

Attawapiskat First Nation (Band No. 143)

Date of Visit: February 27, 2001

By John McGhee (OCWA)

Site Address: P.O. Box 245

Attawapiskat, ON P0L 1A0

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Tribal Council Affiliation: Mushkegowuk Tribal Council

Operators: Joe Koostachin, Brian Okimaw and Morris Hookimaw

Location: The Attawapiskat First Nation community is located approximately 350 km northwest of Moosonee and is accessible by air

Population: 1,494 people in the community (November 2000 - INAC)

No. of Units: 252 housing units (CAIS)

1.0 Description of the Community Water Supply

Based on the CAIS report, water to the houses in the Attawapiskat community is treated as follows:

- 1494 people use piped water
- 252 houses are serviced by a communal water system.

2.0 Description of the Community Sewage Facilities

Based on the CAIS report, sewage from the houses in the Attawapiskat community is treated as follows:

- 1494 people use piped sewage
- 252 houses are serviced by a communal sewage system.

3.0 Overall Assessment for Communal Water Treatment Supply

The questionnaire developed by PWGSC required OCWA to undertake a risk assessment of the Water Source, Design, Operation, Reporting, and Operators. To properly assess these areas, a revisit to the water treatment facilities would be required.

OCWA was requested to undertake the evaluation without a visit to the site. With the available information, OCWA has undertaken the requested assessment of the facilities.

The ranking system used is as follows:

- 0 = Not enough information to assess
- 1-4 = Low Risk
- 5-7 = Medium Risk
- 8-10 = High Risk

For more detailed information on the Risk Assessment used see the Terms of Reference, Appendix B.

SECTION Water	SECTION RANKING Water	RISK Water
A. Water Source		
Biological	0	
Chemical	0	
Physical	0	
Overall Ranking for Water Source	0	No lab data available
B. Design		
Biological	7	13 exceedances out of 253 available samples
Chemical	10	THMs exceedance
Physical	6	Color, hardness, total dissolved carbon exceedance
Risk to Public Health	10	THMs, boil water advisory
Condition of Laboratory Equipment	0	Not inspected
Overall Ranking for Design	8	
C. Operations		
Reservoir Cleanliness	0	Not inspected
Emergency Plan	10	No plan
Overall Ranking for Operations	9	No chlorine residual analyzer, no turbidity analyzer, service disruptions – cannot meet demand
D. Reporting		
Ranking for Laboratories and Testing	3	Monthly by Health Canada
Ranking for Boil Water Advisories	10	Boil water advisory since last summer

SECTION Water	SECTION RANKING Water	RISK Water
Overall Ranking for Reporting	7	
E. Operators		
Overall Ranking for Operators	4	Trained
F. Statistical Data		
Overall Ranking for Individual Wells	0	
Overall Ranking for the System	8	High Risk

4.0 Overall Assessment for Communal Sewage Treatment Facilities

The questionnaire developed by PWGSC required OCWA to undertake a risk assessment of the Effluent Receiver, Design, Operation, Reporting, and Operators. To properly assess these areas, a revisit to the sewage treatment facility would be required.

OCWA was requested to undertake the evaluation without a visit to the site. With the available information, OCWA has undertaken the requested assessment of the facilities.

The ranking system used is as follows:

- 0 = Not enough information to assess
- 1-4 = Low Risk
- 5-7 = Medium Risk
- 8-10 = High Risk

For more detailed information on the Risk Assessment used see the Terms of Reference, Appendix B.

SECTION Sewage	SECTION RANKING Sewage	RISK Sewage
A. Effluent Receiver		
Overall Ranking for Effluent Receiver	0	No data available
B. Design		
Quality of Treated Effluent	0	
Ranking of Design of Sewage Plant	0	
Ranking of Concerns and Hazards within the Plant	0	
Condition of Laboratory Equipment	0	
Overall Ranking for Design	0	No data available
C. Operations		
Ranking for Emergency Plan	0	
Overall Ranking for Operations	0	No data available
D. Reporting		
Overall Ranking for Reporting	1	
E. Operators		
Overall Ranking for Operators	4	Trained
F. Statistical Data		
Overall Ranking for Individual Septic Tanks	0	
Overall Ranking for the Systems	4	Low Risk

5.0 Communal Water Supply (252 houses)

5.1 Water Source

The operator did not know the name of the small lake that supplies the community water.

