day at monitoring stations TL-1, TL-2 and TL-3; should the measured concentration of any parameter listed under Part G, Item 28 ~~-~~at TL-3 ~~deviate by more than 20% from that predicted by the water quality model;~~ exceed the concentrations indicated in the table by 25% for a single grab sample, or 20% for an annual average sample during periods of active discharge;

   and

   b. Submit to the Board and an Inspector an understanding and justification of any discrepancy should the Licensee request a reduction in sampling frequency.

5. The Licensee, in consultation with an Inspector, shall establish the locations and GPS coordinates for all monitoring stations referred to in Schedule J.

6. The Licensee shall install and maintain, to the satisfaction of an Inspector, signs that identify monitoring stations. The signs shall be posted in English, Inuktitut and Inuinnaqtun.

7. Additional monitoring may be requested by the Board or by the Inspector.

8. The Licensee shall conduct Acute Lethality Testing~~,~~ at monitoring station TL-1 prior to discharge and at monitoring station TL-4 ~~monthly thereafter~~once during mid-open water season during discharge, in accordance with the following test procedures:

   a. Acute lethality to Rainbow Trout, *Oncorhynchus mykiss* (in accordance with Environment Canada's Environmental Protection Series Biological Test Method EPS/1/RM/13); and
   b. Acute lethality to the crustacean, *Daphnia magna* (in accordance with Environment Canada's Environmental Protection Series Biological Test Method EPS/1/RM/14).

9. All analyses shall be conducted as described in the most recent edition of "Standard Methods for the Examination of Water and Wastewater" or by other such methods

approved by an Analyst.

10. All compliance analyses shall be performed in an accredited laboratory according to ISO/IEC Standard 17025.

11. The Licensee shall file a letter with the Board for review confirming application for accreditation for the on-site environmental laboratory prior to operations.

12. The Licensee shall measure and record all flow and volume measurements on a monthly basis during periods when site is occupied (unless otherwise stated):

    a. The volume of freshwater obtained from Doris Lake for potable water;
    b. The volume of freshwater obtained from Doris Lake for process water;
    c. The volume of reclaim water obtained from Tail Lake for process water at Monitoring Station TL-8;
    d. ~~Tonnages~~Tonnes of mineralized and un-mineralized ~~waste rock~~Waste Rock stored on the Temporary Waste Rock Pad ~~on a monthly basis~~and at other locations approved by the Board in writing, during construction, operations~~,~~ and closure~~;~~. [Note change approved previously as part of Amendment 3].
    e. Tonnage of waste rock returned underground on a monthly basis during construction, operation and closure;
    f. The volume of sewage sludge removed from the Sewage Treatment Plant and the locations or method of sewage sludge disposal during construction, operation and closure; and
    g. ~~The~~Following the deposition of tailings, the ice thickness in Tail Lake measured on a monthly basis during construction, operations and closure.

13. The Licensee shall measure and record in tonnes (unless otherwise stated) including the location of disposal (temporary and permanent) for the following:

    a. The daily dry tonnes of combined tailings placed in the Tailings Impoundment Area;
    b. The daily dry tonnes of cyanide leach residue; and
    c. The monthly quantity of ore processed.

14. The Licensee shall undertake the Thermal Monitoring Program detailed in Table 3 of Schedule J.

15. The Licensee shall continue to monitor thermistors located between the Tailings Impoundment Area and Doris Lake and between Doris Lake and the underground workings. The monitoring shall be consistent with the baseline thermal monitoring program and shall be included in Table 3 of Schedule J.

16. The Licensee shall install additional thermistors to monitor rock temperatures surrounding the underground mine openings, particularly in the pillar adjacent to the Doris Lake Talik. These thermistors shall be added to Table 3 of Schedule J and shall be monitored on a monthly basis during periods when site is occupied during operations and closure.

17. The Licensee, in consultation with an Inspector, shall establish and confirm the locations and GPS coordinates for all monitoring stations referred to in Part J, Item

~~16.~~

18. The Licensee shall ensure that a geotechnical inspection is carried out annually between July and September by a Geotechnical Engineer. The inspection shall be conducted in accordance with the *Canadian Dam Safety Guidelines* where applicable and take into account all major earthworks, including the following:

a. North and South Dams;
b. Geotechnical instrumentation and associated monitoring data;
c. Tailings Impoundment Area shoreline and erosion strip survey monitoring results;
d. Emergency Dump Catch Basins;
e. All weather access roads;
f. Roberts Bay Jetty;
g. Landfill;
h. Landfarm;
i. Fuel Storage and Containment Facilities at the Plant Site and Roberts Bay site;
j. Sedimentation Pond;
k. Pollution control Pond;
l. Sumps;
m. Underground mine openings;
n. Groundwater conditions underground; and
o. Rock temperature measurements and groundwater inflow in the underground mine workings.
p. Sedimentation control berm at the overburden dump. [Note change previously approved as part of Amendment 2].

19. The Licensee shall submit to the Board within sixty (60) days of completion of the geotechnical inspection, the Geotechnical Engineer's inspection report. The report shall include a cover letter from the Licensee outlining an implementation plan addressing each of the Geotechnical Engineer's recommendations.

20. The Licensee shall visually monitor and record observations on a daily basis during periods of discharge, all discharge onto the tundra from the:

a. Landfill Sump;
b. Sedimentation Pond;
c. Landfarm Sump;
d. Plant Site Fuel Storage and Containment Area Sump;
e. Roberts Bay Fuel Storage and Containment Area ~~Sump~~Sumps; ~~and~~ f. Sewage Treatment Plant (during the construction phase);
h. Reagent and cyanide storage facility sumps. [Note change previously approved as part of Amendment 2].

The monitoring results shall be made available to an Inspector upon request.

21. The Licensee shall, within thirty (30) days following the month being reported, submit to the Board a monthly monitoring report in an electronic and hardcopy.

The Report shall include the following:

a. All data and information required by this Part and generated by the Monitoring Program in the Tables of Schedule J;

b. Copies of results required by NIRB Project Certificate Item 10;
c. An assessment of data to identify areas of non-compliance with regulated discharge parameters referred to in Part G;
d. During ore processing and active tailings deposition, summary of monthly operational assessments of the water balance and water quality model; and
e. Results of daily visual assessment of suspended sediment along the perimeter of the Tailings Impoundment Area shoreline when site is occupied during construction, operations, and closure.

PART K: CONDITIONS APPLYING TO GENERAL AND AQUATIC EFFECTS MONITORING PLANS

1. The Licensee shall submit to an Analyst for approval ~~by March 1, 2008, a~~any revisions to the approved Quality Assurance/ Quality Control Plan that includes field and laboratory procedures and requirements. This Plan shall be developed in accordance with the *1996 Quality Assurance (QA) and Quality Control (QC) Guidelines for Use by Class "A" (INAC)*.

2. If the Analyst does not approve the Plan referred to in Part K, Item 1, the Licensee shall revise the specific plan and resubmit to the Analyst for approval within thirty (30) days of notification by the Board.

3. The Licensee shall annually review the approved QA/QC Plan and modify the Plan as necessary. Proposed changes shall be submitted to an Analyst for approval.

4. The Licensee shall implement the QA/QC Plan as and when approved by the Analyst.

~~5. The Licensee shall submit to the Board for review by March 01, 2008, a revised version of the July 2007 Monitoring and Follow-Up Plan.~~
[Note to draft: As this is a summary of plans and the information is included in other plans, HBML requests that the Board consider elimination of this requirement.]

6. The Licensee shall confirm the absence of seepage from the Temporary Waste Pad in groundwater downstream of the Pollution Control Pond.

7. The Licensee shall submit to the Board for ~~approval by March 31, 2008, a proposal for the development of an~~review any revisions to the approved Aquatic Effects Monitoring Plan (AEMP), which was developed in consultation with Environment Canada. ~~The proposal for an AEMP shall consider modifications and advances in schedule which are consistent with~~In developing this plan, the Licensee and Environment Canada has coordinated to ensure that the AEMP meets the objectives and requirements of the MMER.

