REGIONAL DISTRICT OF NANAIMO

Water Service Area Annual Report 2019

Decourcey Water System

June 2020

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 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.

2.0 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 Reservoir

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

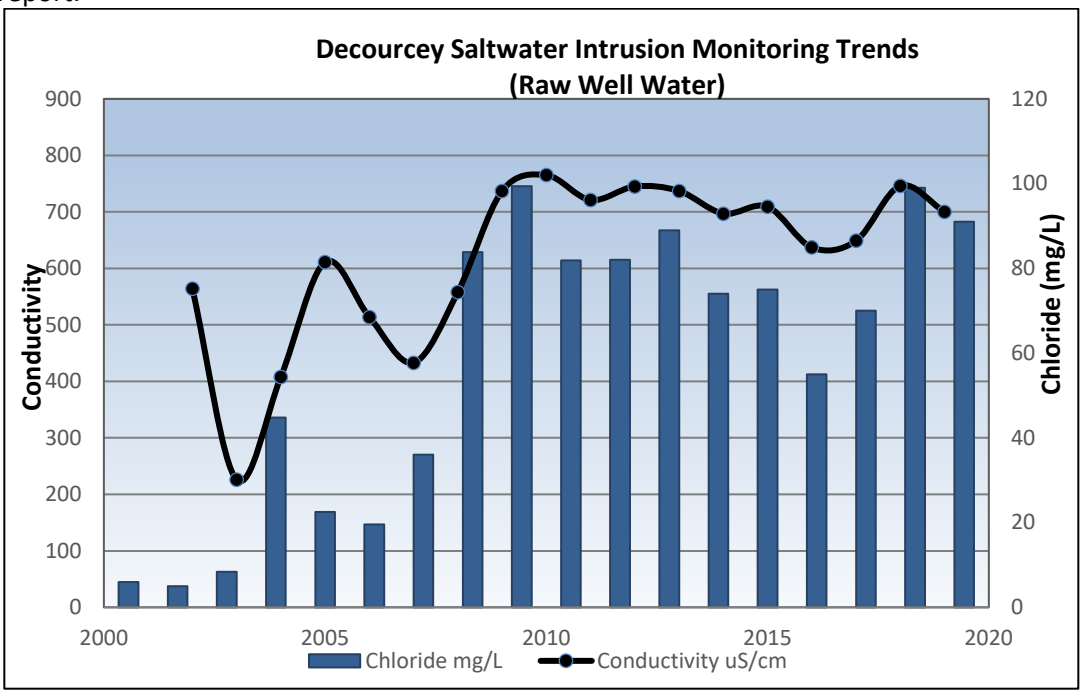
3.0 Water Sampling and Testing Program

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- Iron and Manganese
Monthly	BC Centre for Disease Control or Bureau Veritas (formerly Maxxam)	Total coliforms, E.Coli (BC CDC) Chloride, Fluoride (well water) (Bureau Veritas)
Quarterly	Bureau Veritas (formerly Maxxam))	THMs (Trihalomethanes in treated water)
Annual Source Water Testing (every Fall)	Bureau Veritas (formerly Maxxam)	Complete potability testing of all 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

4.0 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 water quality testing results for both the source water and the distribution system are provided in Appendix B of this report.



The Conductivity and Chloride levels in the Decourcey well water remain elevated, but stable.

5.0 Water Quality Inquiries and Complaints

Complaints received from the Decourcey water service area related mostly to residential water useage. Water Services staff responded to a small number of power outage alarms in 2019. The pump controls were reset manually by the on-call operator, and the water stored in the reservoir did not drop below 80% capacity.

