Lindsay Drinking Water System

2025 Annual Water Report

Drinking Water System Number: 220000175

Drinking Water System Operating Authority: City of Kawartha Lakes

Drinking Water System Category: Large Municipal Residential

Reporting Period: January 1st – December 31st, 2025

Annual Drinking Water Report
City of Kawartha Lakes

Kawartha Lakes
Jump In

Table of Contents

2025 Annual Drinking Water System Summary Report 3
General Information 3
Compliance Summary 3
Drinking Water System Description 4
Source Water 4
Water Treatment Facility 4
Storage Facilities 5
Distribution System 5
Summary of Non-Compliance 6
Adverse Water Quality Incidents 6
Non-Compliance 7
Non-Compliance Identified in a Ministry Inspection 7
Flows 7
Raw Water Flows 7
Treated Water Flows 8
Regulatory Sample Results Summary 9
Microbiological Testing 9
Operational Testing 9
Inorganic Parameters 10
Schedule 15 Sampling (Lead) 11
Organic Parameters 12
Additional Legislated Samples 13
Major Maintenance Expense (above $10,000) 15
Lindsay Water Treatment Plant 15
Oakwood Reservoir 15
Thornhill Reservoir 15
Verulam Tower 15
Lindsay Distribution System 15
APPENDIX A 16
WTR Submission Confirmation 16

2025 Annual Drinking Water System Summary Report

General Information

The City of Kawartha Lakes prepares a report summarizing system operation and water quality for every municipal drinking water system annually. This report has been prepared to satisfy the annual reporting requirements in O. Reg. 170/03 Section 11 and Schedule 22. The annual reports will be available to residents at the City of Kawartha Lakes Public Works Administration Office by appointment and the City's website. Notification that the 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.

This system serves more than 10,000 residences.

Drinking Water System Number: 220000175
Drinking Water System Name: Lindsay Drinking Water System
Drinking Water System Owner: City of Kawartha Lakes
Drinking Water System Category: Large Municipal Residential
Reporting Period: January 1, 2025 – December 31, 2025

Compliance Summary

Table 1. Drinking Water Compliance Summary

	Number of Events	Date (yyyy/mm/dd)	Details
Ministry (MECP) Inspections	1	2025 07 04	Unannounced – Focused Drinking Water Inspection – Final Inspection Rating – 100%
Adverse Water Quality Incidents (AWQIs)	8	2025 01 31 2025 04 11	THM Running Annual Average of 112.25 µg/L HAA Running Annual Average of 89.25 µg/L THM Running Annual Average of 107.00 µg/L

	Number of Events	Date (yyyy/mm/dd)	Details
		2025 07 14 2025 10 10	HAA Running Annual Average of 83.78 µg/L THM Running Annual Average of 108.50 µg/L HAA Running Annual Average of 83.15 µg/L THM Running Annual Average of 104.00 µg/L HAA Running Annual Average of 87.83 µg/L
Non-Compliances	0		
Boil Water Advisories	0		

Drinking Water System Description

The Lindsay drinking water system is a large municipal residential drinking water system serving the Town of Lindsay and the Village of Oakwood, Ontario, within the City of Kawartha Lakes. The drinking water system is classified as a Class IV Water Treatment and Class III Water Distribution subsystems in accordance with O. Reg. 128/04. The overall drinking water system includes a treatment plant, an elevated storage tank and re-chlorination facility (Verulam Tower), two in-ground off-site reservoirs and re-chlorination facilities (Oakwood Reservoir and Thornhill Reservoir), and associated distribution infrastructure.

Source Water

The water supply for the system is obtained from the Scugog River, which is classified as a surface water source.

Water Treatment Facility

The Lindsay water treatment facility includes two ballasted flocculation and clarification units, two sedimentation tanks, and five dual-media filters consisting of granular activated carbon and sand. Treated water is directed to two in-ground clearwells that provide storage and the required contact time for primary disinfection.

Sodium hypochlorite is used for both primary and secondary disinfection. Carbon dioxide gas is applied to adjust the pH of the raw water, and sodium hydroxide is used to adjust the pH of the filtered water. Coagulation is achieved using a flow-paced polyaluminum chloride feed system, with a polymer feed system used as a coagulant aid. The facility is equipped with a diesel generator to provide standby power to the water treatment facility in the event of a power failure.

