Ontario Clean Water Agency
Agence Ontarienne Des Eaux

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March 24, 2015

Ministry of the Environment
808 Robertson St
PO Box 5150
Kenora ON
P9N 1X9

Attention: Ms. Trina Rawn
District Manager - Kenora Area Office / Thunder Bay District Office

Dear Ms. Rawn:

Re: 2014 Performance Report for Fort Frances Sewage Treatment Plant

Attached is the 2014 Performance Report for the **Fort Frances Sewage Treatment Plant** located in the Town of Fort Frances. This report has been completed in accordance with Condition No. 4 (4) cited in *Certificate of Approval Number 3-0049-96-006* dated April 16 1999 and issued to the Town of Fort Frances.

This report was prepared by the Ontario Clean Water Agency on behalf of the Town of Fort Frances based on the information kept on record by OCWA at the Fort Frances Sewage Treatment Plant location; and the report covers the period from January 1 to December 31, 2014.

Should you have any questions or comments in regards to this annual report, please do not hesitate to contact David Hoffman at 807-854-1141 ext 5.

Yours truly,

for.

Gordon Williams
Regional Manager
Ontario Clean Water Agency
Northern Region

Copy to: Doug Herr – Fort Frances Environmental and Facilities Superintendent
Larry Wachter- Operations Manager
Operations Staff – Fort Frances Sewage Treatment Plant

2014 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)
2014 Annual Report

Introduction

In accordance with the Certificate of Approval Number 3-0049-96-006 section 4.4, the Town of Fort Frances Wastewater Treatment Plant is required to prepare an annual summary. The 2014 annual facility 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

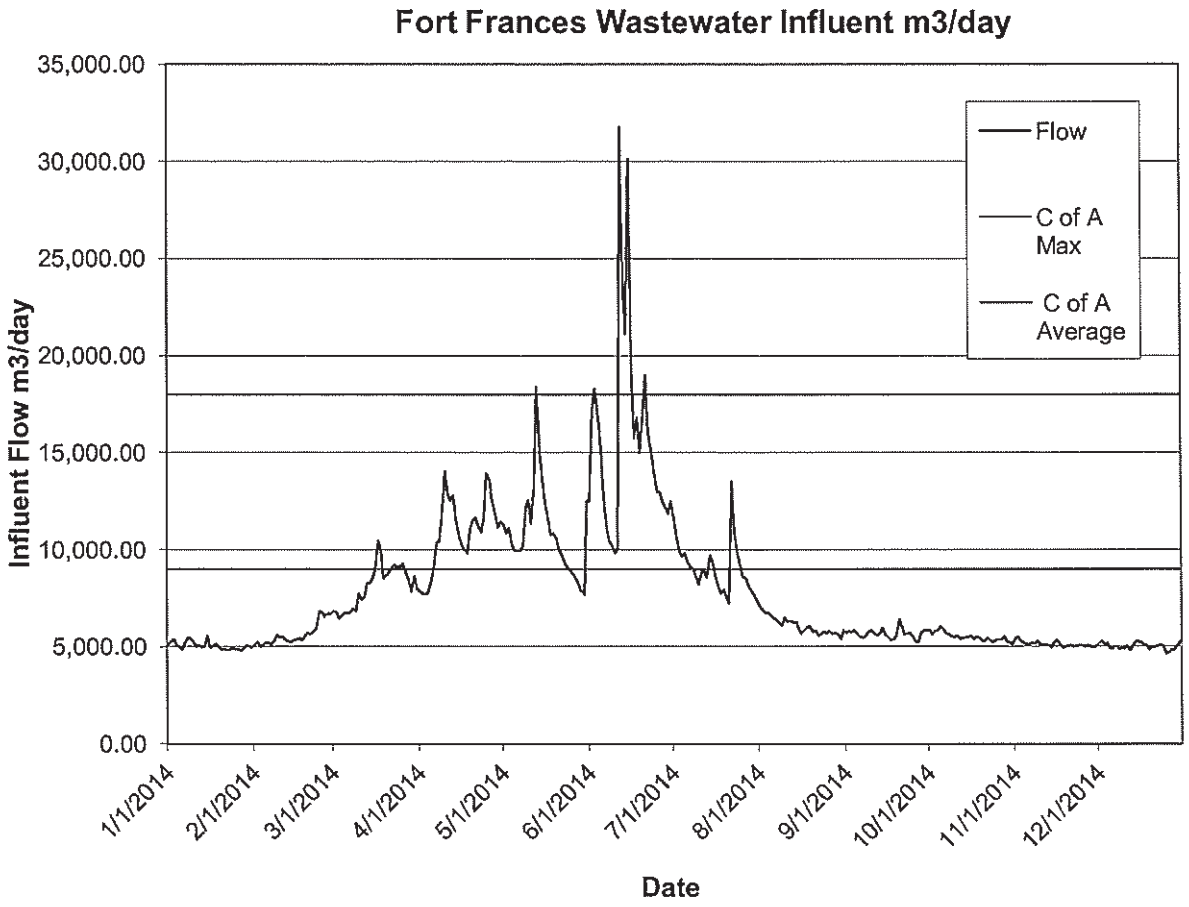
Capacity of Works	9000 m^3/day (average flow) Peak 18000 m3/day
Service Area	Town of Fort Frances and Couchiching Reserve
Service Population	9000
Effluent Receiver	Rainy River
Major Process	Secondary treatment facility complete with a phosphorus removal system; ultra violet disinfection; aerobic sludge stabilization and dewatering

1. Summary and Comprehensive Interpretation of Data

Flow Summary	2010	2011	2012	2013	2014	5-yr avg.
Avg. Day m^3/day	7658	6872	5578	6326	7646	6816
Design m^3/day	9000	9000	9000	9000	9000	9000
Utilization (Avg. Day/ Design)	85%	76%	62%	70%	85%	76 %
Max Day m^3/day	21166	18288	8655	20375	21000*	17897
Max Day Factor	2.8	2.7	1.6	3.2	2.7	2.6

* Estimated volume

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



The peak flow occurred on June 13, 14 and 15 2014. The peak flow through the treatment plant was 21000 m^3/day. The flow was estimated on these days due to the river surcharging the parshall flume. The influent flows presented in the graph includes the volume bypassed at the treatment plant. In June 2014 there were two bypass events lasting a total of 7 days at the treatment plant.

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 Biological Oxygen Demand, Suspended Solids and Total Phosphorus are compared to the Certificate of Approval effluent concentrations and loadings as specified in section 1.3.

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	3.7	18.2	7.3	36.8	0.20	1.02	2.8	7.2	7.7
February	4.3	23.2	7.4	42.6	0.18	1.02	10.4	7.2	7.5
March	5.0	42.4	12.2	102.0	0.18	1.42	11.9	7.3	7.5
April	3.0	31.3	9.1	93.2	0.25	2.80	29.6	6.9	7.6
May	4.0	46.7	7.6	81.2	0.36	3.80	36	7.2	7.7
June	3.5	49.0	7.6	113.7	0.37	5.30	155.7	7.0	7.8
July	2.5	23.3	7.4	68.2	0.34	3.10	11.6	7.1	7.8
August	2.0	12.3	4.7	29.0	0.28	1.71	6.8	7.5	7.7
September	2.0	11.3	3.1	17.4	0.35	2.00	16.9	7.3	7.9
October	2.1	11.3	3.7	20.4	0.28	1.56	4.9	7.2	7.8
November	3.1	16.3	4.3	22.1	0.22	1.15	12.9	7.0	7.7
December	2.7	13.6	4.6	23.2	0.20	1.02	29.1	6.8	7.4
Average	3.2	24.9	6.6	54.2	0.27	2.16	27.4	7.1	7.7
Max	5.0	49.0	12.2	113.7	0.37	5.30	155.7	7.5	7.9
C of A Limit	<25	<225	<25	<225	<1	<9	<200	>6.0	<9.5
C of A Obj.	<15	<135	<15	<135	<1	<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 and objective of 135 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 2014, $CBOD_5$, 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 7.9 and a low of 6.8. The pH met the requirements of the Certificate of Approval in 2014.

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 limit targets with a maximum monthly geometric mean density of 155.7 organisms per 100 ml. The objective level was not met in the month of June.

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 both Sigma units that take 200 ml samples at a 55 min 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, nitrites and nitrates. E-coli are sampled from the effluent only. The influent samples are tested for carbonaceous biochemical oxygen demand and total phosphorus. The 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. 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 2014 period. Additional maintenance activities conducted during the year are as follows:

Treatment Plant:

- ☐ Thawed frozen sludge line
- ☐ Lightning arrestors were installed
- ☐ Installed and commissioned new digester recirculation pump
- ☐ The UPS for Delta V workstation was replaced
- ☐ Replaced a GBT control relay
- ☐ Cleaned and painted sodium hypochlorite platform
- ☐ Installed and gapped spare N impeller on RAS pump 2
- ☐ Replaced brushes polymer mixing motor
- ☐ Installed new UV intensity sensor
- ☐ Shoveled sand from clarifier 2 inlet channel
- ☐ Drained and inspected clarifier 2, placed cross collector chain back on idler, removed rags and shortened cross collector chain and long collector chain one link each side
- ☐ Shoveled sand from head works inlet channel
- ☐ Rotated wear bars grit snail
- ☐ Installed new pH electrode in lab
- ☐ Replaced belt GBT
- ☐ New hot water heater for polymer system
- ☐ Replaced current isolator UV bank B light intensity circuit
- ☐ Inspected clarifier 1, removed 1 link each side of long and cross collector chain
- ☐ Inspected aeration cell 1 and installed new recirculation pump

- Removed blower 2 sent for rebuild and reinstalled
- Contractors repaired head works air handlers
- Repaired alum line heat trace
- Added insulation to digester doghouse
- Altered sludge piping in sludge tent for new container
- Removed debris from aeration cells outlet channel
- Drain and inspect aeration cell 2
- Installed old spare recirculation pump in aeration cell 2 and sent recirculation pump sent out for repair

Pump Stations:

- Installed new genset batteries Fifth St. and White Pine lift stations
- Replaced batteries in UPS at Boundary Road lift station
- Replaced the UPS at Boundary Road lift station
- Replaced the analog output card in the PLC at Central Avenue lift station to correct pump 2 speed control trouble
- Removed grease from wet wells at Boundary Road and Church Street lift stations
- replace radio communication antenna and upgraded to wireless technology
- Replaced the sump pump in Central Avenue lift station dry well
- Replaced 1 check valve at Boundary Road lift station
- Block heater was replaced on White Pine genset
- Asselin removed debris from Fifth St lift station wet well
- Replaced the inlet and outlet isolation valves as well as the check valve on pump 2 at White Pine lift station
- Replaced battery in Fifth Street lift station PLC power supply
- A new pressure transducer was installed and commissioned to replace the bubbler level control system at White Pine lift station

4. Operational issues

The Fort Frances WWTP met the overall required compliance criterion for this facility in 2014. The flow to the treatment plant is limited by the vortex valve located in Manhole #8 and is rated at 25000 m^3/day. The UV disinfection system is rated at a maximum flow of 18000 m^3/day.

