REGIONAL DISTRICT OF NANAIMO

Water Service Area Annual Report 2021

French Creek Water Service Area

June 2022

REGIONAL DISTRICT OF NANAIMO
Water & Utility Services Department
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1.0 Introduction

The following annual report describes the French Creek Water Service Area and summarizes the water quality and production data from 2021. 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 2022.

2.0 French Creek Water Service Area

The French Creek Water Service Area was established in 1980 and comprises an area west of Drew Road and south of the Island Highway between the City of Parksville and the Town of Qualicum Beach (the Sandpiper Subdivision). The water source formerly came from a series of groundwater wells located within the neighbourhood. As of November 4, 2021, bulk water has been supplied by the Town of Qualicum Beach. The water is chlorinated and stored in one reservoir. There are 292 water service connections in the French Creek Water System. In the event of a power failure or water system emergency, back-up water is immediately supplied by the Town of Qualicum Beach through a pressure-sensing valve located on Ormonde Road. A map of the French Creek Water Service Area is provided in Appendix A for reference.

2.1 Groundwater Wells

Six groundwater production wells are present in the French Creek Water Service Area, although none of them are currently in use as drinking water sources.

Well / Name	Well Depth	In Use	Wellhead Protection	Treated/Untreated with Chlorine
#1	39.6 m	No	Yes	n/a
#2	40.5 m	No	Yes	n/a
#4	40.2 m	No	Yes	n/a
#5	50.3 m	No	Yes	n/a
#6	52.4 m	No	Yes	n/a
#7	39.6 m	No	Yes	n/a

French Creek Well #1 was converted to a monitoring well in 2013 due to low production and high iron levels. Wells #5 and #6 are temporarily not in use due to elevated levels of iron and manganese. Wells #2, 4, and 7 were turned off in 2021 when bulk water was supplied by the Town of Qualicum Beach.

2.2 Reservoirs

One service reservoir (steel construction) is present at 1225 Sunrise Drive, Parksville, B.C. and has a capacity of 364 m^3 (80,000 imperial gallons).

2.3 Distribution System

The water distribution system in the French Creek Water Service Area is summarized in the table below. Fire hydrants (26) are located throughout the water service area.

Watermain Material	Length of mains in service area	Prevalence in service area
Asbestos-concrete:		
150mm or smaller	3.5 km	52%
200mm or larger	0.8 km	12%
PVC:		
150mm or smaller	0.9 km	14%
200mm or larger	1.5 km	22%

Note: 'PVC' is poly-vinylchloride (plastic)

3.0 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, Chlorine residual, Salinity, TDS
Semi-Monthly	BC Centre for Disease Control	Total coliforms, E.Coli
Monthly	Bureau Veritas	Iron & Manganese
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

4.0 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/french-creek. 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.

5.0 Water Quality Inquiries and Complaints

Complaints and inquiries that were received from the French Creek water service area in 2021 were typically related to isolated incidents of iron discolouration in the water as well as the change

