

Weenusk First Nation (Band No. 146)

Date of Visit: February 27, 2001

By John McGhee (OCWA)

Site Address: Peawanuck, ON P0L 2H0

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Tribal Council Affiliation: Toronto Services Centre – Unaffiliated First Nations (South)

Operators: Xavier Hunter and Louis Chookomolin

Location: The Weenusk First Nation community is located approximately 560 km northwest of Moosonee and is accessible by air

Population: 226 people in the community (October 2000 - INAC)

No. of Units: 66 housing units (CAIS)

1.0 Description of the Community Water Supply

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

- 223 people use piped water
- 3 people have no services

- 65 houses are serviced by a communal water system; and
- 1 house has no service.

2.0 Description of the Community Sewage Facilities

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

- 223 people use piped sewage
- 3 people have no services

- 65 houses are serviced by a communal sewage treatment system; and
- 1 house has no service.

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	No lab data available
Chemical	8	Phenol, sodium exceedance
Physical	6	Hardness exceedance
Overall Ranking for Water Source	7	
B. Design		
Biological	1	No exceedances
Chemical	6	Aluminum and sodium exceedances
Physical	6	Hardness exceedance
Risk to Public Health	1	No boil water advisory
Condition of Laboratory Equipment	0	Not inspected
Overall Ranking for Design	4	
C. Operations		
Reservoir Cleanliness	0	No inspected
Emergency Plan	0	Unknown
Overall Ranking for Operations	9	No turbidity monitoring, not enough disinfectant
D. Reporting		
Ranking for Laboratories and Testing	1	6 times per month by Health Canada
Ranking for Boil Water Advisories	1	No boil water advisory
Overall Ranking for Reporting	1	

SECTION Water	SECTION RANKING Water	RISK Water
E. Operators		
Overall Ranking for Operators	2	1 operator has certification, 1 operator has training
F. Statistical Data		
Overall Ranking for Individual Wells	0	
Overall Ranking for the System	5	Medium 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	
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	
C. Operations		
Ranking for Emergency Plan	0	
Overall Ranking for Operations	7	Berm has erosion problem
D. Reporting		
Overall Ranking for Reporting	4	
E. Operators		
Overall Ranking for Operators	2	1 operator has certification, 1 operator has training
F. Statistical Data		
Overall Ranking for Individual Septic Tanks	0	
Overall Ranking for the Systems	4	Low Risk

5.0 Communal Water Supply (65 houses)

5.1 Water Source

The water source for the Weenusk community is from two wells.

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

Date	Location	Exceedances	Result	GCDWQ Limit
May 31, 2001	Untreated Well Water Supply	Hardness	282 mg/L	80 to 100 mg/L (OG)
		Phenol	0.005 mg/L	0.005 mg/L (HL)
		Sodium	37.7 mg/L	20 mg/L (AO)

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

5.2 Design

The water system is a Class I system drawing raw groundwater from two wells that pump to a 113 m³ reservoir. Three high lift pumps supply the distribution system. The design capacity of the plant is not available. The plant was constructed in 1987.

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

Date	Location	Exceedances	Result	GCDWQ Limit
May 10, 2000	Well Water Supply	Hardness	375 mg/L	80 to 100 mg/L (AO)
		Aluminum	0.13 mg/L	1.0 mg/L (OG)
		Sodium	45.5 mg/L	20 mg/L (AO)

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

The plant has a diesel-operated generator to supply backup power and it is tested once per month. There is adequate safety equipment on site however, the oxygen meter has not been used in five years and there is no safety equipment for chlorine handling. The plant has a designated office/filing and workshop area but no designated laboratory area.

There is a hydrant-flushing program in place twice per year and hydrant maintenance is performed as well. There is an annual main valve operating/maintenance program in place.

5.3 Operations

Chlorination is used for disinfection. The disinfection equipment is functional, but there was insufficient disinfectant available on site. There is an on-line chlorine residual analyzer and the chlorine residual is checked once per day.

Operating and maintenance manuals, as well as the as-built drawings, are readily available on site. There are no emergency repair parts readily available and the operator performs any maintenance that is required.

There are no re-occurring operational problems. The plant is well maintained with good housekeeping and good record keeping of daily testing and equipment recording.

5.4 Reporting

Gilles St. Pierre of Health Canada conducts bacteriological tests six times per month. The results are recorded and kept at the water plant and clinic.

There has not been any disease or health related outbreaks in the last two years. There has not been any boil water advisories issued.

The turbidity of the treated water is not recorded.

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

Period	Frequency	Regularity	Exceedances
99/10/15 to 2001/10/04	4 to 16 times per month from different locations	<ul style="list-style-type: none">▪ 1 month missing in 1999▪ 8 months missing in 2000▪ 7 months missing in 2001	<ul style="list-style-type: none">▪ No exceedances

5.5 Operators

Xavier Hunter and Louis Chookomolin are the operators of the water and sewage treatment plant. The operators have received training to operate and maintain the facility.

1 Further training on pump station operation is also required. **s.19(1)**

The operators should take refresher courses. There are two operators that can cover for each other for vacation and illness.

6.0 Deficiencies in the Community Water Supply

1. Diesel operated generator is on site and is tested regularly. There is no diesel operated pump for fire protection.
2. Chlorination equipment is functional but disinfectant supply is not sufficient.
3. No emergency spare parts are available and the operators perform all the maintenance on the system.
4. There is no written contingency plan.

7.0 Communal Sewage Treatment Facilities (65 houses)

7.1 Effluent Receiver

The effluent discharges to the Winisk River once per year in mid summer.

7.2 Design

The sewage system consists of a two-cell lagoon and one pump station. The pump station is cleaned twice per year using hydrant pressure. The pumps are routinely maintained. There has not been any raw sewage by passes from the pump station.

7.3 Operations

There is no excessive reed growth in the lagoons but one of the cells has an erosion problem.

7.4 Reporting

Health Canada conducts regular biochemical oxygen demand (BOD) and suspended solids (SS) tests before discharging of the lagoons. The results are not sent in but are reported verbally over the telephone.

There have not been any disease or health outbreaks or any improper discharges in the last two years.

There have not been any sewage collection backups or basement flooding.

7.5 Operators

Xavier Hunter and Louis Chookomolin are the operators of the water and sewage treatment plant. Xavier Hunter has a Class II certificate but it has not been renewed since 1991. The operators have received training to operate and maintain the facility.

Further training on pump station operation is also required.

The operators should take refresher courses. There are two operators that can cover for each other for vacation and illness.

8.0 Deficiencies in the Community Sewage Facilities

1. One lagoon cell has an erosion problem.
2. Health Canada conducts regular BOD and SS tests before discharging of the lagoon but results are reported verbally over the phone.
3. Operators could benefit from additional training.

9.0 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 I
Sewage Treatment Facility - Class I

10.0 Recommendations

- Purchase spare chlorine feed pump as backup.
- Ensure that a sufficient chlorine supply is available.
- Implement a training program that can lead to re-certification of one operator and certification of second operator.
- Establish and implement a protocol for taking water samples at the water treatment plant, including raw water samples.
- Supply operators with sewage effluent results.
- Consider backup power for the water treatment plant.
- Address berm erosion.

11.0 Overall Community Risk Assessment

- **Water Category – Medium Risk**
 - **Aluminum and phenol exceedance**
- **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.