

# 2023 Annual Summary Report

## The Corporation of the Township of Cramahe Colborne 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 Cramahe. 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 Cramahe (owner).

### **Scope**

This annual water quality report includes information pertaining to the Village of Colborne's Drinking Water System (Colborne DWS) for the period of January 1, 2023 to December 31, 2023. *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 Colborne DWS is a large municipal residential system that serves approximately 2,000 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 Colborne 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 Cramahe must provide LUSI with a copy of council resolution indicating the report has been accepted.

### **Operating Authority**

On June 21, 2023 LUSI assumed operations of the Colborne Drinking Water System. Prior to that date the system was being run by Aquatech Canadian Water Services Inc.

## 2. COLBORNE DRINKING WATER SYSTEM OVERVIEW

The Colborne Water Treatment Plant (WTP) takes water from two wells, Well #1a and Well #2, located approximately 25m apart from each other. *Sodium hypochlorite* is injected for disinfection and *sodium silicate* is used as an iron sequestering agent. Primary disinfection is achieved via the 215m serpentine (buried east of the plant). Water is conveyed to the distribution system and the elevated storage tank, which has a capacity of 2,342m<sup>3</sup>.

The distribution system is split into two pressure zones that are regulated by two pressure reducing valves that maintain the pressure between 20 and 90 PSI. There are a total of 1028 metered customers. Water is conveyed to customers by approximately 27 km of watermain ranging from 25 mm to 250 mm, made of PVC, ductile iron and cast iron. There are 138 fire hydrants located within the system.

## 3. 2023 COMPLIANCE

### 3.1 MECP INSPECTION

The Colborne Drinking Water System underwent an announced focused MECP compliance inspection starting June 2, 2023 and achieved an inspection rating of 87.98%. There were five (5) non-compliances with regards to regulatory requirements identified in the 2023 MECP inspection.

#### 3.1.1. Non-compliance

- Non-compliance 1 – Logbooks were not properly maintained and/or did not contain the required information.
- Non-compliance 2 – The minimum chlorine residual required for primary disinfection needs to be adjusted based on temperature to ensure disinfection is achieved under worst case operating conditions.
- Non-compliance 3 – The owner was not maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials.
- Non-compliance 4 – The secondary disinfectant residual was not measured as required for the large municipal residential distribution system.
- Non-compliance 5 – All continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or Municipal Drinking Water License or Drinking Water Works Permit or order, were not equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6.

All findings were responded to by LUSI to the satisfaction of the MECP inspector. No further action was required to be taken.

