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## Staff Report

<b>Applicant:</b> Hamlet of Fort Providence	
<b>Location:</b> Fort Providence, NT	<b>File Number(s):</b> MV2016L3-0001
<b>Date Prepared:</b> February 14, 2022	<b>Date of Board Meeting:</b> February 24, 2022
<b>Subject:</b> 2018-19, 2019-20 and 2020-21 Annual Water Licence Reports	

### 1. Purpose

The purpose of this Report is to present to the Mackenzie Valley Land and Water Board (MVLWB/the Board) the 2018-19, 2019-20 and 2020-21 Annual Water Licence Reports (Annual Reports) submitted by the Hamlet of Fort Providence (Hamlet) to fulfill Part B, Condition 4 and Schedule 1 of the Hamlet's municipal Water Licence (Licence) MV2016L3-0001.

### 2. Background

- July 7, 2016 – Issuance of Licence MV2016L3-0001;
- October 6, 2021 – Annual Reports received;
- October 12, 2021 – Review commenced;
- November 2, 2021 – Comments and recommendations due and received;
- November 16, 2021 – Responses due;
- December 21, 2021 – Responses received;
- **February 24, 2022 – Annual Reports presented to the Board for information;** and
- July 6, 2026 – Expiration of Licence MV2016L3-0001.

### 3. Discussion

On October 6, 2020, the Hamlet submitted their 2018-19, 2019-20 and 2020-21 Annual Reports (attached) to fulfill Part B, Condition 4 and Schedule 1 of their municipal Licence MV2016L3-0001. These submissions are not for Board approval; however, they summarize the activities undertaken by the Hamlet over the previous few years, including the general results of monitoring activities required by the Licence. In addition, the Board must be satisfied that the Hamlet has completed annual reporting in accordance with Licence requirements.

#### **4. Comments**

##### Inspection Reports

Board staff note that since issuance of Licence MV2016L3-0001, no Inspection Reports have been submitted to Board staff. However, over the term of the Licence, there has been ongoing communication and correspondence between Hamlet staff, Board staff, and the Inspector, which has been documented on the public registry. Some of the issues and concerns that have been discussed include:

- freeboard at the Sewage Disposal Facilities (SDF) and related emergency and non-emergency decant procedures and sampling;
- compaction and cover at the Solid Waste Disposal Facilities (SWDF); and
- fencing and wildlife presence at the SWDF.

#### **5. Public Review**

By November 2, 2021, comments and recommendations on the Annual Reports were received from Environment and Climate Change Canada (ECCC), the Government of the Northwest Territories Department of Environment and Natural Resources (GNWT-ENR), and Board staff.

Although the deadline to response to comments was November 16, 2021, the Hamlet responded by December 21, 2021.

The Review Summary and Attachments (attached) presents the concerns identified through this review.

##### Main Issues Raised during the Review

The following summarizes the main issues raised during the review:

- Disposal of Water Treatment Plant (WTP) residual wastes

Reviewers raised a number of concerns and recommendations around the disposal and monitoring of backwash and sludge from WTP processes (Comment ID MVLWB 2; ECCC 2; GNWT-ENR 2, 3, 4). The Hamlet provided additional information and explanations about the design of the current WTP and its limitation in allowing for monitoring of the quantity and quality of backwash/sludge disposal to the Mackenzie River. Board staff note that the Hamlet has committed to estimating the volume of backwash water/sludge discharged from the WTP and providing in annual reporting; and that the Hamlet is currently in the design process to upgrade the treatment train within the WTP and will ensure monitoring/management of the sludge/backwash is incorporated in the design.

In the Board's January 14, 2022 letter to the Hamlet, it deferred a decision on the WTP O&M Plan, pending the submission of a revised Plan (Version 4) by the Hamlet, prior to commissioning of the upgraded WTP. The Hamlet could be requested to include backwash/sludge volume estimates in the WTP O&M Plan Version 4 (which will reflect the WTP upgrades). Board staff are of the opinion that any required changes to the Licence SNP as a result of the WTP upgrades and related waste residuals practices can be considered by the Board at the time the WTP O&M Plan Version 4 is submitted.

