

Town of Prescott Drinking Water System

Waterworks # 220001245
System Category – Large Municipal Residential

Annual Report

Reporting Period of January 1st – December 31st 2018

Issued: February 20, 2019

Revision: 0

Operating Authority:



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

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Report Availability

As the Town of Prescott's drinking water system is considered a large municipal residential system under O. Reg. 170/03, this report must be made available to the public. It can be found at the Town Hall located at 360 Dibble Street West, Prescott, Ontario and on their website (www.prescott.ca).

Compliance Report Card

Compliance Event	# of Events
Ministry of Environment Inspections	2
QEMS External Audit	1
AWQI's/BWA	1/0
Non-Compliance	0
Spills	0

System Process Description

Raw Source

Water is drawn from the St. Lawrence River into the plant via a 600 mm diameter steel intake pipe equipped with a sodium hypochlorite feed system for zebra mussel control. Raw water passes through a travelling screen unit located in the low lift building. The unit consists of wire mesh screens on a rotating belt. From there it is pumped to the plant for treatment.

Treatment

Once water enters the plant, an aluminum based coagulant is added and flash mixed. The water then travels to flocculation tanks where the coagulant is allowed time to attract fine particles from the water. From there, the water passes through one of three dual media rapid sand filters. Sodium hypochlorite and hydrofluosilicic acid are added as water enters the clearwell. To maximize contact time, the treated water is diverted to two baffled reservoirs, each with a capacity of 800 m³. Four vertical turbine pumps are available for supplying the distribution demand as needed.

Distribution

Watermains in the distribution system are composed of PVC, cast iron and ductile iron. An elevated storage tank is located on Wood Street and has a storage capacity of 2,272 m³. The storage facility provides for peak hour demands and fire flows.

Treatment Chemicals used during the reporting year

Chemical Name	Use	Supplier
Aluminum Sulphate	Coagulant	Chemtrade
Hydrofluosilicic Acid	Fluoride	Brenntag
Sodium Hypochlorite	Disinfection	UBA

Summary of Non-ComplianceAdverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
10/01/2018	143335	Distribution System	30 Total Coliform	St. Mark's High School	O. Reg. 170/03	Resamples collected. Issue resolved.

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
None to report.				

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
None to report.				

Flows

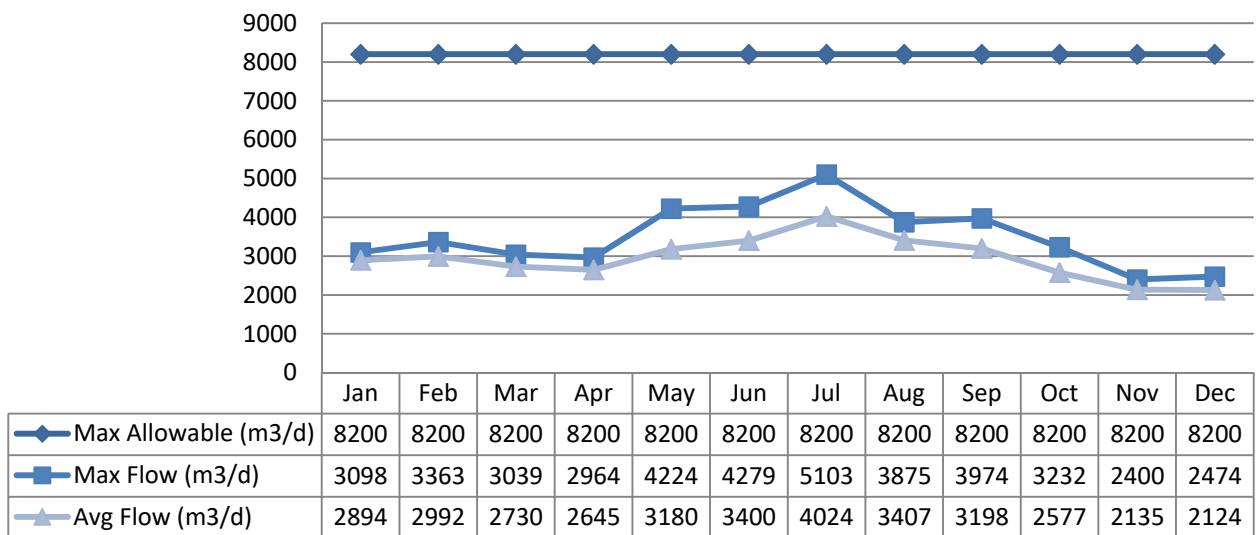
Prescott’s drinking water system is operating on average under half the rated capacity.

