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X0A 0H0

City of Iqaluit
Box 460
Iqaluit, Nunavut
X0A 0H0

Ville d'Iqaluit
C.P. 460
Iqaluit, Nunavut
X0A 0H0

☎ 867-979-5600
📠 867-979-5922
✉ info@iqaluit.ca
🌐 www.iqaluit.ca

August 11, 2020

Richard Dwyer
Manager of Licensing
Nunavut Water Board
Gjoa Haven, NU X0B 1J0

RE: City of Iqaluit Response to Crown-Indigenous Relations and Northern Affairs Canada Comments on City of Iqaluit 2019 Annual Report for Municipal Type A Water Licence No. 3AM-IQA1626

Dear Mr. Dwyer,

This letter provides responses to comments received from Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), via the Nunavut Water Board (NWB), regarding the City of Iqaluit's (the City) submission of the 2019 Annual Report for Municipal Type A Water Licence No. 3AM-IQA1626.

LAKE GERALDINE DAM SAFETY INSPECTION 2019: CLARIFICATIONS

RECOMMENDATIONS:

(R-01) CIRNAC recommends that the City provide the information with regards to the north berm.

(R-02) CIRNAC recommends that the City clarify whether the anchors installed in 2005 to the gravity concrete Dam of Lake Geraldine were tested as part of the 2019 Lake Geraldine Dam Safety Inspection

CITY RESPONSE:

(R-01) A Dam Safety Inspection 2019 Supplementary report (Concentric, December 2019) will be provided, which provides information relevant to the north berm.

(R-02) The anchors that were installed in 2005 were not tested as part of the 2019 Dam Safety Inspection, as no concerns regarding the anchors were identified as part of the inspection.

LAKE GERALDINE DAM SAFETY INSPECTION 2019: OUTSTANDING RECOMMENDATIONS

RECOMMENDATIONS:

(R-03) CIRNAC recommends that the City implement the recommendations which were put forward by Concentric Geoscience, including the recommendations from previous years which are included in Concentric Geoscience's recommendations under recommendation number 5 (2019 Annual Report, Appendix C, pg. 8):

- Automated/remote monitoring equipment should be incorporated as triggers for the emergency plans and security measures.
- Records indicate that the valves within the valve chamber are in an advanced state of corrosion. Exercising and testing of the valves is recommended as the valves may not operate correctly when needed.
- New signage in conformance with the DSG's should be installed and maintained at the two access roads and around the periphery of the dam.
- To our knowledge the visual monthly inspection program has not been implemented. Inspection reports should be added to the permanent record file.

(R-04) CIRNAC recommends that the City initiate a Dam Safety Review, as soon as possible, to comply with water licence requirements.

CITY RESPONSE:

(R-03) The City will be retaining a Professional Engineer in 2020 to detail the instrumentation and systems required for monitoring the dam. The City will also be retaining a Professional Engineer to assess the corroded valves and specify a suitable replacement. Signage was installed at the entrance gate to the Lake Geraldine Dam and at the Lake Geraldine Dam as part of the 2019 Apex Pumping program. The City will assess the installation of additional signs along the periphery of the reservoir, and action these installations as soon as possible. The City will be performing routine inspection checks of the Lake Geraldine Dam as per the Routine Inspection Checklist developed as part of the Dam Safety Management Plan update in 2019.

(R-04) The City engaged a consultant (MECO) in 2019 to conduct a Dam Safety Review of the Lake Geraldine Dam. Final deliverables were issued to the City in 2020. A copy of the final deliverable will be provided in the email communication to the NWB.

SEWAGE LAGOON INSPECTION

RECOMMENDATIONS:

(R-05) CIRNAC recommends that the City provide an update for 2019, and for each following year in subsequent Annual Reports, on whether any seepage or stability issues are detected in the lagoon.

CITY RESPONSE:

(R-05) Although it remains as part of the system, the Sewage Lagoon is intended to be used in emergency situation only, as sewage will be directed and treated at the wastewater treatment plant. The recently revised O&M manual for the Sewage Lagoon does indicate that regular visual inspections of the lagoon be performed as part of regular maintenance checks. The City will be implementing regular checks as part of on-going preventative maintenance activities for the lagoon.

