island health

DRINKING WATER SYSTEM ANNUAL REPORT

Reporting Period: January 1st to December 31st, 2018 (year)

Water System Arbutus Ridge Water System

Water System Owner Cowichan Valley Regional District

Primary Contact Name (Operator or Manager) Brian Dennison

Phone Number (Operator or Manager) 250-746-2532

E-mail (Operator or Manager) bdennsion@cvrd.bc.ca

DESCRIBE YOUR WATER SUPPLY SYSTEM

What is the Source(s) of Raw Water?

☒ Deep Well ☐ Shallow Well ☐ Surface Water ☐ Other

If other, specify details:

Does the Drinking Water System have Primary Disinfection? ☒ Yes ☐ No

☒ Chlorination ☐ Ultraviolet Light ☐ Ozone ☐ Other

If other, specify details:

Does the Drinking Water System have Secondary Disinfection? ☒ Yes ☐ No

☒ Chlorination ☐ Other

If other, specify details:

Does the Drinking Water System have Filtration? ☐ Yes ☒ No

Check all boxes that apply

☐ Cartridge Filter(s) ☐ Carbon Filter ☐ Sand Filtration ☐ Reverse Osmosis ☐ Other

If other, specify details:

PUBLIC REPORTING

Emergency Response & Contingency Plan (ERCP)

Is your ERCP up to Date? ☒ Yes ☐ No

How do you Inform the System Users of the ERCP?

☐ Hand Delivered ☐ Bulletin Board ☐ Newspaper ☐ Utility Bill Insert ☐ Website

☒ Other (specify details) CVRD Engineering Services, 175 Ingram Street, Duncan, BC

Drinking Water System Annual Report

How do you Inform the System Users of the Annual Report?

☐ Hand Delivered ☐ Bulletin Board ☐ Newspaper ☐ Utility Bill Insert ☒ Website

☐ Other (specify details)

COMPLIANCE WITH OPERATING PERMIT

List the conditions of your Operating Permit (Contact the DWO for a copy if needed):

Are you in compliance with your Operating Permit? ☒ Yes ☐ No

BACTERIOLOGICAL TESTING AND DRINKING WATER PROTECTION REGULATION WATER QUALITY STANDARDS

How many bacteriological samples were collected during this reporting period? 71

What is the minimum required sampling frequency for this system? (#samples/month) 4 samples/month

Additional sampling details:

Was the minimum required sampling frequency achieved? ☒ Yes ☐ No

Comments:

Bacteriological summary attached to this report? ☒ Yes ☐ No

If no, how do the users of the system view the results?

WATER QUALITY STANDARDS FOR POTABLE WATER

Parameter:	***Standard:***	**Did this system meet standard?**	
Escherichia coli (for all samples)	No detectable *Escherichia coli* per 100ml	☒ Yes	☐ No
Total Coliform Bacteria *(if only 1 sample collected in a 30 day period)*	No detectable total coliform bacteria per 100ml	☒ Yes	☐ No
Total Coliform Bacteria *(if more than 1 sample collected in a 30 day period)*	No more than 10% of samples contain total coliform bacteria, **and** No sample has more than 10 total coliform bacteria per 100ml	☒ Yes	☐ No

If the system did not meet any of above Drinking Water Protection Regulation standards, record the results in the table below; attach additional sheets if necessary.

Date	TC/100ml	E.coli/100ml	Reason	Corrective Action

CHEMICAL SAMPLING COMPLETED DURING THIS REPORTING PERIOD

Was any chemical sampling conducted during reporting period?	■ Yes	☐ No
If no, when were the last chemical samples conducted for this system? (date)		☐ Don't know
If yes, attach a list of the chemical results	See attached full spectrum report	
If any water samples did not meet the Guidelines for Canadian Drinking Water Quality, record the results in the table below; attach additional sheets if necessary.		
Next scheduled full chemical test (date)	August, 2019	

Parameter	Result	Corrective Action / Treatment / Comments

ADDITIONAL TESTING

Does the system have analyzers for continuous monitoring? ■ Yes ☐ No

If yes, check all boxes that apply:

■ Chlorine ☐ Turbidity ☐ Other (details)

Are the results available on request?

