2022 Water System Annual Report

Town of Osoyoos

Osoyoos
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TRUE

June 2023

Project No. 302-1108-002

ENGINEERING ■ PLANNING ■ URBAN DESIGN ■ LAND SURVEYING

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Revision Log

Revision #	Revised by	Date	Issue / Revision Description

Report Submission

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List of Acronyms

AO	Aesthetic Objective
GCDWQ	Guidelines for Canadian Drinking Water Quality
IHA	Interior Health Authority
MAC	Maximum Allowable Concentration
MOE	Ministry of Environment and Climate Change Strategy
TRUE	TRUE Consulting
Town	Town of Osoyoos

Units of Measure

ft	feet
Igpm	Imperial gallons per minute
km	kilometre
L/d	Litres per day
L/m	Litres per minute
L/s	Litres per second
lpcd	Litres per capita per day
m	metre
mg/L	milligrams per Litre
mm	millimetre
NTU	Nephelometric Turbidity Units
psi	pounds per square inch
USgpm	US gallons per minute

Referenced Reports

Town of Osoyoos. (2021). *2020 Water Annual report.*

TRUE Consulting. (2010). *Town of Osoyoos Water Conservation Plan.*

Western Water Associates Ltd. (2012). *Assessment of Groundwater Under the Direct Influence of Surface Water (GWUDI): Town of Osoyoos B.C. Municipal Water Supply.*

1.0 Introduction to the Town Water Systems

The Town of Osoyoos operates water systems within its municipal boundary and within Electoral Area A (Irrigation Systems 8 and 9) on the west side of Osoyoos Lake both north and south of the Town's municipal boundary. The service areas for both systems are illustrated on Figure 1-1 and Figure 1-2.

The municipal system provides services to the majority of residential, commercial and industrial lands within the municipal boundary. It consists of six (6) active wells, and four storage reservoirs. The municipal system serves approximately 3,500 connections, with high volume consumers being monitored with water meters.

Historically, Systems 8 and 9 were used primarily for irrigation purposes. As more potable water demand has been put on Systems 8 and 9, the Town has expanded the municipal water system to service these areas. This is commonly referred to as the Rural Area Twinning project and has consisted of multiple phases. Since 2017, the Town has been undergoing this project, allowing the domestic and irrigation water systems to operate independently. To date, approximately 60% percent of System 8 and 100% of system 9 have been twinned.

Prior to rural area twinning, Systems 8 and 9 were supplied by two water sources. During non-irrigation months (mid-October to mid-April), Systems 8 and 9 were serviced by the Town's domestic water system. During the irrigation season (mid-April to mid-October) both systems were supplied by lake intakes. This lake surface water source is not treated, as such all residents in Systems 8 and 9 were put on an annual boil water advisory, which would remain in effect until the Town switched back to the municipal well source water supply.

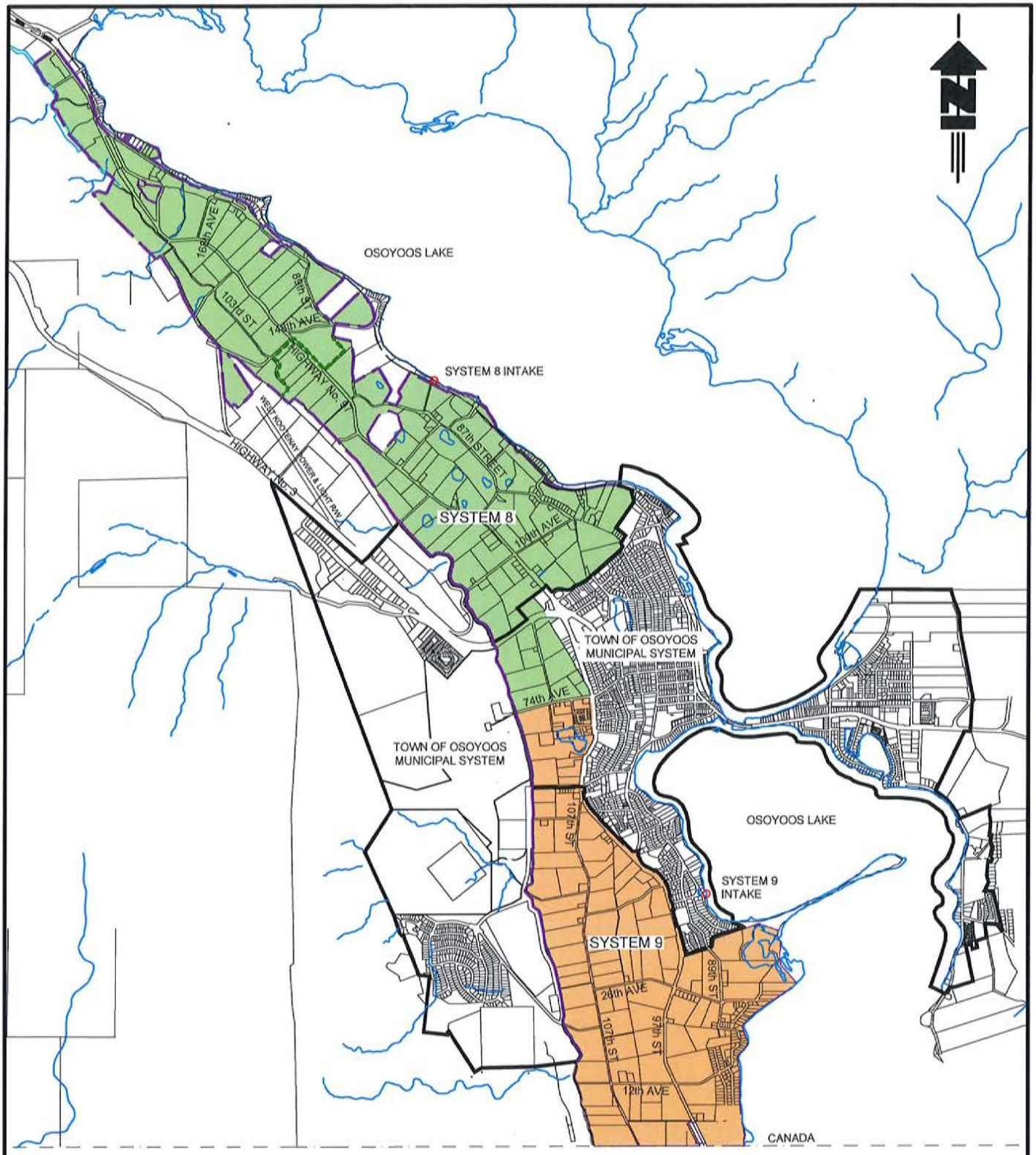

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Figure 1-1: Town of Osoyoos Water System Service Areas

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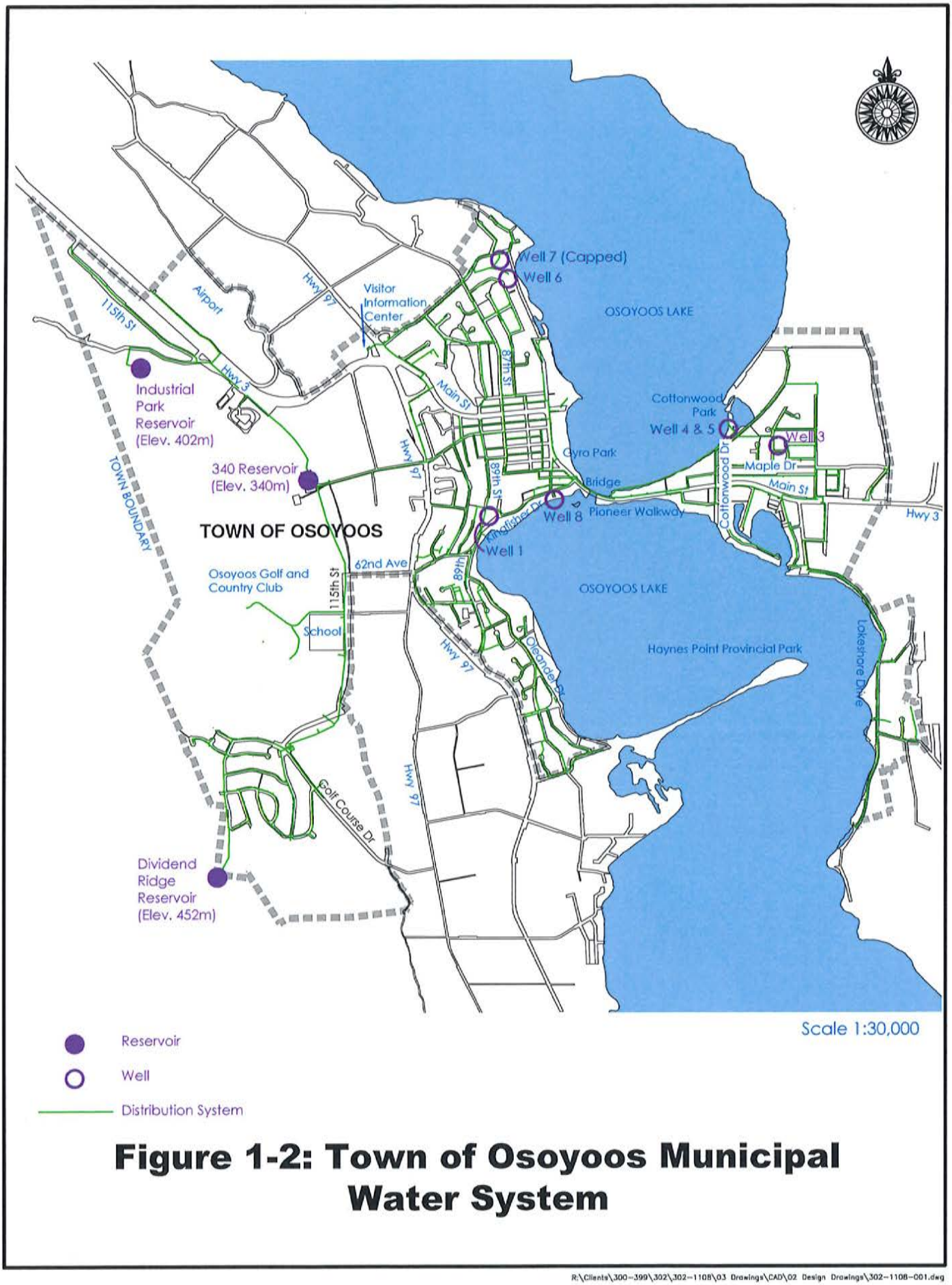

Figure 1-2: Town of Osoyoos Municipal Water System

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2.0 Municipal Water System

2.1 Water Supply Wells

2.1.1 System Overview

The Town's domestic water system is sourced from groundwater wells located throughout the municipality. There are currently six operational wells (#1, #3, #4, #5, #6, #8) and one additional groundwater source (Well #7) which has recently been identified by the Interior Health Authority (IHA) as not viable due to proximity to sewer systems and manganese concentrations. The IHA review letter is provided in Appendix A. Well locations can be seen in Figure 2-1. Each operational well is located in a pumphouse which houses the well pump and hypochlorite injection systems.

FIGURE 2-1 GROUNDWATER WELL LOCATIONS

2.1.2 System Capacity

Well capacity is analyzed using an 'n-1' approach. The 'n-1' approach illustrates the supply capacity of the system if any one well is not operational due to maintenance or repairs. It is assumed that the well with the highest capacity is excluded, allowing for a conservative analysis and system redundancy. Based on the maximum supply flows summarized in Table 2-1, the 'n-1' well capacity is approximately 185 L/s (16 ML/d). The Towns current maximum day demand is approximately equivalent to this n-1 supply capacity. To account for this issue, the Town is actively planning for siting, design and construction of a new well.

TABLE 2-1: GROUNDWATER WELLS CAPACITY OVERVIEW

	Max Supply (US gpm)	Max Supply (L/s)	Max Supply (ML/d)
Well #1	295	18.6	1.6
Well #3	620	39.1	3.4
Well #4	715	45.1	3.9
Well #5	1,200	75.7	6.5
Well #6	650	41	3.5
Well #8	650	41	3.5
Total	4,130	261	22.5
'n-1' System Capacity	**2,930**	**185**	**16.0**

2.2 Water Distribution System

The Town's domestic water system consists of approximately 78.7 km of water main ranging in size from 50mm to 400mm. The system includes 268 hydrants, 791 valves, a pressure reducing valve (PRV) station, two pump stations, six active source water wells and pump houses, and four reservoirs.

All domestic connections provided by the Town of Osoyoos are sourced from ground water wells that lie within the Town's municipal boundaries. Ground water is treated with hypochlorite at the each well pumphouse and conveyed to the reservoirs and throughout the distribution system.

The water distribution system is owned and operated by the Town. Records indicate the earliest pipe installation was completed in 1959. In general, asbestos cement (AC) pipe was predominantly installed prior to 1979, followed by polyvinyl chloride (PVC) pipe from 1979 onwards. Other pipes within the distribution system include ductile iron (DI) and high-density polyethylene (HDPE).

The existing water distribution network generally consists of the following pipe materials and lengths:

- Approx. 53.2 km of PVC watermain (sizes including 50 mm - 400 mm)
- Approx. 24.3 km of AC watermain (sizes including 100 mm – 300 mm)
- Approx. 763 m of HDPE watermain (sizes including 50 mm, 350 mm, and 450 mm)
- Approx. 434 m of DI watermain (sizes include 250 mm and 300 mm)

A summary of the existing watermain by size and material is presented in Figure 2-2.

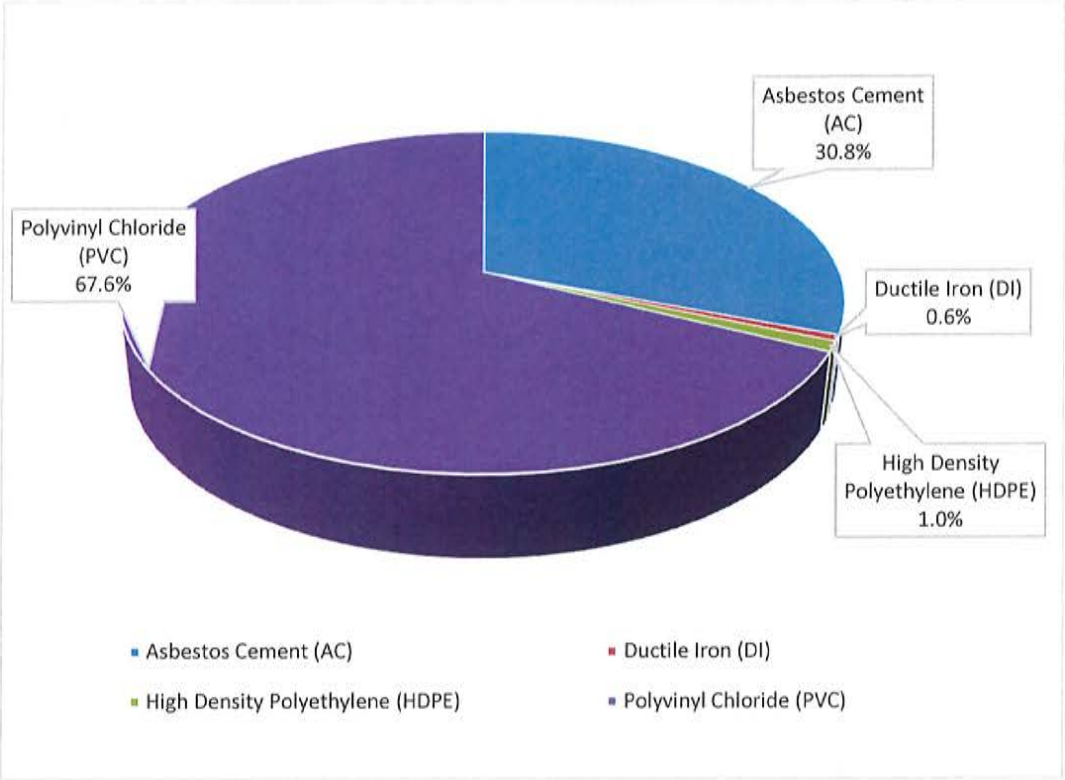

FIGURE 2-2: WATER DISTRIBUTION SYSTEM - PIPE MATERIAL SUMMARY

2.3 Reservoirs and Pressure Zones

The domestic water system comprises a total of three pressure zones. Each zone is serviced by one reservoir with the exception of the 340 Zone which has two reservoirs. These reservoirs are summarized in Table 2-2. Each reservoir is located on the west bench in Osoyoos at different elevations.

TABLE 2-2: RESERVOIR CAPACITY SUMMARY

RESERVOIR	VOLUME (M^3)
340 ZONE	1,350
340 ZONE	2,550
402 ZONE INDUSTRIAL PARK	1,000
DIVIDEND RIDGE	1,100
TOTAL	**6,000**

The pressure zones and associated reservoirs are summarized as follows:

- 340 Zone – 2 Reservoirs with a combined capacity of 3,910 m^3. The service area includes all areas of the Town east of Highway 97 including East Osoyoos and twinned sections of Systems 8 and 9.
- 402 Zone - Industrial Park Reservoir has a capacity of 1,000 m^3. The service area includes the Industrial Park, Osoyoos Secondary School and Desert Park.
- Dividend Ridge Reservoir has a capacity of 1,140 m^3. The service area includes the Dividend Ridge neighborhood and the golf course club house.

3.0 Osoyoos Irrigation District

Until 1990, the South Okanagan Lands Irrigation District (SOLID) owned and operated Systems 8 and 9 and provided its users with irrigation water sourced from lake intakes. In 1990, SOLID was dissolved, and the ownership/operation of Systems 8 and 9 was transferred to the Town of Osoyoos. Systems 8 and 9 provide irrigation water to 610 hectares of agricultural land. Prior to the System 8 and 9 twinning projects, it also provided domestic water to 500 users.

3.1 Osoyoos Lake Intakes

During the annual irrigation season, mid-April to mid-October, irrigation Systems 8 and 9 are supplied from separate intakes in Osoyoos Lake. The System 8 (North Basin) intake is located south of the BC Tree Fruits Packinghouse and the System 9 (Central Basin) intake is located on Acadia Court. Intake locations are presented in Figure 3-1. At both intakes, water disinfection is provided by chlorination. The Town can consider discontinuing disinfection of System #9 once no domestic users are connected.

FIGURE 3-1: IRRIGATION SOURCE WATER INTAKES

Outside of the irrigation system (mid-October to mid-April annually) the lake intakes are not operated except for emergency conditions. During this period, water to domestic connections in the service areas of Systems 8 and 9 are supplied by groundwater from the Town's municipal system.

FIGURE 3-2: IRRIGATION SYSTEM PUMPHOUSES, INTAKE #9 (LEFT) AND INTAKE #8 (RIGHT)

3.2 Surface Water Supply Systems 8 and 9

The System 8 and 9 water distribution systems were constructed in the 1960's when irrigation supplied from the irrigation canal was replaced with a pressurized system. Starting in September of 2016 the Town of Osoyoos began expanding its municipal water distribution system into Systems 8 and 9 as part of the rural area twinning project. The approximate total length of domestic water supplied by the municipal system is summarized as follows:

- System 8:
  - 5.6 km of 250mm diameter PVC
  - 0.49 km of 200mm diameter PVC
  - 3.1 km of 150mm diameter PVC
- System 9:
  - 2.5 km of 250mm diameter PVC
  - 2.6 km of 200mm diameter PVC
  - 3.1 km of 150mm diameter PVC

The irrigation water distribution systems for Systems 8 and 9 are summarized in Table 3-1.

TABLE 3-1: IRRIGATION DISTRIBUTION SYSTEM SUMMARY

	SYSTEM 8 (M)	SYSTEM 9 (M)	TOTAL (M)
Small dia. PVC installed 1960's	3,875	1,953	5,828
Asbestos Cement	12,130	12,197	24,327
Ductile Iron and Concrete Cylinder	280	321	601
PVC installed since 1991	9,822	1,769	11,591
Totals	26,107	16,240	42,347

The total distribution main length is 42.3 km of which 24.3 km (or 57%) is asbestos cement pipe.

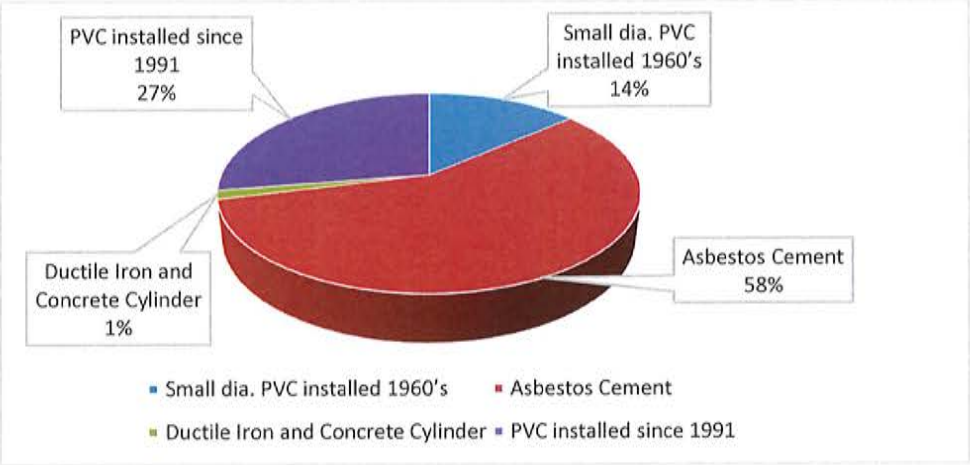

FIGURE 3-3: SYSTEM 8 AND 9 IRRIGATION DISTRIBUTION SYSTEM SUMMARY

3.3 Winter Storage Reservoir

During the irrigation season, Systems 8 and 9 are operated/controlled by system pressure. Pressure monitors in each pumphouse start and stop supply pumps as required to maintain a set supply pressure. In the winter months, mid-October to mid-April annually, a reservoir located on the Osoyoos West Bench south and adjacent to the municipal 340 reservoirs is put into service. This reservoir has an operating capacity of 482,000 L (130,000 USgal). In the winter months, water is supplied by Well No. 6 which is controlled by reservoir level.

4.0 Water Consumption

4.1 Municipal System

The municipal water system consumption in 2022 totaled 2,672 ML. Water supplied by each well is summarized in Table 4-1 and shown on a percent basis in Figure 4-1.

