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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: **2BB-BOS1727**

July 26, 2017

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

Email: john.roberts@tmacresources.com
info@tmacresources.com

**RE: NWB Renewal Water Licence No. 2BB-BOS1727**

Dear Mr. Roberts,

Please find attached Water Licence No. **2BB-BOS1727** 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 Water use and Waste disposal 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 Water use and Waste disposal must cease, or the Licensee may be in contravention of the *Nunavut Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act (NWNSRTA)*. However, the expiry or cancellation of a licence does not relieve the holder 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 an application 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 by Indigenous and Northern Affairs 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-BOS1727**
Comments – INAC, ECCC

Cc: Kitikmeot Region Distribution List

[1] Indigenous and Northern Affair Canada (INAC) March 10,2017

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# DECISION

**Water Licence No. 2BB-BOS1727**

This is the decision of the Nunavut Water Board (NWB) with respect to an application dated January 31, 2017 for a Water Licence renewal made by:

**TMAC RESOURCES INC.**

to allow for the use of Water and the deposit of Waste at the Boston Advanced Exploration Project, while conducting mineral exploration activities consisting of prospecting, surface land-based drilling and on-ice diamond drilling, diamond and reverse circulation drilling, on-site core splitting and logging, bulk sampling, the operation of a bulk sampling and crushing and sorting plant, a camp including domestic use of water, treatment and disposal of greywater and sewage, further underground development and underground exploration drilling, and the operation of a landfarm and bulk fuel storage facilities.

The Licensee may use water from Aimaokatalok Lake (Spyder Lake), Stickleback Lake and other lakes close to the drilling sites. These activities will be undertaken at the Boston Advanced Exploration Project Site, located within the Kitikmeot Region, Nunavut and generally located at the geographical coordinates as follows:

*Project extents:*
Latitude: 67° 41’ 41” N — Longitude: 106° 26’ 27” W
Latitude: 67° 36’ 13” N — Longitude: 106° 19’ 22” W

*Existing Camp Location:*
Latitude: 67° 39’ 32”N — Longitude: 106° 23’ 17” W

**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 that the Application is exempt from the requirement for Screening by the Nunavut Impact Review Board (NIRB) because it belongs to a class of works or activities set out in Schedule 12-1 of the *Nunavut Agreement* and the NPC does not have concerns regarding the cumulative impacts of the project proposal, 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 or *ACT*) 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.

[2] NPC letter to the NWB Re: NPC File #148454 Type B Water Licence 2BB-BOS Renewal Application, dated February 9, 2017

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* and of the *ACT*, waived the requirement to hold a public hearing, and determined that:

Water Licence No. 2BB-BOS1217 be renewed as Water Licence No. 2BB-BOS1727, issued subject to the terms and conditions contained therein (Motion #: 2017-B1-015).

SIGNED this 24th day of July, 2017 at Gjoa Haven, NU.

Thomas Kabloona
Nunavut Water Board Chair
TK/sa/ip

## INTRODUCTION

The Hope Bay Greenstone Belt Property is located at the east of Bathurst Inlet, approximately 130 km southwest of Cambridge Bay in the Kitikmeot Region of Nunavut. TMAC Resources Inc. (TMAC) is the primary property holder. TMAC operates the overall Hope Bay Project with the intention to further develop and exploit the Property mineral resources.

The following Water Licences are associated with the Hope Bay Project and the Project three significant gold deposits, Doris, Madrid and Boston:

- NWB Water Licence 2AM-DOH1323 issued for the Doris North Project;
- NWB Water Licence 2BB-MAE1727 issued for the Madrid Advanced Exploration Project;
- NWB Water Licence 2BE-HOP1222 issued for the Hope Bay Regional Exploration Project; and
- NWB Water Licence 2BB-BOS1217 issued for the Boston Advanced Exploration Project.

The existing Water Licence 2BB-BOS1217, was issued by the NWB on August 2, 2012 with an expiration date of July 31, 2017. TMAC Resources Inc. (TMAC or the Licensee) seeks the renewal of the Boston Advanced Exploration Project's Water Licence for a term of ten (10) years, from 2017 to 2027. The following are some of the activities that are planned under the scope of the renewal Water Licence: use of water in the amount of 100 $m^3$/day, camping, prospecting, drilling, bulk sampling, operation of a bulk sampling and crushing and sorting plant, underground development, the operation of a fuel storage facility, a landfarm facility, and sampling for environmental baseline data collection.

Preceding the existing Water Licence No. 2BB-BOS1217, for the Boston Advanced Exploration Project (Boston Project or the Project), were the following Water Licences:

- N7L2-1552 issued to BHP Minerals Canada Ltd. by the NWT Water Board;
- NWB1BOS9801(Amended Licence) issued to BHP Minerals Canada Ltd by the NWB in 1999;
- BWB1BOS0106 issued to Hope Bay Joint Venture (HBJV) by the NWB in 2001;
- NWB4WEI0002(Amended Licence) issued to HBJV by the NWB in 2002;
- 2BB-BOS0712 issued to Miramar Hope Bay Ltd. by the NWB in 2007; and
- 2BB-BOS1217 issued to Hope Bay Mining Ltd. (HBML) by the NWB in 2012. On June 18, 2013 this licence was assigned from Hope Bay Mining Ltd (Assignor) to TMAC Resources Inc. (Assignee).

On January 31, 2012 HBML, the Boston Project's former operator, notified the NWB of its intention to put the Hope Bay Project into Care and Maintenance. Therefore, from 2012

onwards, activities at the Boston Project were limited to monitoring for compliance and maintenance.

In 2017, as indicated in the Application Submission, TMAC intends to gradually bring the site out of Care and Maintenance. Facilities at Boston such as the Boston Camp with a capacity for approximately thirty (30) people, the Rotating Biological Contactor (RBC) unit as well as the Potable Water Supply Facility will all resume operations in 2017. Access to the site will be granted by the construction of a winter track; the track will be supported by operations of helicopters or other aircraft, if required. It is planned that the regional exploration programs in conjunction with the Boston's drill program will be carried out using the Boston's camp as centre of the activities.

