



Douglas Hill Water System Annual Report

Reporting Period:	January 1 - December 31, 2017
Operating Permit Number:	1311307
Drinking Water System Owner:	Cowichan Valley Regional District
Drinking Water System Contact:	
Name:	<u>Brian Dennison</u>
Phone No.:	<u>250-746-2532</u>
Email:	<u>bdennison@cvr.bc.ca</u>

1. Microbiological testing completed during this reporting period:

- a. Bacteriological results attached to this report.
- b. Adverse bacteriological results: None detected
 Listed in table below:

Adverse Results

Date	Total Coliform	E. Coli	Reason	Corrective Action
Nov 14/17			Sample exceeded 30h holding date	Resample

2. Chemical results for this reporting period:

- a. Most recent chemical analysis attached to this report.
- b. chemical parameters listed in *The Guidelines for Canadian Drinking Water Quality ("the Guidelines")* are:
 - all within the GCDWQ
 - above the GCDWQ and are listed below: */Distribution water

Parameters above the Guidelines:

Parameter	Result	Max. Acceptable Concentration	Aesthetic Objective	Treatment/Corrective Action



Douglas Hill Water System Annual Report

3. Summarize additional testing and sampling carried out in accordance with the requirement of a Water Source approval, Written Order or as per the conditions of your *Operating Permit*.

- no additional testing
- additional testing listed below:

Additional testing:

Description of parameter & reason for sampling	Health parameter or non-health parameter	Corrective action necessary (y/n?)	Corrective Action Taken

4. Water Quality Complaints:

During the course of the year, the water system:

- did not receive water quality complaints (ie. taste, odour, colour, etc.)
- received water quality complaints and are listed below:

Water Quality Complaints:

Date	Water Quality Complaint	Corrective action taken

5. Adverse results: total number of adverse results during this reporting period for insufficient water supply, malfunction of disinfection equipment or elevated turbidity:

- No adverse results
- Adverse results listed below

Incident Date	Corrective Action	Corrected by



Douglas Hill Water System Annual Report

6. Description of the system:

Sources of raw water:

- Groundwater
- Surface water
- Other (specify): _____

Does the drinking water system have disinfection? Yes No

Disinfection methods (check applicable boxes)

- Chlorination
- Ultraviolet light
- Ozonation
- Other (specify) _____

Does the drinking water system have treatment? Yes No

Treatment type (check applicable boxes):

- Particulate cartridge filters
- Membrane filtration
- Carbon filter
- Sand filtration
- Reverse Osmosis
- Other (specify) _____

7. Major expenses incurred during the period covered by the report:

To purchase or install required equipment: _____

To repair equipment: _____

To replace equipment: 20Hp VHD variable frequency drive.

To complete annual maintenance of system: (*system flushing, replacement of carbon filters, etc.*): System flushing, hydrant maintenance, genset serviced.

To complete specialist report (specify): _____

8. Further communication with users:

a. Indicate how you notified system users that your annual report is available, and is free of charge:

- hand delivered
- public access/notice via web
- public access/notice via government office
- public access/notice via newspaper
- public access/notice via bill stuffer
- public access/notice via other method (specify)



Douglas Hill Water System Annual Report

- b. Improvements or remedial actions required by the Drinking Water Officer
- no action required
 - Drinking Water Officer inspection report attached to report
 - actions required by Drinking Water Officer listed below:

Improvements/Remedial Actions:

Required Action	Completion Date

- c. Future water system improvements:
- no improvements planned
 - improvements listed below:

Future Improvements:

Future Plans	Planned Completion Date
Remote access/SCADA	2018

- d. Emergency Response Plan can be accessed by:
- posting on web
 - posting at nearest government office
 - contacting water system owner
 - other (specify): CVRD Engineering Services., 175 Ingram Street, Duncan, BC



DOUGLAS HILL WATER SYSTEM

Facility Location:

175 Ingram Street
Cobble Hill

Facility Information:15-300 DWC

Facility Type:

Facility Sampling History:

Location	Date	Total Coliform	E.Coli
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	11-Dec-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	4-Dec-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	28-Nov-2017	L1	L1
S-1 easement behind 4373 Jim's Crescent	20-Nov-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	14-Nov-2017	T	
S-3 4171 Judge Drive, S-3 4171 Judge Drive	8-Nov-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	30-Oct-2017	L1	L1
S-1 easement behind 4373 Jim's Crescent	24-Oct-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	16-Oct-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	10-Oct-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	2-Oct-2017	L1	L1
S-1 easement behind 4373 Jim's Crescent	25-Sep-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	18-Sep-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	11-Sep-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	5-Sep-2017	L1	L1
S-1 easement behind 4373 Jim's Crescent	29-Aug-2017	L1	L1



S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	22-Aug-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	22-Aug-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	15-Aug-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	14-Aug-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	9-Aug-2017	L1	L1
S-1 easement behind 4373 Jim's Crescent	1-Aug-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	26-Jul-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	25-Jul-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	17-Jul-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	10-Jul-2017	L1	L1
S-1 easement behind 4373 Jim's Crescent	4-Jul-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	27-Jun-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	20-Jun-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	13-Jun-2017	L1	L1
S-1 easement behind 4373 Jim's Crescent	5-Jun-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	24-May-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	15-May-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	9-May-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	2-May-2017	L1	L1
S-1 easement behind 4373 Jim's Crescent	25-Apr-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	19-Apr-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	11-Apr-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	4-Apr-2017	L1	L1
S-1 easement behind 4373 Jim's Crescent	27-Mar-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	21-Mar-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	14-Mar-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	7-Mar-2017	L1	L1
S-1 easement behind 4373 Jim's Crescent	28-Feb-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	20-Feb-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	14-Feb-2017	L1	L1



S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	7-Feb-2017	L1	L1
S-1 easement behind 4373 Jim's Crescent	30-Jan-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	24-Jan-2017	L1	L1
S-3 4171 Judge Drive, S-3 4171 Judge Drive	18-Jan-2017	L1	L1
S-2 4224 Douglas Vale, S-2 4224 Douglas Vale	9-Jan-2017	L1	L1
S-1 easement behind 4373 Jim's Crescent	4-Jan-2017	L1	L1

Alkalinity (total, as CaCO3)		Sampling Point Name
05/19/2016 10:19	77.3 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	75.9 mg/L	Well 2-tap on inlet from well 2 in TB
Aluminum (total)		Sampling Point Name
05/19/2016 10:19	< 0.010 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.010 mg/L	Well 2-tap on inlet from well 2 in TB
Ammonia (total, as N)		Sampling Point Name
05/19/2016 10:19	< 0.0050 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.0050 mg/L	Well 2-tap on inlet from well 2 in TB
Antimony (total)		Sampling Point Name
05/19/2016 10:19	< 0.00050 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.00050 mg/L	Well 2-tap on inlet from well 2 in TB
Arsenic (total)		Sampling Point Name
05/19/2016 10:19	0.00113 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	0.00122 mg/L	Well 2-tap on inlet from well 2 in TB
Background Bacteria		Sampling Point Name
05/19/2016 10:19	< 1 CFU/100mL	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	97 CFU/100mL	Well 2-tap on inlet from well 2 in TB
Barium (total)		Sampling Point Name
05/19/2016 10:19	< 0.010 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.010 mg/L	Well 2-tap on inlet from well 2 in TB
Beryllium (total)		Sampling Point Name
05/19/2016 10:19	< 0.0050 mg/L	Well1-tap on inlet from well1 in TB

Beryllium (total)		Sampling Point Name
05/19/2016 10:29	< 0.0050 mg/L	Well 2-tap on inlet from well 2 in TB
Bismuth (total)		Sampling Point Name
05/19/2016 10:19	< 0.20 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.20 mg/L	Well 2-tap on inlet from well 2 in TB
Boron (total)		Sampling Point Name
05/19/2016 10:19	< 0.10 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.10 mg/L	Well 2-tap on inlet from well 2 in TB
Bromide		Sampling Point Name
05/19/2016 10:19	< 0.050 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.050 mg/L	Well 2-tap on inlet from well 2 in TB
Cadmium (total)		Sampling Point Name
05/19/2016 10:19	< 0.00020 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.00020 mg/L	Well 2-tap on inlet from well 2 in TB
Calcium (total)		Sampling Point Name
05/19/2016 10:19	16.8 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	17.2 mg/L	Well 2-tap on inlet from well 2 in TB
Chloride		Sampling Point Name
05/19/2016 10:19	6.79 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	7.45 mg/L	Well 2-tap on inlet from well 2 in TB
Chromium (total)		Sampling Point Name
05/19/2016 10:19	0.0024 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.0020 mg/L	Well 2-tap on inlet from well 2 in TB