Raw Water Flows

Raw water flows are regulated under the Permit to Take Water (PTTW). Raw flow data for 2018 was submitted to the Ministry electronically under Permit #5506-9RMLKE. The submission confirmation can be found attached in Appendix A.

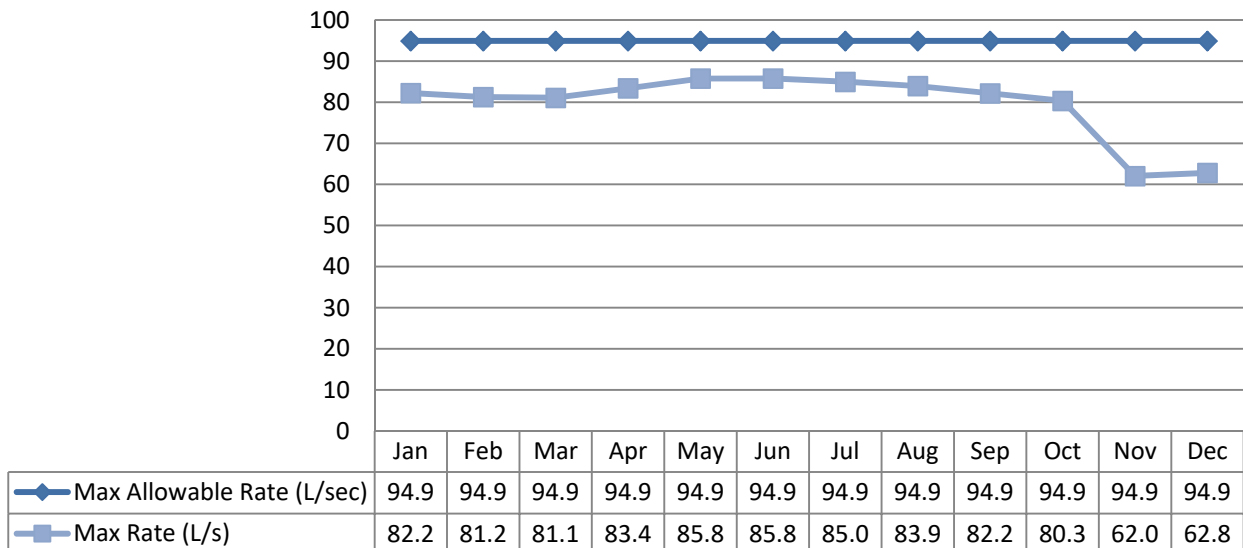
