APPENDIX A

Greater Victoria Drinking Water Quality
2025 Annual Report

Parks, Recreation & Environmental Services Department | **Environmental Protection**

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Greater Victoria Drinking Water Quality
2025 Annual Report

EXECUTIVE SUMMARY

This report provides the annual overview of the Capital Regional District (CRD) Water Quality Monitoring Program and 2025 water quality results within the Greater Victoria Drinking Water System (GVDWS) and its individual system components (see Map 1). This source-to-customer monitoring program was designed to meet the requirements of the provincial regulatory framework, which is defined by the *BC Drinking Water Protection Act* and *Drinking Water Protection Regulation*, and to follow the federal guidelines for drinking water quality. It was also structured to detect and anticipate trends in source water, verify treatment performance, and confirm the safe conveyance of treated water.

Drinking water in Greater Victoria was of good quality and safe to drink throughout 2025. Source water quality remained good, with very low levels of indicator bacteria and no detections of waterborne parasites. Warmer source water conditions persisted for about twelve weeks, the second longest period on record, but treatment performance remained effective and drinking water safety was maintained.

Both water treatment plants consistently met disinfection targets. Chloramine residuals across the system were generally stable, although seasonal changes in source water chemistry required adjustments to dosing in late fall. Disinfection byproducts remained well below Canadian guideline limits and the newly monitored compound NDMA was not detected.

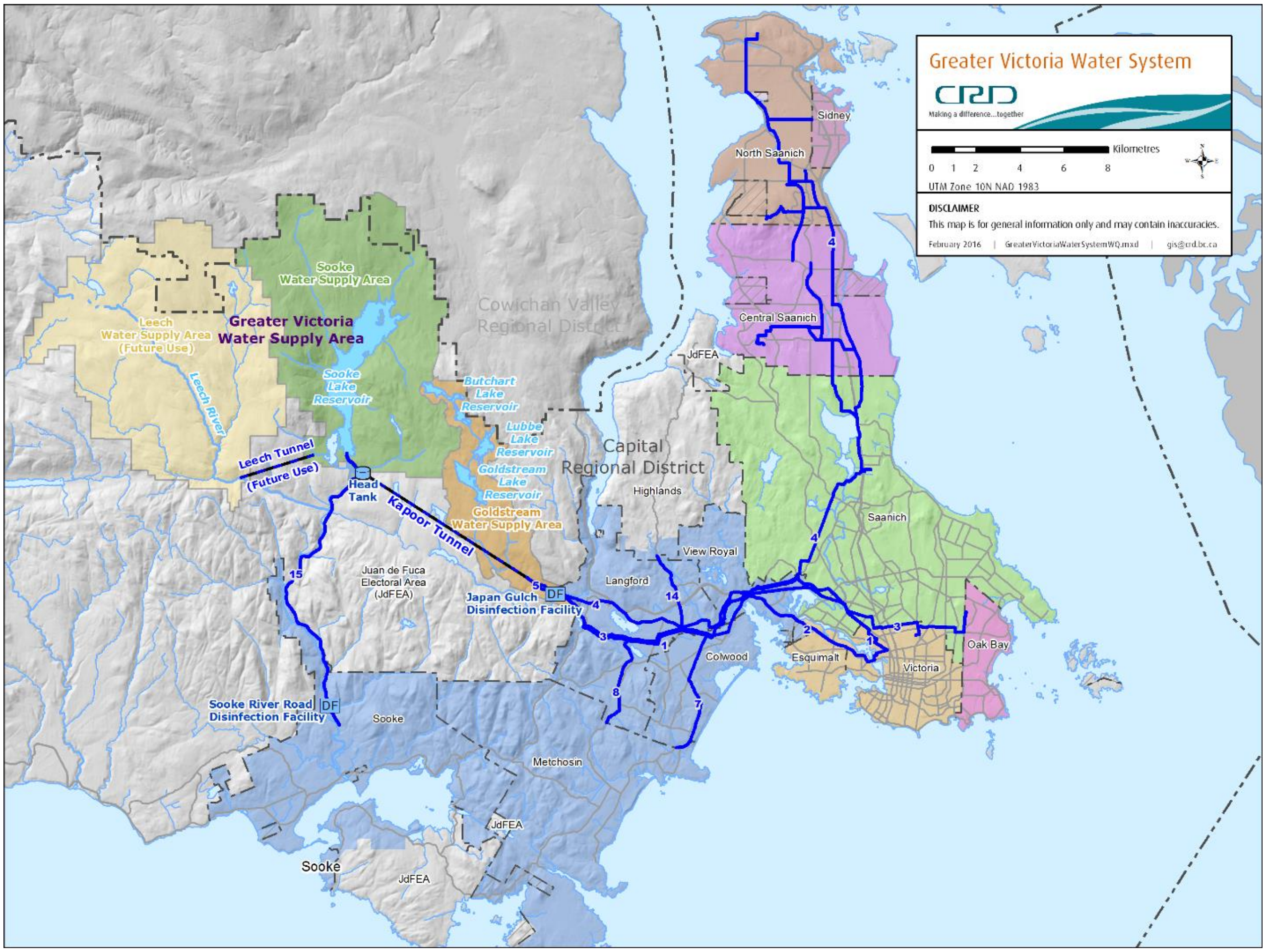
Most distribution systems were fully compliant with provincial bacteriological standards. Non-compliant results occurred in the CRD Transmission Mains, the Juan de Fuca system, the Saanich system, and the Victoria Esquimalt system. These events were short lived, were resolved through flushing or cleaning, and posed very low risk to public health. All systems met the monthly sampling requirements and remained below the maximum limit of ten percent total coliform positive samples.

Colour in the drinking water was slightly higher than in 2024 due to increased algal activity in the summer. Customer inquiries were similar in number to previous years, with more questions about water colour and an increase in inquiries related to lead.

Overall, the multiple barrier approach continued to protect drinking water quality across the region, and the system performed reliably under changing environmental conditions.

This annual report contains the compliance summary for the CRD and municipal water distribution systems in the GVDWS.

Map 1. Greater Victoria Drinking Water System



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List of Acronyms and Units of Measurement

<	Less than
≤	Less than or equal to
=	Equal to
>	Greater than
%	Percent
°C	degrees Celsius
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimeter
AC	Asbestos Cement
AO	Aesthetic Objective
BCWWA	British Columbia Water and Wastewater Association
$CaCO_3$	Calcium Carbonate
CALA	Canadian Association for Laboratory Accreditation
CCC	Cross Connection Control Program
CFU	Colony-Forming Units
Cl_2	Chlorine
cm	Centimeter
cm_2	Square centimeter
CRD	Capital Regional District
CT	Concentration x Contact Time
CWWA	Canadian Water and Wastewater Association
DI	Ductile Iron
E. coli	Escherichia coli
EOCP	Environmental Operators Certification Program
GVDWS	Greater Victoria Drinking Water System
ha	Hectares
HAA	Haloacetic Acid
HPC	Heterotrophic Plate Count
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
km	Kilometers
LIMS	Laboratory Information Management System
m	Meter
m^3	Cubic Meter
M	Million
MAC	Maximum Acceptable Concentration
Median	Middle point of all values
mg/L	Milligrams per litre
mJ	Millijoules
mL	Milliliters
mm	Millimeters
ND	Not Detected
NDMA	Nitrosodimethylamine
ng/L	Nanograms per litre
nm	Nanometer
NTU	Nephelometric Turbidity Unit
NU	Natural Units
PFAS	Per- and Polyfluoroalkyl Substances
pH	potential of Hydrogen
PRV	Pressure Regulating Valve
PVC	Polymerizing Vinyl Chloride
QA	Quality Assurance
QC	Quality Control
SCADA	Supervisory Control and Data Acquisition
SOL	Sooke Lake Reservoir
TC	Total Coliform Bacteria
TCU	True Colour Units
TTHM	Total Trihalomethane
USEPA	United States Environmental Protection Agency
UV	Ultraviolet
WP	Work Packages

Greater Victoria Drinking Water Quality
2025 Annual Report

1.0 INTRODUCTION

This report is the annual overview of the results from water quality samples collected in 2025 from the Greater Victoria Drinking Water System (GVDWS) (see Map 1). The report summarizes data from the Capital Regional District (CRD) owned and operated water infrastructure that includes the source reservoirs, the Regional Transmission System and the Juan de Fuca Water Distribution System, as well as data from the municipal distribution systems. Monthly and weekly summary reports on water quality data are posted on the CRD's website at: https://www.crd.ca/about/data/drinking-water-quality-reports.

2.0 WATER SYSTEM DESCRIPTION

In 2025, the GVDWS supplied drinking water to approximately 431,000 people and is the third-largest drinking water system operating in British Columbia. It comprises two separate service areas:

1. The **Goldstream Service Area** that supplies water to approximately 413,000 people in Victoria, Saanich, Oak Bay, Esquimalt, Central Saanich, North Saanich, Sidney, Highlands, Colwood, Langford and Metchosin via the Goldstream Water Treatment Plant.

2. The **Sooke Service Area** that supplies water to approximately 18,000 people in Sooke and East Sooke via the Sooke River Road Water Treatment Plant.

2.1 Source Water Systems

Drinking water for the GVDWS comes from protected watersheds called the Greater Victoria Water Supply Area (see Map 1). This CRD-owned and managed area, which is approximately 22,400 hectares (ha) in size, is located about 30 km northwest of Victoria and encompasses about 98% of Sooke Lake, 98% of Goldstream Lake and 92% of the Leech River catchment areas. The Goldstream and Sooke watersheds, totaling 11,000 ha, comprise the active water supply area, while 9,500 ha of the Leech watershed remain inactive and are designated for future water supply. In 2025, an additional 1,900 ha of non-catchment lands were added to the protected Water Supply Area through the acquisition of the Kapoor lands, which now provides sole access for CRD staff to the Sooke Lake dam.

Goldstream Service Area

The five reservoirs in the supply area have been used as a source of drinking water since the early 1900's. The Sooke Lake Reservoir, the largest of the reservoirs, is the primary water source for this system, supplying typically 100% of Greater Victoria's drinking water. The four reservoirs in the Goldstream system (Butchart, Lubbe, Goldstream and Japan Gulch) are typically off-line and are used only as a backup water supply. Controlled releases from the Goldstream watershed provide environmental flows in the Goldstream River and supply water for salmon enhancement at the Howard English Hatchery, operated by the Goldstream Volunteer Salmonid Enhancement Association below the Japan Gulch Reservoir dam. The Leech River watershed does not yet contribute to the water supply for the GVDWS.

Water at the southern end of Sooke Lake Reservoir enters two of the variable depth gates in the intake tower and is screened through a stainless-steel travelling screen (openings of 0.5 mm). From the intake tower, the water passes through two 1,200 mm-diameter pipelines to the Head Tank and then through the 8.8 km-long, 2.3 m-diameter Kapoor Tunnel and then into 1,525 mm- and 1,220 mm-diameter pipes (Mains #4 and #5) connecting the Kapoor Tunnel to the Goldstream Water Treatment Plant, where it is disinfected.

During source-water emergencies or when key raw-water infrastructure is out of service (historically during maintenance or inspection of the Kapoor Tunnel and the Intake Tower), water in the Goldstream Watershed can be released from Goldstream Reservoir into the upper reaches of the Goldstream River to supply Japan Gulch Reservoir. From there, water can be diverted to the Japan Gulch intake tower through the low-level or high-level intake, pass through a 14-mesh stainless-steel screen, and then flow in a 1,320 mm-diameter pipe to the Goldstream Water Treatment Plant.

Sooke Service Area

Drinking water for the Sooke Service Area is only supplied from Sooke Lake Reservoir but travels a different route. This water is passed through a 14.5 km-long, 600 mm-diameter PVC and ductile iron pipe (Main #15) from a point just above the Head Tank to the Sooke Water Treatment Plant. The Sooke Service Area has no backup water source.

2.2 Water Disinfection

The drinking water of the GVDWS is treated using a multistage disinfection process. Under the BC Ministry of Health Drinking Water Treatment Objectives for Surface Water Supplies, surface water systems must provide two methods of treatment, which, based on Health Canada multi barrier guidance, are typically filtration and disinfection. If specific source water protection, turbidity, and disinfection performance criteria are met, a Filtration Exemption may be granted, allowing two methods of disinfection to satisfy the treatment requirement. The exemption is further supported by meeting the United States Environmental Protection Agency Surface Water Treatment Rule requirements for unfiltered systems. The GVDWS continues to meet all criteria for a Filtration Exemption, which was granted in 2001 and is noted on the Island Health Operating Permit. The dual disinfection process in the GVDWS is both simple and effective and uses two water treatment plants to provide disinfected drinking water to the two main service areas: the Goldstream Water Treatment supplying the Goldstream Service Area, and the Sooke Water Treatment Plant supplying the Sooke Service Area.

Both water treatment plants utilize the same disinfection concepts and process methods. The Goldstream Water Treatment Plant uses delivered liquid sodium hypochlorite and liquid ammonia for the disinfection process. The Sooke River Road Water Treatment Plant generates sodium hypochlorite on site and injects delivered liquid ammonia to achieve the disinfection effect.

At both water treatment plants, the water passes through a three-part disinfection process in sequential order - two primary disinfection steps that provide disinfection of the raw water entering the system, followed by a secondary disinfection step that provides continuing disinfection throughout the transmission system and the distribution systems:

1. **UV Disinfection**. Ultraviolet (UV) disinfection provides the first step in the primary disinfection process, treating the raw source water entering each plant. The UV systems at both plants were designed to achieve a minimum 3-log (99.9%) inactivation of parasites such as *Giardia* and *Cryptosporidium*. The UV reactors are programmed to deliver the required dose under all operating conditions. Based on the typical applied UV dose of 16-25 mJ/cm^2, the UV treatment also provides effective inactivation of bacteria. This UV dose range meets the requirements of the operating permit and aligns with current industry standards.

2. **Free Chlorine Disinfection**. Free chlorine disinfection provides the second step in the primary disinfection process, using a free chlorine dose of approximately 1.5-2.5 mg/L and an average contact time of about 10 minutes (ranging from 5 to more than 20 minutes depending on water demand). By achieving the required CT (concentration × contact time) of 12 in winter and 4 in summer, the free chlorine disinfection step inactivates bacteria and provides a 4-log (99.99%) reduction of viruses.

   At the Goldstream Water Treatment Plant, the minimum free chlorine concentration required to achieve the necessary CT through the contact time available in Mains #4 and #5 during all seasons is 1.03 mg/L. Accordingly, the operational target for free and total chlorine at the ammonia injection sites is 1.5 mg/L.

   Due to the much longer contact time at the Sooke Water Treatment Plant, the minimum required free chlorine concentration there is only 0.26 mg/L, which is readily achieved by the operational target of 1.5 mg/L free and total chlorine just below the ammonia injection site.

3. **Ammonia Addition**. The secondary disinfection process consists of adding ammonia at a point downstream of the plants where CT has been achieved, forming chloramines. Ammonia is dosed at a ratio of approximately one part ammonia to four to five parts chlorine. In the water, these chemicals combine to form a chloramine residual (measured as total chlorine). Monochloramine is the desired species because of its disinfecting capacity, chemical stability, and low impact on taste and odour.

The Goldstream Water Treatment Plant has an operational target of maintaining at least 90% monochloramine, while the Sooke Water Treatment Plant operates with a slightly lower target of 80%, reflecting the older technology at that facility.
This chloramine residual remains in the water as it travels through the distribution system and continues to protect against bacterial contamination, providing the secondary disinfection barrier.

In East Sooke, at the Iron Mine Reservoir, the CRD re-chloraminates the water to boost the chlorine residual provided to the extremities of that system. In Metchosin, at Rocky Point Reservoir, the CRD maintains another re-chloramination station, which has not been in service for approximately nine years. It has been deemed unnecessary for maintaining adequate residuals. Currently, there are no provisions to re-chloraminate the water at the far reaches of the distribution system on the Saanich Peninsula; however, emergency re-chlorination stations are provided at Upper Dean Park Reservoir and Deep Cove pump station, supplying Cloake Hill Reservoir. These re-chlorination stations can add free chlorine to the system if the total chlorine residuals were to drop to inadequate levels or during water quality emergencies.

2.3 CRD Transmission System

The CRD Transmission System comprises a number of large-diameter transmission mains and several connected supply storage reservoirs. Almost all of the supply storage reservoirs are on the Saanich Peninsula, leaving the Core Area municipalities without any supply storage. Using a series of large-diameter transmission mains, the CRD supplies treated water to its downstream customers. These large-diameter transmission mains are sorted into three sections:

1. Regional Transmission System, that supplies the Westshore and Core Area municipalities, and up to the Saanich Peninsula boundary;

2. The Saanich Peninsula Trunk Water Distribution System that receives water at two points on the Saanich Peninsula from the Regional Transmission System and supplies it to the three municipalities and other customers on the Saanich Peninsula; and

3. The Sooke Supply Main.

2.3.1 Regional Transmission System

The CRD currently uses eight large-diameter transmission mains to supply drinking water to the municipal distribution systems in the Goldstream Service Area. These transmission mains range in diameter from 1,525 mm (60") down to 300 mm (12") and transfer water from the Goldstream Water Treatment Plant to the distribution systems listed in Section 2.4.

- Main #1 is a 1,067 mm-diameter (42") cement mortar-lined, welded steel pipe that starts at the Humpback pressure regulating valve (PRV) below the Humpback Reservoir Dam and ends at the David Street vault. This transmission main provides water primarily to the City of Victoria, but also services portions of Saanich and the Westshore communities.

- Main #2 is a 910 (36") to 780 mm-diameter (31") steel and ductile iron pipe, which starts at the Colwood overpass and runs primarily through View Royal, Esquimalt and Vic West along the Old Island Highway and Craigflower Road. Main #2 joins Main #1 at the David Street vault after crossing the Bay Street Bridge. This supply main is 7.6 km in length and provides water to View Royal, Victoria and Esquimalt.

- Main #3 is primarily a 990 mm-diameter (39") steel pipe that supplies water from the Humpback PRV and terminates at the CRD's Mt. Tolmie Reservoir. There are several sections in this line that include 1,220 mm-diameter (48") and 810 mm-diameter (32") pipes. The 810 mm-diameter pipe terminates at the Oak Bay meter vault. This supply main is 21.3 km in length and provides water to the Westshore communities, Saanich, Victoria and Oak Bay.

- Main #4, a high-pressure transmission main, is primarily a 1,220 mm-diameter (48") welded steel pipe that supplies water from the Goldstream Water Treatment Plant primarily to Saanich and the Saanich Peninsula. There are two small sections of 1,320 mm (52") and 1,372 mm (54") reinforced concrete pipe. This transmission main is 26.2 km in length and terminates near the Saanich-Central Saanich boundary, where it transfers water to the 762 mm (30") trunk main, which extends to McTavish

Reservoir. It supplies the municipalities on the Saanich Peninsula and to Bear Hill Reservoir and Hamsterly pump station, near Elk Lake.

- Main #5 is a 1,524 mm-diameter (60”) pipe that connects the Kapoor Tunnel via the Goldstream Water Treatment Plant to the Humpback PRV just below the old Humpback Reservoir dam. It is approximately 1.6 km in length and provides water to Mains #1 and #3.
- Main #7 is a 610 mm-diameter (24”) steel pipe that runs from Goldstream and Whitehead Road to Metchosin and Duke Road. It is 4 km in length and provides water to portions of Colwood, Langford and Metchosin.
- Main #8 is a 457 mm-diameter (18”) steel and asbestos cement pipe that runs from Glen Lake School, primarily along Happy Valley Road to Happy Valley and Glen Forest Way. It is 3.6 km in length and provides water to Langford, Colwood and Metchosin.
- Main #16 is a 300 mm-diameter (12”) ductile iron pipe that comes off Main #2 at the intersection of Island Highway and Admirals Road and follows Admirals Road until its terminus at Maple Bank Road where it transitions to the Victoria/Esquimalt distribution system. It was formerly part of the Juan de Fuca Water Distribution System but recently transferred to the CRD Regional Water Service and included in the Regional Transmission System.

There are three active inter-connections between the high-pressure Main #4 and the low pressure Mains #1 and #3, where water can be transferred from Main #4 to the other two mains via PRV stations. These stations are located at Watkiss Way, Millstream at Atkins, Goldstream/Veteran’s Memorial Parkway, and Burnside at Wilkinson Road. There is also a series of inter-connections between Mains #1 and #3, with the major inter-connections being at Price, Station, Tillicum and Dupplin roads.

2.3.2 Saanich Peninsula Trunk Water Distribution System

The Saanich Peninsula Trunk Water Distribution System receives water at two points on the Saanich Peninsula from the Regional Transmission System and supplies it to four customers on the Saanich Peninsula: the municipalities of Central Saanich, North Saanich, Sidney and the Agricultural Research Station. Several First Nations distribution systems are supplied via a short proxy-connection by either the Central Saanich or North Saanich municipality.

The Saanich Peninsula Trunk Water Distribution System is comprised of 46 km of transmission mains, including the 762 mm (30”) Bear Hill Main, the 400 mm (16”) Martindale Main, the 300-400 mm (12”-16”) Dean Park Main and the 250-500 mm (10-20”) Saanich Peninsula mains.

The McTavish Reservoir is the terminus of the Regional Transmission System and Main #4, a 610 mm-diameter (24”) concrete cylinder pipe. The Saanich Peninsula Trunk Water Distribution System begins with pipes from or bypassing McTavish Reservoir, which then continue further along the peninsula. In the vicinity of the airport at Mills Road, the main from McTavish Reservoir reduces from a 500 mm (20”) to a 406 mm-diameter (16”) asbestos cement pipe that terminates at the Deep Cove pump house. A dedicated 300 mm-diameter (12”) ductile iron (DI) supply main from Deep Cove pump station transitions at the end of Hillgrove Road to 250 PVC pipe just before it connects with Cloake Hill Reservoir. A 457 mm-diameter (18”) AC (asbestos cement) pipe along Mills Road connects the trunk main to the northwest end of the Sidney Distribution System.

The CRD also operates five major pumping stations located at Hamsterly, Lowe Road, Dean Park Lower, Dean Park Middle and Deep Cove, along with one minor pumping station located at Dawson Upper Reservoir, which are all considered part of the transmission system.

2.3.3 Sooke Supply Main

The Sooke Drinking Water Service Area is supplied by Main #15, a 600 mm pipe (upper section, PVC; lower high-pressure section, ductile iron) that conveys raw water from Sooke Lake Reservoir to the Sooke River Road Water Treatment Plant. Main #15 feeds directly into the Sooke Distribution System downstream of the water treatment plant.

2.3.4 Supply Storage Reservoirs

A number of supply storage reservoirs are considered part of the transmission system, even though most of them technically operate as a distribution reservoir with all of its typical functions: balancing, fire and emergency storage.

The only CRD-owned and operated transmission system storage reservoir in the Regional Transmission System is Mt. Tolmie Reservoir, a two-cell concrete in-ground reservoir, 27,300 m^3 (6M gallon), located on Mt. Tolmie at the terminus of Main #3 near the Oak Bay-Saanich boundary. This storage reservoir is filled by gravity from Main #3. Due to its low elevation, it can operate only within a very narrow water-level range and therefore cannot provide the full benefits of balancing or fire storage.

Haliburton Reservoir, a one-cell concrete in-ground reservoir, 22,700 m^3 (5M gallon), located off Haliburton Road in Saanich, has been disconnected from the system (off Main #4) and is empty. It is anticipated that this reservoir will not be used for drinking water purposes again.

The CRD-owned and operated transmission system storage reservoirs in the Saanich Peninsula Trunk Water Distribution System are:

- Bear Hill Reservoir, a two-cell concrete above-ground reservoir, 4,546 m^3 (1M gallon), located on Bear Hill in Saanich.
- Cloake Hill Reservoir, a one-cell, 4,546 m^3 (1M gallon) reservoir located on Cloake Hill in North Saanich.
- Dawson Upper Reservoir, a one-cell, 455 m^3 (100,000 gallon) reservoir located off Benvenuto Avenue in Central Saanich.
- Dean Park Lower Reservoir, a two-cell concrete above-ground reservoir, 4,546 m^3 (1M gallon), located beside Dean Park Road in North Saanich.
- Dean Park Middle Reservoir, two cylindrical concrete above-ground tanks, 2,730 m^3 (600,000 gallon), located near the bottom of Dean Park in North Saanich.
- Dean Park Upper Reservoir, a two-cell concrete partly in-ground reservoir, 4,546 m^3 (1M gallon), located near the top end of Dean Park in North Saanich.
- McTavish Reservoir, a two-cell concrete in-ground reservoir, 6,820 m^3 (1.5M gallon), located on the south side of McTavish Road in North Saanich.

2.4 Distribution Systems

The GVDWS contains eight individual distribution systems. Six distribution systems are separately owned and operated by the municipalities of Central Saanich, North Saanich, Oak Bay, Saanich, Sidney and Victoria. Victoria also owns and operates the distribution system in Esquimalt. Two distribution systems are owned by the CRD and operated by the CRD Infrastructure & Water Services Department. These latter two systems include the combined distribution system in the Westshore communities of Langford, Colwood, Metchosin, View Royal and a small portion of the Highlands, and a separate system supplying water to Sooke and parts of East Sooke. Each distribution system owner/operator is defined as a water supplier and is responsible for providing safe water to their individual customers and meeting all the requirements under the *BC Drinking Water Protection Act* and *Drinking Water Protection Regulation*.

2.4.1 Juan de Fuca Water Distribution System – CRD

In 2025, water was supplied to the Juan de Fuca Water Distribution System primarily from Main #1 and #3. In this report, the Juan de Fuca Water Distribution System does not include Sooke. For Sooke/East Sooke, see Section 2.4.2 Sooke/East Sooke Distribution System below. Parts of Langford and View Royal were supplied from Main #4. The development at Bear Mountain in Langford was supplied by Main #4. The Westhills development in Langford, serviced by its own privately-operated distribution system (operator: Sustainable Services Ltd.), was supplied via Main #1 and #3. In the Juan de Fuca Water Distribution System, water flowed generally in a northerly and southerly direction away from the supply mains. The federal William Head Institution and the Beecher Bay meter vault are located at the southern extremities of this system. The Beecher Bay meter registers flows to the Sc'ianew First Nation community water system.

The Juan de Fuca Water Distribution System includes the following distribution reservoirs:

- Bear Mountain Reservoir #1, a two-cell, 1,250 m^3 (275,000 gallon) reservoir located on the lower slopes of the Bear Mountain development in Langford.
- Deer Park Reservoir, a one-cell, 1,657 m^3 (365,000 gallon) reservoir located downstream of Rocky Point Reservoir re-chloramination station near the extremity of the water system off of Deer Park Trail in Metchosin (new in 2022).
- Fulton Reservoir, a two-cell, 4,580 m^3 (1,007,459 gallon) reservoir located at the end of Fulton Road in Colwood.
- Rocky Point Reservoir, a three-cell, 546 m^3 (120,000 gallon) reservoir located near the end of Rocky Point Road in Metchosin.
- Skirt Mountain Reservoir, a three-cell, 6,525 m^3 (1,435,300 gallon) reservoir located near the top of Skirt Mountain in the Bear Mountain development in Langford.
- Stirrup Place Reservoir, a two-cell, 242 m^3 (53,300 gallon) reservoir located off of Stirrup Place Road in Metchosin.
- Walfred Reservoir, a three-cell, 560 m^3 (123,180 gallon) reservoir located on Triangle Mountain in Colwood.
- Flint North Reservoir, currently one-cell steel tank with area for proposed and future tanks (current cell 2,750 m^3 (605,000 gallons), (new in 2023).

Peacock Reservoir, consisting of two steel tanks with a total storage volume of 583.8 m^3 (128,420 gallon), located north of the Trans-Canada Highway off of Peacock Place in Langford, was drained and taken offline in early 2025. It is anticipated that this now redundant asset, including its former supply pump station (Gourman Pump Station) will be dismantled and removed from the system in the near future. The former Peacock zone is now being supplied from another zone through a newly looped connection.

2.4.2 Sooke/East Sooke Distribution System – CRD

The Sooke/East Sooke Distribution System begins downstream of the Sooke River Road Water Treatment Plant, at the end of Main #15 on Sooke River Road, where the ammonia storage and metering building is located. The primary water supply main to the community follows Sooke River Road downstream and splits at Milne's Landing going east toward Saseenos and west toward the central area of Sooke. Near the eastern and the southern ends of the distribution system, two parts of the T'Sou-ke First Nation community are being supplied. Two underwater pipelines across Sooke Basin, one at and another just east of Billings Spit, supply East Sooke. Sunriver Estates is serviced by a 300 mm (12") pipeline on Phillips Road and the Sunriver Reservoir complex consisting of a two-cell concrete plus a one-cell steel tank. In 2020, the water main along West Coast Road was extended to connect the formerly self-sufficient Kemp Lake Waterworks District to the Sooke/East Sooke Distribution System. At this most western extremity of the Sooke/East Sooke Distribution system, the CRD now supplies bulk water to the Kemp Lake District. The CRD infrastructure ends with a meter station on West Coast Road before a Kemp Lake District-owned and operated pump station supplies their distribution system.

In 2024, the CRD included the formerly independently operated Seagirt distribution system off East Sooke Road to the CRD Sooke/East Sooke Distribution System. This system expansion consists of a 150 mm PVC watermain loop serving approximately 120 single family properties.

The Sooke/East Sooke Distribution System includes the following distribution reservoirs:

- Coppermine Reservoir, a one-cell concrete partly in-ground reservoir, 455 m^3 (100,000 gallon), located off of Coppermine Road in East Sooke.

- Helgesen Reservoir, a four-cell concrete partly in-ground reservoir, 6,973 m^3 (1,533,850 gallon), located at the west end of Helgesen Road in Sooke.
- Henlyn Reservoir, a one-cell steel tank tower, 224 m^3 (49,270 gallon), located off of Henlyn Drive in Sooke.
- Silver Spray Reservoir, a two-cell cylindrical concrete tank, 841 m^3 (185,000 gallon), located off of Silver Spray Drive in East Sooke.
- Sunriver Reservoir, a two-cell concrete above-ground reservoir, 1,800 m^3 (395,944 gallon) plus a single cell 1,355 m^3 (300,000 gallon) steel tank (new in 2022), located off of Sunriver Way in Sooke.

2.4.3 Central Saanich Distribution System – District of Central Saanich

In 2025, drinking water was supplied to the Central Saanich Distribution System via ten pressure zones (seven off the Bear Hill main and three off the Martindale Valley main). The Bear Hill main supplied the Tanner Ridge area by direct feed, the central area in one pressure zone through three PRVs, the Saanichton area in two pressure zones through two PRVs, the Brentwood Bay area, and the Tsartlip First Nation through a PRV. Five smaller pressure zones served the rest of Central Saanich. Dawson Upper Reservoir (CRD-owned and operated) supplied a small area of higher elevation residences in Brentwood Bay. Martindale metering station supplied an agricultural area in the southeast corner of the municipality. The Island View Road area was supplied by the Lochside metering station. The Mount Newton metering station provided water to the northeast corner and to the Tsawout First Nation lands. A municipally owned pump station on Oldfield Road serviced a small area in the southwest corner.

Bear Hill Reservoir (CRD-owned and operated) supplies approximately 80% of Central Saanich's water. It is the primary supply to most of Central Saanich (south of Haldon Road), including Brentwood Bay.

The Central Saanich Distribution System has technically no balancing, fire or emergency storage, but relies on the CRD Transmission System infrastructure to provide this. One CRD-owned reservoir (Dawson Upper) in Central Saanich, that is considered part of the transmission system, functions as a distribution reservoir for the Central Saanich Distribution System.

2.4.4 North Saanich Distribution System – District of North Saanich

In 2025, drinking water was supplied to the North Saanich Distribution System from a number of points along the Saanich Peninsula Trunk Water Distribution System. This included Dean Park via the Lowe Road pump station, Dean Park pump stations and Dean Park Reservoirs (all CRD-owned and operated), Deep Cove/Lands End area via connections upstream of the Deep Cove pump station, Cloake Hill Reservoir via Deep Cove pump station (all CRD-owned and operated), and Swartz Bay. In the North Saanich Distribution System, Cloake Hill Reservoir (CRD-owned and operated) was the largest pressure zone. An underwater pipeline supplies drinking water to Piers Island from the Cloake Hill Reservoir pressure zone. Water flowed generally in an easterly direction through the Dean Park pressure zone, northwest into the Deep Cove/Lands End area and northeast to the Swartz Bay area. Dean Park Upper Reservoir (CRD-owned and operated) supplied a small portion of the Dean Park Estates.

The North Saanich Distribution System has technically no balancing, fire or emergency storage, but relies on the CRD Transmission System infrastructure to provide this. Several CRD-owned reservoirs in North Saanich, which are considered part of the transmission system, function as distribution reservoirs for the North Saanich Distribution System.

North Saanich provides water to the Victoria Airport Authority via the water main on the south side and the east side of the airport. As water quality in the airport distribution system falls under federal jurisdiction, it was not monitored by the CRD in 2025 and is, therefore, not included in this report.

2.4.5 Oak Bay Distribution System – District of Oak Bay

In 2025, drinking water was supplied to the Oak Bay Distribution System at Lansdowne and Foul Bay roads from Main #3. The water flowed in a west to east direction across Lansdowne with north and south branches. Oak Bay conveys water via a 406 mm main, which crosses Oak Bay diagonally from northwest to southeast. Oak Bay has an outer loop flow on Beach Drive to the Victoria boundary. The Oak Bay Distribution System has no balancing, fire or emergency storage and the CRD Transmission System infrastructure has limited provisions for this.

Oak Bay used four local pressure zones supplied by booster pumps. Sylvan Lane pump station supplied the Barkley-Sylvan area; Plymouth supplied the north Henderson area; Foul Bay supplied the south Henderson area; and Uplands pump station (seasonal) supplied the Uplands area. There are two inter-connections with the Victoria/Esquimalt Distribution System, which are normally closed, however Oak Bay is investigating if they can be used in emergencies.

2.4.6 Saanich Distribution System – District of Saanich

In 2025, drinking water was supplied to the Saanich Distribution System at a number of points from CRD's transmission mains. Water was supplied from Main #1 at Dupplin, Wilkinson and Marigold, Holland/Burnside and Admirals/Burnside; from Main #3 at Douglas, Tillicum, Admirals, Shelbourne, Richmond, Foul Bay, Mt. Tolmie and Maplewood pump house; and from Main #4 at Burnside, Blue Ridge, Roy Road, Markham, Layritz, Cherry Tree Bend and Sayward. In the Saanich Distribution System, water flowed generally in a northerly direction from Main #1 and #3, and both east and west from Main #4.

There are four major pumping systems in the Saanich Distribution System. Maplewood pumps water north from Main #3, ending in the Gordon Head area. Cherry Tree Bend pumps from Main #4 to Wesley Reservoir and the west central high elevation area. The Mt. Tolmie/Plymouth pump station pumps water from Main #3 and the CRD Mt. Tolmie Reservoir to Saanich's Mt. Tolmie Reservoir and the Gordon Head area via a 610 mm-diameter main.

Water from Sayward supplies the north end of the Saanich Distribution System via Main #4 with a southerly flow through Cordova Bay. Saanich also has several other small pressure zones controlled by pump stations.

The Saanich Distribution System includes some storage for balancing, fire and emergency purposes. The following distribution reservoirs are owned and operated by Saanich:

- Hartland Reservoir, a one-cell, 769 m^3 (170,000 gallon) reservoir located on Hartland Road in Saanich. This one-cell steel tank reservoir was constructed in 2020 to replace a smaller old reservoir.
- Mt. Tolmie Reservoir (Saanich), a one-cell, 4,545 m^3 (1M gallon) reservoir located on the east side of the summit of Mt. Tolmie near Cromwell Reservoir in Saanich.
- Rithet Reservoir, a one-cell, 16,807 m^3 (3.7M gallon) reservoir located at the end of Perez Drive in Broadmead in Saanich.
- Wesley Reservoir, a two-cell, 3,182 m^3 (700,000 gallon) reservoir located at the end of Wesley Road on Haliburton Ridge in Saanich.

2.4.7 Sidney Distribution System – Township of Sidney

In 2025, drinking water was supplied to the northern portion of the Sidney Distribution System from the 457 mm CRD transmission main on Mills Road from upstream of the Deep Cove pump station. The southern portion of the distribution system is supplied from a 300-400 mm ductile iron main that is connected to the CRD Transmission System and McTavish Reservoir. Within the Sidney Distribution System, water flowed generally from the west via Mills Road and from the south via McTavish Reservoir and met in the middle of the distribution system, with approximately 60% of the water coming from the Mills Road supply.

The Sidney Distribution System has no balancing, fire or emergency storage, but rather relies on the CRD Transmission System infrastructure to provide this.

2.4.8 Victoria/Esquimalt Distribution System – City of Victoria/Township of Esquimalt

Note: The City of Victoria also owns and operates the water distribution system in the Township of Esquimalt.

In 2025, drinking water was supplied to the Victoria/Esquimalt Distribution System from Main #1 and #2 at David Street/Gorge Road and David Street/Rock Bay Avenue. From these supply points, the system divides into several smaller looped water mains within the distribution system. Water was also supplied to Victoria from Main #3 at Cook Street/Mallek Crescent, Somerset Street/Tolmie Avenue, Douglas Street/Tolmie Avenue and Shelbourne Street/North Dairy Road. In general, water flows from a north to south direction.

Water was supplied at multiple locations to Vic West and Esquimalt from Main #2. These locations include Tyee Road/Bay Street, Burleith Crescent/Craigflower Road, Garthland Road/Craigflower Road and Admirals Road/Maple Bank Road.

The Victoria/Esquimalt Distribution System has no balancing, fire or emergency storage and the CRD Transmission System infrastructure has limited provisions for this.

3.0 MULTIPLE BARRIER APPROACH TO WATER QUALITY

The CRD and the municipalities that operate their distribution systems use a multiple barrier approach to prevent the drinking water in the GVDWS from becoming contaminated. Multiple barriers can include procedures, operations, processes and physical components. In a drinking water system, any individual contamination barrier used in isolation has an inherent risk of failure and may result in contamination of the drinking water. However, if a number of individual barriers are used together in combination with each other and, especially if they are arranged so that they complement each other, these multiple barriers are a very powerful means of preventing drinking water contamination. All CRD-owned and operated, and most other large drinking water utilities, use the multiple barrier approach to prevent drinking water contamination. The exact types and applications of barriers are unique for each system, to address the system-specific risks.

The following barriers are used in the GVDWS to prevent drinking water from becoming contaminated:

1. **Good Water System Design**. Good water system design is one of the preeminent barriers to drinking water contamination, as it allows all of the other components within the water system to operate in an optimal fashion and does not contribute to the deterioration of the quality of the drinking water contained within the system. Good water system design includes such aspects as: drinking water treatment plants that are easy to operate; piping appropriately sized to the number of users being supplied; and the use of appropriate pipe materials. All new designs are designed by qualified professionals registered in BC, reviewed and approved by qualified CRD or municipal staff, and approved and permitted by a Public Health Engineer from Island Health. This acts as a multiple check on good system design.

2. **Source Water Protection**. The CRD uses what is considered the ultimate source water protection: ownership of the catchment (watershed) lands surrounding the source reservoirs. This land area is called the Greater Victoria Drinking Water Supply Area. Within this area, no public access, commercial logging, farming, mining or recreation is permitted, and no use of herbicides, pesticides or fertilizers is allowed. This source water protection barrier eliminates many of the organic and inorganic chemicals that can contaminate the source water and virtually eliminates the potential for human disease agents being present. Very few drinking water utilities in Canada and the United States can claim this type of protection. In addition, the CRD Watershed Protection Division operates a complete and comprehensive watershed management program that provides additional protection to the quality of Greater Victoria’s source water.

3. **Water Treatment/Disinfection**. The GVDWS is an unfiltered drinking water system that continues to meet the provincial, as well as the stringent USEPA criteria, to remain an unfiltered surface water supply. The treatment process consists of primary disinfection (ultraviolet light and free chlorine) of the raw source water entering the treatment plant, and secondary disinfection (chloramination) that provides a disinfectant residual throughout the transmission and distribution systems. Although the water treatment barrier used in Greater Victoria is not as rigorous as that provided by most drinking water utilities using a surface water supply, the microbiological quality of the source water is

exceptionally good and the chief medical health officer for Island Health has approved this treatment process as providing safe drinking water for the public.

In 2022, the CRD released the Regional Water Supply Master Plan, which identified the need for additional water treatment, in the form of filtration, to increase resiliency from future water quality risks. In February 2024, the chief medical health officer for Island Health issued a statement concurring with the requirement for water filtration in the mid-to-long term perspective.

4. **Distribution System Maintenance**. All water suppliers in the GVDWS provide good distribution system maintenance, including activities such as annual water main flushing, hydrant maintenance, valve exercising, leak detection, and reservoir cleaning and disinfection. This barrier helps to promote good water quality within the distribution systems.

5. **Infrastructure Replacement**. The timely replacement of aging water system infrastructure is an important mechanism to prevent the deterioration of water quality in the pipes and provides a continual renewal of the water system. The CRD's water infrastructure replacement program is informed by its asset management strategy thereby ensuring that critical components are replaced before their end of service life.

6. **Well Trained and Experienced Staff**. All water system operators must receive regular training and be Environmental Operators Certification Program (EOCP) certified to operate water system components. CRD and municipal staff meet these requirements. In addition, CRD laboratories used for drinking water analyses hold the required operating certificates issued by the BC Ministry of Health in accordance with the *BC Drinking Water Protection Regulation*. Drinking water samples not analyzed in-house are submitted only to accredited and certified commercial laboratories.

7. **Cross Connection Control**. Cross connection control provides a barrier to contamination by assisting in the detection of conditions that have the potential to introduce contaminants into the drinking water from another type of system. Therefore in 2005, in cooperation with the other water suppliers, the CRD implemented a regional Cross Connection Control (CCC) Program throughout the GVDWS. 2008 saw the implementation of the first CRD Cross Connection Control Bylaw for the GVDWS. This bylaw was reviewed and updated last in 2019 to its current form as CRD Bylaw No. 3516. The CRD CCC Program is a regional service on behalf of all local municipalities.

8. **Water Quality Monitoring**. Rigorous water quality monitoring can be considered a barrier not only because it verifies the satisfactory performance of other barriers and enables rapid detection of contamination, but also because comprehensive monitoring data allows water suppliers to identify trends and respond proactively before contamination occurs. The CRD has designed and implements a comprehensive water quality monitoring program for the GVDWS that collects daily bacteriological and physicochemical samples across the entire region for compliance purposes, both on CRD water infrastructure and within municipal distribution systems. This program also includes testing for parameters beyond legislated requirements to verify and maintain high drinking water quality in the GVDWS.

4.0 WATER QUALITY REGULATIONS

The CRD and the municipal water suppliers in the GVDWS must comply with the *BC Drinking Water Protection Act* and *Drinking Water Protection Regulation*. The regulation stipulates the following water quality and sampling criteria for water supply systems:

- No detectable *Escherichia coli (E.coli)* per 100 milliliters (mL)
- At least 90% of samples have no detectable total coliform bacteria per 100 mL and no sample has more than 10 total coliform bacteria per 100 mL
- 5,000-90,000 population served: one sample per month per 1,000 population served
- >90,000 population served: 90 + 1 samples per month per 10,000 in excess of 90,000 population served

In addition to the water quality monitoring requirements set out in the Drinking Water Protection Regulation, the CRD Water Quality Monitoring Program also applies, as due diligence to ensure public safety and maintain public trust, the much broader suite of parameters listed in the current *Guidelines for Canadian Drinking Water Quality* for compliance purposes. These limits are provided in Appendix A, Tables 1 to 5, under the column titled 'Canadian Guidelines'. The water quality limits in the Canadian guidelines[1] fall into one of the following five categories:

1. **Maximum Acceptable Concentration**. This is a health-related limit that specifies the maximum acceptable concentration (MAC) of a substance known or suspected to cause adverse health effects. An exceedance of a MAC is therefore potentially serious and requires immediate action by the water supplier.

2. **Aesthetic Objectives**. These limits apply to certain substances or characteristics of drinking water that can affect its acceptance by consumers or interfere with treatment practices for supplying good quality drinking water. These limits are generally not health related, unless the substance is well above the aesthetic objectives (AO).

3. **Parameters Without Guidelines**. Some chemical and physical substances have been identified as not requiring a numerical guideline because data currently available indicate that it poses no health risk nor aesthetic problem at the levels currently found in drinking water in Canada. These substances are listed as 'No Guideline Required' in Appendix A, Tables 1 to 5.

4. **Archived Parameters**. Guidelines are archived for parameters that are no longer found in Canadian drinking water supplies at levels that could pose a risk to human health, including pesticides that are no longer registered for use in Canada, and for mixtures of contaminants that are addressed individually. Some of these parameters are still being included in the current water quality monitoring program because the analytical laboratory includes them in their scans. These parameters are listed as 'Guideline Archived' in Appendix A, Tables 1 to 5.

5. **Operational Guidance**. The limit was established based on operational considerations and listed as an operational guidance value. For example, the limit for aluminum is designed to apply only to drinking water treatment plants using aluminum-based coagulants.

It should be noted that not all water quality parameters analyzed under the CRD Water Quality Monitoring Program have corresponding limits in the Canadian guidelines; but are monitored for operational purposes. Where the Canadian guidelines do not specify a limit for a given parameter, the corresponding field is left blank in Appendix A, Tables 1 to 5.

In addition to the Canadian provincial regulations and federal guidelines, on a voluntary basis, the CRD also complies with most of the USEPA rules and regulations. Some of the limits in the USEPA rules are used as the basis for the CRD's water treatment goals.

The GVDWS, as an unfiltered surface water system, must meet the provincial Drinking Water Treatment Objectives for Surface Water Supplies in BC, which includes similar criteria as the conditions for filtration exemption in the Canadian guidelines. In summary, the applicable criteria are:

- 4-log inactivation of viruses (met with chlorination)
- 3-log removal or inactivation of parasites (*Giardia* and *Cryptosporidium*) (met with UV disinfection)
- Two forms of disinfection (UV and chlorination)
- Water entering disinfection facilities has an average daily turbidity of <1 Nephelometric Turbidity Unit (NTU) and not more than two days/year with an average daily turbidity of >5 NTU
- No *E. coli* or total coliform in treated water
- A watershed control program to minimize fecal, parasite and viral contamination of source water (in

[1] (see: https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html)

place)

- Detectable disinfectant residual in distribution system
- *E. coli* in source water ≤20 colony-forming units (CFU)/100 mL

5.0 OPERATIONAL CHANGES AND EVENTS – CRD SYSTEMS

5.1 Use of Goldstream Water

In 2025, the Goldstream Supply System was not used at all and 100% of the source supply came from Sooke Lake Reservoir. Throughout the year, the Goldstream System remained filled and available for emergency use.

5.2 Annual Uni-directional Flushing Program

As the Regional Water Supply System is an unfiltered water supply, sediments in the source water can migrate into the transmission and distribution system. In order to remove sediment in the piping system and maintain acceptable water quality, CRD prioritized uni-directional flushing of the Juan de Fuca and Sooke/East Sooke distribution systems in 2025. This annual program is important for maintaining good water quality in the system by removing pipe sediments systematically from the entire piping system. Flushing also controls biofilm growth on the inner pipe walls which in turn reduces bacterial growth in the system.

The annual target for this program is to flush 50% of the system each year. In 2025, a total of 263.9 km of pipe was flushed representing 48% of the Juan de Fuca and Sooke/East Sooke distribution systems.

5.3 Chlorine Dosage

For primary disinfection, it is essential to meet the required CT value (the product of chlorine concentration and contact time). This target was consistently met at both water treatment plants in 2025.

