

Renfrew Drinking Water System

2016 Annual Water Report

Reporting period of January 1, 2016 – December 31, 2016

Prepared For:

The Town of Renfrew

Prepared By:



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

This report has been prepared to satisfy the annual reporting requirements of the
Provincial Regulations and Guidelines

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Report Availability

This system does not serve more than 10,000 residence and the annual reports will be available to residence 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 is located at:

127 Raglan St. S.
 Renfrew ON
 K7V 1P8

There are no systems additional drinking water systems that receive water from this facility.

Compliance Report Card

Drinking Water System Number:	210001102
System Owner:	Town of Renfrew
Operating Authority:	Ontario Clean Water Agency
Drinking Water System Category:	Large Municipal Residential
Reporting Period:	January 1, 2016 – December 31, 2016

Compliance Event	# of Events	Details
Ministry of Environment Inspections	1	Report received from November 16, 2015 Inspection on January 28, 2016 ○ Inspection Rating 100%
Ministry of Labour Inspections	0	
QEMS External Audit	1	One (1) External On-Site Audit ● No Non-Conformance
AWQI's	0	
Non-Compliance	1	Missed sample
Community Complaints	0	Complaints are responded to by the Town of Renfrew staff.
Spills	0	

Quality Control Measures

The Town of Renfrew facilities are part of OCWA's operational Eastern Regional Hub. The facilities are supported by hub, regional and corporate resources. Operational Services are delivered by OCWA staff that live and work in the community.

OCWA operates facilities in compliance with applicable regulations. The facility has comprehensive manuals detailing operations, maintenance, instrumentation, and emergency procedures. All procedures are treated as active documents, with annual reviews.

OCWA has additional "Value Added" and operational support services that the Town of Renfrew benefits from including:

- Access to a network of operational compliance and support experts at the regional and corporate level, as well as affiliated programs that include the following:
 - Quality & Environmental Management System, Occupational Health & Safety System and an internal compliance audit system.
 - Process Data Collection (PDC) facility operating information repository, which consolidates field data, online instrumentation, and electronic receipt of lab test results for reporting, tracking and analysis.
 - Work Management System (WMS) that tracks and reports maintenance activities, and creates predictive and preventative reports.
 - Outpost 5 wide-area SCADA system allows for process optimization and data logging, process trending, remote alarming and optimization of staff time.
- Client reporting which includes operational data, equipment inventory, financial statements, maintenance work orders, and capital status reports
- Site-Specific Contingency Plans and Standard Operating Procedures
- Use of accredited laboratories
- Additional support in response to unusual circumstances, and extra support in an emergency.
- Use of sampling schedules for external laboratory sampling

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/anthracite) 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
Chlorine Gas	Disinfection	Brenntag
Hydrofluorosilic Acid	Fluoridation	Brenntag
Micro-Sand	Process	John Meunier

Distribution System

The distribution for the Town of Renfrew serves a population of approximately 8000 residents. The system includes a 6820 m3 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

AWQI #	Date	Legislation	Problem	Details	Corrective ActionTaken
There were no AWQI’s identified during the reporting period.					

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
170/03	Missed raw and treated routine weekly bacti	09-Aug-2016	Notification to MOECC no further action required.	Closed

Non-Compliance Identified in a Ministry Inspection:

There was one (1) inspection reports received during this reporting period.

- Report received from November 16, 2015 Inspection on January 28, 2016
 - Inspection Rating 100%

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There were no actions required from this inspection.				

