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

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. As your service provider, OCWA works hard to maintain our in-depth knowledge of the Town of Fort Frances WWTP operations.

Serving the communities of Fort Frances has been our privilege since 2009 and the Ontario Clean Water Agency is pleased to report that 2016 has been another successful year of operations.

DESCRIPTION OF THE WORKS

Capacity of Works	9,000 m^3/day (average flow) Peak 18,000 m^3/day
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

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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 ensure the water returning to your waterways is clean and meets environmental standards. To do this, we perform a variety of regular operational activities including maintaining and monitoring process control equipment, pumps, and other equipment. We also complete sampling and reporting, maintaining daily activity logs, prepare for MOECC inspections, and report and check all buildings for maintenance and security.

We have established a 24-hour contingency plan and ensure that during unusual circumstances (power failures, snow & ice storms, and other unexpected events) we are ready and available to respond quickly and effectively.

What we do….

In 2017, OCWA sponsored the OFSAA hockey program.

- Act as the Town's representative with regulatory agencies
- 7 day a week on site operation
- Ensure security at all facilities
- Be available 24/7 to respond to alarms and emergencies
- Maintenance of 5 lift stations
- Inspect process control equipment to ensure proper operation and compliance
- Analyze data for trending, gap analysis, testing, compliance, and reporting
- Monitoring of Couchiching Lift Stations and provide flow data for billing purposes
- Maintain daily on-site logs and records
- Procure chemicals taking 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 ECA and provincial and federal regulation

Operational Issues

The Town of Fort Frances' wastewater treatment facilities are part of OCWA's operational Northwestern Regional Hub, which encompasses 24 municipal clients and 53 facilities. The facilities are supported by Thunder Bay regional and corporate resources. Operational services are delivered by OCWA staff — clean water experts who live and work in your community.

We operate the Fort Frances wastewater facilities in compliance with applicable regulations while enhancing the performance of your facilities. Highlights in 2016 include:

- The Town of Fort Frances agreed to accept 228 m^3 of sewage from the New Gold Mine site
- On June 25, there was a heavy rainfall event. Surrounding stations reported rainfall totals close to 70 mm. The rainfall resulted in a 1-day bypass event on June 25
- There was a scheduled 6 hour power outage on October 2nd. The power outage resulted in the UV system not disinfecting the processed effluent during the power outage
- The bio-solids upgrades were substantially complete 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

- In the reporting year 2016, $CBOD_5$, suspended solids and total phosphorus concentration limits and loading limits met both the Certificate of Approval limits and the objectives
- The pH met the requirements of the Certificate of Approval in 2016
- The effluent met the limit for E-Coli targets and objective targets with a maximum monthly geometric mean density of 23.7 organisms per 100 ml

Sludge Generation and Disposal

The 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 2016, 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 (18,874 m^3/day) occurred on June 26, 2016. Additionally, the flow through the plant exceeded the design flow of 9,000 m^3/day on two days in March, four days in April, nine days in June and eight days each in July. For the month of June the average flow was above the 9,000 m^3/day design flow.

