REGIONAL DISTRICT OF NANAIMO

Water Service Area Annual Report 2019

Surfside Water System

June 2020

REGIONAL DISTRICT OF NANAIMO
Water & Utility Services Department
6300 Hammond Bay Rd, Nanaimo, BC Canada V9T 6N2 | Ph 250-390-6560

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1. Introduction

The following annual report describes the Surfside Water Service Area and summarizes the water quality and production data from 2019. This report also includes a summary of inquiries and complaints, completed and proposed maintenance activities, Operator Certification, the Emergency Response Plan, and the Cross Connection Control Program.

This report is to be submitted to Island Health by the spring of 2020.

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 38 water service connections in the Surfside Water Service Area. The water source comes from two groundwater wells located nearby. The water source is chlorinated (as of September 2012) and pumped into the system on demand via two pressure tanks. 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 reservoir in the Surfside Water Service Area. Water supply is pumped into the system via a dual pressure tank arrangement.

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, the chlorine residual levels are tested weekly to ensure the absence of bacterial regrowth in the watermains. 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 Monthly- Total Iron and Manganese
Weekly (or as required)	BC Centre for Disease Control	Total coliforms, E.Coli
Monthly/Quarterly (well water only)	Bureau Veritas (formerly Maxxam)	Monthly- Chloride Quarterly- Chloride, Sodium, Conductivity, TDS
Annual Source Water Testing (every Fall)	Bureau Veritas (formerly Maxxam)	Complete potability testing of raw well water, including T-Ammonia
Annual System Water Testing (every Spring)	Bureau Veritas (formerly Maxxam)	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. 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 complaints and inquiries were received from the Surfside water service area, and were typically related to watering restriction times.

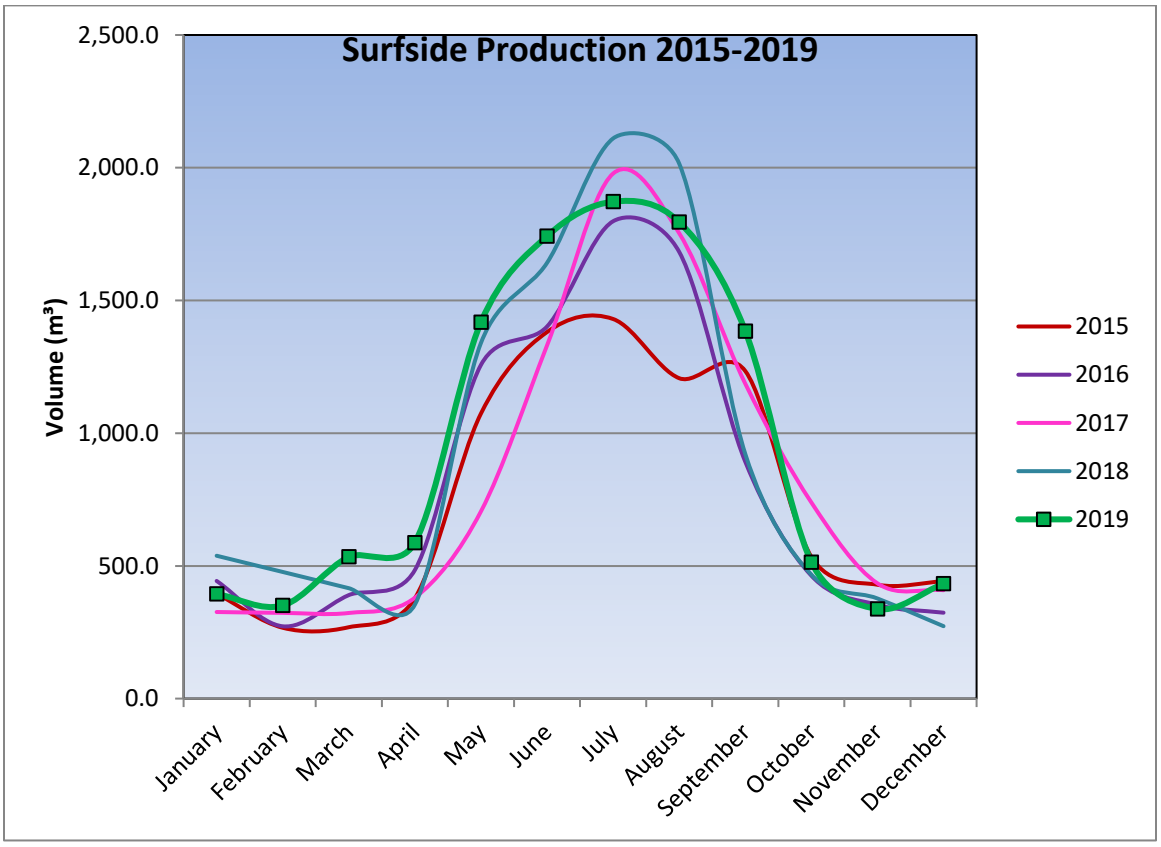
Surfside Pumphouse

A summary of the water system incidents in 2019 is given in the table below.

