EGANVILLE DRINKING WATER SYSTEM

2022 ANNUAL SUMMARY REPORT

Township of Bonnechere Valley
Water and Sewage Department
February 2023

Eganville Drinking Water System – 2022 Annual Summary Report

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Executive Summary

The Eganville Drinking Water System continues to provide a safe and reliable water supply to the residents and businesses of Eganville.

All regulatory requirements with respect to the Safe Drinking Water Act and Ontario Regulation 170/03 Drinking Water Systems were fully complied with during 2022.

All aspects of the Municipal Drinking Water Licence and Drinking Water Works Permit were also fully complied with during 2022.

There were no adverse water quality incidents in 2022.

The volume of water treated and distributed to the Village of Eganville customers averaged 588 m^3/day which is 28% of the rated capacity of the Eganville Water Treatment Plant.

Introduction

The treatment and delivery of potable water in Ontario is regulated by the Ministry of the Environment, Conservation and Parks (MECP) under the Safe Drinking Water Act and O. Reg. 170/03 which prescribes the requirements for owners and operators of municipal drinking water systems.

O. Reg. 170/03 Section 11 requires the owner to produce an Annual Report. The annual report must be prepared not later than February 28 of the following year.

The Annual Report must include:

- A description of the drinking water system including a list of the water treatment chemicals used;
- A summary of any adverse test results or observations and corrective actions;
- A summary of all required test results;
- A description of any major expenses incurred to install, repair or replace equipment.

O. Reg. 170/03 Schedule 22 requires the owner to produce a Summary Report. The summary report must be prepared no later than March 31 of the following year and given to the members of the municipal council.

- The report must list the requirements of the Act, its Regulations, the system's Drinking Water Works Permit, Municipal Drinking Water Licence and any orders the system failed to meet during the reporting period. The report must also specify the duration of the failure, and for each failure referred to, describe the measures that were taken to correct the failure.
- To enable the Owner to assess the rated capacity of their system to meet existing and future planned water uses, the following information is also required in the report.
    - A summary of the quantities and flow rates of water supplied during the reporting period, including the monthly average and maximum daily flows;
    - A comparison of the summary to the rated capacity and flow rates approved in the system's Permit To Take Water, Drinking Water Works Permit and Municipal Drinking Water Licence

Report Availability

A copy of this report shall be given, without charge, to every person who requests a copy from the Township of Bonnechere Valley Municipal Office at 49 Bonnechere St. E., Eganville, Ontario.

Users of the Eganville Drinking Water System shall be advised of the availability of the report on their monthly water bill.

The report is available on the Township of Bonnechere Valley website at www.bonnecherevalleytwp.com

Eganville Drinking Water System

The Eganville Water System is owned and operated by the Township of Bonnechere Valley and provides a potable water supply to the residents and businesses of the Village of Eganville. The system generally consists of a Water Treatment Plant (WTP), a distribution system and a water standpipe.

The WTP, built in 1990, treats water from the Bonnechere River with two Graver Monoplant Package Units, which have a combined capacity of 2,070 m^3/day. The distribution system originally constructed in the mid 1970's consists of approximately 13 km of piping ranging in diameter from 150 mm to 250 mm with a 300,000 Imperial gallon (1,363 m^3) capacity steel standpipe for pressure equalization and supply.

The water treatment process within the two Graver Monoplant Package Units uses Sodium Hypochlorite for pre-disinfection and Pre Hydroxylated Aluminum Sulphate with Polyelectrolyte for coagulation. The treated and filtered water is then disinfected with Sodium Hypochlorite prior to being pumped out to the distribution system.

Large Residential Drinking Water System	
Name	Eganville Drinking Water System
Owner	Township of Bonnechere Valley
Number	210000675
Municipal Drinking Water Licence	171-101 (Issue #4)
Drinking Water Works Permit	171-201 (Issue #3)
Permit To Take Water	2101-8W4LN3
Financial Plan (2021 to 2027)	171-301
QMS Operational Plan	171-401

Summary of Adverse Test Results and Other Regulatory Issues

There were no adverse test results or other regulatory issues in 2022.

Summary of Public Complaints

By-law 2021-043 being a by-law to establish a Municipal Complaint Policy for the Township of Bonnechere Valley was passed on June 22, 2021. The Policy is outlined in Schedule "A" of the by-law.

The Municipal Complaint Policy was integrated into the Operations and Maintenance Manual Procedures with the creation of Standard Operating Procedure 835.10.29 as required by the Municipal Drinking Water Licence.

During 2022 no formal public complaints were submitted to the Water and Sewage Department.

