



Mackenzie Valley Land and Water Board
 7th Floor - 4922 48th Street
 P.O. Box 2130
 YELLOWKNIFE NT X1A 2P6
 Phone (867) 669-0506
 FAX (867) 873-6610

Staff Report

Applicant: Hamlet of Fort Resolution	
Location: Fort Resolution, NT	Application: MV2014L3-0008
Date Prepared: July 24, 2017	Meeting Date: August 3, 2017
Subject: Plan to Address the Freeboard Requirement at Cell 1 of the Sewage Disposal Facilities	

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, the Plan to Address the Freeboard Requirement at Cell 1 of the Sewage Disposal Facilities (Plan) submitted by the Hamlet of Fort Resolution (Hamlet), in accordance with Part D, item 8 of their municipal Water Licence MV2014L3-0008 (Licence).

2. Background

- December 3, 2015 – Issuance of Licence MV2014L3-0008;
- April 27, 2017 – Plan received by Board;
- May 8, 2017 – Review commenced;
- June 5, 2017 – Reviewer comments and recommendations due and received;
- June 26, 2017 – Responses received;
- **August 3, 2017 – Plan presented to the Board for decision;** and
- December 2, 2025 – Expiration of Licence MV2014L3-0008.

3. Discussion

Licence Requirements

Part D, item 8 of Licence MV2014L3-0008 states:

Within nine (9) months of issuance, the Licensee shall submit to the Board, for approval, a Plan to Address the Freeboard Requirement at Cell 1 of the Sewage Disposal Facilities. The Plan shall include, but not be limited to, the following:

- a) Measure(s) to address the Freeboard requirement specified under Part D, item 7;*
- b) Method(s) to calculate and monitor the Sewage lagoon infiltration rate; and*
- c) A timeline and action plan for implementation of these improvement and monitoring measures.*

Submission Description

On April 27, 2017, the Hamlet submitted a Plan to Address the Freeboard Requirement at Cell 1 of the Sewage Disposal Facilities (attached), which includes two additional items:

1. Topographic information for the most recently constructed Sewage lagoon cell (in accordance with Part F, item 1(a) of Licence MV2014L3-0008); and
2. Installation of fencing at the Sewage Disposal Facilities to limit access to the site and prevent wind-blown debris from entering the Sewage lagoons (in accordance with Part D, item 11 of Licence MV2014L3-0008).

4. Comments

The additional items listed above and submitted with the Plan are not for Board approval. The topographic information required under Part F, item 1(a) has been posted to the public registry; the Licence states under Part D, item 11 that fencing at the Sewage Disposal Facilities 'shall be installed to the satisfaction of an Inspector.' Board staff distributed the entire submission for public review with a note requesting that reviewers focus their comments on the requirements for the Plan (Part D, item 8).

Modifications

The Hamlet has proposed to increase the height of the berm of Cell 1 of the Sewage Disposal Facilities. Board staff are of the opinion that this will constitute a Modification, as per Part G, item 1 of Licence MV2014L3-0008, as follows:

The Licensee may, without written approval from the Board, carry out Modifications to the Water Supply Facilities and Waste Disposal Facilities provided that the following requirements are met:

- a) The Licensee has notified the Board and Inspector, in writing, of such proposed Modifications at least sixty (60) days prior to beginning the Modifications;*
- b) The Modifications do not place the Licensee in contravention of either the Licence or the Act;*
- c) The Board has not, during the sixty (60) days following notification of the proposed Modifications, informed the Licensee that further information is required or that review of the proposal will require more than sixty (60) days;*
- d) An Inspector has authorized the proposed Modifications and provided a letter of notification to the Board; and,*
- e) The Board has not rejected the proposed Modifications*

If not all of Part G, item 1 is met, Modifications may only be carried out with written approval from the Board (Part G, item 2). In addition, and as per Part G, item 3, the Hamlet must submit as-built plans and drawings, stamped and signed by a Professional Engineer, to the Board within 90 days of completion of the Modifications.

