



# Water Quality Monitoring Report for the District of Hope's Water System's January 1 – December 31, 2023



Prepared by  
Stephen Glasson  
Chief Utilities Operator

## Foreword

Under the British Columbia Drinking Water Protection Act and the British Columbia Drinking Water Protection Regulation (BCDWPA & BCDWPR) the District of Hope is required to conduct water quality monitoring on the district's distribution system(s) and to publish the results in an annual report. This document fulfills that requirement by presenting a summary and discussion of all water quality sampling results for the year 2023. An overview of projects and events as they relate to drinking water in the District of Hope is also provided in this report.

Please visit the following web sites for further information:

### Health Canada – Canadian drinking water guidelines

<http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index-eng.php>

### Ministry of Health – Drinking water health topics

<https://www2.gov.bc.ca/gov/content/health/about-bc-s-health-care-system/office-of-the-provincial-health-officer/current-health-issues/drinking-water-health-topics>

### Health Link BC File #56 – Persons with compromised or Weakened Immune Systems

<https://www.rdn.bc.ca/cms/wpattachments/wpID2360atID5822.pdf>

### District of Hope

<http://www.hope.ca>

### World Health Organization

<https://www.who.int/news-room/fact-sheets/detail/drinking-water>

### Emergency Water Quality Contact Information

Bob Clarke

Manager of Operations

Phone: (604)869-1070

E-mail: [bclarke@hope.ca](mailto:bclarke@hope.ca)

Stephen Glasson

Chief Utilities Operator

Phone: 604-860-9527

E-mail: [sglasson@hope.ca](mailto:sglasson@hope.ca)

### After Hours Emergency

Phone: 604-869-6020

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## **1.0 Acronyms**

*AO: Aesthetic Objective*

*BCDWPA: British Columbia Drinking Water Protection Act*

*BCDWPR: British Columbia Drinking Water Protection*

*E.coli: Escherichia coli*

*EOCP: Environmental Operators Certification Program*

*GCDWQ: Guidelines for Canadian Drinking Water Quality*

*HAA: Haloacetic Acid*

*MAC: Maximum Acceptable Concentration*

*Mg/l: Milligrams per Liter*

*NTU: Nephelometric Turbidity Units PPB: Parts Per Billion*

*PPM: Parts Per Million*

*PRV: Pressure Regulating Valve*

*PVC: Polyvinyl Chloride*

*SCADA: Supervisory Control and Data Acquisition*

*UDF: Uni-directional Flushing*

*YTD: Year-to-Date*

## 2.0 Executive Summary

The District of Hope supplies drinking water to residential and commercial users within District limits. The District of Hope is dedicated to providing high quality, aesthetically pleasing drinking water.

The District of Hope collects drinking water samples from 15 locations within the distribution system on a weekly basis and multiple other locations on a bi-weekly basis. This report includes a summary of those bacteriological sampling results collected from the district's four water distribution systems during 2023 as well as a discussion of projects and events affecting water quality within the District of Hope. A complete record of 2023 water quality sampling results can be found in the appendices of this report.

As part of our commitment to continual improvement, reliable service and high-water quality, the district completes operational and capital projects as well as water quality sampling on a regular and ongoing basis.

### In 2023 the District of Hope completed:

- Routine inspection and maintenance of all water distribution facilities
- Directional and dead-end water main flushing
- Water Master Plan continues to be implemented
- Water reservoir inspections
- Put out for tender a new booster pump & prv station
- Physical separation of the unused Thacker Mtn water reservoir from the distribution system

- Continued implementation of a Cross Connection Control Program (CCCP)
- Installation of new SCADA control panels at Wells 1, 2, & 3

### 3.0 Water Distribution System Data

#### 3.1 System Infrastructure

This section provides information of each of the District of Hope's 4 water distribution systems. All of the components listed are operated and maintained by the district's operations utilities department.

#### Critical Asset components of the water distribution system

##### Asset:

- |                                 |         |
|---------------------------------|---------|
| • Fire hydrants                 | 221     |
| • Pressure reducing valves      | 1       |
| • Wells                         | 7       |
| • Reservoirs                    | 4       |
| • Water connections             | 2500 +  |
| • Generators                    | 5       |
| • Underground distribution pipe | 55,250m |

In addition to the critical components of the water distribution system, there are many other smaller components to the district's water distribution system, including:

- Water meters
- Backflow preventers
- Air valves
- End of line blow off valves
- Line valves
- 23 Water sampling station

All of these components are utilized effectively to help the district deliver safe, reliable drinking water.

### 3.2 Public Response

In 2023 Hope District Operations Department responded to various concerns including: residential water service leaks, two water distribution main breaks, pressure checks, water service locates, new service installations, a boil water advisory as well as a variety of other types of calls.

In November 2023 the district of Hope was informed of the presence of E.coli in the drinking water during the routine weekly water sampling process. The contamination was restricted to about 500 users. We quickly implemented our emergency response plan to notify the affected users as well we implemented a boil water advisory. We also took immediate action to flush the system. Crews worked on what we determined to be the source of the contamination. Due to the quick actions of the district while under direction of Fraser Health, we were able to limit this event to just 14 days. We have since updated our emergency response plan and invested in some new water monitoring, quality and flushing equipment.

### 3.3 Staff Certification

The District of Hope’s water distribution systems are classified by the Environmental Operators Certification Program (EOCP). The district’s four water systems are monitored, operated, and maintained by six competent staff. Five staff are currently certified by the EOCP.

#### Staff Certification

<b>Certification Level</b>	<b># of Staff</b>
EOCP Water Distribution Level I	2
EOCP Water Distribution Level II	1
EOCP Water Distribution Level III	2
<b>Total Qualified Staff</b>	<b>5</b>

## 4.0 **2023 Event Summary**

### 4.1 Planning for the Future

The District of Hope is a growing community within the Fraser Valley, with an estimated population of 6686 residents (2021 Census). Hope’s water utility consists of four separate water systems, three of which are supplied by well source(s) and one surface water source (Lake of the Woods also known as Schkam Lake). The water supply and distribution systems are a key focus of Hope’s strategic infrastructure priorities.

## 5.0 **“Flush” Message from the Fraser Health Authority**

Fraser Health has revised its metals at the tap “Flush” message. They have asked that all water purveyors include the following message in their annual report:

*Anytime the water in a particular faucet has not been used for six hours or longer, “flush” your cold-water pipes by running the water until you notice a change in temperature. (This could take as little as five to thirty seconds if there has been recent heavy water use such as showering or toilet flushing. Otherwise, it could take two minutes or longer.)*

*The more time water has been sitting in your home’s pipes, the more lead it may contain.*

*Use only water from the cold-tap for drinking, cooking, and especially making baby formula. Hot water is likely to contain higher levels of lead.*

*The two actions recommended above are very important to the health of your family. They will probably be effective in reducing lead levels because most of the lead in household water usually comes from the plumbing in your house, not from the local water supply.*

*Conserving water is still important. Rather than just running the water down the drain you could use the water for things such as watering your plants (Zubel, 2014).*

If residents have any questions, they are encouraged to contact the Fraser Health’s Drinking Water Program at 604-870-7900



## 6.0 Water Main Flushing Program

The District of Hope conducts directional and dead-end flushing bi-annually in order to maintain a high level of water quality in the distribution system. Regularly flushing water mains removes stagnant water and deposits from pipes. Spot flushing is also conducted “as needed” to resolve complaints of poor water quality.

## 7.0 Water Quality Sampling and Testing

Sampling and analysis for numerous water quality parameters are conducted on the District of Hope’s distribution system on a regular basis. Sample schedules for various constituents are broken into sections based on the number of samples recommended by the *GCDWQ* and/or mandated by the *BCDWPR*. Monitoring of drinking water in the district’s water distribution system is conducted for bacterial, chemical, and physical characteristics.

### 7.1 Metals

Metals can enter the drinking water system from either the source or in the distribution system itself. The District of Hope monitors the water distribution system for metals. Sampling is conducted every second year as per the *WQMRP*. Sampling for metals in 2022 was performed on March 24 2022. *(Metals sampling is scheduled to occur next in March 2024)* A summary of relevant health-based MAC and Aesthetic Objective (AO) standards for metals in drinking water can be found below. This table summarizes only those parameters listed in the *GCDWQ* that are captured by the current version of the *WQMRP*.

MAC and AO Metals Standards Modified from the Guidelines for Canadian Drinking Water Quality (Published September 2022)

Parameter	MAC (mg/l)	AO (mg/l)	Year of Approval
Aluminum	9.5	N/A	2019
Antimony	0.006	N/A	1997
Arsenic	0.010	N/A	2006

Barium	2.0		2020
Cadmium	0.005	N/A	2020
Chromium	0.05	N/A	2016
Copper	2.0	1.0	2019
Iron		≤0.3	1978 (2005)
Lead	0.005	N/A	2019
Manganese	0.12	0.02	2019
Mercury	0.001	N/A	1986
Selenium	0.01	N/A	2014
Vinyl Chloride	0.002	N/A	2013
Zinc	3.0	5.0	1979 (2005)

## 7.2 Bacteriological Quality

All bacterial samples collected from municipal distribution systems are analyzed for *total coliform* and *E.coli* bacteria. The district meets or exceeds the minimum required samples per month for each of our 4 water systems. Further samples are collected by district personnel on an as needed basis in response to water main breaks, operational adjustments, water quality complaints, or where cross-connections are suspected.

