ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

EAST LINTON
DRINKING WATER SYSTEM

Large Municipal Residential

SECTION 11
ANNUAL REPORT

For the period of
JANUARY 1, 2022 TO DECEMBER 31, 2022

Prepared by the Ontario Clean Water Agency
For the Township of Georgian Bluffs

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:	220007659
Drinking Water System Name:	East Linton Drinking Water System
Drinking Water System Owner:	Township of Georgian Bluffs
Drinking Water System Category:	Large Municipal Residential
Reporting Period:	January 1, 2022 – December 31, 2022

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

No

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))*:

- Georgian Bluffs Municipal Office, 177964 Grey Rd #18 RR#3, Owen Sound ON, N4K 5N5
- https://www.georgianbluffs.ca/en/township-services/utilities-and-water.aspx

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	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?

N/A

How system users are notified that the 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:

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

The East Linton Drinking Water System (DWS) is a Class I Treatment and a Class II Distribution System and is supplied by Georgian Bay (surface water) via a low lift pumping station which provides pre-chlorination on an as needed basis for zebra mussel control. The water treatment facility consists of the following:

- Chlorination system (hypochlorite injected upstream of membrane filtration system)
- Membrane filtration system (2 units in parallel)
- UV disinfection system (3 reactors)
- Facility wide integrated process control system
- Waste residual management system (storage, re-treatment, disposal)
- Standby power generator set

A back-up power connection is installed at the low-lift building to bring in a portable generator (if required). A water tower is located in the distribution system and used to provide storage and pressure to the system.

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

- Sodium Hypochlorite, 12%
- Sodium Hydroxide
- Citric Acid

Significant expenses were incurred to:

X	Install required equipment
X	Repair required equipment
X	Replace required equipment
	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)):

- Replaced gaskets for PALL skids
- Replaced cooling fan for plant PLC
- Miscellaneous Distribution repair parts

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	Result	Unit of Measure	Corrective Action	Corrective Action Date (yyyy/mm/dd)
N/A	N/A	N/A	N/A	N/A	N/A

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	52	0	3	0	86	N/A	N/A	N/A
Treated	52	0	0	0	0	52	0	6
Distribution*	116	0	0	0	0	52	0	7

**As per O.Reg 170/03 Schedule 10-2.(a),(3) if the system serves 100,000 people or less, at least eight distribution samples, plus one additional distribution sample for every 1,000 people served by the system, are taken every month and at least 25% of the samples are tested for HPC.*

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, Raw Water* (NTU)	364	0.07	5.06
Turbidity, Filter A (NTU)	8760	0.01	0.05
Turbidity, Filter B (NTU)	8760	0.02	0.03
Free Chlorine Residual, Treated Water (mg/L)	8760	1.27	2.98
Free Chlorine Residual, Distribution Water (mg/L)	416	0.65	2.01

Note: The number of samples used for continuous monitoring units is 8760.
**O. Reg 170/03 Schedule 7-3 (2) requires a raw water sample be taken at least once every month and tested for turbidity.*

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)	Sample Location & Parameter	Sampling Frequency	Allowable Result	Actual Result & Date (yyyy/mm/dd)
N/A	N/A	N/A	N/A	N/A

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 (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Antimony: Sb (ug/L) - TW	2022/01/05	<MDL 0.6	6.0	No
Arsenic: As (ug/L) - TW	2022/01/05	0.4	10.0	No
Barium: Ba (ug/L) - TW	2022/01/05	13.8	1000.0	No
Boron: B (ug/L) - TW	2022/01/05	12.0	5000.0	No
Cadmium: Cd (ug/L) - TW	2022/01/05	0.012	5.0	No
Chromium: Cr (ug/L) - TW	2022/01/05	0.25	50.0	No
Mercury: Hg (ug/L) - TW	2022/01/05	<MDL 0.01	1.0	No
Selenium: Se (ug/L) - TW	2022/01/05	0.13	50.0	No
Uranium: U (ug/L) - TW	2022/01/05	0.183	20.0	No
Fluoride (mg/L) - TW	2021/04/12	0.12	1.5	No
Nitrite (mg/L) - TW	2022/01/05	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2022/04/25	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2022/07/11	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2022/10/26	<MDL 0.003	1.0	No
Nitrate (mg/L) - TW	2022/01/05	0.269	10.0	No
Nitrate (mg/L) - TW	2022/04/25	0.262	10.0	No
Nitrate (mg/L) - TW	2022/07/11	0.254	10.0	No
Nitrate (mg/L) - TW	2022/10/26	0.242	10.0	No

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Aesthetic Objective (AO)	Exceedance	
				AO	> 20 mg/L
Sodium: Na (mg/L) - TW	2021/04/12[c]	7.24	200[d]	No	No

Note: MDL = Minimum Detection Limit

[c]Sodium is reportable every 60 months. Next set of sodium samples is scheduled to be sampled in 2026.

[d]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.

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	Range of Results		Number of Lead Exceedances (MAC = 10 µ/L)
		Min.	Max.	
Period: January 1 to April 15				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	2	0.01	0.42	0
Distribution – Alkalinity (mg/L as $CaCO_3$)	2	74	89	N/A
Distribution – pH	2	7.00	7.10	N/A
Period: June 15 to October 15				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	2	0.25	0.54	0
Distribution – Alkalinity (mg/L as $CaCO_3$)	2	70	72	N/A
Distribution – pH	2	7.81	7.97	N/A
Period: December 15 to 31				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	N/A	N/A	N/A	N/A
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.

[a]Plumbing samples are not applicable as this system qualifies for the plumbing exemption per O. Reg 170/03 Schedule 15.1-5 (9) (10).

