# REGIONAL DISTRICT OF NANAIMO

## Water Service Area Annual Report 2021

## Decourcey Water System

June 2022

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

## Table of Contents

## 1.0 Introduction

The following annual report describes the Decourcey 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 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**

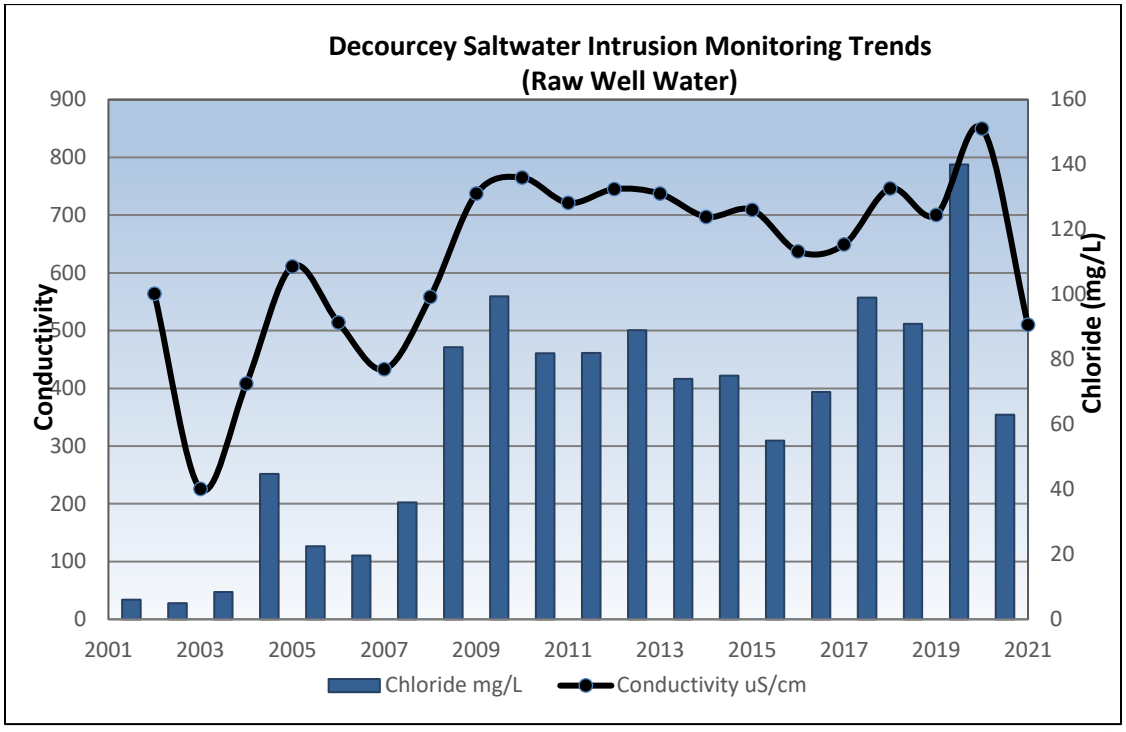
## 3.0 Water Sampling and Testing Program

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 2021. The pump controls were reset manually by the on-call operator, and the water stored in the reservoir did not drop below 80% capacity.

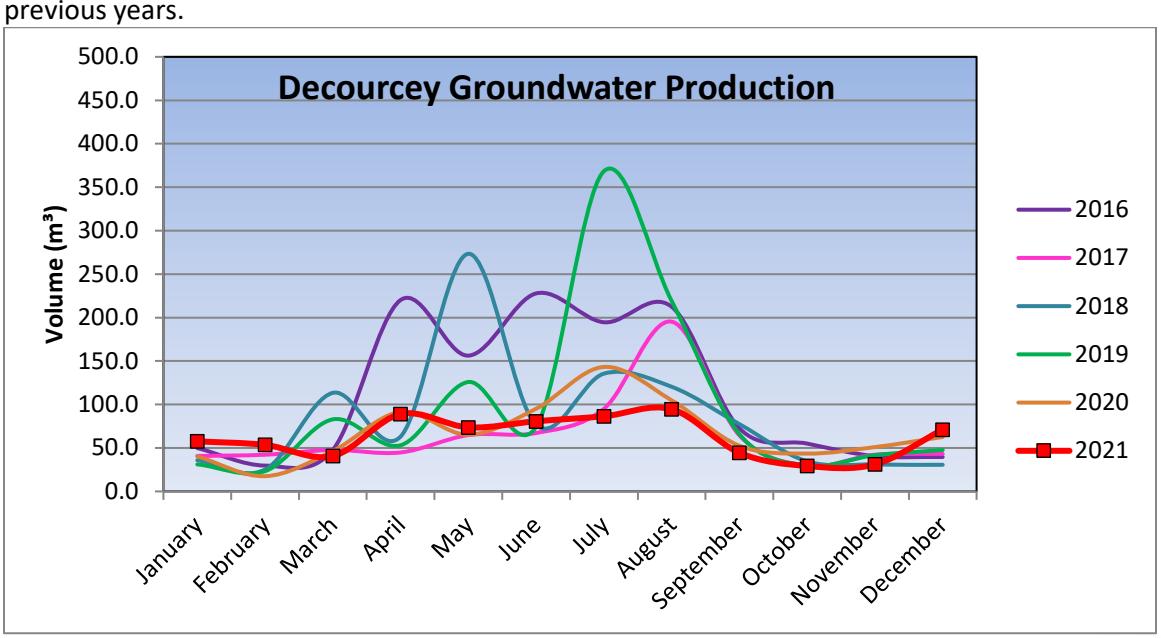
Weekly monitoring of individual household water use from May to September was undertaken by Water Services staff. Direct contact with property owners was made on several occasions to advise that water conservation should be taken quite seriously in order to protect the community drinking water supply,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

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. |

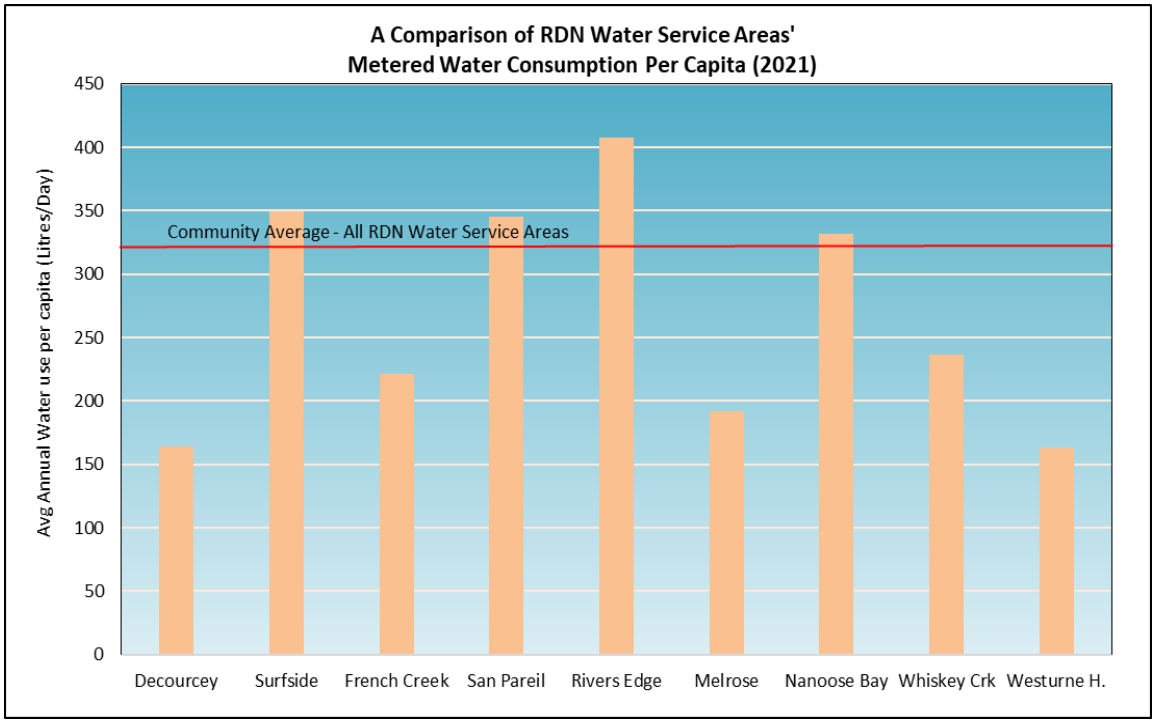
## 6.0 Groundwater Production and Consumption

The monthly groundwater production in the Decourcey system for the past 5 years is shown in the chart below. On average, groundwater production in 2021 was lower in comparison to previous years.