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

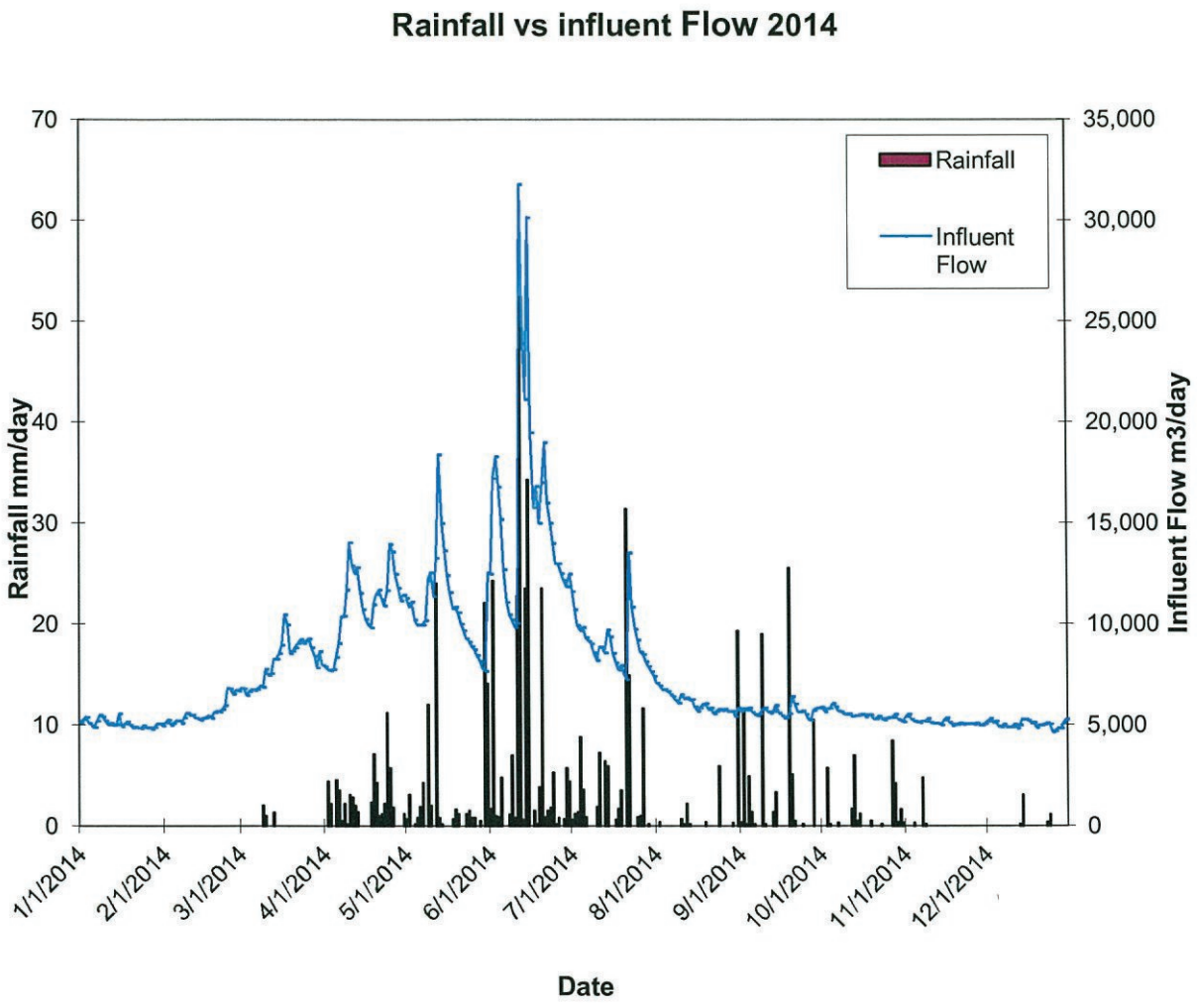
The new digester recirculation pump was installed and commissioned successfully. Although the tank could be filled to normal level it took some time before preferred temperature and digestion could be achieved.

Several water breaks in town caused leaking sewers or manholes to transport large volumes of grit and very cold water to the wastewater plant. Volatile solids percentages in aeration tanks and waste sludge fell to all time low levels basically over night as a result indicating high inorganics. It also became necessary to more than double the kilograms of solids wasted to digesters each day.
The long term wear from all this grit to the pumps and clarifier chains will reduce the life expectancy of this equipment. Physical removal of some of this material from tanks, channels and lift stations was necessary when water breaks were repaired and run-off season was over but did persist for several months.
Digestion efficiency was be impacted negatively for some time considering the low volatile percentage of extremely high volumes of waste sludge that was sent to the digesters the second half of March and early April. Volatile solids percentages in aeration tanks and waste sludge did not return to normal levels until three weeks into the month of April. The flooding in June further impacted the normal operation of the digesters.

The average daily flow for June was 14,683.4 m3/day,16 days of which were estimated because the river was surcharging the parshall flume. This represents 163% of the design average flow. Total treated flow for the month was 440,501 m3. Two bypass events totaled 33,807 m3.
High river levels compromised the integrity of the regular effluent sample point necessitating that grab samples be taken of the effluent June 16-23. A failed cross collector in clarifier 2 was repaired once the river level and extreme flows had subsided to a reasonable level.
An inspection of the grit system and mechanical bar screen was done with company reps on site. The report suggested tighter gaps on the sides and the base of the screen.
Inspection of clarifier 1 confirmed that all of the clarifier chain is recommended for replacement next year.
In October, both hard drives failed in the main SCADA computer and were replaced on warranty. A failed Delta V IO card was replaced as part of this service.

The sludge haulage/transportation contract with Hammond Landscaping came to an end in November. A new contract with Asselin Transportation and Storage Limited was negotiated. Asselin Transportation and Storage Limited is hauling the sludge to the Town of Fort Frances landfill site to dewater before landfill disposal. The Town of Fort Frances has contracted Associate Engineering to investigate various sludge dewatering technologies to allow for the hauled sludge to meet the MOE criteria for landfill disposal without further drying.

A graph of the influent flows and rainfall as recorded at the Fort Frances Airport Environment Canada is included illustrating several rainfall events closely correlating to influent flow spikes. There were a small number of rainfall data gaps in the Environment Canada database; these were supplemented by alternate sources. The highest rainfall event occurred on June 12, 2014 with a recorded rainfall amount of 58 mm.



5. Sludge Generation and Disposal

A local contractor hauled the aerobically digested sludge from the treatment plant to a certified site operated by the contractor. The sludge was processed in drying beds for use as an organic soil conditioner at a sod farm. This arrangement ended in November 2014. The sludge is now hauled by a new local contractor for further drying and disposal at the Town of Fort Frances landfill site.

Sludge Volume Hauled in 2014

Month	Total Volume(m3)
January	143.5
February	129.8
March	217.9
April	198.3
May	243.5
June	286.8
July	184.7
August	131.6
September	151.2
October	296.4
November	157.8
December	192.0
Total	**2336.2**

There was 2336.2 m^3 of sludge generated in 2014 with an average of 194.7 m^3 per month. The sludge volume figures and sludge analytical sample results for 2014 are appended to this report.

There are no additional changes to the sludge handling methods or disposal for the Fort Frances Wastewater Treatment Plant expected in the coming year.

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 2014, calibration of the plant bypass weir and effluent parshall flume was completed on July 25 2014; results attached to this report. Both flow measuring devices passed the calibration testing for 2014.

2014 Annual Summary Report

Month	Avg. Day Flow m3	Sewage Flows Year 2014 Max Day Flow m3	Total Treated Volume ML	Total ByPass Volume ML	Total Volume ML	Usage % Plant Capacity	Sludge Volume Hauled M3	Removal Efficiency CBOD5 Suspended Solids Total Phosphorus
January	5057.6	5552	156785		156785	56%	143.5	
February	5630.1	6812	157644		157644	63%	129.8	
March	8118.8	10455	251682		251682	90%	217.9	
April	10927.7	14036	327830		327830	121%	198.3	
May	10855.8	18381	336530		336530	121%	243.5	
June	14683.4	21000	440501	33807.4	474308.4	163%	286.8	
July	9034.0	13527	280055		280055	100%	187.4	
August	6098.7	7079	189059		189059	68%	131.6	
September	5668.8	6401	170064		170064	63%	151.2	
October	5508.6	6069	170767		170767	61%	296.4	
November	5130.0	5522	153900		153900	57%	157.8	
December	5036.2	5514	156123		156123	56%	192.0	
Sum				33807.4	2824747.4		2336.2	
Average	7646		232578		235396	85%	194.7	
Max		21000	440501		474308.4			
C of A	9000	18000						

	CBOD5			Suspended Solids			Total Phosphorus			E. Coli		pH
	Avg Raw	Avg. Eff.	Avg. Load	Avg Raw	Avg. Eff.	Avg. Load	Avg Raw	Avg. Eff.	Avg. Load	Geo Mean	Monthly	Monthly
Month	CBOD	CBOD	CBOD	S.S	S.S	S.S	T.P	T.P	T.P	Counts	Minimum	Maximum
	(mg/L)	(mg/L)	(kg/day)	(mg/L)	(mg/L)	(kg/day)	(mg/L)	(mg/L)	(kg/day)	/100ml		
January	76.0	3.7	18.2	147.0	7.3	36.8	2.2	0.20	1.02	2.8	7.2	7.7
February	88.3	4.3	23.2	146.9	7.4	42.6	2.6	0.18	1.02	10.4	7.2	7.5
March	49.8	5.0	42.4	183.0	12.2	102.0	1.6	0.18	1.42	11.9	7.3	7.5
April	40.6	3.0	31.3	92.5	9.1	93.2	1.2	0.25	2.80	29.6	6.9	7.6
May	36.3	4.0	46.7	78.6	7.6	81.2	1.1	0.36	3.80	36.0	7.2	7.7
June	23.8	3.5	49.0	85.4	7.6	113.7	0.8	0.37	5.30	155.7	7.0	7.8
July	39.2	2.5	23.3	107.5	7.4	68.2	1.3	0.34	3.10	11.6	7.1	7.8
August	60.8	2.0	12.3	148.3	4.7	29.0	1.9	0.28	1.71	6.8	7.5	7.7
September	68.0	2.0	11.3	130.0	3.1	17.4	2.1	0.35	2.00	16.9	7.3	7.9
October	67.5	2.1	11.3	131.8	3.7	20.4	2.1	0.28	1.56	4.9	7.2	7.8
November	84.8	3.1	16.3	139.3	4.3	22.1	2.3	0.22	1.15	12.9	7.0	7.7
December	84.4	2.7	13.6	138.5	4.6	23.2	2.4	0.20	1.02	29.1	6.8	7.4
Average	60.0	3.2	24.9	127.4	6.6	54.2	1.8	0.27	2.16	27.4	7.1	7.7
Max	88.3	5	49.0	183.0	12.2	113.7	2.6	0.37	5.30	155.7	7.5	7.9
C of A		25	225		25	225		1	9	200	6.0	9.5