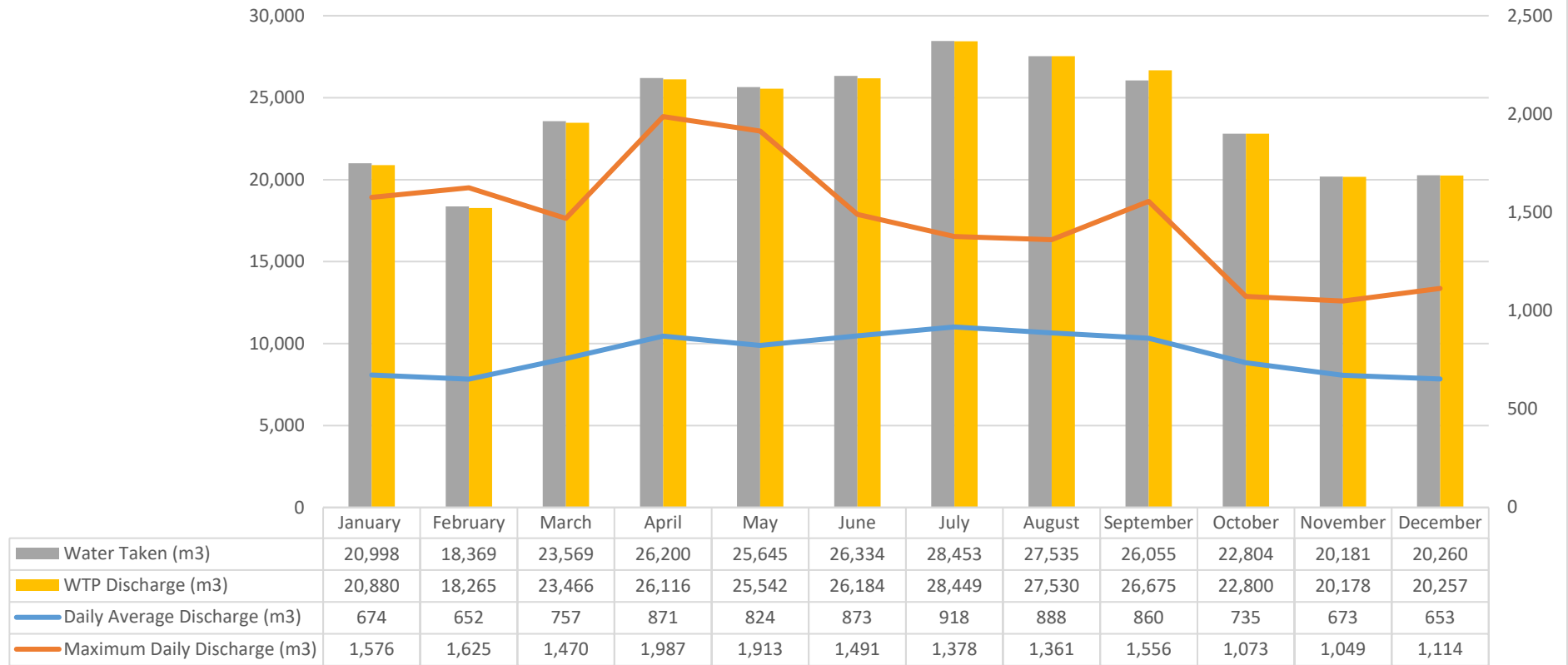
### 3.2 LICENSE & PERMIT COMPLIANCE

The Colborne DWS maintained compliance with all applicable legislation, and all terms and conditions of the Municipal Drinking Water License (138-101, Issue 4, November 5, 2021), Drinking Water Works Permit (138-201, Issue 3, November 5, 2021), and Permit to Take Water (Permit No. 8612-BNENBH, April, 2020) in 2023.

The Colborne DWS Permit to Take Water allows the taking of 3,283.2 m<sup>3</sup> of water from each well per day at a rate of 2,280 L/min. The average flow rate from the production wells was 787 L/min.

The total quantity of water taken and discharged from the WTP is illustrated in Figure 1, Table 1 and Table 2. In April 2023, the WTP operated at 61% 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 Colborne Drinking Water System



Water Taken (m3)
  WTP Discharge (m3)
  Daily Average Discharge (m3)
  Maximum Daily Discharge (m3)

