ANNUAL REPORT

ONTARIO REGULATION 170/03
SECTION 11

TAY AREA
DRINKING WATER SYSTEM

FOR THE PERIOD:
JANUARY 1, 2021 – DECEMBER 31, 2021

Prepared for the Corporation of the Township of Tay
by the Ontario Clean Water Agency

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

Ontario **Drinking-Water Systems Regulation O. Reg. 170/03**

Drinking-Water System Number:	**220001076**
Drinking-Water System Name:	**Tay Area Drinking Water System**
Drinking-Water System Owner:	The Corporation of the Township of Tay
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	**January 1, 2021 to December 31, 2021**

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 web site on the Internet?

Yes

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Summary Report is available for inspection at the Township of Tay Municipal Office at 450 Park Street, Victoria Harbour, Tay Township, ON, L0K 2A0 or on the following website: https://www.tay.ca/en/

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
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 of its 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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Description of Drinking-Water System:

The Tay Area Drinking Water System (otherwise known as the Victoria Harbour Drinking Water System) is located at 45 Lighthouse Crescent in Victoria Harbour and supplies drinking water to an estimated population of 8,000 persons. Water is supplied through Hogg's Bay within the Georgian Bay, utilizing 3 Booster Stations and 3 Stand Pipes to supply the population. The Tay Area treatment system utilizes Microza and Ecodyne filter systems, UV disinfection and chlorine dosing to treat the source water. Treated water is then distributed throughout the area with the help of the Booster Stations. The Tay Area Drinking Water System is classified as a Class III Water Treatment facility.

The distribution system services approximately 2,830 private residences, along with a combined 119 institutional, commercial, and industrial locations. The distribution system is comprised of many various materials including ductile iron, cast iron and polyvinyl chloride. The system consists of 77,966 meters of distribution watermain, 336 hydrants and 400 isolation valves. The Tay Area Drinking Water System is classified as a Class II Water Distribution Subsystem.

List of water treatment chemicals used during the reporting period:

- Sodium Hypochlorite 12% Solution NSF, Primary Disinfection
- Stern PAC Aluminum Chloride Hydroxide Sulfate 30-35%
- Sodium Hydroxide 25% (Membrane Cleaning)
- Citric Acid 50% (Membrane Cleaning)

Significant expenses incurred to:

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

Description of significant expenses incurred:

1. Phase 2 Upgrades – Ecodyne removal
2. Phase 2 Upgrades – New Pall Rack 3 Installation
3. Phase 2 Upgrades – GAC System Installation
4. Phase 2 Upgrades – Bisulphite De-chlorination System Installed
2. Chlorine Analyzer Replacement and Installation
3. Port McNicoll Standpipe Inspection
4. Chlorine Storage Wall and Ventilation System Installed

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 (yyyy/mm/dd)	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date (yyyy/mm/dd)
2021/04/30	Free Chlorine Residual	0.09	mg/L	AWQI # 153960 - Disinfection was restored as soon as reasonably possible, pipes and mains were flushed to restore chlorine residual in the distribution system.	2021/04/30
2021/08/16	Free Chlorine Residual	0.02	mg/L	AWQI # 155084 - Disinfection was restored as soon as reasonably possible, pipes and mains were flushed to restore chlorine residual in the distribution system.	2021/08/16

Table 1: Microbiological testing done under the Schedule 11 of Regulation 170/03 during this reporting period.

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 - RW	52	0	20	0	1920	N/A	N/A	N/A
Treated - TW	52	0	0	0	0	52	0	<10
Distribution - DW	312	0	0	0	0	312	0	37

Table 2: Operational testing done under Schedule 7 of Regulation 170/03 during the period covered by this Annual Report.

