

# 2021 Annual Report

## Fort Frances

### Wastewater Treatment Plant

Prepared by the Ontario Clean Water Agency



**Ontario Clean Water Agency**  
**Agence Ontarienne Des Eaux**

**The Corporation of the Town of Fort Frances  
Wastewater Treatment Plant  
(Sewage Plant)  
2021 Annual Report**

## **Introduction**

In accordance with the Amended Environmental Compliance Approval Number 6786-A44PWG section 10(5), the Town of Fort Frances Wastewater Treatment Plant is required to prepare an annual performance report. The 2021 annual performance report summarizes important information regarding the treatment quality of the effluent wastewater, analytical test results, relevant activities and maintenance operations of the Works.

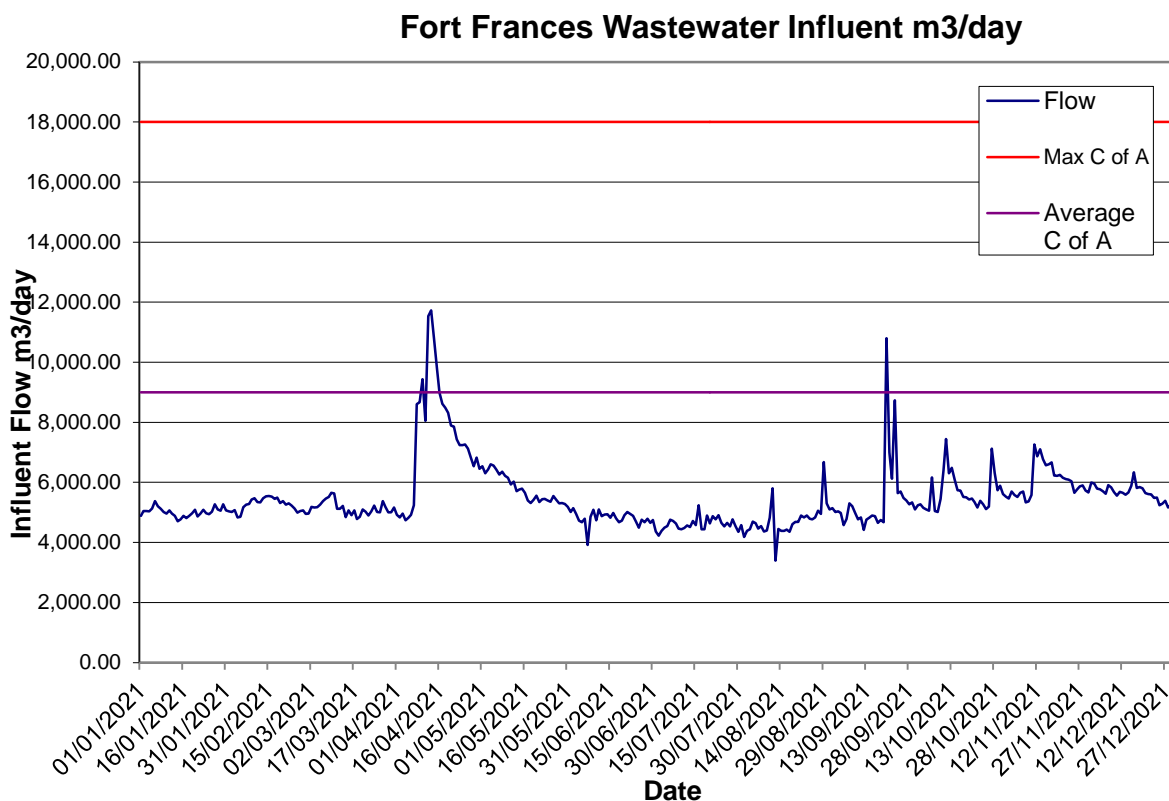
## **Description of the Works**

Capacity of Works	9000 m <sup>3</sup> /day (average flow) Peak 18000 m <sup>3</sup> /day
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

## **1. Summary and Comprehensive Interpretation of Data**

<b>Flow Summary</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>5-yr avg.</b>
Avg. Day m <sup>3</sup> /day	6476	5988	7860	5967	5468	6352
Design m <sup>3</sup> /day	9000	9000	9000	9000	9000	9000
Utilization (Avg. Day/ Design)	72%	67%	87%	66%	61%	71 %
Max Day m <sup>3</sup> /day	12238	13977	18190	12162	11729	13659
Max Day Factor	1.9	2.3	2.3	2.0	2.1	2.1

The daily flow of influent into the Fort Frances Wastewater treatment plant is presented in the following graph.



The peak flow occurred on April 13 2021. The peak flow through the treatment plant was 11729 m<sup>3</sup>/day. The flow through the plant exceeded the design flow of 9000 m<sup>3</sup>/day on 5 days in April and one day in September.

The daily analytical and process data for the plant is attached as the Monthly Operations Summary. This data is summarized in the Annual Summary also attached to the report.

In the following table the Carbonaceous Biochemical Oxygen Demand, Suspended Solids and Total Phosphorus are compared to the Certificate of Approval effluent concentrations and loadings as specified in section 7.

Month	CBOD5		Suspended Solids		Total Phosphorus		E. Coli	pH	
	Avg. Eff.	Avg. Load	Avg.Eff.	Avg. Load	Avg. Eff.	Avg. Load	Geo Mean	Monthly	Monthly
	CBOD	CBOD	S.S	S.S	T.P	T.P	Counts	Minimum	Maximum
	(mg/L)	(kg/day)	(mg/L)	(kg/day)	(mg/L)	(kg/day)	/100ml		
January	2.2	11.1	2.5	12.7	0.08	0.33	10.0	6.6	7.0
February	2.7	14.3	3.0	15.9	0.08	0.41	10.0	6.6	7.1
March	3.4	17.6	3.6	18.5	0.08	0.40	12.5	7.0	7.4
April	2.5	20.0	5.0	40.5	0.08	0.63	17.8	7.1	7.5
May	2.3	13.3	4.0	23.5	0.11	0.61	22.2	7.2	7.4
June	2.3	10.7	4.3	20.8	0.12	0.57	55.7	7.2	7.4
July	2.0	9.3	2.5	11.5	0.06	0.27	18.1	7.1	7.5
August	2.5	11.7	3.5	16.7	0.16	0.78	17.2	7.0	7.4
September	2.1	14.5	2.6	14.1	0.12	0.66	129.1	7.3	7.6
October	2.0	11.1	2.8	15.8	0.16	0.90	11.9	7.3	7.6
November	2.4	14.3	2.4	14.5	0.11	0.65	23.7	7.3	7.6
December	2.6	11.7	2.6	14.5	0.12	0.69	30.3	7.2	7.5
Average	2.4	13.3	3.2	18.3	0.11	0.58	29.9	7.1	7.4
Max (Min)	3.4	20.0	5.0	40.5	0.16	0.90	129.1	(6.6)	7.6
C of A Limit	<25	<225	<25	<225	<1	<9	<200	>6.0	<9.5
C of A Obj.	<15		<15		<0.9		<150		

The Certificate of Approval Limits for CBOD5 and suspended solids are 25 mg/l with an objective target of 15 mg/l and loading limits of less than 225 kg/day. The levels for total phosphorus are less than 1 mg/l and a loading limit of 9 kg/day. In the reporting year 2021, CBOD<sub>5</sub>, suspended solids and total phosphorus concentration limits and loading limits met both the Certificate of Approval limits and the objectives.

The Certificate of Approval states the pH of the effluent shall be maintained between 6.0 and 9.5, inclusive, at all times. The pH during this period was a high of 7.6 and a low of 6.6. The pH met the requirements of the Certificate of Approval in 2021.

The Certificate of Approval also requires the E-coli results to be less than 200 organisms per 100 ml and an objective of less than 150 organisms per 100 ml as a monthly geometric mean density. The effluent met the objective and limit targets with a maximum monthly geometric mean density of 129.1 organisms per 100 ml.

## **2. Effluent Quality Assurance or Control Measures**

The effluent sample is a 24 hour 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.

The operators send weekly influent and effluent samples to ALS Laboratories in Thunder Bay. The effluent samples are analyzed for carbonaceous biochemical oxygen demand, total phosphorus, ammonia, total nitrogen, and nitrates. E-coli are sampled from the effluent only. The influent samples are tested for biochemical oxygen demand, total Kjeldahl nitrogen and total phosphorus. The digester contents are analyzed on an annual basis.

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

## **3. Maintenance**

The operators performed required routine maintenance through the 2021 period. Additional maintenance activities conducted during the year are as follows:

### **Treatment Plant:**

- Removed ice and frost from Milltronics sensor area in manhole 8
- Replaced portable heater in digester doghouse
- Installed new UV sensors banks 1 and 2
- Repaired floor drain under sludge bin
- Replaced check valve on blower 2
- Replaced shear pin longitudinal collector 2
- Drained and inspected both clarifiers. Removed one link each side of longitudinal chain in each clarifier
- Replaced shear pin longitudinal collector

### **Pump Stations:**

- Replaced Central Avenue lift station pump 1 seal water assembly with new style
- Replaced Central Avenue lift station pumps 2 and 3 seal water assemblies with new style
- Reset the PLC and Milltronics controller at Church Street lift station
- Replaced the White Pine genset battery
- Checked all wiring connections Milltronics controller at Church Street lift station
- Replaced genset batteries for Central Avenue lift station
- Replaced drywell sump pump at Fifth Street lift station

- Peterbilt replaced the block heater on the Central Avenue genset
- Peterbilt replaced the turbocharger on the Fifth Street genset
- Replaced a PLC card at White Pine lift station
- Replaced the low level float switch at White Pine lift station
- Peterbilt replaced the radiator on White Pine lift station genset
- Peterbilt purged air from the fuel line on the Fifth Street genset

#### **4. Operational issues**

The Town of Fort Frances has accepted sewage from the New Gold mine site into the collection system in past years. The operators of the wastewater plant are not aware of any deposits of sewage from New Gold in 2021.

A new ECA was received from the MOE on January 6 2016 allowing for the installation of the new sludge dewatering equipment. The new equipment began processing sludge on September 19 2016.

Optimization of the sludge dewatering process using the new equipment has continued. A Fournier press technician recommended a water heater be installed for polymer dilution water and that the sludge be tested in colder weather for SVI and filaments that could potentially impede drainage. The on-demand water heater was installed in January 2019.

Ongoing pumping issues with the LMI polymer pumps made it necessary to delay trials of alternate polymer samples. A new progressive cavity polymer pump was installed in May 2019 and totes of polymer replaced the drums. Jar testing of various polymers and dosages were conducted in 2021 to confirm the optimum operation of the system.

