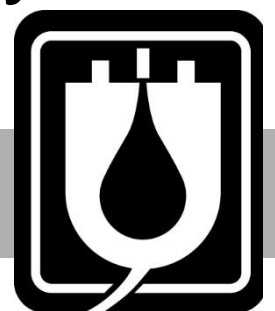


**2020**

**Annual  
Summary  
Report**

**The Corporation of the  
Township of  
Alnwick/Haldimand  
Grafton Drinking Water System**

Prepared by: Lakefront Utility Services Inc.



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## 1. PURPOSE

The purpose of the Annual Water Quality Report is to provide information to residents and stakeholders of the Township of Alnwick/Haldimand. Furthermore, satisfying the regulatory requirements of the *Safe Drinking Water Act, 2002* including the Drinking Water Quality Management Standard (DWQMS) reports to owner, and regulatory reporting required under *Ontario Regulation 170/03*. This annual water quality report fulfills all requirements of *Ontario Regulation 170/03* Section 11 Annual Reports and Schedule 22 Summary Reports for Municipalities.

The annual water quality report is prepared by Lakefront Utility Services Inc. (operating authority) on behalf of the Township of Alnwick/Haldimand (owner).

### Scope

This annual water quality report includes information pertaining to the Village of Grafton's Drinking Water System (Grafton DWS) for the period of January 1, 2020 to December 31, 2020. *Ontario Regulation 170/03* requires reported information be provided to:

- **Drinking Water System Owners (Mayor and Council)**
- **Owner and Operating Authority Top Management**
- **The Public**

### Availability

The Grafton DWS is a large municipal residential system that serves approximately 370 people. Copies of this annual water quality report are available online at <https://www.lakefrontutilities.com/regulatory-water/>. Hard copies are also available at the LUSI's office at 207 Division St, Cobourg ON, K9A 4L3.

Customers of the Grafton DWS are notified that the annual water quality report is available via "What's New" <https://www.lakefrontutilities.com/whats-new/>, social media posts and "Stay Connected" LUSI bill insert.

### Council Resolution

*Ontario Regulation 170/03* requires Summary Reports be distributed to municipal council no later than March 31 of each year. The Township of Alnwick/Haldimand must provide LUSI with a copy of council resolution indicating the report has been accepted.

## 2. GRAFTON DRINKING WATER SYSTEM OVERVIEW

The Grafton Water Treatment Plant (WTP) takes water from two wells, Well #1 and Well #2. Well #1 is the standby well, operation is limited to sampling and emergencies only, as it is influenced by a natural source of ammonia. Well #2 is the duty well and has a rated capacity of 12.5L/s.

*Sodium hypochlorite* is injected for primary and secondary disinfection purposes. The WTP has two buried clear wells, and two high lift pumping wells, where water achieves the appropriate contact time. *Sodium silicate* is added as an iron sequestering agent.

Treated water is conveyed to the distribution system, and to a bulk water truck fill system installed on the exterior of the WTP.

The distribution system is split into four pressure zones that are regulated by four pressure reducing valves that maintain the pressure between 40 and 90 PSI. As of December 31, 2020, there are 341 metered customers. Water is conveyed to customers by approximately 13km of watermain ranging from 150mm to 300mm, made of PVC. There are 130 fire hydrants located within the system.

## 3. 2020 COMPLIANCE

### 3.1 MECP INSPECTION

The Grafton Drinking Water System underwent an unannounced focused MECP compliance inspection starting October 1, 2020 and achieved an inspection rating of 100.00%. No non-compliance with regards to regulatory requirements, or recommendation and best practice issues were identified in the 2020 MECP inspection.

### 3.2 LICENSE & PERMIT COMPLIANCE

The Grafton DWS maintained compliance with all applicable legislation, and all terms and conditions of the Municipal Drinking Water License, Drinking Water Works Permit and Permit to Take Water in 2020.