[b]Four (4) distribution lead samples are only taken every 12 months. (i.e. 2 samples per period).

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 (ug/L) - TW	2022/01/05	<MDL 0.02	5.0	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2022/01/05	0.01	5.0	No
Azinphos-methyl (ug/L) - TW	2022/01/05	<MDL 0.05	20.0	No
Benzene (ug/L) - TW	2022/01/05	<MDL 0.32	1.0	No
Benzo(a)pyrene (ug/L) - TW	2022/01/05	<MDL 0.004	0.01	No
Bromoxynil (ug/L) - TW	2022/01/05	<MDL 0.33	5.0	No

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Carbaryl (ug/L) - TW	2022/01/05	<MDL 0.05	90.0	No
Carbofuran (ug/L) - TW	2022/01/05	<MDL 0.01	90.0	No
Carbon Tetrachloride (ug/L) - TW	2022/01/05	<MDL 0.17	2.0	No
Chlorpyrifos (ug/L) - TW	2022/01/05	<MDL 0.02	90.0	No
Diazinon (ug/L) - TW	2022/01/05	<MDL 0.02	20.0	No
Dicamba (ug/L) - TW	2022/01/05	<MDL 0.2	120.0	No
1,2-Dichlorobenzene (ug/L) - TW	2022/01/05	<MDL 0.41	200.0	No
1,4-Dichlorobenzene (ug/L) - TW	2022/01/05	<MDL 0.36	5.0	No
1,2-Dichloroethane (ug/L) - TW	2022/01/05	<MDL 0.35	5.0	No
1,1-Dichloroethylene (ug/L) - TW	2022/01/05	<MDL 0.33	14.0	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2022/01/05	<MDL 0.35	50.0	No
2,4-Dichlorophenol (ug/L) - TW	2022/01/05	<MDL 0.15	900.0	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2022/01/05	<MDL 0.19	100.0	No
Diclofop-methyl (ug/L) - TW	2022/01/05	<MDL 0.4	9.0	No
Dimethoate (ug/L) - TW	2022/01/05	<MDL 0.06	20.0	No
Diquat (ug/L) - TW	2022/01/05	<MDL 1.0	70.0	No
Diuron (ug/L) - TW	2022/01/05	<MDL 0.03	150.0	No
Glyphosate (ug/L) - TW	2022/01/05	<MDL 1.0	280.0	No
Malathion (ug/L) - TW	2022/01/05	<MDL 0.02	190.0	No
Metolachlor (ug/L) - TW	2022/01/05	<MDL 0.01	50.0	No
Metribuzin (ug/L) - TW	2022/01/05	<MDL 0.02	80.0	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2022/01/05	<MDL 0.3	80.0	No
Paraquat (ug/L) - TW	2022/01/05	<MDL 1.0	10.0	No
PCB (ug/L) - TW	2022/01/05	<MDL 0.04	3.0	No
Pentachlorophenol (ug/L) - TW	2022/01/05	<MDL 0.15	60.0	No
Phorate (ug/L) - TW	2022/01/05	<MDL 0.01	2.0	No
Picloram (ug/L) - TW	2022/01/05	<MDL 1.0	190.0	No
Prometryne (ug/L) - TW	2022/01/05	<MDL 0.03	1.0	No

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Simazine (ug/L) - TW	2022/01/05	<MDL 0.01	10.0	No
Terbufos (ug/L) - TW	2022/01/05	<MDL 0.01	1.0	No
Tetrachloroethylene (ug/L) - TW	2022/01/05	<MDL 0.35	10.0	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2022/01/05	<MDL 0.2	100.0	No
Triallate (ug/L) - TW	2022/01/05	<MDL 0.01	230.0	No
Trichloroethylene (ug/L) - TW	2022/01/05	<MDL 0.44	5.0	No
2,4,6-Trichlorophenol (ug/L) - TW	2022/01/05	<MDL 0.25	5.0	No
Trifluralin (ug/L) - TW	2022/01/05	<MDL 0.12	45.0	No
Vinyl Chloride (ug/L) - TW	2022/01/05	<MDL 0.02	1.0	No
Trihalomethane: Total (ug/L) Annual Average - DW	2022 (Quarterly)	51.25	100.0	No
HAA Total (ug/L) Annual Average - DW	2022 (Quarterly)	15.90	80.0	No

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

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

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

OXENDEN
DISTRIBUTION SYSTEM

Large Municipal Residential

SECTION 11
ANNUAL REPORT

For the period of
JANUARY 1, 2022 TO DECEMBER 31, 2022

Prepared by the Ontario Clean Water Agency
For the Township of Georgian Bluffs

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:	260004215
Drinking Water System Name:	Oxenden Distribution System
Drinking Water System Owner:	Township of Georgian Bluffs
Drinking Water System Category:	Large Municipal Residential
Reporting Period:	January 1, 2022 – December 31, 2022

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

No

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))*:

- Georgian Bluffs Municipal Office, 177964 Grey Rd #18 RR#3, Owen Sound ON, N4K 5N5
- https://www.georgianbluffs.ca/en/township-services/utilities-and-water.aspx

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	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?

N/A

How system users are notified that the 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:

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

The Oxenden Water Distribution System (WDS) is a Class I Distribution System and is supplied by water from the Wiarton Water Treatment Plant which is owned by the Town of South Bruce Peninsula.