### Water Quality Standards for Potable Water (Sections 2 & 9)

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

(Province of British Columbia, 2011)

## Frequency of Monitoring Samples for Prescribed Water Supply Systems (Section 8)

Population Served by the Prescribed Water Supply System:	Number of Samples Per Month:
less than 5,000	4
5,000 to 90,000	1 per 1,000 of population
more than 90,000	90 plus 1 per 10,000 of population in excess of 90,000

(Province of British Columbia, 2011)

## 8.0 Water Distribution System Projects

### 8.1 Future Planning

Projects for 2024 include:

1. Continued improvements to our SCADA network
2. A new booster station to supply the Thacker Mountain zone
3. New water sample collection stations at each water reservoir site
4. Continued efforts to work on the former 753 water system improvements
5. Continued efforts to implement the water master plan

## 9.0 Emergency Response Plan

In the event of an emergency, the district may enact its Water System Emergency Response Plan. The goals of this plan are as follows:

- Rapidly restore service after an emergency
- Ensure adequate water supply for fire protection
- Minimize loss of service to users
- Provide emergency information to public
- Re-establish critical operations

## **10.0      Conclusion**

The 2023 year had Operations staff at the District of Hope continue improvements to the day-to-day operations of the water utility and continue to work closely with the Fraser Health Authority to ensure safe, clean potable water for the district's residents.

Every year the district budgets for the study, maintenance, and replacement of critical components of the water distribution system and 2023 was no exception. Continued resource focus on the operation and maintenance of the district's water system along with completing critical infrastructure upgrades, will be pivotal to maintaining a high level of drinking water quality in the years to come.

## 11.0 Works Cited

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Health Canada. (2010). *Guidelines for Canadian Drinking Water Quality*. Ottawa: Federal-Provincial- Territorial Committee on Drinking Water of the Federal-Provincial-Territorial Committee on Health and the Environment.

Health Canada. (2022) *Guidelines for Canadian Drinking Water Quality - Summary Tables*

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Province of British Columbia. (2011). *British Columbia Drinking Water Protection Regulation*. Victoria.

Province of British Columbia. (2014). *Population Estimates*. Retrieved March 27, 2014, from BC Stats:

<http://www.bcstats.gov.bc.ca/statisticsbysubject/demography/populationestimates.aspx>

USEPA. (2004). *Comprehensive Surface Water Treatment Rules Quick Reference Guide: Unfiltered Systems*. Washington DC: US Environmental Protection Agency.

USEPA. (2002). *Effects of Water Age on Distribution System Water Quality*. Washington DC: US Environmental Protection Agency.

Zubel, M. (2014, June). *Metals in Drinking Water - "Flush" Message in Annual Reports*. British Columbia, Canada: Fraser Health.

## **Appendix #1 Bacterial Analysis**

## **Appendix #2 Metals Analysis**

# Sample Range Report

Fraser Health Authority

**Facility Name:** District of Hope Water System

**Date Range:** Jan 1 2023 to Dec 31 2023

**Operator** Kevin Dicken  
325 Wallace Street

PO Box 609  
Hope, BC V0X 1L0

<u>Sampling Site</u>	<u>Date Collected</u>	<u>Total Coliform</u>	<u>E. Coli</u>	<u>Fecal Coliform</u>
<u>Fraser Canyon</u> <u>Hospital, 1275 7th</u> <u>Avenue</u>	1-3-2023 10:10:00 AM	LT1	LT1	
	1-10-2023 9:45:00 AM	LT1	LT1	
	1-17-2023 10:00:00 AM	LT1	LT1	
	1-24-2023 9:00:00 AM	LT1	LT1	
	1-31-2023 9:20:00 AM	LT1	LT1	
	2-7-2023 9:45:00 AM	LT1	LT1	
	2-14-2023 10:50:00 AM	LT1	LT1	
	2-21-2023 9:55:00 AM	LT1	LT1	
	2-28-2023 9:50:00 AM	LT1	LT1	
	3-7-2023 9:50:00 AM	LT1	LT1	
	3-14-2023 9:20:00 AM	LT1	LT1	
	3-21-2023 9:35:00 AM	LT1	LT1	
	3-28-2023 9:35:00 AM	LT1	LT1	
	4-4-2023 5:25:00 AM	LT1	LT1	
	4-11-2023 9:05:00 AM	LT1	LT1	
	4-18-2023 9:15:00 AM	LT1	LT1	
	4-25-2023 9:30:00 AM	LT1	LT1	
	5-2-2023 9:10:00 AM	LT1	LT1	
	5-9-2023 9:30:00 AM	LT1	LT1	
	5-16-2023 9:30:00 AM	LT1	LT1	
	5-30-2023 9:15:00 AM	LT1	LT1	



6-6-2023 9:25:00 AM	LT1	LT1
6-13-2023 10:00:00 AM	LT1	LT1
6-20-2023 9:40:00 AM	1.0	LT1
6-27-2023 9:25:00 AM	LT1 GTR200	LT1 GTR200
7-4-2023 9:39:00 AM	LT1	LT1
7-11-2023 9:40:00 AM	LT1	LT1
7-18-2023 9:55:00 AM	2	LT1
7-25-2023 9:40:00 AM	LT1	LT1
8-1-2023 10:00:00 AM	LT1	LT1
8-8-2023 9:55:00 AM	LT1	LT1
8-15-2023 8:25:00 AM	LT1	LT1
8-22-2023 9:50:00 AM	LT1	LT1
8-29-2023 9:45:00 AM	LT1	LT1
9-5-2023 9:45:00 AM	LT1	LT1
9-12-2023 9:55:00 AM	LT1	LT1
9-19-2023 10:30:00 AM	LT1	LT1
9-26-2023 9:40:00 AM	LT1	LT1
10-3-2023 9:20:00 AM	LT1	LT1
10-10-2023 9:15:00 AM	LT1	LT1
10-17-2023 9:50:00 AM	LT1	LT1
10-24-2023 9:30:00 AM	LT1	LT1
10-31-2023 8:15:00 AM	LT1	LT1
11-7-2023 9:05:00 AM	LT1	LT1
11-14-2023 9:50:00 AM	LT1	LT1
11-20-2023 9:45:00 AM	LT1	LT1
11-27-2023 9:48:00 AM	LT1	LT1
11-28-2023	LT1	LT1
11-29-2023 9:12:00 AM	LT1	LT1
12-5-2023 9:15:00 AM	LT1	LT1
12-12-2023 8:55:00 AM	LT1	LT1

12-19-2023 9:35:00 AM	<u>LT1</u>	<u>LT1</u>	
<b>Total Positive:</b>	<b>2</b>	<b>0</b>	<b>0</b>

District Hall, 325  
Wallace Street

1-3-2023 11:30:00 AM	LT1	LT1	
1-10-2023 11:45:00 AM	LT1	LT1	
1-17-2023 11:40:00 AM	LT1	LT1	
1-24-2023 11:15:00 AM	LT1	LT1	
1-31-2023 11:20:00 AM	LT1	LT1	
2-7-2023 11:40:00 AM	LT1	LT1	
2-14-2023 11:55:00 AM	LT1	LT1	
2-21-2023 11:30:00 AM	LT1	LT1	
2-28-2023 11:25:00 AM	LT1	LT1	
3-7-2023 12:00:00 PM	LT1	LT1	
3-14-2023 11:15:00 AM	LT1	LT1	
3-21-2023 11:05:00 AM	LT1	LT1	
3-28-2023 11:15:00 AM	LT1	LT1	
4-11-2023 11:15:00 AM	LT1	LT1	
4-18-2023 10:45:00 AM	LT1	LT1	
4-25-2023 10:50:00 AM	LT1	LT1	
5-2-2023 11:45:00 AM	LT1	LT1	
5-9-2023 11:20:00 AM	LT1	LT1	
5-16-2023 11:00:00 AM	LT1	LT1	
5-30-2023 11:15:00 AM	LT1	LT1	
6-6-2023 10:50:00 AM	LT1	LT1	
6-13-2023 11:45:00 AM	LT1	LT1	
6-20-2023 11:15:00 AM	LT1	LT1	
6-27-2023 11:40:00 AM	LT1	LT1	

7-4-2023 10:53:00 AM	LT1	LT1	
7-11-2023 11:20:00 AM	LT1	LT1	
7-18-2023 11:45:00 AM	LT1	LT1	
7-25-2023 12:00:00 PM	LT1	LT1	
8-1-2023 11:55:00 AM	LT1	LT1	
8-8-2023 11:45:00 AM	LT1	LT1	
8-15-2023 10:30:00 AM	LT1	LT1	
8-22-2023 11:25:00 AM	LT1	LT1	
8-29-2023 11:45:00 AM	LT1	LT1	
9-5-2023 11:45:00 AM	LT1	LT1	
9-12-2023 11:20:00 AM	LT1	LT1	
9-19-2023 12:10:00 PM	LT1	LT1	
9-26-2023 11:15:00 AM	LT1	LT1	
10-3-2023 11:20:00 AM	LT1	LT1	
10-10-2023 11:20:00 AM	GR200	LT1	
10-17-2023 11:30:00 AM	LT1	LT1	
10-24-2023 11:20:00 AM	LT1	LT1	
10-31-2023 8:40:00 AM	LT1	LT1	
11-7-2023 11:35:00 AM	LT1	LT1	
11-14-2023 11:25:00 AM	LT1	LT1	
11-20-2023 11:25:00 AM	LT1	LT1	
11-28-2023 11:10:00 AM	LT1	LT1	
12-5-2023 11:35:00 AM	LT1	LT1	
12-12-2023 10:45:00 AM	LT1	LT1	
12-19-2023 11:30:00 AM	<u>LT1</u>	<u>LT1</u>	
<b>Total Positive:</b>	<b>1</b>	<b>0</b>	<b>0</b>

