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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: **2BB-MAE1727**

May 23, 2017

Mr. John Roberts
TMAC Resources Inc.
95 Wellington Street West
Suite 1010, P.O. Box 44
Toronto, Ontario, M5J 2N7

Email: john.roberts@tmacresources.com

RE: NWB New Type "B" Water Licence No. 2BB-MAE1727; TMAC - Madrid Advanced Exploration Program

Dear Mr. Roberts:

Please find attached New Water Licence No. **2BB-MAE1727** issued to TMAC Resources Inc. (TMAC or the Licensee) by the Nunavut Water Board (NWB) pursuant to its authority under Article 13 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada* (*Nunavut Agreement*). The terms and conditions of the attached Licence related to the use of Water use and deposit of Waste are an integral part of this approval.

If the Licensee contemplates the renewal of this Licence, it is the responsibility of the Licensee to apply to the NWB for its renewal. The past performance of the Licensee, new documentation and information, and issues raised during a public hearing, if the NWB is required to hold one, will be used to determine the terms and conditions of the Licence renewal. Note that if the Licence expires before the NWB issues a new one, then the use of Water and the deposit of Waste must cease, or the Licensee may be in contravention of the *Nunavut Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*. The expiry or cancellation of a licence however, does not relieve the Licensee from any obligations imposed by the licence. The NWB recommends that an application for the renewal of this Licence be filed at least **three (3) months** prior to the Licence expiry date.

If the Licensee contemplates or requires an amendment to this licence, the NWB may decide, in the public's interest, to hold a public hearing. The Licensee should submit applications for amendment as soon as possible to give the NWB sufficient time to go through the amendment process. The process and timing may vary depending on the scope of the amendment; however, a **minimum of sixty (60) days** is required from time of acceptance by the NWB. It is the responsibility of the Licensee to ensure that all application materials have been received and are

acknowledged by the Manager of Licensing.

The NWB strongly recommends that the Licensee consult the comments received from Environment and Climate Change Canada (ECCC), the Kitikmeot Inuit Association (KIA) and Indigenous and Northern Affairs and Canada (INAC) on issues identified. This information is attached for your consideration.[1]

Sincerely,

Thomas Kabloona
Nunavut Water Board
Chair

TK/sa/ip

Enclosure: Licence No. **2BB-MAE1727**
Comments – KIA, INAC, ECCC

Cc: Kitikmeot Region Distribution List

[1] Environment and Climate Change Canada, ECCC, April 23 2015; Kitikmeot Inuit Association (KIA), April 23, 2015 and September 21, 2015; Indigenous and Northern Affair Canada (INAC) May 8, 2015 and September 22, 2015.

NUNAVUT WATER BOARD
WATER LICENCE

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DECISION

Water Licence No. 2BB-MAE1727

This is the decision of the Nunavut Water Board (NWB) with respect to an application dated December 8, 2014 for a new Water Licence made by:

TMAC RESOURCES INC.

to allow for the use of Water and the deposit of Waste during the development of the Madrid Advanced Exploration Program (MAEP). The Licensee may conduct mineral exploration activities and bulk sampling, consisting of field mapping, airborne/ground/downhole geophysics, underground and surface land-based drilling, on-ice diamond drilling, construction of all-weather road, winter ice roads, construction of support infrastructure such as water and waste management structures, offices and emergency shelters and the operation of temporary storage facilities such as hazardous materials and bulk fuel storage facilities. The Licensee may use water from Windy Lake, Patch Lake and other lakes as authorized. These activities will be undertaken at the site where the Madrid Project will be carried out, located within the Kitikmeot Region, Nunavut and generally located at the geographical coordinates as follows:

NW Latitude: 68° 00' 07" N Longitude: 106° 37' 44" W
SW Latitude: 68° 00' 07" N Longitude: 106° 40' 29" W
SE Latitude: 68° 00' 13" N Longitude: 106° 29' 00" W
NE Latitude: 68° 06' 34" N Longitude: 106° 32' 22" W

Latitude: 68° 03' 49" N Longitude 106° 36' 31" W (Madrid North Office)
Latitude: 68° 01' 44" N Longitude 106° 33' 26" W (Madrid South Office

DECISION

After receiving confirmation from the Nunavut Planning Commission (NPC)[2] that the Application is for a project located outside of the boundaries of the two approved land use plans currently in place and administered by the NPC, and a determination from the Nunavut Impact Review Board (NIRB) that the Application is exempt from the requirement for Screening pursuant to section 12.10.2(b) of the Nunavut Agreement, the NWB decided that the application could proceed through the regulatory process. In accordance with s. 55.1 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSRTA) and Article 13 of the *Nunavut Agreement*, public notice of the Application was given and interested persons were invited to make representations to the NWB

After reviewing the submission of the Applicant and considering the representations made by interested persons, the NWB, having given due regard to the facts and circumstances, the merits of the submissions made to it and to the purpose, scope and intent of the *Nunavut Agreement*

[2] NPC email Re: 150324 2BBMAENewApplication TMAC Resources Madrid Project Kitikmeot Region, dated March 26, 2015

and of the Act, waived the requirement to hold a public hearing, and determined that Water Licence No. 2BB-MAE1727 be issued subject to the terms and conditions contained therein (Motion #: 2017-B1-003).

SIGNED this 23 day of May, 2017 at Gjoa Haven, NU.

Thomas Kabloona
Nunavut Water Board
Chair

TK/sa/ip

INTRODUCTION

The Hope Bay Greenstone Belt Property is located east of Bathurst Inlet, approximately 130 km southwest of Cambridge Bay, in the Kitikmeot Region of Nunavut. The Madrid Advanced Exploration Program (MAEP or Project) is part of the TMAC Resources Inc.'s (TMAC or the Licensee) overall Hope Bay Belt Project. The Hope Bay Belt Project comprises three significant gold deposits, Doris, Madrid and Boston. TMAC holds the following Nunavut Water Board Licences associated to the Hope Bay Project: 2AM-DOH1323, 2BB-BOS1217, and 2BE-HOP1222.

Planned activities at Madrid (Madrid North and Madrid South) are: geologic and geophysics mapping, surface and underground diamond drilling (including off ice drilling), test stoping and bulk sampling. Also the following activities in support of the MAEP are proposed: diesel power generation, quarrying, construction of roads, offices and infrastructure for water and waste management (waste rock and ore storage pads, sumps, pollution control ponds, fuel storage pads, etc.).

Freshwater for Madrid industrial and domestic use is planned to be primarily sourced from Patch and Windy Lakes and is estimated that peak water consumption will be 295 m^3/day.

As a result of previous exploration and development activities by TMAC and previous operators, the Hope Bay Project has significant existing infrastructure at site including camp facilities, air strips, roads, fuel storage facilities, a port facility, power plants, administration as well as lab buildings. The MAEP seeks to benefit, to the extent possible, from the existing Project infrastructure.

Solid Waste generated at the MAEP will be transported to Doris North and will be treated/managed at the existing Doris waste management facilities. Portable toilet waste will be combined with greywater transported to the Doris Facility and disposed/treated at the Doris Wastewater Treatment Plant. All waste will be managed in accordance with the current Doris waste management plans.

For the bulk sampling component of the program, two 50,000-tonne ore samples will be extracted from each of the Madrid sites, North and South, and transported to the Doris North Mill for testing.

Details provided in the Application indicate that a groundwater inflow, of around of 500 m^3/day, is expected during the course of the development of the Madrid South Bulk Sample Program. Historical groundwater quality data reviewed for the Hope Bay Belt Project area[3] supports the assumption of a highly saline groundwater inflow, with a salinity (total dissolved solids) of around 41,000 mg/L, similar to seawater.

The Applicant proposes to recycle the underground water and use it as source of water for drilling. Any excess water, if compliant with Licence discharge criteria, will be released to

3 TMAC's response to KIA, Re: Question No. KitIA-5, Groundwater Chemistry Assumptions and Lack of Groundwater Data, dated September 1, 2015

environment and non-compliant Water will be transported to Doris and discharged into the Doris North Tailings Impoundment Area (TIA). TIA water discharge is managed according to the approved tailings water management strategy for the Doris North Project approved under the Type "A" Water Licence 2AM-DOH1323.

I. PROCEDURAL HISTORY

On March 26, 2015 the Nunavut Planning Commission (NPC) issued correspondence[4] indicating that the Madrid Advanced Exploration Program project proposal is located outside of the boundaries of the two approved land use plans currently in place and administered by the NPC. Following this, the NPC forwarded the Application to the Nunavut Impact Review Board (NIRB) for its assessment.

On March 24, 2015, the Nunavut Water Board acknowledged receipt of an Application from TMAC Resources Inc. (TMAC or the Licensee) for the use of water use and the deposit of waste in support of the Madrid Advanced Exploration Program. The Application included the following documents:

- Cover letter, dated December 18, 2014;
- Complete NWB application form for a new Water Licence;
- Supplemental Information Report, dated December 2014, this document contains the following information:
    - Preamble: General Water Licence Application,
    - Section 1: Introduction,
    - Section 2: Minimum Application Requirements, General Water Licence Application:
        - Scope of the Type B Water Licence,
        - Information Required to Satisfy the Requirements of the SIG,
        - Executive Summary (English, Inuktitut, Inuinnaqtun, French),
        - Application Fee, Water Use Fee, SIG Concordance, Studies
    - Section 3: General Water Licence Application;
        - Application Form
        - Applicant Information
        - Applicant Representative and Information
        - Term of the Madrid Exploration Project Water Licence
        - Overview
        - Site History
        - Relationship of Phase 1 and Phase 2 Hope Bay Belt and Madrid Advanced Exploration Program
    - Section 4: Detailed Description of the Undertakings;
    - Section 5: Baseline Environmental Conditions;
    - Section 6: Water Use and Water Management;
    - Section 7: Waste Disposal and Management;

[4] Nunavut Planning Commission (NPC) Re: 150324 2BBMAE New Application TMAC Resources Madrid Project Kitikmeot Region, dated March26, 2015

- Section 8: Monitoring;
- Section 9: Reclamation and Closure;
- Section 10: Environmental Effects; and
- Section 11: Public Consultation.

