

---

## Nibinamik (Summer Beaver) First Nation (Band No. 241)

**Date of Visit:** March 2001

By Roger Beauvais (OCWA)

**Site Address:** Summer Beaver, ON P0T 3B0

**Phone No.:** 807-593-2131      **Fax No.:** 807-593-2270

**Tribal Council Affiliation:** Matawa First Nations Management Inc.

**Operators:** Peter Oskineegish, Douglas Sofea

**Location:** The Nibinamik First Nation community is located 500 km northwest of Thunder Bay

**Population:** 357 people in the community (November 2000 – INAC)

**No. of Units:** 94 houses in the community (CAIS)

### 1.0 Description of the Community Water Supply System

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

- 304 people use piped water
- 53 people have no services
  
- 80 houses are serviced by a communal water system; and
- 14 houses have no services.

### 2.0 Description of the Community Sewage Facilities

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

- 285 people use piped sewage
- 72 people have no services.
  
- 75 houses are serviced by a communal sewage system; and
- 19 houses have no services.

### 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
<b>A. Water Source</b>		
Biological	0	No data
Chemical	1	No exceedances
Physical	6	High colour and total organic carbon
Overall Ranking for Water Source	4	
<b>B. Design</b>		
Biological	1	No exceedances
Chemical	1	No exceedances
Physical	6	High color and total organic carbon
Risk to Public Health	8	One boil water advisory in past 2 years
Condition of Laboratory Equipment	0	Not inspected
Overall Ranking for Design	8	
<b>C. Operations</b>		
Reservoir Cleanliness	0	Not inspected
Emergency Plan	0	Unknown
Overall Ranking for Operations	6	Service disruptions due to leaky hydrant
<b>D. Reporting</b>		
Ranking for Laboratories and Testing	4	Regular testing performed
Ranking for Boil Water Advisories	8	One boil water advisory in past 2 years
Overall Ranking for Reporting	6	

<b>SECTION Water</b>	<b>SECTION RANKING Water</b>	<b>RISK Water</b>
<b>E. Operators</b>		
Overall Ranking for Operators	2	Some training and confidence
<b>F. Statistical Data</b>		
Overall Ranking for Individual Wells	0	No data
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
<b>A. Effluent Receiver</b>		
Overall Ranking for Effluent Receiver	0	No data available
<b>B. Design</b>		
Quality of Treated Effluent	5	High suspended solids
Ranking of Design of Sewage Plant	0	Not enough data
Ranking of Concerns and Hazards within the Plant	6	Inadequate ventilation
Condition of Laboratory Equipment	0	
Overall Ranking for Design	6	No backup power
<b>C. Operations</b>		
Ranking for Emergency Plan	0	
Overall Ranking for Operations	6	Service disruptions and no emergency parts, infiltration problems
<b>D. Reporting</b>		
Overall Ranking for Reporting	6	Sewage backups experienced
<b>E. Operators</b>		
Overall Ranking for Operators	3	Some training and confident
<b>F. Statistical Data</b>		
Overall Ranking for Individual Septic Tanks	0	
Overall Ranking for the Systems	5	Medium Risk

## 5.0 Communal Water Treatment Supply (80 houses)

### 5.1 Water Source

The raw water source is taken from Winisk River through intake piping.

One raw water sample was available from Health Canada in Sioux Lookout. The analyses which do not meet the GCDWQ are summarized below:

Date	Exceedances	Result	GCDWQ limit	Notes
Feb. 16, 2001	Colour	72 TCU	15 TCU (AO)	Turbidity and pH were expired upon receipt. THMs were not tested because the THMs vial was broken during transit.
	Total Organic Carbon	9.9 mg/L	5.0 mg/L (AO)	
	Hardness	71 mg/L	80 to 100 mg/L (OG)	

AO = aesthetic objective, OG = operational guideline

### 5.2 Design

The community is serviced by a water treatment plant constructed in 1997. Intake piping from Winisk River is gravity fed to a wet well, pumped through two carbon and multi-media filters with chlorination, an on-site reservoir, and water distribution system. During the OCWA visit the low water levels in the river meant the operator had to manually pump water from the river to the wet well.

