Sagamok Anishnawbek First Nation (Band No. 179)

Date of Visit: March 7, 2001
by John McGhee (OCWA)
Site Address: P.O. Box 610
Massey, ON P0P 1P0
Phone No.: 705-368-2228 **Fax No.:** 705-368-3563
Tribal Council Affiliation: North Shore Tribal Council
Operator: Victor Francis
Location: The Sagamok Anishnawbek First Nation community is located southwest of Massey, approximately 75 km east of Blind River on Hwy. 17
Population: 1,225 people in the community (November 2000 - INAC)
No. of Units: 303 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 Sagamok Anishnawbek community is treated as follows:

- 1,148 people are serviced by a communal well system; and
- 77 people have no services or are not identified in CAIS.

- 284 houses are serviced by a communal well system; and
- 19 houses have no services or are not identified in CAIS.

2.0 Description of the Community Sewage Facilities

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

- 1225 people are serviced by individual septic tanks.

- 303 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	9	13 exceedances out of 288 samples (4.5%)
Chemical	9	Turbidity and phenol exceedances noted
Physical	8	Hardness exceedance
Risk to Public Health	5	
Condition of Laboratory Equipment	0	
Overall Ranking for Design	9	No pump for fire protection
C. Operations		
Reservoir Cleanliness	0	
Emergency Plan	0	
Overall Ranking for Operations	7	No operating and maintenance manuals or as-built drawings. There have been service disruptions.
D. Reporting		
Ranking for Laboratories and Testing	8	Tests conducted by Health Canada but infrequently
Ranking for Boil Water Advisories	7	1 Boil Water Advisory: general advisory

SECTION Water	SECTION RANKING Water	RISK Water
Overall Ranking for Reporting	9	
E. Operators		
Overall Ranking for Operators	7	No certification or training, but appear confident
F. Statistical Data		
Overall Ranking for Individual Wells	9	4 exceedances in 12 samples
Overall Ranking for the System	8	High Risk

4.0 Communal Water Treatment Supply (284 houses)

4.1 Water Source

The water source for this community is three wells.

4.2 Design

The community is serviced by a water supply system consisting of three wells, two pump houses, and an off-site elevated storage tank. The pump houses are located in two different sections of the community. One pump house and the elevated storage tank were constructed in 2000.

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

Date	Location	Exceedance	Result	GCDWQ Limit
Mar. 3, 1999	Beaudryville	Hardness	79 mg/L	80 – 100 mg/L (OG)
		Phenol	0.006 mg/L	0.005 mg/L
Mar. 3, 1999	Main Village System	Hardness	61 mg/L	80 – 100 mg/L
		Phenol	0.005 mg/L	0.001 mg/L (AO); 0.005 mg/L (MAC)
Mar. 3, 1999	Fort LaCloche	Hardness	51 mg/L	80 – 100 mg/L (OG)
		Phenol	0.005 mg/L	0.001 mg/L (AO); 0.005 mg/L (MAC)
Aug. 16, 2000	Fort LaCloche	Hardness	58 mg/L	80 – 100 mg/L (OG)
		Phenol	0.003 mg/L	0.001 mg/L (AO); 0.005 mg/L (MAC)
Aug. 16, 2000	Main Village System	Hardness	63 mg/L	80 – 100 mg/L (OG)
		Phenol	<0.002 mg/L	0.001 mg/L (AO); 0.005 mg/L (MAC)
		Turbidity	2.2 NTU	1.0 NTU
Sept. 26, 2001	Pumphouse	Hardness	61 mg/L	80 – 100 mg/L (OG)
		Turbidity	2.1 NTU	1.0 NTU

AO – aesthetic objective; OG – operational guideline; MAC – maximum acceptable concentration

There is a new backup power generator for fire protection on the water treatment plant. Safety equipment at the plant is inadequate – there is no eyewash station, no gloves for chlorine handling, and no confined space safety equipment. There are no laboratory and workshop areas for the treatment plant, but there is a designated office/filing area within the plant.