With the following appendixes:

- Appendix 2: SIG for Madrid Advanced Exploration Program Type B Water Licence Application;
- Appendix 3: Proponent Information;
- Appendix 4A: Madrid North Surface Infrastructure;
- Appendix 4B: Madrid South Surface Infrastructure;
- Appendix 4C: Madrid South All-weather Road Part 1&2;
- Appendix 5: Environmental Baseline (Parts 1, 2, 3, 4, 5,6 &7);
- Appendix 7A: Madrid Advanced Exploration Project: Underground Inflow Estimates;
- Appendix 7B: Madrid Advanced Exploration Project Water Quality Prediction;
- Appendix 8A: Water Management Plan: Madrid Advanced Exploration Program;
- Appendix 8B: ML/ARD Characterization Programs and Conceptual Waste Rock Management Plans;
- Appendix 8C: Quarry Management and Monitoring Plan (Part 1, 2 &3);
- Appendix 9: Hope Bay Project: Madrid Advanced Exploration Project: Conceptual Closure and Reclamation Plan;
- Appendix 10 (A&B): NIRB documents for Chapter 10, Predicted Environmental Effects

At the same time, the Board invited interested parties to make representation to the NWB within thirty (30) days from the date of the letter, with the deadline for comments being April 24, 2015. Following parties request, the review period was extended to May 8, 2015. On or before the new deadline, comments were provided by the Kitikmeot Inuit Association (KIA), Indigenous and Northern Affairs Canada (INAC), and Environment Canada and Climate Change Canada (ECCC). On September 5, 2015, TMAC responded to the intervening parties' comments. On September 8, 2015 the NWB acknowledged TMAC's response and gave parties until September 22 to provide additional comments on the Applicant's response. On September 22, 2015 final comments were provided by the KIA and INAC.

On June 24, 2016, the NIRB issued its decision, on the assessment of TMAC's Madrid Advanced Exploration Program application for exception from the NIRB's ongoing review of TMAC's Hope Bay Belt Project (NIRB File No.: 12MN001), and that pursuant to section 12.10.2(b) of the Nunavut Agreement, an exemption of TMAC activities for the Madrid area was approved by the NIRB.

On December 9, 2016 the Applicant submitted a letter[5] to the NWB regarding design updates for Madrid. TMAC indicated that several changes (relocation of surface infrastructure) to the Madrid North site layout would occur in order to ensure proper and safe access to ore reserves. In addition, TMAC stated that:

[5] Letter to the NWB from TMAC, Re: 2BB-MAE Madrid Advanced Exploration Program Type B Water Licence Application, dated December 9, 2016

"*These changes are not significant and are not associated with any change in scope, facility design, expansion of the project or changes to water use or waste disposal"*

Also, it confirmed that the revised Madrid North layout does not impact the closure cost estimate.

On Jan 19, 2016, the Board acknowledged receipt of this submission and forwarded it to interested parties for information. No comments have been received on this last submission to date.

The Doris North Project infrastructure will be used to support the proposed MAEP; because of this, there is clear interrelation between the Doris North Project Type "A" Water Licence and the Madrid Type "B" Water Licence. This circumstance was indicated as an issue of concern by INAC. Therefore, INAC recommended that a Type "B" Water Licence for the Madrid Project should not be issued until the review process of the Type "A" Water Licence, Amendment Application for the Doris North Project is completed and the amended licence is approved by the Minister. The Board agreed with INAC's recommendation and decided to temporarily suspend the licensing process for Madrid's Type "B" licence. Following approval of the Minister on December 16, 2016 of the Doris North amended Type "A" Water Licence, the NWB recommenced processing of the Madrid Type "B" Water Licence Application.

Further, on January 20, 2016, the NWB issued a letter[6] informing interested parties that a final technical review of all submissions received to that date was conducted and a number of issues requiring further discussion (i.e. water quality for drilling, the Doris TIA capacity) were identified; following this, the NWB asked TMAC to address the issues.

On February 9, 2017, TMAC provided written response to the NWB's questions related to the TIA capacity as well as some other pending unresolved questions from the Kitikmeot Inuit Association (KIA).

II. GENERAL CONSIDERATIONS

Planned activities at Madrid include surface exploration, surface and underground drilling and bulk sampling. Surface samples will be collected by means of a hammer or (land-based or on-ice) diamond drills. Water required for the mechanical methods will be provided by Patch and Windy Lakes or by local nearby lakes with surface areas of at least 15,000 m^2 and, in compliance with DFO "*Water Withdrawal Under Ice*" guidelines, if under ice. Intake screens will also be incorporated in order to follow DFO best management practices for the protection of fish. Drill inspections and a monitoring program will be implemented to minimize Project impacts. A program of progressive reclamation will be undertaken for all surface drilling.

[6] NWB letter, Re: Licence No.2BB-MAE Application by TMAC Resources Inc. for the Madrid Project – Request for information, dated January 20, 2016

Underground mining is planned to be completed in three years, 1.5 years to complete the mine portal, and in addition to that, other 1.5 years for bulk sampling. An average of 100 tonnes per day (tpd) of material is expected to be mined.

Further to this, activities at the Madrid Advanced Exploration Project will also include:

- Use of Water for domestic and industrial purposes;
- Diversion, alteration of flow or storage of Water by means of dykes or dams;
- The construction of temporary water crossings;
- Management of surface water and underground water;
- Construction and management of oily water treatment facilities;
- Construction and management of fuel storage facilities and auxiliary systems;
- Management including temporary storage of hazardous materials;
- Construction and management of waste rock storage and ore stockpiles areas;
- Construction of culverts, winter ice road and ice bridges;
- Construction, operation and ongoing maintenance of all-weather roads and winter roads; and
- Subsurface and surface diamond drilling, including on-ice drilling.

A summary of the infrastructure proposed to be constructed at Madrid is:

- Roads (all weather roads and winter roads) and culverts;
- Surface ore and waste storage pads;
- Fuel storage facilities;
- Pollution control ponds and sumps;
- Vent raises;
- Offices, emergency shelters, etc.

The following sections outline the issues identified by the NWB and those raised by interested parties during the review and provide the background and reasons for the terms and conditions imposed within the body of the licence.

A. Term of Licence

With regard to the Licence's term, the Licensee has requested a period of ten (10) years. In accordance with s.45 the Nunavut Waters and Nunavut Surface Right Tribunal Act (NWNSRTA), the NWB may issue a licence for a term not exceeding twenty-five (25) years. In determining an appropriate term of a water licence, the Board considers a number of factors including, but not limited to Licensee's overall compliance records and intervener comments provided during the application review process.

While INAC agreed with a 10 – year term for the licence, ECCC indicated that an 8-year term seems more appropriate. The rationale behind of the ECCC's 8-year-term was that it would allow the Proponent to align the expiration date of a Madrid Water licence with the Doris North Water Licence expiration date in year 2023. Since the MAEP will utilize some of the existing Doris North Project infrastructure, then it may seem reasonable for the proposal that both licences expire at the same time.

However, given that parties have not expressed concerns with respect to a Licence term of ten (10) years, and following a review of the information available during the renewal process, the NWB concurs with the Applicant that a Licence term of ten (10) years is appropriate.

The Licence duration will allow the Licensee to properly carry out the terms and conditions of the Licence for the proposed activities during this time as well as to develop, submit and implement the plans required under the Licence to the satisfaction of the NWB.

B. Annual Reporting

Under the reporting section of the Licence, Part B, Item 2, the Licensee is required to submit on an annual basis an Annual Report. These annual Reports, which are standard requirements for licences, are required for the purpose of ensuring that the NWB has an accurate annual update of the Licensee's activities related to the use of water and the deposit of waste during a calendar year.

Most recently, the new Regulations, under s.14, include a legislated requirement for all licensees to submit an annual report to the Board, with minimal requirements as set out through sec.14(a) through 14(k) and subject to additional requirements and a form acceptable to the Board. This information is maintained at the NWB Public Registry and is available to interested parties upon request. A "Standardized Form for Annual Reporting" may be used by the Licensee and is available from the NWB file transfer protocol (FTP) site under the Public Registry link at the NWB Website:

ftp://ftp.nwb-oen.ca/other%20documents/Standardized%20Forms/

This form provides the basis for annual reporting and format; however, individual licences with project-specific reporting requirements may need to provide information in addition to that of the standard form.

C. Security

In accordance with section 76(1) of the NWNSRTA, the Board may require an Applicant, a Licensee, or a prospective assignee to furnish and maintain security with the Minister in the form, of the nature, subject to such terms and conditions and in an amount prescribed by, or determined in accordance with the Regulations, or that is satisfactory with the Minister. The Regulations allow the Board to fix the amount of security that the Licensee or Applicant is required to furnish to an amount not exceeding the aggregate of the cost of:

a. Abandonment of the undertaking;
b. Restoration of the site(s) of the undertaking; and
c. Any ongoing measures that may remain to be taken after the abandonment of the undertaking.

The reclamation cost estimate submitted by the Applicant for the Madrid Advanced Exploration Project is of $7,131,000, of this amount, $4,425,000 are computed as direct costs and $2,706,000 as indirect costs[7].