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

N/A

Significant expenses were incurred to:

	Install required equipment
	Repair required equipment
X	Replace required equipment
	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)):

- Multiple distribution system parts

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	Result	Unit of Measure	Corrective Action	Corrective Action Date (yyyy/mm/dd)
N/A	N/A	N/A	N/A	N/A	N/A

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.
Distribution*	104	0	0	0	0	52	0	23

**As per O.Reg 170/03 Schedule 10-2.(a),(3) if the system serves 100,000 people or less, at least eight distribution samples, plus one additional distribution sample for every 1,000 people served by the system, are taken every month and at least 25% of the samples are tested for HPC.*

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.
Free Chlorine Residual, Distribution Water (mg/L)	416	0.42	2.20

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)	Sample Location & Parameter	Sampling Frequency	Allowable Result	Actual Result & Date (yyyy/mm/dd)
N/A	N/A	N/A	N/A	N/A

Table 4. Summary of Inorganic 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
N/A	N/A	N/A	N/A	N/A

**A summary of the Treated Water Inorganic parameters tested for the water supplied to the Oxenden Distribution system can be found in the Annual Report for the Wiarton Drinking Water System.*

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	Range of Results		Number of Lead Exceedances (MAC = 10 µ/L)
		Min.	Max.	
Period: January 1 to April 15				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	1	0.03	0.03	0
Distribution – Alkalinity (mg/L as $CaCO_3$)	1	72	72	N/A
Distribution – pH	1	8.11	8.11	N/A
Period: June 15 to October 15				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	1	0.69	0.69	0
Distribution – Alkalinity (mg/L as $CaCO_3$)	1	73	73	N/A
Distribution – pH	1	7.82	7.82	N/A

Period: December 15 to 31				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	N/A	N/A	N/A	N/A
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.

[a]Plumbing samples are not applicable as this system qualifies for the plumbing exemption per O. Reg 170/03 Schedule 15.1-5 (9) (10).

[b]Two (2) distribution lead samples are only taken every 12 months. (i.e. 1 samples per period).

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
Trihalomethane: Total (ug/L) Annual Average - DW	2022 (Quarterly)	41.50	100.0	No
HAA Total (ug/L) Annual Average - DW	2022 (Quarterly)	17.03	80.0	No

Note: DW = Distribution Water, MDL = Minimum Detection Limit, MAC = Maximum Allowable Concentration

**A summary of the Treated Water Organic parameters tested for the water supplied to the Oxenden Distribution system can be found in the Annual Report for the Wiarton Drinking Water System.*

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

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

POTTAWATOMI
DRINKING WATER SYSTEM

Small Municipal Residential

SECTION 11
ANNUAL REPORT

For the period of
JANUARY 1, 2022 TO DECEMBER 31, 2022

Prepared by the Ontario Clean Water Agency
For the Township of Georgian Bluffs

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:	220008319
Drinking Water System Name:	Pottawatomi Drinking Water System
Drinking Water System Owner:	Township of Georgian Bluffs
Drinking Water System Category:	Small Municipal Residential
Reporting Period:	January 1, 2022 – December 31, 2022

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

No

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))*:

- Georgian Bluffs Municipal Office, 177964 Grey Rd #18 RR#3, Owen Sound ON, N4K 5N5
- https://www.georgianbluffs.ca/en/township-services/utilities-and-water.aspx

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	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?

N/A

How system users are notified that the 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:

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

The Pottawatomi Drinking Water System (DWS) is a Class I Treatment and a Class I Distribution System and is supplied by a deep drilled (GUDI) groundwater well (PW 2). The water treatment facility is equipped with the following:

- a cartridge filtration system (used as pretreatment for the UV disinfection system),
- a two stage disinfection system consisting of:
  - UV Disinfection System (3 UV reactors in parallel)
  - Chlorination System (Sodium Hypochlorite)
- A sodium silicates injection system (downstream of the UV units) for iron sequestration
- Facility-wide integrated process and instrumentation control system and;
- A stand-by generator set

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

- Sodium Hypochlorite, 6%
- Sodium Silicate

Significant expenses were incurred to:

X	Install required equipment
X	Repair required equipment
X	Replace required equipment
	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)):

- Replaced 4-20 ma conversion
- Replaced inline chlorine analyzer
- Replaced inline turbidity analyzer

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	Result	Unit of Measure	Corrective Action	Corrective Action Date (yyyy/mm/dd)
N/A	N/A	N/A	N/A	N/A	N/A

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.
Well #2	12	0	0	0	0	N/A	N/A	N/A
Distribution*	52	0	0	0	0	52	0	21

**O.Reg 170/03 Schedule 11-2 (1) requires at least one distribution sample be taken every two weeks.*

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, Well #2[a] (NTU)	12	0.46	4.18
Turbidity, Treated Water (NTU)	8760	0.00	2.00*
Free Chlorine Residual, Treated Water (mg/L)	8760	0.75	5.00**
Free Chlorine Residual, Distribution (mg/L)	104	0.47	2.12

Note: The number of samples used for continuous monitoring units is 8760.
[a]O. Reg 170/03 Schedule 7-3 (2) requires a raw water sample be taken at least once every month and tested for turbidity.
**Due to a filter breakthrough on March 19, flushing on April 9, October 13 and November 4, 6 and 7, no water directed to users at time of incident.*
***Due to chlorine analyzer maintenance on October 13.*

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)	Sample Location & Parameter	Sampling Frequency	Allowable Result	Actual Result & Date (yyyy/mm/dd)
N/A	N/A	N/A	N/A	N/A

