



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: Town of Fort Smith	
Location: Fort Smith, NT	File Number: MV2011L3-0001
Date Prepared: July 29, 2019	Date of Board Meeting: August 15, 2019
Subject: 2018 Annual Water Licence Report	

1. Purpose

The purpose of this Report is to present to the Mackenzie Valley Land and Water Board (MVLWB/the Board) the 2018 Annual Water Licence Report (2018 Annual Report) submitted by the Town of Fort Smith (Town) to fulfill Part B, Condition 1 and Schedule 1, Condition 1 of their municipal Water Licence MV2011L3-0001 (Licence).

2. Background

- November 1, 2011 – Issuance of Licence MV2011L3-0001;
- May 24, 2019 – 2018 Annual Report received;
- May 28, 2019 – Review commenced;
- June 20, 2019 – Reviewer comments and recommendations due and received;
- July 2, 2019 – Comment response deadline extended by Board staff;
- July 14, 2019 – Responses due and received via email to Board staff;
- July 17, 2019 – Responses posted to Online Review System;
- **August 15, 2019 – 2018 Annual Report presented to the Board;** and
- October 31, 2026 – Expiration of Licence MV2011L3-0001.

3. Discussion

On May 24, 2019, the Town submitted their 2018 Annual Report (attached), to fulfill Part B, Condition 1 and Schedule 1, Condition 1 of their municipal Water Licence MV2011L3-0001. This submission is not for Board approval; however, it summarizes the activities undertaken by the Town over the previous year, including the general results of monitoring activities required by the Licence. In addition, the Board must be satisfied that the Town has completed the Annual Report in accordance with Licence requirements.

4. Comments

The Town has used the annual reporting template developed and maintained by Board staff in the submission of their 2018 Annual Report.

5. Public Review

By June 20, 2019, comments and recommendations on the 2018 Annual Report were received from the Government of the Northwest Territories Department of Environment and Natural Resources (GNWT-ENR).

The Town responded via email by the July 14, 2019 comment response deadline; Board staff posted the Town's responses to the ORS on July 17, 2019. 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.

Groundwater monitoring and reporting

GNWT-ENR (Comment ID 1 and 2) noted that the Town has not submitted groundwater monitoring results as required by the Licence, and recommended the Town provide an anticipated date for the submission of past and current groundwater monitoring reports. The Town responded that they are working on this and currently considering a proposal for this work, and that they anticipate submitting the 2018 groundwater monitoring report before the end of September 2019.

Hazardous waste management updates

GNWT-ENR (Comment ID 3) recommended that Town provide a status update on hazardous waste management at the Solid Waste Disposal Facilities (SWDF), noting that no update has been provided on the stockpiled contaminated soil that was noted by the Inspector in a 2016 Inspection Report. The Town responded that the Board's annual reporting template does not contain a section for reporting on hazardous waste management activities, and that the template be revised if this information is required. Board staff note that hazardous waste management falls under the operation and maintenance of the SWDF and could be reported on under Schedule 1, Condition 1(i). Further to this, Board staff note that the Board's February 22, 2018 interim approval letter for the SWDF – Operation and Maintenance Plan Version 1 (attached) specified that the Board required the Town to:

... submit a revised Solid Waste Disposal Facilities Operation and Maintenance Plan (Version 2) to fulfill Part I, condition 2 of the Licence, within 6 months following the completion of the planned SWDF expansion. If the planned SWDF expansion has not occurred by March 31, 2018 (as required by annual plan reviews in Part I, condition 5 of the Licence), the Town shall revise the Plan in accordance with reviewer comments, and to reflect current operations of the SWDF. Either revised Plan shall include details regarding operations and maintenance post-expansion, and address reviewer comments submitted during the review Plan Version 1.0, including the following:

4. Identify that the Contaminated Soil Landfarm is inspected using the same methods and at the same frequency as other bermed areas within the Solid Waste Disposal Facilities, and ensure the Plan includes details on the current status of, and/or plans for the Contaminated Soil Landfarm;

Board staff have not received an updated SWDF Operation and Maintenance Plan (Version 2), and are of the opinion that the Town could be reminded of the revision requirements, with particular attention to hazardous waste management.

