

Oneida Nation of the Thames (Band No. 169)

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By M.J. Newland (OCWA)

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Tribal Council Affiliation: Southern First Nations Secretariat

Operators: Chris Doxtator, Claybourn Dockstader

Location: The Oneida Nation of the Thames community is located approximately 16 km southwest of London

Population: 1,927 people in the community (December 2000 - INAC)

No. of Units: 459 housing units (CAIS)

1.0 Description of the Community Water Supply

Based on the CAIS report, water to the houses in the Oneida Nation of the Thames community is treated as follows:

- 1,927 people are serviced by a communal water system.
- 459 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 Oneida Nation of the Thames community is treated as follows:

- 38 people are serviced by a communal sewage system;
 - 1,843 people are serviced by individual septic tanks; and
 - 46 people have other services.
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- 9 houses are serviced by a communal sewage system;
 - 439 houses are serviced by individual septic tanks; and
 - 11 houses have other 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
A. Water Source		
Biological	0	
Chemical	6	High sodium exceedance
Physical	6	High hardness exceedance
Overall Ranking for Water Source	6	
B. Design		
Biological	10	147 exceedances out of 1,281 samples (11.5%)
Chemical	0	
Physical	0	
Risk to Public Health	1	No boil water advisories
Condition of Laboratory Equipment	0	
Overall Ranking for Design	7	No backup power, chemical not stored properly, no safety equipment
C. Operations		
Reservoir Cleanliness	0	
Emergency Plan	0	
Overall Ranking for Operations	6	Reoccurring problems – Chlorine residual analyzer and turbidity meter not working
D. Reporting		
Ranking for Laboratories and Testing	2	London Health Lab samples 3 times per week
Ranking for Boil Water Advisories	1	No boil water advisories

SECTION Water	SECTION RANKING Water	RISK Water
Overall Ranking for Reporting	2	
E. Operators		
Overall Ranking for Operators	2	Have received training and appear confident
F. Statistical Data		
Overall Ranking for Individual Wells	0	
Overall Ranking for the System	5	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	0	
B. Design		
Quality of Treated Effluent	0	
Ranking of Design of Sewage Plant	1	Meets design capacity
Ranking of Concerns and Hazards within the Plant	5	No safety equipment present
Condition of Laboratory Equipment	0	
Overall Ranking for Design	5	
C. Operations		
Ranking for Emergency Plan	0	
Overall Ranking for Operations	10	No as-built drawings, no O & M manuals, bulb burnt out for UV, no aluminum, sewage by-passing system is not functional
D. Reporting		
Overall Ranking for Reporting	10	No testing is conducted
E. Operators		
Overall Ranking for Operators	10	No training and not confident
F. Statistical Data		
Overall Ranking for Individual Septic Tanks	0	
Overall Ranking for the Systems	10	High Risk

5.0 Communal Water Treatment Supply (459 houses)

5.1 Water Source

The raw water is drawn from a groundwater well.

The following table summarizes the raw water chemical exceedances available from Health Canada:

Date	Exceedance	Result	GCDWQ Limit
May 18, 2000	Hardness	391 mg/L	80 – 100 mg/L (OG)
	Sodium	32.5 mg/L*	200 mg/L* (AO)
May 26, 2000	No Exceedances	N/A	N/A

AO – aesthetic objective; OG – operational guideline

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

5.2 Design

The Oneida Nation of the Thames community is serviced with a water treatment plant constructed in 1998.

➤ There were no test results available from Health Canada.

The community water supply is a Class II water treatment plant consisting of green sand filters, with potassium permanganate addition. The raw water source is groundwater. Chlorine is used for disinfection. A water tower with a capacity of 1,136 m³ is located on site. The design capacity of the plant is 22 L/sec.

5.3 Operations

There is an on-line chlorine residual analyzer and it is calibrated weekly, however it is not working properly. There is an on-line turbidity meter, but it is not working properly. Chlorine residuals are manually analyzed on a daily basis. The operators are familiar with calibrating the disinfection equipment. The disinfection equipment was functional and sufficient sodium hypochlorite was available on site. There is a colilert unit available, however the operators do not use it because of lack of reagents. Potassium permanganate is not stored according to MOE guidelines.

There is no backup power generator, and there has been one service disruption due to a faulty electric valve. Service was disrupted for three days.

There is an annual fire hydrant flushing, and a fire hydrant maintenance program in place. There is no main valve operating and maintenance program in place.

There have been no boil water advisories issued by Health Canada. Three samples for bacteriological testing are submitted weekly to the health laboratory in London for analysis.

There are operating and maintenance manuals and as-built drawings for the treatment plant on site. There is a contact listing of technicians/trades people available. The response for such personnel is 24 hours.

There is a lack of safety equipment, including face shields for chemical handling and confined space entry equipment.

5.4 Reporting

The London Health Laboratory conducts bacteriological testing on the communal water system three times a week. The results are kept at the water treatment plant.