## I. PROCEDURAL HISTORY

**Requirements of the NuPPAA and the Nunavut Agreement:**
Since the implementation of the Nunavut Planning and Project Assessment Act (NuPPAA), all project proposals must first be assessed by the Nunavut Planning Commission (NPC) and, if required, by the Nunavut Impact Review Board (NIRB) before proceeding to the water licensing stage. The NWB shall not approve any water licence application until these requirements have been met. Further to that, the NWB will not proceed beyond the technical review stage of considering the Application until the NPC and the NIRB assessment processes are complete.

On February 9, 2017 the Nunavut Planning Commission (NPC) issued a correspondence[3] which indicated that the Boston Project Proposal is located outside of the boundaries of the two approved land use plans currently in place and administered by the NPC. And also that the Project Proposal did not require screening because it belongs to a class of works or activities set out in Schedule 12-1 of the *Nunavut Agreement*, and the NPC did not have concerns regarding the cumulative impacts of the Project.

On this basis, the NWB considered the requirements of the NuPPAA and the Nunavut Agreement were fulfilled such that the NWB could continue processing the Application.

**The Application Before the NWB**
On February 10, 2017, the Nunavut Water Board acknowledged the receipt on January 31, 2017 of a Water Licence Application (Application) for the renewal of Licence No. 2BB-BOS1217 by TMAC Resources Inc. (TMAC or the Licensee) for water use and Waste disposal in support of the Boston Advanced Exploration Project and informed that the Application concluded the pre-licensing steps required under the *Nunavut Agreement*, the *NuPPAA* and the *NWNSRTA*. The following documents were submitted to the NWB in support of the Application:

- Application for Water Licence Renewal dated January 31, 2017;

[3] Nunavut Planning Commission (NPC) Re: NPC File #148454 Type B Water Licence 2BB-BOS Renewal Application, dated February 9, 2017

- Attachment A Summary of Activities;
- Attachment B Map;
- Attachment C Compliance Status;
- Attachment D: Management Plans/ Reports;
- Attachment D1 Hope Bay Boston Camp Interim Closure Plan, dated January 2017;
- Attachment D2 Hope Bay Landfarm Management and Monitoring Plan, dated January, 2017;
- Attachment D3 Water and Ore/Waste Rock Management Plan for the Boston Site, Hope Bay Project, Nunavut, January, 2017;
- Attachment D4 Hope Bay Project Spill Contingency Plan, dated January, 2017;
- Attachment D5 Quality Assurance and Quality Control Plan, dated January, 2017;
- Attachment D6 Boston Advanced Exploration Project: 2016 Annual Geotechnical dated January 31, 2017;
- Attachment D7 Hope Bay Project Interim Non Hazardous Waste Management Plan dated December 2016;
- Attachment E Proponent Information dated January, 2017
- Attachment F Copy of Water Use Fee & Application Fee cheques;
- Cover letter dated January 31, 2017;
- Summary for Boston Type B Renewal Inuinnaqtun Received February 8, 2017;
- Summary for Boston Type B Renewal Inuktitut Received February 8, 2017.

At the same time the Board invited interested parties to make representation directly to the NWB within thirty (30) days from the date of the acknowledgment's letter, with a deadline of March 10, 2017. On or before March 10, 2017, comments were received by Indigenous and Northern Affairs Canada (INAC). Environment and Climate Change Canada submitted to the NWB on March 10, 2017 indicating that it had no comments at this time. On March 24, 2017, a teleconference was organized by the NWB's staff; participants to the conference were INAC, TMAC and the organizer. During the conference call, TMAC responded to the concerns expressed in INAC's review. Following that, on April 10, 2017 TMAC formalized its response by means of a submission to the NWB and on June 6, 2017 the NWB requested further comment from interested parties on the TMAC's submission with a deadline of June 26, 2017. On that date, comments were submitted by INAC. TMAC responded to the submission from INAC on June 27, 2017 with a letter of confirmation and clarification with respect to points brought forward by INAC on June 26, 2017.

## II. GENERAL CONSIDERATIONS

### A. Term of Licence

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 years. In determining an appropriate term of a water licence, the Board considers a number of factors including, but not limited to Licensee compliance record and intervener comments provided during the application review process.

With regard to the Licence's term, the Licensee has requested a period of ten (10) years. Thus, the Licensee proposes to maintain the 2BB-BOS Water Licence while applying for a new Type "A" water licence related to Phase 2 of the Hope Bay Project. Regarding this request, INAC recommended that the "*2BB Licence be renewed for a shorter term under the assumption the bulk sampling activities will be rolled in to a new Type "A" and the exploration activities carried out under the 2BE-HOP1222*". Also INAC stated that "*the NWB will be in the best position to determine the most appropriate licensing options*".

Given that the approval of the new Type "A" Water Licence and the scope of the activities authorized under this new licence is still in the review process, and subject to the regulatory authority's approval, the Board views as appropriate and conservative approach to grant the ten (10) year licence term as requested by the Applicant. Also, the Licence term allows the Licensee to properly carry out the terms and conditions of the Licence for the proposed activities during this time.

**B. Annual Reporting**

The NWB generally includes the requirement of the Licensee to produce an Annual Report. These Reports, which are standard requirements for most 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 in 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.

Website Public Registry:
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.

A closure cost estimate for the Boston Advanced Exploration Project was included in TMAC's January 2017 Application submission under the *Hope Bay Project Boston Camp Interim Closure Plan*. This first cost estimate indicated a total of $6,381,000 for the closure and reclamation costs associated with the Boston Advanced Exploration Project, where $1,548,000 were computed as direct costs and $4,833,000 as indirect costs[4].

During the review process INAC commented on the TMAC cost estimate and recommended that the estimate include provisions for care and maintenance.

Following this, based on TMAC's direct experience with updated construction costs at the Boston site and recognizing inconsistencies in the submitted closure cost estimate which were required to be addressed, in April 2017 TMAC submitted a revised cost estimate[5]. According to the April 2017 submission, the updated closure and reclamation cost of the Boston Project is estimated to be **$3,611,000**. The most significant revisions are 1) decommissioning of the primary tank farm cost, 2) reclamation of drill sites costs, 3) interim care and maintenance costs, and 4) mobilization costs. The largest reduction in cost is due to the using of a winter track instead of a winter road which was included in the mobilization costs, to support closure activities that would include transportation of personnel, equipment and operating supplies to and off the site.

Other costs have also been reviewed and although the revised costs do not change the total cost estimate, they significantly change the weight of each element. The submitted SRK Memo provides a complete discussion on this matter.

