ANNUAL WATER REPORT

2023

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INTRODUCTION

The District of Barriere is working to continually improve the water system and public awareness to meet the changing needs of our community.

Water safety is of the utmost importance to the District of Barriere. The supply of good, clean drinking water has been taken for granted by the general public in Canada until events such as the Walkerton E. Coli outbreak brought the safety of the water supply into the public eye.

This report has been submitted to Interior Health and is posted on the District of Barriere website: www.barriere.ca

We are dedicated to providing safe, clean water to the residents of Barriere as indicated in the following report.

WATER UTILITY OBJECTIVES

- To ensure adequate supply of high-quality water to the community.
- To effectively treat the raw water to provide potable water of integrity to the community.
- To ensure the adequate delivery of high-quality potable water to all points within the system for domestic and emergency purposes.
- To ensure effective management of all water system aspects and provide excellent customer service and information to the community.
- To manage water demand by effectively assessing and managing water losses from leakage in the system.
- To develop an effective water conservation program for operations and the wider community.
- To maintain water rates that encourage conservation and resource awareness while providing quality accessible water to consumers.

PROVINCIAL REQUIREMENTS

All drinking water in the water system must meet the Canadian Guidelines for Drinking Water Quality. In British Columbia, the Ministry of Health regulates water suppliers through the Drinking Water Protection Act. This legislation ensures safe drinking water in the Province. It requires that the water supplier monitor the drinking water source and distribution system to ensure compliance with the Drinking Water Protection regulations and report all results to the Health Authority. Water monitoring, inspection and testing, emergency response planning, cross connection control and security standards are all regulated for persons operating a water system.

Changes in water systems must be approved by the Interior Health Authority (IHA), and conform to the District's specifications.

Under the *BC Water Act*, the District must acquire licenses for withdrawal from water bodies.

Under the *Community Charter*, the District may, by bylaw, regulate, prohibit, and impose requirements in relation to municipal service and public health. The District must make reports available to the public on request regarding fees imposed under this section.

SUPPLY SOURCES

Photo by Ellen Monteith

The District of Barriere's potable water system is supplied by a system of three wells, one being constructed during the 1990s, the second in 2019 and the third most recently in 2022. All three wells are in the northeast quadrant of the community, adjacent to the Barriere River. Two deep wells (DW2 & DW3) are located at the north end of Spruce Crescent, and a third production well (PW1), is located on Bradford Road. The wells are summarized in Table 3.1 below. The location of these wells can be seen on the overall water system plan on the following page.

Table 3.1: Barriere's Supply Wells

Well	Year Built	Pumping Capacity (L/s)	Approximate Depth (m)	Known Issues Or Concerns
PW1 Bradford Park	2019	20	91	High Iron, Manganese
DW2 Spruce Crescent	1997	44	35	Increasing evidence of iron and manganese - limited lifespan
DW3 Spruce Crescent	2022	32	45	Manganese periodically found over the Aesthetic Objectives.

WATER TREATMENT

The well water is injected with a chlorine solution at the pump stations such that it contains an approximate free residual chlorine concentration of 1.0 mg/L adjacent to the pump stations and has been measured to 0.8 mg/L at the more remote parts of the system.
In terms of the Interior Health Authority requirements, this treatment is satisfactory in a ground water source that is not under the influence of surface water, as these types of supply are given credit for filtration. Referencing the 4-3-2-1-0 requirements, the chlorine addresses the 4 and the 0, while the fact that the Spruce Well supply is a non-GWUDI well appears to be protected by a confining layer and addresses points 3, 2, and 1.

RESERVOIR STORAGE

The North reservoir is a rectangular concrete tank with sloping sides and a capacity of 1,540m^3 (406,560 USG). It is located at the north end of the community adjacent to Barriere Lakes Road and has a free water level of 451 meters. A 350mm diameter supply main connects the reservoir with the rest of the system at the intersection of Lodgepole Road and Barriere Lakes Road.

The South reservoir is a rectangular concrete tank and has a capacity of 1,300m^3 (343,200 USG). It is located at the south end of the community near the top of Mountain Road and has a free water level of 451 meters. A 250mm diameter supply main connects the reservoir with the rest of the system at Mountain Road.

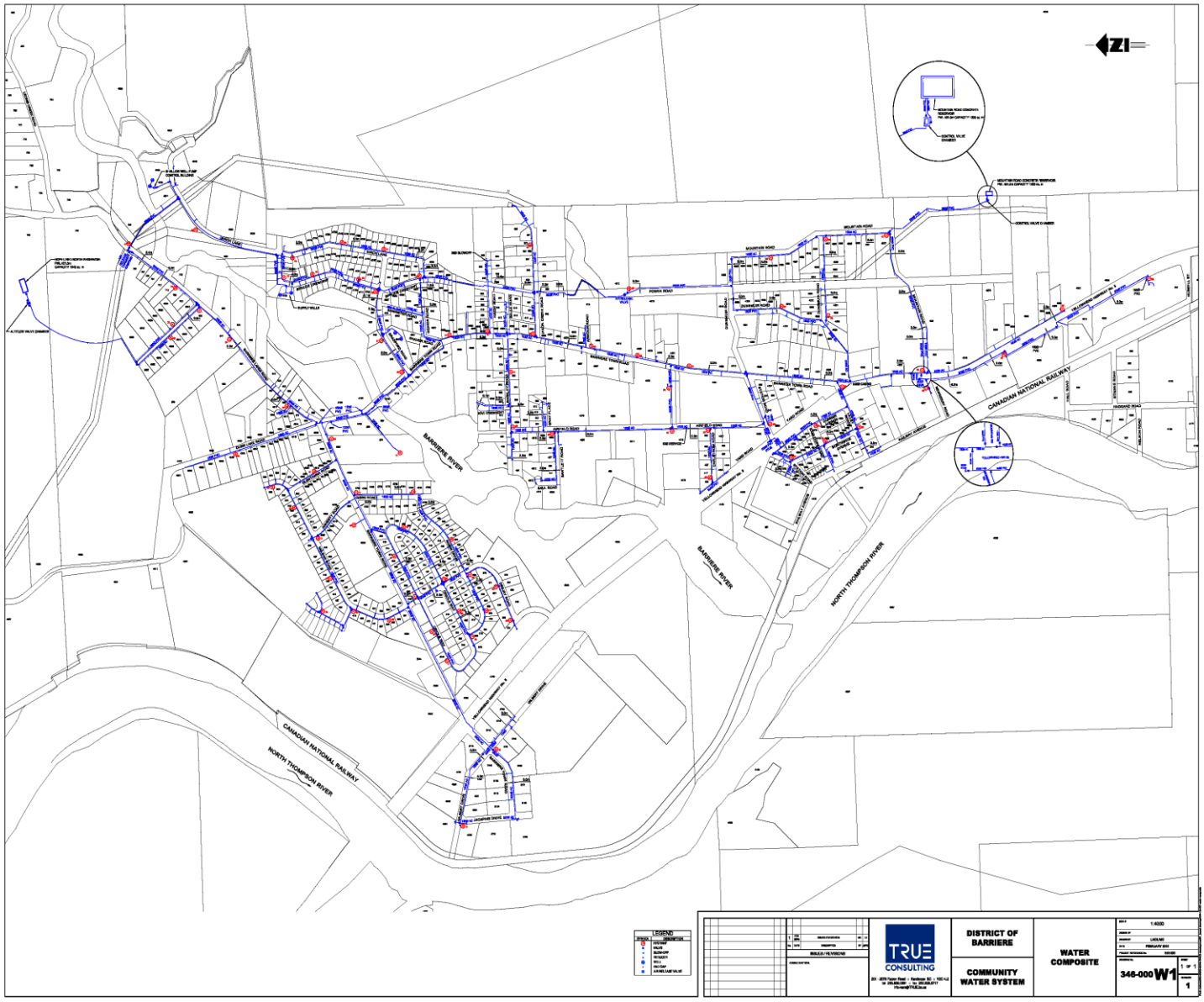
DISTRIBUTION SYSTEM

Approximately 24,750 meters of watermain are joined together to create the District of Barriere water system. The water system has been undergoing upgrades to ensure the water quality is safe for consumption. The first upgrades were from 1966 onwards when the pipes were asbestos cement. Beginning in the 1980's the pipes began to be upgraded to PVC due to the potential health risks of leakage from decaying asbestos/cement pipe. The PVC pipes range in diameter from 100 mm to 350 mm and provide potable water to approximately 785 residential and 77 commercial service connections in Barriere.

The District irrigates four public parks (Fadear, Bradford, Oriole, Gray Place), four baseball fields, two green spaces, and the cemetery, during off-peak demand times using a total of 77 irrigation zones with an average of 3 sprinkler heads per zone. In addition, the school district operates and maintains irrigation for the three school fields in Barriere.

Several sections of pipe within the District's water supply system are undersized, limiting flows and negatively impacting fire protection and pressures in certain parts of the network. Piping has been upgraded at the High School intersection along to Bradford Road, and from Barriere Town Road to Spruce Crescent.

WATER SUPPLY SYSTEM



WATER SAMPLING AND TESTING

Bacteriological:
As required by the Interior Health Authority (IHA), staff takes weekly water samples for bacteriological testing for total coliforms and e-Coli bacteria. There are 3 different sampling sites used throughout Barriere; North, Centre, and South.

Full Spectrum Analysis:
Water samples have been sent from the source water for a full spectrum analysis. Parameters such as alkalinity, metals, pH, turbidity, and hardness are tested. *SEE ATTACHMENT 4*

Summary:
In 2023 the District of Barriere had no positive bacteriological testing results pertaining to Total Coliforms or E.Coli and remained in compliance throughout the entire year of 2023. In 2022, the District began analyzing and tracking manganese levels on a more frequent basis to observe trends during different operating periods and times of the year.

EMERGENCY RESPONSE PLAN

The District of Barriere's Emergency Response Plan for the water system was updated in 2023. It identifies a number of potential emergencies that could occur and provides a systematic approach on how the District will deal with those emergencies. The plan is available for public viewing at the District Office, 4936 Barriere Town Road.

WATER QUALITY COMPLAINTS

The District of Barriere received few complaints in 2023 in respect to the quality of water being provided. Our community water wells, especially the Bradford wells have elevated iron and manganese levels, which once combined with chlorine create a brownish precipitate that showed up throughout the distribution system, therefore creating an aesthetically unpleasing water quality. Although the water was still safe for human consumption, the District of Barriere along with the Interior Health authority (IHA), continued maintaining the water quality advisory (WQA) that was implemented in 2019. However, with the onboarding of DW3, IHA removed the WQA in December of 2022 and therefore, is no longer in effect.

Most of the complaints received in 2023 were the result of this iron/manganese precipitate getting dislodged from the water mains during our annual hydrant flushing program. This is a temporary issue that clears upon running a household tap for a short period of time. District staff continue to conduct annual watermain flushing as part of our continued commitment to providing safe, clean drinking water.

SYSTEM UPGRADES COMPLETED IN 2023

Barriere Water system

- 287kVA Generator and automatic transfer switch installed and commissioned. July 2023.
- Installation of Deep well data logger in June 2023.
- Two new residential water services installed
- Five new serviced lots, two new hydrants, 175 m un-looped 150-mm PVC water main.

POTENTIAL SYSTEM UPGRADES

- Biological manganese removal Water Treatment Plant
- Additional Production Well (DW4) as the municipalities' population grows.
- Upgrading the asbestos cement water main on Barriere Town Road, installed in 1966, from Bradford Rd. to Mountain Rd. to remove the bottleneck and balance North and South reservoirs.

CROSS CONNECTION CONTROL PROGRAM

The District of Barriere maintains a Cross Connection Control Program to prevent the potential backflow of non-potable water into the District's water distribution system. The Program is based on premises isolation to ensure there is a reliable barrier between private and public water systems. The program uses a priority approach with higher hazard ICI (Industrial, Commercial, and Institutional) service connections being first in line for inspections and compliance mandates, as well as residential connections with auxiliary water. The District of Barriere Water System Bylaw # 189 gives the District authority to implement this program.

All new ICI developments are required to be inspected for Cross Connections as a condition of the provision of water service.

Backflow prevention devices are documented and tracked by the District to ensure they are tested annually and in good working order. This annual testing must be carried out by a certified Backflow Assembly Tester. It is also worth noting that all residential outside hose bibs were confirmed to have vacuum breakers installed (2012) and all new builds are required to have them.

The District also monitors potential backflow situations through its water meter program. All service connections in the District must be metered. Our water meters will detect and flag backflow occurrences and provide additional information on time of occurrence, duration, and volume. If the situation were to occur, it would prompt immediate investigation and may trigger our Water System Emergency Response Plan.

2023 Summary Report

Total ICI Facilities/Premises (inc. District facilities and parks)	102
Total BFP's Tracked	45
Past Due Test Reports	24

Hazard (L/M/S)	Inspected Premises with CCs	Premises in Compliance
Sever	4	4
Moderate	16	11
Low	8	0
Total	28	15

The District will continue to improve and further implement its Cross Connection Control Program through inspections, tracking, program development and public education to eventually have all actual or potential cross connections identified and in compliance with our CCC Program.

OPERATOR CERTIFICATION

The District of Barriere currently employs three licensed operators, all in good standing with the EOCP. One Senior Utilities Specialist, who holds a Class 2 certification in Water Treatment and Water Distribution. One Water Technician 2, who holds a Class 1 certification in Water Treatment and Water Distribution. One Water Technician 1, who holds a Class 2 certification in Water Distribution, Chlorine Handling Certification, and will be obtaining his Class 1 certification in Water Treatment soon. Our Wastewater Technician 2 is also the District of Barriere's cross connection control inspector and certified backflow assembly tester.

SUMMARY OF SOURCE WATER PROTECTION EFFORTS

The District of Barriere is currently working towards completing a wellhead protection plan to ensure a consistent effort is being made to protect our groundwater production wells. The wellhead protection plan assesses risks and makes recommendations with respect to source water protection. The plan notes that risks to production wells from activities within and outside the capture zone are perceived to be low. Another measure the District of Barriere has implemented is a property covenant on all surrounding residential homes which prohibits the use of fertilizers and pesticides. Further to this the District undertook a GWUDI/GARP study of its deep wells at the Spruce Crescent site to determine potential influences of the adjacent Barriere River.