Raw Flows

Max. Allowable Flow - PTTW



Maximum Flow Rates

Max. Allowable Rate - PTTW

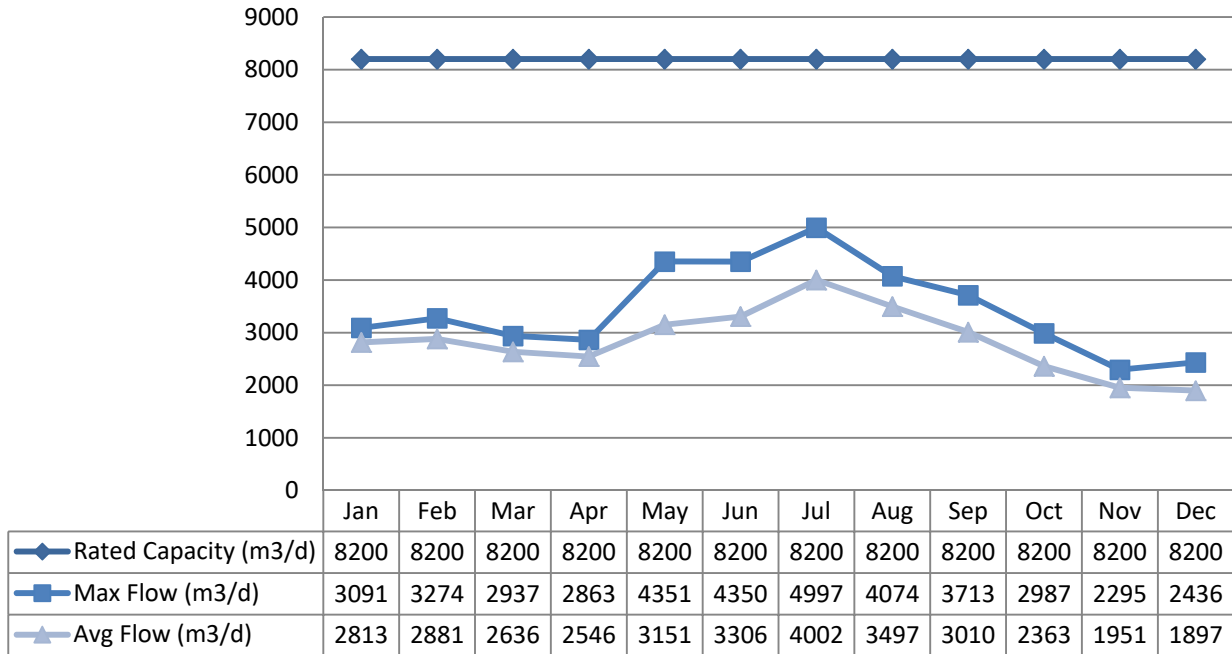


Treated Water Flows

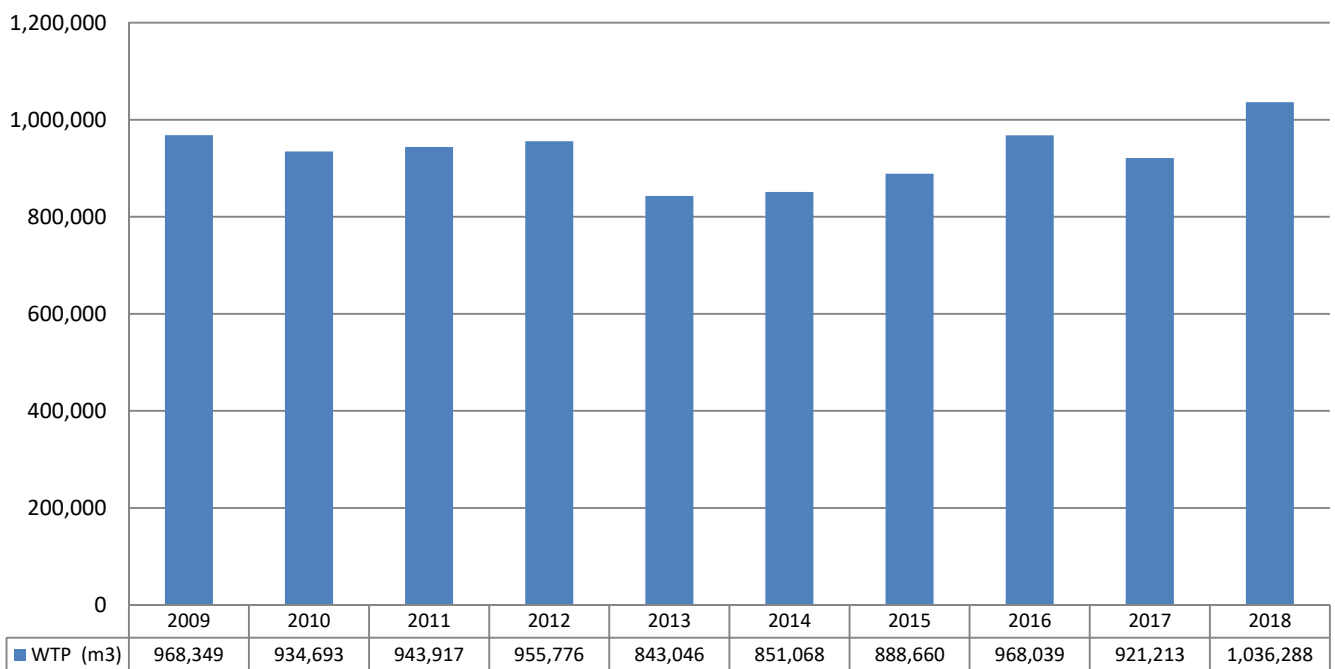
Treated water flows are regulated under the Municipal Drinking Water Licence (MDWL).

