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Staff Report

Applicant: Town of Fort Smith	
Location: Fort Smith, NT	Application: MV2011L3-0001
Date Prepared: September 23, 2011	Meeting Date: September 29, 2011
Subject: Type A Water Licence Renewal - Municipal	

1. Purpose/Report Summary

To obtain a board decision on the Type A Water Licence (WL) Renewal Application submitted by the Town of Fort Smith (the Town) to continue to use water and dispose of waste for municipal purposes in the Town.

2. Background

- February 4, 2011 – WL renewal application received but deemed incomplete due to lack of appropriate engagement information;
- April 12, 2011 – additional information on engagement submitted by the Town;
- April 28, 2011 – WL application deemed complete and circulated for review and comment;
- May 27, 2011 – approval of work plan and comment deadline on WL application;
- June 15, 2011 – technical session held in Yellowknife. In attendance were representatives from the Town, Environment Canada (EC), Aboriginal Affairs and Northern Development Canada (AANDC), Government of the Northwest Territories Environment and Natural Resources (GNWT-ENR), and Board staff;
- July 4, 2011 – intervention due date. Interventions received from North Slave Metis Alliance (NSMA), EC, AANDC, and GNWT-ENR;
- July 13, 2011 – pre-hearing conference held;
- July 20, 2011 – public hearing held in Town of Fort Smith;
- July 29, 2011 – deadline for written closing comments from Interveners;

- August 4, 2011 – deadline for response from Town of Fort Smith regarding closing comments;
- August 11, 2011 – draft WL sent for review and comment;
- September 6, 2011 – comment deadline for draft WL. Comments received from EC, AANDC, and GNWT-ENR;
- September 13, 2011 – deadline for Town to respond to comments made on draft WL;
- September 29, 2011 – draft WL presented to the Board; and
- October 31, 2011 - current WL MV2003L3-0006, expiry date.

3. Discussion

Due to timing issues, John Donihee was unable to review the final Reasons for Decision and Final Draft WL prior to printing for this Board package. He will review these documents before the Board meeting on September 29, 2011.

Note that the Reasons contain a long explanation of the Golder report which provided the Board with recommendations related to the Water and Effluent Quality Management Policy. Board staff felt this was necessary as this was the first time that the Board has applied the Policy to a Type A water licence.

The two contentious issues in the final licence are the term of the licence and the inclusion of requirements for the Town to pursue options to improve the treatment of sewage and reduce ammonia levels to non-toxic levels.

4. Comments

The exact date when the Minister approves and signs the Water Licence is unknown; the date on the issuance letter document prepared will be changed accordingly.

5. Review Comments

Staff received comments on the draft WL from AANDC, EC and GNWT-ENR (colour coded by Reviewer in Appendix A of the Reasons). Some of these comments resulted in changes to the draft WL that was sent out for review on August 11, 2011. Changes to the August 11th, 2011 draft of the water licence are documented in Appendix A to the Reasons for Decision. The Final Draft of the WL is attached to this Staff Report.

6. Security

No security required for this operation.

7. Conclusion

Board staff has considered the Water Licence Application, interventions, and comments submitted during the licencing process and notes that the proposed conditions in the draft WL should mitigate potential environmental impacts.

8. Recommendation

Staff recommends that the Board forward the Type A Water Licence to the Minister with the associated Reasons for Decision and proposed conditions for signature and approval.

The Staff have no specific recommendation for the term of the licence, but will be available for discussion during the Board meeting

9. Attachments

- Comment Summary Table;
- Preliminary Screening – MV2003L3-0006;
- Draft Reasons for Decision document;
- Appendix A to the Reasons containing Draft WL Conditions;
- Draft WL Cover Page & Conditions;
- Draft General Procedures;
- Draft Letter to Minister; and
- Draft Issuance Letter.

Respectfully submitted,



Kathleen Racher
Technical Advisor

Comment Summary Table - MV2011L3-0001
Type A Water Licence Renewal - Town of Fort Smith

