Town of Mahone Bay – 2025 Water Treatment Facility Annual Report

Introduction

As required under Section 15b of the Approval to Operate (Approval #2008-061157-03) issued by Nova Scotia Environment and Climate Change (NSECC), The Town of Mahone Bay (TOMB) is providing the annual report for the 2025 operating year. The reporting period discussed ranges from January 1st through to December 31st, 2025.

The report discussed the following topics:

- A summary and discussion of the quantity of water supplied;
- A summary and interpretation of analytical results obtained in accordance with section 15 of the Approval;
- Minimum annual reporting requirements;
- Annual trend graphs for continuously monitored parameters;
- Date and description of any emergency or upset conditions;
- Any changes to the contingency plan or emergency notification procedures;
- A list of all laboratories used for parameter analysis;
- Any changes to the source water protection plan;
- A list of any incidents of free chlorine residual below 0.20 mg/L;
- Verification that operational conditions remained within the design range for achieving CT;
- Records of any violations of the conditions of the Approval;
- Records of any complaints and the follow-up actions;
- A review of the QA/QC program for measurement validation;
- A list of each certified operator and their level of certification; and
- Verification of membrane turbidity compliance shown monthly.

Background

The Town of Mahone Bay is located on the south shore of Nova Scotia in Lunenburg County. The Town is primarily a residential community with one main area of commercial development on Main Street. The Water Treatment Plant (WTP) serves a population of approximately 1000 with a design capacity of 981.956 m3/day. The water supply system is classified as a Class II Water Treatment Facility and a Class I Water Distribution System.

Regulatory Requirements

In Nova Scotia, municipal water treatment and distribution is controlled through federal, provincial, and municipal regulatory acts, regulations, bylaws and guidelines. This includes, but is not limited to the following:

- Environment Act;
- Water and Wastewater Facilities and Public Drinking Water Supplies Regulations;
- Emergency Spills Regulations;
- American Water and Wastewater Association Standards (AWWA);
- American National Standards Institute Standards (ANSI);
- Health Canada: Guidelines on Canadian Drinking Water Quality (GCDWQ);
- Nova Scotia Treatment Standards for Municipal Drinking Water Supplies;
- Guidelines for Monitoring Public Drinking Water Supplies (GMPDWS);
- Town of Mahone Bay Water Utility - Schedule of Rules and Regulations Governing the Supply of Water and Water Services; and
- Town of Mahone Bay - Water Utility Schedule of Rates for Water and Water Services.

Water Supply Overview

Oakland Lake pumping station supplies the Town of Mahone Bay drinking water system. The lake is located approximately 1 km northeast of the Town, off Highway 3. The surface area of the lake is 0.65 km2 with a maximum depth of 15 m and a water yield of 5,000 m3/day. The Oakland Lake Watershed has an area of 4.05 km2.

In July 2007, under section 106 of the Environment Act, the Province of Nova Scotia enacted the Oakland Lake Watershed Protected Water Area Designation, which describes the watershed area, as well as applicable regulations and restrictions.

The current Approval permits an average rate of withdrawal of 710 m3/day averaged over 30 days and a maximum rate of withdrawal of 960 m3/day averaged over 3 days. The raw water pumphouse, located at Oakland Lake, pumps water through a 200mm cast iron transmission main 3 km to the Water Treatment Plant.

The raw water from Oakland Lake is characterized by low turbidity, pH, and hardness, and high natural organic matter and color. Iron levels are generally slightly greater than the GCDWQ aesthetic objective of 0.3 mg/L.

Water Treatment Overview

The Town of Mahone Bay WTP, commissioned in 2008, is located at 68 Zwicker Lane in Mahone Bay, Nova Scotia. Water from Oakland Lake is pumped to the WTP where it undergoes the following treatment processes: pH adjustment, coagulation, flocculation, low-pressure membrane filtration, UV disinfection, primary chlorine disinfection, pH adjustment, secondary chlorine disinfection, and corrosion inhibitor addition.
Section 9 of the Approval establishes Water Quality Requirements - Performance and Limits, which are summarized in Table 1 as they relate to the treatment process section of the annual report:

Section 9	
General Requirements	a) The treatment facility shall meet the following treatment efficiencies: i. Shall ensure 99.9% reduction of Giardia lamblia cysts (3-Log Reduction) ii. Shall ensure 99.99% reduction of viruses (4-log reduction) b) Shall address a minimum of 0.5-log inactivation for Giardia c) Shall be treated to minimize corrosion of water distribution and/or plumbing systems
Primary Disinfection Requirements	b) Primary disinfection shall contribute a minimum 0.5-log inactivation for Giardia used with Filtration h) UV systems shall provide a minimum dosage of 40 mJ/cm^2
Filtration Requirements	u) iii. Direct integrity testing shall be conducted on each membrane at a frequency of no less than once each day v) For membrane filtration, turbidity levels from individual membrane units: i) Shall be less than or equal to 0.1 NTU in at least 99% of measurements made, or at least 99% of the time each calendar month ii) Shall not exceed 0.3 NTU at any time
Turbidity monitoring requirements	an) Continuous monitoring is required for individual filter effluent ao) Continuous or grab sample monitoring at least once per day is required for raw water prior to treatment

Table 1 – Water Treatment Performance Limits Summary

Distribution system Overview

Water produced by the WTP is stored in the clearwell. The clearwell is a compacted and lined reservoir located adjacent to the WTP and has a water storage capacity of 2000 m3. The clearwell provides capacity for domestic water use and some fire protection.

Treated water is delivered to the consumer by a gravity distribution system. The distribution system was largely constructed in the 1940s and has since undergone modifications and upgrades. The original distribution system components are cast iron pipe of 150mm and 200mm diameter and the modification and upgrades components are PVC pipe of 150mm, 200mm and 300mm diameter.

