

# Renfrew Drinking Water System

---

Waterworks # 210001102  
System Category – Large Municipal Residential

## Annual Water Report

Prepared For: Municipality of the Town of Renfrew

Reporting Period of January 1<sup>st</sup> – December 31<sup>st</sup> 2018

Issued: March 8<sup>th</sup>, 2019

Revision: 1

Operating Authority:

**OCWA**



This report has been prepared to satisfy the annual reporting requirements in O.Reg 170/03 Section 11 and Schedule 22

## Table of Contents

<b>Annual Water Report</b> .....	<b>1</b>
<b>Report Availability</b> .....	<b>1</b>
<b>Compliance Report Card</b> .....	<b>1</b>
<b>System Process Description</b> .....	<b>1</b>
Raw Source .....	1
Treatment.....	1
Treatment Chemicals used during the reporting year:.....	2
Distribution .....	2
Adverse Water Quality Incidents.....	2
Non-Compliance .....	2
Non-Compliance Identified in a Ministry Inspection:.....	2
<b>Flows</b> .....	<b>3</b>
Raw Water Flows .....	3
Total Monthly Flows (m <sup>3</sup> /d) .....	3
Monthly Rated Flows (L/s) .....	3
Treated Water Flows .....	4
Monthly Rated Flows .....	4
Annual Total Flow Comparison .....	4
<b>Regulatory Sample Results Summary</b> .....	<b>5</b>
Microbiological Testing.....	5
Operational Testing .....	5
Laboratory Testing.....	5
Inorganic Parameters .....	6
Schedule 15 Sampling: .....	7
Organic Parameters .....	7
Additional Legislated Samples.....	8
<b>Major Maintenance Summary</b> .....	<b>8</b>
<b>WTRS Data and Submission Confirmation</b> .....	<b>A</b>

## Report Availability

This system does not serve more than 10,000 residence and the annual reports will be available to residents at the Town of Renfrew Municipal Office. Notification will be at the Municipal Office and copies provided free of charge if requested.

The Town of Renfrew Municipal Office is located at, 127 Raglan St. S., Renfrew, ON K7V 1P8.

## Compliance Report Card

Compliance Event	# of Events
Ministry of Environment Inspections	No Inspections for the reporting period
Ministry of Labour Inspections	No Inspections for the reporting period
QEMS External Audit	One (1) External On-Site Audit 2 OFI (Opportunity for Improvement) Commitment/Endorsement and Risk Assessment Outcomes
AWQI's/BWA	THM –Rolling Annual Average
Non-Compliance	No Non-Compliances
Spills	No Spills
Watermain Breaks	The Town of Renfrew is responsible for the Distribution system

## System Process Description

### Raw Source

The source water for the Renfrew Drinking Water System (DWS) is the Bonnechere River. The low lift pumping station was constructed over the wet well, and is situated next to the Bonnechere River, across the street from the Renfrew DWS. The wet well is equipped with a bar screen. Water is drawn from the wet well and discharged into a raw water force main. Turbidity, pH and temperature meters have been installed at this point to collect raw water data.

### Treatment

Raw water is treated with coagulants and a coagulant aid. The powdered activated carbon (PAC) system is currently not in use. The water is directed to the flash mixers and then through the Actiflo treatment system, which consists of coagulation, flocculation and sedimentation assisted by tube settlers. Water is directed to three dual media (sand/antracite) high-rate gravity filters. All three filters are connected to a common backwash system that includes filter-to-waste valving, backwash troughs and underdrain systems. The filters are equipped with one positive displacement air scour blower. Filtered water is treated with chlorine gas, hydrated lime and Hydrofluorosilicic acid just prior to being directed to the Clearwells. Two baffled Clearwells are in use. Treated water is pumped from the

**Clearwell to the distribution system**

There are two wastewater generating processes; filter backwashing and residuals from the Actiflo treatment system. Filter backwash effluent is directed to two settling tanks. The supernatant is discharged to the Bonnechere River via municipal storm sewer and the sludge is pumped to the municipal sanitary sewer. The residuals from the Actiflo treatment system are sent to a settling tank, where the supernatant is discharged by gravity to the Bonnechere River via municipal storm sewer, and the sludge is pumped for transport to the municipal sanitary sewer.

