



July 2, 2013

Our reference  
IQALUIT-#697690

Your reference  
2AM-DOH0713

Phyllis Beaulieu  
Manager of Licensing  
Nunavut Water Board  
Gjoa Haven, NU X0E 1J0

**Re: Water Licence #2AM-DOH0713 – Doris North Gold Project – TMAC Resources Inc.  
– Licence Amendment and Renewal Application – Kitikmeot Region**

**Final Written Submission**

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Dear Ms. Beaulieu,

Thank you for your email of June 24, concerning the Nunavut Water Board's request for interested parties to provide final written interventions on the above mentioned water licence amendment and renewal 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 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, Iqaluit, NU  
Erik Allain, Manager of Field Operations, AANDC, Iqaluit, NU  
Karen Costello, Director of Resource Management, AANDC, Iqaluit, NU

**Final Written Submission**

**TMAC Resources Inc.'s Application to Amend  
and Renew Type 'A' Water Licence #2AM-  
DOH0713 for the Doris North Project**

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**Aboriginal Affairs and Northern Development Canada**

**Submission to the Nunavut Water Board**

**July 2, 2013**

## Executive Summary

Aboriginal Affairs and Northern Development Canada (the “**Department**”) has participated in the Nunavut Water Board’s (the “**NWB**”) ongoing review of TMAC Resources Inc.’s (the “**Proponent**”) application to amend and renew the Doris North Project’s Type ‘A’ Water Licence (the “**Licence**”), #2AM-DOH0713. Comments and recommendations have been provided pursuant to the Department’s mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (the “**Act**”) and the *Department of Indian Affairs and Northern Development Act*. In addition to participating in the NWB’s licence application review process the Department enforces licence terms and conditions through its Inspectors appointed under the Act.

The scope of the submitted licence amendment and renewal application includes:

- A ten year term;
- Amendments related to site monitoring and reporting during the care and maintenance period which reflect the current state of site construction and expected level of site activity during care and maintenance; and,
- Various administrative revisions to consolidate previously approved licence amendments.

### Comments and recommendations provided to the Board:

#### 1. Revised Water Management Plan

As there has been no processing of ore (gold) to date and the Interim Water Management Plan is specific to the project’s current status (i.e., no tailings deposition), an amended and renewed licence should continue to require a revised Water Management Plan at least six months prior to the commencement of ore processing. The revised plan should identify and explain the significance of all drainage facilities and key water bodies. Furthermore, the revised plan should address the following recommendations concerning the management of mine contact runoff and underflow:

- A monitoring system to confirm that an acceptable percentage of mine contact runoff and underflow are captured should be developed;
- Maximum water levels for all collection facilities and associated monitoring activities should be established; and,
- Mitigation measures to increase the effectiveness of the underflow capture system should be established.

2. Minimum notice period prior to any planned discharge from project facilities

The minimum 10-day notice period that is to be provided to an Inspector appointed under the Act should remain unchanged. It is the Proponent's responsibility to ensure that the quality of water contained in project facilities satisfies licence criteria before discharge. The Proponent can collect samples after providing a discharge notice and does not need to wait for an Inspector to review the results prior to discharge. An Inspector may request sample results at any time to ensure compliance with discharge criteria.

3. Application of the water balance and water quality model prior to the commencement of ore processing and during periods of care and maintenance

The Proponent's suggestion to annually update the project's water balance and water quality model during any care and maintenance phase is reasonable. Depending on the results presented in annual data summary reports, the model should be recalibrated in accordance with Part G, Item 31 of the Licence.

4. Suggested revisions to the water quality monitoring program

The Proponent's suggested revisions to the frequency of collecting water quality samples associated with the discharge of water from the Tail Lake Tailings Impoundment Area are acceptable. If approved, they would better facilitate discharges during the spring freshet while providing sufficient data to confirm that water quality satisfies licence criteria.

5. Monthly monitoring during periods of care and maintenance when water is not being actively managed on site

Contingent on weather conditions, the Proponent should perform their suggested care and maintenance monitoring program on a monthly basis when water is not being managed on site. Monthly monitoring reports should continue to be provided as they document the project's status and potential environmental liabilities.

6. Submission of revised Closure and Reclamation Plans and Closure Cost Estimates

The amended and renewed licence should require revisions to the Closure and Reclamation Plan and revised Closure Cost Estimate within six months of the start of ore processing, every three years, and three months after a decision to move to permanent closure.

# Nailitikhimayuk

## *Executive Summary in Inuinnaqtun*

Nunakakkaakhimayunut Havaanginut imaalu Nunaptingni Maniliukniantlu Kanatami (taamna “Havakviat”) ilauvaktuk talvani Nunavut Imainut Katijutikatiigiit’ (taamna “NWB”) kunniakattaunianut taafuma TMAC Riisuasis (taamna “Akigaktauyuk”) uuktuut aalanguklugu imaalu nutaanguklugu taamna Atikaktuk ‘A’ Imaktagiami laisihak (taamna “Laisihak”), #2AM-DOH0713. Kiuyaayut ukuatlu atukuyaayut katitauyut mikhaagut Havakviata maliktahaini havaahaitni titigakhimayut ataani taafuma Nunavut Imaini uumalu Nunavut Nunaita Kulaani Ihumaliugutaani Maligak unalu taamna

Havakviat Itkilgit Havaahainut imaalu Nunaptingni Maniliukniantlu Maligak (taamna “Maligap”). Ilaliutilugu ilaunik talvunga NWB Laisihak uuktuut katipkaiyiini tuhagiakniit, taamna Havakviat munagiyaat atukpagiahaanut kanuk atuktahaanut Laisihak titigatiakhimayut kanuk pinniakhamingnik iluagut tahapkuat kunniaktitiyit tikkuaktauhimayut ataani taafuma Maligap.

Taamna iluani taafuma tuniyaayup Laisihak aalanguklugu imaalu nutaanguklugu uuktuut iluaniitut:

- Ukiut kulit hivitutlaanga atuktuhak;
- Aalanguktikhimayut ilaayut tahapkununga uyagahiukvip munaginianut imaalu titigakniit munagitiitlugu taamna unalu hananiani ihuakhaktaulikkat ihumagilugu haja hanania uyagahiukvihap imaalu kanuk inukakpakniaka havakvikmi munagiyaulikkat imaalu hananiani; imaalu,
- Aalatkiit ihuakhaktahat aalangukhimayut ilaayaini angigiihimayut Laisihak aalanguktingniini.

