Appendix 1

2022 City of Brantford Water System

Annual Summary Report

CITY OF BRANTFORD

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2022 Annual Summary Report – Executive Summary

The City of Brantford is committed to providing our residents with safe and adequate supply of drinking water that meets or surpasses applicable regulatory requirements in the Province of Ontario. The information in the Annual Summary Report is intended to inform the members of Council and the public about the current state of the Drinking Water System and to demonstrate the high quality of our drinking water.

The Brantford Water System is owned and operated by the Corporation of the City of Brantford. The raw water supply for the production of drinking water is withdrawn from the Grand River through the Holmedale Canal. The raw water is treated at the Holmedale Water Treatment Plant before it is distributed through the extensive underground water pipe network. The water treatment plant is a complex facility with Class IV rating and is designed to produce up to 100 million liters per day (ML/d) of drinking water. There are three reservoirs in the network in addition to an in-plant reservoir, one booster pumping station and two elevated tanks that are used in the distribution system to equalize water demand, to reduce pressure fluctuations and to provide adequate reserves for firefighting, power outages and other emergencies.

The municipal drinking water should satisfy the provincial requirements of O. Reg. 170/03 under the Safe Drinking Water Act, 2002. The drinking water was tested for various operational, biological, chemical (inorganic and organic) parameters using a certified lab and all the parameters were within the regulatory limits. In 2022, 1808 bacteriological samples were taken throughout the City and 23 sample results were adverse. Appropriate corrective actions were taken under the oversight of the Brant County Health Unit following provincial regulations.

The quantity of raw water taken under the Permit to Take Water and the treated water produced under the Municipal Drinking Water License were in compliance with the Provincial regulations.

The Ministry of Environment, Conservation and Parks (MECP) performs an annual inspection of the City's water treatment plant and the distribution system. Our Drinking Water System received a perfect compliance score of 100% in 2022.

A. Background

The information in the Annual Summary Report is intended to inform members of Council and the public about the current state of the Drinking Water System and demonstrate that high quality drinking water is continually supplied to consumers.

This report has been prepared in accordance with the terms and requirements set out in the Safe Drinking Water Act (2002), as Section 11 – Annual Reports and Schedule 22 – Summary Reports of Ontario Regulation 170/03. It covers the period from January 1st to December 31st, 2022.

The 2022 Annual Summary Report will be available to the public without charge, beginning March 31st, 2023. A copy of this report can be obtained via the Internet (www.brantford.ca) and at Brantford Customer Service by contacting (519) 759-4150.

B. Description of Drinking Water System

Table 1 City of Brantford Drinking Water System

Water System Element	Details
Drinking Water System Number	#220003564
Owner	The Corporation of the City of Brantford
Classification	Large Municipal Residential
Treatment	Class IV
Distribution	Class III
Raw Water Supply	Grand River (Holmedale Canal)
DWS Location	324 Grand River Ave.
Municipal Drinking Water License (MDWL)	063-101 Issue # 8, Issued: November 13, 2019
Drinking Water Works Permit (DWWP)	#063-201 Issue # 6, Issued: May 27th, 2022
Permit to Take Water	# 2375-BLHMW5
Bulk Water Receiving Customer	The Corporation of the County of Brant Town of Cainsville Distribution System (Drinking Water System #: 260002616, Class I) which is owned and managed by the County of Brant.

The City of Brantford Water System is owned and operated by the Corporation of the City of Brantford. The Drinking Water System is a Large Municipal Residential System consisting of a Class IV Water Treatment Plant (Holmedale Water Treatment Plant) and a Class III Distribution System. (Drinking Water System Number: 220003564, Municipal Drinking Water License (MDWL) 063-101 Issue # 8, Issued on November 13, 2019, Drinking Water Works Permit (DWWP) #063-201 Issue # 6, Issued on May 27th, 2022).

The Holmedale Water Treatment Plant is located at 324 Grand River Avenue in Brantford, Ontario. The City's raw water supply is drawn from the Grand River through the Holmedale Canal. The City is responsible for the overall management of the production and distribution of Brantford's drinking water. Specifically, this includes treatment of Grand River water, maintenance of the plant, distribution and metering systems and meeting and/or exceeding the applicable regulatory requirements. The water treatment plant is designed to produce drinking water up to 100 million liters per day (ML/d). The volume of water permitted to take from the Grand River for drinking water supply is 260 million liters per day (ML/d) (Permit to Take Water #2375-BLHMW5 Issued on May 8, 2017, expires on May 31, 2027). The water treatment plant contains the following process units: screening, coagulation, sand-ballasted flocculation (John Meunier's Actiflo©), sedimentation, ozonation, biological filtration, UV disinfection, chlorination, chloramination and fluoridation.

