



Mackenzie Valley Land and Water Board
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Staff Report

Applicant: Hamlet of Fort Liard	
Location: Fort Liard, NT	Application: MV2009L3-0025
Date Prepared: February 12, 2018	Meeting Date: February 22, 2018
Subject: Request for Surveillance Network Program Change	

1. Purpose/Report Summary

The purpose of this Report is to present to the Mackenzie Valley Land and Water Board (MVLWB/the Board) for approval, a requested change to the sampling frequencies of Surveillance Network Program (SNP) stations 1478-6 and 1478-9 for the Hamlet of Fort Liard’s (Hamlet) municipal Water Licence (Licence) MV2009L3-0025.

2. Background

- March 1, 2010 – Issuance of Licence MV2009L3-0025;
- November 17, 2017 – SNP change request submitted by Government of the Northwest Territories (GNWT) Inspector;
- November 21, 2017 – SNP change request distributed for review;
- December 5, 2017 – Reviewer comments and recommendations due and received;
- December 19, 2017 – Responses due;
- January 10, 2018 – Responses received;
- **February 22, 2018 – SNP change request presented to the Board for approval;** and
- February 29, 2020 – Expiration of Licence MV2009L3-0025.

3. Discussion

Background on SNP for Licence MV2009L3-0025

The SNP Annex to Licence MV2009L3-0025 was issued with the location of a number of stations described as ‘exact location to be determined with an Inspector’. As such, over time there have been several revisions to the SNP program, resulting from both Hamlet staff and the GNWT Environment and Natural Resources – Water Resources Officer (Inspector) continually working to improve the sampling regime. Most recently, an administrative update was made to the SNP following the Board’s June 22, 2017 acceptance of the Hamlet’s 2016 Annual Water Licence Report (attached), to align sampling at station 1478-7 (backwash from the greensand filter at the Water Treatment Plant) with actual backwash operations.

Submission Description

The GNWT Inspector submitted a letter on November 17, 2017 (attached), requesting changes to the sampling frequency of two of the existing SNP stations for the Licence, as follows:

1. SNP 1478-6 (Water from stream flowing to Petitot River upstream of culvert at Hwy #7 – monitors treated sewage effluent post-decant): change from sampling ‘one week prior to discharge and weekly during discharge; and if decant is less than 7 days, then this station should be sampled on the first and last day of decant instead of weekly’ to sampling ‘one week prior to discharge and only on the last day of decant, if decant is less than 7 days’; and
2. SNP 1478-9 (Wastewater sample from new cell three of the Sewage Disposal Facility - point of compliance to measure final effluent quality before discharge to receiving environment): change from sampling ‘one week prior to discharge and weekly during discharge; and if decant is less than 7 days, then this station should be sampled on the first and last day of decant instead of weekly’ to sampling ‘one week prior to discharge only’.

The GNWT Inspector provided rationale with the change request, to the effect that there is no water to sample at station 1478-6 on the first day of decant, and that these frequency changes will continue to provide important water quality monitoring information but spare the Hamlet added time and costs associated with collecting and shipping out samples for analysis. This will allow for more efficient and effective SNP sampling to monitor potential impacts of the Hamlet’s operations on the receiving environment.

4. Comments

The Board may revise the Licence SNP as per Part B, condition 3 of the Licence, which states: “The Surveillance Network Program and compliance dates specified in the Licence may be modified at the discretion of the Board.”

5. Reviewer Comments

By December 5, 2017, comments and recommendations on the request were received from three reviewers:

- Acho Dene Koe First Nation (ADKFN) – submitted on December 11, 2017 following the deadline;
- Environment and Climate Change Canada (ECCC); and
- GNWT-ENR.

The Hamlet responded on January 10, 2018, following the December 19, 2017 response deadline. The Board will have to decide whether or not to consider the Hamlet’s late response. The Review Summary and Attachments (attached) presents the concerns identified through the review of the Application.

In summary, reviewers were generally supportive of the SNP changes requested by the GNWT Inspector; additional suggestions related to SNP monitoring were also submitted.