APPENDIX I

WATER CONSUMPTION (CUBIC METRES)

Month	2023 PW1	2023 DW2	2023 DW3	2022 PW1	2022 DW2	2022 DW3
January	455	11611	11350	119	25778	0
February	460	10665	10434	0	24210	0
March	435	12281	12458	0	24485	0
April	335	16512	17139	0	4590	18438
May	380	20342	23788	277	12587	13414
June	634	22296	36172	589	16839	15371
July	3369	19665	49066	2884	20632	32032
August	1498	22637	40969	2824	21351	32905
September	484	19751	2192	1778	16892	22022
October	263	12356	12398	2328	12334	12062
November	300	10821	10163	654	10182	10593
December	292	10711	10578	588	11654	12239

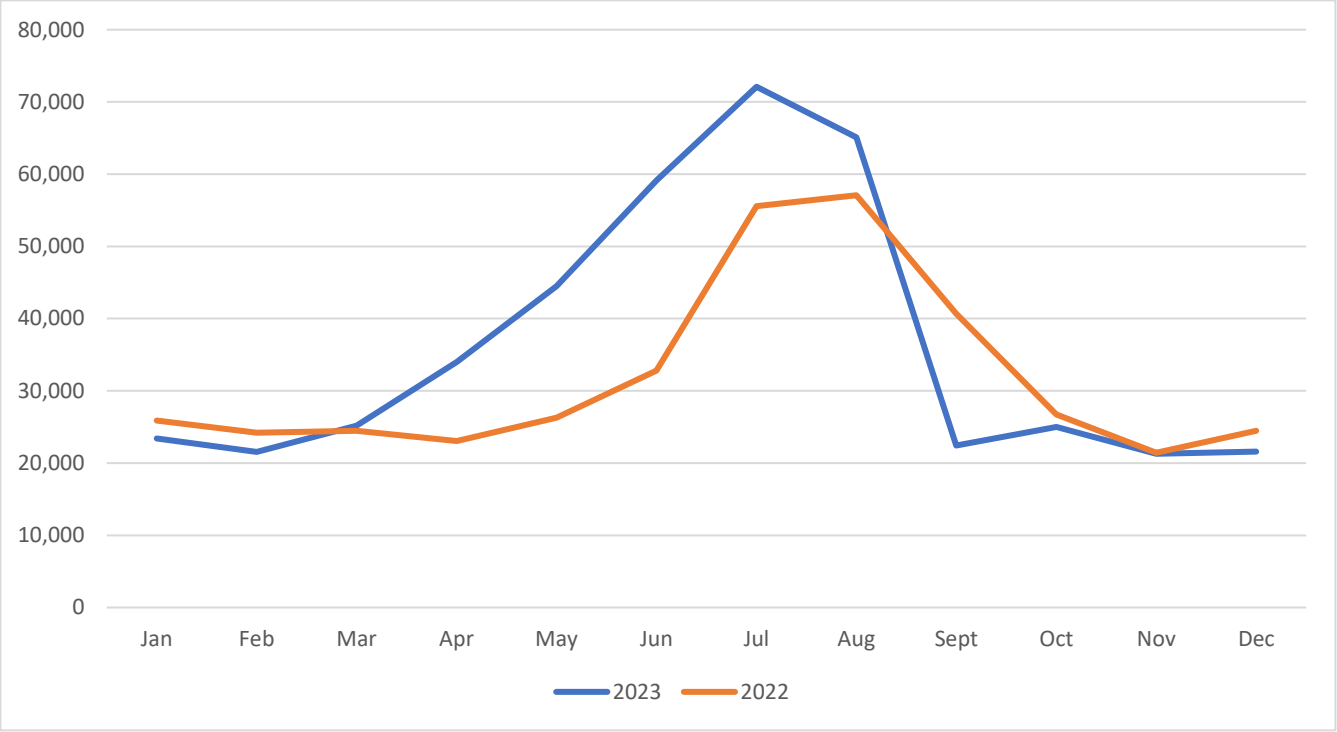
HISTORICAL ANNUAL WATER CONSUMPTION

Total Consumption for 2023: 435,260 cubic metres
Total Consumption for 2022: 382,660 cubic metres
Total Consumption for 2021: 386,849 cubic metres
Total Consumption for 2020: 312,417 cubic metres
Total Consumption for 2019: 452,792 cubic metres
Total Consumption for 2018: 552,371 cubic metres
Total Consumption for 2017: 601,764 cubic metres
Total Consumption for 2016: 462,902 cubic metres
Total Consumption for 2015: 538.725 cubic metres
Total Consumption for 2014: 536,108 cubic metres
Total Consumption for 2013: 654,033 cubic metres

APPENDIX II

WATER CONSUMPTION

2023 / 2022 Monthly Water Consumption



APPENDIX III

LOUIS CREEK INDUSTRIAL PARK (LCIP)

The District of Barriere has a small water system in the Louis Creek Industrial Park (LCIP) which is located 4 kilometers south of the town of Barriere. This water system serves only the businesses which are in the industrial park, along with 1 residential homeowner. The LCIP water system started production on June 1, 2020.

The water system consists of a 50-gpm production well, and a pump house where disinfection occurs. There is a non-potable storage reservoir which is located on the east side of the industrial park. Backup power is scheduled to be installed in the summer of 2023.

The district utility staff attends this site daily where chlorine levels and flows are monitored. Weekly bacteriological samples are collected for analysis from an outside independent laboratory.

LCIP had no positive bacteriological testing results pertaining to Total Coliforms or E. Coli and remained in compliance throughout the entire year of 2023.

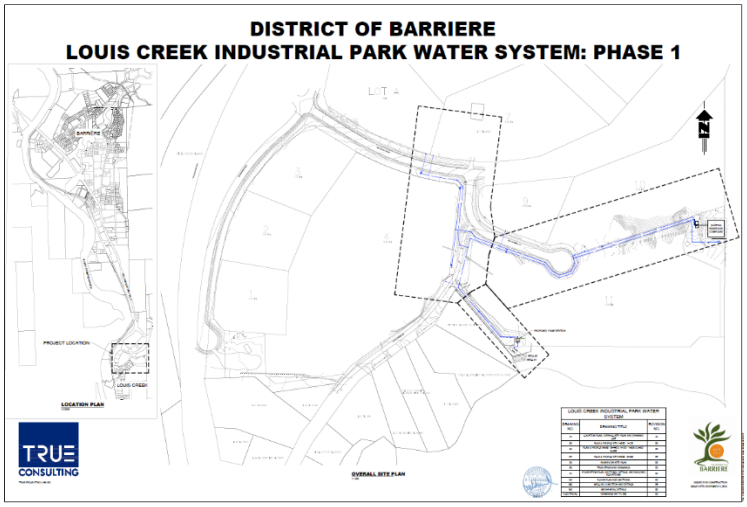
A new 1410 m3 insulated steel reservoir including all underground piping and valves was installed and commissioned in 2023. The level sensor in the reservoir is powered using a 350-Watt solar panel. In addition, a 31 KVA diesel generator was installed at the pump house to provide backup power in case of an outage.

A full spectrum analysis of the raw water source was conducted in 2023 and can is shown in Attachment 1 of this document.

LCIP WATER CONSUMPTION (CUBIC METERS)

Month	2023 LCIP	2022 LCIP
January	144.8	307.6
February	117.6	292.0
March	149.1	304.0
April	294.1	279.3
May	750.3	307.6
June	1131.2	168.9
July	2116.6	170.4
August	1108.4	143.7
September	1252.6	107.6
October	315.6	140.1
November	232.0	149.3
December	202.0	124.9

Total Consumption for 2023: 8,030.0 m3
Total Consumption for 2022: 2,526.4 m3



Interior Health Authority

Kamloops Health Centre
519 Columbia Street
Kamloops BC V2C 2T8
Canada

(250) 851-7340

Interior Health Authority

Facility Inspected:
District of Barriere Water System

Attention: District of Barriere

Site Address: Hwy 5 N
Barriere BC V0E 1E0

Site Phone: (250) 672-9751
Site Fax: (250) 672-9708
Site Email: cmatthews@barriere.ca

Inspection #: I-2023-180769-180769
Inspection Date: 14-Jul-2023 10:28
Completed Date: 14-Jul-2023 13:00
Inspected By: Diana Tesic-Nagalingam
Facility Type: District Municipality - Community LW
Risk Rating: Invalid
Inspection Type: Monitoring
Inspection Reasons: Monitoring
Infractions: 3

Delivery Method: Email

Opening Comments and Observations:
Routine inspection.

N/A = Not Applicable No = No Yes = Yes

District Municipality - Community LW

LW1 - Core

LW1.1 - Are the water system details up to date? Yes

District Municipality - Community LW - LW - Distribution & Storage

LWD1 - Water - Distribution & Storage

LWD1.1 - Is the water system preparing or following a Cross Connection Control Program? Yes

The District has cross-connection bylaw and most of the ICI customers are accounted for. One of the operators is a certified CCC inspector who is also responsible for administering the program.

Response: Cross connection program summary is to be outlined in the Annual Drinking Water Report.

LWD1.2 - Does the water system follow a distribution system maintenance and protection plan or otherwise conduct routine maintenance of the distribution system? Yes

Formal operation and maintenance plan for the District is still in the development stage.

Response: Discussed the importance to include leak detection and valve exercise tasks to the O&M manual for the District.

District Municipality - Community LW - LW - Emergency Response

LWE1 - Emergency Response

LWE1.1 - Does the Water Supplier have a written emergency response plan and contingency plan? [DWPA Section 10 & 15(a), DWPR Section 13] Yes

LWE1.2 - Does the water system have a system that will notify operators of a process failure or breach of the system? Yes

District Municipality - Community LW - LW - Monitoring & Reporting

LWM1 - Monitoring & Reporting

LWM1.1 - Is the Water Supplier monitoring its source water and the drinking water it provides for the parameters, and at the frequency, established by the regulations and by its operating permit? [DWPA Section 11] Yes

Monitoring for bacteriological parameters is in compliance with the Schedule B.

Response: Comprehensive testing for each source needs to be completed annually.

LWM1.2 - Does the Water Supplier prepare and make public an Annual report? [DWPA Section 15(b), DWPR Section 11] Yes

LWM1.3 - Is the distribution system manually monitored for chlorine? Yes

LWM1.4 - Is the distribution system manually monitored for turbidity? Yes

LWM1.5 - Are the Point of Entry / Point of Use devices being maintained and monitored? N/A

District Municipality - Community LW - LW - Operations & Management

LWO1 - Operations & Management

LWO1.1 - Does the Water Supplier hold a valid Operating Permit? Yes

LWO1.2 - Does the water system have a Water Master Plan, or acceptable planning process, to achieve compliance with Provincial Treatment Objectives? Yes

First stage of the Water Master Plan is completed.

Response: Projects completed: Drilling Well #3 and its successful connection to the distribution system, relocation of stand-by power for continuous supply of potable water. Addition of Well #3 to the potable water supply is currently resolving the issue with the elevated manganese (manganese is kept below AO).
In order to complete other listed projects within the Water Master Plan the District will look into available funding options.

LWO1.3 - Does the water system have an Asset Management Plan? **No**

Follow up by: 03-Aug-2024

- *LWO1.3A - An Asset Management Plan is beneficial to a water system to plan for capital costs associated with infrastructure improvements and replacement*

LWO1.4 - Does the water system have an Operator certified to the Treatment Classification of the system? [DWPA Section 9, DWPR Section12] N/A

LWO1.5 - Does the water system have an Operator certified to the Distribution Classification of the system? [DWPA Section 9, DWPR Section12] Yes

Facility is classified as a WD Level 2.

Response: There are two operators with Level 2 WD and one operator with Level 1 WD certification.

LWO1.6 - Does the Water Supplier have a succession plan to train, recruit and retain staff at the required certification levels? Yes

District Municipality - Community LW - LW - Source

LWS1 - Source

LWS1.1 - Has a source assessment been prepared for each source? **No**

Source assessment is intended to help water suppliers develop a better understanding of the risks to drinking water safety and availability. It also can help suppliers operate more effectively in working to ensure the best possible water quality and assured quantity. The Comprehensive Drinking Water Source-to-Tap Assessment Guideline, or a similar document, can be utilized for the process.

Follow up by: 03-Aug-2024

LWS1.2 - Has a source assessment response plan been prepared for each source?

LWS1.3 - Is the system following their assessment response plan?

LWS1.4 - Has a Ground water At Risk of containing Pathogens (GARP) assessment been completed? **No**

GARP assessment needs to be completed on all of the production wells.

Follow up by: 03-Aug-2024

Response: The operators are encouraged to compile data on raw water quality (bacteriological, turbidity, conductivity, pH, temperature, etc.) to help with the GARP assessment process.

District Municipality - Community LW - LW - Treatment

LWT1 - Treatment

LWT1.1 - Does the water treatment plant(s) (WTP) meet the Drinking Water Treatment Objectives (Microbial) for Surface Water? N/A

LWT1.2 - Do the conditions for filtration exemption of the Drinking Water Treatment Objectives (Microbial) for Surface Water continue to be met? N/A

LWT1.3 - Does the water treatment plant (WTP) meet the Provincial Treatment Objectives (Microbial) for Ground Water Supplies? N/A

There are no GARP studies completed on the District's ground water sources which will provide direction for water treatment requirements.

