

BUCKHORN LAKE ESTATES DRINKING WATER SYSTEM WATERWORKS # 220006437

SYSTEM CATEGORY – LARGE MUNICIPAL RESIDENTIAL

ANNUAL WATER REPORT

PREPARED FOR
The Municipality of Trent Lakes

SUBMITTED BY
Ontario Clean Water Agency

Reporting Period of January 1 – December 31, 2025

Issued: February 26, 2026

Revision: 0

Operating Authority: Ontario Clean Water Agency (OCWA)

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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General Information

The Municipality of Trent 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 are available to residents at the Municipality of Trent Lakes Office, and copies will be provided free of charge upon request. The office is located at 760 Peterborough County Road 36 in Trent Lakes, Ontario. A digital copy of the annual report is also available on the Municipality of Trent Lakes website at www.trentlakes.ca.

This system does not serve more than 10,000 residents.

Drinking Water System Number: 220006437

Drinking Water System Name: Buckhorn Lake Estates DWS

Drinking Water System Owner: Municipality of Trent Lakes

Drinking Water System Category: Large Municipal Residential

Period Being Reported: January 1, 2025 - December 31, 2025

Compliance Summary

Table 1. Compliance Summary

	Number of Events	Date (yyyy/mm/dd)	Details
Ministry (MECP) Inspections	1	2025/01/27	2024/2025 MECP Announced Focused Inspection, 100% rating
Adverse Water Quality Incidents (AWQIs)	0	N/A	N/A
Non-Compliances	0	N/A	N/A
Boil Water Advisories	0	N/A	N/A
Health and Safety	0	N/A	N/A

Drinking Water System Description

The Buckhorn Lake Estates Drinking Water System is a large municipal residential drinking water system that serves the subdivision of Buckhorn Lake Estates located in Trent Lakes, Ontario. The drinking water system is classified as a Class II Water Treatment and Class I Water Distribution subsystems under O. Reg 128/04.

Source Water

The water supply for the system comes from one GUDI well.

Water Treatment Facility

The drinking water system consists of sodium hypochlorite primary and secondary disinfection systems, a polymer (SternPAC) feed system, and a sodium permanganate injection system for use as and when necessary complete with alarm on flow failure.

Raw water first receives primary chlorine injection upstream of four (4) oxidation retention tanks, which now function primarily as contact piping since iron and manganese levels in the source water have been mitigated. Polymer solution is injected between the second and third retention tanks. After oxidation contact time, water flows through two (2) parallel dual-media granular pressure filters, each equipped with a continuous turbidity analyzer. Backwash wastewater is directed to two interconnected below-grade settling tanks, from which clarified supernatant is discharged to an onsite subsurface drainage bed.

Filtered water enters the clearwell system, consisting of two interconnected underground concrete clearwells, providing chlorine contact time and treated water storage. A continuous free chlorine residual analyzer is located downstream of the clearwells, with a second analyzer installed on the highlift pump discharge header. From the clearwells, treated water is pumped to the distribution system by two (2) centrifugal high lift pumps. Four (4) hydropneumatics pressure vessels are connected to the discharge header to reduce the frequency of pump starts/stops to protect the pump motors.

The system includes two (2) magnetic flow meters (one on the well and one on the high lift pump discharge header), two (2) continuous free chlorine residual analyzers (one located downstream of the clearwell prior to secondary chlorination and one located on the high lift pump discharge header), and three (3) turbidity analyzers – two monitoring filtrate quality and one monitoring treated water quality.

A propane generator is onsite to provide standby power to the water treatment facility in the event of a power failure.

Distribution System

The distribution system has approximately two kilometers of watermains and is not rated for fire protection. The watermains in the distribution system are all PVC. There is no storage, chlorine boosting, secondary disinfection or pressure boosting capabilities within the control of the distribution system.

Table 2. Treatment Chemicals Used

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Jutzi Water Technologies
SternPAC	Coagulant	Kemira
Sodium Permanganate	Iron Sequestering	System not in use during reporting period

Summary of Non-Compliance

Adverse Water Quality Incidents

There were no adverse water quality incidents reported during this reporting period.