The drinking water system includes a Supervisory Control and Data Acquisition (SCADA) system to facilitate operational control, monitoring, alarming, trending, and reporting functions.

Filter backwash wastewater is directed to an equalization tank for storage. The equalization tank is equipped with an emergency overflow to the outfall sewer. Two submersible pumps transfer wastewater from the equalization tank to a sludge thickener. Thickened sludge is discharged to the sanitary sewer, and the supernatant is discharged to the Scugog River.

Storage Facilities

The Lindsay drinking water system includes two in-ground storage reservoirs and one elevated storage tank, each equipped with re-chlorination facilities.

The Thornhill Reservoir consists of two cells with a combined storage volume of 9000 cubic metres. The facility includes four booster pumps, a sodium hypochlorite feed system for re-chlorination, and a diesel generator for standby power.

The Oakwood Reservoir, located approximately ten kilometres west of Lindsay, has a total storage volume of 232 cubic metres divided between two cells. The facility includes three booster pumps, a sodium hypochlorite feed system for re-chlorination, and an aeration system to assist with trihalomethane (THM) formation reduction. A diesel generator is also provided for standby power.

The Verulam Tower is an elevated storage tank with a storage capacity of approximately 2,650 cubic metres and provides pressure to the Lindsay distribution system. The tower is equipped with a sodium hypochlorite feed system for re-chlorination and a natural gas-powered generator to provide standby power in the event of a power outage.

Distribution System

The Lindsay distribution system consists of approximately 225 kilometres of watermains, one elevated storage tank, and two underground storage reservoirs. Watermain materials within the system include PVC, asbestos cement, cast iron, ductile iron, high-density polyethylene (HDPE), and concrete pressure pipe (CPP). The distribution system is classified as a Class III subsystem under O. Reg. 128/04.

Table 2. Treatment Chemicals Used

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	LAVO
Sodium Hydroxide	pH Correction	UBA
Carbon Dioxide	pH Correction	Linde
Polyaluminumchloride (PAC)	Coagulation	Kemira
Norfloc122 Polymer	Coagulation	Northland Chemical

Summary of Non-Compliance

Adverse Water Quality Incidents

Table 3. Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
2025 01 31	N/A	Lindsay Distribution	THM Running Annual Average	112.25 µg/L	O. Reg. 170/03	N/A
2025 01 31	N/A	Lindsay Distribution	THM Running Annual Average	89.25 µg/L	O. Reg. 170/03	N/A
2025 04 11	N/A	Lindsay Distribution	THM Running Annual Average	107 µg/L	O. Reg. 170/03	N/A
2025 04 11	N/A	Lindsay Distribution	HAA Running Annual Average	83.78 µg/L	O. Reg. 170/03	N/A
2025 07 14	N/A	Lindsay Distribution	THM Running Annual Average	108.50 µg/L	O. Reg. 170/03	N/A
2025 07 14	N/A	Lindsay Distribution	HAA Running Annual Average	83.15 µg/L	O. Reg. 170/03	N/A
2025 10 10	N/A	Lindsay Distribution	THM Running Annual Average	104 µg/L	O. Reg. 170/03	N/A
2025 10 10	N/A	Lindsay Distribution	HAA Running Annual Average	87.83 µg/L	O. Reg. 170/03	N/A

Non-Compliance

There were no non-compliances reported during the reporting period.

Non-Compliance Identified in a Ministry Inspection

There were no non-compliances identified in a Ministry Inspection during this period.