TABLE 4-1: MUNICIPAL WATER SYSTEM -TOTAL ANNUAL CONSUMPTION

	Total Consumption (ML)
WELL NO. 1	650
WELL NO. 3	803
WELL NO. 4	250
WELL NO. 5	409
WELL NO. 6	79
WELL NO. 8	481
TOTAL	2,672

Total annual water consumption in 2021 was 2,558 ML. Consumption in 2022 increased by 4.3%.

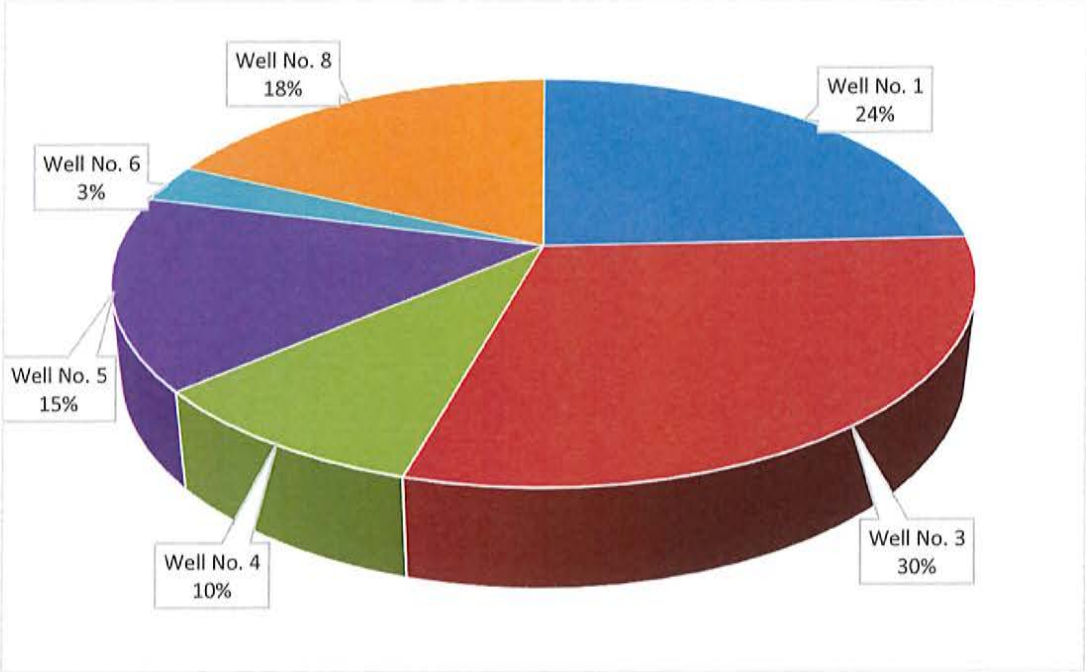

FIGURE 4-1: PERCENT TOTAL CONSUMPTION SUMMARY

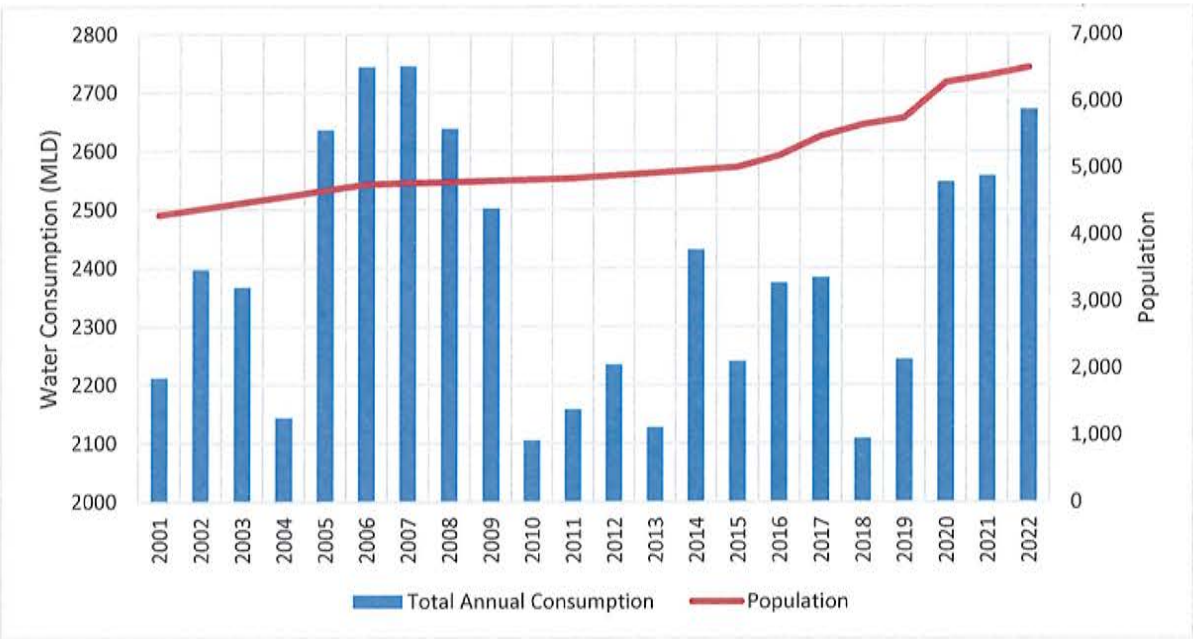

FIGURE 4-2 TOTAL ANNUAL WATER CONSUMPTION - MUNICIPAL SYSTEM

As shown in Figure 4-2, water consumption within the municipal system has increased since 2018. This is attributed to completion of a large portion of System 8 and 9 rural area twinning and the associated domestic water connections.

Figure 4-3 summarizes maximum day demand (MDD) and average day demand (ADD) from 2001 to 2022, relative total well capacities and the overall system capacity. The system capacity is governed by the pump capacities and pipe sizing within the distribution system. As seen, the well capacity currently exceeds that of the system capacity. System observations are summarized as follows:

- In 2022, the ADD was 7.3 MLD. This is an increase of 4% compared to 2021.
- The MDD in 2022 was 17.8 MLD. This value is 9% lower than 2021 MDD. This is attributed to less extreme summer temperatures.

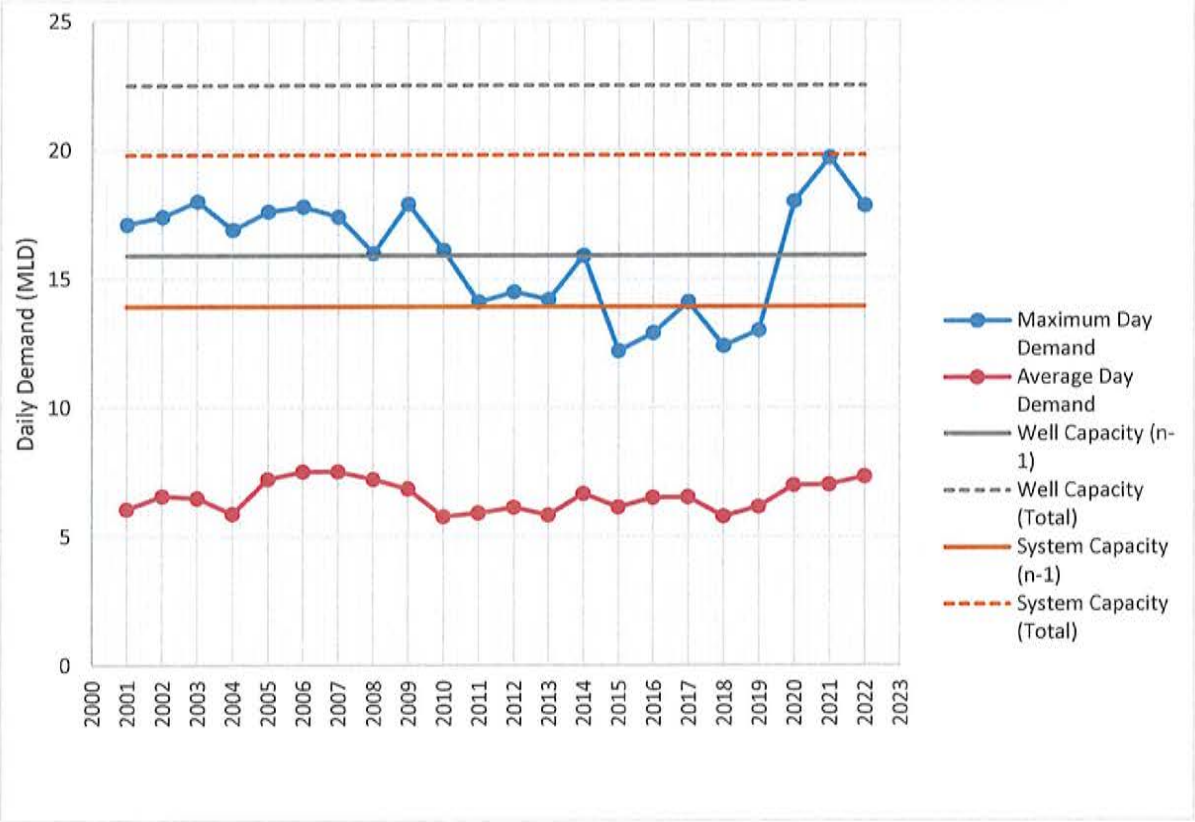

FIGURE 4-3 SYSTEM AND WELL CAPACITY RELATIVE TO DAILY DEMAND

4.2 Systems 8 and 9

Water consumption in 2022 from surface water intakes in the service area of Irrigation Systems 8 and 9 is summarized as follows.

TABLE 4-2 SYSTEM 8 AND 9 TOTAL ANNUAL CONSUMPTION

	Total Consumption (ML)
System 8	2,872
System 9	2,150
Total	5,021

The total annual consumption of 5,021 ML during the irrigation season equates to an average application rate of 747 L/m^2 based on 672 ha of irrigation in the service area. Figure 4-4 illustrates total consumption in Irrigation Systems 8 and 9 in the period 2010 to 2022. As compared to 2021, irrigation system consumption decreased by 992 ML (16%) in 2022. Decreased in irrigation water use may be attributed to the following:

- Higher rates of precipitation in June and July when compared to 2021.
- Conversion of agricultural land from fruit production to grape production. Orchards typically utilized a wide spray broadcast system for crop irrigation while vineyards typically use a drip irrigation system which consumes less water.

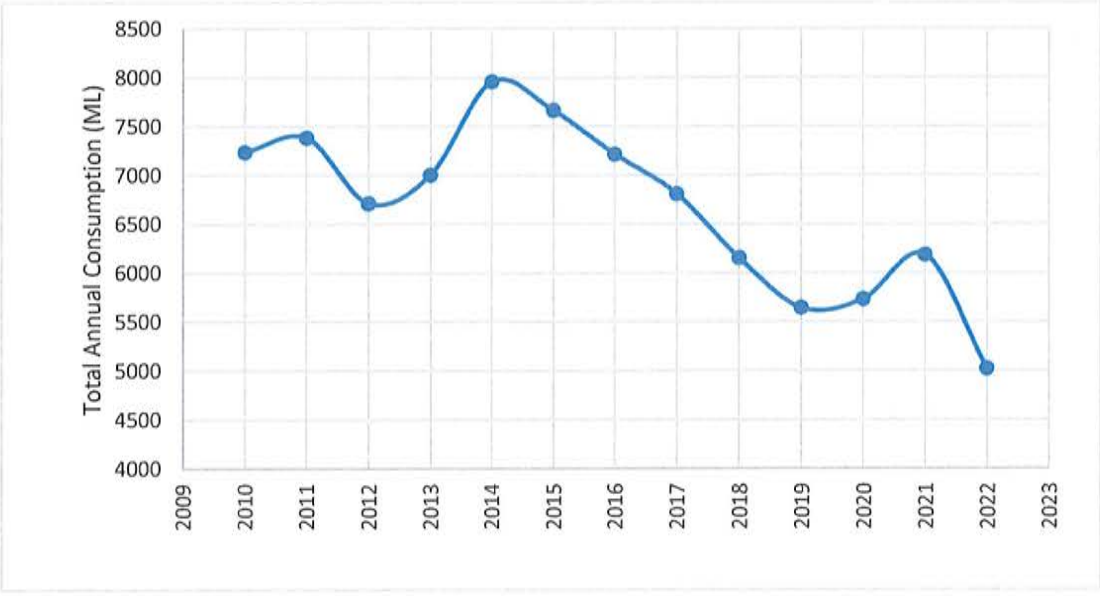

FIGURE 4-4: TOTAL WATER CONSUMPTION IRRIGATION SYSTEM

5.0 Water Sampling and Testing

5.1 Bacteriological and Chlorine Residual Testing

The Town undertakes sampling for bacteriological analysis and chlorine residual for both the irrigation and municipal systems. Sampling is undertaken weekly with the sampling locations listed below.

2022 Sampling Locations

Municipal Sampling Locations:			
10409 87th Ave.	12 Finch Cres.	11704/11902 La Costa Ln.	4800 89th
11 Poplar Court	1202 91st	19 Santa Rosa Pl.	5001 107th St.
11501 Cypress Hills Dr.	12th Ave	3203 Lobelia Dr.	6006 Cottonwood Dr.
3805 Sawgrass Dr.	4 Rose Pl.	4216 Golf Course Dr.	6601 89th
6807 Maple Drive	9 Quail Pl.	Tamarack Drive	Fairway Hills Reservoir
7 Wren Place	9301 Hummingbird Ln.	Well #1	Well #6
8313 Kingfisher	9506 62 Ave.	Well #3	Well #8
8504 70th Ave.	340 Reservoir	Well #4	
8711 92nd Ave.	402 Reservoir	Well #5	
Irrigation System Sampling Locations:			
System 9: 7002 97th			
System 8: 17202 103rd			

Bacteriological and chlorine residual sampling results for 2022 are tabulated in Appendix B and summarized as follows:

Municipal System

- Bacteriological:
  - Total No. of Bacteriological Samples – 279
  - No. of Positive Results for EColi – 0
  - No. of Positive Results for Total Coliform – 0
- Chlorine Residual
  - Total No. of Chlorine Residual Samples – 215
  - Chlorine Residual Concentration Range: 0.06 mg/L and 1.67 mg/L

Irrigation Systems

- Bacteriological:
  - Total No. of Bacteriological Samples – 88
  - No. of Positive Results for E. Coli – 2
  - No. of Positive Results for Total Coliform – 12
- Chlorine Residual
  - Total No. of Chlorine Residual Samples – 85
  - Chlorine Residual Concentration Range: 0.10 mg/L and 2.00 mg/L

When positive results for E. Coli or Total Coliforms are discovered the Town's procedure is to thoroughly flush the area where the results were obtained and then re-sample. This has always resulted in the elimination of positive E. Coli and Total Coliform test results. The Town introduces chlorine into the municipal water system at all municipal Wells on a continuous basis. Bacteriological test results and monthly water reports are submitted to Interior Health. The Town can consider ceasing tests in System #9 once all domestic users have been disconnected.

5.2 Agriculture Irrigation System Trihalomethane Testing

Trihalomethanes are a group of organic chemicals that are formed by the reaction of chlorine and organic materials which may be present in the water. Organic materials typically include algae and other natural organic matter. Trihalomethanes are described as disinfection byproducts with the concentration being dependent on a number of factors including concentration of organic materials (usually measured as total organic carbon), chlorine dose and retention time in the distribution system.

Irrigation Systems 8 and 9 are normally sampled annually for trihalomethane. The sample results for 2022 were not completed. The Town has scheduled 2023 sampling and will continue to work with IHA to determine if changes to sampling are warranted once there are no domestic users connected in System #9.

TABLE 5-1 SYSTEM 8 AND 9 TRIHALOMETHANE SAMPLING

Sample Date/Location			CDWQ Standard
Total Trihalomethanes			0.1 mg/L MAC
Volatile Organic Compounds			
Bromodichloromethane			
Bromoform			
Chloroform			
Dibromochloromethane			

5.3 Agriculture Irrigation System Boil Water Advisory

Treatment provided for water supplied from the Systems 8 and 9 water intakes in Osoyoos Lake does not meet the Provincial Drinking Water Treatment Objectives. The principal deficiencies are:

- Inadequate chlorine contact time to services in proximity to the two pumphouses,
- There is no treatment, typically filtration, for the removal or inactivation of parasites, most common being giardia and cryptosporidium.

In accordance with instructions from IHA, the Town annually issues a boil water advisory for residents within the service area of Irrigation Systems 8 and 9. The boil water advisory was issued in April 2022 at the start of the irrigation season and rescinded in November at the end of the irrigation season.

Residents in the service area of Irrigation Systems 8 and 9 are advised of the Boil Water Advisory by notices published in the Osoyoos Times and posted on the Town's website. Notices are published in the Osoyoos Times as follows:

- Advanced notice at the end of March or first week of April,
- Weekly notices in April,
- Monthly notices in May, June, July, August and September, and
- Final notice at the end of October or first week of November.

The final notice is followed by a notice to rescind the Boil Water Advisory.

5.4 Municipal System Full Spectrum Analysis

In addition to bacteriological testing as described in Section 5.1, the Town samples all six water supply wells annually for a full spectrum analysis. In 2022 full spectrum water quality testing was conducted as per Table 5-2. The results of this analysis are provided in Appendix C and are available online at www.osoyoos.ca.

TABLE 5-2: WELL TESTING SAMPLING EVENTS

	2022 Sample Events
WELL NO. 1	Jan 25, May 24, Aug 9, Nov 1
WELL NO. 3	Jan 25, May 24, Aug 9, Nov 1
WELL NO. 4	May 24, Jun 8, Aug 9
WELL NO. 5	Jun 8, Aug 9, Nov 1
WELL NO. 6	Jan 25, May 24
WELL NO. 8	May 24, Jun 8, Nov 1
STATION 8	Apr 26, Jun 8, Aug 9, Oct 11
STATION 9	Apr 26, Jun 8, Oct 11

Summaries of 2022 analytical results for iron and manganese are presented in Table 5-3. Turbidity results for 2022 are presented in Table 5-4.

Referring to Table 5-3, dissolved manganese concentration in source water wells #4, #5, #6, and #8 are at or above the aesthetic objective as specified in the Canadian Drinking Water Quality Standards. To the greatest extent practical the Town maximizes the use of Wells 1 and 3 to minimize the amount of dissolved manganese in the water system. Furthermore, the Town is planning for construction of a centralized water treatment facility to treat all municipal raw water supplies, including manganese treatment.

As shown in Table 5-4, turbidity is elevated at the irrigation system intakes. This is expected from a non-filtered surface water source. Figures 5-1 and Figure 5-2 summarize these sampling events graphically.

TABLE 5-3: SUMMARY OF 2022 FULL SPECTRUM ANALYSIS – IRON AND MANGANESE

	LAB ID	22E3274-02	22F1312-02	22F1312-03	22H1449-02	22K0254-02	22E3274-05	22K0254-04
	DATE	May 24	Jun 8	Jun 8	Aug 9	Nov 1	May 24	Nov 1
Analyte	Std (CDWQG)	Well #4	Well #4	Well #5	Well #5	Well #5	Well #6	Well #8
Iron, total	AO<=0.3	0.237	**0.317**	0.104	0.132	0.164	< 0.010	< 0.010
Manganese	MAC=0.12	**0.125**	**0.141**	**0.132**	**0.13**	**0.164**	**0.136**	**0.129**

TABLE 5-4: SUMMARY OF 2022 FULL SPECTRUM ANALYSIS - TURBIDITY

	LAB ID	22F1312-05	22D3136-02	22F1312-04
	Date	Jun 8	Apr 24	Jun 8
Analyte	Std (CDWQG)	Station #8	Station #9	Station #9
Turbidity	OG<1	**1.47**	**1.19**	**1.8**

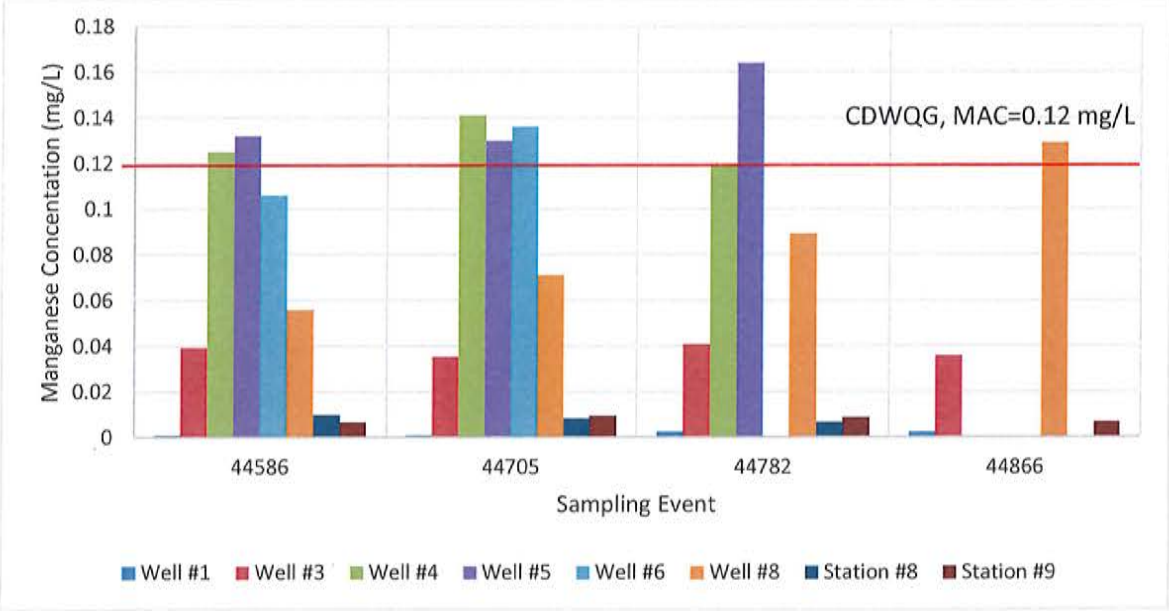

FIGURE 5-1 MANGANESE CONCENTRATION MONITORING

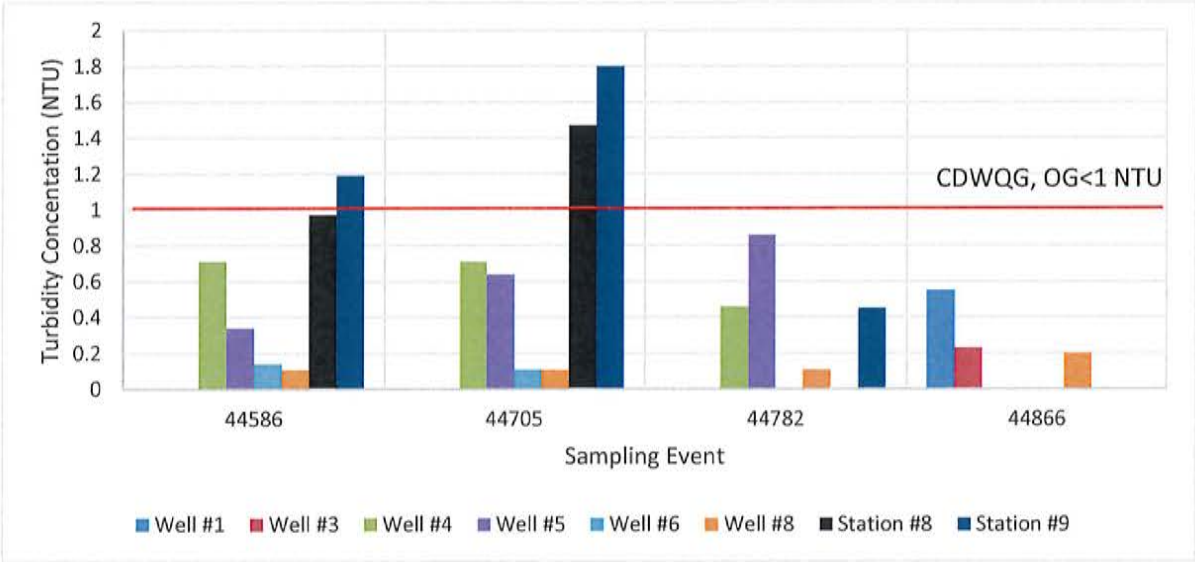

FIGURE 5-2: TURBIDITY CONCENTRATION MONITORING RESULTS

5.5 Groundwater Source Nitrate Monitoring

High nitrate concentrations in groundwater are experienced throughout the South Okanagan area. High nitrate concentrations are attributed to fertilizer use by the agricultural industry. The Town monitors nitrate concentration in all six of the source water supply wells. Nitrate data for each well for each 2022 sampling event is provided in Appendix C. The data is summarized below.