INAC and the KIA commented on the TMAC's cost estimate during the review process. INAC requested that the Applicant confirm if the most recent version of RECLAIM (version 7) was used to calculate the estimate. Additionally, INAC stated that the estimate should include provisions for care and maintenance. Further to this, INAC recommended that the Applicant submit to the NWB within three (3) months of licence issuance, an updated reclamation estimate taking into account INAC recommendations with respect to care and maintenance costs and the use of the RECLAIM (v.7). Also, INAC recommended including in the Water Licence a condition that would allow for the posting of a reclamation security and the periodically review of the reclamation cost estimate. Furthermore, every submission of a closure and reclamation plan, should be accompanied by a revised reclamation cost estimate. Further to this, the KIA also recommended that TMAC provide further updates on the closure costs as the Project evolves.

Considering the above, under Licence 2BB-MAE1727, the Board has accepted the amount of security of $7,131,000 as proposed by the Licensee, for the reclamation and closure of all facilities associated with the Madrid Advanced Exploration Program. The Applicant is required under Part C, Item 2 of the Water Licence to update the security estimate taking into account reviewers' comments during the review period and submit the updated estimate to the Board for approval in writing, within three (3) months of licence issuance. In addition, under Part C, Item 3 of Licence No. 2BB-MAE1727, the Applicant is required to furnish and maintain the amount of security based on the updated estimate of mine reclamation liability.

D. Water Use and Water Management

Water Use

The Applicant seeks authorization for the use of freshwater for all purposes (domestic and industrial) of up to 295 m^3/day or 108,000 m^3/year as follows:

- Domestic use of water (offices, medical facilities) up to 5 m^3/day
- Industrial use for drilling (surface, underground, quarry), dust suppression, ice roads (including berms, ramps, temporary water crossings and portages) up to 290 m^3/day.

Patch Lake, Windy Lake, and other lakes in the area with surface area greater than 15,000 m^2 will be the MAEP main sources of freshwater for domestic and industrial use. As indicated in the Application, operational water demand at Madrid will be supplied from three water sources listed in priority as follows:

1. Reuse of water collected in underground settling sumps, for use underground.
2. Contact water from waste rock dumps and ore stockpiles, collected and stored in one of three Pollution Control Ponds.

[7] Memo: Hope Bay Project: Madrid Advanced Exploration Program: Conceptual Closure and Reclamation Plan, SRK Consulting, October 31, 2014

3. Freshwater from Windy Lake (for Madrid North), Patch Lake (for Madrid South) and other lakes with a surface area greater than 15,000 m^2.

E. Waste Management

Waste generated at Madrid includes contaminated soil and/or water, excess brine and drill cuttings, sewage, wasterock, non-hazardous solid waste, waste oil, hazardous waste, scrap metal.

Wastewater Management

The Applicant included as part of the Application Submission, the Plan entitled "*Water Management Plan (WM Plan): Madrid Advanced Exploration Program, North and South Bulk Samples*"[8] (Appendix 8-A). According to the Plan:

- three Pollution Control Ponds (PCPs), one at Madrid North, two at Madrid South will be built;
- contact water captured by the Ponds will be used for drilling or if compliant, discharged to the tundra;
- non-compliant excess water collected in the Ponds will be transported to the Doris North TIA.

An assessment of the acid rock drainage and metal leaching (ARD/ML) potential of waste rock and ore indicated that waste rock is mostly non-potentially acid generating (non-PAG) and that arsenic and nickel were the elements that exhibited significant trends in concentrations and leaching rates. Therefore, there is a potential for waste rock and ore stock piles' contact water to contain elevated concentrations of arsenic and nickel.

Water accumulated in the containment berms at the Fuel Transfer and Fuel Storage Facilities will be sampled for the analysis of oil and grease, benzene, toluene, ethylbenzene, lead and arsenic. If compliant (meeting effluent criteria in the Licence), water will be discharged onto the tundra. Non-compliant water will be transported to Doris. The NWB considers the reuse of non-compliant hydrocarbon contaminated water from these areas, for drilling purposes as proposed by the Applicant, not acceptable and has therefore, not authorized such practice.

Highly saline mine water from Madrid South will be collected into underground settling sumps and used to supply the underground drilling activities. Any excess water from the underground workings will be pumped to the surface, to the Pollution Control Pond for reuse or disposal.
In order to support the assumptions related to the groundwater inflow at Madrid South Property, the Application submission includes a Memo entitled "*Hope Bay Project: Madrid Advanced Exploration Project: Underground Inflow Estimate"* authored by SRK Consulting. The Memo provides data on inflow estimates and inflow water quality for the Madrid Advanced Exploration Project; groundwater inflows are not expected at Madrid North and as such, this

[8] Memo: Water Management Plan: Madrid Advanced Exploration Program, North and South Bulk Samples, SRK Consulting, December 1, 2014

memo is focused on discussing groundwater inflows at the Madrid South Patch and Wolverine Deposits. A 3D-Numerical Model for the groundwater inflow is presented. The model is described as "*essentially a box with groundwater flow driven by lake levels* (Wolverine and Patch Lakes)". The "*reasonable case*" scenario predicts an inflow of 300 m^3/day into the Patch Deposit and 200 m^3/day into the Wolverine Deposit, making up an estimated total groundwater inflow of 500 m^3/day.

Reviewers commented that no site-specific data on groundwater chemistry was included in the application submission. The KIA indicated that the Applicant did not provide adequate evidence of the applicability of the Doris and Boston groundwater quality data to the Madrid groundwater quality. Also, the KIA pointed out that the variance in estimated groundwater inflows (between 16 and 1,073 m^3/day) affects the accuracy of the water balance and the ability to manage groundwater inflow under worst case scenarios.

The Applicant responded that analytical results for a single groundwater sample taken at Madrid North indicated a salinity (TDS) of 11,200 mg/L, corroborating the hypothesis of a highly saline groundwater at Madrid. Further to that, TMAC committed to confirm groundwater chemistry by sampling and testing groundwater during the development of the MAEP and to develop and put in place a Ground Water Management Plan to manage unexpected volumes of groundwater inflow.

Management of Water Collected in the Pollution Control Ponds

Annual volumes of water reporting to the Pollution Control Ponds can be estimated by calculating the water contribution from surface runoff and the water contribution from groundwater inflow. According to the Application, these values for an average year are:

- Madrid North – 21,384 m^3 per year;
- Madrid South – 16,430 m^3 per year (4,655 m^3/y (PCP 1) + 11,775 m^3/y (PCP 2));
- Madrid South (with groundwater) – 134,804 m^3 per year

Water collected in the PCP's will be transferred to the 50,000 L water supply tank located at each one of Madrid sites. Water for the Brine Mixing Facility (BMF) will be drawn from this tank to create a brine for drilling.

Regarding water quality and parameters of concern in PCP water, INAC recommended that the Applicant submit a monthly monitoring report to the NWB, reporting concentrations of arsenic, nickel and any other parameter of concern in the water and the volume of non compliant water transported and discharged into the Doris TIA. This requirement has been included under Part J of this Licence.

Finally, as per Part D, Item 3 of the Licence, the Board has approved the Plan entitled *Water Management Plan: Madrid Advanced Exploration Program, North and South Bulk Samples*. In addition, the Licensee is required to submit to the Board for review, with the 2017 Annual Report, an updated Water Management Plan; the updated Plan shall ensure compliance with the Water Licence discharge and monitoring requirements.

Further to this, the NWB has established a condition under Part D, Item 4 requesting TMAC to submit to the Board for approval in writing, a Groundwater Management Plan (GWMP). The Plan shall be submitted sixty (60) days prior to the start of underground operations at Madrid South. The GWMP shall be developed in order to anticipate and proactively manage water handling issues as well as to ensure compliance with the water licence discharge and monitoring requirements.

Wastewater Disposal and Effluent Criteria
The Board has established under Part E of the Water Licence, quality discharge criteria for the authorized discharge of water at the following locations:

- Fuel transfer and Fuel Storage Facilities sumps,
- Pollution Control Ponds, and
- Quarries Sumps.

Effluent Quality Criteria established in the Water Licence are based on the Canadian Council of Minister of the Environment (CCME) Water Quality Guidelines, where an attenuation factor has been considered for metals. In the absence of a CCME Guideline for a specific parameter, the NWB has included a discharge quality criteria consistent with similar requirements in other licences.

As outlined by the Mackenzie Valley Land and Water Board,[9] "*Effluent Quality Criteria defines the maximum allowable concentrations (mg/L) or limits (pH range) of any contaminant or parameter of the waste which, in the Board's opinion has the potential to adversely affect water quality in the receiving environment*". Particularly, Effluent quality criteria are established in order to ensure that the quality standards for the waters in the receiving environment as defined by the Canadian Council of Minister of the Environment (CCME) are met.

A reasonable analysis of the impact of an effluent discharge on the quality of the receiving water is performed via water quality modeling. The result of the modeling is then compared to the applicable water quality criteria to determine whether or not the discharge has a negative effect on the water quality.

In the absence of a water quality model, water quality – based effluent limits can be established considering a number of factors such as:

1. The location of the discharge: As required by the Water Licence, there is no direct discharge of effluent into a water body or stream, "*The discharge shall be located at minimum of thirty-on (31) metres away from local waterways where direct flow into a water body is not possible and additional impacts are not created*";
2. The variability of the examined parameter or metal in the effluent, i.e. given that no direct discharge into a water is allowed, chemical attenuation may occur as consequence

9 MVLWB Water and Effluent Quality Management Policy, March 31, 2011

of precipitation/adsorption onto soil while the effluent is flowing through the tundra until reaching the water body/ stream (chemical attenuation factor);
3. The relationship between effluent volume and receiving water body volume (dilution factor);
4. The size of the operation, this is directly related to the amount of a pollutant entering a waterbody (pollutant daily load factor).

