Chippewas of Georgina Island (Band No. 138)

Date of Visit: April 10, 2001
By George Culhane (OCWA)
Site Address: RP#2 P.O. Box A-3
Sutton West, ON L0E 1R0
Phone No.: 705-437-1337 **Fax No.:** 705-437-4597
Tribal Council Affiliation: Ogemawahj Tribal Council (OTC)
Operators: Wayne Hoeg, Terry Taylor
Location: The Chippewas of Georgina Island community is located on three islands in Lake Simcoe, approximately 30 km north of Newmarket
Population: 169 people in the community (November 2000 - INAC)
No. of Units: 92 housing units (CAIS).

1.0 Description of the Community Water Supply

Based on the CAIS report, water to the houses in the Chippewas of Georgina Island community is treated as follows:

- 162 people are serviced by piped water;
- 2 people are serviced by an individual well system; and
- 5 people are serviced by "other" systems.

- 88 houses are serviced by a communal water system;
- 1 house is serviced by an individual well system; and
- 3 houses have "other" systems.

2.0 Description of the Community Sewage Facilities

Based on information supplied to OCWA, sewage from the houses in the Chippewas of Georgina Island community is treated as follows:

- 169 people are serviced by septic tanks and a septage lagoon

- 92 houses are serviced by septic tanks and a septage lagoon.

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	8	High turbidity and aluminum, iron, sodium.
Physical	6	High colour
Overall Ranking for Water Source	8	
B. Design		
Biological	1	1 exceedance of total coliform noted
Chemical	8	Aluminum exceedance, continuously high turbidity results
Physical	1	
Risk to Public Health	1	
Condition of Laboratory Equipment	0	
Overall Ranking for Design	5	No backup power
C. Operations		
Reservoir Cleanliness	0	
Emergency Plan	0	
Overall Ranking for Operations	4	No emergency parts
D. Reporting		
Ranking for Laboratories and Testing	1	Samples taken once a week
Ranking for Boil Water Advisories	1	No boil water advisories issued

SECTION Water	SECTION RANKING Water	RISK Water
Overall Ranking for Reporting	1	Meeting GCDWQ
E. Operators		
Overall Ranking for Operators	2	Has received training and appear confident in abilities
F. Statistical Data		
Overall Ranking for Individual Wells	0	
Overall Ranking for the System	5	Medium Risk

4.0 Communal Water Supply (88 houses)

4.1 Water Source

The raw water source is from Lake Simcoe.

The following table summarizes all available raw water data from Health Canada that exceeds GCDWQ limits:

Data	Exceedances	Result	GCDWQ Limit
Jun. 2, 1999	Colour	32 TCU	15 TCU (AO)
	Turbidity	1.6 NTU	1 NTU
	Iron	0.54 mg/L	0.3 mg/L (AO)
	Aluminum	1.04 mg/L	0.1 mg/L (OG)
	Sodium	145 mg/L*	200 mg/L*

AO = aesthetic objective, OG = operational guideline
*The local Medical Officer of Health should be notified when the sodium exceeds 20 mg/L.

4.2 Design

The Chippewas of Georgian Island community is serviced by a water treatment plant constructed in 1993. The rated capacity of the system is 272 m^3/day (50 USGPM). The raw water is pumped in via two low lift pumps located in a 1.8 diameter wet-well through a 75mm diameter forcemain from the wet well to the water treatment plant.

The following table summarizes all available treated water exceedance data from Health Canada:

Date	Location	Exceedances	Result	GCDWQ Limit
Jun. 2, 1999	Water Plant	Aluminum	0.303 mg/L	0.1 mg/L (OG)

AO = aesthetic objective, OG = operational guideline

The water treatment plant consists of coagulation, flocculation and sedimentation, followed by two Culligan Multi-Tech MT-30 Duplex filtration units, operating as parallel trains. Each train is rated for 136 m^3/day (25 USGPM) meeting design capacity, and is comprised of a clarifying filter and one polishing filter. Filtered water from the Culligan's Multi-Tech trains is discharged to the treated water reservoir and pumped into the water distribution system. Backwash from filters is displaced to three holding tanks, which discharge to a ditch. The reservoir is located on site with a capacity of 454 m^3 (100,000 Igal).

