

# REGIONAL DISTRICT OF NANAIMO

## Water Service Area Annual Report 2023



### Surfside Water Service Area

June 2024



**REGIONAL DISTRICT OF NANAIMO**

*Water Services Department*

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Appendix A - Map of Surfside Water Service Area

Appendix B - Water Quality Testing Results

Appendix C - Emergency Response & Contingency Plan

## 1. Introduction

The following annual report describes the Surfside Water Service Area and summarizes the water quality and production data from 2023. This report also includes a summary of inquiries and complaints, completed and proposed maintenance activities, Operator Certification, the Emergency Response & Contingency Plan, and the Cross Connection Control Program. This report is to be submitted to Island Health by the spring of 2024.

## 2. Surfside Water Service Area

The Surfside Water Service Area was established in 1986 and comprises an area northwest of Qualicum Beach on Surfside Drive and part of McFeely Drive. There are 39 water service connections in the Surfside Water Service Area. The water source comes from two groundwater wells located nearby. The water source is chlorinated and pumped into the service area on-demand via a constant pressure system installed in 2023. A back-up generator is present at the pumphouse, should it be required. A map of the Surfside Water Service Area is provided in Appendix A for reference.

### 2.1 Groundwater Wells

Two groundwater production wells are present in the well field at 3547 West Island Highway, north of Qualicum Beach, B.C.

Well / Name	Well Depth	Wellhead Protection In Place	Treated/Untreated with Chlorine
#1	9.4 m	Yes	Treated
#2	9.8 m	Yes	Treated

### 2.2 Reservoirs

There is no water storage reservoir in the Surfside Water Service Area. Water supply is pumped into the system via a high efficiency constant pressure system.

### 2.3 Distribution System

The water distribution system in Surfside is summarized in the table below. Flushouts are present, but there are no fire hydrants on the system.

Watermain Material	Length of mains in Surfside Water Service Area	Prevalence in Water Service Area
AC: 150mm or smaller AC: 200mm or larger	0.8 km none	72.5% n/a
PVC: 150mm or smaller PVC: 200mm or larger	0.006 km 0.3 km	0.5% 27%

*Note: 'AC' is Asbestos-Concrete, 'PVC' is poly-vinylchloride (plastic)*

### 3. Water Sampling and Testing Program

Water sampling and testing is carried out weekly in the distribution system. Notably, an in-line chlorine analyzer was installed in 2020 that monitors chlorine residual in the drinking water constantly, and will send an alarm to RDN Operators if chlorine level drops below the operating level. Chlorine residual levels are maintained in order to ensure the absence of bacterial regrowth in the water mains. The following table includes a summary of all testing:

Timing	Location	Tests
Weekly	RDN (in-house) Laboratory	Total coliforms, E.Coli Temperature, pH, Conductivity Free chlorine residual, Salinity, TDS
Weekly (or as required)	BC Centre for Disease Control	Total coliforms, E.Coli
Monthly/Quarterly (well water only)	Bureau Veritas	Monthly- Chloride Quarterly- Chloride, Sodium, Conductivity, TDS
Annual Source Water Testing (every Fall)	Bureau Veritas	Complete potability testing of raw well water, including T-Ammonia
Annual System Water Testing (every Spring)	Bureau Veritas	Complete potability testing of distribution system , including T-Ammonia

### 4. Water Quality - Source Water and Distribution System

Up-to-date water quality reports and lab data are posted monthly on the RDN website at [www.rdn.bc.ca/surfside](http://www.rdn.bc.ca/surfside). Tables of water quality testing results for both the source water and distribution system are provided at the end of this report under Appendix B.

### 5. Water Quality Inquiries and Complaints

Very few water quality complaints and inquiries were received from the Surfside water service area. Most inquiries were related to high water restrictions, long-term water quality, and high water bills that were often due to leaks.

