

# Surfside Water System

2025 Annual Report

**CRD** | Drinking Water

## Introduction

This report provides a summary of the Surfside Park Estates Water Service for 2025 and includes a description of the service, summary of the water supply, demand and production, drinking water quality, operations highlights, capital project updates and financial report.

## Service Description

The community of Surfside is a rural residential development located on Mayne Island in the Southern Gulf Islands Electoral Area, which was originally serviced by a private water utility. In 2003, the service converted to the Capital Regional District (CRD). The Surfside Water Service (Figure 1) area is made up of 127 parcels, of which 105 parcels can be inhabited, encompassing a total area of approximately 25 hectares. Of the 105 parcels, 71 were actively connected to the water system in 2025.

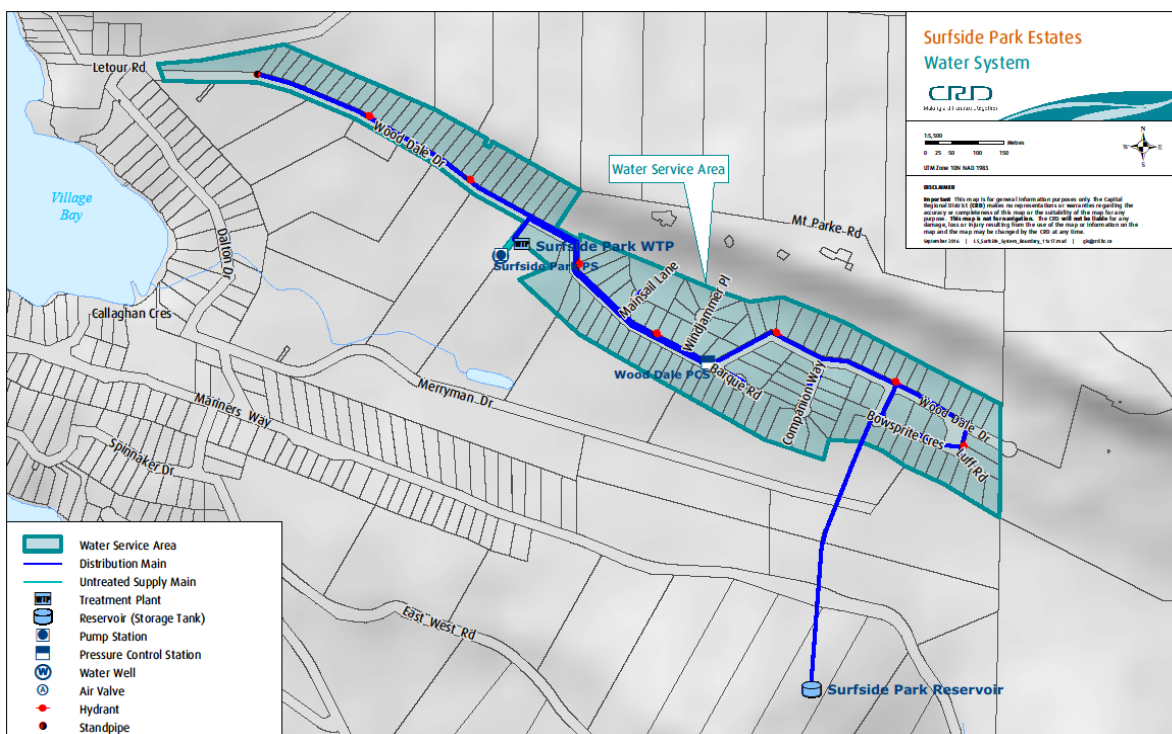


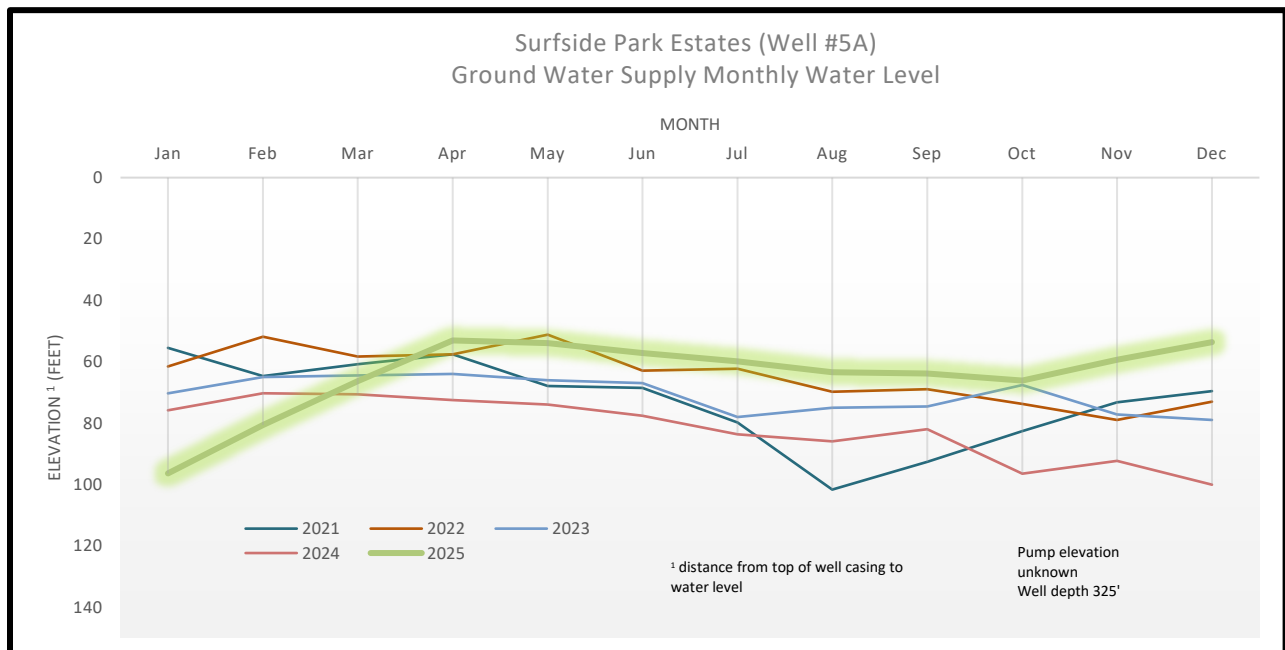