4.3 Operations

Sodium hypochlorite (5%) is used for disinfection. The disinfection equipment is functional, and the disinfectant is ordered every month. There is no on-line chlorine residual analyzer, but the chlorine residual is checked once per day.

There are no operating and maintenance manuals for plant equipment, and no as-built drawings on site. Emergency spare parts are readily available, and there is a contact list of technicians/trades people available. The response for such personnel is 'immediate'.

There is a hydrant-flushing program for the 97 hydrants, which is undertaken twice per year. There is no annual main valve operating and maintenance program.

In the last two years, service disruptions have been experienced due to power failures, watermain breaks, and well pump failures. Hydro fluctuations are the main re-occurring operational problem for this system.

4.4 Reporting

Health Canada usually conducts bacteriological tests, however the operators report that Health Canada is not presently conducting bacteriological tests. Health Canada has issued several boil water advisories and, currently, the new pump house system is still on a boil water advisory.

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

Period	Frequency	Regularity	Total Coliform Exceedances
99/10/06 to 01/10/17	1 – 5 times per month	▪ Months missing 2000: Nov. and Dec. ▪ Months missing 2001: Jan. - May	▪ 99/10/06 - Day Care Centre ▪ 99/12/15 - Residence ▪ 00/03/06 - Residence ▪ 00/03/22 - Residence ▪ 00/03/22 - Residence ▪ 00/03/22 - Residence ▪ 00/03/22 - Residence ▪ 00/03/22 - Residence ▪ 00/06/13 - Residence ▪ 00/06/13 - Residence ▪ 00/06/13 - Personal residence ▪ 00/07/18 - Restaurant ▪ 00/07/27 - Restaurant

The turbidity of the treated water is not recorded.

4.5 Operators

Victor Francis operates the water treatment plant. **s.19(1)**

A comprehensive training program is suggested for Victor, including basic water treatment and confined space entry.

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

5.0 Deficiencies of the Communal Water Supply

1. Safety equipment is inadequate. Eyewash, safety equipment for chlorine mixing, and confined space safety equipment are needed.

2. The water treatment plant has a new backup power supply. Hydro fluctuations and power failures are re-occurring operational problems.

3. Pump failures are a re-occurring operational problem.

4. There are no operating and maintenance manuals for plant equipment, and there are no as-built drawings on site.

5. There is no on-line chlorine residual analyzer, but chlorine residual is being tested once per day.

6. Hydrant flushing is performed twice per year on the 97 fire hydrants. There is no main valve operating and maintenance program on the water distribution system.

7. There is no written contingency plan available.

8. Currently, the new system is on a boil water advisory – there have been several boil water advisories in the past.

9. Phenol exceedances for the aesthetic objective and maximum allowable concentration have been recorded.

10. Health Canada is not currently conducting bacteriological tests.

11. Service disruptions include watermain breaks, power failures, and pump failures.

12. The operator is not certified and reports he has had no training – operator should get more training. The operator has no backup personnel to fill in during vacations and sickness.

6.0 Recommendations

- Investigate reasons for current boil water advisory and work on lifting it.
- Investigate phenol exceedances in treated water.
- Monitor previous boil water advisories to ensure the source of the contamination is being addressed adequately.
- Purchase an eyewash unit, chlorine handling and mixing, and confined space safety equipment for operator.
- Investigate reasons for the lack of bacteriological and chemical analyses by Health Canada.
- Investigate re-occurring pump failure problem.
- 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 installing an on-line chlorine residual analyzer. This could save operators time in sampling every day.
- Consider additional designated laboratory and workshop areas for operator and equipment.
- Develop a comprehensive operating and maintenance program on the water distribution system to address valve maintenance.
- Develop a comprehensive contingency plan to address operational problems, breakdowns, vacations and sickness, main breaks, and boil water advisories.
- 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.

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 I

8.0 Overall Community Risk Assessment

Water Category – High Risk

- **High Risk because of the following:**
  - New water system is currently on boil water advisory

Note: Information within this report is based on discussions with the plant operator and a quick visual walkthrough of the facilities. No detailed review was undertaken by OCWA.