8. ~~The Licensee and Environment Canada shall coordinate with the NWB to ensure that the advanced submission of the AEMP meets the requirements of MMER.~~
9. The ~~Licensee shall continue to collect baseline data consist with previously~~

~~collected baseline data until such time as an AEMP is~~AEMP shall be implemented until the MMER applies to the Doris North Project, at which time the AEMP will be revised to reflect MMER requirements and schedule.

[Note the AEMP has been approved and the program has been implemented~~.~~ and running since 2010.]

10. The Licensee shall implement the Plans referred to in this Part of the water licence as and when approved by Board unless otherwise stated.

PART L: CONDITIONS APPLYING TO ABANDONMENT, RECLAMATION AND CLOSURE

1. The Licensee shall notify the Board in writing, at least sixty (60) days prior any intent to achieve Recognized Closed Mine status.

~~2. The Licensee shall notify the Board, a soon as practically possible, of any intent to enter into a Care and Maintenance Phase.~~

3. The Licensee shall provide to the Board, notification in writing, of the start of ore processing. Notification may be provided in accordance with monthly monitoring report as per Part J, Item 21.

4. The Licensee shall submit to the Board for approval within six (6) months of the start of ore processing, an Interim Closure and Reclamation Plan prepared in accordance with the *Mine Site Reclamation Guidelines for the Northwest Territories, 2007* and consistent with the ~~INAC~~AANDC's *Mine Site Reclamation Policy for Nunavut, 2002*. The Plan shall include the following:

    a. Detailed description, including maps and other visual representations, of the pre-construction conditions for each site, accompanied by a detailed description of the proposed final landscape, with emphasis on the reclamation of surface drainage over the restored area;
    b. A description of how progressive reclamation will be employed and monitored throughout the life of the mine, plus reclamation scheduling and coordination of activities with the overall sequence of the project; details of reclamation scheduling and procedures for coordinating reclamation activities within the overall mining sequence and materials balance;
    c. Implications of any water quality model re-calibration results on the Tailings Impoundment Area discharge strategy and any adaptive management measures that may be required;
    d. An evaluation of closure and reclamation measures for each mine component, including the goals, objectives, closure criteria and the rationale for selection of the preferred measures;
    e. A comprehensive assessment of materials suitability, including geochemical and physical characterization, and schedule of availability for reclamation needs, with attention to cover materials, including maps where appropriate, showing sources and stockpile locations of all reclamation construction materials and any water related mitigation required during implementation;
    f. An assessment and description of any required post-closure treatment for drainage water that is not acceptable for discharge from any of the reclaimed mine components;

g. Contingency measures for all reclamation components including action thresholds that are linked to the monitoring programs;
h. Monitoring programs to assess reclamation performance and environmental conditions including monitoring locations for surface water and groundwater, parameters, schedules and overall timeframes;
i. QA/QC procedures for managing the demolition landfill and other waste disposal areas;
j. The requirement that all ~~waste rock shall be disposed~~Waste Rock classified as mineralized in accordance with the approved Waste Rock Management Plan as submitted under Part G, Item 15 or as otherwise revised as per Part G, Item 35, be returned underground as backfill through progressive and final reclamation procedures, unless otherwise approved by the Board~~;~~ in writing.~~;~~ [Note change approved previously as part of Amendment 3.]~~.~~
k. Underground mine plans and sections, including the areas of backfill, the type of material placed and volumes should also be included;
l. Protocol for the disposal of any contaminated soil into the underground mine at closure;
m. An assessment of the long-term physical stability of all remaining project components including the north and south dams;
n. Detailed criteria for the final breaching of the North Dam;
o. A revised closure and reclamation cost estimate; and
p. A detailed implementation schedule for completion of reclamation work.

5. The Licensee shall review the Plan referred to in this Part as required by changes in operation and/or technology and modify the Plan accordingly. Revisions to the Plan are to be submitted in the form of an addendum to be included with the Annual Report, unless directed otherwise by an Inspector.

6. The Licensee shall submit to the Board for approval within eighteen (18) months of the start of ore processing, a Final Mine Closure and Reclamation Plan prepared in accordance with the *Mine Site Reclamation Guidelines for the Northwest Territories, 2006* and consistent with the ~~INAC~~AANDC *Mine Site Reclamation Policy for Nunavut, 2002*. The Final Plan shall incorporate revisions, which reflect the pending closed status of the mine, and include the following:

   a. Soil Quality Remediation Objectives along with CCME Guidelines and the Government of Nunavut *Environmental Guideline for Site Remediation*;
   b. Environmental Site Assessment plans in accordance Canadian Standards Association (CSA) criteria; and
   c. Evaluation of the Human Health and Ecological Risk Assessment.

7. The Licensee shall, if not approved by the Board, revise the Plan(s) referred to in this Part and resubmit to the Board for approval within thirty (30) days of receiving notification of the Board's decision.

8. The Licensee shall complete all reclamation work in accordance with the Plan(s) referred to in this Part as and when approved by the Board.

9. The Licensee shall implement progressive reclamation, including revegetation as soon as practically possible.

PART M: CONDITIONS APPLYING TO CARE AND MAINTENANCE

1. The Licensee shall notify the Board, a soon as practically possible, of any intent to enter into or come out of a Care and Maintenance Phase.

2. All terms and conditions of general application within 2AM-DOH-0713 remain in effect during a Care and Maintenance Phase, with the following modifications:

a. The requirements set out in Part G, Item 24 shall~~do~~ not apply and instead HBML shall be required to carry out daily inspections of the water management pipes and structures to and from the Tailings Impoundment Area during any period in which water is actively managed. The North Dam shall be inspected weekly while site is occupied and all inspection records shall be available upon request.

b. The requirements set out in Part G~~,~~, Item 31shall ~~do~~ not apply and instead the water balance model shall be updated annually during any Care and Maintenance phase. An annual data summary report shall be required. This annual report will summarize water quality data at the compliance monitoring locations and volumes of water pumped to and from the Tailings Impoundment Area. Water quality predictions shall be compared to actual data, if the observed data differs significantly from previous care and maintenance predictions.

c. The requirements set out in Part J,~~,~~ Item 12 shall~~do~~ not apply and instead the following monitoring is required:

(i) HBML shall monitor potable water volume extracted from Doris or Windy Lakes monthly when the camp is occupied.

(ii) If waste rock is moved, the tonnage and location where it is moved shall be recorded.

(iii) The volume of sewage sludge removed from the treatment plant and its disposal location shall be recorded when the plant is operating.

d. The requirements set out in Part J~~,~~, Item 14 shall~~do~~ not apply and instead all thermistors (with the exception of those installed at the North Dam) will be monitored once per year at the end of August or when the active layer is at its maximum thickness. Thermistors at the North Dam will be monitored as described in Section 7 of the North Dam As-Built Report. Data from these thermistors will be downloaded and reported annually.

e. The requirements set out in Part J~~,~~, Item 16 shall not apply.

f. The requirements set out in Part J, Item 20 shall not apply. Sumps, ponds, containment areas and the sewage treatment plant shall be monitored as described in the approved Interim Water Management Plan and Sewage Treatment Management Plan when the site is occupied.

g. The requriements set out in Part J, Item 21 shall not apply. A data summary report of all monitoring data shall be submitted annually. No update to the water balance model shall be required. The Tailings Impoundment Area shall be visually inspected weekly for TSS when camp is occupied. Prior to discharge from the Tailings Impoundment Area, water quality sample results shall be provided in writing to the inspector.

3. During any Care and Maintenance Phase, the Interim Water Management Plan (SRK 2012) approved by the Board in March 2012 and as revised from time to time with approval of the Board, shall be implemented by the Licensee. Any revisions to this plan must be submitted to the Board and approved.

