Your file - Votre référence
2BB-MAE----

May 8, 2015

Our file - Notre référence
IQALUIT-#914685

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

Re: Aboriginal Affairs and Northern Development Canada Review of TMAC Resources Inc's Application for a New Type 'B' Water Licence, #2BB-MAE----

Dear Ms. Beaulieu:

Thank you for your email of March 24, 2015, concerning the above mentioned application. A memorandum is provided for the Board's consideration. Comments and recommendations have been provided pursuant to Aboriginal Affairs and Northern Development Canada'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 for further information.

Sincerely,

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

Encl.

c.c.: Andrew Keim, A/Manager, Water Resources Division, Resource Management, AANDC Nunavut
Erik Allain, Manager, Field Operations Division, AANDC Nunavut
Amjad Tariq, Regulatory and Science Advisor, Water Resources Division, AANDC Nunavut
Eva Paul, Water Resource Officer, Field Operations Division, AANDC Nunavut

Memorandum

To: Phyllis Beaulieu, Nunavut Water Board

From: David Abernethy, Aboriginal Affairs and Northern Development Canada

CC: Andrew Keim (AANDC), Erik Allain (AANDC), Amjad Tariq (AANDC), and Eva Paul (AANDC)

Date: May 8, 2015

Re: New Type 'B' Water Licence Application, #2BB-MAE----

Applicant: TMAC Resources Inc
Project: Madrid Advanced Exploration Program
Region: Kitikmeot

Comments:

A. Background

On March 24, 2015, the Nunavut Water Board (NWB) provided notification of TMAC Resources Inc's (the "applicant") application for a new type B water licence, #2BB-MAE----. This licence would allow the use of water and disposal of waste associated with their Madrid Advanced Exploration Program.

Interested parties were asked to review the application and provide comments by May 8, 2015 (deadline extended following a request for extension made by Aboriginal Affairs and Northern Development Canada (AANDC) on April 24, 2015).

B. Results of review

On behalf of AANDC, the following comments and recommendations are provided:

Issue #1: Acid Base Accounting of sample set from Madrid North bulk sample waste rock

Reference: TMAC Resources Inc. *Madrid Advanced Exploration Program – Type B Water Licence Application Supplemental Information Report*. December 2014. Appendix 8-B. Section 2.1.2 Static Test Results and Mineralogy. SRK, December 2014 *Memo – Overview of Madrid North and South Bulk Sample ML/ARD Characterization Programs and Conceptual Waste Rock Management Plans*.

Comment: The report notes that waste rock from the Madrid North bulk sample will contain early gabbro (category 7a) rock formations that have the potential to be acid generating due to low amounts of both sulphide and neutralization potential.

Recommendation: The applicant should conduct additional geochemical analysis on the rock formations at the Madrid North bulk sample area and provide review findings in upcoming annual report submissions. It is noted that only six samples of the early gabbro (category 7a) rock formation were subjected to acid base accounting analysis.

Issue #2: Submission of a Comprehensive Waste Rock Management Plan six months after issuance of a type B water licence

Reference: TMAC Resources Inc. *Madrid Advanced Exploration Program – Type B Water Licence Application Supplemental Information Report*. December 2014. Appendix 8-B. Section 3: Conceptual Waste Rock Management Plan. SRK, December 2014 *Memo – Overview of Madrid North and South Bulk Sample ML/ARD Characterization Programs and Conceptual Waste Rock Management Plans*.

Comment: This report presents a conceptual waste rock management plan. The report states that a comprehensive waste rock management plan will be developed and submitted six months after the issuance of a type B water licence.

Recommendation: The submission of a Comprehensive Waste Rock Management Plan six months after issuance of a type B water licence is reasonable. This plan should be distributed to interested parties for review. Additional information that may be acquired by the applicant during this time period can lead to a good quality submission. If issued, the licence should make the submission of this plan within six months of licence issuance a term and condition. The licence should also stipulate that there be no continued stockpiling of waste rock in 2016 if the plan is not approved following three months of receipt by the NWB.

Issue #3: Segregation of potentially acid generating for non-potentially acid rock generating waste rock

Reference: TMAC Resources Inc. *Madrid Advanced Exploration Program – Type B Water Licence Application Supplemental Information Report*. December 2014. Appendix 8-B. Section 3: Conceptual Waste Rock Management Plan. SRK, December 2014 *Memo – Overview of Madrid North and South Bulk Sample ML/ARD Characterization Programs and Conceptual Waste Rock Management Plans*.

Comment: The report claims, “the geochemical characterization programs for the Madrid Advanced Exploration Project indicated that there are no practical methods for segregating potentially acid generating (PAG) waste rock from non-PAG waste rock.” The segregation of non-PAG and PAG waste rock is commonly practiced at other mine sites (e.g., Meadowbank Gold Project and the Doris North Gold Project) for environmental protection and reclamation purposes.

Recommendation: The applicant should explain why it believes that the segregation of non-PAG from PAG waste rock is not possible for the Madrid Exploration Project prior to

licence issuance. The department is concerned about the potential for acid rock drainage originating from waste rock stockpiles.