## **Kiuyat ukuatlu atukuyaayut tuniyauhimayut Katitjutikatiigiikniit:**

### 1. Aalangukhimayuk Immap Munaginia Maliktahak

Havakvigangitmat uyagaknik (kuul) uplupthingnut ukuatlu haja atanguyat atuktahait tautukuluaktait taamna havahait haja munaginia ukuatlu munaginiinaa, allanguktinia ukuatlu nutaanguktiniit Laisihak piyahagaluangit taamna atuktahak Aalangukhimayuk Immap Munaginia Maliktahak tuniyauluni siksit tatikikhiutit tikitinagu taamna uyakkat naviktiktinihaa pitinagu. Taamna aalanguktikhimayuk havaahak naunaitkutaa tautuktitilutik ukuatlu ukagitiaklugit imaa hulivagiahaita tahapkua tukhuat kuvivit animut ukuatlu immat haniani. Ilalugutauk, taamna aalanguktuk havaahaut piyahagaluangit tahapkuat maliklugit uuktukuyaayut

mikhaagut munaginia uyagakhiukviup kuugalaangit ukuatlu nunap ataani kugalaangit:

- Taamna havaliklutik munaginianut atuktukhamik angiklugu taimaa naamagiyauyumik kuvinik talvani uyagahiukvikmi ittuk ukuatlu immak kuviyuk nunap ataani piyauyuk;
- Ulipkaangnia immap ilihimaliklugit tamainnut immakakviknut ukuatlu ilagiiknut kunniakattaaklugit;
- Hivituniit uuktuutit atuklugit angikliyaangani ihuakhaknia taafuma immap ataani immap kukluaniinut munaginik

2. Naattumik ilihimapkaiyuhait pitinatik immakmik kuvipkainahualigaangamik immakakviknit

Taamna hivitutillaanga uplut kulini ilihimapkaiyuhaitaknia ilihimapkaktahaat takuyaktuiyuhait tikkuaktauhimayuk ataani taafuma Maligap aalangutuhangittuk. Taafuma akigaktauyup munagiyahauyuk naunaiklugu taamna immap nakuunia nayugaini havakviup naamagiyauluni Laisiup maligaini kuvipkaitinatik. Taamna Akigaktauyuk katitigiyavut uuktuktuhanik titigakkaaklutik ilihimapkailutik kuvipkainahualigumik ukuatlu utakkiyahaitut kunniaktihamik kunniagiangani kuvipkaitinatik. Kimilguiyi ukaktaaktuk pitkulugit uuktuktatik takuyumalugit kuvipkaivagiahaita malikhugit maligat.

3. Uuktuutaa taafuma immap nayugaa ukuatlu immap nakuunianut titigakhimayuk atuklugu tahapkunanik uyakkat naviktiktinihaa pitinagu ukuatlu kitkani munaginia ukuatlu ihuakhainiani.

Taamna akigaktauyuk ukiuk tammaat nutaangukkuyaunia havahaanut immap nayugaa ukuatlu immap nakuunianut titigakhimayuk atuklugu kitkani hunalikaak munaginia ukuatlu ihuakhainiani naamaktuk. Naunaikkata talvanga kimilguiyamingnit pakiniit tunniyauyut ukiuk tamaat pakiniit naitumik titigakniit, taamna uuktuut ihuakhaffaaktauyuhait maliklugu ilagilugu Ilanga G, ataani 31 taafuma Laisiup.

4. Ukaktauhimayut aalangugianganitaamna immap nakuunianut uuktukatakniata mikhaagut havaahak

Taamna Akigaktauyuk ukaktauhimayut aalangugianganitaamna hivituniit immaktakniit immap nakuunianut katitikniit ilagiyait taafumunga kuvinianut immap talvanga Kuvigakvik Tahik tahapkunanik uyagahiugaangamik avalikpaktut atugunaitatik ikkakukvikhak Naunaikhimania naamagiyauyut naamatkiyauniakmat katitiknianut kuvipkailigumik upingaami immat kuviklikpiakkata huli pilutik

titigaktahamingnik angigiamingnik imaa taamna immak nakuunia maliktauyuk  
Laisihap maligaani.

5. Tatkikhiut tammaat munaginia kitkani munaginiata ukuatlu ihuakhainianilu immak munagiyaungitpat talvani havakviup iluani

Hila kanuginianut, immak munagiyaungitpat havakviup iluani taamna Akigaktauyuk atuktahagaluaktik atukuyatik munaginia ukuatlu ihuakhainiani munagianut havaahak tatkikhiut tammaat. Tatkikhiut tammaat munaginiata titigaktauhimayait tuniyaukattakhimayuhagaluait titigaktau kattakhimmaaklutik taamna havaahait kanugitkaluakniit ukautlu nunamut kuvinahukuunangnianut akiliktahat.

6. Tuniyaunia taafumingga nutaamik Umikvihaanut ukuatlu Nuna Utiknahuaknianut hivuliktut ukuatlu Umingnahualikkat Akihaa naunaiyaknia

Taamna aalanguktikhimayuk ukuatlu nutaanguktiniit Laisihak pitkuyahagaluangit aalanguktiknianut talvunga Umiknahuaknianut ukuatlu Nuna Utiknahuaknianut hivuliktut ukuatlu nutaanguktikniit Umiknahuakniata Akihaa naunaiyaknia iluani tatkikhiutit siksit upitpata navgukpaliknianut uyakkat, pingahut ukiut tammaat, ukuatlu tikitinagu pinganut tatkikhiutit ihumaliukkata nuunahualigumik taamna umingnahualigumijuk uyagahiukvik.







[illegible]

- [illegible]

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4. ΔΓΛΓΔ<sup>ς</sup>δΔ<sup>ς</sup> Δ<sup>ς</sup>ρΓΔ<sup>ς</sup>CD<sup>ς</sup>Δ<sup>ς</sup>b<sup>ς</sup>σ<sup>ς</sup>Γ<sup>ς</sup> ΔΛΔ<sup>ς</sup> ΔΔ<sup>ς</sup>Δ<sup>ς</sup>Δ<sup>ς</sup>b<sup>ς</sup>σ<sup>ς</sup>Γ<sup>ς</sup>σ<sup>ς</sup>  
<sup>ς</sup>bΔΔ<sup>ς</sup>Δ<sup>ς</sup>Γ<sup>ς</sup>

[illegible]

5. ርዕሰ ሰነዱ ስለሆነው የጥያቄው ዓላማና ዓላማው ለማሳሰብና ለማረጋገጥ የሚያስፈልጉትን ሰነዶች ማቅረብ ይገባል፡፡

[illegible]

6. ጋፀገኖቹ ርዕሰ ጉዳዮችን ለማቅረብ ለሚችሉ ሁሉም ሰራተኛ ሰራተኛዎች  
ከጋፀገ ርዕሰ ጉዳዮች ምክር ቤት ጋር ለማቅረብ ለሚችሉ ሁሉም ሰራተኛ ሰራተኛዎች  
ወይንም ሌላ ማንኛውም ሌላ ማንኛውም ሰራተኛ ሰራተኛዎች

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## A. Background

On June 24, 2013, the Nunavut Water Board (**the “NWB” or “Board”**) distributed a Pre-hearing Conference Decision Report (NWB 2013) for TMAC Resources Inc.’s (**the “Proponent”**) application to amend and renew the Doris North Project’s Type ‘A’ Water Licence (**the “Licence”**), #2AM-DOH0713 (NWB 2007). Interested parties were asked to provide final written submissions by July 2, 2013.

Aboriginal Affairs and Northern Development Canada (**the “Department”**) has participated throughout the NWB’s review process of the submitted application. To date, notable events include:

- The submission of a completeness review dated November 9, 2012 (AANDC 2012);
- The submission of a technical review memorandum dated June 6, 2013 (AANDC 2013); and,
- Participation in the June 18, 2013 Technical Meeting and Pre-hearing Conference (**the “TM & PHC”**)

The Department’s June 6, 2013 Technical Review Memorandum presented 22 comments and recommendations, all of which were subsequently addressed in the June 18, 2013 TM & PHC. Prior to this meeting, on June 14, 2013, the Proponent provided a written response to the Department’s submission (TMAC 2013a). Additionally, on June 21, 2013, the Proponent provided a written memorandum concerning the resolution of outstanding issues from the TM & PHC (TMAC 2013b). Taking into account the Proponent’s June 14, 2013 written response, the June 18, 2013 TM & PHC, and the Proponent’s June 21, 2013 memorandum, all of the Department’s technical comments and recommendations have been resolved. A copy of the Proponent’s June 21, 2013 memorandum and an Issues Tracking Table are included as appendices (Appendix A: Proponent’s June 21, 2013 memorandum; Appendix B: Issues Tracking Table). The Issues Tracking Table presents:

- The Department’s June 6, 2013 technical comments and recommendations;
- The Proponent’s June 14, 2013 written response (TMAC 2013);
- The Department’s June 18, 2013 follow-up as presented at the TM & PHC; and,
- The resolution status for each comment and recommendation following the June 18, 2013 TM & PHC

## **B. Results of Review**

The following comments and recommendations are presented for the Board's consideration. These topics are organized by the categories presented in NWB 2013.

