Magnetawan First Nation (Band No. 174)

Date of Visit: March 6, 2001
By Mike Bell (OCWA)
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Tribal Council Affiliation: Waabnoong Bemjiwang Association of First Nations
Operator: Dave Corbiere
Location: The Magnetawan First Nation community is located approximately 60 km north of Parry Sound
Population: 82 people in the community (November 2000 - INAC)
No. of Units: 30 housing units (CAIS)

1.0 Description of Community Water Supply

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

- 82 people are serviced by a communal water system.
- 30 houses are serviced by a communal water system.

2.0 Description of Community Sewage Facilities

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

- 82 people are serviced by a communal sewage system.
- 30 houses are serviced by a communal sewage system.

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 exceedance
Chemical	6	Low Alkalinity, Phenol, Dissolved organic carbon exceedances
Physical	6	Low hardness
Risk to Public Health	1	No boil water advisories
Condition of Laboratory Equipment	0	
Overall Ranking for Design	4	
C. Operations		
Reservoir Cleanliness	0	
Emergency Plan	0	
Overall Ranking for Operations	6	Chlorine not stored properly, no main valve maintenance, service disruptions
D. Reporting		
Ranking for Laboratories and Testing	2	Testing conducting bi-weekly
Ranking for Boil Water Advisories	1	No boil water advisories
Overall Ranking for Reporting	2	

SECTION Water	SECTION RANKING Water	RISK Water
E. Operators		
Overall Ranking for Operators	2	Have received training and appear confident
F. Statistical Data		
Overall Ranking for Individual Wells	9	5 exceedances in 10 samples (50%)
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	Water plant intake upstream from sewage discharge
B. Design		
Quality of Treated Effluent	0	
Ranking of Design of Sewage Plant	1	Meeting demand
Ranking of Concerns and Hazards within the Plant	1	No concerns
Condition of Laboratory Equipment	0	
Overall Ranking for Design	1	
C. Operations		
Ranking for Emergency Plan	0	
Overall Ranking for Operations	1	
D. Reporting		
Overall Ranking for Reporting	7	Sewage back-ups
E. Operators		
Overall Ranking for Operators	4	
F. Statistical Data		
Overall Ranking for Individual Septic Tanks	0	
Overall Ranking for the Systems	4	Low Risk

5.0 Communal Water Supply (30 houses)

5.1 Water Source

The raw water is drawn from the Magnetawan River.

5.2 Design

The community is serviced by a water treatment plant constructed in 1998. The rated design capacity is 113 m^3/d, and the present usage of the system is approximately 25 to 30 m^3/d. The water treatment plant is classified as Class II.

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

Sample Date	Location	Exceedances	GCDWQ limit
Apr. 7, 1999	Water Treatment Plant	Alkalinity = 9 mg/L (OG) Hardness = 16 mg/L (OG) Phenol = 0.004 mg/L (AO) Dissolved organic carbon = 7.1 mg/L (AO)	Alkalinity = 30 to 500 mg/L (OG) Hardness = 80 to 100 mg/L (OG) Phenol = 0.001 mg/L (AO) Dissolved organic carbon = 5 mg/L (AO)
Feb. 1, 2000	Health Centre	Alkalinity = 8 mg/L (OG) Hardness = 16 mg/L (OG) Aluminum = 0.164 mg/L (OG)	Alkalinity = 30 to 500 mg/L (OG) Hardness = 80 to 100 mg/L (OG) Aluminum = 0.1 mg/L (OG)

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

The water treatment plant consists of a DCA filtration system with chlorination. Sodium bicarbonate is used, and alum is used as a coagulant. There is an on-site water reservoir with a capacity of 190 m^3.

There is a back-up power generator for the water treatment plant and diesel operated pump for fire protection. Both generator and pump are tested on a regular basis.

5.3 Operations

Sodium hypochlorite (12%) is used for disinfection. The disinfection equipment is functional with sufficient chlorine available. There is an on-line chlorine residual analyzer, which is calibrated once a month. Chlorine residual is also manually checked daily. There are sufficient test reagents with current shelf life available, however the chemicals are not stored in accordance with MOE guidelines.

There is adequate safety equipment at the plant. Some safety concerns include no secondary containment for sodium hypochlorite, alum drums and day tanks.

There is adequate ventilation for the plant and chemical storage area. There are also adequate laboratory, office, and maintenance areas within the plant.

