



**Ontario Clean Water Agency
Agence Ontarienne Des Eaux**

FOREMAN TREATMENT SYSTEM

Small Municipal Residential Drinking Water System

SCHEDULE 22 SUMMARY REPORT

**For the period of
JANUARY 1, 2015 TO DECEMBER 31, 2015**

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, 2015 to December 31, 2015 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

The following lists the requirements of the Act, Regulations, System Approval(s) and any Order that the system failed to meet during the reporting period and the measures taken to correct each failure:

- No actions are required.

An MOECC Drinking Water System Inspection was performed on July 8, 2015. On August 27, 2015 the report for this inspection was issued, the Foreman Drinking Water System received an inspection rating of 100%, and no non-compliances were issued.

Assessment of Flowrates and Quantity of Water Supplied

The quantities and flowrates of water supplied during the reporting period covered by this report, including monthly average and maximum flowrates, flows and a comparison to the rated capacity can be found in Table 1. The rated capacity for the Foreman WTP is 165 m³/day as per the Municipal Drinking Water License. Average and maximum flows and flowrates for treated water are shown in Table 1 and were used to compare to the rated capacity of the plant.

Table 1. Average and Maximum Flowrate, Flow and Comparison to Rated Capacity by Month for 2015 for Treated Water

2015	Treated Water Flow				Treated Water Flowrate	
	Average Flow (m ³ /day)	Percent of Rated Capacity	Maximum Flow (m ³ /day)	Percent of Rated Capacity	Average Flowrate (l/s)	Maximum Flowrate (l/s)
January	3.79	2%	54.40	33%	0.06	8.00
February	1.72	1%	2.40	1%	0.03	4.27
March	1.86	1%	2.90	2%	0.02	2.69
April	5.04	3%	60.60	37%	0.06	8.00
May	2.46	1%	8.40	5%	0.04	2.88
June	2.86	2%	12.20	7%	0.03	2.87
July	6.20	4%	14.70	9%	0.07	2.87
August	4.43	3%	9.80	6%	0.05	2.90
September	3.10	2%	11.40	7%	0.04	6.60
October	1.77	1%	3.90	2%	0.03	2.81
November	1.51	1%	2.30	1%	0.04	2.76
December	2.05	1%	3.20	2%	0.04	2.27



**Ontario Clean Water Agency
Agence Ontarienne Des Eaux**

FOREMAN TREATMENT SYSTEM

Small Municipal Residential Drinking Water System

SECTION 11 ANNUAL REPORT

**For the period of
JANUARY 1, 2015 TO DECEMBER 31, 2015**

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, 2015 to December 31, 2015

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
Warton, 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:

- | | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Public access/notice via the web |
| <input checked="" type="checkbox"/> | Public access/notice via Government Office |
| <input type="checkbox"/> | Public access/notice via a newspaper |
| <input type="checkbox"/> | Public access/notice via Public Request |
| <input type="checkbox"/> | Public access/notice via a Public Library |
| <input type="checkbox"/> | 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 has a 125 mm diameter, 73 meter deep drilled well equipped with a submersible deep well pump, with a nominal rating at 1.9 L/s. The Well Pumphouse houses the treatment and control facilities including:

- Iron/Manganese Removal
- Cartridge Filter System
- Ultraviolet Disinfection System
- Chlorination System
- Clearwell/Storage Tank
- Filter Backwash Tank
- Hydro pneumatic Tanks

The Iron/Manganese Removal consists of a potassium permanganate system with chemical feed pumps, storage tanks, spill containment and all necessary controls and alarms.

The Cartridge Filter system is a cartridge filter unit located downstream of the greensand filters and rated at 3.15 L/s

The Ultraviolet Disinfection system consists of two UV disinfection reactors (one duty, one standby) located after the cartridge filter unit. Both are capable of providing a minimum dose of 40 mJ/cm² at the end of lamp life and each rated at 1.9 L/s

The Chlorination System is a sodium hypochlorite pre-chlorination disinfection system capable of injecting sodium hypochlorite before filtration or after the UV disinfection system. It consists of one duty and one standby metering pump with auto switchover, complete with a storage tank with spill containment. A post-chlorination sodium hypochlorite disinfection system with injection point is located at the high lift header. It consists of one duty metering pump which is complete with a storage tank with spill containment.