ECCC recommended that station SNP 1478-9 be sampled one week prior to discharge and on the last day of decant, unless it can be clearly demonstrated that there is no difference in quality between the start and end of decant. Board staff note that the GNWT Inspector is able to take enforcement action with respect to analytical results obtained prior to decant (i.e. if the results are above the Licence

effluent quality criteria (EQC) listed in Part D, condition 2 for SNP station 1478-9, decant may not be authorized in the first place).

GNWT-ENR recommended that decanting from Cell 2 be eliminated and that Cell 3 be decanted once per year in the fall. Board staff note that the Hamlet had planned to de-sludge Cell 3 in 2017 to increase its capacity and eliminate future need for emergency decanting of Cell 2.

The Hamlet agreed to the GNWT-ENR request that lab results for fecal coliforms provide a definite number (Comment ID GNWT-ENR 3).

Board staff note that it could be useful to remind the Hamlet of the requirements for SNP sampling and reporting, in accordance with Parts 2 and 4 of the SNP Annex of the Licence (Comment ID GNWT-ENR 4 and 5).

6. Security

Not applicable.

7. Conclusion

Board staff conclude that there are no outstanding issues or concerns with the GNWT Inspector's request to change the sampling frequency of SNP stations 1478-6 and 1478-9, and that the Board may revise the Licence SNP in accordance with Part B, condition 3 of Licence MV2009L3-0025. A draft revised Water Licence is attached.

8. Recommendation

Board staff **recommend the Board make a motion to approve** the requested changes to SNP stations 1478-6 and 1478-9, with associated Reasons for Decision, and revise Water Licence MV2009L3-0025 as follows:

- Part 2(a) of the Licence SNP to read:
Water at station number 1478-6 shall be sampled one week prior to discharge and only on the last day of decant, if decant is less than 7 days, and analyzed for the following parameters: pH, Fecal Coliforms, Total Suspended Solids, Conductivity, Ammonia-Nitrogen, BOD₅, Total Dissolved Solids, and CBOD.
- Part 2(d) of the Licence SNP to read:
Water at station number 1478-9 shall be sampled one week prior to discharge, and analyzed for the following parameters: pH, Fecal Coliforms, Total Suspended Solids, Conductivity, Ammonia-Nitrogen, BOD₅, Total Dissolved Solids, and CBOD.

Board staff recommend the Board remind the Hamlet to request that lab results for fecal coliforms provide a definite number, and to conduct SNP sampling and reporting in accordance with Parts 2 and 4 of the SNP Annex of the Licence.

Board staff recommend including the following text in the decision letter:

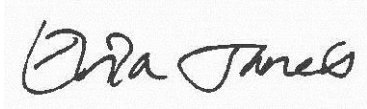
- The Board notes and appreciates the Hamlet's recent efforts to submit outstanding Licence requirements.

- The Hamlet shall adhere to the commitments made in their responses to reviewer comments dated January 10, 2018.

9. Attachments

- [November 17, 2017 SNP change request letter from Inspector](#)
- [June 22, 2017 Board letter accepting Annual Water Licence Report and notifying of administrative update for SNP station 1478-7](#)
- Review Summary and Attachments
- Draft revised Water Licence MV2009L3-0025
- Draft Reasons for Decision
- Draft Decision Letter from the Board

