ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

FOREMAN
DRINKING WATER SYSTEM

Small Municipal Residential

SCHEDULE 22
SUMMARY REPORT

For the period of
JANUARY 1, 2021 TO DECEMBER 31, 2021

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

Summary

This report is a summary of water quality and quantity information submitted in accordance with Schedule 22 of Ontario's Drinking Water System Regulation for the reporting period of January 1, 2021 to December 31, 2021 for the Foreman Drinking Water System located in the Town of South Bruce Peninsula. The summary includes the following information:

- Any requirements of the Act and Regulation, Orders or System Approval(s) that the system failed to meet during the reporting period and the measures taken to correct each failure.
- A summary of the quantities and flow rates of water supplied during the reporting period, including monthly averages and maximum daily flows.
- A comparison of the average and monthly maximum daily flows to the approved capacity specified in the System Approval.

Issues of Non-Compliance

An MECP Drinking Water System Inspection was performed on September 22, 2021. On October 14, 2021 the report for this inspection was issued, the Foreman Drinking Water System received an inspection rating of 100%.

The following is a summary of the requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water license, and any orders applicable to the system that were not met at any time during the period covered by the report; as well as the duration of the failure and the measures that were taken to correct the failure:

Non-Compliance(s)	Duration	Required Actions & Corrective Actions
n/a	n/a	n/a

Refer to the Section 11 Annual Report for a summary of any Adverse Water Quality Incident(s) which occurred during the reporting period.

Assessment of Flowrates and Quantity of Water Supplied

The following tables summarize the quantities (Table 1) and flow rates (Table 2) of the water supplied during the period covered by the report, including monthly average and maximum daily flows as well as a comparison of the summary to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water license.

As per Municipal Drinking Water License (MDWL) 094-104 (Issue Number: 4, expires March 6, 2025), the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed a rated capacity of 165 m^3/day. There is no maximum allowable limit listed in the MDWL for the flowrate of water that flows into a treatment subsystem, however, raw water flowrate has been included in this report (Table 3).

Table 1. Treated Water Monthly Average and Maximum Daily Flows and Comparison to Rated Capacity for 2021

2021	Treated Water Flow			
	Average Flow (m^3/day)	Percent of Rated Capacity (%)	Maximum Flow (m^3/day)	Percent of Rated Capacity (%)
January	3.6	2.2%	6.2	3.8%
February	3.8	2.3%	6.6	4.0%
March	4.6	2.8%	6.3	3.8%
April	2.9	1.8%	9.5	5.8%
May	3.0	1.8%	9.5	5.8%
June	4.1	2.5%	15.4	9.3%
July	6.0	3.6%	10.3	6.2%
August	5.1	3.1%	11.8	7.2%
September	2.6	1.6%	9.1	5.5%
October	2.0	1.2%	5.2	3.2%
November	1.5	0.9%	3.4	2.1%
December	1.6	1.0%	4.1	2.5%

Table 2. Treated Water Monthly Average and Maximum Flowrates for 2021

2021	Treated Water	
	Average Flowrate (l/s)	Maximum Flowrate (l/s)
January	0.02	1.60
February	0.04	3.10
March	0.06	1.80
April	0.02	1.90
May	0.04	1.80
June	0.04	2.00
July	0.07	1.90
August	0.06	2.00
September	0.01	2.20
October	0.01	2.00
November	0.00	2.00
December	0.00	3.00

Table 3. Raw Water Monthly Average and Maximum Flowrates for 2021

2021	Raw Water	
	Average Flowrate (l/s)	Maximum Flowrate (l/s)
January	1.59	1.70
February	1.60	1.90
March	1.58	1.80
April	1.63	1.80
May	1.64	1.90
June	1.56	1.80
July	1.60	1.80
August	1.60	1.80
September	1.63	1.80
October	1.62	1.70
November	1.63	1.90
December	1.51	1.90

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

FOREMAN
DRINKING WATER SYSTEM

Small Municipal Residential

SECTION 11
ANNUAL REPORT

For the period of
JANUARY 1, 2021 TO DECEMBER 31, 2021

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

Drinking Water System Number:	220007711
Drinking Water System Name:	Foreman Drinking Water System
Drinking Water System Owner:	Town of South Bruce Peninsula
Drinking Water System Category:	Small Municipal Residential
Reporting Period:	January 1, 2021 to December 31, 2021

Does the 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 the Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection:

Town of South Bruce Peninsula
315 George Street
Wiarton, Ontario
N0H 2T0
519-534-1400

Drinking-Water Systems (if any), which receive all of their drinking water from your system:

n/a.

Did you provide a copy of the 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
	Public access/notice via Public Request
	Public access/notice via a Public Library
	Public access/notice via other method:

Description of Drinking Water System:

The Foreman Drinking Water System is a Class II Water Treatment and Class I Water Distribution System.