5.2 Design

The Attawapiskat community is serviced by a water supply system that consists of a lake intake to a lift station consisting of three 10 hp Flygt pumps, which pump the raw water 1.5 km to the water treatment plant that is located in the town. The treatment plant consists of an old Ecodyne unit complete with alum, soda ash and polymer as chemicals used for solids and colour removal. An activated carbon filter unit follows the Ecodyne unit before it flows into two on-site 170 m³ steel reservoirs. From the reservoirs, three high lift pumps pump the water into the water distribution system.

The following table summarizes the treated water data available from Health Canada, which does not meet GCDWQ:

Date	Location	Exceedances	Result	GCDWQ limit
Jun. 8, 2000	Treated Surface Water	Colour	26 TCU	15 TCU (AO)
		Dissolved Organic Carbon	12.7 mg/L	5 mg/L (AO)
		Hardness	148 mg/L	80 to 100 mg/L (AO)
		THM	0.235 mg/L	0.1 mg/L (HL)

AO = aesthetic objective, HL = health limit, OG = operational guideline

Due to the boil water advisory, the Attawapiskat community uses two Culligan units in the plant to produce drinking water for the community. Community members must come to the plant and fill their water bottles with this water.

The plant has a diesel operated pump for fire protection, but no backup power for the water treatment plant. The water treatment plant has no safety equipment. The facility is also cluttered and needs improved housekeeping.

A new water plant is being constructed and, at the time of the OCWA visit, was expected to be on-line in the 2001 summer.

Public Works is responsible for the annual hydrant-flushing program as well as the fire hydrant maintenance program and the annual main valve operating and maintenance program.

5.3 Operations

Sodium hypochlorite (12%) is used for disinfection. The disinfection equipment is functional and there is a sufficient supply of disinfectant. There is no on-line chlorine residual analyzer but the chlorine residual is checked three times per day.

The plant has operation and maintenance manuals readily available but no as-built drawings on site. Emergency spare parts are not readily available and the response time of technicians and trades people is lengthy.

Service disruptions occur in this community every night from midnight to six or seven in the morning because the plant is unable to meet the demand. This disruption has caused freezing in the system

overnight. The production of water is severely limited by the filter plugging due to the poor quality of the raw water. The Ecodyne unit is also substantially overloaded hydraulically.

5.4 Reporting

The operator reports that Health Canada conducts bacteriological testing monthly and a chemical analysis once per year. Turbidity of the treated water is not recorded. The operators do not see any results unless they are out of compliance. Some records are kept at the plant on a daily basis including flow and chlorine residual.

A boil water advisory was issued on the communal system for this community last summer and is currently still in effect.

The following table summarizes the bacteriological data available from Health Canada:

Period	Frequency	Regularity	Exceedances
99/10/19 to 2001/09/30	4 to 25 times per month from different locations	<ul style="list-style-type: none"> ▪ 1 month missing in 1999 ▪ 5 months missing in 2000 	<ul style="list-style-type: none"> ▪ Total coliform exceedances were noted on 2000/06/08, 2000/06/20, 2000/07/17, 2000/08/22, 2000/08/28, 2000/09/11, 2000/01/18, 2001/07/10 and 2001/07/17.

5.5 Operators

Joe Koostachin, Brian Okimaw and Morris Hookimaw are the full-time operators for the water and sewage treatment plants. There has been some limited training of the operators however; they all require comprehensive training that includes lagoon and pumping station operation and maintenance.

There is a proposed one-year training program when the new water plant is operational.