Figure 1: Surfside Park Estates Water Service

The Surfside water system is primarily comprised of:

- One groundwater well, and related pumping and control equipment and building.
- Disinfection process equipment (filters, ultraviolet [UV] light and chlorine).
- Two steel storage tanks (total volume is 113 cubic meters).
- Distribution system (3,800 meters of water mains).
- Other water system assets: 70 service connections and water meters, five hydrants, three standpipes, 30 gate valves, one air release valve, Supervisory Control and Data Acquisition (SCADA) system and portable generator.

## Water Supply

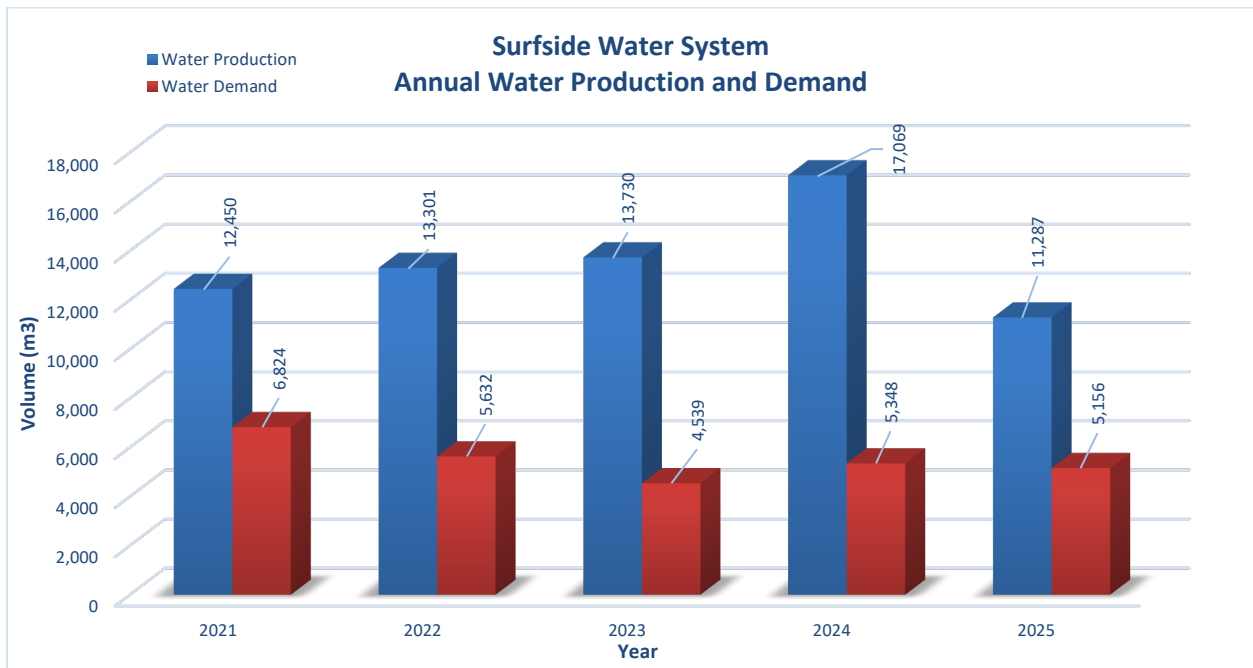
Groundwater supply monthly water levels are highlighted for 2025 in Figure 2. Groundwater levels for 2025 are 20% higher than the 5-year average for the summer period. Aquifer levels are trending up, likely the result of water system leak repairs that were completed in early 2025 and is very noticeable starting in April.