Further to this, the Board has accepted the security amount of **$3,611,000** as proposed by the Licensee, for the reclamation and closure of all facilities associated with the Boston Advanced Exploration Program. Under Part B, Item 3 of the 2BB-BOS1727 the Applicant is required to furnish and maintain the amount of security based on the updated estimate of mine reclamation liability.

On June 27, 2017 a letter from TMAC to the Board requested the following:

1) reductions in the security amount to be provided to the Minister when the same amount is held under the Kitikmeot Inuit Association (KIA) for the Boston Project.
2) a phased payment of the security

[4] Memo: Boston Interim Closure Plan Cost Estimate, SRK Consulting, January 13,2017
[5] Memo: Revised Boston Exploration Camp Closure Cost Estimate for Licence 2BB-BOS1217 Renewal Application, dated April 10, 2017

With regard to point one, the Board may choose to reduce security in a land use permit or water licence by an amount held under another regulatory authorization for the same project, to prevent duplication. The central guiding principle for estimating closure costs is provided by INAC Reclamation policy:

"*The total financial security for final reclamation required at any time during the life of the mine should be equal to the total outstanding reclamation liability for land and water combined*"

With regard to point two, the Board approach is to fix security once at the commencement of the term of the Licence, and any other changes to security would be considered an amendment to the Licence.

Following this, under Part B, the Board has approved amendments to the Water Licence to reflect the change requested by the Licensee regarding reductions in the security amount (point one).

**D. Water Use**

The Applicant has indicated in the Application Submission that the main source of water for domestic purposes is Aimaokatalok Lake, while water sources for drilling are both, Aimaokatalok and Stickleback Lakes. The overall estimated quantity of water to be used is 100 $m^3$/day, the same as that authorized in the existing Licence.

The Board has received no objections from interveners with respect to the quantity of water requested. Therefore, the NWB has granted the quantity of Water requested by the Licensee and set the maximum water use for all purposes under this Licence at 100 $m^3$/day.

**E. Waste Management Plans**

Several types of wastes are to be generated at the Boston site and include sewage, solid waste, hazardous waste, bulky items/scrap metal, waste oil and contaminated soil and or/water. Management and treatment of these wastes, if required, are described in the following Management Plans, already submitted:

- *Sewage Treatment Plant Operations and Maintenance Plan for Boston Camp*, FSC Architects and Engineers, July 2010, with the revisions on October 31, 2010,
- *Hope Bay Project Incinerator Management Plan*, April 2016;
- *Hope Bay Project Hazardous Waste Management Plan*, September 2016.

TMAC operates a Landfarm Facility at Boston. The Boston Landfarm (or Boston Land Treatment Area (LTA)) was constructed in 2003 using a high density polyethylene (HDPE) liner underlain by Bentomax matting and was constructed on a layer of crushed waste rock that was placed on top of the native esker gravel pad that underlie the Boston exploration camp.

The material currently contained within the Boston LTA was placed by Miramar in 2003. As indicated in the 2014 Annual Report, the Boston LTA with a capacity of 450 $m^3$ of material, "*is*

*full to capacity and no further additions are allowed*". TMAC intends to transport this material to the Doris Mine. Also, hydrocarbon impacted soil generated at Boston during operations, will be transported to the Doris Mine and treated/managed at the existing Doris Landfarm facility. The Boston LTA is going to be used as a temporary storage of contaminated material.

Further to this, in order to provide an update of the current management practices at the Boston LTA, the Licensee has submitted the management plan entitled: *Hope Bay Landfarm Management and Monitoring Plan,* dated January 2017. This Plan supersedes the previous "*Boston Land Treatment Area Management and Monitoring Plan*," dated 2012 and approved with the issuance of the existing licence.

Also, an update of the current management practices at site regarding the non hazardous waste is provided in the management plan entitled: *Hope Bay Project Interim Non-Hazardous Waste Management Plan, December 2016*.

Both Management Plans have been approved by the NWB under the relevant sections of the Renewal Licence.

Water and Ore/Waste Rock Management Plan

Ore and waste rock generated as part of underground exploration work carried out in 1996/97 by a previous mine operator, BHP Minerals, are stored at the Boston site. The waste rock was used to construct Boston's camp pad, roads and an airstrip. It was reported[6] in 2009, that approximately half of the ore extracted during the exploration program remained in place, stockpiled on the camp pad. The rest of the ore was used to construct a new tank farm and as surfacing material for the camp pad, roads and airstrip. Further to that, results of studies conducted in 2009[7] indicated that

> "*all the waste rock and the majority of the ore is non-acid generating and that a small proportion of the ore has an uncertain potential for acid rock drainage (ARD)*"

And that

> "*seepages monitoring indicates that concentrations of arsenic, and to a lesser extent, nickel and selenium may be somewhat elevated in comparison to CCME guidelines for aquatic life*."

With the intention to assess water quality down gradient of the ore and waste rock stockpiles, a monitoring program has been carried out since 2009 by previous operators, and TMAC. The Program is called "*Boston Ephemeral Stream Monitoring*" and a yearly report on the results are submitted to the NWB. According to the 2015 "*Boston Ephemeral Stream Monitoring" Report:*

> "*Ephemeral streams down gradient of the waste rock pile have been monitored during spring freshet since 2009 to monitor the attenuation capacity of the tundra and to*

[6] Water and Ore/Waste Rock Management Plan for the Boston Site, Hope Bay Project, Nunavut, SRK, July 2009

[7] Geochemical Characterization of Historic Waste Rock and Ore Stockpiles at the Boston Deposit, Hope Bay Project Nunavut, Hope Bay Mining Ltd., April 2009

*provide an indication of whether contaminants from the ore and waste rock piles are reaching the shoreline of Aimaokatalok (Spyder) Lake*".

Further to this, seepages control measures are planned if high concentrations of metals in the seepage are detected.

Following this, in order to provide an update of the current management practices of waste rock and water at site, the Licensee submitted with the Application the *Hope Bay Project Water and Ore/Waste Rock Management Plan for Boston Site (W&OWRMP)*, January 2017. This Plan supersedes the previous "*Water and Ore/Waste Rock Management Plan for the Boston Site*," dated 2009 and approved with the issuance of the existing licence.

