Ontario

Drinking Water Systems Regulation O. Reg. 170/03

ANNUAL REPORT 2022

Drinking Water System Number:	220001469
Drinking Water System Name:	Zurich Drinking Water System
Drinking Water System Owner:	Corporation of the Municipality of Bluewater
Drinking Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2022 – December 31, 2022

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 [X] **Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No [ ]** **Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.** Municipality of Bluewater 14 Mill Ave. Zurich, Ontario N0M 2T0	**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 their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
Not applicable	Not applicable

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 drinking water?
Not applicable

Indicate how you notified system users that your annual report is available and is free of charge.

- **[X] Public access/notice via the web**
- **[X] Public access/notice via Government Office**
- **[ ] Public access/notice via a newspaper**
- **[X] Public access/notice via Public Request**
- **[ ] Public access/notice via a Public Library**
- **[ ] Public access/notice via other method_____**

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Describe your Drinking Water System

The Zurich Drinking Water System (DWS) serves the community of Zurich located in the Municipality of Bluewater; approximate population served is 966 with a rated capacity of 1,150 m³/ day.

The DWS utilizes two wells, one 88.4 m deep well and one 96.3 m deep well both equipped with a submersible pumps with a rated capacity of 13.3 L/s. The Pumphouse consists of:

- Two raw piping systems equipped with a water meter, discharging into the reservoir;
- Two vertical turbine high lift pumps each with a rated capacity of 11.3 L/s;
- Two sodium hypochlorite chemical metering pumps each rated at 1.6 L/hr;
- One 100 L sodium hypochlorite tank;
- Two iron sequestering metering pumps (one duty and one standby);
- One 100 L sodium silicate tank;
- Back-up power supplied by one 100 kW, 125 KVA diesel standby generator
- SCADA system for process and control

The distribution system consists of PVC piping ranging in size from 50 mm to 200 mm; typical system pressure ranges from 40 psi to 60 psi. The distribution system also includes various appurtenances such as valves, hydrants and blow offs used to monitor and maintain the system.

List all water treatment chemicals used over this reporting period

Sodium Hypochlorite
Sodium Silicate

Were any significant expenses incurred to?

[X**]** Install required equipment
[X**]** Repair required equipment
[X**]** Replace required equipment

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

- Parts inventory stock
- Watermain repairs and service repairs
- Zurich – Hensall pipeline installation and commissioning
- New water services
- Replacement level transducer at reservoir
- Replacement of chlorine probe at pumphouse

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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
2022-02-23 For sample collected on 2022-02-15	Sodium	48.2	mg/L	Resampled on 2022-03-01; resample sodium 46.1 mg/L. Sodium is naturally occurring in source water. Huron Perth Public Health provided sodium fact sheet for the municipality to post on website and distributed to customers, no further action required. AWQI # 157877	2022-03-07

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 Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw Well 1	52	0 – 0	0 – 0	-	-
Raw Well 3	52	0 – 0	0 – 0	-	-
Treated	52	0 – 0	0 – 0	52	< 10 - < 10
Distribution	156	0 – 0	0 – 0	52	< 10 - 20

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 #)	Unit of Measure
Turbidity: Well 1	12	0.17 – 0.35	NTU
Turbidity: Well 3	12	0.1 – 0.23	NTU
Chlorine: Treated Water	8760	0.78 – 1.83	mg/L
Chlorine: Distribution	364	0.48 – 1.44	mg/L

NOTE: For continuous monitors use 8760 as the number of samples

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	Unit of Measure
Not applicable				

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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	2020/01/06	0.09 < MDL	ug/L	No
Arsenic	2022/01/11	6.9	ug/L	No
Arsenic	2022/04/05	7.2	ug/L	No
Arsenic	2022/07/12	7.7	ug/L	No
Arsenic	2022/10/04	7.2	ug/L	No
Barium	2020/01/06	34	ug/L	No
Boron	2020/01/06	219	ug/L	No
Cadmium	2020/01/06	0.007	ug/L	No
Chromium	2020/01/06	0.13	ug/L	No
Mercury	2020/01/06	0.01 <MDL	ug/L	No
Selenium	2020/01/06	0.04 <MDL	ug/L	No
Sodium	2022/02/15	48.2	mg/L	Yes
Sodium	2022/03/01	46.1	mg/L	Yes
Uranium	2020/01/06	0.973	ug/L	No
Fluoride	2021/01/12	1.67	mg/L	Yes
Fluoride	2021/01/19	1.64	mg/L	Yes
Nitrite	2022/01/11	0.003 <MDL	mg/L	No
Nitrite	2022/04/05	0.006	mg/L	No
Nitrite	2022/07/12	0.003 <MDL	mg/L	No
Nitrite	2022/10/04	0.003 <MDL	mg/L	No
Nitrate	2022/01/11	0.006 <MDL	mg/L	No
Nitrate	2022/04/05	0.006 <MDL	mg/L	No
Nitrate	2022/07/12	0.006 <MDL	mg/L	No
Nitrate	2022/10/04	0.006 <MDL	mg/L	No

