Pinewood Drinking Water System

Waterworks # 220006464
System Category – Large Municipal Residential

Annual Water Report

Prepared For: The City of Kawartha Lakes

Reporting Period of January 1st – December 31st, 2023

Issued: February 21, 2024

Revision: 0

Operating Authorities:

This report has been prepared to satisfy the annual reporting requirements in O. Reg. 170/03 Section 11 and Schedule 22

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Report Availability

This system does not serve more than 10,000 residences. The annual reports will be available to residents at the City of Kawartha Lakes Public Works Administration Office and on the City's website at: www.kawarthalakes.ca. Notification that reports are available free of charge will be made on the City of Kawartha Lakes website. The City of Kawartha Lakes Public Works Administration Office is located at 322 Kent Street West in Lindsay, Ontario.

Compliance Report Card

Drinking Water System Number: 220006464
Drinking Water System Name: Pinewood DWS
Drinking Water System Owner: City of Kawartha Lakes
Drinking Water System Category: Large Municipal Residential
Period Being Reported: January 1, 2023 - December 31, 2023

	# of Events	Date	Details
Health & Safety			
Number of Incidents	0		
Drinking Water			
MECP Inspections	1	December 8, 2023	Announced - Detailed Drinking Water Inspection - Final Inspection Rating of 99.38%
AWQI's	1	July 26, 2023	Distribution sample tap adverse for 59 Total Coliforms and 12 E. coli
Number of Non-Compliances identified during Ministry Inspection	1	December 8, 2023	System registration information not current
Number of Boil Water Advisories	1	July 26 to July 29, 2023	Distribution sample tap adverse for 59 Total Coliforms and 12 E. coli

System Process Description

Raw Source

The water supply for the DWS comes from two (2) groundwater wells that are designated as non-GUDI (groundwater under direct influence).

Treatment

The treatment system consists of the following:

- Sodium hypochlorite disinfection feed system with metering pumps
- Two-celled storage reservoir
- Three high lift pumps
- Continuous on-line free chlorine analyzer
- Continuous on-line flow meters
- One portable generator

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Jutzi Water Technologies

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
July 26, 2023	162780	Distribution	Total Coliforms and E. coli present	59 Total Coliforms and 12 E. coli present in distribution sample	O. Reg. 169/03	Flush and resample (2 sets) as per direction from MOH, BWA issued by MOH on July 26 and rescinded on July 29, 2023.

Non-Compliance(s)

Legislation	Requirement(s) system failed to meet	Duration of the failure (i.e. dates)	Corrective Action	Status
SDWA, O. Reg. 170/03, 10-4. (1)	Raw water weekly sampling for Well 4	April 24 to May 5, 2023	Replace well pump, complete inspection	Complete

Non-Compliance(s) Identified in a Ministry Inspection

Legislation	Requirement(s) system failed to meet	Duration of the failure (i.e. dates)	Corrective Action	Status
SDWA, O. Reg. 170/03, 10.1 (3)	Requirement to provide MECP changes to the system registration information within ten (10) days of the change	December 8, 2023	Submitted updated system registration information paperwork to MECP	Complete

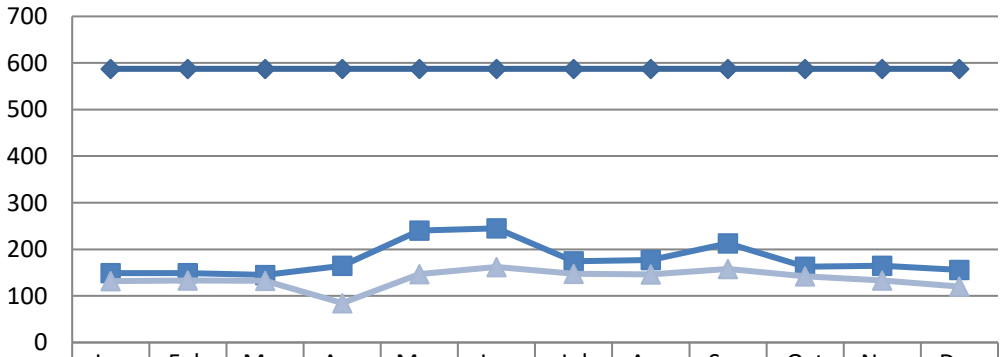
Flows

The Pinewood Drinking Water System is operating on average under half the rated capacity.

