



2023 SECTION 11 ANNUAL REPORT

SAUGEEN SHORES
DRINKING WATER SYSTEM

For the period of:
JANUARY 1, 2023 TO DECEMBER 31, 2023

Prepared for the Town of Saugeen Shores by the Ontario Clean Water Agency

This report was prepared in accordance with the requirements of [O.Reg 170/03, Section 11, Annual reports](#) for the following system and reporting period:

Drinking Water System Number:	210000078
Drinking Water System Name:	Saugeen Shores Drinking Water System
Drinking Water System Owner:	The Corporation of the Town of Saugeen Shores
Drinking Water System Category:	Large Municipal Residential
Reporting Period:	January 1, 2023 – December 31, 2023

Does your Drinking Water System serve more than 10,000 people?

Yes

Is your Annual Report available to the public at no charge on a website on the Internet?

Yes

Note: If a large municipal residential system serves more than 10,000 people, the owner of the system shall ensure that a copy of every report prepared under this section is available to the public at no charge on a website on the Internet. O. Reg. 170/03, Section 11. (10)

Location where Summary Report required under O. Reg 170/03, Schedule 22 will be available for inspection. (O. Reg 170/03, Section 11.(6)(5)):

- Town of Saugeen Shores, 600 Tomlinson Drive, Port Elgin, Ontario, N0H 2C0
- <https://www.saugeenshores.ca/en/town-hall/water-reports.aspx#2021-waterwastewater-reports>

Note: this is required for large municipal residential systems or small municipal residential systems.

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
Saugeen First Nation	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

How system users are notified that the annual report is available, and is free of charge:

- | | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Public access/notice via the web |
| <input checked="" type="checkbox"/> | Public access/notice via Government Office |
| <input type="checkbox"/> | Public access/notice via a newspaper |
| <input checked="" type="checkbox"/> | Public access/notice via Public Request |

- Public access/notice via a Public Library
 Public access/notice via other method: _____

Note: The owner of a drinking water system shall ensure that a copy of an annual report for the system is given, without charge, to every person who requests a copy. ((O.Reg 170/03, Section 11.(7))

Description of Drinking Water System (O.Reg 170/03, Section 11.(6)(a)):

The Saugeen Shores Drinking Water System (DWS) is classified as a Class III Treatment and a Class III Distribution System and categorized as a Large Municipal Drinking Water System under O.Reg 170/03, servicing an approximate population of 16,832 persons.

The Southampton WTP Facility provides treated water to Southampton and Port Elgin via the Saugeen Shores Distribution System. There are two pressure zones, Zone 1 and Zone 2. Zone 1 provides water to the Southampton portion of the Saugeen Shores Distribution System and Zone 2 provides water to the Port Elgin portion of the Saugeen Shores Distribution System.

The Southampton WTP draws raw water from Lake Huron through a 1600 m long, 762 mm diameter HDPE intake pipe with a raw water sample line and a chlorine gas feed line for zebra mussel control.

There is a 600 mm diameter concrete standby intake pipe, with a wooden intake crib and flat sealed top and a 38 mm diameter solution feed for zebra mussel control inside the concrete pipe. There is an underground inlet chamber equipped with a manually cleaned raw water screen.

The Southampton Water Treatment Plant (WTP) is supplied by Lake Huron, the treatment system consists of:

- Low lift pumping station (LLPS) (raw water well, treatment and control facilities, strainers)
- Membrane filtration systems (with a cleaning system and residuals management)
- Dual chlorine gas feeder system for Zebra Mussel control and pre-chlorination
- SCADA system with operation control instrumentation (including process and compliance monitoring)
- 2 generator sets (back-up power supply), one at the WTP and one at the LLPS.