The town has started the installation of a back-up generator for the sewage plant. The generator is sized to provide power to continue the operation of the process and disinfection equipment during power outage situations. The installation is anticipated to be completed in 2022.

Blower 3 failed December 24th 2020 and blower 2 has been running on hand since. A replacement was ordered and installed in January 2021.

Grit pump 2 developed a leak in the casing and requires replacement or repair.

There was one bypass event in the reporting period which was during a scheduled power outage that lasted 3.6 hours and measured 610 m<sup>3</sup>. Wastewater flowed through the plant by gravity during the outage. The UV disinfection equipment was also not operational during this time. The generator installation is anticipated to eliminate these bypass events due to power outages.

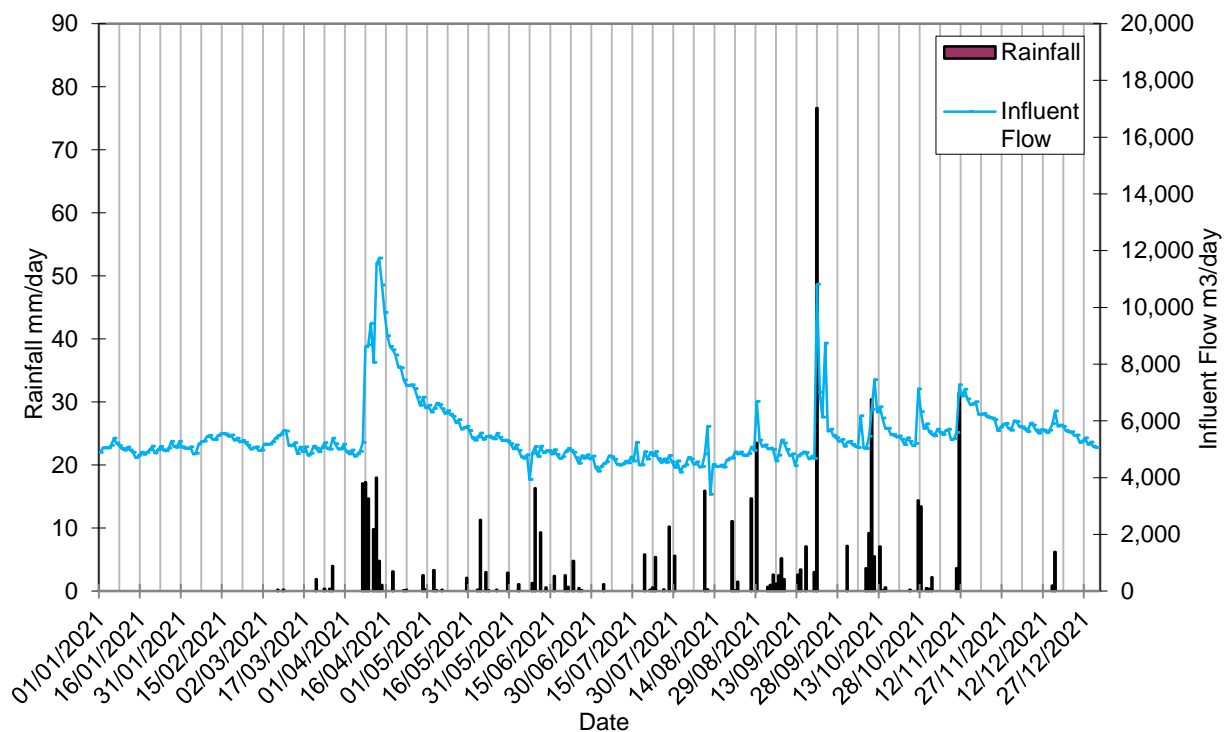
There was no community complaints received during the period of this report.

A graph of the influent flows and rainfall as recorded at the Fort Frances Airport sourced from Environment Canada is included illustrating several rainfall events closely correlating to influent flow spikes. There were a number of rainfall data gaps in the Environment Canada database; these were supplemented by data from the International Falls Airport when available. The highest rainfall event occurred on September 20 with a recorded rainfall amount of 76.6 mm. The flow at the sewage plant was 10804 m<sup>3</sup> on that date. The peak flow of 11729 m<sup>3</sup> was

recorded on April 13 2021 with a rainfall of 4.8 mm. The peak flow was after several days of rainfall and the associated snow melt. The rainfall, during any flow event in the town, may have been higher than the recorded value as the weather station at the airport is located outside of the town.

The flow to the treatment plant was above the rated capacity of 9000 m<sup>3</sup>/day for 6 days in 2021. The flow was over the rated capacity for 5 days of April, and one day in September. The highest flow was April 13 with 11729 m<sup>3</sup>. The April flows were associated with the snow melt and moderate rainfall. The September flow was a one day rainfall event.

Rainfall vs influent Flow 2021



## 5. Sludge Generation and Disposal

A new Fournier Rotary Press was installed and in operation as of September 19 2016 decreasing the water content of the sludge for disposal at the landfill. The rotary press operated for 1471.5 hours in 2021.

### Sludge Volume Hauled in 2021

Month	Total Volume( m3)
January	134.4
February	116.6
March	145.6
April	125.7
May	118.3
June	126.4
July	128.3
August	132.9
September	130.4
October	111.9
November	98.2
December	119.3
<b>Total</b>	<b>1488</b>

There was 1488 m<sup>3</sup> of sludge generated and hauled in 2021 with an average of 124 m<sup>3</sup> per month. The sludge analytical sample results for 2021 are appended to this report.

The Town of Fort Frances installed a Fournier rotary press designed to dewater the sludge and allow for the hauled sludge to meet the MOE criteria for landfill disposal without further drying. The new equipment began processing sludge on September 19 2016. The sludge is being disposed of in the municipal landfill site.

Optimization of the sludge dewatering process using the new equipment has continued. A Fournier press technician recommended a water heater be installed for polymer dilution water and that the sludge be tested in colder weather for SVI and filaments that could potentially impede drainage. The on-demand water heater was installed in January 2019. Ongoing pumping issues with the LMI polymer pumps made it necessary to delay trials of alternate polymer samples. A new progressive cavity polymer pump was installed in May 2019 and totes of polymer replaced the drums. Jar testing of various polymers and dosages were conducted in 2021 to confirm the optimum operation of the system.

There are no anticipated changes to volumes of sludge hauled from the system.

## 6. Calibrations

The owner shall maintain a continuous flow-measuring device to measure the flow rate within an accuracy of +/- 5% of actual rate of flow within the range of 10% to 100% of the full-scale reading of the measuring devices.



In 2021, calibration of the plant bypass weir was completed on September 2 2021 and effluent parshall flume was also completed on September 3 2021; results attached to this report. Both flow measuring devices passed the verification testing.

# **2021 Annual Summary Report**

**2021 Fort Frances Wastewater**

Month	Sewage Flows Year 2021					Usage	Calculated	Sludge	Removal Efficiency	
	Avg. Day	Max Day	Total	Total	Total	% Plant	Volume	Bins	CBOD5 0.975846576	
	Flow	Flow	Treated	ByPass	Volume	Capacity	Hauled	Hauled	Suspended Solids 0.98297947	
	m3	m3	Volume ML	Volume ML	ML		M3		Total Phosphorus 0.960935097	
January	5015.0	5375	155465		155465	56%	134.4	13		
February	5244.0	5551	146883		146883	58%	116.6	11		
March	5141.9	5653	159400		159400	57%	145.6	14		
April	7538.1	11729	226144		226144	84%	125.7	13		
May	5788.8	6607	179453		179453	64%	118.3	11		
June	4811.1	5142	144334		144334	53%	126.4	12		
July	4603.1	5235	142697		142697	51%	128.3	12		
August	4717.7	6678	146248		146248	52%	132.9	13		
September	5434.6	10804	162428	610	163038	60%	130.4	13		
October	5668.5	7447	175723		175723	63%	111.9	11		
November	6031.0	7261	180930		180930	67%	98.2	10		
December	5626.2	6335	174412		174412	63%	119.3	13		
Sum				610	1994727		1488	146		
Average	5468		166176		166227	61%	124.0	12.2		
Max		11729	226144		226144			14		
ECA	9000	18000								

Month	BOD5/CBOD5			Suspended Solids			Total Phosphorus			Nitrogen		E. Coli	pH	
	Avg. Raw	Avg. Eff.	Avg. Load	Avg. Raw	Avg. Eff.	Avg. Load	Avg. Raw	Avg. Eff.	Avg. Load	Avg. Raw	Avg. Eff.	Geo Mean	Monthly	Monthly
	BOD (mg/L)	CBOD (mg/L)	CBOD (kg/day)	S.S (mg/L)	S.S (mg/L)	S.S (kg/day)	T.P (mg/L)	T.P (mg/L)	T.P (kg/day)	TKN (mg/L)	Total N (mg/L)	Counts /100ml	Minimum	Maximum
January	123.8	2.2	11.1	196.5	2.5	12.7	2.99	0.07	0.33	26.2	11.8	10.0	6.6	7.0
February	91.0	2.7	14.3	185.9	3.0	15.9	2.79	0.08	0.41	22.7	15.1	10.0	6.6	7.1
March	104.4	3.4	17.6	179.1	3.6	18.5	2.34	0.08	0.40	18.6	15.0	12.5	7.0	7.4
April	91.8	2.5	20.0	160.7	5.0	40.5	2.23	0.08	0.63	15.8	12.6	17.8	7.1	7.5
May	87.6	2.3	13.3	166.1	4.0	23.5	2.34	0.11	0.61	18.0	13.9	22.2	7.2	7.4
June	97.8	2.3	10.7	208.8	4.3	20.8	3.18	0.12	0.57	18.6	14.7	55.7	7.2	7.4
July	86.0	2.0	9.3	211.8	2.5	11.5	2.88	0.06	0.27	19.5	12.0	18.1	7.1	7.5
August	117.2	2.5	11.7	210.6	3.5	16.7	3.08	0.16	0.78	28.1	8.3	17.2	7.0	7.4
September	108.3	2.1	14.5	264.2	2.6	14.1	3.19	0.12	0.66	20.3	8.5	129.1	7.3	7.6
October	106.8	2.0	11.1	184.4	2.8	15.8	2.47	0.16	0.90	17.4	7.9	11.9	7.3	7.6
November	95.4	2.4	14.3	147.5	2.4	14.5	2.55	0.11	0.65	18.0	8.1	23.7	7.3	7.6
December	91.8	2.6	14.7	164.0	2.6	14.5	2.47	0.12	0.69	17.5	9.9	30.3	7.2	7.5
Average	100.2	2.4	13.6	190.0	3.2	18.3	2.71	0.11	0.58	20.1	11.5	29.9	7.1	7.4
Max	123.8	3.4	20.0	264.2	5	40.5	3.19	0.16	0.90	28.1	15.1	129.1	7.3	7.6
ECA		25	225		25	225		1.0	9.0			200	6.0	9.5