Concordance Table and Board staff analysis

The Plan does not include a concordance table to compare Plan contents with Licence requirements. Table 1 below lists the components of the Plan required in Licence MV2014L3-0008, and details on the adequacy of the submission.

Table 1: Plan Completeness

	Components of the Plan as required in Part I, item 5 of the Licence	Board staff analysis of the adequacy of the Plan in addressing the component
	The Plan shall include, but not be limited to, the following:	-
a)	Measure(s) to address the Freeboard requirement specified under Part D, item 7 [one metre or as recommended by a Professional Engineer and as approved by the Board];	Based on Comment ID MVLWB 2, the Hamlet should revise the Plan to include a detailed description of the emergency procedure for pumping between cells 1 and 7, including the method(s) to calculate and monitor the sewage lagoon infiltration rate (i.e. how often pumping may be required), the freeboard level at which pumping will be triggered, the amount to be pumped, and who is responsible for monitoring lagoon levels and doing the pumping.
b)	Method(s) to calculate and monitor the Sewage lagoon infiltration rate; and	Based on Comment ID MVLWB 3, the Hamlet should revise the Plan to include a detailed description of how lagoon level monitoring will be conducted using the gauge referenced, and how monitoring results will translate into emergency or any other procedure(s).
c)	A timeline and action plan for implementation of these improvement and monitoring measures.	Based on Comment ID MVLWB 1, the Hamlet should update the Plan to include how 1 m freeboard will be achieved, or if another recommendation is made by a Professional Engineer, provide rationale for that recommendation.

5. Reviewer Comments

By June 5, 2017, comments and recommendations on the Plan were received from the Government of the Northwest Territories – Environment and Natural Resources (GNWT-ENR) and Board staff.

The Hamlet responded on June 26, 2017 by email, and staff posted the Hamlet’s responses to the Online Review System (ORS) on July 4, 2017. The Review Summary and Attachments (attached) present the concerns identified through the review of the Plan.

Reviewer comments largely focused on the level of detail the Hamlet has included in the Plan, and requests for additional information, including:

- An explanation of how 1 m freeboard will be achieved, or if another recommendation is made by a Professional Engineer, provide rationale for that recommendation (Comment ID MVLWB 1);
- A detailed description of the emergency procedure for pumping between cells 1 and 7, including the method(s) to calculate and monitor the sewage lagoon infiltration rate (i.e. how often pumping may be required), the freeboard level at which pumping will be triggered, the amount to be pumped, and who is responsible for monitoring lagoon levels and doing the pumping (Comment ID MVLWB 2); and

- A detailed description of how lagoon level monitoring will be conducted using the gauge referenced, and how monitoring results will translate into emergency or any other procedure(s) (Comment ID MVLWB 3).

Based on Comment ID MVLWB 4, the Hamlet should be required to revise drawing C-101 to include elevations, as required by Part F, item 1(a) of Licence MV2014L3-0008.

Based on Comment ID ENR 1, the Hamlet should be reminded that as per Part I, item 3 and Schedule 2, item 1 of Licence MV2014L3-0008, a Closure and Reclamation Plan shall be submitted to the Board for approval at least 6 months prior to the closure of any of the Sewage or Solid Waste Disposal Facilities.

6. Security

Not applicable.

7. Conclusion

Board staff conclude that further information was provided by the Hamlet in their responses to reviewer comments. Board staff suggest this submission addresses some the requirements of Part D, item 8 of Licence MV2014L3-0008; however, the Plan could be improved with additional information prior to final approval.

8. Recommendation

Board staff recommend the Board approve the Plan to Address the Freeboard Requirement at Cell 1 of the Sewage Disposal Facilities as an interim plan, with attached draft Reasons for Decision. The Plan shall be revised and resubmitted (Version 1.1) by August 31, 2017. Board staff recommend that the revised Plan be considered approved upon written confirmation of conformity from Board staff.