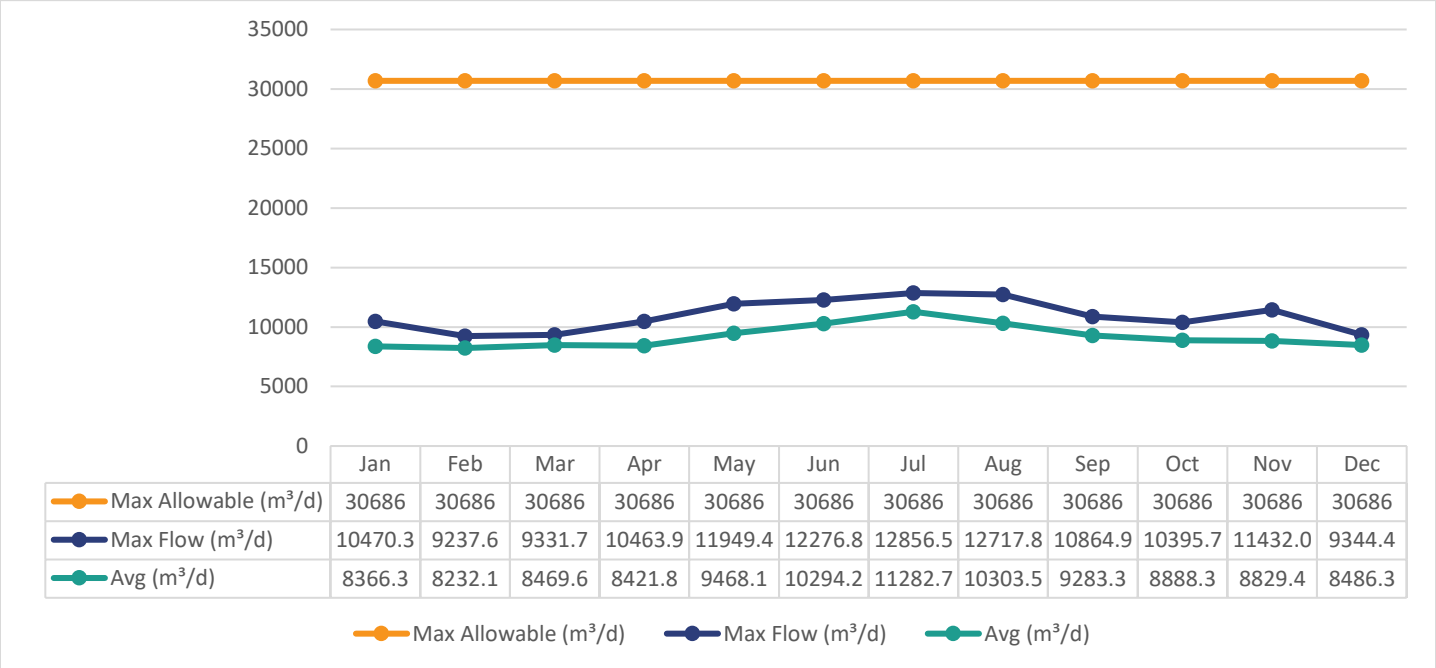
Flows

The Lindsay Drinking Water System is operating on average under half the rated capacity. The rated capacity of the Lindsay system (treated water flows) is 22,730 m³/day with a permitted water taking of 30,685.5 m³/day.

Raw Water Flows

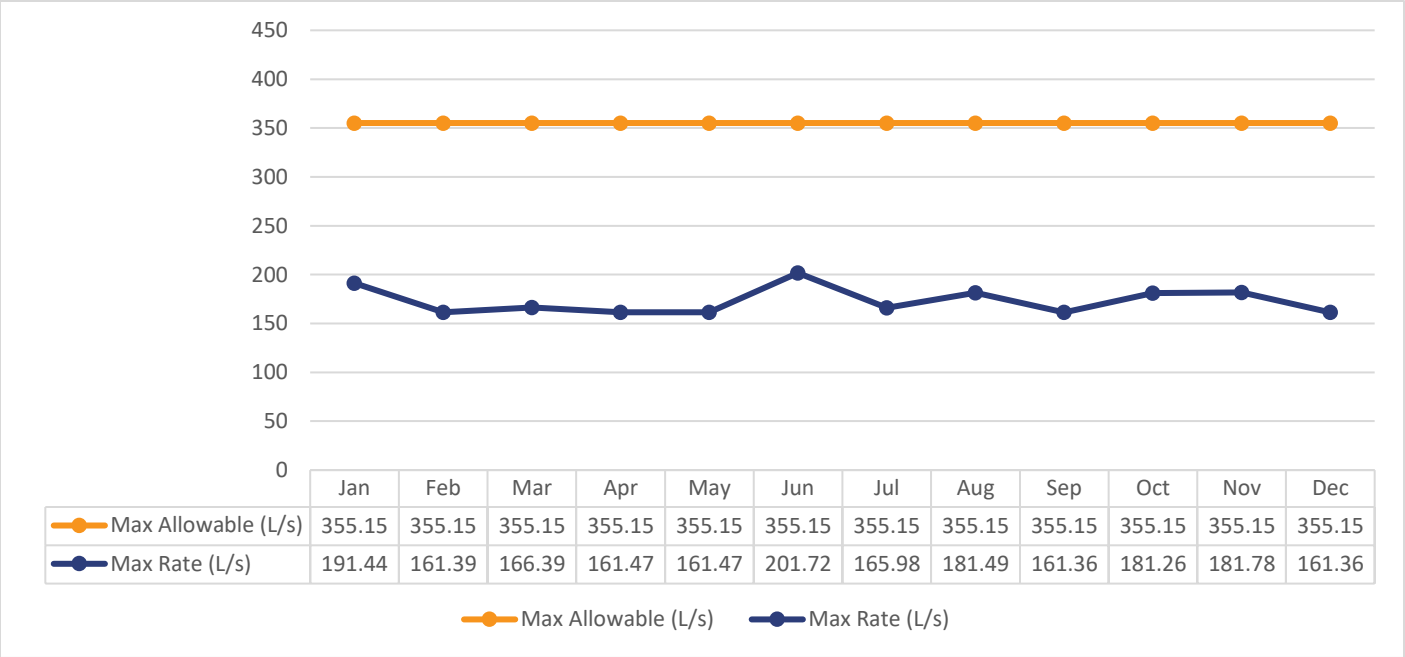
The raw water flows are regulated under the Permit to Take Water. Raw flow data for 2025 was submitted to the Ministry of Environment, Conservation and Parks (MECP) electronically under permit #8160-B3MP6L. The confirmation of the data that was submitted is attached in Appendix A.