*Consumption*

In the fall/winter of 2021, the average usage per home in Decourcey was 0.31 cubic metres per day (68.2 imperial gallons). In the summer of 2021, the average water usage was 0.56 cubic metres per day (123.2 imperial gallons). Based on these figures, the annual consumption per capita is estimated to be 164 L/day (based on 2.4 people/household). This consumption is ***49% less*** than the average of all the other RDN water systems of 321 L/day/capita in 2021.




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

- ✓ Asbestos Awareness
- ✓ TDG (Transportation of Dangerous Goods)
- ✓ Silica Awareness

## 9.0 Water Service Area Projects

### 9.1 2021 Completed Studies & Projects

- 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

- 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 and tracking;
- 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 2020, 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 (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 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

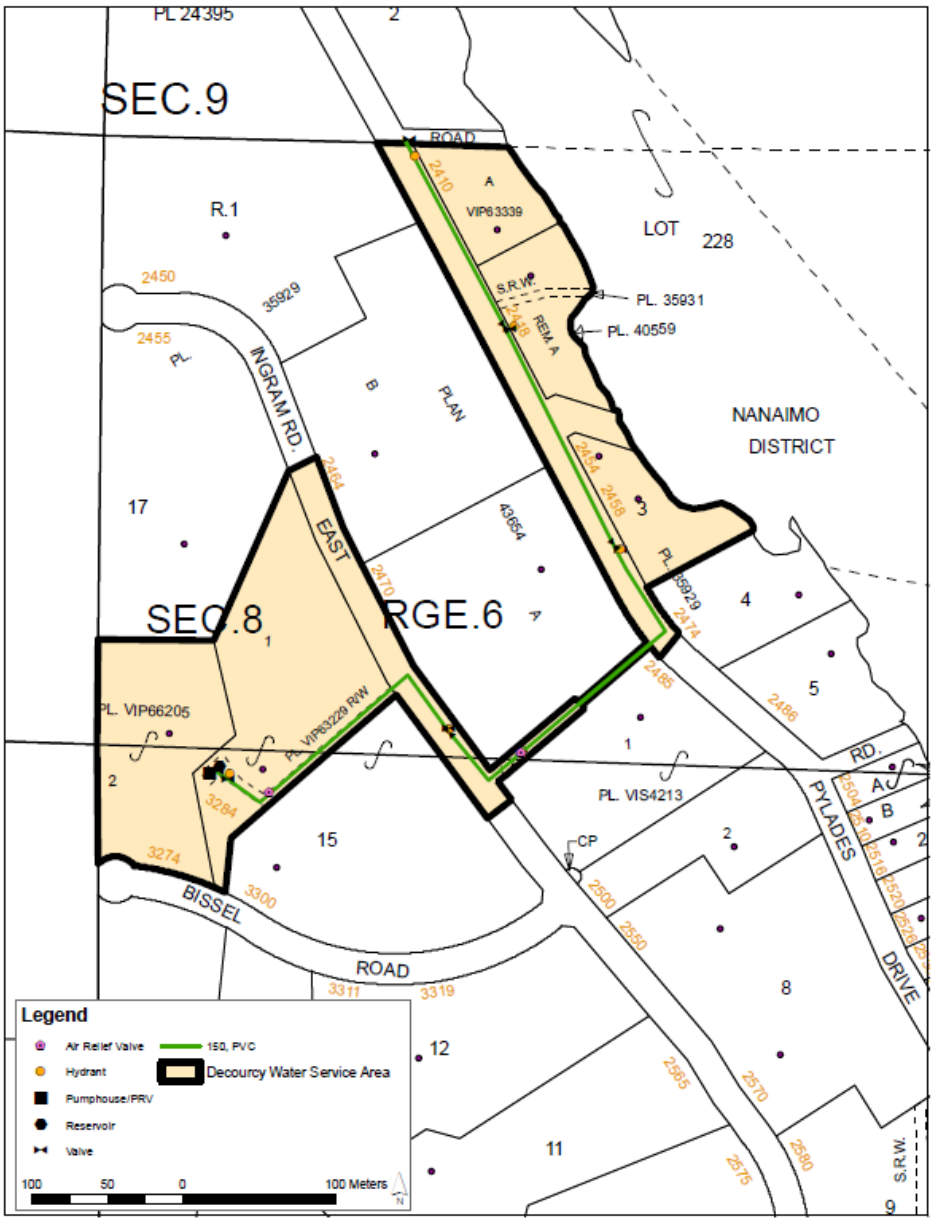
An annual report for the year 2022 will be prepared and submitted to Island Health in the Spring of 2023. Annual reports are also available on the RDN website at: https://www.rdn.bc.ca/decourcey .

**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:**

| Date Collected | Drinking Water System | Total E. Coli | Total Coliform | Site Name |
|---|---|---|---|---|
| 01/06/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2458 Pylades Drive |
| 01/12/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2458 Pylades Drive |
| 02/16/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2458 Pylades Drive |
| 03/01/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2458 Pylades Drive |
| 04/13/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2458 Pylades Drive |
| 05/11/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2458 Pylades Drive |
| 06/15/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2458 Pylades Drive |
| 07/05/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2458 Pylades Drive |
| 07/08/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2418 Pylades AUDIT |
| 08/10/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2458 Pylades Drive |
| 09/14/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2458 Pylades Drive |
| 10/12/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2458 Pylades Drive |
| 11/30/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2458 Pylades Drive |
| 12/06/2021 | DECOURCEY WATER SYSTEM | LT1 | LT1 | 2458 Pylades Drive |

**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

# Regional District of Nanaimo - Water Services Department

## Decourcey Water Analysis - 2021 Monthly Report

| | | BC Centre for Disease Control | | RDN In-House Laboratory and Spectrophotometer | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Sample Location (Address) | E. coli * | Total Coliform * | E.coli * | Total Coliform * | Temp. (°C) | pH | Free Chlorine Residual (mg/L) | Total Dissolved Solids (mg/L) | Salinity (%) | Conductivity (µS/cm) | Total Iron (mg/L) | Manganese (mg/L) |
| 06-Dec-21 | 2458 Pylades | | | 0 | 0 | 8 | 7.61 | 0.05 | 384.0 | 0.38 | 818.0 | Fe and Mn are no longer tested in-house. See Annual Tap Water Results at https://www.rdn.bc.ca/decourcey | |
| 13-Dec-21 | 2458 Pylades | | | 0 | 0 | 8 | 7.56 | 0.04 | 387.0 | 0.39 | 793.0 | | |
| 21-Dec-21 | 2458 Pylades | | | 0 | 0 | 7 | 7.66 | 0.05 | 383.0 | 0.38 | 784.0 | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| CDN Drinking Water Guidelines | | <1 | <1 | <1 | <1 | n/a | 7.0-10.5 | n/a | 500 | n/a | n/a | 0.3 | **0.02** AO **0.12** MAC |

**Legend:**

*** Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)**

**Orange font indicates non-compliance with the Aesthetic Objective (AO) in the Canadian Drinking Water Guidelines (CDWG)**

**Red font indicates non-compliance with the Maximum Acceptable Concentration (MAC) in the CDWG**

**Comments:**

**Iron and Manganese are no longer being tested in-house.**

**A full potability scan is completed once per year at an external lab that includes metals and minerals.**

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| 02-Nov-21 | 2458 Pylades | | | 0 | 0 | 11 | 7.79 | 0.04 | 417.0 | 0.42 | 850.0 | Fe and Mn are no longer tested in-house. See Annual Tap Water Results at https://www.rdn.bc.ca/decourcey | |
| 09-Nov-21 | 2458 Pylades | | | 0 | 0 | | 7.61 | 0.04 | 409.0 | 0.40 | 829.0 | | |
| 16-Nov-21 | 2458 Pylades | | | 0 | 0 | 13 | 7.66 | 0.04 | 416.0 | 0.42 | 849.0 | | |
| 24-Nov-21 | 2458 Pylades | | | 0 | 0 | 10 | 7.45 | 0.04 | 392.0 | 0.39 | 799.0 | | |
| 29-Nov-21 | 2458 Pylades | | | 0 | 0 | 9 | 7.59 | 0.05 | 406.0 | 0.41 | 826.0 | | |
| CDN Drinking Water Guidelines | | <1 | <1 | <1 | <1 | n/a | 7.0-10.5 | n/a | 500 | n/a | n/a | 0.3 | **0.02** AO<br>**0.12** MAC |