Non-Compliance

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

Non-Compliance Identified in a Ministry Inspection:

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

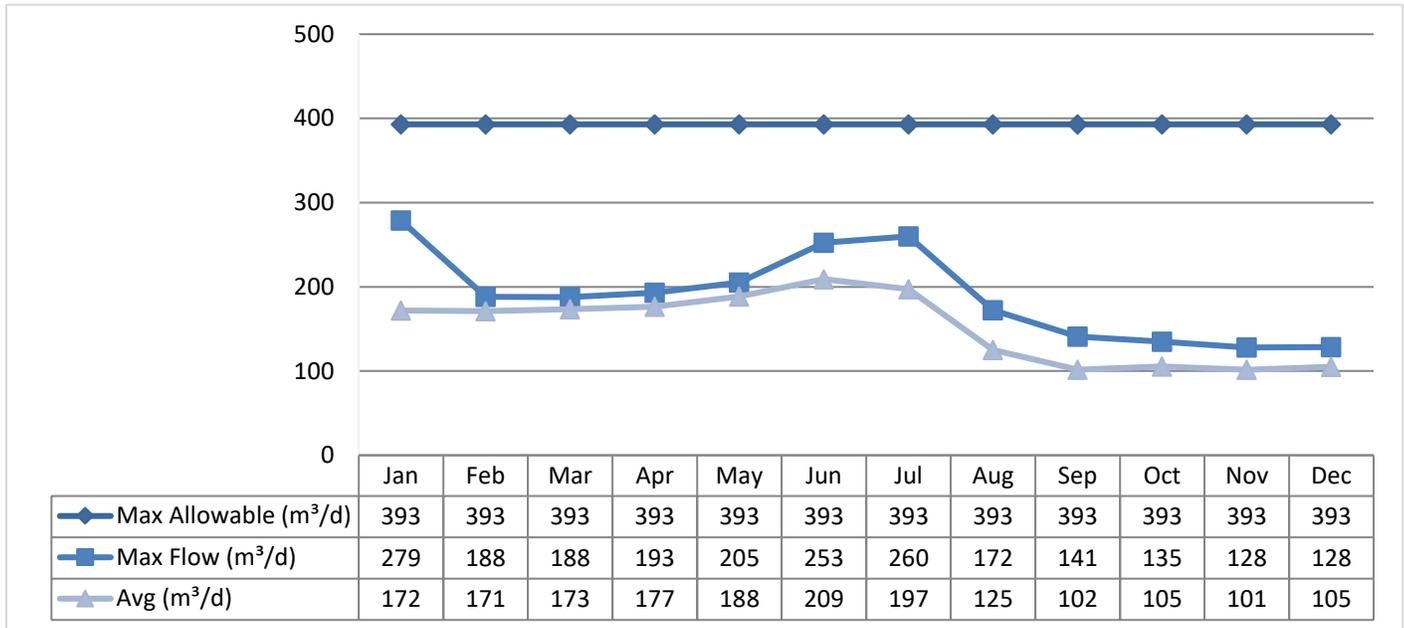
Flows

The Buckhorn Lake Estates Drinking Water System is operating on average under half the rated capacity. The rated capacity of the system (treated water flows) is 393m³/day.

