



Owen Sound Drinking Water System



Annual Report 2025

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Section 1 – Drinking Water System General Information

This report has been prepared in accordance with the reporting requirements set out in Ontario Regulation 170/03, Section 11 and as well as Schedule 22.

This report is to be presented to Council by the end of February each year. Copies of the report will be made available free of charge and can be found at the following locations;

- City’s website - [Water and Wastewater Department | City of Owen Sound](#)
- Public Works office – 1900 20th Street East

Drinking Water System #	220001799
Drinking Water System Name	Owen Sound Drinking Water System
Drinking Water System Owner	Corporation of the City of Owen Sound
Drinking Water System Category	Large Municipal Residential
City of Owen Sound Population	22,000
Water Treatment Subsystem	Class 3, Certificate # 20 issued September 15th, 2005
Water Distribution Subsystem	Class 3, Certificate # 2094 issued September 15th, 2005
Drinking Water Works Permit #	092-202 Issue # 5 Issued October 2nd, 2020 Expired June 2025 092-201 Issue # 6 Issued June 2025
Municipal Drinking Water License	094-101 Issue # 5 Issued October 2nd, 2020 Expired June 2025 092-101 Issue # 6 Issued June 2025
Permit to Take Water #	P-300-8173611786 Issued May 28 th , 2022, Expires Mar 31 st , 2032
Period of Report	2025

Other Drinking Water Systems that receive drinking water from the Owen Sound Drinking Water System are;

<u>Drinking Water System Owner</u>	<u>Drinking Water System #</u>
Municipality of Meaford (Leith)	260065312

A copy of this report will be provided to the Municipality of Meaford and the Township of Georgian Bluffs by the end of February.

Section 1.1 – Drinking Water System Description

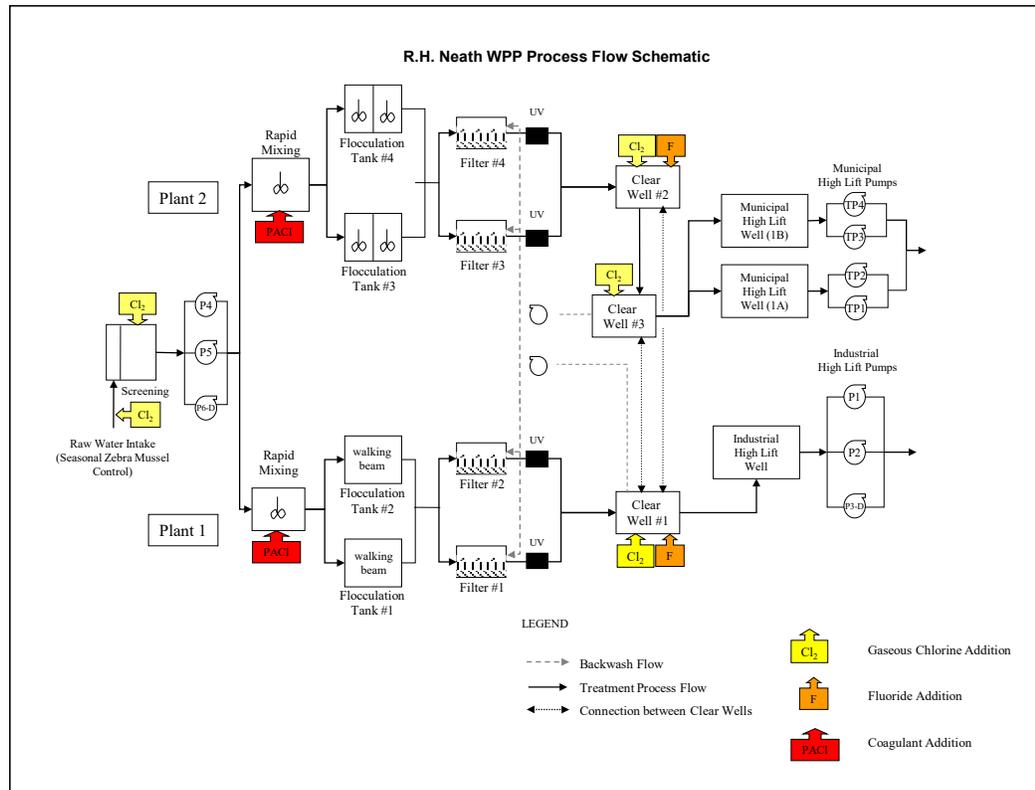
The Richard H. Neath Water Purification plant is a direct filtration surface water treatment plant that draws its water from Georgian Bay. This plant serves a population of approximately 22,000 people.