Well #1, Hope Fire  
Hall - Third Ave

1-17-2023 7:35:00 AM	LT1	LT1	
2-21-2023 7:40:00 AM	LT1	LT1	
3-7-2023 7:30:00 AM	LT1	LT1	
4-11-2023 8:15:00 AM	LT1	LT1	
5-9-2023 8:20:00 AM	LT1	LT1	
6-20-2023 8:40:00 AM	LT1	LT1	
7-4-2023 7:50:00 AM	LT1	LT1	
8-22-2023 8:45:00 AM	LT1	LT1	
9-26-2023 8:30:00 AM	LT1	LT1	
10-24-2023 8:30:00 AM	LT1	LT1	
11-17-2023	LT1	LT1	
11-17-2023	LT1	LT1	
11-28-2023 8:05:00 AM	LT1	LT1	
12-12-2023 10:15:00 AM	<u>LT1</u>	<u>LT1</u>	
<b>Total Positive:</b>	<b>0</b>	<b>0</b>	<b>0</b>

Well #2, 110 King Street

1-3-2023 8:45:00 AM	LT1	LT1	
1-10-2023 9:25:00 AM	LT1	LT1	
2-14-2023 8:10:00 AM	LT1	LT1	
3-21-2023 8:35:00 AM	LT1	LT1	
4-25-2023 9:10:00 AM	LT1	LT1	
6-6-2023 8:08:00 AM	LT1	LT1	
6-20-2023 8:50:00 AM	LT1	LT1	
7-4-2023 8:24:00 AM	LT1	LT1	
8-8-2023 8:40:00 AM	LT1	LT1	
9-19-2023 8:30:00 AM	LT1	LT1	
11-14-2023 8:55:00 AM	LT1	LT1	
11-17-2023	LT1	LT1	
11-17-2023	<u>LT1</u>	<u>LT1</u>	
<b>Total Positive:</b>	<b>0</b>	<b>0</b>	<b>0</b>

7th Avenue Sampling Port, 225 7th Ave

1-10-2023 9:30:00	LT1	LT1	
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AM		
1-17-2023 11:30:00	1	LT1
AM		
1-24-2023 8:40:00	LT1	LT1
AM		
1-31-2023 8:55:00	LT1	LT1
AM		
2-7-2023 11:25:00	LT1	LT1
AM		
2-14-2023 11:45:00	LT1	LT1
AM		
2-21-2023 11:20:00	LT1	LT1
AM		
2-28-2023 11:00:00	LT1	LT1
AM		
3-7-2023 11:50:00	LT1	LT1
AM		
3-14-2023 9:00:00	LT1	LT1
AM		
3-21-2023 9:10:00	LT1	LT1
AM		
3-28-2023 9:05:00	LT1	LT1
AM		
4-4-2023 5:50:00 AM	LT1	LT1
4-11-2023 8:50:00	LT1	LT1
AM		
4-18-2023 8:55:00	LT1	LT1
AM		
4-25-2023 9:15:00	LT1	LT1
AM		
5-2-2023 9:00:00 AM	LT1	LT1
5-9-2023 9:05:00 AM	LT1	LT1
5-16-2023 10:30:00	LT1	LT1
AM		
5-30-2023 8:55:00	LT1	LT1
AM		
6-6-2023 8:20:00 AM	LT1	LT1
6-13-2023 11:35:00	LT1	LT1
AM		
6-20-2023 9:25:00	LT1	LT1
AM		
6-27-2023 9:20:00	LT1	LT1
AM		
7-4-2023 8:35:00 AM	LT1	LT1
7-11-2023 9:10:00	LT1	LT1
AM		
7-18-2023 9:45:00	LT1	LT1
AM		
7-25-2023 11:55:00	LT1	LT1
AM		
8-1-2023 11:50:00	LT1	LT1
AM		
8-8-2023 11:40:00	LT1	LT1
AM		
8-15-2023 10:15:00	LT1	LT1

AM			
8-22-2023 9:35:00	LT1	LT1	
AM			
8-29-2023 8:40:00	LT1	LT1	
AM			
9-5-2023 11:40:00	LT1	LT1	
AM			
9-12-2023 9:05:00	LT1	LT1	
AM			
9-19-2023 12:00:00	LT1	LT1	
PM			
9-26-2023 9:20:00	LT1	LT1	
AM			
10-3-2023 9:10:00	LT1	LT1	
AM			
10-10-2023 9:05:00	LT1	LT1	
AM			
10-17-2023 9:40:00	LT1	LT1	
AM			
10-24-2023 9:15:00	LT1	LT1	
AM			
10-31-2023 7:50:00	LT1	LT1	
AM			
11-7-2023 8:50:00	LT1	LT1	
AM			
11-14-2023 9:25:00	LT1	LT1	
AM			
11-20-2023 11:15:00	LT1	LT1	
AM			
11-28-2023 10:55:00	LT1	LT1	
AM			
12-5-2023 11:20:00	LT1	LT1	
AM			
12-12-2023 10:30:00	LT1	LT1	
AM			
12-19-2023 9:10:00	<u>LT1</u>	<u>LT1</u>	
AM			
<b>Total Positive:</b>	<b>1</b>	<b>0</b>	<b>0</b>

District Works Yard.  
1225 Nelson Ave

1-3-2023 9:50:00 AM	LT1	LT1	
1-10-2023 8:50:00	LT1	LT1	
AM			
1-17-2023 9:45:00	LT1	LT1	
AM			
1-24-2023 7:30:00	LT1	LT1	
AM			
1-31-2023 8:20:00	LT1	LT1	
AM			
2-7-2023 9:30:00 AM	LT1	LT1	
2-14-2023 10:30:00	LT1	LT1	
AM			
2-21-2023 9:30:00	LT1	LT1	

AM		
2-28-2023 9:30:00	LT1	LT1
AM		
3-7-2023 9:20:00 AM	LT1	LT1
3-14-2023 8:15:00	LT1	LT1
AM		
3-21-2023 8:15:00	LT1	LT1
AM		
3-28-2023 8:20:00	LT1	LT1
AM		
4-4-2023 5:05:00 AM	LT1	LT1
4-11-2023 8:05:00	LT1	LT1
AM		
4-18-2023 7:30:00	LT1	LT1
AM		
4-25-2023 8:35:00	LT1	LT1
AM		
5-2-2023 8:15:00 AM	LT1	LT1
5-9-2023 8:15:00 AM	LT1	LT1
5-16-2023 9:00:00	LT1	LT1
AM		
5-30-2023 8:10:00	LT1	LT1
AM		
6-6-2023 9:35:00 AM	LT1	LT1
6-13-2023 9:30:00	LT1	LT1
AM		
6-20-2023 8:10:00	LT1	LT1
AM		
6-27-2023 9:00:00	LT1	LT1
AM		
7-4-2023 9:58:00 AM	LT1	LT1
7-11-2023 8:20:00	LT1	LT1
AM		
7-18-2023 9:30:00	LT1	LT1
AM		
7-25-2023 9:30:00	LT1	LT1
AM		
8-1-2023 9:35:00 AM	LT1	LT1
8-8-2023 9:35:00 AM	LT1	LT1
8-15-2023 7:40:00	LT1	LT1
AM		
8-22-2023 8:35:00	LT1	LT1
AM		
8-29-2023 9:10:00	LT1	LT1
AM		
9-5-2023 9:25:00 AM	LT1	LT1
9-12-2023 8:20:00	LT1	LT1
AM		
9-19-2023 10:00:00	LT1	LT1
AM		
9-26-2023 8:20:00	LT1	LT1
AM		
10-3-2023 8:25:00	LT1	LT1
AM		
10-10-2023 8:25:00	LT1	LT1

AM			
10-17-2023 8:50:00	LT1	LT1	
AM			
10-24-2023 8:25:00	LT1	LT1	
AM			
10-31-2023 8:50:00	LT1	LT1	
AM			
11-7-2023 9:20:00	LT1	LT1	
AM			
11-14-2023 8:35:00	LT1	LT1	
AM			
11-17-2023	LT1	LT1	
11-17-2023	LT1	LT1	
11-20-2023 9:20:00	LT1	LT1	
AM			
11-28-2023 9:50:00	LT1	LT1	
AM			
12-5-2023 9:00:00	LT1	LT1	
AM			
12-12-2023 8:40:00	LT1	LT1	
AM			
12-19-2023 8:35:00	<u>LT1</u>	<u>LT1</u>	
AM			
<b>Total Positive:</b>	<b>0</b>	<b>0</b>	<b>0</b>

Well #10, Kawkawa  
Lk Rd

1-24-2023 8:50:00	LT1	LT1	
AM			
2-14-2023 11:30:00	LT1	LT1	
AM			
3-28-2023 9:25:00	LT1	LT1	
AM			
4-4-2023 5:35:00 AM	LT1	LT1	
5-16-2023 10:25:00	LT1	LT1	
AM			
6-13-2023 11:20:00	LT1	LT1	
AM			
7-11-2023 9:25:00	LT1	LT1	
AM			
8-15-2023 9:55:00	LT1	LT1	
AM			
9-12-2023 9:20:00	LT1	LT1	
AM			
10-24-2023 9:25:00	LT1	LT1	
AM			
11-17-2023	LT1	LT1	
11-17-2023	LT1	LT1	
11-20-2023 11:05:00	<u>LT1</u>	<u>LT1</u>	
AM			
<b>Total Positive:</b>	<b>0</b>	<b>0</b>	<b>0</b>

Well #3,



1-31-2023 9:10:00 AM	LT1	LT1	
2-28-2023 10:45:00 AM	LT1	LT1	
3-7-2023 11:35:00 AM	LT1	LT1	
4-11-2023 9:00:00 AM	LT1	LT1	
5-9-2023 9:20:00 AM	LT1	LT1	
7-11-2023 9:30:00 AM	LT1	LT1	
8-8-2023 11:20:00 AM	LT1	LT1	
9-26-2023 9:30:00 AM	LT1	LT1	
10-31-2023 8:05:00 AM	LT1	LT1	
11-14-2023 9:40:00 AM	LT1	LT1	
11-17-2023	LT1	LT1	
11-17-2023	LT1	LT1	
12-5-2023 11:30:00 AM	<u>LT1</u>	<u>LT1</u>	
<b>Total Positive:</b>	<b>0</b>	<b>0</b>	<b>0</b>