Issue #4: Parameters of concern from water collected within Pollution Control Ponds and seeps downstream of waste rock piles

Reference: TMAC Resources Inc. *Madrid Advanced Exploration Program – Type B Water Licence Application Supplemental Information Report*. December 2014. Appendix 8-B. Section 3: Conceptual Waste Rock Management Plan. SRK, December 2014 *Memo – Overview of Madrid North and South Bulk Sample ML/ARD Characterization Programs and Conceptual Waste Rock Management Plans*.

Comment: The report states, "Water collected in the Pollution Control Ponds and any seeps flowing directly from waste rock would be monitored in accordance with the water licence and to monitor metal leaching from the stockpile. The objective of monitoring is to assess the magnitude of arsenic and nickel concentrations to inform waste management practices and adjust closure planning, if results determine this is appropriate."

Recommendation: The applicant should explain the importance of assessing the magnitude of arsenic and nickel concentrations from collected water and if there are any other parameters of concern (metals and metalloids). The implications of having high concentrations of specific parameters should be made known through either a memorandum or a monthly monitoring report sent to the NWB.

Issue #5: Sampling frequency of waste rock

Reference: TMAC Resources Inc. *Madrid Advanced Exploration Program – Type B Water Licence Application Supplemental Information Report*. December 2014. Appendix 8-B. Section 3: Conceptual Waste Rock Management Plan. SRK, December 2014 *Memo – Overview of Madrid North and South Bulk Sample ML/ARD Characterization Programs and Conceptual Waste Rock Management Plans*.

Comment: The report states that monitoring of waste rock would include a geological inspection and collection of confirmatory samples from the blasted rock, either from the within the mine, or immediately following placement in the waste rock pile. Sampling frequency would be approximately one sample per 5,000 tonnes of rock. A minimum of one in five samples would be submitted for full acid base accounting tests. The other four samples would be submitted for total sulphur and TIC (total inorganic carbonates) only.

Recommendation: The applicant should explain the basis for its planned frequency of sampling waste rock. Reference to applicable standards / guidelines should be provided.

Issue #6: Reclamation cost estimate

Reference: TMAC Resources Inc. *Madrid Advanced Exploration Program – Type B Water Licence*

Application Supplemental Information Report. December 2014. Section 9: Reclamation and Closure.

TMAC Resources Inc. *Madrid Advanced Exploration Program – Type B Water Licence Application Supplemental Information Report*. December 2014, Appendix 9. SRK, October 2014 Memo – Hope Bay Project: Madrid Advanced Exploration Project: Conceptual Closure and Reclamation Plan.

Comment: The applicant recommends that the total closure and reclamation cost for the Madrid Advanced Exploration Project be set at $7,131,000 in 2014 CAD. Of this amount, $4,425,000 are for direct costs and $2,706,000 for indirect costs. The closure cost estimates were developed using an MS Excel spreadsheet base cost estimating process that is consistent with the principles of RECLAIM 6.1. This spreadsheet model was accepted by the NWB during the 2014 renewal of the Doris North Gold Project's type A water licence.

The department notes that the RECLAIM model has been revised (version 7) and that the submitted cost estimate does not include care and maintenance provisions. It is the department's experience that there is inevitably a period of care and maintenance required after an operator abandons a site due to financial difficulty. That time is required for legal processes, non-operator reclamation planning, service procurement, etc. Costs expended on interim care and maintenance in that period reduce the amount of security available for reclamation purposes.

Recommendation: The applicant should familiarize itself with the most recent version of RECLAIM (version 7) and make any necessary revisions to its reclamation cost estimate. Additionally, the applicant should ensure that its cost estimate includes care and maintenance provisions. The applicant should provide this information within three months of licence issuance.

The water licence can include a term and condition that would allow for the review of the reclamation cost estimate and posting of reclamation security following its issuance. If the NWB is in agreement, such a review should occur three months followings the licence issuance.

Issue#7: Proposed term of licence

Reference: TMAC Resources Inc Application for New Water Licence – Madrid Advanced Exploration Program. December 8, 2014. Sections 24 and 25

Comment: The applicant is requesting a 10 year licence term. Within this time period there will be construction, operations, closure, and post-closure phases at both the Madrid North and Madrid South deposits.

Recommendation: The department supports the applicants request for a 10 year licence term

Issue #8: Conceptual Closure and Reclamation Plan

Reference: TMAC Resources Inc. *Madrid Advanced Exploration Program – Type B Water Licence Application Supplemental Information Report*. December 2014, Appendix 9. SRK, October 2014 Memo – Hope Bay Project: Madrid Advanced Exploration Project: Conceptual Closure and Reclamation Plan.

Comment: Included in the application is a Conceptual Closure and Reclamation Plan that was prepared by SRK Consulting on the applicant's behalf. This plan is considered to belong to the first of three phases in closure plan development as described in AANDC's 2007 Mine Site Reclamation Guidelines for the Northwest Territories:

- Preliminary Closure and Reclamation Plan;
- Interim Closure and Reclamation Plan; and
- Final Closure and Reclamation Plan

Recommendation: The licence should require the applicant to provide an Interim Closure and Reclamation Plan to the NWB for approval within two to three years of licence issuance. This plan should be revised whenever there is a change to the project design or no later than every five years. A Final Closure and Reclamation Plan should be submitted to the NWB for approval at least one year prior to the project's closure. Every closure and reclamation plan submission, regardless of its phase, should be accompanied by a revised reclamation cost estimate.