The Water plant comprises of the following processes;

- Raw water screening (removal of larger debris, fish, etc.),
- Pre chlorination (initial application of chlorine to the raw water),
- Zebra mussel control (chlorination at Intake during warmer months only, raw temperature above 10 °C),
- Flash mixing (initial addition of coagulant to the raw water through a rapid mixer),
- Coagulation/Flocculation (slower mixing of coagulant in larger tanks),
- Dual media filtration
- UV disinfection (done just prior to water entering treated water wells),
- Post chlorination (adding of additional chlorine for the purpose of meeting CT requirements and having enough chlorine in the water throughout the distribution system),
- Fluoridation (added in the two main treated water wells),
- Residue management tank for treating backwash wastewater.

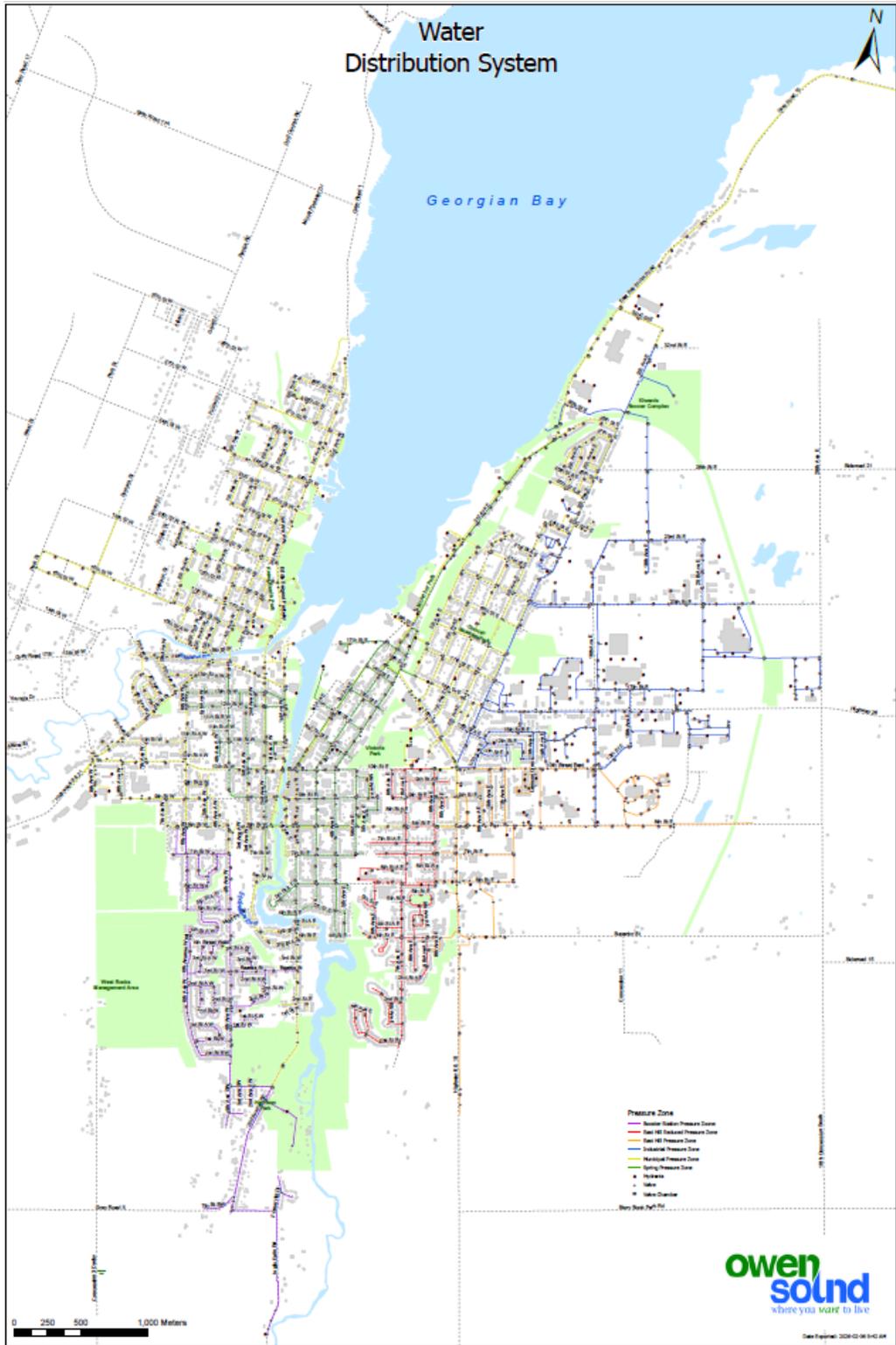
See Figure 1 below for a process schematic.

