

# **TOWN OF SMITHS FALLS**



**SMITHS FALLS**

RISE AT THE FALLS



## **SMITHS FALLS DRINKING WATER SYSTEM**

### **2024 ANNUAL REPORT**

## Smiths Falls Drinking Water System 2024 Annual Report

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<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> , 2024

<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 2024 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; chlorine dioxide, 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

CHEMICAL NAME	USE	SUPPLIER
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
Sodium Chlorite	Pre-treatment Zebra Mussel	PVS Benson

## Were any significant expenses incurred to?

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

## Smiths Falls Drinking Water System 2024 Annual Report

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

<ul style="list-style-type: none"> <li>💧 George St re-construction: \$514,779.56</li> <li>💧 Water tower: \$4,717,224.42</li> <li>💧 Truck water main for water tower phase 1: \$13,147.64</li> <li>💧 Overland backfeed system for construction project: \$74,496.49</li> <li>💧 Analyzer Replacement (AIT-185): \$9,411.06</li> <li>💧 Filter GAC top up: \$17,189.30</li> <li>💧 Sludge pump (SLP-162) refurbishment: \$8,517.31</li> <li>💧 SCADA upgrade: \$10,176.00</li> </ul>
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**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
2024-May-21 AWQI 164997 Town Hall	Total Coliform (TC)	5	CFU/100mL	Re-sample to confirm TC from upstream, down stream (where possible) and site that caused the adverse. Re-enabled post chlorine. Re-sample zero for TC.	2024-May-24
2024-May-21 AWQI 164998 Brockville / Armstrong	Total Coliform (TC)	6	CFU/100mL	Re-sample to confirm TC from upstream, down stream (where possible) and site that caused the adverse. Re-enabled post chlorine. Re-sample zero for TC.	2024-May-24
2024-May-21 AWQI 164999 Finished Water	Total Coliform (TC)	2	CFU/100mL	Re-sample to confirm TC from upstream, down stream (where possible) and site that caused the adverse. Re-enabled post chlorine. Re-sample zero for TC.	2024-May-24
2024-Jul-08 AQWI 165486 Power Interruption	On-site observation, Power failure	N/A	N/A	MCC 2 tripped due to an air condition fault resulting in a portion of the plant power offline. Communication was lost with analyzers and flow meters. Unsure if process were closed at time of power failure. Power restored approximately 15 minutes after lost. Verify processes and production was shutting down. No further actions.	2024-Jul-11
2024-Sept-03 AWQI 166197 Union St Flusher	Total Coliform (TC)	2	CFU/100mL	Re-sample to confirm TC from upstream, down stream (where possible) and site that caused the adverse. Re-enabled post chlorine. Re-sample zero for TC.	2024-Sept-05
2024-Dec-23 Incident #1-FT6RGPI Potential environmental discharge unchlorinated water to the river	Potential unchlorinated water to the river	N/A	mg/L	Water Distribution discovered a watermain break bubbling up through the ground on one of the 8" river crossing cast watermain. Location is on shore and is approximately 20 feet from the Rideau River (70 Queen St approximate location 44.895202, -	2024-Dec-23

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				76.010011). Appears chlorinated water may have made its way to the Rideau River. Valves on the watermain have been throttled to reduce the flow. Watermain under positive pressure. Emergency locates have been submitted and repairs have commenced around 11:00.	
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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>	53	0 - 51	0 - 690	N/A	N/A
<b>Treated</b>	54	0 - 0	0 - 1*	54	<10 - 20
<b>Distribution - Routine</b>	325	0 - 0	0 - 6	325	10 - 120
<b>Distribution Water main Repairs/new installations/service repairs</b>	54	0 - 0	0 - 0	47	<10 - 20

