Indian and Northern Affairs Canada
www.inac.gc.ca

North Mackenzie District
P.O. Box 2100
Inuvik, NT

Affaires Indiennes et du Nord Canada
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Telephone: 867-777-8900
Fax: 867-777-2090

November 30, 2009

Gwich'in Land and Water Board
P.O. Box 2018
Inuvik, NT X0E 0T0

Attn: Robert Alexie, Executive Director

RE: Municipal Water Licence (G03L3-001)

Dear Mr. Alexie,

Please find the enclosed Inspection Report for your review and/or records.

An electronic copy (un-editable Adobe pdf.) has also been provided by e-mail.

If you have any questions or concerns regarding the enclosed, and/or if additional information is required please contact me at 867-777-8909.

Sincerely,

Jan Davies
Water Resource Officer

Cc: Conrad Baetz, District Manager, North Mackenzie District, Inuvik, NT

Enclosure: Water Licence Inspection Report and Cover Letter (6 pages)

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November 30, 2009

Hamlet of Fort McPherson
P.O Box 57
Fort McPherson, NT, X0E 0J0

Attn: James Wilson

RE: Municipal Water Licence (G03L3-001)

Dear Mr. Wilson,

An inspection was conducted of the Municipal Water Supply and Waste Disposal Facilities on October 8, 2009. Enclosed is a copy of the Municipal Water Licence Inspection Report.

While there have been some improvements since the last inspection like controlling what material is being burned and sending out hazardous wastes for proper disposal, there were a number of violations as depicted on page three of the Inspection Report. Please review the concerns throughout the Inspection Report.

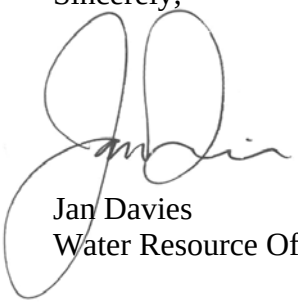
It is clear that progress is being made on certain issues, however, there are terms and conditions of your Water Licence that are being neglected resulting in non-compliance/violations. Upon review of previous years Inspection Reports it is apparent that many of the violations and concerns outlined in the Report are consistent with those in previous years. Please address the aforementioned items as Indian and Northern Affairs Canada considers non-compliance of Water Licences a serious matter.

Please note that it is the Hamlet's responsibility to ensure compliance with all of the terms and conditions of its Water Licence. INAC looks forward to working with you as much as possible to achieve compliance.

A copy of this report will be sent to the Gwich'in Land and Water Board for their review and/or public records.

If you have any questions, please contact me at 867-777-8909.

Sincerely,



Jan Davies
Water Resource Officer

Cc: Conrad Baetz, District Manager, North Mackenzie District, Inuvik, NT

Enclosure: Water Licence Inspection Report (4 pages)

Indian and Northern Affairs Canada | Affaires Indiennes et du Nord Canada

WATER LICENCE INSPECTION FORM

DATE:	October 8, 2009	**COMPANY REP:**	James Wilson
LICENCEE:	Hamlet of Fort McPherson	**LICENCE #:**	G03L3-001

WATER SUPPLY

Source:	Deep Water Lake	Quantity Used:	27, 872 m^3

Owner/Operator: Hamlet/Dept. of Public Works

Indicate: A - Acceptable U - Unacceptable N/A - Not Applicable N/I - Not Inspected

Intake Facilities	A[1,2,3,4]	Storage Structures	A	Treatment Systems	A[4]	Chem. Storage	A
Flow Meas. Device	A	Conveyance Lines	A	Pumping Stations	A		