LWT1.4 - Do the conditions for filtration exemption of the Drinking Water Treatment Objectives (Microbial) for Ground Water continue to be met? N/A

Actions Taken

Actions Taken:

- Site visit

Received By: **Inspector:**

Paul Amos

Diana Tesic-Nagalingam, Environmental Health Officer

Interior Health Authority

Printed on: August 18, 202
1:48 PM

Kamloops Health Centre
519 Columbia Street
Kamloops BC V2C 2T8
Canada

(250) 851-7340

Interior Health Authority

Facility Inspected:
Louis Creek Industrial Park

Attention: District of Barriere

Site Address: Louis Creek Rd
Louis Creek BC V0E 2E0

Site Phone: (250) 672-9751
Site Fax: (250) 672-9708
Site Email: dborrill@barriere.ca

Inspection #: I-2023-180785-180785
Inspection Date: 14-Jul-2023 13:30
Completed Date: 14-Jul-2023 15:00
Inspected By: Diana Tesic-Nagalingam
Facility Type: District Municipality - Community SW
Risk Rating: Invalid
Inspection Type: Monitoring
Inspection Reasons: Monitoring
Infractions: 2

Delivery Method: Email

Opening Comments and Observations:
Routine inspection.

Yes = Yes N/A = Not Applicable No = No

District Municipality - Community SW

SW1 - Core

SW1.1 - Are the water system details up to date? Yes

District Municipality - Community SW - SW - Distribution & Storage

SWD1 - Distribution & Storage

SWD1.1 - Is the water system preparing or following a Cross Connection Control Program? Yes

SWD1.2 - Does the water system follow a distribution system maintenance and protection plan or otherwise conduct routine maintenance of the distribution system? Yes

District Municipality - Community SW - SW - Emergency Response

SWE1 - Emergency Response

SWE1.1 - Does the Water Supplier have a written emergency response plan and contingency plan? [DWPA Section 10 & 15(a), DWPR Section 13] Yes

SWE1.2 - Does the water system have a system that will notify operators of a process failure or breach of the system? Yes

Once the new reservoir is on-line it will be connected to the existing SCADA system.

District Municipality - Community SW - SW - Monitoring & Reporting

SWM1 - Monitoring & Reporting

SWM1.1 - Is the Water Supplier monitoring its source water and the drinking water it provides for the parameters, and at the frequency, established by the regulations and by its operating permit? [DWPA Section 11] — Yes

SWM1.2 - Does the Water Supplier prepare and make public an Annual report? [DWPA Section 15(b), DWPR Section 11] — N/A

SWM1.3 - Is the distribution system manually monitored for chlorine? — Yes

SWM1.4 - Is the distribution system manually monitored for turbidity? — Yes

SWM1.5 - Are the Point of Entry / Point of Use devices being maintained and monitored? — N/A

District Municipality - Community SW - SW - Operations & Management

SWO1 - Operations & Management

SWO1.1 - Does the Water Supplier hold a valid Operating Permit? — Yes

SWO1.2 - Does the water system have a Water Master Plan, or acceptable planning process, to achieve compliance with Provincial Treatment Objectives? — Yes

SWO1.3 - Does the water system have an Asset Management Plan?

SWO1.4 - Does the water system have an Operator certified to the Treatment Classification of the system? [DWPA Section 9, DWPR Section12] — N/A

SWO1.5 - Does the water system have an Operator certified to the Distribution Classification of the system? [DWPA Section 9, DWPR Section12] — Yes

SWO1.6 - Does the Water Supplier have a succession plan to train, recruit and retain staff at the required certification levels? — Yes

District Municipality - Community SW - SW - Source

SWS1 - Source

SWS1.1 - Has a source assessment been prepared for each source? — **No**

Complete source assessment for the production well utilizing Comprehensive Drinking Water Source-to-Tap Assessment Guideline or equivalent.

Follow up by: 15-Aug-2024

Response: Resources for water system operators: https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/drinking-water-quality/resources-for-water-system-operators

SWS1.2 - Has a source assessment response plan been prepared for each source?

SWS1.3 - Is the system following their assessment response plan?

SWS1.4 - Has a Ground water At Risk of containing Pathogens (GARP) assessment been completed? **No**

Follow up by: 17-Aug-2024

District Municipality - Community SW - SW - Treatment

SWT1 - Treatment

SWT1.1 - Does the water treatment plant(s) (WTP) meet the Drinking Water Treatment Objectives (Microbial) for Surface Water? N/A

SWT1.2 - Do the conditions for filtration exemption of the Drinking Water Treatment Objectives (Microbial) for Surface Water continue to be met? N/A

SWT1.3 - Does the water treatment plant (WTP) meet the Provincial Treatment Objectives (Microbial) for Ground Water Supplies? Yes

Currently the treatment consists of chlorination with contact time for virus reduction. If the subsequent GARP studies change the risk evaluation, the treatment will need to address newly identified risks to the ground water.

SWT1.4 - Do the conditions for filtration exemption of the Drinking Water Treatment Objectives (Microbial) for Ground Water continue to be met? Yes

Collect data on raw water turbidity to confirm that the conditions for filtration exemption are continuing to be met. This is in addition to periodic bacteriological monitoring of raw water.

Actions Taken

Actions Taken:

- Site visit

Closing Comments:

WIPN 33085 was drilled in 2010 and screened/developed in 2014. Depth of the well is 238 feet. New well is capable of producing 50 + USgpm. Surface seal is present (bentonite chip 18 feet deep).
System has a back-up power
New potable water reservoir is in the process of commissioning during the writing of this report.

Received By:

Paul Amos

Inspector:

Diana Tesic-Nagalingam, Environmental Health Officer

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **KS2304715**	Page	: 1 of 10
Client	: **District of Barriere**	Laboratory	: ALS Environmental - Kamloops
Contact	: Chris Matthews	Account Manager	: Amanda Lampreau
Address	: PO Box 219 Barriere BC Canada V0E 1E0	Address	: 1445 McGill Road, Unit 2B Kamloops, British Columbia Canada V2C 6K7
Telephone	: ----	Telephone	: 1 250 372 3588
Project	: Louis Creek Water	Date Samples Received	: 06-Dec-2023 15:00
PO	: ----	Date Analysis Commenced	: 07-Dec-2023
C-O-C number	: ----	Issue Date	: 14-Dec-2023 15:19
Sampler	: Graham H		
Site	: ----		
Quote number	: 20DIOB100KS02 Water		
No. of samples received	: 1		
No. of samples analysed	: 1		

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
- Guideline Comparison

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.

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Amanda Lampreau	Laboratory _ Supervisor	Microbiology, Kamloops, British Columbia
Caitlin Macey	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
Louis Creek - Raw Water Analysis	Water	Manganese, total		BCDWQG	AO	0.0655 mg/L	0.02 mg/L
	Water	Phosphorus, total		BCDWQG	AO	0.091 mg/L	0.01 mg/L

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.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
% T/cm	% transmittance per centimetre
µS/cm	microsiemens per centimetre
AU/cm	absorbance units per centimetre
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
NTU	nephelometric turbidity units
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Qualifiers

Qualifier	Description
PHA	pH adjusted before analysis.

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: Louis Creek - Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time: 06-Dec-2023 13:10	----	----	----	----	----	----
				Sub-Matrix: Water	----	----	----	----	----	----
				KS2304715-001	--------	--------	--------	--------	--------	--------
Physical Tests										
Absorbance, UV (@ 254nm), unfiltered	----	E405/VA	AU/cm	0.0150	----	----	----	----	----	----
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	mg/L	194	----	----	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	mg/L	14.1	----	----	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	mg/L	<1.0	----	----	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	mg/L	7.1	----	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	mg/L	208	----	----	----	----	----	----
Colour, true	----	E329/VA	CU	<5.0	----	----	----	----	----	----
Conductivity	----	E100/VA	µS/cm	452	----	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	mg/L	221	----	----	----	----	----	----
Langelier index (@ 15°C)	----	EC105A/VA	-	1.08	----	----	----	----	----	----
Langelier index (@ 20°C)	----	EC105A/VA	-	1.15	----	----	----	----	----	----
Langelier index (@ 25°C)	----	EC105A/VA	-	1.22	----	----	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/VA	-	0.907	----	----	----	----	----	----
Langelier index (@ 60°C)	----	EC105A/VA	-	1.66	----	----	----	----	----	----
Langelier index (@ 77°C)	----	EC105A/VA	-	1.86	----	----	----	----	----	----
pH	----	E108/VA	pH units	8.47	----	----	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	mg/L	288	----	----	----	----	----	----
Turbidity	----	E121/VA	NTU	0.21	----	----	----	----	----	----
Transmittance, UV (@ 254nm), unfiltered	----	E405/VA	% T/cm	96.6	----	----	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	mg/L	0.0190	----	----	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	mg/L	<0.050	----	----	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	mg/L	2.50	----	----	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	mg/L	0.105	----	----	----	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	mg/L	<0.050	----	----	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	mg/L	<0.0050	----	----	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	mg/L	<0.0010	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: Louis Creek - Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time: 06-Dec-2023 13:10	----	----	----	----	----	----
				Sub-Matrix: Water	----	----	----	----	----	----
				KS2304715-001	--------	--------	--------	--------	--------	--------
Anions and Nutrients										
Nitrogen, total organic	----	EC363/VA	mg/L	<0.050	----	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	mg/L	39.6	----	----	----	----	----	----
Cyanides										
Cyanide, strong acid dissociable (Total)	----	E333/VA	mg/L	<0.0050 PHA	----	----	----	----	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	mg/L	0.79	----	----	----	----	----	----
Microbiological Tests										
Coliforms, total	----	E010/KS	MPN/100 mL	<1	----	----	----	----	----	----
Coliforms, Escherichia coli [E. coli]	----	E010/KS	MPN/100mL	<1	----	----	----	----	----	----
Ion Balance										
Anion sum	----	EC101A/VA	meq/L	5.06	----	----	----	----	----	----
Cation sum (total)	----	EC101A/VA	meq/L	4.70	----	----	----	----	----	----
Ion balance (APHA)	----	EC101A/VA	%	-3.69	----	----	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	mg/L	0.0061	----	----	----	----	----	----
Antimony, total	7440-36-0	E420/VA	mg/L	<0.00010	----	----	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	mg/L	0.00132	----	----	----	----	----	----
Barium, total	7440-39-3	E420/VA	mg/L	0.00768	----	----	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	mg/L	<0.000100	----	----	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	mg/L	<0.000050	----	----	----	----	----	----
Boron, total	7440-42-8	E420/VA	mg/L	<0.010	----	----	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	mg/L	<0.0000050	----	----	----	----	----	----
Calcium, total	7440-70-2	E420/VA	mg/L	62.3	----	----	----	----	----	----
Cesium, total	7440-46-2	E420/VA	mg/L	0.000019	----	----	----	----	----	----
Chromium, total	7440-47-3	E420/VA	mg/L	<0.00050	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	Louis Creek - Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time	06-Dec-2023 13:10	----	----	----	----	----	----
				Sub-Matrix	Water	----	----	----	----	----	----
					KS2304715-001	--------	--------	--------	--------	--------	--------
Total Metals											
Cobalt, total	7440-48-4	E420/VA	mg/L		<0.00010	----	----	----	----	----	----
Copper, total	7440-50-8	E420/VA	mg/L		<0.00050	----	----	----	----	----	----
Iron, total	7439-89-6	E420/VA	mg/L		0.074	----	----	----	----	----	----
Lead, total	7439-92-1	E420/VA	mg/L		<0.000050	----	----	----	----	----	----
Lithium, total	7439-93-2	E420/VA	mg/L		0.0022	----	----	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	mg/L		15.8	----	----	----	----	----	----
Manganese, total	7439-96-5	E420/VA	mg/L		0.0655	----	----	----	----	----	----
Mercury, total	7439-97-6	E508/VA	mg/L		<0.0000050	----	----	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	mg/L		0.00253	----	----	----	----	----	----
Nickel, total	7440-02-0	E420/VA	mg/L		<0.00050	----	----	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	mg/L		0.091	----	----	----	----	----	----
Potassium, total	7440-09-7	E420/VA	mg/L		3.38	----	----	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	mg/L		0.00222	----	----	----	----	----	----
Selenium, total	7782-49-2	E420/VA	mg/L		<0.000050	----	----	----	----	----	----
Silicon, total	7440-21-3	E420/VA	mg/L		11.3	----	----	----	----	----	----
Silver, total	7440-22-4	E420/VA	mg/L		<0.000010	----	----	----	----	----	----
Sodium, total	7440-23-5	E420/VA	mg/L		4.50	----	----	----	----	----	----
Strontium, total	7440-24-6	E420/VA	mg/L		0.337	----	----	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	mg/L		13.8	----	----	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	mg/L		<0.00020	----	----	----	----	----	----
Thallium, total	7440-28-0	E420/VA	mg/L		<0.000010	----	----	----	----	----	----
Thorium, total	7440-29-1	E420/VA	mg/L		<0.00010	----	----	----	----	----	----
Tin, total	7440-31-5	E420/VA	mg/L		<0.00010	----	----	----	----	----	----
Titanium, total	7440-32-6	E420/VA	mg/L		<0.00030	----	----	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	mg/L		<0.00010	----	----	----	----	----	----
Uranium, total	7440-61-1	E420/VA	mg/L		0.000016	----	----	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	mg/L		<0.00050	----	----	----	----	----	----
Zinc, total	7440-66-6	E420/VA	mg/L		<0.0030	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	Louis Creek - Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time	06-Dec-2023 13:10	----	----	----	----	----	----
				Sub-Matrix	Water	----	----	----	----	----	----
				KS2304715-001		--------	--------	--------	--------	--------	--------
Total Metals											
Zirconium, total	7440-67-7	E420/VA	mg/L		<0.00020	----	----	----	----	----	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG
Physical Tests					
Absorbance, UV (@ 254nm), unfiltered	----	AU/cm	--	--	--
Alkalinity, bicarbonate (as CaCO3)	----	mg/L	--	--	--
Alkalinity, carbonate (as CaCO3)	----	mg/L	--	--	--
Alkalinity, hydroxide (as CaCO3)	----	mg/L	--	--	--
Alkalinity, phenolphthalein (as CaCO3)	----	mg/L	--	--	--
Alkalinity, total (as CaCO3)	----	mg/L	--	--	--
Colour, true	----	CU	**15 CU**	--	--
Conductivity	----	µS/cm	--	--	--
Hardness (as CaCO3), from total Ca/Mg	----	mg/L	--	--	--
Langelier index (@ 15°C)	----	-	--	--	--
Langelier index (@ 20°C)	----	-	--	--	--
Langelier index (@ 25°C)	----	-	--	--	--
Langelier index (@ 4°C)	----	-	--	--	--
Langelier index (@ 60°C)	----	-	--	--	--
Langelier index (@ 77°C)	----	-	--	--	--
pH	----	pH units	--	--	**7 - 10.5 pH units**
Solids, total dissolved [TDS]	----	mg/L	**500 mg/L**	--	--
Transmittance, UV (@ 254nm), unfiltered	----	% T/cm	--	--	--
Turbidity	----	NTU	--	**1 NTU**	--
Anions and Nutrients					
Ammonia, total (as N)	7664-41-7	mg/L	--	--	--
Bromide	24959-67-9	mg/L	--	--	--
Chloride	16887-00-6	mg/L	**250 mg/L**	--	--
Fluoride	16984-48-8	mg/L	--	**1.5 mg/L**	--
Kjeldahl nitrogen, total [TKN]	----	mg/L	--	--	--
Nitrate (as N)	14797-55-8	mg/L	--	**10 mg/L**	--
Nitrite (as N)	14797-65-0	mg/L	--	**1 mg/L**	--
Nitrogen, total organic	----	mg/L	--	--	--
Sulfate (as SO4)	14808-79-8	mg/L	**500 mg/L**	--	--
Cyanides					
Cyanide, strong acid dissociable (Total)	----	mg/L	--	--	--
Organic / Inorganic Carbon					
Carbon, total organic [TOC]	----	mg/L	--	--	--
Microbiological Tests					
Coliforms, Escherichia coli [E. coli]	----	MPN/100mL	--	**1 MPN/100mL**	--
Coliforms, total	----	MPN/100mL	--	**1 MPN/100mL**	--

Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG				
Ion Balance									
Anion sum	----	meq/L	--	--	--				
Cation sum (total)	----	meq/L	--	--	--				
Ion balance (APHA)	----	%	--	--	--				
Total Metals									
Aluminum, total	7429-90-5	mg/L	--	**2.9 mg/L**	--				
Antimony, total	7440-36-0	mg/L	--	**0.006 mg/L**	--				
Arsenic, total	7440-38-2	mg/L	--	**0.01 mg/L**	--				
Barium, total	7440-39-3	mg/L	--	**2 mg/L**	--				
Beryllium, total	7440-41-7	mg/L	--	--	--				
Bismuth, total	7440-69-9	mg/L	--	--	--				
Boron, total	7440-42-8	mg/L	--	**5 mg/L**	--				
Cadmium, total	7440-43-9	mg/L	--	**0.007 mg/L**	--				
Calcium, total	7440-70-2	mg/L	--	--	--				
Cesium, total	7440-46-2	mg/L	--	--	--				
Chromium, total	7440-47-3	mg/L	--	**0.05 mg/L**	--				
Cobalt, total	7440-48-4	mg/L	--	**0.001 mg/L**	--				
Copper, total	7440-50-8	mg/L	**1 mg/L**	**2 mg/L**	--				
Iron, total	7439-89-6	mg/L	**0.3 mg/L**	--	--				
Lead, total	7439-92-1	mg/L	--	**0.005 mg/L**	--				
Lithium, total	7439-93-2	mg/L	--	--	--				
Magnesium, total	7439-95-4	mg/L	--	--	--				
Manganese, total	7439-96-5	mg/L	**0.02 mg/L**	**0.12 mg/L**	--				
Mercury, total	7439-97-6	mg/L	--	**0.001 mg/L**	--				
Molybdenum, total	7439-98-7	mg/L	--	--	--				
Nickel, total	7440-02-0	mg/L	--	--	--				
Phosphorus, total	7723-14-0	mg/L	**0.01 mg/L**	--	--				
Potassium, total	7440-09-7	mg/L	--	--	--				
Rubidium, total	7440-17-7	mg/L	--	--	--				
Selenium, total	7782-49-2	mg/L	--	**0.05 mg/L**	--				
Silicon, total	7440-21-3	mg/L	--	--	--				
Silver, total	7440-22-4	mg/L	--	--	--				
Sodium, total	7440-23-5	mg/L	**200 mg/L**	--	--				
Strontium, total	7440-24-6	mg/L	--	**7 mg/L**	--				
Sulfur, total	7704-34-9	mg/L	--	--	--				
Tellurium, total	13494-80-9	mg/L	--	--	--				
Thallium, total	7440-28-0	mg/L	--	--	--				
Thorium, total	7440-29-1	mg/L	--	--	--				
Tin, total	7440-31-5	mg/L	--	--	--				
Titanium, total	7440-32-6	mg/L	--	--	--				

Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG				
Total Metals - Continued									
Tungsten, total	7440-33-7	mg/L	--	--	--				
Uranium, total	7440-61-1	mg/L	--	**0.02 mg/L**	--				
Vanadium, total	7440-62-2	mg/L	--	--	--				
Zinc, total	7440-66-6	mg/L	**5 mg/L**	--	--				
Zirconium, total	7440-67-7	mg/L	--	--	--				

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

Key:

BCDWQG	British Columbia Drinking Water Quality Guidelines (JAN, 2023)
AO	Aesthetic Objective/Other Value
MAC	Maximium Acceptable Concentrations
OG	Operational Guidance

CERTIFICATE OF ANALYSIS

Work Order	: **KS2304715**	Page	: 1 of 6
Client	: **District of Barriere**	Laboratory	: ALS Environmental - Kamloops
Contact	: Chris Matthews	Account Manager	: Amanda Lampreau
Address	: PO Box 219 Barriere BC Canada V0E 1E0	Address	: 1445 McGill Road, Unit 2B Kamloops BC Canada V2C 6K7
Telephone	: ----	Telephone	: 1 250 372 3588
Project	: Louis Creek Water	Date Samples Received	: 06-Dec-2023 15:00
PO	: ----	Date Analysis Commenced	: 07-Dec-2023
C-O-C number	: ----	Issue Date	: 14-Dec-2023 15:19
Sampler	: Graham H		
Site	: ----		
Quote number	: 20DIOB100KS02 Water		
No. of samples received	: 1		
No. of samples analysed	: 1		

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.

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Amanda Lampreau	Laboratory _ Supervisor	Microbiology, Kamloops, British Columbia
Caitlin Macey	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	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).

Unit	*Description*
-	no units
%	percent
% T/cm	% transmittance per centimetre
µS/cm	microsiemens per centimetre
AU/cm	absorbance units per centimetre
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
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

Qualifier	*Description*
PHA	*pH adjusted before analysis.*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Louis Creek - Raw Water Analysis	----	----	----	----
					Client sampling date / time: 06-Dec-2023 13:10	----	----	----	----
					KS2304715-001	---------	---------	---------	---------
					Result	----	----	----	----
Physical Tests									
Absorbance, UV (@ 254nm), unfiltered	----	E405/VA	0.0050	AU/cm	0.0150	----	----	----	----
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	194	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L	14.1	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	7.1	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	208	----	----	----	----
Colour, true	----	E329/VA	5.0	CU	<5.0	----	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm	452	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	221	----	----	----	----
Langelier index (@ 15°C)	----	EC105A/VA	0.010	-	1.08	----	----	----	----
Langelier index (@ 20°C)	----	EC105A/VA	0.010	-	1.15	----	----	----	----
Langelier index (@ 25°C)	----	EC105A/VA	0.010	-	1.22	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/VA	0.010	-	0.907	----	----	----	----
Langelier index (@ 60°C)	----	EC105A/VA	0.010	-	1.66	----	----	----	----
Langelier index (@ 77°C)	----	EC105A/VA	0.010	-	1.86	----	----	----	----
pH	----	E108/VA	0.10	pH units	8.47	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	288	----	----	----	----
Turbidity	----	E121/VA	0.10	NTU	0.21	----	----	----	----
Transmittance, UV (@ 254nm), unfiltered	----	E405/VA	1.0	% T/cm	96.6	----	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0190	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	2.50	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.105	----	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L	<0.050	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	<0.0050	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	<0.0010	----	----	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Louis Creek - Raw Water Analysis	----	----	----	----
					Client sampling date / time: 06-Dec-2023 13:10	----	----	----	----
					KS2304715-001	--------	--------	--------	--------
					Result	----	----	----	----
Anions and Nutrients									
Nitrogen, total organic	----	EC363/VA	0.050	mg/L	<0.050	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	39.6	----	----	----	----
Cyanides									
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L	<0.0050 PHA	----	----	----	----
Organic / Inorganic Carbon									
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	0.79	----	----	----	----
Microbiological Tests									
Coliforms, total	----	E010/KS	1	MPN/100mL	<1	----	----	----	----
Coliforms, Escherichia coli [E. coli]	----	E010/KS	1	MPN/100mL	<1	----	----	----	----
Ion Balance									
Anion sum	----	EC101A/VA	0.10	meq/L	5.06	----	----	----	----
Cation sum (total)	----	EC101A/VA	0.10	meq/L	4.70	----	----	----	----
Ion balance (APHA)	----	EC101A/VA	0.010	%	-3.69	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0061	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00132	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.00768	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	<0.0000050	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	62.3	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000019	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.074	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Louis Creek - Raw Water Analysis	----	----	----	----
					Client sampling date / time	06-Dec-2023 13:10	----	----	----	----
						KS2304715-001	--------	--------	--------	--------
						Result	----	----	----	----
Total Metals										
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0022	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		15.8	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0655	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.00253	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		0.091	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		3.38	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00222	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		11.3	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		4.50	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.337	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		13.8	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		<0.00030	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000016	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		<0.0030	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 15 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	DISTRICT OF BARRIERE
Contact:	Chris Matthews
Phone:	250-320-1580 250-672-9751 Fax 250-672-9708
	Company address below will appear on the final report
Street:	P.O. Box 219
City/Province:	BARRIERE
Postal Code:	BC
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact	

Report Format / Distribution

Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)

Quality Control (QC) Report with Report ☐ YES ☐ NO

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: inquiry@barriere.ca

Email 2: cmatthews@barriere.ca

Email 3: pamos@barriere.ca

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: inquiry@barriere.ca

Email 2:

Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4] ☐ | 3 day [P3] ☐ | 2 day [P2] ☐

EMERGENCY: 1 Business day [E1] ☐ | Same Day, Weekend or Statutory holiday [E0] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler: GRAHAM

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Iron	Manganese	Arsenic	TOC	TKN	Ammonia	Number of Containers
	Louis Creek - Raw Water Analysis	6 12 23	110	Grab							2
	CL2 Free:										
	CL2 Total:										
	Location:										
	** Reference WO# L1687242 For Required Analysis **										

Environmental Division Kamloops

Work Order Reference

KS2304715

Telephone : +1 250 372 3588

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human drinking water use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☐

Ice Packs ☑ Ice Cubes ☐ | Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
V1					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
				DEC 06 2023	15:00			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

drop off

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **KS2304716**	Page	: 1 of 10
Client	: **District of Barriere**	Laboratory	: ALS Environmental - Kamloops
Contact	: Chris Matthews	Account Manager	: Amanda Lampreau
Address	: PO Box 219 Barriere BC Canada V0E 1E0	Address	: 1445 McGill Road, Unit 2B Kamloops, British Columbia Canada V2C 6K7
Telephone	: ----	Telephone	: 1 250 372 3588
Project	: District of Barriere Water	Date Samples Received	: 06-Dec-2023 15:00
PO	: ----	Date Analysis Commenced	: 07-Dec-2023
C-O-C number	: ----	Issue Date	: 14-Dec-2023 15:28
Sampler	: Graham H		
Site	: ----		
Quote number	: 20DIOB100KS02 Water		
No. of samples received	: 1		
No. of samples analysed	: 1		

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
- Guideline Comparison

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.

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Amanda Lampreau	Laboratory _ Supervisor	Microbiology, Kamloops, British Columbia
Caitlin Macey	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
Bradford Park PW1 - Raw Water Analysis	Water	Manganese, total		BCDWQG	AO	0.104 mg/L	0.02 mg/L
	Water	Phosphorus, total		BCDWQG	AO	0.074 mg/L	0.01 mg/L

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.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
% T/cm	% transmittance per centimetre
µS/cm	microsiemens per centimetre
AU/cm	absorbance units per centimetre
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
NTU	nephelometric turbidity units
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Qualifiers

Qualifier	Description
PHA	pH adjusted before analysis.

