



March 10, 2014

Our reference  
IQALUIT-#782288

Your reference  
2AM-DOH1323

Phyllis Beaulieu  
Manager of Licensing  
Nunavut Water Board  
GJOA HAVEN, NU X0E 1J0

**Re: Aboriginal Affairs and Northern Development Canada completeness review of TMAC  
Resources Inc.'s December 11, 2013 application to amend water licence #2AM-DOH1323**

Dear Ms. Beaulieu:

Thank you for your email of February 7, 2014, concerning the above mentioned application. A memorandum is provided for the Board's consideration. Comments have been provided pursuant to the Department's mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*.

Please do not hesitate to contact me by telephone at 867-975-4555 or email at [david.abernethy@aandc-aadnc.gc.ca](mailto:david.abernethy@aandc-aadnc.gc.ca) for further information.

Regards,

David W.  
Abernethy

Digitally signed by David W. Abernethy  
DN: cn=David W. Abernethy, o=Aboriginal Affairs  
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Date: 2014.03.10 16:42:16 -0400

David Abernethy  
Regional Coordinator  
Water Resources Division  
Resource Management Directorate  
Aboriginal Affairs and Northern Development Canada  
IQALUIT, NU X0A 0H0

Encl.

c.c.: Murray Ball, Manager of Water Resources, AANDC Nunavut  
Erik Allain, Manager of Field Operations, AANDC Nunavut  
Karen Costello, Director of Resource Management, AANDC Nunavut  
Megan Porter, Licensing Administrator, NWB



## Memorandum

To: Phyllis Beaulieu, Nunavut Water Board

From: David Abernethy, Aboriginal Affairs and Northern Development Canada

CC: Murray Ball (AANDC), Erik Allain (AANDC), Karen Costello (AANDC), and Megan Porter (NWB)

Date: March 10, 2014

Re: **2013 Amendment Application (#1) to Water Licence #2AM-DOH1323**

**Licensee:** TMAC Resources Inc.  
**Project:** Doris North  
**Region:** Kitikmeot

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Comments:

### A. Background

On February 7, 2014, the Nunavut Water Board (the "NWB") provided notification of an application by TMAC Resources Inc. (the "Licensee") to amend its Type 'A' Water Licence, #2AM-DOH1323, for mining and milling purposes associated with the Doris North Project. This licence permits water use and disposal of waste associated with the development, operation, and eventual closure of a gold mine (underground deposit). The Licensee is requesting revised licence conditions that would make it possible for the project's overall mine life to be increased by two to four years (total six to eight year mine life).

The NWB requested that interested parties:

1. Review the application completeness and technical assessment, identifying any Information Requests;
2. Comment on the Type of Technical Meeting/Pre-Hearing Conference and Public Hearing to be held (written, teleconference, or in person); and
3. Comment on the Licensee's request for a coordinated review, including a joint hearing process for the amendment application currently before both the NWB and the Nunavut Impact Review Board (the "NIRB"). The NIRB are reviewing a project certificate amendment application.

Interested parties were requested to provide comments by March 10, 2014.



## Results of review

The following recommendations are provided for the NWB's consideration:

### 1. Completeness and Technical Assessment

#### ***Issue #1: Requested 60 Day Timeline for the Approval of Management and Monitoring Plans***

**Comments:** The Licensee has not included revised management and monitoring plans in support of its application. Rather, as stated in section 9 of its project proposal (TMAC 2013), they are requesting that “updated plans be provided to the NWB within 60 days of executing any approved activities.” Furthermore, as stated in section 5.2 of this document, the Licensee is requesting that plans be “deemed approved once the 60 day time period has passed.”