Monthly Operations Summary Report

Fort Frances Wastewater Treatment Plant
Monthly Operations Summary

2014	Raw Sewage				Final Effluent												
Day	Raw Flow: Sum (m3/d)	CBOD5 (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)
1/1/2014	5,120.00			122	5,120.00	83					0.16		6.4	9.5	7.3		
1/2/2014	5,281.00			163	5,281.00	90					0.19		5.2	9.5	7.3		
1/3/2014	5,391.00			188	5,391.00	89					0.18		4	9.5	7.3		
1/4/2014	5,094.00			147	5,094.00	83					0.21		4.4	9	7.2		
1/5/2014	4,981.00			169	4,981.00	85					0.21		9.6	9	7.4		
1/6/2014	4,883.00	72	2.26	137	4,883.00	90	2.7	0.323	0.569	4.43	0.14	4.1	4.1	9	7.4		
1/7/2014	5,202.00			157	5,202.00	86					0.17		9.6	9	7.6	4	
1/8/2014	5,486.00			192	5,486.00	87					0.13		6.8	9	7.4		
1/9/2014	5,414.00			145	5,414.00	91					0.16		9.6	9.5	7.4		
1/10/2014	5,220.00			153	5,220.00	92					0.19		7.2	9.5	7.4		
1/11/2014	5,010.00			138	5,010.00	82					0.16		4.8	9.5	7.5		
1/12/2014	5,085.00			141	5,085.00	83					0.23		10.4	9.5	7.6		
1/13/2014	4,983.00	67	2.17	129	4,983.00	85	4.6	0.877	0.712	4.45	0.19		8.4	9.5	7.7		
1/14/2014	5,028.00			122	5,028.00	87					0.15		5.6	9.5	7.6	1	
1/15/2014	5,552.00			162	5,552.00	90					0.22		6.4	9	7.4		
1/16/2014	4,938.00			143	4,938.00	86					0.25		5.2	9	7.5		
1/17/2014	5,046.00			115	5,046.00	87					0.21		4.8	9	7.5		
1/18/2014	5,148.00			182	5,148.00	87					0.18		5.2	9	7.4		
1/19/2014	4,991.00			138	4,991.00	81					0.26		12.8	9	7.4		
1/20/2014	4,875.00	89	2.28	108	4,875.00	82	3.7	1.16	0.538	5.37	0.13	9.4	9.4	8.5	7.5		
1/21/2014	4,890.00			119	4,890.00	83					0.24		4.3	9	7.4	4	
1/22/2014	4,853.00			161	4,853.00	82					0.39		18	8.5	7.2		
1/23/2014	4,837.00			140	4,837.00	76					0.36		20.8	8.5	7.4		
1/24/2014	4,956.00			137	4,956.00	75					0.31		5.6	8.5	7.4		
1/25/2014	4,874.00			155	4,874.00	85					0.14		6	8.5	7.5		
1/26/2014	4,868.00			138	4,868.00	76					0.29		5.2	8.5	7.6		
1/27/2014	4,815.00	76	2.09	109	4,815.00	81	3.9	2.41	0.551	4.4	0.1		5.2	8.5	7.6		
1/28/2014	4,885.00			130	4,885.00	81					0.1		6	8	7.5	4	
1/29/2014	5,067.00			186	5,067.00	84					0.19		6	8.5	7.5		
1/30/2014	5,051.00			194	5,051.00	75					0.23		5.6	8	7.4		
1/31/2014	4,961.00			137	4,961.00	76					0.21		4	8	7.4		
Total	156,785.00				156,785.00												0.00
Average	5,057.58	76.00	2.20	147.00	5,057.58	83.87	3.73	1.19	0.59	4.66	0.20	6.75	7.31	8.92	7.44	2.83	0.00
Minimum	4,815.00	67.00	2.09	108.00	4,815.00	75.00	2.70	0.32	0.54	4.40	0.10	4.10	4.00	8.00	7.20	1.00	0.00
Maximum	5,552.00	89.00	2.28	194.00	5,552.00	92.00	4.60	2.41	0.71	5.37	0.39	9.40	20.80	9.50	7.70	4.00	0.00
Count	31	4	4	31	31	31	4	4	4	4	31	2	31	31	31	4	0

Fort Frances Wastewater Treatment Plant
Monthly Operations Summary

2014	Raw Sewage				Final Effluent												
	Raw Flow: Sum (m3/d)	CBOD5 (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)
2/1/2014	5,110.00			192	5,110.00	86					0.19		5.2	8	7.4		
2/2/2014	5,236.00			153	5,236.00	81					0.17		5.6	8	7.4		
2/3/2014	5,005.00	82	3.49	129	5,005.00	74	5.9	1.49	0.856	4.13	0.22	13.5	13.6	8.5	7.5		
2/4/2014	5,084.00			129	5,084.00	74					0.32		8.8	8.5	7.2	12	
2/5/2014	5,218.00			141	5,218.00	83					0.22		5.2	8	7.4		
2/6/2014	5,209.00			119	5,209.00	85					0.15		6.8	8	7.5		
2/7/2014	5,098.00			259	5,098.00	79					0.22		6.4	8	7.3		
2/8/2014	5,354.00			131	5,354.00	85					0.28		10.8	8	7.3		
2/9/2014	5,595.00			155	5,595.00	92					0.24		9.2	8	7.4		
2/10/2014	5,503.00	76	2.25	140	5,503.00	89	4.1	3.46	0.669	4.08	0.13		6.4	8	7.4		
2/11/2014	5,499.00			130	5,499.00	91					0.26		6	8	7.4	15	
2/12/2014	5,354.00			137	5,354.00	85					0.09		2.4	8	7.4		
2/13/2014	5,320.00			124	5,320.00	84					0.13		2.8	8	7.4		
2/14/2014	5,249.00			122	5,249.00	85					0.18		5.2	8	7.3		
2/15/2014	5,335.00			119	5,335.00	91					0.15		6.4	7.5	7.3		
2/16/2014	5,369.00			141	5,369.00	94					0.12		5.6	7.5	7.3		
2/17/2014	5,454.00	65	2.01	112	5,454.00	86	3.4	3.19	0.257	4.43	0.14	7.8	7.8	8	7.4		
2/18/2014	5,353.00			140	5,353.00	86					0.07		3.2	8	7.2	3	
2/19/2014	5,607.00			130	5,607.00	96					0.12		6.8	7.5	7.3		
2/20/2014	5,693.00			148	5,693.00	93					0.12		6.8	7.5	7.3		
2/21/2014	5,658.00			202	5,658.00	82					0.19		10.8	7	7.2		
2/22/2014	5,791.00			121	5,791.00	90					0.14		8.8	7	7.2		
2/23/2014	5,981.00	130	2.79	289	5,981.00	104	3.7	4.13	0.19	3.69	0.14		4	7	7.5		
2/24/2014	6,812.00			195	6,812.00	107					0.18		12	7	7.5	22	
2/25/2014	6,800.00			179	6,800.00	106					0.25		14	7	7.2		
2/26/2014	6,547.00			118	6,547.00	96					0.22		11.6	7	7.4		
2/27/2014	6,717.00			56	6,717.00	103					0.19		10.8	7	7.3		
2/28/2014	6,693.00			101	6,693.00	105					0.21		5.2	7	7.3		
Total	157,644.00				157,644.00												0.00
Average	5,630.14	88.25	2.64	146.86	5,630.14	89.71	4.28	3.07	0.49	4.08	0.18	10.65	7.44	7.68	7.35	10.44	0.00
Minimum	5,005.00	65.00	2.01	56.00	5,005.00	74.00	3.40	1.49	0.19	3.69	0.07	7.80	2.40	7.00	7.20	3.00	0.00
Maximum	6,812.00	130.00	3.49	289.00	6,812.00	107.00	5.90	4.13	0.86	4.43	0.32	13.50	14.00	8.50	7.50	22.00	0.00
Count	28	4	4	28	28	28	4	4	4	4	28	2	28	28	28	4	0

Fort Frances Wastewater Treatment Plant
Monthly Operations Summary

2014	Raw Sewage				Final Effluent												
	Raw Flow: Sum (m3/d)	CBOD5 (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)
3/1/2014	6,832.00			155	6,832.00	103					0.18		9.2	7	7.3		
3/2/2014	6,804.00	71	2.22	129	6,804.00	125	4.5	4.61	0.158	3.2	0.15	10.6	8.8	7	7.3		
3/3/2014	6,470.00			100	6,470.00	118					0.26		16.8	7	7.3	9	
3/4/2014	6,671.00			104	6,671.00	96					0.18		5.6	7	7.4		
3/5/2014	6,770.00			155	6,770.00	105					0.35		13.2	7	7.5		
3/6/2014	6,727.00			114	6,727.00	105					0.19		8	7	7.4		
3/7/2014	6,794.00			92	6,794.00	100					0.26		8.8	7	7.3		
3/8/2014	6,945.00			114	6,945.00	116					0.18		8.4	7	7.4		
3/9/2014	6,872.00			115	6,872.00	115					0.21		9.2	7	7.4		
3/10/2014	7,751.00	52	1.54	164	7,751.00	155	5.5	4.12	0.081	2.96	0.11		7.2	7	7.4		
3/11/2014	7,467.00			119	7,467.00	107					0.13		10.4	7	7.3	12	
3/12/2014	7,555.00			161	7,555.00	108					0.13		7.6	7	7.3		
3/13/2014	8,269.00			153	8,269.00	127				3.2	0.15		5.6	7	7.3		
3/14/2014	8,271.00			96	8,271.00	114					0.18		6.4	6.5	7.4		
3/15/2014	8,549.00			113	8,549.00	123					0.14		6.4	6	7.3		
3/16/2014	8,962.00			385	8,962.00	129					0.14		13.6	5.5	7.3		
3/17/2014	10,455.00	23	1.33	272	10,455.00	152	2.9	4.43	0.071	2.56	0.17	16.2	16.2	5.5	7.3		
3/18/2014	9,964.00			264	9,964.00	156					0.15		14.4	5.5	7.4	17	
3/19/2014	8,537.00			155	8,537.00	127					0.15		9.6	5.5	7.3		
3/20/2014	8,686.00			171	8,686.00	126					0.13		8.8	6	7.3		
3/21/2014	8,832.00			336	8,832.00	131					0.17		14.8	6	7.3		
3/22/2014	9,051.00			304	9,051.00	147					0.18		12.8	6	7.5		
3/23/2014	9,242.00			250	9,242.00	135					0.17		21.6	5.5	7.4		
3/24/2014	9,060.00			348	9,060.00	131					0.23		17.2	5	7.5		
3/25/2014	9,173.00	53	1.48	320	9,173.00	134	7.2	4.81	0.077	2.72	0.16		22.4	5	7.5		
3/26/2014	9,268.00			278	9,268.00	137					0.15		21.2	5.5	7.4	11	
3/27/2014	8,834.00			145	8,834.00	129					0.14		13.2	5.5	7.4		
3/28/2014	8,431.00			141	8,431.00	140					0.25		20.4	5.5	7.3		
3/29/2014	7,839.00			161	7,839.00	129					0.17		16	6	7.3		
3/30/2014	8,632.00			124	8,632.00	138					0.19		14	6	7.4		
3/31/2014	7,969.00			136	7,969.00	121					0.16		11.6	6	7.5		
Total	251,682.00				251,682.00												0.00
Average	8,118.77	49.75	1.64	183.03	8,118.77	125.13	5.03	4.49	0.10	2.93	0.18	13.40	12.24	6.24	7.37	11.92	0.00
Minimum	6,470.00	23.00	1.33	92.00	6,470.00	96.00	2.90	4.12	0.07	2.56	0.11	10.60	5.60	5.00	7.30	9.00	0.00
Maximum	10,455.00	71.00	2.22	385.00	10,455.00	156.00	7.20	4.81	0.16	3.20	0.35	16.20	22.40	7.00	7.50	17.00	0.00
Count	31	4	4	31	31	31	4	4	4	5	31	2	31	31	31	4	0

