

TOWN OF SMITHS FALLS



SMITHS FALLS

RISE AT THE FALLS



SMITHS FALLS DRINKING WATER SYSTEM

2018 ANNUAL REPORT

Smiths Falls Drinking Water System
2018 Annual Report

Drinking-Water System Number:	220001307
Drinking-Water System Name:	Smiths Falls Drinking Water System
Drinking-Water System Owner:	Corporation of the Town of Smiths Falls
Drinking-Water System Category:	Large Municipal Drinking Water System
Period being reported:	January 1 st to December 31 st , 2018

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [<input type="checkbox"/>] No [<input checked="" type="checkbox"/>]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>]</p> <p>Location where Annual Report required under O. Reg. 170/03 Schedule 11 will be available to the public.</p> <p>www.smithsfalls.ca</p> <p>Smiths Falls Town Hall Complex 77 Beckwith St. N Smiths Falls, ON K7A 4T6</p>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: N/A</p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? N/A</p> <p>Number of Interested Authorities you report to: N/A</p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? N/A</p>
--	---

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

Drinking Water System Name	Drinking Water System Number
Atironto Subdivision – Montague Township	260006828

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 a newspaper

Smiths Falls Drinking Water System 2018 Annual Report

Describe your Drinking-Water System

The Smiths Falls Drinking Water System is comprised of the Water Treatment Plant (WTP) and Distribution system which together provides a supply of potable water to the residents and businesses of the Town of Smiths Falls.

The WTP is a Class IV high rate dissolved air floatation (AquaDAF ®) surface water plant having an approved design capacity of 14,000 m³/d with a future expansion to 18,000 m³/d. Raw water for the treatment process is drawn from the Rideau River (surface water). The intake structure is located upstream of the WTP approximately 170m. The intake consists of a concrete structure and a 762 millimeter diameter concrete pipe connecting the intake to the diversion chamber where the raw water is directed into the WTP.

Low lift pumps pump water to the AquaDAF ® which is a high rate dissolved air floatation clarifier. A coagulant & polymer are mixed together to aid in particle removal. Dissolved air will float these particles to form a blanket of sludge which is discharged to the collection system.

Clarified water flows to 3 dual granular activate carbon (GAC) & sand filters where further particle removal will take place.

Process involved include: UV disinfection; chlorination with chlorine gas; corrosion control; fluoridation; residue management and de-chlorination.

The Distribution system is a Class I subsystem, consisting of 62.23 kilometers (km) of mains, 1096 valves, 332 hydrants and 3010 house services. With a 49.2 meter (m) high water tower that contains 945.75 cubic meters (m³) of storage.

List all water treatment chemicals used over this reporting period

CHEMICAL NAME	USE	SUPPLIER
PAS-8	Coagulant	Kemira
Magnafloc LT22s	Polymer	Northland Chemical
Chlorine Gas	Disinfection	Brenntag
Sodium Hydroxide	Corrosion Control	CCC Chemicals
Fluorosilicic Acid	Fluoride	ControlChem
Calcium Thiosulfate	De-chlorination	Clartech

Were any significant expenses incurred to?

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

Smiths Falls Drinking Water System 2018 Annual Report

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

- Transformer & transfer switch inspection at WTP - \$9,466.01
- Infrared thermal scan of control panels and transformer at WTP
- Coagulant tank cleaning - \$12,821.95
- Auxiliary coagulant line installed - \$7,717.90
- Polymer metering pump - \$5,181.05
- Air scour & pressurization pump - \$5,535.97
- Online turbidity analyzer (TU5300 & sc200 controller) - \$7,044.79
- Lorne St. watermain replacement of 455m of 200mm ductile iron from Queen St. to railway crossing - \$407,467
- Water Tower EA – engineering underway by J.L Richards (includes calibration and updates to hydraulic model of Distribution network - \$46,597.41
- Catherine St. – engineering underway by Ainley Group (future reconstruction of 2 residential blocks future watermain replacements \$26,930.45
- Detailed design for new water mains on Beckwith Street (Chambers to Russell) – \$56,675