Based on an initial review of the application, the following management and monitoring plans referenced in the licence are affected by the proposed changes to project activities:

- i. Hope Bay Project Quarry A, B, and D Management and Monitoring Plan (SRK 2010a);
- ii. Hope Bay Doris North Waste Rock Ore Management Plan (SRK 2010c);
- iii. Doris North Project Interim Water Management Plan – Revision 5 (SRK 2012c);
- iv. Hazardous Waste Management Plan (HBML 2012a);
- v. Incinerator Management Plan – Rev 1.1 (HBML 2012b);
- vi. Waste Water Treatment Management Plan – Rev 3 (HBML 2012c);
- vii. Spill Contingency Plan (HBML 2012d);
- viii. Quality Assurance and Quality Control Plan – Rev 7.1 (HBML 2012e);
- ix. Tailings Management Plan (MHBL 2007);
- x. Aquatic Effects Monitoring Plan (Rescan 2010);
- xi. Doris North Closure and Reclamation Plan (SRK 2012b)

Existing licence terms and conditions include timelines for the submission of revised plans by project phase (e.g., prior to the start of operations, following operations, and before a facility is commissioned). Furthermore, Part B, Item 6 of the licence allows the Licensee to submit revised plans with Annual Reports. This licence condition states:

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

According to Part B, Item 4 of the licence, submitted plans cannot be implemented without written Board approval and direction. Furthermore, Part Item 7 of the licence states:

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

The requested 60 day timeline for reviewing and approving revised management and monitoring plans outside of the application stage (i.e., during the licence term) is unreasonable. This would restrict for the Board's decision making process, limit the exchange of information between interested parties and the Licensee, and not consider the resources required by the NWB and interested parties to concurrently review the submissions of other Licensees/Applicants.



**Recommendation:** The NWB should carefully consider the implications associated with accepting the Licensee's request to submit revised management and monitoring plans 60 days prior to executing approved activities and the deemed approval of these plans following this time period. Adequate time should be allocated for the review and approval of revised plans.

***Issue #2: Need for a Revised Tailings Management Plan Prior to Commencing Technical Review***

**Comment:** The Licensee is requesting significant changes to the management of tailings that will be produced at the mill. These include:

- Increased tailings production;
- Maximizing the tailings impoundment area's capacity by reducing the water cover from 4.0 m to 2.3 m;
- Directing destructured cyanide tailings with flotation tailings to the tailings impoundment area (the previous management strategy was to place destructured cyanide tailings underground as paste backfill);
- Directing saline groundwater encountered in the talik beneath Doris Lake (during mining of the Doris Central, Doris Connector, and below the permafrost in the Doris Lower deposits) to the tailings impoundment area; and
- Discharging tailings impoundment area water to Roberts Bay rather than Doris Creek (following treatment).

Although information related to these activities is provided in supporting memos the Tailings Management Plan should be revised in the application stage. This would allow interested parties to have a better understanding of how the above mentioned changes will be managed and provide meaningful comments to the NWB.

**Recommendation:** Prior to commencing at technical review of the application the Licensee should provide a revised Tailings Management Plan. At a minimum, this plan should:

- Addresses and expand on the headings included in the April 2007 plan (MHL 2007) to incorporate changes that will result from the planned changes to project activities. These headings are:
  - ✓ Purpose and Scope of the Tailings Management Plan;
  - ✓ Construction of the Tailings Impoundment Area;
    - Construction of Dams and Embankments
    - Roads, Pipelines, and Distribution Lines
  - ✓ Tailings Deposition; and
  - ✓ Tail Lake Water Management
    - Objectives
    - Doris Creek Flow Monitoring
    - Determination of the Discharge Rate
    - Discharge Control
    - Operational Strategy
- How the tailings impoundment area will be managed throughout the project's life cycle (i.e., operations, care and maintenance following the commencement of operations, closure, and post closure)



***Issue #3: Need for Revised Waste Rock and Ore Management and Quarry Management Plans Prior to Commencing Technical Review***

**Comments:** The Licensee's Waste Rock and Ore Management Plan (SRK 2010c) and Quarry Management and Monitoring Plan (SRK 2010a) are considered significant components for the management of water within the project area. The application includes supporting memos for the geochemical characterization of the new Quarry I (SRK 2011a) as well as geochemical characterization and kinetic testing of waste rock and ore from the Doris deposits (SRK 2011b, SRK 2012c). The findings presented within these memos and the overall changes in waste rock, ore, and quarry management that will result from the proposed changes to project activities should be incorporated in revised management plans.

