



July 6th, 2011

File: MV2011L3-0001

Ms. Lynn Boettger
Regulatory Officer
Mackenzie Valley Land and Water Board
7th Floor - 4910 50th Avenue
Box 2130
Yellowknife, NT X1A 2P6

SEND BY FAX: (867) 873-6610

**RE: MUNICIPAL CORPORATION OF THE TOWN OF FORT SMITH – TYPE A WATER
LICENCE RENEWAL APPLICATION MV2011L3-0001.**

Dear Ms. Boettger,

Please see the enclosed Intervention from Aboriginal and Northern Development Canada for the Municipal Corporation of the Town of Fort Smith application MV2011L3-0001. If you have any further questions or concerns please contact Jeanne Arsenault, Water Resources Division, at 867-669-2658 or Jeanne.Arsenault@inac.gc.ca or Marie Adams at 867-669-2854 or Marie.Adams@inac.gc.ca.

Sincerely,

Robert Jenkins
Manager
Water Resources Division
Aboriginal Affairs and Northern Development Canada

**ABORIGINAL AFFAIRS AND NORTHERN
DEVELOPMENT CANADA
INTERVENTION
FOR THE
TOWN OF FORT SMITH
WATER LICENCE APPLICATION
MV2011L3-0001**

Submitted to:
Mackenzie Valley Land and Water Board
PO Box 2130
Yellowknife, NT X1A 2P6
July 6th, 2011

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LIST OF ACRONYMS

BOD – Biological Oxygen Demand

CBOD – Carbonaceous Biological Oxygen Demand

CCME – Canadian Council of the Ministers of the Environment

CRP – Closure and Reclamation Plan

AANDC – Aboriginal Affairs and Northern Development Canada

MVLWB – Mackenzie Valley Land and Water Board

SNP – Surveillance Network Program

TSS – Total Suspended Solids

SUMMARY OF RECOMMENDATIONS

WATER LICENCE CONDITIONS

RECOMMENDATION #1

Aboriginal Affairs and Northern Development Canada recommends that the following also be reported in the Town's Annual Report, under Part B:

- *Results of any inspections of all dams, berms, dykes and control structures;*
- *Updates or revisions to Snow Disposal locations;*
- *Updates or revisions to the Operations and Maintenance Plan;*
- *Sludge Managements details and sampling results,*
- *Comparisons of the Surveillance Network Program data to the water licence regulated limits and sampling and analysis requirements.*

RECOMMENDATION #2

Aboriginal Affairs and Northern Development Canada recommends all sampling results of leachate from the Hydrocarbon Landfarm Treatment Facility be reported within the Water Licence Annual Report.

RECOMMENDATION #3

Aboriginal Affairs and Northern Development Canada recommends that PART B, Section 1 l) be updated to include "The results of sampling and testing of the Groundwater Monitoring Wells at the landfill, as modified and approved by the Board on September 27th, 2006; or as per future sampling regime to be approved by the Board."

SEWAGE DISPOSAL FACILITIES

RECOMMENDATION #4

Aboriginal Affairs and Northern Development Canada recommends that the Operations and Maintenance plan include a sub-section on Sludge Removal and Management. This could be included within the Sewage Disposal Facility Section.

RECOMMENDATION #5

Aboriginal Affairs and Northern Development Canada recommends that all sewage lagoon treated sludge used for municipal purposes meet CCME Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Residential/Parkland).

SNOW DISPOSAL LOCATIONS

RECOMMENDATION #6

Aboriginal Affairs and Northern Development Canada recommends that a Condition applying to Waste Disposal be added under Part D of the Water Licence, stating that provided Snow Disposal Locations and associated coordinates be reviewed annually; and that any changes in these locations shall be identified in the Annual Report.

RECOMMENDATION #7

Aboriginal Affairs and Northern Development Canada recommends that future snow disposal locations reflect Best Practices for Snow Disposal (2006 City of Yellowknife Disposal Siting Study, Dillon Consulting Limited), namely the avoidance of locations within or near by the Town's Municipal Landfill, or within 200 meters of any water body.

RECOMMENDATION #8

Aboriginal Affairs and Northern Development Canada recommends that Condition 1, Part I should refer to AANDC's "Guidelines for Spill Contingency Planning" April 2007.

RECOMMENDATION #9

Aboriginal Affairs and Northern Development Canada recommends that Part H, Section 3 reads as follows: "The licensee shall annually review the updated Operations and Maintenance Plan and shall modify the plan to reflect changes in operations and technology and the results of research and other studies. All proposed updates or revisions to the plan shall be submitted to the Board for approval and included as an update in the Annual Report."