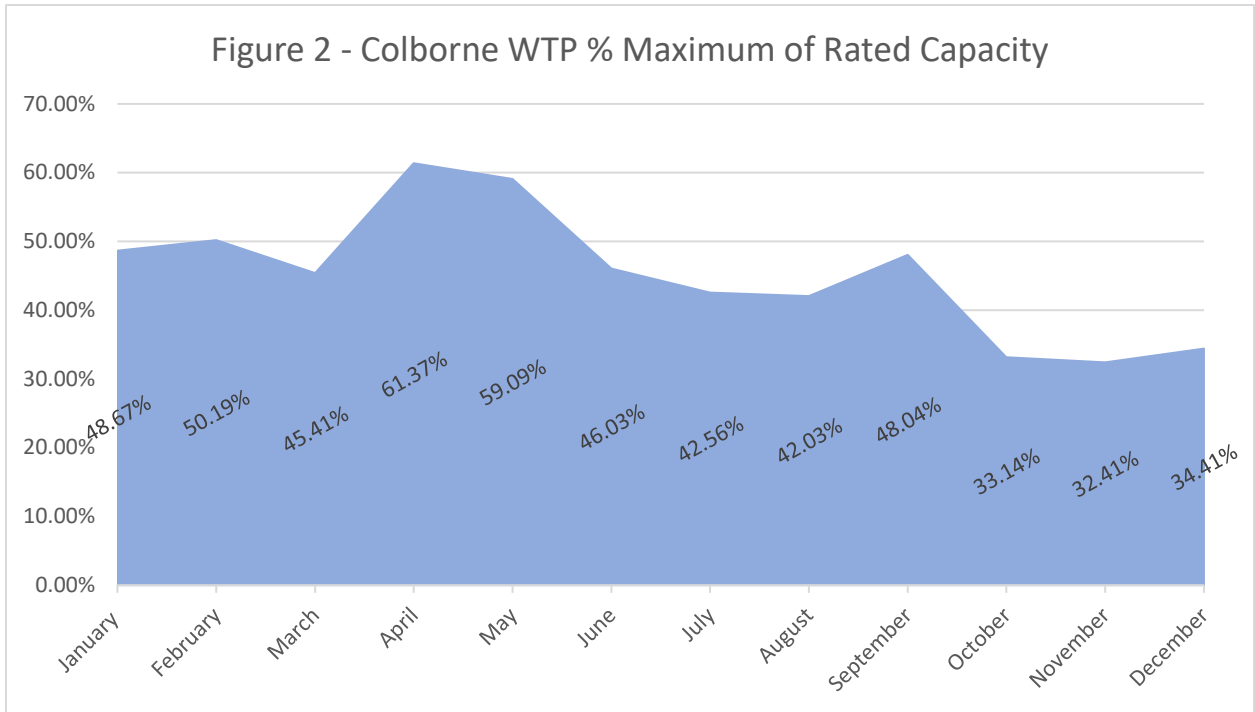


Table 1 - Raw Water Flows (m3)

Month	Monthly Total	Monthly Total Well 1	Monthly Total Well 2	Daily Average	Minimum	Maximum	% Max PTTW
January	20,997.6	20997.1	0.5	677.3	0.0	1580.0	48.1%
February	18,368.5	9461.3	8907.2	656.0	0.0	1637.7	49.9%
March	23,568.6	21639.0	1929.6	760.3	0.0	1473.9	44.9%
April	26,199.8	24046.9	2152.9	873.3	85.0	1987.2	60.5%
May	25,645.2	16770.4	8874.8	827.3	31.0	1913.4	58.3%
June	26,333.6	19459.2	6874.4	877.8	0.0	1490.6	45.4%
July	28,439.2	16027.8	12411.4	917.8	357.1	1378.0	42.0%
August	26,472.9	15465.4	11007.5	888.2	344.5	1360.8	41.5%
September	26,678.7	16578.0	10100.7	898.5	402.1	1555.8	47.4%
October	22,804.4	12395.0	10409.4	735.6	289.5	1073.3	32.7%
November	20,181.4	12500.8	7680.6	672.7	351.7	1049.6	32.0%
December	20,260.3	12980.5	7279.8	653.6	324.3	1114.4	33.9%
<b>Total</b>	<b>285,950.2</b>	<b>198321.5</b>	<b>87628.7</b>	-	-	-	-
<b>Average</b>	<b>23,829.2</b>	<b>16526.8</b>	<b>7302.4</b>	<b>786.5</b>	<b>0.0</b>	<b>1987.2</b>	<b>61%</b>

**Table 2 - Treated Water Flows (m3)**

Month	Monthly Total	Daily Average	Daily Maximum	Daily Minimum
January	20,880.0	673.5	1,576.1	0.0
February	18,265.0	652.3	1,625.3	0.0
March	23,465.9	757.0	1,470.3	0.0
April	26,116.2	870.5	1,987.2	81.3
May	25,542.4	823.9	1,913.4	31.0
June	26,184.3	872.8	1,490.6	0.0
July	28,449.3	917.7	1,378.0	357.1
August	27,530.4	888.1	1,360.8	344.5
September	26,675.3	860.5	1,555.7	0.0
October	22,800.4	735.5	1,073.2	289.1
November	20,178.0	672.6	1,049.5	351.7
December	20,256.9	653.4	1,114.2	324.3
<b>Total</b>	<b>286,344.3</b>	-	-	-
<b>Average</b>	<b>23,862.0</b>	<b>781.5</b>	<b>1,987.2</b>	<b>0.0</b>

### 3.3 ADVERSE WATER QUALITY INCIDENT(S)

There was one adverse water quality incident in 2023.

On April 11, 2023 there was a watermain break on Victoria St. which resulted in a Boil Water Advisory. Samples were taken on April 11 and April 12 which showed no signs on contamination. The Boil Water Advisory was lifted after the negative results were achieved.

