

Bluewater Lakeshore Distribution System

Waterworks # 260006542
System Category – Large Municipal Residential

Annual Drinking Water Report

Prepared For: Municipality of Bluewater

Reporting Period of January 1 – December 31, 2024

Issued: February 11, 2025

Revision: 0

Operating Authority:



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Overview

This report fulfills requirements of Ontario Regulation 170/03 Section 11 and Schedule 22. The report must be made available to anyone that requests a copy of the report. By March 31, 2025 the report must be provided to members of municipal council.

Report Availability

This system does not serve more than 10 000 residences and the annual reports will be available to residents at the Municipal Office as well as on the municipal website. Notification will be at the Municipal Office and copies provided free of charge if requested. The Municipal Office is located at 14 Mill Avenue, Zurich, Ontario, N0M 2T0.

System Process Description

The Bluewater Lakeshore Distribution System trunk main (250mm, 300mm, 350mm) is fed from the Lake Huron Primary Water Supply System (LHPWSS) north along Highway 21 to Bayfield. The Stanley Booster Pumping Station is located on the southwest corner of Highway 21 and Danceland Road. This booster station increases system pressure during periods of high demand. An elevated storage tank, with a total volume of 4000 m³ supplies water to the remainder of the residents of Bayfield. This elevated tank facility contains standby re-chlorination equipment, two chemical metering pumps (one duty and one standby) and an online chlorine analyzer. The online chlorine analyzer residuals are monitored by a SCADA system located in Zurich. This system serves a population of 4000 residents.

Summary of Non-Compliance

Adverse Water Quality Incidents

Under the *Safe Drinking Water Act*, O. Reg 170/03, any adverse water quality incidents (AWQI) are required to be reported to the Ministry of the Environment, Conservation and Parks (MECP) and corrective action taken. Refer to Table 1 below for a summary of AWQI incidents in 2024.

Table 1: *Adverse Water Quality Incidents*

Date	AWQI #	Problem	Details	Legislation	Corrective Action Taken
There were no AWQI's reported during the reporting period.					

Non-Compliance

Under the *Safe Drinking Water Act*, O. Reg 170/03, any events where legislative requirements were not met are required to be reported to the MECP and corrective actions taken. Refer to Table 2 below for a summary of non-compliance incidents in 2024.

Table 2: Summary of Non-Compliance Incidents

Legislation	Requirement(s) system failed to meet	Duration of the failure (i.e. date(s))	Corrective Action	Status
There were no non-compliance issues reported during the reporting period.				

Non-Compliance Identified in a Ministry Inspection

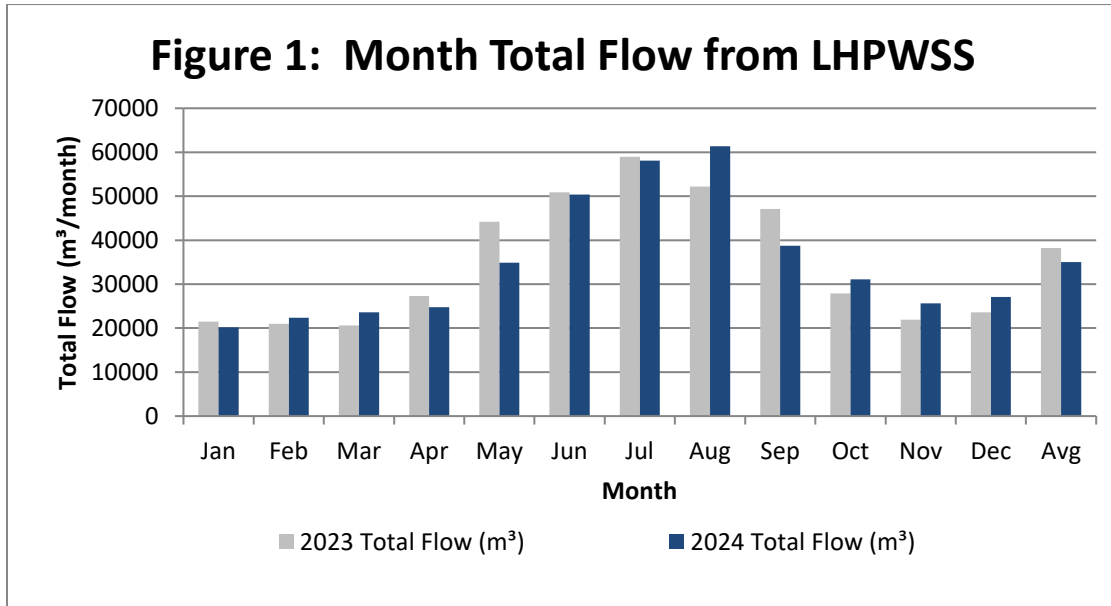
MECP inspections occur within an April 1 to March 31 fiscal year. The last inspection occurred in 2023 and there were no MECP inspections in 2024; therefore, no non-compliances identified.