Figure 1



The City has a 22,000 m³ reservoir, 6 pressure zones (see Figure 2), 161.35 km of water mains, 12 pressure reducing /sustaining chambers, 11 check valve chambers, 684 City hydrants, 131 private hydrants, 61 flush hydrants/blow-offs/auto flushing units, and two booster stations that provides addition pressure in the Southeast and southwest portions of the City and outskirt.

Figure 2



Section 2 – Drinking Water Inspections and Audit Summaries

1. Ministry of the Environment, Conservation and Parks (MECP) Inspection –

During 2025, there was one MECP inspection completed in February. The City received 100% on the Inspection report card.

2. Internal Audit/External Audit

Internal Audit – Janine DeBoer, an independent auditor, evaluated our Drinking Water Quality Management System (DWQMS) in November 2025. This consisted of a two-day on-site visit reviewing all 21 elements of the DWQMS, interviewing water staff, and testing their knowledge of the DWQMS.

There was one non-compliance noted for document control issues, and nine opportunities for improvement (OFI's) identified in the audit. These opportunities were reviewed.

External Audit – In January 2025, NSF International performed the external audit, and found no major non-conformances, one minor non-conformance for document and record control, and one OFI. This OFI was reviewed and changes made.

Section 3 – List of Water Treatment Chemicals Used:

- 1. Chlorine Gas** (68 kg cylinders) – used in pre chlorination (treatment before filtration), and post chlorination (treatment after filtration).
- 2. Fluoride** – is used to help prevent dental cavities and improve oral health. The City uses liquid Fluoride called HFS or HydroFluorosilicic Acid. This is added to the water after filtration.
- 3. PAX XL-6** – is a coagulant used prior to filtration in the colder months (<10 °C). A coagulants primary objective is to adhere to suspended particulates, make them bigger in size, so to allow a higher removal rate of particulates in the filtration process.
- 4. PAX XL-1900** – is a coagulant used prior to filtration in the warmer months (>10 °C). A coagulant's primary objective is to adhere to suspended particulates, make them bigger in size, so to allow a higher removal rate of particulates in the filtration process.
- 5. Sodium Bisulphite** – is a chemical used in the process to remove chlorine from water for the purpose of reintroducing water back to the source (Georgian Bay). It

is also used when filters are being prepared for use after a backwash called the ripening process.

6. **Polymer** – A polymer is used during a filter backwash to settle suspended particles in the wastewater detention tank, so they can be pumped to the sanitary system to be treated at the wastewater plant.

Section 4 – Significant Costs Incurred

Significant costs are costs associated with new equipment purchased, installed, repaired, or replaced;

Water Treatment

Item	Description	Cost (\$)
UV Bulbs	UV Lamps for 4 UV reactors.	\$18,000
Flocculator #1	Numerous repairs to this unit	\$10,000
Capital Work – Zebra Mussel Chlorine solution line	Replacement of 30-year-old chlorine line to the Intake	\$194,120
WTP Transformer	Repair and service to transformer	\$18,000
Capital Project – Filter Upgrade	Filter Upgrade consisting of new underdrains, air scour technology, new media, new backwash pumps, and some piping upgrades – Multi year project – Completion date Spring 2026, This is a \$5,000,000 project.	\$1,453,276
Sludge Pump	Repair of sludge pump	\$10,170
Chlorine gas equipment	New vacuum regulators for Post chlorine system	\$5,500
De-chlorination pucks	pucks used in distribution system to remove chlorine	\$9,600

