



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) 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):

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

<p>Click here to enter a date. DATE COMPLETED:</p>	<p>COMPLETED BY:</p>
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APPENDIX A

WATER SYSTEM OPERATING CONDITIONS FOR

MESACHIE LAKE WATER SYSTEM
1310820
175 Ingram Street
Duncan, BC V9L 1N8

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

Performance Standards

1.1 Maintain a minimum detectable chlorine residual throughout the distribution system of 0.2 mg/L in accordance with Section 3.2.4. of 11B.C.Guidelines (Microbiological) on Maintaining Water Quality in Distribution Systems".

1.2 Mesachie Lake Well #f (ID 13212) was assessed in accordance with the British Columbia Ministry of Health 11Guidance Document for Determining Ground Water at Risk of Containing Pathogens (GARP),Version 3,September 2017" and determined to be "at risk" of containing pathogens (GARP).

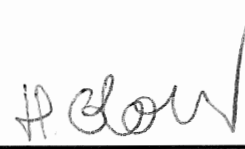
Water from this source must be treated in accordance with the Drinking Water Treatment Objectives (Microbiological) for Ground Water Supplies (GWTO) in British Columbia Version 1, November 2015 (or most recent version) for a GARP source. The water system operator shall ensure the treatment and disinfection systems are in good working order to achieve the following:

- 4log (99.99%) removal/inactivation of viruses
Target virus for UV disinfection is adenovirus
- 3 log (99.9%) removal/inactivation of giardia cysts
- 3 log (99.9%) removal/inactivation cryptosporidium oocysts
- Less than or equal to (s) one nephelometric turbidity unit (NTU) of turbidity.
- No detectable E. Coli, fecal coliform and total coliform.

Implementation Process for GWTO Compliance

2.1 A Construction Permit Waiver Application for the proposed water treatment works was submitted to this office for review on March 4,2024. Once the construction waiver is issued, new treatment equipment must be installed in accordance with the Construction Permit Waiver conditions. Compliance date for installation: November 4, 2024.

Date: May 6, 2024

Issued By: 
Environmental Health Officer

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Water Quality Monitoring

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:

- 3.1 Continuous chlorine monitoring where water exits the reservoir.
- 3.2 Weekly chlorine monitoring at the end of distribution.
- 3.3 Submission of two microbiological samples to this office twice a month in accordance with Schedule B of the Drinking Water Protection Regulation. The samples shall be taken from the following sites on a rotating basis:
 - S1 9490 South Shore Road, Mesachie Lake
 - S2 Pump House, Mesachie Lake
 - S3 6829 Forestry Road, Mesachie Lake
- 3.4 Quarterly testing of disinfection by-products trihalomethane {THM) and haloacetic acid {HAA) from the end of distribution.
- 3.5 At minimum every 3 years, the results of a full spectrum chemical analysis of the treated water must be submitted to this office. Parameters tested must be in accordance with Island Health's Policy 3.1Appendix A: Minimum Sampling Parameters for Groundwater Sources.
- 3.6 Once primary disinfection through chlorination is established, the CT value must be calculated on a weekly basis. Once a week at maximum hourly flow, the water supply system operator must monitor the temperature, the residual disinfectant concentration and the pH of the disinfected water. The sampling point must be located before the first consumer. The contact time must be based on the retention time in the reservoir and the travel time within the pipelines.
Viral log reduction credits will be based on the CT tables listed in the Health Canada document "Guidelines

Date: May 6, 2024

Issued By: 

Environmental Health Officer

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1310820

175 Ingram Street

Duncan, BC V9L 1N8

for Canadian Drinking Water Quality: Guideline Technical Document- Enteric Viruses" (2019).

Date: May 6, 2024

Issued By: 
Environmental Health Officer

MESACHIE LAKE WATER SYSTEM

Facility Information

Location 175 Ingram Street Duncan

Type 15 - 300 Connections

Facility Sampling History

Location	Date	Total Coliform	E. Coli/Enterococci
S3 Forestry Road	17-Dec-2024	LT1	LT1
S1 9490 South Shore Road	10-Dec-2024	LT1	LT1
S2 Pump House	02-Dec-2024	LT1	LT1
S1 9490 South Shore Road	27-Nov-2024	LT1	LT1
S3 Forestry Road	18-Nov-2024	LT1	LT1
S1 9490 South Shore Road	13-Nov-2024	LT1	LT1
S2 Pump House	04-Nov-2024	LT1	LT1
S1 9490 South Shore Road	29-Oct-2024	LT1	LT1
S3 Forestry Road	23-Oct-2024	LT1	LT1
S1 9490 South Shore Road	15-Oct-2024	LT1	LT1
S2 Pump House	07-Oct-2024	LT1	LT1
S1 9490 South Shore Road	01-Oct-2024	LT1	LT1
S3 Forestry Road	24-Sep-2024	LT1	LT1
S1 9490 South Shore Road	16-Sep-2024	LT1	LT1
S2 Pump House	10-Sep-2024	LT1	LT1
S1 9490 South Shore Road	04-Sep-2024	LT1	LT1
S3 Forestry Road	27-Aug-2024	LT1	LT1
S1 9490 South Shore Road	20-Aug-2024	LT1	LT1
S2 Pump House	12-Aug-2024	LT1	LT1
S1 9490 South Shore Road	06-Aug-2024	LT1	LT1
S3 Forestry Road	29-Jul-2024	LT1	LT1
S1 9490 South Shore Road	22-Jul-2024	LT1	LT1
S2 Pump House	16-Jul-2024	LT1	LT1
S1 9490 South Shore Road	09-Jul-2024	LT1	LT1
S3 Forestry Road	02-Jul-2024	LT1	LT1
S1 9490 South Shore Road	25-Jun-2024	LT1	LT1
S2 Pump House	18-Jun-2024	LT1	LT1
S1 9490 South Shore Road	10-Jun-2024	LT1	LT1
S3 Forestry Road	04-Jun-2024	LT1	LT1
S1 9490 South Shore Road	28-May-2024	LT1	LT1
S2 Pump House	21-May-2024	LT1	LT1
S1 9490 South Shore Road	14-May-2024	LT1	LT1
S3 Forestry Road	07-May-2024	LT1	LT1
S1 9490 South Shore Road	29-Apr-2024	LT1	LT1
S2 Pump House	23-Apr-2024	LT1	LT1
S1 9490 South Shore Road	15-Apr-2024	LT1	LT1
S3 Forestry Road	09-Apr-2024	LT1	LT1
S1 9490 South Shore Road	02-Apr-2024	LT1	LT1
S2 Pump House	26-Mar-2024	LT1	LT1
S1 9490 South Shore Road	19-Mar-2024	LT1	LT1
S1 9490 South Shore Road	12-Mar-2024	LT1	LT1
S2 Pump House	27-Feb-2024	LT1	LT1
S1 9490 South Shore Road	20-Feb-2024	LT1	LT1
S3 Forestry Road	12-Feb-2024	LT1	LT1

