MEMORANDUM

DATE: 21 June 2013

TO: David Hohstein

FROM: Chris Hanks

SUBJECT: **TMAC Response to AANDC comments #8, #9 and #10**

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 19th a phone meeting was held with AANDC by Rescan ERM and then on the 20th and 21st 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.