# 2025 Water System Annual Report

## Town of Osoyoos







July 2026

Project No. 302-1108-004

ENGINEERING ■ PLANNING ■ URBAN DESIGN ■ LAND SURVEYING

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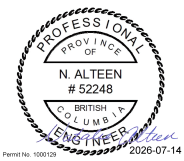
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# Report Submission

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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 |
| lgpm | 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. (2024). *Annual Water System 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 (the Town) operates water systems within its municipal boundary and within Electoral Area A. These include the domestic water system and irrigation Systems 8 and 9 on the west side of Osoyoos Lake, 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 3,978 connections, with high-volume consumers being monitored with water meters. In 2024, installation of water meters on all services began and substantially completed in 2025. Also in 2025, the Town of Osoyoos began sampling surface water quality and implemented a surface water treatment pilot plant. These works are undertaken to prepare for implementation of a surface water treatment plant.

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% of System 8 and 100% of System 9 have been twinned.

Systems 8 and 9 are supplied by lake water intakes during the irrigation season (April to October). The surface water source is not treated, as such areas of Systems 8 and 9 that are not serviced by the domestic system are put on an annual boil water advisory. This advisory is removed for these areas during the remainder of the year because the domestic system is used for supply.

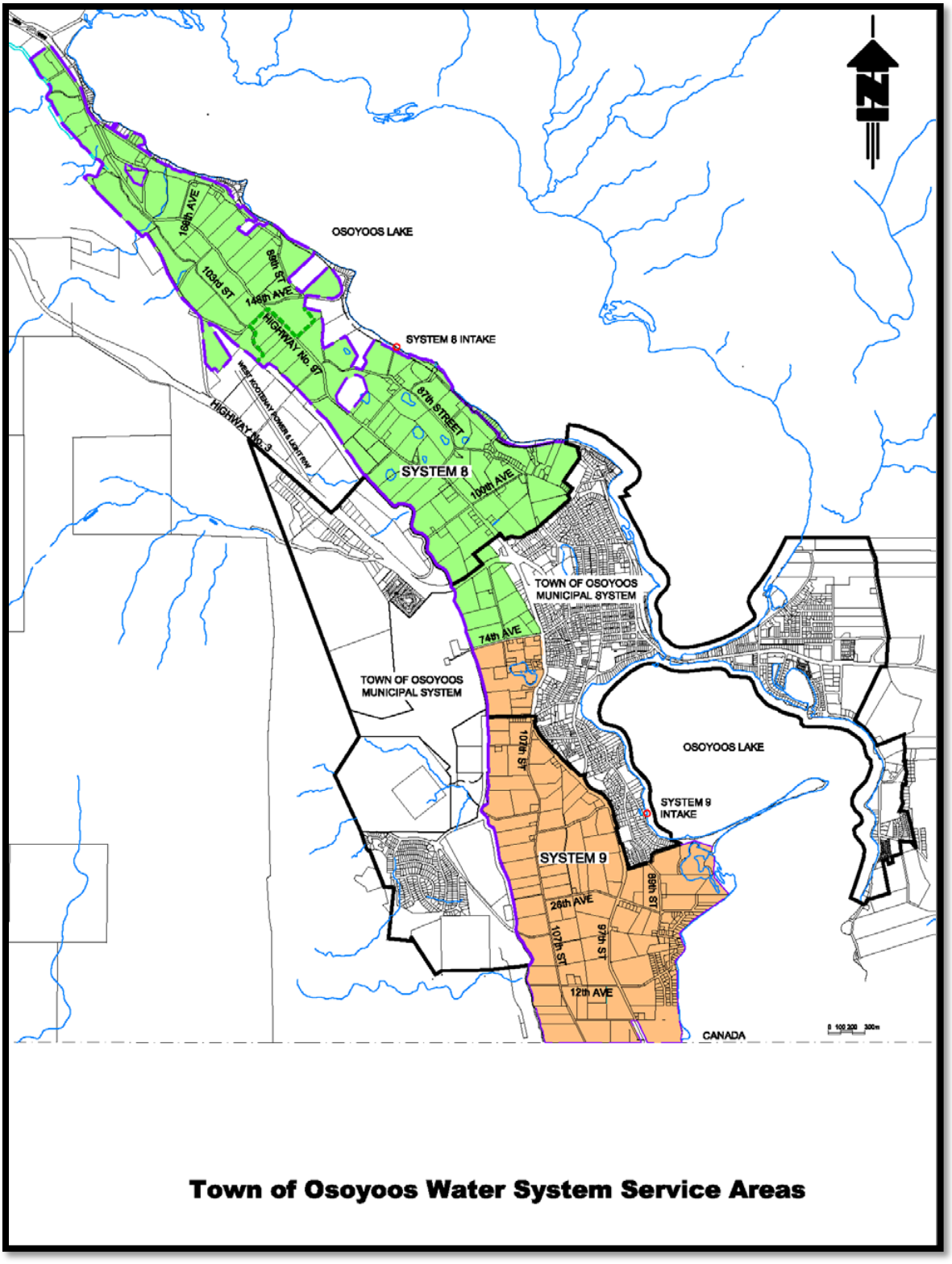



**FIGURE 1-1: TOWN OF OSOYOOS WATER SYSTEM SERVICE AREAS**

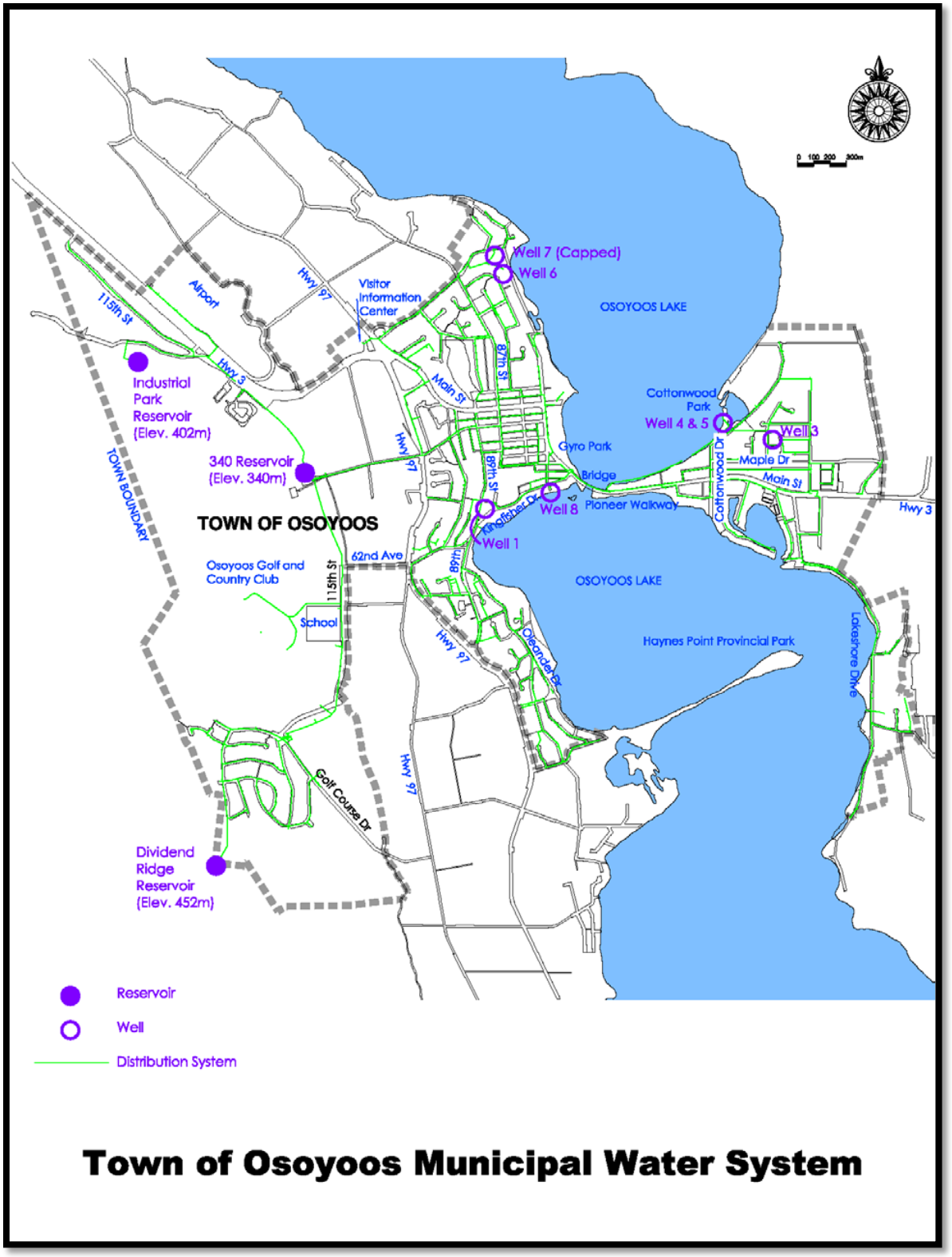



**FIGURE 1-2: TOWN OF OSOYOOS MUNICIPAL WATER SYSTEM**

# 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 a well pump and a hypochlorite injection system.




**FIGURE 2-1: GROUNDWATER WELL LOCATIONS**

### 2.1.2 System Capacity

Well pump 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 160.9 L/s (13.9 ML/d). The Town's current maximum day demand is approximately equivalent to the n-1 supply capacity. To account for this issue, the Town is actively planning for increasing source water capacity.

**TABLE 2-1: GROUNDWATER WELL PUMP CAPACITY OVERVIEW**

| WELL | MAX SUPPLY (US GPM) | MAX SUPPLY (L/S) | MAX SUPPLY (ML/D) |
|---|---|---|---|
| Well #1 | 440 | 27.8 | 2.4 |
| Well #3 | 660 | 41.7 | 3.6 |
| Well #4 | 700 | 44.0 | 3.8 |
| Well #5 | 1080 | 68.3 | 5.9 |
| Well #6 | 200 | 12.7 | 1.1 |
| Well #8 | 550 | 34.7 | 3.0 |
| **Total** | **3630** | **229.2** | **19.8** |
| 'n-1' System Capacity | 2550 | 160.9 | 13.9 |

## 2.2 Water Distribution System

The Town's domestic water system consists of approximately 77.5 km of water main ranging in size from 50 mm to 400 mm. The system includes 272 hydrants, 815 valves, two pressure reducing valve (PRV) stations, 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 groundwater wells that lie within the Town's municipal boundaries. Groundwater is treated with hypochlorite at 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. 53.5 km of PVC watermain (sizes including 50 mm - 400 mm)
- Approx. 22.9 km of AC watermain (sizes including 100 mm – 300 mm)
- Approx. 0.76 km of HDPE watermain (sizes including 50 mm, 350 mm, and 450 mm)
- Approx. 0.43 km 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.

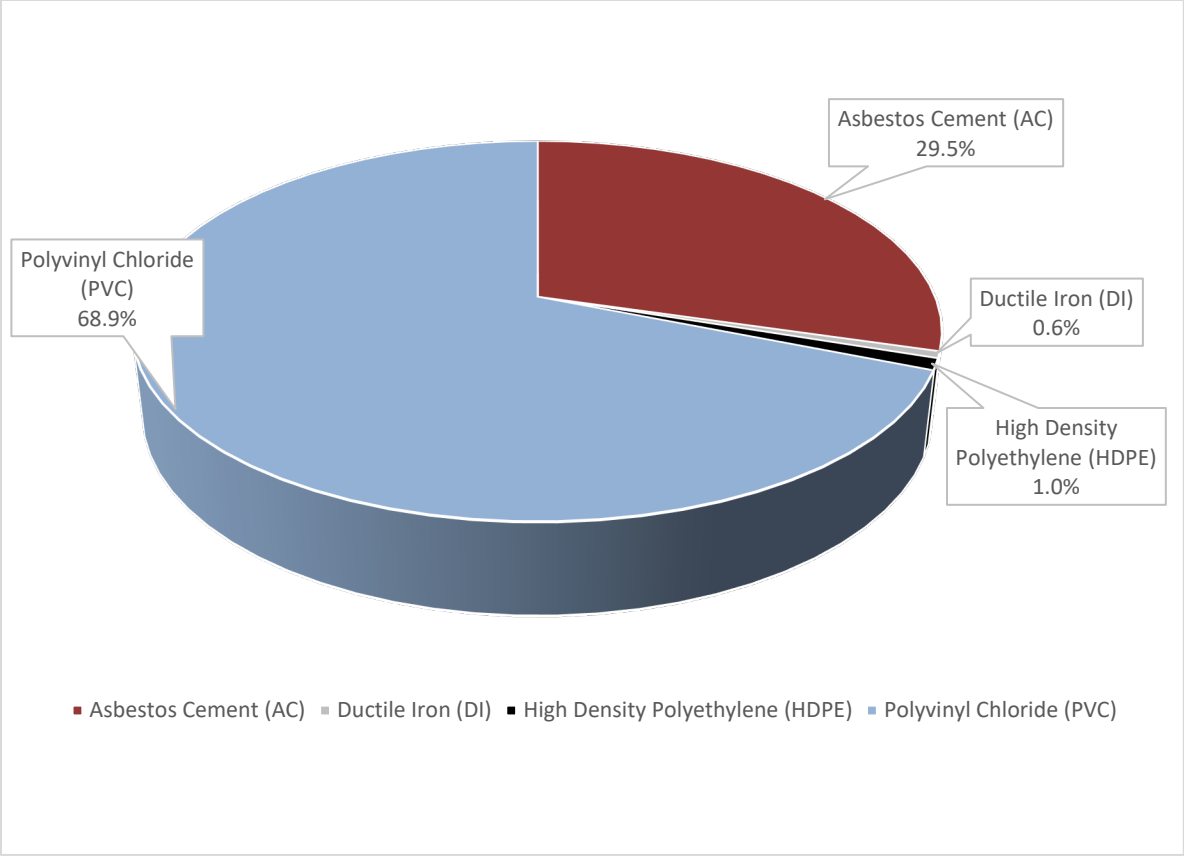



**FIGURE 2-2: WATER DISTRIBUTION SYSTEM - PIPE MATERIAL SUMMARY**

## 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 parts of the 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, Desert Park and parts of the twinned sections of Systems 8 and 9.
- Dividend Ridge Reservoir has a capacity of 1,140 $m^3$. The service area includes the Dividend Ridge neighbourhood and the golf course clubhouse.

## 2.4 Water Utility Master Plan

A domestic water system infrastructure master plan was completed in 2023 by TRUE to evaluate the domestic water network performance under existing and future conditions and provide a guide for staged system improvements and expansions.

The plan included:

- An analysis of the Town's water demand profile.
- A review of the Town's treated water storage reservoirs.
- Design criteria utilized for water modelling purposes.
- A review of the performance of the existing water system.
- Proposed water system upgrades to address system deficiencies.
- A system composite model using ArcGIS software to create asset inventories based on:
  - Review of record drawings and survey data, and
  - Review of Official Community Plan (OCP) for future land use.
- A domestic water system model using Water CAD Software.
- A reserve balance model considering average annual investment and monthly service fee (MSF).
- A 20-year horizon work plan for capital and replacement projects.
- The analysis and recommendations for replacement, rehabilitation, improvement, and implementation of infrastructure.

This plan was updated in 2024 to reflect changes to zoning requirements based on the small-scale, multi-unit housing Provincial requirements. The updated report can be viewed in Appendix C. It summarizes new projected water demands, fire flow analysis and capital upgrades in line with the most recent water system directives.

## 2.5 Water Conservation Plan

In 2025, TRUE completed an update to the Town of Osoyoos's Water Conservation Plan (WCP) to analyze current water usage trends, population growth projections, and water supply infrastructure. The town's semi-arid climate, irrigation systems, and tourism-filled summers make an effective water conservation plan essential to meeting the provincial Living Water Smart objectives.

A key outcome of the 2025 Water Conservation Plan is the establishment of updated long-term water use targets and measurable benchmarks. The Plan confirms a long-term efficiency target of 600 litres per capita per day, consistent with peer communities in the Okanagan. It introduces incremental five-year targets starting in 2025 to track progress toward this goal. The 2025 baseline average daily demand provides a clear reference point for future monitoring and reporting. Updated demand projections assume moderate population growth of approximately 1.3% annually and confirm that achieving these targets would limit long-term system-wide Maximum Day Demand (MDD) to approximately 17.7 megalitres per day, aligning with the initial design capacity of the Town's planned surface water treatment plant, helping to limit future water infrastructure capital and operating costs.

In 2025, approximately 1,990 domestic water connections were metered, including the installation of 12 large water meter vaults at strata properties equipped with ultrasonic meters as a part of the Universal water metering implementation plan. The plan supports the WCP by improving the accuracy of water use data. The 2025 WCP update was the first to be developed by the Town on the assumption that the universal water metering plan was in place. These measures position the Town to manage peak demand and establish a community-wide target to manage water conservation in a sustainable manner. The updated WCP establishes a framework for ongoing annual monitoring of per-capita water use and peak system demand using universal water metering data.

## 2.6 Surface Water Pilot Plant

The Town of Osoyoos is advancing planning for a long-term water supply and treatment solution to address existing capacity, water quality, and reliability constraints within the municipal system. The existing groundwater requires treatment for parameters including pathogens, manganese and ammonia. Through feasibility review, pilot testing, and value planning completed between 2018 and 2026, surface water from Osoyoos Lake was identified as the preferred long-term source due to its scalability, centralized treatment approach, and alignment with future system demands.

The proposed surface water treatment plant is anticipated to use Osoyoos Lake as the source, with an initial capacity of approximately 25 ML/d, expandable to 32 ML/d and ultimately to 37.5 ML/d by 2050. The treatment process will focus on turbidity, organics, algae, disinfection, and operational stability, with redundancy incorporated for major systems. Pilot testing confirmed that

dissolved air flotation is effective for algae and organics removal, that aluminum chlorohydrate (ACH) is preferred for dissolved organic carbon removal, and that polymer addition is important for turbidity control. The pilot also confirmed that seasonal water temperature changes affect pretreatment stability and must be considered in the final design.

Implementation planning is continuing with an expanded water licence application, development of the raw water intake and pump station concept, refinement of treatment criteria, updated cost estimates, and support for future funding applications. Site selection has considered multiple alternatives, with Hillside Industrial Park identified as the preferred site based on constructability, Town ownership, land use compatibility, and limited environmental and operational constraints. The next phase will involve advancing preliminary and detailed design, confirming the final treatment process, resolving residuals handling and operational requirements, and establishing a delivery strategy for construction of a robust, scalable, and sustainable water supply system.

# 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 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 North of 120 Avenue (south of the former 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.




**FIGURE 3-1: IRRIGATION SOURCE WATER INTAKES**

Outside of the irrigation season, 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 is 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 |
| **Total** | **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.

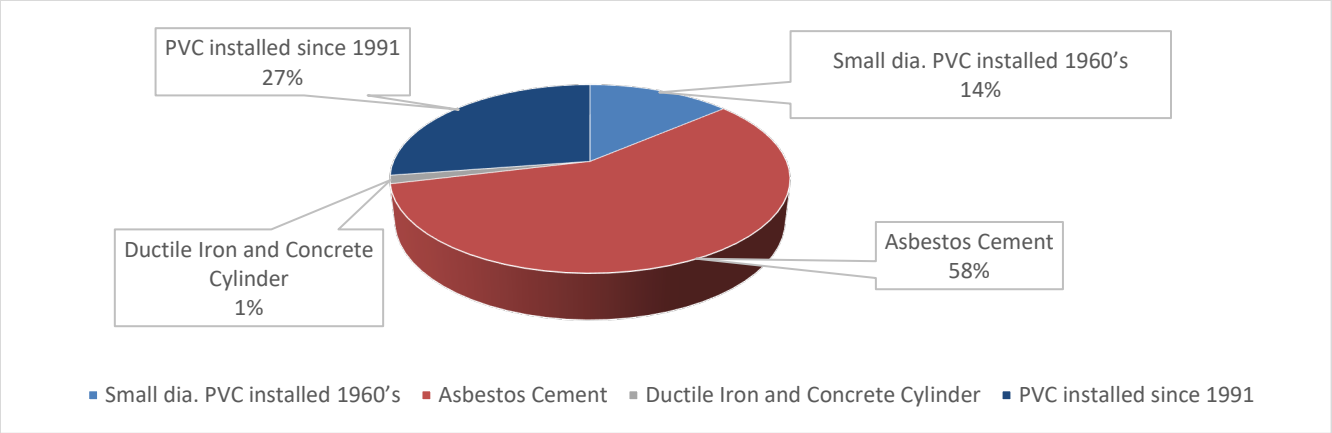



**FIGURE 3-3: SYSTEM 8 AND 9 IRRIGATION DISTRIBUTION SYSTEM SUMMARY**

## 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. Outside of the irrigation season, a reservoir located on the Osoyoos West Bench Southwest of the Municipal 340 reservoirs, is put into service. This reservoir has an operating capacity of 482,000 L (130,000 USgal). This reservoir is supplied by Well No. 6, which is controlled by reservoir level.

## 3.4 Irrigation District Master Plan

The Town of Osoyoos operates Irrigation Systems 8 and 9, which is composed of a significant proportion of asbestos cement pipe installed in the 1960s, as well as intake, pump station, water quality, and operational constraints. The 2025 Capital Works and Asset Management Plan was developed to provide a structured approach for renewing these assets, improving reliability, supporting regulatory compliance, and maintaining long-term service sustainability.

The asset management component of the plan included development of updated asset inventories for system components such as watermains, valves, hydrants, pumps, intakes, and storage infrastructure. Useful service lives and 2025 replacement costs were assigned to each asset type to support long-term renewal forecasting. A reserve balance model was also prepared to estimate annual funding requirements and to prioritize replacement based on asset condition, risk, and consequence of failure.

Four capital upgrade options were reviewed, ranging from continued independent operation of Systems 8 and 9 to full integration of both irrigation systems with the future raw water supply from the Town's water treatment plant. Option #4, the Full Integration Configuration, was selected as the preferred long-term solution because it provides centralized operations, improved maintenance efficiency, intake redundancy, and flexibility to support future domestic water

treatment needs. This option includes twin 900 mm diameter intakes extending to approximately 30 m depth in Osoyoos Lake, a centralized pump station, and a combined pipe network serving Systems 8 and 9 and the future water treatment plant (with raw water).

Implementation is expected to proceed in phases, beginning with the combined intake and pump station, followed by transmission mains to the future water treatment plant and System 9, additional pump installation, and risk-prioritized replacement of aging asbestos cement watermains.

# 4.0 Water Consumption

## 4.1 Municipal System

The municipal water system consumption in 2025 totaled 2,599 ML. Water supplied by each well is summarized in Table 4-1 and shown on a percentage basis in Figure 4-1. In 2025, there was an increase of 17.5% in annual demand when compared to the 2024 annual demand of 2,211 ML.

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

| | Total Consumption (ML) |
|---|---|
| **Well No. 1** | 515 |
| **Well No. 3** | 782 |
| **Well No. 4** | 251 |
| **Well No. 5** | 520 |
| **Well No. 6** | 199 |
| **Well No. 8** | 332 |
| **Total** | **2599** |

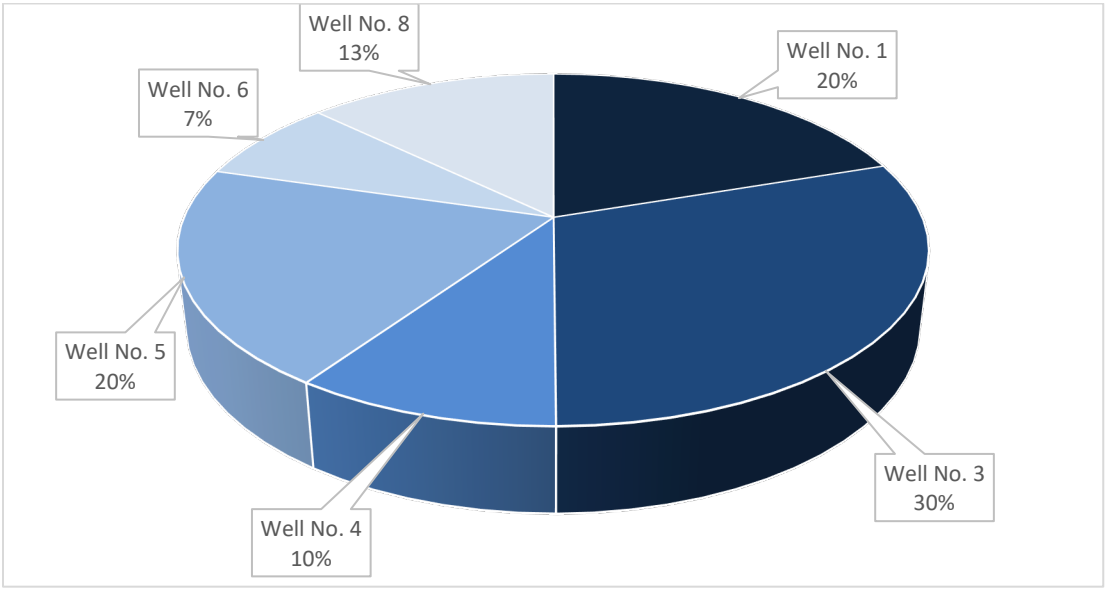



**FIGURE 4-1: PERCENT TOTAL CONSUMPTION SUMMARY**

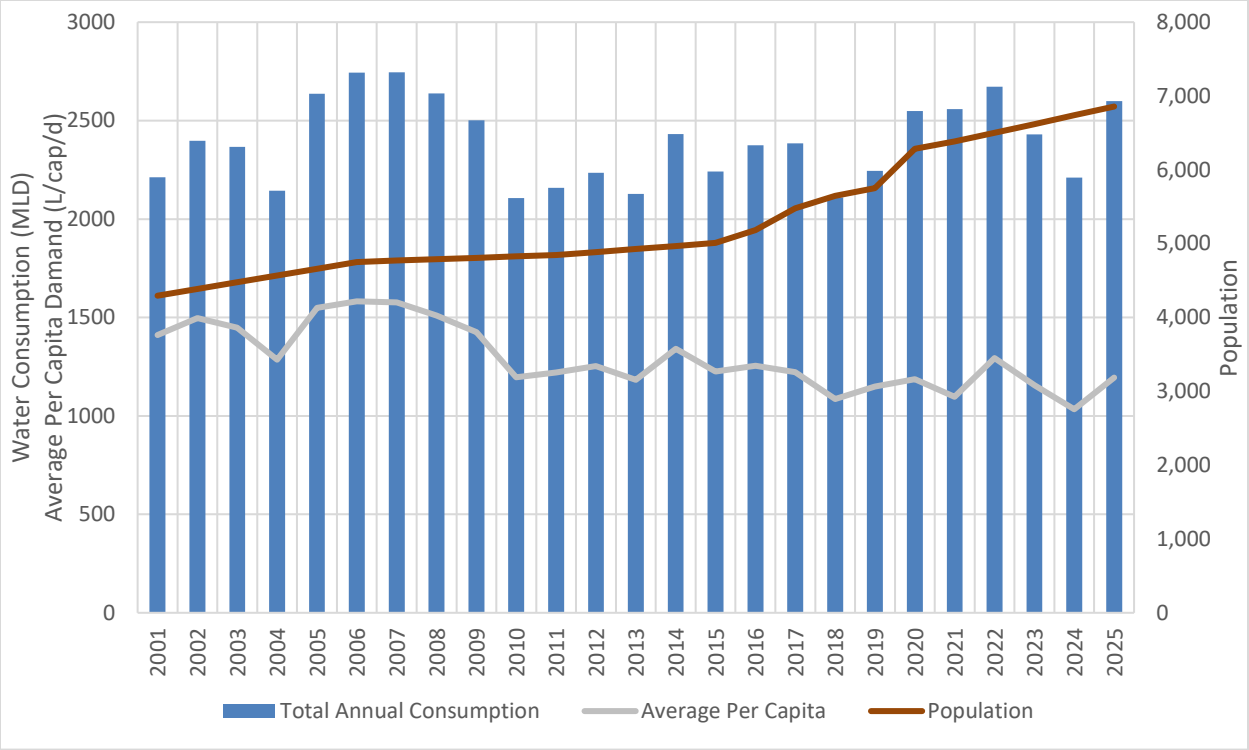



**FIGURE 4-2: TOTAL ANNUAL WATER CONSUMPTION - MUNICIPAL SYSTEM**

As shown in Figure 4-2, water consumption within the municipal system increased compared to 2024. Average per capita consumption shown in grey increased opposed to the previous two years. Although average per capita demand increased in 2025 it is still within the typical range of the system.

Figure 4-3 summarizes maximum day demand (MDD) and average day demand (ADD) from 2001 to 2025, well capacities (sustainable well yield), and the system capacity (pump capacity). As observed in Figure 4-3, the well capacity currently exceeds that of the system capacity. System observations are summarized as follows:

- In 2025, the ADD was 7.1 MLD. This is an increase of 18% compared to 2024.
- The MDD in 2024 was 15.9 MLD. This value is 15% greater than 2024 MDD.
- The 2025 MDD is above the n-1 system capacity of 13.9 MLD.

