



ᓄᓇᓂᓪ ᐃᓕᓕᓂᓪ ᑲᓂᓕᓂᓪ
NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: 2AM-DOH1323 & 2AM-BOS----

To: Doris North Distribution List

Date: August 22, 2018

Subject: Type “A” Water Licences 2AM-DOH1323 and 2AM-BOS----: Pre- Hearing Conference Decision Regarding Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment

On August 7, 2018 by Motions No. 2018-10-P7-03 and No. 2018-10-P7-04, the Members of the Doris North Panel (P7), duly appointed by the Nunavut Water Board (NWB or Board) to consider the Application for an Amendment (Amendment No. 2) to Type “A” Water Licence 2AM-DOH1323 and the Application for a new Type “A” Water Licence 2AM-BOS---- (the Applications), approved and directed the release of this Pre-Hearing Conference Decision Report and procedural direction associated with the upcoming in-person Public Hearing to be held in the community of Cambridge Bay tentatively scheduled for the week of October 22, 2018 (tentatively October 24 and 25, 2018).

In order to facilitate the NWB’s licensing process associated with the Applications, submitted to the Board by TMAC Resources Inc. (TMAC or the Applicant), the Panel directed that, in accordance with Rule 14 of the NWB *Rules of Practice and Procedure* (the *Rules*), the staff of the NWB hold a Technical Meeting (TM) and a Pre-Hearing Conference (PHC) for the Applications.

As indicated in the Notice of Application, dated February 23, 2018, the TM for the Application was held in person in the community closest to the undertaking, Cambridge Bay, Nunavut, on May 14 and 15, 2018. On the evening of May 14, 2018, the Board’s staff also hosted a Community Session regarding the Applications. Following the NWB’s receipt of the Nunavut Impact Review Board’s (NIRB) Final Hearing Report¹ that recommended that the Phase 2 Hope Bay Belt Project Proposal could proceed to the licensing stage, the NWB conducted the PHC via teleconference on July 31, 2018. The Agendas for the TM, Community Session and PHC are attached as [Appendix A](#) to this Decision.

¹ Nunavut Impact Review Board Final Hearing Report Phase 2 Hope Bay Belt Project, TMAC Resources Inc, NIRB File No. 12MN001, June 26, 2018.



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment PHC Decision

As set out in Rule 14.1 of the *Rules*, the PHC dealt with the following matters relevant to the Applications:

- Timetable for the Pre-Hearing exchange of information;
- Identification of interested parties;
- Submissions of interested parties;
- List of issues to be dealt with at the Hearing;
- Desirability of amending the Applications for the purpose of clarification;
- Procedures for the Hearing; and
- Identification of any other matters that may assist in the simplification and disposition of the Hearing.

Introduction and Registration

The following parties participated in the Board’s TM, Community Session and PHC:

- TMAC Resources Inc. (TMAC or the Applicant);
- The Kitikmeot Inuit Association (KIA);
- Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC previously known as Indigenous and Northern Affairs Canada or INAC);
- Environment and Climate Change Canada (ECCC); and
- Fisheries and Oceans Canada (DFO).

The Board also benefitted from having members of the community of Cambridge Bay in attendance at various times throughout the TM and Community Session. No questions and/or comments about the Applications were provided to the NWB by the community members. The listing of attendees at the TM/Community Session/PHC held in Cambridge Bay (summarized from the sign in sheets recorded at these sessions) is attached as [Appendix B](#) to this Report.

1.0 The Application Before the Board

The Applications being considered by the Board were filed by TMAC Resources Inc. (TMAC or the Applicant) on December 20, 2017 and request the Board to issue a new Water Licence No. 2AM-BOS---- to authorize new water uses and waste deposits associated with a gold Mining



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

undertaking² at the Boston site and also seeks amendments to the existing Doris North Type “A” Water Licence 3AM-DOH1323 (Amendment No. 2) to authorize additional water uses and wastes deposits associated with gold mining at the Madrid North and South deposits and the additional processing of ore from the Boston and Madrid sites at the mill at the Doris North gold mine. As these two Applications are in relation to a single project, the Phase 2 Hope Bay Belt Project, the NWB has processed the Applications together in a single process, including joint consideration of the associated project infrastructure as set out in TMAC’s Phase 2 Hope Bay Belt Project (the Project).

The Project is located on Inuit Owned Lands (IOL) in the West Kitikmeot Region of Nunavut, approximately 125 kilometers (km) southwest of Cambridge Bay and 150 northeast of Omingmaktok (Bay Chimo). The Project comprises three significant gold deposit areas at the Doris, Madrid and Boston sites. The Doris deposit was originally developed and approved under the NIRB’s Project Certificate No. 003 issued for the Doris North Gold Project (the original Project) which is considered Phase 1 of the Hope Bay Belt Project. The Applications aim to develop Phase 2 of the Hope Bay Belt Project, which is the proposed continuation of the gold production from the Doris North Mine (ending in 2021), the development of Madrid North (2019 to 2031) and Madrid South (2029 to 2032) Mines and would involve the use of the existing ore processing and milling infrastructure located at the Doris North site, and the development of a stand-alone mine with its own ore processing plant at the Boston site that would concentrate the ore for final processing at the existing Doris North site (2022 to 2029).

The following activities will be completed to support mine development and operation of the Madrid and Boston sites, including: the expansion of the Doris North Tailings Impoundment Area (TIA), construction of a Cargo Dock in Roberts Bay and an all-weather road from the Madrid South site to the Boston site. Mine development is proposed to follow an integrated sequence to ensure there is a continuous supply of ore going to the processing plant located at the Doris North site. The staging of construction and operation during the development of Phase 2 for the Hope Bay Belt will also allow waste rock generated during mining to be placed back underground in the mined out caverns left behind when the underground mining of a given deposit is completed. TMAC is proposing the life of the Project to be nineteen (19) additional years, consisting of overlapping periods of construction, operation and closure at each deposit. TMAC proposes approximately five (5) years of construction, fourteen (14) years of operation, and eight (8) years

² *Nunavut Waters Regulations*, SOR/2013-69, Schedule 1, Item 2, Column 2, which describes a “Mining undertaking” as: Exploration or prospecting — including bulk sampling — for minerals other than petroleum or gas, the operation of a mine, the processing of minerals other than petroleum or gas, the restoration of the site of a mine and any other mining activity other than an industrial activity described in item 1, column 2 [of Schedule 1].



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment PHC Decision

of closure and post-closure monitoring. The Applications request a 25-year (2019 to 2044) term for the amended Licence and the new Licence.

As the Project falls outside an area with an approved Land Use Plan in effect, as set out in the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, S.C. 2002, c. 10 (NWNSRTA) the Nunavut Planning Commission was not required to conduct a land use conformity assessment. On December 21, 2017, the Nunavut Impact Review Board (NIRB) acknowledged receipt of the Phase 2 Hope Bay Belt Project Proposal Final Environmental Impact Statement (FEIS), and initiated their internal review under the *Nunavut Agreement*, Article 12, Part 5 (the Review). On June 26, 2018, the NIRB issued a positive Final Hearing Decision, recommending that the Phase 2 Hope Bay Belt Project should be allowed to proceed into the regulatory phase. If the Minister approves the NIRB’s Final Hearing Report and recommendations, and the Project is authorized to proceed to the licensing stage, NIRB will issue a new Project Certificate and an amendment to NIRB Project Certificate No. 003. If the Minister rejects the NIRB’s Final Hearing Report and recommendations and the Project is not authorized to proceed to the licensing stage, the NWB’s further consideration of the Applications would be suspended.

The amendments proposed by TMAC under Licence 2AM-DOH1323 (Amendment No. 2) would include the following activities:

- improvements to the existing shipping infrastructure;
- expansion of the Doris North Tailings Impoundment Area (TIA);
- commencement of commercial mining at the Madrid North and Madrid South Mines; and
- construction of an all-weather road from the Madrid sites to the Boston site.

Under the new Licence 2AM-BOS----, the Applicant is requesting authorization to construct and operate a stand-alone mine and all associated facilities at the Boston site.

Application and Supporting Materials Submitted by the Applicant

On December 20, 2017, TMAC submitted the Applications and supporting documentation for a new Type “A” Water Licence and an Amendment to a Type “A” Water Licence (the Applications) associated with the Phase 2 Hope Bay Belt Project. [Appendix C](#) provides a listing of the specific information provided with the Applications, all of which is available from the Nunavut Water Board’s public registry at the following links:



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

<ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-DOH1323%20TMAC/>

<ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-BOS----%20TMAC/>

On February 21, 2018, the Applicant provided responses to the information requests received from the Kitikmeot Inuit Association (KIA), Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC, previously referenced as Indigenous and Northern Affairs Canada or INAC), Environment and Climate Change Canada (ECCC) and Fisheries and Oceans Canada (DFO) during their completeness review of the Application.

Between February 21, 2018 and May 3, 2018, the Applicant provided responses to comments and additional information requested during the technical review by KIA, CIRNAC, ECCC and DFO.

Scope of the Type “A” Water Licence Applications

The Scope of the Applications includes the following items [note: capitalized terms are terms that are defined in the Applications or existing Water Licences for the Project]:

2AM-DOH1323 Amendment No. 2:

- Extension of the life of all required activities and facilities that are already approved under Amendment No. 1 of the Type “A” Water Licence to the end of 2037, including the closure and post closure stages of the Project;
- Expansion of the scope of Type “A” Water Licence No. 2AM-DOH1323 to include the scope of all facilities and activities authorized under the existing Type “B” Water Licence No. 2BB-MAE1727;
- Expansion of existing accommodation facilities and the sewage treatment plant at the Doris site to support approximately 400 people;
- Expansion of surface infrastructure and facilities as required, including additional fuel storage, ore pads, waste rock pads, vent raises, additional power supply, a 1,200 tonnes per day concentrator at Madrid North, maintenance shops, warehouses and reagent storage;
- Construction, Operation and Closure of an all-weather road extending from the Madrid site to Boston, including stream crossings and additional quarries to be used along the all-weather road;



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- Completion of development of the Madrid North and Madrid South underground workings to commercial scale. The existing Doris mine will continue as an underground mine and the Doris process plant will process a portion of the ore from the Madrid and Boston mines;
- Additional domestic and industrial water use from permitted and existing water sources at the south end of Windy Lake and Doris Lake, respectively;
- Construction, Operation and Closure of a second water source intake at Windy Lake at a more proximal distance to the Doris site which will decrease transport distances;
- Construction, Operation, and Closure of additional contact water ponds to capture surface water run-off. Water collected in contact water ponds may be used for processing or underground drilling, discharged to the Tailings Impoundment Area or discharged to the tundra if it meets criteria specified in the Licence. Mine water will be pumped to the marine mixing box at Doris and discharged to Roberts Bay;
- Construction, Operation, and Closure of a tailings pipeline, reclaim pipeline and all-weather access road from the Madrid North concentrator to the south end of the Doris Tailings Impoundment Area; and
- Expansion of the Doris Tailings Impoundment Area to a capacity of 18 million tonnes by raising the south dam and constructing the west dam.

