

Cobden Drinking Water System

Waterworks # 220001218
System Category – Large Municipal Residential

Annual Water Report

Prepared For: The Township of Whitewater Region

Reporting Period of January 1st – December 31st 2025

Issued: February 20, 2026

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Operating Authority:



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

The annual report will be available to residents at the Township of Whitewater Region's Municipal Office and copies provided free of charge if requested. The Township of Whitewater Region's Municipal Office is located at, 44 Main Street, Cobden, Ontario.

There are no additional drinking water systems that receive water from this facility.

Compliance Report Card

Compliance Event	# of Events
Ministry of Environment Inspections	1 MECP Inspections on October 21, 2025 with a rating of 95.7%
Ministry of Labour Inspections	0
QEMS External Audit	1 surveillance audit on February 24, 2025. No major or minor non-conformances were identified.
AWQI's/BWA	3 AWQI – See Summary of Non-Compliance for Details / 0
Non-Compliance	0
Community Complaints	8
Spills	0
Watermain Breaks	2 – See Distribution Maintenance for details

System Process Description

Raw Source

The Cobden water treatment plant receives raw water from Muskrat Lake. The intake for the water treatment plant consists of a 300 mm diameter pipe located approximately 12.2 m below the water surface, and is equipped with polyethylene lines for seasonal potassium permanganate dosing for zebra mussel and manganese control and for raw water sampling. Water flows by gravity from the intake structure and enters two interconnected intake wet wells with a total volume of 70 m³. Two vertical turbine low lift pumps convey water into the treatment system. A flow meter is installed on the low lift discharge header to allow accurate monitoring of water takings.

Treatment

The Cobden water treatment plant uses chemically assisted filtration to treat the raw water before disinfection occurs. Similar to the intake crib, potassium permanganate is added seasonally at the raw water discharge header for additional manganese control. Raw water leaving the wet wells is injected with the coagulant, PAS-8 and the coagulant aid, Superfloc polymer and is then mixed via an inline static

mixer. The Cobden water treatment plant consists of an Ecodyne Package Unit and Corix Treatment Unit. Flow is directed to one treatment unit at a time. The unit's both feature a tank for coagulation and flocculation. This tank has a mixer to facilitate the process. The next stage is sedimentation. The sedimentation tank utilizes tube settlers to allow the floc to settle. Clarified water off the top of the tank is collected in troughs and distributed to the two-cell dual media (sand/anthracite) gravity filters. A common underdrain collects filter effluent from both cells, and a continuous online turbidimeter monitors each of the filters effluent turbidity.

Sodium hypochlorite is injected into the filtered water prior to entering a dual-celled baffled clearwell with total volume of 187 m³. The clearwell provides sufficient contact time to meet primary disinfection. Water flows from the clearwell by two high lift pumps into the distribution system. Sodium hypochlorite is injected into the water again before travelling to the distribution system.

Process wastewater is directed to a wastewater tank and discharged to the sanitary sewer. The supernatant chamber which discharges to the lake is no longer in use.

Distribution

The Cobden Distribution System is a Class 1 Distribution System that serves a population of approximately 1000. The distribution system includes 9.2 km of watermain, 61 fire hydrants, and a 900 m³ elevated water storage tank located at 44 Gould Street. Four sample stations are available on Simmons Drive, Ross Street, Main Street and Morrison Drive to facilitate distribution sampling and provide adequate chlorine residuals in the distributed water.

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
PAS-8	Coagulation & Flocculation	Kemira
Superfloc 492PWG	Coagulant Aid (Polymer)	Kemira
Sodium Hypochlorite (12%)	Disinfection	Brenntag
Potassium Permanganate (granular 97.5%)	Zebra Mussel and Manganese Control	Cariox via Brenntag

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
06-24-2025	168739	3 Simmons Dr	Bacti sample adverse result	Distribution sample overgrown for both E. coli and Total Coliform	O. Reg. 169/03	Flushed distribution system in area of adverse. Re-sampled location of adverse as well as treated water. Results came back clear.
08-12-2025	169432	32 Ross St	Bacti sample adverse result	Distribution sample result of 2 Total Coliform	O. Reg. 169/03	Re-sampled location of adverse as well as two other nearby sample locations. Results came back all clear.
09-21-2025	170018	Distribution system	Excess potassium permanganate in system causing pink water	Malfunction with the potassium permanganate pump caused the chemical to be dosed continuously even though it was not called to operate.	N/A	Stopped chemical pump until issue could be resolved. Collected samples in the distribution system and tested for potassium and manganese.

