

# TOWN OF SMITHS FALLS



**SMITHS FALLS**

RISE AT THE FALLS



## **SMITHS FALLS DRINKING WATER SYSTEM**

**2019 ANNUAL REPORT**

**Rev.1**

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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 <sup>st</sup> to December 31 <sup>st</sup> , 2019

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [ ] 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 [ ]</p> <p>Location where Annual Report required under O. Reg. 170/03 Schedule 11 will be available to the public.</p> <p><a href="http://www.smithsfalls.ca">www.smithsfalls.ca</a></p> <p>Smiths Falls Town Hall Complex 77 Beckwith St. N Smiths Falls, ON K7A 4T6</p>	<p><b><u>Complete for all other Categories.</u></b></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>
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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

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**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 m<sup>3</sup>/d with a future expansion to 18,000 m<sup>3</sup>/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 (m<sup>3</sup>) of storage.

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

CHEMICAL NAME	USE	SUPPLIER
PAS-8 (January to September)	Coagulant	Kemira
PAX-XL6 (September to December)	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

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

- ◆ Install new DV screw compressor for AquaDAF system \$8,154.77
- ◆ Upgrades to chlorine system \$16,348.69
- ◆ Transformer & transfer switch inspection - \$9,466.01
- ◆ Infrared thermal scan of control panels and transformer at WTP \$2,067.34
- ◆ Diver inspection of intake structure and diversion chamber \$4,350.50
- ◆ Annual flow meter verifications \$1,905.51
- ◆ Carried out various fuel system upgrades at Water Plant in response to TSSA inspections
- ◆ Completed Service Sustainability Review for Water Treatment Operations resulting in various recommendation for cost savings & efficiencies
- ◆ Dry inspection of water tower \$5,085.00
- ◆ Install new automatic flusher on dead end of Elgin Street (water conservation)
- ◆ Commenced reconstruction of Beckwith Street – initiated construction on start of 320mm or 250mm water main in the downtown core between Chambers Street and Russell Street Budget of \$1.35M
- ◆ Initiated new work order management system – public calls/service requests (front line services at Public Works Office)

**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
April 15, 2019 AWQI #145203	Coagulation  Credits for chemically assisted filtration	N/A	N/A	Water production was shut down when on-call operator notified by Compliance Coordinator of issues with auto dialer and alarms on SCADA (UVR and no flow at coagulant flow meter). Power surge resulting in coagulant pump over voltage. Coagulant was not feeding for approximately 1.5 hours during this time polymer; UV disinfection and chlorine disinfection were running. Equipment was re-set. Production was started up, coagulant pump DP-301 started and coagulant flow verified. Coagulant and pre-reservoir chlorine increased when production started back up. UPS unit in SCADA closet changed out which corrected issue with auto dialer. Filter turbidities (NTU) did go above the high alarm set point of 0.30NTU but did not exceed 1 NTU. By 02:00 filter NTU were out of high alarm, filter 1 (AIT 111) = 0.06, filter 2 (AIT 121) = 0.07 and filter 3 (AIT 131) =0.09. Sludge blankets for DAF #1 and #2 look better, floc present in both floc tank #1 and #2. Filters are better looking as well greenish colour no longer amber in colour Operator and Compliance Coordinator left at 02:20, coagulant feeding and	April 15, 16, 2019  Resolution notification April 16, 2019

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				filter NTU all ok. On-call operator back washed filter 2 from home at 02:57.	
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**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)
<b>Raw</b>	52	0 - 17	10 - 1460	N/A	N/A
<b>Treated</b>	52	0 - 0	0 - 0	52	<10 - 20
<b>Distribution - Routine</b>	323	0 - 0	0 - 0	323	10 - 110
<b>Distribution Water main Repairs/new installations/service repairs</b>	16	0 - 0	0 - 0	16	<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 <sup>1</sup>	0.00	1.05	49.98
Turbidity - Raw Water (NTU)	365 (bench test)	0.100	0.893	16.9
Turbidity - Filter #1 (NTU) AIT 111	Continuous Monitoring <sup>2</sup>	0.00	0.04	5.00
Turbidity - Filter #1 (NTU)	50 (bench test)	0.053	0.105	0.228
Turbidity - Filter #2 (NTU) AIT 121	Continuous Monitoring <sup>2</sup>	0.00	0.043	1.02
Turbidity - Filter #2 (NTU)	51 (bench test)	0.045	0.104	0.205
Turbidity - Filter #3 (NTU) AIT 131	Continuous Monitoring <sup>2</sup>	0.00	0.044	0.97
Turbidity - Filter #3 (NTU)	51 (bench test)	0.041	0.107	0.237
Turbidity - Finished Water (NTU) AIT 184	Continuous Monitoring <sup>3</sup>	0.00	0.072	5.00
Turbidity - Finished Water (NTU)	249 (bench test)	0.049	0.103	0.211
Chlorine Total - Zebra Mussel (operation May to October mg/L) AIT 103	Continuous Monitoring <sup>7</sup> Total Chlorine	0.00	0.035	5.00
Chlorine Total - Zebra Mussel (operation May to October mg/L)	133 (bench test) <sup>8</sup>	0.018	0.091	0.260
Chlorine Free - Pre Reservoir (mg/L) AIT 165	Continuous Monitoring <sup>5</sup> Free Chlorine	0.00	1.93	4.90
Chlorine Free - Pre Reservoir (mg/L)	51 (bench test)	1.21	1.65	2.29
Chlorine Free - Post Reservoir (mg/L) AIT 180	Continuous Monitoring <sup>5</sup> Free Chlorine	0.00	1.26	5.00
Chlorine Free - Post Reservoir (mg/L)	51 (bench test)	0.93	1.31	1.71
Chlorine Free - Finished Water (mg/L) AIT 185	Continuous Monitoring <sup>5</sup> Free Chlorine	0.00	1.51	5.00
Chlorine Free - Finished Water (mg/L)	249 (bench test)	0.93	1.43	1.98
Chlorine Total - Finished Water (mg/L) AIT 186	Continuous Monitoring <sup>6</sup> Total Chlorine	0.00	1.75	5.00
Chlorine Total - Finished Water (mg/L)	249 (bench test)	1.19	1.72	2.28

