NUNAVUT WATER BOARD

AMENDED WATER LICENCE NO: 2AM-DOH1335

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Amended Licence No. 2AM-DOH1335 (Amendment No. 2)

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

TMAC RESOURCES INC.

(Licensee)

95 WELLINGTON STREET WEST, SUITE 1010 BOX 44
TORONTO ON M5J 2N7

(Mailing Address)

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

Licence Number/Type:	**2AM-DOH1335 TYPE "A" – AMENDMENT NO. 2**
Water Management Area:	**QUEEN MAUD GULF WATERSHED (30)**
Location:	**DORIS-MADRID PROJECT** **KITIKMEOT REGION, NUNAVUT**
Purpose:	**WATER USE AND DEPOSIT OF WASTE**
Description:	**MINING UNDERTAKING**
Quantity of Water not to be Exceeded:	**2,033,800 CUBIC METRES ANNUALLY**
Date Licence Issued:	**AUGUST 16, 2013 (AMENDED NOVEMBER 4, 2016, DECEMBER 7, 2018)**
Expiry of Licence:	**MARCH 30, 2035**

This Licence issued **(Motion Number 2018-16-P7-05)** and recorded at Gjoa Haven, Nunavut includes and is subject to the annexed conditions.

Lootie Toomasie
Nunavut Water Board
Chair

APPROVED BY:

Dominic LeBlanc
Minister of Intergovernmental Affairs, Northern Affairs and Internal Trade

DATE LICENCE APPROVED:

PART A: SCOPE, DEFINITIONS AND ENFORCEMENT

1. SCOPE

a. This Amended Licence authorizes the Licensee to use Waters and deposit Wastes in support of a Mining Undertaking classified as per Schedule 1 of the *Regulations*, at the Doris-Madrid Project as outlined in the Type "A" Water Licence Application (Application) submitted to the Nunavut Water Board (NWB) on December 20, 2017 and as reviewed throughout the regulatory process.

The Licensee may conduct mining and associated activities at the Doris-Madrid Project, in the Kitikmeot Region of Nunavut at the following project extents:

Project Extents	Latitude	Longitude
Doris-Madrid Project Area	67° 41' 30" N	106° 42' 57" W
	68° 12' 59" N	106° 45' 18" W
	68° 13' 12" N	106° 21' 36" W
	67° 41' 43" N	106° 19' 46" W
Doris Camp	68° 03' 23" N	106° 36' 06" W
Madrid South Camp	68° 01' 44" N	106° 33' 30" W

This Amended Licence incorporates, where appropriate, the scope of the Existing Type "A" Water Licence No. 2AM-DOH1323 including Amendment No.1 and the scope of this Amendment No. 2. To the extent that any required reports, studies or plans having not yet been received, accepted or approved by the Board, the requirements associated with such documents are now brought forward under this Amended Licence. Upon such time that the decision is made by the Licensee to enter into production at both Madrid North and South, TMAC shall promptly notify the Nunavut Water Board in writing

Scope of Existing Type "A" Water Licence No. 2AM-DOH1323 Amendment No. 1

The scope of the Existing Type "A" Water Licence No. 2AM-DOH1323, including Amendment No. 1, authorizes TMAC to conduct mining, milling and associated activities at the Doris Mine. The activities and facilities included under the scope of 2AM-DOH1323 including Amendment No. 1 are as follows:

- The use of Water from Doris Lake for mining, milling, and domestic purposes;
- The use of Water from Windy Lake for domestic purposes;
- The quarrying of materials from specified locations;
- The development and operation of site facilities;
- The construction of roads, an airstrip, water crossings, and laydown areas;
- The construction of waste rock storage pads;

- The construction and operation of a Sewage Treatment Plant (STP);
- The construction and operation of a Landfill and Landfarm;
- The construction and operation of Contact Water Ponds and Non-Contact Water Ponds;
- The handling and storage of petroleum products and hazardous materials including explosives, cyanide and other reagents;
- The construction of dams, a spillway, and shoreline erosion control needed for the operation of the Tailings Impoundment Area (TIA);
- The extraction of portal development rock, waste rock and ore from underground via decline;
- The deposition of tailings into the Tailings Impoundment Area;
- The disposal of Waste Rock, including potentially acid generating rock, and cyanide leach residue as mine backfill;
- The use of Waste Rock for construction;
- The diversion of site runoff to Water management facilities, including the Tailing Impoundment Area; and
- The progressive reclamation of on-site facilities and infrastructure.

The scope of activities added to the Project with Amendment No. 1 included in general, the following:

- The construction of additional surface infrastructure, including Doris Central and Doris Connector vent raise pads, Doris Central and Connector vent raise access roads, Roberts Bay Expanded Laydown Area, a temporary ore storage and laydown area on Pad U and its associated Contact Water Ponds and Non-Contact Water Pond, the use of Quarry 3 as a landfill and the Roberts Bay Discharge System and Access Road;
- A mining rate of up to 2,000 tonnes per day of ore (annual average);
- A mill with a design milling throughput of 2,000 tonnes per day of ore (annual average);
- The discharge of mine water to Roberts Bay, initially discharged into the TIA;
- The sub-aerial deposition of flotation tailings in the TIA;
- Prior to tailings being deposited into the TIA, the controlled discharge of effluent from the TIA to Doris Creek;

- Following tailings deposition to the TIA, TIA Effluent will discharge to Roberts Bay in accordance with the Metal Mining Effluent Regulations (MMER) and other applicable legislative requirements;
- During post-closure, Effluent from the TIA will be discharged to inland fresh Water (Doris Creek).

Scope of the Amendment No. 2 to the Existing Type "A" Water Licence No. 2AM-DOH1323

Activities at the Doris site will include:

- The scope of all facilities and activities authorized under this Licence be extended to March 30th 2035;
- Increasing Water use for domestic and industrial purposes from Doris Lake and Windy Lake, respectively
- Expansion of camp accommodations;
- Increasing the capacity of processing plant at Doris site;
- Expansion of the existing TIA to accommodate up to 18 million tonnes, by raising the south dam and construction a west dam;
- The Construction and operation of site water management facilities, including an Contact Water Treatment Plant at Doris;
- Initial backhauling of detox tailings from Madrid North site and ore for processing from Boston Project site;
- Construction of a fresh Water intake at Windy Lake;
- Construction and operation of wind turbines; and
- Upgrading the existing all-weather road between Doris and Madrid North sites, and development of all-weather road from Roberts Bay jetty to Roberts Bay cargo dock.

Activities at the Madrid North and Madrid South sites will include:

- Water use for domestic and industrial purposes from Windy Lake and Doris Lake, respectively;
- The development and operation of site facilities, including maintenance facilities, laydown areas, roads, helipads, quarries, storage pads for ore and waste rock, power plants, and contact water ponds;
- The development of underground and surface crown pillar mining;

- The construction and operation of an ore concentrator at Madrid North site;
- The construction and operation of wind turbines;
- Trucking of the concentrate and excess ore from Madrid North site to the existing processing plant at Doris site ;
- Trucking of the ore from Madrid South site for processing at the Madrid North processing plant and the existing Doris processing plant;
- The construction and operation of a tailings pipeline from Madrid North site to the Tailings Impoundment Area;
- Trucking of domestic waste to existing waste management facilities at the Doris site;
- The construction and operation of Bulk Fuel Storage Facilities at Roberts Bay and Madrid (North, South) sites; and
- The construction and operation of all-weather road from Madrid (North, South) site to Boston Project site.

b. This Licence is issued subject to conditions contained herein with respect to the use of Waters and the deposit of Waste of any type in any Waters or in any place under any conditions where such Waste or any other Waste that results from the deposits of such Waste may enter any Waters. Whenever new Regulations are made or the existing *Regulations* are amended by the Governor in Council under the *Act*, or other statutes imposing more stringent conditions relating to the quantity, type or manner under which any such Waste may be so deposited, this Licence shall be deemed to be subject to such requirements.

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

2. DEFINITIONS

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

3. ENFORCEMENT

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

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

c. For the purpose of enforcing this Licence and with respect to the use of Waters and deposit of Waste by the Licensee, Inspectors appointed under the *Act* hold all powers, privileges and protections that are conferred upon them by the *Act* or by other applicable laws.

PART B: GENERAL CONDITIONS

1. The amount of Water use fees shall be determined and payment of those fees shall be made in accordance with section 12 of the *Regulations.*

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

3. The Licensee shall retain and have a copy of this Licence available at the site of operations at all times.

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

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

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

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

6. The Licensee shall submit electronic copy of all reports, studies, and plans to the Board unless otherwise requested by the Board. Unless otherwise directed by the Board, reports or studies submitted to the Board by the Licensee shall include an executive summary in English, Inuktitut, and French.

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

8. 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.

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

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

11. The Licensee shall, for all Plans submitted under this Licence, include a proposed timetable for implementation. Plans submitted cannot be undertaken without subsequent written Board approval and direction. The Board may alter or modify a Plan if necessary to achieve the legislative objectives and will notify the Licensee in writing of acceptance, rejection or alteration of the Plan.

12. Unless otherwise directed by the Board in writing, if a Plan is not 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.

13. The Licensee shall, for all plans submitted under this Licence, implement the plan as approved by the Board in writing. Any changes to the plans deemed significant shall be considered as an amendment to the plan(s) or as a modification and must be submitted to the Board for approval in writing. The Board has approved under this Amended Water Licence 2AM-DOH1335, the following plans for implementation under the relevant sections in the Amended Licence:

    a. *Surface Emergency Response Plan (December 2017)*
    b. *Underground Emergency Responses Plan (December 2017)*
    c. *Hope Bay Project Spill Contingency Plan (December 2017)*
    d. *Hope Bay Project Domestic Wastewater Treatment Management Plan (December 2017)*
    e. *Hope Bay Project Groundwater Management Plan (May 2018)*
    f. *Hope Bay Project Doris-Madrid Water Management Plan (December 2017)*
    g. *Hope Bay Project, Phase 2, Doris Tailings Impoundment Area - Operations, Maintenance, and Surveillance Manual (December 2017)*
    h. *Hope Bay Project Waste Rock, Ore and Mine Backfill Management Plan (December 2017)*
    i. *Hope Bay Project Non-hazardous Waste Management Plan (December 2017)*
    j. *Hope Bay Project Hydrocarbon Contaminated Material Management Plan (December 2017)*
    k. *Hope Bay Project Hazardous Waste Management Plan (December 2017)*
    l. *Hope Bay Project Incinerator Management Plan (December 2017)*
    m. *Hope Bay Project Quarry Management and Monitoring Plan (December 2017)*
    n. *Hope Bay Project Aquatic Effects Monitoring Plan (October 2018)*
    o. *Hope Bay Project Doris-Madrid Interim Closure and Reclamation Plan (November 2017)*
    p. *Hope Bay Project Explosives Management Plan (December 2017)*
    q. *Quality Assurance and Quality Control Plan (January 2017)*

14. Every Plan to be carried out pursuant to the terms and conditions of this Licence shall become a part of this Licence, and any additional terms and conditions imposed upon approval of a Plan by the Board become part of this Licence. All terms and conditions of the Licence should be contemplated in the development of a Plan where appropriate.