At present, as indicated in the W&OWRMP, some of the discharge points (Monitoring Stations) established under the existing Water Licence are not active on a regular basis because the containments designed to hold the wastewater prior to discharge are used for other purposes. Such is the case for:

- the two Containment Ponds (Monitoring Station No. BOS-2), designed to collect mine water, and run off from waste rock and ore stockpiles. These are no longer used for that purposes. As reported, one pond is lined (the liner needs repair) and it contains runoff from the camp pad and/or water originated from the fuel containment area, the other pond is unlined and is used to temporarily hold non-hazardous solid waste materials pending packaging for offsite disposal.

- the lined containment pond designed to hold the landfill leachate (Monitoring Station No. BOS-7), currently contains hydrocarbon contaminated soil. The landfill originally proposed for the Boston site was never constructed due to concerns raised by the Kitikmeot Inuit Association (KIA).

Further to this, and although not included in the existing Licence, the following discharge sites are active and are routinely monitored prior to discharge:

- *Portal Decline,* water accumulated at the Portal consisting of runoff from the camp pad*;* and

- *Ephemeral Streams,* the monitoring of these streams provides an indication of the quality of the water reaching the shoreline of Aimaokatalok Lake.

The Board has approved, under Part E, Item 2, the Water and Ore/Waste Rock / Management Plan for the Boston Site. The Licensee is however, required to submit to the Board for review an updated Plan addressing INAC's reviewer comments.

## F. Waste Disposal

In order to regulate the discharge conditions to the tundra, the Board has established under Part D of the Water Licence, effluent quality discharge criteria for the authorized discharge of water at the following locations:

- Sewage Treatment Facility;
- Containment Pond;
- Bulk Storage Facility, Landfarm Facility, Contaminated Soil Temporary Storage Area;
- Portal Decline.

Sewage is collected and transferred to the Boston Sewage Treatment Facility; after treatment, the treated sewage is discharged to the tundra. The Applicant has indicated that there is not direct discharge of treated sewage into surface waters. Therefore, condition under Part D, Item 16 of the Existing Licence, that requires the treated sewage effluent to be demonstrated non-acutely toxic has been removed. The Effluent discharged from the Sewage Treatment Facility should be in compliance with the criteria established under the "*Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territory*", 1992.

With regard to the treated sewage, the Licensee is reminded that the Fisheries Act, Section 36(3) requires that all wastes discharged to water be demonstrated to be non-toxic.

Effluent discharged from the Containment Pond, Bulk Storage Facility, Landfarm Facility and Contaminated Soil Temporary Storage Area should be in compliance with the criteria established under Part D of the Water Licence.

As outlined by the Mackenzie Valley Land and Water Board[8] "*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 results of the modeling are 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-one (31) metres away from local waterways where direct flow into*

[8] MVLWB Water and Effluent Quality Management Policy, March 31, 2011

*a water body is not possible and additional impacts are not created*";

2. The variability of the examined parameter in the effluent, i.e. given that no direct discharge into a water body is allowed, chemical attenuation may occur as consequence 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[9] (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 aquatic 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[10].

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[11].

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.

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.

## G. Modifications and Construction

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

Standard conditions are included in the Water Licence related to modifications and construction. Likewise, under Part G, Item 1, the Licensee is required to submit to the Board for approval, for Construction drawings at least sixty (60) days prior to commencing the construction or modification of any water or waste facility, and in accordance with Part G, Item **Error! Reference source not found.**, 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

In order to satisfy requirements of the existing 2BB-BOS1217 Water Licence, the Licensee submitted the following Spill Contingency Plans (SCP):

In January 2014 TMAC submitted the "*The Hope Bay Project Spill Contingency Plan*" to satisfy Part H Item 1 of the Licence 2BB-BOS1217. The Plan was submitted as a comprehensive Plan for the Hope Bay Project and to satisfy the three Hope Bay Project Licences, 2AM-DOH1323, 2BE-HOP1222 and 2BB-BOS1217. The Plan was revised to reflect the change in project ownership to TMAC and the Care and Maintenance Operational Phase of the Project.

The 2014 Plan was superseded by the 2016 Spill Contingency Plan[12]. The 2016 Spill Contingency Plan, applicable to Water Licences 2AM-DOH1323, 2BE-HOP1222 and 2BB-BOS1217 was submitted to address comments received during the review of the 2014 Plan as well as during the processing of the application for amendment of the Type "A" Water Licence No. 2AM-DOH1323. The NWB has reviewed the 2016 Plan and is satisfied with the revised "*Spill Contingency Plan Hope Bay Nunavut*", April 2016 and considers that it adequately addresses reviewers' comments and the Board requirements.

Further to this, the Applicant has included with the Application Submission an updated Boston Site Spill Contingency Plan (SCP); the *Hope Bay Project Spill Contingency Plan*, dated January 2017 is approved under Part H, Item 1 with the issuance of this renewal Licence.

The SCP structure includes a main document and modules. The main document outlines key contacts, response organization, action plan, and training and is related to all Hope Bay development; the modules provide details for each particular site. In this way, Module C of the submitted SCP "*Boston*" was included in order to address particular requirements of the Boston Project and its associated Licence.

The Licensee should note that the Hope Bay Project Spill Contingency Plan, dated January 2017 will be considered hereafter and the previous SCP will no longer apply.

## I. Abandonment and Reclamation

The Applicant has submitted as additional information with the Application, the plan entitled "*Hope Bay Project, Boston Camp Interim Closure Plan*[13]". This Plan supersedes the previously

[12] Spill Contingency Plan Hope Bay Nunavut, April 2016
[13] Hope Bay Project Boston Camp Interim Closure Plan, SRK Consulting, January 2017

approved "*Hope Bay Project Boston Camp Revised Interim Closure Plan, Hope Bay, Nunavut*[14]" dated May 26, 2014, originally submitted in 2012 to satisfy Part I Item 1 of the Licence 2BB-BOS1217, which was modified to reflect changes requested by the NWB[15].

Under Part I, Item 1 of the 2BB-BB1727 Water Licence, the Board has approved the submitted Boston Camp Interim Closure Plan. Further to this and in order to both follow INAC's Guidelines[16] and also align the Water Licence requirements with similar licences regarding frequency and timing of closure plan's submissions, under Part I the Board has established conditions that require the Applicant to submit an Interim Closure 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**

To ensure consistency with other advanced exploration projects licensed in Nunavut, under Part J of the Water Licence, the NWB has established conditions applying to the monitoring program for the Boston Advanced Exploration Project. The Licensee is required to implement and report the results of the Monitoring Program outlined in the Water Licence.

