2021

DRINKING WATER SYSTEMS ANNUAL WATER QUALITY AND SUMMARY REPORT

Ontario Regulation 170/03
Section 11 & Schedule 22

Hamilton


500ml
400
300
200
100
50

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INTRODUCTION

A key priority of the City of Hamilton is to ensure the safe, high quality, consistent supply of drinking water to our residents. This report for municipalities has been prepared in accordance with the Safe Drinking Water Act, Ontario Regulation, 170/03, Section 11 and Schedule 22 for the 2021 reporting period. The City of Hamilton is the Owner of the following five Drinking Water Systems (DWS):

DRINKING WATER SYSTEM	DRINKING WATER SYSTEM NUMBER	MUNICIPAL DRINKING WATER LICENCE NUMBER	DRINKING WATER WORKS PERMIT NUMBER	PERMIT TO TAKE WATER NUMBER
Hamilton DWS Woodward Subsystem	220003118	005-101	005-201	2437-BCLNEJ
Hamilton DWS Fifty Road Subsystem	260069173	005-101	005-201	N/A
Freelton DWS	220004117	005-102	005-202	4650-BB2HXG (FDF01 & FDF03)
Greensville DWS	220004126	005-103	005-203	2476-9F5KM6 (FDG01)
Carlisle DWS	220004108	005-104	005-204	2373-8F7MMJ 4347-BYPPG2 (FDC01 & FDC02)*
				8228-AJZK9H (FDC03R)
				4207-AJZJ4L (FDC05)
Lynden DWS	250001830	005-105	005-205	0634-ASERU8 (FDL01 & FDL03)

*PTTW FDC01 & FDC02 was renewed March 1, 2021

There were no Provincial Officer’s Orders issued with regards to drinking water. All Adverse Water Quality Incidents (AWQI) were reported to the Ontario Ministry of Environment, Conservation and Parks (MECP) Spills Action Centre (SAC) and Public Health Services (PHS) and are provided in the report. All water taking quantities and flow rates were within approved rated capacities and provincial water taking limits.

The MECP Inspection Cycle spans two (calendar) years from April 1st to March 31st. Ratings are given upon completion of the Inspection and the issuance of the Inspection Report. Ratings for the two Inspection Cycles that occurred in 2021 are as follows.

2020 - 2021 Inspection Cycle Ratings (Status as of December 31, 2021)

DRINKING WATER SYSTEM	INSPECTION STATUS	REPORT STATUS	2020 - 2021 INSPECTION RATING
Hamilton DWS - Woodward	Complete	Complete	100%
Hamilton DWS - Fifty Road	Complete	Complete	93.60%
Freelton	Complete	Complete	100%
Greensville	Complete	Complete	100%
Carlisle	Complete	Complete	100%
Lynden	Complete	Complete	100%

2021 - 2022 Inspection Cycle Ratings (Status as of December 31, 2021)

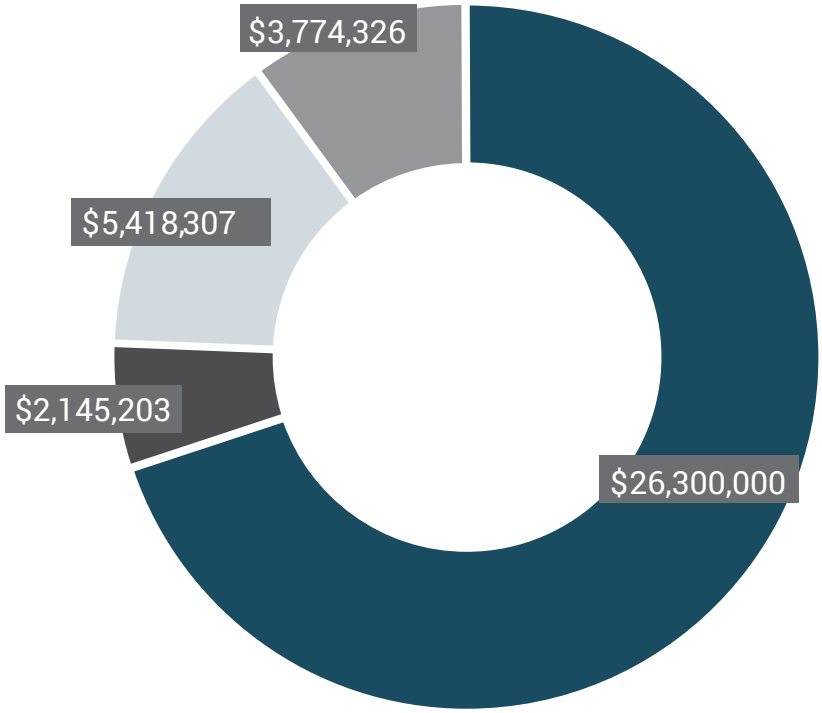
DRINKING WATER SYSTEM	INSPECTION STATUS	REPORT STATUS	2021 - 2022 INSPECTION RATING
Hamilton DWS - Woodward	Commenced	Pending	Pending
Hamilton DWS - Fifty Road	Complete	Complete	Pending
Freelton	Commenced	Pending	Pending
Greensville	Pending	Pending	Pending
Carlisle	Commenced	Pending	Pending
Lynden	Pending	Pending	Pending

ANNUAL REPORTS

The Drinking Water Annual Report required under Ontario Regulation 170/03 Section 11 and Schedule 22 is available to the public at no charge at www.hamilton.ca/waterquality. A copy of the report can also be requested by contacting (905) 546-2489 or water@hamilton.ca.

SUMMARY OF MONETARY EXPENSES INCURRED IN 2021

In 2021, significant expenses were incurred for installing, repairing and replacing required equipment. The following expenses were incurred to complete repairs, maintenance and upgrades to the Drinking Water Systems within the City of Hamilton.



- Total DWS - New Development - Expansion of DWS (horizontal and vertical assests)
- Total DWS - Distribution Repair, Rehabilitation and Replacement (horizontal assests)
- Total DWS - Maintenance and Repairs (vertical assests)
- Total DWS - Water Capital Upgrade Projects

WOODWARD AVENUE DRINKING WATER SUBSYSTEM WATER QUALITY ANNUAL REPORT

GENERAL INFORMATION

The Woodward Drinking Water Subsystem is a large municipal residential system that supplies a significant portion of Hamilton’s population with drinking water including Stoney Creek, Dundas, Ancaster, Waterdown, and Glanbrook. The population served is estimated at 536,917. In addition, the treatment system provides treated water to parts of Haldimand County (Caledonia, York, and Cayuga) and parts of Halton Region.

The Woodward Water Treatment Facility has three raw water intake pipes (1.22m, 1.52m and 2.44m diameter) of which two intake pipes (2.44m and 1.52m diameter) are currently in use. The raw water is drawn from Lake Ontario at distances of 640m, 915m and 945m to begin the treatment process.

DEFINITIONS

AWQI: Adverse Water Quality Incident
CFU: Colony Forming Unit
CU: Colour Units
HPC: Heterotrophic Plate Count
MDWL: Municipal Drinking Water Licence
mg/L: milligrams per litre
mL: millilitre
ML: megalitre
ML/d: megalitres per day
MPN: Most Probable Number
N/A: Not Applicable
ng/L: nanograms per litre
NTU: Nephelometric Turbidity Units
P/A: Present/Absent
PTTW: Permit to Take Water
ug/L: micrograms per litre

TREATMENT PROCESS:

- The raw water intakes have chlorine added for zebra mussel control.
- The low lift has 3 travelling screens where the screening takes place prior to the water being pumped to the water treatment plant.
- At the pre-treatment stage Polyaluminum chloride is added to the water to coagulate suspended solids. Additional chlorine is also added at this stage to ensure disinfection.
- Clarification of the water is completed by flocculation & sedimentation.
- The water is filtered using dual media filters of sand and granular activated carbon (GAC) which reduces the presence of taste/odour causing compounds.
- Chlorine, ammonia, fluoride and phosphoric acid are added before the treated water is sent to the distribution system. Ammonia is added to convert chlorine to mono-chloramine to help maintain stable chlorine residuals in the distribution system. Fluoride is added to the drinking water to promote dental health and phosphoric acid is added to help reduce lead corrosion.
- High lift pumps push the water from the Woodward Water Treatment Facility to the distribution system.

DISTRIBUTION:

The Woodward Water Distribution System is comprised of 20 pumping stations, 11 reservoirs, 4 elevated storage tanks, 1 standpipe and over 2,000 kms of watermains.

SAMPLING & ANALYSIS:

Continuous monitoring equipment such as chlorine analyzers, turbidity meters, fluoride and phosphate analyzers monitor the water 24/7 to ensure the maintenance of high-quality water. Raw water is sampled and analyzed weekly; treated water is sampled and analyzed 6 days per week; distribution water is sampled and analyzed 5 days per week. In addition, chlorine residual in the distribution system is analyzed daily.

CORROSION CONTROL PROGRAM (CCP):

On November 8, 2018, the addition of orthophosphate commenced in the Hamilton DWS - Woodward Sub-System, including a regulatory post-implementation sampling and monitoring plan to monitor the progress and effectiveness of the program for lead control. A flushing program was also commenced to proactively manage secondary water quality impacts that may arise from the program. Since its implementation, the CCP has shown an improvement in observed lead levels with minimal secondary impacts.

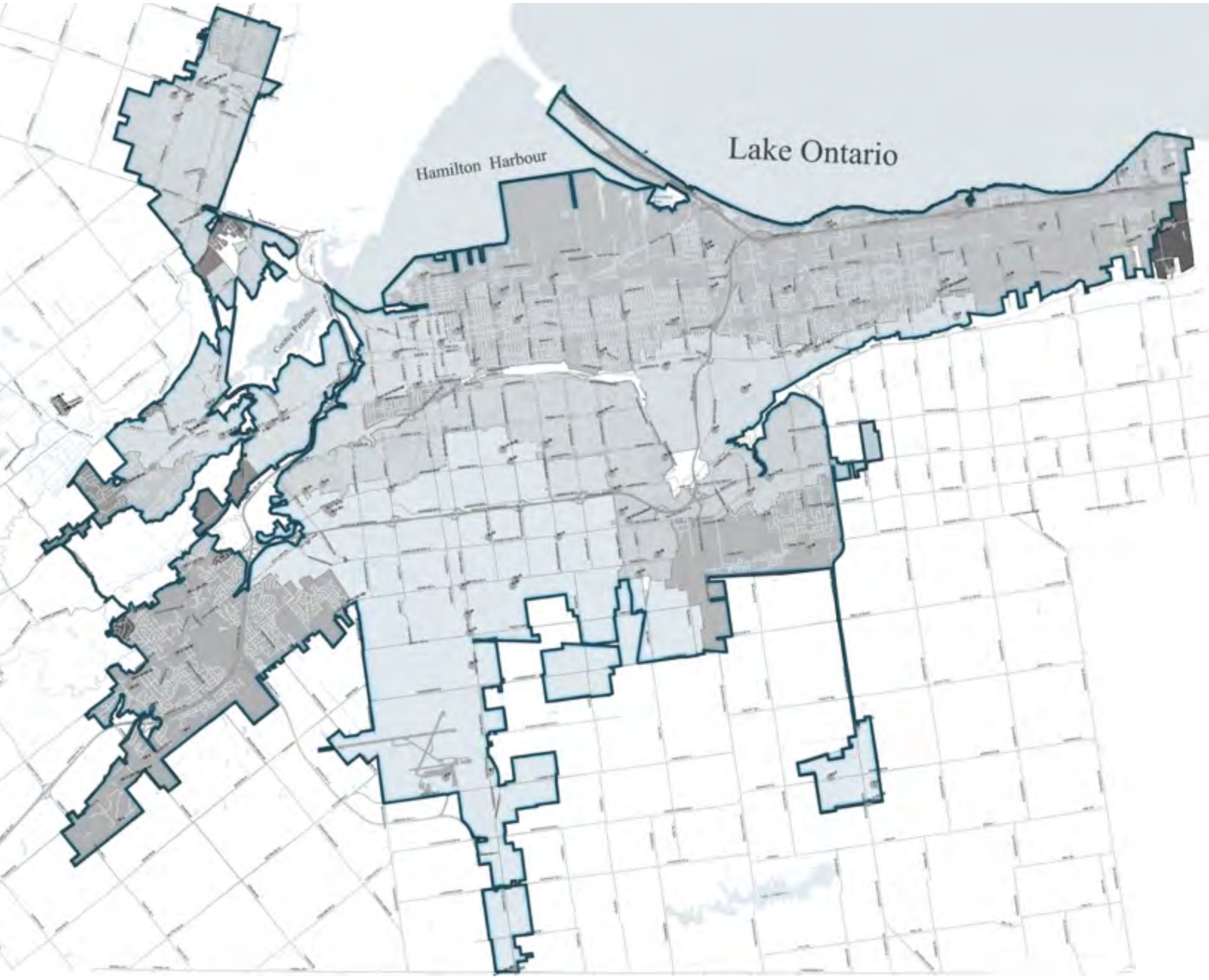
Since implementation of the program, six rounds of the Legislated Community Lead Sampling Program required by Schedule 15.1 of Ontario Regulation, 170/03, have taken place in the Woodward Sub-System. The City of Hamilton (COH) received regulatory relief from sampling at residential taps for the last three rounds from Summer 2020 (June 15 - October 15, 2020), Winter 2020 (December 15, 2020 - April 15, 2021) and Summer 2021 (June 15 - October 15, 2021), as a result of the COVID-19 Pandemic. This relief was granted because the samples are collected at the tap inside residents’ homes and it posed a health risk to both staff and homeowners. Additionally, COVID-19 regulatory relief for sampling was received for the Winter 2021 sampling round (December 15, 2021 – April 15, 2022). The results of the first three rounds (Winter 2018, Summer 2019 and Winter 2019) illustrated a reduction in the lead concentrations observed at the tap, as well as an overall decreasing trend in the percentage of samples observed to be above the Maximum Acceptable Concentration (MAC) of 10 ug/L.

Despite the lack of additional data from these last three sampling rounds, the three Lead Pipe Loops installed in 2017 in the Woodward Sub-System remained an additional tool to monitor the effectiveness of the program. These three pipes containing lead material were installed at 293 Highland Road West, 460 Parkside Drive, Waterdown and 21 Queen Street, Dundas as controlled study sites to monitor the effect of the orthophosphate on the pipes. The sampling results from the Lead Pipe Loops continue to show a decreasing trend in lead levels.

The COH also monitors for secondary effects of the CCP through customer feedback and water quality complaints to ensure customer safety and satisfaction. There were two instances where the orthophosphate residuals measured in the distribution system went above the desired range of 1.8-3.0mg/L as orthophosphate. Repeat sampling in both cases showed normalized concentrations of orthophosphate. The cause of the increased residual was inconclusive and the COH implemented additional sampling to help better understand the behaviour of orthophosphate throughout the distribution system.

The COH also received customer feedback from two residents who observed high orthophosphate residuals at their businesses. Additional sampling at one of the locations illustrated normalized values. Follow-up sampling with the other resident was unsuccessful, however City staff discussed testing methods used in the laboratory against the reagent test kits used at the business and City staff continue to provide them with monthly reports showing the orthophosphate residual in the treated water leaving the Water Treatment Plant.

In March 2021, the MECP received the 2nd CCP Annual Report summarizing the overall effectiveness of the CCP. In 2021, consultant assignments assessing the maturity of the orthophosphate program, as well as a Plant Optimization Study on the phosphoric acid dosing system continued. Scale analysis conducted on Lead Service Lines harvested from the distribution system confirmed the formation of phosphate-based lead scale at the pipe surface which is anticipated to thicken and strengthen, further reducing the exposure to lead. The orthophosphate dosing performance continues into 2022.


Hamilton Harbour
Lake Ontario

DRINKING WATER SYSTEM NUMBER	DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM OWNER	DRINKING WATER SYSTEM CATEGORY	PERIOD BEING REPORTED
220003118	Woodward Subsystem of Hamilton Drinking Water System	City of Hamilton	Large Municipal Residential	January 1, 2021 to December 31, 2021

PROVISION OF DRINKING WATER TO OTHER MUNICIPALITIES

The following is a list of municipal drinking water systems which receive drinking water from the Woodward Drinking Water Subsystem:

DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM NUMBER
Caledonia/Cayuga/York Water Distribution System	260004566
North Aldershot Water Distribution System	260086762
Snake Road Water Distribution System	260086775
Bridgeview Community Water Distribution System	260068419

A copy of this annual report is provided to all Drinking Water System owners that are connected to the system and to whom the City provides drinking water.

The City's customers are notified through the local newspaper that the annual report is available online free of charge at **www.hamilton.ca/waterquality.** A copy of the report can also be requested by contacting (905) 546-2489 or water@hamilton.ca.

WATER TREATMENT CHEMICALS USED DURING THIS REPORTING PERIOD

- Polyaluminum Chloride
- Liquid Chlorine
- Aqueous Ammonia
- Hydrofluorosilicic Acid
- Phosphoric Acid

BREAKDOWN OF SIGNIFICANT MONETARY EXPENSES

THE FOLLOWING TABLE HIGHLIGHTS THE SIGNIFICANT EXPENSES THAT WERE INCURRED FOR INSTALLING, REPAIRING AND REPLACING REQUIRED EQUIPMENT IN 2021.
Stonechurch & Garth Reservoir (HDR05) Upgrades - $2,268,753
Post Hydrant Installation - $1,110,000
Backflow Prevention Devices installed at 15 locations - $1,048,080
Kenilworth (HDR01) & Ben Nevis (HDR1C) Reservoir Upgrades - $967,060
Woodward Water Treatment Plan - Process Upgrades - $597,668
Waterdown South Water Tower (HDT24) - $218,274
Ferguson Pumping Station (HD002) Upgrades - $213,857
Woodward Water Treatment Plant Fluoride Building Upgrades - $156,246
Leak Detection Technology - $123,000
Woodward Water Treatment Plant High Lift Pumping Station Upgrades - $107,268
Woodward Water Treatment Plant Chlorine Evaporator Replacements - $68,080

ADVERSE TEST RESULTS AND REPORTABLE INCIDENTS

The following table outlines 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 the MECP Spills Action Centre.

NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
2021-02-27	Highlift East Header, Woodward Water Treatment Plant	On Feb 27th at 04:46, Supervisory Control and Data Acquisition (SCADA) chlorine analyzer readings for chlorine residuals at the East Header in the Highlift were: Total Chlorine = 3.10 mg/L Combined Chlorine = 3.05 mg/L Free Chlorine = 0.05 mg/L (Regulatory requirement is maximum Combined Chlorine of 3.0 mg/L)	On Feb 27th at 04:53, SCADA chlorine analyzer readings for chlorine residuals at the East Header in the Highlift were: Total Chlorine: 3.02 mg/L, Combined Chlorine: 2.98 mg/L, Free Chlorine: 0.04 mg/L. An Operator was also dispatched to check chlorine residuals at the East Header in the Highlift using the handheld meter. The results were: Total chlorine: 2.92 mg/L, Combined Chlorine: 2.83 mg/L, Free Chlorine: 0.09 mg/L.
2021-05-19	Waterdown Sampling Station A, Main St N.	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.
2021-06-12	Waterdown Sampling Station A, Main St N.	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.
2021-07-08	Hamilton Sampling Station C, Rymal Rd E.	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.

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NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
2021-08-06	Stoney Creek Sampling Station D, Pottruff Rd S.	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. Result failed at the original adverse location which resulted in another AWQI on August 7th. The adverse was confirmed.
2021-08-07	Stoney Creek Sampling Station D, Pottruff Rd S.	Total Coliforms = 15 MPN/100mL (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. Two consecutive sets of samples were taken 24 to 48 hours apart. All results passed.
2021-08-12	Hydrant DM11H034, Mayfair Court, Dundas	Total Chlorine = 0.17 mg/L Combined Chlorine = 0.17 mg/L Free Chlorine = 0.00 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Aug 12th at 17:53, chlorine was restored as follows: Total Chlorine: 1.00 mg/L, Combined Chlorine: 1.00 mg/L, Free Chlorine: 0.00 mg/L
2021-08-20	Stoney Creek Sampling Station D, Pottruff Rd S.	Total Coliforms = Present E. coli = Present (Regulatory requirement is Not Detectable)	Isolated the area by closing valves in the water distribution system. The largest area possible was isolated without putting any properties out of water. Resampled adverse location, one upstream and three downstream locations. Two consecutive sets of samples were taken 24 to 48 hours apart. All results passed.
2021-09-02	Ancaster Sampling Station C, Lower Lions Club Rd	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.

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NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
2021-09-02	Ancaster Sampling Station D, 155 Falling Brook Dr	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.
2021-09-16	Ancaster Sampling Station D, 155 Falling Brook Dr	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.
2021-10-04	Post Hydrant HC39H022P, Westside Place, Hamilton	Total Chlorine = 0.18 mg/L Combined Chlorine = 0.17 mg/L Free Chlorine = 0.01 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Oct 4th at 13:10, chlorine was restored as follows: Total Chlorine: 0.29 mg/L, Combined Chlorine: 0.26 mg/L, Free Chlorine: 0.03 mg/L.
2021-10-04	5-SS-A, Hamilton Sampling Station A, 4640 Hwy 6	Total Chlorine = 0.20 mg/L Combined Chlorine = 0.20 mg/L Free Chlorine = 0.00 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Oct 4th at 22:19, chlorine was restored as follows: Total Chlorine: 0.36 mg/L, Combined Chlorine: 0.34 mg/L, Free Chlorine: 0.02 mg/L.
2021-10-06	Post Hydrant DN11H072P, 400 King St W., Dundas	Total Chlorine = 0.12 mg/L Combined Chlorine = 0.10 mg/L Free Chlorine = 0.02 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Oct 6th at 22:40, chlorine was restored as follows: Total Chlorine: 1.41 mg/L, Combined Chlorine: 1.39 mg/L, Free Chlorine: 0.02 mg/L.

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NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
2021-10-07	Hydrant DN11H071 76 Newcombe Rd, Dundas	Total Chlorine = 0.23 mg/L Combined Chlorine = 0.21 mg/L Free Chlorine = 0.02 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Oct 7th at 05:10, chlorine was restored as follows: Total Chlorine: 0.37 mg/L, Combined Chlorine: 0.37 mg/L, Free Chlorine: 0.00 mg/L.
2021-10-14	Post Hydrant DN11H072P, 400 King St. West, Dundas	Total Chlorine = 0.20 mg/L Combined Chlorine = 0.19 mg/L Free Chlorine = 0.01 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Oct 14th at 09:38, chlorine was restored as follows: Total Chlorine: 0.81 mg/L, Combined Chlorine: 0.77 mg/L, Free Chlorine: 0.04 mg/L.
2021-10-18	Hydrant HA42H031, near 128 Parkview Dr, Hamilton	Total Chlorine = 0.22 mg/L Combined Chlorine = 0.18 mg/L Free Chlorine = 0.04 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Oct 18th at 15:45, chlorine was restored as follows: Total Chlorine: 0.46 mg/L, Combined Chlorine: 0.42 mg/L, Free Chlorine: 0.04 mg/L.
2021-11-02	Ancaster Sampling Station A, 345 Jerseyville Rd W.	Total Chlorine = 0.21 mg/L Combined Chlorine = 0.19 mg/L Free Chlorine = 0.02 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Nov 2nd at 12:07, chlorine was restored as follows: Total Chlorine: 0.95 mg/L, Combined Chlorine: 0.94 mg/L, Free Chlorine: 0.01 mg/L.
2021-12-15	Stoney Creek Sampling Station D, Pottruff Rd S.	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.

MECP HAMILTON DRINKING WATER SYSTEM, WOODWARD SUBSYSTEM INSPECTION FINDINGS AND SELF-DECLARED NON-COMPLIANCES

The following table is a Summary of Findings from the MECP Inspections and self-declared non-compliances found during the 2021 calendar year.