Three reservoirs (in addition to an in-plant reservoir), one booster pumping station and two elevated tanks are used in the distribution system to equalize water demand, to reduce pressure fluctuations and to provide reserves for firefighting, power outages and other emergencies. A Residue Management Facility (RMF) treats the wastewater generated in the water production process for disposal in an environmentally sound manner. Wastewater treatment consists of concentrating the wastewater by three gravity settler thickeners and dewatering by two belt filter presses. Dewatered waste (sludge) is disposed at the Brantford Landfill. The water distribution network system consists of 508 kms of pipes, 2801 hydrants and 8649 valves.

The City of Brantford Water System sells water to one other drinking water system, which is the Town of Cainsville Distribution System (Drinking Water System #:260002616, Class I) which is owned and managed by the County of Brant. The Tutela Heights area annexed by the City in 2017 continues to be served by the County of Brant from their Mount Pleasant well water system.

C. List of Water Treatment Chemicals Used

Table 2 Water Treatment Chemicals

Chemical Name	Chemical Use
Polyaluminum chloride	Primary Coagulant
Flopam AN 934 PWG	Settling Aid
Microsand	Settling Aid
Liquid oxygen	Primary Chemical for Ozone Generation
Chlorine gas	Primary Disinfectant
Ammonia gas	Used in combination with free chlorine for secondary disinfection
Hydrofluosilicic Acid	Fluoridation
Sulfur dioxide gas	Dechlorination Chemical

D. Major Expenses

In order to maintain the water assets in good condition, the City evaluates the condition and performance of the assets periodically and develops a 10-year capital program. Some of the critical capital projects delivered in 2022 are listed below.

Table 3 Major Expenses

Description of the Project	Cost
King George Tank Rehabilitation	$309,120
Analyzer Upgrades	$143,603
Pump Replacements	$77,021
Holmedale Canal Head Gate Dredging	$58,725
Ozone Contact Chamber and Low Lift Pump Well Cleanouts	$41,637
Lead Grants Paid	$80,000
Total Expense	$630,106

E. Summary of Test Results Required Under O.Reg 170/03

i) Operational Testing Required Under Schedule 7

Appendix A summarizes the Operational Testing required under Schedule 7. Water quality tests were conducted at the required frequency and all results were within compliance limits in 2022.

ii) Bacteriological Testing Required Under Schedule 10

Table 4 summarizes the Bacteriological Testing required under Schedule 10. Bacteriological tests were conducted at the required frequency. Adverse results are summarized in Section F of this report. All corrective actions were taken as per provincial requirements and guidelines.

Table 4 Results from Bacteriological Testing Required Under Schedule 10

Source	Number of Samples	Range of Total Coliform (colonies per 100mL)	Range of E.Coli (colonies per 100mL)	Range of Background (colonies per 100mL)	Range of HPC (colonies per mL)	Number of Samples Tested for HPC	Percentage of Samples Tested for HPC
Raw	53	110-25000	6-600	550-65000	125-8000	53	100%
Treated	52	0	0	0	0-3	52	100%
Distribution	1808	0-83	0	0-200	0-22	806	44.6%

*General bacteria population expressed as Background
**HPC – Heterotrophic Plate Count – General bacteria population expressed as colony counts on a heterotrophic plate count
Regulatory Limits for Treated and Distribution Samples: Total Coliform <1 colony/100mL, E. Coli - <1colony/100mL

iii) Summary of Inorganic Results Required Under Schedule 23

Appendix B summarizes the Inorganic Results required under Schedule 23; Samples were tested at the required frequency and all results where within compliance limits in 2022.

One distribution sample and four Point of Entry (POE) samples tested for nitrate were above half the maximum acceptable concentration (MAC) of 5 mg/L. The samples were collected on February 9th, November 24th, December 15th, & December 21st, 2022. The nitrate concentrations were 6.79 mg/L, 6.97 mg/L, 5.63 mg/L, 6.35 mg/L & 5.52 mg/L respectively. POE sample collection frequency was increased from quarterly to weekly starting in September 2022 to better understand the seasonal trends of nitrate measured in the raw water. The City is researching the potential causes of the higher nitrate levels that are prevalent in the colder months of the year and has informed the Grand River Conservation Authority. No corrective actions are required by the City when a water quality parameter level is between half its MAC and the MAC.

iv) Summary of Organic Results required under Schedule 24

Appendix C summarizes the Organic Results required under Schedule 24; Samples were tested at the required frequency and all results where within compliance limits in 2022.

v) Summary of the results of tests required under the Municipal Drinking Water License (MDWL):

Under the City of Brantford Water System's Municipal Drinking Water License, several parameters are required to be tested at varying frequencies and locations throughout the water treatment process and distribution system. Parameters tested include Lead, N-Nitrosodimethylamine (NDMA), Bromate, Microcystin and Total Dissolved Solids (TSS).