Further to this, the following should also be taken into account:

1. CCME Water Quality Guidelines are generic national recommendations (i.e., they do not directly consider site specific, technological, socioeconomic or management factors);
2. CCME metals water quality guidelines do not take into account bioavailability and are "thus highly conservative". The metals water quality guidelines are based on the total measured concentration in the unfiltered sample and do not take into account the bioavailability of the metals in water[10] (i.e. the fraction toxic to aquatic organisms);
3. CCME Water Quality Guidelines use safety factors. For instance, the water quality guideline for arsenic for the protection of freshwater life is 5.0 µg/L. It was derived by multiplying the 50 µg/L obtained for the protection of the most sensitive organism to arsenic by a safety factor of 0.1[11].

Considering all those factors, it seems pertinent to set the Effluent Quality Criteria for a metal by multiplying the corresponding metal (CCME Water Quality Criteria) by a generic factor of attenuation of 10; an approach that has also been recommended in the literature[12].

With regard to chloride, it is considered a conservative anion, once in solution does not precipitate or is readily adsorbed. Therefore, the chemical attenuation assumption, applicable to metals, is not valid in this case. However, with regard to the Effluent Quality Criteria for chloride, the 10 X approach, where X is the long-term CCME Water Quality Guideline for the protection of aquatic life (X for chloride is 120 mg/L) could also apply with some restrictions. A monitoring program should be carried out in order to assess any impacts of the effluent discharge onto the tundra vegetation and to ensure that the CCME water quality criteria chloride, for protection of aquatic life in the nearby waterbodies, is met.

In taking this approach, the Board has also taken into account other factors such as the way that the Applicant manages the waste, the Applicant's compliance record, the size of the Project and also the Applicant ability to reasonable and consistently achieve the established values.

Following this, in addition to the Effluent quality discharge criteria, the Board has also established conditions in the Water Licence requiring that downslope of the discharge, the water quality with respect to chloride, conductivity and total dissolved solids (TDS) of the

[10] A Protocol for the Derivation of Water Quality Guidelines for the Protection of Aquatic Life 2007, CCME
[11] Canadian Water Quality Guidelines for the Protection of Aquatic Life, Arsenic, CCME
[12] An Approach for Assessing and Managing Wastewater Effluent Quality for Federal Facilities, EC, dated June 2000

nearby water bodies (Windy, Patch and Wolverine Lakes) are consistently monitored along with the status of vegetation.

Finally, in addition to establishing effluent quality discharge criteria, the Board has also included in the Water Licence, requirements to notify the Inspector before discharge, and form and timing of the notification. The Licensee is also required to discharge waste at a minimum distance of thirty-one (31) metres from the ordinary High Water Mark (HWM) of any water body such that the quality, quantity or flow of water is not impaired.

Sewage Treatment and Discharge

Sewage will be contained mainly by portable toilets and combined with greywater will be collected and directed to the Doris North Camp Wastewater Treatment Plant and managed according to the approved 2AM-DOH1323 Wastewater Management Plan.

Solid Wastes

Solid Waste (with the exception of waste rock) generated at the Madrid Property will be stored temporarily at site, and transported to Doris North Project waste facilities.

With respect to waste rock and the potential for acid generation, TMAC informs that, according to the analysis results, the waste rock at Madrid is considered non-potentially acid generating (non-PAG), with the exception of the early gabbro formation located at Madrid North. The early gabbro formations have the potential to be acid generating due to low amounts of neutralization potential. There is no plan in place to segregate Non-PAG waste rock from PAG rocks. This practice is considered impractical "*because there are no clear lithological, mineralogical or spatial patterns in the data that can be used to identify this material during mining"*. Therefore, there will be no waste rock segregation at Madrid.

The estimated amount of waste rock to be produced at Madrid is:

- Madrid North – approximately 275,000-300,000 tonnes generated from the underground development;
- Madrid South –approximately 225,000-250,000 tonnes of waste material generated from the underground development.

The Applicant has included as part of the Application, a conceptual Waste Rock Management Plan (WRM Plan) for the Madrid Program (Appendix 8-B) entitled "*Overview of Madrid North and Madrid South Bulk Sample ML/ARD Characterization Programs and Conceptual Waste Rock Management Plans*[13]".

Following, the Board has included a condition under Part E Item 1 of the Licence, requiring the Licensee to submit to the Board for approval, six (6) months following issuance of the Licence, a comprehensive Waste Rock Management Plan which addresses waste rock management, monitoring and reporting requirements at Madrid.

[13] Memo: Overview of Madrid North and Madrid South Bulk Sample ML/ARD Characterization Programs and Conceptual Waste Rock Management Plans, authored by SRK Consulting, dated December 2014

F. Management Plans

As indicated in the Application, existing infrastructure at Doris will be shared with the Madrid Project. Also, waste generated at Madrid will be treated/disposed/managed at Doris North Waste Facilities.

The Doris Management Plans have been implemented in accordance with the requirements of the Doris North Project and in compliance with the Type "A" Water Licence, 2AM-DOH1323. These plans are required to be updated to include the management at Doris of wastes and wastewaters coming from Madrid. The following Doris management plans may require an update:

- Doris North Non-Hazardous Waste Management Plan,
- Doris North Hazardous Waste Management Plan,
- Doris North Landfarm Management Plan,
- Wastewater Treatment Management Plan,
- Interim Water Management Plan for Doris North Project,
- Tailings Management Plan,
- Doris landfill management plan.

With regard to the MAEP, TMAC has submitted the following stand-alone management plans to support the Application:

- Madrid North and South Water Management Plan;
- Madrid North and South Waste Rock Management Plans (conceptual);
- Quarry Management and Monitoring Plan.

G. Modifications and Construction

Quarry

The completion of the Madrid Advanced Exploration Program will require quarry material from five quarries. Three of these quarries (Quarries A, B, and D) are located along the Doris North Project-Windy All-Weather Road and are currently permitted, approved quarries. In addition to those three quarries, three new quarries are also included, Quarries G, H and I. Quarry G is located along the proposed access road at Madrid South, Quarry H is located at the Madrid South bulk sample site and Quarry I is located at Doris. Quarry operations are authorized by the Kitikmeot Inuit Association (KIA) through the corresponding quarry permits.

The Applicant has included as part of the Application (Appendix 8-C) the "*Hope Bay Project Quarry Management and Monitoring Plan – Revision 02*[14]". Under Part G Item 5 of the Licence, the Board has approved the Quarry Management and Monitoring Plan, the Licensee shall conduct the quarries management and monitoring in accordance with this Plan.

Infrastructure Construction

[14] Hope Bay Project Quarry Management and Monitoring Plan – Revision 02, December 2014

A summary of the proposed infrastructure to be constructed at Madrid North and Madrid South is as follows:

- Roads, including all weather roads and winter roads and culverts;
- Waste Rock Pads and Ore Stock Pads;
- Fuel Storage Facilities;
- Pollution Control Ponds; and
- Portal Pads and Vent Raise Pads

Preliminary engineering drawings for Madrid North and Madrid South and all weather roads were submitted with the Application (Appendices 4-A, 4-B and 4-C).

The ore and the rock stockpiles will be constructed with an overall slope of 2.5 H:1V. The stockpiles will be placed on an underlying pad consisting of a minimum of 1m thick Run of Quarry (ROQ) material and/or mine waste material placed over the original ground. All pads will be graded at 0.5% towards the Pollution Control Ponds in order to control runoff and sedimentation.

At Madrid North, the Portal Pad will be the base for the Shop, Laydown Area, Office trailers, Brine Mixing Facility, and the storage of calcium chloride. The Vent Raise Pad will be the base for the vent raise, air heating facility and fuel containment.

The Madrid South laydown area and infrastructure pads will be designed to include the Infrastructure Pad, the Portal Pad, Upper Portal Pad and the Vent Raise Pad. The Infrastructure Pad will be the base for the Shop, Fuel Transfer Station, Laydown Area, and Office trailers. The Vent Raise Pad will be the base for the vent raise, air heating facility and fuel storage. The Upper Portal Pad will be the base for the water storage tank.

The following documents have also been submitted as additional information with the Application:

A document entitled "*Hope Bay Project: Madrid North Bulk Sample: Surface Infrastructure*"[15] that provides detail on the design concept, site layout alternatives, system design criteria, etc., of the Madrid North surface infrastructure. Attached to this document, submitted as Appendix 4A, are engineering drawings for Madrid North surface infrastructure including plans and details regarding the water access point and water storage tank, Pollution Control Pond location and berm specifications.

A document entitled "*Hope Bay Project: Madrid South Bulk Sample - Surface Infrastructure*[16]" (Appendix 4B of the Submission) provides details on the design concept, site layout alternatives and system design for the main features of the surface infrastructure at Madrid South.

[15] Memo, Hope Bay Project: Madrid North Bulk Sample: Surface Infrastructure, SRK Consulting, November 27, 2014

[16] Memo, Hope Bay Project: Madrid South Bulk Sample: Surface Infrastructure, SRK Consulting, November 27, 2014

A document entitled "*Hope Bay Project: Madrid South Bulk Sample: Madrid South All-Weather Road*"[17] provides details on the design criteria and construction methodology for the all-weather road to be constructed at Madrid South. Preliminary engineering drawings are also included in this document (Appendix 4C).

The NWB reminds the Licensee that in accordance with Part G, Item 1, the Licensee shall submit to the Board for review, for-Construction drawings at least sixty (60) days prior to commencing the construction or modification of any water or waste facility. In addition, in accordance with Part G, Item 4, the Licensee shall provide as-built plans and drawings of the construction and/or Modifications. These plans and drawings shall be stamped and signed by an Engineer.