Graph 1. Total Monthly Flows (m³/d) – Scugog River (Max Allowable PTTW)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	30686	30686	30686	30686	30686	30686	30686	30686	30686	30686	30686	30686
Max Flow (m³/d)	10470.3	9237.6	9331.7	10463.9	11949.4	12276.8	12856.5	12717.8	10864.9	10395.7	11432.0	9344.4
Avg (m³/d)	8366.3	8232.1	8469.6	8421.8	9468.1	10294.2	11282.7	10303.5	9283.3	8888.3	8829.4	8486.3

Graph 2. Monthly Rated Flows (L/s) – Scugog River (Max Allowable Rate PTTW)

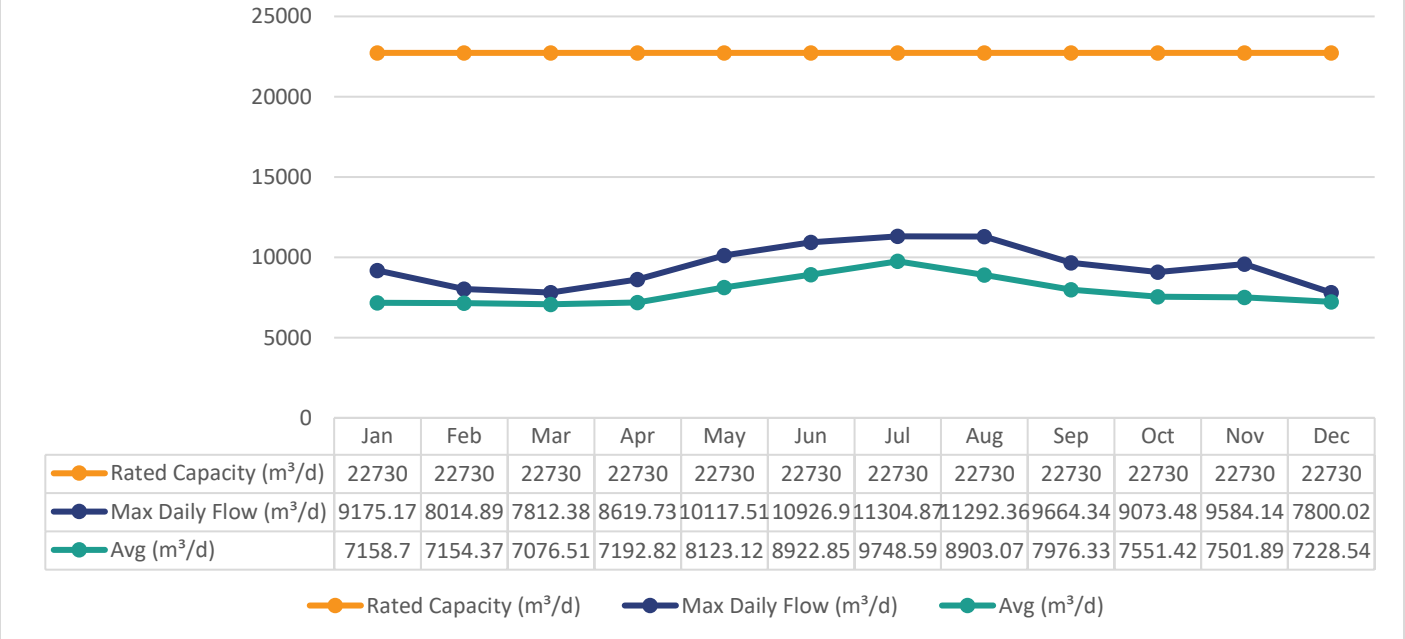


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (L/s)	355.15	355.15	355.15	355.15	355.15	355.15	355.15	355.15	355.15	355.15	355.15	355.15
Max Rate (L/s)	191.44	161.39	166.39	161.47	161.47	201.72	165.98	181.49	161.36	181.26	181.78	161.36

Treated Water Flows

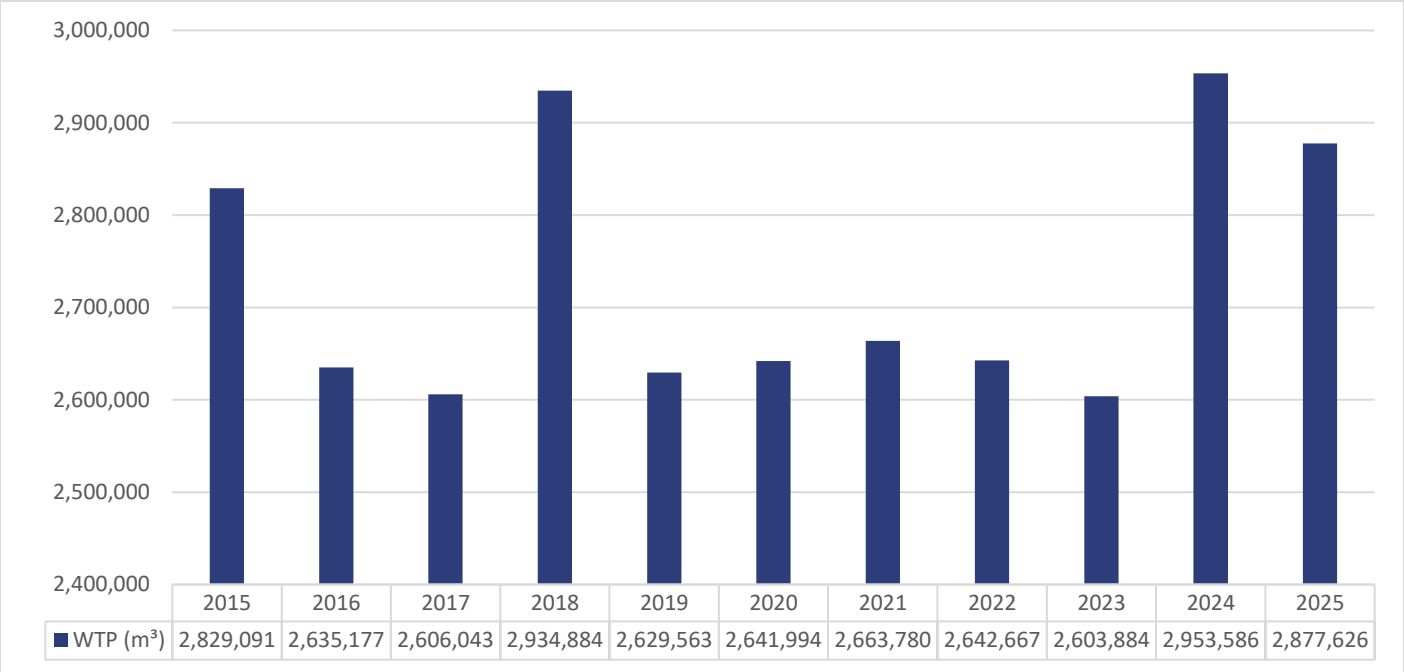
The Treated Water flows are regulated under the Municipal Drinking Water Licence 141-120.