Fort Frances Wastewater Treatment Plant
Monthly Operations Summary

2014	Raw Sewage				Final Effluent												
	Raw Flow: Sum (m3/d)	CBOD5 (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)
4/1/2014	7,888.00			154	7,888.00	117					0.26		12.4	6	7.5		
4/2/2014	7,746.00	61	1.62	139	7,746.00	120	4.2	6.29	0.105	3.29	0.25	8.7	8.7	6	7.3		
4/3/2014	7,703.00			137	7,703.00	114					0.24		26.4	6	7.3	16	
4/4/2014	7,767.00			132	7,767.00	119					0.2		3.6	6	7.2		
4/5/2014	8,360.00			103	8,360.00	132					0.19		12.4	6	7.1		
4/6/2014	9,050.00			66	9,050.00	142					0.17		4	6	7.2		
4/7/2014	10,377.00	49	1.68	190	10,377.00	162	2.4	4.59	0.13	3.17	0.16		3.6	6.5	7.2		
4/8/2014	10,404.00			110	10,404.00	147					0.24		8	6	6.9	31	
4/9/2014	11,698.00				11,698.00	196					0.16		5.6	6	7.4		
4/10/2014	14,036.00			130	14,036.00	194					0.22		8	6	7.5		
4/11/2014	12,891.00			61	12,891.00	177					0.37		22.8	6	7.2		
4/12/2014	12,518.00			56	12,518.00	171					0.29		10	5.5	7.3		
4/13/2014	12,790.00			58	12,790.00	175					0.21		9.2	6	7.4		
4/14/2014	11,539.00	35	1.05	59	11,539.00	169	3.7	5.85	0.043	0.691	0.2	11.7	14	6	7.6		
4/15/2014	10,731.00			72	10,731.00	155					0.2		7.2	6	7.5	5	
4/16/2014	10,238.00			85	10,238.00	150					0.21		7.6	6	7.5		
4/17/2014	9,983.00			77	9,983.00	151					0.18		5.6	6	7.5		
4/18/2014	9,823.00			81	9,823.00	139					0.15		7.6	6	7.4		
4/19/2014	10,960.00			93	10,960.00	156					0.17		4.4	6	7.5		
4/20/2014	11,455.00			101	11,455.00	159					0.14		3.6	6	7.5		
4/21/2014	11,686.00	25	0.86	70	11,686.00	161	2	4.99	0.878	0.722	0.12		4	6	7.5		
4/22/2014	11,214.00			106	11,214.00	164					0.28		9.2	6.5	7.3	37	
4/23/2014	10,911.00			89	10,911.00	160					0.33		8	6	7.4		
4/24/2014	11,660.00			79	11,660.00	183					0.43		4.4	6	7.4		
4/25/2014	13,947.00			96	13,947.00	217					0.45		9.6	6	7.5		
4/26/2014	13,579.00			73	13,579.00	192					0.31		10.8	6	7.6		
4/27/2014	12,484.00			55	12,484.00	179					0.32		5.6	6	7.6		
4/28/2014	11,793.00	33	0.925	71	11,793.00	206	2.8	4.91	0.263	1.35	0.24	6.9	6.9	6.5	7.5		
4/29/2014	11,156.00			63	11,156.00	164					0.4		3.2	6.5	7.6	248	
4/30/2014	11,443.00			76	11,443.00	168					0.42		11.6	6.5	7.4		
																	0.00
Total	327,830.00				327,830.00												0.00
Average	10,927.67	40.60	1.23	92.48	10,927.67	161.30	3.02	5.33	0.28	1.84	0.25	9.10	8.60	6.07	7.39	29.61	0.00
Minimum	7,703.00	25.00	0.86	55.00	7,703.00	114.00	2.00	4.59	0.04	0.69	0.12	6.90	3.20	5.50	6.90	5.00	0.00
Maximum	14,036.00	61.00	1.68	190.00	14,036.00	217.00	4.20	6.29	0.88	3.29	0.45	11.70	26.40	6.50	7.60	248.00	0.00
Count	30	5	5	29	30	30	5	5	5	5	30	3	30	30	30	5	0

Fort Frances Wastewater Treatment Plant
Monthly Operations Summary

2014	Raw Sewage				Final Effluent												
	Raw Flow: Sum (m3/d)	CBOD5 (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)
5/1/2014	11,290.00			70	11,290.00	165					0.24		8	7	7.6		
5/2/2014	10,863.00			80	10,863.00	155					0.24		7.2	7	7.4		
5/3/2014	11,106.00			48	11,106.00	160					0.26		4.4	7	7.6		
5/4/2014	10,220.00	39	1.14	65	10,220.00	143	2.9	4.7	0.129	1.47	0.28		7.6	7	7.6	19	
5/5/2014	9,973.00			73	9,973.00	147					0.23		7.2	7	7.5		
5/6/2014	9,968.00			84	9,968.00	145					0.18		4.4	7	7.2		
5/7/2014	9,957.00			81	9,957.00	149					0.31		14.8	7	7.4		
5/8/2014	10,190.00			73	10,190.00	146					0.44		4	7	7.4		
5/9/2014	12,163.00			77	12,163.00	179					0.41		4.4	7	7.4		
5/10/2014	12,553.00			86	12,553.00	176					0.37		4.8	7	7.3		
5/11/2014	11,369.00			96	11,369.00	159					0.42		6.4	7	7.4		
5/12/2014	13,271.00			137	13,271.00	253					0.29		7.6	7	7.4		
5/13/2014	18,381.00			70	18,381.00	261					0.27		6	7	7.5		
5/14/2014	14,989.00	27	0.971	76	14,989.00	200	5.6	0.06	0.138	2.73	0.31	11.7	11.7	7	7.5		
5/15/2014	13,631.00			76	13,631.00	190					0.25		4.8	7	7.6	146	
5/16/2014	12,415.00			63	12,415.00	175					0.32		9.6	7	7.5		
5/17/2014	11,564.00			55	11,564.00	167					0.38		7.6	7	7.5		
5/18/2014	10,786.00			60	10,786.00	156					0.59		8.8	7	7.6		
5/19/2014	10,836.00	34	0.988	64	10,836.00	169	4.1	3.64	0.123	3.03	0.47		9.6	7.5	7.7		
5/20/2014	10,575.00			102	10,575.00	150					0.46		6.4	7	7.5	38	
5/21/2014	10,010.00			58	10,010.00	142					0.52		6.4	7.5	7.7		
5/22/2014	9,686.00			74	9,686.00	143					0.22		4.8	7	7.5		
5/23/2014	9,286.00			94	9,286.00	141					0.27		3.6	7	7.5		
5/24/2014	9,112.00			63	9,112.00	139					0.29		8	7.5	7.6		
5/25/2014	8,906.00			48	8,906.00	129					0.31		4.4	7.5	7.6		
5/26/2014	8,743.00	45	1.3	57	8,743.00	145	3.3	6.66	0.42	1.86	0.27	6	6	7.5	7.5		
5/27/2014	8,461.00			96	8,461.00	164					0.49		13.2	8	7.2	16	
5/28/2014	8,181.00			86	8,181.00	130					0.42		8.8	8	7.2		
5/29/2014	7,838.00			98	7,838.00	120					0.45		14	8	7.3		
5/30/2014	7,677.00			155	7,677.00	121					0.58		8.4	8.5	7.4		
5/31/2014	12,530.00			73	12,530.00	169					0.49		11.2	8.5	7.4		
Total	336,530.00				336,530.00												0.00
Average	10,855.81	36.25	1.10	78.65	10,855.81	160.90	3.98	3.77	0.20	2.27	0.36	8.85	7.55	7.27	7.47	36.04	0.00
Minimum	7,677.00	27.00	0.97	48.00	7,677.00	120.00	2.90	0.06	0.12	1.47	0.18	6.00	3.60	7.00	7.20	16.00	0.00
Maximum	18,381.00	45.00	1.30	155.00	18,381.00	261.00	5.60	6.66	0.42	3.03	0.59	11.70	14.80	8.50	7.70	146.00	0.00
Count	31	4	4	31	31	31	4	4	4	4	31	2	31	31	31	4	0