2AM-BOS----:

- Domestic and industrial water use from the existing water source at Aimaokatoalok Lake (permitted under Type “B” Water Licence No. 2BB-BOS1727);
- Construction, Operation and Closure of an approximately 300-person camp and associated sewage treatment plant;
- Construction, Operation and Closure of site pads and all infrastructure to conduct exploration activities, production-level underground mining, crown pillar recovery, ore processing and tailings management;
- Construction, Operation and Closure of ore pads, waste rock pile, fuel storage facility, power supply, explosives manufacturing facility and wastewater treatment facility;
- Construction, Operation and Closure of a processing plant and a dry-stack tailings management area and disposal of dewatered tailings in the underground mine with the waste rock backfill;
- Construction, Operation and Closure of contact water ponds to capture surface water run-off. Water collected in contact water ponds will be utilized for processing, treated for



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

discharge to Aimaokatalok Lake or used for dust suppression and or discharged to the tundra if licence criteria is met;

- Construction, Operation and Closure of a wastewater treatment plant to treat water from the gold processing plant prior to discharge to Aimaokatoalok Lake via an outfall;
- Discharge of treated sewage effluent from the wastewater treatment plant to tundra or Aimaokatoalok Lake via outfall once it meets discharge criteria;
- Use of brine and a brine mixing facility for underground drilling and mining;
- Construction, Operation, and Closure of waste transit sites for temporary storage of hazardous and non-hazardous waste;
- Construction, Operation and Closure of a landfill for non-hazardous, non-combustible wastes; and
- Construction, Operation, and Closure of a landfarm for the treatment of hydrocarbon contaminated substrates and snow.

2.0 Procedural History

Pre-Licensing Requirements

With respect to these Applications, the following pre-licensing requirements have been completed:

On **November 17, 2010** (Doris and Madrid areas), and **February 9, 2017** (Boston area), the Nunavut Planning Commission (NPC) issued their determinations that NPC’s previous determination from the Doris North Project still apply, which states that the Phase 2 Hope Bay Belt Project is located outside of a region with an approved Land Use Plan in effect. Consequently, NPC was not required under the *Nunavut Agreement* to conduct a land use plan conformity assessment of the Project. NPC also determined that the Project does not belong to the class of works or activities exempt from screening by the NIRB, as set out in the *Nunavut Agreement*, and therefore forwarded the Project Proposal to the NIRB for screening and impact assessment.

Following the NIRB’s completion of the assessment of the potential ecosystemic and socio-economic effects of the Phase 2 Hope Bay Belt Project, on **June 26, 2018**, the NIRB issued a positive Final Hearing Decision, recommending that the Project should be allowed to proceed into the regulatory phase. If the Minister approves the NIRB’s Final Hearing recommendation, and the Project is authorized to proceed to the licensing stage, NIRB will issue a new Project Certificate and an amendment to NIRB Project Certificate No. 003.



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment PHC Decision

NWB Processing of the Applications

It should be noted that, as indicated in the NIRB’s Pre-Hearing Conference Decision for the Phase 2 Hope Bay Belt Project³ TMAC requested that the NIRB and the NWB co-ordinate, to the extent possible, their respective processes for the NIRB’s assessment of the potential effects of the Project and the NWB’s consideration of the associated water licence applications. Reflecting this coordinated processing, the NWB initiated consideration of the Applications while the NIRB’s assessment of the Project was ongoing. To date, the NWB’s coordinated processing has included the following:

- The NWB’s participation in the NIRB’s Technical Meeting;
- Attachment of the NWB’s conformity assessment of the draft water licence application to the NIRB’s Pre-Hearing Conference Decision (the draft water licence application was included by TMAC as an Appendix to the draft Environmental Impact Statement submitted to the NIRB);
- The NWB providing direction in the NIRB’s Pre-Hearing Conference Decision that two applications (for amendments to the existing Type “A” Water Licence No. 2AM-DOH1323 and a new Type “A” Water Licence for the Boston site) be provided;
- The issuance of joint correspondence with the NIRB and NWB and co-ordination, to the extent possible of comment and response periods; and
- A commitment from the NWB that if the Applications received by the Board were deemed to be complete and sufficient to conduct technical review, that the NWB would hold a Technical Meeting in relation to the Applications immediately following NIRB’s Final Hearing associated with the NIRB’s Review of the Phase 2 Hope Bay Belt Project.

Recognizing this context, the following includes a brief overview of the procedural history for the Applications. It should be noted that the following listing captures only the major procedural steps associated with the Applications. All documentation and the complete history of the NWB component of the licensing files are available from the NWB’s ftp site at the links provided in Section 1.0 of this decision.

- **December 20, 2017**
 - The Nunavut Water Board (NWB or Board) received two Type “A” Water Licence applications and supporting documentation (the Applications) from TMAC

³ NIRB Pre-hearing Conference Decision for the Phase 2 Hope Bay Belt Project, NIRB File No. 12MN001, July 21, 2017.



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

Resources Inc. (the Applicant or TMAC) for the proposed Phase 2 Hope Bay Belt Project. One application was for amendments to Type “A” Water Licence No. 2AM-DOH1323 and the other application requested a new Water Licence covering commercial mining activities at the Boston site.

▪ **January 17, 2018**

- The NWB issued joint correspondence with the NIRB, requesting that interested parties conduct a completeness review and provide information requests by January 31, 2018, for the Applications. The NIRB also indicated in this correspondence the start of their technical review of the Final Environmental Impact Statement for the Phase 2 Hope Bay Belt Project.

▪ **January 25, 2018**

- At the request of the KIA, the NWB granted a one-week extension for the submission of information requests in relation to the Applications, from January 31, 2018 to February 7, 2018.

▪ **January 26, 2018**

- At the request of DFO, CIRNAC, and ECCC, the NWB extended the deadline for comments on the completeness of the Applications for the second time, moving the deadline to February 14, 2018.

▪ **February 9, 2018**

- DFO responded to the completeness review indicating they were satisfied that the information provided in the Applications was sufficient to begin their technical review, and that they had no information requests.

▪ **February 13, 2018**

- The KIA responded to the completeness review with 54 information requests for the Applicant.

▪ **February 14, 2018**

- CIRNAC responded to the completeness indicating they were satisfied that the information provided in the Applications was sufficient to begin their technical review, and that they had no information requests.
- ECCC responded to the completeness review with 15 information requests.

▪ **February 21, 2018**



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- TMAC responded to the information requests by the KIA and ECCC.
- **February 23, 2018**
 - The NWB deemed the Applications to be complete and issued “Notices of Application” for the Type “A” Applications and indicated the commencement of the technical review period ending on March 23, 2018.
- **February 26, 2018 and March 1, 2018**
 - ECCC and KIA, respectively, confirmed that they were satisfied with TMAC’s response to their information requests.
- **March 20, 2018**
 - CIRNAC requested an extension for submitting their technical review comments about the Applications, from March 23, 2018 to March 28, 2018.
- **March 23, 2018**
 - The NWB received technical review comments from the KIA and ECCC, and requested that the Applicant provide relevant responses.
- **March 28, 2018 and March 29, 2018**
 - The NWB received technical review comments from DFO and CIRNAC, respectively, and requested that the Applicant provide relevant responses.
- **April 4, 2018**
 - The NWB received and distributed the Applicant’s responses to technical review comments received from the KIA, CIRNAC, DFO, and ECCC.
- **April 6, 2018**
 - The NWB received and distributed TMAC’s Response to technical comment ID #CIRNAC-TC-8.
- **April 13, 2018**
 - The NWB distributed correspondence confirming that, as part of the coordinated processing of the Applications, the NWB’s Technical Meeting for the file would be held in person on May 14 and 15, 2018 in Cambridge Bay (the week following the NIRB’s Final Hearing for the file).



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- **April 26, 2018**
 - The NWB provided correspondence with a Draft Agenda for the Technical Meeting.
- **April 27, 2018**
 - TMAC provided a response to CIRNAC Recommendation #21, received on March 29, 2018, regarding the Boston and Doris-Madrid Closure and Reclamation Costs Estimate with its Cost Estimate sheets.
 - TMAC provided (via ERM) a draft of the Hope Bay Project Aquatic Effects Monitoring Plan in response to NIRB and NWB requests.
- **May 3, 2018 and May 7, 2018**
 - The NWB received confirmation of participation, and presentation documents from the Applicant, ECCC, CIRNAC and KIA, DFO, respectively.
- **May 8, 2018**
 - The NWB provided the final Agenda for the Technical Meeting.
- **May 14-15, 2018**
 - The NWB hosted the Technical Meeting and Community Session in Cambridge Bay.
- **May 29, 2018**
 - The NWB provided correspondence to the Applicant and interested parties, summarizing the List of Issues discussed and List of Commitments made by the Applicant and interested parties during the Technical Meeting.
- **June 1, 2018**
 - Natural Resources Canada (NRCan) provided the NWB with technical comments in the form of their Final Written Submission (which had originally been submitted to the Nunavut Impact Review Board (NIRB) as part of the environmental assessment).
 - CIRNAC completed their commitment made during the Technical Meeting, and confirmed that they are satisfied at this stage with TMAC’s response to their technical comment #14.



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- **June 19, 2018**
 - TMAC provided their Responses to the Technical Meeting Issues and Commitments.
 - The NWB distributed TMAC’s Responses to the Technical Meeting Issues and Commitments.
- **July 3, 2018**
 - The NWB issued a notice of the Pre-Hearing Conference (PHC) to be held by teleconference on July 31, 2018, attaching a draft Agenda, and provided clarification on the next steps.
- **July 16-18, 2018**
 - The NWB received additional technical review comments, comments on the draft Agenda and confirmation of their participation in the PHC from Interveners including KIA, CIRNAC, ECCC, and DFO.
 - CIRNAC completed their commitment #17 from the technical meeting, providing comments on the cost estimate.
- **July 25, 2018**
 - TMAC provided its responses to additional technical review comments, comments on the draft Agenda, and confirmation of its participation in the PHC.
 - Nunavut Tunngavik Inc. (NTI) provided correspondence to the NWB indicating that a representative from NTI will be participating in the Pre-Hearing Conference.
- **July 27, 2018**
 - The NWB circulated the final Agenda for the PHC to all parties.
- **July 31, 2018**
 - The NWB conducted the PHC via teleconference.

Licences Currently Issued to the Project

There is currently one Type “A” Water Licence and three Type “B” Water Licences issued for the Project to cover the commercial mining at the Doris North Project site and the exploration activities all along the entire Hope Bay Belt. These Licences are:



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

Licence No. 2AM-DOH1323: This Licence is a renewal and amendment of the original Type “A” Water Licence No. 2AM-DOH0712, which was issued on September 19, 2007 to Miramar Northern Mining Limited for the Doris North Project to authorize the use of water and disposal of waste during commercial gold mining at the Doris North site. On January 23, 2008, the NWB authorized the assignment of Water Licence No. 2AM-DOH0713 from Miramar Northern Mining Limited to Hope Bay Mining Limited. On June 18, 2013 the NWB authorized the assignment of Water Licence 2AM-DOH0713 from Hope Bay Mining Limited to TMAC Resources Inc., the current Licensee.

On August 16, 2013, the NWB issued the renewal of Licence No. 2AM-DOH0712, Licence No. 2AM-DOH1323. The renewed Licence authorized TMAC’s continued use of Water and deposit of Wastes in support of the gold Mining Undertaking associated with the Doris North Project.

