



**ANNUAL REPORT**

<b>Drinking-Water System Number:</b>	<b>220000978</b>
<b>Drinking-Water System Name:</b>	<b>Fort Frances Drinking Water System</b>
<b>Drinking-Water System Owner:</b>	Town of Fort Frances
<b>Drinking-Water System Category:</b>	Large Municipal Residential System
<b>Period being reported:</b>	January 01, 2019 to December 31, 2019

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></p> <p><b>Does your Drinking-Water System serve more than 10,000 people? Yes [ ] No [ x ]</b></p> <p><b>Is your annual report available to the public at no charge on a web site on the Internet? Yes [ x ] No [ ]</b></p> <p><b>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</b></p> <div style="border: 1px solid black; padding: 5px;"> <p>Water Treatment Plant 901 Colonization Road East or Public Works Department 900 Wright Avenue</p> </div>	<p><b><u>Complete for all other Categories.</u></b></p> <p><b>Number of Designated Facilities served:</b></p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div> <p><b>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [ ] No [ ]</b></p> <p><b>Number of Interested Authorities you report to:</b></p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div> <p><b>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [ ] No [ ]</b></p>
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**Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report**

**List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:**

<b>Drinking Water System Name</b>	<b>Drinking Water System Number</b>
Couchiching First Nation & Agency 1 Land between Fort Frances and Couchiching First Nation.	Unknown if designated as a Drinking Water System under Provincial Regulation 170/03.
Walleye Trailer Park	Within the Town of Fort Frances' System Number 220000978
Lakeview Trailer Park	Within the Town of Fort Frances' System Number 220000978
Friesen 5 - Apartment Units	Alberton Township – Private Supplied through Town of Fort Frances' System Number 220000978



**Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?**

Yes [  ] No [  ]

**Indicate how you notified system users that your annual report is available, and is free of charge.**

[  ] **Public access/notice via the web**

[  ] **Public access/notice via Government Office**

[  ] **Public access/notice via a newspaper**

[  ] **Public access/notice via Public Request**

[  ] **Public access/notice via a Public Library**

[  ] **Public access/notice via other method** \_\_\_\_\_

**Describe your Drinking-Water System**

INTAKE STRUCTURE:

Located approximately 190 metres southeast of the Water Treatment Plant.

INTAKE LINE:

600mm Polyethylene Pipe.

SCREEN CHAMBER:

Two stainless steel screens.

PUMPWELL:

Raw water enters pump well from screen chamber, gravity feed.

LOW LIFT PUMPS:

Three (3) vertical turbine low lift pumps each electrically driven. Two (2) by 30 hp motors with a rated capacity to deliver 100 L/s and one (1) variable speed drive (40 hp) capable of providing flows in the range of 40 to 150 L/s.

RAW WATER FLOW METERING SYSTEM:

This unit counts the litres of water as it passes through the unit.

IN LINE MIXER:

The mixer is equipped with four (4) chemical application injectors and the following chemicals can be added to the treatment process at this point:

1. Liquid Alum
2. Soda Ash
3. Carbon Slurry
4. Chlorine Solution (per-chlorination is practiced only under exceptional circumstances)

RAW WATER INFLUENT LINE:

This 450mm line carries the raw water to the clarifiers.



## CLARIFIERS:

The raw water, after pre-treatment, enters primary mixing and reaction zone of each unit through the 450mm inlet pipe. Activated carbon, soda ash and polymer can be added to the process in this zone.

Recycled solids are drawn up into the bottom of the zone by the re-circulator impellor to be mixed with the incoming pre-treated water. The re-circulated solids provide additional particle surface area to absorb and entrap precipitates in the raw water. The solids settle to the bottom of the clarifier to form a sludge blanket. The pre-treated water then flows upward and into the effluent box.

## FILTER INFLUENT FLUME:

Settled water from the effluent box is piped through two (2) 450 mm diameter pipes to the filter influent flume for distribution to the filters.

## FILTERS:

Four (4) gravity filters are provided. Each filter consists of ecodyne filtration equipment installed within a square concrete tank. The dual-media gravity filters are to remove any particles in suspension that have carried over from the solids contact clarifiers.

The filter media on top of the underdrain system consists of a 500 mm thickness of anthracite over 400mm thickness of silica sand.

The filtered water then enters the chemical contact chamber.

## CHEMICAL CONTACT CHAMBER:

This chamber is located between the two (2) reservoir storage cells and underneath the filters. Soda Ash solution, chlorine solution and hydrofluosilicic acid are added to the process in the chamber.

## RESERVOIR CELLS:

Two (2) reservoir cells are provided, cell number 1 has capacity of approximately 2,565 m<sup>3</sup> and cell number 2 has capacity of approximately 1,465 m<sup>3</sup> (887,665 gallons).

## TREATED WATER PUMP WELL:

The treated water pump well contains the filter backwash pump and high lift pumps; numbers 1, 2, and 3. It is located between the two reservoir cells.

## HIGH LIFT PUMPS:

These four (4) units draw water from the treated water pump wells. They are of varying capacities and are controlled by the water tower level.