### 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	0.890	50.000
Turbidity - Raw Water (NTU)	(366 bench test)	0.370	0.940	6.570
Turbidity - Filter #1 (NTU) AIT 111	Continuous Monitoring <sup>2</sup>	0.000	0.030	5.000
Turbidity - Filter #1 (NTU)	(51 bench test)	0.054	0.131	0.255
Turbidity - Filter #2 (NTU) AIT 121	Continuous Monitoring <sup>2</sup>	0.000	0.032	5.000
Turbidity - Filter #2 (NTU)	(51 bench test)	0.010	0.133	0.218
Turbidity - Filter #3 (NTU) AIT 131	Continuous Monitoring <sup>2</sup>	0.000	0.032	5.000
Turbidity - Filter #3 (NTU)	(51 bench test)	0.056	0.134	0.257
Turbidity - Finished Water (NTU) AIT 184	Continuous Monitoring <sup>3</sup>	0.000	0.042	5.000
Turbidity - Finished Water (NTU)	(246 bench test)	0.045	0.106	0.295
Chlorine Total - Zebra Mussel (operation May to October mg/L) AIT 103	Continuous Monitoring <sup>7</sup> Total Chlorine	N/A	N/A	N/A
Chlorine Total - Zebra Mussel (operation May to October mg/L)	(bench test) <sup>8</sup>	N/A	N/A	N/A
Chlorine Free - Pre-Reservoir (mg/L) AIT 165	Continuous Monitoring <sup>5</sup> Free Chlorine	0.000	2.79	5.000
Chlorine Free - Pre-Reservoir (mg/L)	(51 bench test)	1.68	2.52	3.49
Chlorine Free - Post Reservoir (mg/L) AIT 180	Continuous Monitoring <sup>5</sup> Free Chlorine	0.00	1.94	5.00
Chlorine Free - Post Reservoir (mg/L)	(51 bench test)	1.31	1.79	2.28
Chlorine Free - Finished Water (mg/L) AIT 185	Continuous Monitoring <sup>5</sup> Free Chlorine	0.00	1.93	2.70
Chlorine Free - Finished Water (mg/L)	(246 bench test)	1.20	1.86	2.47

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Chlorine Total – Finished Water (mg/L) AIT 186	Continuous Monitoring <sup>6</sup> Total Chlorine	0.00	1.80	2.95
Chlorine Total – Finished Water (mg/L)	(246 bench test)	1.63	2.11	2.81
Fluoride – Finished Water (mg/L) AIT 187	Continuous Monitoring <sup>4</sup>	0.00	0.76	2.00
Fluoride – Finished Water (mg/L)	(365 bench test)	0.13	0.56	0.89
UV Transmittance (%) AIT 160	Continuous Monitoring <sup>9</sup>	70.0	95.3	100.0
UV Transmittance (%)	(239 bench test)	82.9	89.1	95.7

**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.
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 (YYYY-MM-DD)	Result (µg/L)	Quarterly Average (µg/L)	Rolling Annual Average Quarter (µg/L)
Municipal Drinking Water License #164-101 Issue #7 (Schedule C section 5 table 5)	TTHM	2024-Jan-02	53.0	44.7	42.8
		2024-Feb-05	31.0		
		2024-Mar-04	50.0		
		2024-Apr-02	63.0	76.0	53.8
		2024-May-06	74.0		
		2024-Jun-03	91.0		
		2024-Jul-02	108.0	108.0	67.4
		2024-Aug-03	121.0		
		2024-Sept-03	95.0		
		2024-Oct-07	83.0	71.0	74.9
		2024-Nov-04	75.0		
		2024-Dec-02	55.0		

**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

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Date of legal instrument issued	Parameter	Date Sampled (YYYY-MM-DD)	Result –Monthly TSS Average (mg/L)	Result –Monthly Grab Average Total Chlorine (mg/L)
Municipal Drinking Water License #164-101 issue #7 (Schedule C section 1.5 table 3)	TSS (grab sample)	2024-Jan-09	6.30	0.01
		2024-Feb-12	5.13	0.02
		2024-Mar-11	6.87	0.02
		2024-Apr-15	2.37	0.02
		2024-May-14	4.40	0.01
		2024-Jun-28	3.57	0.02
		2024-Jul-17	3.47	0.02
		2024-Aug-29	2.13	0.03
		2024-Sept-09	4.37	0.06
		2024-Oct-18	5.63	0.02
		2024-Nov-25	3.60	0.02
2024-Dec-20	5.53	0.01		
	<b>Annual average</b>		<b>4.45</b>	<b>0.02</b>