#	REVIEWER	TOPIC	COMMENT	Reviewer Recommendation	Company Response
1	INAC-WR	Annual Reporting	Part B, Section 1 of the water licence refers to the elements to be included in the annual report.	INAC recommends that the following be also included in the annual report: Results of any inspections of all dams, berms, dykes and control structures; Updates or revisions of the upcoming snow disposal plan; Sludge management details if any; Comparison of the Surveillance Network Program data to the water licence regulated limits and sampling and analysis requirements; Correspondence between the Inspector and the Town and Groundwater monitoring results.	no comment
2	INAC-WR	Snow Disposal Plan	The current water licence does not have a condition relating to snow disposal.	The Town of Fort Smith should provide to the Board a map outlining areas (with UTM positioning) currently used or to be used for snow disposal. The drainage pathways of the meltwater should also be indicated. This snow disposal plan should be reviewed yearly and any additions or deletions to areas used should be identified in the Annual Report.	We can provide a map of current snow removal sites and locations.
3	INAC-WR	Operation and Maintenance Plan	An Operation and Maintenance (O&M) Plan relating to Solid Waste Landfill Site and Sanitary Sewage System was first prepared by the Town in August 1999. An updated version focusing mainly on Solid Waste Management Facilities was prepared in August 18, 2004.	INAC-WRD recommends that the O&M plan be revised to also include the following: • Wastewater collection system; • Hazardous Waste Management Plan that should be completed in general accordance with Government of the Northwest Territories; Department of Environment and Natural Resources 2009 Developing a Community Hazardous Waste Management Plan • A map of all existing and planned Surveillance Network Program stations (as the one provided in the application – Figure 9) including the latitude and longitude of each stations. • A Quality Assurance/Quality Control Plan for “Surveillance Network Program” sampling. The Quality Assurance/Quality Control Plan for sampling and transport of water samples shall be completed in accordance with Indian and Northern Affairs Canada’s “Quality Assurance (QA) and Quality Control (QC) Guidelines” for Use by Class “A” Licensee in meeting Surveillance Network Program Requirements and for Submission of a QA/QC Plan • A copy of the Water Licence	O&M plan can be provided . Quality assurance and control is already provide by TAIGA lab supplies and procedures.
4	INAC-WR	Spill Contingency Plan	INAC understands that the Town is currently developing a Spill Contingency Plan.	The Town may refer to the Guidelines for Spill Contingency Planning produced by INAC Water Resources Division in 2007 to provide further guidance on the recommended level of detail to be included in Spill Contingency Plans. These guidelines can be found at http://nwt-tno.inac-ainc.gc.ca/wrd-gl_e.htm and hard copies can be obtained from the Water Resources Division by contacting Jeanette Hernberg at jeanette.hernberg@inac.gc.ca	What facility is this contingency plan for? Lagoon? Landfill? Water Treatment Plant?
5	INAC-WR	SNP - Sampling and Analysis Requirements	The Town currently tests for BOD at SNP 567-2. Currently, the CCME Municipal Wastewater Strategy for the Treatment of Municipal Wastewater Effluent uses CBOD as an indicator for the quality of municipal wastewater. INAC recommends that both parameters be sampled for a specified period of time within the renewed water licence. This would maintain the existing long-term BOD dataset collected by the Town, but also have a period of overlap with CBOD analysis, which would provide information relevant to the upcoming CCME requirements, as well as provide a relationship to the long-term BOD dataset.	INAC recommended that CBOD be added to the list of parameters to be sampled for 567-2 in Part B. Section 1.	Agree- this has been a standard test parameter. We will need a time frame for the transitional period from BOD to CBOD.

