Keewaywin First Nation (Band No. 325)

Date of Visit: March 22, 2001
Cam McIvor (OCWA)
Site Address: Sandy Lake, ON P0V 1V0
Phone No.: 807-774-1210 **Fax No.:** 807-535-1152
Tribal Council Affiliation: Keewaytinook Okimakanak Tribal Council (KOTC)
Operator: Luke Monias
Location: The Keewaywin First Nation community is located approximately 225 km northeast of Red Lake
Population: 425 people in the community (November 2000 – INAC)
No. of Units: 56 housing units (CAIS)

1.0 Description of the Community Water Supply

Based on the CAIS report, water from the houses in the Keewaywin community is treated as follows:

- 425 people use piped water
- 56 houses are serviced by a communal water distribution system; and

2.0 Description of the Community Sewage Facilities

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

- 425 people use piped sewage
- 56 houses are serviced by a communal sewage treatment system; and

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 available
B. Design		
Biological	1	No exceedances
Chemical	1	No exceedances
Physical	5	High hardness, total dissolved solids, manganese
Risk to Public Health	4	Boil water advisory due to broken chlorinator; lifted when fixed
Condition of Laboratory Equipment	0	Not inspected
Overall Ranking for Design	3	
C. Operations		
Reservoir Cleanliness	0	Not inspected
Emergency Plan	0	Unknown
Overall Ranking for Operations	5	No operation and maintenance manuals, no turbidity monitoring, service disruptions due to pump failures, no backup pumps and the well running dry
D. Reporting		
Ranking for Laboratories and Testing	1	Daily by operator.

SECTION Water	SECTION RANKING Water	RISK Water
Ranking for Boil Water Advisories	4	Boil Water Advisory due to broken chlorinator, was fixed promptly.
Overall Ranking for Reporting	3	
E. Operators		
Overall Ranking for Operators	5	Not certified and not trained but confident.
F. Statistical Data		
Overall Ranking for Individual Wells	0	No data
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	No water intake from effluent receiver
B. Design		
Quality of Treated Effluent	0	No data available
Ranking of Design of Sewage Plant	1	Design is met
Ranking of Concerns and Hazards within the Plant	7	No backup power or safety equipment
Condition of Laboratory Equipment	0	
Overall Ranking for Design	4	
C. Operations		
Ranking for Emergency Plan	0	
Overall Ranking for Operations	1	No operational problems
D. Reporting		
Overall Ranking for Reporting	7	Backups due to main lines plugging
E. Operators		
Overall Ranking for Operators	5	No training but confident
F. Statistical Data		
Overall Ranking for Individual Septic Tanks	0	
Overall Ranking for the Systems	4	Low Risk

5.0 Communal Water Treatment Supply (56 houses)

5.1 Water Source

The Keewaywin community is serviced by a groundwater source well, with one backup well that is usually needed in the fall when the main well runs dry.

5.2 Design

The plant was constructed in 1995. There is no water reservoir. The treatment system includes water softening, chlorination treatment with high lift pumps to a pressure tank within the plant and then to the distribution system. The plant's rated design capacity is 3.6 L/s. This is a very basic water supply system, but there are plans to upgrade the system.

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

Sample Date	Sample Received	Location	Exceedances	Result	GCDWQ limit	Notes
Feb. 20, 2001	Feb. 23, 2001	Nursing Clinic	Manganese	0.491 mg/L	0.05 mg/L (AO)	The sample was expired for turbidity and pH upon receipt
			Hardness	355 mg/L	80 to 100 mg/L (OG)	
May 23, 2001	May 24, 2001	Nursing Clinic	Total Dissolved Solids	530 mg/L	500 mg/L (AO)	
			Manganese	0.512 mg/L	0.05 mg/L (AO)	
			Hardness	342 mg/L	80 to 100 mg/L (OG)	

AO = aesthetic objective, OG = operational guideline

There is poor ventilation for the plant and chemical storage area. There is no backup power generator for fire protection or for the water treatment plant. The on-site safety equipment is inadequate. There is no confined space entry equipment.

