
Wauzhushk Onigum (Rat Portage) First Nation (Band No. 153)

Date of Visit: April 9, 2001

By Peter Fox (OCWA)
Don Milligan (AKRC) unable to attend

Site Address: Box 1850
Kenora , ON P9N 3X8

Phone No.: 807-548-5663 **Fax No.:** 807-548-4877

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

Operators: WTP - Joe Williamson, WPCP - Carl Skead and Chris Skead

Location: The Wauzhushk Onigum (Rat Portage) community is located immediately south of the City of Kenora and is situated on the shores of the Lake of the Woods

Population: 297 people in the community (1999/2000 - INAC)

No. of Units: 98 housing units (CAIS)

1.0 Description of the Community Water Supply

Based on the CAIS report, water to the houses in the Wauzhushk Onigum (Rat Portage) community is treated as follows:

- 161 people are serviced by a communal water supply located at 2nd Portage; and
- 136 people are serviced by other individual systems.

- 53 houses are serviced by a communal water supply located at 2nd Portage; and
- 45 houses are serviced by other individual systems.

2.0 Description of the Community Sewage Facilities

Based on the CAIS report, sewage from the houses in the Wauzhushk Onigum (Rate Portage) community is treated as follows:

- 155 people are serviced by a communal sewage system; and
- 142 people are serviced by septic tanks.

- 51 houses are serviced by a communal sewage system; and
- 47 houses are serviced by septic tanks.

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 lab data available
B. Design		
Biological	5	4 exceedances noted in 83 samples (4.8%)
Chemical	10	Turbidity and phenol exceedance noted
Physical	6	Low hardness, Dissolved organic carbon and colour exceedances
Risk to Public Health	8	Turbidity, boil water advisory
Condition of Laboratory Equipment	0	
Overall Ranking for Design	7	
C. Operations		
Reservoir Cleanliness	0	Not inspected
Emergency Plan	0	Unknown
Overall Ranking for Operations	8	No chlorine residual analyzer, service disruptions due to power failure
D. Reporting		
Ranking for Laboratories and Testing	3	Regular testing conducted
Ranking for Boil Water Advisories	10	Community on boil water advisory at time of visit

SECTION Water	SECTION RANKING Water	RISK Water
Overall Ranking for Reporting	9	
E. Operators		
Overall Ranking for Operators	2	Trained and confident
F. Statistical Data		
Overall Ranking for Individual Wells	0	
Overall Ranking for the System	8	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	1	Discharged into Lake of the Woods via wet land
B. Design		
Quality of Treated Effluent	0	
Ranking of Design of Sewage Plant	8	High flows causing bypasses
Ranking of Concerns and Hazards within the Plant	9	No confined space entry equipment, no provisions for chlorination of high flows that bypass treatment
Condition of Laboratory Equipment	0	
Overall Ranking for Design	8	
C. Operations		
Ranking for Emergency Plan	0	
Overall Ranking for Operations	0	No information available
D. Reporting		
Overall Ranking for Reporting	0	No information available
E. Operators		
Overall Ranking for Operators	5	Not certified and has not received training, but confident in operation

F. Statistical Data		
Overall Ranking for Individual Septic Tanks	0	
Overall Ranking for the Systems	8	High Risk

5.0 Communal Water supply (53 houses)

5.1 Water Source

The communal water supply at Second 2nd Portage services 53 houses from the surface water from the Devil's Gap Channel, and raw water is gravity fed to a wet well.

5.2 Design

The water treatment plant was constructed in 1990.

The intake is 6 m deep close to shore. Low lift pumps pump water to the water treatment units. The water treatment units are two small live pressure filters with dual media (sand and anthracite). Water is chlorinated with sodium hypochlorite and discharged to a 2-cell clear well reservoir located below the plant. High lift pumps provide potable water to the distribution system. These pumps maintain system pressure.

