island health

DRINKING WATER SYSTEM ANNUAL REPORT

Reporting Period: January 1st to December 31st, 2024 (year)

Water System Kerry Village Water System

Water System Owner Cowichan Valley Regional District

Primary Contact Name (Operator or Manager) Vanessa Thomson

Phone Number (Operator or Manager) 250-746-2535

E-mail (Operator or Manager) Vanessa.Thomson@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: Filox sand filtration

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) Radio, Social Media

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):

Operating conditions attached.

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? 52

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	Full Spectrum Report for Source - September 2024	
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)	Source - August 2025; Distribution - May 2025	

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
Manganese - ensure levels are below MAC	All results below MAC and AO
in finished water (< 120 ug/L)	

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	Well 1080 Shawnigan Mill Bay Road (Sheldrake) -Installed/Complete
Purchase or install new equipment	
Equipment repair or replacement	
Annual maintenance of system	System flushing, hydrant maintenance, genset serviced, chlorine equipment serviced
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. February 20, 2025 **DATE COMPLETED:**	Tyler Sousa **COMPLETED BY:**

APPENDIX A

WATER SYSTEM OPERATING CONDITIONS FOR

Kerry Village Water System
1311307
175 Ingram Street
Duncan, BC V9L 1N8

The permit holder is advised that the following Terms and Conditions are in addition to other legislated responsibilities and obligations outlined in the Drinking Water Protection Act, ([SBC 2001] Chapter 9) and the B.C. Reg. 200/2003 O.C. 508/2003 Drinking Water Protection Regulation.

1. Authorized Waterworks System

The water supply system owner is authorized to operate 2 groundwater wells: New Well #1 (WTN 115228/WID 52150) and Briarwood Well #2 (WTN 52011/WID 22414), an iron and manganese treatment system consisting of pre-oxidation with chlorine, dual Greensand Plus and Filox-R media filters, backwash pump, distribution pumps, fire pump, other related appurtenances to disinfect water, and a distribution system consisting of storage and transmission facilities to supply potable water for domestic purposes the existing and future development of the community of Kerry Village, in Cobble Hill BC.

2. Performance Standards

The water supply system owner shall ensure that the manganese removal system is operated in a manner to maintain the concentration of manganese in the finished water at or below 0.12 mg/L

3. Performance Objectives

3.1 New Well #1 (WTN 115228/WID 52150) and Briarwood Well #2 (WTN 52011/WID 22414) were assessed in accordance with the British Columbia Ministry of Health "Guidance Document for Determining Ground Water at Risk of Containing Pathogens (GARP), Version 3, September 2017" and a determination of "At Low Risk (GARP)" was made.

Determining whether a ground water source is GARP is not regarded as a one-time process but is subject to the results of continued long-term monitoring of the water supply system and the conditions of the aquifer, well capture zone, and watershed over time. Changes to water quality or conditions may require the water to be treated in accordance with the Drinking Water Treatment Objectives (Microbiological) for Ground Water Supplies (GWTO) in British Columbia Version 1, November 2015 (or most recent version).

3.2 The water supply system owner shall ensure a minimum chlorine residual as outlined in the "British Columbia Guidelines (Microbiological) on Maintaining Water Quality in Distribution Systems, Version 1 /

Date: August 7, 2024

Issued By: A Gardner
Environmental Health Officer

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August 2016 (or most recent edition).

3.3 The water supply system owner shall ensure a maximum acceptable concentration of manganese in the finished water is not exceeded as outlined in the "Guideline for Canadian Drinking Water Quality (GCDWQ) Guideline Technical Document for Manganese and the British Columbia Ministry of Health: Guidance on Manganese in Drinking Water Version 1.1 May 2019 (or most recent edition).

Minor deviations of these objectives may need attention by operating staff, but may not necessarily constitute a treatment violation.

4. Water Quality Monitoring and Reporting Requirements
The water system operator shall adhere to a monitoring program as approved by the Drinking Water Officer (DWO) and maintain detailed and accurate records of all monitoring performed. The monitoring program must include but is not limited to the following:

4.1 Chemical, Physical, Protozoan, and Bacteria Monitoring
The water supply system owner shall provide and maintain suitable sampling ports to obtain raw and finished water samples.
4.1.1 Monthly Bacteriological Sampling
- S 1 Well #1 2765 Sheldrake Road
- S 4 Briarwood Well #2

Semi-Monthly Bacteriological Sampling
- S 2 1045 Bourban Road Treatment Building
- S 3 1070 Briarwood Kerry Village

4.1.2 A chemical analysis of raw/untreated water from the source water wells in accordance with the list of parameters specified in the Island Health's Source Water Assessment Guideline Appendix B: Minimum Sampling Parameters for Ground Water Sources at a frequency of no less than once every 5 years. Maximum acceptable concentrations finished/delivered water must comply with the Guidelines for Canadian Drinking Water Quality.