### **1. Surface water**

#### **a. Inclusion of all drainage facilities and key water bodies in a Revised Water Management Plan**

The Proponent's suggestion that a revised Water Management Plan be required at least six months prior to the commencement of ore processing is reasonable (HBML 2012b). As the Proponent committed in TMAC 2013a, the revised plan will identify and explain the significance of all drainage facilities and key water bodies within the project area.

### **2. Water management and discharge**

#### **a. Monitoring of the Doris North Camp Area Diversion Berm**

The major earthworks requiring annual geotechnical inspections pursuant to Part J, Item 18 of the Licence should include the Doris North Camp Area Diversion Berm. As presented in TMAC 2013b, this facility is already included in the Proponent's annual geotechnical inspections.

#### **b. Management of contact runoff and underflow**

In TMAC 2013b, the Proponent committed to address the following recommendations concerning the management of contact runoff and underflow when preparing a revised Water Management Plan.

- A monitoring system to confirm that an acceptable percentage of mine contact runoff and underflow are captured should be developed;
- Maximum water levels for all collection facilities and associated monitoring activities should be established; and
- Mitigation measures to increase the effectiveness of the underflow capture system should be established (e.g., French drains should be considered to ensure the collection of all potentially contaminated shallow groundwater).

This commitment is satisfactory.

c. Minimum notice period prior to any planned discharge from project facilities

The Proponent should continue to provide a minimum 10-day notice to an Inspector appointed under the Act prior to any planned discharges of any project facilities, as is currently required by Part G, Item 1 of the Licence (i.e., not be reduced to 5 days as requested by the Proponent in the submitted application). As the Department communicated to the Proponent following the TM & PHC, it is the Proponent's responsibility to ensure that the quality of water contained in project facilities satisfy licence criteria before discharge. The Proponent can collect water quality samples after a notice has been provided and does not need to wait for an Inspector to review the results prior to discharge. However, an Inspector may request sample results at any time to ensure compliance with license discharge criteria.

d. Recalibration of the water balance and water quality model and annual model assessments prior to the commencement of ore processing

TMAC 2013b confirmed that the criteria for recalibrating the water balance and water quality model specified in Part G, Item 31 of the Licence would continue to apply prior to the commencement of ore processing and during periods of care and maintenance. As stated in TMAC 2013b,

Part G, Item 31 of the Licence lists triggers that are to be used to establish when model recalibration is warranted (which remains unchanged from the original Water Licence). These triggers are based on comparing predicted water and load balance model results to actual monitoring data.

The Proponent should only be required to recalibrate the water balance and water quality model in accordance the provisions of Part G, Item 31 of the Licence. In addition, the Proponent's suggestion (Part M, Item 2b of HBML 2012b) that monitoring data be entered into the model and assessed on an annual rather than monthly basis until the commencement of ore processing is adequate.

e. Suggested revisions to water quality monitoring program

With regard to the water quality monitoring program associated with the discharge of water from the Tail Lake Tailings Impoundment Area (the “**Tail Lake TIA**”) prior to tailings deposition, the Proponent recommends (TMAC 2013b):

- Prior to discharge from the Tail Lake TIA, the frequency of sampling at monitoring station TL-1 (Tailings Impoundment Area at the Reclaim Pump Barge) should be a one week/three sample campaign (samples collected on three separate days of the week);
- Prior to discharge and contingent on field conditions, one duplicate sample should be taken from Doris Creek monitoring stations TL-2 (upstream) and TL-3 (80 m downstream of waterfall);
- During periods of discharge, samples should be collected twice weekly for two weeks after the commencement of discharge and once per week thereafter, from monitoring stations TL-1, TL-2, and TL-3.

If approved, the suggested revisions would reduce the number of samples collected from monitoring stations TL-1, TL-2, and TL-3 when managing the release of water from the Tail Lake TIA. As stated in TMAC 2013b, these changes would better facilitate the discharge of Tail Lake TIA water during the peak flows of spring freshet while providing sufficient data to confirm that water quality requirements are satisfied. The suggested revisions are reasonable.

The Proponent should confirm their intention of following the suggested water quality monitoring program presented in Schedule J, Table 2 of HBML 2012b for the project's operational phase and potential care and maintenance phases following tailings deposition. The schedule presented in HBML 2012b is reasonable as the only difference from the suggested pre-tailings deposition monitoring requirements would be the collection of one duplicate sample twice weekly for two weeks at monitoring station TL-1 prior to discharge. To simplify Licence requirements, the monitoring program suggested for pre-tailings deposition should be considered for both operational and care and maintenance phases.



f. Triggers that would require an increased frequency of water quality sample collection at monitoring stations TL-1, TL-2, and TL-3 during periods of Tail Lake TIA discharge

The Proponent's suggested revisions to Part J, Item 4.a. of the Licence as presented in TMAC 2013b are reasonable. This memo states,

Increasing the frequency of sampling at TL-1, TL-2, and TL-3 during periods of discharge is currently triggered by a deviation in water quality at TL-3 of more than 20% for any parameter listed in Part G, Item 28 from that predicted by the water quality model. It is proposed instead that a deviation of more than 20% will trigger further investigation as to the likely cause of this deviation, but not an increase in water sampling unless another condition is met. The sampling frequency will be increased at TL-1, TL-2, and TL-3 should there be a deviation of any parameter at TL-3 of more than 20% and the concentration of this parameter is within 25% of the compliance level listed in Part G, Item 28 of the licence. This change will remove the situation where sampling is increased when there isn't a risk of water quality non-compliance."

In addition to the Licence revisions suggested by the Proponent, the Licence should include a table showing the 75% concentration levels for the parameters identified in Part G, Item 28 of the Licence. As mentioned above, exceedences of these values at monitoring station TL-3 would trigger an increased frequency of water quality sample collection at monitoring stations TL-1, TL-2, and TL-3 during periods of Tail Lake TIA discharge.

g. Discharge of treated sewage effluent

As stated in Issue #11 of Appendix B, the requested Licence amendment to permit the discharge of treated sewage effluent to either the tundra [location and procedures described in the October 2012 Waste Water Treatment Management Plan (HBML 2012c)] or to the Tailings Impoundment Area is reasonable. TMAC 2013a provides rationale for this request,

During normal operations once ore processing commences the treated effluent will be usually directed to Tail Lake. During upset conditions TMAC needs the flexibility to send treated effluent to the tundra as is the currently permitted procedure.

It is not necessary for the Proponent to provide advanced notice to an Inspector and receive their authorization when switching between these discharge locations. The Proponent will be required to satisfy licence criteria before discharging treated sewage effluent to the tundra and provide monitoring results in monthly monitoring reports.