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
None to report.				

Non-Compliance Identified in a Ministry Inspection:

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
O. Reg 170/03	Failure to dose coagulant at all times that water is being directed to the next step in the treatment process.	September 5, 2024	It was discovered that the coagulant was being dosed back into the day tank due to a malfunctioned check valve. The incident was reported under AWQI 166220 in 2024 when the event occurred.	Complete

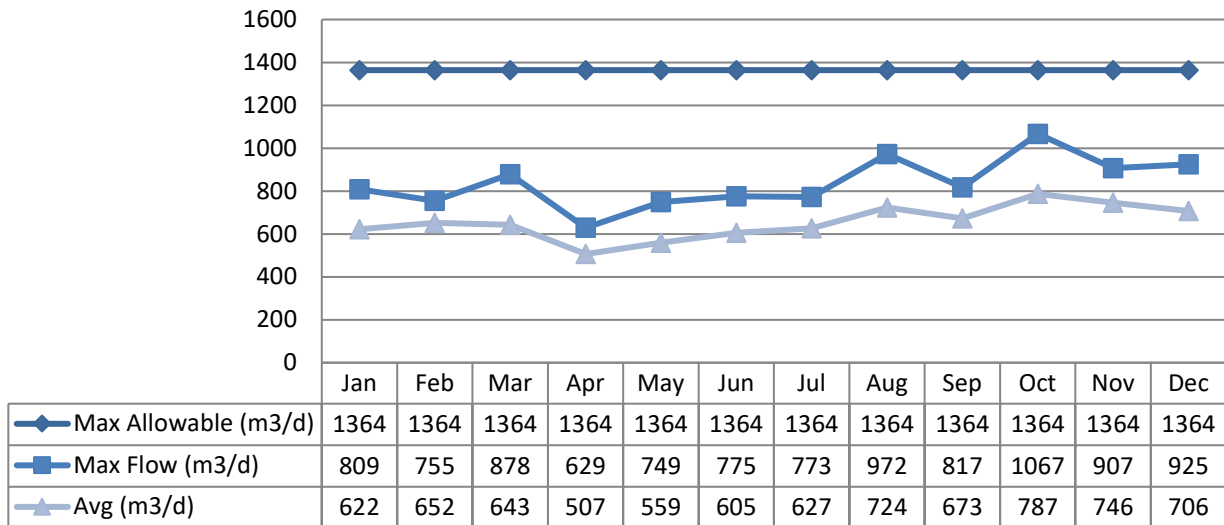
Flows

Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water. 2025 Raw Flow Data was submitted to the Ministry electronically under permit #P-300-1175250711. The confirmations that the data was submitted are attached in Appendix A.