There is no designated laboratory, office/filing, or workshop areas available, and no appropriate tools to perform maintenance.

5.3 Operations

Sodium hypochlorite is used for treatment. Disinfection equipment is functional and there is sufficient sodium hypochlorite available. There is no on-line chlorine residual analyzer. The chlorine residuals in the treated water are checked daily. The chemicals are properly stored and there are sufficient test reagents with a current shelf life available.

The operator uses a colilert unit that is available on site. The operator conducts bacteriological testing daily and records are kept in the pump house. No bacteriological samples are transported to off-site laboratories.

Operating and maintenance manuals for plant equipment, and operating manuals for the treatment plant are not available, and there are no as-built drawings. Emergency spare parts are readily available. There

is a contact listing of technicians/trades people – they are located on the reserve so the average response time is one day.

In the last two years there have been service disruptions due to pump failures with no backup pump, and the well has run dry. There lacks an annual main valve operating/maintenance program.

The OCWA inspector noted that the well is over 200 feet deep and requires significant manpower and equipment to pull the pump out of the well, if required.

5.4 Reporting

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

Health Canada has issued the following boil water advisory

- May 24, 2001 because the chlorinator was broken. The boil water advisory was lifted on June 15, 2001.

The following bacteriological results were available from Health Canada

- May 24, 2001 Thunder Bay Public Health Lab tests showed 3 safe samples with total coliform and E. coli of 0.

5.5 Operators

s.19(1)

Luke Monias is the operator of the treatment plant, with no backup. [redacted] and is familiar with calibrating and maintaining the disinfecting equipment.

6.0 Deficiencies in the Communal Water Supply

1. The water supply system is a very basic system that is currently under review to be replaced.
2. There is no backup power in case of a power shortage.
3. There is no safety equipment on site.
4. No laboratory, office or workshop areas are available.
5. When there are problems with the pump, a front-end loader is needed to pull the pump out of the ground.
6. As-built drawings, and operating and maintenance manuals are not available on site.
7. The well runs dry on a regular basis in the fall.
8. One operator is responsible for both water and sewage systems and has not taken any training.

7.0 Communal Sewage Treatment Facilities (56 houses)

7.1 Effluent Receiver

The effluent is pumped into a lagoon which is discharged into Sandy Lake.

7.2 Design

The Keewaywin community STEP system consists of a sewage low pressure sewer system with a lagoon, which was constructed in 1995. Each house has a two-stage septic tank with a small pump that pumps the effluent to the lagoon. There is no backup power during electricity loss and no safety equipment.

7.3 Operations

There are as-built drawings and no re-occurring problems.

There is a contact list for technicians/trades people with a response time within 24 hours. There have been sewage backups when the ¾" diameter effluent lines from the tanks to the mainline are plugged.

7.4 Reporting

The lagoon has been discharged twice in the last five years after sampling by Health Canada.

7.5 Operators

s.19(1)

Luke Monias is the operator of the treatment plant, with no backup. [redacted] and is familiar with calibrating and maintaining the disinfecting equipment.

8.0 Deficiencies in the Community Sewage Treatment Facilities

1. The sewage lines have backed up as a result of plugging of the ¾" main line pipe.
2. One operator is responsible both water and sewage systems and has not taken any training.

9.0 Recommendations

- Purchase safety equipment.
- Purchase appropriate tools to perform maintenance.
- Purchase emergency spare parts.
- Implement a training program that can lead to certification of the operator.
- Consider backup power for the water and sewage treatment plants.
- Consider installing an on-line chlorine analyzer.
- Obtain as-built drawings and operation and maintenance manuals.
- Investigate the problem of poor ventilation within the plant.

10.0 Plant Classification

Based upon the Terms of Reference – Appendix I – Plant Classification Guideline developed by Public Works 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 – Low Risk
Sewage Category – Low Risk

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.