TOWN OF SMITHS FALLS

SMITHS FALLS

RISE AT THE FALLS

SMITHS FALLS DRINKING WATER SYSTEM

2021 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 1st to December 31st, 2021

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

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

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^3/d with a future expansion to 18,000 m^3/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^3) 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	Cleartech

Were any significant expenses incurred to?

[✓] Install required equipment
[✓] Repair required equipment
[ ] Replace required equipment

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

- IR Scanning – $2,406
- UV Sensor replacements – $12,095
- WIN911 Software – Alarm Call out system - $16,609
- DAF Piping design and installation - $61,827
- Replace turbidity analyzers (AIT-102 & 184)- $18,676
- High lift stainless steel piping repairs - $15,807
- Beckwith St Phase 2 (detailed design) - $11,813
- Water meter replacement - $38,149
- Correlation Equipment - $36,003

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
None					

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 - 40	10 – 1,400	NA	NA
Treated	53	0 – 0	0 - 0	53	<10 - 50
Distribution - Routine	303	0 – 0	0 – 0	303	<10 – 80
Distribution Water main Repairs/new installations/service repairs	17	0 - 0	0 – 0	17	<10 - 40

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]	0.000	0.761	50.000
Turbidity - Raw Water (NTU)	(365 bench test)	0.237	0.851	6.850
Turbidity - Filter #1 (NTU) AIT 111	Continuous Monitoring[2]	0.000	0.034	1.074
Turbidity - Filter #1 (NTU)	(52 bench test)	0.074	0.142	0.394
Turbidity – Filter #2 (NTU) AIT 121	Continuous Monitoring[2]	0.000	0.035	5.000
Turbidity – Filter #2 (NTU)	(52 bench test)	0.081	0.137	0.264
Turbidity – Filter #3 (NTU) AIT 131	Continuous Monitoring[2]	0.000	0.036	5.000
Turbidity – Filter #3 (NTU)	(52 bench test)	0.071	0.135	0.209
Turbidity – Finished Water (NTU) AIT 184	Continuous Monitoring[3]	0.000	0.053	5.000
Turbidity – Finished Water (NTU)	(251 bench test)	0.037	0.114	0.680
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)	(177 bench test)[8]	0.01	0.04	0.08
Chlorine Free – Pre-Reservoir (mg/L) AIT 165	Continuous Monitoring[5] Free Chlorine	0.00	2.21	4.99
Chlorine Free – Pre-Reservoir (mg/L)	(52 bench test)	1.22	1.73	2.21
Chlorine Free – Post Reservoir (mg/L) AIT 180	Continuous Monitoring[5] Free Chlorine	0.00	1.48	5.00
Chlorine Free – Post Reservoir (mg/L)	(53 bench test)	0.34	1.30	1.89
Chlorine Free – Finished Water (mg/L) AIT 185	Continuous Monitoring[5] Free Chlorine	0.00	1.71	5.00
Chlorine Free – Finished Water (mg/L)	(251 bench test)	0.93	1.51	2.10
Chlorine Total – Finished Water (mg/L) AIT 186	Continuous Monitoring[6] Total Chlorine	0.00	2.45	4.32
Chlorine Total – Finished Water (mg/L)	(251 bench test)	1.16	1.77	2.37
Fluoride – Finished Water (mg/L) AIT 187	Continuous Monitoring[4]	0.00	0.65	2.00
Fluoride – Finished Water (mg/L)	(365 bench test)	0.01	0.49	0.88
UV Transmittance (%) AIT 160	Continuous Monitoring[9]	70.0	92.7	100.0
UV Transmittance (%)	(250 bench test)	80.7	86.86	92.3

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 (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	4-Jan-2021	50.0	48.7	73.3
		1-Feb-2021	44.0		
		1-Mar-2021	52.0		
		6-Apr-2021	55.0	84.0	74.6
		3-May-2021	94.0		
		9-Jun-2021	103.0		
		5-Jul-2021	115.0	98.7	74.9
		3-Aug-2021	93.0		
		7-Sep-2021	88.0		
		4-Oct-2021	68.0	66.3	74.4
		1-Nov-2021	74.0		
		6-Dec-2021	57.0		

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 –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)	12-Jan-2021	7.33	0.00
		22-Feb-2021	6.13	0.01
		26-Mar-2021	11.2	0.01
		19-Apr-2021	9.40	0.02
		17-May-2021	4.78	0.00
		18-Jun-2021	3.96	0.02
		26-Jul-2021	7.90	0.04
		30-Aug-2021	5.60	0.02
		28-Sept-2021	1.50	0.02
		25-Oct-2021	2.86	0.01
		16-Nov-2021	6.30	0.01
		17-Dec-201	6.96	0.03
		Annual average	**5.58**	**0.02**

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	6-Apr-2021	<0.09	µg/L	No
Arsenic	6-Apr-2021	<0.2	µg/L	No
Barium	6-Apr-2021	46.2	µg/L	No
Boron	6-Apr-2021	13	µg/L	No
Cadmium	6-Apr-2021	<0.003	µg/L	No
Chromium	6-Apr-2021	0.3	µg/L	No
Mercury	6-Apr-2021	<0.01	µg/L	No
Selenium	6-Apr-2021	<0.04	µg/L	No
Uranium	6-Apr-2021	0.006	µg/L	No