4.3 Operations

A diesel operated pump is used for fire protection and the pump is tested on a regular basis, there is no diesel operated generator to supply back-up power for the plant.

There are operating and maintenance manuals for plant equipment, as-built drawings and a contact listing of technicians and trades people are readily available on site. Emergency spare parts are not readily available and the average response time of technicians is about a day.

There is adequate ventilation for the plant and chemical storage area. The laboratory and office/filing area within the plant is adequate. Appropriate tools and a workshop area are available to perform

maintenance. There is inadequate safety equipment on site, however, the operator has prepared a list of equipment to purchase.

Sodium hypochlorite (12%) is used for disinfection and the equipment is functioning properly with sufficient hypochlorite available. The facility has an on-line chlorine residual analyzer and turbidity meter. A Colilert unit and an incubator are used by the plant operators and there are sufficient test reagents with a current shelf life available.

There is an annual hydrant flushing and maintenance program but no main valve operating and maintenance program.

There has not been any service disruption (plant or distribution) in the last two years, or any re-occurring operational problems. Only one hydro failure was reported in the past two years.

4.4 Reporting

Bacteriological tests on the communal water system are performed twice a year by the plant operators. The results are recorded and kept in the Environmental Health Office.

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

Period	Frequency	Regularity	Exceedances
99/10/19 to 01/09/25	1 – 5 times per month	▪ Months missing 1999: none ▪ Months missing 2000: Feb., Mar., and Apr. ▪ Months missing 2001: none	▪ Exceedance of total coliform is noted on 01/02/07

In the last two years, there have not been any disease or other health related outbreaks. Health Canada has not issued any boil water advisories on the communal water system.

The turbidity of the treated water is recorded using an on-line turbidity meter. The turbidity readings are often too high; the turbidity meter should be checked or calibrated. A chemical analysis of the treated water is conducted once per year.

4.5 Operators

s.19(1)

The operators at the water treatment plant are Wayne Hoeg and Rod Charles. they have received training to operate and maintain the facility. Rod Charles is designated as an Operator-in-Training. Both operators were familiar with calibrating and maintaining the disinfection equipment

There is no backup operator available to cover for vacation or sickness.

5.0 Deficiencies in the Communal Water Supply

1. The water treatment plant does not have a backup power supply in case of power failure.

2. A hydrant flushing and maintenance program has been implemented but there is no valve operating and maintenance program on the water distribution system.

3. Turbidity readings that are recorded daily are often too high.

s.19(1) 4. The operators s.19(1) are trained to operate and maintain the facility.

5. One available sample result shows high aluminium residual in treated water.

6.0 Individual Septic Tanks with Lagoon

The septic tanks are regularly pumped out and trucked to a two-cell lagoon. The septage lagoon cell effluent is pumped from a pumping chamber to a raised leaching bed. There is an 8-year-old landfill site near the sewage treatment plant. There does not appear to have any problems with the site.

7.0 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 II

8.0 Recommendations

- Inspect/clean/change the filter units and media.
- Calibrate the turbidity meter to address high turbidity readings.
- Check the chlorine dosage rates.
- Address high aluminium residual in the distribution system.
- Purchase necessary safety equipment.
- Implement a training program that can lead to certification of the operator.
- Establish and implement a protocol for taking water samples at the water treatment plants, including raw water samples.
- Consider backup power for the water treatment plant.
- Develop a comprehensive contingency plan to address operational problems, breakdowns, vacations and sickness, main breaks and boil water advisories.
- 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:**
  - Continuously high turbidity results.

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.