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

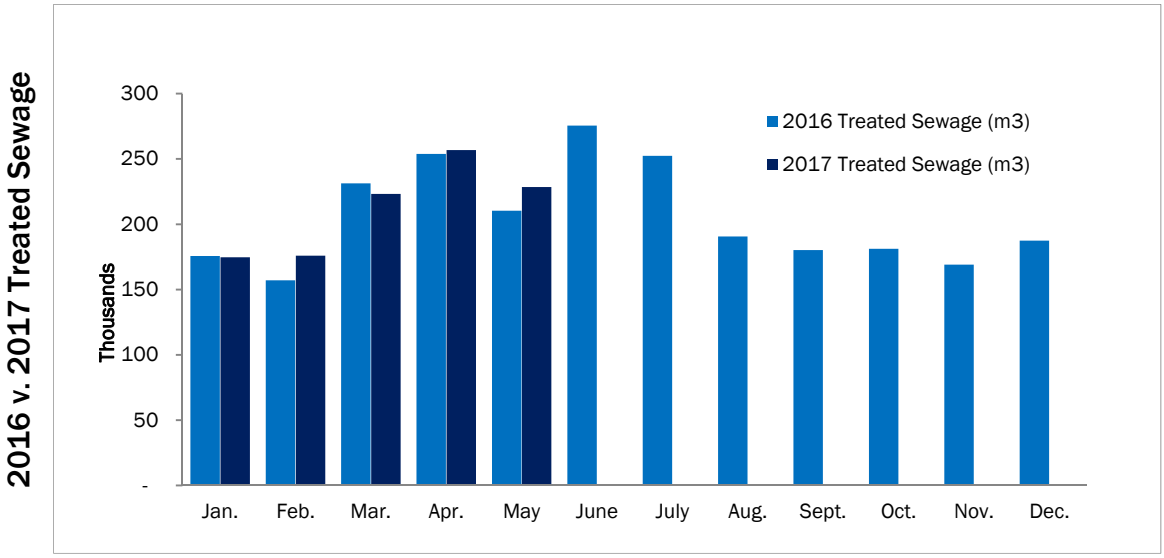
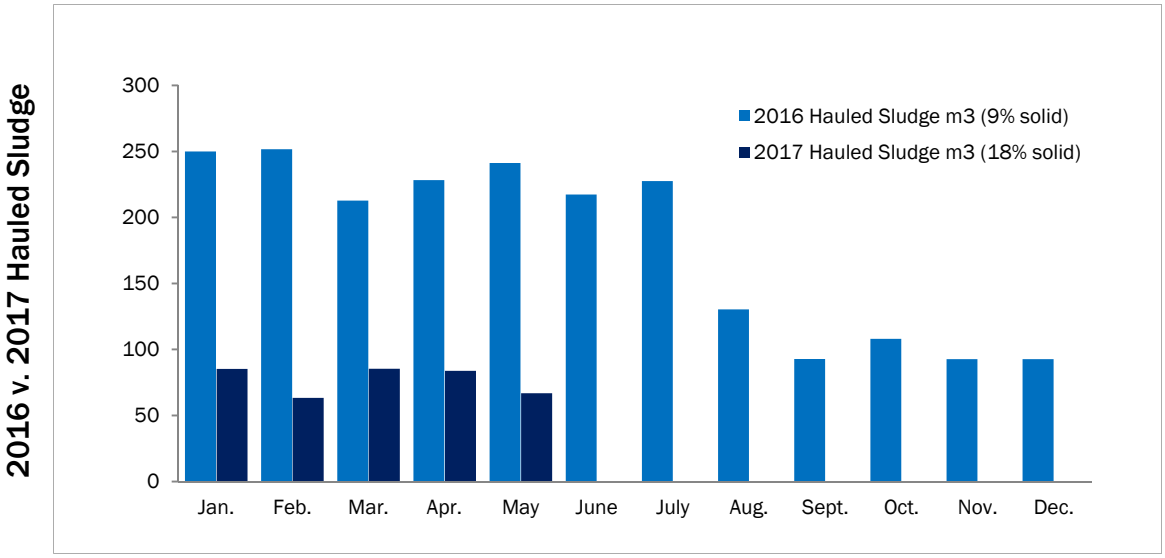
Operators performed required routine maintenance through the 2016 period. Additional maintenance activities conducted during the year are as follows:

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 the 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 1and 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 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	85.3	-65.87%
Feb.	157,117	175,956	11%	251.7	63.3	-74.85%
Mar.	231,365	223,183	-4%	212.7	85.4	-59.85%
Apr.	253,871	256,759	1%	228.3	83.8	-63.29%
May	210,352	228,551	8%	241.2	66.8	-72.31%
June	275,522			217.4		
July	252,416			227.5		
Aug.	190,658			130.3		
Sept.	180,285			92.8		
Oct.	181,205			108.0		
Nov.	169,075			92.6		
Dec.	187,407			92.6		
TOTALS	2,464,985	1,059,194		2,145.0	384.6