Water Treatment Plant backwash management

GNWT-ENR (Comment ID 4) cited current best practices around Canada for managing Water Treatment Plant (WTP) discharge, and recommended the Town provide details on the backwash and sludge chemical composition. Further to this, GNWT-ENR (Comment ID 5) recommended that should any parameters in wastes discharged to the receiving environment exceed CCME Protection of Aquatic Life guidelines, the Town demonstrate how these wastes are managed so as to not pose a risk to the receiving environment.

The Town provided details about chemical dosing of water withdrawn, but no information was provided about the chemical content of backwash discharge or sludge. The Town stated that due to the age of the system, this waste stream may be considered “grandfathered”, and that “concerns associated with a risk to the receiving environment may be addressed with a future environmental impact assessment.” The Town states that this assessment would consider “the in situ water quality at the time of the discharge, the dispersion of the discharge in the receiving water, and the nature of the aquatic environment in the location of the discharge”, and notes that an “ appropriate means to address the concern may be to add a new SNP station downstream of the discharge, which was done to monitor the receiving environment of the Sewage Disposal Facilities.”

Board staff are of the opinion that while an SNP station downstream of the discharge may capture changes in concentrations of some parameters at that point in the Slave River, establishing an SNP station at the source of the discharge would provide a better characterization of this waste stream, and a better understanding of any subsequent potential impacts on the receiving environment. Following collection of several years of analytical data from these/this waste stream(s) will then allow future evaluation of any risks. The addition of an SNP station at the backwash discharge line could be considered in the future.

6. Security

Not applicable.

7. Conclusion

Annual Reports are not for Board approval; however, the Board may wish to follow up with the Town based on the information provided in the 2018 Annual Report and through the review process.

Board staff conclude that further information was provided by the Town in their responses to reviewer comments; however, the Town could be reminded that the Board anticipates the submission of the following, at the Town’s earliest convenience:

1. Groundwater Monitoring and Protection Program Annual Reports in accordance with Part D, Condition 12 and Schedule 2, Condition 2 of Licence MV2011L3-0001, dating from 2012 to 2018; and
2. A revised Solid Waste Disposal Facilities Operation and Maintenance Plan (Version 2), in accordance with Board direction provided in the February 22, 2018 interim approval letter for the Solid Waste Disposal Facilities (SWDF) Operation and Maintenance Plan Version 1, with particular attention to hazardous waste management.

8. Recommendation

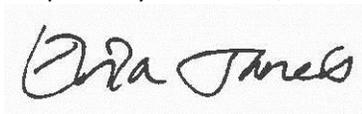
Board staff recommend the Board acknowledge the 2018 Annual Water Licence Report as submitted to fulfill Part B, Condition 1 and Schedule 1, Condition 1 of municipal Water Licence MV2011L3-0001.

A draft letter is attached for the Board's consideration.

9. Attachments

- [2018 Annual Water Licence Report](#)
- [February 22, 2018 Board letter granting interim approval for the Solid Waste Disposal Facilities Operation and Maintenance Plan Version 1](#)
- Review Summary and Attachments
- Draft Letter from the Board