In November 4, 2016 the Licence No. 2AM-DOH1323 was amended to reflect changes to the scope of the original Project as scoped in 2006, including the following key changes:

- an extension to the mine life from 2 years to 6 years;
- access to, and mining of two additional mineralized zones from the existing Doris North portal;
- an increase to the mining and milling rates at the facility (from 720 tonnes per day to 2,000 tonnes per day);
- a change to the way tailings will be managed (a change from subaqueous/under water deposit to subaerial/above water deposit) and associated changes to the Tailings Impoundment Area (TIA); and
- the discharge of up to 7,000 cubic metres per day into the marine environment via a pipeline extending into Roberts Bay; this discharge consisting of the discharge of up to 3,000 m³/day of saline groundwater from the mine year round and the discharge of up to 4,000 m³/day of effluent from the TIA during the summer months.

TMAC’s application to further amend the Licence No. 2AM-DOH1323 to reflect mining at the Madrid North and South sites constitutes an application for Amendment No. 2 to this Type “A” Water Licence.

Licence No. 2BB-MAE1727: This Licence is in support of Advanced Exploration activities at the Madrid Site, including bulk sampling.

Licence No. 2BB-BOS1727: This Licence is in support of Advanced Exploration activities at the Boston Site, including bulk sampling.



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

Licence No. 2BE-HOP1222: This Licence is in support of Exploration activities all along the Hope Bay Belt.

Note that if the Applications before the Board are approved, TMAC wishes to continue to hold all Type “B” Licences in support of exploration activities in the area.

3.0 Technical Review Comments Received by the Board

Prior to the Technical Meeting (TM) on May 14-15, 2018, the Board provided interested parties with three opportunities for comment on the Applications.

The Board’s first comment period (January 17, 2018 – February 14, 2018) requested parties to consider whether the Applications were complete and to identify any outstanding issues that would prevent the Board from continuing to process the Applications.

Although this comment period was originally set to close on January 16, 2018, the timeline was extended to January 22, 2018 as per request of the KIA and was subsequently extended to February 14, 2018 upon the request of DFO, ECCC and CIRNAC.

The second comment period (February 23, 2018 to March 29, 2018) requested parties to file substantive technical review comments in advance of the TM for the file. Although this comment period was originally set to close on March 23, 2018, the timeline was extended by the NWB to March 29, 2018 at the request of the DFO and CIRNAC.

Subsequently, parties also had an opportunity to provide additional comments pertaining to TMAC’s fulfillment of the TM commitments, which were received from parties on July 16-18, 2018 and discussed at the Pre-Hearing Conference (PHC) conducted on July 31, 2018 via teleconference.

The sections that follow briefly outline the comments provided during these comment periods, but also reflect comments provided by parties and Board staff during the TM, and comments provided by parties with respect to the Applicant’s submissions pertaining to the commitments finalized at the end of the TM on May 14-15, 2018. For a complete review of all comment submissions received by the NWB in respect of the Application consult the NWB’s ftp site at the links provided in Section 1.0 of this decision.

Kitikmeot Inuit Association (KIA)

The KIA is the representative of the Inuit beneficiaries of the Kitikmeot Region, at both the territorial and regional levels, and supports sustainable economic development opportunities for



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

Inuit beneficiaries. The KIA are also the owner of lands upon which the Project will be developed. The KIA’s participation in the review of the Applications was focused on ensuring that adequate protection of the environment occurs by requiring the Applicant to implement best practices in their mitigation and monitoring programs. The following is the summary list of the key issues highlighted by KIA and recommendations included within KIA’s technical comment submissions.

The KIA technical review raised a number of issues, with a focus on the following topics:

- Geotechnical;
- Hydrological and Hydrogeological;
- Water Management and Water Quality;
- Fisheries;
- Waste Management;
- Socioeconomic, Health and Wellbeing; and
- Closure, Reclamation, and Monitoring.

Specifically, the KIA provided the Board with comments and recommendations on the following issues:

- Review of TMAC’s submissions provided with the Applications, providing specific comments on:
 - Contact Water Pond Berm Design;
 - Boston Tailings Management Area Preliminary Design;
 - Doris, Madrid, and Boston Water Management Plans;
 - Boston Conceptual Closure and Reclamation Plan;
 - Boston Interim Closure and Reclamation Plan Detailed Cost Estimate;
 - Doris-Madrid Interim Closure and Reclamation Plan;
 - Doris-Madrid Interim Closure and Reclamation Plan Detailed Cost Estimate;
 - Climate Change Analysis Approach Report;
 - Hope Bay Water Load Balance Report;
 - Groundwater characterization and Modelling report;
 - Hope Bay Groundwater Management Plan;



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- Hope Bay Aquatic Effects Monitoring Plan (AEMP);
 - Hope Bay Climate Hydrological Report;
 - Far Field Hydrodynamic Mixing Modelling for Discharges to Aimaokatolok Lake;
 - Conceptual Freshwater Fisheries Offsetting Approach;
 - Hope Bay Water Load Balance Report;
 - Environmental Management System;
 - Hope Bay Project Domestic Wastewater Treatment Management Plan;
 - Hope Bay Project: Boston Sewage Treatment Operations and Maintenance Management Plan;
 - Hope Bay Project Doris-Madrid Water Management Plan;
 - Hope Bay Project Boston Conceptual Closure and Reclamation Plan;
 - Project Description; and
 - Socio-economic Management Plan.
- Recommendations regarding geotechnical and groundwater aspects of the programs in relation to the following:
- Recommendation to provide more information on thaw settlement in pond area and its potential impact on stability of the contact water pond berm;
 - Recommendation to discuss the predicted change in the active layer over the life of the project;
 - Recommendation to clarify why the 1-D heat modelling results support the conclusion that mining will not lead to the development of open taliks;
 - Recommendation to conduct a sensitivity run based on the presence of Enhanced Permeability Zones to estimate a possible upper bound for mine inflow;
 - Recommendation to further discuss groundwater modeling and explain why a recovery to within 50 m of the pre-mining head is considered an adequate approximation of full mine re-flood, and to estimate the re-flood time associated with a recovery to within 5 m of the pre-mining head;
 - Recommendation to estimate the travel times required for mine-affected groundwater to flow from unfrozen portions of mined-out areas to adjacent lakes,



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

considering the presence of conductive fractures that connect the mined-out areas and lakes;

- Recommendation to an estimate of the likely increase in mine inflow from open drill holes intersecting Madrid North;
 - Recommendation to provide a mine risk zone map;
 - Recommendation to provide a rationale for why the threshold of 250 m³/day of groundwater inflow was selected for the daily mining reporting requirement and to trigger a Standard Penetration Test (SPT) level 1; and
 - Recommendation to estimate the storage volume of the mined-out spaces and the filling time of these spaces based on the maximum predicted groundwater inflows.
- Recommendations regarding water and waste management in relation to the following:
- Recommendation to provide clarity about how contact water would be managed and monitored prior to discharge to the tundra;
 - Recommendation to provide more information on potential seepage from tailings areas and if the seepage will meet discharge criteria;
 - Recommendation to provide more information on the Water Treatment Plant management during temporary closure;
 - Recommendation to include additional discussion about what the discharge water quality uncertainties are, and why they cannot be assessed prior to the end of mine life; and
 - Recommendation to provide information on when a landfill will be used, and information about potential landfill locations.
- Recommendations regarding modeling studies and monitoring programs in relation to the following:
- Recommendation to add baseline lake elevation lines in the plots showing the lake elevations predicted in the water balance model;
 - Recommendation to include seasonal fluctuations of baseline lake elevation recorded in Wolverine Lake, Imniagut Lake, Patch Lake, Stickleback Lake and Aimaokatalok Lake;
 - Recommendation to clarify why the reduction in outflow from Imniagut Lake was not estimated as the difference between the outflows simulated without (baseline) and with the project;



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- Recommendation to include the water balance prediction results for PO Lake, Glenn Lake, and Ogama Lake, and consider effects of fish habitat loss;
 - Recommendation to include monitoring lake levels at Imniagut, Glenn, Ogama and PO Lakes in the Aquatic Effects Monitoring Plan;
 - Recommendation to include sublimation in the water balance;
 - Recommendation to include methyl-mercury in the discussion of the protection of wildlife and human consumers of fish;
 - Recommendation to provide a detailed fish offsetting plan prior to DFO authorization;
 - Recommendation to include fish tissue and benthic invertebrate tissue metals analysis in the AEMP;
 - Recommendation to ensure that Kitikmeot Inuit residents and employees are directly involved in environmental monitoring and management programs both at a review level and on the ground in implementation;
 - Recommendation to provide preliminary gain calculations for potential offsetting options and indicate whether additional offsetting mitigation will be applied in cases where losses are greater than expected;
 - Recommendation to adopt a long-term total arsenic SSWQO of 0.019 mg/L;
 - Recommendation to conduct water quality sampling during freshet when possible;
 - Recommendation to include weak acid dissociable cyanide and total cyanide in the AEMP parameter suite;
 - Recommendation to use discharge criteria that will come into force under the updated MDMER; and
 - Recommendation to include water quality monitoring through the AEMP in all modeled lakes.
- Recommendations regarding Operations, Reclamation, and Closure in relation to the following specific issues:
- Recommendation to provide information on potential impacts to the Boston dry stack tailings cover performance;
 - Recommendation to provide a more complete and consistent discussion of the overall closure goal, principles, and objectives;



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- Recommendation to better define the "future land use goals" post-reclamation;
- Recommendation to conduct quarterly water quality monitoring for the first year of post-closure, and if criteria are being met, to continue with annual sampling for the remainder of the post-closure period;
- Recommendation to include the closure principle of no long-term active care, or alternatively state that it is not a principle used for developing closure objectives at this site;
- Recommendation to provide clarification on climate change models with respect to the temperature values used;
- Recommendation to develop a stand-alone road management plan;
- Recommendation to provide socio-economic management plans that include monitoring and adaptive management of social issues linked to mining employment and remote mine shift work including employment targets; and
- Recommendation to assign 85% of the Doris-Madrid and 23% of the Boston security amounts to the KIA for Inuit Owned Land (IOL), the remainder being assigned to CIRNAC for water.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC previously known as Indigenous and Northern Affairs Canada or INAC)

CIRNAC administers Crown land and resources, and enforces regulatory permits affecting land and water resources in Nunavut, including enforcing the provisions of water licences.

Reflecting CIRNAC’s responsibilities and jurisdiction, CIRNAC’s technical review raised a number of issues, with a focus on the following topics:

- Scope of Application;
- Water Management;
- Water Treatment and Water Quality;
- Waste Management;
- Tailings Management;
- Long-Term Climate Change Effects;
- Waste Rock and Backfill Materials; and



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- Closure and Reclamation.

Specifically, CIRNAC provided the Board with comments and recommendations on the following issues:

- Review of TMAC’s submissions provided with the Applications, providing specific comments on:
 - Doris-Madrid Interim Closure and Reclamation Plan;
 - Water and Load Balance;
 - Geochemical Source Term Predictions;
 - Doris Tailings Management System;
 - Boston Tailings Management Area – Operation, Maintenance, and Surveillance Manual;
 - Geochemical Characterization of Waste Rock and Ore from the Boston Deposit;
 - Boston Tailings Management Area Preliminary Design;
 - Boston Tailings Disposal Alternatives Assessment;
 - Hydrocarbon Contaminated Material Management Plan;
 - Boston Conceptual Closure and Reclamation Plan;
 - Boston Conceptual Closure and Reclamation Plan Detailed Cost Estimate;
 - Doris-Madrid Interim Closure and Reclamation Plan;
 - Doris-Madrid Interim Closure and Reclamation Plan Detailed Cost Estimate;
 - Waste Rock, Ore and Mine Backfill Mgmt. Plan;
 - Climate Change Analysis Approach Report;
 - Spill Contingency Plan;
 - Doris-Madrid Water Management Plan;
 - Madrid Water Management Design;
 - Quality Assurance and Quality Control Plan;
 - Aquatic Effects Monitoring Plan; and
 - Final Environmental Impact Statement (FEIS).