The distribution system is made up of the following:

- Storage reservoir, booster pump station
- Water standpipes (2)
- Approximately 8 kilometers of trunk watermains
Approximately 146 kilometers of distribution watermains

List of water treatment chemicals used by the system during the reporting period (O.Reg 170/03, Section 11.(6)(a)):

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|--|
| <ul style="list-style-type: none"> • Sodium Hypochlorite 12% • Chlorine Gas • Poly-aluminum chloride • Citric Acid • Calcium Thiosulphate |
|--|

Significant expenses were incurred to:

- | | |
|-------------------------------------|---------------------------------------|
| <input checked="" type="checkbox"/> | Install required equipment |
| <input checked="" type="checkbox"/> | Repair required equipment |
| <input checked="" type="checkbox"/> | Replace required equipment |
| <input type="checkbox"/> | No significant expenses were incurred |

Description of major expenses during the reporting period to install, repair or replace required equipment (O.Reg 170/03, Section 11.(6)(e)):

- | |
|---|
| <ul style="list-style-type: none"> • Replaced valve on filter trains • New sensor assembly in downstream strainer • PLC upgrades • New radios at LLPS and WTP • New filter modules • Intake and raw water well cleaning • New chlorine analyzer • Highlift pump rebuild |
|---|

Summary of any reports/notices submitted to the Ministry and/or Spills Action Centre in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 during the reporting period, including a description of any corrective actions taken under Schedule 17 or 18 (O. Reg 170/03, Section 11.(6)(b),(d)):

Incident Date (yyyy/mm/dd)	Parameter/ Notice of	Result & Unit	Reporting Summary, Corrective Actions & Resolution
2023/04/24	Category 2 Watermain Break	N/A	<ul style="list-style-type: none"> - AWQI #161814-Due to category 2 watermain break - OCWA reported the watermain break to the MECP, local Health Unit (GBHU) and SAC on April 24, 2023 - Watermain repaired, flushed, chlorine residuals and bacteriological samples taken - Service restored on April 24, 2023

			<ul style="list-style-type: none"> - Sample results received on April 27, 2023 and were negative for bacteriological presence (within regulatory requirements). No additional actions required by Health Unit or MECP - Written notice of resolution submitted on April 28, 2023. No further actions required.
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Table 1. Microbiological testing done under the Schedule 11 of Regulation 170/03 during this reporting period (O.Reg 170/03, Section 11.(6)(c)).

Location	Number of Samples	Range of E. Coli or Fecal Results		Range of Total Coliform Results		Number of HPC Samples	Range of HPC Samples	
		Min.	Max.	Min.	Max.		Min.	Max.
Raw^{1a}	52	0	NDOGT	0	NDOGT	N/A	N/A	N/A
Treated^{1b}	52	0	0	0	0	52	0	1
Distribution^{1c}	364	0	0	0	0	106	0	96

Note: HPC = Heterotrophic Plate Count, NDOGT=No Data: Overgrown with Target Bacteria

Note: Units for E.Coli or Fecal Results are cfu/100 mL, units for Total Coliform Results are cfu/100 mL, units for HPC results are cfu/1mL

^{1a}O.Reg 170/03, Schedule 10-4. (1)(3) requires for a large municipal residential system that a water sample is taken at least once every week from the drinking water system’s raw water, before any treatment is applied to the water and tested for E.Coli and total coliforms.

^{1b}O Reg 170/03, Schedule 10-3 requires for a large municipal residential system that a treated water sample is taken at least once every week and tested for E.Coli, total coliforms and general bacteria population expressed as colony counts on a heterotrophic count (HPC).

^{1c}O.Reg. 170/03 Schedule 10-2.(1)(2)(3) requires that a system that serves 100,000 people or less, at least eight distribution samples, plus one additional sample for every 1,000 people served by the system to be taken every month, with at least one of the samples being taken in each week and be tested for E.Coli, Total Coliforms. At least 25 percent of the samples required must be tested for general bacteria population expressed as colony counts on heterotrophic plate count (HPC). The number of people served by the system is 16,832 (as confirmed with the Owner on February 3, 2023), and therefore requires at minimum twenty-four samples per month.

Table 2. Operational testing done under Schedule 7 of Regulation 170/03 during the period covered by this Annual Report (O. Reg 170/03, Section 11.(6)(c)).