Date of legal instrument issued	Parameter	Sample Date (YYYY-MM-DD)	Result Value (mg/L)	Exceedance
Municipal Drinking Water License #164-101 issue #7 (Schedule C section 1.5 table 3)	Chlorite	2024-Sept-03	0.01	No
		2024-Nov-04	0.08	No
	Chlorate	2024-Sept-03	0.11	No
		2024-Nov-04	0.14	No

**Note:** MDWL revised July 2024 to include above noted sampling also took time to procure the testing equipment for sparging.

### 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	Sample Date (YYYY-MM-DD)	Result Value (µg/L)	Exceedance
Municipal Drinking Water License #164-101 issue #7 (Schedule C section 6)	Microcystin	2024-Jun-06	<0.1	No
		2024-Jul-05	<0.1	No
		2024-Aug-09	<0.1	No
		2024-Sept-03	<0.1	No
		2024-Oct-09	<0.1	No

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

Parameter	Sample Date (YYYY-MM-DD)	Result Value	Unit of Measure	Exceedance
Antimony	2024-Apr-02	<0.6	µg/L	No
Arsenic	2024-Apr-02	<0.2	µg/L	No
Barium	2024-Apr-02	45.6	µg/L	No
Boron	2024-Apr-02	13	µg/L	No
Cadmium	2024-Apr-02	0.005	µg/L	No
Chromium	2024-Apr-02	0.25	µg/L	No
Mercury	2024-Apr-02	<0.01	µg/L	No
Selenium	2024-Apr-02	0.08	µg/L	No
Uranium	2024-Apr-02	0.008	µg/L	No
1 <sup>st</sup> Quarter Nitrite 2 <sup>nd</sup> Quarter Nitrite 3 <sup>rd</sup> Quarter Nitrite 4 <sup>th</sup> Quarter Nitrite	2024-Feb-05 2024-May-06 2024-Aug-06 2024-Nov-04	<0.05 <0.05 <0.05 <0.05	mg/L mg/L mg/L mg/L	No No No 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	2024-Feb-05 2024-May-06 2024-Aug-06 2024-Nov-04	0.19 0.10 0.12 <0.05	mg/L mg/L mg/L mg/L	No No No No
Sodium	2024-Apr-02	16.4	mg/L	No

Parameter	Sample Date (YYYY-MM-DD)	Result Value (ug/L)	Rolling Annual Average Quarter (ug/L)	Exceedance
HAA5 1 <sup>st</sup> Quarter	2024-Feb-05	30.7	25.9	No
HAA5 2 <sup>nd</sup> Quarter	2024-May-06	60.4	39.7	No
HAA5 3 <sup>rd</sup> Quarter	2024-Aug-06	58.9	44.1	No
HAA5 4 <sup>th</sup> Quarter	2024-Nov-04	42.6	48.2	No

**Notes:**

1. 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
2. Granular activated carbon (GAC) changed out in all three filters beginning of April



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### Summary of lead testing under Schedule 15.1 during this reporting period & MDWL #164-101 Issue #6 Schedule C, Section 6.6

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	20	0.000100 – 0.020500	7	0.000080 – 0.027800	8
Plumbing – non residential	2	0.000090 – 0.029200	1	0.000060 – 0.081300	1
Distribution	4	0.000020 – 0.000110	0	N/A	N/A
Finished Water	4	0.000020 – 0.000020	0	N/A	N/A

Location Type	Number of Total samples	pH (min # - max #)	Number of Total samples	Temperature °C (min # - max #)
Plumbing – residential	20	7.38 -7.77	20	11.7 – 40.4
Plumbing – non residential	2	7.65 – 7.74	2	13.0 -23.7
Distribution	4	7.57 – 7.74	4	5.6 – 20.8
Finished Water	4	7.41 – 7.79	4	7.5 – 23.6

