

The Corporation of the Town of Fort Frances Wastewater Treatment Plant (WWTP)

The Ontario Clean Water Agency (OCWA) provides safe, reliable, environmentally responsible, and cost-effective water and wastewater services. OCWA manages water and wastewater systems throughout Ontario — ranging from complex treatment and collection for millions of users to single well facilities for small, remote communities.

Our partnership in serving the communities of Fort Frances has been our privilege since 2009 and the Ontario Clean Water Agency is pleased to report that 2017 has been another successful year of operations.

DESCRIPTION OF THE WORKS

Capacity of Works	9,000 m ³ /day (average flow) 18,000 m ³ /day (peak)
Service Area	Town of Fort Frances and Couchiching Reserve
Service Population	9,000
Effluent Receiver	Rainy River
Major Process	Secondary treatment facility complete with a phosphorus removal system; ultra violet disinfection; aerobic sludge stabilization and dewatering

OPERATIONAL OVERVIEW AND EFFICIENCIES



Fort Frances Wastewater Treatment Plant

OCWA's day-to-day activities help ensure the Town's facilities operate reliably and efficiently and that water returning to your waterways is clean and meets regulatory standards. To do this, a variety of regular operational activities are performed including maintaining and monitoring process control equipment, pumps, and other equipment. We also complete sampling and reporting, maintaining daily activity logs, prepare for Ministry of the Environment and Climate Change (MOECC) inspections, and check all buildings for maintenance and security.

24-hour contingency plan have been established to ensure that during unusual circumstances — power failures, snow and ice storms, and other unexpected events — we are ready and able to respond quickly and effectively.

Over the years we have worked together to ensure local contingency planning and emergency response programs are in place. We have solidified emergency preparation activities and co-ordinated our Facility Emergency Plan with the Town's emergency plan where possible.

What We Do

On behalf of the Town, OCWA provides operations and maintenance services, fulfills a broad range of duties, and ensures regulatory requirements are met. As your operator, we:

- Act as the Town's representative with regulatory agencies
- Provide 7 days/week on site operations
- Ensure security at all facilities
- Be available 24/7 to respond to alarms and emergencies
- Maintain 5 lift stations
- Inspect process control equipment to ensure proper operation and compliance
- Analyze data for trending, gap analysis, testing, compliance, and reporting
- Monitor Couchiching Lift Stations and provide flow data for billing purposes
- Maintain daily on-site logs and records
- Procure chemicals to take advantage of OCWA's bulk procurement policy
- Coordinate and administer sludge disposal
- Complete routine wastewater tests (i.e. suspended solids, total solids, dissolved oxygen, temperature, 30 min. settling), record results, calculate plant process control parameters, and make operational adjustments
- Monitor discharges as per provisions of Environmental Compliance Approval (ECA) and provincial and federal regulations



What We Do
As a trusted partner to municipalities, First Nations communities, businesses, governments and institutions across Ontario, we provide our clients with total solutions in water and wastewater. We are dedicated to working closely with our clients to help them build healthy sustainable communities and organizations.

Proud Sponsor of OFSAA 2017

Northwestern Ontario
Regional Hub Office,
574B Memorial Ave., Thunder Bay
807-622-2493
Manager: Jeff St. Pierre

OCWA
ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

In 2017, OCWA sponsored the OFSAA hockey program.

Operational Highlights

The Town of Fort Frances' wastewater treatment facilities are part of OCWA's operational Northwest Hub, which encompasses 24 municipal clients with a total of 55 facilities, and two First Nations with a total of 53 small systems. The facilities are supported by Thunder Bay regional and corporate resources. Operational services are delivered by trained and certified operations staff who live and work in your community.

The Fort Frances wastewater facilities are operated in compliance with applicable regulations while enhancing the performance of your facilities.

