# REGIONAL DISTRICT OF NANAIMO

## Water Service Area Annual Report 2020

## Rollo McClay Community Park Water System

June 2021

**REGIONAL DISTRICT OF NANAIMO**
*Water & Utility Services Department*
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## 1. Introduction

The following annual report describes the Rollo McClay Community Park Water System and summarizes the water quality, the completed and proposed maintenance activities, Operator Certification, the Emergency Response Plan, and the Cross Connection Control Program for the year 2020. This report is to be submitted to Island Health by the spring of 2021.

## 2. Rollo McClay Community Park Water System

The Rollo McClay Community Park was created in 1990 as part of a residential subdivision (Plan No. VIP51655). The park was operated and maintained by Gabriola Island residents until the Regional District acquired the park later in the 1990's. The park comprises an area of 7.8 hectares (19 acres) on the north side of Gabriola Island, and is accessed from McClay Way. Drinking water is trucked-in from Parksville and stored in one cistern on site. The water is only used for sinks and washrooms in the concession building. A map of the Rollo McClay Community Park Water System is provided in Appendix A for reference.

### 2.1 Groundwater Wells

The Rollo McClay Community Park well was not used for several years due to poor water quality, and was subsequently decommissioned (filled-in) by a certified well driller in 2019.

### 2.2 Reservoirs

One polyethylene cistern is located inside the concession stand building. The cistern has a capacity of 5.5 $m^3$ (1,200 imperial gallons).

### 2.3 Distribution System

There is no water distribution system in Rollo McClay Park. The cistern located inside the concession building supplies potable water to the kitchen and bathrooms. There are no fire hydrants in this water system.


**Rollo McClay Water Cistern**

## 3. Water Sampling and Testing Program

Water sampling and testing is carried out monthly in the concession building. The following table includes a summary of all testing:

| Timing | Location | Tests |
|---|---|---|
| Monthly: May-Oct<br>(Closed: Nov-Apr) | BC Centre for Disease Control | Total coliforms, E.Coli |
| Annually<br>(April) | Bureau Veritas | Complete potability testing of treated water (trucked-in, source is from San Pareil) |

## 4. Water Quality - Distribution System

Drinking water is trucked-in to the Rollo McClay Park from an RDN-owned water system near Parksville, using an RDN-owned truck and tank. The delivery of potable water was determined to be less costly than using the well and water treatment system on-site. Trucking in water has been ongoing since 2015.

The trucked-in water has a chlorine residual upon arrival at Rollo McClay Park, and chlorine residuals are tested regularly by the park operator to ensure no bacterial regrowth occurs in the cistern. The water stored in the cistern does not have a high turnover rate, so the park operator adds liquid chlorine manually, as required.

Tap water test results are provided at the end of this report under Appendix B. Bacteriological results are also posted on the RDN website at: www.rdn.bc.ca/rollo-mcclay-community-park-water-system.

## 5. Water Quality Inquiries and Complaints

No complaints or inquiries were received from the Rollo McClay Community Park Water System users. Due to Covid-19, the park was not used for group events in 2020.

## 6. Groundwater Production and Consumption

The volume of water consumed at the concession stand is not metered. However, the volume of water trucked-in with the RDN tank is normally recorded during the spring and summer season when the park is in-use. However, due to Covid-19, the park was not used for group events in 2020 and no water was trucked-in.

## 7. Maintenance Program

Chlorine residuals are taken and recorded 2-3 times weekly by the local water system operator on Gabriola Island while the concession building is open (summer months only). The water storage cistern is drained for the winter season, and cleaned/disinfected every Spring before being filled.

## 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 Park Operator has the Small Water Systems Operator certification. 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. Water System Projects

### 9.1 2020 Completed Studies & Projects

- Calibrated and serviced all Hach spectrophotometer lab equipment;
- Completed a Water System Condition Assessment report and Capital Plan;
- Completed the 2020-2030 Water Conservation Plan;
- Completed cistern cleaning;
- Maintained a high level of water quality; and
- Continued quality control through regular testing and monitoring of water system.

### 9.2 2021 Proposed Projects & Upgrades

- Create a database of water system assets;
- Continue cistern maintenance; and
- Implement the 2020-2030 DWWP Water Conservation Plan.

**Rollo McClay Wellhead Decommissioned**

## 10. 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 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 ERP is also attached to this report in Appendix C.

## 11. 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. 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. Closing

An annual report for the year 2021 will be prepared and submitted to Island Health in the Spring of 2022. The Rollo McClay Community Park Water System Annual Report is also available on our website at www.rdn.bc.ca/rollo-mcclay-community-park.

