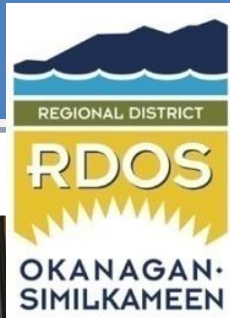


# 2021

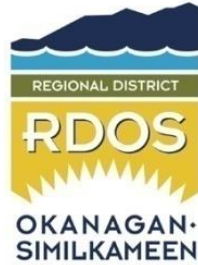
## ANNUAL WATER QUALITY MONITORING REPORT WEST BENCH WATER SYSTEM



West Bench Booster Pump Station

Regional District of Okanagan-Similkameen

December, 2022



**2021 ANNUAL WATER QUALITY MONITORING REPORT  
WEST BENCH WATER SYSTEM  
PENTICTON, B.C.**

Copy prepared for:  
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**1. Introduction**

As the owner and operator of the West Bench water system, the Regional District of Okanagan-Similkameen (RDOS) is responsible for the following Annual Report summarizing the results from the 2021 *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 West Bench water system is supplied treated water from the City of Penticton. The system supplies water to approximately 349 domestic connections, 2 agricultural connections and 1 commercial connection and supports fire protection. Treated water is pumped from the Booster Station into the distribution system and to two elevated storage Reservoirs.

**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 West Bench distribution system remained as a *Level II* system in 2015.

**3.2. Operator Certification**

The *British Columbia Environmental Operators Certification Program (BC EOCP)* is also responsible for certification of all water system operators. Operators may hold certification(s) in the disciplines of *Water Distribution* and/or *Water Treatment* with four 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 1 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
8761			X					X
9322		X						X

**Table 1: RDOS Operator Certifications 2015**

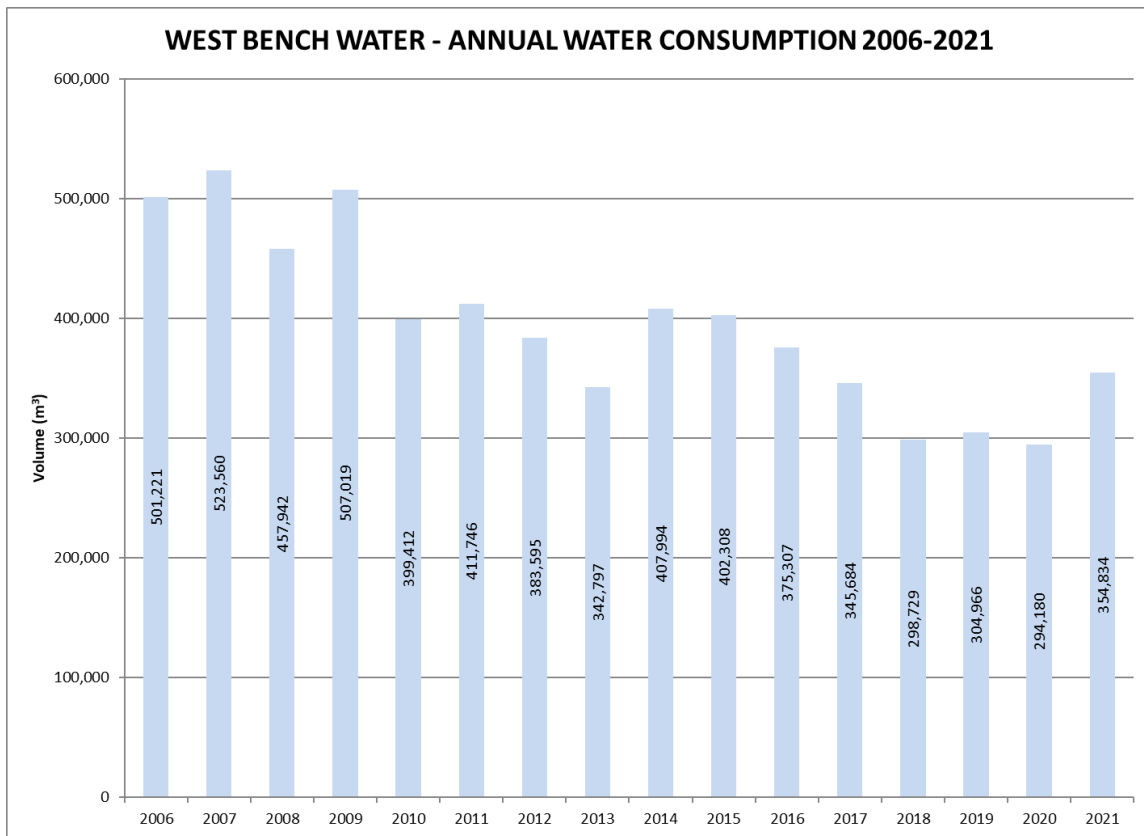
**4. Annual Water Usage**

The source water for the West Bench water system is treated supplied by the City of Penticton. In 2021, a total of 354,834 m<sup>3</sup> of water was consumed, up from 294,180 m<sup>3</sup> in 2020.