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: Bradford Park PW1 - Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time: 06-Dec-2023 11:00	----	----	----	----	----	----
				Sub-Matrix: Water	----	----	----	----	----	----
				KS2304716-001	--------	--------	--------	--------	--------	--------
Physical Tests										
Absorbance, UV (@ 254nm), unfiltered	----	E405/VA	AU/cm	0.0110	----	----	----	----	----	----
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	mg/L	209	----	----	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	mg/L	16.0	----	----	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	mg/L	<1.0	----	----	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	mg/L	8.0	----	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	mg/L	225	----	----	----	----	----	----
Colour, true	----	E329/VA	CU	<5.0	----	----	----	----	----	----
Conductivity	----	E100/VA	µS/cm	452	----	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	mg/L	210	----	----	----	----	----	----
Langelier index (@ 15°C)	----	EC105A/VA	-	0.996	----	----	----	----	----	----
Langelier index (@ 20°C)	----	EC105A/VA	-	1.07	----	----	----	----	----	----
Langelier index (@ 25°C)	----	EC105A/VA	-	1.14	----	----	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/VA	-	0.825	----	----	----	----	----	----
Langelier index (@ 60°C)	----	EC105A/VA	-	1.58	----	----	----	----	----	----
Langelier index (@ 77°C)	----	EC105A/VA	-	1.77	----	----	----	----	----	----
pH	----	E108/VA	pH units	8.49	----	----	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	mg/L	283	----	----	----	----	----	----
Turbidity	----	E121/VA	NTU	0.21	----	----	----	----	----	----
Transmittance, UV (@ 254nm), unfiltered	----	E405/VA	% T/cm	97.5	----	----	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	mg/L	0.0299	----	----	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	mg/L	<0.050	----	----	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	mg/L	0.68	----	----	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	mg/L	0.192	----	----	----	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	mg/L	<0.050	----	----	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	mg/L	<0.0050	----	----	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	mg/L	<0.0010	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: Bradford Park PW1 - Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time: 06-Dec-2023 11:00	----	----	----	----	----	----
				Sub-Matrix: Water	----	----	----	----	----	----
				KS2304716-001	--------	--------	--------	--------	--------	--------
Anions and Nutrients										
Nitrogen, total organic	----	EC363/VA	mg/L	<0.050	----	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	mg/L	28.5	----	----	----	----	----	----
Cyanides										
Cyanide, strong acid dissociable (Total)	----	E333/VA	mg/L	<0.0050 PHA	----	----	----	----	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	mg/L	0.59	----	----	----	----	----	----
Microbiological Tests										
Coliforms, total	----	E010/KS	MPN/100 mL	<1	----	----	----	----	----	----
Coliforms, Escherichia coli [E. coli]	----	E010/KS	MPN/100mL	<1	----	----	----	----	----	----
Ion Balance										
Anion sum	----	EC101A/VA	meq/L	5.12	----	----	----	----	----	----
Cation sum (total)	----	EC101A/VA	meq/L	4.84	----	----	----	----	----	----
Ion balance (APHA)	----	EC101A/VA	%	-2.81	----	----	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	mg/L	0.0033	----	----	----	----	----	----
Antimony, total	7440-36-0	E420/VA	mg/L	<0.00010	----	----	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	mg/L	0.00642	----	----	----	----	----	----
Barium, total	7440-39-3	E420/VA	mg/L	0.0377	----	----	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	mg/L	<0.000100	----	----	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	mg/L	<0.000050	----	----	----	----	----	----
Boron, total	7440-42-8	E420/VA	mg/L	0.013	----	----	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	mg/L	0.0000775	----	----	----	----	----	----
Calcium, total	7440-70-2	E420/VA	mg/L	45.4	----	----	----	----	----	----
Cesium, total	7440-46-2	E420/VA	mg/L	0.000015	----	----	----	----	----	----
Chromium, total	7440-47-3	E420/VA	mg/L	<0.00050	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	Bradford Park PW1 - Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time	06-Dec-2023 11:00	----	----	----	----	----	----
				Sub-Matrix	Water	----	----	----	----	----	----
					KS2304716-001	--------	--------	--------	--------	--------	--------
Total Metals											
Cobalt, total	7440-48-4	E420/VA	mg/L		<0.00010	----	----	----	----	----	----
Copper, total	7440-50-8	E420/VA	mg/L		0.00241	----	----	----	----	----	----
Iron, total	7439-89-6	E420/VA	mg/L		0.083	----	----	----	----	----	----
Lead, total	7439-92-1	E420/VA	mg/L		0.000223	----	----	----	----	----	----
Lithium, total	7439-93-2	E420/VA	mg/L		0.0042	----	----	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	mg/L		23.6	----	----	----	----	----	----
Manganese, total	7439-96-5	E420/VA	mg/L		0.104	----	----	----	----	----	----
Mercury, total	7439-97-6	E508/VA	mg/L		<0.0000050	----	----	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	mg/L		0.00344	----	----	----	----	----	----
Nickel, total	7440-02-0	E420/VA	mg/L		<0.00050	----	----	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	mg/L		0.074	----	----	----	----	----	----
Potassium, total	7440-09-7	E420/VA	mg/L		3.15	----	----	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	mg/L		0.00374	----	----	----	----	----	----
Selenium, total	7782-49-2	E420/VA	mg/L		<0.000050	----	----	----	----	----	----
Silicon, total	7440-21-3	E420/VA	mg/L		15.4	----	----	----	----	----	----
Silver, total	7440-22-4	E420/VA	mg/L		<0.000010	----	----	----	----	----	----
Sodium, total	7440-23-5	E420/VA	mg/L		12.4	----	----	----	----	----	----
Strontium, total	7440-24-6	E420/VA	mg/L		0.435	----	----	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	mg/L		9.80	----	----	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	mg/L		<0.00020	----	----	----	----	----	----
Thallium, total	7440-28-0	E420/VA	mg/L		<0.000010	----	----	----	----	----	----
Thorium, total	7440-29-1	E420/VA	mg/L		<0.00010	----	----	----	----	----	----
Tin, total	7440-31-5	E420/VA	mg/L		0.00078	----	----	----	----	----	----
Titanium, total	7440-32-6	E420/VA	mg/L		<0.00030	----	----	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	mg/L		0.00066	----	----	----	----	----	----
Uranium, total	7440-61-1	E420/VA	mg/L		0.000182	----	----	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	mg/L		0.00123	----	----	----	----	----	----
Zinc, total	7440-66-6	E420/VA	mg/L		0.0280	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	Bradford Park PW1 - Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time	06-Dec-2023 11:00	----	----	----	----	----	----
				Sub-Matrix	Water	----	----	----	----	----	----
				KS2304716-001	---	---	---	---	---	---	---
Total Metals											
Zirconium, total	7440-67-7	E420/VA	mg/L		<0.00020	----	----	----	----	----	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG
Physical Tests					
Absorbance, UV (@ 254nm), unfiltered	----	AU/cm	--	--	--
Alkalinity, bicarbonate (as CaCO3)	----	mg/L	--	--	--
Alkalinity, carbonate (as CaCO3)	----	mg/L	--	--	--
Alkalinity, hydroxide (as CaCO3)	----	mg/L	--	--	--
Alkalinity, phenolphthalein (as CaCO3)	----	mg/L	--	--	--
Alkalinity, total (as CaCO3)	----	mg/L	--	--	--
Colour, true	----	CU	**15 CU**	--	--
Conductivity	----	µS/cm	--	--	--
Hardness (as CaCO3), from total Ca/Mg	----	mg/L	--	--	--
Langelier index (@ 15°C)	----	-	--	--	--
Langelier index (@ 20°C)	----	-	--	--	--
Langelier index (@ 25°C)	----	-	--	--	--
Langelier index (@ 4°C)	----	-	--	--	--
Langelier index (@ 60°C)	----	-	--	--	--
Langelier index (@ 77°C)	----	-	--	--	--
pH	----	pH units	--	--	**7 - 10.5 pH units**
Solids, total dissolved [TDS]	----	mg/L	**500 mg/L**	--	--
Transmittance, UV (@ 254nm), unfiltered	----	% T/cm	--	--	--
Turbidity	----	NTU	--	**1 NTU**	--
Anions and Nutrients					
Ammonia, total (as N)	7664-41-7	mg/L	--	--	--
Bromide	24959-67-9	mg/L	--	--	--
Chloride	16887-00-6	mg/L	**250 mg/L**	--	--
Fluoride	16984-48-8	mg/L	--	**1.5 mg/L**	--
Kjeldahl nitrogen, total [TKN]	----	mg/L	--	--	--
Nitrate (as N)	14797-55-8	mg/L	--	**10 mg/L**	--
Nitrite (as N)	14797-65-0	mg/L	--	**1 mg/L**	--
Nitrogen, total organic	----	mg/L	--	--	--
Sulfate (as SO4)	14808-79-8	mg/L	**500 mg/L**	--	--
Cyanides					
Cyanide, strong acid dissociable (Total)	----	mg/L	--	--	--
Organic / Inorganic Carbon					
Carbon, total organic [TOC]	----	mg/L	--	--	--
Microbiological Tests					
Coliforms, Escherichia coli [E. coli]	----	MPN/100mL	--	**1 MPN/100mL**	--
Coliforms, total	----	MPN/100mL	--	**1 MPN/100mL**	--

Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG
Ion Balance					
Anion sum	----	meq/L	--	--	--
Cation sum (total)	----	meq/L	--	--	--
Ion balance (APHA)	----	%	--	--	--
Total Metals					
Aluminum, total	7429-90-5	mg/L	--	**2.9 mg/L**	--
Antimony, total	7440-36-0	mg/L	--	**0.006 mg/L**	--
Arsenic, total	7440-38-2	mg/L	--	**0.01 mg/L**	--
Barium, total	7440-39-3	mg/L	--	**2 mg/L**	--
Beryllium, total	7440-41-7	mg/L	--	--	--
Bismuth, total	7440-69-9	mg/L	--	--	--
Boron, total	7440-42-8	mg/L	--	**5 mg/L**	--
Cadmium, total	7440-43-9	mg/L	--	**0.007 mg/L**	--
Calcium, total	7440-70-2	mg/L	--	--	--
Cesium, total	7440-46-2	mg/L	--	--	--
Chromium, total	7440-47-3	mg/L	--	**0.05 mg/L**	--
Cobalt, total	7440-48-4	mg/L	--	**0.001 mg/L**	--
Copper, total	7440-50-8	mg/L	**1 mg/L**	**2 mg/L**	--
Iron, total	7439-89-6	mg/L	**0.3 mg/L**	--	--
Lead, total	7439-92-1	mg/L	--	**0.005 mg/L**	--
Lithium, total	7439-93-2	mg/L	--	--	--
Magnesium, total	7439-95-4	mg/L	--	--	--
Manganese, total	7439-96-5	mg/L	**0.02 mg/L**	**0.12 mg/L**	--
Mercury, total	7439-97-6	mg/L	--	**0.001 mg/L**	--
Molybdenum, total	7439-98-7	mg/L	--	--	--
Nickel, total	7440-02-0	mg/L	--	--	--
Phosphorus, total	7723-14-0	mg/L	**0.01 mg/L**	--	--
Potassium, total	7440-09-7	mg/L	--	--	--
Rubidium, total	7440-17-7	mg/L	--	--	--
Selenium, total	7782-49-2	mg/L	--	**0.05 mg/L**	--
Silicon, total	7440-21-3	mg/L	--	--	--
Silver, total	7440-22-4	mg/L	--	--	--
Sodium, total	7440-23-5	mg/L	**200 mg/L**	--	--
Strontium, total	7440-24-6	mg/L	--	**7 mg/L**	--
Sulfur, total	7704-34-9	mg/L	--	--	--
Tellurium, total	13494-80-9	mg/L	--	--	--
Thallium, total	7440-28-0	mg/L	--	--	--
Thorium, total	7440-29-1	mg/L	--	--	--
Tin, total	7440-31-5	mg/L	--	--	--
Titanium, total	7440-32-6	mg/L	--	--	--

Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG				
Total Metals - Continued									
Tungsten, total	7440-33-7	mg/L	--	--	--				
Uranium, total	7440-61-1	mg/L	--	**0.02 mg/L**	--				
Vanadium, total	7440-62-2	mg/L	--	--	--				
Zinc, total	7440-66-6	mg/L	**5 mg/L**	--	--				
Zirconium, total	7440-67-7	mg/L	--	--	--				

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

Key:

BCDWQG	British Columbia Drinking Water Quality Guidelines (JAN, 2023)
AO	Aesthetic Objective/Other Value
MAC	Maximium Acceptable Concentrations
OG	Operational Guidance

CERTIFICATE OF ANALYSIS

Work Order	: **KS2304716**	Page	: 1 of 6
Client	: **District of Barriere**	Laboratory	: ALS Environmental - Kamloops
Contact	: Chris Matthews	Account Manager	: Amanda Lampreau
Address	: PO Box 219 Barriere BC Canada V0E 1E0	Address	: 1445 McGill Road, Unit 2B Kamloops BC Canada V2C 6K7
Telephone	: ----	Telephone	: 1 250 372 3588
Project	: District of Barriere Water	Date Samples Received	: 06-Dec-2023 15:00
PO	: ----	Date Analysis Commenced	: 07-Dec-2023
C-O-C number	: ----	Issue Date	: 14-Dec-2023 15:29
Sampler	: Graham H		
Site	: ----		
Quote number	: 20DIOB100KS02 Water		
No. of samples received	: 1		
No. of samples analysed	: 1		

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.

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Amanda Lampreau	Laboratory _ Supervisor	Microbiology, Kamloops, British Columbia
Caitlin Macey	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	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).

Unit	*Description*
-	no units
%	percent
% T/cm	% transmittance per centimetre
µS/cm	microsiemens per centimetre
AU/cm	absorbance units per centimetre
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
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

Qualifier	*Description*
PHA	*pH adjusted before analysis.*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Bradford Park PW1 - Raw Water Analysis	----	----	----	----
					Client sampling date / time: 06-Dec-2023 11:00	----	----	----	----
					KS2304716-001	---------	---------	---------	---------
					Result	----	----	----	----
Physical Tests									
Absorbance, UV (@ 254nm), unfiltered	----	E405/VA	0.0050	AU/cm	0.0110	----	----	----	----
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	209	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L	16.0	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	8.0	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	225	----	----	----	----
Colour, true	----	E329/VA	5.0	CU	<5.0	----	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm	452	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	210	----	----	----	----
Langelier index (@ 15°C)	----	EC105A/VA	0.010	-	0.996	----	----	----	----
Langelier index (@ 20°C)	----	EC105A/VA	0.010	-	1.07	----	----	----	----
Langelier index (@ 25°C)	----	EC105A/VA	0.010	-	1.14	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/VA	0.010	-	0.825	----	----	----	----
Langelier index (@ 60°C)	----	EC105A/VA	0.010	-	1.58	----	----	----	----
Langelier index (@ 77°C)	----	EC105A/VA	0.010	-	1.77	----	----	----	----
pH	----	E108/VA	0.10	pH units	8.49	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	283	----	----	----	----
Turbidity	----	E121/VA	0.10	NTU	0.21	----	----	----	----
Transmittance, UV (@ 254nm), unfiltered	----	E405/VA	1.0	% T/cm	97.5	----	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0299	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	0.68	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.192	----	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L	<0.050	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	<0.0050	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	<0.0010	----	----	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Bradford Park PW1 - Raw Water Analysis	----	----	----	----
					Client sampling date / time: 06-Dec-2023 11:00	----	----	----	----
					KS2304716-001	--------	--------	--------	--------
					Result	----	----	----	----
Anions and Nutrients									
Nitrogen, total organic	----	EC363/VA	0.050	mg/L	<0.050	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	28.5	----	----	----	----
Cyanides									
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L	<0.0050 PHA	----	----	----	----
Organic / Inorganic Carbon									
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	0.59	----	----	----	----
Microbiological Tests									
Coliforms, total	----	E010/KS	1	MPN/100mL	<1	----	----	----	----
Coliforms, Escherichia coli [E. coli]	----	E010/KS	1	MPN/100mL	<1	----	----	----	----
Ion Balance									
Anion sum	----	EC101A/VA	0.10	meq/L	5.12	----	----	----	----
Cation sum (total)	----	EC101A/VA	0.10	meq/L	4.84	----	----	----	----
Ion balance (APHA)	----	EC101A/VA	0.010	%	-2.81	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0033	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00642	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0377	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L	0.013	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000775	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	45.4	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000015	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00241	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.083	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000223	----	----	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Bradford Park PW1 - Raw Water Analysis	----	----	----	----
					Client sampling date / time: 06-Dec-2023 11:00	----	----	----	----
					KS2304716-001	--------	--------	--------	--------
					Result	----	----	----	----
Total Metals									
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0042	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	23.6	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.104	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.00344	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	0.074	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	3.15	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00374	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	15.4	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	12.4	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.435	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	9.80	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	0.00078	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	<0.00030	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	0.00066	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.000182	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	0.00123	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0280	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 15 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	DISTRICT OF BARRIERE
Contact:	Chris Matthews
Phone:	250-3201505 250-672-9751 , Fax 250-672-9708
	Company address below will appear on the final report
Street:	P.O. Box 219
City/Province:	BARRIERE
Postal Code:	BC
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact	