**Park Entrance**

## APPENDIX A

## MAP OF ROLLO McCLAY COMMUNITY PARK WATER SYSTEM

# APPENDIX B

# WATER QUALITY TESTING RESULTS

# ROLLO McCLAY PARK WATER SYSTEM

**Facility Location:**
1100 McClay Way, Gabriola Island

**Facility Information:** Facility Type: 1 connection DWQ

**Facility Sampling History:**

| Location | Date | Total Coliform | E. Coli |
|---|---|---|---|
| Kitchen - MONTHLY SAMPLING, Gabriola | 4-Nov-2020 | LT1 | LT1 |
| Kitchen - MONTHLY SAMPLING, Gabriola | 7-Oct-2020 | LT1 | LT1 |
| Kitchen - MONTHLY SAMPLING, Gabriola | 9-Sep-2020 | LT1 | LT1 |
| Kitchen - MONTHLY SAMPLING, Gabriola | 5-Aug-2020 | LT1 | LT1 |
| Rollo McClay Community Park Water - AUDIT, 1100 McCLAY WAY | 5-Aug-2020 | LT1 | LT1 |
| Kitchen - MONTHLY SAMPLING, Gabriola | 2-Jul-2020 | LT1 | LT1 |
| Kitchen - MONTHLY SAMPLING, Gabriola | 3-Jun-2020 | LT1 | LT1 |
| Kitchen - MONTHLY SAMPLING, Gabriola | 1-Apr-2020 | 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

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# Rollo McClay Tap Water Analysis
## 1100 McClay Way-Gabriola Island *trucked-in from San Pareil since 2015

CDWG=Canadian Drinking Water Guidelines
OG= Operational Guidance Value
MAC=Maximum Acceptable Concentration
AO= Asthetic Objective