Lakeview Cres  
Sampling Port.  
Opposite 21256  
Lakeview Cres

1-3-2023 11:00:00 AM	LT1	LT1	
1-10-2023 11:00:00 AM	LT1	LT1	
1-17-2023 11:05:00 AM	LT1	LT1	
1-24-2023 9:45:00 AM	LT1	LT1	
1-31-2023 10:40:00 AM	LT1	LT1	
2-7-2023 10:40:00 AM	LT1	LT1	
2-14-2023 11:25:00 AM	LT1	LT1	
2-21-2023 10:40:00 AM	LT1	LT1	
2-28-2023 10:30:00 AM	LT1	LT1	
3-7-2023 10:40:00 AM	LT1	LT1	
3-14-2023 10:05:00 AM	LT1	LT1	
3-21-2023 10:20:00 AM	LT1	LT1	
3-28-2023 10:05:00	LT1	LT1	

AM		
4-4-2023 7:30:00 AM	LT1	LT1
4-11-2023 10:05:00	LT1	LT1
AM		
4-18-2023 10:05:00	LT1	LT1
AM		
4-25-2023 10:05:00	LT1	LT1
AM		
5-2-2023 10:50:00	LT1	LT1
AM		
5-9-2023 10:25:00	LT1	LT1
AM		
5-16-2023 10:10:00	LT1	LT1
AM		
5-30-2023 10:05:00	LT1	LT1
AM		
6-13-2023 10:50:00	LT1	LT1
AM		
6-20-2023 10:15:00	2.0	LT1
AM		
6-27-2023 10:45:00	LT1	LT1
AM		
7-4-2023 9:27:00 AM	LT1	LT1
7-11-2023 10:30:00	LT1	LT1
AM		
7-18-2023 10:55:00	LT1	LT1
AM		
7-25-2023 10:45:00	LT1	LT1
AM		
8-1-2023 11:15:00	LT1	LT1
AM		
8-8-2023 11:05:00	LT1	LT1
AM		
8-15-2023 9:30:00	LT1	LT1
AM		
8-29-2023 10:50:00	LT1	LT1
AM		
9-5-2023 10:45:00	LT1	LT1
AM		
9-12-2023 10:30:00	LT1	LT1
AM		
9-19-2023 11:35:00	LT1	LT1
AM		
10-3-2023 10:05:00	LT1	LT1
AM		
10-10-2023 10:15:00	LT1	LT1
AM		
10-17-2023 10:45:00	LT1	LT1
AM		
10-24-2023 10:20:00	2	LT1
AM		
10-31-2023 11:10:00	LT1	LT1
AM		
11-7-2023 10:40:00	LT1	LT1
AM		

11-14-2023 10:40:00 AM	1	1	
11-17-2023	LT1	LT1	
11-17-2023	LT1	LT1	
11-20-2023 10:35:00 AM	LT1	LT1	
11-27-2023 9:02:00 AM	LT1	LT1	
11-28-2023	LT1	LT1	
11-29-2023 9:42:00 AM	LT1	LT1	
12-5-2023 10:50:00 AM	LT1	LT1	
12-12-2023 10:00:00 AM	LT1	LT1	
12-19-2023 10:40:00 AM	<u>LT1</u>	<u>LT1</u>	
<b>Total Positive:</b>	<b>3</b>	<b>1</b>	<b>0</b>

1300 7th ave, 1300  
7th ave

1-3-2023 10:00:00 AM	LT1	LT1	
1-10-2023 9:55:00 AM	LT1	LT1	
1-17-2023 9:55:00 AM	LT1	LT1	
1-24-2023 9:05:00 AM	LT1	LT1	
1-31-2023 9:30:00 AM	LT1	LT1	
2-7-2023 9:40:00 AM	LT1	LT1	
2-14-2023 10:45:00 AM	LT1	LT1	
2-21-2023 9:40:00 AM	LT1	LT1	
2-28-2023 9:45:00 AM	LT1	LT1	
3-7-2023 9:40:00 AM	LT1	LT1	
3-14-2023 9:15:00 AM	LT1	LT1	
3-21-2023 9:25:00 AM	LT1	LT1	
3-28-2023 9:45:00 AM	LT1	LT1	
4-4-2023 5:15:00 AM	LT1	LT1	
4-11-2023 9:15:00 AM	LT1	LT1	
4-18-2023 9:20:00 AM	LT1	LT1	
4-25-2023 9:35:00 AM	LT1	LT1	
5-2-2023 9:20:00 AM	LT1	LT1	
5-9-2023 9:35:00 AM	LT1	LT1	

5-16-2023 9:20:00 AM	LT1	LT1
5-30-2023 9:20:00 AM	LT1	LT1
6-13-2023 9:45:00 AM	LT1	LT1
6-20-2023 9:50:00 AM	LT1	LT1
6-27-2023 11:25:00 AM	LT1	LT1
7-4-2023 9:48:00 AM	LT1	LT1
7-11-2023 9:45:00 AM	LT1	LT1
7-18-2023 11:40:00 AM	LT1	LT1
7-25-2023 9:35:00 AM	LT1	LT1
8-1-2023 9:55:00 AM	LT1	LT1
8-8-2023 9:50:00 AM	LT1	LT1
8-15-2023 8:15:00 AM	LT1	LT1
8-29-2023 11:35:00 AM	LT1	LT1
9-5-2023 9:40:00 AM	LT1	LT1
9-12-2023 9:50:00 AM	LT1	LT1
9-19-2023 10:20:00 AM	LT1	LT1
9-26-2023 9:45:00 AM	LT1	LT1
10-10-2023 9:25:00 AM	LT1	LT1
10-17-2023 10:00:00 AM	LT1	LT1
10-24-2023 9:40:00 AM	LT1	LT1
10-31-2023 8:25:00 AM	LT1	LT1
11-7-2023 9:10:00 AM	LT1	LT1
11-14-2023 10:05:00 AM	LT1	LT1
11-17-2023	LT1	LT1
11-17-2023	LT1	LT1
11-20-2023 9:35:00 AM	LT1	LT1
11-27-2023 9:50:00 AM	LT1	LT1
11-28-2023	LT1	LT1
11-29-2023 9:00:00 AM	LT1	LT1
12-5-2023 9:10:00 AM	LT1	LT1
12-12-2023 8:45:00 AM	LT1	LT1

12-19-2023 9:45:00 AM	<u>LT1</u>	<u>LT1</u>	
<b>Total Positive:</b>	<b>0</b>	<b>0</b>	<b>0</b>

21427 Thacker Mtn  
Rd, 21427 Thacker  
Mtn Rd

4-11-2023 9:25:00 AM	<u>LT1</u>	<u>LT1</u>	
<b>Total Positive:</b>	<b>0</b>	<b>0</b>	<b>0</b>

65573 Dogwood Dr.  
65573 Dogwood Dr

1-3-2023 10:25:00 AM	LT1	LT1	
1-10-2023 10:50:00 AM	LT1	LT1	
1-17-2023 10:40:00 AM	LT1	LT1	
1-31-2023 10:30:00 AM	LT1	LT1	
2-7-2023 10:30:00 AM	LT1	LT1	
2-21-2023 10:15:00 AM	LT1	LT1	
3-7-2023 10:15:00 AM	LT1	LT1	
3-14-2023 9:55:00 AM	LT1	LT1	
3-21-2023 10:10:00 AM	LT1	LT1	
4-4-2023 6:40:00 AM	LT1	LT1	
4-11-2023 9:45:00 AM	LT1	LT1	
4-25-2023 9:55:00 AM	LT1	LT1	
5-2-2023 10:30:00 AM	LT1	LT1	
5-16-2023 9:45:00 AM	LT1	LT1	
5-30-2023 9:55:00 AM	LT1	LT1	
6-13-2023 10:15:00 AM	LT1	LT1	
6-27-2023 9:55:00 AM	LT1	LT1	
7-11-2023 10:20:00 AM	LT1	LT1	
7-18-2023 10:20:00 AM	LT1	LT1	
7-25-2023 10:05:00 AM	LT1	LT1	
8-1-2023 10:30:00	LT1	LT1	

AM			
8-22-2023 10:25:00	LT1	LT1	
AM			
8-29-2023 10:10:00	LT1	LT1	
AM			
9-5-2023 10:10:00	LT1	LT1	
AM			
9-19-2023 10:55:00	LT1	LT1	
AM			
10-3-2023 9:45:00	LT1	LT1	
AM			
10-10-2023 10:00:00	LT1	LT1	
AM			
10-17-2023 10:40:00	1	LT1	
AM			
10-24-2023 10:15:00	LT1	LT1	
AM			
10-31-2023 10:55:00	LT1	LT1	
AM			
11-7-2023 10:10:00	LT1	LT1	
AM			
11-14-2023 10:25:00	LT1	LT1	
AM			
11-17-2023	LT1	LT1	
11-17-2023	LT1	LT1	
11-20-2023 10:05:00	LT1	LT1	
AM			
11-27-2023 9:01:00	LT1	LT1	
AM			
11-28-2023	LT1	LT1	
11-29-2023 9:33:00	LT1	LT1	
AM			
12-5-2023 9:40:00	LT1	LT1	
AM			
12-19-2023 10:25:00	<u>LT1</u>	<u>LT1</u>	
AM			
<b>Total Positive:</b>	<b>1</b>	<b>0</b>	<b>0</b>