- Surveillance Network Program (SNP) sampling

Reviewers also raised concerns about the fact that it does not appear the Hamlet is conducting the required water quality sampling under Licence MV2016L3-0001 (Comment ID MVLWB 4, 5; ECCC 3). Board staff note that as the Licensee, the Hamlet is required to sample in accordance with the requirements of Annex A to Licence MV2016L3-0001. Samples taken by the Inspector are typically shared by the Board, but do not constitute compliance with the Licence SNP by the Hamlet. Board staff are of the opinion that the Hamlet could be reminded of the requirements to sample in accordance with the Licence SNP.

ECCC (Comment ID 4) also requested clarification as to whether ponded water collected at SNP stations 2016-2 and 2016-3 is discharged, and where. The Hamlet responded that they will confirm whether and where discharge from these SNP stations occurs, in the 2021-22 Annual Report. Board staff are of the opinion that the Hamlet could be reminded to provide additional detail on discharge practices for SNP stations 2016-2 and 2016-3 in the 2021-22 Annual Report. This will assist with decisions around revisions to the Licence SNP.

- Additional submissions required

ECCC (Comment ID 1) requested additional clarification around the submission of various Plans under the Licence. Board staff note that as of January 14, 2022 (Board letters attached), the Board provided direction to the Hamlet on various documents that were submitted at the same time as the Annual Reports.

- Sewage lagoon desludging

The Hamlet was asked to provide additional information on their plans to desludge the sewage lagoon (Comment ID ECCC 5); the Hamlet responded that no desludging is currently planned, and that they plan to commence annual sludge depth monitoring. Board staff note that the Board's January 14, 2022 letter to the Hamlet granting interim approval to the SDF O&M Plan (attached) requires revisions to the Plan related to sludge management as a result of the public review of the SDF O&M Plan Version 3. The details requested are anticipated to be included in the SDF O&M Plan V4.

## **6. Security**

Not applicable.

## **7. Conclusion**

Board staff conclude that the Annual Reports, as submitted, are in conformity with the requirements of Licence MV2016L3-0001. Annual Water Licence Reports are not for Board approval; however, the Board may wish to follow up with the Hamlet based on the information provided in the 2018-19, 2019-20 and 2020-21 Annual Reports and through the review process.

Board staff conclude that the Board could require the Hamlet to include backwash/sludge volume estimates in the WTP O&M Plan Version 4 (which will reflect the WTP upgrades), and may wish to point out to the Hamlet that any required changes to the Licence SNP as a result of the WTP upgrades and

related waste residuals practices may be considered by the Board at the time the WTP O&M Plan Version 4 is submitted.

Board staff are of the opinion that based on reviewer comments, the Hamlet could be requested to include the following in the 2021-22 Annual Report:

1. an update on planning for the expansion or relocation SWDF (Comment ID MVLWB 1); and
2. details and confirmation of whether and where discharge from SNP stations 2016-2 and 2016-3 occurs.

Board staff conclude that the Hamlet could be reminded to conduct SNP sampling in accordance with the requirements of Licence MV2016L3-0001, and that the Board anticipates the submission of revisions to the Sewage Disposal Facilities Operation and Maintenance Plan Version 4 to include a number of details related to sludge management.

#### **8. Recommendation**

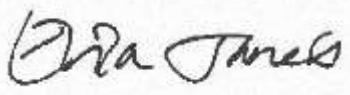
Board staff recommend the Board **acknowledge the 2018-19, 2019-20, and 2020-21 Annual Reports as submitted to fulfill Part B, Condition 4 and Schedule 1 of municipal Water Licence MV2016L3-0001.**

A draft letter is attached.

#### **9. Attachments**

- [2018-19 Annual Report](#)
- [2019-20 Annual Report](#)
- [2020-21 Annual Report](#)
- [January 14, 2022 Board letter deferring decision on WTP O&M Plan V3](#)
- [January 14, 2022 Board letter granting interim approval to SCP V3](#)
- [January 14, 2022 Board letter granting interim approval to SDF O&M Plan V3](#)
- Review Summary and Attachments
- Draft Letter from the Board

Respectfully submitted,



Erica Janes  
Regulatory Specialist

## Reviewer Comments and Proponent Responses

Project: Hamlet of Fort Providence – 2018-19, 2019-20 and 2020-21 Annual Reports  
 Board: Mackenzie Valley Land and Water Board  
 Organization: Hamlet of Fort Providence