MECP INSPECTION REPORT. MARCH 30, 2021

#	FINDING TYPE	FINDING	STATUS
1	Recommendation	Develop a single Harmful Algal Bloom Plan. Plan is in place.	No further action required
2	Recommendation	Review Clear Well vents to ensure screens are securely fastened to prevent mice and insects from entering the treated water. Regular reviews are conducted.	Actions in process
3	Recommendation	Conduct a Condition Assessment of the Low Lift discharge headers and interconnect pipe.	Action in process
4	Recommendation	Update the Drinking Water Works Permit to reflect that the Kelly Street Pump Station and Reservoir are offline.	Actions in process
5	Recommendation	That Form 2's be signed by the Overall Responsible Operator or approved alternate. Ensure that records demonstrate Condition 5.7, Schedule B of the Permit.Signature included in process.	Action complete
6	Recommendation	Modify work order templates used for recording the disinfection of equipment as per the Drinking Water Works Permit, Schedule B, Condition 2.3 and 2.3.1.	Action complete
7&8	Recommendation	Implement a sampling plan / program to conduct routine checks for chlorine residuals at the extremities and "dead ends" of the distribution system.	Action complete
9(a)	Recommendation	Conduct daily visits to the facility's structures to check system integrity and security. There is a program of regular site inspections and continuous remote monitoring.	No further action required
9(b)	Recommendation	Review cyber security provisions related to operation of the drinking water system.	Actions in process

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#	FINDING TYPE	FINDING	STATUS
10	Recommendation	When providing written notices that: background information be provided leading up to the event; a summary of the action taken; and the results achieved, be provided by the Overall Responsible Operator or designate. This is also recommended for notifications of non-compliance and upon completion of root cause analyses.	Action complete
11	Recommendation	Complete a full calibration of analyzers prior to putting them back into service. Full calibration of analyzers is complete prior to being placed back into service.	Actions in process
12	Recommendation	Ensure that there are notifications if calibration is required for turbidimeters. Ensure that completed work is recorded. Notifications are provided and calibration records are recorded.	No further action required
13	Self-declared Non-compliance	Contractor operated a chlorine evaporator without approval from certified operator.	Actions in process
14	Self-declared Non-compliance	Contractor operated a watermain valve without approval from certified operator	Actions in process
15	Self-declared Non-compliance	Municipal Drinking Water Licence not provided to a developer.	Actions in process
16	Self-declared Non-compliance	Contractor operated a fire hydrant without approval from certified operator.	Actions in process
17	Self-declared Non-compliance	Contractor performed a watermain wet tap without approval from certified operator.	Actions in process
18	Self-declared Non-compliance	Records to confirm the (completed) review of sampling and test results for a 72-hour were not captured.	Actions in process

WATER PRODUCTION REPORTS - SUMMARY

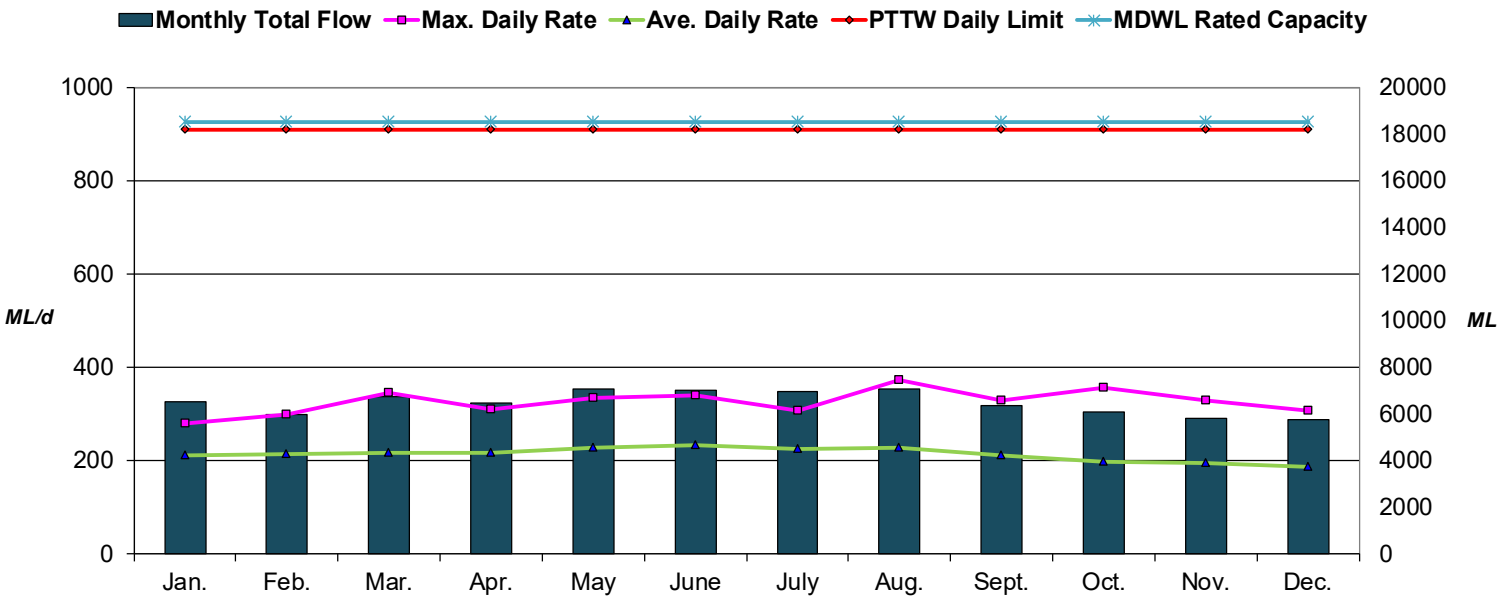
The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

TABLE 1-1: WOODWARD TREATMENT PLANT - 2021 MONTHLY PRODUCTION (SUMMARY)

WOODWARD	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	ML	6,552	5,993	6,730	6,473	7,058	7,037	6,958	7,093	6,353	6,107	5,822	5,767
Average Daily Rate	ML/d	211	214	217	216	228	235	224	229	212	197	194	186
Maximum Daily Rate	ML/d	281	300	344	309	335	339	308	372	329	357	329	307
PTTW Daily Taking Limit	ML/d	909	909	909	909	909	909	909	909	909	909	909	909
MDWL Daily Rated Capacity	ML/d	926	926	926	926	926	926	926	926	926	926	926	926

MAINTAINED COMPLIANCE

FIGURE 1-1: WOODWARD TREATMENT PLANT - 2021 MONTHLY PRODUCTION (SUMMARY)



WATER QUALITY DATA

SUMMARY OF LEAD TESTING UNDER SCHEDULE 15.1 OF REGULATION 170/03 DURING THIS REPORTING PERIOD.

LOCATION TYPE	POINTS SAMPLED	LEAD SAMPLES TAKEN	pH & ALKALINITY SAMPLES TAKEN	pH RESULTS pH UNITS	ALKALINITY RESULTS mg/L	LEAD RESULTS mg/L	LEAD AWQIs	LEAD EXCEEDANCES
PLUMBING-NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PLUMBING-R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DISTRIBUTION	20	20	20	7.23 to 7.60	83 to 88	<0.0001 to 0.0018	0	N/A

NR - Non Residential R- Residential

COVID regulatory relief for Schedule 15.1 lead testing was granted for all plumbing samples (residential & non-residential).

MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
RAW				
E.COLI	2021-01-05 to 2021-12-28	52	0 to 54	MPN/100mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	52	0 to 1990	MPN/100mL
TREATED				
E.COLI	2021-01-01 to 2021-12-31	553	ALL ABSENT	P/A/100mL
HPC	2021-01-03 to 2021-12-29	321	0 to 14	CFU/1mL
TOTAL COLIFORM	2021-01-01 to 2021-12-31	553	ALL ABSENT	P/A/100mL
DISTRIBUTION				
E.COLI	2021-05-19 to 2021-12-15	40	0	MPN/100mL
E.COLI	2021-01-01 to 2021-12-31	1849	1 DETECTION	P/A/100mL
HPC	2021-01-04 to 2021-12-29	1153	0 to 1720	CFU/1mL
TOTAL COLIFORM	2021-05-19 to 2021-12-15	40	0 to 15	MPN/100mL
TOTAL COLIFORM	2021-01-01 to 2021-12-31	1849	9 DETECTIONS	P/A/100mL

OPERATIONAL TESTING DONE UNDER SCHEDULE 7, 8 OR 9 OF REGULATION 170/03 DURING THE PERIOD COVERED BY THIS ANNUAL REPORT.

NOTE: If results are obtained from continuous monitors, then 8760 is reported as the number of samples.

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
TURBIDITY - TREATED – FILTER 1	8760	0.01 to 0.13	NTU
TURBIDITY - TREATED – FILTER 2	8760	0.02 to 0.12	NTU
TURBIDITY - TREATED – FILTER 3	8760	0.02 to 0.26	NTU
TURBIDITY - TREATED – FILTER 4	8760	0.02 to 0.22	NTU
TURBIDITY - TREATED – FILTER 5	8760	0.02 to 0.13	NTU
TURBIDITY - TREATED – FILTER 6	8760	0.02 to 0.14	NTU
TURBIDITY - TREATED – FILTER 7	8760	0.02 to 0.86	NTU
TURBIDITY - TREATED – FILTER 8	8760	0.01 to 0.59	NTU
TURBIDITY - TREATED – FILTER 9	8760	0.02 to 0.14	NTU
TURBIDITY - TREATED – FILTER 10	8760	0.01 to 0.12	NTU
TURBIDITY - TREATED – FILTER 11	8760	0.02 to 0.13	NTU
TURBIDITY - TREATED – FILTER 12	8760	0.02 to 0.14	NTU
TURBIDITY - TREATED – FILTER 13	8760	0.02 to 0.66	NTU
TURBIDITY - TREATED – FILTER 14	8760	0.01 to 0.14	NTU
TURBIDITY - TREATED – FILTER 15	8760	0.02 to 0.18	NTU
TURBIDITY - TREATED – FILTER 16	8760	0.02 to 0.18	NTU
TURBIDITY - TREATED – FILTER 17	8760	0.02 to 0.17	NTU
TURBIDITY - TREATED – FILTER 18	8760	0.01 to 0.14	NTU
TURBIDITY - TREATED – FILTER 19	8760	0.02 to 0.47	NTU
TURBIDITY - TREATED – FILTER 20	8760	0.02 to 0.13	NTU
TURBIDITY - TREATED – FILTER 21	8760	0.01 to 0.31	NTU
TURBIDITY - TREATED – FILTER 22	8760	0.02 to 0.15	NTU
TURBIDITY - TREATED – FILTER 23	8760	0.02 to 0.12	NTU
TURBIDITY - TREATED – FILTER 24	8760	0.02 to 0.13	NTU
COMBINED CHLORINE - TREATED	8760	1.39 to 2.88	mg/L
FREE CHLORINE - DISTRIBUTION	1994	<0.02 to 0.21	mg/L
COMBINED CHLORINE - DISTRIBUTION	1994	0.19 to 2.85	mg/L
FLUORIDE – TREATED	8760	0.40 to 0.89	mg/L

SUMMARY OF ADDITIONAL TESTING AND SAMPLING CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENT OF A LICENCE, APPROVAL, ORDER OR OTHER LEGAL INSTRUMENT.

PARAMETER - SAMPLE TYPE	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
MICROCYSTINS – RAW	2021-01-12 to 2021-12-14	<0.15	ug/L
ALKALINITY – TREATED	2021-04-28 to 2021-10-18	86	mg/L
CHLORIDE – TREATED	2021-01-12 to 2021-12-14	29.1 to 43.4	mg/L
COLOUR (APPARENT) – TREATED	2021-02-11 to 2021-10-12	<2 to 2	CU
COPPER – TREATED	2021-02-11 to 2021-10-12	0.0002 to 0.0008	mg/L
IRON – TREATED	2021-02-11 to 2021-10-12	<0.003	mg/L
LEAD – TREATED	2021-02-11 to 2021-10-12	<0.0001	mg/L
MICROCYSTINS – TREATED	2021-06-01 to 2021-10-26	<0.15	ug/L
SULPHATE – TREATED	2021-01-12 to 2021-12-14	22.6 to 25.7	mg/L
TOTAL DISSOLVED SOLIDS – TREATED	2021-02-11 to 2021-10-12	170 to 248	mg/L
COPPER – PLUMBING	N/A	N/A	N/A
IRON – DISTRIBUTION	2021-02-08 to 2021-10-13	<0.003 to 0.079	mg/L
O-PHOSPHATE AS PO4 – DISTRIBUTION	2021-01-04 to 2021-12-30	1.43 to 6.54	mg/L
FIELD TEMPERATURE – DISTRIBUTION	2021-01-04 to 2021-12-30	2.8 to 25.0	°C
FIELD TURBIDITY – DISTRIBUTION	2021-01-04 to 2021-12-30	<0.05 to 5.04	NTU

N/A: COVID regulatory relief for Corrosion Control Program testing was granted for all plumbing samples (residential & non-residential).

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
TEMPERATURE – RAW	8760	-0.53 to 23.29	°C
pH – TREATED	8760	6.74 to 7.60	pH
ORTHOPHOSPHATE – TREATED	8760	0.96 to 5.33	mg/L
ORTHOPHOSPHATE – TREATED	365	1.20 to 2.89	mg/L

SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
TREATED				
ANTIMONY	2021-04-28 to 2021-10-18	0.0001 to 0.0002	mg/L	0
ARSENIC	2021-04-28 to 2021-10-18	0.0006 to 0.0007	mg/L	0
BARIUM	2021-04-28 to 2021-10-18	0.0195 to 0.0221	mg/L	0
BORON	2021-04-28 to 2021-10-18	0.020 to 0.026	mg/L	0
CADMIUM	2021-04-28 to 2021-10-18	<0.0001	mg/L	0
CHROMIUM	2021-04-28 to 2021-10-18	<0.0001	mg/L	0
FLUORIDE	2021-04-28 to 2021-10-18	0.56 to 0.61	mg/L	0
MERCURY	2021-04-28 to 2021-10-18	<0.05	ug/L	0
NITRATE AS N	2021-02-01 to 2021-10-18	0.170 to 0.450	mg/L	0
NITRITE AS N	2021-02-01 to 2021-10-18	<0.010	mg/L	0
SELENIUM	2021-04-28 to 2021-10-18	0.0001 to 0.0002	mg/L	0
SODIUM	2021-04-28 to 2021-10-18	14.1 to 16.2	mg/L	0
URANIUM	2021-04-28 to 2021-10-18	0.203 to 0.235	ug/L	0

SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
TREATED				
1,1-DICHLOROETHYLENE	2021-04-28 to 2021-10-18	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-28 to 2021-10-18	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-28 to 2021-10-18	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-28 to 2021-10-18	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-28	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-28	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-28	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-28	<0.15	ug/L	0
ALACHLOR	2021-04-28	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-28	0.01	ug/L	0
AZINPHOS-METHYL	2021-04-28	<0.05	ug/L	0
BENZENE	2021-04-28 to 2021-10-18	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-28	<0.004	ug/L	0
BROMOXYNIL	2021-04-28	<0.33	ug/L	0
CARBARYL	2021-04-28	<0.05	ug/L	0
CARBOFURAN	2021-04-28	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-28 to 2021-10-18	<0.20	ug/L	0
CHLOROBENZENE	2021-04-28 to 2021-10-18	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-28	<0.02	ug/L	0
DIAZINON	2021-04-28	<0.02	ug/L	0
DICAMBA	2021-04-28	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-28 to 2021-10-18	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-28	<0.40	ug/L	0
DIMETHOATE	2021-04-28	<0.06	ug/L	0
DIQUAT	2021-04-28	<1	ug/L	0
DIURON	2021-04-28	<0.03	ug/L	0
ETHYLBENZENE	2021-04-28 to 2021-10-18	<0.33	ug/L	0
GLYPHOSATE	2021-04-28	<1	ug/L	0
MALATHION	2021-04-28	<0.02	ug/L	0

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SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
TREATED				
MCPA (2-METHYL-4-CHLOROPHENOXYACETIC ACID)	2021-04-28	<0.00012	mg/L	0
METOLACHLOR	2021-04-28	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-28	<0.02	ug/L	0
PARAQUAT	2021-04-28	<1	ug/L	0
PCBS TOTAL	2021-04-28	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-28	<0.15	ug/L	0
PHORATE	2021-04-28	<0.01	ug/L	0
PICLORAM	2021-04-28	<1	ug/L	0
PROMETRYNE	2021-04-28	<0.03	ug/L	0
SIMAZINE	2021-04-28	<0.01	ug/L	0
TERBUFOS	2021-04-28	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-28 to 2021-10-18	<0.35	ug/L	0
TOLUENE	2021-04-28 to 2021-10-18	<0.36	ug/L	0
TRIALLATE	2021-04-28	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-28 to 2021-10-18	<0.44	ug/L	0
TRIFLURALIN	2021-04-28	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-28 to 2021-10-18	<0.20	ug/L	0
XYLENE	2021-04-28 to 2021-10-18	<0.50	ug/L	0
DISTRIBUTION				
TOTAL TRIHALOMETHANES*	Running annual average for the last four quarters.	19.6	ug/L	0
HALOACETIC ACIDS*	Running annual average for the last four quarters.	<5.3	ug/L	0

*The Maximum Acceptable Concentration for Trihalomethanes and Haloacetic Acids in the distribution is based on a running average of the results from all sampling events in the past four quarters. This running average can be found in the result value column.

SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
TREATED				
1,1-DICHLOROETHYLENE	2021-01-04 to 2021-12-29	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-01-04 to 2021-12-29	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-01-04 to 2021-12-29	<0.35	ug/L	0
1,3-DICHLOROBENZENE	2021-01-04 to 2021-12-29	<0.5	ug/L	0
1,4-DICHLOROBENZENE	2021-01-04 to 2021-12-29	<0.36	ug/L	0
BENZENE	2021-01-04 to 2021-12-29	<0.32	ug/L	0
CARBON TETRACHLORIDE	2021-01-04 to 2021-12-29	<0.20	ug/L	0
CHLOROBENZENE	2021-01-04 to 2021-12-29	<0.3	ug/L	0
DICHLOROMETHANE	2021-01-04 to 2021-12-29	<0.50	ug/L	0
TETRACHLOROETHYLENE	2021-01-04 to 2021-12-29	<0.35	ug/L	0
TRICHLOROETHYLENE	2021-01-04 to 2021-12-29	<0.44	ug/L	0
VINYL CHLORIDE	2021-01-04 to 2021-12-29	<0.20	ug/L	0
1,4-DIOXANE	2021-01-04 to 2021-12-29	<2	ug/L	0
1-CHLORONAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
1-METHYLNAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-01-04 to 2021-12-29	<0.20	ug/L	0
2,3,5,6-TETRACHLOROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
2,4,5-TRICHLOROPHENOL	2021-01-04 to 2021-12-29	<0.2	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-01-04 to 2021-12-29	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-01-04 to 2021-12-29	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-01-04 to 2021-12-29	<0.15	ug/L	0
2,4-DIMETHYLPHENOL	2021-01-04 to 2021-12-29	<5	ug/L	0
2,4-DINITROPHENOL	2021-01-04 to 2021-12-29	<10	ug/L	0
2,4-DINITROTOLUENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2,6-DINITROTOLUENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2-CHLORONAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2-CHLOROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
2-METHYL-4,6-DINITROPHENOL	2021-01-04 to 2021-12-29	<10	ug/L	0
2-METHYLNAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2-NITROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0

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SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
TREATED				
2-NITROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
3,3'-DICHLOROBENZIDINE	2021-01-04 to 2021-12-29	<500	ng/L	0
3-NITROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
4-CHLORO-3-METHYLPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
4-CHLOROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
4-CHLOROPHENYL PHENYL ETHER	2021-01-04 to 2021-12-29	<500	ng/L	0
4-NITROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
4-NITROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
5-NITROACENAPHTHENE	2021-01-04 to 2021-12-29	<500	ng/L	0
7H-DIBENZO(C,G)CARBAZOLE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
ACENAPHTHENE	2021-01-04 to 2021-12-29	<100	ng/L	0
ACENAPHTHYLENE	2021-01-04 to 2021-12-29	<100	ng/L	0
ALACHLOR	2021-01-04 to 2021-12-29	<0.02	ug/L	0
ANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
ANTHRACENE	2021-01-04 to 2021-12-29	<100	ng/L	0
ATRAZINE	2021-01-04 to 2021-12-29	<0.01 to 0.04	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-01-04 to 2021-12-29	<0.01 to 0.05	ug/L	0
AZINPHOS-METHYL	2021-01-04 to 2021-12-29	<0.05	ug/L	0
AZOBENZENE	2021-01-04 to 2021-12-29	<500	ng/L	0
BENZIDINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
BENZO[A]ANTHRACENE	2021-01-04 to 2021-12-29	<100	ng/L	0
BENZO[A]PYRENE	2021-01-04 to 2021-12-29	<0.004	ug/L	0
BENZO[B/J]FLUORANTHENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
BENZO[E]PYRENE	2021-01-04 to 2021-12-29	<100	ng/L	0

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SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
TREATED				
BENZO[G,H,I]PERYLENE	2021-01-04 to 2021-12-29	<200	ng/L	0
BENZO[K]FLUORANTHENE	2021-01-04 to 2021-12-29	<100	ng/L	0
BENZYL ALCOHOL	2021-01-04 to 2021-12-29	<500 to 900	ng/L	0
BENZYL BUTYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
BIPHENYL	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-CHLOROETHOXY) METHANE	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-CHLOROETHYL)ETHER	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-CHLOROISOPROPYL) ETHER	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-ETHYLHEXYL) PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
BIS(2-ETHYLHEXYL)ADIPATE	2021-01-04 to 2021-12-29	<1	ug/L	0
BISPHENOL A	2021-01-04 to 2021-12-29	<1	ug/L	0
BROMOXYNIL	2021-01-04 to 2021-12-29	<0.33	ug/L	0
CAMPHENE	2021-01-04 to 2021-12-29	<1000	ng/L	0
CARBARYL	2021-01-04 to 2021-12-29	<0.05	ug/L	0
CARBAZOLE	2021-01-04 to 2021-12-29	<5000	ng/L	0
CARBOFURAN	2021-01-04 to 2021-12-29	<0.01	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-01-04 to 2021-12-29	<0.02	ug/L	0
CHRYSENE	2021-01-04 to 2021-12-29	<100	ng/L	0
DESETHYL-ATRAZINE	2021-01-04 to 2021-12-29	<0.01 to 0.01	ug/L	0
DIAZINON	2021-01-04 to 2021-12-29	<0.02	ug/L	0
DIBENZO(A,E)PYRENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,H)ACRIDINE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,H)PYRENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,I)PYRENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,J)ACRIDINE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO[A,H]ANTHRACENE	2021-01-04 to 2021-12-29	<200	ng/L	0
DIBENZOFURAN	2021-01-04 to 2021-12-29	<500000	pg/L	0
DICAMBA	2021-01-04 to 2021-12-29	<0.20	ug/L	0
DICLOFOP-METHYL	2021-01-04 to 2021-12-29	<0.40	ug/L	0

