

## **Webequie First Nation (Band No. 240)**

**Date of Visit:** March 1, 2001

By Roger Beauvais (OCWA)

**Site Address:** P.O. Box 176

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**Tribal Council Affiliation:** Matawa First Nations Management Inc.

**Operators:** George Jacob, Wesley Wabasse, and David Jacob

**Location:** The Webequie First Nation community is located 320 km north of Nakina

**Population:** 621 people in the community (November 2000 – INAC)

**No. of Units:** 145 houses in the community (CAIS)

### **1.0 Description of the Community Water Supply**

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

- 544 people use piped water
- 77 have no services
  
- 127 houses are serviced by a communal water system; and
- 18 houses have no services.

### **2.0 Description of the Community Sewage Facilities**

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

- 544 people use piped sewage
- 77 have no services
  
- 127 houses are serviced by a communal sewage system; and
- 18 houses have no services.

### 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
<b>A. Water Source</b>		
Biological	0	No lab
Chemical	1	No exceedances
Physical	6	High color, total organic carbon, and particles
Overall Ranking for Water Source	5	
<b>B. Design</b>		
Biological	0	Not tested
Chemical	8	Possibly high THMs, aluminum
Physical	6	Colour, total organic carbon
Risk to Public Health	9	THMs, boil water advisory
Condition of Laboratory Equipment	0	Not inspected
Overall Ranking for Design	8	
<b>C. Operations</b>		
Reservoir Cleanliness	0	Not inspected
Emergency Plan	0	Unknown
Overall Ranking for Operations	10	No turbidity monitoring, cannot back flush raw intake line
<b>D. Reporting</b>		
Ranking for Laboratories and Testing	3	Monthly by operator and CHR
Ranking for Boil Water Advisories	10	Boil water advisory – chlorination not working
Overall Ranking for Reporting	8	

<b>SECTION Water</b>	<b>SECTION RANKING Water</b>	<b>RISK Water</b>
<b>E. Operators</b>		
Overall Ranking for Operators	2	Trained and confident
<b>F. Statistical Data</b>		
Overall Ranking for Individual Wells	0	No data
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
<b>A. Effluent Receiver</b>		
Overall Ranking for Effluent Receiver	7	Based on one sample result
<b>B. Design</b>		
Quality of Treated Effluent	0	
Ranking of Design of Sewage Plant	0	
Ranking of Concerns and Hazards within the Plant	8	Inadequate ventilation, mould growth, inadequate safety, no backup power, no lab or office
Condition of Laboratory Equipment	0	
Overall Ranking for Design	8	
<b>C. Operations</b>		
Ranking for Emergency Plan	0	
Overall Ranking for Operations	8	No spare parts, no as-built drawings, frequent bypassing
<b>D. Reporting</b>		
Overall Ranking for Reporting	6	Record keeping is poor
<b>E. Operators</b>		
Overall Ranking for Operators	4	Some training and confidence
<b>F. Statistical Data</b>		
Overall Ranking for Individual Septic Tanks	0	
Overall Ranking for the Systems	8	High Risk

## 5.0 Communal Water Treatment Supply (127 houses)

### 5.1 Water Source

Intake piping from the Winisk River is gravity fed to a wet well.

One raw water sample was available from Health Canada in Sioux Lookout. The analyses that do meet GCDWQ are below:

Date	Exceedances	Result	GCDWQ limit
Feb. 14, 2001	Color	26 TCU	15 TCU (AO)
	Appearance	Clear, pale yellow with large amount of fibrous particulate	-
	Total Organic Carbon	16.2 mg/L	5.0 mg/L (AO)
	Hardness	69 mg/L	80 to 100 mg/L (OG)

AO = aesthetic objective, OG = operational guideline

### 5.2 Design

The Webequie community is serviced by a 50 USGPM water treatment plant constructed in 1991. The treatment process includes coagulation, flocculation, sedimentation and conventional filtration with chlorination. Treated water is stored in an on-site 400 m<sup>3</sup> water reservoir and a water distribution system.

