

DRINKING WATER SYSTEM ANNUAL REPORT

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

Water System

Water System Owner

Primary Contact Name (Operator or Manager)

Phone Number (Operator or Manager)

E-mail (Operator or Manager)

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?

What is the minimum required sampling frequency for this system? (#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 <i>Escherichia coli</i> per 100ml	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Total Coliform Bacteria (if only 1 sample collected in a 30 day period)	No detectable total coliform bacteria per 100ml	<input type="checkbox"/> Yes	<input type="checkbox"/> 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	<input type="checkbox"/> Yes	<input type="checkbox"/> 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

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)

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	
Annual maintenance of system	
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

Click here to enter a date.

DATE COMPLETED:

COMPLETED BY:



BALD MOUNTAIN WATER SYSTEM

Facility Location:

9455 Marble Bay Road
Youbou

Facility Information:

Facility Type: DWT

Facility Sampling History:

Location	Date	Total Coliform	E.Coli
S-4 Lot 8 , Lot 8 Lakefront Place	3-Dec-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	26-Nov-2018	L1	L1
S-4 Lot 8 , Lot 8 Lakefront Place	19-Nov-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	13-Nov-2018	L1	L1
S-1 Reservoir, Reservoir	5-Nov-2018	L1	L1
S-1 Reservoir, Reservoir	22-Oct-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	17-Oct-2018	L1	L1
S-2 RAW WATER 9455 Marble Bay Road, 9455 Marble Bay Road	9-Oct-2018	L1	L1
S-4 Lot 8 , Lot 8 Lakefront Place	9-Oct-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	1-Oct-2018	L1	L1
S-1 Reservoir, Reservoir	24-Sep-2018	L1	L1
S-1 Reservoir, Reservoir	24-Sep-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	17-Sep-2018	L1	L1



S-4 Lot 8 , Lot 8 Lakefront Place	10-Sep-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	4-Sep-2018	L1	L1
S-1 Reservoir, Reservoir	27-Aug-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	20-Aug-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	13-Aug-2018	L1	L1
S-4 Lot 8 , Lot 8 Lakefront Place	13-Aug-2018	L1	L1
S-1 Reservoir, Reservoir	30-Jul-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	24-Jul-2018	L1	L1
S-4 Lot 8 , Lot 8 Lakefront Place	17-Jul-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	9-Jul-2018	L1	L1
S-1 Reservoir, Reservoir	3-Jul-2018	L1	L1
S-1 Reservoir, Reservoir	26-Jun-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	19-Jun-2018	L1	L1
S-2 RAW WATER 9455 Marble Bay Road, 9455 Marble Bay Road	13-Jun-2018	L1	L1
S-4 Lot 8 , Lot 8 Lakefront Place	13-Jun-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	5-Jun-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	29-May-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	22-May-2018	L1	L1
S-1 Reservoir, Reservoir	15-May-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	8-May-2018	L1	L1
S-1 Reservoir, Reservoir	23-Apr-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	17-Apr-2018	L1	L1
S-4 Lot 8 , Lot 8 Lakefront Place	9-Apr-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	4-Apr-2018	L1	L1
S-1 Reservoir, Reservoir	26-Mar-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	20-Mar-2018	L1	L1
S-4 Lot 8 , Lot 8 Lakefront Place	14-Mar-2018	L1	L1
S-3 Lot 63, Lot 63 Marble Bay Road	6-Mar-2018	L1	L1



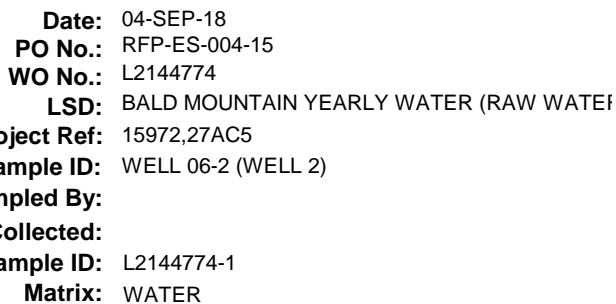
COWICHAN VALLEY REGIONAL DISTRICT
175 Ingram Street
Duncan BC V9L 1N8
ATTN: Rod Lama

Date: 04-SEP-18
PO No.: RFP-ES-004-15
WO No.: L2144774
LSD: BALD MOUNTAIN YEARLY WATER (RAW WATER)
Project Ref: 15972,27AC5
Sample ID: WELL 06-2 (WELL 2)
Sampled By:
Date Collected:
Lab Sample ID: L2144774-1
Matrix: WATER

