

# TOWN OF SMITHS FALLS

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*Heart of the  
Rideau Canal*

## SMITHS FALLS DRINKING WATER SYSTEM

2016 ANNUAL REPORT

Revision 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> , 2016

<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 [ <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><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. Here 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	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**

- Transformer & transfer switch inspection - \$8,800
- Infrared thermal scan of control panels and transformer- \$2,400
- Water tower ROV inspection - \$4,700
- Replacement of approximately 220m of watermain on Foster Avenue with 150mm DI pipe from (Ogden to Victoria) \$289,828

**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
March 22, 2016 AWQI #128647	Chlorination system issue	N/A	N/A	Operators on site to troubleshoot, chlorine cylinders changed possibly bad chlorinator. CT calculations not in alarm, filter backwashed to pull water out of reservoir	March 22, 2016
June 7, 2016 AWQI #129704	Total coliform	2	count/100mL	FAC=1.09mg/L Hydrants flushed in this area, two sets of re-sample from 3 locations collected June 7 & June 8, results zero for total coliform & E.coli	June 7, 2016 Resolved June 10, 2016
August 24, 2016 AWQI #130910	Total coliform	>200	count/100mL	FAC=0.13mg/L Hydrants flushed in this area, re-samples collected from three locations on Aug 24, results zero for total coliform & E.coli	August 24, 2016, resolved August 26, 2016
August 30, 2016 AWQI #13100	Total coliform	1	count/100mL	FAC=0.96mg/L Re-samples collected from three locations Aug 30, results zero for total coliform & E.coli	August 30, 2016, resolved September 1, 2016

**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	6 – 500	80 - 6300	N/A	N/A
<b>Treated</b>	52	0 – 0	0 - 0	52	<10 - 30
<b><u>Distribution</u> - Routine</b>	324	0 – 0	0 - >200	324	<10 - 400
<b><u>Distribution</u> WM Repairs/new installations/service repairs</b>	20 (non-regulatory) 8 (regulatory)	0 – 0 0 – 0	0 – 118 0 – 0	20 8	<10 – 50 <10 - <10
<b><u>Distribution</u> Customer request</b>	2	0 – 0	0 - 0	2	<10 - <10

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**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	Maximum	Average
Turbidity - Raw Water (NTU) AIT 102	Continuous Monitoring	0.00	50.0	1.03
Turbidity - Raw Water (NTU)	366 (bench test)	0.38	3.90	1.06
Turbidity - Filter #1 (NTU) AIT 111	Continuous Monitoring	0.00	2.73	0.042
Turbidity - Filter #1 (NTU)	52 (bench test)	0.02	0.23	0.105
Turbidity – Filter #2 (NTU) AIT 121	Continuous Monitoring	0.00	5.00	0.040
Turbidity – Filter #2 (NTU)	52 (bench test)	0.05	0.28	0.114
Turbidity – Filter #3 (NTU) AIT 131	Continuous Monitoring	0.00	5.00	0.049
Turbidity – Filter #3 (NTU)	52 (bench test)	0.04	0.19	0.103
Turbidity – Finished Water (NTU) AIT 184	Continuous Monitoring	0.00	5.00	0.056
Turbidity – Finished Water (NTU)	248 (bench test)	0.01	0.25	0.089
Chlorine Total – Zebra Mussel (operation May to October mg/L) AIT 103	Continuous Monitoring Total Chlorine	0.00	5.00	0.012
Chlorine Total – Zebra Mussel (operation May to October mg/L)	48(bench test)	0.013	0.25	0.127
Chlorine Free – Pre Reservoir (mg/L) AIT 165	Continuous Monitoring Free Chlorine	0.00	5.00	1.80
Chlorine Free – Pre Reservoir (mg/L)	52 (bench test)	0.97	2.37	1.59
Chlorine Free – Post Reservoir (mg/L) AIT 180	Continuous Monitoring Free Chlorine	0.00	5.00	1.22
Chlorine Free – Post Reservoir (mg/L)	52 (bench test)	0.56	1.90	1.16
Chlorine Free – Finished Water (mg/L) AIT 185	Continuous Monitoring Free Chlorine	0.00	5.00	1.56
Chlorine Free – Finished Water (mg/L)	248 (bench test)	0.90	2.02	1.49
Chlorine Total – Finished Water (mg/L) AIT 186	Continuous Monitoring Total Chlorine	0.00	5.00	1.85
Chlorine Total – Finished Water (mg/L)	248 (bench test)	1.16	2.42	1.77
Chlorine – Distribution System (180 Queen St WPCP mg/L)	188 (bench test)	0.21	1.45	0.75
Fluoride – Finished Water (mg/L) AIT 187	Continuous Monitoring	0.04	2.00	0.55
Fluoride – Finished Water (mg/L)	248 (bench test)	0.05	1.17	0.57
UV Transmittance (%) AIT 160	Continuous Monitoring	70.0	93.1	100.0
UV Transmittance (%)	244 (bench test)	84.2	96.1	90.3