It should be noted that the Monitoring Program Stations have been amended in order to reflect the current status of the Monitoring Stations at site, already discussed under point F above.

The Licensee has submitted with the Application the *Quality Assurance and Quality Control Plan, Hope Bay, Nunavut* (QA&QC Plan), dated January 2017. The Plan was submitted as a comprehensive Plan for the Hope Bay Project and to satisfy the three Hope Bay Project Licences, 2AM-DOH1323, 2BE-HOP1222 and 2BB-BOS1217. The Plan consists of a core document and modules; the core document presents protocols for field sampling, field analysis, sample handling and preservation, sample shipping, quality control samples and reporting, and is accompanied by a letter from an accredited laboratory; modules address sites and associated licences – specific requirements; the core document applies to the Hope Bay Development while Module C is dedicated to the Boston Project.

Following this, under Part J, Item 16 of the Water Licence, the NWB has accepted the QA&QC Plan. The Licensee is required to annually review the QA&QC Plan and modify if necessary. Revised Plans are to be submitted to the Board with an approval letter from an accredited laboratory.

**K. Others**

<u>V-notch weir</u>

Conditions related to the construction, operation and removal of the v-notch weir to monitor

[14] Hope Bay Project Boston Camp Revised Interim Closure Plan Hope Bay, Nunavut, SRK Consulting, June 2012
[15] NWB Letter Re: Boston Camp Revised Interim Closure Plan TMAC Resources Inc., Licence No.2BB-BOS1217, dated August 27, 2014
[16] Mine Site Reclamation Guidelines for the Northwest Territories, INAC, January 2007

outflow from the Stickleback Lake were included as part of the existing water licence 2BB-BOS1217. A letter submitted by Hope Bay Mining Limited (HBML), previous project operator, informed that the weir was removed on August 9, 201217. Therefore, conditions regarding the v-notch weir are also removed from the renewal licence, 2BB-BOS1727.

2016 Geotechnical Inspection and the Implementation of the Surface Infrastructure Geotechnical Monitoring Program

Under Part D, Item 17 of the Existing Licence, the Board requires that a Geotechnical Engineer inspect annually the Boston Site during summer and provide a report with recommendations to the NWB. The report must also contain a cover letter from the Licensee outlining a plan to address the Geotechnical Engineer's recommendations.

In 2015 a geotechnical inspection was conducted at site; the Engineer's recommendation resultant from this inspection was that TMAC implement a Surface Infrastructure Geotechnical Monitoring Program (SIGMP).

Regarding this recommendation, TMAC has submitted with the Application Submission[18], the SIGMP Standard Operative Procedures and the accompanying checklist. The SIGMP check list captures all elements of the site that are typically inspected on annual basis by the Geotechnical Engineer. As indicated by the Licensee, qualified site staff will routinely inspect the facilities listed in the check list; in that way, the annual geotechnical inspection would focus the inspection efforts "*on the areas where changes have been observed, or where unique or extraordinary observations were noted*". Further to this, the implementation of this Program "*will allow for routine maintenance activities to be prioritized by site operational staff as part of normal operations, and will ensure important geotechnical problems are highlighted and addressed throughout the year as opposed to only annually*".

[17] Letter to the NWB from Hope Bay Mining Ltd. Re: 2BB-BOS Stickleback Outflow V-notch Weir Removal, dated September 6, 2012

[18] Letter-document Re: Boston Advanced Exploration Project: 2016 Annual Geotechnical Inspection Report, SRK Consulting, January 13, 2017

# NUNAVUT WATER BOARD
# RENEWAL WATER LICENCE

Licence No. 2BB-BOS1727

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 renewal:

| | |
|---|---|
| Licence Number/Type: | **2BB-BOS1727 / TYPE "B"** |
| Water Management Area: | **QUEEN MAUD GULF WATERSHED No.30** |
| Location: | **KITIKMEOT REGION, NUNAVUT** |
| Classification: | **MINING UNDERTAKING** |
| Purpose: | **USE OF WATER AND DEPOSIT OF WASTE** |
| Quantity of Water use not to Exceed: | **ONE HUNDRED (100) CUBIC METRES *PER* DAY** |
| Effective Date: | **AUGUST 1, 2017** |
| Expiry of Licence: | **JULY 31, 2027** |

This Licence renewal / amendment, 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 allows for the use of waters and deposit of waste in support of a Mining Undertaking classified as per schedule 1 of the Regulations, at the Boston Advanced Exploration Project as outlined in the renewal Application for the Type "B" Water Licence No. 2BB-BOS1217 submitted to the Nunavut Water Board (NWB) on January 31, 2017 and as reviewed throughout the regulatory process.

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

Project Extents:
Latitude: 67° 41' 41" N Longitude 106° 26' 27" W
Latitude: 67° 36' 13" N Longitude 106° 19' 22" W

Camp Location:
Latitude: 67° 39' 32"N Longitude 106° 23' 17" W

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 2017 Application and supporting documents;

**"Containment Pond"** means the pond originally designed to accommodate excess water from the underground, as described in the Water and Ore/Waste Rock Management Plan for the Boston Site, Hope Bay Project, Nunavut, dated January 2017;

"**Effluent**" means treated or untreated liquid waste material that is discharged into the environment from a structure such as a 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*;

**"Existing Licence"** means the 2BB-BOS1217 Water Licence;

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

"**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;

"**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 (including 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*;

"**Landfarm**" means the storage facility as described in Landfarm Management and

Monitoring Plan, Hope Bay Nunavut, dated January 2017;

"**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;

"**Minewater**" means groundwater or any Water used in mining, which is pumped or flows out of any underground workings or open pit;

"**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;

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

"**Renewal Licence**" means the renewal Water Licence 2BB-BOS1727;

"**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;

"**Sewage Treatment Facility**" comprises the area and engineered structures designed to contain and treat Sewage (i.e. Rotating Biological Contactor or as otherwise proposed and reviewed by the Board);

"**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;

"**Temporary Storage Area of Hydrocarbon Contaminated Soils**" means the lined pond originally designed to accommodate leachate / runoff from the landfill. This lined pond is the temporary storage of hydrocarbon contaminated soils, as described in the Water and Ore/Waste Rock Management Plan for the Boston Site, Hope Bay Project, Nunavut;

"**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 Section 12 of the Regulations.