Activity in 2019	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 2019 was about average in comparison to previous years.



In the Fall/Winter of 2019, the average usage per home in Surfside was 0.39 cubic metres per day (85.8 imperial gallons). In the summer, the average water usage was 1.31 cubic metres per day (288.2 imperial gallons). Based on these figures, the annual consumption per capita is estimated to be 294 L/day (based on 2.4 people/household). This consumption is *1% less* than all the other RDN system averages of 295 L/day/capita in 2019.

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

9. Water Service Area Projects

9.1 2019 Completed Studies & Projects

- Began a Water Systems SCADA Master Plan;
- Began an overall Water System Condition Assessment;
- Corresponded with residents regarding water conservation;
- Enforced outdoor sprinkling regulations;
- Completed irrigation checks for high-water users;
- Advised residents regarding water leak repairs;
- Completed the 10-year Drinking Water Action Plan;
- Adopted a Cross Connection Control Bylaw;
- Created a Cross Connection Control webpage and educational brochure;
- Completed regular watermain flushing;
- Continued quality control through regular testing and monitoring of water system; and
- Maintained a high level of water quality.

9.2 2020 Proposed Projects & Upgrades

- Install an in-line chlorine analyzer;
- Design pumphouse upgrades;
- Update well controls;
- Install a water storage reservoir;
- Update asset database with new assets;
- Continue watermain flushing program;

- Calibrate and service all Hach spectrophotometer lab equipment;
- Implement a Water Systems SCADA Master Plan;
- Review well protection plans;
- Complete a Water System Condition Assessment report;
- Begin the next 10-year DWWP Water Conservation Plan; and
- Continue to offer numerous water-saving incentives via rebates.

10. Emergency Response Plan

The Regional District Emergency Response Plan (ERP) 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 ERP was reviewed and updated in 2019, 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 ERP is also attached to this report in Appendix C.

Waterfront access from Surfside Drive

11. Cross Connection Control

In 2017, a more robust Cross Connection Control Plan was prepared that fully defines the CCC program, including standard operating procedures, plumbing code references, reporting procedures, survey schedules, backflow prevention standards, detailed installation schematics, blank test forms, testing reminders, and non-compliance letters. Two RDN Operators achieved their Backflow Assembly Tester re-certification in 2019. The RDN Manager of Water Services is the designated Cross Connection Control Manager.

In 2019, a stand-alone Cross Connection Control Bylaw was adopted that contains definitions, authorizations, applications, liability, rules, regulations, testing requirements, and reporting requirements. The bylaw addresses retrofits, prohibitions, special circumstances, reclaimed water use, alternate water sources, failure to comply, inspections, testing, offences, penalties and more. A webpage has been established on the Water Services website that educates RDN customers about cross connections and lists the relevant links to current standards and resources.

12. 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.

13. Closing

An annual report for the year 2020 will be prepared and submitted to Island Health in the spring of 2021. Annual reports are also available on our website at: https://www.rdn.bc.ca/surfside.