The Foreman Water Works Drinking-Water System is supplied by a deep drilled GUDI well. The well pumphouse houses the treatment and control facilities which include:

- Iron/Manganese Removal (potassium permanganate system/greensand filters)
- Cartridge Filter System (to assist with UV disinfection)
- Ultraviolet Disinfection System
- Chlorination System (sodium hypochlorite, pre-chlorination and post chlorination)
- Clearwell/Storage Tank (for achieving CT, the water is also used to backwash the greensand filters)
- Filter Backwash Tank (clarified supernatant discharged by gravity to an existing ditch)
- Hydro pneumatic Tanks (to maintain pressure for highlift discharge and for the greensand filters)
- Diesel generator set
- Programmable logic controller and associated SCADA system (for control of the water treatment plant)

List of water treatment chemicals used during the reporting period:

- Sodium Hypochlorite 12%
- Potassium Permanganate

Significant expenses were incurred to:

X	Install required equipment
	Repair required equipment
X	Replace required equipment
	No significant expenses were incurred

Description of expenses:

- Replacement online turbidity analyzer

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:

Date of Incident	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2021/08/03	E. Coli & Total Coliform	23 EC & 31 TC	CFU/100mL	• Reported to SAC, MECP, MOH • AWQI #154957 • Flushed lines • Resampled • Boil water advisory issued • 2nd resample	• August 5, 2021 • August 5, 2021 • August 5, 2021 • August 5, 2021 • August 6, 2021

Table 1. Microbiological testing done under Schedule 10, 11 or 12 of Regulation 170/03 during this reporting Period

Location	Number of Samples	Range of E.coli Results		Range of Total Coliforms Results		Number of HPC Samples	Range of HPC Samples	
		Minimum	Maximum	Minimum	Maximum		Minimum	Maximum
Well WLP8 (RW)	12	0	0	0	3	n/a	n/a	n/a
Distribution (DW)	56	0	23*	0	31*	54	0	1

***** See "*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"* for more details.

Table 2. Operational testing done under Schedule 7, 8 or 9 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results	
		Minimum	Maximum
Turbidity, On-Line (NTU) – TW	8760	0.13	2.00
Turbidity, On-Line (NTU) – Filter	8760	0.00	0.45
Free Chlorine Residual, On-Line (mg/L) – TW	8760	0.72	2.00
Free Chlorine Residual, In-House (mg/L) – DW	105	1.08	1.80

NOTE: For continuous monitors 8760 is used as the number of samples

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 Order of MDWL	Parameter	Date Sampled	Result	MDWL Allowable Annual Average Concentration
March 6, 2020 094-104 (Issue 4)	Total Suspended Solids (Filter backwash)	2021 (Monthly)	2.20 mg/L	25 mg/L
March 6, 2020 094-104 (Issue 4)	Total Chlorine Residual (Filter backwash)	2021 (Monthly)	0.00 mg/L	0.02 mg/L

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

Parameter	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance	
				MAC	½ MAC
Antimony: Sb (µg/L) - TW	2021/01/05	<MDL 0.9	6.0	No	No
Arsenic: As (µg/L) - TW	2021/01/05	<MDL 0.2	10.0	No	No
Barium: Ba (µg/L) - TW	2021/01/05	16.7	1000.0	No	No
Boron: B (µg/L) - TW	2021/01/05	79.0	5000.0	No	No
Cadmium: Cd (µg/L) - TW	2021/01/05	<MDL 0.003	5.0	No	No
Chromium: Cr (µg/L) - TW	2021/01/05	0.38	50.0	No	No
Mercury: Hg (µg/L) - TW	2021/01/05	<MDL 0.01	1.0	No	No
Selenium: Se (µg/L) - TW	2021/01/05	<MDL 0.04	50.0	No	No
Uranium: U (µg/L) - TW	2021/01/05	0.064	20.0	No	No
Fluoride (mg/L) - TW	2017/01/09	1.3	1.5	No	Yes
Nitrite (mg/L) - TW	2021/01/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2021/04/06	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2021/07/05	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2021/10/12	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2021/01/04	0.006	10.0	No	No
Nitrate (mg/L) - TW	2021/04/06	0.007	10.0	No	No
Nitrate (mg/L) - TW	2021/07/05	0.012	10.0	No	No
Nitrate (mg/L) - TW	2021/10/12	0.009	10.0	No	No
Sodium: Na (mg/L) - TW	2017/01/09	16.2	20*	No	Yes

NOTE: There is no "MAC" for Sodium. The aesthetic objective 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.

NOTE: Schedule 23, Schedule 24, Sodium and Fluoride are scheduled to be taken every 60 months. The most recent set of Schedule 23 samples were taken in January 2021, the next set of Schedule 23 samples are scheduled for January 2026. The most recent Sodium sample was taken in January 2017, the next scheduled Sodium sample is in January 2022. The most recent Fluoride sample was taken in January 2017, the next Fluoride sample is scheduled is in January 2022.

Table 5. Summary of lead testing under Schedule 15.1 during this reporting period.