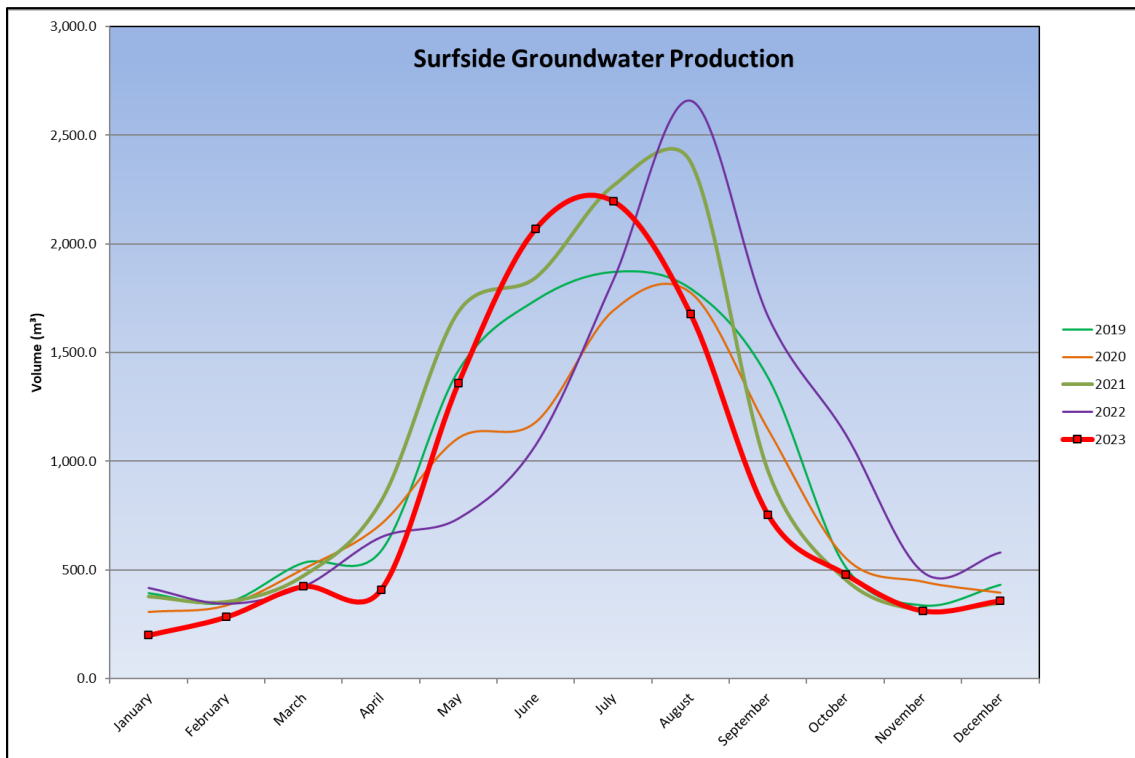


A summary of the water system incidents in 2023 is given in the table below.

Activity in 2023	Date(s)	History/Notes
Boil Water Advisories	None	None
High Turbidity Events	None	None
Equipment Malfunction	None	None
Water Main Breaks	None	None
Pump Failures	None	None

### 6. Groundwater Production

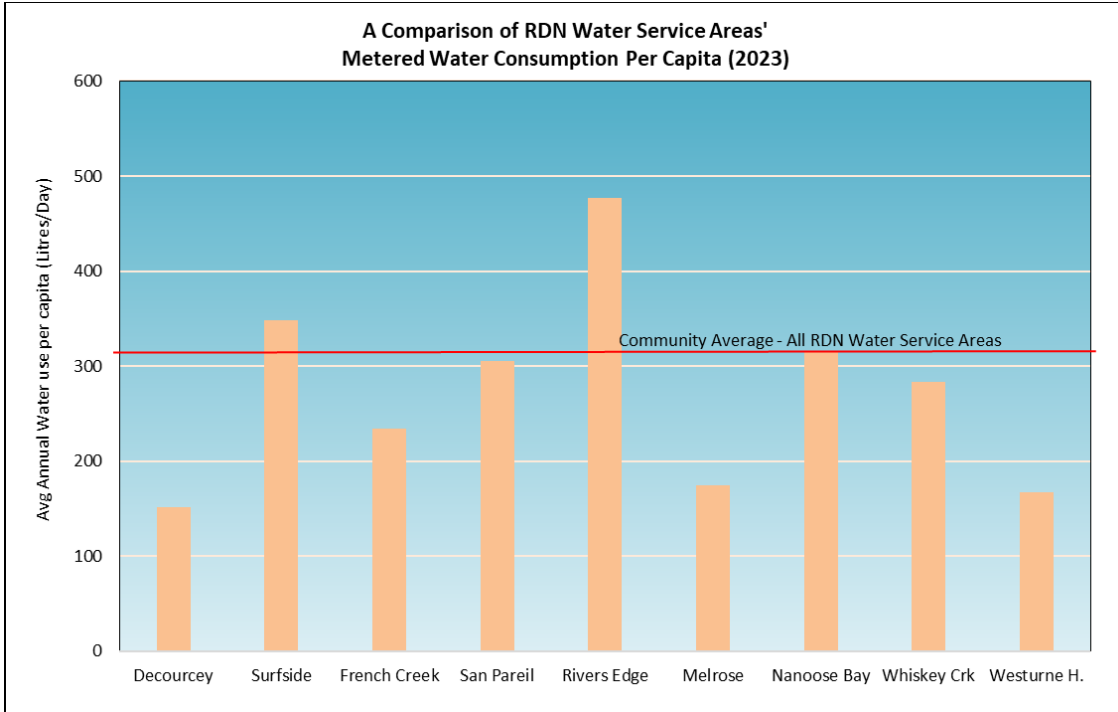
Monthly groundwater production in the Surfside Water Service Area for the past 5 years is shown in the chart below. Groundwater production in 2023 was above average in the spring and early summer in comparison to previous years due to high seasonal temperatures.