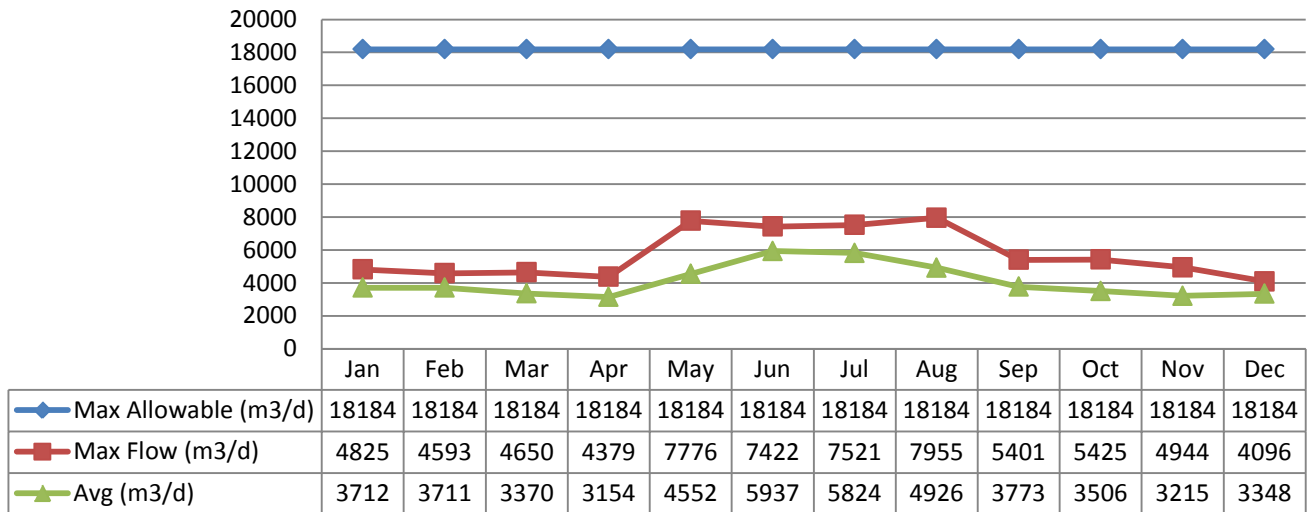
Flows

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

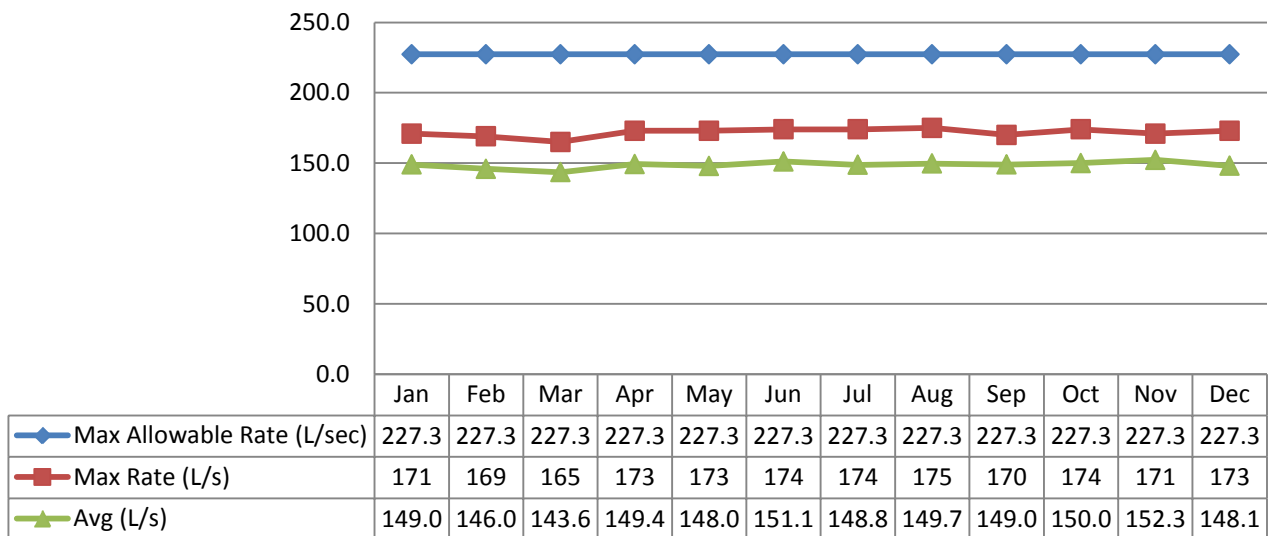
Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water.