Schedules are provided for:

A – Definitions
B – General Conditions
D – Conditions Applying to Construction
G – Conditions Applying to Waste Management and Waste Management Plans
J – Conditions Applying to General and Aquatic Effects Monitoring

Schedule A - Definitions

In this Licence: 2AM-DOH0713

"**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;

"**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, and portal development rock that can lead to the release of metals to groundwater or surface water during the life of the Project and after closure;

"**Acutely Lethal Effluent**" means effluent as defined in the *Metal Mining Effluent Regulations* SOR/2002-222 dated 6 June 2002;

"**Adaptive Management**" means a management plan that describes a way of managing risks associated with uncertainty and provides a flexible framework for the mitigation measures to be implemented and actions to be taken when specified thresholds are exceeded;

"**Aliquot**" means the amount comprising a known fraction of a whole and constituting a sample used for analysis;

"**Amendment**" means a change to any terms and conditions of this Licence, through application to the NWB, requiring correction, addition, or deletion of 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;

"**Aquatic Effects Monitoring Plan (AEMP)**" means a monitoring program designed to determine the short and long-term effects in the aquatic environment resulting from the Project, to evaluate the accuracy of impact predictions, to assess the effectiveness of planned impact mitigation measures and to identify additional impact mitigation measures to avert or reduce environmental effects;

"**Beach Laydown Area**" means the area designed for temporary storage of equipment and materials at Roberts Bay as illustrated in the Revised Water Licence Application Supporting Document S4 entitled "Engineering Drawings for Tailings Containment Area

and Surface Infrastructure Components", DWGS S-01 dated Mar 2007, SRK Job Number ICM014.008[to be updated to reflect current site configuration at Roberts Bay.];

"**Board**" means the Nunavut Water Board established under Article 13 of the *Nunavut Land Claims Agreement* and under Section 14 of the *Act*;

"**Canadian Council of the Minister of Environment (CCME)**" means the organizations of Canadian Ministers of 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**" in respect of a mine, means when the Licensee ceases construction, production or commercial operation temporarily for an undefined period of time;

"**Chief Administrative Officer**" means the Executive Director of the Nunavut Water Board;

"Closure" means when a mine ceases operations without the intent to resume mining activities in the future;

"**Commercial Operation**" in respect of a mine, means an average rate of production that is equal to or greater than 25% of the design rated capacity of the mine over a period of 90 consecutive days;

"**Construction**" means any activities undertaken to construct or build any component of, or associated with, the development of the Doris North Mine Project, as described in the Revised Water Licence Application, Supporting Documents, and Technical Meeting Information Supplement documents submitted to the Board throughout the regulatory process and any updates or revisions thereto submitted to the Board throughout any regulatory process relating to amendment or modification;

"**Dam Safety Guidelines**" means the *Canadian Dam Association (CDA) Dam Safety Guidelines (DSG), January 1999* or subsequent approved editions;

"**Deleterious Substances**" means a substance as defined in Section 34(1) of the *Fisheries Act;*

"**Deposit**" means the placement of waste rock, tailings or other solids materials on land or in water;

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

"**Dissolved Metals**" means the suite of metals referred to as MD in Schedule J Table 1 entitled Monitoring Groups. Dissolved metals shall be analyzed on a filtered sample;

"**Domestic Waste**" means all solid waste generated form the accommodations, kitchen facilities and all other site facilities, excluding those industrial and hazardous wastes associated with the mining and processing of ore;

"**Effluent**" means the liquid discharge from all site water management facilities;

"**Emergency Dump Catch Basin**" means a facility designed to contain tailings and reclaim water from the tailings and reclaim pipelines as described in the Revised Water Licence Application Supporting Document S1 entitled "Design of Tailings Containment Area" and as illustrated in the Revised Water Licence Application Supporting Document S4 entitled "Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components", DWGS T-13 dated March 2007, SRK Job Number ICM014.008;

"**Engineer**" means a professional engineer registered to practice in Nunavut in accordance with the *Engineering, Geological and Geophysical Act (Nunavut)* S.N.W.T. 1998, c.38, s.5;

"**Engineering Geologist**" means a professional geologist registered with the Association of Professional Engineers, Geologist and Geophysicists of Nunavut and whose principal field of specialization is the investigation and interpretation of geological conditions for civil engineering purposes;

"**Explosives Mixing and Storage Facility**" means a facility designed for the storage of ammonium nitrate, detonators and explosives; and designed for the mixing and storage of Ammonium Nitrate Fuel Oil (ANFO), as illustrated in ~~the Revised Water Licence Application Supporting Document S4~~drawings entitled "Engineering Drawings for ~~Tailings Containment Area and Surface Infrastructure Components", DWG. S-04 dated Mar 2007,~~the Doris North Explosives Facility", submitted with Amendment No. 1 TL-EXP-01, TL-EXP-02 and TL-EXP-03 dated April 16, 2010, SRK Job Number ~~ICM014.008~~1CH008.027];

"**Fuel Storage and Containment Facility**" means the facilities designed for the bulk storage of fuel at the Doris North Plant site and Roberts Bay as illustrated in the Revised Water Licence Application Supporting Document S4 entitled "Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components", DWGS S-05 and S- 06 dated Mar 2007, SRK Job Number ICM014.008; and the Water Licence Pre-Hearing Technical Meeting Information Supplement Figure 1, Project Number ~~334499;~~334499, as well as the facility expansion described in the amendment 2 application dated October 29, 2010 with Engineered drawings Attached as Appendix A to SRK Consulting memo dated September 22, 2010.; [Note change approved as part of Amendment No. 2]

"**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;

"**Engineered Structure**" means any facility, which was designed and approved by a Professional Engineer registered with the Association of Professional Engineers, Geologists and Geophysicists of Nunavut;

"**Environmental Assessment**" means, for the purpose of this licence, the totality of the Nunavut Impact Review Board (NIRB) Public Registry as established under the authority of Article 12 of the NLCA, this includes everything that was submitted by Miramar Hope Bay Limited to the NIRB, the scope of which is consistent with the Water Licence Application and any updates to the Project submitted by HBML to the NWB and/or NIRB;

"**Float Plane Dock**" means the infrastructure designed to allow for the offloading of supplies from a Twin Otter Plane using a Bobcat forklift as illustrated in the Revised Water Licence Application Supporting Document S4 entitled "Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components" DWG S-09 dated Mar 2007, SRK Job Number ICM014.008;

"**Freeboard**" means the vertical distance between the water level and the top of the containment element (i.e. a liner), within a dam or any other channel or pond used for containment of site runoff;

"**Fresh Water Intake**" means the infrastructure required for extraction of water ~~as described in the Water Licence Pre-Hearing Information Supplement Part A Item #4 and illustrated in SNC Lavalin Drawing Numbers 0011 and 0007, Project Number 334499~~ from Doris Lake and as required for extraction of fresh water from Windy Lake;

"**Frozen Core**" means a permafrost core comprising frozen ice-saturated aggregate material and functioning as an impervious seepage barrier;

"**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;

"**Ground Ice**" means ice that occupies fractures in rock and soil below the ground surface and may be present as ice inclusion in permafrost, soil or rock, as pore ice, lense ice or massive ice;

"**Ground Water**" means water that occupies pores and fractures in rock and soil below the ground surface in a liquid or frozen state;

"**Hazardous Materials**" means a contaminant which is a dangerous good that is no longer used for its original purpose and is intended for recycling, treatment, disposal or storage;

"**ICP Metals Scan**" means, for the purpose of the Licence, elements detected in an inductively coupled plasma (ICP) mass spectrometer. Metal parameters should be consistent with baseline data previously collected 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 near the end of the mining operations, and operational detail for components which are to be progressively reclaimed earlier in the mine life;

"**Landfill**" means a facility designed to permanently contain solid, non-combustible, non-hazardous waste materials, as described in the ~~Revised Water Licence Application Supporting Document S10g entitled "Landfill Management Plan" and illustrated in the Revised Water Licence Application Supporting Document S4 entitled "Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components" DWG S-13 and S-14 dated Mar 2007, SRK Job Number ICM014.008~~Type A Water Licence Amendment Application No. 4 submitted to the Nunavut Water Board in August 2012;

