

From: [Angela Love - MVLWB](mailto:Angela.Love@MVLWB.com)
To: permits@mvlwb.com
Subject: FW: Closing Comments
Date: August-04-11 5:00:21 PM
Attachments: [image001.png](#)
[closing_argument_2011-08-04.pdf](#)

MV2011L3-0001

From: Lindsay McIntyre [mailto:lmcintyre@fortsmith.ca]
Sent: August-04-11 4:41 PM
To: Angela Love - MVLWB
Cc: Jean Soucy; Kathleen Racher
Subject: RE: Closing Comments

Hi Angela,

Please find attached our Closing Comments. If you have any questions or comments, please don't hesitate to contact either Jean Soucy [jsoucy@fortsmith.ca] (Cell)867-872-0494 (Office) 867-872-2381] or myself.

We look forward to receiving the draft water license.

Thx!

Lindsay McIntyre, GISP
Director of Municipal Services
Town of Fort Smith
Ph. 867.872.8400
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From: Angela Love - MVLWB [mailto:reg_officer@mvlwb.com]
Sent: July-29-11 4:11 PM
To: lmcintyre@fortsmith.ca
Cc: jsoucy@fortsmith.ca; 'Rebecca Chouinard'; 'Kathleen Racher'
Subject: Closing Comments

Good Afternoon Lindsey,

Please find attached Environment and Natural Resources, Environment Canada and Aboriginal Affairs and Northern Development Canada Closing Comments pertaining to the Renewal of the Town of Fort Smith's Water Licence MV2011L3-0001. Please provide your Closing Comments by August 4, 2011 at 5:00pm . If you have any questions or comments, please contact me at 867-766-7466 or reg_officer@mvlwb.com.

Regards,
Angela

Angela Love

Regulatory Officer

Mackenzie Valley Land and Water Board

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

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TOWN OF FORT SMITH

Post Office Box 147, Northwest Territories, X0E 0P0

August 4, 2011

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

Dear Mr. Nevitt:

RE: MV2011L3-0001 – Type A Water License Renewal Application; Town of Fort Smith – Closing Comments

The Town of Fort Smith is pleased to offer the following closing comments to the water license renewal application, and appreciates this opportunity to provide a rebuttal to the positions of the various regulatory agencies. The Town does appreciate the positions of the various regulators; however, their comments do not necessarily reflect the reality of funding, operating and maintaining water and waste infrastructure in the Town of Fort Smith. The Town has clearly demonstrated our commitment to maintaining and improving our infrastructure to serve the residents of Fort Smith, and maintaining and improving our infrastructure for the protection of the environment.

These comments are made in the context of the closing comments provided by Environment Canada (letter dated July 29, 2011), Aboriginal Affairs and Northern Development Canada (letter dated July 29, 2011), and Environment and Natural Resources, Government of the Northwest Territories (letter dated July 29, 2011).

Monitoring Associated with Solid Waste Management Facility

Groundwater Monitoring Plan

A Groundwater Monitoring Plan could be developed for the groundwater wells at the solid waste facility. This plan would identify the geological and hydrogeological characteristics of the site, surface water drainage patterns, improvements to the groundwater monitoring network, and set out a groundwater contingency plan.

Landfarm Monitoring

The groundwater wells downgradient of the landfarm (MW-101, MW-102, MW-103A, MW-103B, MW-104) should be included in the annual groundwater monitoring program when there is hydrocarbon impacted soil that is above applicable guidelines. Once the soil in the landfarm has been remediated, the wells no longer need to be monitored annually, but will remain as "sentinel wells" so that if or when more impacted soil is placed in the landfarm they can be sampled.

Background Wells

Groundwater monitoring wells have been installed around the perimeter of the solid waste facility. Three of the wells (BH-01A, BH-01B and BH-02) have historically been considered background wells. Because of the placement of waste material in the previously cleared area east of the access road, monitoring wells BH-01A and BH-01B may not be considered up gradient of activities at the solid waste facility. Monitoring well BH-02 is located further south and west of the activity at the landfill and can still be considered a background well.

The evidence to support BH-02 as being a background well is the water level data that has been collected since the monitoring wells have been installed. The highest water levels on the site have been found in the three south wells (BH-01A, BH-01B and BH-02), and the lowest water levels have been measured in the north wells. This indicates that the groundwater is flowing from the south to the north; towards the Slave River. Therefore BH-02 is a background well to the solid waste facility.

Even though metal concentrations have been detected in the background wells, this does not indicate that the groundwater sampled from this well is impacted from the solid waste facility. The quality of the background water will not always remain the same. It will be influenced by activities that are upgradient of the well and upgradient of the solid waste facility. The chemistry of the groundwater will change as it moves through the subsurface geological material.