H. Spill Contingency Planning

Madrid North and Madrid South will each hold one Fuel Transfer Station and a Fuel Storage Area where a considerable amount of fuel will be stored. In addition, the following chemicals will be temporary stored in designated areas:

- a flocculent for the suppression of sediment in the Pollution Control Ponds; and
- salt (calcium chloride ($CaCl_2$) or sodium chloride (NaCl)) to be used in the diamond drilling.

The Applicant state of preparedness in the event of a spill is shown through the Project's Spill Contingency Plan. The Board notes that the Application does not include a site specific Spill Contingency Plan. Therefore, under condition in Part H Item 1 of this Water Licence the Licensee is required to submit a SCP relevant to the MAEP.

I. Abandonment and Reclamation

The Applicant has submitted as additional information with the Application the plan entitled "*Hope Bay Project, Madrid Advanced Exploration Program: Conceptual Closure and Reclamation Plan (C&R Plan)* [18]". According to this document, elevated concentrations of arsenic and nickel in the waste rock contact water could be an issue at closure time. Possible solutions for this issue are as follows: the hauling to Doris of any waste rock remaining in the stockpiles, or, the application of a cover system over reactive waste rock remaining at site or some combination of both approaches.

According to INAC "Mine Site Reclamation Guidelines for the Northwest Territories" there are three primary stages of development of a C&R Plan: preliminary Plan, Interim Plan and Final C&R Plan. The submitted *Hope Bay Project, Madrid Advanced Exploration Program: Conceptual C&R Plan* is regarded by the Board as a preliminary C&R Plan, the first of the series of C&R Plans to be submitted by the Applicant. Following this, under Part I, Item 1 of the 2BB-MAE1727 Water Licence, the Board has approved the submitted conceptual Madrid C&R Plan.

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[17] Memo, Hope Bay Project: Madrid South Bulk Sample Madrid South All Weather Road, SRK Consulting, November 27, 2014

[18] Memo: Hope Bay Project, Madrid Advanced Exploration Program Conceptual Closure and Reclamation Plan, authored by SRK Consulting, dated October 2014.

Further to this and following INAC's recommendation regarding the frequency and the timing of the Plan submissions, also under Part I, the Board has established conditions that require the Applicant to submit an Interim C&R Plan within three years of licence issuance (Part I, Item 2), and then update it again in 2025.

Finally, the Applicant is required to submit a Final C&R Plan to the NWB for approval at least one year prior to the project's closure (Part I, Item 3).

J. Monitoring

Under Part J of the Water Licence the Board has established conditions applying to the monitoring program for the MAEP. Compliance stations, parameters and frequency of sampling details are provided under this Part J.

Included under Part J, Item 14, is the requirement of the Licensee to submit a Project specific Quality Assurance / Quality Control Plan (QA/QC Plan). The purpose of a QA/QC Plan is to ensure that samples taken for the Project, as part of the Monitoring Program, will reflect and represent the most accurate and representative samples in terms of physical, chemical and biological characteristics. The Plan shall also present a set of standard procedures for sampling, monitoring and reporting that validate analytical results and make them comparable in time regardless of methods or persons involved.

NUNAVUT WATER BOARD
WATER LICENCE

Licence No. 2BB-MAE1727

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
P.O. BOX 44, TORONTO, ON M5J 2N7

(Mailing Address)

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

Licence Number/Type:	**2BB-MAE1727 / TYPE "B"**
Water Management Area:	**QUEEN MAUD GULF WATERSHED (No. 30)**
Project/Location:	**MADRID ADVANCED EXPLORATION PROGRAM / KITIKMEOT REGION, NUNAVUT**
Classification:	**MINING UNDERTAKING**
Purpose:	**USE OF WATER AND DEPOSIT OF WASTE**
Quantity of Water use not to Exceed:	**ONE HUNDRED AND EIGHT THOUSAND (108,000) CUBIC METRES *PER* ANNUM, AND NOT EXCEEDING A RATE OF TWO HUNDRED NINETY-FIVE (295) CUBIC METRES *PER* DAY**
Date of Licence Issuance:	**MAY 23, 2017**
Expiry of Licence:	**MAY 22, 2027**

This Licence renewal, issued and recorded at Gjoa Haven, Nunavut, includes and is subject to the annexed conditions.

Thomas Kabloona
Nunavut Water Board, Chair

PART A: SCOPE, DEFINITIONS AND ENFORCEMENT

1. Scope

This Licence authorizes TMAC Resources Inc. to use waters and/or deposit waste in support of a Mining undertaking classified as per schedule 1 of the Regulations, at the Madrid Advanced Exploration Project as outlined in the Type "B" Water Licence Application submitted to the Nunavut Water Board (NWB) on January 14, 2015 and as reviewed throughout the regulatory process.

The Madrid Advanced Exploration Project is located at the following general geographical coordinates:

NW Latitude: 68° 00' 07" N	Longitude: 106° 37' 44" W
SW Latitude: 68° 00' 07" N	Longitude: 106° 40' 29" W
SE Latitude : 68° 00' 13" N	Longitude: 106° 29' 00" W
NE Latitude : 68° 06' 34" N	Longitude: 106° 32' 22" W
Latitude: 68° 03' 49"N	Longitude 106° 36' 31"W (Madrid North Office)
Latitude: 68° 01' 44"N	Longitude 106° 33' 26"W (Madrid South Office

The Licensee may conduct exploration activities, drilling, bulk sampling, and other associated activities in support of the Madrid Advanced Exploration Project in the Kitikmeot Region of Nunavut including, in general, as follows:

a. This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing of waste of any type in any waters or in any place under any conditions where such waste or any other waste that results from the deposits of such waste may enter any waters. Whenever new Regulations are made or existing *Regulations* are amended by the Governor in Council under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, or other statutes imposing more stringent conditions relating to the quantity or type of waste that may be so deposited or under which any such waste may be so deposited, this Licence shall be deemed, upon promulgation of such Regulations, to be subject to such requirements; and

b. Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

2. Definitions

"**Act**" means the *Nunavut Waters and Nunavut Surface Rights Tribunal Act;*

"**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.

"**Amendment**" means a change to original terms and conditions of this Licence requiring correction, addition or deletion of specific terms and conditions of the Licence; modifications inconsistent with the terms of the set terms and conditions of the Licence require an amendment;

"**Appurtenant Undertaking**" means an undertaking in relation to which a use of water or a deposit of waste is permitted by a licence issued by the Board;

"**Board**" means the Nunavut Water Board established under the *Nunavut Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act;*

"Bulk Fuel Storage Facility" means the fuel storage facility as described in the 2014 Application and supporting documents, consisting of a 75,000 L double-walled fuel storage tank at the Madrid North Fuel Transfer Station and a 60,000 L double-walled fuel storage tank at the Madrid North Fuel Storage Facility; a 75,000 L double-walled fuel storage tank at Madrid South Fuel Transfer Station, and a 60,000L double-walled fuel storage tank at Madrid South Fuel Storage Facility.

"**Effluent**" means treated or untreated liquid waste material that is discharged into the environment from a structure such as a fuel storage facility, settling pond, landfarm or a treatment plant;

"**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*;

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

"**Greywater**" means all liquid wastes from showers, baths, sinks, kitchens and domestic washing facilities, but does not include toilet wastes;

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

"**ICP Scan**" means the laboratory method for determining trace metals in water through Emission Spectroscopy using inductively coupled plasma or mass spectroscopy (and

includes from approximately 22 to 32 elements, depending on the laboratory performing the analysis);

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

"**Licensee**" means the holder of this Licence;

"**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. Where less than four samples from the identical sampling location are obtained, the Maximum Average Concentration shall also apply as the Effluent quality criteria for discharge;

"**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;

"**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;

"Pollution Control Pond (PCP)" means a containment constructed to collect contact water/ runoff from waste rock dumps and ore stockpiles, mine water and surface infrastructure water. Three Pollution Control Ponds will be built, two at Madrid South and one at Madrid North.

"**Quarry or Quarries**" means the area of surface excavation for extracting rock material for use as construction materials in the development of infrastructure and facilities for the project;

"**Regulations**" means the *Nunavut Waters Regulations* SOR/2013-69 18th April, 2013;

"**Secondary Containment**" means an impermeable structure, external to and separate from primary containment, which prevents unplanned spills of hazardous materials and provides a minimum capacity of 110% of the original vessel. Where multiple vessels are stored within the containment, it must provide a minimum capacity equal to the sum of the largest vessel and 10% of the aggregate volume of all other vessels located in the containment. This structure shall also provide containment and control of hoses and nozzles;

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

"**Spill Contingency Plan**" means a Plan developed to deal with unforeseen petroleum and hazardous materials events that may occur during the operations conducted under the Licence;

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

"**Tailings Impoundment Area (TIA)**" means the Tailings Impoundment Area associated with the Doris North Project, Licence No. 2AM-DOH1323. Discharge from the TIA must not exceed the water quality criteria as specified for the Doris North Project under the Type "A" Water Licence;

"**Toilet Wastes**" means all human excreta and associated products, but does not include greywater;

"**Waste**" means, as defined in s. 4 of the *Act*, any substance that, by itself or in combination with other substances found in water, would have the effect of altering the quality of any water to which the substance is added to an extent that is detrimental to its use by people or by any animal, fish or plant, or any water that would have that effect because of the quantity or concentration of the substances contained in it or because it has been treated or changed, by heat or other means;

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

3. Enforcement

a. Failure to comply with this Licence will 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*; and

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

PART B: GENERAL CONDITIONS

1. The water use fees, payable to the Receiver General for Canada, shall be sent to the Board annually for the right to the use of water in accordance with s. 12 of the Regulations.