**Recommendation:** Prior to commencing a technical review of the application the Licensee should provide revised Waste Rock and Ore Management and Quarry Management Plans. These plans should incorporate the findings presented in the geochemical characterization and kinetic testing reports that were provided with the application.

***Issue #4: Need for a Revised Water Management Plan Prior to Commencing Technical Review***

**Comment:** Having a comprehensive Water Management Plan that addresses how contact and non-contact water within the project area will be managed throughout the project's life cycle (i.e., construction, operations, care and maintenance following the commencement of operations, closure, and post-closure) is important for the responsible licensing of this project. A plan that summarizes the various flow paths of water, monitoring regimes (i.e., monitoring locations, frequency of collecting samples, parameters that will be analyzed, reporting structure, etc.), discharge criteria, and hydrology would allow interested parties to have a better understanding of the proposed changes to project activities and provide meaningful comments to the NWB.

The current Interim Water Management Plan (SRK 2012c) is limited in scope as it is specific to the project's pre-production phase. According to section 1.1 of SRK 2012c, the Licensee planned to implement the water management strategy presented in the plan until, "the site is either closed and reclaimed or proceeds into operations and tailings are discharged to Tail Lake. A final water management plan will be developed and implemented prior to depositing tailings into Tail Lake." The 2013 application proposes changes in water management that are not included in SRK 2012c. These changes include:

- Marine discharge of treated water from the tailings impoundment area;
- Reduction in Tail Lake water cover from 4.0 m to 2.3 m;
- An expansion to the waste rock storage facilities (Pad U);
- A new pollution control pond on the waste rock expansion area (above);
- A new laydown area near Roberts Bay;
- Increased domestic wastewater treatment as a result of increased camp size; and,
- An analysis of Windy Lake's capacity to support the water use requirements of the Doris North Project (potable use) and the Hope Bay Regional Exploration Program (drilling and potable use).

**Recommendation:** Prior to commencing a technical review of the application the Licensee should provide a revised (comprehensive) Water Management Plan that incorporates the proposed changes to project activities and water within the project area will be managed throughout the project's life cycle (i.e., construction, operations, care and maintenance following the commencement of operations, closure, and post-closure). This plan should summarize the various flow paths for water, monitoring regimes (i.e.,



monitoring locations, frequency of collecting samples, parameters that will be analyzed, reporting structure, etc.), discharge criteria, and local hydrology.

***Issue #5: Need for Revised Closure and Reclamation Plan and Security Estimate***

**Comment:** The Licensee has provided a supporting memo (SRK 2013) on changes to closure planning and the associated liabilities based on its application. Although this memo provides a good overview of changes to closure activities it is impractical to adjust the water licence security requirement (financial assurance) without a revised Closure and Reclamation Plan and detailed security estimate. Furthermore, an understanding of additional security requirements imposed by the Kitikmeot Inuit Association's land use authorizations should be evaluated before making any changes to the licensed security requirement.

**Recommendation:** Prior to commencing a technical review of the application the Licensee should submit a revised Closure and Reclamation Plan and (detailed) security estimate. The model used to estimate the total security estimate should be identified.

A teleconference attended by the Nunavut Water Board, Aboriginal Affairs and Northern Development Canada, the Kitikmeot Inuit Association, and possibly, the Licensee may be warranted to discuss the potential discounting of land lease security from water licence reclamation security. Lessons learned from the recent Mary River Project application review may assist in identifying evidence required to consider applying discounting when setting the security amount.