RECOMMENDATION #10

Aboriginal Affairs and Northern Development Canada recommends the Operations and Maintenance plan for Sewage and Solid Waste Disposal Facilities to be completed according to the Government of Northwest Territories, Municipal and Community Affairs 1996 "Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories."

RECOMMENDATION #11

Aboriginal Affairs and Northern Development Canada recommends that Part H: Conditions Applying to Operation and Maintenance be updated to include a map depicting all existing (and/or planned) Surveillance Network Program including the latitude and longitude of each location, as well as a copy of the Water Licence.

WASTEWATER MANAGEMENT AND EFFLUENT QUALITY CRITERIA

RECOMMENDATION #12

AANDC Recommends that CBOD be added to the list of parameters sampled at SNP 567-2 in Part B, Section 1 of the SNP section of the current water licence, for a minimum period of 3 years. After the 3 year period, the Town should provide a trend analysis to the Board for review and approval, and sampling requirements should be revisited.

SOLID WASTE DISPOSAL FACILITY

RECOMMENDATION #13

Aboriginal Affairs and Northern Development Canada recommends that the Town of Fort Smith should submit a Groundwater Monitoring and Protection Plan which includes the following:

- *Groundwater monitoring locations*
- *Parameters sampled and sampling frequency*
- *Comparisons of results to applicable standards*
- *Evaluation of risks to potential receptors*
- *If necessary, evaluation of any remedial or preventative measures required.*

RECOMMENDATION 14

Aboriginal Affairs and Northern Development Canada recommends that Part H: Conditions Applying to Operation and Maintenance be updated to include an Hazardous Waste Management Plan. This Plan should be completed according to GNWT ENR 2009 – Developing a Community Hazardous Waste Management Plan.

RECOMMENDATION #15

AANDC recommends that the Town update its Operation and Maintenance Manual to include operations from the Hydrocarbon Landfarm Treatment Facility. The Plan should include how leachate will be tested and analyzed, how results will be reported, and how leachate will be discharged or stored.

RECOMMENDATION #16

AANDC recommends that all sampling results of leachate from the Hydrocarbon Landfarm Treatment Facility be reported within the Water Licence Annual Report.

1.0 INTRODUCTION

The following concerns and issues have resulted from Aboriginal Affairs and Northern Development Canada (AANDC) review of the Type A Water Licence and attached management plans. This describes AANDC's concerns and provides information and recommendations for the consideration of the Mackenzie Valley Land and Water Board (MVLWB) during its decision-making process associated with Water Licence application MV2011L3-0001. AANDC appreciates the opportunity to express its concerns and make recommendations to the MVLWB on this application.

2.0 WATER LICENCE CONDITIONS

The following section outlines AANDC's recommendations with respect to Terms and Conditions which should be contained within the Type "A" Water Licence to be issued to the Town of Fort Smith (Town). AANDC recommends that the conditions in the existing licence remain the same with the exception of the following proposed revisions:

ANNUAL REPORTING

AANDC believes that the following recommendations will provide greater clarity to the Town and reviewers in understanding the state of engineered structures, operations and quality testing results covered under the Town of Fort Smith's water licence. Part B, Section 1 l) describes that the Annual Report is also to include results of sampling and testing of the Groundwater Monitoring Wells at the landfill.

RECOMMENDATION #1

Aboriginal Affairs and Northern Development Canada recommends that the following also be reported in the Town's Annual Report, under Part B:

- *Results of any inspections of all dams, berms, dykes and control structures;*
- *Updates or revisions to Snow Disposal locations;*
- *Updates or revisions to the Operations and Maintenance Plan;*
- *Sludge Managements details and sampling results,*
- *Comparisons of the Surveillance Network Program data to the water licence regulated limits and sampling and analysis requirements.*

RECOMMENDATION #2

Aboriginal Affairs and Northern Development Canada recommends all sampling results of leachate from the Hydrocarbon Landfarm Treatment Facility be reported within the Water Licence Annual Report.

RECOMMENDATION #3

Aboriginal Affairs and Northern Development Canada recommends that PART B, Section 1 l) be updated to include "The results of sampling and testing of the Groundwater Monitoring Wells at the landfill, as modified and approved by the Board on September 27th, 2006; or as per future sampling regime to be approved by the Board."

SEWAGE DISPOSAL FACILITIES

AANDC believes that the following recommendation will provide clarity within the water licence with respect to Terms and Conditions applying to the Town of Fort Smith's sewage treatment facilities.

RECOMMENDATION #4

Aboriginal Affairs and Northern Development Canada recommends that the Operations and Maintenance plan include a sub-section on Sludge Removal and Management. This could be included within the Sewage Disposal Facility Section.

