



Water Resources Division
Resource Management Directorate
Nunavut Regional Office
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Your file - Votre référence
3AM-IQA1626
Our file - Notre référence
GCDOCS#102372874

April 25, 2022

Richard Dwyer
Manager of Licencing
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's Review of City of Iqaluit's Updated Water Treatment Plant Operation and Maintenance Manual for Water Licence 3AM-IQA1626

Dear Richard Dwyer,

Thank you for your April 4, 2022 invitation to review the above-referenced manual.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the water treatment plant operation and maintenance 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*. Please find CIRNAC comments and recommendations in the attached Technical Memorandum.

If there are any questions or concerns, please contact me at david.zhong@rcaanc-cirnac.gc.ca or Andrew Keim at andrew.keim@rcaanc-cirnac.gc.ca.

Sincerely,

David Zhong,
Regulatory & Science Advisor



Technical Review Memorandum

Date: April 25, 2022

To: Richard Dwyer, Manager of Licensing, Nunavut Water Board

From: David Zhong, Regulatory & Science Advisor, CIRNAC

Subject: Crown-Indigenous Relations and Northern Affairs Canada's Review of City of Iqaluit's Updated Water Treatment Plant Operation and Maintenance Manual for Water Licence 3AM-IQA1626

Region: Qikiqtani

A. BACKGROUND

On April 4, 2022, the Nunavut Water Board (NWB) invited interested parties to submit comments on an updated Water Treatment Plant Operation and Maintenance (WTP O&M) Manual submitted on March 31, 2022 by the City of Iqaluit (the licensee) to fulfil the requirements of Part D, Item 2 of its water licence 3AM-IQA1626.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) reviewed the updated WTP O&M 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*. A summary of the subjects of CIRNAC's comments and recommendations regarding the renewal application can be found in Table 1. Documents reviewed as part of this submission can be found in Table 2 of Section B. Detailed technical review comments are in Section C.

Table 1: Summary of Comments and Recommendations

Recommendation Number	Subject
R-01	Timely submission of WTP O&M manual
R-02	Personnel training for fire events
R-03	Emergency response
R-04	Drinking water quality when operating under bypass mode
R-05	Sampling and monitoring requirements
R-06	Engineering sketches or drawings
R-07	As-built drawings for foundations and supporting structures of WTP

B. DOCUMENTS REVIEWED AND REFERENCED



The following table (Table 2) provides a list of the documents reviewed under the submission and reference during the review.

Table 2: Documents Reviewed and Referenced

Document Title	Author, File No., Rev., Date
3AM-IQA1626 Water Treatment Plan Operation & Maintenance Manual 2022 Update Cover Letter	Sumon Ghosh, Director of Engineering and Capital Projects, City of Iqaluit, March 31, 2022
Iqaluit Water Treatment Plant Operation & Maintenance Manual March 2022 Update	City of Iqaluit, March 2022
Water Licence 3AM-IQA1626	Nunavut Water Board, June 17, 2016
Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories	Diep Duong and Ron Kent, Northwest Territories Municipal and Community Affairs, October 1996
3AM-IQA1626 Iqaluit WTP OM 2018 Update Iqaluit Request	Josip Deronja, Seniro Project Manager, City of Iqaluit, December 14, 2021



C. RESULTS OF REVIEW

1. Timely Submission of the WTP O&M Manual

Comment:

CIRNAC notes that Water Licence 3AM-IQA1626 was issued on June 17, 2016 and Part D, Item 2 of the licence stipulates that “(T)he Licensee shall submit to the Board for approval, within sixty (60) days of the Effective Date of the Licence, an updated manual for the potable Water Treatment Facility.” The original WTP O&M Manual was submitted to the NWB on October 26, 2021 and withdrawn by the City of Iqaluit on December 14, 2021. An updated WTP O&M Manual was resubmitted to the NWB on March 31, 2022.

Recommendation:

(R-01) CIRNAC recommends that the licensee endeavor to comply with the terms and conditions of its water licence in the future.

2. Personnel Training for Fire Events

Comment:

Section 1.5.2 of the updated WTP O&M Manual on personnel training for fire events states:

“For this section, details will be added at a later time to address the following information:

- *The designated muster points in the event of a fire.*
- *The primary responder during a fire event (e.g., apart from the local City fire department, operators may also be trained to address fires on site).*
- *Locations of all the manual fire alarm pull stations in the WTP.”*

It is not clear why the licensee could not develop and include the details of the procedures and personnel training for handling potential fire events in the current update of WTP O&M Manual. Given the importance of this issue, CIRNAC would like to reiterate our request that the details be developed and included in the current updated WTP O&M Manual, rather than at a later time.