## 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 2023 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.



**Table 1 - 2023 Major Expenses Incurred at the Colborne WTP, Distribution System and Misc. Activities**

<b>Colborne DWS</b>	Residential Meter Replacement	\$12,000
	Spool Piece Installation and Valve at WTP	\$8,800
	Cat Hollow Subdivision	\$300,000
	Hydrant Replacement – William Street	\$7,000
	SCADA Tunnel Cybersecurity Upgrade	\$7,000

## 5. SAMPLING AND ANALYSIS

The Colborne DWS exhibited compliance with all sampling and testing as required by *Ontario Regulation 170/03* in the 2023 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.

**Table 2 – Colborne DWS Microbiological Sampling**

	E. Coli, (cfu/100mL)		Total Coliform, (cfu/100mL)		HPC, (cfu/1mL)	
	# of Samples	Range of Results (min # - max #)	# of Samples	Range of Results (min # - max #)	# of Samples	Range of Results (min # - max #)
<b>Raw</b>	101	0 - 0	101	0 - 0	0	N/A
<b>Treated</b>	54	0 - 0	54	0 - 0	54	0 - 1
<b>Distribution</b>	162	0 - 0	162	0 - 0	129	0 - 1

Operational testing done under Schedule 7 of *Ontario Regulation 170/03* during the 2023 reporting period are tabulated in Table 3.

**Table 3 – Colborne DWS Schedule 7 Operational Monitoring Samples**

	Number of Grab Samples	Range of Results (min # - max #)
<b>Turbidity, Raw Water (NTU)</b>	23	0.10-1.16
<b>Turbidity, Treated Water (NTU)</b>	12	0.10-0.55
<b>Treated Water Free Chlorine Residual (mg/L)</b>	8760 (continuous monitoring)	0 – 5.0

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 sample analysis results, with no exceedances during the reporting period. 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 (<) or an ND, cannot be detected as the concentration is lower than minimum concentration that can be measured and reported with 99% certainty.

<b>Table 4 – Colborne 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>
Antimony	6	ND	7-Mar-23 and 21-Mar-23
Arsenic	10	ND	
Barium	1000	130	
Boron	5000	ND	
Cadmium	5	ND	
Chromium	50	ND	
Mercury	1	ND	
Selenium	50	ND	
Uranium	20	3.4	
Benzene	1	ND	
Carbon tetrachloride	2	ND	
1,2-Dichlorobenzene	200	ND	
1,4-Dichlorobenzene	5	ND	
1,1-Dichloroethylene (vinylidene chloride)	14	ND	
1,2-Dichloroethane	5	ND	
Dichloromethane	50	ND	
Monochlorobenzene	80	ND	
Tetrachloroethylene (perchloroethylene)	10	ND	
Trichloroethylene	5	ND	
Vinyl Chloride	1	ND	
Diquat	70	ND	
Paraquat	10	ND	
Glyphosate	280	ND	
Polychlorinated Biphenyls (PCBs) - Total	3	ND	
Benzo(a)pyrene	0.01	ND	
Alachlor	5	ND	
Atrazine + N-dealkylated metabolites	5	ND	
Atrazine	-	ND	
Desethyl atrazine	-	ND	
Azinphos-methyl	20	ND	
Carbaryl	90	ND	
Carbofuran	90	ND	
Chlorpyrifos	90	ND	

<b>PARAMETER</b>	<b>STANDARD (µg/L)</b>	<b>SAMPLE RESULT (µg/L)</b>	<b>SAMPLE DATE</b>
Diazinon	20	ND	
Dimethoate	20	ND	
Diuron	150	ND	
Malathion	190	ND	
Metolachlor	50	ND	
Metribuzin	80	ND	
Phorate	2	ND	
Prometryne	1	ND	
Simazine	10	ND	
Terbufos	1	ND	
Triallate	230	ND	
Trifluralin	45	ND	
2,4-dichlorophenoxyacetic acid (24,-D)	100	ND	
Bromoxynil	5	ND	
Dicamba	120	ND	
Diclofop-methyl	9	ND	
MCPA	0.1	ND	
Picloram	190	ND	
2,4-dichlorophenol	900	ND	
2,4,6-trichlorophenol	5	ND	
2,3,4,6-tetrachlorophenol	100	ND	
Pentachlorophenol	60	ND	
Fluoride	1.5	0.09	16-Sept-19
Sodium	20	5.9	7-Mar-23
THM: Annual Average	100	3.4	30-Oct-23
HAA: Annual Average	80	5.3 < MDL	
Nitrite	1	< 0.003 MDL	
Nitrate	10	1.44	