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Reasons for Decision

Issued pursuant to section 54 of the Waters Act

Water Licence Application for the Community of Behchokò	
Reference/File Number	W2014L3-0002 (replaces expiring Licence MV2003L3-0010)
Applicant	Community Government of Behchokò
Project	Use of Water and Deposit of Waste for Municipal Purposes at the Community of Behchokò, Northwest Territories

Decision from Wek'èezhii Land and Water Board Meeting of

October 27, 2014

With respect to this Application, notice was given in accordance with sections 63 and 64 of the *Mackenzie Valley Resource Management Act* (MVRMA) and section 43 of the *Waters Act*.

Background

The Community Government of Behchokò (previously known as the Incorporated Hamlet of Rae-Edzo) was issued Water Licence N1L3-0041 on October 1, 1993, for a period of ten years, by the Northwest Territories Water Board under the *Northwest Territories Waters Act* (NWTWA).

The Mackenzie Valley Land and Water Board (MVLWB) was established in April 2000. In accordance with the NWTWA, the MVLWB granted the Hamlet of Rae-Edzo a Type B Water Licence (MV2003L3-0010), which expires November 30, 2014.

The Wek'èezhii Land and Water Board (WLWB or Board) was established in August 2005 following the ratification of the *Tlicho Agreement*. On April 29, 2014, the Community Government of Behchokò submitted a water licence application¹

¹ The following documents were submitted in the application package and are on the WLWB (www.wlwb.ca) Online Registry under W2014L3-0002: [Water Licence Application](#), [Solid Waste Facility – Landfill Berm As-Built](#), [Solid Waste Facility – New Site Design Specifications](#), [2013 Landfarm Assessment](#), [Spill Contingency Plan](#), [Hazardous Waste Management Plan](#), [Solid Waste Facility Management Plan](#), [2011 Landfarm Remediation](#), [Solid Waste Facility – Closure and Reclamation Plan](#).

to the WLWB for water use and disposal of waste for municipal purposes at the Community of Behchokò, Northwest Territories. The application included the proposed construction of a new solid waste disposal facility and indicated that the population of Behchokò was 2,174. As outlined in Schedule F of the *Waters Regulations*, the municipal undertaking now requires a Type A water licence because the community population exceeds 2000.

The Community Government of Behchokò's application was distributed for public review on May 7, 2014. The Board initiated the regulatory process outlined in the work plan². Pursuant to subsection 124(1) of the MVRMA, the proposed development underwent a preliminary screening³.

The Board held a Technical Session⁴ on July 7, 2014, to provide an opportunity for parties to clarify issues and request additional information before submitting their public hearing interventions. Participants in the session were representatives from the Community Government of Behchokò and their technical consultants, Aboriginal Affairs and Northern Development Canada (AANDC), Environment Canada (EC), Government of Northwest Territories Environment and Natural Resources (GNWT-ENR), Government of Northwest Territories Community and Municipal Affairs (GNWT-MACA), and WLWB staff.

A Public Hearing was scheduled to be held on September 10 and 11, 2014, in the Community of Behchokò. Notice of the Public Hearing was provided in accordance with paragraph 41(2)(a) of the *Waters Act*. The Public Hearing was cancelled in accordance with paragraph 41(3)(a) of the *Waters Act* because the WLWB did not receive any written interventions or notifications that any person or body intended to appear and make representations to it.

The Board hosted a Community Information Session in Behchokò on September 10, 2014, for the public to ask questions about the application and water licence process. Presentations were given by both the Community Government of Behchokò⁵ and the WLWB⁶ to the approximately 40 people in attendance. English and Tłı̄chq̄ translation services were provided at the session.

Board staff prepared a draft water licence and distributed it for public review on September 25, 2014. When the draft was distributed, the WLWB clearly indicated that:

- The purpose of the draft licence is to allow parties to comment on Board staff's suggested conditions; and,
- The Board is not bound by the contents of the draft licence and will make its decision at the close of the proceeding on the basis of all the evidence.