TABLE 5-5: NITRATE CONCENTRATION MONITORING RESULTS SUMMARY

	Nitrate as N (mg/L)
Canadian Drinking Water Quality Maximum Acceptable Concentration	10 mg/L
Well No. 1	4.52 - 6.53
Well No. 3	2.31 - 3.55
Well No. 4	< 0.010
Well No. 5	< 0.010
Well No. 6	2.84 - 3.63
Well No. 8	0.34 - 0.77

Figure 5-3 illustrates that the nitrate concentrations in each well are compliant with the Canadian Drinking Water Quality Guidelines. Notably, nitrate concentrations in Well #4 and #5 are below the detection limit.

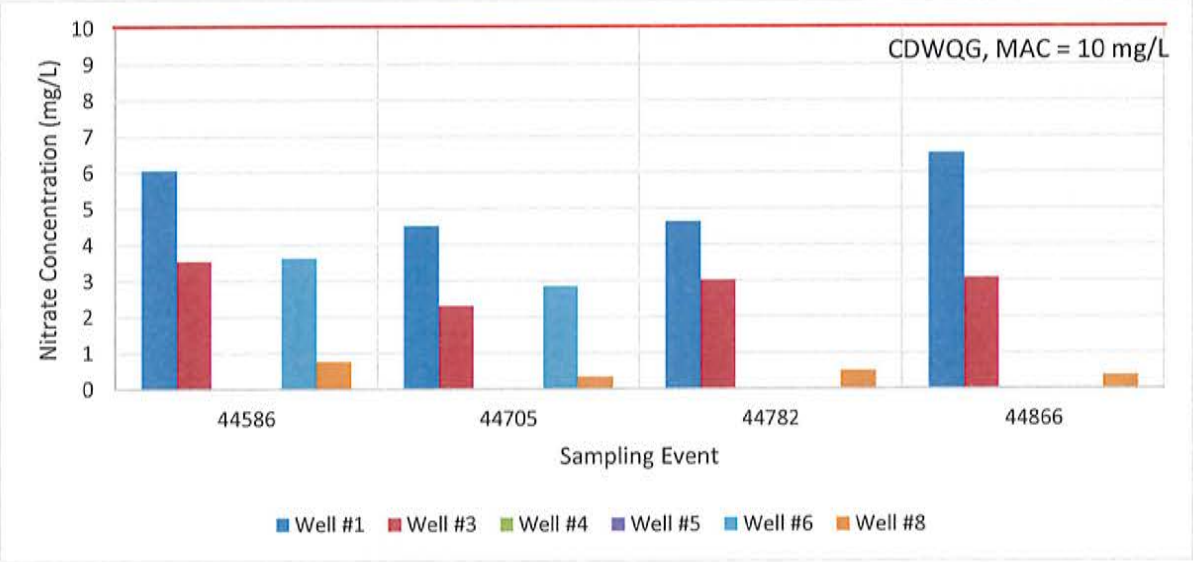

FIGURE 5-3: NITRATE CONCENTRATION MONITORING RESULTS

5.6 Water Quality Complaints and Operational Incidents

On any given year the Town of Osoyoos receives concerns with regards to water quality, they range from issues with water colour, taste, and odour. These concerns are addressed as they are presented to the Town.

6.0 Operation and Maintenance

6.1 Routine Maintenance Program

- **Water Supply Wells**
  - Daily checks of all wells are completed to confirm satisfactory operation. Logged operating parameters including discharge pressure, flow, running time, and service voltage.
  - Pump lubrication and packing are checked and adjusted as required.
  - Annual water sampling.

- **Irrigation Systems 8 and 9 Intake/Pump house**
  - Daily checks during the irrigation season are completed. Operating parameters are logged.
  - Pump lubrication and packing are checked and adjusted as required.
  - Chlorine residual and turbidity analyser calibration is checked monthly.
  - Chlorine cylinders are removed when empty and replaced with full cylinders.
  - Pump house maintenance is completed on an as required basis.

- **Booster Stations 402 and Fairway Hills**
  - Daily inspections are completed to check site security and to record operating parameters.
  - Pump lubrication and packing are checked and adjusted as required.

- **Reservoirs**
  - All reservoirs are inspected daily, excluding weekends, to confirm site and reservoir structure security.

- **Distribution System**
  - Water main flushing is conducted to maintain chlorine residuals.
  - Weekly bacteriological sampling.
  - Weekly chlorine residual sampling.

6.2 SCADA (Supervisory Control and Data Acquisition)

A SCADA computer control and monitoring system is used by the Town to control major components of the water systems. System capabilities include:

- Water Supply Wells and Intakes
  - Pump operational status.
  - Flow, elapsed running times.
  - Well levels where applicable.
  - Chlorine residuals at irrigation intake.

- Booster Stations
  - pump operational status.
  - flow and elapsed running time.

- Reservoirs
  - Reservoir level.
  - Pump start/stop and alarm set points.
  - Intruder alarms.

The Town has an ongoing program to upgrade the capabilities of the SCADA system.

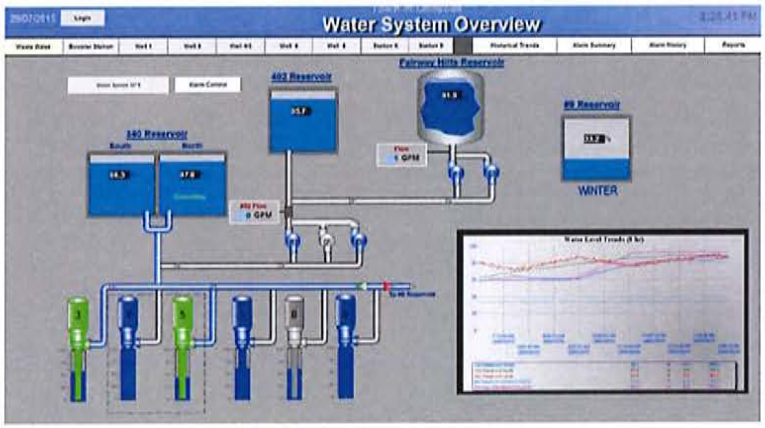

FIGURE 6-1: SCADA SYSTEM OVERVIEW DISPLAY

6.3 Major Maintenance – 2022

Major maintenance projects undertaken in 202 include:

- Water main flushing program,
- Installation of real-time pH and chlorine analyzers, and
- Installation of an updated chlorine injection system for source Wells #4 and #5.

6.4 Cross Control Program

A cross connection is most commonly a plumbing system in a building that represents the risk of backflow into the Town's water distribution system thereby representing the potential of adversely affecting water quality. The Town has a program for identifying cross connections and requires the installation and maintenance of backflow prevention devices to prevent reverse flow from a service connection to the Town's water distribution system.

The implementation and administration of the Town's cross connection program is contracted to Mr. Wayne Muzyka of Personnel Development & Consulting of Vernon. The Town's cross connection control program includes a total of 367 devices of which:

- 83 are classified as high hazard,
- 98 are classified as medium hazard,
- 14 are classified as low hazard,
- 12 are classified as none, and
- 105 devices are outstanding.

To the end of December 2022, a total of 65% of the backflow devices have been surveyed which comprises an inspection of the premises and backflow prevention devices. Of the high hazard group, 98% have been surveyed. At the end of December 2022, compliance with the Town's cross connection control program is summarized as follows.

TABLE 6-1 CROSS CONTROL CONNECTION – 2022 PROGRAM SUMMARY

Hazard Ranking	Quantity	Not Surveyed	Surveyed	Vacant	Number Compliant	% Compliant
High	83	2	81	0	51	61%
Medium	98	25	73	0	51	52%
Low	44	11	33	0	13	30%
None	12	11	1	11	0	
Totals	237	49	188	11	115	

Non-compliance generally means a deficient (or lack of) backflow prevention device or failure by the property owner to provide certification of annual testing.

6.5 Emergency Response Plan

The Operational Services Department is in the process of reviewing and updating our Emergency Response Plan for the Town's municipal water system. This review and update will be completed by the end of 2023.

6.6 Operator Certifications

In compliance with the operations permit, the operator certifications are summarized as follows:

TABLE 6-2: OPERATOR CERTIFICATION

Operator	Certification
Kelly McDonald	Water Distribution 3
Frank Zandvliet	Water Distribution 1
	Water Treatment 1
David Stene	Water Distribution 2
Karl Fitcher	Water Distribution 2

7.0 Capital Program

7.1 Municipal System

7.1.1 Completed Capital Projects in 2022

- Residential service connection to the domestic water system in recently twinned areas of the irrigation system.

7.1.2 Budgeted Capital Projects in 2023

- Residential service connections (for recently twinned irrigation system).
- 340 Reservoir booster upgrades.
- Chlorine OH&S upgrades.
- Auxiliary power for source well pump stations.
- Scada system upgrades (switching system to VT SCADA).
- Source water well exploration program.
- Osoyoos Water System Capital and Asset Management Plan update.

7.1.3 Other Water Related Budget Items

- Universal water metering program.
- Flood and erosion protection of source Wells #4, #5 and #8

7.1.4 Asset Management, Capital and Implementation Plan

The Town is currently completing an updated Asset Management, Capital and Implementation Plan that will be made publicly available. The Asset Management Plan provides complete asset inventories for the domestic water system. This will provide an average annual investment value for the Town to reserve each year for ongoing system maintenance and replacement. The Capital Plan provides a forecast for required system upgrading projects. These projects include:

- Watermain upsizing projects,
- Auxiliary power for each source well pump station,
- Development of two additional source wells,
- Water treatment plant (WTP) for manganese removal,
- Domestic water system upgrades to implement the WTP, and
- East reservoir implementation.

The Implementation Plan will provide a forecast for all domestic water system projects including replacement and maintenance projects (asset management related), and capital projects. This will enable to Town to plan resources and finances accordingly. Irrigation System 8 & 9

APPENDIX A

Interior Health Authority Well #7 Letter

Interior Health

April 24, 2023

Sent via email:

Town of Osoyoos
8707 Main Street
Osoyoos, BC V0H 1V0

Dear Jared Brounstein:

Re: Town of Osoyoos Water Supply System New Well Source Application

The Town of Osoyoos application for the proposed new source well 7 has been reviewed.

Section 8 (1) of the Health Hazard Regulation states that the person who installs a well must ensure that the well is located at least 30 m from any probable source of contamination.

The application indicates that the proposed new Well 7 will be 4.2 m from a gravity feed sewer main.

The proposed new well location does not meet the required setback distance outlined in section 8 of the Health Hazard Regulation, therefore, it is not approved for use as a drinking water source.

It is recommended that an alternate location be explored as a long term solution to meet increasing water demands in this community.

Thank you for your efforts towards improving the drinking water for the Town of Osoyoos Water Supply System.

If you have any questions please call me directly at (250) 469-7070 ext. 12274.

Sincerely,

Judi Ekkert, B.Sc., CPHI(C)
Specialist Environmental Health Officer

cc: Dr. Sue Pollock, Medical Health Officer, IHA
J. Ivor Norlin, Manager, Drinking Water Systems Program, IHA
Steve Underwood, Project Engineer, TRUE Consulting
Ariana Paulson, P.Eng., TRUE Consulting

We recognize and acknowledge that we are collectively gathered on the traditional, ancestral, and unceded territories of the seven Interior Region First Nations, where we live, learn, collaborate, and work together. This region is also home to 15 Chartered Métis Communities. It is with humility that we continue to strengthen our relationships with First Nation, Métis, and Inuit peoples across the Interior.

INTERIOR HEALTH DEPARTMENT | 505 DOYLE AVE, KELOWNA, BC V1Y 0C5
PHONE 250.469.7070 FAX 250.469.7068 EMAIL info@interiorhealth.ca

APPENDIX B

Bacteriological and Chlorine Residual Results

			Std (CDWQG)				
			General Method	Field Parameters	Microbiological Parameters	Microbiological Parameters	Microbiological Parameters
			RL	0.02	1	1	200
				None Required	MAC = 0	MAC = 0	N/A
LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	Chlorine, Total (mg/L)	Coliforms, Total (CFU/100 mL)	E. coli (CFU/100 mL)	Background Colonies (CFU/100 mL)
22E4128-01	System #8	2022-05-31	2022-05-31	0.85	<1	<1	
22F3172-01	System #8	2022-06-21	2022-06-21	0.42	<1	<1	
22H0496-01	System #8	2022-08-03	2022-08-04	1.16	700	<1	
22H1436-01	System #8	2022-08-09	2022-08-10	1.01	6	<1	
22H2429-01	System #8	2022-08-16	2022-08-17	1.01	<1	<1	
22J2299-01	System #8	2022-10-18	2022-10-18	1.33	<1	<1	
22L0572-01	System #8	2022-12-06	2022-12-06	1.63	<1	<1	
22A0946-01	System #8, 17202 - 103rd St.	2022-01-11	2022-01-11	0.83	<1	<1	
22A1930-01	System #8, 17202 - 103rd St.	2022-01-18	2022-01-18	0.78	<1	<1	
22A3027-01	System #8, 17202 - 103rd St.	2022-01-25	2022-01-25	0.86	<1	<1	
22B0234-01	System #8, 17202 - 103rd St.	2022-02-01	2022-02-02	0.79	<1	<1	
22B1103-01	System #8, 17202 - 103rd St.	2022-02-08	2022-02-08	0.75	<1	<1	
22B2081-01	System #8, 17202 - 103rd St.	2022-02-15	2022-02-15	0.74	<1	<1	
22B3053-01	System #8, 17202 - 103rd St.	2022-02-23	2022-02-23	0.65	<1	<1	
22C0277-08	System #8, 17202 - 103rd St.	2022-03-01	2022-03-02	1.46	<1	<1	
22C1197-01	System #8, 17202 - 103rd St.	2022-03-08	2022-03-08	1.14	<1	<1	
22C2057-01	System #8, 17202 - 103rd St.	2022-03-15	2022-03-15	1.2	<1	<1	
22C3011-01	System #8, 17202 - 103rd St.	2022-03-22	2022-03-22	1.33	<1	<1	
22C3011-01	System #8, 17202 - 103rd St.	2022-03-22	2022-03-22	1.33	<1	<1	
22C4025-01	System #8, 17202 - 103rd St.	2022-03-29	2022-03-30	1.1	<1	<1	
22D1525-01	System #8, 17202 - 103rd St.	2022-04-12	2022-04-12	0.57	<1	<1	
22D2132-01	System #8, 17202 - 103rd St.	2022-04-19	2022-04-19	0.51	Overgrown with	Overgrown	
22D2876-01	System #8, 17202 - 103rd St.	2022-04-25	2022-04-25	0.81	>= 1	<1	>200
22D3128-01	System #8, 17202 - 103rd St.	2022-04-26	2022-04-26	0.9	<1	<1	>200
22E0323-05	System #8, 17202 - 103rd St.	2022-05-03	2022-05-04	1.73	<1	<1	
22E1272-01	System #8, 17202 - 103rd St.	2022-05-10	2022-05-10	1.05	<1	<1	
22E2291-01	System #8, 17202 - 103rd St.	2022-05-17	2022-05-18	0.58	<1	<1	
22E3229-01	System #8, 17202 - 103rd St.	2022-05-24	2022-05-25	0.73	<1	<1	
22F0990-01	System #8, 17202 - 103rd St.	2022-06-07	2022-06-07	0.41	<1	<1	
22F4166-01	System #8, 17202 - 103rd St.	2022-06-28	2022-06-28	0.86	<1	<1	
22G0365-01	System #8, 17202 - 103rd St.	2022-07-05	2022-07-05	0.34	<1	<1	
22G1419-01	System #8, 17202 - 103rd St.	2022-07-12	2022-07-13	1.12	<1	<1	
22G2527-01	System #8, 17202 - 103rd St.	2022-07-19	2022-07-20	0.79	2	<1	
22G3555-01	System #8, 17202 - 103rd St.	2022-07-26	2022-07-27	1.01	<1	<1	
22H4363-01	System #8, 17202 - 103rd St.	2022-08-30	2022-08-30	0.64	1	<1	
22I0633-01	System #8, 17202 - 103rd St.	2022-09-06	2022-09-07	0.96	1	<1	
22I1713-01	System #8, 17202 - 103rd St.	2022-09-13	2022-09-14	0.53	<1	<1	
22I2800-01	System #8, 17202 - 103rd St.	2022-09-20	2022-09-21	1.12	<1	<1	
22J1295-01	System #8, 17202 - 103rd St.	2022-10-11	2022-10-11	1.31	<1	<1	
22J3223-01	System #8, 17202 - 103rd St.	2022-10-25	2022-10-25	0.69	<1	<1	
22K1114-01	System #8, 17202 - 103rd St.	2022-11-08	2022-11-09	0.93	<1	<1	

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	Chlorine, Total (mg/L)	Coliforms, Total (CFU/100 mL)	E. coli (CFU/100 mL)	Background Colonies (CFU/100 mL)
22K2024-01	System #8, 17202 - 103rd St.	2022-11-15	2022-11-15	2	<1	<1	
22K2675-01	System #8, 17202 - 103rd St.	2022-11-22	2022-11-22	1.59	<1	<1	
22L1424-01	System #8, 17202 - 103rd St.	2022-12-13	2022-12-13	0.83	<1	<1	
22L2230-01	System #8, 17202 - 103rd St.	2022-12-20	2022-12-21	0.49	<1	<1	
22E4128-06	System #9	2022-05-31	2022-05-31	1	<1	<1	
22F3175-01	System #9	2022-06-21	2022-06-21	0.37	<1	<1	
22H0497-01	System #9	2022-08-03	2022-08-04	0.95	<1	<1	
22H1439-01	System #9	2022-08-09	2022-08-10	1.15	1	<1	
22H2428-01	System #9	2022-08-16	2022-08-17	1.02	4	<1	
22J2302-01	System #9	2022-10-18	2022-10-18	0.75	<1	<1	
22L0573-01	System #9	2022-12-06	2022-12-06	1.29	<1	<1	
22A0946-02	System #9 - 7002 97th St.- Hwy 97	2022-01-11	2022-01-11	0.98	<1	<1	
22A1934-01	System #9 - 7002 97th St.- Hwy 97	2022-01-18	2022-01-18	1.06	<1	<1	
22A3028-01	System #9 - 7002 97th St.- Hwy 97	2022-01-25	2022-01-25	0.9	<1	<1	
22B0241-01	System #9 - 7002 97th St.- Hwy 97	2022-02-01	2022-02-02	1.58	<1	<1	
22B1103-04	System #9 - 7002 97th St.- Hwy 97	2022-02-08	2022-02-08	0.97	<1	<1	
22B2084-01	System #9 - 7002 97th St.- Hwy 97	2022-02-15	2022-02-15	1.66	<1	<1	
22B3051-01	System #9 - 7002 97th St.- Hwy 97	2022-02-23	2022-02-23	0.81	<1	<1	
22C0277-07	System #9 - 7002 97th St.- Hwy 97	2022-03-01	2022-03-02	0.69	<1	<1	
22C1195-01	System #9 - 7002 97th St.- Hwy 97	2022-03-08	2022-03-08	1.14	<1	<1	
22C3020-01	System #9 - 7002 97th St.- Hwy 97	2022-03-22	2022-03-22	1.13	<1	<1	
22C4028-01	System #9 - 7002 97th St.- Hwy 97	2022-03-29	2022-03-30	1.11	<1	<1	
22D1528-01	System #9 - 7002 97th St.- Hwy 97	2022-04-12	2022-04-12	1	<1	<1	
22D2142-01	System #9 - 7002 97th St.- Hwy 97	2022-04-19	2022-04-19	1.02	<1	<1	
22D3142-01	System #9 - 7002 97th St.- Hwy 97	2022-04-26	2022-04-26	0.38	<1	<1	
22E0323-06	System #9 - 7002 97th St.- Hwy 97	2022-05-03	2022-05-04	1.49	<1	<1	
22E1271-01	System #9 - 7002 97th St.- Hwy 97	2022-05-10	2022-05-10	1.18	<1	<1	
22E2292-01	System #9 - 7002 97th St.- Hwy 97	2022-05-17	2022-05-18	0.61	<1	<1	
22E3228-01	System #9 - 7002 97th St.- Hwy 97	2022-05-24	2022-05-25	0.68	<1	<1	
22F0995-01	System #9 - 7002 97th St.- Hwy 97	2022-06-07	2022-06-07	0.59	<1	<1	
22F4169-01	System #9 - 7002 97th St.- Hwy 97	2022-06-28	2022-06-28	0.57	<1	<1	
22G0361-01	System #9 - 7002 97th St.- Hwy 97	2022-07-05	2022-07-05	0.2	200	<1	>200
22G1417-01	System #9 - 7002 97th St.- Hwy 97	2022-07-12	2022-07-13	0.84	Overgrown with	Overgrown	
22G2526-01	System #9 - 7002 97th St.- Hwy 97	2022-07-19	2022-07-20	0.82	<1	<1	
22G3556-01	System #9 - 7002 97th St.- Hwy 97	2022-07-26	2022-07-27	0.9	<1	<1	
22H4360-01	System #9 - 7002 97th St.- Hwy 97	2022-08-30	2022-08-30	1.18	2	<1	
22I0631-01	System #9 - 7002 97th St.- Hwy 97	2022-09-06	2022-09-07	1.24	<1	<1	
22I1711-01	System #9 - 7002 97th St.- Hwy 97	2022-09-13	2022-09-14	0.75	<1	<1	
22I2802-01	System #9 - 7002 97th St.- Hwy 97	2022-09-20	2022-09-21	1.03	<1	<1	
22J1290-01	System #9 - 7002 97th St.- Hwy 97	2022-10-11	2022-10-11	1.14	<1	<1	
22J3225-01	System #9 - 7002 97th St.- Hwy 97	2022-10-25	2022-10-25	0.45	<1	<1	
22K1110-01	System #9 - 7002 97th St.- Hwy 97	2022-11-08	2022-11-09	0.1	<1	<1	
22K2018-01	System #9 - 7002 97th St.- Hwy 97	2022-11-15	2022-11-16	0.18	<1	<1	
22K2678-01	System #9 - 7002 97th St.- Hwy 97	2022-11-22	2022-11-22	1.57	<1	<1	
22L1422-01	System #9 - 7002 97th St.- Hwy 97	2022-12-13	2022-12-13	0.85	<1	<1	
22L2232-01	System #9 - 7002 97th St.- Hwy 97	2022-12-20	2022-12-21	0.66	<1	<1	