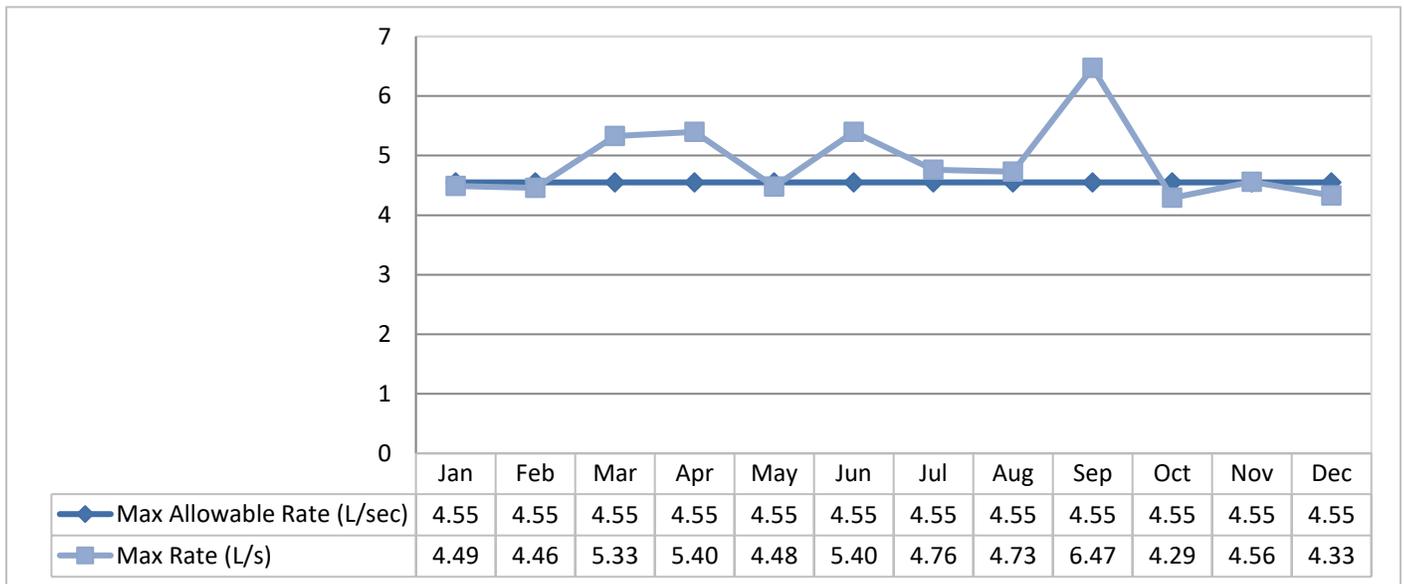
Raw Water Flows

The raw water flows are regulated under the Permit to Take Water (PTTW). Raw flow data for 2025 was submitted to the Ministry of the Environment, Conservation and Parks electronically under permit No. P-300-7202725183. The confirmation of the data that was submitted is attached in Appendix A.

Graph 1. Total Monthly Flows (m³/d) – Well #1 (Max Allowable PTTW)



Graph 2. Monthly Rated Flows (L/s) – Well #1 (Max Allowable PTTW)