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| 04-Oct-21 | 2458 Pylades | | | 0 | 0 | 15 | 7.53 | 0.03 | 200.0 | 0.40 | 777.0 | Fe and Mn are no longer tested in-house. See Annual Tap Water Results at https://www.rdn.bc.ca/decourcey | |
| 12-Oct-21 | 2458 Pylades | 0 | 0 | 0 | 0 | 14 | 7.78 | 0.04 | 422.0 | 0.42 | 862.0 | | |
| 19-Oct-21 | 2458 Pylades | | | 0 | 0 | 14 | 7.68 | 0.05 | 419.0 | 0.42 | 854.0 | | |
| 26-Oct-21 | 2458 Pylades | | | 0 | 0 | 13 | 7.58 | 0.02 | 412.0 | 0.41 | 839.0 | | |
| | | | | | | | | | | | | | |
| CDN Drinking Water Guidelines | | <1 | <1 | <1 | <1 | n/a | 7.0-10.5 | n/a | 500 | n/a | n/a | 0.3 | **0.02** AO **0.12** MAC |

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| 07-Sep-21 | 2458 Pylades | | | 0 | 0 | | 7.77 | 0.05 | 424.0 | 0.42 | 866.0 | Fe and Mn are no longer tested in-house. See Annual Tap Water Results at https://www.rdn.bc.ca/decourcey | |
| 14-Sep-21 | 2458 Pylades | 0 | 0 | 0 | 0 | 18 | 7.46 | 0.03 | 418.0 | 0.42 | 850.0 | | |
| 21-Sep-21 | 2458 Pylades | | | 0 | 0 | 17 | 7.52 | 0.03 | 396.0 | -0.42 | 799.0 | | |
| 27-Sep-21 | 2458 Pylades | | | 0 | 0 | 17 | 7.98 | 0.01 | 202.0 | 0.20 | 420.0 | | |
| | | | | | | | | | | | | | |
| CDN Drinking Water Guidelines | | <1 | <1 | <1 | <1 | n/a | 7.0-10.5 | n/a | 500 | n/a | n/a | 0.3 | **0.02** AO **0.12** MAC |

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| 03-Aug-21 | 2458 Pylades | | | 0 | 0 | | 7.59 | 0.04 | 411.0 | 0.41 | 838.0 | Fe and Mn are no longer tested in-house. See Annual Tap Water Results at https://www.rdn.bc.ca/decourcey | |
| 10-Aug-21 | 2458 Pylades | 0 | 0 | 0 | 0 | 19 | 7.71 | 0.03 | 412.0 | 0.41 | 842.0 | | |
| 18-Aug-21 | 2458 Pylades | | | 0 | 0 | 18 | 7.62 | 0.04 | 411.0 | 0.41 | 837.0 | | |
| 25-Aug-21 | 2458 Pylades | | | 0 | 0 | 20 | 7.73 | 0.03 | 420.0 | 0.42 | 857.0 | | |
| 30-Aug-21 | 2458 Pylades | | | 0 | 0 | 19 | 7.84 | 0.05 | 426.0 | 0.43 | 869.0 | | |
| CDN Drinking Water Guidelines | | <1 | <1 | <1 | <1 | n/a | 7.0-10.5 | n/a | 500 | n/a | n/a | 0.3 | **0.02** AO<br>**0.12** MAC |

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| 05-Jun-21 | 2458 Pylades | 0 | 0 | 0 | 0 | 20 | 7.17 | 0.02 | 403.0 | 0.04 | 825.0 | Fe and Mn are no longer tested in-house. See Annual Tap Water Results at https://www.rdn.bc.ca/decourcey | |
| 13-Jul-21 | 2458 Pylades | | | 0 | 0 | 20 | 7.77 | 0.02 | 399.0 | 0.40 | 818.0 | | |
| 20-Jul-21 | 2458 Pylades | | | 0 | 0 | 20 | 7.75 | 0.03 | 401.0 | 0.40 | 819.0 | | |
| 27-Jul-21 | 2459 Pylades | | | 0 | 0 | 18 | 7.67 | 0.04 | 410.0 | 0.41 | 839.0 | | |
| | | | | | | | | | | | | | |
| CDN Drinking Water Guidelines | | <1 | <1 | <1 | <1 | n/a | 7.0-10.5 | n/a | 500 | n/a | n/a | 0.3 | **0.02** AO **0.12** MAC |

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| 01-Jun-21 | 2458 Pylades | | | 0 | 0 | 14 | 7.27 | 0.04 | 377.0 | 0.38 | 770.0 | Fe and Mn are no longer tested in-house. See Annual Tap Water Results at https://www.rdn.bc.ca/decourcey | |
| 08-Jun-21 | 2458 Pylades | | | 0 | 0 | 14 | 7.24 | 0.03 | 386.0 | 0.38 | 790.0 | | |
| 15-Jun-21 | 2458 Pylades | 0 | 0 | 0 | 0 | 15 | 7.24 | 0.06 | 387.0 | 0.39 | 793.0 | | |
| 22-Jun-21 | 2458 Pylades | | | 0 | 0 | | 7.23 | 0.05 | 393.0 | 0.39 | 804.0 | | |
| 28-Jun-21 | 2458 Pylades | | | 0 | 0 | 18 | 7.13 | 0.08 | 325.0 | 0.32 | 669.0 | | |
| CDN Drinking Water Guidelines | | <1 | <1 | <1 | <1 | n/a | 7.0-10.5 | n/a | 500 | n/a | n/a | 0.3 | **0.02** AO<br>**0.12** MAC |

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| 04-May-21 | 2458 Pylades | | | 0 | 0 | 11 | 7.33 | 0.04 | 364.0 | 0.36 | 746.0 | Fe and Mn are no longer tested in-house. See Annual Tap Water Results at https://www.rdn.bc.ca/decourcey | |
| 11-May-21 | 2458 Pylades | 0 | 0 | 0 | 0 | 12 | 6.89 | 0.03 | 354.0 | 0.35 | 728.0 | | |
| 18-May-21 | 2458 Pylades | | | 0 | 0 | 12 | 7.13 | 0.03 | 369.0 | 0.37 | 756.0 | | |
| 25-May-21 | 2458 Pylades | | | 0 | 0 | | 7.17 | 0.04 | 375.0 | 0.37 | 768.0 | | |
| | | | | | | | | | | | | | |
| CDN Drinking Water Guidelines | | <1 | <1 | <1 | <1 | n/a | 7.0-10.5 | n/a | 500 | n/a | n/a | 0.3 | **0.02** AO **0.12** MAC |

**Legend:**

*** Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)**

**Grey font indicates a value flagged for operational considerations**

**Orange font indicates non-compliance with the Aesthetic Objective (AO) in the Canadian Drinking Water Guidelines (CDWG)**

**Red font indicates non-compliance with the Maximum Acceptable Concentration (MAC) in the CDWG**

**Comments:**

Notes below about pH (2015) from https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html#_ftn1

| Type | Parameter (published, reaffirmed) | MAC (mg/L) | Other value (mg/L) | Common sources of parameter in water | Health considerations | Comments |
|---|---|---|---|---|---|---|
| Treatment-related | pH (2015) | None | 7.0-10.5 | Not applicable | Not applicable | The control of pH is important to maximize treatment effectiveness, control corrosion and reduce leaching from distribution system and plumbing components. |