Recommendation:

(R-02) CIRNAC recommends that the licensee further update the WTP O&M Manual to include the details of the procedures and personnel training for handling potential fire events.



3. Emergency Response

Comment:

Part D, Item 2(f) of Water Licence 3AM-IQA1626 requires that the WTP O&M Manual include “(E)mergency response measures.”

Section 1.6 of the updated WTP O&M Manual on emergency response states:

“During the event of an onsite emergency, the first point of contact would be the local dispatch emergency service. On-shift operators would be expected to take appropriate action and respond to emergencies on site. There are also back-up procedures that must be followed (the framework for which will be developed at a later time).”

In the event of an emergency, there are muster points on site located throughout the exterior of the plant (details to be added at a later time).

The table below presents the strobe/beacon colour codes or alarm horns and their respective corresponding emergency scenarios (details to be added at a later time).”

It is not clear why the licensee could not develop and include the framework of and the details on emergency response in the current update of WTP O&M Manual. Given the specific water licence requirement and the importance of this issue, CIRNAC is of the opinion that emergency response measures should be developed and included in the current updated WTP O&M Manual, rather than at a later time.

Recommendation:

(R-03) CIRNAC recommends that the current updated WTP O&M manual be further updated to include emergency response measures now, rather than at a later time.

4. Drinking water quality when operating under the bypass mode

Comment:

The updated WTP O&M Manual includes a new bypass mode as an operating option for drinking water treatment under emergency. The manual does not, however, specify under what circumstances this bypass mode would be activated. Furthermore, it is not clear if and how the criteria for drinking water quality, particularly the criterion on total suspended solids, would be met when operating under the bypass mode.

Recommendation:



(R-04) CIRNAC recommends that the licensee further revise the updated WTP O&M Manual to include a discussion on (1) the specific circumstances under which the bypass mode would be activated and (2) if and how the criteria for drinking water quality will be met when operating under the bypass mode.

5. Sampling and monitoring requirements

Comment:

Part D, Item 2(e) of water licence 3AM-IQA1626 requires that the WTP O&M Manual address “(S)ampling and monitoring requirements.”

In the *3AM-IQA1626 Water Treatment Plant Operation & Maintenance Manual 2022 Update Cover Letter*, the licensee stated that “(S)ampling and monitoring requirements” were addressed in Section 4 of the updated WTP O&M Manual.

CIRNAC reviewed the whole updated WTP O&M Manual, including Section 4 of the updated Manual (i.e., pp.244-730), and could not identify any subsections that address Part D, Item 2(e) of Water Licence 3AM-IQA1626.

Recommendation:

(R-05) CIRNAC recommends that the licensee make certain that the specific requirements on sampling and monitoring (i.e., Part D, Item 2(e)) of its Water Licence 3AM-IQA1626 be adequately addressed in the updated WTP O&M Manual.

6. Engineering sketches or drawings

Comment:

A number of engineering sketches or engineering drawings are included in the updated WTP O&M Manual (i.e., pp.65-74, pp.122-125, pp.127-128 and pp. 305-314). CIRNAC notes that these engineering sketches or drawings are not signed or stamped by a qualified engineer.

Recommendation:

(R-06) CIRNAC recommends that all engineering drawings in the updated WTP O&M Manual be signed or stamped by the qualified engineers.

7. As-built drawings for the foundations and supporting structures of the WTP

Comment:



Part D, Item 2(b) of Water Licence 3AM-IQA1626 requires that “*site setting*” of the WTP be “addressed” in the manual.

In its December 6, 2021 submission to the Nunavut Water Board, CIRNAC noted the absence of the as-built drawings for the foundations and supporting structures of the WTP in the WTP O&M Manual and recommended that as-built drawings for the foundations and supporting structures be included in the WTP O&M Manual.

It seems that the updated WTP O&M Manual does not contain as-built drawings for the foundations and supporting structures of the WTP.

Recommendation:

(R-07) CIRNAC reiterates its recommendation that as-built drawings for the foundations and supporting structures be included in the updated WTP O&M Manual.