# **Monthly Operations Summary Report**

**Fort Frances Wastewater Treatment Plant**  
**Monthly Operations Summary**

2021	Raw Sewage				Final Effluent												Bypass Volume (m3)
Day	Raw Flow: Sum (m3/d)	BOD5 (mg/L)	Total Phosphorus (mg/L)	SS (mg/L) IH	Final Eff. Flow: Sum (m3/d)	Final Eff. Flow: Max. (L/s)	CBOD5 (mg/L)	NH3 + NH4 as N (mg/L)	Nitrite - N (mg/L)	Nitrate-N(mg/L)	Total Phosphorus (mg/L)	Suspended Solids (mg/L)	SS (mg/L) IH	Temperature (C)	pH	E. Coli. (ctu/100 mL)	
01/01/2021	4,888.00			181	4,888.00	82					0.06		3.2	10	6.8		
02/01/2021	5,043.00			215	5,043.00	86					0.04		1.2	10	6.7		
03/01/2021	5,050.00			177	5,050.00	87					0.12		2	9.5	6.7		
04/01/2021	5,040.00	110	2.86	192	5,040.00	86	2	1.93	0.209	7.18	0.13	3	2.4	10	6.7	10	
05/01/2021	5,132.00			233	5,132.00	85					0.13		0.8	10	6.7		
06/01/2021	5,375.00			178	5,375.00	91					0.05		3.6	10	6.7		
07/01/2021	5,210.00			149	5,210.00	88					0.08		2	9.5	6.6		
08/01/2021	5,116.00			218	5,116.00	84					0.06		4	9.5	6.9		
09/01/2021	5,014.00			278	5,014.00	90					0.2		1.6	9.5	6.7		
10/01/2021	4,962.00			199	4,962.00	84					0.04		2.8	10	6.8		
11/01/2021	5,063.00	112	3.05	252	5,063.00	93	2	3.39	0.156	6.04	0.04	3	2	10	6.7	10	
12/01/2021	4,966.00			188	4,966.00	84					0.06		3.2	10	6.8		
13/01/2021	4,888.00			193	4,888.00	88					0.03		2.4	10	6.8		
14/01/2021	4,702.00			196	4,702.00	82					0.05		2	10	6.8		
15/01/2021	4,768.00			196	4,768.00	86					0.02		0.8	10	6.7		
16/01/2021	4,886.00			178	4,886.00	84					0.04		0.8	9.5	6.7		
17/01/2021	4,817.00			251	4,817.00	85					0.05		4	9.5	6.8		
18/01/2021	4,882.00	163	3.33	234	4,882.00	86	2	6.34	0.729	4.2	0.07	3.9	1.2	9.5	6.8	10	
19/01/2021	4,969.00			171	4,969.00	87					0.08		7.6	9.5	6.9		
20/01/2021	5,094.00			174	5,094.00	87					0.13		2.4	9.5	7		
21/01/2021	4,862.00			204	4,862.00	83					0.05		1.6	9	6.9		
22/01/2021	4,965.00			167	4,965.00	83					0.08		0.8	9	6.9		
23/01/2021	5,085.00			180	5,085.00	91					0.04		4.4	9	6.9		
24/01/2021	4,969.00			183	4,969.00	84					0.05		4.8	9	6.8		
25/01/2021	4,935.00	110	2.72	174	4,935.00	84	2.9	4.71	1.35	5.24	0.03	4.1	2.4	9	6.7	10	
26/01/2021	5,026.00			190	5,026.00	87					0.05		3.2	9	6.9		
27/01/2021	5,265.00			183	5,265.00	89					0.04		2.4	9	6.9		
28/01/2021	5,097.00			201	5,097.00	86					0.03		2	9	6.9		
29/01/2021	5,059.00			176	5,059.00	84					0.02		1.6	9	6.8		
30/01/2021	5,268.00			193	5,268.00	96					0.06		2.4	9	6.8		
31/01/2021	5,069.00			188	5,069.00	85					0.08		2.8	9	7		
Total	155,465.00				155,465.00												0.00
Average	5,015.00	123.75	2.99	196.52	5,015.00	86.35	2.23	4.09	0.61	5.67	0.06	3.50	2.53	9.50	6.80	10.00	0.00
Minimum	4,702.00	110.00	2.72	149.00	4,702.00	82.00	2.00	1.93	0.16	4.20	0.02	3.00	0.80	9.00	6.60	10.00	0.00
Maximum	5,375.00	163.00	3.33	278.00	5,375.00	96.00	2.90	6.34	1.35	7.18	0.20	4.10	7.60	10.00	7.00	10.00	0.00
Count	31	4	4	31	31	31	4	4	4	4	31	4	31	31	31	4	0

**Fort Frances Wastewater Treatment Plant  
Monthly Operations Summary**

2021	Raw Sewage				Final Effluent												Bypass Volume (m3)
	Raw Flow: Sum (m3/d)	BOD5 (mg/L)	Total Phosphorus (mg/L)	SS (mg/L) IH	Final Eff. Flow: Sum (m3/d)	Final Eff. Flow: Max. (L/s)	CBOD5 (mg/L)	NH3 + NH4 as N (mg/L)	Nitrite - N (mg/L)	Nitrate-N(mg/L)	Total Phosphorus (mg/L)	Suspended Solids (mg/L)	SS (mg/L) IH	Temperature (C)	pH	E. Coli. (cfu/100 mL)	
01/02/2021	5,036.00			270	5,036.00	88					0.02		0.8	9	7		
02/02/2021	5,016.00	174	3.15	174	5,016.00	82	2.5	5.97	1.15	4.94	0.3	3	3.6	9	6.8	10	
03/02/2021	5,080.00			178	5,080.00	93					0.1		2	9	6.6		
04/02/2021	4,829.00			176	4,829.00	80					0.08		4.8	8.5	6.9		
05/02/2021	4,852.00			161	4,852.00	84					0.05		3.2	8.5	6.7		
06/02/2021	5,172.00			200	5,172.00	88					0.07		1.6	8	6.8		
07/02/2021	5,263.00			185	5,263.00	90					0.04		2	8	6.7		
08/02/2021	5,282.00			197	5,282.00	89					0.04		2.8	8	6.8		
09/02/2021	5,433.00	84	2.7	202	5,433.00	88	2	6.6	0.205	5.74	0.01	4.1	2	8	6.8	10	
10/02/2021	5,475.00			193	5,475.00	91					0.03		1.6	8	6.7		
11/02/2021	5,350.00			210	5,350.00	89					0.02		1.2	8	6.8		
12/02/2021	5,337.00			170	5,337.00	92					0.05		3.6	8	6.8		
13/02/2021	5,472.00			183	5,472.00	92					0.07		4	8	7		
14/02/2021	5,533.00			192	5,533.00	91					0.04		3.2	8	7		
15/02/2021	5,551.00			216	5,551.00	92					0.08		5.6	8	6.8		
16/02/2021	5,524.00	62	2.85	143	5,524.00	91	3.9	6.81	0.18	5.49	0.07	3.3	4	8	6.8	10	
17/02/2021	5,451.00			170	5,451.00	90					0.06		3.6	8.5	6.9		
18/02/2021	5,491.00			175	5,491.00	91					0.1		2.8	8.5	6.7		
19/02/2021	5,317.00			173	5,317.00	92					0.08		3.2	8.5	6.8		
20/02/2021	5,380.00			192	5,380.00	97					0.1		3.6	8.5	7.1		
21/02/2021	5,255.00			146	5,255.00	89					0.11		1.2	8	7.1		
22/02/2021	5,303.00	44	2.45	178	5,303.00	84	2.3	4.96	0.399	5.89	0.06	3	4.4	8.5	7	10	
23/02/2021	5,229.00			188	5,229.00	83					0.13		4	8.5	7.1		
24/02/2021	5,134.00			191	5,134.00	86					0.12		3.6	8.5	7.1		
25/02/2021	4,997.00			173	4,997.00	87					0.08		2.8	8.5	7.1		
26/02/2021	5,050.00			169	5,050.00	88					0.11		4	8.5	7		
27/02/2021	5,071.00			183	5,071.00	85					0.13		3.2	8.5	7		
28/02/2021	4,950.00			216	4,950.00	85					0.08		2.4	8.5	7		
Total	146,833.00				146,833.00												0.00
Average	5,244.04	91.00	2.79	185.86	5,244.04	88.46	2.68	6.09	0.48	5.52	0.08	3.35	3.03	8.34	6.89	10.00	0.00
Minimum	4,829.00	44.00	2.45	143.00	4,829.00	80.00	2.00	4.96	0.18	4.94	0.01	3.00	0.80	8.00	6.60	10.00	0.00
Maximum	5,551.00	174.00	3.15	270.00	5,551.00	97.00	3.90	6.81	1.15	5.89	0.30	4.10	5.60	9.00	7.10	10.00	0.00
Count	28	4	4	28	28	28	4	4	4	4	28	4	28	28	28	4	0