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
January 1, 2018 AWQI #138459	Filter turbidity	1.00	mg/L	Process upset with AquaDAF causing floc carryover onto filters. All three filter effluent turbidities have been 1 NTU throughout the day. Verified coagulant via draw down. Verify polymer flow. Filter #1, Filter #2 and Filter #3 have all been backwashed. UV reactor and chlorine running.	January 1, 2018 Resolution notification January 3, 2018
January 10, 2018 AWQI #138520	Coagulation Credits for chemically assisted filtration	N/A	N/A	SCADA indicated duty coagulant pump was running when it was not, the standby pump did not start as SCADA thought the duty coagulant pump was running. Water production had been running for 15 minutes when this was noticed by the on-call operator. Alarms were also inhibited on the coagulant flow meter which did not dial out. Coagulant flow re-established by switching to standby pump and drawdown completed to verify coagulant flow. Alarms were also activated on flow meter	January 10, 2018 Resolution notification January 12, 2018
March 12, 2018 AWQI #138887	Other observations Fire protection reduced South side of river	N/A	N/A	Reporting other observation, no adverse event. Water main break (category 1) in 16" river water crossing. Water main break is located on the South side of the Rideau Canal where contractors working for Parks Canada are working in the immediate area of the water main.	Resolution provided May 15, 2018
March 12, 2018 Incident #7862-AWTQ9Z	Chlorinated water discharged to storm sewer	N/A	N/A	Result of above 16" water main break, when tower was re-filling in the evening it overflowed.	March 12, 2018 Report provided March 26, 2018

Smiths Falls Drinking Water System 2018 Annual Report

October 9, 2018 Incident #3465-B5E2D6	Chlorinated water discharged to storm sewer	N/A	N/A	Tower was accidently placed out of service from SCADA at end of day when putting high light pump (HLP) back into fixed mode from VFD and did not notice. Fire dispatch called on-call operator at 18:41 to report tower was overflowing. On-call operator and Superintendent attend WTP to resolve issue, placed tower back in service from SCADA. Compliance Coordinator reviewing alarm history found the tower was taken out of service by mistake.	October 9, 2018 Report provided October 16 2018
---------------------------------------	---	-----	-----	--	--

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

	Number of Samples	Range of E.Coli Results (min #)-(max #) (CFU/100mL)	Range of Total Coliform Results (min #)-(max #) (CFU/100mL)	Number of HPC Samples	Range of HPC Results (min #)-(max #) (CFU/100mL)
Raw	52	0 – 32	10 - 2000	N/A	N/A
Treated	52	0 – 0	0 - 0	52	10 - 30
<u>Distribution</u> - Routine	341	0 - 0	0 - 0	341	10 - 80
<u>Distribution</u> Water main Repairs/new installations/service repairs	4	0-0	0-0	4	<10 - <10

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

Parameter Tested - (Online Analyzers)	Number of Grab Samples	Range of Results		
		Minimum	Average	Maximum
Turbidity - Raw Water (NTU) AIT 102	Continuous Monitoring ¹	0.00	1.07	48.43
Turbidity - Raw Water (NTU)	365 (bench test)	0.318	1.029	9.92
Turbidity - Filter #1 (NTU) AIT 111	Continuous Monitoring ²	0.00	0.04	5.00
Turbidity - Filter #1 (NTU)	54 (bench test)	0.061	0.110	0.20
Turbidity – Filter #2 (NTU) AIT 121	Continuous Monitoring ²	0.00	0.04	5.00
Turbidity – Filter #2 (NTU)	54 (bench test)	0.035	0.121	0.27
Turbidity – Filter #3 (NTU) AIT 131	Continuous Monitoring ²	0.00	0.05	5.00
Turbidity – Filter #3 (NTU)	54 (bench test)	0.062	0.107	0.24
Turbidity – Finished Water (NTU) AIT 184	Continuous Monitoring ³	0.00	0.08	5.00
Turbidity – Finished Water (NTU)	252 (bench test)	0.012	0.123	1.66
Chlorine Total – Zebra Mussel (operation May to October mg/L) AIT 103	Continuous Monitoring ⁷ Total Chlorine	0.00	0.02	5.00
Chlorine Total – Zebra Mussel (operation May to October mg/L)	110 (bench test) ⁸	0.02	0.113	0.23
Chlorine Free – Pre Reservoir (mg/L) AIT 165	Continuous Monitoring ⁵ Free Chlorine	0.00	1.64	4.73