A high ratio of monochloramine to total chlorine is important, as it results in a stable and durable chloramine residual that supports effective secondary disinfection throughout the system, including its extremities. For this reason, specific monochloramine ratio targets were set for each treatment plant. The Goldstream Water Treatment Plant has a monochloramine ratio target of 90%, while the Sooke River Road Plant has a target of 80%. The actual monochloramine ratios at both plants—and therefore the chloramine residuals across the GVDWS—remained well above the targets until October 2025. At that time, the monochloramine ratio at both plants dropped below their respective targets, likely due to seasonal changes in the natural water chemistry of Sooke Lake Reservoir. To improve the monochloramine ratio and extend the longevity of the chlorine residual, adjustments were made to the chlorine-to-ammonia dosing at both plants. This optimization process continued into early 2026, when both facilities again achieved their target ratios.

5.4 E. coli Hits in Municipal Distribution Systems

Two bacteriological samples collected on October 10, 2025, tested positive for *E. coli*. One sample originated from the Saanich Distribution System and the other from Victoria. The samples were collected by CRD Water Quality staff and analyzed in the CRD laboratory. These adverse results were immediately reported to the two responsible municipalities, which then activated their emergency response procedures. Municipal staff coordinated their response with Island Health, and CRD staff supported the process by conducting resampling and analyzing these. As there was no credible evidence of actual drinking water contamination, no Boil Water Advisory was issued. Laboratory analysis of the resamples confirmed that the water system had not been contaminated. The event was most likely caused by contamination during sampling or sample handling. It also provided a valuable opportunity to practice interjurisdictional emergency response procedures and highlighted areas for improvement in after-hours communication protocols by the City of Victoria.

5.5 UV System Upgrade at Goldstream Water Treatment Plant

From 2024 to 2025, the 16 UV reactors at the Goldstream Water Treatment Plant, which had reached end of life, were replaced with eight new reactors at the Goldstream Water Treatment Plant. The eight new Trojan Swift medium-pressure reactors provide the same hydraulic capacity as the previous 16-reactor system. Each UV reactor contains six lamps that emit at least 85% of their output at the 254 nm germicidal wavelength. The upgraded UV system is fully automated: UV dose and the number of reactors in operation are continuously adjusted based on real-time flow and UVT measurements to achieve a preset parasite log reduction target (minimum 3-log). In 2025, the UV dose typically ranged from 16 to 20 mJ/cm² to meet this target.

5.6 CRD Reservoir Maintenance

In accordance with the defined reservoir cleaning schedule, four distribution reservoirs were cleaned in 2025. This schedule is based on a thorough water quality data review for each CRD-owned and operated transmission or distribution reservoir and is regularly updated based on new data and information.

5.7 Sooke Lake Reservoir Water Levels

Compared to the previous year, Sooke Lake Reservoir reached full pool slightly later, filling by the end of February. From mid-April until mid-October, reservoir levels declined steadily, reaching their lowest point since 2009 due to the extremely dry summer and fall conditions in the region. Subsequent precipitation in late October and November slowed the decline, and high rainfall in December allowed levels to recover quickly, reaching 92.9% of full storage by year's end (see Figure 1). This year-end status is consistent with previous years and aligns with the general reservoir recharge pattern observed since the dam was raised in 2004.

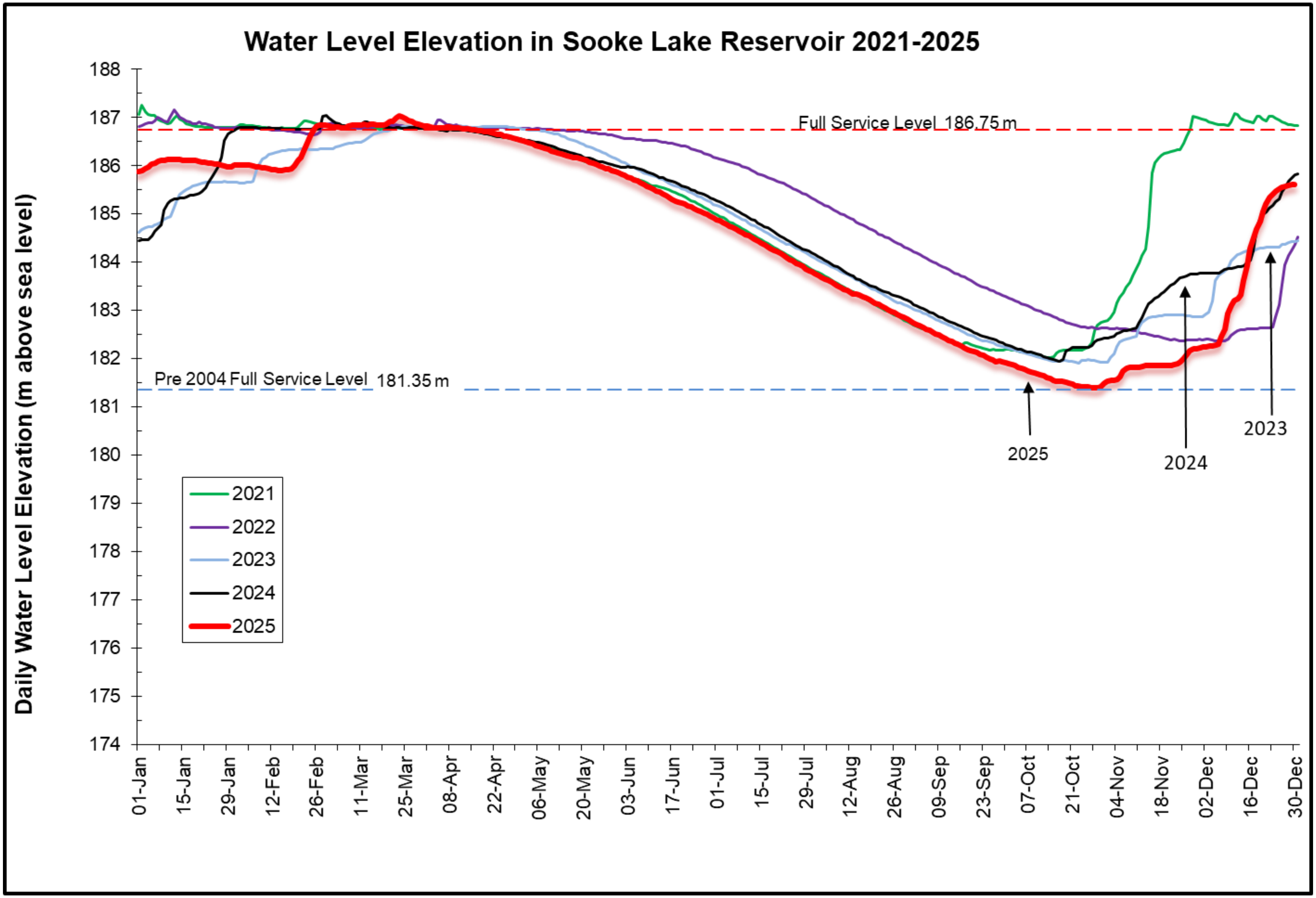


Figure 1 Water Level Elevation in Sooke Lake Reservoir 2021-2025

6.0 WATER QUALITY MONITORING

The CRD Water Quality Program encompasses the collection, analysis, and reporting of water quality information across all CRD-owned and operated components of the GVDWS, from the source reservoirs to the point of delivery (typically the water meter). While municipal water suppliers are responsible for water quality and any corrective actions within their distribution systems, CRD staff provide regulatory compliance sampling and testing on their behalf.

The program is supported by dedicated professional staff trained to collect samples from source and treated water sites throughout the region, and by technical staff who analyze and interpret water quality data to inform operational decisions and emergency responses. The CRD Laboratory is certified for multiple drinking water test methods and staffed by highly trained laboratory technicians. The CRD Aquatic Ecology division includes specialists in phyto- and zooplankton analysis, periphyton assessment, cyanotoxin testing, and source-water limnology. The Cross Connection Control Program is staffed by certified plumbing and cross-connection control inspectors, as well as personnel trained to administer the requirements of the BC and National Plumbing Codes and the CRD Cross Connection Bylaw No. 3516.

6.1 CRD Water Quality Monitoring Program

The CRD Water Quality Monitoring Program consists of the following components that provide direction for the collection and analysis of water quality samples from the water systems:

- **Compliance Monitoring:** The goal of compliance monitoring is to ensure that water quality from source to consumer meets all applicable drinking water regulations and guidelines. Island Health, as the provincial regulator, has issued two operating permits for the CRD—one for the Goldstream Service Area and one for the Sooke Drinking Water Service Area. In addition to the monitoring requirements of the *BC Drinking Water Protection Regulation*, these permits require continuous turbidity monitoring.

  The CRD Water Quality Operations division conducts bacteriological monitoring on raw water entering the treatment plants, treated water leaving the plants, first-customer locations, major transmission mains, and CRD-owned distribution systems, including storage reservoirs. Sampling frequencies meet regulatory requirements and provide consistent, day-to-day oversight of system-wide water quality. Continuous turbidity monitoring is achieved through online analyzers at each treatment plant (two per plant for redundancy), with data tracked through the Supervisory Control and Data Acquisition (SCADA) system.

  As part of the compliance program, the CRD also provides bacteriological sampling and analysis within municipal distribution systems, reports monthly results on the CRD website, and includes findings in this annual report.

  Island Health has granted the GVDWS an exemption from filtration, the standard treatment requirement for surface water systems in BC, based on evidence of consistently high source water quality. This exemption requires close monitoring of several additional water quality parameters beyond those listed in regulations and operating permits. Accordingly, the CRD regularly tests raw and treated water for parameters needed to verify compliance with the Canadian guidelines and USEPA rules. In raw water, these include parasites, organic and inorganic compounds (including metals), and key physical and chemical parameters. In treated water, monitoring includes disinfection byproducts, metals, and other chemical and physical indicators used to verify good drinking water quality.

- **Aquatic Ecology Monitoring:** The goal of aquatic ecology monitoring is to understand and document the factors that influence the natural cycles of the source streams and reservoirs. The source water bodies in the Greater Victoria Water Supply Area (see Map 1) are monitored according to recommendations from the CRD Aquatic Ecology division, as there are no legislated requirements for sampling frequency or parameter selection. For an unfiltered surface water supply, it is essential for the CRD to maintain a comprehensive understanding of natural source-water processes and their potential implications for drinking water quality in the GVDWS.

Depending on the season, the source lakes and their tributaries are sampled weekly to quarterly for parameters such as algal species, distribution and concentrations, zooplankton species and concentrations, chlorophyll-a, and nutrient levels. Additional samples may be collected based on risk-management needs, including responses to severe weather or unusual observations.

- **Operational Water Quality Monitoring:** The CRD Water Quality Monitoring Program provides an audit function for all water quality-related aspects of the GVDWS, including performance monitoring of treatment plants and distribution systems. Targeted sampling and testing support operational decisions by CRD and municipal operators. Daily field tests of chloramine residuals verify the effectiveness of secondary disinfection across the region. Additional qualitative tests (e.g., taste and odour) and quantitative tests [e.g., heterotrophic plate count (HPC), turbidity] are routinely performed to identify maintenance needs. The customer inquiry program is also part of this work, as public observations can help identify system issues or potential water quality risks. In response to customer concerns, water samples may occasionally be collected from taps within homes or facilities.

  The program also monitors for emerging contaminants identified by Health Canada, the British Columbia Water and Wastewater Association (BCWWA), the Canadian Water and Wastewater Association (CWWA), or other agencies as potential risks to public health or drinking water safety. Media attention can also increase public interest in specific parameters, prompting temporary or ongoing monitoring. For example, the CRD has monitored per- and polyfluoroalkyl substances (PFAS) in source water since 2020.

- **Drinking Water Safety Plan:** The Drinking Water Safety Plan is a comprehensive water quality risk registry for the GVDWS. Annually, existing water quality risks are reviewed, and new risks are identified, documented and tracked. At the end of 2025, the Drinking Water Safety Plan listed 27 high-risk and 180 moderate-risk items, compared with 24 and 179 respectively in 2024. The risks identified and recorded include catchment and source water risks as well as risks associated with infrastructure from the headworks to the customer water meters.

6.2 Sampling Plans

The efforts to collect the required number of samples for the CRD Water Quality Monitoring Program are organized into three distinct sampling plans:

1. The **Watershed Sampling Plan** defines the sampling frequency, schedule, and parameter list for the source lakes and tributaries, based on an up-to-date assessment of risks to water quality. Sooke Lake Reservoir is sampled bi-weekly from a boat at three dedicated lake stations (see Figure 2). Goldstream Reservoir is sampled monthly from a boat at two stations. Tributary creeks to Sooke Lake Reservoir are sampled monthly near their mouths. Significant tributary lakes in the Sooke Lake watershed, as well as Butchart Lake and Japan Gulch Reservoir in the Goldstream system, are sampled quarterly by boat. The Leech watershed is sampled monthly at four locations, following a more comprehensive sampling and testing program conducted in 2019–2020.

2. The **Treatment Plant Sampling Plan** covers daily sampling at the Goldstream Water Treatment Plant and the two first-customer locations for Mains #4 and #5, as well as weekly sampling at the Sooke Water Treatment Plant and its first-customer location. The plan is designed to verify adequate treatment at both plants and to detect unusual water quality conditions before they can spread through the systems.

3. The **Transmission and Distribution System Sampling Plan** manages sampling at approximately 200 permanent stations across the GVDWS, including all municipal systems. These stations are located on transmission mains, storage reservoirs, distribution mains, booster pump stations, and meter or valve stations. The plan ensures regulatory compliance in all distribution systems and maintains a consistent two-week rotation for most stations, providing a representative snapshot of the Goldstream Service Area each business day. The Sooke Drinking Water Service Area is sampled

weekly. In addition to compliance monitoring, results are used to support operational decisions.

When total coliform-positive results occur in a CRD-owned system, CRD sampling staff resample the affected locations and may direct CRD operators to flush mains or drain and clean storage reservoirs, depending on the situation. Consecutive total coliform positives trigger emergency response procedures. When total coliform-positive results occur in a municipal system, CRD staff resample the locations and notify municipal operators.

When turbidity adverse results occur within distribution systems, CRD staff initiate resampling and, if results persist, notify operators to assess and mitigate potential causes.

If a sample tests positive for *E. coli*, Island Health is notified immediately, and full emergency response procedures are followed.

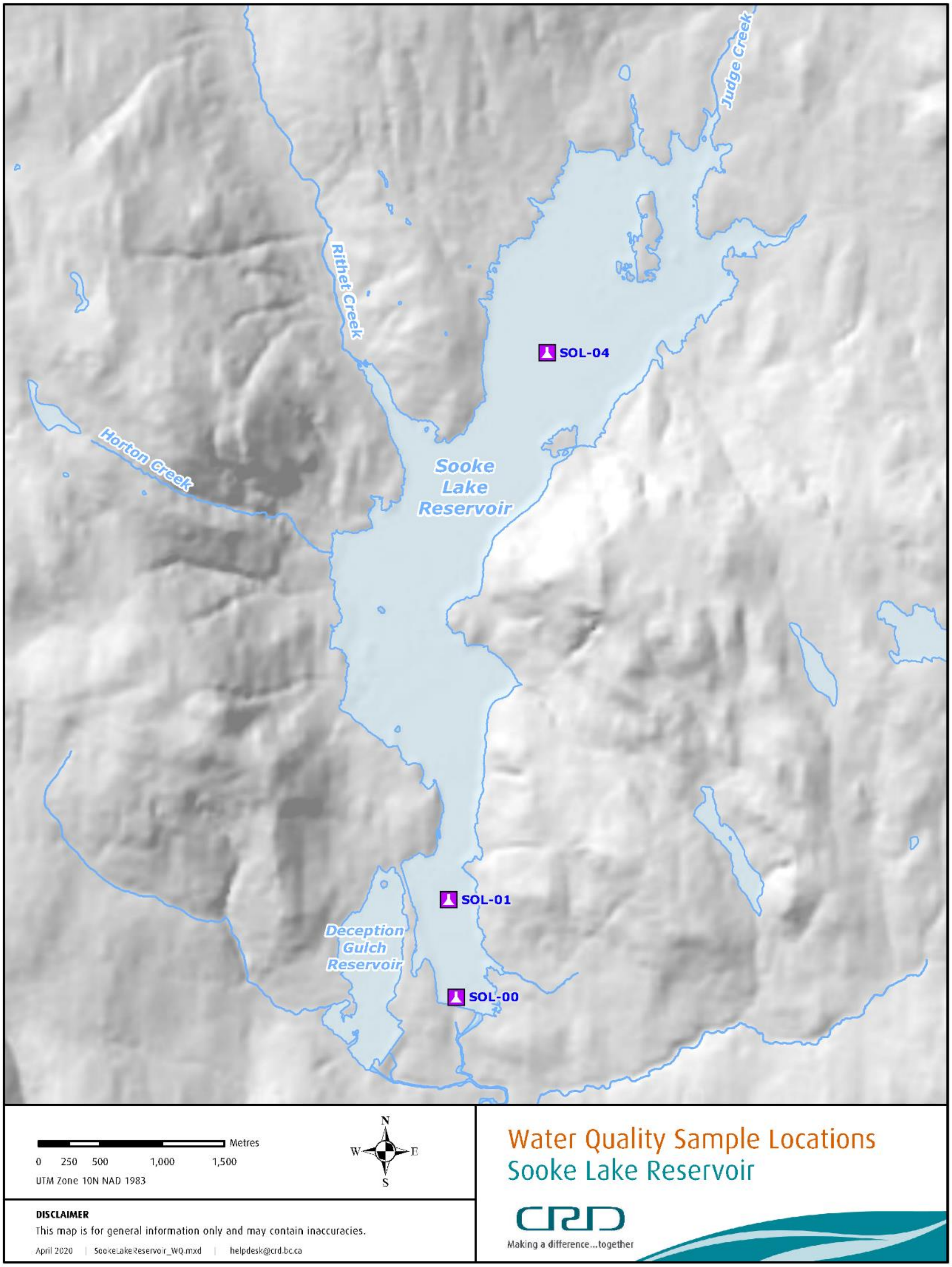


Figure 2 Sooke Lake Reservoir Water Sampling Stations

6.3 Bacteriological Analyses

Bacteriological parameters and regulatory limits used in the CRD Water Quality Monitoring Program in 2025 are described below.

<u>**Total Coliform Bacteria**</u>

Background. Total coliform bacteria are a broad group of organisms that include bacteria of fecal origin, including those associated with the intestinal tracts of humans and other warm-blooded animals, as well as bacteria that occur naturally in the environment, including water, soil, and vegetation. As a result, detection of total coliforms in the absence of *Escherichia coli (E. coli)* may instead indicate surface water infiltration, biofilm sloughing, or the presence of decaying organic matter. Because total coliforms generally persist longer in drinking water than many enteric pathogens, they are used as indicators of treatment efficacy and overall microbiological conditions in drinking water systems.

Test Method. In 2025, the CRD Laboratory analyzed total coliform bacteria using the membrane filtration method with Chromocult Coliform Agar. Samples were incubated at 36-38°C for 21-24 hours and reported as colony-forming units (CFU) per 100 mL of water. This method utilizes dual-chromogen defined substrate technology to detect coliforms through the activity of the enzyme β-galactosidase. Enzymatic hydrolysis of the chromogenic substrate produces coloured colonies that enable detection and quantification. These tests are conducted in accordance with regulations to ensure the effectiveness of water treatment and ongoing monitoring.

Regulatory Limits. Based on requirements in the *Drinking Water Protection Regulation* and the *Guidelines for Canadian Drinking Water Quality*, the maximum acceptable concentration (MAC) for the GVDWS is summarized as follows:

- *No sample should contain more than 10 total coliform organisms per 100 mL.*
- *No consecutive sample from the same site should show the presence of coliform organisms.*
- *Not more than 10% of the samples based on a minimum of 10 samples should show the presence of coliform organisms.*

<u>***Escherichia coli***</u>

Background. *Escherichia coli (E. coli)* is a specific species within the broader total coliform group. It is used as a more specific indicator of fecal contamination because it is abundant in the feces of humans and other warm-blooded animals, is generally not naturally found in the environment, and can be readily detected in water. Most strains of *E. coli* are considered harmless; however, some strains can be pathogenic. The presence of *E. coli* in water indicates recent fecal contamination and the possible presence of intestinal disease-causing bacteria, viruses, and protozoa. The absence of *E. coli* in drinking water generally indicates that recent fecal contamination was not detected and provides evidence that microbiological water quality is acceptable with respect to fecal indicator bacteria.

Test Method. In 2025, *E. coli* was analyzed using the same medium and method as in total coliforms above. The *E. coli* test detects bacteria possessing the enzymes β-galactosidase (as for total coliforms) and β-glucuronidase (a marker for *E. coli*).

Regulatory Limits. In disinfected drinking water, the maximum acceptable concentration of *E. coli* (both federal and provincial limits) is zero *E. coli* per 100 mL.

<u>**Heterotrophic Plate Count Bacteria**</u>

Background. Microorganisms, such as bacteria, moulds, and yeasts that require organic carbon for growth, are known as heterotrophs. Heterotrophic plate count (HPC) testing is used to monitor changes in drinking water treatment and distribution systems. Under conditions such as increased nutrient availability and/or reduced chloramine residual, heterotrophic bacteria may increase. Increases in heterotrophic bacteria can contribute to more rapid chloramine decay. Elevated HPC levels may indicate conditions in the distribution system, such as biofilm development or reduced chloramine residual, that can support increased microbial activity, including the persistence of coliform bacteria. The CRD Water Quality Monitoring Program uses HPC as an operational tool to monitor treatment efficacy at the disinfection plants and assess changes in microbiological water quality in the distribution system and storage reservoirs, in conjunction with disinfectant residual monitoring.

Test Method. HPC can be measured in several different ways. In 2025, samples were analyzed for HPC by the CRD Water Quality Laboratory by membrane filtration onto R2A medium followed by incubation at 21-28°C for seven days. In this method, the lower incubation temperature and longer incubation time improve recovery of stressed and disinfectant-tolerant bacteria. HPC testing was carried out on raw water samples, finished water leaving the treatment plant, and treated water samples with low chloramine residual levels (defined as <0.2 mg/L).

Regulatory Limits. There is no federal or provincial regulatory limit for heterotrophic bacteria in drinking water in Canada. However, under the USEPA Surface Water Treatment Rule, an HPC concentration of 500 CFU/mL or less, when measured using membrane filtration onto Standard Methods agar incubated at 35°C for 48 hours, is used as a benchmark for a "detectable chloramine residual." In the absence of a Canadian numerical limit, the CRD Water Quality Monitoring Program uses this value as a monitoring criterion to trigger site-specific operational assessment and mitigation measures.

6.4 Laboratory Quality Assurance, Certification and Accreditation

To help ensure that analytical testing is conducted to the highest standards of quality, reliability, and technical competence, the CRD Laboratory participates in external quality assurance and quality control (QA/QC) programs, maintains rigorous internal QA/QC procedures as part of routine laboratory operations, and supports these activities through accredited systems, certification requirements, and standardized laboratory information management.

6.4.1 Provincial Certification

Laboratories that analyze drinking water samples for total coliforms and *E. coli* under the Drinking Water Protection Act/Regulation must be approved in writing by the Provincial Health Officer. Laboratory approval requires both an approval certificate and a proficiency testing certificate, as described below:

- **Water Bacteriology Testing Laboratory Approval Certificate**. This certificate issued by the BC Provincial Health Officer is mandatory for microbiological testing of drinking water and recertification occurs every three years via an on-site assessment of the laboratory.
- **Canadian Microbiology Proficiency Testing Program Certificate of Participation**. This certificate is issued by the Advisory Committee for Water Bacteriology Laboratories, which is operated by the Department of Pathology and Laboratory Medicine at the University of British Columbia. Satisfactory performance is required to maintain laboratory certification. Three rounds of proficiency tests are carried out per year.

6.4.2 ISO/IEC 17025 Accreditation

In 2017, the CRD Water Quality Laboratory achieved accreditation to International Standards Organization (ISO/IEC) 17025 standard, *General requirements for the competence of testing and calibration laboratories.* This global standard is used to assess the competence of testing and calibration laboratories, including their management, quality, and technical systems. Accreditation is maintained by successful reassessment every two years by the Canadian Association for Laboratory Accreditation (CALA) together with satisfactory participation in an external proficiency testing program for all methods (two rounds per year). The CRD laboratory was last assessed in 2025 and will be reassessed in 2027.

6.4.3 Laboratory Information Management System (LIMS)

In 2025, the laboratory fully implemented a Laboratory Information Management System (LIMS). This key operational milestone strengthens sample tracking, data management, workflows, and quality assurance, while improving traceability and efficiency across laboratory operations.

7.0 WATER QUALITY RESULTS

The overview results of the 2025 CRD Water Quality Monitoring Program for the GVDWS are provided below. Water quality data are listed in Appendix A (Tables 1, 2 and 3). Note that the median (middle value between the high and low) is used in these tables rather than the average value, as the median eliminates the effect of extreme values (very high or very low) on the average value and provides a more realistic representation of typical conditions.

7.1 Source Water Quality Results

Total Coliform Bacteria (TC). Similar to previous years, the raw (untreated) source water entering both plants showed very low total coliform concentrations, particularly during the colder months (Figure 3). Between July and October, when the south basin of Sooke Lake Reservoir is destratified and fully mixed with warm water, total coliform levels typically rise and can reach a few hundred CFU/100 mL. This pattern also occurred in 2025, with a peak of 800 CFU/100 mL on August 18, which remained below the operational alert level of 1,000 CFU/100 mL - above which disinfection adjustments would be considered. No extreme total coliform spikes were observed in 2025, unlike the events recorded in 2017 and 2024.

With 244 samples from water entering the Goldstream Water Treatment Plant analyzed in 2025, the total coliform concentration ranged from 0-800 CFU/100 mL, with a median value of 8 CFU/100 mL (Appendix A, Table 1).

The *USEPA Surface Water Treatment Rule* for unfiltered systems includes a non-critical total coliform benchmark of a maximum of 100 CFU/100 mL at the 90th percentile of a six-month sample set. For January to June 2025, the 90th percentile of total coliform concentrations in the raw water was 5.8 CFU/100 mL, and for July to December 2025 it was 180 CFU/100 mL. Accordingly, the source water met this non-critical USEPA filtration-avoidance criterion in the first half of 2025 but not in the second half. This seasonal pattern is typical for Sooke Lake Reservoir. Although this is a secondary, non-critical assessment criterion, the partial exceedance highlights a vulnerability in source-water quality associated with warming conditions linked to climate change.

***E. coli* Bacteria**. During more than three decades of monitoring bacteria within the GVDWS, it has been found that virtually 100% of the fecal coliform bacteria detected in the source water and the distribution system are *E. coli*. In 2025, as in previous years, the low detection of *E. coli* bacteria indicated that the raw water entering the Goldstream Water Treatment Plant from Sooke Lake Reservoir was good quality source water and complied with the primary criteria in the USEPA *Surface Water Treatment Rule* to remain an unfiltered drinking water supply (Figure 4).

In 2025, about 9.8% of the 244 samples collected from the raw source water contained *E. coli* and those that were positive for *E.coli* had levels well below 20 CFU/100 mL. The concentration ranged from 0-10 CFU/100 mL, with a median value of 0 CFU/100 mL. The low occurrence, as well as the low concentrations of *E.coli* bacteria in Sooke Lake, are in line with long-term historical bacteria concentrations. These results do not indicate a particular source of *E.coli* bacteria, but rather point to low levels of naturally occurring fecal matter in a healthy and unproductive aquatic ecosystem. The few sporadic *E. coli* hits are typically the result of the rainfall and runoff into Sooke Lake, which transported organic matter accumulated in the watershed to the lake. In years with a Kapoor Tunnel Inspection Project, a slight *E. coli* concentration increase in mid-December was attributed to the supply from the Goldstream system. In 2025, the Goldstream system was not used as a drinking water source.

***Giardia and Cryptosporidium* Parasites**. In 2025, parasite samples were collected five times as part of the CRD's routine monitoring program. This sampling frequency was established after long-term data showed extremely low detection rates for these organisms. All five samples were collected using a portable pump from a depth of 1 m in the south basin of Sooke Lake Reservoir near the intake tower and were shipped to an external laboratory for analysis. It should be noted that analytical recovery efficiencies for detecting *Giardia*—and especially *Cryptosporidium*—are low, typically in the 15-25% range.

In 2025, no *Giardia* cysts and no *Cryptosporidium* oocysts were detected in all samples from the lake water near the intake tower. The 10-year median value for total *Giardia* cyst and total *Cryptosporidium* oocyst concentrations is 0/100 L; however, historical data shows that occasionally very low concentrations of parasites can be found in the raw water from Sooke Lake. While these are extremely low values for a surface water supply, the addition of UV disinfection provides assurance that no infective parasites can enter the GVDWS.

The treatment target specified in Canadian federal and provincial regulations, as well as in the USEPA Surface Water Treatment Rule, requires a 3-log (99.9%) inactivation of parasites for unfiltered surface water systems to meet filtration-exemption criteria. Both CRD water treatment plants provide UV disinfection that, together with the CRD's drinking watershed management approach, meets these targets and provides effective protection against waterborne parasitic illnesses.

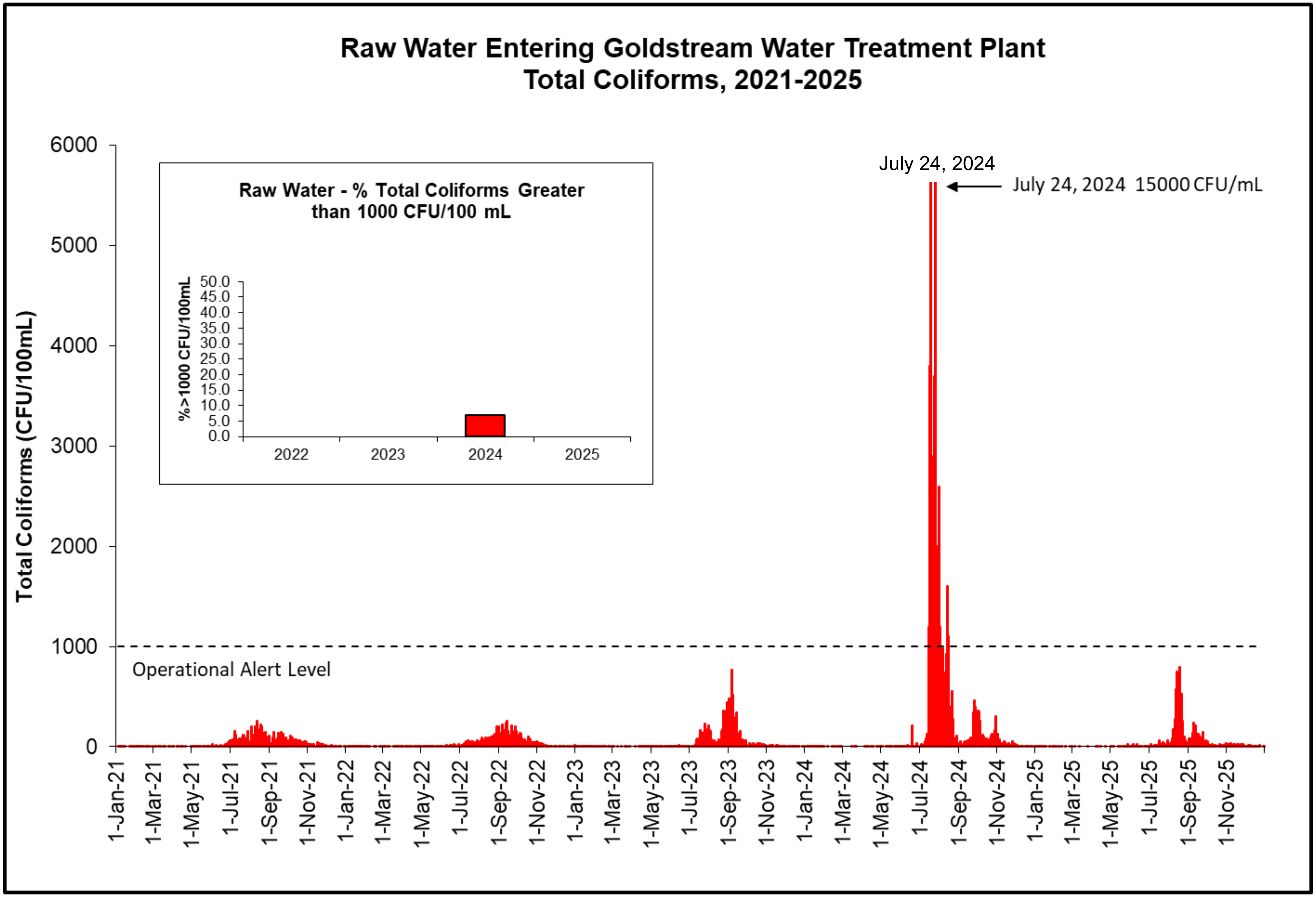


Figure 3 **Raw Water Entering Goldstream Water Treatment Plant Total Coliforms 2021-2025**

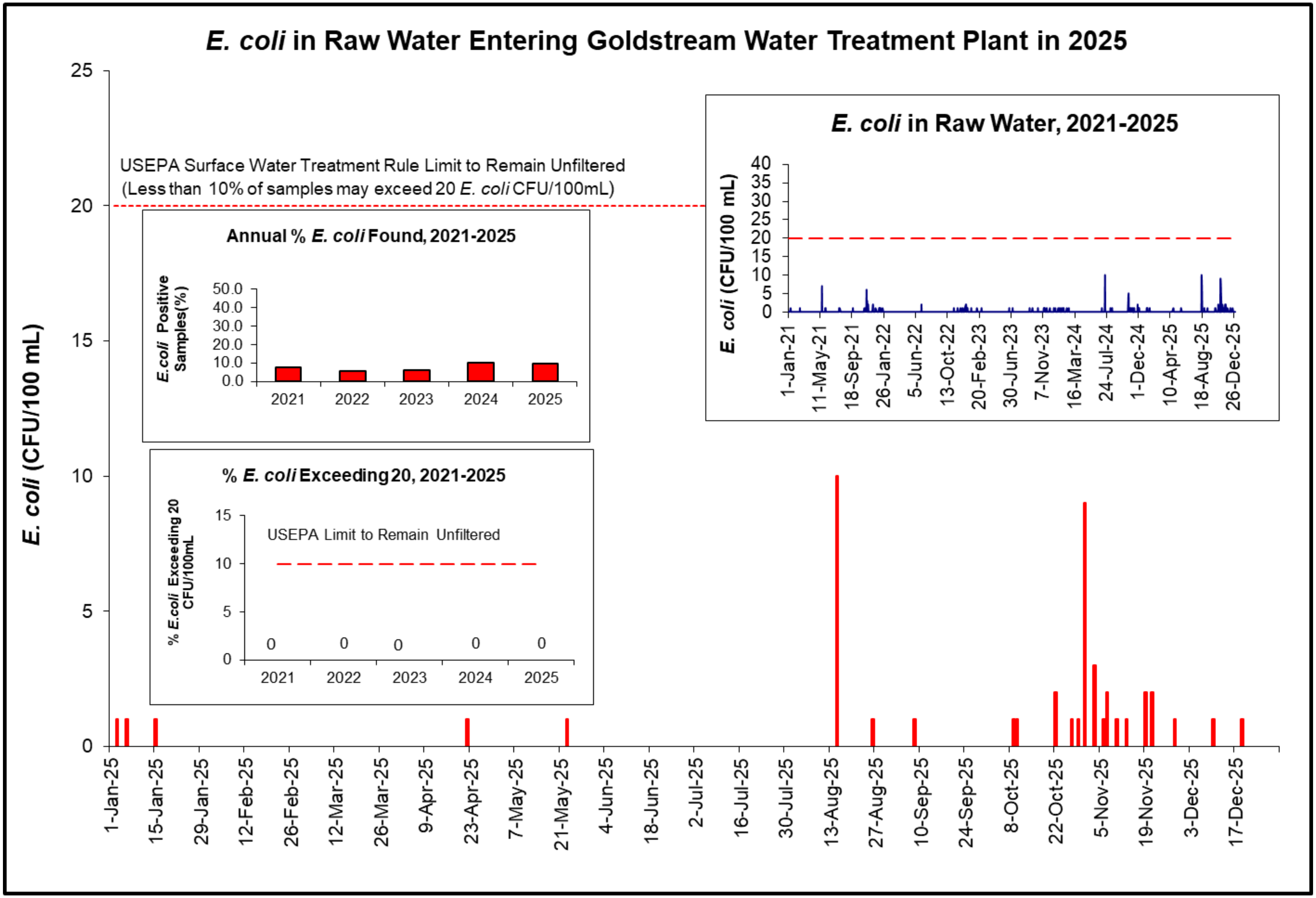


Figure 4 ***E.coli*** **in Raw Water Entering Goldstream Water Treatment Plant in 2025**

Algae – *Sooke Lake Reservoir (SOL)*. In the first half of 2025, algal dynamics were generally consistent with the long-term trend. The typical spring peak occurred in April, driven primarily by Chrysophytes and Bacillariophytes (Diatoms). As usual, this peak was followed by a decline in May and June due to grazing pressure and nutrient depletion. Historically, this spring peak represents the highest algal activity of the year in Sooke Lake Reservoir. In 2025, however, algal abundance during several summer and fall periods was at least as high (Figure 5, Figure 6 and Figure 7). While spring concentrations remained aligned with the long-term trend, summer and early fall exhibited notably elevated levels compared with the long-term average. This pattern has been emerging over several years and was most pronounced in 2025, particularly in late summer and fall (September and October).

Although these increases—up to 300% above the long-term average—appear substantial, overall summer and fall concentrations (≤ 2,200 NU/mL) remained below bloom thresholds for all algal groups. The taxa primarily responsible for this summer/fall increase were small picocyanobacterial species. The typical spring peak is driven by favourable environmental conditions such as warming water, increased sunlight, and the availability of freshly introduced nutrients following reservoir recharge. In contrast, the elevated summer and fall concentrations may reflect growing climate-related influences, including warmer water temperatures and extended warm-water periods. Sooke Lake warmed early in 2025 and, following 2024, experienced the longest warm-water season since the dam was raised in 2004. Picocyanobacteria thrive under warm, well-lit conditions and are not known to produce cyanotoxins or cause water quality concerns.

Algae respond rapidly to environmental factors such as temperature, nutrient availability, and light intensity. Significant precipitation events on August 6 and 15 produced a noticeable spike in nitrogen concentrations, particularly in the North Basin. This nitrogen pulse coincided with the highest total coliform levels of the year, indicating runoff and the influx of terrestrial material. The resulting increase in algal concentrations was observed across all three lake basins, with the strongest response in the South Basin, albeit with some delay.

Sooke Lake Reservoir did not experience a bloom of any specific algal species in 2025, demonstrating the resilience of an intact ecosystem with a balanced and diverse algal community. As in previous years, the reservoir supported a wide range of algal taxa, from green algae to diatoms, including species that can affect water quality under bloom conditions (Figure 8, Figure 9 and Figure 10). For example, *Asterionella formosa, Cyclotella spp*., and *Dinobryon spp*. are known to cause taste-and-odour issues during high-density events; however, their 2025 concentrations remained well below levels associated with such effects.

Figure 11 shows two Dinobryon species that occur seasonally in Sooke Lake, and Figure 12 illustrates a typical short-term spike in individual cell counts of this colony-forming taxon observed in June 2025. Such temporary increases in a single species have minimal influence on overall algal biomass or concentration due to the high diversity and stability of the reservoir's algal community, as reflected in Figure 5, which shows low total algal concentrations during the same period.

Overall, algal dynamics in Sooke Lake Reservoir did not pose any concern for drinking water quality in 2025. For consistency with historical data, this analysis excludes certain small single-celled algae that do not contribute significantly to overall algal biomass.

Algae – *Goldstream System (GOL)*. The Goldstream System, which includes Butchart, Lubbe, and Goldstream Reservoirs, the Goldstream River, and the small impoundment Japan Gulch Reservoir, is part of the CRD's routine source-water monitoring program. In accordance with the 2025 Watershed Sampling Plan, Goldstream Reservoir was sampled monthly at two locations, while Butchart Reservoir, the Goldstream River, and Japan Gulch Reservoir were sampled quarterly at one location each. Analyses included algal and zooplankton assessments. Results were regularly evaluated and recorded but are not presented in this report because the Goldstream System remained offline throughout 2025. Overall, water-quality conditions in the Goldstream System were consistent with historical trends and did not indicate any concerns.