[Surveillance Network Program, Proposed Solid Waste Facility – Site Characterization and Preliminary Design, Rae Sewage Lift Station Contingency Plan, and Wastewater Treatment Facility Operations and Maintenance Plan](#)

² See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 - Behchoko – Work Plan – May 6 14](#). Subsequently, there were several updates made to the work plan. All versions may be found on the WLWB's online registry.

³ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 – Behchoko – Preliminary Screening – Aug 11 14](#).

⁴ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 – Behchoko - Technical Session Agenda – Jul 2 14](#).

⁵ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 – Behchoko - Community Information Session – CGB Presentation – Sept 10 14](#).

⁶ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 – Behchoko - Community Information Session – WLWB Presentation – Sept 10 14](#).

Comments and recommendations on the draft licence were submitted by EC and GNWT-ENR by the deadline of October 2, 2014. The proponent responded to the reviewer's comments by the deadline of October 9, 2014.

Decision

After reviewing the submission of the Applicant and the written comments and submissions received by the Board, and having due regard to the facts and circumstances, the merits of the submissions made to it, and to the purpose, scope, and intent of the MVRMA and the *Waters Act* and Regulations made thereunder, the Board has determined that Water Licence W2014L3-0002 be issued, subject to the terms and conditions contained therein. The Board's reasons for this decision are set out below.

General Principles

The scope, definitions, and conditions set forth in the Water Licence have been developed in order to address the Board's statutory responsibilities and the concerns that arose during the regulatory process. These Reasons for Decision focus on the major issues and those that (1) were the subject of concern submitted by one or more parties, or (2) resulted in the use of conditions that differ from those commonly used in other Type A Water Licences. Conditions that fall into this second category were selected for inclusion in the Licence based on the details of the application and the evidence available to the Board.

Determinations Pertaining to Water Licence W2014L3-0002

Requirements of Section 26 and 27 of the *Waters Act*

Existing Licensees

After reviewing the submissions made during the regulatory process and filed on the WLWB Public Registry, the Board is satisfied that, with respect to paragraph 26(5)(a) of the *Waters Act*, the granting of this Licence to the Community Government of Behchokò will not adversely affect, in a significant way, any existing Licensee, provided the conditions of the Licence are adhered to. There are no other applicants with precedence.

Existing Water Users

Paragraph 26(5)(b) of the *Waters Act* prohibits the issuance of a Licence unless the Board is satisfied that appropriate compensation has been or will be paid by the Applicant to people who were, at the time when the Applicant filed its application with the Board, members of the classes of water users, depositors, owners, occupiers, or holders listed under paragraph 26(5)(b), who would be adversely affected by the use of waters, or deposit of waste proposed by the Applicant.

The Board received no claims for compensation either during the prescribed period or afterwards. Provided that compliance with the Water Licence conditions is achieved, the Board does not believe that any users or persons listed in paragraph 26(5)(b) of the *Waters Act* will be adversely affected by the use of Waters or the deposit of Waste proposed by the Applicant.

Water Quality Standards

Insofar as subparagraph 26(5)(c)(i) of the *Waters Act* is concerned, the Board is of the view that compliance with the Licence conditions will ensure that waste produced by the Community of Behchokò will be treated and deposited in a manner that will maintain water quality consistent with applicable standards and the Board's *Water and Effluent Quality Management Policy*.

Effluent Quality Standards

Consistent with subparagraph 26(5)(c)(ii) of the *Waters Act*, the Board is satisfied that the effluent standards it has set out in the Licence as conditions are consistent with the Board's *Water and Effluent Quality Management Policy* and will protect the receiving waters and environment. These are further discussed below.

Requirements of Subsection 27(2) of the Waters Act

It is the opinion of the Board that adherence to the conditions of the Licence will ensure that any potential adverse impacts on other water users, which might arise as a result of the issuance of the Licence, will be minimized.

Requirements of Subsection 61 of the MVRMA

Pursuant to subsection 61(2) of the MVRMA, the Board may not issue a licence or permit except in accordance with any applicable land use plan. The Board acknowledges the Tłıchq Land Use Plan put in place by the Tłıchq Government but notes that the lands included in the scope of Licence W2014L3-0002 are within the boundaries of the Community of Behchokò; therefore, the Board is satisfied that the requirements of this subsection have been met.

