

## Mississauga First Nation (Band No. 200)

**Date of Visit:** March 5, 2001

By John McGhee (OCWA)

**Site Address:** P.O. Box 1200

Blind River, ON P0R 1B0

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**Tribal Council Affiliation:** North Shore Tribal Council

**Operators:** Frank Gionette, Gary Boyer, Glen Morningstar

**Location:** The Mississauga First Nation community is located north of Blind River, approximately 105 km southeast of Sault Ste. Marie on Hwy. 17

**Population:** 458 people in the community (November 2000 - INAC)

**No. of Units:** 122 housing units (CAIS).

### 1.0 Description of the Community Water Supply

Based on information supplied to OCWA, water to the houses in the Mississauga community is treated as follows:

- 409 people are serviced by a communal well system; and
- 49 people are serviced by other systems.
  
- 109 houses are serviced by a communal well system; and
- 13 houses are serviced by other systems.

### 2.0 Description of the Community Sewage Facilities

Based on information supplied to OCWA, sewage from the houses in the Mississauga community is treated as follows:

- 458 people are serviced by individual septic tanks.
  
- 122 houses are serviced by individual septic tanks.

### 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.

<b>SECTION Water</b>	<b>SECTION RANKING Water</b>	<b>RISK Water</b>
<b>A. Water Source</b>		
Biological	0	
Chemical	0	
Physical	0	
Overall Ranking for Water Source	0	No lab data
<b>B. Design</b>		
Biological	1	0 exceedances in 96 samples
Chemical	6	
Physical	6	Hardness, sodium, and phenol exceedances noted
Risk to Public Health	4	
Condition of Laboratory Equipment	0	
Overall Ranking for Design	5	
<b>C. Operations</b>		
Reservoir Cleanliness	0	
Emergency Plan	0	
Overall Ranking for Operations	7	Chlorine residual analyzer not calibrated correctly, chemical feed pump. Problems, ineffective manganese removal. No as-built drawings.
<b>D. Reporting</b>		
Ranking for Laboratories and Testing	1	Health Canada tests monthly
Ranking for Boil Water Advisories	1	No boil water advisories

<b>SECTION Water</b>	<b>SECTION RANKING Water</b>	<b>RISK Water</b>
Overall Ranking for Reporting	1	Meeting GCDWQ
<b>E. Operators</b>		
Overall Ranking for Operators	7	No certification or training
<b>F. Statistical Data</b>		
Overall Ranking for Individual Wells	10	21 exceedances out of 47 samples (44.7%)
Overall Ranking for the System	5	Medium Risk

## 4.0 Communal Water Treatment Supply (109 houses)

### 4.1 Water Source

The raw water is drawn from two wells with deep well pumps.

### 4.2 Design

The community is serviced with a water treatment plant constructed in 1998. The raw water is drawn from two wells with deep well pumps. The treatment plant consists of two small green sand filters, a 500 m<sup>3</sup> reservoir at the plant and pressure tanks to maintain pressure in the water distribution system. Chlorine and potassium permanganate are used to reduce the iron and manganese levels in the raw groundwater. There is also a full SCADA system at this treatment plant.

The following table summarizes the exceedances for all chemical data available from Health Canada:

Date	Exceedance	Result	GCDWQ Limit
Jan. 20, 1999	Sodium	27.8 mg/L*	200 mg/L*(AO)
	Hardness	187 mg/L	80 – 100 mg/L (OG)
	Phenol	0.002 mg/L	0.001 mg/L
Aug. 8, 2000	Sodium	31.5 mg/L*	200 mg/L*(AO)
	Hardness	187 mg/L	80 – 100 mg/L (OG)
Sept. 26, 2001	Sodium	29.7 mg/L*	200 mg/L*(AO)
	Hardness	175 mg/L	80 – 100 mg/L (OG)

OG – operational guideline

\*Health officer should be noted when the sodium content is above 20 mg/L for people on sodium restricted diets.

The operators report that manganese results show that manganese removal is limited. Further training or the greensand filter operation may be required.

### 4.3 Operations

Sodium hypochlorite (12%) is used for disinfection. The disinfection equipment is functional and the disinfectant is ordered every two months. There is an on-line chlorine residual analyzer and the operators check the chlorine residual three times daily.

There is a backup power generator for the water treatment plant and it is tested on a weekly basis. The plant has adequate safety equipment on site.

Operating and maintenance manuals for the water treatment plant are available on site, but as-built drawings are not available. Emergency spare parts are readily available. There is a contact listing of technicians/trades people available and their response time for such personnel is 'immediate'.

There is a regular hydrant flushing and maintenance program undertaken every two weeks and there is also a main valve operating and maintenance program in place.

Some re-occurring operational problems include problems with the chemical feed pumps and the chlorine residual analyzer.

Although housekeeping of the treatment plant was acceptable, additional housekeeping should be practiced.

#### 4.4 Reporting

Health Canada conducts bacteriological testing on the communal water system every month. The plant is equipped with a colilert unit that is used for bacteriological sampling on demand. Results of bacteriological testing are kept in the Band Office and the water treatment plant.

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

Period	Frequency	Regularity	Exceedances
99/10/13 to 2001/10/15	1 – 5 times per month	▪ Months missing 2000: Mar., May.	▪ No exceedances noted

The turbidity of the treated water is recorded. A chemical analysis of the treated water is conducted once per year.

#### 4.5 Operators

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Frank Gionette is the operator of the treatment plant and Gary Boyer and Glen Morningstar are the backup operators.

The operator states that he is familiar with calibrating and maintaining the disinfection equipment

A comprehensive training program is suggested for the operators.

### 5.0 Deficiencies in the Communal Water Supply

1. Re-occurring operational problems include problems with the chemical feed pumps and chlorine residual analyzer.
2. Manganese removal is accomplished with chlorine and potassium permanganate but is minimal.
3. One exceedance of phenol is noted, out of three available sample result.
4. Operating and maintenance manuals for plant equipment are available but there are no as- built drawings available on site.
5. There is no written contingency plan available.
6. Additional housekeeping should be practiced.
7. The operators are not certified and report that they have had no training. The operators should get more training.

## 6.0 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 this plant as follows:

Water Treatment Facility- Class I

## 8.0 Recommendations

- Implement a training program that can lead to certification of the operators.
- Investigate problems with the chemical feed pumps and the chlorine residual analyzer.
- Investigate reasons why manganese removal is not effective.
- Establish and implement a protocol for taking water samples at the water treatment plants, including raw water samples.
- Implement a house cleaning and general maintenance program at the facilities.
- Develop of a comprehensive contingency plan to address operational problems.
- Obtain as-built drawings and operating and maintenance manuals.
- Implement a sewage septic tank inspection program to inspect all septic tanks in the community for proper operations and meeting the required standards.

## 9.0 Overall Community Risk Assessment

### **Water Category - Medium Risk**

- **Medium Risk because of the following:**
  - Operators need more training with this treatment facility;
  - Chemical feed pump problems; and
  - Manganese removal not effective.

**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.**