High Lift Pump Number 1: Rated to deliver 63.1 L/s. This pump is equipped with a variable speed drive 60 hp electric motor.

High Lift Pump Number 2: Rated to deliver 94.7 L/s. This pump is equipped with a 100 hp electric motor.

High Lift Pump Number 3: Rated to deliver 126.2 L/S. The pump is equipped with a 125 hp electric motor.

High Lift Pump Number 4: Rated to deliver 63.1 L/s. This pump is equipped with a variable speed drive 60 hp electric motor.

## BACKWASH PUMP:

The backwash pump is used for back washing the filters. It draws water from the pump well. This unit is rated to deliver 300 L/s and is equipped with a 75 hp electric motor.



# Ontario Drinking-Water Systems Regulation O. Reg. 170/03

## PLANT EFFLUENT DISCHARGE HEADER:

The plant effluent discharge header receives the flow from the high lift pumps and fire pump and directs it to the community's water distribution system.

There are two (2) analyzers - one for chlorine and one for fluoride which continually monitor the concentration of these two chemicals prior to entering the water distribution system.

## EMERGENCY STANDBY GENERATOR:

The emergency standby generator is a 450kW unit capable of running all the operational needs of the treatment plant. It automatically comes on-line when there is a power outage and shuts down once the power is restored.

## RATED CAPACITY OF THE PLANT:

Capacity: 17,000 m<sup>3</sup>/day or 3,744,493 gallons/day.

## List all water treatment chemicals used over this reporting period

Poly Electrolyte (Coagulant Aid)	752 kgs.
Aluminum Sulphate (Main Coagulant)	59660.90 kgs.
Soda Ash (ph Adjustment)	59482.07 kgs.
Chlorine (Disinfection)	7315 kgs.
Fluoride (Dental Aid)	6830 kgs.

## Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

## Please provide a brief description and a breakdown of monetary expenses incurred

### **A) Water Main Replacement – Second Street East Between Portage Avenue and Victoria Avenue**

The removal and replacement of approximately 222 metres of existing 150 mm DI water main with new 150 mm PVC water main, 30m of existing 200mm DI water main with new 200mm PVC water main and 30m of existing 400mm AC water main with new 400mm PVC water main including services and appurtenances and the addition of one new mid-block hydrant and new 150mm valves VAL292 & VAL293, 200mm valves VAL295 & VAL294, 400mm valves VAL291 & VAL296 – a cost of \$285,300

### **B) Water Distribution System – Replaced 4 Valves**

Valves: VAL411 - 250mm – 652 Scott Street, VAL 333 – 150mm – 440 Nelson Street. \$12,000 per 150mm valve. \$15,000 per 250mm valve.

### **C) Water Distribution System – Replaced 4 Hydrants**

Hydrants: HYD402 – Huffman Court, HYD035 – Wastewater Treatment Plant, HYD248 – 660 Second Street East, HYD185 – Victoria Avenue & Second St. East. \$18,000 per hydrant.



# Ontario Drinking-Water Systems Regulation O. Reg. 170/03

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
No Incidences to Report					

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E. Coli or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	52	E.C.: <1 - 30	1 - 272	N/A	N/A
Treated	52	0	0	52	0 - 2
Distribution	320	0	0	143	0 - 10

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity	8760	0.01 to 0.27
Chlorine	8760	1.95 to 2.80
Fluoride (If the DWS provides fluoridation)	8760	0.54 to 0.79

*NOTE: For continuous monitors use 8760 as the number of samples.*

*NOTE: Record the unit of measure if it is not milligrams per litre.*

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
June 01/07	Suspended Solids – Filter 3 (1 <sup>st</sup> Cycle) (2 <sup>nd</sup> Cycle) (3 <sup>rd</sup> Cycle)	Mar 12/19	23.3 <2.0 <2.0	mg/L mg/L mg/L
June 01/07	Suspended Solids – Filter 4 (1 <sup>st</sup> Cycle) (2 <sup>nd</sup> Cycle) (3 <sup>rd</sup> Cycle)	May 28/19	18.8 <2.0 <2.0	mg/L mg/L mg/L
June 01/07	Suspended Solids – Filter 1 (1 <sup>st</sup> Cycle) (2 <sup>nd</sup> Cycle) (3 <sup>rd</sup> Cycle)	Sep 11/19	6.5 <2.0 <2.0	mg/L mg/L mg/L
June 01/07	Suspended Solids – Filter 1 (1 <sup>st</sup> Cycle) (2 <sup>nd</sup> Cycle) (3 <sup>rd</sup> Cycle)	Dec 16/19	23.6 <2.0 <2.0	mg/L mg/L mg/L