PAGE 1 of 7

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	6.1		pH			20-AUG-18
Physical Tests						
Colour, True	<5.0		CU		15	11-AUG-18
Conductivity	227		uS/cm			12-AUG-18
Hardness (as CaCO ₃)	100	HTC	mg/L		500	15-AUG-18
Langelier Index Temperature	12.5		C			20-AUG-18
Langelier Index	-0.28		none			16-AUG-18
pH	7.65		pH		7-10.5	12-AUG-18
Total Dissolved Solids	150		mg/L		500	15-AUG-18
Turbidity	<0.10		NTU			11-AUG-18
Anions and Nutrients						
Alkalinity, Bicarbonate (as CaCO ₃)	124		mg/L			12-AUG-18
Alkalinity, Carbonate (as CaCO ₃)	<1.0		mg/L			12-AUG-18
Alkalinity, Hydroxide (as CaCO ₃)	<1.0		mg/L			12-AUG-18
Alkalinity, Total (as CaCO ₃)	124		mg/L			12-AUG-18
Ammonia, Total (as N)	<0.0050		mg/L			14-AUG-18
Bromide (Br)	<0.050		mg/L			10-AUG-18
Chloride (Cl)	2.88		mg/L		250	10-AUG-18
Fluoride (F)	0.033		mg/L	1.5		10-AUG-18
Nitrate and Nitrite (as N)	0.495		mg/L	10		15-AUG-18
Nitrate (as N)	0.495		mg/L	10		10-AUG-18
Nitrite (as N)	<0.0010		mg/L	1		10-AUG-18
Total Kjeldahl Nitrogen	0.236		mg/L			28-AUG-18
Sulfate (SO ₄)	0.92		mg/L		500	10-AUG-18
Sulphide as S	<0.018		mg/L		0.05	14-AUG-18
Organic / Inorganic Carbon						
Total Organic Carbon	<0.50		mg/L			27-AUG-18
Bacteriological Tests						
E. coli	<1		CFU/100mL	0		10-AUG-18
Coliform Bacteria - Fecal	<1		CFU/100mL	0		10-AUG-18
HPC	3		CFU/1mL			10-AUG-18
Iron Bacteria	Absent					11-AUG-18
Sulfur Reducing Bacteria	Present					11-AUG-18
Background colonies	<1		CFU/100mL			10-AUG-18
Coliform Bacteria - Total	<1		CFU/100mL	0		10-AUG-18
Total Metals						
Aluminum (Al)-Total	<0.010		mg/L		0.1	14-AUG-18
Antimony (Sb)-Total	<0.00050		mg/L	0.006		14-AUG-18
Arsenic (As)-Total	0.00021		mg/L	0.01		14-AUG-18
Barium (Ba)-Total	<0.010		mg/L	1		14-AUG-18
Beryllium (Be)-Total	<0.0050		mg/L			14-AUG-18

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PAGE 2 of 7

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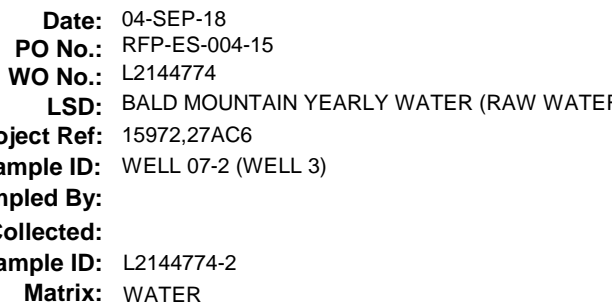
COWICHAN VALLEY REGIONAL DISTRICT
175 Ingram Street
Duncan BC V9L 1N8
ATTN: Rod Lama

Date: 04-SEP-18
PO No.: RFP-ES-004-15
WO No.: L2144774
LSD: BALD MOUNTAIN YEARLY WATER (RAW WATER)
Project Ref: 15972,27AC6
Sample ID: WELL 07-2 (WELL 3)
Sampled By:
Date Collected:
Lab Sample ID: L2144774-2
Matrix: WATER