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- Recommendations regarding the scope of the licences in relation to the following specific issues:
 - Recommendation to incorporate aspects of currently held Type “B” licences into the New Type “A” licence and Type “A” licence amendment.
- Recommendations regarding water management and monitoring programs in relation to the following specific issues:
 - Recommendation to demonstrate that any proposed post-closure water quality criteria are protective of the receiving environment;
 - Recommendation to provide a conceptual design of its proposed water treatment processes and plant;
 - Recommendation to evaluate the failure modes and consequences of high salinity water (including mine water) being discharged to the tundra, with an emphasis on potential impacts to ice rich soils;
 - Recommendation to include the following information in the AEMP:
 - Lake water level monitoring on Reference Lake B;
 - Some specific monitoring conditions in Imniagut Lake;
 - Complete monitoring during closure or temporary closure; and
 - Information to support setting water quality objectives higher than CCME guidelines for elements predicted to exceed the guidelines by the Water and Load Balance model (fluoride, chloride, aluminum, arsenic, copper, chromium, mercury and iron);
 - Recommendation to state where cyanide samples will be tested and confirm that the lab is accredited for those parameters;
 - Recommendation to provide information on the management of potable water and wastewater generated by a camp with as many as 500 people;
 - Recommendation to provide a contingency plan to address the potential for water to enter the underground mine works at the Boston site;
 - Recommendation to provide information on Madrid mine water management including a discussion of the hauling and piping options;
- Recommendations regarding waste disposal and tailings management in relation to the following specific issues:
 - Recommendation to conduct a comprehensive reclamation research plan (RRP) to assist with the design of the Doris and Boston TIA covers;



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- Recommendation to conduct a detailed analysis of long-term failure modes of the Boston TMA;
- Recommendation to provide rationale for using quarried rock instead of filtered flotation tailings to address backfill volume deficits;
- Recommendation to provide further information on how detoxified tailings from the Doris mill will be stored in the permafrost at the Madrid North mine;
- Recommendation to provide the expected timing of landfill construction, the expected volume of waste, and how it will be stored at Boston;
- Recommendations regarding geotechnical aspects, and waste rock disposal and management, in relation to the following specific issues:
 - Recommendation to clarify whether the Applicant plans to conduct a crown pillar recovery trench at Doris North;
 - Recommendation to confirm that the geochemical source terms used to assess project impacts have accounted for anticipated climate changes up to 2100.
- Recommendations regarding Reclamation, Closure, and Monitoring in relation to the following specific issues:
 - Recommendation to clearly define the long-term post-closure maintenance and monitoring requirements of the Hope Bay Project;
 - Recommendation to incorporate specific information into the AEMP, such as maintaining complete monitoring during closure or temporary closure; and
 - Recommendation that reclamation security requirements of \$75,373,137 and \$41,934,353 be included in any licence issued for 2AM-DOH1323 Amendment No. 2 and 2AM-BOS----, respectively.

Environment and Climate Change Canada (ECCC)

The focus of ECCC’s involvement in respect of the Applications is based on their jurisdiction under the *Canadian Environmental Protection Act, 1999*,⁴ the *Migratory Birds Convention Act, 1994*,⁵ the *Species at Risk Act*⁶ and the “pollution prevention provisions” within the *Fisheries Act*.⁷

⁴ S.C. 1999, c. 33.

⁵ S.C. 1994, c. 22.

⁶ S.C. 2002, c. 29.

⁷ R.S.C. 1985, c. F-14.



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

The ECCC technical review raised a number of issues, with a focus on the following topics:

- Water Management;
- Water and Load Balance Model;
- Sludge Management;
- Sewage Treatment;
- Waste Rock, Quarries, and Ore Management;
- Effluent discharge;
- Tailings management;
- Environmental Monitoring; and
- Closure and Reclamation.

Specifically, ECCC provided the Board with comments and recommendations on the following issues:

- Review of TMAC’s submissions provided with the Applications, providing specific comments on:
 - Boston Tailings Impoundment Area Operations, Maintenance, and Surveillance Manual;
 - Doris-Madrid Water Management Plan and Boston Water Management Plan;
 - Domestic Wastewater Treatment Management Plan;
 - Contact Water Pond Berm Design;
 - Boston Tailings Management Area Preliminary Design;
 - Quarry Management Plan;
 - Aquatic Effects Management Plan;
 - Boston Conceptual Closure and Reclamation Plan;
 - Doris-Madrid Interim Closure and Reclamation Plan;
 - Madrid-Boston All-Weather Road Preliminary Design;
 - Madrid North Tailings Impoundment Area All-Weather Road Preliminary Design;
 - Site Specific Water Quality Objective for Copper;



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- Site Specific Water Quality Objective for Arsenic; and
- Water and Load Balance Report.
- Recommendations regarding water management and monitoring programs in relation to the following specific issues:
 - Recommendation to develop a Seepage Survey plan (either as a separate document or as a section of the Water Management Plan) for all waste rock storage areas and tailings management areas;
 - Recommendation to describe upgrades, modifications, and contingency measures needed for the increased camp capacity;
 - Recommendation to provide additional clarification on the water management at Contact Water Pond 2;
 - Recommendation to clarify dewatering procedures, monitoring, and contingency options for the Contact Water Ponds;
 - Recommendation to develop the AEMP as soon as possible, to allow lead time for any 2018 field work that may be required;
 - Recommendation that effluent and water quality audits be completed for Roberts Bay and Aimaokatalok Lake at specific time intervals relating to major milestones in the Madrid-Boston Project;
 - Recommendation to provide rationale for the necessity of a copper and arsenic SSWQO; and
 - Recommendation that the Proponent review the input values used for nitrite and revise the Water and Load Balance model as appropriate.
- Recommendations regarding waste management programs in relation to the following specific issues:
 - Recommendation to develop a contingency plan to account for the potential impacts of climate change on structures like dry stack tailings;
 - Recommendation to develop mitigation measures to prevent ARD being released from waste rock;
 - Recommendation to develop a Sedimentation Management Plan (either as a separate document or as a section of the Water Management Plan) which outlines details of mitigation measures for sediment and erosion control and in-water works; and



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- Recommendation to clarify the circumstances that would require the use of a tailings catch basin for the pipeline from Madrid to Doris.

Fisheries and Oceans Canada (DFO)

The focus of DFO’s involvement in respect of the Applications is based on their jurisdiction under the *Fisheries Act*⁸ and the *Species at Risk Act*.⁹ The DFO technical review raised a number of issues with the focus on possible impacts to fish and fish habitat.

The DFO technical review raised a number of issues, with a focus on the following topics:

- Water Crossings;
- Water and Load Balance;
- Water intake and discharge; and
- Fish and Fish Habitat Assessments.

Specifically, DFO provided the Board with comments and recommendations on the following issues:

- Review of TMAC’s submissions provided with the Application, providing specific comments on:
 - Final Environmental Impact Statement (FEIS);
 - Water and Load Balance Models; and
 - Aquatic Effects Monitoring Program (AEMP).
- Recommendations regarding water management and monitoring programs in relation to the following specific issues:
 - Recommendation to provide details on watercourses that are to be crossed and site-specific engineering plans for all water course crossings;
 - Recommendation to develop an appropriate water crossing maintenance and monitoring plan to ensure that barriers to fish passage do not form over time;
 - Recommendation to include monitoring of water levels and stream flows in the AEMP for all fish bearing lakes and streams;

⁸ R.S.C. 1985, c. F-14.

⁹ S.C. 2002, c. 29.



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment PHC Decision

- Recommendation to develop a site-specific construction work plan during the regulatory phase; and
- Recommendation to conduct an analysis of water quantity timing impacts on fish habitat access to key habitats.

4.0 Technical Meeting

Reflecting the co-ordination of the NWB’s processing of the Applications with the NIRB’s Review of the Phase 2 Hope Bay Belt Project, the NWB’s Technical Meeting (TM) for the Applications was held in person in Cambridge Bay, Nunavut, on May 14, 2018 and May 15, 2018, in the week following the completion of the NIRB’s Final Hearing.

As is the Board’s practice, the TM was an informal meeting and was chaired by Karén Kharatyan, the Board’s Director of Technical Services. The meeting was attended by the Board staff, the Applicant, the KIA, CIRNAC, DFO and ECCC (collectively referred to as the Interveners) and community members.

It should also be noted that, as is the Board’s normal practice, the Panel Members of the Board (TMAC Panel or Panel P7), the duly appointed Panel of the Board who will be the decision-makers for the Application, were not present at the TM, the Community Session and the teleconference PHC conducted on July 31, 2018, having delegated the conduct of these meetings to the Board’s staff.

At the commencement of the TM the objectives of the meeting were outlined by the NWB’s Director of Technical Services as follows:

- Examine technical data and other materials submitted as part of the Applications, including Interveners’ submissions that the Board had received to date for the Applications;
- Informally discuss and resolve, to the extent possible, any technical matters / issues raised between Interveners and the Applicant, particularly those matters that could affect the Board’s determination of any Pre-Hearing Conference (PHC) issues, in advance of the PHC;
- Provide an opportunity for the Applicant and Interveners to identify for the Board the issues and concerns that have been resolved and to discuss any unresolved or ongoing issues related to the Applications;



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment PHC Decision

- Identify opportunities for streamlining the issues and processes so as to eliminate existing or potential duplication or delay; and
- Document any commitments made by the various parties involved in the TM, with the aim of carrying forward those commitments to the PHC.

The participants were advised that upon completion of the TM, the Board expected any outstanding issues in respect of the Applications would be resolved, or if not resolved, that some form of agreement, including commitments would be provided by the parties to enable the Applications to proceed to the next step of the licensing process, the Pre-Hearing Conference, notwithstanding any unresolved issues.

At the TM, the following topics were discussed:

- Scope:
 - Overlap with current exploration Licences;
- Water Use and Management:
 - Treatment plant capacity and effluent quality;
 - Saline mine water management;
 - Water & load balance model validation for effluent and receiving environment;
 - Contact water ponds;
 - Requested water volumes;
 - Water crossings;
 - Water intake and discharge;
 - Maximum camp size at Doris;
- Waste Management:
 - Tailings management;
 - Post closure tailings seepage;
 - Backfill materials;
 - Waste rock;
 - Non-hazardous waste disposal;
 - Acid Rock Drainage (ARD);



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment PHC Decision

- Monitoring:
 - Real world confirmation needed for model predictions;
 - AEMP fisheries offsetting;
 - Need for an arsenic and copper SSWQO;
 - Use of Metal and Diamond Mine Effluent Regulations (MDMER);
 - Timing of AEMP implementation;
- Closure and Reclamation Planning;
 - Requirements for closure and reclamation; and
 - Long-term climate change effects.

At the completion of the TM, it was confirmed by all participants that there were no outstanding issues that would prevent the Board from moving forward to the next step of the licensing process in respect of the Applications.