# Regional District of Nanaimo - Water Services Department

## Decourcey Water Analysis - 2021 Monthly Report

| | | BC Centre for Disease Control | | RDN In-House Laboratory and Spectrophotometer | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Sample Location (Address) | E. coli * | Total Coliform * | E.coli * | Total Coliform * | Temp. (°C) | pH | Free Chlorine Residual (mg/L) | Total Dissolved Solids (mg/L) | Salinity (%) | Conductivity (µS/cm) | Total Iron (mg/L) | Manganese (mg/L) |
| 07-Apr-21 | 2458 Pylades | | | 0 | 0 | 7 | 7.50 | 0.08 | 360.0 | 0.36 | 738.0 | Fe and Mn are no longer tested in-house. See Annual Tap Water Results at https://www.rdn.bc.ca/decourcey | |
| 13-Apr-21 | 2458 Pylades | 0 | 0 | 0 | 0 | 9 | 7.43 | 0.04 | 356.0 | 0.36 | 728.0 | | |
| 20-Apr-21 | 2458 Pylades | | | 0 | 0 | 10 | 7.44 | 0.06 | 360.0 | 0.36 | 749.0 | | |
| 26-Apr-21 | 2458 Pylades | | | 0 | 0 | 11 | 7.40 | 0.06 | 361.0 | 0.36 | 741.0 | | |
| | | | | | | | | | | | | | |
| CDN Drinking Water Guidelines | | <1 | <1 | <1 | <1 | n/a | 7.0-10.5 | n/a | 500 | n/a | n/a | 0.3 | **0.02** AO **0.12** MAC |

**Legend:**

*** Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)**

**Orange font indicates non-compliance with the Aesthetic Objective (AO) in the Canadian Drinking Water Guidelines (CDWG)**

**Red font indicates non-compliance with the Maximum Acceptable Concentration (MAC) in the CDWG**

**Comments:**

**Iron and Manganese are no longer being tested in-house.**

**A full potability scan is completed once per year at an external lab that includes metals and minerals.**

# Regional District of Nanaimo - Water Services Department

## Decourcey Water Analysis - 2021 Monthly Report

| | | BC Centre for Disease Control | | RDN In-House Laboratory and Spectrophotometer | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Sample Location (Address) | E. coli * | Total Coliform * | E.coli * | Total Coliform * | Temp. (°C) | pH | Free Chlorine Residual (mg/L) | Total Dissolved Solids (mg/L) | Salinity (%) | Conductivity (µS/cm) | Total Iron (mg/L) | Manganese (mg/L) |
| 01-Mar-21 | 2458 Pylades | 0 | 0 | 0 | 0 | 5 | 7.24 | 0.03 | 361.0 | 0.36 | 739.0 | Fe and Mn are no longer tested in-house. See Annual Tap Water Results at https://www.rdn.bc.ca/decourcey | |
| 09-Mar-21 | 2458 Pylades | | | 0 | 0 | 5 | 7.33 | 0.03 | 361.0 | 0.36 | 740.0 | | |
| 16-Mar-21 | 2458 Pylades | | | 0 | 0 | 7 | 6.99 | 0.03 | 350.0 | 0.35 | 720.0 | | |
| 23-Mar-21 | 2458 Pylades | | | 0 | 0 | 7 | 6.86 | 0.03 | 340.0 | 0.34 | 694.0 | | |
| 29-Mar-21 | 2458 Pylades | | | 0 | 0 | 7 | 7.42 | 0.02 | 355.0 | 0.36 | 727.0 | | |
| CDN Drinking Water Guidelines | | <1 | <1 | <1 | <1 | n/a | 7.0-10.5 | n/a | 500 | n/a | n/a | 0.3 | **0.02** AO **0.12** MAC |

**Legend:**

*** Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)**

**Grey font indicates a value flagged for operational considerations**

**Orange font indicates non-compliance with the Aesthetic Objective (AO) in the Canadian Drinking Water Guidelines (CDWG)**

**Red font indicates non-compliance with the Maximum Acceptable Concentration (MAC) in the CDWG**

**Comments:**

Notes below about pH (2015) from https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html#_ftn1

| Type | Parameter (published, reaffirmed) | MAC (mg/L) | Other value (mg/L) | Common sources of parameter in water | Health considerations | Comments |
|---|---|---|---|---|---|---|
| Treatment-related | pH (2015) | None | 7.0-10.5 | Not applicable | Not applicable | The control of pH is important to maximize treatment effectiveness, control corrosion and reduce leaching from distribution system and plumbing components. |

# Regional District of Nanaimo - Water Services Department

## Decourcey Water Analysis - 2021 Monthly Report

| | | BC Centre for Disease Control | | RDN In-House Laboratory and Spectrophotometer | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Sample Location (Address) | E. coli * | Total Coliform * | E.coli * | Total Coliform * | Temp. (°C) | pH | Free Chlorine Residual (mg/L) | Total Dissolved Solids (mg/L) | Salinity (%) | Conductivity (µS/cm) | Total Iron (mg/L) | Manganese (mg/L) |
| 02-Feb-21 | 2458 Pylades | | | 0 | 0 | 7 | 7.26 | 0.03 | 371.0 | 0.37 | 758.0 | Fe and Mn are no longer tested in-house. See Annual Tap Water Results at https://www.rdn.bc.ca/decourcey | |
| 08-Feb-21 | 2458 Pylades | | | 0 | 0 | | 7.52 | | 363.0 | 0.36 | 743.0 | | |
| 16-Feb-21 | 2458 Pylades | 0 | 0 | 0 | 0 | | 7.19 | 0.02 | 356.0 | 0.37 | 751.0 | | |
| 23-Feb-21 | 2458 Pylades | | | 0 | 0 | 5 | 7.01 | 0.03 | 339.0 | 0.36 | 733.0 | | |
| | | | | | | | | | | | | | |
| CDN Drinking Water Guidelines | | <1 | <1 | <1 | <1 | n/a | 7.0-10.5 | n/a | 500 | n/a | n/a | 0.3 | **0.02** AO<br>**0.12** MAC |

**Legend:**

*** Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)**

**Orange font indicates non-compliance with the Aesthetic Objective (AO) in the Canadian Drinking Water Guidelines (CDWG)**

**Red font indicates non-compliance with the Maximum Acceptable Concentration (MAC) in the CDWG**

**Comments:**

**Iron and Manganese are no longer being tested in-house.**

**A full potability scan is completed once per year at an external lab that includes metals and minerals.**

# Regional District of Nanaimo - Water Services Department

## Decourcey Water Analysis - 2021 Monthly Report

| | | BC Centre for Disease Control | | RDN In-House Laboratory and Spectrophotometer | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Sample Location (Address) | E. coli * | Total Coliform * | E.coli * | Total Coliform * | Temp. (°C) | pH | Free Chlorine Residual (mg/L) | Total Dissolved Solids (mg/L) | Salinity (%) | Conductivity (µS/cm) | Total Iron (mg/L) | Manganese (mg/L) |
| 05-Jan-21 | 2458 Pylades | 0 | 0 | 0 | 0 | 6 | 7.56 | 0.04 | 383.0 | 0.38 | 782.0 | Fe and Mn are no longer tested in-house. See Annual Tap Water Results at https://www.rdn.bc.ca/decourcey | |
| 12-Jan-21 | 2458 Pylades | 0 | 0 | 0 | 0 | 6 | 7.10 | 0.06 | 382.0 | 0.38 | 784.0 | | |
| 19-Jan-21 | 2458 Pylades | | | 0 | 0 | 8 | 7.12 | 0.02 | 377.0 | 0.38 | 772.0 | | |
| 26-Jan-21 | 2458 Pylades | | | 0 | 0 | 8 | 7.34 | 0.03 | 380.0 | 0.38 | 778.0 | | |
| | | | | | | | | | | | | | |
| CDN Drinking Water Guidelines | | <1 | <1 | <1 | <1 | n/a | 7.0-10.5 | n/a | 500 | n/a | n/a | 0.3 | **0.02** AO **0.12** MAC |

**Legend:**

*** Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)**

**Orange font indicates non-compliance with the Aesthetic Objective (AO) in the Canadian Drinking Water Guidelines (CDWG)**