Monthly Total Flow Summary



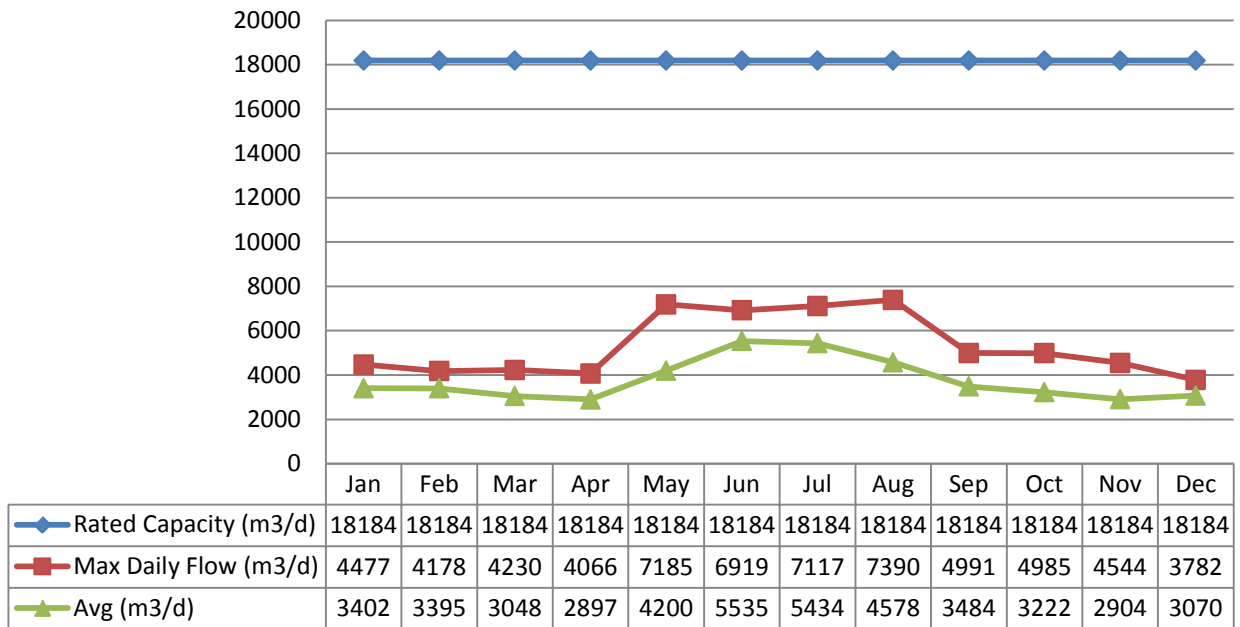
Monthly Rate of Taking Summary



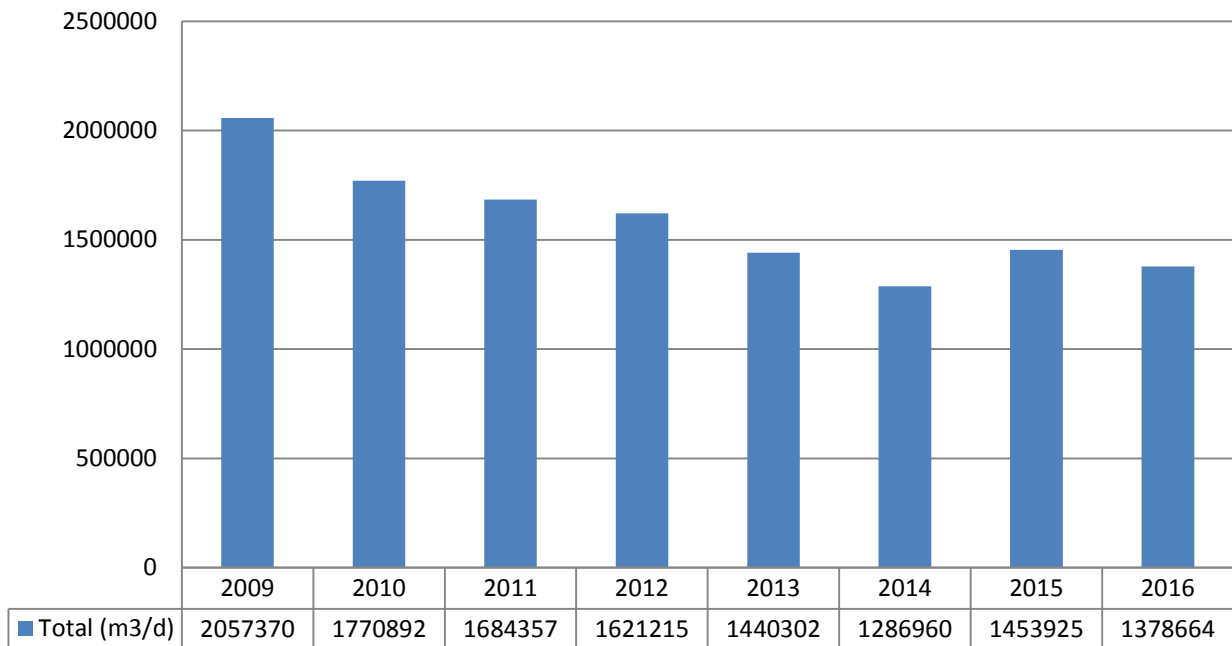
Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