**Fort Frances Wastewater Treatment Plant  
Monthly Operations Summary**

2021	Raw Sewage				Final Effluent											E. Coli. (cfu/100 mL)	Bypass Volume (m3)
	Raw Flow: Sum (m3/d)	BOD5 (mg/L)	Total Phosphorus (mg/L)	SS (mg/L) IH	Final Eff. Flow: Sum (m3/d)	Final Eff. Flow: Max. (L/s)	CBOD5 (mg/L)	NH3 + NH4 as N (mg/L)	Nitrite - N (mg/L)	Nitrate-N(mg/L)	Total Phosphorus (mg/L)	Suspended Solids (mg/L)	SS (mg/L) IH	Temperature (C)	pH		
01/03/2021	4,962.00			197	4,962.00	85					0.06		2.8	8	7		
02/03/2021	5,180.00	102	2.53	191	5,180.00	83	2.8	6.95	1.4	4.82	0.08	3	5.2	8.5	7	10	
03/03/2021	5,163.00			192	5,163.00	85					0.08		3.2	8.5	7.1		
04/03/2021	5,171.00			268	5,171.00	86					0.07		3.2	8.5	7.1		
05/03/2021	5,260.00			232	5,260.00	89					0.06		3.6	8.5	7.1		
06/03/2021	5,380.00			181	5,380.00	92					0.06		2.4	8.5	7.1		
07/03/2021	5,464.00			218	5,464.00	92					0.13		7.6	9	7		
08/03/2021	5,520.00	95	1.92	172	5,520.00	96	4.9	5.57	1.09	5.64	0.07	7.2	4.4	9	7.1	30	
09/03/2021	5,653.00			163	5,653.00	89					0.05		2.8	9	7.1		
10/03/2021	5,629.00			176	5,629.00	93					0.07		3.6	9	7.1		
11/03/2021	5,126.00			169	5,126.00	88					0.09		3.2	9	7		
12/03/2021	5,119.00			183	5,119.00	94					0.06		4	8.5	7		
13/03/2021	5,216.00			167	5,216.00	89					0.08		4.4	8.5	7.1		
14/03/2021	4,840.00			159	4,840.00	85					0.05		1.2	8.5	7.1		
15/03/2021	5,064.00	107	2.53	166	5,064.00	90	3.5	7.64	0.97	5.93	0.07	3	1.6	8	7	10	
16/03/2021	4,904.00			156	4,904.00	84					0.08		4	8.5	7.3		
17/03/2021	5,072.00			142	5,072.00	88					0.11		4.4	8.5	7.4		
18/03/2021	4,778.00			170	4,778.00	88					0.09		4	9	7.3		
19/03/2021	4,853.00			142	4,853.00	84					0.08		3.2	9	7.3		
20/03/2021	5,102.00			179	5,102.00	89					0.09		3.2	9	7.2		
21/03/2021	5,025.00			163	5,025.00	84					0.07		4.4	9	7.4		
22/03/2021	4,902.00	105	2.39	167	4,902.00	89	3	9.7	0.38	3.4	0.11	3.9	3.2	9	7.4	10	
23/03/2021	5,041.00				5,041.00	90					0.08		3.2	9	7.3		
24/03/2021	5,224.00			188	5,224.00	87					0.1		4	9	7.4		
25/03/2021	5,017.00			174	5,017.00	88					0.07		2.8	9	7.4		
26/03/2021	5,001.00			169	5,001.00	89					0.09		3.6	9	7.2		
27/03/2021	5,377.00			191	5,377.00	90					0.11		2.8	9	7.2		
28/03/2021	5,185.00			192	5,185.00	87					0.06		2.4	9	7.4		
29/03/2021	5,006.00	113	2.35	184	5,006.00	92	2.8	10.3	1.33	3.91	0.08	3	2	8.5	7.3	10	
30/03/2021	5,002.00			163	5,002.00	90					0.07		6.8	9	7.2		
31/03/2021	5,164.00			160	5,164.00	92					0.06		4	9	7.3		
Total	159,400.00				159,400.00												0.00
Average	5,141.94	104.40	2.34	179.13	5,141.94	88.61	3.40	8.03	1.03	4.74	0.08	4.02	3.59	8.76	7.19	12.46	0.00
Minimum	4,778.00	95.00	1.92	142.00	4,778.00	83.00	2.80	5.57	0.38	3.40	0.05	3.00	1.20	8.00	7.00	10.00	0.00
Maximum	5,653.00	113.00	2.53	268.00	5,653.00	96.00	4.90	10.30	1.40	5.93	0.13	7.20	7.60	9.00	7.40	30.00	0.00
Count	31	5	5	30	31	31	5	5	5	5	31	5	31	31	31	5	0

**Fort Frances Wastewater Treatment Plant  
Monthly Operations Summary**

2021	Raw Sewage				Final Effluent											E. Coli. (cfu/100 mL)	Bypass Volume (m3)
	Raw Flow: Sum (m3/d)	BOD5 (mg/L)	Total Phosphorus (mg/L)	SS (mg/L) IH	Final Eff. Flow: Sum (m3/d)	Final Eff. Flow: Max. (L/s)	CBOD5 (mg/L)	NH3 + NH4 as N (mg/L)	Nitrite - N (mg/L)	Nitrate-N(mg/L)	Total Phosphorus (mg/L)	Suspended Solids (mg/L)	SS (mg/L) IH	Temperature (C)	pH		
01/04/2021	4,918.00			185	4,918.00	89					0.19		3.6	9	7.2	50	
02/04/2021	4,829.00			194	4,829.00	85					0.08		2.8	9	7.3		
03/04/2021	4,962.00			207	4,962.00	87					0.04		1.2	9	7.2		
04/04/2021	4,742.00			175	4,742.00	86					0.07		3.6	9	7.2		
05/04/2021	4,822.00			182	4,822.00	81					0.07		4	9	7.1		
06/04/2021	4,922.00	96	2.55	172	4,922.00	91	2.4	7.77	0.273	6.5	0.07	3.2	2.8	9	7.2	20	
07/04/2021	5,234.00			203	5,234.00	91					0.05		2	9	7.2		
08/04/2021	8,607.00			193	8,607.00	132					0.08		3.6	9	7.2		
09/04/2021	8,673.00			221	8,673.00	154					0.09		4.4	9	7.1		
10/04/2021	9,431.00			201	9,431.00	141					0.06		4	8.5	7.1		
11/04/2021	8,054.00			259	8,054.00	116					0.06		4.4	8.5	7.2	10	
12/04/2021	11,535.00	99	2.63	160	11,535.00	156	2.9	4.41	0.979	2.98	0.12	4.5	8	8.5	7.2		
13/04/2021	11,729.00			112	11,729.00	152					0.13		10.8	8.5	7.5		
14/04/2021	10,776.00			110	10,776.00	140					0.12		8.8	8.5	7.5		
15/04/2021	9,809.00			135	9,809.00	134					0.11		6.4	8.5	7.4		
16/04/2021	8,985.00			135	8,985.00	124					0.1		7.2	8.5	7.5	10	
17/04/2021	8,611.00			153	8,611.00	125					0.09		6.4	8.5	7.5		
18/04/2021	8,493.00			149	8,493.00	122					0.05		3.6	8.5	7.4		
19/04/2021	8,315.00	94	1.85	159	8,315.00	121	2.3	3.8	0.124	4.59	0.07	5.1	4.4	8.5	7.4		
20/04/2021	7,892.00			141	7,892.00	111					0.05		4	8	7.5	10	
21/04/2021	7,857.00			123	7,857.00	115					0.08		7.6	8	7.5		
22/04/2021	7,436.00			127	7,436.00	108					0.05		5.2	8	7.4		
23/04/2021	7,238.00			136	7,238.00	109					0.09		6	8	7.4		
24/04/2021	7,246.00			143	7,246.00	110					0.07		5.6	8.5	7.4		
25/04/2021	7,261.00			167	7,261.00	110					0.03		3.6	8.5	7.3	10	
26/04/2021	7,128.00			150	7,128.00	109					0.04		3.2	8.5	7.3		
27/04/2021	6,821.00	78	1.89	132	6,821.00	101	2.3	5.94	0.571	5.13	0.03	3.4	4.4	8.5	7.4		
28/04/2021	6,541.00			133	6,541.00	103					0.14		8.8	9	7.3		
29/04/2021	6,825.00			135	6,825.00	102					0.1		4	9	7.3		
30/04/2021	6,452.00			128	6,452.00	103					0.12		5.2	9	7.3		
Total	226,144.00				226,144.00												0.00
Average	7,538.13	91.75	2.23	160.67	7,538.13	113.60	2.48	5.48	0.49	4.80	0.08	4.05	4.99	8.63	7.32	17.78	0.00
Minimum	4,742.00	78.00	1.85	110.00	4,742.00	81.00	2.30	3.80	0.12	2.98	0.03	3.20	1.20	8.00	7.10	10.00	0.00
Maximum	11,729.00	99.00	2.63	259.00	11,729.00	156.00	2.90	7.77	0.98	6.50	0.19	5.10	10.80	9.00	7.50	50.00	0.00
Count	30	4	4	30	30	30	4	4	4	4	30	4	30	30	30	4	0



**Fort Frances Wastewater Treatment Plant  
Monthly Operations Summary**

2021	Raw Sewage				Final Effluent											E. Coli. (cfu/100 mL)	Bypass Volume (m3)
	Raw Flow: Sum (m3/d)	BOD5 (mg/L)	Total Phosphorus (mg/L)	SS (mg/L) IH	Final Eff. Flow: Sum (m3/d)	Final Eff. Flow: Max. (L/s)	CBOD5 (mg/L)	NH3 + NH4 as N (mg/L)	Nitrite - N (mg/L)	Nitrate-N(mg/L)	Total Phosphorus (mg/L)	Suspended Solids (mg/L)	SS (mg/L) IH	Temperature (C)	pH		
01/05/2021	6,539.00			151	6,539.00	105					0.11		2.4	9	7.3	20	
02/05/2021	6,307.00			126	6,307.00	94					0.09		6.4	9	7.4		
03/05/2021	6,428.00	68	1.8	155	6,428.00	98	3.1	4.35	0.61	4.54	0.09	6.6	5.6	9	7.3		
04/05/2021	6,607.00			164	6,607.00	102					0.07		5.2	9	7.4		
05/05/2021	6,558.00			154	6,558.00	101					0.1		4.8	9	7.4		
06/05/2021	6,417.00			169	6,417.00	96					0.06		4	9	7.3	10	
07/05/2021	6,263.00			160	6,263.00	97					0.08		3.2	9	7.3		
08/05/2021	6,352.00			151	6,352.00	105					0.11		5.2	9	7.4		
09/05/2021	6,223.00	79	2.85	180	6,223.00	96	2	6.06	0.61	5.18	0.07	4.1	6.8	9	7.4		
10/05/2021	6,151.00			136	6,151.00	99					0.12		6.4	9	7.3		
11/05/2021	5,935.00			132	5,935.00	110					0.1		3.6	9.5	7.4	30	
12/05/2021	6,029.00			163	6,029.00	97					0.09		4.8	10	7.3		
13/05/2021	5,706.00			209	5,706.00	89					0.11		3.2	9.5	7.4		
14/05/2021	5,762.00			151	5,762.00	95					0.07		1.2	10	7.3		
15/05/2021	5,796.00			137	5,796.00	94					0.09		2.4	10	7.4		
16/05/2021	5,652.00			145	5,652.00	90					0.13		2.4	10	7.4	10	
17/05/2021	5,397.00	81	1.68	162	5,397.00	89	2	4.64	0.345	7.06	0.1	3.8	2.4	10	7.3		
18/05/2021	5,313.00			172	5,313.00	86					0.12		2	10.5	7.3		
19/05/2021	5,423.00			195	5,423.00	88					0.15		5.6	10.5	7.3		
20/05/2021	5,554.00			176	5,554.00	92					0.15		1.6	10.5	7.3		
21/05/2021	5,345.00			183	5,345.00	96					0.13		2.4	10.5	7.4	90	
22/05/2021	5,441.00			191	5,441.00	91					0.11		3.6	10.5	7.4		
23/05/2021	5,456.00			216	5,456.00	91					0.1		3.6	10.5	7.2		
24/05/2021	5,401.00			194	5,401.00	90					0.12		2.8	10.5	7.3		
25/05/2021	5,360.00	134	2.91	176	5,360.00	90	2	5.22	0.264	6.73	0.09	3	3.2	10.5	7.3		
26/05/2021	5,546.00			170	5,546.00	90					0.15		6.4	10.5	7.4		
27/05/2021	5,415.00				5,415.00	87					0.11		4.8	11	7.4		
28/05/2021	5,298.00				5,298.00	90					0.14		4	11	7.3		
29/05/2021	5,316.00				5,316.00	89					0.08		7.6	11	7.3		
30/05/2021	5,280.00				5,280.00	85					0.14		3.2	11.5	7.3		
31/05/2021	5,183.00	76	2.45		5,183.00	86	2.4	5.59	0.228	5.96	0.09	4.2	4	11.5	7.3	90	
Total	179,453.00				179,453.00												0.00
Average	5,788.81	87.60	2.34	166.08	5,788.81	93.81	2.30	5.17	0.41	5.89	0.11	4.34	4.03	9.98	7.34	22.21	0.00
Minimum	5,183.00	68.00	1.68	126.00	5,183.00	85.00	2.00	4.35	0.23	4.54	0.06	3.00	1.20	9.00	7.20	10.00	0.00
Maximum	6,607.00	134.00	2.91	216.00	6,607.00	110.00	3.10	6.06	0.61	7.06	0.15	6.60	7.60	11.50	7.40	90.00	0.00
Count	31	5	5	26	31	31	5	5	5	5	31	5	31	31	31	5	0