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6	INAC-WR	SNP - Groundwater wells monitoring	The Town of Fort Smith has been collecting groundwater water quality data intermittently since 2001. The "Fort Smith SWDF 2008 Groundwater Monitoring" prepared by IEG Consultants suggests that in absence of any data indicating a geological variability across the SWDF, elevated concentrations of salts and metals suggests impact from landfill to groundwater. It also indicates that as surface water is likely a receptor to groundwater discharge north of the SWDF, monitoring impacts to the surface water quality is key in assessing potential offsite environmental impacts of the SWDF. Following a study by AECOM (then Earth Tech) in 2006, the MVLWB accepted a revised sampling protocol for the groundwater monitoring wells. Groundwater sampling was therefore reduced from twice to once a year; the numbers of wells to be sampled were reduced from 16 to 11, and the parameters to be sampled reduced to groundwater elevation, pH, sulphate, sodium, chloride, major ions and ICP-MS Metal Scan (Dissolved).	- INAC-WRD recommends a revision of the protocol and the parameters sampled to ensure that the integrity of the groundwater source is adequately protected, without incurring unnecessary costs to the Town. - As also suggested in the 2008 report by IEG Consultants, it is recommended that the BH-04 be retrofitted and redeveloped to reduce the presence of sand and silt in the water of the monitoring well.	refer to 2011 AECOM report. Based on data collected reduce wells and parameters every 2 years.
7	INAC-WR	Water Licence Conditions	INAC recommends that the conditions in the existing licence stay the same with the exception of a the following revisions:	<u>Part A - Scope & Definitions</u> - Average Concentration For Faecal Coliform should be changed to "means the running geometric mean of any four consecutive analytical results submitted to the Board in accordance with the sampling and analysis requirements specified in the Surveillance Network Program"; - Freeboard should be changed to "means the vertical distance between the water line and the lowest elevation of the effective water containment crest on a dam or dyke's upstream slope. <u>Part B - General Conditions</u> - Section 1, item 5, should be re-worded to read "The licensee shall maintain, to the satisfaction of an inspector, the necessary signs to identify the stations of the Surveillance Network Program. <u>Part I - Spill Contingency Planning</u> - Part I, Condition 1, of the water licence should refer to INAC's new "Guidelines for Spill Contingency Planning" April 2007.	agree
8	EC	Reduction of scope and frequency of groundwater well sampling program (cover letter dated January 25 2011 - TofFS WL Renewal App'n)	In their cover letter for the water license renewal, the Town of Fort Smith has requested the Board consider reducing the frequency and scope of the sampling wells at the municipal landfill. As per the letter dated Sept. 27/06 from the Board to Roy Scott, EC understands the Board has already granted reduction in sampling frequency (i.e., twice to once annually), the number of wells monitored (i.e., 16 to 11) and the number of parameters (i.e., removal of hydrocarbon sampling) for the landfill groundwater wells.	Given that a reduction in the frequency and scope of the groundwater sampling wells was already granted in 2006, EC seeks clarification on what additional reductions are requested. Further, before EC can comment on any additional reduction in groundwater monitoring, EC would like the opportunity to review all the raw data for SNP station 567-5. The filed information is lacking sampling data for 2002, 2003 and 2006-2010 inclusive.	Refer to 2010 AECOM report.
9	EC	Groundwater Quality (SNP 567-5)	EC reviewed the Groundwater Monitoring Program Evaluation report prepared by Earth Tech Canada Inc. (May 2006). The report revealed that dissolved metal concentrations for aluminum, arsenic, chromium, copper, iron, lead, nickel, selenium and zinc frequently exceeded their respective CCME guidelines for the protection of aquatic life. It should be duly noted that the reported concentrations are in dissolved form. Therefore, the total metal concentrations for each reported metal would be ever greater and thus the groundwater samples would surpass CCME guidelines by a greater margin and with greater frequency than that suggested by the current report. Of particular concern are aluminum, arsenic, chromium, copper, iron and lead whose concentrations are 1-2 orders of magnitude higher than their respective CCME guideline.	While CCME Guidelines for the protection of aquatic life are not the appropriate benchmark for which to compare groundwater concentrations, they nonetheless flag that metal concentrations are elevated in groundwater and suggest metals may be leaching from the landfill. EC requests Fort Smith describe the measures already in place or planned to be introduced to reduce water contact with landfill waste for the purpose of reducing the production of leachate and increasing the retention of metals at the landfill site.	Data collected to date does not support this recommendation. Previous reporting indicates the ground water metals are uniform around the surrounding area.