2. 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, a security deposit in the amount of $3,611,000 dollars.

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. If, during the Term of the Licence, the Licensee enters into a security arrangement with the Kitikmeot Inuit Association and the Minister to secure all or part of the Boston Advanced Exploration Project closure and reclamation costs, the Licensee may file evidence of the arrangement in writing with the Board.

5. As required under s. 76.1 of the Act, upon receiving evidence of a security arrangement from the Licensee under Part B, Item 4, the Board may reduce the amount of security to be held under Part B, Item 2 to ensure that the security held under the security arrangement, when combined with the security held under the Licence is sufficient to meet the requirements of Part B, Item 3.

6. Upon the Project entering into or being maintained in Care and Maintenance, an updated estimate of total mine closure restoration liability shall be submitted, as above, within twelve (12) months of entering Care and Maintenance and every three (3) years thereafter.

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

8. 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 renewals.

9. The Licensee shall file an Annual Report on the Appurtenant Undertaking with the Board no later than March 31st 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 from Aimaokatalok (Spyder) Lake, Monitoring Stations No. BOS-1a and from Stickleback Lake, Monitoring Station No. BOS-1b and additional sources of water identified for domestic and other uses under Part C, Item 1;
    b. the monthly and annual quantities in cubic metres of Minewater pumped from the underground;
    c. the monthly and annual quantities in cubic metres of Effluent discharged at Monitoring Station Number BOS-2, BOS-2, BOS-4 and BOS-5, BOS-6 and BOS-7;
    d. the monthly and annual quantities in cubic metres of non-compliant effluent transported to Doris North's Tailings Impoundment Area;
    e. the monthly and annual quantities in cubic metres of Sludge removed from the Sewage Treatment Facility;
    f. the annual quantities in cubic metres of all soil and types of contaminants from all locations that are placed within the Landfarm facility and/or transported to

Doris North Project;

g. report all artesian flow occurrences as identified under Part F, Item 3;
h. Boston Ephemeral Stream Monitoring Report;
i. tabular summaries of all data generated under the Monitoring Program;
j. a summary of modification and/or major maintenance work carried out on the Water Supply and the Waste Disposal Facilities, including all associated structures, and an outline of any work anticipated for the next year;
k. a list of unauthorized discharges and follow-up action taken;
l. updates or revisions to the Closure Plan, QA/QC, Water and Ore/Waste Rock Management Plan, Spill Contingency Plan, and Landfarm Plan and/or any other plans;
m. a brief description of follow-up action taken to address concerns detailed in inspection and compliance reports prepared by the Inspector;
n. a summary of drilling activities and progressive reclamation of drill sites;
o. an estimate of the current volume of waste rock and ore stockpiled on site;
p. a public consultation/participation report describing consultation with local organizations and residents of the nearby communities, if any were conducted;
q. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
r. a summary of any specific studies or reports requested by the Board, and a brief description of any future studies planned or proposed; and
s. any other details on Water use or Waste disposal requested by the Board by November 1st of the year being reported.

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

9. 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 2.

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

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

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

13. 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.

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

15. The Licensee shall 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

16. 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.

17. 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.

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

19. 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 THE USE AND THE MANAGEMENT OF WATER

1. The Licensee shall obtain all water for domestic camp use from Aimaokatalok (Spyder) Lake at Monitoring Program Station BOS-1. Water use for drilling and associated uses shall be obtained from Aimaokatalok Lake, Stickleback Lake or as required from sources proximal to the drilling targets. The total volume of water for the purposes of

this Licence, from all sources and purposes shall not exceed one hundred (100) cubic meters *per* day.

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

3. 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 commencement of use of water, 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.

4. 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.

5. A freeboard of 1.0 metre, or as recommended by a qualified geotechnical Engineer and as approved by the Board, shall be maintained at all dykes and earth-fill structures associated with the Water Supply and Wastewater Management Facilities.

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

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

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

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

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

3. 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.

4. The Licensees shall backhaul and dispose of all hazardous wastes generated through the course of operation at an approved waste disposal site or as otherwise approved by the Board in writing.

5. 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.

6. All Effluent discharged from the Containment Pond at Monitoring Station BOS-2 and all Effluent discharged from the Portal Decline at Monitoring Station BOS-9 shall not exceed the following Effluent quality limits:

| Parameter | Maximum Average Concentration (MAC) | Maximum Concentration in Any Grab Sample (MCGS) |
|---|---|---|
| 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 |
| Total Arsenic | 0.050 mg/L | 0.10 mg/L |
| Total Copper | 0.020 mg/L | 0.040 mg/L |
| Total Lead | 0.010 mg/L | 0.020 mg/L |
| Total Nickel | 0.250 mg/L | 0.500 mg/L |
| Total Zinc | 0.300 mg/L | 0.600 mg/L |
| Nitrate as $NO_3$- | 130 mg/L | 260 mg/L |

7. The Licensee shall establish compliance with the Effluent quality limits in Part E, Item 6 prior to discharge.

8. Effluent that is acceptable for discharge under Part D, Item 6 shall be discharged to a location a minimum thirty-one (31) metres away from local waterways where direct flow into a water body is not possible and no additional impacts are created.

9. Effluent that does not meet the discharge criteria limits under Part D, Item 6 shall be directed to Doris North's TIA.

10. Monthly water noncompliance events and volume in cubic metres of not complaint Effluent transported to be discharged into Doris North's TIA shall be reported in the Annual Report.

11. The Licensee shall operate and maintain the Containment Pond in particular with respect to the adequacy and integrity of their berms to the satisfaction of the Inspector.

12. The Licensee shall design and berm the Pond under Part D, Item 6 to prevent seepage. A report on seepage shall be included as part of the Geotechnical Engineer's annual report required by Part D, Item 13.

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

implementation plan to respond to the Engineer's recommendations.

14. All Effluent discharged to the tundra from the Sewage Treatment Facility, at monitoring station BOS-3 shall not exceed the following Effluent quality limits:

| Parameter | Maximum Allowable Concentration in Any Grab Sample |
|---|---|
| $BOD_5$ | 80 mg/L |
| Total Suspended Solids | 100 mg/L |
| Fecal Coliforms | 10,000 CFU/100mL |
| Oil and grease | No visible sheen |
| pH | 6.0-9.5 |

15. Upon confirming compliance required of Part D, Item 14, Effluent to be released to the environment may be used for other industrial purposes, including use for dust suppression activities on roads and quarries as well as drilling.