Location & Test	Number of Samples	Range of Results	
		Minimum	Maximum
Turbidity, Treated Rack 1 RW1 (Continuous) [NTU]*	8760	0.000	2.000
Turbidity, Treated Rack 2 RW2 (Continuous) [NTU]*	8760	0.012	1.999
Turbidity, Treated Rack 4 RW4 (Continuous) [NTU]*	8760	0.000	1.999
Free Chlorine Residual, Treated TW1 (Continuous) [mg/L]**	8760	0.00	2.02
Free Chlorine Residual, Distribution (Continuous) [mg/L]***	8760	0.51	1.41
Free Chlorine Residual, Distribution (Grab) [mg/L]	312	0.02+	1.72

Note: The number of samples used for continuous monitoring units is 8760.
**Turbidity values are not actual, values are recorded during maintenance and start up activities. Turbidity NTU values maintained at or below 0.10 NTU 99% of the time.*
****** *Minimum and Maximum chlorine residuals values are not actual, values were recorded during maintenance activities. Adequate chlorine residuals maintained at all times.*
****Continuous Distribution Monitoring through the Booster Station Analyzers*
+Please refer to details on the notices submitted in accordance with subsection 18(1).

Table 3: 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				

Table 4: Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Number of Exceedances	
				MAC	½ MAC
Antimony: Sb (µg/L) - TW1	2021/01/18	<MDL 0.9	6.0	No	No
Arsenic: As (µg/L) - TW1	2021/01/18	<MDL 0.2	10.0	No	No
Barium: Ba (µg/L) - TW1	2021/01/18	23.7	1000.0	No	No
Boron: B (µg/L) - TW1	2021/01/18	12	5000.0	No	No
Cadmium: Cd (µg/L) - TW1	2021/01/18	<MDL 0.003	5.0	No	No
Chromium: Cr (µg/L) - TW1	2021/01/18	0.35	50.0	No	No
Mercury: Hg (µg/L) - TW1	2021/01/18	<MDL 0.01	1.0	No	No
Selenium: Se (µg/L) - TW1	2021/01/18	0.11	50.0	No	No
Uranium: U (µg/L) - TW1	2021/01/18	0.007	20.0	No	No
Fluoride (mg/L) - TW1	2021/01/18	<MDL 0.06	1.5	No	No
Nitrite (mg/L) - TW1	2021/01/18	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW1	2021/04/12	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW1	2021/07/19	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW1	2021/10/18	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW1	2021/01/18	0.146	10.0	No	No
Nitrate (mg/L) - TW1	2021/04/12	0.219	10.0	No	No
Nitrate (mg/L) - TW1	2021/07/19	0.029	10.0	No	No
Nitrate (mg/L) - TW1	2021/10/14	0.019	10.0	No	No
Sodium: Na (mg/L) - TW1	2021/01/18	15.4	20*	No	Yes

Note: MDL = Minimum Detection Limit
**There is no "MAC" for Sodium. The aesthetic objective 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

Location Type	Number of Samples	Range of Lead Results		MAC	Number of Exceedances
		Minimum	Maximum		
Lead – Plumbing (µg/L)	Not Applicable - Relief from all Plumbing Requirements*				
Lead – Distribution** (µg/L)	Not Applicable for the Reporting Period.**				

Note: The Alkalinity results for 2021 ranged from 54 to 99 mg/L as $CaCO_3$, pH ranged from 6.79 – 7.04.
**This system qualifies for the plumbing exemption as per O. Regulation 170/03 Schedule 15.1-5 (9) (10).*
*** Distribution lead samples are taken every 36 months. The next set of distribution lead sampling is scheduled for 2022.*