Parameter & Location	Number of Samples	Range of Results	
		Min.	Max.
Turbidity, Filter #1 (NTU) ^{2a}	8760	0.01	0.38 ^{2a}
Turbidity, Filter #2 (NTU) ^{2a}	8760	0.01	0.99 ^{2a}
Turbidity, Filter #3 (NTU) ^{2a}	8760	0.01	0.11 ^{2a}
Turbidity, Filter #4 (NTU) ^{2a}	8760	0.01	0.15 ^{2a}
Free Chlorine Residual, Zone #1 Treated Water (mg/L) ^{2b}	8760	0.86	2.00
Free Chlorine Residual, Zone #2 Treated Water (mg/L) ^{2b}	8760	0.89	2.05
Free Chlorine Residual, Distribution Water (mg/L) ^{2c}	8760	0.73	1.74

Note: The number of samples used for continuous monitoring units is 8760.

^{2a}If a drinking water system obtains water from a raw water supply that is surface water and the system provides filtration, the owner of a system shall ensure that sampling and testing for turbidity is carried out by continuous monitoring equipment on each filter effluent line (O.Reg.170/03, Schedule 7-3.(2)(b)). Monthly filter efficiency requirements met.

^{2b}O.Reg 170/03 Schedule 7-2.(1) requires a drinking water system that provides chlorination for primary disinfection to sample and test for free chlorine residual with continuous monitoring equipment in the treatment process at or near a location where the intended contact time has just been completed.

^{2c}O.Reg 170/03 Schedule 7-2.(3) requires a large municipal residential system that provides secondary disinfection to take at least seven distribution samples each week and immediately tested for free chlorine residual, if the system provides chlorination and does not provide chloramination. Sampling for distribution free chlorine residual at the Saugeen Shores Drinking Water is taken via continuous monitoring, as permitted under O.Reg 170/03, Schedule 6-4. Chlorine residual is taken from the Port Elgin Reservoir.

Table 3. Summary of additional testing and sampling results carried out in accordance with the requirement of an approval, municipal drinking water licence or order (including OWRA) or other legal instrument. (O. Reg 170/03, Section 11.(6)(c))

Legal Instrument & Issue Date (yyyy/mm/dd)	Parameter	Date Sampled	Annual Average	Allowable Annual Average	Annual Maximum	MDWL Allowable Maximum
2021-03-19 MDWL #093-101 (Issue 3)	Filter Backwash Suspended Solids	Monthly	2.42 mg/L	15 mg/L	5.00 mg/L	25 mg/L

Table 4. Summary of Inorganic parameters tested during this reporting period or the most recent sample results (O.Reg 170/03, Section 11.(6)(c))

Parameter & Location	Sample Date ^{4a} (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Antimony: Sb (µg/L) - TW	2023/01/03	<MDL 0.6	6.0	No
Arsenic: As (µg/L) - TW	2023/01/03	0.6	10.0	No
Barium: Ba (µg/L) - TW	2023/01/03	17.3	1000.0	No
Boron: B (µg/L) - TW	2023/01/03	31.0	5000.0	No
Cadmium: Cd (µg/L) - TW	2023/01/03	0.018	5.0	No
Chromium: Cr (µg/L) - TW	2023/01/03	0.16	50.0	No
Mercury: Hg (µg/L) - TW	2023/01/03	<MDL 0.01	1.0	No
Selenium: Se (µg/L) - TW	2023/01/03	0.08	50.0	No
Uranium: U (µg/L) - TW	2023/01/03	0.313	20.0	No
Fluoride (mg/L) - TW	2023/01/03 ^{4b}	0.06	1.5	No
Nitrite (mg/L) - TW	2023/01/04	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2023/04/13	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2023/07/24	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2023/10/03	<MDL 0.003	1.0	No
Nitrate (mg/L) - TW	2023/01/04	0.663	10.0	No
Nitrate (mg/L) - TW	2023/04/13	0.455	10.0	No
Nitrate (mg/L) - TW	2023/07/24	0.253	10.0	No
Nitrate (mg/L) - TW	2023/10/03	0.281	10.0	No

^{4a}The owner of a large municipal residential system that obtains water from a raw water supply that is surface water shall ensure that at least one water sample for inorganics is taken every 12 months (O.Reg 170/03, Schedule 13-2.(1)). The last set of samples were collected and tested in 2023, the next set of samples are scheduled to be collected and tested in 2024.

^{4b}Fluoride is reportable every 60 months. The most recent sample was taken in 2023. The next set of Fluoride samples are scheduled to be taken in 2028.

