Environmental Protection Operations Directorate
Prairie & Northern Region
5019 52nd Street, 4th Floor
P.O. Box 2310
Yellowknife, NT X1A 2P7

ECCC File: 6100 000 010/040
NWB File: 2BB-BOS1727

October 26, 2017

Via email to: licensing@nwb-oen.ca

Karen Kharatyan
A/Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Dear Mr. Kharatyan:

RE: 2BB-BOS1727 – TMAC Resources Inc. – Boston Bulk Sampling – Sewage Treatment Operations and Maintenance Management Plan

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board (NWB) regarding the above-mentioned management plan and is submitting comments via email as requested by the NWB. ECCC's specialist advice is provided based on our mandate, in the context of the *Canadian Environmental Protection Act* and the pollution prevention provisions of the *Fisheries Act.*

Please find the following comments below:

1. Sludge Monitoring

   General information regarding how the sludge will be managed is provided in Section 3.2 (Sludge Disposal) of the Boston Sewage Treatment Operations and Maintenance (O&M) Management Plan. Procedures for the sampling and testing of sludge and excess sump water should either be included in the O&M plan, or a specific reference provided if this information is available in an existing plan.

   ECCC recommends that procedures for the sampling and testing of sludge and excess sump water either be included in the O&M plan, or specific reference(s) provided if this information is available in existing plan(s).

2. Sludge Sump

   The O&M plan does not indicate how often the sludge sump will be inspected in order to identify and address any issues (such as high water levels or washouts) that could lead to the overflow and release of untested and/or poor quality sludge water.

   ECCC recommends that the sludge sump be inspected at least weekly on a routine basis, and at least daily during significant rain/melt events (including freshet), in order to

identify and address any issues (such as high water levels or washouts) that could lead to the overflow and release of untested and/or poor quality sludge water.

3. Sludge Incineration

   a) Section 3.2 (Sludge Disposal) of the Boston Sewage Treatment O&M Management Plan states that sludge that meets the Canadian Council of Ministers of the Environment fertilizer guidelines will be blended with other materials and used in reclamation programs. Sludge that does not meet these guidelines may be incinerated and disposed with the incinerator ash. ECCC notes that the Incinerator Management Plan (April 2016) does not provide manufacturer information regarding whether the on-site incinerator is designed to accept sludge.

      ECCC recommends that incineration is not used to manage sludge, unless the incinerator is specifically designed to accept sludge and the sludge meets the manufacturer's specifications (water content, acceptable wastes, etc.).

   b) Section A2.2.2 (Sludge Dewatering, Destruction and Use) of the Domestic Wastewater Treatment Management Plan (Feb 2017) states that polymers for thickening sludge may be added to the mixing tank. The Boston sewage O&M plan does not indicate whether polymers will be used to thicken sludge. This information should be provided.

      ECCC recommends that the TMAC Resources Inc. clarify whether the sewage sludge may contain additives, such as polymers, and whether any such additives are compatible with the incineration process.

4. Effluent Discharge Quality Limits (BOS-03)

   The water licence lists the maximum allowable concentration (grab sample) for oil and grease at station BOS-3 as "no visible sheen". However, Table 4 (Effluent Discharge Quality Limits…at Monitoring Station BOS-03) lists a maximum allowable concentration of "5 mg/L and no visible sheen" for this parameter. Table 4 should be corrected to agree with the water licence limits.

   ECCC recommends that Table 4 (Effluent Discharge Quality Limits…at Monitoring Station BOS-03) be corrected to list the maximum allowable concentration (grab sample) for oil and grease as "no visible sheen", in agreement with the water licence.

5. Effluent Monitoring and Management

   The sewage management O&M plan does not specify the frequency for sampling and testing of sewage effluent at station BOS-3 (sewage treatment facility treated effluent discharge) and station BOS-4 (treated sewage effluent at the point prior to entry into Aimaokatalok/Spyder Lake). Sampling and testing at the compliance points is necessary to verify that water licence discharge criteria are being met. Additionally, the O&M plan should also indicate how long off-specification effluent could be managed on-site, in the event that treated effluent does not meet water licence discharge limits.

ECCC recommends that the O&M plan be updated to specify the frequency for sampling and testing of sewage effluent at station BOS-3 (sewage treatment facility treated effluent discharge) and station BOS-4 (treated sewage effluent at the point prior to entry into Aimaokatalok/Spyder Lake), and to specify how long off-specification effluent could be managed on-site in the event that treated effluent does not meet water licence discharge limits.

6. Erosion Monitoring and Management

   The O&M plan describes how treated sewage effluent is discharged to the tundra at a surge box and then travels over 200 metres to Aimaokatalok/Spyder Lake. Table 5 indicates that the tundra discharge surge box is inspected daily for erosion. However, the plan does not describe what measures would be taken to address erosion, should it occur.

   ECCC recommends that the O&M plan be updated to describe what measures would be taken to address sewage-related erosion, should it occur.

Should you require further information, please do not hesitate to contact Bradley Summerfield at (867) 669-4707 or Bradley.Summerfield@canada.ca.

Sincerely,

[original signed by]

Melissa Pinto
Senior Environmental Assessment Coordinator

cc: Georgina Williston, Head, Environmental Assessment North (NT and NU)
Bradley Summerfield, Senior Environmental Assessment Coordinator
ECCC Review Team