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10	EC	Landfill Runoff Sampling Program (SNP 567-4)	EC reviewed all available data for SNP 567-4. EC noted that iron concentrations were relatively high on all sampling dates with iron levels 2-9 times greater than its respective CCME guideline. There was also one occurrence (Jul/06) where lead was found to be 15 times greater than its respective CCME guideline. Other than these observations, there were no other CCME guideline exceedances for the remaining monitored metals. However, EC's review was limited by the fact that some raw data for 567-4 were missing from the submitted package.	To complete our review of SNP 567-4, EC would appreciate the opportunity to review all the raw data for this station. In the current submission, the spring raw data for 2010 and 2004 were not provided, mercury and arsenic analysis are missing for the fall 2010, spring 2009 and fall 2006 samples, the 2008 samples were not provided (i.e., 2006 samples were provided in Appendix B of Volume 2), and the raw data for 2007 fall sample is incomplete. Further, in order to better understand the high levels of iron in the landfill runoff, EC recommends Fort Smith characterize iron concentrations in the intake water (SNP 567-1).	refer to the Slave river monitoring program Data analysis.
11	EC	Sewage Effluent Quality (SNP 567-2)	Effluent quality standards outlined in Part D of WL2003L3-006 for SNP 567-2 exceed the Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories.	EC recommends reducing the Effluent Quality Standards to promote pollution prevention.	agree the effluent levels are suitable for aquatic life using Bio-Assay data results. Please advise what is suitable?
12	EC	Sewage Bioassay Samples (SNP 567-2)	EC reviewed the bioassay data associated with SNP 567-2. Discussion with the Director of Municipal Services, Jean Soucy, confirmed that bioassay samples for Acute Toxicity Testing are not 100% effluent strength, as they are collected in the receiving environment.	EC recommends that all sampling, including the annual bioassay testing, of the sewage effluent be done at the end of pipe. For the purpose of collecting sewage effluent, EC recommends using either the diffuser as a sampling point by creating a collection pool at the bottom of the rocks where the effluent discharges or sample from the manhole in the discharge pipe.	End pipe is the standard measuring point for an effluent however it should not be the compliance point for Fort Smith. Refer to locations, Town currently samples at end pipe for all sampling except for Bio-Assay.
13	EC	Sewage Effluent Quality (SNP 567-2)	EC understands the purpose of this surveillance site is to monitor final effluent quality before it is discharged into receiving environment (As stated in the Surveillance Network Program in the Water License MV2003L3-0006). At this time EC is unclear where the samples for 567-2 test parameters are being taken – whether from the receiving environment, or directly from the effluent.	EC recommends that all sampling of the sewage effluent be done at the end of pipe and that Fort Smith clarify the precise location of the sample collection.	End pipe is the standard measuring point for an effluent however it should not be the compliance point for Fort Smith. Refer to locations, Town currently samples at end pipe for all sampling except for Bio-Assay.
14	EC	Sewage Effluent Water Quality	Winter effluent water quality for BOD and coliforms indicates little microbial treatment during cold, ice-covered months based on typical raw sewage values for piped sewage systems. However, the summer effluent quality values indicate effective biological treatment. Hydraulic retention time is limited to 90 days. Summer TSS and unionized ammonia (considering pH and Temperature) values are high. The winter BOD and microbial counts as well as the summer TSS and ammonia concentrations can be controlled to improve effluent water quality, yet no substantial improvements to the lagoon treatment system have taken place over the last 30 years.	EC recommends that Fort Smith conduct a study to identify the means of improving effluent water quality that may include, but are not limited to water saving methods (i.e., reduction in wastewater produced), increase hydraulic retention time, expansion of the lagoon cells, additional lagoon cells, retention of wastewater through the winter months, retention of water through summer months with controlled discharge after the algae die-off period.	The Town would welcome a partnership with the Government to fund a study, expansion or mechanical waste treatment facility, to improve waste water effluents as recommended.
15	EC	Sewage Disposal Facilities	Sludge removal from the 2 primary cells is said to occur every 5 years. From a design and operation perspective, these 2 cells are functioning as short-retention (10 day) anaerobic cells, described as grey or brown in colour. This information indicates that sludge build up is an ongoing issue for the system. If left unmanaged the sludge build-up can significantly reduce its treatment efficiency.	EC recommends that Fort Smith develop a sludge management plan that includes, but is not limited to, operational practices of sludge level measurement and monitoring methods, sludge removal, location of interim sludge disposal, sludge treatment and final disposal location or usage. The sludge management information can be contained within the Sewage System Operation and Maintenance Plan.	The Town already has a plan - not written which includes composting and disposal for the golf course land scapping.
16	EC	Water Treatment	Backwash from Drinking Water Treatment is discharged to Sewage lagoons. This backwash may contain active coagulant that may increase settling in the lagoon, causing additional sludge-build up. Furthermore, the chemical composition of the coagulant may slow the sludge breakdown.	EC recommends that Fort Smith provide the following information: the specific name of the polymer and/or chemical composition, methods of dosage determination and application, frequency, seasonality and volume of backwash and sludge discharged to the sewage lagoon.	Poly-Aluminum Chloride PAC Plus. All others are subject to raw water turbidity levels which vary from year to year.
17	EC	Operation and Maintenance Plan of the Sewage Facilities	A revised plan for the Operation and Maintenance of the Sewage Facilities was required by February 2004 in accordance with condition H.1 of the expiring license. No Operation and Maintenance manual has been provided.	EC recommends that Fort Smith provide an up to date Operation and Maintenance Plan for the Wastewater Facility to the Board for approval.	O&M plan update is a reasonable request.