Section 7 of the Approval establishes water quality requirements - performance and limits, which are summarized in Table 2 as they relate to the distribution system section of the annual report:

Distribution Turbidity Requirements	z) A turbidity value of 5.0 NTU or less shall be achieved on water distribution system sampling
Turbidity Monitoring Requirements	ae) Continuous or grab sample monitoring of distribution system is required
Secondary Disinfection and Residual Monitoring Requirements	ag) Disinfection process shall be operated to ensure minimum chlorine residual value throughout distribution system is 0.20 mg/L free chlorine residual ah) Disinfection process shall be operated to ensure the maximum chlorine residual value does not exceed 4.0 mg/L free chlorine residual ai) Continuous monitoring of chlorine residual is required for finished water leaving the Facility aj) Continuous monitoring of water chlorine residual is required for water leaving any storage structure within the water distribution system ak) Monitoring of the water distribution system for chlorine residual is required. Sampling and testing frequency are the same as for bacteriological sampling requirements

Table 2 - Distribution Performance Limits Summary

1. Withdrawal Supply Summary

The total volume of water withdrawn from Oakland Lake during the reporting period of 2025 was 221.7 million litres.

The highest monthly averaged raw water withdrawal rate occurred in August, with volume of 742,600 L/day, above the averaged daily withdrawal limit of 710,000 L/day.

An average of daily maximum raw water withdrawal rates, averaged over 3 days, indicated a maximum average day to occur in July, with volume of 784,667 L/day, below the maximum withdrawal limit of 960,000 L/day.

Table 3, table 4, and figures 1 & 2 below summarize the monthly water withdrawal and supply volumes throughout the 2025 operating year.

Month	Total Water Withdrawal Volume per Month (m3)	Daily Water Withdrawl - 30 Day Average (m3)	Peak Water Withdrawl 3 Day Average (m3)	Total Monthly Reservoir Outflow (m3)	Daily Reservoir Outflow 30 Day Average (m3/day)
January	17,148	572	607	13,011	420
February	16,351	545	616	12,676	453
March	18,480	616	629	14,474	467
April	18,368	612	649	14,517	484
May	20,053	668	677	15,847	511
June	20,182	673	698	16,599	553
July	21,954	732	785	17,315	559
August	22,279	743	756	18,597	600
September	18,909	630	757	14,523	484
October	17,140	571	634	13,239	427
November	15,109	504	531	11,585	386
December	15,719	524	548	11,869	383

Table 3 – 2025 Monthly Water Withdrawal and Supply

Total Annual Withdrawl Volume (m3)	Averaged Daily Withdrawl Per Calendar Year (m3/day)
221,692	607

