Iskatewizaagegan (Shoal Lake #39) First Nation (Band No. 154)

Date of Visit: February 19, 2001
By Peter Fox (OCWA) and Larry Karaim (Bimose)
Site Address: Kejick P.O.
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Tribal Council Affiliation: Bimose Tribal Council
Operators: Wayne Holmstrom, Gerald Lewis, Manny Wapioke
Location: The Iskatewizaagegan First Nation community is located 40 km west of Kenora
Population: 310 people in the community (November 2000 – INAC)
No. of Units: 119 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 Iskatewizaagegan (Shoal Lake #39) community is treated as follows:

- 224 people use piped water
- 78 people use other systems
- 8 people have no service

- 86 houses are serviced by a communal water system;
- 30 houses are serviced by other systems; and
- 3 houses have no service.

2.0 Description of the Community Sewage Facilities

Based on the CAIS report, sewage from the houses in the Iskatewizaagegan (Shoal Lake #39) community is treated as follows:

- 188 people use piped sewage
- 117 people have septic tanks
- 5 people have no services

- 72 houses are serviced by a communal sewage system;
- 45 houses are serviced by individual septic tanks; and
- 2 houses have no service.

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	No lab
Chemical	0	No lab
Physical	0	No lab
Overall Ranking for Water Source	0	
B. Design		
Biological	2	1 exceedance
Chemical	10	Phenols exceedance
Physical	6	Dissolved organic carbon, hardness exceedance
Risk to Public Health	6	No boil water advisory but Phenols exceedance
Condition of Laboratory Equipment	0	Not inspected
Overall Ranking for Design	6	
C. Operations		
Reservoir Cleanliness	0	Not inspected
Emergency Plan	0	Unknown
Overall Ranking for Operations	10	Chlorine residual analyzer not calibrated, system operated without chlorine, malfunctioning equipment
D. Reporting		
Ranking for Laboratories and Testing	2	Monthly by Health Canada
Ranking for Boil Water Advisories	1	No boil water advisory

SECTION Water	SECTION RANKING Water	RISK Water
Overall Ranking for Reporting	2	
E. Operators		
Overall Ranking for Operators	2	No certification but trained and confident
F. Statistical Data		
Overall Ranking for Individual Wells	0	No data
Overall Ranking for the System	10	High 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	0	
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	0	
Overall Ranking for Design	0	
C. Operations		
Ranking for Emergency Plan	0	
Overall Ranking for Operations	0	
D. Reporting		
Overall Ranking for Reporting	1	
E. Operators		
Overall Ranking for Operators	1	
F. Statistical Data		
Overall Ranking for Individual Septic Tanks	0	
Overall Ranking for the Systems	0	No assessment due to construction of new plant

5.0 Communal Water Treatment Supply (86 houses)

5.1 Water Source

The raw water source is drawn from Indian Bay which is gravity fed to the wet well via an intake pipe.

5.2 Design

The community is serviced by a water treatment plant that was constructed in 1998. Low lift pumps pump water to the water treatment units. The treatment units only work for about eight hours of each day to provide for the community needs.

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

Date	Location	Exceedances	Result	GCDWQ limit
Apr. 28, 1999	Health Clinic	Phenols	0.016 mg/L	0.005 mg/L (HL)
		Dissolved Organic Carbon	6.0 mg/L	5.0 mg/L (AO)
		Hardness	71.6 mg/L	80 to 100 mg/L (OG)

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

Safety equipment is available on site; including eyewash at the chlorine station, hoist and other equipment for confined space entry. No safety hazards or safety concerns were observed with this facility.

Excellent laboratory (pH meter, jar mixers, 400 powder pillows), office/filing/computer (SCADA system) area and workshop, with tools for maintenance are available. Ventilation is adequate.

5.3 Operations

Water treatment consists of a dual train Zenon microfiltration process discharging to a two-celled reservoir located below the facility. Sodium hypochlorite (12%) is used for disinfection. Three high lift pumps and pressure tanks maintain system pressure in the distribution network.

There is on-line continuous monitoring for chlorine residual and turbidity, but this equipment is not operating properly and needs to be calibrated. Turbidity and chlorine residuals are taken six times per day by the operators using hand held units.

Alum, acid and caustic are available for use in the process but are not being used at the current time. Each chemical container has individual spill containment, and the chemical storage room also has spill containment provisions. A chemical order is placed every three months to ensure adequate supply.

The water treatment plant has a diesel operated fire pump but this is not exercised on a scheduled basis, it is only run when necessary. There is no standby power.