Summary of lead testing under Schedule 15.1 during this reporting period
(applicable to the following drinking water systems; large municipal residential systems, small
municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Unit of Measure	Number of Exceedances
Distribution	4	0.11 - 8.40	ug/L	0

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	2020/01/06	0.02 <MDL	ug/L	No
Atrazine + N-dealkylated metobolites	2020/01/06	0.01 <MDL	ug/L	No
Azinphos-methyl	2020/01/06	0.05 <MDL	ug/L	No
Benzene	2020/01/06	0.32 <MDL	ug/L	No
Benzo(a)pyrene	2020/01/06	0.004 <MDL	ug/L	No

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Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Bromoxynil	2020/01/06	0.33 <MDL	ug/L	No
Carbaryl	2020/01/06	0.05 <MDL	ug/L	No
Carbofuran	2020/01/06	0.01 <MDL	ug/L	No
Carbon Tetrachloride	2020/01/06	0.17 <MDL	ug/L	No
Chlorpyrifos	2020/01/06	0.02 <MDL	ug/L	No
Diazinon	2020/01/06	0.02 <MDL	ug/L	No
Dicamba	2020/01/06	0.20 <MDL	ug/L	No
1,2-Dichlorobenzene	2020/01/06	0.41 <MDL	ug/L	No
1,4-Dichlorobenzene	2020/01/06	0.36 <MDL	ug/L	No
1,2-Dichloroethane	2020/01/06	0.35 <MDL	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	2020/01/06	0.33 <MDL	ug/L	No
Dichloromethane	2020/01/06	0.35 <MDL	ug/L	No
2-4 Dichlorophenol	2020/01/06	0.15 <MDL	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	2020/01/06	0.19 <MDL	ug/L	No
Diclofop-methyl	2020/01/06	0.40 <MDL	ug/L	No
Dimethoate	2020/01/06	0.06 <MDL	ug/L	No
Diquat	2020/01/06	1 <MDL	ug/L	No
Diuron	2020/01/06	0.03 <MDL	ug/L	No
Glyphosate	2020/01/06	1 <MDL	ug/L	No
HAAs (*Note***:** latest running annual avg.**)**	2022	5.3	ug/L	No
Malathion	2020/01/06	0.02 <MDL	ug/L	No
Metolachlor	2020/01/06	0.01 <MDL	ug/L	No
Metribuzin	2020/01/06	0.02 <MDL	ug/L	No
Monochlorobenzene	2020/01/06	0.3 <MDL	ug/L	No
Paraquat	2020/01/06	1 <MDL	ug/L	No
Pentachlorophenol	2020/01/06	0.15 <MDL	ug/L	No
Phorate	2020/01/06	0.01 <MDL	ug/L	No
Picloram	2020/01/06	1 <MDL	ug/L	No
Polychlorinated Biphenyls(PCB)	2020/01/06	0.04 <MDL	ug/L	No
Prometryne	2020/01/06	0.03 <MDL	ug/L	No
Simazine	2020/01/06	0.01 <MDL	ug/L	No
Terbufos	2020/01/06	0.01 <MDL	ug/L	No
Tetrachloroethylene (perchloroethylene)	2020/01/06	0.35 <MDL	ug/L	No
2,3,4,6-Tetrachlorophenol	2020/01/06	0.20 <MDL	ug/L	No
THMs (*Note:* latest running annual avg.)	2022	18.5	ug/L	No
Triallate	2020/01/06	0.01 <MDL	ug/L	No
Trichloroethylene	2020/01/06	0.44 <MDL	ug/L	No
2,4,6-Trichlorophenol	2020/01/06	0.25 <MDL	ug/L	No
Trifluralin	2020/01/06	0.02 <MDL	ug/L	No
Vinyl Chloride	2020/01/06	0.17 <MDL	ug/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
Sodium	48.2	mg/L	2022/02/15
Sodium	46.1	mg/L	2022/03/01
Fluoride	1.67	mg/L	2021/01/12
Fluoride	1.64	mg/L	2021/01/19
Arsenic	6.9	ug/L	2022/01/11
Arsenic	7.2	ug/L	2022/04/05
Arsenic	7.7	ug/L	2022/07/12
Arsenic	7.2	ug/L	2022/10/04

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

2022 Summary Report

Zurich Drinking Water System

Prepared for the Municipality of Bluewater

By the Ontario Clean Water Agency

SECTION 1 - Overview

This report is a summary of water quantity and quality information for the Zurich Drinking Water System and published in accordance with Schedule 22 of Ontario's Safe Drinking Water Act, Ontario Regulation 170/03 for the reporting period of January 1, 2022 to December 31, 2022. The Zurich Drinking Water System is categorized as a Large Municipal Residential Drinking Water System.