Flows

Flows to Distribution System from LHPWSS

The total flow to the Bluewater Lakeshore Distribution System from LHPWSS was 453 225 m³. This is an 8% increase from 2023. See Figure 1 below for the monthly flows to the Bluewater Lakeshore Distribution System.

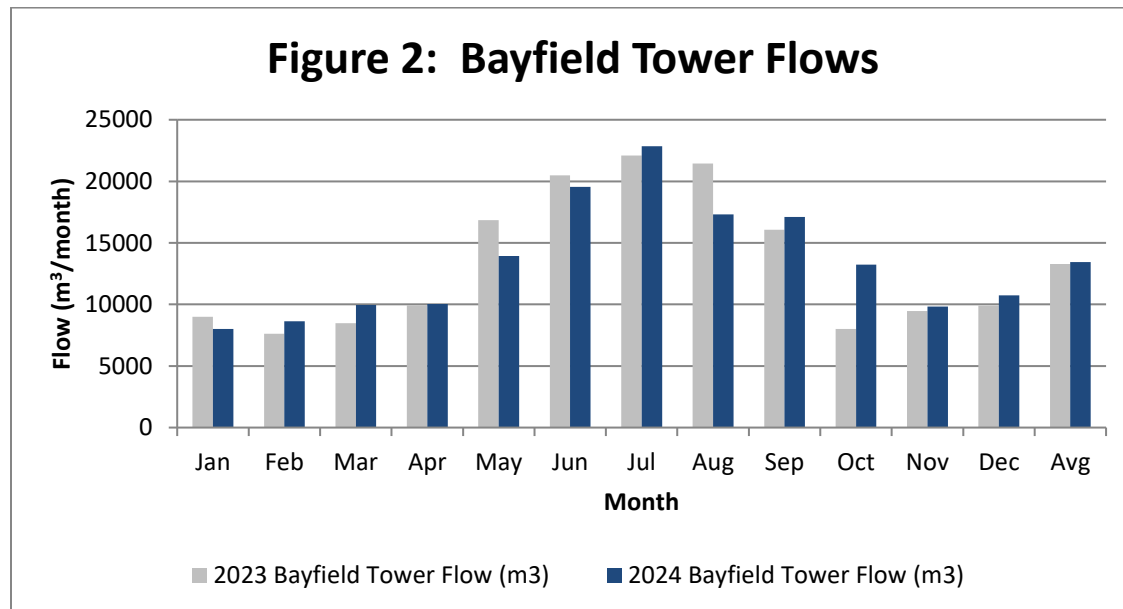
Figure 1: Monthly Flows to the Bluewater Lakeshore Distribution System



Flows through the Bayfield Water Tower

Flow is also measured at the Bayfield Water Tower. Figure 2 provides the total monthly flow of water that has passed through the tower.

Figure 2: Bayfield Tower Flows



Total and Average Daily Flows by Month

The Bluewater Lakeshore Distribution System Municipal Drinking Water License (License Number: 045-102) does not identify a system rated capacity. The agreement between the Municipality of Bluewater and the LHPWSS Board of Management (Regional Water Supply) does not specify a maximum water taking volume. The 2024 total flow and average daily flows per month are listed in Table 3 below.