**Treatment Chemicals used during the reporting year:**

Chemical Name	Use	Supplier
PAS-8	Primary Coagulation	Kemira
Polymer	Coagulant Aid	BASF
Hydrated Lime	pH Adjustment	M & R Feeds (Sylvite)
Chlorine Gas	Disinfection	Brenntag
Hydrofluorosilic Acid	Fluoridation	Brenntag
Micro-Sand	Process	Veolia

**Distribution**

The distribution for the Town of Renfrew serves a population of approximately 8000 residents. The system includes a 6820 m<sup>3</sup> capacity standpipe, complete with water remixing, located on O'Brian Road. The standpipe is operated by the OCWA. Summary of Non-Compliance

**Adverse Water Quality Incidents**

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
07-Jul- 2018	140465	DW	THM Rolling Annual Avg over 100 mg/L	Q4 – 150 mg/L Q3 – 63.1 mg/L Q2 – 76.6 mg/L Q1 – 127.0 mg/L Average = 104.2 mg/L	O.Reg 170/03	Continued flushing and process optimization to remove THM's.

**Non-Compliance**

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There was no non-compliance issues reported during the reporting period.				

**Non-Compliance Identified in a Ministry Inspection:**

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There was no inspection during this period.				

## Flows

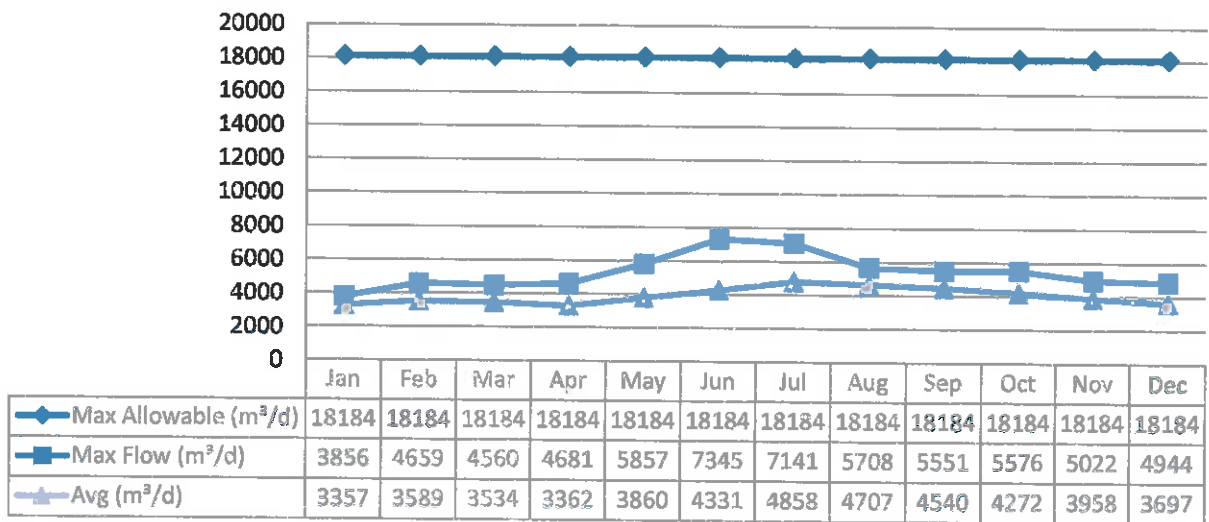
The Renfrew Drinking Water System is operating on average under half the rated capacity.

### Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water. 2018 Raw Flow Data was submitted to the Ministry electronically under permit #8088-9AXJ6C. The confirmation and a copy of the data that was submitted are attached in Appendix B.