Health Related Parameter - Lead

Table 5 summarizes the lead samples tested and the lead sampling requirement detailed in the MDWL. The distribution system lead sample result was well below the MAC of 10 µg/L, while the residential samples taken from homes supplied by lead water service pipes had variable results with some of the results exceeding the MAC.

The City's Lead Reduction Plan main strategy for mitigating lead in drinking water is replacing old lead water service pipes. After replacement, a lead sample is tested to assess the performance of this strategy. The results unequivocally demonstrate that replacing lead water services reduces substantially the concentration of lead in the drinking water at the tap. It is to be noted that the City provides free funding of $1500 per water service to help with the cost of replacing lead water service on private properties. The City also offers a loan of up to $3,000 for eligible work.

Table 5 - Lead Sampling Results Summary

Sampling Locations	Number of Sampling Points Tested	Number of Sampling Points Required by MDWL	Minimum (µg/L)	Maximum (µg/L)	Average (µg/L)	pH	Alkalinity (mg/L as CaCO3)
Distribution	1	1	0.12	0.12	0.12	7.21	147
Non-residential	0	0	N/A	N/A	N/A	N/A	N/A
Residential	188	20	0.01	96.1	5.17	7.39	N/A
After Replacement	63	N/A	0.02	10.2	1.03	7.42	N/A

Health Related Parameter – Bromate

The monthly bromate testing at the POE is a requirement under the MDWL. The results are summarized in Table 6. All of the results were below the MAC.

Table 6 Summary of Bromate Test Results

Month	Bromate (mg/l)	Exceedance?
January	0.005*	No
February	0.005*	No
March	0.005*	No
April	0.005*	No
May	0.005*	No
June	0.006	No
July	0.005*	No
August	0.005*	No
September	0.005*	No
October	0.005*	No
November	0.005*	No
December	0.005*	No
Annual Average	0.005	No

*result was less than the method detection limit

Health Related Parameter – N-Nitrosodimethyamine (NDMA)

The quarterly NDMA testing from the distribution system is a requirement under the MDWL. The results are summarized in Table 7 with the POE for comparison. All of the results were below the MAC.

Table 7 Summary of NDMA Test Results

Quarter	POE	Distribution	Exceedance (MAC=0.009 µg/L)
First	0.0012	0.0020	No
Second	0.0012	0.0027	No
Third	0.0009	0.0009	No
Fourth	0.0027	0.0022	No
Minimum	0.0009	0.0009	No
Maximum	0.0027	0.0027	No
Average	0.0015	0.00195	No

Algae Management Plan – Microcystin

Microcystin testing frequency is weekly on raw water and monthly at the POE from June 1 until October 31st. All results measured in 2022 had a microcystin concentration lower than the method detection limit.

Environmental Discharge Parameter - RMF – Total Suspended Solids (TSS)

Under the City of Brantford Water System's MDWL, the annual average concentration of TSS discharged from the RMF thickeners must be below 25 mg/L. Table 8 outlines the Monthly Average TSS for 2022. Each month was well below the 25mg/L compliance limit with an annual average of 3.35 mg/L for 2022.

Table 8 Monthly Average TSS (mg/L)

Month	TSS (mg/l)	Exceedance?
January	4.30	No
February	3.40	No
March	1.70	No
April	2.80	No
May	3.60	No
June	3.60	No
July	2.60	No
August	3.00	No
September	3.40	No
October	3.40	No
November	3.60	No
December	4.80	No
Annual Average	3.35	No

F. Summary of Reporting Adverse Test Results and Other Problems (Schedule 16)

i) Adverse Bacteriological or Combined Chlorine Residual Results and Corrective Actions Results

In 2022, out of the 1808 bacteriological samples tested throughout the City, 23 sample results were adverse. Corrective actions were taken as per Ontario Regulation 170/03 and under the direction of the Brant County Health Unit. Details of the adverse sample results and corrective actions to ensure safe drinking water quality are described below:

Table 9 Summary of Adverse Water Quality Incidents, Bacteriological or Combined Chlorine