15. The Licensee shall review the Plans referred to in this Licence as required by changes in operation and/or technology and modify the Plans or Manuals accordingly. Revisions to the Plans or Manuals are to be summarized and submitted in the form of an Addendum to be included with the Annual Report required by Part B, Item 2, complete with a revisions list detailing where significant content changes are made.

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

17. The Schedules attached to this Licence provide details regarding the requirements associated with specific items in the main body of the Licence and are included in the Schedule to provide greater clarity and as an aid to interpretation for the Licensee. If the Board subsequently determines that an item in any of the Schedules requires revision in order to better reflect the intent and objectives of the Licence, the Board may at its discretion, and upon consulting and providing written notice to the Licensee and interested parties, revise the Schedule accordingly. Unless the Board directs otherwise, such revision may not necessarily be considered as an "Amendment" to the Licence.

18. Unless otherwise stated, references in the Licence to any specific legislation, policy, guideline or other regulatory requirement are deemed to refer to the regulatory requirement as may be amended or as may be expressly replaced by successor legislation, policy, guidelines or other regulatory requirements after the Licence is approved by the Minister.

PART C: CONDITIONS APPLYING TO SECURITY

1. The Licensee shall furnish and maintain the specified additional reclamation security amounts with the Minister under the Licence in accordance with the schedule and specific stages of infrastructure construction (as defined in Schedule A: Scope, Definitions, and Enforcement) as follows:

Timing	Stage of Infrastructure Construction	Reclamation Security to Be Added to Security Held Under the Licence For Each Stage	Total Reclamation Security For Each Stage (Licence and KIA Instruments Combined)
Upon Licence Issuance	**Pre-Existing Infrastructure (Phase 1)**	$8,581,932	$30,725,648

Timing	Stage of Infrastructure Construction	Reclamation Security to Be Added to Security Held Under the Licence For Each Stage	Total Reclamation Security For Each Stage (Licence and KIA Instruments Combined)
Sixty (60) days prior to commencement of construction	**Roberts Bay & Boston All Weather Roads**	$17,575	$934,395
Sixty (60) days prior to commencement of construction	**Doris Wind Turbines**	$0	$1,569,016
Sixty (60) days prior to commencement of construction	**Madrid North Wind Turbines**	$0	$1,569,016
Sixty (60) days prior to commencement of construction	**Boston Wind Turbines**	$0	$1,569,016
Sixty (60) days prior to commencement of construction	**Madrid North**	$1,617,616	$4,123,262
Sixty (60) days prior to commencement of construction	**Madrid South**	$181,632	$957,108
Sixty (60) days prior to commencement of deposition	**Doris TIA Phase 2a**	$0	$11,180,308
Sixty (60) days prior to commencement of deposition	**Doris TIA Phase 2b**	$0	$9,430,810
TOTAL (ALL STAGES CONSTRUCTED)		**$10,398,755**	**$62,058,577**

2. The Licensee shall provide confirmation in writing, in a form acceptable to the Board, that the following specified additional reclamation security amounts have been furnished to the Kitikmeot Inuit Association in accordance with the schedule and specific stages of

infrastructure construction (as defined in Schedule A: Scope, Definitions, and Enforcement) as follows:

Timing	Stage of Infrastructure Construction	Reclamation Security to Be Confirmed as Added to Security Held By the KIA For Each Stage	Total Reclamation Security For Each Stage (Licence and KIA Instruments Combined)
Upon Licence Issuance	**Pre-Existing Infrastructure (Phase 1)**	$22,143,715	$30,725,648
Sixty (60) days prior to commencement of construction	**Roberts Bay & Boston All Weather Roads**	$916,820	$934,395
Sixty (60) days prior to commencement of construction	**Doris Wind Turbines**	$1,569,016	$1,569,016
Sixty (60) days prior to commencement of construction	**Madrid North Wind Turbines**	$1,569,016	$1,569,016
Sixty (60) days prior to commencement of construction	**Boston Wind Turbines**	$1,569,016	$1,569,016
Sixty (60) days prior to commencement of construction	**Madrid North**	$2,505,646	$4,123,262
Sixty (60) days prior to commencement of construction	**Madrid South**	$775,476	$957,108
Sixty (60) days prior to commencement of deposition	**Doris TIA Phase 2a**	$11,180,308	$11,180,308
Sixty (60) days prior to commencement of deposition	**Doris TIA Phase 2b**	$9,430,810	$9,430,810

Timing	Stage of Infrastructure Construction	Reclamation Security to Be Confirmed as Added to Security Held By the KIA For Each Stage	Total Reclamation Security For Each Stage (Licence and KIA Instruments Combined)
TOTAL (ALL STAGES CONSTRUCTED)		**$51,659,822**	**$62,058,577**

3. The Licensee shall furnish and maintain security with the Minister, under PART C, Item 1, in the form, of the nature, subject to such terms and conditions and in an amount prescribed by, or determined in accordance with the Act, and Regulations or that is satisfactory to the Minister.

4. The security held by the Kitikmeot Inuit Association, under PART C, Item 2, shall be held for the purposes of reclamation consistent with the purposes set out in s. 76(2)(b) of the Act, and the provisions of the *Act* and *Regulations* applicable to reclamation of the Mining Undertaking described in the Licence.

5. Once the Licensee has commenced construction of all stages of infrastructure set out in Part C, Items 1 and 2, and as defined in Schedule A, the Licensee shall ensure that the security furnished and maintained under Part C, Items 1 and 2 combined is not less than **sixty two million, fifty-eight thousand, five hundred, and seventy-seven dollars ($62,058,577).**

6. The Licensee shall, within ten (10) days after furnishing security with the Minister, under Part C, Item 1, provide evidence to the NWB and the Kitikmeot Inuit Association, that the security has been received by the Minister, indicating the amount, form, nature and conditions of the security.

7. The Licensee shall, within ten (10) days after furnishing security with the Kitikmeot Inuit Association, under Part C, Item 2, provide written confirmation to the NWB and to the Minister, that the security has been received by the Kitikmeot Inuit Association, indicating the amount, form, nature and conditions of the security.

8. If the Licensee fails to provide written confirmation required under Part C, Item 7, that the required security under Part C, Item 2, has been furnished to the Kitikmeot Inuit Association, the Licensee shall, within thirty (30) days of the failure, furnish such additional security to the Minister under the Licence as is required to replace the amount that should have been held by the Kitikmeot Inuit Association.

9. The Licensee shall provide the Board with at least ninety (90) days written notice prior to any material changes to the Undertaking or the risk of environmental damage associated with the Undertaking that could result in a material change to the reclamation liability associated with the Undertaking (including, but not limited to, updates to the reclamation cost estimate arising

from unexpected changes or modifications of the works and activities associated with the Undertaking).

10. The Licensee shall submit, within the updated *Interim Closure and Reclamation Plan* as per Part J, Items 2 and 6, an updated reclamation cost estimate of the total mine closure restoration liability, using the most current version of CIRNAC's RECLAIM Reclamation Cost Estimating Model, its equivalent or other similar method approved by the Board in writing, in accordance with principles of the INAC (as CIRNAC was previously known as) "*Mine Site Reclamation Policy in Nunavut 2002*".

11. The Licensee shall submit, within the *Final Closure and Reclamation Plan* as per Part J, Items 3 and 6, an updated reclamation cost estimate of the total mine closure restoration liability, using the most current version of CIRNAC's RECLAIM Reclamation Cost Estimating Model, its equivalent or other similar method approved by the Board in writing, in accordance with principles of the INAC "*Mine Site Reclamation Policy for Nunavut, 2002*".

12. Upon the Board receiving notice under Part C, Item 9, or upon receiving an updated reclamation cost estimate as required under Part C, Items 10 and 11, the Board may, on its own initiative, or upon application by the Licensee, the Minister and/or the Kitikmeot Inuit Association, conduct a periodic review of the outstanding reclamation liability associated with the Undertaking and may, as the Board considers appropriate, amend the amount of security held under Part C, Item 1. Any submission requesting an amendment to the security provisions of the Licence shall include supporting evidence to justify the amendment and will be processed by the Board as an amendment to the terms and conditions of the Licence.

13. The Licensee, the Minister, or the Kitikmeot Inuit Association may apply to amend the amount of security required to be held under the Licence. Any submission requesting a review of the security provisions of the Licence shall include supporting evidence to justify the amendment and will be processed by the Board as an amendment to the terms and conditions of the Licence.

14. The security referred to in Part C, Item 1, shall be maintained until such time as the Minister is satisfied that the Licensee has complied with all provisions of the approved Final Reclamation and Closure Plan and 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 the Licence or renewals thereof and until full and final reclamation has been completed to the satisfaction of the Minister.

15. The Licensee shall submit to the Board, at least sixty (60) days prior to the construction of Roberts Bay & Boston AWR, Doris Wind Turbines, Madrid North Wind Turbines, Boston Wind Turbines, Madrid North, Madrid South, Doris TIA Phase 2a, and Doris TIA Phase 2b, a written notification of intent to initiate a new stage of infrastructure construction as per Part C, Item 1.

PART D: CONDITIONS APPLYING TO CONSTRUCTION AND OPERATION

1. The Licensee shall submit to the Board for review, at least sixty (60) days prior to Construction, final design and Construction drawings accompanied with a detailed report, and prepared by a qualified Engineer(s) in accordance with and for the following items and including information stated within the Schedule D, Item 1.

    a. Water Management and Supply Facilities;
    b. Waste Management Facilities;
    c. Bulk Fuel Storage Facilities; and
    d. All-weather roads.

2. The Licensee shall use fill material for construction from approved sources that have been demonstrated, by appropriate geochemical analyses, to not produce Acid Rock Drainage, to be Non-Metal Leaching, and to be free of contaminants..

3. The Licensee shall implement preventive and mitigation measures to prevent any chemicals, fuel or Wastes associated with the undertaking from entering any waterbody.

