Temagami (Bear Island) First Nation (Band No. 222)

Date of Visit: February 19, 2001
By George Culhane
Site Address: Bear Island, ON P0H 1C0
Phone No.: 705-237-8943 **Fax No.:** 705-237-8959
Tribal Council Affiliation: Toronto Services Centre – Unaffiliated First Nations (South)
Operators: John Charyna and Rich MacInnis
Location: The Temagami First Nation community is located 70 km north of Sturgeon Falls
Population: 218 people in the community (November 2000 - INAC)
No. of Units: 89 housing units (CAIS)

1.0 Description of the Community Water Supply

Based on the CAIS report, and information supplied to OCWA, water to the houses in the Temagami community is treated as follows:

- 137 people use piped water
- 71 people have individual surface water systems
- 3 people have untreated surface water
- 7 people have no services

- 56 houses are serviced by a communal water system;
- 29 houses are serviced by individual surface water systems;
- 1 houses is serviced by untreated surface water; and
- 3 houses have no services.

2.0 Description of the Community Sewage Facilities

Based on the CAIS report, and information supplied to OCWA, sewage from the houses in the Temagami community is treated as follows:

- 137 people use piped sewage
- 81 people use individual septic tanks

- 56 houses are serviced by a communal sewage system; and
- 33 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	5	Sulphide exceedance
Physical	5	Low alkalinity and hardness
Overall Ranking for Water Source	5	
B. Design		
Biological	2	1 total coliform exceedances out of 124 samples (0.8%)
Chemical	1	No exceedances
Physical	5	Low alkalinity, hardness
Risk to Public Health	7	Boil water advisory but error in sampling suspected
Condition of Laboratory Equipment	0	Not inspected
Overall Ranking for Design	4	
C. Operations		
Reservoir Cleanliness	0	Not inspected
Emergency Plan	0	Unknown
Overall Ranking for Operations	6	No chlorine residual analyzer, re-occurring problem with raw water flow meter
D. Reporting		
Ranking for Laboratories and Testing	1	Monthly by EHO
Ranking for Boil Water Advisories	7	One Boil Water Advisory
Overall Ranking for Reporting	4	

SECTION Water	SECTION RANKING Water	RISK Water
E. Operators		
Overall Ranking for Operators	4	Two operators, with some training confidence
F. Statistical Data		
Overall Ranking for Individual Wells	0	
Overall Ranking for the System	4	Low 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	1	Wetland discharge
B. Design		
Quality of Treated Effluent	0	No data
Ranking of Design of Sewage Plant	1	No problems noted
Ranking of Concerns and Hazards within the Plant	1	No problems noted
Condition of Laboratory Equipment	0	Not inspected
Overall Ranking for Design	1	
C. Operations		
Ranking for Emergency Plan	0	
Overall Ranking for Operations	1	No bypassing
D. Reporting		
Overall Ranking for Reporting	1	Lagoon effluent sampling is conducted by Health Canada
E. Operators		
Overall Ranking for Operators	4	Tow operators with some training and confidence
F. Statistical Data		
Overall Ranking for Individual Septic Tanks	0	
Overall Ranking for the Systems	4	Low Risk

5.0 Communal Water Supply (56 houses)

5.1 Water Source

The system utilizes surface water source from Lake Temagami.

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

Date	Location	Exceedances	Result	GCDWQ Limit
Jan. 25, 2000	Raw Surface Water	Alkalinity	15 mg/L	30 to 500 mg/L (AO)
		Hardness	27 mg/L	80 to 100 mg/L (OG)
		Sulphide	0.06 mg/L	0.05 mg/L (AO)

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

5.2 Design

The Temagami community is serviced by a water treatment plant constructed in 1998. The treatment plant consists of a Zenon Micro Filtration System with membrane filters. The plant is as Class II system. The rated design capacity of the plant is 251 m^3/day, and the current usage demand is met. There is an onsite water reservoir at the plant, it consists of a two chambers clear well with a capacity of 160 m^3.