The Clearwell/Storage Tank is an 86 m³ below the ground clearwell that is complete with all associated piping and controls. There are two submersible pumps (one duty, one standby) located in the clearwell each rated at 6.4 L/s at 31 m TDH. They are used to backwash the greensand filters. There are also two high lift submersible pumps each rated at 4.94 L/s at 50.6 m TDH.

The Filter Backwash Tank is a backwash waste holding tank which is approximately 2.6 m by 4.9 m by 2.3 m deep with clarified supernatant discharged by gravity to an existing ditch.

The Hydro pneumatic Tanks consists of two 454 L hydro pneumatic tanks located on the high lift discharge header and one 100 L hydro pneumatic tank for greensand filters.

There is a 30 kW diesel generator set, 240/120 Volts, with 450 L double walled sub-base fuel tank with level gauge, low level float switch and leak sensor, housed in a weatherproof enclosure.

There is also:

- One programmable logic controller and associated SCADA system for control of plant operations
- One colour analyzer on the downstream piping of the filters.
- One chlorine residual analyzer complete with alarm
- One treated water turbidity analyzer

List of water treatment chemicals used during the reporting period:

- Sodium Hypochlorite 12%
- Potassium Permanganate

Significant expenses were incurred to:

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

Description of expenses:

n/a.

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
n/a	n/a	n/a	n/a	n/a	n/a

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
Raw (RW)	12	0	0	0	1	-	-	-
Distribution (DW)	52	0	0	0	0	52	0	1

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) - Filter	8760	0	0.07
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.94	1.85
Free Chlorine Residual, In-House (mg/L) - DW	105	0.96	1.70

NOTE: Record the unit of measure if it is not milligrams per litre.

NOTE: For continuous monitors use 8760 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 19, 2015 094-104 (Issue 2)	Total Suspended Solids (Filter backwash - composite)	Quarterly, 2015	2 mg/L	25 mg/L

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

Parameter	Sample Date (mm/dd/yyyy)	Sample Result	Exceedance
Antimony: Sb (ug/L) - TW	1/10/2011	< 0.02	No
Arsenic: As (ug/L) - TW	1/10/2011	0.2	No
Barium: Ba (ug/L) - TW	1/10/2011	11.1	No
Boron: B (ug/L) - TW	1/10/2011	78	No
Cadmium: Cd (ug/L) - TW	1/10/2011	< 0.003	No
Chromium: Cr (ug/L) - TW	1/10/2011	0.6	No
Mercury: Hg (ug/L) - TW	1/10/2011	< 0.02	No
Selenium: Se (ug/L) - TW	1/10/2011	< 1.0	No
Uranium: U (ug/L) - TW	1/10/2011	0.101	No
Fluoride (mg/L) - TW	01/16/12	1.29	No
Nitrite (mg/L) - TW	1/12/2015	<MDL 0.003	No
Nitrite (mg/L) - TW	4/13/2015	<MDL 0.003	No
Nitrite (mg/L) - TW	7/13/2015	<MDL 0.003	No
Nitrite (mg/L) - TW	10/19/2015	<MDL 0.003	No
Nitrate (mg/L) - TW	1/12/2015	0.007	No
Nitrate (mg/L) - TW	4/13/2015	<MDL 0.006	No
Nitrate (mg/L) - TW	7/13/2015	0.006	No
Nitrate (mg/L) - TW	10/19/2015	0.007	No
Sodium: Na (mg/L) - TW	01/16/12	10.8	No

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 current Schedule 23 was sampled in January 2011, the next Schedule 23 is scheduled for January 2016. The most current Sodium was sampled in January 2012, the next scheduled Sodium will be in January 2017. The most current Fluoride was sampled January 2012, the next Fluoride is scheduled to be sampled in January 2017.

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 (ug/L)	2	0.19	0.35	0

NOTE: The Foreman Drinking Water System qualifies for the plumbing exemption as per Ontario Regulation 170/03 Schedule 15.1-5 (9) (10). Two (2) distribution lead samples are only taken annually during the sampling periods (1 per period). Distribution sampling occurs every 36 months. The most current distribution lead sampling occurred in 2016. The next round of lead sampling is scheduled for 2018.