No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response	Board Decision
<b>MVLWB - Erica Janes</b>					
1		Board staff note that the Hamlet has explained that a difference in solid waste estimate calculations accounts for the significant increase in waste deposited at the SWDF (between 30-57%).	Given the change in estimation method and the most recent estimates of waste deposited, can the Hamlet comment on the remaining lifespan of the SWDF, and any changes to plans being made for expansion or relocation of the SWDF?	In the Spring of 2021, at the time of development on the 2018/2019, 2019/2020, and 2020/2021 Annual Reports there was no discussions taking place regarding the remaining life span of the SWDF or plans to examine this further. Any projected plans / studies that are anticipated will be addressed and commented on within the 2021/2022 Annual Report.	Noted.  The Board decided to remind the Hamlet that it expects an update on planning for the expansion or relocation SWDF in the 2021-22 Annual Report.
2		This section in each Annual Report states that the Hamlet has not been recording information related to Water Treatment Plant sludge composition, quantities for disposal, or methods of disposal.	Please explain when the Hamlet intends to begin following the WTP sludge monitoring and management processes outlined in the WTP Operation and Maintenance Plan referenced?	A updated WTP O&M Plan has been submitted to the MVLWB on December 2, 2021. This Updated WTP O&M Plan outlines the challenges in measuring sludge and backwash water discharge considering the current WTP operations.  The Hamlet commenced following the WTP sludge/backwash water monitoring and management processes in November 2021 (as outlined within the December 2, 2021 WTP O&M Plan submission)	Noted. In the Board's January 14, 2022 letter to the Hamlet, it deferred a decision on the WTP O&M Plan, pending the submission of a revised Plan (Version 4) by the Hamlet, prior to commissioning of the upgraded WTP.

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3		In all three years of Annual Reporting submitted, the Hamlet notes that no spill training or communication exercises took place within the year, and that the Hamlet is "...planning to do spill training in the near future."	Please specify when spill training is planned for community staff.	The Hamlet Staff and SAO have noted and suggested Spill Training is planned to be completed in the near future. No further information or details are currently available regarding this item.	Noted.
4		Board staff note that with the exception of station 1412-2, the Hamlet sampled SNP stations only once (June 13) in 2019.	Please provide rationale for the lack of sampling conducted in 2019.	The Hamlet Foreman stated this was due to the fact that particular SNP stations are only sampled by the Inspector.	The Board notes that as the Licensee, the Hamlet is required to sample SNP stations in accordance with the requirements of Annex A to Licence MV2016L3-0001. Samples taken by the Inspector are typically shared by the Board, but do not constitute compliance with the Licence SNP by the Hamlet.
5		The Hamlet notes in Section (4) that samples at SNP station 2016-1 were not collected "... as usually the Inspector collectes samples at this location." Board staff note that while the Inspector sometimes does collect samples during inspections, the Hamlet is required to collect water quality samples in accordance with Licence SNP.	None.	Thank you noted and will be discussed with the Hamlet.	See Comment ID MVLWB 4.  The Board decided to remind the Hamlet of the requirements to sample in accordance with the Licence SNP.

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<b>Environment and Climate Change Canada (ECCC) - Mr. Christopher Aguirre</b>					
1		<p>All three annual reports make reference to recently updated management plans, including:</p> <ul style="list-style-type: none"> <li>- Water Treatment Plant O&amp;M Plan (October 2021)</li> <li>- Spill Contingency Plan (June 2021)</li> <li>- Sewage Disposal Facilities Plan (March 2021)</li> </ul> <p>These updated management plans are not included with the annual report submissions.</p>	<p>Additional clarification should be provided as to whether these updated plans will be submitted for review.</p>	<p>As of December 21 2021 all of these plans have been submitted to the MVLWB.</p> <p>The WTP O&amp;M plan is the only plan that is remaining to be reviewed.</p>	<p>Noted.</p> <p>In the Board's January 14, 2022 letter to the Hamlet, it deferred a decision on the WTP O&amp;M Plan, pending the submission of a revised Plan (Version 4) by the Hamlet, prior to commissioning of the upgraded WTP.</p> <p>The Board's January 14, 2022 letter to the Hamlet granted interim approval for the SCP V3, with revisions (V4) and resubmission required by June 30, 2022 for Board staff confirmation of conformity.</p> <p>The Board's January 14, 2022 letter to the Hamlet granted interim approval for the SDF O&amp;M Plan V3, with revisions (V4) and resubmission required by June 30, 2022 for Board staff confirmation of conformity.</p>
2		<p>In regards to sludge management at the water treatment plant, all three annual reports state that the volume of sludge from the water treatment plant that is deposited at the waste disposal facilities is not currently being recorded. Reference is made to a sludge monitoring process,</p>	<p>Provide additional information on the proposed sludge monitoring, and clarify whether sludge monitoring will take place in future years.</p>	<p>A updated WTP O&amp;M Plan has been submitted to the MVLWB on December 2, 2021. This Updated WTP O&amp;M Plan outlines the challenges in measuring sludge and backwash water discharge considering the current WTP operations. Note that that sludge is not separate from the backwash water and is automatically dechlorinated and discharged.</p>	<p>Noted.</p> <p>See Comment ID MVLWB 2.</p>