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	Chlorine, Total (mg/L)	Coliforms, Total (CFU/100 mL)	E. coli (CFU/100 mL)	Background Colonies (CFU/100 mL)
22K2685-01	System #9 Reservoir	2022-11-22	2022-11-22	1.03	<1	<1	
22H0681-01	Town System - 10409-87th	2022-08-04	2022-08-05	0.15	<1	<1	>200
22H1066-01	Town System - 10409-87th	2022-08-08	2022-08-08	0.28	<1	<1	>200
22E3226-01	Town System - 11 Poplar Court	2022-05-24	2022-05-25	0.88	<1	<1	
22E3393-01	Town System - 11 Poplar Court	2022-05-25	2022-05-26	0.96	<1	<1	
22H2422-01	Town System - 11501 Cypress Hills Dr	2022-08-16	2022-08-17	0.49	<1	<1	
22H1070-01	Town System - 11704 and 11902 La Costa Lane	2022-08-08	2022-08-08	0.34	<1	<1	
22H1421-01	Town System - 11704 and 11902 La Costa Lane	2022-08-09	2022-08-10	0.49	<1	<1	
22H2423-01	Town System - 11704 and 11902 La Costa Lane	2022-08-16	2022-08-17	0.48	<1	<1	
22B3054-01	Town System - 12 Finch Cres	2022-02-23	2022-02-23	0.8	<1	<1	
22H0684-01	Town System - 12 Finch Cres	2022-08-04	2022-08-05	0.1	<1	<1	
22H1067-01	Town System - 12 Finch Cres	2022-08-08	2022-08-08	0.44	<1	<1	
22A0946-04	Town System - 1202-91st	2022-01-11	2022-01-11	0.64	<1	<1	
22A3023-01	Town System - 1202-91st	2022-01-25	2022-01-25	0.37	<1	<1	
22B1103-05	Town System - 1202-91st	2022-02-08	2022-02-08	0.46	<1	<1	
22B3045-01	Town System - 1202-91st	2022-02-23	2022-02-23	0.53	<1	<1	
22C1186-01	Town System - 1202-91st	2022-03-08	2022-03-08	0.52	<1	<1	
22C3015-01	Town System - 1202-91st	2022-03-22	2022-03-22	0.69	<1	<1	
22D2131-01	Town System - 1202-91st	2022-04-19	2022-04-19	0.89	<1	<1	
22G1415-01	Town System - 1202-91st	2022-07-12	2022-07-13	0.56	<1	<1	
22G3553-01	Town System - 1202-91st	2022-07-26	2022-07-27	0.49	<1	<1	
22I0628-01	Town System - 1202-91st	2022-09-06	2022-09-07	0.59	<1	<1	
22I2796-01	Town System - 1202-91st	2022-09-20	2022-09-21	0.51	<1	<1	
22K2010-01	Town System - 1202-91st	2022-11-15	2022-11-16	0.55	<1	<1	
22L1408-01	Town System - 1202-91st	2022-12-13	2022-12-13	0.91	<1	<1	
22L2236-01	Town System - 1202-91st	2022-12-20	2022-12-21	1.01	<1	<1	
22E0323-02	Town System - 12th Ave	2022-05-03	2022-05-04	0.93	<1	<1	
22E2279-01	Town System - 12th Ave	2022-05-17	2022-05-18	0.98	<1	<1	
22E4128-04	Town System - 12th Ave	2022-05-31	2022-05-31	0.64	<1	<1	
22H1437-01	Town System - 12th Ave	2022-08-09	2022-08-10	0.79	<1	<1	
22J2295-01	Town System - 12th Ave	2022-10-18	2022-10-18	0.94	<1	<1	
22F0994-01	Town System - 19 Santa Rosa Pl	2022-06-07	2022-06-07	0.29	<1	<1	
22A1935-01	Town System - 3203 Lobelia Dr	2022-01-18	2022-01-18	0.78	<1	<1	
22B0239-01	Town System - 3203 Lobelia Dr	2022-02-01	2022-02-02	0.65	<1	<1	
22B2089-01	Town System - 3203 Lobelia Dr	2022-02-15	2022-02-15	0.76	<1	<1	
22C0277-05	Town System - 3203 Lobelia Dr	2022-03-01	2022-03-02	0.9	<1	<1	
22C2059-01	Town System - 3203 Lobelia Dr	2022-03-15	2022-03-15	0.71	<1	<1	
22C4027-01	Town System - 3203 Lobelia Dr	2022-03-29	2022-03-30	0.95	<1	<1	
22D1522-01	Town System - 3203 Lobelia Dr	2022-04-12	2022-04-12	1.03	<1	<1	
22D3135-01	Town System - 3203 Lobelia Dr	2022-04-26	2022-04-26	0.89	<1	<1	
22E1273-01	Town System - 3203 Lobelia Dr	2022-05-10	2022-05-10	0.7	<1	<1	
22E3225-01	Town System - 3203 Lobelia Dr	2022-05-24	2022-05-25	0.99	<1	<1	
22F0992-01	Town System - 3203 Lobelia Dr	2022-06-07	2022-06-07	0.81	<1	<1	
22F3173-01	Town System - 3203 Lobelia Dr	2022-06-21	2022-06-21	0.63	<1	<1	
22F4168-01	Town System - 3203 Lobelia Dr	2022-06-28	2022-06-28	0.72	<1	<1	
22G0362-01	Town System - 3203 Lobelia Dr	2022-07-05	2022-07-05	0.62	<1	<1	

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	Chlorine, Total (mg/L)	Coliforms, Total (CFU/100 mL)	E. coli (CFU/100 mL)	Background Colonies (CFU/100 mL)
22G2524-01	Town System - 3203 Lobelia Dr	2022-07-19	2022-07-20	0.81	<1	<1	
22H0491-01	Town System - 3203 Lobelia Dr	2022-08-03	2022-08-04	0.42	<1	<1	
22H2425-01	Town System - 3203 Lobelia Dr	2022-08-16	2022-08-17	0.74	<1	<1	
22H4359-01	Town System - 3203 Lobelia Dr	2022-08-30	2022-08-30	1.04	<1	<1	
22I1704-01	Town System - 3203 Lobelia Dr	2022-09-13	2022-09-14	0.94	<1	<1	
22J1283-01	Town System - 3203 Lobelia Dr	2022-10-11	2022-10-11	1.3	<1	<1	
22J3227-01	Town System - 3203 Lobelia Dr	2022-10-25	2022-10-25	0.78	<1	<1	
22K1106-01	Town System - 3203 Lobelia Dr	2022-11-08	2022-11-09	0.34	<1	<1	
22K2689-01	Town System - 3203 Lobelia Dr	2022-11-22	2022-11-22	0.87	<1	<1	
22L0569-01	Town System - 3203 Lobelia Dr	2022-12-06	2022-12-06	1.11	<1	<1	
22L2234-01	Town System - 3203 Lobelia Dr	2022-12-20	2022-12-21	1.08	<1	<1	
22H1071-01	Town System - 3805 Sawgrass Dr	2022-08-08	2022-08-08	0.34	<1	<1	
22H1421-02	Town System - 3805 Sawgrass Dr	2022-08-09	2022-08-10	0.5	<1	<1	
22C3530-03	Town System - 4 Rose Place	2022-03-24	2022-03-25	0.79	<1	<1	
22A0946-05	Town System - 4216 Golf Course Dr	2022-01-11	2022-01-11	0.39	<1	<1	
22A1937-01	Town System - 4216 Golf Course Dr	2022-01-18	2022-01-18	0.14	<1	<1	
22A3026-01	Town System - 4216 Golf Course Dr	2022-01-25	2022-01-25	0.31	<1	<1	
22B0232-01	Town System - 4216 Golf Course Dr	2022-02-01	2022-02-02	0.39	<1	<1	
22B1103-06	Town System - 4216 Golf Course Dr	2022-02-08	2022-02-08	0.38	<1	<1	
22B3046-01	Town System - 4216 Golf Course Dr	2022-02-23	2022-02-23	0.27	<1	<1	
22C0277-04	Town System - 4216 Golf Course Dr	2022-03-01	2022-03-02	0.28	<1	<1	
22C1191-01	Town System - 4216 Golf Course Dr	2022-03-08	2022-03-08	0.25	<1	<1	
22C3005-01	Town System - 4216 Golf Course Dr	2022-03-22	2022-03-22	0.36	<1	<1	
22C4022-01	Town System - 4216 Golf Course Dr	2022-03-29	2022-03-30	0.26	<1	<1	
22D1521-01	Town System - 4216 Golf Course Dr	2022-04-12	2022-04-12	0.37	<1	<1	
22D2129-01	Town System - 4216 Golf Course Dr	2022-04-19	2022-04-19	0.49	<1	<1	
22D3132-01	Town System - 4216 Golf Course Dr	2022-04-26	2022-04-26	0.49	<1	<1	
22E1269-01	Town System - 4216 Golf Course Dr	2022-05-10	2022-05-10	0.29	<1	<1	
22E3227-01	Town System - 4216 Golf Course Dr	2022-05-24	2022-05-25	0.57	<1	<1	
22F0993-01	Town System - 4216 Golf Course Dr	2022-06-07	2022-06-07	0.56	<1	<1	
22F4171-01	Town System - 4216 Golf Course Dr	2022-06-28	2022-06-28	0.26	<1	<1	
22G0364-01	Town System - 4216 Golf Course Dr	2022-07-05	2022-07-05	0.31	<1	<1	
22G1420-01	Town System - 4216 Golf Course Dr	2022-07-12	2022-07-13	0.26	<1	<1	
22G2525-01	Town System - 4216 Golf Course Dr	2022-07-19	2022-07-20	0.25	<1	<1	
22G3554-01	Town System - 4216 Golf Course Dr	2022-07-26	2022-07-27	0.45	<1	<1	
22H4361-01	Town System - 4216 Golf Course Dr	2022-08-30	2022-08-30	0.59	<1	<1	
22I0629-01	Town System - 4216 Golf Course Dr	2022-09-06	2022-09-07	0.37	<1	<1	
22I1707-01	Town System - 4216 Golf Course Dr	2022-09-13	2022-09-14	0.53	<1	<1	
22I2580-01	Town System - 4216 Golf Course Dr	2022-09-20	2022-09-21	0.22	<1	<1	
22J1297-01	Town System - 4216 Golf Course Dr	2022-10-11	2022-10-11	0.5	<1	<1	
22J3228-01	Town System - 4216 Golf Course Dr	2022-10-25	2022-10-25	0.68	<1	<1	
22K1109-01	Town System - 4216 Golf Course Dr	2022-11-08	2022-11-09	0.83	<1	<1	
22K1860-01	Town System - 4216 Golf Course Dr	2022-11-15	2022-11-16	0.23	<1	<1	
22K2681-01	Town System - 4216 Golf Course Dr	2022-11-22	2022-11-22	0.39	<1	<1	
22L1411-01	Town System - 4216 Golf Course Dr	2022-12-13	2022-12-13	0.53	<1	<1	
22L2235-01	Town System - 4216 Golf Course Dr	2022-12-20	2022-12-21	0.42	<1	<1	

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	Chlorine, Total (mg/L)	Coliforms, Total (CFU/100 mL)	E. coli (CFU/100 mL)	Background Colonies (CFU/100 mL)
22D2143-01	Town System - 4800 89th	2022-04-19	2022-04-19	1	<1	<1	
22F0997-01	Town System - 4800 89th	2022-06-07	2022-06-07	0.21	<1	<1	
22H0682-01	Town System - 5001 107 St	2022-08-04	2022-08-05	0.13	<1	<1	
22H1069-01	Town System - 5001 107 St	2022-08-08	2022-08-08	0.43	<1	<1	
22A0946-06	Town System - 6006 Cottonwood Dr	2022-01-11	2022-01-11	0.77	<1	<1	
22A1939-01	Town System - 6006 Cottonwood Dr	2022-01-18	2022-01-18	0.63	<1	<1	
22A3021-01	Town System - 6006 Cottonwood Dr	2022-01-25	2022-01-25	0.91	<1	<1	
22B0236-01	Town System - 6006 Cottonwood Dr	2022-02-01	2022-02-02	0.54	<1	<1	
22B1103-02	Town System - 6006 Cottonwood Dr	2022-02-08	2022-02-08	0.58	<1	<1	
22B2087-01	Town System - 6006 Cottonwood Dr	2022-02-15	2022-02-15	1.05	<1	<1	
22B3055-01	Town System - 6006 Cottonwood Dr	2022-02-23	2022-02-23	0.65	<1	<1	
22C0277-09	Town System - 6006 Cottonwood Dr	2022-03-01	2022-03-02	1.02	<1	<1	
22C1192-01	Town System - 6006 Cottonwood Dr	2022-03-08	2022-03-08	1	<1	<1	
22C3006-01	Town System - 6006 Cottonwood Dr	2022-03-22	2022-03-22	0.75	<1	<1	
22C4024-01	Town System - 6006 Cottonwood Dr	2022-03-29	2022-03-30	0.76	<1	<1	
22D1531-01	Town System - 6006 Cottonwood Dr	2022-04-12	2022-04-12	1.08	<1	<1	
22D2134-01	Town System - 6006 Cottonwood Dr	2022-04-19	2022-04-19	1.01	<1	<1	
22D2134-01	Town System - 6006 Cottonwood Dr	2022-04-19	2022-04-19	1.01	<1	<1	
22D3144-01	Town System - 6006 Cottonwood Dr	2022-04-26	2022-04-26	1.05	<1	<1	
22E0323-04	Town System - 6006 Cottonwood Dr	2022-05-03	2022-05-04	1.08	<1	<1	
22E1274-01	Town System - 6006 Cottonwood Dr	2022-05-10	2022-05-10	0.9	<1	<1	
22E2278-01	Town System - 6006 Cottonwood Dr	2022-05-17	2022-05-18	1.02	<1	<1	
22E3223-01	Town System - 6006 Cottonwood Dr	2022-05-24	2022-05-25	0.92	<1	<1	
22E4128-09	Town System - 6006 Cottonwood Dr	2022-05-31	2022-05-31	0.32	<1	<1	
22F0996-01	Town System - 6006 Cottonwood Dr	2022-06-07	2022-06-07	0.66	<1	<1	
22F3171-01	Town System - 6006 Cottonwood Dr	2022-06-21	2022-06-21	0.8	<1	<1	
22F4170-01	Town System - 6006 Cottonwood Dr	2022-06-28	2022-06-28	0.72	<1	<1	
22G0363-01	Town System - 6006 Cottonwood Dr	2022-07-05	2022-07-05	0.77	<1	<1	
22G1418-01	Town System - 6006 Cottonwood Dr	2022-07-12	2022-07-13	0.89	<1	<1	
22G2521-01	Town System - 6006 Cottonwood Dr	2022-07-19	2022-07-20	0.80	<1	<1	
22G3551-01	Town System - 6006 Cottonwood Dr	2022-07-26	2022-07-27	0.68	<1	<1	
22H0493-01	Town System - 6006 Cottonwood Dr	2022-08-03	2022-08-04	0.72	<1	<1	
22H1435-01	Town System - 6006 Cottonwood Dr	2022-08-09	2022-08-10	0.83	<1	<1	
22H2426-01	Town System - 6006 Cottonwood Dr	2022-08-16	2022-08-17	0.95	<1	<1	
22H4358-01	Town System - 6006 Cottonwood Dr	2022-08-30	2022-08-30	0.83	<1	<1	
22I0626-01	Town System - 6006 Cottonwood Dr	2022-09-06	2022-09-07	0.93	<1	<1	
22I1702-01	Town System - 6006 Cottonwood Dr	2022-09-13	2022-09-14	0.73	<1	<1	
22I2806-01	Town System - 6006 Cottonwood Dr	2022-09-20	2022-09-21	0.47	<1	<1	
22J2294-01	Town System - 6006 Cottonwood Dr	2022-10-18	2022-10-18	0.84	<1	<1	
22J3224-01	Town System - 6006 Cottonwood Dr	2022-10-25	2022-10-25	1.01	<1	<1	
22K1102-01	Town System - 6006 Cottonwood Dr	2022-11-08	2022-11-09	0.83	<1	<1	
22K2020-01	Town System - 6006 Cottonwood Dr	2022-11-15	2022-11-16	0.8	<1	<1	
22K2693-01	Town System - 6006 Cottonwood Dr	2022-11-22	2022-11-22	0.88	<1	<1	
22L0399-01	Town System - 6006 Cottonwood Dr	2022-12-05	2022-12-05	0.06	<1	<1	
22L0568-01	Town System - 6006 Cottonwood Dr	2022-12-06	2022-12-06	0.62	<1	<1	
22L1406-01	Town System - 6006 Cottonwood Dr	2022-12-13	2022-12-13	0.99	<1	<1	

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22L2233-01	Town System - 6006 Cottonwood Dr	2022-12-20	2022-12-21	0.77	<1	<1	
22C3002-01	Town System - 6601 89 St	2022-03-22	2022-03-22		<1	<1	
22D2137-01	Town System - 6601 89 St	2022-04-19	2022-04-19		<1	<1	
22C3008-01	Town System - 6807 Maple Dr	2022-03-22	2022-03-22		<1	<1	
22D2135-01	Town System - 6807 Maple Dr	2022-04-19	2022-04-19		<1	<1	
22D2135-01	Town System - 6807 Maple Dr	2022-04-19	2022-04-19		<1	<1	
22H0683-01	Town System - 7 Wren Place	2022-08-04	2022-08-05	0.1	<1	<1	
22H1068-01	Town System - 7 Wren Place	2022-08-08	2022-08-08	0.46	<1	<1	
22D2144-01	Town System - 8313 Kingfisher	2022-04-19	2022-04-19		<1	<1	>200
22B3056-01	Town System - 8504 70th Ave	2022-02-23	2022-02-23	0.87	<1	<1	
22E2293-01	Town System - 8711 92 Ave	2022-05-17	2022-05-18	0.26	<1	<1	
22C3271-01	Town System - 9 Quail Place	2022-03-23	2022-03-24	0.92	<1	<1	
22C3530-01	Town System - 9 Quail Place	2022-03-24	2022-03-25	0.81	<1	<1	
22C3010-01	Town System - 92nd/Spartan Dr.	2022-03-22	2022-03-22		<1	<1	
22D2138-01	Town System - 92nd/Spartan Dr.	2022-04-19	2022-04-19		<1	<1	
22A0946-03	Town System - 9301 Hummingbird Lane	2022-01-11	2022-01-11	0.93	<1	<1	
22A1938-01	Town System - 9301 Hummingbird Lane	2022-01-18	2022-01-18	0.95	<1	<1	
22A3024-01	Town System - 9301 Hummingbird Lane	2022-01-25	2022-01-25	0.92	<1	<1	
22B0240-01	Town System - 9301 Hummingbird Lane	2022-02-01	2022-02-02	0.87	<1	<1	
22B1103-03	Town System - 9301 Hummingbird Lane	2022-02-08	2022-02-08	0.82	<1	<1	
22B2092-01	Town System - 9301 Hummingbird Lane	2022-02-15	2022-02-15	1.01	<1	<1	
22B3047-01	Town System - 9301 Hummingbird Lane	2022-02-23	2022-02-23	0.8	<1	<1	
22C0277-06	Town System - 9301 Hummingbird Lane	2022-03-01	2022-03-02	0.76	<1	<1	
22C1188-01	Town System - 9301 Hummingbird Lane	2022-03-08	2022-03-08	0.91	<1	<1	
22C2056-01	Town System - 9301 Hummingbird Lane	2022-03-15	2022-03-15	0.86	<1	<1	>200
22C2531-01	Town System - 9301 Hummingbird Lane	2022-03-18	2022-03-18	1.02	<1	<1	
22C3018-01	Town System - 9301 Hummingbird Lane	2022-03-22	2022-03-22	1.04	<1	<1	>200
22C4026-01	Town System - 9301 Hummingbird Lane	2022-03-29	2022-03-30	0.96	<1	<1	
22D1524-01	Town System - 9301 Hummingbird Lane	2022-04-12	2022-04-12	1.28	<1	<1	
22D2140-01	Town System - 9301 Hummingbird Lane	2022-04-19	2022-04-19	1.07	<1	<1	>200
22D3130-01	Town System - 9301 Hummingbird Lane	2022-04-26	2022-04-26	0.43	<1	<1	>200
22E0323-03	Town System - 9301 Hummingbird Lane	2022-05-03	2022-05-04	1.21	<1	<1	
22E1270-01	Town System - 9301 Hummingbird Lane	2022-05-10	2022-05-10	0.59	<1	<1	
22E2284-01	Town System - 9301 Hummingbird Lane	2022-05-17	2022-05-18	0.92	<1	<1	
22E3224-01	Town System - 9301 Hummingbird Lane	2022-05-24	2022-05-25	1.1	<1	<1	
22E4128-05	Town System - 9301 Hummingbird Lane	2022-05-31	2022-05-31	0.91	<1	<1	
22F0991-01	Town System - 9301 Hummingbird Lane	2022-06-07	2022-06-07	0.75	<1	<1	
22F3174-01	Town System - 9301 Hummingbird Lane	2022-06-21	2022-06-21	0.8	<1	<1	
22F4167-01	Town System - 9301 Hummingbird Lane	2022-06-28	2022-06-28	0.91	<1	<1	
22G0360-01	Town System - 9301 Hummingbird Lane	2022-07-05	2022-07-05	0.7	<1	<1	
22G1416-01	Town System - 9301 Hummingbird Lane	2022-07-12	2022-07-13	0.62	<1	<1	
22G2522-01	Town System - 9301 Hummingbird Lane	2022-07-19	2022-07-20	0.81	<1	<1	
22G3552-01	Town System - 9301 Hummingbird Lane	2022-07-26	2022-07-27	0.82	<1	<1	
22H0494-01	Town System - 9301 Hummingbird Lane	2022-08-03	2022-08-04	1	<1	<1	
22H1438-01	Town System - 9301 Hummingbird Lane	2022-08-09	2022-08-10	1.12	<1	<1	
22H2427-01	Town System - 9301 Hummingbird Lane	2022-08-16	2022-08-17	1.14	<1	<1	

