Kinmount Drinking Water System

Waterworks # 260075231
System Category – Small 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

Table of Contents

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: 260075231
Drinking Water System Name: Kinmount DWS
Drinking Water System Owner: City of Kawartha Lakes
Drinking Water System Category: Small 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	October 12, 2023	2023-24 Announced-Focused Drinking Water Inspection – Final Inspection Rating of 100%.
AWQI's	0		
Number of Non-Compliances	0		
Number of Boil Water Advisories	0		

System Process Description

Raw Source

The Kinmount Water Treatment Plant is supplied with surface water from the Burnt River.

Treatment

The treatment system is a dual train conventional filtration package plant consisting of the following:

- In-line static mixer
- Coagulant feed system with SternPac addition upstream of static mixer
- Two stage variable speed flocculators located in flocculation tanks
- Coagulant aid feed system with polymer added to flocculation tanks

- Two upflow clarifier units equipped with tube settlers
- Two dual media rapid gravity filters
- Sodium hypochlorite feed system for primary disinfection
- Dual celled chlorine contact tanks located beneath the plant
- Two highlift pump chambers housing four highlift pumps
- Sodium hypochlorite feed system for post chlorination
- Online analyzers to monitor both free treated chlorine and filter effluent turbidity
- Wastewater treatment system that consists of two backwash pumps and a settling tank that receives backwash wastewater and clarifier sludge
- SCADA computer control system
- Standby power generator

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Jutzi Water Technology
Polyalumunium Chloride	Flocculation	FloChem
Polymer	Flocculation	Basf
Sodium hydroxide	pH adjustment	Not required in 2023

Summary of Non-Compliance

Adverse Water Quality Incidents

There was no adverse water quality incidents during the reporting period.

Non-Compliance

There were no non-compliance issues reported during the reporting period.

Non-Compliance Identified in a Ministry Inspection:

There were no non-compliance identified in a Ministry Inspection for 2023/2024 inspection report.

Flows

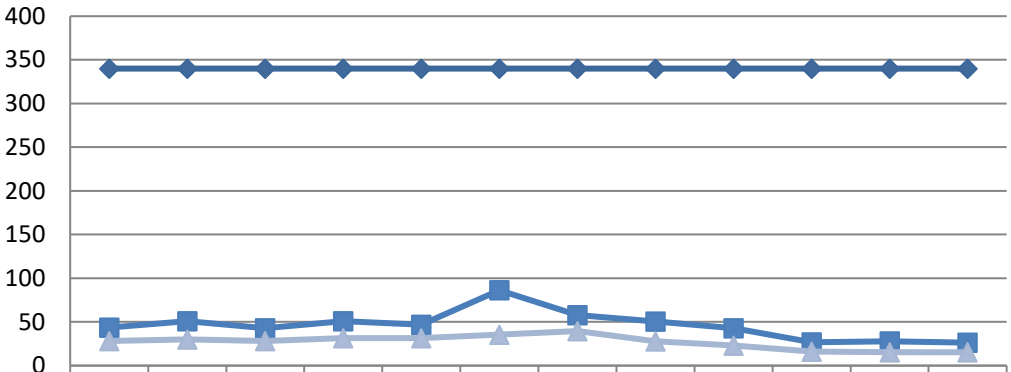
The Kinmount Drinking Water System is operating on average under half the rated capacity.

Raw Water Flows

The Raw Water takings are regulated by the Permit to Take Water (PTTW). 2023 Raw Flow Data was submitted to the Ministry electronically under permit #2447-AWDJEA. The confirmation for the data that was submitted is attached in Appendix A.

Total Monthly Flows (m³/d)