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

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

| | Units | CDWG | | Feb 27 2013 | April 15 2013 | April 8 2014 | May 19 2015* | May 10 2016 | May 10 2017 | May 2 2018 | May 23 2019 | May 21 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Miscellaneous Inorganics** | | | | | | | | | | | | |
| Fluoride | mg/L | 1.5 | MAC | 0.11 | 0.17 | | 0.022 | 0.021 | 0.027 | 0.023 | <0.02 | <0.05 |
| Alkalinity (total as CaCO ) | mg/L | | | 100 | 120 | | 25.1 | 25.7 | 25.3 | 24.7 | 22.7 | 21 |
| **Anions** | | | | | | | | | | | | |
| Dissolved Sulphate | mg/L | 500 | AO | 10.7 | 10.1 | | 1.91 | 1.95 | 1.88 | 2.2 | 1.2 | 1.8 |
| Dissolved Chloride | mg/L | 250 | AO | 22.5 | 14.5 | | 9 | 6 | 4.1 | 5 | 7.3 | 5.5 |
| Nitrite | mg/L | 1 | MAC | <0.05 | <0.05 | | <0.0050 | <0.0050 | <0.0050 | <0.0050 | | <0.005 |
| **Miscellaneous** | | | | | | | | | | | | |
| Apparent Colour | Colour Unit | | | 420 | 2000 | 67 | <5 | 5 | 10 | 5 | 5 | 5 |
| **Nutrients** | | | | | | | | | | | | |
| Total Ammonia | mg/L | | | 0.02 | 0.05 | | 0.0071 | 0.014 | 0.2 | <0.020 | <0.015 | <0.015 |
| **Physical Properties** | | | | | | | | | | | | |
| Conductivity | µS/cm | | | 294 | 314 | | 82.9 | 72.3 | 66.9 | 64 | 72.8 | 62 |
| pH | pH | 6.5:8.5 | AO | 7 | 7.3 | | 7.41 | 7.26 | 7.43 | 7.25 | 7.31 | **6.92** |
| TDS | mg/L | 500 | AO | 112 | 242 | | 50 | 58 | 26 | 52 | 42 | 36 |
| Turbidity | NTU | | | 45 | 152 | 6.1 | <0.10 | <0.10 | 0.14 | <0.10 | <0.1 | 0.16 |
| **Microbiological Parameters** | | | | | | | | | | | | |
| E.coli | MPN/100mL | 1 | MAC | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | 0 | 0 |
| Total Coliforms | MPN/100mL | 1 | MAC | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | 0 | 0 |
| **Calculated Parameters** | | | | | | | | | | | | |
| Total Hardness (CaCO ) | mg/L | | | 46 | 42 | | 29.7 | 23.6 | 22.6 | 20.6 | 21.2 | 19.9 |
| Nitrate | mg/L | 10 | MAC | <0.05 | <0.05 | | 0.05 | 0.05 | 0.06 | 0.042 | | <0.02 |
| **Elements** | | | | | | | | | | | | |
| Total Mercury | mg/L | 0.001 | MAC | <0.0001 | <0.0001 | | <0.00001 | <0.00001 | <0.00001 | 2.1E-06 | <0.000002 | <0.0000019 |
| **Total Metals** | | | | | | | | | | | | |
| Total Aluminum | mg/L | 0.1 | OG | 1.21 | 7.19 | | 0.008 | 0.0104 | 0.0138 | 0.0152 | 0.0094 | 0.0145 |
| Total Antimony | mg/L | 0.006 | MAC | 0.0002 | 0.0002 | | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Total Arsenic | mg/L | 0.01 | MAC | 0.00045 | 0.00108 | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Barium | mg/L | 1 | MAC | 0.0425 | 0.116 | | 0.0035 | 0.0031 | 0.0034 | 0.0027 | 0.0027 | 0.0024 |
| Total Beryllium | mg/L | | | 0.00009 | 0.00023 | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Bismuth | mg/L | | | <0.0001 | <0.0001 | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Total Boron | mg/L | 5 | MAC | 0.065 | 0.14 | | <0.05 | <0.05 | <0.050 | <0.050 | <0.05 | <0.05 |
| Total Cadmium | mg/L | 0.005 | MAC | 0.00001 | 0.00002 | | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Total Chromium | mg/L | 0.05 | MAC | 0.0017 | 0.0095 | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Total Cobalt | mg/L | | | 0.0008 | 0.0033 | | <0.0005 | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Total Copper | mg/L | 1 | AO | 0.0495 | 0.0342 | | 0.0026 | 0.00332 | 0.00428 | 0.00516 | 0.0045 | 0.00454 |
| Total Iron | mg/L | 0.3 | AO | **1.9** | **7.41** | **1.3** | 0.016 | 0.0147 | 0.0185 | 0.0147 | 0.0117 | 0.0134 |
| Total Lead | mg/L | 0.01 | MAC | 0.0026 | 0.0052 | | 0.00183 | 0.00053 | 0.0006 | 0.00089 | 0.00115 | 0.00065 |
| Total Manganese | mg/L | 0.02<br>0.12 | AO<br>MAC | **0.233** | **0.314** | **0.59** | 0.0052 | 0.0034 | 0.0016 | <0.001 | 0.0014 | <0.001 |
| Total Molybdenum | mg/L | | | 0.00017 | 0.00059 | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Total Nickel | mg/L | | | 0.0014 | 0.0087 | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Total Selenium | mg/L | 0.05 | MAC | 0.0002 | 0.0012 | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Silicon | mg/L | | | 13.1 | 40.3 | | 3.7 | 3.46 | 3.56 | 3.07 | 3.36 | 3.16 |
| Total Silver | mg/L | | | <0.00005 | <0.00005 | | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Total Strontium | mg/L | | | 0.15 | 0.111 | | 0.0372 | 0.032 | 0.0304 | 0.0273 | 0.0316 | 0.0263 |
| Total Thallium | mg/L | | | <0.00001 | 0.00003 | | <0.00005 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Total Tin | mg/L | | | 0.0004 | 0.0008 | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Total Titanium | mg/L | | | 0.0963 | 0.586 | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Total Uranium | mg/L | 0.02 | MAC | 0.00007 | 0.00022 | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Vanadium | mg/L | | | 0.0036 | 0.0198 | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Total Zinc | mg/L | 5 | AO | 0.0371 | 0.0638 | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Total Zirconium | mg/L | | | | | | <0.0005 | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Calcium | mg/L | | | 12.3 | 9.1 | | 9.87 | 7.6 | 7.38 | 6.55 | 6.84 | 6.43 |
| Total Magnesium | mg/L | | | 3.81 | 4.57 | | 1.23 | 1.13 | 1.03 | 1.04 | 1 | 0.928 |
| Total Potassium | mg/L | | | 0.5 | 2.5 | | 0.212 | 0.197 | 0.194 | 0.189 | 0.184 | 0.181 |
| Total Sodium | mg/L | 200 | AO | 47.6 | 69.8 | | 4.52 | 4.4 | 4.15 | 4.34 | 4.09 | 4.12 |
| Total Sulphur | mg/L | | | | | | <3.0 | <3.0 | <3.0 | <3.0 | <3 | <3 |

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. |