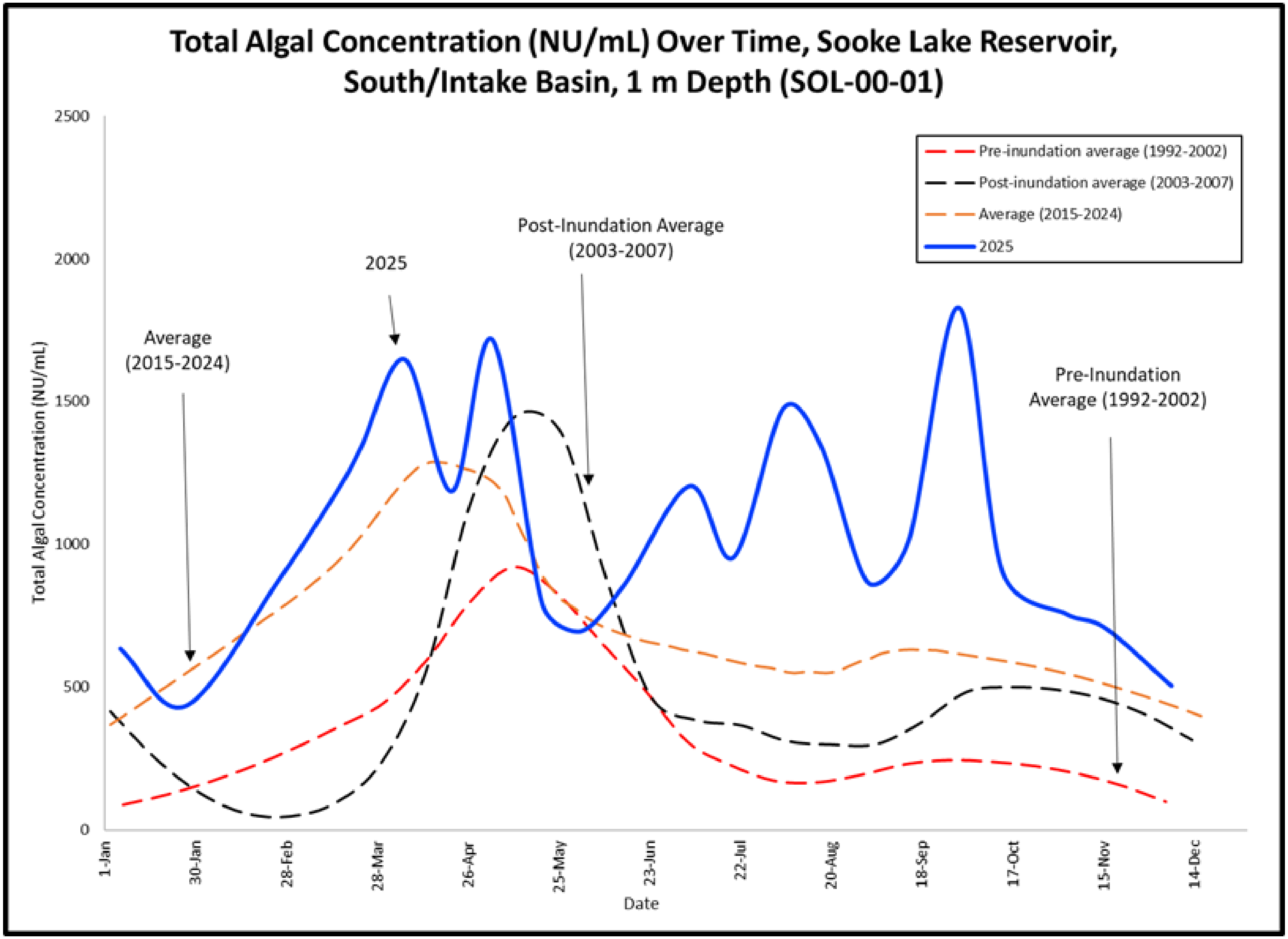


Figure 5 **Total Algal Concentration (natural units/mL) Over Time, Sooke Lake Reservoir, South/Intake Basin, 1 m depth (SOL-00-01)**

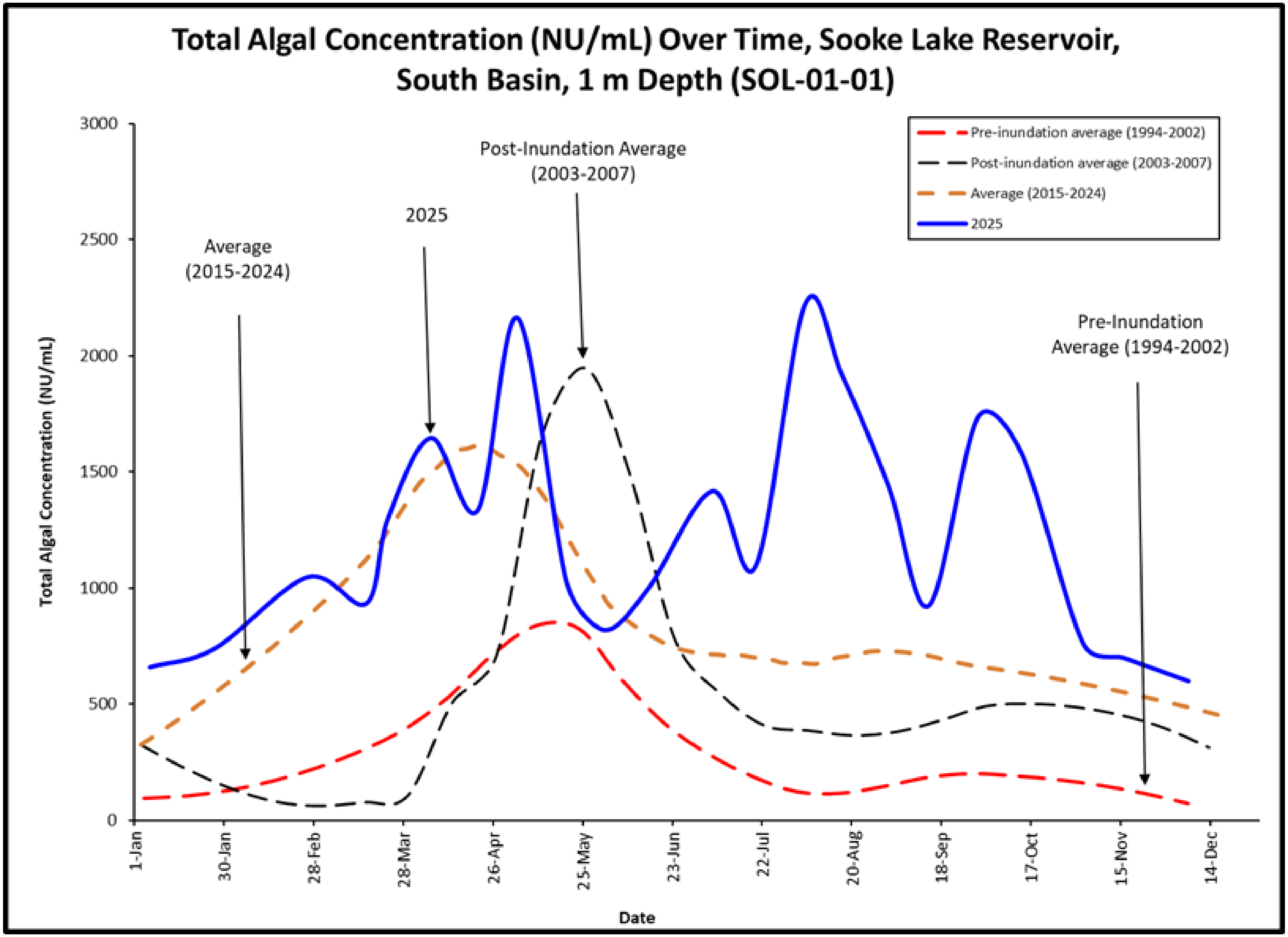


Figure 6 **Total Algal Concentration (natural units/mL) Over Time, Sooke Lake Reservoir, South Basin, 1 m depth (SOL-01-01)**

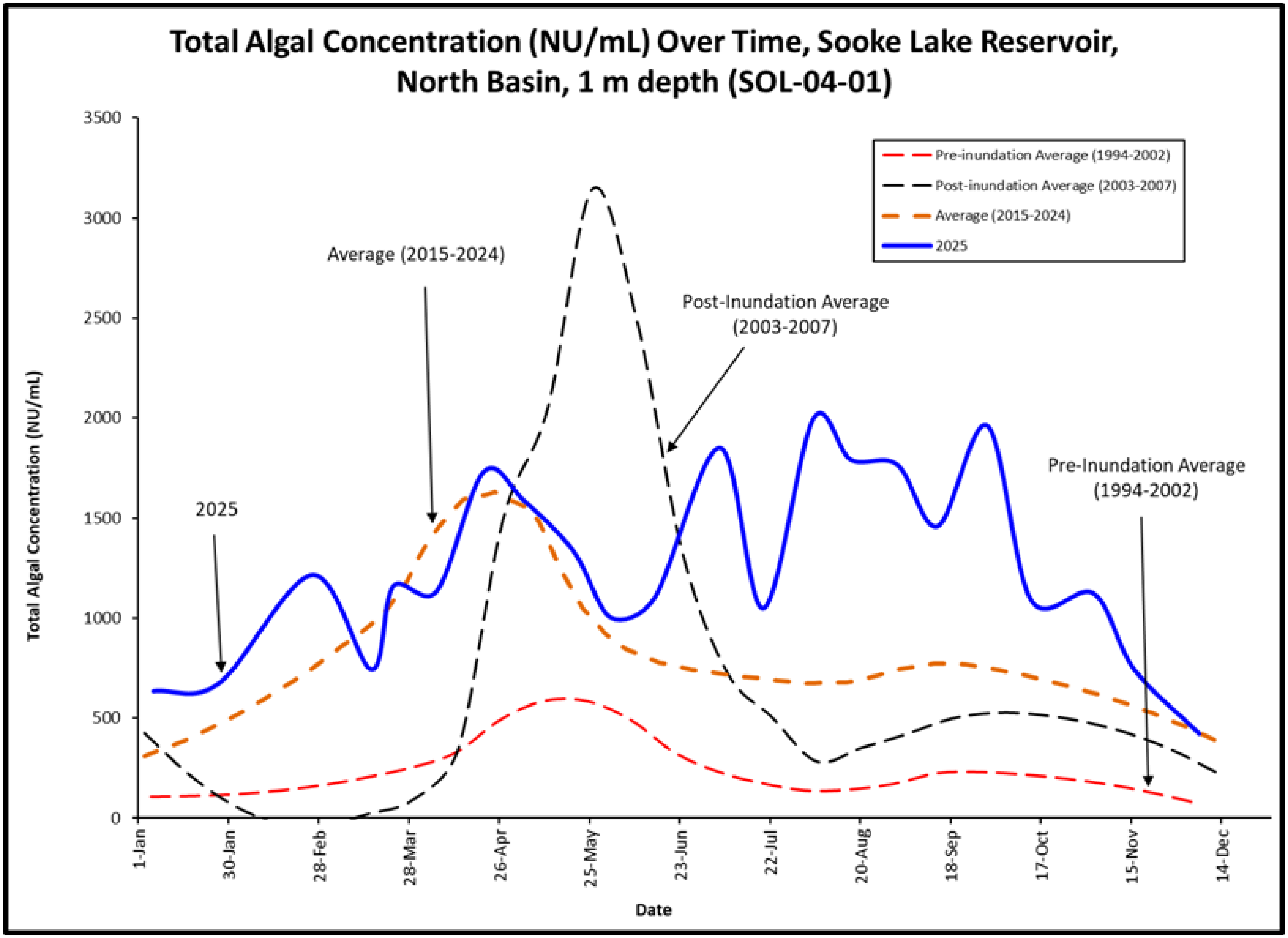


Figure 7 Total Algal Concentration (natural units/mL) Over Time, Sooke Lake Reservoir, North Basin, 1 m depth (SOL-04-01)

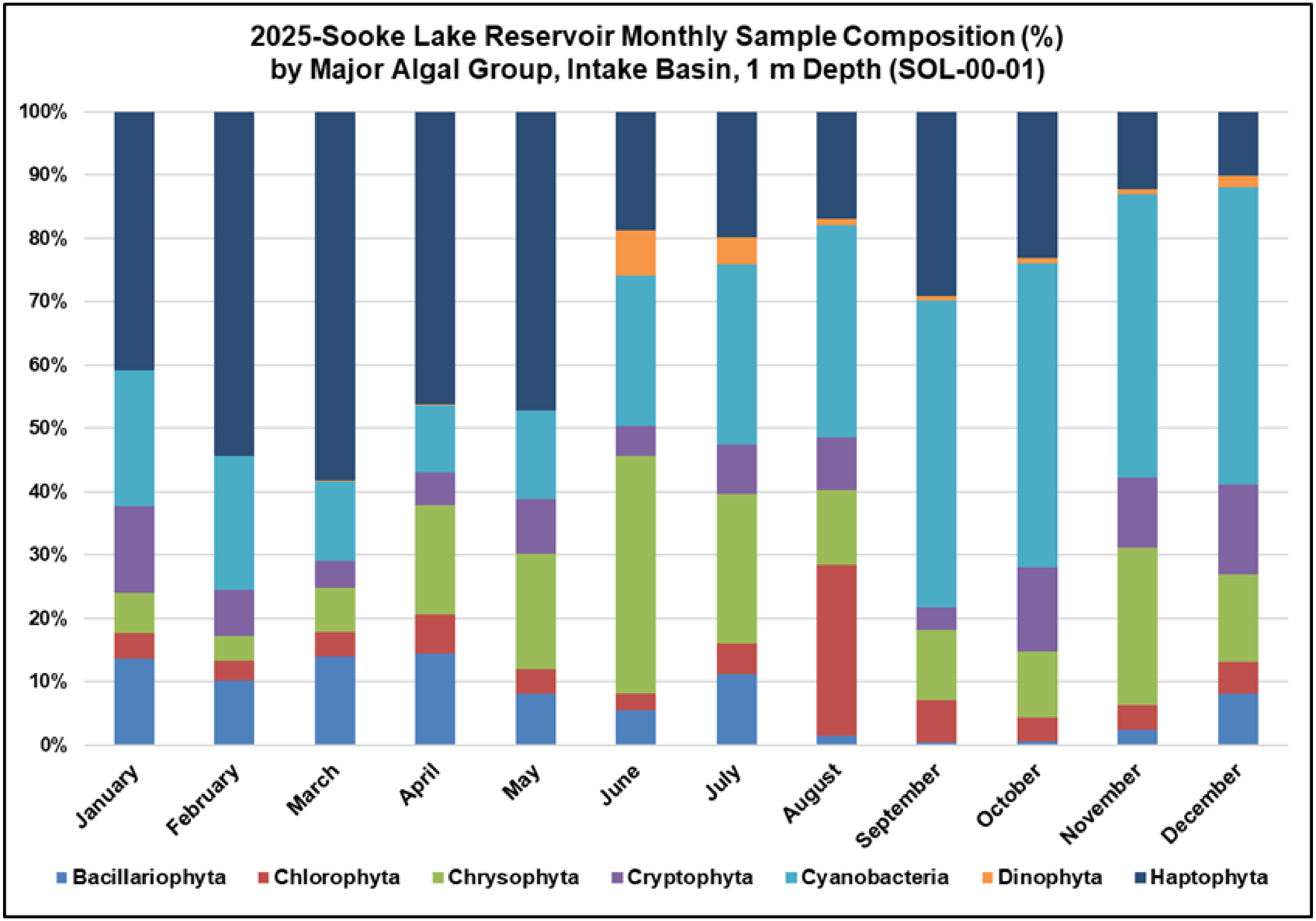


Figure 8 Monthly Abundance Percent of Different Algal Groups, Intake Basin, 1 m depth, SOL-00-01, 2025

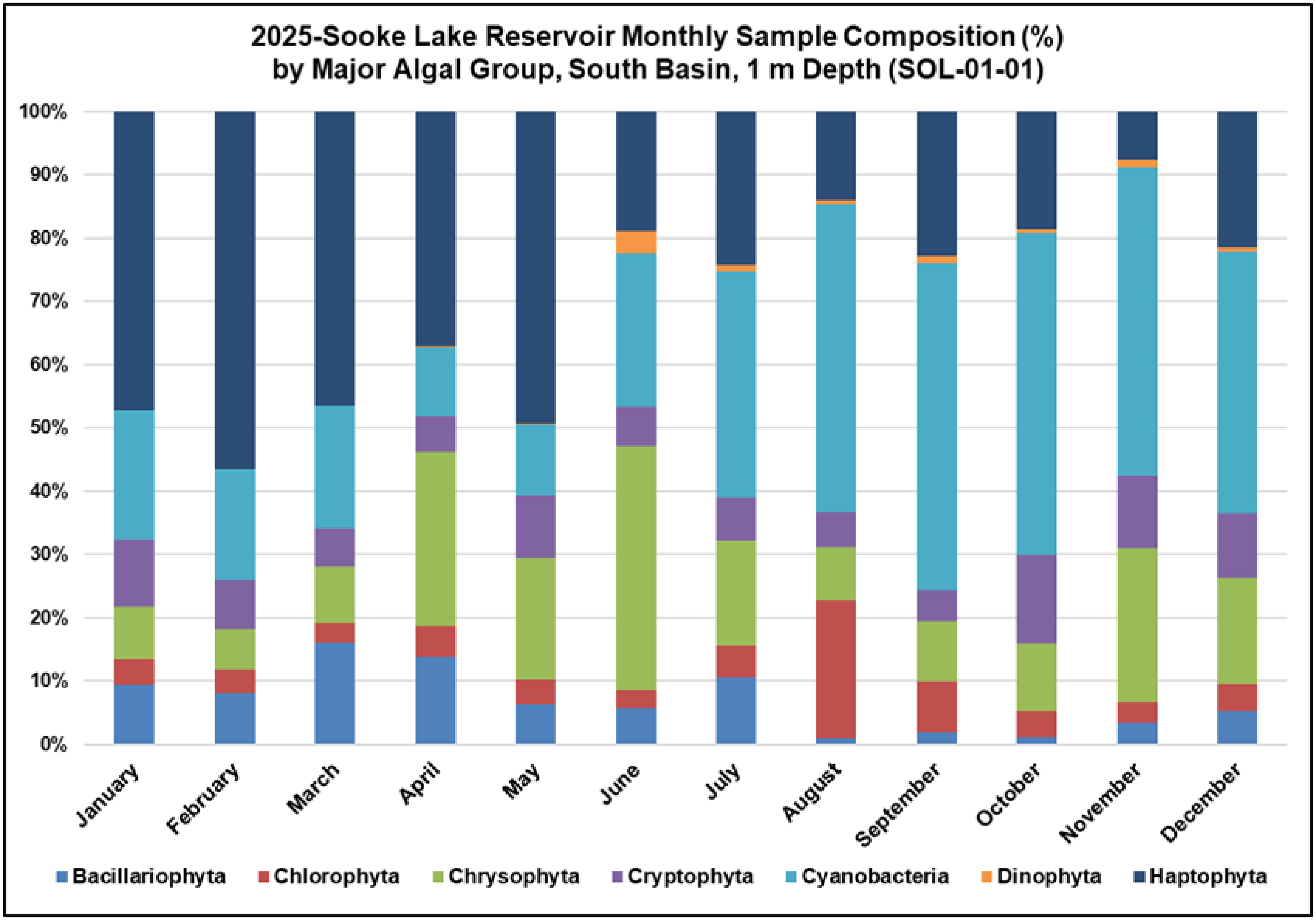


Figure 9 Monthly Abundance Percent of Different Algal Groups, South Basin, 1 m depth, SOL-01-01, 2025

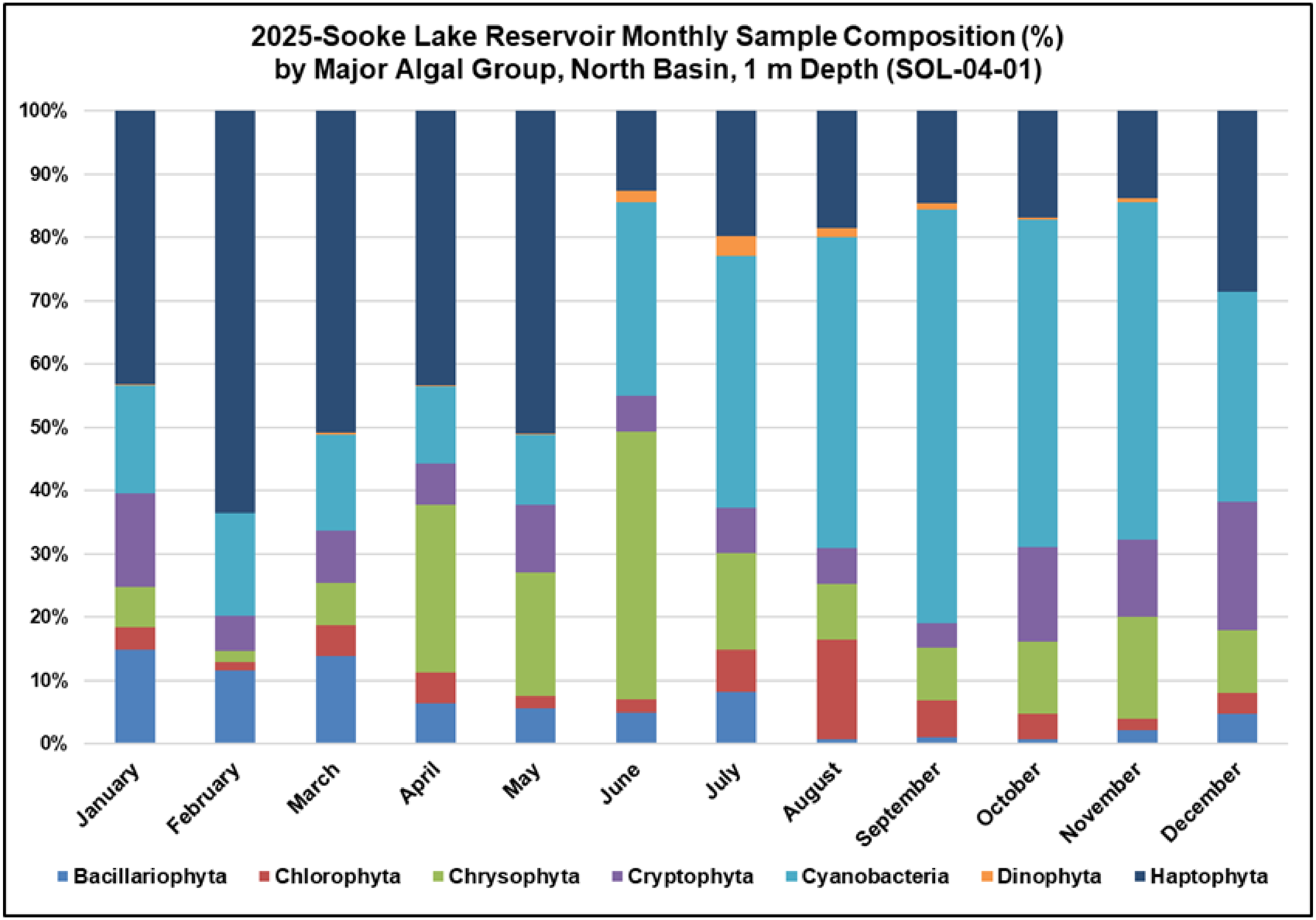


Figure 10 Monthly Abundance Percent of Different Algal Groups, North Basin, 1 m depth, SOL-04-01, 2025

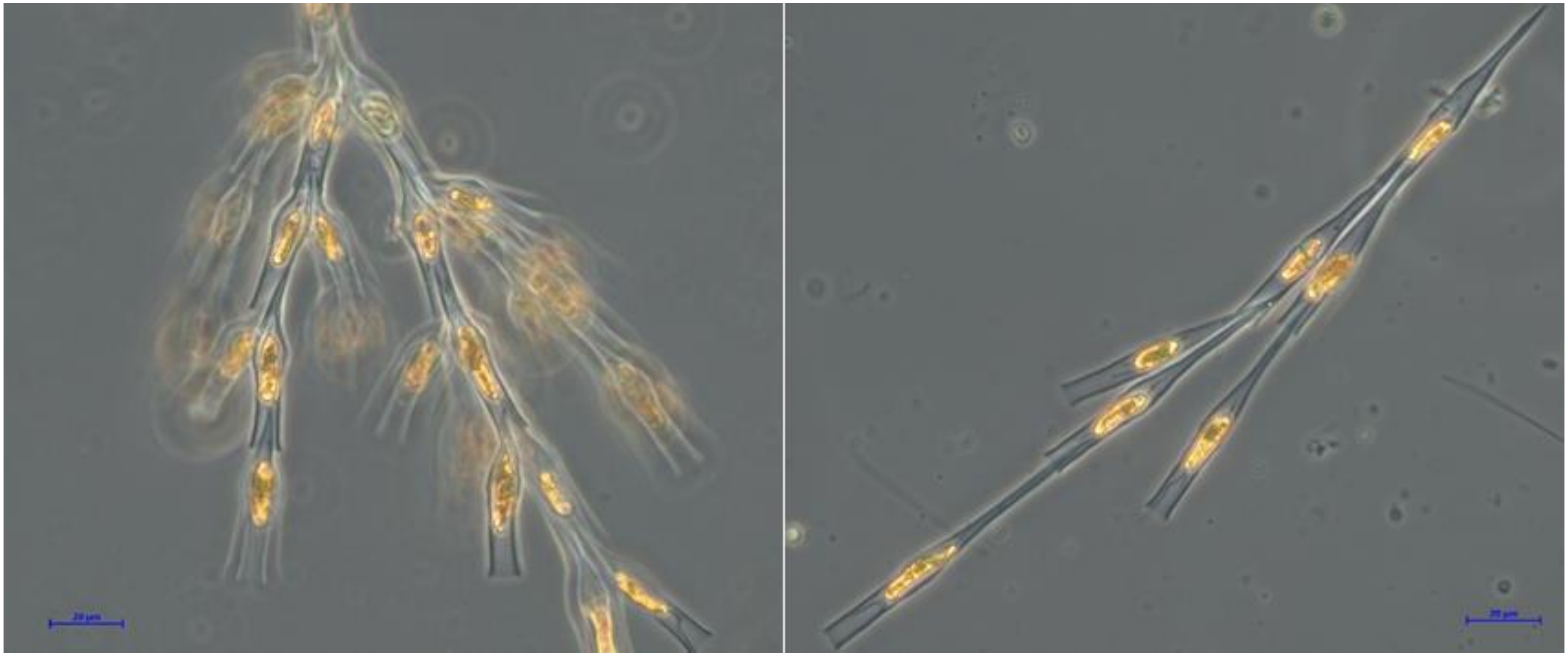


Figure 11 Two common golden algae in SOL, *Dinobryon divergens* (left) and *Dinobryon bavaricum* (right)

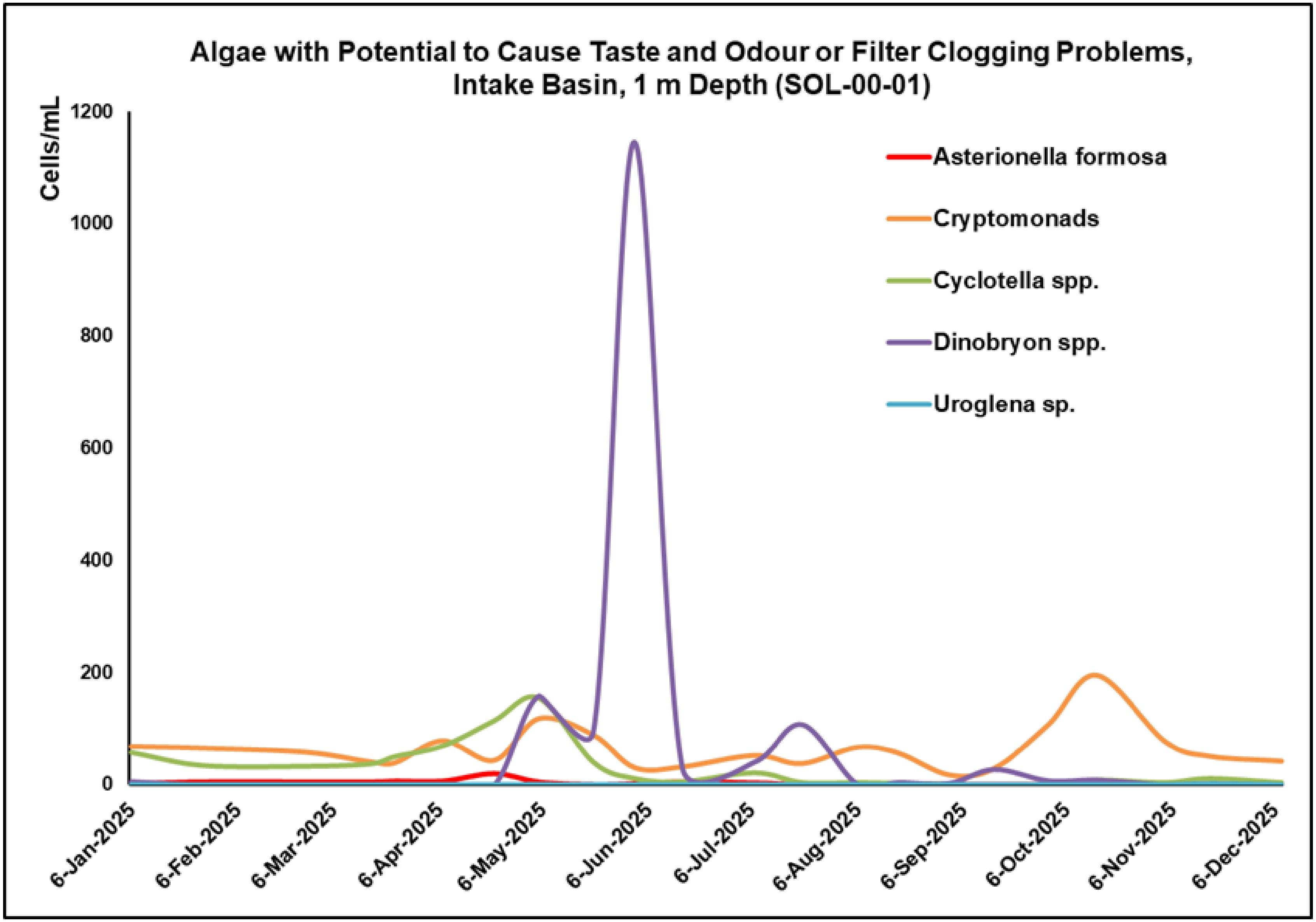


Figure 12 Abundance of some common algal taxa with potential for taste-and-odour and filter clogging problems, Intake Basin, SOL-00-01, 2025

Zooplankton – *Sooke Lake Reservoir (SOL)*. Zooplankton play an important role as an intermediate trophic level, transferring energy from primary producers to higher organisms such as macroinvertebrates, fish, and other aquatic animals. Previous studies have shown that fish in Sooke Lake Reservoir rely heavily on zooplankton as a forage source. Because of this ecological importance, the CRD includes routine zooplankton analysis in its source-water monitoring program. Zooplankton species can be herbivorous, carnivorous, or omnivorous, and changes in their composition or density can influence both trophic structure and physicochemical conditions in aquatic ecosystems.

Three main zooplankton groups occur in freshwater systems: Rotifera, Copepoda, and Cladocera. Other aquatic invertebrates occasionally found in samples include water mites, insect larvae, and, rarely, nematodes or tardigrades. Phytoplankton serve as a primary food source for many zooplankton species, and therefore phytoplankton dynamics often mirror or precede changes in zooplankton abundance. Typically, zooplankton densities peak shortly after the phytoplankton maximum and are generally higher from spring through fall than in winter.

In Sooke Lake Reservoir, zooplankton communities are dominated by Rotifera and Copepoda, although Cladocera (e.g., Daphnia spp.) are occasionally observed. In 2025, all three groups were recorded, with Rotifera being the most abundant. Rotifer and copepod densities were consistent with long-term trends. Cladocera were infrequent and appeared only in isolated samples and therefore were excluded from the analysis.

Because rotifers are a key food source for copepods, these two groups may exhibit contrasting abundance patterns. Their dynamics are also influenced by higher trophic levels, including macroinvertebrates and fish.

Overall, zooplankton trends in Sooke Lake Reservoir in 2025 were typical of ecological succession patterns and aligned with long-term observations (Figures 13-18).

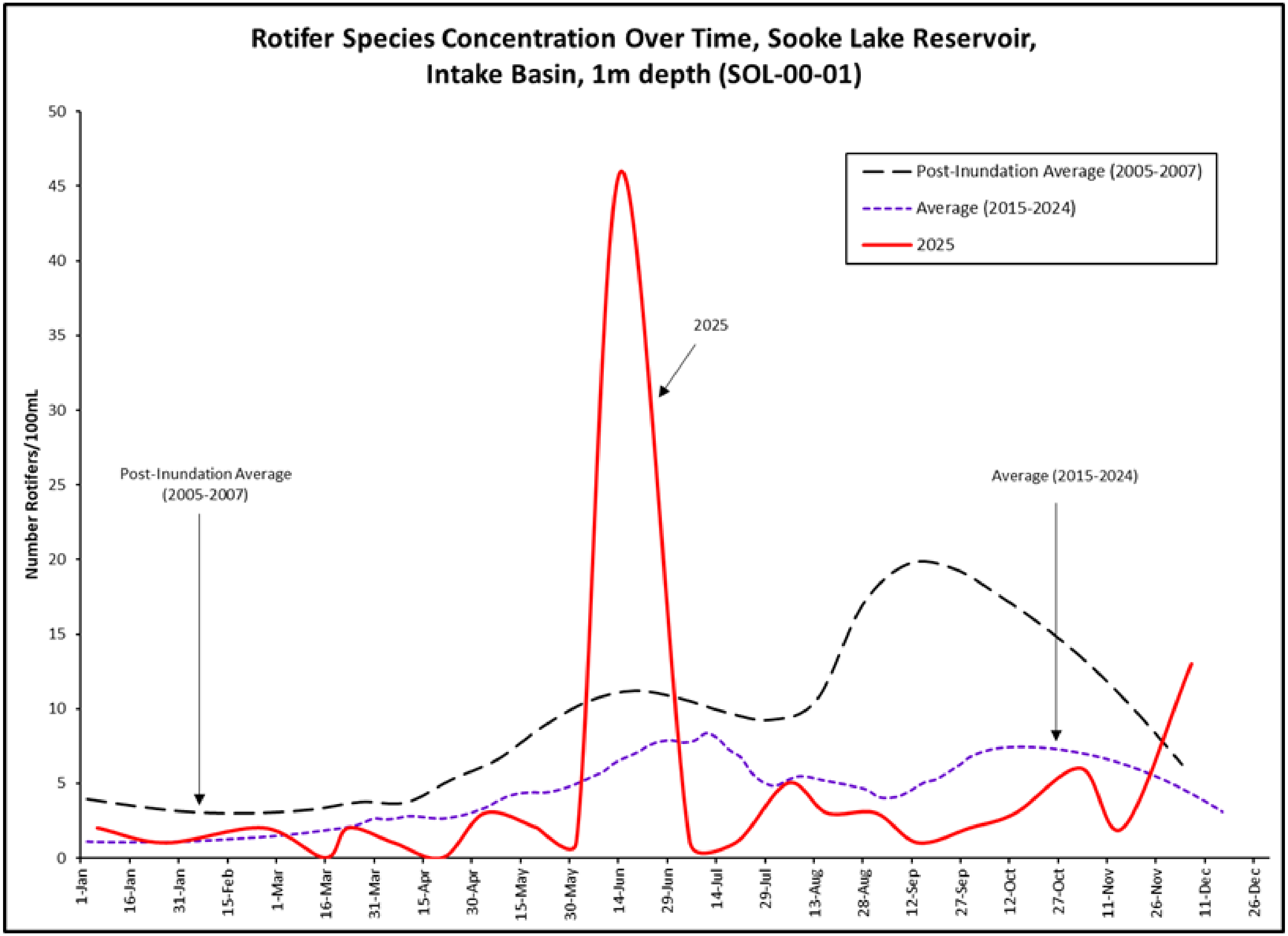


Figure 13 **The Total Number of Rotifers Over Time, Sooke Lake Reservoir, Intake Basin, 1 m depth (SOL-00-01)**

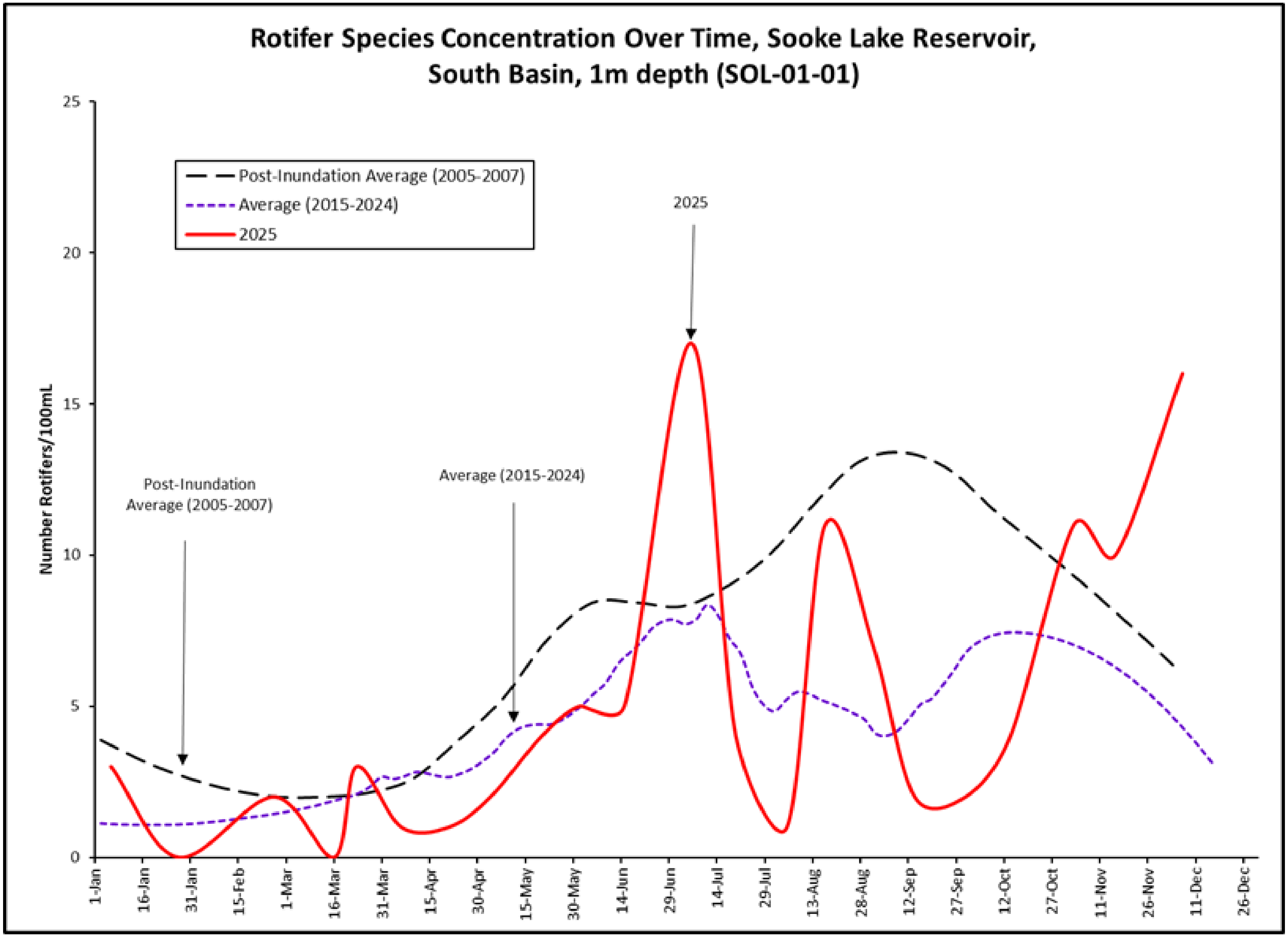


Figure 14 **The Total Number of Rotifers Over Time, Sooke Lake Reservoir, South Basin, 1 m depth (SOL-01-01)**

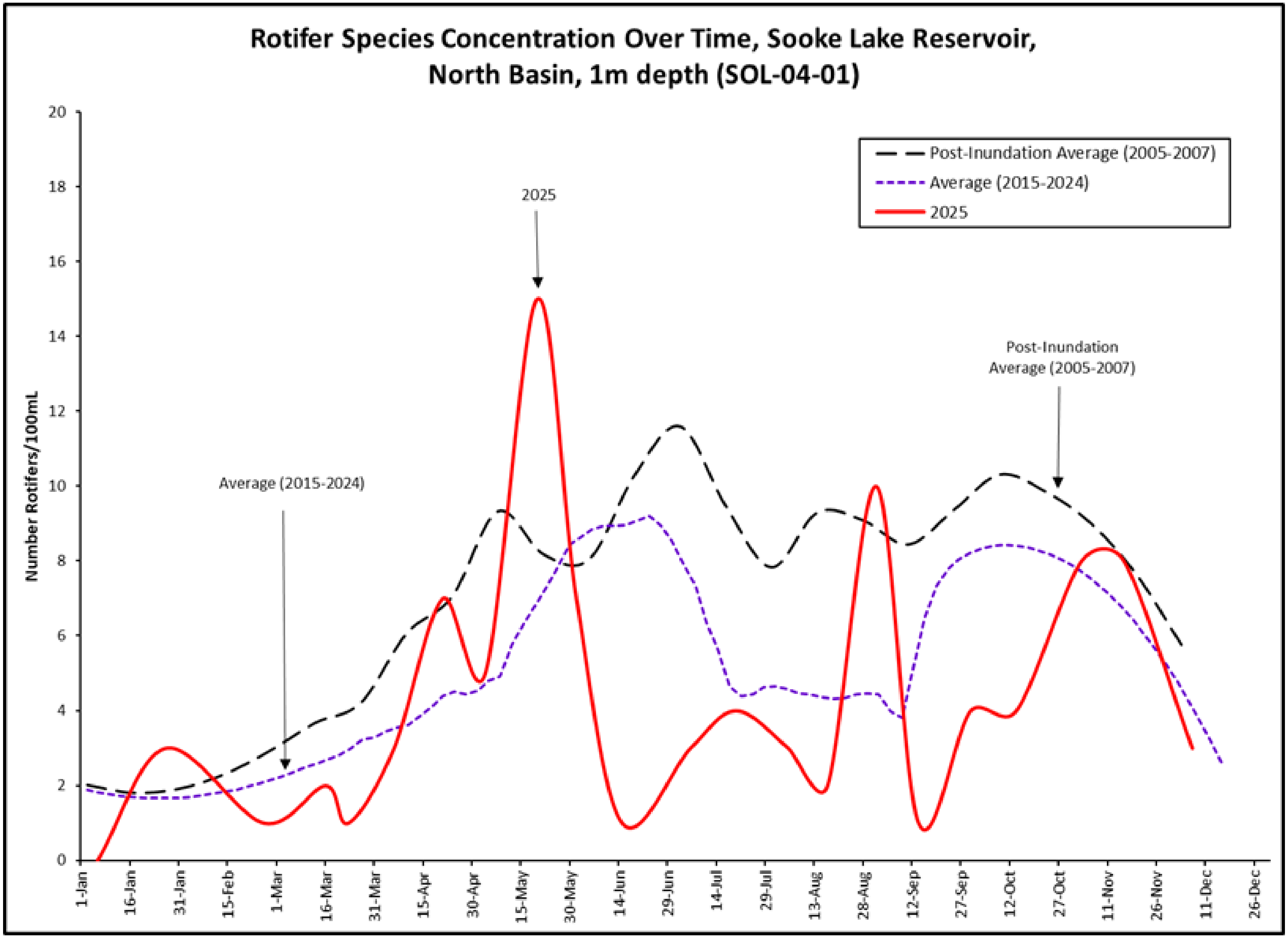


Figure 15 The Total Number of Rotifers Over Time, Sooke Lake Reservoir, North Basin, 1 m depth (SOL-04-01)

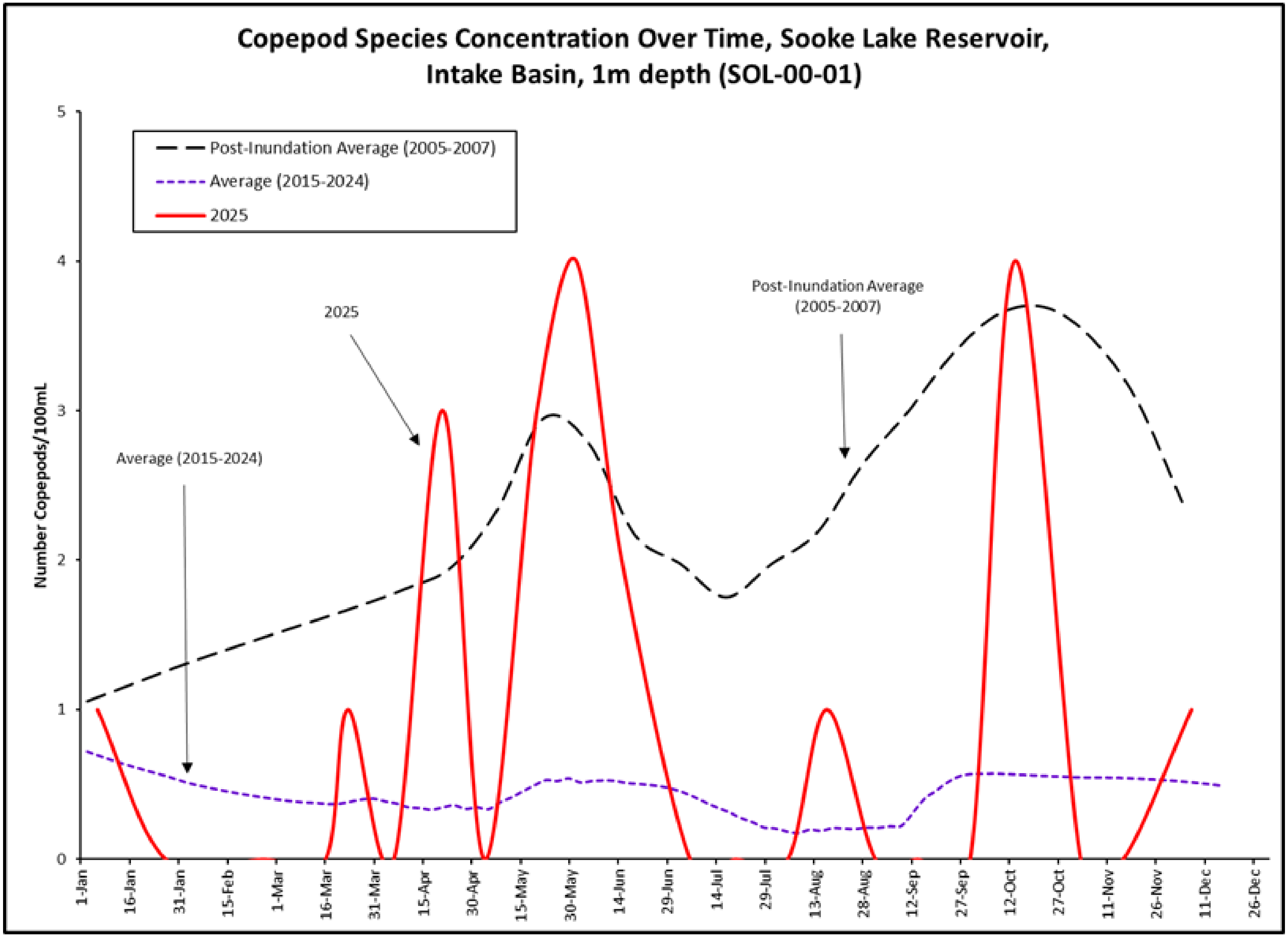


Figure 16 The Total Number of Copepods Over Time, Sooke Lake Reservoir, Intake Basin, 1 m depth (SOL-00-01)

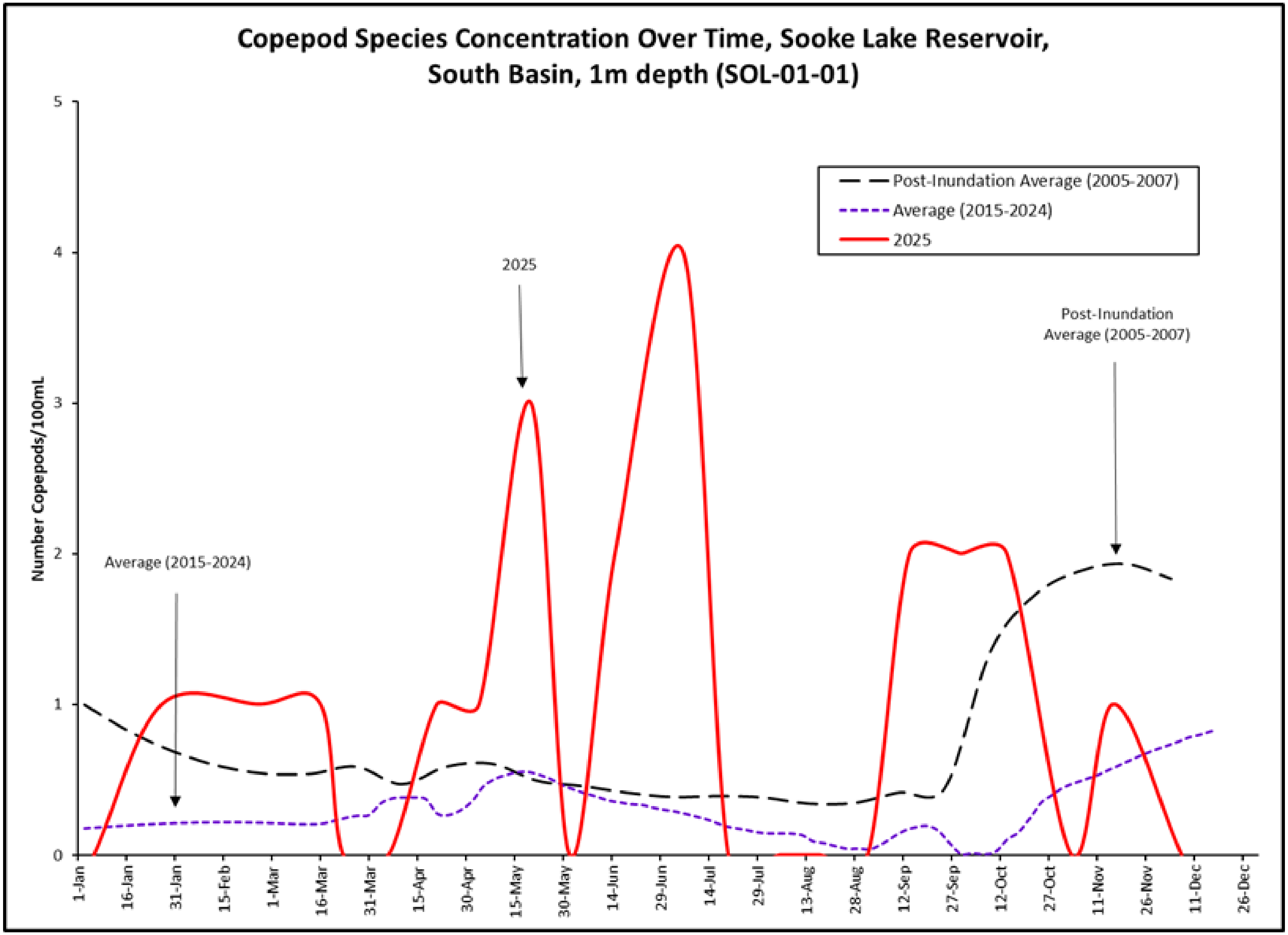


Figure 17 The Total Number of Copepods Over Time, Sooke Lake Reservoir, South Basin, 1 m depth (SOL-01-01)

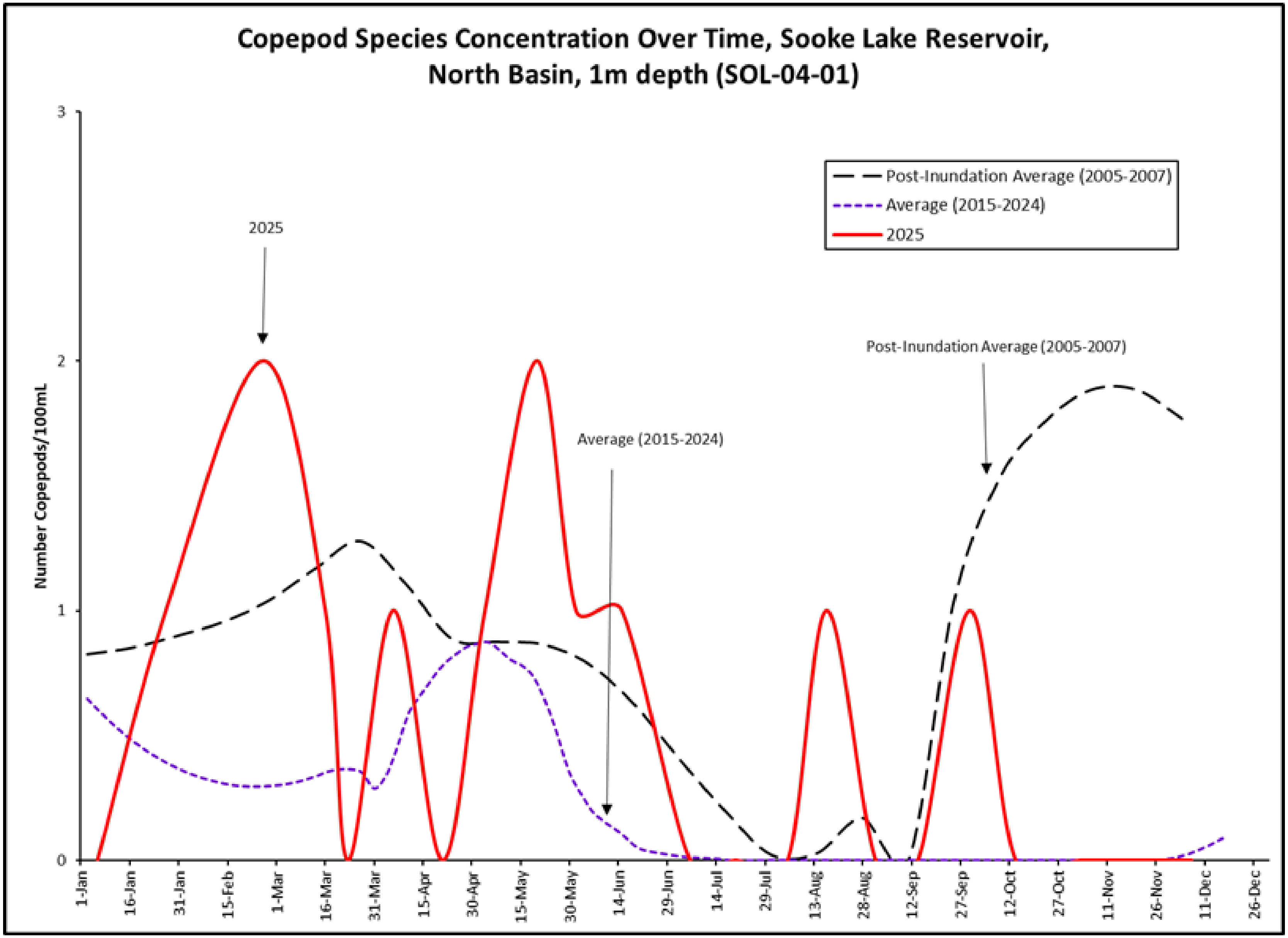


Figure 18 **The Total Number of Copepods Over Time, Sooke Lake Reservoir, North Basin, 1 m depth (SOL-04-01)**

Stratification: The 2025 thermal stratification pattern in Sooke Lake Reservoir was consistent with historical trends, with stratification occurring through the spring, summer and early fall. Stratification develops when the water column separates into three layers: the epilimnion (warm, circulating surface water), the metalimnion (a zone of rapid temperature change), and the hypolimnion (cold, dense bottom water with little temperature variation). This vertical temperature structure influences the distribution and dynamics of plankton communities, as stratified layers can act as barriers to the exchange of heat, chemicals, and nutrients. Conversely, mixing events, often in the fall, can release nutrients from deeper layers and promote algal growth.