Two treated water samples were available from Health Canada in Sioux Lookout. The analyses which exceed the GCDWQ are summarized below:

Sample Date	Sample Received	Exceedances	Result	GCDWQ limit	Notes
Aug. 3, 2000	Aug. 8, 2000	Total Organic Carbon	10.0 mg/L	5.0 mg/L (AO)	Turbidity and pH were expired upon receipt
		Hardness	70 mg/L	80 to 100 mg/L (OG)	
Feb. 16, 2001	Feb 21, 2001	Colour	48 TCU	15 TCU (AO)	Turbidity and pH were expired upon receipt
		Total Organic Carbon	9.8 mg/L	5.0 mg/L (AO)	
		Hardness	73 mg/L	80 to 100 mg/L (OG)	

AO = aesthetic objective, OG = operational guideline

There is plenty of ventilation for the plant. The system has a diesel-operated generator for power failures, but this was not working at the time of the OCWA visit, and no pump is available for fire protection. There is adequate safety equipment on site, as well as a laboratory and office. However, there is no maintenance workshop available for doing routine maintenance.

### 5.3 Operations

The disinfection equipment is functional and sodium hypochlorite is the disinfectant used. A recent delivery of hypochlorite ensured that the plant was well stocked with disinfectant. The residuals on the system are checked daily but no on line chlorine residual analyzer is available. The colilert unit is available and being used by the operator.

Sampling on the system is done by Health Canada and they transport the samples off site. The operations and maintenance manuals are available, but the as-built drawings are not on site. Service disruptions have occurred in the past as the level of the water changed in the river. When the OCWA inspector was on site, a leaky hydrant was disrupting service. The raw water intake line elevation is higher than the wet well - this causes a service disruption every spring.

#### 5.4 Reporting

Regular bacteriological tests are being performed on the water – weekly by the operator, monthly by the community health representative, and every three months by Health Canada. The results of these tests are kept at the plant and nursing home in the community. There have been no health related outbreaks in the past two years, but Health Canada issued a boil water advisory during that time. The turbidity of the treated water is checked daily and this has exceeded the GCDWQ limit. Chemical analysis testing is conducted annually.

The following colilert results were available from Health Canada:

Date	Result
February 15, 2001	2 satisfactory samples

The following chlorine residual data were available from Health Canada:

Date	Result
February 15, 2001	Traces of chlorine residual

#### 5.5 Operators

There are two operators that operate for both the water treatment plant and the lagoon system. Peter Oskineegish and Douglas Sofea have received some training [REDACTED] Training Program and are familiar with maintaining and calibrating equipment.

s.19(1)

### 6.0 Deficiencies in the Communal Water Supply

1. The system has a diesel-operated generator for power outages but this was not working at the time of OCWA visit and no pump is available for fire protection.
2. There is no maintenance workshop available for doing routine maintenance.
3. The residuals on the system are checked daily but no online chlorine residual analyzer is available.
4. Test results show high color, total organic carbon and turbidity in treated water.
5. The operating manuals are available, but the as-built drawings are not on site.
6. When the OCWA inspector was there, a leaky hydrant was disrupting service.
7. The raw water intake line elevation is higher than the wet well causing a service disruption every spring.

## 7.0 Communal Sewage Treatment Facilities (75 houses)

### 7.1 Effluent Receiver

The effluent receiver is a Winisk River Tributary.

### 7.2 Design

The community is serviced by a sewage collection system constructed in 1997 with two lift stations pumping water to a lagoon system.

There is no backup power on the system in case of power failure. The system has adequate safety equipment.