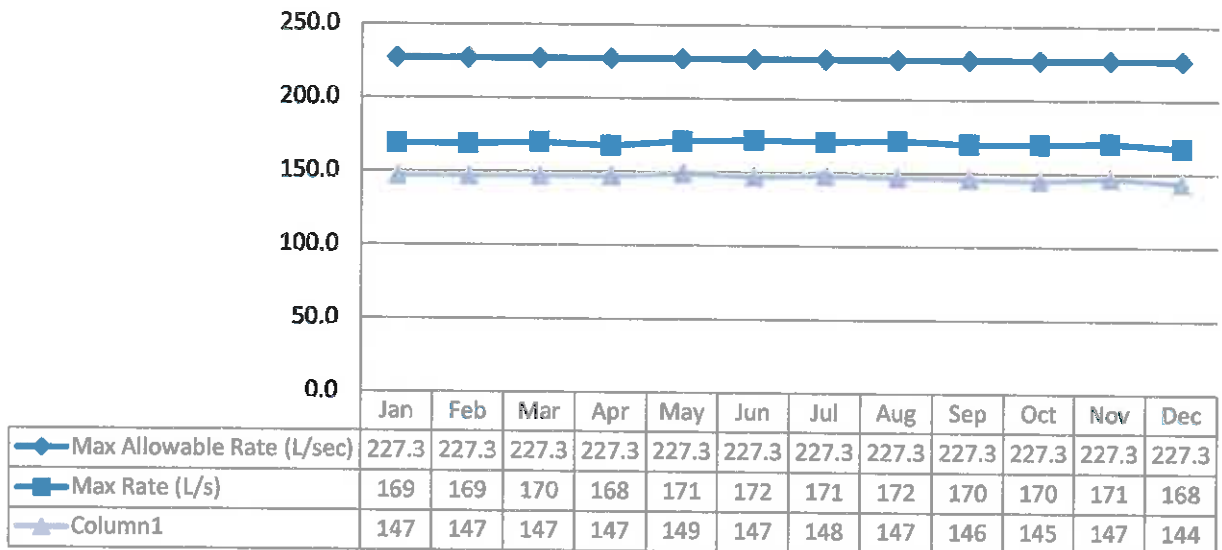
#### Total Monthly Flows (m<sup>3</sup>/d)

