

**GRAFTON DRINKING WATER SYSTEM 2021 ANNUAL REPORT FOR WATER WORKS (R.170/03, Sec.11)**

<b>Drinking-Water System Number:</b>	220009158
<b>Drinking-Water System Name:</b>	Grafton Drinking Water System
<b>Drinking-Water System Owner:</b>	Corporation of the Township of Alnwick/Haldimand
<b>Drinking-Water System Category:</b>	Large Municipal Residential
<b>Period being reported:</b>	January 1, 2021 to December 31, 2021

<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? Yes [ ] No [X]</b></p> <p><b>Is your annual report available to the public at no charge on a web site on the Internet? Yes [x] No [ ]</b></p> <p><b>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</b></p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Lakefront Utility Services Inc. Office 207 Division Street, Cobourg Ontario</p> <p><a href="https://www.lakefrontutilities.on.ca/regulatory/water/">https://www.lakefrontutilities.on.ca/regulatory/water/</a></p> </div>	<p><b><u>Complete for all other Categories.</u></b></p> <p><b>Number of Designated Facilities served:</b></p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div> <p><b>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [ ] No [ ]</b></p> <p><b>Number of Interested Authorities you report to:</b></p> <p><b>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [ ] No [ ]</b></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
N/A	

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 Government Office
- Public access/notice via a newspaper
- Public access/notice via Public Request
- Public access/notice via a Public Library
- Public access/notice via other method

**Describe your Drinking-Water System**

The Hamlet of Grafton Communal Water System supplies water to approximately 1000 residents.

Water is taken from 2 wells located at the water plant on Edwardson Road. The water is disinfected with sodium hypochlorite and sodium silicate is added to sequester the iron as the water enters the plant. After the appropriate contact time, water is pumped to the distribution system with variable speed pumps, which modulate to maintain the distribution system pressure.

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

Sodium Hypochlorite  
Sodium Silicate

**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

PROJECT	ESTIMATED COST
SCADA Upgrade	\$12,500.00
PRV- Control Valves Repair	\$2,000.00
Raw Water Header Replacement	\$50,000.00
	\$64,500.00

**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
<p>On Dec 11, 2021, UPS failure resulted in PLC shutdown and loss of trending (data gap) 19:31-19:49. During this time the Highlift shut down resulting in a loss of pressure within pressure zone 1. LUSI attended the site re-started the Highlift pump and switched out the new UPS. the Haliburton, Kawartha, Pine Ridge Public Health Unit issued bacteriological sample and Boil Water Order (BWO). Related Mains, Pipes, and Hydrants were Flushed and disinfected. The affected area received normal chlorine and turbidity values for the area. Users were Advised to Boil Water by social media and hand delivery of BWO. Upon completion of the flushing Hydrants, two consecutive bacteriological water samples were taken at two 24-hour intervals. Laboratory results were satisfying and indicated no presence of E. Coli or total coliform was obtained on Dec 12 and 13, 2021. Notices of Adverse and issue resolution (schedule 16) reported to SAC As Loss of System Pressure.</p>					

**Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.**

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
<b>Raw Well 1</b>	52	0 – 0	0 – 0	N/A	N/A
<b>Raw Well 2</b>	52	0 – 0	0 – 0	N/A	N/A
<b>Treated</b>	52	0 – 0	0 – 0	52	0 – 4
<b>Distribution</b>	156	0 – 0	0 – 0	104	0 – 6

**Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.**

	Number of Grab Samples	Range of Results (min #)-(max #)
<b>Turbidity Well 1 (Raw)</b>	12	0.08 – 0.43 (NTU)
<b>Turbidity Well 2 (Raw)</b>	12	0.06 – 0.51 (NTU)
<b>Turbidity (Treated)</b>	12	0.07 – 0.45 (NTU)
<b>Chlorine (mg/L)</b>	8760	1.21 – 2.14

**Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.**

Location	Date Sampled	Parameter	Result	Unit of Measure
Pump Well 2	Dec 10, 2021	E coli/Total Coliform	0/0	cfu/100mL
		Total/Free chlorine	1.77/1.58	
DW Hydrant 105 Edwardson Rd	Dec 12, 2021	E coli/Total Coliform	0/0	
		Total/Free chlorine	1.72/1.52	
	Dec 13, 2021	E coli/Total Coliform	0/0	
		Total/Free chlorine	1.45/1.30	

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

**NOTE: Grafton Water System only requires Inorganic Parameters to be tested once every three years. Sodium and Fluoride are sampled once every 5 years.**

Parameter	Result Value	Standard (MAC)	Unit of Measure	Sample Date	Exceedance
Antimony	0.09 < MDL	6	ug/l	Jan 13, 2020	no
Arsenic	0.3	25	ug/l	Jan 13, 2020	no
Barium	146	1000	ug/l	Jan 13, 2020	no
Boron	30	5000	ug/l	Jan 13, 2020	no
Cadmium	0.003 < MDL	5	ug/l	Jan 13, 2020	no
Chromium	0.09	50	ug/l	Jan 13, 2020	no
Mercury	0.01 < MDL	1	ug/l	Jan 13, 2020	no
Selenium	0.04 < MDL	10	ug/l	Jan 13, 2020	no
Uranium	0.057	20	ug/l	Jan 13, 2020	no
Nitrite	0.003 <MDL	1	ug/l	Nov 9, 2021	no
Nitrate	0.019	10	ug/l	Nov 9, 2021	no
Fluoride	0.21	1.5	mg/L	Sep 16, 2019	no
Sodium	17	20	mg/l	Sep 16, 2019	no