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 (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Antimony: Sb (ug/L) - TW	2022/01/05	<MDL 0.6	6.0	No
Arsenic: As (ug/L) - TW	2022/01/05	2.5	10.0	No
Barium: Ba (ug/L) - TW	2022/01/05	84.5	1000.0	No
Boron: B (ug/L) - TW	2022/01/05	209.0	5000.0	No
Cadmium: Cd (ug/L) - TW	2022/01/05	0.006	5.0	No
Chromium: Cr (ug/L) - TW	2022/01/05	0.12	50.0	No
Mercury: Hg (ug/L) - TW	2022/01/05	<MDL 0.01	1.0	No
Selenium: Se (ug/L) - TW	2022/01/05	<MDL 0.04	50.0	No
Uranium: U (ug/L) - TW	2022/01/05	0.069	20.0	No
Fluoride (mg/L) - TW	2021/04/19	0.24	1.5	No
Nitrite (mg/L) - TW	2022/01/05	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2022/04/25	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2022/07/11	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2022/10/26	<MDL 0.003	1.0	No
Nitrate (mg/L) - TW	2022/01/05	0.007	10.0	No
Nitrate (mg/L) - TW	2022/04/25	0.006	10.0	No
Nitrate (mg/L) - TW	2022/07/11	0.008	10.0	No
Nitrate (mg/L) - TW	2022/10/26	0.01	10.0	No

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Aesthetic Objective (AO)	Exceedance	
				AO	> 20 mg/L
Sodium: Na (mg/L) - TW	2021/04/19[c]	14.6	200[d]	No	No

Note: MDL = Minimum Detection Limit

[c]Sodium is reportable every 60 months. Next set of sodium samples is scheduled to be sampled in 2026.

[d]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.

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	Range of Results		Number of Lead Exceedances (MAC = 10 µ/L)
		Min.	Max.	
Period: January 1 to April 15				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	2	0.07	0.11	0
Distribution – Alkalinity (mg/L as $CaCO_3$)	2	238	241	N/A
Distribution – pH	2	7.07	7.08	N/A
Period: June 15 to October 15				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	2	0.01	0.02	0
Distribution – Alkalinity (mg/L as $CaCO_3$)	2	209	219	N/A
Distribution – pH	2	7.23	7.28	N/A
Period: December 15 to 31				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	N/A	N/A	N/A	N/A
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.

[a]Plumbing samples are not applicable as this system qualifies for the plumbing exemption per O. Reg 170/03 Schedule 15.1-5 (9) (10).

[b]Four (4) distribution lead samples are only taken every 12 months. (i.e. 2 samples per period).

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 (ug/L) - TW	2022/01/05	<MDL 0.02	5.0	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2022/01/05	<MDL 0.01	5.0	No
Azinphos-methyl (ug/L) - TW	2022/01/05	<MDL 0.05	20.0	No
Benzene (ug/L) - TW	2022/01/05	<MDL 0.32	1.0	No
Benzo(a)pyrene (ug/L) - TW	2022/01/05	<MDL 0.004	0.01	No

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Bromoxynil (ug/L) - TW	2022/01/05	<MDL 0.33	5.0	No
Carbaryl (ug/L) - TW	2022/01/05	<MDL 0.05	90.0	No
Carbofuran (ug/L) - TW	2022/01/05	<MDL 0.01	90.0	No
Carbon Tetrachloride (ug/L) - TW	2022/01/05	<MDL 0.17	2.0	No
Chlorpyrifos (ug/L) - TW	2022/01/05	<MDL 0.02	90.0	No
Diazinon (ug/L) - TW	2022/01/05	<MDL 0.02	20.0	No
Dicamba (ug/L) - TW	2022/01/05	<MDL 0.2	120.0	No
1,2-Dichlorobenzene (ug/L) - TW	2022/01/05	<MDL 0.41	200.0	No
1,4-Dichlorobenzene (ug/L) - TW	2022/01/05	<MDL 0.36	5.0	No
1,2-Dichloroethane (ug/L) - TW	2022/01/05	<MDL 0.35	5.0	No
1,1-Dichloroethylene (ug/L) - TW	2022/01/05	<MDL 0.33	14.0	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2022/01/05	<MDL 0.35	50.0	No
2,4-Dichlorophenol (ug/L) - TW	2022/01/05	<MDL 0.15	900.0	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2022/01/05	<MDL 0.19	100.0	No
Diclofop-methyl (ug/L) - TW	2022/01/05	<MDL 0.4	9.0	No
Dimethoate (ug/L) - TW	2022/01/05	<MDL 0.06	20.0	No
Diquat (ug/L) - TW	2022/01/05	<MDL 1.0	70.0	No
Diuron (ug/L) - TW	2022/01/05	<MDL 0.03	150.0	No
Glyphosate (ug/L) - TW	2022/01/05	<MDL 1.0	280.0	No
Malathion (ug/L) - TW	2022/01/05	<MDL 0.02	190.0	No
Metolachlor (ug/L) - TW	2022/01/05	<MDL 0.01	50.0	No
Metribuzin (ug/L) - TW	2022/01/05	<MDL 0.02	80.0	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2022/01/05	<MDL 0.3	80.0	No
Paraquat (ug/L) - TW	2022/01/05	<MDL 1.0	10.0	No
PCB (ug/L) - TW	2022/01/05	<MDL 0.04	3.0	No
Pentachlorophenol (ug/L) - TW	2022/01/05	<MDL 0.15	60.0	No
Phorate (ug/L) - TW	2022/01/05	<MDL 0.01	2.0	No
Picloram (ug/L) - TW	2022/01/05	<MDL 1.0	190.0	No