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

Parameter	Sample Date	Result Value	Exceedance
Alachlor (ug/L) - TW	1/10/2011	< 0.02	No
Aldicarb (ug/L) - TW	1/10/2011	< 0.01	No
Aldrin+Dieldrin (ug/L) - TW	1/10/2011	< 0.01	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	1/10/2011	< 0.01	No
Azinphos-methyl (ug/L) - TW	1/10/2011	< 0.02	No
Bendiocarb (ug/L) - TW	1/10/2011	< 0.01	No
Benzene (ug/L) - TW	1/10/2011	< 0.32	No
Benzo(a)pyrene (ug/L) - TW	1/10/2011	< 0.004	No
Bromoxynil (ug/L) - TW	1/10/2011	< 0.33	No
Carbaryl (ug/L) - TW	1/10/2011	< 0.01	No
Carbofuran (ug/L) - TW	1/10/2011	< 0.01	No
Carbon Tetrachloride (ug/L) - TW	1/10/2011	< 0.16	No
Chlordane: Total (ug/L) - TW	1/10/2011	< 0.01	No
Chlorpyrifos (ug/L) - TW	1/10/2011	< 0.02	No
Cyanazine (ug/L) - TW	1/10/2011	< 0.03	No
Diazinon (ug/L) - TW	1/10/2011	< 0.02	No
Dicamba (ug/L) - TW	1/10/2011	< 0.2	No
1,2-Dichlorobenzene (ug/L) - TW	1/10/2011	< 0.41	No
1,4-Dichlorobenzene (ug/L) - TW	1/10/2011	< 0.36	No
DDT + metabolites (ug/L) - TW	1/10/2011	< 0.01	No
1,2-Dichloroethane (ug/L) - TW	1/10/2011	< 0.35	No
1,1-Dichloroethylene (ug/L) - TW	1/10/2011	< 0.33	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	1/10/2011	< 0.35	No
2,4-Dichlorophenol (ug/L) - TW	1/10/2011	< 0.15	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	1/10/2011	< 0.19	No
Diclofop-methyl (ug/L) - TW	1/10/2011	< 0.4	No
Dimethoate (ug/L) - TW	1/10/2011	< 0.03	No
Dinoseb (ug/L) - TW	1/10/2011	< 0.36	No
Diquat (ug/L) - TW	1/10/2011	< 1.0	No
Diuron (ug/L) - TW	1/10/2011	< 0.03	No
Glyphosate (ug/L) - TW	1/10/2011	< 6.0	No
Heptachlor+hepachlor epoxide (ug/L) - TW	1/10/2011	< 0.01	No
Lindane (ug/L) - TW	1/10/2011	< 0.01	No
Malathion (ug/L) - TW	1/10/2011	< 0.02	No
Methoxychlor (ug/L) - TW	1/10/2011	< 0.01	No
Metolachlor (ug/L) - TW	1/10/2011	< 0.01	No
Metribuzin (ug/L) - TW	1/10/2011	< 0.02	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	1/10/2011	< 0.3	No

Parameter	Sample Date	Result Value	Exceedance
Paraquat (ug/L) - TW	1/10/2011	< 1.0	No
Parathion (ug/L) - TW	1/10/2011	< 0.02	No
PCB (ug/L) - TW	1/10/2011	< 0.04	No
Pentachlorophenol (ug/L) - TW	1/10/2011	< 0.15	No
Phorate (ug/L) - TW	1/10/2011	< 0.01	No
Picloram (ug/L) - TW	1/10/2011	< 0.25	No
Prometryne (ug/L) - TW	1/10/2011	< 0.03	No
Simazine (ug/L) - TW	1/10/2011	< 0.01	No
Temephos (ug/L) - TW	1/10/2011	< 0.01	No
Terbufos (ug/L) - TW	1/10/2011	< 0.01	No
Tetrachloroethylene (ug/L) - TW	1/10/2011	< 0.35	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	1/10/2011	< 0.14	No
Triallate (ug/L) - TW	1/10/2011	< 0.01	No
Trichloroethylene (ug/L) - TW	1/10/2011	< 0.43	No
2,4,6-Trichlorophenol (ug/L) - TW	1/10/2011	< 0.25	No
2,4,5-T (ug/L) - TW	1/10/2011	< 0.22	No
Trifluralin (ug/L) - TW	1/10/2011	< 0.02	No
Vinyl Chloride (ug/L) - TW	1/10/2011	< 0.17	No
Trihalomethane: Total (ug/L) Annual Average - DW	2015 (Quarterly)	6.65*	No

*Annual average of THMs

NOTE: Schedule 23, Schedule 24, Sodium and Fluoride are scheduled to be taken every 60 months. The most current Schedule 24 was sampled in January 2011, the next Schedule 24 is scheduled for January 2016.

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	1.29	mg/L	01/16/12

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)