Raw Water Flows

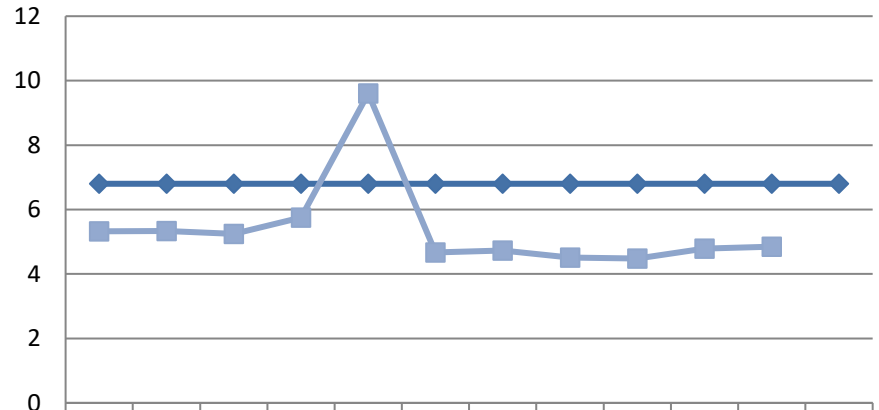
The Raw Water flows are regulated under the Permit to Take Water. 2023 Raw Flow Data was submitted to the Ministry electronically under permit #7473-BBTPTY. A copy of the confirmation is included in Appendix A. The Permit to Take Water compliance criteria is in litres per minute (L/min) but for the purposes of this report the flow rate is reported in litres per second (L/sec) based on industry standard for flow monitoring recording.

Total Monthly Flows (m^3/d)
Max Allowable PTTW – Well #4



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m^3/d)	587.5	587.5	587.5	587.5	587.5	587.5	587.5	587.5	587.5	587.5	587.5	587.5
Max Flow (m^3/d)	149	149	145	165	240	245	174	177	213	163	165	156
Avg (m^3/d)	132	133	132	85	147	162	148	146	158	142	133	120

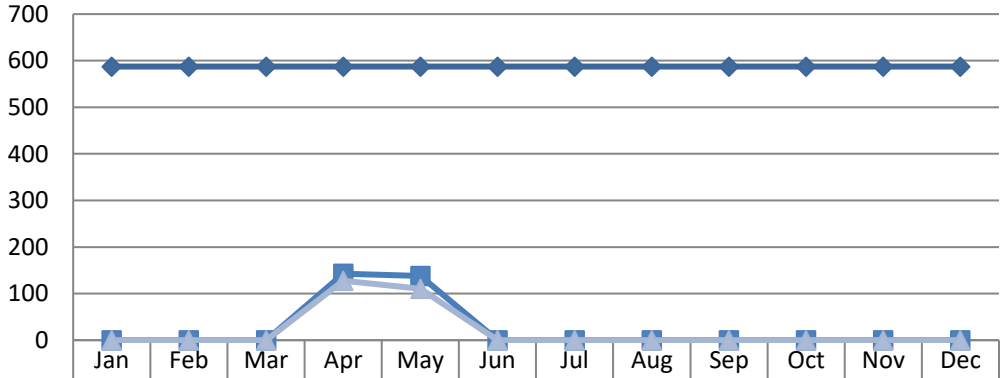
Monthly Rated Flows (L/s)
Max Allowable Rate – PTTW – Well #4



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Max Rate (L/s)	5.32	5.33	5.24	5.75	9.60	4.67	4.73	4.51	4.48	4.79	4.85	