4. The Licensee shall locate equipment storage areas on gravel, sand or other durable land, a distance of at least thirty one (31) metres above the ordinary High Water Mark of any water body in order to minimize impacts on surface drainage and water quality.

5. The Licensee shall conduct construction monitoring, including daily inspections, during periods where construction activities are undertaken.

6. The Licensee shall implement sediment and erosion control measures prior to and during Construction, and Operations where necessary, to prevent entry of sediment into Water.

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

8. The Licensee shall conduct visual inspections for runoff/seepage, and conduct sampling where turbidity is observed, for all construction activity during spring freshet and during and after remarkable rainfall events.

9. All surface runoff during the construction of any facilities, where flow may directly or indirectly enter a Waterbody, or discharge to tundra at Monitoring Program Stations ST-10 and MMS-9, shall be sampled Weekly and not exceed the following Effluent quality limits:

Parameter	Maximum Average Concentration	Maximum Concentration of Any Grab Sample
pH	Between 6.0 and 9.5	Between 6.0 and 9.5

Total Suspended Solids (TSS)	50.0 mg/L*	100.0 mg/L*
Oil and Grease	No Visible Sheen	No Visible Sheen

10. The Licensee shall, during the construction of all engineered structures, provide the required supervision and field checks 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 maintain all construction records of all engineered structures to be made available at the request of the Board and/or an Inspector.

11. The Licensee shall submit to the Board for review, within ninety (90) days of completion, a Construction Summary Report prepared by a qualified Engineer that includes as-built plans and drawings, documentation of field decisions that deviate from original plans and any data used to support these decisions in accordance with Schedule D, Item 2, for the following items:
    a. Water Management Facilities;
    b. Waste Management Facilities;
    c. Bulk Fuel Storage Facilities; and
    d. All-weather roads.

12. The Licensee shall not use Waste Rock from underground for any purpose, including the construction of any infrastructure, unless otherwise approved by the Board under PART F, Item 15 and in accordance with the plan provided under PART F, Item 12, revised and approved accordingly.

13. The Licensee shall minimize disturbance to terrain, permafrost and drainage during movement of contractor's equipment and personnel around the site during construction activities.

14. The Licensee shall not store material on the surface of frozen streams or lakes except what is for immediate use.

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

16. The Licensee shall limit any in-stream activity to low Water periods. In-stream activity is prohibited during fish migration unless otherwise approved by the Board or Fisheries and Oceans Canada.

17. The Licensee shall, for the purposes of culvert and 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.

18. The Licensee shall conduct a Quarry Rock Seepage Monitoring and Management Program in accordance with the *Hope Bay Project Quarry Management and Monitoring Plan*, as

approved by the Board, and submit the results to the Board with the Annual report as per Schedule B.

19. The Licensee shall direct all runoff and seepage from the Temporary Ore and Waste Rock Pads to the Contact Water Ponds for collection and transfer to the Tailings Impoundment Area.

20. The Licensee shall operate the Bulk Fuel Storage Facility in accordance with all applicable legislation and industry standards, including:

    a. *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products, 2003 (Updated in 2013) or most recent; CCME; and*
    b. *National Fire Code, 2010 or most recent.*

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

PART E: CONDITIONS APPLYING TO WATER USE AND MANAGEMENT

1. The Licensee shall obtain fresh Water for domestic camp use from Windy Lake designated using the designated fresh Water Intake at Monitoring Program Station ST-7a, with the volume not exceeding forty-three thousand eight hundred (43,800) cubic metres *per* year. The Licensee shall obtain fresh Water for mining, milling, and associated industrial uses from Doris Lake using the designated fresh Water Intake at Monitoring Program Station ST-7, with the volume not exceeding one million nine hundred thirty thousand (1,930,000) cubic metres *per* year. Drill Water may also be obtained from locations proximal to the drilling targets. Water for winter ice road construction may be obtained from proximal sources and shall not exceed sixty thousand (60,000) cubic metres *per* year. The total volume of Water use from all sources and for all purposes shall not exceed two million thirty-three thousand eight hundred (2,033,800) cubic metres *per* year.

2. The Licensee shall implement the Plan entitled "*Hope Bay Project Doris - Madrid Water Management Plan*" as approved by the Board. The Plan shall be reviewed annually in order to capture any revisions or updates necessary to adapt to changing circumstances.

3. The Licensee shall update the Water and Load Balance Model within two years after initial processing of Madrid Ore and two years before closure.

4. The Licensee shall implement the Plan entitled *Hope Bay Project Groundwater Management Plan* as approved by the Board. The Plan shall be reviewed annually in order to capture any revisions or updates necessary to adapt to changing circumstances regarding groundwater inflows and discharge rates.

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

6. The Licensee shall not use streams as a Water source unless authorized and approved by the Board in writing.

7. The Licensee shall maintain the fresh Water Intake Facilities at Doris Lake and Windy Lake to the satisfaction of the Inspector.

8. 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.

9. The Licensee shall not remove any material from below the ordinary High Water Mark of any Water body unless authorized by an Inspector or the Board in writing.

10. The Licensee shall provide the controls necessary to prevent erosion to the banks of any body of Water. Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into Water.

11. The Licensee shall carry out regular inspections of all Water Management Facilities during periods of flow and the records be kept for review upon request of an Inspector. More frequent inspections may be required at the request of an Inspector.

12. The Licensee shall implement measures to minimize the generation and deposition of dust and/or sediment into Water arising from road use.

PART F: CONDITIONS APPLYING TO WASTE DEPOSIT AND MANAGEMENT

1. The Licensee shall implement the following waste management plans as approved by the Board: *Hope Bay Project Domestic Wastewater Treatment Management Plan, Hope Bay Project Waste Rock, Ore and Mine Backfill Management Plan, Hope Bay Project Non-hazardous Waste Management Plan, Hope Bay Project Hydrocarbon Contaminated Material Management Plan, Hope Bay Project Hazardous Waste Management Plan, Hope Bay Project Incinerator Management Plan, Hope Bay Project Quarry Management and Monitoring Plan, Explosives Management Plan,* and *Doris Tailings Impoundment Area - Operations, Maintenance, and Surveillance Manual.*

2. The Licensee shall update for submission to the Board for review at least sixty (60) days prior to the construction of the Non-Hazardous Waste Landfill, an Addendum to the *Non-Hazardous Waste Management Plan,* that includes operational details.

3. The Licensee shall provide at least ten (10) days' notice to the Inspector prior to any planned discharges from any Facilities. The notice shall include the estimated volume proposed for

discharge and location. The Inspector and the Licensee may agree in writing to alternate notification requirements for ongoing, frequent, or regularly scheduled discharges.

4. The Licensee shall perform all land applied discharges of a waste that may enter Water in a manner that prevents erosion at the point of discharge and downstream.

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

   a. All Sewage from the Doris and Madrid Properties shall be directed to and treated in the Sewage Treatment Plant;
   b. All Effluent from the Sewage Treatment Plant may be discharged to the Doris TIA or to the tundra. The discharge of Doris STP effluent onto tundra at Monitoring Program Station ST-8 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	6.0-9.5
Total Suspended Solids (TSS)	100	100
Biological Oxygen Demand (BOD_5)	80	160
Fecal Coliforms	10,000 CFU/100 mL	10,000 CFU/100 mL
Oil and Grease	5, No Visible Sheen	10, No Visible Sheen

   c. All Effluent discharged from the Sewage Treatment Plant onto tundra shall be discharged to a location approved by an inspector;
   d. The Licensee shall provide at least ten (10) days written notice to the Inspector prior to any planned discharge from the Sewage Treatment Plant to the tundra. The notice shall include the volume proposed for discharge and the discharge location.

6. The Licensee shall dispose of all food Waste in an incinerator designed for this purpose and meets the requirements of the Canada-Wide Standards for Dioxins and Furans and Canada-Wide Standards for Mercury emissions or other standards as they become available.

7. The Licensee shall not open burn plastics, wood treated with preservatives, electric wire, Styrofoam, asbestos or painted wood in order to prevent the deposition of Waste materials (e.g. products of incomplete combustion, leachate from contaminated ash residual, etc.) from impacting any surrounding Waters, unless otherwise approved by the Board in writing.

8. The Licensee shall submit to the Board for approval in writing, at least six (6) months prior to construction of the Landfill, a revised *Non-hazardous Waste Management Plan* that include details on the Landfill. The Plan shall take into account comments made by intervening parties throughout the regulatory process and consider the following at a minimum:

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. Monitoring, characterization,
j. Disposal of incinerator ash; and
k. Any updates to final landfill location..

9. The Licensee is authorized to dispose of and contain all non-hazardous solid Wastes at the Landfill, or as otherwise approved by the Board in writing.

10. The Licensee shall backhaul and dispose of all hazardous Wastes, and non-combustible Waste generated through the course of the operation at a licensed Waste disposal site in accordance with the *Hazardous Waste Management Plan*.

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

12. 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 including a description of and justification for the change.

13. The Licensee shall identify and tag any potentially acid generating rock identified through the *Hope Bay Project Quarry Management and Monitoring Plan* for removal to the Temporary Waste Rock Pad, for ultimate disposal underground.

14. The Licensee shall submit to the Board as part of the Construction Summary Report referred to in PART D, Item 11, a Waste Rock and Quarry Monitoring Report that shall include the following:

a. A summary of the geochemical inspections;
b. Results of the seepage surveys;
c. Results of geochemical sampling and analysis; and
d. A summary of all mitigation activities undertaken as a result of monitoring.

15. The Licensee shall manage all Waste Rock brought to the surface from underground in accordance with the *Hope Bay Project Waste Rock, Ore and Mine Backfill Management Plan* or as otherwise approved by the Board and shall be:

a. Stored on the Temporary Waste Rock Pad;

b. Stored at other locations as identified in the approved Waste Rock and Ore Management Plan, and
c. Managed as otherwise approved by the Board in writing.

16. The Licensee shall operate and maintain all Waste management facilities to the satisfaction of the Inspector.

17. All Water from the Contact Water Ponds and Cyanide Storage Sumps shall be directed to the Tailings Impoundment Area, unless otherwise authorized by the Board in writing.

