The Corporation of the Town of Fort Frances
Wastewater Treatment Plant
(Sewage Plant)
September 2017 Monthly Operations Report

INTRODUCTION

In accordance with the Agreement between the Ontario Clean Water Agency (Operating Authority) and the Town of Fort Frances, the Fort Frances Sewage Treatment Plant is required to prepare a monthly report. This document covers the reporting month of September 2017; the facility performance report summarizes important information regarding the quality of the effluent, wastewater, analytical test results, maintenance operations, and relevant activities of the WWTP.

DESCRIPTION OF WORKS

Capacity of Works	9000 m^3/day (average flow)
Service Area	Town of Fort Frances and Couchiching Reserve
Service Population	9000
Effluent Receiver	Rainy River
Major Process	Secondary treatment facility complete with a phosphorus removal system; ultra violet disinfection; aerobic sludge stabilization and dewatering

The Fort Frances Sewage Treatment Plant operates under *Environmental Compliance Approval Number 6786-A44PWG*. The ECA outlines the terms and conditions, and the report captures these terms and conditions in the following sections.

LABORATORY

ALS Laboratory Group – Thunder Bay is contracted to conduct the required analytical tests of the influent (raw) and effluent samples; weekly requirement.

SEPTEMBER 2017 EFFLUENT QUALITY

Parameters	***Monthly Actual Concentration* mg/L**	***Compliance Criteria Concentration* mg/L**	***Performance Objective Concentration* mg/L**	***Monthly Actual Loading, kg/d***	***Compliance Criteria Loading kg/d***	***Performance Objective Loading* kg/d**
$CBOD_5$	2.1 mg/L	25 mg/L	15 mg/L	12.0 kg/d	225 kg/d	135 kg/d
Total Suspended Solids	3.5 mg/L	25 mg/L	15 mg/L	20.6 kg/d	225 kg/d	135 kg/d
Total Phosphorus	0.15 mg/L	1.0 mg/L	0.9 mg/L	0.89 kg/d	9 kg/d	8.1 kg/d
Total Nitrogen Nitrate Nitrogen	7.59 mg/L 6.10 mg/L					
Total Cl_2 Residual		<0.01 mg/L (when in use)				
E-Coli	9.0 count/100 ml (geometric mean)		200 count/100ml (geometric mean)		E-coli not to exceed 150 organisms/100ml (monthly geometric mean density)	
pH			pH range 7.5 to 7.9; average pH was 7.7			
Temperature degrees C			Temperatures ranged from 17.0 to 18.5 C; average temperature of effluent was 18.0 C			

Compliance criteria are mandatory requirements of the ECA and performance objectives are a goal to be achieved using best reasonable efforts.

WASTEWATER LIQUID PROCESS

The average daily flow for September was 5826.5 m^3 /day. This represents 65% of the design average flow. Total treated flow for the month was 174796 m^3.
The Fort Frances WWTP met all effluent compliance criteria for the parameters listed above and additionally was well within the recommended more stringent monthly performance objective levels as outlined in the Environmental Compliance Approval.

INVENTORY

Chemical	End of Month Status	Units
Hypochlorite	1070 +/-@ 8.0% +3x205 L @ 12%	Litres
Alum	6.2 +/- @ 55 %	Cubic meters
Polymer	3 x 205 L drums	Liters

MAINTENANCE

The operators performed the routine operations and maintenance at the treatment plant and pumping stations. The activities are highlighted as follows:

Treatment Plant:

- Alternated lead/lag pumps
- Adjusted fluidizing water to head cell and grit snail as needed
- Greased all blowers and changed oil blowers 1, 2 and 3
- Regular cleaning of head works EW basket strainer
- Greased Grit Snail and lubricated drive chain
- Monthly inspection of spiral screen access hatch, removed wrapped debris
- Replaced belt John Deere mower drive
- Replaced shear pin clarifier cross collector drive #1
- Weekly manifold wash on the Fournier press
- Tensioned drive chain cross collector #2
- Replaced tubing and calibrated both automatic samplers
- Serviced air handler ASU 101 greased bearings and replaced belt
- Serviced air handler ASU 01, 02 greased bearings, replaced belt and filters
- Replaced belt head works exhaust fan
- Hosed and swept UV banks
- Greased clarifier drives
- Both clarifiers were drained for inspection, 2 links were removed longitudinal chains

Pump Stations:

- Ran gensets
- Changed seal water strainers
- Replaced UPS unit at Boundary Road lift station

PROCESS AND OPTIMIZATION ISSUES

The lack of a booster pump for the polymer system dilution water is preventing further optimization of the new sludge thickener.
Fournier suggested modifications to the wiring in the polymer system control box were completed with assistance from plant staff. Fournier then made programming changes to their PLC. No obvious benefit has been achieved.
The check valves on the polymer pumps have been problematic, gumming up unnecessarily and to such an extent that no polymer is delivered.
The sludge cake produced this month has not been able to meet design specifications for dryness.

SLUDGE SUMMARY

Asselin Storage and Transportation Limited hauled a calculated total of 116.5 m3 (13 bins) of thickened digested sludge to the Town of Fort Frances landfill site. The hauled sludge averaged 16.3 % TS for the month.
In order to more accurately reflect sludge haulage volumes, we have changed the formula that is used for this calculation. Use of the new formula will result in haulage volumes which are approximately 30% greater. The adjustment will be applied in this report as well as to all of the sludge haulage totals for the year.

COMPLAINTS

There were no complaints during the report period.

BYPASS/OVERFLOW REPORT(S)

There were no bypass or overflow events during the reporting period.

COMMENTS

Plant power consumption for the month was 646 (x 180 multiplier) kWh.
Screen and Dewatering Upgrades at the FFWWTP have been under way since May 30, 2016.
The secondary clarifiers were drained for inspection and 2 links were removed from the longitudinal collector chains in each tank.

REPORTS

ALS – Environmental Analytical Reports (on-file at plant)
Fort Frances WPCP Equipment Run Time Report (on-file at plant)
Bypass Report (on-file at plant as per occurrence)
Incident Report (on-file at plant as per occurrence)