



## 2017-2018 Annual Monitoring Report for TMAC Resources Inc.'s Doris North Gold Mine Project

October 2018

Nunavut Impact Review Board  
File No. 05MN047

**Report Title:** The Nunavut Impact Review Board's 2017–2018 Annual Monitoring Report for the Doris North Gold Mine Project (NIRB File No. 05MN047)

**Project:** Doris North Gold Mine Project

**Project Location:** Kitikmeot Region, Nunavut

**Land Tenure:** Inuit Owned Lands and Crown Lands

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**Monitoring Period:** October 1, 2017 to September 30, 2018

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**Photo credit:** NIRB Staff

**Cover Photo:** 2018 Aerial View of the Doris North Gold Mine Site

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## 1.0 INTRODUCTION

Pursuant to Sections 12.7.1 and 12.7.2 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)*, the Nunavut Impact Review Board (NIRB or Board) is responsible for the post-environmental assessment monitoring of the Doris North Gold Mine Project (Doris North or the Project) and in accordance with Project Certificate No. 003. The objectives of the NIRB's monitoring program as indicated in Section 12.7.2 of the Nunavut Agreement include:

- a) to measure the relevant effects of projects on the ecosystemic and socio-economic environments of the Nunavut Settlement Area;
- b) to determine whether and to what extent the land or resource use in question is carried out within the predetermined terms and conditions;
- c) to provide the information base necessary for agencies to enforce terms and conditions of land or resource use approvals; and
- d) to assess the accuracy of the predictions contained in the project impact statements.

This report provides findings that resulted from the Board's monitoring program for the Project from October 1, 2017 to September 30, 2018.

### 1.1 Project History and Current Status

In September 2006, the NIRB issued Project Certificate No. 003 (the Project Certificate) to Miramar Hope Bay Ltd. (Miramar) for the Doris North Gold Mine Project (Doris North or the Project). The Project Certificate was issued by the NIRB following completion of its Review of the Project in accordance with Part 5 of Article 12 of the Nunavut Agreement. Doris North is located 110 kilometres (km) south of Cambridge Bay and 65 km east of Omingmaktok (Bay Chimo) near Melville Sound in the West Kitikmeot region of Nunavut. The site is accessed seasonally by sealift for fuel and supplies, and year-round by air for select freight and all personnel movements.

In early 2008, Newmont Mining Corporation purchased all interests of Miramar and its subsidiary properties in the Hope Bay Belt, including the Doris North holding. Following this acquisition, Hope Bay Mining Ltd. (HBML) was established for the purposes of operating Doris North and other properties in the Hope Bay Belt. In late 2008, construction of Doris North was suspended as HBML re-evaluated the original mine development plan. In November 2009, HBML decided to proceed with the Project through a staged development strategy. HBML subsequently resumed infrastructure construction in the summer of 2010 and 2011 in support of advanced exploration and in anticipation of commencement of mine operation in 2012. However, on January 31, 2012 HBML announced that it had decided to place the Project into care and maintenance, and that the mine camp would be open seasonally to maintain regulatory obligations.

In March 2013, HBML notified the NIRB that it was selling the Project to TMAC Resources Inc. (TMAC) and later that month TMAC notified the NIRB that it planned to re-open the camp to continue

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exploration activities while maintaining the site in care and maintenance. In April 2013, the NIRB received notice that TMAC had completed the purchase of the Project from HBML and that the status of the Project would continue in care and maintenance while TMAC continued ongoing exploration. Later in December, TMAC notified parties that it would be maintaining a year-round presence in order to operate essential Doris North Camp facilities and systems, conduct monitoring programs under applicable licences and permits, and continue exploration activities.

On December 9, 2013, TMAC filed an application with the NIRB and Nunavut Water Board (NWB) for a joint amendment/reconsideration of the Project Certificate to allow for Project modifications which would be required for TMAC to bring the Project out of care and maintenance. The NIRB commenced reconsideration of the Project Certificate pursuant to the Nunavut Agreement section 12.8.2 until April 22, 2014 when the NIRB and NWB received notice from TMAC that it planned to submit additional amendments for consideration as part of the application. On April 30, 2014 the NIRB and NWB provided joint direction to suspend the assessment until TMAC submitted a complete scope of proposed modifications. Through the summer of 2014, TMAC continued with ongoing exploration and site management activities while Doris North remained in care and maintenance, and in the winter of 2014 TMAC maintained its presence on site.

In March 2015 TMAC notified parties that the Project would be transitioning from care and maintenance into construction after that year's barge season. Further, on June 18, 2015, TMAC applied to the NIRB and NWB to approve a proposed Updated Waste Rock and Ore Management Plan which included the construction, operation, and decommissioning of a waste rock storage pad identified as Pad T. This optional pad had been included in the scope of activities within the Final Environmental Impact Statement (FEIS) for the Project. After completing a review of the information provided by TMAC, the NIRB was of the understanding that the proposed activities associated with Pad T did not change the general scope of the original project activities and concluded that the application was exempt from the requirement of screening pursuant to Section 12.4.3 of the Nunavut Agreement. As such, the activities remained subject to the terms and conditions recommended in the original Project Certificate.

On June 23, 2015, TMAC applied to extend the mine life for the Project from two (2) years to six (6) years through the mining of two (2) additional mineralized zones (Doris Connector and Doris Central) to be accessed via the existing Doris North portal. The expanded mining program would also increase the approved mining and milling rates to 2,000 tonnes per day and would require the restructuring of the Tailings Impoundment Area for subaerial tailings deposition with treated effluent to be transported via a pipeline for discharge into Roberts Bay. The NIRB conducted a review of the proposed amendments to the Project and held a hearing on April 12 to 14, 2016. On June 13, 2016, the Board recommended the proposed project amendments be allowed to proceed subject to the modification of the Project Certificate as well as specific revisions to pertinent terms and conditions and removal of Term and Condition 9, i.e., the requirement for an on-site laboratory for water quality monitoring.

On August 29, 2016, the Honorable Carolyn Bennett, the Minister of Indigenous and Northern Affairs, accepted the Board's Public Hearing Report for TMAC's Amendment to Project Certificate No. 003. On September 20, 2016, the NIRB held a Project Certificate Workshop and issued the amended Project Certificate for the Doris North project (Project Certificate No. 003, Amendment 02) on September 23,

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2016. Therefore, the NIRB's 2017-2018 monitoring year for the Project was informed by Project Certificate No. 003, Amendment 02.

On November 23, 2017 TMAC applied for modifications to the Project to undertake a four (4) month daylighting and/or trenching program to access and remove gold rich ore located in the crown pillar (ore deposit situated at the top of a mine shaft/stope) of the Doris Connector zone adjacent to Doris Lake titled the Crown Pillar Recovery proposal. On December 12, 2018 the NIRB determined that it had not identified any specific concerns with the proposed modifications or TMAC's conclusions regarding the potential effects of the modifications as proposed and that the NIRB would continue to monitor TMAC's adherence to the terms and conditions of the Doris North Gold Mine Project Certificate No. 003 and expected that follow-up reporting on the modified activities would be included within the required reporting for the Project moving forward.

## **1.2 Project Components**

The original project proposal covered a physical footprint of 53 hectares and included an ore processing capacity of 668 tonnes per day. The life of mine was two (2) years, processing 458,000 tonnes of ore to yield approximately 306,830 ounces of gold.

The major components of the original Project include a main camp, fuel tank farm, office complex, workshops, power generation plant, sewage treatment plant, portal with associated underground mine, and a crusher and mill at the main mine site. Tailings generated during the milling process would be deposited in a Tailings Impoundment Area (TIA) at Tail Lake created through the construction of two (2) frozen core dams. The other major portion of the Project was at Roberts Bay with a jetty, fuel tank farm, and laydown area. A 4.8 kilometre (km) all-weather road with a section also proposed as an airstrip would link Roberts Bay, or the north end of the Project, to the main camp and mine site.

In 2011, HBML amended the Type "A" water licence for the Doris North project (File No. 2AM-DOH0713) to include an airstrip expansion/bypass road. On January 14, 2011 the NIRB determined that the aforementioned amendment was exempt from the requirement of further NIRB screening under Section 12.4.3 of the *Nunavut Agreement*, which allowed construction to begin; however, the Project was placed in care and maintenance prior to completion of the airstrip expansion. In 2015, TMAC completed the expansion of the airstrip after recommencing construction.

The following Project modifications were approved under Project Certificate No. 003, Amendment 02:

- Extension of mine life by four (4) years;
  - Mining of Doris Central and Doris Connector zones via the existing Doris North portal instead of only mining the Doris Hinge zone;
- Increase of mining and milling rates from 720 tonnes/day (t/day) and 800 t/day, respectively, to 2,000 t/day;
- Increase total volume of deposited tailings in the TIA from 458,000 tonnes to 2.5 million tonnes;

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- Modification to the destruction of cyanide in process tailings from Caro's Acid (hydrogen peroxide and sulfuric acid) to the INCO (sulphur dioxide and air) process;
  - Change to the tailings deposition from subaqueous to subaerial at the south end of the TIA;
  - Restructuring of the TIA:
    - Installation of an interim dam approximately midway in the TIA.
    - Modification of south dam construction and operations from frozen core to frozen foundation.
  - Discharge of up to 7,000 cubic metres/day (m<sup>3</sup>/day) directly into Roberts Bay:
    - Direct discharge of up to 3,000 m<sup>3</sup>/day of saline groundwater from underground year-round.
    - Discharge of up to 4,000 m<sup>3</sup>/day from the TIA during summer months.
    - Construction/installation, operation, and eventual decommissioning of a 550 metre (m) access road at Roberts Bay, a 5.64 kilometre (km) long overland pipeline, and a 2.3 km long marine outfall pipeline.
    - Installation, operation, and eventual abandonment of a 95 metre (m) long marine diffuser and a 900 m long marine outfall berm.
  - Alternative disposal option for saline groundwater from underground workings to the TIA prior to the deposition of TIA water into Roberts Bay;
  - Construction, operation, and eventual decommissioning of two (2) additional vents (Doris Central Vent and Doris Connector) and associated spur roads;
  - Construction, operation, and eventual decommissioning of Pad U, which would be a 31,000 m<sup>2</sup> pad and associated pollution control pond for use as ore storage and temporary laydown area;
  - Increase camp capacity from 180 to 280 persons to accommodate project personnel;
  - Replacement of existing sewage treatment plant with a new plant with an increased capacity for the larger camp and retrofitting of existing sewage treatment plant for backup;
  - Use of existing quarries A, B, D, and 3 to supply foundation materials for additional proposed infrastructure;
  - Relocation of proposed landfill from Quarry A to Quarry 3 once the resources have been exhausted;
  - Construction, operation, and eventual decommissioning of three (3) additional laydown areas at Roberts Bay (Roberts Bay Extension Laydown Area West, Southwest, and Southeast);

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- Relocation of explosives facility from pad adjacent to Quarry 3 to Quarry A;
  - Over-wintering of fuel barges in Roberts Bay as required to support operations; and
  - Removal of the requirement for TMAC to install and operate an on-site laboratory to test TIA water onsite in real time prior to release into Doris creek as previously required under Term and Condition 9 of the NIRB Project Certificate No. 003.

On December 12, 2017 the following Project modifications in support of the Crown Pillar Recovery were approved by the NIRB:

- Establishment of a temporary trench (50 m wide by 200 m long);
- Construction of a 320 m spur road to access the area proposed for the temporary trench;
- Temporary storage of overburden and waste rock from the trench on existing approved pads on the surface;
- Haulage of ore recovered from the crown pillar through underground mine workings to the surface;
- Placement of stockpiled overburden and waste rock as backfill in the trench on completion of ore recovery in the crown pillar; and
- Completion of all activities associated with the proposed modifications within four (4) months in the spring and summer of 2018.

During the 2018 site visit by NIRB staff, TMAC indicated that it now plans to commence field activities associated with the Crown Pillar Recovery in the latter part of 2018.

## **1.3 Completed Infrastructure at Doris Site**

### **1.3.1 Tail Lake**

The Project area around Tail Lake (*now* the Tailings Impoundment Area [TIA]) currently includes the frozen core North Dam which is located approximately one (1) km southeast of Doris Camp, and is accessible via a secondary road. The North Dam is a rock fill dam with a permanently frozen core constructed to contain the tailings in the TIA. The frozen core is maintained using thermosyphons, and the dam is monitored to ensure its integrity.

In the 2017-2018 monitoring period, TMAC advanced the development and operation of a number of Project components in the area of the former Tail Lake, including the following:

- Completion of construction of the frozen foundation South Dam in the TIA.
- Ongoing construction of TIA components in the South Dam area (e.g., tailings pipelines and outfalls, a cofferdam, and an access road to the South Dam).

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- Ongoing discharge of tailings to the TIA via tailings pipelines.
  - Completion of construction of a reagent storage berm.
  - Construction of a second Tailings Catchment Basin as part of the tailings discharge pipeline infrastructure.

### **1.3.2 Main Camp**

The Doris Camp is located approximately five (5) km south of Roberts Bay, and includes the following completed infrastructure and facilities:

- Rock fill pads to support some above-ground facilities
- 180-person capacity accommodations
- Sewage treatment plant
- Bulk fuel storage area
- Helicopter operations and landing area
- Underground mining support facilities (e.g., portal)
- Landfarm
- Diversion berm upslope of the camp
- Core storage area
- Ore and waste rock storage facilities
- All-weather road/airstrip
- Mine offices
- Power plant
- Warehouses
- Vehicle parking
- Material laydown area
- Mill building and processing plant
- Open burn area
- Overburden storage pile
- Reagent storage pads
- Pollution control ponds

In the 2017-2018 monitoring period, TMAC advanced the development and operation of a number of Project components in the Main Camp area, including the following:

- Progressive ramp up of milling and gold processing operations.
- Construction of the effluent mix-box at the mill is ongoing.
- Construction of the Doris Connector vent raise access roads.
- Advanced underground mine development to access ore.
- Construction of a mechanical shop, additional warehousing, and an Arctic corridor to connect the main camp, the mill building, and an Assay Lab.
- Commissioning of existing diesel power generators at the main camp site.
- Construction of approved expansions to accommodations at the main camp site.
- Ongoing quarry activities at approved quarry sites.
- Continued earthworks at the Doris Airstrip including the construction of a lined aircraft de-icing and refueling pad.

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- Continued with ongoing exploration activities at the Project site and other parts of the Hope Bay Greenstone Belt and continued progressive reclamation of legacy drill holes in the Project area.

### **1.3.3 Roberts Bay**

The Roberts Bay area includes the marine port and other ancillary facilities required for the Project on bedrock or rock fill pads. A rock fill jetty was constructed and underwent an upgrade in 2013 for barge operations, and two (2) bulk fuel storage facilities were established on site prior to the 2017-2018 monitoring period: one (1) containing a single five (5) million litre (ML) tank and the second facility containing three (3) five (5) ML tanks (for a total of 15 ML). A mechanical shop, vehicle repair complex, waste management facility, and laydown area were also completed prior to the 2017-2018 monitoring cycle.

In the 2017-2018 monitoring period, TMAC advanced the development and operation of a number of Project components in the Roberts Bay area, including the following:

- Ongoing construction of land-based components of the effluent pipeline and diffuser system, such as the marine outfall berm.
- Ongoing installation of ocean discharge line between the mill and into Roberts Bay is ongoing.

TMAC noted that discharge of Metal and Diamond Mine Effluent Regulations (MDMER)-compliant effluent to Roberts Bay will commence once applicable post-NIRB approval permits are received and supporting infrastructure is constructed.

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## 2.0 MONITORING ACTIVITIES

### 2.1 General Reporting Requirements

During the 2017-2018 monitoring period, TMAC demonstrated overall compliance with reporting requirements resulting from the NIRB's Review of the Project, including commitments contained in related reports and plans as stipulated through the NIRB's Project Certificate. TMAC has provided the following items as required by the terms and conditions contained within the Project Certificate for the monitoring period of October 2017 through September 2018:

- 2018 Workplan, January 2018
- 2017 Annual Roberts Bay Jetty Inspection, March 2018
- 2017 Wildlife Mitigation and Monitoring Plan Compliance Report, March 2018
- Hope Bay Project 2017 Socio-economic Monitoring Report, April 2018
- Q1-Q3 2017 Atmospheric Compliance Monitoring Program Report, April 2018
- Hope Bay Project 2017 Archaeology Investigations Final Permit Report, April 2018
- 2017 Wildlife Mitigation and Monitoring Plan Compliance Report, April 2018
- 2017 Aquatic Effects Monitoring Program Report, April 2018
- 2017 Waste Rock, Quarry and Tailings Monitoring Report, Doris Mine, Hope Bay Project, April 2018
- Geotechnical Inspection Report, April 2018
- Hope Bay Project Health and Safety Management Plan (December 2017), April 2018
- Hope Bay Project Spill Contingency Plan (December 2017), April 2018
- Hope Bay Project Surface Emergency Response Plan (December 2017), April 2018
- Hope Bay Project Underground Emergency Response Plan (December 2017), April 2018
- Hope Bay Project Noise Abatement Plan (December 2017), April 2018
- Marine Outfall Berm, Detailed Design Drawings and Hazard Operability Study, August 2018
- Winter 2017-2018 Atmospheric Compliance Monitoring Program Report, September 2018

On May 17, 2018 the NIRB invited interested parties to comment on TMAC's 2017 Annual Report for Doris North Gold Mine Project submitted to the Board on April 30, 2018 in accordance with Appendix D or the Project Certificate NIRB No. 003, Amendment 002 (the Project Certificate). On or before June 25, 2018 the NIRB received comments from the following parties:

- Kitikmeot Inuit Association
- Government of Nunavut
- Crown-Indigenous Relations and Northern Affairs Canada

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## **2.2 Compliance Monitoring**

Compliance monitoring involves an assessment undertaken by regulators and other agencies to establish whether or not the Project is being carried out as required by relevant legislation, regulations, instruments, commitments and agreements. Compliance monitoring, as reported by authorizing agencies, is also a requirement of the NIRB's Monitoring Program for the Doris North Gold Mine Project.

### **2.2.1 Compliance with the NIRB Project Certificate**

During the 2016-2017 reporting period, the Proponent was generally successful in meeting the requirements of the Project Certificate. Some terms and conditions may not be applicable to the Project as Doris North had transitioned into operation during the monitoring period (October 2017-September 2018). The requirements of some terms and conditions have not been fully met by TMAC; however, the Proponent provided evidence in its 2017 Annual Report that it is working towards achieving requirements of all terms and conditions. [Appendix A](#) highlights TMAC's compliance achievements with the Project Certificate from 2017 to 2018.

The NIRB notes that, as per Term and Condition 1 of the Project Certificate, the Proponent is required to meet its commitments as presented in [Appendix A](#) of the Final Hearing Report (March 2006) issued by the Board following the Final Hearing for the Review of the Doris North Gold Mine Project. This list of commitments is included in this Report as a reference ([Appendix B](#))

#### **2.2.1.1 TMAC'S RESPONSE TO THE BOARD'S 2017 RECOMMENDATIONS**

On November 27, 2017 the Board made a number of recommendations as a result of the 2016-2017 monitoring efforts and the 2017 site visit by NIRB staff. On January 5, 2018 TMAC provided responses to each of the Board's 2017 Recommendations which are summarized in Table 1.

**TABLE 1 - NIRB 2017 RECOMMENDATIONS AND TMAC RESPONSES**

<b>Board Recommendation</b>	<b>TMAC Response</b>
<i>1 - THE BOARD REQUIRES TMAC RESOURCES INC. TO PROVIDE THE NIRB WITH ALL APPLICABLE PROJECT COMPLIANCE REPORTING WITHIN THE TIMELINES, AND BASED ON THE PROJECT LIFECYCLE STAGES, AS OUTLINED IN THE PROJECT CERTIFICATE 003, AMENDMENT 02. ALL SUCH REPORTS AND UPDATED MANAGEMENT PLANS SHOULD BE SUBMITTED DIRECTLY TO THE NIRB AND SHOULD INCLUDE APPROPRIATE COVER LETTER(S) TO THE BOARD INDICATING THE SPECIFIC PROJECT CERTIFICATE TERM(S) AND CONDITION(S) OR COMMITMENT(S) BEING ADDRESSED IN THE SUBMISSIONS. THE BOARD EXPECTS IMPLEMENTATION IN THE NEXT MONITORING CYCLE.</i>	TMAC indicated that it planned to work towards timely updates to the NIRB to meet requirements of the Project Certificate.
<i>2 - THE BOARD REQUIRES THAT TMAC RESOURCES INC. (THE PROPONENT) ADDRESS PARTY COMMENTS ON ITS 2016 ANNUAL REPORT FOR THE DORIS NORTH GOLD MINE PROJECT, AS PER THE NIRB'S ORIGINAL CORRESPONDENCE ON JULY 7, 2017, AND SUBMIT A RESPONSE PACKAGE TO THE NIRB IN 30 DAYS FROM ISSUANCE OF THIS RECOMMENDATION. THE NIRB ALSO EXPECTS THE PROPONENT TO MEET DEADLINES STIPULATED BY THE BOARD FOR RESPONSES TO PARTIES' COMMENTS ON ANNUAL REPORTS IN SUBSEQUENT MONITORING CYCLES.</i>	<p>TMAC noted that it had included responses to party comments as an appendix to its response to the Board's Recommendations submitted to the NIRB on January 5, 2018.</p> <p>TMAC also noted that it will ensure that it responds to the Board's requests in a timely manner during the NIRB's 2017-2018 Monitoring of the Doris North Gold Mine Project.</p>

<b>Board Recommendation</b>	<b>TMAC Response</b>
<p>3 - THE BOARD REQUESTS THAT TMAC RESOURCES INC. (THE PROPONENT) ADDRESS ALL REQUIREMENTS IN ITS ANNUAL REPORTING TO THE NIRB ON THE DORIS NORTH GOLD MINE PROJECT (THE PROJECT) AS PER APPENDIX D OF PROJECT CERTIFICATE 003, AMENDMENT 02. THE BOARD NOTES THAT THESE REQUIREMENTS ARE PARTICULARLY IMPORTANT AS TMAC RESOURCES INC. HAS TRANSITIONED INTO THE OPERATIONS PHASE OF THE PROJECT IN 2017. SPECIFICALLY, THE PROPONENT IS REQUIRED TO PROVIDE A SUMMARY OF RESULTS FROM THE POST-ENVIRONMENTAL ASSESSMENT MONITORING PROGRAM IN ITS ANNUAL REPORTS, INCLUDING ITS ASSESSMENT OF THE ACCURACY OF ECOSYSTEMIC AND SOCIO-ECONOMIC EFFECT PREDICTIONS PRESENTED IN BOTH ITS FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS) AND THE 2015 AMENDMENT APPLICATION AND ITS ANALYSIS OF THE EFFECTIVENESS OF MITIGATION MEASURES OVER THE COURSE OF EACH MONITORING PERIOD FOR THE PROJECT. FOR FURTHER CLARITY AND AS PER APPENDIX D OF THE PROJECT CERTIFICATE, THE SUMMARY INFORMATION ON THE POST-ENVIRONMENTAL ASSESSMENT MONITORING PROGRAM SHOULD INCLUDE THE FOLLOWING:</p> <p>I. AN ANALYSIS REGARDING WHETHER OR NOT THE PROJECT IS OPERATING IN ACCORDANCE WITH THE PREDICTED IMPACTS IDENTIFIED IN THE FEIS OR AT THE FINAL HEARING. THIS ANALYSIS SHOULD INCLUDE:</p> <ul style="list-style-type: none"> <li>a) ALL RELEVANT DATA (BASELINE AND MONITORING) TO SUPPORT IMPACT PREDICTIONS AND EFFECTS CONCLUSIONS;</li> <li>b) AN ANALYSIS OF THE EFFECTIVENESS OF MITIGATION MEASURES AND DISCUSSION REGARDING ANY NECESSARY ADAPTIVE MITIGATION STRATEGIES EMPLOYED; AND</li> <li>c) EXPLICIT CONCLUSIONS RELATED TO WHETHER OR NOT THE PROJECT IS OPERATING IN ACCORDANCE THE</li> </ul>	<p>TMAC noted that its annual reports and associated compliance monitoring reports submitted to the NIRB provide reviewers with detailed information and analysis to satisfy requirements set out in Appendix D of Project Certificate No. 003.</p> <p>TMAC further noted that, through discussion with the NIRB in early 2018, TMAC will review the structure and layout of the next annual report to ensure that requirements of Appendix D of Project Certificate No. 003 are clearly set out and addressed to ensure a streamlined review process.</p>