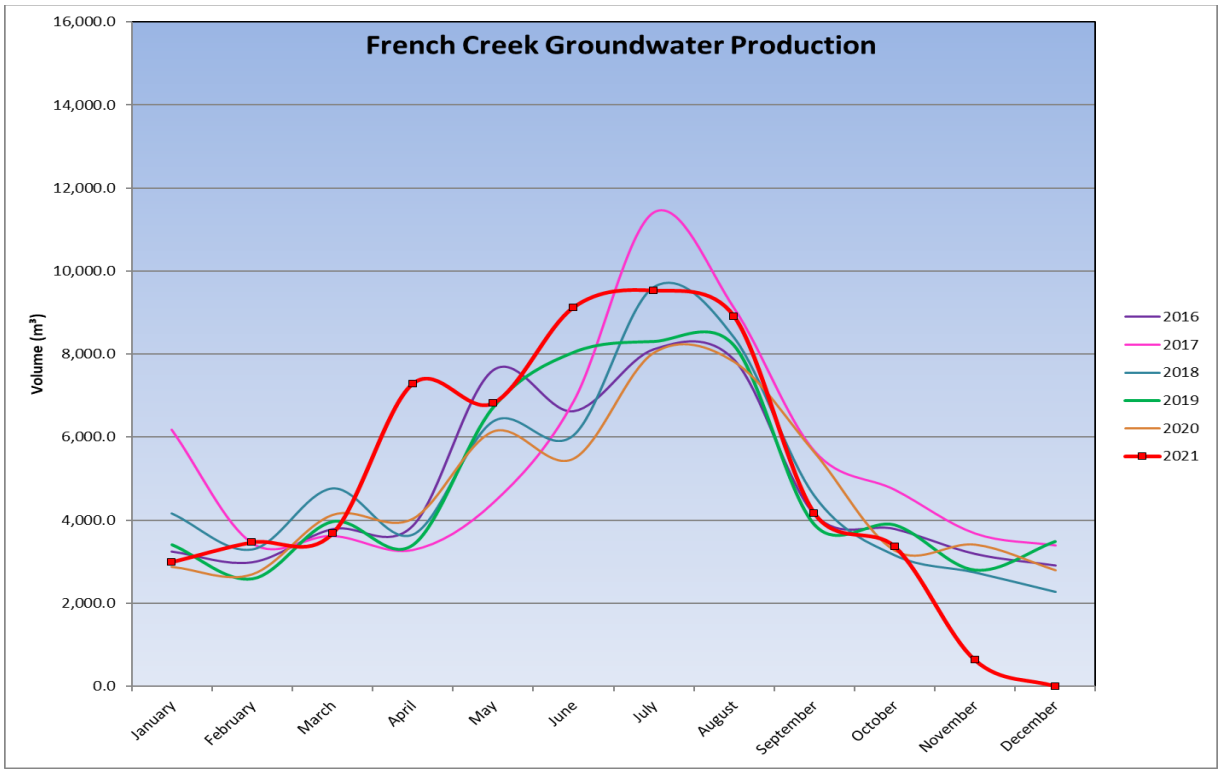
in water sourcing that took place in the Fall. RDN staff respond to discolouration complaints by flushing the owner's water service line at the curb. New federal guidelines put forth in 2019 for the Maximum Allowable Concentration of manganese in drinking water also generated several inquiries from the public. The RDN is compliant with the new Guidelines for Canadian Drinking Water Quality (GCDWQ).

A summary of the water system incidents in 2021 is given in the table below.

Activity in 2021	Date(s)	History/Notes
Boil Water Advisories	None	None, ever.
High Turbidity Events	None	None, ever.
Equipment Malfunction	None	None.
Water Main Breaks	None	None.
Pump Failures	None	Temp power outages.

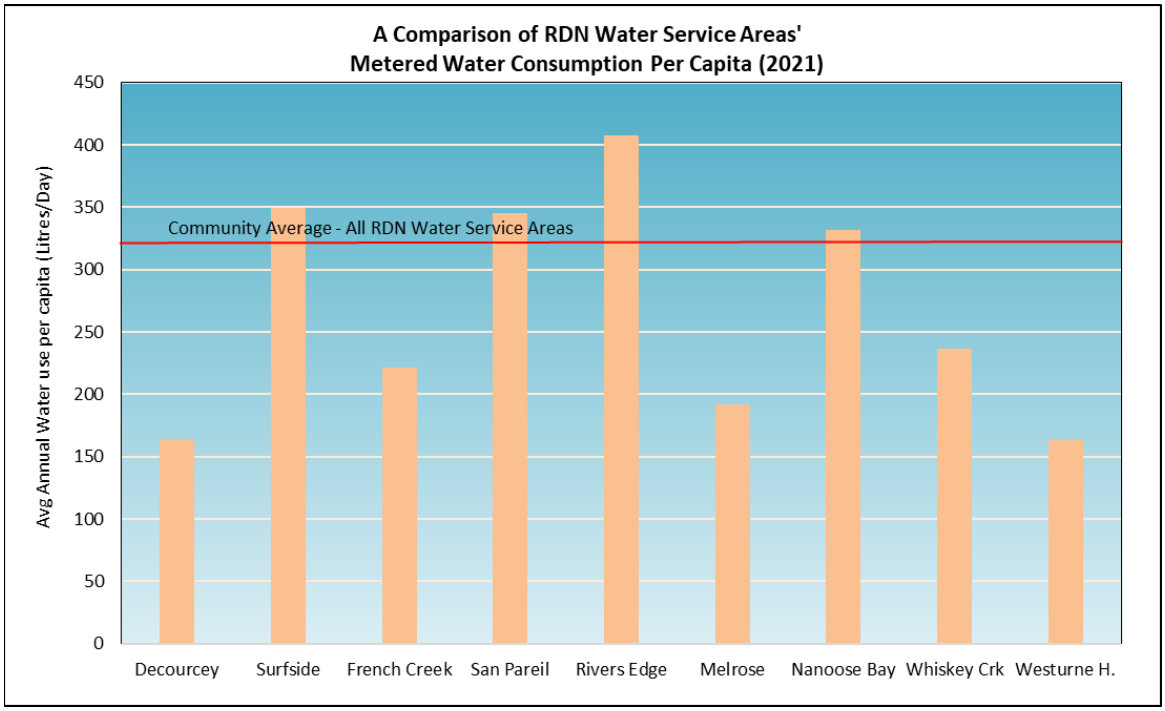
6.0 Groundwater Production and Consumption

