

## **Neskantaga (Lansdowne House) First Nation (Band No. 239)**

**Date of Visit:** March 07, 2001

By Roger Beuvais (OCWA) and Jody Knibbs (Bimose)

**Site Address:** Lansdowne House, ON P0TX 1Z0

**Phone No.:** 807-479-2570      **Fax No.:** 807-479-1138

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

**Operator:** Gordon Sugarhead

**Location:** The Lansdowne House First Nation community is located on Attawapiskat Lake approximately 245 km northwest of Nakina

**Population:** 282 people in the community (November 2000 – INAC)

**No. of Units:** 89 houses in the community (CAIS)

### **1.0 Description of the Community Water Supply**

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

- 282 people use piped water
- 89 houses are serviced by a communal water system.

### **2.0 Description of the Community Sewage Facilities**

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

- 127 people are serviced by septic tanks
- 155 people have holding tanks with trucked sewage
- 40 houses are serviced by individual septic tanks; and
- 49 houses are serviced by individual holding tanks with trucked sewage.

### 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 available
Chemical	1	No exceedances
Physical	6	High color, dissolved organic carbon
Overall Ranking for Water Source	5	
<b>B. Design</b>		
Biological	1	No exceedances
Chemical	10	High THMs
Physical	6	High color, dissolved organic carbon, hardness
Risk to Public Health	10	THMs, boil water advisories
Condition of Laboratory Equipment	0	Not inspected
Overall Ranking for Design	10	
<b>C. Operations</b>		
Reservoir Cleanliness	0	Not inspected
Emergency Plan	0	Unknown
Overall Ranking for Operations	8	Pressure problems, pump problems
<b>D. Reporting</b>		
Ranking for Laboratories and Testing	1	Weekly by operator and CHR Monthly by Health Canada
Ranking for Boil Water Advisories	10	Two boil water advisories
Overall Ranking for Reporting	4	Testing is reported by operator as regular

<b>SECTION Water</b>	<b>SECTION RANKING Water</b>	<b>RISK Water</b>
<b>E. Operators</b>		
Overall Ranking for Operators	4	Some training
<b>F. Statistical Data</b>		
Overall Ranking for Individual Wells	0	
Overall Ranking for the System	8	High Risk

#### 4.0 Communal Water Treatment Supply (89 houses)

##### 4.1 Water Source

The raw water source is drawn from Attawapiskat Lake.

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

Sample	Exceedances	Result	GCDWQ limit	Notes
Feb. 13, 2001	Color	70 TCU	15 TCU (AO)	Sample appeared slightly yellow
	Total Organic Carbon	15.1 mg/L	5.0 mg/L (AO)	
	Hardness	74 mg/L	80 to 100 mg/L (OG)	

AO = aesthetic objective, OG = operational guidelines

##### 4.2 Design

The community is serviced by a water treatment plant constructed in 1991. The water treatment process consists of slow sand filtration and disinfected with sodium hypochlorite, an on-site 220 m<sup>3</sup> reservoir and distribution system. The plant has adequate ventilation and chemical storage area. There is a diesel operated pump for fire protection, as well as a backup generator for the water treatment plant. There is a laboratory but no office or workshop areas.

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. 13, 2001	Feb. 16, 2001	Water Plant	Colour	60 TCU	15 TCU (AO)	The sample was expired for turbidity and pH upon receipt
			Total Organic Carbon	15.1 mg/L	5.0 mg/L (AO)	
			THM	0.311	0.10 mg/L	
June 20, 2001	June 22, 2001	Landsdowne House Sample	Colour	38 TCU	15 TCU (AO)	The sample could not be tested for phenol because it was not received in a brown glass bottle
			Dissolved Organic Carbon	8.0 mg/L	5.0 mg/L (AO)	
			THM	0.327 mg/L	0.10 mg/L	

AO = aesthetic objective, OG = operational guideline

##### 4.3 Operations

Sodium hypochlorite is used for disinfection and there are sufficient amounts of hypochlorite on site.

There is a chlorine residual analyzer on site and residuals in the water are checked daily. All the chemicals for the plant are stored in the diesel room, which also acts as the general fuelling location. The

colilert kit is available and being used by the operator. The operator and Health Canada take bacteriological samples on a monthly basis. All manuals, except the as-built drawings, are available on site.

The plant has been shut down on several occasions when the high lift pumps do not produce enough pressure. The distribution system has an annual hydrant flushing program. There are no spare parts kept on site and no maintenance area. If outside help is needed, it takes two to three days to get a qualified technician to the community.

There are continuous problems at this location with pumps - some do not work at all, while others have electrical problems associated with automatic functions of the pump. The community is looking at replacing the broken pumps.

#### 4.4 Reporting

Chlorine in the treated water is checked daily. The operator reports that Health Canada does its own bacteriological testing once a month. The results of all tests are kept at the plant. A complete analysis of the treated water is done annually.

There have been two boil water advisories issued by Health Canada. One was issued recently when the plant ran out of chlorine. The other was issued in 1997 due to untrained operators and certain design problems that resulted in inconsistent treatment. The community was also under a third party co-management at the time and as a result much of the operation and maintenance for community infrastructure has been diverted to pay down the debt.

The following colilert results were available from Health Canada:

Date	Result
February 13, 2001	Satisfactory

The following chlorine residual data were available from Health Canada:

Date	Result
February 13, 2001	Chlorine Residual = 0 mg/L

#### 4.5 Operators

The three operators for the water treatment plant are Gordon Sugarhead, Joe Yellowhead and Ronny Monias. Gordon

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### **5.0 Deficiencies in the Communal Water Supply**

1. All operations and maintenance manuals, except as-built drawings, are available on site.
2. The plant has been shut down on several occasions when the high lift pumps do not produce enough pressure.
3. There are no spare parts kept on site and no maintenance area.

4. If outside help is needed, it takes two to three days to get a qualified technician to the community.
5. There are continuous problems at this location with pumps - some do not work at all, while others have electrical problems associated with automatic functions of the pump. The community is looking to replace the broken pumps.
6. Color seems only slightly removed during treatment process (raw = 70 TCU, treated = 60 TCU).
7. THMs is high in treated water samples.

## 6.0 Recommendations

- Investigate boil water advisories confirmed by Health Canada to ensure the source of contamination is being addressed adequately.
- Address high THMs and colour in treated water.
- 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.
- Purchase spare parts.
- Obtain as-built drawings for the plant.
- Repair/replace non-operational pumps.
- Provide separate chemical storage area, away from diesel fuel area.
- Implement a hydrant maintenance program.
- Investigate service disruptions caused by low pressure in high lift pumps.

## 7.0 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 this plant as follows:

Water Treatment Facility - Class II

## 8.0 Overall Community Risk Assessment

### **Water Category – High Risk**

- **High Risk because of the following:**
  - Boil water advisory;
  - Increase frequency of sample testing;
  - Repair equipment; and
  - Address high THMs

**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.**