



Established 1868

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**Annual Performance Report  
Pelee West Shore Water System  
Drinking Water System # 220008177**

**2021**

Prepared for the Municipality of Pelee Island  
By the Ontario Clean Water Agency  
April 14, 2022

The Corporation of the Township of Pelee is required to provide an Annual Report for its Ministry of the Environment Regulated Drinking Water System (DWS) under *Drinking Water Systems Regulation O. Reg. 170/03* in accordance with the *Safe Drinking Water Act* (as amended). The purpose of this letter and its attachments is to satisfy this requirement and report the dates from January 1, 2021 until December 31, 2021.

The Township of Pelee owns and operates the Pelee West Shore Water System, which is a Non - Class Water Treatment and Distribution System serving a Designated Facility having a DWS Registration Number 220008177. The Pelee West Shore Water System operates under *Ontario Regulation 170/03*. The Pelee West Shore Water System supplies one additional drinking water system within the Township; Pelee East Shore Distribution receives its water via tanker truck from the Pelee West Shore Water System. This Report outlines the sampling and direct connections to the Pelee West Shore Water System.

The Pelee West Shore Water System is designated as a Small-Municipal, Non-Residential DWS and serves a population of 7; having 4 residential connections and 1 designated facility. There are 18 total service connections. The Pelee West Shore Well Supply System utilizes Ultra-Membrane Filtration, Ultraviolet Light and Sodium Hypochlorite (12% solution) Injection as its methods of treatment. The Treatment System utilizes continuous monitors for Turbidity, Chlorine, Temperature, PH and Ultraviolet Dose to monitor the water entering, being treated, and sent to the Distribution System. The Pelee West Shore Water System does not include Fluoridation in its process. Since upgraded in 2015 the system utilizes a summer and Winter Mode of operation. Summer operations included the utilization of the 140m<sup>3</sup> Standpipe Storage Tank. Winter operation included utilizing in-plant storage only.

Under *Schedule 9 of the Drinking Water Systems Regulation O. Reg. 170/03*, the Township of Pelee is required to detail the distribution grab samples and treatment operation continuous samples in this Annual Report. Elevated finished water turbidity from continuous monitoring was recorded during maintenance and flushing activities within the Plant. These results are listed below in Table 1.

**Table 1**  
**Schedule 9 Sampling Results**  
**January 1, 2021 – December 31, 2021**

Analysis	Distribution (Grab Sample)		Treated (Continuous Sample)	
	#	Min – Max	# taken	Min – Max
Free Chlorine (mg/L)	105	0.62 – 2.20	Every 2 min	0.632 – 3.78
Turbidity (NTU)	N/A	N/A	Every 2 min	Max 2.0

mg/L- milligrams per liter

NTU – Nephelometric Turbidity Units

N/A - Not applicable

Note – Continuous Samples taken from SCADA monitoring data

Under *Schedule 12 of the Drinking Water Systems Regulation O. Reg. 170/03* the Township of Pelee is required to complete Microbiological Testing of its Raw Intake and Distribution Systems. Table 2 outlines these Analytical Results.

**Table 2**  
**Schedule 12 Sampling Results**  
**January 1, 2021 – December 31, 2021**

Sample Type	# of Samples	Range of E. Coli Results min # – max #	Range of Total Coliform Results min # – max #
Raw	12	0 – 200	0 - 2
Distribution	12	0 – 0	0 – >200

Note – All results in CFU's (Colony Forming Units)

Total coliform sample results June 7<sup>th</sup> >200 cfu/100ml. Resample as per regulation on June 9<sup>th</sup> & 10<sup>th</sup>, both sample results 0 cfu/100ml.

The Township of Pelee is also required to take Treatment and Distribution samples for various Inorganic Parameters under the *Drinking Water Systems Regulation O. Reg. 170/03, Schedule 6-1.1 (4), Schedule 23 and Schedule 24*. The Inorganic Parameter for Nitrate and Nitrite Samples are required to be taken quarterly or not longer than 120 days between sampling. A total of four (4) Nitrate and Nitrite were taken for the purpose of this Report complying with the Sampling Program. Tables 3, 4 & 5 outline these Analytical Results.

**Table 3**  
**Distribution Inorganic Sampling Completed**  
**January 1, 2021 – December 31, 2021**

Parameter	Sample Date	Results	Unit of Measure	Exceedance
Nitrate	February 8	0.5	mg/L	No
	May 3	0.6	mg/L	No
	August 9	0.3	mg/L	No
	November 15	0.4	mg/L	No
Nitrite	February 8	<0.1	mg/L	No
	May 3	<0.1	mg/L	No
	August 9	<0.1	mg/L	No
	November 15	0.4	mg/L	No
Nitrate + Nitrite	February 8	0.5	mg/L	No
	May 3	0.6	mg/L	No
	August 9	0.3	mg/L	No
	November 15	0.1	mg/L	No

**Table 4**  
**Summary of Inorganic parameters sampled during this reporting period**  
**January 1, 2021 – December 31, 2021**