<b><u>Board Recommendation</u></b>	<b><u>TMAC Response</u></b>
<p><i>PREDICTED IMPACTS IDENTIFIED IN THE FEIS OR AT THE FINAL HEARING.</i></p> <p><i>II. AN ANALYSIS OF THE IMPACT OF THE PROJECT UPON THE BIOPHYSICAL AND SOCIOECONOMIC ENVIRONMENT.</i></p> <p><i>III. ANY MODIFICATIONS MADE TO THE POST-ENVIRONMENTAL ASSESSMENT MONITORING PROGRAM.</i></p> <p><i>THE BOARD REQUIRES THAT TMAC RESOURCES INC. PROVIDE THE REQUESTED INFORMATION IN THE NEXT ANNUAL REPORT.</i></p>	
<p><i>4 - THE BOARD REQUIRES THAT TMAC RESOURCES INC. CONFIRM THE TIMING FOR THE CONSTRUCTION OF THE INTERIM DAM OR DIKE IN THE TAILINGS IMPOUNDMENT AREA IN ITS PRESENT OPERATIONS PHASE OR INFORM THE NIRB OF ANY CHANGES IT PROPOSES REGARDING THE INTERIM DAM OR DIKE IN ACCORDANCE WITH TERM AND CONDITION 34 OF THE DORIS NORTH GOLD MINE PROJECT CERTIFICATE 003, AMENDMENT 02. THE BOARD REQUIRES A RESPONSE IN 30 DAYS FOLLOWING THE ISSUANCE OF THIS RECOMMENDATION.</i></p>	<p>TMAC noted that it had always planned to construct the Interim Dike in the Tailings Impoundment Area after the initiation of tailings deposition and before the tailings deposition front reaches the dike location.</p> <p>TMAC further noted that it is monitoring the advancement of the tailings front and plans a bathymetric survey in late winter of 2018 to determine the rate of advancement of the tailings front and to establish the required schedule for construction of the Interim Dike.</p>

<b>Board Recommendation</b>	<b>TMAC Response</b>
<p>5 - <i>THE BOARD REQUESTS THAT TMAC RESOURCES INC. PROVIDE AN UPDATE ON ITS COMPLIANCE WITH TERM AND CONDITION 26 OF DORIS NORTH GOLD MINE PROJECT CERTIFICATE 003, AMENDMENT 02 INCLUDING ANY DETAILS ON ITS WILDLIFE MONITORING PROGRAM DESIGNED TO ADDRESS WILDLIFE INTERACTIONS WITH THE TAILINGS IMPOUNDMENT AREA AND TRIGGERS TO INITIATE SPECIFIC MANAGEMENT RESPONSES, WITH A PARTICULAR EMPHASIS ON MIGRATORY BIRDS. THE BOARD REQUIRES A RESPONSE IN 30 DAYS FOLLOWING THE ISSUANCE OF THIS RECOMMENDATION.</i></p>	<p>TMAC acknowledged that wildlife occasionally encroaches on the Tailings Impoundment Area (TIA), and that it currently implements a wildlife monitoring system at the TIA, including use of automatic wildlife cameras and reports on incidental wildlife sightings by TMAC field personnel.</p> <p>TMAC also indicated that short-term occurrences of returning migratory waterfowl and mammals were observed in the open water of the TIA in 2017, and that no nests of waterfowl were sighted during the summer.</p> <p>TMAC also indicated that, in its view, Term and Condition 26 of the Project Certificate was related to and meant to address congregations or assemblages of wildlife or birds that might be negatively affected by their presence in and usage of the TIA on a regular basis, other than for transiting the site or occasional use.</p> <p>TMAC further stated that it does not believe that the occasional observations of waterfowl and their tracks in the TIA warrant the provisions of Term and Condition 26 to be deployed.</p>

TMAC has responded to all of the 2017 Board recommendations, and provided the required information, including updates to environmental management plans, or committed to providing the requested material in subsequent reports once the material is available as noted in correspondence to the NIRB on January 5, 2018 and in TMAC's 2017 Annual Report for Doris Project Certificate NIRB No. 003.

## 2.2.2 Compliance Monitoring by Authorizing Agencies

### 2.2.2.1 KITIKMEOT INUIT ASSOCIATION

On March 30, 2015 the Kitikmeot Inuit Association (KIA) and TMAC entered into a comprehensive Framework Agreement and an Inuit Impacts Benefits Agreement (IIBA) for the development of the Hope Bay Greenstone Belt including the Doris North Gold Mine and the Madrid and Boston advanced exploration projects. KIA noted in its June 25, 2018 submission that it was adequately consulted by TMAC on socio-economic effects and the potential impacts on the rights of Inuit of Nunavut. KIA also noted that the IIBA Implementation Committee set a target of 15% Inuit employment on the Project site for TMAC and its contractors for 2017, and that Inuit employment in the third and fourth quarters of 2017 reached 15% at the Project site. KIA further noted that Inuit employment at the Project site over the past ten (10) years has ranged from 7% to more than 25% (2 to 159 Inuit employees). In addition, the IIBA Implementation Committee has set a target for Inuit employment at the Project site at 70 FTEs

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(fulltime equivalents) for 2018, and the 15% Inuit employment target will be maintained for 2018 and 2019.

In its June 2018 submission, the KIA noted that it had conducted inspections of the Doris North project mine site from June 21 to 22, 2017 and from on September 5 to 7, 2017. The KIA outlined the project areas that it had observed which included the Roberts Bay jetty and tank farm, the crushing and milling plant, ore and waste rock storage facilities, power generators, sedimentation and pollution control ponds, explosives storage facility, tailings and reclaim water pipeline, the Tailings Impoundment Area, and associated infrastructure. The KIA stated that Project components it observed were generally in good condition and that TMAC has committed to addressing components that will require repairs, such as the Roberts Bay jetty.

#### 2.2.2.2 CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA

In its June 2018 submission, Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) stated its broad mandate for the co-management of water resources and the management of Crown Land in Nunavut under the following acts and regulations:

- The *Department of Indian Affairs and Northern Development Act*;
- The *Nunavut Land Claims Agreement Act*;
- The *Arctic Waters Pollution Prevention Act*;
- The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and Regulations; and
- The *Territorial Lands Act* and Regulations.

CIRNAC reported that it had conducted three (3) inspections of the Doris North Project site in 2017 – April 26, July 8 to 9, and October 10 to 11 – to verify compliance with water licences issued by the Nunavut Water Board (NWB) for the Project. Based on the site visits, CIRNAC provided TMAC with a number of instructions and/or recommendations to ensure continued compliance with applicable water licences issued for the Project, including the following:

- Cleanup of loading and hauling areas for detoxified tailings to ensure compliance with licence conditions.
- Assurance that equipment for handling detoxified tailings are exclusively used for this purpose to prevent the potential for contamination of non-contact areas.
- Implementation of corrective measures to ensure no runoff from waste rock storage areas flows over the northern diversion berm at the main camp.
- Review of sampling methods for BTEX (benzene, toluene, ethylbenzene and xylenes) to ensure consistent implementation.

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- Implementation of an alternative storage solution for contaminated oil or hazardous waste currently stored in open totes, and removal of hazardous waste from the Project site in a timely manner.
  - Ensure that materials placed in the landfarm are in line with TMAC's Landfarm Management Plan for the Project.

CIRNAC noted that it was generally satisfied with TMAC's response to concerns raised by CIRNAC's inspectors during the 2017-2018 monitoring period for the Project.

## **2.3 Effects Monitoring**

Effects monitoring is an assessment of the measurable change to a particular environmental or socio-economic component, as compared to the potential effects that were predicted to result from a proposed development. In the case of Doris North, impact predictions and mitigation measures were outlined and developed throughout the environmental review of the Project and were recorded and presented through the Proponent's 2005 Final Environmental Impact Statement (FEIS), the 2015 Amendment Application for the Doris North Gold Mine project, and other related documents.

The following section provides a summary of the NIRB's review of TMAC's 2017 Annual Report for the Project and comments received from parties.

### **2.3.1 NIRB's Review of TMAC's 2017 Annual Report**

Appendix D of the Project Certificate provides the expectations of the NIRB, the Proponent, and Regulatory Authorities in the Doris North Project and an outline of the requirements of the Proponent's Annual Report for the Doris North project. Appendix D also outlines that proponent reporting should include a summary of the results from the post-environmental assessment monitoring program (PEAMP), including an analysis of the Project's impact to the environment with reference to the predictions and environmental and socio-economic indicators used throughout the FEIS and the Final Hearing (including all amendments where applicable).

In TMAC's 2017 Annual Report, TMAC provided a summary of the PEAMP which included all mitigation measures implemented for Project effects on valued ecosystemic components (VECs) and valued socio-economic components (VSECs), monitoring results, and comparisons of residual project effects with predictions in the original 2005 Final Environmental Impact Statement (FEIS) and the 2015 FEIS Addendum for the Project. TMAC presented the following conclusions regarding Project effects on VECs and VSECs in the 2017 Annual Report:

- **Air Quality** – most measurements of air quality in the project area were within the expected range of the 2005 FEIS predictions; however, summertime dustfall measurements were above 2005 FEIS predictions.
- **Noise** – no noise monitoring was conducted in 2017; however historic monitoring shows consistency with FEIS predictions and mitigation measures for noise are ongoing.

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However, the NIRB has concerns with the frequency of noise monitoring per project phase as presented in the Updated Noise Abatement Plan. In the view of the NIRB, limiting noise monitoring frequency to once per project phase may not provide representative data to allow for an accurate assessment of the impacts of project noise on valued components. The NIRB is also concerned that noise monitoring frequency for the Project may not be adequate to allow for an accurate assessment of the effectiveness of mitigation measures for noise currently being implemented by TMAC for the Project.

- **Water Quality** – recorded water quality for natural freshwater water bodies in the Project area were consistent with predictions in the FEIS for the Project. Mitigation measures for dust generation, transport of runoff, blasting residue, and metal leaching and acid rock drainage have ensured that no Project-related exceedances of Canadian Council of Ministers of the Environment (CCME) guidelines were recorded for lakes and streams near the Project infrastructure.
- **Permafrost** – Permafrost degradation was predicted as a risk in the FEIS from the rising water level in the Tail Lake; however, no shoreline slumping due to loss of permafrost was observed during the 2017 monitoring period.
- **Raptors** – Project effects on raptors are within what was predicted in the FEIS as it was predicted that minor effects would occur within a range of less than one (1) kilometre (km) to 10 km of the Project area. The total Project footprint to date is 83 hectares (ha), and in 2016, the area of foraging habitat for raptors (classified as open meadows) was removed due to the Project was 82 ha. Monitoring to date indicates no significant effects on raptor use of nests or nest success.
- **Caribou, Grizzly Bear and Wolverine** – The total Project footprint to date (83 ha) represents less than 0.01 percent (%) of available habitat for caribou, grizzly bear, and wolverine. Habitat loss and alteration are within the range of predictions in the original 2005 FEIS and the 2015 FEIS Addendum for the Project. The magnitude of Project effects on caribou, grizzly bear, and wolverine are within the range predicted in the FEIS for the Project.
- **Upland Breeding Birds and Waterfowl** – Based on field surveys for upland breeding birds and waterfowl in 2017, the conclusions of the FEIS for these VECs are still valid.
- **Arctic Char** – the Project effects on Arctic char to date are as predicted in the FEIS. Project-related loss of Arctic char habitat in Roberts Bay has been compensated for through the construction of four (4) rock shoals. Blasting, harvest, and dust deposition effects on Arctic char are within predicted values in the FEIS.
- **Lake Trout, Lake Whitefish, and Ninespine Stickleback** – Project effects on freshwater fish and fish habitat are as predicted in the FEIS. Project-related loss of fish habitat in Tail Lake and Tail Lake Outflow have been compensated through the construction of shoals in Windy Lake, and enhancements in the Roberts Lake Outflow and Stream E09 within the Project area. Blasting, harvest, and dust deposition effects on freshwater fish are as predicted in the FEIS.

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- **Community Services and Infrastructure** – the Project has had no adverse effect on health care, social, and public safety and protection services to date, and the has resulted in minimal adverse effects on community well-being as predicted in the FEIS. Use of the Employee and Family Assistance Plan by Project employees will be reviewed to determine whether appropriate supports are in place for employees.
  - **Employment and Economy** – the Project has resulted in positive effects on Inuit employment, Inuit-owned businesses, personal income, and training and development of a skilled labour force in the Kitikmeot region as predicted in the FEIS.
  - **Heritage Resources** – the Project effects on heritage resources is consistent with predictions in the FEIS. Monitoring has ensured no inadvertent impacts on recorded sites, and systematic data recovery has provided positive benefits of recovering cultural information.

Overall, TMAC concluded, in its 2017 Annual Report, that the residual Project-effects on VECs and VSECs after mitigation were as predicted in the 2005 FEIS and the 2015 FEIS Addendum for the Project.

### **2.3.2 Effects Monitoring by Authorizing Agencies**

As a part of its annual monitoring program, the NIRB requested that Regulatory Authorities with jurisdiction over project components or activities, or those with specific expertise, provide comment regarding the effects assessment associated with the Project.

#### **2.3.2.1 KITIKMEOT INUIT ASSOCIATION**

In its June 2018 submission, the Kitikmeot Inuit Association (KIA) commented that it had reviewed the wildlife, aquatic sciences, fish sciences, and geotechnical engineering components of TMAC's 2017 Annual Report for the Project, and that it considered conclusions made by TMAC in its 2017 Annual Report regarding project effects on components of the environment to be valid. However, KIA noted that it had identified significant issues in TMAC's 2017 Wildlife Mitigation and Monitoring Plan (WMMP) Compliance Report that needed to be addressed, including camera monitoring of caribou, grizzly bears, and the determination of zone of influence for raptors. KIA also noted that it had identified no significant issues regarding aquatic sciences, fish sciences, and geotechnical engineering.

KIA made a number of recommendations on TMAC's 2017 Annual Report and the various associated reports and plans, including the 2017 WMMP Compliance Report and the 2017 Aquatic Effects Monitoring Program Report. A summary of KIA's recommendations regarding proposed changes to the monitoring program that may be required as the Project transitions to the operations phase is presented in Section 2.3.3.

#### **2.3.2.2 GOVERNMENT OF NUNAVUT**

In its June 2018 submission regarding TMAC's 2017 Annual Report, the Government of Nunavut provided recommendations to TMAC on project effects monitoring, with a focus on noise monitoring, dustfall monitoring and resulting wildlife habitat alteration/loss, caribou monitoring, and prevention of stresses related to rotational employment associated with the Project.

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### 2.3.2.3 CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA

In its June 2018 submission regarding TMAC's 2017 Annual Report, Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) provided recommendation to TMAC on project effects monitoring, with a focus on spill reporting, air quality monitoring, aquatic effects monitoring, and waste rock, quarry and tailings monitoring.

CIRNAC further noted that, based on its mandate, it did not identify any information that would invalidate the conclusions reached by TMAC in the 2017 Annual Report.

### **2.3.3 Areas Requiring Further Study or Changes to the Monitoring Program**

#### 2.3.3.1 WILDLIFE MITIGATION AND MONITORING PROGRAM

In their June 2018 submissions, the Kitikmeot Inuit Association and the Government of Nunavut recommended a number of changes to the monitoring program associated with TMAC's 2017 Wildlife Mitigation and Monitoring Plan Compliance Report, including the following:

- Adjustment to the wildlife camera monitoring and data analysis methods to account for environmental conditions and to accurately capture and interpret data relevant to the periods when Dolphin and Union and Beverly/Ahiak caribou herds are expected to overlap with the Project.
- Undertaking appropriate analysis to provide density estimates for the Bathurst caribou herd to inform mitigation measures for potential project effects on the caribou herd.
- Clarification of caribou data from motion-triggered cameras that was used for analyses.
- Changes to study design and/or analytical methods for caribou monitoring to address potential biases in camera data from differences in camera spacing between Treatment, Zone of Influence, and Control zones.
- Ensure that analyses of camera data for caribou is season specific or justification for pooling of data across seasons should be provided.
- Reconsideration of the reliance on motion-triggered cameras as the sole means of assessing caribou distribution and Zone of Influence effects.
- Analysis of camera data on grizzly bears should be limited to periods throughout the year within which grizzly bears are not expected to be in hibernation.
- Inclusion of results of additional analyses for upland breeding birds and raptors in the 2018 Annual Report for the Project.
- Adjustments to the focus of motion triggered camera data analyzed for patterns of nest predators at treatment, zone of influence, and control sites by ensuring that analysis of nest predator events are focused on the active nesting months.

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- Provision of maps developed from camera data showing where muskoxen were observed in 2017.

#### 2.3.3.2 AQUATIC EFFECTS MONITORING PROGRAM

In their June 2018 submissions, the KIA and CIRNAC recommended additional information and a number of changes to TMAC's 2017 Aquatic Effects Monitoring Program including the following:

- Provision of additional rationale on the suitability of Reference Lake D for comparable phytoplankton and benthic community parameters.
- Provision of specific information on mine water (groundwater) volume monitoring and records of water quality of the mine water discharge.
- Provision of monitoring information as required under the Hydrology Compliance Monitoring Program.
- Provision of detailed spill reports, including photographic evidence of impacted site prior to and following cleanup, to subsequent Annual Reports for the Project.
- A summary of the marine environment, including project interactions, results of monitoring activities, and an assessment of impacts and comparisons to predictions in the Final Environmental Impact Statement should be included in Annual Reports for the Project.
- Provision of a summary of monitoring of project-related streams, including Doris Creek, in Annual Reports for the Project.
- Changes to monitoring methods, including frequency of monitoring, to accurately capture benthic invertebrate community conditions as part of the Aquatic Effects Monitoring Program for the Project. A summary of benthic invertebrate density, sediment particle size, and data quality objectives for water quality monitoring should be included in Annual Reports for the Project.
- Provision of a comparison of measures levels of Doris Lake and the reference lake against baseline values and Final Environmental Impact Statement prediction in Annual Reports for the Project.
- Inclusion of trend analysis of previous years' data on water levels to assist in tracking how Project activities have impacted water levels of Doris Lake over time.

#### 2.3.3.3 NOISE ABATEMENT MANAGEMENT PLAN

In its June 2018 submission, the Government of Nunavut (GN) recommended additional information or clarifications regarding the noise monitoring program associated with TMAC's Noise Abatement Management Plan for the Project, including the following:

- Clarification on consultation conducted by TMAC with the GN on the Noise Abatement Management Plan for the Project.

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- Clarification on why no noise monitoring was conducted and reported for 2017.
  - Clarification on historic noise monitoring referred to in TMAC's 2017 Annual Report, and whether data from noise historic noise monitoring is comparable to current Project conditions and/or those used in the Final Environmental Impact Statement for the Project.

#### 2.3.3.4 AIR QUALITY MONITORING PROGRAM

In their June 2018 submissions, the GN and CIRNAC recommended additional information and a number of changes to TMAC's air quality monitoring program for the Project, including the following:

- Changes to dustfall monitoring methods, including monitoring transects and location of monitoring stations.
- Recalculation of the estimate of indirect loss of caribou habitat from project-related dust based on Tailings Impoundment Area dustfall monitoring results and the Boulanger et al. (2012) hypothetical thresholds or some other wildlife-dust effects thresholds available in scientific literature.
- Inclusion of previous years' data on monitoring for dust, total suspended solids, and particulate matter of up to 10 and up to 2.5 micrometers in diameter (PM10 and PM2.5) in Annual Reports.
- Provision of trend analysis in Annual Reports to track how project activities have impacted dust levels over time.

#### 2.3.3.5 WASTE ROCK, QUARRY AND TAILINGS MONITORING PROGRAMS

In its June 2018 submission, CIRNAC recommended additional information and a number of changes to TMAC's waste rock, quarry and tailings monitoring programs for the Project, including the following:

- Inclusion of discussion on comparison of measured constituent values for geochemical monitoring of waste rock, quarry and tailings against Final Environmental Impact Statement and/or the 2015 Project Amendment Application predictions in Annual Reports for the Project.
- Provision of trend analysis in Annual Reports to track how Acid Rock Drainage and Metal Leaching characteristics may change over time.
- Re-examination of drainage plans for waste rock seepage to minimize potential impacts to surface water resources.

#### 2.3.3.6 SPILL CONTINGENCY PLAN

In its June 2018 submission, CIRNAC recommended additional information and a number of changes to the implementation of TMAC's Spill Contingency Plan, including the following:

- Changes to the Spill Contingency Plan to include a list of substances at the Project site that will sink or dissolve if spilled on ice, and a list of all spill response equipment and material referenced in the Plan.

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- Inclusion of information on trends with regards to spill in Annual Reports for the Project, including comparison of spill incidents to previous years, and discussion of type of material spilled, and processes or activities resulting in spill incidents.
  - Inclusion of information in Annual Reports regarding lessons learned from spill incidents and spill response procedures, and improvement measures implemented.

#### 2.3.3.7 SOCIOECONOMIC MONITORING PROGRAM

In their June 2018 submissions, the GN and CIRNAC provided a number of recommendations regarding the Project's socioeconomic monitoring program to TMAC, including the following:

- Preparation of a strategy for preventing stresses related to rotational employment, with a specific emphasis on Inuit employees, and report on the strategy to the Socioeconomic Working Group and the Socioeconomic Monitoring Committee established for the Project.
- Provision of an estimated date of mine closure to provide clarity and to help both TMAC and the NIRB plan for TMAC's adherence to Terms and Conditions 41 to 44 of Project Certificate No. 003, Amendment 02.
- Continue to find avenues to work cooperatively with the Government of Nunavut-Department of Education in the fulfillment of term and condition 45 of Project Certificate No. 003, Amendment 02.
- Clarification on whether the stipulated requirement of Term and Condition 46 of the Project Certificate No. 003, Amendment 02, regarding TMAC's provision of information on the Project's labour force needs to the Government of Nunavut and the NIRB has been met.