Max Allowable PTTW



#### Monthly Rated Flows (L/s)

Max allowable rate - PTTW

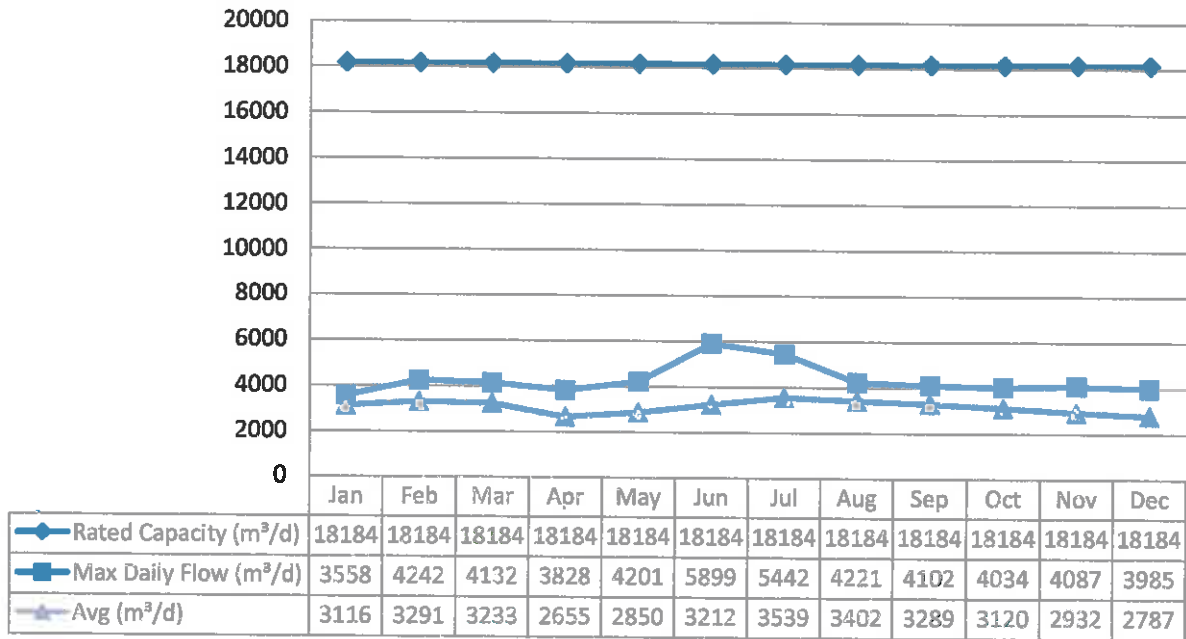


**Treated Water Flows**

The Treated Water flows are regulated under the Municipal Licence.

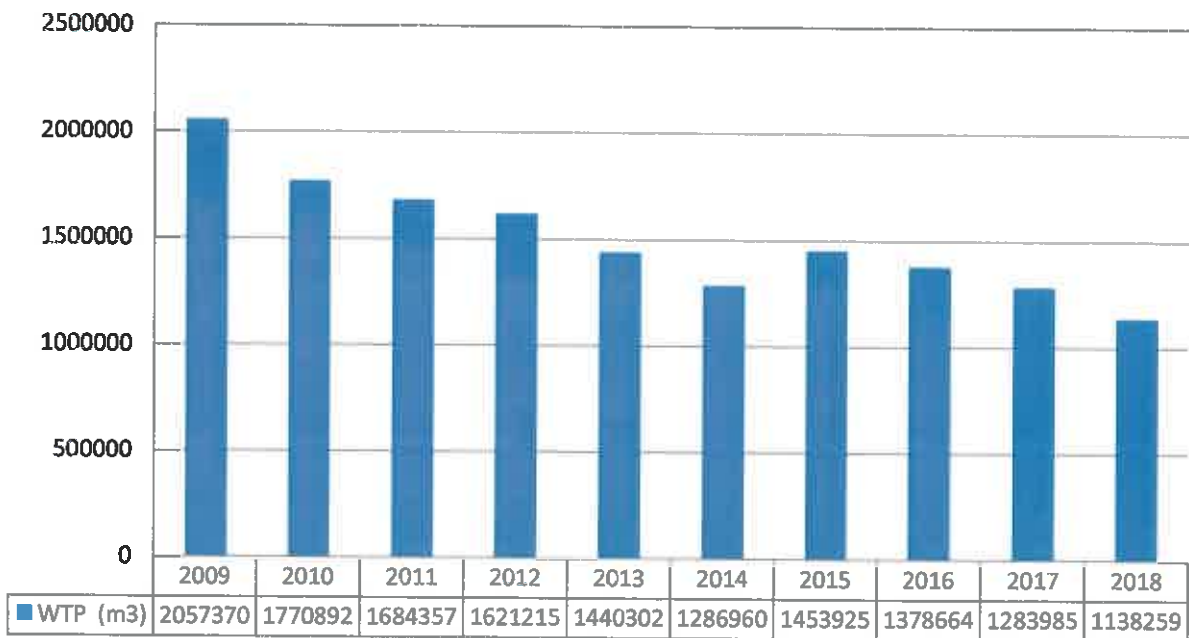
**Monthly Rated Flows**

Rated Capacity - MDWL



**Annual Total Flow Comparison**

Total Annual m³



## Regulatory Sample Results Summary

### Microbiological Testing

	No. of Samples Collected	Range of E.coli Results		Range of Total Coliform Results		# of HPC Samples Collected	Range of HPC Results	
		Min	Max	Min	Max		Min	Max
Raw Water	52	0	96	14	1040			
Treated Water	52	0	0	0	0	52	2	8
Distribution Water	208	0	0	0	0	104	2	94

### Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW	53	2.19	69.8
Turbidity, In-House (NTU) - TW	53	0.12	1.01
Turbidity, On-Line (NTU) - Filt1	8760	0.01	0.720
Turbidity, On-Line (NTU) - Filt2	8760	0.01	1.02
Turbidity, On-Line (NTU) - Filt3	8760	0.04	0.47
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.14	2.83
Free Chlorine Residual, In-House (mg/L) - TW	364	1	2.7
Free Chlorine Residual, TW Field (mg/L) Lab Upload - TW	52	1.24	2.4
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0.297	4.998
Free Chlorine Residual, DW Field (mg/L) Lab Upload - DW	208	0.08	2.2
Fluoride Residual, On-Line (mg/L) - TW	12	0.06	0.72
Fluoride Residual, In-House (mg/L) - TW	12	0.1	0.67
Fluoride Residual, Lab Upload (mg/L) -TW	12	0.1	0.7

NOTE: spikes recorded by on-line instrumentation were a result of air bubbles and various maintenance/calibration activities. All spikes are reviewed for compliance with O.Reg 170/03

### Laboratory Testing

Parameter	# of grab samples taken	Range of Results (min # - max #)
<b>Raw Water</b>		
Alkalinity	12	51 - 103 mg/l
Colour	12	17 - 30 TCU
Dissolved Organic Carbon (DOC)	12	6.5 - 21.3mg/L
Fluoride	12	0.1 mg/L
Iron	12	0.069 - 0.437 mg/L
Manganese	12	0.007 - 0.026
pH	12	7.75 - 8.07
<b>Treated Water</b>		
Alkalinity	12	42 - 95 mg/L
Aluminum	12	30 - 80 ug/L



Parameter	# of grab samples taken	Range of Results (min # - max #)
Colour	12	2 - 6 TCU
Conductivity	12	183 - 288
Dissolved Organic Carbon (DOC)	12	2.9 - 5.2 mg/L
Fluoride	12	0.1 - 0.7 mg/L
Iron	12	0.005 - 0.035 mg/L
Manganese	12	0.003 - 0.023 mg/L
pH	12	7.65 - 7.92
Hardness (as CaCO <sub>3</sub> )	12	70 - 121 mg/L

### Inorganic Parameters

These parameters are tested as a requirement under 170/03. Sodium and Fluoride are required to be tested every 5 years. Nitrate and Nitrite are tested quarterly and the metals are tested annually as required under 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

- MAC = Maximum Allowable Concentration as per O.Reg 169/03
- BDL = Below the laboratory detection level

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
<b>Treated Water</b>					
Antimony: Sb (ug/L) - TW	2018/01/16	<MDL 0.1	6.0	No	No
Arsenic: As (ug/L) - TW	2018/01/16	0.1	10.0	No	No
Barium: Ba (ug/L) - TW	2018/01/16	31.0	1000.0	No	No
Boron: B (ug/L) - TW	2018/01/16	<MDL 5.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2018/01/16	<MDL 0.02	5.0	No	No
Chromium: Cr (ug/L) - TW	2018/01/16	<MDL 2.0	50.0	No	No
Mercury: Hg (ug/L) - TW	2018/01/16	<MDL 0.02	1.0	No	No
Selenium: Se (ug/L) - TW	2018/01/16	<MDL 1.0	50.0	No	No
Uranium: U (ug/L) - TW	2018/01/16	0.08	20.0	No	No
<b>Additional Inorganics</b>					
Fluoride (mg/L) - TW	2018/12/04	0.3	1.5	No	No
Nitrite (mg/L) - TW	2018/03/13	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2018/06/12	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2018/09/05	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2018/12/04	<MDL 0.1	1.0	No	No
Nitrate (mg/L) - TW	2018/03/13	0.1	10.0	No	No
Nitrate (mg/L) - TW	2018/06/12	<MDL 0.1	10.0	No	No
Nitrate (mg/L) - TW	2018/09/05	<MDL 0.1	10.0	No	No
Nitrate (mg/L) - TW	2018/12/04	0.7	10.0	No	No
Sodium: Na (mg/L) - TW	2016/01/12	15.2	20	No	Yes



Schedule 15 Sampling:

This sampling is completed by the Town of Renfrew.