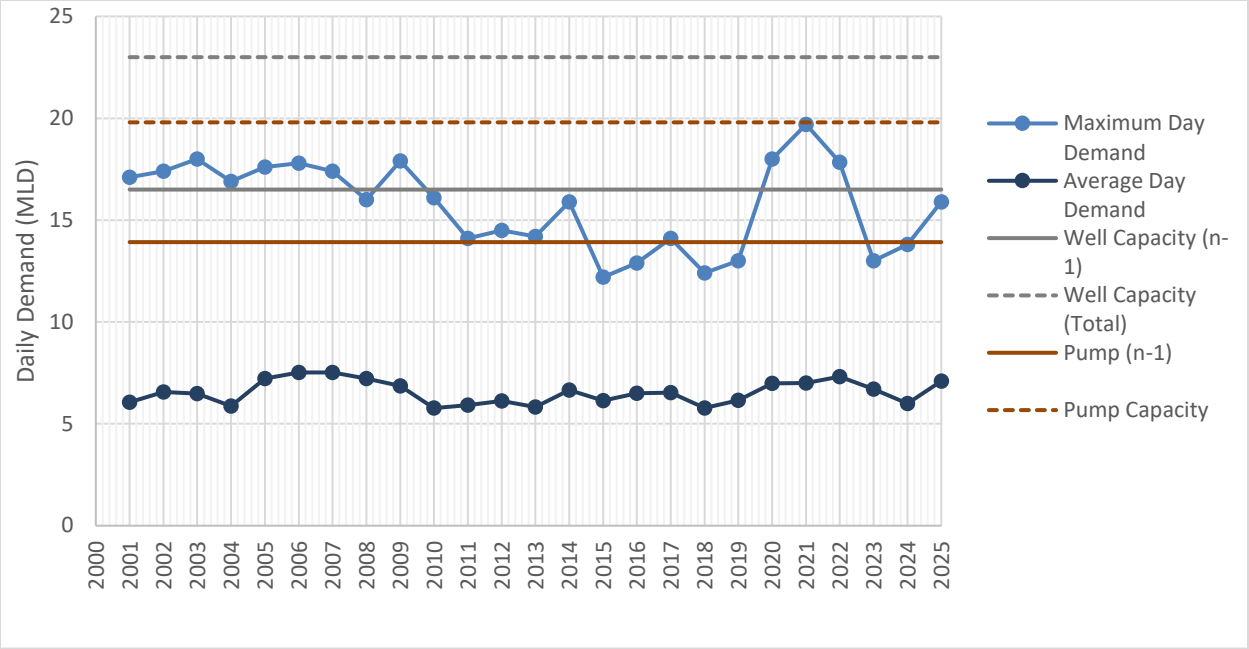



**FIGURE 4-3: SYSTEM AND WELL CAPACITY RELATIVE TO DAILY DEMAND**

## 4.2 Systems 8 and 9

Water consumption in 2025 for Irrigation Systems 8 and 9 are summarized as follows.

**TABLE 4-2: SYSTEM 8 AND 9 TOTAL ANNUAL CONSUMPTION**

| | TOTAL CONSUMPTION (ML) |
|---|---|
| System 8 | 3,167 |
| System 9 | 2,138 |
| **Total** | **5,305** |

The total annual consumption of 5,305 ML during the irrigation season equates to an average application rate of 789 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 2025. As compared to 2024, the 2025 irrigation system consumption increased by 235 ML (5%).

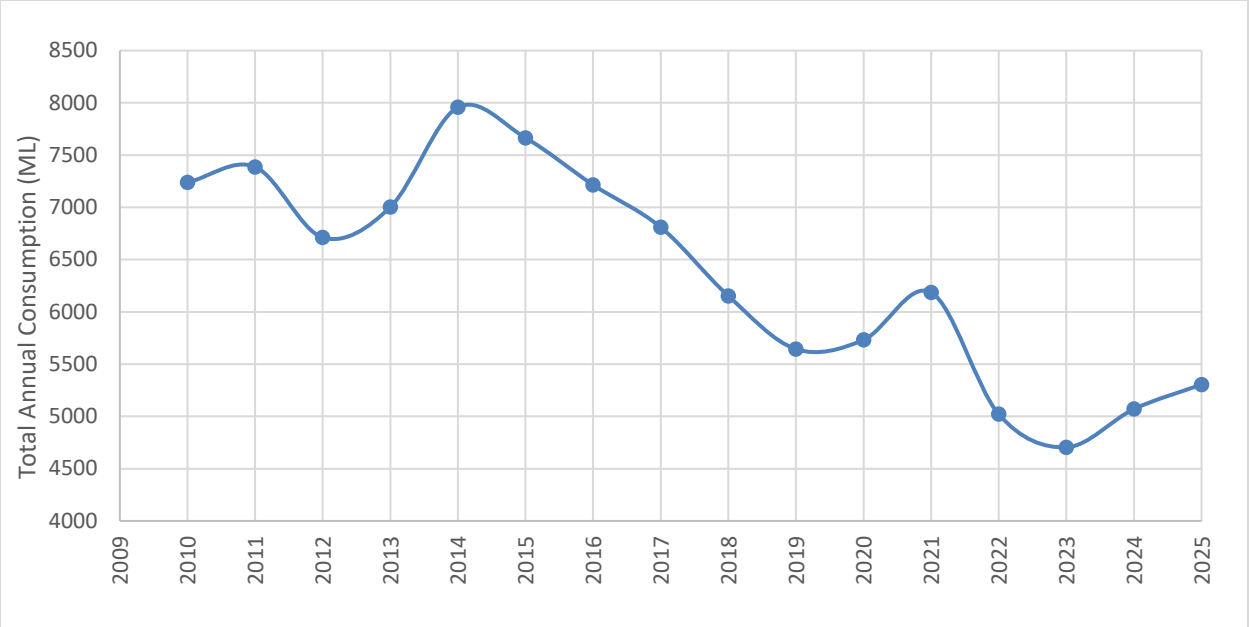



**FIGURE 4-4: TOTAL WATER CONSUMPTION IRRIGATION SYSTEM**

# 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 at the sampling locations listed below.

| SAMPLING LOCATIONS | | | |
|---|---|---|---|
| MUNICIPAL SAMPLING LOCATIONS: | | | IRRIGATION SYSTEM SAMPLING LOCATIONS: |
| 12th Ave. | 122nd Ave. | Well #1 | **System 9:** |
| 17202 – 103rd St. | 402 Reservoir | Well #3 | 7002 97th |
| Dividend Ridge | Highway 97th at 89th St. | Well #4 | #9 Reservoir |
| Cottonwood Dr. | Tamarack Dr. | Well #5 | |
| Lobelia Dr. | 8103 92nd Ave. | Well #6 | **System 8:** |
| Hummingbird Ln. | | Well #8 | 17202 103rd |

Bacteriological and chlorine residual sampling results for 2025 are available upon request and summarized as follows:

**Municipal System**

- Bacteriological:
  - Total number of Bacteriological Samples – 410
  - Number of Positive Results for E. coli – 0
  - Number of Positive Results for Total Coliform – 0

- Chlorine Residual
  - Total No. of Chlorine Residual Samples – 170
  - Chlorine Residual Concentration Range: 0.05 mg/l (Dividend Ridge 4/22/2025) – 1.33 mg/l (89th/Hwy 97 9/16/2025)

**Irrigation System**

**Location:** 7002 97th

- Bacteriological:
  - Total number of Bacteriological Samples – 80
  - Number of Positive Results for E. coli – 0
  - Number of Positive Results for Total Coliform – 13

| Result | Location | Date |
|---|---|---|
| 1 | 17202 103rd St (25D1340-04) | 4/9/2025 |
| ≥78 | 17202 103rd St (25D2829-04) | 4/23/2025 |
| ≥9 | 17202 103rd St (25D3908-04) | 4/30/2025 |
| ≥10 | 17202 103rd St (25D0818-04) | 5/7/2025 |
| 100 | 17202 103rd St (25I1287-04) | 9/9/2025 |
| ≥11 | 17202 103rd St (25I2350-04) | 9/16/2025 |
| 2 | 17202 103rd St (25I3347-04) | 9/23/2025 |
| 13 | Station 8 (25I3347-05) | 9/23/2025 |
| ≥4 | Station 9 (25I3347-06) | 9/23/2025 |
| 5 | 17202 103rd St (25J0306-10) | 10/1/2025 |
| 4 | 17202 103rd St (25J1149-04) | 10/7/2025 |
| 15 | 17202 103rd St (25J1894-04) | 10/17/2025 |
| ≥4 | 17202 103rd St (25K2033-05) | 11/19/2025 |

- Chlorine Residual
  - Total No. of Chlorine Residual Samples – 36
  - Chlorine Residual Concentration Range: 0.08 (25D2829-04 4/22/2025) – 1.66 (25H3667-04 8/26/2025)

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.

## 5.2 Domestic System Boil Water Advisory

During 2025, there were no operational, water quality, or treatment-related events that required the issuance of a boil water advisory for the Town of Osoyoos domestic water system. All domestic water supply wells, treatment processes, and distribution system operations remained compliant with applicable regulatory requirements throughout the year, and drinking water quality met the standards set out in the Guidelines for Canadian Drinking Water Quality.

## 5.3 Agriculture Irrigation System Boil Water Advisory

Treatment provided for water supplied from 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.
- Two forms of treatment for pathogen log reduction are not achieved.

In accordance with IHA's instructions, the Town annually issues a boil-water advisory to residents within the service areas of Irrigation Systems 8 and 9. The boil water advisory was issued in April 2025 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 the 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 the first week of November.

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

## 5.4 Municipal 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 several factors, including concentration of organic materials (usually measured as total organic carbon), chlorine dose and retention time in the distribution system.

The domestic water system was sampled for trihalomethane in January and September of 2025. Analytical results can be viewed in Appendix B. The sample results are summarized in

Table 5-1.

**TABLE 5-1: DOMESTIC WATER SYSTEM TRIHALOMETHANE SAMPLING**

| SAMPLE DATE/LOCATION | JANUARY 7TH 2025 COTTONWOOD | SEPTEMBER 9TH 2025 DIVIDEND RIDGE | CDWQ STANDARD |
|---|---|---|---|
| Total Trihalomethanes | 0.0309 | 0.0357 | 0.1 mg/L MAC |
| **Volatile Organic Compounds** | | | |
| Bromodichloromethane | 0.0077 | 0.0054 | |
| Bromoform | <0.001 | <0.001 | |
| Chloroform | 0.0205 | 0.0303 | |
| Dibromochloromethane | 0.0027 | <0.001 | |

## 5.5 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 2025, full-spectrum water quality testing was conducted during the January 21st, May 14th, and August 6th sampling events.

In addition to this event, manganese was sampled at each well as per the sample events summarized in Table 5-2. The results of this analysis are provided in Appendix B.

**TABLE 5-2: WELL TESTING SAMPLING EVENTS**

| WELL / STATION | 2025 SAMPLE EVENTS |
|---|---|
| **Well No. 1** | Jan 21, May 14, Aug 6 |
| **Well No. 3** | Jan 21, Feb 18, Mar 18, Apr 18, May 14, Jun 15, Jul 11, Aug 6, Sep 2, Oct 1, Nov 25 |
| **Well No. 4** | Feb 18, Mar 18, Apr 18, May 14, Jun 15, Jul 11, Aug 6, Sep 2, Oct 1, Nov 25 |
| **Well No. 5** | Feb 18, Mar 18, Apr 18, May 14, Jun 15, Jul 11, Aug 6, Sep 2, Oct 1, Nov 25 |
| **Well No. 6** | Jan 21, Feb 18, Mar 18, Apr 18, May 14, Jun 15, Jul 11, Aug 6, Sep 2, Oct 1, Nov 25 |
| **Well No. 8** | Jan 21, Feb 18, Mar 18, Apr 18, Jun 15, Jul 11, Aug 6, Sep 2, Oct 1, Dec 16 |
| **Station 8** | Apr 22, Jul 15 ,Sept 23 |
| **Station 9** | Apr 22, Jul 15, Sept 23 |

Summaries of 2025 analytical results for manganese are presented in Table 5-3. This table shows dissolved manganese concentration in source water wells #4, #5, #6, and #8 are at or above the maximum allowable concentration (MAC=0.12 mg/L) 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. The Town is exploring the option to implement a surface water treatment plant to provide treated water to the system.

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

| | | ANALYTE | IRON, TOTAL | MANGANESE |
|---|---|---|---|---|
| LAB ID | DATE | STD (CDWQG) | AO<=0.3 | MAC=0.12 |
| 25A2099-01 | 21-Jan | Well #1 | 0.014 | 0.00237 |
| 25E1935-06 | 14-May | Well #1 | <0.01 | 0.00205 |
| 25H0557-05 | 6-Aug | Well #1 | <0.01 | 0.00309 |
| 25A2099-02 | 21-Jan | Well #3 | <0.01 | 0.0167 |
| 25B1745-01 | 18-Feb | Well #3 | | 0.0186 |
| 25C2228-01 | 18-Mar | Well #3 | | 0.0185 |
| 25D2159-01 | 18-Apr | Well #3 | | 0.0187 |
| 25E1935-02 | 14-May | Well #3 | <0.010 | 0.0203 |
| 25F1630-01 | 15-Jun | Well #3 | | 0.0225 |
| 25G1238-05 | 11-Jul | Well #3 | | 0.0248 |
| 25H0557-06 | 6-Aug | Well #3 | <0.01 | 0.025 |
| 25I0491-01 | 2-Sep | Well #3 | | 0.026 |
| 25J0471-01 | 1-Oct | Well #3 | | 0.0273 |
| 25K2910-01 | 25-Nov | Well #3 | | 0.0227 |
| 25B1745-02 | 18-Feb | Well #4 | | 0.125 |
| 25C2228-02 | 18-Mar | Well #4 | | 0.141 |
| 25D2159-02 | 18-Apr | Well #4 | | 0.15 |
| 25E1935-03 | 14-May | Well #4 | 0.116 | 0.143 |
| 25F1630-02 | 15-Jun | Well #4 | | 0.126 |
| 25G1238-06 | 11-Jul | Well #4 | | 0.129 |
| 25H0557-07 | 6-Aug | Well #4 | 0.273 | 0.119 |
| 25I0491-02 | 2-Sep | Well #4 | | 0.12 |
| 25J0471-02 | 1-Oct | Well #4 | | 0.129 |
| 25K2910-02 | 25-Nov | Well #4 | | 0.146 |
| 25B1745-03 | 18-Feb | Well #5 | | 0.181 |
| 25C2228-03 | 18-Mar | Well #5 | | 0.17 |
| 25D2159-03 | 18-Apr | Well #5 | | 0.171 |
| 25E1935-04 | 14-May | Well #5 | 0.11 | 0.144 |
| 25F1630-01 | 15-Jun | Well #5 | | 0.152 |
| 25G1238-07 | 11-Jul | Well #5 | | 0.158 |
| 25H0557-08 | 6-Aug | Well #5 | 0.116 | 0.143 |
| 25I0491-03 | 2-Sep | Well #5 | | 0.139 |
| 25J0471-03 | 1-Oct | Well #5 | | 0.182 |
| 25K2910-01 | 25-Nov | Well #5 | | 0.131 |
| 25A2099-03 | 21-Jan | Well #6 | <0.01 | 0.108 |
| 25B1745-04 | 18-Feb | Well #6 | | 0.126 |
| 25C2228-04 | 18-Mar | Well #6 | | 0.126 |

| | | ANALYTE | IRON, TOTAL | MANGANESE |
|---|---|---|---|---|
| LAB ID | DATE | STD (CDWQG) | AO<=0.3 | MAC=0.12 |
| 25D2159-04 | 18-Apr | Well #6 | | 0.123 |
| 25E1935-05 | 14-May | Well #6 | 0.01 | 0.125 |
| 25F1630-01 | 15-Jun | Well #6 | | 0.132 |
| 25G1238-08 | 11-Jul | Well #6 | | 0.139 |
| 25H0557-09 | 6-Aug | Well #6 | <0.01 | 0.14 |
| 25I0491-04 | 2-Sep | Well #6 | | 0.147 |
| 25J0471-04 | 1-Oct | Well #6 | | 0.165 |
| 25K2910-04 | 25-Nov | Well #6 | | 0.342 |
| 25A2099-04 | 21-Jan | Well #8 | <0.01 | 0.155 |
| 25B1745-05 | 18-Feb | Well #8 | | 0.157 |
| 25C2228-05 | 18-Mar | Well #8 | | 0.158 |
| 25D2159-05 | 18-Apr | Well #8 | | 0.122 |
| 25F1630-01 | 15-Jun | Well #8 | | 0.115 |
| 25G1238-09 | 11-Jul | Well #8 | | 0.132 |
| 25H0557-10 | 6-Aug | Well #8 | <0.01 | 0.139 |
| 25I0491-05 | 2-Sep | Well #8 | | 0.134 |
| 25J0471-05) | 1-Oct | Well #8 | | 0.00812 |
| 25L2137-05 | 16-Dec | Well #8 | 1.06 | 0.11 |

Figures 5-1 shows these sampling events graphically.

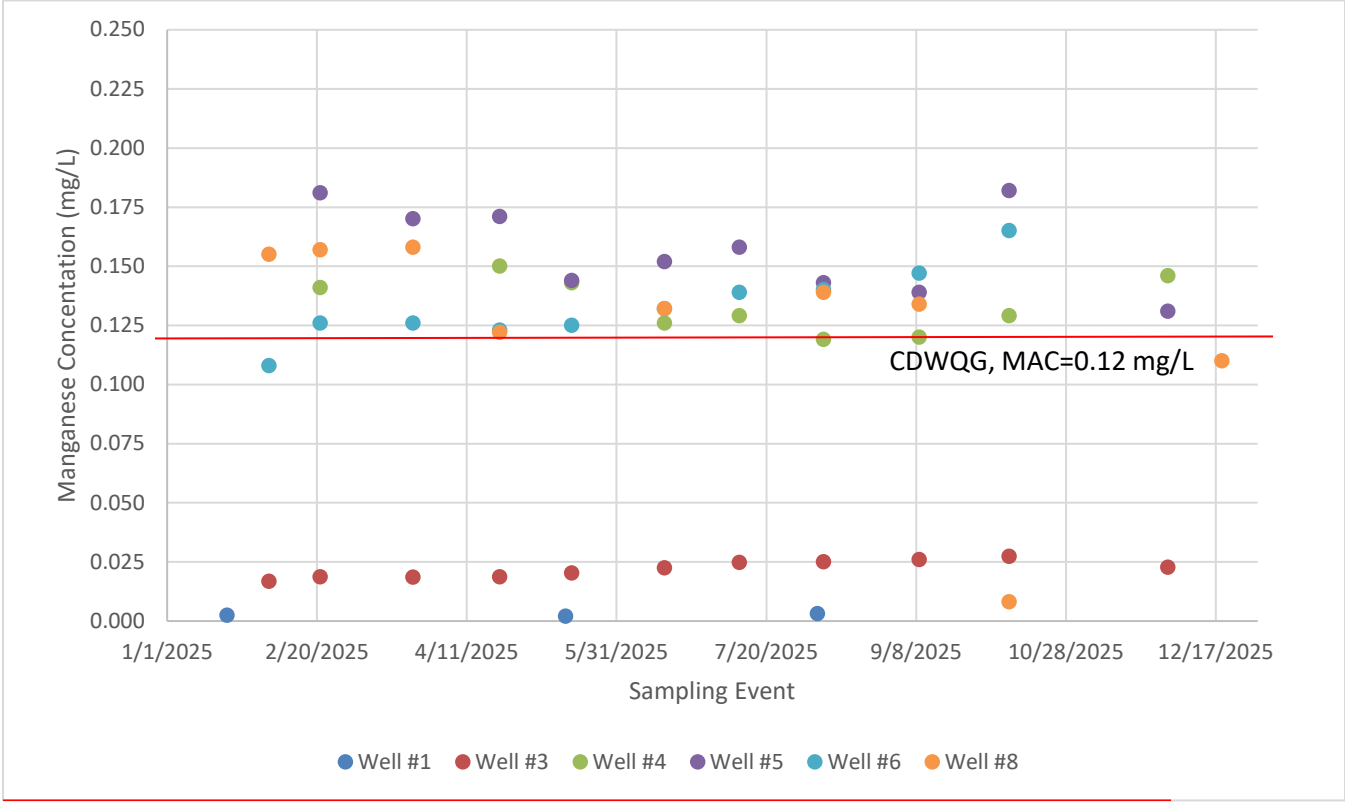



**FIGURE 5-1: MANGANESE CONCENTRATION MONITORING**

Considering Irrigation Systems 8 and 9, Table 5-4 shows elevated turbidity at the irrigation system intakes. This is expected from a non-filtered surface water source.

**TABLE 5-4: SUMMARY OF 2025 FULL-SPECTRUM ANALYSIS - TURBIDITY**

| LAB ID | DATE | STD (CDWQG) | | TURBIDITY OG<1 |
|---|---|---|---|---|
| 25D3267-01 | April 22nd | Station | #8 | 1.20 |
| 25G2267-01 | July 15th | Station | #8 | 0.71 |
| 25I3351-01 | September 23rd | Station | #8 | 0.51 |
| 25D3267-02 | April 22nd | Station | #9 | 0.78 |
| 25G2267-02 | July 15th | Station | #9 | 0.91 |
| 25I3351-02 | September 23rd | Station | #9 | 0.46 |

## 5.6 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. Sample events for nitrate monitoring were not consistent for each well, as shown in **Error! Reference source not found.**. Nitrate data for each well are provided in Appendix B. The data is summarized below.

**TABLE 5-5: NITRATE CONCENTRATION MONITORING RESULTS SUMMARY**

| CANADIAN DRINKING WATER QUALITY MAXIMUM ACCEPTABLE CONCENTRATION | NITRATE AS N (MG/L) |
|---|---|
| | 10 MG/L |
| Well No. 1 | 4.46 – 5.19 |
| Well No. 3 | 2.08 – 2.83 |
| Well No. 4 | <0.010 |
| Well No. 5 | <0.010 |
| Well No. 6 | 0.497 – 4.18 |
| Well No. 8 | 0.314 – 1.06 |

**Error! Reference source not found.** 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. It's worth noting that in Figure 5-2, Well #4 values are behind Well #5 values as they are both below 0.01 mg/L.

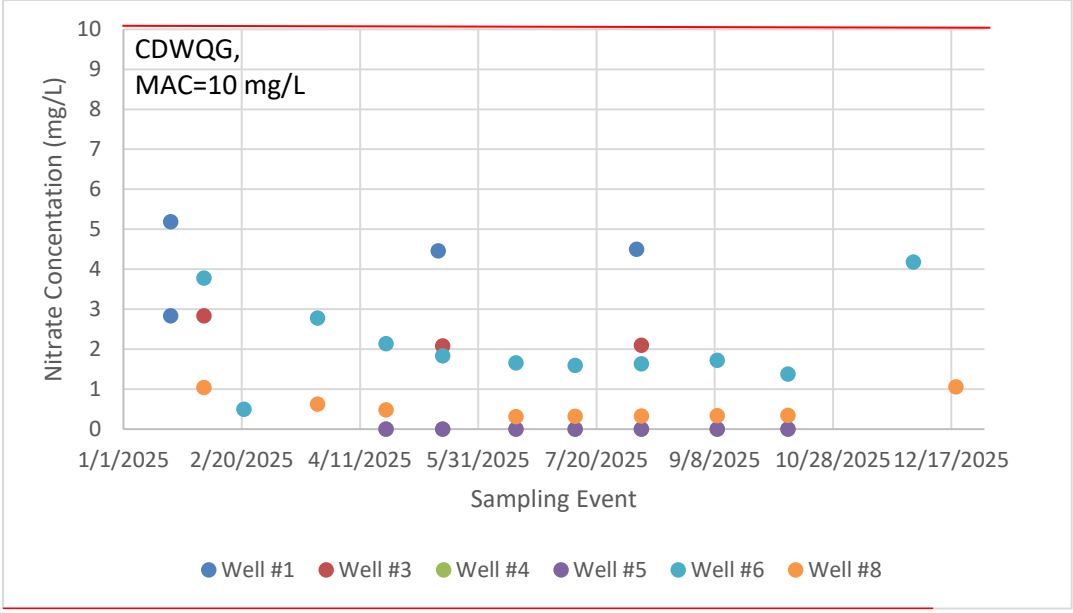



**FIGURE 5-2: NITRATE CONCENTRATION MONITORING RESULTS**

## 5.7 Water Quality Complaints and Operational Incidents

In any given year, the Town of Osoyoos receives concerns regarding water quality, ranging from issues with 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 analyzer 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)

The Town uses a SCADA computer control and monitoring system 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.

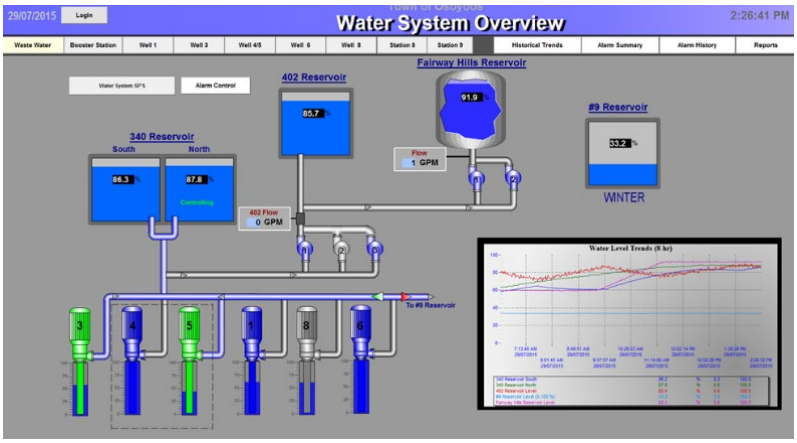



**FIGURE 6-1: SCADA SYSTEM OVERVIEW DISPLAY**

## 6.3 Major Maintenance – 2025

Major maintenance projects undertaken in 2025 include:

- Water main flushing program,
- Valve exercising, and
- Visual inspection of Hydrants.

## 6.4 Cross Control Program

A cross connection is most commonly a plumbing system in a building that poses the risk of backflow into the Town's water distribution system, thereby potentially adversely affecting water quality. The Town has a program to identify cross-connections and requires the installation and maintenance of backflow prevention devices to prevent reverse flow from a service connection into 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 410 devices, of which:

- 83 are classified as high hazard,
- 108 are classified as medium hazard,

- 44 are classified as low hazard,
- 17 are classified as none, and
- 133 devices are outstanding.

By the end of December 2025, a total of 73% of the backflow devices have been surveyed, which comprises an inspection of the premises and backflow prevention devices. Of the high-hazard group, 88% have been surveyed. At the end of December 2025, compliance with the Town's cross connection control program is summarized as follows.

**TABLE 6-1: CROSS CONTROL CONNECTION – 2024 PROGRAM SUMMARY**

| HAZARD RANKING | QUANTITY | NOT SURVEYED | SURVEYED | VACANT | NUMBER COMPLIANT | % COMPLIANT |
|---|---|---|---|---|---|---|
| **High** | 83 | 10 | 73 | 0 | 57 | 57% |
| **Medium** | 108 | 29 | 78 | 0 | 53 | 53% |
| **Low** | 44 | 11 | 33 | 0 | 13 | 13% |
| **None** | 17 | 17 | 0 | 12 | 0 | |
| **Totals** | **252** | **67** | **184** | **12** | **123** | |

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 2025. The current Plan is available upon request.

## 6.6 Operator Certifications

The operator certifications are summarized as follows:

**TABLE 6-2: OPERATOR CERTIFICATION**

| OPERATOR | CERTIFICATION |
|---|---|
| Jillian Abney | WT-IV WWT-II WD-I WWC-I SWWS |
| Kevin Carlston | WD-III |
| Sean Fawley | WT-II WD-II WWT-I SWWS |
| Brendon Jones | WD-II WWC-II |
| Sheldon Newman | WD-I |
| Andrew Fortier | WWC-II |
| Reid Tucker | WD-I |
| Manuel Mora | WWC-I |

# 7.0 Capital Program

## 7.1 Municipal System

### 7.1.1 Budgeted Capital Projects in 2026

- Water Metering
- Fairway Hills Booster Station Emergency Generator
- East Osoyoos Reservoir
- Watermain - Quail Place
- Water Rate Development
- Water Conservation Plan
- Watermain - 89th St from 78th to Kingfisher
- Watermain Pigging Pilot Program

### 7.1.2 Projects completed in 2025

- 74th Ave, Heron, and Loon Reconstruction
  - The 74th Avenue, Heron Lane, and Loon Crescent Watermain Replacement project for the Town of Osoyoos involved replacing approximately 575m of existing watermain and completing associated road and surface restorations on the west side of Osoyoos. The work includes trench and surface repairs, minor concrete sidewalk construction, and the realignment of a storm siphon
  - All existing asbestos cement (AC) watermain piping was removed and replaced with new PVC watermain.
- Magnolia Crescent Reconstruction
  - The Magnolia Place Sanitary Sewer Replacements project for the Town of Osoyoos included the installation of new PVC watermain and sanitary sewer infrastructure, complete with manholes, services, and bypass pumping. The work also involved road restoration.
  - All new PVC watermain replaced abandoned existing AC piping.
- Osoyoos Water Meter Vault Installation
  - The Water Meter Vault Installation project for the Town of Osoyoos involved the construction of new water meter vaults at multiple strata properties throughout the community. The scope of work included the supply and installation of 1,500 mm diameter water meter vaults and Neptune Mach 10 Ultrasonic Water Meters at twelve strata locations, supporting the Town's universal water metering initiative.
- The Universal Metering Project
  - The Universal Metering Project involved the installation of approximately 2000 water meters town-wide for every property connected to the Osoyoos Domestic Water System. This consisted of approximately 1550 in-house meters and 450 exterior meter pits.

- Highway No. 3 Watermain - 51st Street to 62nd Avenue
  - The town undertook the construction of approximately 510 metres of new 250 mm PVC watermain along Highway No. 3 between 51st Street and 62nd Avenue to extend municipal water infrastructure. The project also included asphalt trench restoration on Highway No. 3 and frontage roads, complete with traffic control measures and line painting.
- Cedar Lane Water Service Extension
  - The Cedar Lane Extension project includes the construction of new water, sanitary, and storm sewer infrastructure and associated roadworks in the east sector of the Town within the OIB Reserve #1.