On July 25, 2018 the NIRB received TMAC's response to interested party and agency comments and recommendations on TMAC's 2017 Annual Report for the Project and distributed the response to the general public on the same date.

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## 2.4 Other Actionable Items

### 2.4.1 Phase 2 Hope Bay Belt Project Review

#### 2.4.1.1 PROCEDURAL HISTORY

TMAC has proposed the Phase 2 Hope Bay Belt Project, which would involve the development of Madrid North, Madrid South, and Boston deposits in the Hope Bay Greenstone Belt, and the use, including expansion, of some existing facilities associated with the Doris North Project. Table 2 highlights major milestones in the NIRB's ongoing Review of the Phase 2 Hope Bay Project in this monitoring period.

**TABLE 2 - NIRB'S RECENT ACTIVITIES FOR THE REVIEW OF THE PHASE 2 HOPE BAY PROJECT PROPOSAL**

Date	Procedural Event
December 21, 2017	Receipt of TMAC's FEIS and Draft Type "A" Water Licence Applications for the Phase 2 Hope Bay Belt project proposal and commencement of compliance review and completeness check by the NIRB and NWB, respectively.
January 17, 2018	The NIRB accepted TMAC's submission as a FEIS, following the compliance review, and initiated the 60-day public technical review and preparation of final written submissions.
May 8 – May 12, 2018	NIRB hosted the Final Hearing in Cambridge Bay. NWB staff attended the Final Hearing.
June 26, 2018	NIRB issues its Final Report to the Responsible Minister which approved the project and recommended Terms and Conditions for the Project Certificate.
TBD	Responsible Minister's decision on whether the Project is approved to proceed to the permitting phase, and the hosting of a Project Certificate Workshop by the NIRB.

## 3.0 SITE VISIT

As an integrated part of the NIRB's continuous monitoring of the Project, the NIRB's Monitoring Officer for the Doris North Gold Mine Project and accompanying staff visited the Doris North site on August 17, 2018. The site visit included visual inspections of the recently commissioned mill, the Doris North portal, vent raises, service and access roads, Roberts Bay port facilities, laydown area, landfarm, the two (2) fuel tank farms, main camp and administration facilities, and the tailings impoundment area (TIA), including the access road to the South Dam, ongoing installation of tailings discharge pipeline infrastructure at the southern end of the TIA, and the advancing tailings beach following commencement

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of subaerial tailings deposition in the TIA. The NIRB's Site Visit Report has been included as [Appendix C](#) of this report.

Observations made during the visit to the Doris North project site indicate that TMAC is conducting milling, gold production, and tailings deposition. TMAC appears to be operating the Project within the approved plans and procedures as provided through the NIRB Project Certificate and as committed to by the Proponent in the FEIS, 2015 Amendment Application, and supporting documentation. The NIRB also observed TMAC's efforts at maintaining general tidiness and cleanliness of the Project site. It was noted that as the Project progresses to full operations, following constructions of Project components, additional reporting may be required to ensure that all parties are aware of activities at site, and that all applicable plans are being adhered to.

During the 2018 site visit, NIRB staff observed the construction of land-based components of the effluent pipeline and diffuser system, including the marine outfall berm, were ongoing and confirmed with TMAC representatives that the construction of the effluent pipeline will be completed in the winter of 2018 and commissioned in 2019. NIRB staff notified TMAC representatives that, as per Term and Condition No. 38 of the amended the Project Certificate No. 003, Amendment 002 TMAC was to provide the NIRB with a detailed design of the effluent pipeline and diffuser system at least six (6) months prior to construction. NIRB staff also stressed that, as per Term and Condition 39 of the amended the Project Certificate No. 003, TMAC was to conduct a hazard and operability study of the pipeline and marine outfall system and provide results to NIRB at least six (6) months prior to operation of this infrastructure.

Following the site visit, TMAC submitted documents to the Board to address NIRB staff concerns about TMAC's compliance with terms and conditions 38 and 39 of the amended the Project Certificate No. 003.<sup>1</sup>

## 4.0 SUMMARY OF FINDINGS

In its 2017 Annual Report, TMAC provided evidence of its general compliance with the terms and conditions in the Project Certificate and a summary of project-related baseline and monitoring data it collected in the 2017-2018 monitoring period. TMAC also provided a list of updated management plans and programs used to inform monitoring and mitigation measures for project activities in 2017 and demonstrated evidence of general compliance with licenses, authorizations, regulations, and guidelines applicable to the site. The summary also included a record of community consultations undertaken in 2017. TMAC also provided a summary of activities undertaken in 2017 or planned on conducting in 2018. Overall, TMAC concluded in its 2017 Annual Report, that the residual Project-effects on VECs and VSECs after mitigation were as predicted in the 2005 FEIS and the 2015 FEIS Addendum for the Project.

TMAC has generally moved the Project towards overall compliance with the requirements of the Project Certificate, as it continued with some activities related to the construction and operations phases of the

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<sup>1</sup> TMAC Resources Inc. submission to the NIRB Re: Marine Outfall Berm, Detailed Design Drawings and Hazard and Operability Study, August 29, 2018.

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Project; however, several specific items require additional attention as noted in the Board's recommendations under a separate cover.

As part of its efforts to maintain full compliance with regulatory requirements, TMAC has reported most major Project changes to the NIRB and obtained the necessary approvals and licenses from authorizing agencies prior to the execution of Project activities. The NIRB is encouraged by TMAC's attention to detail on site, the general tidiness and cleanliness of the site, as well as the ongoing monitoring and reporting programs it manages as the Project has moved into full operations. As noted in the previous NIRB monitoring reports, TMAC may encounter unique environmental challenges with its shift in Project activities in the operations phase, and the NIRB will continue to depend on TMAC's established procedures and its open engagement with the Board.

Pursuant to *Nunavut Agreement* Sections 12.7.2 and 12.7.3, the NIRB will continue to work with TMAC and other Regulatory Authorities in order to provide the required evaluation of the monitoring efforts, results, and compliance of this project-specific monitoring program in accordance with the requirements set out in the NIRB Project Certificate No. 003.

Prepared by: Kofi Boa-Antwi, M.Sc., R.P.Bio.

Reviewed by: Kelli Gillard, PAg

Title: Technical Advisor II/Monitoring Officer

Title: Manager, Project Monitoring

Date: October 31, 2018

Date: October 31, 2018

Signature:



Signature:



## APPENDIX A: COMPLIANCE WITH THE PROJECT CERTIFICATE

**TABLE 3 - COMPLIANCE WITH PROJECT CERTIFICATE NO. 003, AMENDMENT 02**

<u><b>TERM AND CONDITION</b></u>	<u><b>COMPLIANCE ACHIEVEMENT</b></u>
<p><b><i>TERM AND CONDITION 1: THE COMMITMENTS IN THE FINAL HEARING REPORT AS APPENDIX A (SEE APPENDIX A OF PROJECT CERTIFICATE): THE PROPONENT COMMITMENTS FROM THE FINAL ENVIRONMENTAL IMPACT STATEMENT REVIEW ARE INCORPORATED HEREIN AND MUST BE MET.</i></b></p> <p><b><i>COMMENTARY: THE COMMITMENTS IN THE FINAL HEARING REPORT AS APPENDIX A INCLUDES THE ADDENDUM TO THE FINAL HEARING REPORT DATED JUNE 22, 2006 AND THE COMMITMENTS MADE IN THE 2015 AMENDMENT APPLICATION AND ASSOCIATED PUBLIC HEARING REPORT DATED JUNE 13, 2016.</i></b></p>	<p>In its 2017 Annual Report, TMAC indicated it was in compliance with this term and condition and all commenting parties did not note any non-compliance issues regarding this term and condition.</p> <p>The NIRB notes that evidence of the Proponent's compliance with each of its commitments in the Final Hearing Report (March 2006) is to be provided to the Board as per Term and Condition 1 of the Project Certificate.</p>
<p><b><i>TERM AND CONDITION 2: THE COMMITMENTS IN THE FINAL HEARING REPORT AS APPENDIX B (SEE APPENDIX A OF PROJECT CERTIFICATE): THE PROPONENT COMMITMENTS FROM THE FINAL HEARING AND ANY PROJECT AMENDMENTS, ARE INCORPORATED HEREIN AND MUST BE MET.</i></b></p>	<p>In its 2017 Annual Report, TMAC indicated it was in compliance with this term and condition and all commenting parties did not note any non-compliance issues regarding this term and condition.</p>
<p><b><i>TERM AND CONDITION 3: THE PROPONENT MUST OBTAIN ALL REQUIRED FEDERAL AND TERRITORIAL PERMITS AND OTHER APPROVALS AND SHALL COMPLY WITH SUCH PERMITS AND APPROVALS.</i></b></p>	<p>In its 2017 Annual Report, TMAC confirmed that it had received all permits and authorizations required for current project activities and that it was in compliance with all permits issued to date.</p> <p>Regulatory Authorities, including Crown-Indigenous Relations and Northern Affairs Canada and the Kitikmeot Inuit Association, also indicated that TMAC was generally in compliance with applicable permits.</p>
<p><b><i>TERM AND CONDITION 5: THE PROPONENT SHALL REPORT BY JANUARY 1ST OF EACH CALENDAR YEAR TO NIRB ON ITS DEVELOPMENT PLAN FOR FUTURE PHASES OF THE HOPE BAY BELT, INCLUDING IDENTIFYING DEVELOPMENT PLANS THAT MAY AFFECT THE SELECTION OF TAILING IMPOUNDMENT AREA AS THE PREFERRED ALTERNATIVE FOR TAILINGS MANAGEMENT.</i></b></p> <p><b><i>COMMENTARY: THE LOCATION OF THE TAILINGS IMPOUNDMENT AREA FOR THE PROJECT HAS BEEN SELECTED AND INCLUDED IN THE METAL MINING EFFLUENT REGULATIONS.</i></b></p>	<p>TMAC provided updates to the NIRB on further development plans on January 15, 2018.</p>

<u><b>TERM AND CONDITION</b></u>	<u><b>COMPLIANCE ACHIEVEMENT</b></u>
<p><b>TERM AND CONDITION 6:</b> THE PROPONENT SHALL IMMEDIATELY NOTIFY NIRB OF ANY FURTHER ALTERNATIVES ASSESSMENT UNDERTAKEN FOR THE TAILINGS IMPOUND AREA, IF THAT ANALYSIS CONCLUDES THAT TAIL LAKE MAY NO LONGER BE THE PREFERRED OPTION FOR TAILINGS DISPOSAL OR ANY MODIFICATIONS TO THE PHYSICAL AREA, TAILINGS VOLUMES, OR METHOD OF CONTAINMENT.</p> <p><u>COMMENTARY:</u> TAIL LAKE HAS BEEN SELECTED AS THE TAILINGS IMPOUNDMENT AREA FOR THE DORIS NORTH PROJECT. THE NIRB WOULD EXPECT THAT THE PROPONENT, AS SOON AS REASONABLE, WOULD NOTIFY IT OF MODIFICATIONS TO THE TAILINGS IMPOUNDMENT AREA. FURTHER, DUE TO THE PHASED NATURE OF PROJECT DEVELOPMENT ALONG THE HOPE BAY BELT, THE APPLICABILITY OF THIS CONDITION MAY BE CONSIDERED IN RELATION TO SUBSEQUENT DEVELOPMENT APPLICATIONS.</p>	<p>In its 2017 Annual Report, TMAC confirmed that Tail Lake is still the preferred option for tailings disposal.</p>
<p><b>TERM AND CONDITION 7:</b> THE PROPONENT SHALL MEET IMMEDIATELY WITH ENVIRONMENT AND CLIMATE CHANGE CANADA AND FISHERIES AND OCEANS CANADA TO ENSURE THE INFORMATION REQUIRED FOR SCHEDULE 2 OF THE METAL MINING EFFLUENT REGULATIONS CAN BE PROCESSED ACCORDING TO LAW.</p> <p><u>COMMENTARY:</u> TAIL LAKE WAS ADDED TO METAL MINING EFFLUENT REGULATIONS AS A TAILINGS IMPOUNDMENT AREA UNDER SCHEDULE 2.</p>	<p>TMAC confirmed that Schedule 2 to the Metal Mining Effluent Regulations was amended on July 9, 2008 to authorize the use of Tail Lake as a Tailings Impoundment Area. Responsible Authorities also confirmed that TMAC was in compliance with this term and condition in this monitoring period.</p>
<p><b>TERM AND CONDITION 8:</b> THE PROPONENT WILL FUND AND INSTALL A WEATHER STATION AT THE MINE SITE TO COLLECT ATMOSPHERIC DATA, INCLUDING AIR TEMPERATURE AND PRECIPITATION. THE DESIGN AND LOCATION OF THIS STATION SHALL BE DEVELOPED IN CONSULTATION WITH ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC) OFFICIALS.</p> <p><u>COMMENTARY:</u> PRIOR TO CLOSURE AND RECLAMATION, THE NIRB EXPECTS THE PROPONENT TO UNDERTAKE CONSULTATION WITH APPROPRIATE AGENCIES INCLUDING ENVIRONMENT AND CLIMATE CHANGE CANADA, TO DISCUSS THE POSSIBILITY OF THE CONTINUED OPERATION OF THE STATION, INCLUDING TRANSFER OF OWNERSHIP, FOR THE COLLECTION OF REGIONAL METEOROLOGICAL DATA. INSTALLATION AND OPERATION OF THE REAL TIME WEATHER STATION HAS OCCURRED.</p>	<p>In its 2017 Annual Report, TMAC confirmed that a weather station has been in operation at the site since TMAC took over ownership of the Project in 2013.</p>
<p><b>TERM AND CONDITION 9</b></p>	<p>Was been removed from the Project Certificate</p>

<b><u>TERM AND CONDITION</u></b>	<b><u>COMPLIANCE ACHIEVEMENT</u></b>
<p><b>TERM AND CONDITION 10:</b> SHOULD WATER FROM THE TAILINGS IMPOUNDMENT AREA BE DISCHARGED INTO DORIS CREEK, THE PROPONENT SHALL ENSURE THAT MONITORING OF TAIL LAKE AND DORIS CREEK WATER QUALITY OCCURS, ABOVE AND BELOW THE WATERFALL, AND IS VERIFIED BY AN INDEPENDENT, THIRD PARTY LABORATORY. THE PROPONENT MUST PROVIDE COPIES OF THE RESULTS DIRECTLY TO THE NIRB AND NIRB'S MONITORING OFFICER.</p> <p><u>COMMENTARY:</u> AS THE PROPONENT COLLECTS ITS OWN SAMPLES, THE SAMPLING SHALL BE CONDUCTED IN ACCORDANCE WITH A METHODOLOGY APPROVED BY THE NUNAVUT WATER BOARD THROUGH A QUALITY ASSURANCE/QUALITY CONTROL ("QA/QC") PLAN AND MUST BE SUBMITTED TO AN INDEPENDENT THIRD PARTY LABORATORY FOR ANALYSIS.</p>	<p>In its 2017 Annual Report, TMAC confirmed that water quality monitoring in Doris Creek is conducted in accordance with the requirements of the Nunavut Water Board Type "A" Water Licence 2AM-DOH1323 when discharges to Doris Creek occur.</p>
<p><b>TERM AND CONDITION 11:</b> MONITORING INFORMATION COLLECTED UNDER THIS APPROVAL SHALL CONTAIN THE FOLLOWING INFORMATION:</p> <ul style="list-style-type: none"> <li>a) THE PERSON(S) WHO PERFORMED THE SAMPLING OR TOOK MEASUREMENTS</li> <li>b) DATE, TIME, AND PLACE OF SAMPLING OR MEASUREMENT;</li> <li>c) DATE OF ANALYSIS</li> <li>d) NAME OF THE LABORATORY WHO PERFORMED THE ANALYSIS;</li> <li>e) ANALYTICAL METHODS OR TECHNIQUES USED; AND</li> <li>f) RESULTS OF ANY ANALYSIS</li> </ul>	<p>In its 2017 Annual Report, TMAC confirmed that it was in compliance with this term and condition.</p>
<p><b>TERM AND CONDITION 12:</b> THE RESULTS AND RECORDS OF ANY MONITORING, DATA, OR ANALYSIS SHALL BE KEPT FOR A MINIMUM OF THE LIFE OF THE PROJECT INCLUDING CLOSURE AND POST CLOSURE MONITORING. THIS TIME PERIOD SHALL BE EXTENDED IF REQUESTED BY THE NUNAVUT IMPACT REVIEW BOARD, THE NUNAVUT WATER BOARD, ENVIRONMENT AND CLIMATE CHANGE CANADA, AND FISHERIES AND OCEANS CANADA.</p> <p><u>COMMENTARY:</u> THE NIRB'S MONITORING OFFICER, CONSULTING WITH GOVERNMENT OFFICIALS, WILL PROVIDE GUIDANCE ON HOW RESULTS AND RECORDS OF ANY MONITORING, DATA, OR ANALYSIS WILL BE PRESENTED.</p>	<p>In its 2017 Annual Report, TMAC confirmed that sampling results from water quality monitoring activities are archived on site for the life of the Project.</p>

<u><b>TERM AND CONDITION</b></u>	<u><b>COMPLIANCE ACHIEVEMENT</b></u>
<p><b>TERM AND CONDITION 13:</b> THE PROPONENT SHALL COLLECT ADDITIONAL WATER QUALITY DATA FOR THE 2006 FIELD SEASON AND INCORPORATE IT INTO A REVISED WATER QUALITY MODEL TO BE SUBMITTED TO THE NWB AS PART OF THE WATER LICENCE APPLICATION. TO ENSURE THE PROTECTION OF THE RECEIVING ENVIRONMENT AT THE POINT OF DISCHARGE, THE PROPONENT WILL MEET DISCHARGE CRITERIA:</p> <p><b>a.</b> WHERE DISCHARGE IS TO THE FRESHWATER ENVIRONMENT, ON A SITE SPECIFIC BASIS SET BY THE NUNAVUT WATER BOARD (NWB) WHERE POSSIBLE AND AS SET BY THE METAL MINING EFFLUENT REGULATIONS (MMER); AND,</p> <p><b>b.</b> WHERE DISCHARGE IS TO ROBERTS BAY, DISCHARGE CRITERIA SET BY THE MMER AND THE ARCTIC WATERS POLLUTION PREVENTION ACT.</p> <p><u>COMMENTARY:</u> COLLECTION AND INCORPORATION OF THE ADDITIONAL WATER QUALITY DATA FOR THE 2006 FIELD SEASON FOR THE WATER QUALITY MODEL WAS COMPLETED.</p>	<p>In its 2017 Annual Report, TMAC demonstrated compliance with this term and condition and noted that no discharges of mining and milling effluent to the external receiving environment had been made.</p>
<p><b>TERM AND CONDITION 14:</b> THE PROPONENT SHALL COLLECT ADDITIONAL PRECIPITATION, EVAPORATION AND RUNOFF DATA AND INCORPORATE IT INTO A REVISED WATER BALANCE TO BE SUBMITTED TO THE NUNAVUT WATER BOARD (NWB) AS PART OF THE WATER LICENCE APPLICATION.</p> <p><u>COMMENTARY:</u> THIS OBLIGATION WAS FULFILLED AND INFORMATION WAS INCLUDED IN THE APPLICATION TO THE NUNAVUT WATER BOARD.</p>	<p>In its 2017 Annual Report, TMAC confirmed that requirements under this term and condition have been met.</p>
<p><b>TERM AND CONDITION 15:</b> THE PROPONENT SHALL NOT PERMIT THE WATER DISCHARGED INTO DORIS CREEK TO EXCEED THE CRITERIA SET BY THE NWB.</p> <p><u>COMMENTARY:</u> THIS DOES NOT PRECLUDE THE PROPONENT FROM MEETING REQUIREMENTS OF THE METAL MINING EFFLUENT REGULATIONS.</p>	<p>In its 2017 Annual Report, TMAC confirmed that no site water discharges into Doris Creek occurred during the 2017 monitoring period.</p>
<p><b>TERM AND CONDITION 16:</b> THE PROPONENT SHALL TAKE ALL REASONABLE STEPS TO PREVENT ANY DISCHARGE THAT IS NOT IN COMPLIANCE WITH APPLICABLE REGULATORY APPROVALS OR REQUIREMENTS. IF SUCH A SITUATION IS ENCOUNTERED, THE PROPONENT SHALL TAKE IMMEDIATE ACTION TO ADDRESS THE NON-COMPLIANT DISCHARGE.</p>	<p>In its 2017 Annual Report, TMAC confirmed that no discharges from the Tailings Impoundment Area occurred during the 2017 monitoring period.</p>

<b><u>TERM AND CONDITION</u></b>	<b><u>COMPLIANCE ACHIEVEMENT</u></b>
<p><b>TERM AND CONDITION 17:</b> THE PROPONENT SHALL REPORT ANY UPSET, EXCEEDANCES, OR COMPLIANCE PROBLEM NOT ONLY TO REGULATORY AGENCIES AS REQUIRED BY LAW, BUT SHALL ALSO REPORT THE SAME TO THE NUNAVUT IMPACT REVIEW BOARD'S MONITORING OFFICER.</p>	<p>In its 2017 Annual Report, TMAC confirmed that it reports compliance issues to the applicable regulatory authorities as required.</p>
<p><b>TERM AND CONDITION 18:</b> THE PROPONENT SHALL SUBMIT TO THE NUNAVUT WATER BOARD (NWB), AS PART OF THE WATER LICENCE APPLICATION, A PROGRAM DETAILING THE METHODOLOGY FOR TESTING QUARRIED ROCK FOR ACID GENERATION AND METAL LEACHING POTENTIAL. THE SAMPLING, TESTING, AND ANALYSIS MUST BE DONE BY A PROFESSIONAL GEOLOGIST REGISTERED IN NUNAVUT.</p> <p><u>COMMENTARY:</u> THE NUNAVUT IMPACT REVIEW BOARD (NIRB) EXPECTS ANY METHODOLOGY TO BE CERTIFIED BY A REGISTERED PROFESSIONAL AND APPROVED BY THE NUNAVUT WATER BOARD. THE NIRB EXPECTS THAT ANY ANALYSIS OF LABORATORY RESULTS MUST ALSO BE DONE BY A REGISTERED PROFESSIONAL. THE DESIGNATION OF REGISTERED PROFESSIONAL REFERS TO ALL THOSE PROFESSIONALS REGISTERED WITH THE NORTHWEST TERRITORIES AND NUNAVUT ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS, AND GEOPHYSICISTS (NAPEGG). THIS OBLIGATION IS COMPLETE BUT SHOULD CONTINUE TO BE UPDATED AS REQUIRED.</p>	<p>In its 2017 Annual Report, TMAC confirmed that it continues to meet the requirements of this term and condition by providing updates of relevant management plans (including the Hope Bay Project, Quarry Rock Management and Monitoring Plan - January 2017) to the NIRB.</p>
<p><b>TERM AND CONDITION 19:</b> THE PROPONENT SHALL INSTALL THERMISTOR CABLES AND TEMPERATURE LOGGERS IN THE JETTY FOUNDATION AS WELL AS THE NEW JETTY FOUNDATION. THE PROPONENT SHALL MONITOR THE EFFECTS OF THE JETTY ON SHALLOW WATER PERMAFROST THROUGH OPERATIONS, UNTIL SUCH TIME AS THE NUNAVUT IMPACT REVIEW BOARD (NIRB) DETERMINES THAT SUCH MONITORING IS NO LONGER NECESSARY, AND REPORT THE RESULTS OF THE MONITORING COLLECTION TO NIRB'S MONITORING OFFICER.</p> <p><u>COMMENTARY:</u> THE NEW JETTY IS DEFINED AS THE MARINE OUTFALL BERM.</p>	<p>TMAC has installed thermistor cables and temperature loggers in the jetty foundation as required.</p> <p>TMAC confirmed in its annual geotechnical report included with the 2017 Annual Report that the current thermistor set-up meets requirements of this term and conditions.</p>
<p><b>TERM AND CONDITION 20:</b> TO PREVENT OR LIMIT POTENTIAL FOR ECOSYSTEMIC EFFECTS IN THE EVENT OF FUEL OR WASTE SPILLS THE PROPONENT SHALL ENSURE SPILL KITS ARE AT HAND AT THE ROBERTS BAY OIL HANDLING FACILITY AT ALL TIMES, AND THAT APPROPRIATE CONTAINMENT MEASURES ARE USED IN THE EVENT OF A SPILL IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE OIL POLLUTION EMERGENCY PLAN AND OIL POLLUTION PREVENTION PLAN REVIEWED BY TRANSPORT</p>	<p>In its 2017 Annual Report, TMAC confirmed that it has a Transport Canada approved Oil Pollution Preparedness/Oil Pollution Emergency Plan for the Project.</p> <p>During the Monitoring Officer's site visit, the NIRB confirmed that appropriate spill kits were in place at Roberts Bay.</p>