**Red font indicates non-compliance with the Maximum Acceptable Concentration (MAC) in the CDWG**

**Comments:**

**Iron and Manganese are no longer being tested in-house.**

**A full potability scan is completed once per year at an external lab that includes metals and minerals.**

REGIONAL DISTRICT OF NANAIMO

# Decourcey Distribution (Tap Water) Analysis
## 2458 Pylades Drive

CDWG=Canadian Drinking Water Guidelines AO= Aesthetic Objective

OG= Operational Guidance Value MAC= Maximum Acceptable Concentration in the CDWG

Red font indicates non-compliance with Canadian Drinking Water Guidelines (CDWG)

| | Units | CDWG | | May 9 2016 | May 2 2017 | May 8 2018 | May 14 2019 | May 20 2020 | May 18 2021 |
|---|---|---|---|---|---|---|---|---|---|
| **Miscellaneous Inorganics** | | | | | | | | | |
| Fluoride | mg/L | 1.5 | MAC | 0.15 | 0.15 | 0.14 | 0.14 | 0.15 | 0.13 |
| Alkalinity (total as CaCO ) | mg/L | | | 196 | 180 | 172 | 186 | 170 | 180 |
| **Anions** | | | | | | | | | |
| Dissolved Sulphate | mg/L | 500 | AO | 26.3 | 21.4 | 24.6 | 23.2 | 26 | 27 |
| Dissolved Chloride | mg/L | 250 | AO | 81 | 55 | 85 | 79 | 100 | 130 |
| Nitrite | mg/L | 1 | MAC | <0.0050 | <0.0050 | <0.0050 | <0.005 | <0.005 | <0.005 |
| **Miscellaneous** | | | | | | | | | |
| Apparent Colour | Colour Unit | | | 5 | 5 | 10 | <2 | 10 | 10 |
| **Nutrients** | | | | | | | | | |
| Total Ammonia | mg/L | | | 0.0062 | 0.12 | 0.13 | <0.015 | 0.016 | <0.015 |
| **Physical Properties** | | | | | | | | | |
| Conductivity | µS/cm | | | 689 | 553 | 659 | 635 | 700 | 790 |
| pH | pH | 7.0:10.5 | AO | 8.25 | 8.46 | 8.37 | 8.22 | 8.07 | 8.11 |
| TDS | mg/L | 500 | AO | 384 | 310 | 332 | 336 | 470 | 390 |
| Turbidity | NTU | | | 0.16 | 0.18 | 0.25 | 0.33 | 0.27 | 0.21 |
| **Microbiological Parameters** | | | | | | | | | |
| E.coli | MPN/100mL | <1 | MAC | <1.0 | <1.0 | <1.0 | 0 | 0 | 0 |
| Total Coliforms | MPN/100mL | <1 | MAC | <1.0 | <1.0 | <1.0 | 0 | 0 | 0 |
| **Calculated Parameters** | | | | | | | | | |
| Total Hardness (CaCO ) | mg/L | | | 42 | 36.7 | 38.3 | 40 | 45.2 | 50.7 |
| Nitrate | mg/L | 10 | MAC | <0.020 | 0.022 | 0.022 | <0.02 | 0.024 | <0.02 |
| **Elements** | | | | | | | | | |
| Total Mercury | mg/L | 0.001 | MAC | <0.00001 | <0.00001 | 0.0000116 | <0.000002 | <0.0000019 | <0.0000019 |
| **Total Metals** | | | | | | | | | |
| Total Aluminum | mg/L | 0.1 | OG | <0.003 | 0.0058 | 0.006 | 0.005 | <0.003 | <0.003 |
| Total Antimony | mg/L | 0.006 | MAC | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Total Arsenic | mg/L | 0.01 | MAC | <0.00022 | 0.00013 | 0.00019 | 0.00019 | 0.00016 | 0.00016 |
| Total Barium | mg/L | 1 | MAC | 0.0098 | 0.0112 | 0.0115 | 0.0116 | 0.0126 | 0.0124 |
| Total Beryllium | mg/L | | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Bismuth | mg/L | | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Total Boron | mg/L | 5 | MAC | 0.109 | 0.099 | 0.103 | 0.112 | 0.121 | 0.113 |
| Total Cadmium | mg/L | 0.005 | MAC | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Total Chromium | mg/L | 0.05 | MAC | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0012 |
| Total Cobalt | mg/L | | | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Total Copper | mg/L | 1 | AO | 0.00403 | 0.00509 | 0.00318 | 0.00578 | 0.00446 | 0.00631 |
| Total Iron | mg/L | 0.3 | AO | 0.0163 | 0.0158 | 0.0224 | 0.022 | 0.0186 | 0.033 |
| Total Lead | mg/L | 0.01 | MAC | <0.0002 | <0.0002 | 0.00021 | 0.00023 | <0.0002 | 0.00021 |
| Total Lithium | mg/L | | | | | | 0.0163 | | |
| Total Manganese | mg/L | 0.02<br>0.12 | AO<br>MAC | <0.001 | <0.001 | 0.0022 | 0.0014 | <0.001 | <0.001 |
| Total Molybdenum | mg/L | | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Total Nickel | mg/L | | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Total Selenium | mg/L | 0.05 | MAC | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Silicon | mg/L | | | 9 | 8.08 | 7.31 | 7.47 | 7.72 | 7.87 |
| Total Silver | mg/L | | | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Total Strontium | mg/L | | | 0.177 | 0.139 | 0.144 | 0.154 | 0.193 | 0.219 |
| Total Thallium | mg/L | | | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Total Tin | mg/L | | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Total Titanium | mg/L | | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Total Uranium | mg/L | 0.02 | MAC | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Vanadium | mg/L | | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Total Zinc | mg/L | 5 | AO | 0.0258 | 0.0386 | 0.0309 | 0.0473 | 0.0349 | 0.0406 |
| Total Zirconium | mg/L | | | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Calcium | mg/L | | | 12.7 | 11.1 | 11.9 | 12.3 | 13.9 | 15.5 |
| Total Magnesium | mg/L | | | 2.49 | 2.17 | 2.1 | 2.27 | 2.56 | 2.94 |
| Total Potassium | mg/L | | | 0.886 | 0.732 | 0.66 | 0.78 | 0.836 | 0.91 |
| Total Sodium | mg/L | 200 | AO | 128 | 112 | 110 | 123 | 130 | 136 |
| Total Sulphur | mg/L | | | 9.2 | 7.8 | 5.7 | 8.1 | 8.6 | 8.6 |

REGIONAL DISTRICT OF NANAIMO

# Decourcey Raw Well Water Analysis
# Between 3274 & 3284 Bisell Road

CDWG=Canadian Drinking Water Guidelines MAC=Maximum Acceptable Concentration

OG= Operational Guidance Value AO=Aesthetic Objective

**Orange font indicates non-compliance with the Aesthetic Objective (AO) in the Canadian Drinking Water Guidelines (CDWG)**