# 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

## Water Sampling Results

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Dave Stene | **WORK ORDER** | 25A0542 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-01-08 09:47 / 10.0°C |
| **PROJECT** | THM Analysis | **REPORTED** | 2025-01-14 13:54 |
| **PROJECT INFO** | Weekly Water Testing | **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 hhannaoui@caro.ca*

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25A0542 |
| **PROJECT** | THM Analysis | **REPORTED** | 2025-01-14 13:54 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Cottonwood (25A0542-01) \| Matrix: Water \| Sampled: 2025-01-07 07:30** | | | | | | |
| ***Calculated Parameters*** | | | | | | |
| Total Trihalomethanes | **0.0309** | MAC = 0.1 | 0.00400 | mg/L | N/A | |
| ***Haloacetic Acids*** | | | | | | |
| Monochloroacetic Acid | < 0.0020 | N/A | 0.0020 | mg/L | 2025-01-10 | |
| Monobromoacetic Acid | < 0.0020 | N/A | 0.0020 | mg/L | 2025-01-10 | |
| Dichloroacetic Acid | **0.0060** | N/A | 0.0020 | mg/L | 2025-01-10 | |
| Trichloroacetic Acid | **0.0063** | N/A | 0.0020 | mg/L | 2025-01-10 | |
| Dibromoacetic Acid | < 0.0020 | N/A | 0.0020 | mg/L | 2025-01-10 | |
| Total Haloacetic Acids (HAA5) | **0.0124** | MAC = 0.08 | 0.00200 | mg/L | N/A | |
| *Surrogate: 2-Bromopropionic Acid* | *92* | | *70-130* | % | *2025-01-10* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | |
| Bromodichloromethane | **0.0077** | N/A | 0.0010 | mg/L | 2025-01-09 | |
| Bromoform | < 0.0010 | N/A | 0.0010 | mg/L | 2025-01-09 | |
| Chloroform | **0.0205** | N/A | 0.0010 | mg/L | 2025-01-09 | |
| Dibromochloromethane | **0.0027** | N/A | 0.0010 | mg/L | 2025-01-09 | |
| *Surrogate: Toluene-d8* | *104* | | *70-130* | % | *2025-01-09* | |
| *Surrogate: 4-Bromofluorobenzene* | *92* | | *70-130* | % | *2025-01-09* | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25A0542 |
| **PROJECT** | THM Analysis | **REPORTED** | 2025-01-14 13:54 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Haloacetic Acids in Water | EPA 552.3* | Liquid-Liquid Microextraction, Derivatization and GC-ECD | ✓ | Richmond |
| Trihalomethanes in Water | EPA 5030B / EPA 8260D | Purge&Trap / GC-MSD (SIM) | ✓ | Richmond |

*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 |
| MAC | Maximum Acceptable Concentration (health based) |
| mg/L | Milligrams per litre |
| EPA | United States Environmental Protection Agency Test Methods |

**Guidelines Referenced in this Report:**

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

***Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user***

**General Comments:**

The results in this report apply to the received 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. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed. 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:hhannaoui@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<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Dave Stene | **WORK ORDER** | 25A1327 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-01-15 09:30 / 10.9°C |
| **PROJECT** | General Potability | **REPORTED** | 2025-01-17 15:28 |
| **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 hhannaoui@caro.ca*

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25A1327 |
| **PROJECT** | General Potability | **REPORTED** | 2025-01-17 15:28 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #4 (25A1327-01) \| Matrix: Water \| Sampled: 2025-01-14 09:30** | | | | | | |
| ***General Parameters*** | | | | | | |
| Ammonia, Total (as N) | **0.866** | None Required | 0.050 | mg/L | 2025-01-17 | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25A1327 |
| **PROJECT** | General Potability | **REPORTED** | 2025-01-17 15:28 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Ammonia, Total in Water | SM 4500-NH3 G* (2021) | Automated Colorimetry (Phenate) | ✓ | 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) |
| mg/L | Milligrams per litre |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

**Guidelines Referenced in this Report:**

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

***Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user***

**General Comments:**

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Dave Stene | **WORK ORDER** | 25A2099 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-01-21 16:56 / 9.6°C |
| **PROJECT** | General Potability | **REPORTED** | 2025-02-04 10:47 |
| **PROJECT INFO** | Weekly Water Testing | **COC NUMBER** | No Number |

**Introduction:**

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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.

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

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

CARO ANALYTICAL SERVICES

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25A2099 |
| **PROJECT** | General Potability | **REPORTED** | 2025-02-04 10:47 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #1 (25A2099-01) \| Matrix: Water \| Sampled: 2025-01-21 08:00** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **55.1** | AO ≤ 250 | 0.10 | mg/L | 2025-01-23 | |
| Fluoride | **0.26** | MAC = 1.5 | 0.10 | mg/L | 2025-01-23 | |
| Nitrate (as N) | **5.19** | MAC = 10 | 0.010 | mg/L | 2025-01-23 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-01-23 | |
| Sulfate | **79.0** | AO ≤ 500 | 1.0 | mg/L | 2025-01-23 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **349** | None Required | 0.500 | mg/L | N/A | |
| Solids, Total Dissolved | **482** | AO ≤ 500 | 10.0 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **243** | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Bicarbonate (as CaCO3) | **243** | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-01-23 | |
| Conductivity (EC) | **768** | N/A | 2.0 | µS/cm | 2025-01-23 | |
| Cyanide, Total | < 0.0050 | MAC = 0.2 | 0.0050 | mg/L | 2025-01-31 | |
| pH | **7.76** | 7.0-10.5 | 0.10 | pH units | 2025-01-23 | HT2 |
| Turbidity | < 0.10 | OG < 1 | 0.10 | NTU | 2025-01-23 | |
| ***Total Metals*** | | | | | | |
| Aluminum, total | **0.0065** | OG < 0.1 | 0.0050 | mg/L | 2025-01-23 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-01-23 | |
| Arsenic, total | **0.00448** | MAC = 0.01 | 0.00050 | mg/L | 2025-01-23 | |
| Barium, total | **0.0708** | MAC = 2 | 0.0050 | mg/L | 2025-01-23 | |
| Boron, total | **0.0532** | MAC = 5 | 0.0500 | mg/L | 2025-01-23 | |
| Cadmium, total | **0.000034** | MAC = 0.007 | 0.000010 | mg/L | 2025-01-23 | |
| Calcium, total | **104** | None Required | 0.20 | mg/L | 2025-01-23 | |
| Chromium, total | **0.00076** | MAC = 0.05 | 0.00050 | mg/L | 2025-01-23 | |
| Copper, total | **0.00576** | MAC = 2 | 0.00040 | mg/L | 2025-01-23 | |
| Iron, total | **0.014** | AO ≤ 0.3 | 0.010 | mg/L | 2025-01-23 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-01-23 | |
| Magnesium, total | **21.6** | None Required | 0.010 | mg/L | 2025-01-23 | |
| Manganese, total | **0.00237** | MAC = 0.12 | 0.00020 | mg/L | 2025-01-23 | |
| Potassium, total | **6.91** | N/A | 0.10 | mg/L | 2025-01-23 | |
| Selenium, total | **0.00092** | MAC = 0.05 | 0.00050 | mg/L | 2025-01-23 | |
| Sodium, total | **44.0** | AO ≤ 200 | 0.10 | mg/L | 2025-01-23 | |
| Strontium, total | **0.944** | MAC = 7 | 0.0010 | mg/L | 2025-01-23 | |
| Uranium, total | **0.00908** | MAC = 0.02 | 0.000020 | mg/L | 2025-01-23 | |
| Zinc, total | **0.0050** | AO ≤ 5 | 0.0040 | mg/L | 2025-01-23 | |
| **Well #3 (25A2099-02) \| Matrix: Water \| Sampled: 2025-01-21 08:40** | | | | | | |

CARO ANALYTICAL SERVICES

# TEST RESULTS

**REPORTED TO** Osoyoos, Town of
**PROJECT** General Potability

**WORK ORDER** 25A2099
**REPORTED** 2025-02-04 10:47

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #3 (25A2099-02) \| Matrix: Water \| Sampled: 2025-01-21 08:40, Continued** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **19.8** | AO ≤ 250 | 0.10 | mg/L | 2025-01-23 | |
| Fluoride | **0.57** | MAC = 1.5 | 0.10 | mg/L | 2025-01-23 | |
| Nitrate (as N) | **2.83** | MAC = 10 | 0.010 | mg/L | 2025-01-23 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-01-23 | |
| Sulfate | **54.8** | AO ≤ 500 | 1.0 | mg/L | 2025-01-23 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **304** | None Required | 0.500 | mg/L | N/A | |
| Solids, Total Dissolved | **380** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **251** | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Bicarbonate (as CaCO3) | **251** | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-01-23 | |
| Conductivity (EC) | **655** | N/A | 2.0 | µS/cm | 2025-01-23 | |
| Cyanide, Total | < 0.0050 | MAC = 0.2 | 0.0050 | mg/L | 2025-01-31 | |
| pH | **7.82** | 7.0-10.5 | 0.10 | pH units | 2025-01-23 | HT2 |
| Turbidity | < 0.10 | OG < 1 | 0.10 | NTU | 2025-01-23 | |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-01-23 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-01-23 | |
| Arsenic, total | **0.00145** | MAC = 0.01 | 0.00050 | mg/L | 2025-01-23 | |
| Barium, total | **0.0868** | MAC = 2 | 0.0050 | mg/L | 2025-01-23 | |
| Boron, total | **0.0546** | MAC = 5 | 0.0500 | mg/L | 2025-01-23 | |
| Cadmium, total | **0.000022** | MAC = 0.007 | 0.000010 | mg/L | 2025-01-23 | |
| Calcium, total | **84.3** | None Required | 0.20 | mg/L | 2025-01-23 | |
| Chromium, total | **0.00111** | MAC = 0.05 | 0.00050 | mg/L | 2025-01-23 | |
| Copper, total | **0.00352** | MAC = 2 | 0.00040 | mg/L | 2025-01-23 | |
| Iron, total | < 0.010 | AO ≤ 0.3 | 0.010 | mg/L | 2025-01-23 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-01-23 | |
| Magnesium, total | **22.6** | None Required | 0.010 | mg/L | 2025-01-23 | |
| Manganese, total | **0.0167** | MAC = 0.12 | 0.00020 | mg/L | 2025-01-23 | |
| Potassium, total | **6.64** | N/A | 0.10 | mg/L | 2025-01-23 | |
| Selenium, total | **0.00171** | MAC = 0.05 | 0.00050 | mg/L | 2025-01-23 | |
| Sodium, total | **26.0** | AO ≤ 200 | 0.10 | mg/L | 2025-01-23 | |
| Strontium, total | **0.981** | MAC = 7 | 0.0010 | mg/L | 2025-01-23 | |
| Uranium, total | **0.0113** | MAC = 0.02 | 0.000020 | mg/L | 2025-01-23 | |
| Zinc, total | < 0.0040 | AO ≤ 5 | 0.0040 | mg/L | 2025-01-23 | |
| **Well #6 (25A2099-03) \| Matrix: Water \| Sampled: 2025-01-21 09:15** | | | | | | |

CARO ANALYTICAL SERVICES

# TEST RESULTS

**REPORTED TO** Osoyoos, Town of
**PROJECT** General Potability

**WORK ORDER** 25A2099
**REPORTED** 2025-02-04 10:47

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #6 (25A2099-03) \| Matrix: Water \| Sampled: 2025-01-21 09:15, Continued** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **27.6** | AO ≤ 250 | 0.10 | mg/L | 2025-01-23 | |
| Fluoride | **0.34** | MAC = 1.5 | 0.10 | mg/L | 2025-01-23 | |
| Nitrate (as N) | **3.78** | MAC = 10 | 0.010 | mg/L | 2025-01-23 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-01-23 | |
| Sulfate | **62.9** | AO ≤ 500 | 1.0 | mg/L | 2025-01-23 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **312** | None Required | 0.500 | mg/L | N/A | |
| Solids, Total Dissolved | **418** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **263** | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Bicarbonate (as CaCO3) | **263** | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-01-23 | |
| Conductivity (EC) | **714** | N/A | 2.0 | µS/cm | 2025-01-23 | |
| Cyanide, Total | < 0.0050 | MAC = 0.2 | 0.0050 | mg/L | 2025-01-31 | |
| pH | **7.97** | 7.0-10.5 | 0.10 | pH units | 2025-01-23 | HT2 |
| Turbidity | < 0.10 | OG < 1 | 0.10 | NTU | 2025-01-23 | |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-01-23 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-01-23 | |
| Arsenic, total | **0.00471** | MAC = 0.01 | 0.00050 | mg/L | 2025-01-23 | |
| Barium, total | **0.0768** | MAC = 2 | 0.0050 | mg/L | 2025-01-23 | |
| Boron, total | **0.0501** | MAC = 5 | 0.0500 | mg/L | 2025-01-23 | |
| Cadmium, total | **0.000023** | MAC = 0.007 | 0.000010 | mg/L | 2025-01-23 | |
| Calcium, total | **76.7** | None Required | 0.20 | mg/L | 2025-01-23 | |
| Chromium, total | **0.00085** | MAC = 0.05 | 0.00050 | mg/L | 2025-01-23 | |
| Copper, total | **0.00326** | MAC = 2 | 0.00040 | mg/L | 2025-01-23 | |
| Iron, total | < 0.010 | AO ≤ 0.3 | 0.010 | mg/L | 2025-01-23 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-01-23 | |
| Magnesium, total | **29.2** | None Required | 0.010 | mg/L | 2025-01-23 | |
| Manganese, total | **0.108** | MAC = 0.12 | 0.00020 | mg/L | 2025-01-23 | |
| Potassium, total | **6.55** | N/A | 0.10 | mg/L | 2025-01-23 | |
| Selenium, total | **0.00072** | MAC = 0.05 | 0.00050 | mg/L | 2025-01-23 | |
| Sodium, total | **38.3** | AO ≤ 200 | 0.10 | mg/L | 2025-01-23 | |
| Strontium, total | **0.917** | MAC = 7 | 0.0010 | mg/L | 2025-01-23 | |
| Uranium, total | **0.00822** | MAC = 0.02 | 0.000020 | mg/L | 2025-01-23 | |
| Zinc, total | **0.0068** | AO ≤ 5 | 0.0040 | mg/L | 2025-01-23 | |
| **Well #8 (25A2099-04) \| Matrix: Water \| Sampled: 2025-01-21 08:25** | | | | | | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25A2099 |
| **PROJECT** | General Potability | **REPORTED** | 2025-02-04 10:47 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #8 (25A2099-04) \| Matrix: Water \| Sampled: 2025-01-21 08:25, Continued** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **16.6** | AO ≤ 250 | 0.10 | mg/L | 2025-01-23 | |
| Fluoride | **0.16** | MAC = 1.5 | 0.10 | mg/L | 2025-01-23 | |
| Nitrate (as N) | **1.04** | MAC = 10 | 0.010 | mg/L | 2025-01-23 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-01-23 | |
| Sulfate | **39.5** | AO ≤ 500 | 1.0 | mg/L | 2025-01-23 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **204** | None Required | 0.500 | mg/L | N/A | |
| Solids, Total Dissolved | **272** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **181** | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Bicarbonate (as CaCO3) | **181** | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-01-23 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-01-23 | |
| Conductivity (EC) | **472** | N/A | 2.0 | µS/cm | 2025-01-23 | |
| Cyanide, Total | < 0.0050 | MAC = 0.2 | 0.0050 | mg/L | 2025-01-31 | |
| pH | **7.92** | 7.0-10.5 | 0.10 | pH units | 2025-01-23 | HT2 |
| Turbidity | < 0.10 | OG < 1 | 0.10 | NTU | 2025-01-23 | |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-01-23 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-01-23 | |
| Arsenic, total | **0.00200** | MAC = 0.01 | 0.00050 | mg/L | 2025-01-23 | |
| Barium, total | **0.0615** | MAC = 2 | 0.0050 | mg/L | 2025-01-23 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-01-23 | |
| Cadmium, total | **0.000035** | MAC = 0.007 | 0.000010 | mg/L | 2025-01-23 | |
| Calcium, total | **56.0** | None Required | 0.20 | mg/L | 2025-01-23 | |
| Chromium, total | **0.00063** | MAC = 0.05 | 0.00050 | mg/L | 2025-01-23 | |
| Copper, total | **0.00359** | MAC = 2 | 0.00040 | mg/L | 2025-01-23 | |
| Iron, total | < 0.010 | AO ≤ 0.3 | 0.010 | mg/L | 2025-01-23 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-01-23 | |
| Magnesium, total | **15.6** | None Required | 0.010 | mg/L | 2025-01-23 | |
| Manganese, total | **0.155** | MAC = 0.12 | 0.00020 | mg/L | 2025-01-23 | |
| Potassium, total | **4.29** | N/A | 0.10 | mg/L | 2025-01-23 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-01-23 | |
| Sodium, total | **24.7** | AO ≤ 200 | 0.10 | mg/L | 2025-01-23 | |
| Strontium, total | **0.576** | MAC = 7 | 0.0010 | mg/L | 2025-01-23 | |
| Uranium, total | **0.00486** | MAC = 0.02 | 0.000020 | mg/L | 2025-01-23 | |
| Zinc, total | **0.0279** | AO ≤ 5 | 0.0040 | mg/L | 2025-01-23 | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25A2099 |
| **PROJECT** | General Potability | **REPORTED** | 2025-02-04 10:47 |

**Sample Qualifiers:**

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

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25A2099 |
| **PROJECT** | General Potability | **REPORTED** | 2025-02-04 10:47 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Alkalinity in Water | SM 2320 B* (2021) | Titration with H2SO4 | ✓ | Kelowna |
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Conductivity in Water | SM 2510 B (2021) | Conductivity Meter | ✓ | Kelowna |
| Cyanide, SAD in Water | ISO 14403 | FIA and CFA | | Sublet |
| Hardness in Water | SM 2340 B* (2021) | Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est) | ✓ | N/A |
| pH in Water | SM 4500-H+ B (2021) | Electrometry | ✓ | Kelowna |
| Solids, Total Dissolved in Water | SM 1030 E (2021) | SM 1030 E | | 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 (2020) | 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 |
| EPA | United States Environmental Protection Agency Test Methods |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Dave Stene | **WORK ORDER** | 25B1136 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-02-12 09:23 / 6.3°C |
| **PROJECT** | General Potability | **REPORTED** | 2025-02-13 12:14 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

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

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25B1136 |
| **PROJECT** | General Potability | **REPORTED** | 2025-02-13 12:14 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #3 (25B1136-01) \| Matrix: Water \| Sampled: 2025-02-11 09:05** | | | | | | |
| ***General Parameters*** | | | | | | |
| Carbon, Total Organic | **2.26** | N/A | 0.50 | mg/L | 2025-02-13 | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25B1136 |
| **PROJECT** | General Potability | **REPORTED** | 2025-02-13 12:14 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Carbon, Total Organic in Water | SM 5310 B (2022) | Combustion, Infrared CO2 Detection | ✓ | Kelowna |

**Glossary of Terms:**

| | |
|---|---|
| RL | Reporting Limit (default) |
| mg/L | Milligrams per litre |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

**Guidelines Referenced in this Report:**

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Dave Stene | **WORK ORDER** | 25B1745 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-02-19 08:00 / 8.3°C |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-02-21 15:40 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

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

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25B1745 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-02-21 15:40 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #3 (25B1745-01) \| Matrix: Water \| Sampled: 2025-02-18 09:25** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.0186** | MAC = 0.12 | 0.00020 | mg/L | 2025-02-21 | |
| **Well #4 (25B1745-02) \| Matrix: Water \| Sampled: 2025-02-18 08:50** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.125** | MAC = 0.12 | 0.00020 | mg/L | 2025-02-21 | |
| **Well #5 (25B1745-03) \| Matrix: Water \| Sampled: 2025-02-18 09:10** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.181** | MAC = 0.12 | 0.00020 | mg/L | 2025-02-21 | |
| **Well #6 (25B1745-04) \| Matrix: Water \| Sampled: 2025-02-18 10:50** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.126** | MAC = 0.12 | 0.00020 | mg/L | 2025-02-21 | |
| **Well #8 (25B1745-05) \| Matrix: Water \| Sampled: 2025-02-18 09:45** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **0.497** | MAC = 10 | 0.010 | mg/L | 2025-02-19 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.157** | MAC = 0.12 | 0.00020 | mg/L | 2025-02-21 | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25B1745 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-02-21 15:40 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Total Metals in Water | EPA 200.2 / EPA 6020B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) | ✓ | Richmond |

**Glossary of Terms:**

| | |
|---|---|
| RL | Reporting Limit (default) |
| MAC | Maximum Acceptable Concentration (health based) |
| mg/L | Milligrams per litre |
| EPA | United States Environmental Protection Agency Test Methods |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Maurice E Wutzke | **WORK ORDER** | 25C2228 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-03-19 07:59 / 9.6°C |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-03-24 14:31 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

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**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25C2228 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-03-24 14:31 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #3 (25C2228-01) \| Matrix: Water \| Sampled: 2025-03-18 09:35** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.0185** | MAC = 0.12 | 0.00020 | mg/L | 2025-03-22 | |
| **Well #4 (25C2228-02) \| Matrix: Water \| Sampled: 2025-03-18 09:55** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.141** | MAC = 0.12 | 0.00020 | mg/L | 2025-03-22 | |
| **Well #5 (25C2228-03) \| Matrix: Water \| Sampled: 2025-03-18 10:10** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.170** | MAC = 0.12 | 0.00020 | mg/L | 2025-03-22 | |
| **Well #6 (25C2228-04) \| Matrix: Water \| Sampled: 2025-03-18 11:10** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **2.78** | MAC = 10 | 0.010 | mg/L | 2025-03-20 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.126** | MAC = 0.12 | 0.00020 | mg/L | 2025-03-22 | |
| **Well #8 (25C2228-05) \| Matrix: Water \| Sampled: 2025-03-18 09:15** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **0.624** | MAC = 10 | 0.010 | mg/L | 2025-03-20 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.158** | MAC = 0.12 | 0.00020 | mg/L | 2025-03-22 | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25C2228 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-03-24 14:31 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Total Metals in Water | EPA 200.2 / EPA 6020B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) | ✓ | Richmond |

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| | |
|---|---|
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| MAC | Maximum Acceptable Concentration (health based) |
| mg/L | Milligrams per litre |
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| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Maurice E Wutzke | **WORK ORDER** | 25C3125 |
| **PO NUMBER** | Wastewater | **RECEIVED / TEMP** | 2025-03-26 10:23 / 4.3°C |
| **PROJECT** | Sewer | **REPORTED** | 2025-04-01 15:01 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

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**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

CARO ANALYTICAL SERVICES

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25C3125 |
| **PROJECT** | Sewer | **REPORTED** | 2025-04-01 15:01 |

| Analyte | Result | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|
| **Headworks (25C3125-01) \| Matrix: Water \| Sampled: 2025-03-25 10:50** | | | | | |
| ***General Parameters*** | | | | | |
| Chemical Oxygen Demand | **694** | 20 | mg/L | 2025-03-28 | |
| Phosphorus, Total (as P) | **7.83** | 0.0050 | mg/L | 2025-03-27 | |
| **Outlet Cell #3 (25C3125-02) \| Matrix: Water \| Sampled: 2025-03-25 11:00** | | | | | FILT, PRES |
| ***Anions*** | | | | | |
| Nitrate (as N) | **1.27** | 0.010 | mg/L | 2025-03-28 | |
| Nitrite (as N) | **0.163** | 0.010 | mg/L | 2025-03-28 | |
| ***Calculated Parameters*** | | | | | |
| Nitrate+Nitrite (as N) | **1.44** | 0.0100 | mg/L | N/A | |
| Nitrogen, Total | **37.4** | 0.500 | mg/L | N/A | |
| Nitrogen, Organic | **2.31** | 0.500 | mg/L | N/A | |
| ***General Parameters*** | | | | | |
| Ammonia, Total (as N) | **33.6** | 0.050 | mg/L | 2025-03-27 | |
| Chemical Oxygen Demand | **91** | 20 | mg/L | 2025-03-28 | |
| Nitrogen, Total Kjeldahl | **35.9** | 0.050 | mg/L | 2025-04-01 | |
| Phosphorus, Total Dissolved | **4.93** | 0.0050 | mg/L | 2025-03-27 | |
| Phosphorus, Dissolved Reactive | **4.22** | 0.0050 | mg/L | 2025-03-27 | |
| Solids, Total Suspended | **11.0** | 2.0 | mg/L | 2025-03-29 | |
| **Chlorine Contact (25C3125-03) \| Matrix: Water \| Sampled: 2025-03-25 11:20** | | | | | |
| ***Anions*** | | | | | |
| Nitrate (as N) | **3.08** | 0.010 | mg/L | 2025-03-28 | |
| Nitrite (as N) | **0.066** | 0.010 | mg/L | 2025-03-28 | |
| Sulfate | **60.0** | 1.0 | mg/L | 2025-03-28 | |
| ***Calculated Parameters*** | | | | | |
| Nitrate+Nitrite (as N) | **3.15** | 0.0100 | mg/L | N/A | |
| Nitrogen, Total | **17.9** | 0.500 | mg/L | N/A | |
| ***General Parameters*** | | | | | |
| Chemical Oxygen Demand | **46** | 20 | mg/L | 2025-03-28 | |
| Nitrogen, Total Kjeldahl | **14.7** | 0.050 | mg/L | 2025-04-01 | |
| Phosphorus, Total (as P) | **5.34** | 0.0050 | mg/L | 2025-03-27 | |
| Solids, Total Suspended | **4.2** | 2.0 | mg/L | 2025-03-29 | |
| ***Microbiological Parameters*** | | | | | |
| Coliforms, Total (Q-Tray) | **1** | 1 | MPN/100 mL | 2025-03-26 | |
| Coliforms, Fecal (Q-Tray) | < 1 | 1 | MPN/100 mL | 2025-03-26 | |
| ***Total Metals*** | | | | | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25C3125 |
| **PROJECT** | Sewer | **REPORTED** | 2025-04-01 15:01 |

| Analyte | Result | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|
| **Chlorine Contact (25C3125-03) \| Matrix: Water \| Sampled: 2025-03-25 11:20, Continued** | | | | | |
| ***Total Metals, Continued*** | | | | | |
| Sodium, total | **163** | 0.10 | mg/L | 2025-03-29 | |

**Sample Qualifiers:**

| | |
|---|---|
| FILT | The sample has been filtered for DP in the laboratory. Results may not reflect conditions at the time of sampling. |
| PRES | Sample has been preserved for DP in the laboratory and the holding time has been extended. |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25C3125 |
| **PROJECT** | Sewer | **REPORTED** | 2025-04-01 15:01 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Ammonia, Total in Water | SM 4500-NH3 G* (2021) | Automated Colorimetry (Phenate) | ✓ | Kelowna |
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Chemical Oxygen Demand in Water | SM 5220 D* (2022) | Closed Reflux, Colorimetry | ✓ | Kelowna |
| Coliforms, Fecal in Water | SM 9223 (2016) | Quanti-Tray / Enzyme Substrate Endo Agar | ✓ | Kelowna |
| Coliforms, Total in Water | SM 9223 (2016) | Quanti-Tray / Enzyme Substrate Endo Agar | ✓ | Kelowna |
| Nitrogen, Total Kjeldahl in Water | SM 4500-Norg D* (2021) | Block Digestion and Flow Injection Analysis | ✓ | Kelowna |
| Phosphorus, Dissolved Reactive in Water | SM 4500-P F (2021) | Automated Colorimetry (Ascorbic Acid) | ✓ | Kelowna |
| Phosphorus, Total Dissolved in Water | SM 4500-P B.5* (2011) / SM 4500-P F (2021) | Persulfate Digestion / Automated Colorimetry (Ascorbic Acid) | ✓ | Kelowna |
| Phosphorus, Total in Water | SM 4500-P B.5* (2011) / SM 4500-P F (2021) | Persulfate Digestion / Automated Colorimetry (Ascorbic Acid) | ✓ | Kelowna |
| Solids, Total Suspended in Water | Solids in Water, Filtered / SM 2540 D* (2020) | Solids in Water, Filtered / Gravimetry (Dried at 103-105C) | ✓ | Kelowna |
| Total Metals in Water | EPA 200.2 / EPA 6020B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) | ✓ | Richmond |

*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 |
| mg/L | Milligrams per litre |
| MPN/100 mL | Most Probable Number per 100 millilitres |
| EPA | United States Environmental Protection Agency Test Methods |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25C3125 |
| **PROJECT** | Sewer | **REPORTED** | 2025-04-01 15:01 |

**General Comments:**

The results in this report apply to the received 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. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed. The quality control (QC) data is available upon request

*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<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Maurice E Wutzke | **WORK ORDER** | 25D2159 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-04-16 08:41 / 12.1°C |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-04-22 15:30 |
| **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 hhannaoui@caro.ca*

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25D2159 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-04-22 15:30 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #3 (25D2159-01) \| Matrix: Water \| Sampled: 2025-04-15 10:10** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.0187** | MAC = 0.12 | 0.00020 | mg/L | 2025-04-18 | |
| **Well #4 (25D2159-02) \| Matrix: Water \| Sampled: 2025-04-15 10:30** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-04-17 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.150** | MAC = 0.12 | 0.00020 | mg/L | 2025-04-18 | |
| **Well #5 (25D2159-03) \| Matrix: Water \| Sampled: 2025-04-15 10:45** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-04-17 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.171** | MAC = 0.12 | 0.00020 | mg/L | 2025-04-18 | |
| **Well #6 (25D2159-04) \| Matrix: Water \| Sampled: 2025-04-15 12:00** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **2.14** | MAC = 10 | 0.010 | mg/L | 2025-04-17 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.123** | MAC = 0.12 | 0.00020 | mg/L | 2025-04-18 | |
| **Well #8 (25D2159-05) \| Matrix: Water \| Sampled: 2025-04-15 09:45** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **0.480** | MAC = 10 | 0.010 | mg/L | 2025-04-17 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.122** | MAC = 0.12 | 0.00020 | mg/L | 2025-04-18 | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25D2159 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-04-22 15:30 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Total Metals in Water | EPA 200.2 / EPA 6020B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) | ✓ | Richmond |

**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 |
| MAC | Maximum Acceptable Concentration (health based) |
| mg/L | Milligrams per litre |
| EPA | United States Environmental Protection Agency Test Methods |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

**Guidelines Referenced in this Report:**

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

***Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user***

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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:hhannaoui@caro.ca

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Maurice E Wutzke | **WORK ORDER** | 25D3267 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-04-22 17:00 / 10.3°C |
| **PROJECT** | General Potability | **REPORTED** | 2025-04-30 14:53 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