**Fort Frances Wastewater Treatment Plant  
Monthly Operations Summary**

2021	Raw Sewage				Final Effluent												
	Raw Flow: Sum (m3/d)	BOD5 (mg/L)	Total Phosphorus (mg/L)	SS (mg/L) IH	Final Eff. Flow: Sum (m3/d)	Final Eff. Flow: Max. (L/s)	CBOD5 (mg/L)	NH3 + NH4 as N (mg/L)	Nitrite - N (mg/L)	Nitrate-N(mg/L)	Total Phosphorus (mg/L)	Suspended Solids (mg/L)	SS (mg/L) IH	Temperature (C)	pH	E. Coli. (cfu/100 mL)	Bypass Volume (m3)
01/06/2021	5,010.00			237	5,010.00	84					0.14		4.4	12	7.4		
02/06/2021	5,142.00			212	5,142.00	82					0.15		4.8	12	7.3		
03/06/2021	4,955.00			189	4,955.00	90					0.21		3.2	12	7.4		
04/06/2021	4,727.00			201	4,727.00	80					0.18		4	12	7.4		
05/06/2021	4,675.00			192	4,675.00	84					0.2		3.6	12	7.3		
06/06/2021	4,793.00			201	4,793.00	81					0.13		2.8	12.5	7.3		
07/06/2021	3,920.00	108	2.81	186	3,920.00	79	2	6.87	0.14	6.6	0.11	3.9	3.2	12.5	7.3	50	
08/06/2021	4,852.00			207	4,852.00	79					0.14		5.2	12.5	7.3		
09/06/2021	5,084.00			226	5,084.00	85					0.11		3.6	12.5	7.4		
10/06/2021	4,739.00			218	4,739.00	81					0.12		4	13	7.4		
11/06/2021	5,099.00			184	5,099.00	87					0.12		4	13	7.4		
12/06/2021	4,876.00			223	4,876.00	94					0.11		3.6	13	7.3		
13/06/2021	4,934.00			275	4,934.00	93					0.08		4	13.5	7.3		
14/06/2021	4,941.00	97	3.44	243	4,941.00	91	2	5.52	0.135	6.31	0.1	5	4.4	13.5	7.4	120	
15/06/2021	4,827.00			195	4,827.00	80					0.09		6	14	7.4		
16/06/2021	4,978.00			183	4,978.00	83					0.06		2.8	14	7.4		
17/06/2021	4,801.00			211	4,801.00	83					0.1		5.2	14	7.4		
18/06/2021	4,674.00			205	4,674.00	82					0.12		4	14	7.4		
19/06/2021	4,728.00			225	4,728.00	78					0.09		3.6	14	7.3		
20/06/2021	4,908.00			199	4,908.00	81					0.07		5.6	13.5	7.4		
21/06/2021	5,016.00	66	2.89	211	5,016.00	89	2.6	7.08	0.297	5.69	0.09	10.7	4	13.5	7.4	20	
22/06/2021	4,951.00			200	4,951.00	86					0.15		6.4	14	7.3		
23/06/2021	4,883.00			214	4,883.00	83					0.09		5.2	14	7.4		
24/06/2021	4,696.00			178	4,696.00	84					0.11		2.8	14	7.3		
25/06/2021	4,494.00			204	4,494.00	84					0.18		4	14	7.4		
26/06/2021	4,754.00			195	4,754.00	85					0.11		6	14.5	7.4		
27/06/2021	4,678.00			206	4,678.00	96					0.08		3.6	14.5	7.4		
28/06/2021	4,793.00	120	3.57	218	4,793.00	84	2.5	7.99	0.113	6.71	0.09	4.7	7.2	14.5	7.2	80	
29/06/2021	4,654.00			204	4,654.00	82					0.15		4.8	15	7.2		
30/06/2021	4,752.00			221	4,752.00	85					0.07		3.6	15	7.4		
Total	144,334.00				144,334.00												0.00
Average	4,811.13	97.75	3.18	208.77	4,811.13	84.50	2.28	6.87	0.17	6.33	0.12	6.08	4.32	13.42	7.35	55.66	0.00
Minimum	3,920.00	66.00	2.81	178.00	3,920.00	78.00	2.00	5.52	0.11	5.69	0.06	3.90	2.80	12.00	7.20	20.00	0.00
Maximum	5,142.00	120.00	3.57	275.00	5,142.00	96.00	2.60	7.99	0.30	6.71	0.21	10.70	7.20	15.00	7.40	120.00	0.00
Count	30	4	4	30	30	30	4	4	4	4	30	4	30	30	30	4	0

**Fort Frances Wastewater Treatment Plant  
Monthly Operations Summary**

2021	Raw Sewage				Final Effluent											E. Coli. (cfu/100 mL)	Bypass Volume (m3)
	Raw Flow: Sum (m3/d)	BOD5 (mg/L)	Total Phosphorus (mg/L)	SS (mg/L) IH	Final Eff. Flow: Sum (m3/d)	Final Eff. Flow: Max. (L/s)	CBOD5 (mg/L)	NH3 + NH4 as N (mg/L)	Nitrite - N (mg/L)	Nitrate-N(mg/L)	Total Phosphorus (mg/L)	Suspended Solids (mg/L)	SS (mg/L) IH	Temperature (C)	pH		
01/07/2021	4,364.00			173	4,364.00	81					0.03		3.2	15	7.4		
02/07/2021	4,223.00			182	4,223.00	81					0.05		3.6	15	7.5		
03/07/2021	4,382.00			166	4,382.00	80					0.02		4	15	7.5		
04/07/2021	4,487.00			252	4,487.00	79					0.07		2	15	7.5		
05/07/2021	4,545.00	103	3.29	215	4,545.00	79	2	5.29	0.169	6.51	0.05	3	3.6	15	7.4	60	
06/07/2021	4,759.00			227	4,759.00	83					0.06		2.4	15	7.4		
07/07/2021	4,720.00			217	4,720.00	84					0.09		4.8	15	7.3		
08/07/2021	4,630.00			238	4,630.00	82					0.15		4.4	15.5	7.3		
09/07/2021	4,463.00			264	4,463.00	101					0.07		3.2	15.5	7.3		
10/07/2021	4,434.00			280	4,434.00	84					0.06		2	15.5	7.3		
11/07/2021	4,480.00			181	4,480.00	82					0.05		2	15.5	7.3		
12/07/2021	4,569.00	93	2.63	173	4,569.00	81	2	5.5	0.149	6.84	0.05	3	1.6	15.5	7.2	30	
13/07/2021	4,512.00			188	4,512.00	81					0.04		3.2	16	7.4		
14/07/2021	4,716.00			210	4,716.00	84					0.06		2.4	16	7.2		
15/07/2021	4,578.00			185	4,578.00	84					0.04		1.6	16	7.3		
16/07/2021	5,235.00			202	5,235.00	80					0.03		2	16	7.3		
17/07/2021	4,444.00			193	4,444.00	77					0.06		3.6	16	7.3		
18/07/2021	4,442.00			192	4,442.00	78					0.07		2.4	16.5	7.3		
19/07/2021	4,901.00	84	2.77	228	4,901.00	96	2	3.74	0.188	5.46	0.06	3	2.4	16.5	7.2	60	
20/07/2021	4,646.00			206	4,646.00	82					0.07		1.6	16.5	7.1		
21/07/2021	4,871.00			243	4,871.00	84					0.07		4.8	17	7.2		
22/07/2021	4,772.00			243	4,772.00	84					0.07		1.6	17	7.3		
23/07/2021	4,909.00			256	4,909.00	107					0.06		1.6	17	7.2		
24/07/2021	4,654.00			220	4,654.00	85					0.09		2	17	7.2		
25/07/2021	4,532.00			174	4,532.00	80					0.07		1.6	17	7.2		
26/07/2021	4,648.00	64	2.82	202	4,648.00	83	2	1.82	0.203	7.56	0.06	3	2.4	17	7.1	1	
27/07/2021	4,531.00			211	4,531.00	82					0.04		1.2	17	7.1		
28/07/2021	4,772.00			221	4,772.00	83					0.07		2	17	7.1		
29/07/2021	4,546.00			196	4,546.00	82					0.05		2.4	17	7.2		
30/07/2021	4,354.00			241	4,354.00	79					0.04		1.2	17	7.1		
31/07/2021	4,578.00			188	4,578.00	84					0.03		0.8	17	7.1		
Total	142,697.00				142,697.00												0.00
Average	4,603.13	86.00	2.88	211.84	4,603.13	83.61	2.00	4.09	0.18	6.59	0.06	3.00	2.50	16.10	7.27	18.13	0.00
Minimum	4,223.00	64.00	2.63	166.00	4,223.00	77.00	2.00	1.82	0.15	5.46	0.02	3.00	0.80	15.00	7.10	1.00	0.00
Maximum	5,235.00	103.00	3.29	280.00	5,235.00	107.00	2.00	5.50	0.20	7.56	0.15	3.00	4.80	17.00	7.50	60.00	0.00
Count	31	4	4	31	31	31	4	4	4	4	31	4	31	31	31	4	0