#### Consumption

In the Fall/Winter of 2023, the average usage per home in Surfside was 0.48 cubic metres per day (105.6 imperial gallons). In the summer, the average water usage was 1.53 cubic metres per day (337 imperial gallons). Based on these figures, the annual consumption per capita is estimated to be 348 L/day (based on 2.4 people/household). This consumption is **11% more** than all the other RDN system averages of 313 L/day/capita in 2023.





## 7. Maintenance Program

A weekly pump station inspection is carried out to reduce or eliminate the risk of contamination and system failure, and to ensure the consistent application of chlorine for treatment purposes. Watermains are flushed once annually in the spring. There are no fire hydrants in this water service area due to insufficient supply and capacity for fire flows. Twenty-four hour on-call coverage is in place to respond to water system emergencies and alarms.

## 8. Operator Certification

The Regional District Water & Utility Services staff is comprised of one Manager, one Project Engineer, one Engineering Technologist, one Chief Operator, one Engineering Technician, and seven certified operators. The operators receive ongoing training and certification in:

- |                            |                                                           |                            |
|----------------------------|-----------------------------------------------------------|----------------------------|
| ✓ Water Treatment          | ✓ Chlorine Handling                                       | ✓ Confined Space Awareness |
| ✓ Water Distribution       | ✓ WHMIS (Workplace Hazardous Material Information System) | ✓ Fall Protection          |
| ✓ Wastewater Collection    | ✓ TDG (Transportation of Dangerous Goods)                 | ✓ First Aid                |
| ✓ Cross Connection Control |                                                           | ✓ Silica Awareness         |
| ✓ Asbestos Awareness       |                                                           |                            |

## 9. Water Service Area Projects

### 9.1 2023 Completed Studies & Projects

- Upgraded well pumps to improve efficiency;
- Corresponded with residents regarding water conservation;

- Utilized leak detection equipment and tracking;
- Began billing for metered consumption based on revised water rates;
- Followed Cross Connection Control program to reduce backflow prevention risks;
- Enforced outdoor watering restrictions during summer months;
- Advised residents regarding water leak repairs and bill adjustments;
- Continued the 2021-2030 Water Conservation Plan;
- Completed regular watermain flushing;
- Maintained a high level of water quality;
- Continued quality control through regular testing and monitoring of water system;
- Implemented Phase 2 Water Systems SCADA Master Plan; and
- Continued valve maintenance program.

9.2 2024 Proposed Projects & Upgrades

- Complete irrigation checks for high-water users;
- Continue watermain flushing program and hydrant maintenance;
- Continue leak detection equipment utilization program;
- Introduce new watermain flushing and metering procedures to promote conservation;
- Continue valve maintenance program;
- Continue the 2020-2030 DWWP Water Conservation Plan; and
- Continue to offer numerous water-saving incentives via rebates.



**Waterfront access from Surfside Drive**

**10. Emergency Response & Contingency Plan**

The Regional District Emergency Response & Contingency Plan (ERCP) contains procedures and contact information to efficiently respond to water system emergencies such as contamination of water supply, loss of supply, pump failure, and drought management. The ERCP was reviewed and updated in 2023, and copies are available on our website, at each RDN office, in each pump house, and in each Water Services vehicle. A copy of the ERCP is also attached to this report in Appendix C.

**11. Supply Security**

The RDN continues to effectively manage water supply in Surfside in response to ongoing demand and the effects of climate change. This service area is completely built out so growth in demand is not expected, though initiatives to provide adequate long-term supply and resiliency for groundwater remain a high priority. Improvements to groundwater quality and supply are currently being considered to address emergent issues, and water from backup sources is available to be delivered in the case of an emergency. Groundwater quality is regularly tested in all RDN water service areas. Aquifers within the regional district are monitored through the RDN’s Drinking Water and Watershed Protection (DWWP) program. The most sustainable way to protect water supply is through demand management (conservation), which is promoted through

outreach and stewardship initiatives provided by the RDN's Team WaterSmart, as well as the RDN Water Service Area's Water Conservation Plan 2020-2030. Rebates for well water testing, water smart landscaping, and rainwater harvesting further assist RDN residents to reduce water usage in high demand seasons. A new tiered system for water rates introduced in 2022/23 helps promote conservation by rewarding low water users with reduced rates and encouraging high water users to seek ways to use less. Additional planning and preparation initiatives will be introduced in the future to support water supply security.