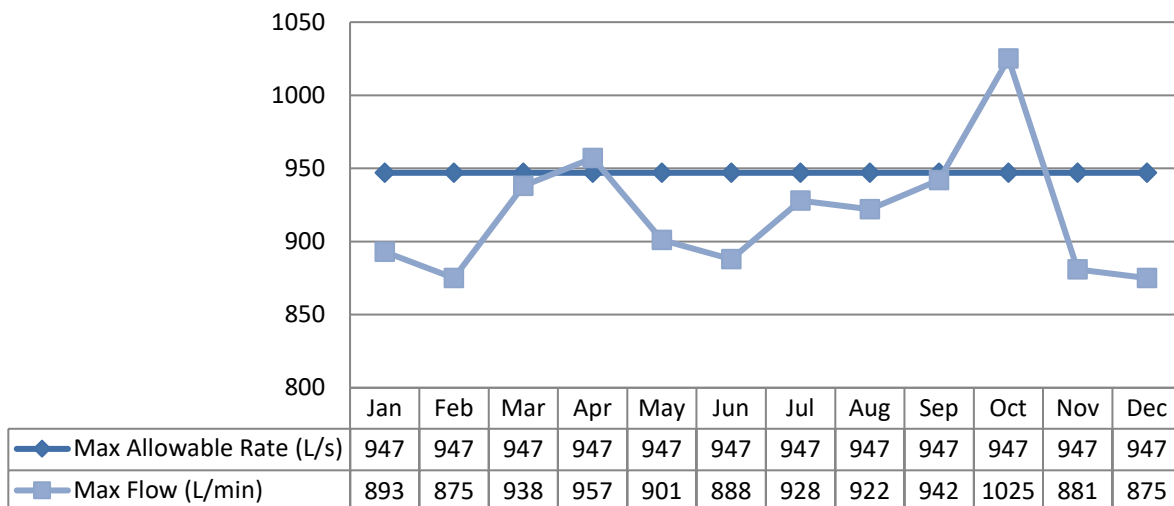
Total Monthly Flows

Max Allowable PTTW



Maximum Flow Rates

Max Allowable Rate - PTTW



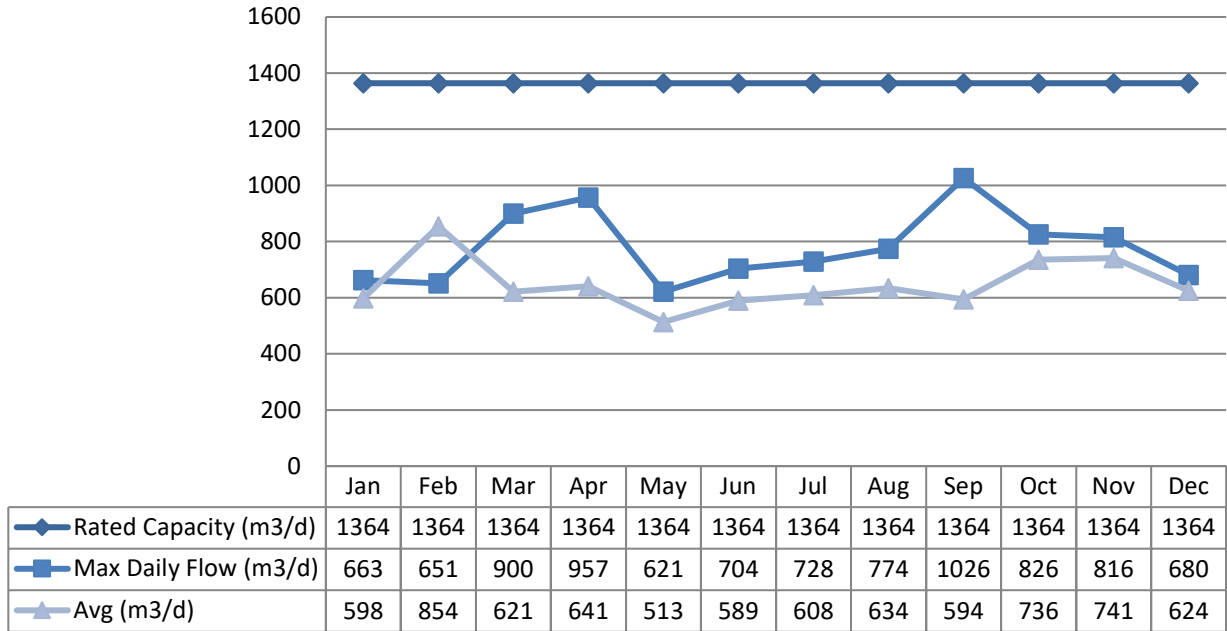
*Note spikes in flow rate that are above max allowable rate were on low lift pump start up and lasted less than a minute, events under a minute are not reportable as a PTTW exceedance