CRD staff collect monthly vertical temperature profiles at the three routine Sooke Lake sampling stations (Intake Basin, South Basin and North Basin) using a lake profiler equipped with a temperature probe. In 2025, thermistor chains installed at four locations provided an even more detailed understanding of stratification processes and allowed precise identification of when stratification criteria were met in different parts of the reservoir.

Stratification onset and breakdown dates for the four monitored locations are summarized in Table 1. Notably, the South Basin stratified later than the more northern areas of the reservoir and was the first to de-stratify. Data from the intake-tower area indicate that this location behaved differently from the South Basin overall, with only weak and short-lived stratification. This may be due to the submerged 1915 dam acting as a hydraulic barrier in the hypolimnion, combined with continuous deep-water withdrawal through the low-level intake gates, which likely inhibits the development of strong thermal stratification in the Intake Basin. When the current dam was constructed in 1970, only two small openings were blasted into the old dam, providing limited hydraulic connection below the former crest elevation of approximately 174.50 m above sea level. CRD staff will continue collecting data to further investigate this phenomenon.

By late October, the South Basin had begun to de-stratify and was fully mixed by early November, while the North Basin remained stratified until early December. These patterns are typical for Sooke Lake Reservoir.

Table 1 2025 Sooke Lake Reservoir Stratification Timing

	Stratification Onset	Stratification Breakdown
Intake Basin*	mid June	early August
South Basin	April 24	October 27
Mid Basin	April 23	November 3
North Basin - Rithet Creek	April 14	December 6
North Basin - Deep Part	April 14	December 9

* Intake Basin is the most southern part of the South Basin, right adjacent to the intake tower

Turbidity. Turbidity is continuously monitored at both water treatment plants and at the Sooke Lake intake tower and is also sampled and tested daily at the Goldstream Water Treatment Plant and weekly at the Sooke Water Treatment Plant. As shown in Figure 19, source water turbidity remained well below 1 NTU throughout 2025. However, on Wednesday, May 28, 2025 - the first day of the year with peak flows driven by outdoor water demand - sediments in the raw water mains downstream of the Kapoor Tunnel were disturbed, causing short-term turbidity excursions above 1 NTU, with a peak of 1.5 NTU at the Goldstream Water Treatment Plant. Similar events in past years have typically occurred on Wednesdays or Thursdays between about 4:00 am and late morning during the onset of peak summer demand, and only at Goldstream, not at the Sooke Water Treatment Plant.

SCADA data show that the average daily turbidity on May 28 remained well below 1 NTU. UV transmittance stayed around 90% throughout the event, and UV dosage remained above 16 mJ/cm², ensuring effective UV treatment.

This 2025 turbidity exceedance event coincided with the increase in peak demands at the start of the outdoor watering season. During these periods, high velocities in the two raw water mains (Mains #4 and #5) between the Kapoor Tunnel and the Goldstream plant can disturb settled sediment, resulting in elevated turbidity. The CRD is working to reduce the likelihood of these exceedances in two ways:

- Reducing peak demands: The CRD has updated the Water Conservation Bylaw and associated watering rules to help lower peak water demands. Ongoing public outreach and education aim to further reduce extreme demand peaks and, in turn, the risk of turbidity excursions at the Goldstream plant.
- Flushing program: Annual spring flushing of Mains #4 and #5 removes accumulated sediment before the high-demand watering season. After incomplete flushing and four turbidity exceedances in 2024, the spring 2025 flushing reduced exceedances to a single event. Continuing this spring flushing program may completely eliminate these occurrences in future years.

The short duration of these turbidity events, the naturally low pathogen levels in the raw water, the fact that the events were not caused by contamination, and the fully effective treatment processes in place all support the assessment that these events posed a low risk to public health.

Overall, Sooke Lake water remained very clear in 2025, and raw-water turbidity was never a concern for drinking water quality in the GVDWS.

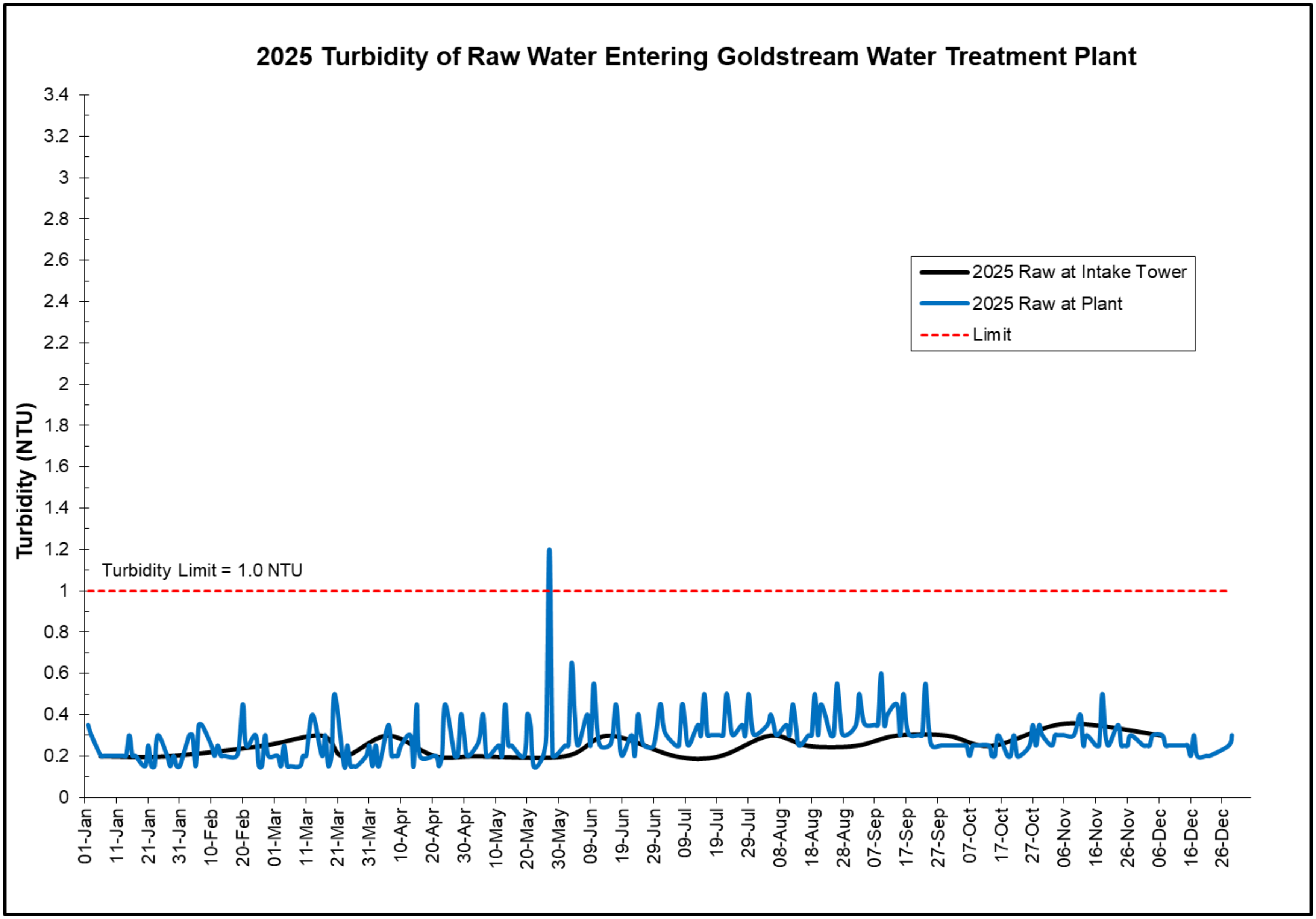


Figure 19 2025 Turbidity of Raw Water Entering Goldstream Water Treatment Plant (from Grab Sampling)

Raw Water Temperature. Cool water is beneficial in a distribution system because it slows the loss of chlorine residual and limits bacterial regrowth. Warm water, by contrast, can promote unwanted chemical and biological processes during treatment and within the piping network, and it is also unpleasant for customers. For these reasons, the Canadian guidelines include an aesthetic objective of 15 °C for drinking water temperature.

As in 2024, the temperature of the water entering the Goldstream Water Treatment Plant in 2025 was noticeably higher than the long-term average during spring and summer (Figure 20). The warming trend began in March and was especially pronounced from May through September. Unusually early warm weather resulted in the 15 °C aesthetic objective being exceeded roughly two weeks earlier than normal, at the beginning of July. With approximately 12 weeks above 15 °C, 2025 had the second-longest period of exceedance since the dam was raised in 2004. Peak temperatures at the Goldstream plant approached, but did not reach, 20 °C, and remained near this level for about three weeks from mid-August to early September. In the fall, temperatures were slightly cooler than the long-term trend.

The continuous use of the lowest intake gates prevented the development of a strong and lasting thermal stratification in the Intake Basin, and the hydraulic restriction created by the submerged 1915 dam limited the inflow of deep, cool hypolimnetic water from the South Basin. Combined with unusually low reservoir levels, these factors allowed the entire water column in the Intake Basin to warm quickly, contributing to the early and elevated summer temperatures observed in 2025.

High raw-water temperatures during summer are not new for the CRD. Before the 2004 reservoir expansion, temperatures at the plant reached 15 °C as early as mid-June. Warmer and longer summers associated with climate change are expected to intensify this issue. The cool hypolimnetic water stored in the much deeper North Basin is currently inaccessible with existing infrastructure, but the CRD Water Supply Master Plan includes consideration of a deep North Basin intake that could address this temperature challenge in the future.

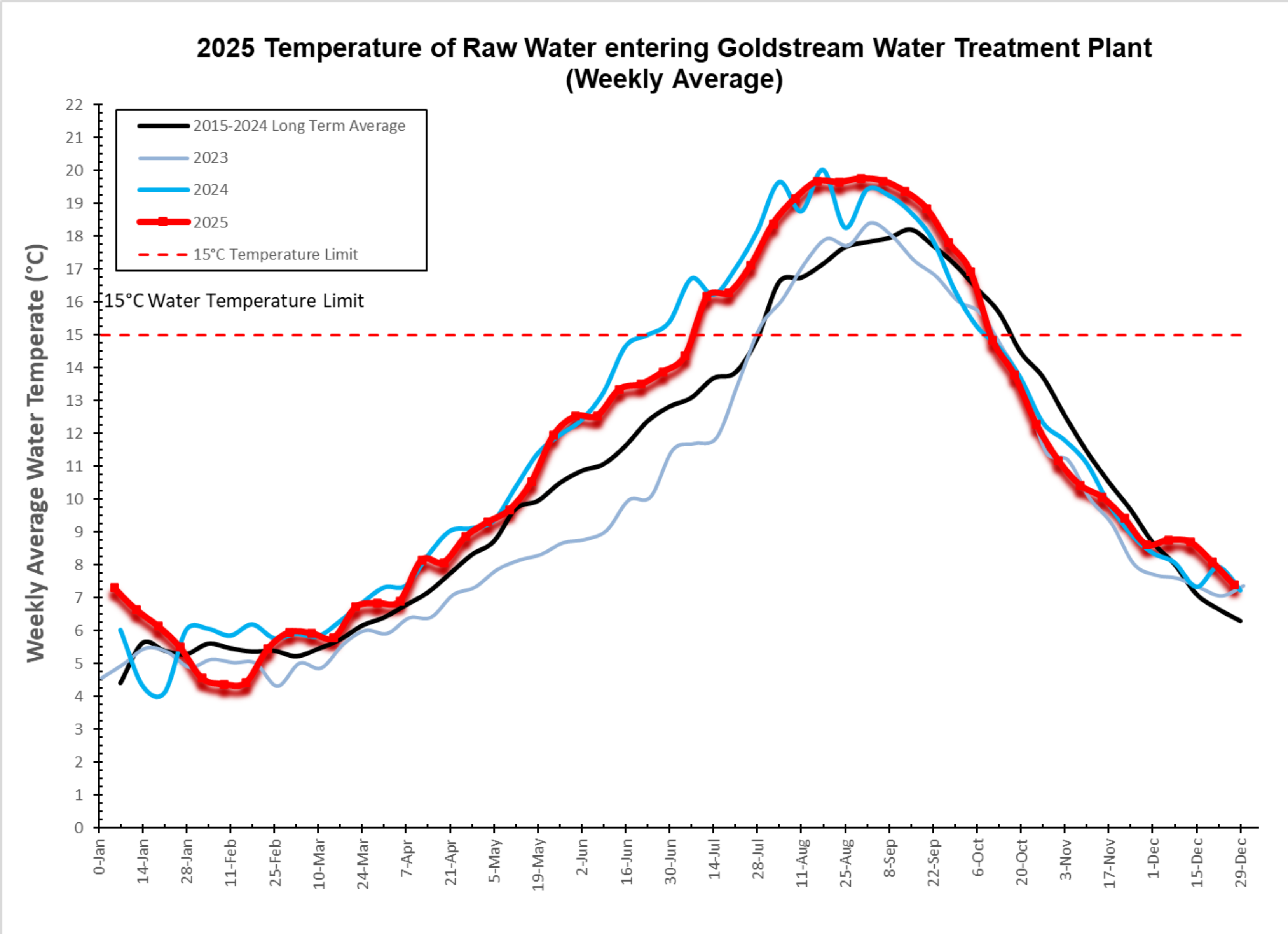


Figure 20 **2025 Temperature of Raw Water Entering Goldstream Water Treatment Plant (Weekly Average)**

Physical/Chemical Parameters. The raw water entering the Goldstream Water Treatment Plant had the following physical and chemical characteristics:

- Median pH: 7.2
- Median $CaCO_3$ Hardness: 17.0 mg/L
- Median Alkalinity: 16.0 mg/L
- Median Colour: 7.0 True Colour Units (TCU)
- Median Total Organic Carbon: 1.90 mg/L
- Median Conductivity (25°C): 45.00 µS/cm

The values of the parameters above are consistent with those of previous years.

Inorganics/Metals. Table 1 in Appendix A lists all the inorganic and metal parameters tested in the source water in 2025. No unusual or concerning levels or trends have been detected.

Organics/Radionuclides. Table 1 in Appendix A lists all the organic radiological parameters tested in the source water in 2025. Most of them were not detected or were in insignificant concentrations. These results confirm the high level of protection from any anthropogenic impacts on the supply watershed.

Emerging Contaminants.

- Per- and Polyfluoroalkyl Substances (PFAS): CRD staff have been testing the raw water entering the Goldstream Water Treatment Plant for PFAS twice per year since December 2020. Since December 2023, all PFAS analyses have been conducted using a lower laboratory detection limit of 2 ng/L and in accordance with the proposed new Health Canada guidelines, which includes 25 individual PFAS parameters. Results are compared against Health Canada's objective of 30 ng/L for the sum of all 25 parameters. The CRD also tests for additional PFAS compounds included in the USEPA Method 537.1. All results to date have been non-detect.

  Because the watershed is protected, the only potential pathway for PFAS to enter the source water is through atmospheric deposition. With no industrial PFAS emitters in the region or elsewhere in British Columbia, PFAS concentrations in the source water are expected to remain very low and, as currently observed, below detection limits.

  Several PFAS tests conducted on treated water samples from distribution systems across Greater Victoria have also shown non-detectable or very low concentrations.

- Microplastics: The CRD has not been testing the raw water entering the Goldstream Water Treatment Plant for microplastics because there are no commercial laboratories in Canada performing this analysis yet. Also, Health Canada and other regulatory agencies have not yet formulated any health guidelines for microplastic concentrations. The state of California has developed a standard operating procedure that will allow the state to begin issuing laboratory accreditation to qualified labs. CRD staff continue to investigate this emerging issue and will conduct testing when feasible. But comparable to many other anthropogenic contaminants, with a protected watershed with very limited human activity, the only viable pathway for microplastics to enter the source water is via rain and air.

Nutrients. Figures 21 to 24 show total nitrogen and total phosphorus concentrations at 1 m depth in both the South and North Basins of Sooke Lake Reservoir. Total phosphorus concentrations at both stations remained near or below the long-term average. At times, concentrations in both basins approached the laboratory detection limit of 1 µg/L, indicating that biological activity had consumed nearly all available phosphorus. The mid-spring decline in phosphorus reflects increased algal uptake earlier in the season. These results confirm that Sooke Lake is a phosphorus-limited aquatic ecosystem.

Nitrogen concentrations in the South Basin were consistent with the long-term average, while the North Basin showed a distinct spike in mid-August. This increase was caused by significant rainfall and an unusual mid-summer runoff event that delivered additional nutrients to the lake. Most of the nitrogen measured was in organic form and likely remained available for biological uptake, although its influence would have been constrained by the persistent phosphorus limitation.

Overall, the nutrient data reinforce the ultra-oligotrophic status of Sooke Lake Reservoir as an unproductive, phosphorus-limited system, which is favourable for drinking water supply.

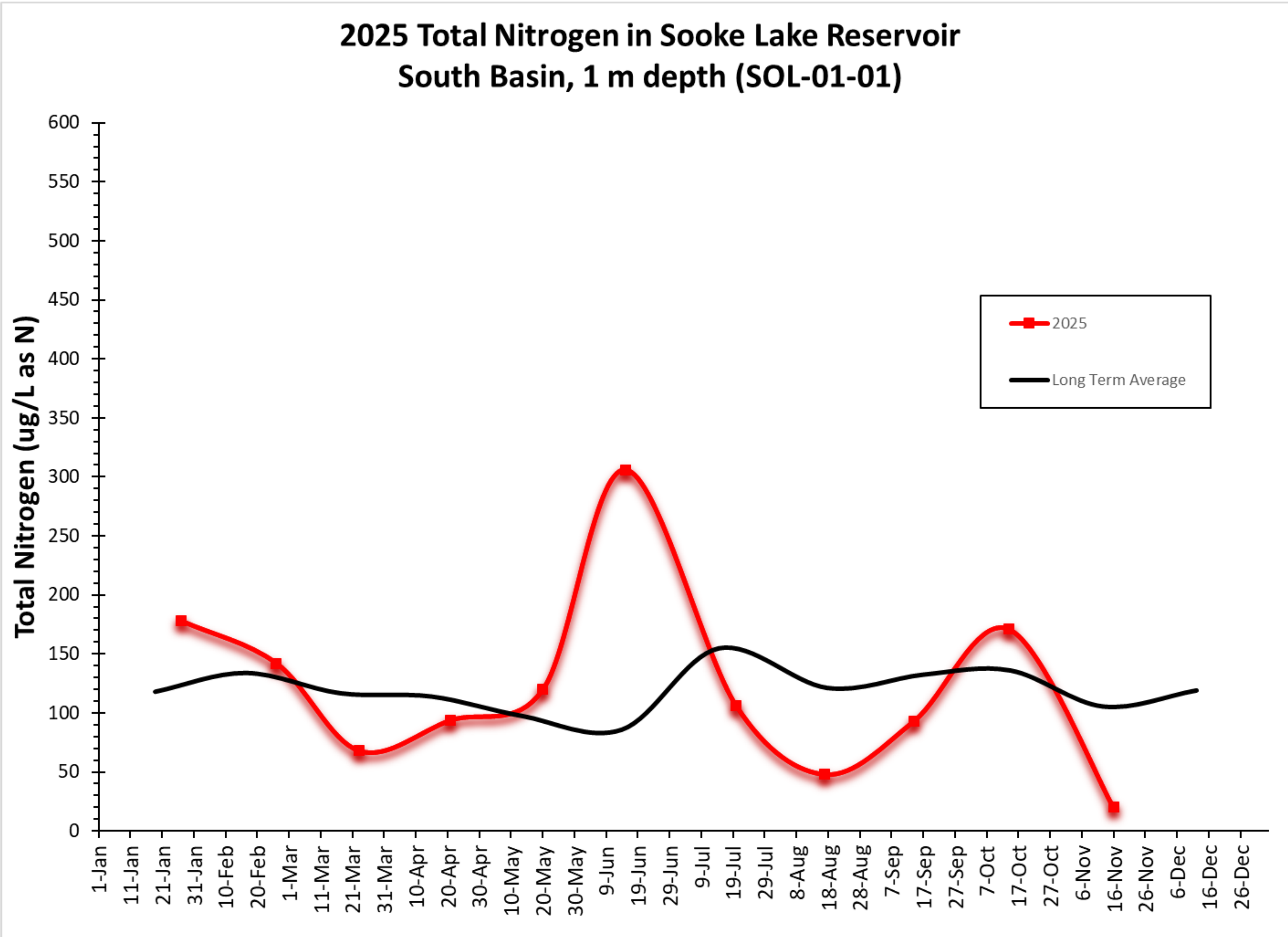


Figure 21 **Total Nitrogen in Sooke Lake Reservoir, South Basin, 1 m depth (SOL-01-01)**

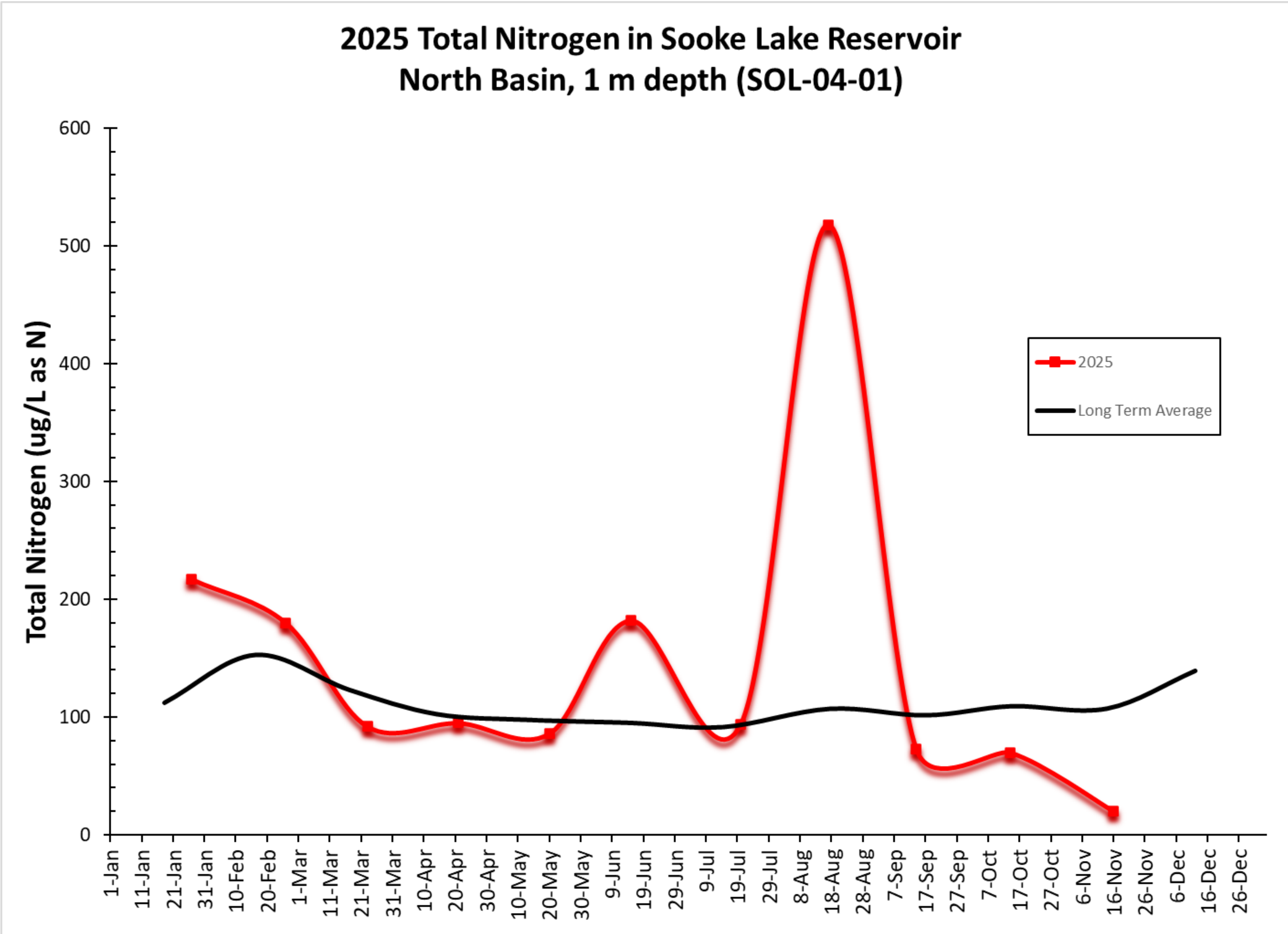


Figure 22 Total Nitrogen in Sooke Lake Reservoir, North Basin, 1 m depth (SOL-04-01)

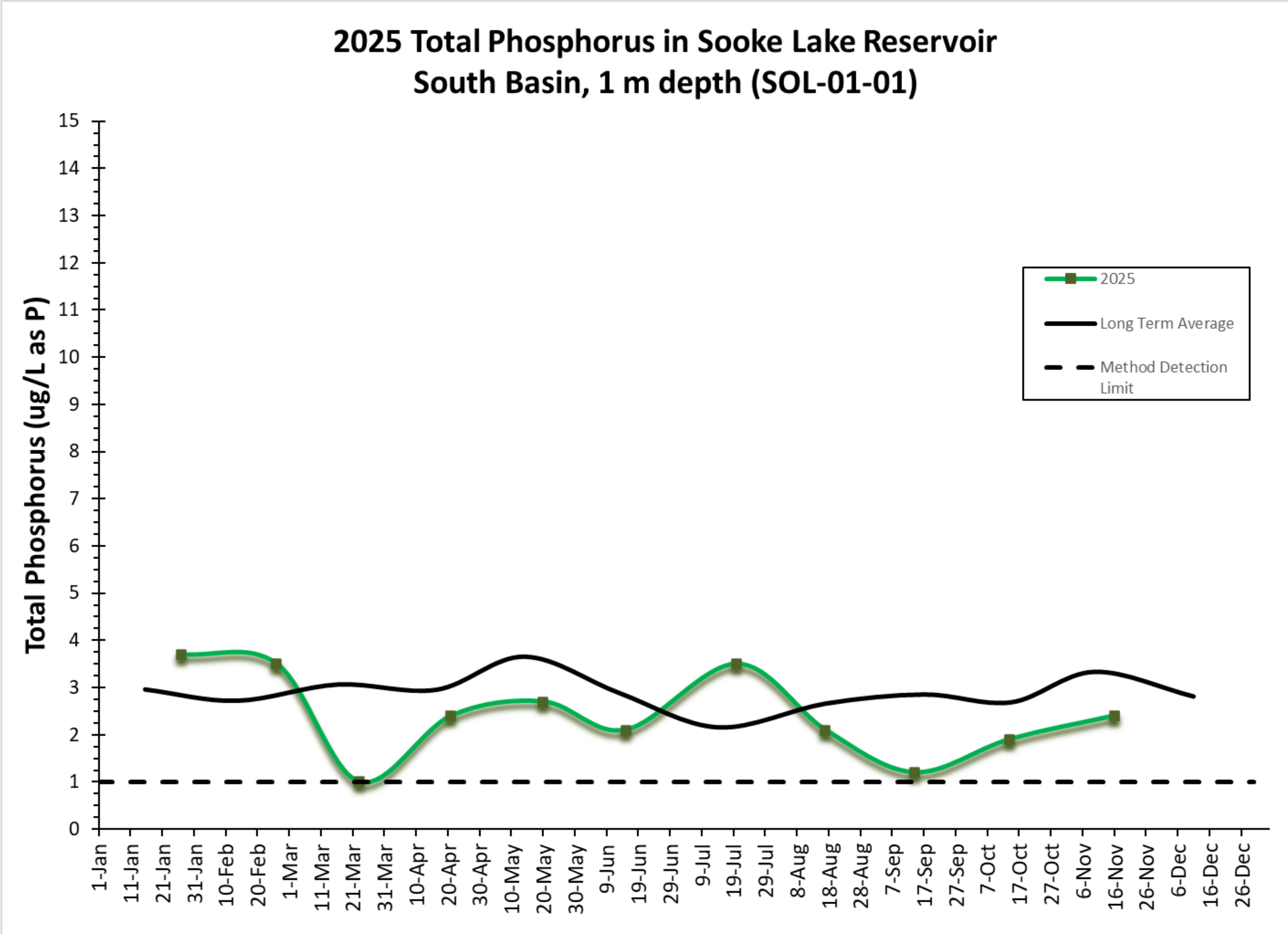


Figure 23 Total Phosphorus in Sooke Lake Reservoir, South Basin, 1 m depth (SOL-01-01)

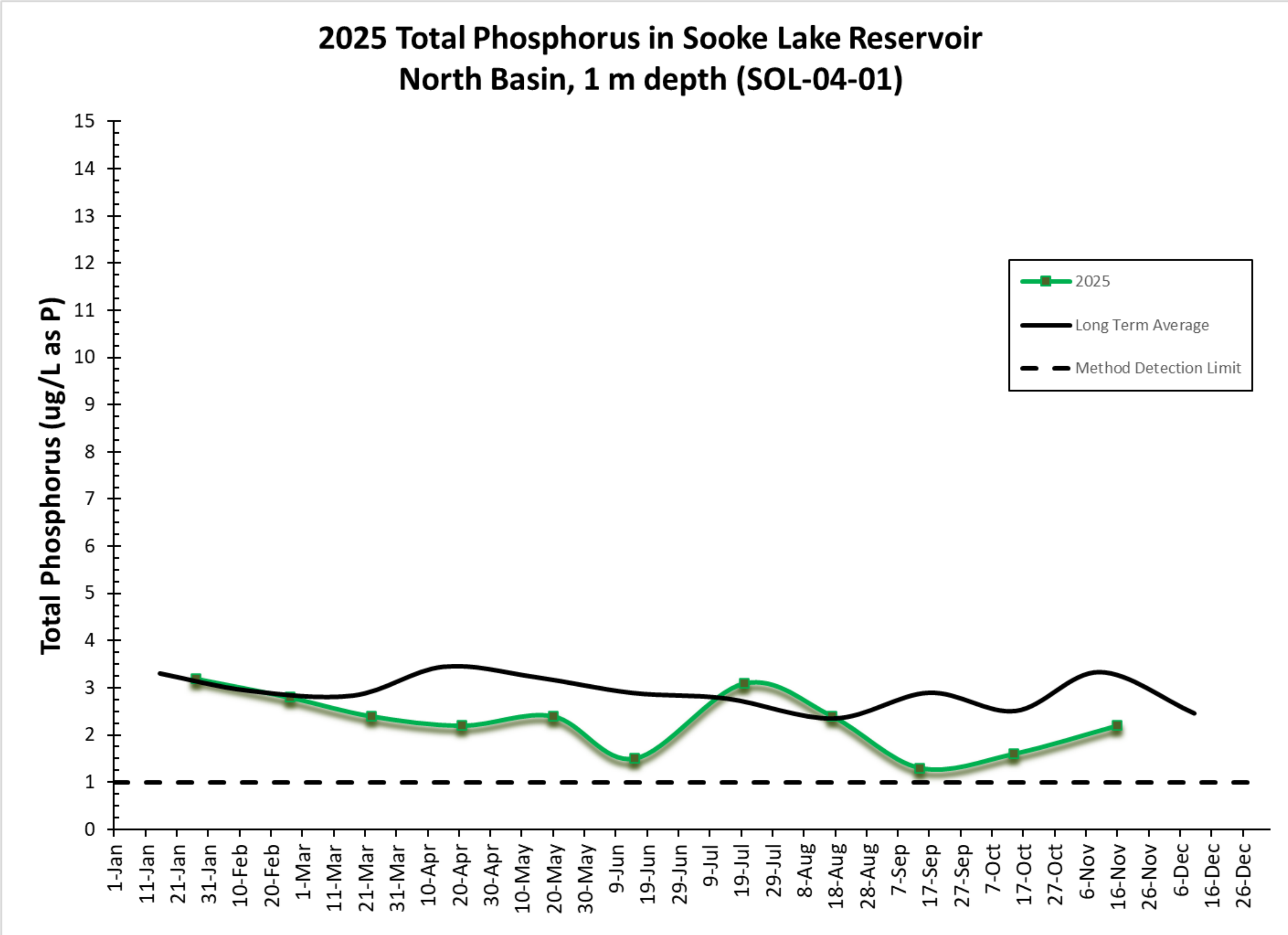


Figure 24 **Total Phosphorus in Sooke Lake Reservoir, North Basin, 1 m depth (SOL-04-01)**

7.2 Treatment Monitoring Results

The following sections summarize the water quality data collected and analyzed to monitor and verify the effectiveness of the disinfection process at both CRD disinfection facilities in the GVDWS.

7.2.1 Goldstream Water Treatment Plant

Bacteriological Results after UV Treatment. Figure 25 shows the results from 244 samples collected and analyzed just upstream and downstream of the UV reactors. The results demonstrate that the UV treatment process is highly effective at reducing total coliform concentrations. On 22 days, low levels of total coliform bacteria were detected downstream of the UV system. This represents a 100% increase compared with previous years and is associated with the installation of the new, lower-dose UV reactors. However, the UV stage is immediately followed by chlorination, which is designed to inactivate any remaining viruses and bacteria. These multiple disinfection steps are key components of the multi-barrier approach, which avoids relying on a single treatment process to achieve compliance.

Turbidity. The Goldstream Water Treatment Plant experienced one adverse turbidity event in 2025 (see Figure 19).

May 28, 2025: First high-demand watering day (Wednesday) of the year. With peak demand and high flows due to outdoor watering, sediments in Main #4 and #5 between the Kapoor Tunnel and the Goldstream plant were dislodged and caused a short-period turbidity excursion to above 1 NTU (3.5 hours exceedance with a peak of 1.5 NTU according to SCADA). Lab results of the daily grab sample recorded 1.2 NTU.

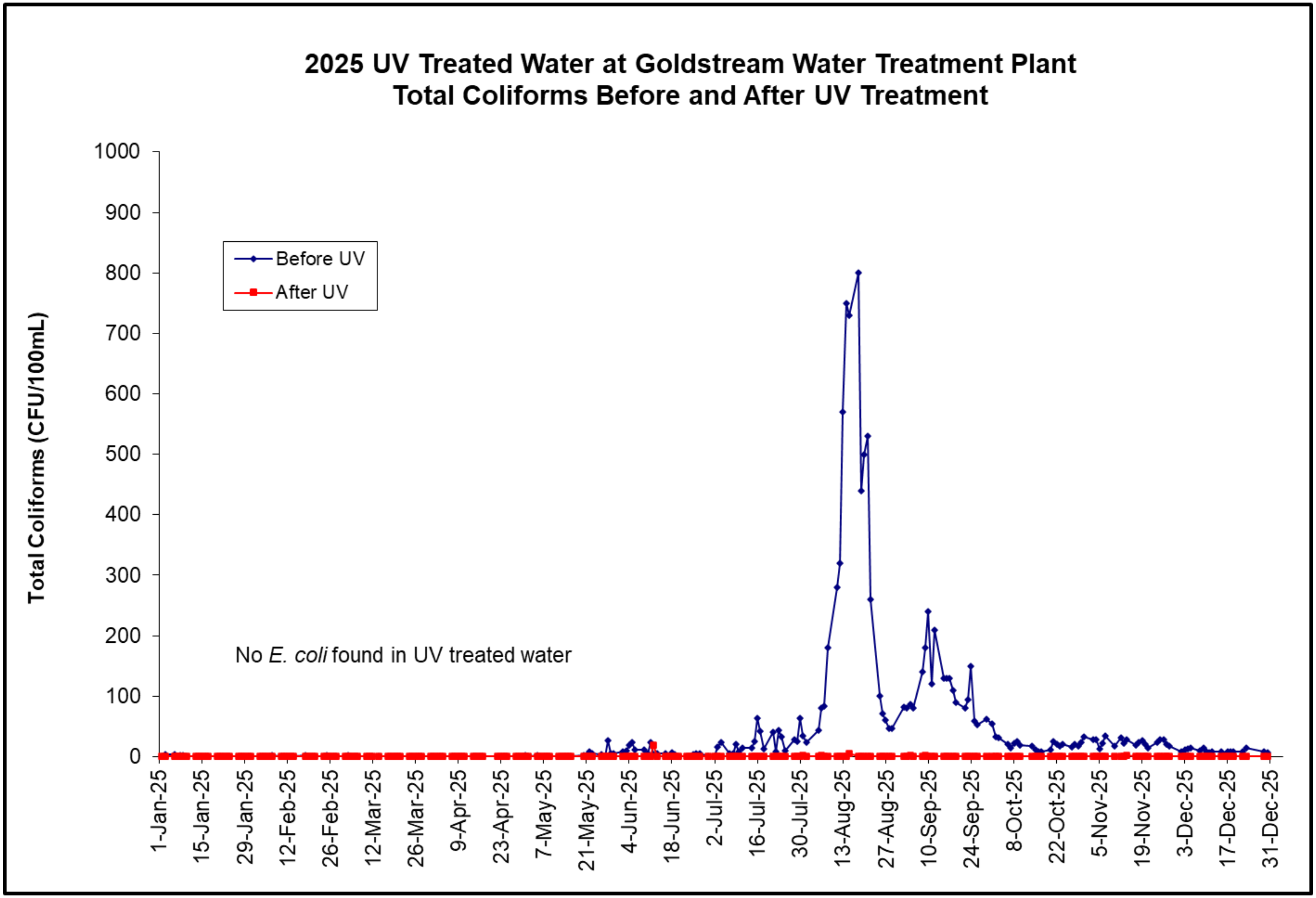


Figure 25 **2025 UV Treated Water at Goldstream Water Treatment Plant Total Coliforms Before and After UV Treatment**

Treated Water at Both First Customer Sampling Locations. The data collected from the two treated water sampling locations near the first customers below the Goldstream Water Treatment Plant (one on Main #4 and one on Main #5) showed good bacteriological water quality throughout all months. In August, 10% of the samples from these two locations contained total coliform bacteria (Figure 26 and Appendix A, Table 2), which is exactly at the regulatory threshold of 10% positive samples per month. One positive sample on August 14 at the Main #4 first-customer station and one on August 15 at the Main #5 station occurred during the short period when raw-water total coliform concentrations were at their annual peak. This may indicate a minor bacterial breakthrough at the Goldstream Water Treatment Plant during the period of highest raw water loading (approximately 800 CFU/100 mL). Total coliform concentrations in both positive samples were very low (1 CFU/100 mL and 2 CFU/100 mL), resulting in minimal risk to drinking water quality. However, since the peak total coliform concentration in the raw water during this occurrence was still below the current operational alert level of 1,000 CFU/100 mL, the CRD will adjust this alert level to a lower threshold (e.g., 500 CFU/100 mL) to be better prepared to react to similar events. In total, 246 samples were collected from the Main #4 first-customer location and 242 from the Main #5 location, for a combined total of 488 samples in 2025.

Across both stations, only six total coliform positive samples were recorded during the year. The *BC Drinking Water Protection Regulation* requires that 90% of all monthly samples in the entire system are free of total coliform bacteria. The CRD considers it useful to assess treated water quality leaving the water treatment plants independently by applying this requirement to the two first-customer locations. Both stations fully complied with this regulatory standard in 2025.

Total chlorine residuals ranged from 1.40 to 2.27 mg/L (Appendix A, Table 2), with a median of 2.03 mg/L (Figure 26). Monochloramine concentrations averaged 95% of the total chlorine residual, which is above the 90% operating target and indicates a stable and effective secondary disinfectant.

The treated water leaving the Goldstream Water Treatment Plant had the following physical and chemical characteristics:

- Median pH: 7.6
- Median Alkalinity: 17.90 mg/L
- Median Colour: 5.0 TCU
- Median Total Organic Carbon: 1.90 mg/L
- Median Conductivity (25ºC): 56.20 µS/cm
- Median Turbidity: 0.25 NTU

The values of the parameters above are consistent with those of previous years.

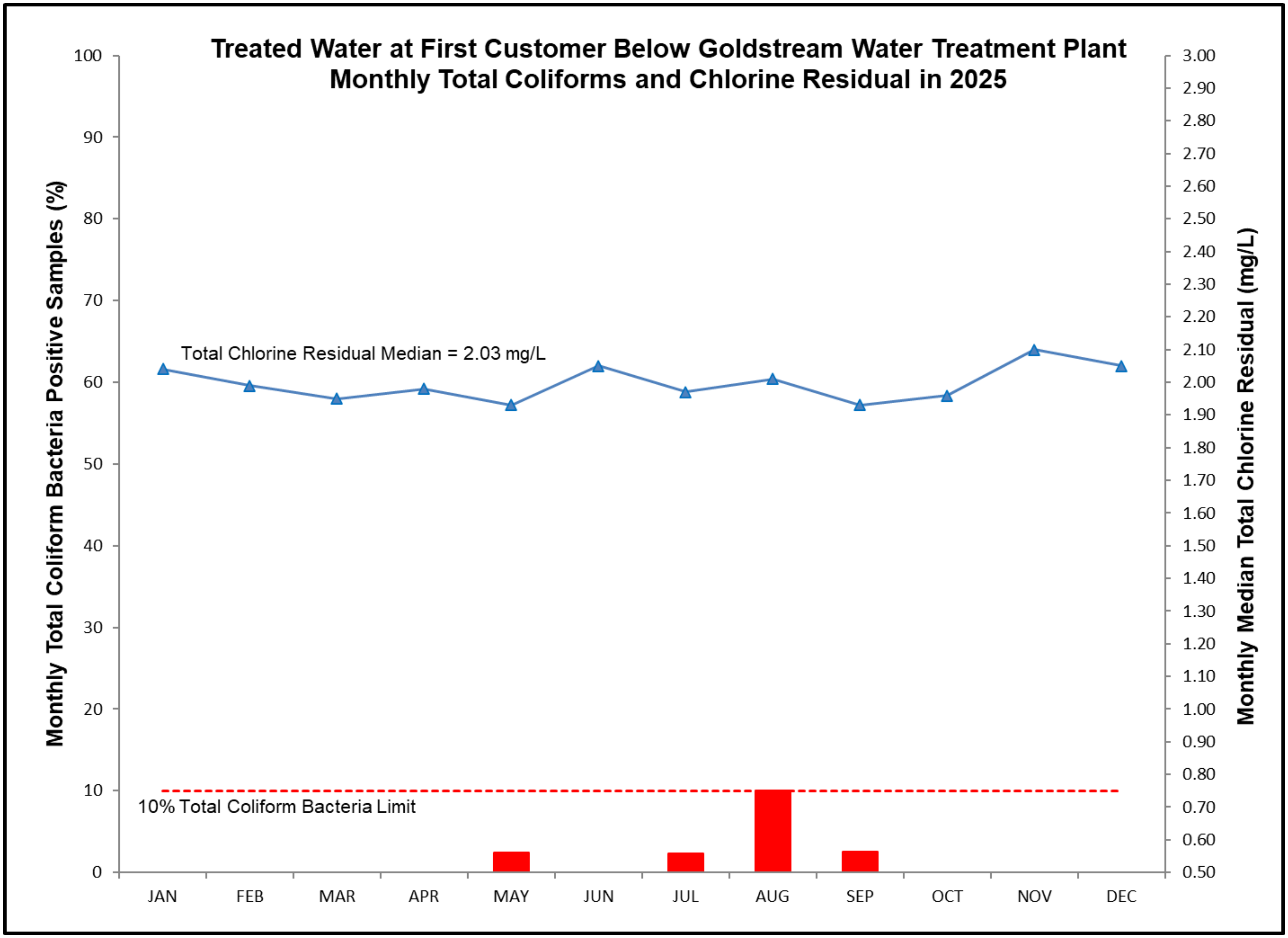


Figure 26 **Treated Water at First Customer Locations below Goldstream Water Treatment Plant; Monthly Total Coliforms and Chlorine Residual in 2025**

7.2.2 Sooke River Road Water Treatment Plant

Bacteriological Results after UV Treatment. Figure 27 shows the results from 37 samples collected and analyzed just upstream and downstream of the UV reactors. The results indicate that the UV treatment is capable of greatly reducing the total coliform concentrations. No total coliform bacteria had been found downstream of the UV treatment. This is evidence of a very effective UV disinfection stage at this plant. The UV treatment is followed up by chlorination disinfection, designed to kill viruses and bacteria. These multiple disinfection stages are important components of the multi-barrier concept, which eliminates the reliance on only one module to achieve compliance.

Turbidity. The Sooke River Road Water Treatment Plant experienced no adverse turbidity events in 2025.

