



CITY OF YELLOWKNIFE

February 22, 2023

Mackenzie Valley Land and Water Board
Box 2130, 7th Floor - 4910 50th Avenue
Yellowknife, NT X1A 2P6

Attention: Erica Janes, Regulatory Officer

Dear Ms. Janes,

RE: Water Licence MV2021L3-0003

- 1) Submission of Flocculant Optimization Study (Schedule 3, Condition 13(j))**
- 2) Extension to Water Treatment Facilities Operations & Maintenance Plan Submission Date**

Enclosed is the Water Treatment Plant (WTP) Flocculant Optimization Study, submitted in accordance with Schedule 3, Condition 13(j) of the City's current Water Licence.

The Study outlines some recommendations for further work. These can be found in Section 4 of the Study, and are summarized here for clarity.

The Study recommends the following:

1. Continue monitoring aluminum at the lagoon.
2. Model the sanitary system to determine if it can accommodate increased wastewater flow from the WTP during warm months.
 - a) If additional flow to sanitary can be accommodated, consider sending more wastewater to sanitary for a year or two instead of coagulating to observe any impact on lagoon aluminum levels.
3. Operate the residuals system briefly without coagulant in spring/summer to identify what proportion of wastewater can typically be recycled without coagulation.
4. Consider jar testing in spring/summer to evaluate whether dosing polymer together with coagulant would allow for a lower coagulant dose.
5. Consider making changes to the membrane settings to produce a lower volume backwash wastewater.

Item #1 of their recommendations is a requirement of the existing Water Licence SNP requirements, thus it will continue.

In order to address the remaining Study recommendations, the City intends to hire a consultant to complete the identified work. The timeline for the work is anticipated as follows:

Item	Schedule
Hire Consultant	Fall 2023
Modelling of Sanitary System (Item 2)	Winter 2023/2024
Jar testing & WTP Operational Modifications (Items 3 to 5 above)	Spring/Summer/Fall 2024
Report on Findings Submitted to Water Board	March 2025

Item 2a) above will be dependent on the outcome of item 2, thus this has not been accounted for in the schedule. The other items (3 through 5) listed above, are more immediate items that will be tried as they may address the issue.

The findings from the Consultant will be summarized in a report and submitted to the Water Board.

As the results and recommendations of the Flocculant Optimization Study directly impact the revisions to the Water Treatment Facilities Operation and Maintenance Plan (O&M Plan), and the recommendations from the Flocculant Optimization Study are for further work to be done, the City requests that an extension to the submission date for the revised O&M Plan be given, as outlined in the table below. This will allow for the report from the City’s consultant to be submitted, reviewed and any outcomes from the review incorporated into the O&M Plan.

Item	Original Submission Date	Revised Submission Date
Water Treatment Facilities Operation and Maintenance Plan	December 31, 2023	December 31, 2025

Should you have any questions or comments, please contact me at 867-920-5689 or by email at wnewton@yellowknife.ca.

Sincerely,



Wendy Newton, P.Eng.
 Manager, Sustainability and Solid Waste
 Public Works and Engineering

Encl: Flocculant Optimization Study

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