High lift pumps are twinned with a jockey pump and fire pump for each clear well. The valve between the clear wells cannot be closed to isolate the 2 clear wells. The jockey pumps have provision for variable speed drives to maintain constant system pressure. The pressure chart recorder is not operational. One jockey pump is non-operational, one fire pump requires packing and one chlorine pump is operational while the backup is awaiting repairs.

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

Date	Location	Exceedance	Result	CDWG Limit
May 14, 1998	Treated Water	Colour	24 TCU	15 TCU (AO)
		Hardness	50.6 mg/L	80 – 100 mg/L (OG)
		Turbidity	1.1 NTU	1.0 NTU (HL)
		Dissolved organic carbon	11 mg/L	5.0 mg/L (AO)
		Phenols	<0.003 mg/L	0.001 mg/L (AO)
May 25, 1999	Kinew Child Care Center	Colour	18 TCU	15 TCU (AO)
		Hardness	52.3 mg/L	80 – 100 mg/L (OG)
		Dissolved organic carbon	9 mg/L	5 mg/L (AO)
		Phenols	0.004 mg/L	0.001 mg/L (AO)

AO – Aesthetic Objective

OG – Operational Guideline

HL – Health Limit

The backwash system is now manually operated and conducted twice per week. Turbidity is not measured or recorded to determine adequacy of backwash cycle frequency. Bags of filter media are available on site. The media was last inspected four to five years ago.

5.3 Operations

12% sodium hypochlorite is used for disinfection. Sodium hypochlorite on-site supply was limited but on order. There is no provision for coagulant aid in the filter process.

Safety equipment is not available on-site. This is a one-man operation. The facility has very limited area with basically no laboratory, chemical storage, or office/filing areas. Files are kept in the operator's vehicle/home, which is off reserve. Drawings and manuals however are available at the plant.

Minimal tools are available for maintenance, but the operator purchases tools as necessary. The plant is quite dependent on local trades-people for major maintenance, although there is a quick response time to calls for assistance. The operator has a spring and fall flushing program for the water distribution system

Adequate ventilation is available within the plant. The water treatment plant has a diesel backup for one fire-pump but the battery is dead. The low lift has no backup power, therefore, during power failures there is no potable water for the distribution system. There have been very few power failures but one major outage lasted 4 days due to power switch malfunctions from a lightning strike.

5.4 Reporting

The operator of the water treatment plant reports that he takes chlorine samples every day at the plant. Chlorine comparator was at the other site as it was being readied for operation.

Health Canada also takes bacteriological tests once per month. These samples are submitted to the Thunder Bay laboratory. The operator and the Administration Office keep sample results.

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

Period	Frequency	Regularity	Exceedances
99/10/05 to 01/09/18	1 – 3 times per month from different locations	<ul style="list-style-type: none"> ▪ Months missing in 1999: Nov., Dec. ▪ Months missing in 2000: May ▪ Months missing in 2001: Jun., Jul., Aug. 	<ul style="list-style-type: none"> ▪ 2000/08/14 – Marina (TC/EC) ▪ 2000/08/14 –Residence (TC/EC) ▪ 2000/10/10 –Residence (TC) ▪ 2001/05/16 – Clinic (EC)

TC = Total coliform EC = E.Coli coliform

Sampling for all chemical substances is conducted once/year by Health Canada. Colour and turbidity were identified as issues in a 1998 study.

The operator stated that no boil water advisories have been issued on the water treatment plant since the filters were changed four to five years ago. However, Health Canada confirmed there was a boil water advisory on the water supply system in January 2001. The system was on a boil water advisory at the time of the visit.

5.5 Operators

Joe Williamson is the operator at the water treatment plant. He is also responsible for the other water facilities including individual house pumps, the sewage lift stations and the distribution system. He is a one-man operation.

Joe indicates there is one other individual in the community to back him up when he is on vacation or sick.