**Introduction:**

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

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

CARO ANALYTICAL SERVICES

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25D3267 |
| **PROJECT** | General Potability | **REPORTED** | 2025-04-30 14:53 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Station 8 (25D3267-01) \| Matrix: Water \| Sampled: 2025-04-22 11:20** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **7.78** | AO ≤ 250 | 0.10 | mg/L | 2025-04-26 | |
| Fluoride | **0.12** | MAC = 1.5 | 0.10 | mg/L | 2025-04-26 | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-04-26 | HT1 |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-04-26 | HT1 |
| Sulfate | **29.1** | AO ≤ 500 | 1.0 | mg/L | 2025-04-26 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **130** | None Required | 0.500 | mg/L | N/A | |
| Solids, Total Dissolved | **164** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **108** | N/A | 1.0 | mg/L | 2025-04-26 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-04-26 | |
| Alkalinity, Bicarbonate (as CaCO3) | **108** | N/A | 1.0 | mg/L | 2025-04-26 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-04-26 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-04-26 | |
| Conductivity (EC) | **309** | N/A | 2.0 | µS/cm | 2025-04-26 | |
| Cyanide, Total | **0.0025** | MAC = 0.2 | 0.0020 | mg/L | 2025-04-30 | |
| pH | **8.15** | 7.0-10.5 | 0.10 | pH units | 2025-04-26 | HT2 |
| Turbidity | **1.20** | OG < 1 | 0.10 | NTU | 2025-04-26 | HT1 |
| ***Total Metals*** | | | | | | |
| Aluminum, total | **0.0581** | OG < 0.1 | 0.0050 | mg/L | 2025-04-29 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-04-29 | |
| Arsenic, total | **0.00063** | MAC = 0.01 | 0.00050 | mg/L | 2025-04-29 | |
| Barium, total | **0.0271** | MAC = 2 | 0.0050 | mg/L | 2025-04-29 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-04-29 | |
| Cadmium, total | < 0.000010 | MAC = 0.007 | 0.000010 | mg/L | 2025-04-29 | |
| Calcium, total | **35.2** | None Required | 0.20 | mg/L | 2025-04-29 | |
| Chromium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-04-29 | |
| Copper, total | **0.0110** | MAC = 2 | 0.00040 | mg/L | 2025-04-29 | |
| Iron, total | **0.059** | AO ≤ 0.1 | 0.010 | mg/L | 2025-04-29 | |
| Lead, total | **0.00029** | MAC = 0.005 | 0.00020 | mg/L | 2025-04-29 | |
| Magnesium, total | **10.3** | None Required | 0.010 | mg/L | 2025-04-29 | |
| Manganese, total | **0.0138** | MAC = 0.12 | 0.00020 | mg/L | 2025-04-29 | |
| Potassium, total | **2.73** | N/A | 0.10 | mg/L | 2025-04-29 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-04-29 | |
| Sodium, total | **12.8** | AO ≤ 200 | 0.10 | mg/L | 2025-04-29 | |
| Strontium, total | **0.327** | MAC = 7 | 0.0010 | mg/L | 2025-04-29 | |
| Uranium, total | **0.00270** | MAC = 0.02 | 0.000020 | mg/L | 2025-04-29 | |
| Zinc, total | **0.0063** | AO ≤ 5 | 0.0040 | mg/L | 2025-04-29 | |
| **Station 9 (25D3267-02) \| Matrix: Water \| Sampled: 2025-04-22 10:20** | | | | | | |

CARO ANALYTICAL SERVICES

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25D3267 |
| **PROJECT** | General Potability | **REPORTED** | 2025-04-30 14:53 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Station 9 (25D3267-02) \| Matrix: Water \| Sampled: 2025-04-22 10:20, Continued** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **7.20** | AO ≤ 250 | 0.10 | mg/L | 2025-04-26 | |
| Fluoride | **0.14** | MAC = 1.5 | 0.10 | mg/L | 2025-04-26 | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-04-26 | HT1 |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-04-26 | HT1 |
| Sulfate | **29.9** | AO ≤ 500 | 1.0 | mg/L | 2025-04-26 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **135** | None Required | 0.500 | mg/L | N/A | |
| Solids, Total Dissolved | **168** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **111** | N/A | 1.0 | mg/L | 2025-04-26 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-04-26 | |
| Alkalinity, Bicarbonate (as CaCO3) | **111** | N/A | 1.0 | mg/L | 2025-04-26 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-04-26 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-04-26 | |
| Conductivity (EC) | **315** | N/A | 2.0 | µS/cm | 2025-04-26 | |
| Cyanide, Total | **0.0027** | MAC = 0.2 | 0.0020 | mg/L | 2025-04-30 | |
| pH | **8.14** | 7.0-10.5 | 0.10 | pH units | 2025-04-26 | HT2 |
| Turbidity | **0.78** | OG < 1 | 0.10 | NTU | 2025-04-26 | HT1 |
| ***Total Metals*** | | | | | | |
| Aluminum, total | **0.0221** | OG < 0.1 | 0.0050 | mg/L | 2025-04-29 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-04-29 | |
| Arsenic, total | **0.00062** | MAC = 0.01 | 0.00050 | mg/L | 2025-04-29 | |
| Barium, total | **0.0268** | MAC = 2 | 0.0050 | mg/L | 2025-04-29 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-04-29 | |
| Cadmium, total | < 0.000010 | MAC = 0.007 | 0.000010 | mg/L | 2025-04-29 | |
| Calcium, total | **36.6** | None Required | 0.20 | mg/L | 2025-04-29 | |
| Chromium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-04-29 | |
| Copper, total | **0.00359** | MAC = 2 | 0.00040 | mg/L | 2025-04-29 | |
| Iron, total | **0.029** | AO ≤ 0.1 | 0.010 | mg/L | 2025-04-29 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-04-29 | |
| Magnesium, total | **10.7** | None Required | 0.010 | mg/L | 2025-04-29 | |
| Manganese, total | **0.00984** | MAC = 0.12 | 0.00020 | mg/L | 2025-04-29 | |
| Potassium, total | **2.77** | N/A | 0.10 | mg/L | 2025-04-29 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-04-29 | |
| Sodium, total | **13.3** | AO ≤ 200 | 0.10 | mg/L | 2025-04-29 | |
| Strontium, total | **0.336** | MAC = 7 | 0.0010 | mg/L | 2025-04-29 | |
| Uranium, total | **0.00264** | MAC = 0.02 | 0.000020 | mg/L | 2025-04-29 | |
| Zinc, total | < 0.0040 | AO ≤ 5 | 0.0040 | mg/L | 2025-04-29 | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25D3267 |
| **PROJECT** | General Potability | **REPORTED** | 2025-04-30 14:53 |

**Sample Qualifiers:**

| | |
|---|---|
| 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. |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25D3267 |
| **PROJECT** | General Potability | **REPORTED** | 2025-04-30 14:53 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Alkalinity in Water | SM 2320 B* (2021) | Titration with H2SO4 | ✓ | Kelowna |
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Conductivity in Water | SM 2510 B (2021) | 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* (2021) | Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est) | ✓ | N/A |
| pH in Water | SM 4500-H+ B (2021) | Electrometry | ✓ | Kelowna |
| Solids, Total Dissolved in Water | SM 1030 E (2021) | SM 1030 E | | 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 (2020) | 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 |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25D3267 |
| **PROJECT** | General Potability | **REPORTED** | 2025-04-30 14:53 |

**General Comments:**

The results in this report apply to the received 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. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed. 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:hhannaoui@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<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Maurice E Wutzke | **WORK ORDER** | 25E1935 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-05-14 12:48 / 15.3°C |
| **PROJECT** | General Potability | **REPORTED** | 2025-05-16 15:51 |
| **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 hhannaoui@caro.ca*

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

CARO ANALYTICAL SERVICES

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25E1935 |
| **PROJECT** | General Potability | **REPORTED** | 2025-05-16 15:51 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Tamarack (25E1935-01) \| Matrix: Drinking Water \| Sampled: 2025-05-13 07:45** | | | | | | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | HT3 |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | HT3 |
| **Well #3 (25E1935-02) \| Matrix: Drinking Water \| Sampled: 2025-05-13 08:05** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **16.8** | AO ≤ 250 | 0.10 | mg/L | 2025-05-15 | |
| Fluoride | **0.36** | MAC = 1.5 | 0.10 | mg/L | 2025-05-15 | |
| Nitrate (as N) | **2.08** | MAC = 10 | 0.010 | mg/L | 2025-05-15 | RE2 |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-05-15 | |
| Sulfate | **47.6** | AO ≤ 500 | 1.0 | mg/L | 2025-05-15 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **273** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **0.6** | N/A | -5.0 | | 2025-05-16 | CT6 |
| Solids, Total Dissolved | **347** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **241** | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Bicarbonate (as CaCO3) | **241** | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Colour, True | < 5.0 | AO ≤ 15 | 5.0 | CU | 2025-05-15 | |
| Conductivity (EC) | **642** | N/A | 2.0 | µS/cm | 2025-05-15 | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 | mg/L | 2025-05-15 | |
| pH | **7.93** | 7.0-10.5 | 0.10 | pH units | 2025-05-15 | HT2 |
| Temperature, at pH | **22.4** | N/A | | °C | 2025-05-15 | HT2 |
| Turbidity | < 0.10 | OG < 1 | 0.10 | NTU | 2025-05-15 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | HT3 |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | HT3 |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-05-16 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-05-16 | |
| Arsenic, total | **0.00139** | MAC = 0.01 | 0.00050 | mg/L | 2025-05-16 | |
| Barium, total | **0.0787** | MAC = 2 | 0.0050 | mg/L | 2025-05-16 | |
| Boron, total | **0.0508** | MAC = 5 | 0.0500 | mg/L | 2025-05-16 | |
| Cadmium, total | **0.000025** | MAC = 0.007 | 0.000010 | mg/L | 2025-05-16 | |
| Calcium, total | **74.8** | None Required | 0.20 | mg/L | 2025-05-16 | |
| Chromium, total | **0.00088** | MAC = 0.05 | 0.00050 | mg/L | 2025-05-16 | |
| Cobalt, total | < 0.00010 | N/A | 0.00010 | mg/L | 2025-05-16 | |

CARO ANALYTICAL SERVICES

# TEST RESULTS

**REPORTED TO** Osoyoos, Town of
**PROJECT** General Potability

**WORK ORDER** 25E1935
**REPORTED** 2025-05-16 15:51

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #3 (25E1935-02) \| Matrix: Drinking Water \| Sampled: 2025-05-13 08:05, Continued** | | | | | | |
| ***Total Metals, Continued*** | | | | | | |
| Copper, total | **0.00641** | MAC = 2 | 0.00040 | mg/L | 2025-05-16 | |
| Iron, total | < 0.010 | AO ≤ 0.1 | 0.010 | mg/L | 2025-05-16 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-05-16 | |
| Magnesium, total | **20.9** | None Required | 0.010 | mg/L | 2025-05-16 | |
| Manganese, total | **0.0203** | MAC = 0.12 | 0.00020 | mg/L | 2025-05-16 | |
| Mercury, total | < 0.000040 | MAC = 0.001 | 0.000040 | mg/L | 2025-05-16 | HG1 |
| Molybdenum, total | **0.00758** | N/A | 0.00010 | mg/L | 2025-05-16 | |
| Nickel, total | **0.00059** | N/A | 0.00040 | mg/L | 2025-05-16 | |
| Potassium, total | **6.25** | N/A | 0.10 | mg/L | 2025-05-16 | |
| Selenium, total | **0.00129** | MAC = 0.05 | 0.00050 | mg/L | 2025-05-16 | |
| Sodium, total | **24.5** | AO ≤ 200 | 0.10 | mg/L | 2025-05-16 | |
| Strontium, total | **0.959** | MAC = 7 | 0.0010 | mg/L | 2025-05-16 | |
| Uranium, total | **0.00952** | MAC = 0.02 | 0.000020 | mg/L | 2025-05-16 | |
| Zinc, total | **0.0066** | AO ≤ 5 | 0.0040 | mg/L | 2025-05-16 | |
| **Well #4 (25E1935-03) \| Matrix: Drinking Water \| Sampled: 2025-05-13 08:20** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **19.8** | AO ≤ 250 | 0.10 | mg/L | 2025-05-15 | RE2 |
| Fluoride | **0.31** | MAC = 1.5 | 0.10 | mg/L | 2025-05-15 | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-05-15 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-05-15 | |
| Sulfate | **33.6** | AO ≤ 500 | 1.0 | mg/L | 2025-05-15 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **204** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **0.5** | N/A | -5.0 | | 2025-05-16 | CT6 |
| Solids, Total Dissolved | **280** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **202** | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Bicarbonate (as CaCO3) | **202** | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Colour, True | < 5.0 | AO ≤ 15 | 5.0 | CU | 2025-05-15 | |
| Conductivity (EC) | **537** | N/A | 2.0 | µS/cm | 2025-05-15 | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 | mg/L | 2025-05-15 | |
| pH | **8.08** | 7.0-10.5 | 0.10 | pH units | 2025-05-15 | HT2 |
| Temperature, at pH | **22.1** | N/A | | °C | 2025-05-15 | HT2 |
| Turbidity | **1.04** | OG < 1 | 0.10 | NTU | 2025-05-15 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | HT3 |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25E1935 |
| **PROJECT** | General Potability | **REPORTED** | 2025-05-16 15:51 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #4 (25E1935-03) \| Matrix: Drinking Water \| Sampled: 2025-05-13 08:20, Continued** | | | | | | |
| ***Microbiological Parameters, Continued*** | | | | | | |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | HT3 |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-05-16 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-05-16 | |
| Arsenic, total | **0.00230** | MAC = 0.01 | 0.00050 | mg/L | 2025-05-16 | |
| Barium, total | **0.112** | MAC = 2 | 0.0050 | mg/L | 2025-05-16 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-05-16 | |
| Cadmium, total | < 0.000010 | MAC = 0.007 | 0.000010 | mg/L | 2025-05-16 | |
| Calcium, total | **47.3** | None Required | 0.20 | mg/L | 2025-05-16 | |
| Chromium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-05-16 | |
| Cobalt, total | < 0.00010 | N/A | 0.00010 | mg/L | 2025-05-16 | |
| Copper, total | **0.00640** | MAC = 2 | 0.00040 | mg/L | 2025-05-16 | |
| Iron, total | **0.116** | AO ≤ 0.1 | 0.010 | mg/L | 2025-05-16 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-05-16 | |
| Magnesium, total | **20.8** | None Required | 0.010 | mg/L | 2025-05-16 | |
| Manganese, total | **0.143** | MAC = 0.12 | 0.00020 | mg/L | 2025-05-16 | |
| Mercury, total | < 0.000040 | MAC = 0.001 | 0.000040 | mg/L | 2025-05-16 | HG1 |
| Molybdenum, total | **0.00568** | N/A | 0.00010 | mg/L | 2025-05-16 | |
| Nickel, total | < 0.00040 | N/A | 0.00040 | mg/L | 2025-05-16 | |
| Potassium, total | **4.84** | N/A | 0.10 | mg/L | 2025-05-16 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-05-16 | |
| Sodium, total | **30.1** | AO ≤ 200 | 0.10 | mg/L | 2025-05-16 | |
| Strontium, total | **0.658** | MAC = 7 | 0.0010 | mg/L | 2025-05-16 | |
| Uranium, total | **0.00208** | MAC = 0.02 | 0.000020 | mg/L | 2025-05-16 | |
| Zinc, total | **0.0080** | AO ≤ 5 | 0.0040 | mg/L | 2025-05-16 | |
| **Well #5 (25E1935-04) \| Matrix: Drinking Water \| Sampled: 2025-05-13 08:30** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **25.5** | AO ≤ 250 | 0.10 | mg/L | 2025-05-15 | RE2 |
| Fluoride | **0.23** | MAC = 1.5 | 0.10 | mg/L | 2025-05-15 | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-05-15 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-05-15 | |
| Sulfate | **33.4** | AO ≤ 500 | 1.0 | mg/L | 2025-05-15 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **201** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **0.5** | N/A | -5.0 | | 2025-05-16 | CT6 |
| Solids, Total Dissolved | **293** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **207** | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |

# TEST RESULTS

**REPORTED TO** Osoyoos, Town of
**PROJECT** General Potability

**WORK ORDER** 25E1935
**REPORTED** 2025-05-16 15:51

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #5 (25E1935-04) \| Matrix: Drinking Water \| Sampled: 2025-05-13 08:30, Continued** | | | | | | |
| ***General Parameters, Continued*** | | | | | | |
| Alkalinity, Bicarbonate (as CaCO3) | **207** | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Colour, True | < 5.0 | AO ≤ 15 | 5.0 | CU | 2025-05-15 | |
| Conductivity (EC) | **562** | N/A | 2.0 | µS/cm | 2025-05-15 | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 | mg/L | 2025-05-15 | |
| pH | **8.09** | 7.0-10.5 | 0.10 | pH units | 2025-05-15 | HT2 |
| Temperature, at pH | **22.4** | N/A | | °C | 2025-05-15 | HT2 |
| Turbidity | **0.75** | OG < 1 | 0.10 | NTU | 2025-05-15 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | HT3 |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | HT3 |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-05-16 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-05-16 | |
| Arsenic, total | **0.00207** | MAC = 0.01 | 0.00050 | mg/L | 2025-05-16 | |
| Barium, total | **0.108** | MAC = 2 | 0.0050 | mg/L | 2025-05-16 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-05-16 | |
| Cadmium, total | < 0.000010 | MAC = 0.007 | 0.000010 | mg/L | 2025-05-16 | |
| Calcium, total | **47.2** | None Required | 0.20 | mg/L | 2025-05-16 | |
| Chromium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-05-16 | |
| Cobalt, total | < 0.00010 | N/A | 0.00010 | mg/L | 2025-05-16 | |
| Copper, total | **0.00678** | MAC = 2 | 0.00040 | mg/L | 2025-05-16 | |
| Iron, total | **0.110** | AO ≤ 0.1 | 0.010 | mg/L | 2025-05-16 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-05-16 | |
| Magnesium, total | **20.1** | None Required | 0.010 | mg/L | 2025-05-16 | |
| Manganese, total | **0.144** | MAC = 0.12 | 0.00020 | mg/L | 2025-05-16 | |
| Mercury, total | < 0.000040 | MAC = 0.001 | 0.000040 | mg/L | 2025-05-16 | HG1 |
| Molybdenum, total | **0.00583** | N/A | 0.00010 | mg/L | 2025-05-16 | |
| Nickel, total | < 0.00040 | N/A | 0.00040 | mg/L | 2025-05-16 | |
| Potassium, total | **4.71** | N/A | 0.10 | mg/L | 2025-05-16 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-05-16 | |
| Sodium, total | **35.2** | AO ≤ 200 | 0.10 | mg/L | 2025-05-16 | |
| Strontium, total | **0.648** | MAC = 7 | 0.0010 | mg/L | 2025-05-16 | |
| Uranium, total | **0.00212** | MAC = 0.02 | 0.000020 | mg/L | 2025-05-16 | |
| Zinc, total | **0.0040** | AO ≤ 5 | 0.0040 | mg/L | 2025-05-16 | |
| **Well #6 (25E1935-05) \| Matrix: Drinking Water \| Sampled: 2025-05-13 08:45** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **20.1** | AO ≤ 250 | 0.10 | mg/L | 2025-05-15 | |

CARO ANALYTICAL SERVICES

# TEST RESULTS

**REPORTED TO** Osoyoos, Town of
**PROJECT** General Potability

**WORK ORDER** 25E1935
**REPORTED** 2025-05-16 15:51

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #6 (25E1935-05) \| Matrix: Drinking Water \| Sampled: 2025-05-13 08:45, Continued** | | | | | | |
| ***Anions, Continued*** | | | | | | |
| Fluoride | **0.40** | MAC = 1.5 | 0.10 | mg/L | 2025-05-15 | |
| Nitrate (as N) | **1.83** | MAC = 10 | 0.010 | mg/L | 2025-05-15 | RE2 |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-05-15 | |
| Sulfate | **60.8** | AO ≤ 500 | 1.0 | mg/L | 2025-05-15 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **302** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **0.7** | N/A | -5.0 | | 2025-05-16 | CT6 |
| Solids, Total Dissolved | **402** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **276** | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Bicarbonate (as CaCO3) | **276** | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Colour, True | < 5.0 | AO ≤ 15 | 5.0 | CU | 2025-05-15 | |
| Conductivity (EC) | **742** | N/A | 2.0 | µS/cm | 2025-05-15 | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 | mg/L | 2025-05-15 | |
| pH | **8.04** | 7.0-10.5 | 0.10 | pH units | 2025-05-15 | HT2 |
| Temperature, at pH | **22.2** | N/A | | °C | 2025-05-15 | HT2 |
| Turbidity | **0.46** | OG < 1 | 0.10 | NTU | 2025-05-15 | RE2 |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-05-16 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-05-16 | |
| Arsenic, total | **0.00482** | MAC = 0.01 | 0.00050 | mg/L | 2025-05-16 | |
| Barium, total | **0.0735** | MAC = 2 | 0.0050 | mg/L | 2025-05-16 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-05-16 | |
| Cadmium, total | **0.000023** | MAC = 0.007 | 0.000010 | mg/L | 2025-05-16 | |
| Calcium, total | **69.0** | None Required | 0.20 | mg/L | 2025-05-16 | |
| Chromium, total | **0.00052** | MAC = 0.05 | 0.00050 | mg/L | 2025-05-16 | |
| Cobalt, total | **0.00016** | N/A | 0.00010 | mg/L | 2025-05-16 | |
| Copper, total | **0.00443** | MAC = 2 | 0.00040 | mg/L | 2025-05-16 | |
| Iron, total | < 0.010 | AO ≤ 0.1 | 0.010 | mg/L | 2025-05-16 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-05-16 | |
| Magnesium, total | **31.4** | None Required | 0.010 | mg/L | 2025-05-16 | |
| Manganese, total | **0.125** | MAC = 0.12 | 0.00020 | mg/L | 2025-05-16 | |
| Mercury, total | < 0.000040 | MAC = 0.001 | 0.000040 | mg/L | 2025-05-16 | HG1 |
| Molybdenum, total | **0.0145** | N/A | 0.00010 | mg/L | 2025-05-16 | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25E1935 |
| **PROJECT** | General Potability | **REPORTED** | 2025-05-16 15:51 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #6 (25E1935-05) \| Matrix: Drinking Water \| Sampled: 2025-05-13 08:45, Continued** | | | | | | |
| ***Total Metals, Continued*** | | | | | | |
| Nickel, total | **0.00081** | N/A | 0.00040 | mg/L | 2025-05-16 | |
| Potassium, total | **6.25** | N/A | 0.10 | mg/L | 2025-05-16 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-05-16 | |
| Sodium, total | **37.6** | AO ≤ 200 | 0.10 | mg/L | 2025-05-16 | |
| Strontium, total | **0.959** | MAC = 7 | 0.0010 | mg/L | 2025-05-16 | |
| Uranium, total | **0.00585** | MAC = 0.02 | 0.000020 | mg/L | 2025-05-16 | |
| Zinc, total | **0.0041** | AO ≤ 5 | 0.0040 | mg/L | 2025-05-16 | |
| **Well #1 (25E1935-06) \| Matrix: Drinking Water \| Sampled: 2025-05-13 09:10** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **40.0** | AO ≤ 250 | 0.10 | mg/L | 2025-05-15 | |
| Fluoride | **0.22** | MAC = 1.5 | 0.10 | mg/L | 2025-05-15 | |
| Nitrate (as N) | **4.46** | MAC = 10 | 0.010 | mg/L | 2025-05-15 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-05-15 | |
| Sulfate | **71.0** | AO ≤ 500 | 1.0 | mg/L | 2025-05-15 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **302** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **0.6** | N/A | -5.0 | | 2025-05-16 | CT6 |
| Solids, Total Dissolved | **423** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **225** | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Bicarbonate (as CaCO3) | **225** | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-05-15 | |
| Colour, True | < 5.0 | AO ≤ 15 | 5.0 | CU | 2025-05-15 | |
| Conductivity (EC) | **770** | N/A | 2.0 | µS/cm | 2025-05-15 | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 | mg/L | 2025-05-15 | |
| pH | **7.93** | 7.0-10.5 | 0.10 | pH units | 2025-05-15 | HT2 |
| Temperature, at pH | **22.5** | N/A | | °C | 2025-05-15 | HT2 |
| Turbidity | < 0.10 | OG < 1 | 0.10 | NTU | 2025-05-15 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-05-16 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-05-16 | |
| Arsenic, total | **0.00431** | MAC = 0.01 | 0.00050 | mg/L | 2025-05-16 | |
| Barium, total | **0.0625** | MAC = 2 | 0.0050 | mg/L | 2025-05-16 | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25E1935 |
| **PROJECT** | General Potability | **REPORTED** | 2025-05-16 15:51 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #1 (25E1935-06) \| Matrix: Drinking Water \| Sampled: 2025-05-13 09:10, Continued** | | | | | | |
| ***Total Metals, Continued*** | | | | | | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-05-16 | |
| Cadmium, total | **0.000032** | MAC = 0.007 | 0.000010 | mg/L | 2025-05-16 | |
| Calcium, total | **90.6** | None Required | 0.20 | mg/L | 2025-05-16 | |
| Chromium, total | **0.00069** | MAC = 0.05 | 0.00050 | mg/L | 2025-05-16 | |
| Cobalt, total | < 0.00010 | N/A | 0.00010 | mg/L | 2025-05-16 | |
| Copper, total | **0.00486** | MAC = 2 | 0.00040 | mg/L | 2025-05-16 | |
| Iron, total | < 0.010 | AO ≤ 0.1 | 0.010 | mg/L | 2025-05-16 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-05-16 | |
| Magnesium, total | **18.2** | None Required | 0.010 | mg/L | 2025-05-16 | |
| Manganese, total | **0.00205** | MAC = 0.12 | 0.00020 | mg/L | 2025-05-16 | |
| Mercury, total | < 0.000040 | MAC = 0.001 | 0.000040 | mg/L | 2025-05-16 | HG1 |
| Molybdenum, total | **0.0143** | N/A | 0.00010 | mg/L | 2025-05-16 | |
| Nickel, total | **0.00082** | N/A | 0.00040 | mg/L | 2025-05-16 | |
| Potassium, total | **6.15** | N/A | 0.10 | mg/L | 2025-05-16 | |
| Selenium, total | **0.00068** | MAC = 0.05 | 0.00050 | mg/L | 2025-05-16 | |
| Sodium, total | **40.0** | AO ≤ 200 | 0.10 | mg/L | 2025-05-16 | |
| Strontium, total | **0.844** | MAC = 7 | 0.0010 | mg/L | 2025-05-16 | |
| Uranium, total | **0.00677** | MAC = 0.02 | 0.000020 | mg/L | 2025-05-16 | |
| Zinc, total | < 0.0040 | AO ≤ 5 | 0.0040 | mg/L | 2025-05-16 | |
| **12th Ave (25E1935-07) \| Matrix: Drinking Water \| Sampled: 2025-05-13 09:25** | | | | | | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | |
| **Well #8 (25E1935-08) \| Matrix: Drinking Water \| Sampled: 2025-05-13 09:40** | | | | | | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-05-14 | |
| **122NO Ave (25E1935-09) \| Matrix: Water \| Sampled: 2025-05-13 09:55** | | | | | | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-05-14 | |
| E. coli (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-05-14 | |
| **17202 103RD st. (25E1935-10) \| Matrix: Water \| Sampled: 2025-05-13 10:10** | | | | | | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-05-14 | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25E1935 |
| **PROJECT** | General Potability | **REPORTED** | 2025-05-16 15:51 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **17202 103RD st. (25E1935-10) \| Matrix: Water \| Sampled: 2025-05-13 10:10, Continued** | | | | | | |
| ***Microbiological Parameters, Continued*** | | | | | | |
| E. coli (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-05-14 | |

**Sample Qualifiers:**

| | |
|---|---|
| CT6 | Results were based on lab temperature & lab pH. |
| 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. |
| HT3 | Microbiological analysis was initiated beyond the maximum holding time of 30 hours. Results may not be valid. |
| RE2 | Result was confirmed by re-analysis prior to reporting. |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25E1935 |
| **PROJECT** | General Potability | **REPORTED** | 2025-05-16 15:51 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Alkalinity in Water | SM 2320 B* (2021) | Titration with H2SO4 | ✓ | Kelowna |
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Coliforms, Total in Water | SM 9222* (2015) | Membrane Filtration / Chromocult Agar | ✓ | Kelowna |
| Coliforms, Total in Water | SM 9223 (2016) | Quanti-Tray / Enzyme Substrate Endo Agar | ✓ | Kelowna |
| Colour, True in Water | SM 2120 C (2021) | Spectrophotometry (456 nm) | ✓ | Kelowna |
| Conductivity in Water | SM 2510 B (2021) | Conductivity Meter | ✓ | Kelowna |
| Cyanide, SAD in Water | ASTM D7511-12 | Flow Injection with In-Line UV Digestion and Amperometry | ✓ | Kelowna |
| E. coli in Water | SM 9222* (2015) | Membrane Filtration / Chromocult Agar | ✓ | Kelowna |
| E. coli in Water | SM 9223 (2016) | Quanti-Tray / Enzyme Substrate Endo Agar | ✓ | Kelowna |
| Hardness in Water | SM 2340 B* (2021) | Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est) | ✓ | N/A |
| Langelier Index in Water | SM 2330 B (2021) | Calculation | | N/A |
| pH in Water | SM 4500-H+ B (2021) | Electrometry | ✓ | Kelowna |
| Solids, Total Dissolved in Water | SM 1030 E (2021) | SM 1030 E | | 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 (2020) | 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 |
| CFU/100 mL | Colony Forming Units per 100 millilitres |
| CU | Colour Units (referenced against a platinum cobalt standard) |
| MAC | Maximum Acceptable Concentration (health based) |
| mg/L | Milligrams per litre |
| MPN/100 mL | Most Probable Number per 100 millilitres |
| 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 |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25E1935 |
| **PROJECT** | General Potability | **REPORTED** | 2025-05-16 15:51 |

**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:hhannaoui@caro.ca

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Maurice E Wutzke | **WORK ORDER** | 25F0517 |
| **PO NUMBER** | Wastewater | **RECEIVED / TEMP** | 2025-06-04 07:55 / 11.9°C |
| **PROJECT** | Sewer | **REPORTED** | 2025-06-19 13:19 |
| **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.