If any additional testing or sampling was conducted, record results in the table below; attach additional sheets if necessary.

Additional Testing & Reason for Sampling	Corrective Action Taken

WATER QUALITY COMPLAINTS

Were there any water quality complaints in this reporting period? (e.g. taste, odour, colour etc.) ☐ Yes ■ No

If yes, complete the table below; attach additional sheets if necessary.

Date	Water Quality Complaint	Corrective Action / Treatment

OPERATIONAL PROBLEMS

Were there any operational problems during this reporting period? (e.g. insufficient water supply, malfunction of disinfection equipment, line breaks, elevated turbidity etc.). ☐ Yes ■ No

If yes, complete the table below; attach additional sheets if necessary.

Incident Date	Type of Operational Problem	Corrective Action Taken

MAJOR UPGRADES/REPAIRS & EXPENSES

Were there any major upgrades/repairs or any major costs incurred during this reporting period? ■ Yes ☐ No

If yes, complete the table below; attach additional sheets if necessary.

Major Upgrades/Expenses	Details
Improvements required by DWO	
Additions/changes to system	
Purchase or install new equipment	
Equipment repair or replacement	Rebuild 60HP booster pumps/motor
Annual maintenance of system	Flushing system, hydrant maintenance, backflow testing, Genset maintenance
Specialist report	
Other	

FUTURE IMPROVEMENTS

Are there any plans for future improvements? ☐ Yes ■ No

If yes, complete the table below; attach additional sheets if necessary.

Future Upgrades or Improvements	Estimated Date of Completion
See attached table	

Click here to enter a date. June 16, 2019 **DATE COMPLETED:**	Rodrigo Lama **COMPLETED BY:**

Future upgrades or improvements	Estimated date of Completion
Rebuilt suction header out of reservoir	2020
Loop the Uplands watermain	2020
Replace suction headers in treatment system	2022/2023
Replace aging pipe headers	2024/2025
Groundwater monitoring (data collection) all wells	2020

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ARBUTUS RIDGE RETIREMENT VILLAGE

Facility Location:
600 Fairways Place
Cobble Hill

Facility Information:
Facility Type: 301-10000 (DWT)

Facility Sampling History:

Location	Date	Total Coliform	E.Coli
S-3 3420 Arbutus Drive South, S-3 Turf Valve At EOL	18-Dec-2018	L1	L1
S-2 Clubhouse-EOL, S-2 Turf Valve	11-Dec-2018	L1	L1
S-2 Clubhouse-EOL, S-2 Turf Valve	11-Dec-2018	L1	L1
S-4 3658 Marine View -PRV Chamber, S-4 PRV Chamber	11-Dec-2018	L1	L1
S-1-Country Club Parkway, S-1 Uplands Booster Station -Spigot	4-Dec-2018	L1	L1
S-5 3540 Ocean View Crescent, S-5 PRV chamber	26-Nov-2018	L1	L1
S-4 3658 Marine View -PRV Chamber, S-4 PRV Chamber	20-Nov-2018	L1	L1
S-3 3420 Arbutus Drive South, S-3 Turf Valve At EOL	13-Nov-2018	L1	L1
S-6 Reservoir Site, S-6 Spigot on reservoir outlet	13-Nov-2018	L1	L1
S-2 Clubhouse-EOL, S-2 Turf Valve	6-Nov-2018	L1	L1
S-1-Country Club Parkway, S-1 Uplands Booster Station -Spigot	29-Oct-2018	L1	L1
S-4 3658 Marine View -PRV Chamber, S-4 PRV Chamber	22-Oct-2018	L1	L1
S-6 Reservoir Site, S-6 Spigot on reservoir outlet	22-Oct-2018	L1	L1
S-3 3420 Arbutus Drive South, S-3 Turf Valve At EOL	16-Oct-2018	L1	L1