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Aesthetic Objective (AO)	Exceedance	
				AO	> 20 mg/L
Sodium: Na (mg/L) - TW	2023/01/03 ^{4c}	6.03	200	No	No

Note: MDL = Minimum Detection Limit, TW = Treated Water

Note: There is no regulatory Maximum Allowable Concentration (MAC) Sodium. The aesthetic objective (AO) for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

^{4c}Sodium is reportable every 60 months. The most recent sample was taken in 2023. The next set of Sodium samples are scheduled to be taken in 2028.

Table 5: Summary of lead testing under Schedule 15.1 during this reporting period (O.Reg 170/03, Section 11.(6)(g))

Location/Type & Parameter	Number of Samples ^{5a}	Range of Results		Number of Lead Exceedances (MAC = 10 µ/L)
		Min.	Max.	
Period: January 1 to April 15				
Plumbing – Lead (µg/L) ^{5b}	N/A	N/A	N/A	0
Distribution – Lead (µg/L) ^{5c}	4	0.02	0.19	0
Distribution – Alkalinity (mg/L as CaCO ₃)	4	96	106	N/A
Distribution – pH	4	7.85	8.07	N/A
Period: June 15 to October 15				
Plumbing – Lead (µg/L) ^{5b}	N/A	N/A	N/A	0
Distribution – Lead (µg/L) ^{5c}	4	0.02	0.20	0
Distribution – Alkalinity (mg/L as CaCO ₃)	4	77	80	N/A
Distribution – pH	4	8.05	8.22	N/A
Period: December 15 to 31				
Plumbing – Lead (µg/L) ^{5b}	N/A	N/A	N/A	0
Distribution – Lead (µg/L) ^{5c}	N/A	N/A	N/A	0
Distribution – Alkalinity (mg/L as CaCO ₃)	N/A	N/A	N/A	N/A
Distribution - pH	N/A	N/A	N/A	N/A

Note: this is required for large municipal residential systems, small municipal residential systems or non-municipal year-round residential system.

^{5a}*This system follows a reduced sampling schedule (O.Reg. 170/03, Section 15.1.5). The number of sampling points for the system is based on the population served by the system. The number of people served by the system is 8,000 (as confirmed with the Owner on September 28, 2022), and therefore requires 4 distribution sampling points per sampling period.*

^{5b}*Plumbing samples are not applicable as this system qualifies for the plumbing exemption per O. Reg 170/03 Schedule 15.1-5 (9) (10).*

^{5c}*This system follows a reduced sampling schedule (O.Reg 170/03, Section 15.1.5). Distribution lead samples are collected every 36 months. The most recent set of distribution lead samples were collected within the winter period of December 15, 2022 to April 15, 2023 and summer period of June 15, 2023 to October 15, 2023. The next set of distribution lead samples is scheduled to be collected within the winter period of December 15, 2025 to April 15, 2026 and summer period of June 15, 2026 to October 15, 2026.*

Table 6: Summary of Organic parameters sampled during this reporting period or the most recent sample results (O.Reg 170/03, Section 11.(6)(c)).