Table 3: Bluewater Lakeshore Distribution System Flows

Month	Total Flow (m³)	Average Daily Flow (m³)
January	20 166	650.52
February	22 361	771.07
March	23 604	761.42
April	24 755	825.17
May	34 901	1125.84
June	50 414	1680.47
July	58 072	1873.29
August	61 374	1979.81
September	38 762	1292.07
October	31 060	1001.94
November	25 642	854.73
December	27 087	873.77
TOTAL	453 225	-
MAXIMUM	61 374	1979.81
AVERAGE	35 027	1141.00

Regulatory Sample Results Summary

Microbiological Testing

To meet regulatory requirements, the distribution system is sampled on a weekly basis at various locations for E. coli, Total Coliforms and heterotrophic plate count (HPC). The regulatory limit for Total Coliform and E. coli is zero, heterotrophic plate count (HPC) doesn't have a limit. Refer to Table 4 below.

Table 4: Microbiological Testing Summary

	No. of Samples Collected	Range of E.Coli Results (cfu/100mL)		Range of Total Coliform Results (cfu/100mL)		No. of HPC Samples Collected	Range of HPC Results (cfu/mL)	
		Min	Max	Min	Max		Min	Max
Distribution Water	212	0	0	0	0	53	10	140

Operational Testing

Free chlorine residuals are monitored throughout the distribution system to meet regulatory requirements and ensure adequate secondary disinfection is provided. The regulatory requirement for free chlorine residual is a minimum of 0.05 mg/L with an objective of 0.20 mg/L throughout the distribution system. Refer to Table 5 below.

Table 5: Free Chlorine Residuals

Parameter	No. of Samples Collected	Range of Results	
		Min	Max
Free Chlorine Residual, grab (mg/L)	368	0.41	1.41

Inorganic Parameters

Schedule 15.1 Sampling

The Schedule 15.1 Sampling is required under O. Reg 170/03, this includes sampling for lead, alkalinity and pH. The Bluewater Lakeshore Distribution system is under reduced sampling. As such, no residential plumbing samples were required to be collected. Monitoring the pH and alkalinity in the distribution system is essential to ensure adequate buffering for corrosion control and to minimize exposure to metals such as lead. Refer to Table 6 below.

Table 6: Schedule 15.1 Sample Results

Distribution System	Number of Samples	Range of Results		MAC	Number of Exceedances
		Minimum	Maximum		
Alkalinity (mg/L)	6	79	87	n/a	n/a
pH	6	7.49	7.93	n/a	n/a
Lead (ug/l)	6	0.09	0.57	10	0

Organic Parameters

Organic parameters are tested quarterly as a requirement under O. Reg 170/03. This includes testing for chlorine byproducts including Trihalomethane and Haloacetic Acid. Refer to Table 7 below.

Table 7: Organic Parameter Testing

Distribution Water	Annual Running Average	MAC	Number of Exceedances
Trihalomethane: Total (ug/L)	39.0	100	0
Haloacetic Acids: Total (ug/L)	13.2	80	0

MAC = Maximum Allowable Concentration as per O. Reg 169/03

Additional Legislated Samples

There are no additional sampling requirements within the Bluewater Lakeshore Distribution System.

Major Maintenance and Capital Summary

The Bluewater Lakeshore Distribution System completed a number of repairs, replacements and projects as listed below. These represent the major expenses incurred in 2024.

Table 8: Major Maintenance

Item	Description
1	Watermain Repairs, Appurtenance Repairs and Replacements
2	Injection Line, Check Valve Replacement – Bayfield Tower
3	Chemical Feed System: Pump 2 Repair, Flow Gauges and PRV replacements – Bayfield Tower
4	Booster Pump Motor Repair– Stanley Booster Station

Revision History

Date	Revision #	Revision Notes
February 11, 2025	0	Issued Report