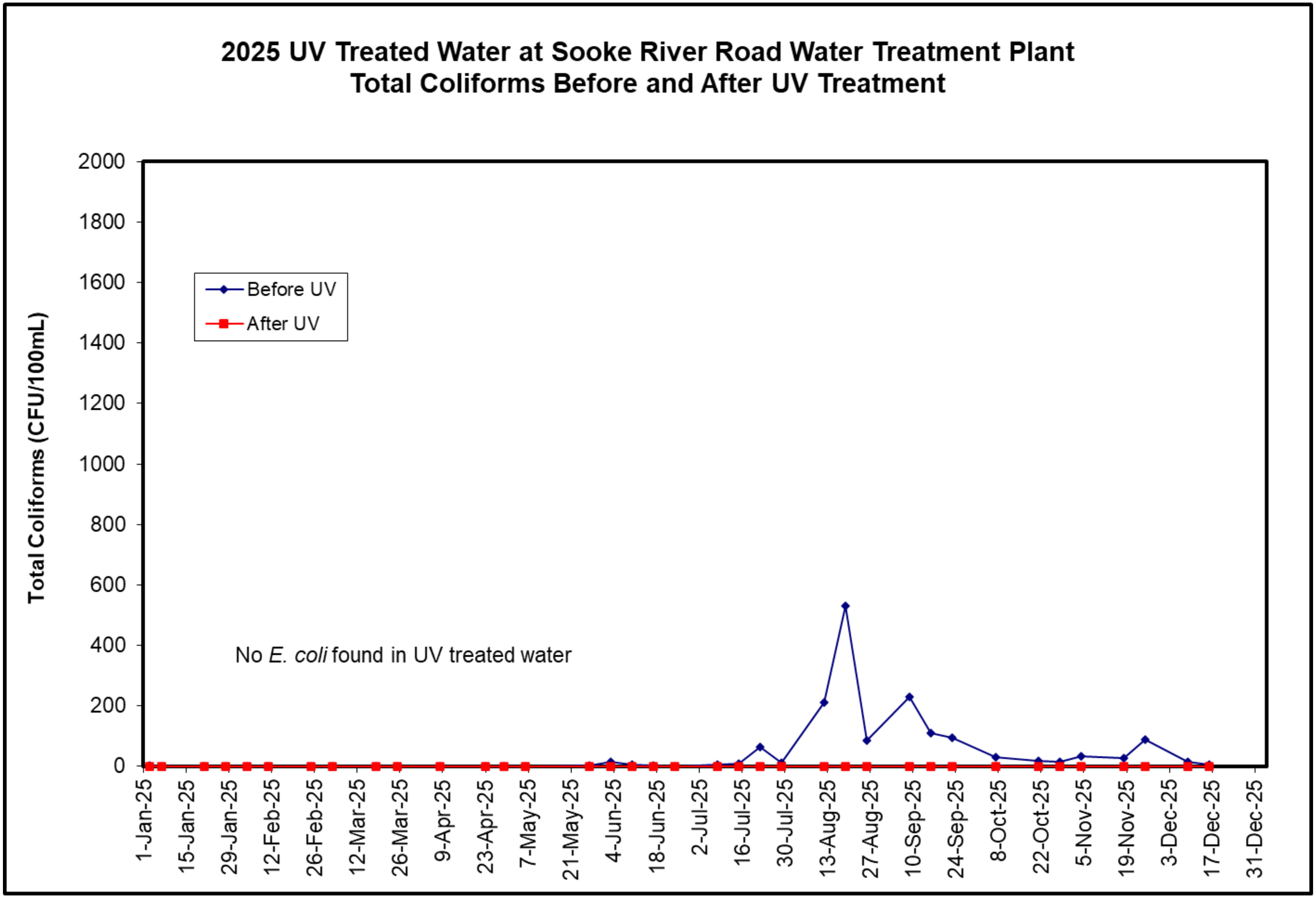


Figure 27 2025 UV Treated Water at Sooke River Road Water Treatment Plant Total Coliforms Before and After UV Treatment

Treated Water at First Customer. The data collected from the treated water sampling location near the first customer below the Sooke River Road Water Treatment Plant indicated that the bacteriological quality of the treated water met all regulatory requirements and guidelines throughout 2025 (Figure 28). This demonstrates the effectiveness of the disinfection process at the Sooke plant.

No total coliform bacteria were detected in any of the 37 samples collected from this station in 2025.

With no total coliform positive results, this part of the system was in full compliance with the *BC Drinking Water Protection Regulation*, which requires that 90% of all monthly samples in the entire system be free of total coliform bacteria. The CRD considers it useful to assess treated water quality leaving the water treatment plant independently by applying this requirement to the first customer location.

Total chlorine residuals ranged from 1.70 to 2.32 mg/L (Appendix A, Table 3), with a median value of 1.97 mg/L (Figure 28). Monochloramine concentrations averaged 95% of the total chlorine residual, which exceeds the 80% operating target and indicates a stable and effective secondary disinfectant.

The treated water leaving the Sooke River Road Water Treatment Plant had the following physical and chemical characteristics:

- Median pH: 7
- Median Alkalinity: 17.50 mg/L
- Median Colour: 5.0 TCU
- Median Conductivity (25ºC): 60.30 μS/cm
- Median Turbidity: 0.30 NTU

The values of the parameters above are consistent with those of previous years.

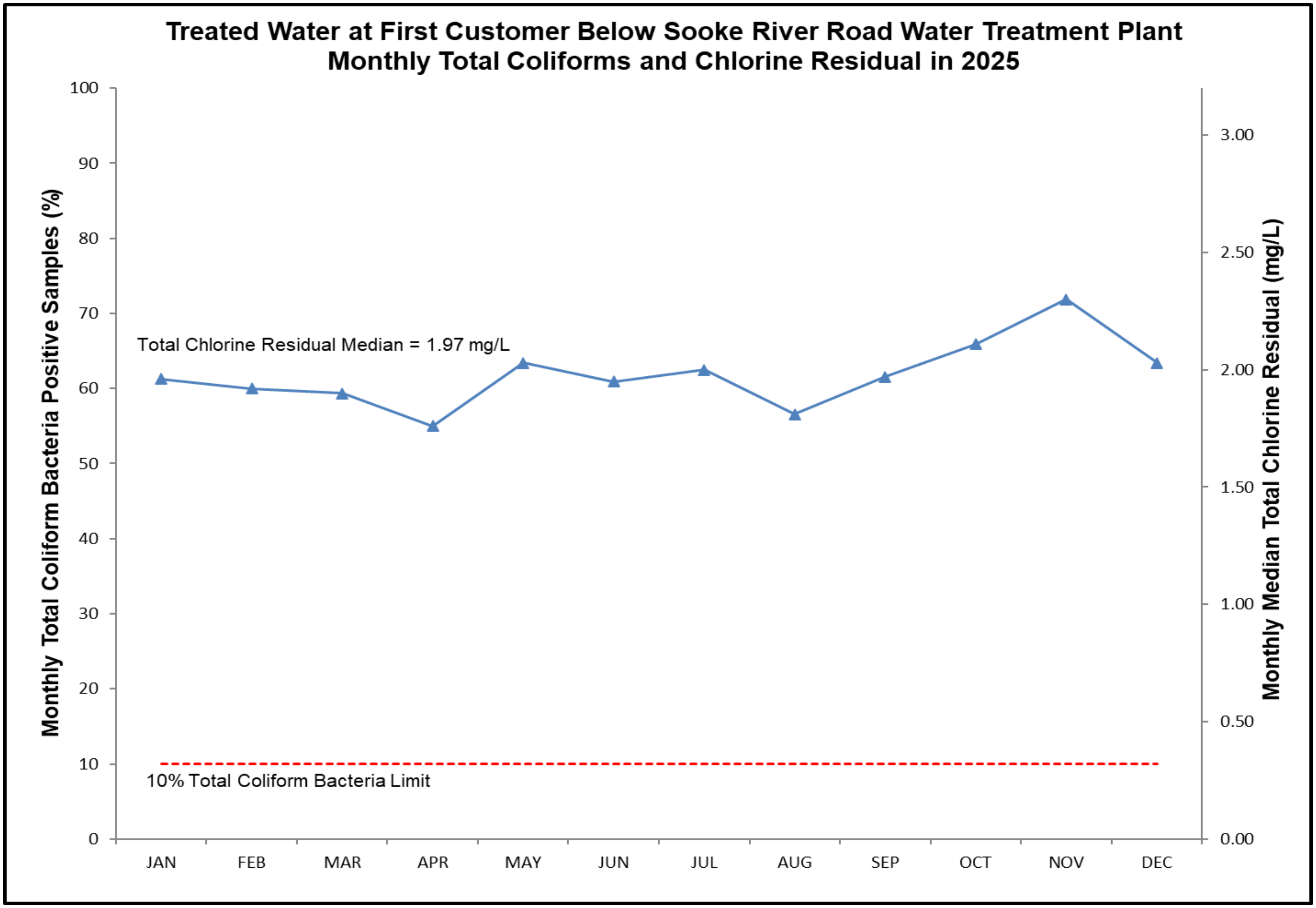


Figure 28 **Treated Water at First Customer below Sooke River Road Water Treatment Plant, Monthly Total Coliforms and Chlorine Residuals in 2025**

7.3 CRD Transmission System Results

The following sections summarize the water quality data collected and analyzed for monitoring and verifying the safety of the drinking water conveyed through the transmission system before it reaches the municipal distribution systems. Bacteriological results of the samples collected in the transmission system are considered for compliance purposes. There is no applicable requirement for monthly sample numbers for a transmission system. The number of samples collected monthly from the CRD Transmission System infrastructure was based on a water quality risk assessment and based on professional judgement.

7.3.1 Transmission Mains

The CRD transmission mains were sampled in 19 different sampling locations. The sampling locations for CRD transmission mains also include the Main #4 and Main #5 first customer sampling stations. In 2025, a total of 854 bacteriological and 902 water chemistry samples were collected and analyzed.

Bacteriological Results. Table 2 and Figure 29 show the results from 854 CRD transmission main samples collected and analyzed in 2025. Overall, the results indicate that the water delivered through the transmission mains was bacteriologically safe. A total of 10 out of 854 samples tested positive for total coliform bacteria, and all but two had very low bacterial concentrations. In June, two consecutive total coliform positive results with elevated concentrations were recorded at a sampling station on Main #3 at Woodwill Place (June 10: 76 CFU/100 mL; June 12: 110 CFU/100 mL). Operations staff investigated and found that the sampling line was fouled, causing these adverse results. After cleaning and flushing the sampling infrastructure, a resample taken on June 13 was free of total coliform bacteria. In all months, the regulatory limit of a maximum of 10% total coliform positive samples was met.

There were no *E.coli* positive samples in 2025.

Chlorine Residual. Table 2 and Figure 29 demonstrate that the annual median total chlorine concentration in the transmission mains was 1.93 mg/L and, therefore, provided for adequate secondary disinfection within the transmission system and within most areas of the downstream municipal distribution systems.

Water Temperature. The annual median water temperature in the transmission mains was 10.7°C, with monthly medians ranging between 4.7°C (February) and 19.6°C (September) (Table 2). Based on these results, the water temperatures in the transmission mains were slightly lower than in 2024 and similar to previous years.

Table 2 2025 Bacteriological Quality of the CRD Transmission Mains

Month	Samples Collected	Total Coliforms (CFU/100mL)				*E.coli* CFU/100mL)	Turbidity		Chlorine Residual	Water Temp.
		Samples TC > 0	Percent TC>0	Resamples TC > 0	Samples TC > 10	Samples >0	Samples Collected	Samples >1 NTU	Median mg/L as	Median ° C
JAN	74	0	0	0	0	0	45	0	1.95	6.6
FEB	63	0	0	0	0	0	39	0	1.93	4.7
MAR	71	0	0	0	0	0	42	0	1.88	6.2
APR	71	0	0	0	0	0	41	0	1.91	8
MAY	72	1	1.4	0	0	0	44	1	1.88	10.5
JUN	76	2	2.6	1	2	0	44	0	2.01	13.4
JUL	75	1	1.3	0	0	0	46	0	1.95	16.1
AUG	72	5	6.9	0	0	0	43	0	1.96	19.4
SEP	71	1	1.4	0	0	0	42	0	1.89	19.6
OCT	78	0	0	0	0	0	46	0	1.89	14.6
NOV	66	0	0	0	0	0	40	0	2	10.3
DEC	65	0	0	0	0	0	40	0	1.95	8.7
Total:	854	10	1.2	1	2	0	512	1	1.93	10.7

Notes:
TC = Total Coliforms, *E. coli* = *Escherichia coli,* Cl_2 = chlorine, NTU = Nephelometric turbidity unit
> = Greater than, mg/L = milligrams per litre, °C = degrees Celsius

Disinfection Byproducts. The CRD collected six sets of samples for a disinfection byproduct analysis from a transmission main at Mills Road. The annual average total trihalomethane (TTHM) and annual average total haloacetic acid (HAA) concentrations were 19.0 and 12.5 µg/L, respectively, well below the MAC (TTHM = 100 and HAA = 80 µg/L) stipulated in the Canadian guidelines. These annual averages are in-line with the historical disinfection byproduct concentrations. This sampling location was also sampled and tested for the disinfection byproduct Nitrosodimethylamine (NDMA), a parameter that is classified as "probably carcinogenic" by Health Canada and associated with disinfection using chloramines. The Canadian guidelines MAC for NDMA is 40 ng/L. All NDMA results at this location were below the detection limit of 1.9 ng/L.

The Mills Road main was the only transmission main where disinfection byproduct samples were collected (bi-monthly). The CRD disinfection byproduct monitoring focuses on locations with higher potential for disinfection byproduct formation, such as system extremities with high water age or areas downstream of emergency re-chlorination stations (free chlorine).

Metals. The CRD Water Quality Monitoring Program for the CRD Transmission System included regular metals tests in four strategic locations: at the beginning of the transmission system at the Main #4 first customer location, and three locations where the water transitions from the CRD Transmission System to a downstream distribution system. In particular, the CRD pays attention to metals commonly found in drinking water, such as iron, manganese, copper and lead. All metal results were below the Canadian guideline.

The Greater Victoria pH & Corrosion Study completed in 2021 concluded that metal corrosion and lead leaching in the public piping systems, as well as in the vast majority of private plumbing systems, is not an issue in the Greater Victoria Drinking Water System.

Physical/Chemical Parameters. The drinking water in the regional transmission mains had the following physical and chemical characteristics:

- Median pH: 7.6
- Median $CaCO_3$ Hardness: 17.7 mg/L
- Median Alkalinity: 17.90 mg/L
- Median Colour: 5.0 TCU
- Median Turbidity: 0.25 NTU
- Median Conductivity (25ºC): 55.10 µS/cm

One sample on May 28, 2025, collected at the Main #5 first customer station recorded a turbidity > 1 NTU (Table 2). This result is attributed to the turbidity excursion that morning at the Goldstream Water Treatment Plant during the peak demand due to watering hours (see Section 7.1 and 7.2.1).

Compliance Status. The transmission mains of the CRD Transmission System were in compliance with the *BC Drinking Water Protection Act* and *Drinking Water Protection Regulation* **except** for June when two samples exceeded the total coliform threshold of 10 CFU/100 mL.

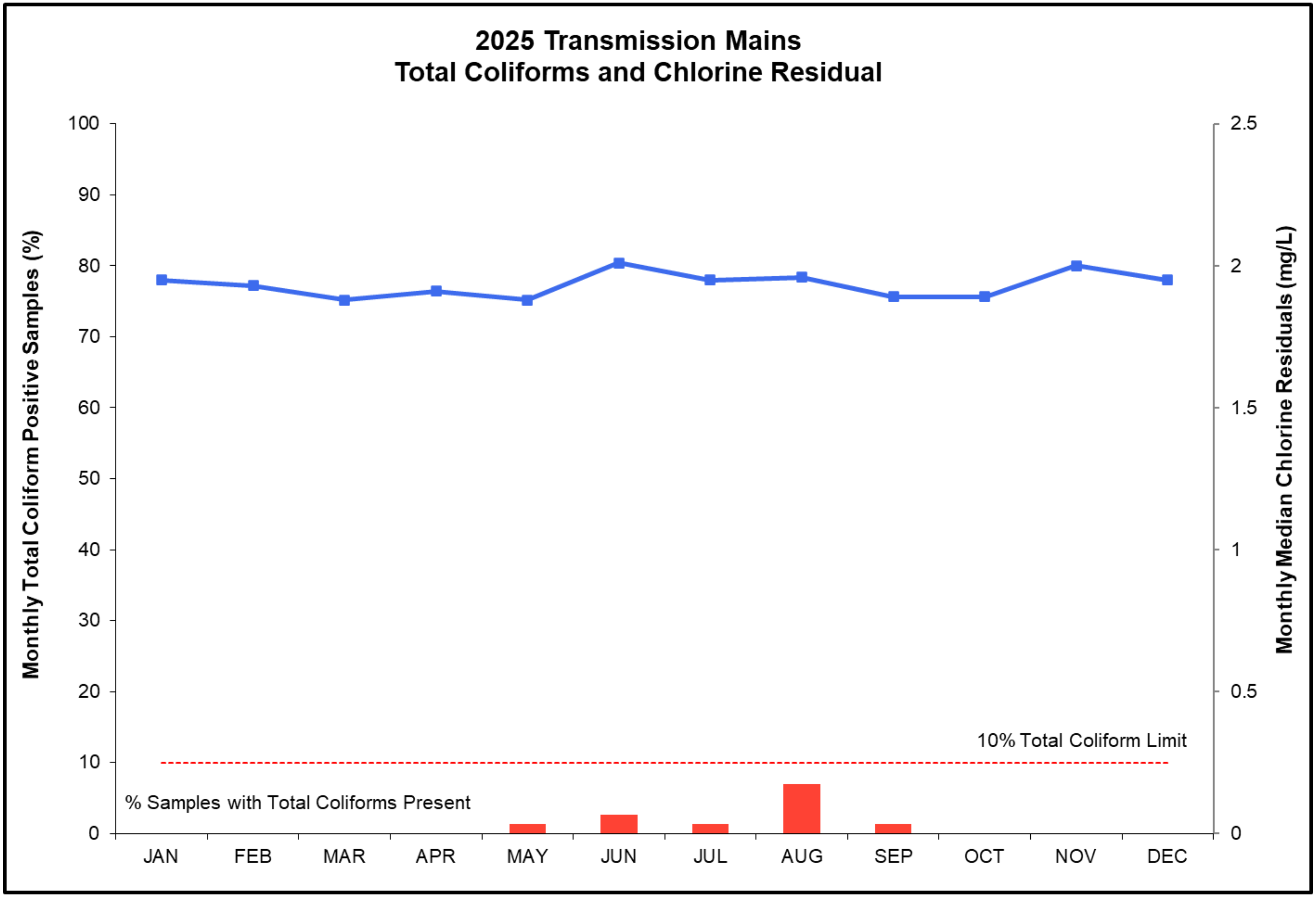


Figure 29 Transmission Mains Total Coliforms and Chlorine Residual in 2025

7.3.2 Supply Storage Reservoirs

The CRD supply storage reservoirs were sampled in seven different sampling locations. In 2025, a total of 250 bacteriological and 69 water chemistry samples were collected and analyzed.

Bacteriological Results. Storage reservoirs are generally more vulnerable to bacterial regrowth and potential contamination because of their long retention times and typically lower chlorine residuals. In 2025, the CRD completed the Greater Victoria Nitrification Study, which confirmed and highlighted water quality risks associated with nitrification in several CRD storage reservoirs. Given the higher water quality risks in reservoirs compared with pipes, the CRD closely monitors water quality in all storage reservoirs and follows a rigorous maintenance schedule at these facilities.

Figure 29 and Table 3 show the 2025 results from the samples on the CRD supply storage reservoirs that are considered part of the CRD Transmission System. No total coliform bacteria were found in any sample from the supply storage reservoirs in 2025. This system therefore complied with the 10% total coliform positive limit and the 10 CFU/100 mL maximum limit for all months.

There were no *E.coli* or total coliform positive samples in 2025.

Table 3 2025 Bacteriological Quality of Supply Storage Reservoirs

Month	Samples Collected	Total Coliforms (CFU/100mL)				*E.coli* CFU/100mL)	Turbidity		Chlorine Residual	Water Temp.
		Samples TC > 0	Percent TC>0	Resamples TC > 0	Samples TC > 10	Samples >0	Samples Collected	Samples >1 NTU	Median mg/L as CL2	Median ° C
JAN	22	0	0	0	0	0	1	0	1.59	7.2
FEB	22	0	0	0	0	0	1	0	1.71	5.2
MAR	22	0	0	0	0	0	1	0	1.59	6.9
APR	19	0	0	0	0	0	1	0	1.59	8.3
MAY	23	0	0	0	0	0	1	0	1.69	10.6
JUN	18	0	0	0	0	0	0	0	1.81	13.8
JUL	18	0	0	0	0	0	1	0	1.63	17.2
AUG	20	0	0	0	0	0	1	0	1.71	19.4
SEP	21	0	0	0	0	0	1	0	1.59	19.7
OCT	28	0	0	0	0	0	1	0	1.55	15.2
NOV	19	0	0	0	0	0	1	0	1.6	10.8
DEC	18	0	0	0	0	0	1	0	1.65	9.3
Total:	250	0	0	0	0	0	11	0	1.64	10.8

Notes:
TC = Total Coliforms, *E. coli* = *Escherichia coli;* Cl_2 = chlorine, NTU = Nephelometric turbidity unit
> = Greater than, mg/L = milligrams per litre, °C = degrees Celsius

Chlorine Residual. Table 3 and Figure 30 show that median total chlorine concentrations in the storage reservoirs ranged from 1.55 to 1.71 mg/L, with an overall annual median of 1.56 mg/L. These results demonstrate that secondary disinfection within the Supply Storage Reservoirs was adequate. Owing to the high monochloramine levels in the water leaving the Goldstream Water Treatment Plant in 2025, chlorine residuals in the storage reservoirs were more consistent and generally higher than in previous years.

Water Temperature. The annual median water temperature in the storage reservoirs was 10.8°C, with monthly medians ranging between 5.2°C (February) and 19.7°C (September) (Table 3).

Disinfection Byproducts. The CRD collected a total of 36 samples for a disinfection byproduct analysis. The samples were collected at two storage reservoirs in the CRD Transmission System (Cloake Hill and Upper Dean Park reservoirs). Upstream of both locations, the CRD maintains a re-chlorination station that can boost free chlorine concentrations, if the residuals fall below 0.2 mg/L. While this procedure is rarely exercised, any free chlorine concentration can lead to an increase in disinfection byproduct formation. The annual average TTHM and HAA concentrations were 19.00 and 15.1 µg/L at Cloake Hill and 15.2 and

5.8 µg/L at Upper Dean, respectively, well below the MAC (TTHM = 100 and HAA = 80 µg/L) stipulated in the Canadian guidelines. These annual averages are in-line with historical disinfection byproduct concentrations. At the beginning of 2021, the GVDWS was switched to free chlorine for about one month, which resulted in higher disinfection byproduct concentrations (see 2021 Annual Report). While this was a short-term effect and concentrations remained below the health limits, these results have demonstrated the importance of using chloramines for secondary disinfection for the purpose of disinfection byproduct management. In all samples, the NDMA concentrations at both locations were below the detection limit (1.9 ng/L) and therefore well below the Canadian guideline MAC of 40 ng/L.

Physical/Chemical Parameters. The drinking water in the regional supply storage reservoirs had the following physical and chemical characteristics in 2025:

- Median pH: 7.8
- Median Alkalinity: 18.2 mg/L
- Median Colour: 6.0 TCU
- Median Turbidity: 0.25 NTU
- Median Conductivity (25ºC): 56.70 µS/cm

Metals. No data for 2025.

Nitrification. Nitrification occurs in many chloraminated water systems. It is a complex bacteriological process in which ammonia is oxidized initially to nitrite and then to nitrate and is caused by two groups of bacteria that have low growth rates relative to other bacteria. Water temperature seems to be a critical factor for nitrification in distribution systems, as it has been almost exclusively associated with warm water temperatures. Nitrification is also associated with high water age (reservoirs, dead ends, low-flow pipes) and with sediment biofilms.

Monitoring for nitrifying bacteria directly is inefficient; however, the extent of nitrification in the distribution system can be monitored by measuring chlorine residuals and nitrite (also nitrate, free ammonia). When the chlorine residuals drop (in the absence of any pipe break or plant disinfection failure), accompanied by increases of nitrite, then nitrification occurs. Since Greater Victoria's source water has no background nitrite, the presence of nitrite in the distribution system is the best indicator of nitrification.

The control of nitrification in a chloraminated distribution system involves limiting the excess free ammonia leaving the disinfection plant, maintaining an adequate chlorine residual throughout the distribution system, minimizing water age in storage facilities and in the low-flow areas of the distribution system, and maintaining annual flushing routines to limit the accumulation of sediment and biofilm in the distribution system piping. CRD staff regularly undertake projects to optimize the reservoir and pipe-cleaning schedules to address nitrification and other water quality affecting processes throughout the distribution systems. The hypochlorite plant at the Goldstream Water Treatment Plant has improved the chemical dosing system and reduced the potential for free ammonia in the treated water.

A nitrification study was completed in 2025. This study examined the extent of nitrification, assessed potential water quality and operational impacts, and identified possible mitigation measures. The study concluded that, although disinfectant residuals at the treatment plants have improved in recent years (in particular at the Goldstream Water Treatment Plant after the 2018 upgrade), the GVDWS is experiencing seasonal nitrification, particularly in several storage reservoirs and parts of the distribution system. Indicators such as declining chlorine residuals, elevated HPC counts, and measurable nitrite at higher water age locations show that nitrification is occurring at levels that exceed industry thresholds for action. The study recommended a system-wide strategy focused on expanded monitoring, higher and more consistent chloramine residuals, and targeted mitigation in priority reservoirs. As next steps, CRD staff will work on implementing a baseline monitoring program, developing a long-term nitrification action plan, and evaluating operational or infrastructure changes such as adjusted tank operating ranges or booster disinfection to stabilize disinfectant residuals across the system.

Compliance Status. The CRD-owned and operated supply storage reservoirs in the CRD Transmission System were in full compliance with the *BC Drinking Water Protection Act* and *Drinking Water Protection Regulation*.

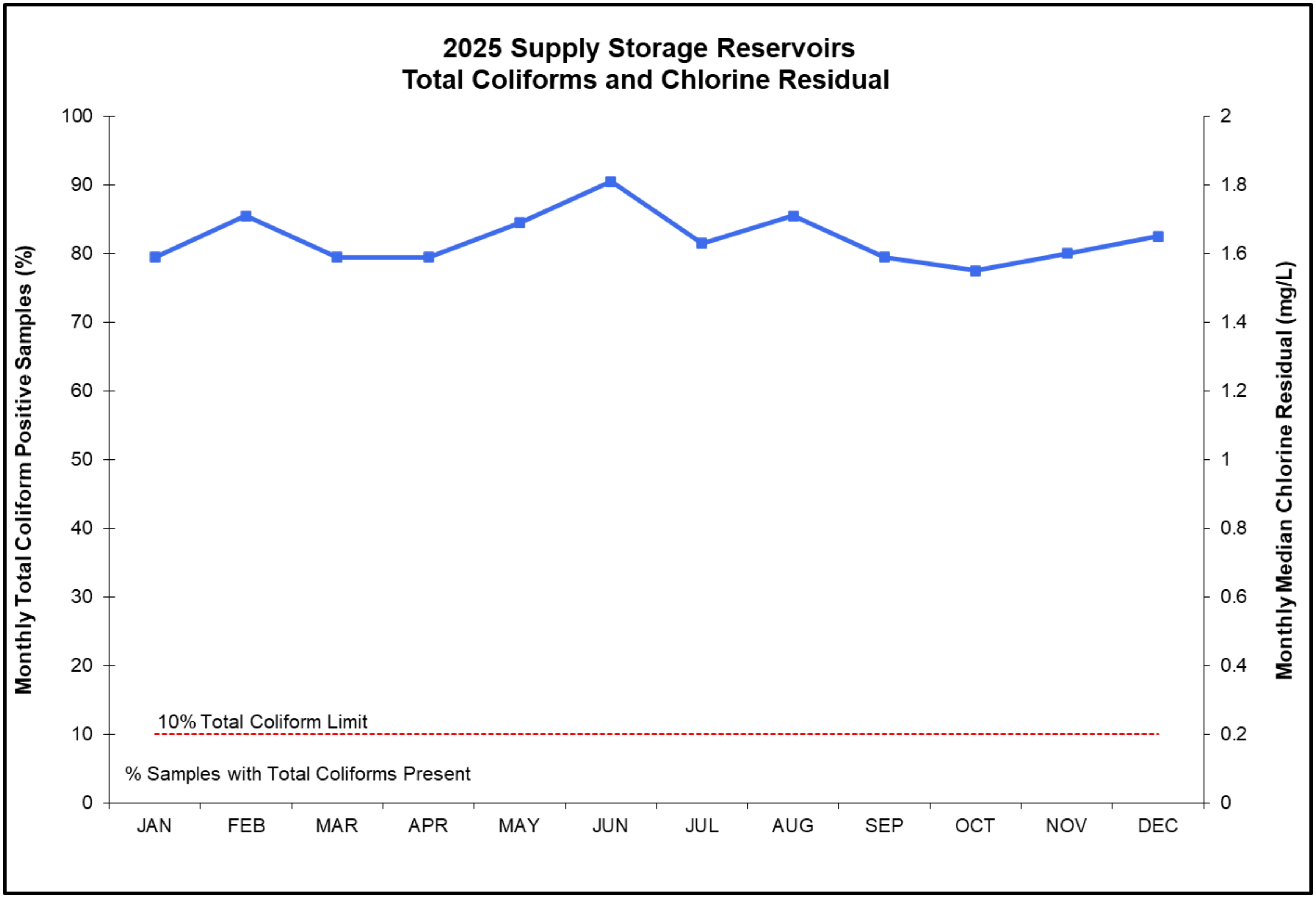


Figure 30 Supply Storage Reservoirs Total Coliforms and Chlorine Residual in 2025

7.4 Distribution System Results

The following sections summarize the water quality monitoring results within the various distribution systems and indicate the compliance status of each system.

7.4.1 Juan de Fuca Water Distribution System – Westshore Municipalities (Owned and Operated by the CRD)

In 2025, 37 distribution system sampling locations were used by the CRD Water Quality Monitoring Program to monitor the bacteriological quality of the water in the Westshore system.

Sample Collection. In 2025, 1,092 bacteriological and 258 water chemistry samples were collected from the Juan de Fuca Water Distribution System (Table 4). Based on current population data for the Westshore municipalities, 82 samples are required for bacteria testing each month. Table 4 shows the number of monthly samples collected and analyzed for compliance.

Bacteriological Results. Total coliforms were detected in 12 samples over the year. On three occasions, the resamples collected after a positive result were also positive. On August 7, Walfred Reservoir, which is known for low chlorine residuals during the summer, recorded a total coliform concentration of 3 CFU/100 mL. Two resamples confirmed the presence of total coliform bacteria, and on August 20 the reservoir was drained, refilled with fresh water, and a subsequent sample passed. McCallum pump station also recorded consecutive positives on August 12 and 15. The cause of these results, as well as an earlier high result on June 3 (56 CFU/100 mL), was likely inadequate flushing of the long sampling line prior to collecting the samples.

In total, two samples exceeded the 10 CFU/100 mL threshold on June 3 and August 15. The system met the regulatory limit of no more than 10% total coliform positive samples in every month of 2025, and the annual percentage of positives was well below the limit at 1.1% (Table 4).

There were no *E.coli*-positive samples in 2025.

Table 4 2025 Bacteriological Quality of the Juan de Fuca Distribution System – Westshore Municipalities (CRD)

Month	Samples Collected	Total Coliforms (CFU/100mL)				*E.coli* CFU/100mL)	Turbidity		Chlorine Residual	Water Temp.
		Samples TC > 0	Percent TC>0	Resamples TC > 0	Samples TC > 10	Samples >0	Samples Collected	Samples >1 NTU	Median mg/L as CL2	Median ° C
JAN	96	0	0	0	0	0	8	0	1.48	7.6
FEB	85	2	2.4	0	0	0	5	0	1.58	5.7
MAR	84	0	0	0	0	0	5	0	1.53	7.5
APR	101	0	0	0	0	0	6	0	1.47	9.6
MAY	84	0	0	0	0	0	7	0	1.58	12.1
JUN	85	1	1.2	0	1	0	7	1	1.48	14.5
JUL	109	0	0	0	0	0	5	0	1.51	17.8
AUG	92	7	7.6	3	1	0	6	0	1.53	19.7
SEP	87	2	2.3	0	0	0	5	0	1.51	19.7
OCT	101	0	0	0	0	0	6	0	1.46	15.6
NOV	83	0	0	0	0	0	5	0	1.55	11.7
DEC	85	0	0	0	0	0	5	0	1.51	9.9
Total:	1092	12	1.1	3	2	0	70	1	1.51	12.6

Notes:
TC = Total Coliforms, E. coli = Escherichia coli, Cl_2 = chlorine, NTU = Nephelometric turbidity unit
> = Greater than, mg/L = milligrams per litre, °C = degrees Celsius

Chlorine Residual. The annual median chlorine residual in the Westshore municipalities of the Juan de Fuca Water Distribution System was 1.51 mg/L (Table 4). The lowest monthly median was in October (1.46 mg/L) and the maximum monthly median was in February and May (1.58 mg/L) (Figure 31, Table 4). In general, chlorine residuals were slightly higher and more consistent than in previous years.

Water Temperature. The annual median water temperature in the Juan de Fuca Water Distribution System was 12.6ºC, with monthly medians ranging between 5.7°C (February) and 19.7ºC (August/September) (Table 4).

Disinfection Byproducts. One location in the Juan de Fuca Water Distribution System had 15 samples collected for disinfection byproducts. The annual average TTHM and haloacetic acid (HAA5) concentrations in six samples each were 13.0 µg/L and <5 µg/L, respectively, far below the Canadian guideline MAC (TTHM = 100; HAA5 = 80). In all five samples, the NDMA concentrations were below the detection limit of 1.9 ng/L and therefore well below the Canadian guideline MAC of 40 ng/L.

Physical/Chemical Parameters. The drinking water in the Westshore municipalities of the Juan de Fuca Water Distribution System had the following physical and chemical characteristics in 2025:

- Median pH: 7.6
- Median $CaCO_3$ Hardness: 18.7 mg/L
- Median Alkalinity: 18.00 mg/L
- Median Colour: 5.0 TCU
- Median Conductivity (25ºC): 57.60 µS/cm
- Median Turbidity: 0.25 NTU

Only one regular grab sample from this distribution system exhibited an elevated turbidity of >1 NTU all year (Table 4). This indicates good drinking water quality in general.

Metals. One sampling station in this system was sampled for metals bi-monthly. All metals were below the Canadian guideline limits.

The Greater Victoria pH & Corrosion Study completed in 2021 concluded that metal corrosion and lead leaching in the public piping systems, as well as in the vast majority of private plumbing systems, is not an issue in the Greater Victoria Drinking Water System.

Compliance Status. The Westshore municipalities of the Juan de Fuca Water Distribution System were in compliance with the *BC Drinking Water Protection Act* and the *Drinking Water Protection Regulation* in 2025, except in June and August when one total coliform positive result in each month exceeded the 10 CFU/100 mL threshold.

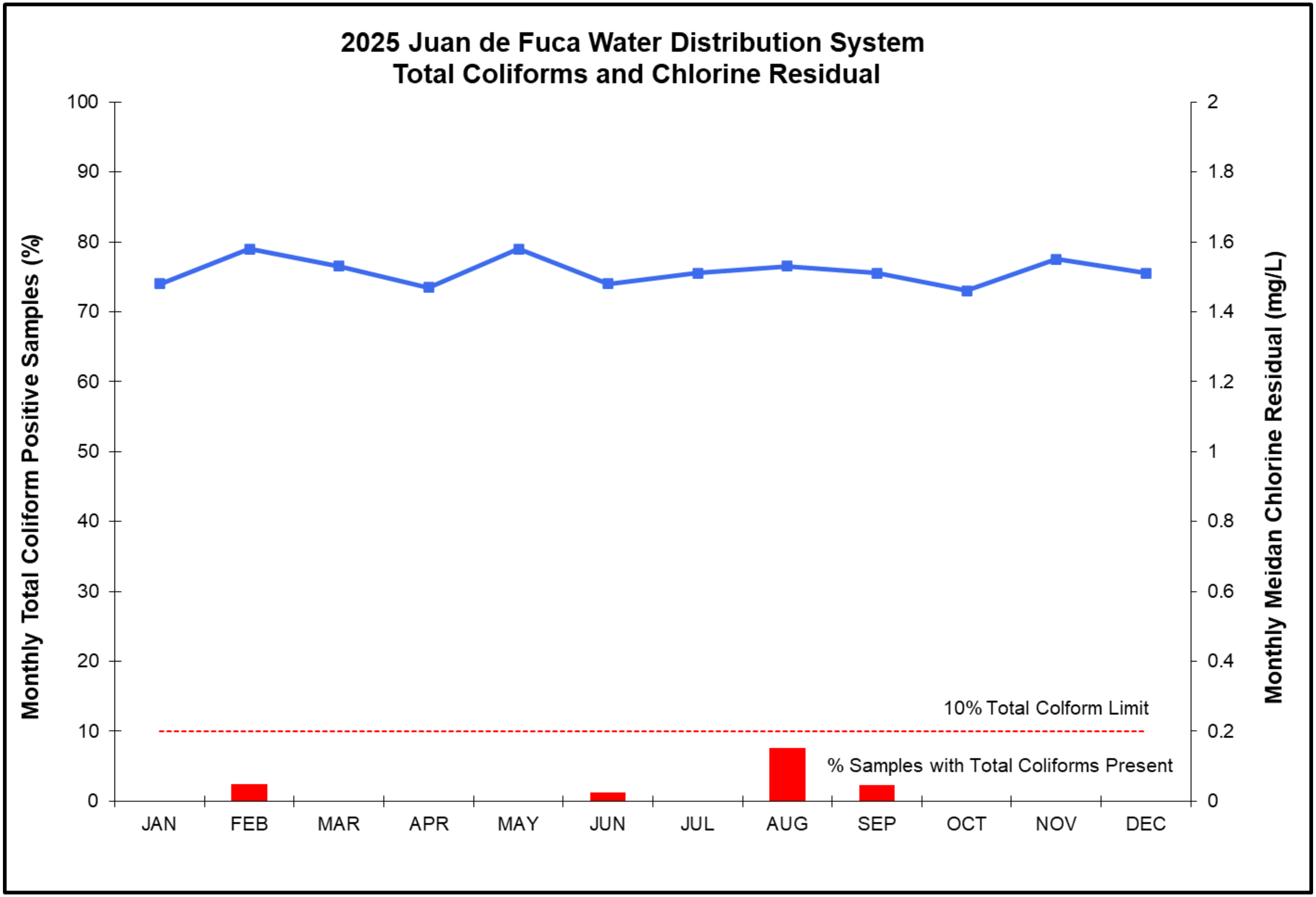


Figure 31 Juan de Fuca – Westshore Distribution System Total Coliforms and Chlorine Residual in 2025

7.4.2 Sooke/East Sooke Distribution System (Owned and Operated by the CRD)

In 2025, 21 sampling locations were used by the CRD Water Quality Monitoring Program to assess the bacteriological quality of the water in the Sooke and East Sooke system. Half of the sampling stations were typically sampled once per week, resulting in a biweekly sampling frequency for the full set of stations.

Sample Collection. In 2025, 401 bacteriological and 199 water chemistry samples were collected from the Sooke/East Sooke Distribution System (Table 5). Based on current population data for the District of Sooke, 17 samples are required for bacteria testing each month. Table 5 shows the number of monthly samples collected and analyzed for compliance.

Bacteriological Results. Total coliforms at very low concentrations were detected in one sample during the year, in January. The immediate resample collected after this result was free of total coliform bacteria. This system therefore complied with the 10% total coliform-positive limit and the 10 CFU/100 mL maximum limit every month in 2025. The annual total coliform positive percentage was well below the 10% limit at 0.3% (Table 5).

No *E. coli* bacteria were found in any sample collected in 2025 (Table 5).

Table 5 2025 Bacteriological Quality of the Sooke/East Sooke Distribution System (CRD)

Month	Samples Collected	Total Coliforms (CFU/100mL)				*E.coli* CFU/100mL)	Turbidity		Chlorine Residual	Water Temp.
		Samples TC > 0	Percent TC>0	Resamples TC > 0	Samples TC > 10	Samples >0	Samples Collected	Samples >1 NTU	Median mg/L as CL2	Median ° C
JAN	39	1	2.6	0	0	0	8	0	1.47	7.3
FEB	32	0	0	0	0	0	7	0	1.61	5.7
MAR	31	0	0	0	0	0	7	0	1.45	7.6
APR	33	0	0	0	0	0	7	0	1.27	10.1
MAY	25	0	0	0	0	0	5	0	1.37	12.6
JUN	38	0	0	0	0	0	8	0	1.47	15.2
JUL	37	0	0	0	0	0	8	0	1.45	17.6
AUG	33	0	0	0	0	0	7	0	1.26	19.2
SEP	33	0	0	0	0	0	7	0	1.32	18.4
OCT	40	0	0	0	0	0	10	1	1.11	14.5
NOV	34	0	0	0	0	0	7	0	0.82	11
DEC	26	0	0	0	0	0	6	0	0.98	9.6
Total:	401	1	0.2	0	0	0	87	1	1.31	12.3

Notes:
TC = Total Coliforms, *E. coli* = *Escherichia coli,* Cl_2 = chlorine, NTU = Nephelometric turbidity unit
> = Greater than, mg/L = milligrams per litre, °C = degrees Celsius

Chlorine Residual. The annual median chlorine residual in the Sooke/East Sooke Distribution System was 1.31 mg/L (Table 5, Figure 32). The lowest monthly median was in November (0.82 mg/L), and the maximum monthly median was in February (1.61 mg/L). The Sooke/East Sooke system performed satisfactory in 2025 in terms of maintaining adequate chlorine residuals during the fall period when the chlorine demand is typically highest due to warm water conditions.

Water Temperature. The annual median water temperature in the Sooke/East Sooke Distribution System was 12.3°C, with monthly medians ranging between 5.7ºC (February) and 19.2°C (August) (Table 5).

Disinfection Byproducts. One location in the Sooke distribution system had 17 samples collected for disinfection byproducts. The annual average TTHM and HAA5 concentrations from six samples each were 29.0 and 22.5 µg/L, respectively, far below the Canadian guideline MAC (TTHM = 100; HAA5 = 80). In all five samples, the NDMA concentrations were below the detection limit of 1.9 ng/L and therefore well below the Canadian guideline MAC of 40 ng/L.

Physical/Chemical Parameters. The drinking water in the Sooke/East Sooke Distribution System had the following physical and chemical characteristics:

- Median pH: 7.7
- Median $CaCO_3$ Hardness: 17.70 mg/L
- Median Colour: 5.0 TCU
- Median Alkalinity: 17.70 mg/L
- Median Turbidity: 0.25 NTU
- Median Conductivity (25ºC): 60.40 µS/cm

Two routine grab samples from this distribution system exhibited elevated turbidity of >1 NTU (Table 5). Both were collected at the rebuilt Coppermine pump station in October shortly after commissioning. The elevated values were likely associated with construction-related disturbances, such as air entrainment, in the new piping. Overall, the results are consistent with good drinking water quality.

Metals. The CRD Water Quality Monitoring Program for the Sooke/East Sooke system included bi-monthly metal tests in two strategic locations in 2025: first customer sampling station on Sooke River Road, and Whiffen Spit Road. All metallic parameters, including lead, were well below the Canadian guideline limits.

The Greater Victoria pH & Corrosion Study completed in 2021 concluded that metal corrosion and lead leaching in the public piping systems, as well as in the vast majority of private plumbing systems, is not an issue in the Greater Victoria Drinking Water System.

Compliance Status. The Sooke/East Sooke Distribution System was in full compliance with the *BC Drinking Water Protection Act* and *Drinking Water Protection Regulation* in 2025.

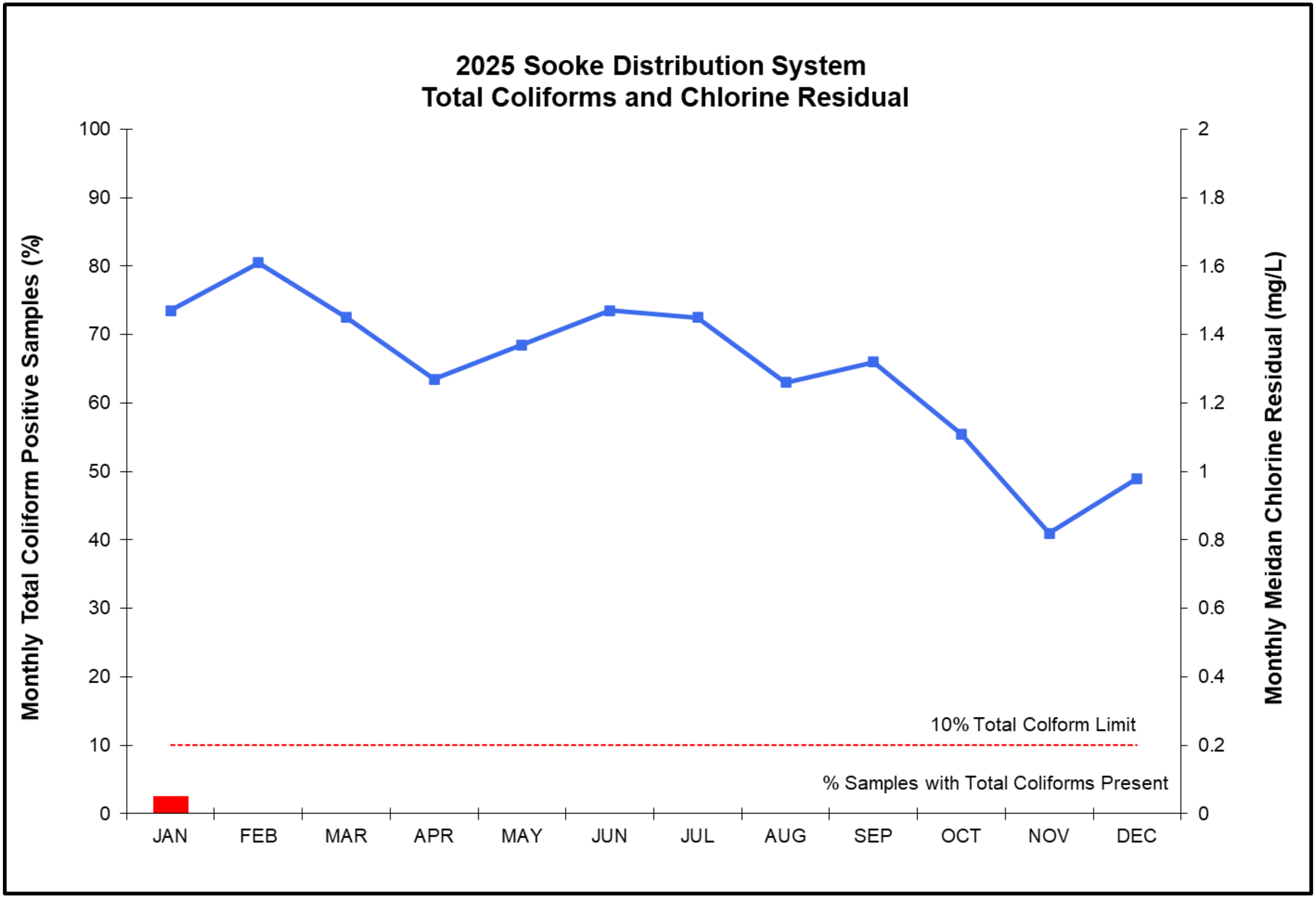


Figure 32 **Sooke/East Sooke Distribution System Total Coliforms and Chlorine Residual in 2025**

7.4.3 Central Saanich Distribution System (Owned and Operated by the District of Central Saanich)

In 2025, 11 sampling locations were used by the CRD Water Quality Monitoring Program to monitor the bacteriological quality of the water in the Central Saanich Distribution System. Central Saanich sampling stations are part of the daily distribution sampling runs by CRD staff.

Sample Collection. In 2025, 265 bacteriological and 197 water chemistry samples were collected from the Central Saanich Distribution System (Table 6). Based on current population data for the District of Central Saanich, 17 samples are required for bacteria testing each month. Table 6 shows the number of monthly samples collected and analyzed for compliance.

Bacteriological Results. No total coliform bacteria were found in any sample from the Central Saanich Distribution System in 2025. This system therefore complied with the 10% total coliform-positive limit and the 10 CFU/100 mL maximum limit every month in 2025 (Table 6).

None of the samples contained *E. coli* in 2025 (Table 7).

Chlorine Residual. The annual median chlorine residual in the Central Saanich Distribution System was 1.65 mg/L (Table 6). The lowest monthly median was in January and December (1.59 mg/L), and the maximum monthly median was in July (1.77 mg/L) (Figure 33, Table 6). Overall, chlorine residuals across the system were maintained at satisfactory levels in 2025.