2. The Licensee shall file an Annual Report on the Appurtenant Undertaking with the Board no later than the 31st of March, of the year following the calendar year being reported, containing the following information:

a. the monthly and annual quantities in cubic metres of all freshwater obtained at Monitoring Stations No. MAE-01, No. MAE-02 and MAE-03, including all sources of water identified for domestic and industrial use under Part D, Item 1;
b. the daily, monthly and annual quantities, in cubic metres, of mine water pumped from the underground mine;
c. the monthly and annual quantities in cubic metres of Effluent discharged from the Pollution Control Ponds onto the tundra and/or transported to Doris to be discharged into the TIA, including the analysis result;
d. the monthly and annual quantities in cubic metres of Sewage Effluent transported to the Doris North site;
e. report all artesian flow occurrences as identified under Part F, Item9;
f. an estimate of the volume of waste rock and ore currently stockpiled at site, to date;
g. tabular summaries of all data generated under the Monitoring Program, Part J;
h. a summary of modifications and/or major maintenance work carried out on the Water Supply Facilities, Buk Fuel Storage Facility, Pollution Control Ponds and any wastewater related facility including all associated structures, and an outline of any work anticipated for the next year;
i. a list of unauthorized discharges and follow-up action taken;
j. updates or revisions to the Water Management Plan, Abandonment and Restoration Plan, QA/QC, Waste Rock and Ore Storage Plan, and Spill Contingency Plan and/ or any other management plan;
k. an updated estimate of the current Madrid Advanced Exploration Project restoration and liability, as required under Part C, Item 5, based upon the results of the restoration research, project development monitoring, and any modifications to the site plan;
l. a brief description of follow-up action taken to address concerns detailed in inspection and compliance reports prepared by the Inspector;
m. a summary of drilling activities and reclamation of drilling sites;
n. a public consultation/participation report describing consultation with local organizations and residents of the nearby communities, conducted during the Report period;
o. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
p. a summary of any specific studies or reports requested by the Board, and a brief description of any future studies planned or proposed; and
q. any other details on the use of Water or the deposit of Waste requested by the Board by the 1st of November of the year being reported.

3. The Licensee shall notify the NWB of any changes in operating plans or conditions associated with the Project at least thirty (30) days prior to any such change.

4. The Licensee shall install flow meters or other such devices, or implement suitable methods required for the measuring of Water volumes as required under Part J, Item 1.

5. The Licensee shall post signs in the appropriate areas to inform the public of the

location of the water and waste management structures or facilities. All signs shall be located and maintained to the satisfaction of an Inspector.

6. 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.

7. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.

8. The Licensee shall review the Plans referred to in this Licence, as required by changes in operation and/or technology, and modify the Plan accordingly. Revisions to the Plans shall be submitted in the form of an Addendum to be included with the Annual Report.

9. 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.

10. The Licensee shall ensure a copy of this Licence is maintained at the site of operations at all times. Any communication with respect to this Licence shall be made in writing to the attention of:

a. 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

b. Inspector Contact:
Manager of Field Operations, INAC
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0
Telephone: (867) 975-4295
Fax: (867) 979-6445

11. The Licensee shall submit one paper copy and one electronic copy of all reports, studies, and plans to the Board. Reports or studies submitted to the Board by the Licensee shall include a detailed executive summary in Inuktitut and Inuinnaqtun.

12. The Licensee shall ensure that any document(s) or correspondence submitted by the

Licensee to the NWB is received and acknowledged by the Manager of Licensing.

13. This Licence is assignable as provided for in section 44 of the *Act*.

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

PART C: CONDITIONS APPLYING TO SECURITY

1. The Licensee shall, within thirty (30) days of issuance of this licence, furnish and maintain with the Minister, in a form that is satisfactory to the Minister, reclamation security in the amount of $7,131,000.

2. The Licensee shall provide to the Board for assessment and approval in writing, within ninety (90) days of issuance of this Licence, a revised and updated cost estimate for the closure of the Madrid Advanced Exploration Project. The revised estimate shall include Care and Maintenance Costs.

3. The Licensee shall furnish and maintain such further or other amounts of security as may be required by the Board, based on the updated estimate of reclamation liability. The estimate shall be calculated using the most recent version of RECLAIM, its equivalent or other similar method approved by the Board, in accordance with principles of the INAC "Mine Site Reclamation Policy for Nunavut" (2002).

4. Upon the Project entering into or being in Care and Maintenance, the Licensee shall submit to the Board for approval in writing, an updated estimate of total mine closure restoration liability, as above, within six (6) months of entering into Care and Maintenance and every three (3) years thereafter.

5. The Licensee shall submit to the Board for approval in writing, at least three (3) years following approval of the Licence and prior to September 30, 2020, and then in September 30, 2025, and again at least twelve (12) months prior to Closure, an updated estimate of the total mine closure restoration liability.

6. The Licensee may submit to the Board for approval in writing, a written request for an adjustment to the amount of security. The submission shall include supporting evidence to justify the request.

7. The security deposit shall be maintained until such time as the Minister is satisfied that the Licensee has complied with all provisions of the approved Abandonment and Restoration Plan. This clause shall survive the expiry of this Licence or subsequent renewals.

PART D: CONDITIONS APPLYING TO THE USE OF WATER AND WATER

MANAGEMENT

1. The Licensee shall obtain all water for domestic use, up to a maximum of *five (5) cubic metres per day* from Patch Lake and/or from Windy Lake, Monitoring Program Stations No. MAE-01 and No. MAE-02. Water use for drilling, dust suppression, ice roads and other industrial uses shall be obtained from Patch Lake, Windy Lake or, as required, from sources proximal to the drilling targets as outlined in the Application and measured at Monitoring Program Station No. MAE-03, and shall not exceed *two hundred and ninety (290) cubic metres per day*.

2. The total volume of water use for all purposes of this Licence shall not exceed *one hundred eight thousand (108,000) cubic metres per year* at a rate not exceeding *two hundred and ninety-five cubic (295) metres per day.*

3. The Board has approved the Plan entitled "*Water Management Plan, Madrid Advanced Exploration Program, North and South Bulk Samples*" dated December 2014. The Licensee shall submit to the Board for approval in writing within six (6) months following issuance of this Licence, a revised water management plan. The revised Plan shall address the following:

    a. Madrid site water balance in a yearly basis;
    b. Identify and explain the significance of all drainage facilities and key water bodies within the project area;
    c. Maximum water levels for all water collection facilities and associated monitoring activities shall be established;
    d. Discuss the water discharge strategies in order to avoid channelization and or development of preferential paths in the tundra to surface water as consequence of effluent discharge;
    e. Plan shall consider the monitoring requirements set out in Part J;
    f. The management of the Fuel Storage/Transfer Sumps' non-compliant Water in accordance to Water Licence condition under Part E, Items 9 and 12.

4. The Licensee shall submit to the Board for approval in writing, sixty (60) days prior to the commencement of underground workings at Madrid South, a Groundwater Management Plan.

5. Streams cannot be used as a water source unless authorized by the Board in writing.

6. If the Licensee requires water in sufficient volume that the source water body may be drawn down, the Licensee shall, at least thirty (30) days prior to the commencement of use of waters, submit to the Board for approval in writing, the following; volume required, hydrological overview of the water body, details of impacts and proposed mitigation measures.

7. 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.

8. A freeboard of 1.0 metre, or as recommended by a qualified geotechnical Engineer and accepted by the Board in writing, shall be maintained at all dykes and earth-fill structures associated with the water and waste management facilities or structures.

9. The Licensee shall not remove any material from below the ordinary High Water Mark of any water body unless authorized.

10. The Licensee shall not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.

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

PART E: CONDITIONS APPLYING TO WASTE DISPOSAL AND WASTE MANAGEMENT

1. The Licensee shall submit to the Board for approval in writing, within six (6) months following issuance of this Licence, a comprehensive Waste Rock Management Plan for the Madrid Advanced Exploration Project.

2. All Effluent discharged to the tundra from the Pollution Control Ponds at Monitoring Stations No. MAE-04, MAE-05, and MAE-06 shall not exceed the following Effluent quality limits:

Parameter	Maximum Average Concentration (MAC)[19]	Maximum Concentration in Any Grab Sample
pH	6.5 - 9.0	
Total Suspended Solids (TSS)	15 mg/L	30 mg/L
Oil and Grease	5 mg/L and no visible sheen	10 mg/L and no visible sheen
Chloride[20]	1,200 mg/L	2,400 mg/L
Total Ammonia (NH_3)[21]	15.3 mg/L	30.0 mg/L
Total Arsenic	50 µg/L	100 µg/L
Total Nickel	250 µg/L	500 µg/L

3. The Licensee shall establish compliance with the Effluent quality limits in Part E, Item 2 prior to discharge as per Part J.

4. Effluent from the Pollution Control Ponds that is acceptable for discharge under Part E,

[19] See definition for Maximum Average Concentration
[20] BC Recommended Water Quality Guidelines for Chloride
[21] CCME Water Quality Guideline for an average pH of 7 and average temperature of 5°C

Item 1, shall be discharged to a location a minimum of thirty-one (31) metres away from local waterways where direct flow into a water body is not possible and no additional impacts are created.

5. Effluent from the Pollution Control Ponds that does not meet the discharge criteria limits under Part E, Item 1 shall be recycled for drilling or directed to the Doris North TIA.

6. The Licensee shall design and construct the Pollution Control Ponds to prevent seepage. A report on seepage shall be included as part of the Geotechnical Engineer's annual report required as per Part E, Item 7.