Graph 3. Monthly Rated Flows (m³/d) – Rated Capacity - MDWL



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rated Capacity (m³/d)	22730	22730	22730	22730	22730	22730	22730	22730	22730	22730	22730	22730
Max Daily Flow (m³/d)	9175.17	8014.89	7812.38	8619.73	10117.51	10926.9	11304.87	11292.36	9664.34	9073.48	9584.14	7800.02
Avg (m³/d)	7158.7	7154.37	7076.51	7192.82	8123.12	8922.85	9748.59	8903.07	7976.33	7551.42	7501.89	7228.54

Graph 4. Annual Total Flow Comparison (m³)



Regulatory Sample Results Summary

Microbiological Testing

Table 4. Microbiological Test Results

	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	52	2	300	20	15700	N/A	N/A
Treated	52	0	0	0	0	0	17
Distribution	651	0	0	0	0	0	4

HPC = Heterotrophic Plate Count
OG = Overgrowth

Operational Testing

Table 5. Operational Test Results

Parameter	Number of Samples Collected	Range of Results Minimum	Range of Results Maximum
Raw Turbidity (NTU)	8760	0	25.47
Turbidity Filter 1 (NTU)	8760	0.007	2.026

Parameter	Number of Samples Collected	Range of Results Minimum	Range of Results Maximum
Turbidity Filter 2 (NTU)	8760	0.008	2.037
Turbidity Filter 3 (NTU)	8760	0.002	0.617
Turbidity Filter 4 (NTU)	8760	0	0.460
Turbidity Filter 5 (NTU)	8760	0.007	2.032
Chlorine (CT Analyzer)	8760	0	2.85
Fluoride (If the DWS provides fluoridation)	N/A	N/A	N/A

Note: Record the unit of measurement if it is **not** milligrams per litre.
Note: 0 mg/L Chlorine May 14, 2025 was due to scheduled plant maintenance. Plant was shut off during this time. An alarm is only received if the exceedance lasts for more than 2 minutes.
Note: For continuous monitors 8760 is used as the number of samples. Spikes recorded by online 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 and Fluoride are required to be tested every five years. Nitrate and Nitrate are tested quarterly and the metals are tested annually as required under O. Reg. 170/03. In the event any of the parameters listed in Schedule 23 or 24 of O. Reg. 170/03 exceed half of the maximum allowable concentration the parameter is required to be samples quarterly. Based on the latest test results no additional testing is required.

Table 6. Inorganic Parameters Test Results

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedance
Treated Water					
Antimony	2025 01 06	<MDL 0.06	µg/L	6.0	No
Arsenic	2025 01 06	0.2	µg/L	10.0	No
Barium	2025 01 06	32.9	µg/L	1000.0	No
Boron	2025 01 06	9	µg/L	5000.0	No
Cadmium	2025 01 06	<MDL 0.003	µg/L	5.0	No
Chromium	2025 01 06	0.14	µg/L	50.0	No
Mercury	2025 01 06	<MDL 0.01	µg/L	1.0	No
Selenium	2025 01 06	0.10	µg/L	50.0	No
Uranium	2025 01 06	0.045	µg/L	20.0	No
Additional Organics					
Fluoride	2023 12 11	0.11	mg/L	1.5	No

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedance
Nitrite	2025 01 20	<MDL 0.003	mg/L	1.0	No
Nitrite	2025 04 07	<MDL 0.003	mg/L	1.0	No
Nitrite	2025 07 07	<MDL 0.003	mg/L	1.0	No
Nitrite	2025 10 06	<MDL 0.003	mg/L	1.0	No
Nitrate	2025 01 20	0.928	mg/L	10.0	No
Nitrate	2025 04 07	1.17	mg/L	10.0	No
Nitrate	2025 07 07	0.124	mg/L	10.0	No
Nitrate	2025 10 06	0.044	mg/L	10.0	No
Sodium	2021 07 12	38.2	mg/L	20*	Yes

MAC = Maximum Allowable Concentration as per O. Reg. 169/03
MDL = Method Detection Limit
*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. Sodium results exceeding 20 mg/L are to be reported to the Medical Officer of Health as per Schedule 16-3 (8) of O. Reg. 170/03.

Schedule 15 Sampling (Lead)

The Schedule 15 sampling is required under O. Reg. 170/03. This system is under reduced sampling. Only distribution samples were collected, and no plumbing samples were collected.

