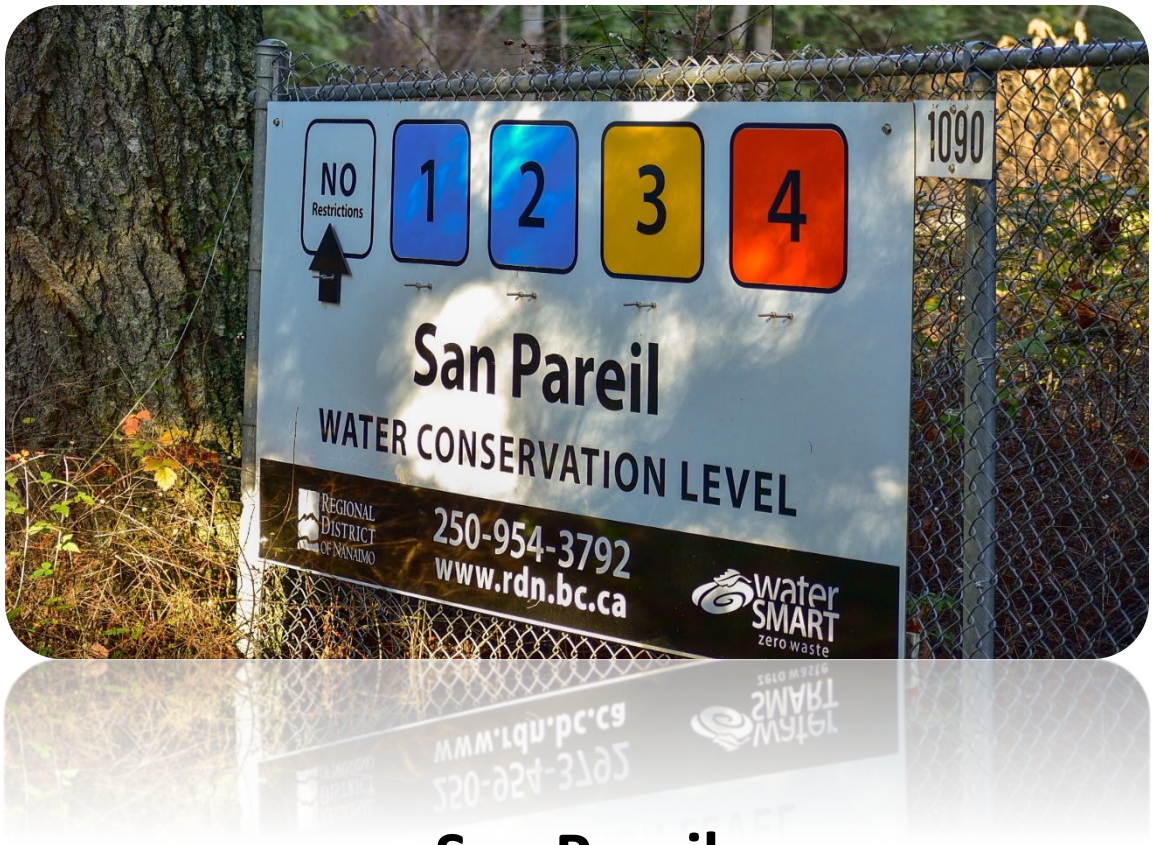
REGIONAL DISTRICT OF NANAIMO

Water Service Area Annual Report 2023



San Pareil Water Service Area

June 2024

REGIONAL DISTRICT OF NANAIMO
Water Services Department
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1. Introduction

The following annual report describes the San Pareil 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. San Pareil Water System

The San Pareil Water Service Area was established in 1999 when the RDN acquired the existing Bubbling Springs Water Utility. This system is located to the northeast of the Englishman River Bridge on the east side of the City of Parksville. There are 298 water service connections in San Pareil. The water source for the San Pareil Water Service Area comes from a series of groundwater wells located in the well field on Plummer Road. The well water passes through an upgraded ultraviolet disinfection process, is chlorinated, and is then stored in two reservoirs. A back-up generator is present at the pumphouse, should it be required. A map of the San Pareil Water System is provided in Appendix A.

2.1 Groundwater Wells

Two groundwater production wells are present in the well field at 1090 Plummer Road, Parksville, B.C. Well #2 was closed in 2012. Well #3 is utilized as a monitoring well, but also serves as a backup well to Well #4.