**Red font indicates non-compliance with the Maximum Acceptable Concentration (MAC) in the CDWG**

| | Units | CDWG | | October 11 2016 | September 19 2017 | October 23 2018 | October 22 2019 | October 16 2020 | November 2 2021 |
|---|---|---|---|---|---|---|---|---|---|
| **Miscellaneous Inorganics** | | | | | | | | | |
| Fluoride | mg/L | 1.5 | MAC | 0.2 | 0.17 | 0.15 | 0.15 | 0.14 | 0.1 |
| Alkalinity (total as CaCO ) | mg/L | | | 214 | 207 | 202 | 200 | 180 | 150 |
| **Anions** | | | | | | | | | |
| Dissolved Sulphate | mg/L | 500 | AO | 22 | 21.9 | 25.6 | 25 | 25 | 15 |
| Dissolved Chloride | mg/L | 250 | AO | 55 | 70 | 99 | 91 | 140 | 63 |
| Nitrite | mg/L | 1 | MAC | <0.0050 | <0.0050 | <0.0050 | <0.005 | <0.005 | <0.005 |
| **Miscellaneous** | | | | | | | | | |
| Apparent Colour | Colour Unit | | | 5 | 10 | 5 | <5 | 5 | <5 |
| **Nutrients** | | | | | | | | | |
| Total Ammonia | mg/L | | | 0.094 | <0.020 | 0.094 | 0.078 | 0.029 | <0.015 |
| **Physical Properties** | | | | | | | | | |
| Conductivity | µS/cm | | | 637 | 649 | 746 | 700 | 850 | 510 |
| pH | pH | 7.0:10.5 | AO | 7.99 | 8.41 | 8.27 | 8.09 | 7.94 | 7.26 |
| TDS | mg/L | 500 | AO | 356 | 350 | 406 | 390 | 470 | 300 |
| Turbidity | NTU | | | 0.22 | 0.25 | 0.32 | 0.33 | 0.19 | 0.83 |
| **Microbiological Parameters** | | | | | | | | | |
| E.coli | MPN/100mL | <1 | MAC | <1 | <1.0 | <1.0 | 0 | 0 | 0 |
| Total Coliforms | MPN/100mL | <1 | MAC | **3.1** | <1.0 | <1.0 | **27** | **32** | **0** |
| **Calculated Parameters** | | | | | | | | | |
| Total Hardness (CaCO ) | mg/L | | | 34.4 | 35.8 | 46.3 | 49.8 | 57.5 | 34.8 |
| Nitrate | mg/L | 10 | MAC | 0.126 | <0.020 | <0.020 | 0.066 | 0.042 | 0.366 |
| **Elements** | | | | | | | | | |
| Total Mercury | mg/L | 0.001 | MAC | <0.00001 | <0.00001 | 0.0000048 | 0.0000084 | 0.0000036 | 0.0000032 |
| **Total Metals** | | | | | | | | | |
| Total Aluminum | mg/L | 0.1 | OG | 0.0067 | 0.0128 | 0.0054 | 0.0067 | <0.003 | 0.0309 |
| Total Antimony | mg/L | 0.006 | MAC | <0.0005 | <0.0005 | <0.00050 | <0.0005 | <0.0005 | <0.0005 |
| Total Arsenic | mg/L | 0.01 | MAC | 0.00031 | 0.00025 | 0.00023 | 0.00023 | 0.00017 | 0.00018 |
| Total Barium | mg/L | 1 | MAC | 0.0064 | 0.0068 | 0.0093 | 0.0091 | 0.0115 | 0.0094 |
| Total Beryllium | mg/L | | | <0.0001 | <0.0001 | <0.00010 | <0.0001 | <0.0001 | <0.0001 |
| Total Bismuth | mg/L | | | <0.001 | <0.001 | <0.0010 | <0.001 | <0.001 | <0.001 |
| Total Boron | mg/L | 5 | MAC | 0.148 | 0.152 | 0.133 | 0.129 | 0.115 | 0.09 |
| Total Cadmium | mg/L | 0.005 | MAC | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Total Chromium | mg/L | 0.05 | MAC | <0.001 | <0.001 | <0.0010 | 0.0011 | <0.001 | <0.001 |
| Total Cobalt | mg/L | | | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Total Copper | mg/L | 1 | AO | 0.00422 | 0.00206 | 0.00156 | 0.00187 | 0.00143 | 0.00184 |
| Total Iron | mg/L | 0.3 | AO | 0.0133 | 0.0186 | 0.013 | 0.0803 | <0.005 | 0.0406 |
| Total Lead | mg/L | 0.01 | MAC | 0.00026 | 0.0002 | 0.00023 | 0.00023 | <0.0002 | <0.0002 |
| Total Manganese | mg/L<br>mg/L | 0.02<br>0.12 | AO<br>MAC | 0.0145 | 0.0094 | **0.0304** | **0.0265** | **0.0503** | **0.0334** |
| Total Molybdenum | mg/L | | | <0.001 | <0.001 | <0.0010 | <0.001 | <0.001 | <0.001 |
| Total Nickel | mg/L | | | <0.001 | <0.001 | <0.0010 | <0.001 | <0.001 | <0.001 |
| Total Selenium | mg/L | 0.05 | MAC | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Silicon | mg/L | | | 6.43 | 7.18 | 7.75 | 7.67 | 7.8 | 6.96 |
| Total Silver | mg/L | | | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Total Strontium | mg/L | | | 0.147 | 0.142 | 0.203 | 0.209 | 0.255 | 0.123 |
| Total Thallium | mg/L | | | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Total Tin | mg/L | | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Total Titanium | mg/L | | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Total Uranium | mg/L | 0.02 | MAC | 0.00015 | 0.00014 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Vanadium | mg/L | | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Total Zinc | mg/L | 5 | AO | <0.005 | 0.0067 | 0.007 | 0.0065 | 0.0061 | 0.0093 |
| Total Zirconium | mg/L | | | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Calcium | mg/L | | | 10.5 | 11.1 | 14.2 | 15.5 | 17.8 | 10.6 |
| Total Magnesium | mg/L | | | 1.98 | 1.99 | 2.63 | 2.71 | 3.18 | 2.03 |
| Total Potassium | mg/L | | | 0.651 | 0.663 | 0.857 | 0.811 | 0.97 | 0.673 |
| Total Sodium | mg/L | 200 | AO | 126 | 130 | 142 | 128 | 144 | 96.8 |
| Total Sulphur | mg/L | | | 7 | 7.4 | 8.2 | 7.6 | 8.4 | 3.8 |

Notes below about Manganese (2019) from: https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html

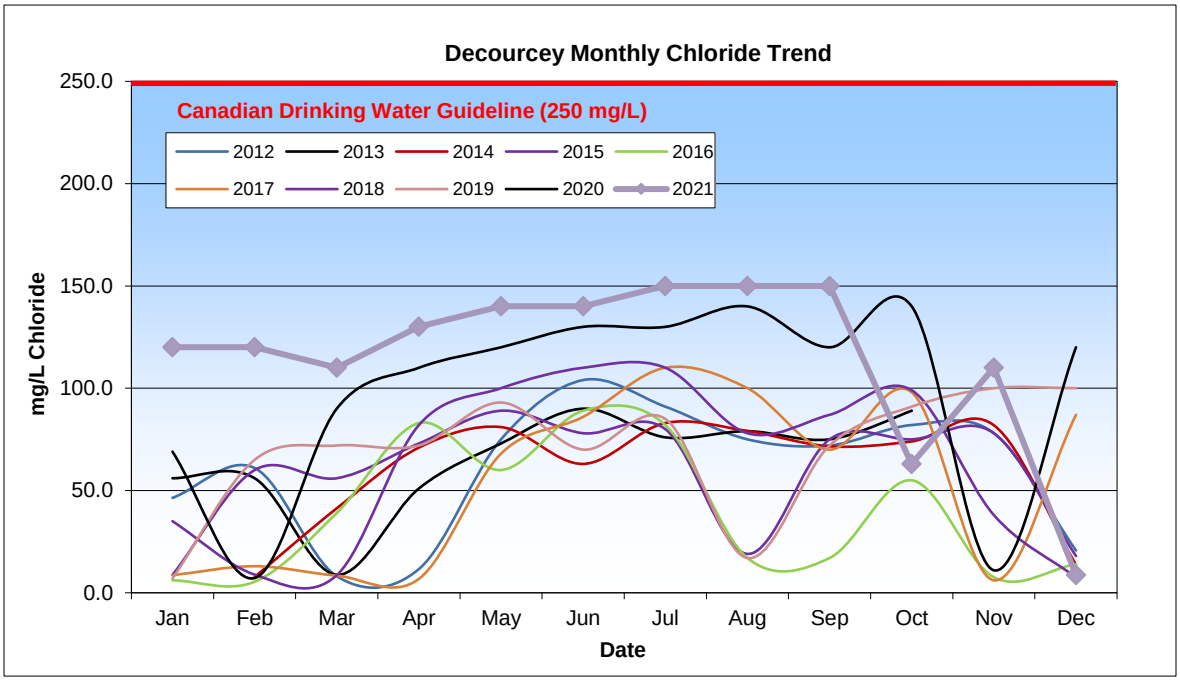
| Type | Parameter (published, reaffirmed) | MAC (mg/L) | Other value (mg/L) | Common sources of parameter in water | Health considerations | Comments |
|---|---|---|---|---|---|---|
| I = Inorganic chemical parameter | Manganese (2019) | 0.12 | AO: <0.02 | Dissolution of naturally-occurring minerals commonly found in soil and rock. Other sources include industrial discharge, mining activities and leaching from landfills. | **Health Basis of MAC:** Effects on neurological development and behaviour; deficits in memory, attention, and motor skills. **Other:** Formula-fed infants (where water containing manganese at levels above the MAC is used to prepare formula) may be especially at risk. | AO based on minimizing the occurrence of discoloured water, consumer complaints and staining of laundry. |