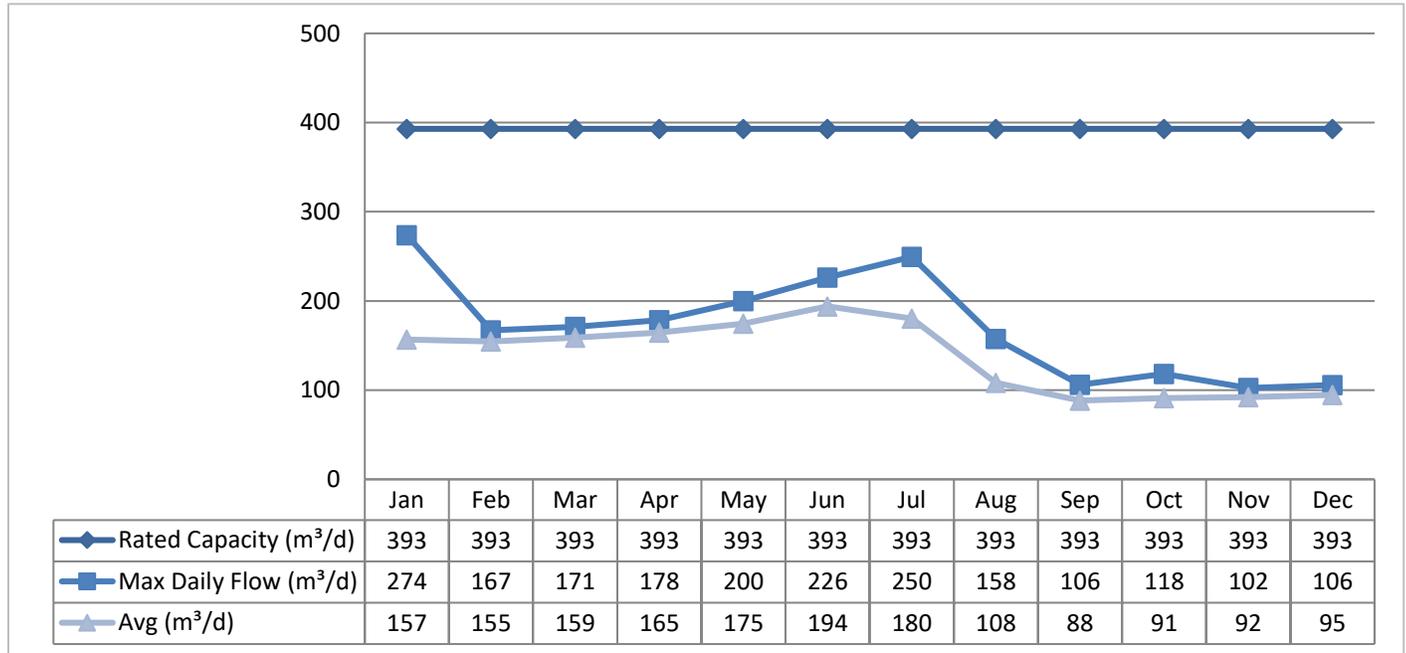


Note: Certain operational circumstances could cause results to be temporarily outside of the allowable rates. In April 2025, the allowable rate was momentarily surpassed due to annual calibration of the flow meter and did not indicate a true exceedance. In the other months, the allowable rate was momentarily surpassed due to generator transfers, which did not indicate a true exceedance, and brief spikes caused by well pump start up.