Comments:
Concerns:
1. Generators are still leaking at the Deep Water Lake Intake Facility (DWLIF). Both generators need full coverage by drip trays to ensure leaking oil is contained within the generator room and not by-passing the trays. Drip trays will go a long way to keeping the generator room clean. Spill pads are present and soaked with oil indicating that there is a larger problem of leaking oil from the generators. Maintenance needs to be cleaner and/or the generators need repairs to stop the leaks. There is still oil along the floor and seeping through the wall and dripping outside on metal skids in the back of the generator shed. The seepage of oil from the generator room needs to stop as it is a potential contaminant to the outside environment including the Hamlet's water supply (see Figure 1).
2. There is still significant erosion of the turn around pad next to the the DWLIF. This erosion of pad material can not continue as it will lead to further destruction of infrastructure. The cause of the erosion needs to be be stopped. A permanent solution (like the use of a retaining wall or rip rap etc.)to the erosion needs to occur to prevent further damage (see Figure 2).
3. There a number of cracks in the insultating layer of the water intake pipe for the DWLIF. These cracks may promote further destruction of water intake infrastructure by exposure to the elements (see Figure 3).
3. Potential source of leakage and evidence of contamination at the fuel storage tank at DWLIF (see Figure 5). See Fuel Storage Section.
4. Continual issues with water in fuel storage tank berm at Water Treatment Plant (see Figure 4). See Fuel Storage Section.

Note:
- Ensure equipment using the DWLIF are free from leaks as the area is frequently flooded with water and is in close proximity to the Hamlet's water supply.

WASTE DISPOSAL

Well Waste	Off-Site Removal	N/A	Drilling Sump	N/A	Downhole	N/A	Land spread	N/A
Sewage	Sewage Treatment System (primary, secondary, or tertiary)				Primary			
	Natural Water Body	N/A			Continuous Discharge (land or water)		N/A	
	Seasonal Disch.	Decant - Late Fall and/or Spring			Wetlands Treatment	N/A	Trench	N/A
Solid Waste	Owner/Operator:	Hamlet of Ft. McPherson						
	Landfill	✓			Burn & Landfill	Conditionally acceptable	Other	N/A

Indicate: A - Acceptable U - Unacceptable N/A - Not Applicable N/I - Not Inspected

Discharge Quality	U[1,7]	Construction	A[2]	Disch. Meas. Dev.	A	Freeboard	A
Decant Structures	A[9]	O&M Plan	U[2,3,5,6]	Dams, Dykes	A	Seepages	A[9]
Dyke Inspections	A	A&R Plan	N/A	Erosion	N/A	Spills	U[3,4]
Periods of Discharge	Late Fall and/or Spring			Effluent Discharge Rate	By volume of water used		

Comments:
Concerns:
1. For the fall sewage lagoon decant, samples were initially acceptable so the decant began September 21, 2009. Since the first set of water sample results exceeded the Water Licence effluent quality standards for BOD and Fecal Coliforms, the decant of the sewage lagoon was stopped on October 8, 2009 during the inspection. It was after the decant had been stopped that a sample was taken from the lagoon at the decant structure by the Water Resource Officer and the water sample results were within Water Licence standards except for BOD. See Surveillance Network Program section.