### **3. Conditions applying to the project during care and maintenance**

a. Care and maintenance monitoring activities when water is not being actively managed

As stated in Issues #14 and #18 of Appendix B, the Proponent's commitment to monitor project infrastructure, particularly water and hazardous material containment areas, on a monthly basis when weather conditions permit site access is satisfactory.

b. Collection of thermal monitoring data

As stated in Issue #14 of Appendix B, a reduced frequency of collecting thermal monitoring data during periods of Care and Maintenance is justified. The Proponent's position that sufficient thermal data has been acquired to permit the collection of thermistor data from most project infrastructure on an annual basis is adequate (it is noted that continuous data will be collected from the Tail Lake TIA's North Dam thermistor data loggers). In addition, the Proponent confirmed (June 18, 2013 TM & PHC) that the Pollution Control Pond and Sedimentation Pond thermistors will be monitored at least once a month when water is being actively managed on-site. These provisions should be included in the amended and renewed Licence.

c. Submission of revised management and monitoring plans

As stated in Issue #16 of Appendix B, the Proponent has agreed to revise, where applicable, management and monitoring plans within three months of any decision to place the project in care and maintenance or bring the project out of care and maintenance. This commitment is appreciated.

### **4. Ongoing monitoring**

a. Monthly monitoring report submissions

As stated in Issue #15 of Appendix B, the Proponent will continue to provide monthly monitoring reports while the project is in care and maintenance and any future construction phases. It is noted that not all of the monitoring requirements specified in Part J, Item 21 of the Licence are appropriate for these phases (i.e., conditions applying to the project's operational phase would not apply). The

Proponent's acceptance of providing monthly monitoring reports is appreciated (Part M, Item 2.g. of HBML 2012b suggests annual reports only). Monthly monitoring reports should continue to be provided as they document the project's status and potential environmental liabilities.

## **5. Closure and reclamation planning**

### **a. Frequency of revising the project's Closure and Reclamation Plan and corresponding Closure Cost Estimate**

As stated in Issue #19 of Appendix B, the Proponent's June 14, 2013 response (TMAC 2013a) to the Department's technical comment on the frequency of revising the project's Closure and Reclamation Plan is adequate. The Proponent's response was as follows:

An updated of the Closure and Reclamation Plan should be required to be filed with the Board every three years and three months after a decision to move to permanent closure.

In addition to this commitment, the Licence should continue to require an Interim Closure and Reclamation Plan and revised Closure Cost Estimate within six months of the start of ore processing (Part L, Item 4 and Part C, Item 2 of the current Licence).

### **b. Resolving the project's post-closure land use criteria**

As stated in Item #20 of Appendix B, the Proponent's commitment to consult with all of its stakeholders, particularly the Kitikmeot Inuit Association, when developing future revisions to the project's Closure and Reclamation Plan is adequate. These discussions should address the project's post-closure land use criteria. In particular, the proposal to leave certain infrastructure in place and soil quality remediation objectives (i.e., industrial) should be addressed.

## **6. Security with respect to submissions**

### **a. Adequacy of the current closure cost estimate**

As stated in AANDC 2013a, the Proponent's December 2012 closure cost estimate of \$13,090,000 is adequate. The renewed and amended Licence should incorporate this value as a revised security requirement. Although a detailed

review has not been applied to this estimate, this recommendation is based on the following:

- The Proponent's rationale for using SRK's cost estimating model (SRK 2012a);
- The estimate was prepared by professional engineers (HBML 2013);
- The estimate is based on the work being completed by a third party (HBML 2013); and,
- The Licence requirements to submit an Interim Closure and Reclamation Plan and revised closure cost estimate within six months of ore processing activities (Part L, Item 4 and Part C, Item 2) and the Proponent's commitment to submit a revised Closure and Reclamation Plan every three years and three months after a decision to move to permanent closure (TMAC 2013a). All revisions to the Closure and Reclamation Plan should be accompanied by revised closure cost estimates.

b. Provision of security by Hope Bay Mining Ltd.

As stated in an email that the Department sent to the NWB on April 12, 2013 (AANDC 2013c), at the discretion of the Board, it is reasonable for Hope Bay Mining Ltd. (previous licensee), to post reclamation security on behalf of the Proponent until they are in a position of providing the required security amount.

## C. Closure

Should you have any questions or concerns regarding the information presented herein, please do not hesitate to contact the undersigned by telephone at 867-975-4555 or email at [david.abernethy@aandc-aadnc.gc.ca](mailto:david.abernethy@aandc-aadnc.gc.ca).

David Abernethy

Regional Coordinator  
Water Resources Division, Resource Management Directorate  
Aboriginal Affairs and Northern Development Canada  
Nunavut Regional Office

## D. References

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TMAC 2013b. TMAC Resources Inc. *Subject: TMAC Response to AANDC comments #8, #9, and #10*. Memo from Chris Hanks, Newmont, to David Hohnstein, Nunavut Water Board. June 21, 2013.

Prepared by David Abernethy

## **Appendix A – TMAC June 21, 2013 Memorandum**

TMAC 2013. TMAC Resources Inc. *Subject: TMAC Response to AANDC Comments #8, #9 and #10.* Memo to David Hohnstein, NWB, from Chris Hanks, TMAC. June 21, 2013.



# MEMORANDUM

**DATE:** 21 June 2013  
**TO:** David Hohstein  
**FROM:** Chris Hanks  
**SUBJECT:** **TMAC Response to AANDC comments #8, #9 and #10**

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## **INTRODUCTION - Technical Meeting Commitment:**

TMAC agreed as one of the outcomes of the Technical Meeting regarding the renewal of Type A Water Licence 2AM-DOH0713 on June 18, 2013, to provide the Nunavut Water Board with further details regarding a proposal to reduce the a) frequency of updates to the water quality model and the b) frequency of water quality sampling at locations TL-1, TL-2, and TL-3 during Operations and of Care and Maintenance.

On June 19<sup>th</sup> a phone meeting was held with AANDC by Rescan ERM and then on the 20<sup>th</sup> and 21<sup>st</sup> draft versions of the following was provided to AANDC for review and discussed. TMAC understands that AANDC concurs with the following response.

The following is TMAC's collectively respond to AANC comments #8, #9, and #10.

## **Key Terms of the Current Water License:**

Part G, Clause 31:

The Licensee shall on a monthly basis, input average monthly water quality, hydrology and climate monitoring data in to the water quality model and perform the following assessment:

- a. Compare the predicted water elevation in the Tailings Impoundment Area to the measured elevations. If the difference between predicted and measured elevations is greater than 0.1m, then the Licensee shall re-calibrate the volume rating curve;
- b. Compare the predicted water quality in the Tailings Impoundment Area to the measured water quality. If the difference between predicted and measured values is 20% or greater, then the cause(s) of the difference shall be identified and the water quality model shall be re-calibrated; and
- c. Predict the future discharge schedule and compare this prediction to the previously predicted discharge schedule. If necessary identify adaptive management strategies.

Part J, Clause 3 (Schedule J, Table 2)

Water quality monitoring at TL-1, TL-2, and TL-3 is required to be monitored every second day for two (2) weeks prior to discharge and for two (2) weeks after discharge commences then reducing to once per week during remainder of the annual discharge period.

Part J, Clause 4



The Licensee shall:

- a. Increase the sampling frequency to once every second day at monitoring stations TL-1, TL-2 and TL-3; should the measured concentration of any parameter listed under Part G, Item 28 at TL-3 deviate by more than 20% from that predicted by the water quality model; and
- b. Submit to the Board and an Inspector an understanding and justification of any discrepancy should the Licensee request a reduction in sampling frequency.