Water Licence W2014L3-0002 Term and Conditions

Water Licence Term

The Community Government of Behchokò did not specify a term in their water licence application. In the distribution of the draft Water Licence for public review, it was indicated that Board staff were recommending a term of 15 years and that reviewers could provide comments and recommendations on this. No such comments or recommendations from any of the reviewers or the proponent were received. The Board has decided to set a term of 15 years, consistent with other recent municipal water licence issuances which had similar terms such as the 15 year term for the Town of Fort Smith (MV2011L3-0001) and the 12 year term for the City of Yellowknife (MV2009L3-0007).

Part A: Scope and Definitions

Scope

The scope of the Licence authorizes the Licensee to use water and dispose of Waste for municipal undertakings.

Definitions

The Board has included a number of definitions in the Licence in order to ensure a common understanding of Licence conditions and avoid future differences in interpretation. The definitions use wording similar to that found in other water licences issued by the Board.

Part B: General Conditions

The General Conditions section stipulates matters regarding compliance and conformity with the MVRMA and the *Waters Act*, and an assortment of conditions that support the other Parts of the Licence. This includes conditions that pertain to the Surveillance Network Program (SNP), measuring devices, signage, and annual reporting. These are standard conditions found in other water licences issued by the Board and are appropriate for the Community of Behchokò.

Part C: Conditions Applying to Water Use

The conditions in Part C of the Licence address the sources and maximum amounts of freshwater that can be used for the municipal undertaking, and stipulate other restrictions related to water withdrawals. The conditions in this Licence are consistent with the previous licence and standard conditions found in other water licences issued by the Board.

Part D: Conditions Applying to Waste Disposal

The conditions in Part D of the Licence address waste disposal requirements. The conditions in this Licence are generally consistent with standard conditions found in other water licences issued by the Board. Any exceptions are discussed below.

Effluent Quality Criteria for Sewage Disposal Facilities

The Board's approach to managing the deposit of waste to the receiving environment through water licence terms and conditions is described in the MVLWB *Water and Effluent Quality Management Policy*. Effective March 31, 2011, this Policy is being applied to all new and renewal water licence applications throughout the Mackenzie Valley, including in Wek'èzhìi.

Part D, Items 2 and 3 detail the licenced effluent quality criteria (EQC). During the water licence application process, it was recommended that the EQC for the sewage disposal facilities be reviewed⁷. Derivation of new requirements for a specific treatment facility requires sufficient data on the quality of effluent throughout the treatment system, as well as the quality and flow of water in the receiving water body. At this time, such data is not available for the derivation of new requirements. Analysis of the existing water quality from Frank's Channel⁸ indicates that the sewage disposal facilities are not having a significant impact on the receiving environment and, therefore, the existing requirements appear to be appropriate.

In 2009, the Canadian Council of Ministers of the Environment (CCME) published the *Canada Wide Strategy for the Management of Municipal Wastewater Effluent*, which includes National Performance Standards of Carbonaceous Biochemical Oxygen Demand (CBOD) = 25 mg/L, Total Suspended Solids (TSS) = 25 mg/L, and Total Residual Chlorine (TRC) = 0.02 mg/L⁹; however, the Standards do not yet apply to wastewater treatment systems in Canada's North. During the water licence application

⁷ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 - Behchoko – Type A Water Licence Application – Review Comment Table and Attachments – June 25 14](#), GNWT-ENR (Central) Comment #10.

⁸ Data obtained from Aboriginal Affairs and Northern Development Canada.

⁹ http://www.ccme.ca/files/Resources/municipal_wastewater_effluent/cda_wide_strategy_mwwe_final_e.pdf

process, Environment Canada suggested the use of these standards¹⁰; however, it is unknown when, or if, the implementation of the National Performance Standards will occur in the North because of the unique challenges presented by the Northern environment. These Standards were not directly considered in the discussions regarding reassessment of effluent quality criteria for this Licence.

Due to the lack of data to support derivation of new EQC and lack of certainty with regard to the applicability of the National Performance Standards in the North, no changes to effluent quality criteria were considered at this time; however, the Board may initiate a review of the EQC at any time if there is evidence to do so.