MESACHIE LAKE WATER SYSTEM

Facility Information

Location 175 Ingram Street Duncan

Type 15 - 300 Connections

Facility Sampling History

Location	Date	Total Coliform	E. Coli/Enterococci
S1 9490 South Shore Road	06-Feb-2024	LT1	LT1
S2 Pump House	29-Jan-2024	LT1	LT1
S3 Forestry Road	22-Jan-2024	LT1	LT1
S1 9490 South Shore Road	09-Jan-2024	LT1	LT1
S1 9490 South Shore Road	02-Jan-2024	LT1	LT1

MESACHIE LAKE WATER SYSTEM

DISTRIBUTION

			<i>Sample ID</i>	S2-WELL-TAP INSIDE PUMPHOUSE (WTX 27C3B)
			<i>Sampling Date</i>	06/26/24
			<i>Sampling Time</i>	12:25 PM
<i>Parameter Name</i>	<i>MAC</i>	<i>AO</i>	<i>Units</i>	<i>Result</i>
Nitrite (N)	1		mg/L	<0.0050
Nitrate (N)	10		mg/L	0.096
Conductivity			uS/cm	82
pH			pH	6.54
Total Dissolved Solids		500	mg/L	44
Alkalinity (PP as CaCO3)			mg/L	<1.0
Alkalinity (Total as CaCO3)			mg/L	36
Bicarbonate (HCO3)			mg/L	44
Carbonate (CO3)			mg/L	<1.0
Hydroxide (OH)			mg/L	<1.0
Chloride (Cl)		250	mg/L	2.6
Sulphate (SO4)		500	mg/L	1.2
True Colour		15	Col. Unit	<2.0
Nitrate plus Nitrite (N)			mg/L	0.096
Langelier Index (@ 20C)			N/A	-2.17
Langelier Index (@ 4C)			N/A	-2.43
Saturation pH (@ 20C)			N/A	8.72
Saturation pH (@ 4C)			N/A	8.97
Dissolved Fluoride (F)	1.5		mg/L	<0.050
Tannins and Lignins			mg/L	<0.2
Turbidity	see remark	see remark	NTU	0.13
Total Hardness (CaCO3)			mg/L	33.9
Total Aluminum (Al)	2900		ug/L	<3.0
Total Antimony (Sb)	6		ug/L	<0.50
Total Arsenic (As)	10		ug/L	<0.10
Total Barium (Ba)	2000		ug/L	1.7
Total Beryllium (Be)			ug/L	<0.10
Total Bismuth (Bi)			ug/L	<1.0
Total Boron (B)	5000		ug/L	<50
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	5.14
Total Iron (Fe)		300	ug/L	8.3
Total Lead (Pb)	5		ug/L	<0.20
Total Manganese (Mn)	120	20	ug/L	<1.0

MESACHIE LAKE WATER SYSTEM

DISTRIBUTION

			<i>Sample ID</i>	S2-WELL-TAP INSIDE PUMPHOUSE (WTX 27C3B)
			<i>Sampling Date</i>	06/26/24
			<i>Sampling Time</i>	12:25 PM
<i>Parameter Name</i>	<i>MAC</i>	<i>AO</i>	<i>Units</i>	<i>Result</i>
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	5200
Total Silver (Ag)			ug/L	<0.020
Total Strontium (Sr)	7000		ug/L	23.1
Total Thallium (Tl)			ug/L	<0.010
Total Tin (Sn)			ug/L	<5.0
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	10.7
Total Magnesium (Mg)			mg/L	1.73
Total Potassium (K)			mg/L	0.154
Total Sodium (Na)		200	mg/L	2.88
Total Sulphur (S)			mg/L	<3.0
Total Mercury (Hg)	1		ug/L	<0.0019
Total Total Kjeldahl Nitrogen (Calc)			mg/L	0.041
Total Organic Carbon (C)			mg/L	<0.50
Total Nitrogen (N)			mg/L	0.136
Total Ammonia (N)			mg/L	0.019
Sulphide (as H ₂ S)		0.05	mg/L	<0.0020
Total Sulphide		0.05	mg/L	<0.0018
Total Coliforms	0		CFU/100mL	0
E. coli	0		CFU/100mL	0
Heterotrophic Plate Count			CFU/mL	<1
Fecal Coliforms			CFU/100mL	<1
Non-Coliform (Background)			CFU/100mL	<1
Iron Bacteria			CFU/mL	<25
Sulphate reducing bacteria			CFU/mL	<75