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SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
TREATED				
DIETHYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DIMETHOATE	2021-01-04 to 2021-12-29	<0.06	ug/L	0
DIMETHYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DI-N-BUTYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DI-N-OCTYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DIPHENYL ETHER	2021-01-04 to 2021-12-29	<1000	ng/L	0
DIPHENYLAMINE/N-NITROSODIPHENYLAMINE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DIQUAT	2021-01-04 to 2021-12-29	<1	ug/L	0
DIURON	2021-01-04 to 2021-12-29	<0.03	ug/L	0
F2 (C10-C16) PETROLEUM HYDROCARBONS	2021-07-13 to 2021-12-29	<100	ug/L	0
F3 (C16-C34) PETROLEUM HYDROCARBONS	2021-07-13 to 2021-12-29	<200	ug/L	0
FLUORANTHENE	2021-01-04 to 2021-12-29	<100	ng/L	0
FLUORENE	2021-01-04 to 2021-12-29	<100	ng/L	0
GLYPHOSATE	2021-01-04 to 2021-12-29	<1	ug/L	0
HEXACHLOROBENZENE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
HEXACHLOROBUTADIENE	2021-01-04 to 2021-12-29	<10	ng/L	0
HEXACHLOROCYCLOPENTADIENE	2021-01-04 to 2021-12-29	<1	ug/L	0
HEXACHLOROETHANE	2021-01-04 to 2021-12-29	<10	ng/L	0
INDENO[1,2,3-CD]PYRENE	2021-01-04 to 2021-12-29	<200	ng/L	0
INDOLE	2021-01-04 to 2021-12-29	<1000	ng/L	0
ISOPHORONE	2021-01-04 to 2021-12-29	<500	ng/L	0
M+P-CRESOL (3+4-METHYLPHENOL)	2021-01-04 to 2021-12-29	<1000	ng/L	0
MALATHION	2021-01-04 to 2021-12-29	<0.02	ug/L	0
MCPA (2-METHYL-4-CHLORO-PHENOXYACETIC ACID)	2021-01-04 to 2021-12-29	<0.00012	mg/L	0
M-DINITROBENZENE	2021-01-04 to 2021-12-29	<5	ug/L	0
METOLACHLOR	2021-01-04 to 2021-12-29	<0.01	ug/L	0

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SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
TREATED				
METRIBUZIN (SENCOR)	2021-01-04 to 2021-12-29	<0.02	ug/L	0
NAPHTHALENE	2021-01-04 to 2021-12-29	<0.5	ug/L	0
NDMA	2021-01-04 to 2021-12-29	<0.0008 to 0.0030	ug/L	0
NITROBENZENE	2021-01-04 to 2021-12-29	<1000	ng/L	0
N-NITROSODI-N-PROPYLAMINE	2021-01-04 to 2021-12-29	<500	ng/L	0
O-CRESOL (2-METHYLPHENOL)	2021-01-04 to 2021-12-29	<1000	ng/L	0
OCTACHLOROSTYRENE	2021-01-04 to 2021-12-29	<500	ng/L	0
O-DINITROBENZENE	2021-01-04 to 2021-12-29	<5	ug/L	0
PARAQUAT	2021-01-04 to 2021-12-29	<1	ug/L	0
PCBS TOTAL	2021-01-04 to 2021-12-29	<0.04	ug/L	0
P-DINITROBENZENE	2021-01-04 to 2021-12-29	<5	ug/L	0
PENTACHLOROPHENOL	2021-01-04 to 2021-12-29	<0.15	ug/L	0
PERYLENE	2021-01-04 to 2021-12-29	<500	ng/L	0
PHENANTHRENE	2021-01-04 to 2021-12-29	<100	ng/L	0
PHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
PHORATE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
PICLORAM	2021-01-04 to 2021-12-29	<1	ug/L	0
PROMETRYNE	2021-01-04 to 2021-12-29	<0.03	ug/L	0
PYRENE	2021-01-04 to 2021-12-29	<100	ng/L	0
PYRIDINE	2021-01-04 to 2021-12-29	<2000	ng/L	0
SIMAZINE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
TERBUFOS	2021-01-04 to 2021-12-29	<0.01	ug/L	0
TRIALLATE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
TRIFLURALIN	2021-01-04 to 2021-12-29	<0.02	ug/L	0
ALUMINUM	2021-07-13 to 2021-12-29	0.014 to 0.399	mg/L	0
ANTIMONY	2021-07-13 to 2021-12-29	<0.0001 to 0.0002	mg/L	0
ARSENIC	2021-07-13 to 2021-12-29	0.0005 to 0.0009	mg/L	0
BARIUM	2021-07-13 to 2021-12-29	0.0188 to 0.0247	mg/L	0
BERYLLIUM	2021-07-13 to 2021-12-29	<0.0001	mg/L	0

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SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
TREATED				
BISMUTH	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
BORON	2021-07-13 to 2021-12-29	0.018 to 0.033	mg/L	0
CADMIUM	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
CALCIUM	2021-07-13 to 2021-12-29	31.4 to 36.3	mg/L	0
CHROMIUM	2021-07-13 to 2021-12-29	<0.0001 to 0.0002	mg/L	0
COBALT	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
COPPER	2021-07-13 to 2021-12-29	0.0002 to 0.0004	mg/L	0
IRON	2021-07-13 to 2021-12-29	<0.003 to 0.007	mg/L	0
LEAD	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
LITHIUM	2021-07-13 to 2021-12-29	0.0018 to 0.0022	mg/L	0
MAGNESIUM	2021-07-13 to 2021-12-29	8.69 to 9.60	mg/L	0
MANGANESE	2021-07-13 to 2021-12-29	<0.0001 to 0.0008	mg/L	0
MOLYBDENUM	2021-07-13 to 2021-12-29	0.0011 to 0.0030	mg/L	0
NICKEL	2021-07-13 to 2021-12-29	0.0004 to 0.0006	mg/L	0
PHOSPHORUS TOTAL	2021-07-13 to 2021-12-29	0.446 to 0.912	mg/L	0
POTASSIUM	2021-07-13 to 2021-12-29	1.41 to 1.81	mg/L	0
SELENIUM	2021-07-13 to 2021-12-29	<0.0001 to 0.0002	mg/L	0
SILICON	2021-07-13 to 2021-12-29	0.27 to 0.85	mg/L	0
SILVER	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
SODIUM	2021-07-13 to 2021-12-29	13.4 to 16.9	mg/L	0
STRONTIUM	2021-07-13 to 2021-12-29	0.160 to 0.200	mg/L	0
THALLIUM	2021-07-13 to 2021-12-29	<0.0003	mg/L	0
TIN	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
TITANIUM	2021-07-13 to 2021-12-29	0.0002 to 0.0007	mg/L	0
TUNGSTEN	2021-07-13 to 2021-12-29	<0.0001 to 0.0001	mg/L	0
URANIUM	2021-07-13 to 2021-12-29	0.110 to 0.251	ug/L	0
VANADIUM	2021-07-13 to 2021-12-29	<0.0001 to 0.0004	mg/L	0
ZINC	2021-07-13 to 2021-12-29	<0.001 to 0.002	mg/L	0
ZIRCONIUM	2021-07-13 to 2021-12-29	<0.0004	mg/L	0

SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
DISTRIBUTION				
1,1-DICHLOROETHYLENE	2021-01-04 to 2021-12-29	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-01-04 to 2021-12-29	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-01-04 to 2021-12-29	<0.35	ug/L	0
1,3-DICHLOROBENZENE	2021-01-04 to 2021-12-29	<0.5	ug/L	0
1,4-DICHLOROBENZENE	2021-01-04 to 2021-12-29	<0.36	ug/L	0
BENZENE	2021-01-04 to 2021-12-29	<0.32	ug/L	0
CARBON TETRACHLORIDE	2021-01-04 to 2021-12-29	<0.20	ug/L	0
CHLOROBENZENE	2021-01-04 to 2021-12-29	<0.3	ug/L	0
DICHLOROMETHANE	2021-01-04 to 2021-12-29	<0.50	ug/L	0
TETRACHLOROETHYLENE	2021-01-04 to 2021-12-29	<0.35	ug/L	0
TRICHLOROETHYLENE	2021-01-04 to 2021-12-29	<0.44	ug/L	0
VINYL CHLORIDE	2021-01-04 to 2021-12-29	<0.20	ug/L	0
1,4-DIOXANE	2021-01-04 to 2021-12-29	<2	ug/L	0
1-CHLORONAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
1-METHYLNAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-01-04 to 2021-12-29	<0.20	ug/L	0
2,3,5,6-TETRACHLOROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
2,4,5-TRICHLOROPHENOL	2021-01-04 to 2021-12-29	<0.2	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-01-04 to 2021-12-29	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-01-04 to 2021-12-29	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-01-04 to 2021-12-29	<0.15	ug/L	0
2,4-DIMETHYLPHENOL	2021-01-04 to 2021-12-29	<5	ug/L	0
2,4-DINITROPHENOL	2021-01-04 to 2021-12-29	<10	ug/L	0
2,4-DINITROTOLUENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2,6-DINITROTOLUENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2-CHLORONAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2-CHLOROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0

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SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
DISTRIBUTION				
2-METHYL-4,6-DINITROPHENOL	2021-01-04 to 2021-12-29	<10	ug/L	0
2-METHYLNAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2-NITROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
2-NITROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
3,3'-DICHLOROBENZIDINE	2021-01-04 to 2021-12-29	<500	ng/L	0
3-NITROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
4-CHLORO-3-METHYLPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
4-CHLOROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
4-CHLOROPHENYL PHENYL ETHER	2021-01-04 to 2021-12-29	<500	ng/L	0
4-NITROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
4-NITROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
5-NITROACENAPHTHENE	2021-01-04 to 2021-12-29	<500	ng/L	0
7H-DIBENZO(C,G)CARBAZOLE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
ACENAPHTHENE	2021-01-04 to 2021-12-29	<100	ng/L	0
ACENAPHTHYLENE	2021-01-04 to 2021-12-29	<100	ng/L	0
ALACHLOR	2021-01-04 to 2021-12-29	<0.02	ug/L	0
ANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
ANTHRACENE	2021-01-04 to 2021-12-29	<100	ng/L	0
ATRAZINE	2021-01-04 to 2021-12-29	<0.01 to 0.03	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-01-04 to 2021-12-29	<0.01 to 0.04	ug/L	0
AZINPHOS-METHYL	2021-01-04 to 2021-12-29	<0.05	ug/L	0
AZOBENZENE	2021-01-04 to 2021-12-29	<500	ng/L	0
BENZIDINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
BENZO[A]ANTHRACENE	2021-01-04 to 2021-12-29	<100	ng/L	0
BENZO[A]PYRENE	2021-01-04 to 2021-12-29	<0.004	ug/L	0
BENZO[B/J]FLUORANTHENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
BENZO[E]PYRENE	2021-01-04 to 2021-12-29	<100	ng/L	0

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SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
DISTRIBUTION				
BENZO[G,H,I]PERYLENE	2021-01-04 to 2021-12-29	<200	ng/L	0
BENZO[K]FLUORANTHENE	2021-01-04 to 2021-12-29	<100	ng/L	0
BENZYL ALCOHOL	2021-01-04 to 2021-12-29	<500 to 2400	ng/L	0
BENZYL BUTYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
BIPHENYL	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-CHLOROETHOXY) METHANE	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-CHLOROETHYL)ETHER	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-CHLOROISOPROPYL) ETHER	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-ETHYLHEXYL) PHTHALATE	2021-01-04 to 2021-12-29	<2000 to 8000*	ng/L	0
BIS(2-ETHYLHEXYL)ADIPATE	2021-01-04 to 2021-12-29	<1	ug/L	0
BISPHENOL A	2021-01-04 to 2021-12-29	<1	ug/L	0
BROMOXYNIL	2021-01-04 to 2021-12-29	<0.33	ug/L	0
CAMPHENE	2021-01-04 to 2021-12-29	<1000	ng/L	0
CARBARYL	2021-01-04 to 2021-12-29	<0.05	ug/L	0
CARBAZOLE	2021-01-04 to 2021-12-29	<5000	ng/L	0
CARBOFURAN	2021-01-04 to 2021-12-29	<0.01	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-01-04 to 2021-12-29	<0.02	ug/L	0
CHRYSENE	2021-01-04 to 2021-12-29	<100	ng/L	0
DESETHYL-ATRAZINE	2021-01-04 to 2021-12-29	<0.01 to 0.01	ug/L	0
DIAZINON	2021-01-04 to 2021-12-29	<0.02	ug/L	0
DIBENZO(A,E)PYRENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,H)ACRIDINE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,H)PYRENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,I)PYRENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,J)ACRIDINE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO[A,H]ANTHRACENE	2021-01-04 to 2021-12-29	<200	ng/L	0
DIBENZOFURAN	2021-01-04 to 2021-12-29	<500000	pg/L	0
DICAMBA	2021-01-04 to 2021-12-29	<0.20	ug/L	0
DICLOFOP-METHYL	2021-01-04 to 2021-12-29	<0.40	ug/L	0

*Result may be lower due to quality control issue

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SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
DISTRIBUTION				
DIETHYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DIMETHOATE	2021-01-04 to 2021-12-29	<0.06	ug/L	0
DIMETHYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DI-N-BUTYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DI-N-OCTYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DIPHENYL ETHER	2021-01-04 to 2021-12-29	<1000	ng/L	0
DIPHENYLAMINE/N-NITROSODIPHENYLAMINE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DIQUAT	2021-01-04 to 2021-12-29	<1	ug/L	0
DIURON	2021-01-04 to 2021-12-29	<0.03	ug/L	0
F2 (C10-C16) PETROLEUM HYDROCARBONS	2021-07-13 to 2021-12-29	<100	ug/L	0
F3 (C16-C34) PETROLEUM HYDROCARBONS	2021-07-13 to 2021-12-29	<200 to 247	ug/L	0
FLUORANTHENE	2021-01-04 to 2021-12-29	<100	ng/L	0
FLUORENE	2021-01-04 to 2021-12-29	<100	ng/L	0
GLYPHOSATE	2021-01-04 to 2021-12-29	<1	ug/L	0
HEXACHLOROBENZENE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
HEXACHLOROBUTADIENE	2021-01-04 to 2021-12-29	<10	ng/L	0
HEXACHLOROCYCLOPENTADIENE	2021-01-04 to 2021-12-29	<1	ug/L	0
HEXACHLOROETHANE	2021-01-04 to 2021-12-29	<10	ng/L	0
INDENO[1,2,3-CD]PYRENE	2021-01-04 to 2021-12-29	<200	ng/L	0
INDOLE	2021-01-04 to 2021-12-29	<1000	ng/L	0
ISOPHORONE	2021-01-04 to 2021-12-29	<500	ng/L	0
M+P-CRESOL (3+4-METHYLPHENOL)	2021-01-04 to 2021-12-29	<1000	ng/L	0
MALATHION	2021-01-04 to 2021-12-29	<0.02	ug/L	0
MCPA (2-METHYL-4-CHLORO-PHENOXYACETIC ACID)	2021-01-04 to 2021-12-29	<0.00012	mg/L	0
M-DINITROBENZENE	2021-01-04 to 2021-12-29	<5	ug/L	0
METOLACHLOR	2021-01-04 to 2021-12-29	<0.01	ug/L	0

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SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
DISTRIBUTION				
METRIBUZIN (SENCOR)	2021-01-04 to 2021-12-29	<0.02	ug/L	0
NAPHTHALENE	2021-01-04 to 2021-12-29	<0.5	ug/L	0
NDMA	2021-01-04 to 2021-12-29	<0.0008 to 0.0049	ug/L	0
NITROBENZENE	2021-01-04 to 2021-12-29	<1000	ng/L	0
N-NITROSODI-N-PROPYLAMINE	2021-01-04 to 2021-12-29	<500	ng/L	0
O-CRESOL (2-METHYLPHENOL)	2021-01-04 to 2021-12-29	<1000	ng/L	0
OCTACHLOROSTYRENE	2021-01-04 to 2021-12-29	<500	ng/L	0
O-DINITROBENZENE	2021-01-04 to 2021-12-29	<5	ug/L	0
PARAQUAT	2021-01-04 to 2021-12-29	<1	ug/L	0
PCBS TOTAL	2021-01-04 to 2021-12-29	<0.04	ug/L	0
P-DINITROBENZENE	2021-01-04 to 2021-12-29	<5	ug/L	0
PENTACHLOROPHENOL	2021-01-04 to 2021-12-29	<0.15	ug/L	0
PERYLENE	2021-01-04 to 2021-12-29	<500	ng/L	0
PHENANTHRENE	2021-01-04 to 2021-12-29	<100	ng/L	0
PHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
PHORATE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
PICLORAM	2021-01-04 to 2021-12-29	<1	ug/L	0
PROMETRYNE	2021-01-04 to 2021-12-29	<0.03	ug/L	0
PYRENE	2021-01-04 to 2021-12-29	<100	ng/L	0
PYRIDINE	2021-01-04 to 2021-12-29	<2000	ng/L	0
SIMAZINE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
TERBUFOS	2021-01-04 to 2021-12-29	<0.01	ug/L	0
TRIALLATE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
TRIFLURALIN	2021-01-04 to 2021-12-29	<0.02	ug/L	0
ALUMINUM	2021-07-13 to 2021-12-29	0.016 to 1.610	mg/L	0
ANTIMONY	2021-07-13 to 2021-12-29	<0.0001 to 0.0002	mg/L	0
ARSENIC	2021-07-13 to 2021-12-29	0.0004 to 0.0009	mg/L	0
BARIUM	2021-07-13 to 2021-12-29	0.0192 to 0.0411	mg/L	0
BERYLLIUM	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
BISMUTH	2021-07-13 to 2021-12-29	<0.0001 to 0.0009	mg/L	0

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SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
DISTRIBUTION				
BORON	2021-07-13 to 2021-12-29	0.018 to 0.031	mg/L	0
CADMIUM	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
CALCIUM	2021-07-13 to 2021-12-29	33.4 to 37.6	mg/L	0
CHROMIUM	2021-07-13 to 2021-12-29	<0.0001 to 0.0004	mg/L	0
COBALT	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
COPPER	2021-07-13 to 2021-12-29	0.0035 to 0.0392	mg/L	0
IRON	2021-07-13 to 2021-12-29	0.009 to 1.650	mg/L	0
LEAD	2021-07-13 to 2021-12-29	<0.0001 to 0.0018	mg/L	0
LITHIUM	2021-07-13 to 2021-12-29	0.0018 to 0.0022	mg/L	0
MAGNESIUM	2021-07-13 to 2021-12-29	8.65 to 9.40	mg/L	0
MANGANESE	2021-07-13 to 2021-12-29	0.0003 to 0.0022	mg/L	0
MOLYBDENUM	2021-07-13 to 2021-12-29	0.0011 to 0.0014	mg/L	0
NICKEL	2021-07-13 to 2021-12-29	0.0004 to 0.0009	mg/L	0
PHOSPHORUS TOTAL	2021-07-13 to 2021-12-29	0.528 to 1.760	mg/L	0
POTASSIUM	2021-07-13 to 2021-12-29	1.51 to 1.82	mg/L	0
SELENIUM	2021-07-13 to 2021-12-29	0.0001 to 0.0002	mg/L	0
SILICON	2021-07-13 to 2021-12-29	0.34 to 0.74	mg/L	0
SILVER	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
SODIUM	2021-07-13 to 2021-12-29	13.8 to 16.3	mg/L	0
STRONTIUM	2021-07-13 to 2021-12-29	0.160 to 0.191	mg/L	0
THALLIUM	2021-07-13 to 2021-12-29	<0.0003	mg/L	0
TIN	2021-07-13 to 2021-12-29	<0.0001 to 0.0002	mg/L	0
TITANIUM	2021-07-13 to 2021-12-29	0.0003 to 0.0015	mg/L	0
TUNGSTEN	2021-07-13 to 2021-12-29	<0.0001 to 0.0001	mg/L	0
URANIUM	2021-07-13 to 2021-12-29	0.116 to 0.387	ug/L	0
VANADIUM	2021-07-13 to 2021-12-29	0.0001 to 0.0003	mg/L	0
ZINC	2021-07-13 to 2021-12-29	<0.001 to 0.004	mg/L	0
ZIRCONIUM	2021-07-13 to 2021-12-29	<0.0004	mg/L	0

Parameters Exceeding Prescribed Half-Standard

There were no Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169/03)

FIFTY ROAD DRINKING WATER SUBSYSTEM WATER QUALITY ANNUAL REPORT

GENERAL INFORMATION

The treated water supply for this area comes from the Town of Grimsby Water Distribution System and serves a population of approximately 200 people. Water is provided from Grimsby west along Highway 8, then south on Fifty Road to Concession Road and to an underground, 1,100m3 storage reservoir operated by the City of Hamilton. The reservoir supplies water to residences on Reservoir Park Road.

A pump, running continuously, maintains the distribution system water pressure. Water pumped in excess of water system demand is circulated back to the reservoir. Fluoridation is not carried out on the water supplied by the Town of Grimsby. The reservoir water chlorine residual is maintained by a rechlorination system at the reservoir. Distribution water is sampled and analyzed one day per week. Chlorine residual in the distribution system is analyzed twice per week.

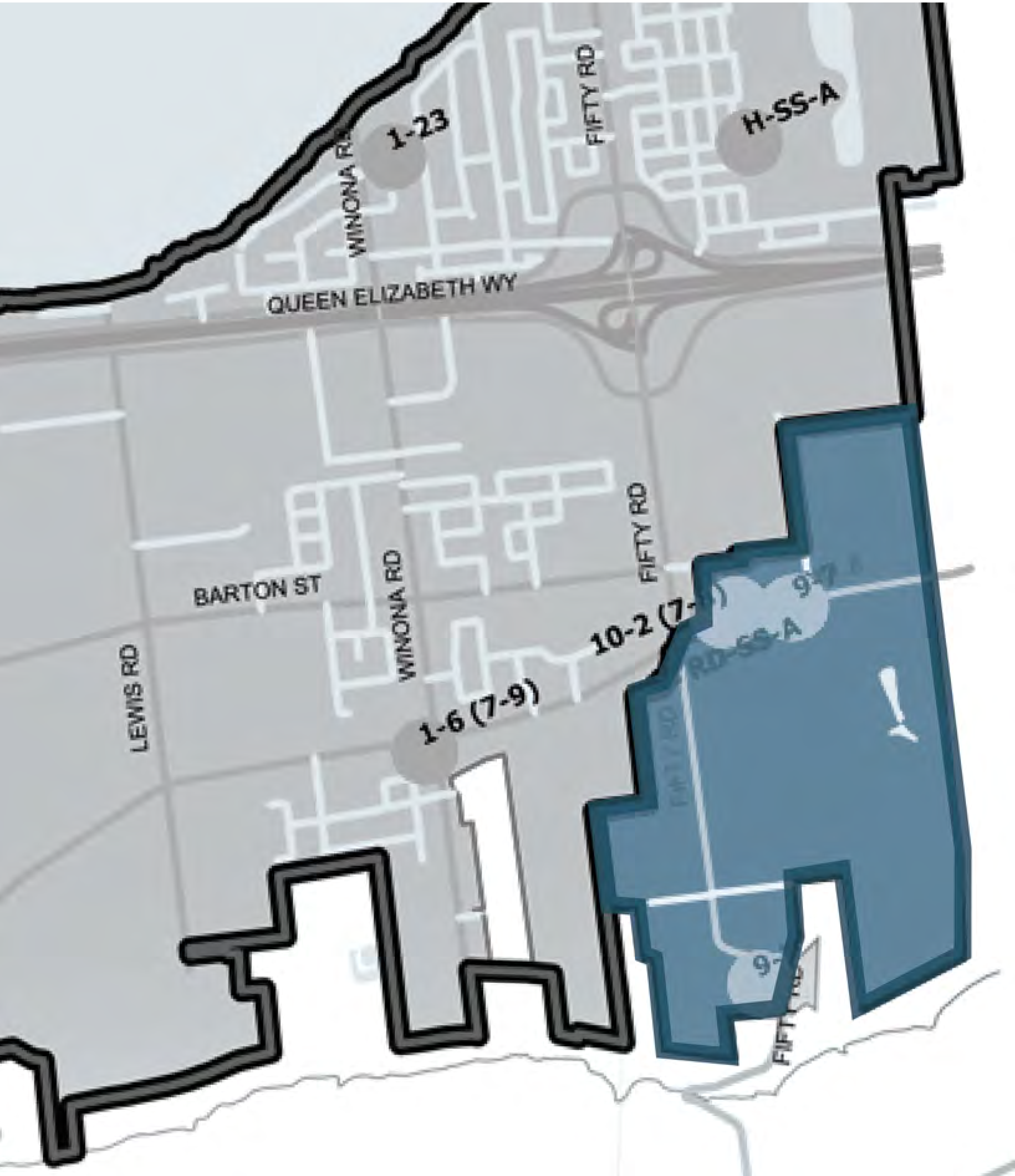
DEFINITIONS

AWQI: Adverse Water Quality Incident
CFU: Colony Forming Unit
HPC: Heterotrophic Plate Count
MDWL: Municipal Drinking Water Licence
mg/L: milligrams per litre
mL: millilitre
MPN: Most Probable Number
N/A: Not Applicable
P/A: Present/Absent
PTTW: Permit to Take Water
ug/L: micrograms per litre

For more information on the Town of Grimsby’s Quality Management System, DWQMS Policy, Licenses/Permits, Operational Plan and Annual Drinking Water Quality Reports, please visit:

www.grimsby.ca

DRINKING WATER SYSTEM NUMBER	DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM OWNER	DRINKING WATER SYSTEM CATEGORY	PERIOD BEING REPORTED
260069173	Fifty Road Subsystem of Hamilton Drinking Water System	City of Hamilton	Small Municipal Residential	January 1, 2021 to December 31, 2021


1-23
H-SS-A
FIFTY RD
WINONA RD
QUEEN ELIZABETH WY
FIFTY RD
BARTON ST
WINONA RD
LEWIS RD
10-2 (7-
1-6 (7-9)
RD-SS-A

PROVISION OF DRINKING WATER TO OTHER MUNICIPALITIES

The following is a list of municipal drinking water systems which receive drinking water from the Fifty Road Drinking Water Subsystem:

DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM NUMBER
None other than Fifty Road Subsystem	260069173

A copy of this annual report is provided to all Drinking Water System owners that are connected to the system and to whom the City provides drinking water.