**Notes:**

1. High raw water turbidity spikes when the low lift pumps starts and stop, maintenance and flushing of lines.
2. High filter turbidities results of filter backwash, or calibration.
3. High finished water turbidities results of high lift pumps starting or calibration.
4. High fluoride readings due to HLP starts, maintenance or calibration while chemical system was off.
5. Low total chlorine (finished water) result of gen set testing, maintenance or calibration.
6. High total chlorine (zebra mussel) due to the sampling alternates between intake and LLP header.
7. Bench tests for zebra mussel are sampled from raw water DWSP line or raw water sample tap in lab
8. Low UV transmittance result of gen set testing, maintenance, calibration or OptiView failure.

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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 (ug/L)	Quarterly Average (ug/L)	Rolling Annual Average Quarter (ug/L)
Municipal Drinking Water License #164-101 issue #3 (Schedule C, Section 4.1, table 5)	TTHM	January 4, 2016	52.7	44.8	86.7
		February 1, 2016	40.9		
		March 7, 2016	40.7		
		April 4, 2016	48.1	54.6	78.4
		May 2, 2016	49.1		
		June 6, 2016	66.7		
		July 4, 2016	78.6	69.0	63.1
		August 2, 2016	79.5		
		September 6, 2016	48.9		
		October 3, 2016	44.6	42.2	52.7
		November 7, 2016	41.1		
		December 5, 2016	41.0		

**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

**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 – Quarterly Average (mg/L)			
Municipal Drinking Water License #164-101 issue #3 (Schedule C, Section 4.2 table 7)	TSS (grab sample)	January 12, 2016	9.2			
		January 13, 2016	6.6			
		February 23, 2016	3.46			
		April 28, 2016	4.37			
		July 14, 2016	6.74			
		October 21, 2016	3.23			
		Annual Average	5.60			
			Min.	Max.	Avg.	
		Total Chlorine AIT 164 (non – detect) (mg/L)	Continuous Monitoring (mg/L)	0.00	1.00	0.013

**Notes:** High chlorine readings were a result of the decant valve not open at time of chlorine spike, should the decant valve be open at time of a spike the waste system will shut down which generates a critical alarm when the chlorine reading is 0.05 mg/L.

**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 4, 2016	<0.02	µg/L	No
Arsenic	April 4, 2016	<0.02	µg/L	No
Barium	April 4, 2016	38.2	µg/L	No
Boron	April 4, 2016	13.0	µg/L	No
Cadmium	April 4, 2016	<0.003	µg/L	No
Chromium	April 4, 2016	0.27	µg/L	No
Mercury	April 4, 2016	<0.01	µg/L	No
Selenium	April 4, 2016	<0.04	µg/L	No
Uranium	April 4, 2016	0.008	µg/L	No

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1 <sup>st</sup> Quarter Nitrite 2 <sup>nd</sup> Quarter Nitrite 3 <sup>rd</sup> Quarter Nitrite 4 <sup>th</sup> Quarter Nitrite	January 4, 2016 April 4, 2016 July 4, 2016 October 3, 2016	<0.1 <0.1 <0.1 <0.1	mg/L	No
1 <sup>st</sup> Quarter Nitrate 2 <sup>nd</sup> Quarter Nitrate 3 <sup>rd</sup> Quarter Nitrate 4 <sup>th</sup> Quarter Nitrate	January 4, 2016 April 4, 2016 July 4, 2016 October 3, 2016	0.2 0.1 0.1 0.1	mg/L	No
Sodium	February 22, 2016	12.3	mg/L	No