**Figure 2: Surfside Park Estates Well #5A Groundwater Supply Monthly Water Level**

## Water Production and Demand

Referring to Figure 3, 11,287 cubic meters of water was extracted (water production) from the groundwater source (Well #5) in 2025; a 34% decrease from the previous year and a 16% decrease from the five-year average. Water demand (customer water billing) for the service totaled 5,156 cubic meters of water; a 4% decrease from the previous year and a 4% decrease from the five-year average.

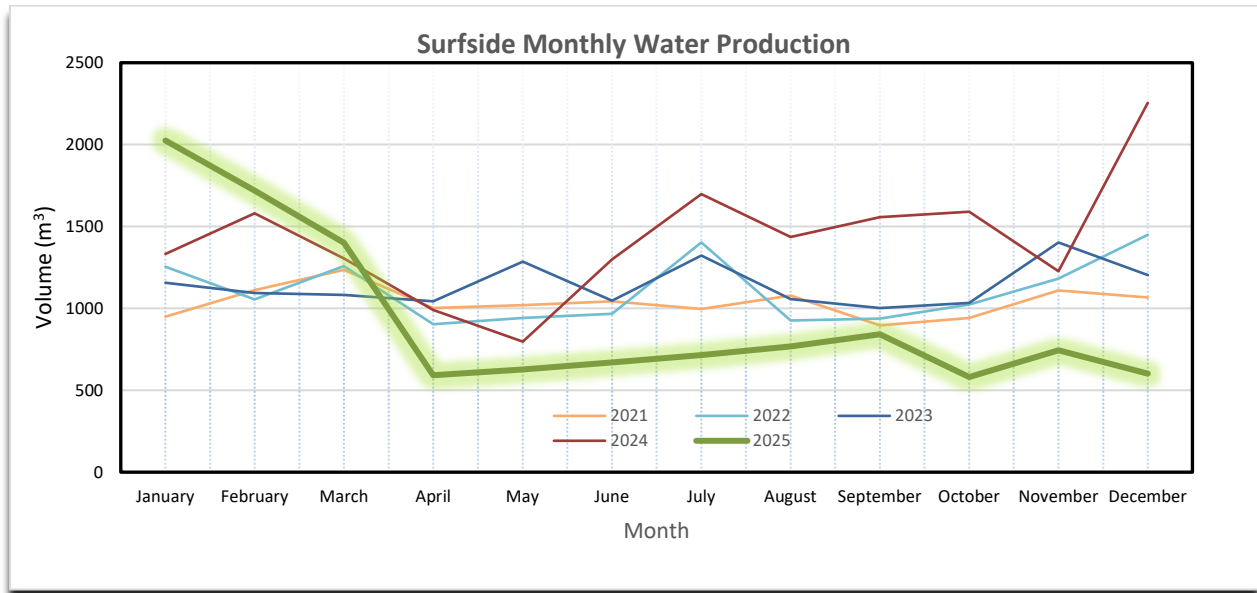


**Figure 3: Surfside Park Estates Water Service Annual Water Production and Demand**

The difference between annual water production and annual customer water demand is referred to as non-revenue water and can include water system leaks, water system maintenance and operational use (e.g. water main flushing, filter system backwashing), potential unauthorized use and fire-fighting use.

