

Lac La Croix First Nation (Band No. 127)

Date of Visit: March 15, 2001

By Keith Lusignan (OCWA) and P. Zachariasz (Technical Service Advisor)

Site Address: P.O.Box 640

Fort Frances, ON P9A 3M9

Phone No.: 807-485-2431

Fax No.: 807-485-2583

Tribal Council Affiliation: Pwi-di-goo-zing Ne-yaa-zhing Tribal Council

Operator: Laurence Ottetail

Location: The Lac La Croix First Nation community is located approximately 75 miles southeast of Fort Frances

Population: 264 people in the community (November 2000 - INAC)

No. of Units: 69 housing units (CAIS)

1.0 Description of the Community Water Supply

Based on the CAIS report, water to the houses in the Lac La Croix community is treated as follows:

- 241 people use piped water
- 23 people have other systems

- 63 houses are serviced by a communal water system; and
- 6 houses have other systems.

2.0 Description of the Community Sewage Facilities

Based on the CAIS report, sewage from the houses in the Lac La Croix community is treated as follows:

- 241 people use piped sewage
- 23 people have other systems

- 63 houses are serviced by a communal sewage system; and
- 6 houses have other systems.

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 data available
B. Design		
Biological	1	No exceedances
Chemical	10	Turbidity, chromium, THM exceedances
Physical	7	Low hardness, alkalinity, aluminum, colour and dissolved organic carbon exceedances
Risk to Public Health	10	
Condition of Laboratory Equipment	0	
Overall Ranking for Design	7	
C. Operations		
Reservoir Cleanliness	0	
Emergency Plan	0	
Overall Ranking for Operations	8	Power outages, one low lift pump is missing, chlorine residual analyzer needs repair.
D. Reporting		
Ranking for Laboratories and Testing	1	Regular bacteriological and chemical testing
Ranking for Boil Water Advisories	10	Boil water advisories reported

SECTION Water	SECTION RANKING Water	RISK Water
Overall Ranking for Reporting	6	
E. Operators		
Overall Ranking for Operators	4	Little training
F. Statistical Data		
Overall Ranking for Individual Wells	0	
Overall Ranking for the System	8	High 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	0	
B. Design		
Quality of Treated Effluent	0	No data available
Ranking of Design of Sewage Plant	0	
Ranking of Concerns and Hazards within the Plant	0	
Condition of Laboratory Equipment	0	
Overall Ranking for Design	0	
C. Operations		
Ranking for Emergency Plan	0	
Overall Ranking for Operations	4	No emergency spare parts, excessive need growth
D. Reporting		
Overall Ranking for Reporting	0	No effluent data available
E. Operators		
Overall Ranking for Operators	4	Little training
F. Statistical Data		
Overall Ranking for Individual Septic Tanks	0	
Overall Ranking for the Systems	4	Low Risk

5.0 Communal Water Treatment Plant (63 houses)

5.1 Water Source

Two low lift pumps draw water from an intake from Lac La Croix (Neguaguon Lake).

5.2 Design

The treatment plant consists of two slow sand filters and a chlorinator for disinfection with on-site water storage of 215 m³ and a distribution system. There is no diesel generator for back up power but a diesel pump is available for fire protection.

The rated design capacity of each sand filter is 56,850 L/day. Based upon 241 people using the communal water supply system would allow 471 L/capital/day. The community complains there have been water shortages. Plant has sufficient ventilation, office and laboratory areas, and space for filing and workshop. There is no washroom at the facility. Safety equipment is available. There are confined spaces on site and operator must ensure proper entry procedures are followed.

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

Date	Location	Exceedances	Result	GCDWQ Limit
June 22, 2000	Water Treatment Plant	Colour	17 TCU	15 TCU (AO)
		Hardness	20.5 mg/L	80 to 100 mg/L (OG)
		Alkalinity	19 mg/L	30 to 500 mg/L (AO)
		Turbidity	1.2 NTU	1 NTU (HL)
Aug. 29, 2001	Water Treatment Plant	Hardness	21 mg/L	80 to 100 mg/L (OG)
		Colour	17 TCU	15 TCU (AO)
		Chromium	0.0814 mg/L	0.05 mg/L (HL)
		Aluminum	0.17 mg/L	0.1 mg/L (OG)
		THM	0.23 mg/L	0.1 mg/L (HL)
	Dissolved Organic Carbon	8 mg/L	5 mg/L (AO)	

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

The plant has no diesel generator to provide back up power. Subsequently power failures have occurred resulting in disruption in service. There is a diesel-operated pump for fire protection but it is only tested twice per year.