Organic Parameters

These parameters are tested annually as a requirement under O.Reg 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
<b>Treated Water</b>					
Alachlor (ug/L) - TW	2018/01/16	<MDL 0.3	5.00	No	No
Azinphos-methyl (ug/L) - TW	2018/01/16	<MDL 1.0	20.00	No	No
Benzene (ug/L) - TW	2018/01/16	<MDL 0.5	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2018/01/16	<MDL 0.005	0.01	No	No
Bromoxynil (ug/L) - TW	2018/01/16	<MDL 0.3	5.00	No	No
Carbaryl (ug/L) - TW	2018/01/16	<MDL 3.0	90.00	No	No
Carbofuran (ug/L) - TW	2018/01/16	<MDL 1.0	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2018/01/16	<MDL 0.2	2.00	No	No
Chlorpyrifos (ug/L) - TW	2018/01/16	<MDL 0.5	90.00	No	No
Diazinon (ug/L) - TW	2018/01/16	<MDL 1.0	20.00	No	No
Dicamba (ug/L) - TW	2018/01/16	<MDL 5.0	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2018/01/16	<MDL 0.1	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2018/01/16	<MDL 0.2	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2018/01/16	<MDL 0.1	5.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2018/01/16	<MDL 0.3	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2018/01/16	<MDL 0.1	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2018/01/16	<MDL 5.0	100.00	No	No
Diclofop-methyl (ug/L) - TW	2018/01/16	<MDL 0.5	9.00	No	No
Dimethoate (ug/L) - TW	2018/01/16	<MDL 1.0	20.00	No	No
Diquat (ug/L) - TW	2018/01/16	<MDL 5.0	70.00	No	No
Diuron (ug/L) - TW	2018/01/16	<MDL 5.0	150.00	No	No
Glyphosate (ug/L) - TW	2018/01/16	<MDL 25.0	280.00	No	No
Malathion (ug/L) - TW	2018/01/16	<MDL 5.0	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)(ug/L) - TW	2018/01/16	10.0	N/A	N/A	N/A
Metolachlor (ug/L) - TW	2018/01/16	<MDL 3.0	50.00	No	No
Metribuzin (ug/L) - TW	2018/01/16	<MDL 3.0	80.00	No	No
Paraquat (ug/L) - TW	2018/01/16	<MDL 1.0	10.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
PCB (ug/L) - TW	2018/01/16	<MDL 0.05	3.00	No	No
Pentachlorophenol (ug/L) - TW	2018/01/16	<MDL 0.1	60.00	No	No
Phorate (ug/L) - TW	2018/01/16	<MDL 0.3	2.00	No	No
Picloram (ug/L) - TW	2018/01/16	<MDL 5.0	190.00	No	No
Prometryne (ug/L) - TW	2018/01/16	<MDL 0.1	1.00	No	No
Simazine (ug/L) - TW	2018/01/16	<MDL 0.5	10.00	No	No
Terbufos (ug/L) - TW	2018/01/16	<MDL 0.3	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2018/01/16	<MDL 0.2	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2018/01/16	<MDL 0.1	100.00	No	No
Triallate (ug/L) - TW	2018/01/16	<MDL 10.0	230.00	No	No
Trichloroethylene (ug/L) - TW	2018/01/16	<MDL 0.1	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2018/01/16	<MDL 0.1	5.00	No	No
Trifluralin (ug/L) - TW	2018/01/16	<MDL 0.5	45.00	No	No
Vinyl Chloride (ug/L) - TW	2018/01/16	<MDL 0.2	1.00	No	No
<b>Distribution Water</b>					
Trihalomethane: Total (ug/L) Annual Average - DW	2018/01/01	95.675	100.00	No	Yes
Haloacetic Acid: HAA (ug/L) Annual Average-DW	2018/01/01	76.125	N/A	N/A	N/A