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*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 hhannaoui@caro.ca*

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

CARO ANALYTICAL SERVICES

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25F0517 |
| **PROJECT** | Sewer | **REPORTED** | 2025-06-19 13:19 |

| Analyte | Result | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|
| **Chlorine Contact Chamber (25F0517-01) \| Matrix: Water \| Sampled: 2025-06-03 11:00** | | | | | |
| ***Anions*** | | | | | |
| Nitrate (as N) | **10.0** | 0.010 | mg/L | 2025-06-05 | |
| Nitrite (as N) | **1.12** | 0.010 | mg/L | 2025-06-05 | |
| Sulfate | **79.2** | 1.0 | mg/L | 2025-06-05 | |
| ***Calculated Parameters*** | | | | | |
| Nitrate+Nitrite (as N) | **11.2** | 0.100 | mg/L | N/A | |
| Nitrogen, Total | **23.4** | 0.500 | mg/L | N/A | |
| Nitrogen, Organic | < 0.500 | 0.500 | mg/L | N/A | |
| ***General Parameters*** | | | | | |
| Ammonia, Total (as N) | **12.5** | 0.050 | mg/L | 2025-06-09 | |
| Chemical Oxygen Demand | **40** | 20 | mg/L | 2025-06-13 | |
| Nitrogen, Total Kjeldahl | **12.2** | 0.050 | mg/L | 2025-06-11 | |
| Phosphorus, Total (as P) | **3.62** | 0.0050 | mg/L | 2025-06-19 | |
| Solids, Total Suspended | **6.4** | 2.0 | mg/L | 2025-06-07 | |
| ***Microbiological Parameters*** | | | | | |
| Coliforms, Total (Q-Tray) | **70** | 1 | MPN/100 mL | 2025-06-04 | |
| Coliforms, Fecal (Q-Tray) | < 1 | 1 | MPN/100 mL | 2025-06-04 | |
| ***Total Metals*** | | | | | |
| Sodium, total | **188** | 0.10 | mg/L | 2025-06-09 | |
| **Outlet of Cell #3 (25F0517-02) \| Matrix: Water \| Sampled: 2025-06-03 10:45** | | | | | |
| ***General Parameters*** | | | | | |
| BOD, 5-day Carbonaceous | < 8.0 | 8.0 | mg/L | 2025-06-10 | |
| Solids, Total Suspended | **41.2** | 2.0 | mg/L | 2025-06-07 | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25F0517 |
| **PROJECT** | Sewer | **REPORTED** | 2025-06-19 13:19 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Ammonia, Total in Water | SM 4500-NH3 G* (2021) | Automated Colorimetry (Phenate) | ✓ | Kelowna |
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Biochemical Oxygen Demand, Carbonaceous in Water | SM 5210 B (2019) | Dissolved Oxygen Meter | ✓ | Kelowna |
| Chemical Oxygen Demand in Water | SM 5220 D* (2022) | Closed Reflux, Colorimetry | ✓ | Kelowna |
| Coliforms, Fecal in Water | SM 9223 (2016) | Quanti-Tray / Enzyme Substrate Endo Agar | ✓ | Kelowna |
| Coliforms, Total in Water | SM 9223 (2016) | Quanti-Tray / Enzyme Substrate Endo Agar | ✓ | Kelowna |
| Nitrogen, Total Kjeldahl in Water | SM 4500-Norg D* (2021) | Block Digestion and Flow Injection Analysis | ✓ | Kelowna |
| Phosphorus, Total in Water | SM 4500-P B.5* (2011) / SM 4500-P F (2021) | Persulfate Digestion / Automated Colorimetry (Ascorbic Acid) | ✓ | Kelowna |
| Solids, Total Suspended in Water | Solids in Water, Filtered / SM 2540 D* (2020) | Solids in Water, Filtered / Gravimetry (Dried at 103-105C) | ✓ | Kelowna |
| Total Metals in Water | EPA 200.2 / EPA 6020B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) | ✓ | Richmond |

*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 |
| mg/L | Milligrams per litre |
| MPN/100 mL | Most Probable Number per 100 millilitres |
| EPA | United States Environmental Protection Agency Test Methods |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Maurice E Wutzke | **WORK ORDER** | 25F1630 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-06-10 16:58 / 6.2°C |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-06-16 10:34 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

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

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25F1630 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-06-16 10:34 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #3 (25F1630-01) \| Matrix: Water \| Sampled: 2025-06-10 07:00** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.0225** | MAC = 0.12 | 0.00020 | mg/L | 2025-06-15 | |
| **Well #4 (25F1630-02) \| Matrix: Water \| Sampled: 2025-06-10 07:25** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.126** | MAC = 0.12 | 0.00020 | mg/L | 2025-06-15 | |
| **Well #5 (25F1630-03) \| Matrix: Water \| Sampled: 2025-06-10 07:30** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.152** | MAC = 0.12 | 0.00020 | mg/L | 2025-06-15 | |
| **Well #6 (25F1630-04) \| Matrix: Water \| Sampled: 2025-06-10 10:45** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.132** | MAC = 0.12 | 0.00020 | mg/L | 2025-06-15 | |
| **Well #8 (25F1630-05) \| Matrix: Water \| Sampled: 2025-06-10 08:50** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.115** | MAC = 0.12 | 0.00020 | mg/L | 2025-06-15 | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25F1630 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-06-16 10:34 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Total Metals in Water | EPA 200.2 / EPA 6020B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) | ✓ | Richmond |

**Glossary of Terms:**

| | |
|---|---|
| RL | Reporting Limit (default) |
| MAC | Maximum Acceptable Concentration (health based) |
| mg/L | Milligrams per litre |
| EPA | United States Environmental Protection Agency Test Methods |

**Guidelines Referenced in this Report:**

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

***Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user***

**General Comments:**

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*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<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Maurice E Wutzke | **WORK ORDER** | 25F2557 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-06-18 10:41 / 14.9°C |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-06-20 11:19 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

**Introduction:**

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

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25F2557 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-06-20 11:19 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #4 (25F2557-01) \| Matrix: Water \| Sampled: 2025-06-17 08:10** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-06-18 | |
| **Well #5 (25F2557-02) \| Matrix: Water \| Sampled: 2025-06-17 08:20** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-06-18 | |
| **Well #6 (25F2557-03) \| Matrix: Water \| Sampled: 2025-06-17 09:20** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **1.66** | MAC = 10 | 0.010 | mg/L | 2025-06-18 | |
| **Well #8 (25F2557-04) \| Matrix: Water \| Sampled: 2025-06-17 08:35** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **0.314** | MAC = 10 | 0.010 | mg/L | 2025-06-18 | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25F2557 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-06-20 11:19 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |

**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 |
| MAC | Maximum Acceptable Concentration (health based) |
| mg/L | Milligrams per litre |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

**Guidelines Referenced in this Report:**

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Maurice E Wutzke | **WORK ORDER** | 25G1238 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-07-09 08:38 / 5.0°C |
| **PROJECT** | General Potability | **REPORTED** | 2025-07-11 15:03 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

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**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

CARO ANALYTICAL SERVICES

# TEST RESULTS

**REPORTED TO** Osoyoos, Town of
**PROJECT** General Potability

**WORK ORDER** 25G1238
**REPORTED** 2025-07-11 15:03

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Tamarack (25G1238-01) \| Matrix: Drinking Water \| Sampled: 2025-07-08 06:45** | | | | | | |
| ***Field Parameters*** | | | | | | |
| Chlorine, Total | **0.30** | None Required | 0.02 | mg/L | 2025-07-08 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-07-09 | |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-07-09 | |
| **12th Ave (25G1238-02) \| Matrix: Drinking Water \| Sampled: 2025-07-08 08:45** | | | | | | |
| ***Field Parameters*** | | | | | | |
| Chlorine, Total | **0.60** | None Required | 0.02 | mg/L | 2025-07-08 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-07-09 | |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-07-09 | |
| **122nd Ave (25G1238-03) \| Matrix: Water \| Sampled: 2025-07-08 08:00** | | | | | | |
| ***Field Parameters*** | | | | | | |
| Chlorine, Total | **0.17** | None Required | 0.02 | mg/L | 2025-07-08 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-07-09 | |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-07-09 | |
| **Well #1 (25G1238-04) \| Matrix: Water \| Sampled: 2025-07-08 10:30** | | | | | | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-07-09 | |
| E. coli (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-07-09 | |
| **Well #3 (25G1238-05) \| Matrix: Water \| Sampled: 2025-07-08 07:00** | | | | | | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-07-09 | |
| E. coli (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-07-09 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.0248** | MAC = 0.12 | 0.00020 | mg/L | 2025-07-10 | |
| **Well #4 (25G1238-06) \| Matrix: Water \| Sampled: 2025-07-08 07:20** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-07-10 | |

CARO ANALYTICAL SERVICES

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25G1238 |
| **PROJECT** | General Potability | **REPORTED** | 2025-07-11 15:03 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #4 (25G1238-06) \| Matrix: Water \| Sampled: 2025-07-08 07:20, Continued** | | | | | | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-07-09 | |
| E. coli (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-07-09 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.129** | MAC = 0.12 | 0.00020 | mg/L | 2025-07-10 | |
| **Well #5 (25G1238-07) \| Matrix: Water \| Sampled: 2025-07-08 07:10** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-07-10 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-07-09 | |
| E. coli (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-07-09 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.158** | MAC = 0.12 | 0.00020 | mg/L | 2025-07-10 | |
| **Well #6 (25G1238-08) \| Matrix: Water \| Sampled: 2025-07-08 07:50** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **1.59** | MAC = 10 | 0.010 | mg/L | 2025-07-10 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-07-09 | |
| E. coli (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-07-09 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.139** | MAC = 0.12 | 0.00020 | mg/L | 2025-07-10 | |
| **Well #8 (25G1238-09) \| Matrix: Water \| Sampled: 2025-07-08 10:15** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **0.322** | MAC = 10 | 0.010 | mg/L | 2025-07-10 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-07-09 | |
| E. coli (Q-Tray) | < 1 | MAC = 0 | 1 | MPN/100 mL | 2025-07-09 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.132** | MAC = 0.12 | 0.00020 | mg/L | 2025-07-10 | |
| **17202 103RD st. (25G1238-10) \| Matrix: Drinking Water \| Sampled: 2025-07-08 08:20** | | | | | | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25G1238 |
| **PROJECT** | General Potability | **REPORTED** | 2025-07-11 15:03 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **17202 103RD st. (25G1238-10) \| Matrix: Drinking Water \| Sampled: 2025-07-08 08:20, Continued** | | | | | | |
| ***Field Parameters*** | | | | | | |
| Chlorine, Total | **0.76** | None Required | 0.02 | mg/L | 2025-07-08 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-07-09 | |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-07-09 | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25G1238 |
| **PROJECT** | General Potability | **REPORTED** | 2025-07-11 15:03 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Coliforms, Total in Water | SM 9222* (2015) | Membrane Filtration / Chromocult Agar | ✓ | Kelowna |
| Coliforms, Total in Water | SM 9223 (2016) | Quanti-Tray / Enzyme Substrate Endo Agar | ✓ | Kelowna |
| E. coli in Water | SM 9222* (2015) | Membrane Filtration / Chromocult Agar | ✓ | Kelowna |
| E. coli in Water | SM 9223 (2016) | Quanti-Tray / Enzyme Substrate Endo Agar | ✓ | Kelowna |
| Total Metals in Water | EPA 200.2 / EPA 6020B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) | ✓ | Richmond |

*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 |
| CFU/100 mL | Colony Forming Units per 100 millilitres |
| MAC | Maximum Acceptable Concentration (health based) |
| mg/L | Milligrams per litre |
| MPN/100 mL | Most Probable Number per 100 millilitres |
| EPA | United States Environmental Protection Agency Test Methods |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Maurice E Wutzke | **WORK ORDER** | 25G2267 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-07-15 16:45 / 16.8°C |
| **PROJECT** | General Potability | **REPORTED** | 2025-07-22 10:40 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

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**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

CARO ANALYTICAL SERVICES

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25G2267 |
| **PROJECT** | General Potability | **REPORTED** | 2025-07-22 10:40 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Station #8 (25G2267-01) \| Matrix: Drinking Water \| Sampled: 2025-07-15 08:15** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **7.38** | AO ≤ 250 | 0.10 | mg/L | 2025-07-17 | |
| Fluoride | **0.14** | MAC = 1.5 | 0.10 | mg/L | 2025-07-17 | |
| Nitrate (as N) | **0.022** | MAC = 10 | 0.010 | mg/L | 2025-07-17 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-07-17 | |
| Sulfate | **28.2** | AO ≤ 500 | 1.0 | mg/L | 2025-07-17 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **125** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **-0.2** | N/A | -5.0 | | 2025-07-21 | CT6 |
| Solids, Total Dissolved | **158** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***Field Parameters*** | | | | | | |
| Chlorine, Total | **0.52** | None Required | 0.02 | mg/L | 2025-07-15 | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **104** | N/A | 1.0 | mg/L | 2025-07-18 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-07-18 | |
| Alkalinity, Bicarbonate (as CaCO3) | **104** | N/A | 1.0 | mg/L | 2025-07-18 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-07-18 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-07-18 | |
| Colour, True | < 5.0 | AO ≤ 15 | 5.0 | CU | 2025-07-17 | |
| Conductivity (EC) | **302** | N/A | 2.0 | µS/cm | 2025-07-18 | |
| Cyanide, Total | **0.0023** | MAC = 0.2 | 0.0020 | mg/L | 2025-07-21 | |
| pH | **7.77** | 7.0-10.5 | 0.10 | pH units | 2025-07-18 | HT2 |
| Temperature, at pH | **22.6** | N/A | | °C | 2025-07-18 | HT2 |
| Turbidity | **0.71** | OG < 1 | 0.10 | NTU | 2025-07-17 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-07-16 | |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-07-16 | |
| ***Total Metals*** | | | | | | |
| Aluminum, total | **0.0149** | OG < 0.1 | 0.0050 | mg/L | 2025-07-18 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-07-18 | |
| Arsenic, total | **0.00059** | MAC = 0.01 | 0.00050 | mg/L | 2025-07-18 | |
| Barium, total | **0.0260** | MAC = 2 | 0.0050 | mg/L | 2025-07-18 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-07-18 | |
| Cadmium, total | < 0.000010 | MAC = 0.007 | 0.000010 | mg/L | 2025-07-18 | |
| Calcium, total | **33.9** | None Required | 0.20 | mg/L | 2025-07-18 | |
| Chromium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-07-18 | |
| Cobalt, total | < 0.00010 | N/A | 0.00010 | mg/L | 2025-07-18 | |
| Copper, total | **0.00776** | MAC = 2 | 0.00040 | mg/L | 2025-07-18 | |
| Iron, total | **0.027** | AO ≤ 0.1 | 0.010 | mg/L | 2025-07-18 | |
| Lead, total | **0.00033** | MAC = 0.005 | 0.00020 | mg/L | 2025-07-18 | |
| Magnesium, total | **9.79** | None Required | 0.010 | mg/L | 2025-07-18 | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25G2267 |
| **PROJECT** | General Potability | **REPORTED** | 2025-07-22 10:40 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Station #8 (25G2267-01) \| Matrix: Drinking Water \| Sampled: 2025-07-15 08:15, Continued** | | | | | | |
| ***Total Metals, Continued*** | | | | | | |
| Manganese, total | **0.0101** | MAC = 0.12 | 0.00020 | mg/L | 2025-07-18 | |
| Mercury, total | < 0.000010 | MAC = 0.001 | 0.000010 | mg/L | 2025-07-18 | |
| Molybdenum, total | **0.00323** | N/A | 0.00010 | mg/L | 2025-07-18 | |
| Nickel, total | **0.00066** | N/A | 0.00040 | mg/L | 2025-07-18 | |
| Potassium, total | **2.53** | N/A | 0.10 | mg/L | 2025-07-18 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-07-18 | |
| Sodium, total | **12.4** | AO ≤ 200 | 0.10 | mg/L | 2025-07-18 | |
| Strontium, total | **0.329** | MAC = 7 | 0.0010 | mg/L | 2025-07-18 | |
| Uranium, total | **0.00245** | MAC = 0.02 | 0.000020 | mg/L | 2025-07-18 | |
| Zinc, total | **0.0129** | AO ≤ 5 | 0.0040 | mg/L | 2025-07-18 | |
| **Station #9 (25G2267-02) \| Matrix: Drinking Water \| Sampled: 2025-07-15 07:00** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **7.88** | AO ≤ 250 | 0.10 | mg/L | 2025-07-17 | |
| Fluoride | **0.14** | MAC = 1.5 | 0.10 | mg/L | 2025-07-17 | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-07-17 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-07-17 | |
| Sulfate | **27.4** | AO ≤ 500 | 1.0 | mg/L | 2025-07-17 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **126** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **-0.1** | N/A | -5.0 | | 2025-07-21 | CT6 |
| Solids, Total Dissolved | **155** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***Field Parameters*** | | | | | | |
| Chlorine, Total | **1.07** | None Required | 0.02 | mg/L | 2025-07-15 | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **100** | N/A | 1.0 | mg/L | 2025-07-18 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-07-18 | |
| Alkalinity, Bicarbonate (as CaCO3) | **100** | N/A | 1.0 | mg/L | 2025-07-18 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-07-18 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-07-18 | |
| Colour, True | < 5.0 | AO ≤ 15 | 5.0 | CU | 2025-07-17 | |
| Conductivity (EC) | **296** | N/A | 2.0 | µS/cm | 2025-07-18 | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 | mg/L | 2025-07-21 | |
| pH | **7.86** | 7.0-10.5 | 0.10 | pH units | 2025-07-18 | HT2 |
| Temperature, at pH | **22.8** | N/A | | °C | 2025-07-18 | HT2 |
| Turbidity | **0.91** | OG < 1 | 0.10 | NTU | 2025-07-17 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-07-16 | |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-07-16 | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25G2267 |
| **PROJECT** | General Potability | **REPORTED** | 2025-07-22 10:40 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Station #9 (25G2267-02) \| Matrix: Drinking Water \| Sampled: 2025-07-15 07:00, Continued** | | | | | | |
| ***Total Metals*** | | | | | | |
| Aluminum, total | **0.0195** | OG < 0.1 | 0.0050 | mg/L | 2025-07-18 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-07-18 | |
| Arsenic, total | **0.00060** | MAC = 0.01 | 0.00050 | mg/L | 2025-07-18 | |
| Barium, total | **0.0265** | MAC = 2 | 0.0050 | mg/L | 2025-07-18 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-07-18 | |
| Cadmium, total | < 0.000010 | MAC = 0.007 | 0.000010 | mg/L | 2025-07-18 | |
| Calcium, total | **35.0** | None Required | 0.20 | mg/L | 2025-07-18 | |
| Chromium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-07-18 | |
| Cobalt, total | < 0.00010 | N/A | 0.00010 | mg/L | 2025-07-18 | |
| Copper, total | **0.00347** | MAC = 2 | 0.00040 | mg/L | 2025-07-18 | |
| Iron, total | **0.022** | AO ≤ 0.1 | 0.010 | mg/L | 2025-07-18 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-07-18 | |
| Magnesium, total | **9.24** | None Required | 0.010 | mg/L | 2025-07-18 | |
| Manganese, total | **0.00828** | MAC = 0.12 | 0.00020 | mg/L | 2025-07-18 | |
| Mercury, total | < 0.000010 | MAC = 0.001 | 0.000010 | mg/L | 2025-07-18 | |
| Molybdenum, total | **0.00329** | N/A | 0.00010 | mg/L | 2025-07-18 | |
| Nickel, total | **0.00044** | N/A | 0.00040 | mg/L | 2025-07-18 | |
| Potassium, total | **2.50** | N/A | 0.10 | mg/L | 2025-07-18 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-07-18 | |
| Sodium, total | **12.3** | AO ≤ 200 | 0.10 | mg/L | 2025-07-18 | |
| Strontium, total | **0.311** | MAC = 7 | 0.0010 | mg/L | 2025-07-18 | |
| Uranium, total | **0.00262** | MAC = 0.02 | 0.000020 | mg/L | 2025-07-18 | |
| Zinc, total | **0.0068** | AO ≤ 5 | 0.0040 | mg/L | 2025-07-18 | |

**Sample Qualifiers:**

| | |
|---|---|
| CT6 | Results were based on lab temperature & lab pH. |
| HT2 | The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended. |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25G2267 |
| **PROJECT** | General Potability | **REPORTED** | 2025-07-22 10:40 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Alkalinity in Water | SM 2320 B* (2021) | Titration with H2SO4 | ✓ | Kelowna |
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Coliforms, Total in Water | SM 9222* (2015) | Membrane Filtration / Chromocult Agar | ✓ | Kelowna |
| Colour, True in Water | SM 2120 C (2021) | Spectrophotometry (456 nm) | ✓ | Kelowna |
| Conductivity in Water | SM 2510 B (2021) | Conductivity Meter | ✓ | Kelowna |
| Cyanide, SAD in Water | ASTM D7511-12 | Flow Injection with In-Line UV Digestion and Amperometry | ✓ | Kelowna |
| E. coli in Water | SM 9222* (2015) | Membrane Filtration / Chromocult Agar | ✓ | Kelowna |
| Hardness in Water | SM 2340 B* (2021) | Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est) | ✓ | N/A |
| Langelier Index in Water | SM 2330 B (2021) | Calculation | | N/A |
| Mercury, total in Water | EPA 245.7* | BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) | ✓ | Richmond |
| pH in Water | SM 4500-H+ B (2021) | Electrometry | ✓ | Kelowna |
| Solids, Total Dissolved in Water | SM 1030 E (2021) | SM 1030 E | | 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 (2020) | 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 |
| CFU/100 mL | Colony Forming Units per 100 millilitres |
| 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 |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25G2267 |
| **PROJECT** | General Potability | **REPORTED** | 2025-07-22 10:40 |

**General Comments:**

The results in this report apply to samples received by CARO and analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety and must not be modified. CARO is not responsible for losses or damages resulting directly or indirectly from errors or omissions in the conduct of the testing. Any liability is limited to the cost of analysis. CARO will dispose of all samples within 30 days of sample receipt, unless otherwise agreed. The quality control (QC) data is available upon request

Results in **Bold** indicate values that are above CARO's method reporting limits. Results in **red** indicate values above the regulatory limits where these have been included. 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: hhannaoui@caro.ca

*Regulatory limits are added to test reports on request and are as a convenience only. While CARO makes every effort to ensure accuracy of regulatory limits, CARO assumes no liability for the use of this information. It remains the client's responsibility to ensure that regulatory limits are correct for their circumstances.*

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Maurice E Wutzke | **WORK ORDER** | 25H0557 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-08-06 08:20 / 9.8°C |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-08 16:39 |
| **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 hhannaoui@caro.ca*