Treated Flows

Rated Capacity - MDWL



Annual Total Flow Comparison



Regulatory Sample Results Summary

Microbiological Testing

	No. of Samples Collected	Range of E.Coli Results		Range of Total Coliform Results		Range of HPC Results	
		Min	Max	Min	Max	Min	Max
Raw Water	52	0	1	0	52	n/a	n/a
Treated Water	52	0	0	0	0	10	50
Distribution Water	211	0	0	0	30	10	50

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity (NTU) - RW	8760	0	7.9
Turbidity (NTU) - TW	8760	0	3.0
Turbidity (NTU) - Filt1	8760	0	0.70
Turbidity (NTU) - Filt2	8760	0	0.64
Turbidity (NTU) - Filt3	8760	0	0.42
Free Chlorine Residual (mg/L) - TW	8760	1.09	2.02
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0.29	2.10
Free Chlorine Residual, In-House (mg/L) - DW	211	0.32	1.77
Fluoride - TW	8760	0.20	1.82

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

Inorganic Parameters

These parameters are tested as a requirement under O. Reg. 170/03. Sodium and Fluoride are required to be tested every 60 months. Nitrate and Nitrite are tested quarterly and metals are tested annually as required under O. Reg. 170/03. In the event any parameter exceeds half the maximum allowable concentration the parameter is required to be sampled quarterly.

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03
- MDL = 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	2018/01/15	0.1	6.0	No	No
Arsenic: As (ug/L) - TW	2018/01/15	0.4	10.0	No	No
Barium: Ba (ug/L) - TW	2018/01/15	21.0	1000.0	No	No
Boron: B (ug/L) - TW	2018/01/15	23.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2018/01/15	<MDL 0.01	5.0	No	No
Chromium: Cr (ug/L) - TW	2018/01/15	<MDL 2.0	50.0	No	No
Mercury: Hg (ug/L) - TW	2018/01/15	<MDL 0.02	1.0	No	No
Selenium: Se (ug/L) - TW	2018/01/15	<MDL 1.0	50.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Uranium: U (ug/L) - TW	2018/01/15	0.23	20.0	No	No
Additional Inorganics					
Nitrite (mg/L) - TW	2018/01/08	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2018/04/16	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2018/07/09	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2018/10/09	<MDL 0.1	1.0	No	No
Nitrate (mg/L) - TW	2018/01/08	0.3	10.0	No	No
Nitrate (mg/L) - TW	2018/04/16	0.4	10.0	No	No
Nitrate (mg/L) - TW	2018/07/09	0.2	10.0	No	No
Nitrate (mg/L) - TW	2018/10/09	0.2	10.0	No	No
Sodium: Na (mg/L) - TW	01/20/2014	15.4	20.0	n/a	n/a

*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 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 Sampling:

The Schedule 15 Sampling is required under O. Reg. 170/03. This system is under a reduced sampling schedule. No plumbing samples were collected.

Distribution System	Number of Sampling Points	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	6	6	87	89	n/a	n/a
pH	6	6	7.76	8.86	n/a	n/a
Lead (ug/l)	-	-	-	-	10	0