7. An inspection of the earthworks, geological and the hydrological regimes of the Project is to be carried out annually during the summer by a Geotechnical Engineer. The Geotechnical Engineer's report shall be submitted to the Board within sixty (60) days of the inspection, with a cover letter from the Licensee outlining an implementation plan to respond to the Engineer's recommendations.

8. All runoff and surface contact water at the Fuel Facilities shall be collected in the Sumps.

9. All Effluent discharged to the tundra from the Bulk Fuel Storage Facilities and Bulk Transfer Facilities Sumps, at Monitoring Stations No MAE-07, MAE-08, MAE-09, and MAE-10 shall not exceed the following Effluent quality limits:

Parameter	Maximum Average Concentration(MAC)	Maximum Concentration in Any Grab Sample
Oil and Grease	5 mg/L and no visible sheen	10 mg/L and no visible sheen
Total Arsenic	50 µg/L	100 µg/L
Total Lead	10 µg/L	20 µg/L
Benzene	370 µg/L	-
Toluene	2 µg/L	-
Ethylbenzene	90 µg/L	-

10. The Licensee shall establish compliance with the Effluent quality limits of Part E, Item 9, prior to any discharge as per Part J.

11. Effluent from the Bulk Fuel Storage Facilities and Bulk Transfer Facilities Sumps that is acceptable for discharge under Part E Item 9, shall be discharged a minimum of thirty-one (31) metres from local waterways where direct flow into a water body is not possible and no additional impacts are created.

12. Effluent from the Bulk Fuel Storage Facilities and Bulk Transfer Facilities sumps that does not meet the discharge criteria limits under Part E Item 9 shall be treated to meet the criteria or directed to the Doris North site to be managed according to the Doris North applicable and approved management plan for hydrocarbon impacted water.

13. The Licensee shall sample seepage and runoff from the waste rock/ore storage locations, to be carried out initially during spring thaw, and at a minimum, monthly and opportunistically when flow is observed. These monitoring results are to be compared with previously reported kinetic testing results from the ARD Characterization Data Base, for the Madrid Deposit

14. The Licensee shall locate areas designated for waste disposal at a minimum distance of thirty-one (31) metres from the ordinary High Water Mark of any water body such that the quality, quantity or flow of water is not impaired, unless otherwise approved by the Board in writing.

15. The Licensee shall provide at least ten (10) days notification to an Inspector, prior to initiating the release of Effluent from any facilities listed in this Part. The notice shall include Effluent quality monitoring results, an estimate of volume and the proposed receiving location.

16. The Licensee shall not practice open burning or on-site land filling of domestic waste, unless otherwise approved by the Board in writing.

17. The Licensee is authorized to dispose of all acceptable food waste, paper waste and untreated wood products in an incinerator.

18. The Licensee shall not open-burn plastics, wood treated with preservatives, electric wire, Styrofoam, asbestos or painted wood to prevent the deposition of waste materials of incomplete combustion and/or leachate from contaminated ash residual, from impacting any surrounding waters, unless otherwise approved by the Board in writing.

19. The Licensees shall ensure that all hazardous wastes generated through the course of operation are backhauled and disposed of at an approved waste disposal site or as otherwise approved by the Board.

20. The Licensee shall dispose of and contain all non-combustible, nonhazardous solid wastes at the appropriate Doris North landfill or as otherwise approved by the Board in writing.

21. 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.

22. The Licensee shall direct all Sewage to the Sewage Disposal Facility at Doris North unless otherwise approved by the Board in writing.

23. The Licensee shall maintain the all constructed facilities, including the Bulk Fuel Storage and Transfer Facilities and the Pollution Control Pond(s), to the satisfaction of an Inspector and operate in such a manner as to prevent structural failure.

PART F: CONDITIONS APPLYING TO DRILLING OPERATIONS

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

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

3. The Licensee shall not store material on the surface of frozen streams or lakes, including the adjacent banks except what is for immediate use.

4. The Licensee shall not conduct any land-based activity within thirty-one (31) metres of the ordinary High Water Mark of any water body, unless otherwise approved by the Board.

5. The Licensee shall conduct all activities in such a way as to minimize impacts on surface drainage and the Licensee shall immediately undertake corrective measures in the event of any impacts on surface drainage.

6. With respect to access road, pad construction or other earthworks, the deposition of debris or sediment into or onto any water body is prohibited. These materials shall be disposed a distance of at least thirty-one (31) metres from the ordinary High Water Mark in such a fashion that they do not enter the water.

7. The Licensee shall not mobilize heavy equipment or vehicles for trenching or other activities unless the ground surface is capable of fully supporting the equipment or vehicles without rutting or gouging. Overland travel of equipment or vehicles shall be suspended if rutting occurs.

8. The Licensee shall dispose of all drill waste, including water, chips, muds and salts ($CaCl_2$) in any quantity or concentration, from land-based and on-ice drilling, in a properly constructed sump or an appropriate natural depression located at a distance of at least thirty-one (31) metres from the ordinary High Water Mark of any adjacent water body, where direct flow into a water body is not possible and no additional impacts are created.

9. If artesian flow is encountered, drill holes shall be immediately sealed and permanently capped to prevent induced contamination of groundwater or salinization of surface waters. The Licensee shall report all artesian flow occurrences within the Annual Report, including the location (GPS coordinates) and dates.

10. Drilling additives or mud shall not be used in connection with holes drilled through lake ice unless they are re-circulated or contained such that they do not enter the water, or are demonstrated to be non-toxic.

11. For "on-ice" drilling where drill additives are not being used, return water released must be nontoxic, and not result in an increase in total suspended solids in the immediate receiving waters, above the Canadian Council of Ministers for the Environment, Guidelines for the Protection of Freshwater Aquatic Life (i.e. 10 mg/L for lakes with background levels under 100 mg/L, or 10% for those above 100 mg/L).

12. The Licensee shall establish water quality conditions prior to and upon completion of any drilling program through lake ice.

13. The Licensee may store drill cores produced by the appurtenant undertaking in an appropriate manner and location at least thirty-one (31) metres above the ordinary High Water Mark of any adjacent water body, where any direct flow into a water body is not possible and no additional impacts are created.

PART G: CONDITIONS APPLYING TO MODIFICATIONS AND CONSTRUCTION

1. The Licensee shall submit to the Board for review for-construction design drawings, stamped and signed by a qualified Engineer, at least sixty (60) days prior to the construction of any dams, dykes or structures intended to contain, withhold, divert or retain Water or Wastes.

2. The Licensee may, without written consent from the Board, carry out Modifications to the Water and Waste manage facilities or structures 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 NIRB Screening Decision;
    d. the Board has not, during the sixty (60) days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require more than sixty (60) days; and
    e. the Board has not rejected the proposed Modifications.

3. Modifications for which all of the conditions referred to in Part F, Item 1 have not been met can be carried out only with written approval from the Board.

4. The Licensee shall within ninety (90) days of completion of the Modification or Construction of facilities and/or infrastructure associated to this Project, submit to the Board for review, a Construction Summary Report along with as-built plans and drawings and explanations to reflect any deviations from the for construction drawings. These plans and drawings shall be stamped by an Engineer.

5. The Board has approved the Plan entitled "*Hope Bay Project Quarry Management and Monitoring Plan – Revision 02*", dated December 2014 and submitted as additional information with the Application. The Licensee shall conduct quarry rock monitoring and management in accordance with this Plan.

6. The Licensee shall submit, as part of the Annual Report, an annual Construction Monitoring Report no later than 31st March, in the year following the calendar year being reported. The Construction Monitoring Report shall include the following, where applicable:

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

7. All Effluent discharged to the tundra from Quarry's G, H and I Sumps, at Monitoring Stations No. MAE-11, MAE-12, and MAE-13 shall not exceed the following Effluent quality limits:

Parameter	Maximum Concentration in Any Grab Sample
pH	6.5 - 9.0
Total Suspended Solids (TSS)	50 mg/L
Total Ammonia (N- NH_3)[22]	15.3 mg/L
Total Arsenic	0.050 mg/L
Total Nickel	0.250 mg/L

8. The Licensee shall establish compliance with the Effluent quality limits of Part G, Item 7 prior to discharge as per Part G Item 7.

9. Effluent from the Quarry G and H Sumps that is acceptable for discharge under Part G, Item 7, shall be discharged at minimum of thirty-one (31) metres away from local waterways where direct flow into a water body is not possible and no additional impacts are created.

10. Effluent from the Quarry G, H and I Sumps that does not meet the discharge criteria limits under Part G, Item 7 shall be directed to Doris North's TIA.

11. All surface runoff during the construction of any facilities, where flow may directly or

[22] CCME Water Quality Guideline for the Protection of Aquatic Life, $N\text{-}NH^3$ for an average pH of 7 and average temperature of 4°C

indirectly enter a water body, shall meet the following Effluent quality limits:

Parameter	Maximum Average Concentration (MAC)	Maximum Concentration in Any Grab Sample
Total Suspended Solids (TSS)	50 mg/L	100mg/L

12. The Licensee shall not erect buildings or store material on the surface of frozen streams or lakes including the immediate banks except what is for immediate use. Buildings shall be erected such as to minimize impacts on surface drainage.

13. The Licensee shall only use aggregate for construction of infrastructure or facilities under this Licence that is demonstrated to be free of contaminants and non-potentially acid generating and non-metal leaching by carrying out appropriate analyses and retaining the results and reports, for reference for submission on request by the NWB or an Inspector, and include he results in the Annual Report.

14. The Licensee shall construct all winter lake and stream crossings, including ice bridges, entirely of water, ice or snow. The Licensee shall minimize disturbance by locating ice bridges in an area that requires the minimum approach grading and the shortest crossing route. Stream crossings shall be removed or the ice notched prior to spring break-up.