Fort Frances Wastewater Treatment Plant
Monthly Operations Summary

2014	Raw Sewage				Final Effluent												
	Raw Flow: Sum (m3/d)	CBOD5 (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)
6/1/2014	12,482.00	30	0.904	65	12,482.00	164	4	4.05	0.165	1.86	0.58		9.2	9	7.4		
6/2/2014	17,214.00			78	17,214.00	260					0.44		6.4	9	7.5	980	
6/3/2014	18,289.00			53	18,289.00	252					0.4		9.6	9	7.4		
6/4/2014	16,790.00			74	16,790.00	227					0.26		6.4	9	7.4		
6/5/2014	15,191.00			60	15,191.00	198					0.24		5.2	9	7.5		
6/6/2014	12,692.00			71	12,692.00	176					0.26		6	9	7.5		
6/7/2014	11,083.00			63	11,083.00	147					0.32		10	9	7.4		
6/8/2014	10,463.00			107	10,463.00	161					0.44		13.6	9	7.6		
6/9/2014	10,211.00	34	1.07	91	10,211.00	147	3.2	5.22	0.178	2.22	0.33	9.8	11.6	9	7.6		
6/10/2014	9,837.00			77	9,837.00	142					0.42		5.2	10	7.4	56	
6/11/2014	10,043.00			113	10,043.00	149					0.49		7.2	10.5	7.2		
6/12/2014	31,779.00			66	19,200.00						0.27		6.4	10.5	7.3		12579
6/13/2014	23,891.00			62	21,000.00						0.27		10	10	7.4		2891
6/14/2014	21,137.00			675	21,000.00						0.36		14.4	10	7.5		137
6/15/2014	30,141.00	6	0.471	54	21,000.00		2.4	0.414	0.173	3.81	0.41		16.4	10.5	7.3		9141
6/16/2014	19,480.00			44	13,000.00						0.26		1.2	10	7.2	261	6480
6/17/2014	15,767.00			34	14,000.00						0.2		2.8	10	7.7		1767
6/18/2014	16,812.00			46	16,000.00						0.26		3.6	10	7.8		812
6/19/2014	15,000.00			47	15,000.00						0.43		6.8	10	7		
6/20/2014	17,000.00			61	17,000.00						0.41		4	10	7		
6/21/2014	19,000.00			55	19,000.00						0.36		4.4	10	7		
6/22/2014	16,000.00			50	16,000.00						0.23		4.4	10.5	7.4		
6/23/2014	15,000.00	25	0.661	42	15,000.00		4.2	4.12	0.19	2.48	0.38	8.62	9.2	11	7.5		
6/24/2014	14,000.00			46	14,000.00						0.37		10	10.5	7.5	41	
6/25/2014	13,000.00			61	13,000.00						0.47		12	10.5	7.2		
6/26/2014	13,000.00			78	13,000.00						0.36		6.8	11	7.5		
6/27/2014	12,500.00			75	12,500.00						0.59		7.2	11	7.1		
6/28/2014	12,167.00			64	12,167.00	165					0.48		7.2	11.5	7.4		
6/29/2014	11,858.00			68	11,858.00	164					0.31		4.4	11.5	7.6		
6/30/2014	12,481.00			83	12,481.00	172					0.37		6.8	11.5	7.6		
Total	474,308.00				440,501.00												33,807.00
Average	15,810.27	23.75	0.78	85.43	14,683.37	180.29	3.45	3.45	0.18	2.59	0.37	9.21	7.61	10.05	7.40	155.67	0.00
Minimum	9,837.00	6.00	0.47	34.00	9,837.00	142.00	2.40	0.41	0.17	1.86	0.20	8.62	1.20	9.00	7.00	41.00	137.00
Maximum	31,779.00	34.00	1.07	675.00	21,000.00	260.00	4.20	5.22	0.19	3.81	0.59	9.80	16.40	11.50	7.80	980.00	12,579.00
Count	30	4	4	30	30	14	4	4	4	4	30	2	30	30	30	4	7

Fort Frances Wastewater Treatment Plant
Monthly Operations Summary

2014	Raw Sewage				Final Effluent												
	Raw Flow: Sum (m3/d)	CBOD5 (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)
7/1/2014	11,613.00	34	1.11	85	11,613.00	154	2.4	3.88	0.186	2.19	0.39		6.4	12	7.6		
7/2/2014	10,727.00			76	10,727.00	144					0.41		5.2	12	7.5	7	
7/3/2014	9,934.00			74	9,934.00	139					0.37		8	12	7.5		
7/4/2014	9,668.00			107	9,668.00	136					0.31		14.4	12	7.6		
7/5/2014	9,826.00			84	9,826.00	134					0.34		10.8	12	7.5		
7/6/2014	9,323.00			65	9,323.00	128					0.37		13.2	12.5	7.5		
7/7/2014	9,143.00	19	1.31	101	9,143.00	130	3.4	3.19	0.224	3.67	0.3		9.6	12.5	7.6		
7/8/2014	9,020.00			90	9,020.00	129					0.26		6	12.5	7.5	5	
7/9/2014	8,589.00			87	8,589.00	127					0.25		4.8	12.5	7.5		
7/10/2014	8,210.00			151	8,210.00	124					0.29		5.6	13	7.5		
7/11/2014	8,850.00			61	8,850.00	137					0.24		7.2	13	7.6		
7/12/2014	8,872.00			121	8,872.00	124					0.26		8.4	13	7.6		
7/13/2014	8,570.00			87	8,570.00	121					0.41		3.5	13	7.4		
7/14/2014	9,703.00			166	9,703.00	138					0.43		9.2	13	7.5		
7/15/2014	9,378.00	51	1.39	155	9,378.00	140	2.8	0.77	0.147	5.63	0.36		9.6	13	7.6		
7/16/2014	8,560.00			171	8,560.00	123					0.31		5.2	13	7.5	47	
7/17/2014	8,082.00			151	8,082.00	117					0.43		6.4	13	7.1		
7/18/2014	7,736.00			191	7,736.00	112					0.28		4.8	13.5	7.1		
7/19/2014	7,952.00			126	7,952.00	117					0.4		7.2	13.5	7.2		
7/20/2014	7,515.00	40	1.38	97	7,515.00	108	2	0.107	0.02	5.04	0.28	5.8	5.6	13.5	7.3		
7/21/2014	7,255.00			156	7,255.00	110					0.35		4	14	7.2	13	
7/22/2014	13,527.00			96	13,527.00	193					0.53		9.6	14	7.4		
7/23/2014	10,847.00			71	10,847.00	150					0.44		8	14	7.1		
7/24/2014	9,745.00			88	9,745.00	135					0.39		7.2	14	7.6		
7/25/2014	9,199.00			70	9,199.00	130					0.26		9.2	14	7.8		
7/26/2014	8,605.00			76	8,605.00	123					0.3		6.4	14	7.8		
7/27/2014	8,503.00			87	8,503.00	121					0.34		5.2	14	7.7		
7/28/2014	8,131.00	52	1.44	94	8,131.00	125	2	0.308	0.128	7.13	0.31		5.2	14.5	7.6		
7/29/2014	7,901.00			125	7,901.00	114					0.45		12	14.5	7.7	10	
7/30/2014	7,652.00				7,652.00	115					0.32		5.6	14.5	7.7		
7/31/2014	7,419.00			115	7,419.00	110					0.18		6.4	14.5	7.7		
																	0.00
Total	280,055.00				280,055.00												0.00
Average	9,034.03	39.20	1.33	107.47	9,034.03	129.29	2.52	1.65	0.14	4.73	0.34	5.80	7.42	13.24	7.50	11.64	0.00
Minimum	7,255.00	19.00	1.11	61.00	7,255.00	108.00	2.00	0.11	0.02	2.19	0.18	5.80	3.50	12.00	7.10	5.00	0.00
Maximum	13,527.00	52.00	1.44	191.00	13,527.00	193.00	3.40	3.88	0.22	7.13	0.53	5.80	14.40	14.50	7.80	47.00	0.00
Count	31	5	5	30	31	31	5	5	5	5	31	1	31	31	31	5	0

Fort Frances Wastewater Treatment Plant
Monthly Operations Summary

2014	Raw Sewage				Final Effluent												
	Raw Flow: Sum (m3/d)	CBOD5 (mg/L)	Total Phosphorus (mg/L)	SS (mg/L) 1H	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) 1H	Temperature (C)	pH	E. Coli. (cfu/100 mL)	Bypass Volume (m3)
8/1/2014	7,079.00			155	7,079.00	108					0.33		6.4	14.5	7.7		
8/2/2014	6,938.00			172	6,938.00	102					0.36		5.2	14.5	7.6		
8/3/2014	6,763.00			187	6,763.00	99					0.32		7.2	14.5	7.7		
8/4/2014	6,746.00	55	1.8	127	6,746.00	99	2	0.052	0.024	6.23	0.42	13.6	14	14.5	7.7		
8/5/2014	6,670.00			91	6,670.00	102					0.21		7.2	15	7.7	8	
8/6/2014	6,495.00			71	6,495.00	99					0.26		4	15	7.6		
8/7/2014	6,410.00			121	6,410.00	97					0.28		2.4	15	7.6		
8/8/2014	6,235.00			138	6,235.00	96					0.35		3.6	15	7.7		
8/9/2014	6,085.00			136	6,085.00	95					0.38		2.8	15.5	7.6		
8/10/2014	6,513.00			153	6,513.00	99					0.21		3.2	15.5	7.6		
8/11/2014	6,302.00	62	1.88	142	6,302.00	95	2	0.034	0.02	6.47	0.48		2.8	15.5	7.7		
8/12/2014	6,348.00			214	6,348.00	100					0.25		6.4	15.5	7.6	22	
8/13/2014	6,254.00			163	6,254.00	96					0.26		4.4	15.5	7.5		
8/14/2014	6,266.00			136	6,266.00	99					0.33		4	15.5	7.5		
8/15/2014	5,897.00			150	5,897.00	93					0.23		8	16	7.7		
8/16/2014	5,680.00			132	5,680.00	95					0.18		6	16	7.7		
8/17/2014	5,841.00	69	1.96	128	5,841.00	90	2	0.108	0.02	6.27	0.16	3.1	4.8	16	7.7		
8/18/2014	6,011.00			135	6,011.00	92					0.15		3.6	16	7.6	1	
8/19/2014	6,068.00			114	6,068.00	93					0.16		1.2	16	7.5		
8/20/2014	5,770.00			160	5,770.00	89					0.3		3.6	16	7.5		
8/21/2014	5,842.00			148	5,842.00	92					0.31		5.2	16	7.6		
8/22/2014	5,573.00			136	5,573.00	86					0.27		4	15.5	7.5		
8/23/2014	5,675.00			137	5,675.00	88					0.24		4.4	15.5	7.6		
8/24/2014	5,783.00			147	5,783.00	94					0.27		2	16	7.5		
8/25/2014	5,716.00	57	1.85	118	5,716.00	86	2	0.065	0.02	6.73	0.21		3.6	16	7.6		
8/26/2014	5,796.00			178	5,796.00	91					0.23		3.5	16	7.7	12	
8/27/2014	5,668.00			151	5,668.00	92					0.2		6.4	16	7.6		
8/28/2014	5,696.00			215	5,696.00	90					0.39		3.2	16.5	7.6		
8/29/2014	5,688.00			202	5,688.00	88					0.28		3.6	16.5	7.6		
8/30/2014	5,419.00			191	5,419.00	91					0.35		3.6	16	7.5		
8/31/2014	5,832.00				5,832.00	129											
Total	189,059.00				189,059.00												0.00
Average	6,098.68	60.75	1.87	148.27	6,098.68	95.65	2.00	0.06	0.02	6.43	0.28	8.35	4.68	15.57	7.61	6.78	0.00
Minimum	5,419.00	55.00	1.80	71.00	5,419.00	86.00	2.00	0.03	0.02	6.23	0.15	3.10	1.20	14.50	7.50	1.00	0.00
Maximum	7,079.00	69.00	1.96	215.00	7,079.00	129.00	2.00	0.11	0.02	6.73	0.48	13.60	14.00	16.50	7.70	22.00	0.00
Count	31	4	4	30	31	31	4	4	4	4	30	2	30	30	30	4	0