Location	Date	Adverse Water Quality Indicator (AWQI)	Corrective Actions
Thomas Ave. & Avondale St. Sample Stations	June 14th 2022	Total Coliform 1 cfu1/100mL (Thomas Ave) & 4 cfu/100mL (Avondale St.)	Disinfected the sampling stations' discharge pipes, flushed and resampled. All subsequent resamples passed. An insect infestation was found to be the cause of the adverse results. Preventative measures will be implemented during the spring and summer months when conditions for insect infestations are favourable.
Macklin St. Sample Station & Dennis Ave Hydrant	June 17th – June 22nd 2022	5 AWQIs (1 at Macklin St & 4 at Dennis Ave), Total Coliform ranged from 1-4 cfu/100 mL	An insect infestation was the cause of the adverse result at the Macklin St. sampling station. The sampling station's discharge pipe was disinfected, flushed and resampled. While the resample at the sample station was negative for bacteria, the downstream sample on Dennis Ave. tested positive for total coliform bacteria. The contamination was contained and the water main was flushed daily until four consecutive sets of samples passed.
Chatham St. Hydrant	June 22 2022	Total Coliform 2 cfu/100mL	The final connection to a newly installed watermain failed on June 22nd with 2 cfu/100mL. Proper corrective actions including flushing and resampling as well as isolating the newly installed water main were completed until all subsequent resamples passed. The specifications for watermain installation in the City's Design and Construction Manual were updated to further lower the risk of adverse bacteriological results.
Strickland Ave. Hydrant	October 20th 2022	Total Coliform 1 cfu /100mL	The sample collected following a final connection to a newly installed watermain failed with 1 cfu/100mL. The water main was flushed and resampled and all subsequent resamples passed.
Dore Drive Blowoff & Hydrant	October 27th – November 2nd 2022	4 AWQIs (Dore Drive blowoff & Dore Drive Hydrant), Total Coliform ranged from 1-11cfu/100 mL	The final connection to a newly installed water main failed on Oct. 27th, 2022. The contamination was located at the end of the water main and removed. All of the samples passed once the water main was cleaned and disinfected.

Location	Date	Adverse Water Quality Indicator (AWQI)	Corrective Actions
Princess Street & High Street	November 8th – November 16th 2022	9 AWQIs, Total Coliform ranged from 1-83 cfu/100mL	The sample collected following a final connection to a newly installed water main tested positive for total coliform bacteria. The extent of the contamination was delineated and contained. The Brant County Health Unit (BCHU) issued a Boil Water Advisory for the Princess Street and High Street Area on November 14th, 2022. All residents were notified and bottled water was provided daily. Once the watermains were swabbed, disinfected and flushed, the resamples passed. The Boil Water Advisory was lifted by the Brant County Health Unit on November 26th, 2022.
Diana Private Subdivision	December 17th 2022	Total Coliform 25 cfu/100mL	A bacteriological sample failed on private property following a repair on a leaking water main in a private subdivision. The Brant County Health Unit (BCHU) issued a Boil Water Advisory on December 19th, 2022 and residents were notified and provided with bottled water. Proper corrective actions including flushing and resampling were taken and all resamples passed. The Boil Water Advisory was lifted by the Brant County Health Unit on December 22nd, 2022.

Bacteriological samples were collected until all results were negative and the drinking water was confirmed safe. "cfu" stands for colony-forming unit which is a unit used to measure viable bacterial cell numbers.

ii) Adverse Chemical Results & Corrective Actions

Sodium

Samples collected from treated water & distribution system had an annual sodium average of 82.9 mg/L & 70.0 mg/L respectively. According to O.Reg 170/03, despite an aesthetic objective of 200 mg/L, any concentration above 20 mg/L is considered an adverse result. The City of Brantford Water System is required to report the results to the Ministry of Environment, Conservation and Parks (MECP) and the Brant County Health Unit (BCHU) once every 57 months. The sodium results were reported to both agencies in August 2022. Sodium concentration in the City's drinking water supply reflects the level found in the Grand River and cannot be removed by conventional water treatment methods

iii) Non-Compliance Events with Provincial Regulations, Municipal Drinking Water License, Municipal Drinking Water Works Permit, and Other Official Documents

No non-compliance events were reported in 2022

G. Holmedale Water Treatment Plant Flows

i) Drinking Water Flows

According to the City of Brantford Water System's Municipal Drinking Water License (Schedule C), the maximum daily volume of treated water that flows from the Holmedale Water Treatment Plant into the distribution system must not exceed 100 ML/d.

At the Holmedale Water Treatment Plant, the treated water flow is measured by continuous on-line flow meters and monitored and controlled via a Supervisor Control And Data Acquisition (SCADA) computer system. The daily average flow for 2022 was 33.50 ML/d.

Figure 1 outlines the monthly average daily flow and maximum total daily flow of treated water for the Holmedale Water Treatment Plant in 2022. The monthly average daily flow was calculated by averaging the total daily flows for a given month. The monthly maximum daily flow corresponds to the highest daily average flow for that month.