Treated Water Flows

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

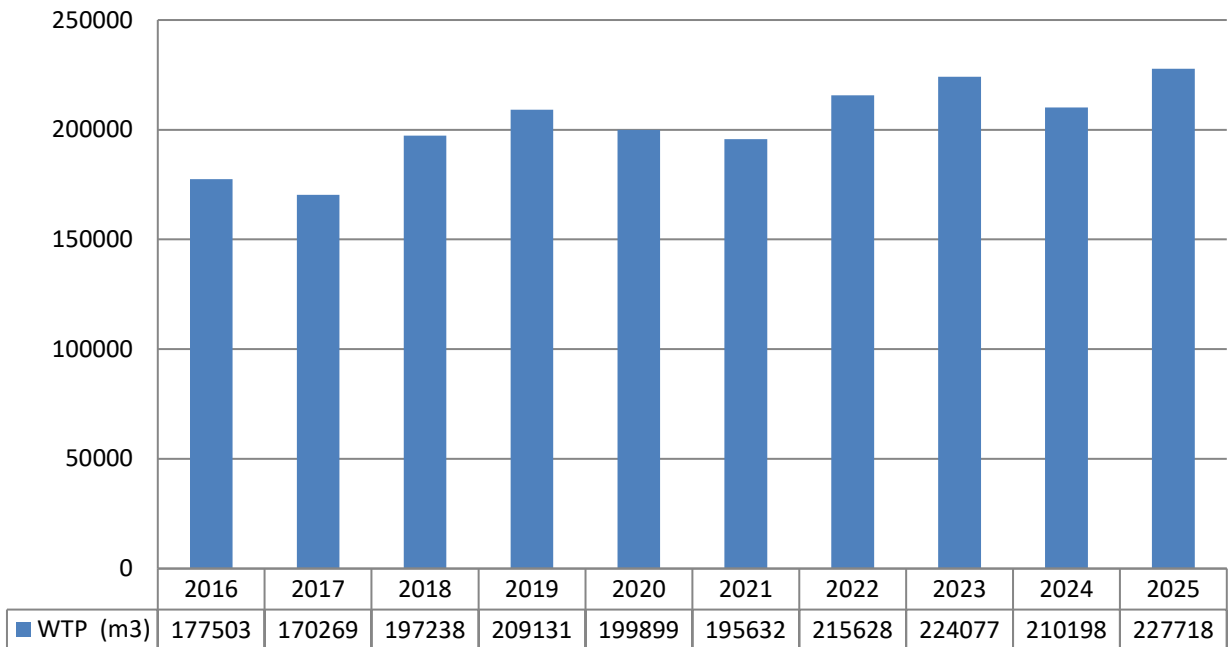
Monthly Rated Flows

Rated Capacity - MDWL



Annual Total Flow Comparison

Total Annual m3



Regulatory Sample Results Summary

Microbiological Testing

	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 Water	52	0	12	0	117	N/A	N/A
Treated Water	53	0	0	0	0	0	4
Distribution Water	114	0	0	0	2	0	210

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW	215	0.10	7.00
Turbidity, In-House (NTU) - TW	198	0.12	1.41
Turbidity, On-Line (NTU) - TW	8760	0.09	1.52
Turbidity, On-Line (NTU) - Filter 1	8760	0.00	0.78
Turbidity, On-Line (NTU) - Filter 2	8760	0.00	1.01
Highlift Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.34	2.83
Free Chlorine Residual, In House (mg/L) - DW	310	0.17	1.94

NOTE: 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 and Fluoride are required to be tested every 60 months. Nitrate and Nitrite are tested quarterly and metals are tested annually as required under O. Reg. 170/03. In the event any parameter exceeds half the maximum allowable concentration the parameter is required to be sampled quarterly.

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

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Treated Water					
Antimony: Sb (ug/L) - TW	2025/01/14	<MDL 0.6	6.0	No	No
Arsenic: As (ug/L) - TW	2025/01/14	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2025/01/14	30.5	1000.0	No	No
Boron: B (ug/L) - TW	2025/01/14	10.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2025/01/14	<MDL 0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2025/01/14	0.18	50.0	No	No
Mercury: Hg (ug/L) - TW	2025/01/14	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2025/01/14	0.08	50.0	No	No
Uranium: U (ug/L) - TW	2025/01/14	0.303	20.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Additional Inorganics					
Nitrite (mg/L) - TW	2025/01/14	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2025/04/08	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2025/07/08	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2025/10/07	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2025/01/14	0.273	10.0	No	No
Nitrate (mg/L) - TW	2025/04/08	0.316	10.0	No	No
Nitrate (mg/L) - TW	2025/07/08	0.239	10.0	No	No
Nitrate (mg/L) - TW	2025/10/21	0.042	10.0	No	No
Fluoride (mg/L) - TW	2024/01/09	0.11	1.5	No	No
Sodium: Na (mg/L) - TW	2024/01/09	17.4	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 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. Lead is required to be collected every 3 years and was last collected in 2024.