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6.0 Deficiencies in the Communal Water Supply

1. System is currently under a boil water advisory.
2. Turbidity is not measured or recorded.
3. No safety equipment is available.
4. Facility is limited in area with no room for laboratory, chemical storage, or office/filing areas.
5. Few tools are available for maintenance.
6. There is a diesel backup for one fire pump but the battery is dead.
7. Colour and turbidity were identified as issues in the 1998 study.
8. The operator is not certified but is receiving Circuit Rider Training Program and has received other training before.

7.0 Communal Sewage Facilities (51 houses)

7.1 Effluent Receiver

Polished effluent from a two-cell lagoon system is discharged to a wetland and then into lake of the woods. The City of Kenora's water intake is downstream from the lagoon outfall.

7.2 Design

The community communal sewage treatment system is a rotating biological contactor (RBC) facility, constructed in April 2000, and is in excellent condition. There is a good-sized area for office and laboratory (but no equipment and maintenance tools available). There is some concern with high flows, occurring at times, due to infiltration in collection system. This has caused sewage to flood the plant and there is no provision for high flow bypass directly to the chlorine chamber.

There is standby power at the plant, which is tested once per month. But there is no standby power presently operational at the sewage lift stations.

7.3 Operations

As-built drawings and operation and maintenance manuals are on site. The safety equipment is appropriate with air exchanger and hoist on site. There is no tritector gas monitoring equipment. An eyewash unit is available in the sodium hypochlorite disinfection room.

There is an appropriate supply of sodium hypochlorite. There should be samples taken at the polishing lagoon outfall. The gas monitor for the RBC room was not operational. Explosion-proof electrical equipment was installed in the RBC room.

The sludge wasting is ongoing and the effluent visually looks excellent.

Backup power is available to the major sewage lift station, however, a buried power supply line from the water treatment plant to the lift station was recently cut during the installation of a house service, and has not yet been repaired/replaced.

7.4 Reporting

Due to the unavailability of process monitoring equipment, sampling is not being conducted of the sewage treatment plant.

7.5 Operators

Carl Skead and Chris Skead are the operators at the sewage treatment facility. Minimal training was provided, however, both operators assisted during the construction of the facility. They appeared to be confident in their abilities to operate the facility. There are two operators that backup each other.

8.0 Deficiencies in the Communal Sewage Facilities

1. There is some concern about the high flows occurring at times due to infiltration in collection system.
2. No standby power is presently operational at the sewage lift stations.
3. Operators only received 15 minutes of instruction on plant operations, however the Circuit Rider Training Program was recently initiated.
4. There is no ongoing testing because process-monitoring equipment was not supplied.

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

- Investigate reasons for the current boil water advisory.
- Implement a training program that can lead to certification of the operator.
- Repair pressure chart recorder.
- Replace/repair isolation valve between clear wells.
- Purchase a spare chlorine pump as backup for the water treatment plant.
- Implement regular water-sampling program that should include turbidity testing.
- Purchase monitoring meters (handheld) for chlorine residual and turbidity.
- Develop a contingency plan for the complete water supply system.
- Implement an annual valve-testing program to ensure valves are operational.
- Review location of water intake to determine influence of boat traffic and shoreline uses on the water quality at the intake.
- Consider constructing office for the water treatment plant.
- Review the provision of a high-flow sewage bypass line to chlorine chamber to prevent flooding of the sewage plant.
- Develop a contingency plan should be in place in case of emergencies at the sewage lift stations.
- Supply backup power at the lift stations as well as overflow alarm annunciations.

- Purchase monitoring equipment for the sewage plant process control.
- Review the addition of chlorine at the sewage plant and its impact on the biological activity in the polishing lagoons.

11.0 Overall Community Risk Assessment

Water Category – High Risk

- **High Risk because of the following:**
 - Boil water advisory
 - Service disruptions due to power failure
 - No chlorine residual analyzer

Sewage Category – High Risk

- **High Risk because of the following:**
 - High flows causing flooding of the plant

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.