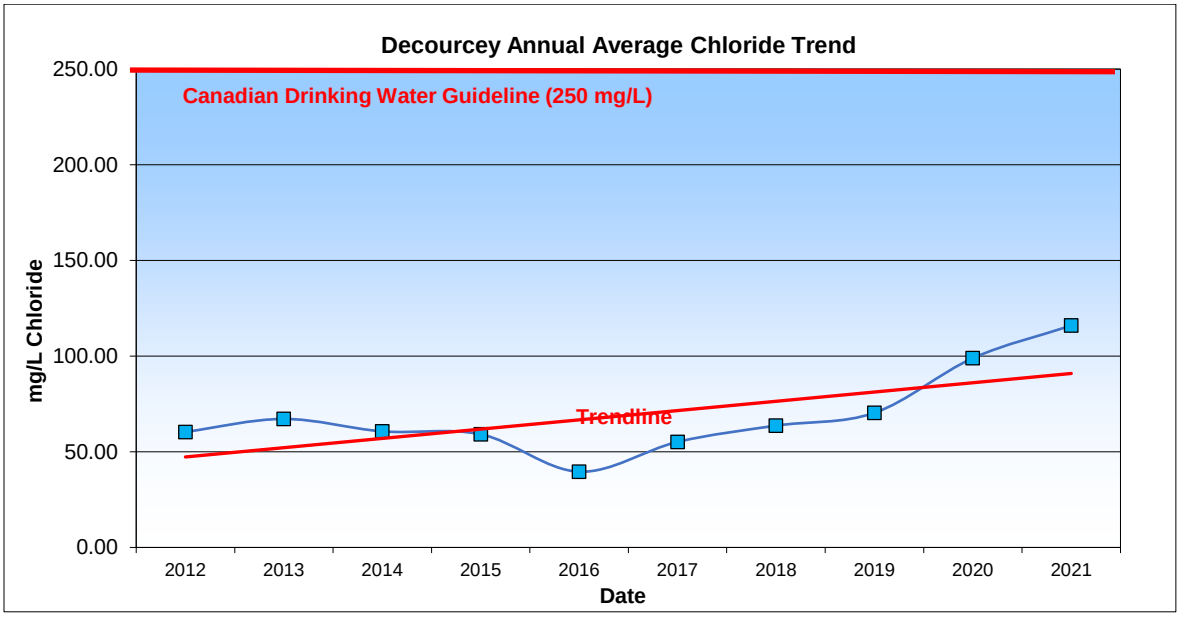
REGIONAL DISTRICT OF NANAIMO

# Decourcey Monthly Well Testing

## Chloride (mg/L)

| Month | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan | 7.4 | 46.4 | 56.0 | | 8.7 | 6.1 | 8.6 | 35.0 | 7 | 69 | 120.0 | 27.0 |
| Feb | 6.9 | 61.0 | 56.0 | 7.7 | 60 | 5.4 | 13.0 | 8.9 | 65 | 7.2 | 120 | 80 |
| Mar | 13.5 | 8.1 | 8.8 | 41.3 | 56 | 39.0 | 8.4 | 8.6 | 72.0 | 90 | 110 | 110 |
| Apr | 71.3 | 11.6 | 51.0 | 71.0 | 73 | 83.0 | 6.8 | 82.0 | 72 | 110 | 130 | 94 |
| May | 95.1 | 75.0 | 73.0 | 81.0 | 89 | 60.0 | 68 | 100.0 | 93 | 120 | 140 | |
| Jun | 108.0 | 104.0 | 90.0 | 63.0 | 78 | 89.0 | 86 | 110.0 | 70 | 130 | 140 | |
| Jul | 108.0 | 91.0 | 76.0 | 83.0 | 80 | 82.0 | 110 | 110.0 | 85 | 130 | 150 | |
| Aug | 92.7 | 75.0 | 79.0 | 79.1 | 19 | 17.0 | 100 | 78.0 | 17 | 140 | 150 | |
| Sep | 84.4 | 72.0 | 75.0 | 71.6 | 75 | 17.0 | 70 | 87.0 | 72 | 120 | 150 | |
| Oct | 81.9 | 82 | 89 | 74 | 75 | 55.0 | 98 | 99.0 | 91 | 140 | 63 | |
| Nov | 91.5 | 78.0 | | 81.9 | 78 | 7.6 | 6.1 | 38.0 | 100 | 11 | 110 | |
| Dec | 97.8 | 20.7 | 85 | 13.7 | 18 | 14.0 | 87 | 7.5 | 100 | 120 | 8.7 | |
| Avg | 71.54 | 60.40 | 67.16 | 60.66 | 59.14 | 39.59 | 55.16 | 63.67 | **70.33** | **98.93** | **115.98** | **77.75** |



