



Environment and
Climate Change Canada

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ENVIRONMENT AND CLIMATE CHANGE
CANADA'S
FINAL WRITTEN SUBMISSION TO THE
NUNAVUT WATER BOARD

RESPECTING
THE TYPE A WATER LICENCE
APPLICATIONS FOR
THE HOPE BAY PHASE 2 PROJECT
PROPOSED BY
TMAC RESOURCES INC.

September 28, 2018

Executive Summary

TMAC Resources Inc. (the Proponent or TMAC) is proposing to develop the Phase 2 Hope Bay Belt Project (the Project) at the currently operating Doris North Mine in the Kitikmeot region of Nunavut approximately 153km southwest of Cambridge Bay. The Project consists of the construction, operation, and closure of the Madrid North, Madrid South and Boston deposits. Construction of the Project is proposed to last 5 years starting as early as 2019.

In Nunavut, Environment and Climate Change Canada (ECCC) participates in the Water Licence process by providing specialist expert information or knowledge to the Nunavut Water Board (NWB) as required under Article 13 of *the Nunavut Agreement*. ECCC has participated in all phases of the Water Licence process for the Project thus far and has provided comments on the initial review-completeness check, including follow-up responses to the Proponent after the completeness check. ECCC submitted a Technical Comments Submission and participated in a Technical Meeting held in May of 2018. The Department also reviewed the Proponent's Technical Meeting Commitment Responses submitted in June of 2018. ECCC is continuing its participation by way of this Final Written Submission to the NWB for consideration.

This Final Written Submission summarizes the results of ECCC's technical review of the outstanding issues and the additional information provided by the Proponent following the Technical Meeting. The comments and recommendations provided are based on ECCC's mandate in the context of the *Canadian Environmental Protection Act*, the pollution prevention provisions of the *Fisheries Act*, and the *Metal and Diamond Mining Effluent Regulations*.

ECCC's comments and recommendations are with respect to the Aquatics Effects Management Plan, Effluent Quality Criteria, and mitigation and monitoring of in-water construction activities.

Table of Contents

Executive Summary	2
1.0 List of Acronyms	4
2.0 Introduction	5
3.0 ECCC's Mandate, Roles, and Responsibilities	6
4.0 ECCC's Technical Review Comments.....	7
4.1 ECCC #1 – AQUATIC EFFECTS MONITORING PROGRAM	7
4.2 ECCC #2 – EFFLUENT QUALITY CRITERIA	8
4.3 ECCC #3 – MITIGATION AND MONITORING OF IN-WATER CONSTRUCTION ACTIVITIES.....	8
5.0 Acknowledgements	10

1.0 List of Acronyms

AEMP – Aquatics Effects Management Plan
CEPA – *Canadian Environmental Protection Act*
ECCC – Environment and Climate Change Canada
EEM – Environmental Effects Monitoring
MDMER – *Metal and Diamond Mining Effluent Regulations*
NWB – Nunavut Water Board
TIA – Tailings Impoundment Area
WL – Water Licence

2.0 Introduction

TMAC Resources Inc. (the Proponent or TMAC) is proposing to develop the Phase 2 Hope Bay Belt Project (the Project) at the currently operating Doris North Mine in the Kitikmeot region of Nunavut approximately 153km southwest of Cambridge Bay. The Project consists of the construction, operation, and closure of the Madrid North, Madrid South and Boston deposits. Construction of the Project is proposed to last 5 years starting as early as 2019. TMAC has applied for a new Type A Water Licence, 2AM-BOS---- for the Boston Project as well as an amendment to their existing Type A Water Licence 2AM-DOH1323 for the Doris and Madrid Project which will be collectively referred to as the Hope Bay Phase 2 Project.

Environment and Climate Change Canada (ECCC) provides specialist expert information or knowledge within ECCC's possession to the NWB for consideration as required under Article 13 of the *Nunavut Agreement*. The Proponent submitted a Type A Water Licence (WL) application and an amendment application to the Nunavut Water Board (NWB) for the Project in January of 2018. ECCC has participated in all phases of the water licence process thus far and has provided comments on the initial review-completeness check, including follow-up responses to the Proponent. ECCC submitted a Technical Comments Submission to the NWB on March 23, 2018 and attended the Technical Meeting in Cambridge Bay in May of 2018. A number of technical issues raised by ECCC were resolved following the submission and the Technical Meeting. ECCC is continuing its participation in this WL process by way of this Final Written Submission to the NWB.

A summary of ECCC's mandate and legislation is provided in Section 3.0 and ECCC's technical review comments and recommendations are provided in Section 4.0. ECCC's comments and recommendations are with respect to the Aquatics Effects Management Plan, Effluent Quality Criteria, and mitigation and monitoring of in-water construction activities.