MAC = Maximum Allowable Concentration as per O.Reg 169/03

BDL = Below the laboratory detection level

### Additional Legislated Samples

Legal Document	Date of Issuance	Parameter	Date Sampled	Result	Unit of measure
Municipal License 183-101 Issue #3	December 16, 2015	Actiflo Suspended Solids	Annual Avg.	15.333	mg/L
Municipal License 183-101 Issue #3	December 16, 2015	Backwash Effluent Suspended Solids	Annual Avg.	12.083	mg/L

### **Major Maintenance Summary**



WO #	Description
628192	Capital Blanket Items under \$200
742818	Capital DWQMS 3rd party audit
780596	Capital Tower safety inspection and report
823371	Capital SCADA integration
780602	Capital Roof Scan (Both facilities)
662233	Capital Coagulant tank 1 cleanout
625330	Capital Boiler Failure

WO #	Description
627532	Capital Front Entrance Handrail
664370	Capital Boilers Annual Service
701724	Capital Low Lift PLC UPS Fail
781402	Capital Fluoride Pump Parts
627644	Capital Coagulant header rebuild
860638	Capital Chlorine repair and inventory
982667	Capital Chlorine leak parts
628947	Capital Chlorinator 2 error message
664368	Capital Chlorine Gas System parts
627643	Capital Level transmitter filter 1
781400	Capital Actiflo Recirc Pump Flange
940401	Capital pipe clamps hi lift header
1017581	Capital Flow Control Valve Kit
823806	Capital Stand Pipe internal inspection
982412	Capital Standpipe Rail system upgrade

# Appendix A

## WTRS Data and Submission Confirmation

The screenshot shows a web interface for the WTRS (Water Taking Reporting System). At the top left is the Ontario logo. In the center is the WTRS logo with the word 'environet' above it. At the top right is the text 'Ministry of the Environment, Conservation and Parks'. Below the logos is a navigation menu with links: WT DATA, REPORTS, SEARCH WT DATA, ADMINISTRATION, USER PROFILE, CONTACT US, HELP, HOME, and LOGOUT. Below the navigation menu is a breadcrumb trail: 'Location: WTRS / WT DATA / Edit Submitted WT Records' and a session ID 'WTRS-WT-008'. A green-bordered box contains the message 'Water Taking Data submitted successfully.' Below this is a 'Confirmation:' section with the following text: 'Thank you for submitting your water taking data online.', 'Permit Number: 8088-9AX36C', 'Permit Holder: THE CORPORATION OF THE TOWN OF RENFREW.', 'Received on: Feb 22, 2019 2:40 PM', and a disclaimer: 'This confirmation indicates that your data has been received by the Ministry, but should not be construed as acceptance of this data if it differs from that specified on the Permit Number, assigned to the Permit Holder stated above.'

  **Ministry of the Environment,  
Conservation and Parks**

| [WT DATA](#) | [REPORTS](#) | [SEARCH WT DATA](#) | [ADMINISTRATION](#) | [USER PROFILE](#) | [CONTACT US](#) | [HELP](#) | [HOME](#) | [LOGOUT](#) |

Location: [WTRS / WT DATA](#) / [Edit Submitted WT Records](#) WTRS-WT-008

**Water Taking Data submitted successfully.**

**Confirmation:**

Thank you for submitting your water taking data online.

Permit Number: 8088-9AX36C  
Permit Holder: THE CORPORATION OF THE TOWN OF RENFREW.  
Received on: Feb 22, 2019 2:40 PM

This confirmation indicates that your data has been received by the Ministry, but should not be construed as acceptance of this data if it differs from that specified on the Permit Number, assigned to the Permit Holder stated above.