18. The Licensee shall operate and maintain the Sumps associated with the site, in accordance with the following:

a. Discharge of Effluent onto tundra from the Contact Water Ponds or Landfill sumps at Monitoring Program Stations ST-2, ST-3 and MMS-1, MMS-2, and MMS-3 shall not exceed the following Effluent quality limits:

Parameter	Maximum Authorized Monthly Mean Concentration (mg/L)	Maximum Authorized Concentration in a Grab Sample (mg/L)
pH	6.0-9.5	6.0-9.5
Total Suspended Solids (TSS)	50	100
Oil and Grease	5, no visible sheen	10, no visible sheen
Total Arsenic	0.5	1.0
Total Nickel	0.5	1.0

b. Effluent discharged onto tundra from the Landfarm Sump and Fuel Storage and Containment Facility Sumps at Monitoring Program Stations ST-4, ST-5, ST-6a, ST-6b, MMS-5, MMS-8 shall not exceed the following Effluent quality limits:

Parameter	Maximum Authorized Monthly Mean Concentration (mg/L)	Maximum Authorized Concentration in a Grab Sample (mg/L)
pH	6.0-9.5	6.0-9.5
Total Suspended Solids (TSS)	50	100
Benzene	0.37	0.37
Toluene	0.002	0.002
Ethylbenzene	0.09	0.09
Oil and Grease	5, No Visible Sheen	10, No Visible Sheen
Total Lead	0.2	0.4

c. Effluent from the Landfill, Landfarm and Fuel Storage and Containment Facility that does not meet the criteria in PART F, Items 18 (a) and (b) shall be directed to the Tailings Impoundment Area.

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

    a. The Licensee shall operate with a minimum freeboard limit of one (1) meter below the top of the North, West and South Dams or as recommended by a Geotechnical Engineer;
    b. Implement contingency measures where necessary to prevent overtopping of the North, West and South Dams;
    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 in which site is occupied and Water is being actively managed, 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, West and South Dams, Emergency Dump Catch Basins, pipeline(s), pumps, mill tailings discharge points and other associated structures. During Care and Maintenance, inspections shall be carried out on a monthly basis, at a minimum, weather permitting;
    f. The Licensee shall consult a 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 tailings (except for detoxified tailings 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 I, Item 9;
    i. The Licensee shall perform more frequent inspections of the facilities at the request of an Inspector;
    j. The Licensee shall place all filtered cyanide leach residue underground as mine backfill to remain frozen within permafrost; and
    k. The Licensee shall maintain records of all inspections for the review of an Inspector upon request.

20. Licensee shall perform more frequent inspections of the facilities at the request of an Inspector:

    a. The Licensee shall place all filtered cyanide leach residue underground as mine backfill to remain frozen within permafrost; and
    b. The Licensee shall maintain records of all inspections for the review of an Inspector upon request.

21. Effluent quality criteria in the TIA for discharge to the Doris System during post-closure, will be determined in advance of final closure and in consultation with the Board and other interested parties.

22. The Licensee shall demonstrate that Effluent discharged, from monitoring station TL-1 and TL-4 is non-acutely toxic in accordance with PART I, Item 14.

23. The Licensee shall prevent any chemicals, petroleum products, fuel or wastes associated with the Undertaking from entering any waterbody.

24. The Licensee shall, on a monthly basis during Operations and tailings deposition and at a minimum, annually during Construction or Care and Maintenance, input average monthly Water quality, hydrology and climate monitoring data into the water quality model and perform the following assessment:

    a. Compare the predicted water quality in the Tailings Impoundment Area to the measured water quality. If the measured values exceed the predicted value by 20% or greater, then the cause(s) of the difference shall be evaluated and the water quality model shall be updated as appropriate;
    b. 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 0.5m the facility is within 1 m from the full-supply level, and the water quality predictions suggest discharge criteria may not be met, then the cause(s) of the differences shall be evaluated and the predictive model shall be updated as appropriate;
    c. and Report the results in accordance with Schedule B Item 4

PART G: CONDITIONS APPLYING TO MODIFICATIONS

1. The Licensee may, without written consent from the Board, carry out Modifications provided that such Modifications are consistent with the terms of this Licence and the following requirements are met:

    a. The Licensee has notified the Board in writing of such proposed Modifications at least sixty (60) days prior to beginning the Modifications;
    b. Such Modifications do not place the Licensee in contravention of the Licence or the *Act;*
    c. Such Modifications are consistent with the applicable terms and conditions of the NIRB Project Certificate No. 009;
    d. The Board has not, within sixty (60) days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require more than sixty (60) days; and
    e. The Board has not rejected the proposed Modifications.

2. Modifications for which any of the conditions referred to in Part G Item 1 have not been met, can be carried out only with approval from the Board in writing.

3. Applications for modifications shall contain:

a. A description of the facilities and/or works to be constructed;
b. The proposed location of the structure(s);
c. Identification of any potential impacts to the receiving environment;
d. A description of any monitoring required, including sampling locations, parameters measured, and frequencies of sampling;
e. A proposed schedule for construction;
f. Drawings of Engineered Structures stamped by a Professional Engineer; and
g. Proposed sediment and erosion control measures.

4. The Licensee shall provide to the Board, within ninety (90) days of completion of the Modification, as-built plans and drawings of the Modifications referred to in this Part. These plans and drawings shall be stamped by an Engineer.

PART H: CONDITIONS APPLYING TO EMERGENCY RESPONSE AND CONTINGENCY PLANNING

1. The Licensee shall implement the following plans as approved by the Board: *Surface Emergency Response Plan, Underground Emergency Responses Plan, and Hope Bay Project Spill Contingency Plan* . The Licensee shall comply with the Plan(s) and any changes deemed significant shall require the submission and subsequent approval of the Board in writing.

2. All sumps and fuel caches shall be located at a distance of at least thirty-one (31) metres from the ordinary High Water Mark of any adjacent Water body and inspected on a regular basis.

3. The Licensee shall prevent any chemicals, petroleum products or unauthorized Wastes associated with the Project from entering Water.

4. The Licensee shall provide secondary containment for fuel and chemical storage as required by applicable standards and acceptable industry practice.

5. The Licensee shall perform weekly inspections of petroleum products storage and containment facilities, fuel tanks and connectors, for leaks and settlement and shall keep a written log of inspections to be made available to an Inspector upon request. More frequent inspections may be requested by an Inspector.

6. The Licensee shall, within ninety (90) days of providing notification of the Project entering into Care and Maintenance under Part J, Item 4, submit to the Board for approval in writing, an addendum to the *Surface and Underground Emergency Response Plans* and *Hope Bay Project Spill Contingency Plan*, detailing the changes in operations, personnel, responsibilities, availability of equipment and access to the site for assistance.

7. The Licensee shall keep a copy of the *Surface and Underground Emergency Response Plan* and the *Hope Bay Project Spill Contingency Plan* at each site of operation.

8. The Licensee shall conduct emergency maintenance and servicing on equipment, in designated areas, and shall implement measures to collect motor fluids and other Waste to prevent and contain spills.

9. The Licensee shall, subject to Section 16 of the *Regulations*, report any unauthorized deposits or foreseeable unauthorized deposits of waste and/or discharges of Effluent, and:

   a. Employ the Spill Contingency Plan;
   b. Report the incident immediately via the NT-NU 24-Hour Spill Report 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.

10. The Licensee shall, in addition to Part H, Item 9, regardless of the quantity of release of a harmful substance, report to the NT-NU 24-Hour Spill Report Line if the release is near or into a Water body.

11. The Licensee shall submit to the Board for review, at least sixty (60) days prior to operation of the Roberts Bay Discharge System, an addendum to the Spill Contingency Plan detailing spill prevention measures along the pipeline.

PART I: CONDITIONS APPLYING TO GENERAL AND AQUATIC EFFECTS MONITORING

1. The Licensee shall implement the *Hope Bay Project Aquatic Effects Monitoring Plan* (AEMP) as approved by the Board.

2. 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.

3. The Licensee shall undertake the Monitoring Program provided in the Tables 1, 2, and 3 of Schedule I. The Licensee shall, in consultation with an Inspector, establish the locations and GPS coordinates for all Monitoring Program Stations.

4. The Licensee shall install and maintain signs that identify Monitoring Program Stations. The signs shall be posted in English, Inuktitut and French.

5. The Licensee shall measure and record the following on a Monthly basis in cubic metres or as otherwise stated:

   a. The volume of fresh Water obtained from Windy Lake for domestic use;
   b. The volume of fresh Water obtained from Doris Lake for process water and other

uses;
c. The volume of reclaim water obtained from Tailings Impoundment Area for process water;
d. Tonnes of Waste Rock stored on the Temporary Waste Rock Pad and at other locations approved by the Board in writing, during Construction, Operations and Closure.;
e. Tonnes of Waste rock returned underground on a monthly basis during Construction, Operation and Closure; and
f. The volume of sewage sludge removed from the Wastewater Treatment Plant and the locations or method of sewage sludge disposal during Construction, Operation and Closure;
g. Report the data in accordance to Schedule B.

6. 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 tailings placed in the Tailings Impoundment Area;
b. The daily dry tonnes of detoxified tailings placed underground; and
c. The monthly quantity of ore processed.

7. The Licensee shall undertake the thermal monitoring of the Tailings Impoundment Area as detailed in Schedule I or as directed by the Board in writing.

8. 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 Schedule I.

9. The Licensee shall undertake a geotechnical inspection of all surface infrastructure and earthworks, annually between July and September, by a Geotechnical Engineer. The inspection shall be conducted in accordance with applicable best practices including the *Canadian Dam Association Guidelines* for water and waste containment facilities.

10. The Licensee shall submit to the Board for review, within ninety (90) days of completion of the geotechnical inspection, a report in accordance with Part I Item 9 and/or the Annual Report. The report shall include a cover letter from the Licensee outlining an implementation plan addressing each of the Geotechnical Engineer's recommendations and shall include the following:

a. All quantities in cubic meters of dike seepage from the North, West, 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; and
c. All data and information generated from the monitoring of all project geotechnical instrumentation.

11. The Licensee shall visually monitor and record observations, to be made available to an

Inspector upon request, during periods of discharge onto the tundra from:

a. Landfill Sump (on a daily basis);
b. Landfarm Sump (on a daily basis);
c. Plant Site Fuel Storage and Containment Facility Sumps (on a daily basis);
d. Roberts Bay Fuel Storage and Containment Facility Sumps (on a daily basis);
e. Sewage Treatment Plant (on a weekly basis);
f. Reagent and Cyanide Storage Facility Sumps (on a daily basis); and
g. Contact Water Ponds (on a daily basis).

12. The Licensee shall, within thirty (30) days following the month being reported, submit to the Board a monthly monitoring report in an electronic form. 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 I;
    b. An assessment of data to identify areas of non-compliance with regulated discharge parameters referred to in Part F;
    c. During Operations, a summary of monthly operational assessments of the water balance and water quality model; and
    d. Reports should document conditions during spring freshet, major rain events, and periods of sustained precipitation including flow measurements, photographs, and notes.

