

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

27 May 2011

EC file: 4782 014
MVLWB file: MV2011L3-0001

Zabey Nevitt
Executive Director
Mackenzie Valley Land and Water Board
P.O. Box 2130
Yellowknife, NT, X1A 2P6

Via Email at permits@mvlwb.com

Dear Mr. Nevitt:

RE: MV2011L3-0001 - Type A Water License Renewal Application; Town of Fort Smith - Additional Information Requests

Environment Canada (EC) reviewed the information submitted with the Town of Fort Smith's Municipal Water License Renewal Application and submits the attached comments and recommendations to the Mackenzie Valley Land and Water Board (MVLWB) for its consideration. Our comments and recommendations are preliminary in nature and should not limit the scope of any future analyses.

EC's comments and recommendations are based on our mandated responsibilities arising from the following statutes and regulations:

- *Department of the Environment Act*;
- *Canadian Environmental Protection Act 1999 (CEPA) and Regulations*; and
- *Fisheries Act (Pollution Prevention Provisions)*.

If you wish clarification on any aspect of this submission, please contact Ms. Sarah-Lacey McMillan at (867) 669-4724 or by email at sarah-lacey.mcmillan@ec.gc.ca.

Yours truly,



Carey Ogilvie
Head, Environmental Assessment-North (NT & NU)
Environmental Protection Operations
Prairie and Northern Region

cc:

Allison Dunn, Senior Environmental Assessment Coordinator, EPO, EC, Iqaluit, NU
Sarah-Lacey McMillan, Environmental Assessment Coordinator, EPO, EC, Yellowknife, NT
Mary Kelly, Project Officer, EPO, EC, Yellowknife, NT

Rhonda Miller - MVLWB

From: Kathleen Graham [kgraham@mvlwb.com]
Sent: May-30-11 11:11 AM
To: permits@mvlwb.com
Subject: FW: MV2011L3-0001 - Town of Fort Smith - Type A Water Licence Renewal
Attachments: 110527 Signed cover letter.pdf; EC_Comments_Table.xls

From: McMillan,Sarah-Lacey [Yel] [mailto:Sarah-Lacey.McMillan@EC.GC.CA]
Sent: Friday, May 27, 2011 2:56 PM
To: McMillan,Sarah-Lacey [Yel]; Kathleen Graham
Cc: Ogilvie,Carey [Yel]; Kelly,Mary [Yel]; Dunn,Allison [Iqa]
Subject: RE: MV2011L3-0001 - Town of Fort Smith - Type A Water Licence Renewal

Hi Kathleen,

The cover letter sent earlier was blank, please disregard it and use this one! Please feel free to contact me should you have any questions.

Thank you,

Sarah-Lacey McMillan

Environmental Assessment Coordinator | Coordonnatrice d'évaluation environnementale
Environmental Protection Operations | Activités de protection de l'environnement
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From: McMillan,Sarah-Lacey [Yel]
Sent: Friday, May 27, 2011 2:25 PM
To: 'Kathleen Graham'
Cc: Ogilvie,Carey [Yel]; Kelly,Mary [Yel]; Dunn,Allison [Iqa]
Subject: RE: MV2011L3-0001 - Town of Fort Smith - Type A Water Licence Renewal

Hi Kathleen,

Please find attached EC's cover letter and comments relating to Fort Smith's Water License Renewal Application. Please feel free to contact me should you have any questions.

Thank you,

Sarah-Lacey McMillan

Environmental Assessment Coordinator | Coordonnatrice d'évaluation environnementale
Environmental Protection Operations | Activités de protection de l'environnement
Environment Canada | Environnement Canada
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From: Kathleen Graham [mailto:kgraham@mvlwb.com]

Sent: Wednesday, May 04, 2011 10:22 AM

To: screeningofficer@eastarm.com; scellis@eastarm.com; jbreannan@yellowknife.ca; rlong@yellowknife.ca; lmandeville@denenation.com; Carolc.lands@gmail.com; imadenegurl@hotmail.com; Rick.Walbourne@dfo-mpo.gc.ca; sao_enterprise@northwestel.net; EANorthNWT [Yel]; Frmc53@yahoo.ca; forsmithmetiscouncil@northwestel.net; Gnwt_ea@gov.nt.ca; Rhonda_Batchelor@gov.nt.ca; Patrick_Clancy@gov.nt.ca; Duane_Fleming@gov.nt.ca; K_Johnson@gov.nt.ca; Mark_Davy@gov.nt.ca; Glen_Mackay@gov.nt.ca; hrnc@northwestel.net; intergov@inac-ainc.gc.ca; norrisa@inac.gc.ca; consultationsupportunit@inac.gc.ca; james.lawrence@inac.gc.ca; Lorraine.Seale@inac-ainc.gc.ca; scott.Stewart@inac.gc.ca; Charlene.Coe@inac-ainc.gc.ca; Robert.Jenkins@inac.gc.ca; landsnresources@katlodeeche.com; doraenzoe@yahoo.com; vchristensen@reviewboard.ca; lands@nsma.net; Matthew.Spence@cannor.gc.ca; Kate.Witherly@cannor.gc.ca; ima.nwtmn@northwestel.net; John.Clarke@NRCan-RNCan.gc.ca; Katherine.Cumming@pc.gc.ca; Gordon.Hamre@pc.gc.ca; townoffortsmith@northwestel.net; ceo@srfn195.com; rrobillard@pagc.sk.ca; tgiroux@pagc.sk.ca; bblack@fortsmith.ca; molenkamp@hayriver.com; SusanA@wcb.nt.ca; environment@ykdene.com; tslack@ykdene.com; esangris@ykdene.com; ttsetta@ykdene.com; mrichardson@hayriver.com; francis.jackson@inac-ainc.gc.ca

Subject: RE: MV2011L3-0001 - Town of Fort Smith - Request for Comments - Type A Water Licence Renewal

When preparing your comments on the Ft. Smith Water Licence Renewal, please use the attached comment table. The use of this Comment Table is an interim step in a MVLWB initiative to implement the online review process that will greatly increase the ease, efficiency and transparency of reviews such as this one. The WLWB are currently carrying out their review process using this on-line review system. The attached Comment Table has three column headings: Topic, Comments, and Recommendations. A guide to completing the table is included. Please do not hesitate to call with your questions.

