

Anishinaabeg of Naongashing (Big Island) First Nation (Band No. 125)

Date of Visit: May 2000

By K. Lusignan (OCWA)

Site Address: General Delivery

Morson, ON P0W 1J0

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Tribal Council Affiliation: Anishinaabeg of Kabapikotawangag Resources Council (AKRC)

Operator: Dennis Big George

Location: The Anishinaabeg of Naongashing community is located directly north of Morson on Hwy. 621, and approximately 70 km south of Kenora across Lake of the Woods

Population: 121 people in the community (May 2000 - CAIS)

No. of Units: 32 housing units (CAIS)

1.0 Description of the Community Water Supply

Based on the CAIS report, water to the houses in the Anishinaabeg of Naongashing (Big Island) community is treated as follows:

- 113 people are serviced by a communal water system; and
- 8 people are serviced by individual wells.

- 30 houses are serviced by a communal water system; and
- 2 houses are serviced by individual wells.

2.0 Description of the Community Sewage Facilities

Based on the CAIS report, sewage from the houses in the Anishinaabeg of Naongashing (Big Island) community is treated as follows:

- 113 people are serviced by a communal sewage system; and
- 8 people are serviced by other systems.

- 30 houses are serviced by a communal sewage system; and
- 2 houses are serviced by 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	2	0 exceedances in 49 samples
Chemical	9	Exceedances in manganese and total phenolics
Physical	5	Several exceedances noted
Risk to Public Health	2	
Condition of Laboratory Equipment	0	
Overall Ranking for Design	5	
C. Operations		
Reservoir Cleanliness	0	
Emergency Plan	0	
Overall Ranking for Operations	8	Service disruptions, chemicals are not stored properly, no emergency parts.
D. Reporting		
Ranking for Laboratories and Testing	2	Regular testing conducted
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	5	Some training
F. Statistical Data		
Overall Ranking for Individual Wells	0	
Overall Ranking for the System	7	Medium 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	Lake discharge via wet land
B. Design		
Quality of Treated Effluent	0	
Ranking of Design of Sewage Plant	0	
Ranking of Concerns and Hazards within the Plant	0	
Condition of Laboratory Equipment	7	Inadequate safety equipment
Overall Ranking for Design	7	
C. Operations		
Ranking for Emergency Plan	0	
Overall Ranking for Operations	8	No operation and maintenance manuals, sewage bypasses

D. Reporting		
Overall Ranking for Reporting	8	Sewage back – ups and basement flooding
E. Operators		
Overall Ranking for Operators	5	No training and appear confident
F. Statistical Data		
Overall Ranking for Individual Septic Tanks	0	
Overall Ranking for the Systems	8	High Risk: due to sewage bypasses, back – ups, and basement flooding.

5.0 Communal Water Treatment Plant (30 houses)

5.1 Water Source

The Big Island community is serviced by a groundwater well with a building over the well head.

5.2 Design

The water treatment plant, constructed in 1997, consists of a pressure filter system with the addition of liquid chlorine for disinfection. There is an on-site water reservoir with a capacity of 90 m³. The rated design capacity of the plant is unknown, but the operator stated that the usage requirement is met.

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

Date	Location	Exceedance	Result	GCDWQ Limit
July 20, 2000	Treated Well Water	Sodium	24.5 mg/L*	200 mg/L* (AO)
		Hardness	281 mg/L	80 –100 mg/L (OG)
		Dissolved organic carbon	12 mg/L	5.0 mg/L (AO)
		Manganese	0.739 mg/L	0.05 mg/L (AO)
		Total phenolics	0.018 mg/L	0.005 mg/L (HL)
Aug. 9, 2001	Treated Well Water	Hardness	15 mg/L	80 – 100 mg/L (OG)

AO – Aesthetic Objective OG – Operational Guideline HL – Health Limit

*Health officer should be notified when sodium is above 20 mg/L for people on sodium restricted diets.

Diesel backup power is now in place for both the water treatment plant and fire pumps. Safety equipment at the plant is inadequate but no other safety hazards were observed.

There is adequate office and workshop areas, and ventilation for the plant and chemical storage areas. However laboratory area is not available.

The disinfection equipment is functional with sufficient chlorine on site. There is no on-line chlorine residual analyzer, but chlorine residual is being checked daily. Potassium permanganate is also used in the treatment process, and there are sufficient test reagents with a current shelf life. A colilert unit is not available at the plant.

5.3 Operations

There are operation and maintenance manuals for plant equipment and as-built drawings on site. Emergency spare parts are not available, however there is a contact listing of technicians/trades people available. The response for such personnel is couple of hours.

There is an annual hydrant flushing and maintenance program but an annual main valve operating/maintenance program is not available. In the last two years, service disruptions have been experienced due to power outages. Re-occurring operational problem include malfunctioning of solenoids on pressure filter controls.

5.4 Reporting

Health Canada (Fort Frances office) conducts bacteriological testing every month on the communal water system. The results and analysis are kept at the treatment plant.