The 2025 non-revenue water (6,130 cubic meters) represents approximately 54% of the total water production for the service area and is a significant reduction as seen in Figure 4. Approximately 264 cubic meters of non-revenue water can be attributed to operational use so the remaining amount (52%) of non-revenue water is still considered significant for a small water service. Although there is a significant reduction in non-revenue water historically, the repair efforts completed during the first quarter of the year, an ongoing leak detection program should continue to be a focus for the service.

Figure 4 below illustrates the monthly water production for 2025 along with the historical water production information for the previous four years. Typically, the monthly water production trend is greatest during the summer period (June to September). However, monthly water production for the most part is consistent throughout the year which indicates limited outdoor water use. Monthly water production during the first quarter of 2025 continued to drop as a result of the repair of several water system leaks identified.



**Figure 4: Surfside Park Estates Water Service Monthly Water Production**

## Drinking Water Quality

Staff completed the water quality monitoring program at Surfside in accordance with regulatory requirements and system-specific risks. Samples were collected at regular intervals from the raw water, the treatment plant, and multiple locations within the distribution system. Analyses were conducted at the CRD Water Quality Laboratory or at external laboratories for specialized parameters such as disinfection by-products and metals.

Overall, the water system performed well in 2025 and provided good-quality drinking water to its customers. All raw water samples tested negative for *E. coli* and total coliform bacteria, and all treated water samples were also free of these indicators throughout the year. The raw water continued to exhibit consistently high arsenic concentrations, along with elevated iron and manganese. The leak detection and repair work completed in 2025 had a positive impact on system demand and improved the performance of the arsenic treatment system.

The data below provides a summary of the water quality characteristics in 2025:

### Raw Water:

- Results from Well #5, the only water source, indicated that produced water contained no *E. coli* bacteria and no total coliform bacteria.
- The raw water continued to exhibit naturally elevated concentrations of arsenic, iron, and manganese. Arsenic levels ranged from 42.0 to 57.3 µg/L, which is lower than in 2024. Manganese had a median concentration of 63.9 µg/L, more than double the 2024 value.
- The raw water turbidity was low with a median of 0.48 Nephelometric Turbidity Unit (NTU). In June and December, the well water registered slightly elevated turbidity with 1.1 and 2.2 NTU respectively.
- The raw water was slightly hard, with a median hardness of 50.1 mg/L as CaCO<sub>3</sub>, which is roughly twice the level recorded in 2024. The annual median pH was 7.9.

### Treated Water:

- The treated water was safe to drink with no *E. coli* or total coliform bacteria in any sample.

- The treated water turbidity was very low with a median of 0.10 NTU and no values above 1 NTU all year.
- Arsenic concentrations after treatment remained consistently below the maximum acceptable concentration (MAC) of 10 µg/L, with an annual median of 3.0 µg/L. The successful leak detection and repair work completed in 2025 substantially reduced system demand and extended the lifespan of the arsenic filter media, improving overall filter performance and helping prevent exceedances.
- In February, April and May, iron concentrations at one distribution system sampling station exceeded the aesthetic objective in the Health Canada guidelines. This is likely due to accumulation in a low flow area and should be addressed by regular spot flushing. Manganese concentrations in the treated water were consistently low throughout the year.
- The sampling station at 364/368 Barque Road recorded several atypical lead results, with concentrations up to 24.4 µg/L at various times during the year. These elevated results were determined to be caused by inadequate flushing of the sampling line prior to sample collection. The findings suggest that the sampling port contains lead-bearing fittings (maybe brass), which should be replaced if feasible. These results are not indicative of elevated lead concentrations in the drinking water system as a whole.
- The annual average levels of the disinfection by-product total trihalomethanes (TTHM) were well below the MAC. Haloacetic acids (HAA) were not tested in 2025. Typically, when THM concentrations are low, HAA are also low.
- The free chlorine residual concentrations ranged from 0.04 to 1.29 mg/L in the distribution system indicating good secondary disinfection in most parts of the system except for some dead-end sections with higher water age.