<u><b>TERM AND CONDITION</b></u>	<u><b>COMPLIANCE ACHIEVEMENT</b></u>
<p>CANADA.</p> <p><u>COMMENTARY:</u> THE NIRB NOTES THAT TERM AND CONDITION 20 AND TERM AND CONDITION 33 ARE EXPECTED TO WORK TOGETHER AS ONE REFERS TO THE ROBERTS BAY JETTY AND ONE THE TRANSFER AND HANDLING OF FUEL ON SITE.</p>	
<p><b>TERM AND CONDITION 21:</b> THE PROPONENT SHALL CONSULT WITH ELDERS, THE KITIKMEOT INUIT ASSOCIATION AND NUNAVUT TUNNGAVIK INCORPORATED TO DETERMINE IF THE JETTY SHOULD BE DISMANTLED. THE FINAL CLOSURE AND RECLAMATION PLAN, IF IT PROCEEDS, MUST EXPLAIN THE CONSULTATION PROCESS USED FOR THE JETTY AND PROVIDE A SUMMARY OF THE ISSUES USED FOR THE JETTY AND PROVIDE A SUMMARY OF THE ISSUES IDENTIFIED DURING CONSULTATION.</p> <p><u>COMMENTARY:</u> NIRB HAS ALREADY CONSIDERED THESE COMPONENTS AND AS QUOTED BY THE MINISTER IN HIS LETTER TO NIRB DATED JULY 28, 2006 "...FURTHER REVIEW UNDER ARTICLE 12 WOULD ONLY BE REQUIRED IF SUBSTANTIVE CHANGES WERE PROPOSED THAT WOULD SIGNIFICANTLY MODIFY THE PROJECT." ALSO, THE PROPONENT IS EXPECTED TO SUBMIT THE SUMMARY OF ISSUES IDENTIFIED DURING CONSULTATION TO NIRB'S MONITORING OFFICER.</p>	<p>In its 2017 Annual Report, TMAC indicated that, when appropriate, it will consult with local Elders, Kitikmeot Inuit Association, and Nunavut Tunngavik Inc. on the closure plan for the Roberts Bay jetty.</p>
<p><b>TERM AND CONDITION 22:</b> THE PROPONENT, IN CONSULTATION WITH GOVERNMENT OF NUNAVUT-DEPARTMENT OF ENVIRONMENT AND KITIKMEOT INUIT ASSOCIATION, SHALL IMMEDIATELY BEGIN THE DESIGN AND IMPLEMENTATION OF BASELINE DATA COLLECTION METHODS TO ESTABLISH BOTH THE WOLVERINE AND GRIZZLY BEAR POPULATION OF THE HOPE BAY BELT REGION. ANY BASELINE DATA RESULTS SHALL BE REPORTED TO NIRB'S MONITORING OFFICER.</p> <p><u>COMMENTARY:</u> THE PROPONENT HAS COLLECTED THE BASELINE DATA AND CONTINUES TO COLLECT ONGOING MONITORING DATA AND THE RESULTS ARE INCORPORATED AS APPROPRIATE INTO THE PROPONENT'S WILDLIFE MITIGATION AND MANAGEMENT PLAN.</p>	<p>In its 2017 Annual Report, TMAC confirmed that monitoring data on the grizzly bear and wolverine were collected based on a program developed in consultation with the Government of Nunavut and Kitikmeot Inuit Association. Results of the baseline data collection were presented in the 2017 Wildlife Mitigation and Monitoring Plan Compliance Report.</p>

<b><u>TERM AND CONDITION</u></b>	<b><u>COMPLIANCE ACHIEVEMENT</u></b>
<p><b>TERM AND CONDITION 23:</b> THE PROPONENT SHALL DESIGNATE ONE OF ITS EMPLOYEES AS A PRIMARY WILDLIFE CONTACT FOR THE MINE, WHO WILL WORK WITH THE NUNAVUT IMPACT REVIEW BOARD'S MONITORING OFFICER AND REGULATORY OFFICIALS IN COMMUNICATING ON-SITE ACTIVITIES AND TO FULFILL REPORTING REQUIREMENTS.</p>	<p>TMAC confirmed in its 2017 Annual Report that the Site Environmental Coordinator is responsible for this function.</p>
<p><b>TERM AND CONDITION 24:</b> AS PART OF THE TRAINING FOR THE PROPONENT'S ON-SITE WILDLIFE SPECIALIST, THE PROPONENT SHALL PROVIDE TRAINING TO THAT PERSON IN AREAS OF BEAR ENCOUNTERS AND SAFETY, EFFECTS OF NOISE ON WILDLIFE, RECORDING WILDLIFE SIGHTINGS, WASTE MANAGEMENT, RECORDS MANAGEMENT, AND REPORTING TO THE NUNAVUT IMPACT REVIEW BOARD'S MONITORING OFFICER AND REGULATORY OFFICIALS.</p>	<p>TMAC confirmed in its 2017 Annual Report that staff are provided with the training requirements as per this term and condition.</p>
<p><b>TERM AND CONDITION 25:</b> TO ASSESS THE IMPACTS OF THE PROJECT ON THE WILDLIFE AND COMPARE THESE EFFECTS TO THE IMPACT PREDICTED IN THE 2005 FEIS AND THE 2015 AMENDMENT APPLICATION THE PROPONENT SHALL FILE A MONITORING PLAN FOCUSED ON ASSESSING AND MITIGATING INTERACTION BETWEEN WILDLIFE AND HUMANS AT THE MINE SITE, INCLUDING ASSOCIATED INFRASTRUCTURE SUCH AS THE TIA (TAILINGS IMPOUNDMENT AREA), ROADS, AND ACTIVITY AT THE WATERFALL AND ROBERTS BAY. AN ANNUAL REPORT MUST BE SENT BY MARCH 30 EACH YEAR TO NIRB'S MONITORING OFFICER ON INTERACTIONS THAT HAVE OCCURRED, ANY EFFECT THE INTERACTION MIGHT HAVE HAD ON HUMANS AND WILDLIFE, AND MITIGATION MEASURES TAKEN TO AVOID SIMILAR INTERACTIONS IN THE FUTURE. THE PROPONENT SHALL FILE A REPORT TO NIRB WITHIN 48 HOURS SHOULD ANY INCIDENT OCCUR WHICH RESULTS IN WILDLIFE MORTALITY.</p> <p><b>COMMENTARY:</b> THE NIRB WOULD EXPECT THAT THE REPORTING BE COORDINATED WITH THE LEGISLATED REQUIREMENT FOR TMAC RESOURCES INC. TO REPORT MORTALITIES OF GRIZZLY BEAR, POLAR BEAR, MUSKOX, CARIBOU, WOLF, AND WOLVERINE TO THE LOCAL CONSERVATION OFFICER IN CAMBRIDGE BAY.</p>	<p>TMAC confirmed compliance with this term and condition. The 2017 annual Wildlife Mitigation and Monitoring Compliance Report was submitted on March 29, 2018 to the NIRB. Wildlife incidental sightings, interactions and any mitigative measures, as well as incidents concerning wildlife, were also reported to the NIRB Monitoring Officer as required.</p>
<p><b>TERM AND CONDITION 26:</b> THE PROPONENT SHALL CONSULT WITH LOCAL ELDERS, KITIKMEOT HUNTERS AND TRAPPERS ORGANIZATIONS, THE NUNAVUT WILDLIFE MANAGEMENT BOARD, GOVERNMENT OF NUNAVUT-DEPARTMENT OF ENVIRONMENT, ENVIRONMENT AND CLIMATE CHANGE CANADA, AND THE NUNAVUT IMPACT REVIEW BOARD'S MONITORING</p>	<p>In its 2017 Annual Report, TMAC indicated that it was making progress in meeting the requirements of this term and condition. TMAC noted that workshops were held with local Elders and land users in 2016 and 2017, including a meeting in</p>

<u><b>TERM AND CONDITION</b></u>	<u><b>COMPLIANCE ACHIEVEMENT</b></u>
<p><i>OFFICER TO REVIEW AND DISCUSS THE RESULTS OF WILDLIFE MONITORING AND DEVELOP MITIGATION MEASURES, INCLUDING MEASURES TO DISCOURAGE WILDLIFE AND BIRDS FROM COMING INTO CONTACT WITH THE TAILINGS IMPOUNDMENT AREA AND CONTAMINATED AREAS OF THE MILL SITE. THE PROPONENT SHALL INCORPORATE A PLAN FOR THIS CONSULTATION INTO A REVIEWED WILDLIFE MONITORING AND MITIGATION PLAN.</i></p>	<p>the fall of 2017 to review results of long-term bird dataset analyses with relevant stakeholders.</p> <p>During the NIRB's annual site visit in the fall of 2018, the Monitoring Officer did not observe signs of contact of wildlife, including migratory birds, with tailings deposited in the TIA; however, the TMAC representative confirmed occasional sighting of wildlife, including birds, in the TIA area in 2018.</p> <p>Considering that TMAC has commenced deposition of tailings in the TIA, the NIRB remains concerned about the lack of clear triggers or thresholds to implement deterrence measures for wildlife that encroach on the TIA.</p>
<p><b>TERM AND CONDITION 27:</b> <i>THE PROPONENT SHALL UPDATE AND REVISE THE WILDLIFE MITIGATION AND MONITORING PLAN (WMMP) TO REFLECT PROJECT TERMS AND CONDITIONS AND SHALL REVISE THE WILDLIFE MITIGATION AND MONITORING PLAN AND SUBMIT TO THE NUNAVUT IMPACT REVIEW BOARD (NIRB) FOR REVIEW. THE NIRB MAY CONSULT WITH RELEVANT GOVERNMENT DEPARTMENTS AND THE NUNAVUT WILDLIFE MANAGEMENT BOARD PRIOR TO APPROVING THE REVISED WMMP. THE REVISED WMMP MUST BE SUBMITTED WITHIN THREE (3) MONTHS AFTER THE UPDATED PROJECT CERTIFICATE IS ISSUED. THE PROPONENT MUST ALSO SUBMIT AN UPDATED PLAN ON AN ANNUAL BASIS WHICH MUCH ALSO BE APPROVED BY NIRB.</i></p> <p><u><b>COMMENTARY:</b></u> <i>MONITORING MEASURES INCLUDED IN THE WILDLIFE MITIGATION AND MONITORING PLAN SHOULD BE APPROPRIATE TO CONFIRM IMPACT PREDICTIONS, MONITORING IMPACTS, AND TO SUPPORT ADAPTIVE IMPLEMENTATION OF MITIGATION MEASURES. SPECIFIC TO CARIBOU, DURING CONSTRUCTION AND OPERATIONS THE PROPONENT MUST ANNUALLY REVIEW RELEVANT AVAILABLE DATA FROM ON SITE AND CARIBOU COLLAR DATA AND SHALL CONSIDER REVISIONS TO THE WILDLIFE MITIGATION AND MONITORING PLAN</i></p>	<p>TMAC confirmed compliance with this term and conditions in its 2017 Annual Report. In March 2018 TMAC submitted the 2017 WMMP Compliance Report as part its reporting requirements. Quarterly wildlife reports were also submitted to the NIRB during the 2017-2018 monitoring period. TMAC also noted in its 2017 Annual Report that some adaptive management was implemented in 2017 related to a grizzly bear mortality in 2016.</p>
<p><b>TERM AND CONDITION 28:</b> <i>THE HOPE BAY BELT SOCIO-ECONOMIC MONITORING COMMITTEE IS CONTINUED AND RENAMED AS THE HOPE BAY SOCIO-ECONOMIC WORKING</i></p>	<p>TMAC confirmed in its 2017 Annual Report that the Hope Bay Belt Socio-Economic Monitoring Committee</p>

<b><u>TERM AND CONDITION</u></b>	<b><u>COMPLIANCE ACHIEVEMENT</u></b>
<p><i>GROUP. THE INVITED MEMBERS OF THE HOPE BAY SOCIO-ECONOMIC WORKING GROUP SHALL INCLUDE THE PROPONENT, THE GOVERNMENT OF NUNAVUT, INDIGENOUS AND NORTHERN AFFAIRS CANADA, AND THE KITIKMEOT INUIT ASSOCIATION AND ANY OTHER INVITEES THE MEMBERS OF THE WORKING GROUP MAY, FROM TIME TO TIME INVITE TO PARTICIPATE.</i></p> <p><i>THE CENTRAL FOCUS OF THE HOPE BAY SOCIO-ECONOMIC WORKING GROUP SHALL BE ON COLLABORATING TO ENSURE THAT THE HOPE BAY SOCIO-ECONOMIC MONITORING PLAN PROVIDES FOR APPROPRIATE PROJECT-SPECIFIC SOCIO-ECONOMIC EFFECTS MONITORING AS REQUIRED THROUGHOUT THE LIFE OF THE PROJECT. THE HOPE BAY SOCIO-ECONOMIC MONITORING PLAN SHALL APPLY TO THE PROJECT AS DESCRIBED IN BOTH THE 2005 FEIS AND THE 2015 AMENDMENT APPLICATION.</i></p> <p><i>THE PROPONENT, REFLECTING THE INPUT OF THE HOPE BAY SOCIO-ECONOMIC WORKING GROUP SHALL PRODUCE AN ANNUAL HOPE BAY SOCIO-ECONOMIC MONITORING PLAN REPORT.</i></p> <p><i><u>COMMENTARY:</u> THE NIRB STRONGLY SUGGESTS THE USE OF A STANDARDIZED REPORTING TEMPLATE TO ENSURE CONSISTENT DATA COLLECTION AND TRACKING OF DATA TRENDS IN A COMPARABLE FORM TO BE SHARED UPON REQUEST AT THE REGIONAL LEVEL AND TO MINIMIZE THE DUPLICATION OF EFFORTS.</i></p>	<p>continues now as the Hope Bay Socio-Economic Working Group. TMAC's 2017 Hope Bay Socio-Economic Program Report was part of the 2017 Annual Report submitted to the NIRB in April 2018.</p>
<p><b>TERM AND CONDITION 29:</b> <i>THE PROPONENT SHALL DEVELOP AND IMPLEMENT A NOISE ABATEMENT PLAN TO PROTECT PEOPLE AND WILDLIFE FROM MINE ACTIVITY NOISE, INCLUDING BLASTING, DRILLING, EQUIPMENT, VEHICLES AND AIRCRAFT. THE NOISE ABATEMENT PLAN WILL BE DEVELOPED IN CONSULTATION WITH THE GOVERNMENT OF NUNAVUT-DEPARTMENT OF ENVIRONMENT, ENVIRONMENT AND CLIMATE CHANGE CANADA, AND HEALTH CANADA, AND SHOULD BE UPDATED ON AN AS REQUIRED BASIS.</i></p> <p><i><u>COMMENTARY:</u> THE LOCAL STUDY AREA REFERS TO THE COMBINED SPATIAL BOUNDARIES SET BY THE PROPONENT IN ITS FINAL ENVIRONMENTAL IMPACT STATEMENT FOR EACH SENSITIVE VALUED ECOSYSTEMIC COMPONENT INCLUDING ARCTIC CHAR, LAKE TROUT, LAKE WHITEFISH, NINESPINE STICKLEBACK, CARIBOU, GRIZZLY BEAR, WOLVERINE, UPLAND BREEDING BIRDS, WATERFOWL, AND RAPTORS. ALSO THE NOISE ABATEMENT PLAN WILL CONSIDER POTENTIAL BLASTING TIME RESTRICTIONS WITH FISHERIES AND OCEANS CANADA'S (DFO) GUIDELINES FOR THE USE OF EXPLOSIVES IN OR NEAR</i></p>	<p>TMAC has met this term and condition with an updated Noise Abatement Plan included with its submission of the 2017 Annual Report to the NIRB.</p>

<b><u>TERM AND CONDITION</u></b>	<b><u>COMPLIANCE ACHIEVEMENT</u></b>
CANADIAN FISHERIES WATERS (WRIGHT AND HOPKY, 1998) AS MODIFIED BY DFO FOR USE IN THE NORTH. THE PROPONENT SHOULD ALSO CONSULT WITH HEALTH CANADA, THE GOVERNMENT OF NUNAVUT-DEPARTMENT OF ENVIRONMENT, AND THE WORKERS COMPENSATION BOARD IN LOCATING AND DESIGNING THE SOUND METERS.	
<p><b>TERM AND CONDITION 30:</b> TO ASSESS AIR QUALITY IMPACT OF THE PROJECT IN THE PROJECT AREA AND COMPARE THESE EFFECTS TO THE IMPACT PREDICTIONS IN THE 2005 FEIS AND THE 2015 AMENDMENT APPLICATION. THE PROPONENT WILL INSTALL AND FUND AN ATMOSPHERIC MONITORING STATION. THIS STATION AND ITS LOCATION SHALL BE DEVELOPED IN CONSULTATION WITH ENVIRONMENT AND CLIMATE CHANGE CANADA AND HEALTH CANADA AIR QUALITY OFFICIALS AND FOCUS ON PARTICULATES OF CONCERN GENERATED AT THE MINE SITE. THE RESULTS OF AIR-QUALITY MONITORING ARE TO BE REPORTED EVERY SIX (6) MONTHS TO THE NUNAVUT IMPACT REVIEW BOARD THROUGH THE MONITORING OFFICER, AND FROM THERE TO ALL OF THE PARTIES.</p> <p><u>COMMENTARY:</u> INSTALLATION OF THE ATMOSPHERIC MONITORING STATION WAS COMPLETED.</p>	TMAC has met this term and condition as air quality monitoring at the project site is ongoing. TMAC also included quarterly Atmospheric Compliance Monitoring reports with its 2017 Annual Report to the NIRB in April 2018.
<p><b>TERM AND CONDITION 31:</b> THE PROPONENT SHALL MAINTAIN A COMPLETE CLOSURE AND RECLAMATION PLAN ON FILE WITH THE NUNAVUT WATER BOARD PREPARED IN ACCORDANCE WITH REQUIREMENTS OF THE NUNAVUT WATER BOARD AND OTHER REGULATORS.</p>	TMAC filed an updated June 2015 Closure and Reclamation Plan and associated September 2016 Addendum with its Project Certificate amendment application.
<p><b>TERM AND CONDITION 32:</b> PRIOR TO THE COMMENCEMENT OF OPERATION THE PROPONENT SHALL HAVE A COMPLETE ENVIRONMENT, HEALTH AND SAFETY MANAGEMENT SYSTEM IN PLACE WHICH INCLUDES THE FOLLOWING: WILDLIFE MITIGATION AND MONITORING PLAN; ENVIRONMENTAL PROTECTION PLAN; EMERGENCY RESPONSE AND SPILL CONTINGENCY PLAN; OCCUPATIONAL HEALTH AND SAFETY PLAN; HUMAN RESOURCES PLAN; COMMUNITY RELATIONS PLAN; MONITORING AND FOLLOW-UP PLAN; AND AUDITING AND CONTINUOUS IMPROVEMENT PLAN. WHEN COMPLETE, THESE PLANS SHALL BE FORWARDED TO THE NUNAVUT IMPACT REVIEW BOARD'S MONITORING OFFICER.</p> <p><u>COMMENTARY:</u> THE PROPONENT IS EXPECTED TO CONTACT FEDERAL AND TERRITORIAL GOVERNMENT DEPARTMENTS</p>	TMAC has met requirements of this term and condition. TMAC provided timelines for updates of Management Plans to the NIRB in February 2017 and provided updated versions of Management Plans to the NIRB as part of its 2017 Annual Report on April 30, 2018.