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18	EC	Operation & Maintenance Plan - Document titled: "ToFFS Solid Waste Management Facilities O & M Plan" Revised 08/18/04	The Operations and Maintenance Plan needs revision to provide a useful working reference for operators.	Environment Canada recommends that a revised Operation and Maintenance Plan be submitted to the Board for approval as a part of the Water License conditions. For the solid waste site, the plan should include practical guidance on the operation of the engineered treatment pad, the leachate control pond, recycling, handling and disposal of hazardous materials, and treatment of contaminated drainage from the landfill. All aspects of the wastewater collection and treatment should be covered as well.	O&M plan update is a reasonable request.
19	EC	Approval of the Annual Report	Under the current Water License, MV2003L3-0006, the annual report is not required to be approved by the Board.	Environment Canada recommends for the new water license, MV2011L3-0001, that the Annual Report be submitted for approval by the Board, with provision for re-submission if it is deemed to be not satisfactory.	no comment
20	DFO	Flow of Slave River	Section 2.12 states that information is not available regarding the rate of flow. The Water Survey of Canada reports an average discharge of the Slave River at approximately 3,400 cubic metres per second.	This is for information purposes to illustrate that the Slave River has a sufficient discharge to support the withdrawal request from the Town of Fort Smith.	no comment
21	DFO	River bank stabilization (intake line)	There is reference to rehabilitation of the slope near the water intake structure to stabilize the riverbank in the area including regrading of the slope, realigning of the water supply line, construction of a new access road and replacement of the power line.	Given the history of the river bank in the area, DFO recommends additional erosion control measures be implemented including but not limited to re-vegetation and erosion matting.	You should be able to comment on the nature of the erosion with the work that has been done on both the lagoon discharge and the water intake- what new erosion has occurred?
22	DFO	River bank stabilization (sewage discharge)	There is reference to rehabilitation of the slope near the sewage lagoon discharge pipeline to stabilize the riverbank in the area including regrading of the slope, installation of anchoring manholes, installation of riprap at the end of the pipe, etc.	Given the history of the river bank in the area, DFO recommends additional erosion control measures be implemented including but not limited to re-vegetation and erosion matting.	You should be able to comment on the nature of the erosion with the work that has been done on both the lagoon discharge and the water intake- what new erosion has occurred?
23	DFO	Water Intake Screens	Section 2.5 of the Questionnaire requests information on the intake screen size. While there is additional information in Section 3.1 of Volume 1 of the background report and the <i>Water Intake Integrity Report</i> , this specific information appears to be lacking.	DFO recommends that the Licensee adhere to the <i>Freshwater Intake End-of-Pipe Fish Screen Guidelines</i> . Additional information on the intake structure should be provided in this regard.	Intake structure screen consist of a 6" bar screen entreing chamber #1, 1/2" stainless screen into chamber #2, each pump has there own additional 1/2" screen.
24	DFO	Previous environmental reviews	Section 8.1 of the questionnaire states that the project has not undergone an initial environmental review. DFO is under the assumption that the undertaking went through a preliminary screening during a previous review which resulted in its current exemption status.	This should be clarified to reflect that a preliminary screening/"initial environmental review" has occurred.	This is not an appropriate measure for a municipal system that has been operating for decades.
25	DFO	Abandonment and Restoration Plan	Section 6.4 states that no abandonment and restoration plan exists.	DFO recommends a water licence condition be included that is similar to other Type A Municipal Water Licences requiring the submission of a plan six (6) months prior to closure of any municipal infrastructure.	This is a standard condition - no objections
26	DFO	Landfill Run-Off	In 2005, Inuvialuit Environmental and Geotechnical Inc. reported increased levels of metals downstream of landfill site as well as some confusion regarding flow direction in relation to the landfill as identified in the <i>Fort Smith Landfill Wetlands Characterization</i> report. It is unclear how this relates to the 2006 proposal for a reduction in sampling stations, parameters and frequency at the landfill site.	DFO recommends that this issue be investigated more thoroughly and the results used to direct the locations and frequencies of SNP sampling, especially in relation to Site 567-4.	2005 report provides accurate detailed information on the runoff location and clarifies IEG report.

