

# **TOWN OF SMITHS FALLS**



**SMITHS FALLS**

RISE AT THE FALLS



## **SMITHS FALLS DRINKING WATER SYSTEM**

### **2022 ANNUAL REPORT**

## Smiths Falls Drinking Water System 2022 Annual Report

<b>Drinking-Water System Number:</b>	220001307
<b>Drinking-Water System Name:</b>	Smiths Falls Drinking Water System
<b>Drinking-Water System Owner:</b>	Corporation of the Town of Smiths Falls
<b>Drinking-Water System Category:</b>	Large Municipal Drinking Water System
<b>Period being reported:</b>	January 1 <sup>st</sup> to December 31 <sup>st</sup> , 2022

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

# Smiths Falls Drinking Water System 2022 Annual Report

## **Describe your Drinking-Water System**

The Smiths Falls Drinking Water System is comprised of the Water Treatment Plant (WTP) and Distribution system (WDS) 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 supply water to the AquaDAF ® which is a high-rate dissolved air floatation clarifier. A coagulant & polymer are mixed with the Raw Water to aid in particle removal. Dissolved air will float these particles to form a blanket of sludge which is discharged to the wastewater collection system.

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

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

The WDS is a Class I subsystem, consisting of 61.94 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**

<b>CHEMICAL NAME</b>	<b>USE</b>	<b>SUPPLIER</b>
PAX-XL6	Coagulant	Kemira
Magnafloc LT22s	Polymer	Northland Chemical
Chlorine Gas	Disinfection	Brenntag
Sodium Hydroxide	Corrosion Control	Brenntag
Fluorosilicic Acid	Fluoride	PVS Benson
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 2022 Annual Report

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

- 💧 Zebra Mussel/THMM (Intake) (Engineering) – \$11,585
- 💧 Highlift Stainless Steel Piping Repairs - \$33,204
- 💧 Replace Free Chlorine Analyzers (AIT-165 & 180)- \$17,367
- 💧 Water Tower Detailed Design - \$13,691
- 💧 Beckwith St Phase 2 - \$672,298
- 💧 Water Meter Replacement - \$38,730
- 💧 WTP Reservoir Cleaning and Inspection- \$16,361
- 💧 Low lift Pump Rebuild - \$9,549
- 💧 Highlift Pump Rebuild - \$21,220
- 💧 UV Sensor Replacements – \$14,012

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

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 - 14	10 - 1,000	N/A	N/A
<b>Treated</b>	52	0 - 0	0 - 0	52	<10 - 10
<b><u>Distribution</u> - Routine</b>	295	0 - 0	0 - 0	295	<10 - 60
<b><u>Distribution</u> Water main Repairs/new installations/service repairs</b>	48	0 - 0	0 - 0	48	<10 - 80

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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	Average	Maximum
Turbidity - Raw Water (NTU) AIT 102	Continuous Monitoring <sup>1</sup>	0.000	0.724	50.000
Turbidity - Raw Water (NTU)	(365 bench test)	0.304	0.127	7.18
Turbidity - Filter #1 (NTU) AIT 111	Continuous Monitoring <sup>2</sup>	0.00	0.036	1.860
Turbidity - Filter #1 (NTU)	( 52 bench test)	0.044	0.127	0.214
Turbidity - Filter #2 (NTU) AIT 121	Continuous Monitoring <sup>2</sup>	0.000	0.036	5.000
Turbidity - Filter #2 (NTU)	(52 bench test)	0.055	0.130	0.238
Turbidity - Filter #3 (NTU) AIT 131	Continuous Monitoring <sup>2</sup>	0.000	0.030	5.00
Turbidity - Filter #3 (NTU)	( 52 bench test)	0.063	0.141	0.298
Turbidity - Finished Water (NTU) AIT 184	Continuous Monitoring <sup>3</sup>	0.000	0.053	5.000
Turbidity - Finished Water (NTU)	(248 bench test)	0.044	0.115	0.426
Chlorine Total - Zebra Mussel (operation May to October mg/L) AIT 103	Continuous Monitoring <sup>7</sup> Total Chlorine	0.00	0.02	5.00
Chlorine Total - Zebra Mussel (operation May to October mg/L)	(136 bench test) <sup>8</sup>	0.02	0.13	5.00
Chlorine Free - Pre-Reservoir (mg/L) AIT 165	Continuous Monitoring <sup>5</sup> Free Chlorine	0.00	2.21	4.98
Chlorine Free - Pre-Reservoir (mg/L)	(52 bench test)	1.09	1.69	2.28
Chlorine Free - Post Reservoir (mg/L) AIT 180	Continuous Monitoring <sup>5</sup> Free Chlorine	0.00	1.48	5.00
Chlorine Free - Post Reservoir (mg/L)	(53 bench test)	0.52	1.24	2.18
Chlorine Free - Finished Water (mg/L) AIT 185	Continuous Monitoring <sup>5</sup> Free Chlorine	0.00	1.71	5.00
Chlorine Free - Finished Water (mg/L)	(249 bench test)	1.07	1.59	2.16
Chlorine Total - Finished Water (mg/L) AIT 186	Continuous Monitoring <sup>6</sup> Total Chlorine	0.00	2.00	4.32
Chlorine Total - Finished Water (mg/L)	(249 bench test)	1.38	1.88	2.39
Fluoride - Finished Water (mg/L) AIT 187	Continuous Monitoring <sup>4</sup>	0.0	0.62	2.00
Fluoride - Finished Water (mg/L)	(365 bench test)	0.30	0.57	0.97
UV Transmittance (%) AIT 160	Continuous Monitoring <sup>9</sup>	70.0	92.7	100.0
UV Transmittance (%)	( 242bench test)	80.0	87.6	97.0