***Issue #6: Need for a Revised Wastewater Treatment Management Plan***

**Comment:** Pursuant to Part G, Item 4 of the licence, the Licensee is required to submit a revised Wastewater Treatment Management Plan at least 60 days prior to re-commissioning the Wastewater Treatment Plant. The revised plan must take into consideration the following:

- a. Operation, maintenance, and sludge management; and
- b. Comments received during the review of the March 2012 (Rev 3) Plan as well as technical review comments provided on the October 2012 (Rev 3) Plan through the renewal application process.

It appears that there was an oversight when setting this licence condition because according to monthly monitoring reports the Wastewater Treatment Plant has been operational since late March 2013.

**Recommendation:** Because the project's Wastewater Treatment Plant is operational the Licensee should provide a revised Wastewater Treatment Management Plan for technical review. This revised plan should address the requirements specified in Part G, Item 4 of the licence.

***Issue #7: Water Management Planning***

**Comment:** Part F, Item 1 of the licence approves the Licensee's February 2012 Doris North Project Interim Water Management Plan (SRK 2012a). The version included in the Licensee's 2012 renewal application was dated December 2012 (SRK 2012c).

Section 4.4.2 of the project proposal (TMAC 2013) references a site wide water management plan that is not included in the application and states that more information on site wide water management is





provided in Appendix #4 of the application which is a supporting document specific to the marine discharge of treated tailings impoundment area water (Rescan 2013). It is not known if the site wide water management plan is an actual document or an understanding that water will be managed in such a way to allow for the project to be developed as planned (i.e., the culmination of various operational activities). Section 9 of TMAC 2013 also makes reference to a Hydrology Monitoring Plan that is not included in the application.

**Recommendation:**

Unless the NWB requires the Licensee to submit a revised Water Management Plan that addresses proposed changes to project activities and the anticipated project life cycle, Part F, Item 1 of the licence should be amended to reference the December 2012 Doris North Project Interim Water Management Plan (SRK 2012c) rather than the February 2012 plan (SRK 2012a).

The Licensee should provide a copy of its Hydrology Monitoring Plan and site wide water management plan referenced in sections 4.4.2 and 9 of the project proposal (TMAC 2013) prior to the technical review of its application.

**Issue #8: Water use on Accommodation Barges and Fuel Vessels**

**Comment:** According to the project proposal's executive summary (TMAC 2013), the Licensee plans to "supplement permanent accommodations located on site with continued use of the accommodation barges located in Roberts Bay or similar activities, which will support 125 additional workers during construction" and "from time to time and as needed, over-winter fuel barges and vessels in ice in order to ensure continuous delivery of fuel to site." Section 1.3 of this proposal expands on the use and freezing in of accommodation barges and fuel barges/vessels by stating that these activities "may continue for the life of the project."

The project proposal also states that the annual domestic water consumption limit should be increased by 2,555 m<sup>3</sup> to 25,500 m<sup>3</sup> (7 m<sup>3</sup> increase per day) to support the increased scope of project activities (additional 180 project personnel to a total of 360). This water would come from Windy Lake which already permits 22,995 m<sup>3</sup> for domestic use. The Licensee has not requested any change to the project's overall water consumption limit of 480,000 m<sup>3</sup> per year (water used for milling and processing purposes will originate from Doris Lake). It is not known if the requested increase in domestic water use will also support the accommodation barges and fuel vessels. Any water sourced from shore used by accommodation barges or fuel vessels should be authorized through a licence amendment.

**Recommendation:** The Licensee should confirm whether water from Windy Lake or from other waters sources within the project area will be used to support its accommodation barges and fuel vessels.

**Issue #9: Waste disposal from Accommodation Barges and Fuel Vessels**

**Comment:** The licence amendment application does not describe how wastes originating from the accommodation barges and fuel vessels will be managed (i.e., domestic wastewater, solid waste, hazardous waste materials, etc.). Any waste materials produced by these barges and vessels that are managed on shore should be authorized through a licence amendment.



**Recommendation:** The Licensee should explain how wastes produced by the accommodation barges and fuel vessels will be managed (i.e., domestic wastewater, solid waste, hazardous waste materials, etc.).