The monthly groundwater production in the French Creek Water Service Area for the past 5 years is shown in the chart below. Groundwater production in 2021 was characterized by above average use throughout the first half of the year and a steep decline late in the year due to the wells being turned off.



Consumption

In the Fall/Winter of 2021, the average usage per home in French Creek was 0.46 cubic metres per day (101.2 imperial gallons). In the summer, the average water usage was 1.03 cubic metres per day (226.6 imperial gallons). Based on these figures, the annual consumption per capita is estimated to be 221 L/day (based on 2.4 people per household). This consumption is ***31% less*** than the average of all the other RDN water systems of 321 L/day/capita for 2021.



7.0 Maintenance Program

Weekly pump station inspections are 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 twice annually: once in the spring and once in the fall.

Fire hydrants are serviced once per year (either 'A-level' or 'B-level' maintenance). The water storage reservoir is drained and cleaned once every two years. Twenty-four hour on-call coverage is in place to respond to water system emergencies and alarms.

French Creek Storage Reservoir

8.0 Operator Certification

The Regional District Water & Utility Services staff is comprised of one Manager, one Project Engineer, one Engineering Technologist, one Engineering Technician, one Chief Operator, 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

9.0 Water Service Area Projects

9.1 2021 Completed Studies & Projects

- Carried out November watermain flushing to accommodate switch to new sourcing;
- Continued ongoing meter replacement program;
- Corresponded with residents regarding water conservation;
- Enforced outdoor sprinkling regulations;
- Advised residents regarding water leak repairs;
- Implemented the 2021-2030 Water Conservation Plan;
- Completed regular watermain flushing and hydrant maintenance;
- Maintained a high level of water quality;
- Continued quality control through regular testing and monitoring of water system;
- Implemented the Water Systems SCADA Master Plan; and
- Began valve maintenance program.

9.2 2022 Proposed Projects & Upgrades

- Clean reservoir and continue maintenance;
- Commission new water supply line from the Town of Qualicum Beach;
- Complete meter replacement program;
- Complete irrigation checks for high-water users;
- Continue watermain flushing program and hydrant maintenance;
- Implement Phase 2 Water Systems SCADA Master Plan;
- Utilize leak detection equipment;
- Continue valve maintenance program;
- Continue the 2021-2030 DWWP Water Conservation Plan; and
- Continue to offer numerous water-saving incentives via rebates.

10.0 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 2021, and copies are available on our website, at each RDN office, in each pumphouse, and in each Water Services vehicle. A copy of the ERCP is also attached to this report in Appendix C.

11.0 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 received certification as backflow assembly testers through the British Columbia Water & Waste Association (BCWWA).

12.0 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.

13.0 Closing

An annual report for the year 2022 will be prepared and submitted to Island Health in the spring of 2023. Annual reports are also available on our website at: https://www.rdn.bc.ca/french-creek.