Respectfully submitted,



Name
Regulatory Specialist



Heather Scott
Technical Advisor

Review Comment Table

Board:	MVLWB
Review Item:	Hamlet of Fort Liard - Request for SNP revisions from ENR Water Resources Officer (MV2009L3-0025)
File(s):	MV2009L3-0025
Proponent:	Hamlet of Fort Liard
Document(s):	MV2009L3-0025 - Ft Liard - ENR Letter to MVLWB SNP Change Request Notification - Nov17-17 (278 KB)
Item For Review Distributed On:	Nov 21 at 11:58 Distribution List
Reviewer Comments Due By:	Dec 5, 2017
Proponent Responses Due By:	Dec 19, 2017
Item Description:	<p>The GNWT-ENR Water Resources Officer has submitted a request to make revisions to two of the existing Surveillance Network Program (SNP) stations (SNP 1478-6 and 1478-9) for the Hamlet of Fort Liard's Water Licence MV2009L3-0025. Rationale for the changes is provided in the request letter linked below.</p> <p>If you have questions or comments regarding this review of the Online Review System, please contact Erica Janes at (867) 766- 7466 or ejanes@mvlwb.com.</p>
General Reviewer Information:	<p>In addition to the email distribution list, the following organizations received review material by fax:</p> <ul style="list-style-type: none"> • Fort Liard Metis Local #67: Ernie McLeod, President (867)770-4573; • Fort Simpson Métis Local: #52 Marie Lafferty, President (867)695-2040; • Hay River Metis Council: Trevor Beck, President (867)874-4472; and • Northwest Territory Métis Nation: Tim Heron, NWTMN IMA Coordinator (867)872-3586.
Contact Information:	<p>Erica Janes 867-766-7466 Heather Scott 867-766-7463 Jen Potten 867-766-7468</p>

Comment Summary

Hamlet of Fort Liard (Proponent)				
ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Analysis
1	General File	Comment (doc) (Submitted after Due Date) Hamlet of Fort Liard response to SNP Change Request - Jan10-18 Recommendation	N/A	Noted.
Acho Dene Koe First Nation: Julie Swinscoe				
ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Analysis
1	General	Comment (doc) (Submitted after Due Date) The Hamlet of Fort Liard is Acho Dene Koe First Nation's (ADKFN) principle settlement. Recommendation ADKFN acknowledges the ENR's submission for the request of SNP changes to the MVLWB for review under water licence MV2009L3-0025 and is submitting this referral response to inform the MVLWB that ADKFN will communicate directly with the Hamlet regarding the SNP amendments, should there be any concerns.	--	Noted.
Environment and Climate Change Canada: Emily Nichol				
ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Analysis
2	General File	Comment (doc) ECCC Cover Letter Recommendation	--	Noted.
1	Station SNP 1478-9 (point of compliance to measure final effluent quality before discharge to	Comment The Inspector (Water Resource Officer) requests that station SNP 1478-9 be sampled one week prior to discharge only and requests removal of the requirement to sample weekly during discharge (or	None.	The Inspector is able to take enforcement action with respect to analytical results obtained prior to decant, as per Part

	receiving environment)	<p>on the first and last day of decant if decant is less than 7 days). The rationale provided is that this sampling has questionable usefulness and only incurs added costs for the Hamlet. ECCC notes that wastewater quality can vary over the course of decant as the effluent is drawn down. Additionally, if the pump intake gets too close to the bottom of the lagoon, poor quality effluent may be discharged. Reducing sampling at the compliance point to one week prior to discharge only would not permit monitoring for potential scenarios of declining effluent quality, as described above.</p> <p>Recommendation ECCC recommends that station SNP 1478-9 be sampled one week prior to discharge and on the last day of decant. If, however, the effluent quality at this site has historically been in compliance with the discharge criteria and if past data can clearly demonstrate there is no difference in quality between start and end of decant, then it may be reasonable to remove the requirement to sample on the last day of decant.</p>		D, condition 2 of the Licence.
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GNWT - ENR: Central Email GNWT

ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Analysis
6	General File	<p>Comment (doc) ENR Letter with Comments and Recommendations</p> <p>Recommendation</p>	--	Noted.