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

Period	Frequency	Regularity	Exceedances
00/01/26 to 01/09/06	1 – 2 times per month from different locations	<ul style="list-style-type: none">▪ Months missing 2000: Mar., May, Sept., Oct., Dec.▪ Months missing 2001: Jan., Jul.	<ul style="list-style-type: none">▪ 0 exceedances noted for the given period (49 samples)

No boil water advisory has been issued on the communal water system and there have been no disease or health related outbreaks in the last two years. The turbidity of the treated water is recorded annually.

Chemical analyses of treated water are conducted yearly. Copies of the analyses are kept at the water treatment plant.

5.5 Operators

Dennis Big George (Operator) and Chris Big George (backup Operator), are the operators at the water and sewage treatment plants.

The operators were familiar with calibrating and maintaining the disinfection equipment for the water treatment plant, but not for the sewage treatment plant.

The operators need training in basic water, basic sewage, collection and distribution, and some training on the new emergency power installation.

6.0 Deficiencies in the Communal Water Supply

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1. No safety equipment, except for the confined space equipment, is available on site.
2. There are no emergency spare parts readily available.
3. Chemicals are not being properly stored.

4. Service disruptions include power failures and problems with the low lift and high lift pumps.
5. There are recurring operational problems involving the malfunctioning solenoids on the pressure filter controls.
6. There is no on-line chlorine residual analyzer.
7. The operators are not certified but have received training through the Circuit Rider Training Program.

7.0 Communal Sewage Facilities (30 houses)

7.1 Effluent Receiver

The effluent is discharged into Lake of the Woods via wetland.

7.2 Design

The Big Island community is serviced by a sewage treatment plant, originally constructed in 1984, and secondary treatment was added in 1996. The rated design capacity and the current usage requirement are unknown.

The facility is an RBC treatment system with UV disinfection. The disinfection equipment is functional and no other chemicals are used in the process. There is one sewage pumping station as part of the collection system. The sewage pumping station wet well is cleaned twice year and routinely maintained.

There is no backup power generator for the treatment plant and there has been raw sewage bypass from the pumping station. Safety equipment is shared with the water treatment plant.

There is adequate ventilation for the plant and chemical storage, but there are no designated laboratory, office and workshop areas to perform maintenance.

7.3 Operations

There are operation/maintenance manuals and as-built drawings on site. Emergency spare parts are not available, but there is a contact listing of technicians/trades people available with a day's response time.

In the last two years, there have been service disruptions due to power failure and re-occurring operational problems including power fluctuations.

7.4 Reporting

Effluent tests are conducted on a monthly basis, and the sample results are filed at the sewage treatment plant and the band office.

There have been no disease or health related outbreaks in the last two years and no complaints of odour.

There have been sewage collection backups due to power outages and the plant's basement has been flooded.

7.5 Operators

Dennis Big George (Operator) and Chris Big George (backup Operator), are the operators at the water and sewage treatment plants. [REDACTED]

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[REDACTED] The operators were familiar with calibrating and maintaining the disinfection equipment for the water treatment plant, but not for the sewage treatment plant. [REDACTED]

[REDACTED]

The operators need training in basic water, basic sewage, collection and distribution, and some training on the new emergency power installation.

8.0 Deficiencies in the Communal Sewage Facilities

1. There is no backup power. Backup power is presently being added.
2. There is no dedicated space for lab, office or workshop areas.
3. There are no operating and maintenance manuals for the plant equipment readily available on site.
4. Recurring operational problems include power fluctuations.
5. There are no emergency spare parts readily available.
6. There have been raw sewage bypasses from the sewage pumping stations.

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 I
Sewage Treatment Facility - Class II

10.0 Recommendations

- Purchase a turbidity meter and increase the turbidity readings from only once a year.
- Provide additional training for operators that can lead to certification.
- Investigate and correct the air operated switching solenoid problems on the pressure filters.
- Check design of the emergency diesel generator that has been mounted on top of its fuel tank. Can the tank withstand the vibration of the running generator for lengthy periods of time?
- Purchase spare metering pumps for the chemical feed (potassium permanganate) and sodium hypochlorite systems.
- Consider the purchase of an on-line chlorine residual analyzer, colilert unit and incubator.
- Store chemicals according to MOE guidelines.
- Purchase emergency spare parts.
- Implement an annual main valve operating/maintenance program.
- Consider backup power for the sewage treatment plant.
- Investigate the sewage pumping station to find the cause of raw sewage bypasses.
- Investigate the infiltration problem when the RBC unit is hydraulically overloaded.

- Purchase safety equipment.
- Consider adding laboratory, office, and workshop areas.
- Obtain operating and maintenance manuals for the plant equipment.

11.0 Overall Community Risk Assessment

Water Category – Medium Risk

- **Medium Risk because of the following:**
 - Chemicals not stored properly
 - Operators with no training and no confidence

Sewage Category – High Risk

- **High Risk because of the following:**
 - Raw sewage bypasses at pumping stations;
 - Infiltration problems;
 - RBC periodically hydraulically overloading.

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