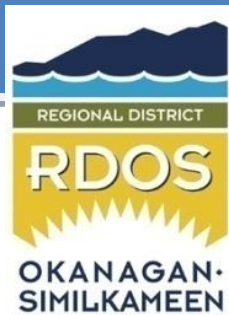


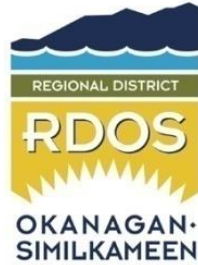
2023

ANNUAL WATER QUALITY MONITORING REPORT GALLAGHER LAKE WATER SYSTEM



Regional District of Okanagan-Similkameen

April, 2024



**2023 ANNUAL WATER QUALITY MONITORING REPORT
GALLAGHER LAKE WATER SYSTEM
GALLAGHER LAKE, B.C.**

Copy prepared for:

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1. Introduction

As the owner and operator of the Gallagher Lake water distribution system, the Regional District Okanagan-Similkameen is responsible for the following Annual Report summarizing the results from the 2023 *Water Quality Monitoring Program*. The report is a conditional requirement of the *Permit to Operate* issued by the Interior Health Authority (IHA) and the *BC Drinking Water Protection Act and Regulation*.

2. System Description

The Gallagher Lake water system is located within Electoral Area C just south of Vaseux Lake. The water system consists of distribution water mains that supply water to properties along Frontage Road and to Deer Park Estates. Treated water is supplied to the RDOS's Gallagher Lake water system through a bulk water purchase agreement with the Osoyoos Indian Band (OIB). The OIB's Senkulmen Utilities treats the water sourced from a deep groundwater well with the addition of chlorine. The OIB's Senkulmen Utilities operates the water treatment system which also supplies domestic, commercial and irrigation water to many properties in the surrounding area including the Senkulmen Business Park and the Correctional Centre.

3. System Classification and Operator Certifications

3.1. System Classification

The *British Columbia Environmental Operators Certification Program (BC EOCP)* is responsible for the classification of potable water systems in BC.

The Gallagher Lake distribution system remained as a *Small Water System (SWS)* in 2023.

3.2. Operator Certification

The *British Columbia Environmental Operators Certification Program (BC EOCP)* is responsible for the classification of water systems in BC and for certification of all water system operators. Operators may hold certification(s) in the disciplines of *Water Distribution* and/or *Water Treatment* with four (4) levels of certification achievable within each discipline. RDOS Operators annually attend courses, seminars and complete online training required to maintain their levels of certification. In addition, all operators annually continue to work on augmenting and furthering their levels of certification. All RDOS Operators are certified through the *BC EOCP* as indicated in the table below.

OPERATOR EOCP CERTIFICATION No.	WATER DISTRIBUTION CERTIFICATION LEVELS				WATER TREATMENT CERTIFICATION LEVELS			
	IV	III	II	I	IV	III	II	I
1162	X						X	
4194			X					
4840			X				X	
4839		X						X
6926		X						X
8266				X				X
8761		X						X
9322		X						X
1000977								

Table 1: RDOS Operator Certifications 2023

4. Annual Water Usage

The bulk water purchase agreement with the Osoyoos Indian Band does not include metering of water usage in the Gallagher Lake distribution system.

4.1. Water Conservation

The Gallagher Lake water system started under Stage “Normal” water restrictions in 2023. Due to a prolonged heat wave and minimal precipitation across the region, on July 21st the RDOS implemented Stage 2 restrictions for all of its systems. Stage 2 restrictions target a 20 percent reduction in water use. On October 16th the RDOS returned all systems to Stage “Normal”.

5. Source Water Quality

All untreated source water quality parameters are compared to the applicable criteria set out in the *British Columbia Drinking Water Protection Act and Regulation (DWPA)*, the *Guidelines for Canadian Drinking Water Quality (GCDWQ)*, Interior Health Authority programs and Operational Guidelines (OG). The *DWPA* and *GCDWQ* define these parameters and set Aesthetic Objectives (AO) and Maximum Allowable Concentrations (MAC).

In Gallagher Lake, no source water quality monitoring occurred in 2023 as the source water well is the responsibility of the purveyor supplying the bulk water.

6. Distribution System Water Quality

All treated distribution water quality parameters are compared to the applicable criteria set out in the *British Columbia Drinking Water Protection Act and Regulation (DWPA)*, the *Guidelines for Canadian Drinking Water Quality (GCDWQ)*, Interior Health Authority programs and Operational Guidelines (OG). The *DWPA* and *GCDWQ* define these parameters and set Aesthetic Objectives (AO) and Maximum Allowable Concentrations (MAC).

All 2023 accredited laboratory tests were performed by Caro Analytical Services (Kelowna, B.C.).

6.1. Distribution System Bacteriological Results

The following is a summary of the bacteriological laboratory results from the treated water distribution system. The Gallagher Lake distribution system has one dedicated sample station that is sampled every two weeks. An alternative sample station is available during very cold weather if the dedicated sample station is frozen. Samples from the distribution system were analyzed for Total Coliforms and *Escherichia coli* (*E.coli*).

Schedule A of the *BC Drinking Water Protection Regulation* provides bacteriological testing criteria as given below.

Schedule A

Water Quality Standards for Potable Water (sections 2 and 9)

Parameter:	Standard:
Fecal coliform bacteria	No detectable fecal coliform bacteria per 100 ml
<i>Escherichia coli</i>	No detectable <i>Escherichia coli</i> per 100 ml
Total coliform bacteria	
(a) 1 sample in a 30 day period	No detectable total coliform bacteria per 100 ml
(b) more than 1 sample in a 30 day period	At least 90% of samples have no detectable total coliform bacteria per 100 ml and no sample has more than 10 total coliform bacteria per 100 ml

In 2023, all distribution samples had no detections for Total Coliforms or *E.coli*. The following table is a summary of the laboratory bacteriological results from the distribution system.