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Prometryne (ug/L) - TW	2022/01/05	<MDL 0.03	1.0	No
Simazine (ug/L) - TW	2022/01/05	<MDL 0.01	10.0	No
Terbufos (ug/L) - TW	2022/01/05	<MDL 0.01	1.0	No
Tetrachloroethylene (ug/L) - TW	2022/01/05	<MDL 0.35	10.0	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2022/01/05	<MDL 0.2	100.0	No
Triallate (ug/L) - TW	2022/01/05	<MDL 0.01	230.0	No
Trichloroethylene (ug/L) - TW	2022/01/05	<MDL 0.44	5.0	No
2,4,6-Trichlorophenol (ug/L) - TW	2022/01/05	<MDL 0.25	5.0	No
Trifluralin (ug/L) - TW	2022/01/05	<MDL 0.12	45.0	No
Vinyl Chloride (ug/L) - TW	2022/01/05	<MDL 0.02	1.0	No
Trihalomethane: Total (ug/L) Annual Average - DW	2022 (Quarterly)	3.43	100.0	No
HAA Total (ug/L) Annual Average - DW	2022 (Quarterly)	5.30	80.0	No

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

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

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

SHALLOW LAKE
DRINKING WATER SYSTEM

Large Municipal Residential

SECTION 11
ANNUAL REPORT

For the period of
JANUARY 1, 2022 TO DECEMBER 31, 2022

Prepared by the Ontario Clean Water Agency
For the Township of Georgian Bluffs

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:	220009096
Drinking Water System Name:	Shallow Lake Drinking Water System
Drinking Water System Owner:	Township of Georgian Bluffs
Drinking Water System Category:	Large Municipal Residential
Reporting Period:	January 1, 2022 – December 31, 2022

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

No

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))*:

- Georgian Bluffs Municipal Office, 177964 Grey Rd #18 RR#3, Owen Sound ON, N4K 5N5
- https://www.georgianbluffs.ca/en/township-services/utilities-and-water.aspx

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	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?

N/A

How system users are notified that the 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:

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

The Shallow Lake Drinking Water System (DWS) is a Class III Treatment and a Class I Distribution System. The treatment plant is supplied by 2 deep drilled GUDI wells and consists of the following:

- Potassium permanganate dosing system (upstream of green sand filtration to assist with iron and manganese removal)
- Greensand filtration (for iron and manganese removal)
- Coagulation, flocculation and settling
- Dual media filtration (sand/anthracite)
- Anion resin exchange system (to remove inorganics)
- Waste Residual Management System (waste from filter backwash and ion exchange is stored in a holding/disposal tank)
- Sodium hypochlorite addition (for primary and secondary disinfection/trim chlorination)
- UV Disinfection System - Two (2) UV reactor units (one duty and one standby) for primary disinfection
- Reservoir/contact tank (for onsite storage to help achieve the required contact time)
- Integrated process and instrumentation control system (for system control and data acquisition)
- Standby diesel engine generator set (back-up power supply)

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

- Sodium Hypochlorite, 12%
- Polyaluminum Chloride (PACl)
- Potassium Permanganate

Significant expenses were incurred to:

X	Install required equipment
X	Repair required equipment
X	Replace required equipment
	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)):

- Replaced Ion Exchange tank, pipe, gravel and media
- Replaced Brine Tank level transmitter
- Replaced Greensand Filter media and underdrain

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	Result	Unit of Measure	Corrective Action	Corrective Action Date (yyyy/mm/dd)
N/A	N/A	N/A	N/A	N/A	N/A

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.
Well #1 (PW2)	52	0	NDOGT*	0	NDOGT*	N/A	N/A	N/A
Well #2 (PW3)	52	0	NDOGT*	0	NDOGT*	N/A	N/A	N/A
Treated	52	0	0	0	0	52	0	2
Distribution**	104	0	0	0	0	52	0	7

**NDOGT – No Data: Overgrown with Target Bacteria*

****As per O.Reg 170/03 Schedule 10-2.(a),(3) *if the system serves 100,000 people or less, at least eight distribution samples, plus one additional distribution sample for every 1,000 people served by the system, are taken every month and at least 25% of the samples are tested for HPC.*

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, Raw Water[a] (NTU)	8760	0.01	99.89
Turbidity, Filter 1[b] (NTU)	8760	0.02	0.84
Turbidity, Filter 2[b] (NTU)	8760	0.02	2.00**
Free Chlorine Residual, Treated Water (mg/L)	8760	0.40*	2.20
Free Chlorine Residual, Distribution Water (mg/L)	416	0.34	1.68

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

[a]O. Reg 170/03 Schedule 7-3 (2) requires a raw water sample be taken at least once every month and tested for turbidity.

[b]Monthly Filter Efficiency met

**Chlorine residual drop due to maintenance on chlorine analyzer lasting 1 minute on October 31.*

***Turbidity spike on startup due to maintenance lasting 1 minute on June 6.*

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)	Sample Location & Parameter	Sampling Frequency	Allowable Result	Actual Result & Date (yyyy/mm/dd)
N/A	N/A	N/A	N/A	N/A

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 (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Antimony: Sb (ug/L) - TW	2022/01/05	<MDL 0.6	6.0	No
Arsenic: As (ug/L) - TW	2022/01/05	<MDL 0.2	10.0	No
Barium: Ba (ug/L) - TW	2022/01/05	2.72	1000.0	No
Boron: B (ug/L) - TW	2022/01/05	10.0	5000.0	No
Cadmium: Cd (ug/L) - TW	2022/01/05	0.004	5.0	No
Chromium: Cr (ug/L) - TW	2022/01/05	0.24	50.0	No
Mercury: Hg (ug/L) - TW	2022/01/05	<MDL 0.01	1.0	No
Selenium: Se (ug/L) - TW	2022/01/05	0.07	50.0	No
Uranium: U (ug/L) - TW	2022/01/05	0.018	20.0	No
Fluoride (mg/L) - TW	2021/04/12	0.06	1.5	No
Nitrite (mg/L) - TW	2022/01/05	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2022/04/25	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2022/07/11	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2022/10/26	<MDL 0.003	1.0	No
Nitrate (mg/L) - TW	2022/01/05	0.732	10.0	No
Nitrate (mg/L) - TW	2022/04/25	0.456	10.0	No
Nitrate (mg/L) - TW	2022/07/11	0.221	10.0	No
Nitrate (mg/L) - TW	2022/10/26	0.935	10.0	No

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Aesthetic Objective (AO)	Exceedance	
				AO	> 20 mg/L
Sodium: Na (mg/L) - TW	2021/04/12[c]	7.96	200[d]	No	No

Note: MDL = Minimum Detection Limit

[c]Sodium is reportable every 60 months. Next set of sodium samples is scheduled to be sampled in 2026.