Respectfully submitted,



Erica Janes
Regulatory Specialist



Heather Scott
Technical Advisor

Review Comment Table

Board:	MVLWB
Review Item:	Town of Fort Smith - 2018 Annual Water Licence Report (MV2011L3-0001)
File(s):	MV2011L3-0001
Proponent:	Town of Fort Smith
Document(s):	MV2011L3-0001 - Ft Smith - 2018 Annual Water Licence Report - May24-19 (9840 KB) MV2011L3-0001 - Ft Smith - 2016 and 2017 Annual Reports - Acceptance Letter - Oct4-18 (368.34 KB)
Item For Review Distributed On:	May 28 at 09:54 Distribution List
Reviewer Comments Due By:	June 20, 2019
Proponent Responses Due By:	July 14, 2019
Item Description:	<p>July 2, 2019 Update: the Town has requested and been granted a 10-day extension to the comment response deadline. The new comment response deadline is July 14, 2019.</p> <hr/> <p>The Town of Fort Smith has submitted their 2018 Annual Water Licence Report, to fulfill Part B, Condition 1 and Schedule 1, Condition 1 of their municipal Water Licence MV2011L3-0001. Although formal approval of Annual Reports is not required under the Licence, the Board must be satisfied that the City has reported in accordance with the requirements of their Licence, and Board direction provided in the October 4, 2018 letter to the Town (see link).</p> <p>Reviewers are invited to submit questions, comments and recommendations on the 2018 Annual Water Licence Report by June 20, 2019.</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 organization received review materials by fax:</p> <ul style="list-style-type: none"> • 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
6	General File	Comment (doc) ENR Letter with Comments and Recommendations Recommendation	--	Noted.
1	Topic 1: Groundwater Monitoring Data	Comment Section O) of the Annual Report specifies that the Towns' Groundwater Monitoring and Protection Program has been approved by the MVLWB in 2016. Despite several past reminders, it would appear that the Town did not submit groundwater monitoring results, as per Part D.12 Schedule 2-2 of the Water Licence (see Board letter, p. 183 of 2018 Annual Report). Recommendation 1) ENR recommends that the Town of Fort Smith provide the reasons for delays encountered via Annual Report (AR) update or AR reviewing process.	July 17: The Town has been progressing to address the Ground Water Monitoring and Reporting requirements, as set out in the Water Licence. A proposal for the work has been received and is being considered for scope and budget.	Noted. The Board could remind the Town that they anticipate the submission of the Groundwater Monitoring and Protection Program Annual Reports in accordance with Part D, Condition 12 and Schedule 2, Condition 2 of Licence MV2011L3-0001, dating from 2012 to 2018, at the Town's earliest convenience.
2	None	Comment None Recommendation 2) ENR recommends the Town provide an anticipated date by which past and current groundwater monitoring reports will be submitted to the MVLWB.	July 17: The Town anticipates to complete and submit the 2018 Ground Water Monitoring Report before the end of September 2019.	Noted.
3	Topic 2: Hazardous Waste Management Updates	Comment The most recent inspection reports available on the Board public registry webpage for the Town specified the Contaminated Soil Area (CSA) being used as temporary storage for hazardous wastes; staining and spills observed on the ground near barrels; and that no hazardous wastes had then been shipped out (October 2016). At the time, the Town of Fort Smith had also not been registered as a Receiver of hydrocarbon contaminated soils (which would prevent them from accepting contaminated soils for treatment), and a drainage ditch to prevent water accumulation and waste movement was to be established around the perimeter of the CSA. ENR could	July 17: The Town has been utilizing the Water Board annual report template to report on the water licence related activities over the previous year. This template currently does not contain any sections for reporting on hazardous waste management related activities. If the Board wishes to include	Board staff note that hazardous waste management falls under the operation and maintenance of the Solid Waste Disposal Facilities, and could be reported on under Schedule 1, Condition 1(i). Further to this, Board staff note that the Board's February 22, 2018 interim