**Fort Frances Wastewater Treatment Plant  
Monthly Operations Summary**

2021	Raw Sewage				Final Effluent											E. Coli. (cfu/100 mL)	Bypass Volume (m3)
	Raw Flow: Sum (m3/d)	BOD5 (mg/L)	Total Phosphorus (mg/L)	SS (mg/L) IH	Final Eff. Flow: Sum (m3/d)	Final Eff. Flow: Max. (L/s)	CBOD5 (mg/L)	NH3 + NH4 as N (mg/L)	Nitrite - N (mg/L)	Nitrate-N(mg/L)	Total Phosphorus (mg/L)	Suspended Solids (mg/L)	SS (mg/L) IH	Temperature (C)	pH		
01/08/2021	4,184.00			193	4,184.00	77					0.06		2.4	17	7.1		
02/08/2021	4,390.00			212	4,390.00	78					0.04		1.6	17	7.1		
03/08/2021	4,443.00	128	2.89	202	4,443.00	80	2	0.69	0.098	6.7	0.03	3	2	17	7	10	
04/08/2021	4,698.00			177	4,698.00	83					0.05		2.8	17.5	7.1		
05/08/2021	4,642.00			229	4,642.00	86					0.05		2.4	17.5	7.3		
06/08/2021	4,460.00			197	4,460.00	79					0.11		1.6	17.5	7.3		
07/08/2021	4,545.00			197	4,545.00	83					0.09		2	17.5	7.3		
08/08/2021	4,365.00			197	4,365.00	78					0.15		2.4	17.5	7.4		
09/08/2021	4,392.00	103	4.02	209	4,392.00	88	2	0.23	0.118	6.27	0.06	3	1.6	17.5	7.2	30	
10/08/2021	4,827.00			209	4,827.00	84					0.07		3.2	17	7.4		
11/08/2021	5,800.00			198	5,800.00	85					0.22		6.8	17	7.3		
12/08/2021	3,400.00			179	3,400.00	86					0.15		6.4	17	7.3		
13/08/2021	4,453.00			196	4,453.00	81					0.11		3.6	17	7.4		
14/08/2021	4,387.00			188	4,387.00	88					0.08		3.2	17	7.3		
15/08/2021	4,385.00			262	4,385.00	77					0.13		2.4	17.5	7.4		
16/08/2021	4,433.00	146	3.41	206	4,433.00	84	2	0.27	0.104	5.68	0.53	3.7	3.2	17.5	7.2	50	
17/08/2021	4,359.00			208	4,359.00	83					0.08		2	18	7.3		
18/08/2021	4,612.00			232	4,612.00	81					0.27		4.4	18	7.2		
19/08/2021	4,681.00			238	4,681.00	85					0.17		3.2	18	7.2		
20/08/2021	4,682.00			208	4,682.00	81					0.11		3.2	18	7.3		
21/08/2021	4,898.00			195	4,898.00	84					0.25		4	18	7.3		
22/08/2021	4,832.00			228	4,832.00	85					0.12		4.4	17.5	7.4		
23/08/2021	4,893.00	104	2.94	206	4,893.00	83	3.7	1.49	0.069	5.9	0.18	6.3	5.2	17.5	7.3	10	
24/08/2021	4,789.00			191	4,789.00	83					0.14		2.4	18	7.4		
25/08/2021	4,765.00			213	4,765.00	81					0.27		4	17.5	7.2		
26/08/2021	4,833.00			277	4,833.00	83					0.32		7.2	17.5	7.4		
27/08/2021	5,061.00			244	5,061.00	87					0.26		4.4	17.5	7.3		
28/08/2021	4,953.00			241	4,953.00	85					0.3		7.2	17.5	7.4		
29/08/2021	6,678.00			168	6,678.00	114					0.23		2.8	17.5	7.4		
30/08/2021	5,307.00	105	2.15	202	5,307.00	87	2.6	1.52	0.426	3.94	0.25	3	4	17.5	7.3	10	
31/08/2021	5,101.00			227	5,101.00	88					0.11		2.4	18	7.4		
Total	146,248.00				146,248.00												0.00
Average	4,717.68	117.20	3.08	210.61	4,717.68	84.10	2.46	0.84	0.16	5.70	0.16	3.80	3.50	17.48	7.29	17.19	0.00
Minimum	3,400.00	103.00	2.15	168.00	3,400.00	77.00	2.00	0.23	0.07	3.94	0.03	3.00	1.60	17.00	7.00	10.00	0.00
Maximum	6,678.00	146.00	4.02	277.00	6,678.00	114.00	3.70	1.52	0.43	6.70	0.53	6.30	7.20	18.00	7.40	50.00	0.00
Count	31	5	5	31	31	31	5	5	5	5	31	5	31	31	31	5	0

**Fort Frances Wastewater Treatment Plant  
Monthly Operations Summary**

2021	Raw Sewage				Final Effluent											E. Coli. (cfu/100 mL)	Bypass Volume (m3)
	Raw Flow: Sum (m3/d)	BOD5 (mg/L)	Total Phosphorus (mg/L)	SS (mg/L) IH	Final Eff. Flow: Sum (m3/d)	Final Eff. Flow: Max. (L/s)	CBOD5 (mg/L)	NH3 + NH4 as N (mg/L)	Nitrite - N (mg/L)	Nitrate-N(mg/L)	Total Phosphorus (mg/L)	Suspended Solids (mg/L)	SS (mg/L) IH	Temperature (C)	pH		
01/09/2021	5,147.00			716	5,147.00	87					0.13		4.8	18	7.4		
02/09/2021	5,010.00			181	5,010.00	85					0.12		2	18	7.4		
03/09/2021	5,035.00			205	5,035.00	86					0.1		3.2	17.5	7.3		
04/09/2021	4,982.00			229	4,982.00	90					0.19		3.2	17.5	7.5		
05/09/2021	4,579.00			221	4,579.00	80					0.15		2	17.5	7.3		
06/09/2021	4,785.00			214	4,785.00	81					0.1		2	17.5	7.4		
07/09/2021	5,307.00	60	3.95	215	5,307.00	85	2	0.37	0.474	5.19	0.08	3	2.8	17.5	7.3	10	
08/09/2021	5,208.00			202	5,208.00	87					0.11		2.4	17.5	7.3		
09/09/2021	4,980.00			217	4,980.00	85					0.09		3.6	17.5	7.4		
10/09/2021	4,768.00			208	4,768.00	84					0.07		1.6	17.5	7.4		
11/09/2021	4,832.00			190	4,832.00	89					0.08		2.4	17.5	7.3		
12/09/2021	4,413.00			211	4,413.00	78					0.1		1.6	17.5	7.3	24900	610
13/09/2021	4,756.00			201	4,756.00	85					0.07		1.2	17.5	7.3		
14/09/2021	4,825.00	134	3.29	214	4,825.00	80	2	0.561	0.269	6.31	0.09	3	2	17.5	7.4	20	
15/09/2021	4,895.00			198	4,895.00	82					0.08		4.4	17.5	7.4		
16/09/2021	4,871.00			247	4,871.00	79					0.1		2.4	17.5	7.3		
17/09/2021	4,653.00			214	4,653.00	77					0.06		1.6	17.5	7.4		
18/09/2021	4,744.00			196	4,744.00	82					0.13		4	17.5	7.4		
19/09/2021	4,669.00			265	4,669.00	81					0.29		3.6	17	7.5		
20/09/2021	10,804.00	138	3.19	1654	10,804.00	196	2.5	0.643	0.173	5.43	0.17	4.5	4.4	17	7.4	720	
21/09/2021	6,998.00			276	6,998.00	108					0.15		2.8	17	7.6		
22/09/2021	6,124.00			132	6,124.00	97					0.13		2.8	17	7.5		
23/09/2021	8,734.00			151	8,734.00	94					0.15		1.2	17	7.5		
24/09/2021	5,638.00			144	5,638.00	99					0.13		2	17	7.5		
25/09/2021	5,695.00			163	5,695.00	93					0.11		2.4	17	7.5		
26/09/2021	5,478.00			186	5,478.00	88					0.09		1.2	17	7.4		
27/09/2021	5,399.00	101	2.34	162	5,399.00	90	2	0.458	0.189	5.21	0.1	3	1.6	17	7.5	10	
28/09/2021	5,275.00			156	5,275.00	94					0.12		2	17.5	7.5		
29/09/2021	5,332.00			184	5,332.00	93					0.14		4	17.5	7.5		
30/09/2021	5,102.00			174	5,102.00	84					0.1		1.6	17.5	7.4		
Total	163,038.00				163,038.00												610.00
Average	5,434.60	108.25	3.19	264.20	5,434.60	90.63	2.13	0.51	0.28	5.54	0.12	3.38	2.56	17.38	7.41	129.10	0.00
Minimum	4,413.00	60.00	2.34	132.00	4,413.00	77.00	2.00	0.37	0.17	5.19	0.06	3.00	1.20	17.00	7.30	10.00	610.00
Maximum	10,804.00	138.00	3.95	1,654.00	10,804.00	196.00	2.50	0.64	0.47	6.31	0.29	4.50	4.80	18.00	7.60	24,900.00	610.00
Count	30	4	4	30	30	30	4	4	4	4	30	4	30	30	30	5	1