[d]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.

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	Range of Results		Number of Lead Exceedances (MAC = 10 µ/L)
		Min.	Max.	
Period: January 1 to April 15				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	1	0.11	0.11	0
Distribution – Alkalinity (mg/L as $CaCO_3$)	1	204	204	N/A
Distribution – pH	1	6.94	6.94	N/A
Period: June 15 to October 15				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	1	0.31	0.31	0
Distribution – Alkalinity (mg/L as $CaCO_3$)	1	272	272	N/A
Distribution – pH	1	7.88	7.88	N/A
Period: December 15 to 31				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	N/A	N/A	N/A	N/A
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.

[a]Plumbing samples are not applicable as this system qualifies for the plumbing exemption per O. Reg 170/03 Schedule 15.1-5 (9) (10).

[b]Two (2) distribution lead samples are only taken every 12 months. (i.e. 1 sample per period).

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 (ug/L) - TW	2022/01/05	<MDL 0.02	5.0	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2022/01/05	<MDL 0.01	5.0	No
Azinphos-methyl (ug/L) - TW	2022/01/05	<MDL 0.05	20.0	No
Benzene (ug/L) - TW	2022/01/05	<MDL 0.32	1.0	No
Benzo(a)pyrene (ug/L) - TW	2022/01/05	<MDL 0.004	0.01	No
Bromoxynil (ug/L) - TW	2022/01/05	<MDL 0.33	5.0	No

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Carbaryl (ug/L) - TW	2022/01/05	<MDL 0.05	90.0	No
Carbofuran (ug/L) - TW	2022/01/05	<MDL 0.01	90.0	No
Carbon Tetrachloride (ug/L) - TW	2022/01/05	<MDL 0.17	2.0	No
Chlorpyrifos (ug/L) - TW	2022/01/05	<MDL 0.02	90.0	No
Diazinon (ug/L) - TW	2022/01/05	<MDL 0.02	20.0	No
Dicamba (ug/L) - TW	2022/01/05	<MDL 0.2	120.0	No
1,2-Dichlorobenzene (ug/L) - TW	2022/01/05	<MDL 0.41	200.0	No
1,4-Dichlorobenzene (ug/L) - TW	2022/01/05	<MDL 0.36	5.0	No
1,2-Dichloroethane (ug/L) - TW	2022/01/05	<MDL 0.35	5.0	No
1,1-Dichloroethylene (ug/L) - TW	2022/01/05	<MDL 0.33	14.0	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2022/01/05	<MDL 0.35	50.0	No
2,4-Dichlorophenol (ug/L) - TW	2022/01/05	<MDL 0.15	900.0	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2022/01/05	<MDL 0.19	100.0	No
Diclofop-methyl (ug/L) - TW	2022/01/05	<MDL 0.4	9.0	No
Dimethoate (ug/L) - TW	2022/01/05	<MDL 0.06	20.0	No
Diquat (ug/L) - TW	2022/01/05	<MDL 1.0	70.0	No
Diuron (ug/L) - TW	2022/01/05	<MDL 0.03	150.0	No
Glyphosate (ug/L) - TW	2022/01/05	<MDL 1.0	280.0	No
Malathion (ug/L) - TW	2022/01/05	<MDL 0.02	190.0	No
Metolachlor (ug/L) - TW	2022/01/05	<MDL 0.01	50.0	No
Metribuzin (ug/L) - TW	2022/01/05	<MDL 0.02	80.0	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2022/01/05	<MDL 0.3	80.0	No
Paraquat (ug/L) - TW	2022/01/05	<MDL 1.0	10.0	No
PCB (ug/L) - TW	2022/01/05	<MDL 0.04	3.0	No
Pentachlorophenol (ug/L) - TW	2022/01/05	<MDL 0.15	60.0	No
Phorate (ug/L) - TW	2022/01/05	<MDL 0.01	2.0	No
Picloram (ug/L) - TW	2022/01/05	<MDL 1.0	190.0	No
Prometryne (ug/L) - TW	2022/01/05	<MDL 0.03	1.0	No

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Simazine (ug/L) - TW	2022/01/05	<MDL 0.01	10.0	No
Terbufos (ug/L) - TW	2022/01/05	<MDL 0.01	1.0	No
Tetrachloroethylene (ug/L) - TW	2022/01/05	<MDL 0.35	10.0	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2022/01/05	<MDL 0.2	100.0	No
Triallate (ug/L) - TW	2022/01/05	<MDL 0.01	230.0	No
Trichloroethylene (ug/L) - TW	2022/01/05	<MDL 0.44	5.0	No
2,4,6-Trichlorophenol (ug/L) - TW	2022/01/05	<MDL 0.25	5.0	No
Trifluralin (ug/L) - TW	2022/01/05	<MDL 0.12	45.0	No
Vinyl Chloride (ug/L) - TW	2022/01/05	<MDL 0.02	1.0	No
Trihalomethane: Total (ug/L) Annual Average - DW	2022 (Quarterly)	41.50	100.0	No
HAA Total (ug/L) Annual Average - DW	2022 (Quarterly)	20.98	80.0	No