Requirements for Landfarm

Effluent and soil quality criteria for the Landfarm were first established during an amendment of the previous water licence. The effluent and soil quality criteria have been revised for the new Licence and are detailed in Part D, Items 19 and 20.

The EQC for total suspended solids, chemical oxygen demand, and oil and grease are based on limits for the quality of runoff from landfarms as listed in the Government of Alberta “Environmental Code of Practice for Land Treatment of Soil Containing Hydrocarbons”, September 2008. These criteria have been carried over from the previous water licence. As recommended by ENR¹¹, additional water quality parameters have also been added to the new Licence. The effluent quality criteria for the additional parameters are based on the Alberta “Tier 1 Soil and Groundwater Remediation Guidelines” and are consistent with those contained in water licences for other landfarms in the NWT¹².

Soil criteria are based on the GNWT “Guideline for Contaminated Site Remediation” for industrial land use and are consistent with the criteria found in other municipal water licences (e.g. City of Yellowknife and Town of Hay River).

The previous Licence only permitted the Licensee to use remediated soils for closure and reclamation material at the existing Solid Waste Disposal Facilities. The Community Government of Behchokò informally requested¹³ clarification that the remediated soils could be used at both the existing and new Solid Waste Facilities. Part D, Item 20c requires that the remediated soils be placed in the existing Solid Waste Facility, and covered with the final solid waste cap, but allows other options to be carried out if approved by the Board.

¹⁰ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 - Behchoko – Type A Water Licence Application – Review Comment Table and Attachments – June 25 14](#), Environment Canada Comment #4.

¹¹ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 - Behchoko – Draft Water Licence – Review Comment Table and Attachments – Oct 9 14](#), GNWT-ENR (Central) Comment #4.

¹² See the MVLWB (www.mvlwb.com) Online Registry for [MV2014L1-0005 - KBL Environmental Ltd – Issuance Letter with Terms and Conditions – Jun 5 14](#), Part F, Item 6.

¹³ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 - Behchoko – Draft Water Licence – Review Comment Table and Attachments – Oct 9 14](#), Community Government of Behchoko Response to GNWT-ENR #6.

Notification of Exceedance

Part D, Item 4, was included based on reviewer recommendations¹⁴, in order to ensure that both the response to an exceedance and the identification of potential problems with treatment systems would be more effective. The Licensee will be required to immediately notify the Inspector in the case of an exceedance of any effluent quality criterion.

Inspections of Berms and Control Structures

The condition detailed in Part D, Item 10 is based on recent municipal water licences that have similar requirements, such as the City of Yellowknife's Licence (MV2009L3-0007).

Sewage Treatment Facilities – Special Studies

As a result of ongoing discussions regarding the makeup of sludge produced as a by-product of the Water Treatment Plants, the Community Government of Behchokò agreed¹⁵ that a sludge characterization would be conducted. The characterization has not yet been completed; therefore, Part D, Item 13, requires a characterization of the sludge to be completed. Schedule 2 lists the parameters to be analyzed.

Part D, Items 11 and 12, of the previous Water Licence required submission of water quality studies for the Rae Lagoon Effluent Discharge System, and the Sewage disposal Facilities serving Edzo, as well as a proposal for Groundwater Monitoring for the latter. These requirements were never met. Environment Canada recommended that the wetland component of the treatment systems should be characterized to evaluate the capacity of the wetlands^{16,17}. Part D, Items 14 and 15, of the new Licence require studies of the effectiveness of the Rae and Edzo Sewage Treatment Systems, respectively, due for approval by December 31, 2016. Schedule 3 describes the information necessary for these studies.

Requirements for New Solid Waste Facility

In Item 16, as-built drawings are required 30 days prior to use of the new facility.

In the O&M Plan for the new Solid Waste Facility, the Community Government of Behchokò proposed fencing and controlled access at the facility. Part D, Item 17 requires that the Solid Waste Facility be completely fenced with controlled access.