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27	GNWT-ENR	TOPIC 1: Operations and Maintenance Plan	The purpose of an Operations and Maintenance (O&M) Plan is to assist community staff in the proper operation and maintenance of their waste facilities. The current O&M Plan for the solid waste disposal facility (SWDF) was completed in 2004 as part of the previous water licence renewal, and to Environment and Natural Resources' (ENR) knowledge, has not been revised since. The Guideline for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the Northwest Territories , is endorsed by the Departments of Municipal and Community Affairs (MACA) and Environment and Natural Resources (ENR), Government of the Northwest Territories. It provides specific advice in this regard, has been developed specifically for use in the NWT, and provides definitions and uses terminology and instructs on common procedures that will provide all stakeholders certainty and clarity when discussing, planning for, and operating the Hamlet's waste facilities. Also, for specific guidance on the development of an O&M Plan, consult the Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories .	1. ENR recommends that an Operations and Maintenance Plan is updated and submitted to the Board for its approval. It should be noted that the water licence also requires an O&M Plan for the sewage waste disposal facility. 2. The Town should also consult the Guideline for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the Northwest Territories and the Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories in developing this plan. 3. And, once this plan is developed, ENR recommends that it is made available to any staff, operators, and/or contractors performing any functions related to the management of the SWF, and that the Plan is followed	O&M plan update is a reasonable request.
28	GNWT-ENR	TOPIC 2: Spill and Contingency Plan	ENR notes that the community does not have a Spill and Contingency Plan filed on the registry. As part of the previous water licence term and condition Part I (1), the Town of Fort Smith was required to submit to the Board for approval a Spill and Contingency Plan.	The Town of Fort Smith prepare and submit to the Board for approval and Spill and Contingency Plan.	What facility is this contingency plan for? Lagoon? Landfill? Water Treatment Plant?
29	GNWT-ENR	Topic 3: Closure and Reclamation Plan	ENR understands that a Closure and Reclamation Plan (C&R Plan) for the current SWDF is not in place. The early stages in the development of a C&R Plan are critical steps in ensuring the community is thinking, preparing and planning for the facility's ultimate closure. There are three distinct steps, performed in the proper order, through the development of a Final C&R Plan: 1. Preliminary Closure and Reclamation Plan 2. Interim Closure and Reclamation Plan 3. Final Closure and Reclamation Plan Step 1, a Preliminary C&R Plan, is appropriately prepared in conjunction with the planning and permitting stage of the SWDF. The general purpose is to propose closure objectives, alternatives analysis, and proposed closure criteria to understand the Proponent's intent. Determining appropriate closure options should also be integrated with a level of community engagement to build consensus upfront. Step 2, the Interim C&R Plan, is to identify uncertainties surrounding certain closure options that guide corresponding areas for reclamation research during operations prior to closure. There are typically several versions that are prepared during the life of the facility to address changes in development alternatives, and to refine as the facility progresses towards closure and subsequent versions of closure and reclamation Plans are produced. Interim Plans are prepared on a regular basis to coincide with operational changes, advances in technology, key milestones, information collected during reclamation research, and results of community engagement. Step 3, the Final C&R Plan, should be more detailed because more information and studies are available to determine duration, frequency, and magnitude of the effects. The final version of the C&R Plan is to contain detailed reclamation activities, and should be prepared and approved prior to a scheduled permanent closure or immediately after an unplanned closure.	Although the current SWDF is expected to have a lifespan of at least another 20 years, ENR recommends that the Proponent prepare and submit an Interim Closure and Reclamation Plan for the current SWDF.	Apposed, not in any for see able future.