Summary of Water Quality Monitoring

Microbiological

Source	Number of Samples	Range of E. Coli Results (CFU/100ml) (min #-max #)	Range of Total Coliform Results (CFU/100ml) (min #-max #)	ODWQS*
Raw	52	0 – 81	5 - 320	N/A
Treated	52	0 – 0	0 - 0	0
Distribution	165	0 – 0	0 - 0	0

* ODWQS – Ontario Drinking Water Quality Standards, Ont. Reg. 169/03

Source	Number of HPC* Samples	Range of HPC Results (CFU/mL) (min#-max#)	ODWQS
Raw	0	N/A	N/A
Treated	52	2 - 2	500
Distribution	165	2 - 2	500

*HPC - Heterotrophic Plate Count

Operational

Parameter	Number of Samples	Range of Results (min #)-(max #)	ODWQS
Turbidity - results from continuous turbidity monitors on 4 dual media filters & 2 GAC filters, and weekly grab samples from treated water leaving plant	105,172	All results were ≤ 0.3 NTU > 95% of the time & <1.0 NTU 100% of the time **	1.0 NTU*
Free Chlorine Residual - continuous monitor on treated water leaving plant	105,120	1.47 – 2.84 mg/L	0.05 - 4.0 mg/L
Total Chlorine Residual - continuous monitor on treated water leaving plant	105,120	1.38 – 2.95 mg/L	N/A
Free Chlorine Residual - grab samples in distribution system	534	0.37 -- 2.05 mg/L	0.05 - 4.0 mg/L
Total Chlorine Residual - grab samples in distribution system	534	0.49 -- 2.20 mg/L	N/A

*NTU – Nephelometric Turbidity Unit **Summary of SCADA & WTP Lab Turbidity results presented in "2022 Monitoring Summary Report"

Summary of Schedule 15.1 Lead Monitoring

No exceedance of the ODWQS were noted.

Sample Period	Sample Date	Location	Sample Results		
			Lead* mg/L	Alkalinity mg/L	pH
Dec 2021 to Apr 2022	Apr.12,22	Hydrant # 0066 537Wellington St.	0.00018	39	7.34
Dec 2021 to Apr 2022	Apr.12,22	Hydrant #0031 244 Oak St.	0.00006	40	7.35
June to Oct 2022	Sept.08/22	Hydrant # 0041 4 Foran St.	N/A**	30	7.52
June to Oct 2022	Sept.08/22	Hydrant # 0015 Mill St.	N/A**	31	7.55

*ODWQS standard for lead in drinking water is 0.01 mg/L

** Schedule 15.1 allows for lead sampling every 3rd year with Alkalinity and pH each sampling period.

Summary of Quarterly Trihalomethane (THM) Monitoring

No exceedance of the ODWQS were noted.

DISTRIBUTION SYSTEM – TRIHALOMETHANE (THM)				
Date	Jan. 18, 2022	Apr. 19, 2022	Jul. 19, 2022	Oct.18, 2022
Total THM ug/L	58	55	130	48
RAA* ug/L	72.3	67.8	79.8	72.8

*RAA – Running Annual Average

*ODWQS - RAA is 100 ug/L

Summary of Quarterly Haloacetic Acid (HAA) Monitoring

No exceedance of the ODWQS were noted.

DISTRIBUTION SYSTEM – HALOACETIC ACID (HAA)				
Date	Jan. 18, 2022	Apr. 19, 2022	Jul. 19, 2022	Oct. 18, 2022
Total HAAs ug/L	49.9	71.7	95.4	51.0
RAA* ug/L	63.7	68.4	69.3	67.0

*RAA – Running Annual Average

*ODWQS - RAA is 80 ug/L

Summary of Quarterly Nitrate and Nitrite Monitoring

No exceedance of the ODWQS were noted.

TREATED WATER					
Date	Jan.18, 2022	Apr.19,2022	Jul.19,2022	Oct.18,2022	ODWQS (mg/L)
Nitrate mg/L	<0.1	<0.1	<0.1	<0.1	10.0
Nitrite mg/L	<0.1	<0.1	<0.1	<0.1	1.0

Summary of Annual Sodium & Fluoride Monitoring

The treated water was sampled on January 18, 2022 for sodium and fluoride. No exceedance of the ODWQS were noted.

TREATED WATER		
Parameter	Results (mg/L)	ODWQS (mg/L)
Sodium mg/L	8.8	200
Fluoride mg/L	<0.1	1.5

Summary of Annual Schedule 23 Inorganic Parameters Monitoring

The treated water was sampled on January 18, 2022 for the following inorganic parameters. No exceedance of the ODWQS were noted.

TREATED WATER		
Parameter	Results (mg/L)	ODWQS (mg/L)
Antimony	<0.0001	0.006
Arsenic	<0.0001	0.01
Barium	0.026	1
Boron	0.005	5
Cadmium	<0.000015	0.005
Chromium	<0.002	0.05
Mercury	<0.00002	0.001
Selenium	<0.001	0.05
Uranium	<0.00005	0.02

Summary of Annual Schedule 24 Organic Parameters Monitoring

The treated water was sampled on January 18, 2022 for the following organic parameters. No exceedance of the ODWQS were noted.