21002 Swallow Pl.  
21002 Swallow Pl.  
Hope

1-3-2023 10:25:00	LT1	LT1	
AM			
1-10-2023 10:45:00	LT1	LT1	
AM			
1-17-2023 10:20:00	LT1	LT1	
AM			
1-24-2023 9:30:00	LT1	LT1	
AM			
1-31-2023 9:50:00	LT1	LT1	
AM			
2-7-2023 9:55:00 AM	LT1	LT1	
2-14-2023 11:05:00	LT1	LT1	
AM			

2-21-2023 10:05:00 AM	LT1	LT1
2-28-2023 10:00:00 AM	LT1	LT1
3-7-2023 10:00:00 AM	LT1	LT1
3-14-2023 9:45:00 AM	LT1	LT1
3-21-2023 10:00:00 AM	LT1	LT1
3-28-2023 9:55:00 AM	LT1	LT1
4-4-2023 6:30:00 AM	LT1	LT1
4-11-2023 9:35:00 AM	LT1	LT1
4-18-2023 9:50:00 AM	LT1	LT1
4-25-2023 9:45:00 AM	LT1	LT1
5-2-2023 9:45:00 AM	LT1	LT1
5-9-2023 10:10:00 AM	LT1	LT1
5-16-2023 9:35:00 AM	1.0	LT1
5-30-2023 9:45:00 AM	LT1	LT1
6-6-2023 8:34:00 AM	LT1	LT1
6-13-2023 10:05:00 AM	LT1	LT1
6-20-2023 10:00:00 AM	LT1	LT1
6-27-2023 9:40:00 AM	LT1	LT1
7-4-2023 8:47:00 AM	LT1	LT1
7-11-2023 10:10:00 AM	LT1	LT1
7-18-2023 10:10:00 AM	LT1	LT1
7-25-2023 9:55:00 AM	LT1	LT1
8-1-2023 10:20:00 AM	LT1	LT1
8-8-2023 10:15:00 AM	LT1	LT1
8-15-2023 8:40:00 AM	LT1	LT1
8-22-2023 10:15:00 AM	LT1	LT1
8-29-2023 10:00:00 AM	LT1	LT1
9-5-2023 10:00:00 AM	LT1	LT1
9-12-2023 10:20:00 AM	LT1	LT1
9-19-2023 10:35:00	LT1	LT1

AM			
9-26-2023 10:15:00	LT1	LT1	
AM			
10-3-2023 9:35:00	LT1	LT1	
AM			
10-10-2023 9:45:00	LT1	LT1	
AM			
10-17-2023 10:30:00	LT1	LT1	
AM			
10-24-2023 10:05:00	LT1	LT1	
AM			
10-31-2023 10:50:00	LT1	LT1	
AM			
11-7-2023 9:55:00	LT1	LT1	
AM			
11-14-2023 10:15:00	LT1	LT1	
AM			
11-17-2023	LT1	LT1	
11-17-2023	LT1	LT1	
11-20-2023 9:55:00	LT1	LT1	
AM			
11-27-2023 9:16:00	LT1	LT1	
AM			
11-28-2023	LT1	LT1	
11-29-2023 9:25:00	LT1	LT1	
AM			
12-5-2023 9:25:00	LT1	LT1	
AM			
12-12-2023 9:05:00	LT1	LT1	
AM			
12-19-2023 10:20:00	<u>LT1</u>	<u>LT1</u>	
AM			
<b>Total Positive:</b>	<b>1</b>	<b>0</b>	<b>0</b>

Thacker Mtn  
Sampling Port.  
21407 Thacker Mtn  
Rd

1-3-2023 11:20:00	LT1	LT1	
AM			
1-10-2023 10:30:00	LT1	LT1	
AM			
1-24-2023 9:15:00	LT1	LT1	
AM			
1-31-2023 9:40:00	LT1	LT1	
AM			
2-7-2023 10:55:00	LT1	LT1	
AM			
2-21-2023 11:00:00	LT1	LT1	
AM			
3-7-2023 11:25:00	LT1	LT1	
AM			
3-14-2023 9:35:00	LT1	LT1	
AM			



3-21-2023 9:45:00 AM	LT1	LT1
4-4-2023 6:15:00 AM	LT1	LT1
4-18-2023 9:40:00 AM	LT1	LT1
5-2-2023 9:30:00 AM	LT1	LT1
5-9-2023 10:00:00 AM	LT1	LT1
5-30-2023 9:35:00 AM	LT1	LT1
6-13-2023 11:10:00 AM	LT1	LT1
6-27-2023 11:00:00 AM	LT1	LT1
7-11-2023 9:55:00 AM	LT1	LT1
7-18-2023 11:20:00 AM	LT1	LT1
7-25-2023 11:35:00 AM	LT1	LT1
8-1-2023 11:30:00 AM	LT1	LT1
8-22-2023 10:05:00 AM	LT1	LT1
8-29-2023 11:15:00 AM	LT1	LT1
9-5-2023 11:20:00 AM	LT1	LT1
9-12-2023 10:10:00 AM	LT1	LT1
9-26-2023 10:00:00 AM	LT1	LT1
10-10-2023 9:35:00 AM	LT1	LT1
10-17-2023 10:20:00 AM	LT1	LT1
10-24-2023 9:50:00 AM	LT1	LT1
10-31-2023 10:35:00 AM	LT1	LT1
11-7-2023 9:35:00 AM	1	1
11-17-2023	LT1	LT1
11-17-2023	LT1	LT1
11-20-2023 10:55:00 AM	LT1	LT1
11-27-2023 9:32:00 AM	LT1	LT1
11-28-2023	LT1	LT1
11-29-2023 9:55:00 AM	LT1	LT1
12-5-2023 11:00:00 AM	LT1	LT1
12-19-2023 10:05:00 AM	<u>LT1</u>	<u>LT1</u>

**Total Positive:**                      1                      1                      0

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**Result Values:**                      E - estimated                      L - less than                      G - greater than

Samples that contain total coliform:	10		2.04% of total
Samples that contain e. coli:	2		0.41% of total
Samples that contain fecal coliform:	0		0.00% of total
Number of consecutive samples that contain total coliform:	0		
Number of samples that contain total coliform in last 30 days:	0/0		
Total number of samples:	490		

**Comments:**

\_\_\_\_\_  
Environmental Health Officer  
Feb 7 2024

FOR FURTHER INFORMATION PLEASE CALL: Jessica Hibbs (604) 870-7900



**CERTIFICATE OF ANALYSIS**

**Work Order** : **VA22A6250**  
**Client** : **District of Hope**  
**Contact** : Steve Glasson  
**Address** : 1225 Nelson Ave PO Box 609  
Hope BC Canada V0X 1L0  
**Telephone** : ----  
**Project** : ----  
**PO** : 3064  
**C-O-C number** : 20-996930  
**Sampler** : Scott Blake  
**Site** : ----  
**Quote number** : Potable Water  
**No. of samples received** : 4  
**No. of samples analysed** : 4

**Page** : 1 of 4  
**Laboratory** : Vancouver - Environmental  
**Account Manager** : Sneha Sansare  
**Address** : 8081 Lougheed Highway  
Burnaby BC Canada V5A 1W9  
**Telephone** : +1 604 253 4188  
**Date Samples Received** : 25-Mar-2022 14:34  
**Date Analysis Commenced** : 27-Mar-2022  
**Issue Date** : 11-Apr-2022 17:07

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

**Signatories**

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia



## General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances  
LOR: Limit of Reporting (detection limit).

<i>Unit</i>	<i>Description</i>
CU	colour units (1 CU = 1 mg/L Pt)
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

## Qualifiers

<i>Qualifier</i>	<i>Description</i>
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.



## Analytical Results

Sub-Matrix: Drinking Water  
 (Matrix: Water)

Client sample ID

					Silver Cr Water System	District of Hope Water System	LOTW Water System	East Kawkawa Lake Water System	----
Client sampling date / time					24-Mar-2022	24-Mar-2022	24-Mar-2022	24-Mar-2022	----
Analyte	CAS Number	Method	LOR	Unit	VA22A6250-001	VA22A6250-002	VA22A6250-003	VA22A6250-004	-----
					Result	Result	Result	Result	----
<b>Physical Tests</b>									
colour, true	----	E329	5.0	CU	<5.0	<5.0	<5.0	<5.0	----
hardness (as CaCO3), from total Ca/Mg	----	EC100A	0.60	mg/L	56.9	73.2	47.5	56.3	----
pH	----	E108	0.10	pH units	7.74	7.75	7.61	7.65	----
turbidity	----	E121	0.10	NTU	<0.10	<0.10	0.11	<0.10	----
<b>Anions and Nutrients</b>									
fluoride	16984-48-8	E235.F	0.020	mg/L	<0.100 <sup>DLDS</sup>	<0.100 <sup>DLDS</sup>	<0.100 <sup>DLDS</sup>	<0.100 <sup>DLDS</sup>	----
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.954	0.858	0.205	0.371	----
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0050 <sup>DLDS</sup>	<0.0050 <sup>DLDS</sup>	<0.0050 <sup>DLDS</sup>	<0.0050 <sup>DLDS</sup>	----
<b>Total Metals</b>									
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0056	<0.0030	<0.0030	<0.0030	----
antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00132	0.00037	0.00021	<0.00010	----
barium, total	7440-39-3	E420	0.00010	mg/L	0.0163	0.0127	0.0326	0.0302	----
beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	<0.000100	<0.000100	----
bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
boron, total	7440-42-8	E420	0.010	mg/L	<0.010	0.010	<0.010	<0.010	----
cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	0.0000062	<0.0000050	0.0000063	----
calcium, total	7440-70-2	E420	0.050	mg/L	16.6	22.0	13.1	16.4	----
cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0.000010	<0.000010	----
chromium, total	7440-47-3	E420	0.00050	mg/L	0.00282	0.00095	<0.00050	0.00126	----
cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----
copper, total	7440-50-8	E420	0.00050	mg/L	0.0124	0.00137	0.00516	0.00703	----
iron, total	7439-89-6	E420	0.010	mg/L	0.162	<0.010	0.017	<0.010	----
lead, total	7439-92-1	E420	0.000050	mg/L	0.00124	0.000103	0.000123	0.000546	----
lithium, total	7439-93-2	E420	0.0010	mg/L	0.0016	<0.0010	<0.0010	<0.0010	----
magnesium, total	7439-95-4	E420	0.0050	mg/L	3.75	4.45	3.59	3.73	----
manganese, total	7439-96-5	E420	0.00010	mg/L	0.00098	0.00065	0.00220	0.00011	----
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000959	0.000625	0.000178	0.000494	----
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00071	----