French Creek Well #2 pumphouse

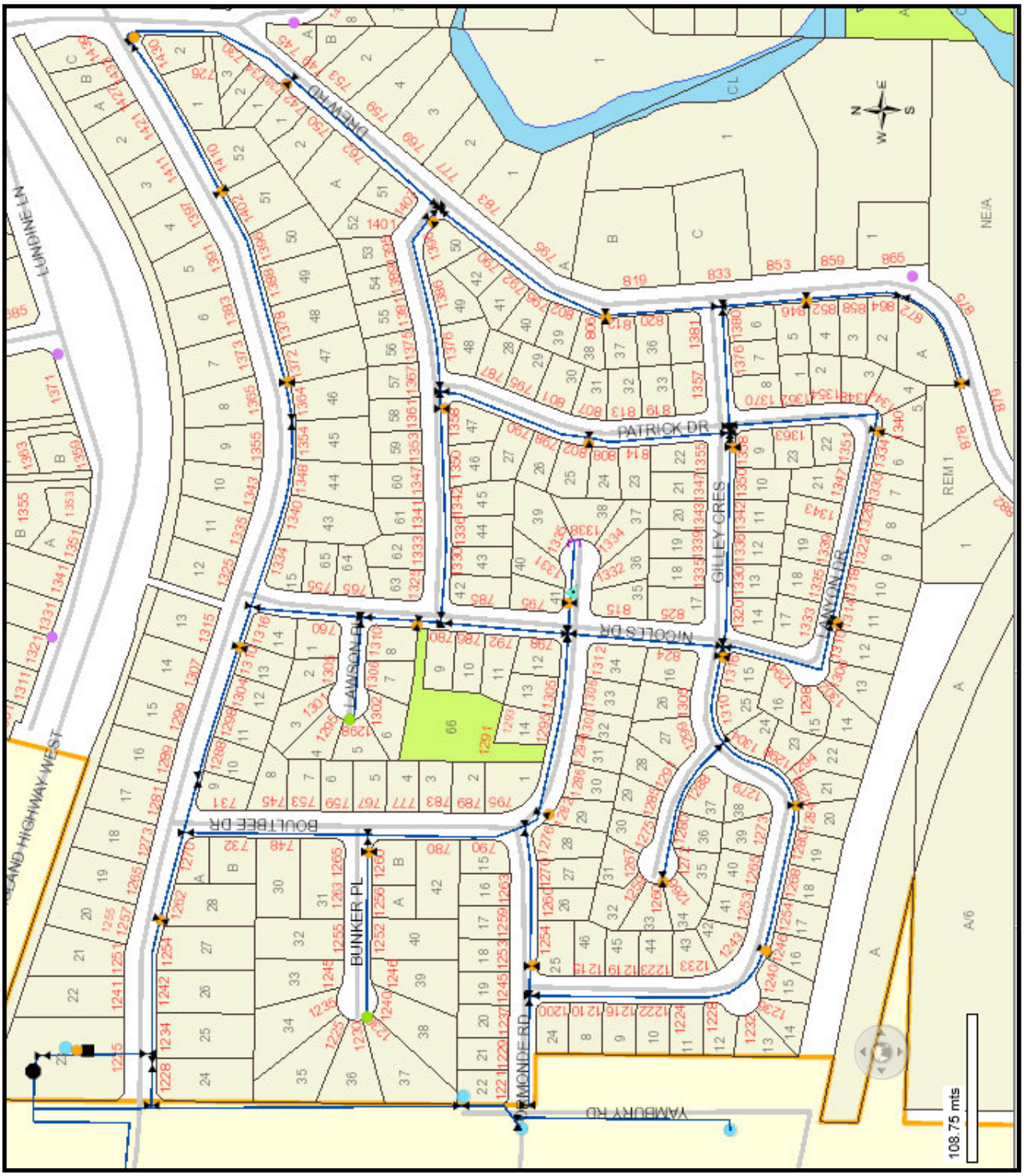
APPENDIX A

MAP OF FRENCH CREEK

WATER SERVICE AREA

FRENCH CREEK

WATER SERVICE AREA



APPENDIX B

WATER QUALITY TESTING RESULTS

FRENCH CREEK WATER SERVICE AREA

island health

Facility Location:
1480 Industrial Way

Facility Information: Facility Type: 301-10,000 Connections DWT

Facility Sampling History:

Date Collected	Drinking Water System	Total E. Coli	Total Coliform	Site Name
01/06/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
02/03/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
03/15/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
04/19/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
05/03/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
06/01/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
07/06/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
08/03/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
09/07/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
10/25/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
11/01/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
11/22/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
11/29/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
12/08/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
12/14/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1228 Sunrise in ground sampling port at water meter
01/11/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port
02/08/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port

Date Collected	Drinking Water System	Total E. Coli	Total Coliform	Site Name
03/10/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port
04/12/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port
05/10/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port
06/07/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port
07/12/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port
08/09/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port
09/13/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port
10/18/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port
11/22/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port
11/29/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port
12/08/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port
12/14/2021	FRENCH CREEK WATER SERVICE AREA	LT1	LT1	1381 Gilley Crescent Sample Port

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
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