Fort Frances Wastewater Treatment Plant
Monthly Operations Summary

2014	Raw Sewage				Final Effluent												
	Raw Flow: Sum (m3/d)	CBOD5 (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)
9/1/2014	5,698.00				5,698.00	92	2	0.263	0.116	7.88		2.7					
9/2/2014	5,802.00			149	5,802.00	99					0.32		3.2	16	7.5		
9/3/2014	5,759.00			186	5,759.00	94					0.36		3.6	16.5	7.4	61	
9/4/2014	5,852.00			153	5,852.00	100					0.26		4	16.5	7.6		
9/5/2014	5,642.00			136	5,642.00	93					0.26		4	16.5	7.5		
9/6/2014	5,518.00			135	5,518.00	92					0.25		2.4	16	7.7		
9/7/2014	5,463.00	66	2.02	102	5,463.00	88	2	0.156	0.028	5.87	0.28		2	16.5	7.5		
9/8/2014	5,561.00			160	5,561.00	91					0.46		2.8	16.5	7.3	6	
9/9/2014	5,776.00			143	5,776.00	99					0.33		3.4	16	7.6		
9/10/2014	5,851.00			132	5,851.00	154					0.38		3.2	16	7.7		
9/11/2014	5,667.00			147	5,667.00	124					0.33		3.6	16	7.6		
9/12/2014	5,603.00			137	5,603.00	93					0.31		3.5	16	7.7		
9/13/2014	5,675.00			127	5,675.00	96					0.27		4	16	7.7		
9/14/2014	5,980.00			114	5,980.00	92					0.39		6	16	7.5		
9/15/2014	5,595.00	73	2.11	226	5,595.00	98	2	0.097	0.074	4.76	0.28	3.8	2.4	16	7.7		
9/16/2014	5,462.00			111	5,462.00	91					0.23		4.4	16	7.6	144	
9/17/2014	5,345.00			126	5,345.00	86					0.53		7.6	16	7.5		
9/18/2014	5,376.00			130	5,376.00	107					0.41		2.4	16	7.5		
9/19/2014	5,561.00			158	5,561.00	144					0.42		2	16	7.4		
9/20/2014	6,401.00			104	6,401.00	145					0.48		3.2	16	7.3		
9/21/2014	6,051.00			105	6,051.00	101					0.41		2	16	7.5		
9/22/2014	5,645.00			113	5,645.00	104					0.29		2	16	7.7		
9/23/2014	5,659.00	63	1.8	95	5,659.00	103	2	1.01	0.23	5.76	0.42		2	16.5	7.5		
9/24/2014	5,696.00			104	5,696.00	92					0.42		3.6	16.5	7.5	13	
9/25/2014	5,530.00			113	5,530.00	91					0.27		3.6	16.5	7.9		
9/26/2014	5,275.00			82	5,275.00	97					0.36		2	16.5	7.8		
9/27/2014	5,228.00			90	5,228.00	95					0.4		1.6	16.5	7.6		
9/28/2014	5,727.00			111	5,727.00	96					0.41		1.2	16	7.7		
9/29/2014	5,830.00	70	2.38	139	5,830.00	95	2	0.486	0.147	6.4	0.39	2.3	0.4	16	7.4		
9/30/2014	5,836.00			143	5,836.00	100					0.31		2.8	16.5	7.4	2	
Total	170,064.00				170,064.00												0.00
Average	5,668.80	68.00	2.08	130.03	5,668.80	101.73	2.00	0.40	0.12	6.13	0.35	2.93	3.07	16.19	7.56	16.88	0.00
Minimum	5,228.00	63.00	1.80	82.00	5,228.00	86.00	2.00	0.10	0.03	4.76	0.23	2.30	0.40	16.00	7.30	2.00	0.00
Maximum	6,401.00	73.00	2.38	226.00	6,401.00	154.00	2.00	1.01	0.23	7.88	0.53	3.80	7.60	16.50	7.90	144.00	0.00
Count	30	4	4	29	30	30	5	5	5	5	29	3	29	29	29	5	0

Fort Frances Wastewater Treatment Plant
Monthly Operations Summary

2014	Raw Sewage				Final Effluent												
	Raw Flow: Sum (m3/d)	CBOD5 (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)
10/1/2014	5,877.00			145	5,877.00	100					0.33		1.2	16	7.3		
10/2/2014	5,652.00			122	5,652.00	94					0.31		0.4	16	7.4		
10/3/2014	5,815.00			137	5,815.00	99					0.32		2	16	7.4		
10/4/2014	5,826.00			147	5,826.00	101					0.35		2	16	7.4		
10/5/2014	6,069.00			136	6,069.00	99					0.35		3.6	15.5	7.5		
10/6/2014	5,896.00	54	1.79	106	5,896.00	102	2	0.697	0.147	6.45	0.22		3.2	15.5	7.5		
10/7/2014	5,700.00			138	5,700.00	94					0.27		0.4	15.5	7.4	14	
10/8/2014	5,656.00			233	5,656.00	93					0.37		6.8	15.5	7.2		
10/9/2014	5,552.00			170	5,552.00	98					0.49		4	15.5	7.2		
10/10/2014	5,513.00			136	5,513.00	94					0.24		2.4	15	7.3		
10/11/2014	5,567.00			134	5,567.00	97					0.3		7.2	15	7.3		
10/12/2014	5,424.00				5,424.00	90											
10/13/2014	5,450.00				5,450.00	95											
10/14/2014	5,477.00	70	2.18	121	5,477.00	93	2	0.581	0.145	5.05	0.27	4.2	4.2	15.5	7.5		
10/15/2014	5,499.00			118	5,499.00	90					0.3		4.8	15.5	7.5	6	
10/16/2014	5,526.00			125	5,526.00	90					0.37		4.4	15.5	7.3		
10/17/2014	5,414.00			124	5,414.00	92					0.16		6	15	7.4		
10/18/2014	5,497.00			119	5,497.00	93					0.19		8.8	15	7.4		
10/19/2014	5,489.00			114	5,489.00	91					0.18		1.2	15	7.8		
10/20/2014	5,314.00	68	2.1	112	5,314.00	90	2.2	0.593	0.02	0.03	0.16		1.6	15	7.5	1	
10/21/2014	5,303.00			91	5,303.00	89					0.3		9.6	15	7.5		
10/22/2014	5,428.00			114	5,428.00	90					0.27		5.2	15	7.5		
10/23/2014	5,298.00			133	5,298.00	91					0.24		2.8	14.5	7.5		
10/24/2014	5,253.00			148	5,253.00	86					0.29		3.6	15	7.4		
10/25/2014	5,335.00			127	5,335.00	94					0.29		2	15	7.4		
10/26/2014	5,384.00			149	5,384.00	94					0.25		4	15	7.5		
10/27/2014	5,374.00	78	2.17	111	5,374.00	91	2	0.136	0.04	7.15	0.27	2	2	15	7.4		
10/28/2014	5,529.00			125	5,529.00	93					0.25		4.4	15	7.4	7	
10/29/2014	5,270.00			139	5,270.00	91					0.2		1.6	14.5	7.7		
10/30/2014	5,224.00			125	5,224.00	93					0.26		4	14	7.5		
10/31/2014	5,156.00			124	5,156.00	91					0.37		4.4	14	7.5		
																	0.00
Total	170,767.00				170,767.00												0.00
Average	5,508.61	67.50	2.06	131.83	5,508.61	93.48	2.05	0.50	0.09	4.67	0.28	3.10	3.72	15.17	7.43	4.92	0.00
Minimum	5,156.00	54.00	1.79	91.00	5,156.00	86.00	2.00	0.14	0.02	0.03	0.16	2.00	0.40	14.00	7.20	1.00	0.00
Maximum	6,069.00	78.00	2.18	233.00	6,069.00	102.00	2.20	0.70	0.15	7.15	0.49	4.20	9.60	16.00	7.80	14.00	0.00
Count	31	4	4	29	31	31	4	4	4	4	29	2	29	29	29	4	0

Fort Frances Wastewater Treatment Plant
Monthly Operations Summary

2014	Raw Sewage				Final Effluent												
	Raw Flow: Sum (m3/d)	CBOD5 (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)
11/1/2014	5,426.00			117	5,426.00	95					0.22		1.2	14	7.4		
11/2/2014	5,522.00			143	5,522.00	94					0.15		2	14	7.4		
11/3/2014	5,274.00	85	2.4	155	5,274.00	96	2	0.075	0.04	7.53	0.25		2.4	14.5	7.6		
11/4/2014	5,195.00			115	5,195.00	100					0.22		2	14	7.4	7	
11/5/2014	5,150.00			138	5,150.00	93					0.18		3.2	14	7.5		
11/6/2014	5,115.00			146	5,115.00	94					0.2		4	14	7.5		
11/7/2014	5,198.00			115	5,198.00	91					0.19		4.4	14	7.5		
11/8/2014	5,172.00			112	5,172.00	91					0.24		4.8	13.5	7.5		
11/9/2014	5,315.00			110	5,315.00	93					0.31		4	13.5	7.5		
11/10/2014	5,126.00				5,126.00	87											
11/11/2014	5,099.00	89	2.22	175	5,099.00	87	4.2	0.185	0.04	6.37	0.23	3.6	6.8	13	7.5		
11/12/2014	5,104.00			229	5,104.00	88					0.21		3.6	13	7.5	6	
11/13/2014	5,066.00			137	5,066.00	88					0.29		4.8	13	7.3		
11/14/2014	4,986.00			135	4,986.00	86					0.21		2.8	13	7.1		
11/15/2014	5,239.00			166	5,239.00	94					0.25		3.2	13	7.2		
11/16/2014	5,335.00	94	2.44	194	5,335.00	88	4.3	0.118	0.045	5.1	0.17		5.2	13	7.4		
11/17/2014	5,124.00			135	5,124.00	88					0.43		4.8	13	7.2	12	
11/18/2014	4,958.00			115	4,958.00	89					0.22		4.4	12.5	7.2		
11/19/2014	5,029.00			131	5,029.00	137					0.34		5.2	12.5	7		
11/20/2014	5,035.00			154	5,035.00	90					0.27		4.8	12.5	7.1		
11/21/2014	5,085.00			128	5,085.00	96					0.14		5.6	12.5	7.1		
11/22/2014	5,013.00			142	5,013.00	91					0.14		4.4	12.5	7.1		
11/23/2014	5,045.00			90	5,045.00	88					0.16		4.8	12.5	7.7		
11/24/2014	5,069.00	71	2.13	112	5,069.00	83	2	0.227	0.04	6.55	0.12	4.2	4	12	7.4		
11/25/2014	5,065.00			193	5,065.00	91					0.2		4.8	12	7.2	55	
11/26/2014	5,022.00			130	5,022.00	90					0.33		10.4	11.5	7.1		
11/27/2014	5,085.00			128	5,085.00	90					0.26		4.8	11.5	7		
11/28/2014	5,006.00			122	5,006.00	86					0.23		4.4	11.5	7.1		
11/29/2014	4,989.00			131	4,989.00	88					0.16		5.6	11.5	7.1		
11/30/2014	5,053.00			142	5,053.00	89					0.16		3.2	11	7.5		
Total	153,900.00				153,900.00												0.00
Average	5,130.00	84.75	2.30	139.31	5,130.00	92.03	3.13	0.15	0.04	6.39	0.22	3.90	4.33	12.84	7.31	12.90	0.00
Minimum	4,958.00	71.00	2.13	90.00	4,958.00	83.00	2.00	0.08	0.04	5.10	0.12	3.60	1.20	11.00	7.00	6.00	0.00
Maximum	5,522.00	94.00	2.44	229.00	5,522.00	137.00	4.30	0.23	0.05	7.53	0.43	4.20	10.40	14.50	7.70	55.00	0.00
Count	30	4	4	29	30	30	4	4	4	4	29	2	29	29	29	4	0