Table 1 and 2 below provide a summary of the 2025 raw and treated water test results.

Water quality data collected from this drinking water system can be reviewed on the CRD website:

<https://www.crd.bc.ca/about/data/drinking-water-quality-reports>

## Operational Highlights

The following is a summary of the major operational issues that were addressed by CRD Infrastructure & Water Services staff:

- On March 4th, 2025, Operations conducted leak detection efforts of the Surfside Water System and identified several leaks at various locations within the water service area. Leak repair planning was initiated, and repairs were prioritized and scheduled based on fixing the largest leak locations first. The following are the leak sites and estimated leak flow rates:
  - Water tank fill line located between Mariners Way and the water tank: 8.5 m<sup>3</sup>/day
  - Wood Dale Drive service line repair/replacement: 13 m<sup>3</sup>/day
  - Barque Road service line repairs and standpipe isolation valve leak replacement: 9.8 m<sup>3</sup>/day.
  - Luff Road leaking 50mm diameter isolation gate valve and connection: 4.6 m<sup>3</sup>/day.
- Water leaks identified in early March were repaired in late March. These repairs resulted in a significant reduction in daily water production for the service. Prior to these repairs, the average daily water production was approximately 68m<sup>3</sup>/day and after leak repairs, it was approximately 25m<sup>3</sup>/day.
- Emergency replacement of the failing water tank solar power panels and charging system.
  - The solar charging system recharges the battery bank which provides power to the water tank level monitoring equipment and communications system. Water level

monitoring and communications is critical infrastructure, without which the water tanks would not refill automatically, and the system would have significant risk.

- Water treatment plant UV equipment replacement.
  - The replacement is part of an approved capital project 25-02.
- Several emergency callouts due to system communications failures and water tank high level alarms. This was primarily due to the failing water tank solar panels and charging system.
- Throughout the reporting period, weekly metals (arsenic) water quality sampling and testing was continued. Given the significant reduction in daily water production as a result of leak repairs, the frequency of this testing will be reduced to biweekly through June and July at which time sampling and testing frequency will revert back to monthly.
- Water treatment plant prefilter media replacement.
  - This preventative maintenance work is funded through the Operating Reserve Fund (ORF) with a \$5,000 budget. While undertaking the work, it was determined that the filtration media vessels also required replacement with unanticipated additional costs exceeding the budget by approximately \$2,300.
- Arsenic filtration media replacement summary:
  - Vessel A: February 7, 2025, August 1, 2025
  - Vessel B: February 7, 2025, November 18, 2025
- New water conservation signage installed on August 28, 2025.
  - The sign was fully funded by a grant provided through the Union of British Columbia Municipalities (UBCM). The sign was installed at the intersection of Village Bay Road and Wood Dale Drive. The old “sandwich board” style water conservation signage are no longer in use.
- Water Treatment Plant SCADA radio communications equipment failed.
  - Given the age and condition of this equipment, it was replaced with cyber secure cellular communications system.

## Capital Projects Update

The Capital Projects that were in progress or completed in 2025 include:

- Petition Process - Under the Local Government Act, participating area approval is required for loan authorization. A petition process was conducted within the Surfside community service area to seek approval to borrow funds for critical capital works, including the Wood Dale Drive Water Main Replacement Project and the Water Storage Tank Replacement Project. Outreach and community engagement included door knocking, phone calls, information mailouts, and public meetings. The petition process requires a majority of property owners to submit petitions to CRD, indicating their support for the borrowing. The 2025 petition process was unsuccessful. Without loan authorization, there is no funding and the CRD is unable to advance the watermain replacement project and other critical works at this time.

## Financial Report

Please refer to the attached 2025 Statement of Operations and Reserve Balances.

Revenue includes parcel taxes (*Transfers from Government*), fixed user fees (*User Charges*), and interest on savings (*Interest earnings*), a transfer from the *Operating Reserve Fund*, and miscellaneous revenue such as late payment charges (*Other revenue*).

Expenses include all costs of providing the service. *General Government Services* include budget preparation, financial management, utility billing and risk management services. *CRD Labour and Operating Costs* include CRD staff time as well as the costs of equipment, tools, and vehicles.

Debt servicing costs are interest and principal payments on long term debt. *Other Expenses* include all other costs to administer and operate the water system, including insurance, water testing and electricity.