"**Landfarm**" means a lined, engineered area designed to contain and treat hydrocarbon impacted sediment and soil using bioremediation as described in ~~the Revised Water Licence Application Supporting Document S10h entitled "Landfarm Management Plan" and illustrated in the Revised Water Licence Application Supporting Document S4~~in drawings entitled "Engineering Drawings for ~~Tailings Containment Area and Surface Infrastructure Components" DWG S-13 and S-14 dated Mar 2007,~~the Doris North Land Farm" LF-00, LF-02 through LF-08 dated April 20, 2012, SRK Job Number ~~ICM014.008~~1CH008.033/.058;

"**Licence**" means this Type "A" Water Licence 2AM-DOH0713, issued by the Nunavut Water Board in accordance with the *Act*, to ~~Miramar~~ Hope Bay Mining Limited (~~MHBL~~HBML) for the Doris North Project;

"**Licensee**" means to whom Licence 2AM-DOH0713 is issued to or assigned;

"**Maximum Average Concentration**" means the average concentration of any four consecutively collected samples taken from the identical sampling location and taken during any given timeframe;

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

"**Mine Water**" means any water, including groundwater, that is pumped or flows out of any underground workings or open pit;

"**Minister**" means the Minister of ~~Indian~~Aboriginal Affairs and Northern ~~Affairs~~Development Canada;

"**Modification**" means an alteration to a physical work that introduces a new structure or eliminates an existing structure and does not alter the purpose or function of the work, but does not include an expansion;

"**Monthly**" means, in the context of monitoring frequency, one sampling event occurring every 30 days with a minimum of 21 days between sampling events;

"**North Dam**" means the infrastructure designed as a water retaining structure utilizing a central frozen core with a geosynthetic clay liner (GCL) installed against the upstream side of the core, as illustrated in ~~the Revised Water Licence Application Supporting Document S4 entitled~~[updated as built currently under preparation] ;
~~"Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components" DWG T-03, SRK Job Number ICM014.008;~~

"**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;

"**Nutrients**" means the suite of parameters referred to as N1 and N2 in Schedule J Table 1 entitled Monitoring Groups;

"Occupied" means 2 or more site personnel attending at Doris North camp for 7 or more consecutive nights;

"**Operations**" means the entire set of site activities (excluding construction, care and maintenance and decommissioning activities) associated with mining, processing and recovery of gold at the Doris North Project, as described in the Revised Water Licence Application, Supporting Documents, and Technical Meeting Information Supplement documents submitted to the Board throughout the regulatory process;

"**Operator**" means the person who operates, has control or custody of, or is in charge of a mine or recognized closed mine;

"**Ore Stockpile**" means the above-ground facility designated for the temporary storage of ore to be processed in the mill as illustrated in ~~the Revised Water Licence Application Supporting Document S4 entitled "Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components" DWG S-07 dated Mar 2007, SRK Job Number ICM014.008~~[updated as built currently under prepartion.];;

"**Pollution Control Pond**" means a facility designed to temporarily contain stormwater runoff from the camp mill pad, specifically the temporary waste rock pile, the ore stockpile, the crusher and mill yard areas as described in ~~the Revised Water Licence Application Supporting Document S10j entitled "Water Management Plan", the Water Licence Pre-Hearing Technical Meeting Information Supplement Part B Item #6 and illustrated in the Revised Water Licence Application Supporting Document S4~~drawings entitled "Engineering Drawings for ~~Tailings Containment Area and Surface Infrastructure Components" DWG S-07 and S-08 dated Mar 2007,~~the Doris North Camp Area" DN-DMC-010, DN-DMC-011, DN-DMC-014, DN-DMC-032, DN-DMC-033 through DN-DMC-038 dated March 20, 2012, SRK Job Number ~~ICM014.008~~1CH008.33; ;

"**Portal Development Rock**" means rock that will be produced at the beginning of mine life, as the underground access ramp is driven from the collar location to the ore body;

"**Progressive Reclamation**" means actions that can be taken during mining operations before permanent closure, to take advantage of cost and operating efficiencies by using the resources available from mine operations to reduce the overall reclamation costs incurred. It enhances environmental protection and shortens the timeframe for achieving the reclamation objectives and goals;

"**Project**" means the Doris North Project as outlined in the FEIS and supplemental information submitted by Miramar Hope Bay Limited to the Nunavut Impact Review Board (NIRB) as well as the Revised Water Licence Application, Supporting Documents, and Technical Meeting Information Supplement documents submitted to the Nunavut Water Board throughout the regulatory process and as updated from time to time in submissions to regulatory authorities by HBML. It comprises an underground mine, surface processing facilities, surface waste containment, water collection and treatment facilities and other infrastructure;

"**Quarry**" means the ~~four (4)~~ areas of surface excavation for extracting rock material for construction purposes as identified in ~~section 2.4.15 of the Revised Water Licence Application Support Document, April 2007~~[Lea to update to refer to updated new document]~~;~~ as well as the borrow source #5 required for the construction of the airstrip bypass road and airstrip expansion described in the amendment 2 application dated October 29, 2010. [Note change approved as part of Amendment 2.]

"**Quarterly**" means, in the context of monitoring frequency, one sampling event occurring every 3 months with a minimum of 90 days between sampling events;

"Reagent and Cyanide Storage Facility" means the engineered storage and containment areas described in the amendment 2 application dated October 29, 2010 with engineered drawings attached as Appendix A to SRK Consulting memo dated September 21, 2010. [Note change approved as part of Amendment 2.]

"**Reclaim System**" means the facility used to pump water from the Tailings Impoundment Area to the plant as described in the Revised Water Licence Application Supporting Document S10j entitled "Water Management Plan" and illustrated in the Revised Water Licence Application Supporting Document S4 entitled "Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components" DWG T-11 dated Mar 2007, SRK Job Number ICM014.008;

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

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

"**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 *Northwest Territories Water Regulations SOR/93-303 8 June, 1993*;

"**Sedimentation Pond**" means a facility designed to temporarily contain stormwater

runoff from the "clean" surfaces of the camp mill pad including the camp, mill and laydown and chemical reagent storage area as described in ~~the Revised Water Licence Application Supporting Document S10j entitled "Water Management Plan" and illustrated in the Revised Water Licence Application Supporting Document S4~~drawings entitled "Engineering Drawings for ~~Tailings Containment Area and Surface Infrastructure Components" DWG S-07 and S-08 dated Mar 200,~~the Doris North Camp Area" DN-DMC-010, DN-DMC-011, DN-DMC-014, DN-DMC-032, DN-DMC-041 through DN-DMC-044 dated March 20, 2012, SRK Job Number ~~ICM014.0087~~1CH008.33;;

"**Seepage**" means any water that drains through or escapes from any structure designed to contain, withhold, divert or retain water or waste. Seepage also includes any flows that

have emerged from the toe, or as a result of runoff from overburden storage areas, waste rock storage facilities, and ore stockpile areas; (note roads, dams, pads, quarries);

"**Sewage**" means all toilet wastes and greywater;

"**Sewage Treatment Plant (STP)**" means the Sani-Membrane Bio-Reactor system designed for the treatment of sewage described in the ~~Water Licence Pre-Hearing Technical Meeting Information Supplement Part A – Item 10~~Wastewater Treatment Management Plan;;

"**Shoreline erosion protection**" as described in the Revised Water Licence Application Supporting Document S-1 Appendix G;

"**South Dam**" means the infrastructure designed as a water retaining structure utilizing a central frozen core with a geosynthetic clay liner (GCL) installed against the upstream side of the core, as illustrated in the Revised Water Licence Application Supporting Document S4 entitled "Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components" DWG T-05, SRK Job Number ICM014.008;

"**Spillway**" means an engineered structure to facilitate the emergency release of water or waste from a facility. The spillway elevation is the elevation at which water or waste begins to flow through the spillway structure as illustrated in the Revised Water Licence Application Supporting Document S4 entitled "Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components" DWG T-08, SRK Job Number ICM014.008;