Monthly Total Flow Summary



Annual Volume (m3/d)



Regulatory Sample Results Summary

Microbiological Testing

	No. of Samples Collected	Range of E.Coli		Range of Total Coliform Results		Number of HPC Samples	Range of HPC Results	
		MIN	MAX	MIN	MAX		MIN	MAX
Raw Water	51	0	150	>2	1340	0		
Treated Water	51	0	0	0	0	51	>2	6
Distribution System	208	0	0	0	0	104	>2	114

Operational Testing

In-House

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW	245	1.6	134
Turbidity, In-House (NTU) - TW	44	0.12	1.27
Turbidity, On-Line (NTU) - Filt1	8760	0	3.0836
Turbidity, On-Line (NTU) - Filt2	8760	0	0.6055
Turbidity, On-Line (NTU) - Filt3	8760	0.0075	0.7398
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.9311	3.041
Free Chlorine Residual, In-House (mg/L) - TW	371	0.97	2.62
Free Chlorine Residual, TW Field (mg/L) Lab Upload - TW	51	1.41	2.36
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0.3958	2.1484
Free Chlorine Residual, In-House (mg/L) - DW	182	0.4	1.35
Free Chlorine Residual, DW Field (mg/L) Lab Upload - DW	208	0.23	2.2
Fluoride Residual On-line (mg/L) - TW	8760	0	0.9221
Fluoride Residual IH (mg/L) - TW	185	0.27	0.87

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

Parameter	# of grab samples taken	Range of Results (min # - max #)
Raw Water		
Alkalinity	12	51-99 mg/l
Colour	12	<2-23 TCU
Dissolved Organic Carbon (DOC)	12	2.7-8.1 mg/L
Fluoride	12	0.1-0.2 mg/L
Iron	12	0.047-0.194 mg/L

Parameter	# of grab samples taken	Range of Results (min # - max #)
Manganese	12	0.005-0.08
pH	12	7.42-8.01
Treated Water		
Alkalinity	12	49-85 mg/L
Aluminum	12	30-100 ug/L
Colour	12	2-4 TCU
Conductivity	12	180-335
Dissolved Organic Carbon (DOC)	12	0.2-3.6 mg/L
Fluoride	12	0.1-0.6 mg/L
Iron	12	0.005-0.022 mg/L
Manganese	12	0.002-0.027 mg/L
pH	12	7.37 - 7.82
Hardness (as CaCO ₃)	12	76-127 mg/L

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.	12.75	mg/L
Municipal License 183-101 Issue #3	December 16, 2015	Backwash Effluent Suspended Solids	Annual Avg.	22.0	mg/L

