REGIONAL DISTRICT OF NANAIMO

Water Service Area Annual Report 2023

Decourcey Water System

June 2024

REGIONAL DISTRICT OF NANAIMO

Water & Utility Services Department

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1.0 Introduction

The following annual report describes the Decourcey 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.

2.0 Decourcey Water Service Area

The Decourcey Water Service Area was established in 1998 in a rural area south of Nanaimo and comprises two properties on Bissel Road and three properties on Pylades Drive. The water source for the Decourcey Water Service Area comes from one groundwater well located nearby. The water supply is stored in one reservoir and is chlorinated manually. A map of the Decourcey Water Service Area is provided in Appendix A for reference.

2.1 Groundwater Wells

One groundwater production well is present at 3284 Bissel Road, Cedar, B.C.

Well / Name	Well Depth	Wellhead Protection In-Place	Treated/Untreated with Chlorine
#1	61.0 m	Yes	Treated

2.2 Reservoirs

One steel above-ground reservoir is present at 3284 Bissel Road, and has a capacity of 136 m^3 (30,000 imperial gallons).

2.3 Distribution System

The water distribution system in Decourcey is composed entirely of 150mm PVC watermains (0.7 km). Four fire hydrants are located in the water service area.

Decourcey Pumphouse and Water Storage Reservoir

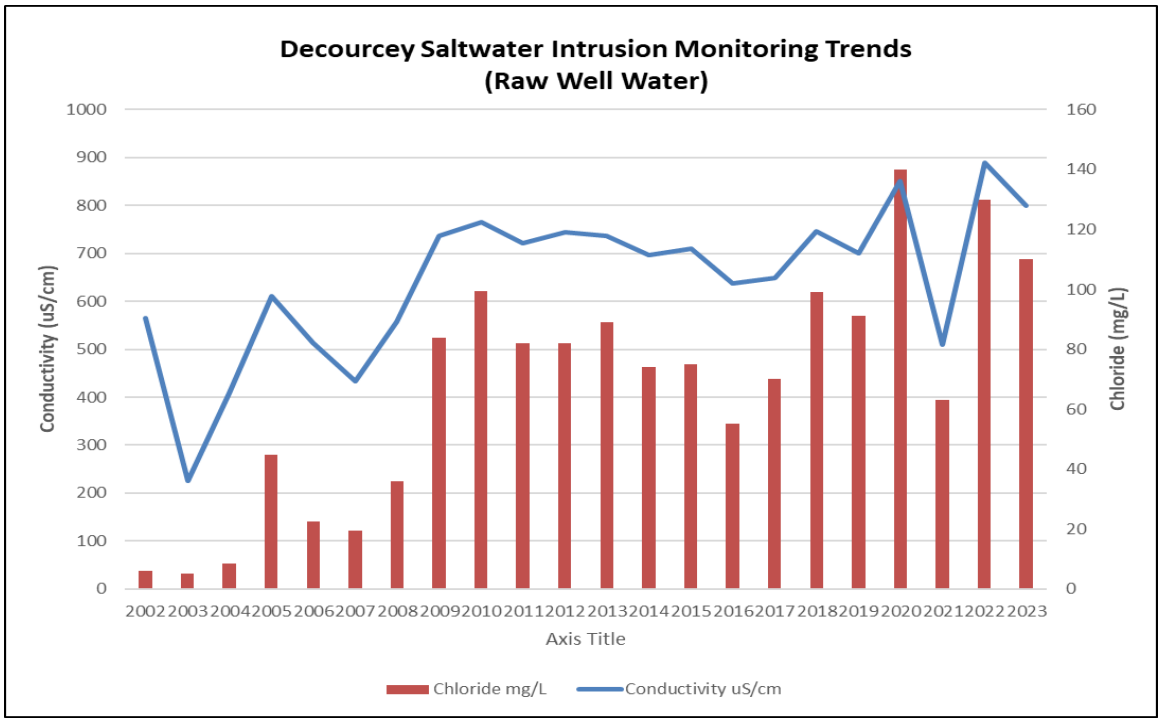
3.0 Water Sampling and Testing Program

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, Turbidity, Cl_2 Residual, Salinity, TDS
Monthly	BC Centre for Disease Control or Bureau Veritas	Total coliforms, E.Coli (BC CDC) Chloride, Fluoride (well water) (Bureau Veritas)
Quarterly	Bureau Veritas	THMs (Trihalomethanes in treated water)
Annual Source Water Testing (every Fall)	Bureau Veritas	Complete potability testing of all 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

Water quality test reports are posted monthly on the RDN website at www.rdn.bc.ca/decourcey in the Regional Services section, under "Water & Utility Services". Tables of VIHA water quality testing results for both the source water and the distribution system are provided in Appendix B of this report.