Figure 1 Drinking Water Flows (Million Liters per day or ML/day)

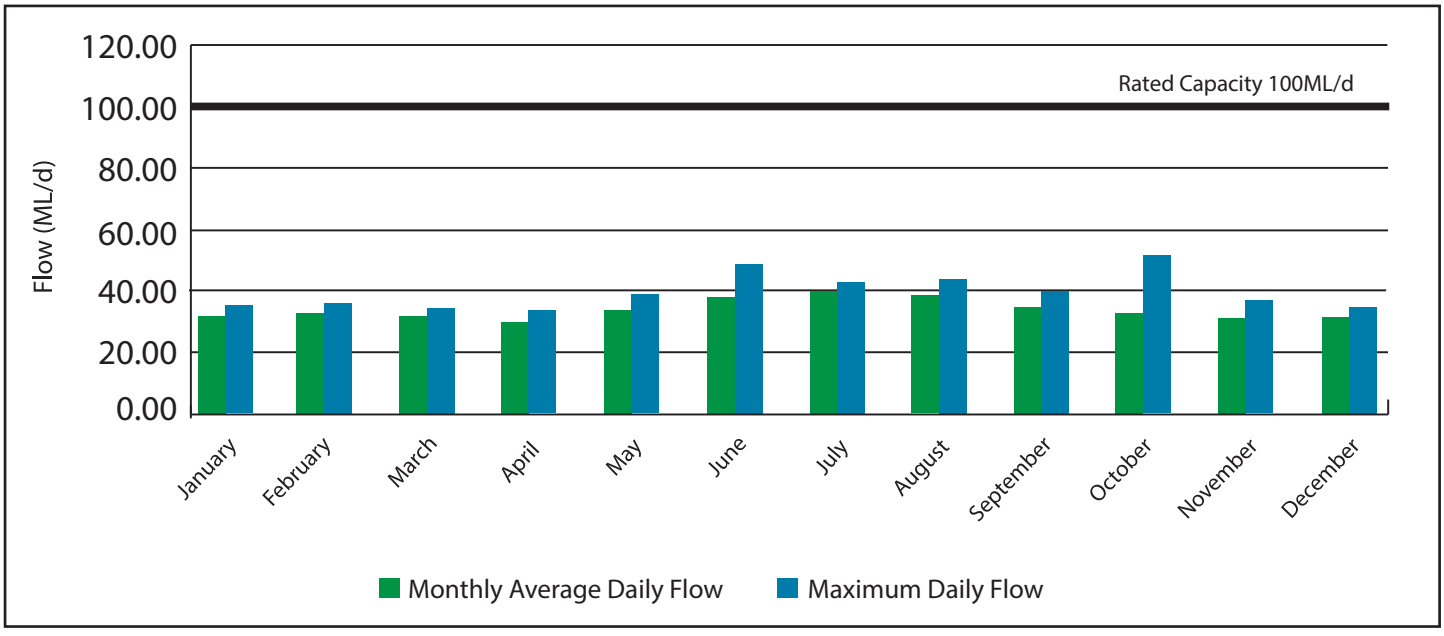

Figure 1 indicates that the monthly average daily flow and maximum total daily flow never exceeded the rated capacity in 2022. The highest monthly average daily flow was 39.26 ML/d, which occurred in July. The highest maximum daily flow was 50.92 ML/d, which occurred in October due to the major industrial fire incident.

ii) Grand River Flow Intake

The City of Brantford Water System's Permit to Take Water (#2375-BLHMW5) for the Water Treatment Plant allows the City of Brantford to withdraw up to 260 ML/d of raw water from the Grand River on a daily basis at a peak flow not to exceed 181,000 L/min. At the Holmedale Water Treatment Plant, the raw water flow is measured by continuous on-line flow meters and monitored and controlled via a SCADA computer system. The daily average raw water flow for 2022 was 38.86 ML/d.

Figure 2 outlines the monthly average daily flow, maximum daily flow and % Grand River flow taken for the Holmedale Water Treatment Plant in 2022. The monthly average daily flow was calculated by averaging the total daily flows for a given month. The monthly maximum daily flow corresponds to the highest daily average flow for that month. The City's Permit to Take Water requires monitoring of the water taking impact has on the Grand River. To ensure there are no negative effects to the Grand River, the City monitors the % of Grand River Flow Taken. The % Grand River Flow Taken is calculated by dividing the daily average flow taken from the Grand River by the Grand River flow measured at the Grand River Conservation Authority (GRCA) Brant Park monitoring station.

Figure 2 Raw Water Flows (million liters per day or ML/day)