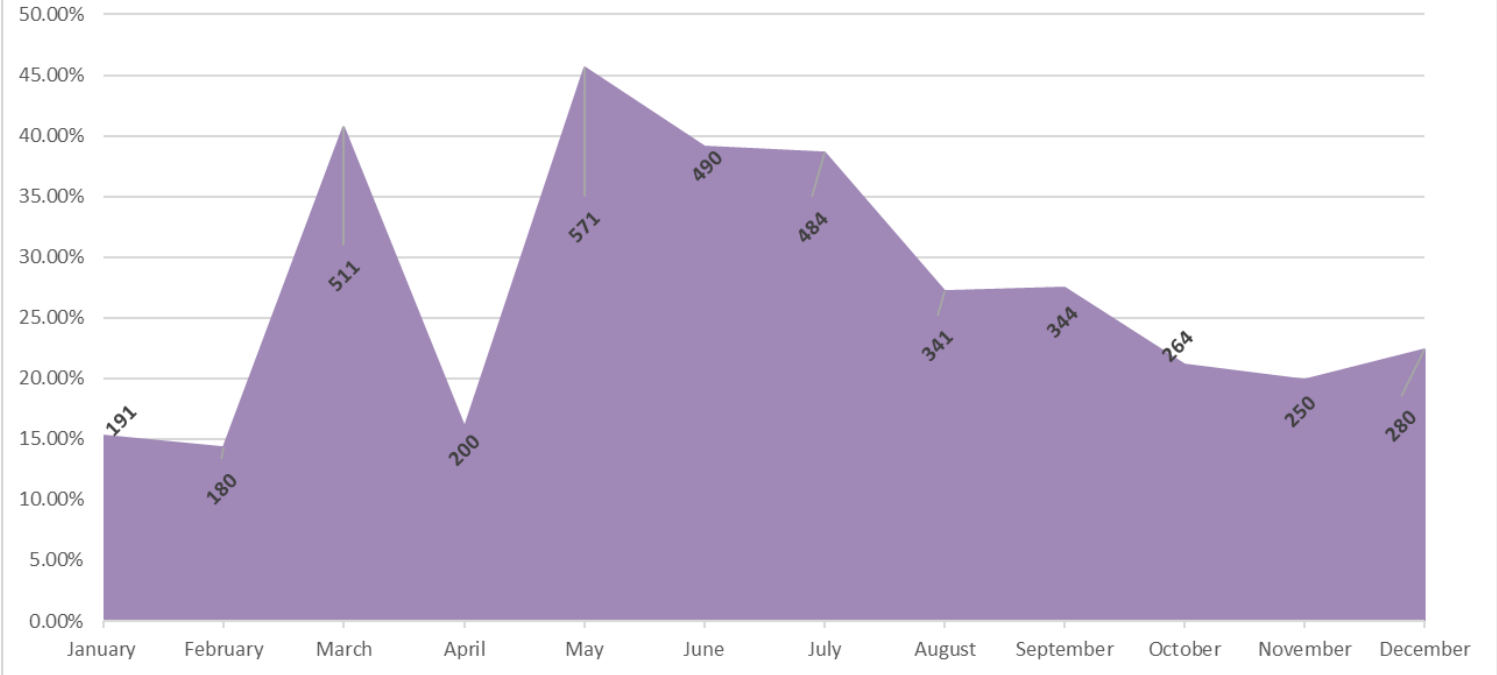
The Grafton DWS Permit to Take Water (Permit No. 5086-9BPM4A) allows the taking of 1,253 m<sup>3</sup> of water from each well per day at a rate of 870L/min. The average flow rate from production well #2 was 138L/min.

The total quantity of water taken and discharged from the WTP is illustrated in Figure 1. In 2020 there were no incidents related to surpassing the maximum volume of water permitted to take. In May 2020, the WTP operated at 46% of its maximum rated capacity, as shown in Figure 2. The labels presented in Figure 2 are representative of the maximum flow observed for the respective month (m<sup>3</sup>).

Figure 1 - Flow Quantities Grafton Drinking Water System



Figure 2 - Grafton WTP % Maximum of Rated Capacity



### 3.3 ADVERSE WATER QUALITY INCIDENT(S)

#### Incident #1 – March 11, 2020

On March 11, 2020 SGS Canada Inc. contacted Lakefront regarding two (2) adverse water quality results at the Grafton Arena and the Grafton Public School as a result of weekly sampling on March 9, 2020. The two locations were resampled, including upstream and downstream, on March 11, 2020. On March 13, 2020 results from SGS Canada Inc. concluded no additional coliform was observed.

## 4. CONTINUAL IMPROVEMENT

LUSI's commitment to continual improvement requires investigating and investing in, where appropriate, methods and technologies to improve

- The quality of processes used to ensure production of ample clean water, and
- The quality and effectiveness of the distribution system.

During the 2020 reporting year, LUSI demonstrated this commitment by completing all the activities listed in Table 1. Table 1 also satisfies O. Reg 170/03 requirement to describe major expenses occurred during the reporting period.

<b>Grafton Water Treatment Plant</b>	Sodium Hypochlorite Pump Replacement	\$8,000
	Refurbished Flow Control Valves (Raw Water Header & High Lift Pump #4)	\$3,900
<b>Grafton Distribution System</b>	Adjusted Lyle St, Clitheroe Rd and Aird St Pressure Reducing Valves	\$1,500
	Distribution Sample Stations	\$6,400

## 5. SAMPLING AND ANALYSIS

The Grafton DWS exhibited compliance with all sampling and testing as required by *Ontario Regulation 170/03* in the 2020 calendar year. Table 2 illustrates all microbiological testing done under Schedule 10 of *Ontario Regulation 170/03*. There were no instances of adverse water quality results as a result of a parameter exceeding its respective maximum acceptable concentration.