The City's customers are notified through the local newspaper that the annual report is available online free of charge at **www.hamilton.ca/waterquality**. A copy of the report can also be requested by contacting (905) 546-2489 or water@hamilton.ca.

WATER TREATMENT CHEMICALS USED DURING THIS REPORTING PERIOD

- Sodium Hypochlorite (chlorine)

BREAKDOWN OF SIGNIFICANT MONETARY EXPENSES

There were no significant expenses incurred for installing, repairing and replacing required equipment in 2021. There were no significant projects initiated or expenses to highlight for the Fifty Road Subsystem in 2021.

ADVERSE TEST RESULTS AND REPORTABLE INCIDENTS

The following table outlines 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 the MECP Spills Action Centre.

NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
We are pleased to announce that there were no Adverse Water Quality Incidents for the period of January 1, 2021 to December 31, 2021.			

MECP HAMILTON DRINKING WATER SYSTEM, FIFTY ROAD SUBSYSTEM INSPECTION FINDINGS AND SELF-DECLARED NON-COMPLIANCES

The following tables are a Summary of Findings from the MECP Inspections and self-declared non-compliances found during the 2021 calendar year.

MECP INSPECTION REPORT, JANUARY 25, 2021:

#	FINDING TYPE	FINDING	STATUS
1	Non-Compliance	Modify work order templates used for recording the disinfection of equipment as per the Drinking Water Works Permit, Schedule B, Condition 2.3 and 2.31.	Action complete
2	Recommendation	Consider using preprinted logbooks to ensure required content is recorded. Required information is recorded in logbooks.	No action required
3	Recommendation	Conduct daily visits to a facility's structures to check system integrity and security. There is a program of regular site inspections and continuous remote monitoring.	No action required

MECP INSPECTION REPORT, NOVEMBER 15, 2021:

#	FINDING TYPE	FINDING	STATUS
1	Non-compliance	Select a new sample location representing Zone 9 and the homes located on Reservoir Park Road for chlorine, bacteria and disinfection by-products.	Actions in process
2	Recommendation	Implement a sampling plan / program to conduct checks for chlorine residuals at the extremities and "dead ends" of the distribution system. Plan is in place.	No action required
3	Recommendation	Based on the chlorine residual sampling plan, further develop and implement a strategy for a dead-end flushing program that includes: locations, frequencies, duration of flushing, and overall methodology and demonstrate with records. Plan is in place.	No action required

WATER PRODUCTION REPORTS - SUMMARY

The Memorandum of Understanding between the Town of Grimsby and the City of Hamilton does not include a rated capacity. The City of Hamilton is working with the Town of Grimsby to negotiate a Water Supply Agreement.

WATER QUALITY DATA

MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
DISTRIBUTION				
E.COLI	2021-01-04 to 2021-12-27	104	ALL ABSENT	P/A/100mL
HPC	2021-01-04 to 2021-12-27	104	0 to 4	CFU/1mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	104	ALL ABSENT	P/A/100mL

OPERATIONAL TESTING DONE UNDER SCHEDULE 7, 8 OR 9 OF REGULATION 170/03 DURING THE PERIOD COVERED BY THIS ANNUAL REPORT.

NOTE: If results are obtained from continuous monitors, then 8760 is reported as the number of samples.

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
FREE CHLORINE - DISTRIBUTION	156	0.58 to 2.90	mg/L

SUMMARY OF ADDITIONAL TESTING AND SAMPLING CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENT OF A LICENCE, APPROVAL, ORDER OR OTHER LEGAL INSTRUMENT.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
N/A	-	-	-

SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
N/A	-	-	-	-

SUMMARY OF LEAD TESTING UNDER SCHEDULE 15.1 OF REGULATION 170/03 DURING THIS REPORTING PERIOD.

LOCATION TYPE	POINTS SAMPLED	LEAD SAMPLES TAKEN	pH & ALKALINITY SAMPLES TAKEN	pH RESULTS pH UNITS	ALKALINITY RESULTS mg/L	LEAD RESULTS mg/L	LEAD AWQIs	LEAD EXCEEDANCES
PLUMBING-NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PLUMBING-R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DISTRIBUTION	2	2	2	7.53 to 7.61	85 to 88	<0.0001	0	N/A

NR - Non Residential R - Residential

COVID regulatory relief for Schedule 15.1 lead testing was granted for all plumbing samples (residential & non-residential).

SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
DISTRIBUTION				
TOTAL TRIHALOMETHANES*	Running annual average for the last four quarters.	27.9	ug/L	0
HALOACETIC ACIDS*	Running annual average for the last four quarters.	24.5	ug/L	0

* The Maximum Acceptable Concentration for Trihalomethanes and Haloacetic acids in the distribution is based on a running average of the results from all sampling events in the past four quarters. This running average can be found in the result value column.

PARAMETERS EXCEEDING PRESCRIBED HALF-STANDARD

There were no Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169/03)

FREELTON DRINKING WATER SYSTEM WATER QUALITY ANNUAL REPORT

GENERAL INFORMATION

The Freelton water supply system consists of two wells, one elevated water storage tank, treatment, sampling and analysis which services a population of approximately 804 people. The water source for the community of Freelton is ground water.

Water Wells:

- Freelton Well FDF01 is a 250mm diameter, approximately 21-metre-deep drilled ground water well.
- Freelton Well FDF03 is a 300mm diameter, approximately 50-metre-deep drilled ground water well.

Treatment:

- Sodium hypochlorite (chlorine) is used for disinfection within a chlorine contact chamber to ensure disinfection of the water prior to entering the distribution system.
- Fluoridation is not carried out at any of the Freelton community wells.

Water Storage:

An elevated water storage tank with an operating capacity of 2,840m^3 is available for peak hour water demand equalization as well as fire and emergency storage.

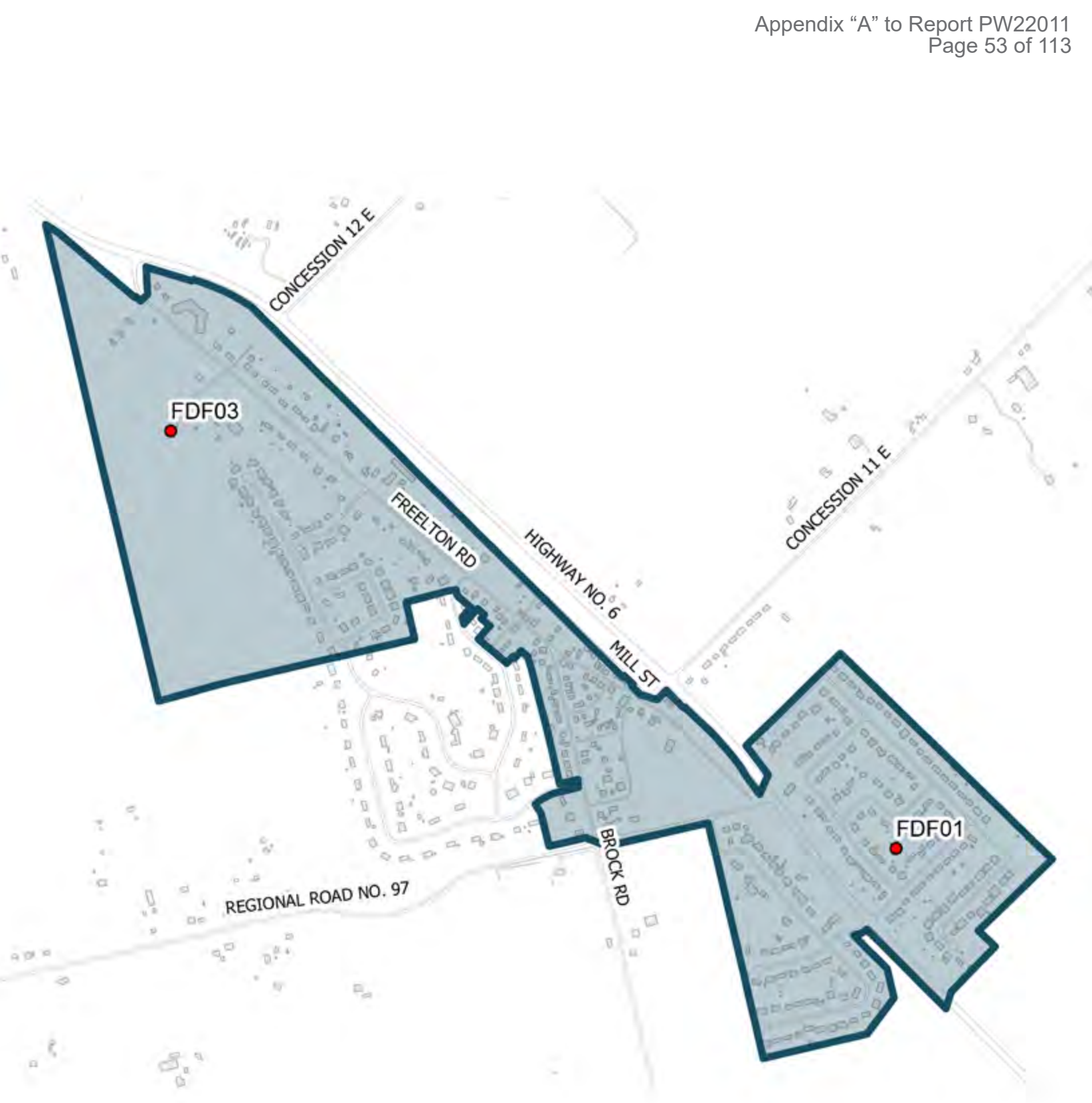
DEFINITIONS

AWQI: Adverse Water Quality Incident
CFU: Colony Forming Unit
HPC: Heterotrophic Plate Count
MDWL: Municipal Drinking Water Licence
mg/L: milligrams per litre
mL: millilitre
MPN: Most Probable Number
m^3: cubic metre
m^3/d: cubic metres per day
N/A: Not Applicable
NTU: Nephelometric Turbidity Units
P/A: Present/Absent
PTTW: Permit to Take Water
ug/L: micrograms per litre

Sampling & Analysis:

All wells are equipped with on-line chlorine residual analyzers and turbidity analyzers that continually monitor the treated water quality. Raw, treated and distribution water is sampled and analyzed weekly. In addition, chlorine residual in the distribution system is analyzed daily.

DRINKING WATER SYSTEM NUMBER	DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM OWNER	DRINKING WATER SYSTEM CATEGORY	PERIOD BEING REPORTED
220004117	Freelton Drinking Water System FDF01, FDF03	City of Hamilton	Large Municipal Residential	January 1, 2021 to December 31, 2021


CONCESSION 12 E
FDF03
FREELTON RD
HIGHWAY NO. 6
CONCESSION 11 E
MILL ST
FDF01
BROCK RD
REGIONAL ROAD NO. 97

PROVISION OF DRINKING WATER TO OTHER MUNICIPALITIES

The following is a list of municipal drinking water systems which receive drinking water from the Freelton System:

DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM NUMBER
None other than Freelton System	220004117

A copy of this annual report is provided to all Drinking Water System owners that are connected to the system and to whom the City provides drinking water.

The City's customers are notified through the local newspaper that the annual report is available online free of charge at **www.hamilton.ca/waterquality**. A copy of the report can also be requested by contacting (905) 546-2489 or water@hamilton.ca.

WATER TREATMENT CHEMICALS USED DURING THIS REPORTING PERIOD

- Sodium Hypochlorite (chlorine)

BREAKDOWN OF SIGNIFICANT MONETARY EXPENSES

There were no significant expenses incurred for installing, repairing and replacing required equipment in 2021. There were no significant projects initiated or expenses to highlight for the Freelton Drinking Water System in 2021.

ADVERSE TEST RESULTS AND REPORTABLE INCIDENTS

The following table outlines 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 the MECP Spills Action Centre.

NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
We are pleased to announce that there were no Adverse Water Quality Incidents for the period of January 1, 2021 to December 31, 2021			

MECP FREELTON DRINKING WATER SYSTEM (DWS) INSPECTION FINDINGS AND SELF-DECLARED NON-COMPLIANCES

The following table is a Summary of Findings from the MECP Inspections and self-declared non-compliances found during the 2021 calendar year.

MECP INSPECTION REPORT, MARCH 31, 2021

#	FINDING TYPE	FINDING	STATUS
1 & 2	Recommendation	Implement a sampling plan / program to conduct routine checks for chlorine residuals at the extremities and "dead ends" of the distribution system in addition to the current sampling stations. Plan is in place.	No action required
3	Recommendation	Modify repair, maintenance or inspection work order templates used for recording the disinfection of equipment as per the Drinking Water Works Permit, Schedule B, Condition 2.3 and 2.3.1.	Action complete
4	Recommendation	Review cyber security provisions related to operation of the drinking water system.	Actions in process
5	Recommendation	When providing written notices that: background information be provided leading up to the event; a summary of the action taken; and the results achieved, be provided by the Overall Responsible Operator or designate. This is also recommended for notifications of non-compliance and upon completion of root cause analyses.	Action complete

WATER PRODUCTION REPORTS - SUMMARY

The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

TABLE 3-1: FREELTON WELL (FDF01) - 2021 MONTHLY PRODUCTION (SUMMARY)

FDF01	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Total Monthly Flow	m^3	3,401	2,775	3,942	3,706	6,315	7,086	6,994	6,546	4,493	4,146	3,198	4,912
Average Daily Rate	m^3/d	110	99	127	124	204	236	226	211	150	134	107	158
Maximum Daily Rate	m^3/d	501	514	496	387	582	536	630	667	501	636	501	502
PTTW Daily Taking Limit	m^3/d	1,584	1,584	1,584	1,584	1,584	1,584	1,584	1,584	1,584	1,584	1,584	1,584
MDWL Daily Rated Capacity	m^3/d	878	878	878	878	878	878	878	878	878	878	878	878

MAINTAINED COMPLIANCE

FIGURE 3-1: FREELTON WELL (FDF01) - 2021 MONTHLY PRODUCTION (SUMMARY)

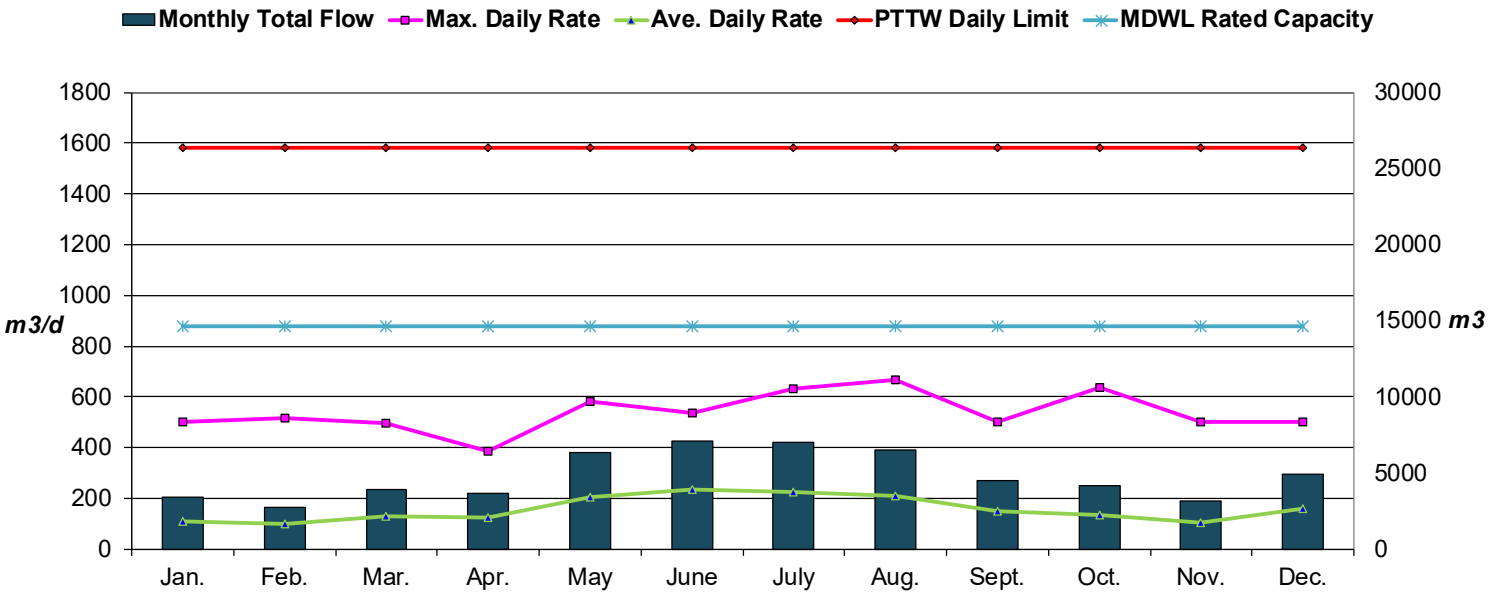


TABLE 3-2: FREELTON WELL (FDF03) - 2021 MONTHLY PRODUCTION (SUMMARY)

FDF03	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Total Monthly Flow	m^3	4,353	3,511	3,678	4,662	6,797	8,772	8,404	8,391	5,247	4,060	4,531	4,687
Average Daily Rate	m^3/d	140	125	119	155	219	292	271	271	175	131	151	151
Maximum Daily Rate	m^3/d	569	566	559	483	678	685	736	757	570	585	719	530
PTTW & MDWL Daily Rated Capacity	m^3/d	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607

MAINTAINED COMPLIANCE

FIGURE 3-2: FREELTON WELL (FDF03) - 2021 MONTHLY PRODUCTION (SUMMARY)

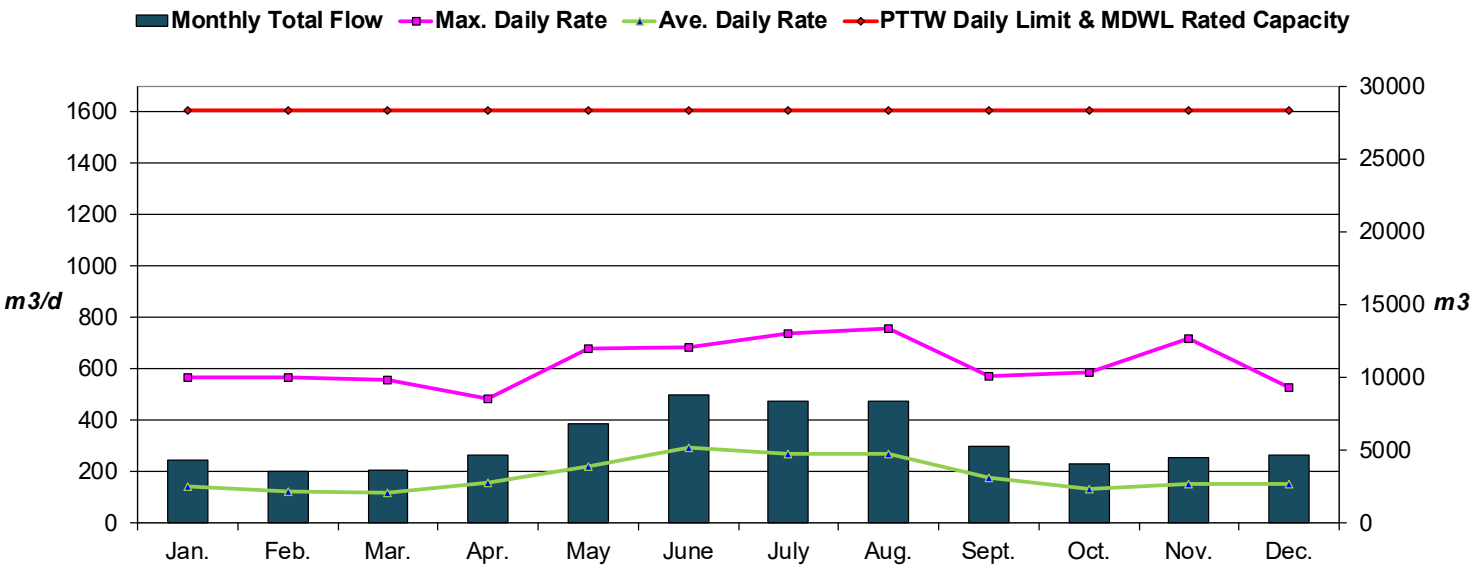
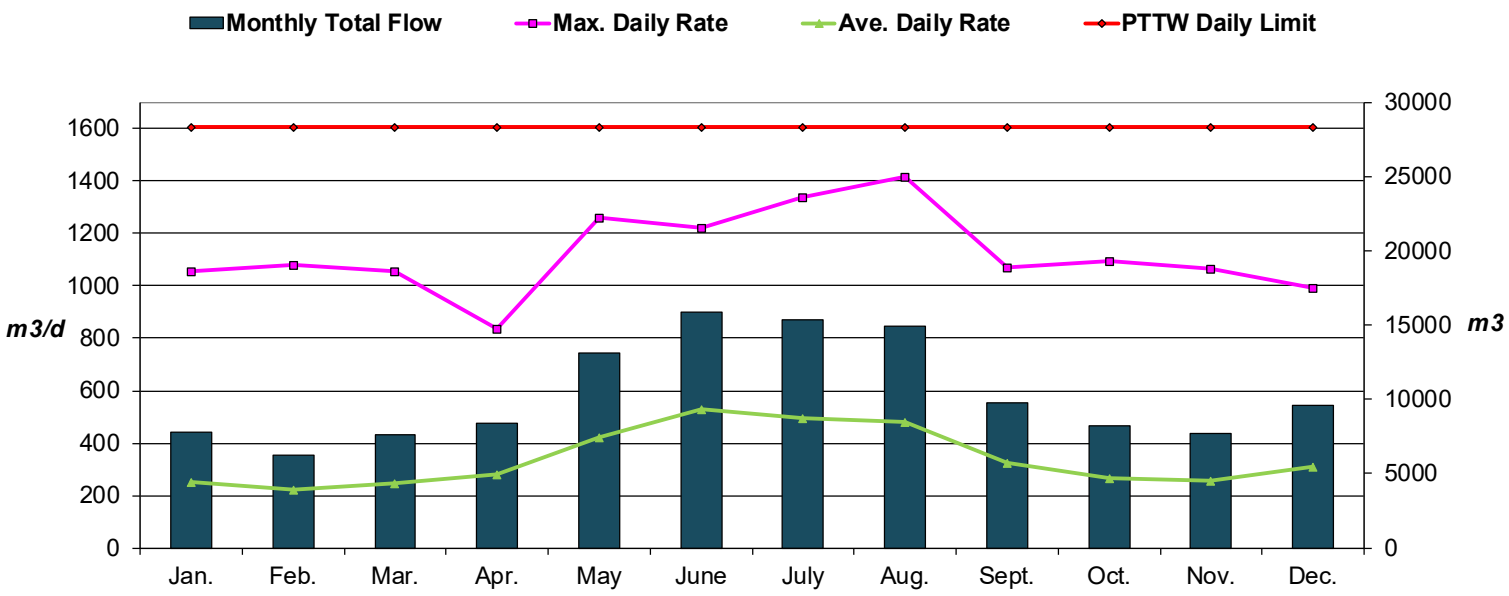


TABLE 3-3: FREELTON WELL (FDF01 & FDF03) - 2021 MONTHLY PRODUCTION (SUMMARY)

FDF01 & 03	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Total Montly Flow	m^3	7,754	6,286	7,620	8,368	13,113	15,858	15,398	14,937	9,740	8,206	7,729	9,598
Average Daily Rate	m^3/d	250	224	246	279	423	529	497	482	325	265	258	310
Maximum Daily Rate	m^3/d	1,058	1,080	1,055	836	1,260	1,222	1,337	1,417	1,072	1,097	1,064	992
PTTW Daily Taking Limit	m^3/d	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607

MAINTAINED COMPLIANCE

FIGURE 3-3: FREELTON WELL (FDF01 & FDF03) - 2021 MONTHLY PRODUCTION (SUMMARY)



WATER QUALITY DATA

MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.