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

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

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

WIARTON
DRINKING WATER SYSTEM

Large Municipal Residential

SECTION 11
ANNUAL REPORT

For the period of
JANUARY 1, 2022 TO DECEMBER 31, 2022

Prepared by the Ontario Clean Water Agency
For the Town of South Bruce Peninsula

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:	220002681
Drinking Water System Name:	Wiarton Drinking Water System
Drinking Water System Owner:	Town of South Bruce Peninsula
Drinking Water System Category:	Large Municipal Residential
Reporting Period:	January 1, 2022 – December 31, 2022

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

No

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 South Bruce Peninsula, 315 George Street, Wiarton ON, N0H 2T0
- https://www.southbrucepeninsula.com/en/town-hall/water-and-sewer-reports.aspx#2021

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
Oliphant Drinking Water System	220007695
Oxenden Distribution System	260004215

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:

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:

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

The Wiarton Drinking Water System (DWS) is a Class III Treatment and Class II Distribution System.

The Wiarton Water Treatment Plant is supplied by Colpoy's Bay (Georgian Bay). The treatment system consists of the following:

- A bar screen and standby travelling screen (low lift station section)
- Sodium hypochlorite (pre-chlorination for zebra mussel control and chlorination after filtration)
- Coagulation and Flocculation
- Filtration (dual media gravity filters)
- Waste Residual Management (filter backwash wastewater sedimentation tank with sludge withdrawal. Sludge is discharged to the sanitary sewer and the supernatant is dechlorinated and then discharged to Colpoy's Bay)
- Polymer system (for enhancing settling in the wastewater sedimentation tank)
- Sodium Bisulphate feed system (prior to flocculation or to raw water well for dechlorination/pH correction and to the wastewater residual management system for dechlorination)
- UV Disinfection System
- Activated carbon feed system for taste and odour control (currently is not being used)
- Clearwell (for storage and to achieve required contact time)
- SCADA System (for monitoring and control)
- Diesel generator set (for emergency back-up power)

The distribution system consists of the following:

- Wiarton Standpipe and Booster Station.
- Approximately 23.5 kilometers of distribution water mains

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

- Sodium Hypochlorite 12%
- PAX-XL1900 Coagulation
- LIPQIPAM A-307PG Flocculation
- Sodium Metabisulfite

Significant expenses were incurred to:

X	Install required equipment
X	Repair required equipment
X	Replace required equipment
	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)):

- Replacement UV quartz sleeves
- Chlorine analyzer repair kit
- Replacement chlorine dosing pump
- Replacement high lift pump and drive
- Replacement booster pump motor
- Distribution system repair parts

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**	**Result**	**Unit of Measure**	**Corrective Action**	**Corrective Action Date** (yyyy/mm/dd)
N/A	N/A	N/A	N/A	N/A	N/A

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	52	0	NDOGT*	0	NDOGT*	N/A	N/A	N/A
Treated	52	0	0	0	0	52	0	2
Distribution	156	0	0	0	0	52	0	5

*NDOGT – No Data: Overgrown with Target Bacteria

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, Raw Water (NTU)	8760	0.02	10.00
Turbidity, Filter A (NTU)	8760	0.02	0.25
Turbidity, Filter B (NTU)	8760	0.02	0.43*
Free Chlorine Residual, Treated Water (mg/L)	8760	0.48**	3.17
Free Chlorine Residual, Distribution Water (mg/L)	730	0.45	1.38

Note: The number of samples used for continuous monitoring units is 8760.
**Spike caused by backwash cycle on July 4, 2022. Over 0.3 NTU for 5 minutes. Monthly filter efficiency met.*
***Chlorine leak on pump on February 2, 2022. CT met.*

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	Number of Samples	Annual Average	Allowable Annual Average
March 6, 2020 094-102 (Issue 4)	Total Suspended Solids (Filter backwash)	2022 (Monthly)	12	7.4	25 mg/L
March 6, 2020 094-102 (Issue 4)	Total Chlorine Residual (Filter backwash)	2022 (Monthly)	12	0.00	0.02 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 (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Antimony: Sb (ug/L) - TW	2022/01/04	<MDL 0.6	6.0	No
Arsenic: As (ug/L) - TW	2022/01/04	0.3	10.0	No
Barium: Ba (ug/L) - TW	2022/01/04	13.9	1000.0	No
Boron: B (ug/L) - TW	2022/01/04	10.0	5000.0	No
Cadmium: Cd (ug/L) - TW	2022/01/04	0.005	5.0	No
Chromium: Cr (ug/L) - TW	2022/01/04	0.23	50.0	No
Mercury: Hg (ug/L) - TW	2022/01/04	<MDL 0.01	1.0	No
Selenium: Se (ug/L) - TW	2022/01/04	0.12	50.0	No
Uranium: U (ug/L) - TW	2022/01/04	0.061	20.0	No
Fluoride (mg/L) - TW	2018/01/08	0.07	1.5	No
Nitrite (mg/L) - TW	2022/01/04	<MDL 0.003	1.0	No

Nitrite (mg/L) - TW	2022/04/04	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2022/07/05	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW	2022/10/03	<MDL 0.003	1.0	No
Nitrate (mg/L) - TW	2022/01/04	0.259	10.0	No
Nitrate (mg/L) - TW	2022/04/04	0.261	10.0	No
Nitrate (mg/L) - TW	2022/07/05	0.233	10.0	No
Nitrate (mg/L) - TW	2022/10/03	0.229	10.0	No

Parameter & Location	**Sample Date** (yyyy/mm/dd)	**Sample Result**	**Aesthetic Objective (AO)**	**Exceedance**	
				AO	> 20 mg/L
Sodium: Na (mg/L) - TW	2018/01/08[c]	7.41	200[d]	No	No

Note: MDL = Minimum Detection Limit

[c]Sodium is reportable every 60 months. Next set of sodium samples is scheduled to be sampled in 2023.