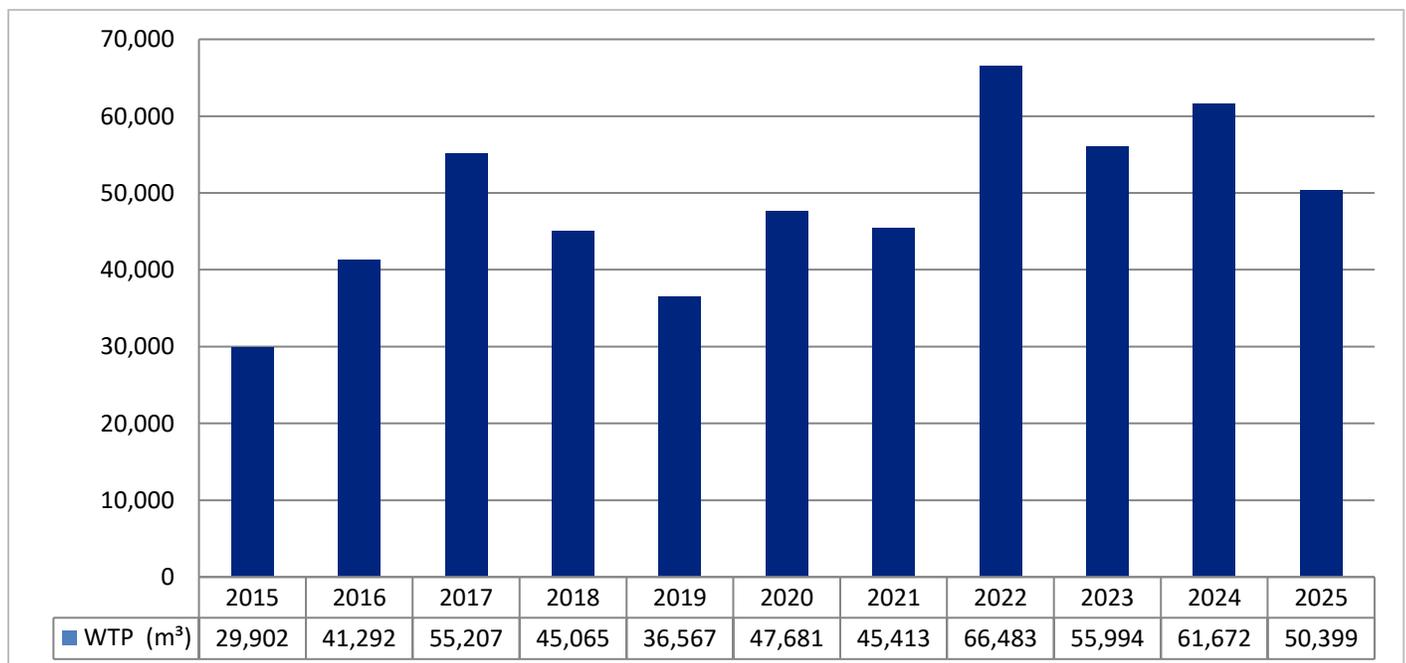
Treated Water Flows

The Treated Water flows are regulated under the Municipal Drinking Water Licence 244-101.

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



Graph 4. Annual Total Flow Comparison (m³)



Regulatory Sample Results Summary

Microbiological Testing

Table 3. Microbiological Test Results

	No. of Samples Collected	Range of E. Coli Results		Range of Total Coliform Results		Range of HPC Results	
		Min	Max	Min	Max	Min	Max
Raw Well 1	52	0	1	0	4	N/A	N/A
Treated	52	0	0	0	0	0	16
Distribution	156	0	0	0	0	0	2

Operational Testing

Table 4. Operational Test Results

Parameter	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity Well 1 (NTU)	12	0.16	0.26
Turbidity – Filter 1 (NTU)	8760	0.00	2.02
Turbidity – Filter 2 (NTU)	8760	0.00	2.00
Treated Water Chlorine (mg/L)	8760	1.28	3.09
Fluoride (If the DWS provides fluoridation)	N/A	N/A	N/A

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 170/03. Sodium and Fluoride are required to be tested every 5 years. Nitrate and Nitrite are tested quarterly and the metals are tested annually as required under 170/03. In the event any of the metal parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

Table 5. Inorganic Parameters Test Results

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedances	
					MAC	1/2 MAC
Treated Water						
Antimony	2025/01/06	<MDL 0.6	µg/L	6.0	No	No
Arsenic	2025/01/06	<MDL 0.2	µg/L	10.0	No	No
Barium	2025/01/06	134.0	µg/L	1000.0	No	No
Boron	2025/01/06	23.0	µg/L	5000.0	No	No
Cadmium	2025/01/06	<MDL 0.003	µg/L	5.0	No	No
Chromium	2025/01/06	0.25	µg/L	50.0	No	No
Mercury	2025/01/06	<MDL 0.01	µg/L	1.0	No	No
Selenium	2025/01/06	0.18	µg/L	50.0	No	No
Uranium	2025/01/06	0.18	µg/L	20.0	No	No
Additional Inorganics						
Fluoride	2023/01/05	<MDL 0.06	mg/L	1.5	No	No
Nitrate	2025/01/06	3.04	mg/L	10.0	No	No
Nitrate	2025/04/07	2.68	mg/L	10.0	No	No
Nitrate	2025/07/07	1.41	mg/L	10.0	No	No
Nitrate	2025/10/06	2.06	mg/L	10.0	No	No
Nitrite	2025/01/06	<MDL 0.003	mg/L	1.0	No	No
Nitrite	2025/04/07	<MDL 0.003	mg/L	1.0	No	No
Nitrite	2025/07/07	<MDL 0.003	mg/L	1.0	No	No
Nitrite	2025/10/06	<MDL 0.003	mg/L	1.0	No	No
Sodium	2023/01/11	46.8	mg/L	20*	Yes	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. 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.