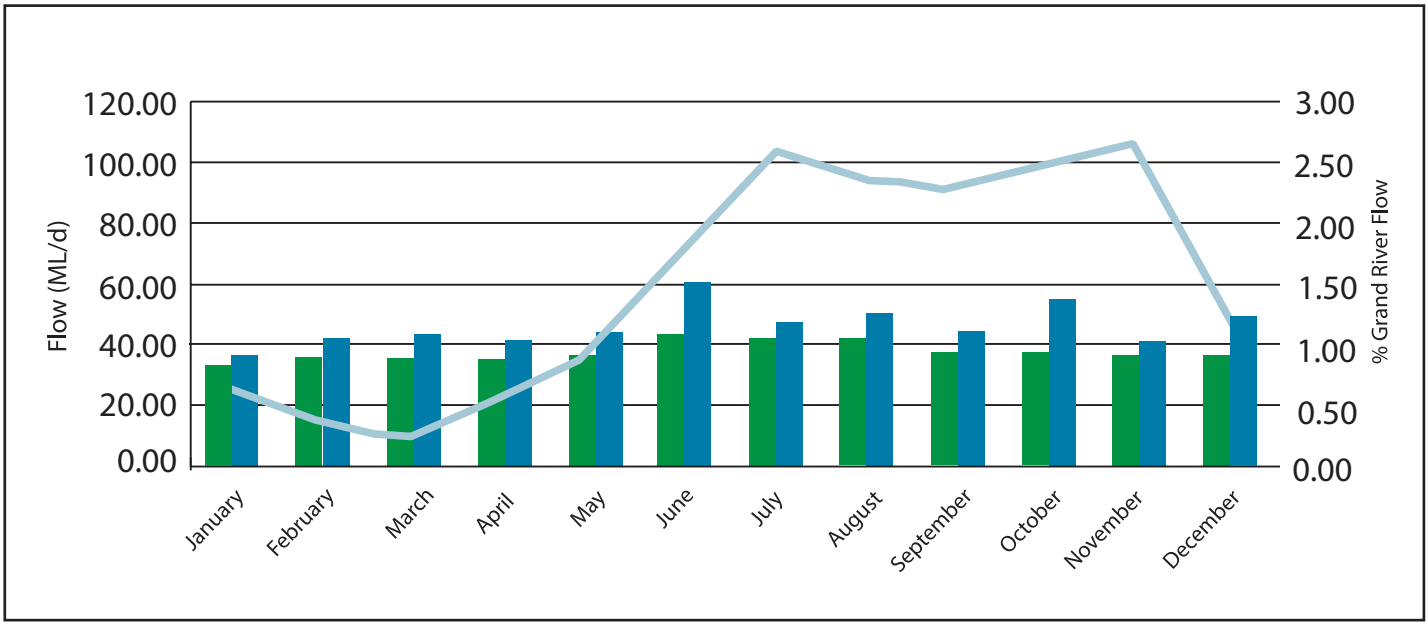

Figure 2 indicates that the highest monthly average daily flow was 43.41 ML/d which occurred in June and the highest maximum daily flow was 60.65 ML/d which also occurred in June. The maximum daily flow was well below the daily flow limit of 260 ML/d as outlined in the City's Permit to Take Water. The % of Grand River Flow taken from the Grand River peaked at 2.69 % in November. The peak in November can be attributed to lower flows in the Grand River due to a very dry and warm summer and fall periods. There were no reported complaints to the City of Brantford as a result of its water taking activities.

H. MECP Annual Inspection

On December 7, 2022, after an extensive review of the Drinking Water System, the MECP issued a score of 100% for the 2022 Brantford Drinking Water System Annual Inspection. Table 10 summarizes the results from the annual MECP inspection report

Table 10 Inspection Summary Rating Record

Inspection Module	Non-Compliance Rating
Treatment Processes	0/35
Operations Manuals	0/28
Water Quality Monitoring	0/24
Reporting & Corrective Actions	0/21
Other Inspection Findings	0/410
Overall - Calculated	0/518
Inspection Risk Rating	0.00%
FINAL INSPECTION RATING	100.00%

Appendix A-Operational Parameter Summary

Table 11 Operational Parameter Summary- Water Treatment

Location	Parameter	Unit	MAC	O.Reg 170/03 Limit	Minimum	Maximum	Average
Grand River	Turbidity	NTU	N/A	N/A	2.28	10.69	5.19
Filter 1	Turbidity	NTU	N/A	less than 1.00	0.025	0.049	0.037
Filter 2	Turbidity	NTU	N/A	less than 1.00	0.023	0.047	0.035
Filter 3	Turbidity	NTU	N/A	less than 1.00	0.025	0.051	0.039
Filter 4	Turbidity	NTU	N/A	less than 1.00	0.029	0.064	0.047
Filter 5	Turbidity	NTU	N/A	less than 1.00	0.024	0.056	0.040
Filter 6	Turbidity	NTU	N/A	less than 1.00	0.033	0.066	0.049
Filter 7	Turbidity	NTU	N/A	less than 1.00	0.031	0.065	0.048
Filter 8	Turbidity	NTU	N/A	less than 1.00	0.032	0.062	0.046
CCC Effluent	Log Removal (Giardia)	N/A	N/A	more than 3.0	8.21	26.92	15.21
Brantford POE	Combined Chlorine	mg/L	3.00	Not Applicable	2.55	2.63	2.59
Brantford POE	Turbidity	NTU	N/A	Not Applicable	0.028	0.059	0.047
Brantford POE	Pressure	psi	N/A	more than 20	95.20	97.19	96.88
Brantford POE	Fluoride	mg/L	1.50	Not Applicable	0.59	0.75	0.67