<u><b>TERM AND CONDITION</b></u>	<u><b>COMPLIANCE ACHIEVEMENT</b></u>
<p>IMMEDIATELY REGARDING THE PREPARATION OF THESE PLANS. THE GOVERNMENT OF NUNAVUT, IN PARTICULAR, IS INVOLVED WITH THE APPROVAL OF MANY OF THE PLANS AND IS ENCOURAGED TO DESIGNATE AN OFFICIAL TO APPROVE THE PLANS AS APPLICABLE. PLEASE SEE APPENDIX E FOR A LIST OF GOVERNMENT OF NUNAVUT CONTACTS.</p> <p>NIRB CONSIDERS THE ENVIRONMENTAL, HEALTH AND SAFETY MANAGEMENT SYSTEM TO BE COMPLETE ONCE MHBL HAS SUBMITTED ALL REQUIRED PLANS. NIRB EXPECTS THE ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT SYSTEM TO BE COMPLETED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.</p>	
<p><b>TERM AND CONDITION 33:</b> THE PROPONENT SHALL ENSURE SPILL KITS ARE AT HAND AT THE ROBERTS BAY OIL HANDLING FACILITY AT ALL TIMES, AND THAT APPROPRIATE CONTAINMENT MEASURES ARE USED TO PREVENT, CONTAIN AND RESPOND TO A SPILL IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE OIL POLLUTION EMERGENCY PLAN AND OIL POLLUTION PREVENTION PLAN REVIEWED BY TRANSPORT CANADA.</p> <p><u>COMMENTARY:</u> THE NIRB EXPECTS THAT TERM AND CONDITION 33 WOULD WORK TOGETHER WITH TERM AND CONDITION 20.</p>	<p>In its 2017 Annual Report, TMAC confirmed that it has a Transport Canada approved Oil Pollution Preparedness/Oil Pollution Emergency Plan for the Project.</p> <p>During the Monitoring Officer's site visit, the NIRB confirmed that appropriate spill kits were in place at Roberts Bay.</p>
<p><b>TERM AND CONDITION 34:</b> THE PROPONENT SHALL GIVE NOTICE OF ANY PLANNED SIGNIFICANT CHANGES TO THE MINE FACILITY, INCLUDING THE TAILINGS IMPOUNDMENT AREA, MINING INFRASTRUCTURE SUCH AS THE MILL, TO THE REGULATORY AUTHORITIES AND THE NUNAVUT IMPACT REVIEW BOARD (NIRB) THROUGH ITS MONITORING OFFICER, IN A TIMELY BASIS.</p> <p><u>COMMENTARY:</u> "PLANNED CHANGES" REFERS TO CHANGES THAT MAY CAUSE AN ENVIRONMENTAL EFFECT. SIGNIFICANT MEANS ANY CHANGE TO THE MINE FACILITIES, WHICH WOULD REQUIRE A RECONSIDERATION OF THE PROJECT CERTIFICATE OR AN AMENDMENT OF THE TYPE "A" WATER LICENCE. PLEASE SEE RELATED TERMS AND CONDITIONS #17, #5, AND #6.</p>	<p>In its 2017 Annual Report, TMAC confirmed that it intends to continue to notify the NIRB of planned changes to the mine facility.</p>
<p><b>TERM AND CONDITION 35:</b> THE PROPONENT SHALL COMPLY WITH ALL TERMS AND CONDITIONS AND ANY NONCOMPLIANCE CONSTITUTES A VIOLATION OF THE APPROVAL AND IS GROUNDS FOR NIRB'S RECONSIDERATION AND RECOMMENDATION TO THE MINISTER UNDER ARTICLE 12, PART 8 OF THE NLCA.</p>	<p>In its 2017 Annual Report, TMAC confirmed that its current operations are generally in compliance with the requirements of this term and condition.</p>

<b><u>TERM AND CONDITION</u></b>	<b><u>COMPLIANCE ACHIEVEMENT</u></b>
<p><b><i>TERM AND CONDITION 36: THE PROPONENT SHALL CONTINUE YEAR-ROUND MONITORING AND RECORDING OF DORIS LAKE WATER LEVELS DURING CONSTRUCTION AND OPERATIONS. THIS WILL ALLOW FOR DETECTION OF ACTUAL DORIS LAKE DRAW DOWN BELOW THE SILL LEVEL; COMPUTATION OF THE AMOUNT OF DRAWDOWN, QUANTIFICATION OF THE PROJECT IMPACT, AND IMPLEMENTATION OF ADAPTIVE MITIGATION AND MANAGEMENT MEASURES AS APPROPRIATE.</i></b></p>	<p>In its 2017 Annual Report, TMAC noted that it had provided records of year-round monitoring of Doris Lake water levels to the Nunavut Water Board in its 2017 Nunavut Water Board Annual Report.</p> <p>The NIRB notes that as per the reporting requirements under term and condition 36, the Proponent (TMAC) is to include records of year-round monitoring of Doris Lake water levels in Annual Reports submitted directly to the NIRB.</p>
<p><b><i>TERM AND CONDITION 37: THE PROPONENT SHALL DEVELOP AND SUBMIT A DETAILED GROUNDWATER MANAGEMENT PLAN FOR REVIEW DURING THE WATER LICENSING PROCESS AND TO THE NUNAVUT IMPACT REVIEW BOARD AS PART OF THE PLANS AVAILABLE ON THE DORIS NORTH PROJECT. THE PLAN SHALL ACKNOWLEDGE UNCERTAINTIES PERTAINING TO PREDICTIONS OF GROUNDWATER QUANTITY AND QUALITY AND INFORM THE GROUNDWATER MANAGEMENT PLAN. INDIGENOUS AND NORTHERN AFFAIRS CANADA SHOULD BE CONSULTED WITH RESPECT TO THE CONTENTS OF THE PLAN AND ANY REQUIRED MITIGATION MEASURES.</i></b></p>	<p>TMAC confirmed in its 2017 Annual Report that the current version of the Hope Bay Project Ground Water Management Plan was filed in August 2016 with the NWB and NIRB.</p>
<p><b><i>TERM AND CONDITION 38: AT LEAST SIX (6) MONTHS PRIOR TO CONSTRUCTION OF THE EFFLUENT PIPELINE AND DIFFUSER SYSTEM THE PROPONENT SHALL PROVIDE THE NIRB WITH A DETAILED DESIGN FOR THE SYSTEM THAT INCLUDES THE LOCATION OF THE PIPELINE IN RELATION TO THE EXISTING ROADWAY, THE LOCATION OF THE SMALL JETTY SUPPORTING THE PIPELINE AND THE DESIGN OF THE DIFFUSER.</i></b></p>	<p>TMAC noted in its 2017 Annual Report that it would meet the requirements of this term and condition when applicable.</p> <p>During the 2018 site visit, NIRB staff observed ongoing construction of some land-based components the effluent pipeline and diffuser system and confirmed with TMAC's representative that the construction of the effluent pipeline will be completed in the winter of 2018 and commissioned in 2019.</p> <p>NIRB notified TMAC that as per term and condition 38, a detailed design of the effluent pipeline and diffuser system was to be submitted to the NIRB at least 6 months prior to construction of the infrastructure.</p> <p>Following the site visit, TMAC representatives submitted documents to the Board on August 29, 2018 to address</p>

<b><u>TERM AND CONDITION</u></b>	<b><u>COMPLIANCE ACHIEVEMENT</u></b>
	NIRB staff concerns about TMAC's compliance with terms and conditions 38.
<p><b>TERM AND CONDITION 39:</b> AT LEAST SIX (6) MONTHS PRIOR TO OPERATION OF THE EFFLUENT PIPELINE AND DIFFUSER SYSTEM, THE PROPONENT SHALL CONDUCT AND SUBMIT TO THE BOARD A HAZARD AND OPERABILITY STUDY OF THE PIPELINE AND MARINE OUTFALL SYSTEM AS PART OF THE LAND AUTHORIZATION PROCESS.</p> <p><u>COMMENTARY:</u> THE JETTY IS ALSO DEFINED AS THE MARINE OUTFALL BERM.</p>	<p>TMAC confirmed in its 2017 Annual Report that a hazard and operability study of the pipeline and marine outfall system will be submitted to the NIRB as per required timeline.</p> <p>TMAC subsequently submitted the hazard and operability study to the NIRB on August 29, 2018.</p>
<p><b>TERM AND CONDITION 40:</b> WITHIN ONE (1) YEAR OF THE ISSUANCE BY THE NIRB OF AN AMENDED PROJECT CERTIFICATE, THE PROPONENT WILL SUBMIT AN UPDATED DORIS NORTH SOCIO-ECONOMIC MONITORING PLAN FOR THE REVIEW OF THE HOPE BAY SOCIO-ECONOMIC WORKING GROUP REVIEW AND COMMENT THAT IDENTIFIES ANY UPDATES, CHANGES AND AMENDED TERMS OF REFERENCE FOR THE HOPE BAY SOCIO-ECONOMIC WORKING GROUP REQUIRED TO REFLECT THE AMENDMENTS TO THE PROJECT AS OUTLINED IN THE 2015 AMENDMENT APPLICATION. ANY CHANGES AS AGREED TO BY THE HOPE BAY SOCIO-ECONOMIC WORKING GROUP SHALL BE SUBMITTED TO THE NUNAVUT IMPACT REVIEW BOARD.</p>	<p>TMAC confirmed in its 2017 Annual Report that it is presently working with the Hope Bay Socio-Economic Monitoring Working Group to update the Hope Bay Socio-Economic Monitoring Program or Plan (SEMP). TMAC indicated that the updated SEMP will be filed with the NIRB once finalized.</p> <p>The NIRB confirms receipt of the Hope Bay Project 2017 Socio-economic Monitoring Report and acknowledges TMAC's ongoing collaboration with the Hope Bay Socio-Economic Monitoring Working Group to update the SEMP and looks forward to TMAC's submission of an updated SEMP to the Board.</p>
<p><b>TERM AND CONDITION 41:</b> TWO (2) YEARS PRIOR TO THE PLANNED FINAL CLOSURE OF THE PROJECT, THE PROPONENT SHALL, IN COLLABORATION WITH THE HOPE BAY SOCIO-ECONOMIC WORKING GROUP SUBMIT AN UPDATED DORIS NORTH SOCIO-ECONOMIC MONITORING PLAN TO THE KITIKMEOT SOCIO-ECONOMIC MONITORING COMMITTEE (K-SEMC) THAT WILL ALSO INCLUDE DETAIL REGARDING SPECIFIC MEASURES THAT MAY MITIGATE THE POTENTIAL FOR NEGATIVE EFFECTS AS A RESULT OF PROJECT CLOSURE.</p>	<p>TMAC confirmed in its 2017 Annual Report that it will meet this term and condition two (2) years prior to final closure of the Project.</p>
<p><b>TERM AND CONDITION 42:</b> WITHIN SIX (6) MONTHS FOLLOWING AN UNANTICIPATED TEMPORARY OR FINAL CLOSURE OF THE PROJECT THE PROPONENT SHALL, IN COLLABORATION WITH THE HOPE BAY SOCIO-ECONOMIC WORKING GROUP SUBMIT AN UPDATED DORIS NORTH SOCIO-ECONOMIC MONITORING PLAN TO THE K-SEMC THAT WILL ALSO INCLUDE DETAIL REGARDING SPECIFIC MEASURES THAT MAY MITIGATE</p>	<p>TMAC confirmed in its 2017 Annual Report that it will meet this term and condition within six (6) months following an unanticipated temporary or final closure of the Project.</p>

<b><u>TERM AND CONDITION</u></b>	<b><u>COMPLIANCE ACHIEVEMENT</u></b>
<p>THE POTENTIAL FOR NEGATIVE EFFECTS AS A RESULT OF THE PROJECT'S TEMPORARY OR PERMANENT CLOSURE.</p> <p><b>TERM AND CONDITION 43:</b> TWO (2) YEARS PRIOR TO THE PLANNED FINAL CLOSURE OF THE PROJECT, THE PROPONENT SHALL SUBMIT TO THE NIRB AN UPDATED HUMAN RESOURCE PLAN AND WELLNESS STRATEGY FOR THE PROJECT THAT INCLUDES A WORKFORCE TRANSITION STRATEGY DESIGNED TO MITIGATE THE POTENTIAL NEGATIVE EFFECTS OF PROJECT CLOSURE ON THE AFFECTED COMMUNITIES OF NUNAVUT.</p> <p><b>COMMENTARY:</b> FOR GREATER CLARITY, UNDER THIS TERM AND CONDITION THE UPDATE TO THE HUMAN RESOURCES PLAN AND WELLNESS STRATEGY FOR THE PROJECT (INCLUDING A WORKFORCE TRANSITION STRATEGY) IS REQUIRED TO BE FILED AT LEAST TWO (2) YEARS PRIOR TO THE PROPONENT'S PLANNED FINAL CLOSURE OF THE PROJECT, REGARDLESS OF WHETHER THE PROJECT HAS, AT THAT TIME, ALREADY CEASED OPERATIONS, IS BEING MAINTAINED IN A TEMPORARILY CLOSED PHASE OR HAS ALREADY ENTERED THE FINAL CLOSURE PHASE.</p>	
<p><b>TERM AND CONDITION 44:</b> WITHIN SIX (6) MONTHS FOLLOWING AN UNANTICIPATED TEMPORARY OR FINAL CLOSURE OF THE PROJECT THE PROPONENT SHALL SUBMIT TO THE NIRB AN UPDATED HUMAN RESOURCE PLAN AND WELLNESS STRATEGY FOR THE PROJECT THAT INCLUDES A WORKFORCE TRANSITION STRATEGY DESIGNED TO MITIGATE THE POTENTIAL NEGATIVE EFFECTS OF PROJECT CLOSURE ON THE AFFECTED COMMUNITIES OF NUNAVUT.</p>	<p>TMAC confirmed in its 2017 Annual Report that it will meet this term and condition two (2) years prior to final closure of the Project.</p>
<p><b>TERM AND CONDITION 45:</b> TO THE EXTENT THAT SUCH COMMUNICATIONS ARE CONSISTENT WITH AND NOT LIMITED BY THE PROPONENT'S OBLIGATIONS UNDER THE 2015 HOPE BAY INUIT IMPACT AND BENEFIT AGREEMENT (IIBA), THE PROPONENT SHALL SHARE INFORMATION WITH THE GOVERNMENT OF NUNAVUT, DEPARTMENT OF EDUCATION WITH RESPECT TO THE PROPONENT'S YOUTH EMPLOYMENT INITIATIVES IN THEIR HUMAN RESOURCES PLAN, AND OTHER PROGRAMS THAT MAY RELATE TO EDUCATION AND WILL, TO THE EXTENT POSSIBLE INTEGRATE THE PROPONENT'S ACTIVITIES INTO THE EXISTING DEPARTMENT OF EDUCATION PROGRAM, AND COMMUNICATION AND DELIVERY PLANS.</p>	<p>TMAC confirmed in its 2017 Annual Report that it had met the requirements of this term and condition.</p>
<p><b>TERM AND CONDITION 46:</b> TO THE EXTENT THAT SUCH COMMUNICATIONS ARE CONSISTENT WITH AND NOT LIMITED BY THE PROPONENT'S OBLIGATIONS UNDER THE 2015 HOPE BAY INUIT IMPACT AND BENEFIT AGREEMENT (IIBA), THE PROPONENT SHALL PROVIDE THE GOVERNMENT OF NUNAVUT (GN) AND THE NIRB INFORMATION REGARDING THE LABOUR</p>	<p>TMAC noted in its 2017 Annual Report that it had made efforts to collaborate with the Government of Nunavut, including the Department of Family Services and the Nunavut Trades and Occupational Certification Unit, to meet the</p>

<b><u>TERM AND CONDITION</u></b>	<b><u>COMPLIANCE ACHIEVEMENT</u></b>
<p><i>FORCE NEEDS OF THE PROJECT AS IT PROCEEDS:</i></p> <ul style="list-style-type: none"> <li>▪ <i>THE TITLE AND NUMBER OF POSITIONS REQUIRED BY DEPARTMENT OR WORK AREA;</i></li> <li>▪ <i>THE POTENTIAL START DATES; AND</i></li> <li>▪ <i>TO THE LEVEL OF EDUCATION REQUIRED (WITH REFERENCE TO THE SPECIFIC POSITIONS);</i></li> <li>▪ <i>WHETHER ON-THE-JOB OR OTHER FORMS OF TRAINING AND CERTIFICATION WILL BE REQUIRED (WITH REFERENCE TO THE SPECIFIC POSITIONS).</i></li> </ul>	<p>requirements of this term and condition.</p> <p>The NIRB notes, however, that projections on labour force needs of the Project should be provided to appropriate Government of Nunavut departments and agencies, and the NIRB as per term and condition 46.</p>
<p><b><i>TERM AND CONDITION 47:</i></b> <i>TO THE EXTENT THAT SUCH COMMUNICATIONS ARE CONSISTENT WITH AND NOT LIMITED BY THE PROPONENT’S OBLIGATIONS UNDER THE 2015 HOPE BAY INUIT IMPACT AND BENEFIT AGREEMENT (IIBA), THE PROPONENT SHALL SHARE RELEVANT DATA (QUANTITATIVE AND QUALITATIVE) CONCERNING THE IMPLEMENTATION AND SUCCESS OF TRAINING AND EDUCATION PROGRAMS, WITH OTHER SOCIO-ECONOMIC MONITORING INITIATIVES INCLUDING THE HOPE BAY SOCIO-ECONOMIC WORKING GROUP AND THE KITIKMEOT SOCIO-ECONOMIC MONITORING COMMITTEE.</i></p>	<p>TMAC noted in its 2017 Annual Report that it reports workforce training annually as part of the Hope Bay Project Socio-economic Monitoring Program and discusses the subject during annual meetings of the Hope Bay Socio-economic Working Group and the Kitikmeot Socio-economic Monitoring Committee. TMAC noted that its compliance with this term and condition is an ongoing exercise.</p>
<p><b><i>TERM AND CONDITION 48:</i></b> <i>BY FEBRUARY 28TH OF EACH YEAR WHEN THERE ARE SIGNIFICANT FOOTPRINT CHANGES TO THE PROJECT DEVELOPMENT AREA OR AN ARCHAEOLOGICAL PERMIT IS REQUESTED, THE PROPONENT WILL PROVIDE THE GN-DCH WITH A SERIES OF MAPS AND TABLES INDICATING THE CURRENT STATUS OF ALL ARCHAEOLOGICAL SITES WITHIN THE PROJECT DEVELOPMENT AREA. THE PROPONENT SHALL CONSULT WITH THE GN-DCH TO ESTABLISH THE CONTENTS OF THE MAPS AND TABLES THAT MUST BE SUBMITTED.</i></p>	<p>TMAC noted in its 2017 Annual Report, that it had satisfied the term and condition in consultation with GN-Department of Culture and Heritage.</p>
<p><b><i>TERM AND CONDITION 49:</i></b> <i>IF THE GOVERNMENT OF NUNAVUT AND THE NUNAVUT HOUSING CORPORATION DEVELOP AN ANONYMOUS VOLUNTARY HOUSING SURVEY, THE PROPONENT SHALL MAKE THE SURVEY AVAILABLE TO NUNAVUMMIUT SITE PERSONNEL AND THE PROPONENT WILL RETURN ANY COMPLETED SURVEYS TO THE GOVERNMENT OF NUNAVUT.</i></p> <p><b><i>COMMENTARY:</i></b> <i>IT SHOULD BE NOTED THAT INTERPRETATION OF THE RESULTS, MODIFICATIONS TO THE SURVEYS AND ANY REPORTING OF THE RESULTS REMAIN THE RESPONSIBILITY OF THE AUTHORS OF THE SURVEY, THE GOVERNMENT OF NUNAVUT AND NUNAVUT HOUSING CORPORATION.</i></p>	<p>TMAC confirmed in its 2017 Annual Report that the Nunavut Housing Corporation (NHC) is currently developing the housing survey instrument. TMAC plans to work with NHC in the administration of the survey once developed.</p>

<u><b>TERM AND CONDITION</b></u>	<u><b>COMPLIANCE ACHIEVEMENT</b></u>
<p><b>TERM AND CONDITION 50:</b> <i>THE PROPONENT SHALL REMOVE THE SUBSEA PIPELINE AND DIFFUSER IN ROBERTS BAY WHEN THE PIPELINE IS NO LONGER IN USE UNLESS IT CAN BE DEMONSTRATED TO THE SATISFACTION OF THE NUNAVUT IMPACT REVIEW BOARD THAT THIS INFRASTRUCTURE WILL PROVIDE A NET POSITIVE ENVIRONMENTAL EFFECT TO THE LOCAL ECOSYSTEM.</i></p>	<p>TMAC confirmed in its 2017 Annual Report, that it will review options with the NIRB at the time when the pipeline and diffuser in Roberts Bay are no longer in use.</p>

**APPENDIX B: LIST OF COMMITMENTS FROM THE FINAL ENVIRONMENTAL IMPACT STATEMENT (APPENDIX A OF THE FINAL HEARING REPORT FOR THE DORIS NORTH GOLD PROJECT, MARCH 2006**

<b>AIR QUALITY</b>	
<b>1.</b>	Use of an aggressive fuel conservation effort;
<b>2.</b>	Use of a brine solution for dust suppression in the underground mine;
<b>3.</b>	Use of coarse rock in roads, airstrip, building pads and laydown areas to minimize dust during construction;
<b>4.</b>	Driving at designated speeds on site roads;
<b>5.</b>	Application of water to roadways to reduce dust from ore and waste rock haulage and grading to a minimum;
<b>6.</b>	Installation of dust covers, sonic sprays, etc. to suppress dust generation from equipment in the crushing facility;
<b>7.</b>	Installation of a dust scrubber on the smelting off-gas stream;
<b>8.</b>	Submerged release of tailings deposition to avoid tailings dust emissions;
<b>9.</b>	Installation of a waste oil burner unit equipped with a settling tank and filter system for particulate removal from the waste oil;
<b>10.</b>	Regular servicing of all mobile and stationary engines to maintain efficiency;
<b>11.</b>	Proper equipment maintenance; and
<b>12.</b>	Adherence to all permits, authorizations and approvals.

<b>NOISE</b>
1. Buildings, structures and material stockpiles will act as physical barriers to noise particularly for outdoor exposed equipment;
2. Most powered equipment will be enclosed in insulated buildings;
3. Proper equipment maintenance;
4. There will be noise monitoring in the mill for occupational health and safety;
5. The on-site Environmental Manager will also conduct routine inspections of the Project operations and look for possible mitigation opportunities; and
6. Adherence to all permits, authorizations and approvals.

<b>WATER QUALITY – TOTAL SUSPENDED SOLIDS</b>
1. Installing silt curtains in localized areas of permafrost degradation; and
2. Applying geo-textile materials or rip rap to areas where slumping is observed to stabilize the shoreline.
<b>WATER QUALITY - RUNOFF</b>
3. Identifying and using quarry rock that has a low acid generation and metal leaching potential;
4. Implementing industry best practice methods for explosives use, which will limit residual nitrite and nitrate present in quarried and waste rock;
5. Completing winter construction of the roads and building pads, which will mitigate the risk of sediment release during construction; and
6. Implementing industry best practices for sediment control and storm water management during and after construction to collect surface runoff, and discharging runoff to the tailings containment area, where the sediments would have the opportunity to settle out.

<b>PERMAFROST</b>
1. Additional thermistors will be installed during construction; and
2. Reading of these thermistors will be included in routine site monitoring programs to ensure that the condition of the permafrost in close proximity to the key mine activity centres is being monitored to ensure that the permafrost integrity is being maintained through the planned design and mitigation strategies.

## VEGETATION

1. Avoiding, or reducing, impacts to vegetation units during project planning by reusing previously disturbed areas, where possible;
2. Avoiding, or reducing, impacts to rare species;
3. Implement dust suppression methods (*i.e.*, spraying with water) on the airstrip and roads during the snow/ice free period;
4. Apply water to roadways to reduce dust from ore and waste rock haulage and minimizing grading;
5. Install dust covers and sonic sprays to suppress dust generation from equipment in the crushing facility;
6. Install a dust scrubber on the smelting off-gas stream;
7. Re-contouring closure landforms and placing materials to ensure that the final topography and site conditions are similar to other vegetation units of the same type in the region;
8. Allow areas to revegetate during operations (*e.g.*, progressive) and promoting natural vegetation regeneration throughout the mine life; and
9. Using adaptive management approaches to ensure that advances in revegetation research are included in final closure planning efforts.