Report Format / Distribution	
Select Report Format:	☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	inquiry@barriere.ca
Email 2	cmatthews@barriere.ca
Email 3	pamos@barriere.ca

Invoice Distribution	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	inquiry@barriere.ca
Email 2	

Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)		EMERGENCY	
4 day [P4]	☐	1 Business day [E1]	☐
3 day [P3]	☐	Same Day, Weekend or Statutory holiday [E0]	☐
2 day [P2]	☐		

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler: GA/HAM

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
	Bradford Park PW1 - Raw Water Analysis	6 12 23	1100	Grab	6
	CL2 Free:				
	CL2 Total:				
	Please reference WO# L1687242 for required analysis				

Environmental Division
Kamloops
Work Order Reference
KS2304716

Telephone : +1 250 372 3566

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human drinking water use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☑ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
11					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
			lm	DEC 06 2023	15:00			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

drop off

ALS Canada Ltd.

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CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **KS2304714**	Page	: 1 of 10
Client	: **District of Barriere**	Laboratory	: ALS Environmental - Kamloops
Contact	: Chris Matthews	Account Manager	: Amanda Lampreau
Address	: PO Box 219 Barriere BC Canada V0E 1E0	Address	: 1445 McGill Road, Unit 2B Kamloops, British Columbia Canada V2C 6K7
Telephone	: ----	Telephone	: 1 250 372 3588
Project	: District of Barriere Water	Date Samples Received	: 06-Dec-2023 15:05
PO	: ----	Date Analysis Commenced	: 07-Dec-2023
C-O-C number	: 15-	Issue Date	: 18-Dec-2023 14:39
Sampler	: ----		
Site	: ----		
Quote number	: 20DIOB100KS02 Water		
No. of samples received	: 1		
No. of samples analysed	: 1		

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
- Guideline Comparison

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.

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Amanda Lampreau	Laboratory _ Supervisor	Microbiology, Kamloops, British Columbia
Caitlin Macey	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
Spruce Crescent DW2 - Raw Water Analysis	Water	Phosphorus, total		BCDWQG	AO	<0.050	

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.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
% T/cm	% transmittance per centimetre
µS/cm	microsiemens per centimetre
AU/cm	absorbance units per centimetre
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
NTU	nephelometric turbidity units
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.
Lavander shading is applied where the LOR itself is greater than the Guideline Upper Limit (or Lower than the Guideline Lower Limit, if applicable).

Qualifiers

Qualifier	Description
PHA	pH adjusted before analysis.

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	----	----	----	----	----	----
				Spruce Crescent DW2 - Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time: 06-Dec-2023 00:00	----	----	----	----	----	----
				Sub-Matrix: Water	----	----	----	----	----	----
				KS2304714-001	--------	--------	--------	--------	--------	--------
Physical Tests										
Absorbance, UV (@ 254nm), unfiltered	----	E405/VA	AU/cm	0.0140	----	----	----	----	----	----
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	mg/L	156	----	----	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	mg/L	7.2	----	----	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	mg/L	<1.0	----	----	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	mg/L	3.6	----	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	mg/L	164	----	----	----	----	----	----
Colour, true	----	E329/VA	CU	<5.0	----	----	----	----	----	----
Conductivity	----	E100/VA	µS/cm	343	----	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	mg/L	160	----	----	----	----	----	----
Langelier index (@ 15°C)	----	EC105A/VA	-	0.738	----	----	----	----	----	----
Langelier index (@ 20°C)	----	EC105A/VA	-	0.811	----	----	----	----	----	----
Langelier index (@ 25°C)	----	EC105A/VA	-	0.881	----	----	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/VA	-	0.566	----	----	----	----	----	----
Langelier index (@ 60°C)	----	EC105A/VA	-	1.32	----	----	----	----	----	----
Langelier index (@ 77°C)	----	EC105A/VA	-	1.52	----	----	----	----	----	----
pH	----	E108/VA	pH units	8.45	----	----	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	mg/L	206	----	----	----	----	----	----
Turbidity	----	E121/VA	NTU	0.98	----	----	----	----	----	----
Transmittance, UV (@ 254nm), unfiltered	----	E405/VA	% T/cm	96.8	----	----	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	mg/L	0.0074	----	----	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	mg/L	<0.050	----	----	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	mg/L	3.76	----	----	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	mg/L	0.079	----	----	----	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	mg/L	0.052	----	----	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	mg/L	0.403	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: Spruce Crescent DW2 - Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time: 06-Dec-2023 00:00	----	----	----	----	----	----
				Sub-Matrix: Water	----	----	----	----	----	----
				KS2304714-001	--------	--------	--------	--------	--------	--------
Anions and Nutrients										
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	mg/L	<0.0010	----	----	----	----	----	----
Nitrogen, total organic	----	EC363/VA	mg/L	<0.050	----	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	mg/L	15.4	----	----	----	----	----	----
Cyanides										
Cyanide, strong acid dissociable (Total)	----	E333/VA	mg/L	0.0050 PHA	----	----	----	----	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	mg/L	1.25	----	----	----	----	----	----
Microbiological Tests										
Coliforms, total	----	E010/KS	MPN/100 mL	<1	----	----	----	----	----	----
Coliforms, Escherichia coli [E. coli]	----	E010/KS	MPN/10 0mL	<1	----	----	----	----	----	----
Ion Balance										
Anion sum	----	EC101A/VA	meq/L	3.74	----	----	----	----	----	----
Cation sum (total)	----	EC101A/VA	meq/L	3.56	----	----	----	----	----	----
Ion balance (APHA)	----	EC101A/VA	%	-2.46	----	----	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	mg/L	<0.0030	----	----	----	----	----	----
Antimony, total	7440-36-0	E420/VA	mg/L	<0.00010	----	----	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	mg/L	0.00102	----	----	----	----	----	----
Barium, total	7440-39-3	E420/VA	mg/L	0.0170	----	----	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	mg/L	<0.000100	----	----	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	mg/L	<0.000050	----	----	----	----	----	----
Boron, total	7440-42-8	E420/VA	mg/L	<0.010	----	----	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	mg/L	0.0000205	----	----	----	----	----	----
Calcium, total	7440-70-2	E420/VA	mg/L	35.4	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	Spruce Crescent DW2 - Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time	06-Dec-2023 00:00	----	----	----	----	----	----
				Sub-Matrix	Water	----	----	----	----	----	----
				KS2304714-001	--------	--------	--------	--------	--------	--------	--------
Total Metals											
Cesium, total	7440-46-2	E420/VA	mg/L		<0.000010	----	----	----	----	----	----
Chromium, total	7440-47-3	E420/VA	mg/L		0.00088	----	----	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	mg/L		<0.00010	----	----	----	----	----	----
Copper, total	7440-50-8	E420/VA	mg/L		0.00413	----	----	----	----	----	----
Iron, total	7439-89-6	E420/VA	mg/L		0.054	----	----	----	----	----	----
Lead, total	7439-92-1	E420/VA	mg/L		0.000244	----	----	----	----	----	----
Lithium, total	7439-93-2	E420/VA	mg/L		0.0016	----	----	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	mg/L		17.5	----	----	----	----	----	----
Manganese, total	7439-96-5	E420/VA	mg/L		0.00123	----	----	----	----	----	----
Mercury, total	7439-97-6	E508/VA	mg/L		<0.0000050	----	----	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	mg/L		0.00128	----	----	----	----	----	----
Nickel, total	7440-02-0	E420/VA	mg/L		<0.00050	----	----	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	mg/L		<0.050	----	----	----	----	----	----
Potassium, total	7440-09-7	E420/VA	mg/L		1.56	----	----	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	mg/L		0.00048	----	----	----	----	----	----
Selenium, total	7782-49-2	E420/VA	mg/L		0.000323	----	----	----	----	----	----
Silicon, total	7440-21-3	E420/VA	mg/L		7.88	----	----	----	----	----	----
Silver, total	7440-22-4	E420/VA	mg/L		<0.000010	----	----	----	----	----	----
Sodium, total	7440-23-5	E420/VA	mg/L		7.22	----	----	----	----	----	----
Strontium, total	7440-24-6	E420/VA	mg/L		0.225	----	----	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	mg/L		5.64	----	----	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	mg/L		<0.00020	----	----	----	----	----	----
Thallium, total	7440-28-0	E420/VA	mg/L		<0.000010	----	----	----	----	----	----
Thorium, total	7440-29-1	E420/VA	mg/L		<0.00010	----	----	----	----	----	----
Tin, total	7440-31-5	E420/VA	mg/L		<0.00010	----	----	----	----	----	----
Titanium, total	7440-32-6	E420/VA	mg/L		<0.00030	----	----	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	mg/L		<0.00010	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	Spruce Crescent DW2 - Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time	06-Dec-2023 00:00	----	----	----	----	----	----
				Sub-Matrix	Water	----	----	----	----	----	----
				KS2304714-001	--------	--------	--------	--------	--------	--------	--------
Total Metals											
Uranium, total	7440-61-1	E420/VA	mg/L	0.00223	----	----	----	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	mg/L	0.00079	----	----	----	----	----	----	----
Zinc, total	7440-66-6	E420/VA	mg/L	0.0163	----	----	----	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	mg/L	<0.00020	----	----	----	----	----	----	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG
Physical Tests					
Absorbance, UV (@ 254nm), unfiltered	----	AU/cm	--	--	--
Alkalinity, bicarbonate (as CaCO3)	----	mg/L	--	--	--
Alkalinity, carbonate (as CaCO3)	----	mg/L	--	--	--
Alkalinity, hydroxide (as CaCO3)	----	mg/L	--	--	--
Alkalinity, phenolphthalein (as CaCO3)	----	mg/L	--	--	--
Alkalinity, total (as CaCO3)	----	mg/L	--	--	--
Colour, true	----	CU	**15 CU**	--	--
Conductivity	----	µS/cm	--	--	--
Hardness (as CaCO3), from total Ca/Mg	----	mg/L	--	--	--
Langelier index (@ 15°C)	----	-	--	--	--
Langelier index (@ 20°C)	----	-	--	--	--
Langelier index (@ 25°C)	----	-	--	--	--
Langelier index (@ 4°C)	----	-	--	--	--
Langelier index (@ 60°C)	----	-	--	--	--
Langelier index (@ 77°C)	----	-	--	--	--
pH	----	pH units	--	--	**7 - 10.5 pH units**
Solids, total dissolved [TDS]	----	mg/L	**500 mg/L**	--	--
Transmittance, UV (@ 254nm), unfiltered	----	% T/cm	--	--	--
Turbidity	----	NTU	--	**1 NTU**	--
Anions and Nutrients					
Ammonia, total (as N)	7664-41-7	mg/L	--	--	--
Bromide	24959-67-9	mg/L	--	--	--
Chloride	16887-00-6	mg/L	**250 mg/L**	--	--
Fluoride	16984-48-8	mg/L	--	**1.5 mg/L**	--
Kjeldahl nitrogen, total [TKN]	----	mg/L	--	--	--
Nitrate (as N)	14797-55-8	mg/L	--	**10 mg/L**	--
Nitrite (as N)	14797-65-0	mg/L	--	**1 mg/L**	--
Nitrogen, total organic	----	mg/L	--	--	--
Sulfate (as SO4)	14808-79-8	mg/L	**500 mg/L**	--	--
Cyanides					
Cyanide, strong acid dissociable (Total)	----	mg/L	--	--	--
Organic / Inorganic Carbon					
Carbon, total organic [TOC]	----	mg/L	--	--	--
Microbiological Tests					
Coliforms, Escherichia coli [E. coli]	----	MPN/100mL	--	**1 MPN/100mL**	--
Coliforms, total	----	MPN/100mL	--	**1 MPN/100mL**	--

Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG
Ion Balance					
Anion sum	----	meq/L	--	--	--
Cation sum (total)	----	meq/L	--	--	--
Ion balance (APHA)	----	%	--	--	--
Total Metals					
Aluminum, total	7429-90-5	mg/L	--	**2.9 mg/L**	--
Antimony, total	7440-36-0	mg/L	--	**0.006 mg/L**	--
Arsenic, total	7440-38-2	mg/L	--	**0.01 mg/L**	--
Barium, total	7440-39-3	mg/L	--	**2 mg/L**	--
Beryllium, total	7440-41-7	mg/L	--	--	--
Bismuth, total	7440-69-9	mg/L	--	--	--
Boron, total	7440-42-8	mg/L	--	**5 mg/L**	--
Cadmium, total	7440-43-9	mg/L	--	**0.007 mg/L**	--
Calcium, total	7440-70-2	mg/L	--	--	--
Cesium, total	7440-46-2	mg/L	--	--	--
Chromium, total	7440-47-3	mg/L	--	**0.05 mg/L**	--
Cobalt, total	7440-48-4	mg/L	--	**0.001 mg/L**	--
Copper, total	7440-50-8	mg/L	**1 mg/L**	**2 mg/L**	--
Iron, total	7439-89-6	mg/L	**0.3 mg/L**	--	--
Lead, total	7439-92-1	mg/L	--	**0.005 mg/L**	--
Lithium, total	7439-93-2	mg/L	--	--	--
Magnesium, total	7439-95-4	mg/L	--	--	--
Manganese, total	7439-96-5	mg/L	**0.02 mg/L**	**0.12 mg/L**	--
Mercury, total	7439-97-6	mg/L	--	**0.001 mg/L**	--
Molybdenum, total	7439-98-7	mg/L	--	--	--
Nickel, total	7440-02-0	mg/L	--	--	--
Phosphorus, total	7723-14-0	mg/L	**0.01 mg/L**	--	--
Potassium, total	7440-09-7	mg/L	--	--	--
Rubidium, total	7440-17-7	mg/L	--	--	--
Selenium, total	7782-49-2	mg/L	--	**0.05 mg/L**	--
Silicon, total	7440-21-3	mg/L	--	--	--
Silver, total	7440-22-4	mg/L	--	--	--
Sodium, total	7440-23-5	mg/L	**200 mg/L**	--	--
Strontium, total	7440-24-6	mg/L	--	**7 mg/L**	--
Sulfur, total	7704-34-9	mg/L	--	--	--
Tellurium, total	13494-80-9	mg/L	--	--	--
Thallium, total	7440-28-0	mg/L	--	--	--
Thorium, total	7440-29-1	mg/L	--	--	--
Tin, total	7440-31-5	mg/L	--	--	--
Titanium, total	7440-32-6	mg/L	--	--	--

Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG				
Total Metals - Continued									
Tungsten, total	7440-33-7	mg/L	--	--	--				
Uranium, total	7440-61-1	mg/L	--	**0.02 mg/L**	--				
Vanadium, total	7440-62-2	mg/L	--	--	--				
Zinc, total	7440-66-6	mg/L	**5 mg/L**	--	--				
Zirconium, total	7440-67-7	mg/L	--	--	--				

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

Key:

BCDWQG	British Columbia Drinking Water Quality Guidelines (JAN, 2023)
AO	Aesthetic Objective/Other Value
MAC	Maximium Acceptable Concentrations
OG	Operational Guidance

CERTIFICATE OF ANALYSIS

Work Order	: **KS2304714**	Page	: 1 of 6
Client	: **District of Barriere**	Laboratory	: ALS Environmental - Kamloops
Contact	: Chris Matthews	Account Manager	: Amanda Lampreau
Address	: PO Box 219 Barriere BC Canada V0E 1E0	Address	: 1445 McGill Road, Unit 2B Kamloops BC Canada V2C 6K7
Telephone	: ----	Telephone	: 1 250 372 3588
Project	: District of Barriere Water	Date Samples Received	: 06-Dec-2023 15:05
PO	: ----	Date Analysis Commenced	: 07-Dec-2023
C-O-C number	: 15-	Issue Date	: 18-Dec-2023 14:40
Sampler	: ----		
Site	: ----		
Quote number	: 20DIOB100KS02 Water		
No. of samples received	: 1		
No. of samples analysed	: 1		

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.

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Amanda Lampreau	Laboratory _ Supervisor	Microbiology, Kamloops, British Columbia
Caitlin Macey	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia

General Comments

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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).

Unit	*Description*
-	no units
%	percent
% T/cm	% transmittance per centimetre
µS/cm	microsiemens per centimetre
AU/cm	absorbance units per centimetre
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
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

Qualifier	*Description*
PHA	*pH adjusted before analysis.*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Spruce Crescent DW2 - Raw Water Analysis	----	----	----	----
					Client sampling date / time: 06-Dec-2023 00:00	----	----	----	----
					KS2304714-001	--------	--------	--------	--------
					Result	----	----	----	----
Physical Tests									
Absorbance, UV (@ 254nm), unfiltered	----	E405/VA	0.0050	AU/cm	0.0140	----	----	----	----
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	156	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L	7.2	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	3.6	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	164	----	----	----	----
Colour, true	----	E329/VA	5.0	CU	<5.0	----	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm	343	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	160	----	----	----	----
Langelier index (@ 15°C)	----	EC105A/VA	0.010	-	0.738	----	----	----	----
Langelier index (@ 20°C)	----	EC105A/VA	0.010	-	0.811	----	----	----	----
Langelier index (@ 25°C)	----	EC105A/VA	0.010	-	0.881	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/VA	0.010	-	0.566	----	----	----	----
Langelier index (@ 60°C)	----	EC105A/VA	0.010	-	1.32	----	----	----	----
Langelier index (@ 77°C)	----	EC105A/VA	0.010	-	1.52	----	----	----	----
pH	----	E108/VA	0.10	pH units	8.45	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	206	----	----	----	----
Turbidity	----	E121/VA	0.10	NTU	0.98	----	----	----	----
Transmittance, UV (@ 254nm), unfiltered	----	E405/VA	1.0	% T/cm	96.8	----	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0074	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	3.76	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.079	----	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L	0.052	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.403	----	----	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Spruce Crescent DW2 - Raw Water Analysis	----	----	----	----
					Client sampling date / time: 06-Dec-2023 00:00	----	----	----	----
					KS2304714-001	--------	--------	--------	--------
					Result	----	----	----	----
Anions and Nutrients									
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	<0.0010	----	----	----	----
Nitrogen, total organic	----	EC363/VA	0.050	mg/L	<0.050	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	15.4	----	----	----	----
Cyanides									
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L	0.0050 PHA	----	----	----	----
Organic / Inorganic Carbon									
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	1.25	----	----	----	----
Microbiological Tests									
Coliforms, total	----	E010/KS	1	MPN/100mL	<1	----	----	----	----
Coliforms, Escherichia coli [E. coli]	----	E010/KS	1	MPN/100mL	<1	----	----	----	----
Ion Balance									
Anion sum	----	EC101A/VA	0.10	meq/L	3.74	----	----	----	----
Cation sum (total)	----	EC101A/VA	0.10	meq/L	3.56	----	----	----	----
Ion balance (APHA)	----	EC101A/VA	0.010	%	-2.46	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	<0.0030	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00102	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0170	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000205	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	35.4	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	0.00088	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Spruce Crescent DW2 - Raw Water Analysis	----	----	----	----
Client sampling date / time					06-Dec-2023 00:00	----	----	----	----
					KS2304714-001	--------	--------	--------	--------
					Result	----	----	----	----
Total Metals									
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00413	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.054	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000244	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0016	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	17.5	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.00123	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.00128	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	1.56	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00048	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	0.000323	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	7.88	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	7.22	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.225	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	5.64	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	<0.00030	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.00223	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	0.00079	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0163	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 15 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	DISTRICT OF BARRIERE
Contact:	Chris Matthews
Phone:	250-320-1505 250-672-9751 Fax 250-672-9708
	Company address below will appear on the final report
Street:	P.O. Box 219
City/Province:	BARRIERE
Postal Code:	BC
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	inquiry@barriere.ca
Email 2	cmatthews@barriere.ca
Email 3	pamos@barriere.ca

Invoice Distribution	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	inquiry@barriere.ca
Email 2	

Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)		EMERGENCY	
	4 day [P4] ☐		1 Business day [E1] ☐
	3 day [P3] ☐		Same Day, Weekend or Statutory holiday [E0] ☐
	2 day [P2] ☐		

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)	ALS Contact:	Sampler: GRAHAM

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

Environmental Division
Kamloops
Work Order Reference
KS2304714

Telephone : +1 250 372 3588

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
	Spruce Crescent DW2 - Raw Water Analysis	6 12 23	1130	Grab	6
	CL2 Free:				
	CL2 Total:				
	Please reference WO# L1687242 for required analysis				

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human drinking water use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
10	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
				6 Dec 2023	3:00pm			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **KS2304717**	Page	: 1 of 10
Client	: **District of Barriere**	Laboratory	: ALS Environmental - Kamloops
Contact	: Chris Matthews	Account Manager	: Amanda Lampreau
Address	: PO Box 219 Barriere BC Canada V0E 1E0	Address	: 1445 McGill Road, Unit 2B Kamloops, British Columbia Canada V2C 6K7
Telephone	: ----	Telephone	: 1 250 372 3588
Project	: District of Barriere Water	Date Samples Received	: 06-Dec-2023 15:00
PO	: ----	Date Analysis Commenced	: 07-Dec-2023
C-O-C number	: 15-	Issue Date	: 19-Dec-2023 16:15
Sampler	: ----		
Site	: ----		
Quote number	: 20DIOB100KS02 Water		
No. of samples received	: 1		
No. of samples analysed	: 1		

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
- Guideline Comparison

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.

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Amanda Lampreau	Laboratory _ Supervisor	Microbiology, Kamloops, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
Spruce Crescent DW#3 Raw Water Analysis	Water	Manganese, total		BCDWQG	AO	0.0226 mg/L	0.02 mg/L
	Water	Phosphorus, total		BCDWQG	AO	<0.050	

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.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
% T/cm	% transmittance per centimetre
µS/cm	microsiemens per centimetre
AU/cm	absorbance units per centimetre
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
NTU	nephelometric turbidity units
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.
Lavander shading is applied where the LOR itself is greater than the Guideline Upper Limit (or Lower than the Guideline Lower Limit, if applicable).

Qualifiers

Qualifier	Description
PHA	pH adjusted before analysis.