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S-2 Clubhouse-EOL, S-2 Turf Valve	10-Oct-2018	L1	L1
S-5 3540 Ocean View Crescent, S-5 PRV chamber	10-Oct-2018	L1	L1
S-1-Country Club Parkway, S-1 Uplands Booster Station -Spigot	2-Oct-2018	L1	L1
S-6 Reservoir Site, S-6 Spigot on reservoir outlet	25-Sep-2018	L1	L1
S-4 3658 Marine View -PRV Chamber, S-4 PRV Chamber	18-Sep-2018	L1	L1
S-3 3420 Arbutus Drive South, S-3 Turf Valve At EOL	11-Sep-2018	L1	L1
S-2 Clubhouse-EOL, S-2 Turf Valve	5-Sep-2018	L1	L1
S-5 3540 Ocean View Crescent, S-5 PRV chamber	5-Sep-2018	L1	L1
S-1-Country Club Parkway, S-1 Uplands Booster Station -Spigot	28-Aug-2018	L1	L1
S-4 3658 Marine View -PRV Chamber, S-4 PRV Chamber	21-Aug-2018	L1	L1
S-6 Reservoir Site, S-6 Spigot on reservoir outlet	21-Aug-2018	L1	L1
S-3 3420 Arbutus Drive South, S-3 Turf Valve At EOL	14-Aug-2018	L1	L1
S-2 Clubhouse-EOL, S-2 Turf Valve	8-Aug-2018	L1	L1
S-5 3540 Ocean View Crescent, S-5 PRV chamber	8-Aug-2018	L1	L1
S-4 3658 Marine View -PRV Chamber, S-4 PRV Chamber	23-Jul-2018	L1	L1
S-6 Reservoir Site, S-6 Spigot on reservoir outlet	23-Jul-2018	L1	L1
S-3 3420 Arbutus Drive South, S-3 Turf Valve At EOL	16-Jul-2018	L1	L1
S-2 Clubhouse-EOL, S-2 Turf Valve	9-Jul-2018	L1	L1
S-5 3540 Ocean View Crescent, S-5 PRV chamber	9-Jul-2018	L1	L1
S-1-Country Club Parkway, S-1 Uplands Booster Station -Spigot	3-Jul-2018	L1	L1
S-5 3540 Ocean View Crescent, S-5 PRV chamber	27-Jun-2018	L1	L1
S-4 3658 Marine View -PRV Chamber, S-4 PRV Chamber	18-Jun-2018	L1	L1
S-3 3420 Arbutus Drive South, S-3 Turf Valve At EOL	12-Jun-2018	L1	L1
S-6 Reservoir Site, S-6 Spigot on reservoir outlet	12-Jun-2018	L1	L1
S-2 Clubhouse-EOL, S-2 Turf Valve	4-Jun-2018	L1	L1
S-1-Country Club Parkway, S-1 Uplands Booster Station -Spigot	28-May-2018	L1	L1
S-1-Country Club Parkway, S-1 Uplands Booster Station -Spigot	23-May-2018	L1	L1
S-4 3658 Marine View -PRV Chamber, S-4 PRV Chamber	14-May-2018	L1	L1
S-6 Reservoir Site, S-6 Spigot on reservoir outlet	14-May-2018	L1	L1
S-3 3420 Arbutus Drive South, S-3 Turf Valve At EOL	7-May-2018	L1	L1