Conductivity and Chloride levels in Decourcey well water.

5.0 Water Quality Inquiries and Complaints

Complaints received from the Decourcey water service area related mostly to residential water usage. Water Services staff responded to a small number of power outage alarms in 2023. The pump controls were reset manually by the on-call operator, and the water stored in the reservoir did not drop below 80% capacity.

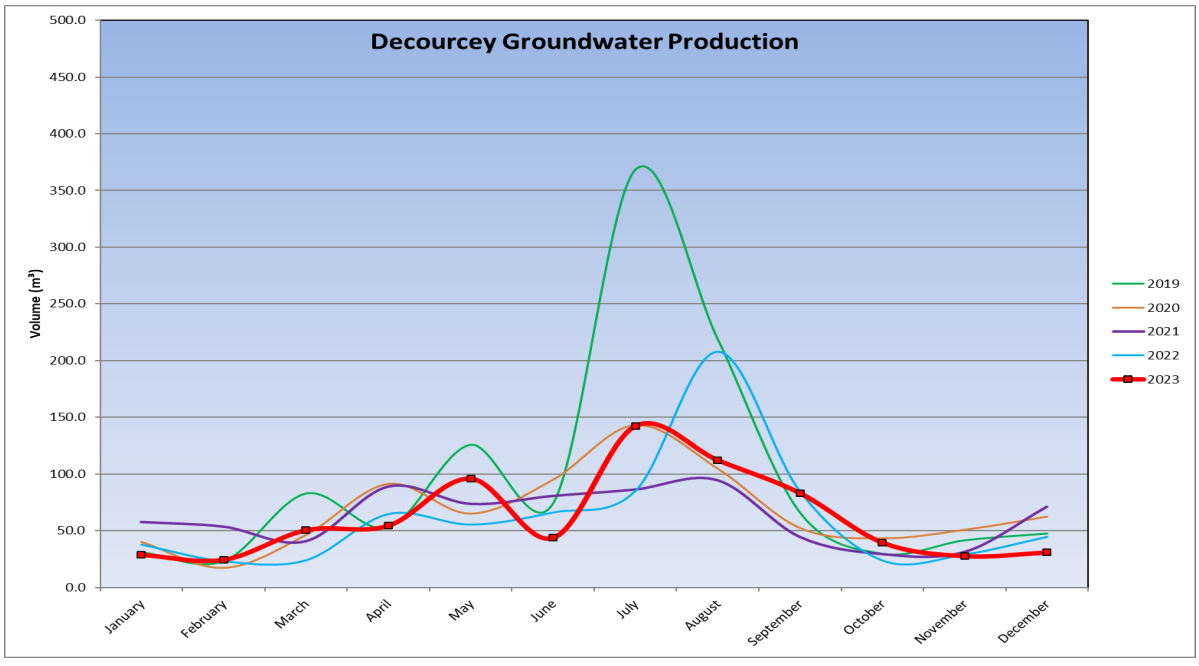
Weekly monitoring of individual household water use from May to September was undertaken by Water Services staff. Direct contact with property owners was made on several occasions to advise that water conservation should be taken quite seriously in order to protect the community drinking water supply, and to maintain water storage for fire protection. Continuous Stage 4 Watering Restrictions (no lawn watering) were continued to reduce the potential for saltwater intrusion into the production well.

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, ever.
High Turbidity Events	None	None, ever.
Equipment Malfunction	None	None.
Water Main Breaks	None	None.
Pump Failures	None	Temp power outages.