Table 6: Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Number of Exceedances	
				MAC	½ MAC
Alachlor (µg/L) - TW1	2021/01/18	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (µg/L) - TW1	2021/01/18	<MDL 0.01	5.0	No	No
Azinphos-methyl (µg/L) - TW1	2021/01/18	<MDL 0.05	20.0	No	No
Benzene (µg/L) - TW1	2021/01/18	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (µg/L) - TW1	2021/01/18	<MDL 0.004	0.01	No	No
Bromoxynil (µg/L) - TW1	2021/01/18	<MDL 0.33	5.0	No	No
Carbaryl (µg/L) - TW1	2021/01/18	<MDL 0.05	90.0	No	No
Carbofuran (µg/L) - TW1	2021/01/18	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (µg/L) - TW1	2021/01/18	<MDL 0.17	2.0	No	No
Chlorpyrifos (µg/L) - TW1	2021/01/18	<MDL 0.02	90.0	No	No
Diazinon (µg/L) - TW1	2021/01/18	<MDL 0.02	20.0	No	No
Dicamba (µg/L) - TW1	2021/01/18	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (µg/L) - TW1	2021/01/18	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (µg/L) - TW1	2021/01/18	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (µg/L) - TW1	2021/01/18	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (µg/L) - TW1	2021/01/18	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (µg/L) - TW1	2021/01/18	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (µg/L) - TW1	2021/01/18	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (µg/L) - TW1	2021/01/18	<MDL 0.19	100.0	No	No
Diclofop-methyl (µg/L) - TW1	2021/01/18	<MDL 0.4	9.0	No	No
Dimethoate (µg/L) - TW1	2021/01/18	<MDL 0.06	20.0	No	No
Diquat (µg/L) - TW1	2021/01/18	<MDL 1.0	70.0	No	No
Diuron (µg/L) - TW1	2021/01/18	<MDL 0.03	150.0	No	No
Glyphosate (µg/L) - TW1	2021/01/18	<MDL 1.0	280.0	No	No
Malathion (µg/L) - TW1	2021/01/18	<MDL 0.02	190.0	No	No
Metolachlor (µg/L) - TW1	2021/01/18	<MDL 0.01	50.0	No	No
Metribuzin (µg/L) - TW1	2021/01/18	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (µg/L) - TW1	2021/01/18	<MDL 0.3	80.0	No	No
Paraquat (µg/L) - TW1	2021/01/18	<MDL 1.0	10.0	No	No
PCB (µg/L) - TW1	2021/01/18	<MDL 0.04	3.0	No	No
Pentachlorophenol (µg/L) - TW1	2021/01/18	<MDL 0.15	60.0	No	No
Phorate (µg/L) - TW1	2021/01/18	<MDL 0.01	2.0	No	No
Picloram (µg/L) - TW1	2021/01/18	<MDL 1.0	190.0	No	No
Prometryne (µg/L) - TW1	2021/01/18	<MDL 0.03	1.0	No	No
Simazine (µg/L) - TW1	2021/01/18	<MDL 0.01	10.0	No	No
Terbufos (µg/L) - TW1	2021/01/18	<MDL 0.01	1.0	No	No

Parameter	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Number of Exceedances	
				MAC	½ MAC
Tetrachloroethylene (µg/L) - TW1	2021/01/18	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (µg/L) - TW1	2021/01/18	<MDL 0.2	100.0	No	No
Triallate (µg/L) - TW1	2021/01/18	<MDL 0.01	230.0	No	No
Trichloroethylene (µg/L) - TW1	2021/01/18	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (µg/L) - TW1	2021/01/18	<MDL 0.25	5.0	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (µg/L) - TW1	2021/01/18	<MDL 0.12	100.0	No	No
Trifluralin (µg/L) - TW1	2021/01/18	<MDL 0.02	45.0	No	No
Vinyl Chloride (µg/L) - TW1	2021/01/18	<MDL 0.17	1.0	No	No
Trihalomethane: Total Annual Average (µg/L) - DW	4 Quarters of 2021	88	100.00	No	Yes
Haloacetic Acid: Total Annual Average (µg/L) - DW	4 Quarters of 2021	48	80.00	No	Yes

Note: MDL = Minimum Detection Limit

Table 7: List of 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
Trihalomethane: Total Annual Average (µg/L) - DW	88	µg/L	4 Quarters of 2021
Haloacetic Acid: Total Annual Average (µg/L) - DW	48	µg/L	4 Quarters of 2021