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S-2 Clubhouse-EOL, S-2 Turf Valve	30-Apr-2018	L1	L1
S-5 3540 Ocean View Crescent, S-5 PRV chamber	30-Apr-2018	L1	L1
S-5 3540 Ocean View Crescent, S-5 PRV chamber	24-Apr-2018	L1	L1
S-4 3658 Marine View -PRV Chamber, S-4 PRV Chamber	16-Apr-2018	L1	L1
S-3 3420 Arbutus Drive South, S-3 Turf Valve At EOL	10-Apr-2018	L1	L1
S-6 Reservoir Site, S-6 Spigot on reservoir outlet	10-Apr-2018	L1	L1
S-2 Clubhouse-EOL, S-2 Turf Valve	3-Apr-2018	L1	L1
S-4 3658 Marine View -PRV Chamber, S-4 PRV Chamber	27-Mar-2018	L1	L1
S-6 Reservoir Site, S-6 Spigot on reservoir outlet	27-Mar-2018	L1	L1
S-1-Country Club Parkway, S-1 Uplands Booster Station -Spigot	19-Mar-2018	L1	L1
S-3 3420 Arbutus Drive South, S-3 Turf Valve At EOL	13-Mar-2018	L1	L1
S-2 Clubhouse-EOL, S-2 Turf Valve	5-Mar-2018	L1	L1
S-5 3540 Ocean View Crescent, S-5 PRV chamber	5-Mar-2018	L1	L1
S-1-Country Club Parkway, S-1 Uplands Booster Station -Spigot	26-Feb-2018	L1	L1
S-5 3540 Ocean View Crescent, S-5 PRV chamber	26-Feb-2018	L1	L1
S-4 3658 Marine View -PRV Chamber, S-4 PRV Chamber	19-Feb-2018	L1	L1
S-6 Reservoir Site, S-6 Spigot on reservoir outlet	19-Feb-2018	L1	L1
S-3 3420 Arbutus Drive South, S-3 Turf Valve At EOL	13-Feb-2018	L1	L1
S-2 Clubhouse-EOL, S-2 Turf Valve	5-Feb-2018	L1	L1
S-4 3658 Marine View -PRV Chamber, S-4 PRV Chamber	22-Jan-2018	L1	L1
S-6 Reservoir Site, S-6 Spigot on reservoir outlet	22-Jan-2018	L1	L1
S-3 3420 Arbutus Drive South, S-3 Turf Valve At EOL	16-Jan-2018	L1	L1
S-2 Clubhouse-EOL, S-2 Turf Valve	8-Jan-2018	L1	L1
S-5 3540 Ocean View Crescent, S-5 PRV chamber	8-Jan-2018	L1	L1
S-1-Country Club Parkway, S-1 Uplands Booster Station -Spigot	3-Jan-2018	L1	L1

Report For:	Cowichan Valley Regional District
Received:	07/09/2018 13:10
Report ID:	L2110361
Report Name:	ALS Final Results Report

Sample ID:	**L2110361-1**
Water System:	Arbutus Ridge Estates Water (AREW)
Facility:	Distribution
Sampling Pt:	S4-3658 Marine View PRV Chamber (2-4-MD, 27AC1)
Comment:	S4-3658 MARINE VIEW PRV CHAMBER
Sampled:	06/11/2018 10:20

INORGANIC			Criteria & Type		Status
Aluminum (total)	< 0.010	mg/L	<=0.1	Operational - Conventional	Final
Ammonia (total, as N)	< 0.0050	mg/L			Final
Antimony (total)	< 0.00050	mg/L	<=0.006	MAC	Final
Arsenic (total)	0.00271	mg/L	<=0.01	MAC	Final
Barium (total)	< 0.010	mg/L	<=1	MAC	Final
Beryllium (total)	< 0.0050	mg/L			Final
Bismuth (total)	< 0.20	mg/L			Final
Boron (total)	< 0.10	mg/L	<=5	MAC	Final
Bromide	< 0.050	mg/L			Final
Cadmium (total)	< 0.00020	mg/L	<=0.005	MAC	Final
Calcium (total)	15.7	mg/L			Final
Chloride	5.57	mg/L	<=250	AO	Final
Chromium (total)	0.0047	mg/L	<=0.05	MAC	Final
Cobalt (total)	< 0.010	mg/L			Final
Copper (total)	< 0.0010	mg/L	<=1	AO	Final
Fluoride	0.046	mg/L	<=1.5	MAC	Final
Iron (total)	< 0.030	mg/L	<=0.3	AO	Final
Lead (total)	< 0.00050	mg/L	<=0.005	MAC	Final
Lithium (total)	< 0.010	mg/L			Final
Magnesium (total)	6.56	mg/L			Final
Manganese (total)	< 0.0020	mg/L	<=0.12	MAC	Final
Mercury (total)	< 0.00020	mg/L	<=0.001	MAC	Final
Molybdenum (total)	< 0.030	mg/L			Final
Nickel (total)	< 0.050	mg/L			Final
Nitrate (as N)	0.244	mg/L	<=10	MAC	Final
Nitrate + Nitrite (as N)	0.244	mg/L	<=10	User-Defined	Final
Nitrite (as N)	< 0.0010	mg/L	<=1	MAC	Final
Phosphorus (total)	< 0.30	mg/L			Final
Potassium (total)	0.83	mg/L			Final
Selenium (total)	< 0.0010	mg/L	<=0.05	MAC	Final
Silicon (total, as Si)	9.19	mg/L			Final
Silver (total)	< 0.010	mg/L			Final
Sodium (total)	6.8	mg/L	<=200	AO	Final