Table 4 – 2025 Annual Withdrawal Overview

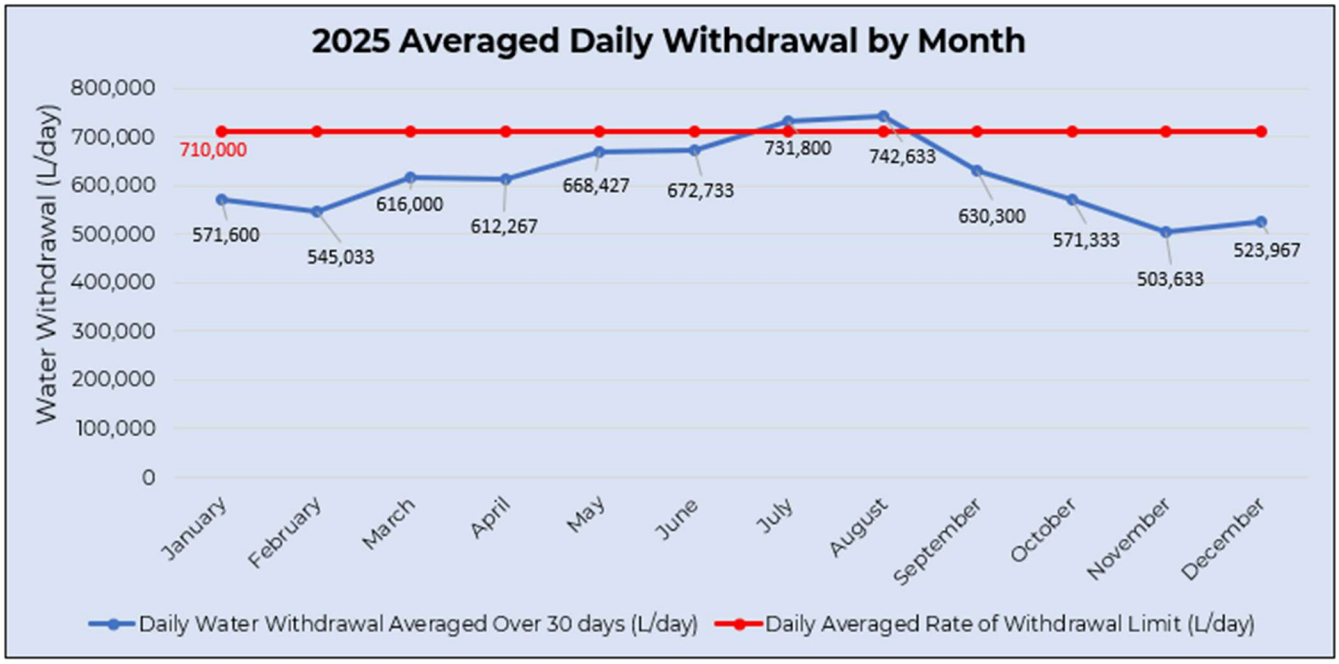

Figure 1 – 2025 Monthly Daily Average Water Withdrawal from Oakland Lake

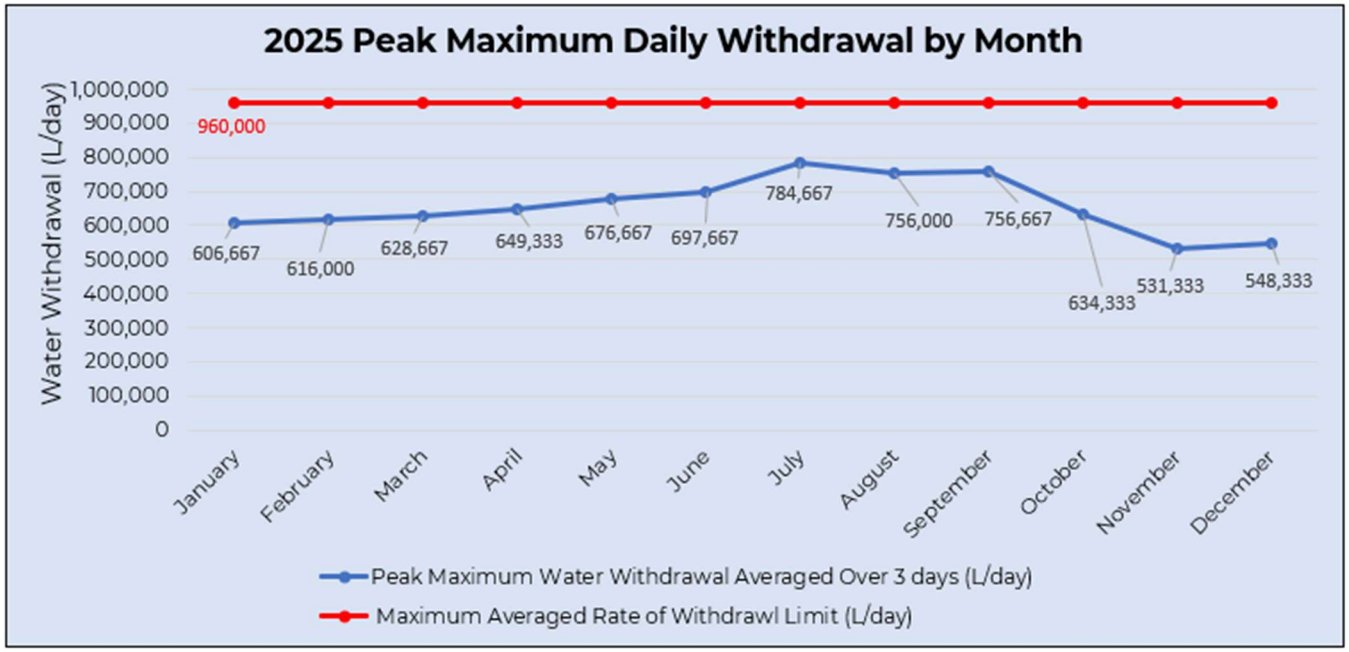

Figure 2 - 2025 Peak Maximum Water Withdrawal from Oakland Lake

2. Analytical and Disinfection

The WTP has analytical equipment which provides for continuous process monitoring before, during, and after treatment. For the purposes of the annual report, only parameters required to be monitored in the Approval will be discussed.

In accordance with the Annual Sampling Plan, weekly bacteriological samples were collected from the distribution system for analysis. Additionally, quarterly total trihalomethanes (TTHM), haloacetic acids (HAA5) samples, and annual samples of raw and treated water were collected for analysis. Daily and weekly process monitoring sample collection and analysis was conducted by Operations Staff in-house and quarterly QA/QC samples were sent to a third-party laboratory for analysis. South shore Regional Hospital conducted the bacteriological analysis. AGAT Laboratories in Dartmouth, Nova Scotia a CALA accredited laboratory, conducted all other third-party analysis. CALA accreditation certificate included in Appendix A.

All continuous monitoring equipment, portable, and benchtop analytical equipment used at the WTP are calibrated and verified in accordance with the manufacturer's specifications.

2.1 Turbidity

In accordance with the approval, raw water turbidity is continuously monitored upon entering the water treatment plant. Grab samples are collected weekly and analyzed in-house, the 2025 annual average turbidity value entering the plant was 0.53 NTU. Average raw water turbidity values for each month are shown below as NTU in Table 5.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.57	0.51	0.43	0.45	0.43	0.54	0.45	0.31	0.35	0.43	0.63	0.55

Table 5 – 2025 Average Monthly Raw Water Turbidity (NTU)

Each filter train in the WTP has continuous monitoring equipment for effluent turbidity. Current alarm setpoints ensure that the train shutdowns at a turbidity reading of 0.3 NTU or of 0.1 NTU for greater than 15 minutes.

Filtrate grab samples were collected and analyzed 5 days per week for a total of 260 samples. Table 6 displays the average of each month's turbidity values in NTU, for the filtrate, sampled prior to entering the clearwell. Table 7 summarizes the average effluent turbidity values for membrane Skids A and B from the continuous online analyzers.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.07	0.07	0.06	0.07	0.07	0.07	0.07	0.06	0.07	0.06	0.07	0.07

Table 6 – 2025 Average monthly filtrate turbidity (NTU)

Skid	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A	0.019	0.015	0.015	0.016	0.016	0.018	0.015	0.017	0.021	0.026	0.020	0.023
B	0.019	0.016	0.013	0.014	0.014	0.015	0.014	0.014	0.015	0.016	0.016	0.023

Table 7 – 2025 Average Monthly Filter Effluent Turbidity (NTU)

Distribution turbidity is monitored through grab samples collected at the WTP distribution sample tap prior to the first consumer, and at the Town Hall, located centrally in the distribution system. These samples are collected 5 days per week for a total of 260 samples per year, respectively. Additional turbidity samples are collected from RPS and Bayview School on a weekly basis when bacteriological sampling occurs. A total of 52 samples are collected at each of these sites per year. Table 8 - Average Monthly Distribution Turbidity provides the monthly average turbidity results for each site.