	<p>not find any details in the two most recent Annual Reports (2017 & 2018) - to inform on the status of hazardous waste management concerns as outlined in recent Inspection Report, other than updates in section h) specifying that no reportable incidents were encountered in 2018.</p> <p>Recommendation 1) In order to be best informed on the status of hazardous waste management, ENR recommends that updates with respect to hazardous wastes management (as specified here above) be provided to the Board</p>	<p>hazardous waste management activities in future annual reports, we would recommend that the template be revised to explicitly include the reporting information desired by the Board.</p>	<p>approval letter for the Solid Waste Disposal Facilities (SWDF) Operation and Maintenance Plan Version 1 specified that the Board required the Town to:</p> <p><i>... submit a revised Solid Waste Disposal Facilities Operation and Maintenance Plan (Version 2) to fulfill Part I, condition 2 of the Licence, within 6 months following the completion of the planned SWDF expansion. If the planned SWDF expansion has not occurred by March 31, 2018 (as required by annual plan reviews in Part I, condition 5 of the Licence), the Town shall revise the Plan in accordance with reviewer comments, and to reflect current operations of the SWDF. Either revised Plan shall include details regarding operations and maintenance post-expansion, and address reviewer comments submitted during the review Plan Version 1.0, including the following:</i></p> <p><i>4. Identify that the Contaminated Soil</i></p>
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				<p><i>Landfarm is inspected using the same methods and at the same frequency as other bermed areas within the Solid Waste Disposal Facilities, and ensure the Plan includes details on the current status of, and/or plans for the Contaminated Soil Landfarm;</i></p> <p>Board staff have not received an updated SWDF Operation and Maintenance Plan (Version 2) from the Town. The Town could be reminded of the revision requirements, with particular attention to hazardous waste management.</p>
4	Topic 3: Backwash Management	<p>Comment In an October 4 2018 letter, the MVLWB requested that the Town report on sources and volumes of non-sewage wastes deposited to the SDF. As such, section q) of the Annual Report (p. 14 of 184) specifies that backwash water from the WTP is discharged in to the sanitary sewer system during the winter months and discharged directly into the Slave River in the summer months. The 2018 estimated total volume of backwash water is approximately 13,280 m3 and is described as consisting almost exclusively of sediments from the raw water and water treatment chemicals. Of note, Section 2.2.2 of Environment Canada website on the CEPA Registry (on Aluminum Salts) specifies that: "Most provinces control DWTP waste flows through their respective systems of permits and/or approvals. Sludge purged from clarifiers or accumulated in sedimentation basins of drinking water</p>	<p>July 17: The backwash water typically contains river sediments with coagulant and chemicals from treated water used for backwash. Chemicals used contain: 1. ClearPAC 182 Coagulant by ClearTech (approximately 61 mg/L in summer and 56 mg/L in winter); 2. Total Chlorine (1 mg/L), from treated water used for backwash; and 3. Fluoride (0.15 mg/L),</p>	<p>Noted that water treatment chemical information is provided, but not chemical composition of backwash and sludge.</p> <p>See also Comment ID GWNT-ENR 5, below.</p>