2. Currently there is a building material cell behind the honey bag pit on the north side of the sewage lagoon. There are many additional cells and storage areas that are not on the current Operation and Maintenance Plan. It is apparent that the current O&M Plan (1997) needs to be updated to include these new cells and storage areas. As per Part I: Conditions Applying to Operation and Maintenance, Item 1, of the renewed Water Licence a revised Operation and Maintenance Plan (O&M Plan) for the Sewage and Solid Waste Disposal Facilities was required by March 1, 2008. To date a revised O&M Plan has not been received. Ensure the Hamlet Staff are aware of the current O&M Plan to maintain consistency in how the Sewage Disposal Facility (SDF) and Solid Waste Disposal Facility (SWDF) are being operated.
3. Batteries and waste oil have been removed from the SWDF hazardous wastes/waste oil storage area but work is still required. There were drums and pails outside the storage area that need to be moved back inside the bermed storage area. During the inspection there was obvious evidence of considerable release of oil as the ground is still saturated with oil and/or other materials. This material needs to be removed and disposed of properly. To prevent further spillage of oil in the storage area regular inspection and maintenance of the area is needed (see Figure 6).
4. Due to the presence of oil storage containers etc outside the SWDF hazardous wastes/waste oil storage area there is oil that was spilled and ran down in front of the storage area. The spilled oil and contaminated soil needs to be cleaned up from in front of the storage area. This will prevent further contamination and the deposit of containers outside the storage area (see Figure 6).
5. Domestic waste is being deposited in the metal waste storage area. Ensure the domestic waste is removed as this will prevent further waste being deposited there, which would lead to larger non-segregated waste issues.
6. There is a considerable amount of contaminated soil in storage areas that need to be properly operated and maintained to ensure the adequate remediation of the soils. These contaminated soil areas should not be for long term storage but allow for the remediation of soils and their permanent disposal.
7. Due to the high levels of ammonia that could affect the immediate discharge area please continue to discharge as slow as possible and in a regulated manner when discharging from the Sewage Disposal Facilities(SDF) at SNP 1696-2. This will help allow for high dilution as effluent slowly moves through the system.
8. The Hamlet and Staff are to be commended for signage present throughout the SWDF and the SDF. To ensure further guidance and waste segregation individual signs for the waste animal, used oil/batteries and domestic waste areas are recommended.
9. During the September 25, 2008 Inspection, maintenance had been completed on the decant structure and at the time of inspection the valve was opened to allow the decant to occur and use the newly installed culvert. It was noticed that there appeared to be seepage occurring from the vicinity of the culvert and berm area. Ensure there is no seepage when the decant structure valve is closed. If there is sewage effluent bypassing the decant structure and/or berm then further repairs will be needed.
10. It is evident that there is a lot of windblown debris around the SWDF. Ensuring that waste is compacted and covered on a timely basis will assist with controlling windblown debris and making the site clean thus encouraging the public to properly segregate their waste. Fencing and other windbreaks will aid in providing more protection and catching debris.

Notes:
- An emergency decant occurred in the spring from June 12 to June 29, 2009 as the freeboard of the sewage lagoon was being exceeded and was necessary to prevent structural failure.
- Burning is occurring of segregated wood, cardboard, and paper in a designated burning area.
- Continue to ensure an Inspector is notified when the freeboard is exceeded at the Sewage Disposal Facility (SDF).
- It is recommended that the SDF be upgraded to effectively address the high ammonia in sewage effluent as mentioned in the Fort McPherson Wetland Study (Ferguson Simek Clark, March 2005). It is also suggested that the system be upgraded to facilitate continuous discharge as opposed to decanting sewage effluent.
- As mentioned in the 2004 Annual Report and Study - Performance and Potential Improvements to Anaerobic Lagoon in Fort McPherson (Earthtech, N.W.T. May, 2004) it is suggested that "the sewage treatment "system" for the lagoon discharge could be expanded in the future to include the downstream wetland areas"

FUEL STORAGE

Owner:	Hamlet of Fort McPherson	Operator:	Department of Public Works	Condition of tanks:	Good
Berms & Liners	A	Water within Berm:	U[1]	Evidence of Leaks:	Yes[2]

Drainage Pipes	N/A	Pump Station and Catchment Berm	A[2,3]
Pipeline Condition	A[3]	Not Applicable:	N/A

Comments:
Concerns:
1. At the Water Treatment Plant the berm for the fuel storage tank is full of diesel and water. The problem of water getting into the metal berm for the fuel storage tank should be dealt with permanently by some kind of covering or replacing the tank with a double walled storage tank (see Figure 4).
2. Deep Water Lake Intake Facility (DWLIF) fuel storage tank is a double walled tank that is mounted on a wood platform on a gravel pad. During the September 25, 2008 Inspection the gravel pad smelled of fuel mainly on the south side of the tank. Shane Debastien who was present mentioned that the south side of the tank with the pipe in the bottom was sunken originally and had to be repaired. During this time there might have been a leak and/or the tank at times has been overfilled. With the fuel/water draining off the tank the area would smell of fuel. The extent of contaminated gravel should be assessed and the area should be excavated of contaminated gravel and properly disposed of as this area is a potential risk to the Hamlet's water supply (see Figure 5).
3. The fuel supply line connecting to the bottom of the fuel storage tank at the DWLIF is a potential source of leakage and contamination. As noted in the above concern #2 there is the potential for tank movement and leakage of fuel.