A draft interim approval letter is attached, with the following options for the Board's consideration; one or more of these options could be included in the Board's letter, to address the revisions that have been suggested during this review:

1. Provide detail as to how 1 m freeboard will be achieved, or if another recommendation is made by a Professional Engineer, provide rationale for that recommendation;
2. Provide a detailed description of the emergency procedure for pumping between cells 1 and 7, including the method(s) to calculate and monitor the sewage lagoon infiltration rate (i.e. how often pumping may be required), the freeboard level at which pumping will be triggered, the amount to be pumped, and who is responsible for monitoring lagoon levels and doing the pumping; and
3. Provide a detailed description of how lagoon level monitoring will be conducted using the gauge referenced, and how monitoring results will translate into emergency or any other procedure(s).

Board staff recommend that the Board require the Hamlet to revise drawing C-101 to include elevations, as required by Part F, item 1(a) of Licence MV2014L3-0008.

In addition, Board staff recommend that the Board remind the Hamlet that:

- As per Part I, item 3 and Schedule 2, item 1 of Licence MV2014L3-0008, a Closure and Reclamation Plan shall be submitted to the Board for approval at least 6 months prior to the closure of any of the Sewage or Solid Waste Disposal Facilities; and
- The Board should be notified, in advance, of proposed activities which constitute a Modification, as per Part G of Licence MV2014L3-0008 (Conditions applying to Modifications). As-built plans and drawings of the modifications are required following their completion.

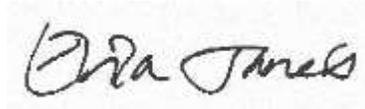
Finally, Board staff recommend including the following text in the decision letter:

- The Board acknowledges that the Hamlet has made significant progress in recent months to work towards compliance with their Licence, and appreciates the Hamlet's efforts.
- The Hamlet shall adhere to the commitments made in their responses to reviewer comments dated June 26, 2017.

9. Attachments

- [Plan to Address the Freeboard Requirement at Cell 1 of the Sewage Disposal Facilities, Version 1.0](#)
- Review Summary and Attachments
- Draft Reasons for Decision
- Draft Decision Letter from the Board

Respectfully submitted,



Erica Janes
Regulatory Specialist



Heather Scott
Technical Advisor

Review Comment Table

Board:	MVLWB
Review Item:	Hamlet of Fort Resolution Sewage Disposal Facilities (Lagoon) submissions (MV2014L3-0008)
File(s):	MV2014L3-0008
Proponent:	Hamlet of Fort Resolution
Document(s):	MV2014L3-0008 - Fort Resolution - Sewage Disposal Facilities Requirements - Apr27-17 (2.9MB)
Item For Review Distributed On:	May 8 at 09:46 Distribution List
Reviewer Comments Due By:	June 5, 2017
Proponent Responses Due By:	June 26, 2017
Item Description:	<p>The Hamlet of Fort Resolution as submitted a plan intended to address three requirements of their municipal Water Licence MV2014L3-0008, related to the Sewage Disposal Facilities (Lagoon):</p> <ol style="list-style-type: none"> 1. Part D, item 8: a Plan to Address the Freeboard Requirement at Cell 1 of the Sewage Disposal Facilities 2. Part F, item 1.a: topographic information for the most recently constructed Sewage lagoon cell; and 3. Part D, item 11: installation of fencing at the Sewage Disposal Facilities. <p>Part D, item 8 is for Board approval. Reviewers are asked to focus their comments on the requirements for this condition, which is as follows:</p> <p><i>Within nine (9) months of issuance, the Licensee shall submit to the Board, for approval, a Plan to Address the Freeboard Requirement at Cell 1 of the Sewage Disposal Facilities. The Plan shall include, but not be limited to, the following:</i></p> <ol style="list-style-type: none"> a) Measure(s) to address the Freeboard requirement specified under Part D, item 7; b) Method(s) to calculate and monitor the Sewage lagoon infiltration rate; and c) A timeline and action plan for implementation of these improvement and monitoring measures. <p>Part F item 1a is for submission to the Board only. Please note that Part D, item 11 is not for Board approval; the Licence states that 'the fencing shall be installed to the satisfaction of an Inspector.'</p> <p>Reviewers are invited to submit questions, comments and recommendations on the Hamlet's submission by June 5, 2017.</p> <p>If you have questions or comments regarding this review or 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 materials by fax:</p> <ul style="list-style-type: none"> • Fort Resolution Métis Council - Trudy King (867)394-3322; • Hay River Metis Council - Trevor Beck, President (867)874-4472; and • NWT Metis 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