Month	Turbidity			
	Distribution	Town Hall	RPS / Fire Hall	Bayview School
	Grab	Grab	Grab	Grab
January	0.06	0.06	0.10	0.08
February	0.07	0.07	0.09	0.08
March	0.08	0.09	0.08	0.09
April	0.09	0.07	0.09	0.10
May	0.08	0.06	0.09	0.07
June	0.07	0.08	0.07	0.06
July	0.08	0.07	0.06	0.07
August	0.07	0.07	0.08	0.07
September	0.08	0.08	0.08	0.08
October	0.07	0.08	0.07	0.08
November	0.07	0.15	0.08	0.08
December	0.08	0.11	0.08	0.08

Table 8 – 2025 Average Monthly Distribution Turbidity

In 2025, the maximum turbidity value measured was 1.07 NTU which is below the prescribed limit of 5.0 NTU.

2.2 Aluminum Residual

In accordance with the Approval aluminum residual is monitored monthly inhouse and as a component of the QA/QC program, a quarterly sample is sent to a third-party laboratory for analysis. In 2025, the range of aluminum residual in treated water was 0.000 mg/L to 0.027 mg/L (these are the monthly values from in-house) which is below the prescribed maximum allowable concentration (MAC) of 2.9 mg/L and the operational guideline (OG) of 0.100 mg/L. Table 9 provides the results for 2025 based on a running annual average.

Month	Aluminum Residual (mg/L)	
	Filtrate	Town Hall
January	0.015	0.011
February	0.014	0.012
March	0.013	0.011
April	0.013	0.011
May	0.013	0.009
June	0.011	0.010
July	0.009	0.008
August	0.009	0.008
September	0.009	0.006
October	0.010	0.009
November	0.009	0.008
December	0.009	0.010

Table 9 – 2025 Running Annual Average Aluminum Residual

2.3 Primary Disinfection

The Town of Mahone Bay WTP uses both UV light and chlorination to achieve primary disinfection. The system is required to provide 0.5-log Giardia reduction and 4.0-log virus reduction. Following filtration, water passes through a UV reactor which provides 3.0-log Giardia reduction. The UV system continuously monitors UV intensity to ensure that dosing achieves the minimum 40 mJ/cm2 required. There is only one UV reactor, therefore the UV system redundancy is provided by chlorination. After UV disinfection, 12% sodium hypochlorite is injected into the water to achieve the required 4.0-log virus reduction.

The primary chlorination system consists of a duplex metering pump system for redundancy. The metering pumps draw 12% sodium hypochlorite from the manufacturer

supplied 208 L plastic barrel. The system allows for a standby metering pump to take over for the duty pump in the event of a pump failure.

In 2013, CBCL prepared a System Assessment Report (SAR) which confirms both UV log reductions and chlorination log reductions are adequately achieved by the current disinfection system. Under section 3.1.4.2 Chlorination, the SAR identifies 12 as the minimum CT requirement for chlorine disinfection. The SAR includes a calculated CT value of 162 based on high flow and minimum chlorine dose for both the chlorine contact pipe and the reservoir. The free chlorine residual and system calculated CT value for primary disinfection are monitored continuously. If a low chlorine value is detected, Operators are notified, and the plant will shut down. In 2025, operational conditions remained within the design range for achieving CT/IT.

The 2025 filtrate free chlorine residual trendline is indicated below in Figure 3. This represents the free chlorine measured prior to entering the storage reservoir, but before secondary disinfection and distribution.