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30	GNWT-ENR	TOPIC Hazardous Waste Management	4: Comment 1 – Landfarm ENR understands that the landfarm was built in 2001 by the Department of Public Works and Services (PWS), GNWT for the remediation of hydrocarbon-contaminated soil originating at the Aurora College. The landfarm has since been registered in the name of PWS and managed by the Town of Fort Smith. The Background report states that the registration of the landfarm is currently being transferred to the Town. However, it is not clear what the present state of the hydrocarbon-contaminated soils in the landfarm is, and whether or not hydrocarbon-contaminated soils are currently accepted and managed from other spills within the community.	1. The Town of Fort Smith formally take ownership and management of the landfarm and additionally obtain the services of a qualified professional to monitor and determine whether hydrocarbon-contaminated soils accepted at the landfill site are remediated to meet the appropriate land use criteria in the Guideline for Contaminated Site Remediation . 2. The Town of Fort Smith register as a receiver of hydrocarbon-contaminated soils and manage hydrocarbon contaminated soils as a hazardous waste according to the Guideline for the General Management of Hazardous Waste in the NWT .	#1 can be established. #2 NTR#016 is the Towns receiver registration number.
31	GNWT-ENR	TOPIC Hazardous Waste Management	4: Comment 2 – Uranium Burial Site ENR understands that there is a uranium burial site located at the landfill that was established in 1998 by Atomic Energy of Canada Ltd. (AECL). However, other than the brief description in the Background Report, there is no specific information provided on the burial site such as details on: design and construction; volume and characteristics of soil or materials buried; and a monitoring program. Furthermore, ENR understands that AECL manages the site but is unaware of any formal relationship or agreement established between AECL and the Town of Fort Smith.	1. Provide details on the design and construction of the site, volume and characteristics of the soil and materials buried, including laboratory analyses, and the monitoring program. In the case no monitoring program for the uranium burial site exists, one should be established. 2. Establish a formal relationship and agreement between the Town of Fort Smith and AECL to clarify responsibility for the management of the uranium burial site including ongoing operations and maintenance, monitoring, etc.	an evaluation by AECL can provide this information and designed criteria.
32	GNWT-ENR	TOPIC Hazardous Waste Management	4: Comment 3 – Hazardous Waste Management Plan Hazardous waste is generated by both the Industrial, Commercial, and Institutional (ICI) sectors as well as by residents. The plan does not clearly state the types of hazardous wastes that are accepted by the ICI sector and which are not. For example, hydrocarbon-contaminated soils, or asbestos may be accepted from the ICI sector where solvent, pesticides, corrosive liquids, etc. would not be accepted from the ICI sector and only from residents.	The Town of Fort Smith develop a comprehensive hazardous waste management plan that clearly states which of the following materials will, and will not be accepted at the solid waste facility, and from which sector. • Asbestos • Batteries (Lead Acid) • Glycols (Antifreeze, Heating Fluid) • Heating Oil Tanks • Household Hazardous Waste • Hydrocarbon Contaminated Soil / Snow / Water • Mercury Containing Materials • Oil Debris • Old Fuel • Ozone Depleting Substances • Paint • Propane Tanks • Residue fuel tanks/drums • Used Oil • Vehicles Containing Batteries, Fluids, Mercury Switches The draft document titled Developing a Community Based Hazardous Waste Management Plan can be referenced for this purpose. In addition ENR recommends this plan be developed in consultation with ENR's hazardous waste guidelines and staff. Please contact Gerald Enns, Hazardous Waste Specialist at (867) 920-8044 or email gerald_enns@gov.nt.ca for further assistance.	O&M plan can be provided.