Part E: Conditions Applying to Construction

Part E of the Licence addresses a variety of issues related to Construction, including designs, maintenance, record-keeping, as-built drawings, notifications, and Board approval requirements. The main purpose of this Part is to ensure that Construction is carried out appropriate standards with proper oversight, in order to

¹⁴ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 - Behchoko – Type A Water Licence Application – Review Comment Table and Attachments – June 25 14](#), Environment Canada Comment #11 and GNWT-ENR (Inspector) Comment #2.

¹⁵ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 – Behchoko – WLWB Information Requests from Technical Session – CGB Response – Jul 30 14](#).

¹⁶ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 - Behchoko – Type A Water Licence Application – Review Comment Table and Attachments – June 25 14](#), Environment Canada Comment #3.

¹⁷ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 - Behchoko – Public Hearing – No Intervention letter from EC – Aug 13 14](#).

facilitate good performance, avoid failures, and ultimately, to protect the environment. The conditions in this part are consistent with other municipal water licences issued by the Board.

Part F: Conditions Applying to Modifications

Part F of the Licence contains conditions outlining when and how Modifications of the engineered structures may be authorized. The conditions ensure that the Board and the Inspector are kept informed and have the opportunity to request more information or reject a proposed Modification. This section is closely linked to the Construction section (Part E). Part F relies on the definition of Modification, which does not include expansions or alterations of the purpose or function of a structure. The conditions in this section are consistent with other Licences issued by the Board.

The purpose of Part F is to streamline the process for authorizing Modifications and ensure that any proposed changes that might be inconsistent with the scope or conditions of the Licence are brought to the Board's attention.

Part G: Conditions Applying to Contingency Plans

The conditions under Part G of the Licence are standard conditions to ensure procedures are in place to respond to spills. The planning and reporting requirements in this part ensure that the Licensee has identified the lines of authority and responsibility for spill response, established reliable reporting and communication procedures, and has an action plan for spill response. The intent is to ensure that any spills are effectively controlled and cleaned up in order to prevent or minimize damage to the receiving environment.

Part H: Conditions Applying to Operation and Maintenance

Operation and Maintenance Plans for the Wastewater Treatment Facilities and Solid Waste Facility were submitted to the Board with the Water Licence application. Appendix A details the minor revisions required to these Plans. Part H, Item 1 is related to the review of management plans for the operation and maintenance of the Sewage Disposal Facilities and Solid Waste Disposal Facilities. This condition is consistent with other Licences issued by the Board.

The draft licence circulated for public review contained a condition requiring a Closure and Reclamation Plan for the Landfarm facility to be submitted to the Board by January 31, 2015. This condition had been included at that time because the Water Licence application only contained a Landfarm Remediation Study and did not contain any material to suggest that the Community Government of Behchokò planned to accept additional contaminated soils into the Solid Waste Disposal Facility. The Community Government of Behchokò has indicated that it has not ruled out the possibility of operating the Landfarm facility following remediation¹⁸.

Future use of the Landfarm would not be outside the scope of the Licence. Instead of a closure and reclamation plan, Part H, Item 2 requires the Community Government of Behchokò to submit an Operation and

¹⁸ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 - Behchoko – Draft Water Licence – Review Comment Table and Attachments – Oct 9 14](#), Community Government of Behchokò response to GNWT-ENR (Central) Comment #2.

Maintenance Plan for the Landfarm Facility by May 1, 2015. This Plan must detail the remediation procedures, and associated timelines, for the contaminated soils currently in the Landfarm. Before accepting additional contaminated soils, the Licensee must demonstrate to the Board that the Landfarm is suitable for ongoing operation, submit an updated Operation and Maintenance Plan, and receive Board approval, as per Part H, Item 3. This condition will allow the Licensee the option of accepting additional contaminated soils in the future, while ensuring that appropriate infrastructure, operating procedures, and mitigation measures are in place to protect the environment.

Part I: Conditions Applying to Closure and Reclamation

Part I of the Licence pertains to closure and reclamation of the waste disposal facilities. The general condition is similar to those in other licences. A Closure and Reclamation Plan for the existing solid waste facility was submitted with the application. Appendix A details the minor revisions required to this Plan.

Schedule 1: Annual Report

Requirements of the Annual Report are outlined. These requirements are standard for municipal water licences.