Two treated water samples were available from Health Canada in Sioux Lookout. The analyses that do not meet GCDWQ are summarized below.

Sample Date	Sample Received	Exceedances	Result	GCDWQ limit	Notes
Aug. 1, 2000	Aug. 3, 2000	Colour	16 TCU	15 TCU (AO)	THMs was reported as 307 mg/L but an erroneous input is suspected
		Total Organic Carbon	9.4 mg/L	5.0 mg/L (AO)	
		THM	307 mg/L	0.10 mg/L	
		Aluminium	0.14 mg/L	0.10 mg/L (OG)	
		Hardness	70 mg/L	80 to 100 mg/L (OG)	
Feb. 14, 2001	Feb. 16, 2001	Colour	46 TCU	15 TCU (AO)	
		Total Organic Carbon	10.8 mg/L	5.0 mg/L (AO)	
		Hardness	70 mg/L	80 to 100 mg/L (OG)	

AO = aesthetic objective, OG = operational guideline

There is plenty of ventilation for the plant. The system has a diesel-operated generator for power failures that is tested on a weekly basis and a pump is available for fire protection. There is no safety equipment on site. There is no office, laboratory or maintenance workshop available for performing routine maintenance.

### 5.3 Operations

The disinfection equipment is functional and hypochlorite is the disinfectant used. The hypochlorite has been on site for three months and there is a sufficient supply. The residuals on the system are checked daily and an online chlorine residual analyzer is available and being used. A colilert unit is available and also being used by the operator.

Bacteriological sampling on the system is done by Health Canada and they transport the samples off site. Operating manuals are available, but there are no as-built drawings on site. There have been no service disruptions in the past two years. An annual hydrant flushing and maintenance program is in place. There are no emergency spare parts available and a trained technician takes up to a week to get on site. There is a reoccurring problem where the operator cannot back flush the raw water intake line.

### 5.4 Reporting

Daily chlorine residual tests are being performed at the water treatment plant. The operator and Health Canada take bacteriological tests on a monthly basis. The results of these tests are kept at the plant. There have been no health related outbreaks in the past two years, but Health Canada issued a boil water advisory during this time due to the chlorinator not working. The turbidity of the treated water is not being monitored because the on-line meter is not operating. Chemical analyses of the treated water are conducted annually by Health Canada.

The following colilert data is available from Health Canada:

Date	Results
No Date Specified	12 satisfactory samples with a chlorine residual greater than 0.6 mg/L

### 5.5 Operators

There are three operators for both the water treatment plant and the sewage RBC system. George Jacob, Wesley Wabasse and David Jacob all have received some training and are familiar with calibrating and maintaining equipment. George and David are certified

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## 6.0 Deficiencies in the Communal Water Supply

1. There is no safety equipment on site.
2. There is no office, laboratory or maintenance workshop available for doing routine maintenance.
3. The operating manuals are available, but there are no as-built drawings on site.
4. There are no emergency spare parts available, and a trained technician takes up to a week to get on site.
5. There is a re-occurring problem where the operator cannot back flush the raw water intake line.
6. High colour and possibly high THMs in treated water.

## 7.0 Communal Sewage Treatment Facilities (127 houses)

### 7.1 Effluent Receiver

The effluent receiver is the Winisk River Tributary.

### 7.2 Design

The Webequie community is serviced by a collection system constructed in 1991 with two lift stations, an RBC sewage treatment facility with chlorination and discharge piping. It has been suggested by the Band that the RBC is undersized and requires an expansion.

The system has adequate ventilation. There is no backup power on the system in case of power failure. This causes sewage overflows because the water treatment plant continues to pump water when the power goes off because it has an emergency generator. The sewage facility has no safety equipment available. Excessive mould growth in the plant is a health and safety concern in the plant. Installation of proper weather stripping on the exterior doors is required. The maintenance area is not large enough, and there are no spaces available for laboratory testing, tool storage or office work.