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22H4362-01	Town System - 9301 Hummingbird Lane	2022-08-30	2022-08-30	1.21	<1	<1	
22I0627-01	Town System - 9301 Hummingbird Lane	2022-09-06	2022-09-07	1.09	<1	<1	
22I1703-01	Town System - 9301 Hummingbird Lane	2022-09-13	2022-09-14	1.09	<1	<1	
22I2798-01	Town System - 9301 Hummingbird Lane	2022-09-20	2022-09-21	1.06	<1	<1	
22J1286-01	Town System - 9301 Hummingbird Lane	2022-10-11	2022-10-11	1.61	<1	<1	
22J2304-01	Town System - 9301 Hummingbird Lane	2022-10-18	2022-10-18	1.22	<1	<1	
22J3226-01	Town System - 9301 Hummingbird Lane	2022-10-25	2022-10-25	0.64	<1	<1	
22K1103-01	Town System - 9301 Hummingbird Lane	2022-11-08	2022-11-09	0.21	<1	<1	
22K2014-01	Town System - 9301 Hummingbird Lane	2022-11-15	2022-11-15	0.9	<1	<1	
22K2690-01	Town System - 9301 Hummingbird Lane	2022-11-22	2022-11-22	0.97	<1	<1	
22L0570-01	Town System - 9301 Hummingbird Lane	2022-12-06	2022-12-06	1.19	<1	<1	
22L1407-01	Town System - 9301 Hummingbird Lane	2022-12-13	2022-12-13	1.11	<1	<1	
22C3273-01	Town System - 9506 62 Ave.	2022-03-23	2022-03-24	0.69	<1	<1	
22C3530-02	Town System - 9506 62 Ave.	2022-03-24	2022-03-25	0.72	<1	<1	
22C0277-02	Town System - Reservoir - 340 Reservoir	2022-03-01	2022-03-02	0.78	<1	<1	
22E4128-07	Town System - Reservoir - 340 Reservoir	2022-05-31	2022-05-31	0.56	<1	<1	
22K2683-01	Town System - Reservoir - 340 Reservoir	2022-11-22	2022-11-22	1.67	<1	<1	
22B2078-01	Town System - Reservoir - 402 Reservoir	2022-02-15	2022-02-15	0.29	<1	<1	
22C0277-01	Town System - Reservoir - 402 Reservoir	2022-03-01	2022-03-02	0.72	<1	<1	
22E0323-01	Town System - Reservoir - 402 Reservoir	2022-05-03	2022-05-04	0.46	<1	<1	
22E2277-01	Town System - Reservoir - 402 Reservoir	2022-05-17	2022-05-18	0.22	<1	<1	
22E4128-08	Town System - Reservoir - 402 Reservoir	2022-05-31	2022-05-31	0.53	<1	<1	
22H1433-01	Town System - Reservoir - 402 Reservoir	2022-08-09	2022-08-10	0.44	<1	<1	
22K2682-01	Town System - Reservoir - 402 Reservoir	2022-11-22	2022-11-22	1.58	<1	<1	
22L0567-01	Town System - Reservoir - 402 Reservoir	2022-12-06	2022-12-06	0.48	<1	<1	
22C0277-03	Town System - Reservoir - Fairway Hills Reservoir	2022-03-01	2022-03-02	0.84	<1	<1	
22E4128-02	Town System - Reservoir - Fairway Hills Reservoir	2022-05-31	2022-05-31	0.31	<1	<1	
22E4128-03	Town System - Reservoir - Fairway Hills Reservoir	2022-05-31	2022-05-31	1.22	<1	<1	
22F3170-01	Town System - Reservoir - Fairway Hills Reservoir	2022-06-21	2022-06-21	0.61	<1	<1	
22H0489-01	Town System - Reservoir - Fairway Hills Reservoir	2022-08-03	2022-08-04	0.39	<1	<1	
22H2424-01	Town System - Reservoir - Fairway Hills Reservoir	2022-08-16	2022-08-17	0.58	<1	<1	
22J2296-01	Town System - Reservoir - Fairway Hills Reservoir	2022-10-18	2022-10-18	0.27	<1	<1	
22K2686-01	Town System - Reservoir - Fairway Hills Reservoir	2022-11-22	2022-11-22	1.52	<1	<1	
22L0400-01	Town System - Tamarack Drive	2022-12-05	2022-12-05	0.75	<1	<1	
22L0571-01	Town System - Tamarack Drive	2022-12-06	2022-12-06	0.49	<1	<1	
22A3095-03	Well #1	2022-01-25	2022-01-25		<1	<1	
22E2285-01	Well #1	2022-05-17	2022-05-18	0.16	<1	<1	
22E2285-01	Well #1	2022-05-17	2022-05-18		<1	<1	
22F2080-02	Well #1	2022-06-14	2022-06-14		<1	<1	
22F3180-01	Well #1	2022-06-21	2022-06-21		<1	<1	
22F4176-01	Well #1	2022-06-28	2022-06-28		<1	<1	
22G0359-01	Well #1	2022-07-05	2022-07-05		<1	<1	
22G1414-05	Well #1	2022-07-12	2022-07-13		<1	<1	
22G2518-05	Well #1	2022-07-19	2022-07-20		<1	<1	
22H1446-05	Well #1	2022-08-09	2022-08-10		<1	<1	
22I0623-05	Well #1	2022-09-06	2022-09-07		<1	<1	

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22K3547-02	Well #1	2022-11-29	2022-11-30		<1	<1	
22B3057-01	Well #1	2022-02-23	2022-02-23		<1	<1	
22A3095-01	Well #3	2022-01-25	2022-01-25		<1	<1	
22B3057-02	Well #3	2022-02-23	2022-02-23		<1	<1	
22E2287-01	Well #3	2022-05-17	2022-05-18	0.09	<1	<1	
22E2287-01	Well #3	2022-05-17	2022-05-18		<1	<1	
22F2080-03	Well #3	2022-06-14	2022-06-14		<1	<1	
22F3176-01	Well #3	2022-06-21	2022-06-21		<1	<1	
22F4172-01	Well #3	2022-06-28	2022-06-28		<1	<1	
22G0359-03	Well #3	2022-07-05	2022-07-05		<1	<1	
22G1414-01	Well #3	2022-07-12	2022-07-13		<1	<1	
22G2518-03	Well #3	2022-07-19	2022-07-20		<1	<1	
22H1446-03	Well #3	2022-08-09	2022-08-10		<1	<1	
22I0623-03	Well #3	2022-09-06	2022-09-07		<1	<1	
22K3547-01	Well #3	2022-11-29	2022-11-30		<1	<1	
22L0574-01	Well #3	2022-12-06	2022-12-06		<1	<1	
22E2288-01	Well #4	2022-05-17	2022-05-18	0.08	<1	<1	
22E2288-01	Well #4	2022-05-17	2022-05-18		<1	<1	
22F2080-04	Well #4	2022-06-14	2022-06-14		<1	<1	
22F3177-01	Well #4	2022-06-21	2022-06-21		<1	<1	
22F4173-01	Well #4	2022-06-28	2022-06-28		<1	<1	
22G0359-04	Well #4	2022-07-05	2022-07-05		<1	<1	
22G1414-02	Well #4	2022-07-12	2022-07-13		<1	<1	
22G2518-01	Well #4	2022-07-19	2022-07-20		<1	<1	
22H1446-01	Well #4	2022-08-09	2022-08-10		<1	<1	
22I0623-01	Well #4	2022-09-06	2022-09-07		<1	<1	
22E4128-10	Well #5	2022-05-31	2022-05-31		<1	<1	
22F2080-05	Well #5	2022-06-14	2022-06-14		<1	<1	
22F3178-01	Well #5	2022-06-21	2022-06-21		<1	<1	
22F4174-01	Well #5	2022-06-28	2022-06-28		<1	<1	
22G0359-05	Well #5	2022-07-05	2022-07-05		<1	<1	
22G1414-03	Well #5	2022-07-12	2022-07-13		<1	<1	
22G2518-02	Well #5	2022-07-19	2022-07-20		<1	<1	
22H1446-02	Well #5	2022-08-09	2022-08-10		<1	<1	
22I0623-02	Well #5	2022-09-06	2022-09-07		<1	<1	
22B3057-03	Well #6	2022-02-23	2022-02-23		<1	<1	
22E2289-01	Well #6	2022-05-17	2022-05-18	0.1	<1	<1	
22E2289-01	Well #6	2022-05-17	2022-05-18		<1	<1	
22K3547-03	Well #6	2022-11-29	2022-11-30		<1	<1	
22A3095-02	Well #6	2022-01-25	2022-01-25		<1	<1	
22E2290-01	Well #8	2022-05-17	2022-05-18	0.16	<1	<1	
22E2290-01	Well #8	2022-05-17	2022-05-18		<1	<1	
22F2080-01	Well #8	2022-06-14	2022-06-14		<1	<1	
22F3179-01	Well #8	2022-06-21	2022-06-21		<1	<1	
22F4175-01	Well #8	2022-06-28	2022-06-28		<1	<1	
22G0359-02	Well #8	2022-07-05	2022-07-05		<1	<1	

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	Chlorine, Total (mg/L)	Coliforms, Total (CFU/100 mL)	E. coli (CFU/100 mL)	Background Colonies (CFU/100 mL)
22G1414-04	Well #8	2022-07-12	2022-07-13		<1	<1	
22G2518-04	Well #8	2022-07-19	2022-07-20		<1	<1	
22H1446-04	Well #8	2022-08-09	2022-08-10		<1	<1	
22I0623-04	Well #8	2022-09-06	2022-09-07		<1	<1	

APPENDIX C

Water Supply Wells and Lake Intakes

Full Spectrum Quality Analysis

CARO ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

REPORTED TO	Osoyoos, Town of PO Box 3010 OSOYOOS, BC V0H 1V0		
ATTENTION	Jared Brounstein	**WORK ORDER**	22A3099
PO NUMBER		**RECEIVED / TEMP**	2022-01-26 17:00 / 10.6°C
PROJECT	General Potability	**REPORTED**	2022-02-02 12:59
PROJECT INFO		**COC NUMBER**	No Number

Introduction:

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Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead
Client Service Team Lead

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22A3099
PROJECT	General Potability	**REPORTED**	2022-02-02 12:59

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #3 Town System (22A3099-01) | Matrix: Water | Sampled: 2022-01-25 11:30						
Anions						
Chloride	**17.7**	AO ≤ 250	0.10	mg/L	2022-01-27	
Fluoride	**0.41**	MAC = 1.5	0.10	mg/L	2022-01-27	
Nitrate (as N)	**3.55**	MAC = 10	0.010	mg/L	2022-01-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-01-27	
Sulfate	**55.8**	AO ≤ 500	1.0	mg/L	2022-01-27	
Calculated Parameters						
Hardness, Total (as CaCO3)	**308**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**407**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**288**	N/A	1.0	mg/L	2022-01-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-01-27	
Alkalinity, Bicarbonate (as CaCO3)	**288**	N/A	1.0	mg/L	2022-01-27	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-01-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-01-27	
Conductivity (EC)	**678**	N/A	2.0	µS/cm	2022-01-27	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-01-27	
pH	**7.46**	7.0-10.5	0.10	pH units	2022-01-27	HT2
Turbidity	< 0.10	OG < 1	0.10	NTU	2022-01-27	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-02-01	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-02-01	
Arsenic, total	**0.00134**	MAC = 0.01	0.00050	mg/L	2022-02-01	
Barium, total	**0.0867**	MAC = 2	0.0050	mg/L	2022-02-01	
Boron, total	**0.0613**	MAC = 5	0.0500	mg/L	2022-02-01	
Cadmium, total	**0.000034**	MAC = 0.005	0.000010	mg/L	2022-02-01	
Calcium, total	**84.1**	None Required	0.20	mg/L	2022-02-01	
Chromium, total	**0.00097**	MAC = 0.05	0.00050	mg/L	2022-02-01	
Copper, total	**0.0115**	MAC = 2	0.00040	mg/L	2022-02-01	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-02-01	
Lead, total	**0.00029**	MAC = 0.005	0.00020	mg/L	2022-02-01	
Magnesium, total	**23.9**	None Required	0.010	mg/L	2022-02-01	
Manganese, total	**0.0392**	MAC = 0.12	0.00020	mg/L	2022-02-01	
Potassium, total	**6.78**	N/A	0.10	mg/L	2022-02-01	
Selenium, total	**0.00139**	MAC = 0.05	0.00050	mg/L	2022-02-01	
Sodium, total	**27.3**	AO ≤ 200	0.10	mg/L	2022-02-01	
Strontium, total	**0.947**	MAC = 7	0.0010	mg/L	2022-02-01	
Uranium, total	**0.0116**	MAC = 0.02	0.000020	mg/L	2022-02-01	
Zinc, total	**0.0090**	AO ≤ 5	0.0040	mg/L	2022-02-01	
Well #6 (22A3099-02) | Matrix: Water | Sampled: 2022-01-25 12:10						

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22A3099
PROJECT	General Potability	**REPORTED**	2022-02-02 12:59

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #6 (22A3099-02) | Matrix: Water | Sampled: 2022-01-25 12:10, Continued						
Anions						
Chloride	**23.7**	AO ≤ 250	0.10	mg/L	2022-01-27	
Fluoride	**0.38**	MAC = 1.5	0.10	mg/L	2022-01-27	
Nitrate (as N)	**3.63**	MAC = 10	0.010	mg/L	2022-01-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-01-27	
Sulfate	**64.1**	AO ≤ 500	1.0	mg/L	2022-01-27	
Calculated Parameters						
Hardness, Total (as CaCO3)	**325**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**444**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**305**	N/A	1.0	mg/L	2022-01-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-01-27	
Alkalinity, Bicarbonate (as CaCO3)	**305**	N/A	1.0	mg/L	2022-01-27	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-01-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-01-27	
Conductivity (EC)	**736**	N/A	2.0	µS/cm	2022-01-27	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-01-27	
pH	**7.56**	7.0-10.5	0.10	pH units	2022-01-27	HT2
Turbidity	**0.14**	OG < 1	0.10	NTU	2022-01-27	
Total Metals						
Aluminum, total	**0.0208**	OG < 0.1	0.0050	mg/L	2022-02-02	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-02-02	
Arsenic, total	**0.00474**	MAC = 0.01	0.00050	mg/L	2022-02-02	
Barium, total	**0.0758**	MAC = 2	0.0050	mg/L	2022-02-02	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-02-02	
Cadmium, total	**0.000042**	MAC = 0.005	0.000010	mg/L	2022-02-02	
Calcium, total	**76.4**	None Required	0.20	mg/L	2022-02-02	
Chromium, total	**0.00095**	MAC = 0.05	0.00050	mg/L	2022-02-02	
Copper, total	**0.0390**	MAC = 2	0.00040	mg/L	2022-02-02	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-02-02	
Lead, total	**0.00403**	MAC = 0.005	0.00020	mg/L	2022-02-02	
Magnesium, total	**32.5**	None Required	0.010	mg/L	2022-02-02	
Manganese, total	**0.106**	MAC = 0.12	0.00020	mg/L	2022-02-02	
Potassium, total	**6.73**	N/A	0.10	mg/L	2022-02-02	
Selenium, total	**0.00085**	MAC = 0.05	0.00050	mg/L	2022-02-02	
Sodium, total	**38.5**	AO ≤ 200	0.10	mg/L	2022-02-02	
Strontium, total	**0.908**	MAC = 7	0.0010	mg/L	2022-02-02	
Uranium, total	**0.00874**	MAC = 0.02	0.000020	mg/L	2022-02-02	
Zinc, total	**0.136**	AO ≤ 5	0.0040	mg/L	2022-02-02	
Well #1 (22A3099-03) | Matrix: Water | Sampled: 2022-01-25 13:15						

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22A3099
PROJECT	General Potability	**REPORTED**	2022-02-02 12:59

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #1 (22A3099-03) | Matrix: Water | Sampled: 2022-01-25 13:15, Continued						
Anions						
Chloride	**41.2**	AO ≤ 250	0.10	mg/L	2022-01-27	
Fluoride	**0.27**	MAC = 1.5	0.10	mg/L	2022-01-27	
Nitrate (as N)	**6.06**	MAC = 10	0.010	mg/L	2022-01-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-01-27	
Sulfate	**75.2**	AO ≤ 500	1.0	mg/L	2022-01-27	
Calculated Parameters						
Hardness, Total (as CaCO3)	**312**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**449**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**245**	N/A	1.0	mg/L	2022-01-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-01-27	
Alkalinity, Bicarbonate (as CaCO3)	**245**	N/A	1.0	mg/L	2022-01-27	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-01-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-01-27	
Conductivity (EC)	**759**	N/A	2.0	µS/cm	2022-01-27	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-01-27	
pH	**7.47**	7.0-10.5	0.10	pH units	2022-01-27	HT2
Turbidity	< 0.10	OG < 1	0.10	NTU	2022-01-27	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-02-02	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-02-02	
Arsenic, total	**0.00454**	MAC = 0.01	0.00050	mg/L	2022-02-02	
Barium, total	**0.0598**	MAC = 2	0.0050	mg/L	2022-02-02	
Boron, total	**0.0513**	MAC = 5	0.0500	mg/L	2022-02-02	
Cadmium, total	**0.000034**	MAC = 0.005	0.000010	mg/L	2022-02-02	
Calcium, total	**91.9**	None Required	0.20	mg/L	2022-02-02	
Chromium, total	**0.00073**	MAC = 0.05	0.00050	mg/L	2022-02-02	
Copper, total	**0.0212**	MAC = 2	0.00040	mg/L	2022-02-02	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-02-02	
Lead, total	**0.00047**	MAC = 0.005	0.00020	mg/L	2022-02-02	
Magnesium, total	**19.9**	None Required	0.010	mg/L	2022-02-02	
Manganese, total	**0.00083**	MAC = 0.12	0.00020	mg/L	2022-02-02	
Potassium, total	**6.38**	N/A	0.10	mg/L	2022-02-02	
Selenium, total	**0.00084**	MAC = 0.05	0.00050	mg/L	2022-02-02	
Sodium, total	**38.6**	AO ≤ 200	0.10	mg/L	2022-02-02	
Strontium, total	**0.785**	MAC = 7	0.0010	mg/L	2022-02-02	
Uranium, total	**0.00739**	MAC = 0.02	0.000020	mg/L	2022-02-02	
Zinc, total	**0.0165**	AO ≤ 5	0.0040	mg/L	2022-02-02	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22A3099
PROJECT	General Potability	**REPORTED**	2022-02-02 12:59

Sample Qualifiers:

HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22A3099
PROJECT	General Potability	**REPORTED**	2022-02-02 12:59

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Hardness in Water	SM 2340 B* (2017)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2017)	SM 1030 E (2011)		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2017)	Nephelometry	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22A3099
PROJECT	General Potability	**REPORTED**	2022-02-02 12:59

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing. The quality control (QC) data is available upon request

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

CERTIFICATE OF ANALYSIS

REPORTED TO	Osoyoos, Town of PO Box 3010 OSOYOOS, BC V0H 1V0		
ATTENTION	Jared Brounstein	**WORK ORDER**	22D3136
PO NUMBER		**RECEIVED / TEMP**	2022-04-26 14:30 / 11.4°C
PROJECT	General Potability	**REPORTED**	2022-05-02 13:05
PROJECT INFO		**COC NUMBER**	No Number

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Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead
Account Manager

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22D3136
PROJECT	General Potability	**REPORTED**	2022-05-02 13:05

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
System #8, Station #8 Intake (22D3136-01) | Matrix: Water | Sampled: 2022-04-26 09:15						
Anions						
Chloride	**9.16**	AO ≤ 250	0.10	mg/L	2022-04-27	
Fluoride	**0.30**	MAC = 1.5	0.10	mg/L	2022-04-27	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2022-04-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-04-27	
Sulfate	**30.7**	AO ≤ 500	1.0	mg/L	2022-04-27	
Calculated Parameters						
Hardness, Total (as CaCO3)	**126**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**180**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**133**	N/A	1.0	mg/L	2022-04-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-04-30	
Alkalinity, Bicarbonate (as CaCO3)	**133**	N/A	1.0	mg/L	2022-04-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-04-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-04-30	
Conductivity (EC)	**311**	N/A	2.0	µS/cm	2022-04-30	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-04-30	
pH	**8.01**	7.0-10.5	0.10	pH units	2022-04-30	HT2
Turbidity	**0.97**	OG < 1	0.10	NTU	2022-04-26	
Total Metals						
Aluminum, total	**0.0128**	OG < 0.1	0.0050	mg/L	2022-04-30	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-04-30	
Arsenic, total	**0.00061**	MAC = 0.01	0.00050	mg/L	2022-04-30	
Barium, total	**0.0271**	MAC = 2	0.0050	mg/L	2022-04-30	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-04-30	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2022-04-30	
Calcium, total	**33.3**	None Required	0.20	mg/L	2022-04-30	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-04-30	
Copper, total	**0.0111**	MAC = 2	0.00040	mg/L	2022-04-30	
Iron, total	**0.023**	AO ≤ 0.3	0.010	mg/L	2022-04-30	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-04-30	
Magnesium, total	**10.4**	None Required	0.010	mg/L	2022-04-30	
Manganese, total	**0.00994**	MAC = 0.12	0.00020	mg/L	2022-04-30	
Potassium, total	**2.62**	N/A	0.10	mg/L	2022-04-30	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-04-30	
Sodium, total	**12.5**	AO ≤ 200	0.10	mg/L	2022-04-30	
Strontium, total	**0.329**	MAC = 7	0.0010	mg/L	2022-04-30	
Uranium, total	**0.00278**	MAC = 0.02	0.000020	mg/L	2022-04-30	
Zinc, total	**0.0082**	AO ≤ 5	0.0040	mg/L	2022-04-30	
System #9, Station #9 Intake (22D3136-02) | Matrix: Water | Sampled: 2022-04-26 11:40						