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Fluoride – Finished Water (mg/L) AIT 187	Continuous Monitoring <sup>4</sup>	0.07	0.61	2.00
Fluoride – Finished Water (mg/L)	253 (bench test)	0.10	0.512	0.89
UV Transmittance (%) AIT 160	Continuous Monitoring <sup>9</sup>	70	92.54	100
UV Transmittance (%)	248 (bench test)	82.6	89.83	93.4

**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 (DD-MM-YYYY)	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	2-Jan-2019	38.0	32.7	49.6
		4-Feb-2019	31.0		
		4-Mar-2019	29.0		
		1-Apr-2019	40.0	57.0	51.7
		6-May-2019	55.0		
		3-Jun-2019	76.0		
		2-Jul-2019	83.0	86.7	53.5
		6-Aug-2019	95.0		
		6-Sep-2019	82.0		
		7-Oct-2019	62.0	53.7	57.5
		4-Nov-2019	49.0		
		2-Dec-2019	50.0		

**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

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**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)	9-Jan-2019	9.46	0.01
		14-Feb-2019	5.53	0.003
		14-Mar-2019	8.33	0.01
		9-Apr-2019	15.94	0.03
		14-May-2019	4.33	0.01
		11-Jun-2019	5.46	0.04
		11-Jul-2019	8.13	0.01
		13-Aug-2019	4.62	0.06
		10-Sept-2019	4.56	0.03
		8-Oct-2019	7.09	0.023
		15-Nov-2019	6.16	0.04
		11-Dec-2019	7.30	0.01
		<b>Yearly average</b>	<b>7.24</b>	<b>0.023</b>

**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 1, 2019	<0.09	µg/L	No
Arsenic	April 1, 2019	<0.02	µg/L	No
Barium	April 1, 2019	42.8	µg/L	No
Boron	April 1, 2019	9	µg/L	No
Cadmium	April 1, 2019	0.010	µg/L	No
Chromium	April 1, 2019	0.12	µg/L	No
Mercury	April 1, 2019	<0.01	µg/L	No
Selenium	April 1, 2019	<0.04	µg/L	No
Uranium	April 1, 2019	0.010	µg/L	No
1 <sup>st</sup> Quarter Nitrite	January 2, 2019	<0.1	mg/L	No
2 <sup>nd</sup> Quarter Nitrite	April 1, 2019	<0.1	mg/L	No
3 <sup>rd</sup> Quarter Nitrite	September 27, 2019	<0.1	mg/L	No
4 <sup>th</sup> Quarter Nitrite	November 29, 2019	<0.1	mg/L	No
1 <sup>st</sup> Quarter Nitrate	January 2, 2019	0.1	mg/L	No
2 <sup>nd</sup> Quarter Nitrate	April 1, 2019	<0.1	mg/L	No
3 <sup>rd</sup> Quarter Nitrate	September 27, 2019	<0.1	mg/L	No
4 <sup>th</sup> Quarter Nitrate	November 29, 2019	<0.1	mg/L	No
Sodium	April 1, 2019	17.8	mg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
1 <sup>st</sup> Quarter HAA5	February 4, 2019 (Bell Ave)	31.0	µg/L	No
2 <sup>nd</sup> Quarter HAA5	May 6, 2019 (Bell Ave)	30.2	µg/L	No
3 <sup>rd</sup> Quarter HAA5	August 6, 2019 (WPCP)	40.2	µg/L	No
4 <sup>th</sup> Quarter HAA5	November 4, 2019 (WPCP)	36.0	µg/L	No