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

Period	Frequency	Regularity	Exceedances
00/07/05 to 01/10/10	3 times a week	▪ Regular testing performed	▪ 147 exceedances of 1,281 samples during the given period (11.5%)

There have been no boil water advisories issued on the communal water system by Health Canada. There has been no disease or health related outbreaks in the last two years.

There have been no known exceedances of the GCDWQ.

5.5 Operators

Chris Doxtator and Claybourn Dockstader are the operators of the water and sewage treatment facilities.

s.19(1)

The operators require complete sewage treatment plant training, including laboratory skills, pump operation, instrumentation and calibration, and activated sludge process.

The turbidity of the treated water is manually analyzed daily, however the turbidity meter is not working properly. The operators indicated that chemical analyses of the treated water are not conducted.

8.0 Deficiencies in the Communal Water Supply

1. A preventative maintenance program needs to be implemented.
2. The water treatment plant does not have a backup power supply.
3. A main valve operating program needs to be implemented.
4. The chlorine equipment was working and a free chlorine test is done once a day. There is an on-line chlorine analyzer and it is calibrated weekly, however it does not function properly.
5. The on-line turbidity meter does not function properly.
6. A colilert unit is available but not used because of lack of reagents.
7. s. 19(1) have received some hands-on training at the facility. The operators require training with regards to confined space entry and mathematics.
8. A training program for the operators needs to be implemented.
9. A chemical sampling program needs to be implemented.

10. Potassium permanganate is not being stored in accordance with guidelines.

11. Safety equipment, including face shields for mixing chemicals, is needed.

12. Chemical analysis sampling is not taken by anyone.

6.0 Communal Sewage Facilities (9 houses)

6.1 Effluent Receiver

The plant discharges into a small creek.

6.2 Design

The Oneida Nation of the Thames communal sewage system consists of a collection system, one pumping station, and an SBR sewage treatment facility. The facility is not classified. It is not known when the facility was constructed. The rated design capacity of the system is not available.

6.3 Operations

There are no operation and maintenance manuals or as-built drawings for the sewage collection and treatment system on site.

There are no spare parts readily available. There is a contact listing of technicians/trades people available; the average response time for the technicians/trades people is 24 hours.

The plant is not being inspected on a regular basis by the operators. The alum feed tank was dry. The chemical left in the bottom of the tank was completely dried out – an indication that no chemical had been put into the tank for a lengthy period of time.

The UV lamp was burned out. There was no flow because the force main was either broken or plugged, and the UV light was being bypassed. This had been the situation for at least six months. The pumping station wet well was filled with raw sewage. Raw sewage was bypassing into the creek, as the pumps were not running. No sludge has been hauled from the facility. **The sewage system is completely non-functional.**

There are no adequate laboratory, office, or workshop areas. All repair work is contracted out. There is no backup power for the pumping station, or treatment plant.

6.4 Reporting

No effluent tests are conducted.

7.0 Personnel

Chris Doxtator and Claybourn Dockstader are the operators of the water and sewage treatment facilities.

s.19(1)

The operators require complete sewage treatment plant training, including laboratory skills, pump operation, instrumentation and calibration, and activated sludge process.

8.0 Summary of the Community Sewage Facilities

1. The UV disinfection system is not operational.
2. Raw sewage is bypassing from the sewage pumping station.
3. Immediate repairs and maintenance are required at the facilities.
4. The forcemain is broken or plugged.
5. There is no adequate safety equipment on site. There are no operations and maintenance manuals and no as-built drawings for the sewage treatment facilities on site.
6. There are no emergency spare parts available on site.
7. No samples are taken for chemical analysis.
8. The operators **s.19(1)** and must have additional training.
9. There is no backup power for the pumping stations or sewage treatment plant.
10. The plant is lacking in routine maintenance.
11. Alum is not stored according to MOE guidelines.
12. A training schedule for the operators needs to be implemented.

10.0 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 I

11.0 Recommendations

- Consider backup power for the water treatment plant.
- Repair and calibrate on-line chlorine and turbidity meters.
- Implement a preventive maintenance program and a main valve operating program at the facilities.
- Develop a contingency plan for emergency situations at the water treatment plant.
- Improve storage of potassium permanganate.
- Establish and implement a protocol for taking water samples at the water treatment plant including raw water samples.
- Obtain operation and maintenance manuals and as-built drawings for the sewage plant.
- Repair the broken or plugged forcemain.
- Develop an activated sludge biomass, and instruct the operators how to keep it operating properly.
- Undertake immediate repairs to correct bypasses at the sewage plant.
- Implement training program that can lead to certification of the operator.

- Establish and implement a protocol for taking water samples at the sewage treatment plant.
- Consider backup power for the sewage treatment plant and pumping station.
- Review safety equipment that is available on site.

12.0 Overall Community Risk Assessment

Water Category – Medium Risk

- **Medium Risk because of the following:**
 - Bacteriological exceedances in treated water.

Sewage Category – High Risk

- **High Risk because of the following:**
 - Sewage treatment plant is not functioning;
 - UV system is not operational and raw sewage being bypassed by pumping station to adjacent ditch;
 - Operators lack training and do not know how to run the plant; and
 - Alum feed tank is empty.

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.