At the end of the Technical Meeting and also as communicated publicly to those not in attendance at the TM in the NWB correspondence of May 29, 2018, the NWB advised that the Board would provide further guidance in terms of next steps once the NIRB Final Hearing Decision for the Phase 2 Hope Bay Belt Project Proposal was issued and the additional information required to meet the commitments set out in [Appendix D](#) was provided. Within this guidance, the NWB would advise whether a second NWB Technical Meeting would be necessary. The Board also indicated that if no additional Technical Meeting was deemed to be necessary, or upon scheduling a second Technical Meeting, the NWB would provide notice of the date and format for the Pre-Hearing Conference (PHC) to be held by the NWB for the file. The potential for the format of the PHC to be via teleconference was discussed with the parties and community members at the in person TM in Cambridge Bay, and there were no objections from any parties to the PHC being conducted via teleconference.

Commitments

Following the technical meeting and in their submissions filed with the Board, the Applicant made a number of commitments to address the concerns or issues raised by the Interveners in their technical comments filed with the Board. The NWB expects TMAC to comply with the commitments made in all submissions.

During the TM, the Applicant and other parties also made additional commitments, and these commitments have been summarized in the Commitment List provided in [Appendix D](#) and



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment PHC Decision

attached to this Decision. The Commitment List was reviewed and agreed to by the Applicant and Interveners in attendance at the TM. As previously noted, the NWB expects the Applicant and Interveners, where applicable, to comply with the commitments that have been provided in accordance with the timelines set out in the commitments. As noted in the discussion of the next steps in the Board’s processing of the Application, failing to meeting the timelines agreed to in the Commitment List can result in delays in the next steps and can result in the NWB cancelling or rescheduling the Public Hearing if required.

On June 19, 2018 the Applicant provided the Board with responses to these commitments, that were then distributed to intervening parties for review. Comments were provided on these commitment-responses by intervening parties on or before July 18, 2018. Prior to the Pre-Hearing Conference, ECCC, DFO, and the KIA confirmed with the NWB that they were satisfied with the Applicant’s follow-up on their commitments. CIRNAC was generally satisfied with the information provided, however they commented on the overlap of the Type “A” Licences with the Type “B” Licences currently held by TMAC, and indicated that they will review the draft amendments when submitted. TMAC responded to CIRNAC on July 25, 2018, indicating that it is their intention to maintain their Type “B” Licences until such time that TMAC states that the bulk sample and advanced exploration activities are complete throughout the Hope Bay Belt. At this time, there was no indication that the project should not proceed to the next stage of the licensing process.

5.0 Community Session

Recognizing that the TM is primarily aimed at discussing and addressing issues identified by the Applicant, Interveners and the NWB’s technical staff, the Board determined that the TM alone may not be sufficient to facilitate participation of the general public. Therefore, as is the Board’s practice, following the scheduled first day of the TM, a Community Session was held to provide additional opportunities to the members of the public to ask questions, provide comments, or give input.

The Community Session for the Application was held in person in Cambridge Bay, Nunavut on the evening of May 14, 2018. It was chaired by Stephanie Autut, the Board’s Executive Director with the assistance of Karén Kharatyan, Director of Technical Services.

The Applicant and Interveners were in attendance at the Community Session to address public comments and questions.

At the commencement of the Community Session, the NWB’s Executive Director outlined the following objectives of the meeting:



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment PHC Decision

- To provide information to the community members about the water licences in relation to the Phase 2 Hope Bay Belt Project;
- To facilitate participation from the general public;
- To encourage members of the public who are in attendance to ask questions relevant to TMAC’s water licence applications; and
- To provide opportunities to members of the public to share their comments and give their input.

As set out in [Appendix B](#), 3 members of the public attended the Session. The Session commenced with an overview of the NWB process by an NWB staff member. The Session proceeded with an overview of the Applications provided by the Applicant.

The Session concluded with a question and answer session during which community members from Cambridge Bay were invited to ask questions of the Applicant, Interveners, and the staff of the NWB. The members of the public in attendance did not ask any questions, express any concerns, or provide any comments with respect to the Applications, but the Board noted that members of the public did interact informally with representatives of TMAC while looking at the three-dimensional models of the Project provided by TMAC and on display throughout the TM.

6.0 Pre-Hearing Conference

At the conclusion of the TM, the parties confirmed that there were no outstanding issues that would prevent the Applications from proceeding to the next step in the licensing process, a Public Hearing. As directed by the NWB within the PHC notice of July 3, 2018, the Pre-Hearing Conference (PHC) portion of the Agenda proceeded via teleconference on July 31, 2018.

The PHC was chaired by Karén Kharatyan, the NWB’s acting Executive Director and Director of Technical Services, and assisted by Teresa Meadows, Legal Counsel. The same parties who participated in the TM, namely TMAC, the KIA, CIRNAC, ECCC and DFO, also attended the PHC via teleconference. In addition, the Board was very pleased to welcome a representative from Nunavut Tunngavik Inc. (NTI) who participated in the PHC via teleconference.

The purpose of the PHC was to discuss the various matters as set out in Rule 14 of the *NWB Rules of Practice and Procedure for Public Hearings* (May 2005), (the *Rules*) in preparation for the Public Hearing. Pursuant to Rule 14, the following matters were addressed through the PHC:

- A discussion of outstanding technical review issues for the Applications, including:
 - Discussion of Commitments to Address Technical Issues; and



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- Changes to the List of Technical Issues;
- The identification of any issues preventing the Applications from proceeding to a Public Hearing;
- A discussion of procedures for the Public Hearing, including form, timing and location;
- Presentation of a tentative timetable for the Pre-Hearing exchange of information, including document translation requirements, documentation to be included in the Hearing Record, etc.;
- Confirmation / finalizing the list of issues to be dealt with at the Public Hearing;
- The identification of interested parties;
- Consideration of the desirability of amending the Applications for the purposes of clarification;
- Finalization of procedures to be followed at the Public Hearing, including requested modifications to the applicable *Rules*, including language requirements; and
- Consideration of any other matters that may aid in the simplification and disposition of the application at the Hearing.

Issues preventing the Applications from proceeding to a Hearing

The Applicant and parties did not identify any issues that would prevent the Applications from proceeding to the Public Hearing.

As a general note on the issue of the global security cost estimate, the NWB received confirmation from the Applicant, the KIA, and CIRNAC, that discussions on security were in process and anticipated to continue. CIRNAC indicated that although there is general agreement in respect of the global security estimate, work continues in terms of coordinating the staging of security and other related issues, but also stated that these ongoing discussions would not prevent the Applications from proceeding to a Public Hearing.

On the issue of water user compensation, KIA indicated that the existing Framework Agreement in place with TMAC, as negotiated in 2016 is sufficient in scope to apply to the additional water uses sought in the Applications. The KIA and TMAC agreed to confirm that all issues of water user compensation associated with the Applications have been resolved when they file their final written submissions in advance of the Public Hearing for the Applications.



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment PHC Decision

Procedures for the Public Hearing

The Applicant and parties participating in the PHC were polled on the issue of the timing for the Public Hearing. The Applicant suggested that the week of October 22, 2018 would be appropriate. In general, all the Interveners noted that the week of October 22, 2018 could be accommodated, however, CIRNAC, ECCC and DFO noted that with existing travel schedules, they would request that if the Board determined that an in person Public Hearing was appropriate that the Board consider scheduling the Public Hearing later in the week of October 22 to allow for parties travelling from the East to travel at the start of the week.

Parties were asked for their views on the location and form of the Public Hearing (written, teleconference or in-person). The Applicant, the KIA and CIRNAC all indicated that an in-person Public Hearing was the most appropriate form. ECCC and DFO indicated that they had no preference and left the form of Public Hearing to the NWB’s discretion. In terms of location, all parties agreed that the Public Hearing should be held in Cambridge Bay.

On this basis, and as set out in the discussion of the exchange of documents set out below, the NWB has tentatively scheduled an in person Public Hearing in Cambridge Bay for the week of October 22, 2018 (**tentative** dates for the two-day Public Hearing are **October 24 and 25, 2018**). These dates are subject to final confirmation by way of the Public Notice to be published on August 17, 2018, and the Board reserves the right to adjust this schedule if Hearing logistics dictate, if the Minister has not issued her decision in respect of the NIRB’s Final Hearing Report and recommendations for the Phase 2 Hope Bay Belt Project, and if the documentation required to be supplied in advance of the Hearing has not been provided, etc.

The parties have confirmed that they do not anticipate that any deviations from the Board’s normal *Rules of Practice and Procedure for Public Hearings* (May, 2005) will be required, and as such, the Board directs all parties that the Public Hearing will be conducted in accordance with Parts III and IV of the *Rules*.

Timetable for Pre-Hearing Exchange of Information

It was noted at the beginning of this discussion during the PHC that, as required by s. 55(2) of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSTRA), the NWB must give the public and parties a minimum of sixty (60) days’ notice in advance of a Public Hearing.

During the PHC, in addition to filing TMAC’s response submission and Public Hearing presentation materials in accordance with the timelines set out below, TMAC committed to filing a draft Water Licence Framework for the review of the Interveners and the NWB on or before



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

September 4, 2018. Based on the dates for the Public Hearing being set for the week of October 22, 2018, at the PHC the Board staff and Legal Counsel provided parties with a tentative outline of dates, which was discussed and modified as necessary to reflect the recommendations of parties. As discussed at the PHC if the timelines proposed below are not met, delays to the next steps in the process may result, and all parties are strongly encouraged to make every effort to meet the schedule set out below.

It should be noted that although the Board has established a proposed timetable for the pre-Hearing exchange of information set below, the Board, as always, reserves the right to revisit this timing if circumstances warrant, including if the Minister has not issued her decision in respect of the NIRB’s Final Hearing Report and recommendations for the Phase 2 Hope Bay Belt Project. The following schedule is premised upon the NWB hosting an in person Public Hearing in the week commencing October 22, 2018 (tentatively October 24-25, 2018). Unless modified as outlined above, the Board requires the participants to observe the following timetable:

- On or before **Friday, August 17, 2018** the NWB will issue the Notice of Public Hearing in the paper and on the NWB’s public registry;
- Any party requesting French translation of any component of any other parties’ submissions, presentation materials and/or requesting the Board to provide simultaneous French translation at the Public Hearing must make such requests to the Board in writing on or before **August 31, 2018**;
- TMAC will file a discussion draft of the Water Licence Framework in respect of Water Licence No. 2AM-BOS---- and the proposed amendments to Water Licence No. 2AM-DOH1323 with the Board on or before **September 4, 2018**;
- All further and final written submissions to be provided by Interveners must be filed with the Board on or before **September 21, 2018**;
- All further and final responses of TMAC to the information filed to date must be filed with the Board on or before **October 1, 2018**;
- Any presentations (e.g. PowerPoint Presentations, etc.) upon which anyone intends to rely at the Public Hearing must be filed with the Board on or before **October 15, 2018**; and
- If the Interveners and/or the Applicant file additional written submissions, final responses and presentation materials as outlined above, they are also required to make best efforts to provide **an Executive Summary of their written submissions in English, Inuktitut and Inuinnaqtun and fully translated copies of their presentation materials or final**



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

responses in English, Inuktitut, and Inuinnaqtun at the same time as they file the full submission.

All submissions will be posted on the NWB’s ftp-site (<ftp://ftp.nwb-oen.ca/>) and in the public registry upon receipt. A copy of the public registry as it relates to the Applications will be available for review at the Public Hearing.

List of Issues

The intervening parties in attendance at the PHC confirmed that none of the issues for discussion associated with the Applications and the related information requirements should prevent the Board from proceeding with the Public Hearing.