13. The Licensee shall keep a digital photographic record of all the Project's watercourse crossings before, during, and after Construction has been completed.

14. The Licensee shall conduct Acute Lethality Testing in accordance with and as required by the "*Metal Mining Effluent Regulations"*.

15. The Licensee shall annually review the approved *Quality Assurance and Quality Control Plan* and modify the Plan as necessary. Proposed changes shall be submitted to an Accredited Laboratory for approval.

16. 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.

17. All compliance analyses shall be performed in an accredited laboratory according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.

18. As noted in Part B, Item 17, changes to the Schedules, including Schedule I, which provides details of the Monitoring Program, may, at the Board's discretion, be considered without requiring an Amendment to the Licence. However, the Board must approve any changes to the Monitoring Program, as outlined in Part I and Schedule I; any request for changes to the Monitoring Program should be submitted to the NWB in writing, and should include the justification for the change.

19. Additional monitoring may be imposed by the Inspector.

PART J: CONDITIONS APPLYING TO ABANDONMENT, RECLAMATION AND CLOSURE

1. The Licensee shall implement the *Hope Bay Project Doris-Madrid Interim Closure and Reclamation Plan*, as approved by the Board. The Licensee shall update for Board review the *Hope Bay Project, Doris-Madrid Interim Closure and Reclamation Plan* with a layout plan to illustrate how the security stage triggers set out at Part C items 1 and 2 will be monitored on land within six (6) month of approval of the Licence.

2. The Licensee shall submit to the Board for approval in writing, every five (5) years following approval of the Amended Licence, an updated *Interim Closure and Reclamation Plan*, prepared in accordance with "*Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories*, issued by the Mackenzie Valley Land and Water Board (MVLWB) and Aboriginal Affairs and Northern Development Canada (AANDC) in 2013 (MVLWB/AANDC 2013) and consistent with the INAC "*Mine Site Reclamation Policy for Nunavut, 2002"*, including an updated reclamation cost estimate of the total mine closure restoration liability referred to in PART C, Item 5.

3. The Licensee shall submit to the Board for approval at least twelve (12) months prior to the expected end of planned mining, a *Final Closure and Reclamation Plan*. The Final Closure and Reclamation Plan shall incorporate revisions, which reflect the pending closed status of the mine, and include:

    a. Soil Quality Remediation Objectives reflecting the applicable *CCME Guidelines* and *the Government of Nunavut Environmental Guideline for Site Remediation*;
    b. Environmental Site Assessment plans in accordance with the applicable Canadian Standards Association (CSA) criteria;
    c. An evaluation of the human health and ecological risks associated with the Closure options proposed; and
    d. A Protocol for the disposal of any contaminated soil into the underground mine at closure.

4. The Licensee shall notify the Board in writing, at least sixty (60) days prior to, or as soon as practically possible, of the Licensee's intention to enter into a Care and Maintenance Phase.

5. The Licensee shall provide the Board, within thirty (30) days of the Licensee providing notice of intent to enter into Care and Maintenance under Part J, Item 4, a Care and Maintenance Plan that details the Licensee's plans for maintaining compliance with the Terms and Conditions of the Licence.

6. The Licensee shall, should the Project remain, or be in Care and Maintenance, submit an updated estimate of total mine closure restoration liability, within twelve (12) months of entering Care and Maintenance and every three (3) years thereafter.

7. The Licensee shall include, with the Plans submitted under PART J, Items 1, 2, 3 and 6 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 writing, in accordance with principles of the INAC"Mine Site Reclamation Policy for Nunavut, 2002".

8. The Licensee shall review the Plans referred to in this Part as required by changes in operation and/or technology and modify the Plans accordingly. Revisions to the Plans should incorporate design changes and adaptive engineering required and implemented during Construction and reflect actual site conditions and monitoring results over the life of the Project.

9. 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.

10. The Licensee shall submit to the Board for approval, at least twelve (12) months prior to the start of Closure works, engineering drawings and specifications of the tailings final cover system design.

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

12. The Licensee shall implement Progressive Reclamation of any component of the Project no longer required by the Project.

13. The Licensee shall remove any culverts and restore as practical the drainage to match the natural channel. Measures shall be implemented to minimize erosion and sedimentation.

14. All roads and airstrip, shall be re-graded to match natural contours to reduce erosion.

15. Areas that have been contaminated by hydrocarbons from normal fuel transfer procedures shall be reclaimed to meet objectives as outlined in the Government of Nunavut's *Environmental Guideline for Site Remediation*, (2010 version or current version in place at the time of Reclamation). Materials such as soil and rock that have been contaminated by hydrocarbons may be disposed of in the underground mine to remain frozen with permafrost. The use of reclaimed soils for the purpose of back fill or general site grading may be carried out only upon consultation and approval by the Government of Nunavut, Department of Environment and an Inspector

16. In order to promote growth of vegetation and the needed microclimate for seed deposition, all disturbed surfaces shall be prepared by ripping, grading, or scarifying the surface to conform to the natural topography as practicable.

17. To the extent practical, the Licensee shall contour and stabilize all disturbed areas to a pre-disturbed state upon completion of work.

18. The Licensee shall consult traditional land users, land owners, and other stakeholders on the proposed post-closure land use criteria. Particularly, the proposal to leave certain facilities in place and confirm the soil quality remediation objectives.

19. The Licensee shall notify the Board in writing, at least sixty (60) days prior to the Licensee intending to seek Recognized Closed Mine status for the Project.

SCHEDULES

Schedule A: Scope, Definition, and Enforcement

Schedule B: General Conditions

Schedule C: No Schedule for Security

Schedule D: Conditions Applying to Construction

Schedule E: No Schedule for Water Use and Management

Schedule F No Schedule for Waste Disposal and Management

Schedule G: No Schedule for Modifications

Schedule H: No Schedule for Emergency Response and Contingency Planning

Schedule I: Conditions Applying to General and Aquatic Effects Monitoring

Schedule J: No Schedule for Abandonment, Reclamation and Closure

Schedule A: Scope, Definitions, and Enforcement

In this Licence: **2AM-DOH1335**

"**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, open pits, ore piles, waste rock, construction rock that can lead to the release of metals to groundwater or surface water during the life of the Project and after Closure;

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

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

"**Amendment**" means a change to any terms and conditions of this Licence through application to the NWB, requiring a change, addition, or deletion of specific terms and conditions of the Licence not considered as a modification;

"**Amended Licence** "means Amended Licence 2AM-DOH1335;

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

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

"**Application or Water Licence Application**" means for the purposes of this Licence includes the totality of relevant documents filed by TMAC Resources Inc. on the NWB Registry in support of their Water Licence Application filed on December 20, 2017 and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Aquatic Effects Monitoring Plan (AEMP)**" means a monitoring program designed to determine the short and long-term effects to inland Waters 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;

"**Laydown Area**" means the area designed for storage of equipment and materials at specified locations as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

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

"**Boston All Weather Road**" means the all-weather road constructed between the Madrid South and Boston sites as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"Boston Wind Turbines" means any pair of winds turbines near the Boston site as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"Bulk Fuel Storage and Containment Facility" means the facilities designed for the bulk storage of fuel at the Doris, Madrid North, Madrid South and Roberts Bay sites as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Canadian Council of the Minister of Environment (CCME)**" means the organization of the Canadian Ministers of Environment that sets guidelines for environmental protection across Canada such as the *Canadian Water Quality Guidelines for the Protection of Fresh Water Aquatic Life*;

"**Care and Maintenance**" in respect of a mine, means the status of the facility when the Licensee ceases production or commercial operation temporarily for an undefined period of time;

"**Closure**" means when an Operator ceases operations at a facility 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 capacity of the mine over a period of ninety consecutive days;

"**Construction**" means any activities undertaken to construct or build any component of, or associated with, the development of the Project, as described in the in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"Construction Summary Report" means the report submitted to the Board ninety (90) days following to the completion of construction, detailing the constriction activates completed, as outlined in Part D;

"**Contact Water**" means any water that may be physically or chemically affected by mining activities and facilities, including all tailings water, process water, waste rock runoff, and ore stockpile runoff and seepage;

"**Contact Water Ponds**" means a facility designed to temporarily contain Contact Water at Doris, Madrid North and South mine sites as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;;

"**Contact Water Treatment Plant**" means the facilities designated for the treatment of Contact Water prior to discharge to the receiving environment as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Dam Safety Guidelines**" means the *Canadian Dam Association (CDA) Dam Safety Guidelines (DSG),* (published in 2007, revised in 2013 or subsequent approved editions);

"**Deleterious Substances**" means a substance as defined in section 34(1) of the Federal *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 in Group 2 of Table 1 – Monitoring Groups located in Schedule I of this Licence. 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 Project;

"**Doris TIA Phase 2a**" means the total amount of tailings in the Tailings Impoundment Area (TIA) that exceeds 2.5 million tonnes or 444,000 m^2 of total surface area;

"**Doris TIA Phase 2b**" means the total amount of tailings in the Tailings Impoundment Area (TIA) that exceeds 7.7 million tonnes or 1,070,000 m^2 of total surface area;

"Doris Wind Turbines" means the pair of wind turbines near the Doris site as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Earthworks**" means any earthworks related to the Project such as quarries, roads, pads and the airstrip.