Table 7. Schedule 15 Test Results (Lead)

	Number of Sampling Points	Number of Samples	Range of Results Minimum	Range of Results Maximum	MAC (µg/L)	Number of Exceedances
Alkalinity (mg/L)	4	8	213	225	N/A	N/A
pH	4	8	7.07	7.47	N/A	N/A
Lead (µg/L)	0	0	N/A	N/A	N/A	N/A

Organic Parameters

These parameters are tested as a requirement under O. Reg. 170/03. In the event any of the parameters listed in Schedule 23 or 24 of O. Reg. 170/03 exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly. Based on the latest test results no additional testing is required.

Table 8. Organic Parameters Test Results

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedance
Treated Water					
Alachlor	2025 01 06	<MDL 0.02	µg/L	5.0	No
Atrazine + N-dealkylated metabolites	2025 01 06	<MDL 0.01	µg/L	5.0	No
Azinphos-methyl	2025 01 06	<MDL 0.05	µg/L	20.0	No
Benzene	2025 01 06	<MDL 0.32	µg/L	1.0	No
Benzo(a)pyrene	2025 01 06	<MDL 0.004	µg/L	0.01	No
Bromoxynil	2025 01 06	<MDL 0.33	µg/L	5.0	No
Carbaryl	2025 01 06	<MDL 0.05	µg/L	90.0	No
Carbofuran	2025 01 06	<MDL 0.01	µg/L	90.0	No
Carbon Tetrachloride	2025 01 06	<MDL 0.17	µg/L	2.0	No
Chlorpyrifos	2025 01 06	<MDL 0.02	µg/L	90.0	No
Diazinon	2025 01 06	<MDL 0.02	µg/L	20.0	No
Dicamba	2025 01 06	<MDL 0.2	µg/L	120.0	No
1,2-Dichlorobenzene	2025 01 06	<MDL 0.41	µg/L	200.0	No
1,4-Dichlorobenzene	2025 01 06	<MDL 0.36	µg/L	5.0	No
1,2-Dichloroethane	2025 01 06	<MDL 0.35	µg/L	5.0	No
1,1-Dichloroethylene	2025 01 06	<MDL 0.33	µg/L	14.0	No
Dichloromethane (Methylene Chloride)	2025 01 06	<MDL 0.35	µg/L	50.0	No
2,4-Dichlorophenol	2025 01 06	<MDL 0.15	µg/L	900.0	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	2025 01 06	<MDL 0.19	µg/L	100.0	No
Diclofop-methyl	2025 01 06	<MDL 0.40	µg/L	9.0	No
Dimethoate	2025 01 06	<MDL 0.06	µg/L	20.0	No
Diquat	2026 01 06	<MDL 1.0	µg/L	70.0	No
Diuron	2025 01 06	<MDL 0.03	µg/L	150.0	No
Glyphosate	2025 01 06	<MDL 1.0	µg/L	280.0	No
Malathion	2025 01 06	<MDL 0.02	µg/L	190.0	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)	2025 01 06	<MDL 0.00012	mg/L	0.01	No
Metolachlor	2025 01 06	<MDL 0.01	µg/L	50.0	No
Metribuzin	2025 01 06	<MDL 0.02	µg/L	80.0	No
Monochlorobenzene (Chlorobenzene)	2025 01 06	<MDL 0.3	µg/L	80.0	No

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedance
Paraquat	2025 01 06	<MDL 1.0	µg/L	10.0	No
PCB	2025 01 06	<MDL 0.04	µg/L	3.0	No
Pentachlorophenol	2025 01 06	<MDL 0.15	µg/L	60.0	No
Phorate	2025 01 06	<MDL 0.01	µg/L	2.0	No
Picloram	2025 01 06	<MDL 1.0	µg/L	190.0	No
Prometryne	2025 01 06	<MDL 0.03	µg/L	1.0	No
Simazine	2025 01 06	<MDL 0.01	µg/L	10.0	No
Terbufos	2025 01 06	<MDL 0.01	µg/L	1.0	No
Tetrachloroethylene	2025 01 05	<MDL 0.35	µg/L	10.0	No
2,3,4,6-Tetrachlorophenol	2025 01 06	<MDL 0.20	µg/L	100.0	No
Triallate	2025 01 06	<MDL 0.01	µg/L	230.0	No
Trichloroethylene	2025 01 06	<MDL 0.44	µg/L	5.0	No
2,4,6-Trichlorophenol	2025 01 06	<MDL 0.25	µg/L	5.0	No
Trifluralin	2025 01 06	<MDL 0.02	µg/L	45	No
Vinyl Chloride	2025 01 06	<MDL 0.17	µg/L	1.0	No
Distribution Water					
Trihalomethane Total Annual Average Q1	2025 01 20	71.00	µg/L	100.0	Yes
Trihalomethane Total Annual Average Q2	2025 04 07	54.00	µg/L	100.0	Yes
Trihalomethane Total Annual Average Q3	2025 07 07	147.00	µg/L	100.0	Yes
Trihalomethane Total Annual Average Q4	2025 10 08	144.00	µg/L	100.0	Yes
HAA Total Annual Average Q1	2025 01 20	63.20	µg/L	80.0	No
HAA Total Annual Average Q2	2025 04 07	56.70	µg/L	80.0	Yes
HAA Total Annual Average Q3	2025 07 07	115.50	µg/L	80.0	Yes
HAA Total Annual Average Q4	2025 10 08	116.00	µg/L	80.0	Yes