Definitions: POE - Point of Entry to the Distribution System (Treated Water)
CCC - Chlorine Contact Chambers
Log Removal – a shorthand term for $\log_{10}$ removal, used in reference to the physical-chemical treatment of water to remove, kill, or inactivate pathogenic organisms.
Combined Chlorine -Combined chlorine residual is the chlorine species that exists in water in chemical combination with ammonia or other organic nitrogen compounds.
MAC - Maximum Acceptable Concentration

Table 12 Operational Parameter Summary – Water Distribution

Location	Parameter	Unit	MAC	O.Reg 170/03 Limit	Minimum	Maximum	Average
Tollgate Reservoir	Total Chlorine	mg/L	3.00	Not Applicable	2.15	2.49	2.31
Park Rd. Reservoir	Total Chlorine	mg/L	3.00	Not Applicable	2.07	2.59	2.28
Northwest Reservoir	Total Chlorine	mg/L	3.00	Not Applicable	2.49	2.64	2.58
Albion St. Booster	Pressure	psi	N/A	more than 20	90.28	91.30	90.77
Tollgate Reservoir	Pressure	psi	N/A	more than 20	57.31	59.36	58.61
Park Rd. Reservoir	Pressure	psi	N/A	more than 20	78.42	79.36	78.95
Northwest Reservoir	Pressure	psi	N/A	more than 20	84.92	86.64	85.69
Bell Lane	Pressure	psi	N/A	more than 20	48.80	86.64	50.46
Fifth Ave.	Pressure	psi	N/A	more than 20	94.13	96.42	95.94
Lawren Harris	Pressure	psi	N/A	more than 20	62.26	96.42	64.52
St. Andrews	Pressure	psi	N/A	more than 20	91.00	93.52	92.35
Empey St.	Pressure	psi	N/A	more than 20	82.10	93.52	82.58

Appendix B – Inorganic Parameter Summary

Table 13 Inorganic Parameter Summary

Parameter	Recent Sample	Unit of Measure	MAC	MDL	Treated Water	Within Regulatory Limit?
Bromate	10-Aug-22	mg/L	0.01	0.005	<MDL	Yes
Bromide	10-Aug-22	mg/L	N/A	0.001	0.04	Yes
Nitrite (as Nitrogen)	10-Aug-22	mg/L	1	0.003	<MDL	Yes
Nitrite (as Nitrogen)	10-Aug-22	mg/L	10	0.006	2.45	Yes
Antimony	10-Aug-22	ug/L	6	0.90	0.6	Yes
Arsenic	10-Aug-22	ug/L	10	0.2	0.4	Yes
Barium	10-Aug-22	ug/L	1000	0.02	39.5	Yes
Boron	10-Aug-22	ug/L	5000	2	45	Yes
Cadmium	10-Aug-22	ug/L	5	0.003	0.005	Yes
Chromium	10-Aug-22	ug/L	50	0.03	0.17	Yes
Mercury	10-Aug-22	ug/L	1	0.01	<MDL	Yes
Sodium	10-Aug-22	mg/L	20	0.01	67.1	No
Selenium	10-Aug-22	ug/L	50	0.04	0.15	Yes
Uranium	10-Aug-22	ug/L	20	0.002	0.243	Yes

D**efinitions: MDL** – Method Detection Limit
MAC – Maximum Acceptable Concentration