Schedule 2: Sludge Characterization

Part D, Item 13 requires the sludge from the Water Treatment Plants to be characterized in order to understand what is being contributed to the sewage disposal facilities. The parameters listed in Schedule 2 were selected based on discussions at the Technical Session and the subsequent information provided by the Community Government of Behchokò¹⁹.

Schedule 3: Efficacy of Sewage Treatment Facility

Part D, Items 14 and 15 require studies of the effectiveness of the Rae and Edzo Sewage Treatment Systems, respectively. Necessary information for the studies is based on unfulfilled requirements of the previous Water Licence. The Groundwater Monitoring Program requirement under the previous Water Licence was not included in the new Licence because the current SNP requirements are more robust and will provide more information regarding the Edzo system.

Schedule 4: Closure and Reclamation Plans

Requirements of Closure and Reclamation Plans are outlined. These requirements have not changed from the previous Licence, however, they have been moved from the Licence to a schedule.

¹⁹ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 – Behchoko – WLWB Information Requests from Technical Session – CGB Response – Jul 30 14](#).

Surveillance Network Program Sampling Requirements

Effluent quality criteria and the locations at which they must be met have been carried over from the previous water licence; however, in an effort to further understand: (1) the efficacy of the respective sewage treatment systems; and (2) the potential impact of these systems on respective receiving environments, conditions have been included in the Licence to require more extensive effluent sampling and data collection. Through increased sampling and data collection, the quality of effluent at different locations through the lagoon and wetland systems may be assessed and a location at which the National Performance Standards are met may be identified. In an effort to increase sewage effluent data collection and an understanding of the Rae and Edzo sewage disposal facilities, the Surveillance Network Program (SNP) has been expanded.

The SNP is annexed to the Licence to detail sampling and monitoring requirements related to compliance with numerous conditions and plans required under the Licence. Requirements for measuring flows, volumes, and meteorological data are based on standard water licence conditions as are the reporting requirements. The Board has adopted the Community Government of Behchokò's recommendations with respect to sampling sites²⁰. Details are provided below. The Board may consider changes to the timing, frequency, and location of samples if additional evidence becomes available.

Locations and Parameters to be Monitored

For each sewage disposal facility, the SNP now includes stations at the end of the lagoon system, within the wetlands post-lagoon treatment, and immediately upstream of the final receiving water body. The list of SNP parameters was also reviewed by the Board, and CBOD has been added to the sampling parameters for sewage based on reviewer recommendations²¹, in addition to BOD which remains a part of the SNP. Because the National Performance Standards include a criterion for CBOD, this measurement will facilitate a comparison of effluent quality in Rae and Edzo to the Standards.

Trend analysis of the relationships between BOD and CBOD was recommended²² to facilitate an understanding of the relationship between BOD and CBOD at these sites, however, such an investigation is beyond the scope of the Surveillance Network Program under this Licence. The information generated from the SNP will be publically accessible, thus, parties may undertake such investigations on their own initiative.

Monitoring of Total Residual Chlorine (as exists in the Standards) is not required under the SNP. It is unnecessary because chlorine is not added to the sewage disposal facilities in Rae or Edzo.

²⁰ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 – Behchoko – WLWB Information Requests from Technical Session – CGB Response – Jul 30 14](#).

²¹ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 - Behchoko – Type A Water Licence Application – Review Comment Table and Attachments – June 25 14](#), Environment Canada Comment #4 and GNWT-ENR (Central) Comment # 10.

²² See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 - Behchoko – Type A Water Licence Application – Review Comment Table and Attachments – June 25 14](#), GNWT-ENR (Central) Comment # 10.