Distribution System	Number of Sampling Points	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	2	4	111	130	N/A	N/A
pH	2	4	7.31	8.07	N/A	N/A
Lead (ug/L)	2	N/A	N/A	N/A	10	0

Organic Parameters

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

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

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Treated Water					
Alachlor (ug/L) - TW	2025/01/15	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2025/01/15	0.02	5.0	No	No
Azinphos-methyl (ug/L) - TW	2025/01/15	<MDL 0.05	20.0	No	No
Benzene (ug/L) - TW	2025/01/15	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (ug/L) - TW	2025/01/15	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2025/01/15	<MDL 0.33	5.0	No	No
Carbaryl (ug/L) - TW	2025/01/15	<MDL 0.05	90.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Carbofuran (ug/L) - TW	2025/01/15	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (ug/L) - TW	2025/01/15	<MDL 0.17	2.0	No	No
Chlorpyrifos (ug/L) - TW	2025/01/15	<MDL 0.02	90.0	No	No
Diazinon (ug/L) - TW	2025/01/15	<MDL 0.02	20.0	No	No
Dicamba (ug/L) - TW	2025/01/15	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (ug/L) - TW	2025/01/15	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (ug/L) - TW	2025/01/15	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (ug/L) - TW	2025/01/15	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (ug/L) - TW	2025/01/15	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2025/01/15	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (ug/L) - TW	2025/01/15	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2025/01/15	<MDL 0.19	100.0	No	No
Diclofop-methyl (ug/L) - TW	2025/01/15	<MDL 0.4	9.0	No	No
Dimethoate (ug/L) - TW	2025/01/15	<MDL 0.06	20.0	No	No
Diquat (ug/L) - TW	2025/01/15	<MDL 1.0	70.0	No	No
Diuron (ug/L) - TW	2025/01/15	<MDL 0.03	150.0	No	No
Glyphosate (ug/L) - TW	2025/01/15	<MDL 1.0	280.0	No	No
Malathion (ug/L) - TW	2025/01/15	<MDL 0.02	190.0	No	No
Metolachlor (ug/L) - TW	2025/01/15	<MDL 0.01	50.0	No	No
Metribuzin (ug/L) - TW	2025/01/15	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2025/01/15	<MDL 0.3	80.0	No	No
Paraquat (ug/L) - TW	2025/01/15	<MDL 1.0	10.0	No	No
PCB (ug/L) - TW	2025/01/15	<MDL 0.04	3.0	No	No
Pentachlorophenol (ug/L) - TW	2025/01/15	<MDL 0.15	60.0	No	No
Phorate (ug/L) - TW	2025/01/15	<MDL 0.01	2.0	No	No
Picloram (ug/L) - TW	2025/01/15	<MDL 1.0	190.0	No	No
Prometryne (ug/L) - TW	2025/01/15	<MDL 0.03	1.0	No	No
Simazine (ug/L) - TW	2025/01/15	<MDL 0.01	10.0	No	No
Terbufos (ug/L) - TW	2025/01/15	<MDL 0.01	1.0	No	No
Tetrachloroethylene (ug/L) - TW	2025/01/15	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2025/01/15	<MDL 0.2	100.0	No	No
Triallate (ug/L) - TW	2025/01/15	<MDL 0.01	230.0	No	No
Trichloroethylene (ug/L) - TW	2025/01/15	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2025/01/15	<MDL 0.25	5.0	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW	2025/01/15	<MDL 0.12	100.0	No	No
Trifluralin (ug/L) - TW	2025/01/15	<MDL 0.02	45.0	No	No
Vinyl Chloride (ug/L) - TW	2025/01/15	<MDL 0.17	1.0	No	No

Distribution samples are tested quarterly for THM's and HAA's in accordance with O. Reg. 170/03.

	Sample Year	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Distribution Water					
Trihalomethane (THM): Total (ug/L) – DW*	2025	94.9	100.0	No	Yes
Haloacetic Acid (HAA): Total (ug/L) - DW*	2025	67.18	80.0	No	Yes

*Running Annual Average

<MDL = Less than Method Detection Limit

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

Additional Legislated Samples

Schedule C: System-Specific Conditions of Municipal Drinking Water License #203-202 requires the Cobden Drinking Water System to have a Harmful Algal Bloom (HAB) plan. Muskrat Lake, the raw water source for the Cobden DWS, has a known history of Blue-Green Algae blooms. The HAB plan is implemented when the source water has a history of blooms or a potential harmful algal bloom is suspected or present. The HAB plan requires Raw and Treated water be sampled on a weekly basis for Microcystin during the Harmful Algal Bloom season, which occurs from June 1st to October 31st of each year.