Water Temperature. The annual median water temperature in the Central Saanich Distribution System was 12.2°C, with monthly medians ranging between 6.7°C (February) and 19.7°C (August) (Table 6).

Table 6 2025 Bacteriological Quality of the Central Saanich Distribution System

Month	Samples Collected	Total Coliforms (CFU/100mL)				*E.coli* CFU/100mL)	Turbidity		Chlorine Residual	Water Temp.
		Samples TC > 0	Percent TC>0	Resamples TC > 0	Samples TC > 10	Samples >0	Samples Collected	Samples >1 NTU	Median mg/L as CL2	Median ° C
JAN	23	0	0	0	0	0	9	1	1.59	8.1
FEB	21	0	0	0	0	0	8	0	1.61	6.7
MAR	23	0	0	0	0	0	8	0	1.68	8
APR	22	0	0	0	0	0	7	0	1.71	9.8
MAY	20	0	0	0	0	0	7	1	1.68	12.3
JUN	20	0	0	0	0	0	10	3	1.76	15.5
JUL	23	0	0	0	0	0	10	0	1.77	17.8
AUG	23	0	0	0	0	0	9	0	1.72	19.7
SEP	21	0	0	0	0	0	8	0	1.7	19.3
OCT	27	0	0	0	0	0	9	0	1.61	15.2
NOV	20	0	0	0	0	0	9	0	1.6	12.1
DEC	22	0	0	0	0	0	9	2	1.59	10.2
Total:	265	0	0	0	0	0	103	7	1.65	12.2

Notes:
TC = Total Coliforms, *E. coli* = *Escherichia coli,* Cl_2 = chlorine, NTU = Nephelometric turbidity unit
> = Greater than, mg/L = milligrams per litre, °C = degrees Celsius

Disinfection Byproducts. No data for 2025.

Physical/Chemical Parameters. The drinking water in the Central Saanich Distribution System had the following physical and chemical characteristics in 2025:

- Median pH: 7.9
- Median Turbidity: 0.30 NTU
- Median Colour: 5.0 TCU
- Median Alkalinity: 18.10 mg/L
- Median Conductivity (25ºC): 56.70 µS/cm

Seven samples collected over the year showed elevated turbidity >1 NTU: (Table 6). One elevated result was attributed to a spot flush conducted by municipal staff immediately before sampling. The remaining elevated results were linked to insufficient flushing at sampling stations with long sampling lines that tend to accumulate sediment (1701 Verling Avenue; 3018 Island View Road). Sampling staff were reminded of the required flushing procedures.

Metals. No data for 2025.

The Greater Victoria pH & Corrosion Study completed in 2021 concluded that metal corrosion and lead leaching in the public piping systems, as well as in the vast majority of private plumbing systems, is not an issue in the Greater Victoria Drinking Water System.

Compliance Status. The Central Saanich Distribution System was in full compliance with the *BC Drinking Water Protection Act* and *Drinking Water Protection Regulation* in 2025.

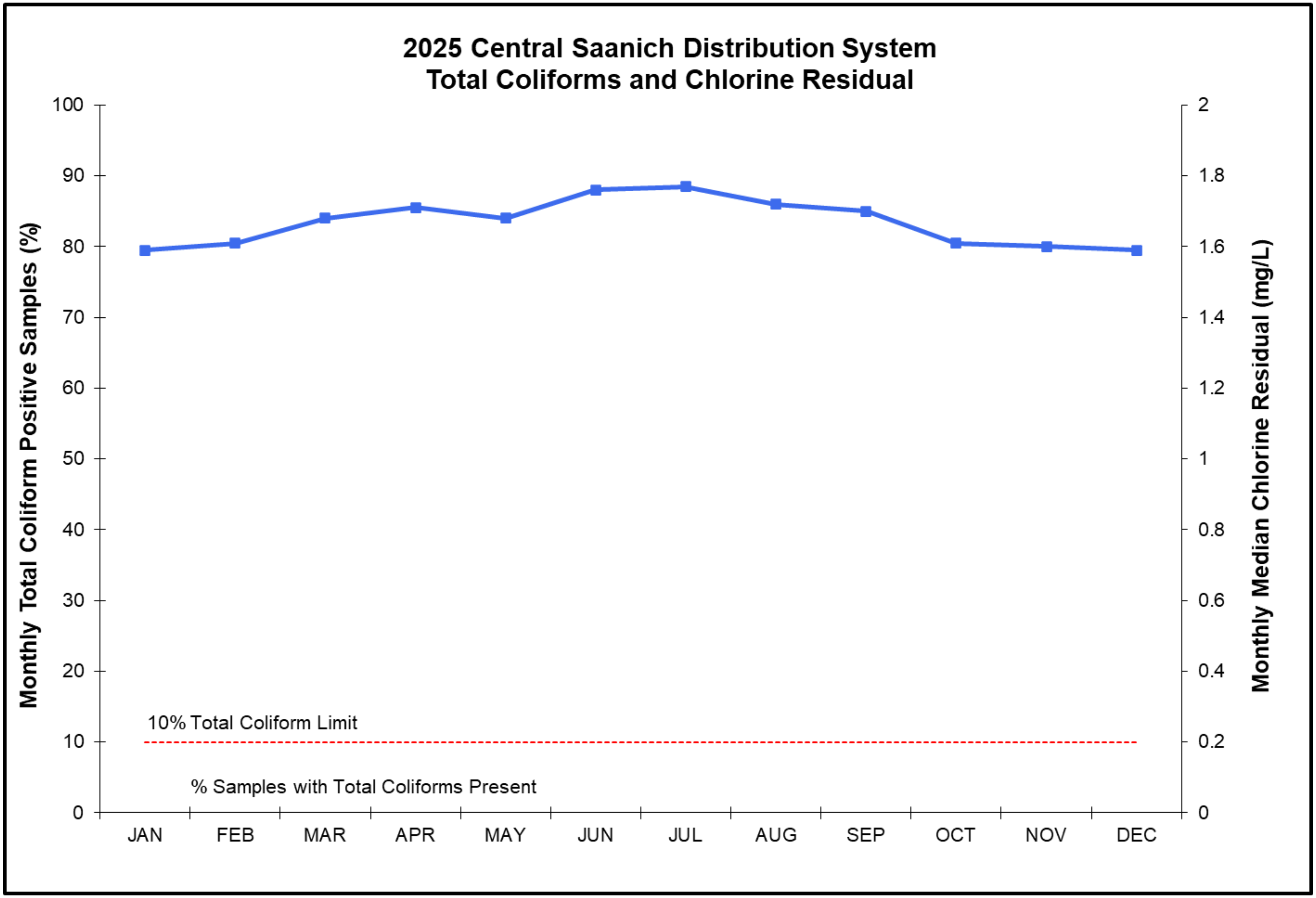


Figure 33 Central Saanich Distribution System Total Coliforms and Chlorine Residual in 2025

7.4.4 North Saanich Distribution System (Owned and Operated by the District of North Saanich)

In 2025, eight sampling locations were used by the CRD Water Quality Monitoring Program to monitor the bacteriological quality of the water in the North Saanich Distribution System. North Saanich sampling stations are part of the daily distribution sampling runs by CRD staff.

Sample Collection. In 2025, 217 bacteriological and 73 water chemistry samples were collected from the North Saanich Distribution System (Table 7). Based on current population data for the District of North Saanich, 13 samples are required for bacteria testing each month. Table 7 shows the number of monthly samples collected and analyzed for compliance.

Bacteriological Results. No total coliform bacteria were found in any sample from the North Saanich Distribution System in 2025. This system therefore complied with the 10% total coliform-positive limit and the 10 CFU/100 mL maximum limit every month in 2025 (Table 7).

None of the samples contained *E. coli* in 2025 (Table 7).

Table 7 2025 Bacteriological Quality of the North Saanich Distribution System

Month	Samples Collected	Total Coliforms (CFU/100mL)				*E.coli* CFU/100mL)	Turbidity		Chlorine Residual	Water Temp.
		Samples TC > 0	Percent TC>0	Resamples TC > 0	Samples TC > 10	Samples >0	Samples Collected	Samples >1 NTU	Median mg/L as CL2	Median ° C
JAN	19	0	0	0	0	0	2	0	1.32	8.4
FEB	17	0	0	0	0	0	1	0	1.4	7
MAR	19	0	0	0	0	0	1	0	1.4	8
APR	16	0	0	0	0	0	2	0	1.46	9.6
MAY	16	0	0	0	0	0	1	0	1.62	12.2
JUN	16	0	0	0	0	0	1	0	1.63	14.6
JUL	21	0	0	0	0	0	2	0	1.61	17.2
AUG	19	0	0	0	0	0	1	0	1.66	19.1
SEP	19	0	0	0	0	0	1	0	1.6	19.1
OCT	21	0	0	0	0	0	1	0	1.51	15.4
NOV	16	0	0	0	0	0	1	0	1.43	12.3
DEC	18	0	0	0	0	0	1	0	1.4	10.5
Total:	217	0	0	0	0	0	15	0	1.51	12.4

Notes:
TC = Total Coliforms, *E. coli* = *Escherichia coli,* Cl_2 = chlorine, NTU = Nephelometric turbidity unit
> = Greater than, mg/L = milligrams per litre, °C = degrees Celsius

Chlorine Residual. The annual median chlorine residual in the North Saanich Distribution System was 1.51 mg/L (Table 7). The lowest monthly median was in January (1.32 mg/L) and the maximum monthly median was in August (1.66 mg/L) (Figure 34, Table 7). In general, chlorine residuals were adequate and were slightly higher and more consistent than in previous years.

Water Temperature. The annual median water temperature in the North Saanich Distribution System was 12.4°C, with monthly medians ranging between 7.0°C (February) and 19.1°C (August, September) (Table 7).

Disinfection Byproducts. No data in 2025.

Physical/Chemical Parameters. The drinking water in the North Saanich Distribution System had the following physical and chemical characteristics in 2025:

- Median pH: 7.8
- Median Colour: 6.0 TCU
- Median Turbidity: 0.25 NTU
- Median Alkalinity: 18.40 mg/L
- Median Conductivity (25ºC): 57.80 µS/cm

No routine grab sample from this distribution system showed elevated turbidity (>1 NTU) at any point during the year (Table 7). These results indicate generally good drinking water quality.

Metals. No data in 2025.

The Greater Victoria pH & Corrosion Study completed in 2021 concluded that metal corrosion and lead leaching in the public piping systems, as well as in the vast majority of private plumbing systems, is not an issue in the Greater Victoria Drinking Water System.

Compliance Status. The North Saanich Distribution System was in full compliance with the *BC Drinking Water Protection Act* and *Drinking Water Protection Regulation* in 2025.

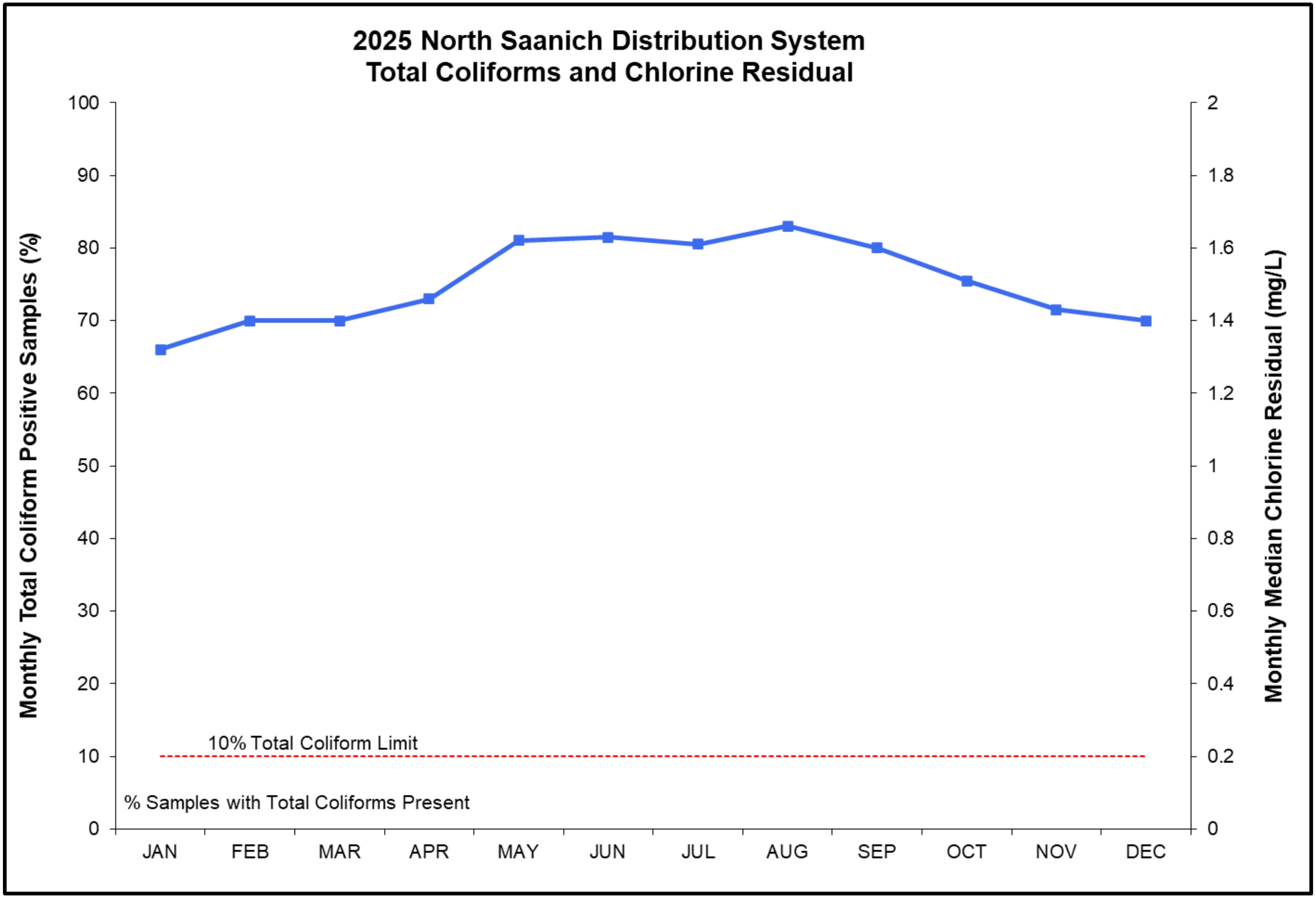


Figure 34 North Saanich Distribution System Total Coliforms and Chlorine Residual in 2025

7.4.5 Oak Bay Distribution System (Owned and Operated by the District of Oak Bay)

In 2025, eight sampling locations were used by the CRD Water Quality Monitoring Program to monitor the bacteriological quality of the water in the Oak Bay Distribution System. Oak Bay sampling stations are part of the daily distribution sampling runs by CRD staff.

Sample Collection. In 2025, 281 bacteriological and 159 water chemistry samples were collected from the Oak Bay Distribution System (Table 8). Based on current population data for the District of Oak Bay, 20 samples are required for bacteria testing each month. Table 8 shows the number of monthly samples collected and analyzed for compliance.

Bacteriological Results. No total coliform bacteria were found in any sample throughout the year. This system therefore complied with the 10% total coliform-positive limit and the 10 CFU/100 mL maximum limit every month in 2025 (Table 8).

No *E. coli* bacteria were found in any sample collected in 2025 (Table 8).

Chlorine Residual. The annual median chlorine residual in the Oak Bay Distribution System was 1.71 mg/L (Table 8). The lowest monthly median was in November (1.40 mg/L) and the maximum monthly median was in July (1.84 mg/L) (Figure 35). Overall, chlorine residuals across the system were maintained at satisfactory levels in 2025.

Water Temperature. The annual median water temperature in the Oak Bay Distribution System was 12.8°C, with monthly medians ranging between 6.4°C (February) and 20.3°C (August) (Table 8).

Table 8 2025 Bacteriological Quality of the Oak Bay Distribution System

Month	Samples Collected	Total Coliforms (CFU/100mL)				*E.coli* CFU/100mL)	Turbidity		Chlorine Residual	Water Temp.
		Samples TC > 0	Percent TC>0	Resamples TC > 0	Samples TC > 10	Samples >0	Samples Collected	Samples >1 NTU	Median mg/L as CL2	Median ° C
JAN	24	0	0	0	0	0	3	0	1.72	8.1
FEB	22	0	0	0	0	0	2	0	1.77	6.4
MAR	23	0	0	0	0	0	2	0	1.68	8.4
APR	24	0	0	0	0	0	2	0	1.72	10.7
MAY	23	0	0	0	0	0	2	0	1.72	13.1
JUN	24	0	0	0	0	0	2	0	1.81	15.2
JUL	25	0	0	0	0	0	3	0	1.84	18.7
AUG	23	0	0	0	0	0	2	0	1.76	20.3
SEP	23	0	0	0	0	0	2	0	1.7	20.1
OCT	26	0	0	0	0	0	3	0	1.56	16
NOV	22	0	0	0	0	0	4	1	1.4	12.2
DEC	22	0	0	0	0	0	3	0	1.55	10.4
Total:	281	0	0	0	0	0	30	1	1.71	12.8

Notes:
TC = Total Coliforms, *E. coli* = *Escherichia coli,* Cl_2 = chlorine, NTU = Nephelometric turbidity unit
> = Greater than, mg/L = milligrams per litre, °C = degrees Celsius

Disinfection Byproducts. No data for 2025.

Physical/Chemical Parameters. The drinking water in the Oak Bay Distribution System had the following physical and chemical characteristics:

- Median pH: 7.9
- Median Alkalinity: 18.50 mg/L
- Median Turbidity: 0.25 NTU
- Median Conductivity (25ºC): 57.70 µS/cm
- Median Colour: 5.0 TCU

Only one routine grab sample in November from this distribution system exhibited an elevated turbidity of >1 NTU all year (Table 8). This indicates good drinking water quality in general.

Metals. No data in 2025.

The Greater Victoria pH & Corrosion Study completed in 2021 concluded that metal corrosion and lead leaching in the public piping systems, as well as in the vast majority of private plumbing systems, is not an issue in the Greater Victoria Drinking Water System.

Compliance Status. The Oak Bay Distribution System was in full compliance with the *BC Drinking Water Protection Act* and *Drinking Water Protection Regulation* in 2025.

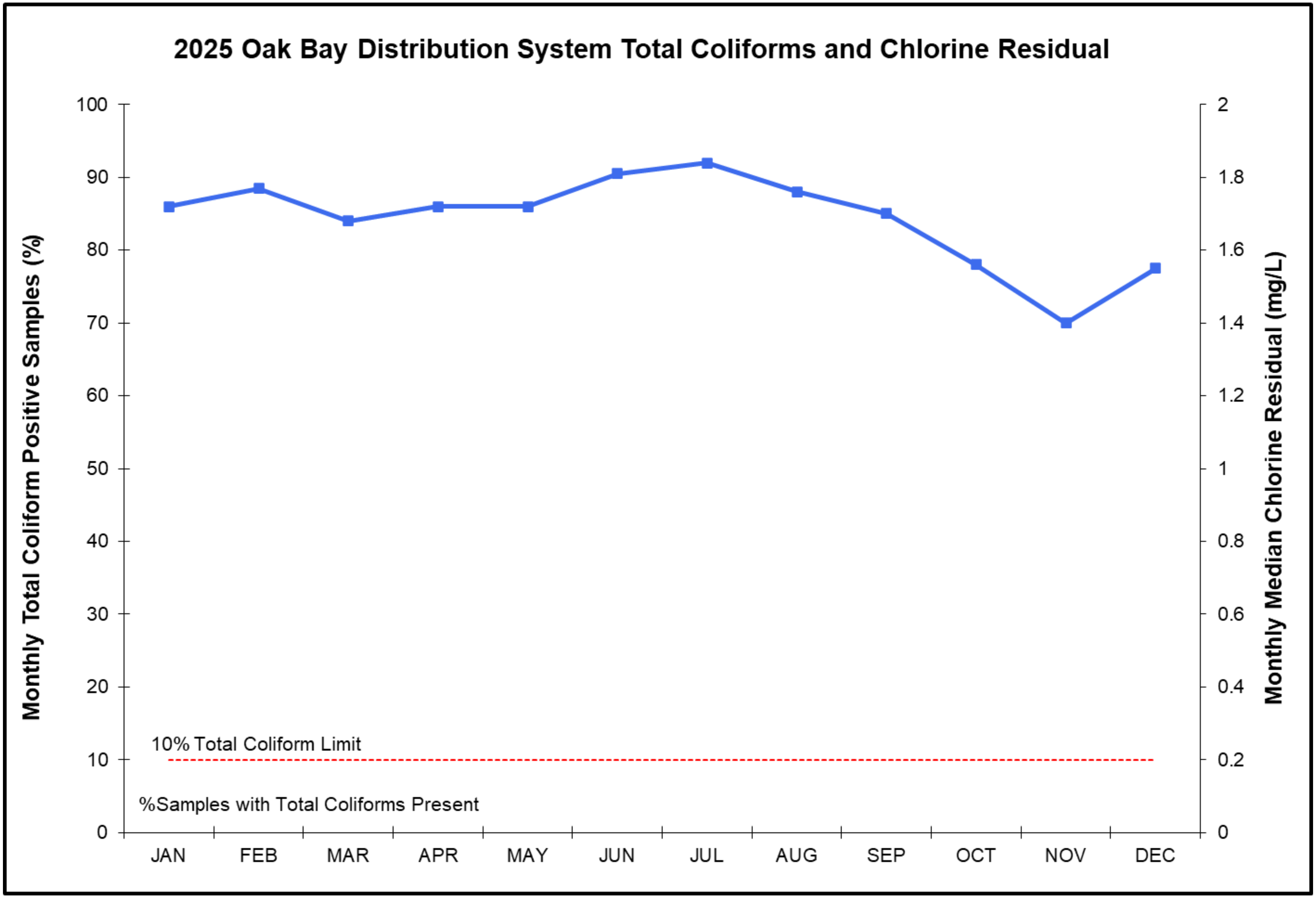


Figure 35 Oak Bay Distribution System Total Coliforms and Chlorine Residual in 2025

7.4.6 Saanich Distribution System (Owned and Operated by the District of Saanich)

In 2025, 66 sampling locations were used by the CRD Water Quality Monitoring Program to monitor the bacteriological quality of the water in the Saanich Distribution System. Saanich sampling stations were part of the daily distribution sampling runs by CRD staff and a weekly run by Saanich staff.

Sample Collection. In 2025, 1,182 bacteriological and 137 water chemistry samples were collected from the Saanich Distribution System (Table 9). Based on current population data for the District of Saanich, 94 samples are required for bacteria testing each month. Table 9 shows the number of monthly samples collected and analyzed for compliance.

Bacteriological Results. Total coliforms were detected in seven samples over the year (Table 9). On two occasions in July, the resamples collected after an initial positive result were also positive. On July 7, a routine bacteriological sample from the Cedar Glen Road sampling station showed high total coliform concentrations. A resample on July 9 again showed high concentrations. Saanich staff conducted a spot flush after the first resample, however a further resample on July 11 remained positive, though at lower levels. Following this third consecutive positive result, Saanich carried out an area flush. Subsequent samples from the flushed area were free of total coliform bacteria.

Three samples in total exceeded the 10 CFU/100 mL threshold in 2025. The system met the regulatory requirement of no more than 10% total-coliform-positive samples in each month, and the annual percentage of positives was well below the limit at 0.8% (Table 9).

One bacteriological sample tested positive for *E. coli* in 2025 (Table 9). This occurred on October 10 at the PRV Ash/Cordova Bay Road. CRD and Saanich staff initiated emergency response procedures, flushed the area, and collected resamples including from up- and downstream locations. All resamples were free of *E. coli*. The bacteria were likely introduced during sampling or subsequent sample handling.

Chlorine Residual. The annual median chlorine residual in the Saanich Distribution System was 1.61 mg/L (Table 9). The lowest monthly median was in October (1.47 mg/L) and the maximum monthly median was in August (1.75 mg/L) (Figure 36). Overall, chlorine residuals across the system were maintained at satisfactory levels in 2025.

Water Temperature. The annual median water temperature in the Saanich Distribution System was 12.4°C, with monthly medians ranging between 6.2°C (February) and 20.1°C (August) (Table 9).

Table 9 2025 Bacteriological Quality of the Saanich Distribution System

Month	Samples Collected	Total Coliforms (CFU/100mL)				*E.coli* CFU/100mL)	Turbidity		Chlorine Residual	Water Temp.
		Samples TC > 0	Percent TC>0	Resamples TC > 0	Samples TC > 10	Samples >0	Samples Collected	Samples >1 NTU	Median mg/L as CL2	Median ° C
JAN	101	0	0	0	0	0	4	0	1.58	7.6
FEB	95	0	0	0	0	0	3	0	1.61	6.2
MAR	96	0	0	0	0	0	3	0	1.58	7.9
APR	99	1	1	0	0	0	3	0	1.62	10
MAY	96	0	0	0	0	0	4	1	1.61	12.5
JUN	98	1	1	0	0	0	5	0	1.72	14.8
JUL	107	3	2.8	2	2	0	4	0	1.7	17.9
AUG	95	0	0	0	0	0	5	0	1.75	20.1
SEP	96	0	0	0	0	0	4	0	1.62	20
OCT	105	1	1	0	1	1	5	0	1.47	15.2
NOV	98	1	1	0	0	0	5	0	1.55	12
DEC	96	0	0	0	0	0	4	0	1.53	10.1
Total:	1182	7	0.6	2	3	1	49	1	1.61	12.4

Notes:
TC = Total Coliforms, *E. coli* = *Escherichia coli,* Cl_2 = chlorine, NTU = Nephelometric turbidity unit
> = Greater than, mg/L = milligrams per litre, °C = degrees Celsius

Disinfection Byproducts. No data for 2025.

Physical/Chemical Parameters. The drinking water in the Saanich Distribution System had the following physical and chemical characteristics in 2025:

- Median pH: 7.9
- Median Alkalinity: 18.4 mg/L
- Median Turbidity: 0.30 NTU
- Median Conductivity (25ºC): 58.30 μS/cm
- Median Colour: 5.5 TCU

Only 1 of 49 samples collected in 2025 showed elevated turbidity >1 NTU (Table 9). This result was likely caused by insufficient line flushing prior to sampling. This indicates good drinking water quality in general.

Metals. No data in 2025.

The Greater Victoria pH & Corrosion Study completed in 2021 concluded that metal corrosion and lead leaching in the public piping systems, as well as in the vast majority of private plumbing systems, is not an issue in the Greater Victoria Drinking Water System.

Compliance Status. The Saanich Distribution System was in compliance with the *BC Drinking Water Protection Act* and *Drinking Water Protection Regulation* in 2025, except in July and October when three total coliform positive results exceeded the 10 CFU/100 mL threshold, and one sample in October tested positive for *E. coli* bacteria.

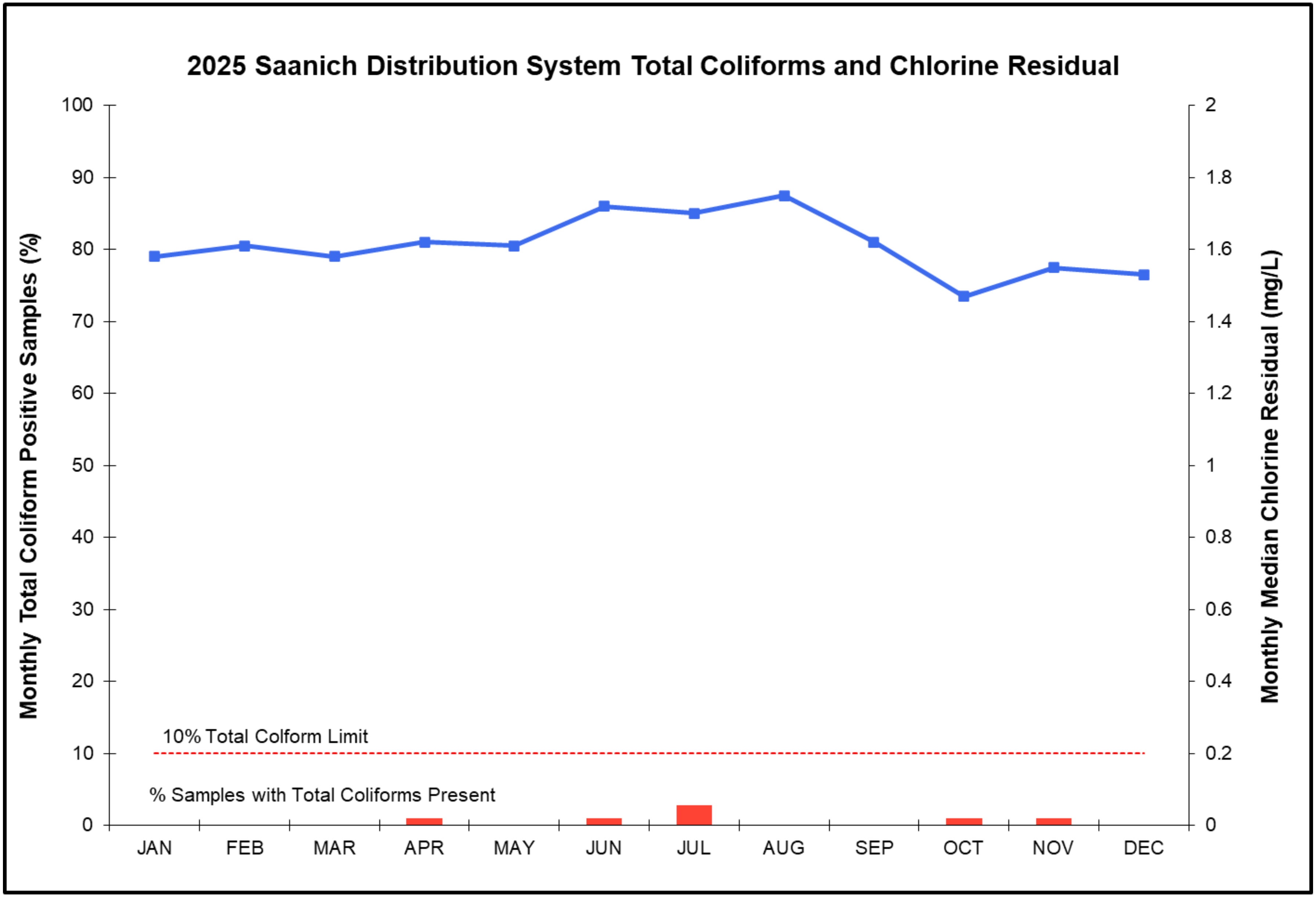


Figure 36 Saanich Distribution System Total Coliforms and Chlorine Residuals in 2025

7.4.7 Sidney Distribution System (Owned and Operated by the Town of Sidney)

In 2025, eight sampling locations were used by the CRD Water Quality Monitoring Program to monitor the bacteriological quality of the water in the Sidney Distribution System. Sidney sampling stations are part of the daily distribution sampling runs by CRD staff.

Sample Collection. In 2025, 204 bacteriological and 70 water chemistry samples were collected from the Sidney Distribution System (Table 10). Based on current population data for the Town of Sidney, 14 samples are required for bacteria testing each month. Table 10 shows the number of monthly samples collected and analyzed for compliance.

Bacteriological Results. Only one sample in 2025 tested positive for total coliform bacteria, and concentrations were low. An immediate resample was free of total coliform bacteria. This system complied with the 10% total coliform-positive limit and the 10 CFU/100 mL maximum limit in every month of 2025 (Table 10).

No sample tested positive for *E. coli* in 2025 (Table 10).

Chlorine Residual. The annual median chlorine residual in the Sidney Distribution System was 1.63 mg/L (Table 10). The lowest monthly median was in January/December (1.52 mg/L) and the maximum monthly median was in August (1.68 mg/L) (Figure 37). In general, chlorine residuals were adequate and were slightly higher and more consistent than in previous years.

Water Temperature. The annual median water temperature in the Sidney Distribution System was 12.6°C, with monthly medians ranging between 6.3°C (February) and 19.9°C (August) (Table 10).

Table 10 2025 Bacteriological Quality of the Sidney Distribution System

Month	Samples Collected	Total Coliforms (CFU/100mL)				*E.coli* CFU/100mL)	Turbidity		Chlorine Residual	Water Temp.
		Samples TC > 0	Percent TC>0	Resamples TC > 0	Samples TC > 10	Samples >0	Samples Collected	Samples >1 NTU	Median mg/L as CL2	Median ° C
JAN	17	0	0	0	0	0	1	0	1.52	8.1
FEB	16	0	0	0	0	0	1	0	1.63	6.3
MAR	17	0	0	0	0	0	1	0	1.6	8.1
APR	16	0	0	0	0	0	1	0	1.65	10.1
MAY	16	0	0	0	0	0	2	0	1.67	12.3
JUN	17	0	0	0	0	0	2	0	1.66	14.8
JUL	20	1	5	0	0	0	1	0	1.67	17.4
AUG	18	0	0	0	0	0	1	0	1.68	19.9
SEP	17	0	0	0	0	0	1	0	1.63	19.8
OCT	18	0	0	0	0	0	1	0	1.58	16.2
NOV	16	0	0	0	0	0	1	0	1.6	12.3
DEC	16	0	0	0	0	0	1	0	1.52	10.3
Total:	204	1	0.5	0	0	0	14	0	1.63	12.6

Notes:
TC = Total Coliforms, *E. coli* = *Escherichia coli,* Cl_2 = chlorine, NTU = Nephelometric turbidity unit
> = Greater than, mg/L = milligrams per litre, °C = degrees Celsius

Disinfection Byproducts. No data for 2025.

Physical/Chemical Parameters. The drinking water in the Sidney Distribution System had the following physical and chemical characteristics in 2025:

- Median pH: 7.8
- Median Alkalinity: 18.10 mg/L
- Median Turbidity: 0.22 NTU

- Median Conductivity (25ºC): 57.40 µS/cm
- Median Colour: 4.5 TCU

No routine grab sample from this distribution system showed elevated turbidity (>1 NTU) at any point during the year (Table 10). These results indicate generally good drinking water quality.

Metals. No data in 2025.

The Greater Victoria pH & Corrosion Study completed in 2021 concluded that metal corrosion and lead leaching in the public piping systems, as well as in the vast majority of private plumbing systems, is not an issue in the Greater Victoria Drinking Water System.

Compliance Status. The Sidney Distribution System was in full compliance with the *BC Drinking Water Protection Act* and *Drinking Water Protection Regulation* in 2025.

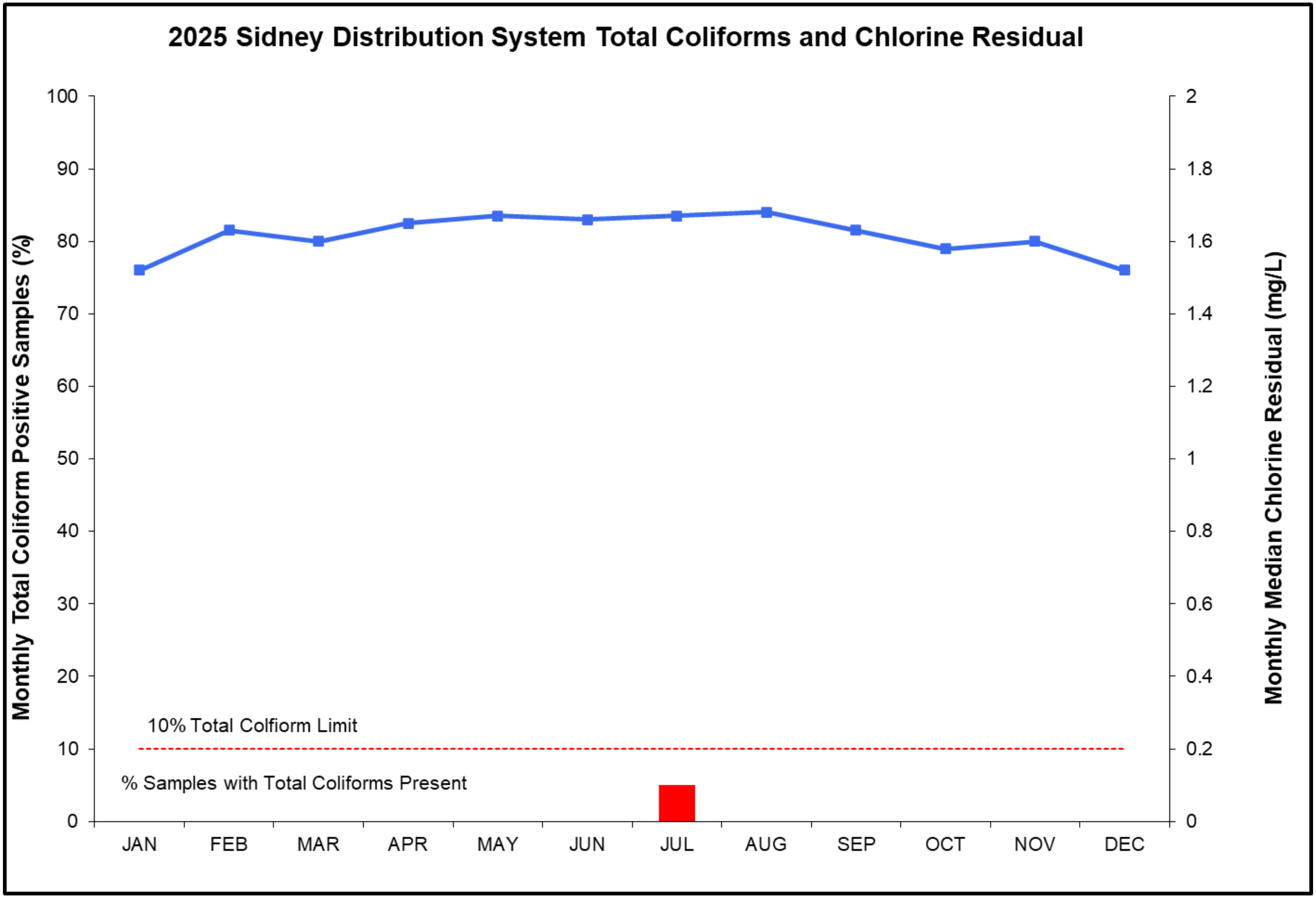


Figure 37 Sidney Distribution System Total Coliforms and Chlorine Residuals in 2025

7.4.8 Victoria/Esquimalt Distribution System (Owned and Operated by the City of Victoria)

In 2025, 17 sampling locations were used by the CRD Water Quality Monitoring Program to monitor the bacteriological quality of the water in the Victoria/Esquimalt Distribution System. Victoria/Esquimalt sampling stations are part of the daily distribution sampling runs by CRD staff.

Sample Collection. In 2025, 1,219 bacteriological and 213 water chemistry samples were collected from the Victoria/Esquimalt Distribution System (Table 11). Based on current population data for Victoria and Esquimalt, 93 samples are required for bacteria testing each month. Table 11 shows the number of monthly samples collected and analyzed for compliance.

Bacteriological Results. One sample collected on October 10 tested positive for elevated concentrations of total coliform bacteria (10 CFU/100 mL) and *E. coli* bacteria (2 CFU/100 mL) (Table 11). All resamples collected on October 11 from the same location, as well as from up- and downstream sites, were free of indicator bacteria.

Because the October 10 sample contained exactly 10 CFU/100 mL of total coliforms, it did not exceed the regulatory maximum limit. The system also met the requirement that no more than 10% of samples be total coliform positive in any month, and the annual percentage of positives remained well below the limit at 0.1% (Table 11).

The October 10 sample that tested positive for *E. coli* was collected at the sampling station Langford Street / Fullerton Avenue in Esquimalt. CRD and City staff initiated emergency response procedures, flushed the area, and collected resamples including from up- and downstream locations. All resamples were free of *E. coli*. The bacteria were likely introduced during sampling or subsequent sample handling.

Chlorine Residual. The annual median chlorine residual in the Victoria/Esquimalt Distribution System was 1.67 mg/L (Table 11). The lowest monthly median was in November (1.57 mg/L) and the maximum monthly median was in January (1.76 mg/L) (Figure 38). In general, chlorine residuals were adequate and were slightly higher and more consistent than in previous years.

Water Temperature. The annual median water temperature in the Victoria/Esquimalt Distribution System was 13.0°C, with monthly medians ranging between 6.3°C (February) and 20.2°C (September) (Table 11).

Table 11 2025 Bacteriological Quality of the Victoria Distribution System

Month	Samples Collected	Total Coliforms (CFU/100mL)				*E.coli* CFU/100mL)	Turbidity		Chlorine Residual	Water Temp.
		Samples TC > 0	Percent TC>0	Resamples TC > 0	Samples TC > 10	Samples >0	Samples Collected	Samples >1 NTU	Median mg/L as CL2	Median ° C
JAN	105	0	0	0	0	0	9	1	1.76	7.7
FEB	96	0	0	0	0	0	7	0	1.73	6.3
MAR	99	0	0	0	0	0	7	0	1.7	8.2
APR	113	0	0	0	0	0	7	0	1.67	11.2
MAY	98	0	0	0	0	0	7	0	1.62	13.8
JUN	96	0	0	0	0	0	8	0	1.67	16.9
JUL	116	0	0	0	0	0	8	0	1.72	19.2
AUG	98	0	0	0	0	0	6	0	1.71	21
SEP	106	0	0	0	0	0	7	0	1.63	20.2
OCT	101	1	1	0	0	1	4	0	1.62	15.9
NOV	95	0	0	0	0	0	5	0	1.57	11.9
DEC	96	0	0	0	0	0	5	0	1.64	10.1
Total:	1219	1	0.1	0	0	1	80	1	1.67	13

Notes:
TC = Total Coliforms, *E. coli* = *Escherichia coli,* Cl_2 = chlorine, NTU = Nephelometric turbidity unit
> = Greater than, mg/L = milligrams per litre, °C = degrees Celsius

Disinfection Byproducts. No data for 2025.

Physical/Chemical Parameters. The drinking water in the Victoria/Esquimalt Distribution System had the following physical and chemical characteristics in 2025:

- Median pH: 7.8
- Median Alkalinity: 18.20 mg/L
- Median Turbidity: 0.25 NTU
- Median Conductivity (25ºC): 57.510 µS/cm
- Median Colour: 5.0 TCU

Only one routine grab sample from this distribution system showed elevated turbidity (>1 NTU) in 2025 (Table 11). Because this occurred in January, it was likely associated with the municipal watermain flushing program. Overall, the results indicate good drinking water quality.

Metals. No data in 2025.

The Greater Victoria pH & Corrosion Study completed in 2021 concluded that metal corrosion and lead leaching in the public piping systems, as well as in the vast majority of private plumbing systems, is not an issue in the Greater Victoria Drinking Water System.

Compliance Status. The Victoria/Esquimalt Distribution System was in compliance with the *BC Drinking Water Protection Act* and *Drinking Water Protection Regulation* in 2025, with the exception of October, when one sample tested positive for *E. coli* bacteria.

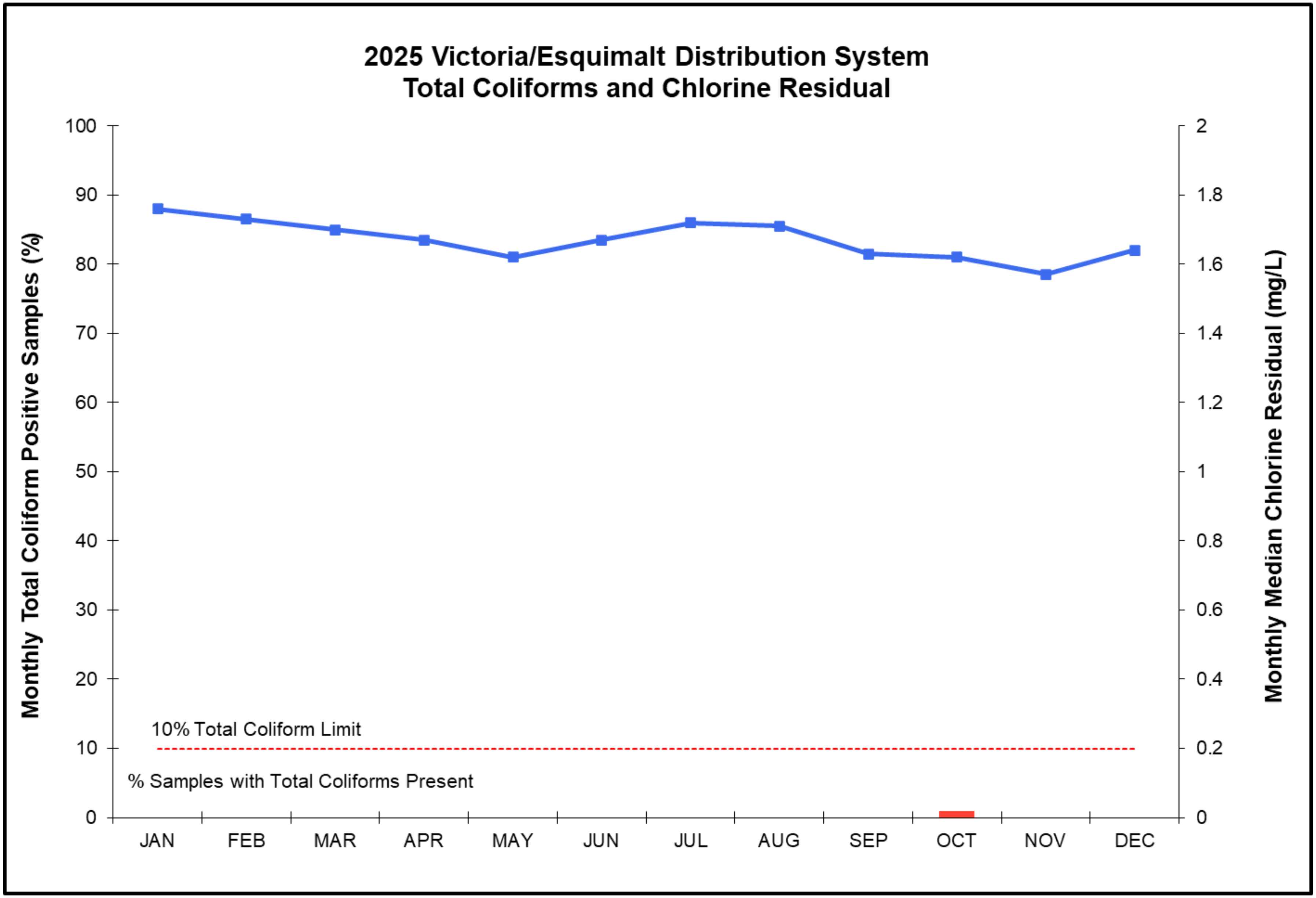


Figure 38 Victoria/Esquimalt Distribution System Total Coliforms and Chlorine Residuals in 2025

7.5 Water Quality Inquiry Program

Records of customer inquiries, including complaints about drinking water quality, have been maintained since 1992. In 2025, a total of 273 customer inquiries were received by phone, by email, or through the CRD website or social media. This number was typical compared to previous years, and no single category was represented disproportionately. Figure 39 shows the distribution of topics and categories of customer inquiries received in 2025.

7% of inquiries, down from 11% in 2024, were from people concerned about the general safety of their drinking water. These concerns were addressed individually, and most customers were reassured to learn that CRD staff actively sample both the source water and the treated drinking water delivered to their homes. Customers seeking more information about the composition of their drinking water were provided with the annual water quality tables or directed to the CRD website.