No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response	Board Decision
		<p>as requested by the Board, which is outlined in the updated Water Treatment Plant O&amp;M Plan. Neither the updated plan, nor the proposed process for sludge monitoring has been described. It is unclear whether monitoring of sludge deposition from the water treatment plan into the solid waste facility will occur in the future.</p>		<p>The Hamlet commenced following the WTP sludge/backwash water monitoring and management processes in November 2021 (as outlined within the December 2, 2021 WTP O&amp;M Plan submission).</p> <p>The Hamlet is currently in the design process to upgrade the treatment train within the WTP and will ensure monitoring/management of the sludge and backwash is incorporated in the design.</p>	
3		<p>Appendix A of the 2019-2020 annual report includes summaries of data from the various SNP stations. For the following stations, monitoring data is not provided for all required sampling dates, and no rationale is provided for why sampling was not completed on these dates.</p> <ul style="list-style-type: none"> <li>- SNP 2016-1 (before freeze up)</li> <li>- SNP 2016-2 (September, prior to discharge of accumulated water)</li> <li>- SNP 2016-3 (September, prior to discharge of accumulated water)</li> </ul>	<p>Provide rationale for why sampling results were not provided for SNP 2016-1, -2, and -3, on all required dates. If no discharge of accumulated water occurred in 2019-2020 this should also be clearly identified.</p>	<p>Thank you, noted. This will have to be discussed further with the Hamlet to confirm as to why this occurred within the 2019-2020 year.</p>	<p>Noted. See Comment ID MVLWB 4 &amp; 5.</p>



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4		<p>SNP2016-2 and SNP2016-3 are stations established for monitoring of ponded water associated with the solid waste disposal facilities. Both of these stations include monitoring of water "prior to discharge." There is no description of where ponded water from the solid waste facilities is discharged. Monitored concentrations at these locations include elevated metals such that water should be managed appropriately and may not be suitable for discharge to surface waters.</p>	<p>Provide information on where ponded water collected at SNP2016-2 and SNP2016-3 is discharged.</p>	<p>This topic was also commented on within the SNP Proposal by ECCC.</p> <p>"SNP2016-2 and SNP2016-3 are stations established for monitoring of ponded water associated with the solid waste disposal facilities. Both of these stations include monitoring of water "prior to discharge." There is no description of where ponded water from the solid waste facilities is discharged. Monitored concentrations at these locations include elevated metals such that water should be managed appropriately and may not be suitable for discharge to surface waters.</p> <p>In the rationale for changes at SNP 2016-2, it is stated that, "sampling frequency is proposed to change from twice yearly and prior to discharge, to only when ponded water is present, due to the ephemeral nature of ponding on site and the fact that the Hamlet does not discharge ponded water." Based on this statement it is assumed that water at this station is not discharged, however the rationale provided in table 1 continues to state "to monitor water quality and quantity prior to discharge". This inconsistency should be clarified such that it is clear if water is discharged from SNP 2016-2 and 2016-3, and if so, at which locations. "</p>	<p>Noted. The Board decided to remind the Hamlet to provide additional detail on discharge practices for SNP stations 2016-2 and 2016-3 in the 2021-22 Annual Report. This will assist with decisions around revisions to the Licence SNP.</p>