**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) start and stop, maintenance, calibration and flushing of lines.
2. High filter turbidity results of filter backwash, process upset or calibration.
3. High finished water turbidity 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.

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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 (µg/L)	Quarterly Average (µg/L)	Rolling Annual Average Quarter (µg/L)		
Municipal Drinking Water License #164-101 issue #6 June 30, 2021	TTHM	04-Jan-22	47	46.0	73.8		
		No result (NR)	NR				
		07-Mar-22	45				
				06-Apr-22	45	75.3	71.6
				02-May-22	78		
				06-Jun-22	103		
				04-Jul-22	99	100.3	72.0
				02-Aug-22	102		
				06-Sept-22	100		
				03-Oct-22	71.0	68.7	72.6
				07-Nov-22	69.0		
				05-Dec-22	66.0		

#### Notes:

1. 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
2. February 2022 TTHM sample missed, added sampling schedule to MESH

### 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 –Monthly Average (mg/L)	Result –Monthly Grab Average Total Chlorine (mg/L)
Municipal Drinking Water License #164-101 issue #6 (Schedule C section 1.5 table 3)	TSS (grab sample)	21-Jan-22	8.70	0.02
		17-Feb-22	2.93	0.01
		21-Mar-22	7.00	0.03
		22-Apr-22	6.03	0.01
		17-May-22	4.27	0.02
		14-Jun-22	7.00	0.02
		15-Jul-22	2.27	0.04
		16-Aug-22	4.93	0.04
		14-Sept-22	2.93	0.03
		14-Oct-22	2.53	0.03
		22-Nov-22	3.33	0.02
				14-Dec-22
		<b>Annual average</b>	<b>4.44</b>	<b>0.02</b>

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

Parameter	Sample Date (DD-MM-YYYY)	Result Value	Unit of Measure	Exceedance
Antimony	04-Apr-22	<0.6	µg/L	No
Arsenic	04-Apr-22	<0.2	µg/L	No
Barium	04-Apr-22	40.0	µg/L	No
Boron	04-Apr-22	13	µg/L	No
Cadmium	04-Apr-22	<0.003	µg/L	No
Chromium	04-Apr-22	0.14	µg/L	No
Mercury	04-Apr-22	<0.01	µg/L	No
Selenium	04-Apr-22	<0.04	µg/L	No

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Uranium			µg/L	No
1 <sup>st</sup> Quarter Nitrite	07-Feb-22	<0.1	mg/L	No
2 <sup>nd</sup> Quarter Nitrite	04-May-22	<0.1	mg/L	No
3 <sup>rd</sup> Quarter Nitrite	03-Aug-22	<0.1	mg/L	No
4 <sup>th</sup> Quarter Nitrite	07-Nov-22	<0.1	mg/L	No
1 <sup>st</sup> Quarter Nitrate	07-Feb-22	0.1	mg/L	No
2 <sup>nd</sup> Quarter Nitrate	04-May-22	<0.1	mg/L	No
3 <sup>rd</sup> Quarter Nitrate	03-Aug-22	<0.1	mg/L	No
4 <sup>th</sup> Quarter Nitrate	07-Nov-22	<0.1	mg/L	No
Sodium	04-Apr-2022	16.2	mg/L	No

Parameter	Sample Date (DD-MM-YYYY)	Result Value (ug/L)	Rolling Annual Average Quarter (ug/L)	Exceedance
HAA5 1 <sup>st</sup> Quarter	07-Feb-22	34.3	59.4	No
HAA5 2 <sup>nd</sup> Quarter	02-May-22	59.5	53.7	No
HAA5 3 <sup>rd</sup> Quarter	02-Aug-22	56.9	52.0	No
HAA5 4 <sup>th</sup> Quarter	07-Nov-22	49.1	50.0	No