"**Sump**" means a containment facility for the collection of surface drainage;

"**Surface Drainage**" means all surface waters resulting from the flow over, through or out of an operations area and is collected by means of engineered structures considered under the Storm Water Management Facilities as described in the Revised Water Licence Application Supporting Document S10j entitled "Water Management Plan";

"**Tailings Impoundment Area**" means the lake designated as a Tailings Impoundment Area under Schedule 2 of the *Metal Mining Effluent Regulations.* Also referred to in the Revised Water Licence Application as Tail Lake or Tailings Containment Area;

"**Tailings Water Management Strategy**" means the strategy employed during operations to discharge effluent from the Tailings Impoundment Area to Doris Creek to meet CCME guidelines for parameters of concern to protect freshwater aquatic life in Doris Creek, downstream of the waterfall, as described in the Revised Water Licence Application Supporting Document S10j entitled "Water Management Plan";

"**Talik**" means a layer or body of *unfrozen* ground occurring in a permafrost area due to a local anomaly in thermal, hydrological, hydrogeological or hydrochemical condition;

"**Temporary Waste Rock Pad**" means the engineered facility designed for

the ~~temporary deposit of waste~~storage of Waste Rock and potentially acid generating rock, as illustrated in the ~~Revised Water Licence ApplicationSupporting Document S4 entitled "Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components" DWGS S-07 and S-08, SRK Job Number 1CM014.008;~~Engineering Drawings (specifically DN-DMC-01 and 06) for the Doris North Camp Area, Doris North Project, Nunavut, Canada, prepared by SRK Consulting for Hope Bay Mining Ltd., Project No. 1CH008.027, dated September 29, 2010 and further design as submitted under the Waste Rock Management Plan and approved by the Board in writing. [Note updated as per Amendment No. 3][Note As Builts currently under preparation];

"**Traditional Knowledge**" means the practical knowledge that has been gathered through the experience of living in close contact with nature and has been passed along or communicated orally, and handed down from generation to generation;

"**Total Metals**" means the suite of metals referred to as MT in Schedule J Table 1 entitled Monitoring Groups. Total metals shall be analyzed on an un-filtered sample;

"**Use**" means use as defined in section 4 of the *Act*;

"**Waste**" means waste as defined in section 4 of the *Act*;

"**Waste Disposal Facility**" means all site infrastructure designed to contain waste on a temporary or permanent basis including the Landfill, Landfarm, Tailings Impoundment Area, site Sumps, Pollution Control Pond, and Sedimentation Pond;

"**Waste Rock**" means all unprocessed rock materials that are or were produced as a result of mining operations and having no current economical value;

"**Waste Water**" means the water generated by site activities or originates on-site that requires treatment or any other water management activity;

"**Water**" means water as defined in section 4 of the *Act*;

"**Water Supply Facility**" means the Fresh Water Intake, the Reclaim System and associated infrastructure;

"**Water Licence Application**" for the purposes of this Licence includes the totality of the NWB and NIRB Public Registries establishes as a result of the filing of the application dated March, ~~2002.~~2002 and any subsequent applications for amendment, renewal or notifications filed by HBML. Including Supporting Documents, and Technical Meeting Information Supplement documents; and

"**Weekly**" means, in the context of monitoring frequency, one sampling event occurring every 7 days with a minimum of 5 days between sampling events.

Schedule B - General Conditions

~~The~~Except as modified during a Care and Maintenance Phase as described in Part M, the Annual Report referred to in Part B, Item 3 shall include the following data:

1. Summary of monthly monitoring reporting performed in accordance with Part J, Item 21. Summary shall convert daily volumes and tonnages to monthly and annual volumes and tonnages;

2. Summary of the Construction Monitoring Report referred to in Part D, Item 8 and outlined in Schedule D;

3. A Geochemical Monitoring and Waste Rock Storage Assessment that includes the following:

    a. For the tailings solids:
        i. All geochemical data appended;
        ii. All tonnage data appended and locations of disposal;
        iii. Discussion of geochemical data (static and kinetic, if applicable) with relevant figures and calculation of NNP and NPR; and
        iv. Geochemical interpretation of data.
    b. For tailings supernatant:
        i. All geochemical data appended; and
        ii. Figures depicting time series of constituent concentrations and loads.
    c. For ~~waste rock:~~Waste Rock:
        i. ~~Tonnages of waste rock~~ Tonnage of mineralized and un-mineralized Waste Rock placed on the Temporary Waste Rock ~~Pile by classification of mineralized and un-mineralized rock.~~Pad and in other locations as approved by the Board in writing. [Note change approved as part of Amendment 3.]

    d. For barren bleed stream:
        i. Raw monthly monitoring results from monitoring station TL-9; and
        ii. Figures depicting time series for each of the parameters.
    e. For cyanide leach residue:
        i. Presentation of results of bi-annual underground inspection of the following:
            1. Location of inspection;
            2. Extent of freezeback of cyanide leach residue;
            3. Seepage from the cyanide leach residue; and
            4. Geochemical and inspection data of any samples taken from seepage from the cyanide leach residue including geochemical discussion of results.

4. A summary of the results of the monthly water balance and water quality model assessments referred to in Part G, Item 31 and any re-calibrations that have been

carried out. The report shall include:

a. Relevant supporting data;

b. a comparison of measured water balance and water quality values to predicted values;
c. Monitoring and internal modelling results;
d. Discharge volume calculations;
e. a discussion of any discrepancies in model inputs;
f. re-evaluation of Tailings Water Management Strategy and a discussion of any changes to the discharge schedule; and
g. Identification of any necessary adaptive management strategies.

5. Summary of the Geotechnical Inspection Report referred to in Part J, Item 18 that includes the following:
   a. All quantities in cubic meters of dike seepage from the North and South Dams pumped back into the Tailings Impoundment Area;
   b. As-built drawings and a summary of the mitigation works undertaken along the shoreline of the Tailings Impoundment Area in response to erosion, as stipulated in the Shoreline Adaptive Management Plan; and
   c. All data and information generated from the monitoring of all project geotechnical instrumentation.

6. An update on the current capacity of the Tailings Impoundment Area;

7. A comparison of the flows (m^3/day) at monitoring stations TL-1, TL-2, TL-3, and TL-4;

8. Annual review and any revisions submitted in the form of addendums to the Management Plans or Emergency Response and Contingency Plan;

9. A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken;

10. The ~~results of continued aquatic effects baseline data collection, and the~~ results of the Aquatic Effects Monitoring Program in accordance with Part K, Item 4; [Note baseline data collection no longer required as approved AEMP is in place].

11. Annual adjustments to reclamation security including any additional security that may be required;

12. Annual Incineration stack testing results;

13. Annual Landfill Management report;

14. A summary of modifications and/or major maintenance work carried out on the Water Supply and the Waste Disposal Facilities, including all associated structures, and an outline of any work anticipated for the next year;

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15. A summary of any closure and reclamation work undertaken and an outline of any work anticipated for the next year, including any changes to implementation and scheduling;

16. A summary report describing public consultation and participation with local organizations and the residents of the nearby communities, including a schedule of upcoming community events/information sessions;

17. GPS locations of monitoring stations as confirmed with the Inspector Part J, Item 5;

18. A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector; and

19. Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.