Sewage Disposal Facilities Serving Rae

The Rae sewage treatment system is operated as a two cell system: primary sewage is disposed into the first cell and decanted to the second cell after the second cell has been emptied. The second cell is decanted into a wetland system that flows under the Rae access road and ultimately into Frank's Channel. For this treatment system, SNP stations have been located as follows:

- **In the sewage disposal facilities, just inside the decant structure (2014-R2).** This SNP station will indicate the quality of wastewater before it enters the wetland system, and will help gain an understanding of the efficacy of lagoon treatment. The previous Licence did not require any monitoring of the wastewater inside the lagoon system; however, the community has regularly performed sampling at this location to understand the efficacy of the lagoon system and the quality of effluent entering the wetlands. It is believed that this sample will provide useful data and this location was also identified by the Community Government of Behchokò²³.
- **Point of compliance, at the culvert after the outflow under the Rae access road (2014-R3).** This SNP station is the point of compliance for the EQC contained in Part D, Item 2 of the Water Licence. This station (formerly called 0041-R2) was carried over from the previous Water Licence and will indicate the quality of water following initial wetland treatment and before flowing through the long section of wetland towards Frank's Channel. Comparing effluent quality at this station to upstream and downstream effluent data, the efficacy of the wetland system will be better understood. The frequency of sampling has been increased in the new Water Licence from weekly to every three days during decant flow. Because the decant is often complete within approximately one week, more frequent sampling is required to ensure that the effluent plume is actually sampled. One week following when the decant flow stops, one additional sample must be taken.
- **At the end of the Rae wetland system, prior to entering Frank's channel (2014-R4).** This new SNP location will indicate the quality of effluent prior to entering the receiving environment. Like station 2014-R3, 2014-R4 will be sampled every three days during decant to assess the efficacy of treatment through the lagoon and wetland system and potential impact on the receiving environment. To allow time for effluent to reach it, station 2014-R4 will be sampled one day after the upstream location (2014-R3). The location of 2014-R4 was proposed by the Community Government of Behchokò²⁴.

Sewage Disposal Facilities Serving Edzo

The Edzo sewage treatment system is a continually flowing, parallel, two-cell lagoon system, followed by an area of engineered "fingered" overflow ditches, and a natural wetland area which ultimately flows into the receiving environment of Great Slave Lake. SNP locations have been updated in an attempt to gather meaningful data on the effluent quality leaving the engineered lagoon and wetland system, and prior to flowing into Great Slave Lake.

²³ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 – Behchoko – WLWB Information Requests from Technical Session – CGB Response – Jul 30 14](#).

²⁴ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 – Behchoko – WLWB Information Requests from Technical Session – CGB Response – Jul 30 14](#).

- **In the sewage disposal facilities, immediately prior to flowing towards the overflow ditches (2014-E2).** This sample will indicate effluent quality prior to leaving the lagoon system and indicate the level of treatment from the two cells. The lagoon has experienced film overgrowth and understanding if this is impeding treatment of BOD/CBOD is important.
- **Point of junction at the outflow ditches from the Sewage Disposal Facilities (2014-E3).** This location is the point of the compliance for EQC at this facility. The sample will capture the quality of effluent before it flows through the natural wetland system, indicating treatment efficacy of the upstream lagoon and wetland/ditch system. In comparison with upstream data, this sampling data will indicate the treatment efficacy of the overflow ditches.
- **In the natural wetland system, immediately prior to entering Great Slave Lake (2014-E4).** This new SNP location has been added, based on a recommendation from Environment and Natural Resources, GNWT²⁵, to assess effluent quality immediately before entering the receiving water body. This effluent quality, in comparison with upstream data, will provide an understanding of the overall treatment efficacy of the entire lagoon, ditch, and wetland system. The location of this station will be scouted by the Community Government of Behchokò and the Inspector in an attempt to find a location that is accessible and wet enough to produce a sample.
- **Great Slave Lake, downstream from Sewage Disposal Facilities (2014-E5).** This sample will only be taken in the case station 2014-E4 is unable to be sampled. 2014-E5 will capture water quality in the receiving environment (Great Slave Lake), as close as possible to the location where sewage effluent would enter the Lake.