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

Location Type	Number of Samples	Range of Lead Results (min#) – (max #) ug/L	Standard (MAC) ug/L	Number of Exceedances
Distribution	4	0.02 - 0.24	10	0

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

Parameter	Sample Date	Result Value	Standard (MAC)	Unit of Measure	Exceedance
Benzene [ug/L]	Jan 13, 2020	0.32 <MDL	5	ug/L	No
Carbon tetrachloride [ug/L]	Jan 13, 2020	0.17 <MDL	5	ug/L	No
2-Dichlorobenzene [ug/L]	Jan 13, 2020	0.41 <MDL	200	ug/L	No
4-Dichlorobenzene [ug/L]	Jan 13, 2020	0.36 <MDL	5	ug/L	No
1-Dichloroethylene (vinylidene chloride) [ug/L]	Jan 13, 2020	0.33 <MDL	14	ug/L	No
2-Dichloroethane [ug/L]	Jan 13, 2020	0.35 <MDL	5	ug/L	No
Dichloromethane [ug/L]	Jan 13, 2020	0.35 <MDL	50	ug/L	No
Monochlorobenzene [ug/L]	Jan 13, 2020	0.3 <MDL	80	ug/L	No
Tetrachloroethylene (perchloroethylene) [ug/L]	Jan 13, 2020	0.35 <MDL	30	ug/L	No
Trichloroethylene [ug/L]	Jan 13, 2020	0.44 <MDL	5	ug/L	No
Vinyl Chloride [ug/L]	Jan 13, 2020	0.17 <MDL	2	ug/L	No
Diquat [ug/L]	Jan 13, 2020	1 <MDL	70	ug/L	No
Paraquat [ug/L]	Jan 13, 2020	1 <MDL	10	ug/L	No
Glyphosate [ug/L]	Jan 13, 2020	1 <MDL	280	ug/L	No
Polychlorinated Biphenyls (PCBs) - Total [ug/L]	Jan 13, 2020	0.04 <MDL	3	ug/L	No
Benzo(a)pyrene [ug/L]	Jan 13, 2020	0.004 <MDL	0.01	ug/L	No
Alachlor [ug/L]	Jan 13, 2020	0.02 <MDL	5	ug/L	No
Atrazine + N-dealkylated metabolites [ug/L]	Jan 13, 2020	0.02 <MDL	5	ug/L	No
Atrazine [ug/L]	Jan 13, 2020	0.01 <MDL	-	ug/L	No
Desethyl atrazine [ug/L]	Jan 13, 2020	0.01 <MDL	-	ug/L	No
Azinphos-methyl [ug/L]	Jan 13, 2020	0.05 <MDL	20	ug/L	No
Carbaryl [ug/L]	Jan 13, 2020	0.05 <MDL	90	ug/L	No
Carbofuran [ug/L]	Jan 13, 2020	0.01 <MDL	90	ug/L	No
Chlorpyrifos [ug/L]	Jan 13, 2020	0.02 <MDL	90	ug/L	No
Diazinon [ug/L]	Jan 13, 2020	0.02 <MDL	20	ug/L	No
Dimethoate [ug/L]	Jan 13, 2020	0.06 <MDL	20	ug/L	No
Diuron [ug/L]	Jan 13, 2020	0.03 <MDL	150	ug/L	No
Malathion [ug/L]	Jan 13, 2020	0.02 <MDL	190	ug/L	No
Metolachlor [ug/L]	Jan 13, 2020	0.01 <MDL	50	ug/L	No
Metribuzin [ug/L]	Jan 13, 2020	0.02 <MDL	80	ug/L	No
Phorate [ug/L]	Jan 13, 2020	0.01 <MDL	2	ug/L	No
Prometryne [ug/L]	Jan 13, 2020	0.03 <MDL	1	ug/L	No
Simazine [ug/L]	Jan 13, 2020	0.01 <MDL	10	ug/L	No
Terbufos [ug/L]	Jan 13, 2020	0.01 <MDL	1	ug/L	No
Triallate [ug/L]	Jan 13, 2020	0.01 <MDL	230	ug/L	No
Trifluralin [ug/L]	Jan 13, 2020	0.02 <MDL	45	ug/L	No
4-dichlorophenoxyacetic acid (24-D) [ug/L]	Jan 13, 2020	0.19 <MDL	100	ug/L	No
Bromoxynil [ug/L]	Jan 13, 2020	0.33 <MDL	5	ug/L	No
Dicamba [ug/L]	Jan 13, 2020	0.20 <MDL	120	ug/L	No
Diclofop-methyl [ug/L]	Jan 13, 2020	0.40 <MDL	9	ug/L	No
MCPA [mg/L]	Jan 13, 2020	0.00012 <MDL	-	ug/L	No
Picloram [ug/L]	Jan 13, 2020	1 <MDL	190	ug/L	No
4-dichlorophenol [ug/L]	Jan 13, 2020	0.15 <MDL	900	ug/L	No
6-trichlorophenol [ug/L]	Jan 13, 2020	0.25 <MDL	5	ug/L	No
6-tetrachlorophenol [ug/L]	Jan 13, 2020	0.20 <MDL	100	ug/L	No
Pentachlorophenol [ug/L]	Jan 13, 2020	0.15 <MDL	60	ug/L	No
THM: Annual Average	Nov 9, 2021	24.5	100	ug/L	No

Parameter	Sample Date	Result Value	Standard (MAC)	Unit of Measure	Exceedance
HAA: Annual Average	Nov 9, 2021	5.3<MDL	80	ug/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
N/A			