Surfside Well #2

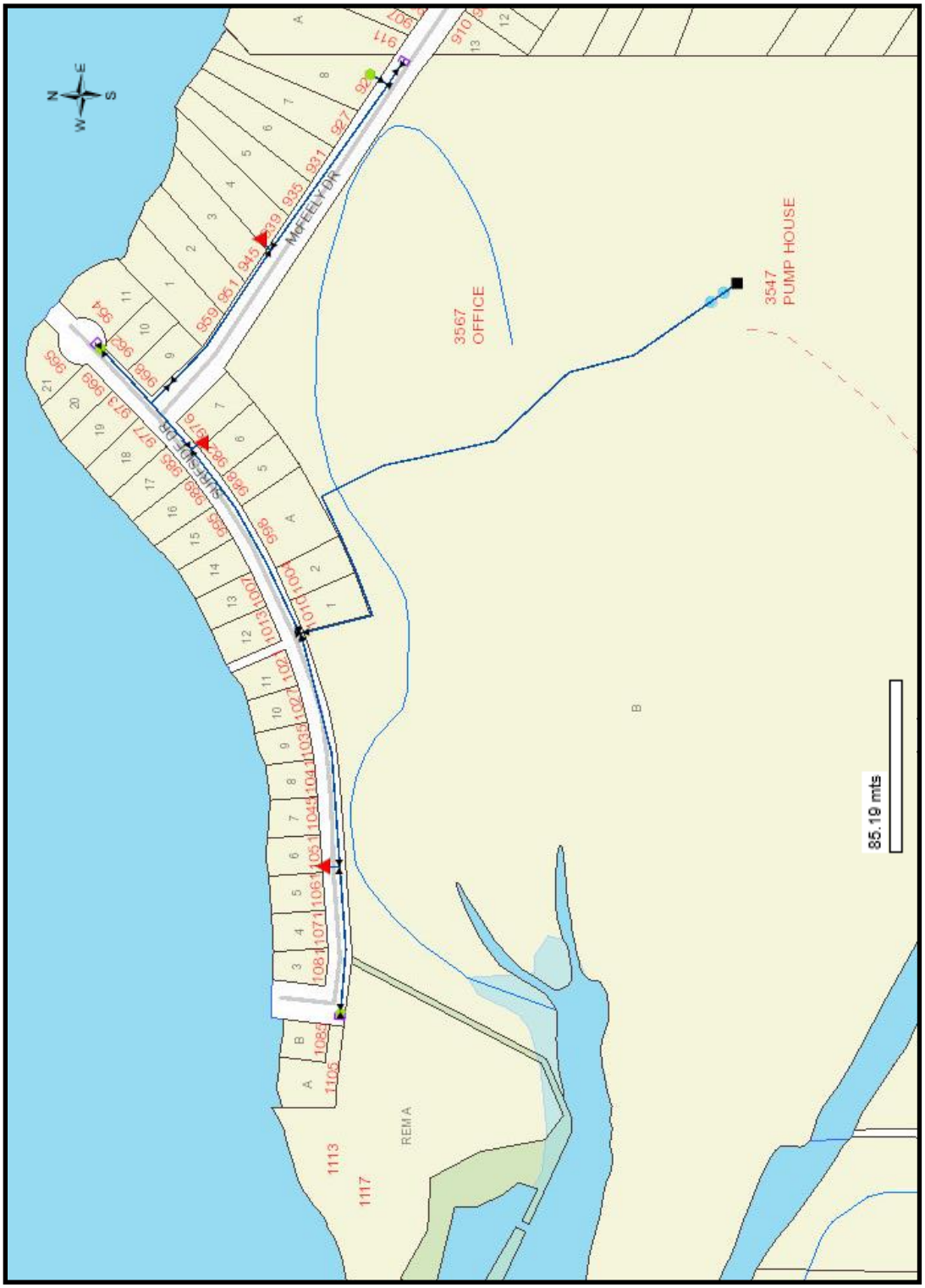
APPENDIX A

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
Parksville

Facility Information:

Facility Type: DWC

Facility Sampling History:

Location	Date	Total Coliform	E. Coli
962 Surfside Drive	16-Dec-2019	L1	L1
923 McFeely	9-Dec-2019	L1	L1
1105 Surfside Drive, Parksville BC	2-Dec-2019	L1	L1
962 Surfside Drive	18-Nov-2019	L1	L1
923 McFeely	12-Nov-2019	L1	L1
1105 Surfside Drive, Parksville BC	4-Nov-2019	L1	L1
962 Surfside Drive	15-Oct-2019	L1	L1
923 McFeely	7-Oct-2019	L1	L1
1105 Surfside Drive, Parksville BC	2-Oct-2019	L1	L1
962 Surfside Drive	18-Sep-2019	L1	L1
923 McFeely	9-Sep-2019	L1	L1
1105 Surfside Drive, Parksville BC	3-Sep-2019	L1	L1
962 Surside Drive	19-Aug-2019	L1	L1
923 McFeely	13-Aug-2019	L1	L1
1105 Surfside Drive, Parksville BC	6-Aug-2019	L1	L1
962 Surfside Drive	16-Jul-2019	L1	L1
923 McFeely	9-Jul-2019	L1	L1
1105 Surfside Drive, Parksville BC	2-Jul-2019	L1	L1
923 McFeely	26-Jun-2019	L1	L1
962 Surfside Drive	18-Jun-2019	L1	L1
962 Surfside Drive	18-Jun-2019	L1	L1
923 McFeely	10-Jun-2019	L1	L1
1105 Surfside Drive, Parksville BC	3-Jun-2019	L1	L1

Location	Date	Total Coliform	E. Coli
962 Surfside Drive	21-May-2019	L1	L1
1105 Surfside Drive, Parksville BC	6-May-2019	L1	L1
923 McFeely	15-Apr-2019	L1	L1
962 Surfside Drive	8-Apr-2019	L1	L1
1105 Surfside Drive, Parksville BC	1-Apr-2019	L1	L1
962 Surfside Drive	18-Mar-2019	L1	L1
923 McFeely	11-Mar-2019	L1	L1
1105 Surfside Drive, Parksville BC	5-Mar-2019	L1	L1
962 Surfside Drive	19-Feb-2019	L1	L1
1105 Surfside Drive, Parksville BC	11-Feb-2019	L1	L1
923 McFeely	4-Feb-2019	L1	L1
962 Surside Drive	21-Jan-2019	L1	L1
1105 Surfside Drive, Parksville BC	14-Jan-2019	L1	L1
923 McFeely	7-Jan-2019	L1	L1

Interpreting Sample Reports

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

L1 Less than 1 (no detectable bacteria) - Meaning: No bacteria present
OG Overgrown - Meaning: Too many background bacteria to give an accurate count
EST Estimated Count
A Sample not tested; Too long in transit
C Sample leaked/broken in transit
D Sample not tested; No collection date given
T Sample submitted unsatisfactory. Exceeded 30 hours holding time, please resample.
NS No sample received with requisition