1	Topic 1: SNP Monitoring Changes	<p>Comment In December 2015, Dillon Consulting prepared the Sewage Lagoon Capacity Study Final Report for the Hamlet of Fort Liard, to suggest potential solutions for the Hamlet wastewater cells capacity issues and associated emergencies decants. It was suggested that a specific sequence of effluent transfers, at various times of the year, occurs between Cell #1, Cell #2 and Cell #3 (section 5.1.1). Under the suggested "Inter-cell Transfer and Decanting Protocol", only one decant would be required annually in the fall, not only from Cell #3, but also from Cell #2. While effluent transfers amongst cells may/could improve wastewater treatment overall, ENR does not support wastewater effluent decant from Cell #2 if treatment is likely not complete, and as Fort Liard Water Licence does not currently consider discharging from Cell #2. Wastewater effluents standards (or EQCs) as per Part D Item 2 of MV2009L3-0025 require the Hamlet to treat their wastewater to 30 mg/L for TSS, 40 mg/L for BOD5 and 1,000 CFU/100 ml, prior to decanting from Cell #3. Lab results for wastewater released in past years for EQC parameters are as followed: . 2015 Cell #2 - BOD5 of 175 mg/L . 2015 Cell #3 - BOD5 of 81 mg/L & TSS of 54 mg/L . 2016 Cell #2 - BOD5 of 48 mg/L & TSS of 108 mg/L .</p>	<p>Jan 10: No plans exist at this time for further decanting from cell #2. The cell #2 decant was performed in order to perform necessary lagoon upgrade work.</p>	Noted.
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		<p>2016 Cell #3 - TSS of 68mg/L . 2017 Cell #3 - BOD5 of 89.5 mg/L & TSS of 356 mg/L (on July 17) . 2017 Cell #2 - No results were provided - typically concentrations are higher than in Cell #3 ENR notes that exceedances range in the order of 4 times (e.g. 2015 Cell #2's BOD5) to 12 times (e.g. 2017 Cell #3's TSS). This makes the practice of emergencies decants a concern. ENR notes that at present, it is unclear if Dillon's suggested transfer protocol is fully being used, or if it would resolve past compliance issues such as above mentioned. In closing, ENR notes that the Inspector must be notified and provide permission for the Hamlet to decant from the sewage lagoon.</p> <p>Recommendation 1) ENR is supportive of the suggested SNP changes with respect to the timing of SNP 1478-6 monitoring events.</p>		
2	None	<p>Comment None Recommendation 2) ENR recommends that decant from Cell #2 (if currently occurring) be eliminated, and that the Hamlet of Fort Liard plan further upgrades/strategies for only one decant event - respective of Water Licence EQCs - be conducted in the fall from Cell #3.</p>	<p>Jan 10: ENR notification and approval protocol for decant have always been followed as per License requirements.</p>	<p>Board staff note that the Hamlet had planned to de-sludge Cell 3 in 2017 to increase Cell 3 capacity and eliminate future need for emergency decanting of Cell 2.</p>
3	None	<p>Comment None Recommendation 3) ENR recommends the Hamlet ensure that lab results for Fecal Coliforms provide a</p>	<p>Jan 10: The Hamlet will make this request to the testing lab for future test results.</p>	<p>Acceptable response.</p>

		definite number, currently unknown and presented as “above 200.5” (or >200.5) MPN/100 ml in July 2017.		
4	None	Comment None Recommendation 4) If Fort Liard is currently using the “Inter-cell Transfer and Decanting Protocol”, ENR recommends that further details on the practicality and adequacy of this protocol to meet Water Licence EQCs be collected and provided in the next two years leading up to renewal.	Jan 10: No comment.	The Hamlet is required to complete its SNP sampling and report analytical results annually, as described in Parts 2 and 4 of the SNP Annex of the Licence.
5	None	Comment None Recommendation 5) ENR notes that the Hamlet’s Water Licence is up for renewal in just over 2 years. As such, ENR wishes to emphasize the importance of consistent SNP monitoring. Results collected will help the Hamlet and reviewers gain some understanding of Fort Liard Wastewater Treatment System performance and potential needs for improvements, which is an important component during a Water Licence renewal process.	Jan 10: SNP monitoring will be performed according to License requirements.	Acceptable response.



Acho Dene Koe
— FIRST NATION —



Memorandum

To: Wendy Bidwell (Water Resource Officer), ENR-GNWT
From: Julie Swinscoe, Project Director
c.c.: Boyd Clark (Operations Manager); Chief Gene Hope, Acho Dene Koe First Nation
Date: December 11, 2017
Re: Fort Liard ENR SNP Changes Referral MV2009L3-0025

The following Referral response is being submitted online via the MVLWB Online Review System on behalf of Acho Dene Koe First Nation.

1. Background

Environment and Natural Resources (ENR) of the GNWT has submitted a request for changes to the Hamlet of Fort Liard's Surveillance Network Program (SNP) under water licence MV2009L3-0025 to the Mackenzie Valley Land and Water Board (MVLWB). The requested changes are for two existing SNP stations:

- SNP 1478-6
- SNP 1478-9

ENR has proposed changes in the frequency and timing of sampling of discharge. The proposed changes would save the Hamlet monetary resources while still providing acceptable water quality monitoring at these SNP stations.