The difference between *Revenue and Expenses* is reported as *Net revenue (expenses)*. Any transfers to or from capital or reserve funds for the service (*Transfers to own funds*) are deducted from this amount and it is then added to any surplus or deficit carry forward from the prior year, yielding an Accumulated Surplus (or deficit). In alignment with *Local Government Act Section 374 (11)*, any deficit must be carried forward and included in next year's financial plan.

**Table 1**

<b>Table 1: 2025 Summary of Raw Water Test Results, Surfside Water System</b>										
PARAMETER		2025 ANALYTICAL RESULTS				CANADIAN GUIDELINES	2015-2024 ANALYTICAL RESULTS			
Parameter Name	Units of Measure	Annual Median	Samples Analyzed	Range Minimum Maximum		≤ = Less than or equal to	Median	Samples Analyzed	Range Minimum Maximum	
ND means Not Detected by analytical method used										
<b>Physical Parameters</b>										
Hardness as CaCO <sub>3</sub>	mg/L	50.1	11	25.2	55	No Guideline Required	34.3	59	4.28	60.3
Turbidity	NTU	0.475	12	0.3	2.2		0.45	67	0.15	11
Water Temperature	deg C	12.2	13	10.2	15.1	15°C AO	6.95	210	5.2	21.6
pH	pH units	7.85	2	7.1	8.6	AO pH 7.0 -10.5	8.8	23.0	7	9.2
Total Organic Carbon	mg/L	0.55	4	0.49	0.63		0.67	33	0.44	4.89
<b>Metals</b>										
Aluminum	ug/L as Al	13.1	11	6.9	56.4	2900 MAC / 100 OG	14.5	59	7.2	90.6
Antimony	ug/L as Sb	< 0.5	11	< 0.5	< 1	6 MAC	< 0.5	59	< 0.5	< 2.5
Arsenic	ug/L as As	51.9	11	42	57.3	10 MAC	42.2	125	32.4	91.6
Barium	ug/L as Ba	69.1	11	44	75.4	1000 MAC	51.1	59	15.5	75.5
Beryllium	ug/L as Be	< 0.1	11	< 0.1	< 0.2		< 0.1	59	< 0.1	< 0.5
Bismuth	ug/L as Bi	< 1	11	< 1	< 2		< 1	59	< 1	< 5
Boron	ug/L as B	1720	11	1250	1930	5000 MAC	1780	59	846	3260
Cadmium	ug/L as Cd	< 0.01	11	< 0.01	< 0.02	7 MAC	< 0.01	59	< 0.01	0.135
Calcium	mg/L as Ca	15.7	11	7.95	17.8	No Guideline Required	11.1	59	1.54	19.6
Chromium	ug/L as Cr	< 1	11	< 1	< 2	50 MAC	< 1	59	< 1	21.4
Cobalt	ug/L as Co	< 0.2	11	< 0.2	< 0.4		< 0.2	59	< 0.2	< 1
Copper	ug/L as Cu	0.89	11	< 0.2	18.9	2000 MAC / ≤ 1000 AO	0.68	59	< 0.2	114
Iron	ug/L as Fe	33.3	11	18	371	≤ 100 AO	26	58	13	1850
Lead	ug/L as Pb	< 0.2	11	< 0.2	1.94	5 MAC	< 0.2	59	< 0.2	3.11
Lithium	ug/L as Li	61	11	54.4	77.2		64.2	43	50.4	84.6
Magnesium	mg/L as Mg	2.33	11	1.21	2.72	No Guideline Required	1.5	59	0.1	2.76
Manganese	ug/L as Mn	63.9	11	30.2	151	120 MAC / ≤ 20 AO	35.1	59	< 2	76.4
Molybdenum	ug/L as Mo	< 1	11	< 1	< 2		< 1	59	< 1	23
Nickel	ug/L as Ni	< 1	11	< 1	26.7		< 1	59	< 1	93
Potassium	mg/L as K	1.76	11	1.52	2.1		1.74	59	1.18	2.26
Selenium	ug/L as Se	< 0.1	11	< 0.1	0.35	50 MAC	< 0.1	59	< 0.1	1.24
Silicon	ug/L as Si	7590	11	6850	8560		7140	59	5870	8490
Silver	ug/L as Ag	< 0.02	11	< 0.02	< 0.04	No Guideline Required	< 0.02	59	< 0.02	< 0.1
Sodium	mg/L as Na	127	11	104	157	≤ 200 AO	126	59	13.1	188
Strontium	ug/L as Sr	340	11	169	410	7000 MAC	234	59	41	410
Sulfur	mg/L as S	16.2	11	13	19.9		17.6	59	11.7	28.7
Thallium	ug/L as Tl	< 0.01	11	< 0.01	< 0.02		< 0.01	59	< 0.01	< 0.05
Tin	ug/L as Sn	< 5	11	< 5	< 10		< 5	59	< 5	< 25
Titanium	ug/L as Ti	< 5	11	< 5	< 10		< 5	59	< 5	< 25
Uranium	ug/L as U	< 0.1	11	< 0.1	< 0.2	20 MAC	< 0.1	59	< 0.1	< 0.5
Vanadium	ug/L as V	< 5	11	< 5	< 10		< 5	59	< 5	< 25
Zinc	ug/L as Zn	6	11	< 5	39.3	≤ 5000 AO	< 5	59	< 5	52.7
Zirconium	ug/L as Zn	< 0.1	11	< 0.1	< 0.2		< 0.1	59	< 0.1	< 0.5
<b>Microbial Parameters</b>										
<b>Indicator Bacteria</b>										
Coliform, Total	CFU/100 mL	< 1	12	< 1	< 1		< 1	118	< 1	< 10
<i>E. coli</i>	CFU/100 mL	< 1	12	< 1	< 1		< 1	118	< 1	< 10
Heterotrophic bacteria, 7 day	CFU/mL	Not analyzed in 2025								
<b>Parasites</b>										
<i>Cryptosporidium</i> , Total oocysts	oocysts/100 L	Last tested in 2015				Zero detection desirable				
<i>Giardia</i> , Total cysts	cysts/100 L	Last tested in 2015				Zero detection desirable				