Smiths Falls Drinking Water System 2018 Annual Report

Chlorine Free – Pre Reservoir (mg/L)	55 (bench test)	0.89	1.56	2.23
Chlorine Free – Post Reservoir (mg/L) AIT 180	Continuous Monitoring ⁵ Free Chlorine	0.00	1.26	5.00
Chlorine Free – Post Reservoir (mg/L)	55 (bench test)	0.80	1.31	1.88
Chlorine Free – Finished Water (mg/L) AIT 185	Continuous Monitoring ⁵ Free Chlorine	0.00	1.34	5.00
Chlorine Free – Finished Water (mg/L)	249 (bench test)	0.79	1.34	2.04
Chlorine Total – Finished Water (mg/L) AIT 186	Continuous Monitoring ⁶ Total Chlorine	0.00	1.51	5.00
Chlorine Total – Finished Water (mg/L)	249 (bench test)	0.97	1.56	2.26
Chlorine – Distribution System (180 Queen St WPCP mg/L)	107 (bench test)	0.23	0.78	1.40
Fluoride – Finished Water (mg/L) AIT 187	Continuous Monitoring ⁴	0.00	0.55	2.00
Fluoride – Finished Water (mg/L)	285 (bench test)	0.12	0.54	0.89
UV Transmittance (%) AIT 160	Continuous Monitoring ⁹	70.00	96.03	100.00
UV Transmittance (%)	245 (bench test)	89.8	94.8	101.6

Notes for above table operational testing completed under Schedule 7, 8 or 9:

1. High raw water turbidity spikes occur when the low lift pumps (LLP) starts and stop, maintenance, calibration and flushing of lines.
2. High filter turbidities results of filter backwash, process upset or calibration.
3. High finished water turbidities results of high lift pumps (HLP) starting or calibration.
4. High fluoride readings occur on HLP starts, maintenance or calibration while chemical system was off.
5. Low free chlorine residual (pre-reservoir, post reservoir and finished water) result of generator backup power testing, maintenance or calibration.
6. Low total chlorine residual (finished water) result of generator backup power testing, maintenance or calibration.
7. High total chlorine residuals (for zebra mussel control) can be due the sampling alternates between intake and LLP header.
8. Bench tests for total chlorine (zebra mussel) are sampled from the raw water stainless steel sample tap located in pump gallery or raw water sample tap in lab
9. Low UV transmittance result of generator backup power testing, maintenance, calibration or OptiView failure.

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 (ug/L)	Quarterly Average (ug/L)	Rolling Annual Average Quarter (ug/L)
Municipal Drinking Water License #164-101 issue #5 December 12, 2017	TTHM	January 2, 2018	4.2	14.4	53.3
		February 5, 2018	13.0		
		March 5, 2018	26.0		
		April 3, 2018	32.0	48.7	52.4
		May 7, 2018	42.0		
		June 4, 2018	72.0		
		July 3, 2018	85.0	79.3	48.9
		August 7, 2018	87.0		
		September 4, 2018	66.0		
		October 1, 2018	44.0	37.7	45.0
		November 5, 2018	39.0		
		December 3, 2018	30.0		

Notes: Maximum Allowable Concentration (MAC) for THM is based on a four quarter rolling annual average of 0.100 mg/L or 100.0 ug/L