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22D3136
PROJECT	General Potability	**REPORTED**	2022-05-02 13:05

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
System #9, Station #9 Intake (22D3136-02) | Matrix: Water | Sampled: 2022-04-26 11:40, Continued						
Anions						
Chloride	**8.86**	AO ≤ 250	0.10	mg/L	2022-04-27	
Fluoride	**0.26**	MAC = 1.5	0.10	mg/L	2022-04-27	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2022-04-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-04-27	
Sulfate	**30.5**	AO ≤ 500	1.0	mg/L	2022-04-27	
Calculated Parameters						
Hardness, Total (as CaCO3)	**123**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**176**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**130**	N/A	1.0	mg/L	2022-04-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-04-30	
Alkalinity, Bicarbonate (as CaCO3)	**130**	N/A	1.0	mg/L	2022-04-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-04-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-04-30	
Conductivity (EC)	**309**	N/A	2.0	µS/cm	2022-04-30	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-04-30	
pH	**7.89**	7.0-10.5	0.10	pH units	2022-04-30	HT2
Turbidity	**1.19**	OG < 1	0.10	NTU	2022-04-26	
Total Metals						
Aluminum, total	**0.0166**	OG < 0.1	0.0050	mg/L	2022-04-30	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-04-30	
Arsenic, total	**0.00064**	MAC = 0.01	0.00050	mg/L	2022-04-30	
Barium, total	**0.0263**	MAC = 2	0.0050	mg/L	2022-04-30	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-04-30	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2022-04-30	
Calcium, total	**32.2**	None Required	0.20	mg/L	2022-04-30	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-04-30	
Copper, total	**0.00518**	MAC = 2	0.00040	mg/L	2022-04-30	
Iron, total	**0.026**	AO ≤ 0.3	0.010	mg/L	2022-04-30	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-04-30	
Magnesium, total	**10.2**	None Required	0.010	mg/L	2022-04-30	
Manganese, total	**0.00956**	MAC = 0.12	0.00020	mg/L	2022-04-30	
Potassium, total	**2.56**	N/A	0.10	mg/L	2022-04-30	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-04-30	
Sodium, total	**12.3**	AO ≤ 200	0.10	mg/L	2022-04-30	
Strontium, total	**0.317**	MAC = 7	0.0010	mg/L	2022-04-30	
Uranium, total	**0.00270**	MAC = 0.02	0.000020	mg/L	2022-04-30	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2022-04-30	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22D3136
PROJECT	General Potability	**REPORTED**	2022-05-02 13:05

Sample Qualifiers:

HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22D3136
PROJECT	General Potability	**REPORTED**	2022-05-02 13:05

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Hardness in Water	SM 2340 B* (2017)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2017)	SM 1030 E (2011)		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2017)	Nephelometry	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22D3136
PROJECT	General Potability	**REPORTED**	2022-05-02 13:05

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing. The quality control (QC) data is available upon request

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

CERTIFICATE OF ANALYSIS

REPORTED TO	Osoyoos, Town of PO Box 3010 OSOYOOS, BC V0H 1V0		
ATTENTION	Mike Lange	**WORK ORDER**	22E3274
PO NUMBER		**RECEIVED / TEMP**	2022-05-25 08:30 / 15.3°C
PROJECT	General Potability	**REPORTED**	2022-06-01 14:02
PROJECT INFO		**COC NUMBER**	No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead
Account Manager

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22E3274
PROJECT	General Potability	**REPORTED**	2022-06-01 14:02

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #3 (22E3274-01) | Matrix: Water | Sampled: 2022-05-24 08:05						
Anions						
Chloride	**14.3**	AO ≤ 250	0.10	mg/L	2022-05-25	
Fluoride	**0.51**	MAC = 1.5	0.10	mg/L	2022-05-25	
Nitrate (as N)	**2.31**	MAC = 10	0.010	mg/L	2022-05-25	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-05-25	
Sulfate	**46.4**	AO ≤ 500	1.0	mg/L	2022-05-25	
Calculated Parameters						
Hardness, Total (as CaCO3)	**258**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.6**	N/A	-5.0		2022-06-01	
Solids, Total Dissolved	**362**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**281**	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Bicarbonate (as CaCO3)	**281**	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2022-05-26	
Conductivity (EC)	**621**	N/A	2.0	µS/cm	2022-05-31	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-05-31	
pH	**7.71**	7.0-10.5	0.10	pH units	2022-05-31	HT2
Temperature, at pH	**24.2**	N/A		°C	2022-05-31	HT2
Turbidity	< 0.10	OG < 1	0.10	NTU	2022-05-26	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-05-29	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-05-29	
Arsenic, total	**0.00138**	MAC = 0.01	0.00050	mg/L	2022-05-29	
Barium, total	**0.0777**	MAC = 2	0.0050	mg/L	2022-05-29	
Boron, total	**0.0542**	MAC = 5	0.0500	mg/L	2022-05-29	
Cadmium, total	**0.000026**	MAC = 0.005	0.000010	mg/L	2022-05-29	
Calcium, total	**69.8**	None Required	0.20	mg/L	2022-05-29	
Chromium, total	**0.00066**	MAC = 0.05	0.00050	mg/L	2022-05-29	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2022-05-29	
Copper, total	**0.00558**	MAC = 2	0.00040	mg/L	2022-05-29	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-05-29	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-05-29	
Magnesium, total	**20.2**	None Required	0.010	mg/L	2022-05-29	
Manganese, total	**0.0354**	MAC = 0.12	0.00020	mg/L	2022-05-29	
Mercury, total	< 0.000040	MAC = 0.001	0.000040	mg/L	2022-05-29	HG1
Molybdenum, total	**0.00729**	N/A	0.00010	mg/L	2022-05-29	
Nickel, total	**0.00074**	N/A	0.00040	mg/L	2022-05-29	
Potassium, total	**5.87**	N/A	0.10	mg/L	2022-05-29	
Selenium, total	**0.00111**	MAC = 0.05	0.00050	mg/L	2022-05-29	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22E3274
PROJECT	General Potability	**REPORTED**	2022-06-01 14:02

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #3 (22E3274-01) | Matrix: Water | Sampled: 2022-05-24 08:05, Continued						
Total Metals, Continued						
Sodium, total	**24.0**	AO ≤ 200	0.10	mg/L	2022-05-29	
Strontium, total	**0.850**	MAC = 7	0.0010	mg/L	2022-05-29	
Uranium, total	**0.00936**	MAC = 0.02	0.000020	mg/L	2022-05-29	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2022-05-29	
Well #4 (22E3274-02) | Matrix: Water | Sampled: 2022-05-24 08:50						
Anions						
Chloride	**6.07**	AO ≤ 250	0.10	mg/L	2022-05-25	
Fluoride	**0.43**	MAC = 1.5	0.10	mg/L	2022-05-25	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2022-05-25	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-05-25	
Sulfate	**32.9**	AO ≤ 500	1.0	mg/L	2022-05-25	
Calculated Parameters						
Hardness, Total (as CaCO3)	**215**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.5**	N/A	-5.0		2022-06-01	
Solids, Total Dissolved	**296**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**265**	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Bicarbonate (as CaCO3)	**265**	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2022-05-26	
Conductivity (EC)	**514**	N/A	2.0	µS/cm	2022-05-31	
Cyanide, Total	**0.0024**	MAC = 0.2	0.0020	mg/L	2022-05-31	
pH	**7.87**	7.0-10.5	0.10	pH units	2022-05-31	HT2
Temperature, at pH	**24.0**	N/A		°C	2022-05-31	HT2
Turbidity	**0.71**	OG < 1	0.10	NTU	2022-05-26	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-05-29	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-05-29	
Arsenic, total	**0.00503**	MAC = 0.01	0.00050	mg/L	2022-05-29	
Barium, total	**0.141**	MAC = 2	0.0050	mg/L	2022-05-29	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-05-29	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2022-05-29	
Calcium, total	**39.0**	None Required	0.20	mg/L	2022-05-29	
Chromium, total	**0.00119**	MAC = 0.05	0.00050	mg/L	2022-05-29	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2022-05-29	
Copper, total	**0.00044**	MAC = 2	0.00040	mg/L	2022-05-29	
Iron, total	**0.237**	AO ≤ 0.3	0.010	mg/L	2022-05-29	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22E3274
PROJECT	General Potability	**REPORTED**	2022-06-01 14:02

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #4 (22E3274-02) | Matrix: Water | Sampled: 2022-05-24 08:50, Continued						
Total Metals, Continued						
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-05-29	
Magnesium, total	**28.6**	None Required	0.010	mg/L	2022-05-29	
Manganese, total	**0.125**	MAC = 0.12	0.00020	mg/L	2022-05-29	
Mercury, total	< 0.000040	MAC = 0.001	0.000040	mg/L	2022-05-29	HG1
Molybdenum, total	**0.00642**	N/A	0.00010	mg/L	2022-05-29	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2022-05-29	
Potassium, total	**5.26**	N/A	0.10	mg/L	2022-05-29	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-05-29	
Sodium, total	**22.5**	AO ≤ 200	0.10	mg/L	2022-05-29	
Strontium, total	**0.615**	MAC = 7	0.0010	mg/L	2022-05-29	
Uranium, total	**0.00121**	MAC = 0.02	0.000020	mg/L	2022-05-29	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2022-05-29	
Well #1 (22E3274-03) | Matrix: Water | Sampled: 2022-05-24 09:20						
Anions						
Chloride	**33.8**	AO ≤ 250	0.10	mg/L	2022-05-25	
Fluoride	**0.39**	MAC = 1.5	0.10	mg/L	2022-05-25	
Nitrate (as N)	**4.52**	MAC = 10	0.010	mg/L	2022-05-25	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-05-25	
Sulfate	**68.6**	AO ≤ 500	1.0	mg/L	2022-05-25	
Calculated Parameters						
Hardness, Total (as CaCO3)	**245**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.5**	N/A	-5.0		2022-06-01	
Solids, Total Dissolved	**388**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**232**	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Bicarbonate (as CaCO3)	**232**	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2022-05-26	
Conductivity (EC)	**662**	N/A	2.0	µS/cm	2022-05-31	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-05-27	
pH	**7.64**	7.0-10.5	0.10	pH units	2022-05-31	HT2
Temperature, at pH	**24.0**	N/A		°C	2022-05-31	HT2
Turbidity	< 0.10	OG < 1	0.10	NTU	2022-05-26	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-05-29	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-05-29	
Arsenic, total	**0.00411**	MAC = 0.01	0.00050	mg/L	2022-05-29	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22E3274
PROJECT	General Potability	**REPORTED**	2022-06-01 14:02

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #1 (22E3274-03) | Matrix: Water | Sampled: 2022-05-24 09:20, Continued						
Total Metals, Continued						
Barium, total	**0.0497**	MAC = 2	0.0050	mg/L	2022-05-29	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-05-29	
Cadmium, total	**0.000024**	MAC = 0.005	0.000010	mg/L	2022-05-29	
Calcium, total	**71.9**	None Required	0.20	mg/L	2022-05-29	
Chromium, total	**0.00123**	MAC = 0.05	0.00050	mg/L	2022-05-29	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2022-05-29	
Copper, total	**0.00546**	MAC = 2	0.00040	mg/L	2022-05-29	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-05-29	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-05-29	
Magnesium, total	**15.8**	None Required	0.010	mg/L	2022-05-29	
Manganese, total	**0.00084**	MAC = 0.12	0.00020	mg/L	2022-05-29	
Mercury, total	< 0.000040	MAC = 0.001	0.000040	mg/L	2022-05-29	HG1
Molybdenum, total	**0.0120**	N/A	0.00010	mg/L	2022-05-29	
Nickel, total	**0.00087**	N/A	0.00040	mg/L	2022-05-29	
Potassium, total	**5.06**	N/A	0.10	mg/L	2022-05-29	
Selenium, total	**0.00065**	MAC = 0.05	0.00050	mg/L	2022-05-29	
Sodium, total	**31.2**	AO ≤ 200	0.10	mg/L	2022-05-29	
Strontium, total	**0.628**	MAC = 7	0.0010	mg/L	2022-05-29	
Uranium, total	**0.00564**	MAC = 0.02	0.000020	mg/L	2022-05-29	
Zinc, total	**0.0054**	AO ≤ 5	0.0040	mg/L	2022-05-29	
Well #8 (22E3274-04) | Matrix: Water | Sampled: 2022-05-24 09:50						
Anions						
Chloride	**11.7**	AO ≤ 250	0.10	mg/L	2022-05-25	
Fluoride	**0.32**	MAC = 1.5	0.10	mg/L	2022-05-25	
Nitrate (as N)	**0.766**	MAC = 10	0.010	mg/L	2022-05-25	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-05-25	
Sulfate	**47.8**	AO ≤ 500	1.0	mg/L	2022-05-25	
Calculated Parameters						
Hardness, Total (as CaCO3)	**195**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.3**	N/A	-5.0		2022-06-01	
Solids, Total Dissolved	**298**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**228**	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Bicarbonate (as CaCO3)	**228**	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2022-05-26	
Conductivity (EC)	**500**	N/A	2.0	µS/cm	2022-05-31	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22E3274
PROJECT	General Potability	**REPORTED**	2022-06-01 14:02

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #8 (22E3274-04) | Matrix: Water | Sampled: 2022-05-24 09:50, Continued						
General Parameters, Continued						
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-05-31	
pH	**7.62**	7.0-10.5	0.10	pH units	2022-05-31	HT2
Temperature, at pH	**24.1**	N/A		°C	2022-05-31	HT2
Turbidity	**0.11**	OG < 1	0.10	NTU	2022-05-26	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-05-29	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-05-29	
Arsenic, total	**0.00171**	MAC = 0.01	0.00050	mg/L	2022-05-29	
Barium, total	**0.0601**	MAC = 2	0.0050	mg/L	2022-05-29	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-05-29	
Cadmium, total	**0.000024**	MAC = 0.005	0.000010	mg/L	2022-05-29	
Calcium, total	**50.8**	None Required	0.20	mg/L	2022-05-29	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-05-29	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2022-05-29	
Copper, total	**0.00402**	MAC = 2	0.00040	mg/L	2022-05-29	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-05-29	
Lead, total	**0.00137**	MAC = 0.005	0.00020	mg/L	2022-05-29	
Magnesium, total	**16.4**	None Required	0.010	mg/L	2022-05-29	
Manganese, total	**0.0558**	MAC = 0.12	0.00020	mg/L	2022-05-29	
Mercury, total	< 0.000040	MAC = 0.001	0.000040	mg/L	2022-05-29	HG1
Molybdenum, total	**0.00867**	N/A	0.00010	mg/L	2022-05-29	
Nickel, total	**0.00050**	N/A	0.00040	mg/L	2022-05-29	
Potassium, total	**3.81**	N/A	0.10	mg/L	2022-05-29	
Selenium, total	**0.00056**	MAC = 0.05	0.00050	mg/L	2022-05-29	
Sodium, total	**24.8**	AO ≤ 200	0.10	mg/L	2022-05-29	
Strontium, total	**0.521**	MAC = 7	0.0010	mg/L	2022-05-29	
Uranium, total	**0.00578**	MAC = 0.02	0.000020	mg/L	2022-05-29	
Zinc, total	**0.0196**	AO ≤ 5	0.0040	mg/L	2022-05-29	
Well #6 (22E3274-05) | Matrix: Water | Sampled: 2022-05-24 10:50						
Anions						
Chloride	**20.5**	AO ≤ 250	0.10	mg/L	2022-05-25	
Fluoride	**0.48**	MAC = 1.5	0.10	mg/L	2022-05-25	
Nitrate (as N)	**2.84**	MAC = 10	0.010	mg/L	2022-05-25	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-05-25	
Sulfate	**66.8**	AO ≤ 500	1.0	mg/L	2022-05-25	
Calculated Parameters						
Hardness, Total (as CaCO3)	**311**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.7**	N/A	-5.0		2022-06-01	
Solids, Total Dissolved	**444**	AO ≤ 500	1.00	mg/L	N/A	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22E3274
PROJECT	General Potability	**REPORTED**	2022-06-01 14:02

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #6 (22E3274-05) | Matrix: Water | Sampled: 2022-05-24 10:50, Continued						
General Parameters						
Alkalinity, Total (as CaCO3)	**329**	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Bicarbonate (as CaCO3)	**329**	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-05-31	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2022-05-26	
Conductivity (EC)	**753**	N/A	2.0	µS/cm	2022-05-31	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-05-31	
pH	**7.77**	7.0-10.5	0.10	pH units	2022-05-31	HT2
Temperature, at pH	**24.2**	N/A		°C	2022-05-31	HT2
Turbidity	**0.11**	OG < 1	0.10	NTU	2022-05-26	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-05-29	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-05-29	
Arsenic, total	**0.00451**	MAC = 0.01	0.00050	mg/L	2022-05-29	
Barium, total	**0.0761**	MAC = 2	0.0050	mg/L	2022-05-29	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-05-29	
Cadmium, total	**0.000028**	MAC = 0.005	0.000010	mg/L	2022-05-29	
Calcium, total	**72.0**	None Required	0.20	mg/L	2022-05-29	
Chromium, total	**0.00053**	MAC = 0.05	0.00050	mg/L	2022-05-29	
Cobalt, total	**0.00019**	N/A	0.00010	mg/L	2022-05-29	
Copper, total	**0.00383**	MAC = 2	0.00040	mg/L	2022-05-29	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-05-29	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-05-29	
Magnesium, total	**31.9**	None Required	0.010	mg/L	2022-05-29	
Manganese, total	**0.136**	MAC = 0.12	0.00020	mg/L	2022-05-29	
Mercury, total	< 0.000040	MAC = 0.001	0.000040	mg/L	2022-05-29	HG1
Molybdenum, total	**0.0102**	N/A	0.00010	mg/L	2022-05-29	
Nickel, total	**0.00092**	N/A	0.00040	mg/L	2022-05-29	
Potassium, total	**6.08**	N/A	0.10	mg/L	2022-05-29	
Selenium, total	**0.00069**	MAC = 0.05	0.00050	mg/L	2022-05-29	
Sodium, total	**33.6**	AO ≤ 200	0.10	mg/L	2022-05-29	
Strontium, total	**0.926**	MAC = 7	0.0010	mg/L	2022-05-29	
Uranium, total	**0.00690**	MAC = 0.02	0.000020	mg/L	2022-05-29	
Zinc, total	**0.0052**	AO ≤ 5	0.0040	mg/L	2022-05-29	

Sample Qualifiers:

HG1 Sample bottle and preservation submitted is not suitable for Mercury analysis and analyte stability may be affected.