Schedule D - Conditions Applying to Construction

1. The Construction Monitoring Report referred to in Part D, Item 8 shall include the following:

    a. Blast vibration monitoring for quarrying activity carried out in close proximity to fish bearing waters;
    b. Monitoring of the performance of erosion protection measures employed by the construction contractor;
    c. Monitoring for sediment release from construction areas;
    d. Monitoring for wildlife interactions;
    e. Monitoring to ensure the protection of all migrating birds and their nesting sites;
    f. Follow-up geochemical sampling of quarried rock used in construction of the site roads and pads to verify that the rock used is non-acid generating as predicted;
    g. Monitoring of the waste management practices employed by the contractors and their employees (food waste, hazardous wastes such as engine oil and filters etc, non-hazardous wastes);
    h. Monitoring of contractor's activity to minimize ground impacts to the tundra (i.e. keeping vehicles off the tundra and on constructed roadways);
    i. Monitoring of dust generation and use of water by the contractor to manage dust emissions from crushing and construction activity;
    j. Vegetation monitoring;
    k. Summary of the Quarry Rock Construction Monitoring Program referred to in Part D, Item 3;
    l. Summary of the construction of the North and South Dams;
        i. Laboratory results of subsurface investigations of the dam foundations from undisturbed samples;
        ii. Details of the geotechnical instrumentation and monitoring plan proposed to monitor the performance of the dams; and
        iii. Results of subsurface investigations and laboratory analyses must be reviewed by MHBL and the dam design modified accordingly under the supervision of a Geotechnical Engineer.
    m. Summary of the items referred to in Part D, Item 15 with respect to updated construction drawings for the all weather access roads;
    n. Summary of the Quarry Rock Seepage Monitoring Program referred to in Part D, Item 22; and
    o. Status of the Construction Summary Report referred to in Part D, Items 27.
    f. Waste Rock and Quarry Monitoring Report, including the following:
    i. A summary of the geochemical inspections;
    ii. Results of the seep surveys;
    iii. Results of geochemical sampling and analysis; and
    iv. A summary of all mitigation activities undertaken as a result of monitoring.

[Note change approved as part of Amendment 3.]

The report shall discuss the monitoring results, analysis and any mitigation measures employed as a result of the monitoring, for each of the items listed above.

CCME - Water Quality guidelines for total ammonia for the protection of aquatic life ($mg \cdot L^{-1} NH_3$)

Temp (°C)	**pH**							
	6.0	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**9.0**	**9.5**
0	231	73.0	23.1	7.32	2.33	0.749	0.250	0.042
5	153	48.3	15.3	4.84	1.54	0.502	0.172	0.034
10	102	32.4	10.3	3.26	1.04	0.343	0.121	0.029
15	69.7	22.0	6.98	2.22	0.715	0.239	0.089	0.026
20	48.0	15.2	4.82	1.54	0.499	0.171	0.067	0.024
25	33.5	10.6	3.37	1.08	0.354	0.125	0.053	0.022
30	23.7	7.50	2.39	0.767	0.256	0.094	0.043	0.021

Schedule J - Conditions Applying to General and Aquatics Effects Monitoring

TABLE 1 - MONITORING GROUPS

Group	Analytical Parameters	Measurement Units	Colour Reference
General (**G**)	~~Ph~~pH	pH units	**Red**
	TSS	mg/L	
Nutrients (**N1**)	Total Ammonia-N	mg-N/L	**Blue**
	Nitrate-N		
	Nitrite-N		
Nutrients (**N2**)	Orthophosphate-P	mg/L	**Orange**
	Total Phosphate-P		
Total Metals - Unfiltered (**MT**)	T-Aluminum	mg/L	**Green**
	T-Arsenic		
	T-Copper		
	T-Iron		
	T-Nickel		
	T-Lead		
	T-Zinc		
Dissolved Metals - Filtered (**MD**)	D-Iron	mg/L	**Purple**
	D-Copper		
	D-Arsenic		
	D-Zinc		
	D-Cadmium		
	D-Nickel		
Biological (**B**)	Biological Oxygen Demand	mg/L	**Yellow**
	Fecal Coliforms	CFU/100 mL (colony forming units)	
Hydrocarbons (**HC**)	Total Oil and Grease	mg/L	**Dk. Green**
	T-Lead		
	Benzene		
	Toluene		
	Ethyl-Benzene		
Discharge (**D**)	Flow	m^3/day	**Grey**
	Volume	m^3	
	Duration	Day	

GROUP REFERENCE

STATION / PARAMETER	TL-1	TL-2	TL-3	TL-4	TL-5	TL-6	TL-7	TL-8	TL-9	TL-10	TL-11	TL-12	ST-1	ST-2	ST-3	ST-4	ST-5	ST-6	ST-7	ST-8	ST-9	ST-10
pH	x	x	x	x	X			x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Electrical Conductivity											x											
TSS	x	x	x	x	X			x		x		x	x	x	x	x	x	x	x	x	x	x
TDS	x	x	x	x						x												
Cl	x	x	x	x						x				x								
Free CN	x	x	x	x	X			x		x									x			
Total CN	x	x	x	x	X			x	x	x	x		x	x	x				x			
WAD CN	X	X	X	x	X		x		x		x											
Total Ammonia-N	x	x	x	x	x			x		x	x	x	X	x	x	x			x			
Nitrate-N	x	x	x	x	x			x		x	x	x	X	x					x			
Nitrite-N	x	x	x	x	x			x		x	x	x	X	x					x			
Sulphate					x						x	x	X	x	x							
Orthophosphate-P	x	x	x	x				x		x									x			
Total Phosphate-P	x	x	x	x				x		x									x			
T-Al	x	x	x	x	x	X		x		x			x	x	x				x			
T-Ag	x	x	x	x				x		x									x			
T-As	x	x	x	x	x	X		x		x			x	x	x				x			
T-Ca	x	x	x	x						x									x			
T-Cd	x	x	x	x	x	X		x		x									x			
T-Cr	x	x	x	x	x	X		x		x									x			
T-Cu	x	x	x	x	x	X		x		x			x	x	x				x			
T-Fe	x	x	x	x	x	X		x		x			x	x	x				x			
T-Hg	x	x	x	x	x	X		x		x									x			
T-K	x	x	x	x						x												
T-Mo	x	x	x	x	x	X		x		x									x			
T-Mg	x	x	x	x						x												
T-Na	x	x	x	x						x												
T-Ni	x	x	x	x	x	X		x		x			x	x	x				x			
T-Pb	x	x	x	x	x	X		x		x			x	x	x	x	x	x	x			
T-Se	x	x	x	x	x	X		x		x									x			
T-Zn	x	x	x	x	x	X		x		x			x	x	x				x			

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STATION / PARAMETER	TL-1	TL-2	TL-3	TL-4	TL-5	TL-6	TL-7	TL-8	TL-9	TL-10	TL-11	TL-12	ST-1	ST-2	ST-3	ST-4	ST-5	ST-6	ST-7	ST-8	ST-9	ST-10
T-Tl	x	x	x	x				x		x									x			
T-Radium 226				x																		
Dissolved Oxygen & Redox Potential	x									x												
Acute Lethality	x			x																		
Flow	x	x	x	x	x			x				x	x	x	x	x	x	x	x	x	x	
Volume	x	x	x	x	x			x				x	x	x	x	x	x	x	x	x	x	
Water Level	x																					
Total Metals by ICP-MS*					x							x		x								
Total Metals ICP-MS including Sulphur						X	x															
Trace Metals by ICP-MS											x											
Alkalinity											x			x								
Acidity											x											
Dissolved Fe									x													
D-Cu									x													
D-As									x													
D-Zn									x													
D-Cd									x													
D-Ni									x													
BOD_5				x															x	x	x	
Fecal Coliforms				x															x	x	x	
Cyanate	X	X	X	X	x		x															
Thiocyanate	x	X	x	X	x		x															
Moisture content							x															
Total Oil and Grease			x										x	x	x	x	x	x	x	x	x	
Benzene																x	x	x				
Toluene																x	x	x				
Ethyl-Benzene																x	x	x				
Tonnage						X	x															

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STATION PARAMETER	TL-1	TL-2	TL-3	TL-4	TL-5	TL-6	TL-7	TL-8	TL-9	TL-10	TL-11	TL-12	ST-1	ST-2	ST-3	ST-4	ST-5	ST-6	ST-7	ST-8	ST-9	ST-10
Chemical Oxygen Demand									x													
Total Inorganic Carbon						x	x															

***** (definition: metals consistent with baseline data previously collected and any other metals of current interest)

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TABLE 2 – MONITORING REQUIREMENTS

