Curve Lake First Nation (Band No. 161)

Date of Visit: March 7, 2001
M.J. Newland (OCWA)
Site Address: Curve Lake, ON K0L 1R0
Phone No.: 705-657-8045 **Fax No.:** 705-657-8708
Tribal Council Affiliation: Toronto Services Centre – Unaffiliated First Nations (South)
Operator: Dan Melanson
Location: The Curve Lake First Nation community is located 14 km north of Peterborough
Population: 682 people in the community (November 2000 - INAC)
No. of Units: 287 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 Curve Lake community is treated as follows:

- 121 people are serviced by a communal water system;
- 551 people are serviced by individual wells; and
- 10 people have no service.

- 51 houses are serviced by a communal water system;
- 232 houses are serviced by individual wells; and
- 4 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 Curve Lake community is treated as follows:

- 670 people are serviced by individual septic tanks; and
- 12 people are not identified in CAIS.

- 282 houses are serviced by individual septic tanks; and
- 5 houses are not identified in CAIS.

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	Data not available
B. Design		
Biological	0	Data not available
Chemical	6	Iron, chloride, sodium exceedances
Physical	6	High hardness
Risk to Public Health	1	No boil water advisories
Condition of Laboratory Equipment	0	Not inspected
Overall Ranking for Design	4	
C. Operations		
Reservoir Cleanliness	0	Not inspected
Emergency Plan	0	
Overall Ranking for Operations	8	No O & M manuals, service disruptions, disinfectant not ordered regularly
D. Reporting		
Ranking for Laboratories and Testing	0	
Ranking for Boil Water Advisories	1	No boil water advisories
Overall Ranking for Reporting	1	
E. Operators		

SECTION Water	SECTION RANKING Water	RISK Water
Overall Ranking for Operators	9	Not certified and has very little training, no back-up operator
F. Statistical Data		
Overall Ranking for Individual Wells	0	
Overall Ranking for the System	9	High Risk

4.0 Communal Water Supply (51 houses)

4.1 Water Source

The raw water is fed from two groundwater wells.

4.2 Design

The water system for this community consists of two groundwater wells providing water to the system with reservoir. The only treatment is disinfection. The facility has a rated design capacity of approximately 100 m^3 per day but currently the system averages 30 m^3 per day to the community.

4.3 Operations

The system uses sodium hypochlorite as the disinfection method and at the time of OCWA inspection, no disinfectant was onsite. The plant was constructed 1985 and has both adequate ventilation and chemical storage. The plant does not have diesel backup in case of power failure, and no on-line chlorine residual analyzer. The chlorine residuals are checked daily but only five days a week.

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

Date	Location	Exceedances	Result	GCDWQ Limit
Sept. 24, 2001	Private Home	Iron	1.47 mg/L	0.3 mg/L (AO)
		Hardness	507.4 mg/L	80 to 100 mg/L (OG)
		Sodium	32.9 mg/L*	200 mg/L (AO)*
Sept. 24, 2001	Private Home	Sodium	139 mg/L*	200 mg/L (AO)*
		Chloride	428 mg/L	<250 mg/L (AO)
		Hardness	607 mg/L	80 to 100 mg/L (OG)

AO = aesthetic objective, OG = operational guideline
**Health officer should be noted when the sodium content is above 20 mg/L for people on sodium restricted diets.*

In the past two years, there have been two service disruptions; one when the pumps failed and the other when the watermain broke. The system has an annual hydrant-flushing program but no fire hydrant maintenance program. A main valve-operating program is not part of the maintenance program. Trades people are also available within 24 hours and emergency spare parts are available. The plant is missing adequate safety equipment with no confined space entry equipment available and no safety steps being taken to handle the chemicals at the plant.

The facility has no office or laboratory area. Maintenance manuals and as-built drawings are available, but no operating manuals are available. There is no colilert unit available.

4.4 Reporting

Chlorine residuals are tested on a daily basis but only five days a week, turbidity is never tested. Bacteriological samples are tested on a monthly basis and submitted to the Peterborough Health Unit. No bacteriological test results were available from Health Canada. All sample analyses recorded and the results are maintained at the Curve Lake Health Centre.

There have been no boil water advisories in the past two years and no health related outbreaks.

4.5 Operators **s.19(1)**

Dan Melanson, [redacted] is the only designated operator for this syster [redacted]. A backup operator is needed, and both should be trained to the requirements of the position.

5.0 Deficiencies in the Communal Water Supply

1. The system uses sodium hypochlorite as the disinfection method and at the time of OCWA inspection, no disinfectant was onsite.

2. The plant does not have diesel backup for power loss and no chlorine residual analyzer on site.

3. The chlorine residuals are checked daily but only five days a week.

4. In the past two years there have been two service disruptions - one when the pumps failed and the other when the watermain broke.

5. The system does not have a fire hydrant maintenance program.

6. A main valve-operating program is also missing from the maintenance program.

7. The plant is missing adequate safety equipment with no confined space entry equipment available and no safety steps being taken to handle the chemicals at the plant.

8. The facility is missing an area office and laboratory areas.

9. Maintenance manuals and as-built are available but no operating manuals are available.

10. There is also no colilert unit available.

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

- Implement a training program that could lead to the certification of the operator.
- Implement a preventive maintenance program
- Implement a main valve replacement and operating program.
- Implement a sampling program.
- Ensure adequate supply of disinfectant is maintained on site.
- Ensure the chlorine pumps are operational.
- Correct operation of well pump #2 so that when it is the lead well pump, the chlorine system operates to provide disinfection.

- Ensure community is notified when sodium exceeds 20 mg/L in the water.

8.0 Overall Community Risk Assessment

Water Category - High Risk

- **High Risk because of the following:**
  - System appears capable of operating without chlorine addition.

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