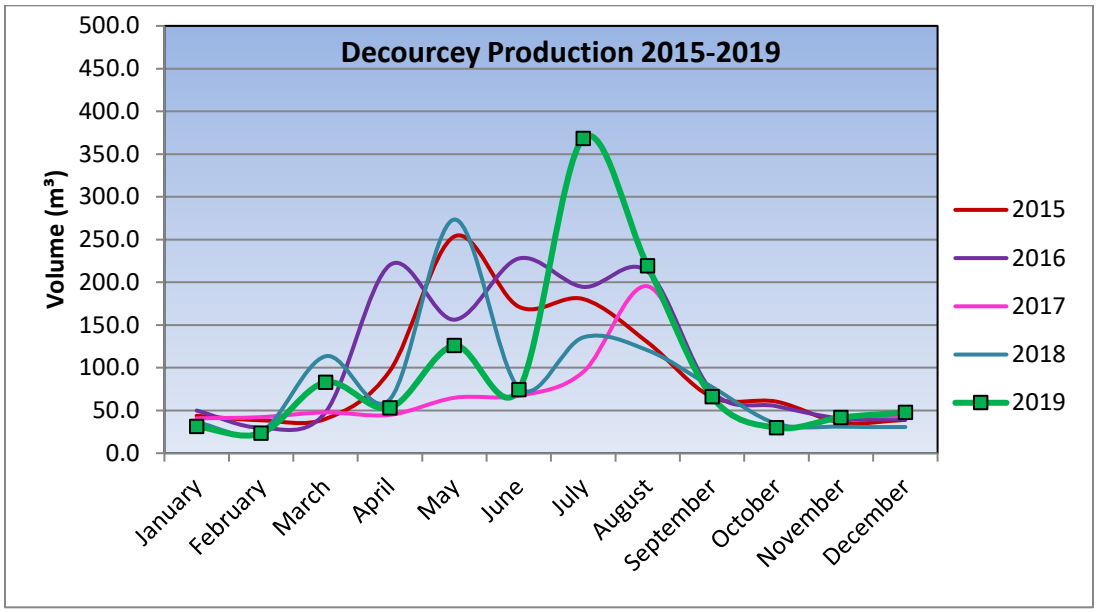
Weekly monitoring of individual household water use from May to September was undertaken by Water Services staff. Direct contact with property owners was made on several occasions to advise that water conservation should be taken quite seriously in order to protect the community drinking water supply, and to maintain water storage for fire protection. Continuous Stage 4 Watering Restrictions were introduced to reduce strain on the production well.

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, 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. Groundwater production in the summer of 2019 was substantially higher than in previous years. This increase could be attributed to higher than normal seasonal irrigation activities.



In the fall/winter of 2019, the average usage per home in Decourcey was 0.26 cubic metres per day (57.2 imperial gallons). In the summer of 2019, the average water usage was 1.11 cubic metres per day (244.2 imperial gallons). Based on these figures, the annual consumption per capita is estimated to be 226 L/day (based on 2.4 people/household). This consumption is ***23% less*** than the average of all the other RDN water systems of 295 L/day/capita in 2019.

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
- ✓ 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 2019 Completed Studies & Projects

- Installed drain screens on the reservoir overflow and drain lines;
- 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 and hydrant maintenance;
- Maintained a high level of water quality;
- Continued quality control through regular testing and monitoring of water system;
- Began a Water Systems SCADA Master Plan; and
- Began an overall Water System Condition Assessment.

9.2 2020 Proposed Projects & Upgrades

- Install a new reservoir level transmitter in Decourcey;
- Update asset database with new assets;
- Continue watermain flushing program and hydrant maintenance;
- 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.

10.0 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 pumphouse, and in each Water Services vehicle. A copy of the ERP is also attached to this report in Appendix C.

11.0 Cross Connection Control (CCC)

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.