**Table 2**

<b>Table 2: 2025 Summary of Treated Water Test Results, Surfside Water System</b>										
<b>PARAMETER</b>		<b>2025 ANALYTICAL RESULTS</b>				<b>CANADIAN GUIDELINES</b>	<b>2015-2024 ANALYTICAL RESULTS</b>			
Parameter Name	Units of Measure	Annual Median	Samples Analyzed	Range Minimum Maximum		≤ = Less than or equal to	Median	Samples Analyzed	Range Minimum Maximum	
ND means Not Detected by analytical method used										
<b>Physical Parameters</b>										
Hardness	mg/L as CaCO3	40.6	52	23.3	58.8		30.6	121	6.43	55.9
pH	pH units	8	2	7.9	8.1	AO pH 7.0 -10.5	8.5	27	6.8	9.2
Turbidity	NTU	0.1	12	0.05	0.25		0.15	121	0.09	1.8
Total Organic Carbon	mg/L	0.525	8	0.44	0.62		< 0.5	60	< 0.2	1.51
Water Temperature	deg C	12	119	1.5	21	15°C AO	8.1	1724	0.32	24.5
<b>Microbial Parameters</b>										
<b>Indicator Bacteria</b>										
Coliform, Total	CFU/100 mL	< 1	60	< 1	< 1	0 MAC	< 1	440	<1	1
<i>E. coli</i>	CFU/100 mL	< 1	60	< 1	< 1	0 MAC	< 1	440	<1	< 1
Hetero. Plate Count, 7 day	CFU/1 mL	280	3	270	360	No Guideline Required	< 10	44	<1	940
<b>Disinfectants</b>										
<b>Disinfectants</b>										
Chlorine, Free Residual	mg/L as Cl2	0.63	118	0.04	1.29		0.56	1726	0.04	2.06
Chlorine, Total Residual	mg/L as Cl2	Not tested in 2025					0.58	915	0.12	1.87
<b>Disinfection By-Products</b>										
<b>Disinfection Byproducts</b>										
Bromodichloromethane	ug/L	3.7	8	1.6	7.6		2.5	62	1.1	18
Bromoform	ug/L	5	8	2.1	12		6.1	62	1.9	18
Chloroform	ug/L	2.05	8	1.1	3.3		1.85	62	<1	10
Chlorodibromomethane	ug/L	6.85	8	2.2	13		5.05	62	1.5	14
Total Trihalomethanes	ug/L	19	8	7	32	100 MAC	21	61	5.7	50
<b>Haloacetic Acids (HAAs)</b>										
HAA5	ug/L	Not tested in 2025				80 MAC	< 0.1	2	< 0.1	< 0.1
<b>Metals</b>										
Aluminum	ug/L as Al	< 3	52	< 3	106	2900 MAC / 100 OG	< 6	120	< 3	42.2
Antimony	ug/L as Sb	< 0.5	52	< 0.5	< 1	6 MAC	< 0.5	120	< 0.05	< 2.5