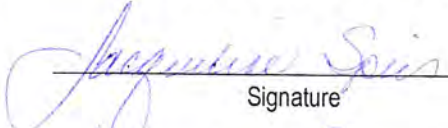
2. Response

2.1. General Comments

The Hamlet of Fort Liard is Acho Dene Koe First Nation's (ADKFN) principle settlement. ADKFN acknowledges the ENR's submission for the request of SNP changes to the MVLWB for review under water licence MV2009L3-0025 and is submitting this referral response to inform the MVLWB that ADKFN will communicate directly with the Hamlet regarding the SNP amendments, should there be any concerns.

3. Authorization

These recommendations were provided on behalf of Acho Dene Koe First Nation on the ___ day of December, 2017.

Acho Dene Koe First Nation	Landmark Resource Management
 _____ Signature	 _____ Signature
 _____ Name	Julie Swinscoe _____ Name
Manager _____ Title	Project Director _____ Title



December 5, 2017

Erica Janes
Regulatory Officer
Mackenzie Valley Land and Water Board
7th Floor – 4910 50th Avenue
P.O. Box 2130
Yellowknife, NT
X1A 2P6

Dear Ms. Janes,

**Re: Hamlet of Fort Liard
Water Licence – MV2009L3-0025
Request for SNP revisions from ENR Water Resources Officer
Request for Comments**

The Department of Environment and Natural Resources (ENR), Government of the Northwest Territories has reviewed the request at reference based on its mandated responsibilities under the *Environmental Protection Act*, the *Forest Management Act*, the *Forest Protection Act*, the *Species at Risk (NWT) Act*, the *Waters Act* and the *Wildlife Act* and provides the following comments and recommendations for the consideration of the Board.

Topic 1: SNP Monitoring Changes

Comment(s):

In December 2015, Dillon Consulting prepared the *Sewage Lagoon Capacity Study Final Report* for the Hamlet of Fort Liard, to suggest potential solutions for the Hamlet wastewater cells capacity issues and associated emergencies decants. It was suggested that a specific sequence of effluent transfers, at various times of the year, occurs between Cell #1, Cell #2 and Cell #3 (section 5.1.1). Under the suggested “Inter-cell Transfer and Decanting Protocol”, only one decant would be required annually in the fall, not only from Cell #3, but also from Cell #2.

While effluent transfers amongst cells may/could improve wastewater treatment overall, ENR does not support wastewater effluent decant from Cell #2 if treatment

is likely not complete, and as Fort Liard Water Licence does not currently consider discharging from Cell #2. Wastewater effluents standards (or EQCs) as per Pat D Item 2 of MV2009L3-0025 require the Hamlet to treat their wastewater to 30 mg/L for TSS, 40 mg/L for BOD₅ and 1,000 CFU/100 ml, prior to decanting from Cell #3. Lab results for wastewater released in past years for EQC parameters are as followed:

- 2015 Cell #2 - BOD₅ of 175 mg/L
- 2015 Cell #3 - BOD₅ of 81 mg/L & TSS of 54 mg/L
- 2016 Cell #2 - BOD₅ of 48 mg/L & TSS of 108 mg/L
- 2016 Cell #3 - TSS of 68mg/L
- 2017 Cell #3 - BOD₅ of 89.5 mg/L & TSS of 356 mg/L (on July 17)
- 2017 Cell #2 - No results were provided – typically concentrations are higher than in Cell #3

ENR notes that exceedances range in the order of 4 times (e.g. 2015 Cell #2's BOD₅) to 12 times (e.g. 2017 Cell #3's TSS). This makes the practice of emergencies decants a concern.

ENR notes that at present, it is unclear if Dillon's suggested transfer protocol is fully being used, or if it would resolve past compliance issues such as above mentioned. In closing, ENR notes that the Inspector must be notified and provide permission for the Hamlet to decant from the sewage lagoon.