There are operations and maintenance manuals for plant equipment and as-built drawings on-site. Emergency spare parts are available on-site, and there is a contact listing of technicians/trades people available. The response for such personnel is two to four hours.

There is an annual-hydrant flushing and maintenance program but no operating and maintenance program for the main valve has been set up. In the last two years, service disruptions have been experienced due to power failures.

5.4 Reporting

Health Canada conducts bacteriological testing bi-weekly on the communal water system. The results are recorded and kept with the community health official.

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

Period	Frequency	Regularity	Exceedances
99/10/14 to 01/09/27	1 – 3 times per month from different location	▪ Months missing 2000: Oct.	No exceedances noted for the given period (110 samples)

In the last year, there has been no boil water advisories issued on the communal water system and in the last two years, there have been no disease or health related outbreaks.

The turbidity of the treated water is recorded daily and the exceedances in turbidity readings only occur when the fire pump is operating. It is reported that the chemical analyses of the treated water are conducted upon request.

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

Gary Wheatley is the operator at the water treatment plant. has received training to operate both facilities. He is familiar with calibrating and maintaining the disinfection equipment, and

Th
Rider Training Program.

6.0 Deficiencies in the Communal Water Supply

1. The operator does perform hydrant flushing and maintenance, but there is no operating and maintenance program for main valve.

2. Service disruption includes power failures.

3. Turbidity tests of treated water are conducted and exceedances were only found when fire pump is operating.

s.19(1)

4. have received training to operate and maintain the facility.

5. Secondary containment for chemicals is not available.

7.0 Communal Sewage Facilities (30 houses)

7.1 Effluent Receiver

The effluent is discharged into the Magnetawan River, downstream from the water plant intake.

7.2 Design

The community is serviced by a sewage treatment plant constructed in 1998. The rated design capacity is 160 m^3/day and the current usage requirement is being met.

The facility is an RBC treatment with the addition of sodium hypochlorite for disinfection. The disinfection equipment is functional with sufficient chlorine available. Aluminum sulphate is also used in the treatment process. The chemicals are not stored properly in accordance with MOE guidelines.

There is one sewage pumping station as part of the collection system, which is cleaned regularly. The sludge is hauled away twice a year to a sewage lagoon.

There is back-up power for the treatment plant, which is test run regularly and there is adequate safety equipment at the plant. There have been pump failures at the pumping station when both pumps failed and there were back-ups in the sewage collection system.

7.3 Operations

There are maintenance manuals for plant equipment, operation manuals, and as-built drawings on-site. Emergency spare parts are available, and there is a contact listing of technicians/trades people available with a two to four hour response time. Protection is needed to cover PVC piping that is exposed to the sunlight on the west side of the RBC building. The raw sewage he influent line should be heat traced and rapped to thermally protect piping from freezing.

In the last two years, there have been no service disruptions and no re-occurring operational problems.

7.4 Reporting

The plant operator conducts effluent tests. The results are recorded and kept at the plant.

There have been no disease or health related outbreaks in the last two years and there have been no improper discharges.

There have been sewage collection back-ups due the pump failures at the station, but they did not cause basement flooding.

7.5 Operators

s.19(1)

Gary Wheatley is the operator at the sewage treatment plant. [redacted] has received training to operate both facilities. He is familiar with calibrating and maintaining the disinfection equipment, and

[redacted]

8.0 Deficiencies in the Communal Sewage Facilities

s.19(1)

1. have received training to operate and maintain the facility.

2. Sewage collection back-ups are caused by pump failures.

3. Protection is needed to cover PVC piping that is exposed to the sunlight on the west side of the RBC building.

4. The raw sewage he influent line should be heat traced and rapped to thermally protect piping from freezing.

9.0 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 these plants as follows:

Water Treatment Facility- Class II
Sewage Treatment Facility- Class II

10.0 Recommendations

- Secondary containment and better storage of chemicals is recommended.
- Implement a training program for the operators that can lead to certification.
- Cover PVC piping for the effluent on the RBC to stop deterioration of pipe from UV rays.
- Influent line should be heat traced and rapped to protect it from freezing.
- Investigate pump failures to ensure bypassing does not occur.

11.0 Overall Community Risk Assessment

- **Water Category –Low Risk**
- **Sewage Category – Low Risk**

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