"**Effluent**" means treated or untreated liquid waste material that is discharged into the environment 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;

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

"**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;

"**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, in respect of the Project, all material filed with the Nunavut Impact Review Board (NIRB) on the NIRB's Public Registry (established under the authority of Article 12 of the *Nunavut Agreement*) that is associated with the NIRB's impact assessment (Review) of the Project and associated with the scope of the activities, works and Undertakings authorized in accordance with the terms and conditions of the Licence;

"Existing Licence" means Licence No. 2AM-DOH1323, including Amendment No. 1;

"**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 described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**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 Intakes**" means the infrastructure required for extraction of fresh from Doris Lake and Windy Lake, as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

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

"**Final Discharge Point**" in respect of an effluent, means, as defined in the *Metal Mining Effluent Regulations*, SOR/2002-222 (as amended, December 2017 and as may be further amended from time to time) an identifiable discharge point of a mine beyond which the operator of the mine no longer exercises control over the quality of the effluent;

"**Geotechnical Engineer**" means a professional engineer registered with the Association of Professional Engineers, Geologist and Geophysicists of Nunavut and whose principal field of specialization is the engineering properties of earth materials in dealing with manmade structures and earthworks. Such structures and earthworks can include shallow and deep foundations, retaining walls, dams, and embankments;

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

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

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

"**Hazardous Waste**" means materials or contaminants which are categorized as dangerous goods under the *Transportation of Dangerous Good Act* 1992 (1992, c. 34) and/or that are no longer used for their original purpose and are intended for recycling, treatment, disposal or storage;

"**High Water Mark**" means the usual or average level to which a body of water rises at its highest point and remains for a sufficient time so as to change the characteristics of the land (ref. *Department of Fisheries and Oceans Canada, Operational Statement: Mineral Exploration Activities*);

"**ICP Metals Scan**" means elements detected using Inductively Coupled Plasma (ICP) mass spectrometer. Metal parameters chosen to be included in an ICP Metals Scan under the Licence should be consistent with baseline data previously collected and include any 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 addressing the Reclamation of mine components which will not be closed until the end of the mining operations, and operational detail for components which are to be progressively reclaimed throughout the mine life;

"**Interim Dike**"means a homogeneous ROQ rock fill dike constructed within the confines of the TIA, designed to retain tailings solids, as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Landfarm**" means a lined, engineered area designed to contain and treat hydrocarbon impacted sediment and soil using bioremediation as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Landfill**" means a facility designed to permanently contain solid, non-combustible, non-hazardous Waste materials, as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Licence**" means this Type "A" Water Licence 2AM-DOH1335, issued by the Nunavut Water Board in accordance with the *Act*, to TMAC Resources Ltd. (TMAC) for the Doris-Madrid Project;

"**Licensee**" means the entity to whom the Licence is issued or to whom the Licence is subsequently assigned;

"Madrid North" means starting of any earthworks related to the Phase 2 Hope Bay Belt Madrid North site such as quarries, roads or pads; OR, starting of any mining with more than 50,000 tonnes of ore extracted for a bulk sample;

"Madrid North Wind Turbines" means the pair of wind turbines near the Madrid North site as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"Madrid South" means starting of any earthworks related to the Phase 2 Madrid South site such as quarries, roads or pads, if Madrid South Bulk Sample infrastructure has not been constructed or, before commercial production, if Madrid South Bulk Sample infrastructure has been constructed;

"**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 Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC, formerly Indigenous and Northern Affairs 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;

"**Monitoring Program**" means the program to collect data on surface Water and Goundwater quality to assess impacts to the environment of an appurtenant Undertaking;

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

"**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 described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Non-Contact Water**" means runoff from access roads and overburden piles, quarries, fuel facilities and landfills as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Nunavut Agreement**" 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 I Table 1 entitled Monitoring Groups;

"**Operations**" means the set of activities associated with mining, ore processing and recovery of gold; excluding Construction, decommissioning and permanent Closure activities;

"**Operations Phase**" means the period during which the ore is extracted from the mine and processed to produce the final product (gold). The Operations Phase starts with the ore extraction, mining, and includes the milling and extraction of the valuable minerals as described in 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;

"**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 final Reclamation objectives and goals;

"**Project**" means the Doris-Madrid Project known previously as Doris North Project as outlined in the Final Environmental Impact Statement and supplemental information submitted by the Licensee to the Nunavut Impact Review Board (NIRB) as well as the Water Licence Application, Supporting Documents, and Technical Meeting Information Supplement documents submitted to the Nunavut Water Board throughout the regulatory process.

"Pre-Existing Infrastructure (Phase 1)" means all infrastructure and activities associated with Doris Phase 1, including the Doris-Windy all-weather road, old windy camp and old Patch Lake;

"**Quarry or Quarries**" means the areas of surface excavation for extracting rock material for use as construction materials in the development of infrastructure and facilities as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Quality Assurance / Quality Control (QA/QC)**" Quality Assurance means the system of activities designed to better ensure that quality control is done effectively; Quality Control means

the use of established procedures to achieve standards of measurement for the three principle components of quality: precision, accuracy and reliability;

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

"**Reagent and Cyanide Storage Facility**" means the engineered storage and containment areas as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

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

"**Reclaim System**" means the facility used to pump water from the Tailings Impoundment Area to the plant as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"Reclaim Water" means tailings supernatant that is pumped from Tailings Impoundment Area Reclaim pond to the processing plant to offset intake of fresh water from the environment for the same use as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Reclamation**" The process of returning a disturbed site to its natural state or one for other productive uses that prevents or minimizes any adverse effects on the environment or threats to human health and safety;

"**Recognized Closed Mine**" means a recognized closed mine as described in the *Metal and Diamond Mining Effluent Regulations*, SOR/2002-222 (Last amended June 1, 2018);

"**Regulations**" means the *Nunavut Waters Regulations*, SOR/2013-69;

"**Remediation**" means the removal, reduction, or neutralization of substances, wastes or hazardous material from a site in order to prevent or minimize any adverse effects on the environment and public safety now or in the future;

"Roberts Bay & Boston All Weather Roads" means any infrastructure associated with the Boston all-weather road or the Roberts Bay Cargo Dock including the Tank farm, access roads and laydown areas.

"**Roberts Bay Cargo Dock**" means the marine cargo dock located in Robert's Bay, and associated infrastructure, as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Roberts Bay Discharge System** "means the infrastructure constructed to discharge mine Water and TIA Effluent from the Marine Outfall Mixing Box to the Roberts Bay marine environment and consists mainly of an insulated pipeline as described in the Amendment Application;

"**Non-Contact Water Pond**" means a facility designed to temporarily contain stormwater runoff (non-Contact Water) from the ground surfaces of the camp mill pad including the camp, mill and laydown and chemical reagent storage area as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;;

"**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 through open pits, runoff from Waste Rock storage facilities, ore stockpile areas, quarries, landfill or landfarm areas;

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

"**Sewage Treatment Plant (STP)**" means the sewage water treatment plant for sewage water treatment as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**South Dam**" means the infrastructure designed as a Water and solids retaining structure utilizing a frozen core foundation with a geosynthetic clay liner (GCL) installed against the upstream side of the core, as as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Sump**" means a structure or depression that collects, controls, and filters liquid waste before it is released to the environment. This structure should be designed to prevent erosion while allowing percolation of liquid waste;

"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;

"**Tailings Impoundment Area**" means the Water body designated as a Tailings Impoundment Area under Schedule 2 of the *Metal and Diamond Mining Effluent Regulations related to the Project;*

"**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 conditions;

"**Temporary Waste Rock Pad**" means the engineered facility designed for the storage of Waste Rock and potentially acid generating rock, described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"Temporary Ore Storage Pad" means the engineered facility designed to provide additional laydown and storage to support underground operations as well as to serve as temporary ore storage as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**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 in Group 2 of Table 1 – Monitoring Groups located in Schedule I of this Licence. Total metals shall be analyzed on an un-filtered sample;

"**Undertaking or Undertakings**" means an undertaking or undertakings in respect of which Water is to be used or Waste is to be deposited, as classified in Schedule 1 of the *Regulations*;

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

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

"**Waste Disposal Facilities**" means all site infrastructure designed to contain Waste on a temporary or permanent basis including the Landfill, Landfarm, Tailings Impoundment Area, site Sumps, Contact Water Ponds, and Non-Contact Water Ponds;

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

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

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

"**Water and Load Balance Model**" means the model prepared by SRK consulting for TMAC, to predict water quality and quantity, as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process.

"**Water Management Facilities**" means all site infrastructure designed to contain and divert Water on a temporary or permanent as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Water Supply Facility**" means the Freshwater Intakes, the Reclaim System and associated infrastructure;

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

"**West Dam**" means the infrastructure designed as a Water and solids retaining structure utilizing a frozen core foundation with a geosynthetic clay liner (GCL) installed against the upstream side of the core, as as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process;

"**Wind Turbines**" means any of the pairs of wind turbins as described in the December 2017 Application and Supporting Documents, submitted to the Board throughout the regulatory process.

Schedule B: General Conditions

The Annual Report referred to in Part B, Item 2 shall include the following:

1. Summary of monitoring reporting performed in accordance with Part I, Item 6. The Summary shall include conversion of daily amounts to monthly and annual amounts.

2. 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 waste rock:
        i. Tonnage of mineralized and un-mineralized Waste Rock placed on the Temporary Waste Rock Pad and in other locations as approved by the Board in writing; and
        ii. Tonnage of Waste rock placed underground.
            - Geochemical and inspection data . Note: Detox Tailings are characterized by TL-7 (dry detoxified tailings sent underground as backfill (solids)) and proposed TL-8 (filtrate from TL-7 (solution)).

3. Include the report referenced in Part D, Item 18, that presents the data collected from the Quarry Rock Seepage Monitoring and Management Program. The report shall include a discussion of the interpretation of geochemical data and shall be presented to the Board for review.

4. A summary of the results of the monthly TIA Water balance and Water quality model assessments referred to in Part E, Item 24 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. a discussion of any discrepancies in model inputs; and
    e. Identification of any necessary adaptive management strategies.

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

6. A record of measurements of the following:

   a. The flows (m^3/day) at monitoring stationTL-2,
   b. A record of measurements of Doris Lake Water Level

7. Annual review of and submission of any revisions to the Management Plans or Emergency Response or Contingency Plan in the form of either addenda or revised Plan;

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

9. The results of the Aquatic Effects Monitoring Program and in accordance with Part I, Item 3;

10. 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

11. Incineration stack testing results when stack testing is required;

12. Annual Landfill management report;

13. 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;

14. 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;

15. GPS locations of monitoring stations as confirmed with the Inspector under Part I, Item 3;

16. A summary of the data requested under Part I Item 5 and 6;

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

18. 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 detailed report(s) referred to in PART D, Item 1 shall include :

    a. Design rational, requirements, criteria, parameters, standards analysis, methods, assumptions and limitations;

    b. Site specific data and analysis to support the design and management decisions;

    c. Geochemical analysis of Waste Rock and fill, demonstrating the Acid Rock Drainage and Metal Leaching characteristics of these materials;

    d. Construction methods and procedures outlining how infrastructure will be put in place, including quality assurance and quality control measures and equipment to be used;

    e. Technical specifications for sedimentation, erosion control and bank stabilization measures, including proposed materials, location and extent, place methods and quantities required;

    f. Timetable for submission, including date of Construction and proposed date of commissioning of infrastructure; and

    g. Be signed and sealed by the appropriately qualified Engineer.