At the end of the PHC, the parties reviewed the following list of items for discussion at the Hearing and agreed that, subject to adding issues following the review of information that may be exchanged in advance of the Public Hearing, the following general topics should be items for discussion at the Public Hearing:

- Scope of the Licences
 - Scope of amendments to existing Type “A” Water Licence 2AM-DOH1323 including overlap with 2BB-MAE1727 and 2BE-HOP1222 and incorporation of Type “B” exploration licences
 - Scope of new Boston Type “A” Licence 2AM-BOS---- including overlap with 2BB-BOS1727 incorporation of Type “B” exploration licences
- Term of Licences
 - 25-year term requested
- Water Supply
 - Increased water use under existing Type “A” Water Licence 2AM-DOH1323
 - Changes and additions to water sources already authorized under existing Type “A” Water Licence 2AM-DOH1323
 - Volume of water use requested under new Boston Type “A” Licence 2AM-BOS--
--
 - Water sources requested under new Boston Type “A” Licence 2AM-BOS----
- Water Management
 - Water Load and Balance Modelling
 - Water Management under the existing Type “A” Water Licence 2AM-DOH1323 and under the new Boston Type “A” Licence 2AM-BOS----



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

- Groundwater and/or Saline Water Management under the existing Type “A” Water Licence 2AM-DOH1323 and under the new Boston Type “A” Licence 2AM-BOS----
 - Discussion of potential effects on Saline Water Management in response to June 1, 2018 amendments to the Federal Metal Mining Effluent Regulations
- Waste Management
 - Wastewater, Contact-water and Sewage Treatment
 - Quarries
 - Landfill/Landfarm
 - Incinerator
 - Hazardous Waste Management
 - Waste Rock Management
 - Waste Rock Storage Facilities and Designs
 - Tailings Management
 - Tailings Management Facilities and Designs
- Water User Compensation
 - Confirmation of no outstanding issues (including Inuit Water Rights) for increased water use under existing Type “A” Water Licence 2AM-DOH1323 and water use requested under new Boston Type “A” Licence 2AM-BOS----
- Management Plans and Reports
 - Timing and review and approval of updated and new plans
- Monitoring Program
 - Integration of belt-wide monitoring under both Licences
 - Site-specific Monitoring Programs
- Closure and Reclamation Planning
 - Updated Closure Cost Estimates
 - Discussion of security management arrangements and reclamation security to be held under the Water Licences
 - Including discussions about the requirements and process associated with “staged security”
 - Post-closure monitoring period

Identification of Interested Parties

Summary listings identifying the attendees at the TM, Community Session, and PHC (based on the sign in sheets completed at these sessions) are provided in [Appendix B](#) attached to this Report.



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment PHC Decision

During the PHC, the following parties confirmed their participation and attendance at the Public Hearing:

- The Applicant, TMAC Resources Inc. (TMAC);
- Nunavut Tunngavik Inc. (NTI);
- The Kitikmeot Inuit Association (KIA);
- Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC, previously Indigenous and Northern Affairs Canada or INAC);
- Environment and Climate Change Canada (ECCC); and
- Fisheries and Oceans Canada (DFO).

During discussions at the PHC, none of the participants identified other parties that should be invited to attend the Public Hearing.

Changes to the Applications for the Purposes of Clarification

The Applicant and Interveners in attendance were canvassed regarding any potential changes to the Applications, and they responded that there were no anticipated changes. Should any changes become necessary, any additional information that the parties wish the Board to consider during their review of the Applications must be filed with the Board in advance of the Public Hearing and in accordance with the timelines outlined above under the heading “Pre-hearing Exchange of Information”.

Other Procedural Matters including Language Requirements

The Applicant and parties in attendance were polled and confirmed that there are no additional procedural matters or issues for consideration at the Public Hearing.

However, the Interveners all noted that they were having difficulty with getting materials translated into Inuinnaqtun in a timely fashion and indicated that their past experiences in this region were that it was often not possible to get accurate Inuinnaqtun translations of materials completed in time to meet the general submission timelines. In response, the Board acknowledged that this issue has been raised previously during the Board’s licensing processes in the region, but that full and proper engagement with unilingual residents of Cambridge Bay requires that all reasonable efforts be made to ensure translated copies of Executive Summaries and presentation materials are supplied at the Public Hearing. The Board strongly encourages all parties to make



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment PHC Decision

every effort to retain Inuinnaqtun translators in sufficient time to ensure translated copies of materials can be supplied at the Public Hearing.

The NWB confirmed that the Board would provide simultaneous interpretation at the Public Hearing in English, Inuktitut and Inuinnaqtun. All parties confirmed that they had no additional interpretation requirements at the Public Hearing. The NWB staff also confirmed that as is the Board’s practice, the Board will provide notice of the Public Hearing in the official languages. The Notice will also invite any parties planning to participate at the Public Hearing to advise the Board of any additional language requirements, including translation and interpretation requirements **by August 31, 2018**.

Measures to Simplify the Disposition of the Applications

As noted above, TMAC committed to submit a Draft Licence Framework document to highlight the water licence terms and conditions for both the proposed new Licence No. 2AM-BOS---- and the proposed amendments to Licence No. 2AM-DOH1323 that would align with the NIRB’s Report and recommendations, and TMAC’s commitments and various submissions received to date. The Applicant intends to provide this document on or before **September 4, 2018** with a view to simplifying and focusing the parties’ discussion of the Applications.

In addition, during the PHC, the NWB identified that based on public input and discussions with the community members at the Technical Meeting, during the Public Hearing the Board requests that TMAC ensure that three dimensional models like the ones used at the Technical Meetings be provided. In the Board’s experience, these kinds of visual aids are very useful when engaging with participants in the Board’s process and are essential in fostering meaningful discussions with community members about some very technical issues. Similarly, the KIA also raised that it is very useful to community members when TMAC puts up poster-sized visuals of key water, waste and tailings management project components during the Public Hearing. TMAC confirmed that the three-dimensional models and posters used at the NIRB Final Hearing and the NWB TM will be used at the Public Hearing in October.

No other comments or issues were identified with respect to measures to simplify the disposition of the Applications.

Steps following the Public Hearing

As discussed at the PHC, the Board anticipates following the NWB’s usual decision timelines and practice following the Public Hearing. On the assumption that the normal practice is followed, when the Panel has reached a decision, which is typically within thirty (30) to forty-five (45) days



2AM-DOH1323 & 2AM-BOS---- Applications for a new Type “A” Water Licence and a Type “A” Water Licence Amendment
PHC Decision

of the close of the Public Hearing Record, the Board will issue its Record of Proceedings and Decision to the relevant Minister (either Crown-Indigenous Relations or the new Minister of Intergovernmental Affairs, Northern Affairs and Internal Trade (as directed by CIRNAC at the time). If the Panel recommends that the amendments to Type “A” Water Licence No.: 2AM-DOH1323 and Amendments to a new Type “A” Water Licence for the Boston mine site, as requested by TMAC should be granted, a draft new Water Licence and a draft Amendment to the existing Water Licence would also be provided for the Minister’s consideration with the NWB’s Record of Proceedings and Decision.

If you require additional information regarding the Applications, the Board’s specific direction or the Board’s processes in general, please do not hesitate to contact the NWB’s Director of Technical Services, Karén Kharatyan, karen.kyaratyan@nwb-oen.ca. For any administrative matters related to the Public Hearing, please contact the NWB’s Manager of Licensing, Richard Dwyer, at licensing@nwb-oen.ca.

Regards,

Stephanie Autut
Executive Director
Nunavut Water Board

SA/dd/ip

Attachments:

- Appendix A: Technical Meeting, Community Session and Pre-Hearing Conference Agenda
- Appendix B: Summary Listing of Attendees at the Technical Meeting, Community Session and Pre-Hearing Conference
- Appendix C: List of Application Submissions
- Appendix D: List of Commitments Generated during the Technical Meeting held May 14 and 15, 2018 for Water Licence Application No.: 2AM-DOH1323 and 2AM-BOS----

APPENDIX A: AGENDA

TECHNICAL MEETING PHASE 2 HOPE BAY BELT PROJECT

TYPE “A” WATER LICENCE 2AM-DOH1323 AMENDMENT & 2AM-BOS---- APPLICATIONS

TECHNICAL MEETING

Date: May 14-15, 2018

Time: 9:00 AM – 5:00PM (MT)

Location: Cambridge Bay Community Hall

1. Introduction and Registration
2. Application to the Board, NWB Opening Remarks (15 minutes)
3. Purpose of the Technical Meeting / Pre-Hearing Conference
4. Technical Review of the Applications
 - a. Applicant’s presentation on the Project (90 minutes)
 - b. Identification of Interested Parties
 - c. Presentations from Interested parties (30 minutes per party)
 - d. Discussion of Commitments to Address Technical Issues
 - e. Formulation of Outstanding Issues
5. Next Steps in the Board’s Processing of the Applications (30 minutes)

Health Breaks – 20-30 minutes

COMMUNITY SESSION

Date: May 14, 2018

Time: 7:00 - 9:30 PM (MT)

Location: Cambridge Bay Community Hall

6. Overview of NWB process by NWB (15 minutes)
7. Presentation of the Applications by Applicant (60 minutes)
8. Presentation/statements by Intervening Parties (15 minutes per party)
9. Questions and comments from the community

AGENDA (CONT.)

**PRE-HEARING CONFERENCE
PHASE 2 HOPE BAY BELT PROJECT**

**TYPE “A” WATER LICENCE 2AM-DOH1323 AMENDMENT & 2AM-BOS----
APPLICATIONS**

Date: July 31, 2018
Time: 9:00 AM – 3:00 PM (MT)
Location: Via Teleconference

1. Introduction of all Participants
2. Applications to the Board, NWB Opening Remarks
3. Purpose of the Pre-Hearing Conference
4. Follow Up Regarding Outstanding Technical Review Issues for the Applications
 - a. Discussion of Commitments to Address Technical Issues
 - b. Changes to draft List of Technical Issues, including:
 - i. Whether the draft List should be updated to include discussions about “staged security” as raised in KIA’s submissions; and
 - ii. Whether TMAC’s proposed saline groundwater management approach is affected by June 1 amendment to MMER (to add marine fish species to lethality testing)
5. Identification of issues preventing the Applications from proceeding to a Public Hearing
6. Discussions of the form, timing and location for any potential Public Hearing
7. Establishing a timetable for the exchange of information prior to the Public Hearing, including:
 - a. preparation and service of documents to parties (deadlines, form, public registry);
 - b. document translation requirements; and
 - c. documentation to be included in the hearing record
8. Finalize list of issues to be dealt with at the Public Hearing
9. Identify interested parties

10. Identify any changes to the Applications
11. Final procedures to be followed at the Public Hearing, including:
 - a. requested modifications to the applicable *NWB Rules of Practice and Procedure for Public Hearing* (May 2005); and
 - b. language requirements at the Public Hearing
12. Consider any other matters that may aid in the simplification and disposition of the Application at the Hearing
13. Other Issues
14. Closing of the Meeting

APPENDIX B: Summary Listings of Attendees at Technical Meeting, Community Session and Pre-Hearing Conference

In Person TM - May 14, 2018 Day 1 Daytime Session
Registration Forms

TECHNICAL MEETING TMAC RESOURCES LTD. Cambridge Bay, Nunavut May 14-15, 2018 Registration Form Session Day One