Well / Name	Well Depth	Wellhead Protection	Treated/Untreated with Chlorine
#1	4.4 m	Yes	Treated
#2	5.5 m	Closed	Not in use
#3	7.0 m	Yes	Treated
#4	5.7 m	Yes	Treated

2.2 Reservoirs

Two concrete service reservoirs are present at 1090 Plummer Road, and have a capacity of 340 m^3 (75,000 imperial gallons) each.

2.3 Distribution System

The water distribution system in San Pareil, as summarized in the table below, is comprised of 6.6 km of asbestos-concrete and PVC watermains. Twenty (20) fire hydrants are present in the service area.

Watermain Material	Length of mains in San Pareil Water Service Area	Prevalence in Water Service Area
AC: 150mm or smaller AC: 200mm or larger	3.3 km n/a	50% n/a
PE: 50mm or smaller PVC: 150mm or smaller PVC: 200mm or larger	0.7 km 0.3 km 2.3 km	10% 4% 36%

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

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, Temp, pH, Conductivity, Chlorine residual, Salinity, Turbidity, TDS
Weekly	BC Centre for Disease Control	Total coliforms, E.Coli
Annual Source Water Testing (every Fall)	Bureau Veritas	Complete potability testing of raw well water, including T. Ammonia, UVT
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/san-pareil. 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

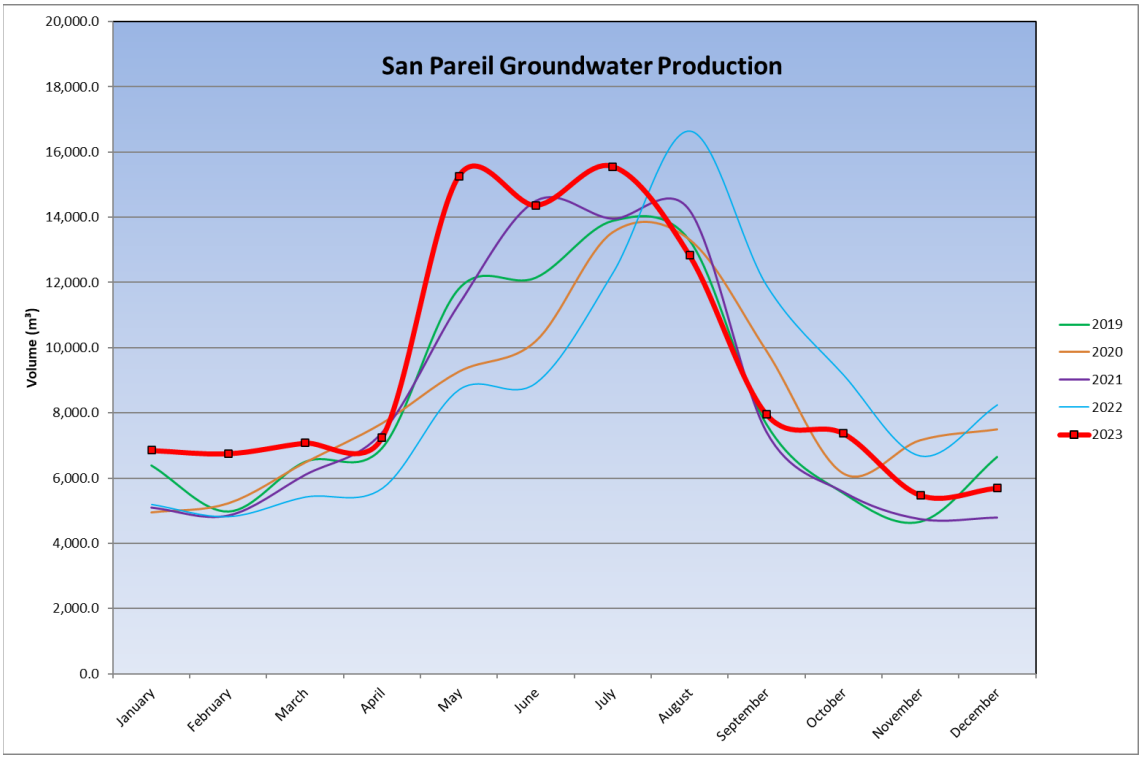
A few complaints were received from the San Pareil water service area in 2023 which were typically related to high water bills. Several refunds were subsequently issued under the RDN's Leak Policy. A small group of property owners on Shorewood Drive entered the service area and extended the community watermain at their own expense, connecting in 2023.