# Ontario Drinking-Water Systems Regulation O. Reg. 170/03

## Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Standard (Max.)	Exceedance
Antimony	March 12, 2019	<0.6	µg/L	6	None
Arsenic	March 12, 2019	<1.0	µg/L	25	None
Barium	March 12, 2019	<10	µg/L	1000	None
Boron	March 12, 2019	<50	µg/L	5000	None
Cadmium	March 12, 2019	<0.10	µg/L	5	None
Chromium	March 12, 2019	<1.0	µg/L	50	None
*Lead					
Mercury	March 12, 2019	<0.10	µg/L	1	None
Selenium	March 12, 2019	<1.0	µg/L	50	None
Sodium	March 09, 2015	16.4	mg/L	20	None
Uranium	March 12, 2019	<2.0	µg/L	20	None
Fluoride	March 09, 2015	0.462	mg/L	1.5	None
Nitrite	December 16, 2019	<0.010	mg/L	1.0	None
Nitrate	December 16, 2019	0.083	mg/L	10.0	None

\*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

### Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
*Plumbing	96	<1.0 – 1.1	0
*Distribution	16	<1.0	0



# Ontario Drinking-Water Systems Regulation O. Reg. 170/03

## Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Standard (Max.)	Exceedance
Alachlor	March 12, 2019	<0.10	µg/L	5	None
Atrazine + N-dealkylated metabolites	March 12, 2019	<0.20	µg/L	5	None
Azinphos-methyl	March 12, 2019	<0.10	µg/L	20	None
Benzene	March 12, 2019	<0.50	µg/L	1	None
Benzo(a)pyrene	March 12, 2019	<0.010	µg/L	0.01	None
Bromoxynil	March 12, 2019	<0.20	µg/L	5	None
Carbaryl	March 12, 2019	<0.20	µg/L	90	None
Carbofuran	March 12, 2019	<0.20	µg/L	90	None
Carbon Tetrachloride	March 12, 2019	<0.20	µg/L	2	None
Chlorpyrifos	March 12, 2019	<0.10	µg/L	90	None
Diazinon	March 12, 2019	<0.10	µg/L	20	None
Dicamba	March 12, 2019	<0.20	µg/L	120	None
1,2-Dichlorobenzene	March 12, 2019	<0.50	µg/L	200	None
1,4-Dichlorobenzene	March 12, 2019	<0.50	µg/L	5	None
1,2-Dichloroethane	March 12, 2019	<0.50	µg/L	5	None
1,1-Dichloroethylene (vinylidene chloride)	March 12, 2019	<0.50	µg/L	14	None
Dichloromethane	March 12, 2019	<5.0	µg/L	50	None
2-4 Dichlorophenol	March 12, 2019	<0.30	µg/L	900	None
2,4-Dichlorophenoxy acetic acid (2,4-D)	March 12, 2019	88.0	µg/L	100	None
Diclofop-methyl	March 12, 2019	<0.20	µg/L	9	None
Dimethoate	March 12, 2019	<0.10	µg/L	20	None
Diquat	March 12, 2019	<1.0	µg/L	70	None
Diuron	March 12, 2019	<1.0	µg/L	150	None
Glyphosate	March 12, 2019	<5.0	µg/L	280	None
Haloacetic acids (NOTE: show latest annual average)	Sept. 19, 2019	80.7	µg/L	80	None
Malathion	March 12, 2019	<0.10	µg/L	190	None
2-Methyl-4-chlorophenoxyacetic acid	March 12, 2019	<0.20	µg/L	100	None
Metolachlor	March 12, 2019	<0.10	µg/L	50	None
Metribuzin	March 12, 2019	<0.10	µg/L	80	None
Monochlorobenzene	March 12, 2019	<0.50	µg/L	80	None
Paraquat	March 12, 2019	<1.0	µg/L	10	None
Pentachlorophenol	March 12, 2019	<0.50	µg/L	60	None
Phorate	March 12, 2019	<0.10	µg/L	2	None
Picloram	March 12, 2019	<0.20	µg/L	190	None
Polychlorinated Biphenyls(PCB)	March 12, 2019	<0.035	µg/L	3	None
Prometryne	March 12, 2019	<0.10	µg/L	1	None
Simazine	March 12, 2019	<0.10	µg/L	10	None
THM (NOTE: show latest annual average)	Dec. 04, 2019	57.7	µg/L	100	None
Terbufos	March 12, 2019	<0.20	µg/L	1	None
Tetrachloroethylene	March 12, 2019	<0.50	µg/L	30	None
2,3,4,6-Tetrachlorophenol	March 12, 2019	<0.50	µg/L	100	None
Triallate	March 12, 2019	<0.10	µg/L	230	None
Trichloroethylene	March 12, 2019	<0.50	µg/L	5	None
2,4,6-Trichlorophenol	March 12, 2019	<0.50	µg/L	5	None
Trifluralin	March 12, 2019	<0.10	µg/L	45	None
Vinyl Chloride	March 12, 2019	<0.20	µg/L	1	None



**List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.**

<b>Parameter</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Date of Sample</b>
<b>Sodium</b>	16.4 (STD. – 20)	mg/L	March 09, 2015
<b>Haloacetic Acids</b>	80.7 (STD – 80)	µg/L	September 19, 2019
<b>THM</b>	57.7 (STD – 100)	µg/L	December 04, 2019