## **12. Cross Connection Control**

The RDN's Cross Connection Control Program was put in place to protect the public health by reducing the risk of contaminants flowing back into the public water supply. The RDN Manager of Water Services is the designated Cross Connection Control Manager.

The RDN's Cross Connection Control Program addresses cross connection threats through operating policies and procedures, as well as assisting customers with backflow preventer selection, installation, testing, maintenance and reporting. The program receives its authority from *RDN Cross Connection Control Regulation Bylaw No. 1788*, and the *British Columbia Building Code, Part 7*, which requires that potable water be protected from contamination. Additionally, a webpage has been established at <https://rdn.bc.ca/cross-connection-control-program> to educate RDN water service customers about cross connection hazards, and lists the relevant links to current standards and resources.

Two of the RDN's water system operators carry certification as backflow assembly testers through the British Columbia Water & Waste Association (BCWWA), and one operator is additionally certified as a backflow inspector.

## **13. Cyber Security**

The RDN uses a multi-level approach to cyber-security. Corporate network security is employed via a universal threat management gateway that implements various methods of data security, which includes daily definition updates to block known cyber threats. In addition, all RDN PC's are protected with anti-virus software. RDN water systems are connected to the corporate network via IP-Sec VPN's for remote management by information technology and equipment operators. Future infrastructure upgrades will see our water systems located on segregated networks to limit the vulnerability from cybersecurity threats. All RDN employees are required to regularly complete extensive training on cyber security awareness.

## **14. Closing**

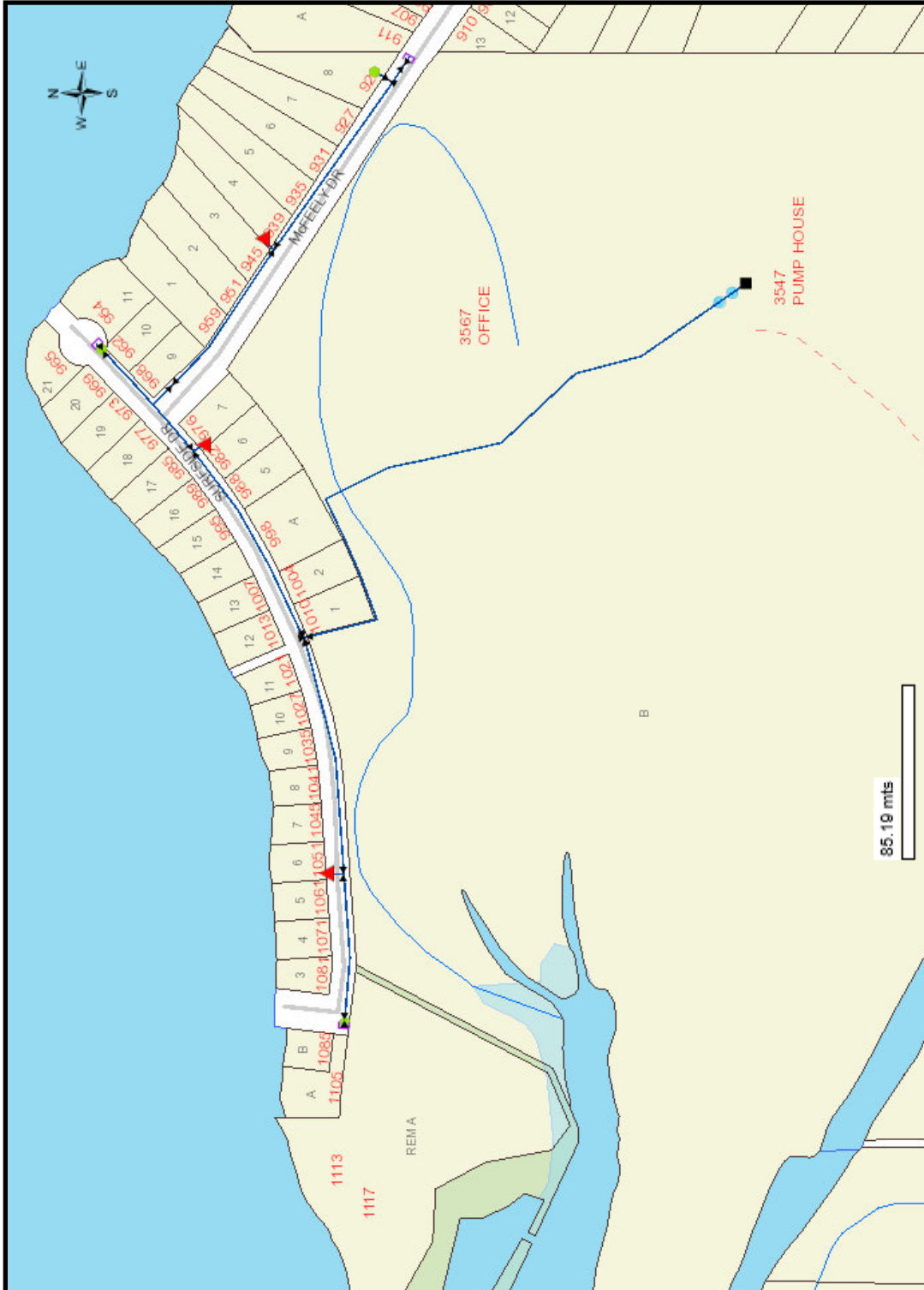
An annual report for the year 2024 will be prepared and submitted to Island Health in the spring of 2025. Annual reports are also available on our website at: [www.rdn.bc.ca/surfside](http://www.rdn.bc.ca/surfside).