6.0 Deficiencies in the Community Water Supply

1. Since last summer, there has been a boil water advisory on the water treatment plant. Community members come to the plant and fill up their water bottles for drinking water produced by two Culligan units.
2. The production of water is severely limited because of filter plugging caused by poor raw water quality. The Ecodyne unit is also hydraulically overloaded.
3. The plant has no safety equipment available for its operators and the facility is unclean and cluttered.
4. The chlorine equipment is working and a chlorine residual test is done three times per day. There is no on-line chlorine residual analyzer.
5. Turbidity monitoring equipment is not available.
6. The plant has operation and maintenance manuals available but no as-built drawings on site.
7. The plant does not have backup power but does have a diesel operated pump for fire protection.

8. Emergency spare parts are not readily available and the response time of technicians/trades people is lengthy.
9. Service disruptions occur every night from midnight to six or seven in the morning because the plant is not able to meet demand. These disruptions cause freezing in the system.
10. There is no written contingency plan available.
11. The operators are not certified and should have additional training.

7.0 Communal Sewage Facilities (252 houses)

7.1 Effluent Receiver

The lagoon is continuously discharging into the Albany River.

7.2 Design

The Attawapiskat communal sewage system consists of a collection system, with one pumping station with three Flygt pumps pumping sewage to a three-cell lagoon. The pumping station is equipped with a magnetic flow meter.

7.3 Operations

The sewage pumping station is checked on a daily basis to record flow meter readings, however, no maintenance is performed on the system. The pumping station has never been cleaned. Emergency repair parts are not readily available and there is no contact listing of technicians/trades people available.

7.4 Reporting

Health Canada conducts effluent tests on the lagoon discharge however, the operator was not sure of the frequency. The results are kept in the Band office.

No complaints of odour are recorded however; the operator reports that there is a considerable odour in the spring and summer. The system has had no sewage collection backups or basements flooded.

7.5 Operators

Joe Koostachin, Brian Okimaw and Morris Hookimaw are the full-time operators for the water and sewage treatment plants. There has been some limited training of the operators however; they all require comprehensive training that includes lagoon and pumping station operation and maintenance.

There is a proposed one-year training program when the new water plant is operational.

8.0 Deficiencies in the Community Sewage Facilities

1. The sewage pumping station is checked on a daily basis but no maintenance is performed. The pumping station has never been cleaned.
2. Emergency spare parts are not readily available and there is no contact listing of technicians/trades people available.
3. Health Canada conducts effluent tests but the operator does not know the frequency of the tests.
4. The operators report considerable odour from the lagoon system in the spring and summer but no odour complaints have been recorded.
5. Operators need training in lagoon and pumping station operation and maintenance.

9.0 Recommendations

- Address cause of boil water advisory.
- Hydraulically overloaded plant is being replaced with new facility.
- Purchase all safety equipment.
- Install on-line chlorine residual analyzer as part of new water treatment construction.
- Implement a house cleaning and general maintenance program.
- Train operators on using turbidity test equipment and begin testing turbidity.
- Consider purchasing a standby diesel generator for the new water treatment plant.
- Obtain as-built drawings and operations and maintenance manuals for all water and sewage systems.
- Implement a training program that can lead to certification of the operator.
- Establish a protocol for taking water samples at the water treatment plant, including raw water samples.
- Develop a contingency plan for the community water and sewage systems.
- Implement a sewage pumping station maintenance program.
- Consider spare pumps for emergencies on site.
- Consider installing backup power for pumping stations.

10.0 Plant Classification

Based upon the Terms of Reference – Appendix I – Plant Classification Guideline developed by Public Works and Government Services Canada and with discussions with the Ontario Ministry of the Environment Classification Group, OCWA classified these plants as follows:

Water Treatment Facility - Class III

Sewage Treatment Facility - Class I

11.0 Overall Community Risk Assessment

Water Category – High Risk

- **High Risk because of the following:**
 - Boil water advisory and service disruptions;
 - Plugging of filters and limited capacity of plant; and

Note: Construction of new water plant should reduce risk.

Sewage Category – Low Risk

Note: Information within this report is based on discussions with the plant operators and a quick visual walkthrough of the facilities. No detailed review was undertaken by OCWA.