**TMAC proposed amendments to Water License (in consideration of the results of the technical meeting and intervener comments)**

In association with this renewal, TMAC proposes changes related to the water quality model and to the frequency of water quality monitoring at stations TL-1, TL-2, and TL-3 for the period prior to tailings deposition in the TIA only.

The rationale for making changes is that the volume and quality of contact water being introduced into the TIA prior to tailings deposition is not significant enough to materially affect the water quality in the TIA. To demonstrate this, SRK evaluated the effect of adding contact water from the camp/mill site ponds to the TIA (SRK 2011) prior to tailings deposition and demonstrated that even if this practice was to continue for multiple years (evaluated for a period of 5 years), using site specific water quality data that there is no scenario under which any of the water quality parameters listed in Part G, Item 28 will be exceeded. In all cases the predicted water quality results suggest concentrations at least 1 order of magnitude smaller.

Rescan has advised TMAC that reducing the duration of sampling at TL-1 from a two (2) weeks campaign prior to discharge to a one (1) week/three sample campaign is sufficient to confirm water quality meets license requirements for discharge and at the same time better facilitating the discharge of TIA water during the peak flows of spring freshet. As per the renewal request and if field conditions allow, one (1) duplicate sample will be taken from Doris Creek at stations TL-2 and TL-3 prior to discharge, however, discharge of the TIA is not contingent on the collection of these samples. Rescan has advised that twice weekly sampling for two (2) weeks after the commencement of discharge and one (1) per week thereafter at TL-1, TL-2 and TL-3 is an appropriate monitoring frequency given the anticipated water volumes and quality from the TIA. Collecting three (3) pre-discharge samples from the TIA on separate days of the week will provide data sufficient replication for comparison. Sampling of Doris Creek prior to discharge is not necessary as there is 15 years of historical data that already exists.

Increasing the frequency of sampling at TL-1, TL-2 and TL-3 during periods of discharge is currently triggered by a deviation in water quality at TL-3 of more than 20% for any parameter listed in Part G, Item 28 from that predicted by the water quality model. It is proposed instead that a deviation of more than 20% will trigger further investigation as to the likely cause of this deviation, but not an increase in water sampling unless another condition is met. The sampling frequency will be increased at TL-1, TL-2 and TL-3 should there be a deviation of any parameter at TL-3 of more than 20% AND the concentration of this parameter is within 25% of the compliance level listed in Part G, Item 28 of the license. This change will remove the situation where sampling is increased when there isn't a risk of water quality non-compliance.

Part G, Item 31 list triggers that are to be used to establish when model recalibration is warranted (which remains unchanged from the original Water License). These triggers are based on comparing predicted water and load balance model results to actual monitoring data. As demonstrated by SRK

(2011), the predicted water quality and volume changes expected in the TIA are not expected to trigger any recalibration on an annual basis, and definitely not on a monthly basis. By way of example, the total expected discharge volume of annual contact water would result in an overall water level rise in Tail Lake of less than 5 cm at the minimum operating water level of 28.3 m, which is half of the required trigger amount in Part G, Item 31. It is for this reason that SRK has advised TMAC that an annual update (re-calibration) of the water and load balance prior to tailings deposition would be appropriate.

### **Ten (10) Day Notice Period**

In its renewal application, TMAC requested a five (5) day notice period instead of the current ten (10) days stipulated under Clause G, Item 1. This Clause refers to providing notice to the inspector prior to any planned discharges from Facilities. In their submission (Comment #7), AANC stated a request that the ten (10) period remain.

The ten (10) day notice period was discussed during the technical meeting and then subsequently with AANC in parallel with comment #8, #9, #10 above. The concern by TMAC is the potential delay that the comment period may cause in the initiation of a time sensitive planned discharge (ie. spring discharge from the TIA). In response to further discussion, AANC has stated to TMAC:

“With respect to the minimum 10-day notice that must be provided to an Inspector, the Department is in agreement that it is the Proponent's responsibility to ensure that water quality satisfies discharge criteria before any planned discharges. The Proponent does not need to provide all water sample results 10 days in advanced of a planned discharge. These samples can be collected during the notice period. To ensure compliance with discharge criteria and pursuant to the Inspector's powers under the Nunavut Waters and Nunavut Surface Rights Tribunal Act, the Inspector may at any time request to review the sampling results.”

TMAC has interpreted this to mean that discharge can commence immediately on receipt of samples confirming that the TIA meets discharge water quality criteria, provided at least ten (10) days' notice has previously been provided to the Inspector and that the laboratory results demonstrate the water meets discharge criteria. In this circumstance, TMAC does not need to wait for the Inspector to review the results of the water samples prior to discharge.

## **Appendix B – Issues Tracking Table**

AANDC 2013 b. 2-July-2013 AANDC Issues Table. Doris North Project, Application to Amend and Renew Water Licence #2AM-DOH0713. Aboriginal Affairs and Northern Development Canada. July 2, 2013

Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
<b>General</b>				
1.	Renewing the licence term for 10 years is adequate given the proposed activities, monitoring requirements, and consistency with the terms granted to other Type 'A' water licences. AANDC would not support a longer term because of the value to perform regular public reviews of undertakings of this magnitude.	No comment.	Resolved  The Department has no issue with the requested 10 year licence renewal term.	Resolved
2.	The Proponent's request to remove the requirement to maintain a Monitoring and Follow-up Plan pursuant to Part K, Item 5 of the licence is adequate as it is a summary of information included in other management and monitoring plans.	No comment	Resolved  The Department has no issue with the Proponent's request to remove the requirement to maintain a Monitoring and Follow-up Plan pursuant to Part K, Item 5 of the licence as it is a summary of information included in other licensed management and monitoring plans.	Resolved

Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
<b>Surface Water</b>				
3.	The Proponent should identify and explain the significance of all drainage facilities and key water bodies in the upcoming revised (final) Water Management Plan.	TMAC will include this information in the upcoming revised Final Water Management Plan. We anticipate this plan will be finalized and filed with the NWB 6 months prior to production date.	Resolved  The Department is satisfied with Proponent's June 14, 2013 commitment. The revised Water Management Plan should continue to be required at least six months prior to the commencement of ore processing.	Resolved
<b>Water Management</b>				
4.	The major earthworks requiring annual geotechnical inspections pursuant to Part J, Item 18 of the license should be revised to include the Doris North Camp Area Diversion Berm. Geophysical and permafrost conditions should be described in the Geotechnical Engineer's inspection reports that are required annually pursuant to Part J, Item 19 of the license. Additionally, the monthly monitoring reports that are required pursuant to Part J, Item 21 of the license should document the Doris North Camp Diversion Berm's effectiveness of diverting runoff away from the camp area. As a minimum, conditions during spring freshet, major rain events, and periods of sustained precipitation should be monitored. Documented information can include flow measurements, photographs, and notes.	The Doris North Camp Area Diversion Berm is already part of annual geotechnical inspections. It was completed in 2012 and included in the 2012 Geotechnical Inspection. In our view, this monitoring is sufficient to confirm the effectiveness of this berm in diverting runoff from the camp area, and additional quarterly monitoring should not be necessary unless recommended by the Geotechnical	Not resolved  As the Proponent has confirmed that the Doris North Camp Area Diversion Berm is included in its annual geotechnical inspection program, Part J, Item 19 of the Licence should be revised to include this facility to the list of major earthworks that require annual geotechnical inspections.  The Department maintains	Resolved  The Proponent will regularly monitor the Doris North Camp Area Diversion Berm during periods of flow pursuant to Part F, Item 4 of the licence.