Inorganic Parameters

These parameters are tested annually as a requirement under 170/03. Sodium and Fluoride are required to be tested every 5 years. Nitrates are tested quarterly 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
TREATED WATER					
Antimony: Sb (ug/L) - TW	2016/01/19	<MDL 0.1	6.0	No	No
Arsenic: As (ug/L) - TW	2016/01/19	0.2	25.0	No	No
Barium: Ba (ug/L) - TW	2016/01/19	34.0	1000.0	No	No
Boron: B (ug/L) - TW	2016/01/19	8.0	5000.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Cadmium: Cd (ug/L) - TW	2016/01/19	<MDL 0.02	5.0	No	No
Chromium: Cr (ug/L) - TW	2016/01/19	<MDL 2.0	50.0	No	No
Mercury: Hg (ug/L) - TW	2016/01/19	<MDL 0.02	1.0	No	No
Selenium: Se (ug/L) - TW	2016/01/19	<MDL 1.0	10.0	No	No
Uranium: U (ug/L) - TW	2016/01/19	0.08	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2016/12/06	0.5	1.5	No	No
Nitrite (mg/L) - TW	2016/01/12	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2016/04/12	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2016/07/12	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2016/10/11	<MDL 0.1	1.0	No	No
Nitrate (mg/L) - TW	2016/01/12	1.1	10.0	No	No
Nitrate (mg/L) - TW	2016/04/12	0.2	10.0	No	No
Nitrate (mg/L) - TW	2016/07/12	2.0	10.0	No	No
Nitrate (mg/L) - TW	2016/10/11	0.1	10.0	No	No
Sodium: Na (mg/L) - TW	2016/01/12	15.2	20*	No	Yes

*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified mg/L when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

[Schedule 15 \(Lead Sampling\)](#)

Sampling is completed by the Town of Renfrew.

Organic Parameters

These parameters are tested annually as a requirement 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.

In recent changes to the regulation the following Organic Parameters were removed from Schedule 24:

- Aldicarb
- Aldrin+Dieldrin
- Bendiocarb
- Chlordane
- Cyanazine
- DDT + metabolites
- Dinoseb
- Heptachlor+hepachlor epoxide
- Lindane
- Methoxychlor
- Parathion
- Temephos
- 2,4,5-Trichlorophenoxyacetic acid

The following parameter was added:

- 2-Methyl-4chlorophenoxyacetic Acid (MCPA)