## Analytical Results

Sub-Matrix: Drinking Water

(Matrix: Water)

					Client sample ID	Silver Cr Water System	District of Hope Water System	LOTW Water System	East Kawkawa Lake Water System	----
					Client sampling date / time	24-Mar-2022	24-Mar-2022	24-Mar-2022	24-Mar-2022	----
Analyte	CAS Number	Method	LOR	Unit	VA22A6250-001	VA22A6250-002	VA22A6250-003	VA22A6250-004	-----	----
					Result	Result	Result	Result	-----	----
<b>Total Metals</b>										
phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	----
potassium, total	7440-09-7	E420	0.050	mg/L	1.38	1.06	0.438	1.61	1.61	----
rubidium, total	7440-17-7	E420	0.00020	mg/L	<0.00020	<0.00020	0.00088	<0.00020	<0.00020	----
selenium, total	7782-49-2	E420	0.000050	mg/L	0.000231	0.000312	0.000095	0.000368	0.000368	----
silicon, total	7440-21-3	E420	0.10	mg/L	7.49	6.85	3.13	7.41	7.41	----
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	----
sodium, total	7440-23-5	E420	0.050	mg/L	3.90	5.14	5.15	2.16	2.16	----
strontium, total	7440-24-6	E420	0.00020	mg/L	0.0754	0.0939	0.0741	0.0802	0.0802	----
sulfur, total	7704-34-9	E420	0.50	mg/L	1.73	2.95	1.58	2.88	2.88	----
tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	----
thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	----
thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	----
tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	----
titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	----
tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	----
uranium, total	7440-61-1	E420	0.000010	mg/L	0.000093	0.000086	<0.000010	0.000148	0.000148	----
vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00065	0.00054	<0.00050	<0.00050	<0.00050	----
zinc, total	7440-66-6	E420	0.0030	mg/L	0.0136	0.0190	0.0077	0.0056	0.0056	----
zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

## QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: <b>VA22A6250</b>	Page	: 1 of 8
Client	: <b>District of Hope</b>	Laboratory	: Vancouver - Environmental
Contact	: Steve Glasson	Account Manager	: Sneha Sansare
Address	: 1225 Nelson Ave PO Box 609 Hope BC Canada V0X 1L0	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 25-Mar-2022 14:34
PO	: 3064	Issue Date	: 11-Apr-2022 17:07
C-O-C number	: 20-996930		
Sampler	: Scott Blake		
Site	: ----		
Quote number	: Potable Water		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

### Key

- Anonymous:** Refers to samples which are not part of this work order, but which formed part of the QC process lot.  
**CAS Number:** Chemical Abstracts Services number is a unique identifier assigned to discrete substances.  
**DQO:** Data Quality Objective.  
**LOR:** Limit of Reporting (detection limit).  
**RPD:** Relative Percent Difference.

### **Workorder Comments**

Holding times are displayed as "----" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

### **Summary of Outliers**

#### **Outliers : Quality Control Samples**

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

#### **Outliers: Reference Material (RM) Samples**

- No Reference Material (RM) Sample outliers occur.

#### **Outliers : Analysis Holding Time Compliance (Breaches)**

- Analysis Holding Time Outliers exist - please see following pages for full details.

## ***Outliers : Frequency of Quality Control Samples***

- No Quality Control Sample Frequency Outliers occur.





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE District of Hope Water System	E235.F	24-Mar-2022	----	----	----		28-Mar-2022	28 days	5 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE East Kawkawa Lake Water System	E235.F	24-Mar-2022	----	----	----		28-Mar-2022	28 days	5 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE LOTW Water System	E235.F	24-Mar-2022	----	----	----		28-Mar-2022	28 days	5 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE Silver Cr Water System	E235.F	24-Mar-2022	----	----	----		28-Mar-2022	28 days	5 days	✓
<b>Anions and Nutrients : Nitrate in Water by IC (Low Level)</b>										
HDPE District of Hope Water System	E235.NO3-L	24-Mar-2022	----	----	----		28-Mar-2022	3 days	5 days	* EHT
<b>Anions and Nutrients : Nitrate in Water by IC (Low Level)</b>										
HDPE East Kawkawa Lake Water System	E235.NO3-L	24-Mar-2022	----	----	----		28-Mar-2022	3 days	5 days	* EHT
<b>Anions and Nutrients : Nitrate in Water by IC (Low Level)</b>										
HDPE LOTW Water System	E235.NO3-L	24-Mar-2022	----	----	----		28-Mar-2022	3 days	5 days	* EHT



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Anions and Nutrients : Nitrate in Water by IC (Low Level)</b>											
<b>HDPE</b> Silver Cr Water System	E235.NO3-L	24-Mar-2022	----	----	----		28-Mar-2022	3 days	5 days	*	EHT
<b>Anions and Nutrients : Nitrite in Water by IC (Low Level)</b>											
<b>HDPE</b> District of Hope Water System	E235.NO2-L	24-Mar-2022	----	----	----		28-Mar-2022	3 days	5 days	*	EHT
<b>Anions and Nutrients : Nitrite in Water by IC (Low Level)</b>											
<b>HDPE</b> East Kawkawa Lake Water System	E235.NO2-L	24-Mar-2022	----	----	----		28-Mar-2022	3 days	5 days	*	EHT
<b>Anions and Nutrients : Nitrite in Water by IC (Low Level)</b>											
<b>HDPE</b> LOTW Water System	E235.NO2-L	24-Mar-2022	----	----	----		28-Mar-2022	3 days	5 days	*	EHT
<b>Anions and Nutrients : Nitrite in Water by IC (Low Level)</b>											
<b>HDPE</b> Silver Cr Water System	E235.NO2-L	24-Mar-2022	----	----	----		28-Mar-2022	3 days	5 days	*	EHT
<b>Physical Tests : Colour (True) by Spectrometer</b>											
<b>HDPE</b> District of Hope Water System	E329	24-Mar-2022	----	----	----		27-Mar-2022	3 days	4 days	✓	
<b>Physical Tests : Colour (True) by Spectrometer</b>											
<b>HDPE</b> East Kawkawa Lake Water System	E329	24-Mar-2022	----	----	----		27-Mar-2022	3 days	4 days	✓	
<b>Physical Tests : Colour (True) by Spectrometer</b>											
<b>HDPE</b> LOTW Water System	E329	24-Mar-2022	----	----	----		27-Mar-2022	3 days	4 days	✓	
<b>Physical Tests : Colour (True) by Spectrometer</b>											
<b>HDPE</b> Silver Cr Water System	E329	24-Mar-2022	----	----	----		27-Mar-2022	3 days	4 days	✓	



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Physical Tests : pH by Meter</b>											
HDPE District of Hope Water System	E108	24-Mar-2022	----	----	----		28-Mar-2022	0.25 hrs	102 hrs	*	EHTR-FM
<b>Physical Tests : pH by Meter</b>											
HDPE East Kawkawa Lake Water System	E108	24-Mar-2022	----	----	----		28-Mar-2022	0.25 hrs	102 hrs	*	EHTR-FM
<b>Physical Tests : pH by Meter</b>											
HDPE LOTW Water System	E108	24-Mar-2022	----	----	----		28-Mar-2022	0.25 hrs	102 hrs	*	EHTR-FM
<b>Physical Tests : pH by Meter</b>											
HDPE Silver Cr Water System	E108	24-Mar-2022	----	----	----		28-Mar-2022	0.25 hrs	102 hrs	*	EHTR-FM
<b>Physical Tests : Turbidity by Nephelometry</b>											
HDPE District of Hope Water System	E121	24-Mar-2022	----	----	----		28-Mar-2022	3 days	4 days	*	EHT
<b>Physical Tests : Turbidity by Nephelometry</b>											
HDPE East Kawkawa Lake Water System	E121	24-Mar-2022	----	----	----		28-Mar-2022	3 days	4 days	*	EHT
<b>Physical Tests : Turbidity by Nephelometry</b>											
HDPE LOTW Water System	E121	24-Mar-2022	----	----	----		28-Mar-2022	3 days	4 days	*	EHT
<b>Physical Tests : Turbidity by Nephelometry</b>											
HDPE Silver Cr Water System	E121	24-Mar-2022	----	----	----		28-Mar-2022	3 days	4 days	*	EHT
<b>Total Metals : Total Mercury in Water by CVAAS</b>											
Glass vial total (hydrochloric acid) District of Hope Water System	E508	24-Mar-2022	----	----	----		29-Mar-2022	28 days	6 days	✓	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Total Metals : Total Mercury in Water by CVAAS</b>											
<b>Glass vial total (hydrochloric acid)</b> East Kawkawa Lake Water System	E508	24-Mar-2022	----	----	----		29-Mar-2022	28 days	6 days	✔	
<b>Total Metals : Total Mercury in Water by CVAAS</b>											
<b>Glass vial total (hydrochloric acid)</b> LOTW Water System	E508	24-Mar-2022	----	----	----		29-Mar-2022	28 days	6 days	✔	
<b>Total Metals : Total Mercury in Water by CVAAS</b>											
<b>Glass vial total (hydrochloric acid)</b> Silver Cr Water System	E508	24-Mar-2022	----	----	----		29-Mar-2022	28 days	6 days	✔	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
<b>HDPE total (nitric acid)</b> District of Hope Water System	E420	24-Mar-2022	----	----	----		09-Apr-2022	180 days	16 days	✔	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
<b>HDPE total (nitric acid)</b> East Kawkawa Lake Water System	E420	24-Mar-2022	----	----	----		09-Apr-2022	180 days	16 days	✔	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
<b>HDPE total (nitric acid)</b> LOTW Water System	E420	24-Mar-2022	----	----	----		09-Apr-2022	180 days	16 days	✔	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
<b>HDPE total (nitric acid)</b> Silver Cr Water System	E420	24-Mar-2022	----	----	----		09-Apr-2022	180 days	16 days	✔	

**Legend & Qualifier Definitions**

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended  
 EHT: Exceeded ALS recommended hold time prior to analysis.  
 Rec. HT: ALS recommended hold time (see units).



## Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water** Evaluation: \* = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		Evaluation
			QC	Regular	Actual	Expected	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Colour (True) by Spectrometer	E329	443601	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	443594	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	443597	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	443598	1	20	5.0	5.0	✓
pH by Meter	E108	443591	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	445260	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	454220	1	19	5.2	5.0	✓
Turbidity by Nephelometry	E121	444208	1	20	5.0	5.0	✓
<b>Laboratory Control Samples (LCS)</b>							
Colour (True) by Spectrometer	E329	443601	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	443594	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	443597	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	443598	1	20	5.0	5.0	✓
pH by Meter	E108	443591	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	445260	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	454220	1	19	5.2	5.0	✓
Turbidity by Nephelometry	E121	444208	1	20	5.0	5.0	✓
<b>Method Blanks (MB)</b>							
Colour (True) by Spectrometer	E329	443601	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	443594	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	443597	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	443598	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	445260	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	454220	1	19	5.2	5.0	✓
Turbidity by Nephelometry	E121	444208	1	20	5.0	5.0	✓
<b>Matrix Spikes (MS)</b>							
Fluoride in Water by IC	E235.F	443594	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	443597	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	443598	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	445260	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	454220	1	19	5.2	5.0	✓



## Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter	E108 Vancouver - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
Fluoride in Water by IC	E235.F Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Colour (True) by Spectrometer	E329 Vancouver - Environmental	Water	APHA 2120 C (mod)	Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
Total Metals in Water by CRC ICPMS	E420 Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS.  Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 Vancouver - Environmental	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Hardness (Calculated) from Total Ca/Mg	EC100A Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO <sub>3</sub> ), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

## QUALITY CONTROL REPORT

**Work Order** : **VA22A6250**

**Page** : 1 of 10

**Client** : District of Hope  
**Contact** : Steve Glasson  
**Address** : 1225 Nelson Ave PO Box 609  
                   Hope BC Canada V0X 1L0  
**Telephone** : ----  
**Project** : ----  
**PO** : 3064  
**C-O-C number** : 20-996930  
**Sampler** : Scott Blake  
**Site** : ----  
**Quote number** : Potable Water  
**No. of samples received** : 4  
**No. of samples analysed** : 4

**Laboratory** : Vancouver - Environmental  
**Account Manager** : Sneha Sansare  
**Address** : 8081 Lougheed Highway  
                   Burnaby, British Columbia Canada V5A 1W9  
**Telephone** : +1 604 253 4188  
**Date Samples Received** : 25-Mar-2022 14:34  
**Date Analysis Commenced** : 27-Mar-2022  
**Issue Date** : 11-Apr-2022 17:07

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

### *Signatories*

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia

Page : 2 of 10  
Work Order : VA22A6250  
Client : District of Hope  
Project : ----



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## General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percentage Difference

# = Indicates a QC result that did not meet the ALS DQO.

## Workorder Comments

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Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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### Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Physical Tests (QC Lot: 443591)</b>											
FJ2200755-001	Anonymous	pH	----	E108	0.10	pH units	8.11	8.12	0.123%	4%	----
<b>Physical Tests (QC Lot: 443601)</b>											
FJ2200756-001	Anonymous	colour, true	----	E329	5.0	CU	9.8	9.8	0.02	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 444208)</b>											
VA22A6245-001	Anonymous	turbidity	----	E121	0.10	NTU	0.26	0.25	0.009	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 443594)</b>											
FJ2200755-001	Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	0.080	0.080	0.0006	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 443597)</b>											
FJ2200755-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.483	0.483	0.0180%	20%	----
<b>Anions and Nutrients (QC Lot: 443598)</b>											
FJ2200755-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
<b>Total Metals (QC Lot: 445260)</b>											
CG2203433-001	Anonymous	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
<b>Total Metals (QC Lot: 454220)</b>											
CG2203725-009	Anonymous	aluminum, total	7429-90-5	E420	0.0060	mg/L	<0.0060	<0.0060	0	Diff <2x LOR	----
		antimony, total	7440-36-0	E420	0.00020	mg/L	0.00040	0.00038	0.00002	Diff <2x LOR	----
		arsenic, total	7440-38-2	E420	0.00020	mg/L	0.00058	0.00055	0.00003	Diff <2x LOR	----
		barium, total	7440-39-3	E420	0.00020	mg/L	0.0115	0.0112	2.67%	20%	----
		beryllium, total	7440-41-7	E420	0.000040	mg/L	<0.000040	<0.000040	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		boron, total	7440-42-8	E420	0.020	mg/L	0.034	0.032	0.002	Diff <2x LOR	----
		cadmium, total	7440-43-9	E420	0.0000100	mg/L	0.000594	0.000577	2.93%	20%	----
		calcium, total	7440-70-2	E420	0.100	mg/L	267	258	3.50%	20%	----
		cesium, total	7440-46-2	E420	0.000020	mg/L	0.000057	0.000062	0.000005	Diff <2x LOR	----
		chromium, total	7440-47-3	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E420	0.00020	mg/L	0.0137	0.0134	2.44%	20%	----
		copper, total	7440-50-8	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		iron, total	7439-89-6	E420	0.020	mg/L	0.318	0.314	1.15%	20%	----
		lead, total	7439-92-1	E420	0.000100	mg/L	0.000115	0.000112	0.000003	Diff <2x LOR	----
		lithium, total	7439-93-2	E420	0.0020	mg/L	0.0667	0.0669	0.392%	20%	----
		magnesium, total	7439-95-4	E420	0.0100	mg/L	171	170	0.795%	20%	----



Sub-Matrix: **Water**

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Total Metals (QC Lot: 454220) - continued</b>											
CG2203725-009	Anonymous	manganese, total	7439-96-5	E420	0.00020	mg/L	0.368	0.362	1.66%	20%	----
		molybdenum, total	7439-98-7	E420	0.000100	mg/L	0.0173	0.0165	4.51%	20%	----
		nickel, total	7440-02-0	E420	0.00100	mg/L	0.0529	0.0524	0.908%	20%	----
		phosphorus, total	7723-14-0	E420	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		potassium, total	7440-09-7	E420	0.100	mg/L	5.06	4.97	1.75%	20%	----
		rubidium, total	7440-17-7	E420	0.00040	mg/L	0.00499	0.00468	6.39%	20%	----
		selenium, total	7782-49-2	E420	0.100	mg/L	3.30 µg/L	0.00348	5.22%	20%	----
		silicon, total	7440-21-3	E420	0.20	mg/L	3.30	3.21	2.59%	20%	----
		silver, total	7440-22-4	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		sodium, total	7440-23-5	E420	0.100	mg/L	7.69	7.71	0.321%	20%	----
		strontium, total	7440-24-6	E420	0.00040	mg/L	0.409	0.391	4.53%	20%	----
		sulfur, total	7704-34-9	E420	1.00	mg/L	317	312	1.49%	20%	----
		tellurium, total	13494-80-9	E420	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		thallium, total	7440-28-0	E420	0.000020	mg/L	0.000099	0.000092	0.000007	Diff <2x LOR	----
		thorium, total	7440-29-1	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		tin, total	7440-31-5	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		titanium, total	7440-32-6	E420	0.00060	mg/L	<0.00060	<0.00060	0	Diff <2x LOR	----
		tungsten, total	7440-33-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		uranium, total	7440-61-1	E420	0.000020	mg/L	0.0121	0.0117	3.50%	20%	----
		vanadium, total	7440-62-2	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		zinc, total	7440-66-6	E420	0.0060	mg/L	0.0222	0.0217	0.0005	Diff <2x LOR	----
		zirconium, total	7440-67-7	E420	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----



## Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Physical Tests (QCLot: 443601)</b>						
colour, true	----	E329	5	CU	<5.0	----
<b>Physical Tests (QCLot: 444208)</b>						
turbidity	----	E121	0.1	NTU	<0.10	----
<b>Anions and Nutrients (QCLot: 443594)</b>						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
<b>Anions and Nutrients (QCLot: 443597)</b>						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
<b>Anions and Nutrients (QCLot: 443598)</b>						
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
<b>Total Metals (QCLot: 445260)</b>						
mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
<b>Total Metals (QCLot: 454220)</b>						
aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 454220) - continued</b>						
potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----



## Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
<b>Physical Tests (QCLot: 443591)</b>									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
<b>Physical Tests (QCLot: 443601)</b>									
colour, true	----	E329	5	CU	100 CU	100	85.0	115	----
<b>Physical Tests (QCLot: 444208)</b>									
turbidity	----	E121	0.1	NTU	200 NTU	96.5	85.0	115	----
<b>Anions and Nutrients (QCLot: 443594)</b>									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
<b>Anions and Nutrients (QCLot: 443597)</b>									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	103	90.0	110	----
<b>Anions and Nutrients (QCLot: 443598)</b>									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	103	90.0	110	----
<b>Total Metals (QCLot: 445260)</b>									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	96.3	80.0	120	----
<b>Total Metals (QCLot: 454220)</b>									
aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	101	80.0	120	----
antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	109	80.0	120	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	98.9	80.0	120	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	98.1	80.0	120	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	105	80.0	120	----
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	99.1	80.0	120	----
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	104	80.0	120	----
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	105	80.0	120	----
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	98.1	80.0	120	----
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	----
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
<b>Total Metals (QCLot: 454220) - continued</b>									
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	110	80.0	120	----
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	99.8	80.0	120	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	103	80.0	120	----
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	103	80.0	120	----
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	112	80.0	120	----
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	101	80.0	120	----
sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	108	80.0	120	----
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	104	80.0	120	----
tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	99.5	80.0	120	----
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	106	80.0	120	----
thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	100	80.0	120	----
tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	107	80.0	120	----
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	106	80.0	120	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	101	80.0	120	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	----



### Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
<b>Anions and Nutrients (QCLot: 443594)</b>										
FJ2200755-002	Anonymous	fluoride	16984-48-8	E235.F	10.1 mg/L	10 mg/L	101	75.0	125	----
<b>Anions and Nutrients (QCLot: 443597)</b>										
FJ2200755-002	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	25.2 mg/L	25 mg/L	101	75.0	125	----
<b>Anions and Nutrients (QCLot: 443598)</b>										
FJ2200755-002	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	5.13 mg/L	5 mg/L	103	75.0	125	----
<b>Total Metals (QCLot: 445260)</b>										
CG2203433-002	Anonymous	mercury, total	7439-97-6	E508	0.0000985 mg/L	0.0001 mg/L	98.5	70.0	130	----
<b>Total Metals (QCLot: 454220)</b>										
KS2201067-001	Anonymous	aluminum, total	7429-90-5	E420	ND mg/L	0.2 mg/L	ND	70.0	130	----
		antimony, total	7440-36-0	E420	0.0210 mg/L	0.02 mg/L	105	70.0	130	----
		arsenic, total	7440-38-2	E420	0.0200 mg/L	0.02 mg/L	99.9	70.0	130	----
		barium, total	7440-39-3	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		beryllium, total	7440-41-7	E420	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		bismuth, total	7440-69-9	E420	0.00912 mg/L	0.01 mg/L	91.2	70.0	130	----
		boron, total	7440-42-8	E420	0.089 mg/L	0.1 mg/L	88.6	70.0	130	----
		cadmium, total	7440-43-9	E420	0.00384 mg/L	0.004 mg/L	96.0	70.0	130	----
		calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		cesium, total	7440-46-2	E420	0.0103 mg/L	0.01 mg/L	103	70.0	130	----
		chromium, total	7440-47-3	E420	0.0388 mg/L	0.04 mg/L	97.0	70.0	130	----
		cobalt, total	7440-48-4	E420	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	----
		copper, total	7440-50-8	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		iron, total	7439-89-6	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		lead, total	7439-92-1	E420	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		lithium, total	7439-93-2	E420	0.0907 mg/L	0.1 mg/L	90.7	70.0	130	----
		magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		molybdenum, total	7439-98-7	E420	0.0212 mg/L	0.02 mg/L	106	70.0	130	----
		nickel, total	7440-02-0	E420	0.0364 mg/L	0.04 mg/L	91.1	70.0	130	----
		phosphorus, total	7723-14-0	E420	9.89 mg/L	10 mg/L	98.9	70.0	130	----
		potassium, total	7440-09-7	E420	ND mg/L	4 mg/L	ND	70.0	130	----



Sub-Matrix: **Water**

					<i>Matrix Spike (MS) Report</i>					
					<i>Spike</i>		<i>Recovery (%)</i>	<i>Recovery Limits (%)</i>		
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Analyte</i>	<i>CAS Number</i>	<i>Method</i>	<i>Concentration</i>	<i>Target</i>	<i>MS</i>	<i>Low</i>	<i>High</i>	<i>Qualifier</i>
<b>Total Metals (QCLot: 454220) - continued</b>										
KS2201067-001	Anonymous	rubidium, total	7440-17-7	E420	0.0195 mg/L	0.02 mg/L	97.6	70.0	130	----
		selenium, total	7782-49-2	E420	0.0398 mg/L	0.04 mg/L	99.4	70.0	130	----
		silicon, total	7440-21-3	E420	ND mg/L	10 mg/L	ND	70.0	130	----
		silver, total	7440-22-4	E420	0.00419 mg/L	0.004 mg/L	105	70.0	130	----
		sodium, total	7440-23-5	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E420	ND mg/L	20 mg/L	ND	70.0	130	----
		tellurium, total	13494-80-9	E420	0.0391 mg/L	0.04 mg/L	97.8	70.0	130	----
		thallium, total	7440-28-0	E420	0.00381 mg/L	0.004 mg/L	95.3	70.0	130	----
		thorium, total	7440-29-1	E420	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		tin, total	7440-31-5	E420	0.0196 mg/L	0.02 mg/L	97.8	70.0	130	----
		titanium, total	7440-32-6	E420	ND mg/L	0.04 mg/L	ND	70.0	130	----
		tungsten, total	7440-33-7	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		uranium, total	7440-61-1	E420	ND mg/L	0.004 mg/L	ND	70.0	130	----
		vanadium, total	7440-62-2	E420	0.0984 mg/L	0.1 mg/L	98.4	70.0	130	----
		zinc, total	7440-66-6	E420	0.369 mg/L	0.4 mg/L	92.4	70.0	130	----
		zirconium, total	7440-67-7	E420	0.0409 mg/L	0.04 mg/L	102	70.0	130	----





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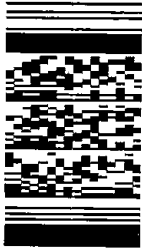
Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

COC Number: 20 - 996930

Page of

Environmental Division  
Vancouver  
Work Order Reference  
VA22A6250



Telephone: +1 604 253 4188

Report To Contact and company name below will appear on the final report.		Reports / Recipients		Turnaround Time (TAT) Requested	
Company: DISTRICT OF HOPE	Select Report Format: <input type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> BDD (DIGITAL)	Merge COC/COC: Reports with COA <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A		<input checked="" type="checkbox"/> Routine (R) if received by 3pm M-F - no surcharges apply	
Contact: STEVE GLASSON	<input type="checkbox"/> Compare Results to Criteria on Report - provide details below. If box checked	Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		<input type="checkbox"/> 4 day (P4) if received by 3pm M-F - 20% rush surcharge minimum	
Phone: 604-860-9527	Company address below will appear on the final report	Email 1 or Fax: B. STARK & SONS . CA		<input type="checkbox"/> 3 day (P3) if received by 3pm M-F - 25% rush surcharge minimum	
Street: 1225 NELSON AVE		Email 2: S. GLASSON & SONS . CA		<input type="checkbox"/> 2 day (P2) if received by 3pm M-F - 50% rush surcharge minimum	
City/Province: HOPE BC		Email 3: T. FOSTER & SONS . CA		<input type="checkbox"/> 1 day (E) if received by 3pm M-F - 100% rush surcharge minimum	
Postal Code: V0X 1L0		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		<input type="checkbox"/> Same Day (E2) if received by 10am M-S - 200% rush surcharge. Addit may apply for rush requests on weekends, statutory holidays and non-ro	
Invoice To: Same as Report To		Invoice Recipients		Date and Time Required for all ERP TATs:	
Copy of Invoice with Report		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		For all tests with rush TATs requested, please c	
Company:		Email 1 or Fax: B. STARK & SONS . CA		Analysis Re	
Contact:		Email 2: S. GLASSON & SONS . CA		Indicate Filtered (F), Preserved (P) or Filtered ar	
Project Information					
ALS Account # / Quote #:		Oil and Gas Required Fields (client use)		NUMBER OF CONTAINERS	
Job #: 3064		AFCost Center:		FORM METERS	
PO / AFE: 3064		Major/Minor Code:		PH WARDNESS	
LSD:		Requisitioner:		TOBILITY/COLOR	
		Location:		FORM METERS	
ALS Lab Work Order # (ALS use only): A6250		ALS Contact:		FORM METERS	
ALS Sample # (ALS use only):	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	SUSPECTED HAZARD (see ne	
	SILVER CR WATER SYSTEM	24/03/00		EXTENDED STORAGE REQUI	
	DISTRICT OF HOPE WATER SYSTEM	24/03/00		SAMPLES ON HOLD	
	LOTUS WATER SYSTEM	24/03/00			
	EAST KAWAWA LAKE WATER SYSTEM	24/03/00			
<p>SCOTT          1 - EXTRA 200ml BOTTLE SAMPLE          FROM EPCC SYSTEM TO BE          COLLECTED &amp; LABELLED.          NOTE ON THE LABEL EXTRA          SAMPLE TAKEN FOR LAB          IN CASE JUES RESERVE IT.</p>					
Drinking Water (DW) Samples (client use)		SAMPLE RECEIPT DETAILS (ALS use only)			
Are samples taken from a Regulated DW System?		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
Are samples for human consumption/ use?		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
SHIPMENT RELEASE (client use)		RELEASED BY: SCOTT BLAKE MAR 24			
Date:		Date: 3/25			
Time:		Time: 29			
FINAL SHIPMENT RECEPTION (ALS use only)		Date: 3/25			
Time:		Time: 29			

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