	<p>treatment plants (DWTPs) cannot be released directly to the aquatic environment in many provinces. It may be sent to sewers, incinerated with wastewater sludge and landfilled, held in permanent lagoons, spread on land or landfilled. Likewise, backwash waters (used to clean filters) cannot be discharged directly into open water bodies in many provinces where these discharges are often subjected to requirements for pretreatment (e.g., diversion to sedimentation ponds) or diversion to MWWTPs. While many provinces do not generally allow direct discharge to surface water of any DWTP effluents containing sludge or backwash waters (e.g., Alberta, Manitoba, Ontario and New Brunswick), some of their existing plants may continue to discharge effluents directly to surface waters. Communication with provincial agencies indicates that these provinces are generally requiring some type of environmental impact assessments of the subject discharges with consideration of alternatives to direct discharge. Some existing large plants in these provinces have recently removed their DWTP direct discharges from surface water (e.g., Britannia DWTP and Lemieux Island DWTP in Ottawa, ON), or are developing plans for alternatives to direct discharge to surface waters (e.g., certain plants in Alberta). In other provinces, direct discharge may be allowed through provincial approvals systems if it is shown that the discharge results in no adverse effects (defined based on varying criteria) on the receiving body of water (e.g., Saskatchewan, Nova Scotia and Newfoundland). It should be noted that some provinces and territories either do not have any coagulant usage for drinking water treatment, or they only use very small amounts and have requirements for DWTP effluent treatment destined for surface water (e.g., Prince Edward Island, Yukon Territory, Northwest Territories and Nunavut Territory) (Environment Canada unpublished 2008a). (see Section 2.2.2 - http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=491F0099-1&offset=7&toc=hide&printversion=true)</p> <p>Recommendation 1) ENR recommends that the</p>	<p>from treated water used for backwash. It is understood that current regulatory concerns exist regarding the impact of backwash discharges into freshwater receiving environments. The backwash system used by the Town of Fort Smith has been in operation for 25 years, and may therefore be considered a “grandfathered” system, and concerns associated with a risk to the receiving environment may be addressed with a future environmental impact assessment.</p>	
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		Town of Fort Smith provide details on the chemical composition of backwash (and sludge), including chemicals required for coagulation and disinfection.		
5	None	<p>Comment None</p> <p>Recommendation 2) Should any parameters be expected in concentrations above CCME Protection of Aquatic Life criteria, and should these wastes be directly or indirectly discharged to the Slave River receiving environment, ENR recommends that the Town demonstrate how residual wastes (i.e. backwash, sludge, etc.) are managed in ways that do not pose a risk to the receiving environment.</p>	<p>July 17: In reference to the previous recommendation and the response from the Town of Fort Smith, the Town should not be bound by the CCME framework for protection of Aquatic Life. A risk to the receiving environment would be more appropriate and may entail a future environmental impact assessment, which would consider the in situ water quality at the time of the discharge, the dispersion of the discharge in the receiving water , and the nature of the aquatic environment in the location of the discharge. It should be noted that the discharge occurs along the south edge of the Slave River at the upper end of the Rapids of the Drowned, which has a mean annual flow of 3400 cubic metres per second and mean monthly turbidity measurements of greater than 50 NTU May through November. An appropriate means to address the concern may be to add a new</p>	<p>Board staff are of the opinion that while an SNP station downstream of the discharge may capture changes in concentrations of some parameters at that point in the Slave River, establishing an SNP station at the source of the discharge would provide a better characterization of this waste stream, and a better understanding of any subsequent potential impacts on the receiving environment. Following collection of several years of analytical data from these/this waste stream(s) will then allow future evaluation of any risks. The addition of an SNP station at the backwash discharge line could be considered in the future.</p>

			SNP station downstream of the discharge, which was done to monitor the receiving environment of the Sewage Disposal Facilities.	
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June 20, 2019

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: Town of Fort Smith
Water Licence – MV2011L3-0001
2018 Annual Water Licence Report
Request for Comments**

The Department of Environment and Natural Resources (ENR), Government of the Northwest Territories has reviewed the report 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: Groundwater Monitoring Data

Comment(s):

Section O) of the Annual Report specifies that the Towns' Groundwater Monitoring and Protection Program has been approved by the MVLWB in 2016.

Despite several past reminders, it would appear that the Town did not submit groundwater monitoring results, as per Part D.12 Schedule 2-2 of the Water Licence (see Board letter, p. 183 of 2018 Annual Report).

Recommendation(s):

- 1) ENR recommends that the Town of Fort Smith provide the reasons for delays encountered via Annual Report (AR) update or AR reviewing process.

- 2) ENR recommends the Town provide an anticipated date by which past and current groundwater monitoring reports will be submitted to the MVLWB.

Topic 2: Hazardous Waste Management Updates

Comment(s):

The most recent inspection reports available on the Board public registry webpage for the Town specified the Contaminated Soil Area (CSA) being used as temporary storage for hazardous wastes; staining and spills observed on the ground near barrels; and that no hazardous wastes had then been shipped out (October 2016).