1st Quarter Nitrite 2nd Quarter Nitrite 3rd Quarter Nitrite 4th Quarter Nitrite	01-Feb-21 03-May-21 03-Aug-21 01-Nov-21	<0.1 <0.1 <0.1 <0.1	mg/L mg/L mg/L mg/L	No No No No
1st Quarter Nitrate 2nd Quarter Nitrate 3rd Quarter Nitrate 4th Quarter Nitrate	01-Feb-21 03-May-21 03-Aug-21 01-Nov-21	<0.1 <0.1 <0.1 0.2	mg/L mg/L mg/L mg/L	No No No No
Sodium	6-Apr-2021	15.9	mg/L	No

Parameter	Sample Date	Result Value (ug/L)	Rolling Annual Average Quarter (ug/L)	Exceedance
HAA5 1st Quarter	01-Feb-21	26.1	45.1	No
HAA5 2nd Quarter	03-May-21	82.4	53.2	No
HAA5 3rd Quarter	03-Aug-21	80.0	58.4	No
HAA5 4th Quarter	01-Nov-21	40.9	57.4	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 1st One Litre Sample min# – max # (mg/L)	Number of Exceedances 1st Sample	Range of Lead Results 2nd One Litre Sample min# – max # (mg/L)	Number of Exceedances 2nd Sample
Plumbing – residential	*Received pandemic relief August 11, 2021 Approval-411-M-164-101. No plumbing samples (residential or non-residential) due to the COVID-19 pandemic.*				
Plumbing – non residential					
Distribution	4	0.0000200 – 0.000200	0	N/A	N/A
Finished Water	4	0.0000200 – 0.000200	0	N/A	N/A

Location Type	Number of Total samples	pH (min # - max #)	Number of Total samples	Temperature °C (min # - max #)
Plumbing – residential	*Received pandemic relief August 11, 2021 Approval-411-M-164-101. No plumbing samples (residential or non-residential) due to the COVID-19 pandemic.*			
Plumbing – non residential				
Distribution	4	7.36 – 7.80	4	7.7 – 23.2
Finished Water	4	7.08 - 8.05	4	6.7 – 21.1

Location Type	Number of Total samples	Alkalinity mg/L (min # - max #)
Plumbing – residential	*Received pandemic relief August 11, 2021 Approval-411-M-164-101. No plumbing samples (residential or non-residential) due to the COVID-19 pandemic.*	
Plumbing – non residential		
Distribution	4	78 - 86
Finished Water	4	71 - 86

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.

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	6-Apr-2021	<0.02	µg/L	No
Atrazine	6-Apr-2021	0.04	µg/L	No
Atrazine + N-dealkylated metabolites	6-Apr-2021	0.06	µg/L	No
Azinphos-methyl	6-Apr-2021	<0.05	µg/L	No
Benzene	6-Apr-2021	<0.32	µg/L	No
Benzo(a)pyrene	6-Apr-2021	<0.004	µg/L	No
Bromoxynil	6-Apr-2021	<0.33	µg/L	No
Carbaryl	6-Apr-2021	<0.05	µg/L	No
Carbofuran	6-Apr-2021	<0.01	µg/L	No
Carbon Tetrachloride	6-Apr-2021	<0.17	µg/L	No
Chlorpyrifos	6-Apr-2021	<0.02	µg/L	No
Desethyl atrazine	6-Apr-2021	0.02	µg/L	No
Diazinon	6-Apr-2021	<0.02	µg/L	No
Dicamba	6-Apr-2021	<0.20	µg/L	No
1,2-Dichlorobenzene	6-Apr-2021	<0.41	µg/L	No
1,4-Dichlorobenzene	6-Apr-2021	<0.36	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	6-Apr-2021	<0.33	µg/L	No
1,2-Dichloroethane	6-Apr-2021	<0.35	µg/L	No
Dichloromethane	6-Apr-2021	<0.35	µg/L	No
2,4-Dichlorophenol	6-Apr-2021	<0.15	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	6-Apr-2021	<0.19	µg/L	No
Diclofop-methyl	6-Apr-2021	<0.40	µg/L	No
Dimethoate	6-Apr-2021	<0.06	µg/L	No
Diquat	6-Apr-2021	<1	µg/L	No
Diuron	6-Apr-2021	<0.03	µg/L	No
Glyphosate	6-Apr-2021	<1	µg/L	No
Malathion	6-Apr-2021	<0.02	µg/L	No
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	6-Apr-2021	<0.00012	µg/L	No
Metolachlor	6-Apr-2021	<0.01	µg/L	No
Metribuzin	6-Apr-2021	<0.02	µg/L	No
Monochlorobenzene	6-Apr-2021	<0.3	µg/L	No
Paraquat	6-Apr-2021	<1	µg/L	No
Pentachlorophenol	6-Apr-2021	<0.15	µg/L	No
Phorate	6-Apr-2021	<0.01	µg/L	No
Picloram	6-Apr-2021	<1	µg/L	No
Polychlorinated Biphenyls (PCB)	6-Apr-2021	<0.04	µg/L	No
Prometryne	6-Apr-2021	<0.03	µg/L	No
Simazine	6-Apr-2021	<0.01	µg/L	No
Terbufos	6-Apr-2021	<0.01	µg/L	No
Tetrachloroethylene (perchloroethylene)	6-Apr-2021	<0.35	µg/L	No

2,3,4,6-Tetrachlorophenol	6-Apr-2021	<0.20	µg/L	No
Triallate	6-Apr-2021	<0.01	µg/L	No
Trichloroethylene	6-Apr-2021	<0.44	µg/L	No
2,4,6-Trichlorophenol	6-Apr-2021	<0.25	µg/L	No
Trifluralin	6-Apr-2021	<0.02	µg/L	No
Vinyl Chloride	6-Apr-2021	<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

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