SEWAGE LAGOON MAINTENANCE

The Town of Fort Smith Sludge Management Practices consists of removal of the sludge from its lagoon on average every 5 years. Information provided at the technical session held on June 15, 2011, stated that after being removed, the sludge was then transferred to a drying bed where it is allowed to dry for a period of approximately 2 years. The resulting material has been donated and collected by the local golf course. AANDC understands that this material is tested for regular bacteria analysis such as Fecal coliforms.

RECOMMENDATION #5

Aboriginal Affairs and Northern Development Canada recommends that all sewage lagoon treated sludge used for municipal purposes meet CCME Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Residential/Parkland).

SNOW DISPOSAL LOCATIONS

The Town of Fort Smith has provided their Snow Disposal Locations to the Board. AANDC recommends that these locations be reviewed yearly and any revisions be identified in the Annual Report. Future locations should be selected following *Best Practices for Snow Disposal* (2006 City of Yellowknife Disposal Siting Study, Dillon Consulting Limited) namely the avoidance of locations within or near the Town's Municipal Landfill to reduce contaminated runoff generation, or within 200 meters of any water body.

RECOMMENDATION #6

Aboriginal Affairs and Northern Development Canada recommends that a Condition applying to Waste Disposal be added under Part D of the Water Licence, stating that provided Snow Disposal Locations and associated coordinates be reviewed annually; and that any changes in these locations shall be identified in the Annual Report.

RECOMMENDATION #7

Aboriginal Affairs and Northern Development Canada recommends that future snow disposal locations reflect Best Practices for Snow Disposal (2006 City of Yellowknife Disposal Siting Study, Dillon Consulting Limited), namely the avoidance of locations within or near by the Town's Municipal Landfill, or within 200 meters of any water body.

SPILL REPORTING / SPILL CONTINGENCY PLANNING

The Town has provided the Board with a Fuel Spill Contingency Plan which includes spill contingency information for a 25,000 litre fuel tank. Under the NWT Waters Act (sec. 6g (i) and the NWT Waters Regulations, all operations requiring a licence for water use and waste disposal must prepare a Spill Contingency Plan (SCP). In a Municipal Water Licence context, operations covered under the water licence include the Water Treatment Plant, Landfill and Sewage Lagoon facilities. Therefore, the Town's SCP should also include spill contingency measures for any other hazardous materials used or stored at their licenced facilities. The response measures should be specific to each facility to enable prompt action and effective response to a spill and better support employees in a potential emergency situation. Components of a SCP include: response organization, initial actions, spill reporting, containing and cleaning, transferring and managing wastes, restoration of affected areas, etc.

As a guiding tool, AANDC recommends that the Town refer to the AANDC Guidelines for Spill Contingency Planning, released in April 2007. The guidelines are intended to help minimize the impacts of spills of petroleum products and other hazardous materials by establishing a predetermined line of response and action plan. A hard copy of the Guidelines was provided to the Town of Fort Smith during the technical session held on June 15, 2011. These Guidelines are available online at http://nwt-tno.AANDC-ainc.gc.ca/wrd-gl_e.htm and additional copies can be obtained from the Water Resources Division by contacting Jeanette Hernberg at 867-669-2564, or Jeanette.Hernberg@inac.gc.ca.

RECOMMENDATION #8

Aboriginal Affairs and Northern Development Canada recommends that Condition 1, Part I should refer to AANDC's "Guidelines for Spill Contingency Planning" April 2007.

OPERATIONS AND MAINTENANCE PLAN

Currently, there exists a requirement for the Town's Operations and Maintenance (O&M) Plan for Sewage and Solid Waste Disposal Facilities to be reviewed on a yearly basis. The MVLWB is to be advised of amendments made to the O&M Plan, if any.

RECOMMENDATION #9

Aboriginal Affairs and Northern Development Canada recommends that Part H, Section 3 reads as follows: "The licensee shall annually review the updated Operations and Maintenance Plan and shall modify the plan to reflect changes in operations and technology and the results of research and other studies. All proposed updates or revisions to the plan shall be submitted to the Board for approval and included as an update in the Annual Report."

RECOMMENDATION #10

Aboriginal Affairs and Northern Development Canada recommends the Operations and Maintenance plan for Sewage and Solid Waste Disposal Facilities to be completed according to the Government of Northwest Territories, Municipal and Community Affairs 1996 "Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories."

RECOMMENDATION #11

Aboriginal Affairs and Northern Development Canada recommends that Part H: Conditions Applying to Operation and Maintenance be updated to include a map depicting all existing (and/or planned) Surveillance Network Program including the latitude and longitude of each location, as well as a copy of the Water Licence.