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25H0557 |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-08 16:39 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Tamarack (25H0557-01) \| Matrix: Drinking Water \| Sampled: 2025-08-05 07:30** | | | | | | |
| ***Field Parameters*** | | | | | | |
| Chlorine, Total | **0.68** | None Required | 0.02 | mg/L | 2025-08-05 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| **12th Ave (25H0557-02) \| Matrix: Drinking Water \| Sampled: 2025-08-05 09:00** | | | | | | |
| ***Field Parameters*** | | | | | | |
| Chlorine, Total | **0.71** | None Required | 0.02 | mg/L | 2025-08-05 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | |
| **122nd Ave (25H0557-03) \| Matrix: Drinking Water \| Sampled: 2025-08-05 08:30** | | | | | | |
| ***Field Parameters*** | | | | | | |
| Chlorine, Total | **0.48** | None Required | 0.02 | mg/L | 2025-08-05 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| **17202 103rd St (25H0557-04) \| Matrix: Drinking Water \| Sampled: 2025-08-05 08:40** | | | | | | |
| ***Field Parameters*** | | | | | | |
| Chlorine, Total | **0.48** | None Required | 0.02 | mg/L | 2025-08-05 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | |
| **Well 1 (25H0557-05) \| Matrix: Drinking Water \| Sampled: 2025-08-05 08:00** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **40.6** | AO ≤ 250 | 0.10 | mg/L | 2025-08-07 | |
| Fluoride | **0.28** | MAC = 1.5 | 0.10 | mg/L | 2025-08-07 | |
| Nitrate (as N) | **4.50** | MAC = 10 | 0.010 | mg/L | 2025-08-07 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-08-07 | |
| Sulfate | **61.3** | AO ≤ 500 | 1.0 | mg/L | 2025-08-07 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **291** | None Required | 0.500 | mg/L | N/A | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25H0557 |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-08 16:39 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well 1 (25H0557-05) \| Matrix: Drinking Water \| Sampled: 2025-08-05 08:00, Continued** | | | | | | |
| ***Calculated Parameters, Continued*** | | | | | | |
| Langelier Index | **0.5** | N/A | -5.0 | | 2025-08-08 | CT6 |
| Solids, Total Dissolved | **403** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **218** | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Bicarbonate (as CaCO3) | **218** | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Colour, True | < 5.0 | AO ≤ 15 | 5.0 | CU | 2025-08-07 | |
| Conductivity (EC) | **733** | N/A | 2.0 | µS/cm | 2025-08-07 | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 | mg/L | 2025-08-08 | |
| pH | **7.84** | 7.0-10.5 | 0.10 | pH units | 2025-08-07 | HT2 |
| Temperature, at pH | **22.8** | N/A | | °C | 2025-08-07 | HT2 |
| Turbidity | < 0.10 | OG < 1 | 0.10 | NTU | 2025-08-08 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-08-07 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-08-07 | |
| Arsenic, total | **0.00428** | MAC = 0.01 | 0.00050 | mg/L | 2025-08-07 | |
| Barium, total | **0.0593** | MAC = 2 | 0.0050 | mg/L | 2025-08-07 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-08-07 | |
| Cadmium, total | **0.000029** | MAC = 0.007 | 0.000010 | mg/L | 2025-08-07 | |
| Calcium, total | **87.0** | None Required | 0.20 | mg/L | 2025-08-07 | |
| Chromium, total | **0.00058** | MAC = 0.05 | 0.00050 | mg/L | 2025-08-07 | |
| Cobalt, total | < 0.00010 | N/A | 0.00010 | mg/L | 2025-08-07 | |
| Copper, total | **0.00661** | MAC = 2 | 0.00040 | mg/L | 2025-08-07 | |
| Iron, total | < 0.010 | AO ≤ 0.1 | 0.010 | mg/L | 2025-08-07 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-08-07 | |
| Magnesium, total | **17.8** | None Required | 0.010 | mg/L | 2025-08-07 | |
| Manganese, total | **0.00309** | MAC = 0.12 | 0.00020 | mg/L | 2025-08-07 | |
| Mercury, total | < 0.000010 | MAC = 0.001 | 0.000010 | mg/L | 2025-08-07 | |
| Molybdenum, total | **0.0133** | N/A | 0.00010 | mg/L | 2025-08-07 | |
| Nickel, total | **0.00093** | N/A | 0.00040 | mg/L | 2025-08-07 | |
| Potassium, total | **6.05** | N/A | 0.10 | mg/L | 2025-08-07 | |
| Selenium, total | **0.00060** | MAC = 0.05 | 0.00050 | mg/L | 2025-08-07 | |
| Sodium, total | **37.1** | AO ≤ 200 | 0.10 | mg/L | 2025-08-07 | |
| Strontium, total | **0.721** | MAC = 7 | 0.0010 | mg/L | 2025-08-07 | |
| Uranium, total | **0.00676** | MAC = 0.02 | 0.000020 | mg/L | 2025-08-07 | |
| Zinc, total | **0.0080** | AO ≤ 5 | 0.0040 | mg/L | 2025-08-07 | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25H0557 |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-08 16:39 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well 3 (25H0557-06) \| Matrix: Drinking Water \| Sampled: 2025-08-05 07:40** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **16.5** | AO ≤ 250 | 0.10 | mg/L | 2025-08-07 | |
| Fluoride | **0.27** | MAC = 1.5 | 0.10 | mg/L | 2025-08-07 | |
| Nitrate (as N) | **2.10** | MAC = 10 | 0.010 | mg/L | 2025-08-07 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-08-07 | |
| Sulfate | **47.2** | AO ≤ 500 | 1.0 | mg/L | 2025-08-07 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **293** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **0.8** | N/A | -5.0 | | 2025-08-08 | CT6 |
| Solids, Total Dissolved | **365** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **256** | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Bicarbonate (as CaCO3) | **256** | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Colour, True | < 5.0 | AO ≤ 15 | 5.0 | CU | 2025-08-07 | |
| Conductivity (EC) | **674** | N/A | 2.0 | µS/cm | 2025-08-07 | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 | mg/L | 2025-08-08 | |
| pH | **8.05** | 7.0-10.5 | 0.10 | pH units | 2025-08-07 | HT2 |
| Temperature, at pH | **23.1** | N/A | | °C | 2025-08-07 | HT2 |
| Turbidity | < 0.10 | OG < 1 | 0.10 | NTU | 2025-08-08 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-08-07 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-08-07 | |
| Arsenic, total | **0.00139** | MAC = 0.01 | 0.00050 | mg/L | 2025-08-07 | |
| Barium, total | **0.0856** | MAC = 2 | 0.0050 | mg/L | 2025-08-07 | |
| Boron, total | **0.0514** | MAC = 5 | 0.0500 | mg/L | 2025-08-07 | |
| Cadmium, total | **0.000027** | MAC = 0.007 | 0.000010 | mg/L | 2025-08-07 | |
| Calcium, total | **80.7** | None Required | 0.20 | mg/L | 2025-08-07 | |
| Chromium, total | **0.00100** | MAC = 0.05 | 0.00050 | mg/L | 2025-08-07 | |
| Cobalt, total | < 0.00010 | N/A | 0.00010 | mg/L | 2025-08-07 | |
| Copper, total | **0.00567** | MAC = 2 | 0.00040 | mg/L | 2025-08-07 | |
| Iron, total | < 0.010 | AO ≤ 0.1 | 0.010 | mg/L | 2025-08-07 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-08-07 | |
| Magnesium, total | **22.3** | None Required | 0.010 | mg/L | 2025-08-07 | |
| Manganese, total | **0.0250** | MAC = 0.12 | 0.00020 | mg/L | 2025-08-07 | |
| Mercury, total | < 0.000010 | MAC = 0.001 | 0.000010 | mg/L | 2025-08-07 | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25H0557 |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-08 16:39 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well 3 (25H0557-06) \| Matrix: Drinking Water \| Sampled: 2025-08-05 07:40, Continued** | | | | | | |
| ***Total Metals, Continued*** | | | | | | |
| Molybdenum, total | **0.00838** | N/A | 0.00010 | mg/L | 2025-08-07 | |
| Nickel, total | **0.00063** | N/A | 0.00040 | mg/L | 2025-08-07 | |
| Potassium, total | **6.41** | N/A | 0.10 | mg/L | 2025-08-07 | |
| Selenium, total | **0.00155** | MAC = 0.05 | 0.00050 | mg/L | 2025-08-07 | |
| Sodium, total | **25.8** | AO ≤ 200 | 0.10 | mg/L | 2025-08-07 | |
| Strontium, total | **0.894** | MAC = 7 | 0.0010 | mg/L | 2025-08-07 | |
| Uranium, total | **0.0110** | MAC = 0.02 | 0.000020 | mg/L | 2025-08-07 | |
| Zinc, total | **0.0060** | AO ≤ 5 | 0.0040 | mg/L | 2025-08-07 | |
| **Well 4 (25H0557-07) \| Matrix: Drinking Water \| Sampled: 2025-08-05 07:05** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **5.54** | AO ≤ 250 | 0.10 | mg/L | 2025-08-07 | |
| Fluoride | **0.31** | MAC = 1.5 | 0.10 | mg/L | 2025-08-07 | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-08-07 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-08-07 | |
| Sulfate | **29.9** | AO ≤ 500 | 1.0 | mg/L | 2025-08-07 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **224** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **0.6** | N/A | -5.0 | | 2025-08-08 | CT6 |
| Solids, Total Dissolved | **280** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **236** | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Bicarbonate (as CaCO3) | **236** | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Colour, True | **5.0** | AO ≤ 15 | 5.0 | CU | 2025-08-07 | |
| Conductivity (EC) | **484** | N/A | 2.0 | µS/cm | 2025-08-07 | |
| Cyanide, Total | **0.0052** | MAC = 0.2 | 0.0020 | mg/L | 2025-08-08 | |
| pH | **8.18** | 7.0-10.5 | 0.10 | pH units | 2025-08-07 | HT2 |
| Temperature, at pH | **23.3** | N/A | | °C | 2025-08-07 | HT2 |
| Turbidity | **0.67** | OG < 1 | 0.10 | NTU | 2025-08-08 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-08-08 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-08-08 | |
| Arsenic, total | **0.00650** | MAC = 0.01 | 0.00050 | mg/L | 2025-08-08 | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25H0557 |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-08 16:39 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well 4 (25H0557-07) \| Matrix: Drinking Water \| Sampled: 2025-08-05 07:05, Continued** | | | | | | |
| ***Total Metals, Continued*** | | | | | | |
| Barium, total | **0.151** | MAC = 2 | 0.0050 | mg/L | 2025-08-08 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-08-08 | |
| Cadmium, total | < 0.000010 | MAC = 0.007 | 0.000010 | mg/L | 2025-08-08 | |
| Calcium, total | **40.0** | None Required | 0.20 | mg/L | 2025-08-08 | |
| Chromium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-08-08 | |
| Cobalt, total | < 0.00010 | N/A | 0.00010 | mg/L | 2025-08-08 | |
| Copper, total | **0.00085** | MAC = 2 | 0.00040 | mg/L | 2025-08-08 | |
| Iron, total | **0.273** | AO ≤ 0.1 | 0.010 | mg/L | 2025-08-08 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-08-08 | |
| Magnesium, total | **30.2** | None Required | 0.010 | mg/L | 2025-08-08 | |
| Manganese, total | **0.119** | MAC = 0.12 | 0.00020 | mg/L | 2025-08-08 | |
| Mercury, total | < 0.000010 | MAC = 0.001 | 0.000010 | mg/L | 2025-08-07 | |
| Molybdenum, total | **0.00788** | N/A | 0.00010 | mg/L | 2025-08-08 | |
| Nickel, total | < 0.00040 | N/A | 0.00040 | mg/L | 2025-08-08 | |
| Potassium, total | **5.60** | N/A | 0.10 | mg/L | 2025-08-08 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-08-08 | |
| Sodium, total | **24.5** | AO ≤ 200 | 0.10 | mg/L | 2025-08-08 | |
| Strontium, total | **0.639** | MAC = 7 | 0.0010 | mg/L | 2025-08-08 | |
| Uranium, total | **0.000779** | MAC = 0.02 | 0.000020 | mg/L | 2025-08-08 | |
| Zinc, total | < 0.0040 | AO ≤ 5 | 0.0040 | mg/L | 2025-08-08 | |
| **Well 5 (25H0557-08) \| Matrix: Drinking Water \| Sampled: 2025-08-05 07:15** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **10.6** | AO ≤ 250 | 0.10 | mg/L | 2025-08-07 | |
| Fluoride | **0.26** | MAC = 1.5 | 0.10 | mg/L | 2025-08-07 | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-08-07 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-08-07 | |
| Sulfate | **27.7** | AO ≤ 500 | 1.0 | mg/L | 2025-08-07 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **196** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **0.5** | N/A | -5.0 | | 2025-08-08 | CT6 |
| Solids, Total Dissolved | **255** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **201** | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Bicarbonate (as CaCO3) | **201** | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Colour, True | **5.3** | AO ≤ 15 | 5.0 | CU | 2025-08-07 | |
| Conductivity (EC) | **487** | N/A | 2.0 | µS/cm | 2025-08-07 | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25H0557 |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-08 16:39 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well 5 (25H0557-08) \| Matrix: Drinking Water \| Sampled: 2025-08-05 07:15, Continued** | | | | | | |
| ***General Parameters, Continued*** | | | | | | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 | mg/L | 2025-08-08 | |
| pH | **8.13** | 7.0-10.5 | 0.10 | pH units | 2025-08-07 | HT2 |
| Temperature, at pH | **23.1** | N/A | | °C | 2025-08-07 | HT2 |
| Turbidity | **0.40** | OG < 1 | 0.10 | NTU | 2025-08-08 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-08-07 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-08-07 | |
| Arsenic, total | **0.00200** | MAC = 0.01 | 0.00050 | mg/L | 2025-08-07 | |
| Barium, total | **0.103** | MAC = 2 | 0.0050 | mg/L | 2025-08-07 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-08-07 | |
| Cadmium, total | < 0.000010 | MAC = 0.007 | 0.000010 | mg/L | 2025-08-07 | |
| Calcium, total | **47.5** | None Required | 0.20 | mg/L | 2025-08-07 | |
| Chromium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-08-07 | |
| Cobalt, total | < 0.00010 | N/A | 0.00010 | mg/L | 2025-08-07 | |
| Copper, total | **0.00478** | MAC = 2 | 0.00040 | mg/L | 2025-08-07 | |
| Iron, total | **0.116** | AO ≤ 0.1 | 0.010 | mg/L | 2025-08-07 | |
| Lead, total | **0.00028** | MAC = 0.005 | 0.00020 | mg/L | 2025-08-07 | |
| Magnesium, total | **18.7** | None Required | 0.010 | mg/L | 2025-08-07 | |
| Manganese, total | **0.143** | MAC = 0.12 | 0.00020 | mg/L | 2025-08-07 | |
| Mercury, total | < 0.000010 | MAC = 0.001 | 0.000010 | mg/L | 2025-08-07 | |
| Molybdenum, total | **0.00637** | N/A | 0.00010 | mg/L | 2025-08-07 | |
| Nickel, total | < 0.00040 | N/A | 0.00040 | mg/L | 2025-08-07 | |
| Potassium, total | **4.70** | N/A | 0.10 | mg/L | 2025-08-07 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-08-07 | |
| Sodium, total | **23.0** | AO ≤ 200 | 0.10 | mg/L | 2025-08-07 | |
| Strontium, total | **0.548** | MAC = 7 | 0.0010 | mg/L | 2025-08-07 | |
| Uranium, total | **0.00258** | MAC = 0.02 | 0.000020 | mg/L | 2025-08-07 | |
| Zinc, total | **0.0047** | AO ≤ 5 | 0.0040 | mg/L | 2025-08-07 | |
| **Well 6 (25H0557-09) \| Matrix: Drinking Water \| Sampled: 2025-08-05 08:15** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **17.0** | AO ≤ 250 | 0.10 | mg/L | 2025-08-07 | |
| Fluoride | **0.32** | MAC = 1.5 | 0.10 | mg/L | 2025-08-07 | |
| Nitrate (as N) | **1.63** | MAC = 10 | 0.010 | mg/L | 2025-08-07 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-08-07 | |
| Sulfate | **53.1** | AO ≤ 500 | 1.0 | mg/L | 2025-08-07 | |
| ***Calculated Parameters*** | | | | | | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25H0557 |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-08 16:39 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well 6 (25H0557-09) \| Matrix: Drinking Water \| Sampled: 2025-08-05 08:15, Continued** | | | | | | |
| ***Calculated Parameters, Continued*** | | | | | | |
| Hardness, Total (as CaCO3) | **305** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **0.8** | N/A | -5.0 | | 2025-08-08 | CT6 |
| Solids, Total Dissolved | **389** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **274** | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Bicarbonate (as CaCO3) | **274** | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Colour, True | < 5.0 | AO ≤ 15 | 5.0 | CU | 2025-08-07 | |
| Conductivity (EC) | **712** | N/A | 2.0 | µS/cm | 2025-08-07 | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 | mg/L | 2025-08-08 | |
| pH | **8.11** | 7.0-10.5 | 0.10 | pH units | 2025-08-07 | HT2 |
| Temperature, at pH | **23.3** | N/A | | °C | 2025-08-07 | HT2 |
| Turbidity | < 0.10 | OG < 1 | 0.10 | NTU | 2025-08-08 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-08-08 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-08-08 | |
| Arsenic, total | **0.00487** | MAC = 0.01 | 0.00050 | mg/L | 2025-08-08 | |
| Barium, total | **0.0724** | MAC = 2 | 0.0050 | mg/L | 2025-08-08 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-08-08 | |
| Cadmium, total | **0.000026** | MAC = 0.007 | 0.000010 | mg/L | 2025-08-08 | |
| Calcium, total | **69.7** | None Required | 0.20 | mg/L | 2025-08-08 | |
| Chromium, total | **0.00052** | MAC = 0.05 | 0.00050 | mg/L | 2025-08-08 | |
| Cobalt, total | **0.00018** | N/A | 0.00010 | mg/L | 2025-08-08 | |
| Copper, total | **0.00355** | MAC = 2 | 0.00040 | mg/L | 2025-08-08 | |
| Iron, total | < 0.010 | AO ≤ 0.1 | 0.010 | mg/L | 2025-08-08 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-08-08 | |
| Magnesium, total | **31.8** | None Required | 0.010 | mg/L | 2025-08-08 | |
| Manganese, total | **0.140** | MAC = 0.12 | 0.00020 | mg/L | 2025-08-08 | |
| Mercury, total | < 0.000010 | MAC = 0.001 | 0.000010 | mg/L | 2025-08-07 | |
| Molybdenum, total | **0.0146** | N/A | 0.00010 | mg/L | 2025-08-08 | |
| Nickel, total | **0.00081** | N/A | 0.00040 | mg/L | 2025-08-08 | |
| Potassium, total | **6.18** | N/A | 0.10 | mg/L | 2025-08-08 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-08-08 | |
| Sodium, total | **36.3** | AO ≤ 200 | 0.10 | mg/L | 2025-08-08 | |
| Strontium, total | **0.921** | MAC = 7 | 0.0010 | mg/L | 2025-08-08 | |
| Uranium, total | **0.00586** | MAC = 0.02 | 0.000020 | mg/L | 2025-08-08 | |

# TEST RESULTS

**REPORTED TO** Osoyoos, Town of
**PROJECT** General Potability

**WORK ORDER** 25H0557
**REPORTED** 2025-08-08 16:39

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well 6 (25H0557-09) \| Matrix: Drinking Water \| Sampled: 2025-08-05 08:15, Continued** | | | | | | |
| ***Total Metals, Continued*** | | | | | | |
| Zinc, total | **0.0057** | AO ≤ 5 | 0.0040 | mg/L | 2025-08-08 | |
| **Well 8 (25H0557-10) \| Matrix: Drinking Water \| Sampled: 2025-08-05 07:50** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **10.1** | AO ≤ 250 | 0.10 | mg/L | 2025-08-08 | |
| Fluoride | < 0.10 | MAC = 1.5 | 0.10 | mg/L | 2025-08-08 | |
| Nitrate (as N) | **0.327** | MAC = 10 | 0.010 | mg/L | 2025-08-08 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-08-08 | |
| Sulfate | **26.6** | AO ≤ 500 | 1.0 | mg/L | 2025-08-08 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **168** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **0.3** | N/A | -5.0 | | 2025-08-08 | CT6 |
| Solids, Total Dissolved | **216** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **156** | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Bicarbonate (as CaCO3) | **156** | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-08-07 | |
| Colour, True | **5.2** | AO ≤ 15 | 5.0 | CU | 2025-08-07 | |
| Conductivity (EC) | **420** | N/A | 2.0 | µS/cm | 2025-08-07 | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 | mg/L | 2025-08-08 | |
| pH | **7.99** | 7.0-10.5 | 0.10 | pH units | 2025-08-07 | HT2 |
| Temperature, at pH | **23.2** | N/A | | °C | 2025-08-07 | HT2 |
| Turbidity | < 0.10 | OG < 1 | 0.10 | NTU | 2025-08-08 | |
| ***Microbiological Parameters*** | | | | | | |
| Coliforms, Total | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| Background Colonies | **>200** | N/A | 200 | CFU/100 mL | 2025-08-06 | HT3 |
| E. coli | < 1 | MAC = 0 | 1 | CFU/100 mL | 2025-08-06 | HT3 |
| ***Total Metals*** | | | | | | |
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 | mg/L | 2025-08-08 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-08-08 | |
| Arsenic, total | **0.00211** | MAC = 0.01 | 0.00050 | mg/L | 2025-08-08 | |
| Barium, total | **0.0496** | MAC = 2 | 0.0050 | mg/L | 2025-08-08 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-08-08 | |
| Cadmium, total | **0.000032** | MAC = 0.007 | 0.000010 | mg/L | 2025-08-08 | |
| Calcium, total | **46.0** | None Required | 0.20 | mg/L | 2025-08-08 | |
| Chromium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-08-08 | |
| Cobalt, total | **0.00012** | N/A | 0.00010 | mg/L | 2025-08-08 | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25H0557 |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-08 16:39 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well 8 (25H0557-10) \| Matrix: Drinking Water \| Sampled: 2025-08-05 07:50, Continued** | | | | | | |
| ***Total Metals, Continued*** | | | | | | |
| Copper, total | **0.00960** | MAC = 2 | 0.00040 | mg/L | 2025-08-08 | |
| Iron, total | < 0.010 | AO ≤ 0.1 | 0.010 | mg/L | 2025-08-08 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-08-08 | |
| Magnesium, total | **12.8** | None Required | 0.010 | mg/L | 2025-08-08 | |
| Manganese, total | **0.139** | MAC = 0.12 | 0.00020 | mg/L | 2025-08-08 | |
| Mercury, total | < 0.000010 | MAC = 0.001 | 0.000010 | mg/L | 2025-08-07 | |
| Molybdenum, total | **0.00648** | N/A | 0.00010 | mg/L | 2025-08-08 | |
| Nickel, total | **0.00054** | N/A | 0.00040 | mg/L | 2025-08-08 | |
| Potassium, total | **3.59** | N/A | 0.10 | mg/L | 2025-08-08 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-08-08 | |
| Sodium, total | **20.6** | AO ≤ 200 | 0.10 | mg/L | 2025-08-08 | |
| Strontium, total | **0.446** | MAC = 7 | 0.0010 | mg/L | 2025-08-08 | |
| Uranium, total | **0.00297** | MAC = 0.02 | 0.000020 | mg/L | 2025-08-08 | |
| Zinc, total | **0.0253** | AO ≤ 5 | 0.0040 | mg/L | 2025-08-08 | |

**Sample Qualifiers:**

CT6 Results were based on lab temperature & lab pH.

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

HT3 Microbiological analysis was initiated beyond the maximum holding time of 30 hours. Results may not be valid.

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25H0557 |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-08 16:39 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Alkalinity in Water | SM 2320 B* (2021) | Titration with H2SO4 | ✓ | Kelowna |
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Coliforms, Total in Water | SM 9222* (2015) | Membrane Filtration / Chromocult Agar | ✓ | Kelowna |
| Colour, True in Water | SM 2120 C (2021) | Spectrophotometry (456 nm) | ✓ | Kelowna |
| Conductivity in Water | SM 2510 B (2021) | Conductivity Meter | ✓ | Kelowna |
| Cyanide, SAD in Water | ASTM D7511-12 | Flow Injection with In-Line UV Digestion and Amperometry | ✓ | Kelowna |
| E. coli in Water | SM 9222* (2015) | Membrane Filtration / Chromocult Agar | ✓ | Kelowna |
| Hardness in Water | SM 2340 B* (2021) | Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est) | ✓ | N/A |
| Langelier Index in Water | SM 2330 B (2021) | Calculation | | N/A |
| Mercury, total in Water | EPA 245.7* | BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) | ✓ | Richmond |
| pH in Water | SM 4500-H+ B (2021) | Electrometry | ✓ | Kelowna |
| Solids, Total Dissolved in Water | SM 1030 E (2021) | SM 1030 E | | 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 (2020) | 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 |
| >2 | Greater than the specified Result |
| °C | Degrees Celcius |
| AO | Aesthetic Objective |
| CFU/100 mL | Colony Forming Units per 100 millilitres |
| 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 |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25H0557 |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-08 16:39 |

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Maurice E Wutzke | **WORK ORDER** | 25H3669 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-08-26 16:59 / 18.2°C |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-29 15:36 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

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

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25H3669 |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-29 15:36 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well #5 (25H3669-01) \| Matrix: Water \| Sampled: 2025-08-26 06:30** | | | | | | |
| ***General Parameters*** | | | | | | |
| Ammonia, Total (as N) | **0.553** | None Required | 0.050 | mg/L | 2025-08-29 | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25H3669 |
| **PROJECT** | General Potability | **REPORTED** | 2025-08-29 15:36 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Ammonia, Total in Water | SM 4500-NH3 G* (2021) | Automated Colorimetry (Phenate) | ✓ | 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) |
| mg/L | Milligrams per litre |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

**Guidelines Referenced in this Report:**

Guidelines for Canadian Drinking Water Quality (Health Canada)

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | David Gordin | **WORK ORDER** | 25I0491 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-09-03 08:41 / 7.4°C |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-09-09 08:33 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

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

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25I0491 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-09-09 08:33 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well 3 (25I0491-01) \| Matrix: Water \| Sampled: 2025-09-02 08:20** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.0260** | MAC = 0.12 | 0.00020 | mg/L | 2025-09-06 | |
| **Well 4 (25I0491-02) \| Matrix: Water \| Sampled: 2025-09-02 08:10** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-09-04 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.120** | MAC = 0.12 | 0.00020 | mg/L | 2025-09-06 | |
| **Well 5 (25I0491-03) \| Matrix: Water \| Sampled: 2025-09-02 08:00** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-09-04 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.139** | MAC = 0.12 | 0.00020 | mg/L | 2025-09-06 | |
| **Well 6 (25I0491-04) \| Matrix: Water \| Sampled: 2025-09-02 08:40** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **1.72** | MAC = 10 | 0.010 | mg/L | 2025-09-04 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.147** | MAC = 0.12 | 0.00020 | mg/L | 2025-09-06 | |
| **Well 8 (25I0491-05) \| Matrix: Water \| Sampled: 2025-09-02 10:25** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **0.339** | MAC = 10 | 0.010 | mg/L | 2025-09-04 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.134** | MAC = 0.12 | 0.00020 | mg/L | 2025-09-06 | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25I0491 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-09-09 08:33 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Total Metals in Water | EPA 200.2 / EPA 6020B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) | ✓ | Richmond |

**Glossary of Terms:**

| | |
|---|---|
| RL | Reporting Limit (default) |
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| MAC | Maximum Acceptable Concentration (health based) |
| mg/L | Milligrams per litre |
| EPA | United States Environmental Protection Agency Test Methods |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | David Gordin | **WORK ORDER** | 25I1297 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-09-10 08:26 / 9.8°C |
| **PROJECT** | THM Analysis | **REPORTED** | 2025-09-19 14:38 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

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**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25I1297 |
| **PROJECT** | THM Analysis | **REPORTED** | 2025-09-19 14:38 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Dividend Ridge (25I1297-01) \| Matrix: Water \| Sampled: 2025-09-09 07:15** | | | | | | |
| ***Calculated Parameters*** | | | | | | |
| Total Trihalomethanes | **0.0357** | MAC = 0.1 | 0.00400 | mg/L | N/A | |
| ***Haloacetic Acids*** | | | | | | |
| Monochloroacetic Acid | < 0.0050 | N/A | 0.0020 | mg/L | 2025-09-18 | RA3 |
| Monobromoacetic Acid | < 0.0020 | N/A | 0.0020 | mg/L | 2025-09-18 | |
| Dichloroacetic Acid | **0.0128** | N/A | 0.0020 | mg/L | 2025-09-18 | |
| Trichloroacetic Acid | **0.0159** | N/A | 0.0020 | mg/L | 2025-09-18 | |
| Dibromoacetic Acid | < 0.0020 | N/A | 0.0020 | mg/L | 2025-09-18 | |
| Total Haloacetic Acids (HAA5) | **0.0287** | MAC = 0.08 | 0.00500 | mg/L | N/A | |
| *Surrogate: 2-Bromopropionic Acid* | *98* | | *70-130* | % | *2025-09-18* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | |
| Bromodichloromethane | **0.0054** | N/A | 0.0010 | mg/L | 2025-09-13 | |
| Bromoform | < 0.0010 | N/A | 0.0010 | mg/L | 2025-09-13 | |
| Chloroform | **0.0303** | N/A | 0.0010 | mg/L | 2025-09-13 | |
| Dibromochloromethane | < 0.0010 | N/A | 0.0010 | mg/L | 2025-09-13 | |
| *Surrogate: Toluene-d8* | *83* | | *70-130* | % | *2025-09-13* | |
| *Surrogate: 4-Bromofluorobenzene* | *84* | | *70-130* | % | *2025-09-13* | |

**Sample Qualifiers:**

RA3 The Reporting Limit has been raised due to comparable level detected in the blank(s).

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25I1297 |
| **PROJECT** | THM Analysis | **REPORTED** | 2025-09-19 14:38 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Haloacetic Acids in Water | EPA 552.3* | Liquid-Liquid Microextraction, Derivatization and GC-ECD | ✓ | Richmond |
| Trihalomethanes in Water | EPA 5030B / EPA 8260D | Purge&Trap / GC-MSD (SIM) | ✓ | Richmond |

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | David Gordin | **WORK ORDER** | 25I3351 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-09-24 08:45 / 3.1°C |
| **PROJECT** | General Potability | **REPORTED** | 2025-10-01 14:58 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

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**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25I3351 |
| **PROJECT** | General Potability | **REPORTED** | 2025-10-01 14:58 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Station #8 (25I3351-01) \| Matrix: Drinking Water \| Sampled: 2025-09-23 08:15** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **8.53** | AO ≤ 250 | 0.10 | mg/L | 2025-09-25 | |
| Fluoride | **0.12** | MAC = 1.5 | 0.10 | mg/L | 2025-09-25 | |
| Nitrate (as N) | **0.079** | MAC = 10 | 0.010 | mg/L | 2025-09-25 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-09-25 | |
| Sulfate | **30.0** | AO ≤ 500 | 1.0 | mg/L | 2025-09-25 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **131** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **-0.3** | N/A | -5.0 | | 2025-10-01 | CT6 |
| Solids, Total Dissolved | **173** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***Field Parameters*** | | | | | | |
| Chlorine, Total | **1.12** | None Required | 0.02 | mg/L | 2025-09-23 | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **119** | N/A | 1.0 | mg/L | 2025-09-26 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-09-26 | |
| Alkalinity, Bicarbonate (as CaCO3) | **119** | N/A | 1.0 | mg/L | 2025-09-26 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-09-26 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-09-26 | |
| Colour, True | < 5.0 | AO ≤ 15 | 5.0 | CU | 2025-09-25 | |
| Conductivity (EC) | **316** | N/A | 2.0 | µS/cm | 2025-09-26 | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 | mg/L | 2025-09-27 | |
| pH | **7.67** | 7.0-10.5 | 0.10 | pH units | 2025-09-26 | HT2 |
| Temperature, at pH | **22.6** | N/A | | °C | 2025-09-26 | HT2 |
| Turbidity | **0.51** | OG < 1 | 0.10 | NTU | 2025-09-25 | |
| ***Total Metals*** | | | | | | |
| Aluminum, total | **0.0146** | OG < 0.1 | 0.0050 | mg/L | 2025-09-27 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-09-27 | |
| Arsenic, total | **0.00061** | MAC = 0.01 | 0.00050 | mg/L | 2025-09-27 | |
| Barium, total | **0.0267** | MAC = 2 | 0.0050 | mg/L | 2025-09-27 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-09-27 | |
| Cadmium, total | < 0.000010 | MAC = 0.007 | 0.000010 | mg/L | 2025-09-27 | |
| Calcium, total | **34.9** | None Required | 0.20 | mg/L | 2025-09-27 | |
| Chromium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-09-27 | |
| Cobalt, total | < 0.00010 | N/A | 0.00010 | mg/L | 2025-09-27 | |
| Copper, total | **0.00530** | MAC = 2 | 0.00040 | mg/L | 2025-09-27 | |
| Iron, total | **0.022** | AO ≤ 0.1 | 0.010 | mg/L | 2025-09-27 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-09-27 | |
| Magnesium, total | **10.7** | None Required | 0.010 | mg/L | 2025-09-27 | |
| Manganese, total | **0.00948** | MAC = 0.12 | 0.00020 | mg/L | 2025-09-27 | |
| Mercury, total | < 0.000010 | MAC = 0.001 | 0.000010 | mg/L | 2025-09-26 | |
| Molybdenum, total | **0.00341** | N/A | 0.00010 | mg/L | 2025-09-27 | |

# TEST RESULTS

**REPORTED TO** Osoyoos, Town of
**PROJECT** General Potability

**WORK ORDER** 25I3351
**REPORTED** 2025-10-01 14:58

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Station #8 (25I3351-01) \| Matrix: Drinking Water \| Sampled: 2025-09-23 08:15, Continued** | | | | | | |
| ***Total Metals, Continued*** | | | | | | |
| Nickel, total | **0.00115** | N/A | 0.00040 | mg/L | 2025-09-27 | |
| Potassium, total | **2.76** | N/A | 0.10 | mg/L | 2025-09-27 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-09-27 | |
| Sodium, total | **13.3** | AO ≤ 200 | 0.10 | mg/L | 2025-09-27 | |
| Strontium, total | **0.327** | MAC = 7 | 0.0010 | mg/L | 2025-09-27 | |
| Uranium, total | **0.00251** | MAC = 0.02 | 0.000020 | mg/L | 2025-09-27 | |
| Zinc, total | **0.0153** | AO ≤ 5 | 0.0040 | mg/L | 2025-09-27 | |
| **Station #9 (25I3351-02) \| Matrix: Drinking Water \| Sampled: 2025-09-23 09:00** | | | | | | |
| ***Anions*** | | | | | | |
| Chloride | **8.25** | AO ≤ 250 | 0.10 | mg/L | 2025-09-25 | |
| Fluoride | **0.13** | MAC = 1.5 | 0.10 | mg/L | 2025-09-25 | |
| Nitrate (as N) | **0.011** | MAC = 10 | 0.010 | mg/L | 2025-09-25 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 | mg/L | 2025-09-25 | |
| Sulfate | **28.5** | AO ≤ 500 | 1.0 | mg/L | 2025-09-25 | |
| ***Calculated Parameters*** | | | | | | |
| Hardness, Total (as CaCO3) | **130** | None Required | 0.500 | mg/L | N/A | |
| Langelier Index | **-0.3** | N/A | -5.0 | | 2025-10-01 | CT6 |
| Solids, Total Dissolved | **170** | AO ≤ 500 | 1.00 | mg/L | N/A | |
| ***Field Parameters*** | | | | | | |
| Chlorine, Total | **1.01** | None Required | 0.02 | mg/L | 2025-09-23 | |
| ***General Parameters*** | | | | | | |
| Alkalinity, Total (as CaCO3) | **117** | N/A | 1.0 | mg/L | 2025-09-26 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-09-26 | |
| Alkalinity, Bicarbonate (as CaCO3) | **117** | N/A | 1.0 | mg/L | 2025-09-26 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-09-26 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 | mg/L | 2025-09-26 | |
| Colour, True | **5.2** | AO ≤ 15 | 5.0 | CU | 2025-09-25 | |
| Conductivity (EC) | **309** | N/A | 2.0 | µS/cm | 2025-09-26 | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 | mg/L | 2025-09-27 | |
| pH | **7.64** | 7.0-10.5 | 0.10 | pH units | 2025-09-26 | HT2 |
| Temperature, at pH | **22.0** | N/A | | °C | 2025-09-26 | HT2 |
| Turbidity | **0.46** | OG < 1 | 0.10 | NTU | 2025-09-25 | |
| ***Total Metals*** | | | | | | |
| Aluminum, total | **0.0078** | OG < 0.1 | 0.0050 | mg/L | 2025-09-29 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 | mg/L | 2025-09-29 | |
| Arsenic, total | **0.00056** | MAC = 0.01 | 0.00050 | mg/L | 2025-09-29 | |
| Barium, total | **0.0281** | MAC = 2 | 0.0050 | mg/L | 2025-09-29 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 | mg/L | 2025-09-29 | |

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25I3351 |
| **PROJECT** | General Potability | **REPORTED** | 2025-10-01 14:58 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Station #9 (25I3351-02) \| Matrix: Drinking Water \| Sampled: 2025-09-23 09:00, Continued** | | | | | | |
| ***Total Metals, Continued*** | | | | | | |
| Cadmium, total | < 0.000010 | MAC = 0.007 | 0.000010 | mg/L | 2025-09-29 | |
| Calcium, total | **34.7** | None Required | 0.20 | mg/L | 2025-09-29 | |
| Chromium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-09-29 | |
| Cobalt, total | < 0.00010 | N/A | 0.00010 | mg/L | 2025-09-29 | |
| Copper, total | **0.00515** | MAC = 2 | 0.00040 | mg/L | 2025-09-29 | |
| Iron, total | < 0.010 | AO ≤ 0.1 | 0.010 | mg/L | 2025-09-29 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 | mg/L | 2025-09-29 | |
| Magnesium, total | **10.6** | None Required | 0.010 | mg/L | 2025-09-29 | |
| Manganese, total | **0.00497** | MAC = 0.12 | 0.00020 | mg/L | 2025-09-29 | |
| Mercury, total | < 0.000010 | MAC = 0.001 | 0.000010 | mg/L | 2025-09-26 | |
| Molybdenum, total | **0.00355** | N/A | 0.00010 | mg/L | 2025-09-29 | |
| Nickel, total | < 0.00040 | N/A | 0.00040 | mg/L | 2025-09-29 | |
| Potassium, total | **2.85** | N/A | 0.10 | mg/L | 2025-09-29 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 | mg/L | 2025-09-29 | |
| Sodium, total | **14.0** | AO ≤ 200 | 0.10 | mg/L | 2025-09-29 | |
| Strontium, total | **0.326** | MAC = 7 | 0.0010 | mg/L | 2025-09-29 | |
| Uranium, total | **0.00260** | MAC = 0.02 | 0.000020 | mg/L | 2025-09-29 | |
| Zinc, total | < 0.0040 | AO ≤ 5 | 0.0040 | mg/L | 2025-09-29 | |