Date: August 7, 2024

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Environmental Health Officer

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4.1.3 Chemical analyses of the treated water specific to the concentration of manganese, at a frequency of no less than once every year. Samples must be collected from sites representative of water quality immediately following the manganese removal treatment equipment, and from a location within the distribution system that is most likely to have the highest concentration of manganese. Maximum acceptable concentrations must comply with the Guidelines for Canadian Drinking Water Quality.

Date: August 7, 2024

Issued By: _____
Environmental Health Officer

Kerry Village Water System

Facility Information

Location 175 Ingram Street Duncan

Type 15 - 300 Connections

Facility Sampling History

Location	Date	Total Coliform	E. Coli/Enterococci
S2 1045 Bourbon Road Treatment Building	16-Dec-2024	LT1	LT1
S3 1070 Briarwood Drive	16-Dec-2024	LT1	LT1
S2 1045 Bourbon Road Treatment Building	09-Dec-2024	LT1	LT1
S3 1070 Briarwood Drive	03-Dec-2024	LT1	LT1
S2 1045 Bourbon Road Treatment Building	26-Nov-2024	LT1	LT1
S3 1070 Briarwood Drive	18-Nov-2024	LT1	LT1
S2 1045 Bourbon Road Treatment Building	12-Nov-2024	QRWRT	QRWRT
S3 1070 Briarwood Drive	05-Nov-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	28-Oct-24	LT1	LT1
S3 1070 Briarwood Drive	21-Oct-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	15-Oct-24	LT1	LT1
S3 1070 Briarwood Drive	07-Oct-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	02-Oct-24	LT1	LT1
S3 1070 Briarwood Drive	23-Sep-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	17-Sep-24	LT1	LT1
S3 1070 Briarwood Drive	09-Sep-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	03-Sep-24	LT1	LT1
S3 1070 Briarwood Drive	26-Aug-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	19-Aug-24	LT1	LT1
S3 1070 Briarwood Drive	13-Aug-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	07-Aug-24	LT1	LT1
S3 1070 Briarwood Drive	31-Jul-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	23-Jul-24	LT1	LT1
S3 1070 Briarwood Drive	15-Jul-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	08-Jul-24	LT1	LT1
S3 1070 Briarwood Drive	02-Jul-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	24-Jun-24	LT1	LT1
S3 1070 Briarwood Drive	17-Jun-24	QRWRT	QRWRT
S2 1045 Bourbon Road Treatment Building	12-Jun-24	LT1	LT1
S3 1070 Briarwood Drive	03-Jun-24	LT1	LT1
S3 1070 Briarwood Drive	03-Jun-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	28-May-24	LT1	LT1
S3 1070 Briarwood Drive	21-May-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	13-May-24	LT1	LT1
S3 1070 Briarwood Drive	07-May-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	29-Apr-24	LT1	LT1
S3 1070 Briarwood Drive	22-Apr-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	15-Apr-24	LT1	LT1
S3 1070 Briarwood Drive	08-Apr-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	02-Apr-24	LT1	LT1
S3 1070 Briarwood Drive	25-Mar-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	18-Mar-24	LT1	LT1
S3 1070 Briarwood Drive	13-Mar-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	05-Mar-24	LT1	LT1

Kerry Village Water System

Facility Information

Location 175 Ingram Street Duncan

Type 15 - 300 Connections

Facility Sampling History

Location	Date	Total Coliform	E. Coli/Enterococci
S3 1070 Briarwood Drive	26-Feb-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	20-Feb-24	LT1	LT1
S3 1070 Briarwood Drive	13-Feb-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	05-Feb-24	LT1	LT1
S3 1070 Briarwood Drive	30-Jan-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	23-Jan-24	LT1	LT1
S3 1070 Briarwood Drive	15-Jan-24	LT1	LT1
S2 1045 Bourbon Road Treatment Building	08-Jan-24	LT1	LT1
S3 1070 Briarwood Drive	02-Jan-24	LT1	LT1

KERRY VILLAGE WATER SYSTEM

SOURCE - 1080 Shaw/Mill Bay Road Well (Sheldrake)