Water Distribution

Item	Description	Cost (\$)
Capital Work - New Watermain	9 th Ave East at 6 th St East Phase #1 Full Reconstruction (EC KING)	\$1,900,000 ±
Capital Work – New Watermain	32 nd St East at East Bayshore Road (Bridge Construction)	\$848,000 ±
Capital Work – Cathodic Protection	New cathodic protection installed throughout the city	\$283,000 ±
Broken Watermains	29 Broken watermains occurred, estimated repair of \$10,000 each ±	\$290,000 ±
Back Flow Prevention Program	Installation Program Completion December 2025	\$92,500 ±
Water Meter Replacement Program	Upgrade all water meters to AMR Technology with Neptune	\$2,500,000 ±

Section 5 – Adverse Water Quality Incidents reported

#	Reporting Date	AWQI #	Adverse Location	Adverse Parameter	Adverse Result	Units	Remedial Action

No adverse reportable in 2025

Section 6 – Microbiological Test Results

Microbiological testing done as required in Ontario Regulation 170/03 Schedule 10;

Location	Number of Samples	Range of E.coli Or Fecal Results (min #)- (max #)	Range of Total Coliform Results (min #)- (max #)	Number of HPC Samples	Range of HPC Results (min #)- (max #)
Raw	52	0-30	0-990	n/a	n/a
Treated	52	0	0	n/a	n/a
Distribution	466	0	0	99	<10-10

Section 7 – Operational Testing Results

Operational testing done as required in Ontario Regulation 170/03 Schedule 7;

Parameter	Number of Grab Samples	Range of Results (min #) - (max #)
Filter 1 Turbidity	8760	0.01 NTU – 0.92 NTU
Filter 2 Turbidity	8760	0.01 NTU – 0.96 NTU
Filter 3 Turbidity	8760	Not online
Filter 4 Turbidity	8760	0.01 NTU – 4.99 NTU * High turbidity occurred on February 3 rd , caused by contractors working in the area and bumped a sample line, lasted 5 minutes and 40 seconds.
Post 1 Chlorine	8760	0.00 – 4.96 * low chlorine occurred twice, May 21 st and June 12 th . This was caused by electrical upgrades in the plant. Filters were not in operation at the time. The High was caused by servicing to Post 1 chlorinator on August 28 th , over 4 mg/L for only 6 minutes.
Post 2 Chlorine	8760	0.00 – 4.99 * low chlorine occurred twice, May 21 st and June 12 th . This was caused by electrical upgrades in the plant. Filters were not in operation at the time. The High level occurred on July 9 th , and caused by a backwash of Filter 4. Was over 4 mg/L for 8 minutes.
Municipal Chlorine	8760	1.06 – 2.32
Industrial Chlorine	8760	0.65 – 2.58
Municipal Fluoride	8760	0.18 – 0.87 – Low residual dropped for approximately 4 minutes. Reason undetermined.
Industrial Fluoride	8760	0.00 – 0.89 – Low residual dropped for approximately 2 minutes due to a loss of signal. Reason undetermined.

Note: Unit of measurement is in milligrams per litre (mg/L), unless stated otherwise. The number of grab samples is expressed in hours/year, equivalent to continuous monitoring.

Section 8 – Summary of Additional Testing

A summary of additional testing and sampling carried out by an approval, order, or other legal instrument.

