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December 21, 2022

W2018L3-0001

Sherbaz Muhammad
Senior Administration Office
Community Government of Gamètì
PO Box 1
Gamètì, NT X0E 1R0

Sent via email

Dzè neᓴ Sherbaz Muhammad,

Re: Information Request for Gamètì's Water Supply Facility Characterization and Testing Plan Version 1.1 and Water Supply Facility Operation and Maintenance Plan Version 3.2

On November 5, 2021, Stantec in association with AWC Water Solutions submitted the Water Supply Facility Characterization and Testing Plan (WSF CTP) Version 1.1¹ and WSF Operation and Maintenance Plan (O&M Plan) Version 3.2² on behalf of the Community Government of Gamètì (CGG) as required by Part D, Condition 13 of Water Licence W2018L3-0001 (the Licence)³ and by the Board's August 20, 2020 Reasons for Decision for Version 1.0 of the WSF CTP.⁴

In order to assist the Wek'èezhì Land and Water Board (WLWB or Board) with its decision on the WSF CTP Version 1.1 and O&M Plan Version 3.2 for the WSF, and in accordance with section 22 of the *Mackenzie Valley Resource Management Act* (MVRMA), the Board respectfully requests additional information as outlined in this Information Request.

¹ See WLWB (www.wlwb.ca) Online Registry for [Gameti - WSF - CTP - Version 1.1 - May 31 22](#)

² See WLWB (www.wlwb.ca) Online Registry for [Gameti - WSF - O and M Plan - V3.2 - Part 1 of 7 - May 31 22; Part 2 of 7; Part 3 of 7; Part 4 of 7; Part 5 of 7; Part 6 of 7](#).

³ See WLWB (www.wlwb.ca) Online Registry for [Gameti - Water Licence - Amendment - Aug 19 19](#)

⁴ See WLWB (www.wlwb.ca) Online Registry for [Gameti - WSF - CTP - Decision Letter and Reasons for Decision - Aug 20 20](#)

Background

Version 1.1 of the WSF CTP and Version 3.2 of the WSF O&M Plan were distributed for public review on August 15, 2022. The Item for Review noted that the Board's Reasons for Decision for the CGG's WSF CTP Version 1 had required CIP Waste to be sampled at the SUEZ membrane tank, prior to entering the Wastewater Tank.⁵ Board staff noted that the WSF CTP reads that the CIP Waste was sampled at the overland discharge pipe, not at the SUEZ membrane and thus does not conform with the Board's direction. Reviewers were encouraged to provide recommendations, if any, regarding whether the existing samples provide the necessary information or if additional CIP Waste samples should be taken when reviewing the two plans.

Comments were received by the deadline of September 19, 2022 by Government of the Northwest Territories – Department of Environment and Natural Resources – Environmental Assessment and Monitoring (GNWT-ENR). Board staff also submitted questions. Proponent responses were received by the extended deadline of October 20, 2022.

Overland Disposal of CIP Waste not Authorized by the Water Licence

Version 1.1 of the WSF CTP describes that CIP Waste was sampled at the overland discharge pipe. CGG's WSF O&M Plan Version 3.1,⁶ which was approved by the Board on June 4, 2020,⁷ indicates that the CIP waste is to be sampled at the SUEZ membrane tank, prior to entering the Wastewater Tank. During the public review, Board staff (comment 1) commented that the sampling location at the overland discharge pipe in Version 1.1. of the WSF CTP is inconsistent with the approved location (SUEZ membrane tank). Board staff also noted that Stantec had changed the discharge location to overland without first seeking Board approval of the change (Board staff comment 1). Board staff asked Stantec to explain why the disposal location was changed. In response, Stantec indicated that the change in disposal location is to simplify the operational system for the operator.

As described in the Board's August 19, 2019 Reasons for Decision for CGG's Licence Amendment⁸:

The new WSF will generate Waste in two ways; through a backwash system (which typically involves water being pumped backwards through filters to remove accumulated particles such as sand or dirt), and wastewater generated from in-plant processes (such as a membrane cleaning process, testing, and general housekeeping). The backwash is discharged onto land to drain towards Rae Lake, while the wastewater is discharged to a tank which will be regularly drained and taken to the Sewage Disposal Facilities (SDF).