Recommendations:

- 1) ENR is supportive of the suggested SNP changes with respect to the timing of SNP 1478-6 monitoring events.
- 2) ENR recommends that decant from Cell #2 (if currently occurring) be eliminated, and that the Hamlet of Fort Liard plan further upgrades/strategies for only one decant event – respective of Water Licence EQCs - be conducted in the fall from Cell #3.
- 3) ENR recommends the Hamlet ensure that lab results for Fecal Coliforms provide a definite number, currently unknown and presented as “above 200.5” (or >200.5) MPN/100 ml in July 2017.
- 4) If Fort Liard is currently using the “Inter-cell Transfer and Decanting Protocol”, ENR recommends that further details on the practicality and adequacy of this protocol to meet Water Licence EQCs be collected and provided in the next two years leading up to renewal.

5) ENR notes that the Hamlet's Water Licence is up for renewal in just over 2 years. As such, ENR wishes to emphasize the importance of consistent SNP monitoring. Results collected will help the Hamlet and reviewers gain some understanding of Fort Liard Wastewater Treatment System performance and potential needs for improvements, which is an important component during a Water Licence renewal process.

Comments and recommendations were provided by ENR technical experts in the Water Resources Division and the Dehcho Region and were coordinated and collated by the Environmental Assessment and Monitoring Section (EAM), Conservation, Assessment and Monitoring Division (CAM).

Should you have any questions or concerns, please do not hesitate to contact Patrick Clancy, Environmental Regulatory Analyst at (867) 767-9233 Ext: 53096 or email patrick.clancy@gov.nt.ca.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Clancy', written in a cursive style.

Patrick Clancy
Environmental Regulatory Analyst
Environmental Assessment and Monitoring Section
Conservation, Assessment and Monitoring Division
Department of Environment and Natural Resources
Government of the Northwest Territories

Proponent Response to Comments
MVLWB
Hamlet of Fort Liard
MV2009L3-0025

ENR Letter to MVLWB SNP Change Request Notification – Nov 17-17

The Hamlet supports changes suggested to SNP 1478-6 and 1478-9 sampling requirements. ENR rationale for the changes to sampling requirements had been discussed with the Water Resource Officer and the subsequent time and cost savings to the Hamlet in License responsibilities would be appreciated. The Hamlet requests that the two changes suggested by ENR to Fort Liard's water License MV2009L3-0025 be made.

ID #6 - 1 No plans exist at this time for further decanting from cell #2. The cell #2 decant was performed in order to perform necessary lagoon upgrade work.

ID #6 - 2 ENR notification and approval protocol for decant have always been followed as per License requirements.

ID #6 - 3 The Hamlet will make this request to the testing lab for future test results.

ID #6 - 4 No comment.

ID #6 - 5 SNP monitoring will be performed according to License requirements



Environmental Protection Operations Directorate
Prairie & Northern Region
5019 52nd Street, 4th Floor
P.O. Box 2310
Yellowknife, NT X1A 2P7

ECCC File: 5200 000 026/001
MVLWB File: MV2009L3-0025

December 4, 2017

Via MVLWB Online Review System

Erica Janes
Regulatory Specialist
Mackenzie Valley Land and Water Board
P.O. Box 2130
Yellowknife, NT X1A 2P6

Dear Erica Janes:

**RE: MV2009L3-0025 – Hamlet of Fort Liard – Request for SNP Revisions from ENR
Water Resources Officer**

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Mackenzie Valley Land and Water Board (MVLWB) regarding the above-mentioned proposed Surveillance Network Program (SNP) revisions and is submitting comments via the online review system as requested by the MVLWB. ECCC's specialist advice is provided based on our mandate, in the context of the *Canadian Environmental Protection Act*, the pollution prevention provisions of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Should you require further information, please do not hesitate to contact me at (867)669-4732 or Emily.Nichol@canada.ca.

Sincerely,

[original signed by]

Emily Nichol
Environmental Assessment Coordinator

Attachment: ECCC's Comment Excel Sheet

cc: Bradley Summerfield, Senior Environmental Assessment Coordinator
Georgina Williston, Head, Environmental Assessment North (NT and NU)