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Alachlor (µg/L) - TW	2023/01/03	<MDL 0.02	5.0	No
Atrazine + N-dealkylated metabolites (µg/L) - TW	2023/01/03	<MDL 0.01	5.0	No
Azinphos-methyl (µg/L) - TW	2023/01/03	<MDL 0.05	20.0	No
Benzene (µg/L) - TW	2023/01/03	<MDL 0.32	1.0	No
Benzo(a)pyrene (µg/L) - TW	2023/01/03	<MDL 0.004	0.01	No
Bromoxynil (µg/L) - TW	2023/01/03	<MDL 0.33	5.0	No
Carbaryl (µg/L) - TW	2023/01/03	<MDL 0.05	90.0	No
Carbofuran (µg/L) - TW	2023/01/03	<MDL 0.01	90.0	No
Carbon Tetrachloride (µg/L) - TW	2023/01/03	<MDL 0.17	2.0	No
Chlorpyrifos (µg/L) - TW	2023/01/03	<MDL 0.02	90.0	No
Diazinon (µg/L) - TW	2023/01/03	<MDL 0.02	20.0	No
Dicamba (µg/L) - TW	2023/01/03	<MDL 0.2	120.0	No
1,2-Dichlorobenzene (µg/L) - TW	2023/01/03	<MDL 0.41	200.0	No
1,4-Dichlorobenzene (µg/L) - TW	2023/01/03	<MDL 0.36	5.0	No
1,2-Dichloroethane (µg/L) - TW	2023/01/03	<MDL 0.35	5.0	No
1,1-Dichloroethylene (µg/L) - TW	2023/01/03	<MDL 0.33	14.0	No
Dichloromethane (Methylene Chloride) (µg/L) - TW	2023/01/03	<MDL 0.35	50.0	No
2,4-Dichlorophenol (µg/L) - TW	2023/01/03	<MDL 0.15	900.0	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (µg/L) - TW	2023/01/03	<MDL 0.19	100.0	No
Diclofop-methyl (µg/L) - TW	2023/01/03	<MDL 0.4	9.0	No
Dimethoate (µg/L) - TW	2023/01/03	<MDL 0.06	20.0	No
Diquat (µg/L) - TW	2023/01/03	<MDL 1.0	70.0	No
Diuron (µg/L) - TW	2023/01/03	<MDL 0.03	150.0	No
Glyphosate (µg/L) - TW	2023/01/03	<MDL 1.0	280.0	No
Malathion (µg/L) - TW	2023/01/03	<MDL 0.02	190.0	No
Metolachlor (µg/L) - TW	2023/01/03	<MDL 0.01	50.0	No
Metribuzin (µg/L) - TW	2023/01/03	<MDL 0.02	80.0	No

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Monochlorobenzene (Chlorobenzene) (µg/L) - TW	2023/01/03	<MDL 0.3	80.0	No
Paraquat (µg/L) - TW	2023/01/03	<MDL 1.0	10.0	No
PCB (µg/L) - TW	2023/01/03	<MDL 0.04	3.0	No
Pentachlorophenol (µg/L) - TW	2023/01/03	<MDL 0.15	60.0	No
Phorate (µg/L) - TW	2023/01/03	<MDL 0.01	2.0	No
Picloram (µg/L) - TW	2023/01/03	<MDL 1.0	190.0	No
Prometryne (µg/L) - TW	2023/01/03	<MDL 0.03	1.0	No
Simazine (µg/L) - TW	2023/01/03	<MDL 0.01	10.0	No
Terbufos (µg/L) - TW	2023/01/03	<MDL 0.01	1.0	No
Tetrachloroethylene (µg/L) - TW	2023/01/03	<MDL 0.35	10.0	No
2,3,4,6-Tetrachlorophenol (µg/L) - TW	2023/01/03	<MDL 0.2	100.0	No
Triallate (µg/L) - TW	2023/01/03	<MDL 0.01	230.0	No
Trichloroethylene (µg/L) - TW	2023/01/03	<MDL 0.44	5.0	No
2,4,6-Trichlorophenol (µg/L) - TW	2023/01/03	<MDL 0.25	5.0	No
2-methyl-4- chlorophenoxyacetic acid (MCPA) (µg/L) - TW	2023/01/03	<MDL 0.12	100.0	No
Trifluralin (µg/L) - TW	2023/01/03	<MDL 0.02	45.0	No
Vinyl Chloride (µg/L) - TW	2023/01/03	<MDL 0.17	1.0	No
Trihalomethane: Total (µg/L) Annual Average - DW	2023 (Quarterly)	45.3	100.0	No
HAA Total (µg/L) Annual Average - DW	2023 (Quarterly)	15.5	80.0	No

Note: DW = Distribution Water, TW = Treated Water, MDL = Minimum Detection Limit, MAC = Maximum Allowable Concentration, HAA = Haloacetic Acids

Note: The owner of a large municipal residential system that obtains water from a raw water supply that is surface water shall ensure that at least one water sample for organics is taken every 12 months (O.Reg 170/03, Schedule 13-4.(1)). The last set of samples were collected and tested in 2023, the next set of samples are scheduled to be collected and tested in 2024.

Table 7: List of Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards for the reporting period.

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result
N/A	N/A	N/A