**4.1. Consumption Records**

	Cubic Meters (m <sup>3</sup> )	US Gallons	
<b>Annual Total Usage</b>	354,834	93,767,226	<b>Date</b>
<b>Minimum Daily Flow</b>	0	0	Mar 25/21
<b>Maximum Daily Flow</b>	75.7	19,998	Jul 16/21

**Table 2: Annual Water Usage for 2021**



**Figure 1: Annual Water Consumption 2006-2021**

#### 4.2. Water Conservation Program

The West Bench water system started under Stage “Normal” water restrictions in 2021. The “Heat Dome” of 2021 was over the Okanagan from late June to mid-July. During this period users were asked to voluntarily reduce their water consumption by 30%. By the end of July, with the heat continuing, the decision was made to move all RDOS water systems to Stage 1, which limited watering to two days per week.

### 5. 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 Acceptable Concentrations (MAC).

All 2021 accredited laboratory tests were performed by Caro Analytical Services (Kelowna, B.C.).

#### 5.1. Distribution System Bacteriological Results

The following is a summary of the bacteriological laboratory results from the treated water distribution system. There are four regular sampling sites throughout the distribution system. One bacteriological sample is collected weekly, with rotation through each sampling sites.

Schedule A of the *B C 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 2021 two samples reported detections for Total Coliforms and all of the samples reported no detections for *E.coli*. The following is a summary of the laboratory bacteriological results from the treated water distribution system.

Analyte	Unit	Average	Minimum	Maximum	Number of Results	Number of Results with Exceedances
<b>Lab Results</b>						
<b>Microbiological</b>						
E. coli (counts)	CFU/100 mL	<1	<1	<1	54	0
Total coliforms (counts)	CFU/100 mL	<1	<1	1	54	2

**Table 3: Annual Distribution Water Bacteriological Testing Summary 2021**

### 5.2. Distribution System Free Chlorine Residuals

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

There are four regular sampling sites throughout the distribution system. Typically one site was monitored on a weekly basis in conjunction with the bacteriological sampling.

Analyte	Sampling Location	Unit	Average	Minimum	Maximum	Number of Results
<b>Field Results</b>						
Chlorine (free)	Hyslop Dr	mg/L	0.52	0.05	0.93	14
	Lambert Dr	mg/L	0.7	0.38	0.93	10
	Sunglo Dr	mg/L	0.85	0.55	1.01	16
	Veteran Dr	mg/L	0.83	0.49	1.3	16

**Table 4: Annual Distribution Free Chlorine Residual Summary 2021**



### 5.3. Distribution System Water Quality Field Parameter Testing

The following is a summary of the field parameters that are measured routinely in the distribution system. There are four regular sampling sites throughout the distribution system. Typically one site was monitored on a weekly basis in conjunction with the bacteriological sampling.

Analyte	Unit	Average	Minimum	Maximum	Number of Results
<b>Field Results</b>					
Conductivity	µS/cm	261	208	396	50
pH		7.7	6.98	8.08	53
Total dissolved solids	mg/L	185	147	273	50
Temperature	°C	11.6	6.2	18.4	53
Turbidity	NTU	0.22	0.08	0.68	54

### 5.4. Water Quality Complaints

None reported in 2021.

## 6. 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 purveyors. The Interior Health Authority has four types of public water notifications to inform users of negative impacts to water quality.

### 6.1 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 2021.

### 6.2 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 2021.

### **6.3 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 2021.

### **6.4 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 2021.

## **7. Program Updates and Status**

### **7.1. Cross Connection Control Program**

The RDOS continued work in 2021 towards implementing an official Cross Connection Control program and bylaw. On January 21, 2021 the RDOS adopted Bylaw No 2851, 2020 Cross Connection Control. Bylaw 2851 is a Regional bylaw that will be applicable to all RDOS owned and operated water systems.

### **7.2. Capital Works / System Additions**

None to report.

### **7.3. Emergency Response Plan**

The *Emergency Response Plan* is scheduled to be updated in 2022.

### **7.4. Future System Upgrades**

None to report.

### **7.5. Supervisory Control and Data Acquisition (SCADA) System**

A SCADA system is an integral part of a modern water system. It is comprised of sensors, programmable controllers, communications and network devices installed at pump stations and treatment facilities. The SCADA system controls equipment such as pumps and monitors system operations while storing important data such as intake turbidity levels, pumping flow rates, and storage reservoir levels. The system also provides for efficiencies in operation and the response to system failures. This is achieved by the ability to monitor and view the system remotely through a software package along with the generation of alarms that will notify the system Operators when there is a problem or failure within a system.

In 2020 the RDOS had a consultant develop a SCADA Master Plan. This plan will assist with upgrades to the existing SCADA network along with providing a detailed plan on how to move forward into the future in an efficient manner.

In 2021 the RDOS implemented a new SCADA software package. This include new graphics that conformed to the specifications outlined in the Master Plan along with enhanced security for remote access and improved data trending capabilities.

#### **7.6. System Maintenance/Upgrades**

None to report in 2021.

#### **7.7. Water Quality Monitoring Program**

The *Water Quality Monitoring Program* is scheduled to be updated in 2022.

### **8. Summary**

All of the tested tread distribution water parameters met the applicable criteria in 2021. The operation of the West Bench distribution system by a team of RDOS *EOCP* certified Operators resulted in the continuous supply of high quality water to the community of West Bench. The RDOS continues to work on reviewing and upgrading the various programs that support facilitating the highest quality of water possible.