Much of the plant equipment is twinned including all chemical metering pumps. Local tradesmen (electricians) are available within two hours. An online computer modem connection is available for connection to Zenon to address operational or process problems. As built drawings and operation and maintenance manuals are available on site. There is a problem with the #3 high lift station shorting out causing alarm annunciation, so the entire alarm panel had been disengaged until this problem can be resolved.

On the water distribution system the operators have a monthly flushing program but we have not been told whether there is a hydrant and valve maintenance program.

On the day of the inspection there was insufficient chlorine residual and there may have been none for one or two days. The primary operator had been away and the replacement operator had not addressed this issue. The chlorine day tank had run dry and the alarm system did not annunciate the low level since it had been disengaged. When the primary operator returned to the site, the problem was rectified, and Health Canada was at the facility taking samples.

5.4 Reporting

The operators of the water treatment plant take chlorine and turbidity samples six times daily and keep very good records. The turbidity for this facility is consistently below 0.2 NTU. Plant staff take bacteriological samples once per month and take them to Health Canada in Kenora for transport to the Thunder Bay Health laboratory. The quality of the water is consistently good and this is reflected in the sample results. Sample results are kept at the plant and the Administration Office.

Sampling for all chemical substances is conducted annually by Health Canada. Results are consistently good.

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

Period	Frequency	Regularity	Exceedances
Oct. 25/99 to Oct. 04/2001	3 - 15 times/month from different locations	▪ 2 months missing in 1999 ▪ 5 months missing in 2000 ▪ 2 months missing in 2001	▪ 1 total coliform exceedance on 2001/07/11.

No boil water advisories have been issued on the water treatment plant since it was constructed. The previous facility had a long history of poor water quality resulting in illnesses in the community.

5.5 Operators

The primary operator at the water treatment plant is Wayne Holmstrom. [redacted]

Backup operator Gerald Lewis [redacted]. Another backup operator, Manny Wapioke [redacted]

6.0 Deficiencies in the Communal Water Supply

1. There are on-line continuous monitoring chlorine and turbidity meters but this equipment was not operating properly on the day of OCWA visit and needs to be calibrated. Turbidity and chlorine residuals (six per day) are taken by the operators using hand held units.

2. Phenols have exceeded the GCDWQ limit.

3. The water treatment plant has a diesel operated fire pump but this is not exercised on a scheduled basis.

4. The plant does not have standby power.

5. High lift #3 has been shorting out causing alarm annunciation, so the entire alarm panel had been disengaged until this problem is resolved.

5. On the water distribution system, the operators have a monthly flushing program, but we were not told whether there is a hydrant and valve maintenance program.

7.0 Communal Sewage Facilities (72 houses)

7.1 Effluent Receiver

No information was available.

7.2 Design

The community is serviced by a sewage system with treatment in lagoons. Presently under construction is a Zenon ZeeWeed sewage plant with UV disinfection. The existing lagoons will be reconfigured to provide for equalization storage for flow balancing and final polishing of effluent.

7.3 Operations

As the existing sewage treatment system will be phased out, no assessment was made.

7.4 Reporting

As the existing sewage treatment system will be phased out, no assessment was made.

7.5 Operators

The primary operator at the water treatment plant is Wayne Holmstrom. [redacted]

Backup operator Gerald Lewis [redacted] Another backup operator, Manny Wapioke [redacted]

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8.0 Deficiencies in the Communal Sewage Facilities

1. A new package sewage treatment plant is under construction to replace the existing lagoon system. No assessment was made.

9.0 Recommendations

- Implement a training program for operators leading to certification.
- Provide standby power.
- Implement regular sampling and testing program.
- Monitor and Investigate phenols exceedance.
- Repair problem with #3 low lift pumping station and modify alarm panel
- Keep alarms operational at all times.
- Calibrate the on-line monitors on a regular basis.
- Implement a contingency plan in case of emergencies for the water supply system.
- Review the use of chemicals that are currently not being used in the process.
- Implement an ongoing hydrant and main valve maintenance program.
- Regularly test fire pump.
- Develop an inventory of spare parts.
- Implement an inspection program for septic tanks to ensure they meet the required standards.

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 III
Sewage Treatment Facility -	Class III (based on plant that is under construction)

11.0 Overall Community Risk Assessment

Water Category – High Risk

- **High Risk because of the following:**
  - Equipment is malfunctioning;
  - Phenol exceedance
  - Alarms are turned off; and
  - System operated without chlorine.

Sewage Category – Low Risk (assuming new sewage treatment plant is operational)

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.