3.0 ECCC's Mandate, Roles, and Responsibilities

The mandate of ECCC is determined by the statutes and regulations under the responsibility of the Minister of Environment and Climate Change. ECCC's mandate covers matters such as the preservation and enhancement of the quality of the natural environment (including water, air and soil quality, and the coordination of the relevant policies and programs of the Government of Canada), renewable resources (including migratory birds and other non-domestic flora and fauna), meteorology, and the enforcement of rules and regulations. In delivering its mandate, ECCC develops and implements policies, guidelines, codes of practice, inter-jurisdictional and international agreements, and related programs. ECCC's specialist advice is provided in the context of the *Canadian Environmental Protection Act* (CEPA), the pollution prevention provisions of the *Fisheries Act*, and the *Metal and Diamond Mining Effluent Regulations* under the *Fisheries Act*.

ECCC administers the pollution prevention provisions of the *Fisheries Act*, which prohibits the deposit of a deleterious substance into fish-bearing waters. ECCC also administers the *Metal and Diamond Mining Effluent Regulations*, which apply to metal and diamond mines and regulate the deposit of mine effluent, waste rock, tailings, low-grade ore and overburden into natural waters frequented by fish.

ECCC also regulates toxic chemicals and develops and implements environmental quality guidelines pursuant to CEPA.

4.0 ECCC's Technical Review Comments

This Final Written Submission summarizes the results of ECCC's technical review of the outstanding issues and the additional information provided by the Proponent following the Technical Meeting in May of 2018.

Subsection 36(3) of the federal *Fisheries Act*, administered by ECCC prohibits the discharge of deleterious substances to waters frequented by fish, or to a place where those substances might enter such waters.

4.1 ECCC #1 – Aquatic Effects Monitoring Program

Reference:

- P4-18: Hope Bay Aquatic Effects Monitoring Plan
- V5-4B: Near Field Plume Mixing Model for Discharges to Aimaokatalok Lake
- V5-4E: Far Field Hydrodynamic Mixing Model for Discharges to Aimaokatalok Lake

Issue:

The Aquatic Effects Monitoring Program (AEMP) has been undergoing development and refinement in consultation with ECCC throughout the water licensing process. The Proponent has held meetings with ECCC, in order to ensure satisfaction with the AEMP, and work is progressing to harmonize the AEMP with the Environmental Effects Monitoring Program (EEM) that is required under the *Metal and Diamond Mining Effluent Regulations* (MDMER). The AEMP and EEM are both aquatic monitoring programs; however, the programs differ in frequency of sampling and reporting, required components, and the overall program goals.

While significant progress has been made to develop the AEMP, further work is required to finalize the details including study design, data analysis, the aquatic response framework, and baseline sampling. ECCC acknowledges the work undertaken by TMAC and looks forward to ongoing participation and collaboration in further development of the program.

Recommendation(s):

- ECCC recommends that the AEMP be submitted for Board approval following the issuance of the water licence, prior to construction.

4.2 ECCC #2 – Effluent Quality Criteria

References

- P5-4: Hope Bay Water and Load Balance

Issue:

The Proponent has provided extensive modelling to predict the quality of the effluent to be discharged at Aimaokatlok Lake as part of the Boston Project and has modelled how effluent quality in the Tailings Impoundment Area (TIA) will change with the addition of the Madrid Project. The Proponent primarily compares predicted effluent quality to the authorized limits for deleterious substances that are regulated under the MDMER; however, it is unclear whether TMAC is proposing any additional effluent quality criteria. The MDMER include national minimum standards for effluent quality monitoring. They would not reflect site specific considerations, such as the sensitive nature of Northern aquatic ecosystems.

Recommendation(s):

Given the sensitive nature of the local aquatic ecosystems, ECCC suggests that lower limits than those set by the MDMER be considered. This is consistent with what has been indicated to be achievable by the Proponent's modelling. ECCC also suggests that the proponent consider including additional water quality parameters.

4.3 ECCC #3 – Mitigation and Monitoring of In-water Construction Activities

References:

- ECCC Technical Review Comments Submission (March 23, 2018)
- TMAC Letter to NWB re. Technical Meeting Commitments (June 19, 2018)

Issue:

In ECCC's technical comments and during the technical sessions, ECCC had expressed concern with the lack of information provided on monitoring of water quality during in-water construction and mitigation of potential effects. Based on discussions at the technical sessions, TMAC has provided a preliminary draft of an Environmental Protection Plan that outlines the components that will be included in this plan. However, specific monitoring/management requirements are not stated. ECCC acknowledges that design specifics of in-water construction works are not finalized at this early stage in mine development; however, a more detailed management/monitoring plan should be provided prior to construction of any in water works to ensure that the aquatic environment is protected.

Recommendation(s):

ECCC recommends that a design-specific in-water construction plan be submitted to the Nunavut Water Board for approval prior to any in-water construction. The plan should include the components outlined in the TMAC's commitment to ECCC-WL-4.1.9.

5.0 Acknowledgements

ECCC acknowledges and appreciates the effort that the Proponent has taken to provide information to inform parties for the WL review process. ECCC would like to thank the NWB for this opportunity to provide input and looks forward to continuing its further participation in the WL process.

ECCC's technical review comments and recommendations are not to be interpreted as any type of acknowledgement, compliance, permission, approval, authorization, or release of liability related to any requirements to comply with federal or territorial statutes and regulations.