GNWT - ENR: Central Email GNWT				
ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Analysis
3	General File	<p>Comment (doc) ENR Letter with Comments and Recommendations</p> <p>Recommendation</p>		Noted.
1	Topic 1: Current Sewage Lagoon Cells Closure and Reclamation	<p>Comment The document entitled "Sewage Disposal Facilities Requirements" (page 3 of 5) provides several important items pertaining to compliance amongst which includes remedial work to be completed on the perimeter berm and on the truck ramp to improve freeboard. Numerous references were made in the various documents submitted regarding the construction of the new Sewage lagoon cells; however, ENR was not able to locate details on closure and reclamation for the current Sewage Disposal Facilities. ENR notes that Part I Item 3 of the Hamlet Water Licence specifies that Closure and Reclamation Plan should be submitted to the Board six (6) months prior to the closure of any Sewage or Solid Waste Disposal Facilities.</p> <p>Recommendation 1) ENR recommends the Hamlet of Fort Resolution (the Hamlet) clarify their plans regarding the future of the current Sewage Lagoons (i.e. will they be closed in 6 months).</p>	<p>July 4: 1. The closure of the existing sewage lagoon will depend upon the commissioning of the new lagoon, and the timeline for the commissioning will depend upon the construction schedule developed by the successful tender of the work.</p>	<p>Noted. The Hamlet should be reminded that as per Part I, item 3 and Schedule 2, item 1 of MV2014L3-0008, a Closure and Reclamation Plan shall be submitted to the Board for approval at least 6 months prior to the closure of any of the Sewage or Solid Waste Disposal Facilities.</p>

2	None	Comment None Recommendation 2) ENR recommends that six months prior to the closure of such facilities the Hamlet include closure and reclamation details in a Closure and Reclamation Plan, as per Part I, Item 3 of the current Water Licence.	July 4: 1. Comment regarding timeline for closure and reclamation planning acknowledged.	Noted. See Comment ID ENR 2 above.
---	------	--	---	------------------------------------

MVLWB: Erica Janes

ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Analysis
1	Policy/Compliance #1 & #2	Comment These items state that remedial work on the perimeter berm and truck ramp will increase elevation by 0.5m to improve freeboard. Recommendation What is the current freeboard at the facility? Will raising the perimeter berm by 0.5 m be sufficient to eliminate the problem of inadequate freeboard?	July 4: 1. The current freeboard on the lagoon is about 0.5 metres. The 0.5 metre increase in the berm height may be sufficient to eliminate the problem with the sewage lagoon freeboard, however the ultimate height increase in the berm will be adjusted to the measurement of the lagoon water level.	Board staff note that as per Part D, item 7 of MV2014L3-0008, a freeboard limit of 1 metre, or as recommended by Professional Engineer and as approved by the Board, shall be maintained at all structures associated with the Sewage Disposal Facilities. The Plan should be updated to include how 1 m freeboard will be achieved, or if another recommendation is made by a Professional Engineer, provide rationale for that recommendation.
2	Policy/Compliance #5	Comment This item references an emergency procedure to manage high water levels by pumping between cells 1 and 7. Board staff note that this emergency procedure should be fully explained in the forthcoming Sewage Disposal Facilities O&M Plan, which is to be submitted within 4 months of Board approval of the Freeboard Plan, as per Part E, item 3 of MV2014L3-0008. It would also be helpful if additional detail were included in this submission,	July 4: 1. Emergency pumping procedure between cell 1 and cell 7 will be subject to the Hamlet staff monitoring the lagoon level on a weekly basis, and if the freeboard is less than 1 metre, as measured with the lagoon level gauge, a pump owned by the Hamlet will be deployed to the area between cell 1 and cell 7. The pump will operate constantly by the Hamlet staff until the freeboard returns to 1 metre as	Noted. The Hamlet should include this information in the revised Freeboard Plan.