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

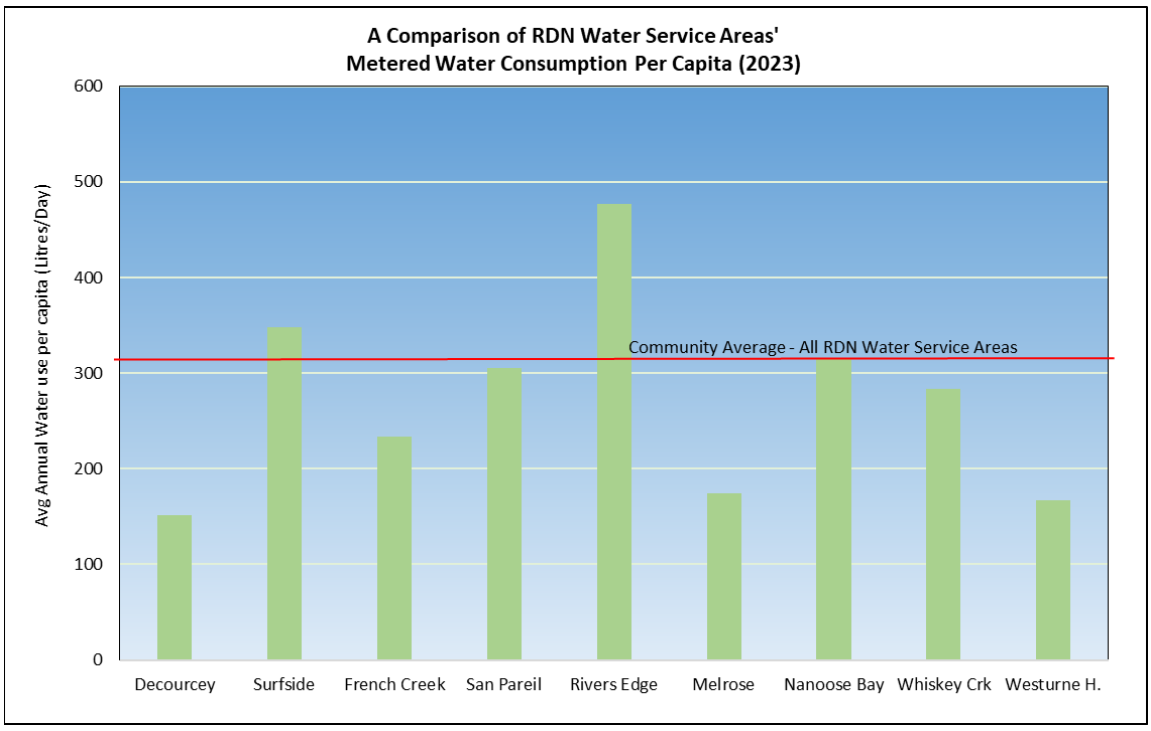
6. Groundwater Production and Consumption

The monthly groundwater production for San Pareil for the past 5 years is shown in the chart below.



Consumption

In the Fall/Winter of 2023, the average usage per home in San Pareil was 0.54 cubic metres per day (118.8 imperial gallons). In the summer, the average water usage was 1.13 cubic metres per day (248.6 imperial gallons). Based on these figures, the annual consumption per capita is estimated to be 305 L/day (based on 2.4 people/household). This consumption is *3% less* than all the other RDN water 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. Fire hydrants are serviced once per year (either 'A-level' or 'B-level' maintenance) in the spring. The reservoirs are cleaned every 2-3 years. 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 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
- ✓ Fall Protection
- ✓ First Aid
- ✓ Silica Awareness

9.0 Water System Projects

9.1 2023 Completed Studies & Projects

San Pareil Well Site

- Cleaned and inspected reservoir 1;
- Expanded service area to include 9 new properties;
- 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;
- Advised residents regarding water leak repairs and bill adjustments;
- Continued the 2021-2030 Water Conservation Plan;
- Completed regular watermain flushing and hydrant maintenance;
- Maintained a high level of water quality;
- Continued valve maintenance program;
- Continued quality control through regular testing and monitoring of water system; and
- Implemented Phase 2 Water Systems SCADA Master Plan.