PAGE 4 of 7

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	6.4		pH			20-AUG-18
Physical Tests						
Colour, True	<5.0		CU		15	11-AUG-18
Conductivity	228		uS/cm			12-AUG-18
Hardness (as CaCO3)	104	HTC	mg/L		500	15-AUG-18
Langelier Index Temperature	13.2		C			20-AUG-18
Langelier Index	-0.16		none			16-AUG-18
pH	7.74		pH		7-10.5	12-AUG-18
Total Dissolved Solids	151		mg/L		500	15-AUG-18
Turbidity	<0.10		NTU			11-AUG-18
Anions and Nutrients						
Alkalinity, Bicarbonate (as CaCO3)	126		mg/L			12-AUG-18
Alkalinity, Carbonate (as CaCO3)	<1.0		mg/L			12-AUG-18
Alkalinity, Hydroxide (as CaCO3)	<1.0		mg/L			12-AUG-18
Alkalinity, Total (as CaCO3)	126		mg/L			12-AUG-18
Ammonia, Total (as N)	<0.0050		mg/L			14-AUG-18
Bromide (Br)	<0.050		mg/L			10-AUG-18
Chloride (Cl)	2.92		mg/L		250	10-AUG-18
Fluoride (F)	0.033		mg/L	1.5		10-AUG-18
Nitrate and Nitrite (as N)	0.519		mg/L	10		15-AUG-18
Nitrate (as N)	0.515		mg/L	10		10-AUG-18
Nitrite (as N)	0.0043		mg/L	1		10-AUG-18
Total Kjeldahl Nitrogen	0.106		mg/L			28-AUG-18
Sulfate (SO4)	1.26		mg/L		500	10-AUG-18
Sulphide as S	<0.018		mg/L		0.05	14-AUG-18
Organic / Inorganic Carbon						
Total Organic Carbon	<0.50		mg/L			27-AUG-18
Bacteriological Tests						
E. coli	<1		CFU/100mL	0		10-AUG-18
Coliform Bacteria - Fecal	<1		CFU/100mL	0		10-AUG-18
HPC	<1		CFU/1mL			10-AUG-18
Iron Bacteria	Absent					11-AUG-18
Sulfur Reducing Bacteria	Present					11-AUG-18
Background colonies	<1		CFU/100mL			10-AUG-18
Coliform Bacteria - Total	<1		CFU/100mL	0		10-AUG-18
Total Metals						
Aluminum (Al)-Total	<0.010		mg/L		0.1	14-AUG-18
Antimony (Sb)-Total	<0.00050		mg/L	0.006		14-AUG-18
Arsenic (As)-Total	0.00020		mg/L	0.01		14-AUG-18
Barium (Ba)-Total	<0.010		mg/L	1		14-AUG-18
Beryllium (Be)-Total	<0.0050		mg/L			14-AUG-18

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PAGE 5 of 7

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Guidelines & Objectives

Sample Parameter Qualifier key listed:

Qualifier	Description
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).

Health Canada MAC Health Related Criteria Limits

Nitrate/Nitrite-N*	Criteria limit is 10 mg/L (1.0 mg/L if present as all Nitrite-N). High concentrations may contribute to blue baby syndrome in infants.
Lead*	A cumulative body poison, uncommon in naturally occurring hard waters.
Fluoride*	Present in fluoridated water supplies at 0.8 mg/L to reduce dental caries. Elevated levels causes fluorosis (mottling of teeth).
Total Coliforms*	Criteria is 0 CFU/100mL. Adverse health effects.
E. Coli*	Criteria is 0 CFU/100 mL. Certain E. Coli bacteria can be life threatening.

*Health Canada Canadian Drinking Water Quality Guidelines (MAC limit)

Aesthetic Objective Concentration Levels

Alkalinity	Acid neutralizing capacity. Usually a measure of carbonate and bicarbonates and calculated and reported as calcium carbonate.
Balance	Quality control parameter ratioing cations to anions
Bicarbonate	See Alkalinity. Report as the anion HCO ₃ -1
Carbonate	See Alkalinity. Reported at the anion CO ₃ -2
Calcium	See Hardness. Common major cation of water chemistry.
Chloride	Common major anion of water chemistry.
Conductance	Physical test measuring water salinity (dissolved ions or solids)
Hardness	Classical measure or capacity of water to precipitate soap (chiefly calcium and magnesium ions). Causes scaling tendency in water if carbonates/bicarbonates are present (if >200 mg/L). For drinking water purposes waters with results <200 mg/L are considered acceptable, results >200 mg/L are considered poor but can be tolerated. Results >500 mg/L are unacceptable.
Hydroxide	See alkalinity
Magnesium	See hardness. Common major cation of water chemistry. Elevated levels (>125 mg/L) may exert a cathartic or diuretic action.
pH	Measure of water acidity/alkalinity. Normal range is 7.0-8.5.
Potassium	Common major cation of water chemistry.
Sodium	Common major cation of water chemistry. Measure of salinity (saltiness).
Sulphate	Common major anion of water chemistry. Elevated levels may exert a cathartic or diuretic action.
Total Dissolved Solids	A measure of water salinity.
Iron	Causes staining to laundry and porcelain and astringent taste. Oxidizes to red-brown precipitate on exposure to air.
Manganese	Elevated levels may cause staining of laundry and porcelain.
Heterotrophic	
Plate Count	Criteria is 500 cfu/mL Measure of heterotrophic bacteria present.

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.