Table 6. Schedule 15 Test Results (Lead)

Distribution System	Number of Sampling Points	Number of Samples	Range of Results Minimum	Range of Results Maximum	MAC (µg/L)	Number of Exceedances
Alkalinity (mg/L)	1	2	311	430	N/A	N/A
pH	1	2	6.88	7.11	N/A	N/A
Lead (µg/L)	1	2	0.68	5.22	10	0

MAC = Maximum Allowable Concentration as per O. Reg. 169/03

Organic Parameters

These parameters are tested annually 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.

Table 7. Organic Parameters Test Results

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedances	
					MAC	1/2 MAC
Treated Water						
Alachlor	2025/01/06	<MDL 0.02	µg/L	5.00	No	No
Atrazine + N-dealkylated metabolites	2025/01/06	<MDL 0.01	µg/L	5.00	No	No
Azinphos-methyl	2025/01/06	<MDL 0.05	µg/L	20.00	No	No
Benzene	2025/01/06	<MDL 0.32	µg/L	1.00	No	No
Benzo(a)pyrene	2025/01/06	<MDL 0.004	µg/L	0.01	No	No
Bromoxynil	2025/01/06	<MDL 0.33	µg/L	5.00	No	No
Carbaryl	2025/01/06	<MDL 0.05	µg/L	90.00	No	No
Carbofuran	2025/01/06	<MDL 0.01	µg/L	90.00	No	No
Carbon Tetrachloride	2025/01/06	<MDL 0.17	µg/L	2.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedances	
					MAC	1/2 MAC
Chlorpyrifos	2025/01/06	<MDL 0.02	µg/L	90.00	No	No
Diazinon	2025/01/06	<MDL 0.02	µg/L	20.00	No	No
Dicamba	2025/01/06	<MDL 0.20	µg/L	120.00	No	No
1,2-Dichlorobenzene	2025/01/06	<MDL 0.41	µg/L	200.00	No	No
1,4-Dichlorobenzene	2025/01/06	<MDL 0.36	µg/L	5.00	No	No
1,2-Dichloroethane	2025/01/06	<MDL 0.35	µg/L	5.00	No	No
1,1-Dichloroethylene	2025/01/06	<MDL 0.33	µg/L	14.00	No	No
Dichloromethane (Methylene Chloride)	2025/01/06	<MDL 0.35	µg/L	50.00	No	No
2,4-Dichlorophenol	2025/01/06	<MDL 0.15	µg/L	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	2025/01/06	<MDL 0.19	µg/L	100.00	No	No
Diclofop-methyl	2025/01/06	<MDL 0.4	µg/L	9.00	No	No
Dimethoate	2025/01/06	<MDL 0.06	µg/L	20.00	No	No
Diquat	2025/01/06	<MDL 1.0	µg/L	70.00	No	No
Diuron	2025/01/06	<MDL 0.03	µg/L	150.00	No	No
Glyphosate	2025/01/06	<MDL 1.0	µg/L	280.00	No	No
Malathion	2025/01/06	<MDL 0.02	µg/L	190.00	No	No
Metolachlor	2025/01/06	<MDL 0.01	µg/L	50.00	No	No
Metribuzin	2025/01/06	<MDL 0.02	µg/L	80.00	No	No
Monochlorobenzene (Chlorobenzene)	2025/01/06	<MDL 0.3	µg/L	80.00	No	No
Paraquat	2025/01/06	<MDL 1.0	µg/L	10.00	No	No
PCB	2025/01/06	<MDL 0.04	µg/L	3.00	No	No
Pentachlorophenol	2025/01/06	<MDL 0.15	µg/L	60.00	No	No
Phorate	2025/01/06	<MDL 0.01	µg/L	2.00	No	No
Picloram	2025/01/06	<MDL 1.0	µg/L	190.00	No	No
Prometryne	2025/01/06	<MDL 0.03	µg/L	1.00	No	No
Simazine	2025/01/06	<MDL 0.01	µg/L	10.00	No	No
Terbufos	2025/01/06	<MDL 0.01	µg/L	1.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedances	
					MAC	1/2 MAC
Tetrachloroethylene	2025/01/06	<MDL 0.35	µg/L	10.00	No	No
2,3,4,6-Tetrachlorophenol	2025/01/06	<MDL 0.2	µg/L	100.00	No	No
Triallate	2025/01/06	<MDL 0.01	µg/L	230.00	No	No
Trichloroethylene	2025/01/06	<MDL 0.44	µg/L	5.00	No	No
2,4,6-Trichlorophenol	2025/01/06	<MDL 0.25	µg/L	5.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)	2025/01/06	<MDL 0.12	µg/L	100	No	No
Trifluralin	2025/01/06	<MDL 0.02	µg/L	45.0	No	No
Vinyl Chloride	2025/01/06	<MDL 0.17	µg/L	1.00	No	No
Distribution Water						
Haloacetic Acids Running Annual Average Q1	2025/01/06	<MDL 5.30	µg/L	80	No	N/A
Haloacetic Acids Running Annual Average Q2	2025/04/07	<MDL 5.30	µg/L	80	No	N/A
Haloacetic Acids Running Annual Average Q3	2025/07/07	7.03	µg/L	80	No	N/A
Haloacetic Acids Running Annual Average Q4	2025/10/06	31.85	µg/L	80	No	N/A
Trihalomethane Running Annual Average Q1	2025/01/06	29.50	µg/L	100	No	N/A
Trihalomethane Running Annual Average Q2	2025/04/07	25.50	µg/L	100	No	N/A
Trihalomethane Running Annual Average Q3	2025/07/07	27.25	µg/L	100	No	N/A