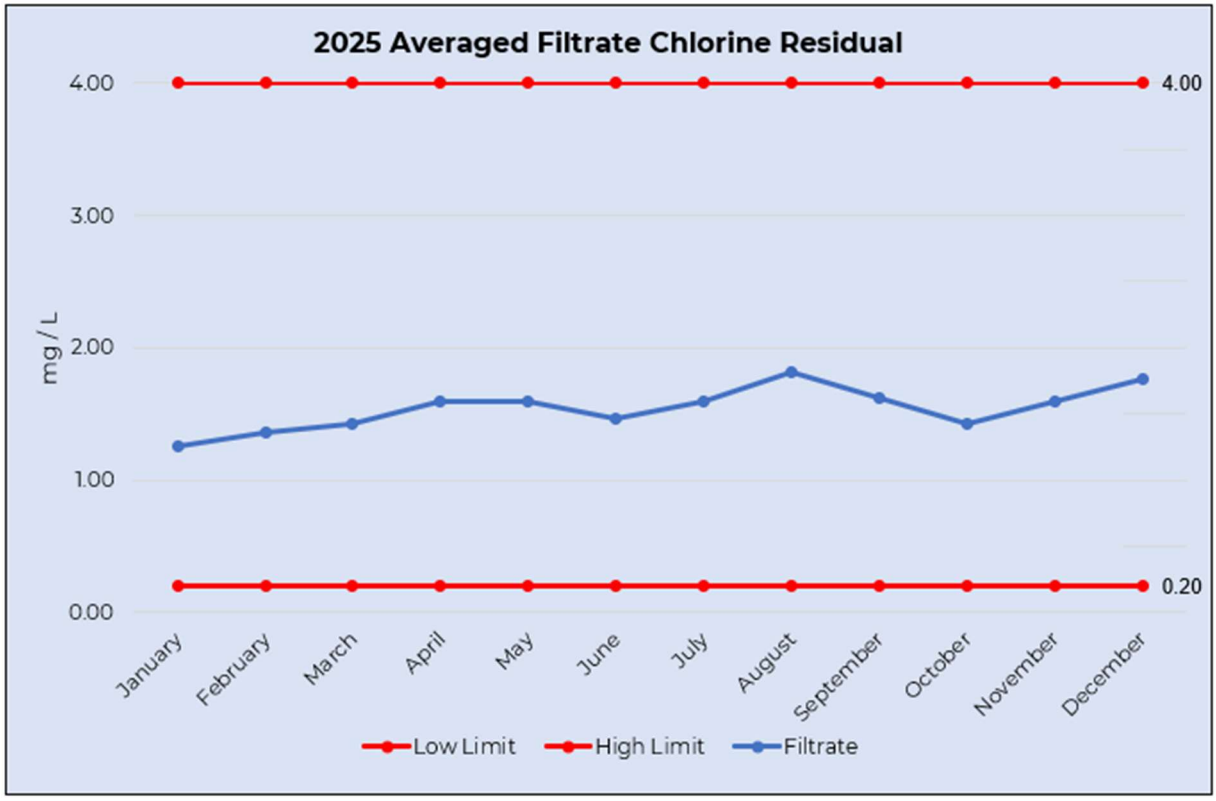

Figure 3 – 2025 Average Monthly Primary Filtrate Free Chlorine Residual

Primary disinfection is also provided by UV treatment. UV intensity is measured continuously, and alarms are set to alert if intensity ever drops below the certified value required to meet the 40 mJ/cm2 set by the approval to operate. The treatment system uses a Trojan UV Swift SC, which is validated by the German guideline DVGW. As Figure 4 demonstrates, the UV intensity maintained above the alarm set point, with the lowest daily UV IT reported 21.4 W/m2. Note a new UV Intensity sensor was installed on Oct 15, 2025.

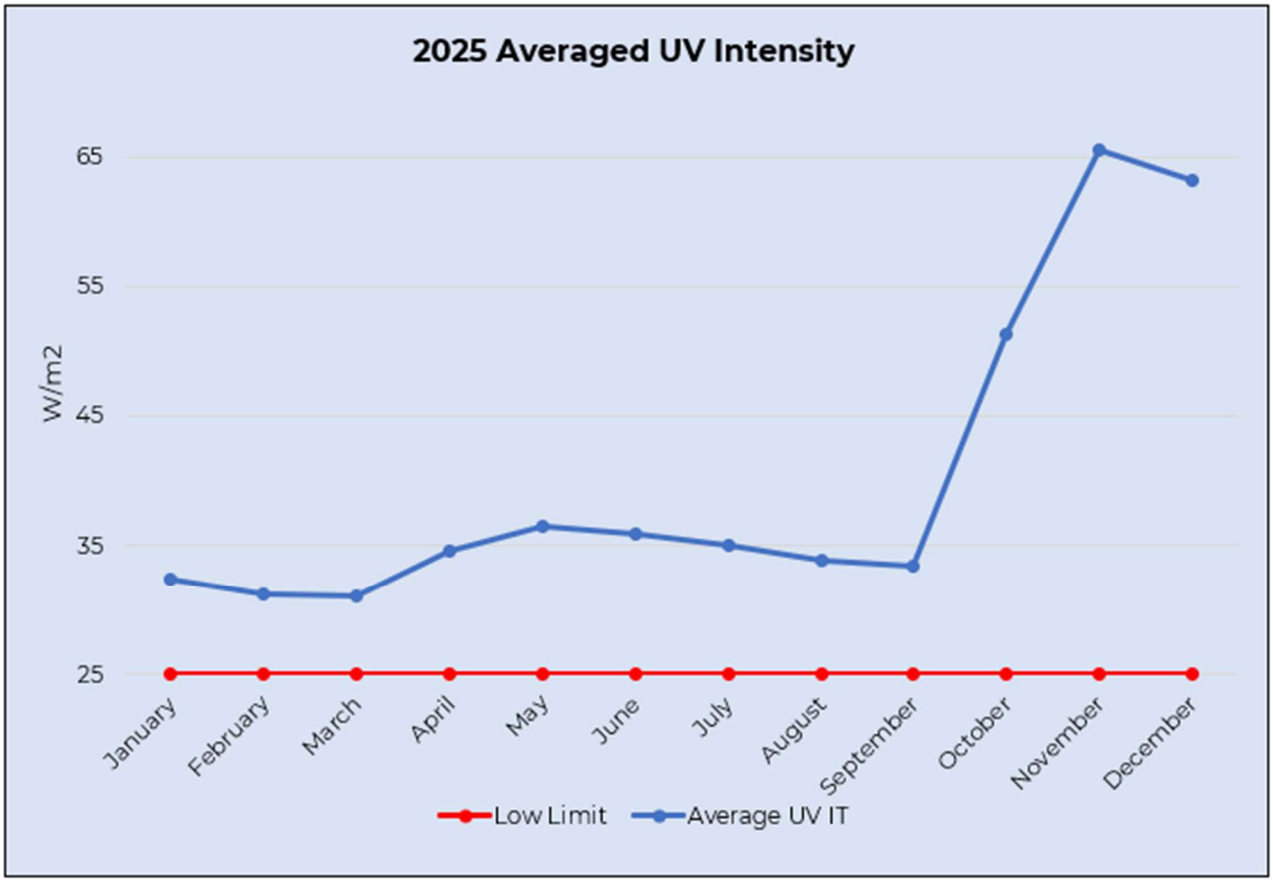

Figure 4 – 2025 Averaged UV Intensity compared to IT minimum limit

2.4 Secondary Disinfection

Secondary disinfection is achieved through the addition of 12% sodium hypochlorite to water exiting the clearwell en route to the first consumer. The secondary chlorination system consists of a single metering pump system with a shelf spare available. The metering pumps draw 12% sodium hypochlorite from the manufacturer supplied 208 L plastic barrel. The system allows for a standby metering pump to take over for the duty pump in the event of a pump failure.