Sampling of Radionuclides

Previous water licences for the Community of Behchokò required sampling and analyses for several radionuclides (total radium-226, lead-210, uranium, and polonium) at the water intakes every five years. No standards or guidance was given to compare results to. No records of this sampling ever being completed by the Licensee could be found. This is not a standard condition found in other municipal water licence. Investigation into the rationale for the inclusion of this condition was fruitless. As discussed at the Technical Session, it is possible that these parameters were included in the first Water Licence because of historic community concerns about the Rayrock mine; however, no concerns about RayRock impacting Behchoko's current drinking water supply were made known to the Board. Results of sampling conducted on August 11, 2014, provided to the Board by the GNWT-ENR Inspector indicate that levels of these parameters were below Canadian Drinking Water Guidelines. The Board has decided that Water Licence W2014L3-0002 does not, therefore, require the sampling of radionuclides.

²⁵ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 - Behchoko – Draft Water Licence – Review Comment Table and Attachments – Oct 9 14](#), GNWT-ENR (Central) Comment #1.

Sampling Sites for New Solid Waste Facility

SNP sites for the new facility were proposed by the Community Government of Behchokò²⁶. These sites have been included in the SNP. It is expected that the Community Government will work with the Inspector to specify the exact locations of the most relevant and practical sampling sites, identify GPS coordinates for these sites, and include them in the SNP manual.

Conclusion

Subject to the term and conditions set out in the Licence, and for the reasons expressed herein, the WLWB is of the opinion that the licensed undertaking for water use and waste disposal associated with the Community of Behchokò can be completed by the Licensee while providing for the conservation, development, and utilization of waters in a manner that will provide the optimum benefit for all Canadians, and in particular, for the residents of Wek'èezhii.

Water Licence W2014L3-0002 contains provisions that the Board feels necessary to ensure and monitor compliance with the MVRMA and the *Waters Act* and the Regulations made thereunder and to provide appropriate safeguards in respect of the Applicant's use water and deposit of waste.

SIGNATURE



Joseph Mackenzie
Acting Chair, Wek'èezhii Land and Water Board

November 3, 2014

Date

Attached:

1. Appendix A: Required Revisions to Management Plans

²⁶ See the WLWB (www.wlwb.ca) Online Registry for [W2014L3-0002 – Behchoko – WLWB Information Requests from Technical Session – CGB Response – Jul 30 14](#).

APPENDIX A: Required Revisions to Plans Submitted with Water Licence Application W2014L2-0003²⁷

The following plans submitted with the water licence application are considered approved:

- Spill Contingency Plan (including for the Rae Lift Station);
- Operation and Maintenance Plan, including related sub-plans:
 - Hazardous Waste Management Plan,
 - Solid Waste Management Plan, and
 - Wastewater Treatment Facility O&M; and
- Closure and Reclamation Plan for Existing Solid Waste Facility.

Pursuant to Part B, Item 5, the Licensee must operate in accordance with the approved plans. In addition, several minor revisions are required and updates to the plans must be submitted to the Board for approval as soon as possible, in accordance with Part G, Item 1 and Part H, Item 1 of the Water Licence. The necessary revisions to these plans, and to the Solid Waste Facility Site Design Specifications, are listed below:

Wastewater Treatment Facility O&M

- Update SNP details (stations, parameters, etc.)
- Revise Process Flow Diagram for Edzo
- Update sludge management procedures to include that sludge depths will be measured every 3 years (commencing in Summer 2015) and results reported to the Board
- Describe Honeybag Pit Management

Spill Contingency Plan

- Describe standard operating procedures for the transfer of hazardous materials: specifically fuel and fuel distillates
- Provide remedial actions for all hazardous materials encountered
- Describe spill training
- Provide thresholds for when spills should be reported
- Update contact information for Off-site Resources ENRs Hazardous Substances Specialist (867-873-7562) and (867-873-7443) GNWT Inspector

Hazardous Waste Management Plan

- Secondary containment is needed for the hazardous materials depot
- The HWMP states that vehicles are buried once fluids are collected. Vehicles contain numerous pollutants in addition to fluids, such as: lead acid batteries, mercury switches, and refrigerants. The HWMP should state that all vehicles must be thoroughly depolluted prior to recycling or disposal.

Closure and Reclamation Plan for Existing Solid Waste Facility

- Implementation schedule

Solid Waste Facility Site Design Specifications

- Berm height around solid waste facility should be 2m

²⁷ The WLWB recommends that the Community Government contact Board staff to discuss details related to the required revisions.