There is a risk of a large volume spill due to the position of the fuel line connection. Any spill of this nature would pose an immediate risk to the Hamlet's water supply (see Figure 5).

SURVEILLANCE NETWORK PROGRAM

Samples Collected Hamlet	Samples are being collected. [1]		
Samples Collected DIAND	Yes, collected from SNP 1696-2 by Water Resource Officer during inspection.		
Signs Posted: SNP	1696-1B, 2, and 5 present. 1696-1A, 3 and 6 were not inspected.	Warning	Yes present for all facilities.
Record & Reporting	2008 Annual Report was submitted. An action plan to maintain freeboard at Sewage Disposal Facilities was due May 30, 2008. Terms of reference for a bio-physical assessment of the environment receiving sewage effluent discharges was due March 28, 2008. A plan outlining steps to improve sewage treatment efficiency (trucked sewage system) including measures to reduce Ammonia Nitrogen in the waste water effluent stream to meet applicable water quality guidelines was due October 30, 2009.		
Geotechnical Inspection	N/A		

Comments:
Concerns:

1. From the 2008 Annual Report it appears that SNP 1696-3 and 5 were only sampled once instead of two times a year as required by the Water Licence. Ensure sampling occurs as per Part B: General Conditions, Item 2, of the Water Licence. The Surveillance Network Program states in Part B: Sampling and Analysis Requirements, Item 3, that: "Water at Station Numbers 1696-5 and 1696-6 shall be sampled two times per year…".

Violations of Act of Licence:

Part B: General Conditions, Item 2,
"The Licensee shall comply with the "Surveillance Network Program" annexed to this Licence, and any amendment to the said "Surveillance Network Program" as may be made from time to time, pursuant to the conditions of this Licence."

Part B: General Conditions, Item 9,
"The Licensee shall submit to the Board for approval, no later than May 30, 2008, an action plan outlining what steps will be taken to consistently maintain the specified freeboard at the trucked sewage disposal facilities..."

Part B: General Conditions, Item 10,
"The Licensee shall prepare, and submit to the Board and Fisheries and Oceans Canada for approval, no later than March 28, 2008, terms of reference for a bio-physical assessment of the environment receiving the sewage effluent discharges, namely Sewage Lake and the lake and wetlands downstream from the trucked sewage retention lagoon..."

Part B: General Conditions, Item 11,
"The Licensee shall submit to the Board for approval, no later than October 30, 2009, a detailed plan outlining what steps will be taken to improve sewage treatment efficiency (trucked sewage system). The plan shall include, but not be limited to, measures to reduce Ammonia Nitrogen in the waste water effluent stream to meet the applicable water quality guideline (CCME - Canadian Water Quality Guideline for the Protection of Aquatic Life)..."

Part I: Conditions Applying to Operation an Maintenance, Item 1,
"The Licensee shall, within six(6) months of the issuance of this Licence, submit to the Board, with a copy to the Inspector, for approval, a revised plan for the Operation and Maintenance of the Sewage and Solid Waste Disposal Facilities…"

Inspector's Signature: _____

WATER LICENCE INSPECTION REPORT Pg. 4

(Continued)

Date:	October 8, 2009	Licence #:	G03L3-001

Inspection Images:

Figure 1
Oil leakage in the generator room needs to be repaired and contained as it is leaking to the outside environment.

Figure 2
Severe erosion is occurring to the turn around pad for the Deep Water Lake Intake Facility and needs to be prevented.

Figure 3
One of a few cracks along the water intake line at the Deep Water Lake Intake Facility.

Figure 4
Water present in fuel storage tank berm just outside the Water Treatment Plant.

Figure 5
Potential source of leakage and evidence of contamination at the fuel storage tank at Deep Water Lake Intake Facility.

Figure 6
Oil containers and oil stained soil outside of Solid Waste Disposal Facility hazardous wastes/waste oil storage area.