Arsenic	ug/L as As	3.005	52	1.12	9.91	10 MAC	4.66	195	0.11	31
Barium	ug/L as Ba	37.3	52	12.9	78.8	1000 MAC	40.25	120	3.2	69.9
Beryllium	ug/L as Be	< 0.1	52	< 0.1	< 0.2		< 0.1	120	< 0.1	< 0.5
Bismuth	ug/L as Bi	< 1	52	< 1	14		< 1	120	< 1	< 5
Boron	ug/L as B	1740	52	1260	2070	5000 MAC	1830	120	1200	2240
Cadmium	ug/L as Cd	< 0.01	52	< 0.01	0.056	7 MAC	< 0.01	120	< 0.01	< 0.05
Calcium	mg/L as Ca	12.25	52	7.5	18	No Guideline Required	9.56	121	2.4	18
Chromium	ug/L as Cr	< 1	52	< 1	3.4	50 MAC	< 1	120	< 1	< 5
Cobalt	ug/L as Co	< 0.2	52	< 0.2	< 0.4		< 0.2	120	< 0.2	< 1
Copper	ug/L as Cu	3.49	52	0.7	172	2000 MAC / ≤ 1000 AO	2.735	120	0.44	95.3
Iron	ug/L as Fe	6.95	52	< 5	643	≤ 100 AO	< 10	120	< 5	185
Lead	ug/L as Pb	0.83	52	< 0.2	24.4	5 MAC	< 0.4	120	< 0.2	4.95
Lithium	ug/L as Li	57.55	52	52.5	78.2		63.6	98	53.3	79.8
Magnesium	mg/L as Mg	2.215	52	1.03	3.41	No Guideline Required	1.62	121	0.104	3.05
Manganese	ug/L as Mn	< 1	52	< 1	8.3	120 MAC / ≤ 20 AO	1.45	120	< 1	31
Molybdenum	ug/L as Mo	< 1	52	< 1	< 2		< 1	120	< 1	< 5
Nickel	ug/L as Ni	< 1	52	< 1	23.1		< 1	120	< 1	13.4
Potassium	mg/L as K	1.77	52	1.61	1.95		1.74	121	1.37	2.16
Selenium	ug/L as Se	< 0.1	52	< 0.1	< 0.2	50 MAC	< 0.1	120	< 0.1	< 0.5
Silicon	ug/L as Si	7500	52	4750	8300		6875	120	330	8950
Silver	ug/L as Ag	< 0.02	52	< 0.02	< 0.04	No Guideline Required	< 0.02	120	< 0.02	< 0.1
Sodium	mg/L as Na	131	52	114	150	≤ 200 AO	129	121	102	153
Strontium	ug/L as Sr	310.5	52	155	422	7000 MAC	251	120	15.2	399
Sulphur	mg/L as S	16.6	52	13.4	21.2		17.8	121	13.8	22.4
Thallium	ug/L as Tl	< 0.01	52	< 0.01	< 0.02		< 0.01	120	< 0.01	< 0.05
Tin	ug/L as Sn	< 5	52	< 5	< 10		< 5	120	< 5	< 25
Titanium	ug/L as Ti	< 5	52	< 5	< 10		< 5	120	< 5	< 25
Uranium	ug/L as U	< 0.1	52	< 0.1	< 0.2	20 MAC	< 0.1	120	< 0.1	< 0.5
Vanadium	ug/L as V	< 5	52	< 5	< 10		< 5	120	< 5	< 25
Zinc	ug/L as Zn	8.1	52	< 5	636	≤ 5000 AO	< 10	120	< 5	59
Zirconium	ug/L	< 0.1	52	< 0.1	< 0.2		< 0.1	120	< 0.1	< 0.5