Location Type	Number of Samples	Range of Lead Results		Number of Exceedances
		Minimum	Maximum	
Plumbing	n/a	n/a	n/a	n/a
Distribution (µg/L)	2	0.12	0.15	0
Alkalinity	2	216	216	0
pH	2	8.16	8.18	n/a

NOTE: The Foreman Drinking Water System qualifies for the plumbing exemption as per Ontario Regulation 170/03 Schedule 15.1-5 (9) (10). Distribution sampling for lead occurs every 36 months. One (1) distribution lead sample is taken during each sampling period (i.e. 2 samples for the sampling year). The most recent distribution lead sampling occurred in 2021. The next round of lead sampling is scheduled for 2024.

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

Parameter	Sample Date	Result Value	MAC	Exceedance	
				MAC	½ MAC
Alachlor (µg/L) - TW	2021/01/05	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (µg/L) - TW	2021/01/05	<MDL 0.01	5.0	No	No
Azinphos-methyl (µg/L) - TW	2021/01/05	<MDL 0.05	20.0	No	No
Benzene (µg/L) - TW	2021/01/05	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (µg/L) - TW	2021/01/05	<MDL 0.004	0.01	No	No
Bromoxynil (µg/L) - TW	2021/01/05	<MDL 0.33	5.0	No	No
Carbaryl (µg/L) - TW	2021/01/05	<MDL 0.05	90.0	No	No
Carbofuran (µg/L) - TW	2021/01/05	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (µg/L) - TW	2021/01/05	<MDL 0.17	2.0	No	No
Chlorpyrifos (µg/L) - TW	2021/01/05	<MDL 0.02	90.0	No	No
Diazinon (µg/L) - TW	2021/01/05	<MDL 0.02	20.0	No	No
Dicamba (µg/L) - TW	2021/01/05	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (µg/L) - TW	2021/01/05	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (µg/L) - TW	2021/01/05	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (µg/L) - TW	2021/01/05	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (µg/L) - TW	2021/01/05	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (µg/L) - TW	2021/01/05	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (µg/L) - TW	2021/01/05	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (µg/L) - TW	2021/01/05	<MDL 0.19	100.0	No	No
Diclofop-methyl (µg/L) - TW	2021/01/05	<MDL 0.4	9.0	No	No
Dimethoate (µg/L) - TW	2021/01/05	<MDL 0.06	20.0	No	No
Diquat (µg/L) - TW	2021/01/05	<MDL 1.0	70.0	No	No
Diuron (µg/L) - TW	2021/01/05	<MDL 0.03	150.0	No	No
Glyphosate (µg/L) - TW	2021/01/05	<MDL 1.0	280.0	No	No
Malathion (µg/L) - TW	2021/01/05	<MDL 0.02	190.0	No	No
Metolachlor (µg/L) - TW	2021/01/05	<MDL 0.01	50.0	No	No
Metribuzin (µg/L) - TW	2021/01/05	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (µg/L) - TW	2021/01/05	<MDL 0.3	80.0	No	No
Paraquat (µg/L) - TW	2021/01/05	<MDL 1.0	10.0	No	No
PCB (µg/L) - TW	2021/01/05	<MDL 0.04	3.0	No	No
Pentachlorophenol (µg/L) - TW	2021/01/05	<MDL 0.15	60.0	No	No
Phorate (µg/L) - TW	2021/01/05	<MDL 0.01	2.0	No	No
Picloram (µg/L) - TW	2021/01/05	<MDL 1.0	190.0	No	No
Prometryne (µg/L) - TW	2021/01/05	<MDL 0.03	1.0	No	No
Simazine (µg/L) - TW	2021/01/05	<MDL 0.01	10.0	No	No
Terbufos (µg/L) - TW	2021/01/05	<MDL 0.01	1.0	No	No
Tetrachloroethylene (µg/L) - TW	2021/01/05	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (µg/L) - TW	2021/01/05	<MDL 0.2	100.0	No	No
Triallate (µg/L) - TW	2021/01/05	<MDL 0.01	230.0	No	No
Trichloroethylene (µg/L) - TW	2021/01/05	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (µg/L) - TW	2021/01/05	<MDL 0.25	5.0	No	No
Trifluralin (µg/L) - TW	2021/01/05	<MDL 0.02	45.0	No	No
Vinyl Chloride (µg/L) - TW	2021/01/05	<MDL 0.17	1.0	No	No
Trihalomethane: Total (µg/L) Running Annual Average - DW	2021 (Quarterly)	8.7	100.0	No	No
HAA Total (µg/L) Running Annual Average - DW	2021 (Quarterly)	5.3	80.0	No	No

NOTE: Schedule 23, Schedule 24, Sodium and Fluoride are scheduled to be taken every 60 months. The most recent Schedule 24 was sampled in January 2021, the next Schedule 24 is scheduled for January 2026.

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

Parameter	Result Value	Unit of Measure	Date of Sample
Fluoride	1.3	mg/L	2017/01/09

NOTE: This is required only if DWS category is large municipal residential, small municipal residential, large municipal non-residential, small municipal non-residential, large non municipal non-residential