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Treated Water					
Alachlor (ug/L) - TW	2016/01/19	<MDL 0.3	5.00	No	No
Azinphos-methyl (ug/L) - TW	2016/01/19	<MDL 1.0	20.00	No	No
Benzene (ug/L) - TW	2016/01/19	<MDL 0.5	5.00	No	No
Benzo(a)pyrene (ug/L) - TW	2016/01/19	<MDL 0.005	0.01	No	No
Bromoxynil (ug/L) - TW	2016/01/19	<MDL 0.3	5.00	No	No
Carbaryl (ug/L) - TW	2016/01/19	<MDL 3.0	90.00	No	No
Carbofuran (ug/L) - TW	2016/01/19	<MDL 1.0	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2016/01/19	<MDL 0.2	5.00	No	No
Chlorpyrifos (ug/L) - TW	2016/01/19	<MDL 0.5	90.00	No	No
Diazinon (ug/L) - TW	2016/01/19	<MDL 1.0	20.00	No	No
Dicamba (ug/L) - TW	2016/01/19	<MDL 5.0	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2016/01/19	<MDL 0.1	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2016/01/19	<MDL 0.2	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2016/01/19	<MDL 0.1	5.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2016/01/19	<MDL 0.3	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2016/01/19	<MDL 0.1	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2016/01/19	<MDL 5.0	100.00	No	No
Diclofop-methyl (ug/L) - TW	2016/01/19	<MDL 0.5	9.00	No	No
Dimethoate (ug/L) - TW	2016/01/19	<MDL 1.0	20.00	No	No
Diquat (ug/L) - TW	2016/01/19	<MDL 5.0	70.00	No	No
Diuron (ug/L) - TW	2016/01/19	<MDL 5.0	150.00	No	No
Glyphosate (ug/L) - TW	2016/01/19	<MDL 25.0	280.00	No	No
Malathion (ug/L) - TW	2016/01/19	<MDL 5.0	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)(ug/L) - TW	2016/01/26	<10.0	N/A		
Metolachlor (ug/L) - TW	2016/01/19	<MDL 3.0	50.00	No	No
Metribuzin (ug/L) - TW	2016/01/19	<MDL 3.0	80.00	No	No
Paraquat (ug/L) - TW	2016/01/19	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2016/01/19	<MDL 0.05	3.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Pentachlorophenol (ug/L) - TW	2016/01/19	<MDL 0.1	60.00	No	No
Phorate (ug/L) - TW	2016/01/19	<MDL 0.3	2.00	No	No
Picloram (ug/L) - TW	2016/01/19	<MDL 5.0	190.00	No	No
Prometryne (ug/L) - TW	2016/01/19	<MDL 0.1	1.00	No	No
Simazine (ug/L) - TW	2016/01/19	<MDL 0.5	10.00	No	No
Terbufos (ug/L) - TW	2016/01/19	<MDL 0.3	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2016/01/19	<MDL 0.2	30.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2016/01/19	<MDL 0.1	100.00	No	No
Triallate (ug/L) - TW	2016/01/19	<MDL 10.0	230.00	No	No
Trichloroethylene (ug/L) - TW	2016/01/19	<MDL 0.1	50.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2016/01/19	<MDL 0.1	5.00	No	No
Trifluralin (ug/L) - TW	2016/01/19	<MDL 0.5	45.00	No	No
Vinyl Chloride (ug/L) - TW	2016/01/19	<MDL 0.2	2.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2016/01/01	70.525	100.00	No	Yes

Maintenance Summary

OCWA uses a risk-based preventative maintenance framework that ensures assets are maintained to manufacturer's and/or industry standards. Maintenance is completed using various tools and operational supports. The Eastern Regional Hub has specialized certified staff such as Millwrights, Electricians and Instrumentation Specialists to name a few.

OCWA uses a Workplace Maintenance System (WMS). WMS is a maintenance tracking system that can generate work orders as well as give summaries of completed and scheduled work. During the year, the operating authority at the facility generates scheduled work orders on a weekly, monthly and annual basis. The service work is recorded in the work order history. This ensures routine and preventive maintenance is carried out. Emergency and capital repair maintenance is completed and added to the system.

Capital projects are listed and provided to the Town of Renfrew in the form of a "Capital Forecast". This list is developed by facility staff and provides recommendations for facility components requiring upgrading or improvement.

Facility Maintenance Highlights

WO#	Details
105570	Capital Clearwell inspection Renfrew WTF 5862

WO#	Details
147915	Capital Low Lift Chamber Clean Out Renfrew WTF 5862
190805	Capital security system enhancements Ren WTF 5862
104182	Capital Lime Mixer/Motor Renfrew WT 5862
105124	Capital Renfrew lowlift surge supression WT 5862
126312	Capital DR2800 Spectrophometer Screen Failure Ren WTF 5862 WTF
148048	Capital Poly Pump 02 Failure Renfrew WTF 5862
36076	Capital Shelving Systems within Facility Renfrew WT 5862
36355	Capital Office Air Conditioner Replacement Renfrew WT 5862
36962	Capital Backflow Preventers Rebuild Retest Renfrew WT 5862
48018	Capital Actiflo & Raw Water pH Probes Renfrew WT 5862
48023	Capital SIEMENS Flowmeters Annual Calibration Renfrew WT 5862
48787	Capital Filter Turbidity Mapping to Wiski Renfrew WT 5862
48788	Capital Filter #1 Turbidity Sensor Renfrew WT 5862
49488	Capital McCrea's HVAC Service Renfrew WT 5862
61592	Capital Lime Mixer Assembly Rebuild Renfrew WT 5862
61715	Capital Pocket Colorimeter II Town of Renfrew WT 5862
62055	Capital Floor Strip & Waxing Renfrew WT 5862
88043	Capital walkway rehab Renfrew WTF 5862
87539	Capital PLC failure 24volt Renfrew wtf 5862

QEMS

The Ontario Clean Water Agency has received Full scope accreditation. There was an on-site audit completed. There were no non-conformances identified. The Internal Audit and Management Review were completed. Minutes from the Management Review were provided to the Town.