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.

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 pumphouse, 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 its service areas in response to ongoing demand and the effects of climate change. Most RDN water service areas are unlikely to expand, so growth in demand is not expected. Initiatives that provide resiliency for the groundwater sources that serve residents remain a high priority. Reservoir capacity and redundancy are reviewed with regards to water storage during periods of drought, 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. The 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 will help 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 Cross Connection Control 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/san-pareil.

San Pareil Reservoir #2

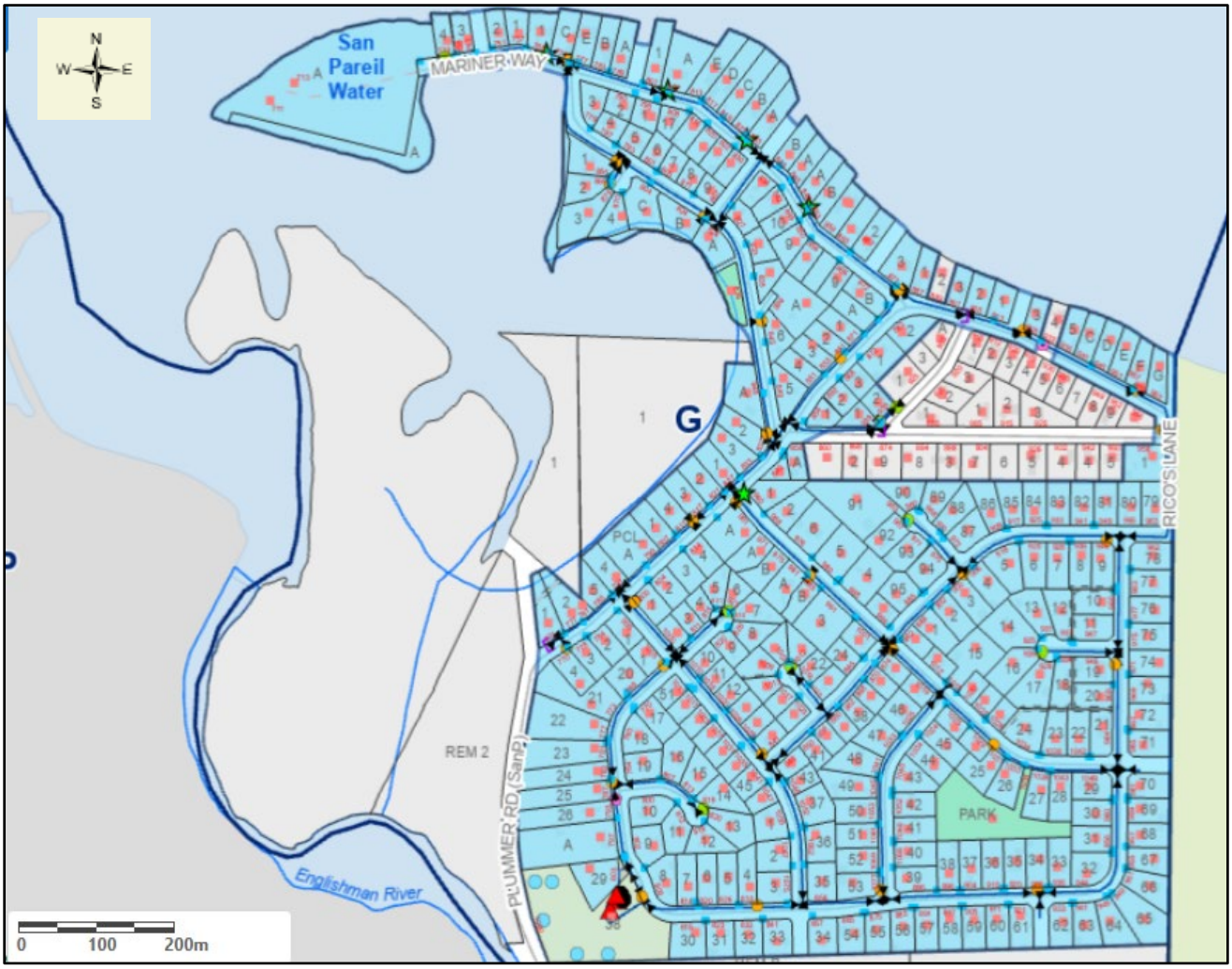
APPENDIX A

MAP OF SAN PAREIL

WATER SERVICE AREA

SAN PAREIL

WATER SERVICE AREA



APPENDIX B

WATER QUALITY TESTING RESULTS

SAN PAREIL
WATER SERVICE AREA

island health

Facility Location:
Terrien Way

Facility Information: Facility Type: 15-300 connections DWC

Facility Sampling History:

Site Name	Date Collected	Total Coliform	Total E. Coli
793 SAN MALO CRESCENT	3-Jan-23	LT1	LT1
1090 PLUMMER ROAD	10-Jan-23	LT1	LT1
962 Ballenas Road	18-Jan-23	LT1	LT1
995 Sabine Road	25-Jan-23	LT1	LT1
Water Hauling Tank Treated water	1-Feb-23	LT1	LT1
793 SAN MALO CRESCENT	7-Feb-23	LT1	LT1
1090 PLUMMER ROAD	21-Feb-23	LT1	LT1
995 Sabine Road	27-Feb-23	LT1	LT1
793 SAN MALO CRESCENT	8-Mar-23	LT1	LT1
962 Ballenas Road	15-Mar-23	LT1	LT1
1090 PLUMMER ROAD	22-Mar-23	LT1	LT1
995 Sabine Road	27-Mar-23	LT1	LT1
793 SAN MALO CRESCENT	3-Apr-23	LT1	LT1
962 Ballenas Road	12-Apr-23	LT1	LT1
1090 PLUMMER ROAD	19-Apr-23	LT1	LT1
995 Sabine Road	26-Apr-23	QRWRT	QRWRT
793 SAN MALO CRESCENT	3-May-23	LT1	LT1
962 Ballenas Road	10-May-23	LT1	LT1
1090 PLUMMER ROAD	17-May-23	QRWRT	QRWRT
995 Sabine Road	24-May-23	LT1	LT1
793 SAN MALO CRESCENT	6-Jun-23	LT1	LT1
962 Ballenas Road	14-Jun-23	LT1	LT1
Water Hauling Tank Treated water	14-Jun-23	LT1	LT1
1090 PLUMMER ROAD	20-Jun-23	LT1	LT1
793 SAN MALO CRESCENT	5-Jul-23	LT1	LT1
Water Hauling Tank Treated water	5-Jul-23	LT1	LT1
962 Ballenas Road	12-Jul-23	LT1	LT1
1090 PLUMMER ROAD	19-Jul-23	LT1	LT1
995 Sabine Road	26-Jul-23	LT1	LT1
962 Ballenas Road	9-Aug-23	LT1	LT1
Water Hauling Tank Treated water	9-Aug-23	LT1	LT1

1090 PLUMMER ROAD	16-Aug-23	LT1	LT1
995 Sabine Road	22-Aug-23	LT1	LT1
793 SAN MALO CRESCENT	6-Sep-23	LT1	LT1
962 Ballenas Road	12-Sep-23	LT1	LT1
1090 PLUMMER ROAD	19-Sep-23	LT1	LT1
Water Hauling Tank Treated water	19-Sep-23	LT1	LT1
995 Sabine Road	27-Sep-23	LT1	LT1
793 SAN MALO CRESCENT	4-Oct-23	LT1	LT1
962 Ballenas Road	11-Oct-23	LT1	LT1
1090 PLUMMER ROAD	17-Oct-23	LT1	LT1
995 Sabine Road	23-Oct-23	LT1	LT1
793 SAN MALO CRESCENT	8-Nov-23	LT1	LT1
995 Sabine Road	15-Nov-23	LT1	LT1
962 Ballenas Road	20-Nov-23	LT1	LT1
1090 PLUMMER ROAD	28-Nov-23	LT1	LT1
793 SAN MALO CRESCENT	5-Dec-23	LT1	LT1
962 Ballenas Road	12-Dec-23	LT1	LT1
Water Hauling Tank Treated water	12-Dec-23	LT1	LT1
1090 PLUMMER ROAD	20-Dec-23	LT1	LT1
995 Sabine Road	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

REJECT DELAY3 means sample was in transit too long and was not tested