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Microcystin (ug/L) - RW	25	<MDL 0.1	0.1
Microcystin (ug/L) - TW	25	<MDL 0.1	<MDL 0.1

<MDL = Less than Method Detection Limit

The Cobden DWS HAB Plan requires any result of detected microcystin in the raw water to be reported to the Spills Action Centre and continue sampling at a minimum weekly frequency until 3 consecutive sets of samples indicate no detectable microcystin and a bloom is not suspected or observed. The chart below details reported microcystin results in 2025.

Date Sample Collected	SAC Reference Number	Date Closed
08-12-2025	1-PC3420	08-26-2025
09-16-2025	1-PIU0YW	09-29-2025

Schedule C: System-Specific Conditions of Municipal Drinking Water License #203-202 requires the Cobden Drinking Water System to monitor the effluent discharged to the natural environment. It should be noted that the backwash effluent directly discharges to the sanitary sewer to be processed at the Cobden Wastewater Treatment Plant not the natural environment, and as such the effluent was not sampled on a quarterly basis in 2024.

Legal Document	Date of Issuance	Parameter	Limit (mg/L)	Result (mg/L)
MDWL #203-202	24-Sept-2020	Backwash Effluent Suspended Solids	Annual Average < 25 mg/L	N/A
MDWL #203-202	24-Sept-2020	Backwash Effluent Total Chlorine Residual	Annual Average < 0.02 mg/L	N/A

Major Maintenance Summary

WO #	Description
4334710	Filter SCADA repairs
4337750	PLC work
4378491	Flushing supplies
4378498	Filter # 2 turbidity analyzer replacement
4551770	Potassium permanganate pump kits
4760364	pH probe replacement
4764108	Filter #2 programming work
4817224	Chlorine probe replacement
4487959	Programming troubleshooting and repair
4488029	PLC troubleshooting
4607921	Filter 2 media skim
4816408	Post filter chlorine sample pump/probe failure

Distribution Maintenance

Date	Location Reference	Category	Details
02/19/25	Meadow St	1	Watermain break repair
04/01/25	John St	1	Watermain break repair
07/07/25	29 Ross St	N/A	Repair curb stop
07/16/25	9 Simmons St	N/A	Replaced extension on stand post
07/16/25	John/Bromley St	N/A	Installed new lid on valve box
06/25/25	33 Main St	N/A	Replaced valve rod and box
09/10/25	9 Bagmagilla St	N/A	Lowered curb stop
11/19/25	77 Pembroke	N/A	Repaired hydrant
11/24/25	32 Ross St	N/A	Repaired bent curb stop
11/24/25	35 Gould St	N/A	Replaced curb stop rod and box
11/25/25	4 Pembroke St	N/A	Repaired hydrant

Summary of Complaints

Location	Date	Nature of Complaint	Actions Taken
20 Meadow St	04/28/2025	Chlorine odour	Operations staff collected chlorine residual and bacti sample
9 Simmons Dr	08/06/2025	Low pressure	Operations confirmed satisfactory pressure leaving plant and in distribution system. Tested pressure at 9 Simmons outside tap and was satisfactory. Customer advised to contact plumber
3 Bamagilla St	09/19/2025	Dirty taste/odour	Flushed nearby distribution system and turned on KMnO4 system at water plant to deal with increased organics. Collected bacti and chemical samples from residence and followed up to ensure issue was mitigated.
6 Main St	09/21/2025	Pink water	Spoke with resident and advised of potassium permanganate over-dosage.
28 Astrolabe Rd	09/21/2025	Pink water	Spoke with resident and advised of potassium permanganate over-dosage.
9 Pembroke St	09/22/2025	Pink water	Spoke with resident and advised of potassium permanganate over-dosage.
14 Meadow St	09/22/2025	Discoloured water	Spoke with resident and advised of potassium permanganate over-dosage.
6 Pembroke St	09/22/2025	Discoloured water	Spoke with resident and water was clear by the time of phone call

Appendix A

RSRS Data and Submission Confirmation