⁵ See WLWB Online Review System for [WSF - Characterization and Testing Plan V1.1; O and M Plan V3.2](#)

⁶ See WLWB (www.wlwb.ca) Online Registry [Gameti - WSF - O and M Plan - V3.1 - Cover Letter - Apr 29 20; Part 1; Part 2; Part 3; Part 4; Part 5; Part 6; Part 7](#)

⁷ See WLWB Online Registry [Gameti - Water Supply Facilities - O and M Plan - V3.1 - Decision Letter - Jun 4 20](#)

⁸ See WLWB Online Registry [Gameti - Water Licence - Amendment - Reasons for Decision - Aug 19 19](#)

Based on evidence providing during the Licence Amendment proceeding, the Board included the following conditions:

Part D, Condition 8: The Licensee shall not deposit non-sewage Waste to the Sewage Disposal Facilities, unless authorized in writing by an Inspector.

Part D, Condition 12: The Licensee shall not discharge Waste from the Water Supply Facilities to the Receiving Environment, unless authorized in writing by an Inspector.

Part D, Condition 13: The Licensee shall submit a Water Supply Facilities Characterization and Testing Plan to the Board for approval.

The WFS CTP required by Part D, Condition 13 is intended to help characterize the wastewater and testing requirements throughout operations, which would assist the Inspector with its authorization under Part D, Conditions 8 and 12. Part D, Conditions 8 and 13 are intended to manage the CIP Waste because it is discharged to a tank which will be regularly drained and taken to the Sewage Disposal Facilities. On the other hand, the Waste referenced in Part D, Condition 12 is referring to the backwash discharged to land if authorized by an Inspector because that Waste discharged onto land drains towards Rae Lake. Overland disposal of CIP Wastewater was not previously considered by the Board during the Licence Amendment proceeding and the Licence currently does not authorize overland disposal of CIP Waste.

Given that the Licence does not authorize overland disposal of the CIP Waste, CIP Waste should be sent to the Wastewater Tank for subsequent disposal to the Sewage Disposal Facility. However, based on Stantec's response that the change was made to simplify the operational system for the operator, it is unclear whether the CGG currently has the suitable equipment and capacity to dispose of the CIP Waste to the Wastewater Tank while maintaining the regular operation of the Water Supply Facility. In order to better understand the logistical implications of such a change, the Board respectfully requests the following information:

Information Request #1: CGG to discuss whether there is the appropriate equipment and resources to dispose of the CIP Waste to the Wastewater Tank (for subsequent disposal to the Sewage Disposal Facility) while maintaining the regular and safe operation of the Water Supply Facility.

Environmental Implications of Discharging Clean-in-Place Waste Overland

During the public review, Board staff asked Stantec to explain the potential environmental implications of discharging CIP Waste overland (Board staff comment 1). In response, Stantec indicated that there are no environmental implications based on the following rationale:

- the Waste is dechlorinated and neutralized prior to disposal;
- the Safety Data Sheets show the chemicals involved are not ecologically harmful in the quantities infrequently discharged by the WSF; and

- the pH, total suspended solids (TSS), and carbonaceous biochemical oxygen demand (CBOD) are below the effluent quality criteria (EQC) for the sewage effluent discharged from the sewage disposal facilities at SNP 003-2 and SNP 003-3.

In Tables 2 and 3 of the WSF CTP, Stantec on behalf of CGG compared the backwash and CIP Waste quality results to the Effluent Quality Criteria (EQC) in the Licence. The EQC required by Part D, Conditions 4 and 5 of the Licence were set for the discharge of Waste from the Sewage Disposal Facility at SNP Stations 003-2 and SNP 003-3, not for the discharge of Waste from the WSF. During the public review, GNWT-ENR asked for rationale for comparing the backwash and CIP Waste to EQC and if any other guidelines were considered (GNWT-ENR Comment 2). In response, Stantec on behalf of CGG indicated that there is no existing standards to compare the discharge of backwash water and CIP Waste to, therefore the EQC and GNWT’s 2004 *Guidelines for Industrial Waste Discharge in the NWT* were used (response to GNWT-ENR Comment 2). The GNWT’s *Guidelines for Industrial Waste Discharge in the NWT* “is intended for the discharge of Waste into municipal systems not discharges from municipal systems.”⁹

The Board’s August 19, 2019 Reasons for Decision for CGG’s Licence Amendment also indicated that a study from Dalhousie University regarding the impact of water treatment plant residuals and waste to the environment would provide recommendations on best practices, and help inform whether potential future long-term sampling would be necessary. The Board required the CGG to include a summary of findings from the study, along with an implementation plan to respond to any recommendations made by the study, including any recommendations for the Licence and/or the WSF CTP. The Board noted this would provide an opportunity to re-evaluate any need for additional monitoring and/or consideration of potential discharge criteria when the CGG submits its revised WSF CTP. The Board also noted that should the research result in recommendations related to Licence conditions, changes could be considered via a Water Licence Amendment.