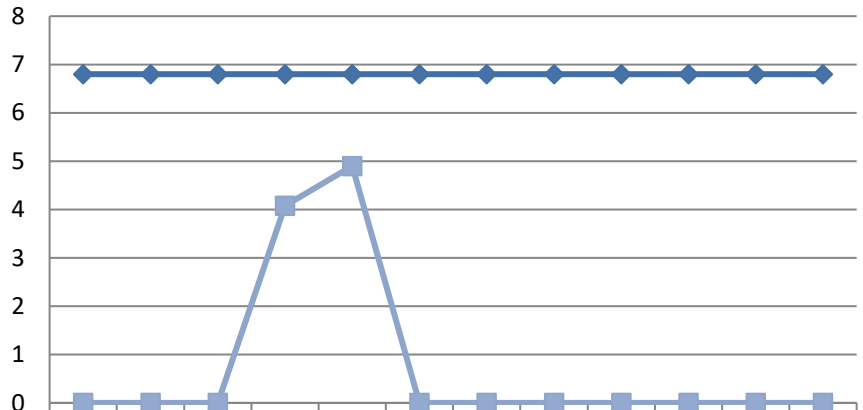
Note: Certain operational circumstances could cause results to be temporarily outside of the allowable rates. In May 2023, the allowable rate was momentarily surpassed as a result of annual calibration of the flow meter and did not indicate a true exceedance. A true exceedance would be documented within this report.

Total Monthly Flows (m³/d)
Max Allowable PTTW – Well #5



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	587.5	587.5	587.5	587.5	587.5	587.5	587.5	587.5	587.5	587.5	587.5	587.5
Max Flow (m³/d)	0.0	0.0	0.0	143	138	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Avg (m³/d)	0.0	0.0	0.0	128	111	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Monthly Rated Flows (L/s)
Max Allowable Rate – PTTW – Well #5



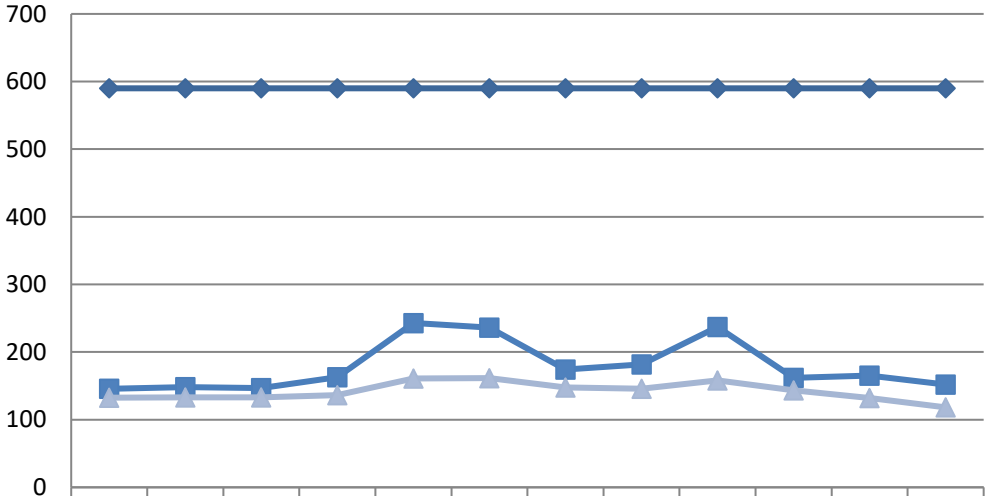
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Max Rate (L/s)	0.00	0.00	0.00	4.08	4.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Well 5 was only in production under emergency use for 16 days during the reporting period. The remainder of the reporting period, Well 5 was not in production.

Treated Water Flows

The Treated Water flows are regulated under the Municipal Drinking Water Licence #141-110.