To be able to assess the impact of the facility on groundwater, it must be determined if the observed concentration of the tested parameters in the downgradient wells are a result of the activities at the site or are the concentrations similar to the groundwater found upgradient of the site. It is the quality of the groundwater right before entering the facility that should be compared to the groundwater sampled in the downgradient wells. The groundwater quality of the region or off site will not provide a good comparison.

Trends

There does not appear to be an increasing trend for the parameters that have been tested at the facility since 2001. The concentrations vary from year to year, with some parameters increasing over a number of years and then decreasing again, but there are no sustained increasing trends.

Downgradient Concentrations

Some of the downgradient wells have concentrations that are above the comparison criteria. Most of these exceedances are also found in the background wells and could be considered natural background concentrations. There were some parameters where the concentration increased downgradient of the landfill, but did not exceed criteria and there were some parameter concentrations that did exceed the comparison criteria. The only parameters that exceeded the criteria in the downgradient wells but not the background wells are total dissolved solids (TDS), barium and selenium. These increases may indicate that the activities at the solid waste facility are impacting the groundwater. However, that impact does not appear to be very significant. The three parameters that are over criteria (TDS, barium and selenium) are not much higher than the criteria limit. The other increased concentrations are below the comparison criteria and could be considered low risk.

Wastewater Discharge Criteria

Environment Canada Comments

The Town of Fort Smith understands the hierarchy of environmental regulation in the Northwest Territories and recognizes that the provisions of the Fisheries Act apply in the absence of establishing provisions for wastewater quality effluent through the CCME Canada Wide Strategy. The Town of Fort Smith has a concern with the point of application of the Fisheries Act, in particular the application of the end of the pipe as the compliance point as opposed the mixing zone beyond the end of the pipe. The mixing zone sampling for regulatory compliance reflects the in situ conditions of the effluent discharge.

Environment Canada states that "it would be prudent for the Town to move toward a system that discharges effluent having received secondary treatment." The fact is that the existing sewage lagoon system (primary settling ponds and secondary detention cells) in Fort Smith is a secondary treatment system by definition. The Town of Fort Smith strongly disagrees with Environment Canada's process reference for secondary treatment being the nitrification of ammonia.

The Golder report suggests a consideration of receiving water capacity as a basis for effluent quality criteria – the Town agrees with this approach to establishing effluent quality criteria. Environment Canada's reference to raw sewage as the Effluent Quality Criteria is not relevant to the discussion because the Town of Fort Smith does not discharge raw sewage, and does not have any intention of reducing the effluent quality from the existing sewage lagoon system.

From a process perspective, a sewage lagoon system is generally not capable of consistently producing an effluent quality that is not acutely lethal because of a limited population of nitrifying bacteria in a lagoon system. The characteristic is exacerbated in the north because of the cold temperatures, which limit the population of nitrifying bacteria even further.

Given this circumstance for nitrification, the provision of a consistent effluent quality requirement for a nontoxic effluent will require the Town of Fort Smith to advance the construction of a mechanical treatment system. A mechanical treatment will have a capital cost in the range of \$10 to \$20 million and an average operating cost of at least \$500,000; these are financial burdens that the Town of Fort Smith cannot afford (order of magnitude costs are based upon current construction of mechanical sewage treatment facility in Dawson City, Yukon).

Aboriginal Affairs and Northern Development Canada Comments

The Town of Fort Smith has a concern with the point of application of the Fisheries Act, in particular the application of the end of the pipe as the compliance point as opposed the mixing zone beyond the end of the pipe. The mixing zone sampling for regulatory compliance reflects the in situ conditions of the effluent discharge.

AANDC suggests that the Town of Fort Smith investigate sewage retention as a means of addressing the poor effluent quality encountered during the winter months. AANDC fails to

recognize that this process technology is utilized by communities on trucked services in the NWT, where the effluent generation is less than 1/2 of the effluent generation rate in Fort Smith, and the communities themselves are less than 1/2 the size of Fort Smith. The provision of a consistent effluent quality requirement for a nontoxic effluent will require the Town of Fort Smith to advance the construction of a mechanical treatment system. A mechanical treatment will have a capital cost in the range of \$10 to \$20 million and an average operating cost of at least \$500,000; the Town of Fort Smith does not have the financial capacity to absorb these costs.

We look forward to the opportunity to review and comment on the draft water license in the very near future.

Sincerely,



Lindsay McIntyre, GISP
Director Municipal Services
Town of Fort Smith
lmcintyre@fortsmith.ca



Jean Soucy
Manager, Water Works
Town of Fort Smith
jsoucy@fortsmith.ca