### ***Issue #10: Review of Landfarm Management and Monitoring Plan***

**Comment:** Pursuant to Part G, Item 13 of the licence, the Licensee is required to submit a revised Landfarm Management and Monitoring Plan three months prior to commissioning its landfarm facility. The revised plan is to include the following updates:

- a. Operation and maintenance considerations including the methods of characterization, segregation, and treatment;
- b. Confirmation of the Soil Quality Remediation Objectives (SQROs) and distinction between where parkland versus industrial standards will be applied;
- c. Contingency measure for contaminated soils that do not meet the SWROs;
- d. As-built drawings signed and stamped by an Engineer; and
- e. Any proposed future uses.

According to the 2012 Annual Report submitted pursuant to Part B, Item 3 of the licence, the project's landfarm facility was completed in 2011 and began receiving contaminated snow and soil shortly afterward. There is no indication that a plan has been approved. Therefore, commissioning of the landfarm appears to have been premature.

On July 21, 2010, the NWB (NWB 2010) distributed to interested parties for information purposes a revised Landfarm Management and Monitoring Plan (SRK 2010b) that was submitted by Hope Bay Mining Ltd. (previous licensee) on July 16, 2010 as a requirement of Part G, Item 14 of the original licence. I cannot find review memos from interested parties or NWB approval of this revised plan on the NWB's public registry.

**Recommendation:** The Licensee's July 16, 2010 Landfarm Management Plan (SRK 2010b) should be included within the scope of the current application review.

## **2. Type of Technical Meeting/Pre-Hearing Conference and Public Hearing**

The Technical Meeting and Pre-hearing Conference should be held (in person) in Cambridge Bay, Nunavut. This format would help resolve technical issues associated with the application and increase people's (interested parties and members of the public) understanding of the Licensee's project development plans.

The Licensee and interested parties should comment on the type of Public Hearing following during the Pre-Hearing Conference. An in-person hearing in Cambridge Bay should be considered based on (i) the resolution of issues addressed at the NWB Technical Meeting and (ii) the level of public participation at this meeting.





### 3. Coordinated NIRB and NWB Review

A coordinated review between the NIRB and NWB can be realized. It is recommended that the review be implemented as follows:

1. Completeness Review
  - a. Interested parties submit written submissions to the NIRB on February 9, 2014
  - b. Interested parties submit written submissions to the NWB March 10, 2014
2. Licensee's Response to Completeness Review Submissions Presented to the NIRB and NWB by Interested Parties
3. NIRB Technical Review
4. NIRB Technical Meeting and Pre-Hearing Conference
  - a. NWB staff may serve as technical advisors to the NIRB
  - b. The NWB may direct the Licensee to provide any additional information that may be needed to complete the licence amendment application
5. Final Written Submissions from Interested Parties to the NIRB
6. NIRB Public Hearing
  - a. NWB staff may serve as technical advisors to the NIRB
7. NIRB Hearing Report and Recommendation to the Minister
8. Minister(s) Decision
9. Regulators Meeting
10. Issuance of Project Certificate Amendment
11. NWB Technical Meeting and Pre-Hearing Conference in Cambridge Bay, NU
12. Pre-Hearing Conference Decision, 60 day Notice of NWB Public Hearing, and Request for Final Written Submissions from Interested Parties
13. Exchange of Information Between the Licensee and Interested Parties
14. Final Written Submissions from Interested Parties to the NWB
15. NWB Public Hearing
16. Issuance of NWB Licence Amendment and Recommendation to the Minister
17. Minister's Decision



#### 4. References

HBML 2012a. Hope Bay Mining Ltd. *Hazardous Waste Management Plan - Rev 1.1*. Prepared for the Nunavut Water Board. March 2012.

HBML 2012b. Hope Bay Mining Ltd. *Incinerator Management Plan – Rev 1.1*. Prepared for the Nunavut Water Board. March 2012

HBML 2012c. Hope Bay Mining Ltd. *Waste Water Treatment Management Plan – Rev 3*. Project #HB-WM-OPS-MO-004. Prepared for the Nunavut Water Board. October 2012.