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				It will be confirmed with the Hamlet if any discharge from SNP 2016-2 and SNP2016-3 occurs and will be incorporated within the 2021-2022 Annual Submission.	
5		In the three annual reports provided, concentrations of total phosphorus in the discharge from the sewage lagoon are elevated. Elevated concentrations of phosphorus can be indicative of sludge build-up within the lagoon, which reduces overall treatment ability, as well as retention time. One potential mitigation that can increase lagoon treatment ability is de-sludging of the lagoon. The report has made no mention of any plans to de-sludge or whether this has been completed in the past.	Provide a discussion of whether lagoon de-sludging is an option/planned for the lagoon in relation to increasing treatment capacity.	No de-sludging is currently planned as outlined within the Solid Waste Disposal Facility O&M Plan and Sludge Management Plan.  The first step is for the Hamlet to commence the annual sludge depth monitoring program and work along side the inspector and MVLWB to advise next steps once results are reviewed.	Noted. The Board's January 14, 2022 letter to the Hamlet granting interim approval to the SDF O&M Plan requires revisions to the Plan related to sludge management, as a result of the public review of the SDF O&M Plan Version 3. The details requested anticipated to be included in the SDF O&M Plan V4.
<b>GNWT-ENR - EAM (Environmental Assessment and Monitoring) - GNWT ENR</b>					
1		ENR Cover Letter to Board	N/A		
2		Item b) of the 2020 Annual Report (AR) (p. 4 of 94) specifies that the Water Treatment Plant sludge was being deposited at the Solid Waste Disposal Facilities	ENR recommends that the Hamlet clarifies in which ways the current WTP infrastructure and operations are not conducive of allowing WTP sludge monitoring measurements	A updated WTP O&M Plan has been submitted to the MVLWB on December 2, 2021. This Updated WTP O&M Plan outlines the challenges in measuring sludge and backwash water	Noted. See Comment ID MVLWB 2.  Noted that: <ul style="list-style-type: none"> <li>The Hamlet does not discharge WTP waste to the SWDF;</li> </ul>

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		<p>(SWDF), but that the volume of sludge deposited at this location was not currently being recorded.</p> <p>According to Section 10 of the newly revised Oct 2021 Water Treatment Plant (WTP) O&amp;M plan (v.3), the Board previously requested the Hamlet to develop a sludge monitoring process (section 7), to provide information on sludge composition, estimated monthly quantities of sludge disposal, and information on final disposal location. While a “Sludge Management Plan” for the management of sewage sludge was provided in Appendix A (p. 37 of 52) of the Sewage Disposal Facilities (SDF) O&amp;M plan, ENR could not locate details on a WTP sludge monitoring process.</p> <p>Section 10 of the revised WTP O&amp;M further specified that the Hamlet had not been recording WTP sludge information as the current water treatment plant infrastructure and</p>	<p>for the sludge disposed at the SWDF.</p> <p>ENR recommends that monitoring of the composition of the WTP sludge to be completed prior to disposal of these WTP residuals at the SWDF.</p> <p>ENR recommends that the Hamlet also describe factors that may currently be preventing them from providing estimates of monthly volumes/quantities of WTP sludge deposited at the SWDF.</p> <p>ENR recommends that these WTP sludge volumes estimates be added within the Hamlet WTP O&amp;M plan.</p> <p>ENR recommends that requirements for monitoring of the WTP sludge quality currently being sent for disposal at the SWDF be added to SNP monitoring requirements of the current water licence.</p>	<p>discharge considering the current WTP operations.</p> <p>The sludge is not separate from the backwash water and is automatically dechlorinated and discharged directly from the WTP to the river. This makes it challenging to measure quality/quantity of any sludge as it is discharged with the backwash water. The hamlet can estimate the volume of backwash water/sludge discharged from the WTP and will record and provide within the Annual Reports moving forward. Although the Hamlet is not able to accurately measure the quality of the backwash water/sludge. This is due to the fact that the only access to the sludge/backwash water is within a small reservoir where the addition of Vital-D-Chlor takes place for dechlorination prior to automatic discharge. Since this discharge and dechlorination is automatic the water is only accessible for short periods of time (10-15min) several times a day. The automatic backwash cycle would have to align with the present of a operator which is not possible to estimate, making it difficult to collect a regular grab sample. Further the quality of the grab sample would not be accurate as it would be taken from a reservoir where the addition of Vital-D-Chlor and dechlorination of the</p>	<ul style="list-style-type: none"> <li>• The Hamlet has committed to estimating the volume of backwash water/sludge discharged from the WTP and providing in annual reporting; and</li> <li>• The Hamlet is currently in the design process to upgrade the treatment train within the WTP and will ensure monitoring/management of the sludge/backwash is incorporated in the design.</li> </ul> <p>The Board requests that the Hamlet include backwash/sludge volume estimates in the WTP O&amp;M Plan Version 4 (which will reflect the WTP upgrades).</p> <p>Any required changes to the Licence SNP as a result of the WTP upgrades and related waste residuals practices can be considered by the Board at the time the WTP O&amp;M Plan Version 4 is submitted.</p>