PARAMETER - SAMPLE TYPE	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
FREELTON WELL FDF01 - RAW				
E.COLI	2021-01-04 to 2021-12-27	52	0	MPN/100mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	52	0	MPN/100mL
FREELTON WELL FDF03 - RAW				
E.COLI	2021-01-05 to 2021-12-28	52	0	MPN/100mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	52	0 to 2	MPN/100mL
FREELTON WELL FDF01 - TREATED				
E.COLI	2021-01-04 to 2021-12-27	52	ALL ABSENT	P/A/100mL
HPC	2021-01-04 to 2021-12-27	52	0 to 2	CFU/1mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	52	ALL ABSENT	P/A/100mL
FREELTON WELL FDF03 - TREATED				
E.COLI	2021-01-05 to 2021-12-28	52	ALL ABSENT	P/A/100mL
HPC	2021-01-05 to 2021-12-28	52	0 to 1	CFU/1mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	52	ALL ABSENT	P/A/100mL
DISTRIBUTION				
E.COLI	2021-01-04 to 2021-12-28	208	ALL ABSENT	P/A/100mL
HPC	2021-01-04 to 2021-12-28	208	0 to 5	CFU/1mL
TOTAL COLIFORM	2021-01-04 to 2021-12-28	208	ALL ABSENT	P/A/100mL

OPERATIONAL TESTING DONE UNDER SCHEDULE 7, 8 OR 9 OF REGULATION 170/03 DURING THE PERIOD COVERED BY THIS ANNUAL REPORT.

NOTE: If results are obtained from continuous monitors, then 8760 is reported as the number of samples.

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULTS VALUE RANGE	UNIT OF MEASURE
TURBIDITY - RAW - FDF01	52	0.04 to 0.36	NTU
TURBIDITY - RAW - FDF03	52	0.06 to 0.40	NTU
FREE CHLORINE - TREATED - FDF01	8760	0.91 to 2.41	mg/L
FREE CHLORINE - TREATED - FDF03	8760	1.38 to 2.56	mg/L
FREE CHLORINE - DISTRIBUTION	365	1.23 to 2.13	mg/L

SUMMARY OF ADDITIONAL TESTING AND SAMPLING CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENT OF A LICENCE, APPROVAL, ORDER OR OTHER LEGAL INSTRUMENT.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
N/A	-	-	-

SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
FREELTON WELL FDF01 - TREATED				
ANTIMONY	2021-04-27 to 2021-10-22	0.0001	mg/L	0
ARSENIC	2021-04-27 to 2021-10-22	0.0001	mg/L	0
BARIUM	2021-04-27 to 2021-10-22	0.0664 to 0.0685	mg/L	0
BORON	2021-04-27 to 2021-10-22	0.019 to 0.021	mg/L	0
CADMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
CHROMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
FLUORIDE	2021-04-27 to 2021-10-22	0.08 to 0.09	mg/L	0
MERCURY	2021-04-27 to 2021-10-22	<0.05	ug/L	0
NITRATE AS N	2021-02-03 to 2021-10-22	1.41 to 1.96	mg/L	0
NITRITE AS N	2021-02-03 to 2021-10-22	<0.010	mg/L	0
SELENIUM	2021-04-27 to 2021-10-22	0.0003	mg/L	0
SODIUM	2021-04-27 to 2021-10-22	51.9 to 55.5	mg/L	0
URANIUM	2021-04-27 to 2021-10-22	0.281 to 0.285	ug/L	0

SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
FREELTON WELL FDF03 - TREATED				
ANTIMONY	2021-04-27 to 2021-10-22	0.0001	mg/L	0
ARSENIC	2021-04-27 to 2021-10-22	0.0003 to 0.0004	mg/L	0
BARIUM	2021-04-27 to 2021-10-22	0.0720 to 0.0736	mg/L	0
BORON	2021-04-27 to 2021-10-22	0.015 to 0.017	mg/L	0
CADMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
CHROMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
FLUORIDE	2021-04-27 to 2021-10-22	0.16	mg/L	0
MERCURY	2021-04-27 to 2021-10-22	<0.05	ug/L	0
NITRATE AS N	2021-02-03 to 2021-10-22	<0.02 to 0.041	mg/L	0
NITRITE AS N	2021-02-03 to 2021-10-22	<0.010	mg/L	0
SELENIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
SODIUM	2021-04-27 to 2021-10-22	43.9 to 53.2	mg/L	0
URANIUM	2021-04-27 to 2021-10-22	0.279 to 0.302	ug/L	0

SUMMARY OF LEAD TESTING UNDER SCHEDULE 15.1 OF REGULATION 170/03 DURING THIS REPORTING PERIOD.

LOCATION TYPE	POINTS SAMPLED	LEAD SAMPLES TAKEN	pH & ALKALINITY SAMPLES TAKEN	pH RESULTS pH UNITS	ALKALINITY RESULTS mg/L	LEAD RESULTS mg/L	LEAD AWQIs	LEAD EXCEEDANCES
PLUMBING-NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PLUMBING-R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DISTRIBUTION	4	4	4	7.28 to 7.51	305 to 309	0.0002 to 0.0008	0	N/A

NR - Non Residential R- Residential

COVID regulatory relief for Schedule 15.1 lead testing was granted for all plumbing samples (residential & non-residential).

SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
FREELTON WELL FDF01 - TREATED				
1,1-DICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-27	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-27	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-27	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-27	<0.15	ug/L	0
ALACHLOR	2021-04-27	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-27	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-27	<0.05	ug/L	0
BENZENE	2021-04-27 to 2021-10-22	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-27	<0.004	ug/L	0
BROMOXYNIL	2021-04-27	<0.33	ug/L	0
CARBARYL	2021-04-27	<0.05	ug/L	0
CARBOFURAN	2021-04-27	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
CHLOROBENZENE	2021-04-27 to 2021-10-22	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-27	<0.02	ug/L	0
DIAZINON	2021-04-27	<0.02	ug/L	0
DICAMBA	2021-04-27	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-27	<0.40	ug/L	0
DIMETHOATE	2021-04-27	<0.06	ug/L	0
DIQUAT	2021-04-27	<1	ug/L	0
DIURON	2021-04-27	<0.03	ug/L	0
ETHYLBENZENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
GLYPHOSATE	2021-04-27	<1	ug/L	0
MALATHION	2021-04-27	<0.02	ug/L	0

...continued on next page

SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
FREELTON WELL FDF01 - TREATED				
MCPA (2-METHYL-4-CHLOROPHENOXYACETIC ACID)	2021-04-27	<0.00012	mg/L	0
METOLACHLOR	2021-04-27	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-27	<0.02	ug/L	0
PARAQUAT	2021-04-27	<1	ug/L	0
PCBS TOTAL	2021-04-27	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-27	<0.15	ug/L	0
PHORATE	2021-04-27	<0.01	ug/L	0
PICLORAM	2021-04-27	<1	ug/L	0
PROMETRYNE	2021-04-27	<0.03	ug/L	0
SIMAZINE	2021-04-27	<0.01	ug/L	0
TERBUFOS	2021-04-27	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
TOLUENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
TRIALLATE	2021-04-27	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.44	ug/L	0
TRIFLURALIN	2021-04-27	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
XYLENE	2021-04-27 to 2021-10-22	<0.50	ug/L	0

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SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
FREELTON WELL FDF03 - TREATED				
1,1-DICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-27	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-27	<0.25	ug/L	0
2,4-DICHLOROPHENOXY-ACETIC ACID	2021-04-27	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-27	<0.15	ug/L	0
ALACHLOR	2021-04-27	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-27	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-27	<0.05	ug/L	0
BENZENE	2021-04-27 to 2021-10-22	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-27	<0.004	ug/L	0
BROMOXYNIL	2021-04-27	<0.33	ug/L	0
CARBARYL	2021-04-27	<0.05	ug/L	0
CARBOFURAN	2021-04-27	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
CHLOROBENZENE	2021-04-27 to 2021-10-22	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-27	<0.02	ug/L	0
DIAZINON	2021-04-27	<0.02	ug/L	0
DICAMBA	2021-04-27	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-27	<0.40	ug/L	0
DIMETHOATE	2021-04-27	<0.06	ug/L	0
DIQUAT	2021-04-27	<1	ug/L	0
DIURON	2021-04-27	<0.03	ug/L	0
ETHYLBENZENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
GLYPHOSATE	2021-04-27	<1	ug/L	0
MALATHION	2021-04-27	<0.02	ug/L	0

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SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
FREELTON WELL FDF03 - TREATED				
MCPA (2-METHYL-4-CHLOROPHENOXYACETIC ACID)	2021-04-27	<0.00012	mg/L	0
METOLACHLOR	2021-04-27	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-27	<0.02	ug/L	0
PARAQUAT	2021-04-27	<1	ug/L	0
PCBS TOTAL	2021-04-27	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-27	<0.15	ug/L	0
PHORATE	2021-04-27	<0.01	ug/L	0
PICLORAM	2021-04-27	<1	ug/L	0
PROMETRYNE	2021-04-27	<0.03	ug/L	0
SIMAZINE	2021-04-27	<0.01	ug/L	0
TERBUFOS	2021-04-27	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
TOLUENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
TRIALLATE	2021-04-27	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.44	ug/L	0
TRIFLURALIN	2021-04-27	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
XYLENE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DISTRIBUTION				
TOTAL TRIHALOMETHANES*	Running annual average for the last four quarters	12.3	ug/L	0
HALOACETIC ACIDS*	Running annual average for the last four quarters	5.3	ug/L	0

* The Maximum Acceptable Concentration for Trihalomethanes and Haloacetic Acids in the distribution is based on a running average of the results from all sampling events in the past four quarters. This running average can be found in the result value column.

PARAMETERS EXCEEDING PRESCRIBED HALF-STANDARD

There were no Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169/03)

GREENSVILLE DRINKING WATER SYSTEM WATER QUALITY ANNUAL REPORT

GENERAL INFORMATION

The Greensville water supply system consists of one well, one well station, treatment, sampling and analysis which services a population of approximately 108 people.

Water Well:
Greensville Well FDG01 is a 150mm diameter, approximately 12-metre-deep drilled ground water well under the influence of surface water (GUDI).

Treatment:
Water passes through 2 stage cartridge filters, is disinfected using ultraviolet light and sodium hypochlorite (chlorine) prior to entering the distribution system. A chlorine contact chamber is used to ensure disinfection of the water. Fluoridation is not carried out at the Greensville community well.

Well Station:
Within the Well Station, water treatment takes place, well water level, discharge pressure and flow are monitored. Hydropneumatic pressure tanks are used to control system pressures.

Sampling & Analysis:
The well is equipped with on-line chlorine residual and turbidity analyzers that continually monitor the treated water quality at the well station. Raw, treated and distribution water is sampled and analyzed weekly. In addition, chlorine residual in the distribution system is analyzed daily.

DEFINITIONS

AWQI: Adverse Water Quality Incident
CFU: Colony Forming Unit
HPC: Heterotrophic Plate Count
MDWL: Municipal Drinking Water Licence
mg/L: milligrams per litre
mL: millilitre
MPN: Most Probable Number
m^3: cubic metre
m^3/d: cubic metres per day
N/A: Not Applicable
NTU: Nephelometric Turbidity Units
P/A: Present/Absent
PTTW: Permit to Take Water
ug/L: micrograms per litre

DRINKING WATER SYSTEM NUMBER	DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM OWNER	DRINKING WATER SYSTEM CATEGORY	PERIOD BEING REPORTED
220004126	Greensville Drinking Water System FDG01	City of Hamilton	Small Municipal Residential	January 1, 2021 to December 31, 2021


BROCK RD
OLD BROCK RD
FDG01
HARVEST RD

PROVISION OF DRINKING WATER TO OTHER MUNICIPALITIES

The following is a list of municipal drinking water systems which receive drinking water from the Greensville System:

DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM NUMBER
None other than Greensville System	220004126

A copy of this annual report is provided to all Drinking Water System owners that are connected to the system and to whom the City provides drinking water.

The City's customers are notified through the local newspaper that the annual report is available online free of charge at **www.hamilton.ca/waterquality**. A copy of the report can also be requested by contacting (905) 546-2489 or water@hamilton.ca.

WATER TREATMENT CHEMICALS USED DURING THIS REPORTING PERIOD

- Sodium Hypochlorite (chlorine)

BREAKDOWN OF SIGNIFICANT MONETARY EXPENSES

THE FOLLOWING TABLE HIGHLIGHTS THE SIGNIFICANT EXPENSES THAT WERE INCURRED FOR REPLACING REQUIRED EQUIPMENT IN 2021
New Water Pumping Station Investigation - $49,020

ADVERSE TEST RESULTS AND REPORTABLE INCIDENTS

The following table outlines 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 the MECP Spills Action Centre.

NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
2021-08-19	Greensville Sampling Station B, Forest Ave	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.

MECP GREENSVILLE DRINKING WATER SYSTEM (DWS) INSPECTION FINDINGS AND SELF-DECLARED NON-COMPLIANCES

The following table is a Summary of Findings from the MECP Inspections and self-declared non-compliances found during the 2021 calendar year.

MECP INSPECTION REPORT, MARCH 31, 2021

#	FINDING TYPE	FINDING	STATUS
1	Recommendation	Modify maintenance work order templates used for recording the disinfection of equipment as per the Drinking Water Works Permit, Schedule B, Condition 2.3 and 2.3.1.	Actions complete
2	Recommendation	Implement a sampling plan / program to conduct routine checks for chlorine residuals at the extremities and "dead ends" of the distribution system. Plan is in place.	No action required
3	Recommendation	Further develop and implement a strategy for a dead-end flushing program including locations, frequencies, duration of flushing, and overall methodology and demonstrate with records. Plan is in place.	No action required
4	Recommendation	When providing written notices that: background information be provided leading up to the event; a summary of the action taken; and the results achieved, be provided by the Overall Responsible Operator or designate, where applicable. This is also recommended for notifications of non-compliance and upon completion of root cause analyses.	Actions complete
5	Self-declared Non-compliance	Minimum recording frequency requirements for chlorine residual monitoring as per O.Reg. 170/03, Schedule 6 were not met due to a communication loss that lasted more than five minutes. It was confirmed that all monitoring equipment was functioning properly and that all required monitoring data was collected during the communication outage. Upon further investigation it was found not to be a non-compliance issue as a result of the data being available.	No action required

WATER PRODUCTION REPORTS - SUMMARY

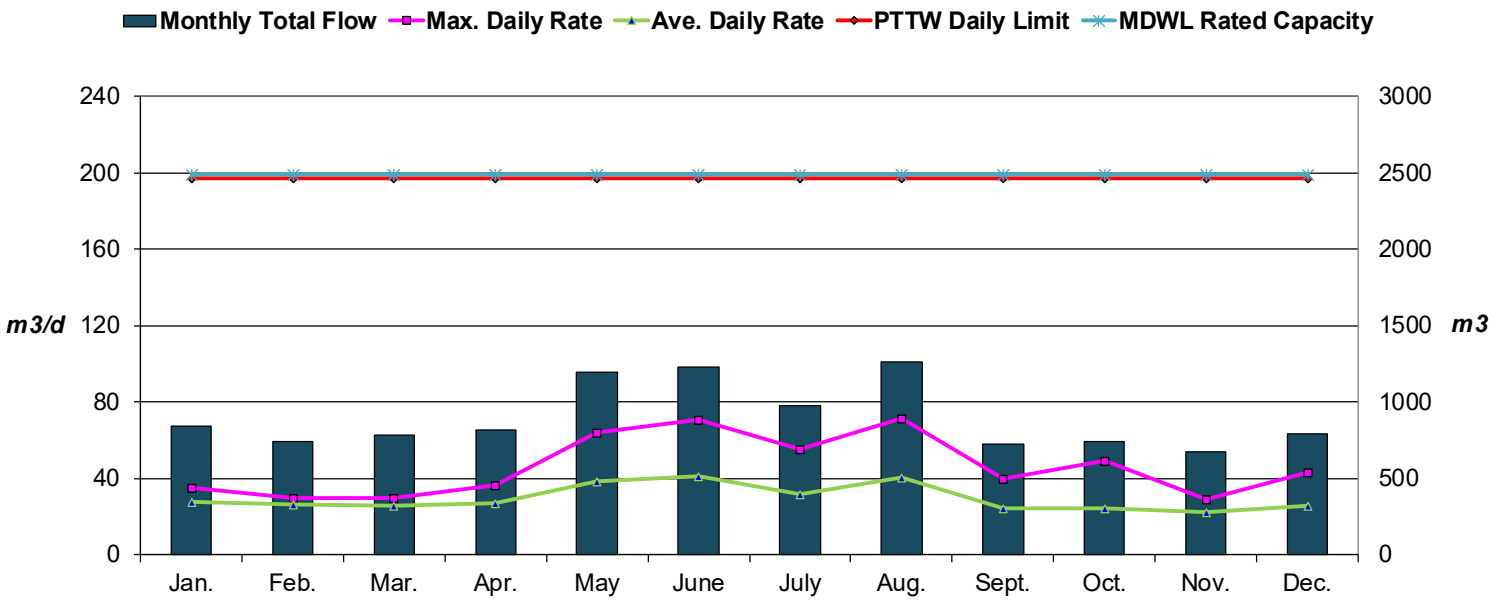
The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

TABLE 4-1: GREENSVILLE WELL (FDG01) - 2021 MONTHLY PRODUCTION (SUMMARY)

FDG01	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m^3	844	740	783	813	1,191	1,224	977	1,258	721	742	672	787
Average Daily Rate	m^3/d	27	26	25	27	38	41	32	41	24	24	22	25
Maximum Daily Rate	m^3/d	35	30	30	36	64	71	55	71	39	49	29	43
PTTW Daily Taking Limit	m^3/d	197	197	197	197	197	197	197	197	197	197	197	197
MDWL Daily Rated Capacity	m^3/d	199	199	199	199	199	199	199	199	199	199	199	199

MAINTAINED COMPLIANCE

FIGURE 4-1: GREENSVILLE WELL (FDG01) - 2021 MONTHLY PRODUCTION (SUMMARY)



WATER QUALITY DATA

MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
GREENSVILLE WELL FDG01 - RAW				
E.COLI	2021-01-06 to 2021-12-29	52	0	MPN/100mL
TOTAL COLIFORM	2021-01-06 to 2021-12-29	52	0 to 1	MPN/100mL
GREENSVILLE WELL FDG01 - TREATED				
E.COLI	2021-01-06 to 2021-12-29	52	ALL ABSENT	P/A/100mL
HPC	2021-01-06 to 2021-12-29	52	0 to 4	CFU/1mL
TOTAL COLIFORM	2021-01-06 to 2021-12-29	52	ALL ABSENT	P/A/100mL
DISTRIBUTION				
E.COLI	2021-08-19	3	0	MPN/100mL
E.COLI	2021-01-06 to 2021-12-29	96	ALL ABSENT	P/A/100mL
HPC	2021-01-06 to 2021-12-29	96	0 to 92	CFU/1mL
TOTAL COLIFORM	2021-08-19	3	0	MPN/100mL
TOTAL COLIFORM	2021-01-06 to 2021-12-29	96	1 DETECTION	P/A/100mL

OPERATIONAL TESTING DONE UNDER SCHEDULE 7, 8 OR 9 OF REGULATION 170/03 DURING THE PERIOD COVERED BY THIS ANNUAL REPORT.

NOTE: If results are obtained from continuous monitors, then 8760 is reported as the number of samples.

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
TURBIDITY - TREATED - FDG01	8760	0.02 to 0.79	NTU
FREE CHLORINE - TREATED	8760	1.12 to 3.51	mg/L
FREE CHLORINE - DISTRIBUTION	365	0.78 to 2.58	mg/L

SUMMARY OF ADDITIONAL TESTING AND SAMPLING CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENT OF A LICENCE, APPROVAL, ORDER OR OTHER LEGAL INSTRUMENT.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
N/A	-	-	-

SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
GREENSVILLE WELL FDG01 - TREATED				
ANTIMONY	2021-04-28 to 2021-10-20	<0.0001	mg/L	0
ARSENIC	2021-04-28 to 2021-10-20	0.0001	mg/L	0
BARIUM	2021-04-28 to 2021-10-20	0.147 to 0.170	mg/L	0
BORON	2021-04-28 to 2021-10-20	0.040 to 0.042	mg/L	0
CADMIUM	2021-04-28 to 2021-10-20	<0.0001	mg/L	0
CHROMIUM	2021-04-28 to 2021-10-20	0.0002	mg/L	0
FLUORIDE	2021-04-28 to 2021-10-20	0.10 to 0.11	mg/L	0
MERCURY	2021-04-28 to 2021-10-20	<0.05	ug/L	0
NITRATE AS N	2021-01-06 to 2021-12-08	5.75 to 6.55	mg/L	0
NITRITE AS N	2021-01-06 to 2021-12-08	<0.050	mg/L	0
SELENIUM	2021-04-28 to 2021-10-20	0.0003	mg/L	0
SODIUM	2021-04-28 to 2021-10-20	148 to 157	mg/L	0
URANIUM	2021-04-28 to 2021-10-20	0.629 to 0.649	ug/L	0

SUMMARY OF LEAD TESTING UNDER SCHEDULE 15.1 OF REGULATION 170/03 DURING THIS REPORTING PERIOD.

LOCATION TYPE	POINTS SAMPLED	LEAD SAMPLES TAKEN	pH & ALKALINITY SAMPLES TAKEN	pH RESULTS pH UNITS	ALKALINITY RESULTS mg/L	LEAD RESULTS mg/L	LEAD AWQIs	LEAD EXCEEDANCES
PLUMBING-NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PLUMBING-R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DISTRIBUTION	2	2	2	7.19 to 7.22	352 to 361	<0.0001	0	N/A

NR - Non Residential R - Residential

COVID regulatory relief for Schedule 15.1 lead testing was granted for all plumbing samples (residential & non-residential).

SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
GREENSVILLE WELL FDG01 - TREATED				
1,1-DICHLOROETHYLENE	2021-04-28 to 2021-10-20	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-28 to 2021-10-20	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-28 to 2021-10-20	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-28 to 2021-10-20	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-28	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-28	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-28	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-28	<0.15	ug/L	0
ALACHLOR	2021-04-28	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-28	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-28	<0.05	ug/L	0
BENZENE	2021-04-28 to 2021-10-20	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-28	<0.004	ug/L	0
BROMOXYNIL	2021-04-28	<0.33	ug/L	0
CARBARYL	2021-04-28	<0.05	ug/L	0
CARBOFURAN	2021-04-28	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-28 to 2021-10-20	<0.20	ug/L	0
CHLOROBENZENE	2021-04-28 to 2021-10-20	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-28	<0.02	ug/L	0
DIAZINON	2021-04-28	<0.02	ug/L	0
DICAMBA	2021-04-28	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-28 to 2021-10-20	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-28	<0.40	ug/L	0
DIMETHOATE	2021-04-28	<0.06	ug/L	0
DIQUAT	2021-04-28	<1	ug/L	0
DIURON	2021-04-28	<0.03	ug/L	0
ETHYLBENZENE	2021-04-28 to 2021-10-20	<0.33	ug/L	0
GLYPHOSATE	2021-04-28	<1	ug/L	0
MALATHION	2021-04-28	<0.02	ug/L	0

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SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
GREENSVILLE WELL FDG01 - TREATED				
MCPA (2-METHYL-4-CHLOROPHENOXYACETIC ACID)	2021-04-28	<0.00012	mg/L	0
METOLACHLOR	2021-04-28	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-28	<0.02	ug/L	0
PARAQUAT	2021-04-28	<1	ug/L	0
PCBS TOTAL	2021-04-28	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-28	<0.15	ug/L	0
PHORATE	2021-04-28	<0.01	ug/L	0
PICLORAM	2021-04-28	<1	ug/L	0
PROMETRYNE	2021-04-28	<0.03	ug/L	0
SIMAZINE	2021-04-28	<0.01	ug/L	0
TERBUFOS	2021-04-28	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-28 to 2021-10-20	<0.35	ug/L	0
TOLUENE	2021-04-28 to 2021-10-20	<0.36	ug/L	0
TRIALLATE	2021-04-28	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-28 to 2021-10-20	<0.44	ug/L	0
TRIFLURALIN	2021-04-28	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-28 to 2021-10-20	<0.20	ug/L	0
XYLENE	2021-04-28 to 2021-10-20	<0.50	ug/L	0
DISTRIBUTION				
TOTAL TRIHALOMETHANES*	Running annual average for the last four quarters.	18.4	ug/L	0
HALOACETIC ACIDS*	Running annual average for the last four quarters.	5.5	ug/L	0

* The Maximum Acceptable Concentration for Trihalomethanes and Haloacetic Acids in the distribution is based on a running average of the results from all sampling events in the past four quarters. This running average can be found in the result value column.

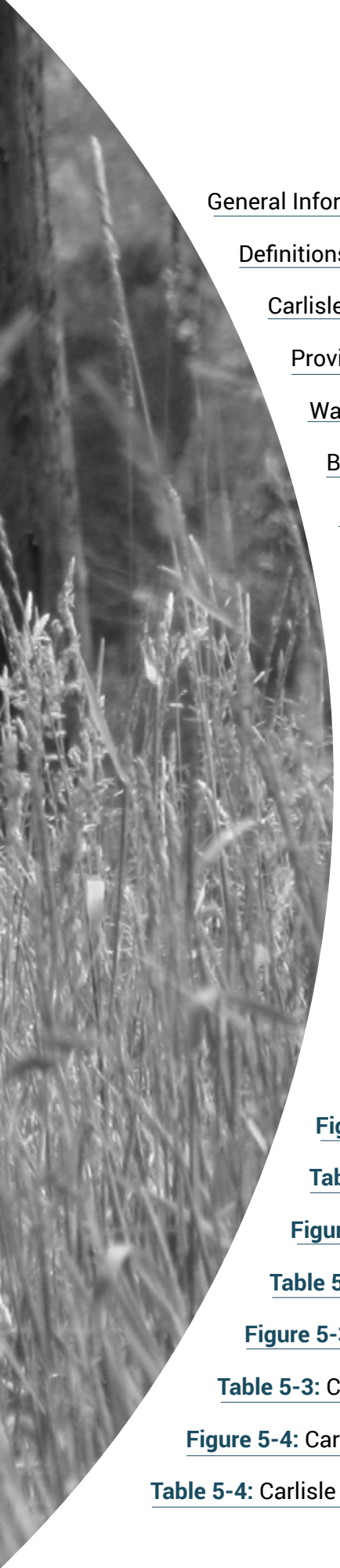
PARAMETERS EXCEEDING PRESCRIBED HALF-STANDARD

Summary of Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169/03).

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE
GREENSVILLE WELL FDG01- TREATED			
NITRATE	2021-01-06	6.29	mg/L
NITRATE	2021-02-02	6.20	mg/L
NITRATE	2021-02-03	6.17	mg/L
NITRATE	2021-03-03	6.04	mg/L
NITRATE	2021-04-07	6.45	mg/L
NITRATE	2021-04-28	6.21	mg/L
NITRATE	2021-05-05	6.33	mg/L
NITRATE	2021-06-09	5.99	mg/L
NITRATE	2021-07-07	6.24	mg/L
NITRATE	2021-07-28	6.20	mg/L
NITRATE	2021-08-04	6.11	mg/L
NITRATE	2021-09-01	5.83	mg/L
NITRATE	2021-10-06	6.55	mg/L
NITRATE	2021-10-20	6.03	mg/L
NITRATE	2021-11-03	6.16	mg/L
NITRATE	2021-12-08	5.75	mg/L

(Only if DWS category is large municipal residential, small municipal residential, large municipal non residential, non municipal year round residential, large non municipal non residential)

CARLISLE DRINKING WATER SYSTEM WATER QUALITY ANNUAL REPORT



GENERAL INFORMATION

The Carlisle water supply system consists of four wells, one elevated water storage tank, treatment, sampling and analysis, which services a population of approximately 1,833 people. The water source for the community of Carlisle is ground water. PTTW FDC01 & FDC02 was renewed March 1, 2021.

Water Wells:

- Carlisle Well FDC01 has a diameter of 157mm and a depth of approximately 42 metres.
- Carlisle Well FDC02 has a diameter of 300mm at a depth of 2.6 metres and a diameter of 250mm to a depth of 36 metres.
- Carlisle Well FDC03R has a diameter of 200mm and a depth of approximately 33.5 metres. It is a drilled ground water well under the influence of surface water (GUDI).
- Carlisle Well FDC05 has a diameter of 214mm and a depth of approximately 28 metres. It is a drilled ground water well under the influence of surface water (GUDI).

DEFINITIONS

AWQI: Adverse Water Quality Incident
CFU: Colony Forming Unit
HPC: Heterotrophic Plate Count
MDWL: Municipal Drinking Water Licence
mg/L: milligrams per litre
mL: millilitre
MPN: Most Probable Number
m^3: cubic metre
m^3/d: cubic metres per day
N/A: Not Applicable
NTU: Nephelometric Turbidity Units
P/A: Present/Absent
PTTW: Permit to Take Water
ug/L: micrograms per litre

Treatment:

- Within a treatment well house, both wells, FDC01 and FDC02 are joined to a common header for flow metering and disinfection. Sodium hypochlorite (chlorine) within a chlorine contact chamber is used to ensure disinfection of the water.
- Within the well house, both FDC03R and FDC05 discharges have separate flow metering, filtration and ultraviolet light disinfection streams. The flows are combined for treatment by sodium hypochlorite (chlorine) within a chlorine contact chamber to ensure disinfection of the water prior to entering the distribution system.
- Fluoridation is not carried out at any of the Carlisle community wells.

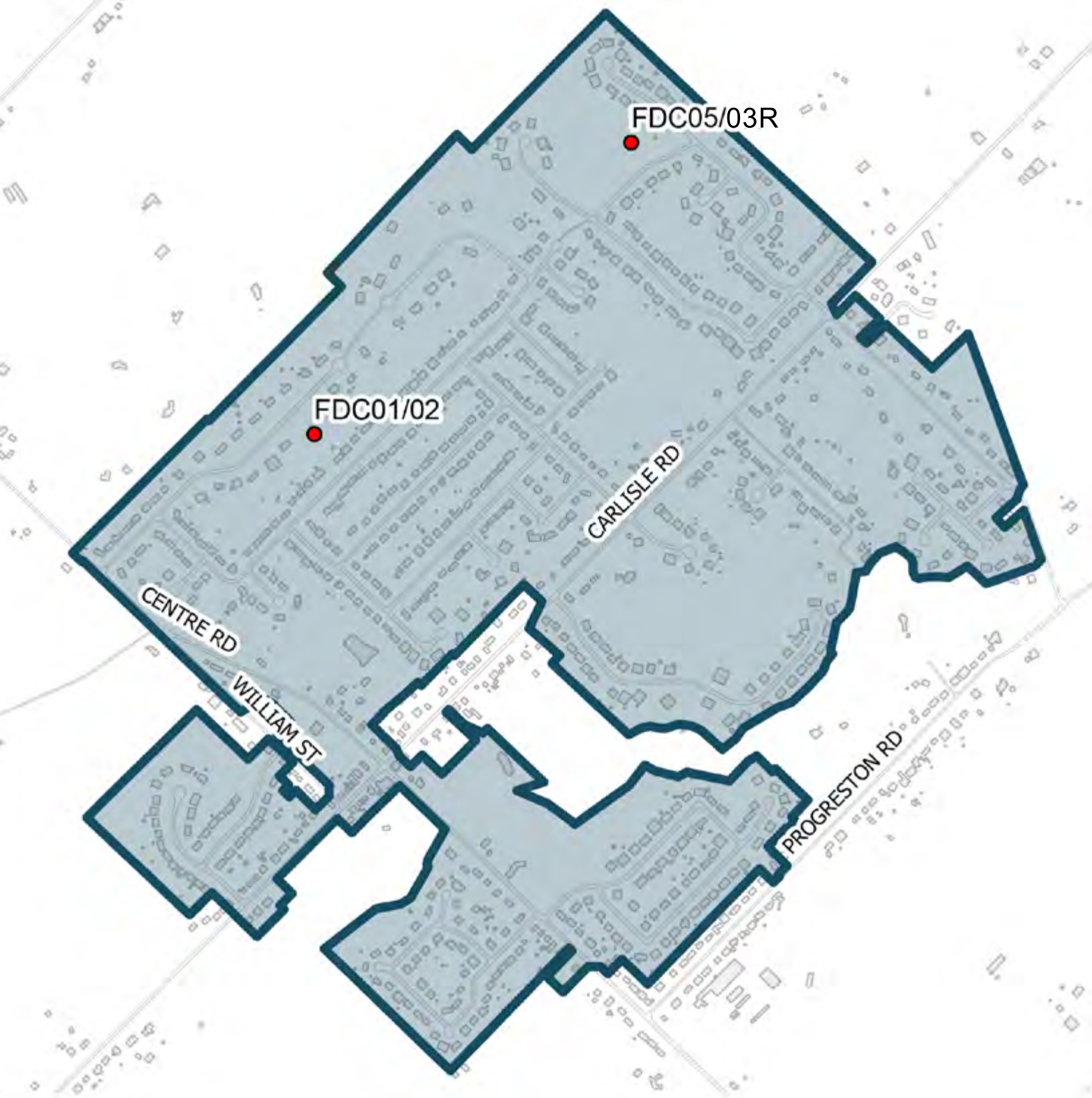
Water Storage:

An elevated water storage tank is located at the same site as wells FDC01 and FDC02. The storage tank has an operating capacity of 1,400m^3. It was designed for peak hour water demand equalization as well as fire and emergency storage.

Sampling & Analysis:

All wells are equipped with on-line chlorine residual and turbidity analyzers that continually monitor the treated water quality. Raw, treated and distribution water is sampled and analyzed weekly. In addition, chlorine residual in the distribution system is analyzed daily.

DRINKING WATER SYSTEM NUMBER	DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM OWNER	DRINKING WATER SYSTEM CATEGORY	PERIOD BEING REPORTED
220004108	Carlisle Drinking Water System FDC01, FDC02, FDC03R, FDC05	City of Hamilton	Large Municipal Residential	January 1, 2021 to December 31, 2021


FDC05/03R
FDC01/02
CARLISLE RD
CENTRE RD
WILLIAM ST
PROGRESTON RD

PROVISION OF DRINKING WATER TO OTHER MUNICIPALITIES

The following is a list of municipal drinking water systems which receive drinking water from the Carlisle System:

DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM NUMBER
None other than Carlisle System	220004108

A copy of this annual report is provided to all Drinking Water System owners that are connected to the system and to whom the City provides drinking water.

The City's customers are notified through the local newspaper that the annual report is available online free of charge at **www.hamilton.ca/waterquality**. A copy of the report can also be requested by contacting (905) 546-2489 or water@hamilton.ca.

WATER TREATMENT CHEMICALS USED DURING THIS REPORTING PERIOD

- Sodium Hypochlorite (chlorine)

BREAKDOWN OF SIGNIFICANT MONETARY EXPENSES

There were no significant expenses incurred for installing, repairing and replacing required equipment in 2021. There were no significant projects initiated or expenses to highlight for the Carlisle Drinking Water System in 2021.

ADVERSE TEST RESULTS AND REPORTABLE INCIDENTS

The following table outlines 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 the MECP Spills Action Centre.

NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
We are pleased to announce that there were no Adverse Water Quality Incidents for the period of January 1, 2021 to December 31, 2021			

MECP CARLISLE DRINKING WATER SYSTEM (DWS) INSPECTION FINDINGS AND SELF-DECLARED NON-COMPLIANCES

The following table is a Summary of Findings from the MECP Inspections and self-declared non-compliances found during the 2021 calendar year.

MECP INSPECTION REPORT, MARCH 8, 2021

#	FINDING TYPE	FINDING	STATUS
1	Recommendation	Install a screen at the FDC02 "Lobster Pot" vent.	Action complete
2	Recommendation	Consider installing blanks at the primary disinfection bypass valves to ensure that no water bypasses the disinfection process if one of the bypass valves was to leak.	Action complete
3	Recommendation	Disconnect an old pilot system from the FDC03R/05 treatment building.	Action complete
4	Recommendation	Install a sign at the truck fill line at the FDC03R/05 treatment building to remind personnel to use backflow prevention devices when filling trucks.	Action complete
5	Recommendation	Consider installing Transportation of Dangerous Goods (TDG) signs at the fuel oil and sodium hypochlorite delivery points to prevent confusion during chemical/fuel oil deliveries and help firefighters if they were ever called on site.	Action complete
6	Recommendation	Install "No Trespassing" signs at FDC01, FDC02, FDC03R and at the FDC01/02 treatment building. Also consider installing "No Pesticide" signs at FDC03R and FDC05 as they are GUDI wells.	Action complete
7	Recommendation	Install a 4-mesh screen at the Carlisle Tower overflow pipe.	Action complete
8	Recommendation	Modify work order templates used for recording the disinfection of equipment as per the Drinking Water Works Permit, Schedule B, Condition 2.3 and 2.3.1.	Action complete

WATER PRODUCTION REPORTS - SUMMARY

The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

TABLE 5-1: CARLISLE WELLS (FDC01 & FDC02) - 2021 MONTHLY PRODUCTION (SUMMARY)

FDC01 & 02	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m^3	2,438	1,679	2,181	2,114	5,039	4,833	637	382	2,428	1,603	1,733	1,450
Average Daily Rate	m^3/d	79	60	70	70	163	161	21	12	81	52	58	47
Maximum Daily Rate	m^3/d	699	220	229	268	602	448	274	276	210	168	210	134
PTTW & MDWL Daily Rated Capacity	m^3/d	851	851	851	851	851	851	851	851	851	851	851	851

MAINTAINED COMPLIANCE

FIGURE 5-1: CARLISLE WELLS (FDC01 & FDC02) - 2021 MONTHLY PRODUCTION (SUMMARY)

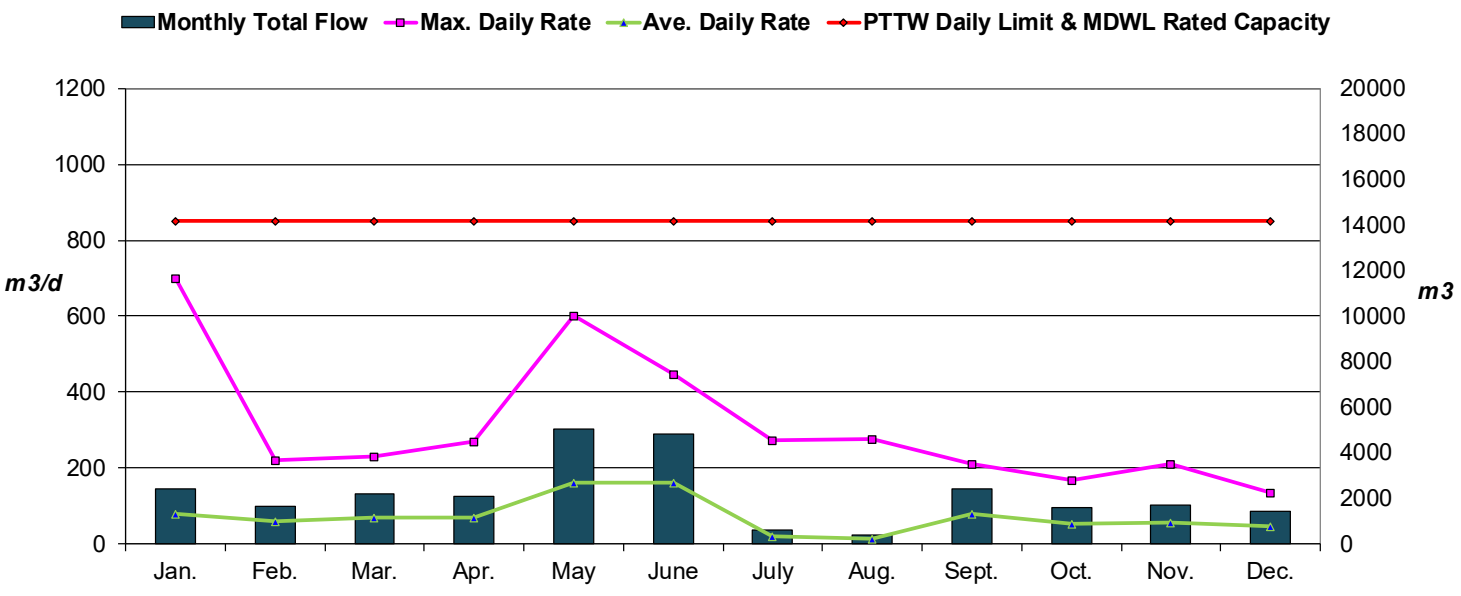


TABLE 5-2: CARLISLE WELL (FDC03R) - 2021 MONTHLY PRODUCTION (SUMMARY)

FDC03R	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m^3	7,565	3,734	5,769	4,886	15,366	20,613	17,605	24,268	11,000	5,734	6,507	5,806
Average Daily Rate	m^3/d	244	133	186	163	496	687	568	783	367	185	217	187
Maximum Daily Rate	m^3/d	616	511	485	539	1,363	1,072	976	1,252	957	715	539	670
PTTW Daily Taking Limit	m^3/d	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160

Note: Carlisle DWS FDC03R and FDC05 have a combined rated capacity of 3456m^3/day

MAINTAINED COMPLIANCE

FIGURE 5-2: CARLISLE WELL (FDC03R) - 2021 MONTHLY PRODUCTION (SUMMARY)

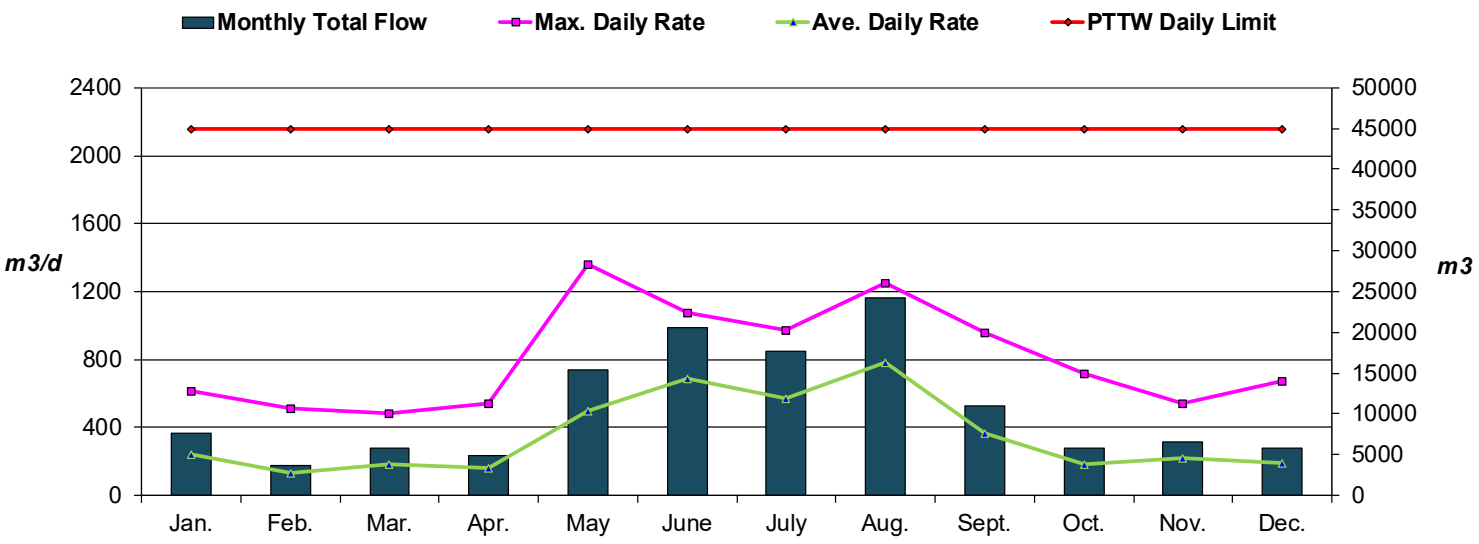


TABLE 5-3: CARLISLE WELL (FDC05) - 2021 MONTHLY PRODUCTION (SUMMARY)

FDC05	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m^3	4,451	7,413	6,668	8,621	14,334	15,364	8,421	12,227	10,171	6,705	3,697	5,645
Average Daily Rate	m^3/d	144	265	215	287	462	512	272	394	339	216	123	182
Maximum Daily Rate	m^3/d	478	617	566	739	1,069	1,049	682	776	824	651	490	665
PTTW Daily Taking Limit	m^3/d	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296

Note: Carlisle DWS FDC03R and FDC05 have a combined rated capacity of 3456m^3/day

FIGURE 5-3: CARLISLE WELL (FDC05) - 2021 MONTHLY PRODUCTION (SUMMARY)