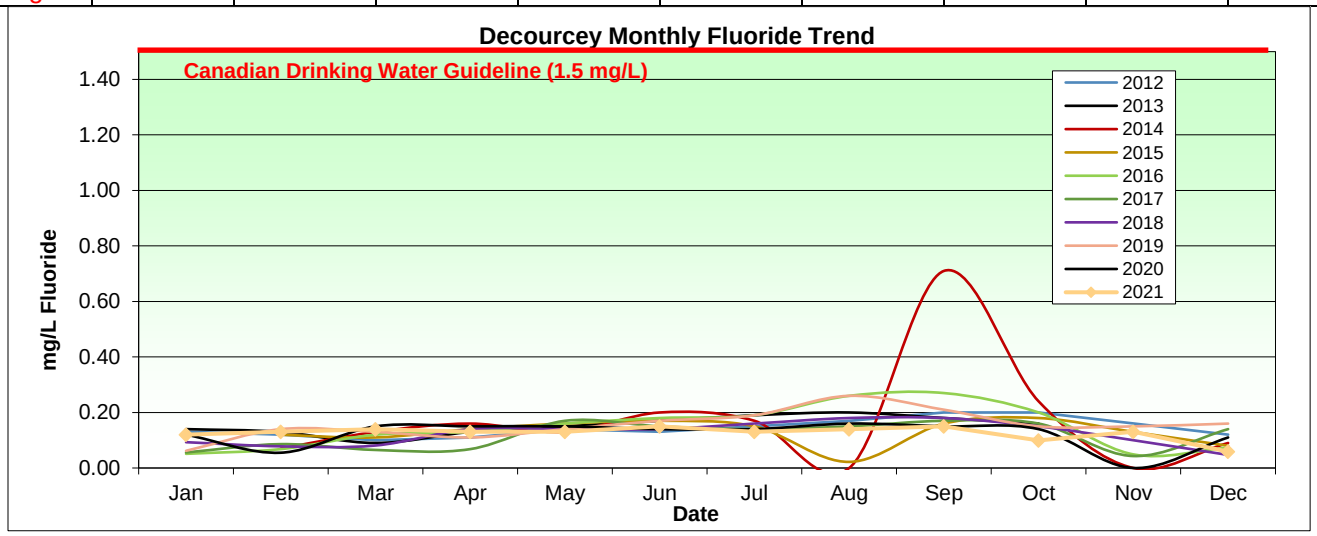



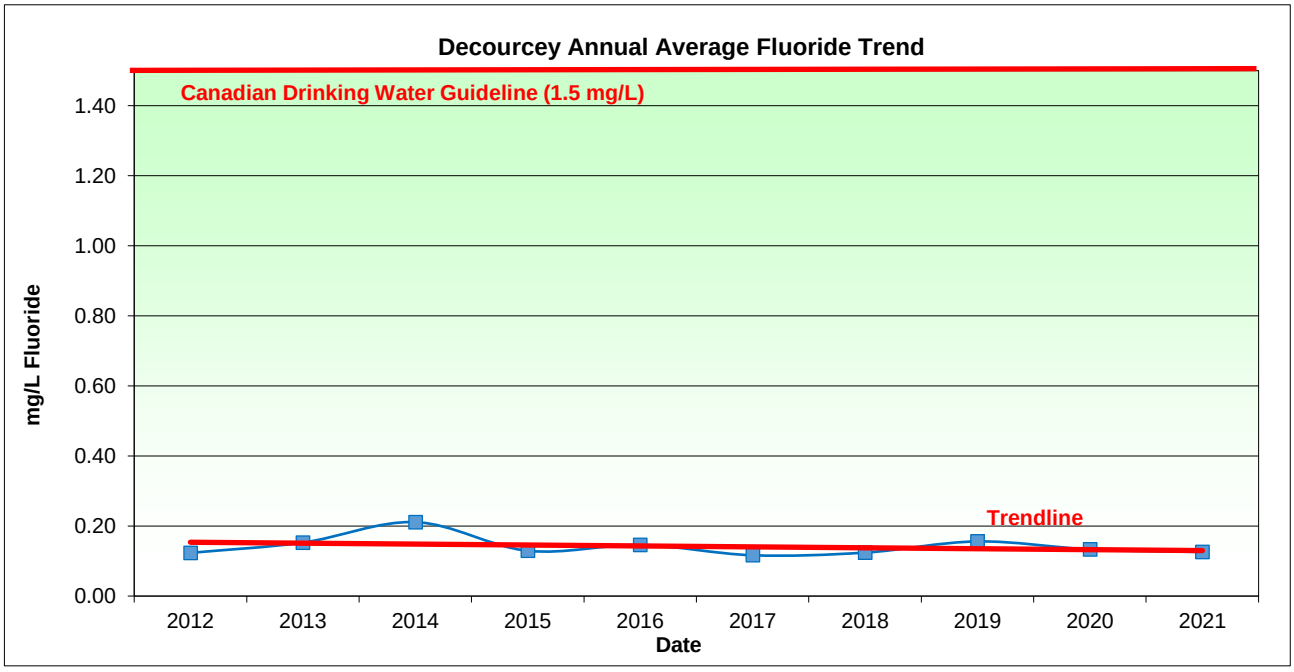
REGIONAL DISTRICT OF NANAIMO

# Decourcey Monthly Well Testing

**Fluoride (mg/L)**

| Month | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|
| Jan | 0.14 | | | 0.051 | 0.056 | 0.093 | 0.062 | 0.12 | 0.12 |
| Feb | 0.13 | 0.07 | 0.12 | 0.068 | 0.086 | 0.078 | 0.14 | 0.055 | 0.13 |
| Mar | 0.09 | 0.13 | 0.11 | 0.12 | 0.065 | 0.081 | 0.13 | 0.15 | 0.14 |
| Apr | 0.13 | 0.16 | 0.14 | 0.13 | 0.068 | 0.14 | 0.11 | 0.15 | 0.13 |
| May | 0.15 | 0.13 | 0.16 | 0.16 | 0.17 | 0.14 | 0.14 | 0.15 | 0.13 |
| Jun | 0.17 | 0.20 | 0.17 | 0.18 | 0.15 | 0.14 | 0.17 | 0.14 | 0.15 |
| Jul | 0.19 | 0.17 | 0.15 | 0.19 | 0.14 | 0.16 | 0.19 | 0.14 | 0.13 |
| Aug | 0.20 | <0.05 | 0.022 | 0.26 | 0.15 | 0.18 | 0.26 | 0.16 | 0.14 |
| Sep | 0.18 | 0.71 | 0.16 | 0.27 | 0.17 | 0.18 | 0.21 | 0.15 | 0.15 |
| Oct | 0.16 | 0.24 | 0.18 | 0.2 | 0.16 | 0.15 | 0.15 | 0.14 | 0.1 |
| Nov | | <0.05 | 0.13 | 0.049 | 0.043 | 0.1 | 0.15 | <0.05 | 0.13 |
| Dec | 0.14 | 0.09 | 0.08 | 0.073 | 0.14 | 0.047 | 0.16 | 0.11 | 0.059 |
| Avg | 0.15 | 0.21 | 0.13 | 0.15 | 0.12 | 0.12 | 0.16 | 0.13 | 0.13 |



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# Annual THM Data 2013-2021

| 2013 | Chloroform (mg/L) | Dibromochloromethane (mg/L) | Bromodichloromethane (mg/L) | Bromoform (mg/L) | Total THM (mg/L) |
|---|---|---|---|---|---|
| M | 0.002 | 0.011 | 0.002 | 0.33 | 0.345 |
| J | <0.001 | 0.002 | <0.001 | 0.025 | 0.027 |
| S | <0.001 | 0.004 | <0.001 | 0.02 | 0.024 |
| D | <0.001 | 0.003 | <0.001 | 0.041 | 0.044 |
| 2014 | | | | | |
| M | <0.001 | 0.004 | 0.001 | 0.141 | 0.146 |
| J | 0.001 | 0.005 | <0.001 | 0.048 | 0.054 |
| S | <0.001 | <0.001 | <0.001 | 0.025 | 0.025 |
| D | 0.001 | 0.003 | <0.001 | 0.042 | 0.046 |
| 2015 | | | | | |
| M | 0.003 | 0.0046 | 0.0019 | 0.038 | 0.048 |
| J | <0.001 | 0.002 | <0.001 | 0.017 | 0.019 |
| S | <0.001 | 0.0025 | <0.001 | 0.014 | 0.017 |
| D | 0.0013 | 0.0054 | 0.0015 | 0.065 | 0.0732 |
| 2016 | | | | | |
| M | 0.0039 | 0.012 | 0.0029 | 0.12 | 0.139 |
| J | <0.001 | 0.001 | <0.001 | 0.0063 | 0.0073 |
| S | <0.001 | 0.0021 | <0.001 | 0.0042 | 0.0063 |
| D | 0.002 | 0.0043 | 0.0015 | 0.014 | 0.0218 |
| 2017 | | | | | |
| M | 0.0034 | 0.0044 | 0.0018 | 0.027 | 0.0366 |
| J | 0.0021 | 0.0047 | 0.0014 | 0.043 | 0.0512 |
| S | <0.001 | 0.0011 | <0.001 | 0.0076 | 0.0087 |
| D | 0.0021 | 0.004 | 0.0014 | 0.065 | 0.0725 |
| 2018 | | | | | |
| M | <0.001 | 0.0051 | <0.001 | 0.13 | 0.1351 |
| J | <0.001 | 0.0029 | <0.001 | 0.02 | 0.0229 |
| S | <0.001 | 0.0019 | <0.001 | 0.014 | 0.016 |
| D | <0.001 | 0.0022 | <0.001 | 0.014 | 0.016 |
| 2019 | | | | | |
| M | 0.0023 | 0.0033 | 0.001 | 0.019 | 0.026 |
| J | <0.001 | 0.0015 | <0.001 | 0.0093 | 0.011 |
| S | <0.001 | 0.0027 | <0.001 | 0.015 | 0.017 |
| D | 0.001 | 0.003 | 0.0014 | 0.023 | 0.029 |
| 2020 | | | | | |
| M | 0.0019 | 0.0028 | 0.0012 | 0.032 | 0.037 |
| J | <0.001 | 0.0028 | 0.001 | 0.036 | 0.04 |
| S | <0.001 | 0.0022 | <0.001 | 0.014 | 0.016 |
| D | 0.001 | 0.0023 | <0.001 | 0.031 | 0.035 |
| 2021 | | | | | |
| M | 0.0025 | 0.0026 | <0.001 | 0.032 | 0.037 |
| J | <0.001 | 0.0027 | <0.001 | 0.028 | 0.031 |
| S | <0.001 | 0.0022 | <0.001 | 0.025 | 0.027 |
| D | 0.0023 | 0.0053 | 0.0017 | 0.078 | 0.087 |

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# Decourcey Quarterly Testing — THM's (mg/L)

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|---|
| Jan | | | | | | | | | | |
| Feb | | | | | | | | | | |
| Mar | 0.120 | 0.345 | 0.146 | 0.048 | 0.1388 | 0.0366 | 0.167 | 0.026 | 0.037 | 0.037 |
| Apr | | | | | | | | | | |
| May | | | | | | | 0.1351 | | | |
| Jun | 0.058 | 0.027 | 0.054 | 0.019 | 0.0073 | 0.0512 | 0.0229 | 0.011 | 0.04 | 0.031 |
| Jul | | | | | | | | | | |
| Aug | | | | | | | | | | |
| Sep | 0.030 | 0.024 | 0.025 | 0.017 | 0.0063 | 0.0087 | 0.016 | 0.017 | 0.016 | 0.027 |
| Oct | | | | | | | | | | |
| Nov | | | | | | | | | | |
| Dec | 0.070 | 0.044 | 0.046 | 0.0732 | 0.0218 | 0.0725 | 0.016 | 0.029 | 0.035 | 0.087 |
| Avg | 0.070 | 0.110 | 0.068 | 0.039 | 0.0436 | 0.0423 | 0.0556 | 0.02075 | 0.032 | 0.0455 |