**Sample Qualifiers:**

| | |
|---|---|
| CT6 | Results were based on lab temperature & lab pH. |
| HT2 | The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended. |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25I3351 |
| **PROJECT** | General Potability | **REPORTED** | 2025-10-01 14:58 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Alkalinity in Water | SM 2320 B* (2021) | Titration with H2SO4 | ✓ | Kelowna |
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Colour, True in Water | SM 2120 C (2021) | Spectrophotometry (456 nm) | ✓ | Kelowna |
| Conductivity in Water | SM 2510 B (2021) | 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* (2021) | Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est) | ✓ | N/A |
| Langelier Index in Water | SM 2330 B (2021) | Calculation | | N/A |
| Mercury, total in Water | EPA 245.7* | BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) | ✓ | Richmond |
| pH in Water | SM 4500-H+ B (2021) | Electrometry | ✓ | Kelowna |
| Solids, Total Dissolved in Water | SM 1030 E (2021) | SM 1030 E | | 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 (2020) | 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 |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25I3351 |
| **PROJECT** | General Potability | **REPORTED** | 2025-10-01 14:58 |

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| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | David Gordin | **WORK ORDER** | 25J0471 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-10-02 09:30 / 4.1°C |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-10-09 18:47 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

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*Big Picture Sidekicks*

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

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25J0471 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-10-09 18:47 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well # 3 (25J0471-01) \| Matrix: Water \| Sampled: 2025-10-01 06:35** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.0273** | MAC = 0.12 | 0.00020 | mg/L | 2025-10-07 | |
| **Well # 4 (25J0471-02) \| Matrix: Water \| Sampled: 2025-10-01 06:45** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-10-04 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.129** | MAC = 0.12 | 0.00020 | mg/L | 2025-10-08 | |
| **Well # 5 (25J0471-03) \| Matrix: Water \| Sampled: 2025-10-01 06:50** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 | mg/L | 2025-10-04 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.182** | MAC = 0.12 | 0.00020 | mg/L | 2025-10-07 | |
| **Well # 6 (25J0471-04) \| Matrix: Water \| Sampled: 2025-10-01 08:00** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **1.38** | MAC = 10 | 0.010 | mg/L | 2025-10-04 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.165** | MAC = 0.12 | 0.00020 | mg/L | 2025-10-07 | |
| **Well # 8 (25J0471-05) \| Matrix: Water \| Sampled: 2025-10-01 07:40** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **0.344** | MAC = 10 | 0.010 | mg/L | 2025-10-04 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.00812** | MAC = 0.12 | 0.00020 | mg/L | 2025-10-07 | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25J0471 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-10-09 18:47 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Total Metals in Water | EPA 200.2 / EPA 6020B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) | ✓ | Richmond |

**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 |
| MAC | Maximum Acceptable Concentration (health based) |
| mg/L | Milligrams per litre |
| EPA | United States Environmental Protection Agency Test Methods |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

**Guidelines Referenced in this Report:**

Guidelines for Canadian Drinking Water Quality (Health Canada)

***Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user***

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# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of<br>PO Box 3010<br>OSOYOOS, BC V0H 1V0 | | |
| **ATTENTION** | Tyler Madsen | **WORK ORDER** | 25K2910 |
| **PO NUMBER** | Drinking Water | **RECEIVED / TEMP** | 2025-11-25 16:00 / 6.5°C |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-12-01 15:46 |
| **PROJECT INFO** | | **COC NUMBER** | No Number |

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

**Authorized By:**

Hanane El Hannaoui
Junior Account Manager

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25K2910 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-12-01 15:46 |

| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **Well # 3 (25K2910-01) \| Matrix: Water \| Sampled: 2025-11-25 07:05** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.0227** | MAC = 0.12 | 0.00020 | mg/L | 2025-11-28 | |
| **Well # 4 (25K2910-02) \| Matrix: Water \| Sampled: 2025-11-25 06:40** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.146** | MAC = 0.12 | 0.00020 | mg/L | 2025-11-28 | |
| **Well # 5 (25K2910-03) \| Matrix: Water \| Sampled: 2025-11-25 06:45** | | | | | | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.131** | MAC = 0.12 | 0.00020 | mg/L | 2025-11-28 | |
| **Well # 6 (25K2910-04) \| Matrix: Water \| Sampled: 2025-11-25 09:00** | | | | | | |
| ***Anions*** | | | | | | |
| Nitrate (as N) | **4.18** | MAC = 10 | 0.010 | mg/L | 2025-11-26 | |
| ***Total Metals*** | | | | | | |
| Manganese, total | **0.342** | MAC = 0.12 | 0.00020 | mg/L | 2025-11-28 | |

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Osoyoos, Town of | **WORK ORDER** | 25K2910 |
| **PROJECT** | Nitrate/Manganese | **REPORTED** | 2025-12-01 15:46 |

| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Anions in Water | SM 4110 B (2020) | Ion Chromatography | ✓ | Kelowna |
| Total Metals in Water | EPA 200.2 / EPA 6020B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) | ✓ | Richmond |

**Glossary of Terms:**

| | |
|---|---|
| RL | Reporting Limit (default) |
| MAC | Maximum Acceptable Concentration (health based) |
| mg/L | Milligrams per litre |
| EPA | United States Environmental Protection Agency Test Methods |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

**Guidelines Referenced in this Report:**

Guidelines for Canadian Drinking Water Quality (Health Canada)

***Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user***

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# APPENDIX C

## Domestic Water and Community Sewerage System Capacity Update for Small-scale, Multi-unit Housing

# 2025 Water Conservation Plan Update

Town of Osoyoos

DRAFT

November 2025

Project No. 302-1103-002

ENGINEERING ■ PLANNING ■ URBAN DESIGN ■ LAND SURVEYING

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# Revision Log

| Revision # | Revised by | Date | Issue / Revision Description |
|---|---|---|---|
| **1** | MH/SAC | November 2025 | Final |
| | | | |
| | | | |
| | | | |

DRAFT

# Report Submission

*Report Prepared By:*

Michael Hartford

*Michael Hartford, EIT*
*Project Engineer*

*Report Reviewed By:*

*Sean Curry, P. Eng.*
*Project Engineer*

R:\Clients\300-399\302\302-1103-002\05 Reports\2025 Osoyoos Water Conservation Report\302-1103-002-2025 Water Conservation Plan Update-November 2025.docx

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DRAFT

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# List of Acronyms

| | |
|---|---|
| ADD | Average Day Demand |
| AWWA | American Water Works Association |
| B.C. | British Columbia |
| CAD | Canadian Dollars (2025) |
| CoP | City of Penticton |
| ICI | Industrial, Commercial & Institutional |
| MDD | Maximum Day Demand |
| OCP | Official Community Plan |
| RDOS | Regional District of Okanagan-Similkameen |
| Town | Town of Osoyoos |
| TRUE | TRUE Consulting |
| WTP | Water Treatment Plant |

# Units of Measure

| | |
|---|---|
| cf | cubic feet |
| ft | feet |
| km | kilometre |
| L/s | Litres per second |
| lpcd | Litres per capita per day |
| Lpd | Litres per day |
| m | metre |
| mg/L | milligrams per Litre |
| ML | megalitre |
| mm | millimetre |
| psi | pounds per square inch |
| USgpm | US gallons per minute |

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# Referenced Reports

| | |
|---|---|
| TRUE | Osoyoos Water Conservation Plan (January 2010) |
| TRUE | Osoyoos Water Conservation Plan Implementation Update (August 2018) |
| TRUE | Osoyoos Water Conservation Plan Implementation Update (February 2022) |
| TRUE | Osoyoos Water System Infrastructure Plan (July 2023) |
| TRUE | Water Treatment Plant Pre-Design Report (August 2024) |
| Town of Osoyoos | Osoyoos Universal Water Metering Implementation Plan (July 2023) |
| Town of Osoyoos | Osoyoos Water Regulations and Rates Bylaw, No. 1388 (December 2023) |

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# 1.0 Background

The Town of Osoyoos (the Town) is a resort community located in the South Okanagan region of British Columbia. Its semi-arid climate and long, hot summers drive high water demand. The Town's water supply is sourced from a combination of groundwater wells and surface water intakes, serving residential, commercial, agricultural, and recreational users.

Recognizing the importance of sustainable water management, the Town developed its first Water Conservation Plan (WCP) in January 2010 with support from TRUE Consulting (TRUE). The plan outlined a five-year strategy (2010–2014) focused on reducing system demand, deferring the need for new supply infrastructure, and aligning with the Province of British Columbia's Living Water Smart objectives. Provincial targets included:

- Improving overall water use efficiency in B.C. by 33% by 2020.
- Meeting 50% of new water demands between 2020 and 2030 through conservation.

Beyond numeric goals, Living Water Smart emphasizes water stewardship across all levels of government, with key themes including efficiency, ecosystem protection, climate change adaptation, improved measurement, and building community resilience. The plan highlights the growing pressures of climate change, population growth, and competing demands, making conservation central to both environmental and economic sustainability.

Between 2010 and 2017, Osoyoos implemented several initiatives from the original WCP, including metering of major users, use of reclaimed water, public outreach, and exploration of non-potable irrigation sources. These efforts achieved a measurable reduction in per capita consumption, from 1,300 litres per person per day in 2009 to 1,120 litres in 2017, despite population growth. Notably, reductions in maximum day demand (MDD) allowed the Town to defer construction of Well No. 7, originally planned for 2010, in every year since 2011. While the town has deferred the construction of a new groundwater supply source, it is now in the position of having inadequate water supply to meet current maximum day demand under the n-1 pumping scenario (i.e., ability to provide MDD while the highest capacity groundwater supply well is out of service). As such, the town is exploring further water supply options and therefore, the provincial target of meeting 50% new water demands through conservation may not be possible.

In 2015, the Town retained Urban Systems Ltd. to update the WCP. The revised strategy emphasized four focus areas: landscape irrigation efficiency, fixture retrofits, education and outreach, and phased implementation of universal water metering. That year, the Town also established a dedicated water meter reserve fund, contributing $125,000 annually to support future infrastructure.

In late 2020, the Town formally advanced the Universal Water Metering Program, with the Implementation Plan delivered in July 2023. The plan outlined a full transition to metering through

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phased installations and was structured around several core components. First, a comprehensive public communication and education program was developed to ensure residents were well informed of the program's goals, installation timelines, and their responsibilities before and after meter installation. The program included staged outreach materials, door-to-door communication, and an online booking system that allowed residents to schedule appointments 24/7, minimizing refusals and increasing compliance.

Second, the program required the development of a customer and meter database, integrated with the Town's Central Square Vadim iCity financial software to support billing, consumption tracking, and water-use reporting. This ensured that data from the new meters would flow directly into municipal billing and asset management systems.

Third, the plan emphasized training for Town staff, covering operation, maintenance, and troubleshooting of the new meters and the associated Neptune 360 cloud-based data management platform. This ensured internal capacity to manage the system over the long term.

On the technical side, the program involved supply and installation of ultrasonic and electromagnetic Advanced Metering Infrastructure (AMI) meters using a "one meter, one property" approach, supported by mobile and fixed network hardware for data collection. The system design provided flexibility to deploy both fixed and cellular endpoints, offering cost-effective coverage across Osoyoos's varied topography.

Finally, the contract established a ten-year operational support period, including software subscriptions, data management services, and warranty provisions for installed meters, ensuring continuity well beyond initial installation. This implementation built on the reserve fund established in 2015 and marked a major step toward aligning Osoyoos with regional best practices in demand management and conservation.

Given the South Okanagan's vulnerability to drought and increasingly variable summer precipitation, efficient water management is critical to long-term community resilience. This 2025 update builds on 15 years of progress, incorporating updated water use data, community priorities, and evolving provincial and federal policies. In alignment with Living Water Smart, the Plan reaffirms Osoyoos's commitment to proactive, adaptive, and community driven water stewardship.

The following sections provide the foundation for updating the Town's domestic water conservation plan, including:

- Review of existing water source capacity.
- Population projections for the Town's service area.
- Assessment of existing and projected water demand.
- Overview of current water conservation initiatives.
- Recommended conservation goals for the domestic water system.
- Recommended initiatives to achieve these goals.

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# 2.0 Description Of Water System

The Town owns and operates a groundwater based domestic water system that provides potable water to residential, commercial, institutional, and recreational users within both the municipal boundary and adjacent System 8 and 9 rural areas via a twinned water system. The domestic system is fully separated from the Town's agricultural irrigation networks, operated independently as Irrigation Systems 8 and 9. These rural extensions are hydraulically twinned with the Town's distribution system but operated independently for irrigation supply. A composite map of the water system is provided in Appendix A for reference.

As of 2024, the Town's domestic supply is sourced exclusively from six municipal production wells: Wells No. 1, 3, 4, 5, 6, and 8. Collectively, these wells have a rated capacity of approximately 266 L/s, equivalent to an effective daily supply of 17.2 ML/day based on 18 hours of pumping to allow for maintenance and aquifer recovery. Well No. 5 is the highest producing source at 76 L/s. To ensure resilience, the Town aims to employ an n-1 redundancy approach, planning system capacity on the basis that the largest well could be out of service at any given time.

Groundwater is conveyed through a pressurized distribution network of watermains ranging in diameter from 100 mm to 450 mm. The domestic system comprises more than 80 km of looped watermains, a configuration that helps maintain both pressure and reliability across the service area. At present, groundwater from the Town's production wells receives only sodium hypochlorite injection at each well pumpstation to maintain a chlorine residual for disinfection. No additional treatment processes, such as filtration or advanced oxidation, are currently in place. Seasonal operation of wells is managed to balance water quality, but elevated manganese, ammonia, and organic carbon remain challenges that require ongoing monitoring and system flushing.

In parallel with the domestic system, the Town uses Irrigation System 9 to provide non-potable water to select sites, including the Osoyoos Fire Hall and nearby commercial developments. This practice reduces pressure on the potable system during peak irrigation months. Opportunities to expand non-potable irrigation use, particularly for public landscaping, are actively being explored.

System demand is highly seasonal, with peak daily demand typically exceeding 18 ML/day in summer. Under current conditions, system planning identifies the need for two additional production wells (each designed for 50 L/s) to maintain supply reliability under the n-1 scenario. However, recent planning memos note that continued success in water conservation will directly influence the timing and necessity of new well development. The Town is also considering the development of a surface water source as an alternative to their existing groundwater supply configuration.

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## 2.1 Planned Source Water Upgrades

At present, the Town's groundwater sources receive only sodium hypochlorite disinfection, with no manganese filtration or other advanced treatment. Pilot studies completed in 2023–2024 found that full groundwater treatment would be costly and complex. As a result, the Town has shifted its long-term supply strategy toward a surface water treatment system drawing from Osoyoos Lake. This approach offers improved reliability and cost-effectiveness, with estimated capital and operating costs of approximately $51.7 million and $1.15 million per year, respectively.

**Raw Water Supply Main Alignment**

The planned system includes a 600 mm dedicated supply main extending about 2.9 km from the existing System 8 lake intake to the proposed Water Treatment Plant (WTP) south of the 402 Reservoir. The alignment follows 87th Street and 108th Avenue, parallels existing Irrigation System 8 trunk mains, then continues along Highway 97 and 100th Avenue to Highway 3, terminating near Strawberry Creek Road. The route minimizes work in highway rights-of-way and coordinates with parallel irrigation main replacements for construction efficiency.

**Planned Treatment Processes**

The WTP will be designed to meet Interior Health's 4-3-2-1-0 drinking-water objectives using:

- Clarification (e.g., dissolved air flotation or equivalent).
- Filtration (dual-media or membrane).
- Activated carbon adsorption for organics and taste/odour control.
- Primary disinfection (ultraviolet light and/or chemical).
- Secondary disinfection (sodium hypochlorite).

These processes will control turbidity, algae, organic carbon, and taste-and-odour issues while ensuring regulatory compliance and resilience under variable lake conditions.

**Implementation Timeline**

Preliminary design and permitting are expected to require 12–18 months, with phased construction beginning in Fall 2026 and substantial completion anticipated by 2028 to align with current grant funding timelines.

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# 3.0 Water Demand Analysis

## 3.1 Current Demand Statistics

The Town of Osoyoos has maintained recorded annual water consumption data since 2000, as documented in annual water reports and the 2023 Osoyoos Water System Infrastructure Plan.

Figure 3-1 illustrates trends from 2000 to 2024, including total annual consumption, serviced population, average day demand (ADD), a linear trendline for ADD, and key milestones such as the twinning of Irrigation Systems 8 and 9.

ADD was calculated using total annual water consumption and the total serviced population, which includes both the Town's census population and the additional rural population connected through Systems 8 and 9 (not captured in census counts). Population estimates for non-census years were interpolated or extrapolated from available census data.

Key observations from Figure 3-1 include:

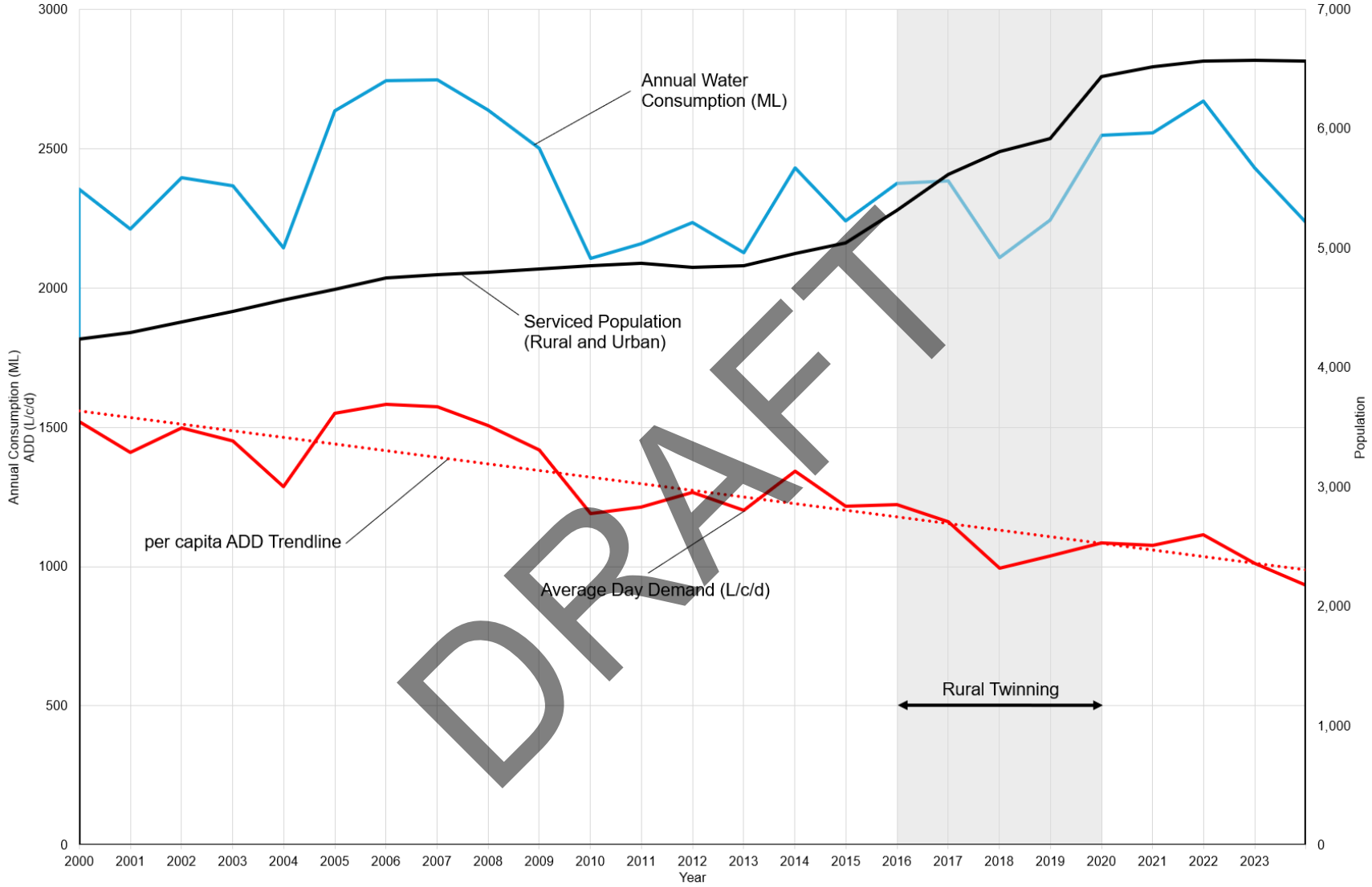
- The twinning of rural systems resulted in a notable increase in serviced population (in 2020, rural residents accounted for 13% of the total serviced population).
- Per capita ADD has shown a consistent downward trend since 2000.
- It is reasonable to assume that per capita demand will continue to decline gradually or remain stable in the future, especially considering that universal metering of the domestic water system is soon to be completed.

For future demand projections, the five-year rolling average of ADD will be applied as the baseline, rather than relying solely on the 2024 value. Maximum Day Demand (MDD) is estimated using the historic multiplier of 2.44, and recent per-capita ADD and MDD values for 2020–2024 are summarized in Table 3-1.

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**TABLE 3-1: PER-CAPITA ADD AND MDD (2020–2024)**

| YEAR | ADD (L/C/D) | MDD (2.44 × ADD) (L/C/D) |
|---|---|---|
| 2020 | 1,085 | 2,647 |
| 2021 | 1,075 | 2,623 |
| 2022 | 1,114 | 2,718 |
| 2023 | 1,013 | 2,472 |
| 2024 | 932 | 2,274 |
| 5 Year Average | 1,044 | 2,547 |




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**FIGURE 3-1: HISTORIC WATER CONSUMPTION AND POPULATION**

## 3.2 Projected Population Growth

Population growth is one of the key variables guiding the selection of appropriate design capacity for the Town's water infrastructure. Several data sources and modeling approaches have been considered to establish a range of plausible growth scenarios.

The lowest growth scenario assumes minimal population change. Statistics Canada census data (Table 3-2) show that Osoyoos has generally experienced steady long-term growth since 1956.

**TABLE 3-2: CENSUS POPULATION DATA**

| YEAR | CENSUS POPULATION | ANNUAL AVERAGE CHANGE |
|---|---|---|
| 1951 | 899 | - |
| 1956 | 860 | -0.88% |
| 1961 | 1,022 | 3.51% |
| 1966 | 1,166 | 2.67% |
| 1971 | 1,285 | 1.96% |
| 1976 | 2,100 | 10.32% |
| 1981 | 2,738 | 5.45% |
| 1986 | 2,956 | 1.54% |
| 1991 | 3,403 | 2.86% |
| 1996 | 4,021 | 3.39% |
| 2001 | 4,295 | 1.33% |
| 2006 | 4,752 | 2.04% |
| 2011 | 4,845 | 0.39% |
| 2016 | 5,085 | 0.97% |
| 2021 | 5,556 | 1.79% |

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Some periods, highlighted in blue, are likely to reflect municipal boundary expansions that artificially inflated growth rates. These long-term growth trends are illustrated in Figure 3-2. While such expansions increase the serviced population, they are typically accompanied by targeted infrastructure investment and therefore do not represent organic growth. Excluding the population decline in 1956, the lowest recorded growth rate is 0.39% (2011). Rounded to 0.4%, this value is used as the lower-bound scenario, though it is likely too conservative for long-term planning.

The highest growth scenario would reflect historic peaks between 3% and 10.3% annually. However, these occurred more than 20 years ago, are not supported by recent census trends, and were often tied to boundary changes. As such, they are not considered realistic for projecting future organic growth.

The Town's Official Community Plan (OCP, 2022) identifies three modeled growth rates (Table 3-3).

**TABLE 3-3: OCP GROWTH MODELS**

| MODEL | RATE OF POPULATION GROWTH |
|---|---|
| Low Growth | 1% |
| Medium Growth | 2% |
| High Growth | 3% |

The 3% model is considered overly aggressive. For example, applying a 3% rate to the 2024 urban population of 5,737 projects a 2050 population of 12,373, plus ~828 rural residents, well above historical trends. Over the past 20 years, the Town's growth has remained below 2%, making the 2% OCP scenario a reasonable upper-bound for water supply planning.

For a mid-range projection, census results from 2001–2024 indicate an average annual growth rate of 1.3%, consistent with BC Statistics data for the Okanagan-Similkameen region (1.4% between 2011–2023). Refer to Table 3-4 for further details.

Accordingly, three scenarios are carried forward for demand modeling:

- **Low Growth:** 0.4% annually
- **Medium Growth:** 1.3% annually
- **High Growth:** 2.0% annually

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**TABLE 3-4: BRITISH COLUMBIA REGIONAL DISTRICT AND MUNICIPAL POPULATION ESTIMATES**

| NAME | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Okanagan-Similkameen | -0.6% | 0.4% | 1.4% | 1.4% | 2.1% | 1.8% | 2.2% | 1.6% | 1.2% | 1.4% | 0.9% | 0.3% | -0.2% |
| Keremeos | 1.0% | 2.1% | 3.8% | 3.3% | 3.2% | -0.1% | 3.4% | 0.0% | 1.4% | 2.8% | 1.8% | 6.0% | -0.2% |
| Oliver | -1.2% | -0.1% | 1.8% | 1.3% | 1.7% | 4.2% | -0.6% | 2.5% | -1.6% | -0.7% | 0.9% | 0.0% | -0.1% |
| Osoyoos | -0.8% | 0.3% | 2.2% | 1.7% | 2.8% | 2.2% | 2.2% | 2.0% | 1.6% | 1.5% | 0.9% | 0.0% | -0.1% |
| Penticton | -0.8% | 0.7% | 1.1% | 1.6% | 2.2% | 2.0% | 3.0% | 1.9% | 0.8% | 1.0% | 1.1% | 0.1% | 0.2% |
| Princeton | 3.5% | -1.9% | 1.1% | 0.8% | 3.3% | -4.1% | 0.2% | -0.4% | 6.6% | 0.2% | 0.3% | 1.3% | 6.4% |
| Summerland | 0.1% | 0.7% | 2.3% | 1.8% | -0.3% | 1.3% | 0.3% | 0.3% | 0.8% | 1.4% | 1.4% | -0.9% | 0.0% |
| Unincorporated Areas | -1.0% | 0.3% | 1.2% | 1.0% | 2.9% | 2.0% | 2.7% | 1.8% | 2.0% | 2.5% | 0.3% | 0.8% | -1.7% |

**Source:** https://www2.gov.bc.ca/assets/gov/data/statistics/people-population-community/population/pop_municipal_subprov_areas.xlsx

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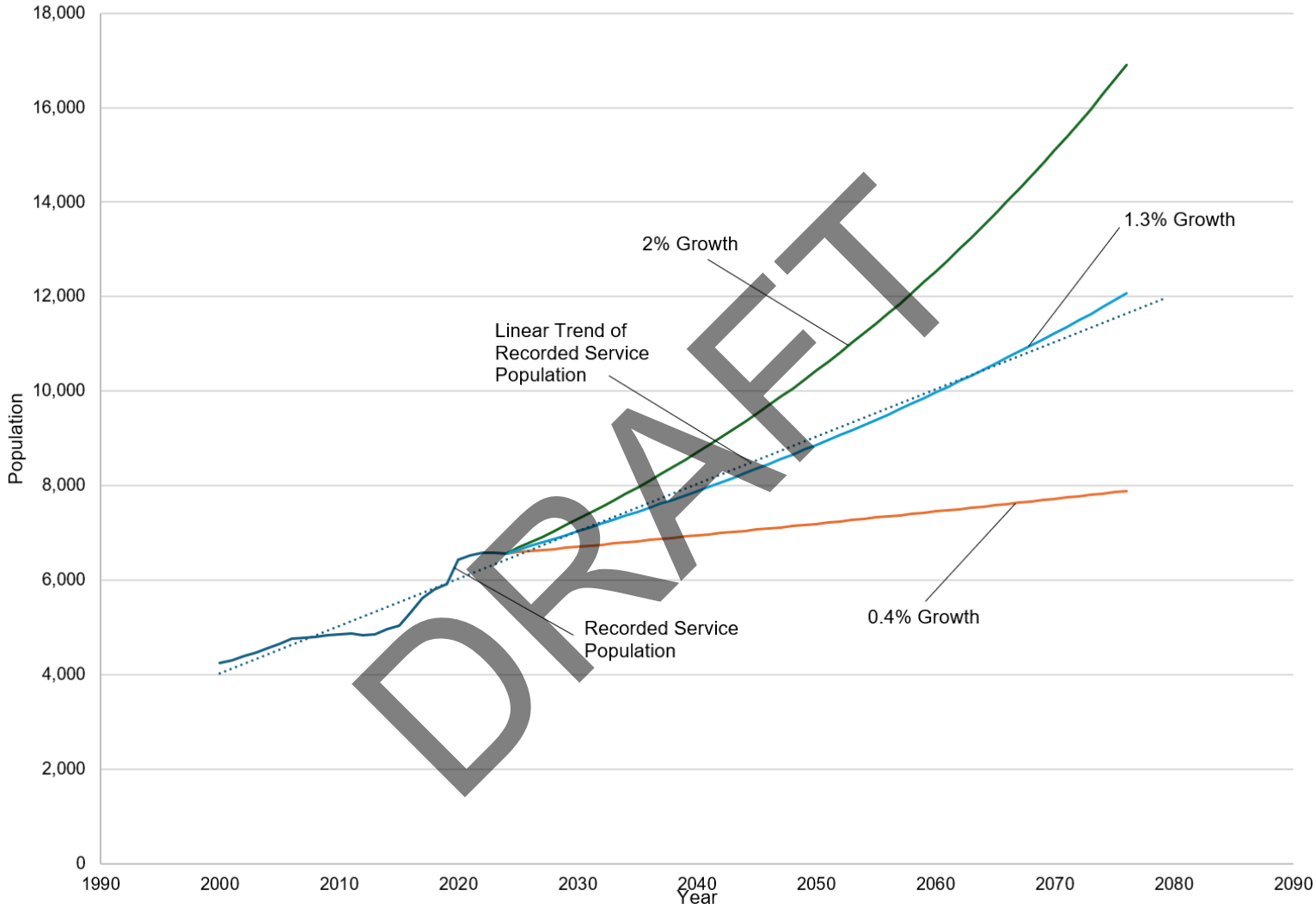



**FIGURE 3-2: POPULATION PROJECTIONS**

## 3.3 Water Conservation Targets

Water conservation has become a standard best practice in the water utility sector. This section evaluates achievable long-term water-use efficiency targets for the Town of Osoyoos and establishes performance benchmarks for monitoring progress toward sustainable per-capita demand levels. To establish realistic conservation benchmarks, it is useful to review past performance and peer community experience. The Town's first WCP, developed in 2010, aligned with the Province of British Columbia's Living Water Smart initiative. At that time, the Town set a target of improving water use efficiency by 33% by 2020. Achieving this goal would have required reducing the 2020 Average Day Demand (ADD) to 870 L/c/d. In practice, the 2020 ADD was 1,085 L/c/d, and the target was not met.