WaterTrax

Sample ID: **L2110361-1 (continued)**
Water System: Arbutus Ridge Estates Water (AREW)
Facility: Distribution
Sampling Pt: S4-3658 Marine View PRV Chamber (2-4-MD, 27AC1)
Comment: S4-3658 MARINE VIEW PRV CHAMBER
Sampled: 06/11/2018 10:20

INORGANIC			Criteria & Type		Status
Strontium (total)	0.0633	mg/L			Final
Sulphate	2.37	mg/L	<=500	AO	Final
Sulphide (total, as S)	< 0.018	mg/L			Final
Thallium (total)	< 0.20	mg/L			Final
Tin (total)	< 0.030	mg/L			Final
Titanium (total)	< 0.010	mg/L			Final
Vanadium (total)	< 0.030	mg/L			Final
Zinc (total)	0.0051	mg/L	<=5	AO	Final

MICROORGANISMS			Criteria & Type		Status
Background Bacteria	< 1	CFU/100ml	<=200,OG	User-Defined	Final
Escherichia coli / E. coli (counts)	< 1	CFU/100ml	<=0,P	Microbiological Standard	Final
Fecal (thermal tolerant) Coliforms (counts)	< 1	CFU/100ml	<=0,OG	Microbiological Standard	Final
Heterotrophic Plate Count / HPC	< 1	CFU/ml	<=5	User-Defined	Final
Iron Bacteria (MPN / PA)	SC				Final
Sulfate Reducing Bacteria	SC				Final
Total Coliforms (counts)	< 1	CFU/100ml	<=0,OG	User-Defined	Final

ORGANIC			Criteria & Type		Status
Tannins and Lignins	< 0.10	mg/L			Final
Total Kjeldahl Nitrogen / TKN	< 0.050	mg/L			Final
Total Organic Carbon / TOC	< 0.50	mg/L			Final

PHYSICAL			Criteria & Type		Status
Alkalinity (total, as CaCO3)	71.2	mg/L			Final
Colour	< 5.0	CU	<=15	AO	Final
Conductivity	162	uS/cm			Final
Hardness (total, as CaCO3)	66.3	mg/L			Final
Langelier Index	-0.22				Final
Langelier Index (@ 20 C)	16.2				Final
pH	8.13			Current Level	Final
pH	8.2			Current Level	Final
Total Dissolved Solids / TDS	117	mg/L	<=500	AO	Final
Turbidity	0.28	NTU	<=5	User-Defined	Final

Sample ID: **L2110361-1 (continued)**

Water System: Arbutus Ridge Estates Water (AREW)

Facility: Distribution

Sampling Pt: S4-3658 Marine View PRV Chamber (2-4-MD, 27AC1)

Comment: S4-3658 MARINE VIEW PRV CHAMBER

Sampled: 06/11/2018 10:20

RADIONUCLIDES			Criteria & Type		Status
Uranium (total)	0.00020	mg/L	<=0.02	MAC	Final

Result Legend

P=present, A=absent, PR=presumptive, ND=non-detect, OR=over-range, OG=overgrown, Y=yes, N=no,

TNTC=too numerous to count, NR=no result, NT=not tested, IG=ignore, ER=external report, SC=see comment

< means less than lower detection limit shown

> means greater than upper detection limit shown

« means detected & less than number shown

» means detected & greater than number shown

**** Indicates Criteria is exceeded***