Smiths Falls Drinking Water System
2018 Annual Report

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 –Monthly Average (mg/L)	Result –Monthly Grab Average Total Chlorine (mg/L)
Municipal Drinking Water License #164-101 issue #5 (section 4.2 table 7)	TSS (grab sample)	January 12, 2018	5.67	0.01
		February 15, 2018	2.86	0.01
		March 21, 2018	2.68	0.016
		April 11, 2018	9.50	0.01
		May 9, 2018	6.76	0.01
		June 6, 2018	7.27	0.01
		July 11, 2018	6.47	0.01
		August 16, 2018	5.30	0.016
		September 17, 2018	1.60	0.01
		October 12, 2018	2.96	0.017
		November 16, 2018	2.87	0.02
		December 14, 2018	3.80	0.02
		Yearly average		

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	April 3, 2018	<0.02	µg/L	No
Arsenic	April 3, 2018	<0.2	µg/L	No
Barium	April 3, 2018	39.9	µg/L	No
Boron	April 3, 2018	10	µg/L	No
Cadmium	April 3, 2018	<0.003	µg/L	No
Chromium	April 3, 2018	0.11	µg/L	No
Mercury	April 3, 2018	<0.01	µg/L	No
Selenium	April 3, 2018	<0.04	µg/L	No
Uranium	April 3, 2018	0.004	µg/L	No
1 st Quarter Nitrite	January 2, 2018	<0.1	mg/L	No
2 nd Quarter Nitrite	April 3, 2018	<0.1	mg/L	No
3 rd Quarter Nitrite	July 3, 2018	<0.1	mg/L	No
4 th Quarter Nitrite	October 1, 2018	<0.1	mg/L	No
1 st Quarter Nitrate	January 2, 2018	<0.1	mg/L	No
2 nd Quarter Nitrate	April 3, 2018	<0.1	mg/L	No
3 rd Quarter Nitrate	July 3, 2018	<0.1	mg/L	No
4 th Quarter Nitrate	October 1, 2018	<0.1	mg/L	No
Sodium	April 3, 2018	19.6	mg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
1 st Quarter HAA5	March 5, 2018	19.0	µg/L	No
2 nd Quarter HAA5	May 7, 2018	26.9	µg/L	No
3 rd Quarter HAA5	August 7, 2018	26.3	µg/L	No
4 th Quarter HAA5	November 6, 2018	30.7	µg/L	No

Smiths Falls Drinking Water System
2018 Annual Report

Summary of lead testing under Schedule 15.1 during this reporting period & MDWL #164-101 Issue #5 Schedule C, Section 5.0

Location Type	Number of Total Samples	Range of Lead Results 1 st One Litre Sample min# – max # (mg/L)	Number of Exceedances 1 st Sample	Range of Lead Results 2 nd One Litre Sample min# – max # (mg/L)	Number of Exceedances 2 nd Sample
Plumbing – residential	17	0.000140 – 0.011200	3	0.000180 – 0.012100	4
Plumbing – non residential	5	0.000090 – 0.003430	0	0.000170 – 0.003600	0
Distribution	4	0.00020 – 0.00036	0	N/A	N/A
Finished Water	4	0.000020 – 0.000020	0	N/A	N/A

Location Type	Total samples	pH (min # - max #)	Total samples	Temperature °C (min # - max #)
Plumbing – residential	17	6.89 – 8.35	17	6.6 – 21.9
Plumbing – non residential	5	7.34 – 7.56	5	8.0 – 17.4
Distribution	4	7.64 – 8.21	4	5.9 – 24.6
Finished Water	4	7.25 – 8.38	4	4.1 – 24.0

Location Type	Total samples	Alkalinity mg/L (min # - max #)
Plumbing – residential	17	73 - 95
Plumbing – non residential	5	75 - 88
Distribution	4	66 - 85
Finished Water	4	76 - 89

Notes:

1. Maximum Allowable Concentration (MAC) for lead is 0.010 mg/L or 10.0 ug/L

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	April 3, 2018	<0.02	µg/L	No
Atrazine	April 3, 2018	<0.01		
Atrazine + N-dealkylated metabolites	April 3, 2018	<0.01	µg/L	No
Azinphos-methyl	April 3, 2018	<0.05	µg/L	No
Benzene	April 3, 2018	<0.32	µg/L	No
Benzo(a)pyrene	April 3, 2018	<0.004	µg/L	No
Bromoxynil	April 3, 2018	<0.03	µg/L	No
Carbaryl	April 3, 2018	<0.05	µg/L	No
Carbofuran	April 3, 2018	<0.01	µg/L	No
Carbon Tetrachloride	April 3, 2018	<0.16	µg/L	No
Chlorpyrifos	April 3, 2018	<0.02	µg/L	No
Desethyl atrazine	April 3, 2018	<0.01	µg/L	No
Diazinon	April 3, 2018	<0.02	µg/L	No
Dicamba	April 3, 2018	<0.20	µg/L	No
1,2-Dichlorobenzene	April 3, 2018	<0.41	µg/L	No
1,4-Dichlorobenzene	April 3, 2018	<0.36	µg/L	No

Smiths Falls Drinking Water System 2018 Annual Report

1,2-Dichloroethane	April 3, 2018	<0.35	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	April 3, 2018	<0.33	µg/L	No
Dichloromethane	April 3, 2018	<0.35	µg/L	No
2,4-Dichlorophenol	April 3, 2018	<0.15	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	April 3, 2018	<0.19	µg/L	No
Diclofop-methyl	April 3, 2018	<0.40	µg/L	No
Dimethoate	April 3, 2018	<0.03	µg/L	No
Diquat	April 3, 2018	<1	µg/L	No
Diuron	April 3, 2018	<0.03	µg/L	No
Glyphosate	April 3, 2018	<1	µg/L	No
Malathion	April 3, 2018	<0.02	µg/L	No
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	April 3, 2018	<0.00012	µg/L	No
Metolachlor	April 3, 2018	<0.01	µg/L	No
Metribuzin	April 3, 2018	<0.02	µg/L	No
Monochlorobenzene	April 3, 2018	<0.3	µg/L	No
Paraquat	April 3, 2018	<1	µg/L	No
Pentachlorophenol	April 3, 2018	<0.15	µg/L	No
Phorate	April 3, 2018	<0.01	µg/L	No
Picloram	April 3, 2018	<1	µg/L	No
Polychlorinated Biphenyls (PCB)	April 3, 2018	<0.04	µg/L	No
Prometryne	April 3, 2018	<0.03	µg/L	No
Simazine	April 3, 2018	<0.01	µg/L	No
Terbufos	April 3, 2018	<0.01	µg/L	No
Tetrachloroethylene (perchloroethylene)	April 3, 2018	<0.35	µg/L	No
2,3,4,6-Tetrachlorophenol	April 3, 2018	<0.20	µg/L	No
Triallate	April 3, 2018	<0.01	µg/L	No
Trichloroethylene	April 3, 2018	<0.44	µg/L	No
2,4,6-Trichlorophenol	April 3, 2018	<0.25	µg/L	No
Trifluralin	April 3, 2018	<0.02	µg/L	No
Vinyl Chloride	April 3, 2018	<0.17	µg/L	No

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

Parameter	Result Value	Unit of Measure	Date of Sample

Glossary

AWQI = adverse water quality indicator
 CFU = colony forming units
 DWS = drinking water system
 DS = distribution system
 EA = Environmental Assessment
 HAA5 = total haloacetic acid
 mg/L = milligrams per liter
 MDWL = Municipal Drinking Water License
 TTHM = trihalomethane
 ug/L = micrograms per liter
 WTP = water treatment plant

Smiths Falls Drinking Water System
2018 Annual Report

Contact for more information:

Should you require clarification or more information please contact

Sarah E. Cooke
Water & Wastewater Compliance Coordinator
Phone: 613-283-4124 ext 5502
Email: scooke@smithsfalls.ca

Jason Barlow
Manager Water/Wastewater Treatment
Phone: 613-283-4124 ext 5501
Email: jbarlow@smithsfalls.ca