Cobalt (total)		Sampling Point Name
05/19/2016 10:19	< 0.010 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.010 mg/L	Well 2-tap on inlet from well 2 in TB
Colour		Sampling Point Name
05/19/2016 10:19	< 5.0 TCU	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 5.0 TCU	Well 2-tap on inlet from well 2 in TB
Conductivity		Sampling Point Name
05/19/2016 10:19	191 uS/cm	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	189 uS/cm	Well 2-tap on inlet from well 2 in TB
Copper (total)		Sampling Point Name
05/19/2016 10:19	< 0.0010 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	0.0018 mg/L	Well 2-tap on inlet from well 2 in TB
Escherichia coli / E. coli (counts)		Sampling Point Name
05/19/2016 10:19	< 1 counts/100mL	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 1 counts/100mL	Well 2-tap on inlet from well 2 in TB
Fecal Coliforms (counts)		Sampling Point Name
05/19/2016 10:19	< 1 counts/100mL	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 1 counts/100mL	Well 2-tap on inlet from well 2 in TB
Fluoride		Sampling Point Name
05/19/2016 10:19	0.064 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	0.060 mg/L	Well 2-tap on inlet from well 2 in TB
Hardness (total, as CaCO3)		Sampling Point Name
05/19/2016 10:19	83.8 mg/L	Well1-tap on inlet from well1 in TB

Hardness (total, as CaCO3)		Sampling Point Name
05/19/2016 10:29	81.4 mg/L	Well 2-tap on inlet from well 2 in TB
Heterotrophic Plate Count / HPC		Sampling Point Name
05/19/2016 10:19	< 100 CFU/100mL	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	100 CFU/100mL	Well 2-tap on inlet from well 2 in TB
Iron (total)		Sampling Point Name
05/19/2016 10:19	< 0.030 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.030 mg/L	Well 2-tap on inlet from well 2 in TB
Iron Bacteria (MPN / PA)		Sampling Point Name
05/19/2016 10:19	SC	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	SC	Well 2-tap on inlet from well 2 in TB
Langelier Index		Sampling Point Name
05/19/2016 10:19	-0.63	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	-0.66	Well 2-tap on inlet from well 2 in TB
Langelier Index (@ 20 C)		Sampling Point Name
05/19/2016 10:19	10.6	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	10.1	Well 2-tap on inlet from well 2 in TB
Lead (total)		Sampling Point Name
05/19/2016 10:19	0.00056 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.00050 mg/L	Well 2-tap on inlet from well 2 in TB
Lithium (total)		Sampling Point Name
05/19/2016 10:19	< 0.010 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.010 mg/L	Well 2-tap on inlet from well 2 in TB

Magnesium (total)		Sampling Point Name
05/19/2016 10:19	10.1 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	9.35 mg/L	Well 2-tap on inlet from well 2 in TB
Manganese (total)		Sampling Point Name
05/19/2016 10:19	< 0.0020 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.0020 mg/L	Well 2-tap on inlet from well 2 in TB
Mercury (total)		Sampling Point Name
05/19/2016 10:19	< 0.00020 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.00020 mg/L	Well 2-tap on inlet from well 2 in TB
Molybdenum (total)		Sampling Point Name
05/19/2016 10:19	< 0.030 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.030 mg/L	Well 2-tap on inlet from well 2 in TB
Nickel (total)		Sampling Point Name
05/19/2016 10:19	< 0.050 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.050 mg/L	Well 2-tap on inlet from well 2 in TB
Nitrate (as N)		Sampling Point Name
05/19/2016 10:19	1.82 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	1.22 mg/L	Well 2-tap on inlet from well 2 in TB
Nitrate + Nitrite (as N)		Sampling Point Name
05/19/2016 10:19	1.82 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	1.22 mg/L	Well 2-tap on inlet from well 2 in TB
Nitrite (as N)		Sampling Point Name
05/19/2016 10:19	< 0.0010 mg/L	Well1-tap on inlet from well1 in TB