			Sample ID	WELL 1080 SHAW/MILL BAY RD (WTX 40244)	WELL 1080 SHAW/MILL BAY RD (WTX 40244)
			Sampling Date	09/04/24	09/17/24
			Sampling Time	3:20 PM	1:00 PM
Parameter Name	***MAC***	***AO***	***Units***	***Result***	***Result2***
Nitrite (N)	1		mg/L	<0.0050	
Nitrate (N)	10		mg/L	<0.020	
Conductivity			uS/cm	210	
pH			pH	7.76	
Total Dissolved Solids		500	mg/L	120	
Alkalinity (PP as CaCO3)			mg/L	<1.0	
Alkalinity (Total as CaCO3)			mg/L	97	
Bicarbonate (HCO3)			mg/L	120	
Carbonate (CO3)			mg/L	<1.0	
Hydroxide (OH)			mg/L	<1.0	
Chloride (Cl)		250	mg/L	6.7	
Sulphate (SO4)		500	mg/L	2.4	
True Colour		15	Col. Unit	3.8	
Nitrate plus Nitrite (N)			mg/L	<0.020	
Langelier Index (@ 20C)			N/A	-0.279	
Langelier Index (@ 4C)			N/A	-0.53	
Saturation pH (@ 20C)			N/A	8.04	
Saturation pH (@ 4C)			N/A	8.29	
Dissolved Fluoride (F)	1.5		mg/L	<0.050	
Tannins and Lignins			mg/L	<0.2	
Turbidity	see remark	see remark	NTU	4.7	
Total Hardness (CaCO3)			mg/L	85	
Total Aluminum (Al)	2900		ug/L	<3.0	
Total Antimony (Sb)	6		ug/L	<0.50	
Total Arsenic (As)	10		ug/L	0.26	
Total Barium (Ba)	2000		ug/L	30.3	
Total Beryllium (Be)			ug/L	<0.10	
Total Bismuth (Bi)			ug/L	<1.0	
Total Boron (B)	5000		ug/L	72	
Total Cadmium (Cd)	7		ug/L	<0.010	
Total Chromium (Cr)	50		ug/L	<1.0	
Total Cobalt (Co)			ug/L	<0.20	
Total Copper (Cu)	2000	1000	ug/L	<0.20	
Total Iron (Fe)		300	ug/L	**1480**	
Total Lead (Pb)	5		ug/L	<0.20	
Total Manganese (Mn)	120	20	ug/L	**176**	
Total Molybdenum (Mo)			ug/L	<1.0	
Total Nickel (Ni)			ug/L	<1.0	
Total Selenium (Se)	50		ug/L	<0.10	
Total Silicon (Si)			ug/L	10900	
Total Silver (Ag)			ug/L	<0.020	
Total Strontium (Sr)	7000		ug/L	98.2	
Total Thallium (Tl)			ug/L	<0.010	
Total Tin (Sn)			ug/L	<5.0	

KERRY VILLAGE WATER SYSTEM

SOURCE - 1080 Shaw/Mill Bay Road Well (Sheldrake)

			Sample ID	WELL 1080 SHAW/MILL BAY RD (WTX 40244)	WELL 1080 SHAW/MILL BAY RD (WTX 40244)
			Sampling Date	09/04/24	09/17/24
			Sampling Time	3:20 PM	1:00 PM
Parameter Name	***MAC***	***AO***	***Units***	***Result***	***Result2***
Total Titanium (Ti)			ug/L	<5.0	
Total Uranium (U)	20		ug/L	<0.10	
Total Vanadium (V)			ug/L	<5.0	
Total Zinc (Zn)		5000	ug/L	<5.0	
Total Zirconium (Zr)			ug/L	<0.10	
Total Calcium (Ca)			mg/L	21.4	
Total Magnesium (Mg)			mg/L	7.64	
Total Potassium (K)			mg/L	0.659	
Total Sodium (Na)		200	mg/L	7.95	
Total Sulphur (S)			mg/L	<3.0	
Total Mercury (Hg)	1		ug/L	<0.0019	
Total Total Kjeldahl Nitrogen (Calc)			mg/L	0.48	
Total Organic Carbon (C)			mg/L	0.53	
Total Nitrogen (N)			mg/L	0.478	
Total Ammonia (N)			mg/L	0.41	
Sulphide (as H2S)		0.05	mg/L	0.011	
Total Sulphide		0.05	mg/L	0.0099	
Total Coliforms	0		CFU/100mL	<2	0
E. coli	0		CFU/100mL	<2	0
Heterotrophic Plate Count			CFU/mL	26	
Fecal Coliforms			CFU/100mL	<2	
Non-Coliform (Background)			CFU/100mL	<2	
Iron Bacteria			CFU/mL	<25	
Sulphate reducing bacteria			CFU/mL	<75	

KERRY VILLAGE WATER SYSTEM

SOURCE - 1080 Shaw/Mill Bay Road Well (Sheldrake)

			Sample ID	S1 Water Treatment Bldg (WTX 28050)	S3 -1070 Briarwood Dr (WTX 27ADC)	S1 WATER TREATMENT BLDG (WTX 28050)	S1 WATER TREATMENT BLDG (WTX 28050)	S1 WATER TREATMENT BLDG (WTX 28050)
			Sampling Date	01/04/24	01/04/24	04/02/24	07/11/24	11/27/24
			Sampling Time	11:00 AM	11:15 AM	12:10 PM	10:25 AM	1:10 PM
Parameter Name	***MAC***	***AO***	***Units***	***Result***	***Result2***	***Result3***	***Result4***	***Result5***
Total Manganese (Mn)	120	20	ug/L	<1.0	3	1.7	<1.0	2.4