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22E3274
PROJECT	General Potability	**REPORTED**	2022-06-01 14:02

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Colour, True in Water	SM 2120 C (2017)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Hardness in Water	SM 2340 B* (2017)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2017)	Calculation		N/A
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2017)	SM 1030 E (2011)		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2017)	Nephelometry	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
°C	Degrees Celcius
AO	Aesthetic Objective
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22E3274
PROJECT	General Potability	**REPORTED**	2022-06-01 14:02

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing. The quality control (QC) data is available upon request

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted red. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

CERTIFICATE OF ANALYSIS

REPORTED TO	Osoyoos, Town of PO Box 3010 OSOYOOS, BC V0H 1V0		
ATTENTION	Mike Lange	**WORK ORDER**	22F1312
PO NUMBER		**RECEIVED / TEMP**	2022-06-09 08:00 / 15.3°C
PROJECT	General Potability	**REPORTED**	2022-06-16 13:15
PROJECT INFO		**COC NUMBER**	No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead
Account Manager

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22F1312
PROJECT	General Potability	**REPORTED**	2022-06-16 13:15

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #8 (22F1312-01) | Matrix: Water | Sampled: 2022-06-08 08:15						
Anions						
Chloride	**12.4**	AO ≤ 250	0.10	mg/L	2022-06-12	
Fluoride	**0.17**	MAC = 1.5	0.10	mg/L	2022-06-12	
Nitrate (as N)	**0.341**	MAC = 10	0.010	mg/L	2022-06-12	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-06-12	HT1
Sulfate	**48.9**	AO ≤ 500	1.0	mg/L	2022-06-12	
Calculated Parameters						
Hardness, Total (as CaCO3)	**192**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.7**	N/A	-5.0		2022-06-16	
Solids, Total Dissolved	**283**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**206**	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Bicarbonate (as CaCO3)	**206**	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2022-06-10	
Conductivity (EC)	**466**	N/A	2.0	µS/cm	2022-06-15	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-06-10	
pH	**8.14**	7.0-10.5	0.10	pH units	2022-06-15	HT2
Temperature, at pH	**22.2**	N/A		°C	2022-06-15	HT2
Turbidity	**0.11**	OG < 1	0.10	NTU	2022-06-13	HT1
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-06-12	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-06-12	
Arsenic, total	**0.00166**	MAC = 0.01	0.00050	mg/L	2022-06-12	
Barium, total	**0.0567**	MAC = 2	0.0050	mg/L	2022-06-12	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-06-12	
Cadmium, total	**0.000021**	MAC = 0.005	0.000010	mg/L	2022-06-12	
Calcium, total	**50.7**	None Required	0.20	mg/L	2022-06-12	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-06-12	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2022-06-12	
Copper, total	**0.00374**	MAC = 2	0.00040	mg/L	2022-06-12	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-06-12	
Lead, total	**0.00107**	MAC = 0.005	0.00020	mg/L	2022-06-12	
Magnesium, total	**15.7**	None Required	0.010	mg/L	2022-06-12	
Manganese, total	**0.0711**	MAC = 0.12	0.00020	mg/L	2022-06-12	
Mercury, total	< 0.000040	MAC = 0.001	0.000040	mg/L	2022-06-12	HG1
Molybdenum, total	**0.00849**	N/A	0.00010	mg/L	2022-06-12	
Nickel, total	**0.00045**	N/A	0.00040	mg/L	2022-06-12	
Potassium, total	**3.77**	N/A	0.10	mg/L	2022-06-12	
Selenium, total	**0.00064**	MAC = 0.05	0.00050	mg/L	2022-06-12	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22F1312
PROJECT	General Potability	**REPORTED**	2022-06-16 13:15

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #8 (22F1312-01) | Matrix: Water | Sampled: 2022-06-08 08:15, Continued						
Total Metals, Continued						
Sodium, total	**24.3**	AO ≤ 200	0.10	mg/L	2022-06-12	
Strontium, total	**0.534**	MAC = 7	0.0010	mg/L	2022-06-12	
Uranium, total	**0.00509**	MAC = 0.02	0.000020	mg/L	2022-06-12	
Zinc, total	**0.0187**	AO ≤ 5	0.0040	mg/L	2022-06-12	
Well #4 (22F1312-02) | Matrix: Water | Sampled: 2022-06-08 08:30						
Anions						
Chloride	**6.46**	AO ≤ 250	0.10	mg/L	2022-06-12	
Fluoride	**0.35**	MAC = 1.5	0.10	mg/L	2022-06-12	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2022-06-12	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-06-12	HT1
Sulfate	**36.5**	AO ≤ 500	1.0	mg/L	2022-06-12	
Calculated Parameters						
Hardness, Total (as CaCO3)	**242**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.9**	N/A	-5.0		2022-06-16	
Solids, Total Dissolved	**322**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**282**	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Bicarbonate (as CaCO3)	**282**	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2022-06-10	
Conductivity (EC)	**533**	N/A	2.0	µS/cm	2022-06-15	
Cyanide, Total	**0.0045**	MAC = 0.2	0.0020	mg/L	2022-06-10	
pH	**8.21**	7.0-10.5	0.10	pH units	2022-06-15	HT2
Temperature, at pH	**22.4**	N/A		°C	2022-06-15	HT2
Turbidity	**0.71**	OG < 1	0.10	NTU	2022-06-13	HT1
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-06-12	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-06-12	
Arsenic, total	**0.00548**	MAC = 0.01	0.00050	mg/L	2022-06-12	
Barium, total	**0.159**	MAC = 2	0.0050	mg/L	2022-06-12	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-06-12	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2022-06-12	
Calcium, total	**44.9**	None Required	0.20	mg/L	2022-06-12	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-06-12	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2022-06-12	
Copper, total	< 0.00040	MAC = 2	0.00040	mg/L	2022-06-12	
Iron, total	**0.317**	AO ≤ 0.3	0.010	mg/L	2022-06-12	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22F1312
PROJECT	General Potability	**REPORTED**	2022-06-16 13:15

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #4 (22F1312-02) | Matrix: Water | Sampled: 2022-06-08 08:30, Continued						
Total Metals, Continued						
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-06-12	
Magnesium, total	**31.6**	None Required	0.010	mg/L	2022-06-12	
Manganese, total	**0.141**	MAC = 0.12	0.00020	mg/L	2022-06-12	
Mercury, total	< 0.000040	MAC = 0.001	0.000040	mg/L	2022-06-12	HG1
Molybdenum, total	**0.00722**	N/A	0.00010	mg/L	2022-06-12	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2022-06-12	
Potassium, total	**5.69**	N/A	0.10	mg/L	2022-06-12	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-06-12	
Sodium, total	**25.4**	AO ≤ 200	0.10	mg/L	2022-06-12	
Strontium, total	**0.691**	MAC = 7	0.0010	mg/L	2022-06-12	
Uranium, total	**0.00118**	MAC = 0.02	0.000020	mg/L	2022-06-12	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2022-06-12	
Well #5 (22F1312-03) | Matrix: Water | Sampled: 2022-06-08 08:45						
Anions						
Chloride	**8.62**	AO ≤ 250	0.10	mg/L	2022-06-12	
Fluoride	**0.29**	MAC = 1.5	0.10	mg/L	2022-06-12	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2022-06-12	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-06-12	HT1
Sulfate	**37.4**	AO ≤ 500	1.0	mg/L	2022-06-12	
Calculated Parameters						
Hardness, Total (as CaCO3)	**185**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.7**	N/A	-5.0		2022-06-16	
Solids, Total Dissolved	**260**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**206**	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Bicarbonate (as CaCO3)	**206**	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2022-06-10	
Conductivity (EC)	**437**	N/A	2.0	µS/cm	2022-06-15	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-06-10	
pH	**8.18**	7.0-10.5	0.10	pH units	2022-06-15	HT2
Temperature, at pH	**22.7**	N/A		°C	2022-06-15	HT2
Turbidity	**0.34**	OG < 1	0.10	NTU	2022-06-13	HT1
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-06-12	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-06-12	
Arsenic, total	**0.00172**	MAC = 0.01	0.00050	mg/L	2022-06-12	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22F1312
PROJECT	General Potability	**REPORTED**	2022-06-16 13:15

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #5 (22F1312-03) | Matrix: Water | Sampled: 2022-06-08 08:45, Continued						
Total Metals, Continued						
Barium, total	**0.0943**	MAC = 2	0.0050	mg/L	2022-06-12	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-06-12	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2022-06-12	
Calcium, total	**45.2**	None Required	0.20	mg/L	2022-06-12	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-06-12	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2022-06-12	
Copper, total	**0.00434**	MAC = 2	0.00040	mg/L	2022-06-12	
Iron, total	**0.104**	AO ≤ 0.3	0.010	mg/L	2022-06-12	
Lead, total	**0.00030**	MAC = 0.005	0.00020	mg/L	2022-06-12	
Magnesium, total	**17.5**	None Required	0.010	mg/L	2022-06-12	
Manganese, total	**0.132**	MAC = 0.12	0.00020	mg/L	2022-06-12	
Mercury, total	< 0.000040	MAC = 0.001	0.000040	mg/L	2022-06-12	HG1
Molybdenum, total	**0.00628**	N/A	0.00010	mg/L	2022-06-12	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2022-06-12	
Potassium, total	**4.41**	N/A	0.10	mg/L	2022-06-12	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-06-12	
Sodium, total	**21.3**	AO ≤ 200	0.10	mg/L	2022-06-12	
Strontium, total	**0.530**	MAC = 7	0.0010	mg/L	2022-06-12	
Uranium, total	**0.00223**	MAC = 0.02	0.000020	mg/L	2022-06-12	
Zinc, total	**0.0059**	AO ≤ 5	0.0040	mg/L	2022-06-12	
Station #9 (22F1312-04) | Matrix: Water | Sampled: 2022-06-08 09:10						
Anions						
Chloride	**7.96**	AO ≤ 250	0.10	mg/L	2022-06-12	
Fluoride	**0.11**	MAC = 1.5	0.10	mg/L	2022-06-12	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2022-06-12	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-06-12	HT1
Sulfate	**29.5**	AO ≤ 500	1.0	mg/L	2022-06-12	
Calculated Parameters						
Hardness, Total (as CaCO3)	**117**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.2**	N/A	-5.0		2022-06-16	
Solids, Total Dissolved	**160**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**112**	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Bicarbonate (as CaCO3)	**112**	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Colour, True	**7.6**	AO ≤ 15	5.0	CU	2022-06-10	
Conductivity (EC)	**267**	N/A	2.0	µS/cm	2022-06-15	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22F1312
PROJECT	General Potability	**REPORTED**	2022-06-16 13:15

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Station #9 (22F1312-04) | Matrix: Water | Sampled: 2022-06-08 09:10, Continued						
General Parameters, Continued						
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-06-10	
pH	**8.10**	7.0-10.5	0.10	pH units	2022-06-15	HT2
Temperature, at pH	**23.0**	N/A		°C	2022-06-15	HT2
Turbidity	**1.80**	OG < 1	0.10	NTU	2022-06-13	HT1
Total Metals						
Aluminum, total	**0.0446**	OG < 0.1	0.0050	mg/L	2022-06-12	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-06-12	
Arsenic, total	**0.00053**	MAC = 0.01	0.00050	mg/L	2022-06-12	
Barium, total	**0.0258**	MAC = 2	0.0050	mg/L	2022-06-12	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-06-12	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2022-06-12	
Calcium, total	**31.9**	None Required	0.20	mg/L	2022-06-12	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-06-12	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2022-06-12	
Copper, total	**0.00716**	MAC = 2	0.00040	mg/L	2022-06-12	
Iron, total	**0.050**	AO ≤ 0.3	0.010	mg/L	2022-06-12	
Lead, total	**0.00021**	MAC = 0.005	0.00020	mg/L	2022-06-12	
Magnesium, total	**9.08**	None Required	0.010	mg/L	2022-06-12	
Manganese, total	**0.00873**	MAC = 0.12	0.00020	mg/L	2022-06-12	
Mercury, total	< 0.000040	MAC = 0.001	0.000040	mg/L	2022-06-12	HG1
Molybdenum, total	**0.00294**	N/A	0.00010	mg/L	2022-06-12	
Nickel, total	**0.00058**	N/A	0.00040	mg/L	2022-06-12	
Potassium, total	**2.36**	N/A	0.10	mg/L	2022-06-12	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-06-12	
Sodium, total	**11.0**	AO ≤ 200	0.10	mg/L	2022-06-12	
Strontium, total	**0.292**	MAC = 7	0.0010	mg/L	2022-06-12	
Uranium, total	**0.00246**	MAC = 0.02	0.000020	mg/L	2022-06-12	
Zinc, total	**0.0062**	AO ≤ 5	0.0040	mg/L	2022-06-12	
Station #8 (22F1312-05) | Matrix: Water | Sampled: 2022-06-08 13:20						
Anions						
Chloride	**9.42**	AO ≤ 250	0.10	mg/L	2022-06-12	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2022-06-12	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2022-06-12	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-06-12	HT1
Sulfate	**30.5**	AO ≤ 500	1.0	mg/L	2022-06-12	
Calculated Parameters						
Hardness, Total (as CaCO3)	**120**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.2**	N/A	-5.0		2022-06-16	
Solids, Total Dissolved	**165**	AO ≤ 500	1.00	mg/L	N/A	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22F1312
PROJECT	General Potability	**REPORTED**	2022-06-16 13:15

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Station #8 (22F1312-05) | Matrix: Water | Sampled: 2022-06-08 13:20, Continued						
General Parameters						
Alkalinity, Total (as CaCO3)	**114**	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Bicarbonate (as CaCO3)	**114**	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-06-15	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2022-06-10	
Conductivity (EC)	**275**	N/A	2.0	µS/cm	2022-06-15	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-06-10	
pH	**8.06**	7.0-10.5	0.10	pH units	2022-06-15	HT2
Temperature, at pH	**22.9**	N/A		°C	2022-06-15	HT2
Turbidity	**1.47**	OG < 1	0.10	NTU	2022-06-13	HT1
Total Metals						
Aluminum, total	**0.0544**	OG < 0.1	0.0050	mg/L	2022-06-12	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-06-12	
Arsenic, total	**0.00057**	MAC = 0.01	0.00050	mg/L	2022-06-12	
Barium, total	**0.0252**	MAC = 2	0.0050	mg/L	2022-06-12	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-06-12	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2022-06-12	
Calcium, total	**33.1**	None Required	0.20	mg/L	2022-06-12	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-06-12	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2022-06-12	
Copper, total	**0.0172**	MAC = 2	0.00040	mg/L	2022-06-12	
Iron, total	**0.049**	AO ≤ 0.3	0.010	mg/L	2022-06-12	
Lead, total	**0.00040**	MAC = 0.005	0.00020	mg/L	2022-06-12	
Magnesium, total	**9.18**	None Required	0.010	mg/L	2022-06-12	
Manganese, total	**0.00829**	MAC = 0.12	0.00020	mg/L	2022-06-12	
Mercury, total	< 0.000040	MAC = 0.001	0.000040	mg/L	2022-06-12	HG1
Molybdenum, total	**0.00300**	N/A	0.00010	mg/L	2022-06-12	
Nickel, total	**0.00057**	N/A	0.00040	mg/L	2022-06-12	
Potassium, total	**2.39**	N/A	0.10	mg/L	2022-06-12	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-06-12	
Sodium, total	**11.6**	AO ≤ 200	0.10	mg/L	2022-06-12	
Strontium, total	**0.295**	MAC = 7	0.0010	mg/L	2022-06-12	
Uranium, total	**0.00250**	MAC = 0.02	0.000020	mg/L	2022-06-12	
Zinc, total	**0.0096**	AO ≤ 5	0.0040	mg/L	2022-06-12	

Sample Qualifiers:

HG1	Sample bottle and preservation submitted is not suitable for Mercury analysis and analyte stability may be affected.
HT1	The sample was prepared and/or analyzed past the recommended holding time.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22F1312
PROJECT	General Potability	**REPORTED**	2022-06-16 13:15

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Colour, True in Water	SM 2120 C (2017)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Hardness in Water	SM 2340 B* (2017)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2017)	Calculation		N/A
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2017)	SM 1030 E (2011)		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2017)	Nephelometry	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
°C	Degrees Celcius
AO	Aesthetic Objective
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22F1312
PROJECT	General Potability	**REPORTED**	2022-06-16 13:15

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing. The quality control (QC) data is available upon request

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted red. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

CERTIFICATE OF ANALYSIS

REPORTED TO	Osoyoos, Town of PO Box 3010 OSOYOOS, BC V0H 1V0		
ATTENTION	Mike Lange	**WORK ORDER**	22H1449
PO NUMBER		**RECEIVED / TEMP**	2022-08-10 08:05 / 17.9°C
PROJECT	General Potability	**REPORTED**	2022-08-17 10:53
PROJECT INFO		**COC NUMBER**	No #

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead
Account Manager

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22H1449
PROJECT	General Potability	**REPORTED**	2022-08-17 10:53

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #4 - Chemistry (22H1449-01) | Matrix: Water | Sampled: 2022-08-09 08:15						
Anions						
Chloride	**5.34**	AO ≤ 250	0.10	mg/L	2022-08-10	
Fluoride	**0.53**	MAC = 1.5	0.10	mg/L	2022-08-10	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2022-08-10	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-08-10	
Sulfate	**33.2**	AO ≤ 500	1.0	mg/L	2022-08-10	
Calculated Parameters						
Hardness, Total (as CaCO3)	**230**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**306**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**271**	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Bicarbonate (as CaCO3)	**271**	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Conductivity (EC)	**517**	N/A	2.0	µS/cm	2022-08-12	
Cyanide, Total	**0.0062**	MAC = 0.2	0.0020	mg/L	2022-08-12	
pH	**8.15**	7.0-10.5	0.10	pH units	2022-08-12	HT2
Turbidity	**0.46**	OG < 1	0.10	NTU	2022-08-10	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-08-16	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-08-16	
Arsenic, total	**0.00673**	MAC = 0.01	0.00050	mg/L	2022-08-16	
Barium, total	**0.152**	MAC = 2	0.0050	mg/L	2022-08-16	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-08-16	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2022-08-16	
Calcium, total	**41.1**	None Required	0.20	mg/L	2022-08-16	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-08-16	
Copper, total	< 0.00040	MAC = 2	0.00040	mg/L	2022-08-16	
Iron, total	**0.272**	AO ≤ 0.3	0.010	mg/L	2022-08-16	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-08-16	
Magnesium, total	**31.0**	None Required	0.010	mg/L	2022-08-16	
Manganese, total	**0.120**	MAC = 0.12	0.00020	mg/L	2022-08-16	
Potassium, total	**5.62**	N/A	0.10	mg/L	2022-08-16	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-08-16	
Sodium, total	**24.9**	AO ≤ 200	0.10	mg/L	2022-08-16	
Strontium, total	**0.671**	MAC = 7	0.0010	mg/L	2022-08-16	
Uranium, total	**0.000947**	MAC = 0.02	0.000020	mg/L	2022-08-16	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2022-08-16	
Well #5 - Chemistry (22H1449-02) | Matrix: Water | Sampled: 2022-08-09 08:30						

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22H1449
PROJECT	General Potability	**REPORTED**	2022-08-17 10:53

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #5 - Chemistry (22H1449-02) | Matrix: Water | Sampled: 2022-08-09 08:30, Continued						
Anions						
Chloride	**11.0**	AO ≤ 250	0.10	mg/L	2022-08-10	
Fluoride	**0.48**	MAC = 1.5	0.10	mg/L	2022-08-10	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2022-08-10	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-08-10	
Sulfate	**35.2**	AO ≤ 500	1.0	mg/L	2022-08-10	
Calculated Parameters						
Hardness, Total (as CaCO3)	**190**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**270**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**216**	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Bicarbonate (as CaCO3)	**216**	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Conductivity (EC)	**464**	N/A	2.0	µS/cm	2022-08-12	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-08-12	
pH	**8.11**	7.0-10.5	0.10	pH units	2022-08-12	HT2
Turbidity	**0.64**	OG < 1	0.10	NTU	2022-08-10	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-08-16	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-08-16	
Arsenic, total	**0.00198**	MAC = 0.01	0.00050	mg/L	2022-08-16	
Barium, total	**0.0985**	MAC = 2	0.0050	mg/L	2022-08-16	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-08-16	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2022-08-16	
Calcium, total	**46.5**	None Required	0.20	mg/L	2022-08-16	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-08-16	
Copper, total	**0.0106**	MAC = 2	0.00040	mg/L	2022-08-16	
Iron, total	**0.132**	AO ≤ 0.3	0.010	mg/L	2022-08-16	
Lead, total	**0.00045**	MAC = 0.005	0.00020	mg/L	2022-08-16	
Magnesium, total	**17.9**	None Required	0.010	mg/L	2022-08-16	
Manganese, total	**0.130**	MAC = 0.12	0.00020	mg/L	2022-08-16	
Potassium, total	**4.62**	N/A	0.10	mg/L	2022-08-16	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-08-16	
Sodium, total	**23.5**	AO ≤ 200	0.10	mg/L	2022-08-16	
Strontium, total	**0.523**	MAC = 7	0.0010	mg/L	2022-08-16	
Uranium, total	**0.00332**	MAC = 0.02	0.000020	mg/L	2022-08-16	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2022-08-16	
Well #3 - Chemistry (22H1449-03) | Matrix: Water | Sampled: 2022-08-09 09:15						

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22H1449
PROJECT	General Potability	**REPORTED**	2022-08-17 10:53

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #3 - Chemistry (22H1449-03) | Matrix: Water | Sampled: 2022-08-09 09:15, Continued						
Anions						
Chloride	**17.7**	AO ≤ 250	0.10	mg/L	2022-08-10	
Fluoride	**0.51**	MAC = 1.5	0.10	mg/L	2022-08-10	
Nitrate (as N)	**3.01**	MAC = 10	0.010	mg/L	2022-08-10	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-08-10	
Sulfate	**56.9**	AO ≤ 500	1.0	mg/L	2022-08-10	
Calculated Parameters						
Hardness, Total (as CaCO3)	**297**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**404**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**295**	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Bicarbonate (as CaCO3)	**295**	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Conductivity (EC)	**674**	N/A	2.0	µS/cm	2022-08-12	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-08-12	
pH	**7.99**	7.0-10.5	0.10	pH units	2022-08-12	HT2
Turbidity	< 0.10	OG < 1	0.10	NTU	2022-08-10	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-08-16	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-08-16	
Arsenic, total	**0.00140**	MAC = 0.01	0.00050	mg/L	2022-08-16	
Barium, total	**0.0864**	MAC = 2	0.0050	mg/L	2022-08-16	
Boron, total	**0.0622**	MAC = 5	0.0500	mg/L	2022-08-16	
Cadmium, total	**0.000029**	MAC = 0.005	0.000010	mg/L	2022-08-16	
Calcium, total	**81.1**	None Required	0.20	mg/L	2022-08-16	
Chromium, total	**0.00103**	MAC = 0.05	0.00050	mg/L	2022-08-16	
Copper, total	**0.00460**	MAC = 2	0.00040	mg/L	2022-08-16	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-08-16	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-08-16	
Magnesium, total	**22.9**	None Required	0.010	mg/L	2022-08-16	
Manganese, total	**0.0408**	MAC = 0.12	0.00020	mg/L	2022-08-16	
Potassium, total	**6.43**	N/A	0.10	mg/L	2022-08-16	
Selenium, total	**0.00157**	MAC = 0.05	0.00050	mg/L	2022-08-16	
Sodium, total	**25.9**	AO ≤ 200	0.10	mg/L	2022-08-16	
Strontium, total	**0.967**	MAC = 7	0.0010	mg/L	2022-08-16	
Uranium, total	**0.0123**	MAC = 0.02	0.000020	mg/L	2022-08-16	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2022-08-16	
Well #8 - Chemistry (22H1449-04) | Matrix: Water | Sampled: 2022-08-09 09:30						

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22H1449
PROJECT	General Potability	**REPORTED**	2022-08-17 10:53

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #8 - Chemistry (22H1449-04) | Matrix: Water | Sampled: 2022-08-09 09:30, Continued						
Anions						
Chloride	**13.1**	AO ≤ 250	0.10	mg/L	2022-08-10	
Fluoride	**0.30**	MAC = 1.5	0.10	mg/L	2022-08-10	
Nitrate (as N)	**0.510**	MAC = 10	0.010	mg/L	2022-08-10	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-08-10	
Sulfate	**35.3**	AO ≤ 500	1.0	mg/L	2022-08-10	
Calculated Parameters						
Hardness, Total (as CaCO3)	**166**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**242**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**177**	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Bicarbonate (as CaCO3)	**177**	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Conductivity (EC)	**418**	N/A	2.0	µS/cm	2022-08-12	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-08-12	
pH	**8.06**	7.0-10.5	0.10	pH units	2022-08-12	HT2
Turbidity	**0.11**	OG < 1	0.10	NTU	2022-08-10	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-08-16	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-08-16	
Arsenic, total	**0.00188**	MAC = 0.01	0.00050	mg/L	2022-08-16	
Barium, total	**0.0499**	MAC = 2	0.0050	mg/L	2022-08-16	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-08-16	
Cadmium, total	**0.000027**	MAC = 0.005	0.000010	mg/L	2022-08-16	
Calcium, total	**44.3**	None Required	0.20	mg/L	2022-08-16	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-08-16	
Copper, total	**0.00498**	MAC = 2	0.00040	mg/L	2022-08-16	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-08-16	
Lead, total	**0.00026**	MAC = 0.005	0.00020	mg/L	2022-08-16	
Magnesium, total	**13.5**	None Required	0.010	mg/L	2022-08-16	
Manganese, total	**0.0892**	MAC = 0.12	0.00020	mg/L	2022-08-16	
Potassium, total	**3.82**	N/A	0.10	mg/L	2022-08-16	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-08-16	
Sodium, total	**21.6**	AO ≤ 200	0.10	mg/L	2022-08-16	
Strontium, total	**0.436**	MAC = 7	0.0010	mg/L	2022-08-16	
Uranium, total	**0.00377**	MAC = 0.02	0.000020	mg/L	2022-08-16	
Zinc, total	**0.0108**	AO ≤ 5	0.0040	mg/L	2022-08-16	
Well #1 - Chemistry (22H1449-05) | Matrix: Water | Sampled: 2022-08-09 09:50						