Analyte	Sampling Location	Unit	Avg	Min	Max	Number of Results	Number of Results with Exceedances
Lab Results							
Microbiological							
Background bacteria	Frontage Rd	CFU/100 mL	<1	<1	<1	23	0
Total coliforms (counts)	Frontage Rd	CFU/100 mL	<1	<1	<1	26	0
E. coli (counts)	Frontage Rd	CFU/100 mL	<1	<1	<1	26	0

Table 2 Distribution Water Bacteriological Testing 2023 Summary

6.2. Distribution System Free Chlorine Residuals

The following is a summary of the field free chlorine residual measurements from the distribution system. Free chlorine is measured with bacteriological samples. Free chlorine residuals are required to be maintained between 0.2 mg/L and 2.0 mg/L of free chlorine.

Analyte	Sampling Location	Unit	Average	Minimum	Maximum	Number of Results
Field Results						
Chlorine (free)	Frontage Rd	mg/L	0.50	0.26	0.83	26

Table 3: Distribution Free Chlorine Residuals 2023 Summary

6.3. Distribution System Water Quality Field Parameters

The following is a summary of the field parameters that are measured routinely in the distribution system.

Analyte	Unit	Average	Minimum	Maximum	Number of Results
Field Results					
Conductivity	µS/cm	298	252	450	24
pH		7.76	7.44	7.99	24
Total dissolved solids	mg/L	212	192	320	24
Temperature	°C	11.2	4.5	18.1	24
Turbidity	NTU	0.15	0.06	0.28	25

Table 4: Distribution Water Quality Field Parameter Testing 2023 Summary

6.4. Water Quality Complaints

None to report for 2023.

7. Water System Notifications

The Interior Health Authority's team of drinking water officers are responsible for providing the oversight to ensure compliance and drinking water safety. The IHA is responsible for issuing *Permits to Operate* to drinking water systems. The Interior Health Authority has four types of public water notifications to inform users of negative impacts to water quality.

7.1 Water Quality Advisory (WQA)

There is some level of risk associated with consuming the drinking water but a *Boil Water Notice* is not needed. The risk is elevated for people with weakened immune systems, the elderly and infants and young children.

No WQAs issued for 2023.

7.2 Boil Water Notice (BWN)

There are organisms in the water that can make you sick. To safely consume (swallow) the water, you must bring it to a rolling boil for at least 60 seconds, or use a safe alternate source of water.

No BWNs issued in 2023.

7.3 Do Not Consume (DNC)

There are harmful chemicals or other bad things in the water that can make you sick. You cannot make the water safe by boiling. The water can make you sick if you consume (swallow) it. You cannot use the water for drinking, brushing teeth, washing/preparing/cooking food or pet's drinking water. You can bath, shower and water plants and gardens with the water.

No DNCs issued in 2023.

7.4 Do Not Use (DNU)

There are known microbial, chemical or radiological contaminants in the water and that any contact with the water with the skin, lungs or eyes can be dangerous. Do not turn on your tap for any reason and do not use your water. You CANNOT make the water safe by boiling it.

No DNUs issued in 2023.

8 Program Updates and Status

8.1 Cross Connection Control Program

A cross connection is any actual or potential connection between the drinking water (potable) system and a non-potable substance (contaminant). Backflow is when the flow of water in a pipe reverses from the normal direction. When a cross connection and backflow occur simultaneously often the result is a contaminant entering the drinking water system.

Cross connection in plumbing systems require backflow preventers corresponding to the degree of hazard as indicated by the CSA B64.10, “Manual for the Selection and Installation of Backflow Preventers”, as referenced in the BC Plumbing Code, or as determined by a CCC hazard assessment survey.

The RDOS adopted a Regional CCC Bylaw, No.2851, in 2020 to address cross connection and backflow prevention applicable to all agricultural, industrial, commercial and institutional properties. These property uses are required to have a suitable backflow protection device installed.

In February, 2023 the RDOS started implementation of its Regional Cross Connection Control program with MTS Inc. (Vernon, B.C.) contracted as the program administrator. One of main focuses of the program in 2023 was to address agricultural properties with a Severe Hazard rating that did not have an approved backflow preventer installed and/or an annual test report submitted. Properties with a Severe Hazard rating are commonly found in the agriculture sector. A common practice that results in an irrigation system being classified as a Severe Hazard is the use of fertigation/chemigation systems. This is where chemicals are injected directly into an irrigation system for application to crops. All other agricultural irrigation systems are typically rated as a Moderate Hazard. Agricultural properties with a Moderate Hazard classification were encouraged to voluntarily comply with the installation and testing of a backflow preventer in 2023 with mandatory compliance set for 2025.

In 2023 work was also completed on following up on commercial properties with known existing backflow preventers along with the surveying of commercial properties that were not part of the CCC database.

8.2 Emergency Response Plan

The *Emergency Response Plan* is scheduled to be updated in 2024.

8.3 Capital Works / System Additions

No items of note in 2023.

8.4 Future System Upgrades

No plans for 2024.

8.5 Water Quality Monitoring Program

The *Water Quality Monitoring Program* is scheduled to be updated in 2024.

8.6 System Maintenance/Upgrades

No items of note in 2023.

9 Summary

All tested distribution water parameters from the Gallagher Lake water system met the applicable criteria in 2023. The operation of the Gallagher Lake water system by a team of RDOS *EOCP* certified Operators resulted in the continuous supply of high quality water to the residents connected to the Gallagher Lake water system. The RDOS continues to work on reviewing and upgrading the various programs that support facilitating the highest quality of water possible.