		<p>to facilitate understanding of the Hamlet's plans to manage freeboard in Cell 1. Also, Part D, item 8b of the Licence requires this submission to include method(s) to calculate and monitor the sewage lagoon infiltration rate.</p> <p>Recommendation Please provide additional information to describe the emergency procedure for pumping between cells 1 and 7, including the method(s) to calculate and monitor the sewage lagoon infiltration rate (ie how often pumping may be required), the freeboard level at which pumping will be triggered, the amount to be pumped, and who is responsible for monitoring lagoon levels and doing the pumping.</p>	<p>indicated by the lagoon level gauge."</p>	
3	Responsibilities #4	<p>Comment This item states that lagoon levels will be monitored on a weekly basis during ice free periods; Policy/Compliance #4 also mentions use of a gauge to monitor lagoon levels, but the gauge is not described.</p> <p>Recommendation Please provide detail to describe how lagoon level monitoring will be conducted using the gauge referenced, and how monitoring results will translate into emergency or any other procedure(s).</p>	<p>July 4: 1. The lagoon level monitoring will be conducted by observing the elevation on the water level gauge, which will consist of a graduated scale (in metres) on a metal pole embedded into the bottom of the lagoon near the truck discharge area. See item 2 above for the translation of monitoring information into the execution of an emergency pumping procedure.</p>	<p>Noted.</p> <p>The Hamlet should include this information in the revised Freeboard Plan.</p>
4	F1a of Licence: topographic information for most recently constructed sewage lagoon cell	<p>Comment Board staff note that this submission is intended to address Part F, item 1a of the Licence. This item was due within 3 months of Licence issuance (March 3, 2016). Topographic lines are included in drawing C-101, but elevations are not.</p> <p>Recommendation Please ensure when submitting topographic information in future, that all details are submitted.</p>	<p>July 4: 1. Comment regarding the submission of detailed topographic information acknowledged.</p>	<p>The Hamlet should revise the figure included in drawing C-101 to include elevations.</p>



June 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: Fort Resolution
Water Licence – MV2014L3-0008
Sewage Disposal Facilities Requirements
Request for Review and Comments**

The Department of Environment and Natural Resources (ENR), Government of the Northwest Territories has reviewed the document 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: Current Sewage Lagoon Cells – Closure and Reclamation

Comment(s):

The document entitled “Sewage Disposal Facilities Requirements” (page 3 of 5) provides several important items pertaining to compliance amongst which includes remedial work to be completed on the perimeter berm and on the truck ramp to improve freeboard.

Numerous references were made in the various documents submitted regarding the construction of the new Sewage lagoon cells; however, ENR was not able to locate details on closure and reclamation for the current Sewage Disposal Facilities.

ENR notes that Part I Item 3 of the Hamlet Water Licence specifies that Closure and Reclamation Plan should be submitted to the Board six (6) months prior to the closure of any Sewage or Solid Waste Disposal Facilities.

Recommendation(s):

- 1) ENR recommends the Hamlet of Fort Resolution (the Hamlet) clarify their plans regarding the future of the current Sewage Lagoons (i.e. will they be closed in 6 months).
- 2) ENR recommends that six months prior to the closure of such facilities the Hamlet include closure and reclamation details in a Closure and Reclamation Plan, as per Part I, Item 3 of the current Water Licence.

Comments and recommendations were provided by ENR technical experts in the Water Resources Division and the South Slave Region and were coordinated and collated by the Environmental Assessment and Monitoring Section, 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,



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