Nonetheless, since 2000, the Town has achieved a consistent downward trend in per capita water use, even without fully implementing all recommendations of the 2010 WCP. This indicates that further conservation gains remain attainable. The phased implementation of universal water metering for potable users is expected to accelerate reductions in the coming years.

The 2010 WCP benchmarked Osoyoos against other BC Interior communities. In 2010, the metered communities of Vernon and Penticton reported ADDs of 600 and 670 L/c/d, respectively. By 2023, Penticton had further reduced its ADD to 561 L/c/d, highlighting the effectiveness of metering. Similarly, the Town of Oliver's DCC Demand Management Pilot Project Update (2019) showed a 40–50% reduction in domestic consumption within one year of implementing water metering, more than double the 20% reduction over 20 years forecasted in the 2010 WCP.

These findings demonstrate that:

- The 2010 WCP underestimated the potential impact of water conservation.
- With universal metering and supporting initiatives, Osoyoos can reasonably expect substantial additional reductions in consumption.

For broader context, Canada's national average ADD is approximately 329 L/c/d. While not directly comparable due to Osoyoos's semi-arid climate and demographic characteristics, it highlights the potential for long-term efficiency gains.

To guide infrastructure planning, three ADD conservation models have been developed, with projected outcomes illustrated in Figure 3-3.

- **Worst-Case Model:** Assumes a 10% reduction in per capita ADD over 10 years. This represents half of the 2010 WCP projection and one-quarter of the reductions achieved in Oliver within a single year.
- **Best-Case Model:** Assumes a one-time 20% reduction in 2026, coinciding with the expected completion of universal metering. This aligns with the 2010 WCP and conservatively reflects Oliver's experience.

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- **Targeted Model:** Assumes a continued 1.7% annual reduction in ADD, reflecting the Town's historic average since 2000, until a minimum threshold of 600 L/c/d is reached. This threshold is consistent with results achieved in Vernon, Penticton, and Oliver. Under this approach, Osoyoos would not reach 600 L/c/d until approximately 2052, lagging 50–60 years behind its peers. Importantly, this model does not account for any accelerated benefits from metering.

To provide clear milestones for tracking progress toward this long-term efficiency goal, a series of incremental five-year targets have been established under the Targeted Model scenario. These targets represent achievable reductions in ADD based on a 1.7% annual improvement rate and are summarized in Table 3-5. These benchmarks provide measurable milestones for evaluating conservation performance and aligning rate structures and operational strategies with long-term efficiency goals.

**TABLE 3-5: INCREMENTAL FIVE-YEAR WATER CONSERVATION TARGETS (AVERAGE DAY DEMAND)**

| YEAR | TARGET USAGE (L/C/D) | % REDUCTION FROM 2024 BASELINE |
|---|---|---|
| 2025 | 932 | — |
| 2030 | 870 | 6.7% |
| 2035 | 798 | 14.4% |
| 2040 | 732 | 21.5% |
| 2045 | 672 | 27.9% |
| 2050 | 617 | 33.8% |
| 2052 | 600 | 35.6% |

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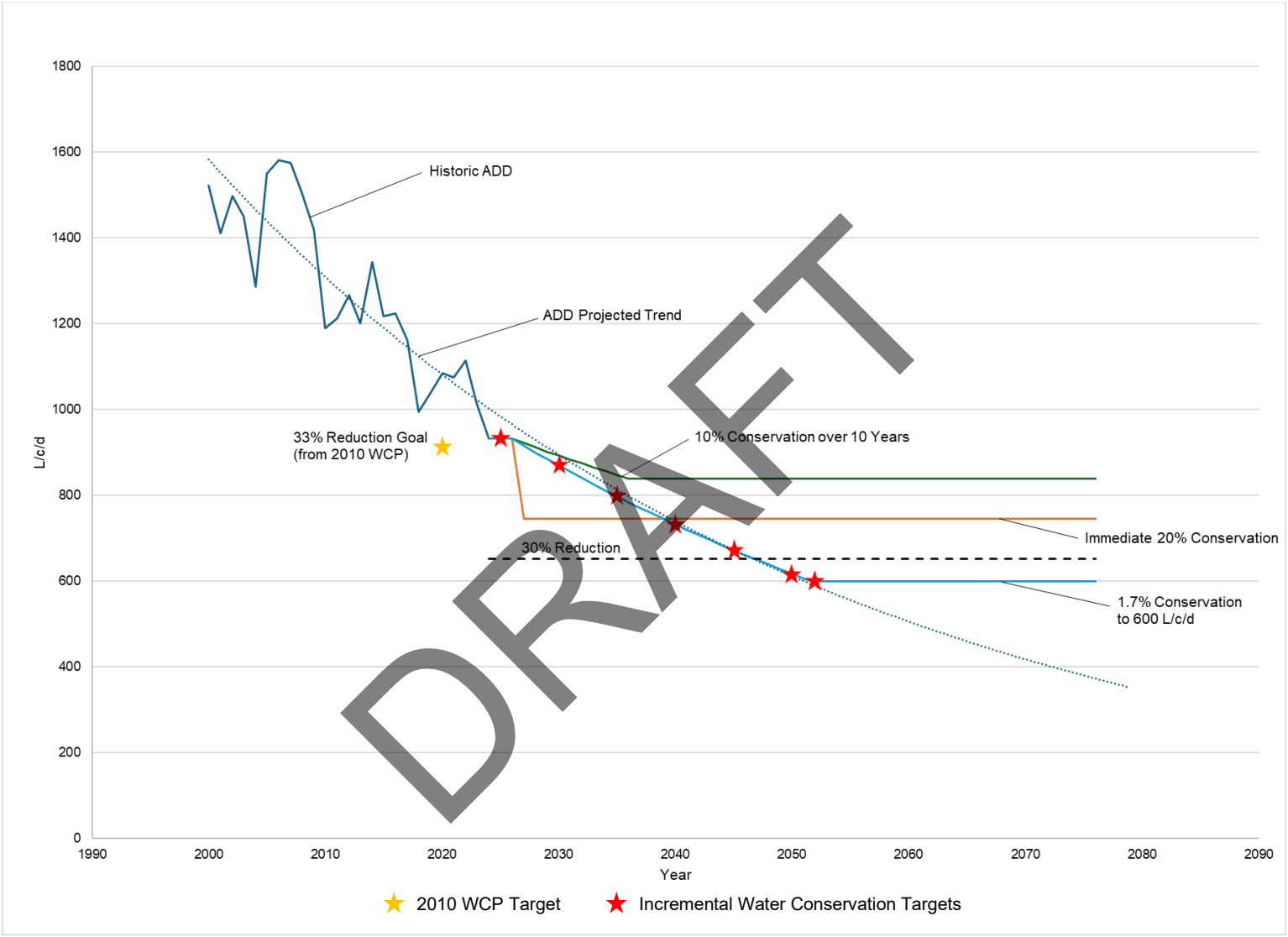



**FIGURE 3-3: PER CAPITA ADD PROJECTIONS**

## 3.4 Summary & Recommended Conservation Scenario

Building on the Targeted Model presented in Section 3.3, the resulting demand projections confirm that effective long-term demand management remains critical for reducing future capital expenditures on source and treatment infrastructure. The adopted strategy assumes 1.3% annual population growth (medium-range scenario consistent with census trends) and a 1.7% annual reduction in per-capita demand until a long-term efficiency level of 600 L/c/d is achieved. This approach reflects historic performance, local climatic conditions, and regional benchmarks and will require continued implementation of water conservation measures (refer to Section 5.0).

As shown in Table 3-5 and Figure 3-3 the Targeted Model projects a gradual decline in per-capita ADD from approximately 932 L/c/d in 2025 to 600 L/c/d by 2052 (~35.6% reduction). These benchmarks provide a measurable framework for evaluating the effectiveness of conservation initiatives and guiding future rate structure adjustments, while allowing the Town to accommodate growth and defer major capital upgrades beyond the current 20-year planning horizon.

Figure 3-4 illustrates the projected Maximum Day Demand (MDD) under the Targeted Model, together with the higher and lower-growth scenarios. Under the Targeted Model, system-wide MDD is projected to reach approximately 17.7 MLD at the 50-year horizon, consistent with the initial design capacity recommended in the TRUE Water Treatment Plant Predesign Report (2024) and appropriate for n-1 supply redundancy. Although the Town will size the future WTP footprint to accommodate a 2% annual growth scenario (consistent with OCP planning and scalable via Development Cost Charges), the 1.3% growth + conservation trajectory remains the most realistic operating condition for the coming decades. The MDD curve shows a gradual decline until the 600 L/c/d target is reached in 2052, after which MDD increases in line with population growth.

Each model was translated into MDD projections using the historic Average-to-Maximum multiplier of 2.44, allowing direct comparison with recent engineering design capacities. Table 3-6 summarizes the targeted long-term demand levels, while Figure 4 illustrates the projected MDD under each scenario. The TRUE Water Treatment Plant Predesign Report (2024) recommended an initial capacity of 17.4 MLD (200 L/s), expandable to 22.5 MLD (260 L/s), with provisions for an ultimate footprint of 25.9 MLD (300 L/s). Under the high-consumption scenario, system MDD is projected to reach approximately 24.7 MLD by 2076, slightly above the 22.5 MLD build-out capacity but still within the 25.9 MLD ultimate footprint envelope identified in the Predesign Report. As additional metering data become available, the Town should refine these projections annually to confirm that the Targeted Model remains both effective and financially prudent.

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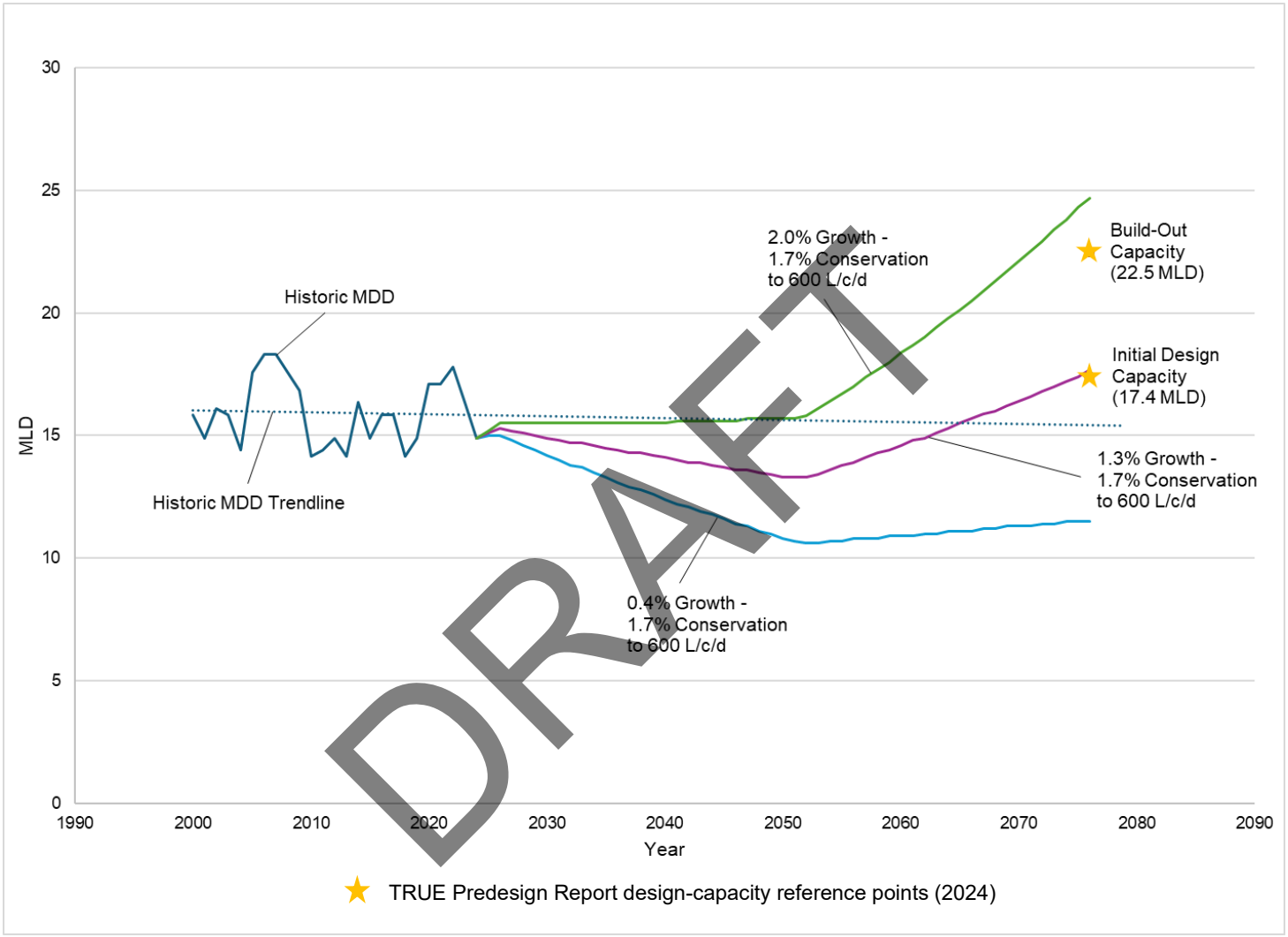



**FIGURE 3-4: MDD PROJECTIONS**

**Note:** MDD projections under the "Targeted Case" reflect an ADD goal of 600 L/c/d, equivalent to 13.3 MLD at the current serviced population and 17.7 MLD at the 50-year horizon.

**Key findings from this comparison include:**

- The TRUE 2043 build-out capacity of 22.5 MLD and initial build capacity of 17.4 MLD were appropriate based on the 2024 predesign assumptions. However, updated modelling in this Water Conservation Plan indicates that these capacities no longer align with projected long-term system demand.
- Under the updated Targeted Model, system-wide MDD is now projected to reach approximately 17.7 MLD at the 50-year horizon.
- Under the High-Growth (2%/yr) scenario, long-term MDD is projected to reach approximately 24.7 MLD, which exceeds the 22.5 MLD build-out point but remains within the 25.9 MLD ultimate footprint envelope identified in the Predesign Report.

Based on this updated assessment, it is recommended that the Town adopt the Targeted Model as the basis for long-term demand management. At the same time, any future water source upgrades should also consider the High-Growth scenario result of 24.7 MLD for components that must accommodate potential build-out conditions. Using the incremental conservation targets identified in Table 3-5 and the per-capita reductions illustrated in Figure 3-3 will be essential for achieving the updated long-term demand thresholds.

**TABLE 3-6: SUMMARY OF TARGETED LONG-TERM DEMAND LEVELS.**

| PARAMETER | TARGET VALUE | BASIS/NOTES |
|---|---|---|
| Per capita ADD | 600 L/c/d | Long-term efficiency benchmark, consistent with Okanagan peers |
| Per capita MDD | 1,460 L/c/d | Based on ADD × 2.44 multiplier |
| System-wide MDD | 17.7 MLD | 50-year horizon target, aligns with TRUE Predesign (2024) initial capacity |

The Town should review water usage annually as part of its water system reporting to verify progress toward the 600 L/c/d target. Ongoing monitoring will ensure that the Targeted Model remains effective, financially sustainable, and aligns with regional best practice.

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# 4.0 Past Water Conservation Strategies

Since adopting its first WCP in 2010, the Town of Osoyoos has advanced a range of initiatives aimed at reducing Maximum Day Demand (MDD), deferring new source capacity (e.g., municipal wells), and contributing toward provincial objectives under Living Water Smart: British Columbia's Water Plan. While these efforts have achieved meaningful reductions in water consumption, the full provincial targets have not yet been met. Specifically, Living Water Smart set goals of improving water use efficiency by 33% by 2020 and meeting 50% of new demand growth through conservation between 2020 and 2030. Continued implementation of universal metering and additional conservation initiatives are expected to narrow this gap.

Between 2010 and 2025 the Town implemented the following strategies as part of a five-year action plan:

**Metering of Major Water Users (2010–2011):**

A metering program was introduced for major users, including multi-family properties and recreational vehicle parks. Data collected was used to identify excessive consumption. Targeted outreach by Town staff proved more effective than "mock billing" and encouraged reductions in water use.

**Public Education and Awareness (2010–2014; Ongoing):**

The Town has consistently promoted water conservation through its website, public notices, and tax mailings. These campaigns raised awareness of conservation objectives and provided practical tools for residents to reduce household consumption.

**Reclaimed Water for Irrigation (2013–2015):**

Infrastructure to deliver reclaimed water to the secondary school playing fields was constructed between 2013 and 2014. With School District approval, reclaimed water use for irrigation began in 2015, offsetting demand on the potable system during peak irrigation months.

**Alternative Irrigation Water Sources (2015–Present):**

In 2015, a test well was drilled at Kinsmen Park to assess non-potable irrigation potential, though yields proved insufficient. The Town has since focused on upgrading irrigation wells for Gyro Park and is exploring similar opportunities for Pioneer Walkway and Jack Shaw Gardens.

**Universal Water Metering Program (Planned; Reserve Fund Established in 2015):**

Although the 2010 WCP recommended universal water metering by 2013, public concerns delayed implementation. In 2015, the Town established a dedicated reserve fund, contributing $125,000 annually toward future metering infrastructure, supported by a public engagement strategy prepared by Urban Systems.

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After several years of preparation, the Town formally advanced the Universal Water Metering Program in 2020, with Neptune Technology Group Canada Co. officially awarded the installation contract on July 2, 2024. The program covers approximately 1,990 domestic connections, with the final number fluctuating slightly (±2–3%) due to vacant and abandoned properties.

**Additional Efforts:**

Beyond the initial five initiatives, the Town leveraged Irrigation System 9 to provide non-potable water to the Osoyoos Fire Hall (2016) and a new Highway 3 commercial development, eliminating the use of potable water for irrigation at these sites.

## 4.1 Water Conservation Results (2010–2017)

- **Annual Water Use:** Total annual consumption decreased from 2,567 ML in 2009 to 2,384 ML in 2017 (~7% reduction).
- **Per Capita Consumption:** Despite population growth, average daily per capita consumption declined from 1,300 L/c/d (2009) to 1,120 L/c/d (2017), a ~14% reduction.
- **Deferred Capital Works:** Reductions in MDD allowed the Town to defer construction of Well No. 7, originally scheduled for 2010, each year since 2011.

## 4.2 Summary

Through targeted metering, reclaimed water use, public education, and exploration of alternative irrigation sources, the Town has made steady progress toward its conservation objectives. Establishing a metering reserve fund and maintaining public engagement strategies positioned the Town well for the implementation of universal water metering as the primary goal for continued advancement of water conservation practices.

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# 5.0 Water Conservation Options

The *Water Conservation Plan Guidebook for BC* identifies a range of conservation measures that municipalities should consider. While not all options are universally applicable, the following subsections evaluate selected measures for their relevance to the Town of Osoyoos.

## 5.1 Conservation-Oriented Rate Structures

The Town of Osoyoos currently employs a conservation-oriented rate structure through volumetric pricing, which combines a fixed base fee with a variable consumption charge. Although the Town does not use an inclining block (tiered) rate structure, the existing design still links charges directly to metered consumption, thereby encouraging conservation. The effectiveness of this existing rate structure will be realized once the Town has completed the universal metering program for domestic users (expected in 2025).

As established in *Water Regulations and Rates Bylaw No. 1388 (2023)*:

- **Base Rate (¾" residential meter**): $599.49 per year
- **Volumetric Charge:** $1.08 per cubic metre consumed

This structure ensures that households with higher consumption incur proportionally greater costs, creating a financial incentive to reduce discretionary water uses such as outdoor irrigation and vehicle washing during peak demand periods. Following two full years of complete metering data, the Town should conduct a financial and revenue stability analysis to evaluate the feasibility of transitioning to a tiered rate structure.

At this stage, however, sufficient seasonal data is not yet available to confidently design an Osoyoos-specific tiered rate system. Without at least two years of complete metering data, there is a risk that a tiered structure could reduce utility revenues or shift costs unfairly between households. For this reason, the Town should maintain its current rate structure until individual water-use patterns are better understood.

A review of regional practices shows that most Okanagan municipalities (Kamloops, Peachland, Summerland, Penticton, Kelowna, West Kelowna, and Vernon/RDNO) have implemented three-block tiered structures. These typically provide:

- A base allowance for essential indoor use (Block 1),
- A moderate allowance for discretionary outdoor use (Block 2), and
- A higher charge for excessive or non-essential consumption (Block 3).

As a regional reference point, the City of Penticton (CoP) uses a three-block inclining structure. As shown above and in the CoP rate bylaw, the volumetric rate in Block 2 is set ~25% higher than

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Block 1, and Block 3 is ~50% higher than Block 1. Once Osoyoos has collected sufficient consumption history under universal metering, thresholds for a Town specific tiered rate system should be developed using actual quarterly usage data for a typical single-family residence (essential indoor demand plus moderate irrigation). This will ensure that block sizes reflect local conditions, rather than relying on generalized estimates.

## 5.2 Plumbing Fixture Rebate Programs

A wide range of water saving technologies, such as low-flow toilets, showerheads, touch-activated faucets, and high efficiency appliances, represent potential opportunities for reducing water consumption. Historically, many local governments have offered rebate programs to encourage homeowners to replace older, less efficient fixtures, with toilet replacement programs being the most common.

Over the past two decades, however, the number of municipalities offering toilet rebate programs has declined. Contributing factors include:

- The discontinuation of provincial, federal, and agency-led programs (e.g., Okanagan Basin Water Board).
- The BC Plumbing Code requirement that all new toilets use ≤ 6 L/flush, eliminating the market for older 13–20 L/flush models.
- Increased availability and reduced purchase cost of ultra-low flush toilets.
- Fixture and appliance upgrades reduce average day demand (ADD) but have little effect on maximum day demand (MDD) or peak hour demand, which drive infrastructure sizing.
- In municipalities with metered billing, water savings already translate into lower utility bills, providing a built-in financial incentive.
- Other conservation initiatives (e.g., outdoor water use reduction) typically offer greater system-wide benefit and have been prioritized.

Where toilet rebate programs still exist, primarily in the Lower Mainland and Vancouver Island, rebates typically range from $50–$100 per fixture.

For Osoyoos, a toilet rebate program could be considered as part of a broader conservation strategy, but it should not be viewed as a high-priority initiative. At minimum, the Town should continue to promote the benefits of low-flush toilets through its public education and engagement channels. Additional data on the number of homes with outdated fixtures and expected participation rates would be required to evaluate cost-effectiveness.

Rebate programs could also be expanded to address high water use activities beyond plumbing fixtures. Examples from other municipalities include:

- Rebates to replace turf grass with drought-tolerant landscaping (xeriscaping).
- Rebates for commercial, multi-family, or institutional property turf replacement.

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- Rebates for high-efficiency irrigation controllers.
- Rebates for pool covers to reduce evaporation losses.
- Rebates for replacing high-use fixtures and appliances.

If pursued, the Town could consider a first-come, first-served program format with a defined annual budget cap to control costs while providing residents with equitable access to the program.

## 5.3 Further Water Conservation Bylaws and Enforcement

Some municipalities have strengthened water conservation through dedicated bylaws to manage discretionary demand. For example, the Town of Oliver regulates outdoor water use and requires meters on all new developments. Other communities have implemented additional measures, including:

- Prohibiting new turf grass installations or requiring drought tolerant landscaping.
- Limiting the size of residential swimming pools.
- Prohibiting the use of potable water for non-essential cleaning (e.g., driveways, patios, sidewalks).

While such bylaws can reduce discretionary consumption and promote long-term efficiency, their effectiveness depends heavily on enforcement. According to the Province of British Columbia, effective bylaw enforcement requires:

- Public education on regulatory rules.
- Routine inspections to confirm compliance.
- Mediation between members of the public when disputes arise.
- Emphasis on voluntary compliance wherever possible.
- Application of penalties where contraventions occur or harm is caused to the community.

Given current staffing, the Town's bylaw enforcement capacity is limited. Expanding water conservation bylaws without a corresponding increase in enforcement resources would place significant strain on existing officers and reduce program effectiveness. Moreover, consistent and fair application of penalties is essential to achieve compliance and maintain public trust.

Accordingly, while water conservation bylaws may have merit in principle, they should not be considered a realistic or high-priority initiative for Osoyoos unless the Town expands its bylaw enforcement department and dedicates sufficient resources to compliance monitoring, education, and enforcement.

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# 6.0 Conclusions and Recommendations

Since adopting its first Water Conservation Plan, the Town of Osoyoos has made significant progress in managing demand. Per capita consumption has declined steadily, and reductions in Maximum Day Demand (MDD) have allowed the Town to defer new groundwater supply development for more than a decade. However, the Province's Living Water Smart targets (33% efficiency improvement by 2020, and meeting 50% of new demand growth through conservation by 2030) have not yet been fully achieved. The primary objective of this updated Plan is therefore to continue reducing MDD to defer or minimize the scale of new water source and treatment infrastructure, reducing long-term costs for the community.

The Town's current supply strategy is to transition toward a surface water treatment system drawing from Osoyoos Lake, with the planned water treatment plant south of the 402 Reservoir supported by a dedicated raw water supply main. Preliminary design and permitting are underway, with phased construction targeted to begin in Fall 2026 and substantial completion anticipated by 2028. Groundwater wells will continue to play an important role, both to supplement supply in the long term and to provide redundancy during surface water outages or maintenance periods.

Additional goals of the updated Water Conservation Plan include:

- **Reducing stress on the existing groundwater wells** to extend their service life while planning for a new surface water supply. This will reduce the number of costly treatment modules required to meet future MDD using groundwater alone.
- **Demonstrating ongoing conservation leadership** to strengthen eligibility for future grant funding.
- **Providing capacity for growth** by reducing demand, thereby supporting new development within the Town's service area.

At present, the Town's groundwater system can reliably meet Average Day Demand (ADD), but the central challenge is managing MDD so that the system continues to operate within its n-1 redundancy threshold until the new surface water treatment plant is in place.

Based on the analysis in previous sections, the following strategies are recommended:

- **Adopt a conservation-oriented rate structure** designed to ensure MDD remains within existing n-1 supply capacity over the 20-year horizon.
- **Conduct major user audits** through desktop analysis enabled by the AMI system. This will allow the Town to identify leakage and/or high-usage accounts without requiring additional field reads.
- **Introduce rebate programs focused on reducing irrigation demand,** such as incentives for irrigation controllers and xeriscaping (lawn replacement). Plumbing fixture rebates may be considered but should remain a lower priority initiative.

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- **Carry out annual non-revenue water (NRW) audits** in accordance with AWWA M36 methodology, using available AWWA software. These audits should ideally be integrated with preparation of the Town's annual water system report.
- **Encourage residential infill development** within municipal boundaries in alignment with Provincial Bills 44, 46, and 47, and the Town's OCP. From a conservation perspective, higher-density development typically reduces outdoor irrigation demand, lowering per capita MDD.

In summary, conservation is not just about efficiency, it directly shapes the scale and cost of future infrastructure. By managing growth and consumption to achieve the targeted long-term levels (600 L/c/d ADD and 17.7 MLD MDD), the Town can ensure that the 2027 surface water treatment plant, and future supply infrastructure, are built at the smallest practical scale, minimizing capital and operating costs while maintaining resilience.

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# APPENDIX A

## Domestic Water Systems Overview

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For Continuation See Sheet 3

For Continuation See Sheet 2

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## Legend

- Fire Hydrant Assembly
- Gate Valve
- Blowoff / Standpipe
- Municipal Watermain
- Municipal Watermain - 402 Pressure Reduced
- Irrigation Main
- Irrigation Main - System 9A
- Water Utility Structure
- Municipal Boundary
- First Nation Reserve Boundary

RESERVOIR
1000 cu.m. (240M. Imp. Gal.)
TWL 400m. (1312')

HWY 97 & 100th AVE

HWY 97 & 92nd AVE

JUBILEE DR & 92nd AVE

87th ST & 92nd AVE

87th ST & 92nd AVE

WYE WELL

QUINCE LN & GALA CRES

VALIANT LANE

EAGLE COURT & MAIN ST

HWY 3 & MEADOWLARK DR

WESTRIDGE PUB

HWY 97 & EAGLE CT

HWY 97 & 74th AVE

402 PR PRESSURE REDUCING STATION

RESERVOIR
2550 cu.m. (670,000 IGAL)
TWL 340m. (1120')

RESERVOIR
1360 cu.m. (300000 IGAL)
TWL 340m. (1120')

SYSTEM 8/9 RESERVOIR
(82cu. m. (10600 IGAL)
TWL 360.25m. (1184')

MEADOWLARK DR & 74th AVE

HWY 97 & 62nd AVE

HWY 97 & 62nd AVE

MAIN RESERVOIRS

WELL 1

NIGHTHAWK DR & 74th AVE

KINGFISHER DR & 83rd ST

89th ST & PRIMROSE LN

HWY 97 & 89th ST

IRRIGATION PUMPHOUSE #9

LAKESHORE DR & BAYVIEW CRES

LAKESIDE CELLARS

NORTH TAMARACK DR

COTTONWOOD PARK

WELL 4

WELL 5

WELL 3

Private Water System

107 ST & 58 AVE

HWY 97 & CACTUS CRES

WASTEWATER TREATMENT

PEBBLE BEACH DR

FAIRWAY HILLS BOOSTER STATION

GOLF COURSE DR & PEBBLE BEACH DR

FAIRWINDS DR

CYPRESS HILLS DR

LOBELIA DR & 32nd AVE

Sheet 3

Sheet 1

Sheet 2

0 200 400 600 800 1,000 m

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# WATER SYSTEM COMPOSITE

# MUNICIPAL SYSTEM AND SYSTEM 8/9

| | |
|---|---|
| SCALE | 1:5,000 |
| DESIGN BY | |
| DRAWN BY | ET |
| DATE | 5/8/2023 |
| PROJECT REF No. | 302-2061 |

DRAWING No.
**302-2061-01**

SHEET
1 OF 3

REVISION
**01**