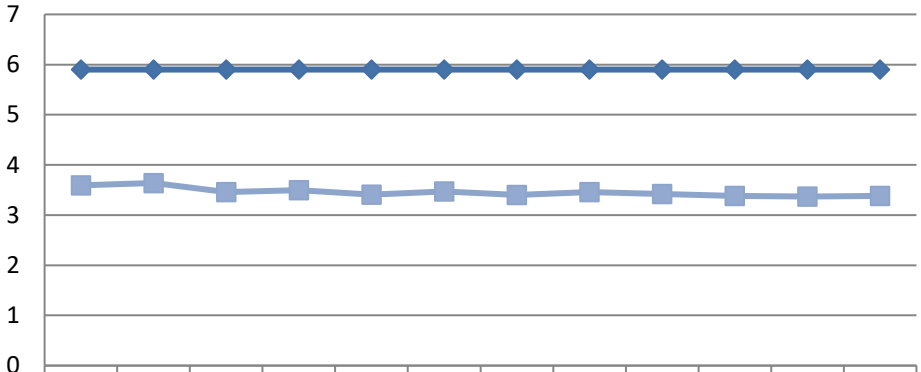
Max Allowable PTTW- Raw



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	340	340	340	340	340	340	340	340	340	340	340	340
Max Flow (m³/d)	43.4	50.9	42.8	51.1	46.7	86.3	58.0	50.4	42.9	26.7	27.9	26.3
Avg (m³/d)	28.4	29.8	28.1	31.6	31.7	35.3	39.5	27.7	23.2	16.0	15.3	15.3

Monthly Rated Flows (L/s)

Max Allowable Rate – PTTW- Raw



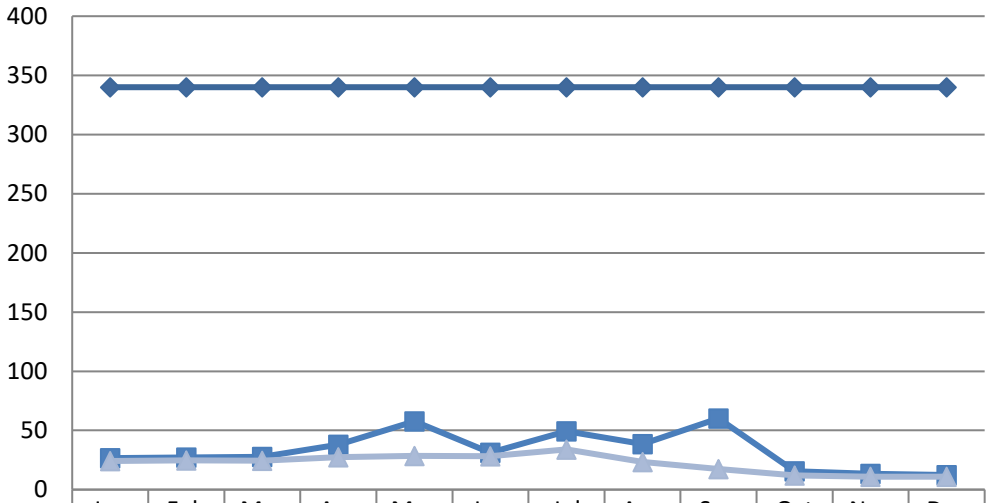
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
Max Rate (L/s)	3.59	3.64	3.46	3.5	3.41	3.47	3.4	3.46	3.42	3.38	3.37	3.38

Treated Water Flows

The Treated Water flows are regulated under the Municipal Drinking Water Licence (MDWL) 141-121.