Station	Description	Phase	Monitoring Parameters	Frequency
TL-1	TIA at the Reclaim Pump Barge - depth 1.5m below surface	Operation, Closure, Post Closure (for up to nine (9) years after cessation of mining); C&M when discharging from TIA	**G, N1, N2, MT** and TDS, Cl, Free CN, Total CN, T-Ag, T-Ca, T-Cd, T-Cr,T-Hg, T-K, T-Mo, T-Mg, T-Na, T-Se, T-Tl	~~Every second day for two (2) weeks prior to discharge and for two (2) weeks after discharge commences,~~ During Operations, one duplicate sample collected twice per week for 2 weeksprior to discharge (as ice safety permits) then reducing to once per week during ~~remainder of~~the annual discharge period. During C&M, one duplicate sample collected prior to discharge; samples during discharge to be collected at TL-4.
			Dissolved Oxygen and Redox Potential	Every second month
			Acute Lethality	Once prior to discharge
			D	Daily during periods of discharge during operations. During C&M, discharge is recorded at TL-4.
TL-2	Doris Outflow Creek - upstream (at the flow monitoring station adjacent to the bridge)	Operation, Closure, Post Closure (for up to nine (9) years after cessation of mining); C&M when discharging from TIA	**G, N1, N2, MT** and TDS, Cl, Free CN, Total CN, T-Ag, T-Ca, T-Cd, T-Cr, T-Hg, T-K, T-Mo, T-Mg, T-Na, T-Se, T-Tl,	~~Every second day for two (2) weeks~~One duplicate sample collected prior to discharge and one sample collected twice per week for two (2) weeks after discharge commences, then reducing to once per week during remainder of annual discharge period
			D	Daily during periods of discharge from Tail Lake
TL-3	Doris Outflow Creek (~80m downstream of the base of the waterfall)	Operation, Closure, Post Closure (for up to nine (9) years after cessation of mining); C&M when discharging from TIA	**G, N1, N2, MT** and TDS, Cl, Free CN, Total CN, T-Ag, T-Ca, T-Cd, T-Cr, T-Hg, T-K, T-Mo, T-Mg, T-Na, T-Se, T-Tl, Total Oil and Grease	~~Every second day for two (2) weeks~~One duplicate sample collected prior to discharge and one sample collected twice per week for two (2) weeks after discharge commences, then reducing to once per week during remainder of annual discharge period
			D	To be calculated from the TL-2 and TL-4 discharge volumes d~~D~~aily during periods of discharge from Tail Lake

TL-4	TIA Discharge End-of-Pipe (taken at a valve at the discharge end of the transfer pump pipeline)	Operation, Closure, Post Closure (for up to nine (9) years after cessation of mining); C&M when discharging from TIA	**G, N1, N2, MT,** and TDS, Cl, Free CN, Total CN, T-Ag, T-Ca, T-Cd, T-Cr, T-Hg, T-K, T-Mo, T-Mg, T-Na, T-Se, T-Tl, T-Radium 226	Weekly during periods of discharge
			Acute Lethality	~~Monthly~~Once during discharge period (mid-season)
			B	Monthly
			D	Daily during periods of discharge from Tail Lake
TL-5	Combined Tailings Discharged into TIA (Water Component) taken from a valve in the mill at the discharge end of the	Operations	**G, N1, MT**, and Free CN, Total CN, WAD CN, Sulphate, T-Cd, T-Cr, T-Hg, T-Mo, T-Se, and Total Metals by ICP-MS	Daily initially, reduced to weekly after 3 months of operation
			Cyanate and Thiocyanate	Quarterly

Station	Description	Phase	Monitoring Parameters	Frequency
	mill tailings pumps		**D**	Daily initially, reduced to weekly after 3 months of operation
TL-6	Combined Tailings Discharged into TIA (Solid Component) taken from a valve in the mill at the discharge end of the mill tailings pumps	Operations	Tonnage of dry tailings solids	Monthly during periods of discharge
			MT and T-Cd, T-Cr, T-Hg, T-Mo, T-Se,	Sampled on a weekly basis with analyses carried out monthly on a composite sample of the TL-6 weekly samples
			Total Inorganic Carbon and Total Metals by ICP-MS (must include Sulphur)	
TL-7	Filtered Cyanide Leach Residue sent underground as backfill	Operations	Dry tonnage of CN leach residue sent underground, WAD CN, Total Inorganic Carbon, Total Metals by ICP-MS (including Sulphur), Moisture content of backfill trucked underground,	Monthly
			Cyanate and Thiocyanate	Quarterly
TL-8	Reclaim water pumped from TIA to Mill Process water tank taken from a valve at the discharge end of the reclaim water pump	Operation	**G, N1, N2, MT** and Free CN, Total CN, T-Ag, T-Cd, T-Cr, T-Hg, T-Mo, T-Se, T-Tl,	Monthly
			D	Daily during periods of pumping
TL-9	Barren Bleed Solution sent to tailings taken from a sampling valve within the mill	Operations	**MD** and pH, Total and WAD CN, Chemical Oxygen Demand,	Monthly
TL-10	Water Column in deepest portion of Tail Lake and at a location away from the TIA Reclaim water floating pump house, sampled at surface, mid-depth and near bottom.	Operation, Closure, Post Closure (for up to nine (9) years after cessation of mining) C&M when discharging from TIA	**G, N1, N2, MT** and TDS, Cl, Free CN, Total CN, T- Ag, T-Ca, T-Cd, T-Cr, T-Hg, T-K, T-Mo, T-Mg, T-Na, T-Se, T-Tl, Dissolved Oxygen and Redox Potential	Monthly during discharge starting at least two (2) weeks prior to start of discharge season (as ice safety permits)
TL-11	Seepage from underground backfilled stopes	Operations	Visual inspection for seepage. If seepage present parameters to be monitored include **N1** and pH, EC, Trace metals by ICP-MS, Alkalinity, Acidity, Sulphate, Total and WAD CN,	Survey Twice annually

Station	Description	Phase	Monitoring Parameters	Frequency
TL-12	Underground Minewater - water pumped from the underground mine into the Mill tailings pump box	Operations	**G, N1** and Sulphate and Total Metals by ICP-MS	Monthly
			D	Monthly during pumping
ST-1	Discharge from Sedimentation Pond taken at a depth of ~0.25 m	Construction, Operation, Closure	**G, N1, MT** and Total Sulphate, Total CN, Total Oil and Grease,	Once before any discharge, daily when discharging onto the tundra
			D	Daily during periods of discharge
ST-2	Discharge from Pollution Control Pond taken at a depth of ~0.25m	Construction, Operation, Closure	**G, N1, MT** and Total Sulphate, Total CN, Total Oil and Grease, Alkalinity, Chloride, and Total Metals by ICP-MS	Monthly during open water season
			D	Daily during periods of discharge
ST-3	Discharge from Non-hazardous Landfill pollution control sump	Construction, Operation, Closure	**G, MT** and Total Ammonia-N, Total Sulphate, Total CN, Total Oil and Grease,	Once before any discharge, daily when discharging onto the tundra
			D	Daily during periods of discharge
ST-4	Discharge from Landfarm sump	Construction, Operation, Closure	**G, HC**	Once before any discharge, daily when discharging onto the tundra
			D	Daily during periods of discharge
ST-5	Discharge from the Plant Site Fuel Storage and Containment Area Sump	Construction, Operation, Closure	**G, HC**	Once before any discharge, daily when discharging onto the tundra
			D	Daily during periods of discharge
ST-6a and b	Discharge from the Roberts Bay Fuel Storage and Containment Area Sump	Construction, Operation, Closure	**G, HC**	Once before any discharge, daily when discharging onto the tundra
			D	Daily during periods of discharge
ST-7	Freshwater pumped from Doris Lake taken from a valve on the discharge end of the freshwater pump	Construction, Operation, Closure	**G, N1, N2, MT** and Free CN, Total CN, T-Ag, T-Cd, T-Cr, T-Hg, T-Mo, T-Se, T-Tl, and Total Oil and Grease	Monthly
			B	
			D	Monthly during periods of pumping