12.0 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

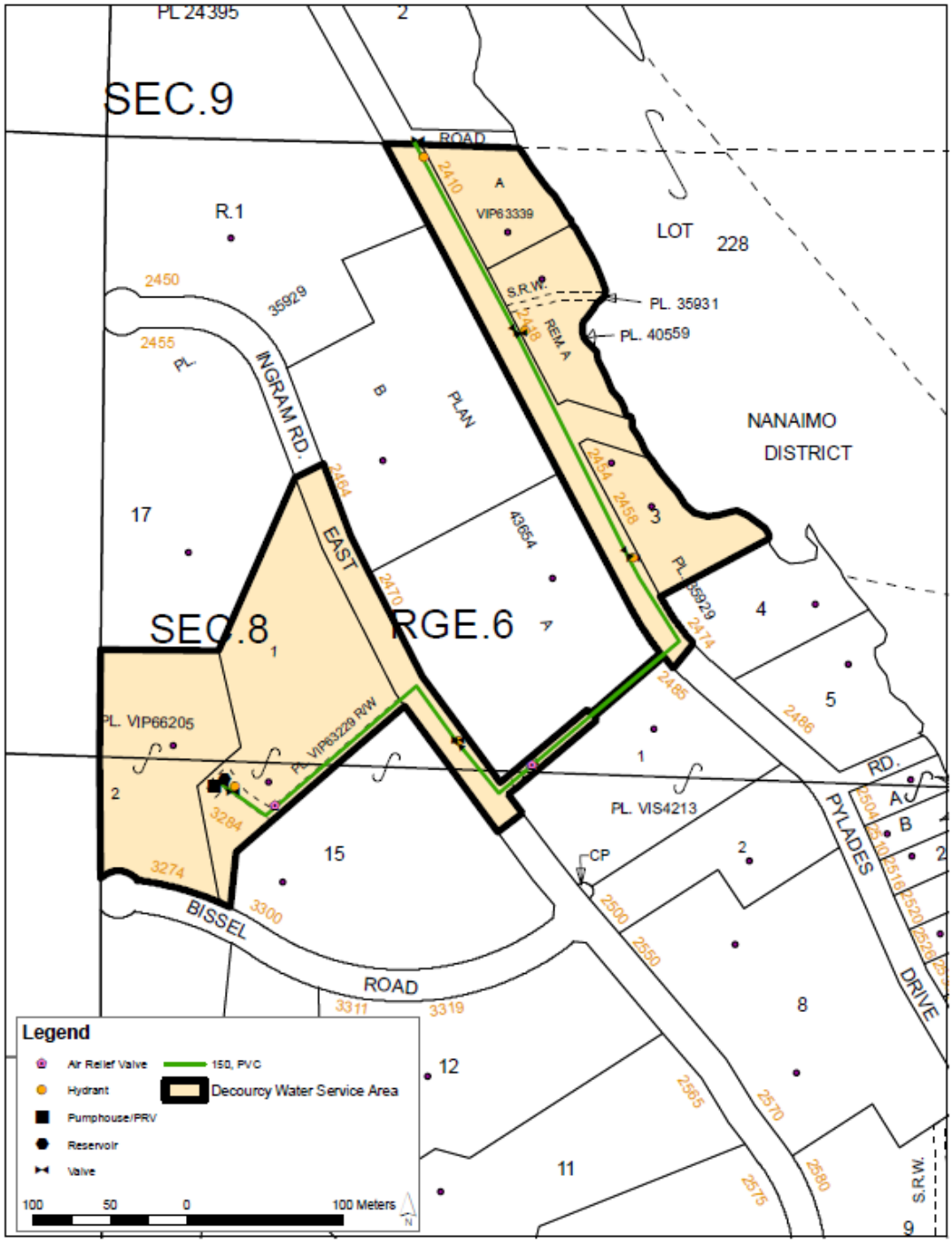
An annual report for the year 2020 will be prepared and submitted to Island Health in the spring of 2021. Annual reports are also available on our website at www.rdn.bc.ca in the REGIONAL SERVICES section, under Water & Utility Services, then WaterSmart Communities.

Stuart Channel
Yellow Point

APPENDIX A

MAP OF DECOURCEY

WATER SERVICE AREA



APPENDIX B

WATER QUALITY TESTING RESULTS

DECOURCEY WATER SYSTEM

Facility Location:
Pylades Dr, Cedar

Facility Information: Facility Type: DWS

Facility Sampling History:

Location	Date	Total Coliform	E. Coli
2458 Pylades Drive, 2458 Pyldades Drive	3-Dec-2019	L1	L1
2458 Pylades Drive, 2458 Pyldades Drive	15-Oct-2019	L1	L1
2458 Pylades Drive, 2458 Pyldades Drive	4-Sep-2019	L1	L1
2458 Pylades Drive, 2458 Pyldades Drive	7-Aug-2019	L1	L1
2458 Pylades Drive, 2458 Pyldades Drive	15-Jul-2019	L1	L1
2458 Pylades Drive, 2458 Pyldades Drive	4-Jun-2019	L1	L1
2458 Pylades Drive, 2458 Pyldades Drive	14-May-2019	L1	L1
Audit Decourcey Water System, 2418 Pylades Dr	7-May-2019	L1	L1
2458 Pylades Drive, 2458 Pyldades Drive	2-Apr-2019	L1	L1
2458 Pylades Drive, 2458 Pyldades Drive	19-Mar-2019	L1	L1
2458 Pylades Drive, 2458 Pyldades Drive	12-Mar-2019	L1	L1
2458 Pylades Drive, 2458 Pyldades Drive	12-Feb-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