## JETTY

1. Constructing the jetty of clean, crushed rock that has been certified as having low acid generation potential and low metal leaching potential;
2. Use of silt curtains, as required to reduce suspended sediment to a level to meet the federal CCME (1999) water quality guidelines;
3. The construction will be timed (*i.e.*, early July) to avoid the spawning migrations of capelin during the end of July (Supporting Document F4); and
4. Monitoring measures are outlined in Chapter 6 of the Technical Report. Construction activities will be monitored on terms and conditions of permits and approvals.

CARIBOU
1. Integration of <i>Inuit Qaujimajatuqangit</i> into monitoring programs;
2. Restricting the mine surface footprint to a small and confined area of 53 ha;
3. Minimizing the amount of clearing;
4. Reduce noise by use of muffled exhaust systems;
5. All diesel-powered equipment will meet emission guidelines;
6. Minimum flying altitude of 300 m above ground level for cargo and passenger aircraft outside of the Project area;
7. Vehicles restricted to designated roads and prepared work areas ( <i>i.e.</i> , recreational use of off-road vehicles is prohibited);
8. Implement dust suppression methods ( <i>i.e.</i> , spraying with water) on the airstrip and roads during the snow/ice free period (chemical dust suppressants will not be used);
9. Install dust covers and sonic sprays to suppress dust generation from equipment in the crushing facility;
10. Install a dust scrubber on the smelting off-gas stream;
11. Conducting pre-project surveys to identify wildlife sensitive locations and protected areas for avoidance;
12. Reclaiming areas during operations ( <i>e.g.</i> , progressive) and promoting natural vegetation regeneration throughout the mine life;
13. Wildlife awareness and sensitivity training for on-site personnel;
14. Participation in the Bathurst Caribou Management Committee;
15. Implement caribou crossing locations along the road based on local information from the Hunters and Trappers Associations and KIA, among others;
16. Give caribou the right-of-way ( <i>i.e.</i> , all vehicles must stop when wildlife are on the road or approaching);
17. Allowing natural encroachment of vegetation on and near roads, airstrip and the active mine site;
18. Use of Inukshuks or other initiatives determined through consultation with Elders to deter Caribou from site;
19. Establishing and enforcing speed limits;
20. Implementing procedures for the safe removal of caribou from hazardous areas ( <i>e.g.</i> , roads and airstrip);
21. Warning drivers when caribou are moving through the area.

### **GRIZZLY BEAR**

1. Integrate *Inuit Qaujimajatuqangit* into education, monitoring and response programs;
2. Education and reinforcement of proper waste management practices to all workers and visitors to the site;
3. Implement appropriate waste management protocols, including burning all food wastes in an oilfired incinerator;
4. Eliminate attractants (*e.g.* food waste, oil products) at the landfill site;
5. Separation of food waste and non-food waste at source;
6. Appropriate fencing around the landfill area;
7. Burn waste oil in waste-oil furnaces or taken off-site for recycling;
8. Designate contained areas for worker lunch and coffee breaks;
9. Educate people on the risk associated with feeding wildlife and careless disposal of food garbage; and
10. Ongoing review of the efficacy of the waste management program and adaptive improvement.

### **BREEDING BIRDS AND WATERFOWL**

1. Conduct land clearing for site infrastructure (*e.g.*, building pad construction and roads) outside of the breeding season;
2. Prevent nesting on mine infrastructure and man-made structures; and
3. If a nest site is established and eggs are present, avoid the nest as much as possible and monitor for nest success.

### **RAPTORS**

1. Incorporate *Inuit Qaujimajatuqangit* into operations and monitoring programs;
2. Prevent raptors from nesting on mine infrastructure;
3. If a nest is established within the mine footprint and eggs are present, avoid the nest as much as possible and monitor for nest success.
4. Establishing and enforcing speed limits; and
5. Reporting all accidental deaths or injury to raptors as a result of vehicle or aircraft collisions, so that mitigation can be adaptively managed.

## ARCHAEOLOGY

1. All construction activity in the vicinity of the remains will cease immediately;
2. The project archaeologist and Territorial Archaeologist will be contacted. Then the potential significance of the remains will be assessed; and mitigative options will be identified;
3. If the significance of the remains is judged to be sufficient to warrant further action and they cannot be avoided, the project archaeologist in consultation with the Territorial Archaeologist, will determine the appropriate course of action;
4. In the case of human remains, the RCMP will be contacted. In addition, a Coroner and/or physical anthropologist may be involved, if necessary. If the remains are determined to be archaeological, representative of local communities as well as the Inuit Heritage Trust will be consulted to determine how to handle the remains;
5. An education program will ensure that all personnel involved in exploration and development activities are aware that heritage resources are protected by law and that if any archaeological, historic or human remains are uncovered during any such activities, these remains must be reported and disturbance must cease until the remains are dealt with appropriately. The Territorial Archaeologist of the Government of Nunavut will be notified and a qualified archaeologist will assess the incident.

## HEALTH SERVICES

1. All employees will undergo a pre-employment medical. This will ensure that the site medical staff are able to provide the best care and treatment to employees as the site is remote from full medical services;
2. Qualified medical personnel will be available at site twenty-four hours a day and seven days a week. They will be able to treat minor illnesses. As employees will spend half of their time at site, this should relieve some burden from the local health facilities;
3. Emergency response and contingency plans are in place for medical evacuation if required;
4. Alcohol and drug education will be provided to all employees and the site will continue to be an alcohol and drug free operation;
5. Miramar (*the Proponent*) will continue to follow health guidelines, procedures and protocols for camp food. Waste handling and storage will meet all appropriate territorial regulations and standards to avoid any health concerns for employees;
6. Communication and cooperation processes have been put in place with medical personnel in the camps, the Nunavut HSS, the Yellowknife hospital, appropriate monitors and inspectors, and regional health authorities. The new health Centre that opened in Cambridge Bay in 2005 will also provide a higher level of service;
7. All Project contractors and subcontractors are bound to the guidelines, procedures and protocols developed by Miramar (*the Proponent*);

### HEALTH SERVICES

8. Miramar (*the Proponent*) will provide government inspected country food periodically at the mine site. During operations the medical staff will be able to provide information on diet and nutrition;
9. To avoid employee injury, Miramar (*the Proponent*) will ensure that safety is the highest priority for the Project;
10. Miramar (*the Proponent*) will ensure transportation equipment is regularly inspected for safety; and
11. Miramar (*the Proponent*) will take safety into account when planning contractor delivery schedules.

### SAFETY AND PROTECTION SERVICES

1. Miramar (*the Proponent*) will liaise with the RCMP and produce regular updates on project activities and plans that could influence RCMP workloads, communications between camp management and RCMP, and efficiency of RCMP response to calls for service from the camps and from project-related community calls;
2. Miramar (*the Proponent*) will conduct criminal record checks prior to hiring employees to screen out those convicted of crimes of violence such as sexual assault;
3. Miramar (*the Proponent*) will provide counseling and life skills training workshops.

### SOCIAL SERVICES

1. In order to support the emotional health of employees and avoid burden on community facilities, Miramar (*the Proponent*) will make available a number of methods of communications for workers with their families such as telephone and Internet.
2. Miramar (*the Proponent*) plans to keep family groups or community groups of workers together for support while away from home;
3. Miramar (*the Proponent*) will conduct an extensive orientation program to ensure that all workers are given full training, understand Miramar policies and procedures and have support to adjust to camp life; includes full safety training;
4. Miramar (*the Proponent*) will provide a workplace where individuals are treated in a fair, equitable and respectful manner to attract and retain good workers and reduce stress on employees;
5. Miramar (*the Proponent*) will provide an issues resolution process for employees to be able to resolve any grievances and issues to avoid undue stress and pressure;
6. As much as possible, Miramar (*the Proponent*) will encourage opportunities for Inuit to speak and maintain their own language while at the same time operating in the language of the camp as long as safety of the employee, others or job performance are not compromised;

## **SOCIAL SERVICES**

**7.** Alcohol and drug education will be provided to all employees and the site will continue to be an alcohol and drug free operation; and

**8.** Miramar (*the Proponent*) will provide to all employees a free and confidential Employee and Family Assistance Program (EFAP) that will provide emotional, psychological and mental health counseling for employees and their immediate families for work stress, marital and family issues.

## **EMPLOYMENT**

**1.** Provide the support of a Manager, Community Relations to support community liaison and facilitate workers integration into the work force;

**2.** Provide a workplace where individuals are treated in a fair, equitable and respectful manner in order to attract and retain workers;

**3.** Provide free flights to mine employees travelling to and from work between the four key communities and the mine site. The flights will not go through Yellowknife. MHLB will consider flights to other communities as appropriate to attract and retain Inuit workers;

**4.** Raise the level of understanding about the type of employment opportunities in the mining industry so that the key communities can make informed choices and about employment and career opportunities;

**5.** Provide hamlets, and education and training institutions within the four key communities with list of potential jobs, education/training requirements and certificates and transferable skills to other jobs for which individuals might be qualified;

**6.** Work with hamlets and training institutions to develop skills assessment and community databases of potential mine site trainees and workers, taking into consideration privacy and other applicable legislation;

**7.** Work with employment personnel in the key communities to develop a strategy that helps each hamlet retain sufficient skilled individuals to effectively manage the Hamlets;

**8.** Miramar (*the Proponent*) will strictly enforce the Harassment Policy that states that harassment of any kind is not tolerated, will be investigated and discipline may include termination;

**9.** Miramar (*the Proponent*) will provide an issues resolution process to ensure the employees grievances and issues are dealt with in a timely and appropriate manner so they do not consider leaving the company;

**10.** Provide ongoing support for employees of the four key communities and other northern hires that recognize cultural differences at the worksite;

**11.** Identify and communicate project employment opportunities early in project development;

**12.** Raise the level of understanding about the type of employment opportunities in the mining industry so that the key communities can make informed choices and about employment and career opportunities;

**13.** Communicate employment opportunities and skill requirements to interested organizations, government

## EMPLOYMENT

agencies and communities, in an open, transparent and timely fashion in cooperation with each hamlet, the KIA, and the appropriate government departments and agencies by postings in public places, on the Internet, and in local and government agencies and departments;

**14.** With KIA collaboration, design and implement an Inuit recruitment strategy to ensure that every effort is being made to recruit employees from Nunavut and particularly the four key communities;

**15.** Require contractors and subcontractors to structure Inuit and northern employment policies and plans, complete with reporting and monitoring systems, to comply with the Miramar's (*the Proponent*) benefits plans and agreements, and their commitments to employ workers from the four key communities and other northern communities;

**16.** Establish on-the-job support systems and resources to help develop worksite and life skills;

**17.** Require employees to be age 18 for employment during construction and operations (except specific student programs). This is governed by Miramar (*the Proponent*) employment policies and the Mines Act with regard to underground mining. This will deter youth from leaving school to work on the Project; and

**18.** Work proactively with contractors, unions, communities, educational institutions and government agencies to develop and recruit qualified workers.

## ECONOMY

**1.** A commitment has been made to facilitate workshops for workers and their families regarding money management, budgeting and retirement planning so that workers can make informed choices about how they spend their money.

## EDUCATION AND TRAINING

**1.** Work with employment personnel in the four key Hamlets to develop a strategy that helps each Hamlet retain sufficient skilled individuals to manage the Hamlet effectively;

**2.** Establish on-the-job support systems and resources to help develop worksite and life skills;

**3.** Before construction, continue to promote awareness among residents and secondary school students in the four employment impact communities about employment and career opportunities, and also the education and qualifications needed to access these opportunities;

**4.** Work with school organizations, elementary and secondary schools, and students within the four key communities in the environmental assessment area to promote employment and career opportunities associated with the project, while emphasizing the need to complete high school to qualify for these and other postsecondary learning and career opportunities;

**5.** Work with training institutions, school organizations and government agencies to share industry-specific

## EDUCATION AND TRAINING

needs to allow them to develop appropriate *curricula*, if required;

**6.** Continue annual Summer Camp for students to the Kimberlite Career and Technical Centre in Yellowknife to get exposure to trades and technology options;

**7.** Provide youth within the four key communities in the environmental assessment area with exposure to the mining industry through periodic classroom visits by mine personnel as well as providing summer employment and job shadowing for students;

**8.** Waive formal educational requirements, where appropriate, to reduce barriers for potential Inuit employees;

**9.** Support some trades training on-site where appropriate with the short life of mine;

**10.** Continue to provide scholarships in each of the key communities to encourage further education;

**11.** Ensure on-the-job training manuals take into account cultural differences and language skills, perhaps through a greater use of pictures and diagrams to encourage Inuit workers into the mine; and

**12.** Work with KIA, Department of Education (who are piloting the Nunavut Community Skills Database), hamlets and training institutions to develop skills assessment and community databases of potential mine site trainees and workers, taking into consideration privacy and other applicable legislation.

## BUSINESS OPPORTUNITIES

**1.** Provide an annual business opportunities forecast to local businesses to identify foreseeable procurement requirements;

**2.** Where possible, provide lead time, and identify project components of the construction and operations phases for the four key communities and other northern businesses to help them develop the ability to qualify and effectively compete for contracted work;

**3.** Endeavour to pre-qualify the four key communities, and offer feedback and assistance in understanding how to fill gaps in their qualifications;

**4.** Provide information on bidding procedures, subcontracting and joint venture opportunities, to help the four key communities and other northern businesses effectively pursue business opportunities;

**5.** Facilitate northern sourcing by structuring work packages and sub-packages, where appropriate, to better align with the capacities of qualified northern businesses (*e.g.*, bid packages of varying sizes or broken down sufficiently so as to encourage Inuit participation);

**6.** Require bidders on major contracts to submit, as part of their bid, a local content plan that specifies how they will optimize the participation of the four key communities and other northern businesses in executing their work;

**7.** Give particular emphasis to local content plans when evaluating bids, and subsequently awarding work

<b>BUSINESS OPPORTUNITIES</b>
and supply packages for the Project;
<b>8.</b> Ensure that awarded contracts are monitored by the IIBA Implementation Committee and actual contract awards are reviewed to track Inuit content;
<b>9.</b> Monitor implementation of local content plans to ensure that procurement contractor commitments are met, and adhere to terms in the benefits and access agreements;
<b>10.</b> For Inuit owned businesses, waive bonding until a successful contractor is selected;
<b>11.</b> Continue open communications with the four key communities and other northern businesses about Project requirements, including timing, and specification of goods and services required by the Project;
<b>12.</b> Supply information about the four key communities and other northern businesses to potential contractors, in support of local content plans; and
<b>13.</b> Provide feedback to unsuccessful bidders from the four key communities and other northern communities to help them bid more successfully in the future.

## APPENDIX C: 2018 SITE VISIT REPORT



# 2018 Site Visit Report

for the Nunavut Impact Review Board's Monitoring of  
TMAC Resources Inc.'s Doris North Gold Mine Project



**Full Report Title:** 2018 Site Visit Report for the Nunavut Impact Review Board's Monitoring of TMAC Resources Inc.'s Doris North Gold Mine Project (NIRB File No. 05MN047)

**Project:** Doris North Gold Mine Project

**Project Location:** Kitikmeot Region, Nunavut

**Land Tenure:** Inuit Owned Land

**Project Owner:** TMAC Resources Inc.  
40 King Street West Suite 2100  
Toronto, ON M5H 3C2  
Tel: (416) 628-0216

**Proponent Contact:** Oliver Curran, Vice President Environment Affairs

**Proponent Personnel:** Sarah Warnock, On Site Environmental Supervisor

**Visit conducted by:** Kofi Boa-Antwi, Monitoring Officer  
Kelli Gillard, Manager, Project Monitoring  
Jorgen Komak, GIS Specialist

**Site visit date:** August 17, 2018

**Last site visit:** August 28, 2017

**Community Information Session:** August 23, 2018

**Photos by:** NIRB Staff

**Cover photos:** 1) Top Left – Doris North Main Camp Site  
2) Top Right – Roberts Bay Site  
3) Bottom – Doris North Butte

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# 1 INTRODUCTION

The Nunavut Impact Review Board (NIRB or Board) was established through Articles 10 and 12 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)* and is responsible for post environmental assessment monitoring of projects pursuant to Sections 12.7.1 and 12.7.2 of the Nunavut Agreement.

## 1.1 Objectives & Purpose of Site Visit

In September 2006, pursuant to Section 12.5.12 of the Nunavut Agreement, the NIRB issued Project Certificate No. 003 for the Doris North Gold Project (the Project), allowing the Project to proceed in accordance with the terms and conditions issued therein. In April 2013, the NIRB amended the Project Certificate No. 003 to change the name of the holder of the Project Certificate No. 003 from Newmont Mining Corporation to TMAC Resources Inc. (TMAC). In September 2016, the NIRB amended the Project Certificate No. 003 to include modifications to the Doris North Project<sup>1</sup>.

The objective of the NIRB's August 17, 2018 site visit was to determine whether, and to what extent, the land or resource use in question is being carried out within the predetermined terms and conditions of the NIRB's Doris North Gold Project Certificate [Section 12.7.2(b) of the *Nunavut Agreement*].

The observations from this site visit shall, wherever possible, be incorporated into the measurement of the relevant effects of the Project, provide the information necessary for regulatory authorities to enforce terms and conditions of land or resource use approvals, and be used to assess the accuracy of the predictions contained in the project impact statements in accordance with Section 12.7.2 of the *Nunavut Agreement*.

## 1.2 Doris North Project History

In 2008, Newmont Mining Corporation completed acquisition of the Doris North/Hope Bay Belt property and established Hope Bay Mining Ltd. (HBML) as a separate business entity to operate the Project. HBML suspended construction in 2008 and 2009 while it revisited the development of Doris North project, then resumed infrastructure construction in 2010, while also continuing advanced exploration. On January 31, 2012 Newmont announced its plan to put the Project into care and maintenance.

On February 3, 2013 the NIRB received notice that TMAC had entered into an agreement to purchase the Doris North Gold Mine and assets from HBML. On March 15, 2013 TMAC notified the NIRB that it had completed the purchase of the Project and that it would continue to operate the site under care and maintenance. After parties confirmed that the transition was complete, the NIRB, on April 11, 2013, issued an amended Project Certificate No. 003 to TMAC reflecting the transfer of ownership of the Project, and TMAC re-opened the camp and continued with exploration while maintaining the site in care and maintenance.

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<sup>1</sup> NIRB Project Certificate [No.: 003], Amendment 02, for the Doris North Gold Mine Project as issued by the NIRB on September 23, 2018.

TMAC maintained the Project in care and maintenance through 2014, and in the spring of 2015 notified parties that the Project would be transitioning to the construction phase following the 2015 barge season. In addition to recommencing construction of approved project infrastructure, TMAC applied to construct a laydown area (Pad T) as an ore and temporary waste rock storage pad to provide sufficient storage capacity for waste rock to initiate mining of the Doris zone. TMAC also completed construction of infrastructure that was postponed while the Project was in care and maintenance.

On June 23, 2015 TMAC applied to extend the mine life for the Project from four (4) years of operations to six (6) years through the mining of two (2) additional mineralized zones (Doris Connector and Doris Central) to be accessed via the existing Doris North portal. The expanded mining program would also increase the approved mining and milling rates to 2,000 tonnes per day and require the restructuring of the Tailings Impoundment Area to be managed as subaerial tailings with treated effluent being transported via a pipeline for discharge into Roberts Bay. The NIRB conducted a review of the proposed amendments to the Project and held a Public Hearing on April 12 to 14, 2016. On June 13, 2016 the Board recommended the proposed project amendments be allowed to proceed subject to 34 amended project certificate terms and conditions in addition to 15 new terms and conditions which were officially incorporated into Project Certificate No. 003 on September 23, 2017.

On November 23, 2017 TMAC applied for modifications to the Project to undertake a four (4) month daylighting and/or trenching program to access and remove gold rich ore located in the crown pillar (ore deposit situated at the top of a mine shaft/stope) of the Doris Connector zone adjacent to Doris Lake titled the Crown Pillar Recovery proposal. On December 12, 2018 the NIRB determined that it had not identified any specific concerns with the proposed modifications or TMAC's conclusions regarding the potential effects of the modifications as proposed and that the NIRB would continue to monitor TMAC's adherence to the terms and conditions of the Doris North Gold Mine Project Certificate No. 003 and expected that follow-up reporting on the modified activities would be included within the required reporting for the Project moving forward.

### **1.3 Doris North Project Description**

Doris North is located 110 kilometres (km) south of Cambridge Bay and 65 km east of Omingmaktok (Bay Chimo) near Melville Sound in the West Kitikmeot region of Nunavut. The Project involves the construction, operation, and eventual decommissioning of an underground gold mine located on Inuit-owned surface lands.

The mine site is comprised of a camp, airstrip, and associated mining infrastructure including fuel storage, jetty, laydown areas, and a single ramp access. The 2015 Amendment Application extended the mine life for the Doris North Project from a four (4) years of operations to six (6) years through the mining of two (2) additional mineralized zones (Doris Connector and Doris Central) to be accessed via the existing Doris North portal. The Project site is accessed by sealift for fuel and supplies, and by air for select freight and all personnel movements (see Figure 1 and [Photo 1](#)).