Water Taking and Transfer Data

2016 Data was submitted electronically on February 10, 2017 under permit #8088-9AXJ6C. The confirmation and a copy of the data that was submitted are attached in Appendix A.

Appendix A

WTRS Data and Submission Confirmation

Location: [WTRS](#) / [WT DATA](#) / [Input WT Record](#)

WTRS-WT-008

Water Taking Data submitted successfully.**Confirmation:**

Thank you for submitting your water taking data online.

Permit Number: 8088-9AXJ6C

Permit Holder: THE CORPORATION OF THE TOWN OF RENFREW.

Received on: Feb 10, 2017 9:13 AM

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.

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TOWN2 RENFREW2 | 2017/02/10

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January	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	3774	3922	4073	3192	3978	4053	3673	3476	2968	3776	4239	4120	3541	3230	3466	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	3774	3906	3865	3796	2866	4167	3334	4018	3943	3482	4825	2785	4372	3124	3312	4033
February	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	4144	3963	3605	3992	2999	3575	3808	4304	4119	3153	3365	4320	4429	3512	2759	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	4115	3446	3623	4593	4181	3679	3341	4188	2962	3858	4236	3773	2841	2727		
March	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	4650	2537	4064	2071	3838	3586	3828	3266	2797	4189	3271	3963	3816	3406	2998	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	3078	3341	3686	3930	3005	2908	4102	3605	2289	3590	3623	2019	3590	2763	4512	2134
April	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	3994	2874	2744	3188	3330	3793	1946	3384	3600	3837	2150	4379	2111	3925	3196	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	2745	3832	2375	4267	2324	3048	3807	1956	3767	3071	3445	2597	2959	4021	1954	
May	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	3513	2820	3871	2009	4432	3799	3590	1959	4447	2848	2193	3797	3318	2887	2894	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	4786	6168	4743	5631	5842	4769	4862	6887	5614	6299	6015	5117	6763	5698	5754	7776
June	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	5590	5260	6731	5845	4490	7361	7422	6600	5558	4229	6034	5601	5140	4972	6776	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	5829	5711	5343	6804	6832	6842	4608	6305	5886	4969	6498	6132	5567	6951	6232	

July	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	5536	4532	4892	6998	7521	7275	5526	4571	5538	5366	5404	7161	4849	6479	4985	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	4771	5877	6431	5208	6176	5849	6061	5359	4915	6900	5497	7423	5995	6575	6127	4736
August	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	6994	7529	7142	7177	5104	6884	5602	6598	7955	5629	4997	3334	2859	3611	5233	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	5831	3821	2950	3574	3711	3651	4829	4590	4450	3432	2651	3697	4258	5404	4675	4526
September	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	3308	3996	3821	4029	2928	5120	3869	3888	3877	3995	3889	4720	4666	3734	2946	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	3487	3986	2009	4179	5401	2692	3414	4491	2213	3537	4303	4582	3945	4018	2149	
October	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	3683	3541	2975	5425	3896	2113	3562	3904	2259	3800	4232	5207	2329	3360	3997	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	2238	4131	4778	4259	2534	4074	2201	3820	3605	4472	3336	2165	3952	2181	3786	2873
November	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	4944	3618	2708	2859	3713	2408	3984	3782	3110	3496	2002	4039	1905	3745	4569	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	2581	3346	2511	3341	3003	2132	3817	2317	3677	2800	3006	3868	3082	2317	3756	
December	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	4048	1998	3836	2284	3567	4096	1939	3682	3023	3530	3486	2264	3982	2827	2853	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	3904	3212	2900	4081	3851	3144	3734	3483	3467	3857	3972	3147	4030	3283	3014	3291