Coloured water inquiries accounted for 30% of all inquiries, an increase from 21% in 2024. Sediments in pipes can become stirred up during periods of water main flushing activities (January to May and September to December), fire hydrant inspections, and other operational work that changes the speed or direction of water flow. During these procedures, customers may experience cloudy or coloured water at their taps for a short time. The CRD communicates large or scheduled activities, such as the annual water main flushing program, through newspapers and social media. In areas with ongoing housing development and associated changes to drinking water infrastructure, episodes of coloured or turbid water are not uncommon. Staff receiving these inquiries remain in close contact with CRD and municipal operations staff to share relevant information or initiate corrective action. Coloured water can also result from seasonal source water quality events, such as green tinges in spring due to increased algal activity or yellow tinges in fall due to tannins from decaying leaves.

Customer inquiries regarding water pressure, service line leaks, and water meter issues were directed to CRD operators. Customers requesting information on how or where to have their water tested were provided with contact information for external laboratories.

Throughout the year, several inquiries or complaints related to taste and odour were received. These concerns ranged from chlorine to stale, musty, metallic, or fishy characteristics. Taste and odour issues can arise for several reasons. High chlorine taste or odour may occur during periods of high water demand or during the annual flushing program. Other tastes and odours may be linked to natural fluctuations in source water algal communities or areas of the distribution system with higher water age.

CRD staff communicated regularly with Island Health hospital facility management to provide water quality information. No complaints or concerns were raised by hospital staff in 2025.

Inquiries about metals, primarily lead, increased from 2% in 2024 to 9% in 2025. Customers seeking testing were provided with information about external laboratories. Staff also provided information about the potential for lead in tap water and recommended steps to verify lead levels at the tap, including support in interpreting sample results. Inquiries about laboratory testing decreased from 7% in 2024 to 1% in 2025.

Staff continued to receive inquiries about microplastics and forever chemicals (per and polyfluoroalkyl substances, PFAS), both of which remain prominent topics in the media. A small number of inquiries also related to the potential addition of fluoride to the drinking water, with some customers opposed and others in favour.

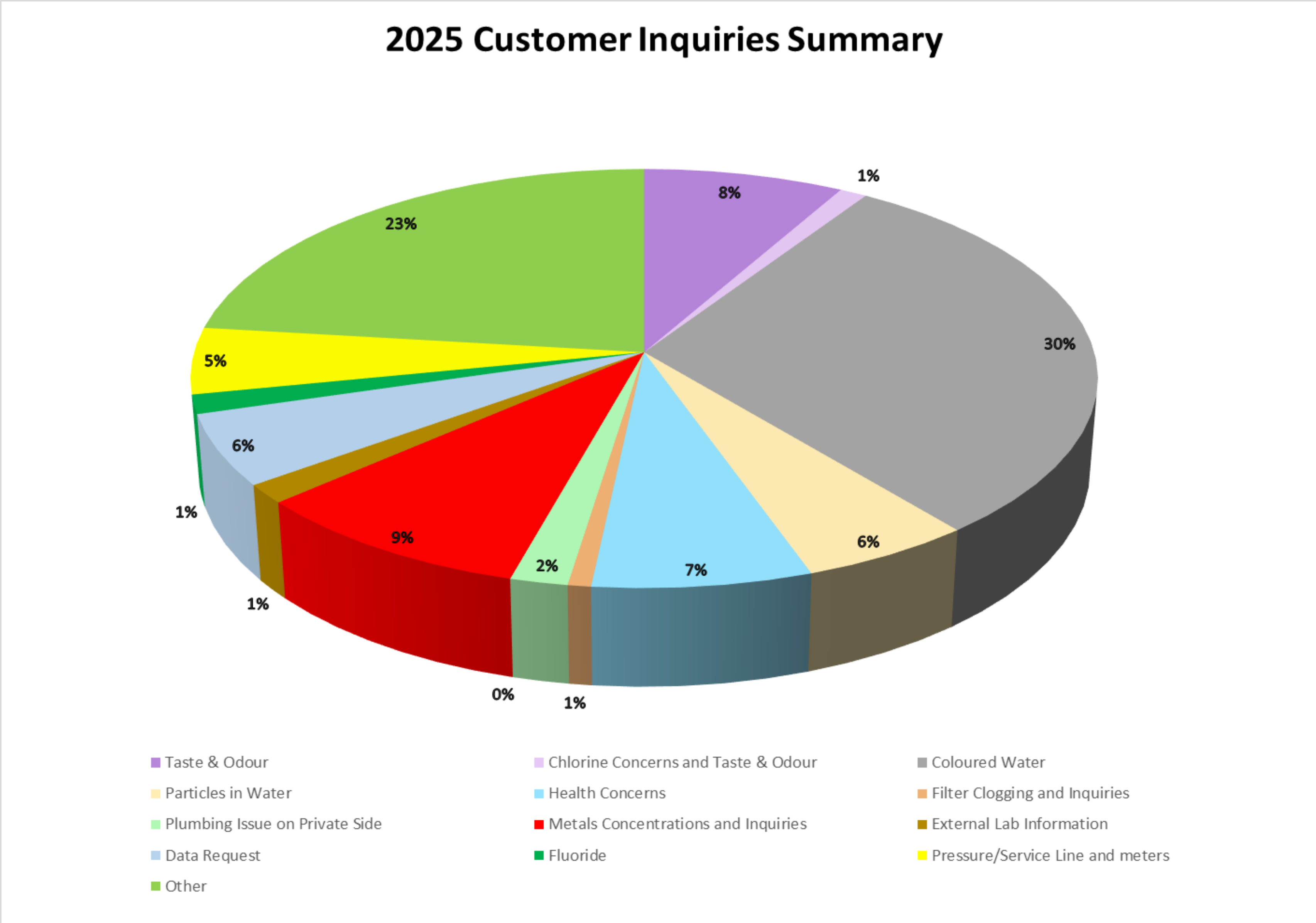


Figure 39 Summary of Customer Inquiry Categories in 2025

7.6 Cross Connection Control Program

The Capital Regional District Cross Connection Control Program has now been serving the region for twenty years. In 2005, the CRD was mandated by Island Health to design, implement and maintain a Cross Connection Control Program under bylaw to identify, eliminate and prevent cross connections. The program was established in 2006, and in June 2008 Bylaw No. 3516, the Capital Regional District Cross Connection Control Bylaw, was adopted. The program has since become a model for the sector and is frequently referenced as an example and industry standard in the water and wastewater field. In 2025, the program was recognized by the BC Water and Waste Association and received the Excellence and Innovation Water and Waste Industry Award for its outreach work on Cross Connection Control and Backflow Prevention.

The program is a key component of the CRD multi barrier approach to delivering safe drinking water to customers served by the GVDWS. Staff worked closely with Island Health and with building officials from the thirteen municipalities and participating electoral areas. Program staff also collaborated with more than two hundred BCWWA certified backflow testers and testing companies across the region, along with supporting public outreach.

Outreach activities included CRD backflow prevention campaigns, educational sessions and presentations with interest groups and institutions. A key event was the Annual Inspector Roundtable, a half day meeting that brought together regional interest holders to discuss topics related to cross connection and source control. Attendees included municipal building and engineering officials, CRD staff and Island Health representatives.

The program meets its objectives by enforcing Bylaw No. 3516 as it relates to backflow prevention requirements outlined in the National Building Code and the Canadian Standards Association B64 series. The program currently has approximately 32,000 devices registered across more than 16,000 facilities, representing a 62% increase over the past ten years due to regional growth and expansion of the drinking water system. In 2025, an average of 55 new devices per month were added to the registry (Figure 40).

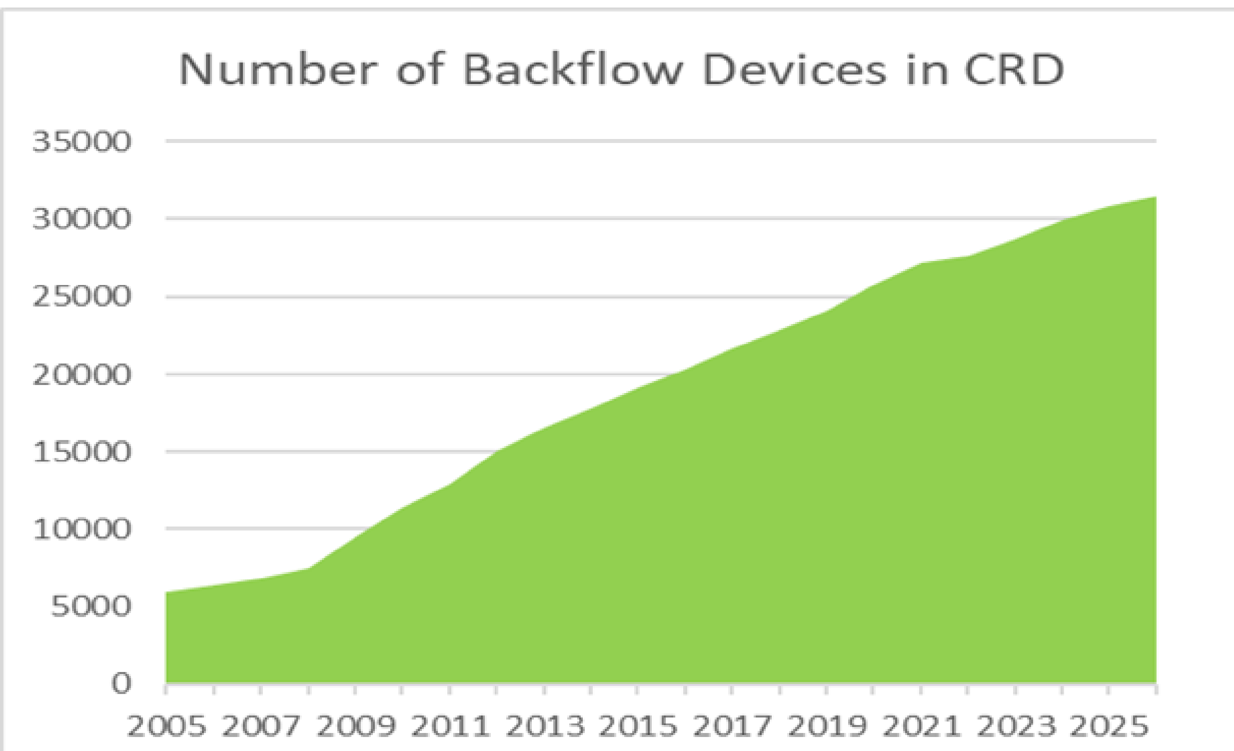
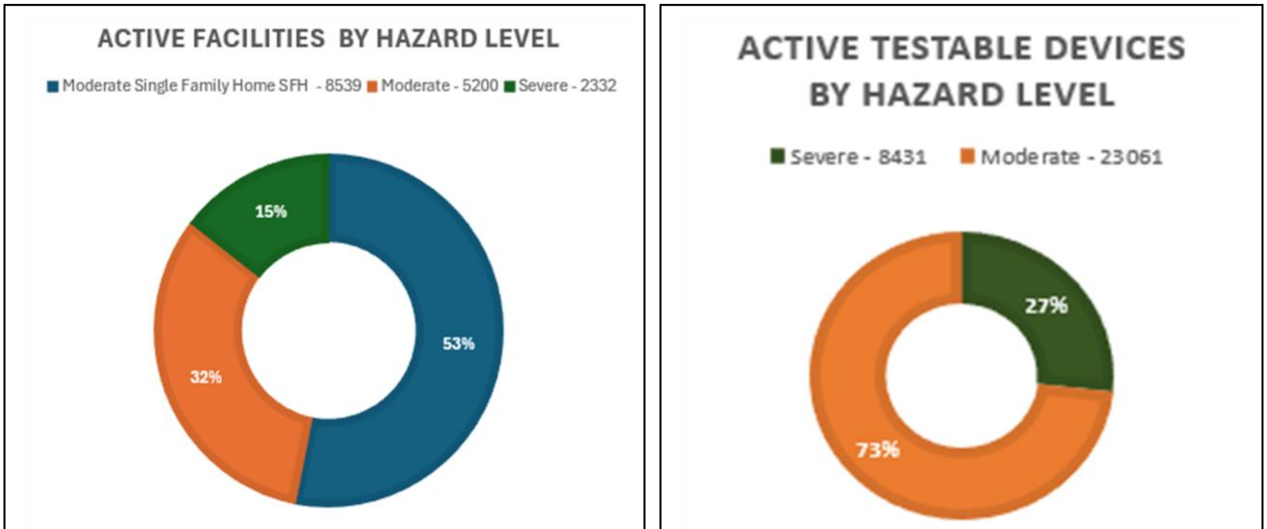


Figure 40 Historic Trend of Registered Backflow Devices in the CRD

Many registered devices require annual testing. In 2025, CRD staff processed more than 21,000 test submissions and conducted over 850 facility audits. Of these audits, 342 were moderate hazard facilities and 516 were severe hazard facilities, with a focus on industrial sites. Additional program statistics for 2025 are provided in Figure 41.

In 2025, the program began transitioning to a paperless process for test result reporting, which will improve data accuracy and processing efficiency.



Program Stats	
Numbers	**Dec 1, 2025**
Testable Devices	31,492
Severe	8,431
Moderate	23,061
Active Facilities	16,071
Severe	2,332
Moderate	13,739
Audit Compliance	97%
Testing Compliance	70%

Figure 41 CRD CCC Program Stats 2025

8.0 CONCLUSIONS

The water quality data collected in 2025 shows that drinking water in Greater Victoria was of good quality and safe to drink. Key observations from the year are summarized below.

Source Water:

- Drinking water temperature exceeded the aesthetic objective of 15°C from early July to early October. With roughly 12 weeks of exceedance, this was the second longest period on record since the dam was raised in 2004, surpassed only by 2024. The extended warm water conditions had some localized effects on chlorine residual concentrations in the system and resulted in a temporary unpleasant experience for the customers.

- After the extreme spike in total coliform concentrations observed in Sooke Lake Reservoir during parts of the summer of 2024, total coliform levels in the summer of 2025 were consistent with typical seasonal conditions. A single, much less severe increase occurred in August, reaching a peak of 800 CFU/100 mL on August 18. Although this peak remained below the current operational alert level for the Goldstream Water Treatment Plant, two total coliform positive results in the treated water below the plant on August 14 and 15 may have been linked to this raw water event. In response, the CRD is preparing to lower the alert level threshold.

- *E. coli* bacterial levels in the raw source water were generally below detection limit for the entire year. With only occasional spikes of up to 10 CFU/100 mL, *E. coli* levels were well below the filtration exemption criteria by BC Ministry of Health and USEPA.

- Sooke Lake Reservoir experienced higher algal concentrations during the summer of 2025, influenced by the warmer water conditions that persisted through the season. The algal species that were active and relatively abundant were all known, low-risk, non-toxin producing species. Algal species with the potential to cause taste and odour issues or to produce harmful cyanotoxins under bloom conditions were present, as they typically are throughout the year, but did not reach concerning levels. The reservoir's stable, nutrient poor ecosystem does not currently support the conditions required for cyanobacteria or other harmful algal blooms that could pose significant risks to drinking water quality. These naturally low nutrient conditions limit overall biological productivity in Sooke Lake Reservoir, which remains highly favourable for a drinking water source.

- *Giardia* and *Cryptosporidium* parasites concentrations were well below the levels commonly considered by the health authorities to be responsible for disease outbreaks. All samples collected in 2025 tested negative for *Giardia* and *Cryptosporidium* parasites; this is consistent with past years.

- On May 28, 2025, the Goldstream Water Treatment Plant experienced a turbidity exceedance during peak demand periods on watering days. This event was caused by high flows dislodging pipe sediments in the raw water mains upstream of the plant. The single exceedance represents an improvement over 2024, when four such events occurred.

- Per- and polyfluoroalkyl substances (PFAS) concentrations in the source water were below the analytical detection limit of 2 ng/L and therefore well below the current Health Canada objective of 30 ng/L.

Transmission and Distribution Systems:

- The analytical results in all CRD and municipal water systems show that the drinking water was of good quality and was safe for consumption throughout 2025.

- All systems did meet the monthly sampling requirements, as per *BC Drinking Water Protection Regulation.*

- The bacteriological test results from the CRD Supply Storage Reservoirs, the CRD Sooke/East Sooke System, Sidney, Central Saanich, North Saanich, and Oak Bay systems were in full compliance with the *BC Drinking Water Protection Regulation.*

- The bacteriological test results from CRD Transmission Mains were non-compliant in June, with two consecutive samples showing total coliform concentrations above the limit of 10 CFU/100 mL. Investigations found that the sampling line had fouled and caused the adverse results. All samples collected after the line was cleaned were negative for total coliform bacteria. The risk to drinking water quality from this non-compliance was very low. Overall, only 10 of 854 samples, or 1.2%, tested positive for total coliform bacteria, which is well below the maximum limit of 10%.

- The bacteriological test results from the CRD Juan de Fuca System were non-compliant in June and August, with one sample in each month showing total coliform concentrations above the limit of 10 CFU/100 mL. Three consecutive total coliform positives were also recorded in August. Investigations found old and stale water in two different locations caused these exceedances which were immediately addressed by staff. The risk to public health was low due to the short duration of the exceedances. Overall, only 12 of 1,092 samples, or 1.1%, tested positive for total coliform bacteria, which is well below the maximum limit of 10%. Also, for each individual month the percentage of total coliform positive was below the limit of 10%.

- The bacteriological test results from the Saanich System were non-compliant in July and October, with three samples showing total coliform concentrations above the limit of 10 CFU/100 mL, and three consecutive total coliform positives in July. One sample in October also tested positive for *E. coli.* In each case, extensive flushing by municipal staff resolved the exceedances, and resamples confirmed that the risk had been removed. The *E. coli* result was likely due to contamination introduced during sample collection. With only 7 of 1,182 samples, or 0.6%, testing positive for total coliform bacteria, the Saanich System was compliant with the max. 10% total coliform requirement for each month individually and overall.

- The bacteriological test results from the Victoria/Esquimalt System were non-compliant in October with one sample testing positive for *E. coli.* Extensive flushing by municipal staff resolved this exceedance, and resamples confirmed that the risk had been removed. The *E. coli* result was likely due to contamination introduced during sample collection. With only 1 of 1,219 samples, or 0.1%, testing positive for total coliform bacteria, the Victoria/Esquimalt System was compliant with the max. 10% total coliform requirement for each month individually and overall.

- The levels of the regulated disinfection byproducts trihalomethanes and haloacetic acids remained below the Canadian guideline limits and the even more stringent USEPA limits. The newly monitored disinfection byproduct, Nitrosodimethylamine, was not detected in any sample.

- Greater Victoria's drinking water exhibited a slightly higher colour rating in 2025 compared to 2024. This was related to the higher than usual algal activity during the summer. Some retail water customers also noticed this change.

- The number of water quality inquiries and complaints received by CRD staff in 2025 was comparable to previous years. Staff noticed more complaints and inquiries about the water colour or noticeable water discolouration. Approximately 9% of all inquiries were related to lead in drinking water.

- The 2025 Greater Victoria Nitrification Study found that, despite recent improvements in disinfectant residuals, the Greater Victoria Drinking Water System continues to experience seasonal nitrification in several reservoirs and parts of the distribution network. Declining chlorine residuals, elevated HPC counts, and measurable nitrite at higher water age locations confirm activity above industry action thresholds. The study recommends a system wide strategy with expanded monitoring, more consistent chloramine residuals, and targeted mitigation in priority reservoirs, supported by a long-term action plan and operational adjustments to stabilize disinfectant levels.

APPENDIX A
TABLE 1. 2025 UNTREATED (RAW) WATER QUALITY ENTERING GOLDSTREAM WATER TREATMENT PLANT
(Guideline values provide reference only for untreated water)

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
Physical Parameters (< means less than method detection limit)										
Alkalinity, Total	mg/L	16	11	15.5	17.5		15.2	143	9.92 - 19	12/year
Carbon, Dissolved Organic	mg/L as C	2	11	1.7	2.2		1.75	113	< 0.5 - 4	12/year
Carbon, Total Organic	mg/L as C	1.90	12	1.70	2.00	Guideline Archived	1.80	114	0.82 - 3.9	12/year
Colour, True	TCU	7	53	4	14	≤15 AO	6	514	< 2 - 19	52/year
Conductivity @ 25 C	µS/cm	45	53	41.9	50.8		42.5	510	28.2 - AD 62.9	52/year
Hardness as $CaCO_3$	mg/L	17	5	16.8	17.9	No Guideline Required	17	92	11.7 - 20.9	6/year
pH	pH units	7.21	53	6.79	8.03	7.0 - 10.5 AO	7.3	535	6.45 - 7.94	52/year
Tannins and Lignins	mg/L	< 0.2	2	< 0.2	0.2	Guideline Archived	< 0.2	22	<0.2-22	2/year
Total Dissolved Solids	mg/L	24.00	11	10.00	40.00	≤500 AO	28	115	<10 - 58	12/year
Total Suspended Solids	mg/L	< 1	11	< 1	2.4		<1.0	115	<1-<4	12/year
Total Solids	mg/L	36.00	11	<10	100.00		31	111	1.7 - 110	12/year
Turbidity, Grab Samples	NTU	0.25	244	0.15	1.2	1.0 MAC	0.29	2,410	0.15 - RC 3.3	250/year
Ultraviolet Absorption, 5 cm	Abs. @ 254 nm	0.243	53	0.179	0.278		0.259	502	0.133 - 88.2	52/year
Ultraviolet Transmittance	%	89.2	53	87.9	91.8		88.6	504	0.20 - 94.4	52/year
Water Temp., Grab Samples	degrees C	10.15	244	4.1	20.1	≤15 AO	10.1	2,461	2.7 - 21.0	250/year
Non-Metallic Inorganic Chemicals (< means less than method detection limit)										
Bromide	µg/L as Br	0.011	4	< 0.01	0.012		< 0.01	37	1.1e-005 - 0.013	4/year
Chloride	mg/L as Cl	1.1	3	1.1	2	≤ 250 AO	2.3	30	1.4 - < 10	4/year
Cyanide	mg/L as Cn	< 0.0005	4	< 0.0005	0.00057	0.2 MAC	<0.0005	32	<0.005-<0.005	4/year
Fluoride	mg/L as F	< 0.05	4	< 0.05	< 0.05	1.5 MAC	< 0.05	34	0.013 - < 0.05	4/year
Iodide, dissolved	mg/L as I	< 0.1	2	< 0.1	< 0.1		< 0.1	16	< 0.1 - < 0.1	4/year
Nitrate, Dissolved	µg/L as N	< 20	11	< 20	27	10,000 MAC	< 20	113	< 10 - 41	12/year
Nitrite, Dissolved	µg/L as N	< 5	11	< 5	< 5	1,000 MAC	< 5	113	< 5 - < 10	12/year
Nitrate + Nitrite	µg/L as N	< 20	11	< 20	27		< 20	114	< 10 - 41	12/year
Nitrogen, Ammonia	µg/L as N	< 15	11	< 15	< 15	No Guideline Required	< 15	115	0.079 - 130	12/year
Nitrogen, Total Kjeldahl	µg/L as N	71	11	50	153		109	113	59 - 820	12/year
Nitrogen, Total	µg/L as N	88	11	63	153		119	115	68 - 610	12/year
Phosphate, Ortho, Dissolved	µg/L as P	< 1	11	< 1	3.5		< 3	114	< 1 - 24.3	12/year
Phosphate, Total, Dissolved	µg/L as P	1.8	10	< 1	5.9		2.4	114	< 1 - 31	12/year
Phosphate, Total	µg/L as P	3.50	11	1.90	5.00		3.00	116	<1.0 - <10	12/year

Appendix A, Table 1 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range Minimum	Range Maximum	≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range Minimum - Maximum	
Silica	mg/L as SiO_2	4.6	11	4.3	4.9		3.935	112	3.73-4.14	12/year
Silicon	µg/L as Si	2,000	5	1,780	2,170		1,960	67	1,590-2,520	6/year
Sulphate	mg/L as SO_4	1.1	11	< 1	1.3	≤ 500 AO	1.3	113	<0.5-<10	12/year
Sulphide	mg/L as H_2S	< 0.0018	11	< 0.0018	< 0.0018	≤ 0.05 AO	< 0.0018	47	<0.0018-<0.0019	12/year
Sulphur	mg/L as S	< 3	5	< 3	< 3		< 3	66	<3-<3	6/year
Metallic Inorganic Chemicals (< means less than method detection limit)										
Aluminum	µg/L as Al	12.8	5	4.2	22.4	2,900 MAC / 100 OG	15.1	67	3.4 - 52.3	6/year
Antimony	µg/L as Sb	< 0.5	5	< 0.5	< 0.5	6 MAC	< 0.5	67	< 0.5 - < 5	6/year
Arsenic	µg/L as As	< 0.1	5	< 0.1	< 0.1	10 MAC	< 0.1	67	< 0.1 - 0.24	6/year
Barium	µg/L as Ba	3.8	5	3.5	3.9	2,000 MAC	3.8	67	3.3 - 5.3	6/year
Beryllium	µg/L as Be	< 0.1	5	< 0.1	< 0.1		< 0.1	67	< 0.1 - < 10	6/year
Bismuth	µg/L as Bi	< 1	5	< 1	< 1		< 1	67	< 1 - < 10	6/year
Boron	µg/L as B	< 50	5	< 50	< 50	5,000 MAC	< 50	67	< 50 - < 50	6/year
Cadmium	µg/L as Cd	< 0.01	5	< 0.01	< 0.01	7 MAC	< 0.01	67	< 0.01 - 0.014	6/year
Calcium	mg/L as Ca	4.91	5	4.89	5.3	No Guideline Required	4.86	67	4.32 - 6.13	6/year
Chromium	µg/L as Cr	< 1	5	< 1	< 1	50 MAC	< 1	67	< 1 - 5.1	6/year
Cobalt	µg/L as Co	< 0.2	5	< 0.2	< 0.2		< 0.2	67	< 0.2 - < 0.5	6/year
Copper	µg/L as Cu	0.42	5	0.38	0.82	2,000 MAC / ≤ 1,000 AO	1.1	67	0.37 - 13.9	6/year
Iron	µg/L as Fe	33.5	5	11.4	40.2	≤ 100 AO	24	67	11.2 - 217	6/year
Lead	µg/L as Pb	< 0.2	5	< 0.2	< 0.2	5 MAC	< 0.2	67	< 0.2 - 0.24	6/year
Lithium	µg/L as Li	< 2	5	< 2	< 2		< 2	48	< 2 - 10.4	6/year
Magnesium	mg/L as Mg	1.15	5	1.12	1.18	No Guideline Required	1.14	67	1.01 - 1.35	6/year
Manganese	µg/L as Mn	8.6	5	2.1	15.6	120 MAC / ≤ 20 AO	4.8	67	1.3 - 73.8	6/year
Mercury, Total	µg/L as Hg	< 0.0019	5	< 0.0019	< 0.0019	1.0 MAC	< 0.002	66	< 0.0019 - < 10	6/year
Molybdenum	µg/L as Mo	< 1	5	< 1	< 1		< 1	67	< 1 - 4.9	6/year
Nickel	µg/L as Ni	< 1	5	< 1	3.9		< 1	67	< 1 - 21.5	6/year
Potassium	mg/L as K	0.126	5	0.123	0.135		0.134	67	0.115 - 0.201	6/year
Selenium	µg/L as Se	< 0.1	5	< 0.1	< 0.1	50 MAC	< 0.1	67	< 0.1 - < 0.1	6/year
Silver	µg/L as Ag	< 0.02	5	< 0.02	< 0.02	No Guideline Required	< 0.02	67	< 0.02 - 0.071	6/year
Sodium	mg/L as Na	1.58	5	1.53	1.69	≤ 200 AO	1.64	67	1.41 - 2.27	6/year
Strontium	µg/L as Sr	15.5	5	14.4	15.7	7,000 MAC	14.8	67	13.2 - 21.8	6/year
Thallium	µg/L as Tl	< 0.01	5	< 0.01	< 0.01		< 0.01	67	< 0.01 - < 0.05	6/year
Tin	µg/L as Sn	< 5	5	< 5	< 5		< 5	67	< 5 - < 5	6/year

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range Minimum	Range Maximum	≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range Minimum - Maximum	
Titanium	mg/L as Ti	< 5	5	< 5	< 5		< 5	67	< 5 - < 5	6/year
Uranium	µg/L as U	< 0.1	5	< 0.1	< 0.1	20 MAC	< 0.1	67	<0.01-<0.1	6/year
Vanadium	µg/L as V	< 5	5	< 5	< 5		< 5	67	<5 - <5	6/year
Zinc	µg/L as Zn	< 5	5	< 5	< 5	≤ 5,000 AO	< 5	67	<5.0 - 82.9	6/year
Zirconium	µg/L as Zr	< 0.1	5	< 0.1	< 0.1		< 0.1	67	<0.1 - <0.5	6/year
Microbial Parameters (< means less than method detection limit)										
Coliform Bacteria										
Coliforms, Total	Coliforms/100 mL	8	244	< 1	800		9	2,418	0 – 24,200	250/year
E. coli	*E. coli*/100 mL	< 1	244	< 1	9.00		< 1	2,421	0 - 13	250/year
Heterotrophic / Other Bacteria										
Hetero. Plate Count, 28C (7 day)	CFU/1 mL	420	241	120	1,000		340	2,286	< 10 – 7,200	250/year
Cyanobacterial Toxins										
Anatoxin a	µg/L	Analyzed as required - last analyzed in 2005					Analyzed as required - last analyzed in 2005			
Microcystin-LR	µg/L	Analyzed as required - last analyzed in 2011				1.5 MAC (Total Microcystins)	Analyzed as required - last analyzed in 2011			
Parasites (< means less than method detection limit)										
Cryptosporidium, Total oocysts	oocysts/100 L	<0.1	5	<0.1	<0.1	Zero detection desirable	< 0.1	108	<0.1 - 0.66	8/year
Giardia, Total cysts	cysts/100 L	<0.1	5	<0.1	<0.1	Zero detection desirable	< 0.1	108	<0.1 - 2	8/year
Radiological Parameters (< means less than method detection limit)										
Gross alpha radiation	Bq/L	0.025	2	< 0.02	< 0.03	0.5 (Screening Value)	< 0.02	15	< 0.02 - 0.06	2/year
Gross beta radiation	Bq/L	< 0.02	2	< 0.02	0.02	1.0 (Screening Value)	< 0.02	15	< 0.02 - 0.07	2/year
Iodine-131	Bq/L	0.5	2	< 0.4	< 0.6	6 Bq/L	< 0.2	15	< 0.1 - < 0.4	Special
Cesium-137	Bq/L	< 0.1	2	< 0.1	< 0.1	10 Bq/L	< 0.1	15	< 0.09 - < 0.2	Special
Organic Parameters (< means less than method detection limit)										
Pesticides/Herbicides										
1,4-DDD	µg/L	<0.001	2	<0.001	<0.001	Guideline Archived	< 0.001	14	< 0.001 - < 0.005	2/year
1,4'-DDE	µg/L	<0.001	2	<0.001	<0.001	Guideline Archived	< 0.001	14	< 0.001 - < 0.005	2/year
1,4'-DDT	µg/L	<0.001	2	<0.001	<0.001	Guideline Archived	< 0.001	14	< 0.001 - < 0.005	2/year
2,4,5-T	µg/L	0.175	2	< 0.08	< 0.27	Guideline Archived	< 1	19	<0.08 - <1	2/year
2,4,5-TP (Silvex)	µg/L	0.175	2	< 0.08	< 0.27	Guideline Archived	0.3	14	<0.01 - <1.0	2/year
2,4-D (2,4-Dichlorophenoxyacetic acid)	µg/L	0.11	2	< 0.05	<0.17	100 MAC	0.0595	13	< 0.05 - 0.069	2/year
2,4-D (BEE)	µg/L	< 0.5	1	< 0.5	< 0.5		< 1	23	< 0.5 - < 2	2/year

Appendix A, Table 1 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
2,4-DP (Dichlorprop)	µg/L	0.175	2	< 0.08	< 0.27		< 1	18	<0.08 - <1.0	2/year
4,4'-DDD	µg/L	< 0.001	2	< 0.001	< 0.001	Guideline Archived	< 0.001	16	<0.001 - <0.005	2/year
4,4'-DDE	µg/L	< 0.001	2	< 0.001	< 0.001	Guideline Archived	< 0.001	16	<0.001 - <0.005	2/year
4,4'-DDT	µg/L	< 0.001	2	< 0.001	< 0.001	Guideline Archived	< 0.001	16	<0.001 - <0.005	2/year
Alachlor	µg/L	Not analyzed in 2025				Guideline Archived	< 0.5	2	< 0.5 - < 0.5	2/year
Aldicarb	µg/L	< 0.1	2	< 0.1	< 0.1	Guideline Archived	< 0.1	20	< 0.1 - < 5	2/year
Aldrin	µg/L	< 0.003	2	< 0.003	< 0.003		< 0.003	19	< 0.003 - < 0.005	2/year
Aldrin + Dieldrin	µg/L	<0.003	2	<0.003	<0.003	Guideline Archived	< 0.003	19	< 0.003 - < 0.005	2/year
Atrazine	µg/L	< 0.05	2	< 0.05	< 0.05	5 MAC	< 0.1	13	< 0.05 - < 0.1	2/year
Azinphos-methyl	µg/L	< 0.2	2	< 0.2	< 0.2	Guideline Archived	<0.01	13	<0.001 - <2	2/year
BHC (alpha)	µg/L	< 0.003	2	< 0.003	< 0.003		< 0.003	19	< 0.003 - < 0.005	2/year
BHC (beta)	µg/L	< 0.003	2	< 0.003	< 0.003		< 0.003	19	< 0.003 - < 0.005	2/year
BHC (delta)	µg/L	< 0.003	2	< 0.003	< 0.003		< 0.003	19	< 0.003 - < 0.5	2/year
Bendiocarb	µg/L	< 0.1	2	< 0.1	< 0.1	Guideline Archived	< 0.1	20	< 0.1 - < 2	Irregular
Bromacil	µg/L	< 0.05	2	< 0.05	< 0.05		< 0.05	20	< 0.05 - < 0.05	2/year
Bromoxynil	µg/L	0.0435	2	< 0.02	< 0.067	30 MAC	< 0.1	18	< 0.02 - < 0.1	2/year
Captan	µg/L	< 0.1	2	< 0.1	< 0.1		< 0.1	19	< 0.1 - < 0.1	2/year
Carbaryl	µg/L	< 0.1	2	< 0.1	< 0.1	Guideline Archived	< 0.1	20	< 0.1 - < 5	2/year
Carbofuran	µg/L	< 0.1	2	< 0.1	< 0.1	Guideline Archived	< 0.1	20	< 0.1 - < 5	2/year
Chlordane (alpha)	µg/L	< 0.003	2	< 0.003	< 0.003	Guideline Archived	< 0.003	19	< 0.003 - < 0.005	2/year
Chlordane (gamma)	µg/L	< 0.003	2	< 0.003	< 0.003	Guideline Archived	< 0.003	19	< 0.003 - < 0.005	2/year
Chlorpyrifos (Dursban)	µg/L	< 0.01	2	< 0.01	< 0.01	90 MAC	< 0.01	20	< 0.0008 – < 0.1	2/year
Chlorothalonil	µg/L	< 0.003	2	< 0.003	< 0.003		< 0.003	19	< 0.003 - < 0.05	2/year
Cyanazine (Bladex)	µg/L	< 0.05	2	< 0.05	< 0.05	Guideline Archived	< 0.1	20	< 0.05 - < 0.1	2/year
Demeton	µg/L	< 0.5	2	< 0.5	< 0.5		< 2	18	< 2 - < 2	2/year
Diazinon	µg/L	< 0.02	2	< 0.02	< 0.02	Guideline Archived	< 0.02	20	< 0.002 - < 0.2	2/year
Dicamba	µg/L	0.011	2	< 0.005	< 0.017	110 MAC	< 0.006	20	< 0.005 - < 0.008	2/year

Appendix A, Table 1 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range Minimum	Range Maximum	≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range Minimum - Maximum	
Diclofop-methyl	µg/L	< 0.05	2	< 0.05	< 0.05	Guideline Archived	< 0.05	18	< 0.0007 - < 0.5	2/year
Dichlorvos	µg/L	< 0.5	2	< 0.5	< 0.5		< 2	19	< 2 - < 2	2/year
Dieldrin	µg/L	< 0.002	2	< 0.002	< 0.002		< 0.002	19	< 0.002 - < 0.005	2/year
Dimethoate	µg/L	< 0.05	2	< 0.05	< 0.05	20 MAC	< 0.05	10	< 0.05 - < 0.05	2/year
Dinoseb (DNBP)	µg/L	0.0435	2	< 0.02	< 0.067	Guideline Archived	< 0.05	20	< 0.05 - < 0.05	2/year
Diquat	µg/L	< 7	2	< 7	< 7	50 MAC	< 7	19	< 7 - < 350	2/year
Endosulfan I	µg/L	< 0.003	2	< 0.003	< 0.003		< 0.003	19	< 0.003 - < 0.005	2/year
Endosulfan II	µg/L	< 0.003	2	< 0.003	< 0.003		< 0.003	19	< 0.003 - < 0.005	2/year
Endosulfan Sulphate	µg/L	< 0.003	2	< 0.003	< 0.003		< 0.003	19	< 0.003 - < 0.005	2/year
Endosulfan (Total)	µg/L	<0.003	2	<0.003	<0.003		< 0.003	17	<0.003 - <0.005	2/year
Endrin	µg/L	< 0.005	2	< 0.005	< 0.005	Guideline Archived	< 0.005	19	< 0.005 - < 0.005	2/year
Endrin Aldehyde	µg/L	< 0.003	2	< 0.003	< 0.003		< 0.003	19	< 0.003 - < 0.005	2/year
Endrin Ketone	µg/L	< 0.003	2	< 0.003	< 0.003		< 0.003	19	< 0.003 - < 0.005	2/year
Ethion	µg/L	<0.5	2	<0.5	<0.5		< 1	20	<0.5 - <1	2/year
Parathion Ethyl	µg/L	Not analyzed in 2025					<1	13	<1.0 - <2.0	2/year
Fenchlorophos (Ronnel)	µg/L	< 0.5	2	< 0.5	< 0.5		< 2	19	< 0.5 - < 2	2/year
Fenthion	µg/L	< 0.5	2	< 0.5	< 0.5		< 1	19	< 0.5 - < 1	2/year
Fonofos	µg/L	< 0.5	2	< 0.5	< 0.5		< 2	19	< 0.5 - < 2	2/year
Glyphosate	µg/L	< 10	2	< 10	< 10	280 MAC	< 10	19	< 10 - < 10	2/year
Heptachlor	µg/L	< 0.003	2	< 0.003	< 0.003	Guideline Archived	< 0.003	19	< 0.003 - < 0.005	2/year
Heptachlor Epoxide	µg/L	< 0.003	2	< 0.003	< 0.003	Guideline Archived	< 0.003	19	< 0.003 - < 0.005	2/year
Imazapyr	µg/L	< 0.1	2	< 0.1	< 0.1		< 0.1	18	< 0.1 - < 0.1	2/year
IPBC	µg/L	< 0.1	2	< 0.1	< 0.1		< 0.1	18	< 0.1 - < 0.1	2/year
Malathion	µg/L	< 0.05	2	< 0.05	< 0.05	290 MAC	< 0.05	20	< 0.002 - < 0.5	2/year
MCPA	µg/L	0.0435	2	< 0.02	< 0.067	350 MAC	< 0.025	27	< 0.02 - < 2	2/year
MCPP	µg/L	0.175	2	< 0.08	< 0.27		< 2	23	< 0.08 - < 2	2/year
Methoxychlor	µg/L	< 0.003	2	< 0.003	< 0.003	Guideline Archived	< 0.003	19	< 0.003 - < 0.01	2/year
Methyl Parathion	µg/L	< 0.5	2	< 0.5	< 0.5	Guideline Archived	< 2	19	< 0.1 - < 2	2/year

Appendix A, Table 1 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
Metolachlor	µg/L	< 0.05	2	< 0.05	< 0.05	Guideline Archived	< 0.1	20	< 0.05 - < 0.1	2/year
Metribuzin (Sencor)	µg/L	< 0.1	2	< 0.1	< 0.1	80 MAC	< 0.1	20	< 0.0004 - < 1	2/year
Mevinphos	µg/L	< 0.5	2	< 0.5	< 0.5		< 2	19	< 0.5 - < 2	2/year
Mirex	mg/L	< 0.003	2	< 0.003	< 0.003	Guideline Archived	< 0.003	19	< 0.003 - < 0.005	2/year
Nitrilotriacetic acid (NTA)	µg/L	< 0.05	2	< 0.05	< 0.05	400 MAC	< 0.05	19	< 0.05 - 0.099	Irregular
Oxychlordane	µg/L	< 0.003	2	< 0.003	< 0.003		< 0.003	19	< 0.003 - < 0.005	2/year
Parathion	µg/L	0.28	2	< 0.05	<0.05	Guideline Archived	< 0.05	30	< 0.0004 - < 2	2/year
Paraquat (ion)	µg/L	< 1	2	< 1	< 1	Guideline Archived	< 1	19	< 1 - < 1	2/year
Permethrin	µg/L	< 0.05	2	< 0.05	< 0.05		< 0.05	19	< 0.05 - < 0.05	2/year
Phorate (Thimet)	µg/L	< 0.05	2	< 0.05	< 0.05	Guideline Archived	< 0.05	20	< 0.0003 - < 0.5	2/year
Phosmet	µg/L	< 0.5	2	< 0.5	< 0.5		< 2	19	< 0.5 - < 2	2/year
Picloram	µg/L	< 0.08	2	< 0.08	<0.27	Guideline Archived	<0.1	20	<0.08 - <5.0	2/year
Prometryn	µg/L	< 0.5	2	< 0.5	< 0.5		< 1	17	< 0.25 - < 1	Irregular
Simazine	µg/L	< 0.05	2	< 0.05	< 0.05	Guideline Archived	< 0.1	20	< 0.05 - < 0.1	2/year
Tebuthiuron	µg/L	< 0.1	2	< 0.1	< 0.1		<0.1	18	<0.1-<0.1	2/year
Temephos	µg/L	Not analyzed in 2025				Guideline Archived	<10	3	<10-<10	2/year
Terbufos	µg/L	< 0.05	2	< 0.05	< 0.05	Guideline Archived	< 0.05	20	< 0.0002 - < 0.5	2/year
Toxaphene	µg/L	< 0.2	2	< 0.2	< 0.2	Guideline Archived	< 0.2	8	< 0.2 - < 0.2	2/year
Trifluralin	µg/L	< 0.05	2	< 0.05	< 0.05	Guideline Archived	< 0.05	20	< 0.0003 - < 0.5	2/year
Polycyclic Aromatic Hydrocarbons (PAH's)										
Acenaphthene	µg/L	< 0.01	2	< 0.01	< 0.01	Guideline Archived	0.0115	20	< 0.01 - < 0.05	2/year
Acenaphthylene	µg/L	< 0.01	2	< 0.01	< 0.01	Guideline Archived	0.016	20	< 0.01 - < 0.05	2/year
Anthracene	µg/L	0.014	2	< 0.01	0.018	Guideline Archived	< 0.01	20	< 0.01 - < 0.04	2/year
Benzo(a)anthracene	µg/L	0.015	2	< 0.01	0.02	Guideline Archived	< 0.01	20	< 0.01 - < 0.04	2/year
Benzo(a)pyrene	µg/L	0.008	2	< 0.005	0.011	0.04 MAC	< 0.005	20	< 0.005 - < 0.05	2/year
Benzo(b)fluoranthene	µg/L	<0.01	2	<0.01	<0.01	Guideline Archived	< 0.03	10	< 0.01 - < 0.04	2/year
Benzo(g,h,i)perylene	µg/L	< 0.02	2	< 0.02	< 0.02	Guideline Archived	< 0.02	20	< 0.02 - < 0.08	2/year
Benzo(b&j)fluoranthene	µg/L	0.012	2	< 0.01	0.014	Guideline Archived	< 0.01	8	< 0.01 - < 0.04	2/year
Benzo(k)fluoranthene	µg/L	< 0.01	2	< 0.01	< 0.01	Guideline Archived	< 0.01	20	< 0.01 - < 0.05	2/year
Chrysene	µg/L	0.0135	2	< 0.01	0.017	Guideline Archived	< 0.01	20	< 0.01 - < 0.04	2/year
Dibenz(a,h)anthracene	µg/L	< 0.02	2	< 0.02	< 0.02	Guideline Archived	< 0.02	20	< 0.003 - < 0.08	2/year
Fluoranthene	µg/L	0.022	2	0.013	0.031	Guideline Archived	0.015	20	< 0.01 - < 0.04	2/year

Appendix A, Table 1 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range Minimum	Range Maximum	≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range Minimum - Maximum	
Fluorene	µg/L	< 0.01	2	< 0.01	< 0.01	Guideline Archived	< 0.01	20	< 0.01 - < 0.05	2/year
Indeno(1,2,3-c,d)pyrene	µg/L	< 0.02	2	< 0.02	< 0.02	Guideline Archived	< 0.02	20	< 0.02 - < 0.08	2/year
Naphthalene	µg/L	< 0.01	2	< 0.01	< 0.01	Guideline Archived	0.02	19	< 0.01 - < 0.5	2/year
Phenanthrene	µg/L	0.018	2	< 0.016	0.02	Guideline Archived	0.0155	20	< 0.01 - < 0.05	2/year
Pyrene	µg/L	0.022	2	0.014	0.03	Guideline Archived	0.015	20	< 0.01 - < 0.04	2/year
Volatile Hydrocarbons	µg/L	< 300	4	< 300	< 300	Guideline Archived	< 300	31	< 300 - < 300	2/year
Phenols										
2,3,4,5-Tetrachlorophenol	µg/L	< 0.5	2	< 0.5	< 0.5		< 0.5	18	< 0.1 - < 1	2/year
2,3,4,6-Tetrachlorophenol	µg/L	< 0.5	2	< 0.5	< 0.5	Guideline Archived	< 0.5	19	< 0.1 - < 1	2/year
2,3,5,6-Tetrachlorophenol	µg/L	< 0.5	2	< 0.5	< 0.5		< 0.5	18	< 0.1 - < 1	2/year
2,4,6-Trichlorophenol	µg/L	< 0.5	2	< 0.5	< 0.5	5.0 MAC and ≤ 2.0 AO	0.45	20	< 0.1 - < 2	2/year
2,4-Dichlorophenol	µg/L	< 0.5	2	< 0.5	< 0.5	Guideline Archived	< 0.1	5	< 0.1 - < 0.1	2/year
2,4-Dimethylphenol	µg/L	< 2.5	2	< 2.5	< 2.5		<0.05	19	<0.05 - <10.0	2/year
2,4-Dinitrophenol	µg/L	< 6.5	2	< 6.5	< 6.5		5.85	20	< 0.05 - < 26	2/year
2-Chlorophenol	µg/L	< 0.5	2	< 0.5	< 0.5		0.45	20	< 0.1 - < 2	2/year
2-Nitrophenol	µg/L	< 2.5	2	< 2.5	< 2.5		< 0.5	20	< 0.5 - < 2.5	2/year
4,6-Dinitro-2-Methylphenol	µg/L	< 2.5	2	< 2.5	< 2.5		2.25	20	< 0.5 - < 10	2/year
4-Chloro-3-Methylphenol	µg/L	< 0.25	2	< 0.25	< 0.25		< 0.2	11	< 0.2 - < 1	2/year
4-Nitrophenol	µg/L	< 2.5	2	< 2.5	< 2.5		2.25	20	< 0.5 - < 10	2/year
Alpha-Terpineol	µg/L	< 5	2	< 5	< 5		4.5	20	< 1 - < 20	2/year
Pentachlorophenol	µg/L	< 0.5	2	< 0.5	< 0.5	60 MAC and ≤ 30 AO	0.45	20	< 0.1 - < 2	2/year
Phenol	µg/L	< 2.5	2	< 2.5	< 2.5	Guideline Archived	< 1.5	30	< 0.5 - < 10	2/year
Polychlorinated Biphenyls (PCBs)										
PCB-1016	µg/L	< 0.00005	2	< 0.00005	< 0.00005	Guideline Archived	< 0.00005	18	< 0.00005 - < 0.0001	Irregular
PCB-1221	µg/L	< 0.00005	2	< 0.00005	< 0.00005	Guideline Archived	< 0.00005	18	< 0.00005 - < 0.0001	Irregular
PCB-1232	µg/L	< 0.00005	2	< 0.00005	< 0.00005	Guideline Archived	< 0.00005	18	< 0.00005 - < 0.0001	Irregular
PCB-1242	µg/L	< 0.00005	2	< 0.00005	< 0.00005	Guideline Archived	< 0.00005	18	< 0.00005 - < 0.0001	Irregular
PCB-1248	µg/L	< 0.00005	2	< 0.00005	< 0.00005	Guideline Archived	< 0.00005	18	< 0.00005 - < 0.0001	Irregular
PCB-1254	µg/L	< 0.00005	2	< 0.00005	< 0.00005	Guideline Archived	< 0.00005	18	< 0.00005 - < 0.0001	Irregular
PCB-1260	µg/L	< 0.00005	2	< 0.00005	< 0.00005	Guideline Archived	< 0.00005	18	< 0.00005 - < 0.0001	Irregular