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		<p>operations were not conducive to permitting such measurements. ENR considers the monitoring of WTP sludge to be an important feature of municipal SNP monitoring especially for WTPs using coagulants, and that WTP sludge monitoring requirements should be clearly captured under SNP conditions of the Hamlet of Fort Providence's current water licence.</p>		<p>sludge/backwash mixture is taking place.</p> <p>The Hamlet commenced following the WTP sludge/backwash water monitoring and management processes in November 2021 (as outlined within the December 2, 2021 WTP O&amp;M Plan submission).</p> <p>The Hamlet is currently in the design process to upgrade the treatment train within the WTP and will ensure monitoring/management of the sludge/backwash is incorporated in the design.</p>	
3		<p>Schedule 2, item 3 of the water licence, outlines components to be included in Fort Providence WTP O&amp;M plan, such as the following:</p> <ul style="list-style-type: none"> <li>· Item c) "Information of the quality and the quantity of Waste and backwash water discharged from the Water Treatment Plant";</li> <li>· Item e) "Discharge criteria for backwash water"; and</li> <li>· Item g) "Contingency plans to manage backwash water that does not meet criteria referred to in Schedule 2, condition 3(e)."</li> </ul>	<p>ENR recommends that requirements for the monitoring of WTP backwash discharge be added to the SNP section of the current water licence, along with requirements for yearly submission of these results via annual reporting.</p>	<p>A updated WTP O&amp;M Plan has been submitted to the MVLWB on December 2, 2021. This Updated WTP O&amp;M Plan outlines the challenges in measuring sludge and backwash water discharge considering the current WTP operations.</p> <p>The sludge is not separate from the backwash water and is automatically dechlorinated and discharged directly from the WTP to the river. This makes it challenging to measure quality/quantity of any sludge as it is discharged with the backwash water. The hamlet can estimate the volume of backwash water/sludge discharged from the WTP and will record and provide within the Annual Reports</p>	<p>Noted.</p> <p>Any required changes to the Licence SNP and annual reporting requirements, as a result of the WTP upgrades and related waste residuals practices, can be considered by the Board at the time the WTP O&amp;M Plan Version 4 is submitted.</p>

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		<p>Section 10 of the recently revised Oct 2021 WTP O&amp;M plan (v.3) specifies that the WTP backwash is not to exceed 0.02 mg/L, as per the Wastewater Systems Effluent Regulations (see WTP O&amp;M plan, Figure 1, p. 18).</p> <p>ENR could not locate backwash monitoring data in the currently reviewed annual reports which are needed to verify that chlorine concentrations in backwash discharges were within the 0.02 mg/L discharge criteria specified in Section 10 of the WTP O&amp;M plan (v.3).</p> <p>Figure 1 of the Oct 2021 WTP O&amp;M plan (v.3) identifies the WTP backwash final disposal location as being the Mackenzie River. ENR considers the monitoring of WTP backwash also to be an important feature of municipal SNP monitoring, as details provided thus far by the Hamlet via annuals reports and the WTP O&amp;M plan are specifying two</p>		<p>moving forward. Although the Hamlet is not able to accurately measure the quality of the backwash water/sludge. This is due to the fact that the only access to the sludge/backwash water is within a small reservoir where the addition of Vital-D-Chlor takes place for dechlorination prior to automatic discharge. Since this discharge and dechlorination is automatic the water is only accessible for short periods of time (10-15min) several times a day. The automatic backwash cycle would have to align with the presence of an operator which is not possible to estimate, making it difficult to collect a regular grab sample. Further the quality of the grab sample would not be accurate as it would be taken from a reservoir where the addition of Vital-D-Chlor and dechlorination of the sludge/backwash mixture is taking place.</p> <p>The Hamlet commenced following the WTP sludge/backwash water monitoring and management processes in November 2021 (as outlined within the December 2, 2021 WTP O&amp;M Plan submission).</p> <p>The Hamlet is currently in the design process to upgrade the treatment train within the WTP and will ensure monitoring/management of the</p>	