No.	First Name	Last Name	Organization/ Address	Phone	Fax	E-mail
1.	William	Nicoll	NIRB	(867) 983-4623		wnicoll@nirb.ca
2.	John	Roesch	KIA	867-932-3350		srproject@kia.ca
3.	James	Paino	Interpreters			
4.	Chris	Kawyk	TMAC - Lawgo	779 8996762		ckawyk@lawgo.ca
5.	Angie	McLellan	DFO	807 631-4300		angie.mclellan@dfo-mpo.gc.ca
6.	MAARTZ	Ryckaert	SRK for TMAC	604 681 4146		mryckaert@srk.com
7.	Sarah	Forte	INAC	867-975-3876		sarah.forte@canada.ca
8.	Oliver	Curran	TMAC			
9.	Andrea	Bowie	SRK for TMAC	604-612-9777		abowie@srk.com
10.	Nicole Bishop	Bishop	ERM for TMAC	649 689 9440		nicole.bishop@erm.com
11.	Shelley Potter	Potter	TMAC	416 403 8854		shelley.potter@tmacresources.com
12.	Adam	Gregory	TMAC	965 377 8387		adam.gregory@tmacresources.com
13.	Sarah Warnock	Warnock	TMAC	867-688-0593		8envire@tmacresources.com
14.	Chore	Hore	SRK for TMAC			chore@srk.com
15.	Michelle	Henry	ERM for TMAC	604 685 5460		michelle.henry@erm.com
16.	Mariah	Smith	INAC	705-577-5884		mariah.smith@canada.ca
17.	Mark	D'Aguia	DFO			mark.daguia@dfo-mpo.gc.ca
18.	GABRIEL BERNARD	Lacaille	ECCC			gabriel.bernard@lacaille.ca
19.	Jan Parsons	Parsons	INAC	867-203-9278		jan.parsons@canada.ca
20.	Tony	Brown	INAC	416-550-5977		tony.brown@canada.ca
21.	Stephanie	Autut	NWB			
22.	Karen	Kharatyan	NWB			
23.	Derek	Donald	NWB			
24.	Ida	Parter	NWB			
25.	Ben	Kogvik	NWB			
26.	Teresa	Meadows	NWB Legal			
27.	Beverly	Maksymuk	EHTD	983 2426		cambay@ktikmeoth.ca
28.	John	Arlet	Cambridge Bay	983-2034		
29.	Heather	Kisiluna	Cambridge Bay	983-2034		
30.	Mercy	Parlegynuk	EHTD	983 2426		
31.						
32.	Byron	Puregynuk				

TECHNICAL MEETING TMAC RESOURCES LTD.
Cambridge Bay, Nunavut May 14-15, 2018
Registration Form Session Day One

No.	First Name	Last Name	Organization/ Address	Phone	Fax	E-mail
33.	ALEX	BUCHAN	tmac	3200	2386	alex.buchan@tmacresources.com
34.	Mercy		EHIO			
35.	MARIE	D'Aguilar	DFO			
36.						
37.						
38.						
39.						
40.						
41.						
42.						
43.						
44.						
45.						
46.						
47.						
48.						
49.						
50.						
51.						
52.						
53.						
54.						
55.						
56.						
57.						
58.						
59.						
60.						
61.						
62.						
63.						
64.						

In Person Community Session - May 14, 2018 Day 1 Evening Session
Registration Form

TECHNICAL MEETING TMAC RESOURCES LTD.
Cambridge Bay, Nunavut May 14-15, 2018
Registration Form Evening Session Day One

ee

No.	First Name	Last Name	Organization/ Address	Phone	Fax	E-mail
1.	William	Nicoll	NIRB	983-4627		wnicoll@nirb.ca
2.	MARK	DIAGUIA	DFO			
3.	GABRIEL	BERNARD-LACVILLE	ECCE			
4.	Shelley	ROFF	TMAC			
5.	MARITZ	RYKART	SEK & TMAE			
6.	ADAM	GRZEGORZUK	TMAC			
7.	Angie	McKellen	DFO			
8.	Sarah	Warnock	TMAC			
9.	ammon	Harc	SRK for TMAE			
10.	MIKE	KENNY	ERM & TMAE			
11.	Oliver	Em	TMAC			
12.	NICOLE	Bishop	ERM & TMAE			
13.	Cristine	Kambel	Laws in Under TMAE			
14.	KUTX	BUCHAN	TMAC			
15.	Andrea	POWIE	SRK for TMAE			
16.	James	Panipayak	Interpreter			
17.	Johnny	Aulak	Cam Bay			
18.	Isa	Parsons	INAC	867-222-9278		isa.parsons@canada.ca
19.	Sarah	Forte	"	975-3876		
20.	Mariah	Smith	INAC	571-6884		mariah.smith@canada.ca
21.	Tanj	Brown	"	46-553-3974		tanj.brown@canada.ca
22.	Heather	Kigilua	Cam-bay	983-2044		
23.	Mary	Aulak	Cam-bay	983-2034		
24.	Stephanie	Autut	NWB			
25.	Karen	Kheratyan	NWB			
26.	Derek	Dogald	NWB			
27.	Ida	Porter	NWB			
28.	Teresa	Meadows	NWB			
29.	Ben	Kogvilk	NWB			
30.						
31.						
32.						

In Person TM - May 15, 2018 Day 2 Daytime Session
Registration Forms

TECHNICAL MEETING TMAC RESOURCES LTD.
Cambridge Bay, Nunavut May 15, 2018
Registration Form Session Day Two

No.	First Name	Last Name	Organization/ Address	Phone	Fax	E-mail
1.	MARK	D'Aguilar	DFO			
2.	Deek	Donald	NWB.			
3.	John	Roesch	KIA	867-982-3310		srproject@kitia.ca
4.	GABRIEL	BERNARD-LACROIX	ECCC			
5.	James	Benignak	Interpreter			
6.	Angie	McClure	DFO			
7.	Johnny	Audak	Cam-Bay			
8.	William	Nicoll	NIRB			
9.	Is	Parsens	TMAC	867-227-9278		ian.parsens@camda.ca
10.	Mariah	Smith	TMAC	571-5884		mariah.smith@camda.ca
11.	Sarah	Forte	"	475-3876		
12.	Tony	Brown	TMAC	416 550-5877		
13.	MARITZ	RICHARD	SRK for TMAC			
14.	MIKE	NEWBY	Cam/TMAC			
15.	ADAM	WILSON	TMAC			
16.	Shelley	POTTER	TMAC.			
17.	ALEX	BURMAN	TMAC			
18.	Sarah	Wannaf	TMAC.			
19.	Kelli	Gilland	NIRB			
20.	Cameron	Roe	SRK for TMAC			
21.	Andrea	Bowie	SRK for TMAC			
22.	Heartha	Kiginua	Cam-bay	983 2054		
23.	Meray		EHTD			
24.						
25.						
26.						
27.						
28.						
29.						
30.						
31.						
32.						

APPENDIX C: List of the Applicant's Submissions

The following documents were included with the Applications submitted on December 20, 2017:

Package Number	<u>Project summary</u>
P1-1	Executive Summary Doris—Madrid (translated)
P1-2	Executive Summary Boston (translated)
P1-3	Maps Doris—Madrid
P1-4	Maps Boston
	<u>Project description</u>
P2-1	Amendment No. 2 Type A Water Licence 2AM-DOH1323 (Doris & Madrid)
P2-2	Project Description Type A Water Licence Boston
	<u>NWB application documents</u>
P3-1	NWB Amendment No. 2 Type A Water Licence Application Form (Doris & Madrid)
P3-2	NWB Type A Application Form Boston NWB Supplemental Information
P3-3	Guidelines Amendment No. 2 Type A Water Licence (Doris & Madrid)
P3-4	NWB Supplemental Information Guidelines Type A Water Licence Boston
	<u>Management and other plans</u>
P4	Environmental Management System
P4-1	Surface Emergency Response Plan
P4-2	Underground Emergency Responses Plan
P4-3	Hope Bay Project Spill Contingency Plan
P4-4	Hope Bay Project Domestic Wastewater Treatment Management Plan
P4-5	Hope Bay Project: Boston Sewage Treatment Operations and Maintenance Management Plan
P4-6	Hope Bay Project Groundwater Management Plan
P4-7	Hope Bay Project Doris-Madrid Water Management Plan
P4-8	Hope Bay Project Boston Water Management Plan
P4-9	Hope Bay Project, Phase 2, Doris Tailings Impoundment Area - Operations, Maintenance, and Surveillance Manual
P4-10	Hope Bay Project Boston Tailings Management Area - Operations, Maintenance, and Surveillance Manual
P4-11	Hope Bay Project Waste Rock, Ore and Mine Backfill Management Plan
P4-12	Hope Bay Project Water and Ore/Waste Rock Management Plan for Boston Site
P4-13	Hope Bay Project Non-hazardous Waste Management Plan
P4-14	Hope Bay Project Hydrocarbon Contaminated Material Management Plan
P4-15	Hope Bay Project Hazardous Waste Management Plan
P4-16	Hope Bay Project Incinerator Management Plan
P4-17	Hope Bay Project Quarry Management and Monitoring Plan
P4-18	Hope Bay Project Aquatic Effects Monitoring Plan

P4-19	Hope Bay Project Boston Conceptual Closure and Reclamation Plan
P4-20	Hope Bay Project Boston Conceptual Closure and Reclamation Plan, Detailed Cost Estimate
P4-21	Hope Bay Project Doris-Madrid Interim Closure and Reclamation Plan
P4-22	Hope Bay Project Doris-Madrid Interim Closure and Reclamation Plan, Detailed Cost Estimate
P4-23	Hope Bay Project Explosives Management Plan
P4-24	Quality Assurance and Quality Control Plan
P5-1	Climate Change Analysis Approach Report, Hope Bay Project
P5-2	Climate and Hydrological Parameters Summary Report, Hope Bay Project
P5-3	Hope Bay Project: Contact Water Pond Berm Design
P5-4	Hope Bay Project - Water and Load Balance
P5-5	Hope Bay Project Geotechnical Design Parameters and Overburden Summary Report
P5-6	Geochemical Characterization of Madrid-Boston Project Quarries, Hope Bay Project
P5-7	Geochemical Characterization of Tailings from the Madrid North, Madrid South and Boston Deposits, Hope Bay Project
P5-8	Hope Bay Project: Wind Energy Project Preliminary Design
P5-9	Geochemical Source Term Predictions for the Proposed Madrid-Boston Project, Hope Bay Project
P5-10	Hope Bay Project: Roberts Bay Cargo Dock Preliminary Design
P5-11	Hope Bay Project: Madrid-Boston All-Weather Road Preliminary Design
P5-12	Hope Bay Project: Madrid and Boston Crown Pillar Recovery Concepts
P5-13	Hydrogeological Characterization and Modeling of the Proposed Boston, Madrid South and Madrid North Mines, Hope Bay Project
P5-14	Hope Bay Project: Roberts Bay Cargo Dock Access Road Preliminary Design
P5-15	Hope Bay Project: Roberts Bay 20 ML Fuel Storage Facility Preliminary Design
P5-16	Doris Tailings Management System Phase 2 Design, Hope Bay Project
P5-17	Hope Bay Project: Madrid North Surface Infrastructure Preliminary Design
P5-18	Hope Bay Project: Madrid South Surface Infrastructure Preliminary Design
P5-19	Hope Bay Project: Madrid Water Management Design
P5-20	Geochemical Characterization of Waste Rock and Ore from the Madrid North Deposit, Hope Bay Project
P5-21	Geochemical Characterization of Waste Rock and Ore from the Madrid South Deposit, Hope Bay Project
P5-22	Hope Bay Project: Madrid North-Tailings Impoundment Area All-Weather Road Preliminary Design
P5-23	Hope Bay Project: Windy Lake North Freshwater Intake Preliminary Design
P5-24	Hope Bay Project: Boston Water Management Design
P5-25	Geochemical Characterization of Waste Rock and Ore from the Boston Deposit, Hope Bay Project
P5-26	Boston Tailings Management Area Preliminary Design, Hope Bay Project
P5-27	Boston Tailings Disposal Alternatives Assessment, Hope Bay Project, Nunavut

P5-28 Hope Bay Project: Boston Surface Infrastructure Preliminary Design
P5-29 Hope Bay Project: Boston Airstrip Preliminary Design

P6-1 Financial Statements
P6-2 List of Officers
P6-3 Certificate of Incorporation

The following additional documents were submitted on June 19, 2018 following the commitments made at the Technical Meeting:

- Environmental Protection Plan, submitted as a DRAFT on June 19, 2018;
- Memorandum outlining the need to maintain all three Type B Licences;
- Revised Hydrodynamic Mixing Model for Arsenic; and
- Revised Hope Bay Groundwater Management Plan, dated May 2018.