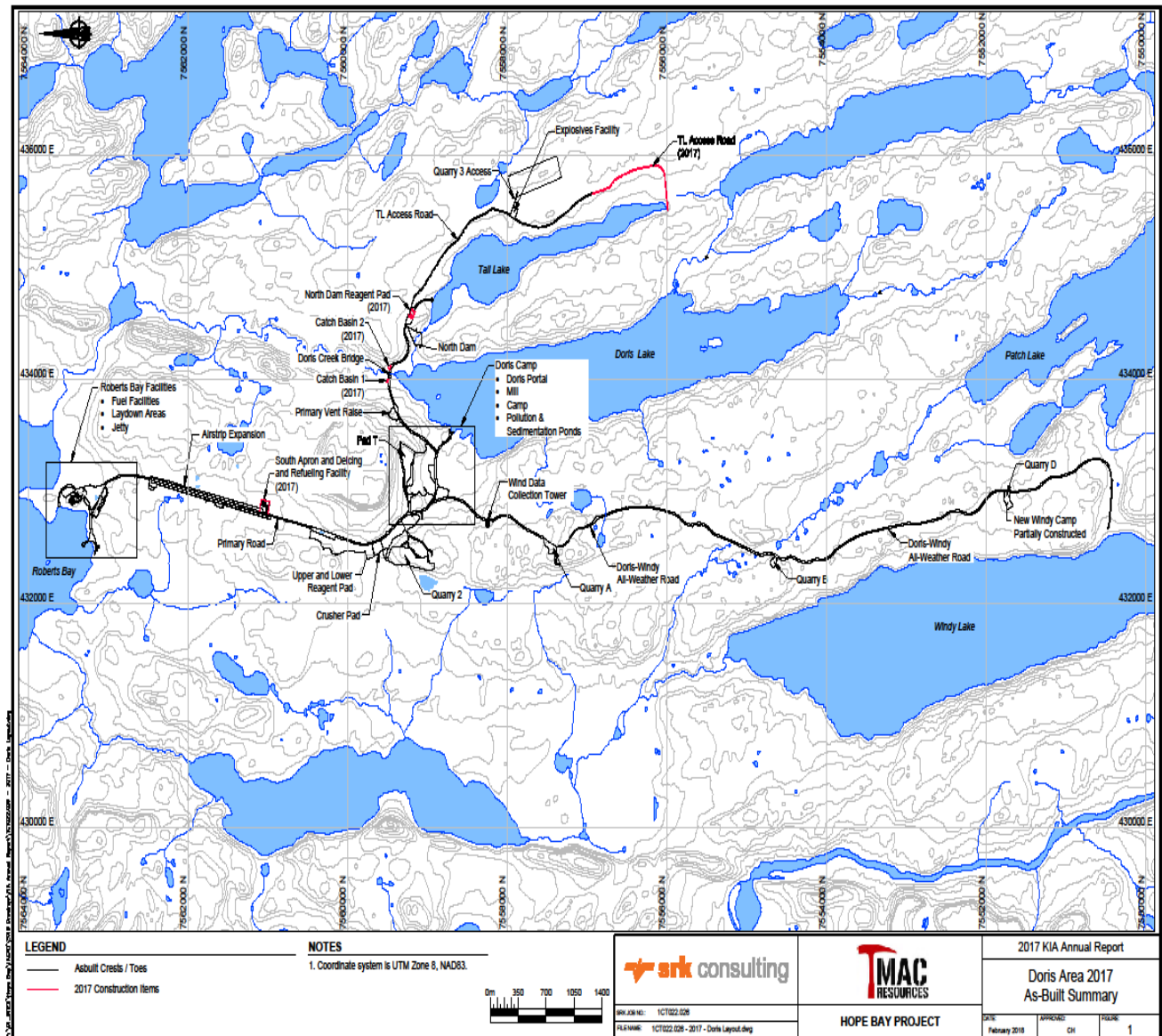


Figure 1: Doris North Gold Mine Project Site Layout



**Photo 1 - Aerial view of Doris North Project Site**

## 1.4 Preparations for the Site Visit

Following a review of the documents listed in [Table 1](#) in preparation for the 2018 site visit, the NIRB's Monitoring Officer for the Doris North Project (the Monitoring Officer) and NIRB staff visited the project components listed in [Table 2](#) during the 2018 site visit.

**Table 1 - List of Documents Reviewed for the Site Visit**

i. Revised NIRB Project Certificate No. 003 (September 2016).	ii. NWB Water Licence No. 2AM-DOH1323 (August 2013).
iii. NIRB's 2016-2017 Annual Monitoring Report and Board Recommendations (November 2017).	iv. Hope Bay Project 2017 Socio-economic Monitoring Program Report (April 2018)
v. TMAC's Response to Comments regarding NIRB's 2017 Annual Monitoring Report and Board Recommendations (January 2018).	vi. TMAC's 2017 Annual Report for Doris North Gold Mine Project Certificate No. 003 (April 2018).
vii. Q1-Q3 2017 Atmospheric Compliance Monitoring Program Report (April 2018).	viii. 2017 Wildlife Mitigation and Monitoring Plan Compliance Report (April 2018).
ix. Doris Project 2017 Aquatic Effects Monitoring Program Report (April 2018).	x. Geotechnical Inspection Report (April 2018).
xi. 2017 Waste Rock, Quarry and Tailings Monitoring Report (April 2018).	xii. Hope Bay Project 2017 Archaeological Investigations Final Permit Report (April 2018).
xiii. TMAC's 2018 Workplan for the Doris North Project (January 2018).	xiv. Other correspondence relating to the Doris North Project.

**Table 2 – Project Components Viewed at Site**

<u>Roberts Bay area</u> <ul style="list-style-type: none"> <li>○ Jetty;</li> <li>○ 5 ML fuel farm;</li> <li>○ Laydown area</li> <li>○ Roberts Bay fuel tank facility (20 ML); and</li> <li>○ Waste and metal sorting facilities along with incineration area.</li> </ul>	<u>All-weather road and airstrip area</u> <ul style="list-style-type: none"> <li>○ Apron expansions for aircraft refuelling and de-icing station, and shoulder roads;</li> <li>○ Quarry 2 and Burn Pan area;</li> <li>○ Sewage outcrop and disposal area; and</li> <li>○ Laydown area;</li> <li>○ Spill treatment facilities for soil, snow, and water and core storage area.</li> </ul>
<u>Camp site and mine facilities area</u> <ul style="list-style-type: none"> <li>○ Power plant;</li> <li>○ Portal;</li> <li>○ Mill building;</li> <li>○ Ore and waste rock piles;</li> <li>○ Power plant footprint and fuelling station;</li> <li>○ Water diversion berm(s);</li> <li>○ Mine site pollution and sedimentation ponds;</li> <li>○ Water intake at Doris Lake,</li> <li>○ Overburden stockpile, and</li> <li>○ General area demarcated for the Crown Pillar Recovery program.</li> </ul>	<u>Tailings Impoundment Area</u> <ul style="list-style-type: none"> <li>○ Vent Raise;</li> <li>○ North frozen core dam on Tail Lake;</li> <li>○ Water intake and meteorological station at Doris Lake;</li> <li>○ Reagent pad;</li> <li>○ Explosives pad;</li> <li>○ Road to South Dam</li> <li>○ South Dam; and</li> <li>○ Subaerial tailings deposition.</li> </ul>

## 2 SITE VISIT

Mr. Kofi Boa-Antwi, Monitoring Officer, Ms. Kelli Gillard, Manager, Project Monitoring, and Mr. Jorgen Komak, GIS Specialist conducted the 2018 NIRB site visit on August 17, 2018 by flying from Cambridge Bay, Nunavut, to the Doris North Gold Mine Project site. Upon landing at site, NIRB staff were met by Ms. Sarah Warnock, TMAC Onsite Environmental Supervisor.

Once at Doris North, TMAC briefed the NIRB staff on site health and safety protocols, environmental procedures, and then led a tour of the surface infrastructure. Throughout the site visit, the NIRB and TMAC staff discussed the infrastructure in place at the mine site and additional development such as the installation of the diffuser and pipeline.

### 2.1 General Observations

The following are general observations made during the site visit and do not pertain specifically to any terms or conditions of the Project Certificate.

#### 2.1.1 Roberts Bay

The Roberts Bay area serves as the Project's marine access hub and is linked to the main camp and mine site by a 4.8 km all-weather road. The area is used for staging of fuel and supplies in support of the ongoing construction and operation phases of the Project (see [Photo 2](#)). The major

facilities at Roberts Bay include the jetty, a tank farm with a capacity of 20 million litres (ML) known as the Roberts Bay tank farm, including a temporary fuel bladder storage system (see [Photo 3](#)), and a separate five (5) ML capacity fuel tank located in the abandoned Quarry 1 site with newly constructed bermed secondary containment, multiple laydown areas, waste management facilities, and incinerators (see [Photo 4](#) and [Photo 5](#)).



**Photo 2 - Aerial View of Roberts Bay**



**Photo 3 -Fuel Bladder Storage System at Roberts Bay Tank Farm**



**Photo 4 - Aerial view of location of laydown area, incinerators, and fuel tank farm**



**Photo 5 - 5 ML fuel tank in abandoned Quarry 1 site**

The level of activity at the Roberts Bay area was generally low during the site visit. TMAC staff indicated that the level of activity was expected to increase during the annual marine-based shipment of fuel and other mine-related supplies in later in the fall.

### **2.1.2 All-Weather Road and Airstrip**

The combined all-weather road and airstrip was constructed in 2008 and in 2011 HBML was approved to expand the airstrip for health and safety reasons. In the fall of 2015, TMAC completed the expansion of the airstrip section (see [Photo 6](#)).

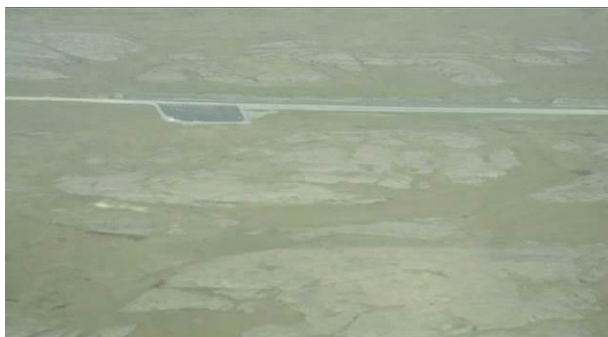
During the site visit, NIRB staff confirmed that an extension to the shoulder of the airstrip/all-weather access road and the additional apron for aircraft de-icing and refueling had been completed since the previous site visit (see [Photo 7](#) and [Photo 8](#)). This additional apron is lined and bermed to contain liquid waste from aircraft de-icing or any spills during aircraft refueling. TMAC staff continue to use site vehicles to block traffic on the north and south ends of the airstrip during take offs and landings to manage traffic.



**Photo 6 - Airstrip**



**Photo 7 - New apron for de-icing and refueling of aircraft**



**Photo 8 - Aerial view of the airstrip and the apron for aircraft de-icing and refueling**

### **2.1.3 Quarry 2, Open Burn Pan, and Sewage Discharge**

Quarry 2 is adjacent to the all-weather road and the sewage discharge outfall is approximately 60 metres west of the all-weather road adjacent to the laydown area south of Roberts Bay (see [Photo 9](#) and [Photo 10](#)). During the 2018 site visit, the quarry was in operation and the burn pan continues to be used to manage applicable solid waste such as clean wood (see [Photo 11](#)). The sewage discharge area, adjacent to Quarry 2, was discussed and as the tailings impoundment area has begun operation, this discharge is no longer used and would be dismantled once all testing has confirmed that the system is functioning normally.



**Photo 9 - Ongoing operations at Quarry 2 (background and non-operational sewage discharge (foreground))**



**Photo 10 - Aerial view of Quarry 2**



**Photo 11 - Burn pan in Quarry 2**

#### **2.1.4 Rimpull Trials**

In 2012, the NIRB noted that tracks were left on the tundra adjacent to the laydown area nearest Quarry 2 by HBML when it conducted experiments on vehicular travel on the tundra (rimpull trials), which the NIRB recommended should be monitored and reported on an annual basis by the Proponent. In 2013, the NIRB requested that TMAC develop a monitoring and/or remediation plan for these tracks, which was submitted to the NIRB in April 2014. During a site visit in 2014 by NIRB staff, TMAC confirmed that it had begun monitoring the tracks on the tundra and expressed concern that full remediation (e.g., filling them in with gravel) could cause more damage to the tundra than the initial trails as machinery would need to be used to access the site. TMAC staff has continued to monitor the tracks, which are delineated by stakes, and has had to remediate one (1) of the tracks. TMAC and NIRB staff inspected the staked areas and observed that the areas are showing signs of natural vegetation during the 2018 site visit by NIRB staff (see [Photo 12](#) and [Photo 13](#)).



**Photo 12 - Rimpull tracks on the tundra in 2014**



**Photo 13 - Staked site on tundra showing signs of recovery of natural vegetation in 2018**

### **2.1.5 Laydown Area with Landfarm and Contaminated Water or Snow Cell, and Core Storage**

The laydown area contains the combined landfarm and contaminated water and snow cells are located north of the Doris North camps on the west side of the all-weather road adjacent to Quarry 2 (see [Photo 14](#) and [Photo 15](#)), all in three (3) isolated cells within a defined area. There were no visible signs of structural damage to the cells and TMAC's staff confirmed that both the landfarm and water and snow cells have been operating as per design over the past year.

Samples of mineral ore from ongoing exploration activities are stored in proximity to the landfarm on site in core shacks to maintain a representative record of the deposits associated with the Project. During the site visit, NIRB staff noted the general tidiness of the core shack storage area as well as the surrounding laydown/storage area (see [Photo 16](#)).



**Photo 14 - Contaminated snow and water cell**



**Photo 15 - Landfarm**



**Photo 16 - Core shack storage area**

### **2.1.6 Camp Site, Portal, and Mine Facilities**

The camp and mine facilities are located approximately five (5) km south of Roberts Bay along the north shore of Doris Lake. In addition to the campsite, which has been in operation since 2008, the Doris North mine site hosts additional infrastructure associated with the underground mine operations as well as ore and waste rock stockpiles (see [Photo 17](#)).



**Photo 17 - Aerial view of main Doris camp site and mine facilities**

In the summer of 2014, TMAC partially commissioned the power plant, and in 2015, TMAC continued construction of the facility in preparation for mining and has now fully commissioned the existing diesel fuel power generators (see [Photo 18](#)). The plant currently consists of four (4) modules in operation, and TMAC is planning to install additional modules to meet energy demands for the Project.



**Photo 18 - Power plant**

During the site visit, the mill building was in operations and TMAC staff indicated that measures to optimize gold recovery from the processing of ore in the mill are ongoing. TMAC temporarily stores waste rock from underground mining operations in dedicated pads on surface and is currently using lower quality stockpiled ore to test the mill output and prepare the system for full operations (see [Photo 19](#) and [Photo 20](#)). TMAC noted that tailings from the cyanide leach process are neutralized, filtered, and temporarily stored in a dedicated area in the mill building prior to subsequent disposal directly underground (see [Photo 21](#)). Flotation tailings are transported to outfall locations at the tailings impoundment area (TIA) and reclaim water from the TIA is transported back into the plant via pipelines for use in the mill. TMAC noted that the recycling of water has been successful to date as TMAC has not had to supplement the mill process with water from Doris Lake as originally proposed. TMAC also noted it was taking measures to address concerns about the proximity of waste rock stockpiles to sections of the diversion berm along the north side of the mine camp site (see [Photo 22](#)) and that waste rock at the surface will also be moved back underground as soon as feasible.



**Photo 19 - Ore stockpiles and waste rock piles**



**Photo 20 - Mill building**



**Photo 21 - Temporary storage of detoxified tailings prior to backfilling underground**



**Photo 22 - Ore and waste rock piles in proximity to mine site diversion berm**

### **2.1.7 Helicopter Pad**

The NIRB staff inspected the helicopter pad and noted no changes from previous years (see [Photo 23](#)).



**Photo 23 - Helicopter pad**

### **2.1.8 Vent Raise**

In 2016 the emergency escape ladder in the Doris vent was installed to prepare for mining (see [Photo 24](#)). As noted in previous years, the location of the pad and vent stack have created issues for proper drainage and TMAC staff have implemented various measures over subsequent years to manage surface water within the area of the vent stack. During the 2018 site visit, no pooling of water was observed in the area of the vent raise and TMAC staff confirmed that measures put in place to address the surface drainage issue have been successful.



**Photo 24 - Doris vent raise**

### **2.1.9 Tailings and Reclaim Water Pipelines and Emergency Ponds**

TMAC and the NIRB staff discussed operations of the separate tailings and reclaim water pipelines that run along the road going to the TIA and confirmed that there have been no pipe breach incidents to date. NIRB staff also visited the two (2) emergency ponds (catchment

basins) constructed to manage any emergency discharge of tailings if the pipelines become plugged up and/or require repairs and confirmed that the structures were appropriately lined and bermed to contain tailings in case of a pipeline breach (see [Photo 25](#) and [Photo 26](#)). NIRB staff also noted during the 2018 site visit that cracked insulation in sections of the TIA pipeline, as observed during the 2017 site visit, had been repaired by TMAC. TMAC is also planning to reroute some sections of the pipelines to ensure they are aligned with the emergency ponds.



**Photo 25 - Tailings and reclaim water pipelines**



**Photo 26 - Emergency pond (catchment basin)**

TMAC staff informed the NIRB's Monitoring Officer that a pipeline previously used for the discharge of some mine contact water on the land in proximity to the TIA (see [Photo 27](#)) had resulted in subsidence of a section of the land from melting ice lenses (see [Photo 28](#)). TMAC confirmed that the pipeline has been rerouted to discharge directly into the TIA.



**Photo 27 - Pipeline outlet on the tundra near TIA in 2017**



**Photo 28 - Signs of land subsidence from melting ice lenses in 2018**

### 2.1.10 Reagent Storage Pad

During the 2018 site visit, the NIRB staff noted that the construction of reagent pad (formerly the explosives storage pad) was complete and in operation (see [Photo 29](#)). NIRB staff also confirmed that the reagent pad was lined and bermed to contain any spill of reagents that are stored in containers within the pad. However, NIRB staff observed dead wildlife in a sump within the reagent pad and noted that the sump and others on site may be a hazard to small wildlife such as birds and rodents. To address this concern, the Monitoring Officer recommended that TMAC consider installing screens on the sumps to prevent entrapment of small wildlife.



**Photo 29 - Newly constructed reagent storage pad**

### 2.1.11 Permanent Explosives Storage Pad

The NIRB staff discussed ongoing operations of the explosives storage area with TMAC staff and confirmed that no accidents or malfunctions occurred during the 2017-2018 monitoring period (see [Photo 30](#) and [Photo 31](#)).



**Photo 30 - Permanent explosives pad**



**Photo 31 - The gate at the explosives pad**

### **2.1.12 Road to South Dam and South Dam**

As TMAC had obtained the approvals for the design changes to the South Dam associated with the tailings impoundment area (TIA), in 2017 TMAC began construction of the road to South Dam as well as construction of the South Dam. During the 2018 site visit, TMAC and NIRB staff drove along the newly constructed road to the South Dam and observed ongoing construction of the dam as well as the additional infrastructure for the transport of tailings to the TIA (see [Photo 32](#)).



**Photo 32 - South dam area**

### **2.1.13 Tailings Impoundment Area**

As noted previously, TMAC obtained the approvals to undertake the required design changes to the Doris North project, and has constructed and commenced operation of the mill. During the fall and winter of 2016 TMAC installed pipelines for the transport of tailings from the mill to the TIA for subaerial deposition and to bring recycled or reclaim water from the TIA to the mill. The station for withdrawing the recycled water is at the north end of the TIA close to the North Dam (see [Photo 33](#)).



**Photo 33 - Reclaim water intake at the Tailings Impoundment Area**

TMAC and NIRB staff visited the various tailings outfalls/spigots and discharge areas within the TIA including a new discharge location at the south end of the TIA that is partitioned by a cofferdam with an opening to manage the flow of tailings from the south end to the north end of the TIA (see [Photo 34](#) and [Photo 35](#)). TMAC noted that heavier particles in the tailings tend to settle out first with the lighter particles carried further down the embankment before settling (see [Photo 36](#) and [Photo 37](#)). This deposition means that the TIA would be eventually surrounded by beached tailings and outfall locations would be changed via the deposition plan to promote bleeding and drying prior to further tailings deposition.



**Photo 34 - Newly constructed cofferdam in the south end of the Tailings Impoundment Area**



**Photo 35 - Outfall/spigot for tailings discharge in the south end of the Tailings Impoundment Area**



**Photo 36 - Panorama view of one of the spigots in the Tailings Impoundment Area**



**Photo 37 - Aerial view of the sorting of tailings during subaerial deposition in the Tailings Impoundment Area**

## **2.2 Observations based on NIRB's Project Certificate No. 003**

The NIRB's site visit was informed by the amended the Project Certificate No. 003 in place at the time of the visit.

### **2.2.1 Monitoring Stations**

#### *NIRB Project Certificate Condition 8*

*The Proponent will fund and install a weather station at the mine site to collect atmospheric data, including air temperature and precipitation. The design and location of this station shall be developed in consultation with Environment and Climate Change Canada (ECCC) officials.*

#### *NIRB Project Certificate Condition 30*

*The Proponent will install and fund an atmospheric monitoring station. This station and its location shall be developed in consultation with Environment and Climate Change Canada and Health Canada air quality officials and focus on particulates of concern generated at the mine site. The results of air-quality monitoring are to be reported every six (6) months to the Nunavut Impact Review Board through the Monitoring Officer, and from there to all of the parties.*

NIRB staff confirmed with TMAC representatives that the weather station and other equipment on site for collection of atmospheric and air quality data were in operation and in good condition (see [Photo 38](#), [Photo 39](#), and [Photo 40](#)).



**Photo 38 - A wind data collection tower adjacent to Windy Lake Road outside the Doris North Project Site**



**Photo 39 - Dust collection and meteorological stations**



**Photo 40 - Partisol sampler for particulate matter monitoring**

## **2.2.2 Fuel and Hazardous Material Storage and Management**

### **NIRB Project Certificate Condition 20**

*The Proponent shall ensure spill kits are at hand at the Roberts Bay oil handling facility at all times, and that appropriate containment measures are used in the event of a spill in accordance with the most recent version of the Oil Pollution Emergency Plan and Oil Pollution Prevention Plan reviewed by Transport Canada.*

NIRB staff confirmed, during the site visit, that TMAC had appropriate spill kits and other equipment at key locations for managing spills of fuel and other wastes throughout the mine site, including at the marine-based infrastructure at Roberts Bay.

### **NIRB Project Certificate Condition 33**

*The Proponent shall ensure that areas used to store fuel or hazardous materials are contained using the safest methods practically available.*

NIRB staff confirmed during the site visit that all fuel tank farms, individual fuel storage units, and storage facilities for hazardous materials, including reagents, were in appropriately sized, lined and bermed secondary containment to reduce the risk of spills travelling beyond the footprint of the storage facilities (see [Photo 41](#), [Photo 42](#), and [Photo 43](#)).



**Photo 41 - A lined and bermed tank farm at Roberts Bay**



**Photo 42 - Fuel storage tank and fuel drums in a lined and bermed secondary containment area at Roberts Bay**



**Photo 43 - A lined and bermed reagent storage facility**

### **2.2.3 Effluent Pipeline and Diffuser System**

#### **NIRB Project Certificate Condition 38**

*At least six (6) months prior to construction of the effluent pipeline and diffuser system the Proponent shall provide the NIRB with a detailed design for the system that includes the location*

*of the pipeline in relation to the existing roadway, the location of the small jetty supporting the pipeline and the design of the diffuser.*

#### **NIRB Project Certificate Condition 39**

*At least six (6) months prior to operation of the effluent pipeline and diffuser system, the Proponent shall conduct and submit to the Board a hazard and operability study of the pipeline and marine outfall system as part of the land authorization process.*

During the 2018 site visit, NIRB staff noticed the construction of land-based components of the effluent pipeline and diffuser system, such as the marine outfall berm, were ongoing and confirmed with TMAC representatives that the construction of the effluent pipeline will be completed in the winter of 2018 and commissioned in 2019 (see [Photo 44](#) and [Photo 45](#)). NIRB staff notified TMAC representatives that, as per Term and Condition 38 of the amended the Project Certificate No. 003, TMAC was to provide the NIRB with a detailed design of the effluent pipeline and diffuser system at least six (6) months prior to construction. NIRB staff also stressed that, as per Term and Condition 39 of the amended the Project Certificate No. 003, TMAC was to conduct a hazard and operability study of the pipeline and marine outfall system and provide results to NIRB at least six (6) months prior to operation of this infrastructure.