At the time, the Town of Fort Smith had also not been registered as a Receiver of hydrocarbon contaminated soils (which would prevent them from accepting contaminated soils for treatment), and a drainage ditch to prevent water accumulation and waste movement was to be established around the perimeter of the CSA.

ENR could not find any details in the two most recent Annual Reports (2017 & 2018) – to inform on the status of hazardous waste management concerns as outlined in recent Inspection Report, other than updates in section h) specifying that no reportable incidents were encountered in 2018.

Recommendation(s):

- 1) In order to be best informed on the status of hazardous waste management, ENR recommends that updates with respect to hazardous wastes management (as specified here above) be provided to the Board

Topic 3: Backwash Management

Comment(s):

In an October 4 2018 letter, the MVLWB requested that the Town report on sources and volumes of non-sewage wastes deposited to the SDF. As such, section q) of the Annual Report (p. 14 of 184) specifies that backwash water from the WTP is discharged in to the sanitary sewer system during the winter months and discharged directly into the Slave River in the summer months.

The 2018 estimated total volume of backwash water is approximately 13,280 m³ and is described as consisting almost exclusively of sediments from the raw water and water treatment chemicals.

Of note, Section 2.2.2 of Environment Canada website on the CEPA Registry (on *Aluminum Salts*) specifies that:

“Most provinces control DWTP waste flows through their respective systems of permits and/or approvals. Sludge purged from clarifiers or accumulated in sedimentation basins of drinking water treatment plants (DWTPs) cannot be released directly to the aquatic environment in many provinces. It may be sent to sewers, incinerated with wastewater sludge and landfilled, held in permanent lagoons, spread on land or landfilled. Likewise, backwash waters (used to clean filters) cannot be discharged directly into open water bodies in many provinces where these discharges are often subjected to requirements for pretreatment (e.g., diversion to sedimentation ponds) or diversion to MWWTPs. While many provinces do not generally allow direct discharge to surface water of any DWTP effluents containing sludge or backwash waters (e.g., Alberta, Manitoba, Ontario and New Brunswick), some of their existing plants may continue to discharge effluents directly to surface waters. Communication with provincial agencies indicates that these provinces are generally requiring some type of environmental impact assessments of the subject discharges with consideration of alternatives to direct discharge.

Some existing large plants in these provinces have recently removed their DWTP direct discharges from surface water (e.g., Britannia DWTP and Lemieux Island DWTP in Ottawa, ON), or are developing plans for alternatives to direct discharge to surface waters (e.g., certain plants in Alberta). In other provinces, direct discharge may be allowed through provincial approvals systems if it is shown that the discharge results in no adverse effects (defined based on varying criteria) on the receiving body of water (e.g., Saskatchewan, Nova Scotia and Newfoundland).

It should be noted that some provinces and territories either do not have any coagulant usage for drinking water treatment, or they only use very small amounts and have requirements for DWTP effluent treatment destined for surface water (e.g., Prince Edward Island, Yukon Territory, Northwest Territories and Nunavut Territory) (Environment Canada unpublished 2008a). (see Section 2.2.2 - <http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=491F0099-1&offset=7&toc=hide&printversion=true>)

Recommendation(s):

- 1) ENR recommends that the Town of Fort Smith provide details on the chemical composition of backwash (and sludge), including chemicals required for coagulation and disinfection.

2) Should any parameters be expected in concentrations above CCME Protection of Aquatic Life criteria, and should these wastes be directly or indirectly discharged to the Slave River receiving environment, ENR recommends that the Town demonstrate how residual wastes (i.e. backwash, sludge, etc.) are managed in ways that do not pose a risk to the receiving environment.

Comments and recommendations were provided by ENR technical experts in the Water Management and Monitoring Division, and the South Slave Region and were coordinated and collated by the Environmental Impact Assessment Section (EAM), Environmental Stewardship and Climate Change Division.

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
Environmental Stewardship and Climate Change Division
Department of Environment and Natural Resources
Government of the Northwest Territories