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		separate management methods and final disposal locations for both the WTP sludge and WTP backwash.		sludge/backwash is incorporated in the design.	
4		<p>Section 6 of the WTP O&amp;M Manual specifies that PACL is used as coagulant at the Fort Providence WTP.</p> <p>The document “Recommendations for Municipal WTP Waste Residuals in the NWT (March 2021)” was generated by a working group composed of ENR, MACA, MVLWB and Dalhousie University to better understand WTP residual wastes generated in the NWT by various types of WTP.</p> <p>This document specifies that Fort Providence’s WTP is using an aluminum-based coagulant as part of their multi-media filtration system (also consistent with Section 6 of the WTP O&amp;M plan (v.3)), recommending that waste residuals generated from multi-media filtration plants be monitored not only for chlorine, but also for total aluminum, pH and TSS.</p>	<p>ENR recommends that the above enumerated parameters be monitored for all WTP waste residuals, under requirements of the current water licence.</p> <p>Following multi-years of results monitored for these wastes, the Board will be able to assess the need for including possible EQCs upon renewal of MV2016L3-0001, for each WTP sludge and WTP backwash.</p>	<p>Noted, thank you. This recommendations will be further discussed with the Hamlet, in addition as previously stated....</p> <p>A updated WTP O&amp;M Plan has been submitted to the MVLWB on December 2, 2021. This Updated WTP O&amp;M Plan outlines the challenges in measuring sludge and backwash water discharge considering the current WTP operations.</p> <p>The sludge is not separate from the backwash water and is automatically dechlorinated and discharged directly from the WTP to the river. This makes it challenging to measure quality/quantity of any sludge as it is discharged with the backwash water. The hamlet can estimate the volume of backwash water/sludge discharged from the WTP and will record and provide within the Annual Reports moving forward. Although the Hamlet is not able to accurately measure the quality of the backwash water/sludge. This is due to the fact that the only access to the sludge/backwash water is within a small reservoir where the addition of Vital-D-Chlor takes place</p>	<p>Noted.</p> <p>See Comment ID GNWT-ENR 3.</p>

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		<p>ENR notes that parameters for quality monitoring of the backwash sludge recommended in the draft City of Yellowknife water licence are: Field parameters, Total suspended solids, Major ions, Nutrients and Total metals.</p>		<p>for dechlorination prior to automatic discharge. Since this discharge and dechlorination is automatic the water is only accessible for short periods of time (10-15min) several times a day. The automatic backwash cycle would have to align with the presence of an operator which is not possible to estimate, making it difficult to collect a regular grab sample. Further the quality of the grab sample would not be accurate as it would be taken from a reservoir where the addition of Vital-D-Chlor and dechlorination of the sludge/backwash mixture is taking place.</p> <p>The Hamlet commenced following the WTP sludge/backwash water monitoring and management processes in November 2021 (as outlined within the December 2, 2021 WTP O&amp;M Plan submission).</p> <p>The Hamlet is currently in the design process to upgrade the treatment train within the WTP and will ensure monitoring/management of the sludge/backwash is incorporated in the design.</p>	



Nov 2, 2021

Erica Janes  
Regulatory Specialist  
Mackenzie Valley Land and Water Board  
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Dear Erica Janes,

**RE: Hamlet of Fort Providence  
Municipal Water Licence MV2016L3-0001  
Annual Reports (2018-19, 2019-20, and 2020-21)  
Request for Comment**

The Department of Environment and Natural Resources (ENR), Government of the Northwest Territories has reviewed the Hamlet of Fort Providence's Annual Water Licence Reports (2018-19, 2019-20, and 2020-21) based on ENR's mandated responsibilities under the *Waters Act*.

Technical questions on this submission can be addressed by:

Jeanne Arsenault: Pollution Control Specialist, Water Management and Monitoring Division, [Jeanne.Arsenault@gov.nt.ca](mailto:Jeanne.Arsenault@gov.nt.ca).

Should you have any general questions or concerns, please do not hesitate to contact the Environmental Assessment and Monitoring unit at [gnwt\\_ea@gov.nt.ca](mailto:gnwt_ea@gov.nt.ca).

Sincerely,

Jeffrey Cederwall  
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