**Fort Frances Wastewater Treatment Plant  
Monthly Operations Summary**

2021	Raw Sewage				Final Effluent												
	Raw Flow: Sum (m3/d)	BOD5 (mg/L)	Total Phosphorus (mg/L)	SS (mg/L) IH	Final Eff. Flow: Sum (m3/d)	Final Eff. Flow: Max. (L/s)	CBOD5 (mg/L)	NH3 + NH4 as N (mg/L)	Nitrite - N (mg/L)	Nitrate-N(mg/L)	Total Phosphorus (mg/L)	Suspended Solids (mg/L)	SS (mg/L) IH	Temperature (C)	pH	E. Coli. (cfu/100 mL)	Bypass Volume (m3)
01/10/2021	5,240.00			191	5,240.00	91					0.13		3.6	17.5	7.3		
02/10/2021	5,267.00			168	5,267.00	93					0.11		2	17	7.4		
03/10/2021	5,154.00			223	5,154.00	87					0.14		3.2	17	7.5		
04/10/2021	5,098.00	114	2.24	151	5,098.00	93	2	0.35	0.149	5.21	0.13	6.7	2.8	17	7.3	10	
05/10/2021	5,056.00			156	5,056.00	91					0.14		2.8		7.4		
06/10/2021	6,168.00			199	6,168.00	89					0.33		2.8		7.3		
07/10/2021	5,045.00			192	5,045.00	87					0.35		1.6	17	7.4		
08/10/2021	5,017.00			202	5,017.00	86					0.31		2.4	17	7.4		
09/10/2021	5,451.00			173	5,451.00	94					0.15		2	17	7.3		
10/10/2021	6,390.00			177	6,390.00	129					0.13		2.8	17	7.3		
11/10/2021	7,447.00			172	7,447.00	110					0.08		3.2	17	7.4		
12/10/2021	6,308.00	85	2.46	165	6,308.00	102	2	0.43	0.087	4.72	0.1	3	4.8	17	7.4	10	
13/10/2021	6,484.00			208	6,484.00	99					0.14		4.8	17	7.4		
14/10/2021	6,086.00			167	6,086.00	96					0.13		2.8	16.5	7.3		
15/10/2021	5,734.00			185	5,734.00	90					0.12		2	17	7.4		
16/10/2021	5,733.00			205	5,733.00	97					0.12		3.2	16.5	7.4		
17/10/2021	5,513.00	103	2.14	159	5,513.00	89	2	0.404	0.099	6.01	0.17	3.6	3.2	16.5	7.5		
18/10/2021	5,503.00			147	5,503.00	96					0.5		2	16.5	7.4	20	
19/10/2021	5,425.00			167	5,425.00	90					0.23		2.8	16	7.4		
20/10/2021	5,458.00			164	5,458.00	88					0.13		4.4	16	7.3		
21/10/2021	5,347.00			262	5,347.00	93					0.13		2.4	16	7.4		
22/10/2021	5,159.00			221	5,159.00	91					0.11		4	16	7.4		
23/10/2021	5,388.00			196	5,388.00	98					0.08		3.2	16	7.3		
24/10/2021	5,269.00	125	3.04	182	5,269.00	89	2	0.51	0.11	7.06	0.1	3	1.6	16	7.4		
25/10/2021	5,115.00			189	5,115.00	88					0.11		2	16	7.4	10	
26/10/2021	5,199.00			172	5,199.00	87					0.14		1.6	16	7.3		
27/10/2021	7,121.00			176	7,121.00	93					0.16		1.2	16	7.4		
28/10/2021	6,311.00			199	6,311.00	111					0.11		3.2	16	7.6		
29/10/2021	5,734.00			154	5,734.00	94					0.12		2.4	16	7.4		
30/10/2021	5,890.00			245	5,890.00	97					0.16		3.2	15.5	7.4		
31/10/2021	5,613.00			150	5,613.00	99					0.13		2	15.5	7.4		
Total	175,723.00				175,723.00												0.00
Average	5,668.48	106.75	2.47	184.42	5,668.48	94.74	2.00	0.42	0.11	5.75	0.16	4.08	2.77	16.47	7.38	11.89	0.00
Minimum	5,017.00	85.00	2.14	147.00	5,017.00	86.00	2.00	0.35	0.09	4.72	0.08	3.00	1.20	15.50	7.30	10.00	0.00
Maximum	7,447.00	125.00	3.04	262.00	7,447.00	129.00	2.00	0.51	0.15	7.06	0.50	6.70	4.80	17.50	7.60	20.00	0.00
Count	31	4	4	31	31	31	4	4	4	4	31	4	31	29	31	4	0

**Fort Frances Wastewater Treatment Plant  
Monthly Operations Summary**

2021	Raw Sewage				Final Effluent												E. Coli. (cfu/100 mL)	Bypass Volume (m3)
	Raw Flow: Sum (m3/d)	BOD5 (mg/L)	Total Phosphorus (mg/L)	SS (mg/L) IH	Final Eff. Flow: Sum (m3/d)	Final Eff. Flow: Max. (L/s)	CBOD5 (mg/L)	NH3 + NH4 as N (mg/L)	Nitrite - N (mg/L)	Nitrate-N(mg/L)	Total Phosphorus (mg/L)	Suspended Solids (mg/L)	SS (mg/L) IH	Temperature (C)	pH			
01/11/2021	5,521.00			165	5,521.00	94					0.12		2.4	15.5	7.3			
02/11/2021	5,465.00	84	2.61	167	5,465.00	90	2	0.28	0.081	7.58	0.14	3	1.6	15.5	7.4	30		
03/11/2021	5,695.00			142	5,695.00	96					0.12		3.6	15.5	7.3			
04/11/2021	5,583.00			143	5,583.00	92					0.09		1.6	15.5	7.4			
05/11/2021	5,513.00			146	5,513.00	92					0.11		2	15.5	7.4			
06/11/2021	5,655.00			161	5,655.00	100					0.08		2.4	15.5	7.3			
07/11/2021	5,697.00			191	5,697.00	97					0.1		1.6	15.5	7.4			
08/11/2021	5,334.00	103	3.04	152	5,334.00	96	2	0.44	0.065	5.87	0.12	3	2	15	7.4	10		
09/11/2021	5,367.00			178	5,367.00	90					0.09		2	15	7.5			
10/11/2021	5,583.00			166	5,583.00	105					0.07		2.4	15	7.5			
11/11/2021	7,261.00			169	7,261.00	113					0.09		4.4	14.5	7.5			
12/11/2021	6,872.00			114	6,872.00	104					0.22		2.4	14.5	7.4			
13/11/2021	7,104.00			137	7,104.00	131					0.12		2.8	14	7.6			
14/11/2021	6,768.00			142	6,768.00	104					0.24		3.6	14	7.6			
15/11/2021	6,568.00	106	2.43	118	6,568.00	104	3.9	1.21	0.153	4.59	0.13	3	2.4	14	7.5	50		
16/11/2021	6,598.00			121	6,598.00	101					0.12		2.8	14	7.6			
17/11/2021	6,665.00			135	6,665.00	111					0.09		2.8	14	7.4			
18/11/2021	6,228.00			147	6,228.00	102					0.06		1.6	14	7.4			
19/11/2021	6,220.00			142	6,220.00	99					0.08		2	14	7.5			
20/11/2021	6,251.00			153	6,251.00	99					0.11		2.4	14	7.5			
21/11/2021	6,152.00			174	6,152.00	100					0.07		1.2	14	7.4			
22/11/2021	6,112.00	101	2.27	154	6,112.00	98	2	0.53	0.131	5.85	0.13	3	4	13.5	7.4	10		
23/11/2021	6,095.00			139	6,095.00	98					0.06		3.2	13.5	7.4			
24/11/2021	6,034.00			132	6,034.00	101					0.06		2.4	13	7.5			
25/11/2021	5,654.00			124	5,654.00	92					0.1		1.6	13	7.3			
26/11/2021	5,773.00			131	5,773.00	98					0.07		1.6	13	7.3			
27/11/2021	5,871.00			158	5,871.00	100					0.17		1.2	13	7.5			
28/11/2021	5,897.00			145	5,897.00	98					0.09		2	13	7.4			
29/11/2021	5,730.00	83	2.38	142	5,730.00	98	2.1	0.46	0.118	5.64	0.06	3	2	13	7.3	50		
30/11/2021	5,664.00			138	5,664.00	97					0.06		3.2	13	7.4			
Total	180,930.00				180,930.00												0.00	
Average	6,031.00	95.40	2.55	147.53	6,031.00	100.00	2.40	0.58	0.11	5.91	0.11	3.00	2.37	14.22	7.43	23.71	0.00	
Minimum	5,334.00	83.00	2.27	114.00	5,334.00	90.00	2.00	0.28	0.07	4.59	0.06	3.00	1.20	13.00	7.30	10.00	0.00	
Maximum	7,261.00	106.00	3.04	191.00	7,261.00	131.00	3.90	1.21	0.15	7.58	0.24	3.00	4.40	15.50	7.60	50.00	0.00	
Count	30	5	5	30	30	30	5	5	5	5	30	5	30	30	30	5		

**Fort Frances Wastewater Treatment Plant  
Monthly Operations Summary**

2021	Raw Sewage				Final Effluent												Bypass Volume (m3)
	Raw Flow: Sum (m3/d)	BOD5 (mg/L)	Total Phosphorus (mg/L)	SS (mg/L) IH	Final Eff. Flow: Sum (m3/d)	Final Eff. Flow: Max. (L/s)	CBOD5 (mg/L)	NH3 + NH4 as N (mg/L)	Nitrite - N (mg/L)	Nitrate-N(mg/L)	Total Phosphorus (mg/L)	Suspended Solids (mg/L)	SS (mg/L) IH	Temperature (C)	pH	E. Coli. (cfu/100 mL)	
01/12/2021	5,990.00			136	5,990.00	99					0.12		1.6	13	7.4		
02/12/2021	5,960.00			148	5,960.00	96					0.15		2.4	13	7.5		
03/12/2021	5,796.00			156	5,796.00	98					0.11		2	13	7.5		
04/12/2021	5,773.00			139	5,773.00	96					0.13		2.8	13	7.5		
05/12/2021	5,707.00			151	5,707.00	97					0.09		1.6	12.5	7.4		
06/12/2021	5,618.00			165	5,618.00	92					0.1		1.6	12.5	7.4		
07/12/2021	5,912.00	101	2.57	167	5,912.00	95	2	0.57	0.131	6.99	0.1	3	1.2	12.5	7.5	10	
08/12/2021	5,836.00			151	5,836.00	98					0.07		2	12	7.5		
09/12/2021	5,670.00			149	5,670.00	96					0.11		5.2	12	7.4		
10/12/2021	5,562.00			154	5,562.00	92					0.09		1.6	11.5	7.4		
11/12/2021	5,689.00			196	5,689.00	98					0.09		1.2	11.5	7.3		
12/12/2021	5,657.00			168	5,657.00	93					0.13		2.8	11.5	7.4		
13/12/2021	5,587.00	77	2.91	195	5,587.00	93	2.3	0.62	0.132	6.32	0.09	3.7	1.2	12	7.3	40	
14/12/2021	5,662.00			184	5,662.00	96					0.09		0.8	12	7.2		
15/12/2021	5,893.00			167	5,893.00	97					0.28		3.6	11.5	7.5		
16/12/2021	6,335.00			174	6,335.00	98					0.16		4	11.5	7.5		
17/12/2021	5,813.00			168	5,813.00	97					0.18		3.6	11.5	7.5		
18/12/2021	5,846.00			153	5,846.00	101					0.15		2.4	11.5	7.4		
19/12/2021	5,802.00			164	5,802.00	95					0.09		1.6	11.5	7.4		
20/12/2021	5,646.00	95	1.71	158	5,646.00	97	4.2	2.98	0.351	3.76	0.12	3.9	2	11	7.5	10	
21/12/2021	5,609.00			171	5,609.00	93					0.1		3.6	11	7.5		
22/12/2021	5,601.00			148	5,601.00	95					0.08		2.8	11	7.4		
23/12/2021	5,481.00			189	5,481.00	92					0.18		4.4	11	7.4		
24/12/2021	5,492.00			147	5,492.00	95					0.22		2.8	11	7.4		
25/12/2021	5,236.00			160	5,236.00	92					0.05		2.4	10.5	7.3		
26/12/2021	5,294.00			176	5,294.00	89					0.1		4	10.5	7.2		
27/12/2021	5,391.00			171	5,391.00	90					0.1		1.6	10.5	7.4		
28/12/2021	5,166.00			137	5,166.00	90					0.13		2.8	10	7.3		
29/12/2021	5,239.00	94	2.7	140	5,239.00	88	2	2.97	0.591	4.91	0.14	4.6	3.6	10	7.3	210	
30/12/2021	5,095.00			206	5,095.00	90					0.12		3.6	10	7.3		
31/12/2021	5,054.00			195	5,054.00	87					0.12		3.2	10	7.4		
Total	174,412.00				174,412.00												0.00
Average	5,626.19	91.75	2.47	163.97	5,626.19	94.35	2.63	1.79	0.30	5.50	0.12	3.80	2.58	11.48	7.40	30.27	0.00
Minimum	5,054.00	77.00	1.71	136.00	5,054.00	87.00	2.00	0.57	0.13	3.76	0.05	3.00	0.80	10.00	7.20	10.00	0.00
Maximum	6,335.00	101.00	2.91	206.00	6,335.00	101.00	4.20	2.98	0.59	6.99	0.28	4.60	5.20	13.00	7.50	210.00	0.00
Count	31	4	4	31	31	31	4	4	4	4	31	4	31	31	31	4	0