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22H1449
PROJECT	General Potability	**REPORTED**	2022-08-17 10:53

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #1 - Chemistry (22H1449-05) | Matrix: Water | Sampled: 2022-08-09 09:50, Continued						
Anions						
Chloride	**34.9**	AO ≤ 250	0.10	mg/L	2022-08-10	
Fluoride	**0.37**	MAC = 1.5	0.10	mg/L	2022-08-10	
Nitrate (as N)	**4.64**	MAC = 10	0.010	mg/L	2022-08-10	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-08-10	
Sulfate	**63.5**	AO ≤ 500	1.0	mg/L	2022-08-10	
Calculated Parameters						
Hardness, Total (as CaCO3)	**256**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**385**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**224**	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Bicarbonate (as CaCO3)	**224**	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-08-12	
Conductivity (EC)	**650**	N/A	2.0	µS/cm	2022-08-12	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-08-12	
pH	**7.99**	7.0-10.5	0.10	pH units	2022-08-12	HT2
Turbidity	< 0.10	OG < 1	0.10	NTU	2022-08-10	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2022-08-16	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-08-16	
Arsenic, total	**0.00435**	MAC = 0.01	0.00050	mg/L	2022-08-16	
Barium, total	**0.0502**	MAC = 2	0.0050	mg/L	2022-08-16	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-08-16	
Cadmium, total	**0.000032**	MAC = 0.005	0.000010	mg/L	2022-08-16	
Calcium, total	**75.9**	None Required	0.20	mg/L	2022-08-16	
Chromium, total	**0.00067**	MAC = 0.05	0.00050	mg/L	2022-08-16	
Copper, total	**0.00493**	MAC = 2	0.00040	mg/L	2022-08-16	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-08-16	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-08-16	
Magnesium, total	**16.2**	None Required	0.010	mg/L	2022-08-16	
Manganese, total	**0.00262**	MAC = 0.12	0.00020	mg/L	2022-08-16	
Potassium, total	**5.49**	N/A	0.10	mg/L	2022-08-16	
Selenium, total	**0.00062**	MAC = 0.05	0.00050	mg/L	2022-08-16	
Sodium, total	**31.6**	AO ≤ 200	0.10	mg/L	2022-08-16	
Strontium, total	**0.659**	MAC = 7	0.0010	mg/L	2022-08-16	
Uranium, total	**0.00643**	MAC = 0.02	0.000020	mg/L	2022-08-16	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2022-08-16	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22H1449
PROJECT	General Potability	**REPORTED**	2022-08-17 10:53

Sample Qualifiers:

HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22H1449
PROJECT	General Potability	**REPORTED**	2022-08-17 10:53

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Hardness in Water	SM 2340 B* (2017)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2017)	SM 1030 E (2011)		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2017)	Nephelometry	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22H1449
PROJECT	General Potability	**REPORTED**	2022-08-17 10:53

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing. The quality control (QC) data is available upon request

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

CERTIFICATE OF ANALYSIS

REPORTED TO	Osoyoos, Town of PO Box 3010 OSOYOOS, BC V0H 1V0		
ATTENTION	Mike Lange	**WORK ORDER**	22J1279
PO NUMBER		**RECEIVED / TEMP**	2022-10-11 17:15 / 10.5°C
PROJECT	General Potability	**REPORTED**	2022-10-18 20:36
PROJECT INFO		**COC NUMBER**	No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead
Account Manager

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22J1279
PROJECT	General Potability	**REPORTED**	2022-10-18 20:36

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Station 8 (22J1279-01) | Matrix: Water | Sampled: 2022-10-11 10:50						
Anions						
Chloride	**9.23**	AO ≤ 250	0.10	mg/L	2022-10-15	
Fluoride	**0.18**	MAC = 1.5	0.10	mg/L	2022-10-15	
Nitrate (as N)	**0.011**	MAC = 10	0.010	mg/L	2022-10-15	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-10-15	HT1
Sulfate	**30.1**	AO ≤ 500	1.0	mg/L	2022-10-15	
Calculated Parameters						
Hardness, Total (as CaCO3)	**129**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.04**	N/A	-5.0		2022-10-18	
Solids, Total Dissolved	**173**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**121**	N/A	1.0	mg/L	2022-10-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-10-16	
Alkalinity, Bicarbonate (as CaCO3)	**121**	N/A	1.0	mg/L	2022-10-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-10-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-10-16	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2022-10-13	
Conductivity (EC)	**289**	N/A	2.0	µS/cm	2022-10-16	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-10-13	
pH	**7.95**	7.0-10.5	0.10	pH units	2022-10-16	HT2
Temperature, at pH	**23.2**	N/A		°C	2022-10-16	HT2
Turbidity	**0.66**	OG < 1	0.10	NTU	2022-10-12	
Total Metals						
Aluminum, total	**0.0163**	OG < 0.1	0.0050	mg/L	2022-10-17	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-10-17	
Arsenic, total	**0.00059**	MAC = 0.01	0.00050	mg/L	2022-10-17	
Barium, total	**0.0261**	MAC = 2	0.0050	mg/L	2022-10-17	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-10-17	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2022-10-17	
Calcium, total	**35.6**	None Required	0.20	mg/L	2022-10-17	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-10-17	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2022-10-17	
Copper, total	**0.00912**	MAC = 2	0.00040	mg/L	2022-10-17	
Iron, total	**0.023**	AO ≤ 0.3	0.010	mg/L	2022-10-17	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-10-17	
Magnesium, total	**9.77**	None Required	0.010	mg/L	2022-10-17	
Manganese, total	**0.00667**	MAC = 0.12	0.00020	mg/L	2022-10-17	
Mercury, total	< 0.000040	MAC = 0.001	0.000040	mg/L	2022-10-17	HG1
Molybdenum, total	**0.00349**	N/A	0.00010	mg/L	2022-10-17	
Nickel, total	**0.00050**	N/A	0.00040	mg/L	2022-10-17	
Potassium, total	**2.60**	N/A	0.10	mg/L	2022-10-17	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-10-17	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22J1279
PROJECT	General Potability	**REPORTED**	2022-10-18 20:36

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Station 8 (22J1279-01) | Matrix: Water | Sampled: 2022-10-11 10:50, Continued						
Total Metals, Continued						
Sodium, total	**12.1**	AO ≤ 200	0.10	mg/L	2022-10-17	
Strontium, total	**0.308**	MAC = 7	0.0010	mg/L	2022-10-17	
Uranium, total	**0.00235**	MAC = 0.02	0.000020	mg/L	2022-10-17	
Zinc, total	**0.0071**	AO ≤ 5	0.0040	mg/L	2022-10-17	
Station 9 (22J1279-02) | Matrix: Water | Sampled: 2022-10-11 13:00						
Anions						
Chloride	**8.93**	AO ≤ 250	0.10	mg/L	2022-10-15	
Fluoride	**0.16**	MAC = 1.5	0.10	mg/L	2022-10-15	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2022-10-15	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-10-15	HT1
Sulfate	**29.7**	AO ≤ 500	1.0	mg/L	2022-10-15	
Calculated Parameters						
Hardness, Total (as CaCO3)	**127**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.05**	N/A	-5.0		2022-10-18	
Solids, Total Dissolved	**170**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**119**	N/A	1.0	mg/L	2022-10-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-10-16	
Alkalinity, Bicarbonate (as CaCO3)	**119**	N/A	1.0	mg/L	2022-10-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-10-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-10-16	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2022-10-13	
Conductivity (EC)	**284**	N/A	2.0	µS/cm	2022-10-16	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-10-13	
pH	**7.97**	7.0-10.5	0.10	pH units	2022-10-16	HT2
Temperature, at pH	**23.1**	N/A		°C	2022-10-16	HT2
Turbidity	**0.45**	OG < 1	0.10	NTU	2022-10-12	
Total Metals						
Aluminum, total	**0.0078**	OG < 0.1	0.0050	mg/L	2022-10-17	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-10-17	
Arsenic, total	**0.00062**	MAC = 0.01	0.00050	mg/L	2022-10-17	
Barium, total	**0.0261**	MAC = 2	0.0050	mg/L	2022-10-17	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-10-17	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2022-10-17	
Calcium, total	**35.2**	None Required	0.20	mg/L	2022-10-17	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-10-17	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2022-10-17	
Copper, total	**0.00684**	MAC = 2	0.00040	mg/L	2022-10-17	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-10-17	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22J1279
PROJECT	General Potability	**REPORTED**	2022-10-18 20:36

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Station 9 (22J1279-02) | Matrix: Water | Sampled: 2022-10-11 13:00, Continued						
Total Metals, Continued						
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-10-17	
Magnesium, total	**9.45**	None Required	0.010	mg/L	2022-10-17	
Manganese, total	**0.00675**	MAC = 0.12	0.00020	mg/L	2022-10-17	
Mercury, total	< 0.000040	MAC = 0.001	0.000040	mg/L	2022-10-17	HG1
Molybdenum, total	**0.00336**	N/A	0.00010	mg/L	2022-10-17	
Nickel, total	**0.00051**	N/A	0.00040	mg/L	2022-10-17	
Potassium, total	**2.53**	N/A	0.10	mg/L	2022-10-17	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-10-17	
Sodium, total	**11.8**	AO ≤ 200	0.10	mg/L	2022-10-17	
Strontium, total	**0.296**	MAC = 7	0.0010	mg/L	2022-10-17	
Uranium, total	**0.00221**	MAC = 0.02	0.000020	mg/L	2022-10-17	
Zinc, total	**0.0058**	AO ≤ 5	0.0040	mg/L	2022-10-17	

Sample Qualifiers:

HG1	Sample bottle and preservation submitted is not suitable for Mercury analysis and analyte stability may be affected.
HT1	The sample was prepared and/or analyzed past the recommended holding time.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22J1279
PROJECT	General Potability	**REPORTED**	2022-10-18 20:36

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Colour, True in Water	SM 2120 C (2017)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Hardness in Water	SM 2340 B* (2017)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2017)	Calculation		N/A
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2017)	SM 1030 E (2011)		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2017)	Nephelometry	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
°C	Degrees Celcius
AO	Aesthetic Objective
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22J1279
PROJECT	General Potability	**REPORTED**	2022-10-18 20:36

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing. The quality control (QC) data is available upon request

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

CERTIFICATE OF ANALYSIS

REPORTED TO	Osoyoos, Town of PO Box 3010 OSOYOOS, BC V0H 1V0		
ATTENTION	Mike Lange	**WORK ORDER**	22K0254
PO NUMBER		**RECEIVED / TEMP**	2022-11-01 16:45 / 8.4°C
PROJECT	General Potability	**REPORTED**	2022-11-07 17:22
PROJECT INFO	Raw Water	**COC NUMBER**	No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead
Account Manager

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22K0254
PROJECT	General Potability	**REPORTED**	2022-11-07 17:22

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #3 - Chemistry (22K0254-01) | Matrix: Water | Sampled: 2022-11-01 08:50						
Anions						
Chloride	**22.3**	AO ≤ 250	0.10	mg/L	2022-11-03	
Fluoride	**0.56**	MAC = 1.5	0.10	mg/L	2022-11-03	
Nitrate (as N)	**3.07**	MAC = 10	0.010	mg/L	2022-11-03	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-11-03	
Sulfate	**56.4**	AO ≤ 500	1.0	mg/L	2022-11-03	
Calculated Parameters						
Hardness, Total (as CaCO3)	**302**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**392**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**263**	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Bicarbonate (as CaCO3)	**263**	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-11-07	
Conductivity (EC)	**674**	N/A	2.0	µS/cm	2022-11-07	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-11-04	
pH	**7.91**	7.0-10.5	0.10	pH units	2022-11-07	HT2
Turbidity	**0.23**	OG < 1	0.10	NTU	2022-11-04	
Total Metals						
Aluminum, total	**0.0057**	OG < 0.1	0.0050	mg/L	2022-11-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-11-06	
Arsenic, total	**0.00147**	MAC = 0.01	0.00050	mg/L	2022-11-06	
Barium, total	**0.0845**	MAC = 2	0.0050	mg/L	2022-11-06	
Boron, total	**0.0607**	MAC = 5	0.0500	mg/L	2022-11-06	
Cadmium, total	**0.000032**	MAC = 0.005	0.000010	mg/L	2022-11-06	
Calcium, total	**83.4**	None Required	0.20	mg/L	2022-11-06	
Chromium, total	**0.00095**	MAC = 0.05	0.00050	mg/L	2022-11-06	
Copper, total	**0.00791**	MAC = 2	0.00040	mg/L	2022-11-06	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-11-06	
Lead, total	**0.00020**	MAC = 0.005	0.00020	mg/L	2022-11-06	
Magnesium, total	**22.6**	None Required	0.010	mg/L	2022-11-06	
Manganese, total	**0.0358**	MAC = 0.12	0.00020	mg/L	2022-11-06	
Potassium, total	**6.75**	N/A	0.10	mg/L	2022-11-06	
Selenium, total	**0.00151**	MAC = 0.05	0.00050	mg/L	2022-11-06	
Sodium, total	**26.7**	AO ≤ 200	0.10	mg/L	2022-11-06	
Strontium, total	**0.946**	MAC = 7	0.0010	mg/L	2022-11-06	
Uranium, total	**0.0108**	MAC = 0.02	0.000020	mg/L	2022-11-06	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2022-11-06	
Well #5 - Chemistry (22K0254-02) | Matrix: Water | Sampled: 2022-11-01 09:20						

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22K0254
PROJECT	General Potability	**REPORTED**	2022-11-07 17:22

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #5 - Chemistry (22K0254-02) | Matrix: Water | Sampled: 2022-11-01 09:20, Continued						
Anions						
Chloride	**6.50**	AO ≤ 250	0.10	mg/L	2022-11-03	
Fluoride	**0.50**	MAC = 1.5	0.10	mg/L	2022-11-03	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2022-11-03	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-11-03	
Sulfate	**28.2**	AO ≤ 500	1.0	mg/L	2022-11-03	
Calculated Parameters						
Hardness, Total (as CaCO3)	**245**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**308**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**262**	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Bicarbonate (as CaCO3)	**262**	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-11-07	
Conductivity (EC)	**555**	N/A	2.0	µS/cm	2022-11-07	
Cyanide, Total	**0.0025**	MAC = 0.2	0.0020	mg/L	2022-11-04	
pH	**8.19**	7.0-10.5	0.10	pH units	2022-11-07	HT2
Turbidity	**0.86**	OG < 1	0.10	NTU	2022-11-04	
Total Metals						
Aluminum, total	**0.0056**	OG < 0.1	0.0050	mg/L	2022-11-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-11-06	
Arsenic, total	**0.00311**	MAC = 0.01	0.00050	mg/L	2022-11-06	
Barium, total	**0.119**	MAC = 2	0.0050	mg/L	2022-11-06	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-11-06	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2022-11-06	
Calcium, total	**53.8**	None Required	0.20	mg/L	2022-11-06	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-11-06	
Copper, total	**0.00936**	MAC = 2	0.00040	mg/L	2022-11-06	
Iron, total	**0.164**	AO ≤ 0.3	0.010	mg/L	2022-11-06	
Lead, total	**0.00024**	MAC = 0.005	0.00020	mg/L	2022-11-06	
Magnesium, total	**26.7**	None Required	0.010	mg/L	2022-11-06	
Manganese, total	**0.164**	MAC = 0.12	0.00020	mg/L	2022-11-06	
Potassium, total	**5.52**	N/A	0.10	mg/L	2022-11-06	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-11-06	
Sodium, total	**26.9**	AO ≤ 200	0.10	mg/L	2022-11-06	
Strontium, total	**0.685**	MAC = 7	0.0010	mg/L	2022-11-06	
Uranium, total	**0.00182**	MAC = 0.02	0.000020	mg/L	2022-11-06	
Zinc, total	**0.0066**	AO ≤ 5	0.0040	mg/L	2022-11-06	
Well #1 - Chemistry (22K0254-03) | Matrix: Water | Sampled: 2022-11-01 11:40						

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22K0254
PROJECT	General Potability	**REPORTED**	2022-11-07 17:22

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #1 - Chemistry (22K0254-03) | Matrix: Water | Sampled: 2022-11-01 11:40, Continued						
Anions						
Chloride	**56.6**	AO ≤ 250	0.10	mg/L	2022-11-03	
Fluoride	**0.36**	MAC = 1.5	0.10	mg/L	2022-11-03	
Nitrate (as N)	**6.53**	MAC = 10	0.010	mg/L	2022-11-03	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-11-03	
Sulfate	**85.0**	AO ≤ 500	1.0	mg/L	2022-11-03	
Calculated Parameters						
Hardness, Total (as CaCO3)	**334**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**465**	AO ≤ 500	10.0	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**213**	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Bicarbonate (as CaCO3)	**213**	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-11-07	
Conductivity (EC)	**819**	N/A	2.0	µS/cm	2022-11-07	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2022-11-04	
pH	**8.11**	7.0-10.5	0.10	pH units	2022-11-07	HT2
Turbidity	**0.55**	OG < 1	0.10	NTU	2022-11-04	
Total Metals						
Aluminum, total	**0.0053**	OG < 0.1	0.0050	mg/L	2022-11-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-11-06	
Arsenic, total	**0.00424**	MAC = 0.01	0.00050	mg/L	2022-11-06	
Barium, total	**0.0661**	MAC = 2	0.0050	mg/L	2022-11-06	
Boron, total	**0.0554**	MAC = 5	0.0500	mg/L	2022-11-06	
Cadmium, total	**0.000035**	MAC = 0.005	0.000010	mg/L	2022-11-06	
Calcium, total	**98.9**	None Required	0.20	mg/L	2022-11-06	
Chromium, total	**0.00074**	MAC = 0.05	0.00050	mg/L	2022-11-06	
Copper, total	**0.00746**	MAC = 2	0.00040	mg/L	2022-11-06	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-11-06	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-11-06	
Magnesium, total	**21.1**	None Required	0.010	mg/L	2022-11-06	
Manganese, total	**0.00249**	MAC = 0.12	0.00020	mg/L	2022-11-06	
Potassium, total	**6.86**	N/A	0.10	mg/L	2022-11-06	
Selenium, total	**0.00085**	MAC = 0.05	0.00050	mg/L	2022-11-06	
Sodium, total	**37.2**	AO ≤ 200	0.10	mg/L	2022-11-06	
Strontium, total	**0.868**	MAC = 7	0.0010	mg/L	2022-11-06	
Uranium, total	**0.00767**	MAC = 0.02	0.000020	mg/L	2022-11-06	
Zinc, total	**0.0089**	AO ≤ 5	0.0040	mg/L	2022-11-06	
Well #8 - Chemistry (22K0254-04) | Matrix: Water | Sampled: 2022-11-01 12:05						

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22K0254
PROJECT	General Potability	**REPORTED**	2022-11-07 17:22

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well #8 - Chemistry (22K0254-04) | Matrix: Water | Sampled: 2022-11-01 12:05, Continued						
Anions						
Chloride	**13.8**	AO ≤ 250	0.10	mg/L	2022-11-03	
Fluoride	**0.31**	MAC = 1.5	0.10	mg/L	2022-11-03	
Nitrate (as N)	**0.372**	MAC = 10	0.010	mg/L	2022-11-03	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2022-11-03	
Sulfate	**37.4**	AO ≤ 500	1.0	mg/L	2022-11-03	
Calculated Parameters						
Hardness, Total (as CaCO3)	**168**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**239**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**165**	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Bicarbonate (as CaCO3)	**165**	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-11-07	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2022-11-07	
Conductivity (EC)	**424**	N/A	2.0	µS/cm	2022-11-07	
Cyanide, Total	**0.0021**	MAC = 0.2	0.0020	mg/L	2022-11-04	
pH	**7.97**	7.0-10.5	0.10	pH units	2022-11-07	HT2
Turbidity	**0.20**	OG < 1	0.10	NTU	2022-11-04	
Total Metals						
Aluminum, total	**0.0060**	OG < 0.1	0.0050	mg/L	2022-11-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2022-11-06	
Arsenic, total	**0.00211**	MAC = 0.01	0.00050	mg/L	2022-11-06	
Barium, total	**0.0511**	MAC = 2	0.0050	mg/L	2022-11-06	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2022-11-06	
Cadmium, total	**0.000032**	MAC = 0.005	0.000010	mg/L	2022-11-06	
Calcium, total	**45.5**	None Required	0.20	mg/L	2022-11-06	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-11-06	
Copper, total	**0.00505**	MAC = 2	0.00040	mg/L	2022-11-06	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2022-11-06	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2022-11-06	
Magnesium, total	**13.1**	None Required	0.010	mg/L	2022-11-06	
Manganese, total	**0.129**	MAC = 0.12	0.00020	mg/L	2022-11-06	
Potassium, total	**3.87**	N/A	0.10	mg/L	2022-11-06	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2022-11-06	
Sodium, total	**22.6**	AO ≤ 200	0.10	mg/L	2022-11-06	
Strontium, total	**0.449**	MAC = 7	0.0010	mg/L	2022-11-06	
Uranium, total	**0.00331**	MAC = 0.02	0.000020	mg/L	2022-11-06	
Zinc, total	**0.0290**	AO ≤ 5	0.0040	mg/L	2022-11-06	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22K0254
PROJECT	General Potability	**REPORTED**	2022-11-07 17:22

Sample Qualifiers:

HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22K0254
PROJECT	General Potability	**REPORTED**	2022-11-07 17:22

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Hardness in Water	SM 2340 B* (2017)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2017)	SM 1030 E (2011)		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2017)	Nephelometry	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Osoyoos, Town of	**WORK ORDER**	22K0254
PROJECT	General Potability	**REPORTED**	2022-11-07 17:22

General Comments:

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Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

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