**Summary of lead testing under Schedule 15.1 during this reporting period**

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	10	0.00034 – 0.01130	1	0.00028 – 0.00959	0
Plumbing – non residential	14	0.00026 – 0.00181	0	0.00024 – 0.00370	0
Distribution	8	0.00002 – 0.00163	0	N/A	N/A

**Notes:**

1. Maximum Allowable Concentration (MAC) for lead is 0.010 mg/L or 10.0 ug/L
2. Sampling rounds are from December 15 to April 15 & June 15 to October 15
3. As per MDWL 164-101 Issue #2 Schedule D dated February 2, 2012 require to sample only four (4) distribution samples and monitor the effectiveness of the corrosion control system.

**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 4, 2016	<0.02	µg/L	No
Atrazine	April 4, 2016	<0.01		
Atrazine + N-dealkylated metabolites	April 4, 2016	<0.01	µg/L	No
Azinphos-methyl	April 4, 2016	<0.05	µg/L	No
Benzene	April 4, 2016	<0.32	µg/L	No
Benzo(a)pyrene	April 4, 2016	<0.004	µg/L	No
Bromoxynil	April 4, 2016	<0.33	µg/L	No
Carbaryl	April 4, 2016	<0.05	µg/L	No
Carbofuran	April 4, 2016	<0.01	µg/L	No
Carbon Tetrachloride	April 4, 2016	<0.16	µg/L	No
Chlorpyrifos	April 4, 2016	<0.02	µg/L	No
Desethyl atrazine	April 4, 2016	<0.01	µg/L	No
Diazinon	April 4, 2016	<0.02	µg/L	No
Dicamba	April 4, 2016	<0.20	µg/L	No
1,2-Dichlorobenzene	April 4, 2016	<0.41	µg/L	No
1,4-Dichlorobenzene	April 4, 2016	<0.36	µg/L	No
1,2-Dichloroethane	April 4, 2016	<0.35	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	April 4, 2016	<0.33	µg/L	No

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Dichloromethane	April 4, 2016	<0.35	µg/L	No
2,4-Dichlorophenol	April 4, 2016	<0.15	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	April 4, 2016	<0.19	µg/L	No
Diclofop-methyl	April 4, 2016	<0.40	µg/L	No
Dimethoate	April 4, 2016	<0.03	µg/L	No
Diquat	April 4, 2016	<1	µg/L	No
Diuron	April 4, 2016	<0.03	µg/L	No
Glyphosate	April 4, 2016	<1	µg/L	No
Malathion	April 4, 2016	<0.02	µg/L	No
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	April 4, 2016	<0.00012	µg/L	No
Metolachlor	April 4, 2016	<0.01	µg/L	No
Metribuzin	April 4, 2016	<0.02	µg/L	No
Monochlorobenzene	April 4, 2016	<0.3	µg/L	No
Paraquat	April 4, 2016	<1	µg/L	No
Pentachlorophenol	April 4, 2016	<0.15	µg/L	No
Phorate	April 4, 2016	<0.01	µg/L	No
Picloram	April 4, 2016	<1	µg/L	No
Polychlorinated Biphenyls (PCB)	April 4, 2016	<0.04	µg/L	No
Prometryne	April 4, 2016	<0.03	µg/L	No
Simazine	April 4, 2016	<0.01	µg/L	No
Terbufos	April 4, 2016	<0.01	µg/L	No
Tetrachloroethylene (perchloroethylene)	April 4, 2016	<0.35	µg/L	No
2,3,4,6-Tetrachlorophenol	April 4, 2016	<0.20	µg/L	No
Triallate	April 4, 2016	<0.01	µg/L	No
Trichloroethylene	April 4, 2016	<0.44	µg/L	No
2,4,6-Trichlorophenol	April 4, 2016	<0.25	µg/L	No
Trifluralin	April 4, 2016	<0.02	µg/L	No
Vinyl Chloride	April 4, 2016	<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  
 mg/L = milligrams per liter  
 TTHM = trihalomethane  
 ug/L = micrograms per liter

**Contact for more information:**

Should you require clarification or more information please contact

Sarah E. Cooke  
 Water & Wastewater Compliance Coordinator  
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Revision#1 March 3, 2017: corrected on page 6 Municipal Drinking Water License issue number