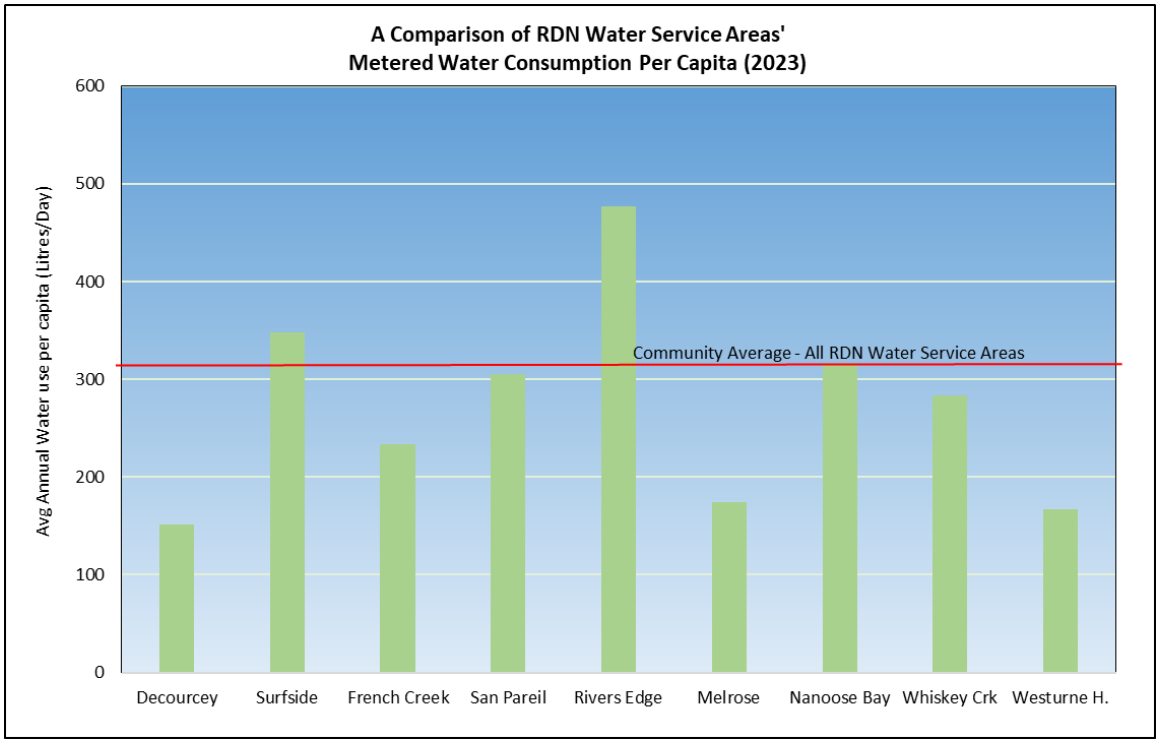
6.0 Groundwater Production and Consumption

The monthly groundwater production in the Decourcey system for the past 5 years is shown in the chart below.



Consumption

In the fall/winter of 2023, the average usage per home in Decourcey was 0.22 cubic metres per day (48.4 imperial gallons). In the summer of 2023, the average water usage was 0.65 cubic metres per day (151 imperial gallons). Based on these figures, the annual consumption per capita is estimated to be 149 L/day (based on 2.4 people/household). This consumption is ***52% less*** than the average of all the other RDN water systems of 313 L/day/capita in 2023.



7.0 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. Fire hydrants are serviced once per year (either 'A-level' or 'B-level' maintenance) in the spring following water main flushing. The water storage reservoir is cleaned every 3-4 years, as required. Twenty-four hour on-call coverage is in place to respond to water system emergencies and alarms.

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
- ✓ Chlorine Handling
- ✓ WHMIS (Workplace Hazardous Material Information System)
- ✓ Confined Space Awareness
- ✓ Fall Protection
- ✓ First Aid

- ✓ Cross Connection Control
- ✓ TDG (Transportation of Dangerous Goods
- ✓ Silica Awareness
- ✓ Asbestos Awareness

9.0 Water Service Area Projects

9.1 2023 Completed Studies & Projects

- 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 and hydrant maintenance;
- 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 2023 Proposed Projects & Upgrades

- Complete irrigation checks for high-water users;
- Begin billing for metered consumption based on revised water rates;
- 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.

10.0 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 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.

11.0 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.

12.0 Cross Connection Control (CCC)

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.

13.0 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. All RDN employees are required to regularly complete extensive training on cyber security awareness.