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**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 <sup>st</sup> One Litre Sample min# – max # (mg/L)	Number of Exceedances 1 <sup>st</sup> Sample	Range of Lead Results 2 <sup>nd</sup> One Litre Sample min# – max # (mg/L)	Number of Exceedances 2 <sup>nd</sup> Sample
Plumbing – residential	24	0.00014 – 0.01760	5	0.000110 – 0.03360	7
Plumbing – non residential	0	N/A	No	N/A	No
Distribution	4	0.00003 – 0.000120	No	N/A	N/A
Finished Water	4	0.00002 - 0.00002	No	N/A	N/A

Location Type	Total samples	pH (min # - max #)	Total samples	Temperature °C (min # - max #)
Plumbing – residential	24	7.20 – 7.88	24	8.6 – 23.4
Plumbing – non residential	0	N/A	0	N/A
Distribution	4	7.37 - 7.87	4	3.4 – 21.5
Finished Water	4	7.50 – 8.25	4	5.1 – 23.8

Location Type	Total samples	Alkalinity mg/L (min # - max #)
Plumbing – residential	24	62 - 83
Plumbing – non residential	0	N/A
Distribution	4	56 - 84
Finished Water	4	72 - 75

**Notes:**

1. Maximum Allowable Concentration (MAC) for lead is 0.010 mg/L or 10.0 ug/L.
2. Only Distribution lead samples above 0.010 mg/L or 10.0 ug/L are reportable.
3. Plumbing samples from residential or non-residential, the occupant receives a letter to indicate if a sample is above the MAC, the results and an information sheet on lead.



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**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 1, 2019	<0.02	µg/L	No
Atrazine	April 1, 2019	<0.01		
Atrazine + N-dealkylated metabolites	April 1, 2019	<0.01	µg/L	No
Azinphos-methyl	April 1, 2019	<0.05	µg/L	No
Benzene	April 1, 2019	<0.32	µg/L	No
Benzo(a)pyrene	April 1, 2019	<0.004	µg/L	No
Bromoxynil	April 1, 2019	<0.33	µg/L	No
Carbaryl	April 1, 2019	<0.05	µg/L	No
Carbofuran	April 1, 2019	<0.01	µg/L	No
Carbon Tetrachloride	April 1, 2019	<0.17	µg/L	No
Chlorpyrifos	April 1, 2019	<0.02	µg/L	No
Desethyl atrazine	April 1, 2019	<0.01	µg/L	No
Diazinon	April 1, 2019	<0.02	µg/L	No
Dicamba	April 1, 2019	<0.20	µg/L	No
1,2-Dichlorobenzene	April 1, 2019	<0.41	µg/L	No
1,4-Dichlorobenzene	April 1, 2019	<0.36	µg/L	No
1,2-Dichloroethane	April 1, 2019	<0.35	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	April 1, 2019	<0.33	µg/L	No
Dichloromethane	April 1, 2019	<0.35	µg/L	No
2,4-Dichlorophenol	April 1, 2019	<0.15	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	April 1, 2019	<0.19	µg/L	No
Diclofop-methyl	April 1, 2019	<0.40	µg/L	No
Dimethoate	April 1, 2019	<0.06	µg/L	No
Diquat	April 1, 2019	<1	µg/L	No
Diuron	April 1, 2019	<0.03	µg/L	No
Glyphosate	April 1, 2019	<1	µg/L	No
Malathion	April 1, 2019	<0.02	µg/L	No
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	April 1, 2019	<0.00012	µg/L	No
Metolachlor	April 1, 2019	<0.01	µg/L	No
Metribuzin	April 1, 2019	<0.02	µg/L	No
Monochlorobenzene	April 1, 2019	<0.30	µg/L	No
Paraquat	April 1, 2019	<1	µg/L	No
Pentachlorophenol	April 1, 2019	<0.15	µg/L	No
Phorate	April 1, 2019	<0.01	µg/L	No
Picloram	April 1, 2019	<1	µg/L	No
Polychlorinated Biphenyls (PCB)	April 1, 2019	<0.04	µg/L	No
Prometryne	April 1, 2019	<0.03	µg/L	No
Simazine	April 1, 2019	<0.01	µg/L	No
Terbufos	April 1, 2019	<0.01	µg/L	No
Tetrachloroethylene (perchloroethylene)	April 1, 2019	<0.35	µg/L	No
2,3,4,6-Tetrachlorophenol	April 1, 2019	<0.20	µg/L	No
Triallate	April 1, 2019	<0.01	µg/L	No
Trichloroethylene	April 1, 2019	<0.44	µg/L	No
2,4,6-Trichlorophenol	April 1, 2019	<0.25	µg/L	No
Trifluralin	April 1, 2019	<0.02	µg/L	No
Vinyl Chloride	April 1, 2019	<0.17	µg/L	No

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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

**Contact for more information:**

Should you require clarification or more information please contact

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Revision 1 (February 24, 2020): correct on page 8 Distribution lead sample results