Fort Frances Wastewater Treatment Plant
Monthly Operations Summary

2014	Raw Sewage				Final Effluent												
	Raw Flow: Sum (m3/d)	CBOD5 (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)
12/1/2014	5,179.00	65	2.13	98	5,179.00	95	2	0.292	0.08	5.94	0.18		2.8	11.5	7.1		
12/2/2014	5,320.00			143	5,320.00	92					0.23		5.6	11.5	7.3	37	
12/3/2014	5,119.00			122	5,119.00	93					0.16		2.8	11	7.4		
12/4/2014	5,176.00			151	5,176.00	94					0.24		8.8	11	7.3		
12/5/2014	4,920.00			146	4,920.00	86					0.21		4	11	7.3		
12/6/2014	4,907.00			103	4,907.00	86					0.17		4.8	11	7.4		
12/7/2014	5,032.00			114	5,032.00	85					0.24		6.4	11	7.4		
12/8/2014	4,888.00			161	4,888.00	88					0.22		3.6	11	7.3		
12/9/2014	4,903.00	83	2.81	137	4,903.00	87		0.097	0.05	5.69	0.2	3.1	3.6	11	7.3	12	
12/10/2014	4,901.00			152	4,901.00	90					0.29		3.6	11	7.1		
12/11/2014	5,034.00			151	5,034.00	88					0.21		4.8	11	7.2		
12/12/2014	4,830.00			141	4,830.00	79					0.16		2.8	11	7		
12/13/2014	5,004.00			131	5,004.00	87					0.16		2.4	11	7.3		
12/14/2014	5,284.00			150	5,284.00	86					0.16		3.6	11	7.3		
12/15/2014	5,290.00	89	2.33	126	5,290.00	93	2	0.169	0.162	5.02	0.16		2.8	10.5	7.2		
12/16/2014	5,211.00			130	5,211.00	90					0.16		3.6	10.5	7.1	23	
12/17/2014	5,097.00			189	5,097.00	90					0.24		9.2	10.5	7		
12/18/2014	5,109.00			125	5,109.00	93					0.33		4	10.5	6.8		
12/19/2014	4,861.00			143	4,861.00	83					0.18		2.4	10.5	6.9		
12/20/2014	5,007.00			162	5,007.00	85					0.25		4.4	10.5	7.1		
12/21/2014	4,987.00	83	2.16	137	4,987.00	84	3.1	0.168	0.111	3.96	0.22	4.9	4	10.5	6.8		
12/22/2014	5,033.00			178	5,033.00	87					0.26		5.6	11	7	26	
12/23/2014	5,091.00			145	5,091.00	90					0.17		5.6	10.5	7.2		
12/24/2014	5,045.00				5,045.00	93											
12/25/2014	4,640.00				4,640.00	78								10.5			
12/26/2014	4,709.00			128	4,709.00	85					0.16		3.2	10	7.1		
12/27/2014	4,833.00			91	4,833.00	86								10			
12/28/2014	4,837.00	102	2.56	158	4,837.00	92	3.7	0.433	0.237	4.71	0.12		4.8	9.5	7.2		
12/29/2014	5,086.00			138	5,086.00	89					0.11		5.6	10	7	79	
12/30/2014	5,276.00			128	5,276.00	92					0.26		8.8	9.5	7.2		
12/31/2014	5,514.00				5,514.00	89											
Total	156,123.00				156,123.00												0.00
Average	5,036.23	84.40	2.40	138.50	5,036.23	88.23	2.70	0.23	0.13	5.06	0.20	4.00	4.58	10.67	7.16	29.13	0.00
Minimum	4,640.00	65.00	2.13	91.00	4,640.00	78.00	2.00	0.10	0.05	3.96	0.11	3.10	2.40	9.50	6.80	12.00	0.00
Maximum	5,514.00	102.00	2.81	189.00	5,514.00	95.00	3.70	0.43	0.24	5.94	0.33	4.90	9.20	11.50	7.40	79.00	0.00
Count	31	5	5	28	31	31	4	5	5	5	27	2	27	29	27	5	0

Biosolids Quality Report

Ontario Clean Water Agency
Monthly Process Data Report

Municipality: Township of Fort Frances
Facility: [1103] - Fort Frances WWT
Works: [110000258] - Fort Frances WWT
Classification: Class 3 Wastewater Treatment
Receiver: Rainy River

Period: 01/01/2014 to 12/31/2014
Serviced Population: 9,500
Total Design Capacity(m³/day): 0

	Jan/2014	Feb/2014	Mar/2014	Apr/2014	May/2014	Jun/2014	Jul/2014	Aug/2014	Sep/2014	Oct/2014	Nov/2014	Dec/2014	<-- Summary -->
Biosolids Utilization\Biosolids quality - Liquid - Biosolids Sludge Quality													
Hauled Vol. (m3)													
Sum	143.5	129.8	217.9	198.3	243.5	286.8	187.4	131.6	151.2	296.4	157.8	192.0	2,336.2
E Coli (cfu/g)													
Avg	60,700.0			16,900.0			3,400.0			11,900.0			23,225.0
TKN (mg/L)													
Avg	4.4			4.61			3.11						4.04
TS (mg/L)													
Avg	12.8						12.125						12.26
Sludge/Biosolids Handling\In-House Result - Biosolids Sludge Quality													
TS (mg/L) - IH													
Avg	9.157	9.262	9.824	12.384	12.929	13.605	12.083	11.422	10.077	9.663	8.846	8.347	10.72
Biosolids Utilization\Biosolids quality - Liquid - Biosolids Sludge Quality													
NH3 + NH4 as N (mg/L)													
Avg	358.0			1,820.0			322.0						833.333
Nitrate-N (mg/L)													
Avg	20.0			44.0			8.0						24.0
Nitrite-N (mg/L)													
Avg	4.65			1.5			1.6						2.583
Total Phosphorus (mg/L)													
Avg	18,500.0			14,400.0									16,450.0
Biosolids Utilization\Biosolids quality - Liquid - Raw Sewage													
Moisture (%)													
Avg	91.2			87.8			86.4			88.95			88.66
Biosolids Utilization\Biosolids quality - Liquid - Biosolids Sludge Quality													
Aluminum:Al in Sludge (mg/kg)													
Avg	24,200.0			26,600.0			31,800.0			33,600.0			29,050.0
Antimony (Sb) in Sludge (mg/kg)													
Avg	0.95			1.07			1.3			0.97			1.073
Arsenic (As) in Sludge (mg/kg)													
Avg	6.95			6.72			13.4			10.6			9.418
Barium (Ba) in Sludge (mg/kg)													
Avg	250.0			230.0			515.0			387.0			345.5
Beryllium (Be): in Sludge (mg/kg)													
Avg	0.13			0.28			0.43			0.21			0.263

Ontario Clean Water Agency
Monthly Process Data Report

Municipality: Township of Fort Frances
Facility: [1103] - Fort Frances WWT
Works: [110000258] - Fort Frances WWT
Classification: Class 3 Wastewater Treatment
Receiver: Rainy River

Period: 01/01/2014 to 12/31/2014
Serviced Population: 9,500
Total Design Capacity(m^3/day): 0

Biosolids Utilization\Biosolids quality - Liquid - Biosolids Sludge Quality

	Jan/2014	Feb/2014	Mar/2014	Apr/2014	May/2014	Jun/2014	Jul/2014	Aug/2014	Sep/2014	Oct/2014	Nov/2014	Dec/2014	<-- Summary -->
Bismuth (Bi) in Sludge (mg/kg)													
Avg	13.8			14.2			13.5			18.2			14.925
Boron (B) in Sludge (mg/kg)													
Avg	12.0			10.0			14.0			19.0			13.75
Cadmium (Cd) in Sludge (mg/kg)													
Avg	0.607			0.555			0.739			0.706			0.652
Calcium (Ca) in Sludge (mg/kg)													
Avg	18,000.0			16,900.0			30,800.0			29,300.0			23,750.0
Chromium (Cr) in Sludge (mg/kg)													
Avg	34.5			43.0			35.0			21.0			33.375
Cobalt (Co) in Sludge (mg/kg)													
Avg	1.92			3.67			4.86			3.16			3.403
Copper (Cu) in Sludge (mg/kg)													
Avg	311.0			289.0			295.0			312.0			301.75
Iron (Fe) in Sludge (mg/kg)													
Avg	19,500.0			20,500.0			31,000.0			26,700.0			24,425.0
Lead (Pb) in Sludge (mg/kg)													
Avg	17.8			17.8			19.4			26.2			20.3
Magnesium (Mg) in Sludge (mg/kg)													
Avg	4,930.0			7,750.0			10,800.0			6,510.0			7,497.5
Manganese (Mn) in Sludge (mg/kg)													
Avg	973.0			627.0			2,140.0			1,130.0			1,217.5
Mercury (Hg) in Sludge (mg/kg)													
Avg	1.04			0.65			1.18			1.22			1.023
Molydenum (Mo) in Sludge (mg/kg)													
Avg	4.0			3.65			4.31			5.91			4.468
Nickel (Ni) in Sludge (mg/kg)													
Avg	11.3			13.9			18.5			17.2			15.2
Phosphorus (mg/kg)													
Avg	18,500.0			14,400.0			19,800.0			19,800.0			18,125.0
Potassium (K) in Sludge (mg/kg)													
Avg	4,570.0			2,340.0			1,690.0			1,700.0			2,575.0
Selenium: Se in Sludge (mg/kg)													
Avg	1.99			2.51			3.51			4.9			3.228

Ontario Clean Water Agency
Monthly Process Data Report

Municipality: Township of Fort Frances
Facility: [1103] - Fort Frances WWT
Works: [110000258] - Fort Frances WWT
Classification: Class 3 Wastewater Treatment
Receiver: Rainy River

Period: 01/01/2014 to 12/31/2014
Serviced Population: 9,500
Total Design Capacity(m³/day): 0

	Jan/2014	Feb/2014	Mar/2014	Apr/2014	May/2014	Jun/2014	Jul/2014	Aug/2014	Sep/2014	Oct/2014	Nov/2014	Dec/2014	<-- Summary -->
Biosolids Utilization\Biosolids quality - Liquid - Biosolids Sludge Quality													
Silver (Ag) in Sludge (mg/kg)													
Avg	2.11			1.14			1.81			1.29			1.588
Sodium (Na) in Sludge (mg/kg)													
Avg	837.0			545.0			521.0			674.0			644.25
Strontium (Sr) in Sludge (mg/kg)													
Avg	51.8			51.3			82.9			76.2			65.55
Thallium (Tl) in Sludge (mg/kg)													
Avg	0.1			0.1			0.13			0.1			0.108
Tin (Sn) in Sludge (mg/kg)													
Avg	12.3			11.2			13.0			13.5			12.5
Titanium (Ti) in Sludge (mg/kg)													
Avg	111.0			133.0			170.0			116.0			132.5
Uranium (U) in Sludge (mg/kg)													
Avg	2.65			2.88			2.39			3.16			2.77
Vanadium (V) in Sludge (mg/kg)													
Avg	16.4			27.7			33.4			16.0			23.375
Zinc: Zn in Sludge (mg/kg)													
Avg	368.0			361.0			323.0			414.0			366.5

Note: ? Calculation not verifiable. At least one result reported as < and at least one result reported >.