SECTION 2 – Compliance with Regulations

The Zurich Drinking Water System was operated and maintained in such a manner that the water supplied to the consumers serviced by the system satisfied all the requirements in the Safe Drinking Water Act, the Regulations, the Drinking Water Works Permit Number: 045-204, Issue Number: 03, the Municipal Drinking Water License Number: 045-104, Issue Number 6 and the Permit to Take Water 3617-9RXSNN.

A Ministry of Environment, Conservation and Parks (MECP) inspection occurred on November 12, 2021 for the MECP reporting period 2021-2022; inspection report was received on March 07, 2022. The routine MECP Inspections have an Inspection Rating Record, which evaluates the system to provide information for the owner/operator on areas that need to be improved. The particular areas that were evaluated for the Zurich Drinking Water System were: Source, Capacity Assessment, Treatment Processes, Operations Manuals, Logbooks, Certification and Training, Water Quality Monitoring, and Reporting and Corrective Actions. This system received 0 out of 626 non-compliance ratings and as such received 100% for the Final Inspection Rating.

A second Ministry of Environment, Conservation and Parks (MECP) inspection occurred on December 02, 2022 for the MECP reporting period 2022-2023; the inspection report was received on February 16, 2023. No compliance issues were identified during this inspection; the inspection rating has not been received to date.

SECTION 3 – Corrective Actions

One adverse water quality issue was identified in 2022, this was for a sodium exceedance. On February 23, 2022 AWQI # 157877 was issued for a treated water sample sodium result of 48.2 mg/L from a sample obtained on February 15, 2022. The limit for sodium is 20mg/L. A resample was collected on March 01, 2022, with a sodium result of 46.1 mg/L. All required notifications were made; sodium is naturally occurring in the source water. Huron Perth Public Health (HPPH) provided the municipality with a sodium fact sheet to be distributed to consumers. The municipality provided the notices to the consumers and posted the sodium fact sheet on their website. No further action was required.

SECTION 4 – Flow Summary

The Zurich Drinking Water System, total treated water flow for 2022 was 131,487.4 m^3. This volume represents a 14% increase in flows from 2021. The average monthly treated water flow for 2022 was 10,957.28 m^3; the average daily flow was 360.24 m^3/ day. The maximum monthly treated water flow for the reporting period was 13,207.70 m^3 recorded for July 2022. The maximum daily flow for 2022 was 529.97 m^3/ day; this flow value was recorded on June 26, 2022.

The Zurich Drinking Water System, Municipal Drinking Water License (License Number: 045 - 104 Issue No. 6) identifies a system rated capacity of 1,150 m^3/ day.

There were no exceedances of the rated capacity in 2022. The maximum daily flow recorded in 2022 was 529.97 m³ on June 26, 2022.The 2022 maximum daily flow value of 529.97 m³ is 46 % of the identified rated capacity. The average daily flow for 2022 was 360.24 m³ which is 31.33 % of the rated capacity. Refer to Appendix A for a detailed flow summary.

Appendix A

Zurich Drinking Water System - 2022 Water Flows

Month	Total Raw Flow (m^3)	Total Treated Flow (m^3)	Monthly Treated Average (m^3/day)	Maximum Daily Treated Flow (m^3/day)	Rated Capacity approved in MDWL (m^3/d)
January	10,162	10,331	333	364	1,150
February	9,523	9,673	345	373	1,150
March	10,386	10,514	339	387	1,150
April	10,188	10,362	345	385	1,150
May	11,606	11,758	379	455	1,150
June	12,531	12,673	422	530	1,150
July	13,070	13,208	426	503	1,150
August	12,832	12,918	417	471	1,150
September	10,103	10,238	341	497	1,150
October	8,942	9,121	294	320	1,150
November	10,083	10,192	340	433	1,150
December	10,336	10,499	339	402	1,150
Total	129,761	131,487	-	-	-
Average	10,813	10,957	360	-	-