APPENDIX D: List of Commitments Generated during the Technical Meeting held May 14 and 15, 2018 for Water Licence Application No.: 2AM-DOH1323 and 2AM-BOS----

No.	Party Responsible for Commitment	Party(s) who raised (Item#)	Issue - TM Commitment	Timeline for Submission	Form of Submission
1.	TMAC	KIA-NWB-08	<p>NOTE: This commitment is brought forward from the NIRB Final Hearing for the Project</p> <p>Confirmation of Model Predictions - Water Quality Monitoring</p> <p>To confirm predictions from the Water and Load Balance modelling already supplied by TMAC, water quality sampling will be conducted in Windy Lake through construction and into the first two years of operations following the protocols and sampling frequency outlined in the Aquatic Effects Monitoring Plan (AEMP). If modelling predictions are confirmed, water quality sampling in Windy Lake will cease until future monitoring for post-closure is developed.</p>	Through construction and extending into the first 2 years of operation	Windy Lake water quality sampling results reported as set out in the updated Aquatic Effects Monitoring Plan.

No.	Party Responsible for Commitment	Party(s) who raised (Item#)	Issue - TM Commitment	Timeline for Submission	Form of Submission
2.	TMAC	ECCC-WL-4.1.8	<p>Post-Audit of Water Quality Modelling</p> <p>TMAC committed to providing updates to the model as necessary during the term of the Licence within two years after initial processing of Madrid Ore, two years after commissioning of the Boston Process Plant and two years before closure.</p>	<p>TMAC provided additional information to ECCC (May 13, 2018) and NWB (May 14, 2018) and to provide updates to the Water Quality Model (Water Load and Balance Model) during the term of the Licence when it is warranted, potentially within 3, 7 and 13 years.</p>	<p>Updated Water Quality Modelling</p>
3.	TMAC	ECCC WL-4.1.9	<p>Mitigation and Monitoring of In-water Construction Activities in Freshwater</p> <p>TMAC will develop an Environmental Protection Plan (EPP) procedure prior to the initiation of in-water construction activities (in the freshwater environment). The EPP will include, though not exclusively, mitigation measures for managing total suspended solids and turbidity, monitoring procedures, as well as proposed limits and trigger values, to satisfy all applicable requirements during construction activities.</p>	<p>The draft EPP procedure will be provided by June 19, 2018.</p>	<p>Environmental Protection Plan (EPP) procedure</p>

No.	Party Responsible for Commitment	Party(s) who raised (Item#)	Issue - TM Commitment	Timeline for Submission	Form of Submission
4.	TMAC	ECCC-WL-4.1.10	<p>Distance of Tailings Pipeline Catch Basins</p> <p>TMAC to correct distance of tailings pipeline from catch basins to reflect placement of pipeline at appropriate set back distance from catch basins</p>	<p>TMAC met with ECCC on May 13, 2018 and provided additional information to resolve the comment. Information was also provided to the NWB on May 14, 2018.</p>	<p>Updated figures to show Tailings Pipeline is placed within appropriate set back distances from catch basins</p>
5.	TMAC	ECCC-WL-4.1.14	<p>Nitrite Values</p> <p>TMAC commits to ensure that the revised nitrite value gets included in any future updates to the water load balance model</p>	<p>TMAC met with ECCC on May 13, 2018 and provided additional information to resolve the comment. Information was provided to the NWB on May 14, 2018. When next update to Water Quality Model (during the term of the Licence) is warranted</p>	<p>Updated within the next Water Load and Balance Models</p>

No.	Party Responsible for Commitment	Party(s) who raised (Item#)	Issue - TM Commitment	Timeline for Submission	Form of Submission
6.	TMAC	CIRNAC-Rec-2	<p>Doris Tailings Impoundment Area</p> <p>TMAC will provide a detailed compilation of the component-specific potential failure modes to inform long term maintenance up to 100 years post closure and closure design uncertainties.</p>	<p>Initial assessment to be provided by June 19, 2018. TMAC to incorporate the findings of this assessment in future closure plan updates provided after water licence approval and in accordance with the schedule for closure plan updates set by the NWB.</p>	<p>Included in Technical Memorandum (also addressing CIRNAC-Recs 2 through 6, and CIRNAC-Rec 9)</p>
7.	TMAC	CIRNAC-Rec-3	<p>Boston Tailings Management Area Seepage</p> <p>TMAC will provide an analysis to demonstrate the potential geomembrane liner failure rate 100 years post closure and the associated arsenic loadings under this scenario.</p>	<p>Initial analysis to be provided by June 19, 2018. TMAC to incorporate the findings of this assessment in future closure plan updates provided after water licence approval and in accordance with the schedule for closure plan updates set by the NWB.</p>	<p>Included in Technical Memorandum (also addressing CIRNAC-Recs 2 through 6, and CIRNAC-Rec 9)</p>

No.	Party Responsible for Commitment	Party(s) who raised (Item#)	Issue - TM Commitment	Timeline for Submission	Form of Submission
8.	TMAC	CIRNAC-Rec-4	<p>Boston Tailings Management Area Seepage</p> <p>TMAC will provide a detailed compilation of the component-specific potential failure modes to inform long term maintenance up to 100 years post closure and closure design uncertainties</p>	<p>Compilation to be provided by June 19, 2018. TMAC to incorporate the findings of this assessment in future closure plan updates provided after water licence approval and in accordance with the schedule for closure plan updates set by the NWB.</p>	<p>Included in Technical Memorandum (also addressing CIRNAC-Recs 2 through 6, and CIRNAC-Rec 9)</p>
9.	TMAC	CIRNAC-Rec-5	<p>Boston Tailings Management Area Seepage</p> <p>TMAC will provide a detailed compilation of the component-specific potential failure modes to inform long term maintenance up to 100 years post closure and closure design uncertainties</p>	<p>Compilation to be provided by June 19, 2018. TMAC to incorporate the findings of this assessment in future closure plan updates provided after water licence approval and in accordance with the schedule for closure plan updates set by the NWB.</p>	<p>Included in Technical Memorandum (also addressing CIRNAC-Recs 2 through 6, and CIRNAC-Rec 9)</p>

No.	Party Responsible for Commitment	Party(s) who raised (Item#)	Issue - TM Commitment	Timeline for Submission	Form of Submission
10.	TMAC	CIRNAC-Rec-6	<p>Boston Tailings Management Area Seepage</p> <p>TMAC will provide a detailed compilation of the component-specific potential failure modes to inform long term maintenance up to 100 years post closure and closure design uncertainties</p>	<p>Compilation to be provided by June 19, 2018. TMAC to incorporate the findings of this assessment in future closure plan updates provided after water licence approval and in accordance with the schedule for closure plan updates set by the NWB.</p>	<p>Included in Technical Memorandum (also addressing CIRNAC-Recs 2 through 6, and CIRNAC-Rec 9)</p>
11.	TMAC	CIRNAC-Rec-9	<p>Closure Planning and Requirements</p> <p>TMAC will provide a detailed compilation of the component-specific potential failure modes to inform long term maintenance up to 100 years post closure and closure design uncertainties</p>	<p>Compilation to be provided by June 19, 2018. TMAC to incorporate the findings of this assessment in future closure plan updates provided after water licence approval and in accordance with the schedule for closure plan updates set by the NWB.</p>	<p>Included in Technical Memorandum (also addressing CIRNAC-Recs 2 through 6, and CIRNAC-Rec 9)</p>

No.	Party Responsible for Commitment	Party(s) who raised (Item#)	Issue - TM Commitment	Timeline for Submission	Form of Submission
12.	TMAC	CIRNAC-Rec-11	<p>Water Treatment Plant Effluent Quality</p> <p>TMAC commits to treat to 0.1 mg/L arsenic in the contact and process water treatment plants.</p> <p>TMAC commits to document that this level of treatment remains protective of the environment and is consistent with the environmental effects assessment</p>	Documentation will be submitted by June 19, 2018	Issue-specific Technical Memo
13.	TMAC	CIRNAC-Rec-15	<p>Release of Saline Water from the Mine to the Tundra</p> <p>TMAC will provide a description of the potential environmental effects of a spill associated with the transport of saline water from the mine (including pumping and trucking) as a result of accidents and malfunctions. In addition, TMAC will provide conceptual design mitigation</p>	By June 19, 2018	Issue-specific Technical Memorandum

No.	Party Responsible for Commitment	Party(s) who raised (Item#)	Issue - TM Commitment	Timeline for Submission	Form of Submission
14.	TMAC	NWB, CIRNAC-Rec-16	<p>Scope of Type “A” Licences In Relation to existing Type “B” Exploration Licences</p> <p>Clarify scope of amendments to existing Type “A” Water Licence 2AM-DOH1323 including overlap with 2BB-MAE1727 and 2BE-HOP1222, and also clarify scope of new Boston Type “A” Licence 2AM-BOS---- including overlap with 2BB-BOS1727 Type “B” exploration licence and identify plans for, and timing of transition of components already approved under exploration Type “B” licences into the Type “A” Licences.</p>	By June 19, 2018	Correspondence clarifying scope of Type “A” Licences, including timing and transitions from existing Type “B” Licences
15.	TMAC	CIRNAC-Rec-19	<p>Madrid Mine Water Transport</p> <p>TMAC will update the Groundwater Management Plan to include mine water transport mechanism (pumping or trucking) and submit the updated plan.</p>	By June 19, 2018	Updated Groundwater Management Plan
16.	CIRNAC	Follow up requested by TMAC (CIRNAC-Rec-14)	<p>Long-term Climate Change Effects</p> <p>CIRNAC commits to revisit thermal studies provided to date following discussions with TMAC at the Technical Meeting and will advise whether they accept TMAC’s responses to date.</p>	By June 1, 2018	Confirmation as to whether CIRNAC accepts TMAC’s responses to date

No.	Party Responsible for Commitment	Party(s) who raised (Item#)	Issue - TM Commitment	Timeline for Submission	Form of Submission
17.	CIRNAC	(Follow up requested by TMAC in respect of CIRNAC-Rec-21)	Reclamation Cost Estimate CIRNAC to provide comments on updated Reclamation Cost Estimate provided by TMAC to the NWB (April 25, 2018)	July 3, 2018	CIRNAC comment submission filed with the NWB