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33	GNWT-ENR	TOPIC 4: Hazardous Waste Management	Comment 4 – Household Hazardous Waste Collection ENR can provide assistance with household hazardous waste collection events. The images in Figure 6 of the 2004 O&M Plan do not present a disposal option for the variety of household hazardous wastes generated by residents. Household hazardous waste can be collected through various forms, or combinations of services like HHW collection events, HHW drop off by appointment, or collection of HHW on a regular basis at a depot.	The town included details about the type household hazardous waste collection as part of a comprehensive hazardous waste management plan and establish at least one day a year for HHW collection.	Currently being discussed with ENR
34	GNWT-ENR	TOPIC 4: Hazardous Waste Management	Comment 5 – Record Keeping Hazardous waste generated from the ICI sector is required to be transported to registered receiving facilities in the province or territory of destination and tracked on hazardous waste movement documents according to the Guideline for the General Management of Hazardous Waste in the NWT. The Town of Fort Smith has been registered as a receiver for waste asbestos by ENR.	Recommendations The Town of Fort Smith utilizes hazardous waste documents provided by ENR to track and record the hazardous wastes received at their facility from the ICI sector	This can be achieved
35	GNWT-ENR	TOPIC 5: External Waste	ENR is unclear as to whether the Town accepts outsourced industrial waste.	ENR recommends that no industrial waste sourced from outside the community be accepted at the landfill. If the Town does accept industrial waste streams sourced from outside the community, then analysis of these waste streams must be provided, along with evidence that any community facility will be designed, operated, funded and licensed to mitigate and appropriately manage these activities and associated liabilities.	Opposed. There maybe a need in the future for industrial waste. Analysis and reporting of any industrial waste can be provided.
36		TOPIC 6: Groundwater and Surface Water Quality at the Solid Waste Facility	Since the last water licence was issued in 2003, two reports were commissioned by the Town to evaluate and assess the surface and groundwater quality leaving the landfill and the ability of the downstream wetland to treat any potential leachate. The objective of the Fort Smith Landfill Wetlands Characterization completed in 2004 was to determine the capacity of the wetland to treat landfill effluent. The report studied the wetland located northwest of the site. However, the 2001 EBA Engineering report and the INAC inspection in 2005 indicated that the water flows to the northeasterly direction. ENR is not clear whether the wetland treatment area is located northeast, northwest, or both. Furthermore, the report could not determine the cause of the elevated metal concentrations. In 2005, a Groundwater Monitoring Program Evaluation was commissioned by the Town in order to evaluate trends in groundwater quality at the site to reduce the number of parameters analyzed and frequency of sampling. This report recommended that monitoring of metals continue but that all petroleum hydrocarbon parameters be removed and certain parameters be reduced based on the Alberta Code of Practice for Class II Landfills (AB Code of Practice) performance standards. Furthermore, the report recommended that monitoring wells around the landfarm be removed entirely from the monitoring program and that the frequency in sampling be reduced to once from twice per year. ENR cautions that the dangers of enlisting in a partial use of a guideline or standard originating in another jurisdiction need to be justified. If another guideline from another jurisdiction is to be used and referenced, it is imperative that the adopted components of a guideline or standard are proven to be relevant to its application. However, it appears that the recommendation in the 2005 report to replace the sampling parameters of the monitoring wells with those contained in the AB Code of Practice is not used in proper context. Class II landfills in Alberta that follow the AB Code of Practice are designed with a liner (synthetic or natural) and leachate collection system. To ENR's knowledge, the Fort Smith landfill was not constructed with a liner system or a leachate collection system. Furthermore, ENR also notes that chloride and sulphate concentrations in monitoring wells BH09 and BH10 were above the AB Code of Practice performance standards. According to the AB Code of Practice, if at any time during the life, closure or post closure of the landfill these performance standards are not met, the owner is required to submit a groundwater remediation plan and implement the approved plan. Due to the proximity of the landfill to the Slave River, leachate monitoring and management should be a priority to prevent contamination of the surrounding environment. Evidence of elevated metals concentrations as per the above mentioned reports, and gaps in surface and groundwater monitoring data to date, would indicate a need to continue and perhaps augment existing monitoring to determine contaminant sources and ensure its capture and management. It is concerning if in fact there are considerations to reduce monitoring given these circumstances. Furthermore, leachate from the landfill may be migrating offsite and it is unknown whether this is being captured and if the wetland has the capacity to treat it.	1. It is recommended that a study be completed to determine the origin of the elevated metals concentrations and whether a) landfill leachate is migrating offsite, b) the downstream wetland (whether it be the wetland to the northeast, northwest or both) has the capacity to treat the landfill effluent, and c) surface water quality leaving the wetland and entering the Slave River meets Canadian Council of Ministers of the Environment (CCME) Freshwater Aquatic Life Guidelines. 2. ENR understands that hydrocarbon-contaminated soil from the Aurora College has been remediated. However, it is unclear whether the Town of Fort Smith has accepted additional hydrocarbon-contaminated soils from other sites. If the landfarm is in fact still active (i.e. the Town accepts hydrocarbon-contaminated soil), then it is recommended that the yearly groundwater monitoring continue to include monitoring wells MW102, MW103, MW103B, and MW104 and petroleum hydrocarbon parameters in the other groundwater monitoring wells should also be analyzed. 3. The 2005 Groundwater Monitoring Program Evaluation report reference the use of the AB Code of Practice for Class II Landfills be followed in terms of monitoring for chloride, sodium, sulphate and pH in groundwater. If the Mackenzie Valley Land and Water Board (Board) has accepted this request, will the Board also be requesting that the Town submit a groundwater remediation plan and implement the approved plan?	1) IEG study was incorrect about the wetland location. The wetland is in the northeast and has been identified in the 2005 wetland reporting by INAC. 2) Many of the metals in the Slave River do not meet CCME aquatic life parameters.

Comment Summary Table - MV2011L3-0001
Type A Water Licence Renewal - Town of Fort Smith

#	REVIEWER	TOPIC	COMMENT	Reviewer Recommendation	Company Response
37	R	TOPIC 7: Landfill Gas	Landfill gas is composed of a mixture of hundreds of different gases. By volume, landfill gas typically contains 45% to 60% methane and 40% to 60% carbon dioxide. Landfill gas also includes small amounts of nitrogen, oxygen, ammonia, sulfides, hydrogen, carbon monoxide, and nonmethane organic compounds (NMOCs) such as trichloroethylene, benzene, and vinyl chloride. Landfill gas can pose significant health and safety issues - specifically, issues related to possible explosion and asphyxiation hazards, odors, and low-level chemical emissions. There are also health and safety issues associated with landfill fires (which may or may not be the direct result of landfill gas). However, ENR has not seen information that demonstrates landfill gas is considered within the documentation provided.	Has the Town of Fort Smith conducted, or is it considering any form of landfill gas assessment?	No need since the size of the landfill does not produce any methane gas. There should be no distinct connection between (water) licence renewal methane gas.