Ontario Clean Water Agency

Biosolids Quality Report - Liquid

Digester Type: AEROBIC

Geometric Mean E. Coli

Facility: [1103] - Fort Frances WWT
Works: [110000258] - Fort Frances WWT
Period: 01/01/2014 to 12/31/2014

Ecoli Sample 1 01/21/2014	Ecoli Sample 2 04/08/2014	Ecoli Sample 3 07/21/2014	Ecoli Sample 4 10/14/2014	Geometric Mean E. Coli (based on last 4 samples) cfu/g
60,700.0	16,900.0	3,400.0	11,900.0	14,273.33

Ontario Clean Water Agency
Monthly Process Data Report

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Period: 01/01/2014 to 12/31/2014
Serviced Population: 9,500
Total Design Capacity(m³/day): 0

	Jan/2014	Feb/2014	Mar/2014	Apr/2014	May/2014	Jun/2014	Jul/2014	Aug/2014	Sep/2014	Oct/2014	Nov/2014	Dec/2014	<-- Summary -->
Biosolids Utilization\Biosolids quality - Liquid - Biosolids Sludge Quality													
Hauled Vol. (m3)													
Sum	143.5	129.8	217.9	198.3	243.5	286.8	187.4	131.6	151.2	296.4	157.8	192.0	2,336.2
E Coli (cfu/g)													
Avg	60,700.0			16,900.0			3,400.0			11,900.0			23,225.0
TKN (mg/L)													
Avg	4.4			4.61			3.11			3.43			3.888
TS (mg/L)													
Avg	12.8						12.125						12.26
Sludge/Biosolids Handling\In-House Result - Biosolids Sludge Quality													
TS (mg/L) - IH													
Avg	9.157	9.262	9.824	12.384	12.929	13.605	12.083	11.422	10.077	9.663	8.846	8.347	10.72
Biosolids Utilization\Biosolids quality - Liquid - Biosolids Sludge Quality													
NH3 + NH4 as N (mg/L)													
Avg	358.0			1,820.0			322.0			2,220.0			1,180.0
Nitrate-N (mg/L)													
Avg	20.0			44.0			8.0			< 4.0			< 19.0
Nitrite-N (mg/L)													
Avg	4.65			1.5			1.6			< 0.8			< 2.138
Total Phosphorus (mg/L)													
Avg	18,500.0			14,400.0						19,800.0			17,566.667
Biosolids Utilization\Biosolids quality - Liquid - Raw Sewage													
Moisture (%)													
Avg	91.2			87.8			86.4			88.95			88.66
Biosolids Utilization\Biosolids quality - Liquid - Biosolids Sludge Quality													
Aluminum:Al in Sludge (mg/kg)													
Avg	24,200.0			26,600.0			31,800.0			33,600.0			29,050.0
Antimony (Sb) in Sludge (mg/kg)													
Avg	0.95			1.07			1.3			0.97			1.073
Arsenic (As) in Sludge (mg/kg)													
Avg	6.95			6.72			13.4			10.6			9.418
Barium (Ba) in Sludge (mg/kg)													
Avg	250.0			230.0			515.0			387.0			345.5
Beryllium (Be): in Sludge (mg/kg)													
Avg	0.13			0.28			0.43			0.21			0.263

Ontario Clean Water Agency
Monthly Process Data Report

Municipality: Township of Fort Frances
Facility: [1103] - Fort Frances WWT
Works: [110000258] - Fort Frances WWT
Classification: Class 3 Wastewater Treatment
Receiver: Rainy River

Period: 01/01/2014 to 12/31/2014
Serviced Population: 9,500
Total Design Capacity(m^3/day): 0

Biosolids Utilization\Biosolids quality - Liquid - Biosolids Sludge Quality

	Jan/2014	Feb/2014	Mar/2014	Apr/2014	May/2014	Jun/2014	Jul/2014	Aug/2014	Sep/2014	Oct/2014	Nov/2014	Dec/2014	<-- Summary -->
Bismuth (Bi) in Sludge (mg/kg)													
Avg	13.8			14.2			13.5			18.2			14.925
Boron (B) in Sludge (mg/kg)													
Avg	12.0			10.0			14.0			19.0			13.75
Cadmium (Cd) in Sludge (mg/kg)													
Avg	0.607			0.555			0.739			0.706			0.652
Calcium (Ca) in Sludge (mg/kg)													
Avg	18,000.0			16,900.0			30,800.0			29,300.0			23,750.0
Chromium (Cr) in Sludge (mg/kg)													
Avg	34.5			43.0			35.0			21.0			33.375
Cobalt (Co) in Sludge (mg/kg)													
Avg	1.92			3.67			4.86			3.16			3.403
Copper (Cu) in Sludge (mg/kg)													
Avg	311.0			289.0			295.0			312.0			301.75
Iron (Fe) in Sludge (mg/kg)													
Avg	19,500.0			20,500.0			31,000.0			26,700.0			24,425.0
Lead (Pb) in Sludge (mg/kg)													
Avg	17.8			17.8			19.4			26.2			20.3
Magnesium (Mg) in Sludge (mg/kg)													
Avg	4,930.0			7,750.0			10,800.0			6,510.0			7,497.5
Manganese (Mn) in Sludge (mg/kg)													
Avg	973.0			627.0			2,140.0			1,130.0			1,217.5
Mercury (Hg) in Sludge (mg/kg)													
Avg	1.04			0.65			1.18			1.22			1.023
Molydenum (Mo) in Sludge (mg/kg)													
Avg	4.0			3.65			4.31			5.91			4.468
Nickel (Ni) in Sludge (mg/kg)													
Avg	11.2			13.9			18.5			17.2			15.2
Phosphorus (mg/kg)													
Avg	18,500.0			14,400.0			19,800.0			19,800.0			18,125.0
Potassium (K) in Sludge (mg/kg)													
Avg	4,570.0			2,340.0			1,690.0			1,700.0			2,575.0
Selenium: Se in Sludge (mg/kg)													
Avg	1.99			2.51			3.51			4.9			3.228

Ontario Clean Water Agency
Monthly Process Data Report

Municipality: Township of Fort Frances
Facility: [1103] - Fort Frances WWT
Works: [110000258] - Fort Frances WWT
Classification: Class 3 Wastewater Treatment
Receiver: Rainy River

Period: 01/01/2014 to 12/31/2014
Serviced Population: 9,500
Total Design Capacity(m^3/day): 0

	Jan/2014	Feb/2014	Mar/2014	Apr/2014	May/2014	Jun/2014	Jul/2014	Aug/2014	Sep/2014	Oct/2014	Nov/2014	Dec/2014	<-- Summary -->
Biosolids Utilization\Biosolids quality - Liquid - Biosolids Sludge Quality													
Silver (Ag) in Sludge (mg/kg)													
Avg	2.11			1.14			1.81			1.29			1.586
Sodium (Na) in Sludge (mg/kg)													
Avg	837.0			545.0			521.0			674.0			644.25
Strontium (Sr) in Sludge (mg/kg)													
Avg	51.8			51.3			82.9			76.2			65.55
Thallium (Tl) in Sludge (mg/kg)													
Avg	0.1			0.1			0.13			0.1			0.108
Tin (Sn) in Sludge (mg/kg)													
Avg	12.3			11.2			13.0			13.5			12.5
Titanium (Ti) in Sludge (mg/kg)													
Avg	111.0			133.0			170.0			116.0			132.5
Uranium (U) in Sludge (mg/kg)													
Avg	2.65			2.88			2.39			3.16			2.77
Vanadium (V) in Sludge (mg/kg)													
Avg	16.4			27.7			33.4			16.0			23.375
Zinc: Zn in Sludge (mg/kg)													
Avg	368.0			361.0			323.0			414.0			366.5

Note: ? Calculation not verifiable. At least one result reported as < and at least one result reported >.

Flow Meter Calibrations

Instrument Verification Certificate

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

Test Date: Data measured June 24 and July 16, 2014

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

For: Plant Final Effluent flow as measured by 12 inch Parshal flume

Detail:

1) Final Effluent water level of 297 mm was measured in stilling well on July 16.

   Calculated flow rate 108.9 L/s Indicated flow rate 110 L/s Error 1.0%

2) Final Effluent water level of 561 mm was measured in stilling well on June 24.

   Calculated flow rate 286.7 L/sec Indicated flow rate 284 L/s Error -1.0%

Note: For the Parshal flume: flow rate Q (ft^3/s) = 4(Head in ft)$^{1.522}$

Conversion for flow in (ft^3/s) to flow in L/s is 28.31 L/ ft^3

Summary:

The error in measured values for final effluent flow rate is within the required range of +/- 5%.

Geoff Pearce July 27, 2014

Instrument Verification Certificate

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

Test Date: July 25, 2014

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

For: Plant Influent Bypass Overflow Level as measured in Man Hole #8

Detail:

1) Influent water level of 1.8 m was simulated with a fixture in manhole #8.

   Bypass warning alarm was activated

2) Influent level of 1.945m was simulated with a fixture in manhole #8.

   Bypass alarm was activated and bypass flow was present.

3) Bypass level of 1.983m was simulated with a fixture in manhole #8.

   Indicated value of overflow level was 1.981m, -0.10% error.

4) Bypass level of 2.020m was simulated with a fixture in manhole #8.

   Indicated value of overflow level was 2.017m, -0.15% error.

Summary:

The bypass level warning alarm and bypass active alarm function as expected.

The error in measured values for influent is within the required range of +/- 5%.

Geoff Pearce

Geoff Pearce July 27, 2014