Garden River First Nation (Band No. 199)

Date of Visit: March 5, 2001
By John McGhee (OCWA)
Site Address: R.R. #4, P.O. Box 7
Garden River, ON P6A 5K9
Phone No.: 705-946-6300 **Fax No.:** 705-945-1415
Tribal Council Affiliation: North Shore Tribal Council
Operators: Myles Thibault and Keith Boissontau (Trainee)
Location: The Garden River First Nation community is located approximately 30 km east of Sault Ste. Marie on Hwy. 17
Population: 907 people in the community (November 2000 - INAC)
No. of Units: 309 housing units (CAIS).

1.0 Description of Community Water Supply

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

- 889 people are serviced by a communal well system; and
- 18 people are not identified in CAIS.

- 303 houses are serviced by the communal well system and;
- 6 houses are not identified in CAIS.

2.0 Description of Community Sewage Facilities

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

- 907 people are serviced by individual septic tanks.

- 309 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.

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
B. Design		
Biological	7	10 total coliform exceedances out of 212 samples (5% of samples)
Chemical	8	Turbidity and lead exceedances noted
Physical	7	Sodium, hardness, iron, manganese, and phenols exceedances noted
Risk to Public Health	8	
Condition of Laboratory Equipment	0	
Overall Ranking for Design	9	High Risk
C. Operations		
Reservoir Cleanliness	0	
Emergency Plan	0	
Overall Ranking for Operations	6	No as-built drawings and service disruptions
D. Reporting		
Ranking for Laboratories and Testing	4	Regular bacteriological tests conducted
Ranking for Boil Water Advisories	8	1 boil water advisory issued due to coliform levels

SECTION Water	SECTION RANKING Water	RISK Water
Overall Ranking for Reporting	6	
E. Operators		
Overall Ranking for Operators	7	No certification or training but appears confident
F. Statistical Data		
Overall Ranking for Individual Wells	9	4 exceedances out of 17 samples (23.5%)
Overall Ranking for the System	7	Medium Risk

4.0 Communal Water Treatment Supply (303 houses)

4.1 Water Source

The water supply is from two wells.

4.2 Design

The community is serviced with a water treatment plant constructed in 1992. The treatment plant consists of a pump house; a 500 m^3 reservoir located under the floor of the plant and high lift pumps pumping water through pressure tanks to the distribution system. Well protection was completed in 1996. Sodium hypochlorite (12%) is used for disinfection.

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

Date	Location	Exceedance	Result	GCDWQ Limit
Mar. 1, 1999	Echo River	Phenols	0.005 mg/L	0.005 mg/L (Health Limit)
		Turbidity	1.8 NTU	1.0 NTU
	Main Village	Phenols	0.005 mg/L	0.005 mg/L (Health Limit)
Aug. 16, 2000	Echo River	Phenols	0.003 mg/L	0.001 mg/L (AO)
		Sodium	64.6 mg/L*	200 mg/L* (AO)
		Turbidity	1.4 NTU	1.0 NTU
		Hardness	58 mg/L	80 - 100 mg/L (OG)
Sept. 6, 2001	Echo River	Sodium	64.4 mg/L*	200 mg/L* (AO)
		Turbidity	3.9 NTU	1.0 NTU
		Iron	2.22 mg/L	0.3 mg/L (AO)
		Lead	0.0125 mg/L	0.01 mg/L
		Manganese	0.056 mg/L	0.05 mg/L (AO)
		Hardness	52 mg/L	80 - 100 mg/L (OG)
	Main Village	Sodium	33.1 mg/L*	200 mg/L* (AO)
		Hardness	70 mg/L	80 - 100 mg/L (OG)

AO – aesthetic objective; OG – operational guideline
*The local Medical Officer of Health should be notified when the sodium concentration exceeds.

4.3 Operations

The disinfection equipment is functional and the disinfectant is ordered regularly. There is no on-line chlorine residual analyzer but chlorine residual is recorded regularly.

The plant has a diesel operated pump for fire protection that is tested on a weekly basis. The plant does not have a backup power generator. Additional safety equipment is required.

Operating and maintenance manuals for the plant and plant equipment are available on site. As-built drawings are not available. Emergency spare parts are available on site. There is a contact listing of technicians/trades people available and the response time for such personnel is immediate.

The plant has adequate lab and office/filing areas but there is no workshop area and appropriate tools to perform maintenance. A contractor performs plant maintenance.

There is a hydrant flushing (twice per year) and maintenance program as well as a main valve operating and maintenance program.

In the last two years, service disruptions have been experienced due to power failures.

4.4 Reporting

Health Canada conducts bacteriological testing every two weeks. The results are kept in the Band Office, the water plant, and the health station.

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

Period	Frequency	Regularity	Total Coliform Exceedances
99/10/04 to 2001/10/29	1 – 5 times per month	▪ Months missing 1999: Dec. ▪ Months missing 2000: Feb., Nov. ▪ Months missing 2001: Feb., Apr., May, July.	▪ 2000/08/23 – residence ▪ 2000/08/28 – residence ▪ 2000/08/29 – residence ▪ 2001/08/29 – residence ▪ 2001/08/29 – pumphouse ▪ 2001/08/29 – residence ▪ 2001/08/29 – residence ▪ 2001/10/09 – residence ▪ 2001/10/09 – residence ▪ 2001/10/09 – residence

Last year, Health Canada issued one boil water advisory on the system in August. The boil water advisory lasted eight days and was a result of coliform levels in the water.

The turbidity of the treated water is not recorded. A chemical analysis of the treated water is conducted once per year and upon request.

4.5 Operators

Myles Thibault and Keith Boissontau operate the treatment plant. s.19(1)

Keith Boissontau is a trainee and backup operator.

5.0 Deficiencies in the Communal Water Supply

1. Safety equipment is available but insufficient. Equipment needed includes harness, tripod and oxygen meter.

2. The water treatment plant does not have a backup generator for the wells.

3. As-built drawings are not available on site.

4. There is no on line chlorine analyzer.

5. There is no written contingency plan available.

6. There was one boil water advisory issued on the communal water system in the last year that lasted eight days. Health Canada issued the advisory due to coliform levels.

7. Chemical analysis data shows exceedances in phenols, turbidity, and lead.

8. Service disruptions include power failures.

9. A spare chlorine pump needs to be purchased and kept on site.

10. The operators are not certified and have not had training. The regular operator has backup to fill in during vacations and sickness.

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

7.0 Recommendations

- Purchase spare chlorine feed pump as backup and harness, tripod and oxygen meter for operator safety.
- Investigate phenols, turbidity, and lead exceedances.
- 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 plant, including raw water samples.
- Consider backup power for the water treatment plant.
- Obtain as-built drawings.
- Purchase required tools.
- Consider installation of an on line chlorine residual analyzer.
- Develop a comprehensive contingency plan to address operational problems, breakdowns; watermain 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.

8.0 Overall Community Risk Assessment

Water Category – Medium Risk

- **Medium Risk because of the following:**
  - Boil Water Advisory due to coliform levels; and
  - Chemical exceedances.

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.