3.0 WASTEWATER MANAGEMENT AND EFFLUENT QUALITY CRITERIA

SNP SAMPLING - CBOD ANALYSIS

The Town currently tests for BOD₅ at SNP 567-2. Currently, the CCME Municipal Wastewater Strategy for the Treatment of Municipal Wastewater Effluent uses CBOD as an indicator of the quality of municipal wastewater. AANDC recommends that both parameters be sampled for a specified period of time within the renewed water licence. This would maintain the existing long-term BOD₅ dataset collected by the Town, and also provide a period of overlap with CBOD analysis. The period of overlap will provide time to identify any relationship between BOD₅ and CBOD while moving the Town towards compliance with the upcoming CCME requirements.

AANDC believes CBOD and BOD should be tested for a minimum of 3 years in order to achieve such a relationship. After 3 years, it is recommended that the Town provide a trend analysis of the data collected for review and approval by the Board. At that time, the sampling requirements could be revisited.

RECOMMENDATION #12

AANDC Recommends that CBOD be added to the list of parameters sampled at SNP 567-2 in Part B, Section 1 of the SNP section of the current water licence, for a minimum period of 3 years. After the 3 year period, the Town should provide a trend analysis to the Board for review and approval, and sampling requirements should be revisited.

EFFLUENT QUALITY CRITERIA

On July 6, 2011, AANDC received the document prepared by Golder & Associates relating to the development of Effluent Quality Criteria for the Town of Fort Smith's Municipal Discharge. AANDC has not critically reviewed this document. To this end, no recommendations with respect to EQC's for municipal wastewater, other than recommendation #12, are included within this intervention. AANDC will review this document and be prepared to speak to this issue at the upcoming public hearing, should public hearing be held.

4.0 SOLID WASTE DISPOSAL FACILITY

GROUNDWATER MONITORING SNP 567-5

Under the requirements of their water licence, The Town of Fort Smith started collecting groundwater water quality data in 2001 for 16 groundwater wells installed around the Solid Waste Disposal Facility (SWDF). Following recommendations from 2006 AECOM report (then Earth Tech), a revised groundwater sampling regime was accepted by the MVLWB on September 27th, 2006. The sampled parameters were reduced and now only include groundwater elevation, pH, sulphate, sodium, chloride, major ions and ICP-MS Metal Scan (Dissolved). The monitoring frequency was also reduced from twice a year to once a year and the number of wells to be sampled was reduced from 16 to 11. The number of groundwater stations MW101, MW012, MW103, MW103B, MW104 are still in place but no longer sampled.

The suspended wells are located mainly around the northern end of the landfarm. The Board approved to suspend sampling of these wells as the landfarm was considered closed, as it had completed its purpose of treating Aurora College contaminated soil. It was clarified during the technical session that the landfarm is still in operation to be used on an "if needed" basis. The Town clarified that they had no plans to expand their landfarm for soil treatment but that they feel the need to be prepared in the event of a spill or should another need to use the landfarm arise in the future.

The Town's SWDF hosts a Uranium disposal site for which Remedial Projects occurred between 1998 and 2001. Fort Smith landfill site cell activity concentration (0.2 Bq/g) does not exceed unconditional clearance level (1 Bq/g), according to LLRWMO documents provided by the Town.

It was clarified by AANDC Inspector Wayne Starling during the Technical Session that the initial 16 groundwater well network was instituted to provide a full picture of the local groundwater regime, with the intention of reducing the network once groundwater conditions were established. At the time it was estimated to be more cost and time effective to establish a larger number of wells first and reduce accordingly pending results. The Town identified, during the Technical Session, the cost burden of the groundwater monitoring, which represents a \$25,000 annual cost to the Town.

Data collected since 2001 suggest that leachate from the landfill is impacting the groundwater. In their report "2008 Solid Waste Disposal Facility Surveillance Network Monitoring 567-5", IEG Consultants reports that "In the groundwater samples collected from BH-06, BH-08, BH-09 and BH-10, sodium, sulphate, calcium, magnesium, boron, iron, manganese, selenium, zinc, cadmium and arsenic concentrations above background conditions were observed. In the absence of any data indicating that there is geological variation across the site from south to north, the elevated salt and metal concentrations suggest impact to groundwater from the landfill.". The groundwater monitoring program has also determined the movement of the groundwater which is determined to be traveling North/Northeast towards the Slave River.

The Town of Fort Smith should develop and submit a Groundwater Monitoring and Protection Plan identifying any risks to the environment or human health posed by the existing groundwater impacts, identifying whether the level of existing contamination requires remediation and identifying measures that will be implemented to prevent further impacts to the groundwater.