2. The Construction Summary Report referred to in Part D Items 11 shall include:

    a. All final design and construction drawings (must be stamped and signed by a Professional Engineer when related to an Engineered Structure).

    e. Site specific data and analysis, including Geochemical analysis of waste rocks and fills, demonstrating their Non Acid Rock Drainage and Non Metal Leaching characteristics, to support the design and management decisions;

    f. A summary of Construction activities including photographic records before, during and after Construction;

    g. As-built drawings:

    h. Documentation and detailed explanation of field decisions reflecting any deviations from original Construction drawings and plans, and how such deviations may affect performance of engineered structures;

    i. Discussion of mitigation measures implemented during Construction and effectiveness of measures taken;

j. Monitoring undertaken in compliance with Part D and/or Part I of the Licence;

k. Blast vibration monitoring for quarrying activities carried out in close proximity to fish bearing waters;

l. Monitoring of the performance of erosion protection measures and sediment release from construction areas;

m. Monitoring and reporting on use of Water to manage dust emissions from crushing and Construction activity.

n. Monitoring of contractor's activity to minimize ground impacts to the tundra (i.e. keeping vehicles off the tundra and on constructed roadways);

o. Summary of the construction of the Tailings Impoundment Area South Dam and West 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 the Licensee and the dam design modified accordingly under the supervision of a Geotechnical Engineer.

p. Summary of the Quarry Rock Seepage Monitoring and Management Program referred to in Part D, Item 18.

2. The Construction Summary Report referred to in Part D, Item 11, shall discuss the monitoring results, analysis and any mitigation measures employed as a result of the monitoring, for each of the items listed above.

TABLE 1 – MONITORING GROUP

G	General	pH	pH units
		TSS	mg/L
N1	Nutrients, nitrogen group	Total Ammonia-N	mg-N/L
		Nitrate-N	
		Nitrite-N	
N2	Nutrients, phosphorus	Orthophosphate-P	mg/L
		Total Phosphate-P	
MT	Total Metals (Unfiltered)	T-Aluminum	mg/L
		T-Arsenic	
		T-Copper	
		T-Iron	
		T-Nickel	
		T-Lead	
		T-Zinc	
MD	Dissolved Metals (Filtered)	D-Iron	mg/L
		D-Copper	
		D-Arsenic	
		D-Zinc	
		D-Cadmium	
		D-Nickel	
B	Biological	Biological Oxygen Demand	mg/L
		Fecal Coliforms	CFU[1]/100 mL
HC		Total Oil and Grease	mg/L

[1] Colony Forming Units

	Hydrocarbons and lead	T-Lead	
		Benzene	
		Toluene	
		Ethyl-Benzene	
D	Discharge	Flow	m^3/day
		Volume	m^3
		Duration	Day

TABLE 2 – MONITORING GROUP

PARAMETER / STATION	STATION																				
	TL-1	TL-2	TL-5	TL-6	TL-7	TL-11	TL-12	ST-1	ST-2	ST-3	ST-4	ST-5	ST-6 a& b	ST-7	ST-7a	ST-8	ST-9	ST-10	ST-11	ST-12	ST-13
pH	x	x	x			x	x	x	x	x	x	x	x	x		x	x		x		x
Electrical Conductivity						x	x														
TSS	x	x	x				x	x	x	x	x	x	x	x		x	x	x	x		x
TDS	x	x					x														
Cl	x	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
WAD CN			x		x	x	x														
Total Ammonia-N	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
Nitrite-N	x	x	x			x	x	x	x					x	x						x
Sulphate			x			x	x	x	x	x											x
Orthophosphate-P	x	x												x	x						
Total Phosphate-P	x	x												x	x						
T-Al	x	x	x	x				x	x	x				x	x				x		x
T-Ag	x	x												x	x				x		
T-As	x	x	x	x				x	x	x				x	x				x		x
T-Ca	x	x												x	x				x		
T-Cd	x	x	x	x										x	x				x		
T-Cr	x	x	x	x										x	x				x		
T-Cu	x	x	x	x				x	x	x				x	x				x		x
T-Fe	x	x	x	x				x	x	x				x	x				x		x
T-Hg	x	x	x	x										x	x				x		
T-K	x	x																			
T-Mo	x	x	x	x										x	x				x		
T-Mg	x	x																			

T-Na	x	x																			
T-Ni	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
T-Se	x	x	x	x										x	x				x		
T-Zn	x	x	x	x				x	x	x				x	x				x		x
T-Tl	x	x												x	x				x		
T-Radium 226																					
Dissolved Oxygen & Redox Potential	x																				
Acute Lethality	x																				
Flow		x					x			x	x	x	x	x	x	x	x		x		
Volume		x					x			x	x	x	x	x	x	x	x		x		
Water Level	x																			x	
Ice Thickness																				x	
Total Metals by ICP-MS*			x				x	x	x												x
Total Metals ICP-MS including Sulphur				x	x																
Trace Metals by ICP-MS						x															
Alkalinity						x	x	x	x												x
Acidity						x															
Dissolved Fe																					
D-Cu																					
D-As																					
D-Zn																					
D-Cd																					
D-Ni																					
BOD_5															x	x	x				
Fecal Coliforms	x														x	x	x				
Cyanate			x		x																
Thiocyanate			x		x																
Moisture content					x																
Total Oil and Grease	x	x						x	x	x	x	x	x	x	x	x	x		x		x

Benzene	x										x	x	x						x		
Toluene											x	x	x						x		
Ethyl-Benzene	x										x	x	x						x		
Tonnage				x	x																
Chemical Oxygen Demand																					
Total Inorganic Carbon				x	x																
Chlorophyll a														x							

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

TABLE 3 – MONITORING PROGRAM

Station	Description	Phase	Monitoring Parameters	Frequency during Care and Maintenance prior to any deposit of Tailings to the TIA	Frequency during Operations and any time after initial deposit of Tailings to the TIA
Doris					
TL-1	TIA at the Reclaim Pipeline	Operation, Care and Maintenance, Closure, Post-Closure	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, HC, Fecal coliforms	Three times per week for one (1) week prior to discharge and two times per week for two (2) weeks after discharge commences, then reducing to once per week during remainder of annual discharge period	Monthly during Operations, Closure and Post Closure. Annually during Care and Maintenance.
			Dissolved Oxygen and Redox Potential, BOD	Every second month	Annually
			Acute Lethality	Once prior to discharge	Annually during Post-Closure
			D	Daily during periods of discharge	Daily during periods of discharge
TL-2	Doris Outflow Creek - upstream (at the flow monitoring station adjacent to the bridge)	Closure, Post-Closure	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, Oil and Grease	One duplicate sample collected prior to discharge; single samples collected twice per week for two(2) weeks after discharge commences, then reducing to once per week during the remainder of annual discharge period	Annually during Care and Maintenance Annually for 2 years prior to Post-Closure, and during Post-Closure, Increase to three times per year (under ice, freshet, and pre-freeze up), two years prior to breach of the North Dam.
		Operation	D	Daily during periods of discharge from Tail Lake	Daily upon commencement of mining in or beneath the Doris Lake Talik.
TL3	Doris Outflow Creek (~80m	Care and Maintenance, prior	G, N1, N2, MT and TDS, Cl, Free CN,	One duplicate sample collected prior to discharge;	Inactive

Station	Description	Phase	Monitoring Parameters	Frequency during Care and Maintenance prior to any deposit of Tailings to the TIA	Frequency during Operations and any time after initial deposit of Tailings to the TIA
	downstream of the base of the waterfall)	to any deposit of tailings to the TIA	Total CN, T-Ag, T-Ca, T-Cd, T-Cr, T-Hg, T-K, T-Mo, T-Mg, TNa, T-Se, T-Tl,Total Oil and Grease	single samples collected twice per week for two(2) weeks after discharge commences, then reducing to once per week during the remainder of annual discharge period	
			D	Daily during periods of discharge from Tail Lake	
TL-4	TIA Discharge End-of-Pipe	Care and Maintenance, prior to any deposit of tailings to the 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, TNa, T-Se, T-Tl, T-Radium 226	Weekly during periods of discharge	Inactive
			Acute Lethality	Once approximately midway through annual discharge	
			B	Monthly	
			D	Daily during periods of discharge from Tail Lake	
TL-5	Effluent from Doris Process Plant (tailings slurry/ water)	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		Monthly
			Cyanate and Thiocyanate		Quarterly
TL-6	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, Total Inorganic Carbon and Total Metals by ICP-MS (must include Sulphur)		Sampled on a weekly basis with analyses carried out monthly on a composite sample of the TL-6 weekly samples

Station	Description	Phase	Monitoring Parameters	Frequency during Care and Maintenance prior to any deposit of Tailings to the TIA	Frequency during Operations and any time after initial deposit of Tailings to the TIA
TL-7a	Detoxified tailings solids sent underground as backfill	Operations	Dry tonnage of detoxified tailings sent underground; Moisture content of backfill trucked underground		Monthly
TL-7b	Filtrate from TL-7a (Detoxified tailings sent underground as backfill)	Operations	Cyanate and Thiocyanate WAD CN, Total Inorganic Carbon, Total Metals by ICP-MS (including Sulphur)		Monthly
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	Operations	G, N1, N2, MT and Free CN, Total CN, T-Ag, T-Cd, T-Cr, T-Hg, T-Mo, T-Se, T-Tl,	Inactive	Inactive
			D		Daily during periods of pumping
TL-9	Detox tailings reactor tank (650-TK-565)	Monitoring and reporting is captured within the Water Management Plan.			Monitoring and reporting is captured within the Water Management Plan.
TL-10	Water Column in deepest portion of Tail Lake and at a location away	Inactive			Inactive

Station	Description	Phase	Monitoring Parameters	Frequency during Care and Maintenance prior to any deposit of Tailings to the TIA	Frequency during Operations and any time after initial deposit of Tailings to the TIA
	from the TIA Reclaim water floating pump house, sampled at surface, mid-depth and near bottom.				
TL-11	Seepage from Doris 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, Free and WAD CN		Survey Twice annually
TL-12	Doris Mine Water Discharge Point	Operations during continuous pumping	Chloride, TDS and nitrate:		Weekly
			Total Ammonia, Nitrate, Nitrite, pH, EC, Total Metals by ICPMS ,alkalinity, bromide, fluoride, sulphate, TSS, and Total and WAD Cyanide		Monthly
			D		daily during periods of discharge
ST-1	Doris Sedimentation Pond	Construction, Operation, Care and Maintenance, Closure	G, N1, MT and Total Sulphate, Total CN, Total Oil and Grease, Alkalinity, Chloride, and Total Metals by ICP-MS	Annually	Annually
ST-2	Doris Contact Water Pond	Construction, Operation, Care and Maintenance, Closure	G, N1, MT and Total Sulphate, Total CN, Total Oil and Grease, Alkalinity, Chloride, and	Annually	Annually