16. The Licensee shall, for the Landfarm Facility, establish and confirm compliance with Effluent quality limits of Part D, Item 17 prior discharge.

17. All Effluent discharged to the tundra from the Landfarm Facility, at Monitoring Station BOS-6 shall not exceed the following Effluent quality limits:

| Parameter | Maximum Allowable Concentration in Any Grab Sample |
|---|---|
| pH | 6.5 - 9.0 |
| Total Suspended Solids (TSS) | 15 mg/L |
| Oil and Grease | 15 mg/L and no visible sheen |
| Total Lead | 0.010 mg/L |
| Total Arsenic | 0.050 mg/L |
| Benzene | 0.370 mg/L |
| Toluene | 0.002 mg/L |
| Ethylbenzene | 0.90 mg/L |

18. The Licensee shall, for the Bulk Fuel Storage Facility and the Temporary Storage Area of Hydrocarbon Contaminated Soils, establish and confirm compliance with Effluent quality limits of Part D, Item 19 prior to discharge.

19. All Effluent from the Bulk Fuel Storage Facility, and the Temporary Storage Area of Hydrocarbon Contaminated Soils, Monitoring Stations No. BOS-5, and BOS-7, discharged to the tundra, shall not exceed the following Effluent quality limits:

| Parameter | Maximum Allowable Concentration in Any Grab Sample |
|---|---|
| pH | 6.5 - 9.0 |
| Total Suspended Solids (TSS) | 15 mg/L |

| | |
|---|---|
| Oil and Grease | 15 mg/L and no visible sheen |
| Total Lead | 0.010 mg/L |
| Total Arsenic | 0.050 mg/L |
| Total Nickel | 0.500 mg/L |
| Total Copper | 0.040 mg/L |
| Total Zinc | 0.600 mg/L |
| Benzene | 0.370 mg/L |
| Toluene | 0.002 mg/L |
| Ethylbenzene | 0.91 mg/L |

20. In the event that Effluent planned for discharge exceeds the limits provided in Part D, the Licensee shall investigate the cause of the noted exceedance and report any findings, along with planned mitigation measures to meet these limits, prior to any discharge.

21. All Effluent shall be discharged in such a manner to minimize surface erosion.

22. The Licensee shall locate areas designated for Effluent discharge at a minimum distance of thirty-one (31) metres from the ordinary High Water Mark of any water body where direct flow into a water body is not possible and additional impacts are not created, unless otherwise approved by the Board in writing.

23. 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.

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

## PART E: CONDITIONS APPLYING TO CAMPS, ACCESS INFRASTRUCTURES AND OPERATIONS

1. The Board has approved the Plan entitled *Landfarm Management and Monitoring Plan, Hope Bay, Nunavut*, and the *Module B: Boston*, dated January 2017, submitted as additional information with the renewal Application.

2. The Board has approved the Plan entitled "*Water and Ore/Waste Rock Management Plan for the Boston Site*", dated January 2017 and submitted as additional information with the Application. The Licensee shall conduct water and ore/waste rock management in accordance with this Plan.

3. The Licensee shall submit to the Board for review, at least sixty (60) days prior to re-opening the Boston Portal to carry out underground drilling at Boston, an updated Water and Ore/Waste Rock Management Plan. The Plan shall describe water management at the Boston site, and address the following:

a. Management of mine water pumped to the surface, if any;
b. Water management for surface drilling;
c. Management and monitoring of surface water runoff from the fuel storage area and landfarm reflecting the water licence conditions under Part D Items 17 and 19 ;
d. Describe the planned seepage control measures if the monitoring of the ephemeral streams detect the tundra attenuation capacity is exceeded.

4. The Board has approved the Plan entitled "*Hope Bay Project Interim Non-Hazardous Waste Management Plan*", dated December 2016, submitted as additional information with the renewal Application.

5. The Licensee shall submit to the Board for approval in writing, sixty (60) days prior to resuming exploration and commissioning of the Sewage Disposal Facility, a revised Sewage Treatment Plant Operations and Maintenance Plan.

6. The Licensee shall not erect camps or store material on the surface of frozen streams or lakes including immediate banks except what is for immediate use. Camps shall be located such as to minimize impacts on surface drainage.

7. All activities shall be conducted in such a way as to minimize impacts on surface drainage and the Licensee shall immediately undertake any corrective measures in the event of any impacts on surface drainage.

8. Winter lake and stream crossings, including ice bridges, shall be constructed entirely of water, ice or snow. The Licensee should 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.

9. 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 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.

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

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

12. 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.

## PART F: CONDITIONS APPLYING TO DRILLING OPERATIONS

1. The Licensee shall not conduct any land based drilling within thirty-one (31) metres of the ordinary high Water mark of any Water body, unless otherwise approved by the Board in writing.

2. 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.

3. 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.

4. 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.

5. 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).

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

## PART G: CONDITIONS APPLYING TO MODIFICATIONS

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 Supply Facility, and Waste Facilities provided that such Modifications are consistent with the terms of this Licence and the following requirements are met:

    a. the Licensee has notified the Board in writing of such proposed Modifications at least sixty (60) days prior to beginning the Modifications;
    b. such Modifications do not place the Licensee in contravention of the Licence or

the Act;

c. such Modifications are consistent with 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 G, Item 2 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 a Construction Summary Report along with as-built plans and drawings providing explanation to reflect any deviations from the for construction drawings. These plans and drawings shall be stamped by an Engineer.

5. The Licensee shall only use aggregate for construction of infrastructure or facilities under this Licence that is demonstrated to be not potentially acid generating, non-metal leaching and free of contaminants by carrying out appropriate analyses and retaining the results and reports for reference for submission on request by the NWB or an Inspector, or have the results submitted with the annual report.

6. The Licensee shall not do anything that will cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.

7. 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.

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

## PART H: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING

1. The Board has approved the Plan entitled "*Hope Bay Project: Spill Contingency Plan, Module C: Boston*" dated January 2017, submitted as additional information with the Application.