Following the site visit, TMAC representatives submitted documents to the Board to address NIRB staff concerns about TMAC's compliance with terms and conditions 38 and 39 of the amended the Project Certificate No. 003.<sup>2</sup>



**Photo 44 - Aerial view of Roberts Bay with newly constructed land-based components of the effluent pipeline and diffuser system in the background**



**Photo 45 - Signs of ongoing construction of land-based components of the effluent pipeline and diffuser system**

### **3 SUMMARY**

Throughout the 2018 site visit, TMAC and NIRB staff discussed how the Doris North site will be changing as TMAC continues with construction and operations activities. TMAC has completed most items that were approved as part of the original project certificate and is working

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<sup>2</sup> TMAC Resources Inc. submission to the NIRB Re: Marine Outfall Berm, Detailed Design Drawings and Hazard and Operability Study, August 29, 2018.

on items as approved in the amendment of Project Certificate No. 003. The site visit discussions focused on TMAC's experience during the previous year of construction and operations and plans for the following year.

The Monitoring Officer notes that overall TMAC has generally complied with the Terms and Conditions of the amended Project Certificate No. 003 and has been responsive in addressing any concerns raised by the Monitoring Officer during and following the site visit. The Project site remains in good condition as TMAC progresses with construction and operations activities on site. The Monitoring Officer also commends TMAC on the general cleanliness and tidiness of the Project site

Observations made during the site visit did not include components related to TMAC's proposed Phase 2 Hope Bay Belt project, which is currently under review by the Board.

Prepared by: Kofi Boa-Antwi, M.Sc., R.P.Bio.  
Title: Technical Advisor II  
Date: October 31, 2018

Signature:



Reviewed by: Kelli Gillard, P.Ag.  
Title: Manager, Project Monitoring  
Date: October 31, 2018

Signature:



## **Appendix A – Community Information Session**



# October 29, 2018



Report Title: Community Information Session Summary Report October 26, 2018 for the NIRB's Monitoring of TMAC Resources Inc.'s Doris North Gold Mine Project (NIRB File No. 05MN047)

Report prepared by: Kofi Boa-Antwi, Monitoring Officer

Photos by: NIRB staff

Cover photo: Photo from 2018

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## 1.0 NIRB PUBLIC INFORMATION SESSION

Pursuant to Section 12.7.2 of *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)* and the Doris North Gold Mine Project Certificate No. 003, the Nunavut Impact Review Board's (NIRB or Board) monitoring responsibilities include providing periodic updates regarding its Monitoring Program to the communities most affected by TMAC Resources Inc.'s (TMAC) Doris North Gold Mine Project (the Project). To further ensure ongoing awareness of Project-specific terms and conditions, and encourage effective participation throughout the Board's monitoring process, the NIRB scheduled an open house and a community information session in Cambridge Bay on August 23, 2018 at the Luke Novoligak Community Hall. The sessions were held in concert with the community information session for Sabina Gold and Silver Corp.'s Back River Project (12MN036) and an update on the Jericho Diamond Mine (00MN059) site stabilization and remediation activities.

The open house and community information session provided a general update of the NIRB's monitoring programs for the Project and specifically outlined the ways in which the public can participate in the Board's monitoring process.

A summary of the comments and concerns related to the Project that were received from community members are categorized by the NIRB in [Section 2](#) of this report.

### 1.1 Setup of NIRB Public Information Meetings

Both the open house and community information session were open to all members of the public. Refreshments and snacks were provided for both sessions along with door prizes during the evening session. The open house took place from 2:00 pm to 5:00 pm with a recorded attendance of 14 individuals and the information session took place from 7:00 pm to 9:00 pm with the doors opening at 6:30 pm with 10 individuals in attendance. All in attendance were asked to sign in and identify the community or organization they represented ([Appendix A](#)).

As part of the open house, the NIRB Monitoring Officer for the Project provided an update on the NIRB's 2018 visit to the Project site in a PowerPoint presentation in both English and Inuinnaqtun ([Appendix B](#)). The public was encouraged to comment and ask questions relating to the NIRB's process, activities undertaken, project effects, and any concerns related to the Project throughout the afternoon. Both written and verbal comments were accepted at the open house and public information meeting, and verbal comments were recorded by the NIRB staff members.

During the evening, the NIRB repeated the PowerPoint presentation provided during the open house (see [Appendix B](#)) that included a discussion of the NIRB process, with a focus on the NIRB's monitoring programs, an update on the Doris North Gold Mine, including an overview of Project activities and key components, and events and/or issues identified through the project-specific monitoring program.

The presentation concluded with a discussion as to how interested parties and community members could participate in the NIRB's processes. The presentation was shown in both English and Inuinnaqtun, discussed in English, with simultaneous interpretation provided in Inuinnaqtun. The public was encouraged to comment and ask questions relating to the NIRB's process, activities

undertaken, project effects, and any concerns related to the Project. Both written and verbal comments were accepted at the public information meeting, and verbal comments were recorded by the Proponent. The interpreter provided consecutive translations for the comments presented in Inuinnaqtun.

## **1.2 Meeting Materials**

At the public meeting, the following materials were provided by the NIRB:

- The NIRB's PowerPoint presentation (in English and Inuinnaqtun)
- The *Nunavut Agreement* (in English)
- The NIRB's 2016-2017 Annual Monitoring Report for TMAC's Doris North Gold Mine Project (in English)
- TMAC's Doris North Gold Mine Project Certificate Amendment 2 (in English)
- TMAC's Doris North Gold Mine 2017 Annual Report (in English)
- Comment Forms (in English)
- NIRB's Public Hearing Report Doris North Project: 2015 Amendment Application
- Maps of Project Areas

Copies of consultation materials, including the presentation, advertisements and sign-in sheet, can be obtained from the NIRB's online public registry at [www.nirb.ca](http://www.nirb.ca) and by searching any of the following:

- Project Name: Doris North Mine
- NIRB File No.: 05MN047
- Application No.: 123632

## **1.3 Advertisements**

Public notification is an essential tool used to engage the public in effective consultation. The NIRB utilized a number of notification methods to advertise the public information meeting held in Cambridge Bay. The following public notification methods were used to advertise the NIRB's public information meeting:

### ***Radio***

A public service announcement in English and Inuinnaqtun was distributed to the radio station in Cambridge Bay with instructions to air twice a day from August 13, 2018 to August 23, 2018.

### ***Flyers***

Prior to August 23, 2018, NIRB staff members posted flyers around Cambridge Bay, which outlined the dates, times, and purpose of the NIRB meeting ([Appendix C](#)).

### ***Facebook***

The community meeting in Cambridge Bay was also posted in English and Inuinnaqtun on the NIRB's Facebook page and on the Cambridge Bay News Facebook page.

## **2.0 MEETING NOTES FROM THE NIRB'S PUBLIC INFORMATION MEETING**

The following is a list of the comments and concerns that were raised verbally at the public information session for the monitoring of Doris North Gold Mine project (no written comments were received). These comments will help to identify items that need to be addressed or considered throughout the monitoring process.

- How does TMAC manage human waste and other non-hazardous waste at the Project site?
- How often is water in detention ponds on site tested?
- What is the detention time for wastewater in the detention ponds?
- What are the specific closure plans for facilities and equipment on the Project site?

## **3.0 SUMMARY AND CONCLUSION**

Community members from Cambridge Bay who attended the open house and evening session raised questions, provided concerns and comments on the monitoring being conducted by the NIRB for the Doris North Gold Mine project. Generally, community members expressed minimal concerns about the ongoing activities at the Project site. The comments and concerns raised during the two meetings will aid in the identification of items that need to be addressed or considered throughout the Doris North Gold Mine project monitoring program and through the NIRB's impact assessment of similar projects in Nunavut.

## Appendix A: Sign in Sheet

### Nunavut Impact Review Board TMAC's Doris North Gold Mine and Sabina's Back River Gold Mine Community Information Session

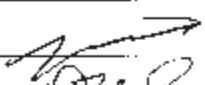

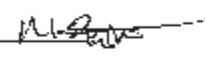


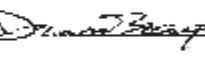
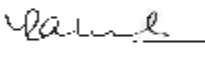
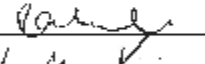
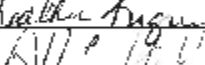
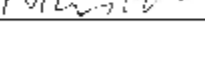
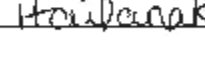
#### SIGN-IN SHEETS

Location: Luke Novilagak Community Hall

Date: August 23, 2018

Time: 2:00-4:00pm

Page No: /

Name (Please Print)	Organization or Community	Signature
Jehung Aurlat	Cambridge	
Alex Buchanan	TMAC	
Maureen Tynan	Cam-Bay	
ANNIE AFTIGHAYAK		
Maureen Tynan	Cam-Bay	
Bethyana Manigagen	" "	
DENNIS ENIGAK	" "	
SUMALAYAGINA	" "	
Roslyn AKWOK		
Sam AKWOK		
Hakukigigum	Cam-Bay	
Allen H. Kanak	Cam-Bay	
G. Eralik		
Helen Aitarak	Cam-Bay	

### Community Information Session

## SIGN-IN SHEETS

**Location:** Lake Norvilgak Community Hall

Date: August 23, 2018

Time: 7:00 pm - 9:30 pm

**Page No:**

[illegible]

## Appendix B: NIRB Presentation

### NUNAVUT AVATILIQIYIT KATIMAYIT NUNAVUT IMPACT REVIEW BOARD

**Ilittuqhitit talvunga Doris North Kulunik Uyaraghiuqviat Havaaghanut Nakuutqiyahiuqtunik**

**Update on the Doris North Gold Project Monitoring Program**

Inungnik Tuhaqtittiniaqtut Iqaluktuuttiimi, NU  
Niqiliqivik 23, 2018

Community Information Session  
Cambridge Bay, NU  
August 23, 2018



### HUNAUGAMIK NUNAVUT AVATILIQINIKKUT KATIMAYIT?

Timiuyut kitunuliqaak kavamaliqiniuyut amiqhaiyut avatingnut aktuqtaunikkut ihivriugtauningit havaariyauyumayu Nunavut tukhiutit Nunavunmi

*Turaarutaa: Hapumminahuarlugit akhuurnahuarlugillu inuuhianit haffuminngat avatingnut Nunavunmiunullu aktuqtauniamut ihivriunikkut pivallianingit*

An institution of public government responsible for environmental impact assessment of proposed projects in Nunavut

*Mission: To protect and promote the well being of the environment and Nunavummiut through the impact assessment process*



### HUNGMAT HAMANIITTUGUT? WHY ARE WE HERE?

- Naittumik nailihimayaayut inikhautingit NIRB'kkut havaariyakhagillu iluani angiqtauhimayunit havaktaugalingnit
- Taamna Doris North-mi havaanginnik ilittuqhitit ihuaqhaqtauhimayuglu Havaaghanut Ilitaqhitjutit
- Inikhautikhangit qanuq ilauqataulaaqutit
- A brief overview of the NIRB and its role in the approval of projects
- The Doris North project update and amended Project Certificate
- Next steps and how you can participate



### NIRB-KUT NAKUUTQIYAHUQTUT DORIS NORTH-MI HAVAKVIANIT NIRB'S MONITORING OF THE DORIS NORTH PROJECT



### NAKUUTQIYAHUQTUT MUNARIYAGHAIT MONITORING RESPONSIBILITIES

NIRB	Havaaghaluqtuq	Ataniqtuqtuiyut Havakviit
<ul style="list-style-type: none"> <li>Naunaikutanik tuniqhainiq</li> <li>Ihivriughiyut Ukiuq Nunagutaanik Naunaikutanik</li> <li>Havakvingnut pulaqtut</li> <li>Ukiuq nunagutaanik naunaikutanik ilittarimayainik</li> <li>Katimayit pitquhimayait</li> </ul>	<ul style="list-style-type: none"> <li>Naunaighitthimmaaqut NIRB-kummut</li> <li>Ukiuq Nunagutaanik Naunaikutanik</li> <li>Nakuutqiyahiuqtut Atangyayallu Parnaiyautait</li> <li>Pilotik pihmahugillu angiqtauhimayut</li> <li>Naunaighituyut laisitaqvingnik</li> </ul>	<ul style="list-style-type: none"> <li>Tunighaivaktut pinnariallutit angiqhivaghiutit</li> <li>Ilittuqhitivaktut havaaghanit Ihuititit</li> <li>Malittiarigahaimik munaghivaktut</li> </ul>
<b>NIRB</b> <ul style="list-style-type: none"> <li>Information distribution</li> <li>Review of Annual Reports</li> <li>Site visit(s)</li> <li>Annual report of findings</li> <li>Board recommendations</li> </ul>	<b>Proponent</b> <ul style="list-style-type: none"> <li>Ongoing reporting to NIRB</li> <li>Annual Report</li> <li>Monitoring and Management Plans</li> <li>Obtain and maintain authorizations</li> <li>Reporting to licensing agencies</li> </ul>	<b>Authorizing Agencies</b> <ul style="list-style-type: none"> <li>Issue authorizations and approvals</li> <li>Report on project Effects</li> <li>Monitor Compliance</li> </ul>

### Doris North Guulit Uyakghiuqvik Havaktaugialik Iltaridjutik

**The Doris North Project Certificate**



In the Matter of the  
Nunavut Land Claims Agreement,  
Her Majesty the Queen of Canada, c. 29  
Article 13, Part 5

And  
In the matter of an  
Application by  
TMAAC Resources Inc.  
for  
Mine Development  
of the  
Doris North Gold Mine Project Proposal  
in the  
Kitikmeot Region of Nunavut

NIRB PROJECT CERTIFICATE (NO. 003)

## DORIS NORTH GUULIT UYAGAKHIUQVIK DORIS NORTH GOLD MINE PROJECT

- September 2006-mi, NIRB-kut aittuqhivaktut Havaaghanut Iitaqhitjutinik
- 2013-mi TMAC-kut (TMAC) nanminiriliqtait Doris North Kulunik Uyaraghiuqviat.
- In September 2006, NIRB issued Project Certificate
- In 2013 TMAC Resources Inc. (TMAC) acquired the Doris North Gold Mine.



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## DORIS NORTH GUULIT UYAGAKHIUQVIK DORIS NORTH GOLD MINE PROJECT

- 2016-mi, NIRB-kut pitquhimayut taimaa nutaannguqtauniqhimayut Havaaghanut angiqtauluni
  - Ministauyuq INAC-kunnut angiqhimayaat NIRB-kut pitquhimayaat
  - Havaaghanut Iitaqhitjutinut Katimapkaiyut ihuaqharahuaqhugu Havaaghanut Iitaqhitjutit Nappa 003
  - Aittuqhiyut ihuaqhaqtauhimayumik Havaaghanut Iitaqhitjutinik
- In 2016, the NIRB recommended that the proposed amendment to the Project be approved
  - Minister of INAC accepted the NIRB's recommendation
  - Project Certificate Workshop to amend Project Certificate No. 003
  - Issued amended PC



8

## IHUAQHAQTAUHIMAYUT HAVAAGHANUT ILITAQHITJUTIT NAPPAA 003 AMENDED PROJECT CERTIFICATE NO. 003

- 34 nutaannguqtiqhimayut Uqauhiit Maliktaghallu
- Atauhiq (1) ungavaqtauhimayut Uqauhiq Maliktaghaqlu
- 14 nutaat Uqauhiit Maliktaghallu
- 34 revised Terms and Conditions
- 1 removed Term and Condition
- 14 new Terms and Conditions



9

## DORIS NORTH GUULIT UYAGAKHIUQVIK DORIS NORTH GOLD MINE PROJECT



Uyaraghiuqtut Havakviat Mine Site



Roberts Kangiqhua Roberts Bay



Hiquphuqtaqhimayut Kiluutalingmi Tutquumaviat Tailings Impoundment Area

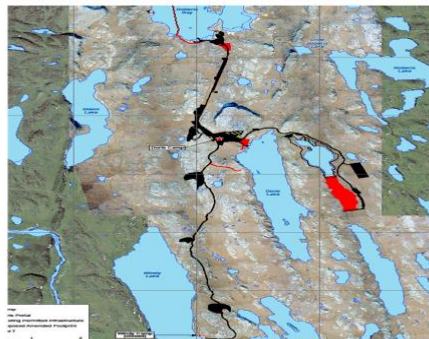
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## DORIS NORTH GUULIT UYAGAKHIUQVIK DORIS NORTH GOLD MINE PROJECT



11

## DORIS NORTH GUULIT UYAGAKHIUQVIK DORIS NORTH GOLD MINE PROJECT



12

# DORIS NORTH GUULIT UYAGAKHIUQVIK DORIS NORTH GOLD MINE PROJECT



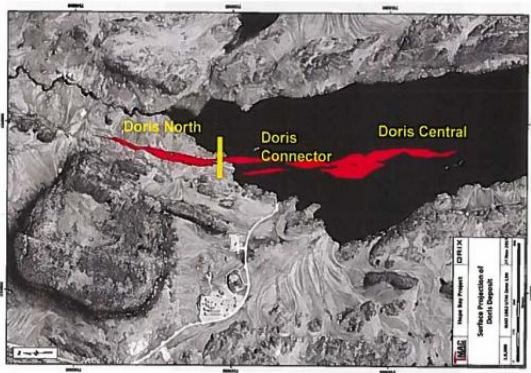
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# DORIS NORTH GUULIT UYAGAKHIUQVIK DORIS NORTH GOLD MINE PROJECT



14

# MUYARAGHIUQVIIT MINING ZONES



15

# QINNGAT AIR VENTS



16

# HIQUPLUQTAAQHIMAYUT KILUUTALINGMI TUTQUUMAVIAT TAILINGS IMPOUNDMENT AREA

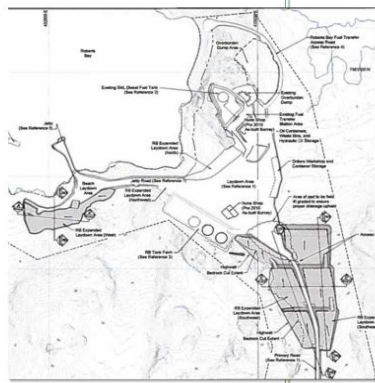


17

# ROBERTS KANGIQHUA ROBERTS BAY



18



19



20

### INUNGNUT-İKAYUUTIT AVATAAT SOCIO-ECONOMICS

- Hunakiat ihuaqhaqtauvaktut talvuuna Inuit Ihuilutinit Ikayuutit Angirutainik
- Items are typically dealt with through the Inuit Impact Benefits Agreement



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### TMAC-KUT HAVAAGHANIT HULIYAGHAIT 2017-2018-MILU TMAC'S PROJECT ACTIVITIES 2017 – 2018



22

### TMAC-KUT HAVAAGHANIT HULIYAGHAIT 2017-2018-MILU TMAC'S PROJECT ACTIVITIES 2017 – 2018



23

### TMAC-KUT HAVAAGHANIT HULIYAGHAIT 2017-2018-MILU TMAC'S PROJECT ACTIVITIES 2017 – 2018



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**TMAC-KUT HAVAAGHANIT HULIYAGHAIT  
2017-2018-MILU  
TMAC'S PROJECT ACTIVITIES 2017 – 2018**



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**TMAC-KUT HAVAAGHANIT HULIYAGHAIT  
2017-2018-MILU  
TMAC'S PROJECT ACTIVITIES 2017 – 2018**



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**TMAC-KUT HAVAAGHANIT HULIYAGHAIT  
2017-2018-MILU  
TMAC'S PROJECT ACTIVITIES 2017 – 2018**



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**TMAC-KUT HAVAAGHANIT HULIYAGHAIT  
2017-2018-MILU  
TMAC'S PROJECT ACTIVITIES 2017 – 2018**



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**TMAC-KUT HAVAAGHANIT HULIYAGHAIT  
2017-2018-MILU  
TMAC'S PROJECT ACTIVITIES 2017 – 2018**



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**TMAC-KUT HAVAAGHANIT HULIYAGHAIT  
2017-2018-MILU  
TMAC'S PROJECT ACTIVITIES 2017 – 2018**



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**TMAC-KUT HAVAAGHANIT HULIYAGHAIT  
2017-2018-MILU  
TMAC'S PROJECT ACTIVITIES 2017 – 2018**



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**TMAC-KUT HAVAAGHANIT HULIYAGHAIT  
2017-2018-MILU  
TMAC'S PROJECT ACTIVITIES 2017 – 2018**



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**TMAC-KUT HAVAAGHANIT HULIYAGHAIT  
2017-2018-MILU  
TMAC'S PROJECT ACTIVITIES 2017 – 2018**



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**TMAC-KUT HAVAAGHANIT HULIYAGHAIT  
2017-2018-MILU  
TMAC'S PROJECT ACTIVITIES 2017 – 2018**



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**2018-MI UYARAGHIUQVINGNIK PULAAQTUT  
ILITTURIHIMAYAIT  
2018 SITE VISIT OBSERVATIONS**

- Hanayut uyaraghiuqvingnit
- Ukiuq tamaat Hunaqutighaqtatut
- Aulapkaittiaqtayuq uqhughanut tutquumaviit
- Parnaihimattiaqtuq havakviit
- Construction on site
- Annual resupply
- Well maintained fuel storage facilities
- Well organized site

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**IHUMAGIYATIT IHUMAGIYALLUAQTUT!  
YOUR IDEAS ARE IMPORTANT!**

TAMINNUT NAUNAITKUTIT INUIT QAUJIMAJATUQANGIT IHUMAGIYALLUAQTUT NIRB'NUT  
GENERAL INFORMATION AND INUIT QAUJIMAJATUQANGIT IS IMPORTANT TO THE NIRB!

**Qanuq ilaunginnarialiuvit?**

- ❖ Ihivriuglugit TMAC-kut ukiuq nunngutaanut naunaitkutait
- ❖ Tunilugit titiraqhimayut uqauhiit apiqhuutillu
- ❖ Hivayaqlugu NIRB-kut havakviat akiittukkut hivayutaat Havaaghat mighaagut unipkaarutigilugu havaktiptingnut

**How can you get involved?**

- ❖ Review TMAC's annual reports
- ❖ Submit written comments and questions
- ❖ Phone the NIRB's office toll-free to talk about the Project with our staff



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**QANUQ ILITPAALLIQNIAQQIT NIRB-KUT QAUYIHAQTAINIK?**  
**HOW CAN YOU LEARN MORE ABOUT NIRB'S ASSESSMENTS?**

○ Inuit Titiraqviat

- Qiniqluhi havaaghaqnik titiraqmikluuniit
- Atiliqtuqtauluhi naunaitkutanik tuniyauqattariami

○ Tatqiqhiut

- Aulayut havaaghat umikvighaillu



○ Public Registry

- Search for project or document
- Register to receive notifications

○ Calendar

- Active projects and deadlines



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**QUANAQQUTIT!**  
**THANK YOU!**



- **Apiquutit?**
- **Questions?**

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Appendix C: NIRB Flyer

**NUNAVUT IMPACT REVIEW BOARD**

**Community Information Session**

Come hear an update on  
**TMAC's Doris North Gold Mine Project**  
and  
**Sabina's Back River Gold Mine Project**

**Thursday, August 23, 2018**

**Open House: 2:00-4:00pm**

**Public Meeting: 7:00 pm**

**Luke Noviligak Community Hall**

Everyone welcome!  
Light refreshments will be served.  
Simultaneous interpretation will be provided.