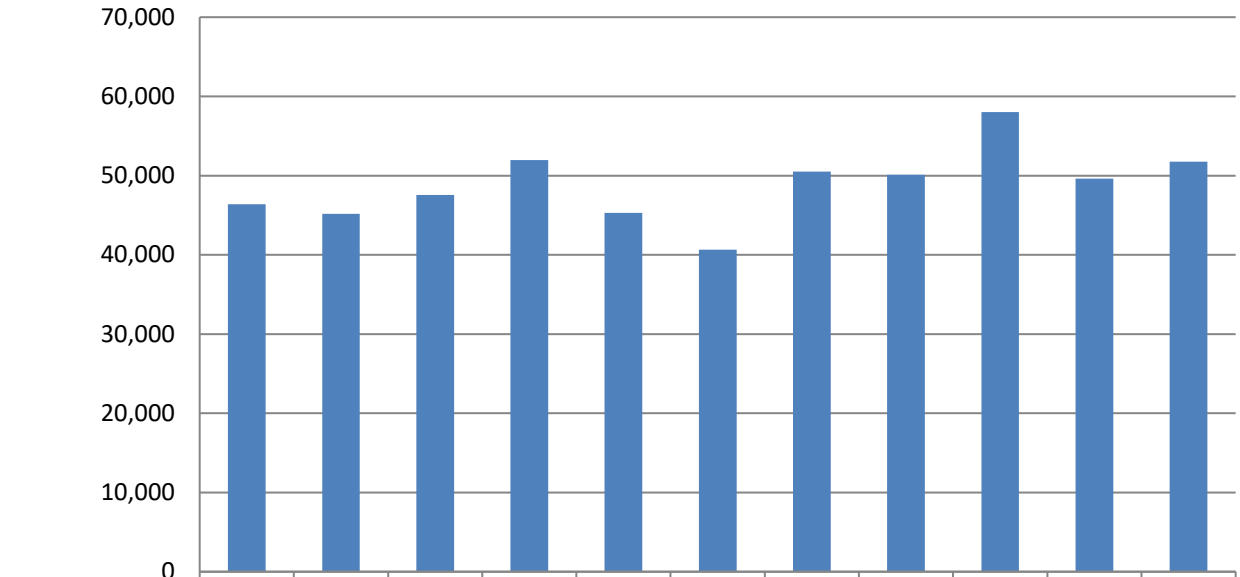
Monthly Rated Flows
Rated Capacity − MDWL



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rated Capacity (m^3/d)	590	590	590	590	590	590	590	590	590	590	590	590
Max Daily Flow (m^3/d)	146	148	147	163	243	236	174	182	237	162	165	152
Avg (m^3/d)	133	133	133	136	161	162	148	146	158	143	132	118

Annual Total Flow Comparison

Total Annual m^3



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
TW Total (m^3)	46,396	45,163	47,561	51,973	45318	40,650	50,495	50,099	58,042	49,610	51,767

Regulatory Sample Results Summary

Microbiological Testing

(completed under Schedule 10, 11 or 12 of Ontario Regulation 170/03, during the reporting period).

	No. of Samples Collected	Range of E. Coli Results	Range of E. Coli Results	Range of Total Coliform Results	Range of Total Coliform Results	Range of HPC Results	Range of HPC Results
		Min	Max	Min	Max	Min	Max
Raw Well 4	51	0	0	0	0		
Raw Well 5	50	0	0	0	54		
Treated	55	0	0	0	0	0	7
Distribution	165	0	12	0	59	0	10

Note: Well 5 was only in production under Emergency use for 16 days during the reporting period. The remainder of the reporting period, Well 5 was not in production.

Operational Testing

(completed under Schedule 7, 8 or 9 of Ontario Regulation 170/03, during the reporting period).

Parameter	Number of Samples Collected	Range of Results Minimum	Range of Results Maximum
Turbidity Well 4 (NTU)	13	0.31	10.7
Turbidity Well 5 (NTU)	12	0.20	2.70
Turbidity – TW (NTU)	8760	0	2
Chlorine	8760	0	3.5
Fluoride (If the DWS provides fluoridation)	N/A	N/A	N/A

Note: Well 5 was not in production during the reporting period.
Note: Record the unit of measure if it is **not** milligrams per litre.
Note: For continuous monitors 8760 is used as the number of samples**.** Spikes recorded by on-line instrumentation were a result of air bubbles and various maintenance/calibration activities. All spikes are reviewed for compliance with O. Reg. 170/03, did not indicate a true exceedance. A true exceedance would be documented within this report.