Legal Document	Date of Legal Instrument Issued	Parameter	Date Sampled	Result	Unit of Measure
Municipal License # 094-101	October 2 nd , 2020	Chlorine – Wastewater System	6-Jan	0.00	mg/L
Municipal License # 094-101	October 2 nd , 2020	Aluminum	20-Jan	0.068	mg/L
Municipal License # 094-101	October 2 nd , 2020	Chlorine – Wastewater System	3-Feb	0.00	mg/L
Municipal License # 094-101	October 2 nd , 2020	Chlorine – Wastewater System	5-Mar	0.00	mg/L
Municipal License # 094-101	October 2 nd , 2020	Total Suspended Solids	5-Mar	5.2	mg/L
Municipal License # 094-101	October 2 nd , 2020	Chlorine – Wastewater System	3-Apr	0.00	mg/L
Municipal License # 094-101	October 2 nd , 2020	Aluminum	22-Apr	.0540	mg/L
Municipal License # 094-101	October 2 nd , 2020	Chlorine – Wastewater System	5-May	0.00	mg/L
Municipal License # 094-101	October 2 nd , 2020	Chlorine – Wastewater System	2-Jun	0.00	mg/L
Municipal License # 094-101	October 2 nd , 2020	Total Suspended Solids	2-Jun	3.6	mg/L
Municipal License # 094-101	October 2 nd , 2020	Chlorine – Wastewater System	2-Jul	0.0	mg/L
Municipal License # 094-101	October 2 nd , 2020	Aluminum	22 Jul	0.0310	mg/L
Municipal License # 094-101	October 2 nd , 2020	Chlorine – Wastewater System	2-Aug	0.00	mg/L
Municipal License # 094-101	October 2 nd , 2020	Chlorine – Wastewater System	2-Sep	0.00	mg/L
Municipal License # 094-101	October 2 nd , 2020	Total Suspended Solids	3-Sep	3.6	mg/L
Municipal License # 094-101	October 2 nd , 2020	Chlorine – Wastewater System	1-Oct	0.00	mg/L
Municipal License # 094-101	October 2 nd , 2020	Aluminum	27 Oct	0.0170	mg/L
Municipal License # 094-101	October 2 nd , 2020	Chlorine – Wastewater System	3-Nov	0.00	mg/L

Municipal License # 094-101	October 2 nd , 2020	Chlorine – Wastewater System	2-Dec	0.00	mg/L
Municipal License # 094-101	October 2 nd , 2020	Total Suspended Solids	2-Dec	4.0	mg/L

Section 9 – Inorganic and Organic Testing Summary

Under Ontario Regulation 170/03, Schedule 13, 13-2 and 13-4 are required to be sampled annually.

Inorganic Parameters

Parameter	Sample Date	Result Value	Unit of Measure	MAC Level	1/2 MAC Level	Exceedance
Antimony	20-Jan	<0.0006	mg/L	0.006	0.003	No
Arsenic	20-Jan	<0.0002	mg/L	0.01	0.005	No
Barium	20-Jan	.0131	mg/L	1.0	0.5	No
Boron	20-Jan	.013	mg/L	5.0	2.5	No
Cadmium	20-Jan	<0.000003	mg/L	0.005	0.0025	No
Chromium	20-Jan	<0.00008	mg/L	0.05	0.025	No
Mercury	20-Jan	<0.00001	mg/L	0.001	0.0005	No
Selenium	20-Jan	0.0001	mg/L	0.05	0.025	No
Sodium	13-Feb-23	9.53	mg/L	>20	>10	No
Uranium	20-Jan	0.000147	mg/L	0.02	0.01	No
Fluoride – Municipal	31-Dec	0.70	mg/L	1.50	n/a	No
Fluoride - Industrial	31-Dec	0.64	mg/L	1.50	n/a	No
Nitrite	27-Oct	<0.003	mg/L	1.0	0.5	No
Nitrate	27-Oct	0.226	mg/L	10.0	5.0	No

Note: Unit of measurement is in milligrams per litre (mg/L), unless stated otherwise.

Organic Parameters

Parameter	Sample Date	Result Value	Unit of Measure	MAC Level	1/2 MAC Level	Over MAC?
Alachlor	20-Jan	<0.00002	mg/L	0.005	0.0025	No