Doris North Project, Application to Amend and Renew Water Licence #2AM-DOH0713  
2-July-2013 AANDC Issues Tracking Table

Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
		Engineer following inspection.	<p>that the Doris North Camp Area Diversion Berm should be included in the monthly monitoring reporting requirements specified in Part J, Item 21 of the Licence. As a minimum, conditions during spring freshet, major rain events and periods of sustained precipitation should be monitored.</p> <p>The Department also notes that Part F, Item 4 of the licence (regular inspections of all water management structures during periods of flow) would apply to this facility.</p>	

Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
5.	<p>The revised (final) Water Management Plan required pursuant to Part F, Item 1 of the licence should address the following recommendations to ensure the effective management of contact runoff and underflow:</p> <ul style="list-style-type: none"> <li>• The development of a monitoring system to confirm that an acceptable percentage of mine contact runoff and groundwater (underflow) are captured;</li> <li>• Maximum water levels for all water collection facilities and associated monitoring activities should be established; and,</li> <li>• Include mitigation measures to increase the effectiveness of the underflow capture system (e.g., French drains should be considered to ensure the collection of all potentially contaminated shallow groundwater)</li> </ul>	<p>As noted above, TMAC will include this information in the upcoming revised Final Water Management Plan, anticipated to be submitted to the NWB 6 months prior to production.</p>	<p>Resolved</p> <p>The Department is satisfied with the Proponent's June 14, 2013 commitment. The revised Water Management Plan should continue to be required at least six months prior to the commencement of ore processing.</p>	<p>Resolved</p>

Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
6.	The Proponent should confirm how water in the Sedimentation Pond will be managed under the Interim Water Management Plan. Clarification should be provided on whether water that meets licensed discharge criteria (Part G, Item 21) will be discharged onto the tundra.	As described in the current Interim Water Management Plan, the water from the Sedimentation Pond is directed to the tailings impoundment area. Water that meets licensed discharge criteria, may be discharged to the tundra from time to time as appropriate.	Resolved  The Proponent's June 14, 2013 response confirmed that the Proponent may discharge water from the Sedimentation Pond to the tundra under the Interim Water Management Plan when Part G, Item 21 effluent quality limits are satisfied. The Department appreciates this clarification.	Resolved
7.	The Proponent should continue to provide a minimum ten days notice, rather than the proposed five days notice, to an Inspector prior to any planned discharge of water from project facilities. This duration is preferred because it allows enough time for an Inspector to travel to the site and monitor such discharges should he or she want to. If a ten day notice is not practical due to unforeseen conditions (e.g., major rain event), the Proponent should notify an Inspector.	TMAC will endeavor to give as much notice as possible but cannot guarantee in all circumstances that 10 days noticed will be possible. Should an inspector wish to visit site, TMAC will facilitate the visit.	Not resolved  The Department maintains that a minimum 10 days notice must be provided to an Inspector before any planned discharge of water from project facilities. Reduced notice periods that result from unforeseen or emergency conditions can be addressed with an Inspector.	Resolved  Addressed through discussions between the Department and Proponent after the technical meeting as summarized in a memo the Proponent submitted to the NWB on June 21, 2013.



Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
8.	Considering that the Tail Lake TIA is now receiving contact water from the Doris North camp and may receive water from containment areas that do not meet discharge criteria (SRK 2012b), the Proponent should be required, as a minimum, to update the water balance and water quantity model on an annual basis until the start of ore processing and tailings deposition as well as during any periods of care and maintenance. These updates should take into account the frequency of collected monitoring data.	TMAC will update the water balance and water quality model on an annual basis during operations once processing commences. In our view, annual updates of the water balance and water quality model should not be required during care and maintenance, as the existing water balance and quality model adequately describes site conditions.	Not resolved  The Department maintains that the Proponent should update (calibrate) the project's water balance and water quality model on an annual basis until the start of ore processing and during any periods of care and maintenance as this practice will validate whether the model is accurately predicting the actual volume and quality of water in Tail Lake.	Resolved  Addressed through discussions between the Department and Proponent after the technical meeting as summarized in a memo the Proponent submitted to the NWB on June 21, 2013.
9.	Pursuant to Part J, Item 4.b. of the licence, the Proponent should provide to the Board and an Inspector justification for a reduction in sampling frequency of water quality and acute lethality at monitoring stations associated with the discharge of water from the Tail Lake TIA. The Board should also confirm the appropriateness of any reduction in acute lethality testing requirements with Environment Canada before accepting the Proponent's suggested revision.	TMAC has further reviewed the sampling frequency and proposes that water quality samples be collected at TL-1, TL-2, and TL-3 on three occasions during the week prior to discharge then twice weekly thereafter. Collecting samples one week prior to discharge will ensure that TIA water can be discharged into Doris Creek during the rise of the freshet	Not resolved  The Department recommends that the sampling frequency specified in Schedule J, Table 2 of the Licence for periods of discharge from the Tail Lake Tailings Impoundment Area should continue to apply. No reduction in sample collection should be applied to the project's	Resolved  Addressed through discussions between the Department and Proponent after the technical meeting as summarized in a memo the Proponent submitted to the NWB on June 21, 2013.

Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
		<p>waters and during peak flow. Past hydrographs confirm that certain years can see Doris Creek waters can move from a near-frozen state to peak flow in less than 10 days. Twice weekly sampling at TL-1, TL-2, and TL-3 two weeks after discharge commences is twice the frequency measured at the discharge end-of-pipe (TL-4), thus this sampling would take a conservative approach to sampling based on end-of-pipe frequency. During C&amp;M, only contact water from site (e.g., waste rock piles and ore pads, etc.) will report to the TIA as no waste rock or tailings will be produced and dumped into the TIA. Thus, reduced sampling frequency is proposed in Doris Creek and at end-of-pipe (sample at TL-4 only). Acute toxicity sampling during operations should occur when discharge to Doris Creek occurs. Thus, monthly toxicity testing should take place during</p>	<p>operational or care and maintenance phases because such changes would not provide confidence that the quality of water contained in the Tail Lake Tailings Impoundment Area is suitable for discharge.</p>	

Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
		the four months of open water (June to September). Further, if there are no toxic responses shown from this testing, an additional reduction in toxicity testing is advocated if it can be demonstrated that future TIA water quality will not change. Toxicity testing during the C&M phase will be reduced to once during the open-water season as the project would not fall within the MMER requirements and all modeled water quality suggests all receiving water quality criteria will be met in Doris Creek (Table 4 in SRK 2011).		
10.	The Proponent should explain why the water quality model predictions should not be used to increase the sampling frequency at monitoring stations TL-1, TL-2, and TL-3 when water is discharged from the Tail Lake TIA. In addition, the Proponent should explain how it came to the conclusion that the sampling frequency be increased when the measured concentration of any parameter listed under Part G, Item 28 at TL-3 exceed the concentrations indicated in the table by 25% for a single grab sample, or 20% for an annual average sample during periods of active discharge.	TMAC proposes to increase sampling frequency at TL-1, TL-2, and TL-3 based on in situ water quality results as this better reflects the actual water chemistry in Doris Creek. The trigger levels proposed (20-25%) are similar to that carried out using the water quality model in the original Type A license. All water data collected will continue to	Not resolved  The Department recommends that Part J, Item 4.a. of the Licence remain unchanged. Comparing water quality monitoring results to predictions generated by the water balance and water quality model using the parameters identified under Part G, Item 28	Resolved  Addressed through discussions between the Department and Proponent after the technical meeting as summarized in a memo the Proponent submitted to the NWB on June 21, 2013.

Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
		be used to calibrate annual water quality models.	<p>should continue to determine an increased sampling frequency at the Reclaim Pump Barge (TL-1), the upstream Doris Outflow Creek monitoring station (TL-2), and the Doris Outflow Creek monitoring station downstream of the waterfall (TL-3). The Proponent's recommendation to increase the sampling frequency at these monitoring stations during periods of discharge based on the Part G, Item 28 water quality limits at the Doris Outflow Creek monitoring station downstream of the waterfall (TL-3) should not apply.</p> <p>The intent of an increased sampling frequency at these monitoring stations based on model predictions is to prevent any exceedence of the Part G, Item 28 water quality limits.</p>	

Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
			Any exceedence of the Part G, Item 28 water quality limits would require the Proponent to stop releasing water from the Tail Lake Tailings Impoundment Area.	
<b>Wastewater management</b>				
11.	As a minimum, the Proponent should discharge treated sewage effluent into the Tail Lake TIA once ore processing commences. Consideration should be given to commencing this practice in 2013 because the Tail Lake TIA is already receiving water from the Sedimentation Pond in accordance with the Interim Water Management Plan (SRK 2012b). Directing treated sewage effluent to this facility would limit the project footprint, thereby reducing the likelihood of impacts to downstream water bodies (i.e., Glenn Lake).	It is not currently possible to direct treated sewage effluent to Tail Lake as the infrastructure is not in place. During normal operations once ore processing commences the treated effluent will be usually directed to Tail Lake. During upset conditions TMAC needs the flexibility to send treated effluent to the tundra as is the currently permitted procedure.	Not resolved.  The amended and renewed licence should require the Proponent to notify and receive authorization from an Inspector prior to any discharge of treated sewage effluent to the tundra once ore processing commences.	Resolved.  The Department accepted the Proponent's suggestion that treated sewage effluent be discharged to either the tundra or the Tail Lake Tailings Impoundment Area, acknowledging that discharge to the tundra is dependent on meeting licence discharge criteria.  The Proponent is not required to provide an

Doris North Project, Application to Amend and Renew Water Licence #2AM-DOH0713  
2-July-2013 AANDC Issues Tracking Table

Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
				<p>Inspector with advanced notice and receive their authorization when switching between these discharge locations as it is their responsibility to ensure licence discharge criteria are satisfied.</p> <p>The discharge of treated sewage effluent will be documented in monthly monitoring reports (e.g., discharge locations, volume, etc.).</p>

Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
<b>Mine Design, Construction, and Operation</b>				
12.	The Interim Closure and Reclamation Plan that is required within six months of the start of ore processing pursuant to Part L, Item 4 of the licence should address potential issues associated with the underground disposal of PAG rock (i.e., oxidation).	TMAC will address this point in the Interim Closure and Reclamation Plan that will be filed within 6 months of the start of production.	Resolved  The Department is satisfied with the Proponent's June 14, 2013 commitment. The Interim Closure and Reclamation Plan should continue to be required within six months of the start of ore processing.	Resolved.
13.	The Interim Closure and Reclamation Plan that is required within six months of the start of ore processing pursuant to Part L, Item 4 of the licence should discuss the removal of equipment and potentially hazardous materials from underground workings. The removal of these materials should be implemented through progressive and final closure activities.	TMAC will address this point in the Interim Closure and Reclamation Plan that will be filed within 6 months of the start of production.	Resolved  The Department is satisfied with Proponent's June 14, 2013 commitment. The Interim Closure and Reclamation Plan should continue to be required within six months of the start of ore processing.	

Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
<b>Conditions Applying to Care and Maintenance</b>				
14.	The amended and renewed licence should specify the monitoring requirements, particularly the frequency of monitoring activities, during care and maintenance. As a minimum, all water and hazardous material containment areas, including fuel storage facilities, should be monitored monthly during periods of care and maintenance. In addition, the frequency of collecting thermal monitoring data should not be reduced during periods of care and maintenance as the integrity of site infrastructure can depend on the availability of monitoring data. Data should be collected from all thermistors on a monthly basis to ensure that they are functioning properly.	During care and maintenance C&M the site may be closed during the 6 month winter season. In this instance, a minimum of two quarterly inspections will be conducted during this period. The site will be continuously occupied during periods of open water to conduct ongoing water management. TMAC relies on its annual geotechnical inspections to determine the appropriate frequency of thermal monitoring required.	<p>Not resolved</p> <p>The Department maintains that, as a minimum, during periods of care and maintenance when water is not being actively managed, all water and hazardous material containment areas, including fuel storage facilities should be monitored on a monthly basis.</p> <p>Additionally, the frequency of collecting thermal monitoring data should not be reduced during periods of care and maintenance. Data should be collected from all thermistors on a monthly basis.</p>	<p>Resolved</p> <p>During periods of Care and Maintenance when water is not actively being managed, the Proponent will monitor all water and hazardous material containment areas on a monthly basis when weather conditions permit site access.</p> <p>The reduced frequency of collecting thermal monitoring data during periods of Care and Maintenance is justified. The Proponent's position that sufficient thermal data has been acquired to permit the collection of thermistor data from most project infrastructure on an annual basis (at the end of the summer</p>



Number	6-Jun-2013 AANDC Recommendation	14-Jun-2013 TMAC Response	18-Jun-2013 AANDC Follow-up	18-Jun-2013 TM/PHC
				season) is adequate. Data from the North Dam (Tail Lake TIA) thermistor data loggers will be downloaded annually and temperature readings from the Pollution Control Pond and Sedimentation Pond thermistors will be monitored at least once a month during periods when water is being actively managed on-site.
15.	The monthly monitoring reports required by Part J, Item 21 of the licence should continue to be submitted even if the project reverts to a Care and Maintenance Phase. These reports are essential to monitoring potential environmental impacts that may result from the condition of site infrastructure and project activities.	The SNP is filed monthly but not all requirements of Part J, Item 21 are appropriate in C&M or construction should it recommence. The full SNP is appropriate once the site reaches operations.	Resolved.  The Department is satisfied with the Proponent's June 14, 2013 response. Although not all monitoring conditions may apply during any given phase of the project, monthly monitoring reports should continue to be submitted throughout the licence term, documenting applicable monitoring results.	Resolved

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16.	<p>If the project reverts to care and maintenance the Proponent should provide regular information updates to the Board and interested parties to describe: (a) the project's status; (b) how licence terms and conditions are being satisfied; (c) updates to project management plans, and, (d) events or other actions would trigger final closure. As a minimum, these updates should be provided within three months of any decision to place the project in care and maintenance and annually thereafter (e.g., with annual report submissions).</p>	<p>As the renewal application expressly requests that care and maintenance terms and conditions be included in the renewed licence, a 3 month update is not necessary. In our view, an annual update should represent the a minimum reporting requirement unless there are material changes that warrant informing the Board.</p>	<p>Not resolved.</p> <p>The Department would like to clarify that within three months of any decision to place the project in care and maintenance, the Proponent should submit to the Board for approval revisions to applicable management and monitoring plans to reflect site conditions. Furthermore, the Proponent should submit to the Board for approval revisions to applicable management and monitoring plans at least three months prior to taking the project out of care and maintenance.</p> <p>The Department maintains that, during periods of care and maintenance, monthly monitoring reports continue to be provided in addition to annual monitoring reports. These reports provide an opportunity to inform</p>	<p>Resolved</p> <p>The Proponent agreed to provide revisions to applicable management and monitoring plans within three months of any decision to place the project in care and maintenance or bring the project out of care and maintenance.</p>

