Crown-Indigenous Relations and Northern Affairs Canada
Relations Couronne-Autochtones et Affaires du Nord Canada

Water Resources Division
Resource Management Directorate
Nunavut Regional Office
P.O. Box 100
Iqaluit, NU, X0A 0H0

Your file - Votre référence
2AM-MEL1631
Our file - Notre référence
CIDM#1286783

July 10, 2020

Mr. Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
E-mail: licensing@nwb-oen.ca

**Re: Crown-Indigenous Relations and Northern Affairs Canada Comments on 2AM-MEL1631 Design Report for Saline Effluent Treatment Plant (SETP) Upgrade and Operation & Maintenance Manual.**

Dear Mr. Dwyer,

Thank you for your June 19, 2020 email invitation to review and comment on the above-noted design report and operation & maintenance manual.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) reviewed the design report and the manual, pursuant to its mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act*, and would like to provide the following comments to the Nunavut Water Board for consideration.

## 1. Treatment Objectives of SETP: pH

Table 1 of the design report listed the effluent treatment objectives for the following three parameters: pH (6 to 9), acute toxicity on marine species (Non-Toxic) and total suspended solids (15 mg/L).

Although a pH value between 6 and 9 is appropriate for the freshwater aquatic ecosystem in general, pH of the marine environment, including coastal zones, is normally above 7. pH is a critical parameter for the health of the marine ecosystem, particularly the coastal habitat where marine mollusc species (e.g., shellfish) thrive and the *British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture* recommends a pH range between 7.0 and 8.7 for the protection of mollusc embryo development in marine water.

CIRNAC recommends that the effluent treatment objective for pH be revised from between 6 and 9 to between 7.0 and 9.0, unless it can be demonstrated that the lower pH will not have a significant negative impact on the marine ecosystem.

## 2. Treatment Objectives of SETP: Total Dissolved Solids

The design report states that the total dissolved solids (TDS) and ammonia concentration targets will be set to be non-acutely toxic for the three-spined stickleback. CIRNAC notes that although the treatment for ammonia is described in detail in the design report, the methodology and the design of effluent TDS treatment is not provided.

Given that effluent TDS treatment may be required, CIRNAC recommends that the licensee include the methodology and the design of effluent TDS treatment in the design report.

CIRNAC appreciates the opportunity to participate in this review. If there is any question, please contact me at (867) 975-4555 or david.zhong@canada.ca or Bridget Campbell at (867) 975-4282 or bridget.campbell@canada.ca.

Sincerely,

David Zhong
Regulatory and Science Advisor