The operator flushes hydrants twice a year, and there is a fire hydrant maintenance program for the water distribution system and an annual main valve operating and maintenance program. Some emergency spare parts and spare parts are available on-site.

5.3 Operations

The disinfection equipment is functional. Dean Bethune reports in an April 22, 2002 letter there are three rebuilt chlorinators now on site. Sodium hypochlorite has been on site for three weeks and there is sufficient test reagent with sufficient shelf life. Chemicals are properly stored.

There are as-built drawings, operating and maintenance manuals on-site.

There are two significant operational problems that need to be addressed. One of the low lift pumps is missing and should be replaced so it is available in case the other one breaks down. The on-line chlorine analyzer is inoperative and should be repaired.

5.4 Reporting

Health Canada conducts bacteriological tests regularly. The results are kept at the Band Office and the Health Canada office on Agency 1 land. The operator states there has been more than one boil water advisory over the past two years.

The chlorine residual and water turbidity is checked daily. There is an on line chlorine residual analyzer (presently not working) but there is no colilert unit or incubator. There have been excessive turbidity readings.

Based on chemical analysis results from Health Canada from 2000 and 2001, it appears that a chemical analysis is performed once per year.

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

Period	Frequency	Regularity	Exceedances
99/10/20 to 2001/09/25	4 to 9 times per month from different locations	<ul style="list-style-type: none">▪ 1 month missing in 1999▪ 3 months missing in 2000▪ 1 month missing in 2001	<ul style="list-style-type: none">▪ No exceedances

5.5 Operators

Laurence Ottetail looks after the water and sewage systems. Brian Atatise is the back up operator for the water system but we are told there is no back up operator for the sewage system.

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Recommended courses included laboratory procedures, instrumentation and controls, and water treatment.

6.0 Deficiencies in the Community Water Supply

1. The community states the design capacity of the plant has been exceeded.
2. Locate and replace missing low lift pump.
3. The water treatment plant does not have a back up power supply and there have been power failures.
4. The diesel pump for fire protection should be tested more frequently.
5. The chlorine equipment was working but the chlorine analyzer was not working. A chlorine test and turbidity check is done daily. There have been excessive turbidity readings.
6. Results from 2000 and 2001 indicate that colour and aluminum have exceeded the aesthetic objective. Water is low in hardness and alkalinity.

7. Chromium, THMs, and turbidity have exceeded the GCDWQ during 2000 and 2001.
8. The operator states there was been more than one boil water advisory issued on the communal water system.

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9. [REDACTED]

7.0 Communal Sewage Facilities (63 houses)

7.1 Effluent Receiver

The effluent receiver is the Namakam River.

7.2 Design

The sewage treatment lagoon at Lac La Croix was constructed in 1994. The sewage system consists of a sewage collection system with one lift station that discharge to a two-cell lagoon. The lagoon has a synthetic plastic liner. Dean Bethune states the lagoon capacity has been exceeded.

7.3 Operations

The sewage pumping station wet wells are cleaned twice a year. Emergency spare parts are not readily available on site, but there is a contact listing of technicians/trades people available. The average response time for such personnel is one to two days.

7.4 Reporting

The sewage lagoons are discharged semi-annually.

7.5 Operators

Laurence Ottetail looks after the water and sewage systems. Brian Atatise is the back up operator for the water system but we are told there is no back up operator for the sewage system. Neither of the operators is certified but they are on the Circuit Rider Training Program. Laurence has been trained on entry into confined spaces.

Recommended courses included laboratory procedures, instrumentation and controls, and water treatment.

8.0 Deficiencies in the Community Sewage Facilities

1. The lagoon design capacity has been exceeded.
2. No information is available on effluent testing.
3. Spare parts are not available for the pumping station.
4. There should be a back up operator for the sewage system.

5. [REDACTED]

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9.0 Recommendations

- Investigate boil water advisories to ensure the source of the contamination is being addressed adequately.
- Investigate reasons for chromium, THM, and turbidity exceedances from 2000 and 2001.
- Implement a training program that can lead to certification of the operators. A back up operator should be designated for the sewage system.
- Establish and implement a protocol for taking water samples at the water treatment plant, including raw water samples.
- Develop a comprehensive contingency plan to address fire protection, power failure and boil water advisories.
- Provide back up power for the water treatment plant.
- Increase testing frequency of diesel pump for fire protection.
- Replace missing low lift water pump.
- Provide emergency spare parts at the sewage treatment plant.

10.0 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 I
Sewage Treatment Facility - Class I

11.0 Overall Community Risk Assessment

Water Category – High Risk

- **High Risk because of the following:**
 - More than one boil water advisory;
 - One low lift pump is missing; and
 - Chromium, THM, and turbidity exceedances.

Sewage Category – Low Risk

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