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			stakeholders on the project's status.	
17.	As a minimum, the Proponent should compare Tail Lake TIA water quality and quantity monitoring data to predictions generated by the water quality and water quantity model once annually during periods of care and maintenance to confirm its accuracy. The Proponent should explain the proposal to compare water quality predictions to collected monitoring data from the Tail Lake TIA when significant differences are noted during care and maintenance (proposed licence term and condition Part M, Item 2.b.). In particular, the Proponent should define a 'significant' difference.	TMAC agrees with the comment as this was the intent of the proposal. Significance will be based on current water license definitions.	Not resolved  The Proponent should clarify how water quality predictions will be compared to actual data when observed data differ significantly from previous care and maintenance predictions.	Resolved  The Department accepted the Proponent's proposal to recalibrate the water balance and water quality model when the project is brought out of periods of care and maintenance.

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18.	As a minimum, Part G, Item 24.e. and Part M, Item 2.a. of the Licence should require the Proponent to visually monitor all structures associated with the Tail Lake TIA on a monthly basis when the site is not occupied (i.e., during periods of care and maintenance). Appropriately qualified individuals, the Board, and an Inspector should be immediately notified of any abnormalities.	During care and maintenance C&M the site may be closed during the 6 month winter season. In this instance, a minimum of two quarterly inspections will be conducted during this period. The site will be continuously occupied during periods of open water to conduct ongoing water management. TMAC relies on its annual geotechnical inspections to determine the appropriate frequency of thermal monitoring and any other North Dam monitoring.	Not resolved  The Department maintains that, during periods of care and maintenance, the Proponent should be required to visually monitor all structures associated with the Tail Lake Tailings Impoundment Area on a monthly basis when the site is not occupied. Appropriately qualified individuals, the Board, and an Inspector should be immediately notified of any abnormalities.	Resolved  During periods of care and maintenance when water is not being actively managed, the Proponent will visually monitor all structures associated with the Tail Lake Tailings Impoundment Area on a monthly basis when weather conditions permit site access.
<b>Closure Monitoring</b>				
19.	The Proponent should submit an Interim Mine Closure and Reclamation Plan and updated cost estimate within six months of the start of ore processing as required by Part L Item 4 and Part C, Item 2 of the licence.  In addition to the Interim Mine Closure and Reclamation Plan and updated closure cost estimate requirements pursuant to Part L, Item 4 and Part C, Item 2 of the Licence, the Proponent should submit revised versions of these documents within three months of any future	An update of the C&R Plan should be required to be filed with the Board every three years and 3 months after a decision to move to permanent closure.	Resolved  The Department's is satisfied with the Proponent's June 14, 2013 response.  Updated closure cost estimates should accompany all updated Closure and Reclamation Plans.	Resolved

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	decision to place the project under care and maintenance and, as a minimum, every three years should the mine life extend beyond the projected two years of operation and within two years of licence issuance if ore processing has not started within this time period.		It is noted that Schedule B, Item 11 of the Licence requires Annual Reports to include, "annual adjustments to reclamation security including any additional security that may be required." This condition should continue to apply.	
20.	The Proponent should consult traditional land users, land owners, and other stakeholders on the proposed post-closure land use criteria. Particularly, the proposal to leave certain facilities in place and the soil quality remediation objectives should be revisited. The Proponent should demonstrate that the proposed post-closure land use objectives are consistent with the 2012 Closure and Reclamation Plan's objective to establish "...stable chemical and physical conditions that protect the environment and human health" (Section 1.4).	As part of developing C&R Plans TMAC will consult with all of its stakeholders, including in particular the landowner (Kitikmeot Inuit Association).	Resolved  The Department is satisfied with the Proponent's June 14, 2013 commitment to consult stakeholders on the proposed post-closure land use criteria when developing future updates to the project's Closure and Reclamation Plan.	Resolved

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21.	<p>Future revisions of the project's Closure and Reclamation Plan (i.e., the Interim Mine Closure and Reclamation Plan and the Final Mine Closure and Reclamation Plan pursuant to Part L, Items 4 and 6 of the licence should provide greater detail on post-closure monitoring activities. The Department's Mine Site Reclamation Policy for Nunavut should be followed when developing a post closure monitoring program. This policy states that Mine Closure and Reclamation Plans should address,</p> <p style="padding-left: 40px;">a plan for post-closure monitoring of the site including a monitoring schedule and reporting frequencies. (For a monitoring program to be meaningful, it must include provision for appropriate progressive responses which trigger action whenever exceeded, including the establishment of thresholds of the identification of changes in circumstances.</p> <p>The Proponent should note that this policy also states,</p> <p style="padding-left: 40px;">Once the reclamation work required by the plan is deemed completed, the site will be allowed to stabilize. During this time, monitoring will be conducted by the company and verified by DIAND and other agencies as appropriate, with respect to the effectiveness of the mitigative measures, the accuracy of the environmental assessment, and any</p>	<p>As part of future revisions to its C&amp;R Plan TMAC will consider these comments.</p>	<p>Resolved</p> <p>The Department accepts the Proponent's June 14, 2013 commitment to consider the Department's comments in future revisions to the project's Closure and Reclamation Plan.</p> <p>Revised plans should be submitted to the Board for approval and be distributed to interested parties for review and comment.</p>	<p>Resolved</p>

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	<p>unforeseen environmental impacts. The duration of the required monitoring phase will be reviewed and confirmed at the time of closure and will depend on the risks associated with the potential impacts on the environment.</p> <p>During this period, the mining company will continue to be responsible for the site, including remediation of any additional environmental complications which develop. If warranted by site conditions, the monitoring period may be extended to ensure remedial measures are met.</p>			
22.	<p>The Proponent's updated closure cost estimate of \$13,090,000 is adequate and should be incorporated into an amended and renewed licence. This recommendation is based on the following reasons:</p> <ul style="list-style-type: none"> <li>• The rationale provided for using SRK's cost estimating model (SRK 2012a);</li> <li>• The estimate was prepared by professional engineers (HBML 2013);</li> <li>• The estimate is based on the work being completed by a third party (HBML 2013); and,</li> <li>• The licence requirements to revise the Closure and Reclamation Plan and Closure Cost Estimate within six and eighteen months following the</li> </ul>	<p>TMAC acknowledges AANDC's acceptance of the closure cost estimate.</p>	<p>Resolved</p> <p>As stated in the Department's June 6, 2013 technical review memorandum, the Proponent's updated closure cost estimate is considered to be adequate for the site as it currently exists.</p> <p>It should be noted that the department has not performed a detailed review of the submitted cost estimate. As a result, the specifics of the unit</p>	Resolved

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	<p>commencement of ore processing activities (Part C, Item 2 and Part L, Item 4 of the licence)</p> <p>It should be noted that the department has not performed a detailed review of the submitted Closure Cost Estimate.</p>		<p>costs and task costs were not reviewed in the current effort. However, the reasons for accepting this estimate specified in the Department's June 6, 2013 technical review memorandum provide assurance that the estimate can be accepted.</p>	