Atrazine + N-dealkylated metabolites	20-Jan	0.00001	mg/L	0.005	0.0025	No
Azinphos-methyl	20-Jan	<0.00005	mg/L	0.02	0.01	No
Benzene	20-Jan	<0.00032	mg/L	0.001	0.0005	No
Benzo(a)pyrene	20-Jan	<0.000004	mg/L	0.00001	0.000005	No
Bromoxynil	20-Jan	<0.00033	mg/L	0.005	0.0025	No
Carbaryl	20-Jan	<0.00005	mg/L	0.09	0.045	No
Carbofuran	20-Jan	<0.00001	mg/L	0.09	0.045	No
Carbon Tetrachloride	20-Jan	<0.00017	mg/L	0.002	0.001	No
Chlorpyrifos	20-Jan	<0.00002	mg/L	0.09	0.045	No
Diazinon	20-Jan	<0.00002	mg/L	0.02	0.01	No
Dicamba	20-Jan	<0.0002	mg/L	0.12	0.06	No
1,2-Dichlorobenzene	20-Jan	<0.00041	mg/L	0.2	0.1	No
1,4-Dichlorobenzene	20-Jan	<0.00036	mg/L	0.005	0.0025	No
1,2-Dichloroethane	20-Jan	<0.00035	mg/L	0.005	0.0025	No
1,1-Dichloroethylene (vinylidene chloride)	20-Jan	<0.00033	mg/L	0.014	0.007	No
Dichloromethane	20-Jan	<0.00035	mg/L	0.05	0.025	No
2-4 Dichlorophenol	20-Jan	<0.00015	mg/L	0.9	0.45	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	20-Jan	<0.00019	mg/L	0.1	0.05	No
Diclofop-methyl	20-Jan	<0.0004	mg/L	0.009	0.0045	No
Dimethoate	20-Jan	<0.00006	mg/L	0.02	0.01	No
Diquat	20-Jan	<0.001	mg/L	0.07	0.035	No
Diuron	20-Jan	<0.00003	mg/L	0.15	0.075	No
Glyphosate	20-Jan	<0.001	mg/L	0.28	0.14	No
Malathion	20-Jan	<0.00002	mg/L	0.19	0.095	No
MCPA	20-Jan	<0.00012	mg/L	0.1	0.05	No
Metolachlor	20-Jan	<0.00001	mg/L	0.05	0.025	No
Metribuzin	20-Jan	<0.00002	mg/L	0.08	0.04	No
Monochlorobenzene	20-Jan	<0.0003	mg/L	0.08	0.04	No
Paraquat	20-Jan	<0.001	mg/L	0.01	0.005	No
Pentachlorophenol	20-Jan	<0.00015	mg/L	0.06	0.03	No
Phorate	20-Jan	<0.00001	mg/L	0.002	0.001	No
Picloram	20-Jan	<0.001	mg/L	0.19	0.095	No
Polychlorinated Biphenyls(PCB)	20-Jan	<0.00004	mg/L	0.003	0.0015	No
Prometryne	20-Jan	<0.00003	mg/L	0.001	0.0005	No
Simazine	20-Jan	<0.00001	mg/L	0.01	0.005	No

THM (annual average)	2025	0.0380	mg/L	0.100	0.05	No
Terbufos	20-Jan	<0.00001	mg/L	0.001	0.0005	No
Tetrachloroethylene	20-Jan	<0.00035	mg/L	0.01	0.005	No
2,3,4,6-Tetrachlorophenol	20-Jan	<0.0002	mg/L	0.10	0.05	No
Triallate	20-Jan	<0.00001	mg/L	0.23	0.115	No
Trichloroethylene	20-Jan	<0.00044	mg/L	0.005	0.0025	No
2,4,6-Trichlorophenol	20-Jan	<0.00025	mg/L	0.005	0.0025	No
Trifluralin	20-Jan	<0.00002	mg/L	0.045	0.0225	No
Vinyl Chloride	20-Jan	<0.00017	mg/L	0.001	0.0005	No
Haloacetic Acids (latest annual average)	2025	0.014125	mg/L	0.08	.04	No

List of any Inorganic and Organic parameter(s) that exceeded half of the standard prescribed in Schedule 2 of the Ontario Drinking Water Standards

*Nothing to report at this time.

Section 10 – Summary of Lead Testing

Lead testing is required as per Ontario Regulation 170/03, Schedule 15.1, and requires Municipalities to sample in areas that have a potential for higher lead levels. Since Owen Sound has no known Lead services since 2012, a reduced sampling program has been approved by the MECP, which only requires testing of the distribution system for Lead every third year.

2025 was a year to test the distribution system only for alkalinity and pH.

Location Type	# of Samples	Range of Lead Results (min#) – (max #)	# of Exceedances
Plumbing	n/a	n/a	n/a
Distribution	8	n/a	n/a