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

Additional Legislated Samples

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Table 9. Total Suspended Solids Test Results

Date Legal Instrument Issued	Parameter	Date Sampled	Result	Unit of Measure
Nov 10, 2021	TSS	2025 01 06	3	mg/L
Nov 10, 2021	TSS	2025 02 03	9	mg/L
Nov 10, 2021	TSS	2025 03 03	<2	mg/L
Nov 10, 2021	TSS	2025 04 01	2	mg/L
Nov 10, 2021	TSS	2025 05 12	3	mg/L
Nov 10, 2021	TSS	2025 06 02	4	mg/L
Nov 10, 2021	TSS	2025 07 07	<2	mg/L
Nov 10, 2021	TSS	2025 08 05	3	mg/L
Nov 10, 2021	TSS	2025 09 08	2	mg/L
Nov 10, 2021	TSS	2025 10 06	2	mg/L
Nov 10, 2021	TSS	2025 11 03	<2	mg/L
Nov 10, 2021	TSS	2025 12 01	<2	mg/L
Summary	**TSS**	**2025**	**Min: <2 Max: 9 Avg: 3 based on 12 numerical results**	**mg/L**

Harmful Algal Blooms monitoring is required as a condition within the Municipal Drinking Water Licence between June and October of each reporting year at a minimum. Treated and Raw samples are collected weekly during this time period and tested for Microcystin, which is an indicator for harmful algal blooms.

Table 10. Microcystin Sample Results

Municipal Drinking Water Licence	Collected Weekly June – Oct	Total Microcystin Raw Results Range (µg/L)	Total Microcystin Treated Water Results Range (µg/L)	Treated Water Total Microcystin Limit 1.5 µg/L Exceeded
Harmful Algal Blooms Monitoring	June	<0.1 - <0.1	<0.1 - <0.1	N
	July	<0.1 - <0.1	<0.1 - <0.1	N
	August	<0.1 – 0.2	<0.1 - <0.1	N
	September	<0.1 - <0.1	<0.1 - <0.1	N
	October	<0.1 - <0.1	<0.1 – 0.2	N

Method Detection Limit is 0.1 µg/L

Major Maintenance Expense (above $10,000)

Under Section 11 of O. Reg. 170/03, a description of any major expenses incurred during this reporting period to install, repair or replace required equipment must be included in the annual report. The details of the major expenses for this drinking water system are as follows:

Lindsay Water Treatment Plant

- Addition of de-tuning plants to highlift pumps #1 & #2 (WO#78991) - $27,006.60
- Replacement of VFD on main backwash pump (WO#915167) - $19,904.50
- Highlift pump #3 refurbishment (PO 914213 OC) - $106,171.00
- Rebuild actiflo sand recirculation pump (WO#87012) - $12,537.18

Oakwood Reservoir

- SCADA upgrades (PO 913940 OC) - $58,100.00

Thornhill Reservoir

No major maintenance during reporting period.

Verulam Tower

No major maintenance during reporting period.

Lindsay Distribution System

- King Street Reconstruction (Lindsay Street to St. David Street) - $1,638,160
- Pottinger Street Reconstruction (Victoria Avenue to West End) - $2,388,290
- Glenelg Street Reconstruction (Lindsay Street S to Victoria Ave. S) - $1,725,558
- Lindsay Street Reconstruction (Logie Street to Highway #7) - $3,141,798

APPENDIX A

WTR Submission Confirmation