Nitrite (as N)		Sampling Point Name
05/19/2016 10:29	< 0.0010 mg/L	Well 2-tap on inlet from well 2 in TB
pH		Sampling Point Name
05/19/2016 10:19	7.75	Well1-tap on inlet from well1 in TB
05/19/2016 10:19	7.75	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	7.73	Well 2-tap on inlet from well 2 in TB
05/19/2016 10:29	7.55	Well 2-tap on inlet from well 2 in TB
Phosphorus (total)		Sampling Point Name
05/19/2016 10:19	< 0.30 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.30 mg/L	Well 2-tap on inlet from well 2 in TB
Potassium (total)		Sampling Point Name
05/19/2016 10:19	0.75 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	0.73 mg/L	Well 2-tap on inlet from well 2 in TB
Selenium (total)		Sampling Point Name
05/19/2016 10:19	< 0.0010 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.0010 mg/L	Well 2-tap on inlet from well 2 in TB
Silicon (total, as Si)		Sampling Point Name
05/19/2016 10:19	10.5 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	9.88 mg/L	Well 2-tap on inlet from well 2 in TB
Silver (total)		Sampling Point Name
05/19/2016 10:19	< 0.010 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.010 mg/L	Well 2-tap on inlet from well 2 in TB

Sodium (total)		Sampling Point Name
05/19/2016 10:19	6.9 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	6.7 mg/L	Well 2-tap on inlet from well 2 in TB
Strontium (total)		Sampling Point Name
05/19/2016 10:19	0.0607 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	0.0674 mg/L	Well 2-tap on inlet from well 2 in TB
Sulphate		Sampling Point Name
05/19/2016 10:19	4.24 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	6.07 mg/L	Well 2-tap on inlet from well 2 in TB
Sulphate Reducing Bacteria		Sampling Point Name
05/19/2016 10:19	SC	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	SC	Well 2-tap on inlet from well 2 in TB
Sulphide (total, as S)		Sampling Point Name
05/19/2016 10:19	< 0.020 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.020 mg/L	Well 2-tap on inlet from well 2 in TB
Tannins and Lignins		Sampling Point Name
05/19/2016 10:19	< 0.10 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.10 mg/L	Well 2-tap on inlet from well 2 in TB
Thallium (total)		Sampling Point Name
05/19/2016 10:19	< 0.20 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.20 mg/L	Well 2-tap on inlet from well 2 in TB
Tin (total)		Sampling Point Name
05/19/2016 10:19	< 0.030 mg/L	Well1-tap on inlet from well1 in TB

Tin (total)		Sampling Point Name
05/19/2016 10:29	< 0.030 mg/L	Well 2-tap on inlet from well 2 in TB
Titanium (total)		Sampling Point Name
05/19/2016 10:19	< 0.010 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.010 mg/L	Well 2-tap on inlet from well 2 in TB
Total Coliforms (counts)		Sampling Point Name
05/19/2016 10:19	< 1 counts/100mL	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 1 counts/100mL	Well 2-tap on inlet from well 2 in TB
Total Dissolved Solids / TDS		Sampling Point Name
05/19/2016 10:19	118 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	116 mg/L	Well 2-tap on inlet from well 2 in TB
Total Kjeldahl Nitrogen / TKN		Sampling Point Name
05/19/2016 10:19	< 0.050 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.050 mg/L	Well 2-tap on inlet from well 2 in TB
Total Organic Carbon / TOC		Sampling Point Name
05/19/2016 10:19	< 0.50 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.50 mg/L	Well 2-tap on inlet from well 2 in TB
Turbidity		Sampling Point Name
05/19/2016 10:19	0.16 NTU	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.10 NTU	Well 2-tap on inlet from well 2 in TB
Uranium (total)		Sampling Point Name
05/19/2016 10:19	0.00021 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	0.00026 mg/L	Well 2-tap on inlet from well 2 in TB

Vanadium (total)		Sampling Point Name
05/19/2016 10:19	< 0.030 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.030 mg/L	Well 2-tap on inlet from well 2 in TB

Zinc (total)		Sampling Point Name
05/19/2016 10:19	0.0051 mg/L	Well1-tap on inlet from well1 in TB
05/19/2016 10:29	< 0.0050 mg/L	Well 2-tap on inlet from well 2 in TB

Result Legend:

P=present, A=absent, PR=presumptive, ND=non-detect, U=non-detect, OR=over-range, OG=overgrown, 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**