HBML 2012d. Hope Bay Mining Ltd. *Spill Contingency Plan (Rev 5)*. Project #HB-ER-ENV-MP-001. October 2012.

HBML 2012e. Hope Bay Mining Ltd. *Quality Assurance and Quality Control Plan 2AM-DOH07136, 2BB-BOS1217, 2BE-HOP1222 – Rev 7.1*. Project #HB-QA-ENV-MP-001. November 2012.

MHBL 2007. Miramar Hope Bay Ltd. *Tailings Management Plan – Doris North Project, Nunavut*. April 2007.

NWB 2010. Nunavut Water Board. *Subject: Submission of 2AM-DOH0713 – Updated Landfarm Management Plan*. Letter from Phyllis Beaulieu, NWB, to Chris Hanks, Hope Bay Mining Ltd. July 21, 2010.

Rescan 2010. Rescan Environmental Services Ltd., an ERM company. *Aquatic Effects Monitoring Plan, Doris North Gold Mine Project*. Prepared for Hope Bay Mining Ltd. February 2010.

Rescan 2013. Rescan Environmental Services Ltd., an ERM company. *Doris North Project: Roberts Bay Report. A Supporting Document for the Project Certificate and Type A Water Licence Amendment Package*. Prepared for TMAC Resources Inc. November 2013.

SRK 2010a. SRK Consulting (Canada) Inc. *Hope Bay Project Quarry A, B, and D Management and Monitoring Plan - Hope Bay, Nunavut, Canada*. Prepared for Hope Bay Mining Ltd. Project #SRK-1CH008.038.002. April 2010.

SRK 2010b. SRK Consulting (Canada) Inc. *Doris North Land Farm Management and Monitoring Plan - Hope Bay, Nunavut, Canada*. Prepared for Hope Bay Mining Ltd. Project Number 1CH008.038.003. May 2010.

SRK 2010c. SRK Consulting (Canada) Inc. *Hope Bay Doris North Waste Rock Ore Management Plan*. Prepared for Hope Bay Mining Ltd. Project #SRK 1CH008.029. December 2010.

SRK 2011a. SRK Consulting (Canada) Inc. *Geochemical Characterization Program for Quarry I, Doris*. Prepared for Hope Bay Mining Ltd. Project #1CH008.043. November 2011.

SRK 2011b. SRK Consulting (Canada) Inc. *Kinetic Testing of Waste Rock and Ore from Doris Deposits, Hope Bay*. Prepared for Hope Bay Mining Ltd. Project #1CH008.043. November 2011.

SRK 2011c. SRK Consulting (Canada) Inc. *Geochemical Characterization Report for Waste Rock and Ore from the Doris Deposits, Hope Bay*. Prepared for Hope Bay Mining Ltd. Project #1CH008.043. November 2011.

SRK 2012a. SRK Consulting (Canada) Inc. *Doris North Project – Interim Water Management Plan*. Prepared for Hope Bay Mining Ltd. Project #1CH008.050. February 2012.



SRK 2012b. SRK Consulting (Canada) Inc. *Doris North Closure and Reclamation Plan*. Prepared for Hope Bay Mining Ltd. Project # 1CH008.065. August 2012.

SRK 2012c. SRK Consulting (Canada) Inc. *Doris North Project – Interim Water Management Plan, Revision 5*. Prepared for Hope Bay Mining Ltd. Project #1CH008.069. December 2012.

SRK 2013. SRK Consulting (Canada) Inc. *Reclamation and Security Brief for Amendment to Doris North Type A Water Licence No. 2AM-DOH1323*. Prepared for TMAC Resources Inc. Project Number 1CHT022.000. November 6, 2013.

TMAC 2013. *Doris North Mine Modifications and Related Amendments to Project Certificate No. 003 and Type A Water Licence No. 2AM-DOH1323*. Prepared by TMAC Resources Inc. November 2013.

Prepared by David Abernethy