Chlorine residual is continuously monitored and if residual drops to 0.6 mg/L for 15 minutes, Operators are notified. Free chlorine residual grab samples are collected 5 days per week from the distribution tap at the WTP and Town Hall, for a total of 260 samples per year, respectively. Additional free chlorine grab samples are collected from RPS and Bayview School on a weekly basis when bacteriological sampling occurs. A total of 52 samples are collected at each of these sites per year. Figure 5 demonstrates the trendlines of free chlorine residuals as measured at each location and the following Table 10 provides the monthly average free chlorine results for each site in the distribution system monitored. In 2025, the range of free chlorine values were between 0.57 mg/L and 2.69 mg/L, which is within the prescribed range of 0.20 – 4.00 mg/L.

In 2025, operational conditions remained within the design range for achieving the prescribed CT.

There were no positive results for E.Coli presence throughout the reporting period.

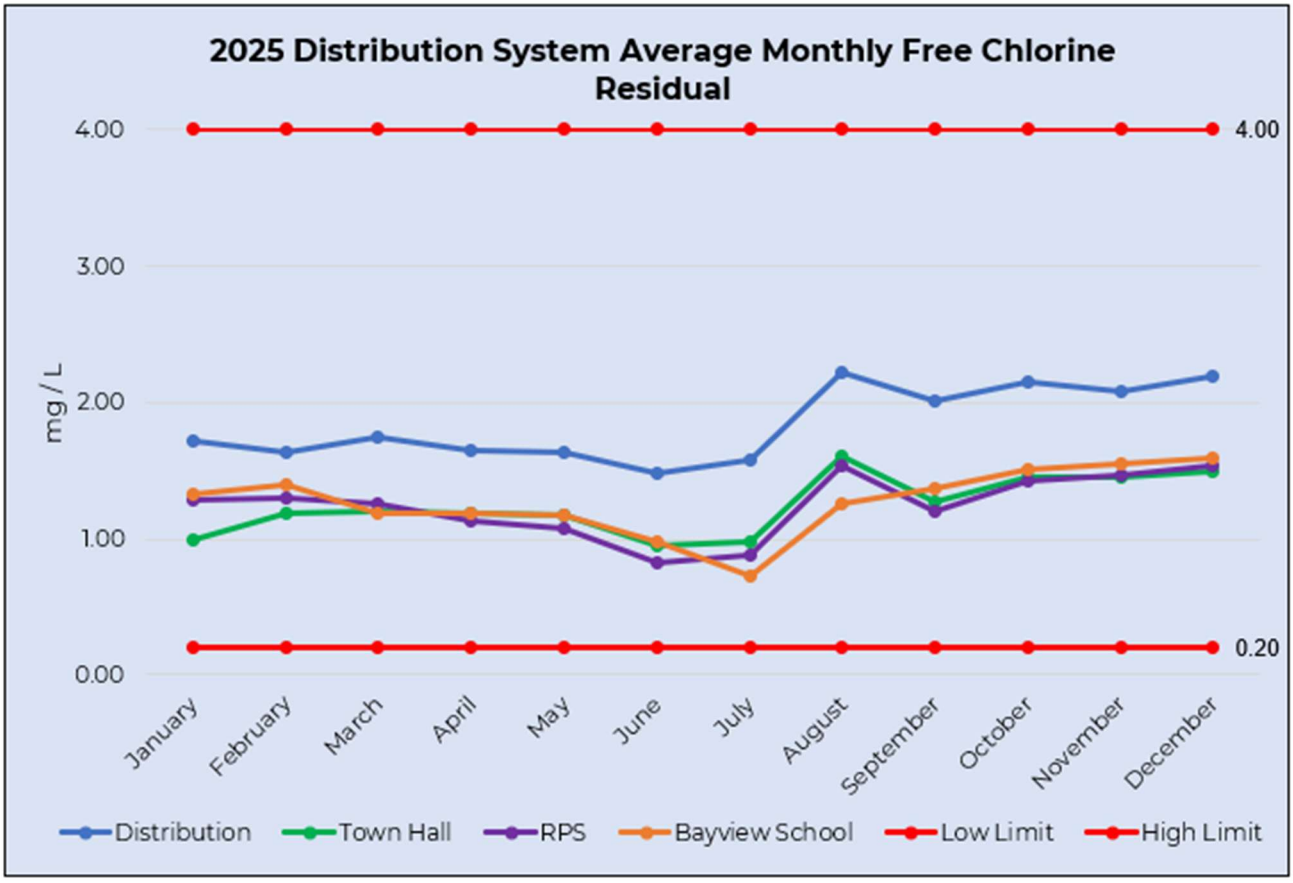

Figure 5 – 2025 Average Monthly Distribution System Free Chlorine Residual

Month	Average Monthly Free Chlorine Residual			
	Distribution	Town Hall	RPS	Bayview School
January	1.71	1.00	1.28	1.33
February	1.64	1.19	1.31	1.39
March	1.74	1.21	1.25	1.19
April	1.65	1.19	1.13	1.19
May	1.63	1.17	1.07	1.18
June	1.48	0.95	0.83	0.98
July	1.58	0.98	0.88	0.73
August	2.22	1.61	1.54	1.26
September	2.01	1.28	1.20	1.37
October	2.15	1.46	1.43	1.51
November	2.09	1.45	1.47	1.55
December	2.19	1.50	1.53	1.60

Table 10 – 2025 Distribution System Monthly Average Free Chlorine Residual Results

2.5 Bacteriological Results

Weekly bacteriological samples were collected from the distribution system for analysis by Southshore Regional Hospital. Sample sites include the WTP distribution tap, Town Hall, RPS, and Bayview School. A total of 208 samples were collected from regular sample sites. Sample results are submitted to the NSECC in the form of a monthly summary. There were no positive results for E.Coli presence throughout the reporting period in accordance with the prescribed MAC of 0/100mL.