15. With respect to access road, pad construction or other earthworks, the deposition of debris or sediment into or onto any water body is prohibited. These materials shall be disposed of at a distance of at least thirty-one (31) metres from the ordinary High Water Mark in such a fashion that they do not enter the water.

16. The Licensee shall implement sediment and erosion control measures prior to and maintain such measures during construction and operation to prevent entry of sediment into water.

PART H: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING

1. The Licensee shall submit for Board approval in writing, within ninety (90) days following issuance of the Licence, a spill contingency Plan that is specific to the scope of this Licence, addresses comments received by the parties, and is prepared in the format set out by the Consolidation of Spill Contingency Planning and Reporting Regulations, R-068-93.

2. The Licensee shall prevent any chemicals, petroleum products or wastes associated with the project from entering water. 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 conduct any equipment maintenance and servicing in designated

areas and shall implement special procedures (such as the use of drip pans) to manage motor fluids and other waste and contain potential spills.

4. If during the term of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:

   a. employ the approved Spill Contingency Plan;
   b. report the spill immediately to the 24-Hour Spill Line at (867) 920-8130 and to the Inspector at (867) 975-4295; and
   c. for each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include 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.

5. The Licensee shall, in addition to Part H, Item 4, regardless of the quantity of releases of harmful substances, report to the NWT/NU Spill Line if the release is near or into a Water body.

PART I: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION OR TEMPORARY CLOSING

1. The Board has approved the Plan entitled "*Hope Bay Project: Madrid Advanced Exploration Program: Conceptual Closure and Reclamation Plan*" dated October 31, 2014 and submitted as additional information with the Application.

2. The Licensee shall submit to the Board for approval, at least three years following the Licence issuance and prior to September 30, 2020 and then in September 2025 an Interim Closure and Reclamation Plan prepared in accordance with the Mine Site Reclamation Guidelines for the Northwest Territories, 2007 and consistent with the INAC Mine Site Reclamation Policy for Nunavut, 2002.

3. The Licensee shall submit to the Board for approval, at least one year prior to the Project's planned closure, a Final Mine Closure and Reclamation Plan prepared in accordance with the Mine Site Reclamation Guidelines for the Northwest Territories, 2007 and consistent with the INAC Mine Site Reclamation Policy for Nunavut, 2002.

4. Every Closure and Reclamation plan submission, regardless of its phase, shall be accompanied by a revised reclamation cost estimate, as per Part C.

5. The Licensee shall complete all restoration work prior to the expiry of this Licence.

6. The Licensee shall carry out progressive reclamation of any components of the project no longer required for the Licensee's operations.

7. The Licensee shall backfill and restore all sumps to the pre-existing natural contours of the land.

8. The Licensee shall remove from the site, all infrastructure and site materials, including all fuel caches, drums, barrels, buildings and contents, docks, water pumps and lines, materials and equipment prior to the expiry of this Licence.

9. All roads and airstrip, if any, shall be re-graded to match natural contour to the extent possible and to reduce erosion.

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

11. 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.

12. 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. 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.

13. The Licensee shall restore all drill holes and disturbed areas to natural conditions immediately upon completion of the drilling. The restoration of drill holes must include the removal of any drill casing materials and if having encountered artesian flow, the capping of holes with a permanent seal.

14. The Licensee shall contour and stabilize all disturbed areas to a pre-disturbed state upon completion of work.

PART J: CONDITIONS APPLYING TO THE MONITORING PROGRAM

1. The Licensee shall maintain, at a minimum, Monitoring Stations at the following locations:

Monitoring Program Station ID	Description	Frequency	Status
MAE-01	Madrid North, Freshwater intake at Windy Lake	Daily, during periods of pumping	Active Volume
MAE-02	Madrid South, Freshwater intake at Patch Lake	Daily, during periods of pumping	Active Volume
MAE-03	Freshwater intake at other Lakes	Daily, during periods of pumping	Active Volume

MAE-04	Madrid North Pollution Control Pond (PCP) Water at the point of discharge	Once, prior to every discharge onto the tundra	Active Volume, Quality
MAE-05	Madrid South Pollution Control Pond No.1 Water at the point of discharge	Once prior to every discharge onto the tundra	Active Volume, Quality
MAE-06	Madrid South Pollution Control Pond No.2 Water at the point of discharge	Once prior to every discharge onto the tundra	Active Volume, Quality
MAE-07	Madrid North Fuel Storage Area Water Sump	Once prior to every discharge onto the tundra	Active Volume, Quality
MAE-08	Madrid North Fuel Transfer Station Water Sump	Once prior to every discharge onto the tundra	Active Volume, Quality
MAE-09	Madrid South Fuel Storage Area Water Sump	Once prior to every discharge onto the tundra	Active Volume, Quality
MAE-10	Madrid South Fuel Transfer Station Water Sump	Once prior to every discharge onto the tundra	Active Volume, Quality
MAE-11	Quarry G Contact Water Sump	Once prior to every discharge onto the tundra	Active Volume, Quality
MAE-12	Quarry H Contact Water Sump	Once prior to every discharge onto the tundra	Active Volume, Quality
MAE-13	Quarry I Contact Water Sump	Once prior to every discharge onto the tundra	Active Volume, Quality
MAE-14	Windy Lake immediately downgradient of the Pollution Control Pond Discharge	Once prior to each discharge; and a maximum of two weeks post discharge	Active Quality
MAE-15	Patch Lake immediately downgradient of the Pollution Control Pond Discharge	Once prior to each discharge; and a maximum of two weeks post discharge	Active Quality
MAE-16	Wolverine Lake immediately downgradient of the Pollution Control Pond Discharge	Once prior to each discharge; and a maximum of two weeks post discharge	Active Quality

2. The Licensee shall measure and record in cubic metres, the daily quantities of water used for domestic, drilling and for all other purposes from all sources.

3. The Licensee shall provide the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations where sources of water are used for all purposes.

4. The Licensee shall determine the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations where wastes associated with the Madrid Project are deposited.

5. The Licensee shall measure and record in cubic metres, the daily volume of Effluent discharged at Monitoring Program Stations No. MAE-04, MAE-05, MAE-06, MAE-07, MAE-08, MAE-09 and MAE-10, MAE-11, MAE-12 and MAE-13.

6. The Licensee shall sample once prior to discharge at Monitoring Program Stations No. MAE-04, MAE-05, and MAE-06 for parameters under Part E, Item 2.

7. The Licensee shall sample once prior to discharge at Monitoring Program Stations No. MAE-07, MAE-08, MAE-09, and MAE-10 for parameters under Part E, Item 9.

8. The Licensee shall sample once prior to discharge at Monitoring Program Stations No. MAE-11, MAE-12 and MAE-13 for parameters under Part G, Item 7.

9. The Licensee shall sample prior discharge at Monitoring Program Stations No. MAE-04, MAE-05, and MAE-06, (project Pollution Control Ponds) for the following:

pH	Electrical Conductivity
Total Ammonia	Oil and Grease (analysis and visual)
Nitrate-Nitrite	Total Suspended Solids (TSS)
Total Phenols	Total Alkalinity
Total Hardness	Calcium
Magnesium	Potassium
Sodium	Sulphate & Chloride
Total Arsenic	Total Cadmium
Total Copper	Total Chromium
Total Iron	Total Lead
Total Mercury	Total Nickel

10. The Licensee shall analyze samples obtained under Part J, Item 7 and under Part J, Item 8, at a minimum, for the following parameters:

pH
Sulphate
Chloride
Electrical Conductivity
Total Suspended Solids
Total Ammonia,
Total Arsenic, and
Total Trace Metals as determined by a standard ICP Scan (to include at a minimum, the following elements: Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Sn, Sr, Tl, Ti, U, V, Zn)

11. The Licensee shall sample three times a year, during periods of Water inflow, Water from Madrid South Underground Mine Water Sumps and analyze for the following:

Total Dissolved Solids,

pH,
Electrical Conductivity,
Chloride
Total ammonia and nitrate
Alkalinity
Sulfate
Total Trace Metals as determined by a standard ICP Scan (to include at a minimum, the following elements: As, Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Sn, Sr, Tl, Ti, U, V, Zn)

12. The Licensee shall sample at Monitoring Stations MAE-14, MAE-15 and MAE-16, and analyze the samples for the following:

Chloride,
Conductivity, and
Total Dissolved Solids (TDS).

13. The Licensee shall obtain representative samples of the water column below any ice where required under Part F, Item 11. Monitoring shall include, at a minimum, the following:

Total Suspended Solids
pH
Electrical Conductivity
Total Trace Metals as determined by a standard ICP Scan (to include at a minimum, the following elements: Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Sn, Sr, Tl, Ti, U, V, Zn)
Trace Arsenic; and
Trace Mercury

14. The Licensee shall submit to the Board for review within 60 (sixty) days prior any major monitoring takes place, a Quality Assurance and Quality Control Plan, prepared in consultation with the accredited laboratory conducting the analysis. The Plan shall include a cover letter from the accredited laboratory confirming approval of the Plan for analysis to be performed under this Licence. The Plan shall be developed in accordance with current Standard Methods and the 1996 Quality Assurance and Quality Control Guidelines for Use by Class "A" Licensees (INAC).

15. The Licensee shall annually review the approved Quality Assurance/Quality Control plan and modify it as necessary. Proposed modifications shall be submitted to an accredited laboratory for approval.

16. All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of Standard Methods for the Examination of Water and Wastewater, or by such other methods approved by the Board in writing.

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

18. The Board may impose additional monitoring requirements.

19. A Monthly Monitoring Summary Report shall be submitted to the Board for review, within thirty (30) days following the month being reported. The Report shall include, at a minimum, the results of Monitoring under Part J, including a discussion on the results obtained.