EGANVILLE DRINKING WATER SYSTEM - TREATED WATER - SCHEDULE 24 - ORGANIC PARAMETERS							
SAMPLE DATE:	Jan.18,2022	RESULT	ODWQS			RESULT	ODWQS
PARAMETER		ug/l	ug/l		PARAMETER	ug/l	ug/l
Alachlor		<0.3	5		Diquat	<5	70
Atrazine + N-dealkylated metabolites		<0.5	5		Diuron	<5	150
Azinphos-methyl		<1	20		Glyphosate	<25	280
Benzene		<0.5	1		Malathion	<5	190
Benzo(a)pyrene		<0.006	0.01		2-Methyl-4-chlorophenoxyacetic acid (MCPA)	<0.10	100
Bromoxynil		<0.5	5		Metolachlor	<3	50
Carbaryl		<3	90		Metribuzin	<3	80
Carbofuran		<1	90		Monochlorobenzene	<0.5	80
Carbon Tetrachloride		<0.2	2		Paraquat	<1	10
Chlorpyrifos		<0.5	90		Pentachlorophenol	<0.2	60
Diazinon		<1	20		Phorate	<0.3	2
Dicamba		<1	120		Picloram	<5	190
1,2-Dichlorobenzene		<0.5	200		Polychlorinated Biphenyls (PCB)	<0.05	3
1,4-Dichlorobenzene		<0.5	5		Prometryne	<0.1	1
1,2-Dichloroethane		<0.5	5		Simazine	<0.5	10
1,1-Dichloroethylene (vinylidene chloride)		<0.5	14		Terbufos	<0.5	1
Dichloromethane		<0.5	50		Tetrachloroethylene (perchloroethylene)	<0.5	10
2,4-Dichlorophenol		<0.2	900		2,3,4,6-Tetrachlorophenol	<0.2	100
2,4-Dichlorophenoxy acetic acid (2,4-D)		<1	100		Triallate	<10	230
Diclofop-methyl		<0.9	9		Trichloroethylene	<0.5	5
Dimethoate		<1	20		2,4,6-Trichlorophenol	<0.2	5
					Trifluralin	<0.5	45
					Vinyl Chloride	<0.2	1

Major Infrastructure Improvements

Bruce Street Standpipe

Modifications were made to the Bruce Street Standpipe with the installation of an Active Mixing System to reduce thermal stratification, minimize disinfectant residual loss and prevent ice damage. This system replaces the Tideflex passive mixing system that failed due to ice formation. The Active Mixing System includes a Kasco Certisafe Tank Mixer and Control Panel which is connected to the Water Treatment Plant PLC/SCADA for monitoring purposes.

Water Meters

The 564 existing residential and commercial Water Meters installed in 2010 were all replaced with new Neptune T10 units. The new water meters now provide accurate and reliable water usage readings which allows for appropriate billing to the customers.

Instrument Calibration and Maintenance

The raw water and treated water flow meters were calibrated by SCG Flowmetrix on September 22, 2022. The flowmeters passed the internal continuous verification and automatic self calibration. They are working within +/- 1% of their original factory calibration.

All water level measuring devices were checked and calibrated on October 31, 2022 by Franklin Empire. They are working within +/- 1% of the measured and reported levels.

All lab instrumentation was serviced, calibrated, verified with standards on December 7, 2022 by Hach Sales & Service Canada Ltd.

All calibration and maintenance activities were done by qualified Technicians using industry standards and calibrated equipment as detailed in the WTP Calibration Report for 2022.

Water Usage Summary

TREATED WATER			
2022 Month	**Average Day m^3**	**Maximum Day m^3**	**Monthly Total m^3**
January	593	582	15295
February	530	612	14847
March	537	617	16636
April	508	640	15240
May	567	752	17579
June	608	794	18253
July	650	796	20152
August	604	694	18734
September	660	760	19794
October	691	966	21433
November	644	920	19318
December	466	539	14461
Year Total			**211742**
Average	**588**		**17645**
Max Day		**966**	

Note:
The rated capacity of the Eganville Water Treatment Plant is 2070 m^3/day.
The average day flow during 2022 was 588 m^3 which is 28% of the rated capacity.
The maximum daily flow recorded during 2022 was 966 m^3 which is 46% of the rated capacity.
Based on this the Eganville Water Treatment Plant has more than adequate capacity to supply the Village of Eganville with drinking water for the foreseeable future.

Monitoring Summary Report

The appended 2022 Eganville Drinking Water System Monitoring Summary Report provides additional detail on the results of both the operational and compliance monitoring.