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	----	----	----	----	----	----
				Spruce Crescent DW#3 Raw Water Analysis						
				Sampling date/time	06-Dec-2023 11:55	----	----	----	----	----	----
				Sub-Matrix	Water	----	----	----	----	----	----
				KS2304717-001	---	---	---	---	---	---	---
Physical Tests											
Absorbance, UV (@ 254nm), unfiltered	----	E405/VA	AU/cm	0.0120	----	----	----	----	----	----
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	mg/L	168	----	----	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	mg/L	9.1	----	----	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	mg/L	<1.0	----	----	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	mg/L	4.5	----	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	mg/L	178	----	----	----	----	----	----
Colour, true	----	E329/VA	CU	<5.0	----	----	----	----	----	----
Conductivity	----	E100/VA	µS/cm	372	----	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	mg/L	179	----	----	----	----	----	----
Langelier index (@ 15°C)	----	EC105A/VA	-	0.800	----	----	----	----	----	----
Langelier index (@ 20°C)	----	EC105A/VA	-	0.873	----	----	----	----	----	----
Langelier index (@ 25°C)	----	EC105A/VA	-	0.944	----	----	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/VA	-	0.626	----	----	----	----	----	----
Langelier index (@ 60°C)	----	EC105A/VA	-	1.38	----	----	----	----	----	----
Langelier index (@ 77°C)	----	EC105A/VA	-	1.58	----	----	----	----	----	----
pH	----	E108/VA	pH units	8.42	----	----	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	mg/L	202	----	----	----	----	----	----
Turbidity	----	E121/VA	NTU	0.48	----	----	----	----	----	----
Transmittance, UV (@ 254nm), unfiltered	----	E405/VA	% T/cm	97.3	----	----	----	----	----	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/VA	mg/L	0.0165	----	----	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	mg/L	<0.050	----	----	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	mg/L	2.80	----	----	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	mg/L	0.090	----	----	----	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	mg/L	0.070	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: Spruce Crescent DW#3 Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time: 06-Dec-2023 11:55	----	----	----	----	----	----
				Sub-Matrix: Water	----	----	----	----	----	----
				KS2304717-001	--------	--------	--------	--------	--------	--------
Anions and Nutrients										
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	mg/L	0.313	----	----	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	mg/L	<0.0010	----	----	----	----	----	----
Nitrogen, total organic	----	EC363/VA	mg/L	0.054	----	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	mg/L	20.8	----	----	----	----	----	----
Cyanides										
Cyanide, strong acid dissociable (Total)	----	E333/VA	mg/L	<0.0050 PHA	----	----	----	----	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	mg/L	0.82	----	----	----	----	----	----
Microbiological Tests										
Coliforms, total	----	E010/KS	MPN/100 mL	<1	----	----	----	----	----	----
Coliforms, Escherichia coli [E. coli]	----	E010/KS	MPN/10 0mL	<1	----	----	----	----	----	----
Ion Balance										
Anion sum	----	EC101A/VA	meq/L	4.10	----	----	----	----	----	----
Cation sum (total)	----	EC101A/VA	meq/L	3.94	----	----	----	----	----	----
Ion balance (APHA)	----	EC101A/VA	%	-1.99	----	----	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	mg/L	0.0374	----	----	----	----	----	----
Antimony, total	7440-36-0	E420/VA	mg/L	<0.00010	----	----	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	mg/L	0.00149	----	----	----	----	----	----
Barium, total	7440-39-3	E420/VA	mg/L	0.0225	----	----	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	mg/L	<0.000100	----	----	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	mg/L	<0.000050	----	----	----	----	----	----
Boron, total	7440-42-8	E420/VA	mg/L	<0.010	----	----	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	mg/L	0.0000175	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	Spruce Crescent DW#3 Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time	06-Dec-2023 11:55	----	----	----	----	----	----
				Sub-Matrix	Water	----	----	----	----	----	----
				KS2304717-001	--------	--------	--------	--------	--------	--------	--------
Total Metals											
Calcium, total	7440-70-2	E420/VA	mg/L		40.1	----	----	----	----	----	----
Cesium, total	7440-46-2	E420/VA	mg/L		<0.000010	----	----	----	----	----	----
Chromium, total	7440-47-3	E420/VA	mg/L		0.00074	----	----	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	mg/L		<0.00010	----	----	----	----	----	----
Copper, total	7440-50-8	E420/VA	mg/L		0.00336	----	----	----	----	----	----
Iron, total	7439-89-6	E420/VA	mg/L		0.077	----	----	----	----	----	----
Lead, total	7439-92-1	E420/VA	mg/L		0.000221	----	----	----	----	----	----
Lithium, total	7439-93-2	E420/VA	mg/L		0.0020	----	----	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	mg/L		19.1	----	----	----	----	----	----
Manganese, total	7439-96-5	E420/VA	mg/L		0.0226	----	----	----	----	----	----
Mercury, total	7439-97-6	E508/VA	mg/L		<0.0000050	----	----	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	mg/L		0.00152	----	----	----	----	----	----
Nickel, total	7440-02-0	E420/VA	mg/L		<0.00050	----	----	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	mg/L		<0.050	----	----	----	----	----	----
Potassium, total	7440-09-7	E420/VA	mg/L		1.87	----	----	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	mg/L		0.00087	----	----	----	----	----	----
Selenium, total	7782-49-2	E420/VA	mg/L		0.000299	----	----	----	----	----	----
Silicon, total	7440-21-3	E420/VA	mg/L		8.29	----	----	----	----	----	----
Silver, total	7440-22-4	E420/VA	mg/L		<0.000010	----	----	----	----	----	----
Sodium, total	7440-23-5	E420/VA	mg/L		7.20	----	----	----	----	----	----
Strontium, total	7440-24-6	E420/VA	mg/L		0.273	----	----	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	mg/L		7.40	----	----	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	mg/L		<0.00020	----	----	----	----	----	----
Thallium, total	7440-28-0	E420/VA	mg/L		<0.000010	----	----	----	----	----	----
Thorium, total	7440-29-1	E420/VA	mg/L		<0.00010	----	----	----	----	----	----
Tin, total	7440-31-5	E420/VA	mg/L		<0.00010	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: Spruce Crescent DW#3 Raw Water Analysis	----	----	----	----	----	----
				Sampling date/time: 06-Dec-2023 11:55	----	----	----	----	----	----
				Sub-Matrix: Water	----	----	----	----	----	----
				KS2304717-001	--------	--------	--------	--------	--------	--------
Total Metals										
Titanium, total	7440-32-6	E420/VA	mg/L	0.00302	----	----	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	mg/L	<0.00010	----	----	----	----	----	----
Uranium, total	7440-61-1	E420/VA	mg/L	0.00197	----	----	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	mg/L	0.00092	----	----	----	----	----	----
Zinc, total	7440-66-6	E420/VA	mg/L	0.0114	----	----	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	mg/L	<0.00020	----	----	----	----	----	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG
Physical Tests					
Absorbance, UV (@ 254nm), unfiltered	----	AU/cm	--	--	--
Alkalinity, bicarbonate (as CaCO3)	----	mg/L	--	--	--
Alkalinity, carbonate (as CaCO3)	----	mg/L	--	--	--
Alkalinity, hydroxide (as CaCO3)	----	mg/L	--	--	--
Alkalinity, phenolphthalein (as CaCO3)	----	mg/L	--	--	--
Alkalinity, total (as CaCO3)	----	mg/L	--	--	--
Colour, true	----	CU	**15 CU**	--	--
Conductivity	----	µS/cm	--	--	--
Hardness (as CaCO3), from total Ca/Mg	----	mg/L	--	--	--
Langelier index (@ 15°C)	----	-	--	--	--
Langelier index (@ 20°C)	----	-	--	--	--
Langelier index (@ 25°C)	----	-	--	--	--
Langelier index (@ 4°C)	----	-	--	--	--
Langelier index (@ 60°C)	----	-	--	--	--
Langelier index (@ 77°C)	----	-	--	--	--
pH	----	pH units	--	--	**7 - 10.5 pH units**
Solids, total dissolved [TDS]	----	mg/L	**500 mg/L**	--	--
Transmittance, UV (@ 254nm), unfiltered	----	% T/cm	--	--	--
Turbidity	----	NTU	--	**1 NTU**	--
Anions and Nutrients					
Ammonia, total (as N)	7664-41-7	mg/L	--	--	--
Bromide	24959-67-9	mg/L	--	--	--
Chloride	16887-00-6	mg/L	**250 mg/L**	--	--
Fluoride	16984-48-8	mg/L	--	**1.5 mg/L**	--
Kjeldahl nitrogen, total [TKN]	----	mg/L	--	--	--
Nitrate (as N)	14797-55-8	mg/L	--	**10 mg/L**	--
Nitrite (as N)	14797-65-0	mg/L	--	**1 mg/L**	--
Nitrogen, total organic	----	mg/L	--	--	--
Sulfate (as SO4)	14808-79-8	mg/L	**500 mg/L**	--	--
Cyanides					
Cyanide, strong acid dissociable (Total)	----	mg/L	--	--	--
Organic / Inorganic Carbon					
Carbon, total organic [TOC]	----	mg/L	--	--	--
Microbiological Tests					
Coliforms, Escherichia coli [E. coli]	----	MPN/100mL	--	**1 MPN/100mL**	--
Coliforms, total	----	MPN/100mL	--	**1 MPN/100mL**	--

Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG
Ion Balance					
Anion sum	----	meq/L	--	--	--
Cation sum (total)	----	meq/L	--	--	--
Ion balance (APHA)	----	%	--	--	--
Total Metals					
Aluminum, total	7429-90-5	mg/L	--	**2.9 mg/L**	--
Antimony, total	7440-36-0	mg/L	--	**0.006 mg/L**	--
Arsenic, total	7440-38-2	mg/L	--	**0.01 mg/L**	--
Barium, total	7440-39-3	mg/L	--	**2 mg/L**	--
Beryllium, total	7440-41-7	mg/L	--	--	--
Bismuth, total	7440-69-9	mg/L	--	--	--
Boron, total	7440-42-8	mg/L	--	**5 mg/L**	--
Cadmium, total	7440-43-9	mg/L	--	**0.007 mg/L**	--
Calcium, total	7440-70-2	mg/L	--	--	--
Cesium, total	7440-46-2	mg/L	--	--	--
Chromium, total	7440-47-3	mg/L	--	**0.05 mg/L**	--
Cobalt, total	7440-48-4	mg/L	--	**0.001 mg/L**	--
Copper, total	7440-50-8	mg/L	**1 mg/L**	**2 mg/L**	--
Iron, total	7439-89-6	mg/L	**0.3 mg/L**	--	--
Lead, total	7439-92-1	mg/L	--	**0.005 mg/L**	--
Lithium, total	7439-93-2	mg/L	--	--	--
Magnesium, total	7439-95-4	mg/L	--	--	--
Manganese, total	7439-96-5	mg/L	**0.02 mg/L**	**0.12 mg/L**	--
Mercury, total	7439-97-6	mg/L	--	**0.001 mg/L**	--
Molybdenum, total	7439-98-7	mg/L	--	--	--
Nickel, total	7440-02-0	mg/L	--	--	--
Phosphorus, total	7723-14-0	mg/L	**0.01 mg/L**	--	--
Potassium, total	7440-09-7	mg/L	--	--	--
Rubidium, total	7440-17-7	mg/L	--	--	--
Selenium, total	7782-49-2	mg/L	--	**0.05 mg/L**	--
Silicon, total	7440-21-3	mg/L	--	--	--
Silver, total	7440-22-4	mg/L	--	--	--
Sodium, total	7440-23-5	mg/L	**200 mg/L**	--	--
Strontium, total	7440-24-6	mg/L	--	**7 mg/L**	--
Sulfur, total	7704-34-9	mg/L	--	--	--
Tellurium, total	13494-80-9	mg/L	--	--	--
Thallium, total	7440-28-0	mg/L	--	--	--
Thorium, total	7440-29-1	mg/L	--	--	--
Tin, total	7440-31-5	mg/L	--	--	--
Titanium, total	7440-32-6	mg/L	--	--	--

Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG				
Total Metals - Continued									
Tungsten, total	7440-33-7	mg/L	--	--	--				
Uranium, total	7440-61-1	mg/L	--	**0.02 mg/L**	--				
Vanadium, total	7440-62-2	mg/L	--	--	--				
Zinc, total	7440-66-6	mg/L	**5 mg/L**	--	--				
Zirconium, total	7440-67-7	mg/L	--	--	--				

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

Key:

BCDWQG	British Columbia Drinking Water Quality Guidelines (JAN, 2023)
AO	Aesthetic Objective/Other Value
MAC	Maximium Acceptable Concentrations
OG	Operational Guidance

CERTIFICATE OF ANALYSIS

Work Order	: **KS2304717**	Page	: 1 of 6
Client	: **District of Barriere**	Laboratory	: ALS Environmental - Kamloops
Contact	: Chris Matthews	Account Manager	: Amanda Lampreau
Address	: PO Box 219 Barriere BC Canada V0E 1E0	Address	: 1445 McGill Road, Unit 2B Kamloops BC Canada V2C 6K7
Telephone	: ----	Telephone	: 1 250 372 3588
Project	: District of Barriere Water	Date Samples Received	: 06-Dec-2023 15:00
PO	: ----	Date Analysis Commenced	: 07-Dec-2023
C-O-C number	: 15-	Issue Date	: 19-Dec-2023 16:15
Sampler	: ----		
Site	: ----		
Quote number	: 20DIOB100KS02 Water		
No. of samples received	: 1		
No. of samples analysed	: 1		

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.

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Amanda Lampreau	Laboratory _ Supervisor	Microbiology, Kamloops, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	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).

Unit	*Description*
-	no units
%	percent
% T/cm	% transmittance per centimetre
µS/cm	microsiemens per centimetre
AU/cm	absorbance units per centimetre
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
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

Qualifier	*Description*
PHA	*pH adjusted before analysis.*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Spruce Crescent DW#3 Raw Water Analysis	----	----	----	----
					Client sampling date / time: 06-Dec-2023 11:55	----	----	----	----
					KS2304717-001	--------	--------	--------	--------
					Result	----	----	----	----
Physical Tests									
Absorbance, UV (@ 254nm), unfiltered	----	E405/VA	0.0050	AU/cm	0.0120	----	----	----	----
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	168	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L	9.1	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	4.5	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	178	----	----	----	----
Colour, true	----	E329/VA	5.0	CU	<5.0	----	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm	372	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	179	----	----	----	----
Langelier index (@ 15°C)	----	EC105A/VA	0.010	-	0.800	----	----	----	----
Langelier index (@ 20°C)	----	EC105A/VA	0.010	-	0.873	----	----	----	----
Langelier index (@ 25°C)	----	EC105A/VA	0.010	-	0.944	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/VA	0.010	-	0.626	----	----	----	----
Langelier index (@ 60°C)	----	EC105A/VA	0.010	-	1.38	----	----	----	----
Langelier index (@ 77°C)	----	EC105A/VA	0.010	-	1.58	----	----	----	----
pH	----	E108/VA	0.10	pH units	8.42	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	202	----	----	----	----
Turbidity	----	E121/VA	0.10	NTU	0.48	----	----	----	----
Transmittance, UV (@ 254nm), unfiltered	----	E405/VA	1.0	% T/cm	97.3	----	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0165	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	2.80	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.090	----	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L	0.070	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.313	----	----	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Spruce Crescent DW#3 Raw Water Analysis	----	----	----	----
					Client sampling date / time: 06-Dec-2023 11:55	----	----	----	----
					KS2304717-001	--------	--------	--------	--------
					Result	----	----	----	----
Anions and Nutrients									
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	<0.0010	----	----	----	----
Nitrogen, total organic	----	EC363/VA	0.050	mg/L	0.054	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	20.8	----	----	----	----
Cyanides									
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L	<0.0050 PHA	----	----	----	----
Organic / Inorganic Carbon									
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	0.82	----	----	----	----
Microbiological Tests									
Coliforms, total	----	E010/KS	1	MPN/100mL	<1	----	----	----	----
Coliforms, Escherichia coli [E. coli]	----	E010/KS	1	MPN/100mL	<1	----	----	----	----
Ion Balance									
Anion sum	----	EC101A/VA	0.10	meq/L	4.10	----	----	----	----
Cation sum (total)	----	EC101A/VA	0.10	meq/L	3.94	----	----	----	----
Ion balance (APHA)	----	EC101A/VA	0.010	%	-1.99	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0374	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00149	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0225	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000175	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	40.1	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	0.00074	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Spruce Crescent DW#3 Raw Water Analysis	----	----	----	----
Client sampling date / time					06-Dec-2023 11:55	----	----	----	----
					KS2304717-001	--------	--------	--------	--------
					Result	----	----	----	----
Total Metals									
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00336	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.077	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000221	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0020	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	19.1	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.0226	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.00152	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	1.87	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00087	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	0.000299	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	8.29	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	7.20	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.273	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	7.40	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	0.00302	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.00197	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	0.00092	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0114	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number: 15 -

Affix ALS barcode label here (lab use only)

Page of

Report To	Contact and company name below will appear on the final report
Company:	DISTRICT OF BARRIERE
Contact:	Chris Matthews
Phone:	250-320-1505 250-672-9751 Fax 250-672-9708
	Company address below will appear on the final report
Street:	P.O. Box 219
City/Province:	BARRIERE
Postal Code:	BC
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	inquiry@barriere.ca
Email 2	cmatthews@barriere.ca
Email 3	pamos@barriere.ca

Invoice Distribution	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	inquiry@barriere.ca
Email 2	

Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)		EMERGENCY	
4 day [P4]	☐	1 Business day [E1]	☐
3 day [P3]	☐	Same Day, Weekend or Statutory holiday [E0]	☐
2 day [P2]	☐		

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information	Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	AFE/Cost Center:	PO#
Job #:	Major/Minor Code:	Routing Code:
PO / AFE:	Requisitioner:	
LSD:	Location:	
ALS Lab Work Order # (lab use only)	ALS Contact:	Sampler: GA MM

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
	Spruce Crescent DW#3 - Raw Water Analysis	6 12 23	1155	Grab	6
	CL2 Free:				
	CL2 Total:				
	Please reference WO# L1687242 for required analysis				

Environmental Division
Kamloops
Work Order Reference
KS2304717

Telephone : +1 250 372 3588

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human drinking water use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☑ 4 Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
9					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
				6 DEC 2023	3:00pm			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.