**Notes:** Maximum Allowable Concentration (MAC) for HAA is based on a four-quarter rolling annual average of 0.080 mg/L or 80.0 ug/L

### 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	25	0.000050 – 0.019200	4	0.000070 – 0.031000	4
Plumbing – non residential	2	0.000210 – 0.003330	0	0.000100 – 0.001860	0
Distribution	4	0.000040 – 0.000190	0	N/A	N/A
Finished Water	4	0.000020 – 0.000100	0	N/A	N/A

Location Type	Number of Total samples	pH (min # - max #)	Number of Total samples	Temperature °C (min # - max #)
Plumbing – residential	25	7.23 – 7.87	25	14.8 – 24.1
Plumbing – non residential	2	7.79 – 7.82	2	13.3 – 18.3
Distribution	4	7.47 – 7.87	4	4.9 – 22.5
Finished Water	4	7.42 – 7.72	4	14.2 – 23.9

Location Type	Number of Total samples	Alkalinity mg/L (min # - max #)
Plumbing – residential	25	71 - 96
Plumbing – non residential	2	86 - 88
Distribution	4	70 - 90
Finished Water	4	69 - 86

**Notes:**

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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.

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

Parameter	Sample Date (DD-MM-YYYY)	Result Value	Unit of Measure	Exceedance
Alachlor	04-Apr-22	<0.02	µg/L	No
Atrazine	04-Apr-22	<0.01	µg/L	No
Atrazine + N-dealkylated metabolites	04-Apr-22	<0.01	µg/L	No
Azinphos-methyl	04-Apr-22	<0.05	µg/L	No
Benzene	04-Apr-22	<0.32	µg/L	No
Benzo(a)pyrene	04-Apr-22	<0.004	µg/L	No
Bromoxynil	04-Apr-22	<0.33	µg/L	No
Carbaryl	04-Apr-22	<0.05	µg/L	No
Carbofuran	04-Apr-22	<0.01	µg/L	No
Carbon Tetrachloride	04-Apr-22	<0.17	µg/L	No
Chlorpyrifos	04-Apr-22	<0.02	µg/L	No
Desethyl atrazine	04-Apr-22	<0.01	µg/L	No
Diazinon	04-Apr-22	<0.02	µg/L	No
Dicamba	04-Apr-22	<0.20	µg/L	No
1,2-Dichlorobenzene	04-Apr-22	<0.35	µg/L	No
1,4-Dichlorobenzene	04-Apr-22	<0.36	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	04-Apr-22	<0.33	µg/L	No
1,2-Dichloroethane	04-Apr-22	<0.35	µg/L	No
Dichloromethane	04-Apr-22	<0.35	µg/L	No
2,4-Dichlorophenol	04-Apr-22	<0.15	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	04-Apr-22	<0.19	µg/L	No
Diclofop-methyl	04-Apr-22	<0.40	µg/L	No
Dimethoate	04-Apr-22	<0.35	µg/L	No
Diquat	04-Apr-22	<1	µg/L	No
Diuron	04-Apr-22	<0.03	µg/L	No
Glyphosate	04-Apr-22	<1	µg/L	No
Malathion	04-Apr-22	<0.02	µg/L	No
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	04-Apr-22	<0.00012	µg/L	No
Metolachlor	04-Apr-22	<0.01	µg/L	No
Metribuzin	04-Apr-22	<0.02	µg/L	No
Monochlorobenzene	04-Apr-22	<0.3	µg/L	No
Paraquat	04-Apr-22	<1	µg/L	No
Pentachlorophenol	04-Apr-22	<0.15	µg/L	No
Phorate	04-Apr-22	<0.01	µg/L	No
Picloram	04-Apr-22	<1	µg/L	No
Polychlorinated Biphenyls (PCB)	04-Apr-22	<0.04	µg/L	No
Prometryne	04-Apr-22	<0.03	µg/L	No
Simazine	04-Apr-22	<0.01	µg/L	No
Terbufos	04-Apr-22	<0.01	µg/L	No
Tetrachloroethylene (perchloroethylene)	04-Apr-22	<0.35	µg/L	No



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2,3,4,6-Tetrachlorophenol	04-Apr-22	<0.20	µg/L	No
Triallate	04-Apr-22	<0.01	µg/L	No
Trichloroethylene	04-Apr-22	<0.44	µg/L	No
2,4,6-Trichlorophenol	04-Apr-22	<0.25	µg/L	No
Trifluralin	04-Apr-22	<0.02	µg/L	No
Vinyl Chloride	04-Apr-22	<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

### **Contact for more information:**

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

Jason Barlow  
 Manager of Water & Wastewater  
 Phone: 613-283-4124 ext. 5501  
 Email: [jbarlow@smithsfalls.ca](mailto:jbarlow@smithsfalls.ca)