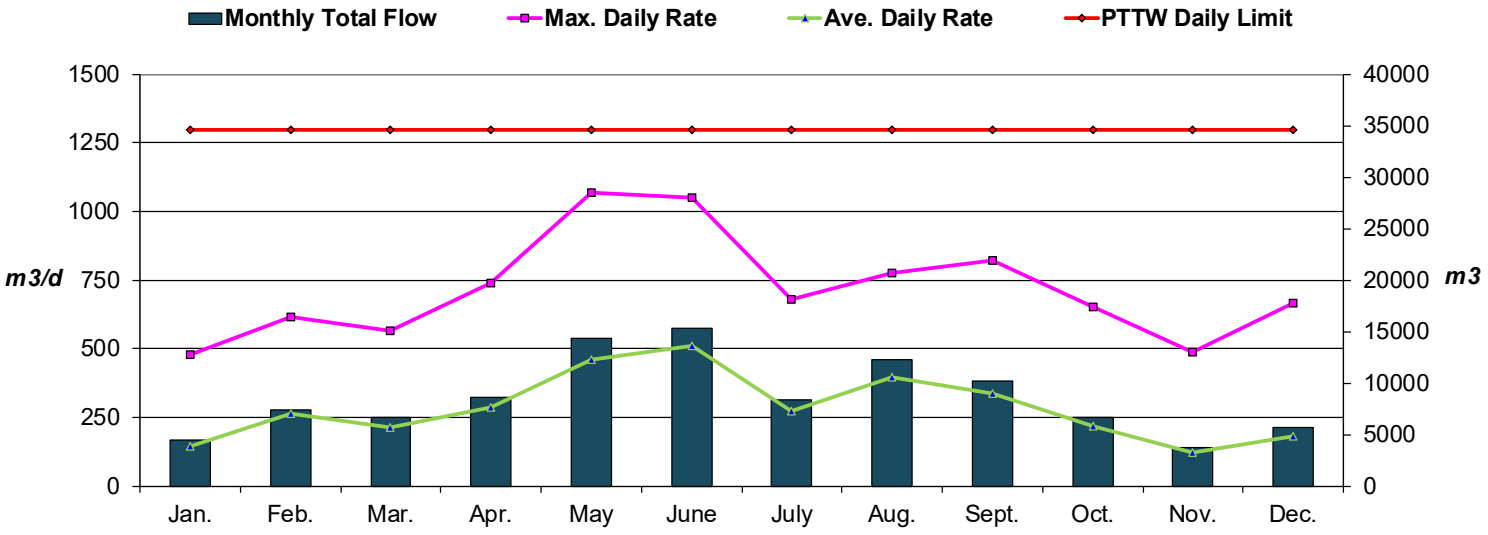
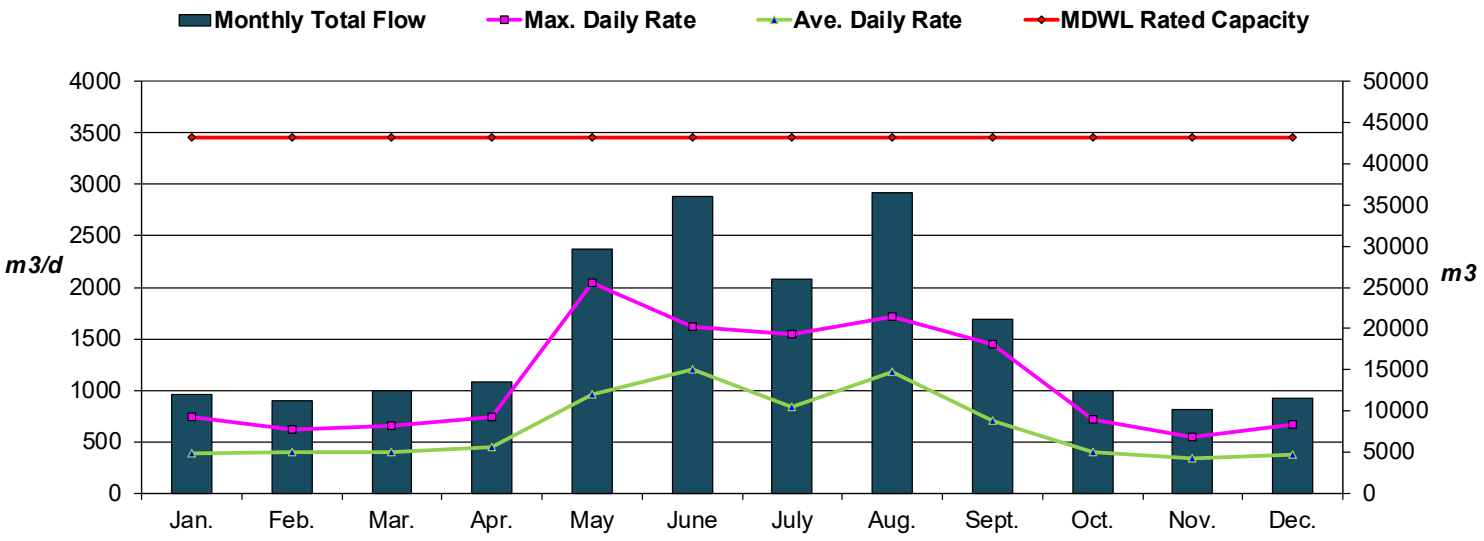


TABLE 5-4: CARLISLE WELL (FDC03R & FDC05) - 2021 MONTHLY PRODUCTION (SUMMARY)

FDC03R & FDC05	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m^3	12,017	11,148	12,437	13,507	29,701	35,977	26,026	36,496	21,171	12,439	10,204	11,451
Average Daily Rate	m^3/d	388	398	401	450	958	1,199	840	1,177	706	401	340	369
Maximum Daily Rate	m^3/d	738	617	653	739	2,045	1,622	1,538	1,715	1,450	715	539	670
MDWL Daily Rated Capacity	m^3/d	3,456	3,456	3,456	3,456	3,456	3,456	3,456	3,456	3,456	3,456	3,456	3,456

MAINTAINED COMPLIANCE

FIGURE 5-4: CARLISLE WELL (FDC03R & FDC05) - 2021 MONTHLY PRODUCTION (SUMMARY)



WATER QUALITY DATA

MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
CARLISLE WELL FDC01 - RAW				
E.COLI	2021-01-05 to 2021-12-28	49	0	MPN/100mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	49	0 to 3	MPN/100mL
CARLISLE WELL FDC02 - RAW				
E.COLI	2021-01-05 to 2021-12-28	48	0	MPN/100mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	48	0 to 3	MPN/100mL
CARLISLE WELL FDC03R - RAW				
E.COLI	2021-01-04 to 2021-12-27	52	0	MPN/100mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	52	0 to 1	MPN/100mL
CARLISLE WELL FDC05 - RAW				
E.COLI	2021-01-04 to 2021-12-27	52	0	MPN/100mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	52	0	MPN/100mL
CARLISLE WELL FDC01 - TREATED				
E.COLI	2021-01-05 to 2021-12-28	49	ALL ABSENT	P/A/100mL
HPC	2021-01-05 to 2021-12-28	49	0 to 2	CFU/1mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	49	ALL ABSENT	P/A/100mL
CARLISLE WELL FDC02 - TREATED				
E.COLI	2021-01-05 to 2021-12-28	48	ALL ABSENT	P/A/100mL
HPC	2021-01-05 to 2021-12-28	48	0	CFU/1mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	48	ALL ABSENT	P/A/100mL
CARLISLE WELL FDC03R - TREATED				
E.COLI	2021-01-04 to 2021-12-27	52	ALL ABSENT	P/A/100mL
HPC	2021-01-04 to 2021-12-27	52	0 to 1	CFU/1mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	52	ALL ABSENT	P/A/100mL
CARLISLE WELL FDC05 - TREATED				
E.COLI	2021-01-04 to 2021-12-27	52	ALL ABSENT	P/A/100mL
HPC	2021-01-04 to 2021-12-27	52	0 to 3	CFU/1mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	52	ALL ABSENT	P/A/100mL

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MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
DISTRIBUTION				
E.COLI	2021-01-04 to 2021-12-28	203	ALL ABSENT	P/A/100mL
HPC	2021-01-04 to 2021-12-28	203	0 to 15	CFU/1mL
TOTAL COLIFORM	2021-01-04 to 2021-12-28	203	ALL ABSENT	P/A/100mL

OPERATIONAL TESTING DONE UNDER SCHEDULE 7, 8 OR 9 OF REGULATION 170/03 DURING THE PERIOD COVERED BY THIS ANNUAL REPORT.

NOTE: If results are obtained from continuous monitors, then 8760 is reported as the number of samples.

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
TURBIDITY - RAW - FDC01	49	0.06 to 4.76	NTU
TURBIDITY - RAW - FDC02	48	0.05 to 0.86	NTU
TURBIDITY - TREATED - FDC03R	8760	0.02 to 0.38	NTU
TURBIDITY - TREATED - FDC05	8760	0.04 to 0.31	NTU
FREE CHLORINE - TREATED - FDC01 AND FDC02	8760	0.98 to 2.79	mg/L
FREE CHLORINE - TREATED - FDC03R AND FDC05	8760	0.99 to 2.68	mg/L
FREE CHLORINE - DISTRIBUTION	365	1.22 to 2.10	mg/L

SUMMARY OF ADDITIONAL TESTING AND SAMPLING CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENT OF A LICENCE, APPROVAL, ORDER OR OTHER LEGAL INSTRUMENT.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
N/A	-	-	-

SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
CARLISLE WELL FDC01 - TREATED				
ANTIMONY	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
ARSENIC	2021-04-27 to 2021-10-22	0.0002	mg/L	0
BARIUM	2021-04-27 to 2021-10-22	0.0904 to 0.0941	mg/L	0
BORON	2021-04-27 to 2021-10-22	0.016 to 0.017	mg/L	0
CADMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
CHROMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
FLUORIDE	2021-04-27 to 2021-10-22	0.07	mg/L	0
MERCURY	2021-04-27 to 2021-10-22	<0.05	ug/L	0
NITRATE AS N	2021-02-03 to 2021-10-22	0.83 to 2.22	mg/L	0
NITRITE AS N	2021-02-03 to 2021-10-22	<0.010	mg/L	0
SELENIUM	2021-04-27 to 2021-10-22	0.0002	mg/L	0
SODIUM	2021-04-27 to 2021-10-22	16.7 to 18.0	mg/L	0
URANIUM	2021-04-27 to 2021-10-22	0.449 to 0.471	ug/L	0
CARLISLE WELL FDC02 - TREATED				
ANTIMONY	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
ARSENIC	2021-04-27 to 2021-10-22	0.0002	mg/L	0
BARIUM	2021-04-27 to 2021-10-22	0.0909 to 0.0922	mg/L	0
BORON	2021-04-27 to 2021-10-22	0.014 to 0.019	mg/L	0
CADMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
CHROMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
FLUORIDE	2021-04-27 to 2021-10-22	0.07	mg/L	0
MERCURY	2021-04-27 to 2021-10-22	<0.05	ug/L	0
NITRATE AS N	2021-02-03 to 2021-10-27	1.94 to 2.94	mg/L	0
NITRITE AS N	2021-02-03 to 2021-10-27	<0.05	mg/L	0
SELENIUM	2021-04-27 to 2021-10-22	0.0002	mg/L	0
SODIUM	2021-04-27 to 2021-10-22	23.2 to 26.0	mg/L	0
URANIUM	2021-04-27 to 2021-10-22	0.448 to 0.469	ug/L	0

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SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
CARLISLE WELL FDC03R - TREATED				
ANTIMONY	2021-04-27 to 2021-10-22	0.0001 to 0.0002	mg/L	0
ARSENIC	2021-04-27 to 2021-10-22	0.0004 to 0.0006	mg/L	0
BARIUM	2021-04-27 to 2021-10-22	0.0786 to 0.0795	mg/L	0
BORON	2021-04-27 to 2021-10-22	0.021 to 0.025	mg/L	0
CADMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
CHROMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
FLUORIDE	2021-04-27 to 2021-10-22	0.07	mg/L	0
MERCURY	2021-04-27 to 2021-10-22	<0.05	ug/L	0
NITRATE AS N	2021-02-03 to 2021-10-22	0.080 to 0.404	mg/L	0
NITRITE AS N	2021-02-03 to 2021-10-22	<0.010	mg/L	0
SELENIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
SODIUM	2021-04-27 to 2021-10-22	46.8 to 49.4	mg/L	0
URANIUM	2021-04-27 to 2021-10-22	0.583 to 0.642	ug/L	0
CARLISLE WELL FDC05 - TREATED				
ANTIMONY	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
ARSENIC	2021-04-27 to 2021-10-22	0.0009	mg/L	0
BARIUM	2021-04-27 to 2021-10-22	0.0749 to 0.0779	mg/L	0
BORON	2021-04-27 to 2021-10-22	0.021 to 0.027	mg/L	0
CADMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
CHROMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
FLUORIDE	2021-04-27 to 2021-10-22	0.07	mg/L	0
MERCURY	2021-04-27 to 2021-10-22	<0.05	ug/L	0
NITRATE AS N	2021-02-03 to 2021-10-22	<0.02 to 0.070	mg/L	0
NITRITE AS N	2021-02-03 to 2021-10-22	<0.010	mg/L	0
SELENIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
SODIUM	2021-04-27 to 2021-10-22	51.2 to 53.7	mg/L	0
URANIUM	2021-04-27 to 2021-10-22	0.425 to 0.433	ug/L	0

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SUMMARY OF LEAD TESTING UNDER SCHEDULE 15.1 OF REGULATION 170/03 DURING THIS REPORTING PERIOD.

LOCATION TYPE	POINTS SAMPLED	LEAD SAMPLES TAKEN	pH & ALKALINITY SAMPLES TAKEN	pH RESULTS pH UNITS	ALKALINITY RESULTS mg/L	LEAD RESULTS mg/L	LEAD AWQIs	LEAD EXCEEDANCES
PLUMBING-NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PLUMBING-R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DISTRIBUTION	4	4	4	7.22 to 7.38	321 to 328	0.0002 to 0.0013	0	N/A

NR - Non Residential R- Residential

COVID regulatory relief for Schedule 15.1 lead testing was granted for all plumbing samples (residential & non-residential).

SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
CARLISLE WELL FDC01 - TREATED				
1,1-DICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-27	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-27	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-27	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-27	<0.15	ug/L	0
ALACHLOR	2021-04-27	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-27	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-27	<0.05	ug/L	0
BENZENE	2021-04-27 to 2021-10-22	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-27	<0.004	ug/L	0
BROMOXYNIL	2021-04-27	<0.33	ug/L	0
CARBARYL	2021-04-27	<0.05	ug/L	0
CARBOFURAN	2021-04-27	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
CHLOROBENZENE	2021-04-27 to 2021-10-22	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-27	<0.02	ug/L	0
DIAZINON	2021-04-27	<0.02	ug/L	0
DICAMBA	2021-04-27	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-27	<0.40	ug/L	0
DIMETHOATE	2021-04-27	<0.06	ug/L	0
DIQUAT	2021-04-27	<1	ug/L	0
DIURON	2021-04-27	<0.03	ug/L	0
ETHYLBENZENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
GLYPHOSATE	2021-04-27	<1	ug/L	0
MALATHION	2021-04-27	<0.02	ug/L	0
MCPA (2-METHYL-4-CHLOROPHE-NOXYACETIC ACID)	2021-04-27	<0.00012	mg/L	0

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SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
CARLISLE WELL FDC01 - TREATED				
METOLACHLOR	2021-04-27	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-27	<0.02	ug/L	0
PARAQUAT	2021-04-27	<1	ug/L	0
PCBS TOTAL	2021-04-27	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-27	<0.15	ug/L	0
PHORATE	2021-04-27	<0.01	ug/L	0
PICLORAM	2021-04-27	<1	ug/L	0
PROMETRYNE	2021-04-27	<0.03	ug/L	0
SIMAZINE	2021-04-27	<0.01	ug/L	0
TERBUFOS	2021-04-27	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
TOLUENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
TRIALLATE	2021-04-27	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.44	ug/L	0
TRIFLURALIN	2021-04-27	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
XYLENE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
CARLISLE WELL FDC02 - TREATED				
1,1-DICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-27	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-27	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-27	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-27	<0.15	ug/L	0
ALACHLOR	2021-04-27	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-27	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-27	<0.05	ug/L	0
BENZENE	2021-04-27 to 2021-10-22	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-27	<0.004	ug/L	0

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SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
CARLISLE WELL FDC02 - TREATED				
BROMOXYNIL	2021-04-27	<0.33	ug/L	0
CARBARYL	2021-04-27	<0.05	ug/L	0
CARBOFURAN	2021-04-27	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
CHLOROBENZENE	2021-04-27 to 2021-10-22	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-27	<0.02	ug/L	0
DIAZINON	2021-04-27	<0.02	ug/L	0
DICAMBA	2021-04-27	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-27	<0.40	ug/L	0
DIMETHOATE	2021-04-27	<0.06	ug/L	0
DIQUAT	2021-04-27	<1	ug/L	0
DIURON	2021-04-27	<0.03	ug/L	0
ETHYLBENZENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
GLYPHOSATE	2021-04-27	<1	ug/L	0
MALATHION	2021-04-27	<0.02	ug/L	0
MCPA (2-METHYL-4-CHLORO-PHENOXYACETIC ACID)	2021-04-27	<0.00012	mg/L	0
METOLACHLOR	2021-04-27	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-27	<0.02	ug/L	0
PARAQUAT	2021-04-27	<1	ug/L	0
PCBS TOTAL	2021-04-27	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-27	<0.15	ug/L	0
PHORATE	2021-04-27	<0.01	ug/L	0
PICLORAM	2021-04-27	<1	ug/L	0
PROMETRYNE	2021-04-27	<0.03	ug/L	0
SIMAZINE	2021-04-27	<0.01	ug/L	0
TERBUFOS	2021-04-27	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
TOLUENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
TRIALLATE	2021-04-27	<0.01	ug/L	0

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SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
CARLISLE WELL FDC02 - TREATED				
TRICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.44	ug/L	0
TRIFLURALIN	2021-04-27	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
XYLENE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
CARLISLE WELL FDC03R - TREATED				
1,1-DICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-27	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-27	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-27	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-27	<0.15	ug/L	0
ALACHLOR	2021-04-27	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-27	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-27	<0.05	ug/L	0
BENZENE	2021-04-27 to 2021-10-22	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-27	<0.004	ug/L	0
BROMOXYNIL	2021-04-27	<0.33	ug/L	0
CARBARYL	2021-04-27	<0.05	ug/L	0
CARBOFURAN	2021-04-27	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
CHLOROBENZENE	2021-04-27 to 2021-10-22	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-27	<0.02	ug/L	0
DIAZINON	2021-04-27	<0.02	ug/L	0
DICAMBA	2021-04-27	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-27	<0.40	ug/L	0
DIMETHOATE	2021-04-27	<0.06	ug/L	0
DIQUAT	2021-04-27	<1	ug/L	0

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SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
CARLISLE WELL FDC03R - TREATED				
DIURON	2021-04-27	<0.03	ug/L	0
ETHYLBENZENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
GLYPHOSATE	2021-04-27	<1	ug/L	0
MALATHION	2021-04-27	<0.02	ug/L	0
MCPA (2-METHYL-4-CHLOROPHE-NOXYACETIC ACID)	2021-04-27	<0.00012	mg/L	0
METOLACHLOR	2021-04-27	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-27	<0.02	ug/L	0
PARAQUAT	2021-04-27	<1	ug/L	0
PCBS TOTAL	2021-04-27	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-27	<0.15	ug/L	0
PHORATE	2021-04-27	<0.01	ug/L	0
PICLORAM	2021-04-27	<1	ug/L	0
PROMETRYNE	2021-04-27	<0.03	ug/L	0
SIMAZINE	2021-04-27	<0.01	ug/L	0
TERBUFOS	2021-04-27	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
TOLUENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
TRIALLATE	2021-04-27	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.44	ug/L	0
TRIFLURALIN	2021-04-27	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
XYLENE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
CARLISLE WELL FDC05 - TREATED				
1,1-DICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-27	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-27	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-27	<0.19	ug/L	0

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SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
CARLISLE WELL FDC05 - TREATED				
2,4-DICHLOROPHENOL	2021-04-27	<0.15	ug/L	0
ALACHLOR	2021-04-27	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-27	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-27	<0.05	ug/L	0
BENZENE	2021-04-27 to 2021-10-22	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-27	<0.004	ug/L	0
BROMOXYNIL	2021-04-27	<0.33	ug/L	0
CARBARYL	2021-04-27	<0.05	ug/L	0
CARBOFURAN	2021-04-27	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
CHLOROBENZENE	2021-04-27 to 2021-10-22	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-27	<0.02	ug/L	0
DIAZINON	2021-04-27	<0.02	ug/L	0
DICAMBA	2021-04-27	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-27	<0.40	ug/L	0
DIMETHOATE	2021-04-27	<0.06	ug/L	0
DIQUAT	2021-04-27	<1	ug/L	0
DIURON	2021-04-27	<0.03	ug/L	0
ETHYLBENZENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
GLYPHOSATE	2021-04-27	<1	ug/L	0
MALATHION	2021-04-27	<0.02	ug/L	0
MCPA (2-METHYL-4-CHLORO-PHENOXYACETIC ACID)	2021-04-27	<0.00012	mg/L	0
METOLACHLOR	2021-04-27	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-27	<0.02	ug/L	0
PARAQUAT	2021-04-27	<1	ug/L	0
PCBS TOTAL	2021-04-27	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-27	<0.15	ug/L	0
PHORATE	2021-04-27	<0.01	ug/L	0
PICLORAM	2021-04-27	<1	ug/L	0

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SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
CARLISLE WELL FDC05 - TREATED				
PROMETRYNE	2021-04-27	<0.03	ug/L	0
SIMAZINE	2021-04-27	<0.01	ug/L	0
TERBUFOS	2021-04-27	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
TOLUENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
TRIALLATE	2021-04-27	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.44	ug/L	0
TRIFLURALIN	2021-04-27	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
XYLENE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DISTRIBUTION				
TOTAL TRIHALOMETHANES*	Running annual average for the last four quarters.	15.0	ug/L	0
HALOACETIC ACIDS*	Running annual average for the last four quarters.	5.4	ug/L	0

* The Maximum Acceptable Concentration for Trihalomethanes and Haloacetic Acids in the distribution system is based on a running average of the results from all sampling events in the past four quarters. This running average can be found in the result value column.

PARAMETERS EXCEEDING PRESCRIBED HALF-STANDARD

There were no Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169/03)

LYNDEN DRINKING WATER SYSTEM WATER QUALITY ANNUAL REPORT

Photo: Chris Maillet, Bennett Mechanical Installations (2001) LTD

GENERAL INFORMATION

The Lynden water supply system consists of two wells, one reservoir, treatment, sampling and analysis, which services a population of approximately 393 people. The water source for the community of Lynden is ground water.

The construction of a new Lynden well (FDL03), water treatment plant and storage facility was complete and started providing water to the Lynden DWS on July 9, 2020. This project represents over a $7 million investment and provides clean drinking water, redundancy of equipment and ensures security of supply for the Lynden community.

Water Wells:

- Lynden Well FDL01 has a diameter of 200mm at a depth of approximately 54.6 metres.
- Lynden Well FDL03 has a diameter of 200mm at a depth of 52 metres.

Treatment:

Within a treatment well house, both wells, FDL01 and FDL03 are joined to a common header for flow metering and disinfection. The treatment plant includes air stripper, transfer pumping, a cartridge filter, CO2 injection system followed by a static mixer for pH adjustment prior to the aeration tank. Sodium hypochlorite (chlorine) within the reservoir is used to ensure disinfection of the water. Fluoridation is not carried out at any of the Lynden community wells.