Highlights in 2017 include:

- We continue to try to find better ways to save on sludge and polymer, for example, we will continue to ensure each bin is raked to its fullest before hauling
- 7 day a week coverage is provided as we continue to work weekends at no extra cost to the Town
- We insulated the digester doghouse to prevent freezing and also installed temporary heaters for use when needed
- We worked with Lakeside to install programming at lift stations so that when a high wetwell event happens, both pumps are turned on, thus reducing additional call ins
- We worked with Lakeside to develop additional wasting screens for added plant performance
- OCWA purchased a truck mounted lifting davit to remove pumps and valves at lift stations reducing the need for contractors to do this work
- An enhanced Uninterrupted Power Supply with longer life was installed at the water plant to help prevent loss of power on our radio hub, for lift station communications thus reducing call ins
- The bio-solids upgrades were substantially completed in 2016. Contractors are still expected on site to finish some of the work required. OCWA continues to look at ways to optimize the process through polymer usage as well as decreasing the cost of sludge haulage
- We will continue to investigate chemical procurement options in Northwestern Ontario
- In the reporting year 2017, CBOD₅, suspended solids and total phosphorus concentration limits and loading limits met both the Environmental Compliance Approval (ECA) limits and the objectives
- The pH met the requirements of the ECA in 2017
- The effluent met the limit for E-Coli targets and objective targets with a maximum monthly geometric mean density of 16.7 organisms per 100ml



Sludge Generation and Disposal

Sludge is hauled by a local contractor for further drying and disposal at the Town of Fort Frances landfill site. The new Fournier Rotary Press, in operation as of September 19, 2016, decreased the water content of the sludge for disposal at the landfill. The new dewatering process is expected to continue to reduce the volume of sludge for disposal in 2017 thereby reducing its associated costs. For a detailed comparison of sewage and hauled sludge over 2016 and 2017 please see **Appendix A**.

REGULATORY COMPLIANCE AND REPORTING

Throughout 2017, OCWA provided formal, comprehensive reports to the Town in a timely manner. We ensure you can always monitor performance and the condition of your facilities through reports designed to satisfy the stringent requirements for reporting regular water quality results to the MOECC.

There were no community complaints received during the period of this report.

Wastewater Influent

The peak flow (12,238 m³/day) occurred in June. Additionally, the flow through the plant exceeded the daily design flow of 9,000 m³/day in February, April and June. The monthly flow averages for these months was below the 9000 m³/day allowed in the permit.



Effluent Quality Assurance or Control Measures

The effluent sample is a 24 hr. composite sampled downstream of the UV disinfection system. The influent and effluent samplers are set to collect samples at a frequency of at the least one sample per hour interval.

Operators send weekly influent and effluent samples to ALS Laboratories in Thunder Bay. Digester contents are analyzed on a quarterly basis.

Suspended solids are sampled and tested in house on both influent and effluent and total phosphorus is tested on the effluent. Plant operators perform in-house laboratory testing for several other process parameters to monitor plant performance.

Maintenance

Operators performed required routine maintenance through the 2017 period. Additional maintenance activities conducted during the year are as follows:

Fort Frances Wastewater Treatment Plant

- Replaced flexible coupler blower 4 outlet
- New heat trace & insulation installed on outside alum line
- Repaired digester automatic air valve
- Replaced a shear pin in clarifier longitudinal drive 1
- Installed new shear pin drive sprocket for clarifier 2 longitudinal drive
- Replaced belt head works exhaust fan EF 01
- Backflow preventer and expansion tank for the boiler make up water were replaced by Pryde's Plumbing
- A coolant hose on the portable diesel generator was replaced by TOFF
- Removed 1 link from clarifier 1 longitudinal drive chain
- Installed new level sensor old digester
- Replaced pressure relief valve blower 4
- Replaced UV bulbs & acid washed sleeves bank B (2)
- Replaced tubing on effluent sampler and calibrated
- Replaced belt EF 02
- Replaced blower 4 with spare and new belts and oil
- Replaced coupler in Blower 4 air line and tightened valve flange
- Hot water flushed and repaired blockage alum lines
- Drained and inspected both clarifiers. Removed 2 links from flight chain in tank 1 and 1 link from tank 2
- Replaced 4" valve on RAS 1 stack to WAS transition
- Replaced air filter channel blower
- Replaced blower 4 case seal
- Changed oil grit pumps gear boxes