Inorganic Parameters

These parameters are tested as a requirement under O. Reg. 170/03. Sodium and Fluoride are required to be tested every five years. Nitrate and Nitrite are tested quarterly and the metals are tested every three years as required under O. Reg. 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03
- MDL = Method Detection Limit

Treated Water Parameter	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
Antimony: Sb (ug/L) - TW	2023/01/03	<MDL 0.6	6.0	No	No
Arsenic: As (ug/L) - TW	2023/01/03	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2023/01/03	159.0	1000.0	No	No
Boron: B (ug/L) - TW	2023/01/03	23.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2023/01/03	0.005	5.0	No	No
Chromium: Cr (ug/L) - TW	2023/01/03	<MDL 0.08	50.0	No	No
Mercury: Hg (ug/L) - TW	2023/01/03	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2023/01/03	0.12	50.0	No	No
Uranium: U (ug/L) - TW	2023/01/03	0.009	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2023/01/03	0.13	1.5	No	No

Treated Water Parameter	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
Nitrite (mg/L) - TW	2023/01/03	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2023/04/03	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2023/07/05	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2023/10/03	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2023/01/03	0.009	10.0	No	No
Nitrate (mg/L) - TW	2023/04/03	0.01	10.0	No	No
Nitrate (mg/L) - TW	2023/07/05	0.009	10.0	No	No
Nitrate (mg/L) - TW	2023/10/03	0.011	10.0	No	No
Sodium: Na (mg/L) - TW	2023/01/03	10.3	20*	No	Yes

*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Schedule 15 Sampling

The Schedule 15 Sampling is required under O. Reg. 170/03. This system is under reduced sampling. No plumbing samples were collected.

Distribution System	Number of Sampling Points	Number of Samples	Range of Results Minimum	Range of Results Maximum	MAC (ug/L)	Number of Exceedances
Alkalinity (mg/L)	1	2	148	148	N/A	N/A
pH	1	2	7.78	8.04	N/A	N/A
Lead (ug/l)	1	2	0.03	0.05	10	0

Organic Parameters

These parameters are tested as a requirement under O. Reg. 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

Treated Water Parameter	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
Alachlor (ug/L) - TW	2023/01/03	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2023/01/03	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2023/01/03	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2023/01/03	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2023/01/03	<MDL 0.004	0.01	No	No

Treated Water Parameter	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
Bromoxynil (ug/L) - TW	2023/01/03	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2023/01/03	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2023/01/03	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2023/01/03	<MDL 0.17	2.00	No	No
Chlorpyrifos (ug/L) - TW	2023/01/03	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2023/01/03	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2023/01/03	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2023/01/03	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2023/01/03	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2023/01/03	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2023/01/03	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2023/01/03	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2023/01/03	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2023/01/03	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2023/01/03	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2023/01/03	<MDL 0.06	20.00	No	No
Diquat (ug/L) - TW	2023/01/03	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2023/01/03	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2023/01/03	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2023/01/03	<MDL 0.02	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)	2023/01/03	<MDL 0.12	100.00	No	No
Metolachlor (ug/L) - TW	2023/01/03	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2023/01/03	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2023/01/03	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2023/01/03	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2023/01/03	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2023/01/03	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2023/01/03	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2023/01/03	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2023/01/03	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2023/01/03	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2023/01/03	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2023/01/03	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2023/01/03	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2023/01/03	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2023/01/03	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2023/01/03	<MDL 0.25	5.00	No	No

Treated Water Parameter	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
Trifluralin (ug/L) - TW	2023/01/03	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2023/01/03	<MDL 0.17	1.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2023	14.60	100	No	No
HAA Total (ug/L) Annual Average - DW	2023	5.30	80	No	No

MAC = Maximum Allowable Concentration as per O. Reg. 169/03
MDL = Method Detection Limit

Additional Legislated Samples

There were no additional legislated samples required to report during this reporting period.

Major Maintenance Summary incurred to install, repair or replace required equipment

WO #	Description
743661	New Well #5
3340823	Pump Submersible Well 4, Failure
3384633	Water Distribution, Leak Detection
3434632	Highlift 1 Leaking
3483622	AWQI and Boil Water Advisory, Emergency
3484323	VFD Fault, Repair/Replacement

Appendix A

WTRS Submission Confirmation