2.6 Disinfection By-Products

Quarterly TTHM and HAA_5 samples were collected from the distribution system for analysis by AGAT Laboratories. Samples were collected at Town Hall to represent the middle of the distribution system and RPS to represent the extremity of the distribution system. HAA_5 samples were collected at Town Hall and TTHM and HAA_5 samples were collected at RPS. Tables 11 - 14 provide the results for 2025 based on a running locational annual average for both parameters. In 2025, the range of TTHM values were between 0.053 mg/L and 0.059 mg/L, which is under the prescribed limit of 0.100 mg/L. For the same time period, the range of HAA_5 values was between 0.037 mg/L and 0.051 mg/L, which is under the prescribed limit of 0.080 mg/L.

Running Quarterly Average			
Quarter	TTHM RPS (mg/L)	HAA5 RPS (mg/L)	HAA5 Town Hall
Q2 - 2024	0.066	0.05	0.047
Q3 - 2024	0.062	0.033	0.031
Q4 - 2024	0.055	0.029	0.029
Q1 - 2025	0.030	0.045	0.039
Q1 - 2025	**0.053**	**0.039**	**0.037**

Running Quarterly Average			
Quarter	TTHM RPS (mg/L)	HAA5 RPS (mg/L)	HAA5 Town Hall
Q3 - 2024	0.062	0.033	0.031
Q4 - 2024	0.055	0.029	0.029
Q1 - 2025	0.030	0.045	0.039
Q2 - 2025	0.072	0.059	0.053
Q2 - 2025	**0.055**	**0.042**	**0.038**

Table 11 & 12 – 2025 Q1 & Q2 TTHM and HAA_5 Results

Running Quarterly Average			
Quarter	TTHM RPS (mg/L)	HAA5 RPS (mg/L)	HAA5 Town Hall
Q4 - 2024	0.055	0.029	0.029
Q1 - 2025	0.030	0.045	0.039
Q2 - 2025	0.072	0.059	0.053
Q3 - 2025	0.077	0.058	0.053
Q3 - 2025	**0.059**	**0.048**	**0.044**

Running Quarterly Average			
Quarter	TTHM RPS (mg/L)	HAA5 RPS (mg/L)	HAA5 Town Hall
Q1 - 2025	0.030	0.045	0.039
Q2 - 2025	0.072	0.059	0.053
Q3 - 2025	0.077	0.058	0.053
Q4 - 2025	0.049	0.041	0.048
Q4 - 2025	**0.057**	**0.051**	**0.048**

Table 13 & 14 – 2025 Q3 & Q4 TTHM and HAA_5 Results

2.7 GMPDWS – Part I

Annual water analysis, as described under the GMPDWS – Part I, was conducted on treated water. The samples were analyzed by AGAT Laboratories and no treated water parameters were outside of guideline limits for 2025.

2.8 GCDWQ – 5 year

Due again in 2027

3. Corrosion Control

3.1 pH

The pH of distribution water is continuously monitored at the WTP prior to reaching the first consumer. Grab samples are collected 1 – 5 times per week from distribution sample points for in-house analysis. The corrosion control strategy tries to achieve a pH of 7.60 – 8.5 at the Town Hall and 7.60 – 9.00 at the distribution tap. Table 15 provides a monthly average of pH results for 2025.

Month	Average Monthly pH			
	Distribution	Town Hall	Bayview School	RPS
January	8.76	8.08	8.09	7.99
February	8.40	7.72	7.83	7.70
March	8.18	7.60	7.59	7.82
April	8.96	7.90	7.82	7.75
May	9.06	8.08	8.07	8.03
June	8.73	8.03	8.13	8.01
July	8.87	8.11	7.98	8.07
August	9.01	8.26	8.25	8.33
September	8.78	8.25	8.30	8.40
October	8.98	8.37	8.42	8.35
November	8.82	8.40	8.37	8.34
December	9.11	8.44	8.44	8.29

Table 15 – 2025 Distribution System Monthly Average pH Results

3.2 Alkalinity

Alkalinity grab samples are collected once per week for in-house analysis and quarterly for third party laboratory analysis, as a component of the QA/QC program. Table 16 provides a monthly average of alkalinity results for 2025.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
16.78	17.13	18.43	17.68	18.58	19.85	21.52	21.80	22.20	22.20	23.00	19.25

Table 16 – 2025 Average monthly alkalinity sampling (mg/L)

3.3 Hardness

Hardness grab samples are collected once per week for in house analysis and quarterly for third party laboratory analysis, as a component of the QA/QC program. Table 17 provides a monthly average of hardness results for 2025.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.73	6.15	6.50	5.58	5.40	5.18	5.00	4.50	3.95	4.52	4.70	4.60

Table 17 – 2025 Average monthly hardness results (mg/L)

3.4 Temperature

Temperature is continuously monitored by on-line analyzers at intervals of no greater than five minutes, at the raw water entry point, primary disinfection point, and secondary disinfection point.

3.5 Orthophosphate

Orthophosphate grab samples are collected once per week from distribution sample points for in-house analysis of corrosion inhibitor residual. The corrosion control strategy uses an orthophosphate residual range of ~1.00 mg/L as an indicator for corrosion inhibitor dosing adjustment. During seasonal water main flushing residual is increased to aid in system recovery. Table 18 provides a monthly average of orthophosphate results for the 2025 operating year.