In the Dalhousie Report, there is a table summarizing the discharge targets for pH, TSS, total aluminium, and total iron used by other jurisdictions in Canada and the United States as shown in Table 1.

Table 1: Backwash and CIP Waste Compared with the Discharge Target stated the Dalhousie Report

Sampling Date	Discharge Target (Dalhousie Report)	CIP (Citric acid)		CIP (sodium hypochlorite)	
		September 20, 2020	August 1, 2021	September 20, 2020	August 1, 2021
pH	6.5-9		7.78		8.18
TSS (mg/L)	20-30 mg/L or 5 mg/L over background		6.5		<3.0
Total Iron (mg/L)	< 5 mg/L		0.942		0.046

⁹ See GNWT [Guideline for Industrial Waste Discharges in the NWT](#) Section 1

Total Aluminium (µg/L)	100 if pH ≥ 6.5		<u>145</u>		39.6
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As shown in Table 1, concentrations of the CIP Waste parameters were less than the general discharge target, with the exception of total aluminum. The Dalhousie Report listed a target of 100 µg/L of total aluminum when the pH ≥ 6.5, and the CIP Wastes on August 1, 2021 was 145 µg/L, which is above the discharge target stated in the Dalhousie Report. Although Table 3 indicates that CIP Waste were sampled on September 20, 2020 and August 1, 2021, the raw dataset from September 20, 2020 was not included in the Appendix of the WSF CTP. The WSF CTP also did not include a comparison of the results of the CIP Waste to the discharge targets discussed in the Dalhousie Report. It was noted in Community Government of Wekweèti’s first CIP Waste sampling results on July 27, 2021, the total aluminum concentrations were 563 µg/L and 695 µg/L, which is five to six times greater than the discharge target stated in the Dalhousie Report.¹⁰ During the public review, Stantec indicated both communities have the same WSF in response to Board staff comment-2;¹¹ therefore, it is anticipated that the Waste quality generated from the two WSFs would be similar. In order to compare all CIP Waste results from CGG’s WSF to the discharge targets in the Dalhousie Report, the Board respectfully requests the following information:

Information Request #2: CGG to provide the raw dataset of the CIP Waste from September 20, 2020. CGG should consider the recommendations from the Dalhousie Report and include a comparison of all the CIP Waste results with the discharge targets.

Stantec on behalf of CGG is proposing to discharge the CIP Waste overland as opposed to the Sewage Disposal Facility as previously approved by the Board. However, the potential impacts and mitigation measures of discharging CIP Waste has not been described for the Board or any Party to consider. To better the understand the implications of such a discharge, the Board respectfully requests the following information:

Information Request #3: CGG to describe the potential impacts and associated mitigations of overland disposal of the CIP Waste considering the results from both September 20, 2020 and August 1, 2021 sampling events and any other applicable information.

Next Steps

In accordance with section 22 of the *Mackenzie Valley Resource Management Act* (MVRMA), the Board respectfully requests responses to Information Requests #1, #2, and #3 by **January 24, 2023**. If CGG requires more time to respond to these Information Requests, please propose a new due date with supporting rationale.

¹⁰ See WLWB (www.wlwb.ca) Online Registry for [Wekweèti - WSF - CTP Version 1.0 - May 31 22](#)

¹¹ See WLWB Online Review System for [WSF - Characterization and Testing Plan V1.1; O and M Plan V3.2](#)

To ensure that all reviewers have an opportunity to consider this new information, the responses to the Information Request will be distributed for public review via the Online Review System. The CGG will be provided with the opportunity to respond to any reviewer comments prior to the Board's decision.

The CGG's cooperation is appreciated. Please contact [Anneli Jokela](#) at 867-765-4588 for any questions regarding the Information Request

Masi,

A handwritten signature in blue ink, appearing to read 'Ryan Fequet', with a stylized, cursive script.

Ryan Fequet
Executive Director, Wek'èezhìi Land and Water Board

BCC: Wek'èezhìi Distribution List
Meg McCluskie, Water Resources Officer, GNWT-ENR
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