	<b>E. Coli, (cfu/100mL)</b>		<b>Total Coliform, (cfu/100mL)</b>		<b>HPC, (cfu/1mL)</b>	
	# of Samples	Range of Results (min # - max #)	# of Samples	Range of Results (min # - max #)	# of Samples	Range of Results (min # - max #)
<b>Raw</b>	106	0 - 0	104	0 – 0	0	N/A
<b>Treated</b>	53	0 - 0	52	0 – 0	53	0 – 1
<b>Distribution</b>	162	0 – 0	162	0 – 52	106	0 – 16

Operational testing done under Schedule 7 of Ontario Regulation 170/03 during the 2020 reporting period are tabulated in Table 3.

	Number of Grab Samples	Range of Results (min # - max #)
<b>Turbidity, Raw Water (NTU)</b>	12	0.07 – 0.87
<b>Turbidity, Treated Water (NTU)</b>	12	0.08 – 0.56
<b>Treated Water Free Chlorine Residual (mg/L)</b>	8760 (continuous monitoring)	0.58 – 2.47

In addition to the microbiological sampling and testing requirements, sampling and testing is required for chemical, inorganic and organic parameters. Table 4 illustrates Schedule 13, Schedule 23 and Schedule 24 requirements. If there were multiple samples taken during the reporting period, the most recent sample result is provided. A parameter below the method detection limit indicated by (<), cannot be detected as the concentration is lower than minimum concentration that can be measured and reported with 99% certainty.

PARAMETER	STANDARD (µg/L)	SAMPLE RESULT (µg/L)	SAMPLE DATE
Fluoride	1.5	0.09	16-Sept-19
Sodium	20	6.87	
Nitrite	1	0.003 < MDL	13-Oct-20
Nitrate	10	0.022	
THM: Annual Average	100	23.5	
HAA: Annual Average	80	5.3 < MDL	
Antimony	6	0.09 < MDL	13-Jan-20
Arsenic	10	0.3	
Barium	1000	146	
Boron	5000	30	
Cadmium	5	0.003 < MDL	
Chromium	50	0.09	
Mercury	1	0.01 < MDL	
Selenium	10	0.04 < MDL	
Uranium	20	0.057	
Benzene	1	0.32 < MDL	
Carbon tetrachloride	2	0.17 < MDL	
1,2-Dichlorobenzene	200	0.41 < MDL	
1,4-Dichlorobenzene	5	0.36 < MDL	



<b>Table 4 – Grafton DWS Schedule 13, 23 and 24 Sampling</b>			
<b>PARAMETER</b>	<b>STANDARD (µg/L)</b>	<b>SAMPLE RESULT (µg/L)</b>	<b>SAMPLE DATE</b>
1,1-Dichloroethylene (vinylidene chloride)	14	0.33 <MDL	
1,2-Dichloroethane	5	0.35 <MDL	
Dichloromethane	50	0.35 <MDL	
Monochlorobenzene	80	0.3 <MDL	
Tetrachloroethylene (perchloroethylene)	10	0.35 <MDL	
Trichloroethylene	5	0.44 <MDL	
Vinyl Chloride	1	0.17 <MDL	
Diquat	70	1 <MDL	
Paraquat	10	1 <MDL	
Glyphosate	280	1 <MDL	
Polychlorinated Biphenyls (PCBs) - Total	3	0.04 <MDL	
Benzo(a)pyrene	0.01	0.004 <MDL	
Alachlor	5	0.02 <MDL	
Atrazine + N-dealkylated metabolites	5	0.02 <MDL	
Atrazine	-	0.01 <MDL	
Desethyl atrazine	-	0.01 <MDL	
Azinphos-methyl	20	0.05 <MDL	
Carbaryl	90	0.05 <MDL	
Carbofuran	90	0.01 <MDL	
Chlorpyrifos	90	0.02 <MDL	
Diazinon	20	0.02 <MDL	
Dimethoate	20	0.06 <MDL	
Diuron	150	0.03 <MDL	
Malathion	190	0.02 <MDL	
Metolachlor	50	0.01 <MDL	
Metribuzin	80	0.02 <MDL	
Phorate	2	0.01 <MDL	
Prometryne	1	0.03 <MDL	
Simazine	10	0.01 <MDL	
Terbufos	1	0.01 <MDL	
Triallate	230	0.01 <MDL	
Trifluralin	45	0.02 <MDL	
2,4-dichlorophenoxyacetic acid (24-D)	100	0.19 <MDL	
Bromoxynil	5	0.33 <MDL	
Dicamba	120	0.20 <MDL	
Diclofop-methyl	9	0.40 <MDL	
MCPA	0.1	0.00012 <MDL	

**Table 4 – Grafton DWS Schedule 13, 23 and 24 Sampling**

PARAMETER	STANDARD (µg/L)	SAMPLE RESULT (µg/L)	SAMPLE DATE
Picloram	190	1 <MDL	
2,4-dichlorophenol	900	0.15 <MDL	
2,4,6-trichlorophenol	5	0.25 <MDL	
6-tetrachlorophenol	100	0.20 <MDL	
Pentachlorophenol	60	0.15 <MDL	