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

Date	Location	Exceedances	Result	GCDWQ Limit
May 27, 1999	Water Treatment Plant	Alkalinity	14 mg/L	30 to 500 mg/L (AO)
		Hardness	28 mg/L	80 to 100 mg/L (OG)

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

The plant has a diesel-operated backup power generator and pump for fire protection, and both are tested on a regular basis. There is adequate ventilation for the plant and chemical storage, and there is sufficient laboratory, office, and maintenance space. The plant has adequate safety equipment onsite with no other safety hazards or concerns observed.

There is an annual hydrant flushing and maintenance program, as well as a main valve operating/maintenance program.

5.3 Operations

The plant uses 12% sodium hypochlorite for chlorination. The disinfection equipment is functional and there is a sufficient supply of chlorine on site. There is no on-line chlorine residual analyzer but the chlorine residual is checked once per day. The chemicals are stored in accordance to MOE guidelines with sufficient test reagents available. The operator also uses the colilert unit and incubator.

The plant has operating and maintenance and as-built drawings on site. Emergency spare parts are available on site. There is a contact listing of technicians/trades people available and the response for such personnel is 24 hours.

In the last two years, service disruptions have been experienced due to lightning strikes. The raw water flow meter data line to the Allen Bradley PLC is not recording and is a re-occurring operational problem. Raw water flow readings are taken manually from the totalizer on the flow meter.

5.4 Reporting

Charles Loftus of the Health Canada conducts bacteriological testing on a monthly basis. The results are recorded and kept at the plant.

The turbidity of the treated water is tested on a daily basis and there have been no exceedances in turbidity readings. A chemical analysis of the treated water is conducted once per year.

There have been no disease or health related outbreak in the last two years. There was one boil water advisory issued but it is suspected that there were errors in the sampling technique.

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

Period	Frequency	Regularity	Exceedances
99/10/05 to 2001/10/16	3 to 27 times per month from different locations	▪ 1 month missing in 1999 ▪ 3 months missing in 2000 ▪ 2 months missing in 2001	▪ Total coliform exceedance in the treated water was noted on 2000/06/29

5.5 Operators

s.19(1)

John Charyna and Rick MacInnis are the operators of the water and sewage treatment plants. John Charyna is full-time operator, while Rick MacInnis is part-time. both have received ongoing training John is familiar with the calibration and maintenance of the disinfection equipment op es, A comprehensive training program is required for the operators.

6.0 Deficiencies in the Community Water Supply

1. There is no on-line chlorine residual analyzer, but the chlorine residual is tested daily.
2. Service disruptions have been experienced because of lightning strikes.
3. The operators are not certified but received on-going training from the Circuit Rider Program.

7.0 Communal Sewage Facilities (56 houses)

7.1 Effluent Receiver

The effluent is discharged to Lake Temagami via wetlands, once per year.

7.2 Design

The sewage system consists of a sewage collection system, one pumping station, and a two-cell lagoon.

The sewage system has a rated design capacity of 41,800 m^3 (91.25 m^3/d) for a population of 250 people.

7.3 Operations

There have not been any raw sewage bypasses from the pumping station.

7.4 Reporting

Health Canada conducts tests on the lagoon effluent discharge. Effluent results were not available from Health Canada. The system has no sewage collection backups or occurrences of basements flooding.

7.5 Operators

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John Charyna and Rick MacInnis are the operators of the water and sewage treatment plants. John Charyna is full-time operator, while Rick MacInnis is part-time. both have received ongoing training John is familiar with the calibration and maintenance of the disinfection equipment a A comprehensive training program is required for the operators.

8.0 Deficiencies in the Community Sewage Facilities

1. Operators are not certified but receive ongoing training through the Circuit Rider Training Program.

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 II
Sewage Treatment Facility - Class I

10.0 Recommendations

- Implement a training program that can lead to certification of the operators.
- Establish and implement a protocol for taking water samples at the water treatment plant.
- Consider installing an on-line chlorine residual analyzer.
- Develop a comprehensive contingency plan to address operational problems, breakdowns, vacations and illnesses, 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.

11.0 Overall Community Risk Assessment

Water Category – Low Risk
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.