SEWAGE SOLIDS DISPOSAL

RECOMMENDATIONS:

(R-06) CIRNAC recommends that the City clarify the disposal method for the sludge-filled geotube containment cells.

CITY RESPONSE:

(R-06) The geotubes are contained within a lined cell, which drains to the sewage lagoon, containing any leachate from the geotubes. As part of the original action plan for disposal of the sludge-filled geotubes, it was arranged that the geotubes would be allowed 1-year of dewatering into the sewage lagoon, and then would be excavated and hauled to the landfill. Given construction resourcing challenges related to COVID, it was determined that the geotubes would go through an additional pathogen kill through another winter as the City was not able to coordinate resource to dispose of the geotubes at the City's landfill.

ARCHITECTURAL AND STRUCTURAL OPERATION & MAINTENANCE MANUAL FOR THE IQALUIT WASTEWATER TREATMENT PLANT

RECOMMENDATIONS:

(R-07) CIRNAC recommends that the City identify which elements require inspection and how frequently they should be inspected, including by whom they should be inspected, in the Architectural and Structural Operation & Maintenance Manual.

CITY RESPONSE:

(R-07) The City's Engineer of Record has indicated that monthly visual inspections of the building envelope and water retaining structures be performed in order to identify signs of compromise. The inspections would be carried out by City staff. Should signs of compromise be identified, the City's Engineering Department would be notified.

EXPECTED SUBMISSION OF REVISED PLANS, MANUALS, AND REPORTS

RECOMMENDATIONS:

(R-08) CIRNAC recommends that the City submit the plans identified in comment 6 for review before or with the submission of the 2020 Annual Report.

CITY RESPONSE:

(R-08) The Dam Safety Management Plan, Drinking Water Management Plan, and Long-Term Water Storage Pre-Feasibility Study will be submitted to the NWB/CIRNAC as part of the City's submission of the 2020 Annual Report.

VOLUME OF LANDFILL EFFLUENT DISCHARGED

RECOMMENDATIONS:

(R-09) CIRNAC recommends that the City clarify the volume of landfill effluent discharged during each of the two discharge events in cubic metres or clarify why these measurements are not available.

CITY RESPONSE:

(R-09) The City utilizes a portable pump with no metering available to the pump. If measuring of volume is a requirement moving forward, the City will implement a method to measure liquid levels in the receiving pond to get an estimated volume. The City will consult with its Engineer on specifying suitable instrumentation that will be able to provide the information requested. This instrumentation will be purchased in time for the 2021 season.

Regards,



Amy Elgersma
Chief Administrative Officer
City of Iqaluit
Box 460, Iqaluit, NU
X0A 0H0

CC'ed: *Derek Donald, Technical Advisor, NWB*
 Josip Deronja, Acting Engineering Manager, City of Iqaluit
 Shane Turner, Superintendent Utilidor, City of Iqaluit

- Provide a tabular summary of all monitoring results, including field and laboratory monitoring;
- Clearly identify and discuss any exceedances; and

- Provide raw data (field testing and laboratory reports) for all monitoring conducted.

CITY RESPONSE:

The City will coordinate the supply of this information for future annual reports.

**SEWAGE LAGOON SLUDGE – OPERATION & MAINTENANCE
MANUAL**

RECOMMENDATIONS:

ECCC recommends that future versions of the sewage lagoon O&M manual discuss sludge characterization and appropriate use/ disposal options and thresholds, following development of the solid's management plan.

CITY RESPONSE:

The City will be operating the disposal of sludge from the Sewage Lagoon as per the City's Biosolids Management Study (Stantec, April 2019), and further complemented by the City's Existing Lagoon Action Plan. A copy of the documents has been provided for reference purposes.

Regards,



Amy Elgersma
Chief Administrative Officer
City of Iqaluit
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X0A 0H0

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