DEFINITIONS

AWQI: Adverse Water Quality Incident

CFU: Colony Forming Unit

HPC: Heterotrophic Plate Count

MDWL: Municipal Drinking Water Licence

mg/L: milligrams per litre

mL: millilitre

MPN: Most Probable Number

m^3: cubic metre

m^3/d: cubic metres per day

N/A: Not Applicable

NTU: Nephelometric Turbidity Units

P/A: Present/Absent

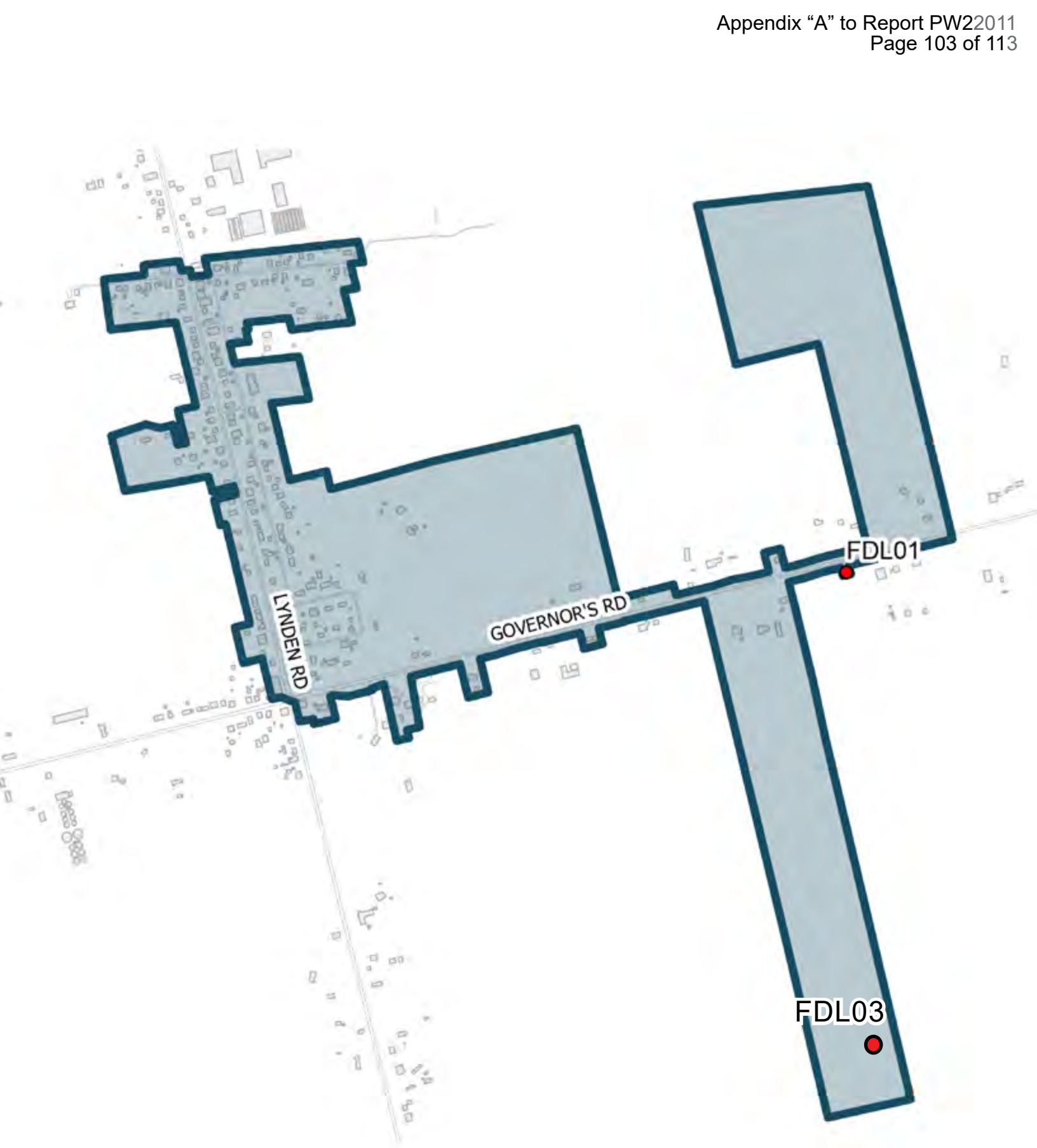
PTTW: Permit to Take Water

ug/L: micrograms per litre

Sampling & Analysis:

All wells are equipped with on-line chlorine residual and turbidity analyzers that continually monitor the treated water quality. Raw, treated and distribution water is sampled and analyzed weekly. In addition, chlorine residual in the distribution system is analyzed daily.

DRINKING WATER SYSTEM NUMBER	DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM OWNER	DRINKING WATER SYSTEM CATEGORY	PERIOD BEING REPORTED
250001830	Lynden Drinking Water System FDL01	City of Hamilton	Large Municipal Residential	January 1, 2021 to December 31, 2021


FDL01
GOVERNOR'S RD
LYNDEN RD
FDL03

PROVISION OF DRINKING WATER TO OTHER MUNICIPALITIES

The following is a list of municipal drinking water systems which receive drinking water from the Lynden System:

DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM NUMBER
None other than Lynden System	250001830

A copy of this annual report is provided to all Drinking Water System owners that are connected to the system and to whom the City provides drinking water.

The City's customers are notified through the local newspaper that the annual report is available online free of charge at **www.hamilton.ca/waterquality**. A copy of the report can also be requested by contacting (905) 546-2489 or water@hamilton.ca.

WATER TREATMENT CHEMICALS USED DURING THIS REPORTING PERIOD

- Sodium Hypochlorite (chlorine)

BREAKDOWN OF SIGNIFICANT MONETARY EXPENSES

The following table highlights the significant expenses that were incurred for the installation of required equipment in 2021. There were no significant expenses related to the replacement or repair of equipment in 2021.
Lynden Municipal Well (FDL01) Drainage Mitigation - $10,096

ADVERSE TEST RESULTS AND REPORTABLE INCIDENTS

The following table outlines 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 the MECP Spills Action Centre. In August 2021, the Drinking Water Advisory (DWA) for Lead was lifted by City of Hamilton Public Health Services. Corrective action was carried out and the safety of the drinking water supply was verified to the satisfaction of the Medical Officer of Health for the City of Hamilton.

NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
We are pleased to announce that there were no Adverse Water Quality Incidents for the period of January 1, 2021 to December 31, 2021			

MECP LYNDEN DRINKING WATER SYSTEM (DWS) INSPECTION FINDINGS AND SELF-DECLARED NON-COMPLIANCES

The following table is a Summary of Findings from the MECP Inspections and self-declared non-compliances found during the 2021 calendar year.

MECP INSPECTION REPORT, MARCH 19, 2021

#	Finding Type	Finding	Status
1 & 2	Recommendation	Implement a sampling plan / program to conduct routine checks for chlorine residuals at the extremities and "dead ends" of the distribution system. Plan is in place.	No action required
3	Recommendation	Confirm if all consumers are fully metered and conduct a water use and loss audit, comprised of an assessment of production volumes versus authorized consumption to determine the percentage of water loss in the distribution system including a summary of recommended actions to reduce the amount of water loss, if applicable.	Action complete
4	Recommendation	Modify work order templates used for recording the disinfection of equipment as per the Drinking Water Works Permit, Schedule B, Condition 2.3 and 2.3.1.	Action complete
5	Recommendation	Review operational procedures to reduce the potential for THM formation.	Action in progress

WATER PRODUCTION REPORTS - SUMMARY

The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

TABLE 6-1: LYNDEN WELL (FDL01) - 2021 MONTHLY PRODUCTION (SUMMARY)

FDL01	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m^3	0	0	0	0	0	0	0	0	0	0	0	0
Average Daily Rate	m^3/d	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Daily Rate	m^3/d	0	0	0	0	0	0	0	0	0	0	0	0
PTTW Daily Taking Limit	m^3/d	327	327	327	327	327	327	327	327	327	327	327	327

NOTE: Lynden Well FDL01 has not been used for production since July 2020.

MAINTAINED COMPLIANCE

FIGURE 6-1: LYNDEN WELL (FDL01) - 2021 MONTHLY PRODUCTION (SUMMARY)

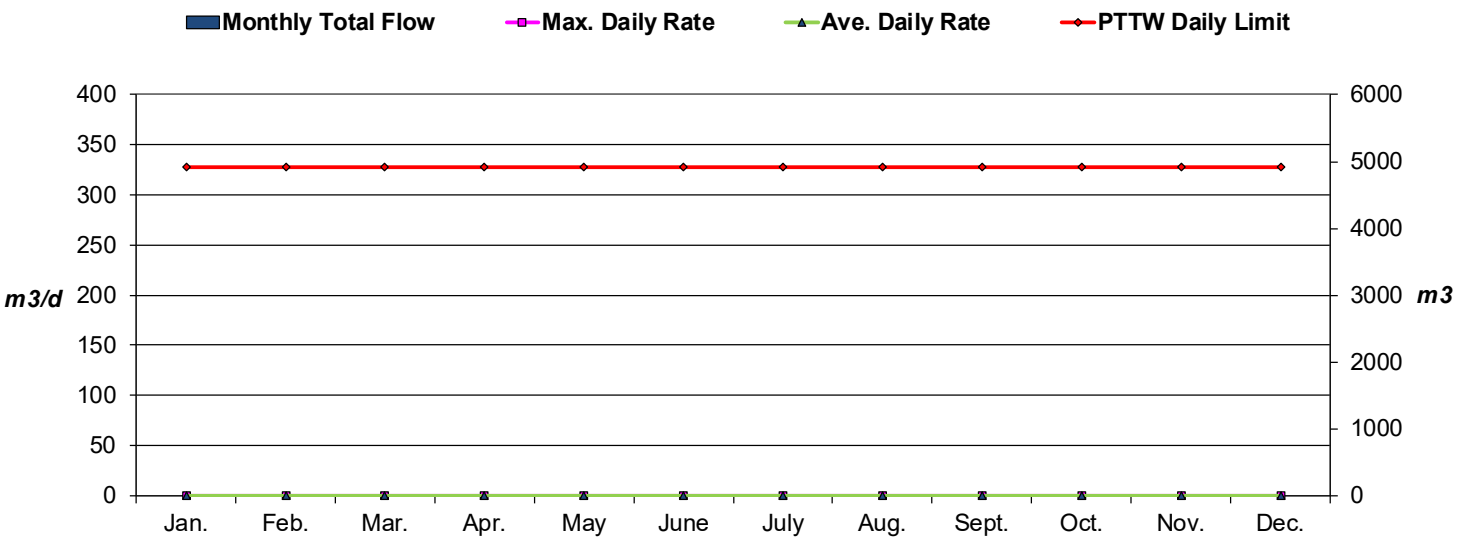


TABLE 6-2: LYNDEN WELL (FDL03) - 2021 MONTHLY PRODUCTION (SUMMARY)

FDL03	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m^3	2,979	2,541	2,780	2,581	3,557	3,260	2,818	2,665	2,383	2,404	2,484	2,687
Average Daily Rate	m^3/d	96	91	90	86	115	109	91	86	79	78	83	87
Maximum Daily Rate	m^3/d	132	141	235	140	256	185	122	130	126	108	128	116
PTTW Daily Taking Limit	m^3/d	518	518	518	518	518	518	518	518	518	518	518	518

MAINTAINED COMPLIANCE

FIGURE 6-2: LYNDEN WELL (FDL03) - 2021 MONTHLY PRODUCTION (SUMMARY)

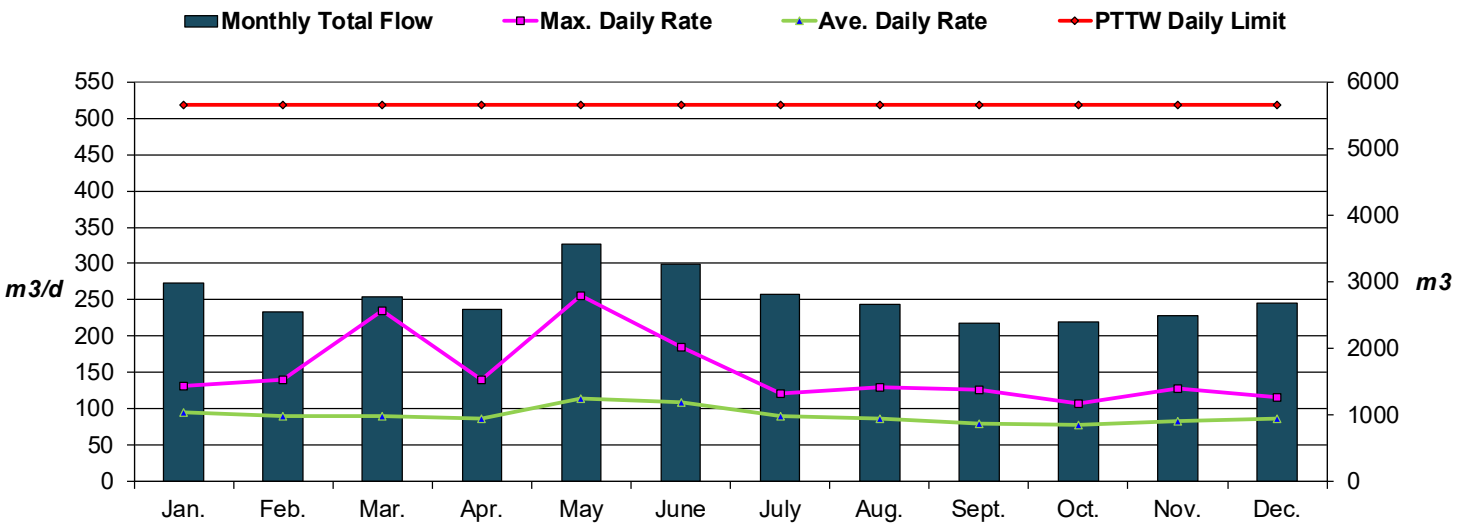


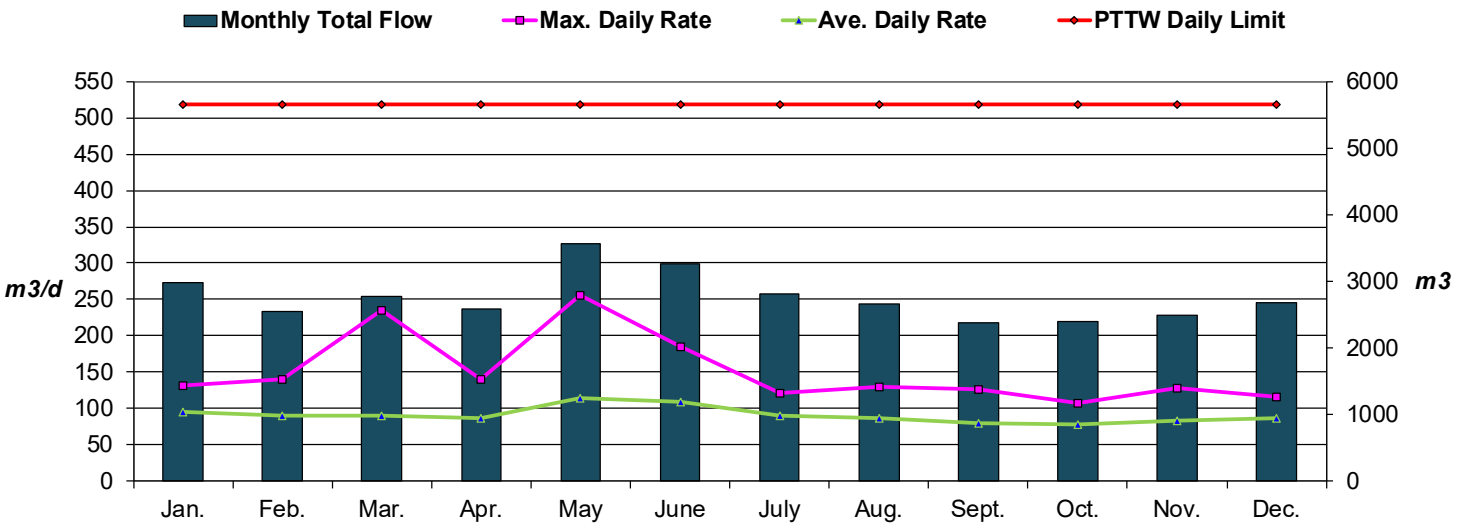
TABLE 6-3: LYNDEN WELL (FDL01 & FDL03) - 2021 MONTHLY PRODUCTION (SUMMARY)

FDL01 & FDL03	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m^3	2,979	2,541	2,780	2,581	3,557	3,260	2,818	2,665	2,383	2,404	2,484	2,687
Average Daily Rate	m^3/d	96	91	90	86	115	109	91	86	79	78	83	87
Maximum Daily Rate	m^3/d	132	141	235	140	256	185	122	130	126	108	128	116
PTTW Daily Taking Limit	m^3/d	518	518	518	518	518	518	518	518	518	518	518	518
MDWL Daily Rated Capacity	m^3/d	327	327	327	327	327	327	327	327	327	327	327	327

NOTE: Lynden Well FDL01 has not been used for production since July 2020.

MAINTAINED COMPLIANCE

FIGURE 6-3: LYNDEN WELL (FDL01 & FDL03) - 2021 MONTHLY PRODUCTION (SUMMARY)



WATER QUALITY DATA

MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
LYNDEN WELL FDL03 - RAW				
E.COLI	2021-01-06 to 2021-12-29	52	0	MPN/100mL
TOTAL COLIFORM	2021-01-06 to 2021-12-29	52	0 to 2	MPN/100mL
LYNDEN WELL FDL03 - TREATED				
E.COLI	2021-01-06 to 2021-12-29	52	ALL ABSENT	P/A/100mL
HPC	2021-01-06 to 2021-12-29	52	0 to 1	CFU/1mL
TOTAL COLIFORM	2021-01-06 to 2021-12-29	52	ALL ABSENT	P/A/100mL
DISTRIBUTION				
E.COLI	2021-01-06 to 2021-12-29	154	ALL ABSENT	P/A/100mL
HPC	2021-01-06 to 2021-12-29	154	0 to 23	CFU/1mL
TOTAL COLIFORM	2021-01-06 to 2021-12-29	154	ALL ABSENT	P/A/100mL

OPERATIONAL TESTING DONE UNDER SCHEDULE 7, 8 OR 9 OF REGULATION 170/03 DURING THE PERIOD COVERED BY THIS ANNUAL REPORT.

NOTE: If results are obtained from continuous monitors, then 8760 is reported as the number of samples.

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
TURBIDITY - RAW - FDL03	53	0.13 to 0.82	NTU
FREE CHLORINE - TREATED - FDL03	8760	0.75 to 4.33	mg/L
FREE CHLORINE - DISTRIBUTION	365	0.41 to 3.64	mg/L

SUMMARY OF ADDITIONAL TESTING AND SAMPLING CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENT OF A LICENCE, APPROVAL, ORDER OR OTHER LEGAL INSTRUMENT.

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
LEAD - TREATED - FDL03	16	2021-01-06 to 2021-08-04	<0.0001	mg/L
LEAD - DISTRIBUTION	48	2021-01-06 to 2021-08-04	<0.0001 to 0.0002	mg/L

SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
LYNDEN WELL FDL03 - TREATED				
ANTIMONY	2021-04-28 to 2021-10-20	<0.0001	mg/L	0
ARSENIC	2021-04-28 to 2021-10-20	0.0006	mg/L	0
BARIUM	2021-02-02 to 2021-10-20	0.183 to 0.250	mg/L	0
BORON	2021-04-28 to 2021-10-20	0.423 to 0.480	mg/L	0
CADMIUM	2021-04-28 to 2021-10-20	<0.0001	mg/L	0
CHROMIUM	2021-04-28 to 2021-10-20	<0.0001	mg/L	0
FLUORIDE	2021-04-28 to 2021-10-20	0.68	mg/L	0
MERCURY	2021-04-28 to 2021-10-20	<0.05	ug/L	0
NITRATE AS N	2021-02-02 to 2021-10-20	<0.02 to 0.014	mg/L	0
NITRITE AS N	2021-02-02 to 2021-10-20	<0.010	mg/L	0
SELENIUM	2021-04-28 to 2021-10-20	<0.0001	mg/L	0
SODIUM	2021-04-28 to 2021-10-20	52.8 to 53.3	mg/L	0
URANIUM	2021-04-28 to 2021-10-20	0.023 to 0.026	ug/L	0

SUMMARY OF LEAD TESTING UNDER SCHEDULE 15.1 OF REGULATION 170/03 DURING THIS REPORTING PERIOD.

LOCATION TYPE	POINTS SAMPLED	LEAD SAMPLES TAKEN	pH & ALKALINITY SAMPLES TAKEN	pH RESULTS pH UNITS	ALKALINITY RESULTS mg/L	LEAD RESULTS mg/L	LEAD AWQIs	LEAD EXCEEDANCES
PLUMBING-NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PLUMBING-R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DISTRIBUTION	2	2	2	8.66 to 8.80	107	0.0001 to 0.0002	0	N/A

NR - Non Residential R- Residential

COVID regulatory relief for Schedule 15.1 lead testing was granted for all plumbing samples (residential & non-residential).

SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
LYNDEN WELL FDL03 - TREATED				
1,1-DICHLOROETHYLENE	2021-04-28 to 2021-10-20	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-28 to 2021-10-20	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-28 to 2021-10-20	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-28 to 2021-10-20	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-28	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-28	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-28	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-28	<0.15	ug/L	0
ALACHLOR	2021-04-28	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-28	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-28	<0.05	ug/L	0
BENZENE	2021-04-28 to 2021-10-20	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-28	<0.004	ug/L	0
BROMOXYNIL	2021-04-28	<0.33	ug/L	0
CARBARYL	2021-04-28	<0.05	ug/L	0
CARBOFURAN	2021-04-28	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-28 to 2021-10-20	<0.20	ug/L	0
CHLOROBENZENE	2021-04-28 to 2021-10-20	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-28	<0.02	ug/L	0
DIAZINON	2021-04-28	<0.02	ug/L	0
DICAMBA	2021-04-28	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-28 to 2021-10-20	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-28	<0.40	ug/L	0
DIMETHOATE	2021-04-28	<0.06	ug/L	0
DIQUAT	2021-04-28	<1	ug/L	0
DIURON	2021-04-28	<0.03	ug/L	0
ETHYLBENZENE	2021-04-28 to 2021-10-20	<0.33	ug/L	0
GLYPHOSATE	2021-04-28	<1	ug/L	0
MALATHION	2021-04-28	<0.02	ug/L	0

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SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
LYNDEN WELL FDL03 - TREATED				
MCPA (2-METHYL-4-CHLORO-PHENOXYACETIC ACID)	2021-04-28	<0.00012	mg/L	0
METOLACHLOR	2021-04-28	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-28	<0.02	ug/L	0
PARAQUAT	2021-04-28	<1	ug/L	0
PCBS TOTAL	2021-04-28	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-28	<0.15	ug/L	0
PHORATE	2021-04-28	<0.01	ug/L	0
PICLORAM	2021-04-28	<1	ug/L	0
PROMETRYNE	2021-04-28	<0.03	ug/L	0
SIMAZINE	2021-04-28	<0.01	ug/L	0
TERBUFOS	2021-04-28	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-28 to 2021-10-20	<0.35	ug/L	0
TOLUENE	2021-04-28 to 2021-10-20	<0.36	ug/L	0
TRIALLATE	2021-04-28	<0.01	mg/L	0
TRICHLOROETHYLENE	2021-04-28 to 2021-10-20	<0.44	ug/L	0
TRIFLURALIN	2021-04-28	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-28 to 2021-10-20	<0.20	ug/L	0
XYLENE	2021-04-28 to 2021-10-20	<0.50	ug/L	0
DISTRIBUTION				
TOTAL TRIHALOMETHANES*	Running annual average for the last four quarters.	54.3	ug/L	0
HALOACETIC ACIDS*	Running annual average for the last four quarters.	6.4	ug/L	0

* The Maximum Acceptable Concentration for Trihalomethanes and Haloacetic Acids in the distribution is based on a running average of the results from all sampling events in the past four quarters. This running average can be found in the result value column.

PARAMETERS EXCEEDING PRESCRIBED HALF-STANDARD

Summary of Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169/03).

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
LYNDEN WELL FDL03 - DISTRIBUTION			
TOTAL TRIHALOMETHANES	Running annual average for the last four quarters calculated in quarter one, 2021	50.2	ug/L
TOTAL TRIHALOMETHANES	Running annual average for the last four quarters calculated in quarter three, 2021	50.5	ug/L
TOTAL TRIHALOMETHANES	Running annual average for the last four quarters calculated in quarter four, 2021	54.3	ug/L

(Only if DWS category is large municipal residential, small municipal residential, large municipal non residential, non municipal year round residential, large non municipal non residential)