[d]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.

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**	**Range of Results**		**Number of Lead Exceedances (MAC = 10 µ/L)**
		Min.	Max.	
Period: January 1 to April 15				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	N/A	N/A	N/A	N/A
Distribution – Alkalinity (mg/L as $CaCO_3$)	2	78	79	N/A
Distribution – pH	2	8.46	8.60	N/A
Period: June 15 to October 15				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	N/A	N/A	N/A	N/A
Distribution – Alkalinity (mg/L as $CaCO_3$)	2	71	73	N/A
Distribution – pH	2	8.27	8.33	N/A
Period: December 15 to 31				
Plumbing – Lead (µg/L)[a]	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L)[b]	N/A	N/A	N/A	N/A
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.

[a]Plumbing samples are not applicable as this system qualifies for the plumbing exemption per O. Reg 170/03 Schedule 15.1-5 (9) (10).
[b] Distribution lead samples are taken every 36 months. The next set of distribution lead samples is scheduled to be sampled during the winter period of December 15, 2023 to April 15, 2024 and summer period of June 15, 2024 to October 15, 2024.

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 (ug/L) - TW	2022/01/04	<MDL 0.02	5.0	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2022/01/04	<MDL 0.01	5.0	No
Azinphos-methyl (ug/L) - TW	2022/01/04	<MDL 0.05	20.0	No
Benzene (ug/L) - TW	2022/01/04	<MDL 0.32	1.0	No
Benzo(a)pyrene (ug/L) - TW	2022/01/04	<MDL 0.004	0.01	No
Bromoxynil (ug/L) - TW	2022/01/04	<MDL 0.33	5.0	No
Carbaryl (ug/L) - TW	2022/01/04	<MDL 0.05	90.0	No
Carbofuran (ug/L) - TW	2022/01/04	<MDL 0.01	90.0	No
Carbon Tetrachloride (ug/L) - TW	2022/01/04	<MDL 0.17	2.0	No
Chlorpyrifos (ug/L) - TW	2022/01/04	<MDL 0.02	90.0	No
Diazinon (ug/L) - TW	2022/01/04	<MDL 0.02	20.0	No
Dicamba (ug/L) - TW	2022/01/04	<MDL 0.2	120.0	No
1,2-Dichlorobenzene (ug/L) - TW	2022/01/04	<MDL 0.41	200.0	No
1,4-Dichlorobenzene (ug/L) - TW	2022/01/04	<MDL 0.36	5.0	No
1,2-Dichloroethane (ug/L) - TW	2022/01/04	<MDL 0.35	5.0	No
1,1-Dichloroethylene (ug/L) - TW	2022/01/04	<MDL 0.33	14.0	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2022/01/04	<MDL 0.35	50.0	No
2,4-Dichlorophenol (ug/L) - TW	2022/01/04	<MDL 0.15	900.0	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2022/01/04	<MDL 0.19	100.0	No
Diclofop-methyl (ug/L) - TW	2022/01/04	<MDL 0.4	9.0	No
Dimethoate (ug/L) - TW	2022/01/04	<MDL 0.06	20.0	No

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Diquat (ug/L) - TW	2022/01/04	<MDL 1.0	70.0	No
Diuron (ug/L) - TW	2022/01/04	<MDL 0.03	150.0	No
Glyphosate (ug/L) - TW	2022/01/04	<MDL 1.0	280.0	No
Malathion (ug/L) - TW	2022/01/04	<MDL 0.02	190.0	No
Metolachlor (ug/L) - TW	2022/01/04	<MDL 0.01	50.0	No
Metribuzin (ug/L) - TW	2022/01/04	<MDL 0.02	80.0	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2022/01/04	<MDL 0.3	80.0	No
Paraquat (ug/L) - TW	2022/01/04	<MDL 1.0	10.0	No
PCB (ug/L) - TW	2022/01/04	<MDL 0.04	3.0	No
Pentachlorophenol (ug/L) - TW	2022/01/04	<MDL 0.15	60.0	No
Phorate (ug/L) - TW	2022/01/04	<MDL 0.01	2.0	No
Picloram (ug/L) - TW	2022/01/04	<MDL 1.0	190.0	No
Prometryne (ug/L) - TW	2022/01/04	<MDL 0.03	1.0	No
Simazine (ug/L) - TW	2022/01/04	<MDL 0.01	10.0	No
Terbufos (ug/L) - TW	2022/01/04	<MDL 0.01	1.0	No
Tetrachloroethylene (ug/L) - TW	2022/01/04	<MDL 0.35	10.0	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2022/01/04	<MDL 0.2	100.0	No
Triallate (ug/L) - TW	2022/01/04	<MDL 0.01	230.0	No
Trichloroethylene (ug/L) - TW	2022/01/04	<MDL 0.44	5.0	No
2,4,6-Trichlorophenol (ug/L) - TW	2022/01/04	<MDL 0.25	5.0	No
Trifluralin (ug/L) - TW	2022/01/04	<MDL 0.02	45.0	No
Vinyl Chloride (ug/L) - TW	2022/01/04	<MDL 0.17	1.0	No
Trihalomethane: Total (ug/L) Annual Average - DW	2022 (Quarterly)	32.75	100.0	No
HAA Total (ug/L) Annual Average - DW	2022 (Quarterly)	16.88	80.0	No

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

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