Station	Description	Phase	Monitoring Parameters	Frequency
ST-8	Discharge from Sewage Treatment Plant bio-membrane	Construction, Operation, Closure	**G, B,** and Total Oil and Grease	Monthly
			Location of discharge	Monthly during periods of discharge
			D	Monthly during periods of discharge
ST-9	Runoff from Sewage Treatment Plant discharge - downstream of sewage treatment plant discharge point and just prior to flow entering Doris Lake	Construction	**G, B,** and Total Oil and Grease	Monthly
ST-10	Site Runoff from Sediment Controls	Construction, Operations, Closure	TSS	Daily during periods of discharge
ST-11 [Note Added as part of Amendment 2]	Discharge from Cyanide and Reagent storage facility	Construction, Operation, Closure; after cyanide and reagents begin to be stored in the facility	**G, N1, MT** and Total Sulphate, Total CN, Total Oil and Grease,	Once before any discharge, daily when discharging onto the tundra
			D	Daily during periods of discharge
Monitoring Strip #1	Shoreline (location provided in S4 DWG T-14 dated March 2007)	Construction, Operations, Closure	Erosion via bathymetric survey of the underwater section of the monitoring strip down to the original Tailings Impoundment Area water level of 28.3 m	Annually once tailings deposition commences [Note that during current state, amount of erosion would be on the order of centimeters which would be difficult to quantify]
Monitoring Strip #2	Shoreline (location provided in S4 DWG T-14 dated March 2007)	Construction, Operations, Closure	Erosion via bathymetric survey of the underwater section of the monitoring strip down to the original Tailings Impoundment Area water level of 28.3 m	Annually once tailings deposition commences
Monitoring Strip #3	Shoreline (location provided in S4 DWG T-14 dated March 2007)	Construction, Operations, Closure	Erosion via bathymetric survey of the underwater section of the monitoring strip down to the original Tailings Impoundment Area water level of 28.3 m	Annually once tailings deposition commences
Monitoring Strip #4	Shoreline (location provided in S4 DWG T-14 dated March 2007)	Construction, Operations, Closure	Erosion via bathymetric survey of the underwater section of the monitoring strip down to the original Tailings Impoundment Area water level of 28.3 m	Annually once tailings deposition commences
Monitoring Strip #5	Shoreline (location provided in S4 DWG T-14 dated March 2007)	Construction, Operations, Closure	Erosion via bathymetric survey of the underwater section of the monitoring strip down to the original Tailings Impoundment Area water level of 28.3 m	Annually once tailings deposition commences

Monitoring Strip #6	Shoreline (location provided in S4 DWG T-14 dated March 2007)	Construction, Operations, Closure	Erosion via bathymetric survey of the underwater section of the monitoring strip down to the original Tailings Impoundment Area water level of 28.3 m	Annually once tailings deposition commences

TABLE 3 – THERMAL MONITORING

[Note: HBML requests removal of T1 and T2, as in the view of its professional advisors SRK, there is no technical reason to continue this monitoring.]

[Note: HBML requests removal of T4 as this is a baseline point that was never intended to become T-4. T-4 was intended to be a new string installed after construction. This was intended to monitor permafrost integrity under the rock fill pads at the laydown area (see SRK Dwg. S-01). This pad has been in place since 2007 and has been inspected as part of the Annual Geotechncial inspection since 2009. There has been no concerns or issues raised related to permafrost degredation and therefore HBML submits installation should not be required.

[Note: SRK recommendation is to remove T5 from Table. This is SRK-20. SRK-20 is a baseline point and was never intended to become T-5. T-5 was intended to be a new string installed after construction. This was intended to monitor permafrost degradation under the fuel transfer area constructed directly onto permafrost (SRK Dwg. S-01). This was never constructed at this location but moved to the Q1 tank farm on bedrock. This is therefore redundant and not required.]

[Note: SRK recommendation is to remove T7 ~~-~~from Table. This is SRK-22. SRK-22 is a baseline point and was never intended to become T-8. T-8 was intended to be a new string installed after construction. This was intended to monitor permafrost degradation under the airstrip which has been in place since 2007 and has been inspected as part of the Annual Geotechnical Inspection since 2009. There has been no issues raised related to permafrost degradation and therefore installation of a string for its intended purpose is not required.]

[Note: SRK recommendation is to remove DOR-1 from Table. This is SRK-28. It is currently inactive. SRK-28 is a baseline point and was never intended to become a Water License point. This was intended to monitor permafrost degradation under rock fill pads. This has been in place since 2007 and has been inspected as part of the Annual Geotechnical Inspection since 2009. There has been no issues raised related to permafrost degradation and therefore installation of a string for its intended purpose is not required.]

[**Note:** SRK recommendation is to remove DOR-5 from Table. This is SRK-26. It is currently inactive. SRK-26 is a baseline point and was never intended to become a Water License point. This was intended to monitor permafrost degradation under rock fill pads. This has been in place since 2007 and has been inspected as part of the Annual Geotechnical Inspection since 2009. There has been no issues raised related to permafrost degradation and therefore installation of a string for its intended purpose is not required.]

[**Note:** SRK recommendation is to remove SRK54 from table. This string was to confirm hydraulic discontinuity between Tail and Doris L~~l~~akes if Tail Lake is used as a TSF. As longs as SRK-57 and SRK-58 ~~is~~ are operational there should be no need to reinstate this string.]

[**Note:** SRK recommends removal of SRK 55 from table as string is inactive. This string was to confirm hydraulic discontinuity between Tail and Doris L~~l~~akes if Tail Lake is used as a TSF. With SRK-53, -57 and -58 operational there should be no need to reinstate this string.]

[**Note:** SRK recommends removal of SRK 56 from table as it is inactive. This string was to confirm hydraulic discontinuity between Tail and Doris L~~l~~akes if Tail Lake is used as a TSF. With SRK-53, -57 and -58 operational there should be no need to reinstate this string.]

[**Note:** Note it should be clarified that SI2-22 is only required if South Dam is constructed.]

Station	Location	Location Reference	Phase	Monitoring Parameters	Frequency
T9	Airstrip	SD4 - DWG S-03	Operation, C&M	Temperature	A
T-1	Bridge Abutment	SD4 - DWG S-12	Operation, C&M	Temperature	D
T-2	Bridge Abutment	SD4 - DWG S-12	Operation, C&M	Temperature	D(M onito
DOR-2	Camp	to be confirmed	Operation, C&M	Temperature	D
DOR-3	Pollution Control Pond	to be confirmed	Operation, C&M	Temperature	D
DOR-4	Sedimentation Pond	to be confirmed	Operation, C&M	Temperature	D
DOR-6	Road	to be confirmed	Operation	Temperature	D
DOR-7	Road	to be confirmed	Operation	Temperature	D
DOR-8	Road	to be confirmed	Operation	Temperature	D
DOR-9	Road	to be confirmed	Operation	Temperature	D
DOR-10	Road	to be confirmed	Operation	Temperature	D
SRK-53	Shoreline	to be confirmed	Operation, Closure	Temperature	D
SRK-57	Shoreline	to be confirmed	Operation, Closure	Temperature	D
SRK-58	Shoreline	to be confirmed	Operation, Closure	Temperature	D
NI1 - NI28	North Dam	SD4 - DWG T-09	Operation, Closure	Temperature	C
SI2 -SI22	South Dam	SD4 - DWG T-10	Operation, Closure	Temperature	C

A - Monthly, increasing if warming trend is observed
B – Monthly
C - Monthly readings taken manually; data loggers installed to collect continuous data at key locations. Frequency maintained until dam reaches pseudo steady state conditions. The frequency may then be reduced but will have to coincide with the peaks of the annual climatic cycles
D- Annually at the end of summer when the active layer should be at maximum thickness.

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