Month	Ortho-phosphate (mg/L)		
	Town Hall	Bayview School	RPS
January	1.04	1.05	1.05
February	0.90	0.99	1.11
March	1.11	1.06	1.11
April	1.01	1.05	1.14
May	1.08	1.07	1.35
June	1.04	1.09	1.18
July	1.02	1.25	1.20
August	0.93	1.04	1.02
September	0.90	0.94	1.02
October	0.97	0.98	1.07
November	1.09	0.97	1.06
December	0.94	0.93	0.96

Table 18 – 2025 Monthly Orthophosphate Results (mg/L)

3.6 Lead and Copper

Lead samples are collected annually from distribution sample points during the warmest month of the year (August) for laboratory analysis. In addition, 10 residential sites were tested on a voluntary basis for lead and copper as part of municipal guidelines. The lead and copper samples collected in 2025 used the Health Canada RDT sampling method and were taken from a total of 14 treated water sites. All distributions samples were within the prescribed MAC of ≤5 ug/L for lead and 2000 ug/L for copper. There were no exceedances in the 2025 residential lead samples. Tables 18 & 19 below summarize the results for both copper and lead sampling.

	Lead and Copper Samples (ug/L)					
	MAC	**Raw Water**	**Distribution Tap 70 Zwicker Ln.**	**Town Hall 493 Main St.**	**RPS 740 Main St.**	**Bayview School 110 Clearway St.**
Lead	**5**	<0.5	<0.05	<0.5	<0.5	3.9
Copper	**2000**	3.0	2.0	7.0	3.0	100.0

Table 18 – 2025 Distribution Lead and Copper Sampling Results

	Lead and Copper Samples (ug/L)					
	MAC	**44 Orchard St**	**260 Main St**	**309 Main St**	**67 Spruce St**	**342 Main St**
Lead	**5**	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	**2000**	20.4	22.3	4.5	8.8	14.2

	Lead and Copper Samples (ug/L)					
	MAC	**54 Pleasant St**	**51 Longhill Rd**	**788 Main St**	**33 Pleasant St**	**55 Orchard St**
Lead	**5**	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	**2000**	2.1	16.9	17.4	4.8	30.7

Table 19 – 2025 Residential Lead and Copper Sampling Results

4. Treatment Backwash Monitoring Program

In accordance with Section 10 of the current Approval, backwash water discharged from the treatment processes was released to the TOMB municipal wastewater collection system.

5. QA/QC Program

TOMB uses a variety of methods to maintain QA/QC in its water quality monitoring. Sampling is conducted in accordance with internal Standard Operating Procedures (SOPs) at consistent locations throughout the treatment process and in the distribution system. In-house laboratory analysis is completed in accordance with established procedures using appropriate equipment that has regular maintenance and calibration completed. On-line instrumentation is regularly maintained and calibrated in accordance with manufacturer specifications and multiple grab samples are taken throughout the treatment process to verify instrument performance.

6. Operators & Certifications

Throughout the operating year of 2025, operational staff included:

- Scott Hoyt, Water/Wastewater Manager and ODRC, a certified Class II water treatment and distribution operator. (Feb 1, 2022 – Present)
- Richard Redden, Water/Wastewater Operator, a certified Class I water treatment operator. (Nov 4, 2024 – Present)
- Jacob Hamm, Water/Wastewater Operator, OIT. (July 28, 2025 – Present)

To address any prolonged staffing shortages, TOMB engaged Atlantic Integrated Water Utility Consultants (AIWUC) to provide certified operational support as well as on-call and emergency or upset conditions support. AIWUC can be contracted to provide operational and occasional engineering support.

6.Contingency Plan and Emergency Notifications Procedures

No changes were made to the contingency plan or emergency notification procedures.

7. Complaints & Corrective Actions

There were 10 water complaints during the reporting period all related to water discolouration, water pressure, or leaks. In all cases of discoloured water, spot flushing of the area was conducted and water flushing frequency increased. The discolouration is generally the result of disturbed iron in the distribution system originating from cast iron pipes. The WTP doses Carus 3050, a corrosion inhibitor and soda ash, a pH adjustment to minimize corrosion within the distribution system, reducing water discolouration. Water pressure complaints were received during maintenance or repair activities on the distribution systems, all complaints received were followed up by one of the Operations Staff.
Water pressure complaints can only be addressed in cases of leaks due to the water distribution system being pressurized by gravity and limited by a PRV to feasible limits. Leaks were addressed as soon as possible based on the severity and hazard of the leak.

8. Conclusion

Throughout the 2025 reporting period, TOMB managed and operated the Oakland Lake pumping station, water treatment plant, and water distribution system in accordance with Approval No. 2008-061157-03. The Withdrawal amounts established in the Approval were exceeded only in July and August, above the 710,000L/day averaged monthly limit. Ecological maintenance flows trended below historical averages in 2025 and fell below the limits established in the Approval during June, September, October, and November. During the period that the outlet watercourse level was below the benchmark, NSECC and DFO were appropriately notified.

Yours very truly,

Town of Mahone Bay

Prepared By:

Scott Hoyt
Water / Wastewater Systems Manager
(902) 930-1871
scott.hoyt@townofmahonebay.ca

Richard Redden
Water / Wastewater System Operator
(902) 877-0282
Richard.Redden@townofmahonebay.ca

TOWN OF Mahone Bay

Appendix A

Certificate of Accreditation for AGAT Laboratories

Canadian Association for Laboratory Accreditation Inc.

CALA

Certificate of Accreditation

AGAT Laboratories (Dartmouth)
AGAT Laboratories Ltd.
11 Morris Drive
Unit 122
Dartmouth, Nova Scotia

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Accreditation No.: 1003588
Issued On: 9/21/2024
Accreditation Date: 12/7/2007
Expiry Date: 3/21/2027

President and CEO

CALA

This certificate is the property of the Canadian Association for Laboratory Accreditation Inc. and must be returned on request; reproduction must follow policy in place at date of issue.
For the specific tests to which this accreditation applies, please refer to the laboratory's scope of accreditation at www.cala.ca.