Station	Description	Phase	Monitoring Parameters	Frequency during Care and Maintenance prior to any deposit of Tailings to the TIA	Frequency during Operations and any time after initial deposit of Tailings to the TIA
			Total Metals by ICP-MS		
ST-3	Discharge from Non-hazardous Landfill Contact Water control sump	Construction, Care and Maintenance, Operation, Closure	G, MT and Total Ammonia-N, Total Sulphate, Total and Free CN, Total Oil and Grease,	Once before any discharge, daily when discharging onto the tundra	Annually. Once prior to every discharge onto the tundra
			D	Daily during periods of discharge	Daily during periods of discharge
ST-4	Discharge from Landfarm sump	Construction, Operation, Care and	G, HC, total Ammonium, total Lead	Once before any discharge, daily when discharging onto the tundra	Annually. Once prior to every discharge onto the tundra.
		Maintenance, Closure	D	Daily during periods of discharge	Daily during periods of discharge
ST-5	Discharge from Doris Plant Site Fuel Storage and Containment Area Sump	Construction, Operation, Care and Maintenance, Closure	G, HC, Total Pb	Once before any discharge, daily when discharging onto the tundra	Annually. Once prior to every discharge onto the tundra
			D	Daily during periods of discharge	Daily during periods of discharge
ST-6a And ST-6b	Discharge from the Roberts Bay Fuel Storage and Containment Area Sumps	Construction, Operation, Care and Maintenance, Closure	G, HC, Total Pb	Once before any discharge, daily when discharging onto the tundra	Annually. Once prior to every discharge onto the tundra
			D	Daily during periods of discharge	Daily during periods of discharge
ST-7	fresh Water pumped from Doris Lake	Construction, Operation, Care and Maintenance, and Closure	G, N1, N2, MT and Free CN, Total CN, T-Ag, T-Ca, T-Cd, T-Cr, T-Hg, T-Mo, T-Se, T-Tl, and Total Oil and Grease, Cl		Monthly during periods pumping
			D		Monthly during periods of pumping

Station	Description	Phase	Monitoring Parameters	Frequency during Care and Maintenance prior to any deposit of Tailings to the TIA	Frequency during Operations and any time after initial deposit of Tailings to the TIA
			Cl-a		Annually
ST-7a	fresh Water pumped from the Windy Lake fresh Water intake	Construction, Operation, Care and Maintenance. Closure	G, N1, N2, MT, Cl and, T-Ag, T-Cd, T-Cr, T-Hg, T-Mo, T-Se, T-Tl, T-Ca, and Total Oil and Grease, Free CN, Total CN		Monthly during periods of pumping
			B		
			D		
ST-8	Discharge from Doris Sewage Treatment Plant bio-membrane	Construction, Operation, Care and Maintenance, Closure	G, B, and Total Oil and Grease		Monthly when discharge to the Tundra, Annually when discharge to the TIA
			Location of discharge		Monthly during periods of Discharge
			D		Daily during periods of discharge
ST-9	Runoff from Doris Sewage Treatment Plant discharge - downstream of wastewater treatment plant discharge point and just prior to flow entering Doris Lake	Construction, Operation, Care and Maintenance, Closure	G, B, and Total Oil and Grease	Monthly	Monthly when ST-8 is discharged to the tundra
ST-10	Doris Site Runoff from Sediment Controls	Construction, Operations, Closure	TSS or Turbidity (following development	Daily during periods of discharge	Daily during periods of discharge

Station	Description	Phase	Monitoring Parameters	Frequency during Care and Maintenance prior to any deposit of Tailings to the TIA	Frequency during Operations and any time after initial deposit of Tailings to the TIA
			and approval of a site-specific TSS-Turbidity)		
ST-11	Reagent and Cyanide Doris Storage Facility Sumps. Closure	Construction, Operation, Care and Maintenance,	G, HC , MT, T-Ag, T-Ca, T-Cd, T-Cr, T-Hg, T-MoT-SeT-Tl, Total Ammonia, Total and Free Cyanide, and D	Annually	Annually
ST-12	Doris Lake	Operation, Closure	Water Level		Monthly
			Ice Thickness		Annually in April
ST-13	Doris Contact Water Pond associated to Pad U	Construction, Operation, Care and Maintenance, Closure	G, N1, MT and Total Sulphate, Total CN, Total Oil and Grease, Alkalinity, Chloride, and Total Metals by ICP-MS	Annually	Annually
			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	Annually
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	Annually
Monitoring Strip #3	Shoreline	Inactive	Inactive	Inactive	Inactive
Monitoring	Shoreline	Inactive	Inactive	Inactive	Inactive

Station	Description	Phase	Monitoring Parameters	Frequency during Care and Maintenance prior to any deposit of Tailings to the TIA	Frequency during Operations and any time after initial deposit of Tailings to the TIA
Strip #4					
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	Annually
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	Annually
Madrid					
MMS-1	Madrid North Contact Water Pond	construction, operations, care and maintenance	G, N1, MT and Total Sulphate, Total CN, Total Oil and Grease, Alkalinity, Chloride, and Total Metals by ICP-MS	Not Applicable	Sampled twice annually, Weekly water levels
MMS-2	Madrid South Primary Contact Water Pond	construction, operations, care and maintenance, closure	G, N1, MT and Total Sulphate, Total CN, Total Oil and Grease, Alkalinity, Chloride, and Total Metals by ICP-MS	Not Applicable	Sampled twice annually, Weekly water levels
MMS-3	Madrid South Secondary Contact Water Pond	construction, operations, care and maintenance, closure	G, N1, MT and Total Sulphate, Total CN, Total Oil and Grease, Alkalinity, Chloride, and Total Metals by ICP-MS	Not Applicable	Sampled twice annually, Weekly water levels
MMS-4a	Fresh Water Intake at Windy Lake North	construction, operations, care and maintenance, closure	G, N1, N2, MT and Free CN, Total CN, T-Ag, T-Ca, T-Cd, T-Cr, T-Hg, T-Mo, T-Se, T-Tl, and Total Oil and Grease, Cl, D	Not Applicable	Sampled monthly during active pumping periods

Station	Description	Phase	Monitoring Parameters	Frequency during Care and Maintenance prior to any deposit of Tailings to the TIA	Frequency during Operations and any time after initial deposit of Tailings to the TIA
MMS-4b	fresh Water Intake at Windy Lake South (Windy Camp)	construction, operations, care and maintenance, closure	G, N1, N2, MT and Free CN, Total CN, T-Ag, T-Ca, T-Cd, T-Cr, T-Hg, T-Mo, T-Se, T-Tl, and Total Oil and Grease, Cl, D	Not Applicable	Sampled monthly during active pumping periods
MMS-5	Discharge from Madrid South Fuel Storage facility	construction, operations, care and maintenance, closure	G, HC, total Pb	Not Applicable	Annually. Once prior to every discharge onto the tundra
MMS-6	Bring Mixing Facility	Operations during continuous pumping	G, N1, Chloride, Fluoride, Bromide, Sulphate, TDS, EC, Total Metals ICPMS, alkalinity, and Total and WAD Cyanide	Not Applicable	Sampled monthly during active pumping periods
MMS-7	Effluent from Madrid North Concentrator to TIA	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	Not Applicable	Sampled quarterly during active pumping periods
MMS-8	Discharge from Madrid North Fuel Storage facility	construction, operations, care and maintenance, closure	G, HC, total Pb	Not Applicable	Annually. Once prior to every discharge onto the tundra
MMS-9	Site runoff from sediment controls during construction	construction	TSS or Turbidity	Not Applicable	Sampled daily during periods of discharge
MMS-10	Mine Water Discharge Point	Operations during continuous pumping	Chloride, TDS and nitrate:		Weekly
			Total Ammonia, Nitrate, Nitrite, pH, EC, Total Metals ICPMS alkalinity, Fluoride, Bromide, sulphate, TSS, and Total and WAD Cyanide		Monthly

Station	Description	Phase	Monitoring Parameters	Frequency during Care and Maintenance prior to any deposit of Tailings to the TIA	Frequency during Operations and any time after initial deposit of Tailings to the TIA
			D		daily during periods of discharge

Table 3 THERMAL MONITORING

Station	Location	Location Reference	Phase		Frequency Prior to Operations; During Care and Maintenance	Frequency during Operations
T1	Jetty - Inactive	SD4 - DWG J-01	Operation		Inactive	Inactive
T2	Jetty - Inactive	SD4 - DWG J-01	Operation		Inactive	Inactive
T4	Beach Laydown - Inactive	SD4 - DWG S-01	Operation		Inactive	Inactive
T5	Fuel Storage and Containment Facility at Robert's Bay - Inactive		Operation		Inactive	Inactive
T7	Airstrip - Inactive	SD4 - DWG S-03	Operation		Inactive	Inactive
T8	Airstrip - Inactive	SD4 - DWG S-03	Operation		Inactive	Inactive
T9	Airstrip -Inactive	SD4 - DWG S-03	Operation		Inactive	Inactive
T-1	Bridge Abutment	SD4 - DWG S-12	Operation		D	A
T-2	Bridge Abutment	SD4 - DWG S-12	Operation		D	A
DOR-1	Camp - Inactive	to be confirmed	Operation		Inactive	Inactive
DOR-2	Camp - Inactive	to be confirmed	Operation		Inactive	Inactive
DOR-3	Contact Water Pond	PCP-1	Operation		D	A
DOR-4	Non-Contact Water Pond - Inactive	to be confirmed	Operation		Inactive	Inactive
DOR-5	Float Plane Dock Laydown Area - Inactive	to be confirmed	Operation		Inactive	Inactive
DOR-6	Road	Doris-Windy All Weather	Operation		D	A
DOR-7	Road	Doris-Windy All Weather	Operation		D	A
DOR-8	Road	Doris-Windy All Weather	Operation		D	A
DOR-9	Road	Doris-Windy All Weather	Operation		D	A
DOR-10	Road	Doris-Windy All Weather	Operation		D	A
SRK-53	Shoreline - Inactive	to be confirmed	Operation, Closure		Inactive	Inactive
SRK-54	Shoreline - Inactive	to be confirmed	Operation, Closure		Inactive	Inactive
SRK-55	Shoreline	TIA East Shore	Operation, Closure			IA
SRK-56	Shoreline	TIA West Shore	Operation, Closure			IA

SRK-57	Shoreline	TIA East Shore	Operation, Closure		D	B
SRK-58	Shoreline	TIA West Shore	Operation, Closure		D	B
	North Dam	SD4 - DWG T-09	Operation, Closure		C	C
	South Dam	SD4 - DWG T-10	Operation, Closure		C	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.
AWM – Monthly during periods of active water management (Prior to Operations and during Care and Maintenance)
IA – Inactive