**RETESTING REQUIRED IN 2024**

Treated Water	Sample Date	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L)	2019/08/12	0.0001	6.0	No	No
Arsenic: As (ug/L)	2019/08/12	0.0004	10.0	No	No
Barium: Ba (ug/L)	2019/08/12	0.037	1000.0	No	No
Boron: B (ug/L)	2019/08/12	0.016	5000.0	No	No
Cadmium: Cd (ug/L)	2019/08/12	<0.000015	5.0	No	No
Chromium: Cr (ug/L)	2019/08/12	<0.002	50.0	No	No
Mercury: Hg (ug/L)	2019/08/12	<0.00002	1.0	No	No
Selenium: Se (ug/L)	2019/08/12	<0.001	50.0	No	No
Uranium: U (ug/L)	2019/08/12	0.00045	20.0	No	No

**Table 5**  
**Summary of Organic parameters sampled during this reporting period**  
**January 1, 2021 – December 31, 2021**

**RETESTING REQUIRED IN 2024**

Treated Water	Sample Date	Sample Result	MAC	Exceedances	
				MAC	1/2 MAC
Alachlor (ug/L)	2019/08/12	<0.3	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L)	2019/08/12	<0.5	5.00	No	No
Azinphos-methyl (ug/L)	2019/08/12	<1	20.00	No	No
Benzene (ug/L)	2019/08/12	<0.5	1.00	No	No
Benzo(a)pyrene (ug/L)	2019/08/12	<0.005	0.01	No	No
Bromoxynil (ug/L)	2019/08/12	<0.5	5.00	No	No
Carbaryl (ug/L)	2019/08/12	<3	90.00	No	No
Carbofuran (ug/L)	2019/08/12	<1	90.00	No	No
Carbon Tetrachloride (ug/L)	2019/08/12	<0.2	2.00	No	No
Chlorpyrifos (ug/L)	2019/08/12	<0.5	90.00	No	No
Diazinon (ug/L)	2019/08/12	<1	20.00	No	No
Dicamba (ug/L)	2019/08/12	<10	120.0	No	No
1,2-Dichlorobenzene (ug/L)	2019/08/12	<0.5	200.0	No	No

1,4-Dichlorobenzene (ug/L)	2019/08/12	<0.5	5.00	No	No
1,2-Dichloroethane (ug/L)	2019/08/12	<0.5	5.00	No	No
1,1-Dichloroethylene (ug/L)	2019/08/12	<0.5	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L)	2019/08/12	<5	50.00	No	No
2,4-Dichlorophenol (ug/L)	2019/08/12	<0.1	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L)	2019/08/12	<10	100.0	No	No
Diclofop-methyl (ug/L)	2019/08/12	<0.9	9.00	No	No
Dimethoate (ug/L)	2019/08/12	<1	20.00	No	No
Diquat (ug/L)	2019/08/12	<5	70.00	No	No
Diuron (ug/L)	2019/08/12	<5	150.0	No	No
Glyphosate (ug/L)	2019/08/12	<25	280.0	No	No
Malathion (ug/L)	2019/08/12	<5	190.0	No	No
Metolachlor (ug/L)	2019/08/12	<3	50.00	No	No
Metribuzin (ug/L)	2019/08/12	<3	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L)	2019/08/12	<0.5	80.00	No	No
Paraquat (ug/L)	2019/08/12	<1	10.00	No	No
Pentachlorophenol (ug/L)	2019/08/12	<0.1	60.00	No	No
Phorate (ug/L)	2019/08/12	<0.3	2.00	No	No
Picloram (ug/L)	2019/08/12	<20	190.0	No	No
Prometryne (ug/L)	2019/08/12	<0.1	1.00	No	No
Simazine (ug/L)	2019/08/12	<0.5	10.00	No	No
Terbufos (ug/L)	2019/08/12	<0.3	1.00	No	No
Tetrachloroethylene (ug/L)	2019/08/12	<0.5	10.00	No	No
Trichloroethylene (ug/L)	2019/08/12	<0.5	5.00	No	No
Vinyl Chloride (ug/L)	2019/08/12	<0.2	1.00	No	No

Under the document, *Procedures for Disinfection of Drinking Water in Ontario*, the Ultra-Membrane Filters Utilized at the WTP must operate within specified Turbidity Effluent Criteria to be considered for disinfection. The filters must produce water with a turbidity not exceeding 0.10 at least 99% of their run time. In Table 6, the Monthly Average Turbidity Effluent has been tabulated.

**Table 6  
Ultra-Membrane Filter Effluent Turbidity Monthly Averages  
January 1, 2021 – December 31, 2021**

Month	Average (NTU)	Annual Average
January	0.022	0.026
February	0.022	
March	0.022	
April	0.028	
May	0.025	
June	0.024	
July	0.022	
August	0.027	
September	0.029	
October	0.033	
November	0.030	
December	0.026	

NTU – Nephelometric Turbidity Units

New bubble trap was installed in April to remove the air from the line prior to entering the turbidity meter.

**May –Dec**

**Summary of Lead Testing under Schedule 15.2-2 (1) during this reporting period**  
(Applicable to Small non-municipal non-residential systems)

Location - Type	# of Samples	Results (ug/L)	MAC (ug/L)	No. Exceeded
Distribution Water – Lead	1	0.18	10	0

**Major expenses required to install, repair or replace drinking water system components**

- |                              |           |
|------------------------------|-----------|
| 1. Swan Turbidimeter         | \$8090.14 |
| 2. Myers Pump (Finish Water) | \$1412.83 |
| 3. Flowmetrix calibrations   | \$4231.85 |