RECOMMENDATION #13

Aboriginal Affairs and Northern Development Canada recommends that the Town of Fort Smith should submit a Groundwater Monitoring and Protection Plan which includes the following:

- *Groundwater monitoring locations*
- *Parameters sampled and sampling frequency*
- *Comparisons of results to applicable standards*
- *Evaluation of risks to potential receptors*
- *If necessary, evaluation of any remedial or preventative measures required.*

HAZARDOUS WASTE MANAGEMENT

During the Technical session hosted on June 15, 2011, The Town recognized the need for hazardous waste to be better managed at the SWDF. The development of a Hazardous Waste Management will enable the Town to better understand its role and responsibilities in accepting/refusing hazardous waste at its SWDF.

RECOMMENDATION#14

Aboriginal Affairs and Northern Development Canada recommends that Part H: Conditions Applying to Operation and Maintenance be updated to include an Hazardous Waste Management Plan. This Plan should be completed according to GNWT ENR 2009 – Developing a Community Hazardous Waste Management Plan.

LANDFARM TREATMENT FACILITY

At the June technical sessions held by the MVLWB, it was indicated by the Town that they had no plan to start a new business using the landfarm, but that the facility was still available for soil treatment. The Town clarified that they had no plans to expand their hazardous waste landfarm; but that should there be a spill or a need for it, then they would want to be ready.

AANDC would like to clarify that the operation of a contaminated soil treatment facility, even on a temporary basis, will impose further responsibilities on the Town of Fort Smith with respect to planning (O&M Plan) monitoring (facility leachate monitoring) and reporting (sampling results to be reported in Annual Report). Therefore, new conditions should be added to the Town's water licence to ensure the Town is carrying out the necessary steps to prevent contaminated leachate from the Landfarm Soil Treatment Facility.

AANDC recommends that the Town update its Operation and Maintenance Manual to include operations from the Hydrocarbon Landfarm Treatment Facility. The Plan should include how the Town is operating and managing its Landfarm facility, the yearly maximum treatment capacity, how leachate will be tested and analyzed, how results will be reported, and how leachate will be discharged or stored. AANDC also recommends that all sampling results of leachate from the Hydrocarbon Landfarm Treatment Facility be reported within the Water Licence Annual Report.

RECOMMENDATION #15

AANDC recommends that the Town update its Operation and Maintenance Manual to include operations from the Hydrocarbon Landfarm Treatment Facility. The Plan should include how leachate will be tested and analyzed, how results will be reported, and how leachate will be discharged or stored.

RECOMMENDATION #16

AANDC recommends that all sampling results of leachate from the Hydrocarbon Landfarm Treatment Facility be reported within the Water Licence Annual Report.

REFERENCES

Application for the Town of Fort Smith Water Licence, found on the MVLWB web site:
<http://www.mvlwb.ca/mv/reg.aspx?app=MV2003L3-0006>

“Guidelines for Spill Contingency Planning”, AANDC April 2007, found on the Water Resources Division web site: <http://www.ainc-AANDC.gc.ca/ai/scr/nt/ntr/pubs/SCP-eng.asp>

“Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid and Solid Waste Disposal Facilities in the Northwest Territories”, Government of Northwest Territories, Municipal and Community Affairs, 1996.

“Developing a Community Hazardous Waste Management Plan”, Government of Northwest Territories, Environment and Natural Resources, 2009.

“City of Yellowknife Snow Disposal Siting Study, Final Report”, Dillon Consulting Limited, April 7, 2006

Rhonda Miller - MVLWB

From: Lynn Boettger - MVLWB [lboettger@mvlwb.com]
Sent: July-07-11 9:05 AM
To: 'Rhonda Miller - MVLWB'
Subject: FW: AANDC WRD Written Intervention - MV2011L3-0011
Attachments: AANDC Written Intervention - MV2011L3-0001.pdf

And this one from AANDC! Gotta get used to seeing it that way!

From: Jeanne Arsenault [mailto:Jeanne.Arsenault@inac-ainc.gc.ca]
Sent: Wednesday, July 06, 2011 5:30 PM
To: lboettger@mvlwb.com
Subject: AANDC WRD Written Intervention - MV2011L3-0011

Please find attached AANDC Written Intervention for the Town of Fort Smith water licence renewal application - MV2011L3-0001.

If you have any questions, do not hesitate to contact me.

Jeanne Arsenault
Pollution Control Specialist
Indian and Northern Affairs Canada
phone: 867-669-2658
fax : 867-669-2716