**APPENDIX A**

**MAP OF SURFSIDE  
WATER SERVICE AREA**

### SURFSIDE WATER SERVICE AREA



## **APPENDIX B**

### **WATER QUALITY TESTING RESULTS**

# SURFSIDE WATER SERVICE AREA



**Facility Location:** 3547 Island Highway West, Qualicum Beach

**Facility Information:** Facility Type: 15-300 (DWC)

**Facility Sampling History:**

Site Name	Date Collected	Total Coliform	Total E. Coli
1105 Surfside	4-Jan-23	LT1	LT1
962 Surfside	10-Jan-23	LT1	LT1
923 McFeely	18-Jan-23	LT1	LT1
1105 Surfside	8-Feb-23	LT1	LT1
962 Surfside	13-Feb-23	LT1	LT1
923 McFeely	21-Feb-23	LT1	LT1
1105 Surfside	7-Mar-23	LT1	LT1
962 Surfside	13-Mar-23	LT1	LT1
923 McFeely	20-Mar-23	LT1	LT1
1105 Surfside	3-Apr-23	LT1	LT1
962 Surfside	12-Apr-23	LT1	LT1
1105 Surfside	26-Apr-23	QRWRT	QRWRT
962 Surfside	3-May-23	LT1	LT1
923 McFeely	10-May-23	LT1	LT1
1105 Surfside	15-May-23	LT1	LT1
962 Surfside	6-Jun-23	LT1	LT1
923 McFeely	13-Jun-23	LT1	LT1
1105 Surfside	20-Jun-23	LT1	LT1
1105 Surfside	4-Jul-23	LT1	LT1
962 Surfside	18-Jul-23	LT1	LT1
923 McFeely	26-Jul-23	LT1	LT1
962 Surfside	1-Aug-23	LT1	LT1
923 McFeely	8-Aug-23	LT1	LT1
962 Surfside	15-Aug-23	LT1	LT1
923 McFeely	23-Aug-23	LT1	LT1
1105 Surfside	6-Sep-23	LT1	LT1
923 McFeely	13-Sep-23	LT1	LT1
962 Surfside	20-Sep-23	LT1	LT1
1105 Surfside	11-Oct-23	LT1	LT1
923 McFeely	11-Oct-23	LT1	LT1

962 Surfside	18-Oct-23	LT1	LT1
1105 Surfside	6-Nov-23	LT1	LT1
923 McFeely	6-Nov-23	LT1	LT1
923 McFeely	20-Nov-23	LT1	LT1
962 Surfside	28-Nov-23	LT1	LT1
1105 Surfside	5-Dec-23	LT1	LT1
1105 Surfside	11-Dec-23	LT1	LT1
923 McFeely	11-Dec-23	LT1	LT1
923 McFeely	13-Dec-23	LT1	LT1
962 Surfside	20-Dec-23	LT1	LT1

**Interpreting Sample Reports**

In VIHA, the results of drinking water sampling are reported using the following coding system:

LT1 Less than 1 (no detectable bacteria) - Meaning: No bacteria present

L1 Less than 1 (no detectable bacteria) - Meaning: No bacteria present