The following table summarizes the treated effluent data available from Health Canada, which does not meet federal effluent guidelines:

Date	Location	Exceedances	Result	Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments
Aug 2, 2000	Treated Effluent	BOD	32 mg/L	20 mg/L
		Total Suspended Solids	50 mg/L	25 mg/L
		E. Coli	2800 CFU/100 mL	400 CFU/100 mL
		Chlorine Residual	Trace	0.5 mg/L to 1 mg/L

### 7.3 Operations

The method of disinfection on the system is sodium hypochlorite, and a supply was delivered to the site three months prior to the OCWA visit. Operating manuals are available for the equipment and the system, but as-built drawings are not on site.

There is a reoccurring problem with bypassing of sewage during a power failure at the final lift station before the RBC. This problem has lasted up to several days. In such an event, a 500-gallon tank on the back of a truck is used to try to haul the overflowing sewage effluent from the lift station. However, the truck is too small and the distance to disposal is long.

The sewage pumping stations are routinely maintained, but no spare parts are available on site. If technical help is needed, a list of technicians is available, but it takes up to one week to get someone to this location.

#### 7.4 Reporting

The operator reports that he conducts daily effluent tests on the RBC system, but only on effluent. The sample results are recorded, but it is not clear where they are kept. There are reports of three improper discharges in the past two years due to pumps plugging. Neither sewage collection backups nor basement floodings have been reported in this community.

Effluent testing equipment at this facility includes suspended solids test equipment, HACH manual, pH test kit and a HACH manual chlorine test kit.

#### 7.5 Operators

There are three operators for both the water treatment plant and the sewage RBC system. George Jacob, Wesley Wabasse and David Jacob all have received some training and are familiar with calibrating and maintaining equipment. George and David are certified   **s.19(1)**

### **8.0 Deficiencies in the Communal Sewage Facilities**

1. One effluent sample results exceeds federal guidelines for BOD, TSS and E.Coli.
2. There is no backup power on the system in case of power failure, and there is no safety equipment available.
3. The maintenance area is not large enough, and there are no spaces available for laboratory testing, tool storage or office work.
4. There is excessive mould growth in the facility due to improper door sealing.
5. Operations and maintenance manuals are available for the equipment and the system, but there are no as-built drawings on site.
6. There is a re-occurring problem with three bypasses in the last two years due to power failures.
7. No spare parts are available on site and if technical help is needed, a list of technicians is available but it takes up to one week to get someone to this location.
8. The amount of sludge and scum in the plant right now is preventing treatment optimization.
9. Record keeping needs improvement.

### **9.0 Recommendations**

- Investigate high color and THMs in treated water.
- Investigate boil water advisories to ensure the source of contamination is being addressed adequately.
- Implement a training program that can lead to certification of the operator.
- Implement a regular water-sampling program.
- Develop a contingency plan in case of emergencies for the complete water supply system.
- Provide emergency backup for both plants.
- Resolve raw sewage bypass problem.
- Purchase necessary safety equipment.
- Investigate raw water intake line back flush issue.

- Purchase spare parts.
- Investigate causes for improper discharges.
- Replace turbidity meter.
- Consider construction of maintenance, laboratory, and office work areas.
- Install weather stripping on doors to prevent condensation and mould growth.
- Improve record keeping in sewage plant.
- Monitor quality of treated effluent.

## 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 II  
Sewage Treatment Facility - Class II

## 11.0 Overall Community Risk Assessment

### **Water Category – High Risk**

- **High Risk because of the following:**
  - Address cause of boil water advisory; and
  - Turbidity not monitored.
  - High color and possibly THMs.

### **Sewage Category – High Risk**

- **High Risk because of the following:**
  - Sewage bypasses during power failures.

**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.**