# **Biosolids Quality Report**



OCWA  
ATTN: Superintendent Fort Frances WPCP  
WPCP 110000258  
200 McIrvine Road  
Fort Frances ON P9A 3S3

Date Received: 21-SEP-21  
Report Date: 08-OCT-21 12:16 (MT)  
Version: FINAL

Client Phone: 807-274-3121

## Certificate of Analysis

Lab Work Order #: L2641802

Project P.O. #: ORG #1103

Job Reference: 110000258

C of C Numbers:

Legal Site Desc:

Jillian Johns  
Account Manager

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ADDRESS: 1081 Barton Street, Thunder Bay, ON P7B 5N3 Canada | Phone: +1 807 623 6463 | Fax: +1 807 623 7598  
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# ALS ENVIRONMENTAL ANALYTICAL REPORT

<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>		L2641802-1 Grab 20-SEP-21 11:30 DIGESTED SLUDGE				
Grouping	Analyte					
<b>SOIL</b>						
<b>Physical Tests</b>	% Moisture (%)	98.8				
<b>Bacteriological Tests</b>	E. Coli (CFU/g dwt)	11200 <sup>PEHT</sup>				

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L2641802-1 Grab 20-SEP-21 11:30 DIGESTED SLUDGE				
Grouping	Analyte						
<b>WATER</b>							
<b>Anions and Nutrients</b>	Ammonia, Total (as N) (mg/L)	170	DLHC				
	Nitrate and Nitrite as N (mg/L)	<0.45					
	Nitrate (as N) (mg/L)	<0.40	DLM				
	Nitrite (as N) (mg/L)	<0.20	DLM				
	Phosphorus, Total (mg/L)	241	DLM				
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	354					
	Antimony (Sb)-Total (mg/L)	<0.020					
	Arsenic (As)-Total (mg/L)	0.064					
	Barium (Ba)-Total (mg/L)	1.97					
	Beryllium (Be)-Total (mg/L)	<0.020					
	Bismuth (Bi)-Total (mg/L)	0.209					
	Boron (B)-Total (mg/L)	<2.0					
	Cadmium (Cd)-Total (mg/L)	0.0047					
	Calcium (Ca)-Total (mg/L)	170					
	Chromium (Cr)-Total (mg/L)	0.16					
	Cobalt (Co)-Total (mg/L)	<0.10					
	Copper (Cu)-Total (mg/L)	2.55					
	Iron (Fe)-Total (mg/L)	152					
	Lead (Pb)-Total (mg/L)	0.128					
	Lithium (Li)-Total (mg/L)	<0.20					
	Magnesium (Mg)-Total (mg/L)	48					
	Manganese (Mn)-Total (mg/L)	2.48					
	Mercury (Hg)-Total (mg/L)	0.0056					
	Molybdenum (Mo)-Total (mg/L)	0.040					
	Nickel (Ni)-Total (mg/L)	0.11					
	Phosphorus (P)-Total (mg/L)	196					
	Potassium (K)-Total (mg/L)	66					
	Selenium (Se)-Total (mg/L)	0.031					
	Silver (Ag)-Total (mg/L)	<0.010					
	Sodium (Na)-Total (mg/L)	42					
	Strontium (Sr)-Total (mg/L)	0.515					
	Sulfur (S)-Total (mg/L)	<100					
	Thallium (Tl)-Total (mg/L)	<0.0020					
	Tin (Sn)-Total (mg/L)	0.128					
	Titanium (Ti)-Total (mg/L)	0.712					
	Tungsten (W)-Total (mg/L)	<0.18					
	Uranium (U)-Total (mg/L)	0.0375					

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## **Flow Meter Calibrations**

# Instrument Verification Report

Ontario Clean Water Agency, 200 McIlrvine Road, Fort Frances, ON

**Test Date:** September 3, 2021

**Device:** Miltronics OCM III 25C TS-2, Identifier # 120296126 HM

**For:** Plant Final Effluent flow as measured using a 12 inch Parshal flume

**Table 1: Verification Data for Miltronics OCM and Final Effluent Parshal Flume**

Measured Effluent Head (mm)	Indicated flow on OCM (L/s)	Calculated flow (L/s)	Percent error
260	85.3	89.3	-2.4
300	117.7	109.2	7.3
395	169.1	165.9	1.9
460	208.5	209.2	-0.2

**Notes:** For the Parshal Flume: Flow rate,  $Q \text{ (ft}^3/\text{s)} = 3.95 * (\text{Head} / ((12) * (25.4)))^{1.522}$

Flow rate,  $Q \text{ (L/s)} = Q \text{ (ft}^3/\text{s)} * 28.31 \text{ (L/ft}^3\text{)}$

## Summary:

The error in indicated values for final effluent flow rate is within the range of +/- 10%.

The alarm condition for flow in excess of UV capability operated at 208 L/sec.



Geoff Pearce

September 3, 2021

O&M Team Lead

Ontario Clean Water Agency

# Instrument Verification Report

Ontario Clean Water Agency, 200 McIrvine Road, Fort Frances, ON

**Test Date:** September 2, 2021

**Device:** Miltronics Multiranger Plus XPS 10, Identifier 04-235-96-432 MU

**For:** Plant influent Bypass Overflow Level, as measured in Manhole #8

## Detail:

- 1) Influent water level of 1.935 m was simulated with a fixture in manhole #8.  
The bypass warning alarm (high level) was activated.
- 2) Influent water level of 1.990 m was simulated with a fixture in manhole #8.  
The bypass high-high alarm was activated and a bypass flow value 50.8 L/sec was indicated.

## Summary:

The Delta V alarms response for bypass high level and bypass high-high level were tested and they both functioned as required.



Geoff Pearce

September 2, 2021

Ontario Clean Water Agency

Fort Frances, Ontario



## **Bypass Report**



# Fax

<b>To</b>	
<b>Company</b>	Ontario Clean Water Agency
<b>Fax Number</b>	1-807-274-8381
<b>From</b>	Dale Hughes
<b>Date</b>	September 12, 2021
<b>Number of Pages</b>	2
<b>Subject</b>	September 12, 2021 UV Bypass Report re Scheduled Power Outage

A manual bar screen was used and Total Residual Chlorine sample was taken at 0940 and showed a result of less than 0.01

Samples will also be sent out for TSS, Total Phosphorus, CBOD5 and E.coli .

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# Environmental Incident Report



System: **Fort Frances Wastewater Treatment System** MOE Works: 110000258

Location: Wastewater Treatment Plant Receiver: Rainy River

<b>Start of Incident:</b>	Date: September 12, 2021	Time: 0830
<input type="checkbox"/> Spill	Details/Cause of Incident: Town wide scheduled power outage.	
<input checked="" type="checkbox"/> Bypass	Wastewater flowed through the plant but there is only a small generator to monitoring/SCADA system.	
<input type="checkbox"/> Other		
Downstream Users <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Possible effects on receiver, environment or downstream users: Minimal	
Chlorination <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Corrective Actions:		
MOECP SAC called	Date: Sept 12,2021 At 0832	Contact: John TSE
MOH – Northwestern Health Unit called	Date: Sept 12,2021 At 0844	Contact: Giselle
Jeff St. Pierre called	Date: Sept 12,2021 At 0850	Contact: Left Message
Town of Fort Frances called	Date: Sept 12,2021 At 0852	Contact: Craig M
Other: Emo Water Treatment	Date: Sept 12,2021 At 0854	Contact: Geoff P
Other: Ty Maurice	Date : Sept 12,2021 At 0906	Contact: Ty M
<b>Reference #:</b> 1-18W9CV Operator Reporting Incident: Dale Hughes		

<b>Termination:</b>	Date: September 12, 2021	Time: 12:09	Duration: 3 hours and 39 Minutes
Approximate Volume (m <sup>3</sup> ) 610			
Date: September 12, 2021		at: 12:22	Contact: Johnathon
Further Actions Required: None			
Operator Reporting Termination: Dale Hughes			
<b>MOECP SAC</b>	<b>Tel: 800 268-6060</b> <b>Fax: 800 268-6061</b>	<b>Comments</b>	
<b>MOH – Northwestern Health Unit</b> <b>(after hours)</b>	<b>Tel: 1-800-461-3348</b> <b>Tel: 807-274-9827</b> <b>Tel: 807-468-7109</b> <b>Fax: 807-274-0779</b>	<b>Comments</b>	
<b>Environment Canada</b>	<b>Fax: 819-420-7382</b> <b>Attn: Wastewater Program</b> <b>E-mail: Ec.FA-LP-On.ec@canada.ca</b>		

Verbal notifications: MOECP SAC, MOH, Sr. Operations Manager, Client/Owner  
Fax completed report: MOECP SAC, MOH, Environment & Climate Change Canada, VP Operations/Corporate