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: Boston Camp Interim Closure Plan*" dated January 2017 and submitted as additional information with the Application. The Licensee shall submit with the Annual Report an addendum to the Plan; the addendum is to address the following:

    a. Include a schedule for reclamation of the drill holes inventoried as requiring intervention and specify type of material proposed to use as fill for drill hole sites.
    b. Measures that will be employed to prevent the fill of drill holes with material susceptible of leaching metals during reclamation activities.

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 again in September 2025 an updated revised 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. The Licensee shall provide with every Closure and Reclamation plan submission, a revised reclamation cost estimate.

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

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

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

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

9. 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, material and equipment prior to the expiry of this Licence.

10. The Licensee shall re-grade all roads and airstrip, if any, to match natural contour to reduce erosion.

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

12. The Licensee, shall, for all disturbed surfaces, in order to promote growth of vegetation and the needed microclimate for seed deposition, prepare the surfaces by ripping, grading, or scarifying the surface to conform to the natural topography.

13. The Licensee shall reclaim areas that have been contaminated by hydrocarbons from normal fuel transfer procedures 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.

14. 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.

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

16. 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 J: CONDITIONS APPLYING TO THE MONITORING PROGRAM

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

| Monitoring Program Station ID | Description | Status |
|---|---|---|
| **BOS-1a** (BOS-1, 1652-1A) | Raw water supply intake at Aimaokatalok (Spyder) Lake | Active, Volume |
| **BOS-1b** | Raw water supply intake at Stickleback Lake | Active, Volume |
| **BOS-2** (1652-2) | Containment Pond discharge, sources of water reporting include runoff from the camp pad and/or water accumulating in the fuel containment area. It reflects water quality associated with runoff from the ore and waste rock pads | Active, Volume & Quality |
| **BOS-3** (1652-3) | Sewage Treatment Facility treated effluent discharge | Active, Volume & Quality |
| **BOS-**4 (1652-4) | Treated sewage effluent at the point prior to entry into Aimaokatalok (Spyder) Lake | Active, Volume, & Quality |
| **BOS-5** | Effluent from the Bulk Fuel Storage Facility prior discharge onto the tundra. It provides an indication of water quality associated with the ore that was used to protect the liner | Active, Volume & Quality |
| **BOS-6** | Effluent from the Landfarm Treatment Facility prior to discharge onto the tundra | Active, Volume & Quality |
| **BOS-7** | Runoff from the temporary storage area of hydrocarbon contaminated soils prior to discharge onto the tundra. | Active, Volume & Quality |
| **BOS-8** | Seepage/runoff from the ore stockpiles and camp pad, monitored on the tundra to the east of the ore stockpiles | Active, Quality |
| **BOS-9 (New)** | Portal Decline, surface water runoff discharged onto tundra, west of Portal. Water quality related to the chemistry of waste rock in the camp pad | Active, Quality |
| **BOS-10 (New)** | Underground Mine Water Sumps, minewater pumped from the underground | Active, Volume and Quality |

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

3. The Licensee shall measure and record, in cubic metres, the monthly and annual quantities in cubic metres of Minewater pumped from the underground.

4. The Licensee shall measure and record, in cubic metres, the monthly and annual quantities in cubic metres of Sludge removed from the Sewage Disposal Facility.

5. The Licensee shall measure and record, in cubic metres, the daily quantities of Effluent discharged at Monitoring Program Stations BOS-2, BOS-3, BOS-5, BOS-6 and BOS-7.

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

7. 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 Boston Project are deposited.

8. The Licensee shall sample at Monitoring Program Station BOS-2, once prior to discharge and weekly thereafter during discharge for parameters under Part D, Item 6.

9. The Licensee shall sample at Monitoring Program Stations BOS-3 and BOS-4 monthly during discharge. Samples shall be analyzed for the following parameters:

| | |
|---|---|
| Biochemical Oxygen Demand – $BOD_5$ | Fecal Coliforms |
| Total Suspended Solids | pH |
| Oil and Grease (visual) | |

10. The Licensee shall sample at Monitoring Program Stations BOS-2, BOS-5, BOS-6 and BOS-7, monthly during discharge of Water from the facilities and analyze for the following:

TPH (Total Petroleum Hydrocarbons)
PAH (Polycyclic Aromatic Hydrocarbons)
BTEX (Benzene, Toluene, Ethylbenzene, Xylene)

| | |
|---|---|
| pH | Electrical Conductivity |
| Nitrate-Nitrite | Oil and Grease (analysis and visual) |
| 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 |
| Total Selenium | |

11. The Licensee shall utilize opportunistic sampling of seepage and runoff from the existing waste rock/ore storage locations, identified as Monitoring Station No. BOS-8, to be carried out initially during spring thaw, and at a minimum, monthly 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 Boston Deposit.

12. The Licensee shall sample at Monitoring Station No. BOS-9 once prior to discharge and analyze for the parameters listed under Part J, Item 14.

13. The Licensee shall sample three times a year, during periods of Water inflow, at Monitoring Station No. BOS-10, Underground Mine Water Sumps and analyze for the parameters listed under Part J, Item 14.

14. The Licensee shall analyze samples obtained under Part J, Item 11 in accordance with similar test methods as those used in previous kinetic testing for, at a minimum, the following parameters:

    pH
    Sulphate and 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).

15. The Licensee shall obtain representative samples of the water column below any ice where required under Part F, Item 6. Monitoring shall include but not be limited to 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), and
    Trace Arsenic and Mercury.

16. The Board has accepted the Plan entitled "*Quality Assurance and Quality Control Plan, Hope Bay, Nunavut, Module C: 2BB-BOS1217 Boston*" dated January 2017, submitted as additional information with the Application. The Licensee shall submit with the Annual Report an addendum to the Plan; the addendum is to include an updated Table of Contents.

17. The Licensee shall annually review the Quality Assurance/Quality Control plan of Part J, Item 16 and modify it as necessary. Proposed modifications shall be submitted to an Analyst for approval.

18. 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.

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

20. The Board may impose additional monitoring requirements.

21. A Monthly Summary Report of Monitoring Program Results shall be submitted to the Board for review, within thirty (30) days following the month being reported. This Report shall include, at a minimum, the results of Monitoring Stations under Part J.

22. The Licensee shall include in the Annual Report required under Part B, Item 9, all data, monitoring results and information required by this Part.