Organic Parameters

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

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

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Treated Water					
Alachlor (ug/L) - TW	2018/01/15	<MDL 0.3	5.00	No	No
Azinphos-methyl (ug/L) - TW	2018/01/15	<MDL 1.0	20.00	No	No
Benzene (ug/L) - TW	2018/01/15	<MDL 0.5	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2018/01/15	<MDL 0.005	0.01	No	No
Bromoxynil (ug/L) - TW	2018/01/15	<MDL 0.3	5.00	No	No
Carbaryl (ug/L) - TW	2018/01/15	<MDL 3.0	90.00	No	No
Carbofuran (ug/L) - TW	2018/01/15	<MDL 1.0	90.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Carbon Tetrachloride (ug/L) - TW	2018/01/15	<MDL 0.2	2.00	No	No
Chlorpyrifos (ug/L) - TW	2018/01/15	<MDL 0.5	90.00	No	No
Diazinon (ug/L) - TW	2018/01/15	<MDL 1.0	20.00	No	No
Dicamba (ug/L) - TW	2018/01/15	<MDL 5.0	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2018/01/15	<MDL 0.1	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2018/01/15	<MDL 0.2	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2018/01/15	<MDL 0.1	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2018/01/15	<MDL 0.1	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2018/01/15	<MDL 0.3	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2018/01/15	<MDL 0.1	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2018/01/15	<MDL 5.0	100.00	No	No
Diclofop-methyl (ug/L) - TW	2018/01/15	<MDL 0.5	9.00	No	No
Dimethoate (ug/L) - TW	2018/01/15	<MDL 1.0	20.00	No	No
Diquat (ug/L) - TW	2018/01/15	<MDL 5.0	70.00	No	No
Diuron (ug/L) - TW	2018/01/15	<MDL 5.0	150.00	No	No
Glyphosate (ug/L) - TW	2018/01/15	<MDL 25.0	280.00	No	No
Malathion (ug/L) - TW	2018/01/15	<MDL 5.0	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA) (ug/L) - TW	2018/01/15	<MDL 10.0	100.00	No	No
Metolachlor (ug/L) - TW	2018/01/15	<MDL 3.0	50.00	No	No
Metribuzin (ug/L) - TW	2018/01/15	<MDL 3.0	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2018/01/15	<MDL 0.2	80.00	No	No
Paraquat (ug/L) - TW	2018/01/15	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2018/01/15	<MDL 0.05	3.00	No	No
Pentachlorophenol (ug/L) - TW	2018/01/15	<MDL 0.1	60.00	No	No
Phorate (ug/L) - TW	2018/01/15	<MDL 0.3	2.00	No	No
Picloram (ug/L) - TW	2018/01/15	<MDL 5.0	190.00	No	No
Prometryne (ug/L) - TW	2018/01/15	<MDL 0.1	1.00	No	No
Simazine (ug/L) - TW	2018/01/15	<MDL 0.5	10.00	No	No
Terbufos (ug/L) - TW	2018/01/15	<MDL 0.3	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2018/01/15	<MDL 0.2	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2018/01/15	<MDL 0.1	100.00	No	No
Triallate (ug/L) - TW	2018/01/15	<MDL 10.0	230.00	No	No
Trichloroethylene (ug/L) - TW	2018/01/15	<MDL 0.1	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2018/01/15	<MDL 0.1	5.00	No	No
Trifluralin (ug/L) - TW	2018/01/15	<MDL 0.5	45.00	No	No
Vinyl Chloride (ug/L) - TW	2018/01/15	<MDL 0.2	1.00	No	No

Distribution samples are tested quarterly for THM's and HAA's in accordance with O. Reg. 170/03.

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Distribution Water					
Trihalomethane (THM): Total (ug/L) Annual Average - DW	2018/01/01	49.55	100.00	No	No
Haloacetic Acid (HAA): Total (ug/L) Annual Average - DW	2018/01/01	10.0	n/a	n/a	n/a

Additional Legislated Samples

Document	Parameter	Limit (mg/L)	Result (mg/L)
MDWL # 161-101	Filter Backwash Supernatant Suspended Solids	Annual Average < 25	6.2

Major Maintenance Summary

Description
<ul style="list-style-type: none"> - Repaired flow control valves on High Lift Pump #2 and #3 - Repaired travelling screen drive - Replaced piping to flow meters - Replaced fluoride pump discharge line - Installed new low lift pump - Rebuilt surface wash control arms on Filter #2 - Replaced anthracite in Filter #2 - Rebuilt pressure reducing valve - Replaced sodium hypochlorite peristaltic pump - Replaced 2 turbidity analyzers and 2 SC controllers - Replaced distribution system free chlorine analyzer - Replaced progressive cavity sludge pump - Replaced floc tank pH sensor - Cleaned backwash tank

Appendix A

WTRS 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: 5506-9RMLKE
Permit Holder: THE CORPORATION OF THE SEPARATED TOWN OF PRESCOTT.
Received on: Jan 22, 2019 2:52 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.

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version: v4.5.0.21 (build#: 22)
Last modified: 2018/09/18

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*Prescott
5506-9RMLKE
2018*