Pump Stations

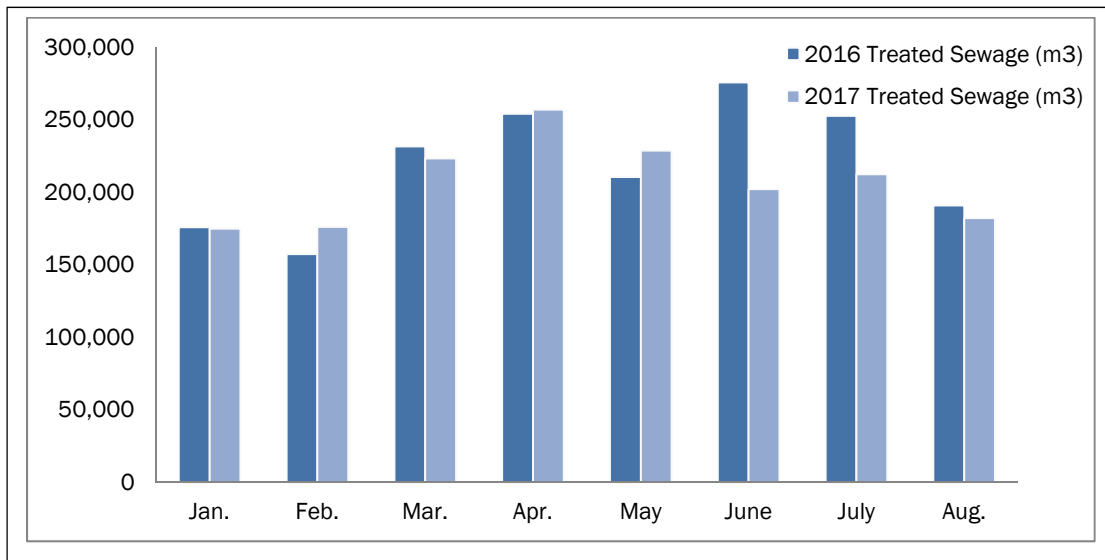
- Replaced block heater Central Avenue genset
- Repaired seal water tubing Central Avenue pump 2
- Adjusted signal cut off value Boundary Road flow meter and replaced couplant
- Replaced generator battery Fifth Street lift station
- A control relay for the Central Avenue lift station generator transfer switch failed, Wajax was called in to provide a solution
- A control relay for the Central Avenue lift station generator transfer switch was replaced by Wajax

Appendix A 2016-2017 Comparison Chart and Graphs

2016 v. 2017 Treated Sewage
and Sludge Hauled

	2016 Treated Sewage (m ³)	2017 Treated Sewage (m ³)	% Variance 2016 to 2017	2016 Hauled Sludge m ³ (9% solid)	2017 Hauled Sludge m ³ (18% solid)	% Variance 2016 to 2017
Jan.	175,712	174,745	-1%	249.9	104.9	-58%
Feb.	157,117	175,956	11	251.7	86.5	-66%
Mar.	231,365	223,183	-4	212.7	118.1	-44%
Apr.	253,871	256,759	1	228.3	123.7	-46%
May	210,352	228,551	8	241.2	97.2	-60%
June	275,522	201,914	-36	217.4	113.5	-48%
July	252,416	212,264	-19	227.5	113.8	-50%
Aug.	190,658	181,956	-5	130.3	122.2	-6%
Sept.	180,285	174,796	-3	92.8	116.5	26%
Oct.	181,205			108.0		
Nov.	169,075			92.6		
Dec.	187,407			92.6		
TOTALS	2,464,985	1,830,124		2,145	996.40	

2016 v. 2017 Treated Sewage



2016 v. 2017 Hauled Sludge