14.0 Closing

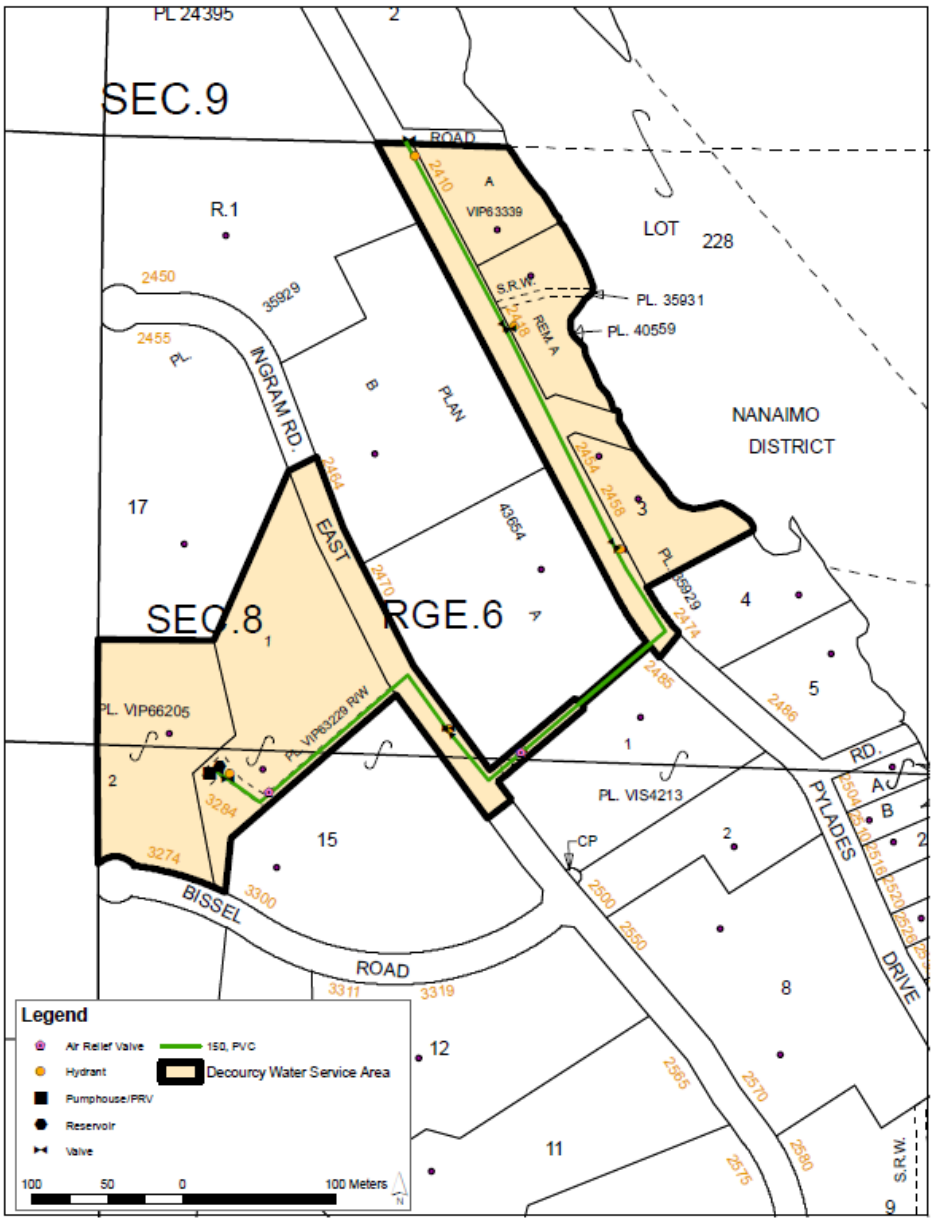
An annual report for 2024 will be prepared and submitted to Island Health in the Spring of 2025. Annual reports are also available on the RDN website: https://www.rdn.bc.ca/decourcey .

Stuart Channel
Yellow Point

APPENDIX A

MAP OF DECOURCEY

WATER SERVICE AREA



APPENDIX B

WATER QUALITY TESTING RESULTS

DECOURCEY WATER SYSTEM

Facility Location: Cedar

Facility Information: Facility Type: 2-14 connections DWS

Facility Sampling History:

Site Name	Date Collected	Total Coliform	Total E. Coli
Decourcey - 2458 Pylades Drive	3-Jan-23	LT1	LT1
Decourcey - 2458 Pylades Drive	6-Feb-23	LT1	LT1
Decourcey - 2458 Pylades Drive	8-Mar-23	LT1	LT1
Decourcey - 2458 Pylades Drive	4-Apr-23	LT1	LT1
Decourcey - 2458 Pylades Drive	1-May-23	LT1	LT1
Decourcey - 2458 Pylades Drive	5-Jun-23	LT1	LT1
Decourcey - 2458 Pylades Drive	5-Jul-23	LT1	LT1
Decourcey - 2458 Pylades Drive	5-Sep-23	LT1	LT1
Decourcey - 2458 Pylades Drive	11-Sep-23	LT1	LT1
2418 Pylades AUDIT	26-Sep-23	LT1	LT1
Decourcey - 2458 Pylades Drive	11-Oct-23	LT1	LT1
Decourcey - 2458 Pylades Drive	16-Oct-23	LT1	LT1
Decourcey - 2458 Pylades Drive	27-Nov-23	LT1	LT1
Decourcey - 2458 Pylades Drive	11-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
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