The following table summarizes available samples from Health Canada that do not meet effluent guidelines:

Date	Location	Exceedances	Result	Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments
May 9, 2000	Cell #2 Discharge Pipe	Total Suspended Solids	48 mg/L	25 mg/L
May 9, 2000	Cell #2 Overflow Pipe	Total Suspended Solids	43 mg/L	25 mg/L
Oct. 12, 2000	Treated Effluent	Total Suspended Solids	34 mg/L	25 mg/L
May 9, 2001	Cell #2	Total Suspended Solids	56 mg/L	25 mg/L
Oct. 4, 2001	Lagoon at Discharge	Total Suspended Solids	70 mg/L	25 mg/L
		pH	9.62	6 to 9

Health Canada suspects that the total suspended solids result may have been high partly due to strong winds causing waves and excessive mixing or even very high algae levels.

pH may have been high due to a sampling irregularity or bottle cleanliness issue.

### 7.3 Operation

Operation and maintenance manuals are available for the equipment and the system. The as-built drawings for the lagoon system are not stored on-site.

Service disruptions have occurred on the sewage system when pressure relief valves have frozen due to a lack of power and pressure. The sewage pumping stations are routinely maintained but no spare parts are available on site. If technical help is needed, a list of technicians is available but it takes up to one week to get someone to this location. The lagoons are discharged twice a year in May and October.

Letters from Health Canada, dated June 8, 2001 and November 13, 2001 recommend that the ground or surface water infiltration into the sewage collection system be investigated. Infiltration causes the lagoon to fill up fast, thereby increasing the discharge frequency which compromises lagoon treatment.

#### 7.4 Reporting

The Health Officer conducts regular tests on the lagoon system twice yearly during discharge. The samples are kept at the Health Officer's office. There are no reports of disease related outbreaks, improper discharges or complaints of odours. Sewage collection backups have occurred during power failures and when the relief valve freezes. A generator on the system would solve this problem.

#### 7.5 Operators

There are two operators that operate both the water treatment plant and the lagoon system. Peter Oskineegish and Douglas Sofea have received some training

**s.19(1)**

and are familiar with maintaining and calibrating equipment.

### 8.0 Deficiencies in the Communal Sewage Facilities

1. There is no backup power on the system in case of power failure.
2. The as-built drawings for the lagoon system are not on site.
3. Service disruptions have occurred in the sewage system when pressure relief valves have frozen due to a lack of power and pressure.
4. The sewage pumping stations are routinely maintained but no spare parts are available on site.
5. If technical help is needed a list of technicians is available but it takes up to one week to get someone to this location.
6. Infiltration of surface/ground water causes sewage lagoon to fill up quickly.
7. High suspended solids in lagoon effluent.

### 9.0 Recommendations

- Investigate boil water advisory to ensure the source of contamination is being addressed adequately.
- May need to address high color and total organic carbon in treated water.
- Address high turbidity in daily samples.
- Implement a training program that can lead to certification of the operator.
- Implement a regular water-sampling program.
- Develop a contingency plan in case of emergencies for the complete water supply system.
- Consider a portable backup generator for the water and sewage pumping stations.
- Purchase an on-line chlorine residual analyzer.
- Provide spare pump for fire protection.
- Repair leaky hydrant.
- Investigate water intake problem with low river levels.
- Investigate and resolve causes for service disruptions at both plants.
- Prevent pressure relief valve in the forcemain from freezing.
- Address infiltration problems in sewage system.
- Investigate cause of high suspended solids in lagoon effluent samples.

## 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 II  
Sewage Treatment Facility - Class I

## 11.0 Overall Community Risk Assessment

### Water Category – Medium Risk

- Boil water advisory in past
- Daily turbidity tests have exceed GCDWQ limit

### Sewage Category – Medium Risk

- Frozen pressure relief valves due to a lack of power and pressure
- Sewage collection backups
- Infiltration problems
- High suspended solids in effluent samples

**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.**