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedances	
					MAC	1/2 MAC
Trihalomethane Running Annual Average Q4	2025/10/06	33.25	µg/L	100	No	N/A

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

Additional Legislated Samples

Table 8. Additional Legislated Samples Test Results

	Collected Weekly June – Oct	Total Microcystin Raw Water 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	-	N
	July	<0.1 - <0.1	-	N
	August	<0.1 - <0.1	-	N
	September	<0.1 - <0.1	-	N
	October	<0.1 - <0.1	-	N

The following additional samples are not required but Iron and Manganese are sampled regularly to provide operational guidance.

Table 9. Iron and Manganese Test Results

Parameter	Location	No. of Samples Collected	Range of Results	
			Minimum	Maximum
Iron (µg/L)	Raw	22	7	747
Iron (µg/L)	Treated	22	<7MDL	166
Manganese (µg/L)	Raw	22	0.94	161
Manganese (µg/L)	Treated	22	0.22	26.2

Minor Maintenance

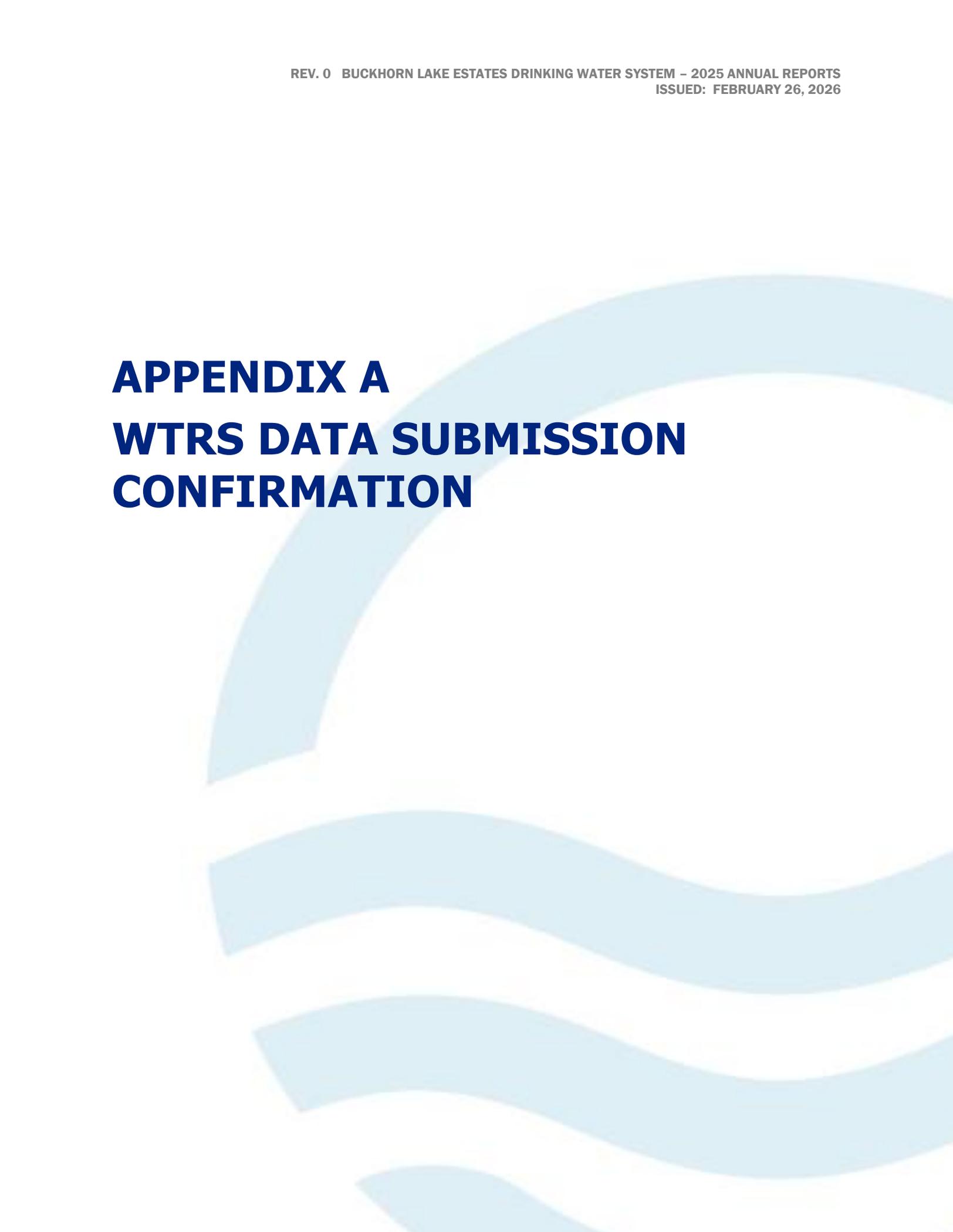
Table 10. Minor Maintenance

Item #	Description
1	Alarm DSC keypad, replacement
2	UPS, Filter PLC, replace
3	Service repair, 72/74 Sumcot Dr.
4	Communication antenna mount damage, inspect/repair
5	Injector fitting pipe replacement
6	Alarm panel GSM installation/communication issue repair
7	Pre chlorine analyzer probe replacement
8	Service leak repair, 8/10 Phillips Crt.

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 to install, repair or replace required equipment must be included in the annual report.

Nothing to report for the reporting period.



APPENDIX A

WTRS DATA SUBMISSION

CONFIRMATION

WTRS Data Submission Confirmation

Hello,

Attached is a copy of your completed Online Reporting. Please keep this for your records should you need it for future reference.

Service Name: Confirmation of Water Taking PTTW Reporting Submission - 2025

Date/Time Submitted: Feb 4, 2026 10:20:46 AM

Submission Confirmation#: 1000335552

Submitted To:

Ministry of the Environment, Conservation and Parks Water User Reporting Section

[125 Resources Road, West Wing](#)

[Toronto, ON M9P 3V6](#)

[Tel:1-877-344-2011](tel:1-877-344-2011)

Local:416-235-6322

email:wtrshelpdesk@ontario.ca

Should you have any questions or comments regarding your online form submission, please call or email the Ministry listed above.

****Note: This is an automatically generated email, please do not reply****

Kind regards,

Ministry of the Environment, Conservation and Parks