Appendix C – Organic Parameter Summary

Table 14 Organic Parameter Summary

Parameter	Recent Sample	Unit of Measure	MAC	MDL	Treated Water	Within Regulatory Limit?
Benzene	10-Aug-22	µg/L	1	0.32	< MDL	Yes
Carbon tetrachloride	10-Aug-22	µg/L	2	0.17	< MDL	Yes
1,2-Dichlorobenzene	10-Aug-22	µg/L	200	0.41	< MDL	Yes
1,4-Dichlorobenzene	10-Aug-22	µg/L	5	0.36	< MDL	Yes
1,1-Dichloroethyleney	10-Aug-22	µg/L	14	0.33	< MDL	Yes
1,2-Dichloroethane	10-Aug-22	µg/L	5	0.35	< MDL	Yes
Dichloromethane	10-Aug-22	µg/L	50	0.35	< MDL	Yes
Monochlorobenzene	10-Aug-22	µg/L	80	0.30	< MDL	Yes
Tetrachloroethylene	10-Aug-22	µg/L	30	0.35	< MDL	Yes
Trichloroethylene	10-Aug-22	µg/L	5	0.44	< MDL	Yes
Vinyl Chloride	10-Aug-22	µg/L	1	0.17	< MDL	Yes
Polychlorinated Biphenyls (PCBs) - Total	10-Aug-22	µg/L	3	0.04	< MDL	Yes
Benzo(a)pyrene	10-Aug-22	µg/L	0.01	0.004	< MDL	Yes
Alachlor	10-Aug-22	µg/L	5	0.02	< MDL	Yes
Atrazine + N-dealkylated metabolites	10-Aug-22	µg/L	5	0.01	0.06	Yes
Azinphos-methyl	10-Aug-22	µg/L	20	0.05	< MDL	Yes
Carbaryl	10-Aug-22	µg/L	90	0.05	< MDL	Yes
Carbofuran	10-Aug-22	µg/L	90	0.01	< MDL	Yes
Chlorpyrifos	10-Aug-22	µg/L	90	0.02	< MDL	Yes
Diazinon	10-Aug-22	µg/L	20	0.02	< MDL	Yes
Dimethoate	10-Aug-22	µg/L	20	0.06	< MDL	Yes
Diuron	10-Aug-22	µg/L	150	0.03	< MDL	Yes
Malathion	10-Aug-22	µg/L	190	0.02	< MDL	Yes
Metolachlor	10-Aug-22	µg/L	50	0.01	0.04	Yes
Metribuzin	10-Aug-22	µg/L	80	0.02	< MDL	Yes
Phorate	10-Aug-22	µg/L	2	0.01	< MDL	Yes
Prometryne	10-Aug-22	µg/L	1	0.03	< MDL	Yes
Simazine	10-Aug-22	µg/L	10	0.01	< MDL	Yes
Terbufos	10-Aug-22	µg/L	1	0.01	< MDL	Yes
Triallate	10-Aug-22	µg/L	230	0.35	< MDL	Yes

Appendix C – Organic Parameter Summary

Table 14 Organic Parameter Summary

Parameter	Recent Sample	Unit of Measure	MAC	MDL	Treated Water	Within Regulatory Limit?
Trifluralin	10-Aug-22	µg/L	45	0.02	< MDL	Yes
2,4-dichlorophenoxyacetic acid (2,4-D)	10-Aug-22	µg/L	100	0.19	< MDL	Yes
Bromoxynil	10-Aug-22	µg/L	5	0.33	< MDL	Yes
Dicamba	10-Aug-22	µg/L	120	0.20	< MDL	Yes
Diclofop-methyl	10-Aug-22	µg/L	9	0.4	< MDL	Yes
MCPA	10-Aug-22	µg/L	0.1	0.00012	< MDL	Yes
Picloram	10-Aug-22	µg/L	190	1	< MDL	Yes
2,4-dichlorophenol	10-Aug-22	µg/L	900	0.15	< MDL	Yes
2,4,6-trichlorophenol	10-Aug-22	µg/L	5	0.25	< MDL	Yes
2,3,4,6-tetrachlorophenol	10-Aug-22	µg/L	100	0.20	< MDL	Yes
Pentachlorophenol	10-Aug-22	µg/L	60	0.15	< MDL	Yes
Total Haloacetic Acids (HAA5)	10-Aug-22	µg/L	80	5.3	< MDL	Yes
Chloroacetic Acid	10-Aug-22	µg/L	N/A	4.7	< MDL	NRL
Bromoacetic Acid	10-Aug-22	µg/L	N/A	2.9	< MDL	NRL
Dichloroacetic Acid	10-Aug-22	µg/L	N/A	2.6	< MDL	NRL
Dibromoacetic Acid	10-Aug-22	µg/L	N/A	2	< MDL	NRL
Trichloroacetic Acid	10-Aug-22	µg/L	N/A	5.3	< MDL	NRL
Bromochloroacetic Acid	10-Aug-22	µg/L	N/A	2	–	NRL
THMs (total)	10-Aug-22	µg/L	100	0.37	31	Yes
Bromoform	10-Aug-22	µg/L	N/A	0.34	0.91	NRL
Bromodichloromethane	10-Aug-22	µg/L	N/A	0.26	10	NRL
Chloroform	10-Aug-22	µg/L	N/A	0.29	12	NRL
Dibromochloromethane	10-Aug-22	µg/L	N/A	0.37	8.1	NRL
NDMA N-Nitrosodimethylamine	10-Aug-22	µg/L	0.009	0.0009	< MDL	Yes
MIB	10-Aug-22	ng/L	N/A	3	< MDL	NRL
Geosmin	10-Aug-22	ng/L	N/A	3	< MDL	NRL
Diquat	10-Aug-22	µg/L	70	1	< MDL	Yes
Paraquat	10-Aug-22	µg/L	10	1	< MDL	Yes
Glyphosate	10-Aug-22	µg/L	280	1	< MDL	Yes

Definitions: **MDL** – Method Detection Limit
MAC – Maximum Acceptable Concentration
NRL – No Regulatory Limit