Environmental Protection Operations Directorate
Prairie & Northern Region
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ECCC File: 6100 000 036/010
NWB File: 2AM-DOH1335

June 25, 2020

via email at: licensing@nwb-oen.ca

Richard Dwyer
Manager of Licencing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Dear Stephanie Autut:

RE: 2AM-DOH1335**– TMAC Resources Inc – Hope Bay – 2019 Annual Report**

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board (NWB) regarding the above-mentioned Annual report.

ECCC's specialist advice based on our mandate pursuant to the *Canadian Environmental Protection Act* and the pollution prevention provisions of the *Fisheries Act.*

The following comments are provided:

Topic: TSS Treatment of Underground Water

- Section 3 – Summary of Project Activities for 2019

Comment:
The report indicates that a water treatment plant was constructed in 2019 to remove Total Suspended Solids (TSS) from underground mine water prior to discharge into Roberts Bay.

Recommendation:
ECCC recommends:

- An additional Surveillance Network Program (SNP) station be added after treatment through the newly constructed water treatment plant, such that the water quality post treatment can be measured prior to discharge into Roberts Bay.
- The Proponent provide a discussion of overall treatment efficiency from the proposed water treatment plant, including expected water quality after treatment.

Topic: Updated Management Plans

- Section 12 – Management Plans

Comment:

The annual report identifies a number of management plans that were updated in March of 2020, including the Emergency Response Plan, Spill Contingency Plan, Hazardous Waste Management Plan, QA/QC Plan, and the Doris-Madrid Water Management Plan. However, these updated plans were not provided with the Annual report for review.

Recommendation:
ECCC recommends that updated plans be provided with the annual report for review.

Topic: Water Quality in the TIA

- Appendix D – Water Licence Monitoring Data
- Table D1-24

Comment:
TMAC has previously acknowledged that Station TL1 will be used to assess overall Tailings Impoundment Area (TIA) effluent quality prior to the effluent combining with the underground mine water and being discharged into Roberts Bay. However, ECCC notes that as per Table D1-24, the water quality in the TIA is not being compared and contrasted to the relevant discharge criteria. Specifically, to the discharge criteria that are mandated pursuant to the *Metal and Diamond Mine Effluent Regulations* (MDMER).

Recommendation:
ECCC recommends that water quality in the TIA at station TL1 be compared to MDMER discharge criteria in order to validate predictions and to inform treatment needs

Topic: Underground Dewatering (TL-12) Quality

- Appendix D – Water Licence Monitoring Data
- Table D1-37

Comment:
Table D-37 provides a summary of water quality of water that has been pumped from the underground and that has been deposited into the TIA (until such time that the Roberts Bay pipeline has been commissioned). Based on the data provided, water quality from the underground is very high in metals. Given that there are also high concentrations of TSS, it may be that the majority of the high metals is present in the solid form, and therefore less bioavailable. However, no measurements of dissolved concentrations are provided. Therefore, there is an unclear picture of how available the metals are. In addition, there has been no overall discussion on the quality of the underground water quality in the annual report.

Recommendation:
ECCC recommends the Proponent provide a discussion of underground water quality, including any relevant available data for dissolved versus solid concentrations. Overall implications for TIA water quality and/or Roberts Bay water quality should be discussed.

Topic: Water and Load Balance Assessment

- Appendix E

Comment:
The Water and Load Balance assessment provides a description of parameters which were under-predicted by the model based on the 2019 data, and therefore the source terms for those

parameters were updated in order to increase accuracy of the model. However, although the new source terms have been provided, the report does not indicate what were the source terms previously, therefore it is unclear how much of an adjustment has been made to the model for the parameters that needed additional calibration. Inclusion of the previous values would be useful to assess the level of calibration required.

Recommendation:
ECCC recommends that the Water and Load Balance Assessment provide the previous values for any parameters that required updating, as well as the new updated values.

If you need more information, please contact Russell Wykes at (867) 669-4743 or Russell.wykes@Canada.ca.

Sincerely,

[original signed by]

Russell Wykes
Senior Environmental Assessment Officer

Attachment(s):

cc: John Olyslager, Acting Head, Environmental Assessment North (NT and NU)