Monthly Rated Flows

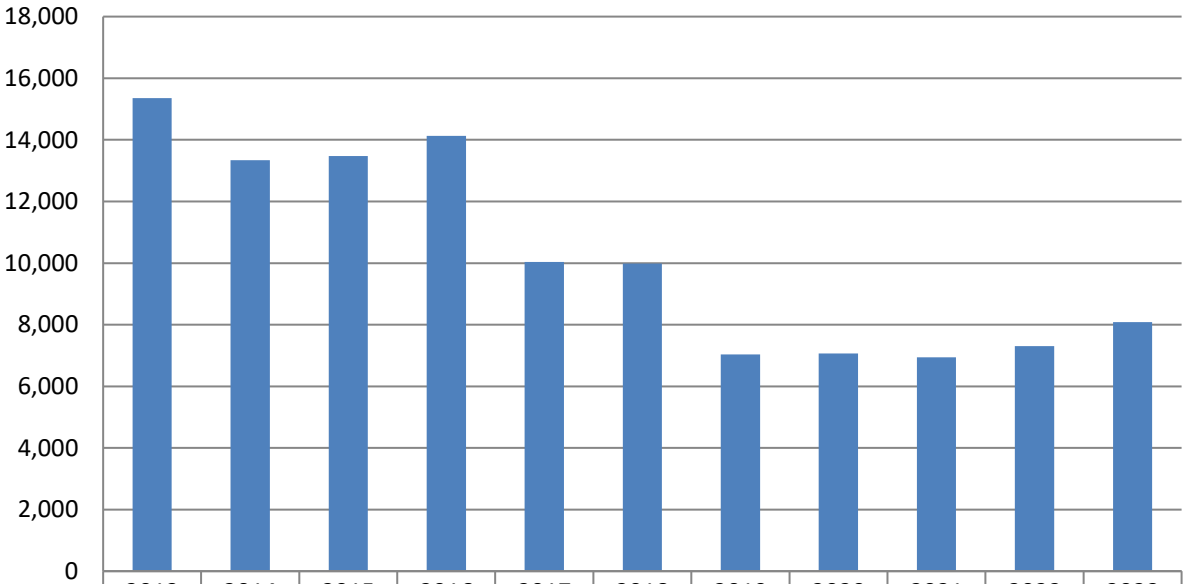
Rated Capacity - MDWL



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rated Capacity (m^3/d)	340	340	340	340	340	340	340	340	340	340	340	340
Max Daily Flow (m^3/d)	27	27	28	38	58	31	49	38	60	16	13	12
Avg (m^3/d)	24	25	24	27	28	28	34	23	17	12	11	11

Annual Total Flow Comparison

Total Annual m^3



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
WTP (m^3)	15,350	13,339	13,472	14,126	10,033	9,983	7,038	7,069	6,946	7,307	8,084

Regulatory Sample Results Summary

Microbiological Testing

	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	26	2	60	42	360		
Distribution	53	0	0	0	0	0	1

Operational Testing

Parameter	Number of Samples Collected	Range of Results Minimum	Range of Results Maximum
Turbidity Filter 1 (NTU)	8760	0.03	1.99
Turbidity Filter 2 (NTU)	8760	0.02	2.00
Chlorine	8760	0.00	2.65
Fluoride (If the DWS provides fluoridation)	N/A	N/A	N/A

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.

Inorganic Parameters

These parameters are tested as a requirement under O. Reg. 170/03. Sodium, Fluoride and the metals are required to be tested every 5 years while Nitrate and Nitrite are tested quarterly. 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	Exceedances MAC	Exceedances ½ MAC
Antimony: Sb (ug/L) - TW	2020/01/06	<MDL 0.09	6.0	No	No
Arsenic: As (ug/L) - TW	2020/01/06	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2020/01/06	18.5	1000.0	No	No
Boron: B (ug/L) - TW	2020/01/06	5.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2020/01/06	<MDL 0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2020/01/06	0.28	50.0	No	No

Treated Water Parameter	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances MAC	Exceedances ½ MAC
Mercury: Hg (ug/L) - TW	2020/01/06	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2020/01/06	<MDL 0.04	50.0	No	No
Uranium: U (ug/L) - TW	2020/01/06	0.029	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2020/01/06	<MDL 0.06	1.5	No	No
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	2023/07/04	<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	0.064	10.0	No	No
Nitrate (mg/L) - TW	2023/04/03	0.123	10.0	No	No
Nitrate (mg/L) - TW	2023/07/04	0.047	10.0	No	No
Nitrate (mg/L) - TW	2023/10/03	0.030	10.0	No	No
Sodium: Na (mg/L) - TW	2020/01/06	9.01	20*	No	No

*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 mg/L 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)	2	2	25	35	N/A	N/A
pH	2	2	6.86	7.05	N/A	N/A
Lead (ug/l)	2	2	0.31	0.48	10	No