Thanks,
Kathleen

Kathleen Graham

Regulatory Officer

Mackenzie Valley Land and Water Board

7th Floor, 4922 48th St, PO Box 2130 | Yellowknife, NT | X1A 2P6

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From: Kathleen Graham [mailto:kgraham@mvlwb.com]

Sent: Friday, April 29, 2011 11:49 AM

To: 'screeningofficer@eastarm.com'; 'scellis@eastarm.com'; 'jbreannan@yellowknife.ca'; 'rlong@yellowknife.ca'; 'lmandeville@denenation.com'; 'Carolc.lands@gmail.com'; 'imadenegurl@hotmail.com'; 'Rick.Walbourne@dfo-mpo.gc.ca';

'sao_enterprise@northwestel.net'; 'ec.ea.nwt@ec.gc.ca'; 'Frmc53@yahoo.ca'; 'fortsmithmetiscouncil@northwestel.net'; 'Gnwt_ea@gov.nt.ca'; 'Rhonda_Batchelor@gov.nt.ca'; 'Patrick_Clancy@gov.nt.ca'; 'Duane_Fleming@gov.nt.ca'; 'K_Johnson@gov.nt.ca'; 'Mark_Davy@gov.nt.ca'; 'Glen_Mackay@gov.nt.ca'; 'hrmc@northwestel.net'; 'intergov@inac-ainc.gc.ca'; 'norrisa@inac.gc.ca'; 'consultationsupportunit@inac.gc.ca'; 'james.lawrence@inac.gc.ca'; 'Lorraine.Seale@inac-ainc.gc.ca'; 'scott.Stewart@inac.gc.ca'; 'Charlene.Coe@inac-ainc.gc.ca'; 'Robert.Jenkins@inac.gc.ca'; 'landsnresources@katlodeeche.com'; 'doraenzoe@yahoo.com'; 'vchristensen@reviewboard.ca'; 'lands@nsma.net'; 'Matthew.Spence@cannor.gc.ca'; 'Kate.Witherly@cannor.gc.ca'; 'ima.nwtmn@northwestel.net'; 'John.Clarke@NRCan-RNCan.gc.ca'; 'Katherine.Cumming@pc.gc.ca'; 'Gordon.Hamre@pc.gc.ca'; 'townoffortsmith@northwestel.net'; 'ceo@srfn195.com'; 'rrobillard@pagc.sk.ca'; 'tgioux@pagc.sk.ca'; 'bblack@fortsmith.ca'; 'molenkamp@hayriver.com'; 'SusanA@wcb.nt.ca'; 'environment@ykdene.com'; 'tslack@ykdene.com'; 'esangris@ykdene.com'; 'ttsetta@ykdene.com'; 'mrichardson@hayriver.com'; 'francis.jackson@inac-ainc.gc.ca'

Subject: MV2011L3-0001 - Town of Fort Smith - Request for Comments - Type A Water Licence Renewal

Please see the attached documents for your review and comments.

Kathleen Graham

Regulatory Officer

Mackenzie Valley Land and Water Board

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GENERAL INSTRUCTIONS FOR EXCEL TEMPLATE:

1. Do not leave blank rows above or between comments.
2. Do not modify the instructions or the column headings (i.e. the top three rows).
- 3. Each comment must have an associated recommendation.**
4. All formatting will be lost when this file is uploaded to the Online Comment Table.
5. If necessary, adjust the cell width and height in order to view all text.
6. Cutting and pasting comments from WORD documents cannot include hard returns (spaces between paragraphs).
7. If you would like to create paragraphs within a single cell, please use a proper carriage return (ALT & ENTER).

TOPIC

COMMENT

RECOMMENDATION

Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.

Comments should contain all the information needed for the proponent and the Board to understand the rationale for the accompanying recommendation.

Recommendations can be for the proponent or for the Board. Recommendations should be as specific as possible, relating the issues raised in the "comment" column to an action that you believe is necessary.

Reduction of scope and frequency of groundwater well sampling program (cover letter dated January 25 2011 - Town of Fort Smith Water License Renewal Application)	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.
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<p>Groundwater Quality (SNP 567-5)</p>	<p>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.</p>	<p>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.</p>
<p>Landfill Runoff Sampling Program (SNP 567-4)</p>	<p>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.</p>	<p>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).</p>
<p>Sewage Effluent Quality (SNP 567-2)</p>	<p>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.</p>	<p>EC recommends reducing the Effluent Quality Standards to promote pollution prevention.</p>
<p>Sewage Bioassay Samples (SNP 567-2)</p>	<p>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.</p>	<p>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.</p>

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.
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.
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.
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.
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.

<p>Operation and Maintenance Plan - Document titled: "Town of Fort Smith Solid Waste Management Facilities O & M Plan" Revised 2004 08 18</p>	<p>The Operations and Maintenance Plan needs revision to provide a useful working reference for operators.</p>	<p>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.</p>
<p>Approval of the Annual Report</p>	<p>Under the current Water License, MV2003L3-0006, the annual report is not required to be approved by the Board.</p>	<p>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.</p>