Appendix A, Table 1 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
PCB-1262	µg/L	< 0.00005	2	< 0.00005	< 0.00005	Guideline Archived	< 0.00005	15	< 0.00005 - < 0.0001	Irregular
PCB-1268	µg/L	< 0.00005	2	< 0.00005	< 0.00005	Guideline Archived	< 0.00005	15	< 0.00005 - < 0.0001	Irregular
Total PCBs	µg/L	< 0.00005	2	< 0.00005	< 0.00005	Guideline Archived	< 0.00005	18	< 0.00005 - < 0.0001	Irregular
Other Synthetic Chemicals										
1,1,1-Trichloroethane	µg/L	< 0.5	2	< 0.5	< 0.5		< 0.5	20	< 0.5 - < 0.5	2/year
1,1,1,2-Tetrachloroethane	µg/L	< 0.5	2	< 0.5	< 0.5		< 0.5	20	< 0.5 - < 0.5	2/year
1,1,2,2-Tetrachloroethane	µg/L	< 0.5	2	< 0.5	< 0.5		< 0.5	19	< 0.5 - < 0.5	2/year
1,1,2-Trichloroethane	µg/L	< 0.5	2	< 0.5	< 0.5		< 0.5	20	< 0.5 - < 0.5	2/year
1,1-Dichloroethane	µg/L	< 0.5	2	< 0.5	< 0.5		< 0.5	20	< 0.5 - < 0.5	2/year
1,1-Dichloroethene (1,1-Dichloroethylene)	µg/L	< 0.5	2	< 0.5	< 0.5	14 MAC	< 0.5	18	< 0.5 - < 0.5	2/year
1,2,3-Trichlorobenzene	µg/L	< 2	2	< 2	< 2		< 2	20	< 2 - < 2	2/year
1,2,4-Trichlorobenzene	µg/L	< 2	2	< 2	< 2		< 2	20	< 0.04 - < 2	2/year
1,2-Dibromoethane	µg/L	< 0.2	2	< 0.2	< 0.2		< 0.2	20	< 0.2 - < 0.2	2/year
1,2-Dichlorobenzene	µg/L	< 0.5	2	< 0.5	< 0.5	Guideline Archived	< 0.5	20	< 0.5 - < 0.5	2/year
1,2-Dichloroethane	µg/L	< 0.5	2	< 0.5	< 0.5	5.0 MAC	< 0.5	20	< 0.5 - < 0.5	2/year
1,2-Dichloroethene (cis)	µg/L	< 1	2	< 1	< 1		< 1	20	< 1 - < 1	2/year
1,2-dichloroethene (trans)	µg/L	< 1	2	< 1	< 1		< 1	20	< 1 - < 1	2/year
1,2-Dichloropropane	µg/L	< 0.5	2	< 0.5	< 0.5		< 0.5	20	< 0.5 - < 0.5	2/year
1,2-Diphenylhydrazine	µg/L	< 0.05	2	< 0.05	< 0.05		0.045	20	< 0.01 - < 0.2	2/year
1,3-Dichlorobenzene	µg/L	< 0.5	2	< 0.5	< 0.5		< 0.5	19	< 0.5 - < 0.5	2/year
1,3-Dichloropropene (cis)	µg/L	< 1	2	< 1	< 1		< 1	20	< 1 - < 1	2/year
1,3-Dichloropropene (trans)	µg/L	< 1	2	< 1	< 1		< 1	20	< 1 - < 1	2/year
1,4-Dichlorobenzene	µg/L	< 0.5	2	< 0.5	< 0.5	5.0 MAC and ≤ 1.0 AO	< 0.5	20	< 0.5 - < 0.5	2/year
1,4-Dioxane	µg/L	< 1	2	< 1	< 1	50 MAC	< 1	2	< 1 - < 1	2/year
2,4-Dinitrotoluene	µg/L	< 0.25	2	< 0.25	< 0.25		< 0.25	20	< 0.05 - < 1.3	2/year
2,6-Dinitrotoluene	µg/L	< 0.25	2	< 0.25	< 0.25		0.225	20	< 0.05 - < 1	2/year
2-Chloronaphthalene	µg/L	< 0.25	2	< 0.25	< 0.25		0.225	20	< 0.05 - < 1	2/year
1-Methylnaphthalene	µg/L	< 0.01	2	< 0.01	< 0.01		< 0.01	14	< 0.01 - < 0.05	2/year
2-Methylnaphthalene	µg/L	< 0.01	2	< 0.01	< 0.01		< 0.01	20	< 0.01 - 0.16	2/year
3,3'-Dichlorobenzidene	µg/L	< 0.5	2	< 0.5	< 0.5		0.45	20	< 0.1 - < 2	2/year
4-Bromophenyl-phenylether	µg/L	< 0.05	2	< 0.05	< 0.05		0.045	20	< 0.01 - < 0.2	2/year
4-Chlorophenyl-phenylether	µg/L	< 0.25	2	< 0.25	< 0.25		< 0.25	20	< 0.05 - < 1	2/year
Atrazine	µg/L	< 0.05	2	< 0.05	< 0.05	5.0 MAC	< 0.1	20	< 0.05 - < 0.1	2/year
Benzene	µg/L	< 0.4	4	< 0.4	< 0.4	5.0 MAC	< 0.4	32	< 0.4 - < 0.4	2/year

Appendix A, Table 1 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
Benzidine	µg/L	Not analyzed in 2025					< 10	5	< 10 - < 10	2/year
Bis(-2-chloroethoxy) methane	µg/L	Not analyzed in 2025					< 0.25	1	< 0.25 - < 0.25	2/year
Bis(-2-chloroethyl) ether	µg/L	< 0.25	2	< 0.25	< 0.25		0.225	20	< 0.05 - < 1	2/year
Bis(2-chloroisopropyl) ether	µg/L	Not analyzed in 2025					< 0.25	1	< 0.25 - < 0.25	2/year
Bis(2-ethylhexyl) phthalate	µg/L	< 5	2	< 5	< 5	Guideline Archived	4.5	20	< 1 - < 20	2/year
Bromodichloromethane	µg/L	< 1	2	< 1	< 1		< 1	20	< 1 - < 1	2/year
Bromobenzene	µg/L	< 2	2	< 2	< 2		< 2	18	< 2 - < 2	2/year
Bromoform	µg/L	< 1	2	< 1	< 1		< 1	20	< 1 - < 1	2/year
Bromomethane	µg/L	< 1	2	< 1	< 1		< 1	20	< 1 - < 1	2/year
Butylbenzyl phthalate	µg/L	Not analyzed in 2025				Guideline Archived	< 0.5	11	< 0.5 - < 2.5	2/year
Carbon Tetrachloride (Tetrabromomethane)	µg/L	< 0.5	2	< 0.5	< 0.5	2.0 MAC	< 0.5	20	< 0.5 - < 0.5	2/year
Chloroform	µg/L	< 1	2	< 1	< 1		< 1	20	< 1 - < 1	2/year
Chloroethane	µg/L	< 1	2	< 1	< 1		< 1	20	< 1 - < 1	2/year
Chloromethane	µg/L	< 1	2	< 1	< 1		< 1	20	< 1 - < 1	2/year
Desethyl Atrazine	µg/L	< 0.05	2	< 0.05	< 0.05		< 0.1	17	< 0.05 - < 0.5	2/year
Dibromochloromethane	µg/L	< 1	2	< 1	< 1		< 1	20	< 1 - < 1	2/year
Dichlorodifluoromethane	µg/L	< 2	2	< 2	< 2		< 2	20	< 2 - < 2	2/year
Dichloromethane	µg/L	2.45	2	< 2	2.9	50 MAC	< 2	19	< 2 - < 2	2/year
Diethyl phthalate	µg/L	< 0.25	2	< 0.25	< 0.25	Guideline Archived	< 0.25	19	< 0.05 - 1	2/year
Dimethyl phthalate	µg/L	< 0.25	2	< 0.25	< 0.25	Guideline Archived	< 0.2	19	< 0.05 - < 1	2/year
Di-n-butyl phthalate	µg/L	15	2.00	< 5	< 25	Guideline Archived	< 2.5	19	-999 - < 10	2/year
Di-n-ocyl phthalate	µg/L	< 0.25	2	< 0.25	< 0.25	Guideline Archived	< 0.2	19	< 0.05 - < 1	2/year
Diuron	µg/L	< 0.1	2	< 0.1	< 0.1	Guideline Archived	< 0.1	20	< 0.1 - < 10	2/year
Ethylbenzene	µg/L	< 0.4	4	< 0.4	< 0.4	140 MAC and ≤ 1.6 AO	< 0.4	32	< 0.4 - < 0.4	2/year
Formaldehyde	µg/L	< 10	2	< 10	< 10	No Guideline Required	< 10	18	< 10 - < 10	2/year
Hexachlorobenzene	µg/L	< 0.003	2	< 0.003	< 0.003		< 0.003	19	< 0.003 - < 0.005	2/year
Hexachlorobutadiene	µg/L	0.375	4	< 0.25	< 0.5		< 0.25	31	< 0.004 - < 1	2/year
Hexachlorocyclopentadiene	µg/L	< 0.25	2	< 0.25	< 0.25		< 0.05	21	< 0.01 - < 1	2/year
Hexachloroethane	µg/L	< 0.25	2	< 0.25	< 0.25		< 0.05	21	< 0.003 - < 1	2/year
Isophorone	µg/L	< 0.25	2	< 0.25	< 0.25		0.225	20	< 0.05 - < 1	2/year
Methyltertiarybutylether (MTBE)	µg/L	< 4	4	< 4	< 4	15 AO	< 4	38	< 4 - < 4	2/year
Monochlorobenzene	µg/L	< 0.5	2	< 0.5	< 0.5	Guideline Archived	< 0.5	20	< 0.5 - < 0.5	2/year
N-Nitrosodimethylamine (NDMA)	µg/L	< 1	2	< 1	< 1	0.04 MAC	0.9	26	< 0.2 - < 4	2/year
Nitrobenzene	µg/L	< 0.25	2	< 0.25	< 0.25		0.225	20	< 0.05 - < 1	2/year
N-nitroso-di-n-propylamine	µg/L	< 1	2	< 1	< 1		< 1	20	<0.2 - <4	2/year

Appendix A, Table 1 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
N-nitrosodiphenylamine	µg/L	< 1	2	< 1	< 1		< 1	8	< 0.8 - < 4	2/year
Octachlorostyrene	µg/L	< 0.003	2	< 0.003	< 0.003		< 0.003	19	< 0.003 - < 0.005	2/year
Styrene	µg/L	0.45	4	< 0.4	< 0.5		< 0.5	32	< 0.4 - < 0.5	2/year
Tetrachloroethene	µg/L	< 0.5	2	< 0.5	< 0.5	10 MAC	< 0.5	20	< 0.5 - < 0.5	2/year
Toluene	µg/L	< 0.4	4	< 0.4	< 0.4	60 MAC and ≤ 24 AO	< 0.4	32	< 0.4 - < 0.4	2/year
Triallate	µg/L	< 0.05	2	< 0.05	< 0.05	Guideline Archived	< 0.05	20	< 0.0003 - < 0.5	2/year
Trichloroethylene	µg/L	< 0.5	2	< 0.5	< 0.5	5.0 MAC	< 0.5	17	< 0.5 - < 0.5	2/year
Trichlorofluoromethane	µg/L	< 4	2	< 4	< 4		< 4	1	< 4 - < 4	2/year
Trichlorotrifluoroethane	µg/L	< 2	2	< 2	< 2		No results prior to 2025			2/year
Vinyl Chloride (Chloroethene)	µg/L	< 0.5	2	< 0.5	< 0.5	2.0 MAC	< 0.5	20	< 0.5 - < 0.5	2/year
o-Xylene	µg/L	< 0.4	4	< 0.4	< 0.4		< 0.4	32	< 0.4 - < 0.4	2/year
m&p-Xylene	µg/L	< 0.4	4	< 0.4	< 0.4		< 0.4	32	< 0.4 - < 1	2/year
Xylenes (Total)	µg/L	< 0.4	4	< 0.4	< 0.4	90 MAC and ≤ 20 AO	< 0.4	32	< 0.4 - < 0.4	2/year
Per- and Polyfluoroalkyl Substances (PFAS)	**25 Specified PFAS**									
Perfluoropentanoic Acid (PFPeA)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluorohexanoic Acid (PFHxA)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluoroheptanoic Acid (PFHpA)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluorooctanoic Acid (PFOA)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluorononanoic Acid (PFNA)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluorododecanoic acid (PFDoA)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluorodecanoic Acid (PFDA)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perflurobutanoic acid (PFBA)	ng/L	< 2	2	< 2	<2		< 2	8	< 2 - < 20	
Perfluoroundecanoic Acid (PFUnA)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluorobutanesulfonic Acid (PFBS)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluoropentanesulfonic Acid (PFPes)	ng/L	< 2	2	< 2	< 2	30 ng/L Objective (based on the sum of 25 specified PFAS)	< 2	8	< 2 - < 20	2/year
Perfluorohexanesulfonic Acid (PFHxS)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluorooctanesulfonic Acid (PFOS)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
HFDO-DA	ng/L	< 4	2	< 4	< 4		< 4	1	< 4 - < 4	2/year
4,8-Dioxa-3H-Perfluorononanoic acid (ADONA)	ng/L	< 2	2	< 2	< 2		< 4	1	< 4 - < 4	2/year
Perfluoro-3-methoxypropanoic acid (PFMPA)	ng/L	< 2	2	< 2	< 2		No results prior to 2025			2/year

Appendix A, Table 1 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		< = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
Perfluoro-4-methoxybutanoic acid (PFMBA)	ng/L	< 2	2	< 2	< 2		No results prior to 2025			2/year
Nonofluoro-3,6-dioaheptanoic acid (NFDHA)	ng/L	< 4	2	< 4	< 4		No results prior to 2025			2/year
9Cl-PF3ONS	ng/L	< 2	2	< 2	< 2		No results prior to 2025			2/year
11Cl-PF3OUdS	ng/L	< 2	2	< 2	< 2		No results prior to 2025			2/year
PFEESA	ng/L	< 2	2	< 2	< 2		No results prior to 2025			2/year
4:2 Flurotelomer Sulfonic Acid	ng/L	< 4	2	< 4	< 4		< 4	8	< 4-<20	2/year
6:2 Flurotelomer Sulfonic Acid	ng/L	< 4	2	< 4	< 4		< 4	8	< 4 - <20	2/year
8:2 Flurotelomer Sulfonic Acid	ng/L	< 4	2	< 4	< 4		< 4	8	< 4 - <20	2/year
Per- and Polyfluoroalkyl Substances (PFAS)	**Miscellaneous PFAS**									
Perflurotridecanoic Acid (PFTrDA)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluorotetradecnoic Acid (PFTEDA)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluorononane sulfonic Acid (PFNS)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluorodecanesulfonic Acid (PFDS)	ng/L	< 2	2	< 2	< 2		< 2	8	< 2 - < 20	2/year
Perfluorooctane Sulfonamide (PFOSA)	ng/L	< 4	2	< 4	< 4		< 4	8	< 4 - < 20	2/year
Perfluorohexadecanoic acid (PFHxDA)	ng/L	< 2	2	< 2	< 2		No results prior to 2025			2/year
Perfluorooctadecanoic acid (PFODA)	ng/L	< 2	2	< 2	< 2		No results prior to 2025			2/year
Perfluoropropanesulfonic acid (PFPRS)	ng/L	< 2	2	< 2	< 2		No results prior to 2025			2/year
Perfluorododecanesulfonic acid	ng/L	< 2	2	< 2	< 2		No results prior to 2025			2/year
2H-Perfluoro-decenoic Acid	ng/L	< 2	2	< 2	< 2		No results prior to 2025			2/year
2H-Perfluorooctenoic Acid	ng/L	< 2	2	< 2	< 2		No results prior to 2025			2/year
10:2 Fluorotelomer sulfonic acid	ng/L	< 4	2	< 4	< 4		No results prior to 2025			2/year
MeFOSA	ng/L	< 4	2	< 4	< 4		No results prior to 2025			2/year
EtFOSA	ng/L	< 4	2	< 4	< 4		No results prior to 2025			2/year
MeFOSAA	ng/L	< 4	2	< 4	< 4		< 4	1	< 4 - < 4	2/year
EtFOSAA	ng/L	< 4	2	< 4	< 4		< 4	2	< 4 - < 4	2/year
MeFOSE	ng/L	< 4	2	< 4	< 4		No results prior to 2025			2/year
EtFOSE	ng/L	< 4	2	< 4	< 4		No results prior to 2025			2/year
PFECHS	ng/L	< 2	2	< 2	< 2		No results prior to 2025			2/year
3-Perfluoropropylpropanoic Acid	ng/L	<10	2	<10	<10		No results prior to 2025			2/year
2H2H3H3H-Perfluorooctanoic Acid	ng/L	< 4	2	< 4	< 4		No results prior to 2025			2/year
3-Perfluoroheptylpropanoic Acid	ng/L	< 4	2	< 4	< 4		No results prior to 2025			2/year

Notes: mg/L = milligrams per litre; µg/L = micrograms per litre; ND = Not Detected; CFU = Colony Forming Units; NTU = Nephelometric Units; TCU = True Colour Units; AO = Aesthetic Objective; MAC = Max. Acceptable Conc.; Median = middle point of all values

APPENDIX A
TABLE 2. 2025 TREATED WATER QUALITY AFTER GOLDSTREAM WATER TREATMENT PLANT

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
Physical Parameters (ND means less than instrument can detect)										
Alkalinity, Total	mg/L	17.9	11	16.7	18.9		14.7	146	7.16-23	12/year
Carbon, Dissolved Organic	mg/L	1.9	11	1.8	2.2		1.8	110	< 0.5-370	12/year
Carbon, Total Organic	mg/L	1.9	11	1.6	2.5	Guideline Archived	1.80	113	0.93 - 4.99	12/year
Colour, True	TCU	5	53	2	8	≤ 15 AO	3.8	509	< 1.4-17	52/year
Conductivity @ 25 C	µS/cm	56.2	53	28.7	63.7		47.7	508	31.1-98.6	52/year
Hardness as $CaCO_3$	mg/L	18.1	12	16	18.5	No Guideline Required	16.9	140	12-22.1	12/year
Odour	Odour Profile	1	244	1	1	Inoffensive	1	2,320	1-1	250/year
pH	pH units	7.6	51	7.08	8.41	7.0-10.5 AO	7.22	537	6.54-8.33	52/year
Taste	Flavour Profile	1	221	1	1	Inoffensive	1	2,308	1-1	250/year
Total Dissolved Solids	mg/L	36	11	<10	60	≤500 AO	30	113	<10-78	12/year
Total Suspended Solids	mg/L	< 1	11	< 1	1.6		< 1	112	< 1-6	12/year
Total Solids	mg/L	44	11	30	70		34	109	< 1-110	12/year
Turbidity, Grab Samples	NTU	0.25	245	0.15	0.9	1.0 MAC	0.28	2,395	0.1-6.3	250/year
Water Temp., Grab Samples	degrees C	10.3	245	3.5	20.2	≤ 15 AO	10.2	2,408	2.5-21.1	250/year
Non-Metallic Inorganic Chemicals (ND means less than instrument can detect)										
Bromate	mg/L as BrO_3	< 0.0095	11	< 0.0095	< 0.0095	0.01 MAC	< 0.0095	41	< 0.0095-0.011	12/year
Bromide	µg/L as Br	0.056	4	0.025	0.178		< 0.01	37	1.8e-005-0.046	4/year
Chloride	mg/L as Cl	4.1	3	3.8	4.9	≤ 250 AO	4.3	31	1-< 10	4/year
Chlorate, dissolved	mg/L as ClO_2	< 0.1	11	< 0.1	0.18	1 MAC	< 0.1	49	< 0.1-0.38	4/year
Chlorite, dissolved	mg/L as ClO_3	<0.1	9.00	<0.1	<0.1	1 MAC	< 0.1	10	< 0.1-< 0.1	12/year
Cyanide	mg/L as Cn	< 0.0005	4	< 0.0005	0.00052	0.2 MAC	< 0.0005	32	< 0.0005-0.00554	4/year
Fluoride	mg/L as F	< 0.05	4	< 0.05	< 0.05	1.5 MAC	< 0.05	34	< 0.02-< 0.05	4/year
Nitrate, Dissolved	µg/L as N	< 20	11	< 20	28	10,000 MAC	< 20	118	< 0.02-46	12/year
Nitrite, Dissolved	µg/L as N	< 5	11	< 5	< 5	1,000 MAC	< 5	118	< 5-5	12/year
Nitrate + Nitrite	µg/L as N	< 20	11	< 20	28	-	< 20	118	< 20-46	12/year
Nitrogen, Ammonia	µg/L as N	270	11	220	310	No Guideline Required	230	113	0.11-760	12/year
Nitrogen, Total Kjeldahl	µg/L as N	423	11	337	884		381	111	74-950	12/year
Nitrogen, Total	µg/L as N	429	11	337	884		389	113	104-976	12/year
Phosphate, Ortho, Dissolved	µg/L as P	< 1	11	< 1	4		< 3	112	< 1-6.2	12/year
Phosphate, Total, Dissolved	µg/L as P	2	11	< 1	2.9		2.7	113	< 1-< 30	12/year
Phosphate, Total	µg/L as P	2.8	11	1.6	4.3		2.70	113	<1 - 14	12/year
Silica	mg/L as SiO_2	4.6	11	4.2	4.9		4.2	109	2.91-5.5	12/year
Silicon	µg/L as Si	2,030	12	1,750	2,200		1,990	115	1400-2740	12/year
Sulphate	mg/L as SO_4	1.1	11	< 1	1.4	≤ 500 AO	1.3	111	0.8-< 10	12/year

Appendix A, Table 2 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
Sulphide	mg/L as H2S	< 0.0018	11	< 0.0018	< 0.0018	≤ 0.05 AO	< 0.0018	46	< 0.0018-0.027	12/year
Sulphur	mg/L as S	< 3	12	< 3	< 3		< 3	115	< 3-< 3	12/year
Metallic Inorganic Chemicals (ND means less than instrument can detect)										
Aluminum	µg/L as Al	12.65	12	4.3	50.6	2900 MAC / 100 OG	15.7	115	3.6-67.7	12/year
Antimony	µg/L as Sb	< 0.5	12	< 0.5	< 0.5	6 MAC	< 0.5	115	< 0.02-< 0.5	12/year
Arsenic	µg/L as As	< 0.1	12	< 0.1	0.12	10 MAC	< 0.1	115	0.04-0.17	12/year
Barium	µg/L as Ba	3.7	12	2.8	4.1	2000 MAC	3.71	115	3.3-4.8	12/year
Beryllium	µg/L as Be	< 0.1	12	< 0.1	< 0.1		< 0.1	114	< 0.01-< 0.1	12/year
Bismuth	µg/L as Bi	< 1	12	< 1	< 1		< 1	115	< 0.005-< 1	12/year
Boron	µg/L as B	< 50	12	< 50	< 50	5000 MAC	< 50	115	< 10-50	12/year
Cadmium	µg/L as Cd	< 0.01	12	< 0.01	< 0.01	7 MAC	< 0.01	115	< 0.005-< 0.1	12/year
Calcium	mg/L as Ca	5.105	12	3.68	5.43	No Guideline Required	4.85	115	4.18-6.82	12/year
Chromium	µg/L as Cr	< 1	12	< 1	< 1	50 MAC	< 1	115	< 0.1-1.2	12/year
Cobalt	µg/L as Co	< 0.2	12	< 0.2	0.21		< 0.2	115	0.023-< 0.5	12/year
Copper	µg/L as Cu	1.445	12	1.1	3.72	2000 MAC / ≤ 1000 AO	6.28	115	1.03-202	12/year
Iron	µg/L as Fe	27.45	12	10.7	321	≤ 100 AO	22	115	10.4-198	12/year
Lead	µg/L as Pb	< 0.2	12	< 0.2	0.24	5 MAC	< 0.2	115	0.017-1.94	12/year
Lithium	µg/L as Li	< 2	12	< 2	< 2		< 2	77	< 0.5-13.5	12/year
Magnesium	mg/L as Mg	1.165	12	1.05	2.16	No Guideline Required	1.13	115	0.146-1.34	12/year
Manganese	µg/L as Mn	7.85	12	1.8	64.2	120 MAC / ≤ 20 AO	4.5	115	1.3-51.1	12/year
Mercury, Total	µg/L as Hg	< 0.0019	11	< 0.0019	0.0021	1.0 MAC	< 0.002	113	< 0.0019-< 10	12/year
Molybdenum	µg/L as Mo	< 1	12	< 1	< 1		< 1	115	< 0.05-< 1	12/year
Nickel	mg/L as Ni	< 1	12	< 1	3.5		< 1	115	0.206-2	12/year
Potassium	mg/L as K	0.1265	12	0.116	0.375		0.132	115	0.111-0.216	12/year
Selenium	µg/L as Se	< 0.1	12	< 0.1	0.13	50 MAC	< 0.1	115	< 0.04-0.21	12/year
Silver	µg/L as Ag	< 0.02	12	< 0.02	< 0.02	No Guideline Required	< 0.02	115	< 0.005-0.058	12/year
Sodium	mg/L as Na	3.69	12	3.37	7.78	≤ 200 AO	1.78	115	1.39-4.49	12/year
Strontium	µg/L as Sr	15.8	12	13.6	16.9	7000 MAC	14.7	115	13-19.7	12/year
Thallium	µg/L as Tl	< 0.01	12	< 0.01	< 0.01		< 0.01	115	< 0.002-< 0.05	12/year
Tin	µg/L as Sn	< 5	12	< 5	< 5		< 5	115	< 0.2-< 5	12/year
Titanium	µg/L as Ti	< 5	12	< 5	< 5		< 5	115	< 0.05-< 5	12/year
Uranium	µg/L as U	< 0.1	12	< 0.1	< 0.1	20 MAC	< 0.1	115	0.00	12/year
Vanadium	µg/L as V	< 5	12	< 5	< 5		< 5	115	<0.2-<5	12/year
Zinc	µg/L as Zn	< 5	12	< 5	< 5	≤ 5000 AO	< 5	115	0.37-54.1	12/year
Zirconium	µg/L as Zr	< 0.1	12	< 0.1	< 0.1		< 0.1	115	<0.1-<0.5	12/year
Microbial Parameters (ND means less than method or instrument can detect)										
Coliform Bacteria										
Coliforms, Total	CFU/100 mL	< 1	307	< 1	2	0 MAC	<1	2,471	<1 - 200	250/year

Appendix A, Table 2 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
E. coli	CFU/100 mL	< 1	307	< 1	< 1	0 MAC	<1	2,472	<1 - <1	250/year
Heterotrophic/Other Bacteria										
Hetero. Plate Count, 28C (7 day)	CFU/1 mL	< 1	242	< 0.01	580		< 10	2,253	<1 - 770	250/year
Disinfectants (ND means less than instrument can detect)										
Total Residual Chlorine	mg/L as Cl_2	1.98	245	1.4	2.27	No Guideline Required	1.91	1,396	0.8 - 2.33	250/year
Monochloramine	mg/L as Cl_2	1.88	244	1.17	2.23	No Guideline Required	1.76	1,381	0-3.09	250/year

Notes: mg/L = milligrams per litre; µg/L = micrograms per litre; ND = Not Detected; CFU = Colony Forming Units; NTU = Nephelometric Units; TCU = True Colour Units; AO = Aesthetic Objective; MAC = Max. Acceptable Conc.; Median = middle point of all values

APPENDIX A
TABLE 3. 2025 TREATED WATER QUALITY AFTER SOOKE RIVER ROAD WATER TREATMENT PLANT

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
Physical Parameters (ND means less than instrument can detect)										
Alkalinity, Total	mg/L	17.5	12	16.7	19.1		16.4	133	7.1-20	12/year
Colour, True	TCU	5	37	2	8	≤ 15 AO	3	365	1-11.3	52/year
Conductivity @ 25 C	µS/cm	60.3	37	57.7	62.9		56.9	362	26.4-71.6	52/year
Hardness as $CaCO_3$	mg/L	17.6	6	16.2	18.5	No Guideline Required	16.7	55	14.8-23.9	6/year
Odour	Flavour Profile	1	37	1	1	Inoffensive	1	376	1-1	52/year
pH	pH units	7.6	36	7.0	8.1	7.0-10.5 AO	7.55	357	6.89-8.32	52/year
Taste	Flavour Profile	1	37	1	1	Inoffensive	1	377	1-2	52/year
Turbidity, Grab Samples	NTU	0.3	37	0.15	0.55	1 MAC	0.27	390	0.15 - 0.95	52/year
Water Temp., Grab Samples	degrees C	11	37	4.4	19.3	≤ 15 AO	10.5	393	1.0-20	52/year
Microbial Parameters (ND means less than instrument can detect)										
Coliform Bacteria										
Coliforms, Total	CFU/100 mL	< 1	37	< 1	< 1	0 MAC	< 1	400	<1 - 1	52/year
E. coli	CFU/100 mL	< 1	37	< 1	< 1	0 MAC	< 1	401	<1 - <1	52/year
Heterotrophic Bacteria										
Hetero. Plate Count, 28C (7 day)	CFU/1 mL	< 1	37.0	< 1	10		< 10	349	<1 - 210	52/year
Disinfectants (ND means less than instrument can detect)										
Disinfectants										
Total Residual Chlorine	mg/L as Cl_2	1.97	37.0	1.7	2.32	No Guideline Required	1.94	396	1.27-2.4	52/year
Monochloramine	mg/L as Cl_2	1.87	37.0	1.64	2.19	No Guideline Required	1.75	223	1.15-2.16	52/year
Metallic Inorganic Chemicals (ND means less than instrument can detect)										
Aluminum	µg/L as Al	9.2	6.0	4.7	13.3	2,900 MAC / 100 OG	11.3	55	4.4-22.7	6/year
Antimony	µg/L as Sb	< 0.5	6.0	< 0.5	< 0.5	6 MAC	< 0.5	55	< 0.5-< 0.5	6/year
Arsenic	µg/L as As	< 0.1	6.0	< 0.1	0.28	10 MAC	< 0.1	55	< 0.1-< 0.1	6/year
Barium	µg/L as Ba	3.7	6.0	3.5	3.9	2,000 MAC	3.7	55	3.2-4.2	6/year
Beryllium	µg/L as Be	< 0.1	6.0	< 0.1	< 0.1		< 0.1	55	< 0.1-< 0.1	6/year
Bismuth	µg/L as Bi	< 1	6.0	< 1	< 1		< 1	55	< 1-< 1	6/year
Boron	µg/L as B	< 50	6.0	< 50	< 50	5,000 MAC	< 50	55	< 50-< 50	6/year
Cadmium	µg/L as Cd	< 0.01	6.0	< 0.01	0.013	7 MAC	< 0.01	55	< 0.01-0.015	6/year
Calcium	mg/L as Ca	5.09	6.0	4.68	5.33	No Guideline Required	4.84	57	4.29-7.67	6/year
Chromium	µg/L as Cr	< 1	6.0	< 1	< 1	50 MAC	< 1	55	< 1-5	6/year
Cobalt	µg/L as Co	< 0.2	6.0	< 0.2	< 0.2		< 0.2	55	< 0.2-< 0.5	6/year
Copper	µg/L as Cu	30.9	6.0	24.1	37.6	2,000 MAC / ≤ 1,000 AO	29.2	55	10.9-80.4	6/year
Iron	µg/L as Fe	19.6	6.0	11.6	37.7	≤ 100 AO	22.9	55	10.9-53	6/year

Appendix A, Table 3 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
Lead	µg/L as Pb	< 0.2	6.0	< 0.2	< 0.2	5 MAC	< 0.2	57	< 0.2-0.64	6/year
Lithium	µg/L as Li	< 2	6.0	< 2	< 2		< 2	37	< 2-< 5	6/year
Magnesium	mg/L as Mg	1.19	6.0	1.11	1.27	No Guideline Required	1.14	55	0.982-1.34	6/year
Manganese	µg/L as Mn	4	6.0	1.4	8.5	120 MAC / ≤ 20 AO	3.4	55	1.3-10	6/year
Mercury, Total	µg/L as Hg	< 0.0019	6.0	< 0.0019	< 0.0019	1.0 MAC	< 0.0019	55	< 0.0019-< 0.01	6/year
Molybdenum	µg/L as Mo	< 1	6.0	< 1	< 1		< 1	55	< 1-4.7	6/year
Nickel	µg/L as Ni	< 1	6.0	< 1	< 1		< 1	55	< 1-20.3	6/year
Potassium	mg/L as K	0.133	6.0	0.119	0.136		0.134	55	0.115-0.247	6/year
Selenium	µg/L as Se	< 0.1	6.0	< 0.1	< 0.1	50 MAC	< 0.1	55	< 0.1-0.1	6/year
Silver	µg/L as Ag	< 0.02	6.0	< 0.02	< 0.02	No Guideline Required	< 0.02	55	< 0.02-< 0.02	6/year
Sodium	mg/L as Na	4.315	6.0	4.01	4.61	≤ 200 AO	4.36	55	3.24-7.02	6/year
Strontium	µg/L as Sr	15.65	6.0	14.5	16.1	7,000 MAC	14.7	55	13.2-17.1	6/year
Thallium	µg/L as Tl	< 0.01	6.0	< 0.01	< 0.01		< 0.01	55	< 0.01-< 0.05	6/year
Tin	µg/L as Sn	< 5	6.0	< 5	< 5		< 5	55	< 5-< 5	6/year
Titanium	µg/L as Ti	< 5	6.0	< 5	< 5		< 5	55	< 5-< 5	6/year
Uranium	µg/L as U	< 0.1	6.0	< 0.1	< 0.1	20 MAC	< 0.1	55	<0.1-<0.1	6/year
Vanadium	µg/L as V	< 5	6.0	< 5	< 5		< 5	55	<5-<5	6/year
Zinc	µg/L as Zn	< 5	6.0	< 5	< 5	≤ 5,000 AO	< 5	55	<5-79.4	6/year
Zirconium	µg/L as Zr	< 0.1	6.0	< 0.1	< 0.1		< 0.1	55	<0.1-<0.5	6/year

Notes: mg/L = milligrams per litre; µg/L = micrograms per litre; ND = Not Detected; CFU = Colony Forming Units; NTU = Nephelometric Units; TCU = True Colour Units; AO = Aesthetic Objective; MAC = Max. Acceptable Conc.; Median = middle point of all values

APPENDIX A
TABLE 4. 2025 TREATED WATER QUALITY TRANSMISSION / DISTRIBUTION SYSTEMS GOLDSTREAM SERVICE AREA

PARAMETER		2025 ANALYTICAL RESULTS				CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range Minimum	Range Maximum	≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range Minimum - Maximum	
Metals (ND means less than instrument can detect)										
Mercury, Total	µg/L as Hg	< 0.0019	24	< 0.0019	< 0.0019	1 MAC	< 0.0019	208	< 0.0019-< 0.03	24/year
Aluminum	µg/L as Al	11.2	24	4.7	15.4	2,900 MAC / 100 OG	12.75	226	5-61	24/year
Antimony	µg/L as Sb	< 0.5	24	< 0.5	< 0.5	6 MAC	< 0.5	226	< 0.5-5.59	24/year
Arsenic	µg/L as As	< 0.1	24	< 0.1	0.35	10 MAC	< 0.1	226	< 0.1-1.55	24/year
Barium	µg/L as Ba	3.8	24	3.2	4.2	2,000 MAC	3.7	226	1.6-4.7	24/year
Boron	µg/L as B	< 50	24	< 50	< 50	5,000 MAC	< 50	226	< 50-50	24/year
Cadmium	µg/L as B	< 0.01	24	< 0.01	0.011	7 MAC	< 0.01	226	< 0.01-0.468	24/year
Chromium	µg/L as Cr	< 1	24	< 1	< 1	50 MAC	< 1	226	< 0.1-1.3	24/year
Copper	mg/L as Cu	5.85	24	2.15	24.3	2,000 MAC / 1,000 AO	16.95	226	0.66-12400	24/year
Iron	µg/L as Fe	21.45	24	11.5	46.2	≤ 100 AO	23.7	226	8.2-359	24/year
Lead	µg/L as Pb	< 0.2	24	< 0.2	0.43	5 MAC	0.31	374	< 0.2-1570	24/year
Manganese	µg/L as Mn	4.9	24	2.1	10.4	120 MAC / 20 AO	4	226	1.4-35.1	24/year
Selenium	µg/L as Se	< 0.1	24	< 0.1	< 0.1	50 MAC	< 0.1	226	< 0.1-< 0.1	24/year
Strontium	µg/L as Sr	15.75	24	14	18.4	7,000 MAC	15.15	226	11.1-20.1	24/year
Uranium	µg/L as U	< 0.1	24	< 0.1	< 0.1	20 MAC	< 0.1	226	<0.1-<0.1	24/year
Zinc	µg/L as Zn	< 5	24	< 5	17.8	≤ 5,000 MAC	< 5	226	<5-1660	24/year
Sodium	mg/L as Na	3.645	24	3.08	4.06	≤ 200 AO	3.01	225	1.46-13	24/year
Disinfection Byproducts Parameters (ND means less than method or instrument can detect)										
Nitrosamines										
N-Nitrosodiethylamine	ng/L	1.95	22	< 1.9	< 2		< 1.9	167	0.000375-3.8	24/year
N-Nitrosodimethylamine	ng/L	1.95	22	< 1.9	< 2	40 MAC	< 1.9	173	0.235-6.3	24/year
N-Nitroso-di-n-butylamine	ng/L	1.95	22	< 1.9	< 2		< 1.9	162	< 0.157-42	24/year
N-nitroso-di-n-propylamine	ng/L	1.95	22	< 1.9	< 2		< 1.9	153	< 0.0671-< 2.2	24/year
N-Nitrosoethylmethylamine	ng/L	1.95	22	< 1.9	< 2		< 1.9	161	0-< 2.2	24/year
N-Nitrosomorpholine	ng/L	1.95	22	< 1.9	< 2		< 1.9	162	0.00102-4.6	24/year
N-nitrosopiperidine	ng/L	1.95	22	< 1.9	< 2		< 1.9	160	< 0.0357-< 10	24/year
N-Nitrosopyrrolidine	ng/L	1.95	22	< 1.9	< 2		< 1.9	161	< 0.0662-< 8	24/year
Haloacetic Acids (HAAs)										
Total Haloacetic Acids	µg/L	8	23	< 5	18	80 MAC (ANNUAL AVERAGE)	15	208	< 5-104	24/year
Monobromoacetic Acid (MBAA)	µg/L	< 5	23	< 5	< 5		< 5	209	< 1-< 5	24/year
Dichloroacetic Acid (DCAA)	µg/L	8	23	< 5	12		9.5	209	1.2-30	24/year
Trichloroacetic Acid (TCAA)	µg/L	< 5	23	< 5	6.1		6.2	209	1.3-56	24/year
Bromochloroacetic Acid (BCAA)	µg/L	< 5	23	< 5	< 5		< 5	209	< 1-< 5	24/year
Dibromoacetic Acid (DBAA)	µg/L	< 5	23	< 5	< 5		< 5	209	< 1-5.6	24/year

Appendix A, Table 4 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
Monochloroacetic Acid (MCAA)	µg/L	< 5	23	< 5	< 5		< 5	209	< 1-< 5	24/year
Trihalomethanes (TTHMs)										
Total Trihalomethanes	µg/L	17	23	12	23	100 MAC (ANNUAL AVERAGE)	18	212	11-77.9	24/year
Bromodichloromethane	µg/L	1.8	23	1.3	3.1		< 2	212	< 1-5.7	24/year
Bromoform	µg/L	< 1	23	< 1	< 1		< 1	212	< 1-< 2	24/year
Chlorodibromomethane	µg/L	< 1	23	< 1	< 1		< 1	212	< 1-< 3	24/year
Chloroform	µg/L	15	23	10	20		16	212	9.6-77.9	24/year

Notes: mg/L = milligrams per litre; µg/L = micrograms per litre; ND = Not Detected; CFU = Colony Forming Units; NTU = Nephelometric Units; TCU = True Colour Units; AO = Aesthetic Objective; MAC = Max. Acceptable Conc.; Median = middle point of all values

APPENDIX A
TABLE 5. 2025 TREATED WATER QUALITY DISTRIBUTION SYSTEM SOOKE SERVICE AREA

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range Minimum	Range Maximum	≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range Minimum - Maximum	
Metals (ND means less than instrument can detect)										
Mercury, Total	µg/L as Hg	< 0.0019	6	< 0.0019	0.0045	1 MAC	< 0.0019	54	< 0.0019-< 0.05	6/year
Aluminum	µg/L as Al	9.2	6	5.1	12.4	2,900 MAC / 100 OG	11.8	56	4.6-242	6/year
Antimony	µg/L as Sb	< 0.5	6	< 0.5	< 0.5	6 MAC	< 0.5	56	< 0.5-< 0.5	6/year
Arsenic	µg/L as As	< 0.1	6	< 0.1	0.6	10 MAC	< 0.1	56	< 0.1-0.24	6/year
Barium	µg/L as Ba	3.8	6	3.4	4.3	2,000 MAC	3.7	56	3.2-4.6	6/year
Boron	µg/L as B	< 50	6	< 50	< 50	5,000 MAC	< 50	56	< 50-< 50	6/year
Cadmium	µg/L as B	< 0.01	6	< 0.01	< 0.01	7 MAC	< 0.01	56	< 0.01-0.075	6/year
Chromium	µg/L as Cr	< 1	6	< 1	< 1	50 MAC	< 1	56	< 1-< 1	6/year
Copper	mg/L as Cu	7.84	6	5.47	9.87	2,000 MAC / 1,000 AO	6.34	62	0.85-417	6/year
Iron	µg/L as Fe	25.85	6	19.5	41.1	≤ 100 AO	38.1	56	19.5-278	6/year
Lead	µg/L as Pb	< 0.2	6	< 0.2	< 0.2	5 MAC	< 0.2	110	< 0.2-22.5	6/year
Manganese	µg/L as Mn	3.65	6	2	7.6	120 MAC / 20 AO	2.8	63	< 0.01-1760	6/year
Selenium	µg/L as Se	< 0.1	6	< 0.1	< 0.1	50 MAC	< 0.1	55	<0.1-<0.1	6/year
Strontium	µg/L as Sr	16.25	6	14.9	18.3	7,000 MAC	17.7	55	14.9-21.5	6/year
Uranium	µg/L as U	< 0.1	6	< 0.1	< 0.1	20 MAC	< 0.1	56	<0.1-<0.1	6/year
Zinc	µg/L as Zn	5.05	6	< 5	6.7	≤ 5,000 MAC	< 5	56	<5-660	6/year
Sodium	mg/L as Na	4.38	6	4.23	4.57	≤ 200 AO	4.42	55	3.36-6.08	6/year
Disinfection Byproducts Parameters (ND means less than method or instrument can detect)										
Nitrosamines										
N-Nitrosodiethylamine	ng/L	< 1.9	5	< 1.9	< 2		< 1.9	44	6.25e-005-3.22	6/year
N-Nitrosodimethylamine	ng/L	< 1.9	5	< 1.9	< 2	40 MAC	< 2	45	< 1-4.3	6/year
N-Nitroso-di-n-butylamine	ng/L	< 1.9	5	< 1.9	< 2		< 1.9	41	< 0.268-< 3	6/year
N-nitroso-di-n-propylamine	ng/L	<1.9	5	<1.9	<2		<2	29	<0.019 - <2.1	6/year
N-Nitrosoethylmethylamine	ng/L	< 1.9	5	< 1.9	< 2		< 1.9	41	< 0.082-< 2.1	6/year
N-Nitrosomorpholine	ng/L	< 1.9	5	< 1.9	< 2		< 1.9	42	< 0.257-< 6.6	6/year
N-nitrosopiperidine	ng/L	< 1.9	5	< 1.9	< 2		< 1.9	41	< 0.0806-< 25.9	6/year
N-Nitrosopyrrolidine	ng/L	< 1.9	5	< 1.9	< 2		< 1.9	41	< 0.0806-< 141	6/year
Haloacetic Acids (HAAs)										
Total Haloacetic Acids	µg/L	22.5	6	18	26	80 MAC (ANNUAL AVERAGE)	25	46	16-34	6/year
Monobromoacetic Acid (MBAA)	µg/L	< 5	6	< 5	< 5		< 5	46	< 5-< 5	6/year
Dichloroacetic Acid (DCAA)	µg/L	12	6	11	15		13	46	9.3-19	6/year
Trichloroacetic Acid (TCAA)	µg/L	10.5	6	7.4	12		11.5	46	7.0-18.0	6/year
Bromochloroacetic Acid (BCAA)	µg/L	< 5	6	< 5	< 5		< 5	46	< 5-< 5	6/year
Dibromoacetic Acid (DBAA)	µg/L	< 5	6	< 5	< 5		< 5	46	< 5-< 5	6/year
Monochloroacetic Acid (MCAA)	µg/L	< 5	6	< 5	< 5		< 5	46	< 5-< 5	6/year

Appendix A, Table 5 continued

PARAMETER	2025 ANALYTICAL RESULTS					CANADIAN GUIDELINES	TEN YEAR RESULTS (2015-2024)			Target Sampling Frequency
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range		≤ = Less than or equal to	10 Year Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum - Maximum	
Trihalomethanes (TTHMs)										
Total Trihalomethanes	µg/L	< 0.1	6	< 0.1	< 0.1	100 MAC (ANNUAL AVERAGE)	32	46	24-49	6/year
Bromodichloromethane	µg/L	2.85	6	2.2	4.1		2.8	46	< 1-5	6/year
Bromoform	µg/L	< 1	6	< 1	< 1		< 1	46	< 1-< 1	6/year
Chlorodibromomethane	µg/L	< 1	6	< 1	< 1		< 1	46	< 1-< 1	6/year
Chloroform	µg/L	25.5	6	20	29		29	46	21-45	6/year

Notes: mg/L = milligrams per litre; µg/L = micrograms per litre; ND = Not Detected; CFU = Colony Forming Units; NTU = Nephelometric Units; TCU = True Colour Units; AO = Aesthetic Objective; MAC = Max. Acceptable Conc.; Median = middle point of all values