Organic Parameters

These parameters are tested every 5 years 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	2020/01/06	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2020/01/06	<MDL 0.01	5.0	No	No
Azinphos-methyl (ug/L) - TW	2020/01/06	<MDL 0.05	20.0	No	No
Benzene (ug/L) - TW	2020/01/06	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (ug/L) - TW	2020/01/06	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2020/01/06	<MDL 0.33	5.0	No	No
Carbaryl (ug/L) - TW	2020/01/06	<MDL 0.05	90.0	No	No
Carbofuran (ug/L) - TW	2020/01/06	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (ug/L) - TW	2020/01/06	<MDL 0.17	2.0	No	No
Chlorpyrifos (ug/L) - TW	2020/01/06	<MDL 0.02	90.0	No	No
Diazinon (ug/L) - TW	2020/01/06	<MDL 0.02	20.0	No	No
Dicamba (ug/L) - TW	2020/01/06	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (ug/L) - TW	2020/01/06	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (ug/L) - TW	2020/01/06	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (ug/L) - TW	2020/01/06	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (ug/L) - TW	2020/01/06	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L) – TW	2020/01/06	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (ug/L) - TW	2020/01/06	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) – TW	2020/01/06	<MDL 0.19	100.0	No	No
Diclofop-methyl (ug/L) - TW	2020/01/06	<MDL 0.4	9.0	No	No
Dimethoate (ug/L) - TW	2020/01/06	<MDL 0.06	20.0	No	No
Diquat (ug/L) - TW	2020/01/06	<MDL 1.0	70.0	No	No
Diuron (ug/L) - TW	2020/01/06	<MDL 0.03	150.0	No	No
Glyphosate (ug/L) - TW	2020/01/06	<MDL 1.0	280.0	No	No
Malathion (ug/L) - TW	2020/01/06	<MDL 0.02	190.0	No	No
Metolachlor (ug/L) - TW	2020/01/06	<MDL 0.01	50.0	No	No
Metribuzin (ug/L) - TW	2020/01/06	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) – TW	2020/01/06	<MDL 0.3	80.0	No	No
Paraquat (ug/L) - TW	2020/01/06	<MDL 1.0	10.0	No	No
PCB (ug/L) - TW	2020/01/06	<MDL 0.04	3.0	No	No
Pentachlorophenol (ug/L) - TW	2020/01/06	<MDL 0.15	60.0	No	No
Phorate (ug/L) - TW	2020/01/06	<MDL 0.01	2.0	No	No
Picloram (ug/L) - TW	2020/01/06	<MDL 1.0	190.0	No	No
Prometryne (ug/L) - TW	2020/01/06	<MDL 0.03	1.0	No	No
Simazine (ug/L) - TW	2020/01/06	<MDL 0.01	10.0	No	No
Terbufos (ug/L) - TW	2020/01/06	<MDL 0.01	1.0	No	No
Tetrachloroethylene (ug/L) - TW	2020/01/06	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L) -	2020/01/06	<MDL 0.2	100.0	No	No

Treated Water Parameter	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
TW					
Triallate (ug/L) - TW	2020/01/06	<MDL 0.01	230.0	No	No
Trichloroethylene (ug/L) - TW	2020/01/06	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2020/01/06	<MDL 0.25	5.0	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L)	2020/01/06	<MDL 0.12	100.0	No	No
Trifluralin (ug/L) - TW	2020/01/06	<MDL 0.02	45.0	No	No
Vinyl Chloride (ug/L) - TW	2020/01/06	<MDL 0.17	1.0	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2023	73.50	100	No	Yes
HAA Total (ug/L) Annual Average - DW	2023	61.73	80	No	Yes

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

Additional Legislated Samples

Municipal Drinking Water Licence	Date Collected	Suspended Solids (mg/L)	Free Chlorine Residual (mg/L)
Settling Tank Discharge Point	January	<2	0.04
	February	17	0.02
	March	5	0.01
	April	8	0.01
	May	<2	0.01
	June	3	0.02
	July	<2	0.03
	August	<2	0.01
	September	<2	0.00
	October	2	0.03
	November	<2	0.04
	December	6	0.03
	Annual Average	4	

Note: The Suspended Solids 12 month running average limit is 25 mg/L.

Municipal Drinking Water Licence	Collected Weekly June – Oct	Total Microcystin Raw Results Range (ug/L)	Total Microcystin Treated Water Results Range (ug/L)	Treated Water Total Microcystin Limit 1.5 ug/L Exceeded Y/N
Harmful Algal Blooms Monitoring required June to October at a	June	<0.1 – <0.1	<0.1 – <0.1	N

Municipal Drinking Water Licence	Collected Weekly June – Oct	Total Microcystin Raw Results Range (ug/L)	Total Microcystin Treated Water Results Range (ug/L)	Treated Water Total Microcystin Limit 1.5 ug/L Exceeded Y/N
minimum. Samples collected weekly. Raw and Treated water tested for Total Microcystin.				
	July	<0.1 - <0.1	<0.1 – <0.1	N
	August	<0.1 - <0.1	<0.1 – <0.1	N
	September	<0.1 - <0.1	<0.1 – <0.1	N
	October	<0.1 – <0.1	<0.1 – <0.1	N

Method Detection Limit is 0.1ug/L

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

WO #	Description
3340302	Repair HLP2
3483617	Troubleshoot Filter #1 Floc Mixer
3525764	Replace CT Chlorine Analyzer
3206831	Replace Chemical Room Heater
3434724	Replace IT Equipment
3479959	Replace motor on exhaust fan

Appendix A

WTRS Data Submission Confirmation