Location Type	Number of Total samples	Alkalinity mg/L (min # - max #)
Plumbing – residential	20	79 - 107
Plumbing – non-residential	2	90 - 96
Distribution	4	92 - 99
Finished Water	4	88 - 98

#### **Notes:**

1. Maximum Allowable Concentration (MAC) for lead is 0.010 mg/L or 10.0 ug/L.
2. Finished water and Distribution lead samples above 0.010 mg/L or 10.0 ug/L are reportable to SAC and Health Unit.
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 (YYYY-MM-DD)	Result Value	Unit of Measure	Exceedance
Alachlor	2024-Apr-02	<0.02	µg/L	No
Atrazine	2024-Apr-02	<0.01	µg/L	No
Atrazine + N-dealkylated metabolites	2024-Apr-02	<0.01	µg/L	No
Azinphos-methyl	2024-Apr-02	<0.05	µg/L	No
Benzene	2024-Apr-02	<0.32	µg/L	No
Benzo(a)pyrene	2024-Apr-02	<0.04	µg/L	No
Bromoxynil	2024-Apr-02	<0.33	µg/L	No
Carbaryl	2024-Apr-02	<0.05	µg/L	No
Carbofuran	2024-Apr-02	<0.01	µg/L	No
Carbon Tetrachloride	2024-Apr-02	<0.17	µg/L	No
Chlorpyrifos	2024-Apr-02	<0.02	µg/L	No
Desethyl atrazine	2024-Apr-02	<0.01	µg/L	No
Diazinon	2024-Apr-02	<0.02	µg/L	No
Dicamba	2024-Apr-02	<0.20	µg/L	No
1,2-Dichlorobenzene	2024-Apr-02	<0.41	µg/L	No
1,4-Dichlorobenzene	2024-Apr-02	<0.36	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	2024-Apr-02	<0.33	µg/L	No
1,2-Dichloroethane	2024-Apr-02	<0.35	µg/L	No
Dichloromethane	2024-Apr-02	<0.35	µg/L	No
2,4-Dichlorophenol	2024-Apr-02	<0.15	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	2024-Apr-02	<0.19	µg/L	No
Diclofop-methyl	2024-Apr-02	<0.40	µg/L	No
Dimethoate	2024-Apr-02	<0.06	µg/L	No
Diquat	2024-Apr-02	<1	µg/L	No
Diuron	2024-Apr-02	<0.03	µg/L	No
Glyphosate	2024-Apr-02	<1	µg/L	No
Malathion	2024-Apr-02	<0.02	µg/L	No
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	2024-Apr-02	<0.00012	µg/L	No
Metolachlor	2024-Apr-02	<0.01	µg/L	No
Metribuzin	2024-Apr-02	<0.02	µg/L	No
Monochlorobenzene	2024-Apr-02	<0.3	µg/L	No
Paraquat	2024-Apr-02	<1	µg/L	No
Pentachlorophenol	2024-Apr-02	<0.15	µg/L	No
Phorate	2024-Apr-02	<0.01	µg/L	No
Picloram	2024-Apr-02	<1	µg/L	No
Polychlorinated Biphenyls (PCB)	2024-Apr-02	<0.04	µg/L	No
Prometryne	2024-Apr-02	<0.03	µg/L	No
Simazine	2024-Apr-02	<0.01	µg/L	No
Terbufos	2024-Apr-02	<0.01	µg/L	No
Tetrachloroethylene (perchloroethylene)	2024-Apr-02	<0.35	µg/L	No
2,3,4,6-Tetrachlorophenol	2024-Apr-02	<20.0	µg/L	No
Triallate	2024-Apr-02	<0.1	µg/L	No
Trichloroethylene	2024-Apr-02	<0.44	µg/L	No
2,4,6-Trichlorophenol	2024-Apr-02	<0.25	µg/L	No
Trifluralin	2024-Apr-02	<0.02	µg/L	No
Vinyl Chloride	2024-Apr-02	<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:**

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